EFFECTIVITY
MODEL: 707-100/200/ 300/400
SERVICE BULLETIN REFERENCE: 3157 3160
SSI DOCUMENT REFERENCE: (D6-44860)
SSD: 57-A15-11 57-A25-11 57-A35-11 57-A45-11

PART 6 - EDDY CURRENT

WINGS

1. Purpose

   A. To detect cracks in the upper splice plate at Wing Station 360 extending between fastener holes in the center four rows of holes or along the skin joint.

2. Equipment

   A. At the present time, only the instruments and probes listed are recommended for this inspection. As additional equipment becomes available it will be evaluated by Boeing and, if acceptable, added to the list.

      (1) Eddy-Current Instrument and Probe

         (a) Alcoprobe Model MK III (supplied with 14-mm diameter low-frequency probe).

         Inspection Instruments (NDT) Limited
         32 Duncan Terrace
         London, England N1 8BR

         Balteau-Sonatest Corporation
         63 Jefferson Street
         Stamford, Connecticut 06902

      (2) Nortect NDT-3 or NDT-8 with 500 Hz frequency module and probe (SPO-565)

         Nortec Corporation
         421 N. Quay
         Kennewick, Washington 99336

Structure at Joint - WS 360
Figure 1 (Sheet 1)

(c) Zetec MIZ-8 or MIZ-10 (supplied with low-frequency probe 550-5000)

Zetec, Inc.
1320 N. W. Mall
Issaquah, Washington 98027

(2) Reference standard

(a) Fabricate reference standard as shown in detail I and table I.

3. Preparation for Inspection

A. Wipe wing surface clean.

B. Paint removal not required.

4. Instrument Calibration

A. Alcoprobe MK III

(1) Instrument setup for inspection between fasteners. See detail II.

(a) Set frequency at 500 Hz.

(b) Set up instrument per manufacturer's instructions using appropriate area of the reference standard with skin thickness per detail I and table I.

(c) Calibrate instrument so that the minimum meter deflection shown in table I is obtained between a good area and a cracked area, with instrument set for a minimum of 0.003-inch lift-off.

(d) Instrument should be adjusted so that cracks are indicated by an upscale deflection.

(2) Instrument setup for inspection along skin joint. See detail II.

(a) Set frequency at 2 kHz.

(b) Repeat (1)(b) and (1)(c), except center probe on skin joint of reference standard instead of between fasteners.

(c) Instrument shall be adjusted so that when probe is moved off the center of the joint, a downscale meter deflection will occur. Cracks are indicated by an upscale deflection.

B. NDT-3 or NDT-8

(1) Install 500-Hz frequency module and probe per manufacturer's instructions. (Changing frequency modules requires an internal voltage adjustment.)

(2) Instrument setup for inspection between fasteners. See detail II.

(a) Select reference standard per detail I and table I.

(b) Center probe on a crack free area between fasteners on reference standard as shown in detail II. Null instrument at highest sensitivity using X and R controls.

(c) Increase the X control by 20 units.

(d) Adjust instrument for 0.003-inch lift-off by adjusting the R control so that the same meter response is obtained when the probe is on the bare standard as with the probe lifted off the part by 0.003 inch (approximately the thickness of a sheet of paper).

NOTE: Adjustments should be made in very small increments with the needle held on scale at all times during lift-off adjustments. Additional lift-off shall produce an upscale meter movement.

(e) Place probe on crack free location of reference standard as in (2)(b) and position instrument meter at 80% of full scale by adjusting the balance and sensitivity controls as necessary.

(f) Position probe on cracked area of reference standard as shown in detail II and note meter reading.

(g) If meter reading difference between a good area and the cracked area is less than the minimum meter deflection shown in table I, increase sensitivity using the sensitivity control. If minimum meter deflection cannot be obtained by increasing sensitivity, increase or decrease the X control setting and repeat (2)(d), (2)(e) and (2)(f) until the minimum meter deflection shown in table I between a good area and a cracked area is obtained.

(h) With the above instrument setup, cracks are indicated by a downscale meter deflection.

Structure at Joint - WS 360
Figure 1 (Sheet 3)

(3) Instrument setup for inspection along skin joint. See detail II.

(a) Repeat (2)(a) thru (2)(g), except center probe on skin joint of reference standard instead of between fasteners.

(b) Instrument shall be adjusted so that when probe is moved off the center of the joint, an upscale meter deflection will occur. Cracks are indicated by a downscale meter deflection.

C. MIZ-8 or MIZ-10

(1) Instrument setup for inspection between fasteners. See detail II.

(a) Set frequency at 500 Hz.

(b) Set up instrument per manufacturer's instructions using appropriate reference standard per detail I and table I.

(c) Calibrate instrument so that the minimum meter deflection shown in table I is obtained between a good area and a cracked area, with instrument set for a minimum of 0.003-inch lift-off.

(d) Instrument shall be adjusted so that cracks are indicated by a downscale deflection.

(2) Instrument setup for inspection along skin joint. See detail II.

(a) Set frequency at 500 Hz.

(b) Repeat (1)(b) and (1)(c), except center probe on skin joint of reference standard instead of between fasteners.

(c) Instrument shall be adjusted so that when probe is moved off the center of the joint, an upscale meter deflection will occur. Cracks are indicated by a downscale deflection.

5. Inspection Procedures

A. Inspection Along Skin Joint (Instrument Calibrated per 4.A.(2), 4.B.(3) or 4.C.(2)

(1) Start inspection at end of splice plate near stringer 1 (the thickness of the standard will correspond to skin thickness in this area).

(2) Select a section of splice plate near structure where fastener spacing and edge margin is similar to reference standard.

(3) Center probe on skin joint at this location, as shown in detail 2.

NOTE: Before accomplishing inspection, minor adjustments to the balance control will be required since the reference standard does not exactly duplicate the airplane structure. The minor adjustments must be made with the probe on a crack-free area of the structure. If a meter difference is noted in the meter reading on the airplane structure, compared to the crack-free reading obtained during calibration, the probe should be positioned in another location. A double check can also be made by positioning the probe over the end of the splice plate. Check drawings for locating ends of splice plates. This will result in a typical full meter deflection, as in a crack indication. Comparing this indication with meter readings taken at other locations will aid in selecting a crack-free area for the final minor adjustments to the instrument before inspection.

(4) Inspect full length of splice plate joint, starting with the aft end. Full scale deflections should be received at beginning and end of splice plates (between rear spar and str. 1; str. 16 and str. 17; and str. 23 and front spar). Mark these three locations for reference.

NOTE: (a) As skin thickness decreases upscale response will occur (except Alcoprobe, which will be downscale). Minor balance adjustments may be required.

(b) If fasteners are too close to joint or not centered with joint, center probe between fasteners when necessary.

(c) A nonmetallic straight edge must be used to guide probe parallel to the joint.

(5) Significant meter deflections per table 1 should be considered as crack indications.

NOTE: The following conditions may cause meter reading changes similar to crack indications.

(a) A decrease in fastener spacing. Compare fastener spacing on airplane with spacing in reference standard.

(b) Metal chips in sealant at skin joint. If indication is observed, remove sealant and reinspect.

(c) End of splice plates. Check drawings for splice plate locations.

Structure at Joint - WS 360
Figure 1 (Sheet 6)

B. Inspection Between Fasteners (Instrument Calibrated per 4.A.(1), 4.B.(2) or 4.C.(1).

(1) Center probe between fasteners as shown in detail II and adjust the instrument to read approximately 70 percent of full scale (except the Alcoprobe which should be set at 0 to 10 percent).

(2) Inspect for cracks in the splice plate between the fasteners in the center four rows of fasteners at the WS 360 joint. Start inspection between stringer 1 and 2. It is suggested that one side of the joint be inspected before inspecting the opposite side to avoid the possibility of conductivity differences between individual skins interfering with the inspection.

(3) Inspect adjacent to the three fasteners common to wing skin and front spar at WS 360.

(a) On Models 707-100/-200, inspect adjacent to fasteners 944, 945, and 946 (Detail III).

(b) On Models 707-300/-400/-300B/-300C, inspect adjacent to fasteners 957, 958, and 959 (Detail IV).

(c) Place probe adjacent to forward and aft sides of fasteners except as noted below:

NOTE: Do not inspect the aft side of fastener 944 (Detail III) or the aft side of fastener 957 (Detail IV) because of interference from a second-layer close edge margin.

(4) With similar fastener spacing all the readings taken through one wing skin should be essentially equal (within ± 10%).

(5) Significant meter deflections, per table 1, should be considered as crack indications.

NOTE: The following conditions may cause meter reading changes similar to crack indications.

(a) A decrease in fastener spacing. Compare instrument response to fastener spacing on the airplane to fastener spacing on the reference standard, detail I. Do not inspect where fastener head spacing is less than the probe diameter.

(b) End of splice plate. Check drawings for splice plate locations.

Structure at Joint - WS 360
Figure 1 (Sheet 6)

(c) Ferrous chips trapped in sealant or paint. Remove paint or sealant in suspect area.

(d) Low base metal conductivity of the wing skin. Compare base metal readings with reference standard and/or adjacent skins.

C. Offset inspection between fasteners (Instrument Calibrated per 4.A.(1), 4.B.(2) or 4.C.(1).

(1) Place probe on the skin adjacent to the fastener line on the side away from the skin gap and adjust the instrument to read approximately 70 percent of full scale (except the Alcoprobe which should be set at 0 to 10 percent).

(2) Slide the probe between the fasteners toward the skin gap that the inspection scan stops at the position shown in Detail II, Section C-C. The proximity of the probe to the skin gap will produce a characteristic meter deflection. A non metallic straight edge should be placed at the skin gap to insure that the probe stops in the same position with each scan.

(3) If fastener spacing is too close to permit sliding the probe between them, the probe should be placed at the position shown in Detail II, Section C-C. This reading should be compared with similar locations on the skin.

(4) Meter deflections that exceed the characteristic meter deflection (caused by skin gap) by the amount shown in Table I should be considered as crack indications.

NOTE: The following conditions may cause meter reading changes similar to crack indications.

(a) A decrease in fastener spacing. Compare instrument response to fastener spacing on the airplane to fastener spacing on the reference standard, Detail I. Do not inspect where fastener head spacing is less than the probe diameter.

(b) End of splice plate. Check drawings for splice plate locations.

(c) Ferrous chips trapped in sealant or paint. Remove paint or sealant in suspect area.

(b) Low base metal conductivity of the wing skin. Compare base metal readings with reference standard and/or adjacent skins.

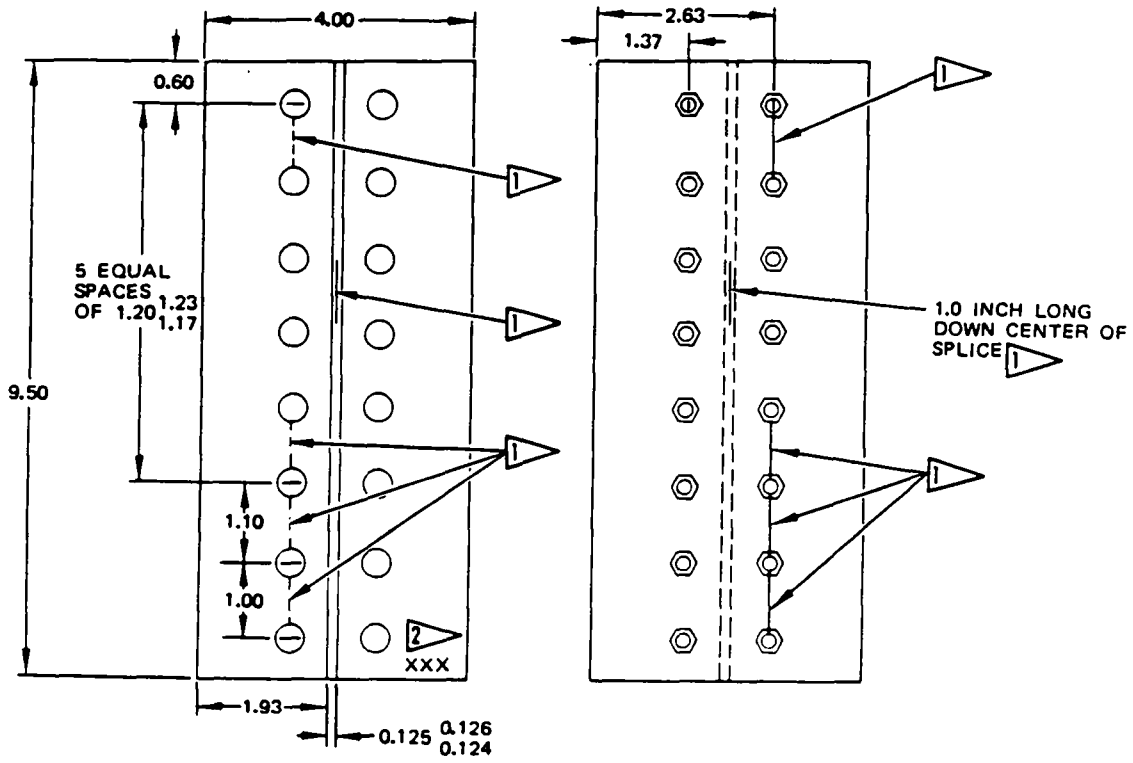
Structure at Joint - WS 360
Figure 1 (Sheet 7)

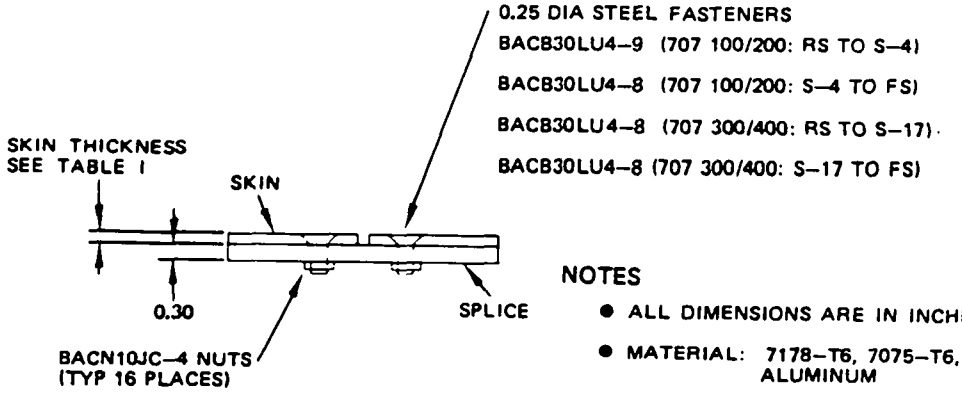
CALIBRATION AND INSPECTION CRITERIA

TABLE I

MODEL 707	LOCATION	SKIN THICKNESS (INCHES)	REFERENCE STANDARD SKIN THICKNESS (INCHES)	MINIMUM METER DEFLECTION FOR CALIBRATION (% OF FULL SCALE)	SIGNIFICANT METER DEFLECTIONS (% OF FULL SCALE)	IDEAL SPECIALTY CO. REFERENCE STANDARD PART NUMBER	BOEING REFERENCE STANDARD PART NUMBER
-100/200	REAR SPAR TO S-4	0.250	0.250	30	20	6412-102	180
	S-4 TO FRONT SPAR	0.160 TO 0.140	0.160	50	40	6412-101	179
-300/400	REAR SPAR TO S-17	0.190	0.190	50	40	6412-100	178
	S-17 TO FRONT SPAR	0.150	0.190	50	40	6412-100	178

Structure at Joint - WS 360
Figure 1 (Sheet 8)





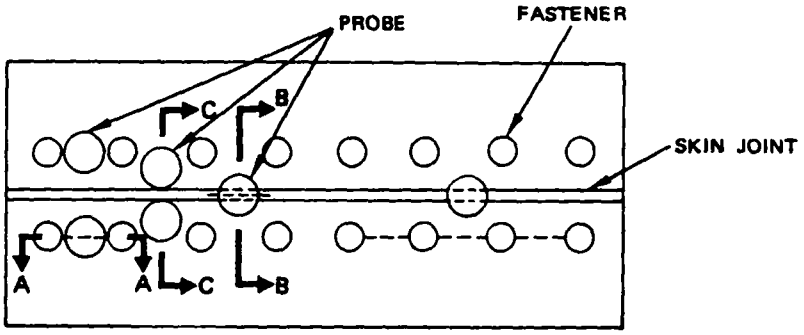
NOTES

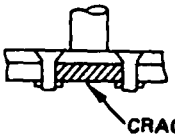
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 7178-T6, 7075-T6, 2024-T3 OR 2024-T4 ALUMINUM
- TOLERANCES: ± 0.020 EXCEPT WHERE INDICATED

1 JEWELER'S SAWCUT 0.030 MAX WIDTH 0.020 (HOLE TO HOLE IN SPLICE PLATE ONLY)

2 ETCH OR STEEL STAMP WITH BOEING PART NUMBER

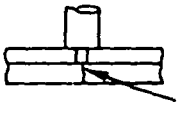
REFERENCE STANDARD
DETAIL I
Structure at Joint - WS 360
Figure 1 (Sheet 8A)





PROBE POSITION FOR INSPECTION BETWEEN FASTENERS

SECTION A–A



PROBE POSITION FOR INSPECTION ALONG SKIN JOINT

SECTION B–B

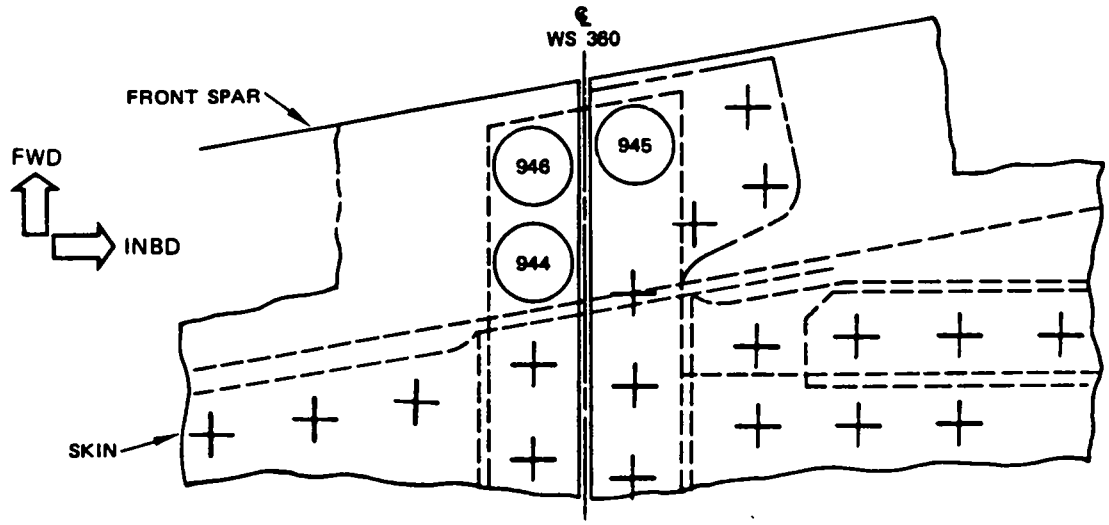
PROBE POSITION FOR OFFSET INSPECTION BETWEEN FASTENERS

SECTION C–C

PROBE POSITION FOR INSPECTION OF SPLICE PLATE

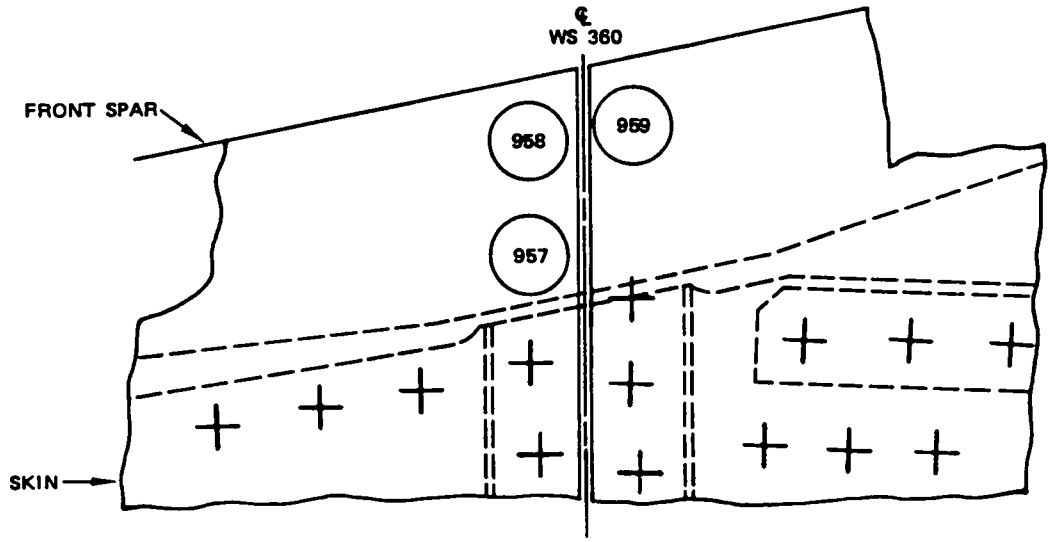
DETAIL II

Structure at Joint - WS 360
Figure 1 (Sheet 9)



FRONT SPAR FASTENERS ON MODELS 707-100/-200

DETAIL III



FRONT SPAR FASTENERS ON MODELS 707-300/-400/-300B/-300C

DETAIL IV

Structure at Joint - WS 360
Figure 1 (Sheet 9A)

EFFECTIVITY
MODEL: 707
SERVICE BULLETIN
REFERENCE: 3157,3160
SSI DOCUMENT (D644860)
REFERENCE:
SSD 57-A15-11
57-A25-11
57-A35-11
57-A45-11

PART 6 - EDDY CURRENT

WINGS - SKIN

1. Purpose

   A. To detect large cracks in the upper wing skin splice plate at WS 360 which initiate at or intersect fastener holes in the first two rows of fasteners on either side of the wing skin splice. This procedure does not require fastener removal.

   B. For inspection of splice plate cracks which do not intersect fastener holes, refer to Part 6, 57-10-07, Fig. 1.

   C. This low frequency eddy current procedure uses an "encircling probe" and provides a method for detecting cracks between closely spaced fasteners and will detect cracks propagating in any direction.

   D. This procedure cannot be used to inspect along the skin gap at WS 360. The skin inspection must be performed separately as described in Part 6, 57-10-07, Fig. 1.

2. Equipment

   A. At the present time, only the instruments and probes listed are recommended for this inspection. As additional equipment becomes available it will be evaluated by Boeing and if acceptable, added to the list.

      (1) Eddy Current Instrument and Probes

         (a) Alcoprobe Model MKIII with encircling probe ARP/13.5/29P

Inspection Instruments (NDT) Limited
32 Duncan Terrace
London, England N18BR

Balteau - Sonatest Corporation
63 Jefferson Street
Stamford, Connecticut, 06902

Upper Wing Splice Plate at WS 360
Figure 2 (Sheet 1)

(b) NDT-3 or NDT-8L with 100 Hz frequency module and corresponding encircling probe (SPO-783).

Nortec Corporation
421 N. Quay
Kennewick, Washington 99336

(c) Zetec MIZ-8 or MIZ-10 with 100 Hz encircling probe (1000-62,000).

Zetec Inc.
1320 N.W. Mall
Issaquah, Washington 98027

(2) Reference Standard

(a) Fabricate reference standard as shown in Detail I.

3. Preparation for Inspection

A. Wipe surface clean.

4. Instrument Calibration for Inspection for Cracks Out of Fastener Holes

A. Alcoprobe MK III

(1) Set frequency at 100 Hz.

(2) Center probe over the unnotched reference standard hole, Detail II, Position 1.

NOTE: Probe is centered by manipulating to obtain a minimum meter response.

(3) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

(4) Recenter the probe over the unnotched hole and adjust meter response to zero.

(5) Center probe over the notched reference standard hole, Detail II, Position 2. Response should be upscale.

(6) Adjust instrument sensitivity to obtain a minimum of 90 percent of full scale meter response difference between the notched and unnotched holes.

Upper Wing Splice Plate at WS 360
Figure 2 (Sheet 2)

(7) Center probe over the unnotched hole and adjust meter response to zero.

(8) Cracks will be indicated by a higher meter response.

B. NDT-3 or NDT-8L

(1) Install 100 Hz frequency module.

(2) Center probe over the unnotched reference standard hole per Detail II, Position 1.

NOTE: Probe is centered by manipulating to obtain a minimum meter response.

(3) Null instrument at highest sensitivity per manufacturer's instructions.

(4) Increase the X control by 20 units.

(5) Adjust instrument for 0.006 inch lift-off by adjusting the R control so that the same meter response is obtained when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Adjustments should be made in very small increments with the needle held on scale at all times during lift-off adjustments. Additional lift-off shall produce an up-scale meter movement.

(6) Recenter probe over the unnotched hole and adjust meter response to read 10 percent of full scale with level control.

(7) Center probe over notched hole in reference standard (Detail II, Position 2). Response should be upscale.

(8) Adjust instrument sensitivity to obtain a minimum of 90 percent of full scale meter response difference between the notched and unnotched holes.

(9) Center probe over the unnotched hole and adjust meter response to 20 percent of full scale with level control.

(10) Cracks are indicated by a higher meter response.

C. MIZ-8 or MIZ-10

(1) Set frequency at 100 Hz.

(2) Center probe over the unnotched reference standard hole per Detail II, Position 1.

NOTE: Probe is centered by manipulating to obtain a minimum meter response.

(3) Null instrument per manufacturer's instructions.

(4) Adjust lift-off control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

(5) Recenter probe over the unnotched hole and adjust meter response to read 10 percent of full scale with meter position control.

(6) Center probe over the notched reference standard hole (Detail II, Position 2). Response should be upscale.

(7) Adjust instrument sensitivity to obtain a minimum of 90 percent of full scale meter response difference between the notched and unnotched holes.

(8) Center probe over the unnotched hole and adjust meter response to 20 percent of full scale.

(9) Cracks will be indicated by a higher meter response.

5. Inspection Procedure

A. Inspection for cracks out of fastener holes, (Instrument calibrated per par. 4).

(1) With the probe centered over each fastener as in Detail II, Position 1, inspect the entire center four rows of fasteners common to the splice plate at WS 360. Start inspection between stringers 1 and 2.

(2) When inspecting fasteners of similar spacing and size, the eddy current readings taken from one wing skin should be within a 20 percent range.

(3) A response from a fastener hole, which is greater than 30 percent of full meter scale over the response from adjacent holes with similar fasteners, requires further investigation.

NOTE: The following conditions may cause meter reading changes similar to crack indications:

(a) A decrease in fastener spacing. Compare with similarly spaced fasteners on the airplane and on the reference standard.

(b) End of splice plate. Check drawings for splice plate locations.

(c) A larger fastener. Compare with similar fasteners on reference standard and on airplane.

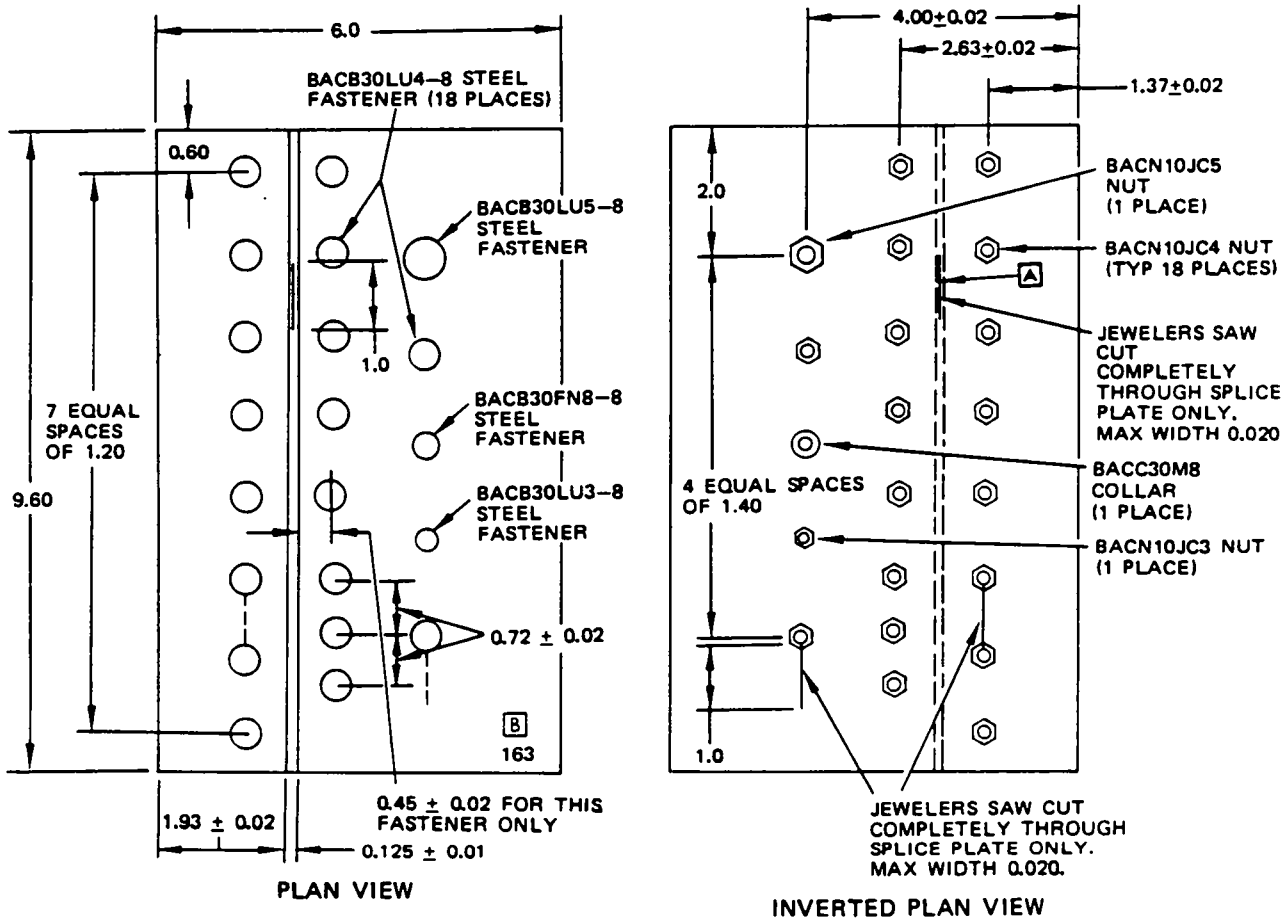
(d) A fastener that is not countersunk deep enough. Compare with similar fastener in standard raised to the same height.

(e) A fastener with short edge margin to edge of skin joint. Compare with similar fasteners on airplane and on reference standard.

6. Inspection Results

Refer to Service Bulletin 3757 or 3160 for methods for confirming crack indications.

Upper Wing Splice Plate at WS 360
Figure 2 (Sheet 5)



NOTES

- MATERIAL: 7178-T6, 7075-T6, 2024-T3 OR -T4 ALUMINUM
- TOLERANCES: ± 0.03 EXCEPT AS NOTED
- P/N 6412-3 AVAILABLE FROM IDEAL SPECIALTY CO.

[A] THIS SAW CUT IS NOT REQUIRED FOR THIS PROCEDURE, BUT PERMITS THE REFERENCE STANDARD TO BE USED FOR THE PROCEDURE SHOWN IN FIG. 1

[B] ETCH OR STEEL STAMP WITH 163

Upper Wing Splice Plate at WS 360
Figure 2 (Sheet 6)

EFFECTIVITY
MODEL: 707/720
SERVICE BULLETIN REFERENCE: 3230
SSI DOCUMENT (D6-44860)
REFERENCE:
SSD 57-A00-01
SSD 57-A10-01
SSD 57-A20-01
SSD 57-A30-01
SSD 57-A40-01

PART 6 - EDDY CURRENT
WINGS - MAIN FRAME

1. Purpose

To detect transverse cracks in the wing center section, spanwise splice stringers with low frequency eddy current at the skin gap along the length of the splice stringer, see Detail I.

2. Equipment

A. Eddy - Current Instruments and Probes

(1) Alcoprobe Model MKIII (supplied with 16mm diameter low frequency probe)

Inspection Instruments (NDT) Limited
32 Duncan Terrace
London, England N1 8BR

Balteau-Sonatest Corporation
63 Jefferson Street
Stamford, Connecticut 06902

(2) Nortec NDT-3 or NDT-8 with 500Hz frequency module and probe (P/N SPO-565)

Nortec Corporation
421 N. Quay
Kennewick., Washington 99336

(3) Zetec MIZ-8 or MIZ-10 (supplied with low frequency probe, P/N 550-5000)

Zetec, Inc.
1320 N. W. Mall
Issaquah, Washington 98027

B. Reference Standard

(1) Fabricate reference standard per Detail II, with skin thickness per Table I.

Wing Center Section Spanwise Splice Stringers
Figure 3 (Sheet 1)

3. Preparation for Inspection

A. Wipe wing surfaces clean in inspection area.

B. Smooth areas with badly flaking paint.

NOTE: Paint removal is not required.

C. Remove sealant from fastener heads and surface of butt joints as required to allow probe to be positioned against surface.

4. Instrument Calibration

A. Alcoprobe MK-III Calibration

(1) Set frequency at 2 kHz and set up instrument per manufacturer's instructions.

(2) Center probe on skin gap in crack free area per Detail III. Use reference standard with appropriate skin thickness per Table I.

(3) Calibrate instrument so that a meter deflection per Table I is obtained between a crack free area and the cracked area with instrument set for 0.003 inch lift-off.

(4) With the above instrument setup, when probe is moved off the skin gap, a downscale meter deflection will occur. Cracks are indicated by an upscale deflection.

B. Nortec NDT-3 or NDT-8 Calibration

(1) Install 500 Hz frequency module and probe per manufacturer's instructions. (Changing frequency module in NDT-3 requires internal voltage adjustment.)

(2) Center probe on skin gap in crack free area per Detail III. Use standard with appropriate skin thickness per Table I.

(3) Null instrument at highest sensitivity using X and R controls.

(4) Increase the X control by 20 units.

(5) Adjust instrument for 0.003 inch lift-off by adjusting the R control.

NOTE: Adjustments should be made in very small increments with the needle held on scale at all times during lift-off adjustments. Additional lift-off shall produce an upscale meter movement.

(6) Place probe on skin gap crack free area and position instrument meter at 70 percent of full scale by adjusting the balance and sensitivity controls as necessary.

(7) Position probe on skin gap in cracked area and note meter reading.

(8) If meter reading deflection between a crack free area and the cracked area is less than the requirements of Table I, increase sensitivity using the sensitivity control. If required minimum deflection per Table I cannot be obtained by increasing sensitivity, increase or decrease the X control setting and repeat steps B.(5), B.(6) and B.(7) until required minimum deflection between a good area and a cracked area is obtained.

(9) With the above instrument setup, when probe is moved off the skin gap, an upscale meter deflection will occur. Cracks are indicated by a downscale meter deflection.

C. Zetec MIZ-8 or MIZ 10 Calibration

(1) Set frequency at 500Hz and set up instrument per manufacturer's instructions.

(2) Center probe on skin gap in crack free area per Detail III. Use reference standard with appropriate skin thickness per Table I.

(3) Calibrate instrument so that a meter deflection per Table I is obtained between a crack free area and the cracked area, with instrument set for a minimum of 0.003 inch lift-off.

(4) With the above instrument setup, when probe is moved off the skin gap, an upscale meter deflection will occur. Cracks are indicated by a downscale deflection.

5. Inspection Procedure

A. Perform a centerline inspection on spanwise splice stringers at the locations shown in Detail I with the instrument calibrated on the approximate skin thickness per par. 4 and Table I.

(1) The area to be inspected includes stringers 4C, 8C and 14C in the wing center section above air conditioning packs and in the ram air ducts.

(2) Minor adjustments to the balance control will be required prior to inspection since the reference standard used in instrument calibration does not exactly duplicate the airplane structure. The minor adjustments must be made with the probe on a crack free area of the stringer.

Wing Center Section Spanwise Splice Stringers
Figure 3 (Sheet 3)

(3) Center probe on the skin gap as shown in Section A-A of Detail IV and adjust the instrument to read approximately 70 percent of full scale (except the Alcoprobe which should be set at 0 to 10 percent) and scan total length of gap. It is suggested that the inspection be performed at a sensitivity higher than that used during calibration.

(4) If fasteners are too close to the skin gap or not an equal distance from the stringer centerline, center probe between fasteners.

(5) A non-metallic straight edge may be used to guide probe.

6. Inspection Results

A. Meter deflections equal to or greater than Table II are considered significant and require further investigation.

B. The following conditions may cause meter deflections similar to crack indications.

(1) Probe too close to or overlapping the head of fastener.

(2) Metal chips in sealant at skin gap. If indication is observed, remove sealant and reinspect.

(3) End of stringers. Check drawings for locations of stringer changes.

C. If after recalibration and reinspection of a suspect area a significant meter deflection is still obtained, remove adjacent fastener and confirm crack visually or with high frequency eddy-current. In addition, perform inspection of adjacent area per step 6.D.

D. Inspect for cracks adjacent to all fasteners through the spanwise splice stringer within one foot of the crack indication found while performing the centerline scan.

(1) Calibrate instrument per par. 4 except place probe adjacent to fasteners per Detail III. Set frequency at 500 Hz for all instruments.

(2) Place probe adjacent to fasteners as shown in Section B-B of Detail IV and adjust the instrument to read approximately 70 percent of full scale (except the Alcoprobe which should be set at 0 to 10 percent).

(3) Meter deflections per Table II are considered crack indications. Remove adjacent fastener and confirm crack visually or by high frequency eddy-current inspection.

STRINGER NUMBER	SKIN THICKNESS OVER STRINGER IN INCHES	SKIN THICKNESS FOR REFERENCE STANDARD IN INCHES	MINIMUM METER DEFLECTION BETWEEN A CRACK FREE AREA AND THE CRACKED AREA IN PERCENT OF FULL SCALE
Model 720, 720B Airplanes			
4C	0.140	0.140	50%
8C	0.120	0.125	70%
14C	0.080 -0.090	0.100	70%
Model 707-100B,-200,-300B,-300C and -400 Airplanes			
4C	0.180 -0.195	0.190	50%
8C	0.154	0.190	50%
14C	0.080 -0.090	0.100	70%

NOTES: SEE DETAIL II FOR REFERENCE STANDARDS.

REFERENCE STANDARD SKIN THICKNESS AND METER DEFLECTION FOR CALIBRATION

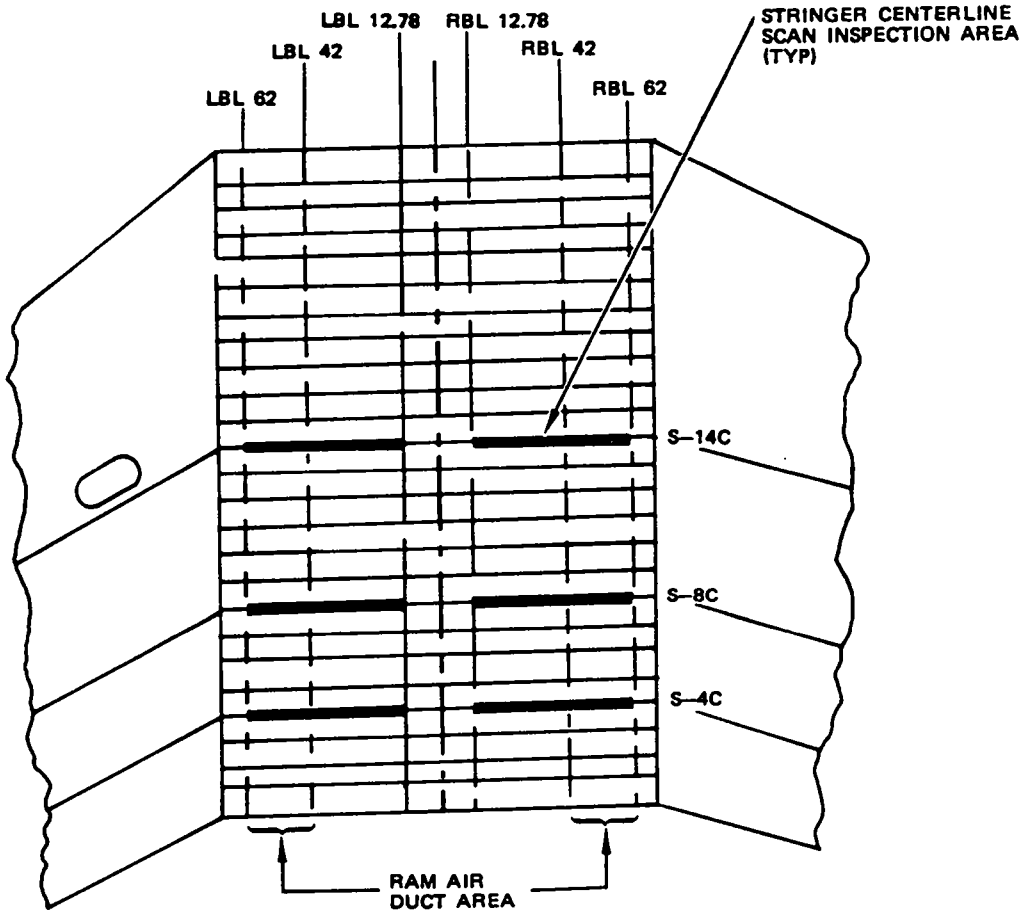
TABLE I

SKIN THICKNESS IN INCHES	SIGNIFICANT METER DEFLECTIONS IN % OF FULL METER SCALE
0.195 -0.126	40%
0.125 -0.080	70%

SIGNIFICANT METER DEFLECTIONS (ALL MODELS)

TABLE II

Wing Center Section Spanwise Splice Stringers
Figure 3 (Sheet 5)

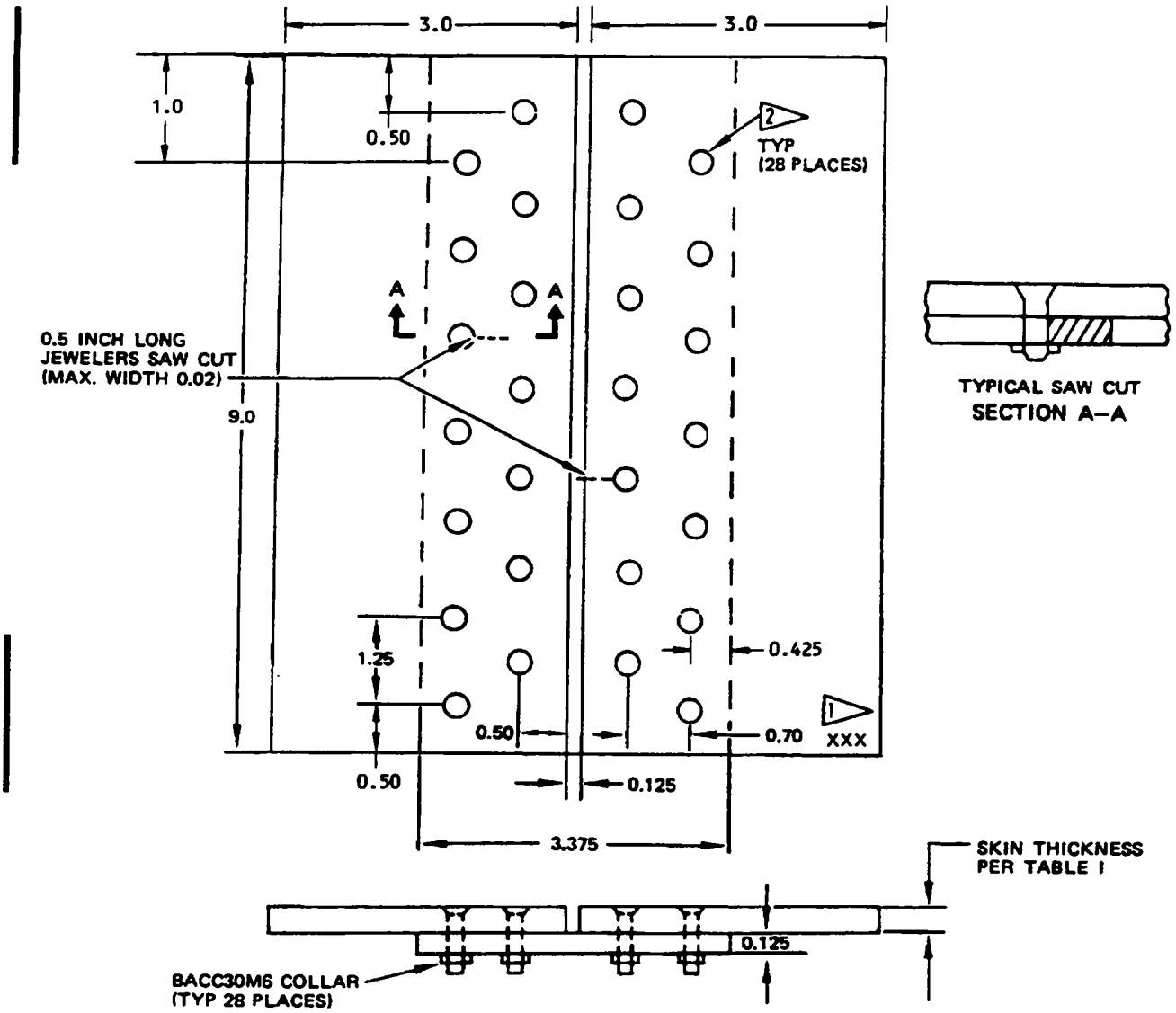


NOTE: SKIN THICKNESSES AT AFFECTED STRINGERS ARE LISTED IN TABLE I.

WING CENTER SECTION LOWER SURFACE STRINGER INSPECTION AREA

DETAIL I

Wing Center Section Spanwise Splice Stringers
Figure 3 (Sheet 6)

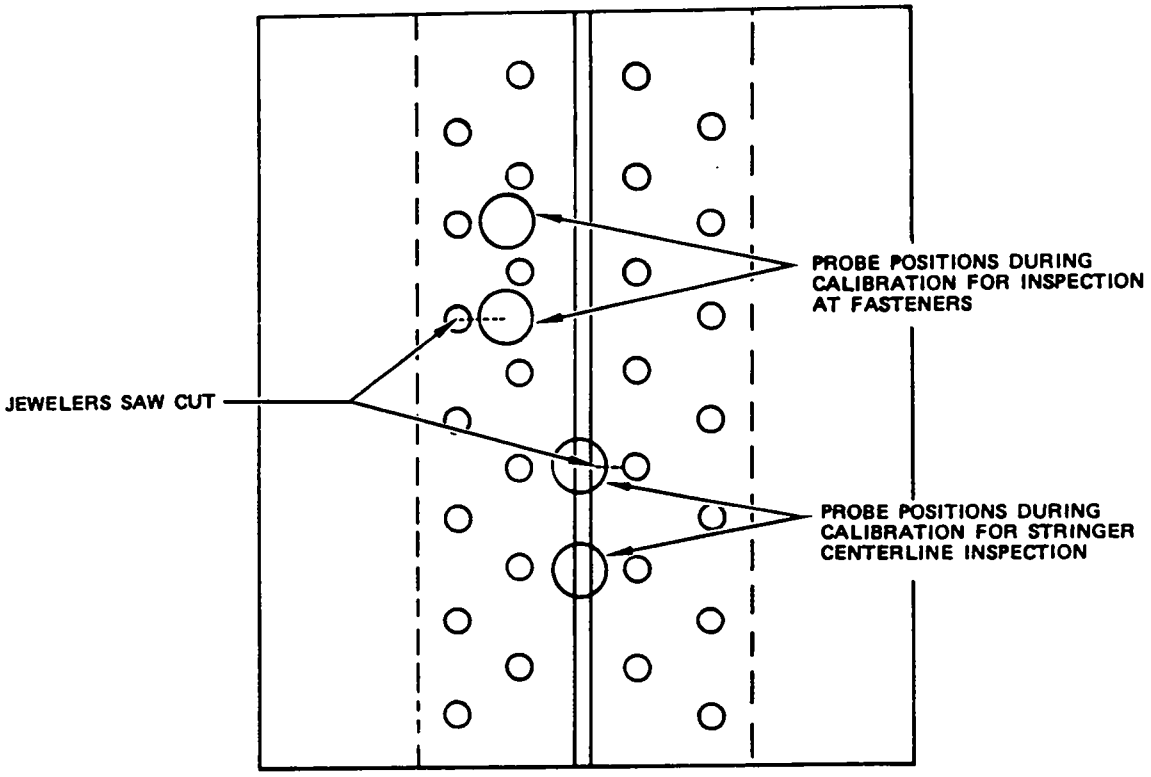


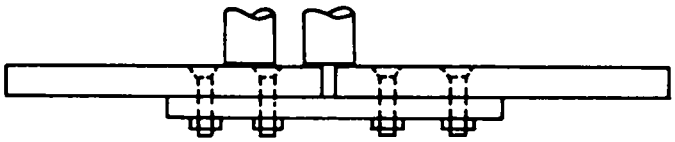
- ALL DIMENSIONS ARE IN INCHES
- TOLERANCE: X.X ± 0.030
  X.XX ± 0.020
  X.XXX ± 0.010
- MATERIAL: 2024–T4 OR 7178–T6 OR 7075–T6

FASTENER NUMBER (2)	SKIN THICKNESS	IDEAL SPECIALTY CO PART NUMBER	BOEING PART NUMBER
BACB30FN6–4	0.100	6412–5	164
BACB30FN6–4	0.125	6412–6	165
BACB30FN6–5	0.140	6412–7	166
BACB30FN6–6	0.190	6412–8	167

(1) ETCH OR STEEL STAMP WITH BOEING PART NUMBER

FABRICATION OF REFERENCE STANDARD
DETAIL II
Wing Center Section Spanwise Splice Stringers
Figure 3 (Sheet 7)

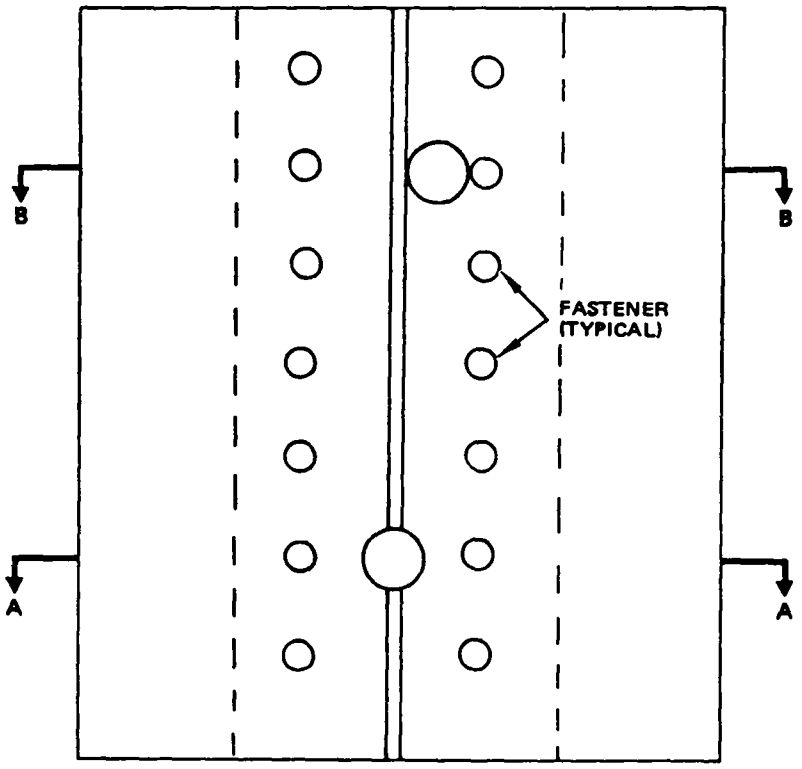




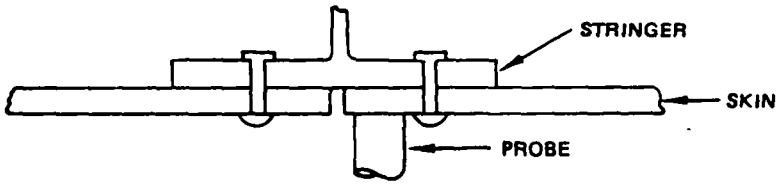
PROBE POSITIONS FOR CALIBRATION

DETAIL III

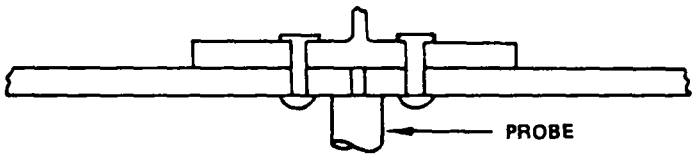
Wing Center Section Spanwise Splice Stringers
Figure 3 (Sheet 8)



BOTTOM VIEW OF TYPICAL WING CENTER SECTION
SKIN SPLICE STRINGER



SECTION B–B
PROBE POSITION FOR INSPECTION AT FASTENERS



SECTION A–A
PROBE POSITION FOR STRINGER CENTERLINE INSPECTION

DETAIL IV

Wing Center Section Spanwise Splice Stringers
Figure 3 (Sheet 9)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

To detect transverse cracks in the outboard wing spanwise splice stringers with low frequency eddy current at the skin gap along the length of the splice stringer. See Details III, IV, V and VI.

2. Equipment

A. Eddy-Current Instruments and Probes

(1) Alcoprobe Model MKIII (supplied with 16mm diameter low frequency probe).

Inspection Instruments (NDT) Limited
32 Duncan Terrace
London, England N1 8BR

Balteau-Sonatest Corporation
63 Jefferson Street
Stamford, Connecticut 06902

(2) Nortec NDT-3 or NDT-8 with 500Hz frequency module and probe (P/N SPO-565)

Nortec Corporation
421 N. Quay
Kennewick, Washington 99336

(3) Zetec MIZ-8 (supplied with low frequency probe, P/N 550-5000)

Zetec, Inc.
1320 N. W. Mall
Issaquah, Washington 98027

B. Reference Standard

(1) Fabricate reference standard per Detail I, with skin thickness per Table I.

Outboard Wing Spanwise Splice Stringers
Figure 4 (Sheet 1)

3. Preparation for Inspection

A. Wipe wing surfaces clean in inspection area.

B. Smooth areas with badly flaking paint.

NOTE: Paint removal is not required.

4. Instrument Calibration

NOTE: Instrument calibration is required for each skin thickness range identified in Table I and Figure IV, V and VI.

A. Alcoprobe MK-III Calibration

(1) Set frequency at 2 KHz and set up instrument per manufacturer's instructions.

(2) Center probe on skin gap in crack free area per Detail II. Use reference standard with appropriate skin thickness per Table I.

(3) Calibrate instrument so that a meter deflection per Table I is obtained between a crack free area and the cracked area with instrument set for 0.003 inch lift-off.

(4) With the above instrument setup, when probe is moved off the skin gap, a downscale meter deflection will occur. Cracks are indicated by an upscale deflection.

B. Nortec NDT-3 or NDT-8 Calibration

(1) Install 500 Hz frequency module and probe per manufacturer's instructions. (Changing frequency module in NDT-3 requires internal voltage adjustment.)

(2) Center probe on skin gap in crack free area per Detail II. Use standard with appropriate skin thickness per Table I.

(3) Null instrument at highest sensitivity using X and R controls.

(4) Increase the X control by 20 units.

(5) Adjust instrument for 0.003 inch lift-off by adjusting the R control.

NOTE: Adjustments should be made in very small increments with the needle held on scale at all times during lift-off adjustments. Additional lift-off shall produce an upscale meter movement.

(6) Place probe on skin gap crack free area and position instrument meter at 70% of full scale by adjusting the balance and sensitivity controls as necessary.

(7) Position probe on skin gap in cracked area and note meter reading.

(8) If meter reading deflection between a crack free area and the cracked area is less than the requirements of Table I, increase sensitivity using the sensitivity control. If required minimum deflection per Table I cannot be obtained by increasing sensitivity, increase or decrease the X control setting and repeat steps B.(5), B.(6) and B.(7) until required minimum deflection between a good area and a cracked area is obtained.

(9) With the above instrument setup, when probe is moved off the skin gap, an upscale meter deflection will occur. Cracks are indicated by a downscale deflection.

C. Zetec MIZ-8 or MIZ10 Calibration

(1) Set frequency at 500Hz and set up instrument per manufacturer's instructions.

(2) Center probe on skin gap in crack free area per Detail II. Use reference standard with appropriate skin thickness per Table I.

(3) Calibrate instrument so that a meter deflection per Table I is obtained between a crack free area and the cracked area, with instrument set for a minimum of 0.003 inch lift-off.

(4) With the above instrument setup, when probe is moved off the skin gap, an upscale meter deflection will occur. Cracks are indicated by a downscale deflection.

5. Inspection Procedure

A. Perform a centerline inspection on spanwise splice stringers at the locations indicated in Detail IV with the instrument calibrated for the appropriate skin thickness per par. 4. and Table I.

(1) Minor adjustments to the balance control will be required since the reference standard used in instrument calibration does not exactly duplicate the airplane structure. The minor adjustments must be made with the probe on a crack free area of the stringer.

Outboard Wing Spanwise Splice Stringers
Figure 4 (Sheet 3)

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(2) The dimension given for the limits of the centerline scan are only approximate. Typical crack indications will occur at the limits of the scan where structural changes exist. If crack indication is found at a different location, check drawings to determine if structural change exists in the suspect area.

(3) Center probe on the skin gap as indicated in Detail III and adjust the instrument to read approximately 70% of full scale (except Alcoprobe which should be set at 0 to 10%). It is suggested that the inspection be performed at a sensitivity higher than that during calibration.

(4) If fasteners are too close to the skin gap or not an equal distance from the stringer centerline, center probe between fasteners.

(5) A non-metallic straight edge may be used to guide probe.

6. Inspection Results

A. Meter deflections per Table II are considered significant and require further investigation.

NOTE: The following conditions may cause meter deflections similar to crack indications.

(1) Probe too close to or overlapping the head of a fastener.

(2) Metal chips in sealant at skin gap. If indication is observed, remove sealant and reinspect.

(3) End of stringer (Details IV, V and VI).

B. If after recalibration and reinspection of suspect area a significant meter deflection is still obtained, remove adjacent fastener and confirm crack visually or with high frequency eddy-current. In addition, perform inspection of adjacent area per step C.

C. Inspect for cracks adjacent to all fasteners through the spanwise splice stringer within one foot of crack indication found while performing the centerline scan.

NOTE: Inspection at fasteners through 0.200 to 0.250 inch thich skins will only detect large cracks or broken stringers.

(1) Calibrate instrument per par. 4. except place probe adjacent to fasteners per Detail II. Set frequency at 500 Hz for all instruments.

(2) Place probe adjacent to fasteners as indicated in Detail III and adjust the instrument to read approximately 70% of full scale (except the Alcoprobe which should be set at 0 to 10%).

Outboard Wing Spanwise Splice Stringers
Figure 4 (Sheet 4)

(3) Meter deflections per Table II are considered crack indications. Remove adjacent fastener and confirm crack visually or by high frequency eddy-current inspection.

D. If crack is confirmed, contact Boeing for repair instructions.

SKIN THICKNESS OF AIRPLANE IN INCHES	SKIN THICKNESS OF REFERENCE STANDARD IN INCHES	MINIMUM METER DEFLECTION BETWEEN A GOOD AREA AND A CRACKED AREA IN % OF FULL METER SCALE
Model 720, 720B		
0.175 - 0.140 0.112 - 0.090	0.175 0.100	50% 70%
Model 707 - 300, -300B, -300C, -400		
0.322 - 0.191 0.190 - 0.150 0.125	0.250 0.190 0.125	30% 50% 70%
Model 707-100, -100B, -200		
0.322 - 0.191 0.190 - 0.140 0.100	0.250 0.190 0.100	30% 50% 70%

NOTES:

SEE DETAIL I FOR REFERENCE STANDARD FABRICATION
SEE DETAILS IV, V AND VI FOR ACTUAL SKIN THICKNESS

REFERENCE STANDARD SKIN THICKNESS AND METER DEFLECTION FOR CALIBRATION

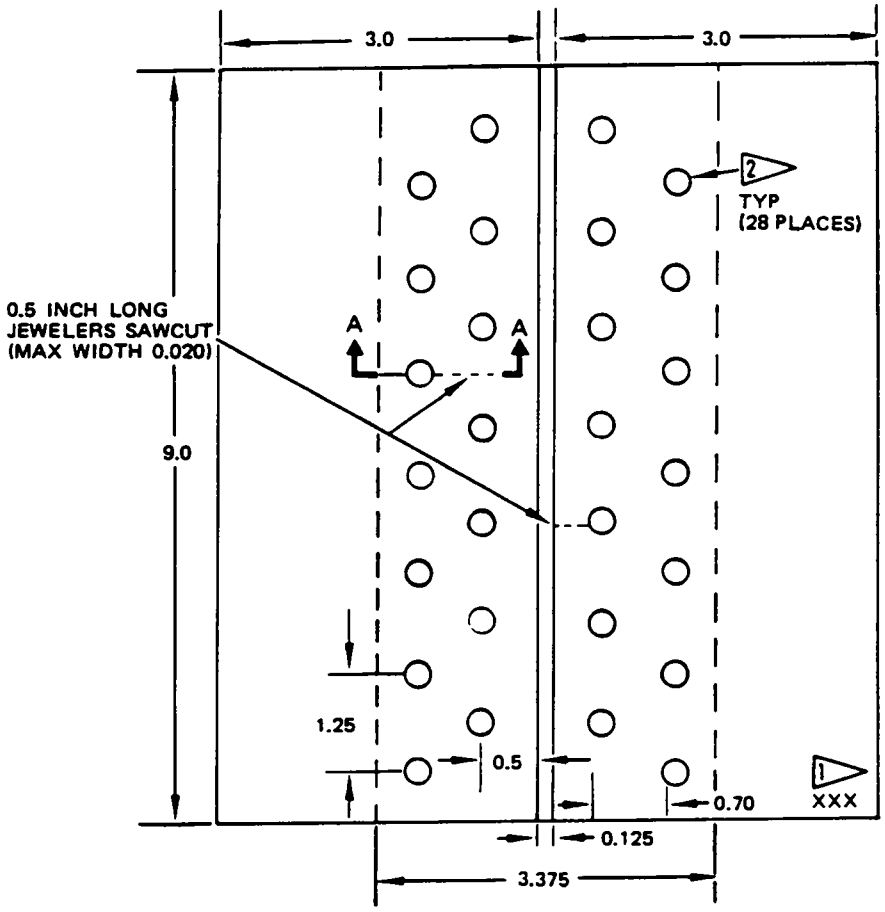
TABLE I

SKIN THICKNESS IN INCHES	SIGNIFICANT METER DEFLECTIONS IN % OF FULL METER SCALE
0.322 - 0.191 0.190 - 0.126 0.125 - 0.090	20% 40% 50%

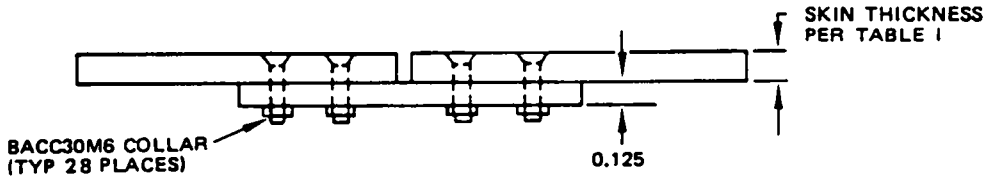
SIGNIFICANT METER DEFLECTIONS (ALL MODELS)

TABLE II

Outboard Wing Spanwise Splice Stringers
Figure 4 (Sheet 5)



SECTION A–A
TYPICAL SAW CUT



NOTES

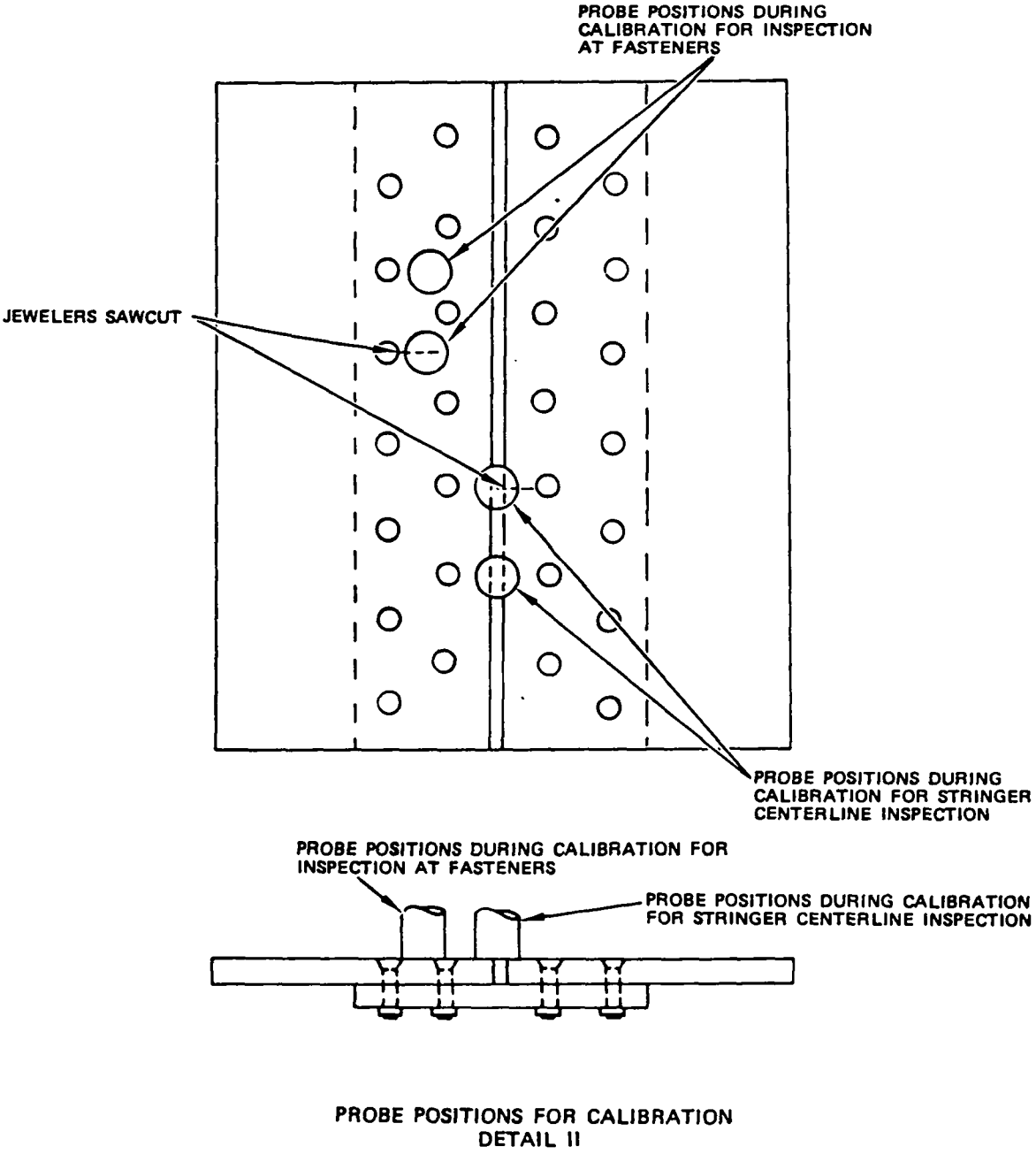
- ALL DIMENSIONS ARE IN INCHES
- TOLERANCE: X.X ± 0.030
  X.XX ± 0.020
  X.XXX ± 0.010
- MATERIAL: 2024–T4 OR 7178–T6 OR 7075–T6

1 ETCH OR STEEL STAMP WITH BOEING PART NUMBER

FASTENER NUMBER 2	SKIN THICKNESS	IDEAL SPECIALTY CO. PART NUMBER	BOEING PART NUMBER
BACB30FN6–4	0.100	6412–9	168
BACB30FN6–4	0.125	6412–10	169
BACB30FN6–5	0.175	6412–11	170
BACB30FN6–6	0.190	6412–12	171
BACB30FN6–6	0.250	6412–13	172

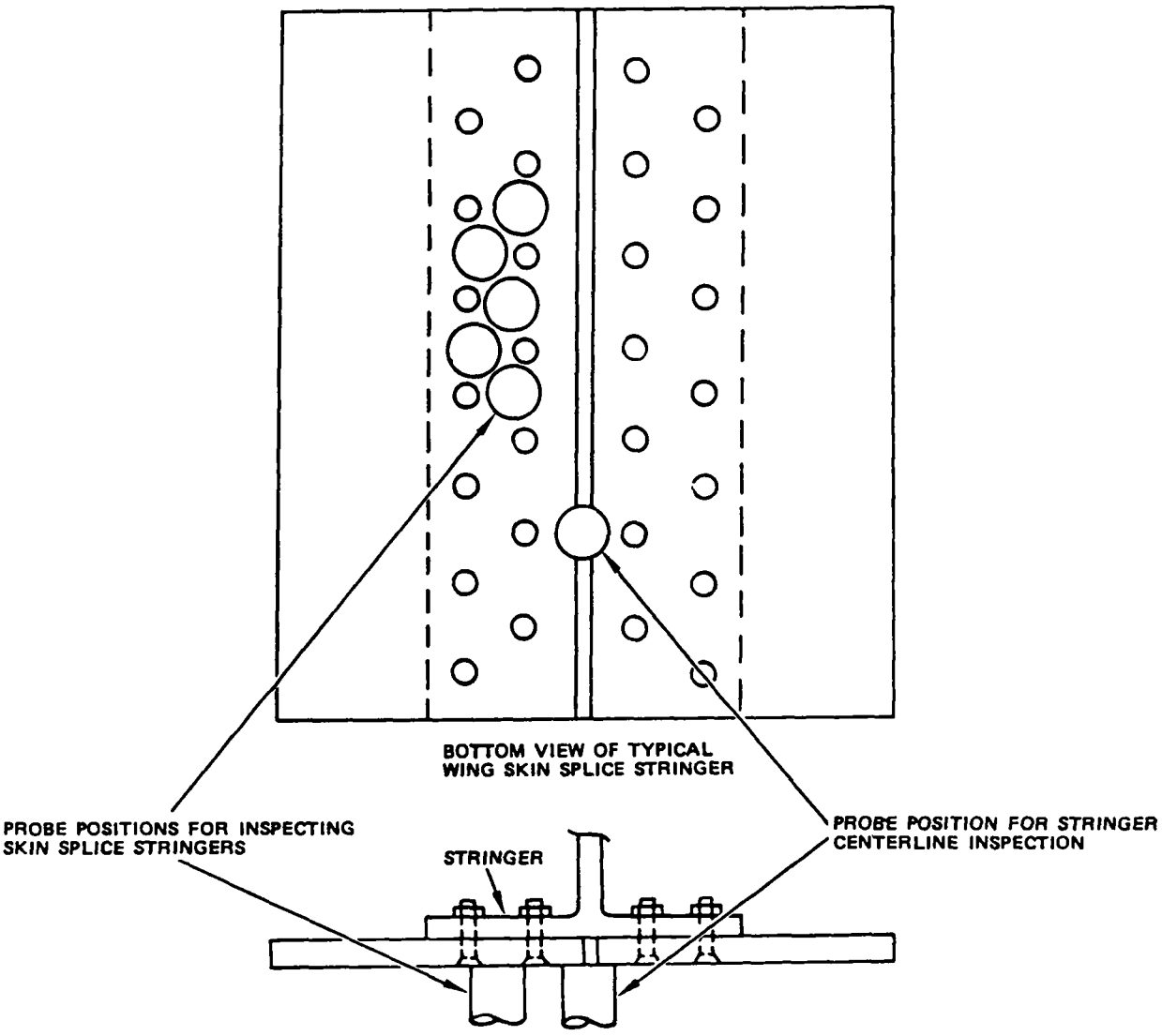
REFERENCE STANDARD
DETAIL I

Outboard Wing Spanwise Splice Stringers
Figure 4 (Sheet 6)



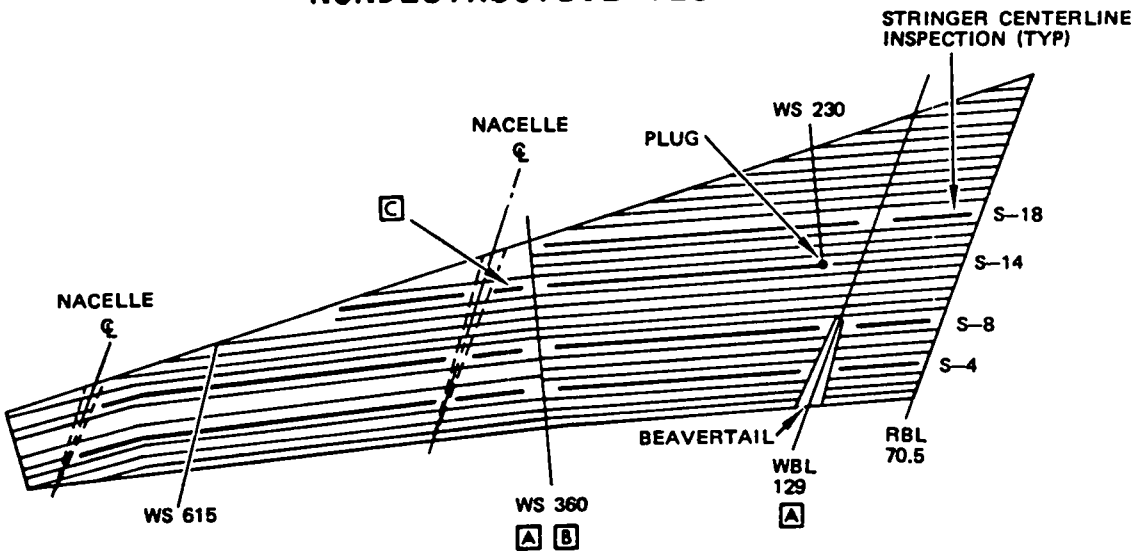
PROBE POSITIONS FOR CALIBRATION
DETAIL II

Outboard Wing Spanwise Splice Stringers
Figure 4 (Sheet 7)



PROBE POSITION FOR INSPECTING SKIN SPLICE STRINGERS
DETAIL III

Outboard Wing Spanwise Splice Stringers
Figure 4 (Sheet 8)



A A METER DEFLECTION SIMILAR TO A CRACK INDICATION WILL OCCUR AT EACH STRINGER HORIZONTAL FLANGE END NEAR WS 360 AND WBL 129 AT THE APPROXIMATE DISTANCES SHOWN IN THE TABLE.

IF THE STRINGER CENTERLINE SCAN IS CONTINUED TOWARDS WS 360 OR WBL 129 A SIMILAR METER DEFLECTION WILL OCCUR WHERE THE WING SKIN THICKNESS INCREASES AT APPROXIMATELY ONE TO TWO INCHES FROM THE STRINGER END.

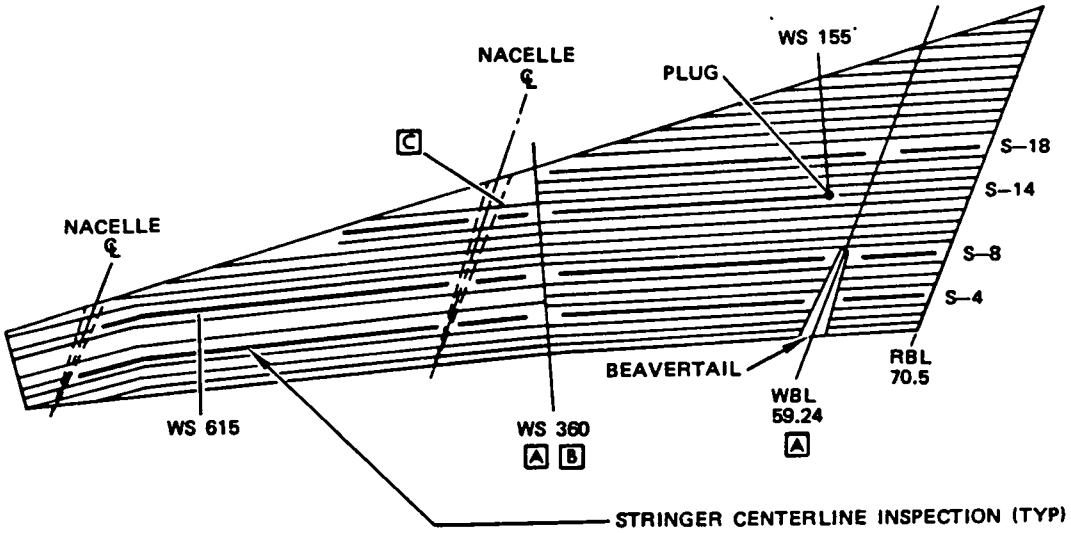
B IF EXTERNAL DOUBLERS HAVE BEEN INSTALLED PER SERVICE BULLETINS 2592, INSPECT TO EDGE OF DOUBLERS.

C DO NOT INSPECT S–14 BETWEEN WS 360 AND EDGE OF NACELLE IF NEW DRY BAY SKIN HAS BEEN INSTALLED PER SERVICE BULLETIN 2484.

STRINGER	STRINGER END DISTANCE (IN INCHES)		
	FROM WS 360	FROM WBL 129	SKIN THICKNESS (IN INCHES)
S–4	9.0	19.0	0.19 – 0.32 INBD OF WS 615 0.15 – 0.19 OUTBD OF WS 615
S–8	9.0	14.0	0.22 INBD OF WBL 129 0.16 OUTBD OF WBL 129
S–14	9.0	–	0.16
S–18	–	10.0	0.10

WING LOWER SURFACE SPANWISE SPLICE STRINGER INSPECTION
(FOR 707–100, – 100B AND – 200 AIRPLANES)
DETAIL IV

Outboard Wing Spanwise Splice Stringers
Figure 4 (Sheet 9)



A A METER DEFLECTION SIMILAR TO A CRACK INDICATION WILL OCCUR AT EACH STRINGER HORIZONTAL FLANGE END NEAR WS 360 AND WBL, 59.24 AT THE APPROXIMATE DISTANCES SHOWN IN THE TABLE.

IF THE STRINGER CENTERLINE SCAN IS CONTINUED TOWARDS WS 360 OR WBL 59.24 A SIMILAR METER DEFLECTION WILL OCCUR WHERE THE WING SKIN THICKNESS INCREASES AT APPROXIMATELY ONE TO TWO INCHES FROM THE STRINGER END.

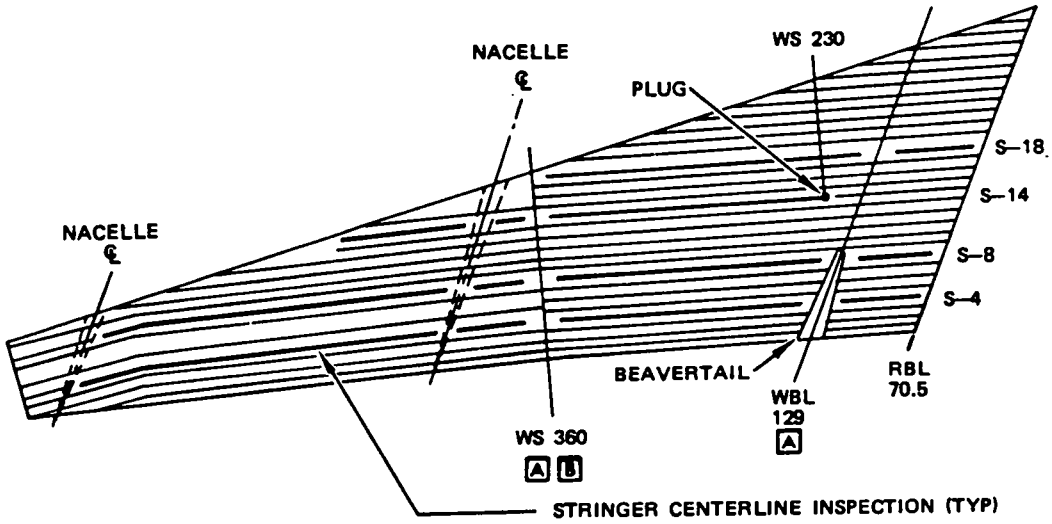
B IF EXTERNAL DOUBLERS HAVE BEEN INSTALLED AT WS 360 PER SERVICE BULLETIN 2496, INSPECT TO EDGE OF DOUBLERS.

C DO NOT INSPECT S–14 BETWEEN WS 360 AND INBOARD EDGE OF NACELLE IF NEW DRY BAY SKIN HAS BEEN INSTALLED PER SERVICE BULLETIN 2487 OR DOUBLERS HAVE BEEN INSTALLED PER SERVICE BULLETINS 1995 OR 2323.

STRINGER	STRINGER END DISTANCE (IN INCHES)		
	FROM WS 360	FROM WBL 59.24	SKIN THICKNESS (IN INCHES)
S–4	10.0	18.0	0.19 – 0.32 INBD OF WS 615 0.15 – 0.19 OUTBD OF WS 615
S–8	9.0	13.0	0.20 INBD OF WBL 59.24 0.16 OUTBD OF WBL 59.24
S–14	9.0	–	0.16
S–18	–	10.0	0.12

WING LOWER SURFACE SPANWISE SPLICE STRINGER INSPECTION
(FOR 707–300, – 300B, – 300C AND – 400 AIRPLANES)
DETAIL V

Outboard Wing Spanwise Splice Stringers
Figure 4 (Sheet 10)



[A] A METER DEFLECTION SIMILAR TO A CRACK INDICATION WILL OCCUR AT EACH STRINGER HORIZONTAL FLANGE END NEAR WS 360 AND WBL 129 AT THE APPROXIMATE DISTANCES SHOWN IN THE TABLE.

IF THE STRINGER CENTERLINE SCAN IS CONTINUED TOWARDS WS 360 OR WBL 129 A SIMILAR METER DEFLECTION WILL OCCUR WHERE THE WING SKIN THICKNESS INCREASES AT APPROXIMATELY ONE TO TWO INCHES FROM THE STRINGER END.

[B] IF EXTERNAL DOUBLERS HAVE BEEN INSTALLED AT WS 360 PER SERVICE BULLETIN 2852, INSPECT TO EDGE OF DOUBLERS.

STRINGER	STRINGER END DISTANCE (IN INCHES)		SKIN THICKNESS (IN INCHES)
	FROM WS 360	FROM WBL 129	
S –4	8.0	15.0	0.14 – 0.17
S–8	8.0	10.0	0.14 – 0.17
S–14	10.0	–	0.11
S–18	–	9.0	0.09

WING LOWER SURFACE SPANWISE SPLICE STRINGER INSPECTION (FOR 720, 720B AIRPLANES)
DETAIL VI

Outboard Wing Spanwise Splice Stringers
Figure 4 (Sheet 11)

EFFECTIVITY
MODEL: 707-100, 200
SSI DOCUMENT (D6-44860)
REFERENCE: SSD 57-A15-10

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks in the lower WS 360 splice plate which intersect fastener holes. This inspection is accomplished from outside of the wing without fastener removal.

   B. To detect cracks in the splice plate along the gap between the wing skins at WS 360 splice.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec Inc.
      1320 N.W. Mall
      Issaquah, WA 98027

   B. Probes - This procedure uses four probes; any probe of similar size which will satisfy the performance requirements of this procedure is acceptable. The following probes were used in the development of this procedure.

      (1) Ring (encircling) probe with 1-inch OD and 0.5-inch ID shielding, 100 Hz, Nortec P/N SPO-783

      (2) Ring (encircling) probe with 1.1-inch OD and 0.625-inch ID shielding, 100 Hz, Nortec P/N SPO-1154

      (3) Low frequency spot probe with 0.55-inch OD shielding usable at 500 Hz, Nortec P/N SPO-1125

      (4) Ring probe with 0.7-inch OD and 0.3-inch ID shielding usable at 500 Hz, Nortec P/N SPO-996

      NOTE: Probes listed above are available from:
      Nortec Inc.
      421 N. Quay
      Kennewick, Washington 99336

      Specify instrument with which probe is to be used or instrument connector required when ordering probes.

Lower Wing Skin Splice Plate at WS 360
Figure 5 (Sheet 1)

C. Reference Standards

(1) Manufacture per Details I, III, V and VII

3. Preparation for Inspection

A. Wipe skin surface clean.

B. It is suggested that fastener locations requiring the same instrument calibration for inspection be identified on the airplane by a colored circle. Water washable crayons, pencils or felt pens are suitable. Refer to Table I and Details IX and X for inspection requirements.

4. Instrument Calibration

A. General

(1) Three basic inspection types are required.

(a) Inspection for fastener hole cracks using a ring probe centered on the fastener.

(b) Inspection for fastener hole cracks using a spot probe positioned adjacent to a fastener.

(c) Inspection for cracks along the WS 360 splice skin-gap using ring probe as a spot probe.

(2) The three basic inspections require several instrument calibrations to adjust for variations in structure geometry and materials.

(3) Details IX and X identify inspection coverage for a particular calibration, and Table I provides specific calibration information for that inspection.

B. Calibration for fastener hole crack inspection using the ring probe centered on the fastener. The following calibration applies to inspection codes A thru G.

(1) Identify code for fasteners to be inspected from Details IX or X.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

(3) Visually center probe over the unnotched reference standard hole, Position 1.

(4) Balance instrument per manufacturer's instructions.

Lower Wing Skin Splice Plate at WS 360
Figure 5 (Sheet 2)

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(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(6) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

(7) Center probe over the notched reference standard hole, Position 2. Response should be upscale.

(8) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(9) Recheck null and liftoff. If readjustments are made recheck sensitivity per par. B.(8).

(10) Cracks will be indicated by a higher meter response.

C. Calibration for cracks in the splice plate along the gap between wing skins at W.S. 360 splice using a ring probe as a spot probe. The following calibration applies to inspection codes H, I, and J.

(1) Refer to Details IX and X for inspection coverage coding along WS 360 centerline.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

(3) Visually center probe over unnotched area of the skin gap on the reference standard, Position 1.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper). Care should be taken to hold the probe in the same position relative to the skin gap to avoid confusion during liftoff adjustment.

Lower Wing Skin Splice Plate at WS 360
Figure 5 (Sheet 3)

(6) Recenter the probe at Position 1 and set meter response at 20% of full scale with meter position control.

NOTE: Probe is centered over the skin gap by moving the probe across the gap to obtain a maximum meter response.

(7) Center probe over skin gap at notched location, Position 2. Meter response should be upscale.

(8) Adjust instrument sensitivity to obtain a 50% of full scale meter response difference between the notched and unnotched positions.

(9) Recheck null and liftoff. If readjustments are made, recheck sensitivity per par. C.(8).

(10) Cracks will be indicated by a higher meter response.

D. Calibration for fastener hole crack inspection using a spot probe placed adjacent to the fastener head. The following calibration applies to inspection code K.

(1) Refer to Table I for reference standard, probe, and calibration details for inspection code K.

(2) Place probe adjacent to the unnotched reference standard hole, Position 1.

(3) Balance instrument per manufacturer's instructions.

(4) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is located at Position 1 during liftoff calibration.

(5) With the probe adjacent to the unnotched hole, Position 1, adjust meter response to read 20% of full scale with meter position control.

(6) Position probe adjacent to the notched reference standard hole, Position 2. Response should be upscale.

(7) Adjust instrument sensitivity to obtain a 50% of full scale meter response difference between the notched and unnotched holes, Positions 1 and 2.

(8) Reposition probe at Position 1 and check null and liftoff. If readjustments are made recheck sensitivity per par. D.(7).

(9) Cracks will be indicated by a higher meter response.

5. Inspection Procedure

A. Inspection of fastener holes for cracks using the ring probe centered on the fastener. Inspection codes A thru G.

(1) Accomplish inspections of codes A thru G in the order given in Table I.

(2) Calibrate instrument per par. 4.B. and Table I.

(3) Note on the airplane the location of those fasteners having the same inspection code by using Details IX and X.

NOTE: It is suggested that a copy of Details IX and X be made and that it be used to record instrument responses at each fastener location. This is helpful in maintaining continuity between the groups of fastener locations during inspection.

An inspection code is used to identify locations having similar inspection conditions. A single instrument calibration is usually used to inspect these locations.

(4) Use several fasteners to establish the airplane baseline response for an acceptable fastener.

(a) Select a representative fastener from this group and set its response to 20% of full meter scale.

NOTE: Do not change instrument sensitivity when establishing the airplane baseline response.

(b) Refer back to this fastener periodically to ensure that the instrument response is the same as originally recorded. (Changes in meter response may occur as a result of instrument drift or probe temperature change.)

(5) Inspect each fastener having the same inspection code by centering the probe on the fastener and manipulating to obtain a minimum response.

NOTE: Review the "Special Notes" called out in Table I for conditions which affect the inspection.

(6) The following are potential crack indications and further investigation is required.

(a) Fastener locations with inspection coding A, B or C (Ref Table I) which give a response which is 30% of full meter scale higher than the established baseline.

(b) Fastener locations with inspection coding D, E, F, or G (Ref Table I) which give a response which is 40% of full meter scale higher than the established baseline.

NOTE: The following conditions may cause meter reading changes similar to crack indications:

1) A decrease in fastener spacing - compare with similarly spaced fasteners on the airplane.

2) End of splice plate - check Details IX and X for splice plate locations.

3) A larger or smaller fastener - compare with similar fasteners of reference standard and on airplane.

4) A fastener that is different in countersink depth - compare with similar fastener in standard raised to the same height.

5) A fastener close to edge of skin - compare with similar fasteners on airplane.

6) Differences in conductivity between skin panels - compare only the fastener locations common to a skin panel.

B. Inspection of the splice plate along the gap between wing skins at WS 360 splice using a ring probe as a spot probe. Inspection codes H, I, and J.

(1) Accomplish inspection of codes H, I, and J, in the order given in Table I.

(2) Calibrate instrument per par. 4.C. and Table I.

(3) Start the inspection at Stringer S-1.

(4) Select a section of wing skin splice in the area of Stringer S-1, which has fastener spacing and edge margin similar to the reference standard.

Lower Wing Skin Splice Plate at WS 360
Figure 5 (Sheet 6)

(5) Center the probe on the skin joint at this location to establish a baseline response. Note this location and periodically refer to it to ensure that the instrument response has not changed.

NOTE: Minor adjustments to the meter position control will be required since the reference standard does not exactly duplicate the airplane structure. The minor adjustments must be made with the probe on a crack-free area of the structure. Do not change instrument sensitivity when establishing the airplane baseline response.

(a) When the maximum gap response is obtained over a crack-free area, the probe will be directly centered on the skin gap.

(b) A double check can also be made by positioning the probe over the end of the splice plate. Check Details IX and X for locating ends of splice plates. This will result in a typical full meter deflection, as in a crack indication. Comparing this indication with meter readings taken at other locations will aid in selecting a crack-free area for the final minor adjustments to the instrument before inspection.

(6) Inspect the length of the splice plate indicated for the particular calibration code, see Detail IX. Perform the inspection by slowly scanning the probe across the skin joint (inbd/outbd direction) to obtain the maximum meter response. If inspection cannot be accomplished because fasteners are spaced too close to the edge of the skin, inspect between fasteners along the centerline of the splice plate.

NOTE: Review the "Special Notes" listed in Table I for conditions which affect the inspection.

(7) Any location which gives a response 30% of full meter scale higher than the established baseline should be investigated further.

NOTE: Metal chips trapped in the sealant at the skin joint may cause a crack-like indication. Remove sealant and reinspect.

C. Inspection of fastener holes for cracks using a spot probe adjacent to the fastener (Inspection Code K).

(1) Calibrate the instrument per par. 4.D. and Table I.

(2) Note on the airplane the location of code K fasteners using Detail IX or X.

Lower Wing Skin Splice Plate at WS 360
Figure 5 (Sheet 7)

(3) Inspect each code K fastener by placing the probe adjacent to the fastener head and scanning about the head.

NOTE: The WS 360 skin splice may prevent a complete inspection around the fastener head. Inspect to the extent possible.

When scanning about a fastener head maintain a uniform distance between probe and fastener head.

(4) Any location which gives a response which is 30% of full meter scale higher than the baseline response should be investigated further.

Lower Wing Skin Splice Plate at WS 360
Figure 5 (Sheet 7A)

INSPECTION CODE [1]	REFERENCE STANDARD NO.	PROBE IDENTIFICATION [2]	INSTRUMENT FREQUENCY HZ	DETAIL NO. FOR CALIBRATION	PROBE CALIBRATION POSITION [3]	SPECIAL NOTES
A	001	(1)	100	II	A	
B	002	(1)	100	IV	D	
C	003	(1)	100	VI	F	4
D	003	(2)	100	VI	H	
E	004	(2)	100	VIII	I	5
F	001	(2)	100	II	C	6
G	004	(2)	100	VIII	J	6
H	001	(3)	500	II	B	
I	002	(3)	500	IV	E	7
J	003	(3)	500	VI	G	8
K	003	(4)	500	VI	F	9

CALIBRATION TABLE
TABLE I

NOTES:

[1] Code for specific inspection areas identified on Details IX and X to which the calibration requirements apply.

[2] Probe Idenfication:
(1) P/N SPO-783 - 1-inch OD and 0.5-inch ID ring probe.
(2) P/N SPO-1154 - 1.1-inch OD and 0.62-inch ID ring probe.
(3) P/N SPO-996 - 0.7-inch OD and 0.3-inch ID ring probe used as spot probe.
(4) P/N SPO-1125 - 0.55-inch OD spot probe.

[3] Flagnote refers to "Probe Position for Calibration" Details (Details II, IV, VI and VIII as indicated in this table) and identifies that part of the reference standard used for this calibration.

4> NOTE: For fastener locations refer to Details IX and X.

a. Fasteners 591, 582, 576, 569, and 562 have shorter edge margin and thinner structure and will give a response approximately 40% of full meter scale higher than the established baseline. Compare these fasteners separately.

b. Fasteners 642, 547 with 0.38-inch diameter heads and 588 and 554 with 0.44-inch diameter heads have thinner structure and will give a response approximately 30% of full meter scale higher than the established baseline for the fasteners with 0.38-inch diameter heads. Compare these fasteners separately.

c. Fasteners at stringer ends may be compared with similar adjacent fasteners common to the stringer end being inspected which are further away from WS 360. See Detail IX (typical example).

5> Establish baseline response by comparing with similar adjacent fasteners further away from WS 360 and common to the stringer end under inspection.

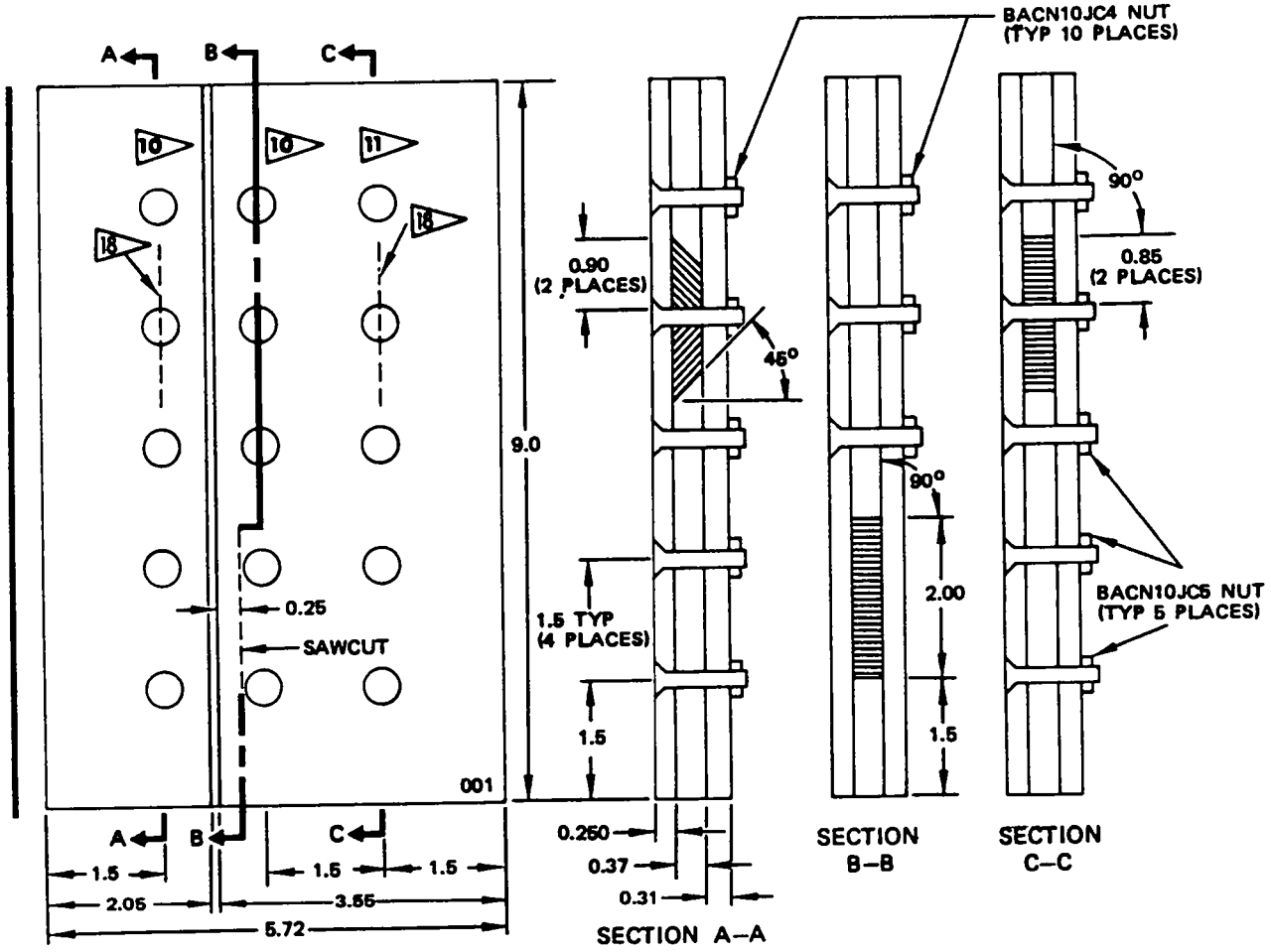
6> Fastener locations at stringer ends may be compared with similar adjacent fasteners common to the stringer end being inspected and further away from WS 360. See Detail X (typical example).

7> a. Start inspection at end of splice plate between S-7 and S-8 proceed towards the centerline of S-4.

b. When probe is placed over the skin gap between fasteners 267 and 252 at S-4 the response should be approximately 40% of full meter scale lower than the baseline response established between S-7 and S-5. This lower response is due to a change in skin thickness.

8> This note applies to airplanes listed in Detail IX only. The inboard skin panel forward of S-14 is chamfered along the inner edge at WS 360. This loss of material causes the probe to obtain its maximum response when it is approximately 0.3 inch off center of skin gap towards the inboard side. The baseline response for this condition will be approximately 40% of full meter scale lower than the baseline response established between S-9 and S-13. Readjust liftoff, re-establish the baseline response and inspect in same manner.

9> Do not inspect aft side of fasteners 1227 and 1230 because of interference from short edge margin of internal structure.



NOTES

- TOLERANCE: X.X ± 0.05 X.XX ± 0.02 X.XXX ± 0.005
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T3 OR T4 ALUMINUM
- ETCH OR STEEL STAMP WITH 001
- P/N 6412–14
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

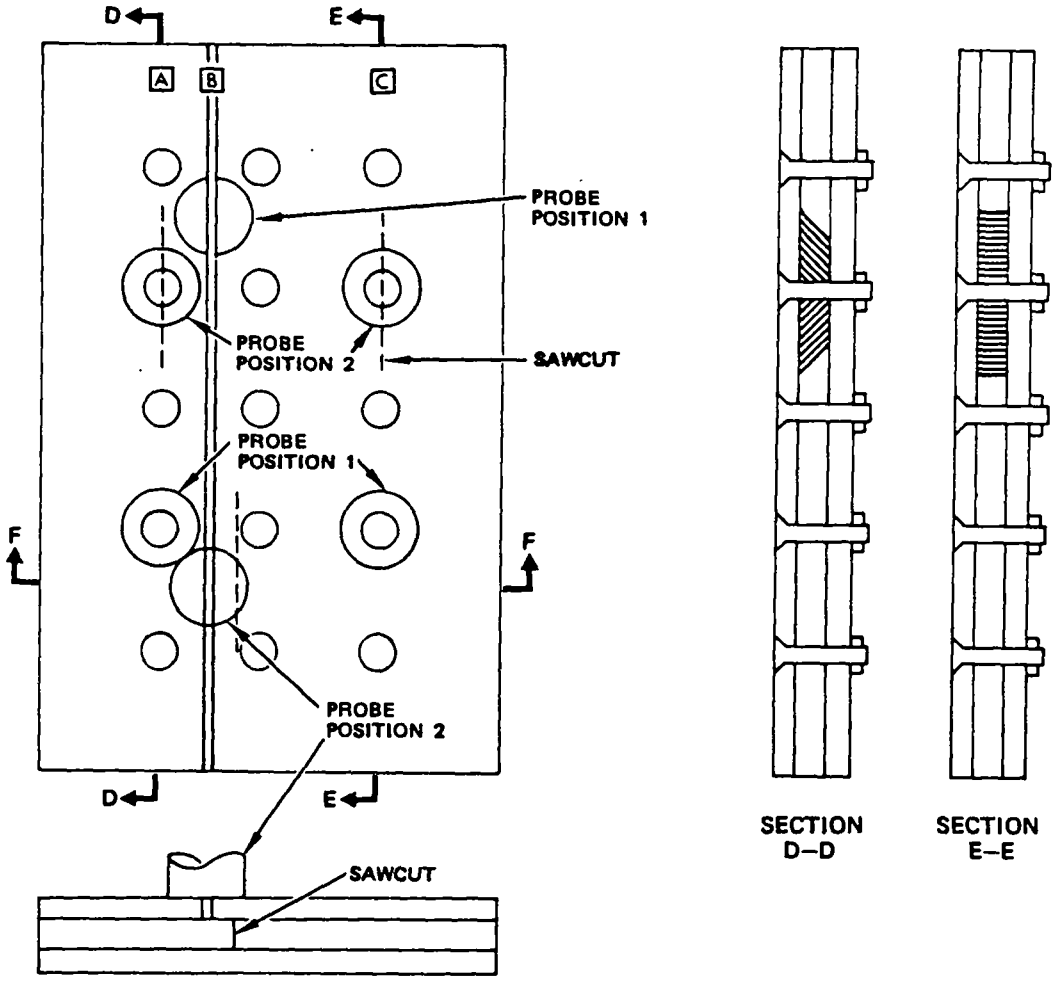
10 BACB30LU4–14 FASTENERS THIS COLUMN

11 BACB30LU5–14 FASTENERS THIS COLUMN

18 JEWELER'S SAWCUT 0.030 MAX WIDTH (3 PLACES)

REFERENCE STANDARD 001
DETAIL I

Lower Wing Skin Splice Plate at WS 360
Figure 5 (Sheet 9)

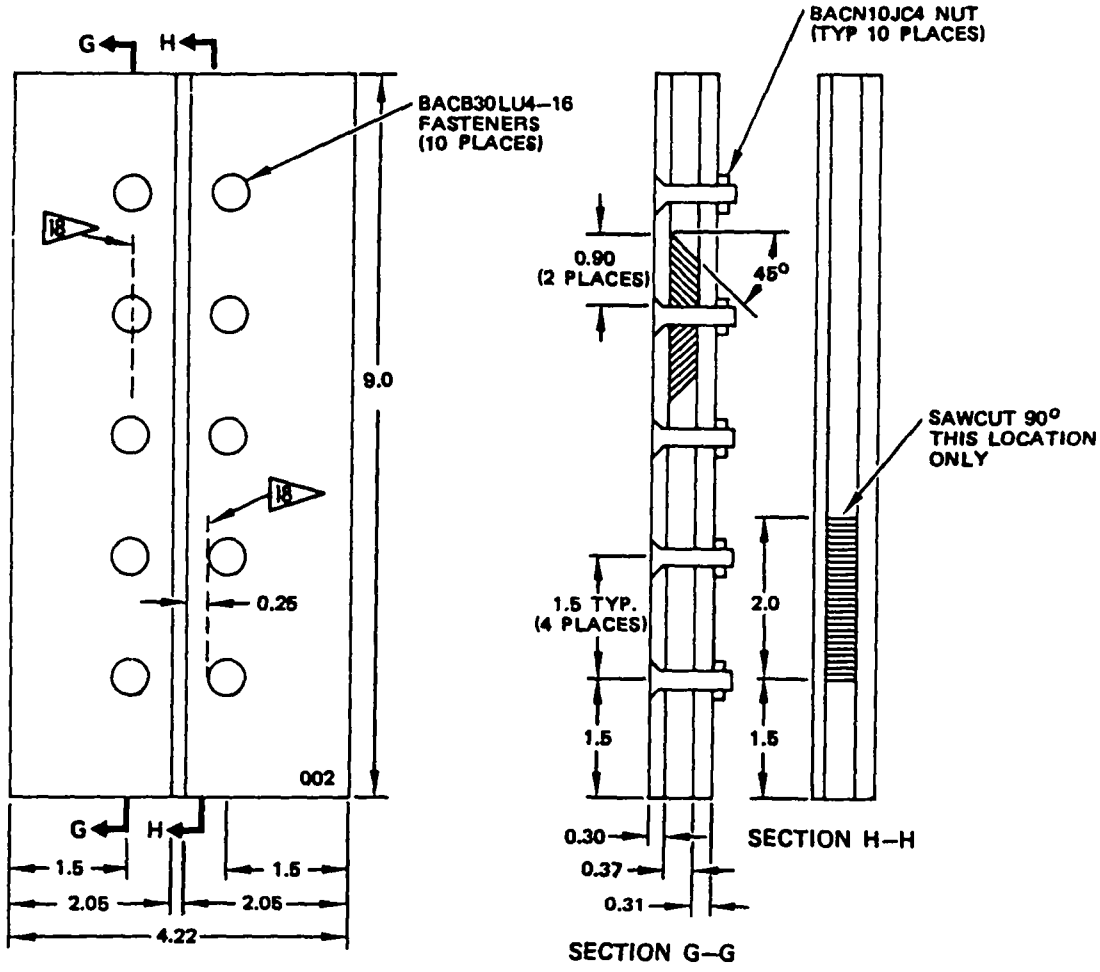


NOTES

A, B, C PROBE CALIBRATION POSITION (REF. TABLE I, CALIBRATION TABLE)

PROBE POSITION FOR CALIBRATION ON REFERENCE STANDARD 001 DETAIL II

Lower Wing Skin Splice Plate at WS 360
Figure 5 (Sheet 10)



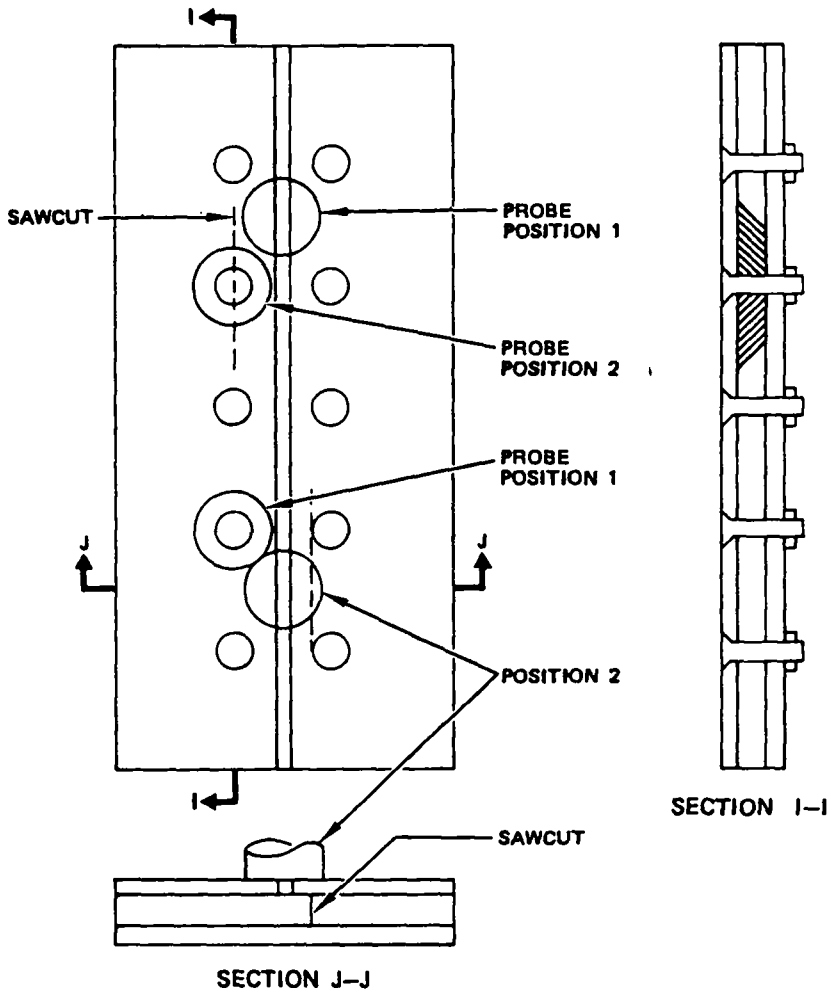
NOTES

- ALL DIMENSIONS ARE IN INCHES
- TOLERANCES: X.X ± 0.05 X.XXX ± 0.005
- MATERIAL: 2024-T3 OR T4 ALUMINUM
- ETCH OR STEEL STAMP WITH 002
- P/N 6412-15
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

(18) JEWELER'S SAWCUT 0.030 MAX WIDTH
(3 PLACES)

REFERENCE STANDARD 002
DETAIL III

Lower Wing Skin Splice Plate at WS 360
Figure 5 (Sheet 11)

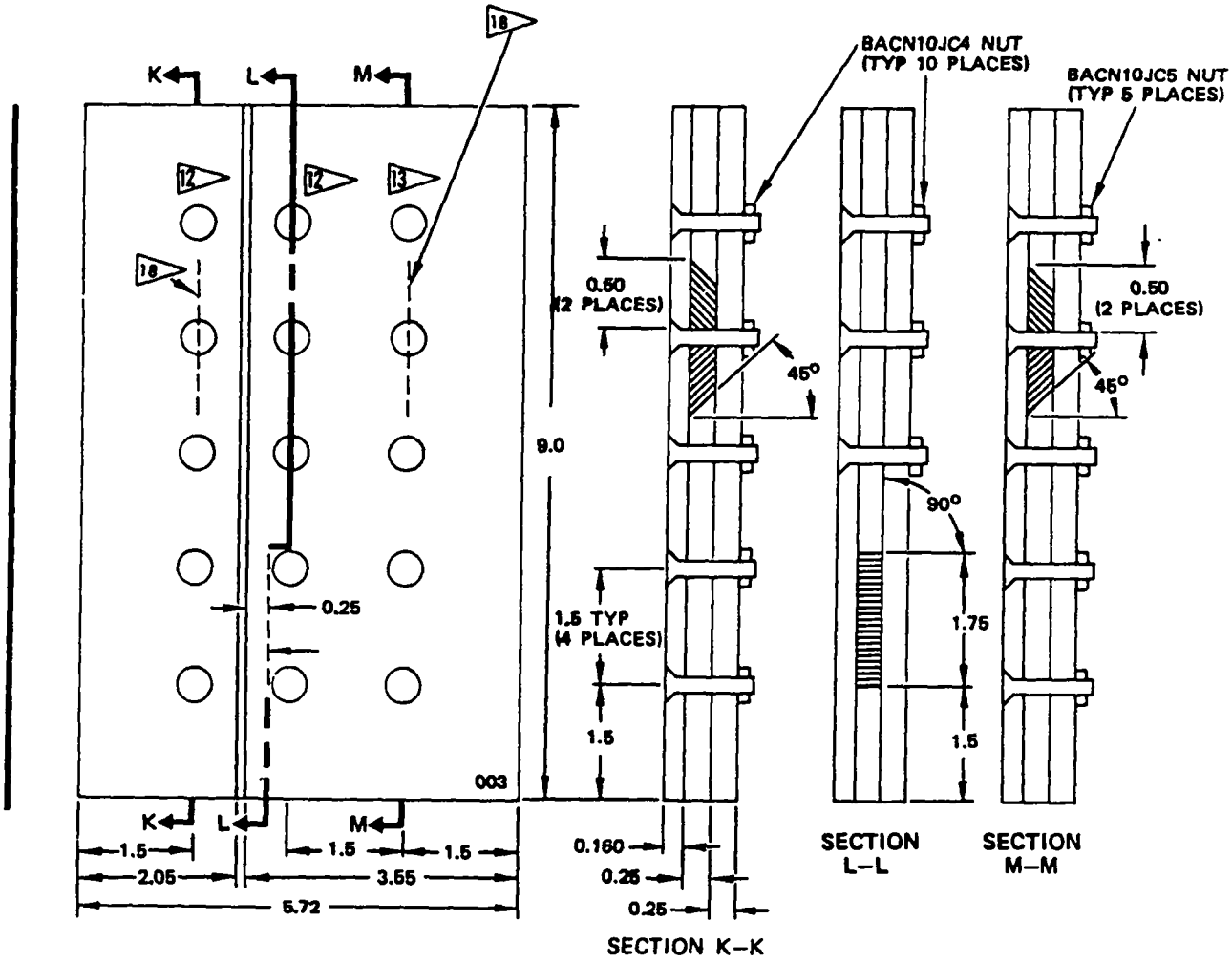


NOTES

Ⓓ, Ⓔ PROBE CALIBRATION POSITION (REF. TABLE I CALIBRATION TABLE)

PROBE POSITION FOR CALIBRATION ON REFERENCE STANDARD 002
DETAIL IV

Lower Wing Skin Splice Plate at WS 360
Figure 5 (Sheet 12)



NOTES

- TOLERANCE: X.X ± 0.05 X.XX ± 0.02 X.XXX ± 0.005
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T3 OR T4 ALUMINUM
- ETCH OR STEEL STAMP WITH 003
- P/N 6412–16
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

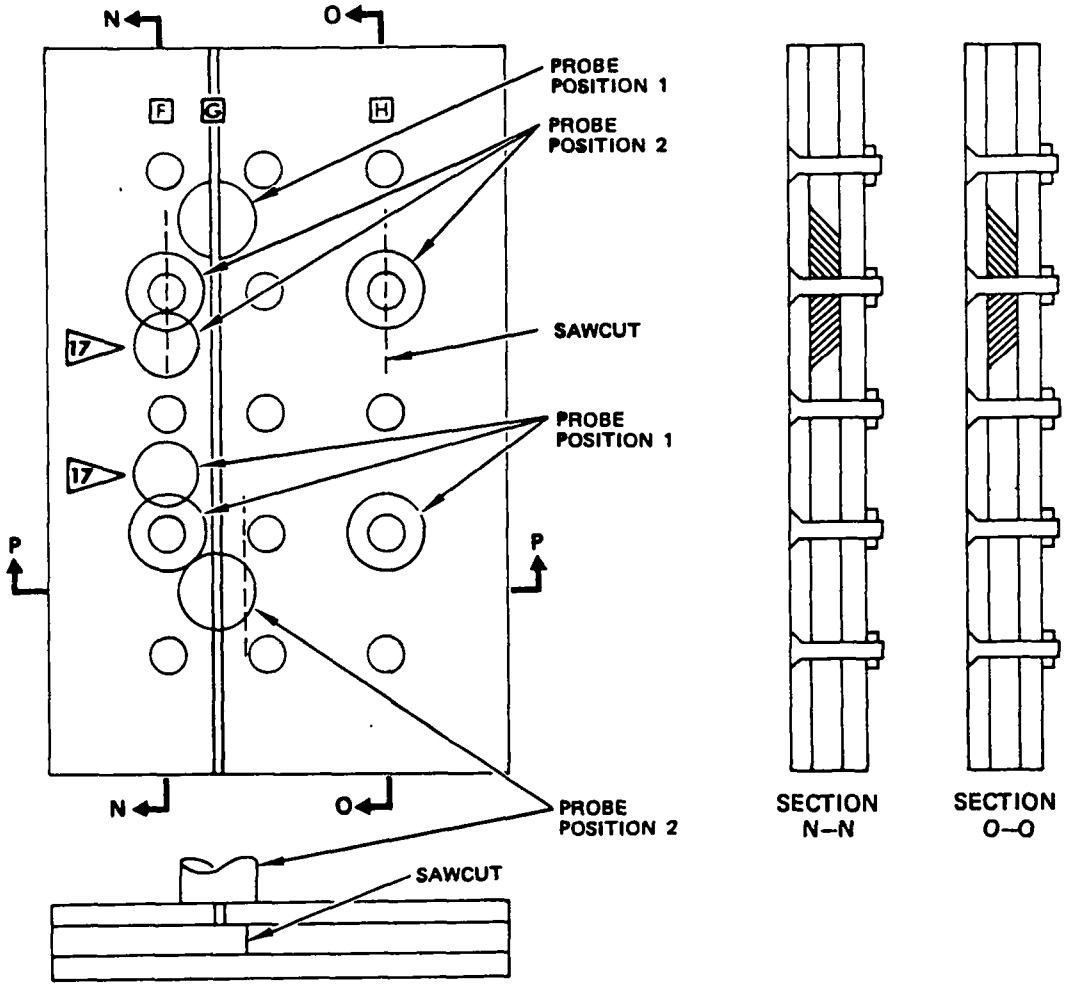
12 BACB30LU4–10 FASTENERS THIS COLUMN

13 BACB30LU5–10 FASTENERS THIS COLUMN

18 JEWELER'S SAWCUT 0.030 MAX WIDTH (2 PLACES)

REFERENCE STANDARD 003
DETAIL V

Lower Wing Skin Splice Plate at WS 360
Figure 5 (Sheet 13)



SECTION P–P

NOTES

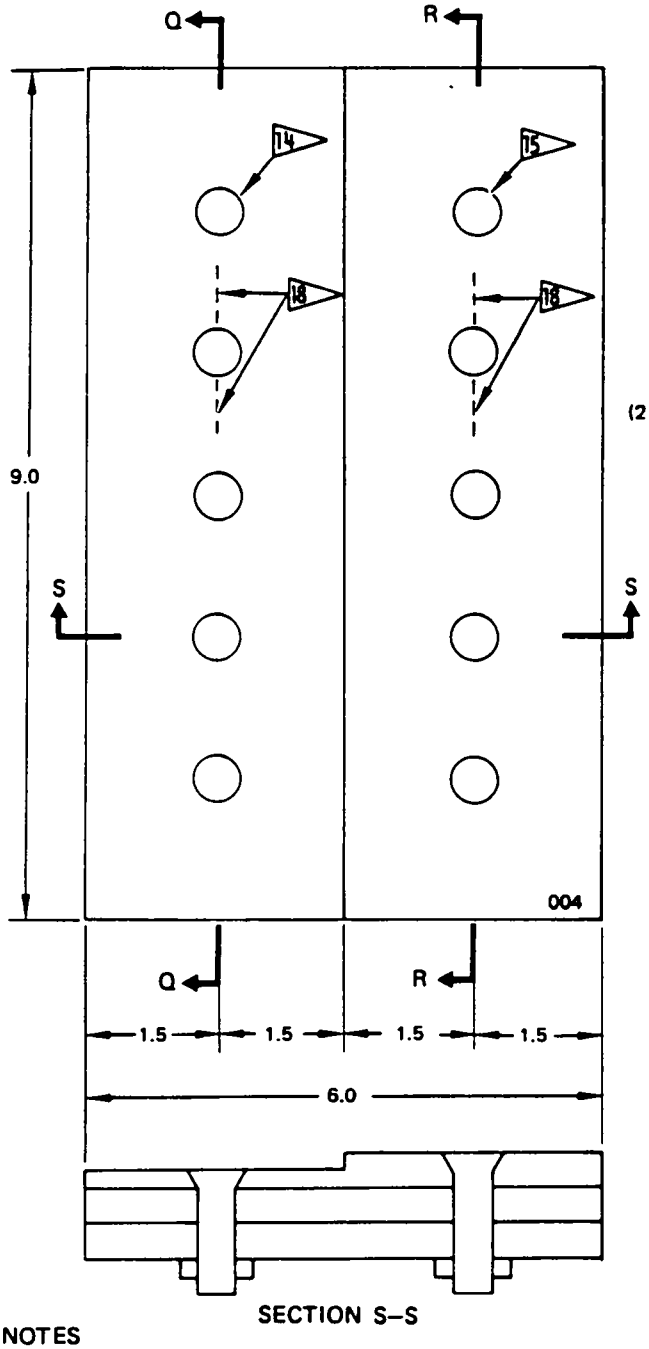
F, G, H PROBE CALIBRATION POSITION (REF TABLE I, CALIBRATION TABLE)

17 SPOT PROBE ADJACENT TO FASTENER

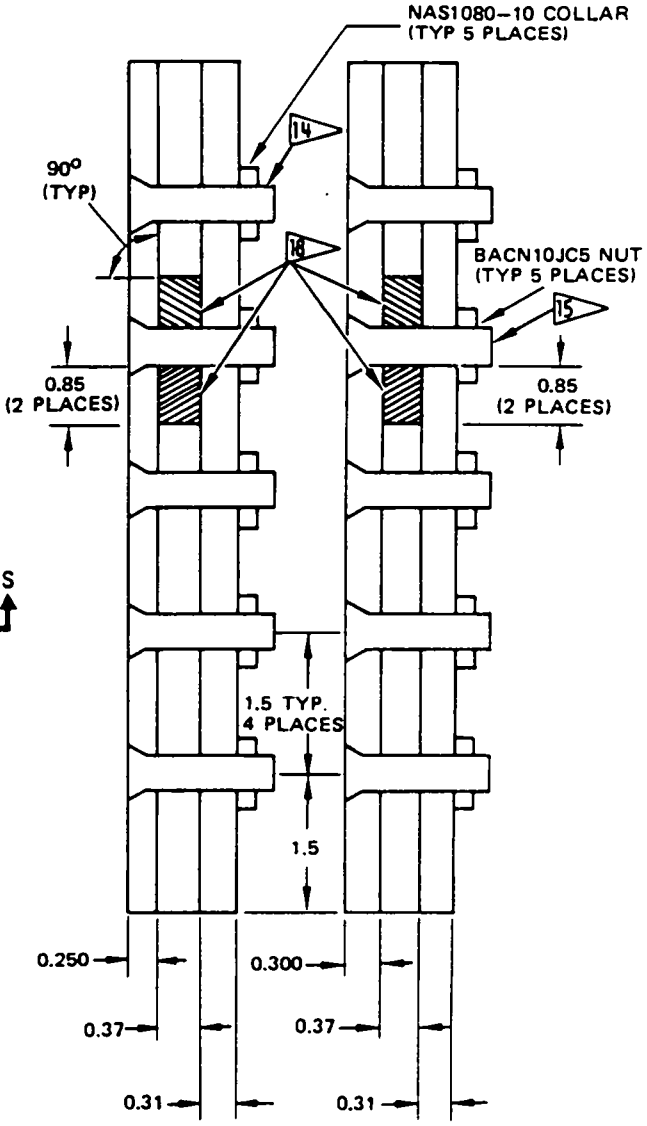
PROBE POSITION FOR CALIBRATION ON REFERENCE STANDARD 003

DETAIL VI

Lower Wing Skin Splice Plate at WS 360
Figure 5 (Sheet 14)



SECTION S–S



SECTION Q–Q SECTION R–R

NOTES

- TOLERANCE: X.X ± 0.05 X.XX ± 0.02 X.XXX ± 0.005
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T3 OR T4 ALUMINUM

- ETCH OR STEEL STAMP WITH 004
- P/N 6412–17
  AVAILABLE FROM IDEAL SPECIALTY CO.

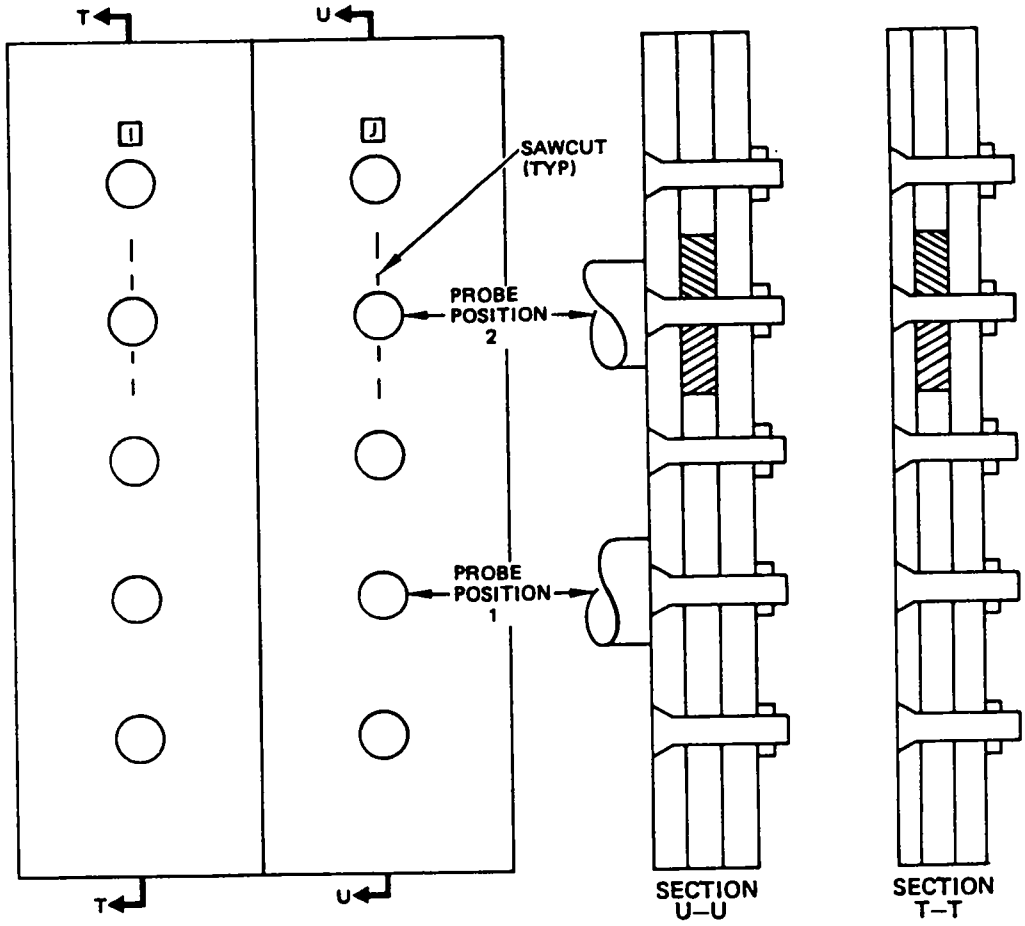
14 FASTENERS IN THIS COLUMN BACB30DY5 (5/16 DIA.) (5 PLACES)

15 FASTENERS IN THIS COLUMN BACB30LU5 (5/16 DIA.) (5 PLACES)

18 JEWELER'S SAWCUT 0.030 MAX WIDTH

REFERENCE STANDARD 004
DETAIL VII

Lower Wing Skin Splice Plate at WS 360
Figure 5 (Sheet 15)

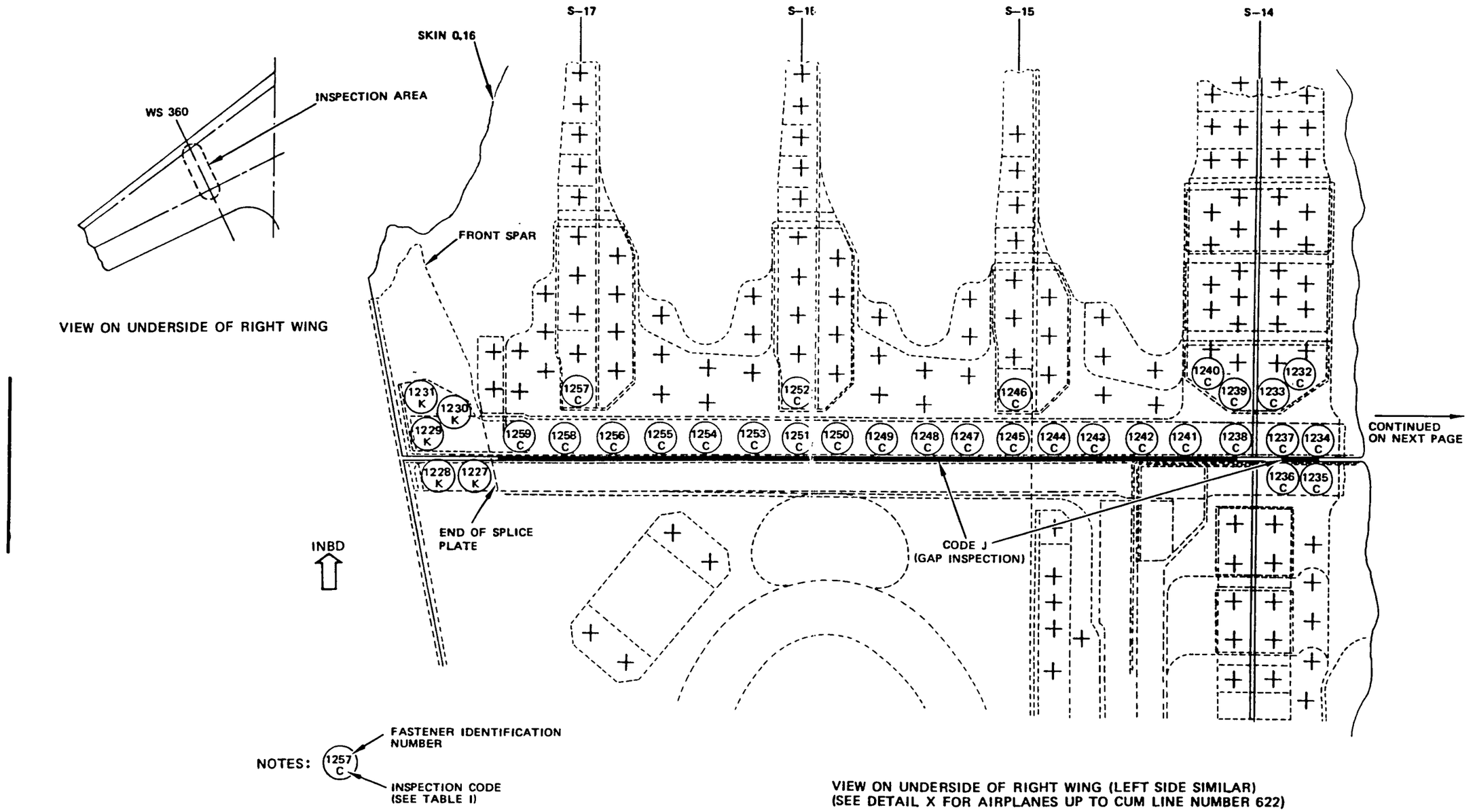


NOTES: I , J – PROBE CALIBRATION POSITION
(REF. TABLE I, CALIBRATION TABLE)

PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD "004"
DETAIL VIII

Lower Wing Skin Splice Plate at WS 360
Figure 5 (Sheet 16)

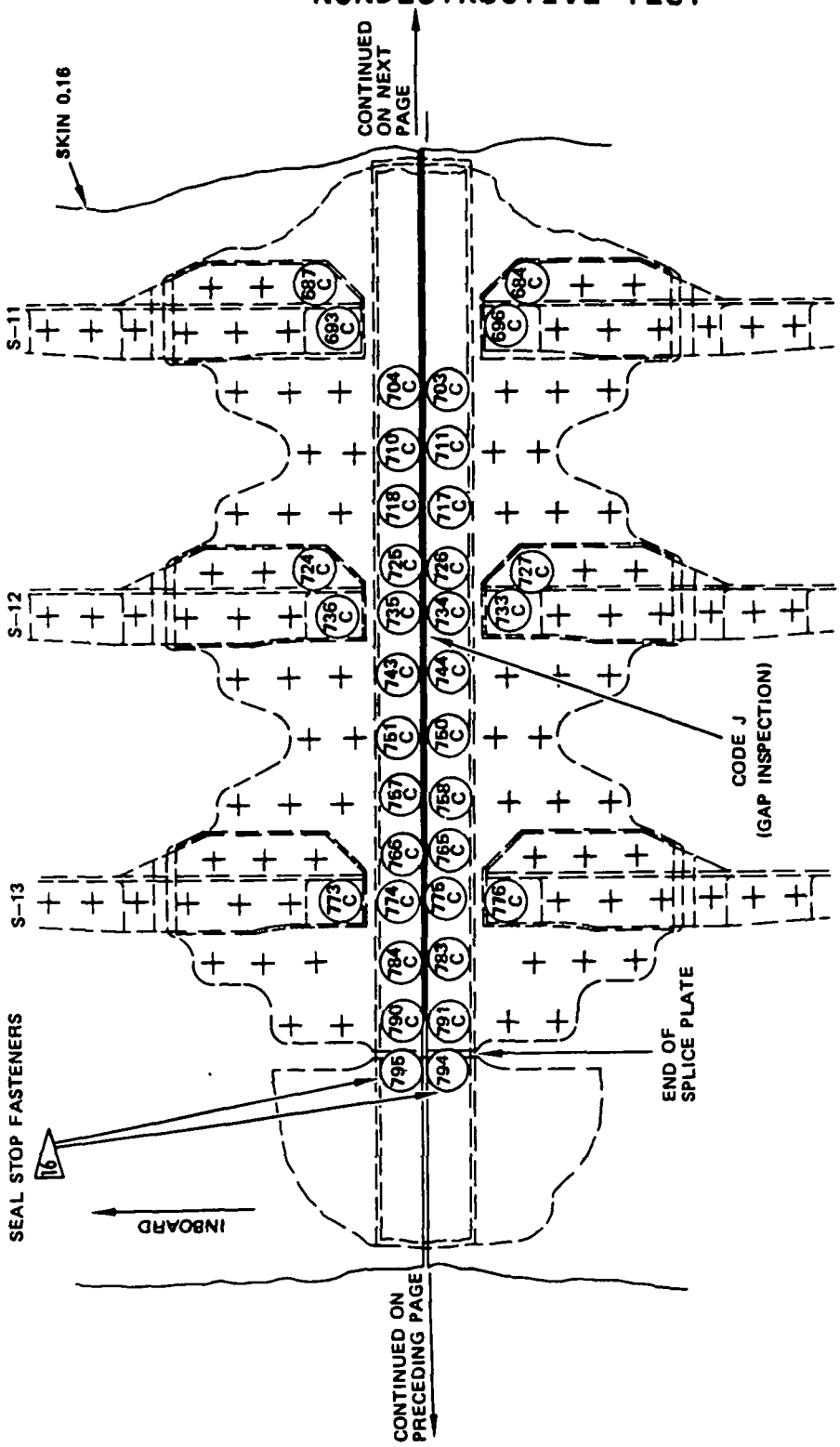
VIEW ON UNDERSIDE OF RIGHT WING



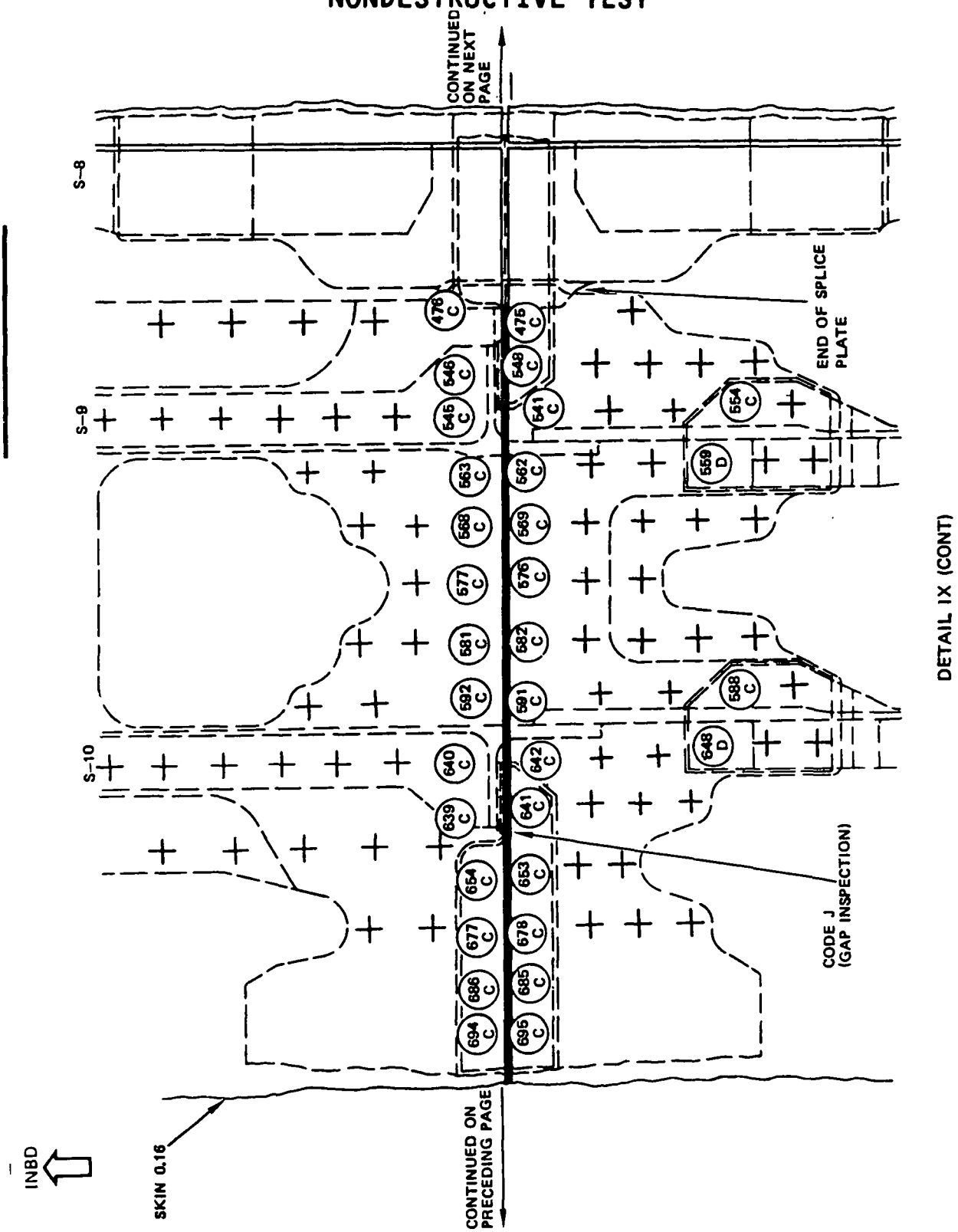
VIEW ON UNDERSIDE OF RIGHT WING (LEFT SIDE SIMILAR)
(SEE DETAIL X FOR AIRPLANES UP TO CUM LINE NUMBER 622)

DETAIL IX

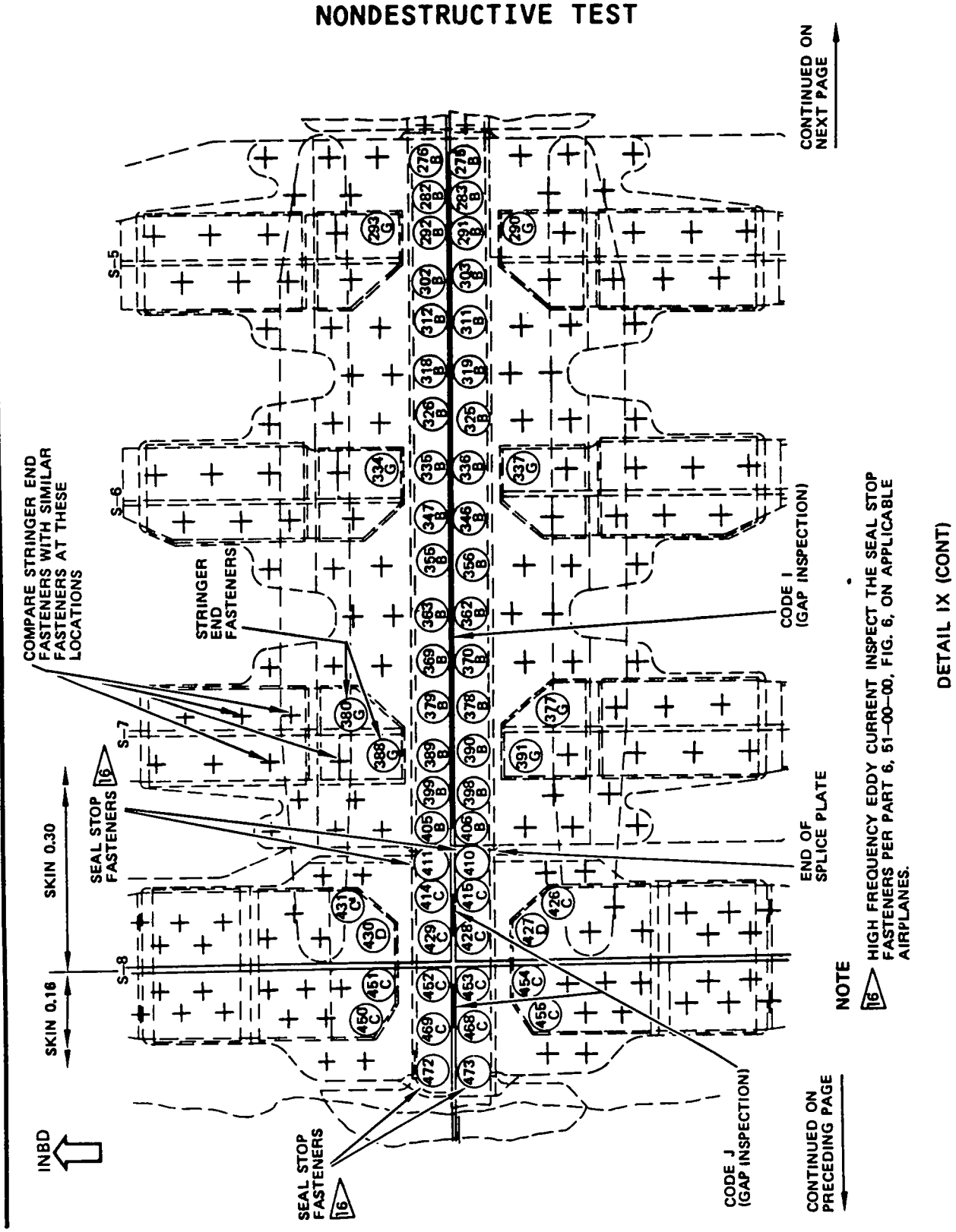
Lower Wing Skin Splice Plate at WS 360
Figure 5 (Sheet 17)



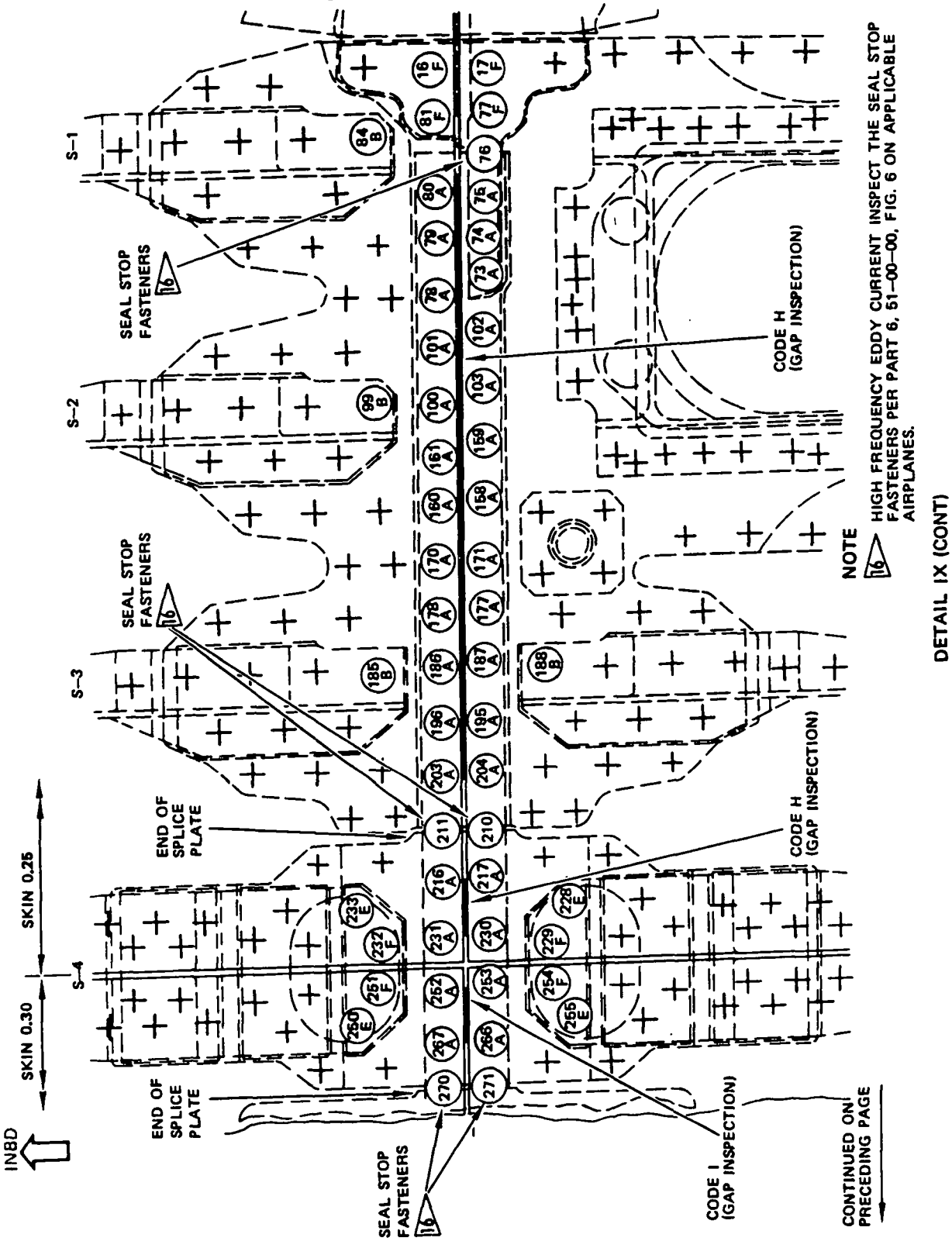
Lower Wing Skin Splice Plate at WS 360
Figure 5 (Sheet 18)



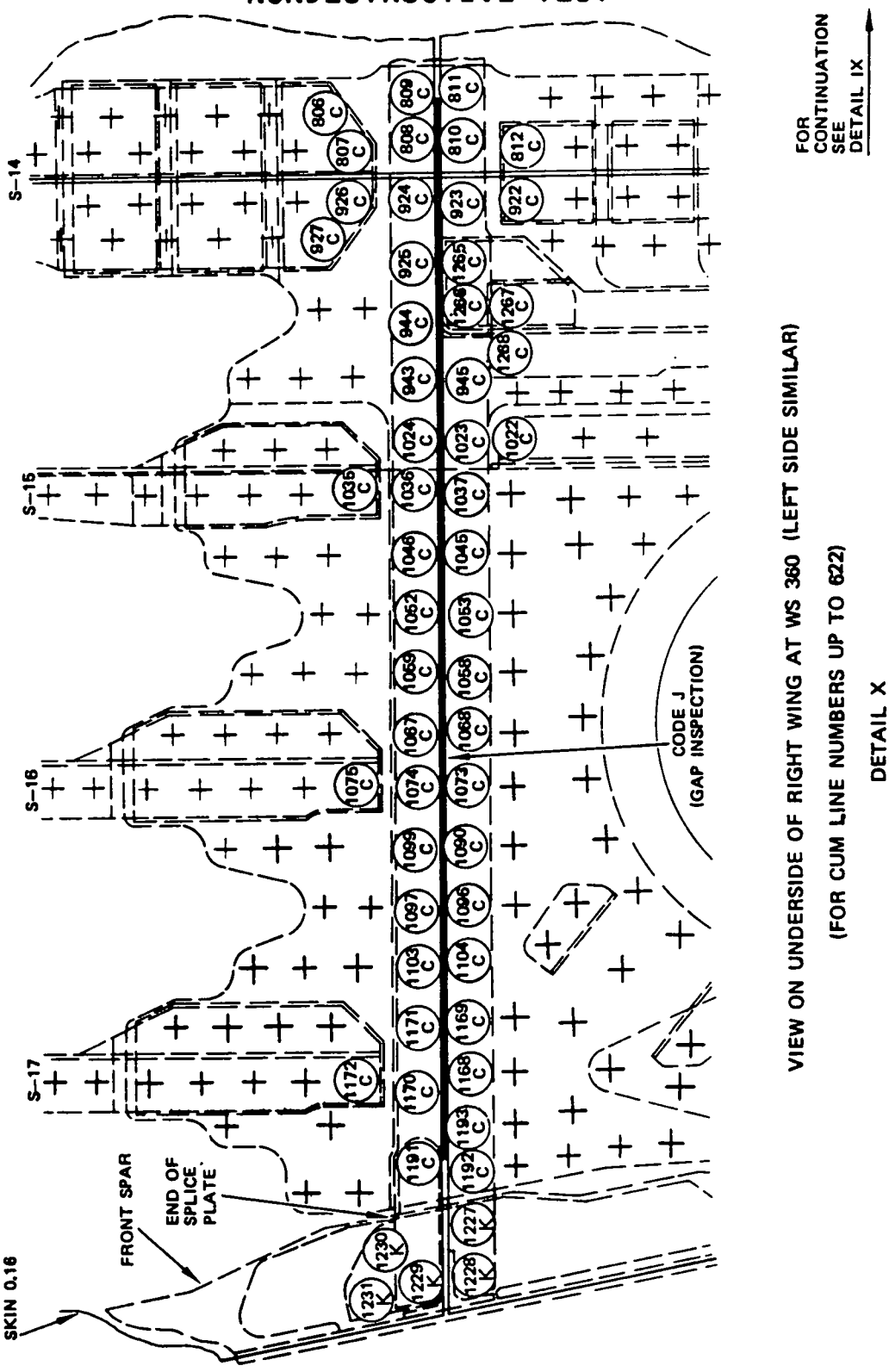
Lower Wing Skin Splice Plate at WS 360
Figure 5 (Sheet 19)



Lower Wing Skin Splice Plate at WS 360
Figure 5 (Sheet 20)



Lower Wing Skin Splice Plate at WS 360
Figure 5 (Sheet 21)



Lower Wing Skin Splice Plate at WS 360
Figure 5 (Sheet 22)

EFFECTIVITY
MODEL 707-300, -400
-320B, -320C
UP TO CUM LINE NO. 671
SSI DOCUMENT (D6-44860)
REFERENCE:
57-A25-10
57-A35-10
57-A45-10

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks in the lower WS 360 splice plate which intersect fastener holes. This inspection is accomplished from outside of the wing without fastener removal.

   B. To detect cracks in the splice plate along the gap between the wing skins at WS 360 splice.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec Inc.
      1320 N.W. Mall
      Issaquah, WA 98027

   B. Probes - This procedure uses four probes; any probe of similar size which will satisfy the performance requirements of this procedure is acceptable. The following probes were used in the development of this procedure.

      (1) Ring (encircling) probe with 1-inch OD and 0.5-inch ID shielding, 100 Hz, Nortec P/N SPO-783

      (2) Ring (encircling) probe with 1.1-inch OD and 0.625-inch ID shielding, 100 Hz, Nortec P/N SPO-1154

      (3) Ring probe with 0.7-inch OD shielding and 0.3-inch ID shielding usable at 500 Hz, Nortec P/N SPO-996

Lower Wing Splice Plate at WS 360
Figure 6 (Sheet 1)

(4) Low frequency spot probe with 0.55-inch OD shielding usable at 500 Hz, Nortec P/N SPO-1125

NOTE: Probes listed above are available from:
Nortec Inc.
421 N. Quay
Kennewick, Washington 99336

Specify instrument with which probe is to be used or instrument connector required when ordering.

C. Reference Standards

(1) Manufacture per Details I, III, V and VII

3. Preparation for Inspection

A. Wipe skin surface clean.

B. It is suggested that fastener locations requiring the same instrument calibration for inspection be identified on the airplane by a colored circle. Water washable crayons, pencils or felt pens are suitable. Refer to Table I and Detail IX for inspection requirements.

4. Instrument Calibration

A. General

(1) Three basic inspection types are required.

(a) Inspection for fastener hole cracks using a ring probe centered on the fastener.

(b) Inspection for fastener hole cracks using a spot probe positioned adjacent to a fastener.

(c) Inspection for cracks along the WS 360 splice skin-gap using a ring probe as a spot probe.

(2) The three basic inspections require several instrument calibrations to adjust for variations in structure geometry and materials.

(3) Detail IX identifies inspection coverage for a particular calibration, and Table I provides specific calibration information for that inspection.

B. Calibration for fastener hole crack inspection using the ring probe centered on the fastener. The following calibration applies to inspection codes A thru F.

(1) Identify code for fasteners to be inspected from Detail IX.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

(3) Visually center probe over the unnotched reference standard hole, Position 1.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(6) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

(7) Center probe over the notched reference standard hole, Position 2. Response should be upscale.

(8) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(9) Recheck null and liftoff. If readjustments are made recheck sensitivity per step B.(8).

(10) Cracks will be indicated by a higher meter response.

C. Calibration for cracks in the splice plate along the gap between wing skins at W.S. 360 splice using a ring probe as a spot probe. The following calibration applies to inspection codes G, H and I.

(1) Refer to Detail IX for inspection coverage coding along WS 360 centerline.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

Lower Wing Splice Plate at WS 360
Figure 6 (Sheet 3)

(3) Visually center probe over unnotched area of the skin gap on the reference standard, Position 1.

(4) Balance instrument per manufacgurer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper). Care should be taken to hold the probe in the same position relative to the skin gap to avoid confusion during liftoff adjustment.

(6) Recenter the probe at Position 1 and set meter response at 20% of full scale with meter position control.

NOTE: Probe is centered over the skin gap by moving the probe across the gap to obtain a maximum meter response.

(7) Center probe over skin gap at notched location, Position 2. Meter response should be upscale.

(8) Adjust instrument sensitivity to obtain a 50% of full scale meter response difference between the notched and unnotched positions.

(9) Recheck null and liftoff. If readjustments are made, recheck sensitivity per par. C.(8).

(10) Cracks will be indicated by a higher meter response.

D. Calibration for fastener hole crack inspection using a spot probe placed adjacent to the fastener head. The following calibration applies to inspection code J.

(1) Refer to Table I for reference standard, probe, and calibration details for inspection code J.

(2) Place probe adjacent to the unnotched reference standard hole, Position 1.

(3) Balance instrument per manufacturer's instructions.

(4) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is located at Position 1 during liftoff calibration.

(5) With the probe adjacent to the unnotched hole Position 1, adjust meter response to read 20% of full scale with meter position control.

(6) Position probe adjacent to the notched reference standard hole, Position 2. Response should be upscale.

(7) Adjust instrument sensitivity to obtain a 50% of full scale meter response difference between the notched and unnotched holes, Positions 1 and 2.

(8) Reposition probe at Position 1 and check null and liftoff. If readjustments are made recheck sensitivity per par. D.(7).

(9) Cracks will be indicated by a higher meter response.

5. Inspection Procedure

A. Inspection of fastener holes for cracks using the ring probe centered on the fastener. Inspection codes A thru F.

(1) Accomplish inspectionsof codes A thru F in the order given in Table I.

(2) Calibrate instrument per par. 4.B. and Table I.

(3) Note on the airplane the location of those fasteners having the same inspection code by using Detail IX.

NOTE: An inspection code is used to identify locations having similar inspection conditions. A single instrument calibration is usually used to inspect these locations.

It is suggested that a copy of Detail IX be made and that it be used to record instrument responses at each fastener location. This is helpful in maintaining continuity between the groups of fastener during inspection.

(4) Use several fasteners to establish the airplane baseline response for an acceptable fastener.

(a) Select a representative fastener from this group and set its response to 20% of full meter scale.

NOTE: Do not change instrument sensitivity when establishing the airplane baseline response.

(b) Refer back to this fastener periodically to ensure that the instrument response is the same as originally recorded. (Changes in meter response may occur as a result of instrument drift or probe temperature change.)

Lower Wing Splice Plate at WS 360
Figure 6 (Sheet 5)

(5) Inspect each fastener having the same inspection code by centering the probe on the fastener and manipulating to obtain a minimum response.

NOTE: Review the "Special Notes" called out in Table I for conditions which affect the inspection.

(6) The following are potential crack indications and further investigation is required.

(a) Fastener locations with inspection coding A, B or C (Ref Table I) which give a response which is 30% of full meter scale higher than the established baseline.

(b) Fastener locations with inspection coding D, E or F (Ref Table I) which give a response which is 40% of full meter scale higher than the established baseline.

NOTE: The following conditions may cause meter reading changes similar to crack indications:

1) A decrease in fastener spacing - compare with similarly spaced fasteners on the airplane.

2) End of splice plate - check Detail IX for splice plate locations.

3) A larger or smaller fastener - compare with similar fasteners of reference standard and on airplane.

4) A fastener that is different in countersink depth - compare with similar fastener in standard raised to the same height.

5) A fastener close to edge of skin - compare with similar fasteners on airplane.

6) Differences in conductivity between skin panels - compare only the fastener location common to a skin panel.

B. Inspection of the splice plate along the gap between wing sking at WS 360 splice using a ring probe as a spot probe. Inspection codes G, H and I.

(1) Accomplish inspection of codes G, H and I, in the order given in Table I.

(2) Calibrate instrument per par. 4.C. and Table I.

(3) Start the inspection at Stringer S-1.

(4) Select a section of wing skin splice in the area of Stringer S-1, which has fastener spacing and edge margin similar to the reference standard.

(5) Center the probe on the skin joint at this location to establish a baseline response. Note this location and periodically refer to it to ensure that the instrument response has not changed.

NOTE: Minor adjustments to the meter position control will be required since the reference standard does not exactly duplicate the airplane structure. The minor adjustments must be made with the probe on a crack-free area of the structure. Do not change instrument sensitivity when establishing the airplane baseline response.

(a) When the maximum gap response is obtained over a crack-free area, the probe will be directly centered on the skin gap.

(b) A double check can also be made by positioning the probe over the end of the splice plate. Check Detail IX for locating ends of splice plates. This will result in a typical full meter deflection, as in a crack indication. Comparing this indication with meter readings taken at other locations will aid in selecting a crack-free area for the final minor adjustments to the instrument before inspection.

(6) Inspect the length of the splice plate indicated for the particular calibration code, see Detail IX. Perform the inspection by slowly scanning the probe across the skin joint (inbd/outbd direction) to obtain the maximum meter response. If inspection cannot be accomplished because fasteners are spaced too close to the edge of the skin, inspect between fasteners along the centerline of the splice plate.

NOTE: Review the "Special Notes" listed in Table I for conditions which affect the inspection.

(7) Any location which gives a response 30% of full meter scale higher than the established baseline should be investigated further.

NOTE: Metal chips trapped in the sealant at the skin joint may cause a crack-like indication. Remove sealant and reinspect.

Lower Wing Splice Plate at WS 360
Figure 6 (Sheet 7)

C. Inspection of fastener holes for cracks using a spot probe adjacent to the fastener (inspection code J).

(1) Calibrate the instrument per par. 4.D. and Table I.

(2) Note on the airplane the location of code J fasteners using Detail IX.

(3) Inspect each code J fastener by placing the probe adjacent to the fastener head and scanning about the head.

NOTE: The WS 360 skin splice may prevent a complete inspection around the fastener head. Inspect to the extent possible.

When scanning about a fastener head maintain a uniform distance between probe and fastener head.

(4) Any location which gives a response which is 30% of full meter scale higher than the baseline response should be investigated further.

Lower Wing Splice Plate at WS 360
Figure 6 (Sheet 7A)

NONDESTRUCTIVE TEST

INSPECTION CODE [1]	REFERENCE STANDARD NO.	PROBE IDENTIFICATION [2]	INSTRUMENT FREQUENCY HZ	DETAIL NO. FOR CALIBRATION	PROBE CALIBRATION [3] POSITION	SPECIAL NOTES
A	006	(1)	100	II	A	
B	007	(1)	100	IV	D	
C	008	(1)	100	VI	F	4
D	006	(2)	100	II	C	
E	009	(2)	100	VIII	I	5
F	009	(2)	100	VIII	H	6
G	006	(3)	500	II	B	
H	007	(3)	500	IV	E	7
I	008	(3)	500	VI	G	
J	008	(4)	500	VI	F	8

CALIBRATION TABLE
TABLE I

NOTES

[1] Code for specific inspection areas identified on Detail IX to which the calibration requirements apply.

[2] Probe Idenfication:
(1) P/N SPO-783 - 1-inch OD and 0.5-inch ID ring probe.
(2) P/N SPO-1154 - 1.1-inch OD and 0.62-inch ID ring probe.
(3) P/N SPO-996 - 0.7-inch OD and 0.3-inch ID ring probe used as a spot probe.
(4) P/N SPO-1125 - 0.55-inch OD spot probe.

[3] Flagnote refers to "Probe Position for Calibration" Details (Details II, IV, VI and VIII) as indicated in this table and identifies that part of the reference standard used for this calibration.

Lower Wing Splice Plate at WS 360
Figure 6 (Sheet 7B)

4> NOTE: For fastener locations refer to Detail IX.

a. Fasteners #595, 596, 481, 482, and 483 have shorter edge margin and thinner structure and will give a response approximately 40% of full meter scale higher than the established baseline. Compare these fasteners separately.

b. Fasteners at stringer ends may be compared with similar adjacent fasteners common to the stringer end being inspected which are further away from WS 360 . See Detail IX (typical example).

5> Establish baseline response by comparing with similar adjacent fasteners further away from WS 360 and common to the stringer end under inspection.

6> Fastener locations at stringer ends may be compared with similar adjacent fasteners common to the stringer end being inspected and further away from WS 360. See Detail IX (typical example).

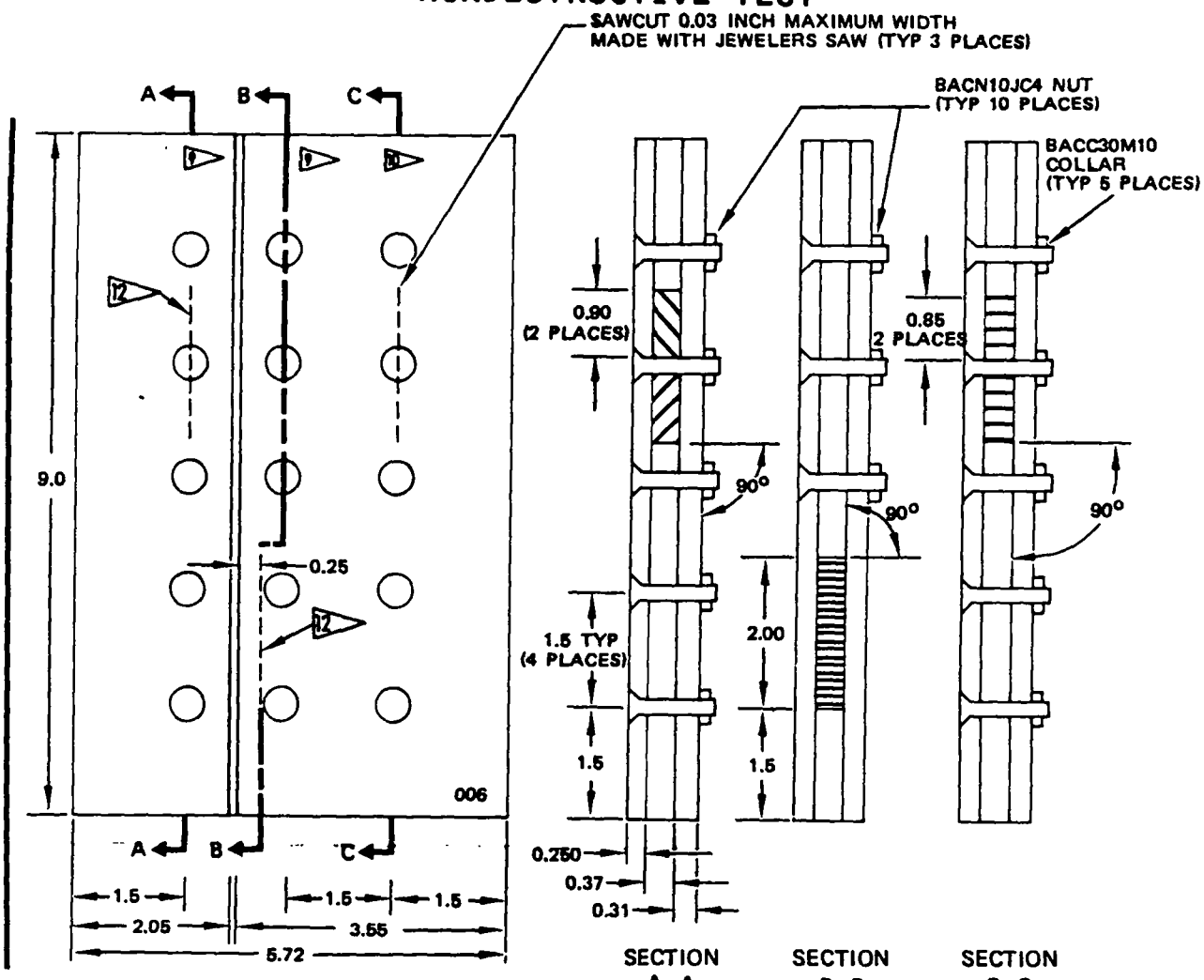
7> a. Start inspection at end of splice plate between S-7 and S-8 proceed towards the centerline of S-4.

b. When probe is placed over the skin gap between fasteners #249 and #235 at S-4 the response should be approximately 40% of full meter scale lower than the baseline response established between S-7 and S-5. This lower response is due to a change in skin thickness.

8> Do not inspect the aft side of fasteners 1155 and 1150 because of interference from short edge margin of internal structure.

13> When probe is placed over the skin gap between fasteners #212-213 and #199-198 at S-4 the response should be approximately 30% to 35% of full meter scale higher than baseline response established between S-2 and S-3. For fastener location refer to Detail IX.

NONDESTRUCTIVE TEST



NOTES

- TOLERANCE: X.X ± 0.05 X.XX ± 0.02 X.XXX ± 0.005
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T3 OR T4 ALUMINUM
- ETCH OR STEEL STAMP WITH 006
- P/N 6412–18
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

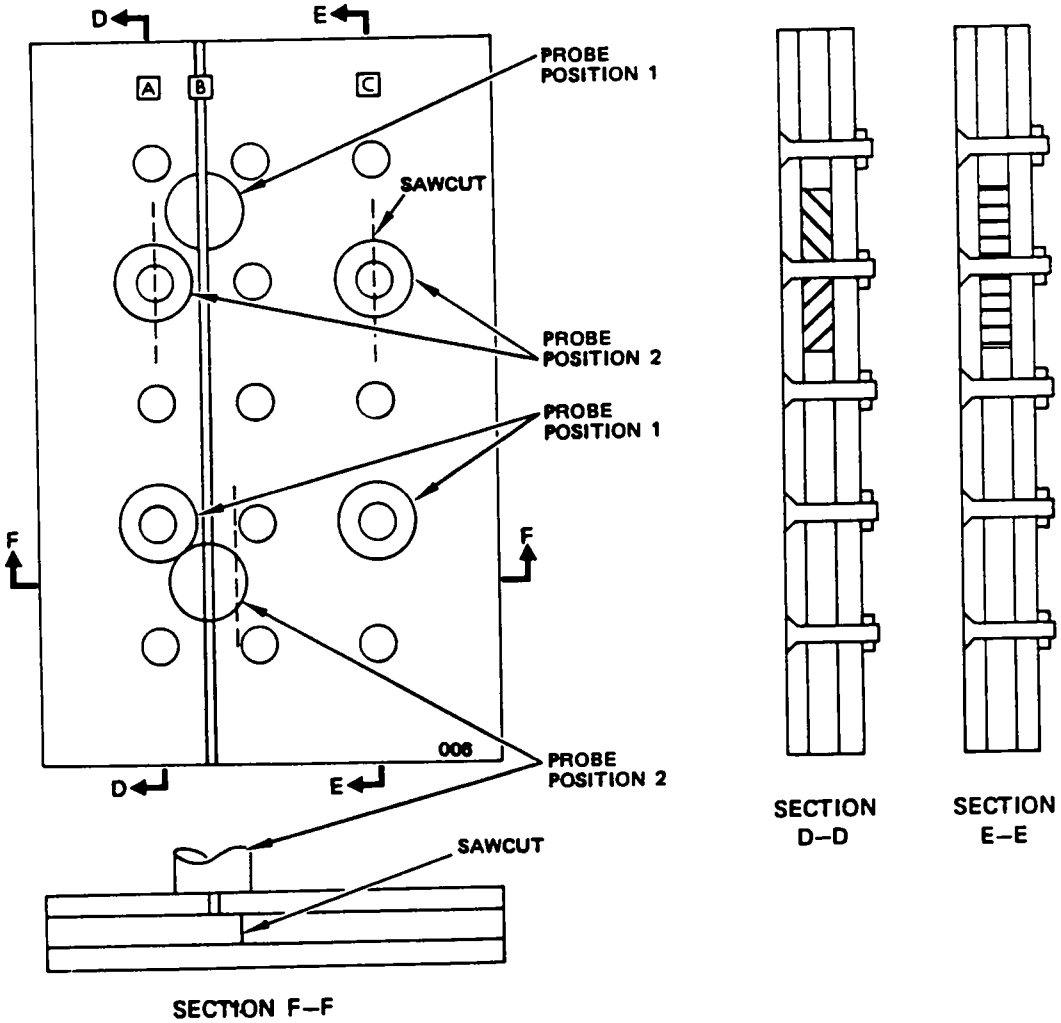
9 BAC830LU4–14 FASTENERS THIS COLUMN

10 BAC830FN10–15 FASTENERS THIS COLUMN

12 JEWELER'S SAWCUT 0.030 MAX WIDTH
(2 PLACES)

REFERENCE STANDARD 006
DETAIL I

Lower Wing Skin Splice Plate at WS 360
Figure 6 (Sheet 9)



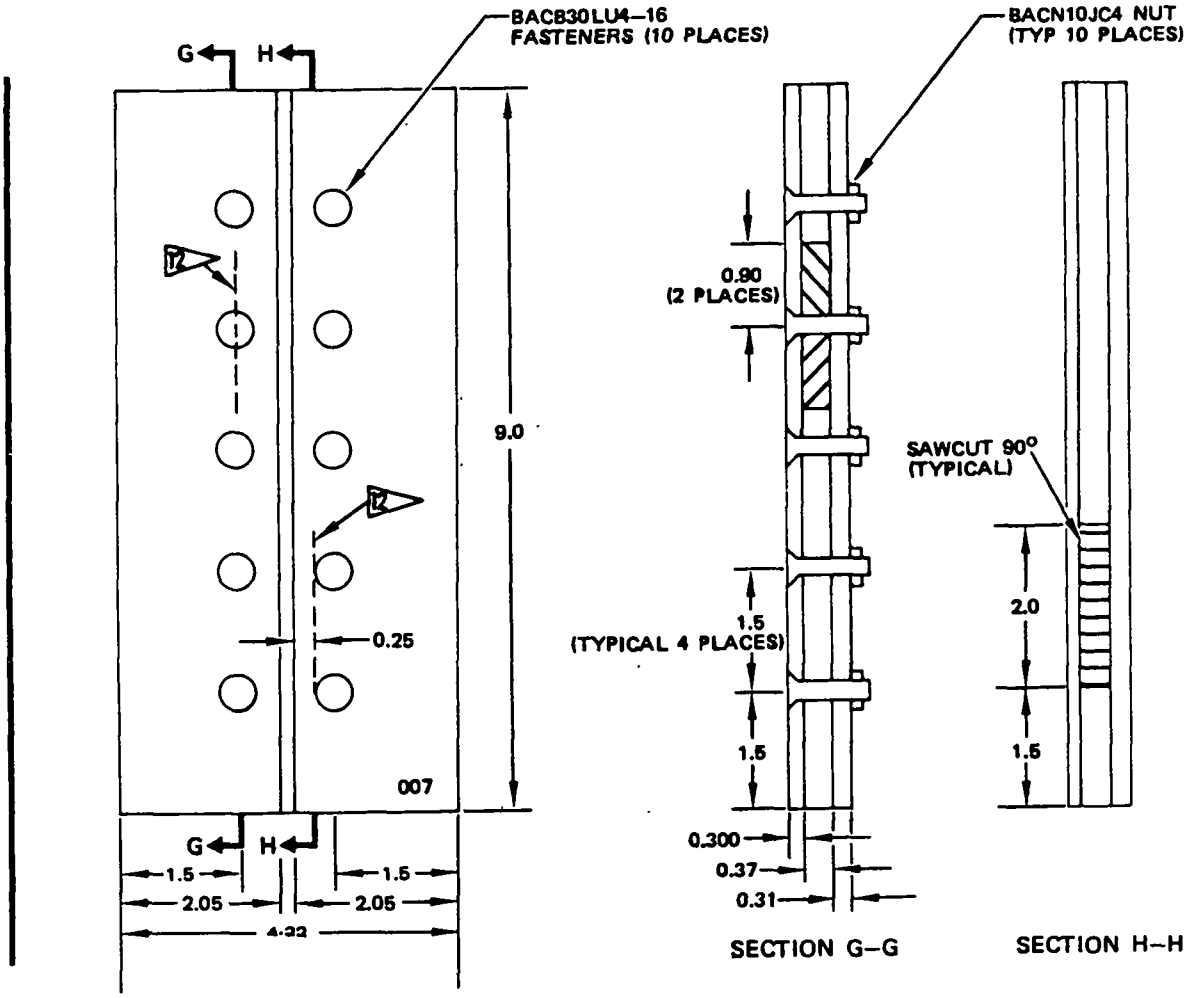
NOTES

A, B, C PROBE CALIBRATION POSITION (REF. TABLE I, CALIBRATION TABLE)

PROBE POSITION FOR CALIBRATION ON REFERENCE STANDARD 006

DETAIL II

Lower Wing Splice Plate at WS 360
Figure 6 (Sheet 10)



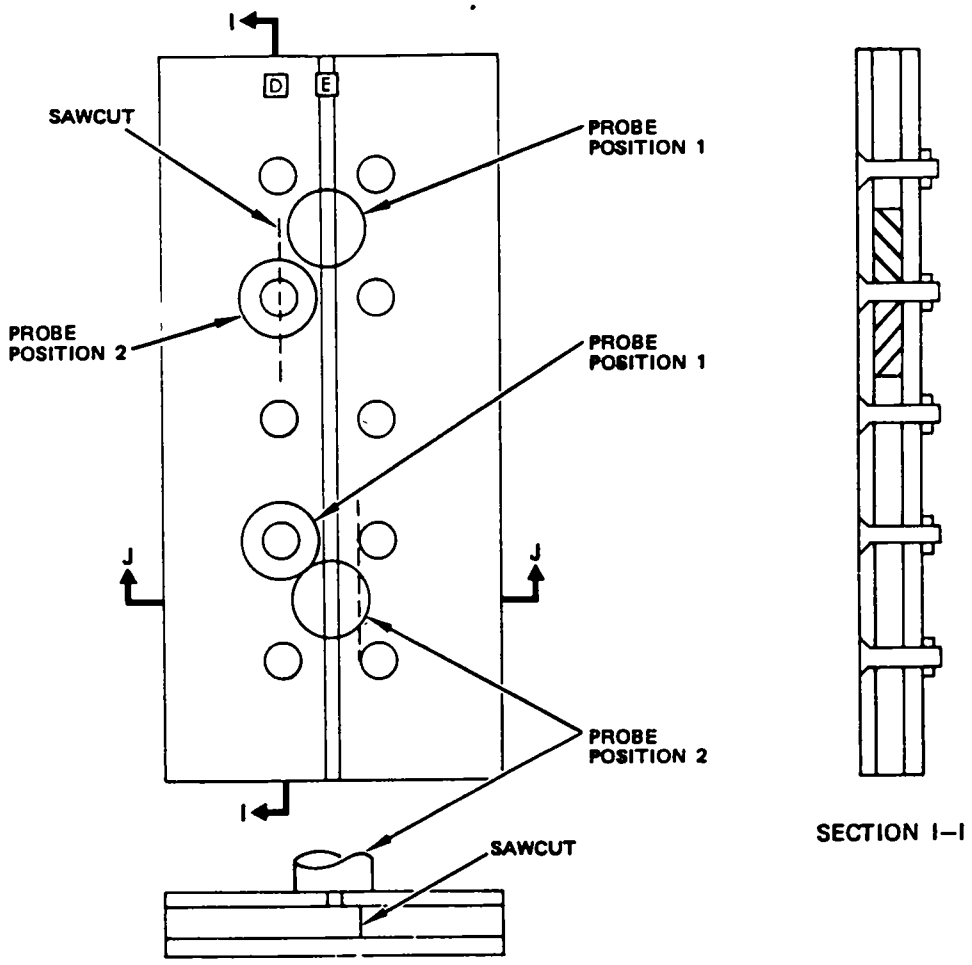
NOTES

- TOLERANCES: X.X ± 0.05 X.XX ± 0.02 X.XXX ± 0.005
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024-T3 OR T4 ALUMINUM
- ETCH OR STEEL STAMP WITH 007
- P/N 6412-19
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2631 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

12 JEWELER'S SAWCUT 0.030 MAX WIDTH
(2 PLACES)

REFERENCE STANDARD 007
DETAIL III

Lower Wing Splice Plate at WS 360
Figure 6 (Sheet 11)



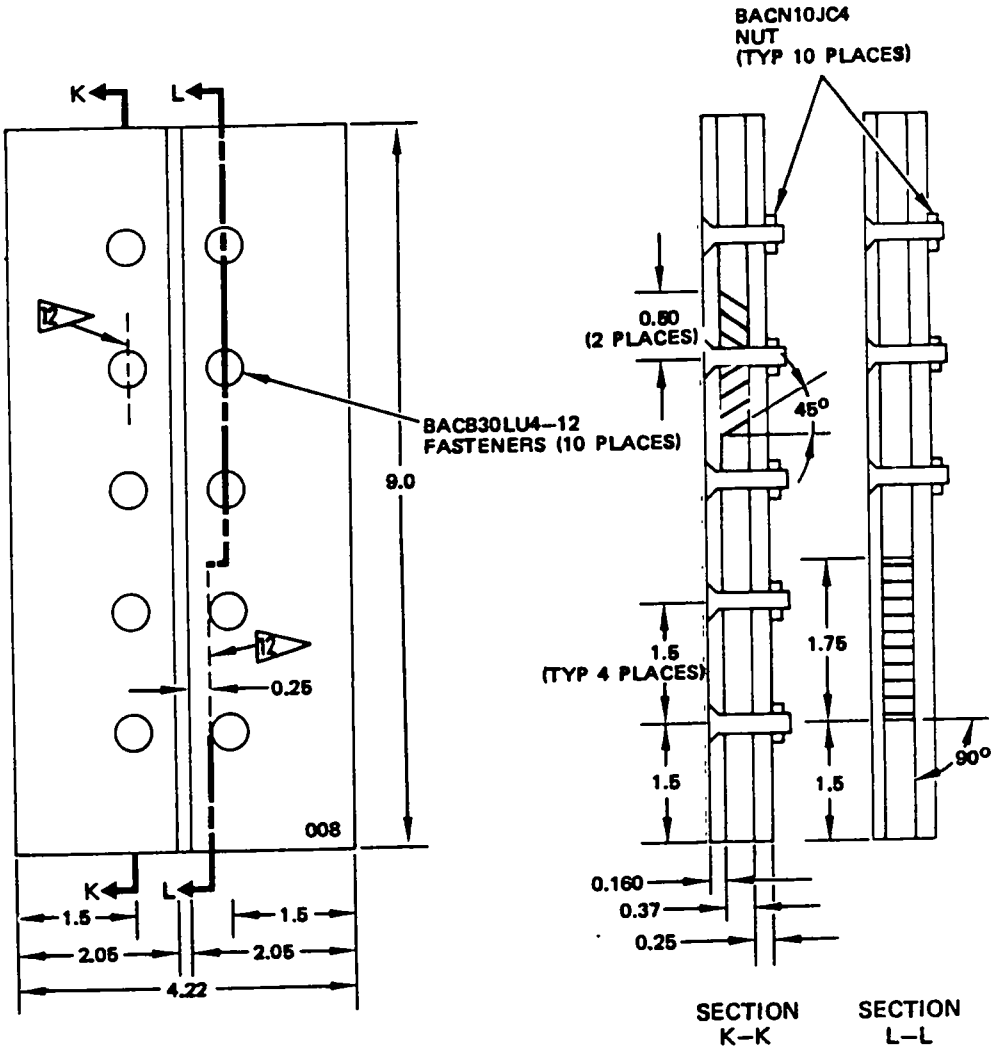
NOTES

D , E PROBE CALIBRATION POSITION (REF. TABLE I, CALIBRATION TABLE)

PROBE POSITION FOR CALIBRATION ON REFERENCE STANDARD 007.

DETAIL IV

Lower Wing Splice Plate at WS 360
Figure 6 (Sheet 12)



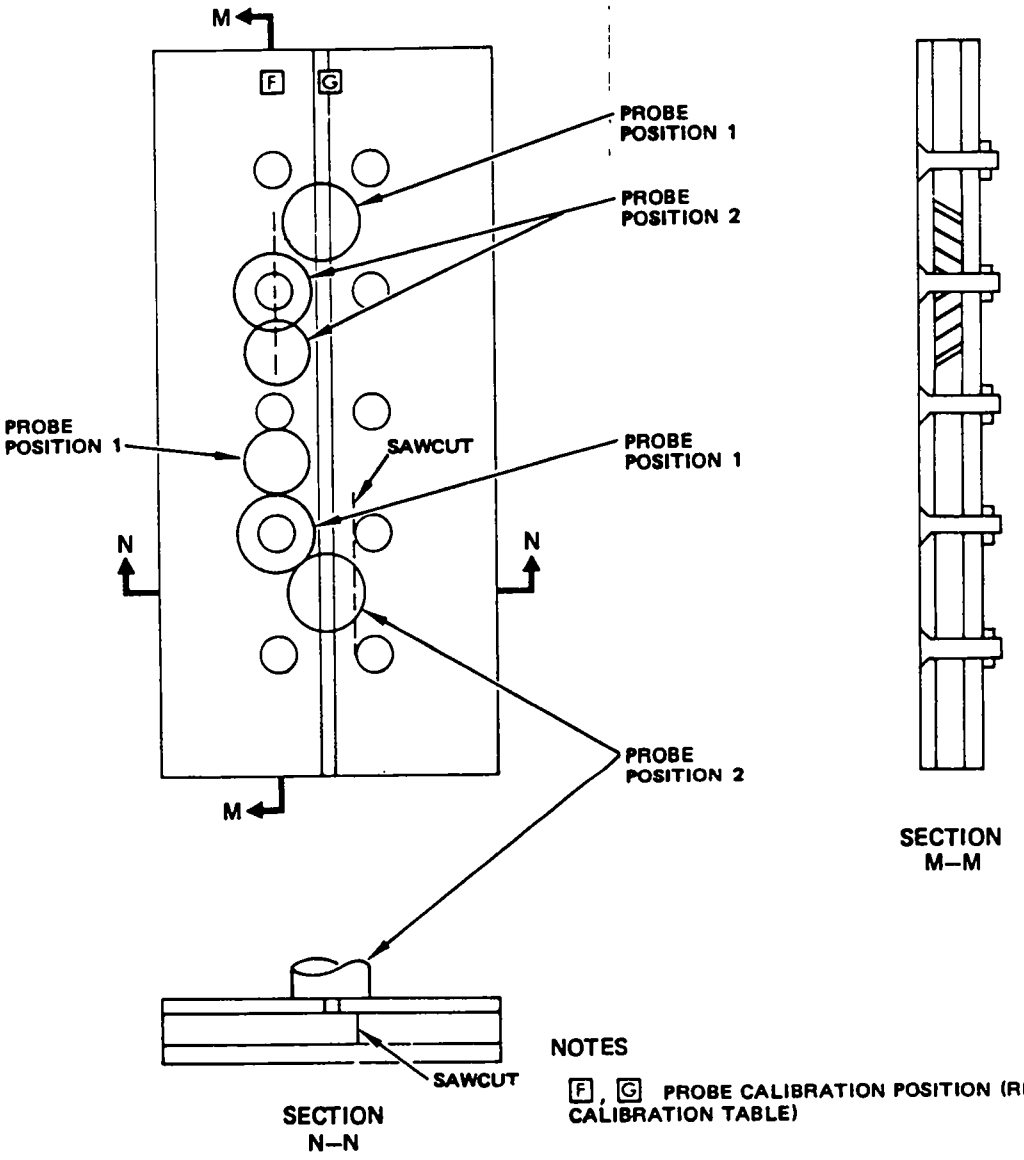
NOTES

- TOLERANCE: X.X ± 0.05 X.XX ± 0.02 X.XXX ± 0.005
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T3 OR T4 ALUMINUM
- ETCH OR STEEL STAMP WITH 008
- P/N 8412–20
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2631 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

12 JEWELER'S SAWCUT 0.030 MAX WIDTH
(2 PLACES)

REFERENCE STANDARD 008
DETAIL V

Lower Wing Splice Plate at WS 360
Figure 6 (Sheet 13)

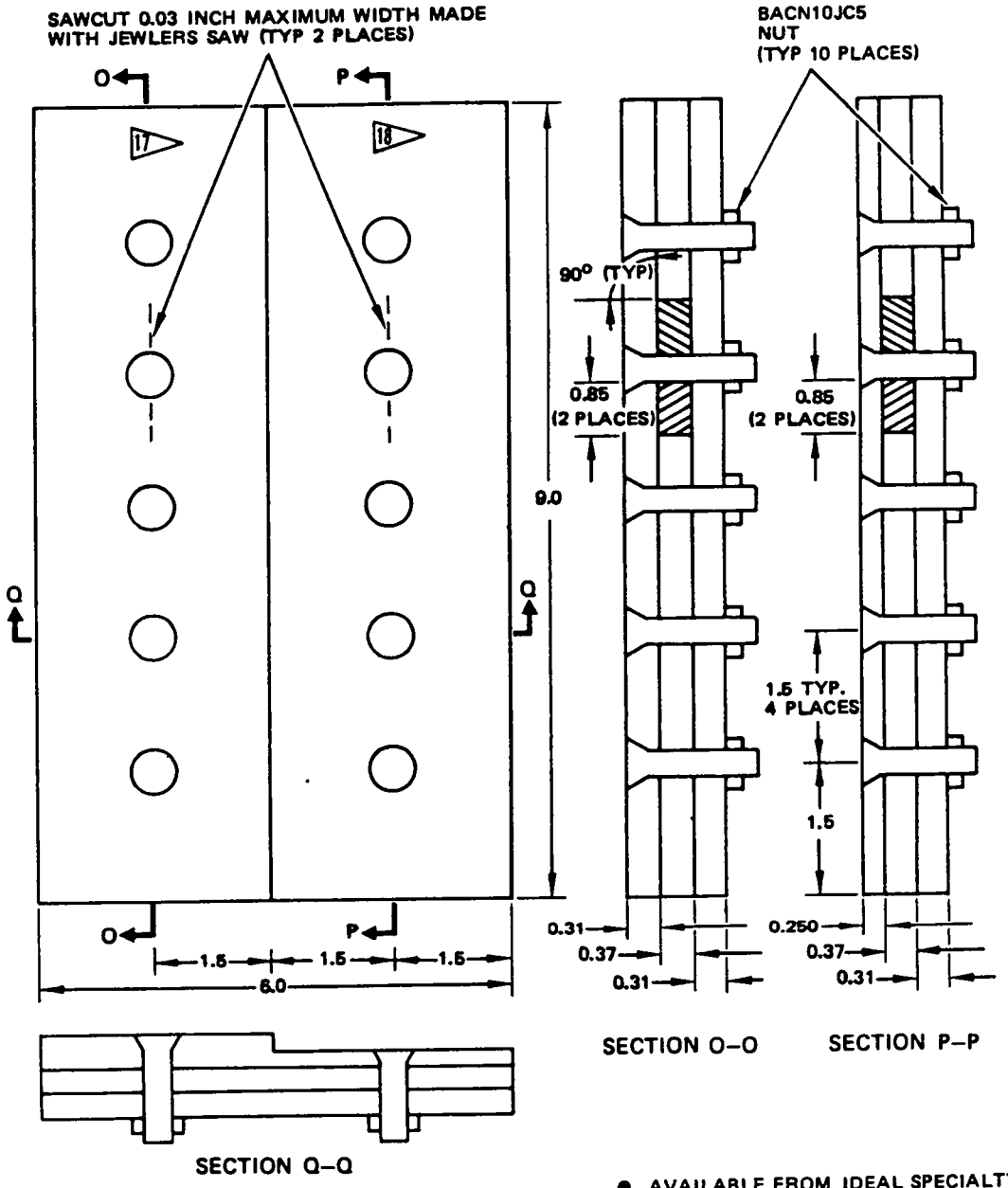


PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD "008"

DETAIL VI

Lower Wing Splice Plate at WS 360
Figure 6 (Sheet 14)

NONDESTRUCTIVE TEST



NOTES

- TOLERANCE: X.X ± 0.05 X.XX ± 0.02 X.XXX ± 0.005
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T3 OR T4 ALUMINUM
- STEEL STAMP REFERENCE STANDARD WITH "009"
- AVAILABLE FROM IDEAL SPECIALTY CO. P/N 6412–21

  IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

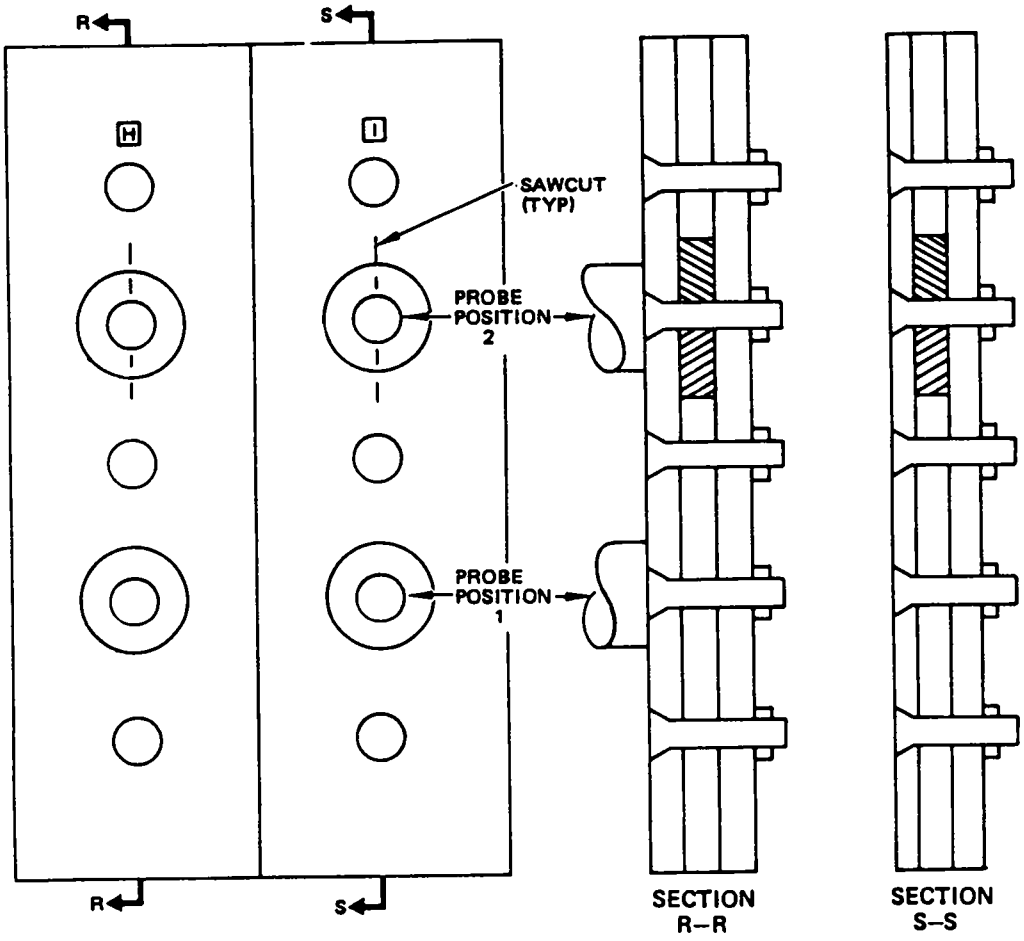
17 BACB30LU5–16 FASTENERS THIS COLUMN (TYP 5 PLACES)

18 BACB30LU5–14 FASTENERS THIS COLUMN (TYP 5 PLACES)

REFERENCE STANDARD "009"

DETAIL VII

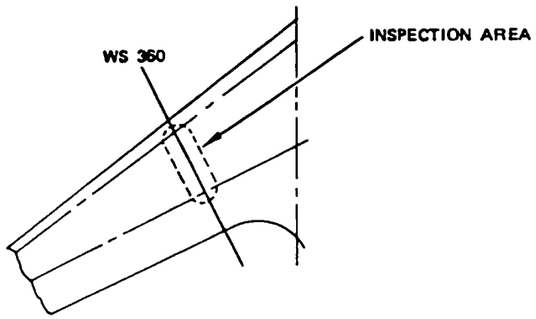
Lower Wing Splice Plate at WS 360
Figure 6 (Sheet 15)



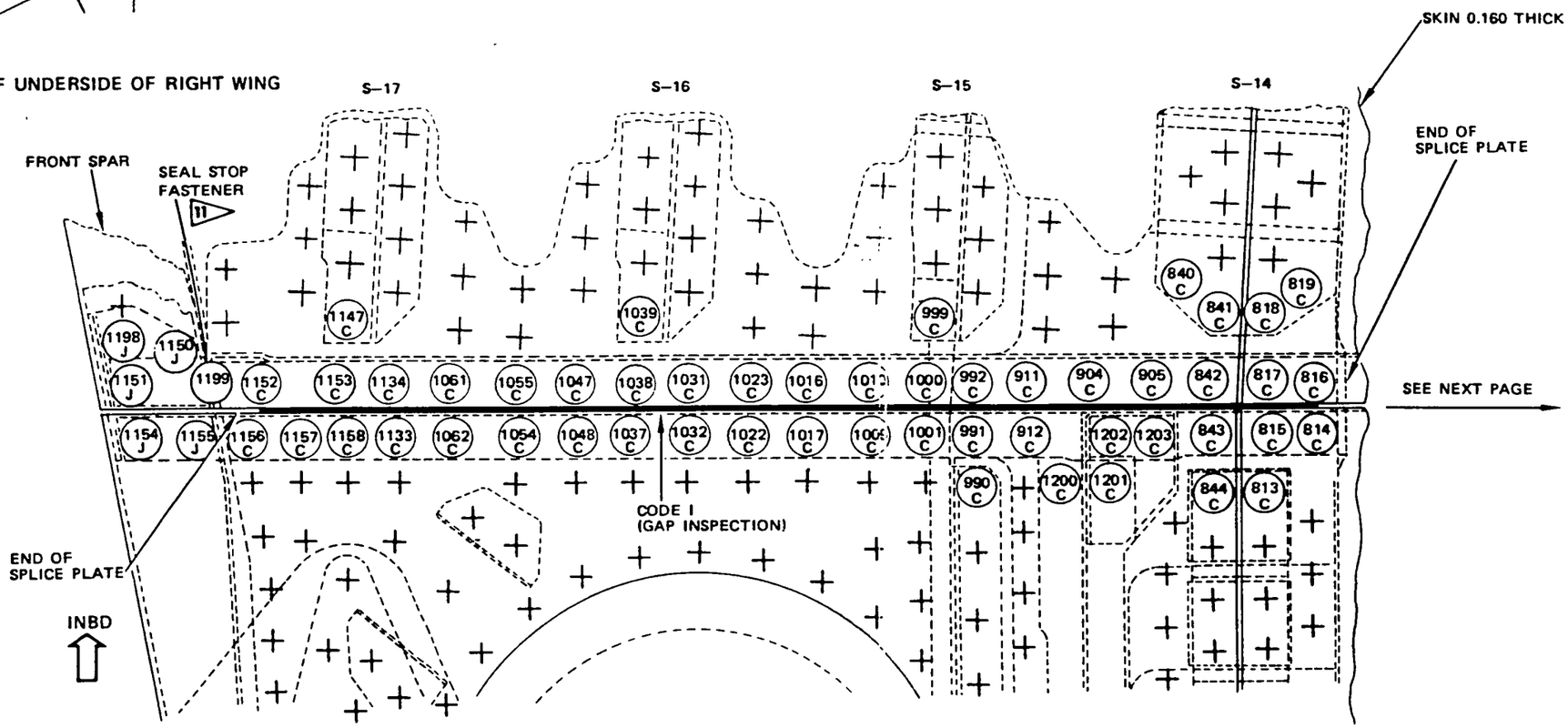
NOTES: H, I PROBE CALIBRATION POSITION (REF. TABLE I, CALIBRATION TABLE)

PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD 009
DETAIL VIII

Lower Wing Splice Plate at WS 360
Figure 6 (Sheet 16)



VIEW OF UNDERSIDE OF RIGHT WING



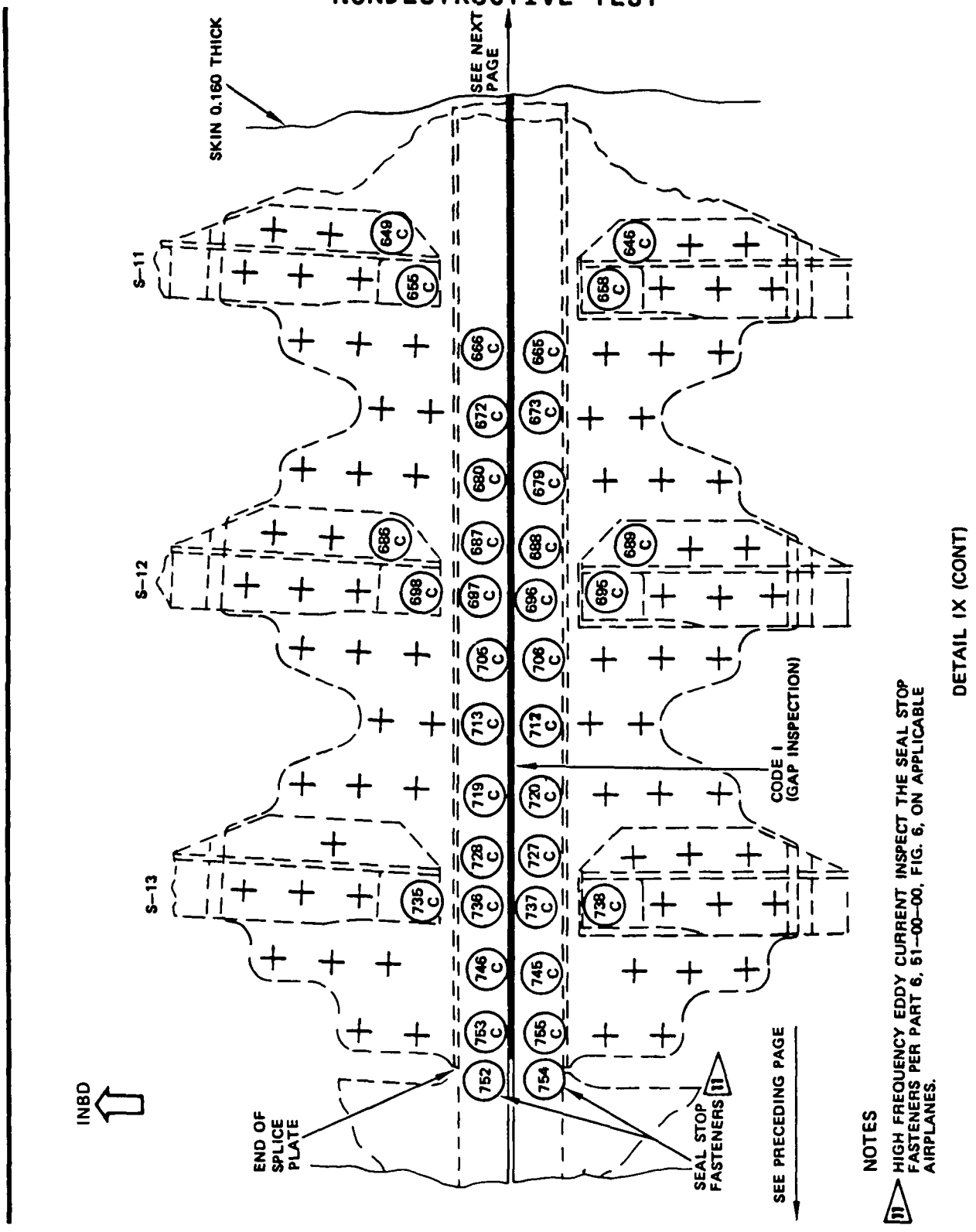
NOTES

1147 C — FASTENER IDENTIFICATION NUMBER; INSPECTION CODE (SEE TABLE I)

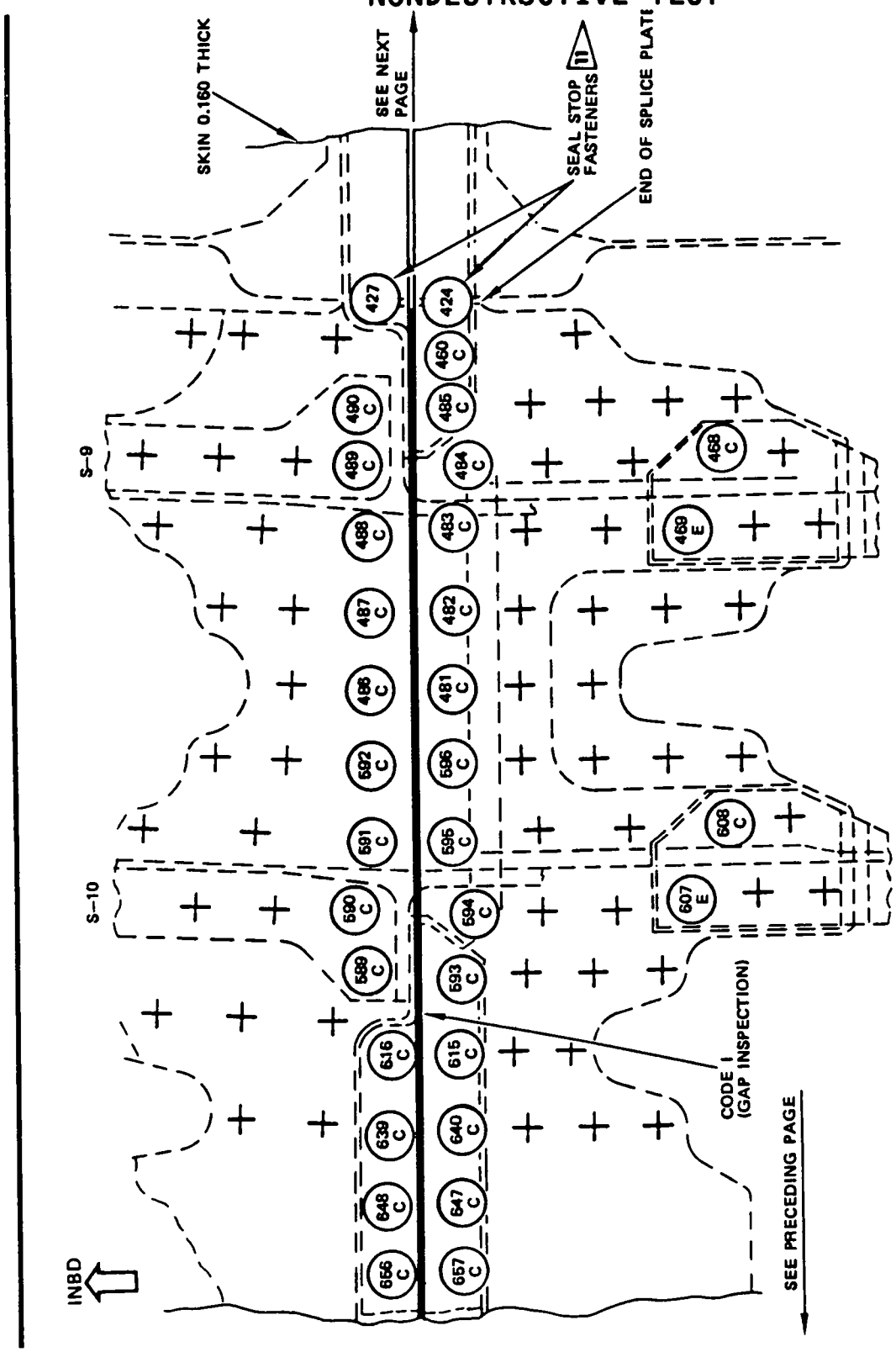
11 — HIGH FREQUENCY EDDY CURRENT INSPECT THE SEAL STOP FASTENERS PER PART 6, 51–00–00, FIG. 6, ON APPLICABLE AIRPLANES.

VIEW ON UNDERSIDE OF RIGHT WING AT WS 360
(LEFT WING SIMILAR)
DETAIL IX

Lower Wing Splice Plate at WS 360
Figure 6 (Sheet 17)



Lower Wing Splice Plate at WS 360
Figure 6 (Sheet 18)

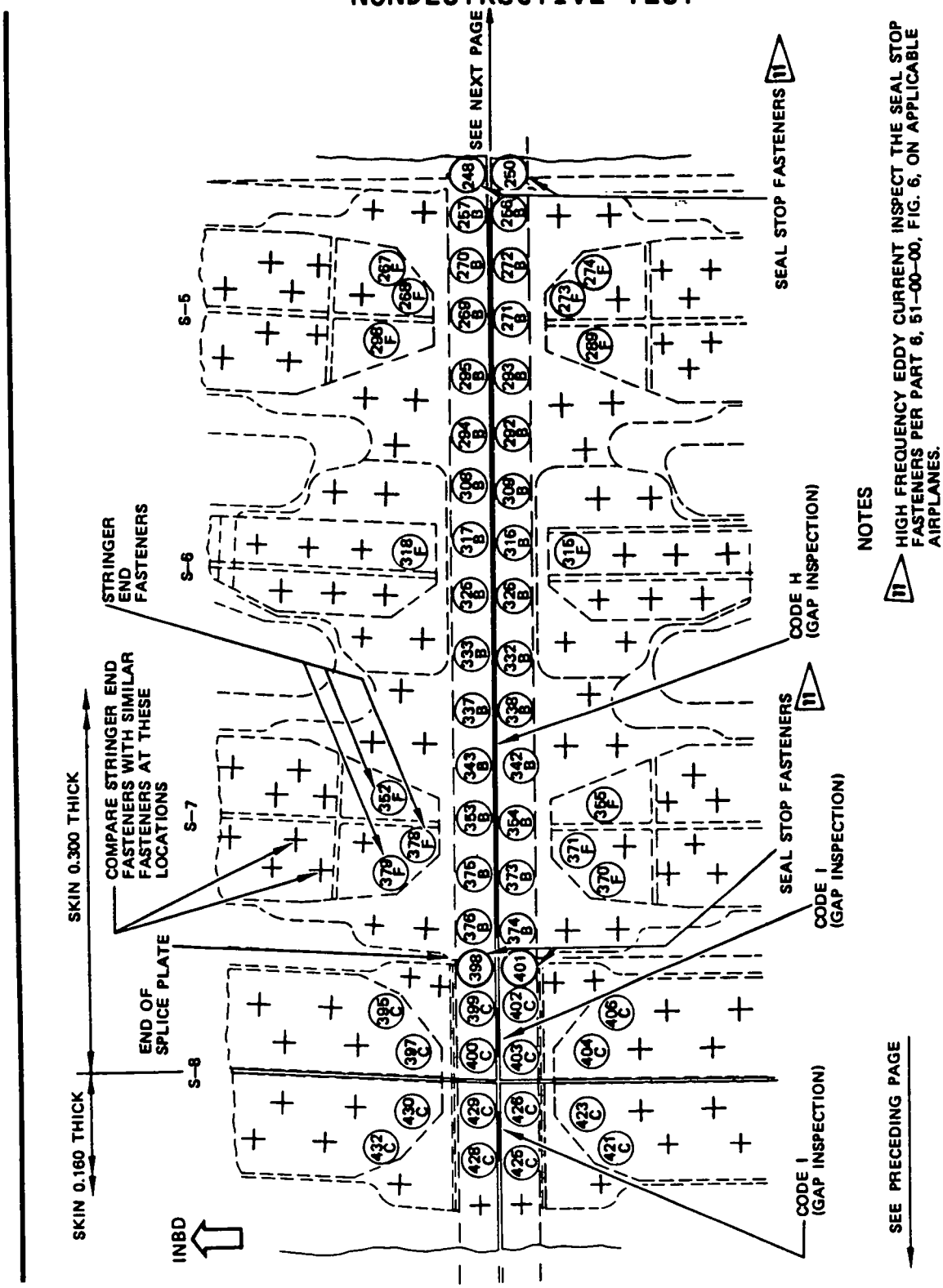


NOTES

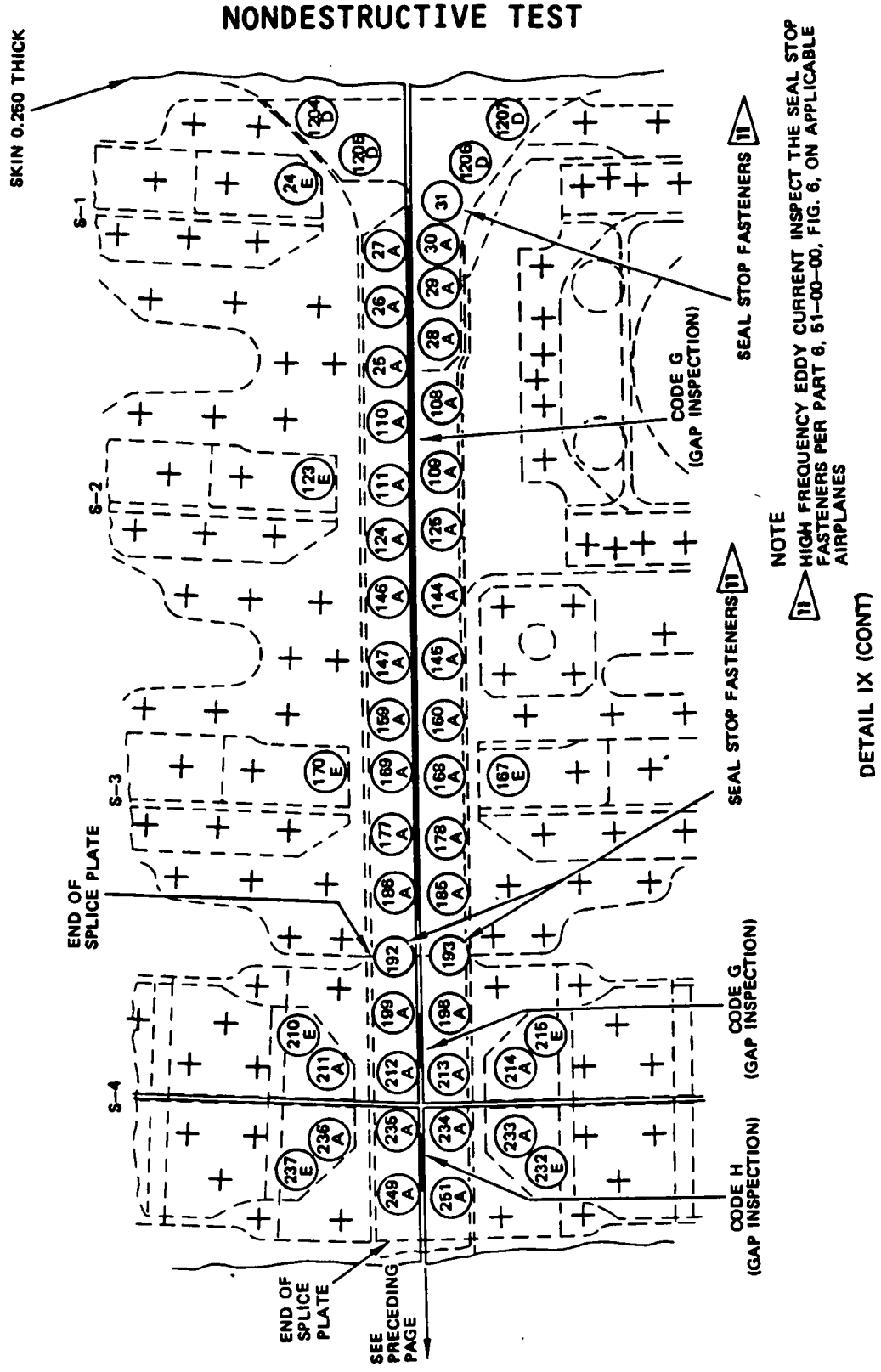
11 HIGH FREQUENCY EDDY CURRENT INSPECT THE SEAL STOP FASTENERS PER PART 6, 51-00-00, FIG. 8, ON APPLICABLE AIRPLANES.

DETAIL IX (CONT)

Lower Wing Splice Plate at WS 360
Figure 6 (Sheet 19)



Lower Wing Splice Plate at WS 360
Figure 6 (Sheet 20)



Lower Wing Splice Plate at WS 360
Figure 6 (Sheet 21)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks out of fastener holes at all stringer upper horizontal flange splices.

   B. To detect cracks out of fastener holes common to the boost pump support fitting and stiffener at S-9 and S-10.

   C. To detect splice plate cracks out of fastener holes common to the splice plate and stringers.

   D. To detect cracks out of end fastener holes of applicable stringer lower horizontal flange.

   E. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Instrument - Refer to Part 6, 51-00-00, Fig. 4.

   B. Probes - Shielded right angle pencil probe per Part 1, 51-06-00, Fig. 1.

      (1) P/N PEN-10R
      NDT Product Engineering
      P.O. Box 423
      Renton, Washington 98057

      (2) P/N VM 100AS
      VM Products
      7420 Park Ave. No. 20
      Tacoma, Washington 98408

   C. Reference Standards - Refer to Part 6, 51-00-00, Fig . 4.

Lower Wing Station 360 Splice Joint
Figure 7 (Sheet 1)

3. Preparation for Inspection

Internal access to inboard and outboard sides of 360 joint per operator's standard procedure.

A. Clean loose dirt, fuel, etc., from inspection areas.

B. Remove sealant as required from around fasteners and along splice plate/stringer ends of areas to be inspected.

4. Instrument Calibration

A. Refer to Part 6, 51-00-00, Fig. 4.

5. Inspection Procedure

A. Refer to Table 1 for inspection coverage applicable to each model and stringer.

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. USE ONLY BATTERY-OPERATED, EXPLOSIONPROOF LIGHTS IN VICINITY OF OPEN FUEL TANKS. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

NOTE: Fasteners applicable to this procedure are identified by circled numbers. These identification numbers should be used for all fastener identification.

(1) Scan the pencil probe as close as possible to fastener ends of all stringer upper horizontal flanges.

(2) Scan the pencil probe as close as possible to fastener ends of designated fasteners common to the boost pump support fitting and the vertical leg of stringers S-9 and S-10.

(3) Scan the pencil probe on the splice plate around the end of applicable stringers. Cracks in the splice plate are expected to run fore and aft, extending from the fasteners at the end of the stringer.

(4) Scan the pencil probe on the stringer lower horizontal flange adjacent to the fastener for areas noted.

NOTE: At some locations fastener position may prevent a 360-degree scan around the fastener. When this occurs, scan around the fastener where possible. Then scan in the radius or along the stringer leg adjacent to the fastener.

Lower Wing Station 360 Splice Joint
Figure 7 (Sheet 2)

NONDESTRUCTIVE TEST

INSPECT / EFFECTIVITY	STR. SPLICE UPPER HORIZ. FLANGE (DETAILS I AND II)	S-9, S-10 BOOST PUMP SUPPORT FITTING (DETAIL III)	SPLICE PLATE AT STR. ENDS (DETAILS IV, VI, VII)	STR. LOWER HORIZ. FLANGE
707-100/200 All	S1 to S8 S-11 to S-15	4 FASTENERS	S-8	---
707-300/400 [A]	S-1 to S-8 S-11 to S-15	4 FASTENERS	S-6, S-7	S-6, S-7, S-8 S-11, S-12 S-13 (DETAILS V THRU X)
707/300/400 [B]	S-1 to S-8 S-11 to S-15	4 FASTENERS	---	S-4, S-5, S-7, S-8 (DETAILS XI THRU XIV)
720 All	S-1 to S-5 S-7, S-8 S-11 to S-15	4 FASTENERS	---	---

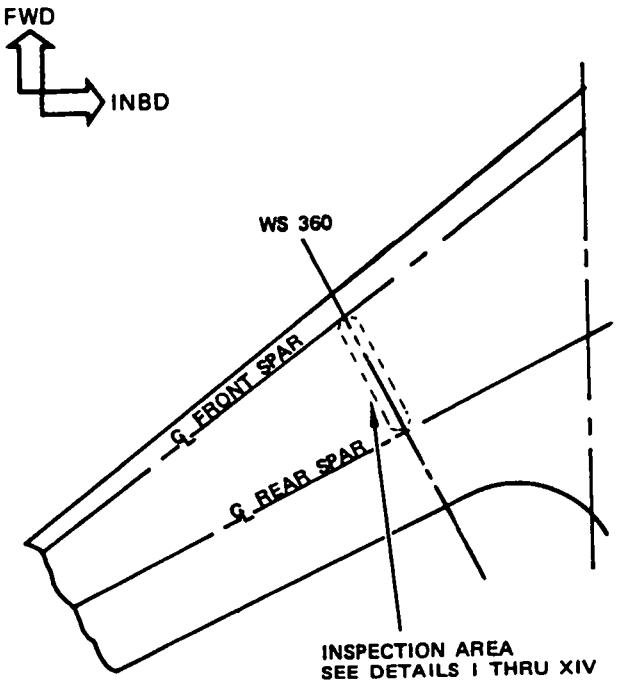
Inspection Coverage/Effectivity
Table I

NOTES:

[A] For all 707-300/400/300B/300C airplanes thru cum line number 671

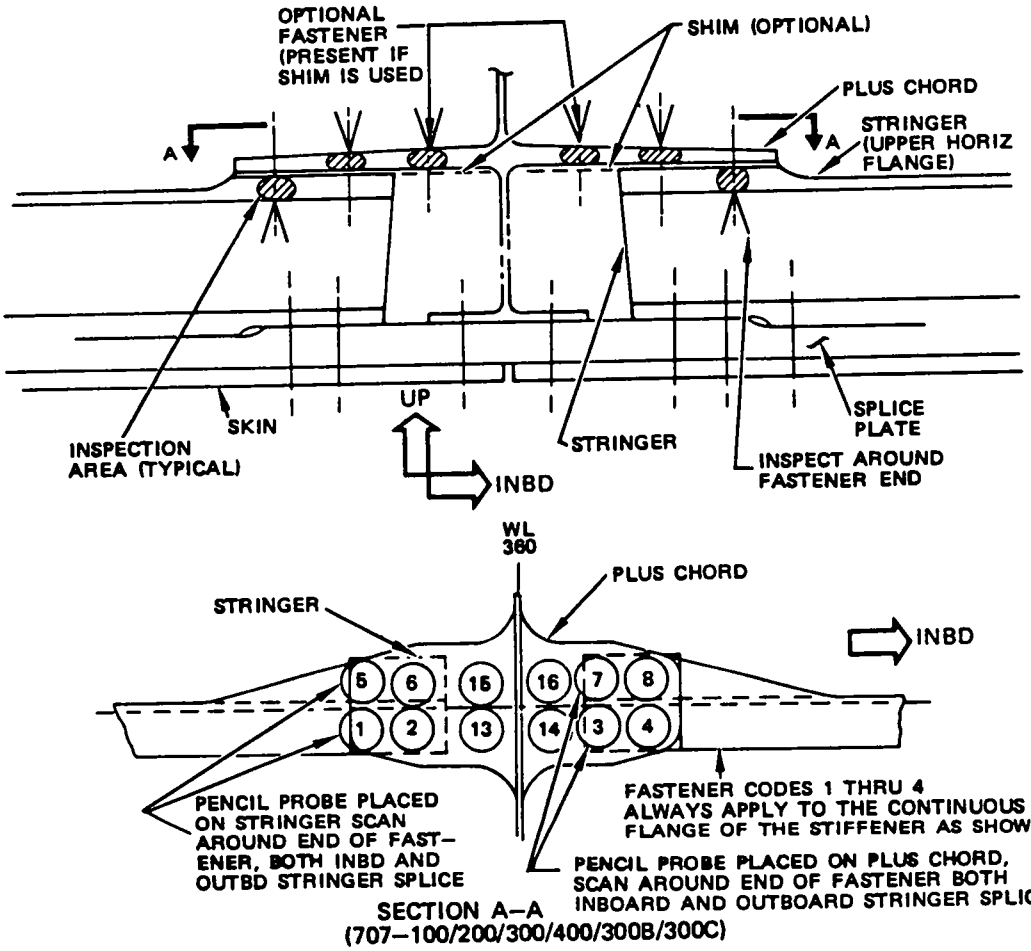
[B] For cum line numbers 672 and on

Lower Wing Station 360 Splice Joint
Figure 7 (Sheet 3)

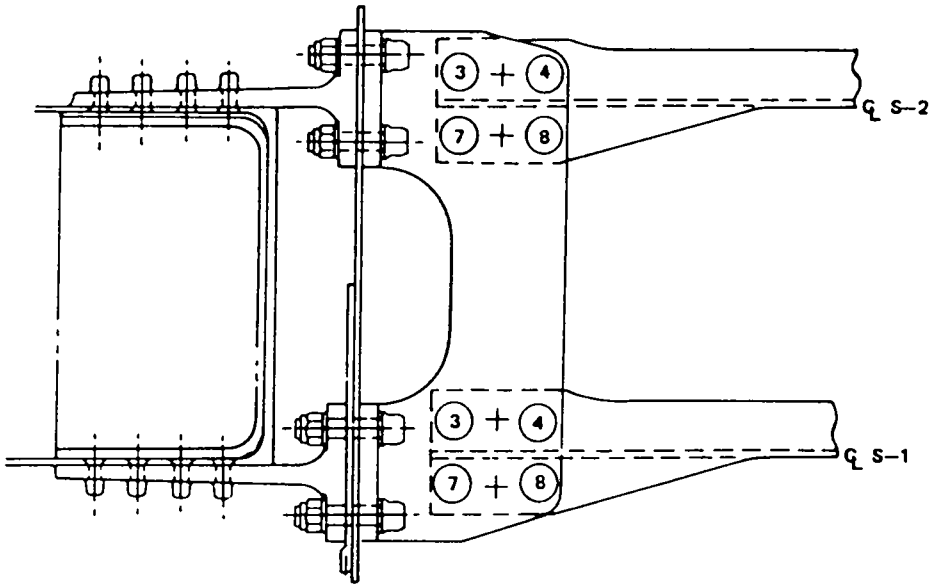


L.H. WING – TOP VIEW
(RH OPPOSITE)

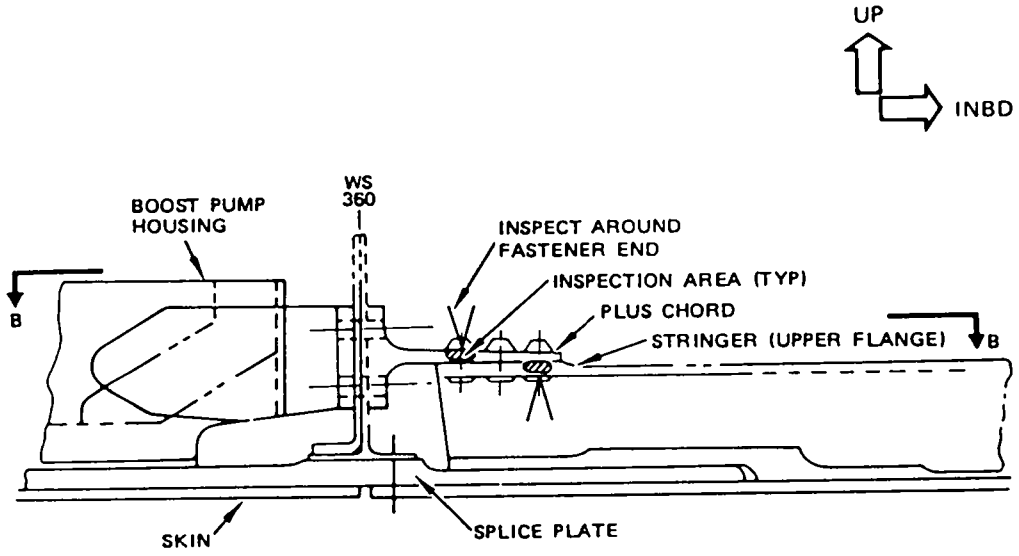
Lower Wing Station 360 Splice Joint
Figure 7 (Sheet 4)



Lower Wing Station 360 Splice Joint
Figure 7 (Sheet 5)

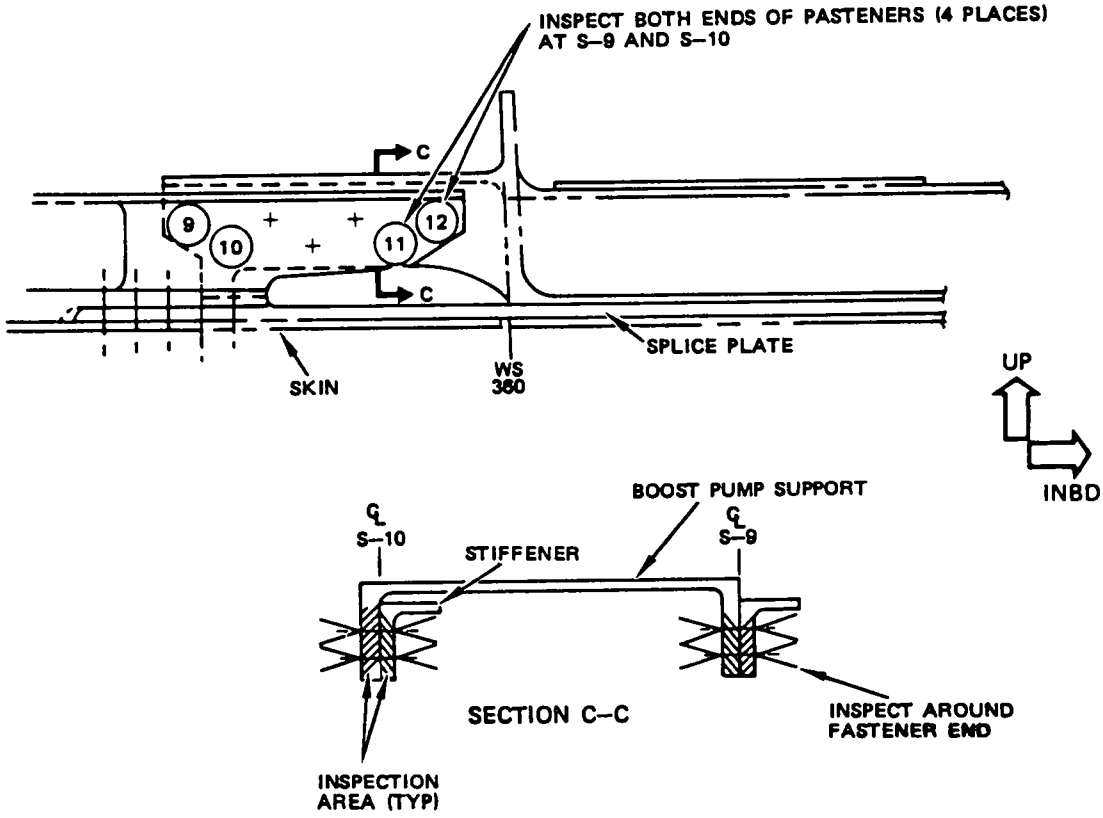


SECTION B-B



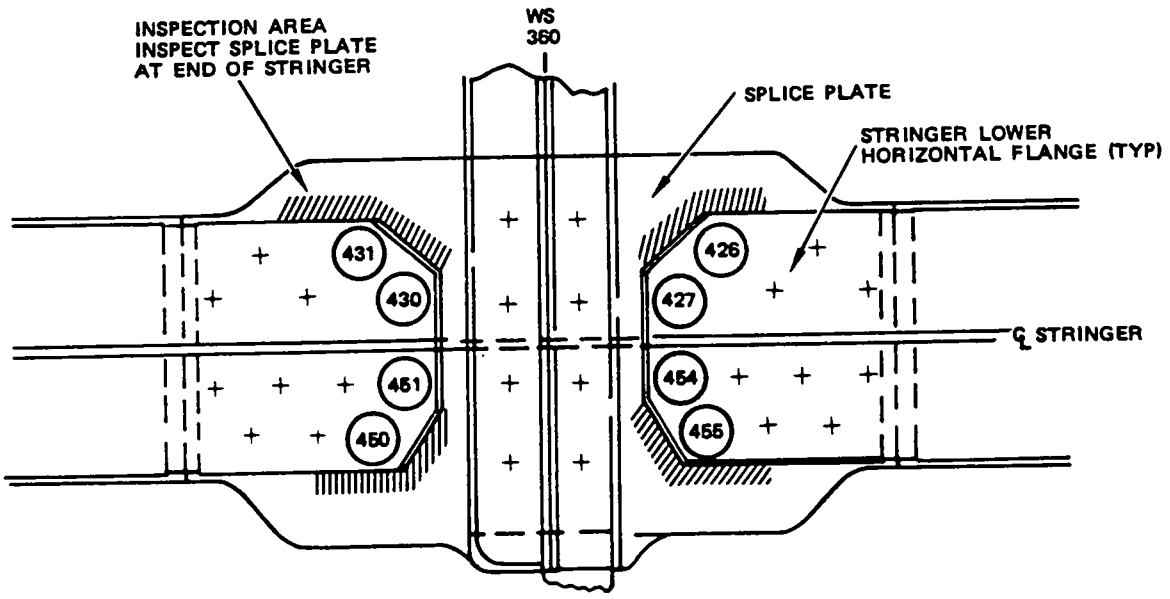
CROSS SECTION AT STRINGERS S-1 AND S-2 (TYP) -WS 360
DETAIL II

Lower Wing Station 360 Splice Joint
Figure 7 (Sheet 6)

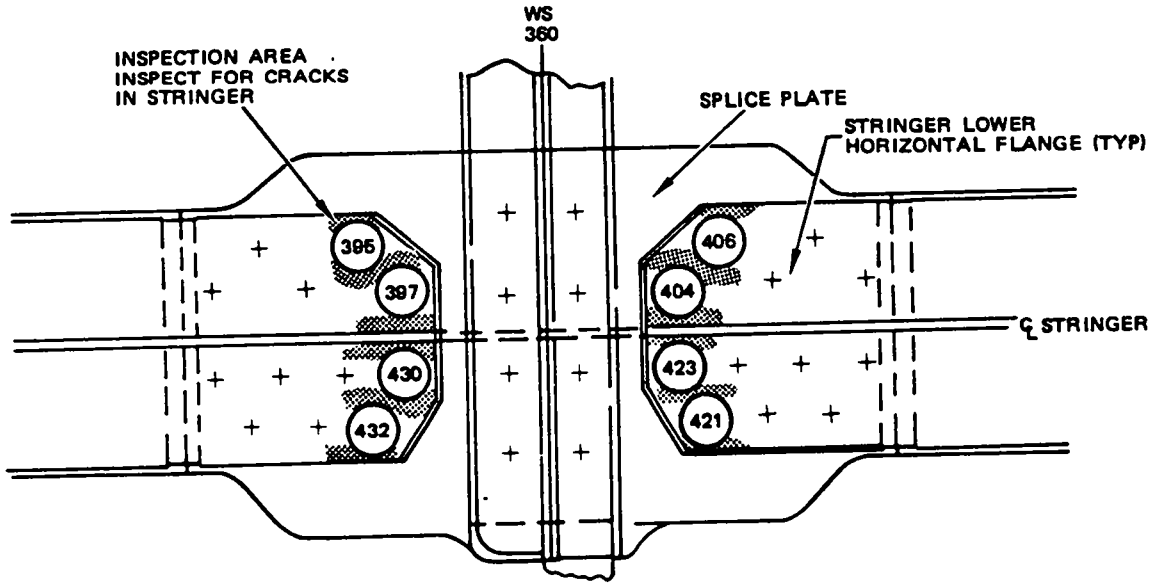


FUEL BOOST PUMP SUPPORT FITTING
AND STIFFENER – WS 360
DETAIL III

Lower Wing Station 360 Splice Joint
Figure 7 (Sheet 7)

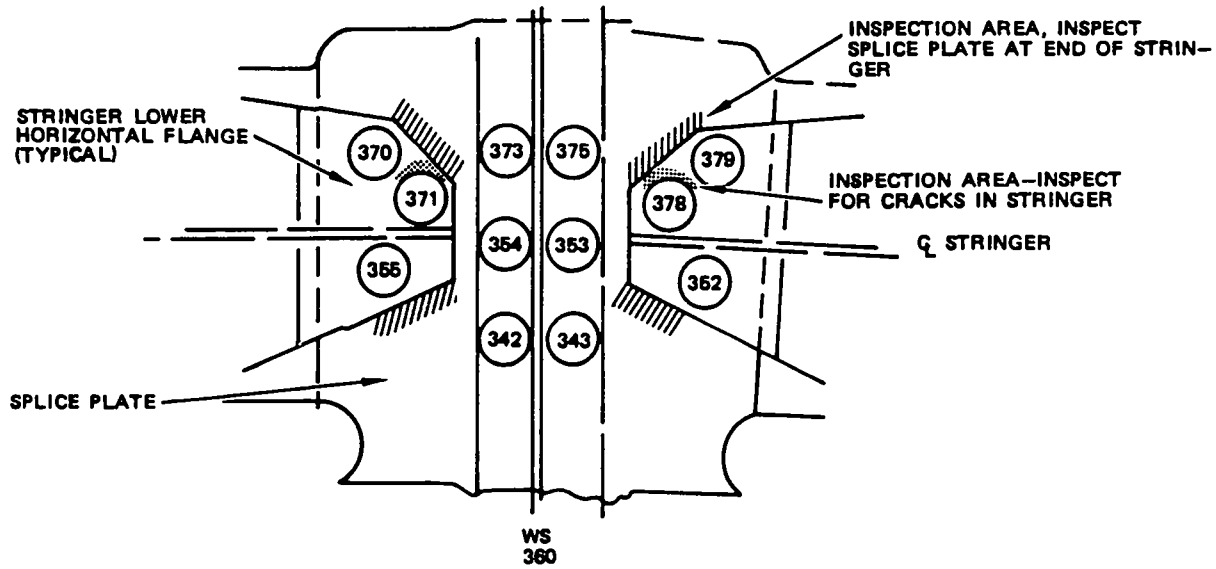


PLAN VIEW LOWER HORIZONTAL FLANGE STRINGER S–8
FOR 707–100/200 AIRPLANES
DETAIL IV

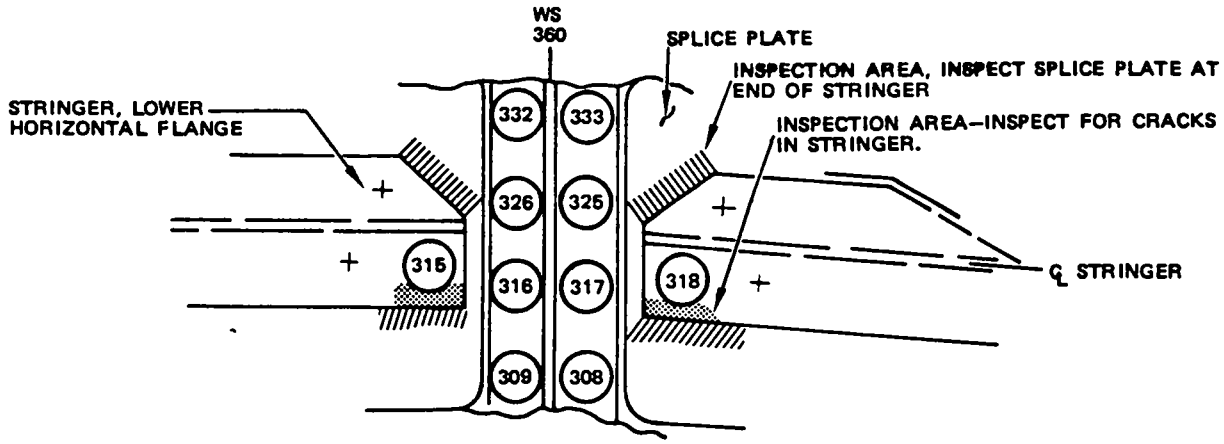


PLAN VIEW LOWER HORIZONTAL FLANGE STRINGER S–8
FOR 707–300/400/300B/300C AIRPLANES THRU
CUM LINE NUMBER 671
DETAIL V

Lower Wing Station 360 Splice Joint
Figure 7 (Sheet 8)

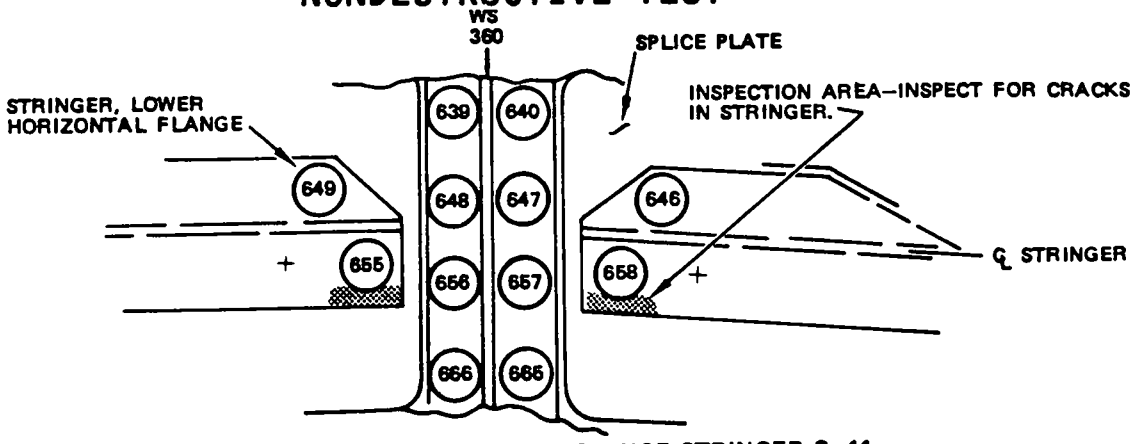


PLAN VIEW LOWER HORIZONTAL FLANGE
STRINGER S–7 FOR 707–300/400/300B/300C AIRPLANES
THRU CUM LINE NUMBER 671
DETAIL VI

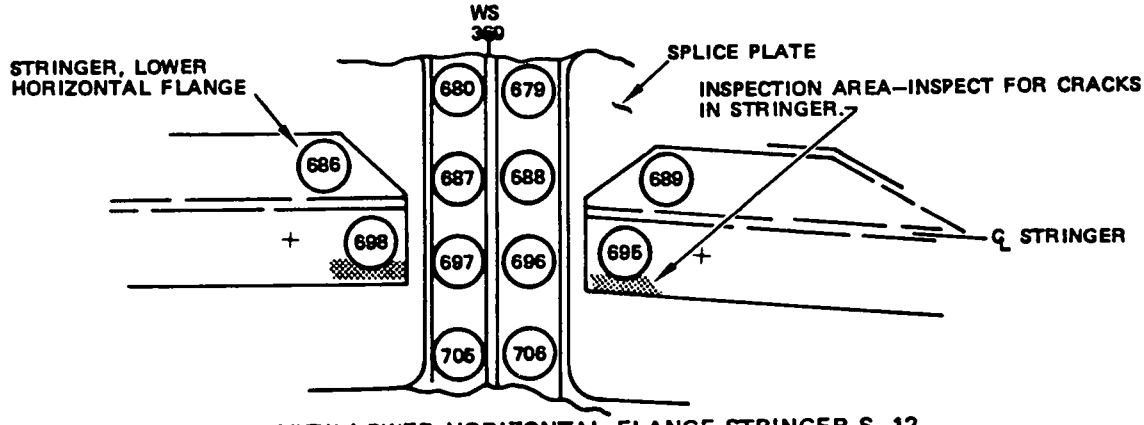


PLAN VIEW LOWER HORIZONTAL FLANGE
STRINGER S–6 FOR 707–300/400/300B/300C AIRPLANES
THRU CUM LINE NUMBER 671
DETAIL VII

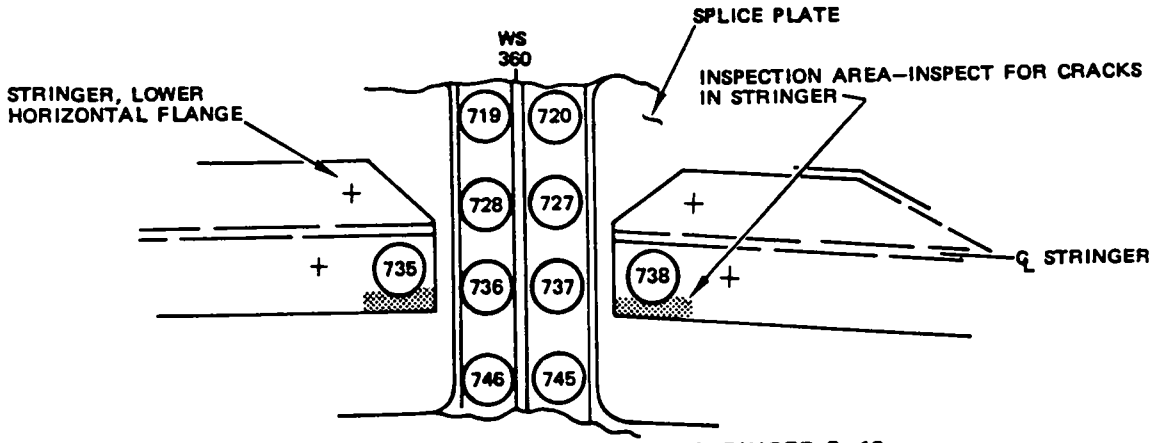
Lower Wing Station 360 Splice Joint
Figure 7 (Sheet 9)



PLAN VIEW LOWER HORIZONTAL FLANGE STRINGER S–11
FOR 707–300/400/300B/300C AIRPLANES THRU CUM LINE NUMBER 671
DETAIL VIII

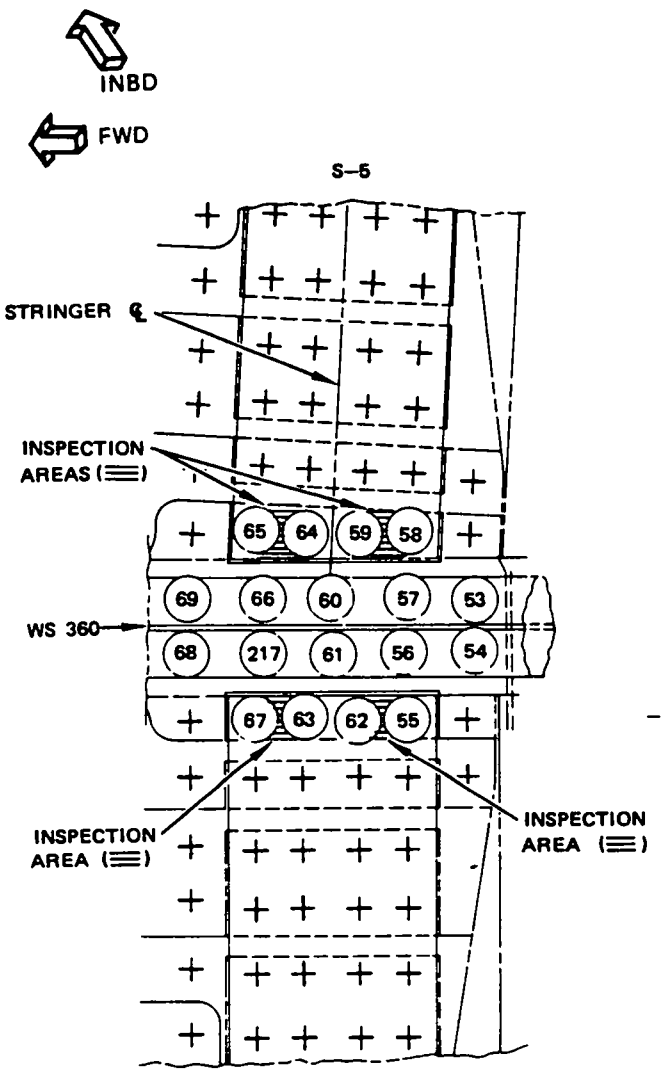


PLAN VIEW LOWER HORIZONTAL FLANGE STRINGER S–12
FOR 707–300/400/300B/300C AIRPLANES THRU CUM LINE NUMBER 671
DETAIL IX



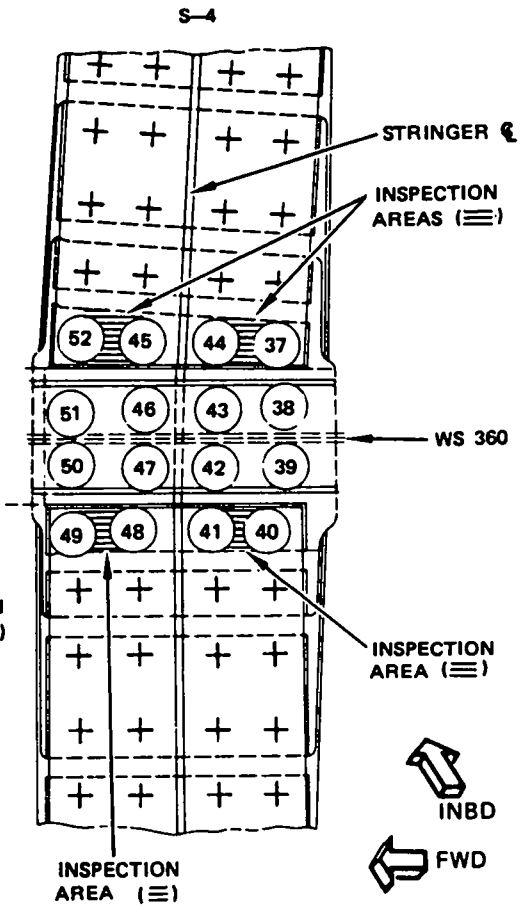
PLAN VIEW LOWER HORIZONTAL FLANGE STRINGER S–13
FOR 707–300/400/300B/300C AIRPLANES THRU CUM LINE NUMBER 671
DETAIL X

Lower Wing Station 360 Splice Joint
Figure 7 (Sheet 10)



PLAN VIEW LOWER HORIZONTAL FLANGE STRINGER S-5 FOR CUM LINE NUMBERS 672 AND ON

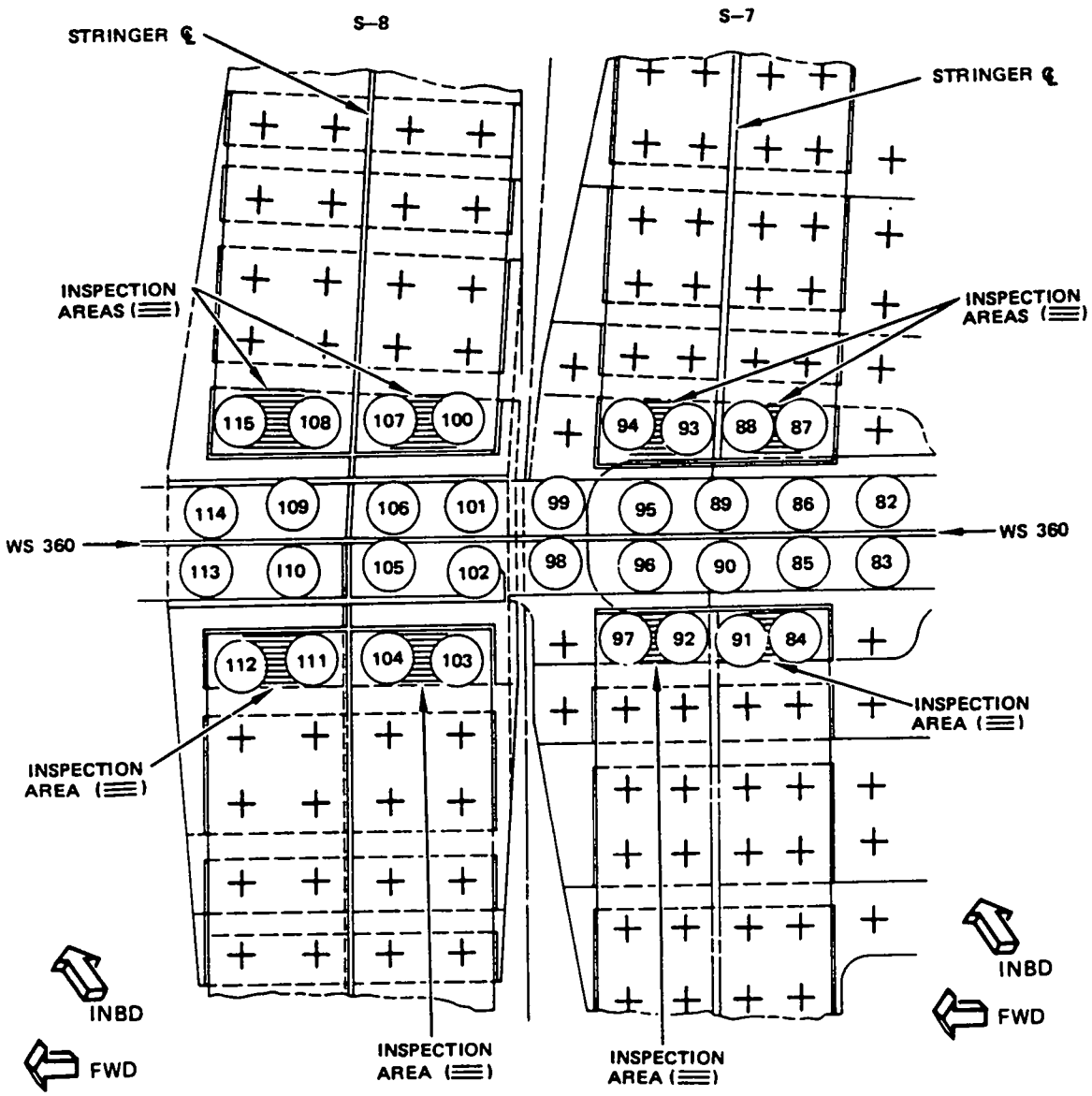
DETAIL XI



PLAN VIEW LOWER HORIZONTAL FLANGE STRINGER S-4 FOR CUM LINE NUMBERS 672 AND ON

DETAIL XII

Lower Wing Station 360 Splice Joint
Figure 7 (Sheet 11)



PLAN VIEW LOWER HORIZONTAL FLANGE STRINGER S-8 FOR CUM LINE NUMBERS 672 AND ON

DETAIL XIII

PLAN VIEW LOWER HORIZONTAL FLANGE STRINGER S-7 FOR CUM LINE NUMBERS 672 AND ON

DETAIL XIV

Lower Wing Station 360 Splice Joint
Figure 7 (Sheet 12)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect lower WS 360 inner splice plate cracks which intersect fastener holes at stringer 8 only. This inspection is accomplished from inside of the wing and without fastener removal. See Detail III for possible crack location.

   B. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure:

      (1) Miz-10
      Zetec, Inc.
      1320 N.W. Mall
      Issaquah, Washington 98027

   B. Probes - Any probe of similar size which will satisfy the performance requirements of this procedure is acceptable. Low frequency probe with 0.65-inch OD case, 0.55-inch OD active element and 1-inch maximum height of case. Useable at 500 Hz. The following probe was used in the development of this procedure.

      (1) Nortec P/N SPO-1125
      Nortec Inc.
      421 N. Quay
      Kennewick, Washington 99336

      NOTE: When ordering probes specify instrument with which probe is to be used or instrument connector required.

   C. Reference Standard - Manufacture Reference Standard No. 005 per Detail I.

WS 360 Inner Splice Plate at Stringer 8
Figure 8 (Sheet 1)

3. Preparation for Inspection

A. Internal access to both inboard and outboard sides of the 360 splice joint is required. Remove sealant on inside of wing between fasteners common to the rib chord at S-8. See Detail IV inspection areas. Sealant cap removal is not required.

B. Wipe surface clean.

4. Instrument Calibration

A. Set frequency at 500 Hz.

B. Position probe between fasteners over an unnotched area of reference standard, Position 1, Detail II. Note that the probe is placed on the nut side of the standard.

C. Null instrument per manufacturer's instructions.

D. Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

E. Position probe between fasteners over the notched area of the reference standard, Position 2, Detail II.

F. Adjust sensitivity so that a difference of 60% of full meter scale exists between the notched and unnotched areas.

G. Position probe over unnotched area (Position 1) and set meter at 20% of full meter scale with meter position control.

H. Cracks should be indicated by a higher meter response.

5. Inspection Procedure

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

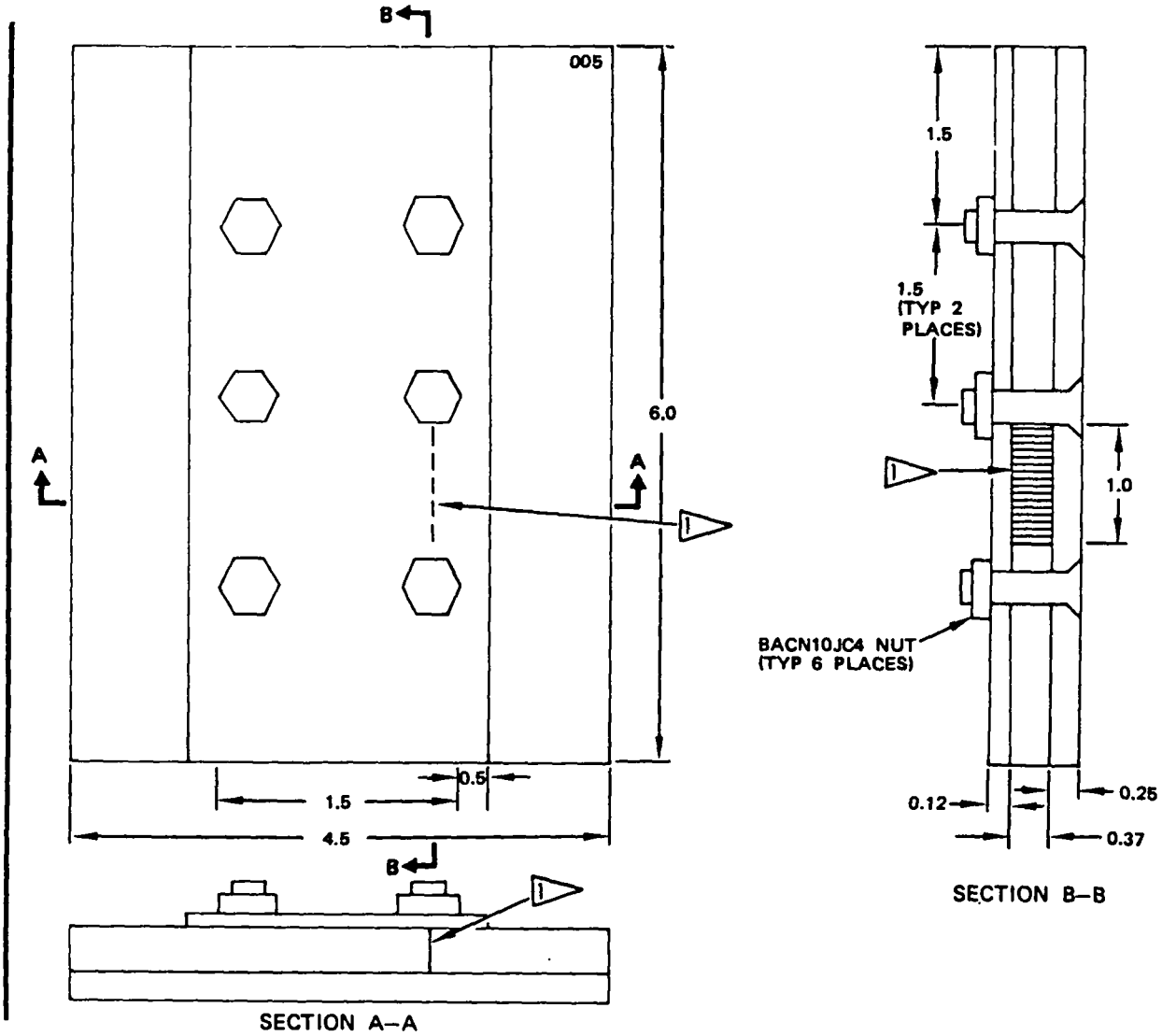
A. Place the probe on the flange of the rib chord as close as possible to the vertical web to avoid influence from the edge. Slight readjustments of meter position may be required (less than 30% of full scale).

B. Inspect at all locations, as shown in Detail IV.

C. Compare responses from each location.

D. Any response 40% of full meter scale higher than the established baseline for a good response should be investigated further.

WS 360 Inner Splice Plate at Stringer 8
Figure 8 (Sheet 2)



SECTION A–A

SECTION B–B

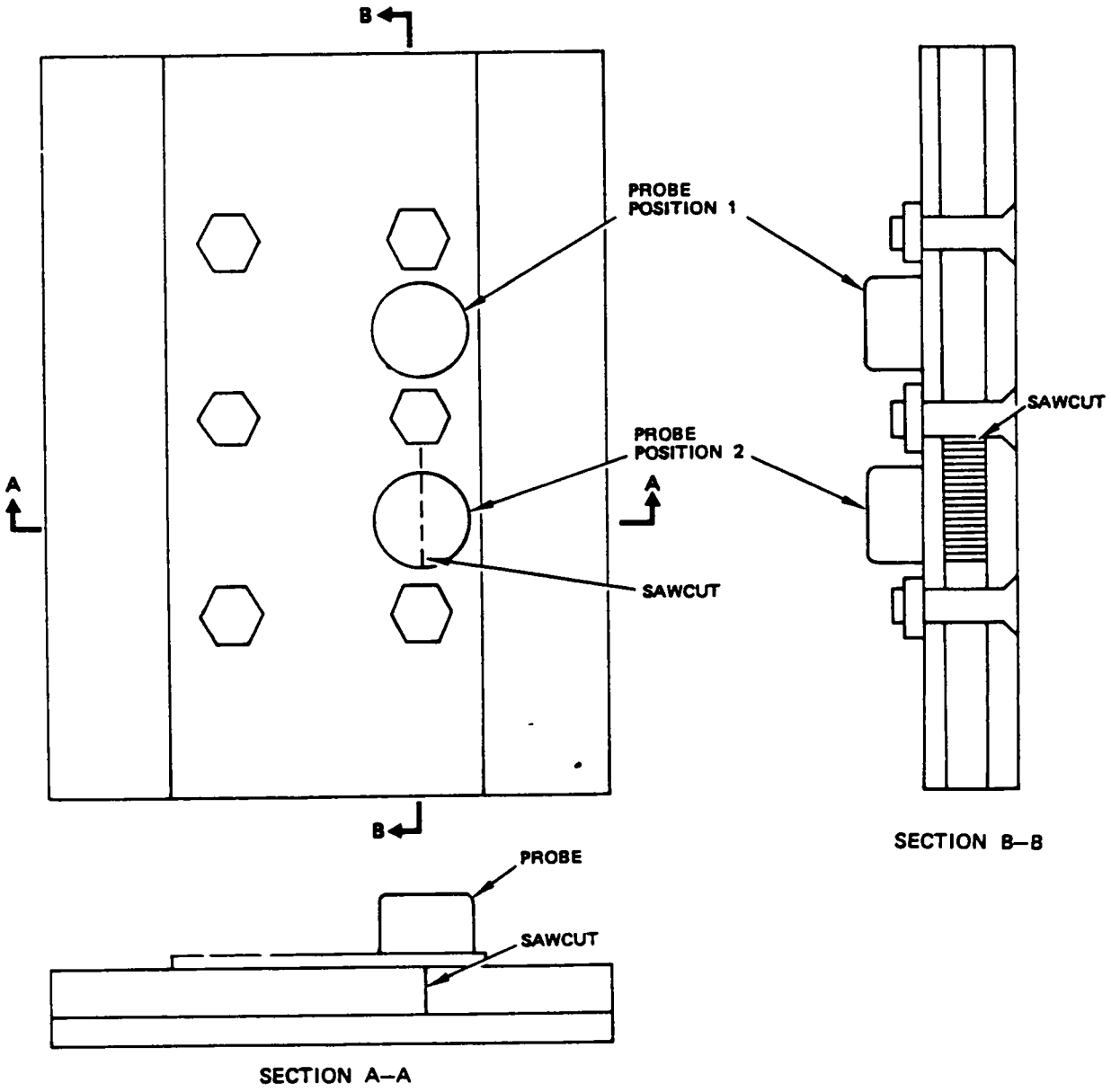
NOTES

- TOLERANCE: X.X ± 0.05 X.XX ± 0.02
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T3 OR T4 ALUMINUM
- ETCH OR STEEL STAMP WITH 005
- BACB30LU4–12 FASTENER, ALL LOCATIONS
- P/N 6412–22
  AVAILABLE FROM IDEAL
  SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

1 JEWELER'S SAWCUT 0.030 MAX WIDTH

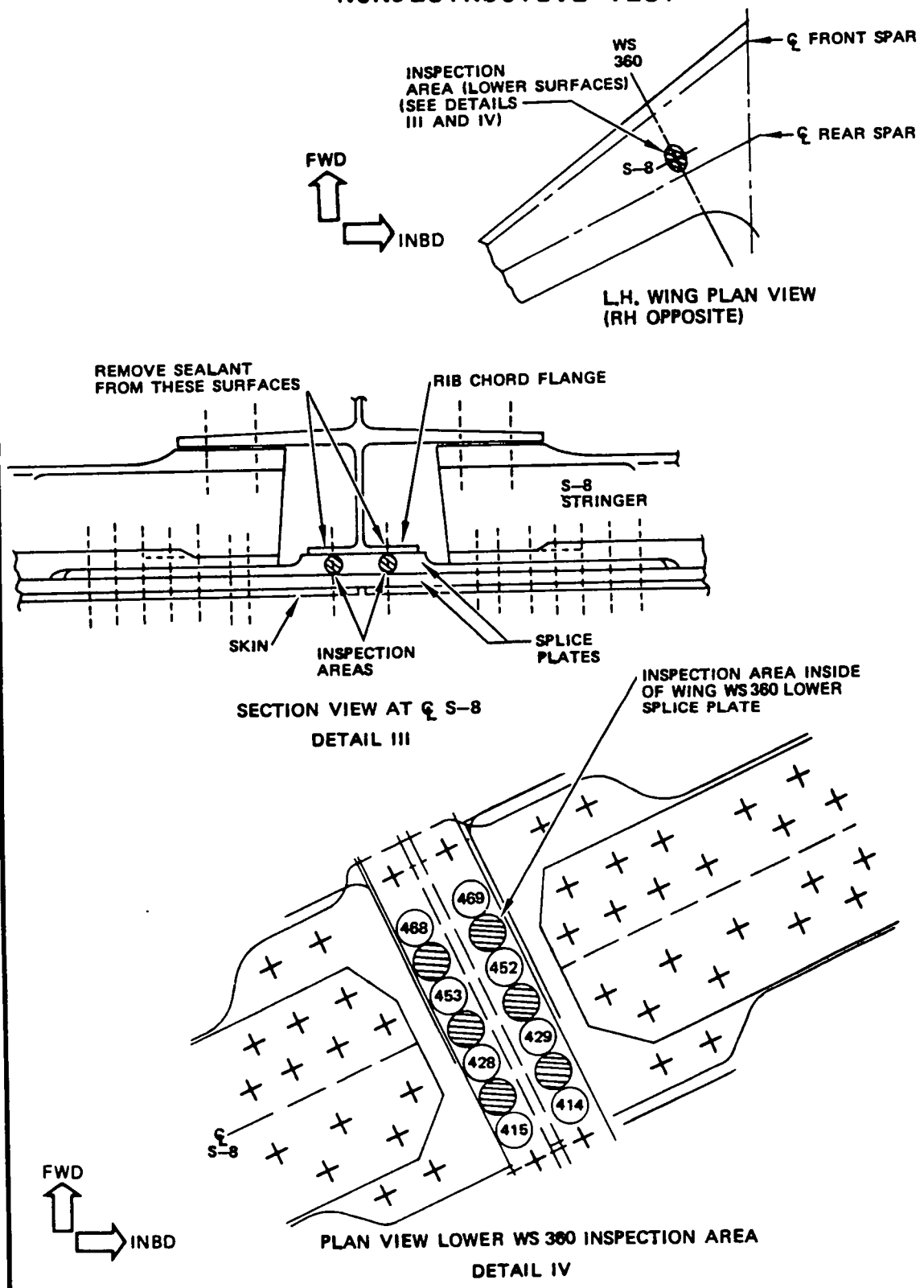
REFERENCE STANDARD 005
DETAIL I

WS 360 Inner Splice Plate at Stringer 8
Figure 8 (Sheet 3)



PROBE POSITION FOR CALIBRATION ON
REFERENCE STANDARD 005
DETAIL II

WS 360 Inner Splice Plate at Stringer 8
Figure 8 (Sheet 4)



WS 360 Inner Splice Plate at Stringer 8
Figure 8 (Sheet 5)

Figure 9 Deleted

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks in the inner horizontal flange of lower wing splice stringers S-4, S-8, and S-14 at the stringer-to-rib attach points. See Detail I.

      NOTE: This procedure is for high frequency eddy current internal inspection of splice stringer inner horizontal flange. Refer to Part 6, 57-10-07, Fig. 4, for low frequency eddy current external inspection of splice stringers lower horizontal flange.

   B. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Instrument set, probe, and reference standard per Part 6, 51-00-00, Fig. 4.

3. Preparation for Inspection

   A. Defuel airplane and purge fuel tanks per operator's standard procedure.

   B. Gain access to wing interior through lower wing access panels.

4. Instrument Calibration

   A. Calibrate instrument per Part 6, 51-00-00, Fig. 4.

Lower Wing Splice Stringers
Figure 10 (Sheet 1)

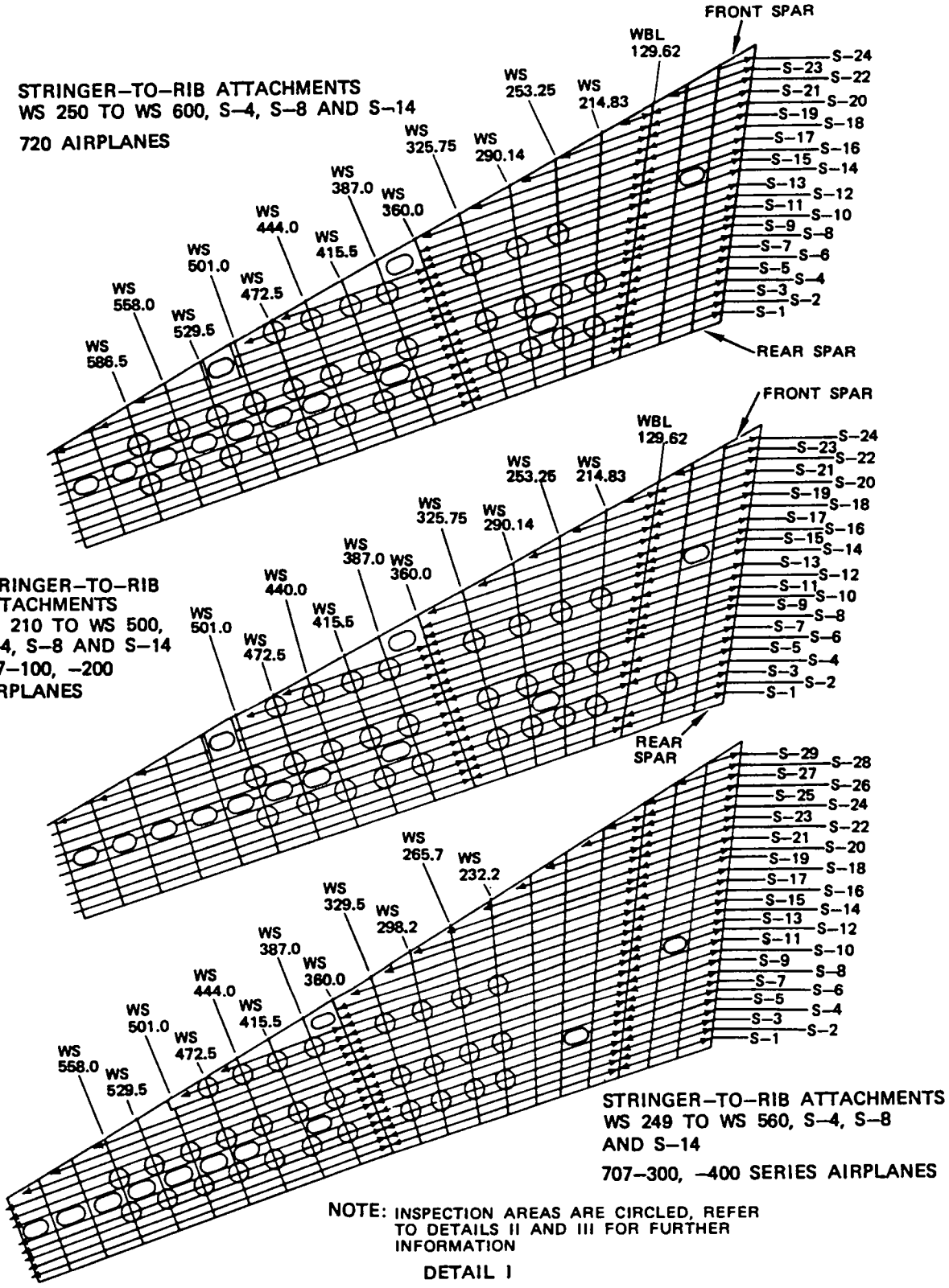
5. Inspection Procedure

A. Refer to Detail I for inspection locations.

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

B. Perform inspection procedure per Part 6, 51-00-00, Fig. 4. Inspect splice stringer inner flange around fastener ends at stringer-to-rib attach points (Detail II) or around radius filler at stringer-to-rib attach points. See Detail III.

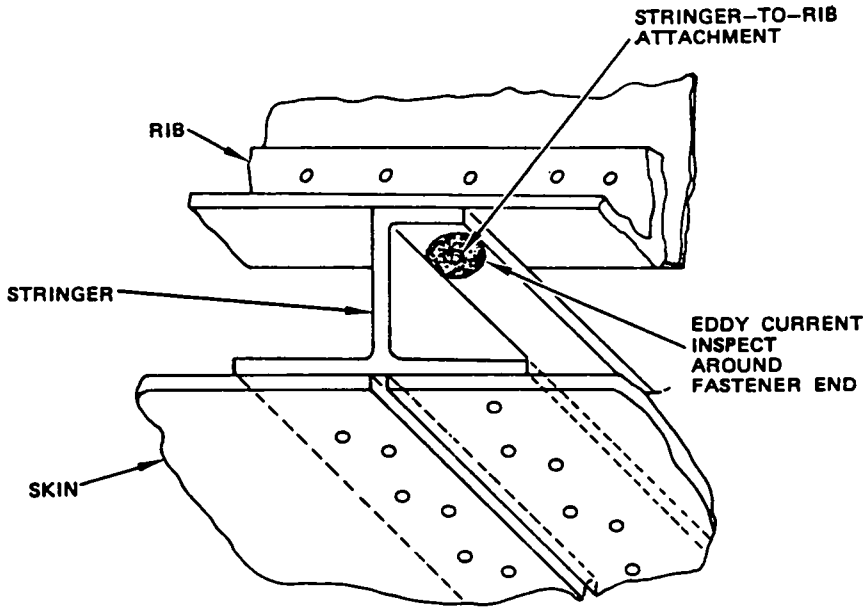
Lower Wing Splice Stringers
Figure 10 (Sheet 2)



NOTE: INSPECTION AREAS ARE CIRCLED, REFER TO DETAILS II AND III FOR FURTHER INFORMATION

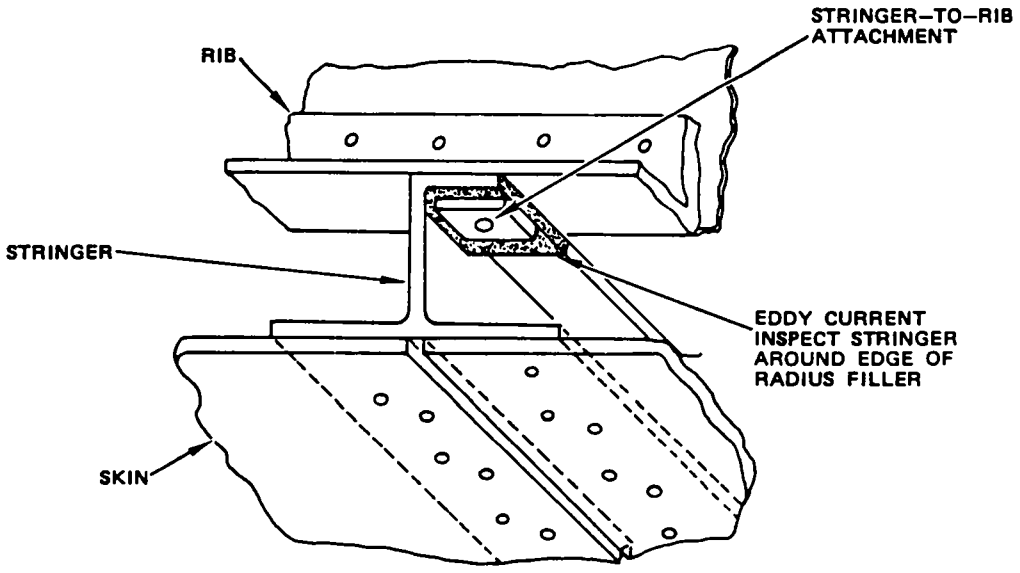
DETAIL I

Lower Wing Splice Stringers
Figure 10 (Sheet 2A)



RIB ATTACHMENT WITHOUT RADIUS FILLER

DETAIL II



RIB ATTACHMENT WITH RADIUS FILLER

DETAIL III

Lower Wing Splice Stringers
Figure 10 (Sheet 3)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To inspect selected fastener hole for cracks in the lower WS 733 production break.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure:

      (1) MIZ-10
      Zetec Inc.
      1320 N.W. Mall
      Issaquah, WA 98027

   B. Probes - This procedure uses two probes; probes of similar size which will satisfy the performance requirements of this procedure are acceptable. The following probes were used in the development of this procedure:

      (1) Encircling (ring) probe with one-inch outside diameter and 0.5-inch inside diameter shielding, 100 Hz, Nortec part number SPO-783.

      (2) Low frequency probe with 0.7-inch outside diameter shielding usable at 500 Hz, Nortec part number SPO-996.

      NOTE: 1. Probes listed above are available from:

      Nortec Inc.
      421 N. Quay
      Kennewick, Washington 99336

      2. Specify instrument with which probe is to be used or instrument connector required when ordering probes.

   C. Reference Standards - Manufacture reference standards per Details II and IV.

Lower Wing Skin, Stringer Ends and Rib Chord at WS 733 Production Break
Figure 11 (Sheet 1)

3. Preparation for Inspection

A. This inspection is performed from outside the wing.

B. Wipe skin surface clean.

C. Trimming of a small piece of outboard engine pylon fairing attach angle is required to inspect around fasteners 341 and 342 (Detail VII).

D. It is suggested that fastener locations requiring the same instrument calibration for inspection be identified on the airplane by suitable marking.

4. Instrument Calibration

A. General

(1) Three basic inspection types are required.

(a) Inspection for fastener hole cracks in the rib chord (splice forging). For this inspection an encircling (ring) probe is used.

(b) Inspection for cracks at stringer locations. For this inspection a 0.7-inch diameter standard probe is used.

(c) Inspection for stringer cracks along skin gap. For this inspection a 0.7-inch diameter standard probe is used.

(2) The three basic inspections require separate instrument calibrations to adjust for variations in structure geometry and materials.

(3) Detail I identifies the location of fasteners to be inspected.

B. Calibration for fastener hole cracks in the rib chord.

(1) Attach ring probe and set instrument frequency at 200 Hz.

(2) Select the Detail II reference standard.

(3) Center probe over the unnotched reference standard hole, position 1, Detail III.

(4) Null instrument per manufacturer's instructions.

Lower Wing Skin, Stringer Ends and Rib Chord at WS 733 Production Break
Figure 11 (Sheet 2)

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(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is centered over unnotched hole during liftoff calibration.

(6) Recenter probe over the unnotched hole and adjust meter response to read 20 percent of full-scale with meter position control.

NOTE: Probe is centered by manipulating to obtain a minimum meter response.

(7) Center probe over the notched reference standard hole, position 2. Response should be upscale.

(8) Adjust instrument sensitivity to obtain 60 percent of fullscale meter response difference between the notched and unnotched holes.

(9) Recheck null and liftoff. If readjustments are made, recheck sensitivity per par. B.(8).

(10) Cracks will be indicated by a higher meter response.

C. Calibration for crack inspection of stringers along the gap between wing skins at Stringers 4 and 8.

(1) Attach 0.7 inch diameter standard probe and set instrument frequency at 500 Hz.

(2) Select the Detail IV reference standard.

(3) Center probe over unnotched area of the reference standard, position 3, Detail V. Balance instrument per manufacturer's instructions.

(4) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper). Care should be taken to hold the probe in the same position relative to the skin gap to avoid confusion during liftoff adjustment.

Lower Wing Skin, Stringer Ends and Rib Chord at WS 733 Production Break
Figure 11 (Sheet 3)

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(5) Recenter the probe at position 3 and set meter response at 20 percent of full-scale with meter position control.

NOTE: Probe is centered over the skin gap by moving the probe across the gap to obtain a maximum meter response.

(6) Center probe at notched location, position 4. Meter response should be upscale.

(7) Adjust instrument sensitivity to obtain a 60 percent of full-scale meter response difference between the notched and unnotched positions.

(8) Recheck null and liftoff. If readjustments are made, recheck sensitivity per step C.(7).

(9) Cracks will be indicated by a higher meter response.

D. Calibration for fastener hole cracks in the skin and stringer

(1) Calibrate per par. C except use Detail V, probe positions 1 (unnotched hole) and 2 (notched hole). The par. C.(5) note does not apply.

5. Inspection Procedure

A. Fastener hole cracks in the rib chord (instrument calibrated per par. 4.B).

(1) Center ring probe around each of the following fasteners and note the minimum meter response: Fastener Numbers 15, 21, 30, 37, 41, 54, 55, 60, 113, 119, 126, 129, 134, 141, 190, 193, 205, 208, 214, 219, 222, 228, 289, 292, 298, 303, 307, 313. See Details VI, VII and VIII.

NOTE: It is suggested that a copy of Details VI, VII and VIII be made and used to record instrument responses at each fastener location. This is helpful in maintaining continuity between the groups of fastener locations during inspection.

Minor adjustments to the meter position control will be required since the reference standard does not exactly duplicate the airplane structure. The minor adjustments must be made with the probe on a crack-free area of the structure.

Lower Wing Skin, Stringer Ends and Rib Chord at WS 733 Production Break
Figure 11 (Sheet 4)

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(2) Use several fasteners to establish the baseline response for a group of fasteners with the same head size and edge margin.

(a) Select a representative fastener and note its response.

(b) Refer back to this fastener periodically to ensure that the instrument response is the same as originally recorded, as changes in meter response may occur as a result of instrument drift or probe temperature change.

(3) Beginning with fastener number 15, Stringer 3, proceed in sequence with fasteners on Stringers 4 and 8 on the inboard wing, then repeat on the outboard wing.

(4) Any fastener location which gives a response 30 percent of full meter scale higher than the established baseline should be investigated further.

NOTE: The following conditions may cause meter reading changes similar to crack indications:

1) A decrease in fastener spacing - compare with similarly spaced fasteners on the airplane.

2) A larger or smaller fastener - compare with similar fasteners on airplane.

3) A fastener close to edge of skin - compare with similar fasteners on airplane.

4) Differences in conductivity between skin panels - compare only the fastener location common to a skin panel.

B. Inspection for cracks in stringer at skin gap (instrument calibrated per par. 4.C.).

(1) Center the probe on the skin gap at Stringer 4 outboard of fasteners 354-355. See Detail VII.

NOTE: Minor adjustments to the meter position control will be required since the reference standard does not exactly duplicate the airplane structure. The minor adjustments must be made with the probe on a crack-free area of the structure.

(2) Scan probe along the gap between fasteners 354-355.

Lower Wing Skin, Stringer Ends and Rib Chord at WS 733 Production Break
Figure 11 (Sheet 5)

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(3) Continue Stringer 4 gap scan on inboard side of the WS 733 joint between fastener numbers 342-343.

(4) Repeat the gap inspection at Stringer 8 between fasteners 350-351 and fasteners 346-347.

(5) Any location which gives a response which is 30 percent of full meter scale higher than the established baseline should be investigated further.

NOTE: The following may cause meter reading changes similar to crack indications:

1) Metal chips trapped in the sealant at the skin joint may cause a crack-like indication. Remove sealant and reinspect.

2) A fastener close to the edge of skin. Compare with similar fastener on airplane. Check calibration using probe positions 5 and 6, Detail V.

C. Fastener hole cracks in skin and stringer (instrument calibrated per par. 4.D.).

(1) Place probe along the side of fasteners 341 thru 356 and note the meter response. See Details I, VI and VII for fastener location and probe position.

(2) If response varies significantly from the reference standard, use several adjacent fasteners to establish a baseline response.

(3) Any fastener location which gives a response 30 percent of full meter scale higher than the established baseline should be investigated further.

NOTE: The following may cause meter reading changes similar to crack indications:

1) Metal chips in paint under probe. Remove and reinspect.

2) Close fastener spacing. Compare with fasteners having similar spacing.

3) A fastener close to edge of skin. Compare with similar fasteners on airplane.

Lower Wing Skin, Stringer Ends and Rib Chord at WS 733 Production Break
Figure 11 (Sheet 6)

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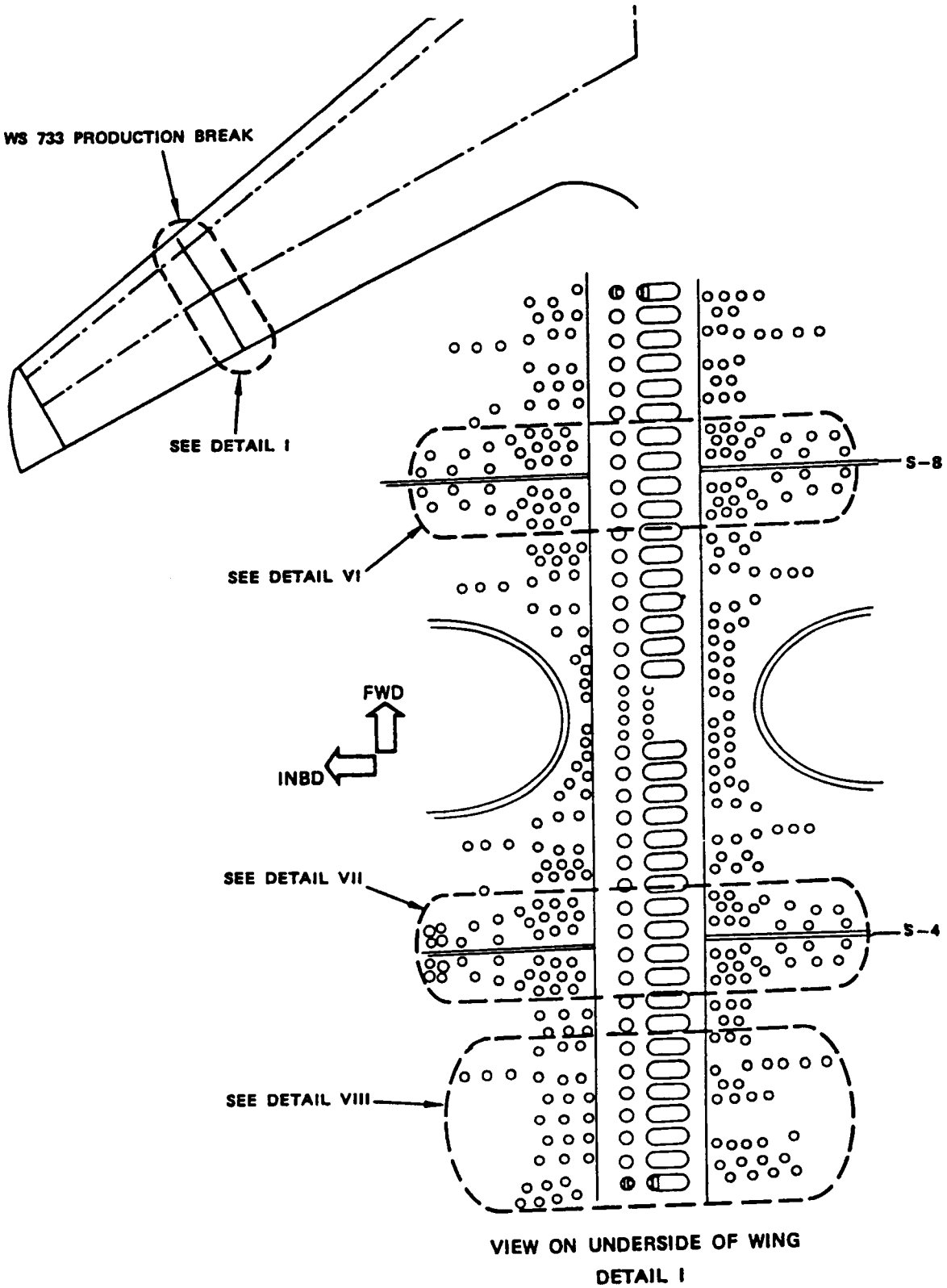

Lower Wing Skin, Stringer Ends and Rib Chord at WS 733 Production Break
Figure 11 (Sheet 7)

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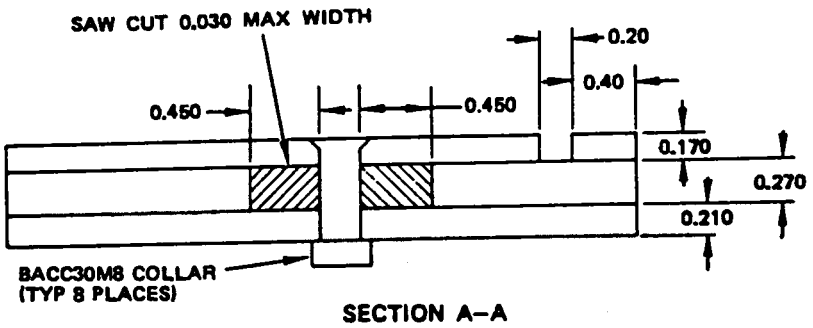
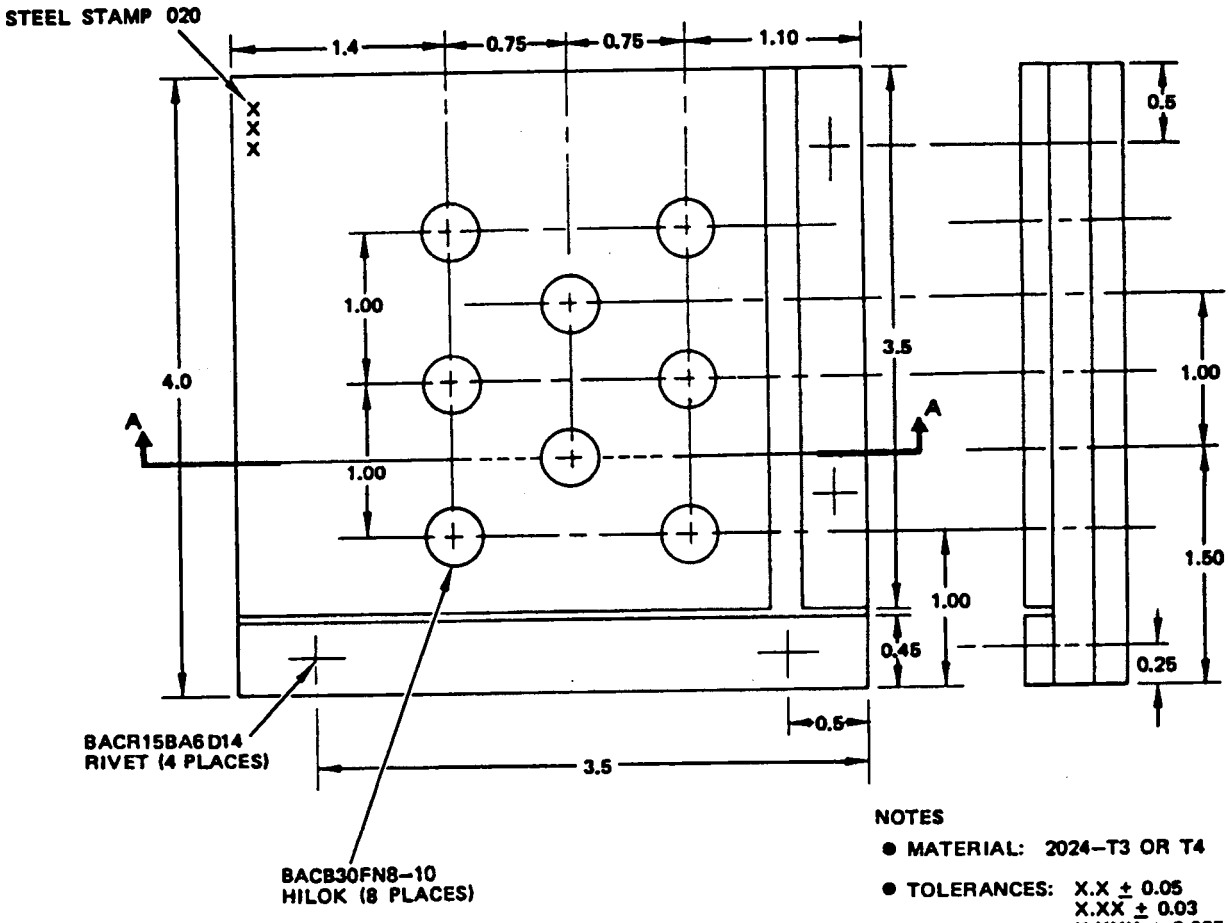


SECTION A–A



NOTES

- MATERIAL: 2024–T3 OR T4
- TOLERANCES: X.X ± 0.05
  X.XX ± 0.03
  X.XXX ± 0.005
- AVAILABLE FROM IDEAL SPECIALTY CO.
  P/N 6412–26

  IDEAL SPECIALTY CO.
  2531 E, INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

REFERENCE STANDARD 020

DETAIL II

Lower Wing Skin, Stringer Ends and Rib Chord at WS 733 Production Break
Figure 11 (Sheet 8)

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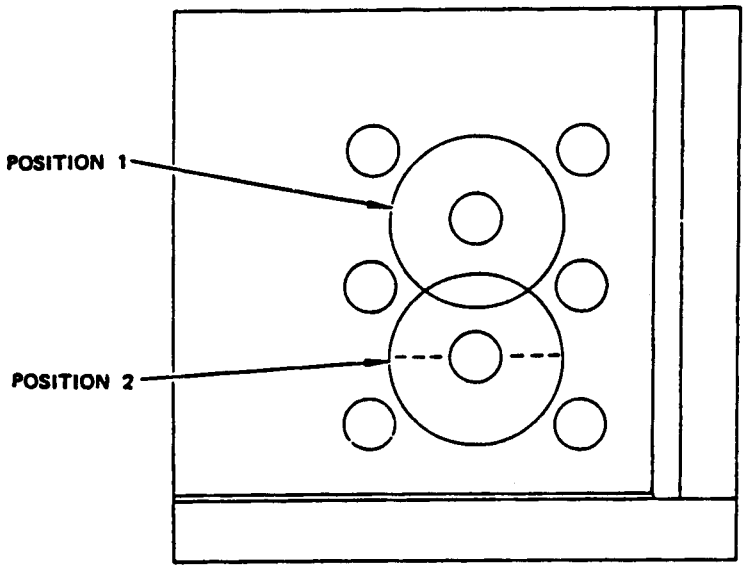
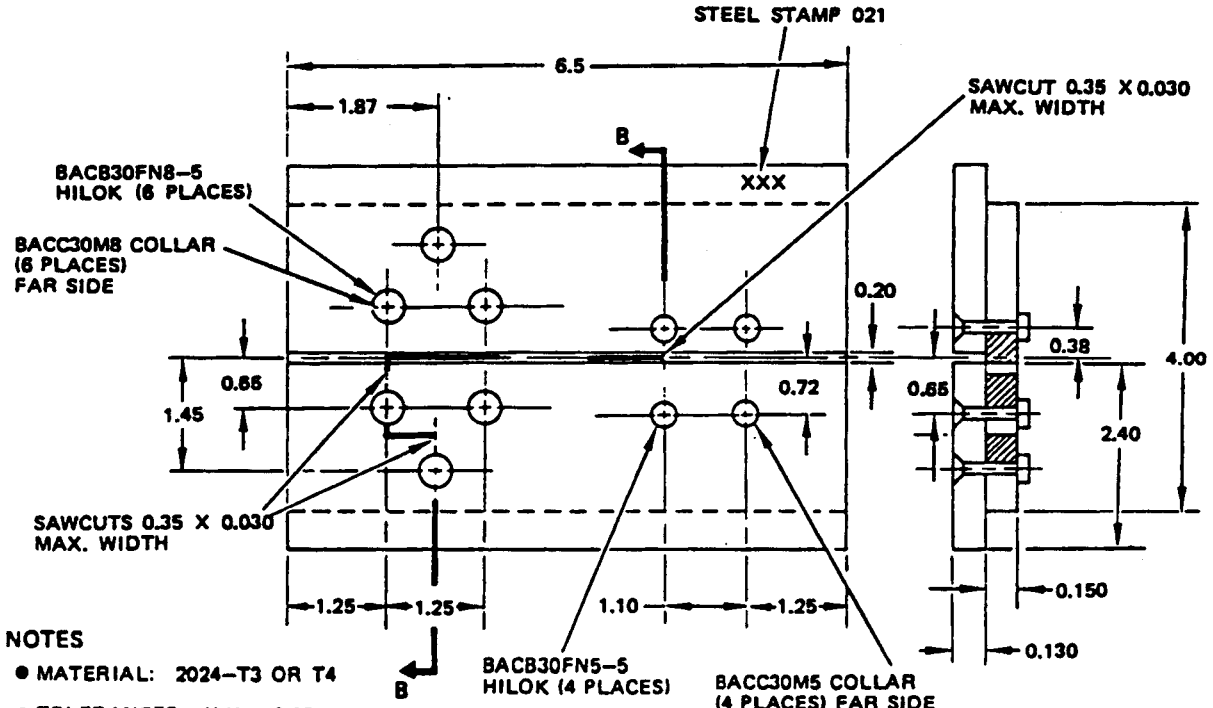


PROBE POSITION
DETAIL III



NOTES

- MATERIAL: 2024–T3 OR T4
- TOLERANCES: X.X ± 0.05
  X.XX ± 0.03
  X.XXX ± 0.005
- DIMENSIONS ARE TYPICAL TO BOTH SIDES OF STANDARD EXCEPT AS SHOWN
- P/N 6412–27
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

REFERENCE STANDARD 021
DETAIL IV

Lower Wing Skin, Stringer Ends and Rib Chord at WS 733 Production Break
Figure 11 (Sheet 9)

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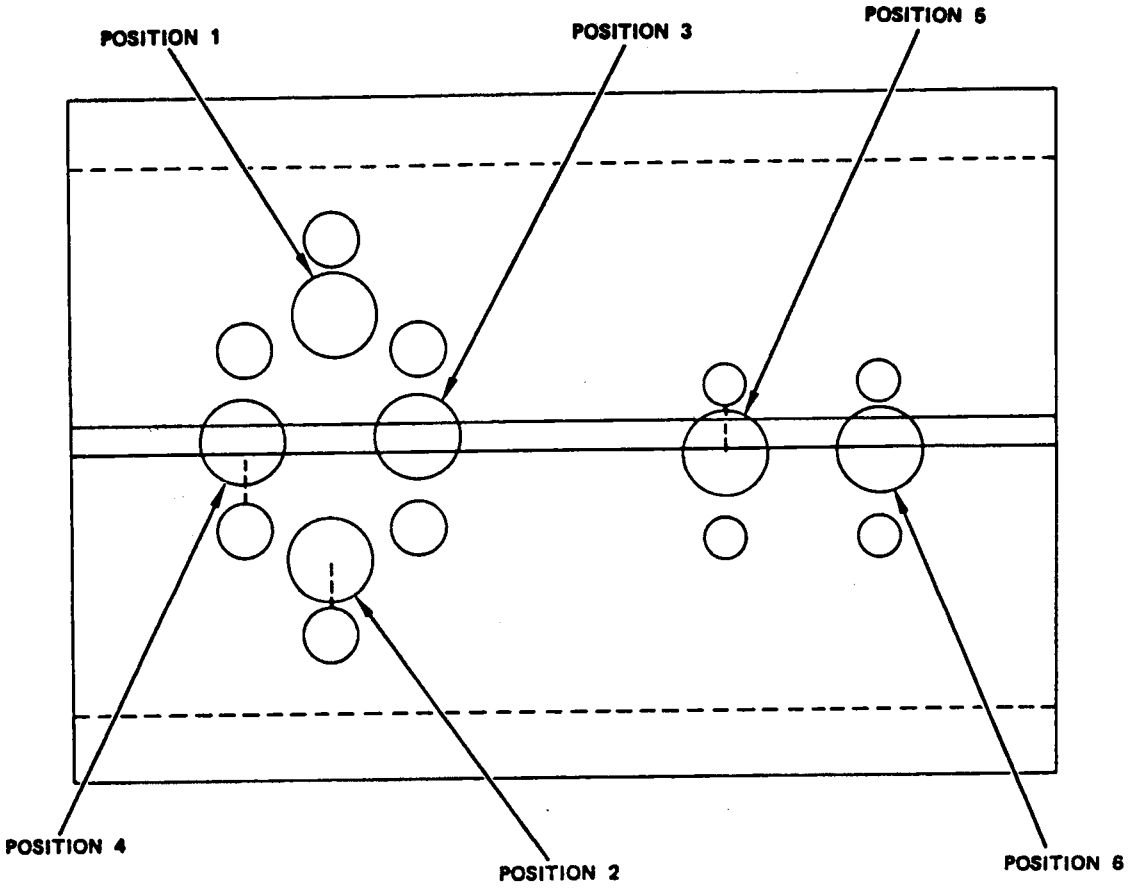

PROBE POSITION
DETAIL V

Lower Wing Skin, Stringer Ends and Rib Chord at WS 733 Production Break
Figure 11 (Sheet 10)

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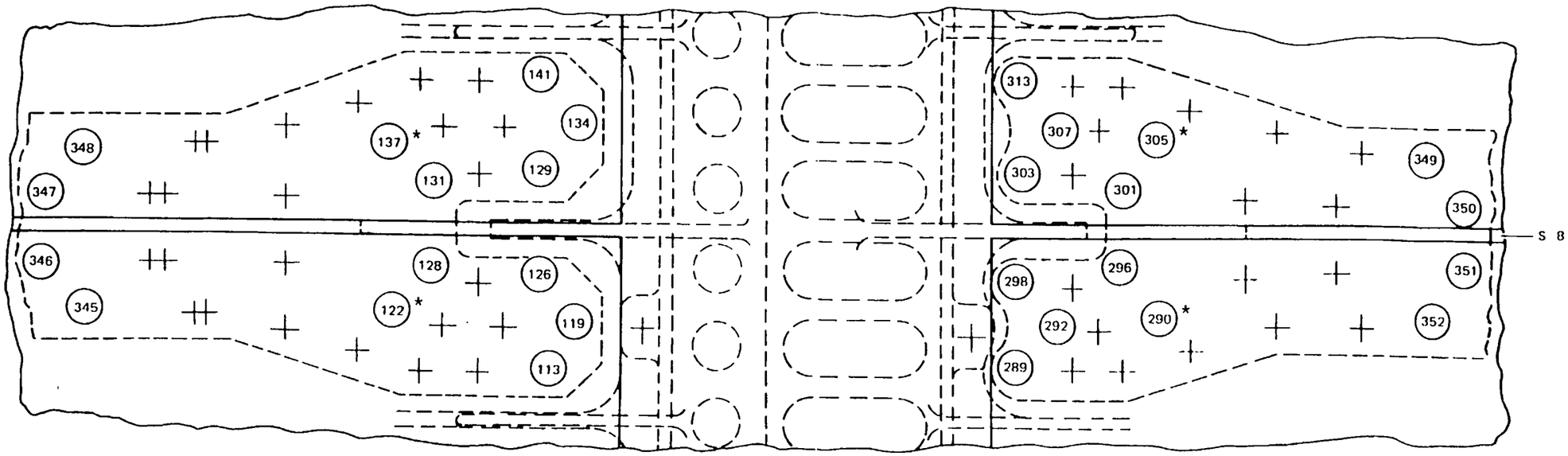
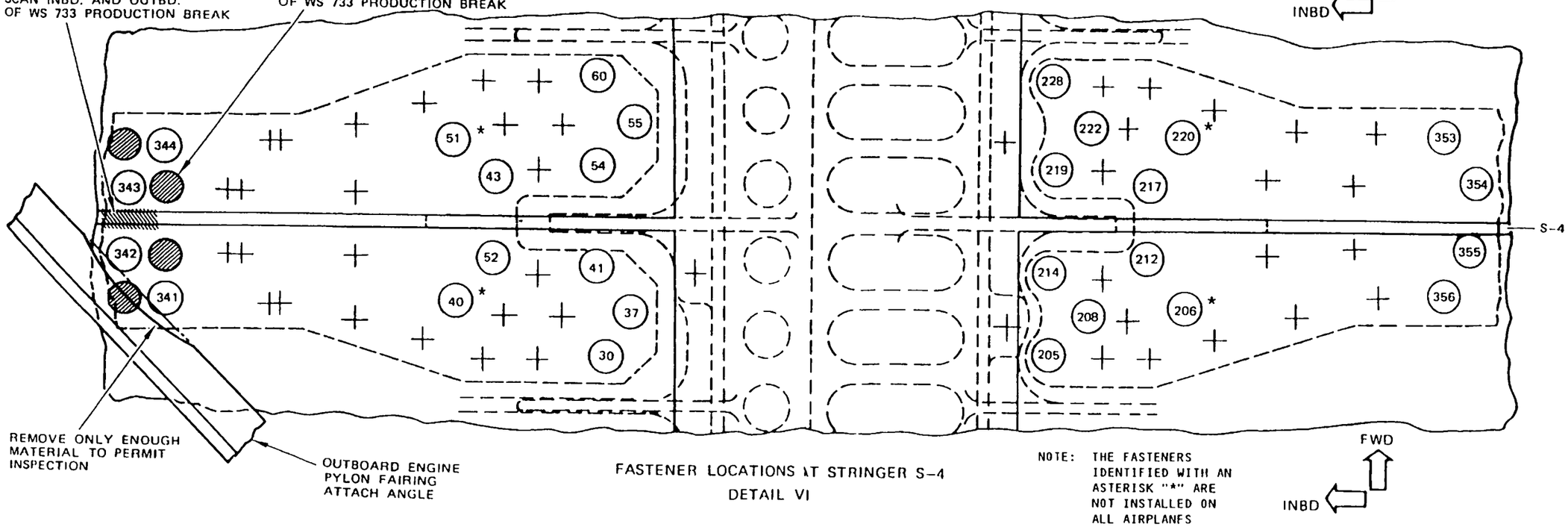


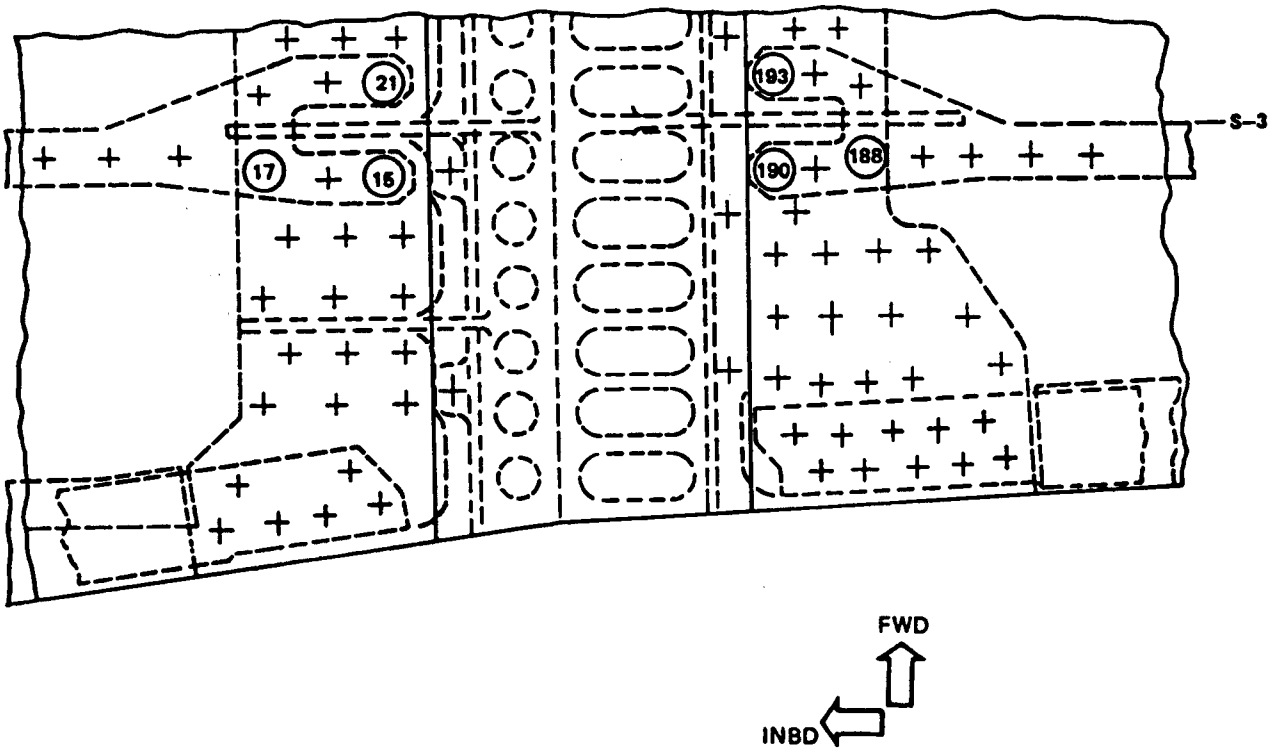
FASTENER LOCATIONS AT STRINGER S-8
DETAIL VI



FASTENER LOCATIONS AT STRINGER S-4
DETAIL VI

NOTE: THE FASTENERS IDENTIFIED WITH AN ASTERISK "*" ARE NOT INSTALLED ON ALL AIRPLANES

Lower Wing Skin, Stringer Ends and Rib Chord at WS 733 Production Break
Figure 11 (Sheet 11)



FASTENER LOCATIONS AT STRINGER S–3
DETAIL VIII

Lower Wing Skin, Stringer Ends and Rib Chord at WS 733 Production Break
Figure 11 (Sheet 12)

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EFFECTIVITY
MODEL: 707/720
SSI DOCUMENT (D6-44860)
REFERENCE:
SSD 57-A05-13
SSD 57-A15-13
SSD 57-A25-13
SSD 57-A45-13

PART 6 EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks in the lower wing skin and stringer ends which intersect fastener holes at specified locations on both sides of the WS 733 Production Break.

   B. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Instrument - Refer to Part 6, 51-00-00, Fig. 4

   B. Probe - Shielded standard and right-angled pencil probes per Part 6, 51-00-00, Fig. 4, obtainable from:

      NDT Product Engineering
      P.O. Box 423
      Renton, WA 98057

      or

      VM Products
      7420 Park Ave. No. 20
      Tacoma, WA 98408

3. Preparation for Inspection

   A. Internal inspection requires removal of wing access panels 13 and 14 on models 720 and 707-100/200 and panels 14 and 15 on models 707-300/400.

Lower Wing Skin and Stringer Ends at WS 733 Production Break
Figure 12 (Sheet 1)

B. For internal inspection remove sealant from upper surface of stringer lower flange at fastener numbers identified in par. 5.B.

NOTE: It is suggested that as the fasteners are identified they should be marked in a suitable manner, such as circling with a marking pencil.

4. Instrument Calibration

A. Calibrate per Part 6, 51-00-00, Fig. 4.

5. Inspection Procedure

A. For inspection procedure refer to Part 6, 51-00-00, Fig. 6.

B. External Inspection

(1) Inspect around fastener heads of fastener numbers 17, 43, 52, 128, 131, 188, 212, 217, 296 and 301. See Details II, III and IV for fastener locations.

(2) Inspect around heads of seal stop fasteners numbers 40, 51, 122, 137, 206, 220, 290 and 305. See Details II and III for fastener locations.

NOTE: Not all airplanes have seal stop fasteners. Check airplane fastener pattern against Details II and III to identify seal stop fasteners.

C. Internal Inspection

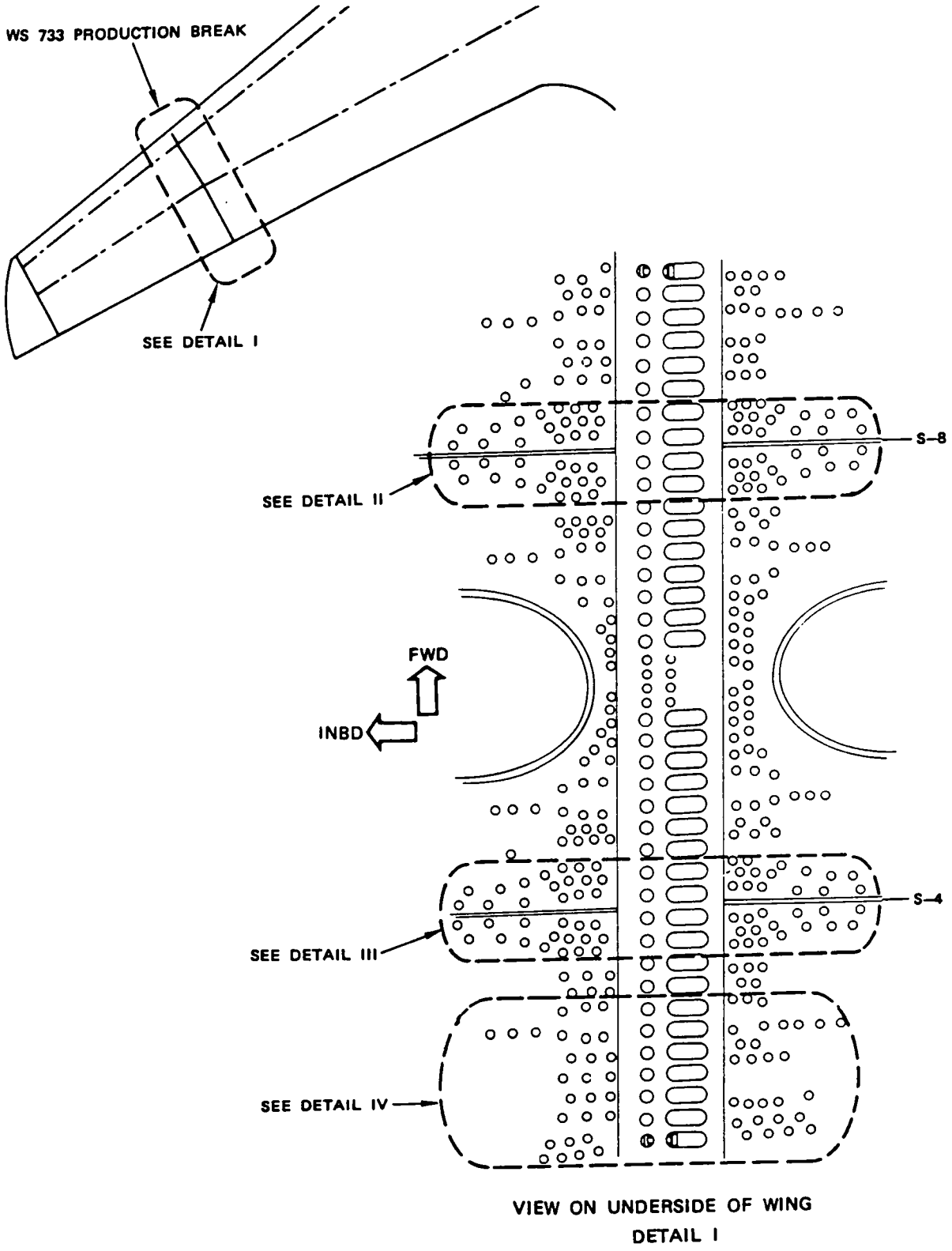
WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

(1) Inspect around internal ends of fastener numbers 17, 43, 52, 128, 131, 188, 212, 217, 296 and 301 at stringers 3, 4 and 8, using a right-angled pencil probe.

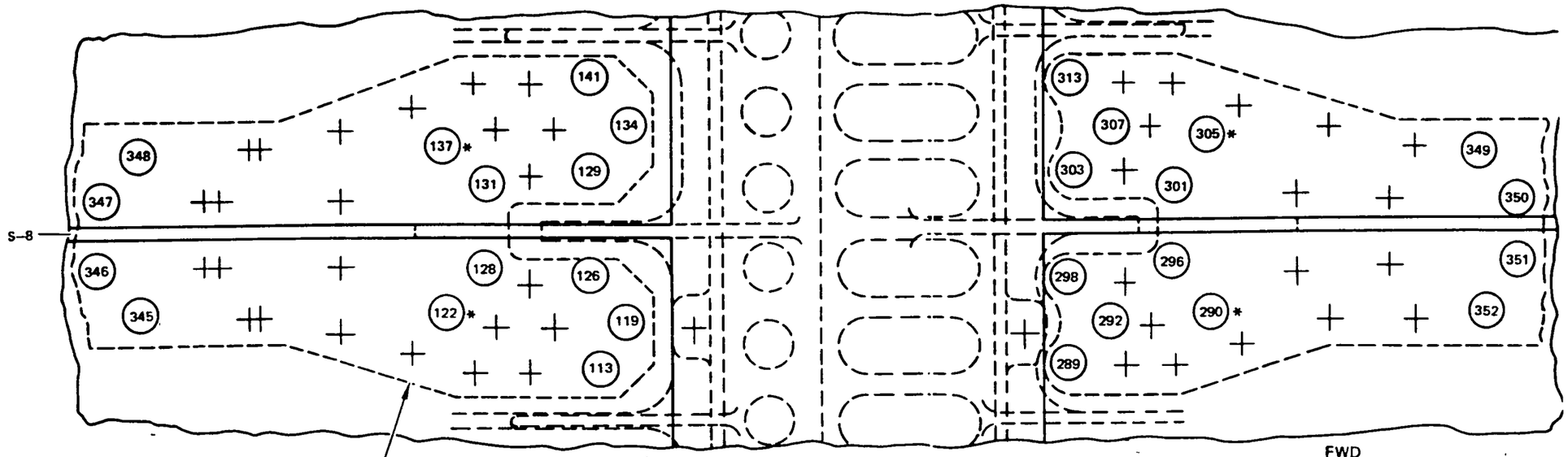
NOTE: A complete scan around internal fastener ends may not be possible. Inspect to the extent possible as shown in Detail V.

Fastener numbers 17, 43, 131, 188, 212 and 301 are not directly visible. They can be viewed with the aid of an inspection mirror.

Lower Wing Skin and Stringer Ends at WS 733 Production Break
Figure 12 (Sheet 2)

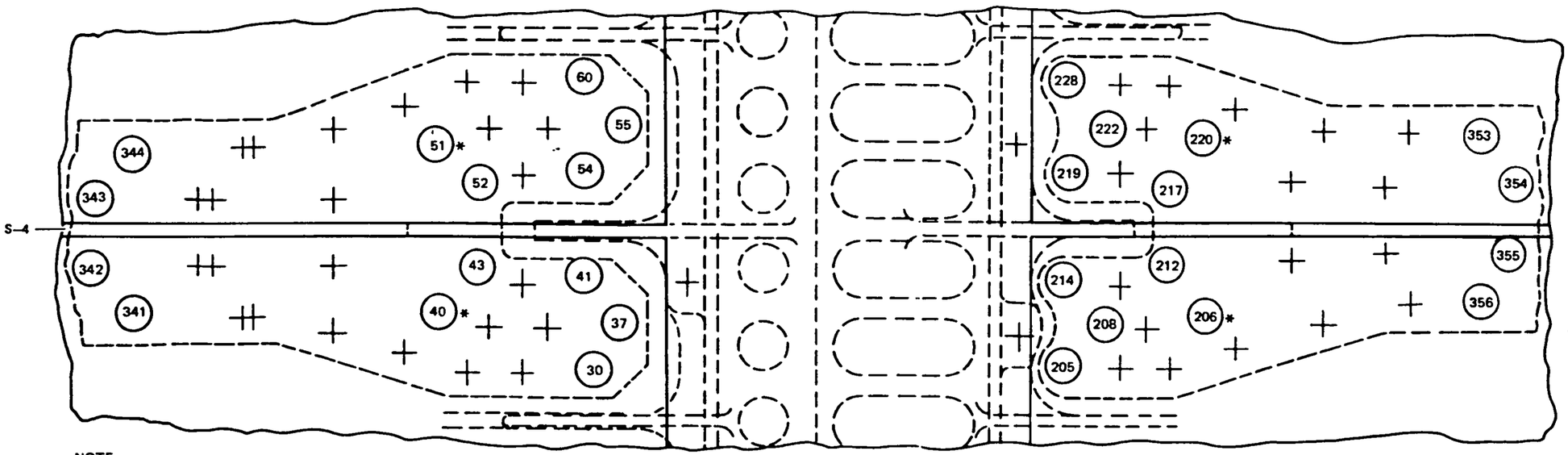


Lower Wing Skin and Stringer Ends at WS 733 Production Break
Figure 12 (Sheet 3)



NOTE
SEAL STOP FASTENERS MARKED THUS * NOT APPLICABLE TO ALL AIRPLANES

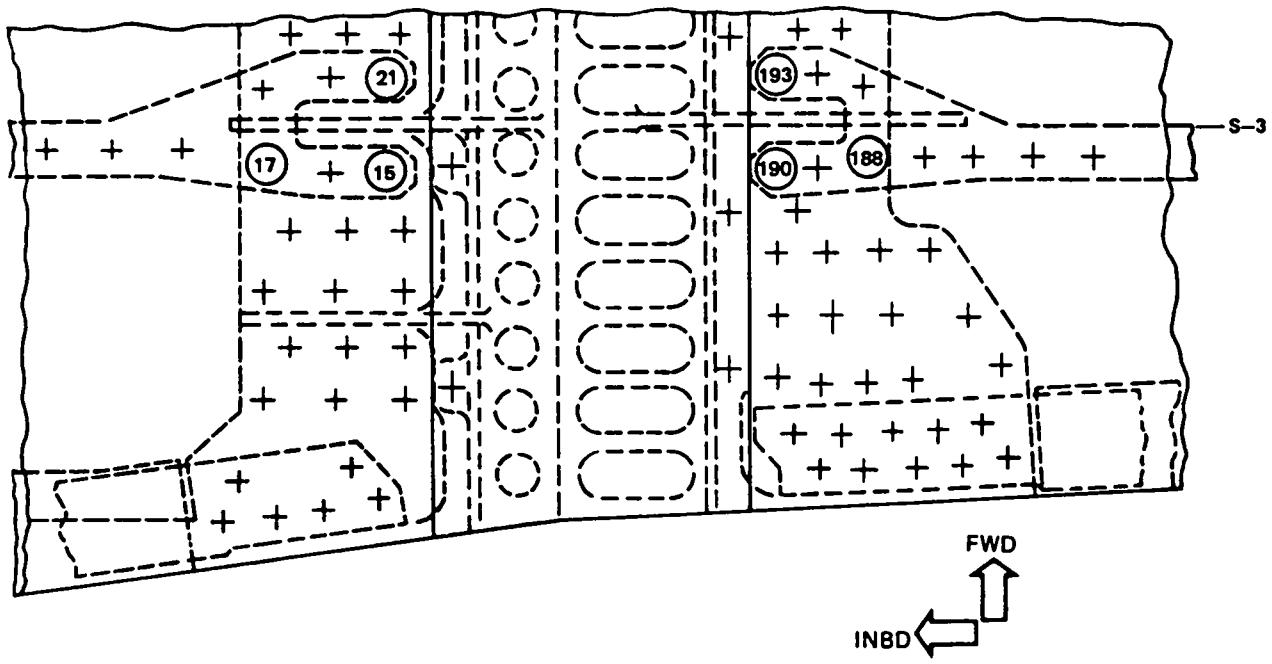
FASTENER LOCATIONS AT STRINGER S–8
DETAIL II



NOTE
SEAL STOP FASTENERS MARKED THUS * NOT APPLICABLE TO ALL AIRPLANES

FASTENER LOCATIONS AT STRINGER S–4
DETAIL III

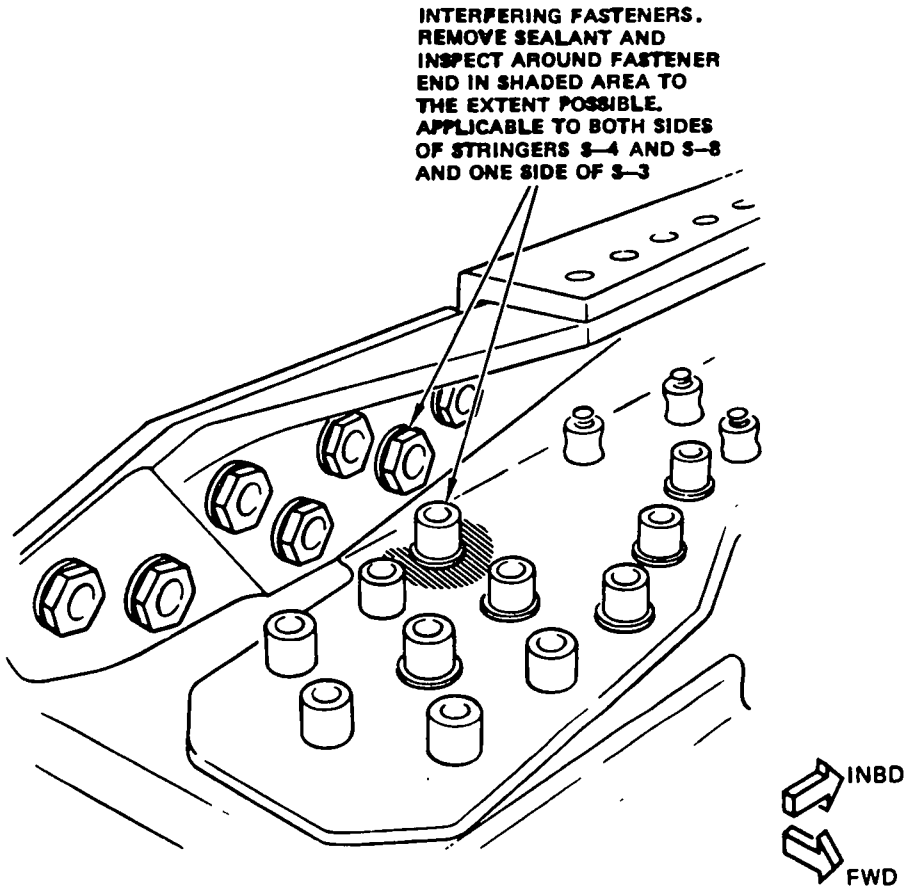
Lower Wing Skin and Stringer Ends at WS 733 Production Break
Figure 12 (Sheet 4)



FASTENER LOCATIONS AT STRINGER S-3

DETAIL IV

Lower Wing Skin and Stringer Ends at WS 733 Production Break
Figure 12 (Sheet 6)



STRINGER END AT WS 733
PRODUCTION BREAK

DETAIL V

Lower Wing Skin and Stringer Ends at WS 733 Production Break
Figure 12 (Sheet 5)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect surface cracks in the wing center section lower surface at specified locations.

   B. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Instrument per Part 6, 51-00-00.

   B. Any shielded right angle probe which satisfies the requirements of this procedure. Refer to Part 6, 51-06-00, Fig. 1.

3. Inspection Preparation

   A. Drain and purge fuel tanks to permit fuel tank entry with an eddy current instrument.

   B. Gain entry to wing center section fuel cells through access doors.

   C. Remove center wing fuel cell bladders and backing boards as necessary to perform these inspections.

   D. Remove sealant as required to perform this inspection.

4. Calibrate Instrument

   A. Refer to Part 6, 51-00-00, Fig. 4.

Wing Center Section Lower Surface and Structure
Figure 13 (Sheet 1)

5. Inspection Procedure

A. Perform an eddy current pencil probe scan at the following locations:

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

(1) Lower center section access doors.

(a) Scan periphery of forward and aft access doors as shown in Details I & II.

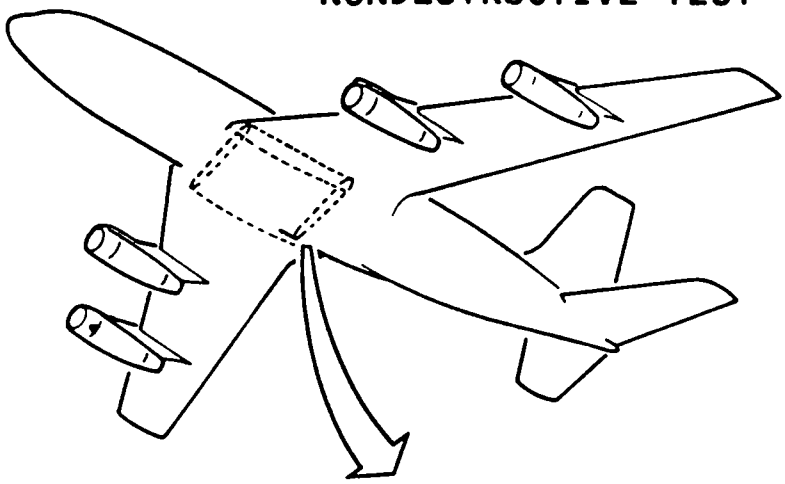
(2) Internal inspection of center section lower surface.

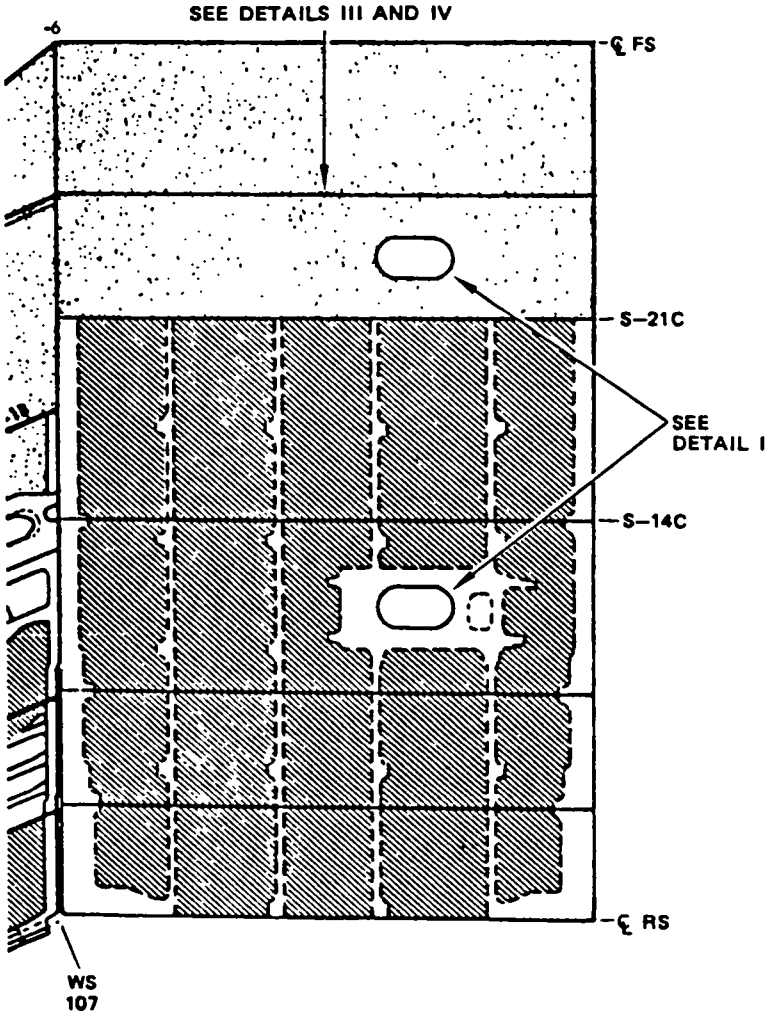
(a) Scan the lower rear spar chord, stringers, splice stringers and spanwise beam chords. Refer to Table I for inspection detail. See Details III or IV for location of inspection member.

MODEL	REAR SPAR CHORD	TYPICAL STRINGER	SPLICE STRINGER	SPANWISE BEAM CHORD
ALL 707	VI & VII	VIII	IX	X
720	V & VII	VIII	IX	X

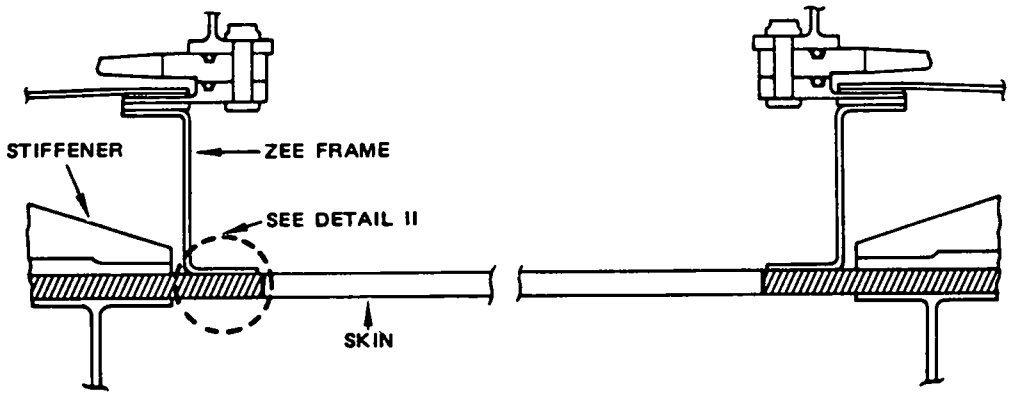
INSPECTION DETAIL
TABLE I

Wing Center Section Lower Surface and Structure
Figure 13 (Sheet 2)



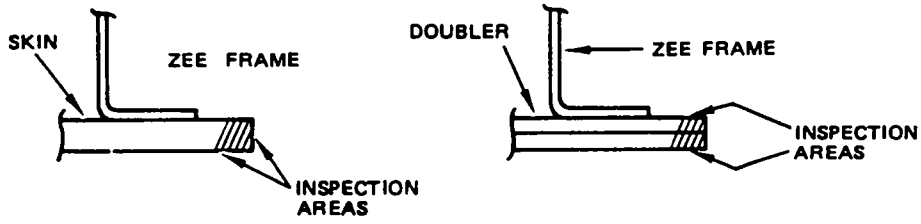


Wing Center Section Lower Surface and Structure
Figure 13 (Sheet 3)



CROSS SECTION AT ACCESS DOOR OPENING
(TYPICAL OR SIMILAR)

DETAIL I



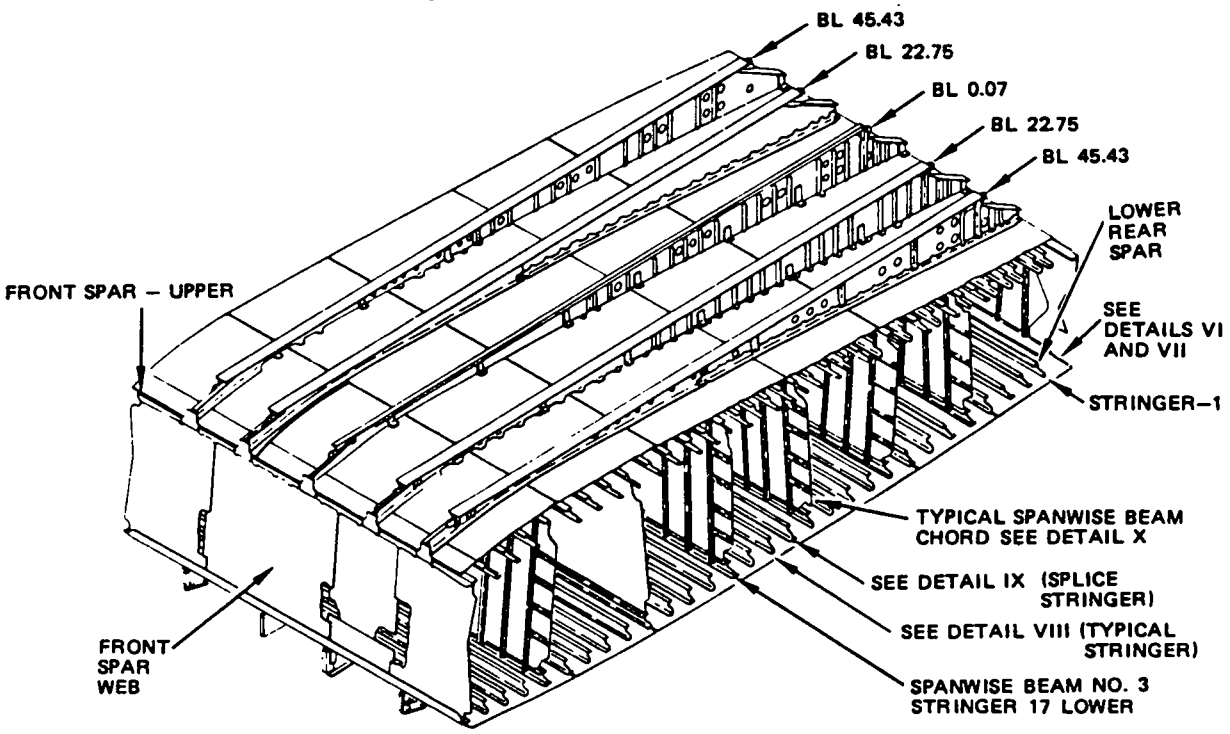
AFT ACCESS OPENING FORWARD ACCESS OPENING

DETAIL II

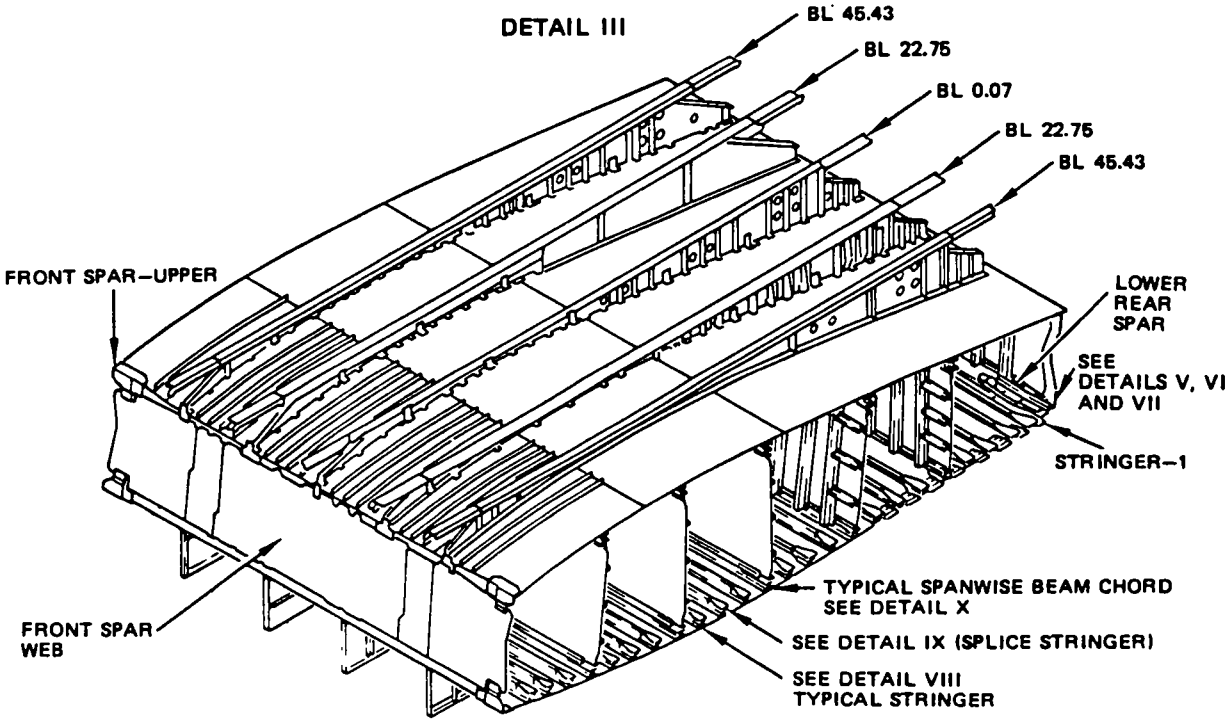
NOTES

//// INSPECTION AREAS

Wing Center Section Lower Surface and Structure
Figure 13 (Sheet 4)

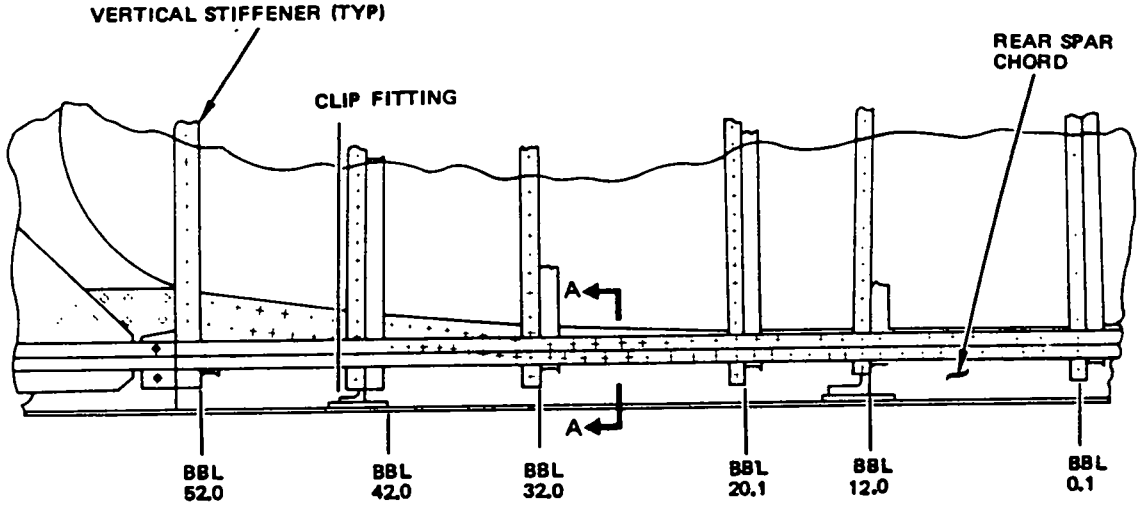


WING CENTER SECTION
MODELS 707–300/400
DETAIL III

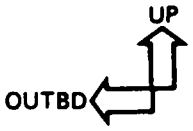


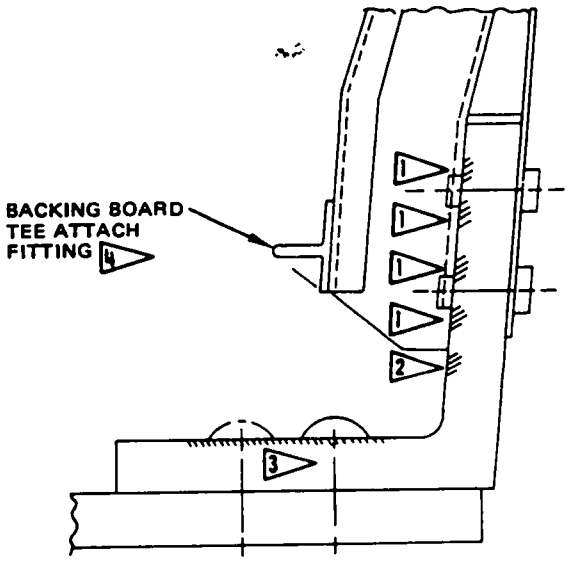
WING CENTER SECTION
MODELS 720 AND 707–100/200
DETAIL IV

Wing Center Section Lower Surface and Structure
Figure 13 (Sheet 5)



720 A/P'S WING CENTER SECTION BBL 0.1 TO BBL 52.0





SECTION A–A

NOTES

INSPECTION AREA

1 SCAN AROUND ALL FASTENER ENDS, WITHIN 0.1 INCH, ON ALL FASTENERS NOT COVERED BY STRUCTURE ON REAR SPAR CHORD VERTICAL LEG.

2 SCAN ON REAR SPAR CHORD VERTICAL LEG BELOW ALL VERTICAL STIFFENERS. REFER TO DETAIL VII FOR INSPECTION WHERE CHORD IS COVERED BY CLIP FITTINGS.

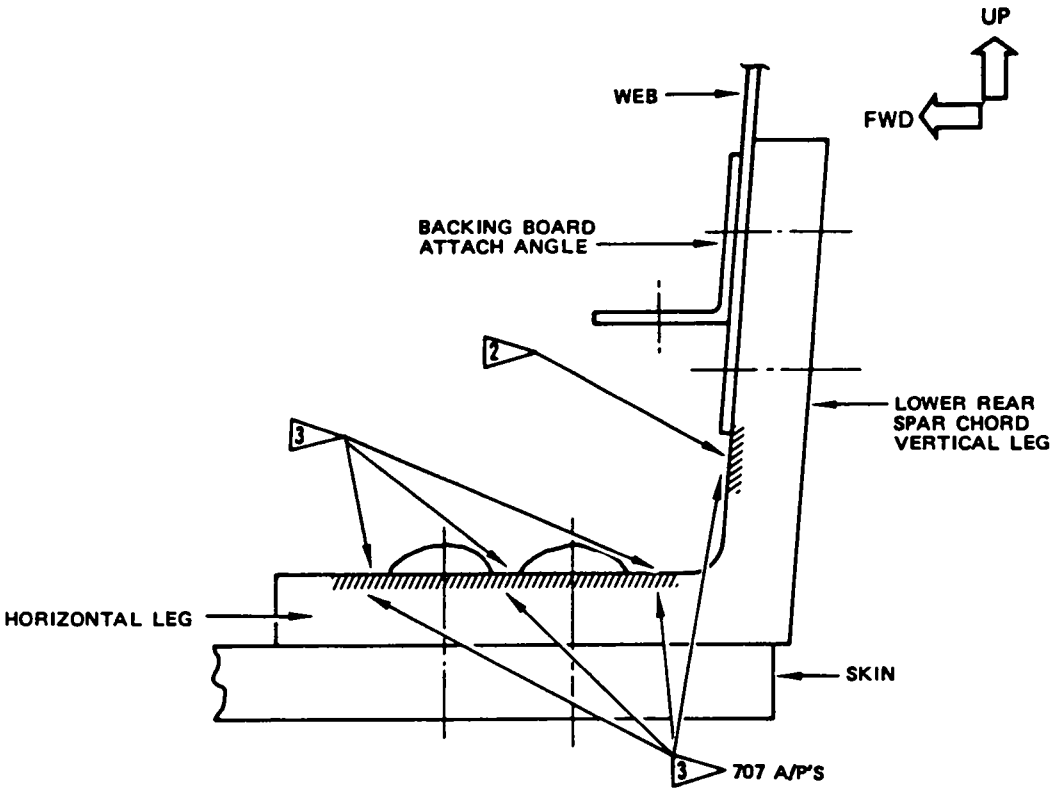
3 SCAN AROUND ALL FASTENERS HEADS, WITHIN 0.1 INCH, ON ALL FASTENERS NOT COVERED BY CLIP FITTINGS ON REAR SPAR CHORD HORIZONTAL LEG.

4 720 A/P CUM LINE NOS: 190, 197, 202 THRU 204, 210, 211, 213, 218, 219, 221 THRU 224, 230, 231, 237, 238, 243 THRU 245, 249 THRU 251, 256 THRU 258, 262, 263, 273, 281, 288, 290, 295, 300, 304, 307, 310, 314, 319, 321, 322, 324, 337 THRU 340, 351, 361, 374, 380 THRU 382, 384, 390, 401, 410, 414, 423, 427, 429, 433, 442, 470, 473, 474, 481, 512, 514, 581, 597, 615, 621, AND 624.

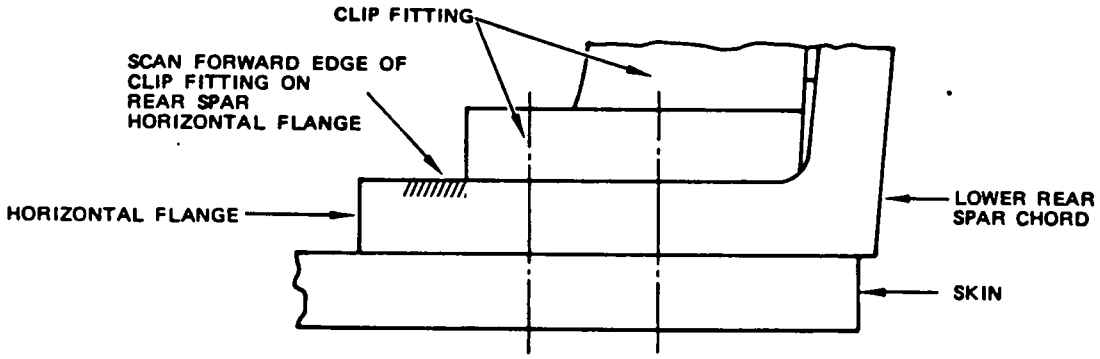
WING CENTER SECTION LOWER REAR SPAR CHORD INSPECTION LOCATIONS FOR 720 A/PS

DETAIL V

Wing Center Section Lower Surface and Structure
Figure 13 (Sheet 6)



LOWER REAR SPAR INSPECTION 707 A/P'S
DETAIL VI



NOTES

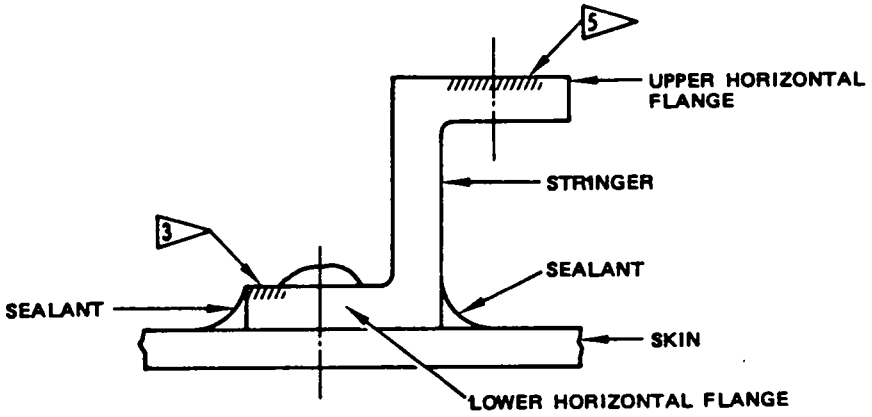
INSPECTION AREA

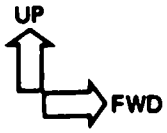
2 SCAN ON REAR SPAR CHORD VERTICAL FLANGE BELOW ALL VERTICAL STIFFENERS. REFER TO DETAIL VII FOR INSPECTION WHERE CHORD IS COVERED BY CLIP FITTINGS

3 SCAN AROUND ALL FASTENER HEADS, WITHIN 0.1 INCH, ON ALL FASTENERS NOT COVERED BY CLIP FITTINGS ON REAR SPAR CHORD HORIZONTAL FLANGE

LOWER REAR SPAR INSPECTION
707/720
DETAIL VII

Wing Center Section Lower Surface and Structure
Figure 13 (Sheet 7)





WING CENTER SECTION TYPICAL STRINGER 707/720

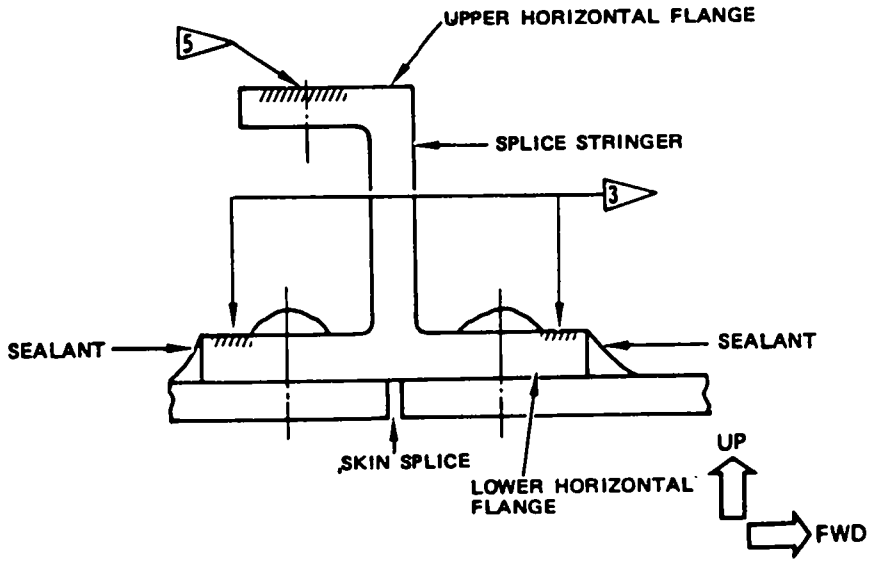
DETAIL VIII

NOTES

//// INSPECTION AREA

3 SCAN AROUND ALL FASTENER HEADS, WITHIN 0.1 INCH, ON ALL FASTENR NOT COVERED BY CLIP FITTINGS ON REAR SPAR CHORD HORIZONTAL FLANGE

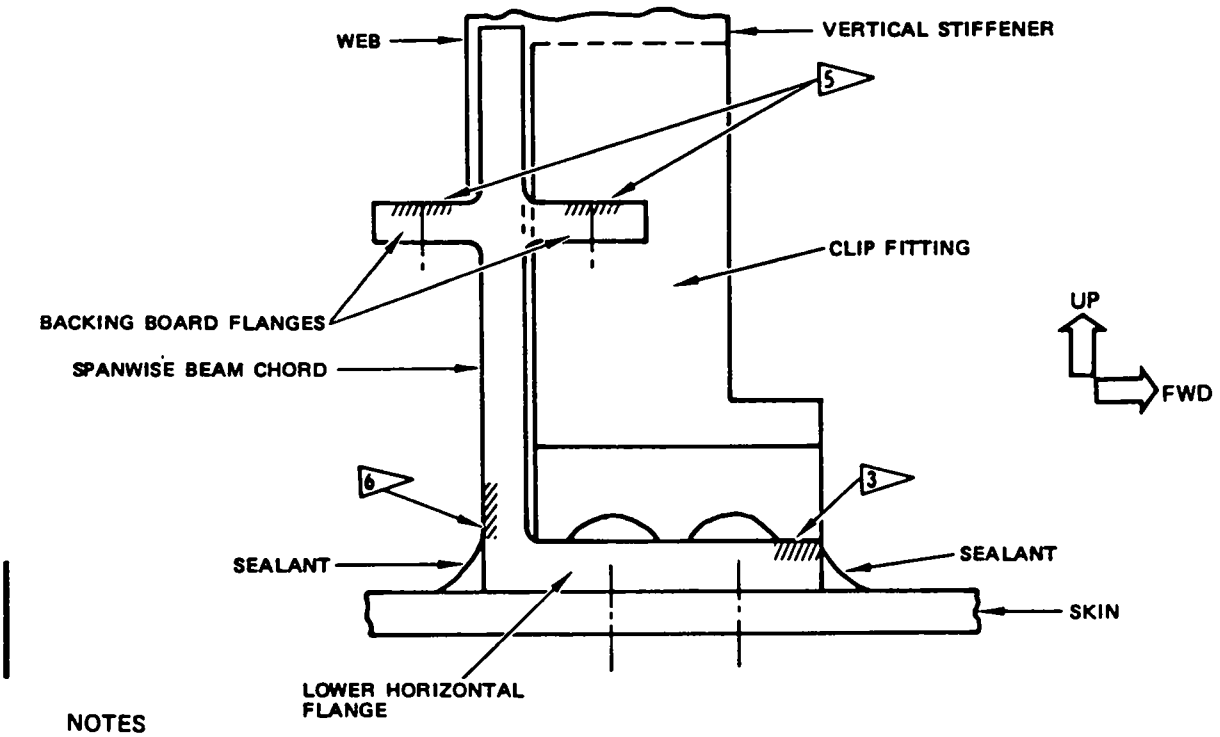
5 SCAN AROUND ALL BACKING BOARD FASTENER ATTACH LOCATIONS.



WING – CENTER SECTION LOWER SURFACE, SPLICE STRINGER 707/720

DETAIL IX

Wing Center Section Lower Surface and Structure
Figure 13 (Sheet 8)



NOTES

INSPECTION AREA

3 SCAN AROUND ALL FASTENER HEADS, WITHIN 0.1 INCH, AN ALL FASTENERS NOT COVERED BY CLIP FITTINGS ON REAR SPAR CHORD HORIZONTAL FLANGE

5 SCAN AROUND ALL BACKING BOARD FASTENER ATTACH LOCATIONS

6 SCAN VERTICAL LEG OF REAR SPAR CHORD OPPOSITE OF CLIP FITTINGS LOCATIONS

WING–CENTER SECTION
TYPICAL SPANWISE BEAM CHORD
707/720

DETAIL X

Wing Center Section Lower Surface and Structure
Figure 13 (Sheet 9)

EFFECTIVITY
MODEL: 707-300/-400 300B, 300C SSI DOCUMENT (D6-44860) REFERENCE: SSD 57-A20-04 SSD 57-A30-04 SSD 57-A40-04

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

A. To perform an internal eddy current inspection to detect cracks out of fastener holes common to the upper wing stringer to BBL 70.5 splice. See Details II thru VIII.

B. To perform a bolthole inspection to detect cracks out of fastener holes common to the upper wing stringer to BBL 70.5 splice. See Detail II.

NOTE: Fastener removal to permit a bolthole inspection is required at bladder spacer and angle assemblies.

C. To perform an external eddy current inspection to detect surface cracks in the wing skin inboard and outboard of the BBL 70.5 splice. See Details IX and X.

D. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

Wing Upper BBL 70.5 Splice
Figure 14 (Sheet 1)

B. Probes

(1) Shielded right angle pencil probe per Part 1, 51-06-00, Fig. 1, as specified in Detail I.

Shielded probe available from:

VM Products	NDT Product Engineering
7420 Park Ave. No. 20	P.O. Box 423
Tacoma, WA 98408	Renton, WA 98057
P/N: VM 100 AS	P/N: 905-50

(2) Bolt hole probe, 1/4-dia., per Part 6, 51-00-00, Fig. 1.

C. Standards

(1) Pencil probe: refer to Part 6, 51-00-00, Fig. 4.

(2) Bolt hole probe: refer to Part 6, 51-00-00, Fig. 1.

3. Preparation for Inspection

A. Internal, WING CENTER SECTION

(1) Gain access into center wing through lower center section access panels.

(2) Purge fuel tanks to permit tank entry with eddy current test equipment.

(3) Remove fuel cells and upper surface backing panels as necessary to gain access to inspection areas.

CAUTION: DO NOT REMOVE MORE THAN ONE ANGLE ASSEMBLY PER WING AT ONE TIME.

(4) Remove the bladder spacer and angle assemblies at all locations, stringers S-1 thru S-25, for bolt hole inspection. See Detail II.

(5) Remove sealant on the upper horizontal flange to permit eddy current probe access. See Detail VII and VIII.

B. Internal, Wing Tank

(1) Gain access into wing tank outboard of BBL 70.5

(2) Purge fuel tanks to permit tank entry with eddy current test equipment.

Wing Upper BBL 70.5 Splice
Figure 14 (Sheet 2)

(3) Remove sealant on the upper horizontal flange to permit eddy current probe access. See Details VII and VIII.

C. External, Skin Inspection

(1) Remove floor panels for access to inboard side of BBL 70.5 from upper center section at stringers S-12 and S-25.

(2) Remove side of body fairing for access to outboard side of BBL 70.5 at stringers S-12, S-19, S-20, and S-25.

4. Instrument Calibration

A. Pencil Probe

(1) Refer to Part 6, 51-00-00, Fig. 4.

B. Bolt hole Probe

(1) Refer to Part 6, 51-00-00, Fig. 1.

5. Inspection Procedure

A. Inspection Inside the Wing Center Section

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. USE ONLY BATTERY-OPERATED, EXPLOSIONPROOF LIGHTS IN VICINITY OF OPEN FUEL TANKS. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

(1) Pencil probe

(a) Scan the pencil probe around fasteners common to the lower horizontal flange splice. See Details II, III and IV.

NOTE: At spanwise beams where the rib chord flange is covered by an angle, scan adjacent to the fore and aft edges. See Details III and IV.

(b) Scan the pencil probe around fasteners on the upper flange of the attach fittings. See Details VII and VIII.

(c) Scan the pencil probe on the upper rib chord flange at indicated areas. See Details VII and VIII.

Wing Upper BBL 70.5 Splice
Figure 14 (Sheet 3)

(2) Bolt hole probe

(a) After removing the bladder spacer and angle assemblies, inspect open holes per Part 6, 51-00-00, Fig. 1. See Detail II.

B. Inspection Inside the Wing Tank, Outboard of BBL 70.5

(1) Scan the pencil probe around fasteners common to the lower horizontal flange splice. See Details V and VI.

(2) Scan the pencil probe along the vertical leg of the splice angle at areas indicated in Details V and VI.

(3) Scan the pencil probe along accessible edges of structural shims at areas indicated in Details V and VI.

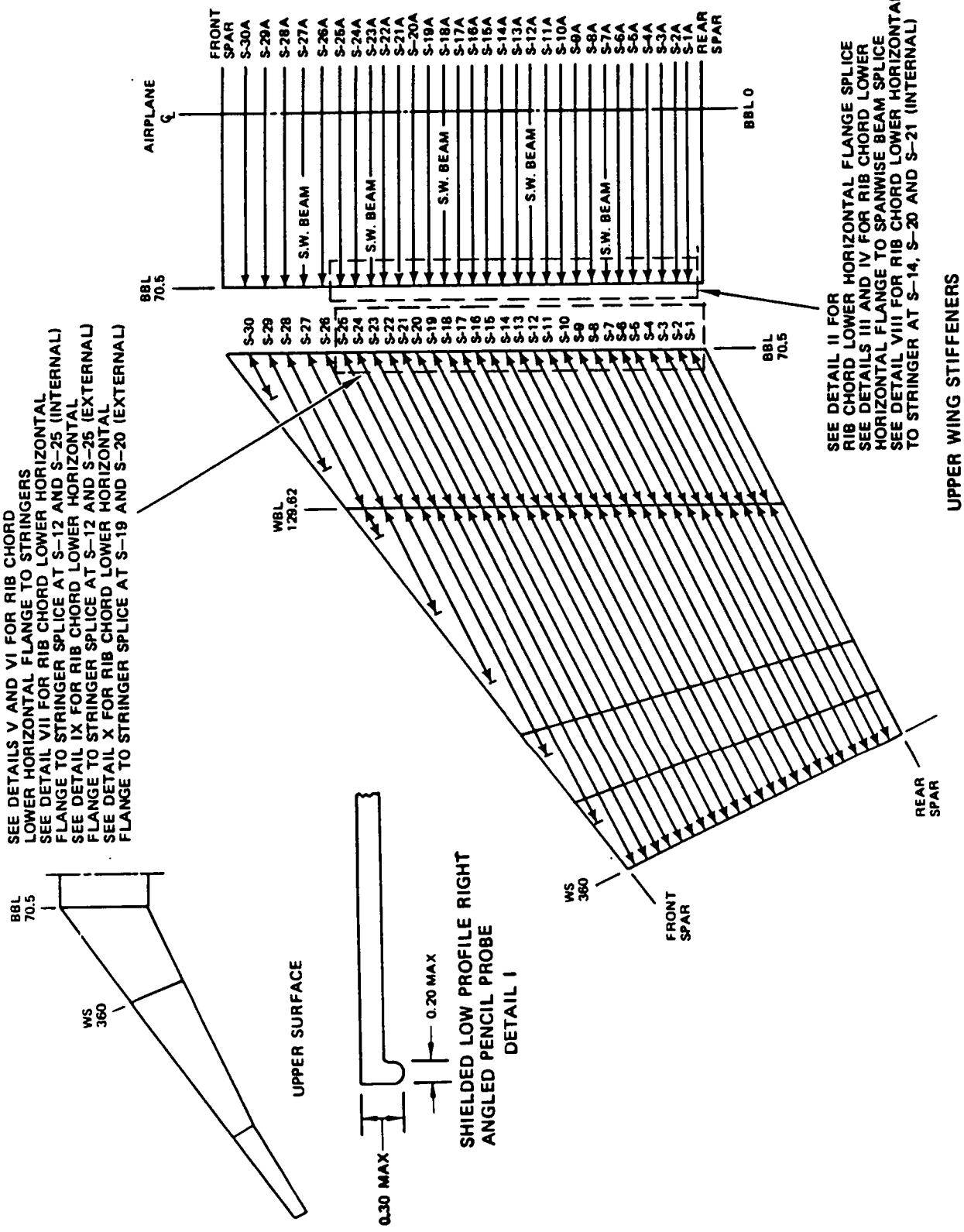
NOTE: Structural shims are optional, and installed between the rib chord flange and attach fitting. Inspect any shims which are 0.125 inch or more.

(4) Scan the pencil probe around fasteners on the upper flange of the attach fitting. See Details VII and VIII.

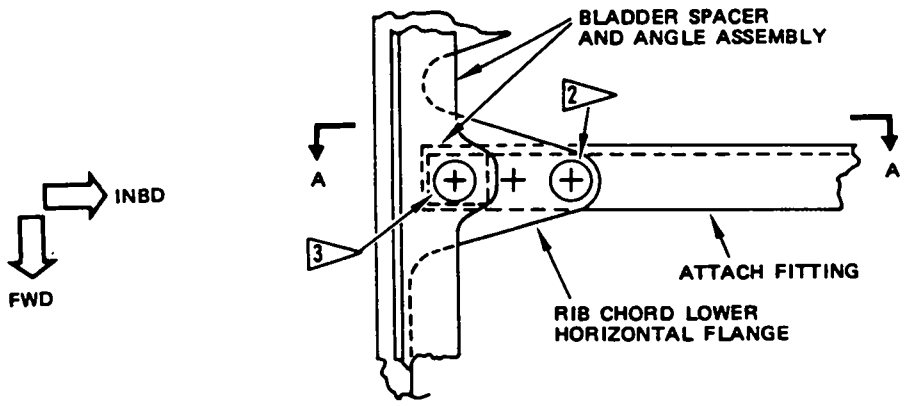
C. Inspection from Outside the Wing and Center Section

(1) Scan the pencil probe on the skin around fasteners indicated in Details IX and X.

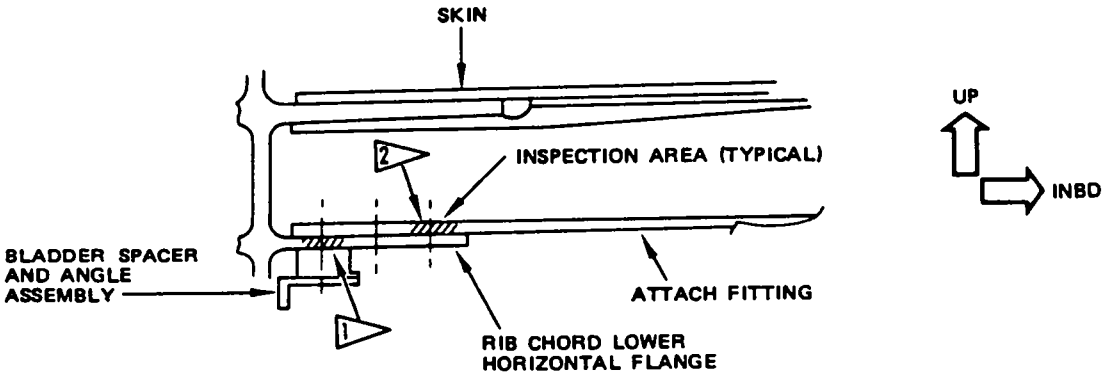
Wing Upper BBL 70.5 Splice
Figure 14 (Sheet 4)



Wing Upper BBL 70.5 Splice
Figure 14 (Sheet 5)



VIEW LOOKING UP STRINGERS S–1 THRU S–25
(TYPICAL) EXCEPT FOR SPANWISE BEAMS



SECTION A–A

VIEW AT BBL 70.5 SPLICE, STRINGERS S–1 THRU S–25
(TYPICAL) EXCEPT FOR SPANWISE BEAM

1 PLACE PENCIL PROBE ON RIB CHORD, SCAN AROUND FASTENER END. (OR ADJACENT TO FORE AND AFT EDGES OF ANGLE)

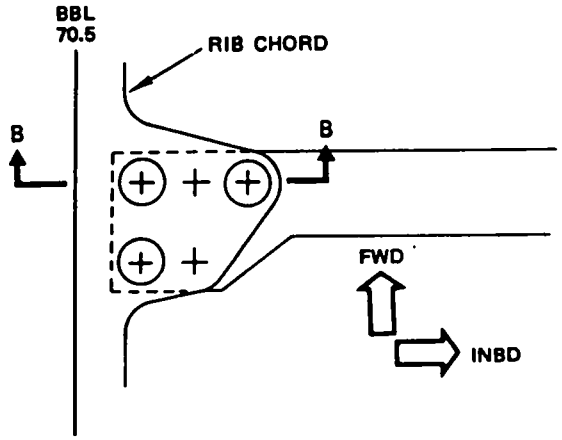
2 PLACE PENCIL PROBE ON ATTACH FITTING, SCAN AROUND FASTENER END.

3 BOLT HOLE INSPECT
5/16" FASTENERS, S–1 TO S–21
1/4" FASTENERS, S–22 TO S–25

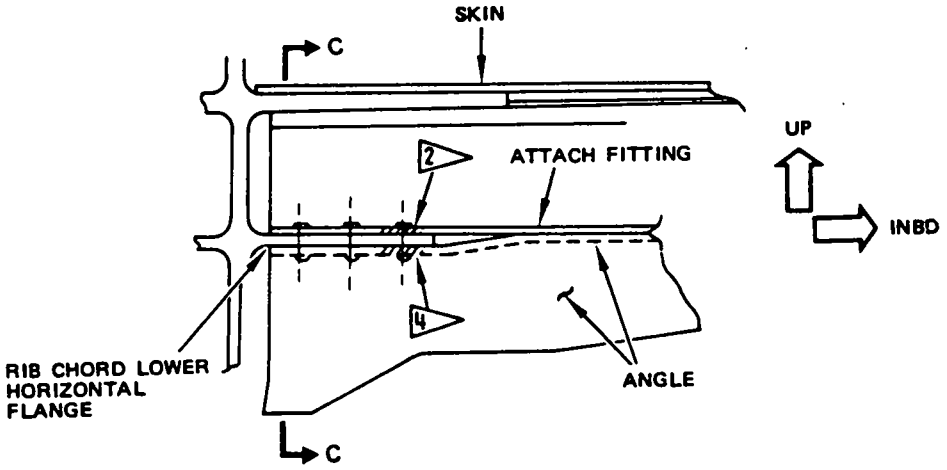
RIB CHORD LOWER HORIZONTAL FLANGE SPLICE,
INBOARD OF BBL 70.5 (INSIDE WING CENTER SECTION)

DETAIL II

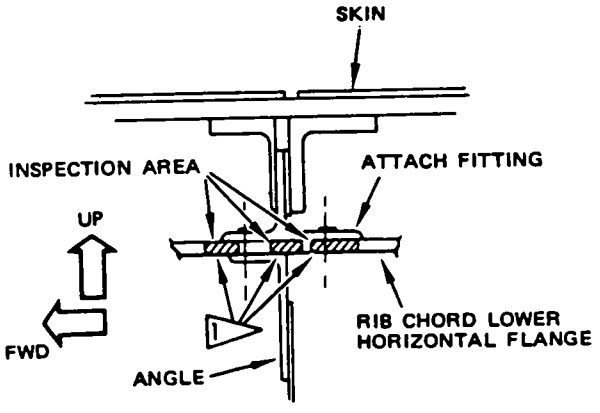
Wing Upper BBL 70.5 Splice
Figure 14 (Sheet 6)



VIEW LOOKING UP AT BBL 70.5 SPLICE, S–12 SPANWISE BEAM



SECTION B–B



SECTION C–C

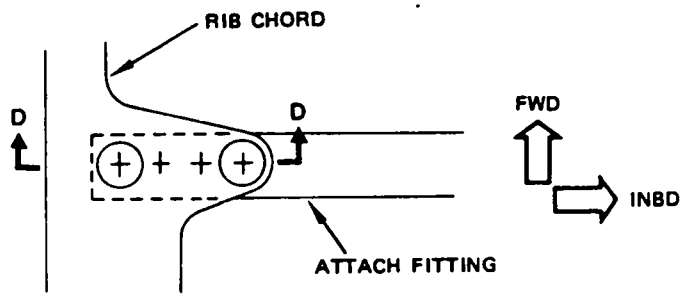
NOTES

1. PLACE PENCIL PROBE ON RIB CHORD, SCAN AROUND FASTENER END (OR ADJACENT TO FORE AND AFT EDGES OF ANGLE)
2. PLACE PENCIL PROBE ON ATTACH FITTING, SCAN AROUND FASTENER END
4. PLACE PENCIL PROBE ON ANGLE, SCAN AROUND FASTENER END

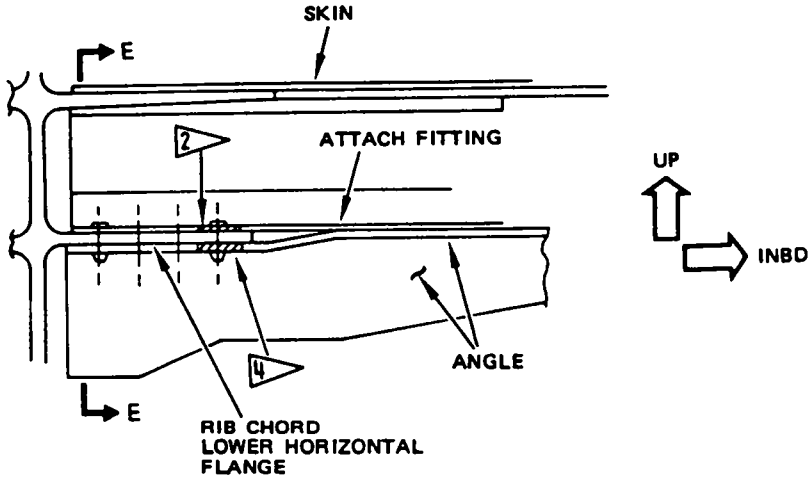
RIB CHORD LOWER HORIZONTAL FLANGE TO S–12 SPANWISE BEAM SPLICE INBOARD OF BBL 70.5 (INSIDE WING CENTER)

DETAIL III

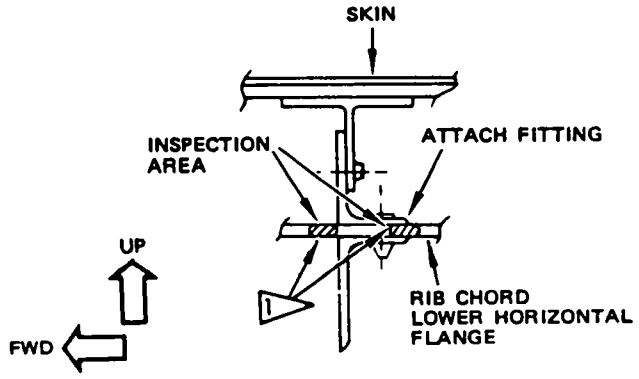
Wing Upper BBL 70.5 Splice
Figure 14 (Sheet 7)



VIEW LOOKING UP AT BBL 70.5 SPLICE, S-7, S-18 AND S-23 SPANWISE BEAM (TYPICAL)



SECTION D-D



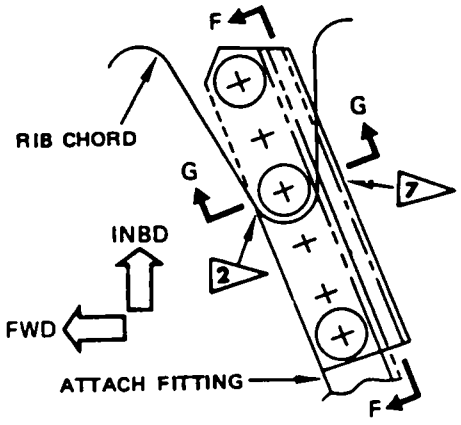
SECTION E-E

NOTES

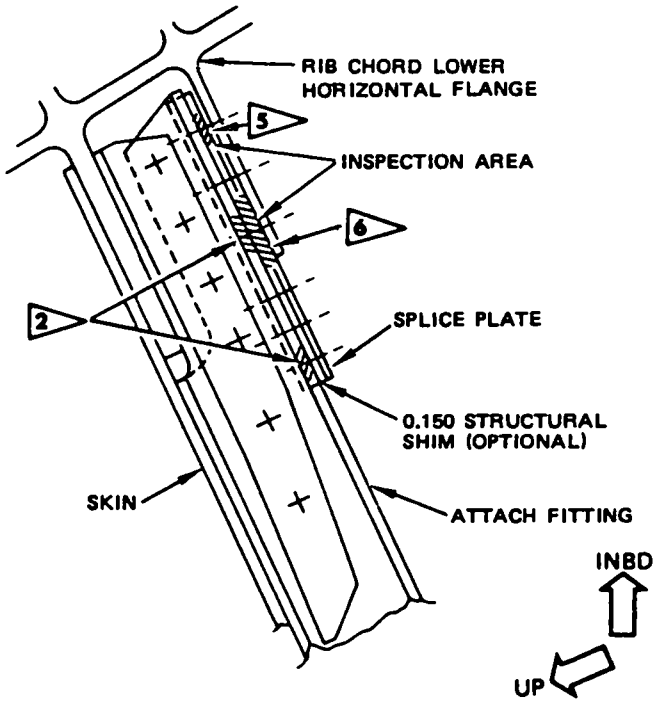
1. PLACE PENCIL PROBE ON RIB CHORD, SCAN AROUND FASTENER END (OR ADJACENT TO FOR AND AFT EDGES OF ANGLE)
2. PLACE PENCIL PROBE ON ATTACH FITTING, SCAN AROUND FASTENER END
4. PLACE PENCIL PROBE ON ANGLE, SCAN AROUND FASTENER END

RIB CHORD LOWER HORIZONTAL FLANGE TO S-17, S-18 AND S-23 SPANWISE BEAM SPLICES INBOARD OF BBL 70.5 (INSIDE WING CENTER SECTION)
DETAIL IV

Wing Upper BBL 70.5 Splice
Figure 14 (Sheet 8)



VIEW LOOKING UP
STRINGERS S-1 THRU S-21
(TYPICAL)



SECTION F-F

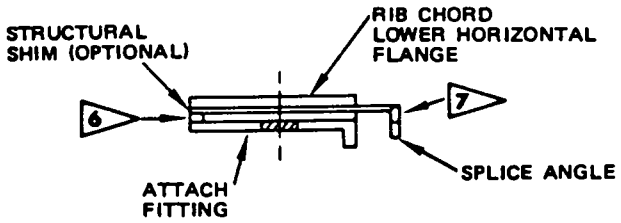
NOTES

2 PLACE PENCIL PROBE ON ATTACH FITTING, SCAN AROUND FASTENER END

5 PLACE PENCIL PROBE ON RIB CHORD, SCAN AROUND FASTENER END

6 PLACE PENCIL PROBE ON EDGE OF STRUCTURAL SHIM, SCAN PAST FASTENER

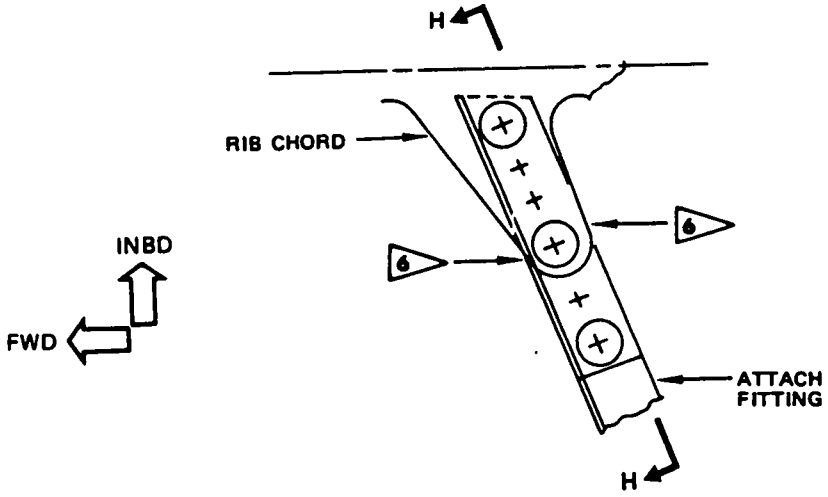
7 PLACE PENCIL PROBE ON THE VERTICAL LEG OF THE SPLICE ANGLE, SCAN PAST FASTENER



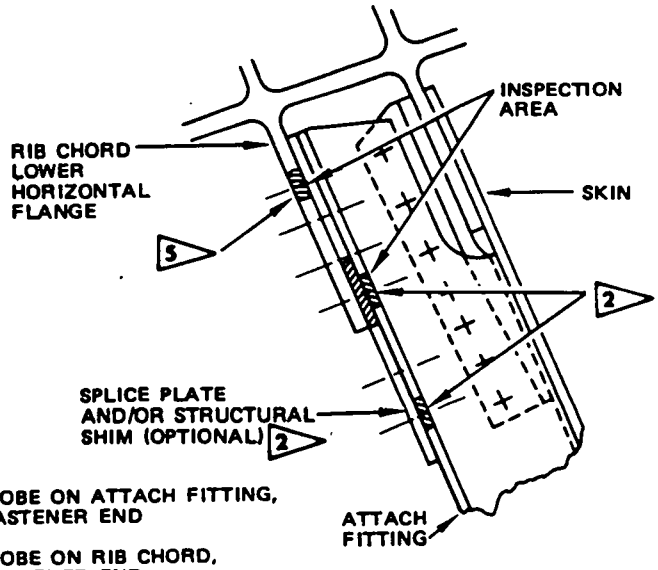
SECTION G-G

RIB CHORD LOWER HORIZONTAL FLANGE
TO STRINGER AT S-1 TO S-21 (TYPICAL)
OUTBOARD OF BBL 70.5 (INSIDE WING TANK)
DETAIL V

Wing Upper BBL 70.5 Splice
Figure 14 (Sheet 9)



VIEW LOOKING UP
STRINGER S-22 THRU S-25
(TYPICAL)



SECTION H-H

NOTES

2 PLACE PENCIL PROBE ON ATTACH FITTING, SCAN AROUND FASTENER END

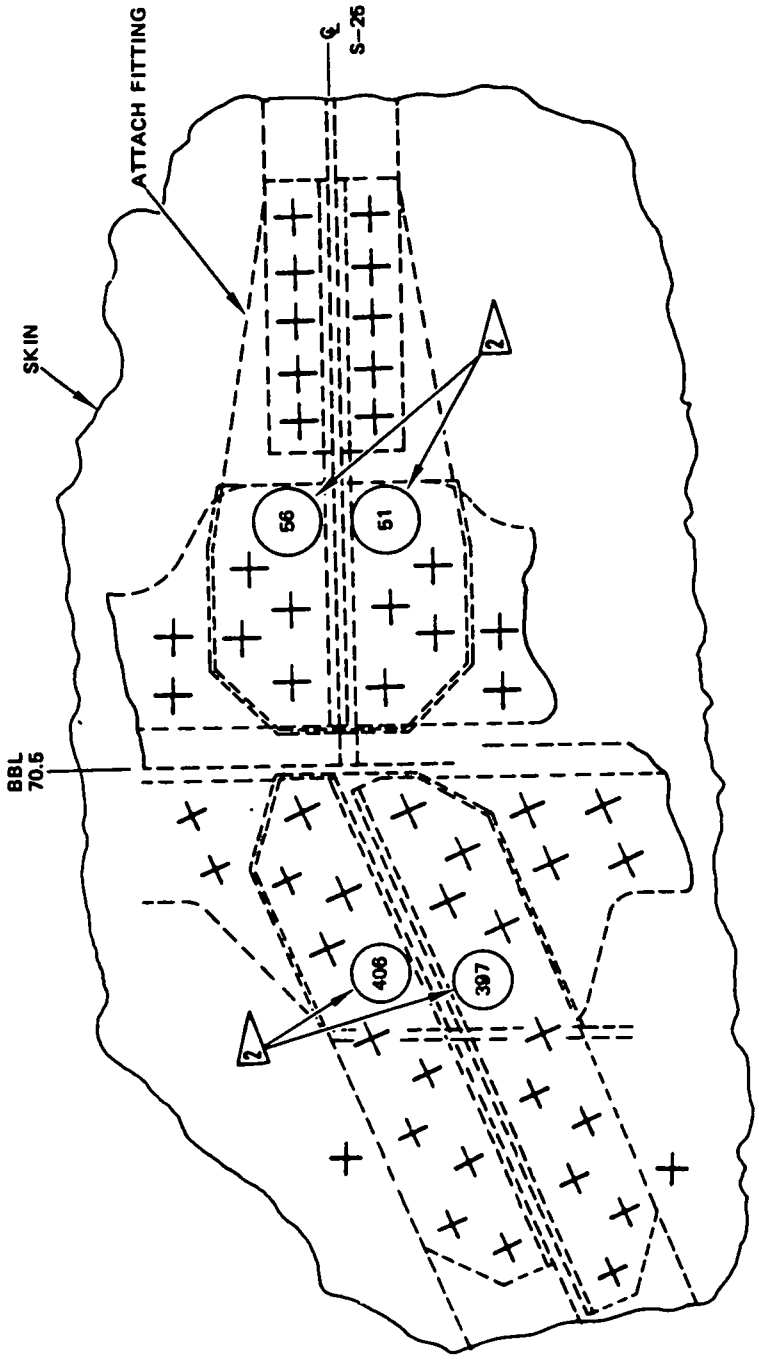
5 PLACE PENCIL PROBE ON RIB CHORD, SCAN AROUND FASTENER END

6 PLACE PENCIL PROBE ON EDGE OF STRUCTURAL SHIM, SCAN PAST FASTENER

RIB CHORD LOWER HORIZONTAL FLANGE TO STRINGER AT S-22 TO S-25
(TYPICAL) OUTBOARD OF BBL 70.5 (INSIDE WING TANK)

DETAIL VI

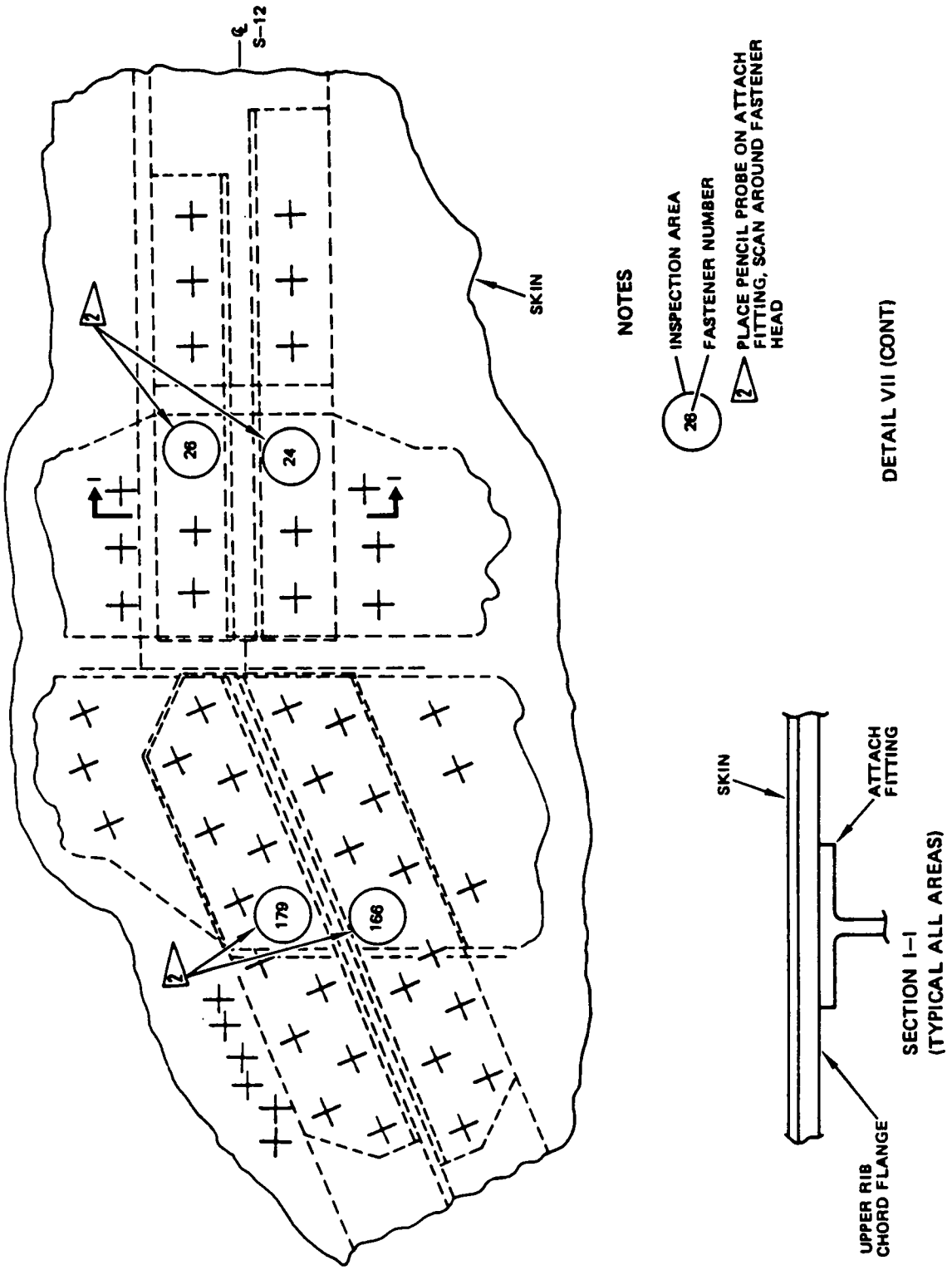
Wing Upper BBL 70.5 Splice
Figure 14 (Sheet 10)



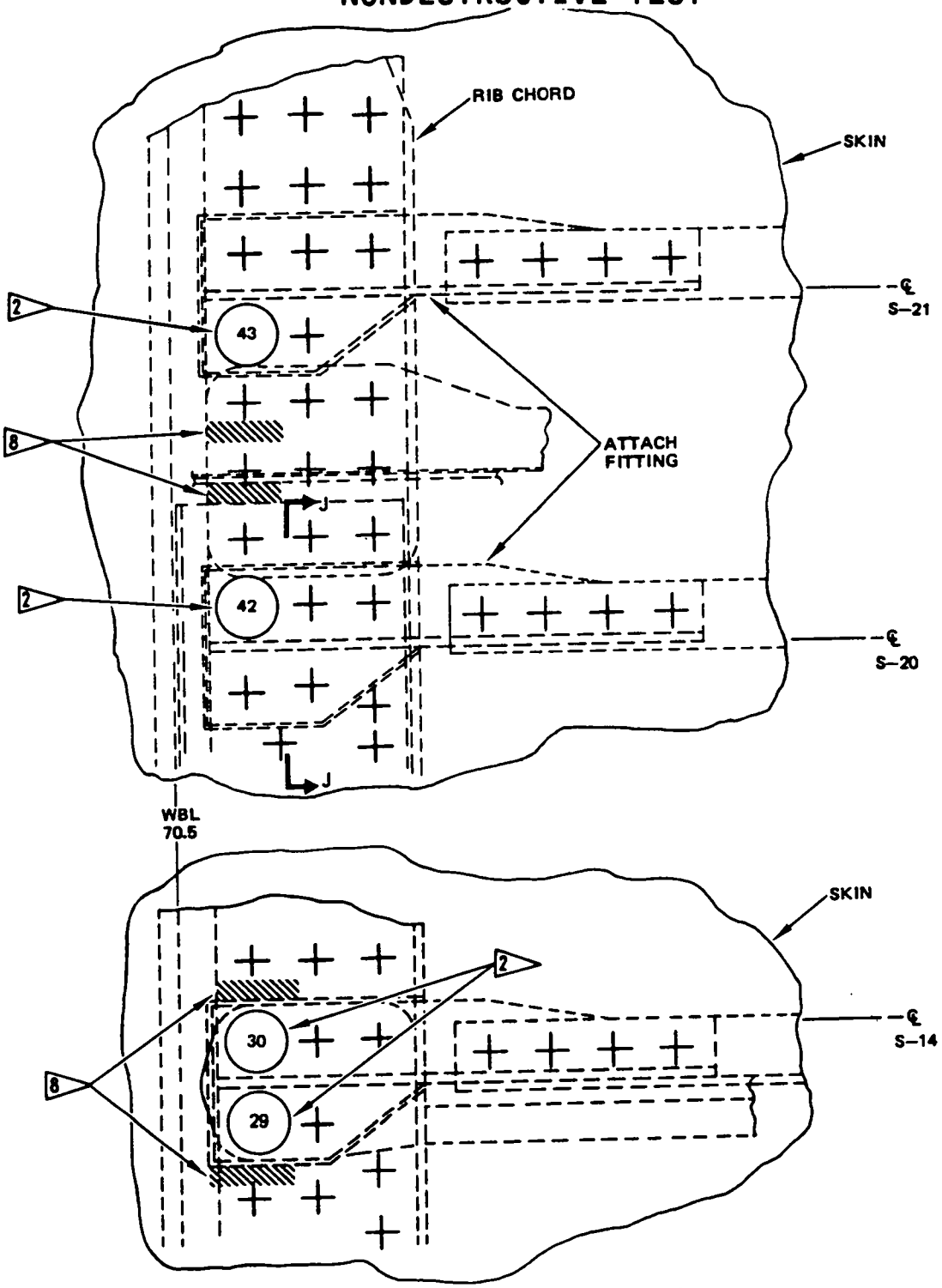
RIB CHORD UPPER HORIZONTAL FLANGE TO STRINGER
SPLICE AT STRINGERS S-12 AND S-25 INTERNAL INSPECTION

DETAIL VII

Wing Upper BBL 70.5 Splice
Figure 14 (Sheet 11)



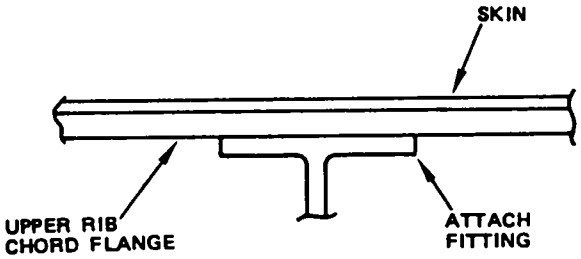
Wing Upper BBL 70.5 Splice
Figure 14 (Sheet 12)



RIB CHORD UPPER HORIZONTAL FLANGE TO STRINGER AT STRINGERS S–14, S–20 AND S–21 INTERNAL INSPECTION

DETAIL VIII

Wing Upper BBL 70.5 Splice
Figure 14 (Sheet 13)



SECTION J–J
(TYPICAL ALL AREAS)

NOTES

43 — INSPECTION AREA
FASTENER NUMBER

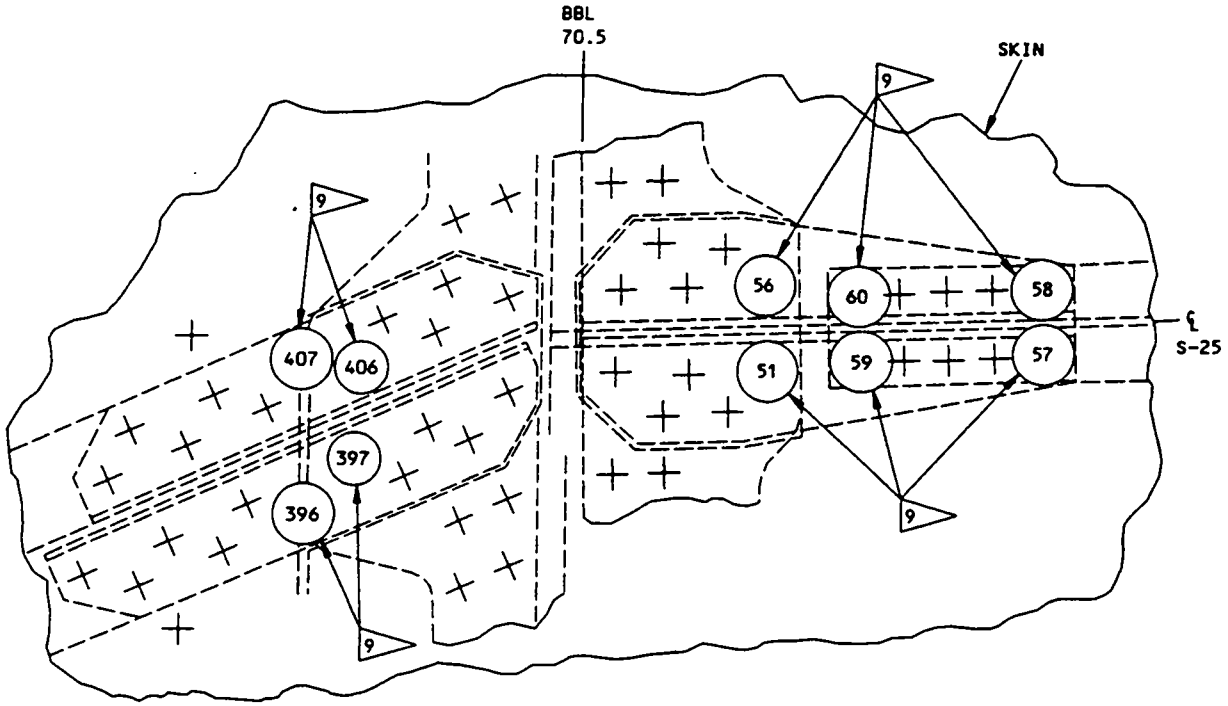
INSPECTION AREA

2 PLACE PENCIL PROBE ON ATTACH FITTING, SCAN AROUND FASTENER END

8 PLACE PENCIL PROBE ON RIB CHORD SCAN AT INDICATED AREAS

DETAIL VIII (CONT)

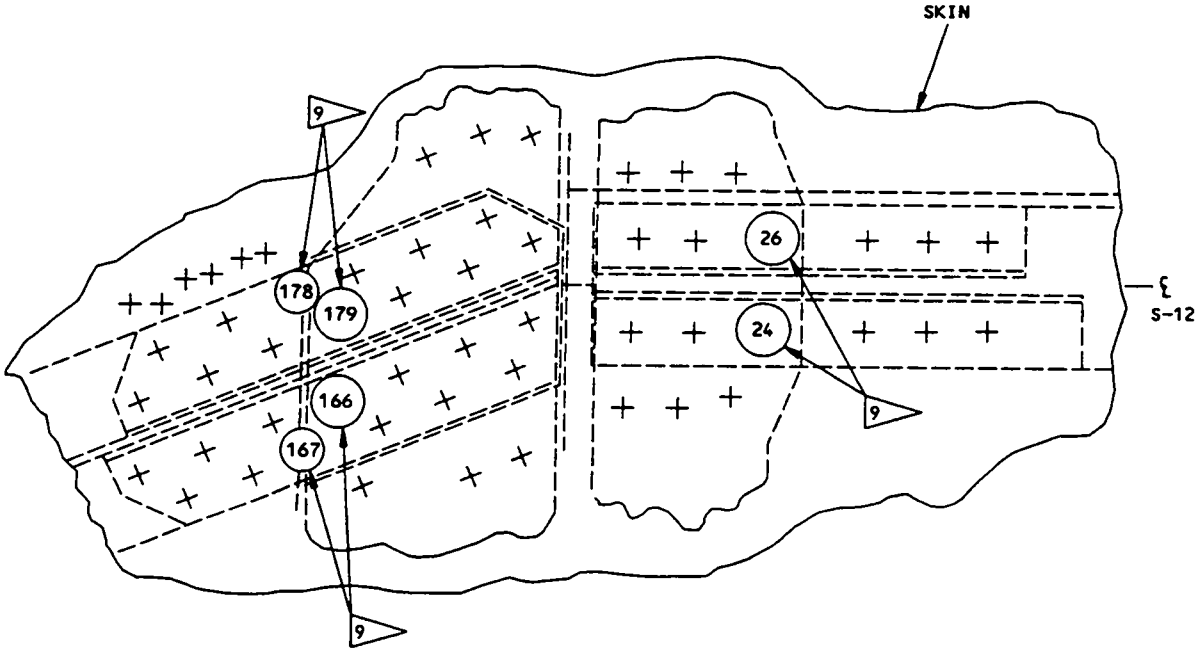
Wing Upper BBL 70.5 Splice
Figure 14 (Sheet 14)



RIB CHORD UPPER HORIZONTAL FLANGE TO STRINGER SPLICE AT
STRINGER S-12 AND S-25 EXTERNAL INSPECTION

DETAIL IX

Wing Upper BBL 70.5 Splice
Figure 14 (Sheet 15)



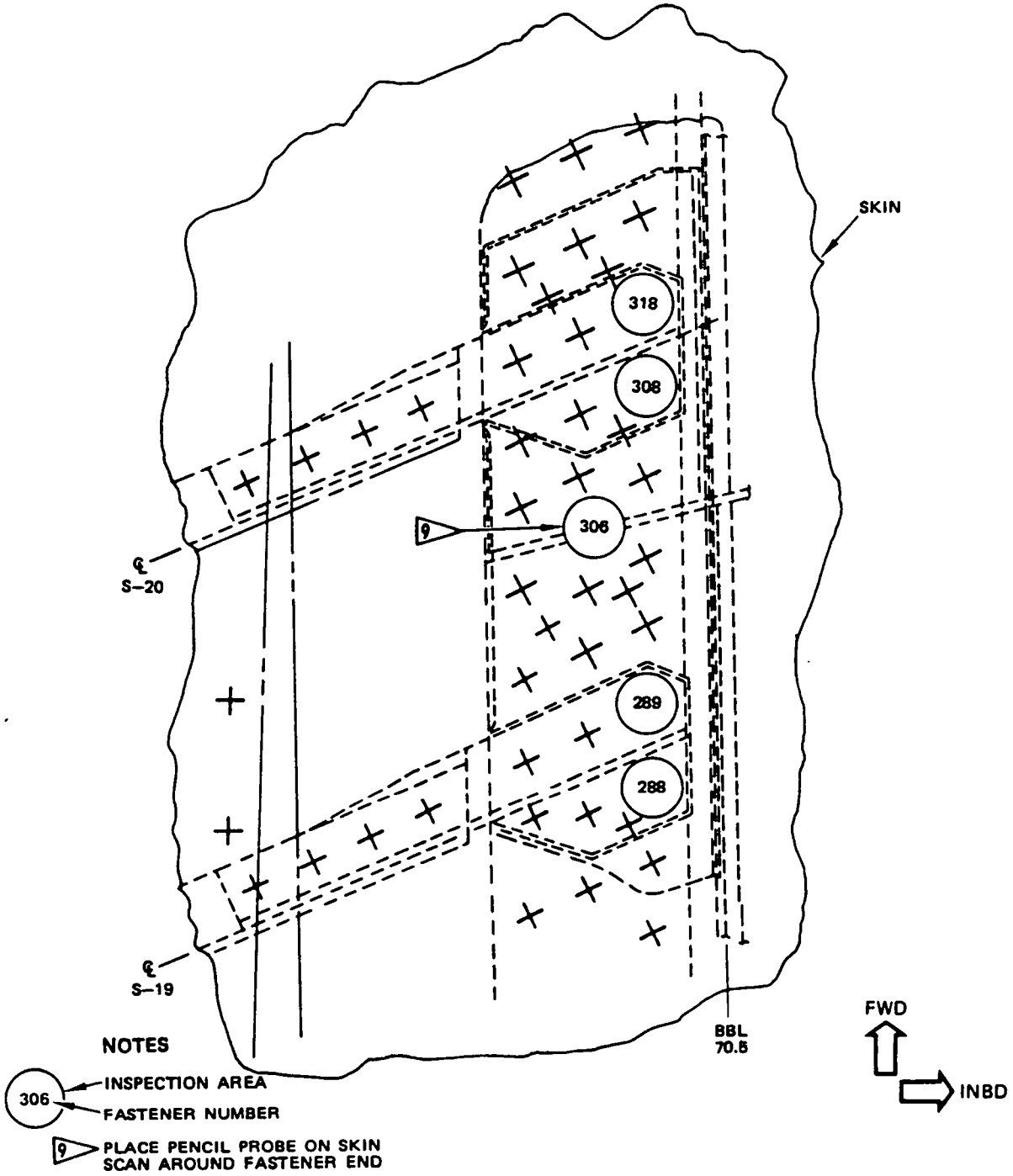
NOTES

51 — INSPECTION AREA
FASTENER NUMBER

9 — PUT THE PENCIL PROBE ON THE SKIN AND DO A SCAN AROUND THE END OF THE FASTENER

DETAIL IX (CONT)

Wing Upper BBL 70.5 Splice
Figure 14 (Sheet 16)



RIB CHORD UPPER HORIZONTAL FLANGE TO STRINGER SPLICE AT STRINGER S–19 AND S–20 EXTERNAL INSPECTION

DETAIL X

Wing Upper BBL 70.5 Splice
Figure 14 (Sheet 17)

EFFECTIVITY
MODEL: 707-100/-200
SSI DOCUMENT: D6-44860
REFERENCE:
SSD 57-A15-04

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To perform an internal eddy current inspection to detect cracks out of fastener holes common to the upper wing stringer to RBL 70.5 splice. See Details II thru V.

   B. To perform a bolt hole inspection to detect cracks out of fastener holes common to the upper wing stringer to BBL 70.5 splice. See Detail II.

      NOTE: Fastener removal to permit a bolt hole inspection is required at bladder spacer and angle assemblies.

   C. To perform an external eddy current inspection to detect surface cracks in the wing skin inboard and outboard of the BBL 70.5 splice. See Detail VI.

   D. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Instrument

      (1) Refer to Part 6, 51-00-00, Fig. 1 and 4.

   B. Probes

      (1) Shielded right angle pencil probe per Part 1, 51-06-00, Fig. 1, as specified in Detail II.

      Shielded probe available from:

VM Products	NDT Product Engineering
7420 Park Ave. No. 20	P.O. Box 423
Tacoma, WA 98408	Renton, WA 98057
P/N: VM 100 AS	P/N: 90.5.8.6

      (2) Bolt hole probe, 1/4-diameter, per Part 6, 51-00-00, Fig. 1.

Wing Upper BBL 70.5 Splice
Figure 15 (Sheet 1)

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C. Standards

(1) Pencil probe: refer to Part 6, 51-00-00, Fig. 4.

(2) Bolt hole probe: refer to Part 6, 51-00-00, Fig. 1.

3. Preparation for Inspection

A. Internal, Wing Center Section

(1) Gain access into center wing through lower center section access panels.

(2) Purge fuel tanks to permit tank entry with eddy current test equipment.

(3) Remove fuel cells and upper surface backing panels as necessary to gain access to inspection areas.

(4) Remove the bladder spacer and angle assemblies at all locations, stringers S-1 thru S-26. See Detail II.

NOTE: Fastener removal to permit a bolt hole inspection is required at bladder spacer and angle assemblies.

CAUTION: DO NOT REMOVE MORE THAN ONE ANGLE ASSEMBLY PER WING AT ONE TIME.

(5) Remove sealant on the upper horizontal flange to permit eddy current probe access. See Detail V.

B. Internal, Wing Tank

(1) Gain access into wing tank outboard of BBL 70.5.

(2) Purge fuel tanks to permit tank entry with eddy current test equipment.

(3) Remove sealant on the upper horizontal flange to permit eddy current probe access. See Detail V.

C. External, Skin Inspection

(1) Remove floor panels for access to inboard side of BBL 70.5 from upper center section at stringer S-17.

(2) Remove side of body fairing for access to outboard side of BBL 70.5 at stringers S-17, S-14, and S-15.

Wing Upper BBL 70.5 Splice
Figure 15 (Sheet 2)

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4. Instrument Calibration

A. Pencil Probe

(1) Refer to Part 6, 51-00-00, Fig. 4.

B. Bolt Hole Probe

(1) Refer to Part 6, 51-00-00, Fig. 1.

5. Inspection Procedure

A. Inspection Inside the Wing Center Section

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

(1) Pencil probe

(a) Scan the pencil probe around fasteners common to the lower horizontal flange splice. See Details II and III.

NOTE: At spanwise beams where the rib chord flange is covered by an angle, scan adjacent to the fore and aft edges. See Detail III.

(b) Scan the pencil probe around fasteners on the upper flange of the attach fittings. See Detail V.

(c) Scan the pencil probe on the upper rib chord flange at indicated areas. See Detail V.

(2) Bolt hole probe

(a) After removing the bladder spacer and angle assemblies, inspect open holes per Part 6, 51-00-00, Fig. 1 (Detail II).

B. Inspection Inside the Wing Tank, OUtboard of BBL 70.5

(1) Scan the pencil probe around fasteners common to the lower horizontal flange splice (Detail IV).

Wing Upper BBL 70.5 Splice
Figure 15 (Sheet 2)

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(2) Scan the pencil probe along accessible edges of structural shims at areas indicated in Detail IV.

NOTE: Structural shims are optional, and installed between the rib chord flange and attach fitting. Inspect any shims which are 0.125-inch or more.

(3) Scan the pencil probe around fasteners on the upper flange of the attach fitting. See Detail V.

C. Inspection from Outside the Wing and Center Section

(1) Scan the pencil probe on the skin around fasteners indicated in Detail VI.

Wing Upper BBL 70.5 Splice
Figure 15 (Sheet 3)

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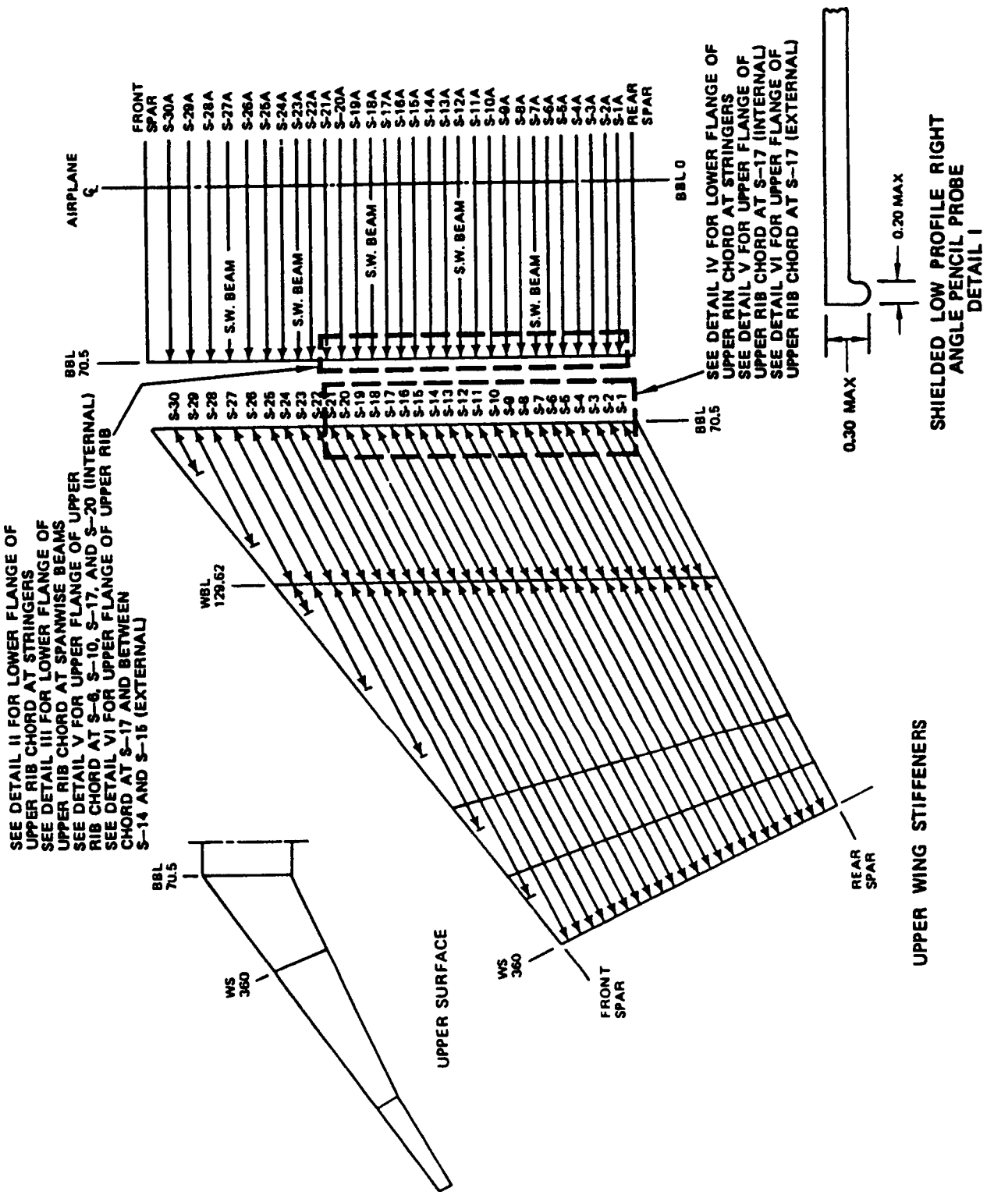

Wing Upper BBL 70.5 Splice
Figure 15 (Sheet 4)

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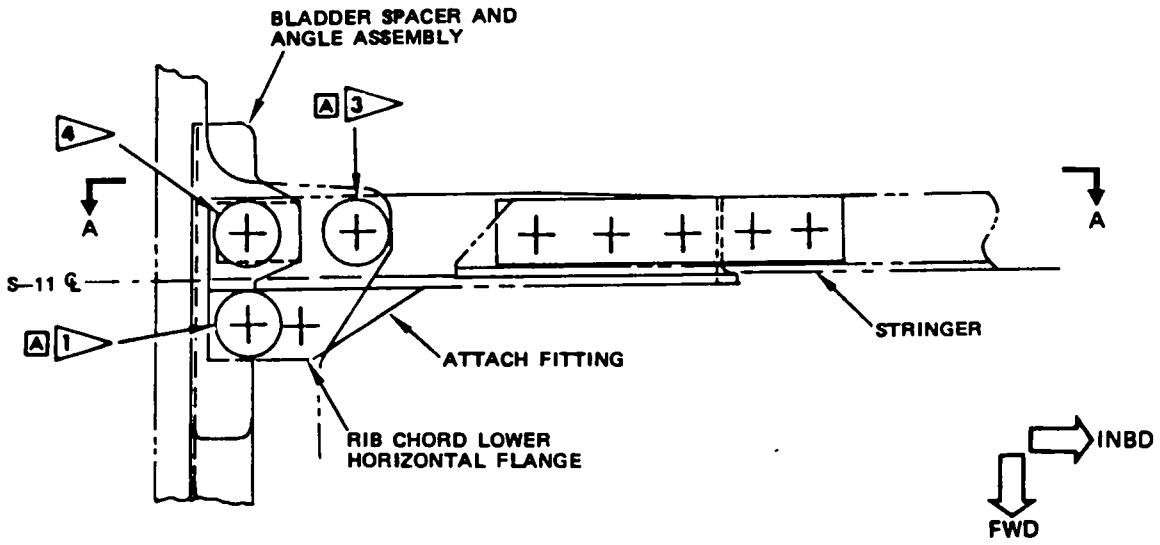
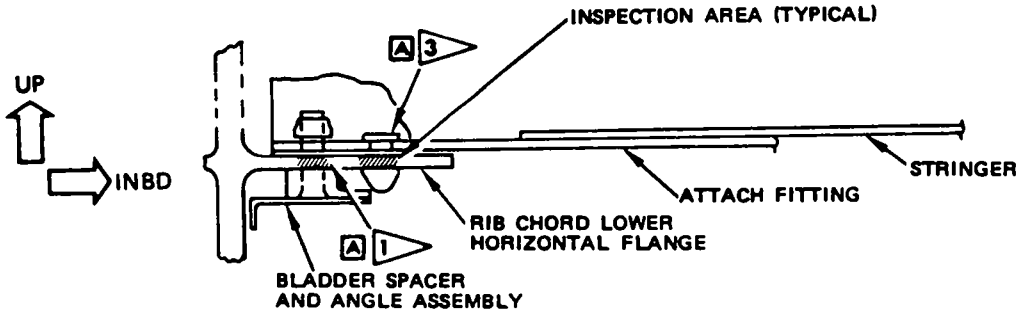


VIEW, LOOKING UP, STRINGERS S–1 THRU S–21 (TYPICAL)
EXCEPT FOR SPANWISE BEAMS



VIEW AT BBL 70.5 SPLICE, STRINGERS S–1 THRU S–21 (TYPICAL),
EXCEPT FOR SPANWISE BEAMS
SECTION A–A

NOTE:

////// INSPECTION AREA

1 PLACE PENCIL PROBE ON RIB CHORD, SCAN AROUND FASTENER END

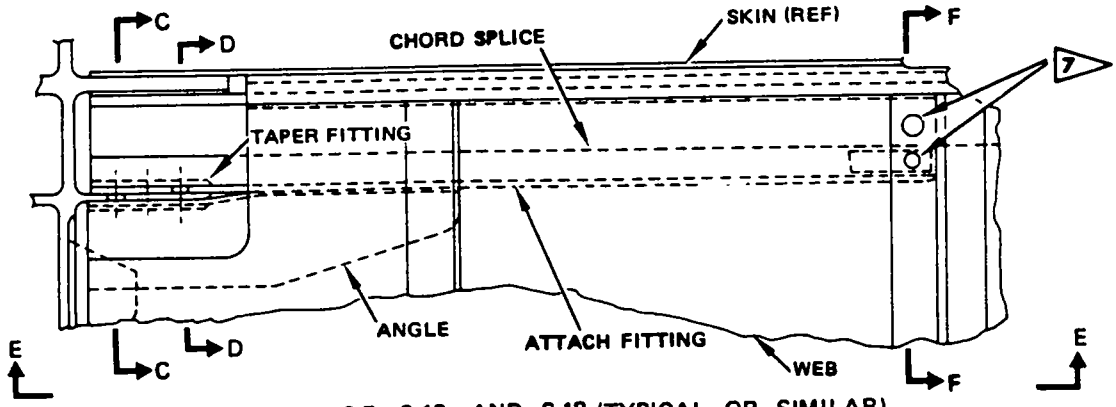
3 PLACE PENCIL PROBE ON ATTACH FITTING, SCAN AROUND FASTENER END

4 BOLT HOLE INSPECT AT
S–1 TO S–9 5/16" FASTENER
S–10 TO S–21 1/4" FASTENER

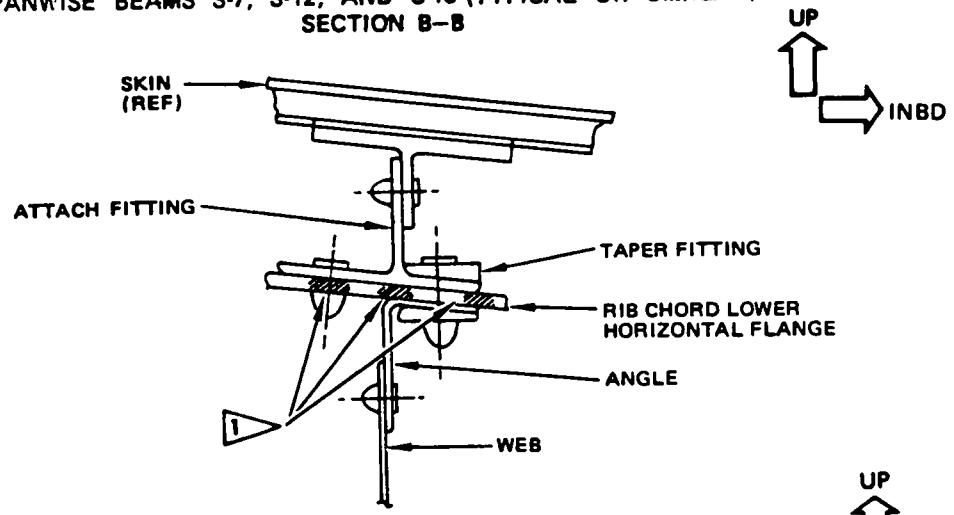
A LOW PROFILE RIGHT ANGLE SHIELDED PENCIL PROBE REQUIRED

RIB CHORD LOWER HORIZONTAL FLANGE SPLICE, INBOARD OF BBL 70.5
(INSIDE WING CENTER SECTION)
DETAIL II

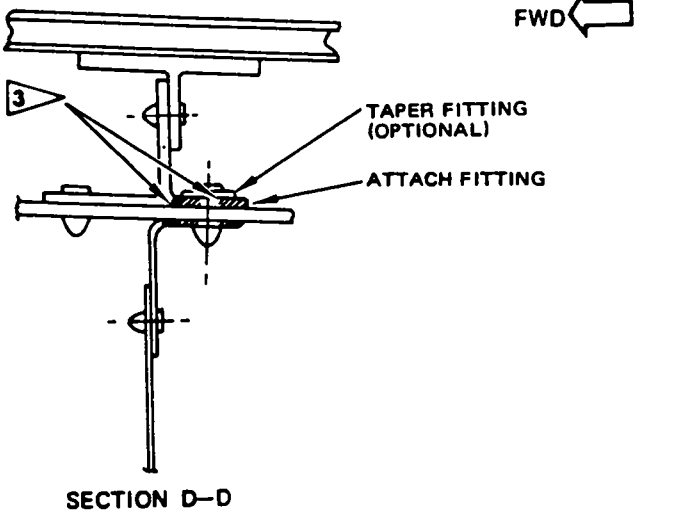
Wing Upper BBL 70.5 Splice
Figure 15 (Sheet 5)



SPANWISE BEAMS S-7, S-12, AND S-18 (TYPICAL OR SIMILAR)
SECTION B–B



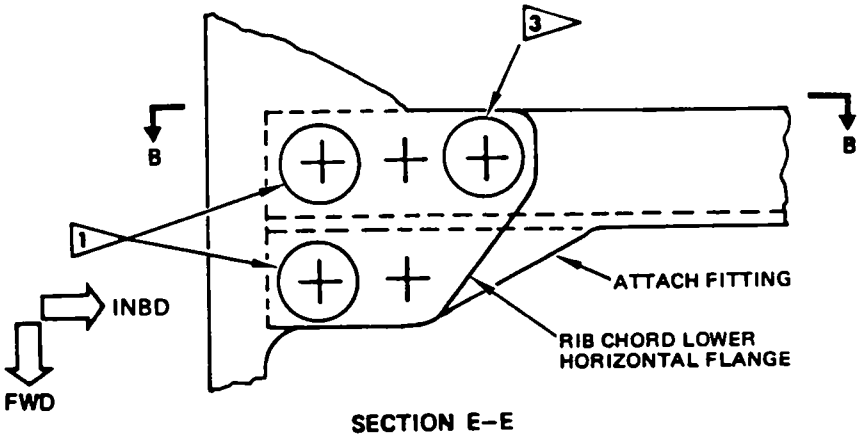
SECTION C–C



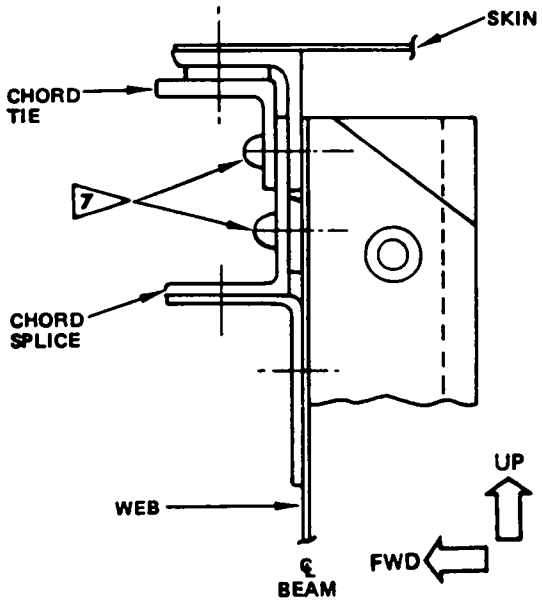
SECTION D–D

RIB CHORD LOWER HORIZONTAL FLANGE TO SPANWISE BEAM SPLICE AT S–7, S–12, AND S–18, INBOARD OF BBL 70.5 (INSIDE WING CENTER SECTION)
DETAIL III

Wing Upper BBL 70.5 Splice
Figure 15 (Sheet 6)



SECTION E-E



SECTION F-F

NOTE:

INSPECTION AREA

1 PLACE PENCIL PROBE ON RIB CHORD, SCAN AROUND FASTENER END 8

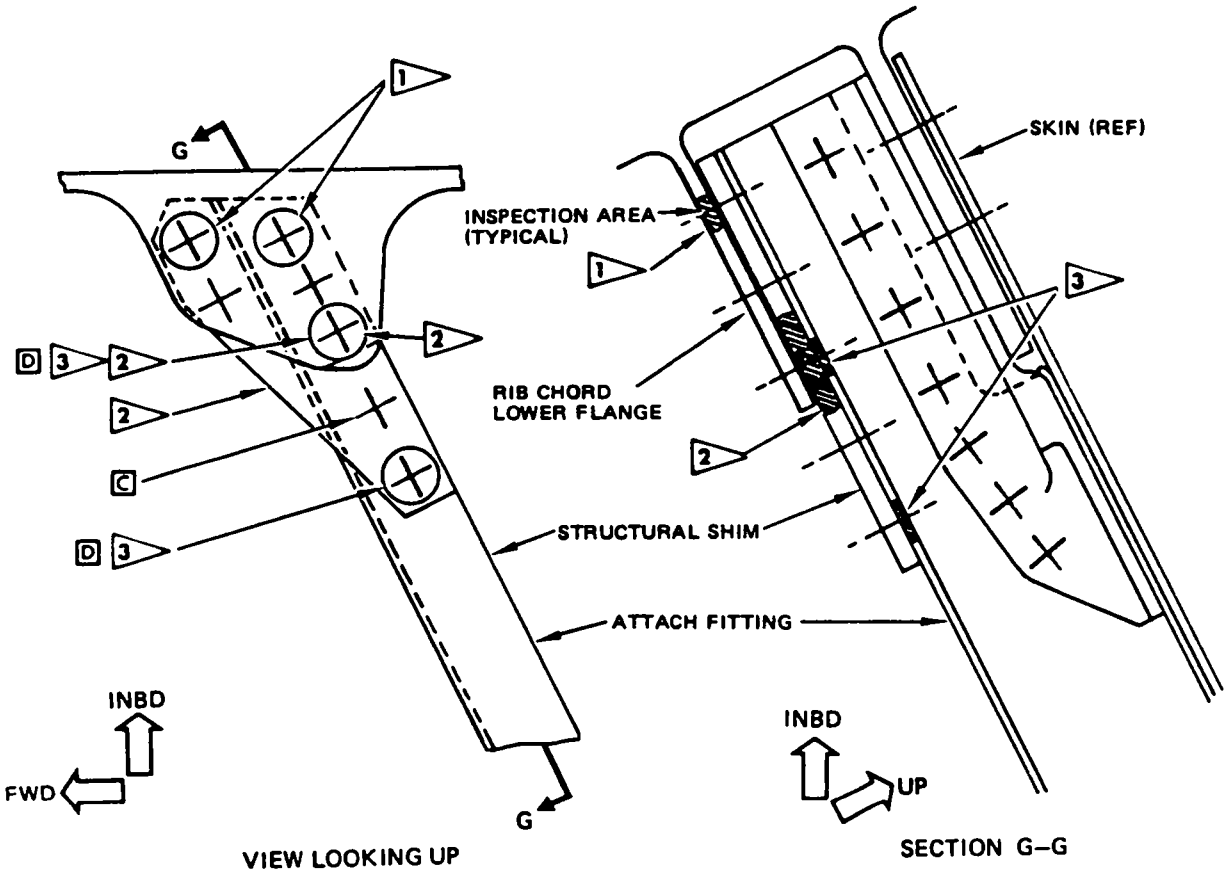
3 PLACE PENCIL PROBE ON ATTACH FITTING, SCAN AROUND FASTENER 8

7 PLACE PENCIL PROBE ON ATTACH FITTING OR CHORD SPLICE AND SCAN AROUND FASTENER END

8 OR ADJACENT TO FORE AND AFT EDGES OF ANGLE OR TAPER FITTING

DETAIL III (CONT.)

Wing Upper BBL 70.5 Splice
Figure 15 (Sheet 7)



NOTE:

INSPECTION AREA

1 PLACE PENCIL PROBE ON RIB CHORD, SCAN AROUND FASTENER ENDS

2 PLACE PENCIL PROBE ON EDGE OF STRUCTURAL SHIM, SCAN PAST FASTENER

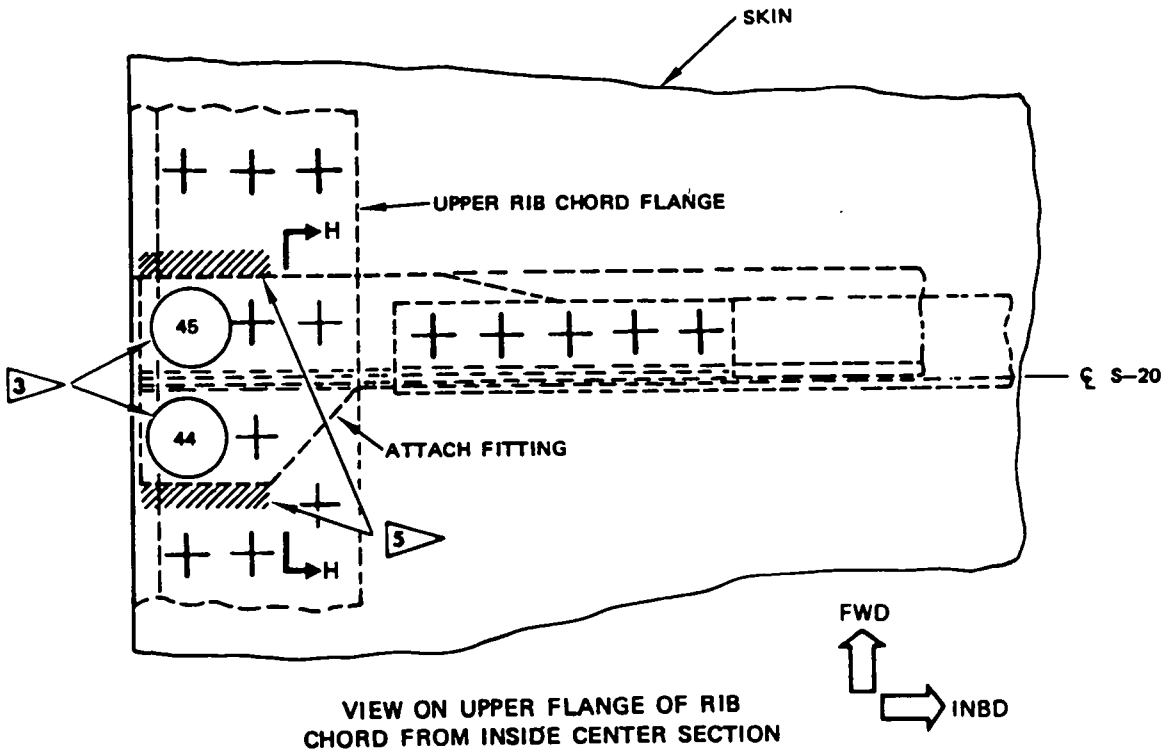
3 PLACE PENCIL PROBE ON ATTACH FITTING, SCAN AROUND FASTENER END

C AT S–21 THIS FASTENER IS DELETED, THE INSPECTION REQUIREMENTS ARE THE SAME.

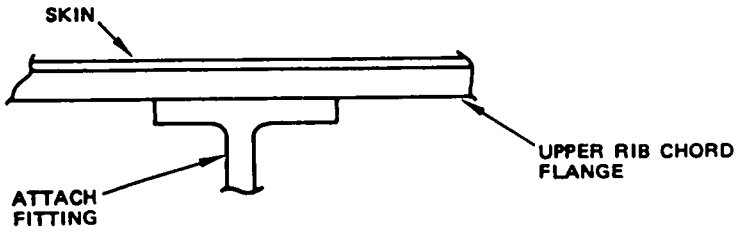
D SEE DETAIL I

RIB CHORD LOWER HORIZONTAL FLANGE TO STRINGER SPLICE AT S–1 TO S–21
(TYPICAL OR OPPOSITE), OUTBOARD OF BBL 70.5 (INSIDE WING)
DETAIL IV

Wing Upper BBL 70.5 Splice
Figure 15 (Sheet 8)



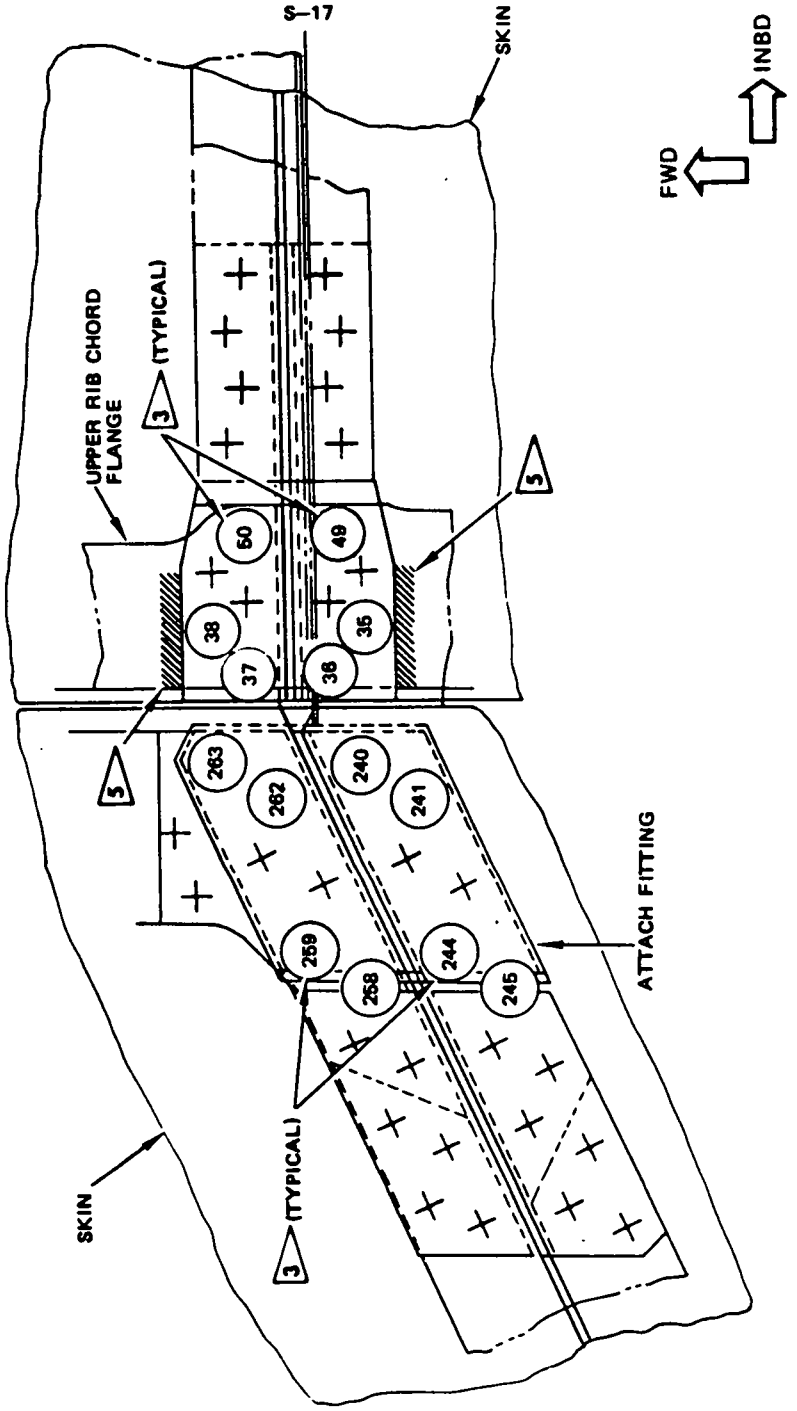
VIEW ON UPPER FLANGE OF RIB CHORD FROM INSIDE CENTER SECTION



SECTION H–H (TYPICAL)

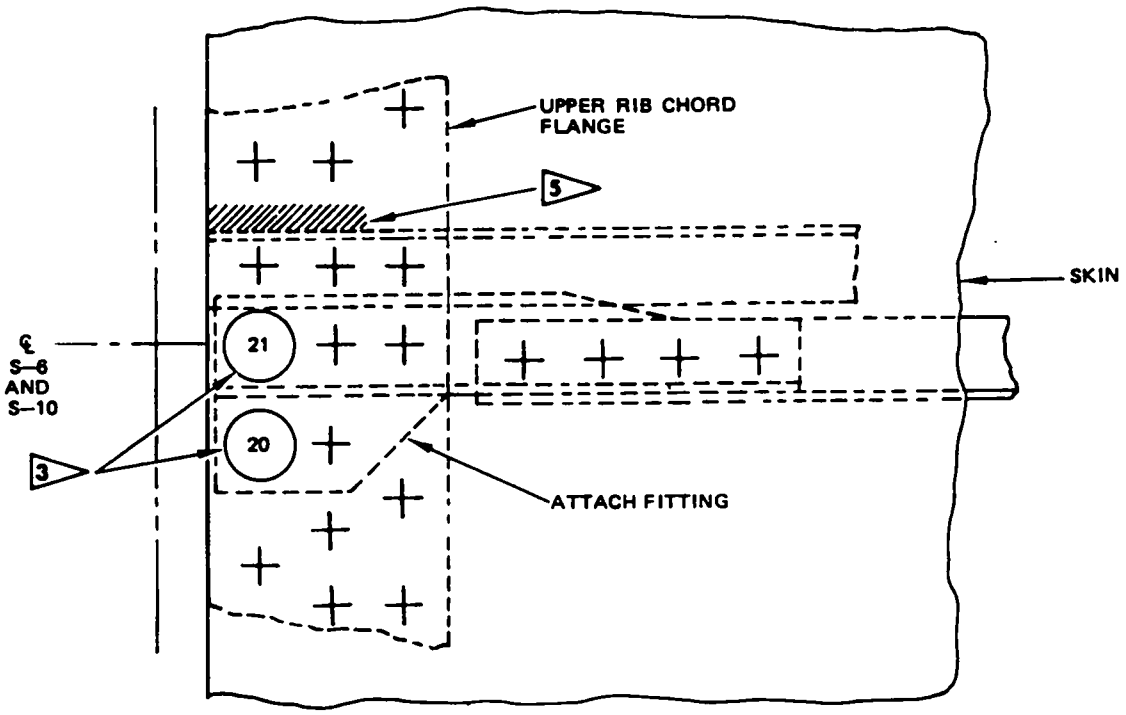
RIB CHORD UPPER HORIZONTAL FLANGE TO STRINGER SPLICE AT STRINGER S-6, S-10, S-17, AND S-20, INTERNAL INSPECTION
DETAIL V

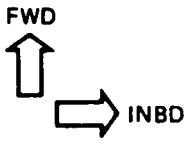
Wing Upper BBL 70.5 Splice
Figure 15 (Sheet 9)



VIEW ON UPPER FLANGES OF RIB CHORD
FROM INSIDE CENTER SECTION AND WING
DETAIL V (CONT)

Wing Upper BBL 70.5 Splice
Figure 15 (Sheet 10)





NOTES

INSPECTION AREA

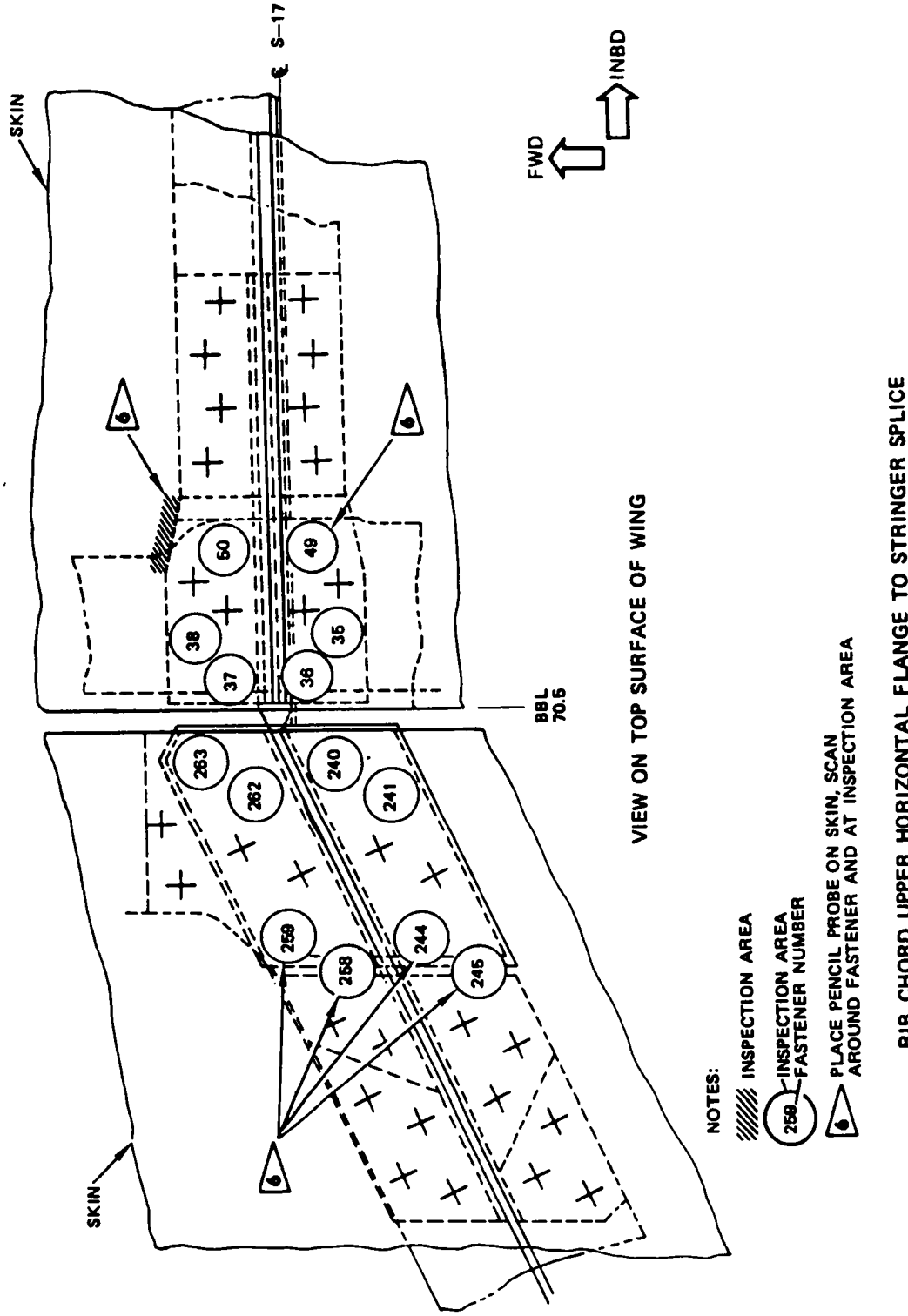
21 — INSPECTION AREA FASTENER NUMBER

3 — PLACE PENCIL PROBE ON ATTACH FITTING, SCAN AROUND FASTENER END

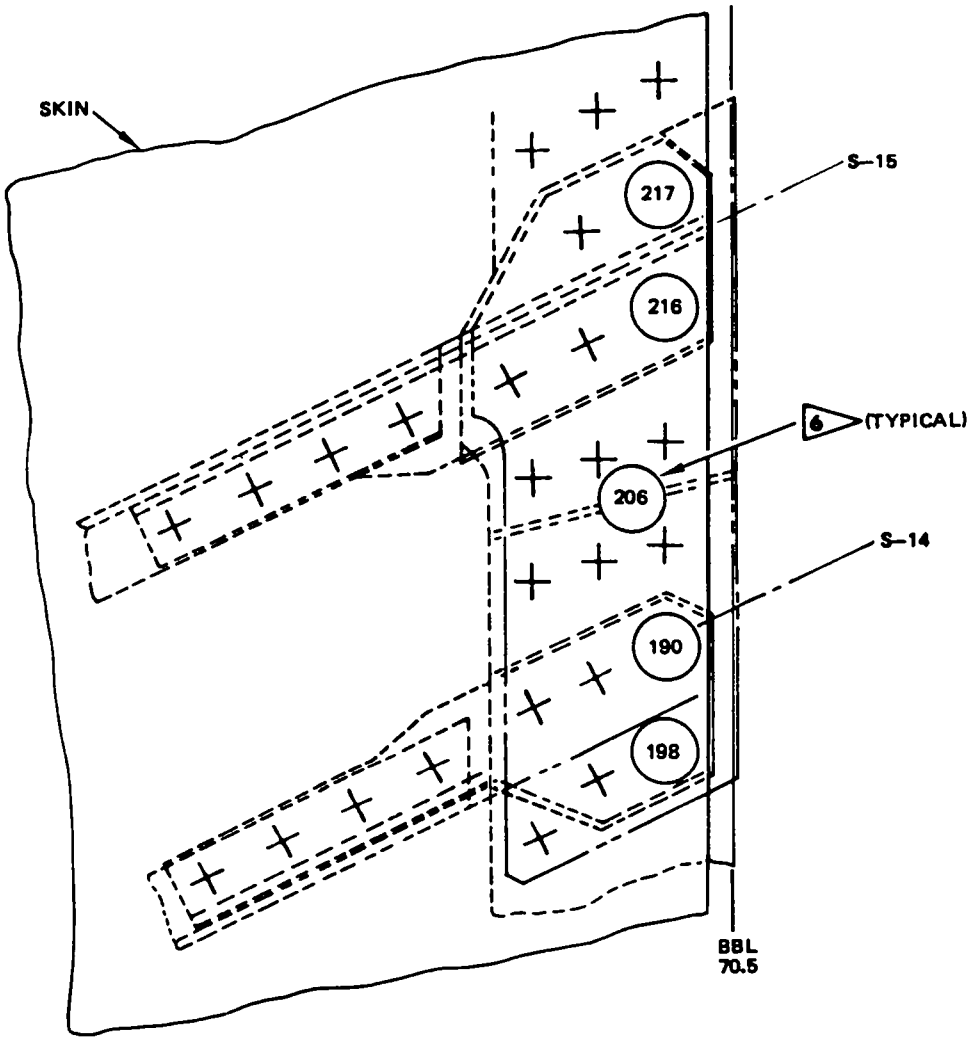
5 — PLACE PENCIL PROBE ON RIB CHORD, SCAN AT INSPECTION AREA. (S–6, S–10, S–17 AND S–20)

VIEW ON UPPER FLANGE OF RIB CHORD
FROM INSIDE CENTER SECTION
DETAIL V (CONT)

Wing Upper BBL 70.5 Splice
Figure 15 (Sheet 11)



Wing Upper BBL 70.5 Splice
Figure 15 (Sheet 12)



VIEW ON TOP SURFACE OF WING
DETAIL VI (CONT)

Wing Upper BBL 70.5 Splice
Figure 15 (Sheet 13)

EFFECTIVITY
MODEL: 720
SSI DOCUMENT (D6-44860)
REFERENCE:
SSD 57-A05-04

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To perform an internal eddy current inspection to detect cracks out of fastener holes common to the upper wing stringer to BBL 70.5 splice. See Details II thru V.

   B. To perform a bolt hole inspection to detect cracks out of fastener holes common to the upper wing stringer to BBL 70.5 splice. See Detail II.

      NOTE: Fastener removal to permit a bolt hole inspection is required at bladder spacer and angle assemblies.

      Some airplanes do not have bladder spacer and angle assemblies.

   C. To perform an external eddy current inspection to detect surface cracks in the wing skin inboard and outboard of the BBL 70.5 splice. See Detail VI.

   D. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Instrument

      (1) Refer to Part 6, 51-00-00, Fig. 1 and 4.

   B. Probes

      (1) Shielded right angle pencil probe per Part 1, 51-06-00, Fig. 1, as specified in Detail I.

      Shielded probe available from:

      VM Products
      7420 Park Ave. No. 20
      Tacoma, WA 98408
      P/N: VM 100 AS

      NDT Product Engineering
      P.O. Box 423
      Renton, WA 98057
      P/N: 90.5.8.6

Wing Upper BBL 70.5 Splice
Figure 16 (Sheet 1)

(2) Bolt hole probe, 1/4-dia., per Part 6, 51-00-00, Fig. 1. Applicable to airplanes with a bladder spacer and angle assemblies only.

C. Standards

(1) Pencil probe: refer to Part 6, 51-00-00, Fig. 4.

(2) Bolt hole probe: refer to Part 6, 51-00-00, Fig. 1.

3. Preparation for Inspection

A. Internal, Wing Center Section

(1) Gain access into center wing through lower center section access panels.

(2) Purge fuel tanks to permit tank entry with eddy current test equipment.

(3) Remove fuel cells and uupper surface backing panels as necessary to gain access to inspection areas.

(4) Remove the bladder spacer and angle assemblies at all locations, stringers S-1 thru S-26 on applicable models for bolt hole inspection. See Detail II.

CAUTION: DO NOT REMOVE MORE THAN ONE ANGLE ASSEMBLY PER WING AT ONE TIME.

(5) Remove sealant on the upper horizontal flange to permit eddy current probe access. See Detail V.

B. Internal, Wing Tank

(1) Gain access into wing tank outboard of BBL 70.5.

(2) Purge fuel tanks to permit tank entry with eddy current test equipment.

(3) Remove sealant on the upper horizontal flange to permit eddy current probe access. See Detail V.

C. External, Skin Inspection

(1) Remove floor panels for access to inboard side of BBL 70.5 from upper center section at stringers S-10, S-20, S-24, and S-25.

(2) Remove side of body fairing for access to outboard side of BBL 70.5 at stringer S-17 and S-25.

Winger Upper BBL 70.5 Splice
Figure 16 (Sheet 2)

4. Instrument Calibration

A. Pencil Probe

(1) Refer to Part 6, 51-00-00, Fig. 4.

B. Bolt Hole Probe

(1) Refer to Part 6, 51-00-00, Fig. 1.

5. Inspection Procedure

A. Inspection Inside the Wing Center Section

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

(1) Pencil probe

(a) Scan the pencil probe around fasteners common to the lower horizontal flange splice. See Details II and III.

NOTE: At spanwise beams where the rib chord flange is covered by an angle, scan adjacent to the fore and aft edges. See Detail III.

(b) Scan the pencil probe around fasteners on the upper flange of the attach fittings. See Detail V.

(c) Scan the pencil probe on the upper rib chord flange at indicated areas. See Detail V.

(2) Bolt hole probe

(a) After removing the bladder spacer and angle assemblies, inspect open holes per part 6, 51-00-00, Fig. 1. See Detail II.

B. Inspection Inside the Wing Tank, Outboard of BBL 70.5

(1) Scan the pencil probe around fasteners common to the lower horizontal flange splice. See Detail IV.

Wing Upper BBL 70.5 Splice
Figure 16 (Sheet 3)

(2) Scan the pencil probe along accessible edges of structural shims at areas indicated in Detail IV.

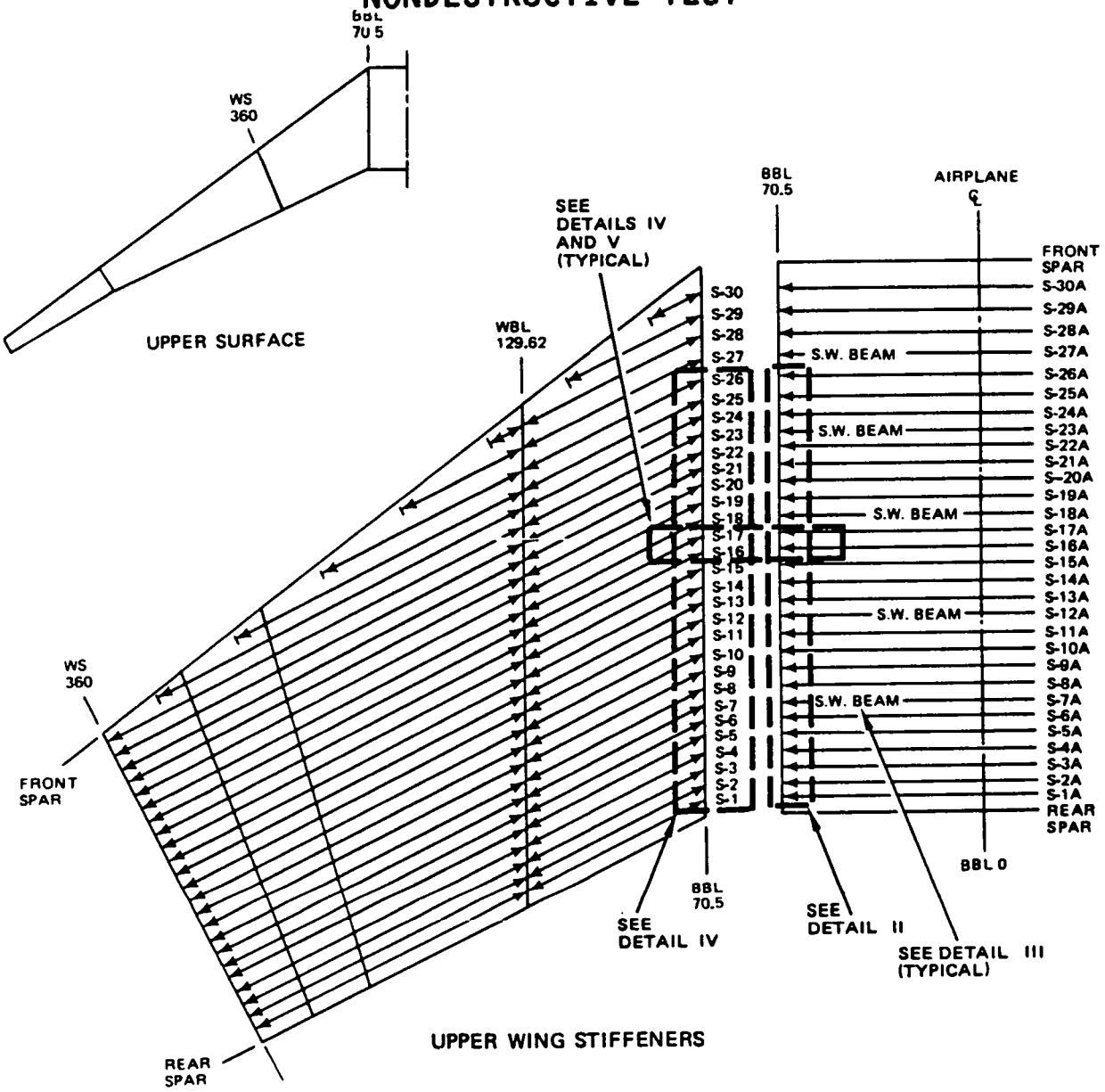
NOTE: Structural shims are optional, and installed between the rib chord flange and attach fitting. Inspect any shims which are 0.125-inch or more.

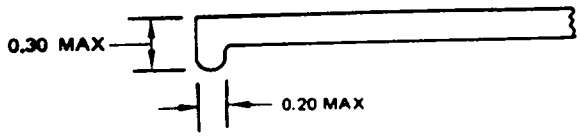
(3) Scan the pencil probe around fasteners on the upper flange of the attach fitting (Detail V).

C. Inspection from Outside the Wing and Center Section

(1) Scan the pencil probe on the skin around fasteners indicated in Detail VI.

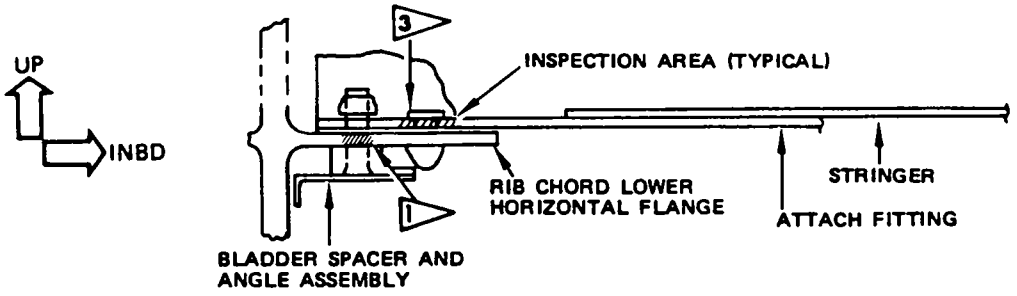
Wing Upper BLL 70.5 Splice
Figure 16 (Sheet 4)



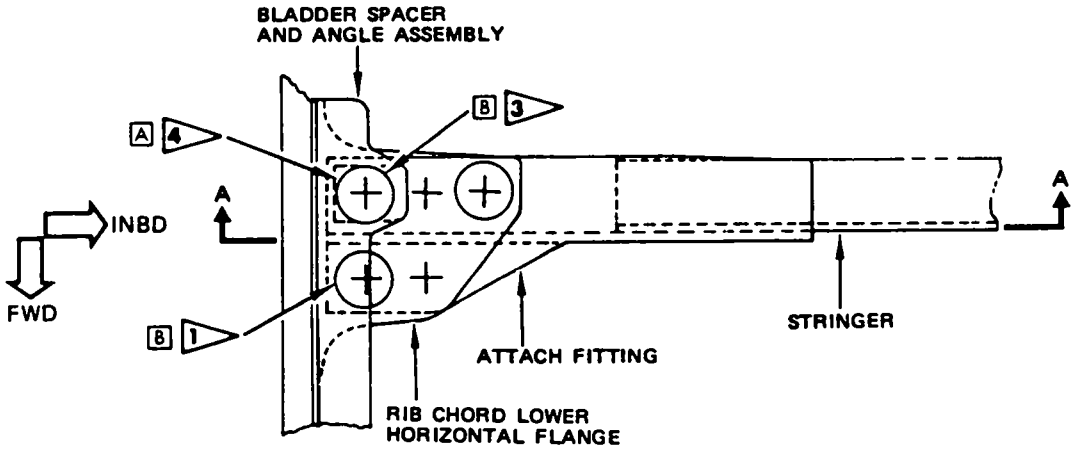


TYPICAL SHIELDED LOW PROFILE RIGHT ANGLE PENCIL PROBE

Wing Upper BBL 70.5 Splice
Figure 16 (Sheet 5)



SECTION A–A, VIEW AT BBL 70.5 SPLICE, STRINGERS S–1 THRU S–26 (TYPICAL) EXCEPT FOR SPANWISE BEAMS



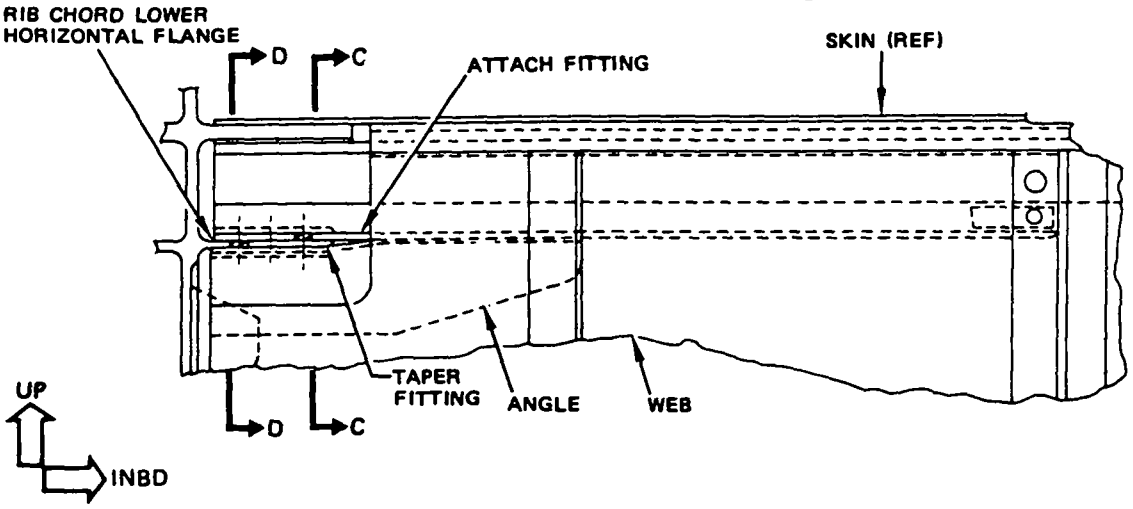
VIEW LOOKING UP, STRINGERS S–1 THRU S–26 (ALL SIMILAR OR OPPOSITE), EXCEPT FOR SPANWISE BEAMS

NOTES

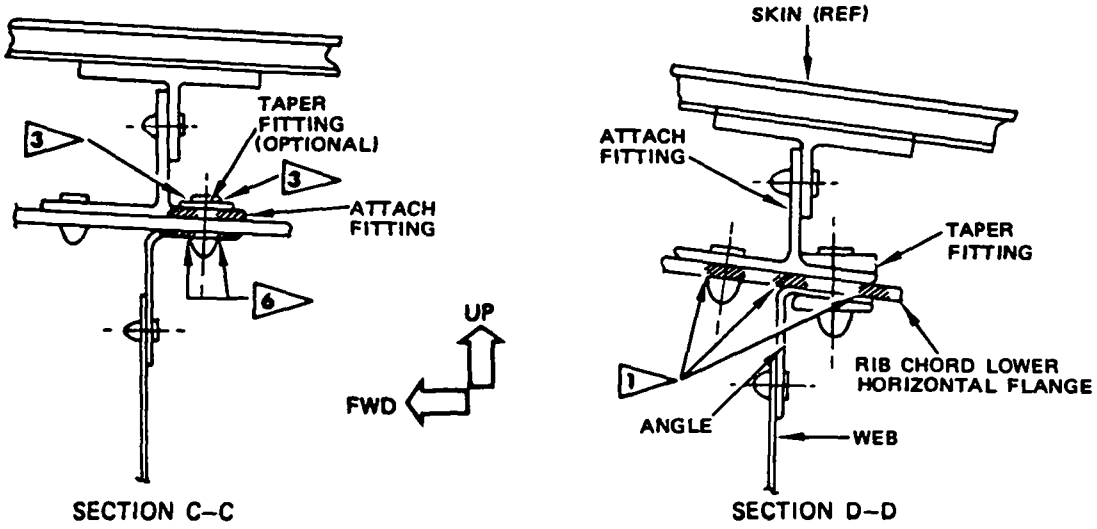
- INSPECTION AREA
- 1 PLACE PENCIL PROBE ON RIB CHORD, SCAN AROUND FASTENER END
- 3 PLACE PENCIL PROBE ON ATTACH FITTING, SCAN AROUND FASTENER END
- 4 BOLT HOLE INSPECT S–1 TO S–26 1/4 FASTENER
- A MODELS WHICH DO NOT HAVE A BLADDER SPACER AND ANGLE ASSEMBLY INSPECT PER 1
- B LOW PROFILE RIGHT ANGLE SHIELDED PENCIL PROBE REQUIRED – DIMENSIONS PER DETAIL I

RIB CHORD LOWER HORIZONTAL SPLICE, INBOARD OF BBL 70.5 (INSIDE WING CENTER SECTION)
DETAIL II

Wing Upper BBL 70.5 Splice
Figure 16 (Sheet 6)



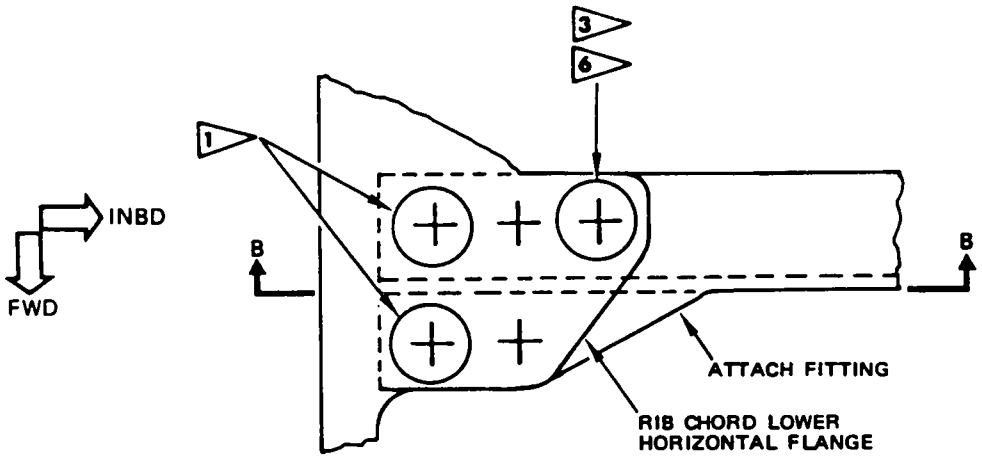
SECTION B–B, SPANWISE BEAMS S–7, S–12, S–18 AND S–23 (TYPICAL OR SIMILAR)



RIB CHORD LOWER HORIZONTAL FLANGE TO SPANWISE BEAM SPLICE AT S–7, S–12,–18, AND S–23, INBOARD OF BBL 70.5 (INSIDE WING CENTER SECTION)

DETAIL III

Wing Upper BBL 70.5 Splice
Figure 16 (Sheet 7)



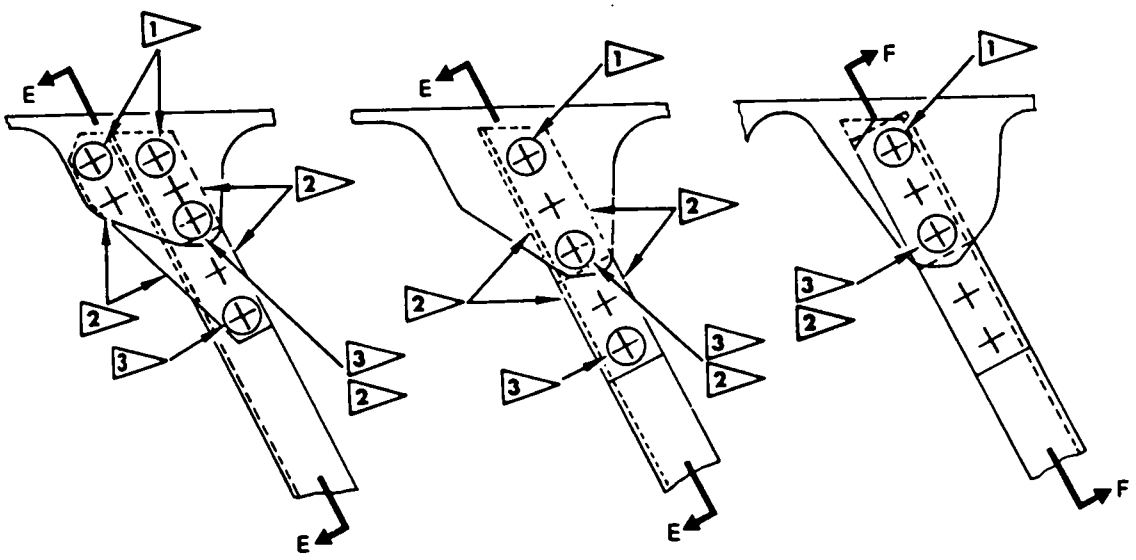
SECTION VIEW, LOOKING UP ON LOWER FLANGE OF SPANWISE BEAM STRINGER S–7, S–12, S–18 AND S–23 (TYPICAL)

NOTES

- INSPECTION AREA
- 1 PLACE PENCIL PROBE ON RIB CHORD, SCAN AROUND FASTENER END [C]
- 3 PLACE PENCIL PROBE ON ATTACH FITTING, SCAN AROUND FASTENER END [C]
- 6 PLACE PENCIL PROBE ON ANGLE' SCAN AROUND FASTENER END [C]
- [C] OR ADJACENT TO FORE AND AFT EDGES OF ANGLE OR TAPER FITTINGS

DETAIL III (CONT)

Wing Upper BBL 70.5 Splice
Figure 16 (Sheet 8)



S–17, S–19, S–26
(TYPICAL) LOOKING UP

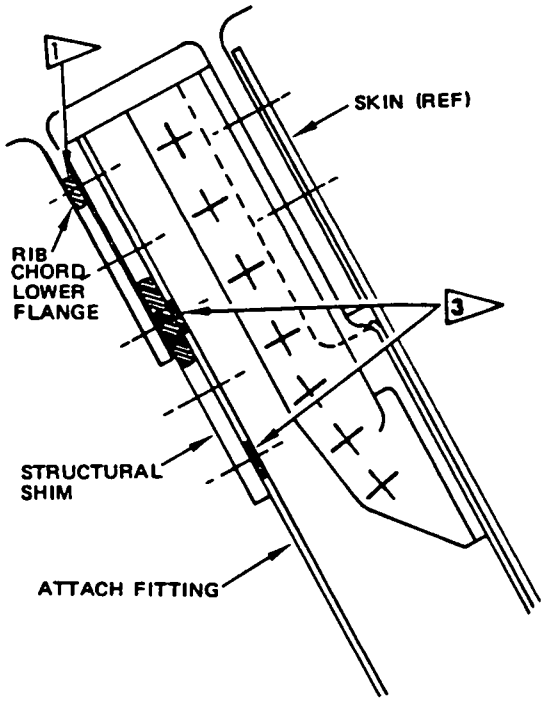
S–18, S–20 TO S–25
(TYPICAL) LOOKING UP

S-1 TO S–16
(TYPICAL) LOOKING UP

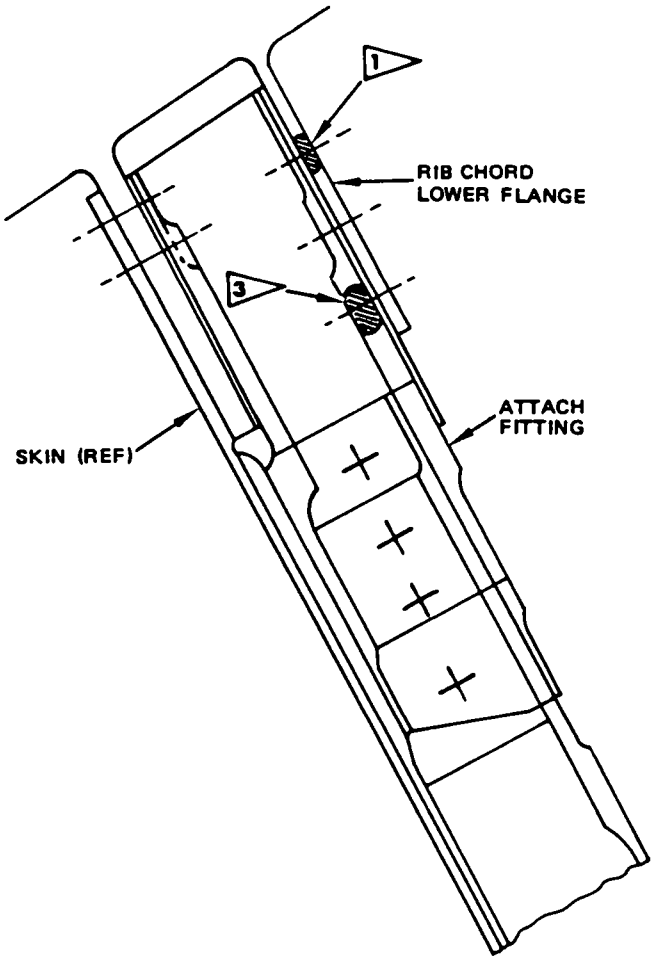
RIB CHORD LOWER HORIZONTAL FLANGE TO STRINGER
SPLICE AT S–1 THRU S–26, OUTBOARD OF BBL 70.5
(INSIDE WING)

DETAIL IV

Wing Upper BBL 70.5 Splice
Figure 16 (Sheet 9)



SECTION E–E



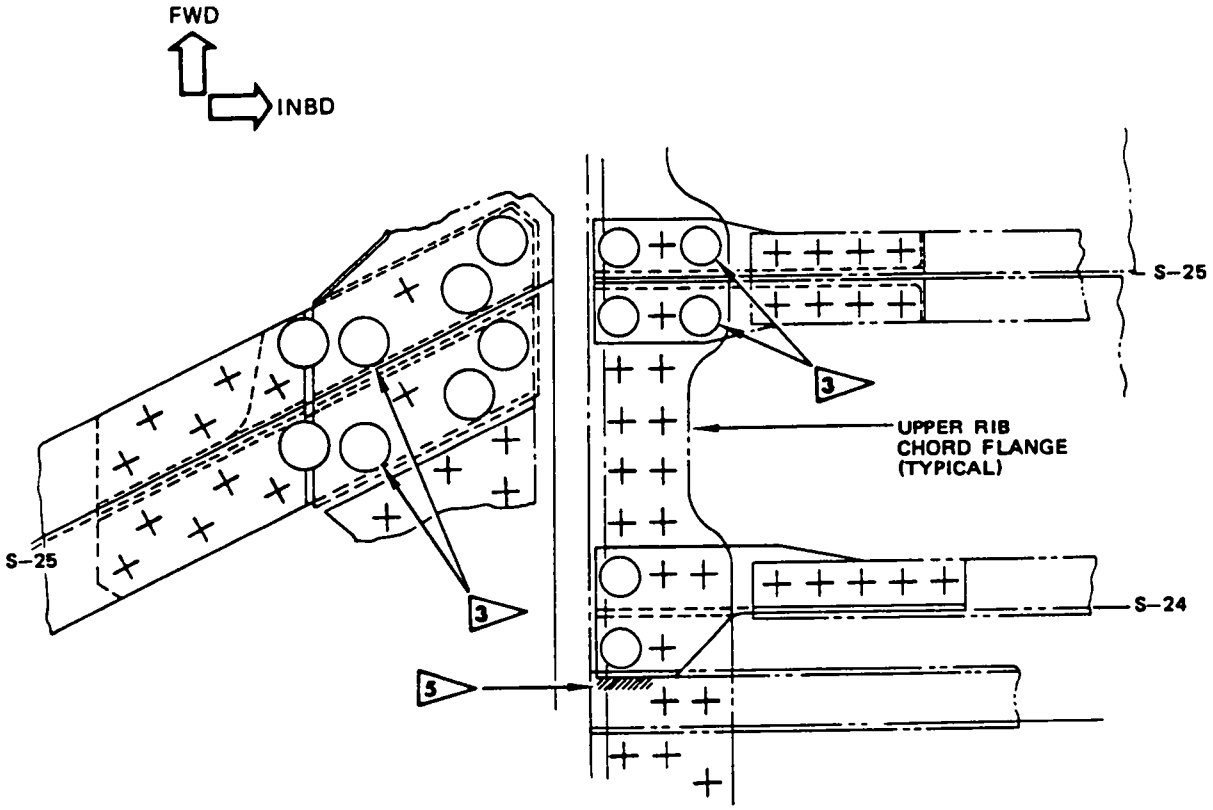
SECTION F–F

NOTES

- INSPECTION AREA
- 1 PLACE PENCIL PROBE ON RIB CHORD, SCAN AROUND FASTENER END
- 2 PLACE PENCIL PROBE ON EDGE OF STRUCTURAL SHIM, SCAN PAST FASTENER
- 3 PLACE PENCIL PROBE ON ATTACH FITTING, SCAN AROUND FASTENER END

DETAIL IV
(CONT)

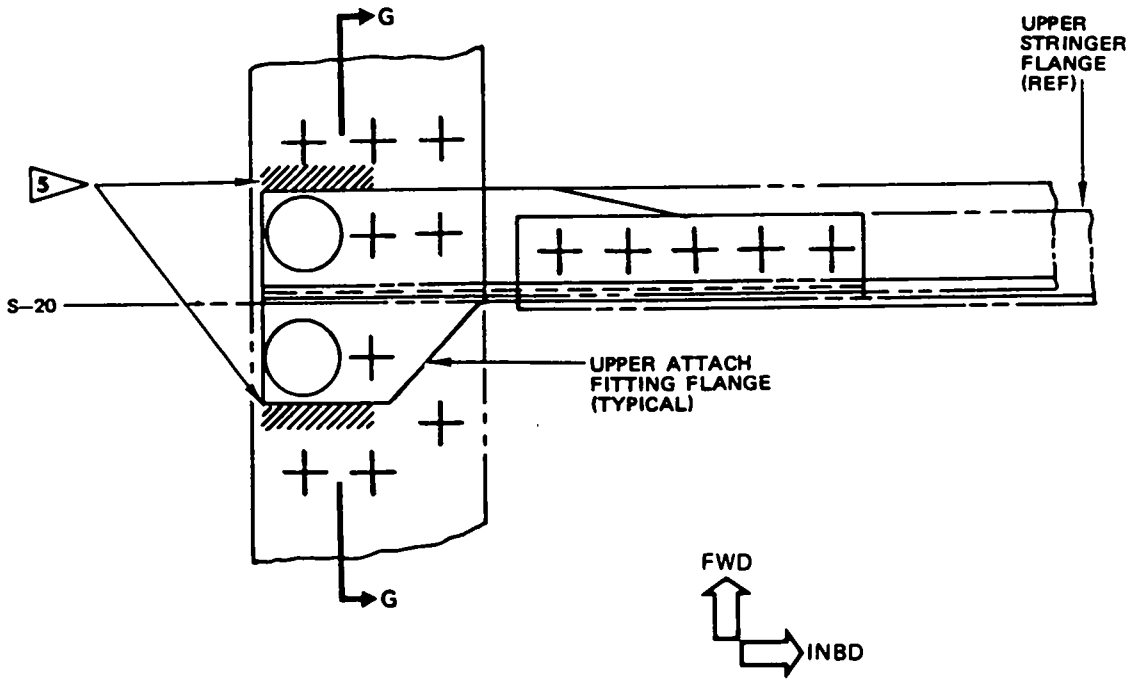
Wing Upper BBL 70.5 Splice
Figure 16 (Sheet 10)

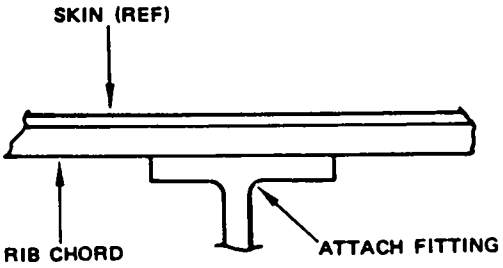


RIB CHORD UPPER HORIZONTAL FLANGE TO STRINGER
SPLICE AT STRINGERS S-10, S-17, S-20, S-24, AND S-25
INTERNAL INSPECTION

DETAIL V

Wing Upper BBL 70.5 Splice
Figure 16 (Sheet 11)

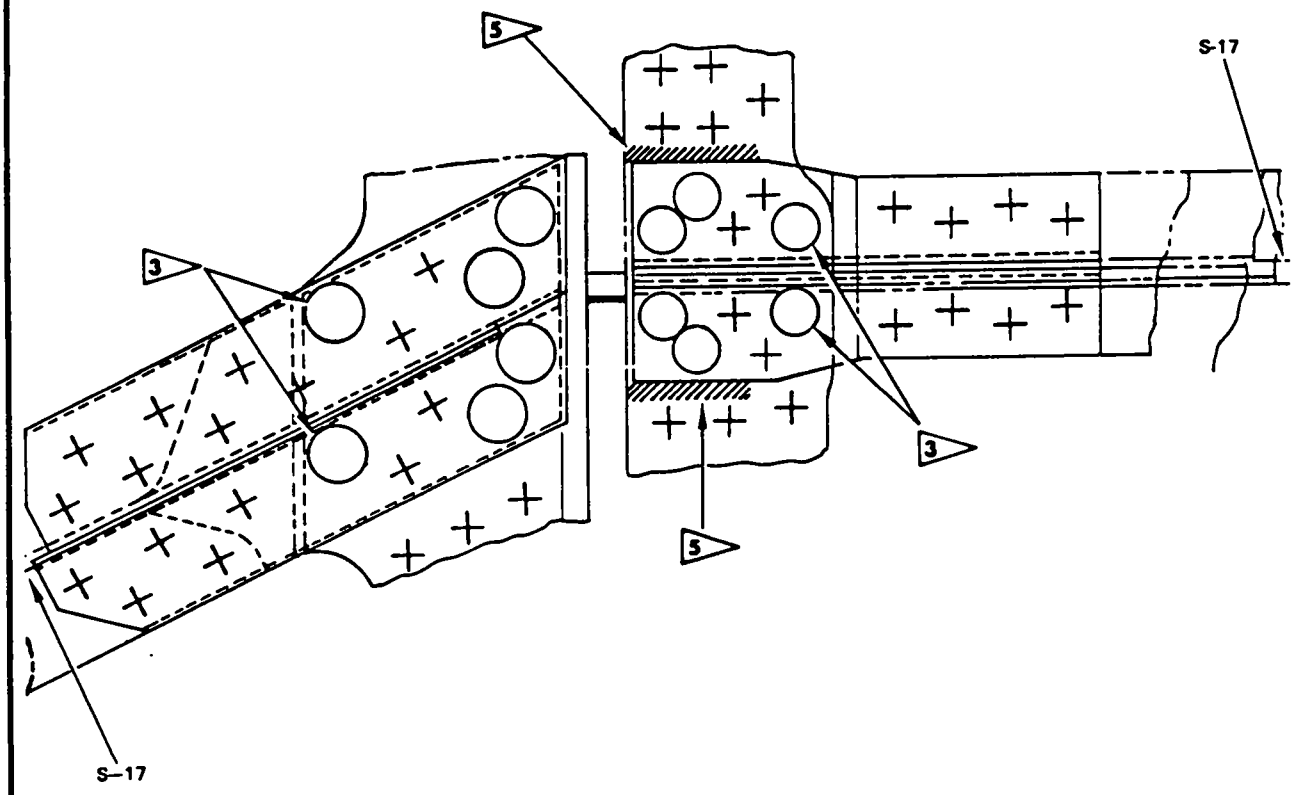




SECTION G-G

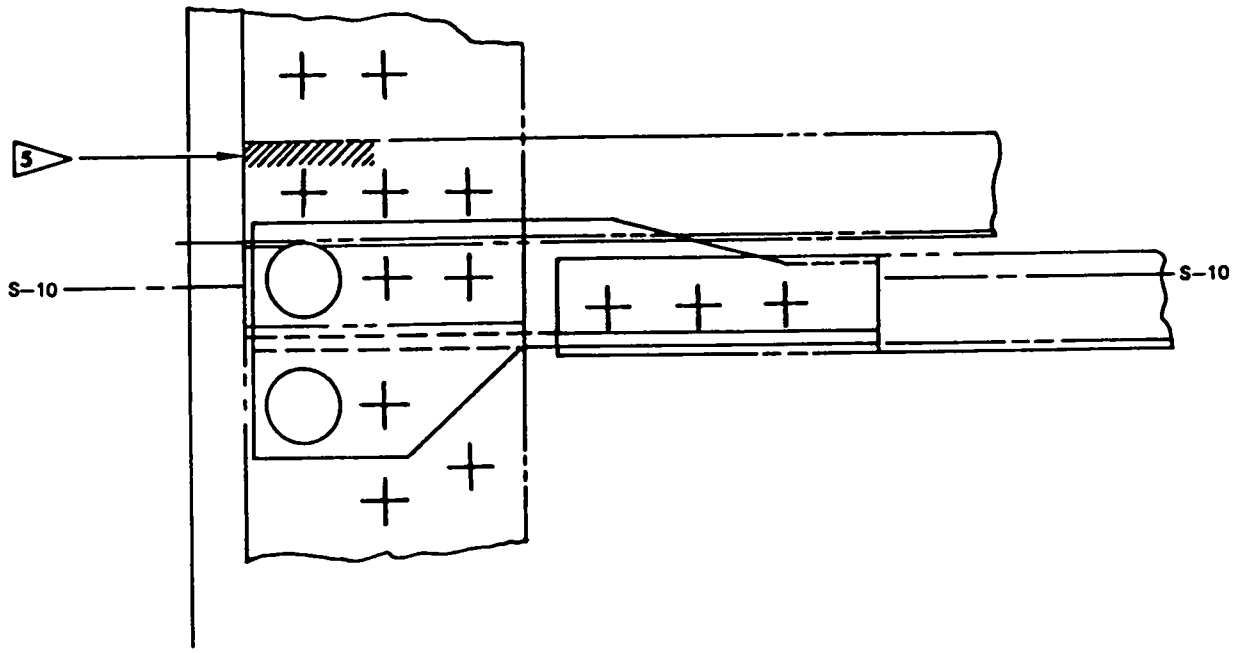
DETAIL V (CONT)

Wing Upper BBL 70.5 Splice
Figure 16 (Sheet 12)



DETAIL V (CONT)

Wing Upper BBL 70.5 Splice
Figure 16 (Sheet 13)



NOTES

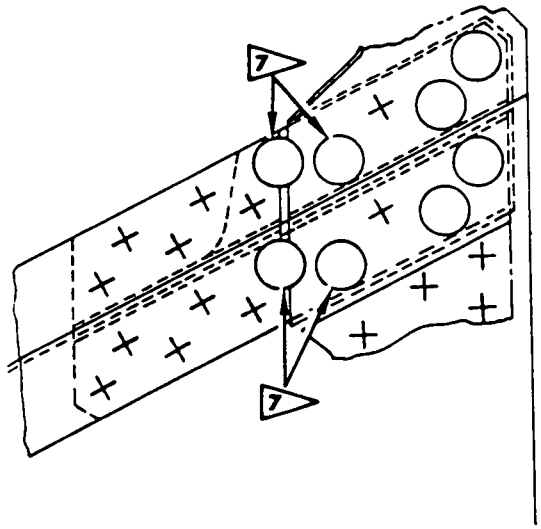
INSPECTION AREA

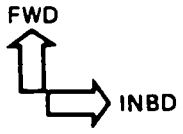
3 PLACE PENCIL PROBE ON ATTACH FITTING, SCAN AROUND FASTENER END

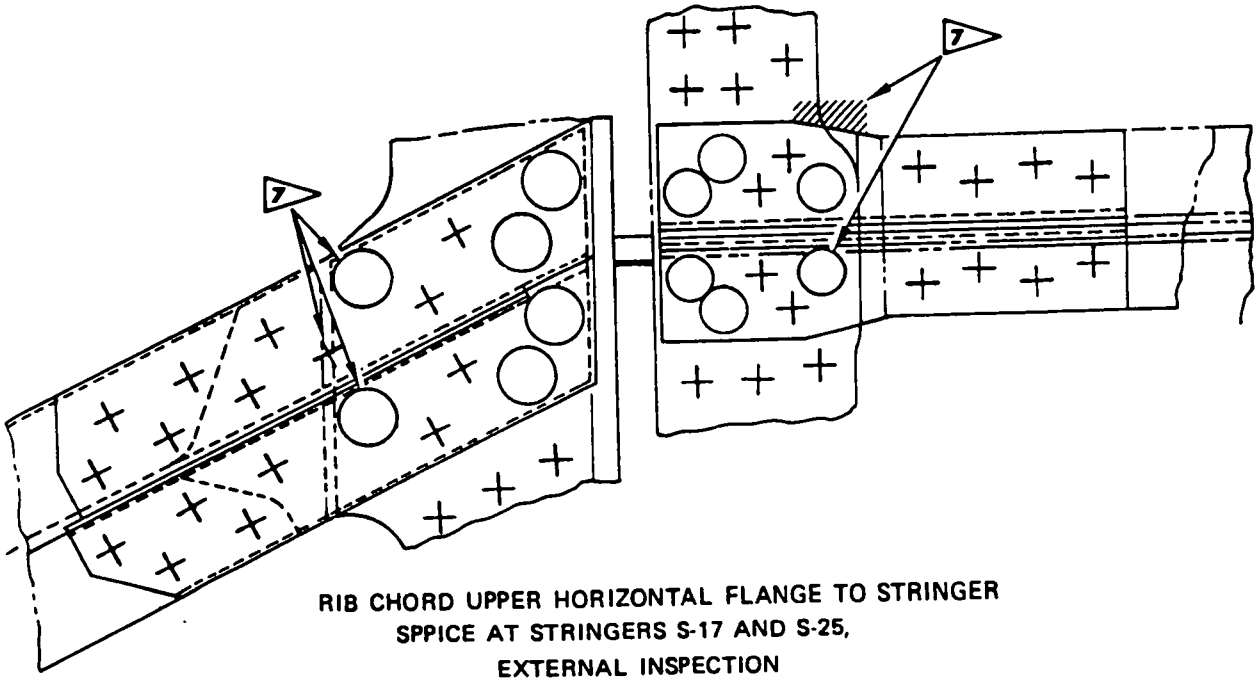
5 PLACE PENCIL PROBE ON RIB CHORD, SCAN AT INSPECTION AREAS. S-10, S-17, S-20, S-24

DETAIL V (CONT)

Wing Upper BBL 70.5 Splice
Figure 16 (Sheet 14)







RIB CHORD UPPER HORIZONTAL FLANGE TO STRINGER
SPPICE AT STRINGERS S-17 AND S-25,
EXTERNAL INSPECTION

DETAIL VI

NOTES

INSPECTION AREA

7 PLACE PENCIL PROBE ON SKIN, SCAN AROUND FASTENER AND AT INSPECTION AREA

Wing Upper BBL 70.5 Splice
Figure 16 (Sheet 15)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks in the upper surface BBL 70.5 splice which intersect fastener holes in the upper rib chord flange. This inspection is accomplished from outside of the wing without fastener removal.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec Inc.
      1320 N.W. Mall
      Issaquah, WA 98027

   B. Probes - This procedure uses three probes; any probe of similar size which will satisfy the performance requirements of this procedure is acceptable. The following probes were used in the development of this procedure.

      (1) Ring (encircling) probe with internal and external shielding, 1.4-inch maximum OD and 0.75-inch minimum ID, 100 Hz, Nortec P/N SPO-1238.

      (2) Ring (encircling) probe with internal and external shielding, with 1.1-inch maximum OD, 0.625-inch minimum ID, 0.3-inch maximum case height and side mounted connector, usable at 100 Hz, Nortec P/N SPO-1240.

      NOTE: The Nortec probe uses separate reference and probe coils.

Wing Upper BBL 70.5 Rib Chord
Figure 17 (Sheet 1)

(3) Low frequency spot probe with OD shielding and 0.625-inch maximum OD case with 1-inch case height and side mounted connector usable at 500 Hz, Nortec P/N SPO-1125.

NOTE: Probes listed above are available from:
Nortec Inc.
3001 George Washington Way
Richland, Washington 99352

Specify instrument with which probe is to be used or instrument connector required when ordering probes.

C. Reference Standards

(1) Manufacture per Details I and III.

3. Preparation for Inspection

A. Access to upper wing surface outboard of BBL 70.5 requires removal of right and left side upper wing-to-body fairing panels.

B. Access to upper center section at BBL 70.5 requires removal of cabin floor panels at right and left side of body.

C. Wipe skin surface clean.

D. Remove excess sealant along inboard skin edge as required to place probe flat.

4. Instrument Calibration

A. General

(1) This inspection is for fastener hole cracks using a ring probe centered on the fastener.

(2) An alternate inspection is identified for cases when fastener spacing or adjacent structure does not permit use of the ring probe.

(3) The two ring probes identified for this inspection require several instrument calibrations to adjust for variations in structure geometry and materials.

(4) Details VII and VIII identify inspection coverage for a particular calibration, and Table I provides specific calibration information for that inspection.

Wing Upper BBL 70.5 Rib Chord
Figure 17 (Sheet 2)

B. Calibration for fastener hole crack inspection using the ring probe centered on the fastener. The following calibration applies to inspection codes A thru D.

NOTE: The reference coil to be used with P/N SPO-1240 is active. To avoid altering the calibration during inspection, the probe should be kept away from conductive materials.

(1) Identify code for fasteners to be inspected from Details VII and VIII.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

(3) Visually center probe over the unnotched reference standard hole, Position 1, in the appropriate calibration position row.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(6) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

(7) Center probe over the notched reference standard hole, Position 2. Response should be upscale.

(8) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(9) Recheck null and liftoff. If readjustments are made recheck sensitivity per par B.(8).

(10) Cracks will be indicated by a higher meter response.

Wing Upper BBL 70.5 Rib Chord
Figure 17 (Sheet 3)

C. Calibration for fastener crack inspection using a spot probe placed adjacent to the fastener head.

NOTE: This calibration is for the alternate inspection procedure to be used only when the ring probe will not fit over fastener to be inspected.

(1) Refer to Table I for alternate inspection calibration details.

NOTE: Use the same standard and calibration position row that was specified for calibration of the ring probe for the fastener to be inspected.

(2) Place probe adjacent to the unnotched reference standard hole, Position 1.

(3) Balance instrument per manufacturer's instructions.

(4) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is located at Position 1 during liftoff calibration.

(5) With the probe adjacent to the unnotched hole Position 1, adjust meter response to read 20% of full scale with meter position control.

(6) Position probe adjacent to the notched reference standard hole, Position 2. Response should be upscale.

(7) Adjust instrument sensitivity to obtain a 50% of full scale meter response difference between the notched and unnotched holes, Positions 1 and 2.

(8) Reposition probe at Position 1 and check null and liftoff. If readjustments are made, recheck sensitivity per par. C.(7).

(9) Cracks will be indicated by a higher meter response.

Wing Upper BBL 70.5 Rib Chord
Figure 17 (Sheet 4)

5. Inspection Procedure

NOTE: An inspection code is used to identify locations having similar inspection conditions. A single instrument calibration is usually used to inspect these locations.

It is suggested that copies of Details VII and VIII be made and that they be used to record instrument responses at each fastener location. This is helpful in maintaining continuity between the groups of fasteners during inspection.

A. Inspection of fastener holes for cracks using the ring probe centered on the fastener (inspection codes A thru D).

(1) Identify code for fasteners to be inspected from Details VII and VIII.

(2) Calibrate instrument per par. 4.B. and Table I.

(3) Note on the airplane the location of those fasteners having the same inspection code by using Details VII and VIII.

(4) Use several fasteners of the same code to establish the airplane baseline response for an acceptable fastener.

(a) Select a representative fastener from this group and set its response to 20% of full meter scale.

NOTE: Do not change instrument sensitivity when establishing the airplane baseline response.

(b) Refer back to this fastener periodically to ensure that the instrument response is the same as originally recorded, since changes in meter response may occur as a result of instrument drift or probe temperature change.

(5) Inspect each fastener having the same inspection code by centering the probe on the fastener and manipulating to obtain a minimum response.

NOTE: Review the "Special Notes" called out in Table I for conditions which affect the inspection.

Adjacent structure or tighter fastener spacing may prevent the use of the ring probe. If spacing fore and aft of the fastener is adequate, use the low frequency spot probe specified in par. 2.B.(3).

(6) The following are potential crack indications and further investigation is required.

(a) Fastener locations which give a response which is 40% of full meter scale higher than the established baseline.

NOTE: The following conditions may cause meter reading changes similar to crack indications:

1) A decrease in fastener spacing. Compare with similarly spaced fasteners on the airplane.

2) A different type of fastener. Compare with similar fasteners on the airplane or on the standard.

3) A larger or smaller fastener. Compare with similar fasteners on reference standard and on airplane.

4) A fastener without a washer or with a different number of washers under it. Compare with similar fasteners on the airplane or on the standard.

5) A fastener close to edge of skin. Compare with similar fasteners on airplane.

B. Inspection of fastener holes for cracks using a spot probe adjacent to the fastener.

NOTE: This inspection is only to be used for fasteners which could not be inspected using a ring probe.

(1) Calibrate the instrument per par. 4.C. and Table I.

(2) Establish a baseline response per par. 5.A.(4).

(3) Inspect each fastener by placing the probe adjacent to the fastener head and scanning about the head.

NOTE: Adjacent structure may prevent a complete scan around the fastener head. Inspect fore and aft of the fastener to the extent possible.

When scanning about a fastener head maintain a uniform distance between the probe and fastener head.

Wing Upper BBL 70.5 Rib Chord
Figure 17 (Sheet 6)

(4) Any location which gives a response which is 30% of full meter scale higher than the baseline response should be investigated further.

INSPECTION CODE [1]	REFERENCE STANDARD NO.	PROBE IDENTIFICATION [2]	INSTRUMENT FREQUENCY HZ	DETAIL NO. FOR CALIBRATION	PROBE CALIBRATION POSITION ROWS [3]	SPECIAL NOTES
A	022	(1)	100	II	[A]	[5]
B	022	(2)	100	II	[B]	[6]
C	023	(2)	100	IV	[C]	[8]
D	023	(2)	100	IV	[D]	[7]
Alternate Inspection	022,023	(3)	500	V,VI	[4]	

CALIBRATION TABLE
TABLE I

NOTES:

[1] Code for specific inspection areas identified on Details VII and VIII to which the calibration requirements apply.

[2] Probe Identification:

(1) P/N SPO-1238, 1.4-inch OD and 0.75-inch ID ring probe.

(2) P/N SPO-1240, 1.1-inch OD and 0.625-inch ID ring probe, used with a separate reference coil.

(3) P/N SPO-1125, 0.62-inch OD spot probe.

Wing Upper BBL 70.5 Rib Chord
Figure 17 (Sheet 7)

3> Flagnote refers to "Probe Position for Calibration" details (Details II, IV, V and VI, as indicated in this table) and identifies that part of the reference standard used for this calibration.

4> Calibrate using the same reference standard and fastener row specified under codes A, B, C and D for the area to be inspected using the spot probe. Probe position shown in Details V and VI.

5> Establish a baseline response for fasteners 216 and 217 by comparing with similar adjacent fasteners further away from BBL 70.5 at the same stringer location (Detail VII).

6> a. Fasteners 190 and 189 have a steel splice plate under the rib chord and will give a response different that the established baseline. Compare these fasteners with similar fasteners further away from BBL 70.5 at the same stringer location (Detail VII).

b. Fastener 240 is a 1/4-inch hex head fastener. Compare with the 1/4-inch hex head fastener on the standard (Detail VII).

c. Fastener 263 is a 1/4-inch pan head fastener. Compare it with the pan head fastener on the standard (Detail VII).

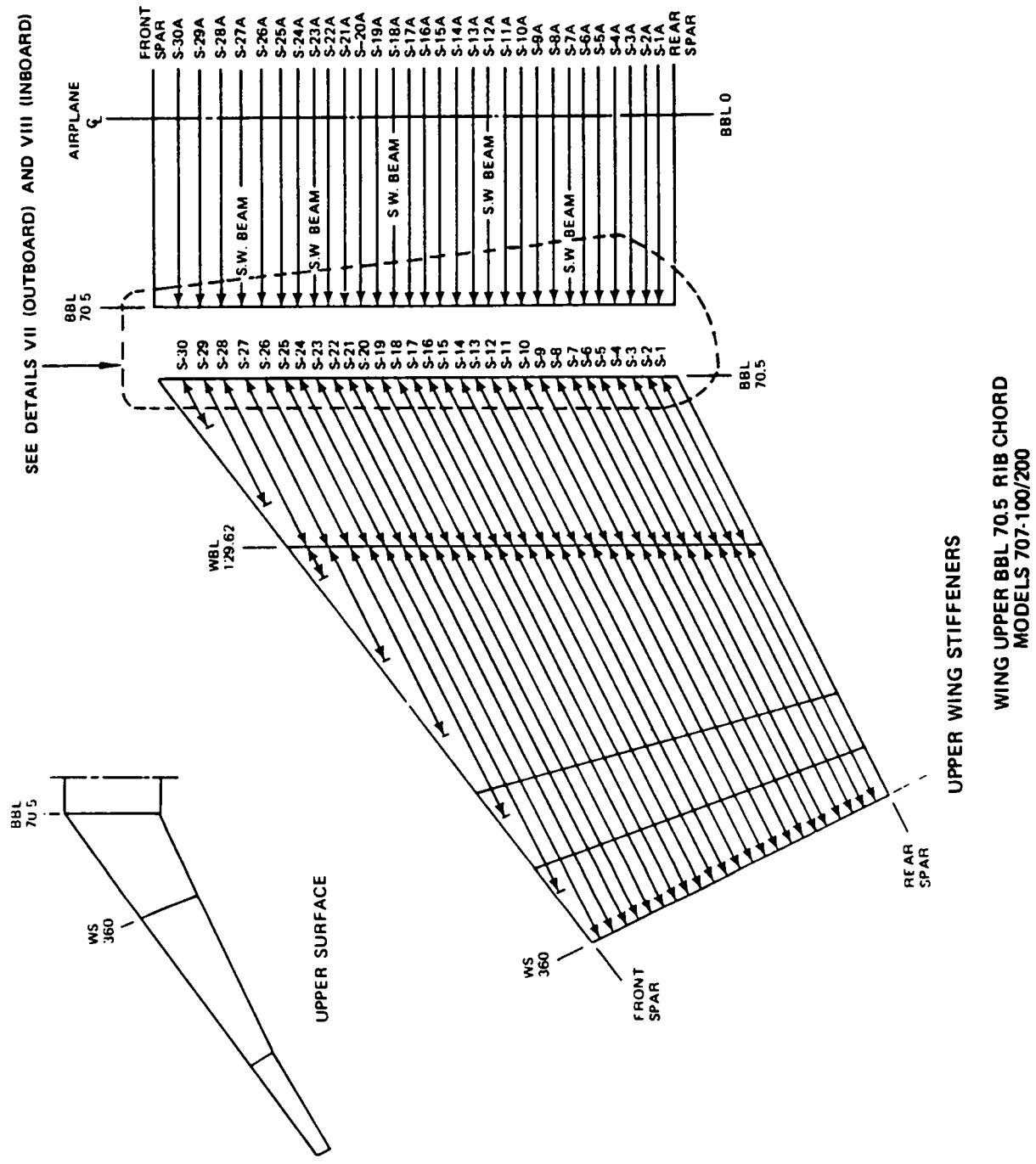
7> a. Compare fasteners 241, 262, and 327 with each other and similar fasteners further away from BBL 70.5 at the same stringer location (Detail VII).

b. Compare fasteners 301 and 302 with similar fasteners further away from BBL 70.5 (Detail VII).

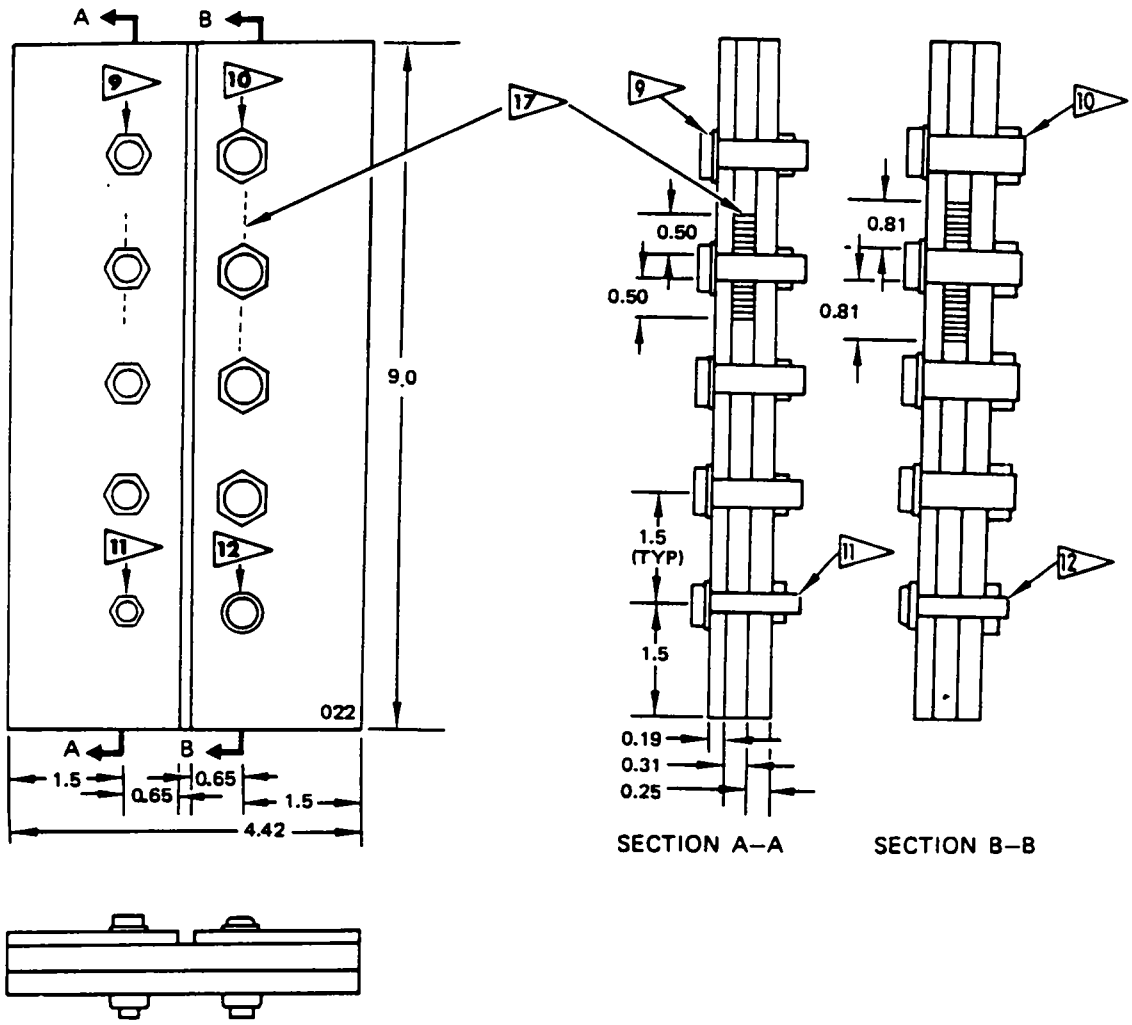
8> a. Fasteners 29, 30, 31 and 32 have a steel splice plate under the rib chord and will give a response different that the established baseline. Compare these fasteners with similar fasteners further away from BBL 70.5 at the same stringer location (Detail VIII).

b. Fasteners 46 and 47 are 1/4-inch hex head fasteners and will give a response different from the established baseline. Compare with each other and similar fasteners further away from BBL 70.5 at the same stringer location (Detail VIII).

Wing Upper BBL 70.5 Rib Chord
Figure 17 (Sheet 8)



Wing Upper BBL 70.5 Rib Chord
Figure 17 (Sheet 9)



NOTES

- ETCH OR STEEL STAMP WITH 022
- MATERIAL: 7075–T6 ALUMINUM
- TOLERANCE: X.X ± 0.05
  X.XX ± 0.02
- ALL DIMENSIONS ARE IN INCHES
- P/N 6412–33
  AVAILABLE FROM IDEAL SPECIALTY CO.
- FASTENER CONFIGURATIONS AS SHOWN ARE REPRESENTATIVE. ACTUAL FASTENER CONFIGURATIONS ARE DETERMINED BY THE FASTENER PART NUMBER

9 BACB30NE5–12 FASTENERS, BACN10JC5 NUT, 4 PLACES

10 BACB30NE6–12 FASTENERS, BACN10JC6 NUT, 4 PLACES

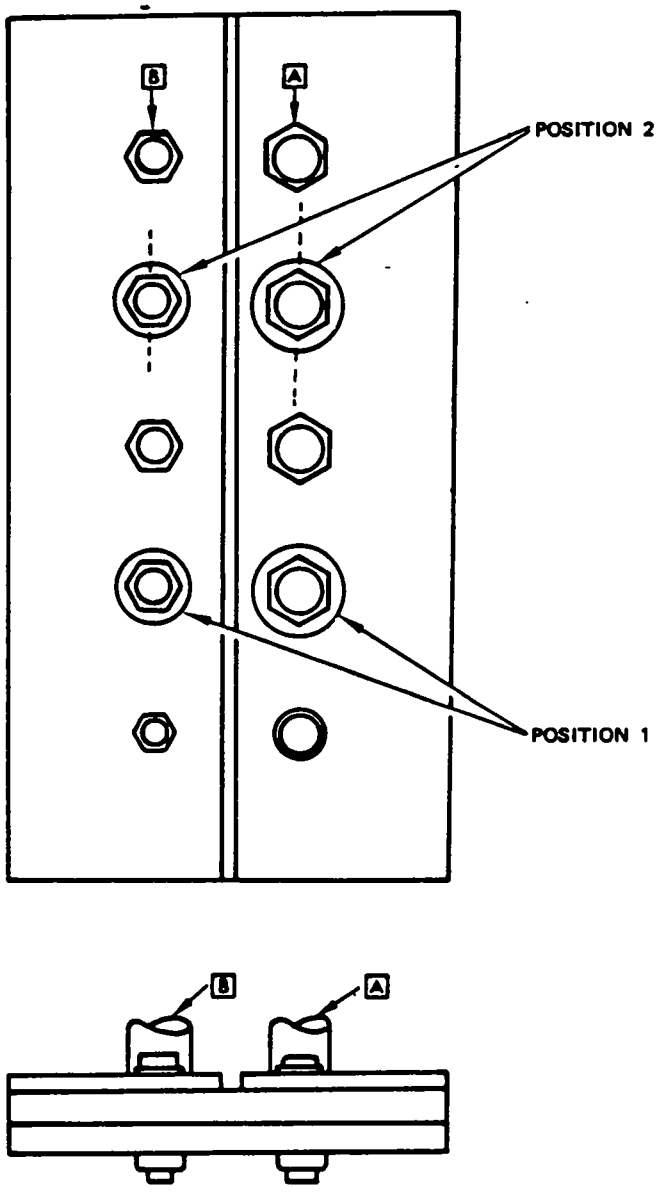
11 BACB30NE4–12 FASTENERS, BACN10JC4 NUT, ONE ONLY

12 BACB30HC4–12 FASTENERS, NAS1080–8 COLLAR, ONE ONLY

17 JEWELER'S SAWCUT 0.030 MAX WIDTH (4 PLACES)

REFERENCE STANDARD 022
DETAIL I

Wing Upper BBL 70.5 Rib Chord
Figure 17 (Sheet 10)

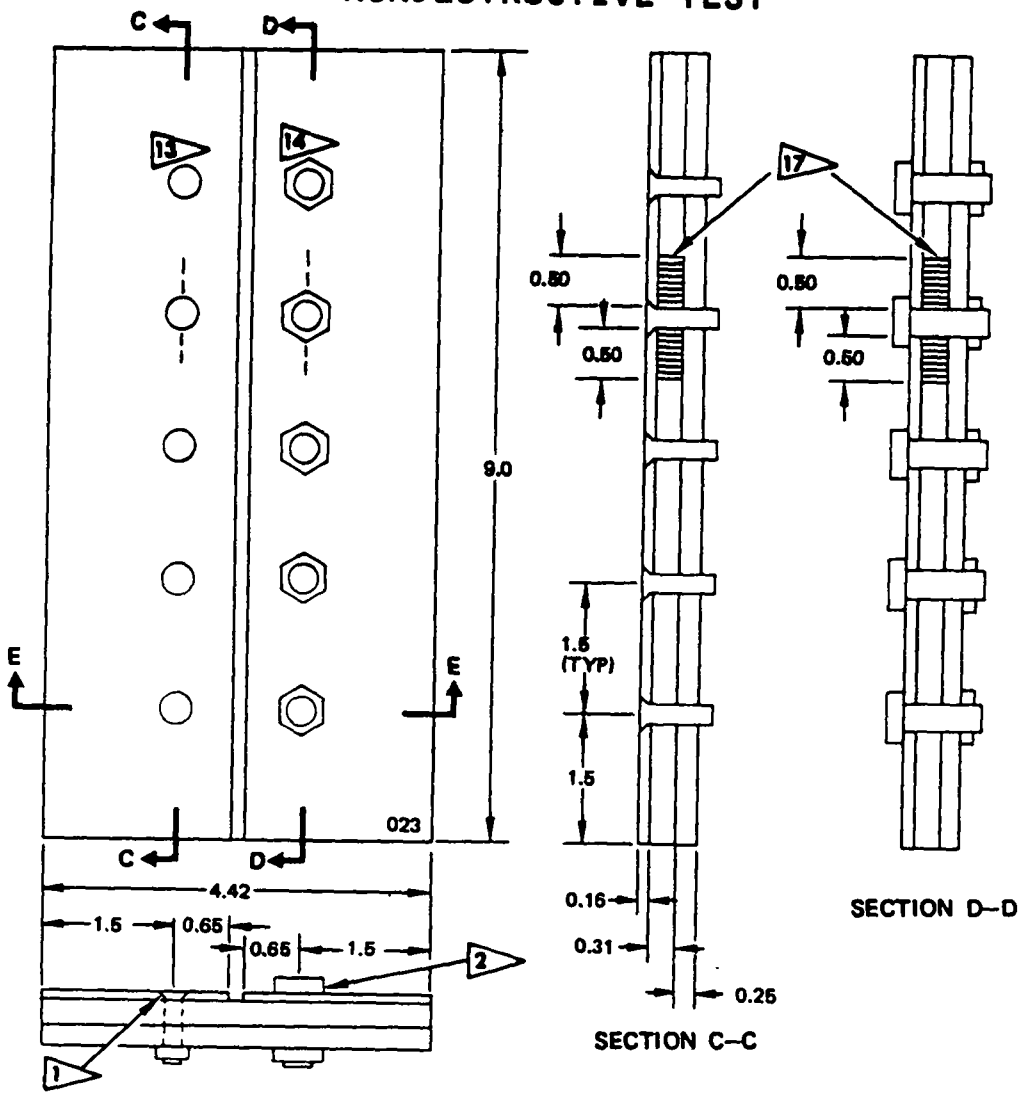


NOTE

[A], [B] PROBE CALIBRATION POSITION ROWS (REF TABLE I, CALIBRATION TABLE)

PROBE POSITIONS FOR CALIBRATION ON REFERENCE STANDARD 022
DETAIL II

Wing Upper BBL 70.5 Rib Chord
Figure 17 (Sheet 11)



NOTES

- ALL DIMENSIONS ARE IN INCHES
- ETCH OR STEEL STAMP WITH 023
- MATERIAL: 7075–T6 ALUMINUM
- TOLERANCE: X.X ± 0.05, X.XX ± 0.020
- P/N 6412–34 AVAILABLE FROM IDEAL SPECIALTY CO. 2531 E. INDEPENDENCE ST. TULSA, OKLAHOMA 74110

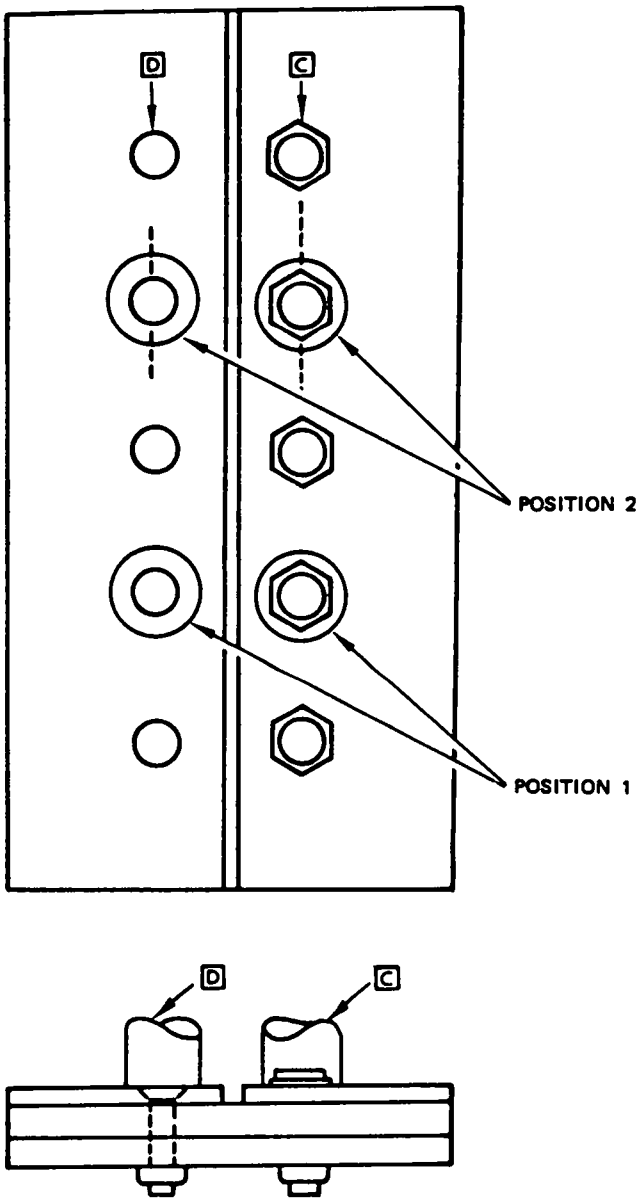
13 BACB30FN8–12 FASTENERS, BACC30M8 COLLARS

14 BACB30NE5–12 FASTENERS, BACN10JC5 NUTS

17 JEWELER'S SAWCUT 0.030 MAX WIDTH (4 PLACES)

REFERENCE STANDARD 023
DETAIL III

Wing Upper BBL 70.5 Rib Chord
Figure 17 (Sheet 12)

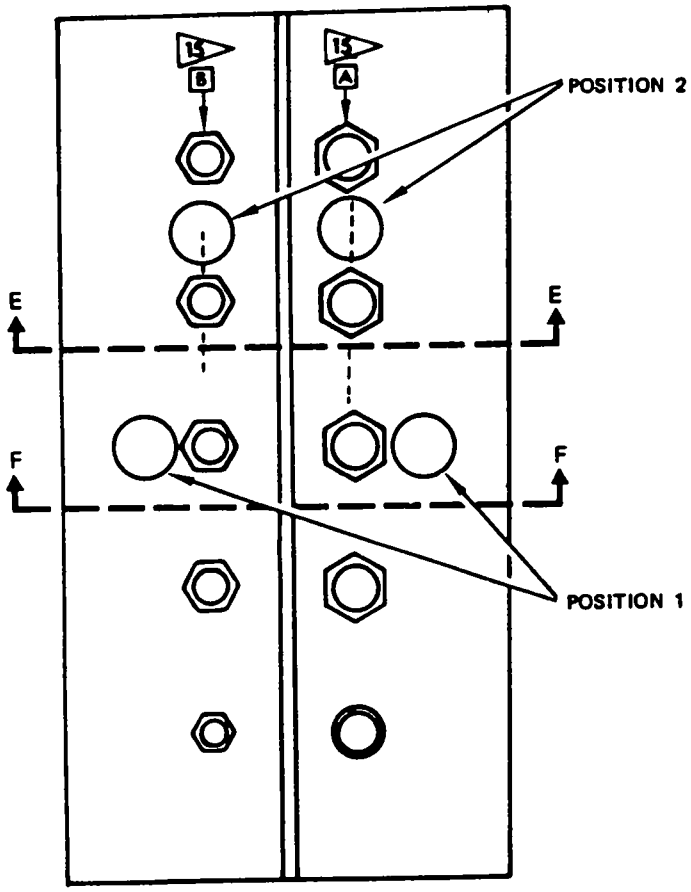


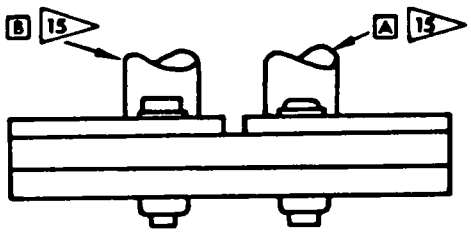
NOTE

[C], [D] PROBE CALIBRATION POSITION ROWS (REF TABLE I, CALIBRATION TABLE)

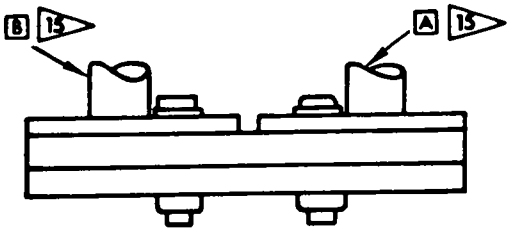
PROBE POSITIONS FOR CALIBRATION ON REFERENCE STANDARD 023
DETAIL IV

Wing Upper BBL 70.5 Rib Chord
Figure 17 (Sheet 13)





SECTION E–E



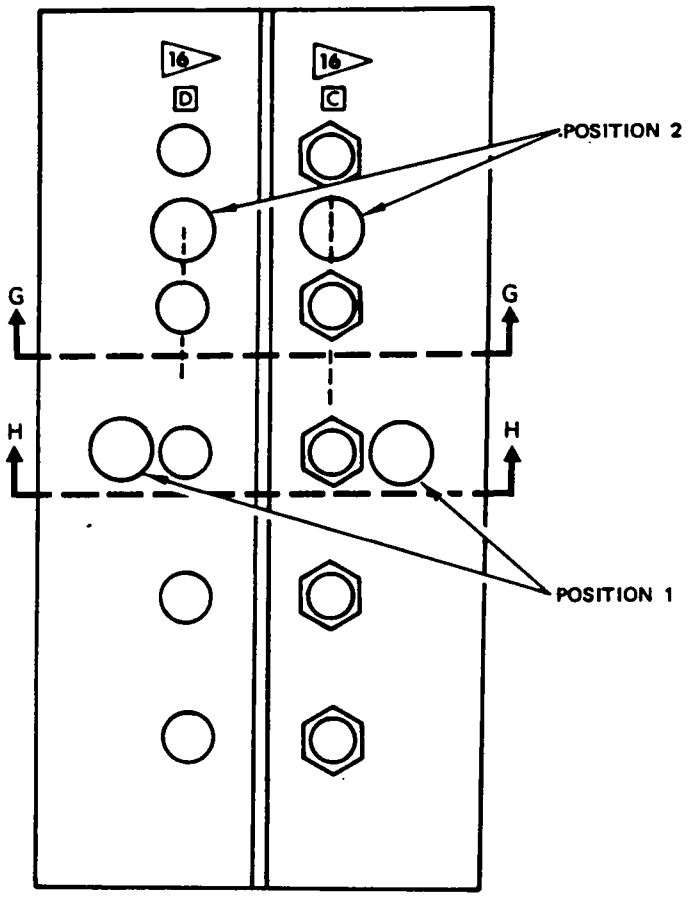
SECTION F–F

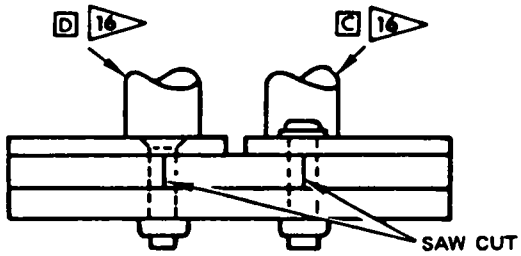
A B PROBE CALIBRATION ROWS (REF TABLE I, CALIBRATION TABLE)

15 USE THE SAME CALIBRATION POSITION ROWS ASSOCIATED WITH INSPECTION CODES A AND B (REF TABLE I, CALIBRATION TABLE) FOR THE AREAS TO BE INSPECTED USING THE SPOT PROBE.

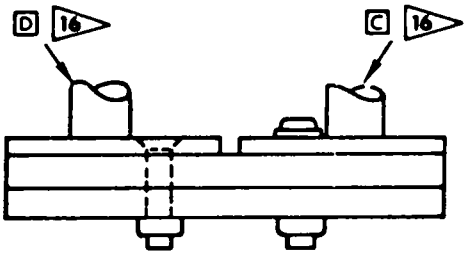
ALTERNATE CALIBRATION PROBE POSITIONS, REFERENCE STANDARD 022
DETAIL V

Wing Upper BBL 70.5 Rib Chord
Figure 17 (Sheet 14)





SECTION G–G



SECTION H–H

C D PROBE CALIBRATION POSITION ROWS (REF TABLE I, CALIBRATION TABLE)

16 USE THE SAME CALIBRATION POSITION ROWS ASSOCIATED WITH INSPECTION CODES C AND D (REF TABLE I CALIBRATION TABLE) FOR THE AREAS TO BE INSPECTED USING THE SPOT PROBE

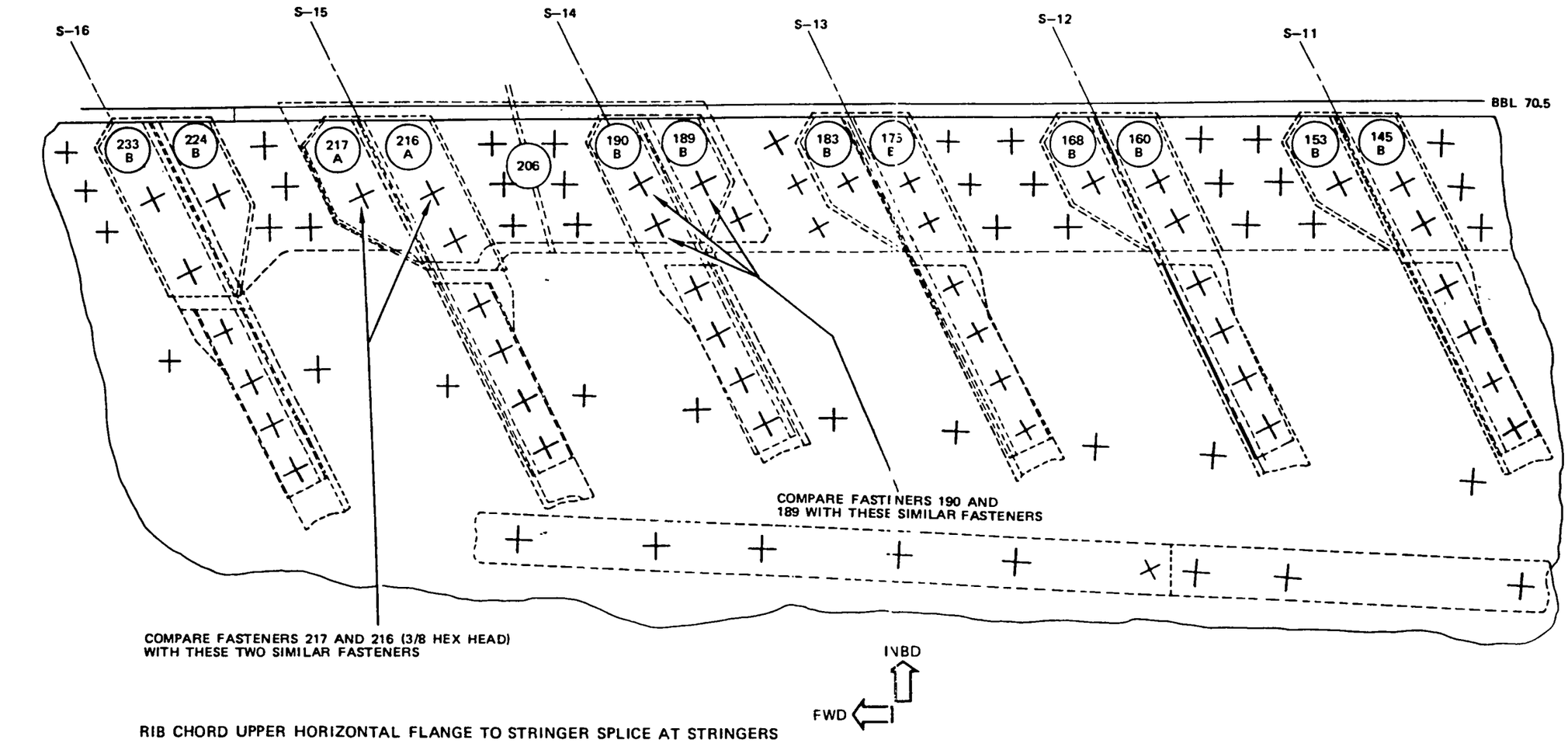
ALTERNATE CALIBRATION PROBE POSITIONS,
REFERENCE STANDARD 023
DETAIL IV

Wing Upper BBL 70.5 Rib Chord
Figure 17 (Sheet 15)

NOTES

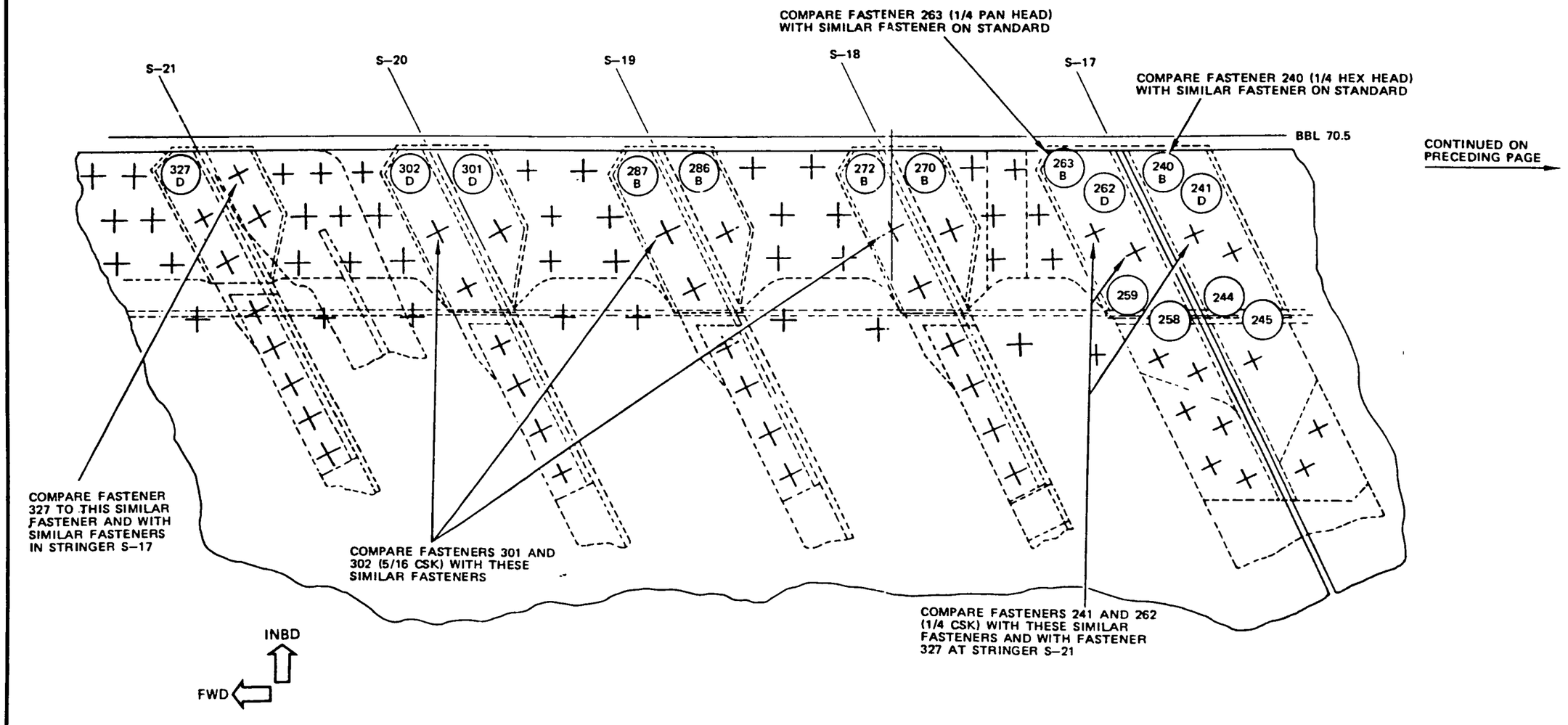
217 A — 217: FASTENER IDENTIFICATION NUMBER; A: INSPECTION CODE (REF TABLE I)

CONTINUED ON NEXT PAGE



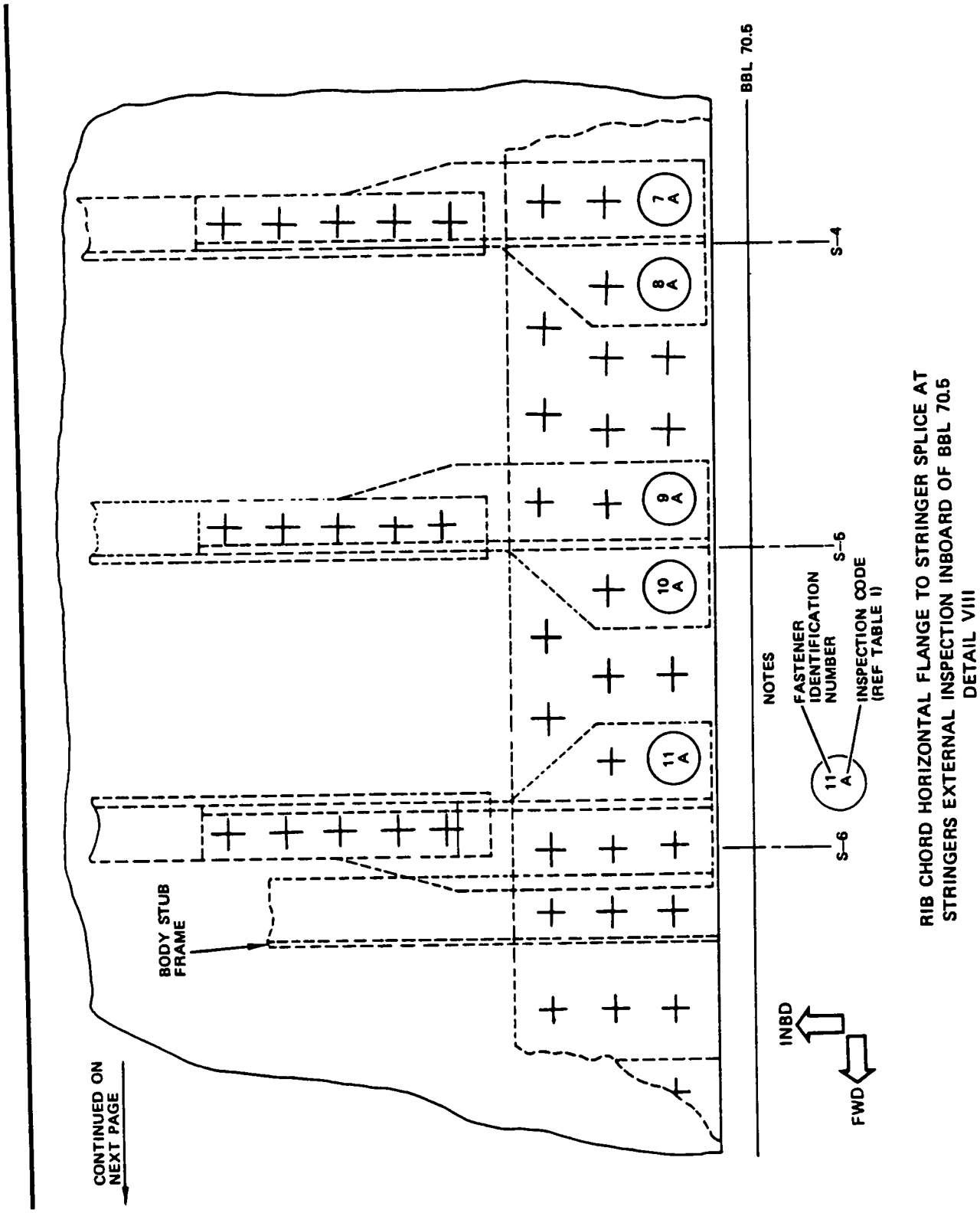
RIB CHORD UPPER HORIZONTAL FLANGE TO STRINGER SPLICE AT STRINGERS
EXTERNAL INSPECTION OUTBOARD OF BBL70.5
DETAIL VII

Wing Upper BBL 70.5 Rib Chord
Figure 17 (Sheet 16)



DETAIL VII (CONT.)

Wing Upper BBL 70.5 Rib Chord
Figure 17 (Sheet 17)



Wing Upper BBL 70.5 Rib Chord
Figure 17 (Sheet 18)

CONTINUED ON NEXT PAGE

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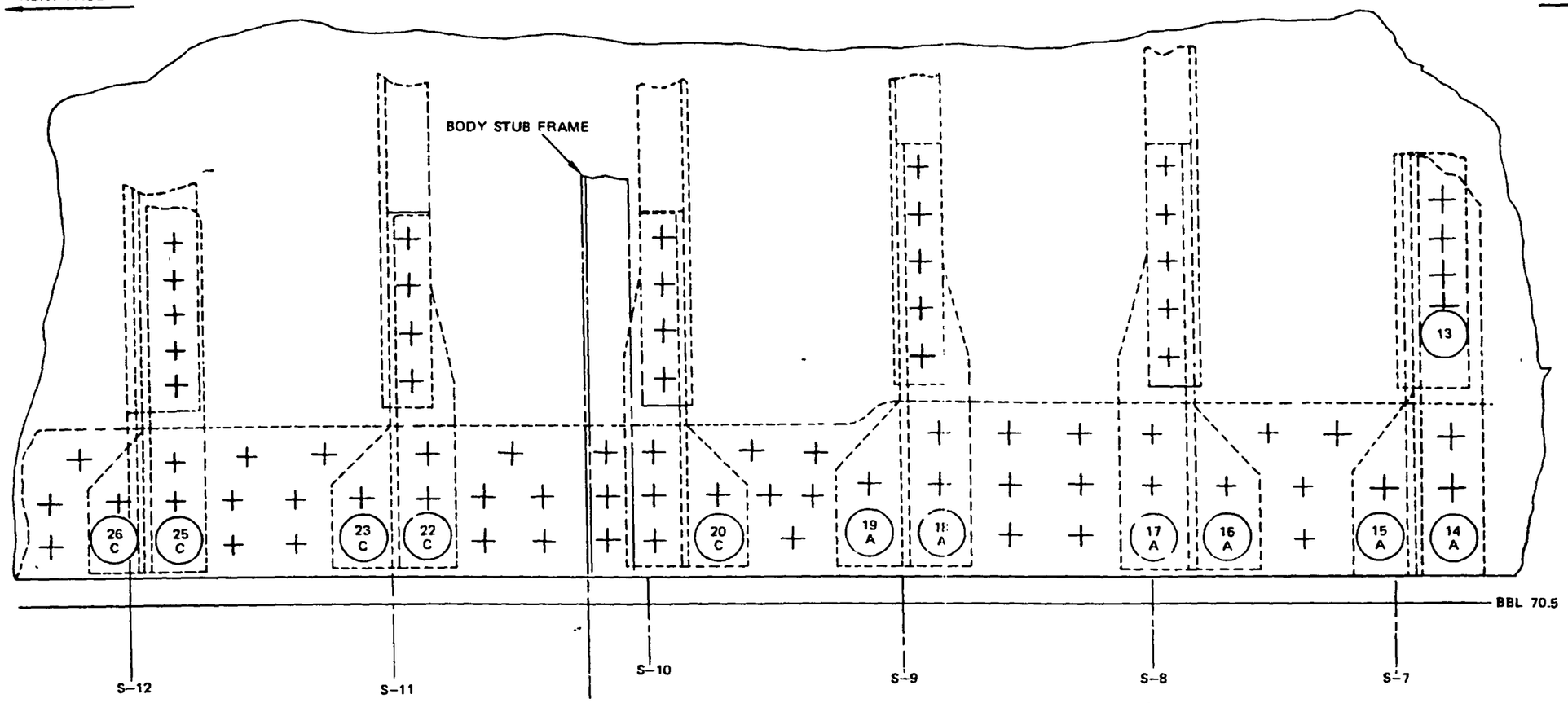
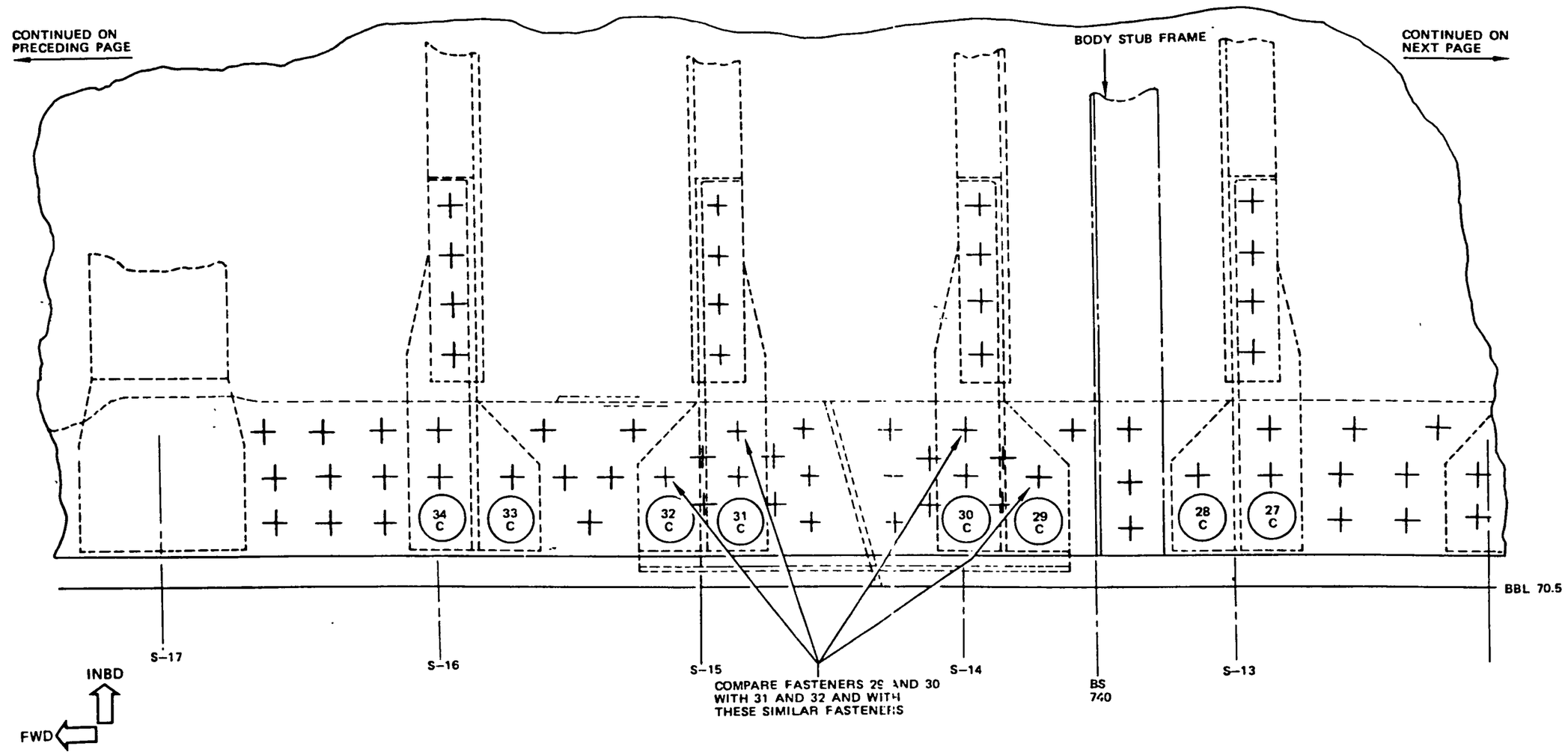


DETAIL VIII (CONT.)

Wing Upper BBL 70.5 Rib Chord
Figure 17 (Sheet 19)

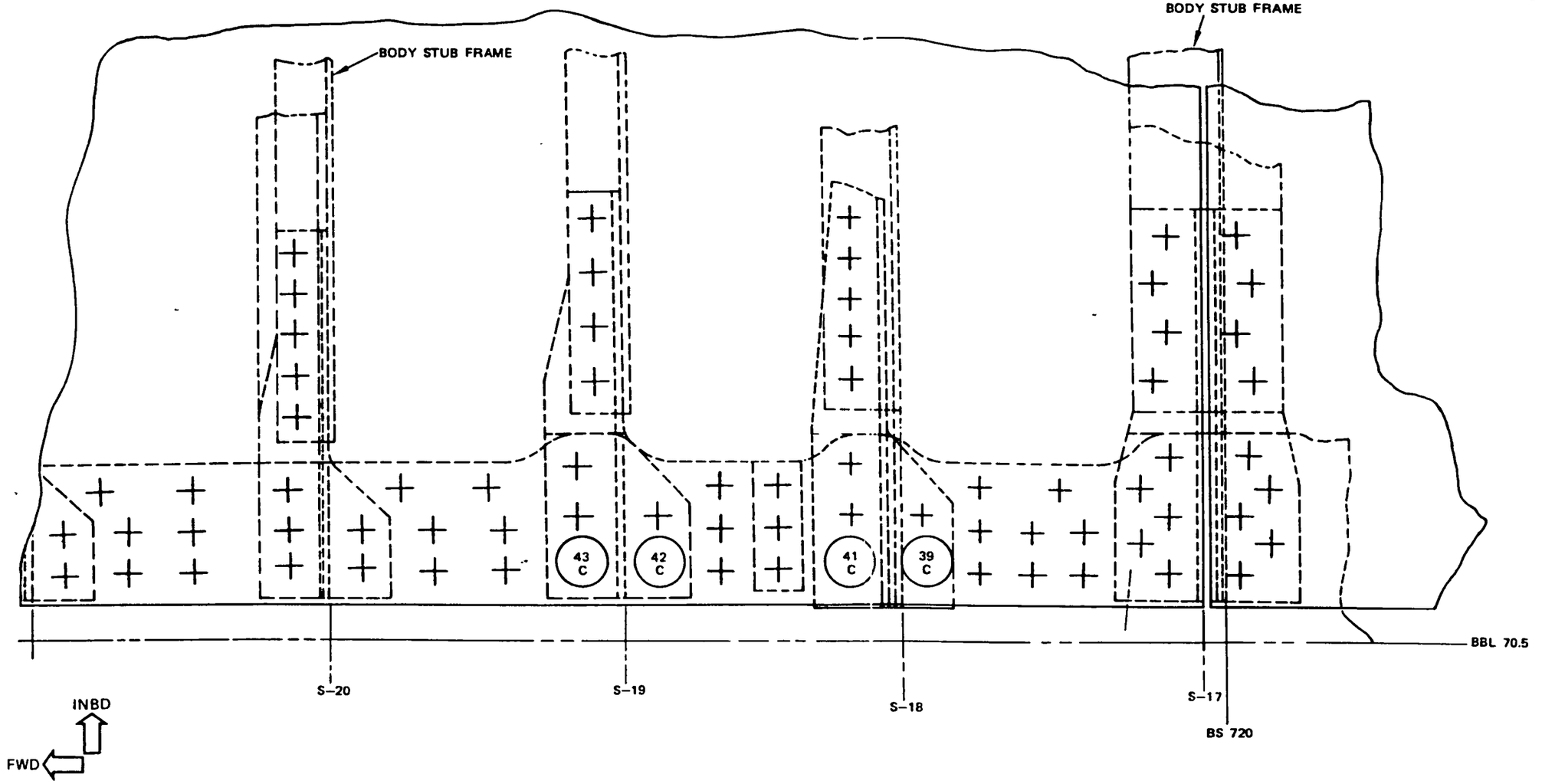


DETAIL VIII (CONT.)

Wing Upper BBL 70.5 Rib Chord
Figure 17 (Sheet 20)

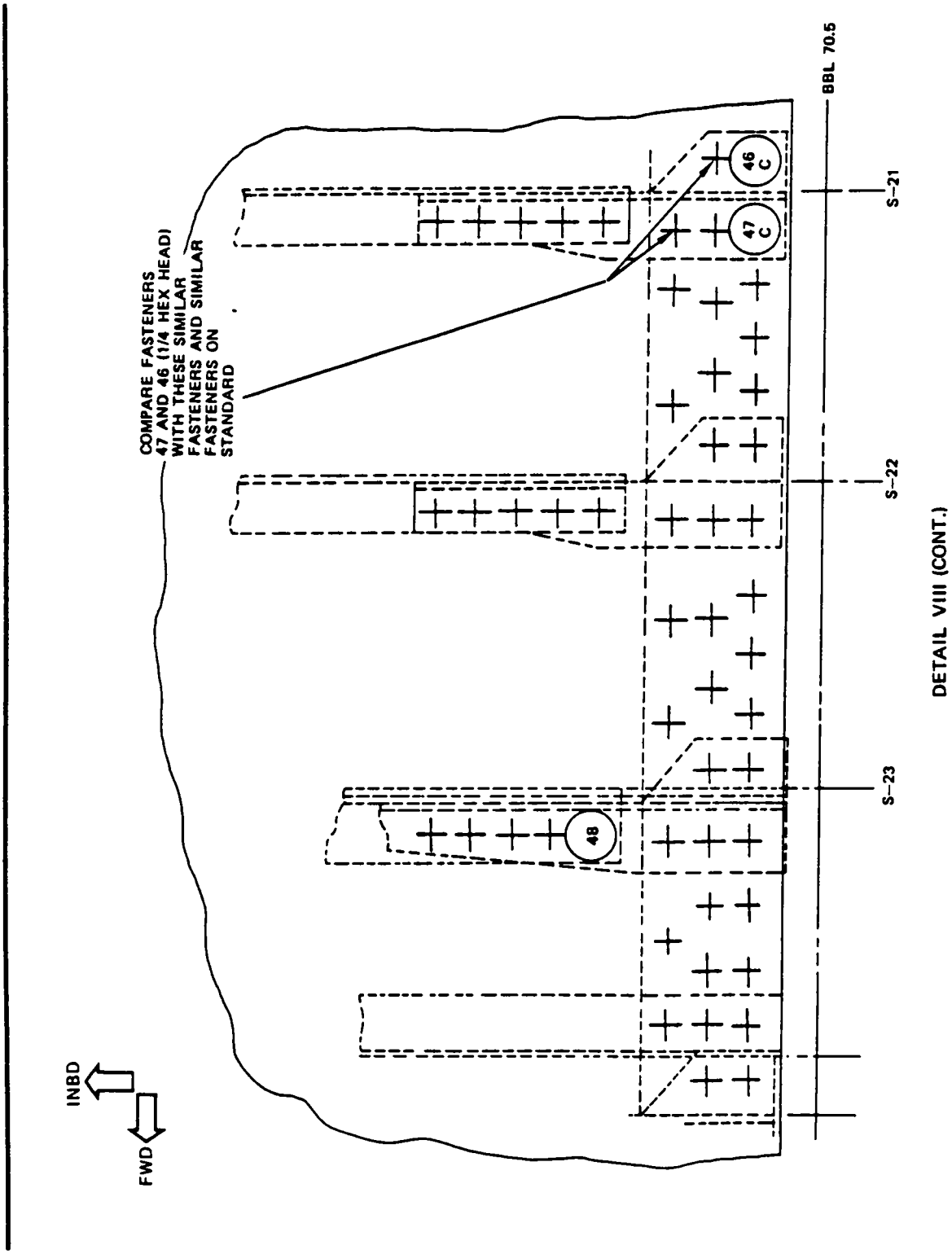
CONTINUED ON NEXT PAGE

CONTINUED ON PRECEDING PAGE



DETAIL VIII (CONT.)

Wing Upper BBL 70.5 Rib Chord
Figure 17 (Sheet 21)



Wing Upper BBL 70.5 Rib Chord
Figure 17 (Sheet 22)

EFFECTIVITY
MODEL: 707-300/400 SSI DOCUMENT (D6-44860) REFERENCE: SSD 57-A20-04 SSD 57-A30-04 SSD 57-A40-04

PART 6 - EDDY CURRENT

WINGS

1. Purpose

   A. To detect cracks out of fastener holes in the upper rib chord flange, at the upper surface BBL 70.5 splice, which intersect fastener holes in the upper rib chord flange. This inspection is accomplished from outside of the wing without fastener removal.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec, Inc.
      1320 N.W. Mall
      Issaquah, WA 98027

   B. Probes - This procedure uses three probes; any probe of similar size which will satisfy the performance requirements of this procedure is acceptable. The following probes were used in the development of this procedure.

      (1) Ring (encircling) probe with internal and external shielding, 1.4-inch maximum OD and 0.75-inch minimum ID, usable at 100 Hz, Nortec P/N SPO-1238.

      (2) Ring (encircling) probe with internal and external shielding, with 1.1-inch maximum OD, 0.625-inch minimum ID, 0.3-inch maximum case height and side mounted connector, usable at 100 Hz, Nortec P/N SPO-1240.

      NOTE: The Nortec probe uses separate reference and probe coils.

      (3) Low frequency spot probe with OD shielding and 0.625-inch maximum OD case with 1-inch case height and side mounted connector usable at 500 Hz, Nortec SPO-1125.

BBL 70.5 Rib - Upper Chord
Figure 18 (Sheet 1)

(4) Probes may be purchased from the following source:

(a) Nortec, Inc.
3001 George Washington Way
Richland, Washington 99352

NOTE: Specify instrument with which probe is to be used or instrument connector required when ordering probes.

C. Reference Standards

(1) Manufacture per Detail I.

3. Preparation for Inspection

A. Access to upper wing surface outboard of BBL 70.5 requires removal of right and left side upper wing to body fairing panels.

B. Access to upper center section at BBL 70.5 requires removal of cabin floor panels at right and left side of body.

C. Wipe skin surface clean.

D. Remove excess sealant along inboard skin edge as required to place probe flat.

4. Instrument Calibration

A. General

(1) This inspection is for fastener hole cracks using a ring probe centered on the fastener.

(2) An alternate inspection is identified for cases when fastener spacing or adjacent structure does not permit use of the ring probe.

(3) Details IV and V identify inspection coverage for a particular calibration and Table I provides specific calibration information for that inspection.

B. Calibration for fastener hole crack inspection using the ring probe centered on the fastener. The following calibration applies to inspection codes A thru C.

NOTE: The reference coil to be used with P/N SPO-1240 is active. To avoid altering the calibration during inspection, the probe should be kept away from conductive materials.

(1) Identify code for fasteners to be inspected from Details IV and V.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

(3) Visually center probe over the unnotched reference standard hole, Position 1.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006-inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(6) Recenter probe over the unnotched hole and adjust meter response to read 20% of fullscale with meter position control.

(7) Center probe over the notched reference standard hole, Position 2. Response should be upscale.

(8) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(9) Recheck null and liftoff. If readjustments are made, recheck sensitivity per par. B.(8).

(10) Cracks will be indicated by a higher meter response.

C. Calibration for fastener crack inspection using a spot probe placed adjacent to the fastener head.

NOTE: This calibration is for the alternate inspection procedure to be used only when the ring probe will not fit over fastener to be inspected.

BBL 70.5 Rib - Upper Chord
Figure 18 (Sheet 3)

(1) Refer to Table I for alternate inspection calibration details.

NOTE: Use the same standard and calibration position that was specified for calibration of the ring probe for the fastener to be inspected.

(2) Place probe adjacent to the unnotched reference standard hole, Position 1.

(3) Balance instrument per manufacturer's instructions.

(4) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006-inch (approximately the thickness of two sheets of paper).

NOTE: Probe is located at Position 1 during liftoff calibration.

(5) With the probe adjacent to the unnotched hole Position 1, adjust meter response to read 20% of full scale with meter position control.

(6) Position probe adjacent to the notched reference standard hole, Position 2. Response should be upscale.

(7) Adjust instrument sensitivity to obtain a 50% of fullscale meter response difference between the notched and unnotched holes, Position 1 and 2.

(8) Reposition probe at Position 1 and check null and liftoff. If readjustments are made, recheck sensitivity per par. B.(7).

(9) Cracks will be indicated by a higher meter response.

5. Inspection Procedure

NOTE: An inspection code is used to identify locations having similar inspection conditions. A single instrument calibration is usually used to inspect these locations.

It is suggested that a copy of Details IV and V be made and that it be used to record instrument responses at each fastener location. This is helpful in maintaining continuity between the groups of fasteners during inspection.

A. Inspection of fastener holes for cracks using the ring probe centered on the fastener. Inspection codes A thru C.

(1) Identify code for fasteners to be inspected from Details IV and V.

(2) Calibrate instrument per par. 4.B. and Table I.

(3) Note on the airplane the location of those fasteners having the same inspection code by using Details IV and V.

(4) Use several fasteners of the same code to establish the airplane baseline response for an acceptable fastener.

(a) Select a representative fastener from this group and set its response to 20% of full meter scale.

NOTE: Do not change instrument sensitivity when establishing the airplane baseline response.

(b) Refer back to this fastener periodically to ensure that the instrument response is the same as originally recorded.

NOTE: Changes in meter response may occur as a result of instrument drift or probe temperature change.

(5) Inspect each fastener having the same inspection code by centering the probe on the fastener and manipulating to obtain a minimum response.

NOTE: Review the notes called out in Table I for conditions which affect the inspection.

Adjacent structure or tighter fastener spacing may prevent the use of the ring probe. If spacing fore and aft of the fastener is adequate, use the low frequency spot probe specified in par. 2.B.(3).

(6) The following are potential crack indications and further investigation is required.

(a) Fastener locations which give a response which is 40% of full meter scale higher than the established baseline.

NOTE: The following conditions may cause meter reading changes similar to crack indications:

1) A decrease in fastener spacing - compare with similarly spaced fasteners on the airplane.

2) A different type of fastener - compare with similar fasteners on the airplane or on the standard.

BBL 70.5 Rib - Upper Chord
Figure 18 (Sheet 5)

3) A larger or smaller fastener - compare with similar fasteners on reference standard and on airplane.

4) A fastener without a washer or with a different number of washers under it - compare with similar fasteners on the airplane or on the standard.

5) A fastener close to edge of skin - compare with similar fasteners on airplane.

B. Inspection of fastener holes for cracks using a spot probe adjacent to the fastener.

NOTE: This inspection is only to be used for fasteners which could not be inspected using a ring probe.

(1) Calibrate the instrument per par. 4.C. and Table I.

(2) Establish a baseline response per par. 5.A.(4).

(3) Inspect each fastener by placing the probe adjacent to the fastener head and scanning about the head.

NOTE: Adjacent structure will prevent a complete scan around the fastener head. Inspect fore and aft of the fastener to the extent possible.

When scanning about a fastener head maintain a uniform distance between the probe and fastener head.

(4) Any location which gives a response which is 30% of full meter scale higher than the baseline response should be investigated further.

INSPECTION CODE 1	REFERENCE STANDARD NO.	PROBE IDENTIFICATION 2	INSTRUMENT FREQUENCY HZ	DETAIL NO. FOR CALIBRATION	PROBE CALIBRATION POSITION 3	SPECIAL NOTES
A	019	(1)	100	II	A	
B	019	(2)	100	II	B	4
C	019	(2)	100	II	C	5
Alternate Calibration	019	(3)	500	III	F	

CALIBRATION TABLE
TABLE I

BBL 70.5 Rib - Upper Chord
Figure 18 (Sheet 6)

NOTES

- To establish a baseline, compare stringer end fasteners with similar adjacent fasteners further from BBL 70.5. See typical example, Detail IV.

- Compare similar size and type fasteners. Example: Compare 5/16-inch hex head fasteners with 5/16-inch pan heads. The established baseline for hex head fasteners should be approximately 40% of full meter scale higher than for pan head fasteners. Compare hex and pan heads on standard to verify baseline difference.

[F] Calibrate using the same reference standard and fasteners specified under codes A, B and C for the area to be inspected using the spot probe. Probe position shown in Detail III.

[1] Code for specific areas identified on Detail IV to which the calibration requirements apply.

[2] Probe Identification:

(1) P/N SPO-1238 - 1.0-inch OD and 0.75-inch ID ring probe.

(2) P/N SPO-1240 - 1.1-inch OD and 0.62-inch ID ring probe, used with a separate reference coil.

(3) P/N SPO-1125 - 0.55-inch OD spot probe.

[3] Flagnote refers to Probe Position for Calibration details (Details II and III as indicated in this table) and identifies that part of the reference standard used for this calibration.

[4] At stringer S-19 and S-20, there is a steel splice plate under the rib chord. A separate baseline must be established for these stringers.

a) Outboard of BBL 70.5, compare fasteners 308 with 288. Compare 318 and 289 with similar adjacent fasteners further from BBL 70.5 at the same stringer locations (Detail IV).

b) Inboard of BBL 70.5, compare fasteners 39, 40 and 41 with similar fasteners at the same stringer locations, further from BBL 70.5 (Detail V).

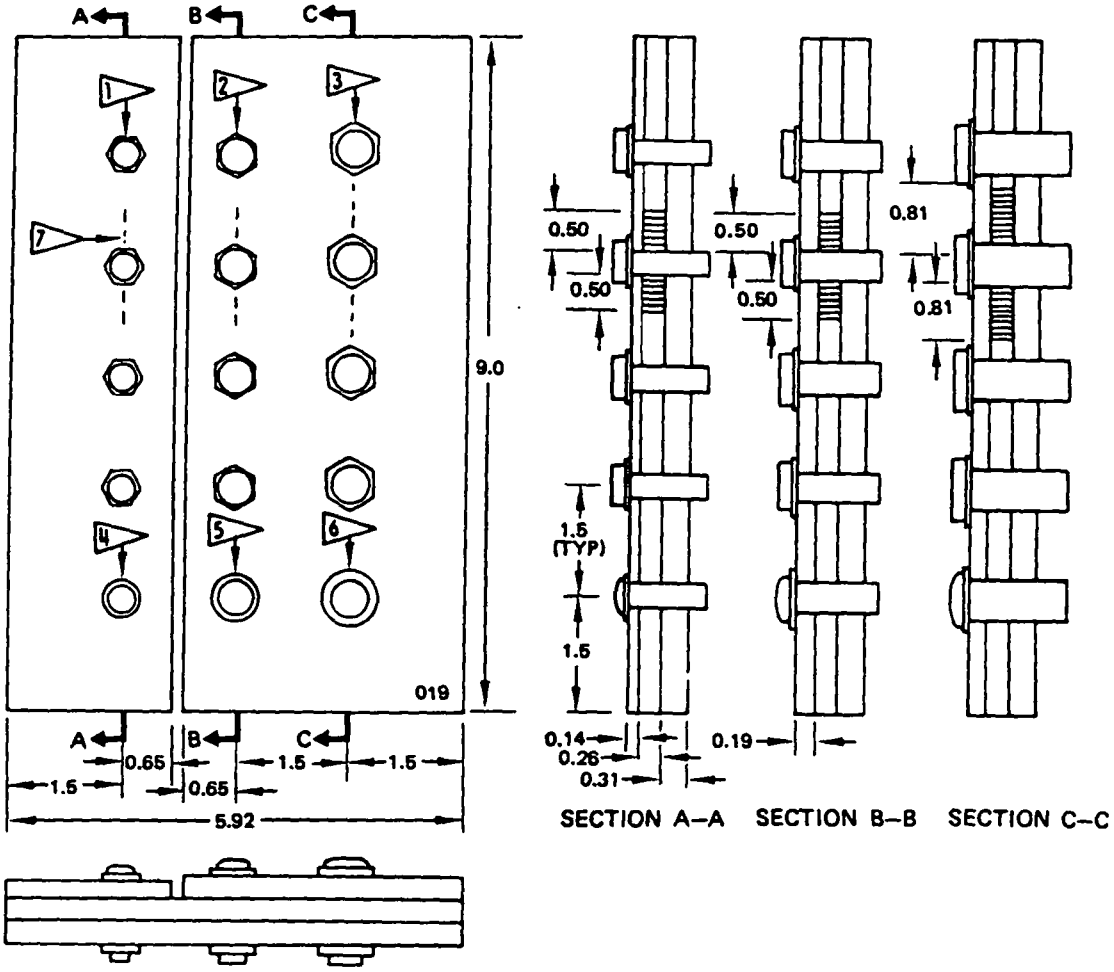
[5] a) Compare fasteners 161, 184 and 185, 1/4-inch pan head fasteners with similar adjacent fasteners further from BBL 70.5 at the same stringer location (Detail IV).

BBL 70.5 Rib - Upper Chord
Figure 18 (Sheet 7)

b) Compare fastener 160, 1/4-inch hex head fastener at S-12 with similar fastener 401 at S-25, and with similar fasteners on the standard (Detail IV).

NOTE: If fastener 160 has been oversized and replaced by a pan head fastener, compare with fastener 161 and similar fasteners further from BBL 70.5 on the aft side of S-12 centerline.

c) Inboard at S-25, compare fastener 55, 1/4-inch pan head, with similar fasteners further from BBL 70.5 (Detail V). Compare fasteners 57 and 58, 3/16-inch lockbolt fasteners with similar fasteners closer to BBL 70.5 at the same stringer location (Detail V).



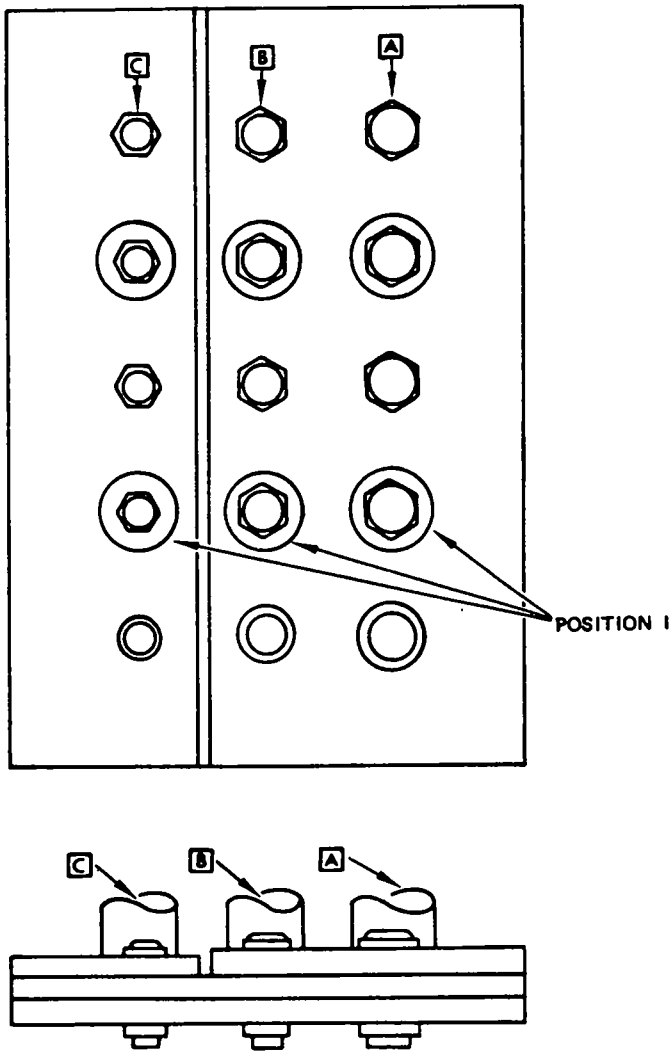
NOTES

- TOLERANCE: X.X ± 0.05
  X.XX ± 0.020
- ETCH OR STEEL STAMP WITH 019
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 7075–T6 ALUMINUM
- P/N 6412–35
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

1. BACB30NE4–11 FASTENER, BACN10JC4 NUT (4 PLACES)
2. BACB30NE5–12 FASTENER, BACN10JC5 NUT (4 PLACES)
3. BACB30NE6–12 FASTENER, BACN10JC6 NUT (4 PLACES)
4. BACB30GW8D11 FASTENER, BACC30K8 COLLAR (1 PLACE)
5. BACB30GW10D12 FASTENER, BACC30K10 COLLAR (1 PLACE)
6. BACB30GW12D12 FASTENER, BACC30K12 COLLAR (1 PLACE)
7. JEWELER'S SAWCUT 0.030 MAX WIDTH (6 PLACES)

REFERENCE STANDARD 019
DETAIL I

BBL 70.5 Rib - Upper Chord
Figure 18 (Sheet 9)



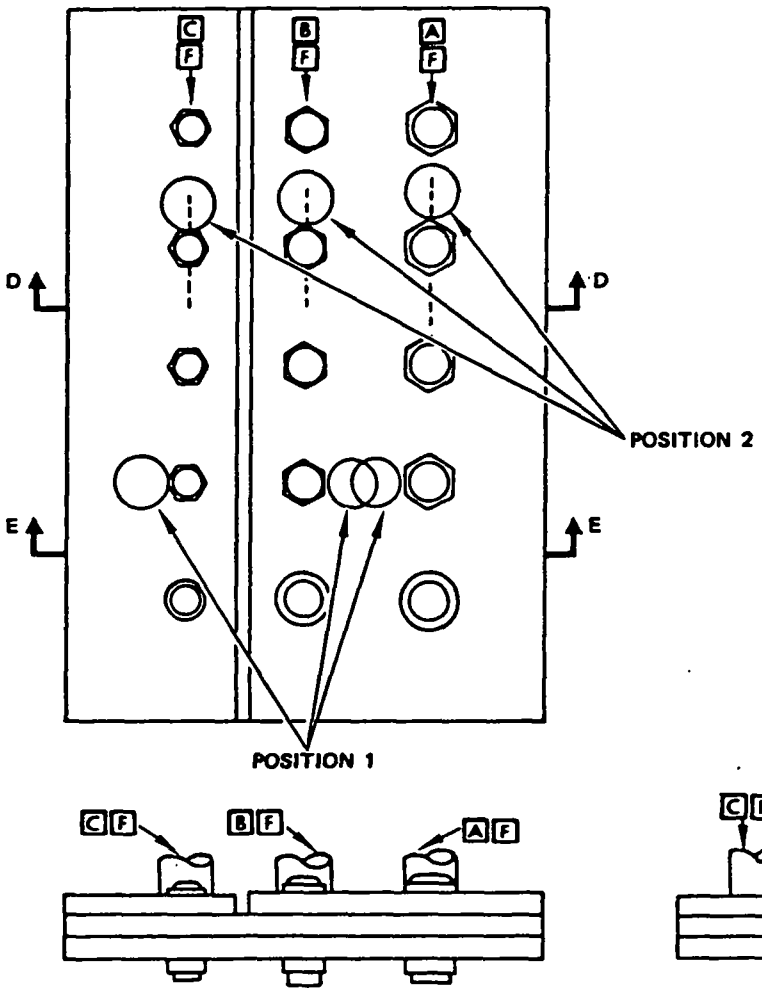
NOTES

[A][B][C] PROBE CALIBRATION POSITION ROWS (REF TABLE I)

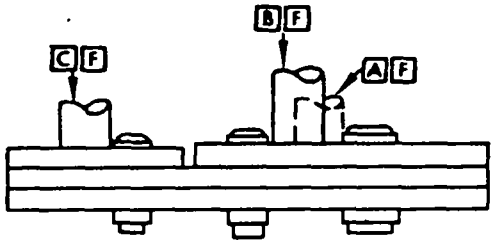
PROBE POSITIONS FOR CALIBRATION ON REFERENCE STANDARD 019

DETAIL II

BBL 70.5 Rib - Upper Chord
Figure 18 (Sheet 10)



SECTION D–D



SECTION E–E

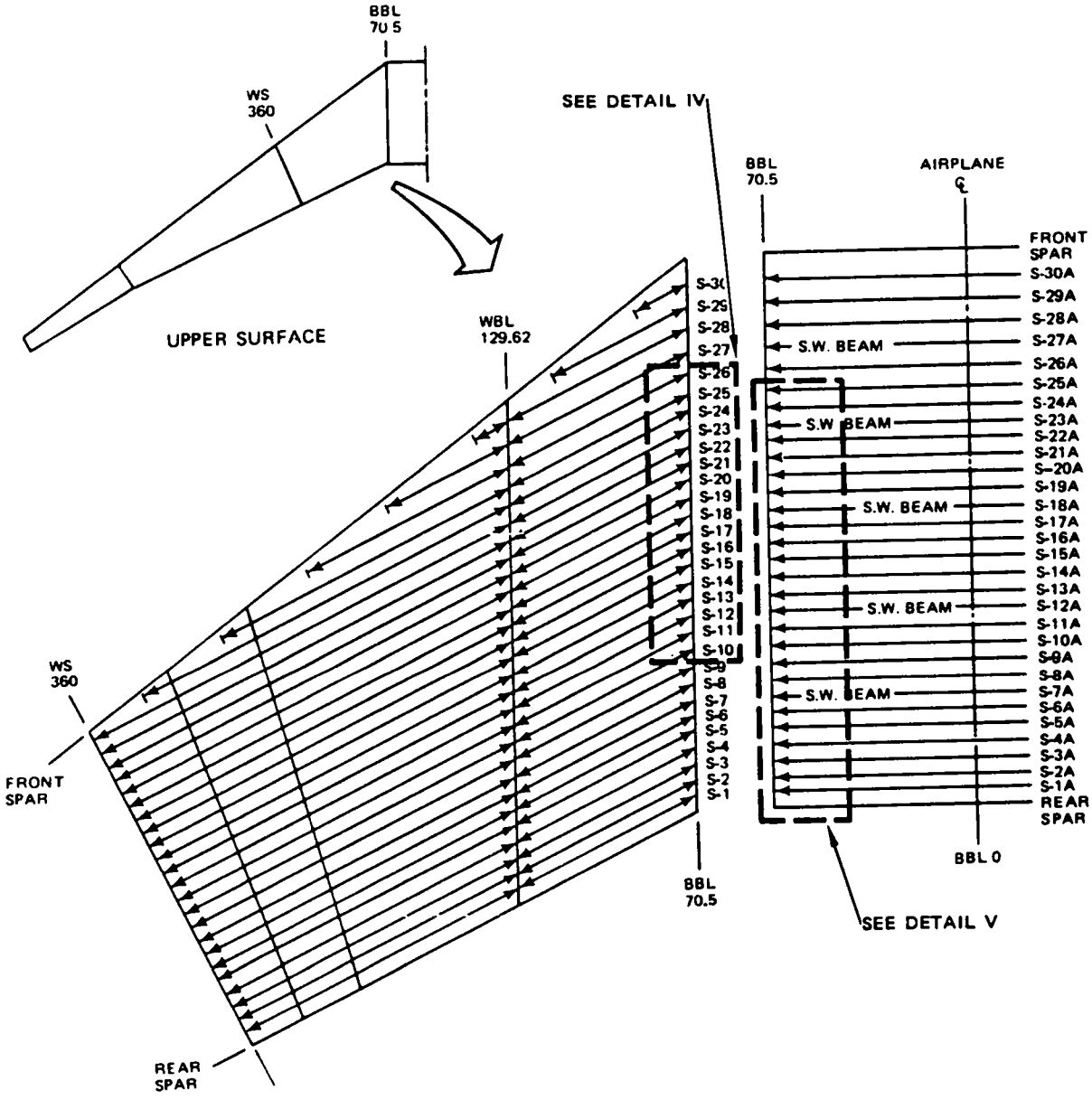
NOTES

A B C PROBE CALIBRATION POSITION ROWS (REF TABLE I)

F USE SAME CALIBRATION POSITION ROWS ASSOCIATED WITH INSPECTION CODES A, B, AND C (REF TABLE I) FOR THE AREAS TO BE INSPECTED USING SPOT PROBE

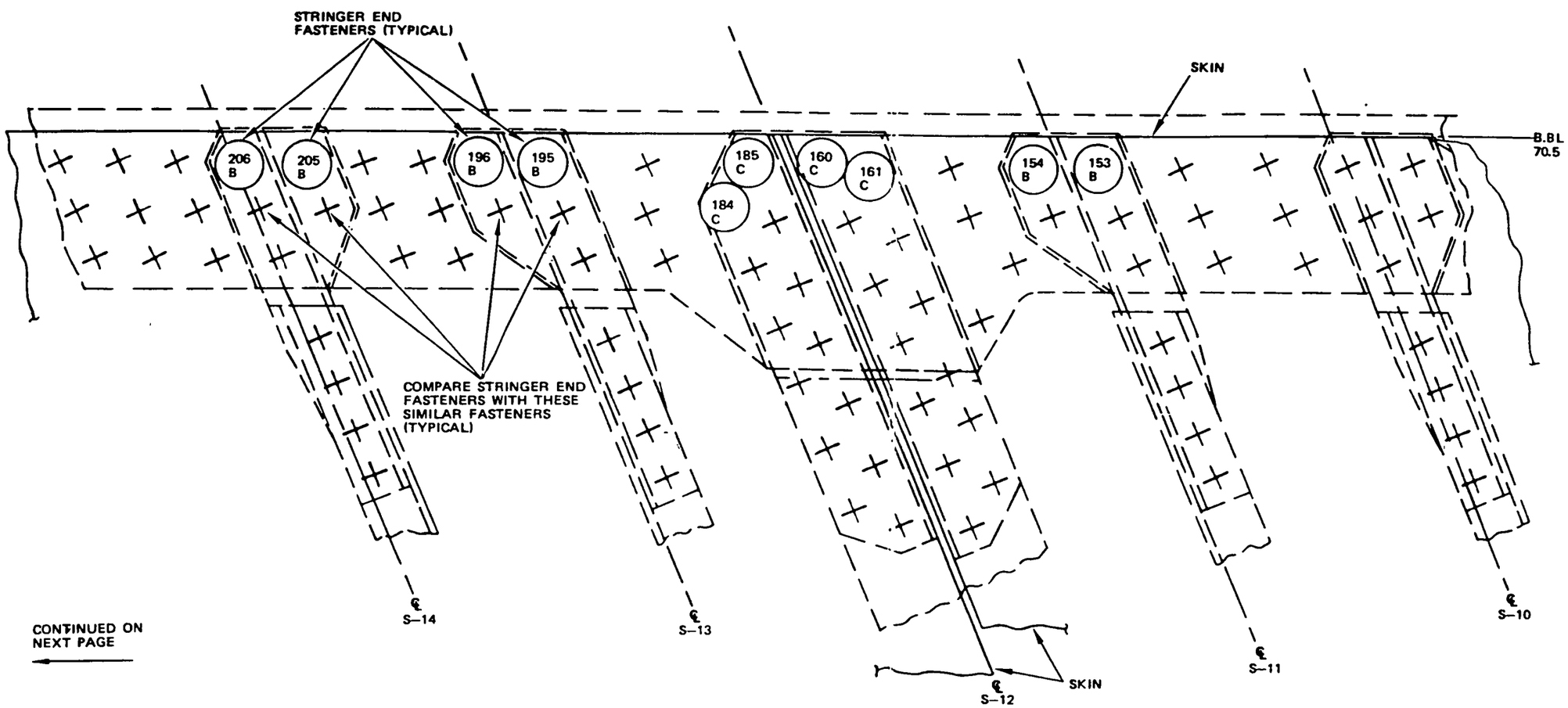
ALTERNATE PROBE POSITIONS FOR CALIBRATION ON REFERENCE STANDARD 019
DETAIL III

BBL 70.5 Rib - Upper Chord
Figure 18 (Sheet 11)



UPPER WING STIFFENERS BBL 0 TO WS 360

BBL 70.5 Rib - Upper Chord
Figure 18 (Sheet 12)



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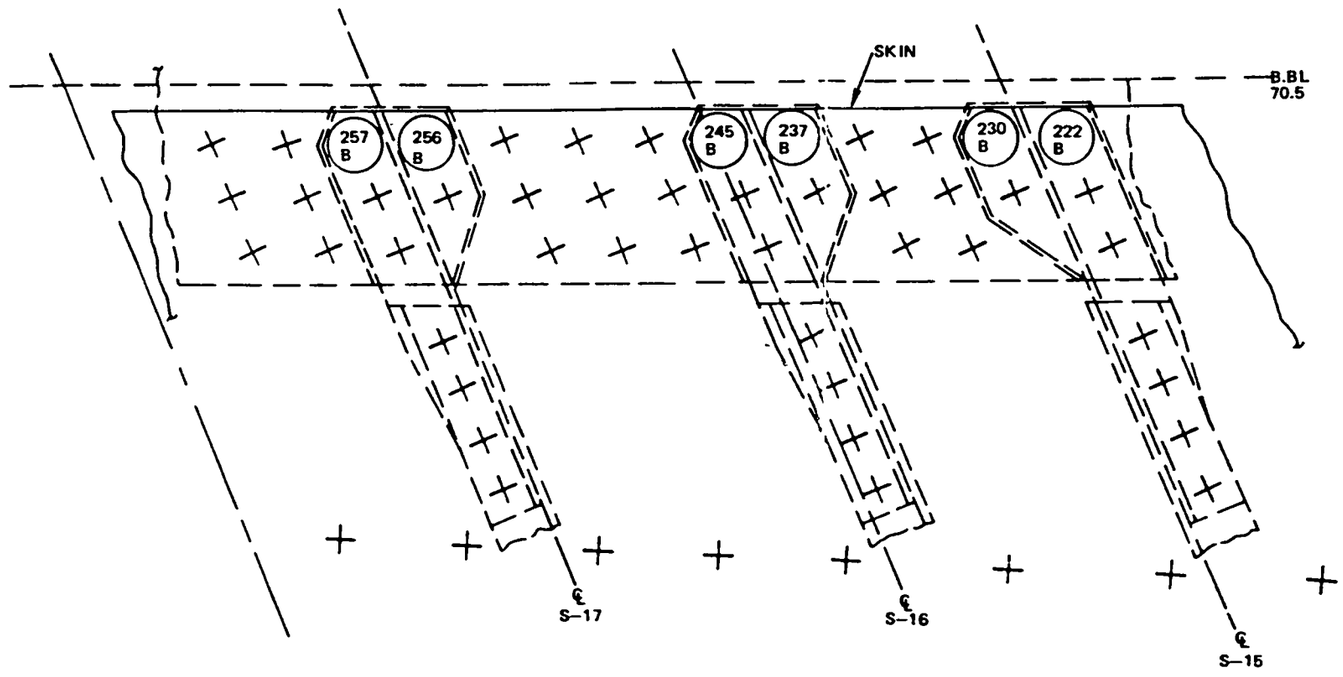
NOTES
- INSPECTION AREA
- 205 B — FASTENER NUMBER
- INSPECTION CODE

RIB CHORD UPPER HORIZONTAL FLANGE TO STRINGER SPLICE EXTERNAL INSPECTION OUTBOARD OF B.BL 70.5

DETAIL IV

INBD
FWD

BBL 70.5 Rib - Upper Chord
Figure 18 (Sheet 13)



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DETAIL IV (CONT.)

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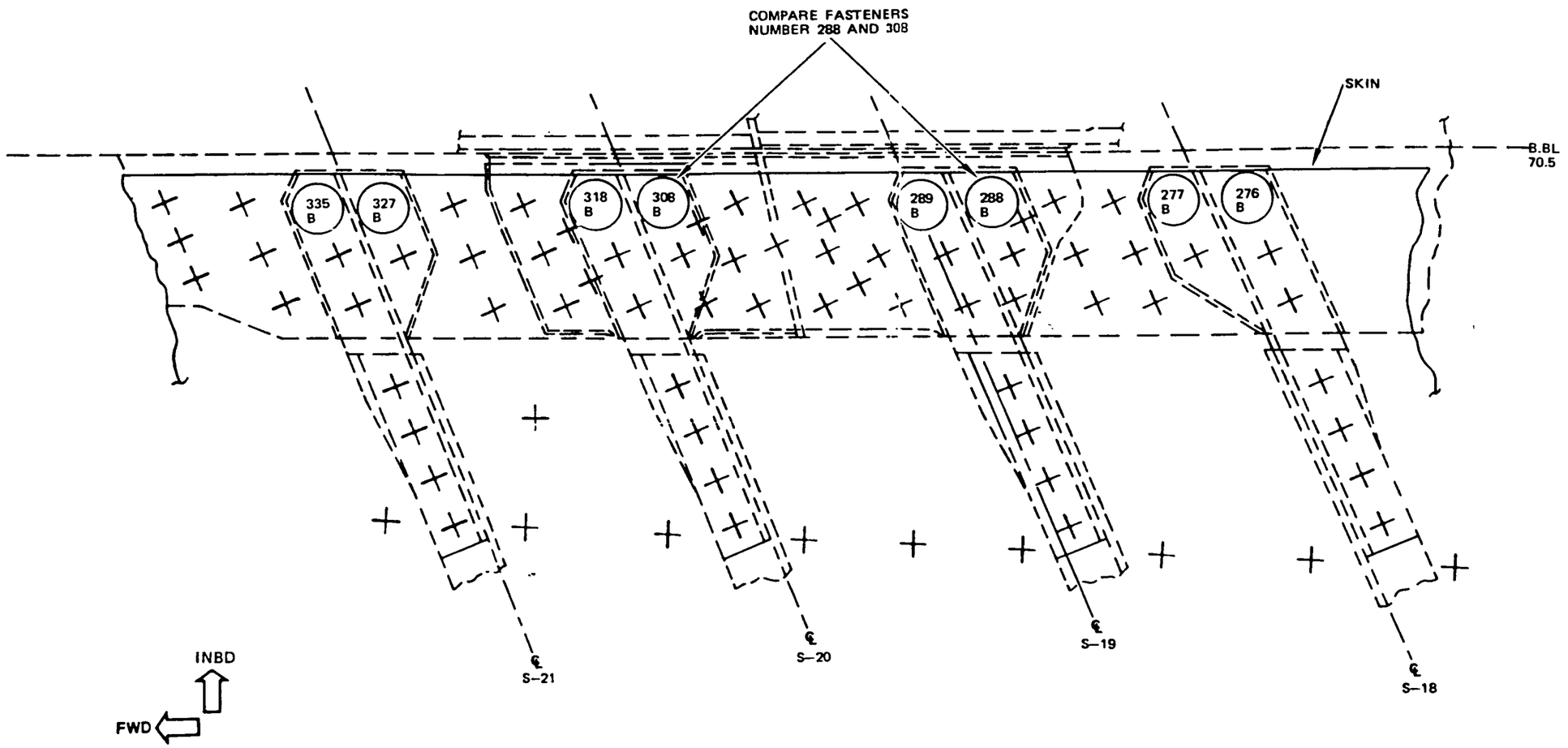
BBL 70.5 Rib - Upper Chord
Figure 18 (Sheet 14)



DETAIL IV (CONT)

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NEXT PAGE

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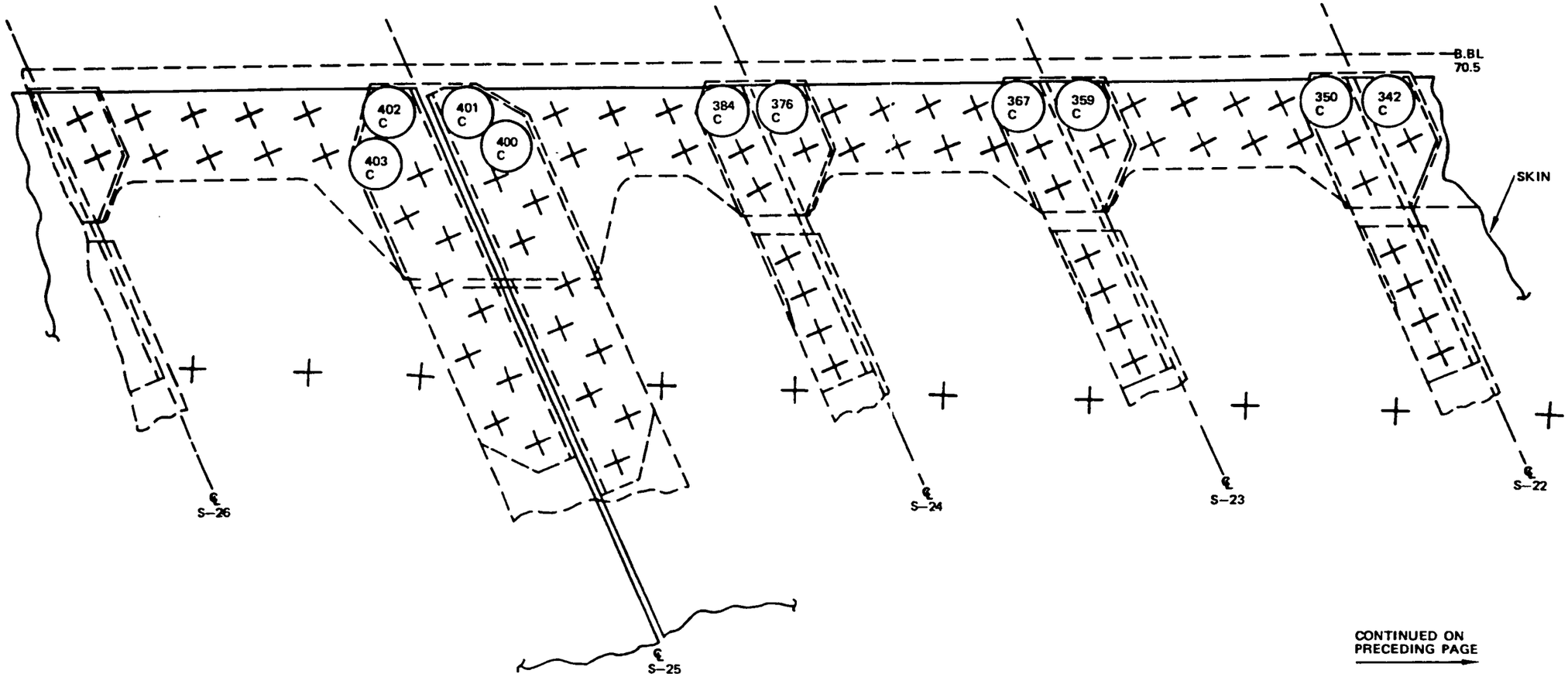
PRECEDING PAGE

BBL 70.5 Rib - Upper Chord
Figure 18 (Sheet 15)



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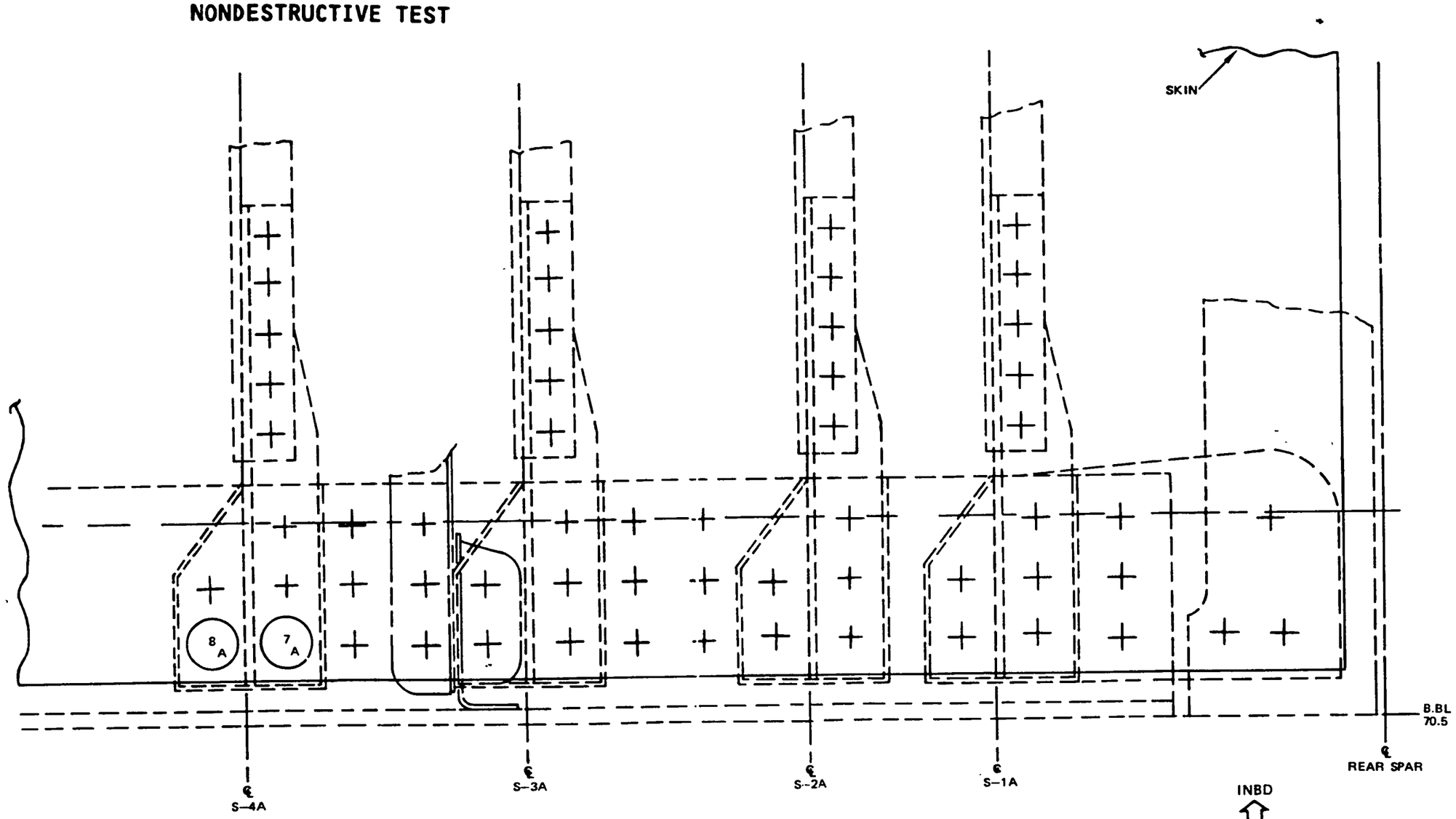
DETAIL IV (CONT)

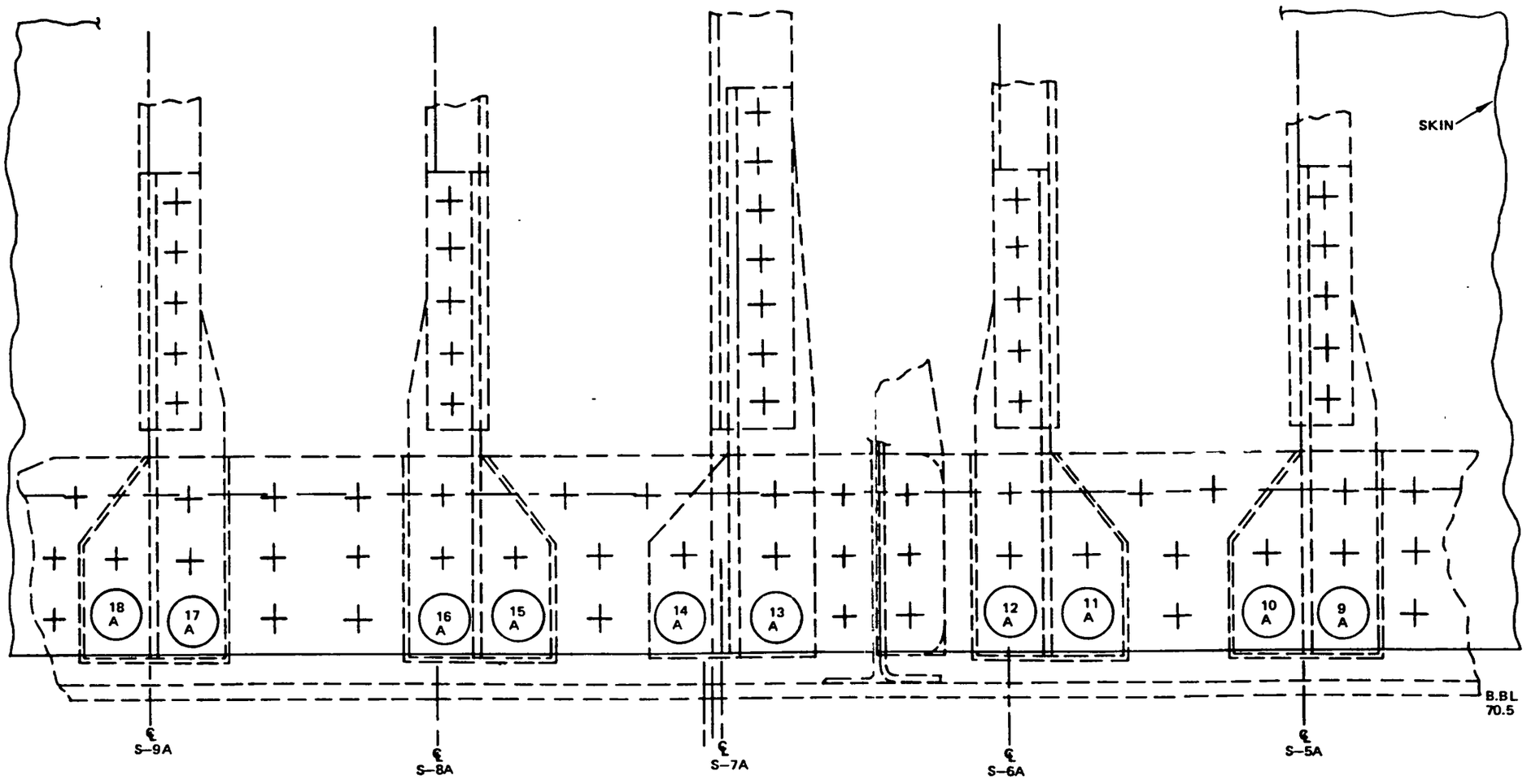
BBL 70.5 Rib - Upper Chord
Figure 18 (Sheet 16)



RIB CHORD UPPER HORIZONTAL FLANGE TO STRINGER SPLICE EXTERNAL INSPECTION INBOARD OF BBL 70.5

DETAIL V

BBL 70.5 Rib - Upper Chord
Figure 18 (Sheet 17)



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DETAIL V (CONT.)

INBD
FWD

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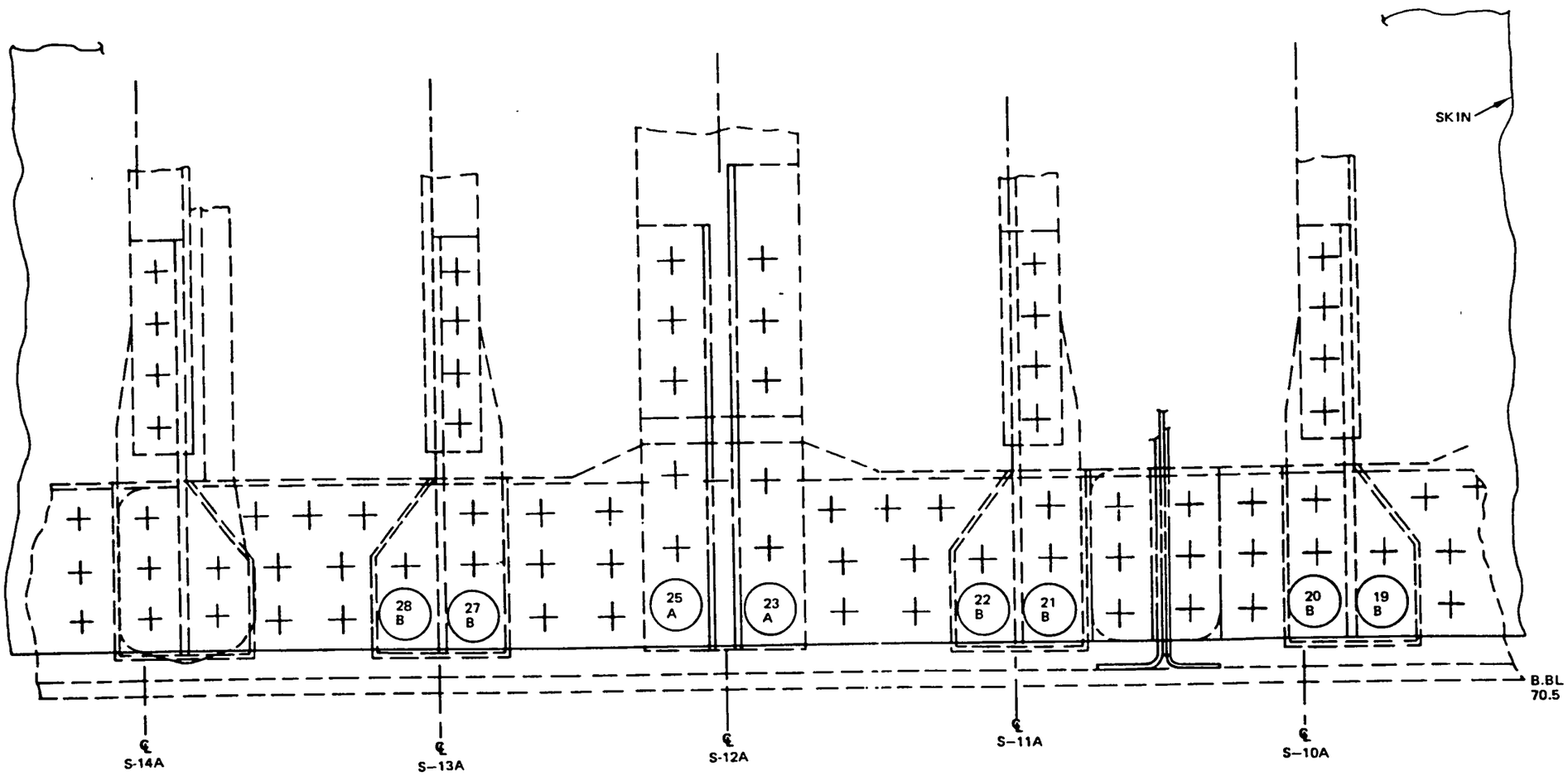
BBL 70.5 Rib - Upper Chord
Figure 18 (Sheet 18)



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DETAIL V (CONT.)

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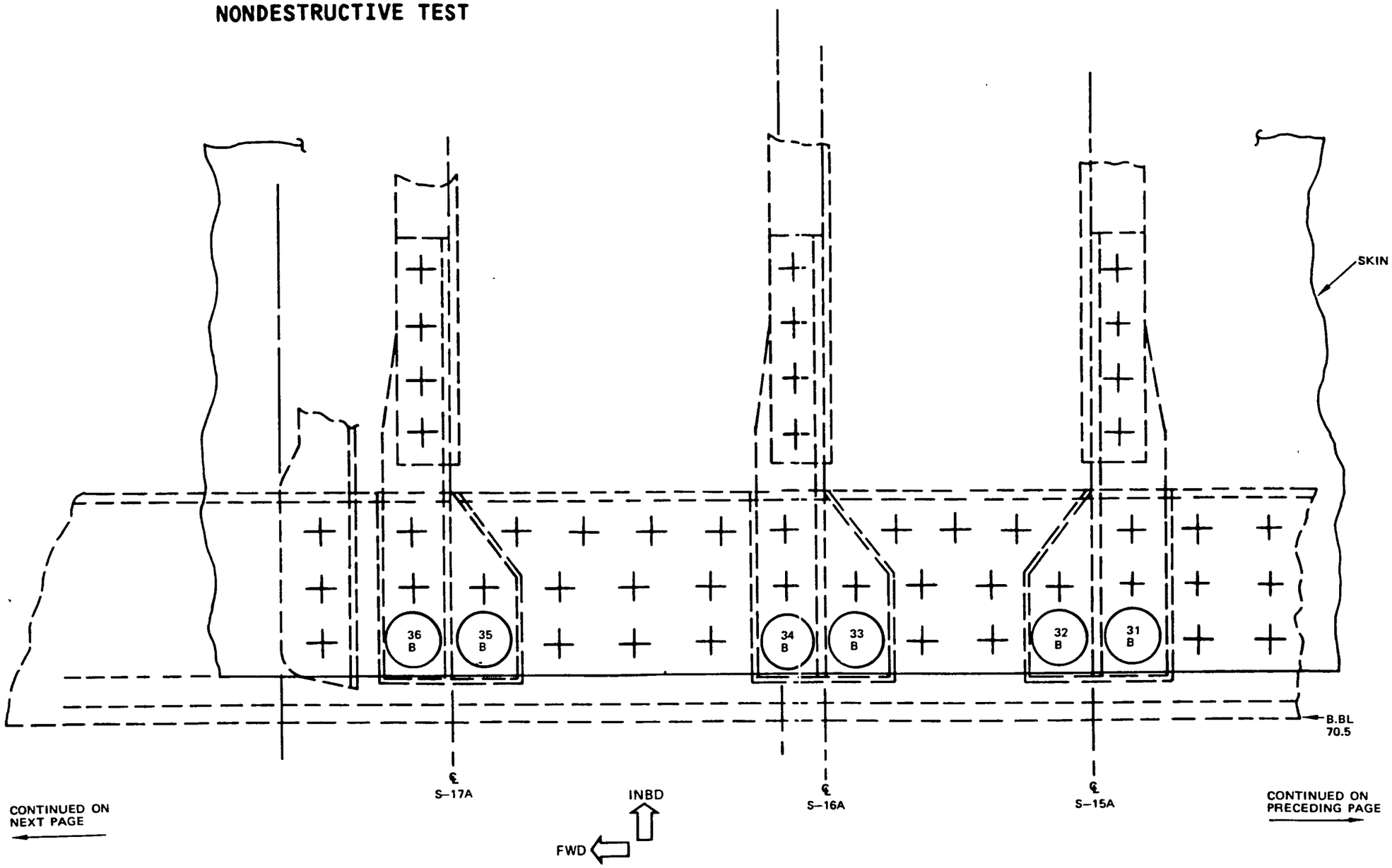
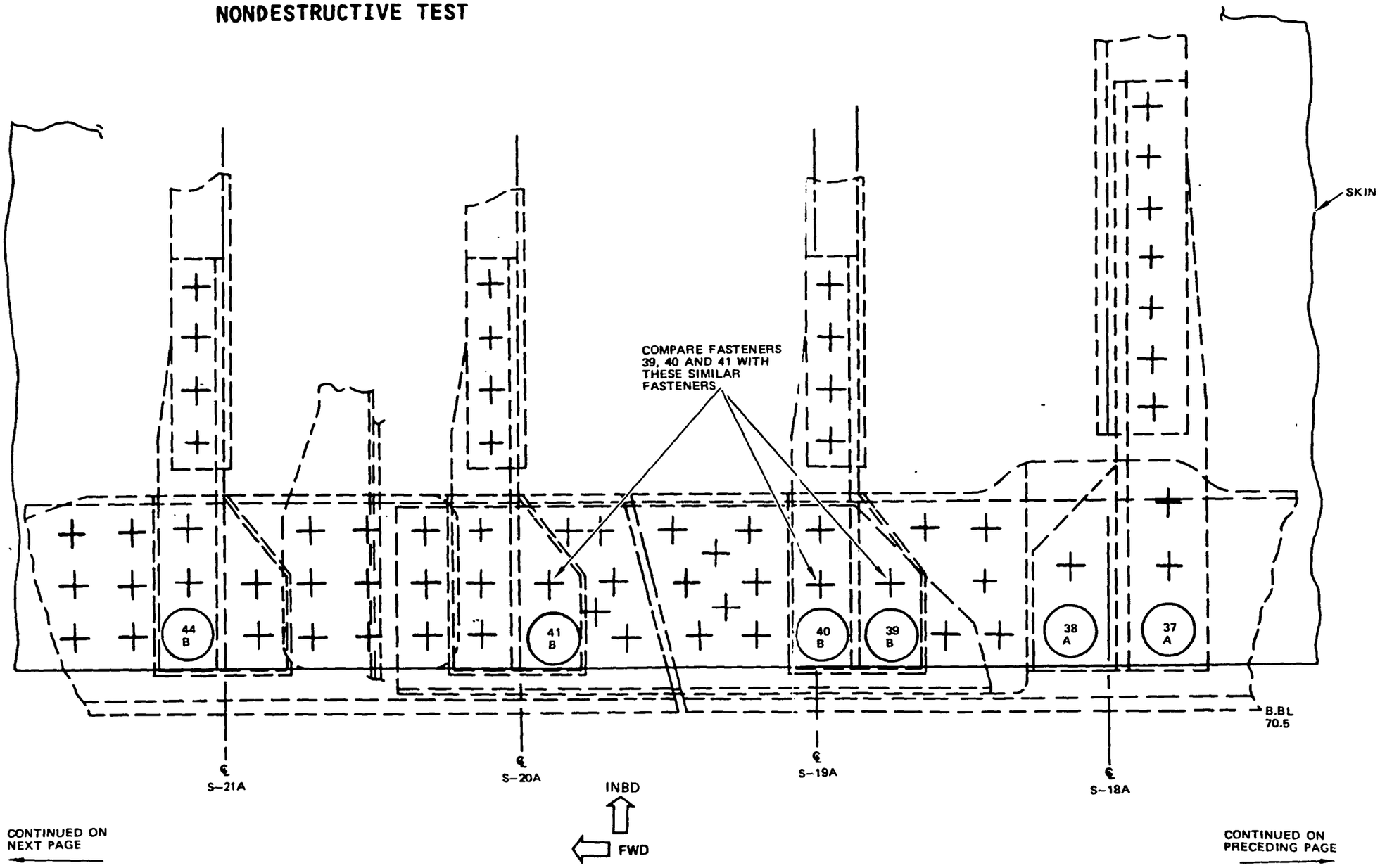
BBL 70.5 Rib - Upper Chord
Figure 18 (Sheet 19)



DETAIL V (CONT)

BBL 70.5 - Upper Chord
Figure 18 (Sheet 20)



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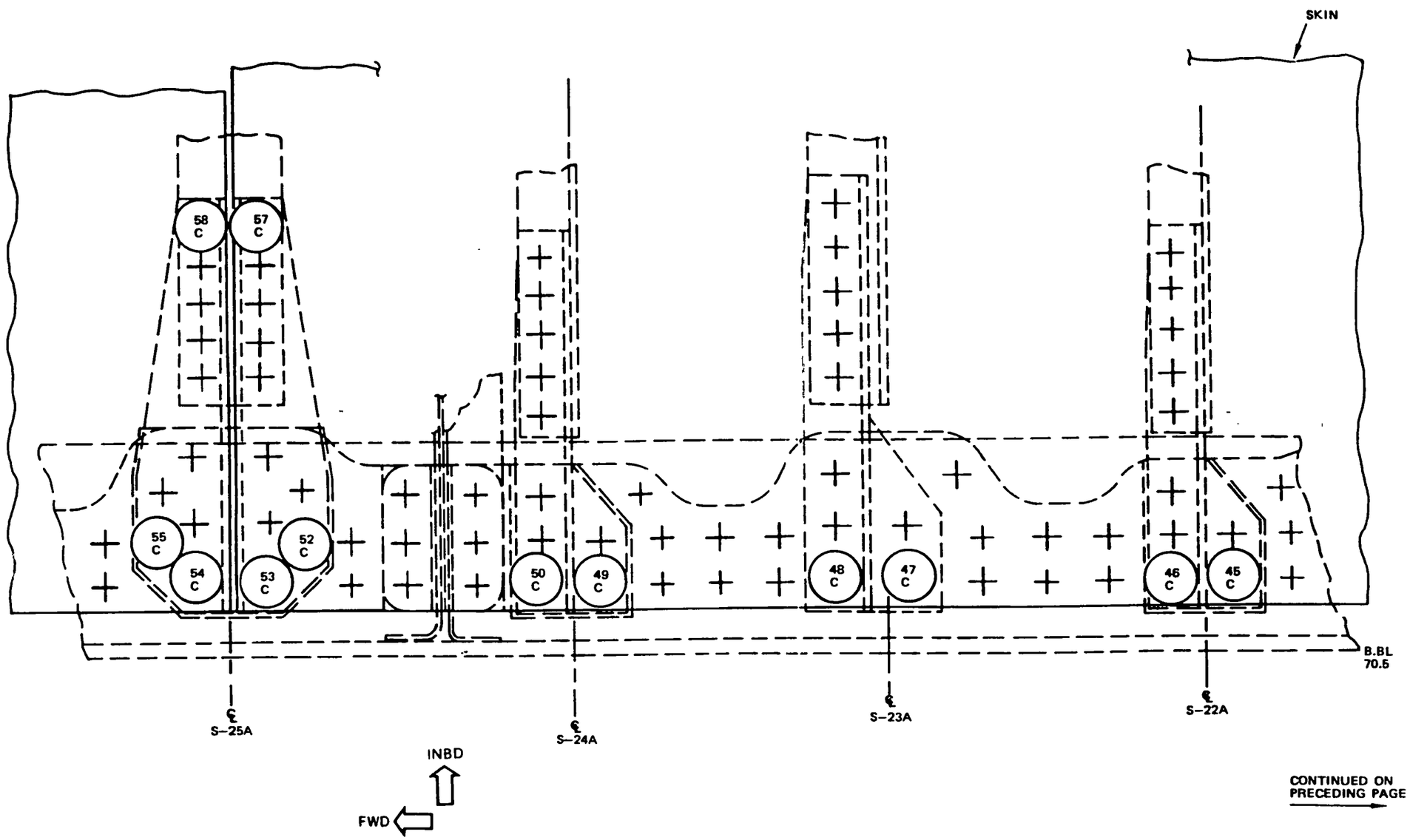
DETAIL V (CONT)

BBL 70.5 Rib - Upper Chord
Figure 18 (Sheet 21)



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DETAIL V (CONT)

BBL 70.5 Rib Upper Chord
Figure 18 (Sheet 22)

PART 6 - EDDY CURRENT

WINGS

1. Purpose

   A. To detect cracks out of fastener holes in the upper rib chord flange, at the upper surface BBL 70.5 splice. This inspection is accomplished from outside of the wing without fastener removal.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec, Inc.
      1320 N.W. Mall
      Issaquah, WA 98027

   B. Probes - This procedure uses three probes; any probe of similar size which will satisfy the performance requirements of this procedure is acceptable. The following probes were used in the development of this procedure.

      (1) Ring (encircling) probe with internal and external shielding, 1.4-inch maximum OD and 0.75-inch minimum ID, usable at 100 Hz, Nortec P/N SPO-1238.

      (2) Ring (encircling) probe with internal and external shielding, with 1.1-inch maximum OD, 0.625 minimum ID, 0.3-inch maximum case height and side mounted connector, usable at 100 Hz, Nortec P/N SPO-1240.

      NOTE: The Nortec probe uses separate reference and probe coils.

      (3) Low frequency spot probe with OD shielding and 0.625-inch maximum OD case with 1-inch case height and side mounted connector usable at 500 Hz, Nortec SPO-1125.

BBL 70.5 Rib - Upper Chord
Figure 19 (Sheet 1)

(4) Probes may be purchased from the following source:

(a) Nortec, Inc.
421 N. Quay
Kennewick, Washington 99336

NOTE: Specify instrument with which probe is to be used or instrument connector required when ordering probes.

C. Reference Standards

(1) Manufacture per Detail I for cum line numbers 581, 597, 651 and 624 and per Detail IV for all other 720 models.

3. Preparation for Inspection

A. Access to upper wing surface outboard of BBL 70.5 requires removal of right and left side upper wing to body fairing panels.

B. Access to upper center section at BBL 70.5 requires removal of cabin floor panels at right and left side of body.

C. Wipe skin surface clean.

D. Remove excess sealant along inboard skin edge as required to place probe flat.

4. Instrument Calibration

A. General

(1) This inspection is for fastener hole cracks using a ring probe centered on the fastener.

(2) An alternate inspection is identified for cases when fastener spacing or adjacent structure does not permit use of the ring probe.

(3) The two ring probes identified for this inspection require several instrument calibrations to adjust for variations in structure geometry and materials.

(4) Details VII thru X identify inspection coverage for a particular calibration and Table I provides specific calibration information for that inspection.

B. Calibration for fastener hole crack inspection using the ring probe centered on the fastener. The following calibration applies to inspection codes A thru C.

NOTE: The reference coil to be used with P/N SPO-1240 is active. To avoid altering the calibration during inspection, the probe should be kept away from conductive materials.

(1) Identify code for fasteners to be inspected from Details VII thru X.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

(3) Visually center probe over the unnotched reference standard hole, Position 1.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006-inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(6) Recenter probe over the unnotched hole and adjust meter response to read 20% of fullscale with meter position control.

(7) Center probe over the notched reference standard hole, Position 2. Response should be upscale.

(8) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(9) Recheck null and liftoff. If readjustments are made, recheck sensitivity per par. B.(8).

(10) Cracks will be indicated by a higher meter response.

C. Calibration for fastener crack inspection using a spot probe placed adjacent to the fastener head.

NOTE: This calibration is for the alternate inspection procedure to be used only when the ring probe will not fit over fastener to be inspected.

(1) Refer to Table I for alternate inspection calibration details.

NOTE: Use the same standard and calibration position that was specified for calibration of the ring probe for the fastener to be inspected.

(2) Place probe adjacent to the unnotched reference standard hole, Position 1.

(3) Balance instrument per manufacturer's instructions.

(4) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006-inch (approximately the thickness of two sheets of paper).

NOTE: Probe is located at Position 1 during liftoff calibration.

(5) With the probe adjacent to the unnotched hole Position 1, adjust meter response to read 20% of full scale with meter position control.

(6) Position probe adjacent to the notched reference standard hole, Position 2. Response should be upscale.

(7) Adjust instrument sensitivity to obtain a 50% of fullscale meter response difference between the notched and unnotched holes, Position 1 and 2.

(8) Reposition probe at Position 1 and check null and liftoff. If readjustments are made, recheck sensitivity per par. B.(8).

(9) Cracks will be indicated by a higher meter response.

5. Inspection Procedure

NOTE: An inspection code is used to identify locations having similar inspection conditions. A single instrument calibration is usually used to inspect these locations.

It is suggested that a copy of Details VII thru X be made and that it be used to record instrument responses at each fastener location. This is helpful in maintaining continuity between the groups of fasteners during inspection.

A. Inspection of fastener holes for cracks using the ring probe centered on the fastener. Inspection codes A thru C.

(1) Identify code for fasteners to be inspected from Details VII thru X.

(2) Calibrate instrument per par. 4.B. and Table I.

(3) Note on the airplane the location of those fasteners having the same inspection code by using Details VII thru X.

(4) Use several fasteners of the same code to establish the airplane baseline response for an acceptable fastener.

(a) Select a representative fastener from this group and set its response to 20% of full meter scale.

NOTE: Do not change instrument sensitivity when establishing the airplane baseline response.

(b) Refer back to this fastener periodically to ensure that the instrument response is the same as originally recorded.

NOTE: Changes in meter response may occur as a result of instrument drift or probe temperature change.

(5) Inspect each fastener having the same inspection code by cenering the probe on the fastener and manipulating to obtain a minimum response.

NOTE: Review the notes called out in Table I for conditions which affect the inspection.

Adjacent structure or tighter fastener spacing may prevent the use of the ring probe. If spacing fore and aft of the fastener is adequate, use the low frequency spot probe specified in par. 2.B.(3).

(6) The following are potential crack indications and further investigation is required.

(a) Fastener locations which give a response which is 40% of full meter scale higher than the established baseline.

NOTE: The following conditions may cause meter reading changes similar to crack indications:

1) A decrease in fastener spacing - compare with similarly spaced fasteners on the airplane.

2) A different type of fastener, compare with similar fasteners on the airplane or on the standard.

3) A larger or smaller fastener - compare with similar fasteners on reference standard and on airplane.

BBL 70.5 Rib - Upper Chord
Figure 19 (Sheet 5)

4) A fastener without a washer or with a different number of washers under it - compare with similar fasteners on the airplane or on the standard.

5) A fastener close to edge of skin - compare with similar fasteners on airplane.

B. Inspection of fastener holes for cracks using a spot probe adjacent to the fastener.

NOTE: This inspection is only to be used for fasteners which could not be inspected using a ring probe.

(1) Calibrate the instrument per par. 4.C. and Table I.

(2) Establish a baseline response per par. 5.A.(4).

(3) Inspect each fastener by placing the probe adjacent to the fastener head and scanning about the head.

NOTE: Adjacent structure will prevent a complete scan around the fastener head. Inspect fore and aft of the fastener to the extent possible.

When scanning about a fastener head maintain a uniform distance between the probe and fastener head.

(4) Any location which gives a response which is 30% of full meter scale higher than the baseline response should be investigated further.

INSPECTION CODE [1]	REFERENCE STANDARD NO.	PROBE IDENTIFICATION [2]	INSTRUMENT FREQUENCY HZ	DETAIL NO. FOR CALIBRATION	PROBE CALIBRATION POSITION ROWS [3]	SPECIAL NOTES
B	024	(2)	100	II	[D]	[4]
C	024	(2)	100	II	[E]	
Alternate Calibration	024	(3)	500	III	[F]	

CALIBRATION TABLE FOR CUM LINE NUMBERS
581, 597, 615 AND 624

TABLE I

BBL 70.5 Rib - Upper Chord
Figure 19 (Sheet 6)

INSPECTION CODE (1)	REFERENCE STANDARD NO.	PROBE IDENTIFICATION (2)	INSTRUMENT FREQUENCY HZ	DETAIL NO. FOR CALIBRATION	PROBE CALIBRATION POSITION ROWS (3)	SPECIAL NOTES
A	025	(1)	100	V	[A]	(5a)
B	025	(2)	100	V	[B]	(5b)
C	025	(2)	100	V	[C]	
Alternate Calibration	025	(3)	500	IV	[D]	

CALIBRATION TABLE FOR ALL OTHER 720 MODELS

TABLE I (CONT)

NOTES

- To establish a baseline, compare stringer end fasteners with similar adjacent fasteners further from BBL 70.5. See typical example, Details VII and X.
- Compare similar type fasteners within an inspection code. Example: compare 5/16-inch hex head fasteners with 5/16-inch hex heads, and 5/16-inch pan head fasteners with 5/16-inch pan heads. The established baseline for hex head fasteners should be approximately 40% of full meter scale higher than for pan head fasteners. Compare hex and pan heads on the standard to verify baseline difference.

[F] Calibrate using the same reference standard and fasteners specified under codes A, B and C for the area to be inspected using the spot probe. Probe position shown in Details III and VI.

(1) Code for specific inspection areas identified on Details VII thru X to which the calibration requirements apply.

(2) Probe Identification:

(1) P/N SPO-1138 - 1/4-inch OD and 0.75-inch ID ring probe.

(2) P/N SPO-1140 - 1.1-inch OD and 0.625 ID ring probe, use with a separate reference coil.

(3) P/N SPO-1125 - 0.625-inch OD spot probe.

BBL 70.5 Rib - Upper Chord
Figure 19 (Sheet 7)

3> Flagnote refers to probe position for calibration details, (Details II, III, V, VI as indicated in this table) and identifies that part of the reference standard used for this calibration.

4> At Stringer S-14 and S-15, there is a steel splice plate under the rib chord. A separate baseline must be established for these stringers.

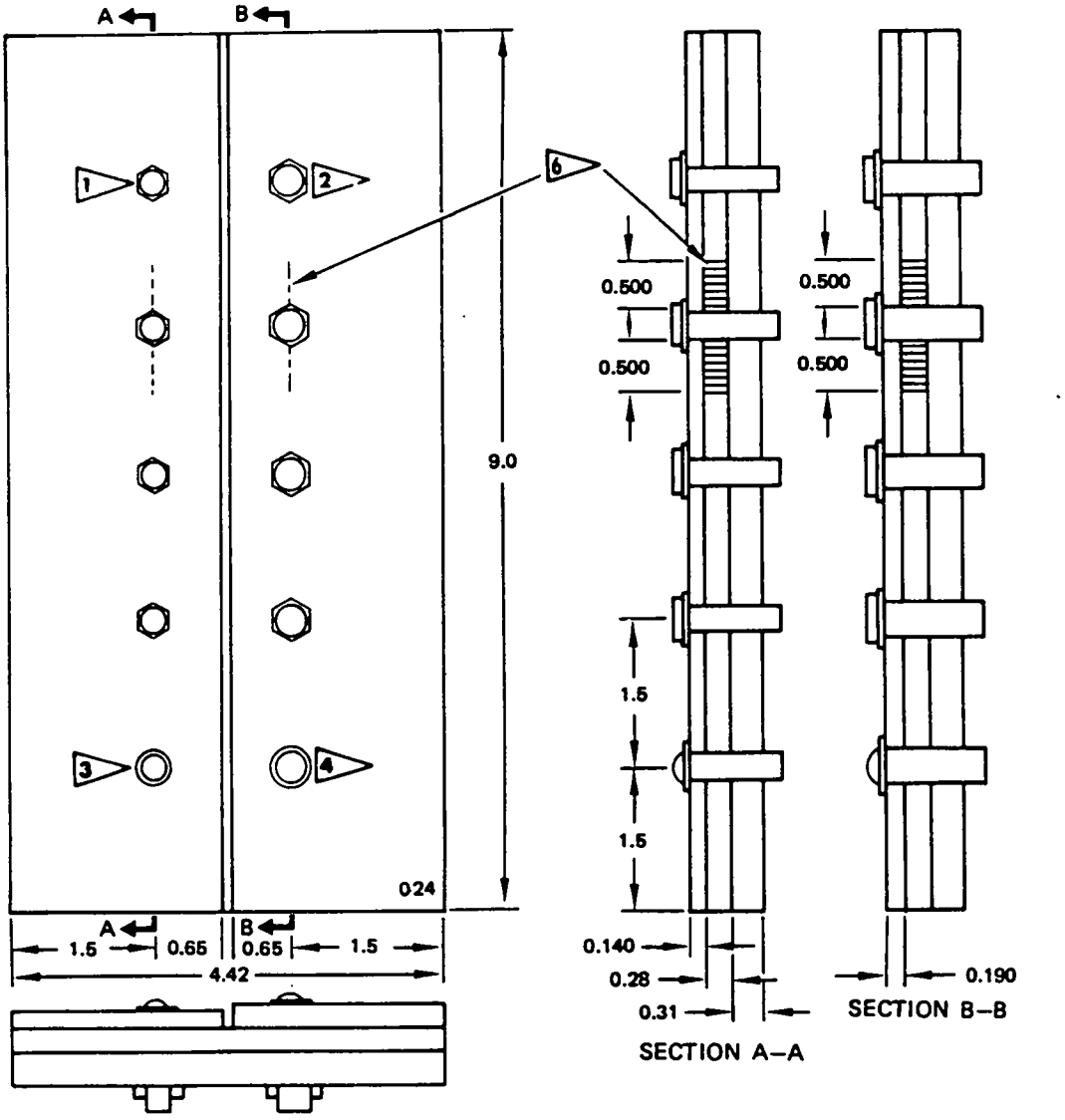
a) Inboard and outboard of BBL 70.5, compare fasteners 27, 28, 29 and 30 with similar fasteners further from BBL 70.5 at the same stringer locations (Details VII and VIII).

5> At Stringer S-14 and S-15 there is a steel splice plate under the rib chord. A separate baseline must be established for these stringers.

a) Inboard of BBL 70.5, compare fasteners 27, 28, 29 and 30 with similar fasteners further from BBL 70.5 at the same stringer locations (Detail VII).

b) Outboard of BBL 70.5, compare fasteners 189, 196, 209 and 211 with similar adjacent fasteners further from BBL 70.5 (Detail X).

BBL 70.5 Rib - Upper Chord
Figure 19 (Sheet 8)

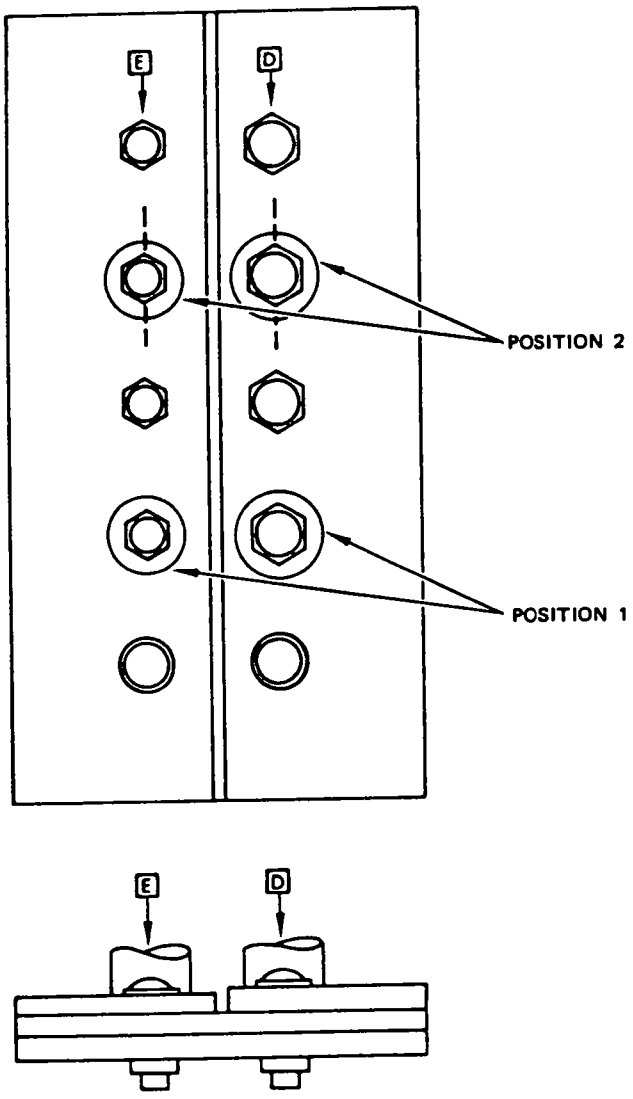


NOTES

- MATERIAL: 7075–T6 ALUMINUM
- ETCH OR STEEL STAMP WITH 024
- TOLERANCE: X.X ± 0.05
  X.XX ± 0.02
  X.XXX ± 0.010
- P/N 6412–36
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

1. BACB30NE–4–11 FASTENERS, 4 PLACES; BACN10JC4 NUTS
2. BACB30NE5–12 FASTENERS, 4 PLACES; BACN10JC5 NUTS
3. BACB30FM8–11 FASTENER, ONE ONLY; BACC30M8 COLLAR
4. BACB30FM10–12 FASTENER, ONE ONLY; BACC30M10 COLLAR
6. JEWELER'S SAWCUT 0.030 MAX WIDTH (4 PLACES)

REFERENCE STANDARD 024 FABRICATE FOR CUMLINE NUMBERS 581, 597, 615 AND 624
DETAIL I
BBL 70.5 Rib - Upper Chord
Figure 19 (Sheet 9)

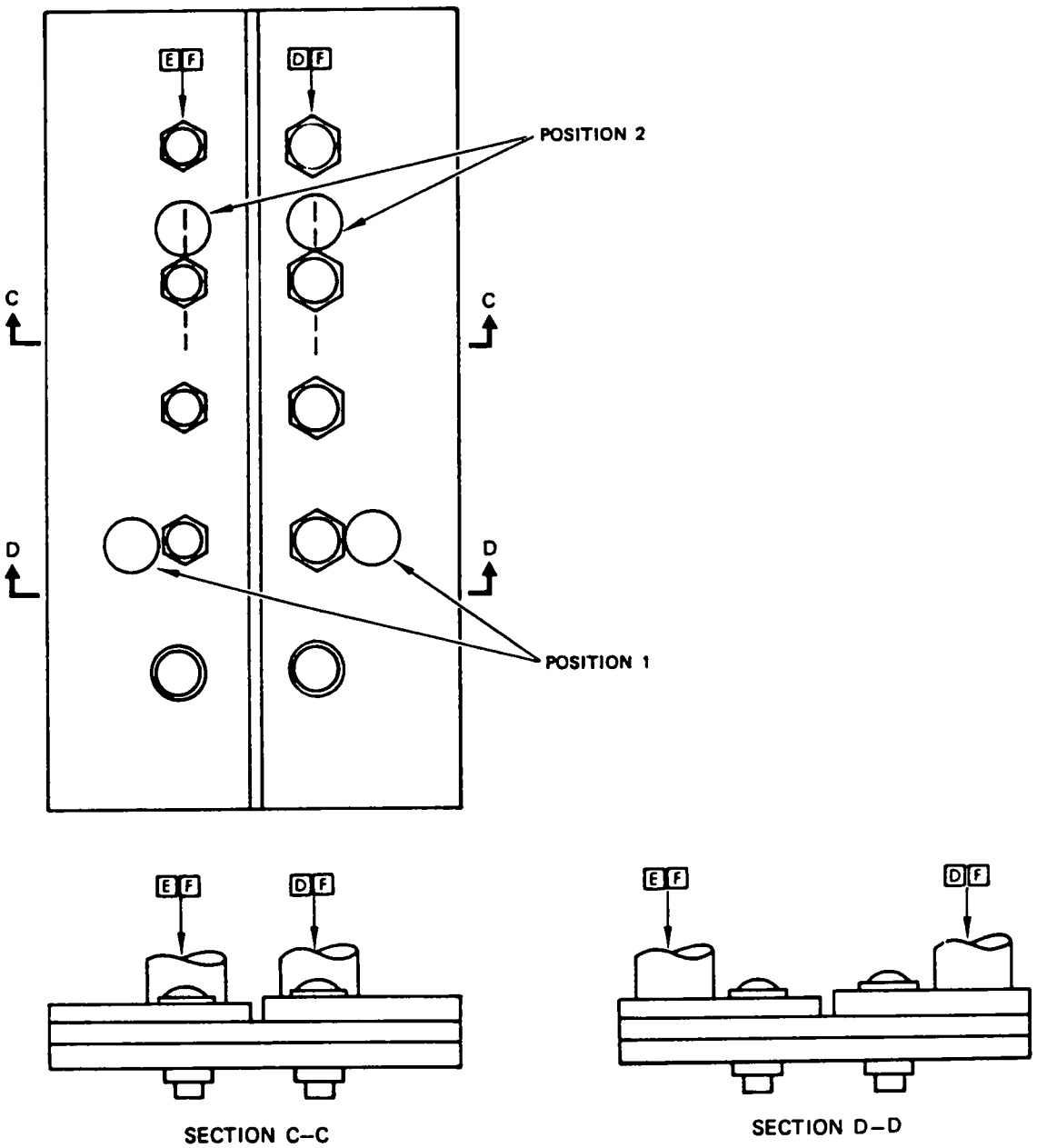


NOTES

[D][E] PROBE CALIBRATION POSITION ROWS (REF TABLE I, CALIBRATION TABLE)

PROBE POSITIONS FOR CALIBRATION ON REFERENCE STANDARD 024
DETAIL II

BBL 70.5 Rib - Upper Chord
Figure 19 (Sheet 10)



SECTION C–C

SECTION D–D

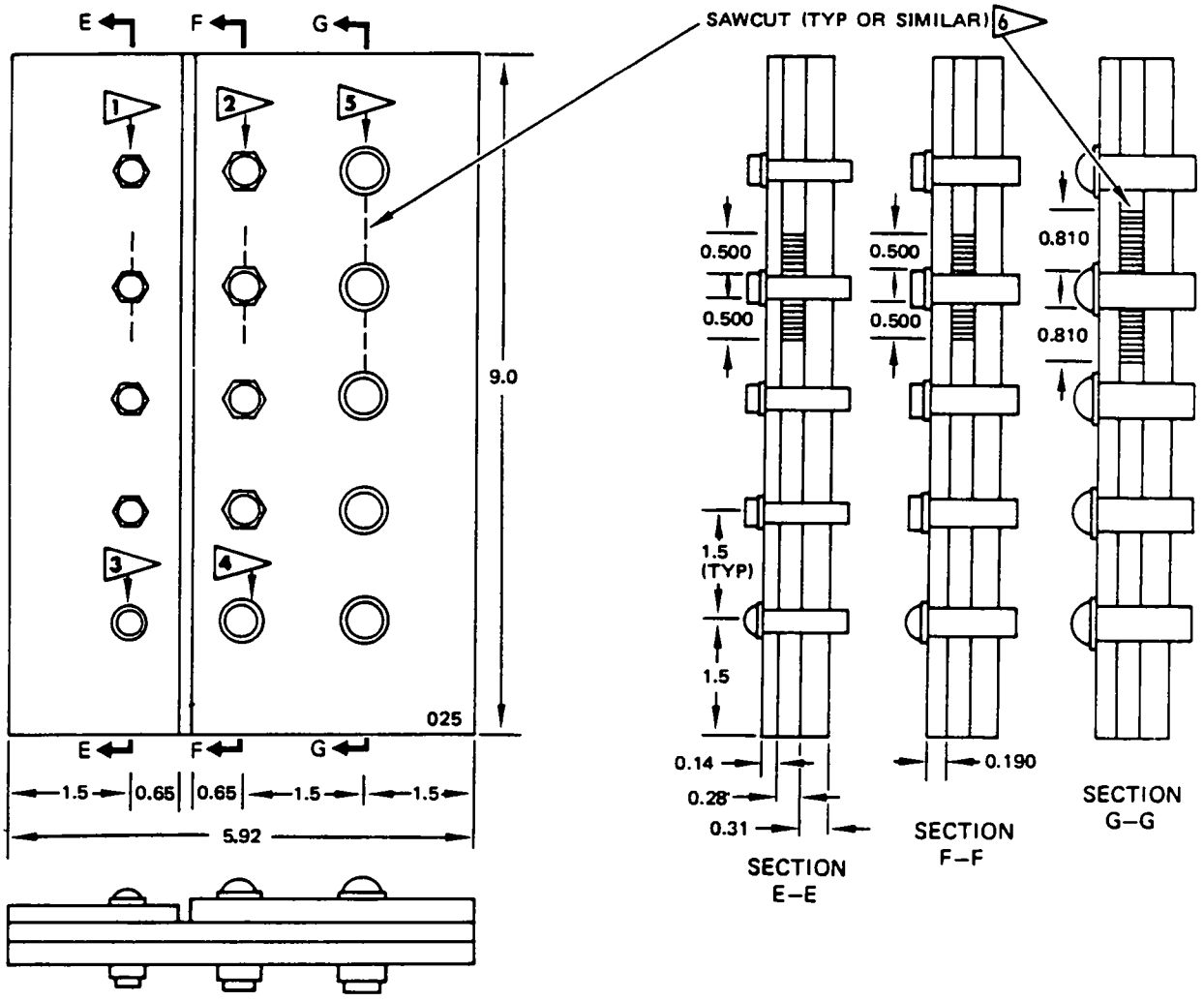
NOTES

D E PROBE CALIBRATION POSITION ROWS (REF TABLE I, CALIBRATION TABLE)

F USE THE SAME CALIBRATION POSITION ROWS ASSOCIATED WITH INSPECTION CODES B AND C (REF TABLE I, CALIBRATION TABLE) FOR THE AREAS TO BE INSPECTED USING THE SPOT PROBE.

ALTERNATE PROBE POSITIONS FOR CALIBRATION ON REFERENCE STANDARD 024
DETAIL III

BBL 70.5 Rib - Upper Chord
Figure 19 (Sheet 11)



NOTES

- MATERIAL: 7075–T6 ALUMINUM
- ETCH OR STEEL STAMP WITH 025
- TOLERANCE: X.X ± 0.05
  X.XX ± 0.020
  X.XXX ± 0.010
- P/N 6412–37
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

6 JEWELER'S SAWCUT 0.030 MAX WIDTH (6 PLACES)

1 BACB30NE4–11 FASTENER, BACN10JC4 NUT (4 PLACES)

2 BACB30NE5–12 FASTENER, BACN10JC5 NUT (4 PLACES)

3 BACB30FM8–12 FASTENER, BACC30M8 COLLAR (1 PLACE)

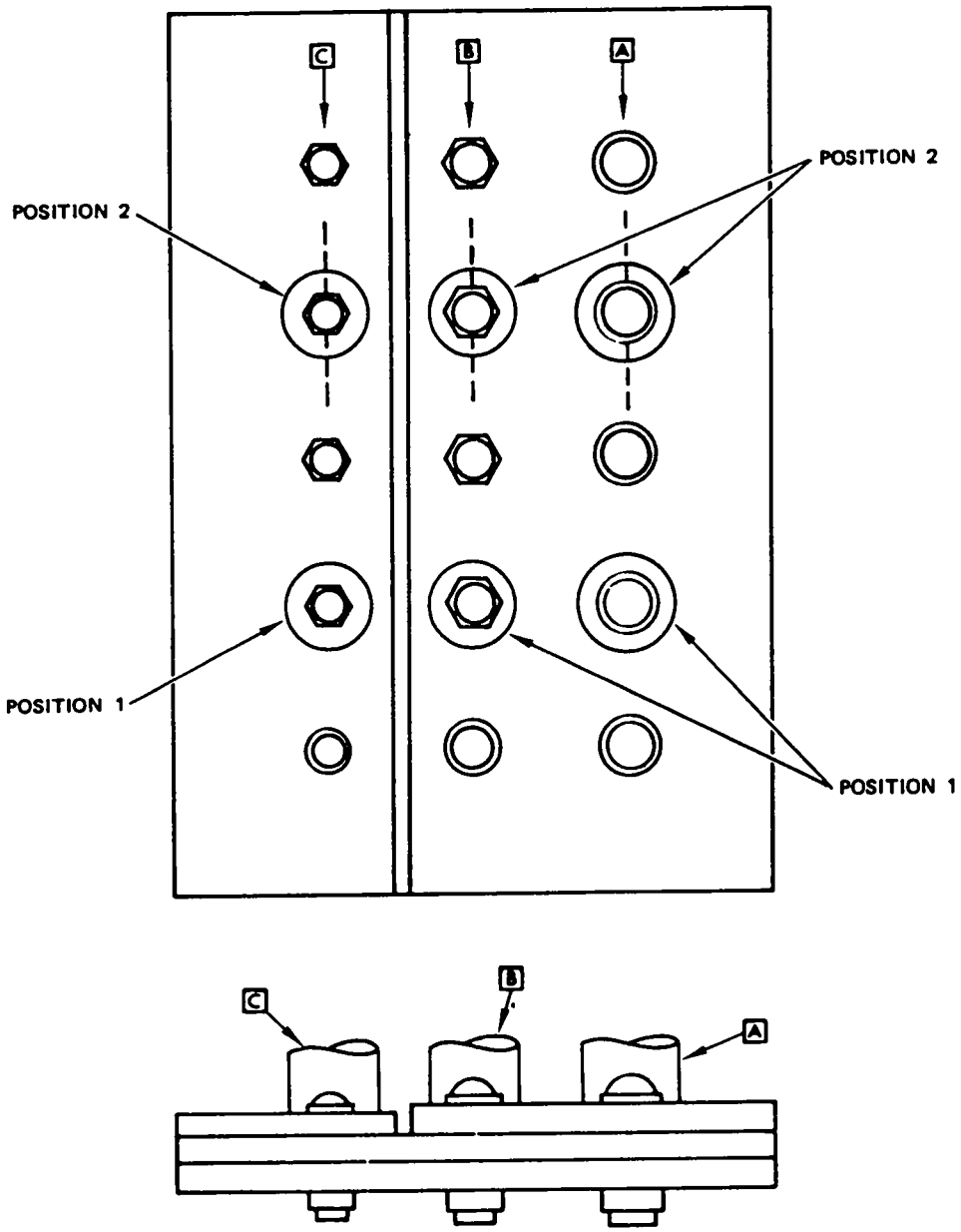
4 BACB30FM10–12 FASTENER, BACC30M10 COLLAR (1 PLACE)

5 BACB30FM12–11 FASTENER, BACC30M12 COLLAR (5 PLACES)

REFERENCE STANDARD 025 FABRICATE FOR 720 MODELS EXCEPT CUMLINE NUMBERS 581, 597, 615 AND 624.

DETAIL IV

BBL 70.5 Rib - Upper Chord
Figure 19 (Sheet 12)



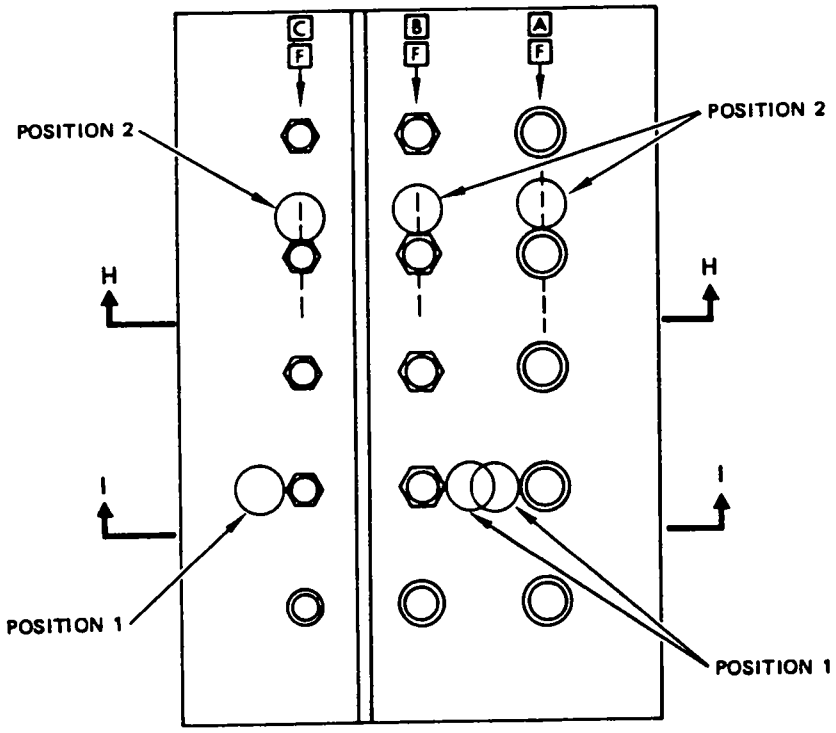
NOTE:

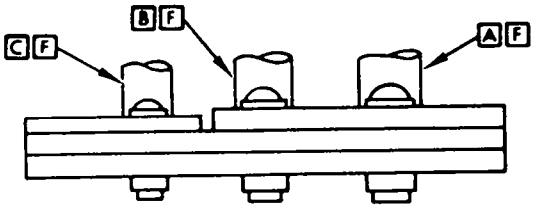
A B C PROBE CALIBRATION POSITION ROWS (REF TABLE I, CALIBRATION TABLE)

PROBE POSITIONS FOR CALIBRATION ON REFERENCE STANDARD 025

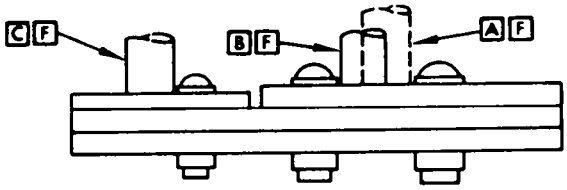
DETAIL V

BBL 70.5 Rib - Upper Chord
Figure 19 (Sheet 13)





SECTION H–H



SECTION I–I

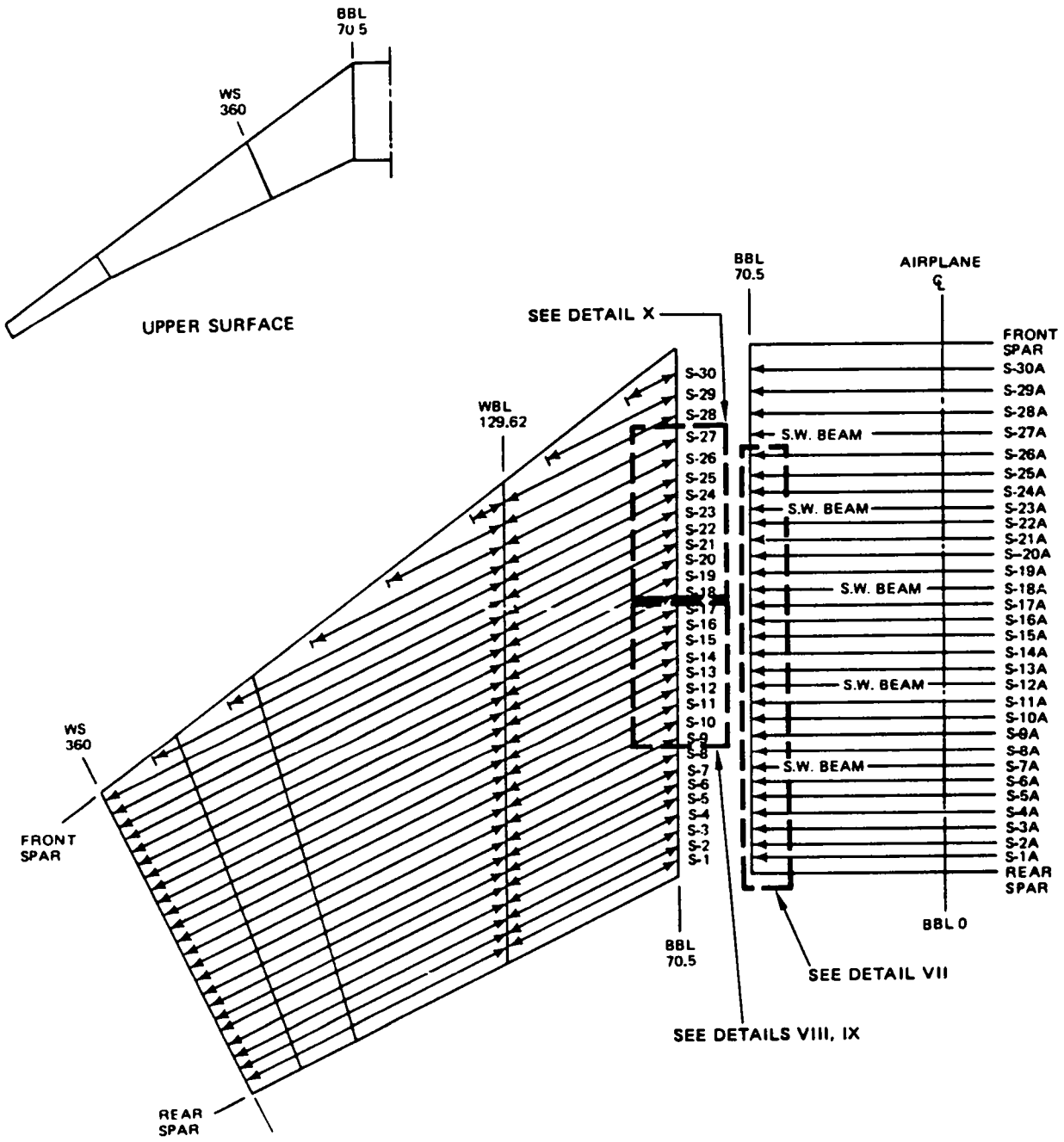
NOTES:

A B C PROBE CALIBRATION POSITION ROWS (REF TABLE I, CALIBRATION TABLE)

F USE THE SAME CALIBRATION POSITION ROWS ASSOCIATED WITH INSPECTION CODES A, B, AND C (REF TABLE I, CALIBRATION TABLE) FOR THE AREAS TO BE INSPECTED USING THE SPOT PROBE.

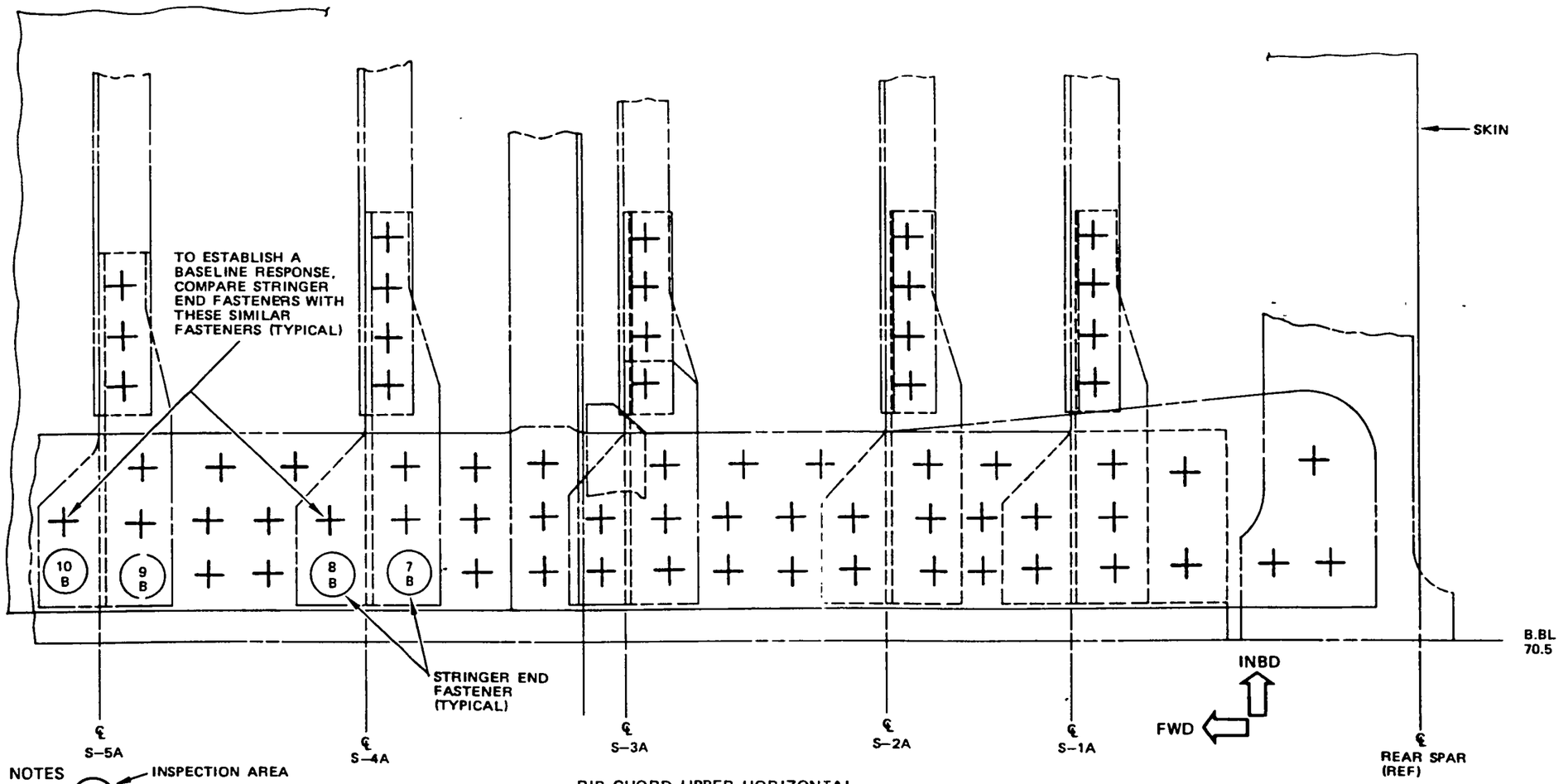
ALTERNATE PROBE POSITIONS FOR CALIBRATION
ON REFERENCE STANDARD 025
DETAIL VI

BBL 70.5 Rib - Upper Chord
Figure 19 (Sheet 14)



UPPER WING STIFFENERS BBL 0 TO WS 360
INSPECTION INDEX

BBL 70.5 Rib - Upper Chord
Figue 19 (Sheet 15)



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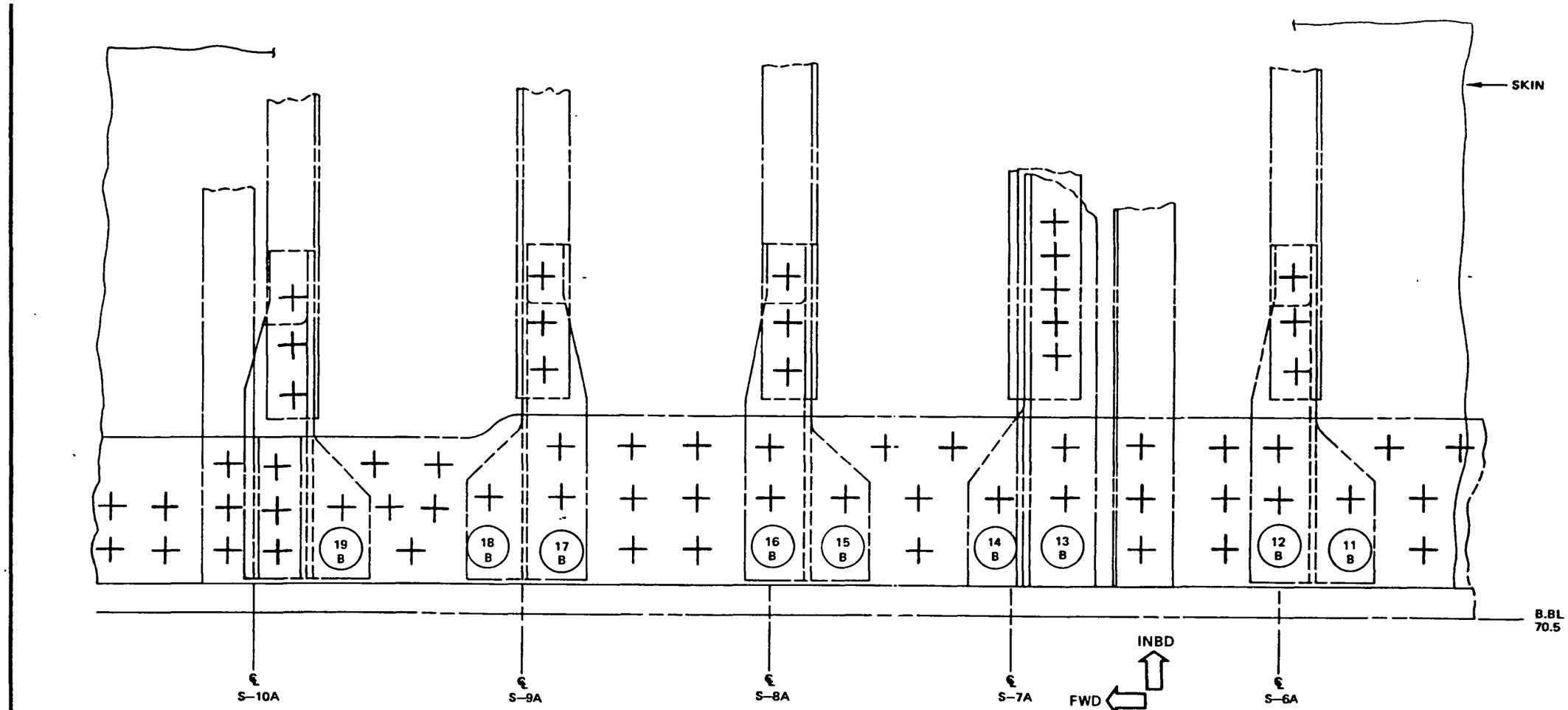
RIB CHORD UPPER HORIZONTAL FLANGE TO STRINGER SPLICE EXTERNAL INSPECTION INBOARD OF B.BL 70.5 (ALL 720 AIRPLANES)

DETAIL VII

BBL 70.5 Rib - Upper Chord
Figure 19 (Sheet 16)



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DETAIL VII (CONT.)

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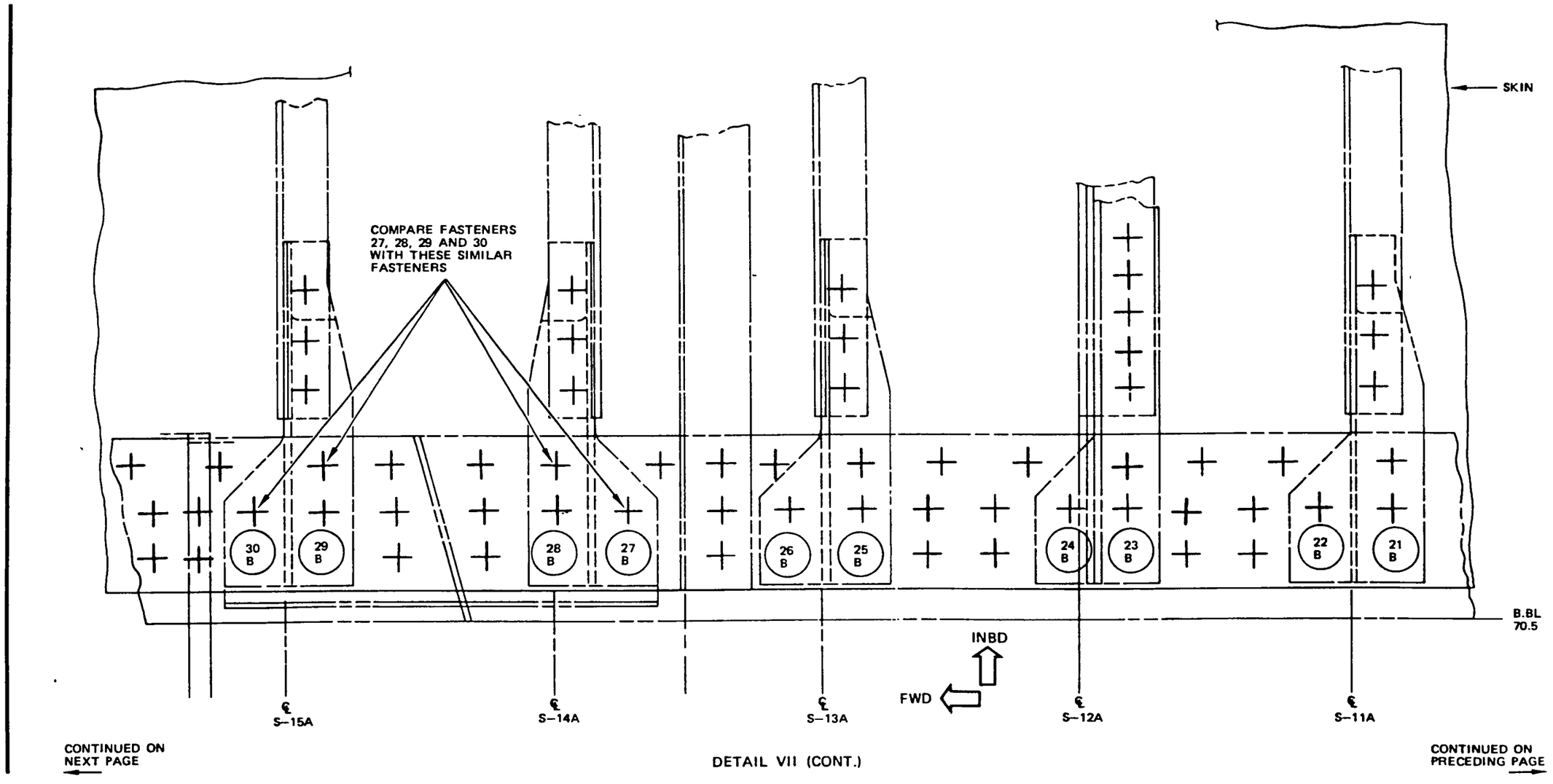
BBL 70.5 Rib - Upper Chord
Figure 19 (Sheet 17)



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DETAIL VII (CONT.)

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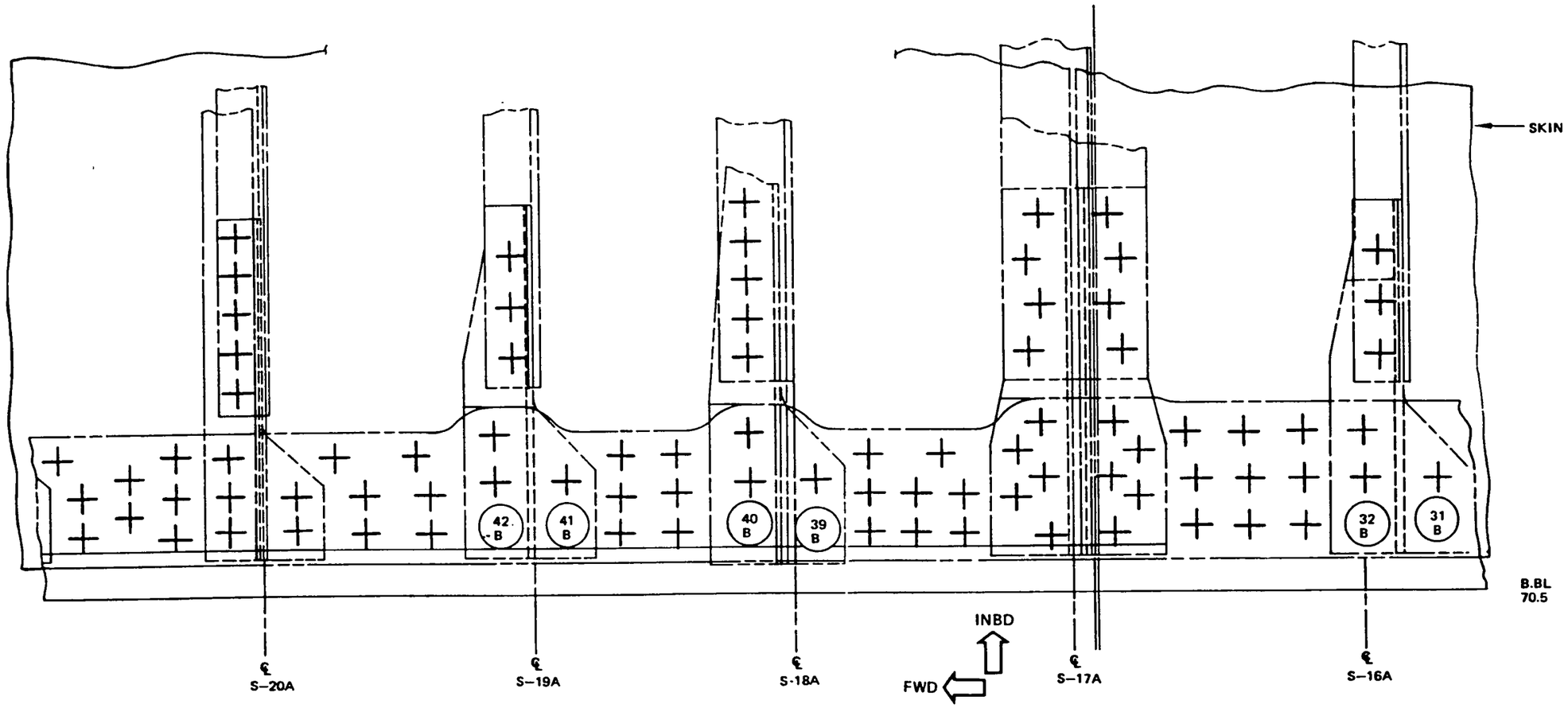
BBL 70.5 Rib - Upper Chord
Figure 19 (Sheet 18)



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DETAIL VII (CONT.)

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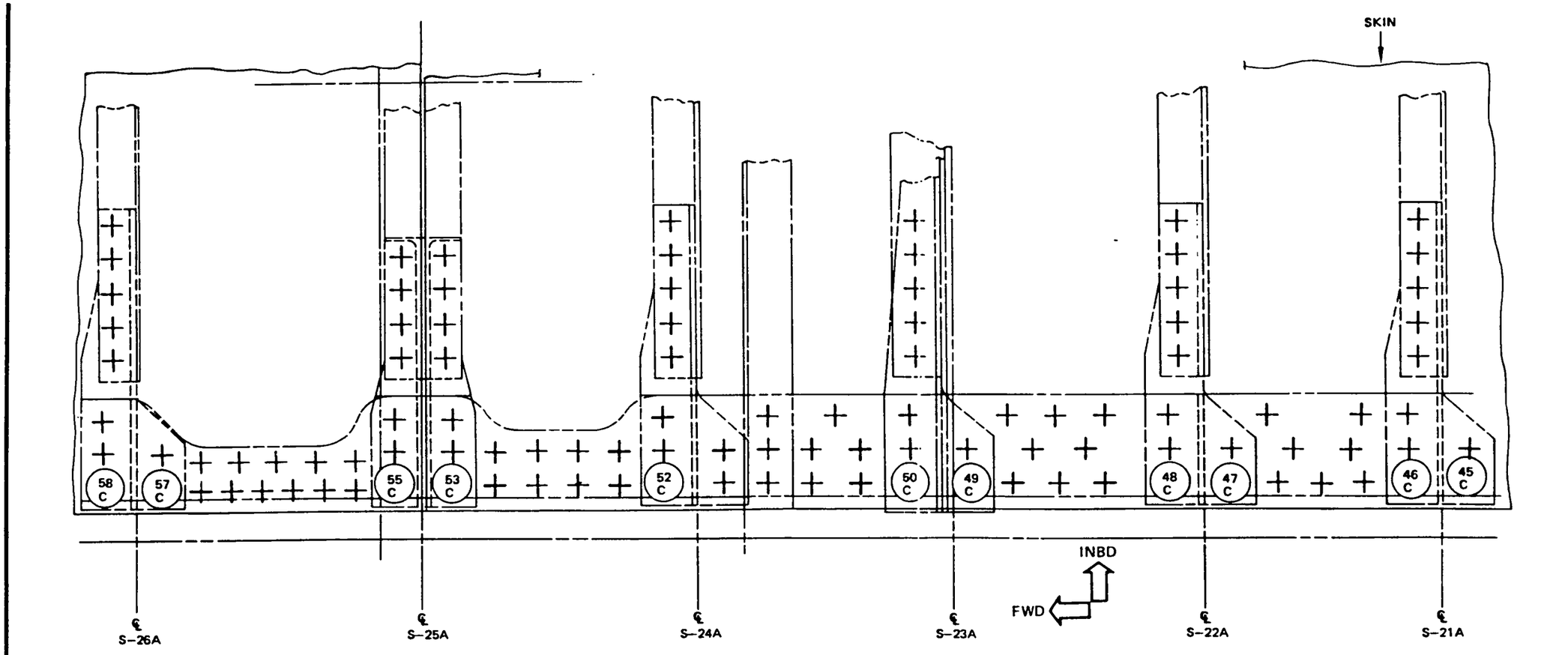
BBL 70.5 Rib - Upper Chord
Figure 19 (Sheet 19)



DETAIL VII (CONT.)

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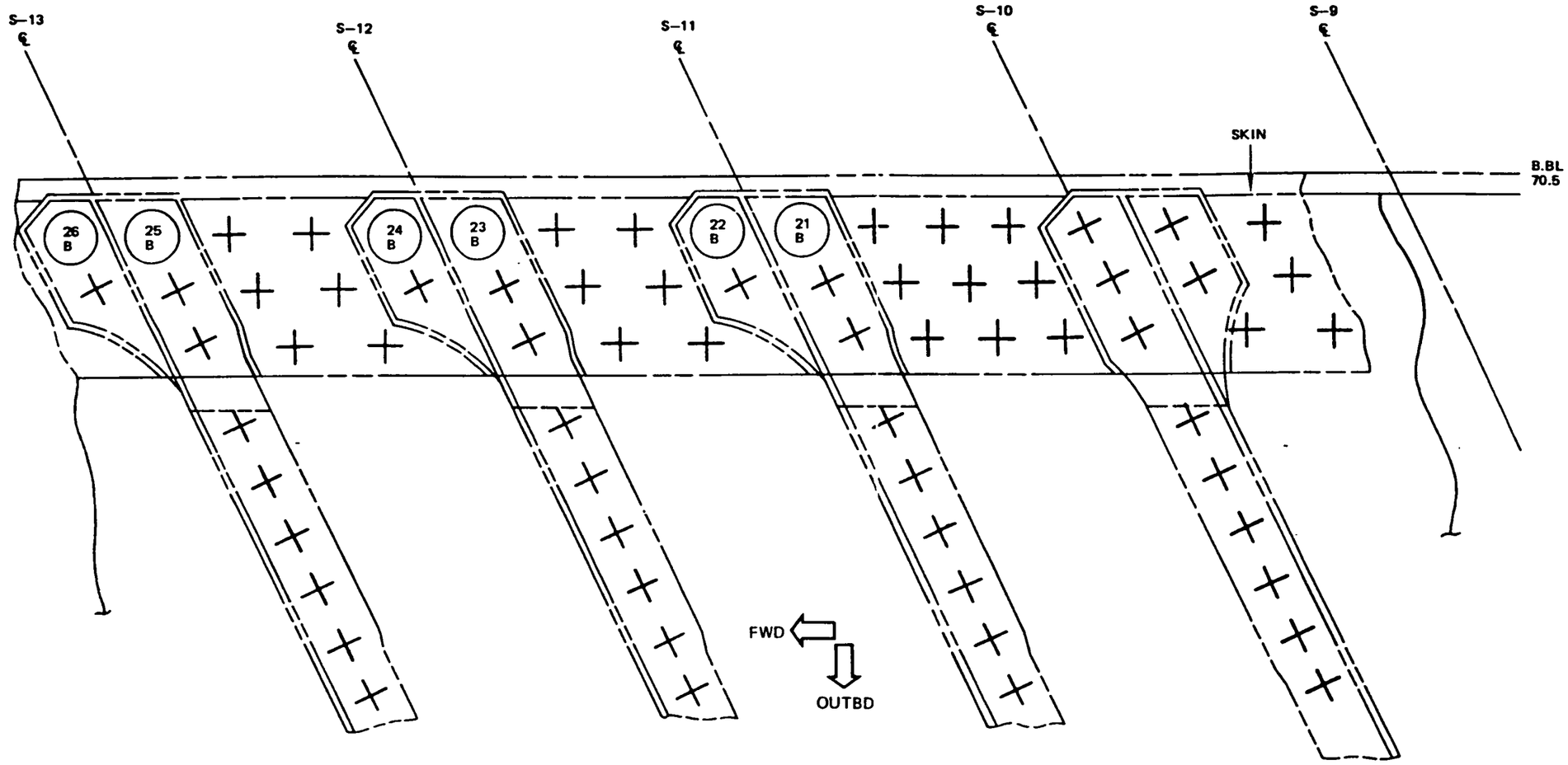
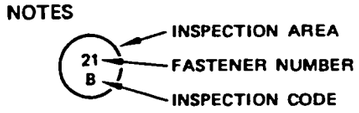
BBL 70.5 Rib - Upper Chord
Figure 19 (Sheet 20)



NOTES

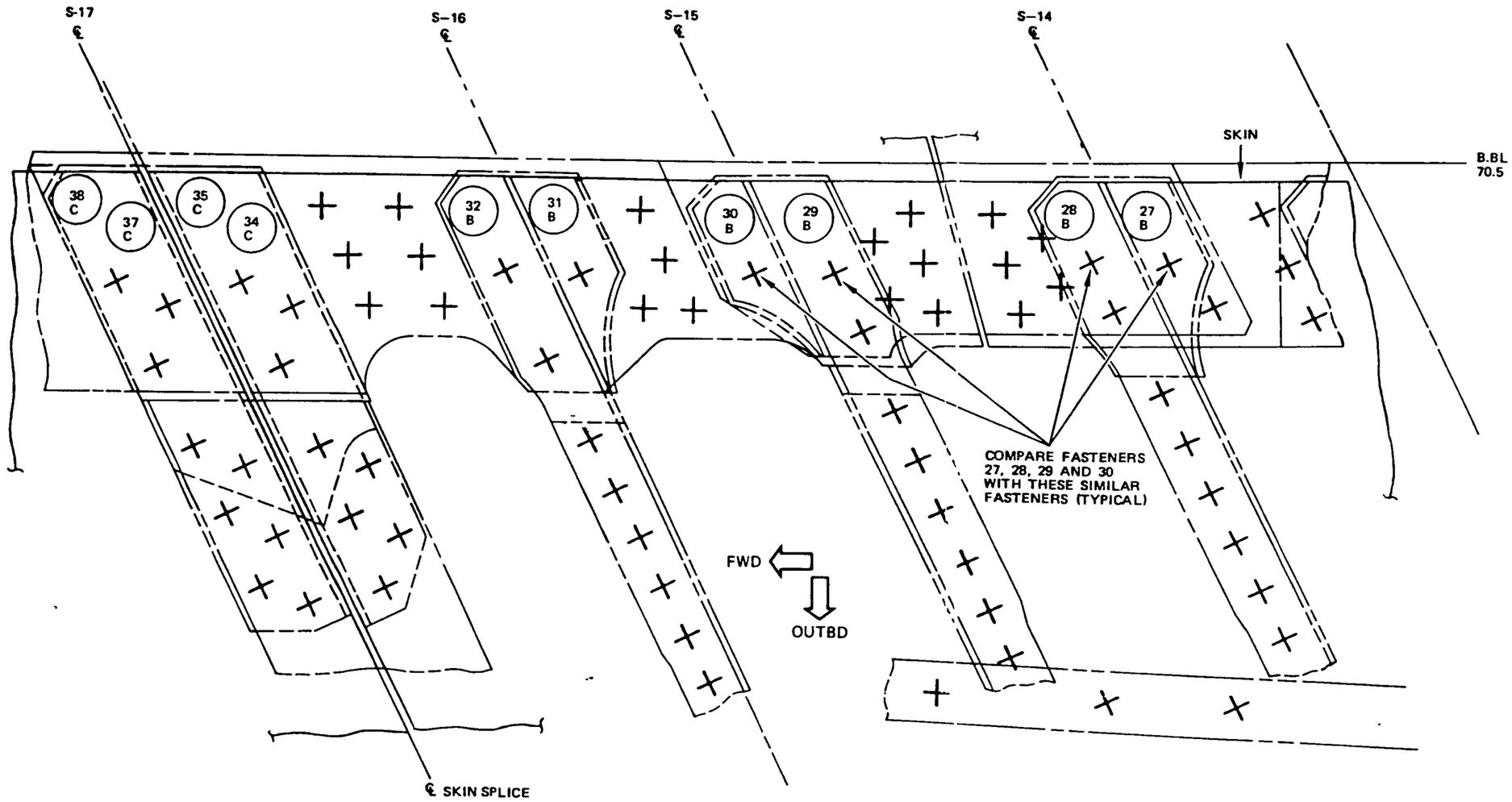


RIB CHORD UPPER HORIZONTAL
FLANGE TO STRINGER SPLICE
EXTERNAL INSPECTION OUTBOARD
OF B.BL 70.5
(FOR CUM LINE NUMBERS 581, 597, 615 AND 624)

DETAIL VIII

CONTINUED ON
NEXT PAGE

BBL 70.5 Rib - Upper Chord
Figure 19 (Sheet 21)



DETAIL VIII (CONT.)

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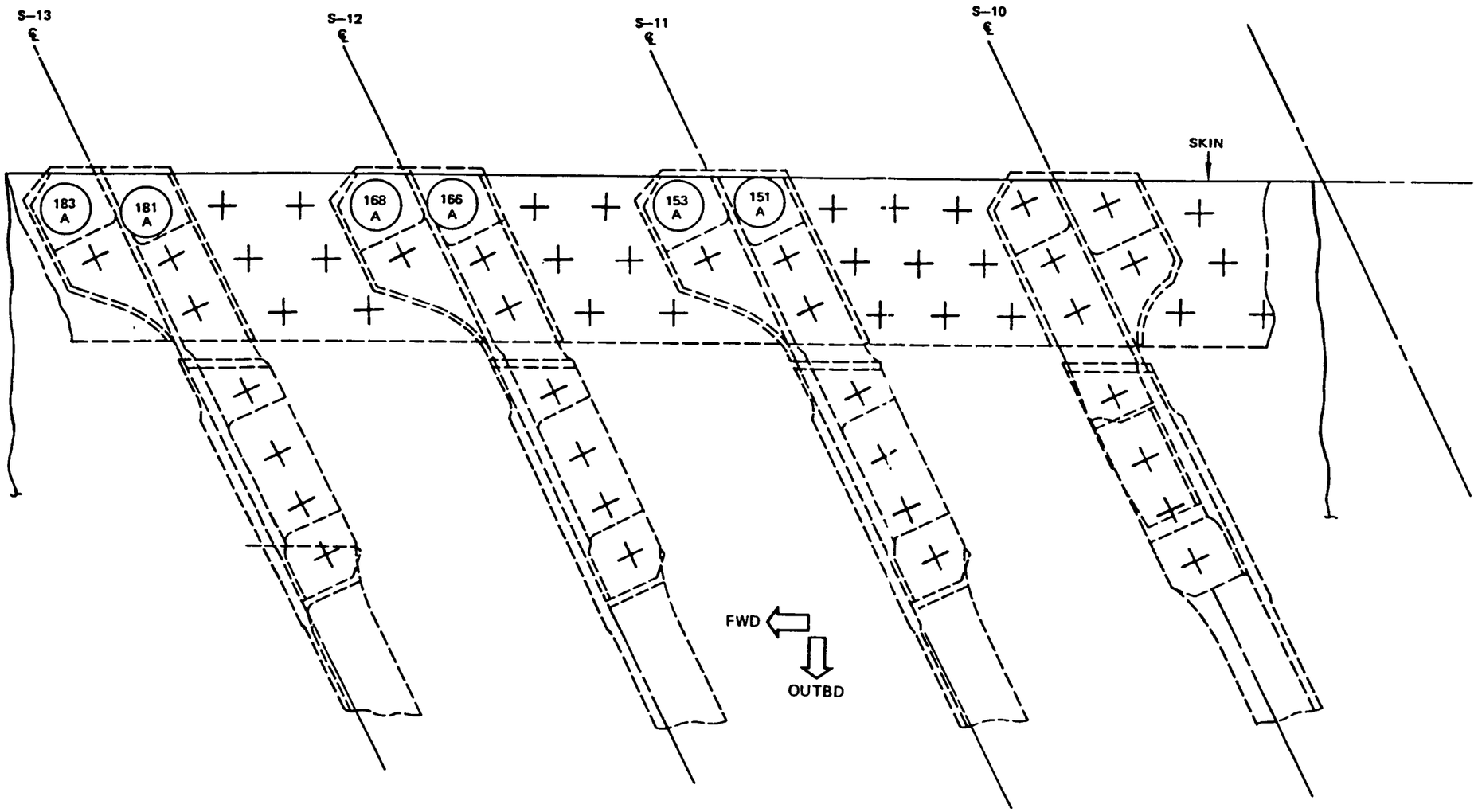
BBL 70.5 Rib - Upper Chord
Figure 19 (Sheet 22)



NOTES

RIB CHORD UPPER HORIZONTAL FLANGE TO STRINGER SPLICE EXTERNAL INSPECTION OUTBOARD OF B.BL 70.5 (FOR ALL 720 AIRPLANES EXCEPT CUM LINE NUMBERS 581, 597, 615 AND 624)

DETAIL IX

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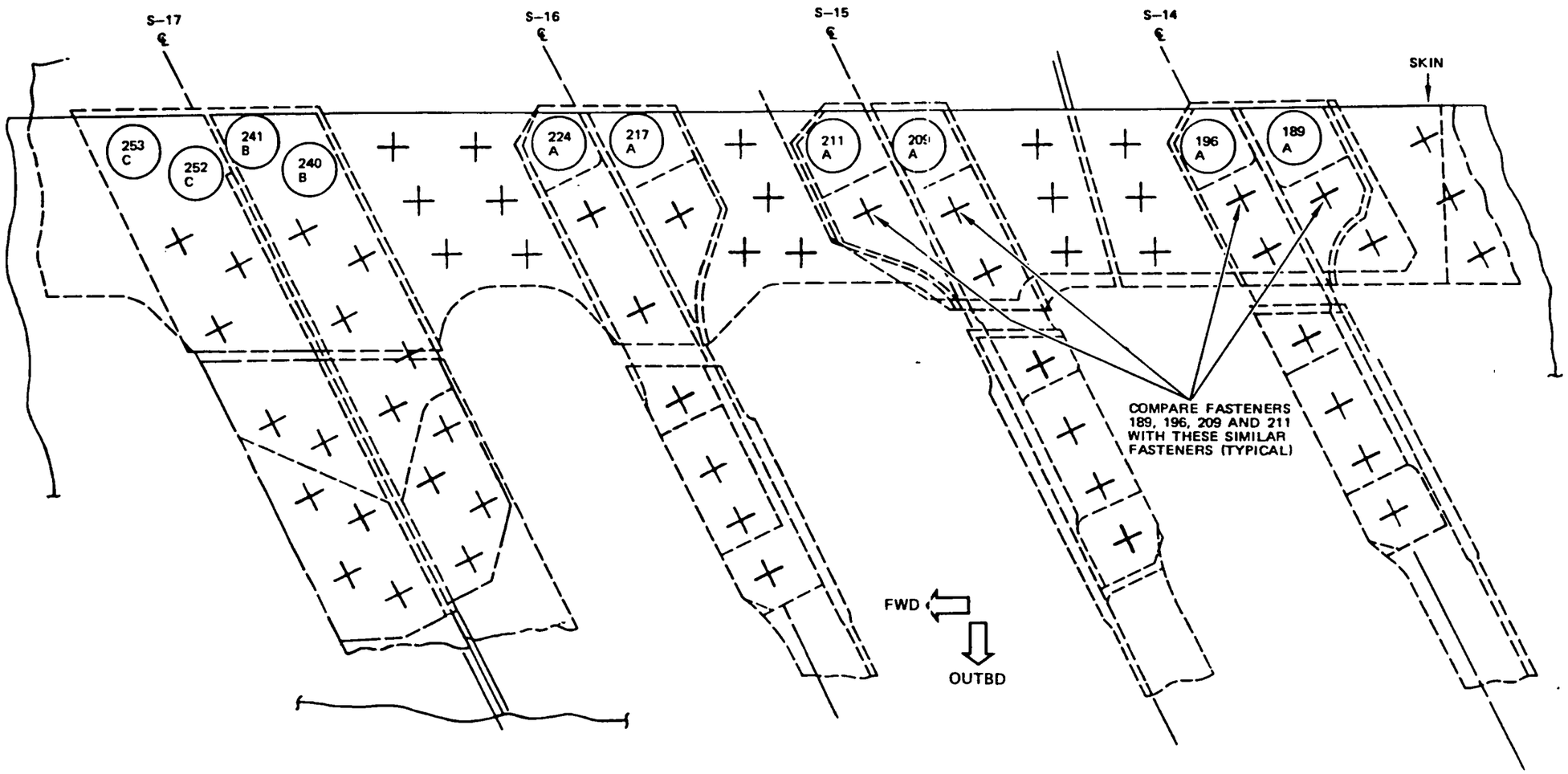
BBL 70.5 Rib - Upper Chord
Figure 19 (Sheet 23)



DETAIL IX (CONT.)

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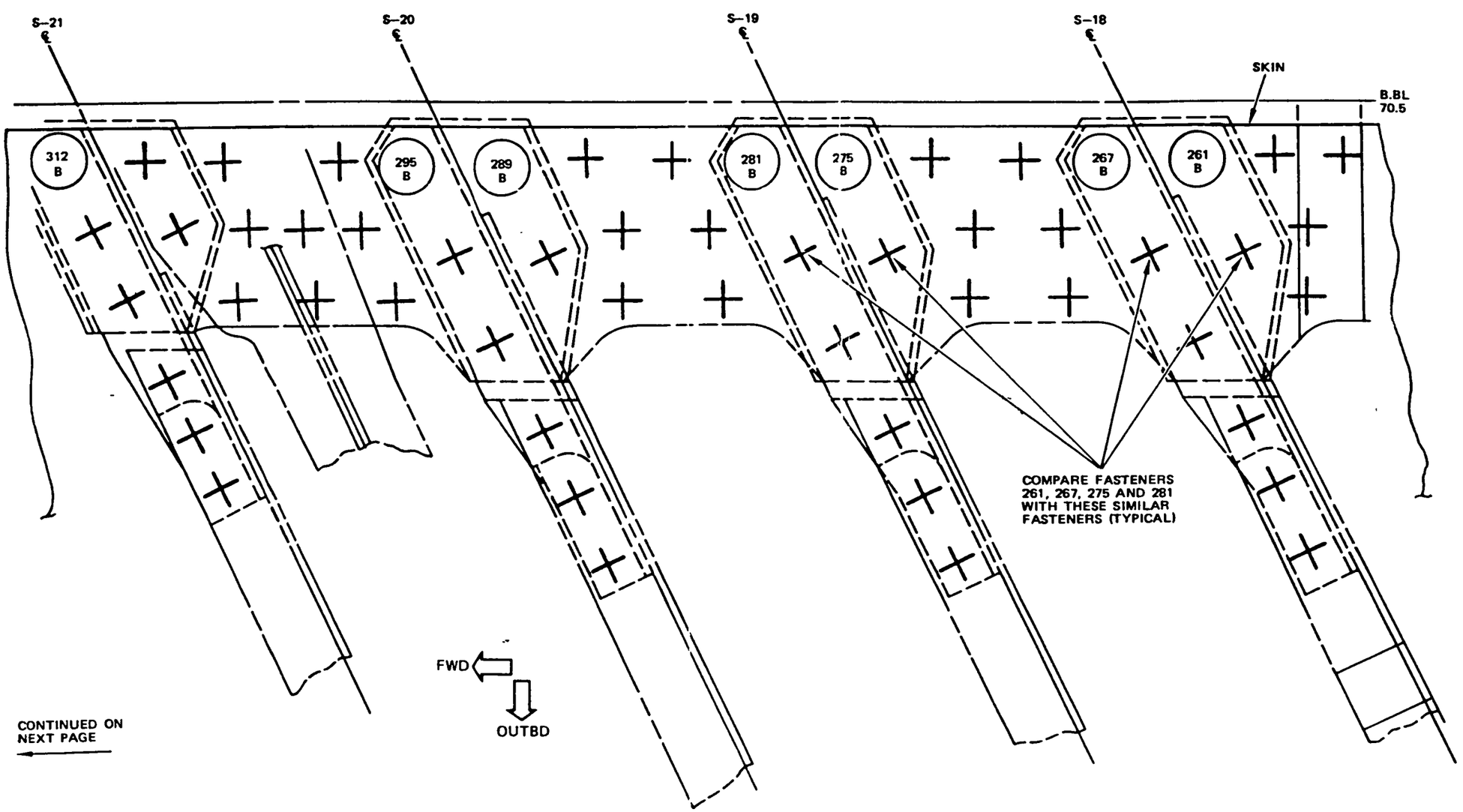
BBL 70.5 Rib - Upper Chord
Figure 19 (Sheet 24)



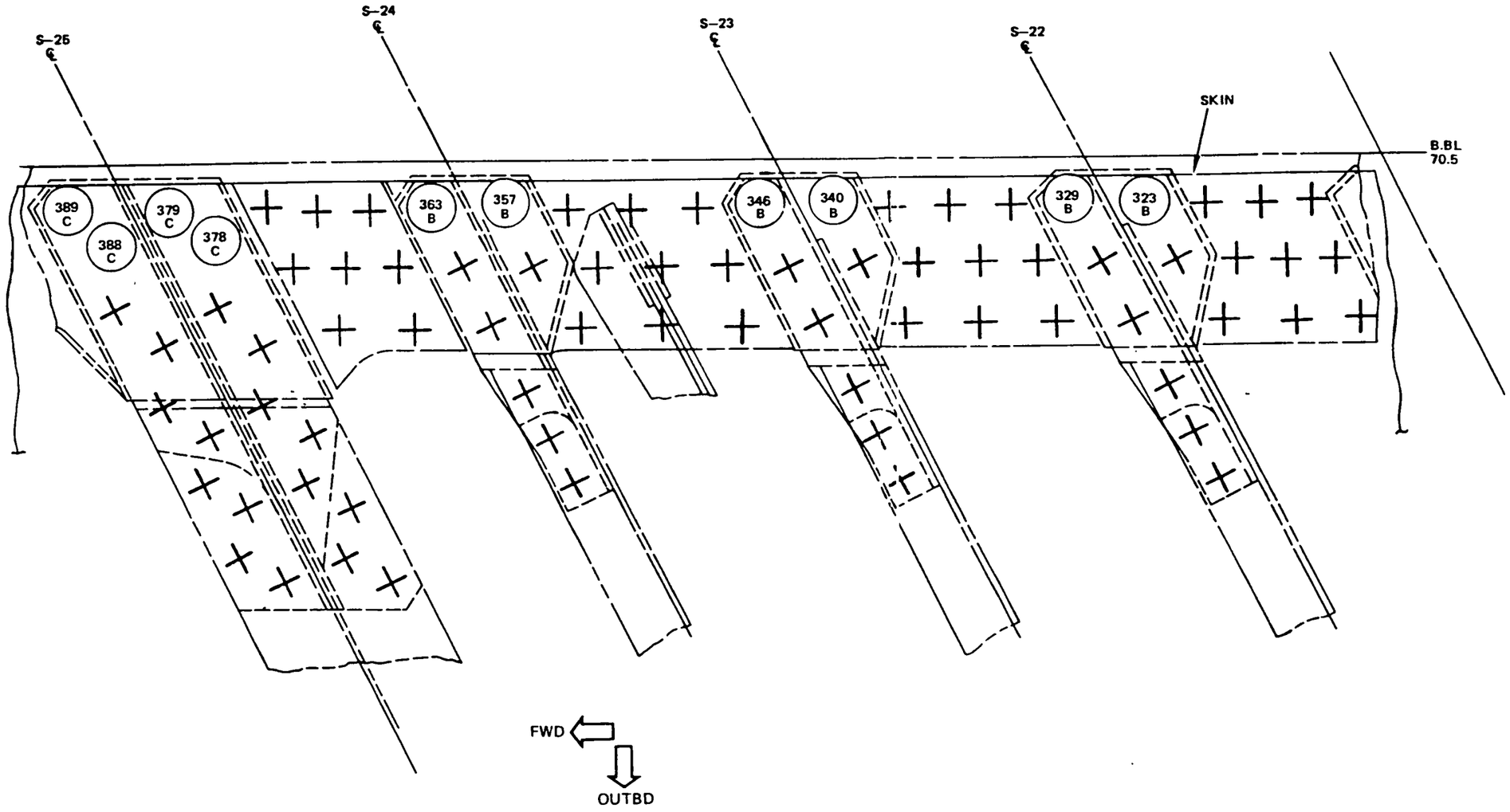
NOTES

261 B — INSPECTION AREA; FASTENER NUMBER; INSPECTION CODE

RIB CHORD UPPER HORIZONTAL FLANGE TO STRINGER SPLICE EXTERNAL INSPECTION OUTBOARD OF B.BL 70.5 (ALL 720 AIRPLANES)

DETAIL X

BBL 70.5 Rib - Upper Chord
Figure 19 (Sheet 25)



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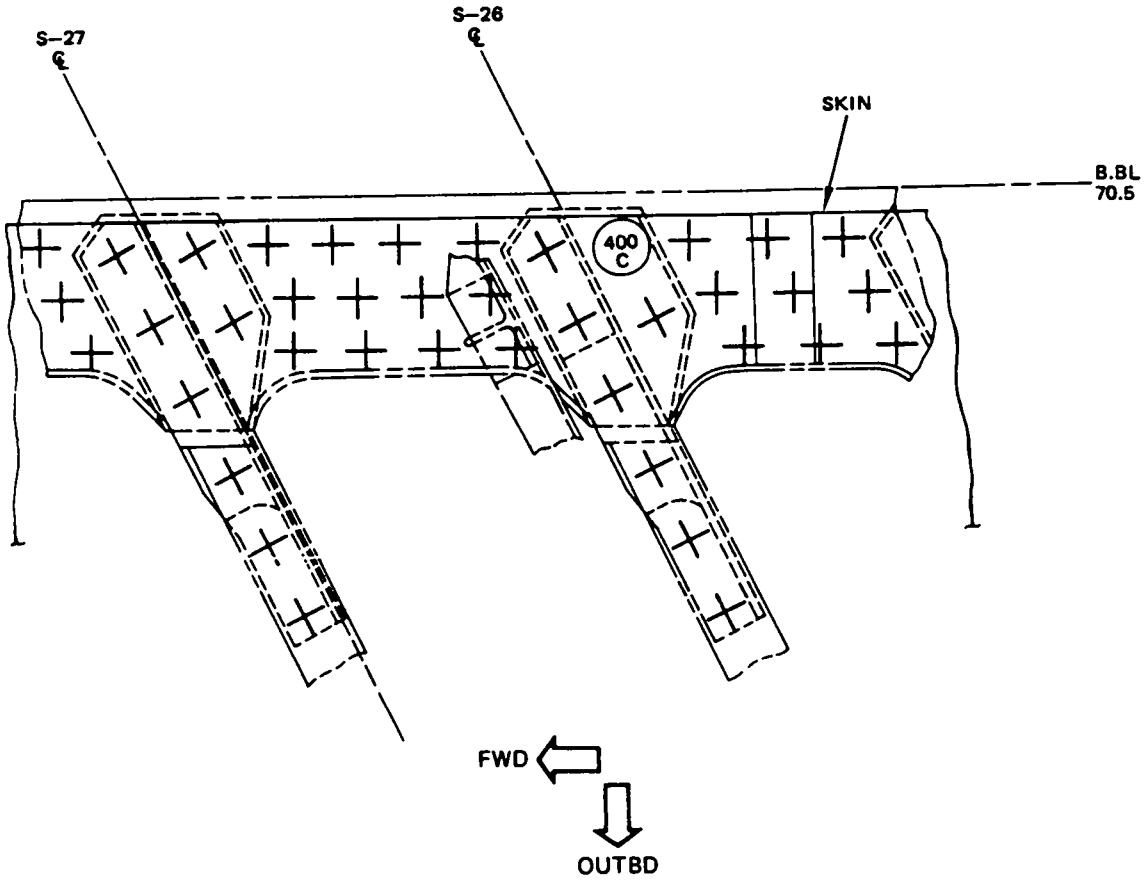
DETAIL X (CONT.)

BBL 70.5 Rib - Upper Chord
Figure 19 (Sheet 26)



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PRECEDING PAGE

DETAIL X (CONT.)

BBL 70.5 Rib - Upper Chord
Figure 19 (Sheet 27)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To perform an internal eddy current inspection of wing center section upper panel to detect:

      (1) A cracked stringer upper horizontal flange.

      (2) Skin cracks out of stringer to skin attachment fastener holes.

      (3) Cracks out of fastener holes in the upper rear spar.

   B. To perform an external eddy current inspection of the center section upper panel to detect skin cracks at the forward edge of the rear spar pressure seal.

   C. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Instrument - Refer to Part 6, 51-00-00, Fig. 1.

   B. Probe -

      (1) Shielded pencil probe per Part 1, 51-06-00, Fig. 1.

      (2) Right angle shielded pencil probe as specified in Detail II.

         (a) Probes available from:

VM Products	NDT Product Engineering
7420 Park Avenue No. 20	P.O. Box 423
Tacoma, WA 98408	Renton, WA 98057
P/N VM100AS	P/N P-90.6.9-4

Center Wing Upper Panel Stringers, Skin and Rear Spar
Figure 20 (Sheet 1)

C. Reference Standard - Refer to Part 6, 51-00-00, Fig. 4.

3. Preparation for Inspection

A. Inspection from inside the wing center section.

(1) Gain access into center wing through lower center section access panels.

(2) Purge fuel tanks to permit tank entry with eddy current test equipment.

(3) Remove fuel cells and upper surface backing panels as necessary to gain access to inspection surface.

(4) Remove sealant from aft side of upper rear spar clip fittings to permit eddy current probe access.

B. Inspection from outside the wing center section.

(1) Remove floor panels as necessary to gain access to wing center section upper rear spar.

(2) Remove excess sealant from skin upper surface to permit eddy current surface inspection approximately 0.15-inch forward of the pressure seal (Detail V, Section C-C).

4. Instrument Calibration

A. Refer to Part 6, 51-00-00, Fig. 4.

Center Wing Upper Panel Stringers, Skin and Rear Spar
Figure 20 (Sheet 2)

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5. Inspection Procedure

A. Internal inspection of upper stringers for cracked upper horizontal flange. See Details III and IV.

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

(1) Scan the pencil probe adjacent to fasteners on the stringer upper horizontal flange from side of body to side of body (LBL 70.5 to RBL 70.5):

720 and 707-100/-200 - Stringers S-1 thru S-23
707-300/-400/-300B/-300C - Stringers S-1 thru S-28

NOTE: Particular attention should be given to stringer in area about stringer, skin and floor beam attachment points.

(2) When the stringer flange is covered by a clip fitting, radius filler or side of body attach fitting, inspect along edges of stringer upper horizontal flange as shown in Details III and IV, Alternate Inspection.

B. Inspection for upper surface skin cracks. See Details III and IV.

(1) Using the pencil probe scan the inner surface of the upper skin along the edges of the stringer flange from side of body to side of body (LBL 70.5 to RBL 70.5):

720 and 707-100/200 - Stringers S-1 thru S-22 and aft edge of S-23

707-300/400,-300B,-300C - Stringers S-1 thru S-27 and aft edge of S-28

NOTE: Particular attention should be given to skin in area about skin, stringer, floor beam attachment points.

(2) At spanwise beam stringers, where clip fittings are installed adjacent to the stringer vertical leg, inspect the skin between the clip fitting and stringer. See Detail IV.

NOTE: A small diameter, low profile, shielded, right angle pencil probe is required for access to this area. See Details II and IV.

Center Wing Upper Panel Stringers, Skin and Rear Spar
Figure 20 (Sheet 2A)

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C. Inspection for center section upper rear spar (Detail VI).

(1) Scan pencil probe on rear spar adjacent to the forward and aft edges of fastener ends (Detail VI, Section E-E).

(2) On 720 and 707-100/200 models, at floor beam to rear spar intersections, scan as close as possible to the forward and aft edges of the clip fitting (Detail VI, Section D-D).

D. External inspection of upper center section skin at rear spar

(1) Scan pencil probe on upper center section skin adjacent to forward edge of pressure seal from side of body to side of body (LBL 70.5 to RBL 70.5) (Detail V).

Center Wing Upper Panel Stringers, Skin and Rear Spar
Figure 20 (Sheet 3)

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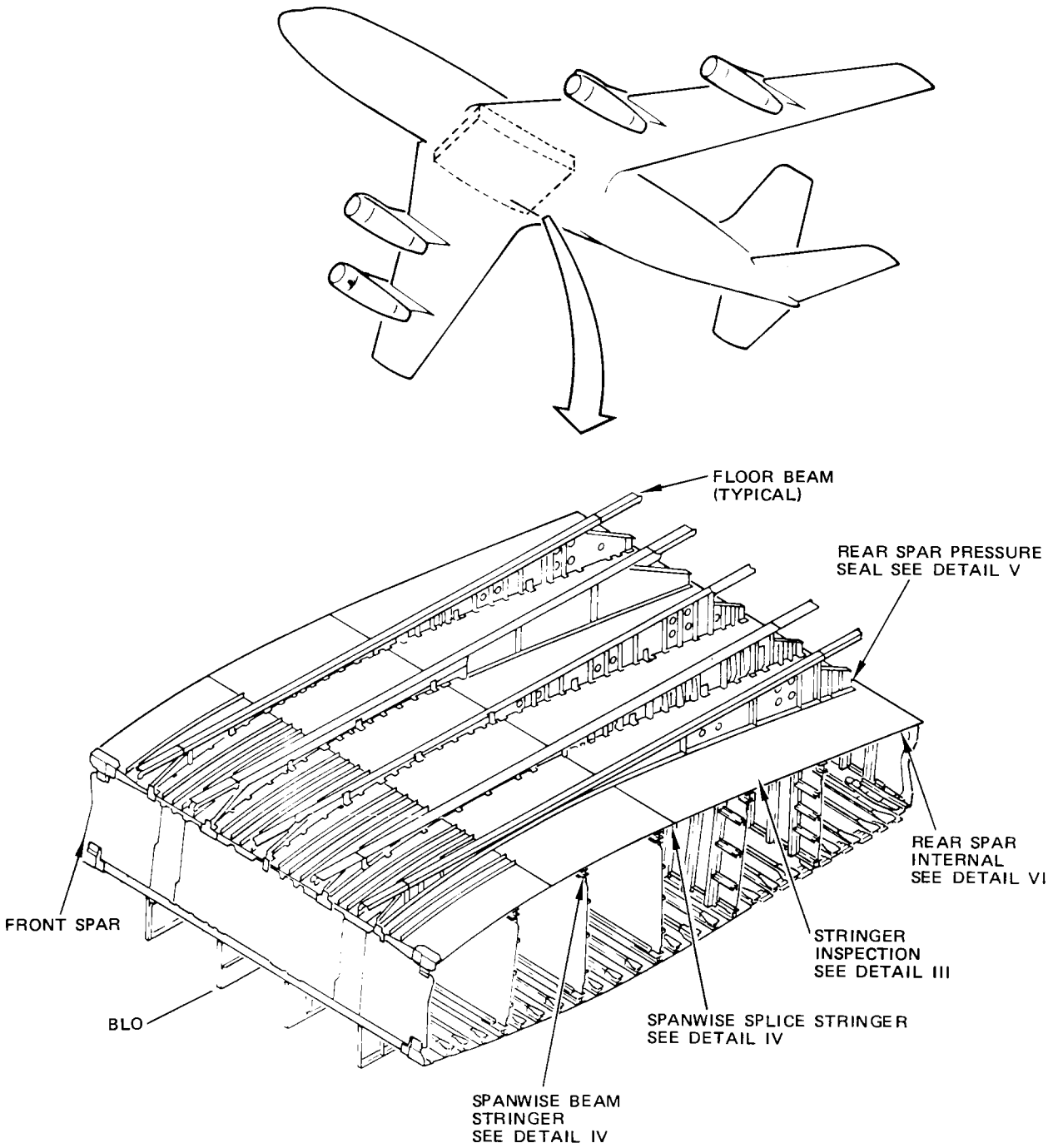

DETAIL I

Center Wing Upper Panel Stringers, Skin and Rear Spar
Figure 20 (Sheet 4)

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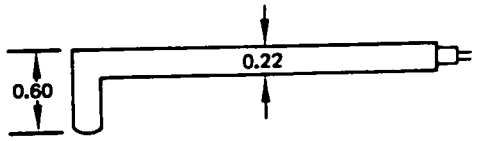
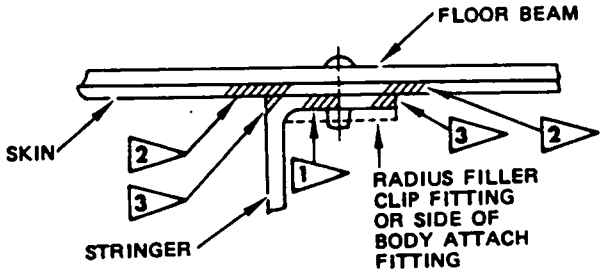
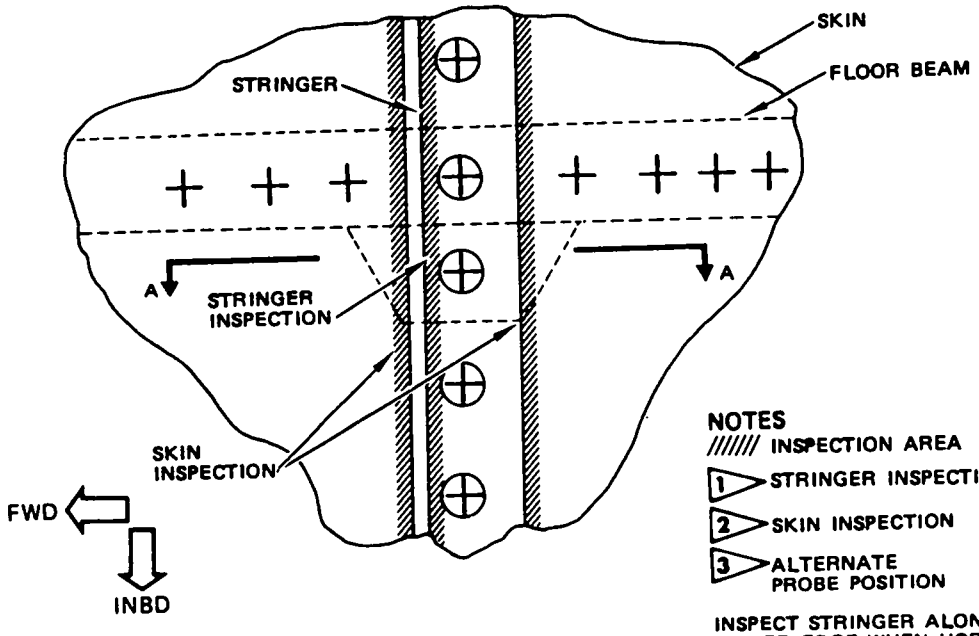


TYPICAL RIGHT ANGLE SHIELDED PENCIL PROBE

DETAIL II

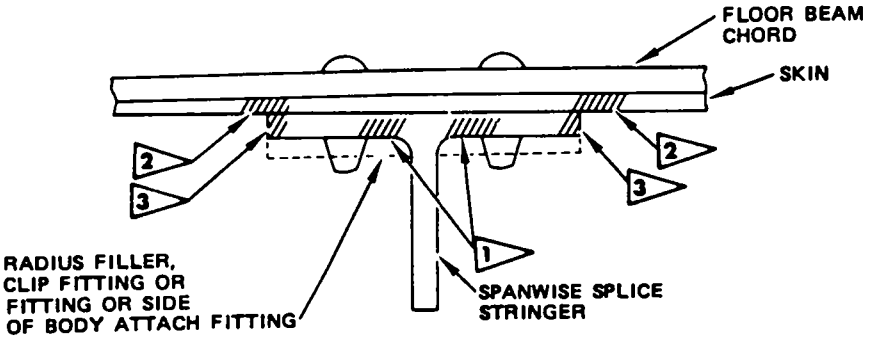


SECTION A–A

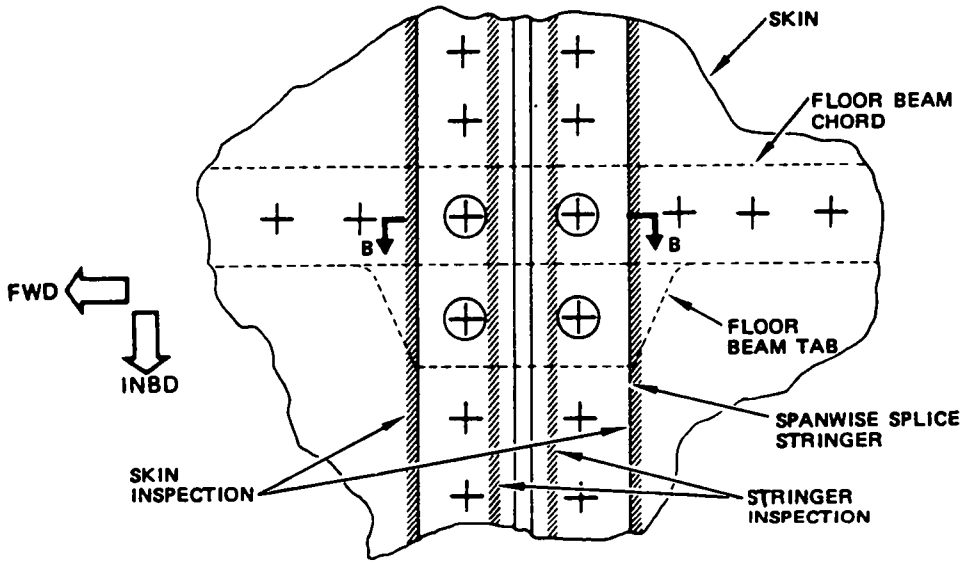


STRINGER (TYPICAL)
DETAIL III

Center Wing Upper Panel Stringers, Skin and Rear Spar
Figure 20 (Sheet 5)



SECTION B-B



NOTES

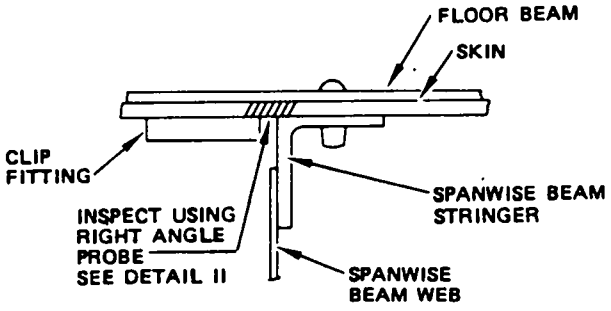
////// INSPECTION AREA

1 STRINGER INSPECTION

2 SKIN INSPECTION

3 ALTERNATE PROBE POSITION

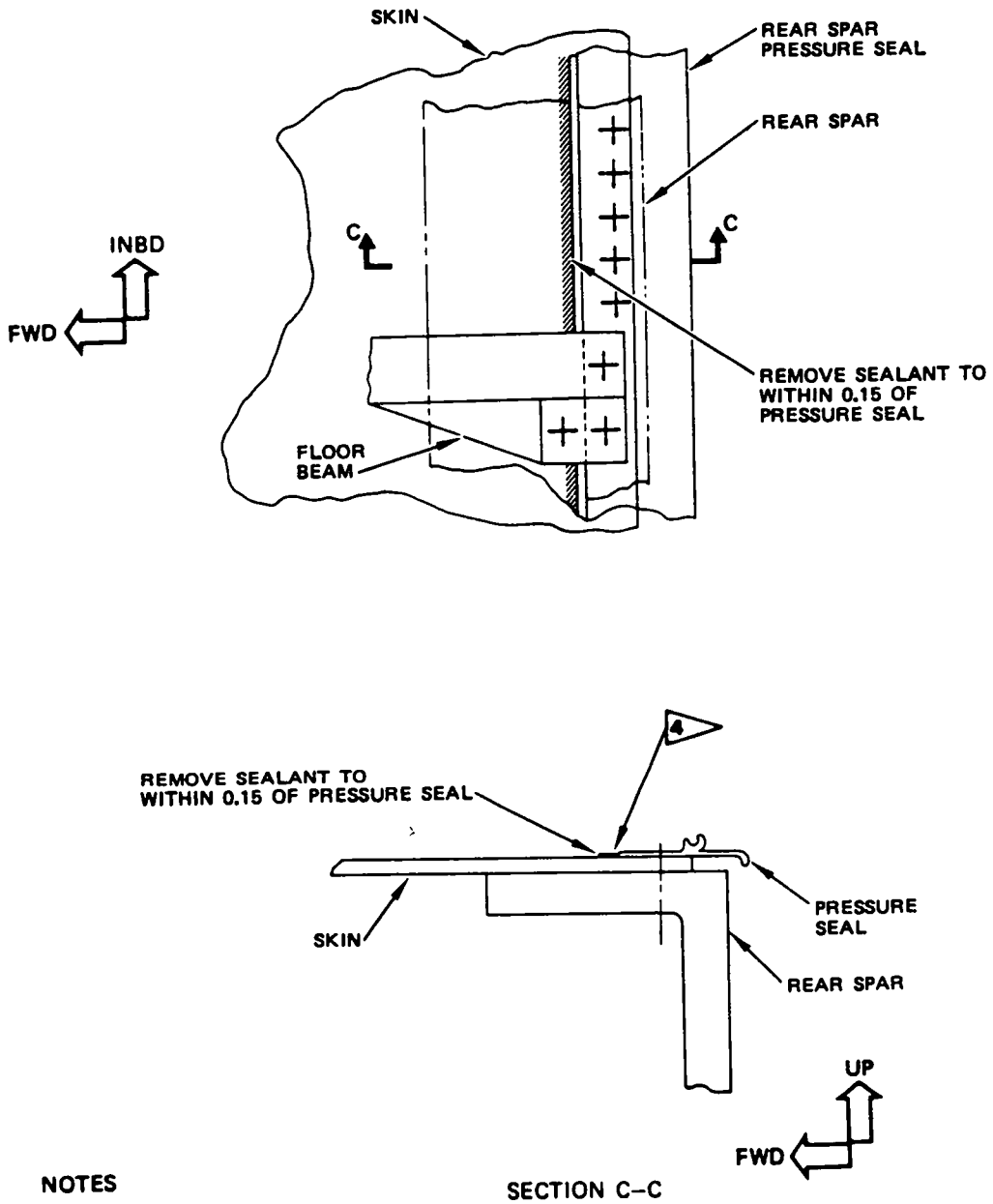
INSPECT STRINGER ALONG EITHER EDGE WHEN HORIZONTAL FLANGE IS COVERED BY RADIUS FILLER, CLIP FITTING OR SIDE OF BODY ATTACH FITTING.



TYPICAL SECTION

SPANWISE SPLICE STRINGER (TYPICAL)
DETAIL IV

Center Wing Upper Panel Stringers, Skin and Rear Spar
Figure 20 (Sheet 6)



NOTES

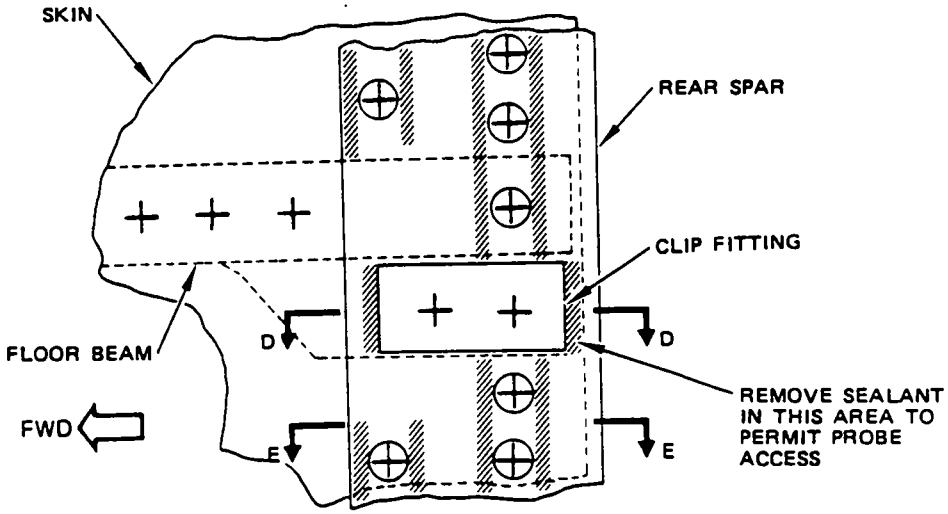
////// INSPECTION AREA

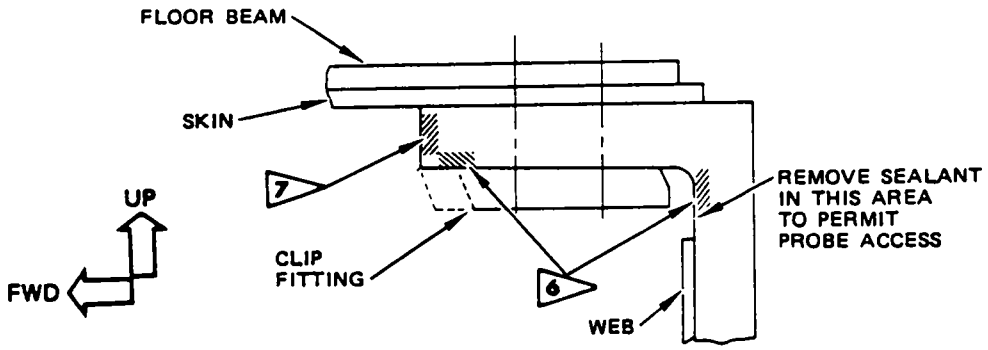
4 INSPECT WITHIN 0.15 INCH OF PRESSURE SEAL

REAR SPAR PRESSURE SEAL
DETAIL V

Center Wing Upper Panel Stringers, Skin and Rear Spar
Figure 20 (Sheet 7)

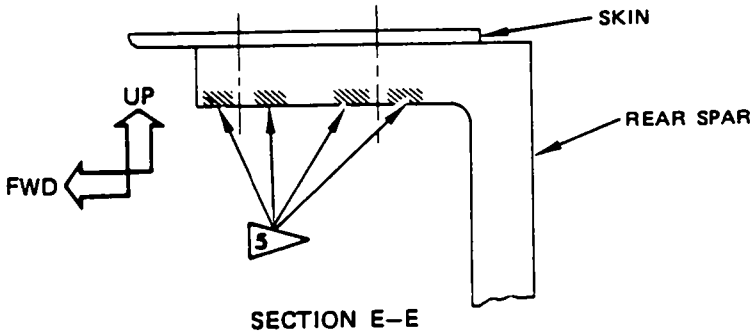
NONDESTRUCTIVE TEST





SECTION D–D

(APPLICABLE TO MODELS 720 AND 707–100/200 ONLY)



SECTION E–E

(APPLICABLE TO ALL 707 AND 720 MODELS)

NOTES

////// INSPECTION AREA

5 REAR SPAR INSPECTION TYPICAL FASTENER

6 REAR SPAR INSPECTION ABOUT SLIP FITTING

7 ALTERNATE INSPECTION IF CLIP FITTING EXTENDS TO EDGE

REAR SPAR INTERNAL INSPECTION
DETAIL VI

Center Wing Upper Panel Stringers, Skin and Rear Spar
Figure 20 (Sheet 8)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks in the lower WS 360 splice plate which intersect fastener holes. This inspection is accomplished from outside of the wing without fastener removal.

   B. To detect cracks in the splice plate along the gap between the wing skins at WS 360 splice.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec Inc.
      1320 N.W. Mall
      Issaquah, WA 98027

   B. Probes - This procedure uses four probes; any probe of similar size which will satisfy the performance requirements of this procedure is acceptable. The following probes were used in the development of this procedure.

      (1) Ring (encircling) probe with 1-inch OD and 0.5-inch ID shielding, 100 Hz, Nortec P/N SPO-783

      (2) Ring (encircling) probe with 1.1-inch OD and 0.625-inch ID shielding, 100 Hz, Nortec P/N SPO-1154

      (3) Ring probe with 0.7-inch OD and 0.3-inch ID shielding usable at 500 Hz, Nortec P/N SPO-996

      (4) Low frequency spot probe with 0.55-inch OD shielding usable at 500 Hz, Nortec P/N SPO-1125

      NOTE: Probes listed above are available from:
      Nortec Inc.
      421 N. Quay
      Kennewick, Washington 99336

      Specify instrument with which probe is to be used or instrument connector required when ordering probes.

Lower Wing Skin Splice Plate at WS 360
Figure 21 (Sheet 1)

C. Reference Standards

(1) Manufacture per Details I and III.

3. Preparation for Inspection

A. Wipe skin surface clean.

B. It is suggested that fastener locations requiring the same instrument calibration for inspection be identified on the airplane by a colored circle. Water washable crayons, pencils or felt pens are suitable. Refer to Table I and Detail V for inspection requirements.

4. Instrument Calibration

A. General

(1) Three basic inspection types are required.

(a) Inspection for fastener hole cracks using a ring probe centered on the fastener.

(b) Inspection for fastener hole cracks using a spot probe positioned adjacent to a fastener.

(c) Inspection for cracks along the WS 360 splice skin-gap using a ring probe as a spot probe.

(2) The three basic inspections require several instrument calibrations to adjust for variations in structure geometry and materials.

(3) Detail V identifies inspection coverage for a particular calibration, and Table I provides specific calibration information for that inspection.

B. Calibration for fastener hole crack inspection using the ring probe centered on the fastener. The following calibration applies to inspection codes A, B, C, and D.

(1) Identify code for fasteners to be inspected from Detail V.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

(3) Visually center probe over the unnotched reference standard hole, Position 1.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006-inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(6) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

(7) Center probe over the notched reference standard hole, Position 2. Response should be upscale.

(8) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(9) Recheck null and liftoff. If readjustments are made recheck sensitivity per par. B.(8).

(10) Cracks will be indicated by a higher meter response.

C. Calibration for cracks in the splice plate along the gap between wing skins at W.S. 360 splice using a ring probe as a spot probe. The following calibration applies to inspection codes F and G.

(1) Refer to Detail V for inspection coverage coding along WS 360 centerline.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

(3) Visually center probe over unnotched area of the skin gap on the reference standard, Position 1.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006-inch (approximately the thickness of two sheets of paper). Care should be taken to hold the probe in the same position relative to the skin gap to avoid confusion during liftoff adjustment.

Lower Wing Splice Plate at WS 360
Figure 21 (Sheet 3)

(6) Recenter the probe at Position 1 and set meter response at 20% of full scale with meter position control.

NOTE: Probe is centered over the skin gap by moving the probe across the gap to obtain a maximum meter response.

(7) Center probe over skin gap at notched location, Position 2. Meter response should be upscale.

(8) Adjust instrument sensitivity to obtain a 50% of full scale meter response difference between the notched and unnotched positions.

(9) Recheck null and liftoff. If readjustments are made, recheck sensitivity per par. C.(7).

(10) Cracks will be indicated by a higher meter response.

D. Calibration for fastener hole crack inspection using a spot probe placed adjacent to the fastener head. The following calibration applies to inspection code E.

(1) Refer to Table I for reference standard, probe, and calibration details for inspection code E.

(2) Place probe adjacent to the unnotched reference standard hole, Position 1.

(3) Balance instrument per manufacturer's instructions.

(4) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006-inch (approximately the thickness of two sheets of paper).

NOTE: Probe is located at Position 1 during liftoff calibration.

(5) With the probe adjacent to the unnotched hole Position 1, adjust meter response to read 20% of full scale with meter position control.

(6) Position probe adjacent to the notched reference standard hole, Position 2. Response should be upscale.

(7) Adjust instrument sensitivity to obtain a 50% of full scale meter response difference between the notched and unnotched holes, Positions 1 and 2.

Lower Wing Splice Plate at WS 360
Figure 21 (Sheet 4)

(8) Reposition probe at Position 1 and check null and liftoff. If readjustments are made recheck sensitivity per par. B.(7).

(9) Cracks will be indicated by a higher meter response.

5. Inspection Procedure

NOTE: An inspection code is used to identify locations having similar inspection conditions. A single instrument calibration is usually used to inspect these locations.

It is suggested that a copy of Detail V be made and that it be used to record instrument responses at each fastener location. This is helpful in maintaining continuity between the groups of fasteners during inspection.

A. Inspection of fastener holes for cracks using the ring probe centered on the fastener. Inspection codes A, B, C, and D.

(1) Accomplish inspections of codes A, B, C, and D in the order given in Table I.

(2) Calibrate instrument per par. 4.B. and Table I.

(3) Note on the airplane the location of those fasteners having the same inspection code by using Detail V.

(4) Use several fasteners of the same code to establish the airplane baseline response for an acceptable fastener.

(a) Select a representative fastener from this group and set its response to 20% of full meter scale.

NOTE: Do not change instrument sensitivity when establishing the airplane baseline response.

(b) Refer back to this fastener periodically to ensure that the instrument response is the same as originally recorded. (Changes in meter response may occur as a result of instrument drift or probe temperature change.)

(5) Inspect each fastener having the same inspection code by centering the probe on the fastener and manipulating to obtain a minimum response.

NOTE: Review the "Special Notes" called out in Table I for conditions which affect the inspection.

(6) The following are potential crack indications and further investigation is required.

(a) Fastener locations with inspection coding A or B (reference Table I) which give a response which is 30% of full meter scale higher than the established baseline.

(b) Fastener locations with inspection coding C or D (reference Table I) which give a response which is 40% of full meter scale higher than the established baseline.

NOTE: The following conditions may cause meter reading changes similar to crack indications:

1) A decrease in fastener spacing - compare with similarly spaced fasteners on the airplane.

2) End of splice plate - check Detail V for splice plate locations.

3) A larger or smaller fastener - compare with similar fasteners of reference standard and on airplane.

4) A fastener that is different in countersink depth - compare with similar fastener in standard raised to the same height.

5) A fastener close to edge of skin - compare with similar fasteners on airplane.

6) Differences in conductivity between skin panels - compare only the fastener locations common to a skin panel.

B. Inspection of the splice plate along the gap between wing skins at WS 360 splice using a ring probe as a spot probe. Inspection codes F and G.

(1) Accomplish inspection of codes F and G in the order given in Table I.

(2) Calibrate instrument per par. 4.C. and Table I.

(3) Start the inspection at Stringer S-1.

(4) Select a section of wing skin splice in the area of Stringer 1, which has fastener spacing and edge margin similar to the reference standard.

Lower Wing Splice Plate at WS 360
Figure 21 (Sheet 6)

(5) Center the probe on the skin joint at this location to establish a baseline response. Note this location and periodically refer to it to ensure that the instrument response has not changed.

NOTE: Minor adjustments to the meter position control will be required since the reference standard does not exactly duplicate the airplane structure. The minor adjustments must be made with the probe on a crack-free area of the structure. Do not change instrument sensitivity when establishing the airplane baseline response.

(a) When the maximum gap response is obtained over a crack-free area, the probe will be directly centered on the skin gap.

(b) A double check can also be made by positioning the probe over the end of the splice plate. Check Detail V for locating ends of splice plates. This will result in a typical full meter deflection, as in a crack indication. Comparing this indication with meter readings taken at other locations will aid in selecting a crack-free area for the final minor adjustments to the instrument before inspection.

(6) Inspect the length of the splice plate indicated for the particular calibration code, see Detail V. Perform the inspection by slowly scanning the probe across the skin joint (inbd/outbd direction) to obtain the maximum meter response. If inspection cannot be accomplished because fasteners are spaced too close to the edge of the skin, inspect between fasteners along the centerline of the splice plate.

NOTE: Review the "Special Notes" listed in Table I for conditions which affect the inspection.

(7) Any location which gives a response 30% of full meter scale higher than the established baseline should be investigated further.

NOTE: Metal chips trapped in the sealant at the skin joint may cause a crack-like indication. Remove sealant and reinspect.

C. Inspection of fastener holes for cracks using a spot probe adjacent to the fastener (Inspection Code E).

(1) Calibrate the instrument per par. 4.D. and Table I.

(2) Note on the airplane the location of code E fasteners using Detail V.

(3) Inspect each code E fastener by placing the probe adjacent to the fastener head and scanning about the head.

NOTE: The WS 360 skin splice may prevent a complete inspection around the fastener head. Inspect to the extent possible.

When scanning about a fastener head maintain a uniform distance between probe and fastener head.

(4) Any location hich gives a response which is 30% of full meter scale higher than the baseline response should be investigated further.

NOTES:

1> The specific areas, identified on Detail V, to which the calibration requirements apply.

2> Probe Identification

(1)	P/N SPO-783	1-inch OD and 0.5-inch ID Ring Probe
(2)	P/N SPO-1154	1.1-inch OD and 0.62-inch ID Ring Probe
(3)	P/N SPO-996	0.7-inch OD and 0.3 ID (Ring Probe) Used as a Spot Probe
(4)	P/N SPO-1125	0.55-inch OD Spot Probe

3> The flagnote refers to the "Probe Position for Calibration" detail and identifies that part of the reference standard used for this calibration.

4> The baseline response may be established for fasteners at stringer ends by comparing with similar adjacent fasteners common to the stringer end being inspected which are further away from WS 360. See Detail V for typical example.

5> The inboard skin panel forward of stringer S-14 is chamfered along the inner edge at WS 360. This loss of material causes the probe to obtain its maximum response when it is approximately 0.25-inch off center of skin gap towards the inboard side. Readjust liftoff, re-establish the baseline response and inspect in the same manner.

6> Do not inspect the aft side of fastener numbers 1061 and 1064 for cum line numbers 581, 597, 615, 621 and 624 and fastener numbers 1027 and 1031 for all other 720 airplanes (the two most aft fasteners common to the front spar) because of short edge margin of internal structure.

Lower Wing Splice Plate at WS 360
Figure 21 (Sheet 8)

INSPECTION CODE (1)	REFERENCE STANDARD NO.	PROBE IDENTIFICATION (2)	INSTRUMENT FREQUENCY HZ	DETAIL NO. FOR CALIBRATION	PROBE CALIBRATION POSITION (3)	SPECIAL NOTES
A	010	(1)	100	II	A	
B	011	(1)	100	IV	A	(4)
C	010	(2)	100	II	C	(4)
D	011	(2)	100	IV	C	
E	011	(4)	500	IV	A	(6)
F	010	(3)	500	II	B	
G	011	(3)	500	IV	B	(5)

CALIBRATION TABLE
TABLE I

NOTES

(1) The specific areas, identified on Detail V, to which the calibration requirements apply.

(2) Probe Identification
- (1) P/N SPO-783 1-inch OD and 0.5-inch ID ring probe
- (2) P/N SPO-1154 1.1-inch OD and 0.62-inch ID ring probe
- (3) P/N SPO-996 0.7-inch OD and 0.3-inch ID (ring probe) used as a spot probe
- (4) P/N SPO-1125 0.55-inch OD spot probe

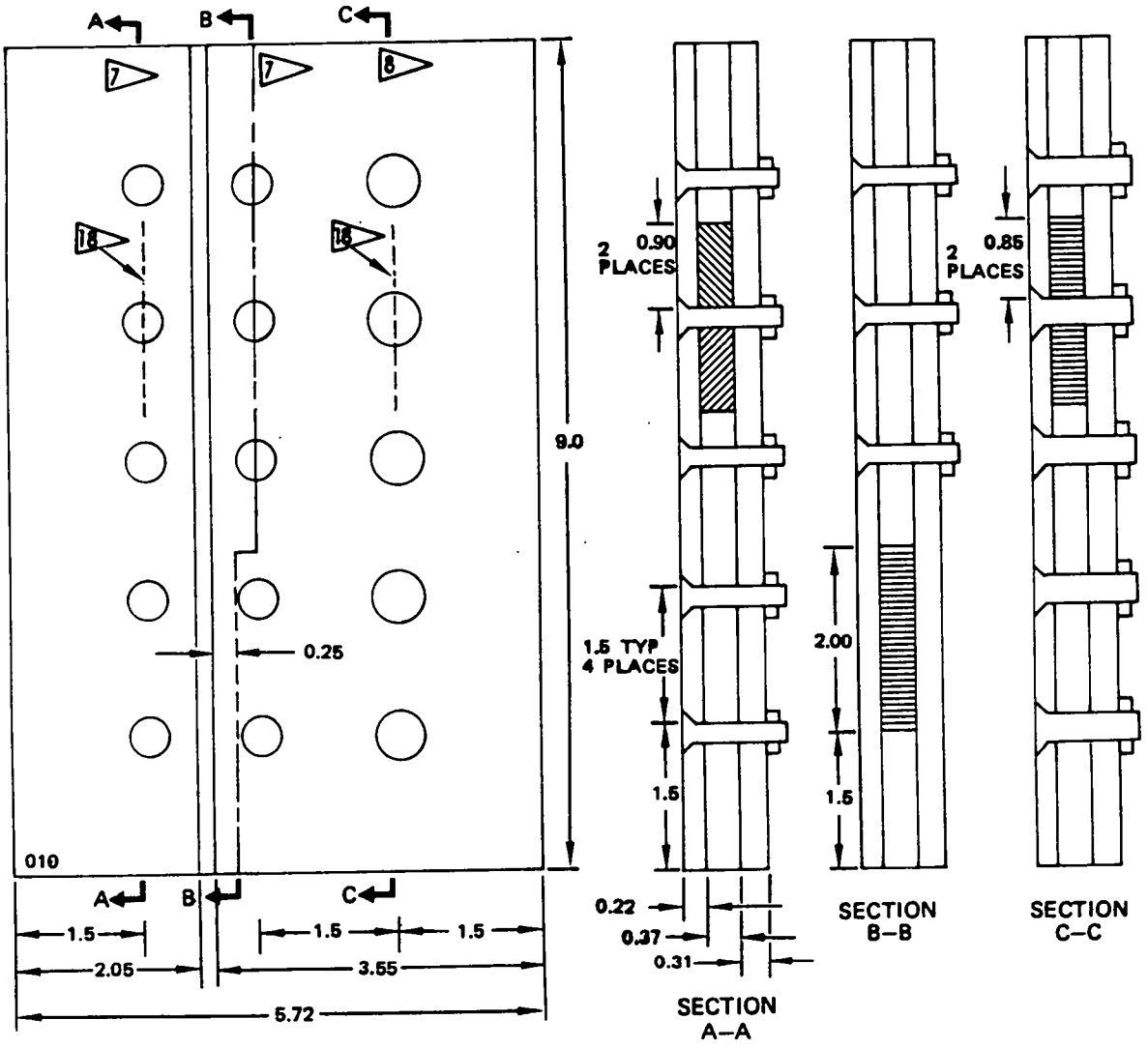
(3) The flagnote refers to the "Probe Position for Calibration" detail and identifies that part of the reference standard used for this calibration.

(4) The baseline response may be established for fasteners at stringer ends by comparing with similar adjacent fasteners common to the stringer end being inspected which are further away from WS 360. See Detail V for typical example.

(5) The inboard skin panel forward of stringer S-14 is chamfered along the inner edge at WS 360. This loss of material causes the probe to obtain its maximum response when it is approximately 0.25-inch off center of skin gap towards the inboard side. Readjust liftoff, re-establish the baseline response and inspect in the same manner.

(6) Do not inspect the aft side of fastener numbers 1061 and 1064 for cum line numbers 581, 597, 615, 621 and 624 and fastener numbers 1027 and 1031 for all other 720 airplanes. (The two most aft fasteners common to the front spar) because of short edge margin of internal structure.

Lower Wing Splice Plate at WS 360
Figure 21 (Sheet 9)



NOTES

- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T3 OR T–4 ALUMINUM
- TOLERANCE: X.X ± 0.05 X.XX ± 0.02 X.XXX ± 0.005
- ETCH OR STEEL STAMP WITH 010
- P/N 6412–38
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

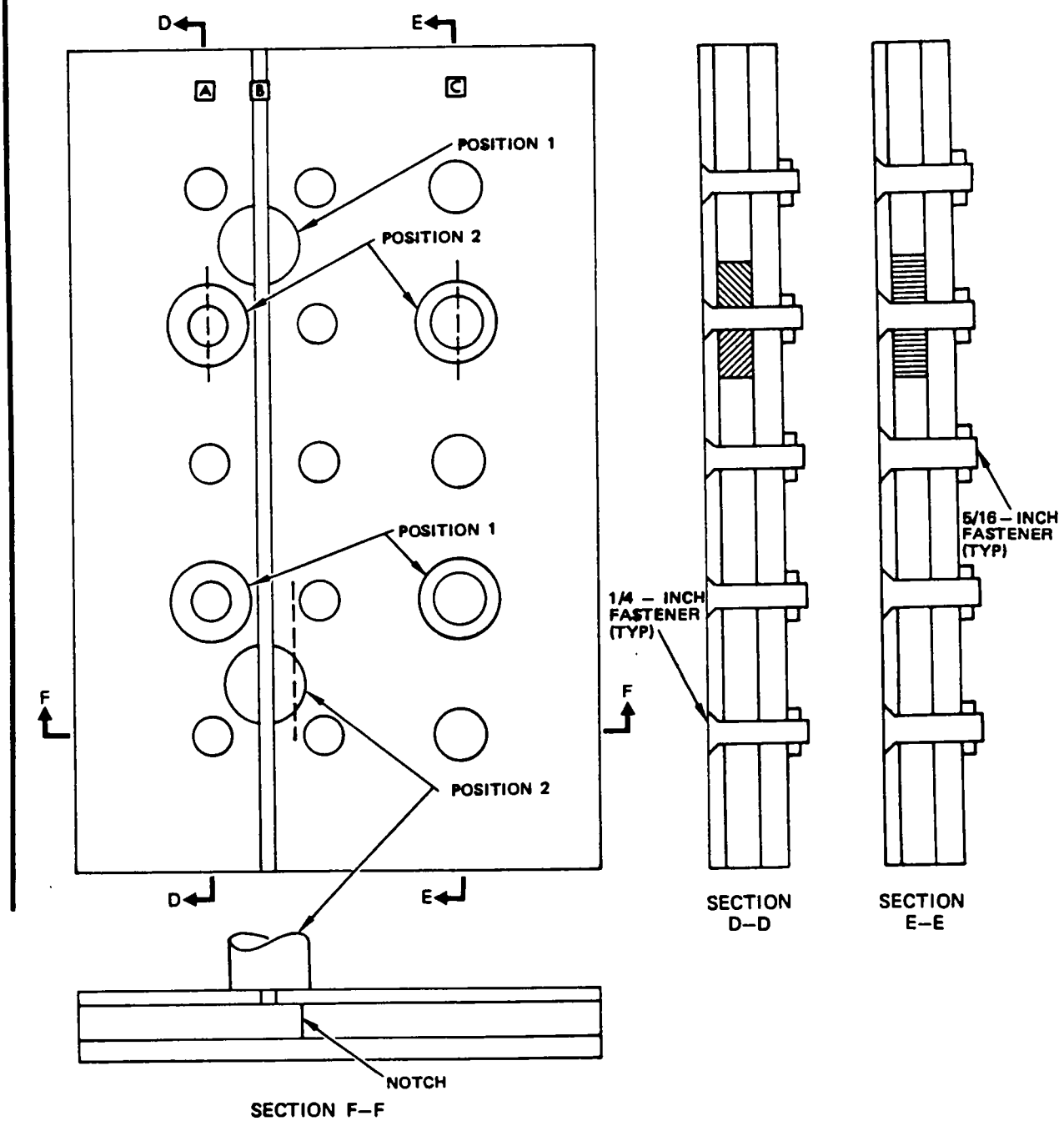
7 BACB30LU4–14 FASTENER, BACN10JC4 NUT (10 PLACES)

8 BACB30FN10–14 FASTENER, BACN10JC5 NUT (5 PLACES)

18 JEWELER'S SAWCUT 0.030 MAX WIDTH (4 PLACES)

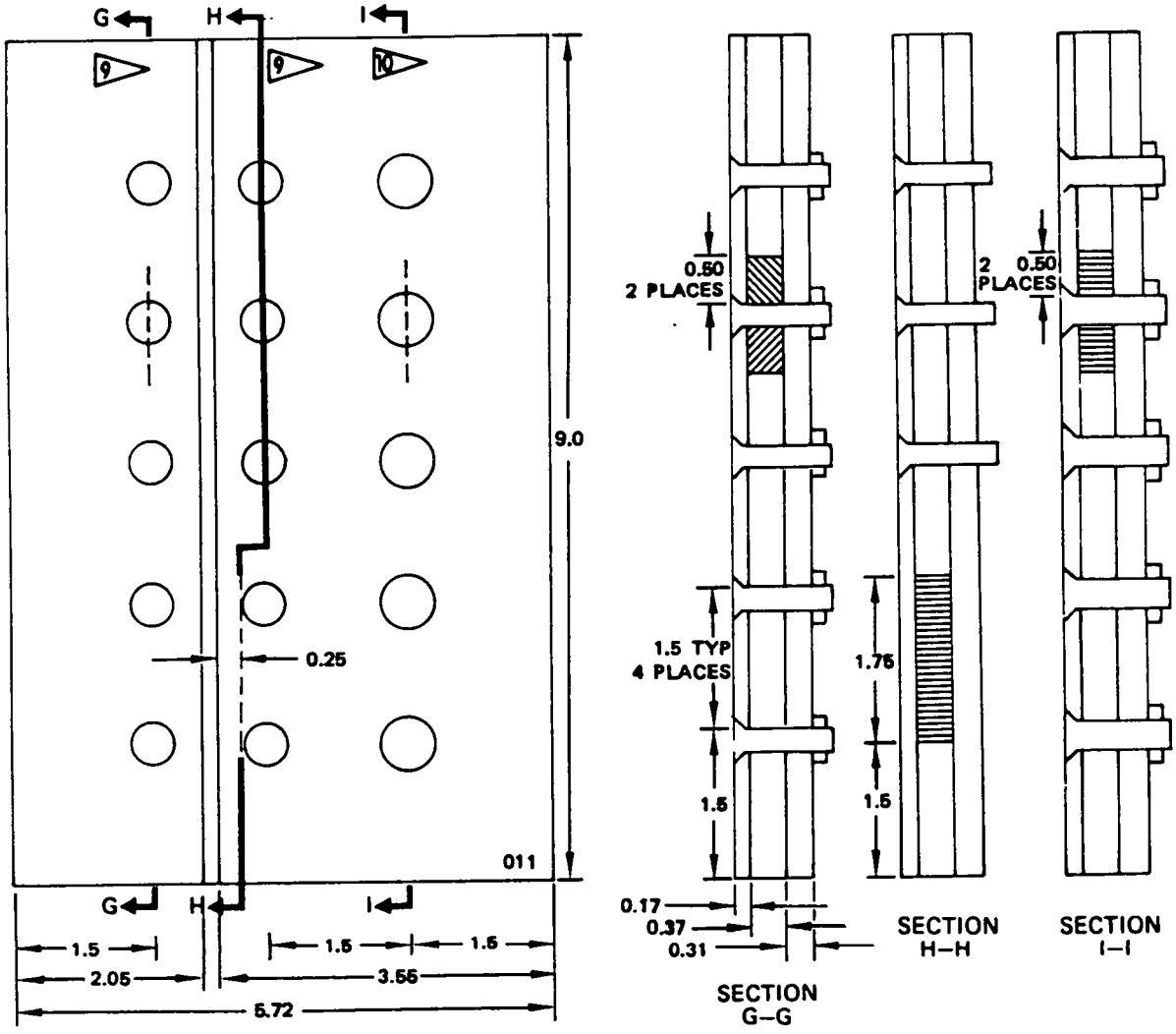
REFERENCE STANDARD 010
DETAIL I

Lower Wing Splice Plate at WS 360
Figure 21 (Sheet 10)



PROBE POSITION FOR CALIBRATION ON REFERENCE STANDARD 010
DETAIL II

Lower Wing Splice Plate at WS 360
Figure 21 (Sheet 11)



NOTES

- MATERIAL: 2024–T3, T4 ALUMINUM
- TOLERANCE: X.X ± 0.05 X.XX ± 0.02 X.XXX ± 0.005
- P/N 6412–39
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110
- ETCH OR STEEL STAMP WITH 011

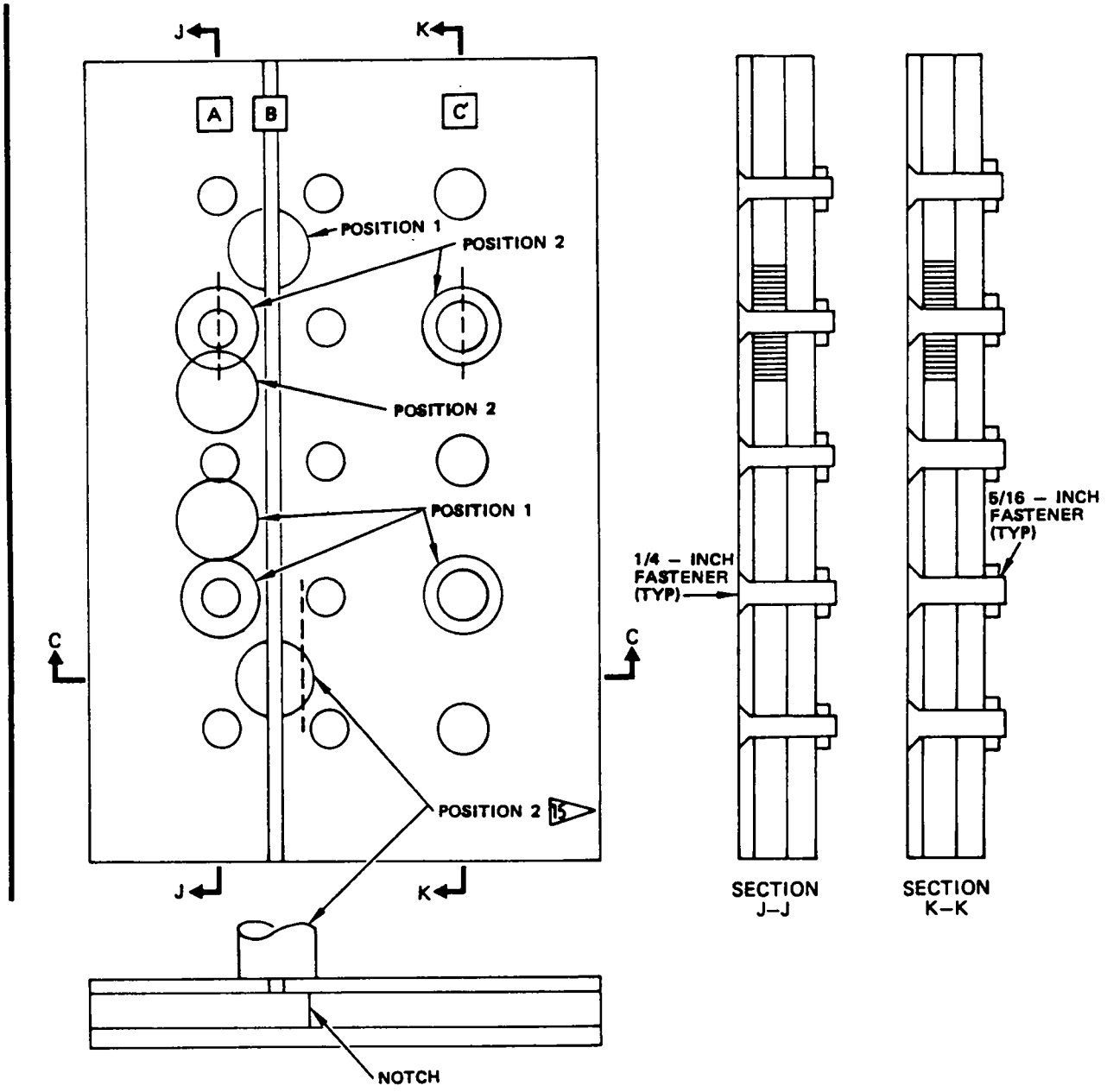
9 BACB30LU4–14 FASTENER BACN10JC4 NUT (10 PLACES)

10 BACB30LU5–14 FASTENER BACN10JC5 NUT (5 PLACES)

18 JEWELERS SAWCUT 0.030 MAX WIDTH (5 PLACES)

REFERENCE STANDARD 011
DETAIL III

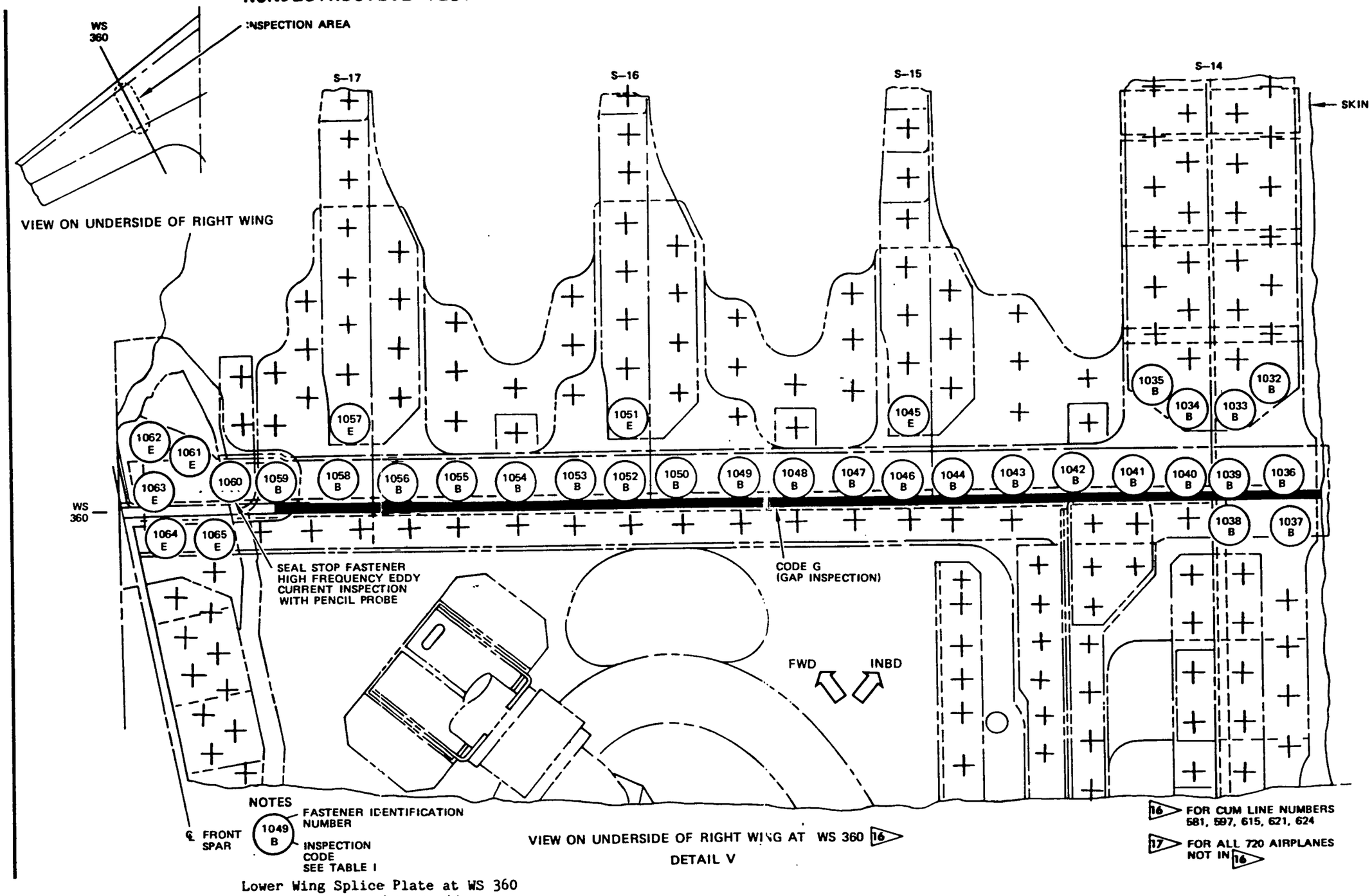
Lower Wing Splice Plate at WS 360
Figure 21 (Sheet 12)



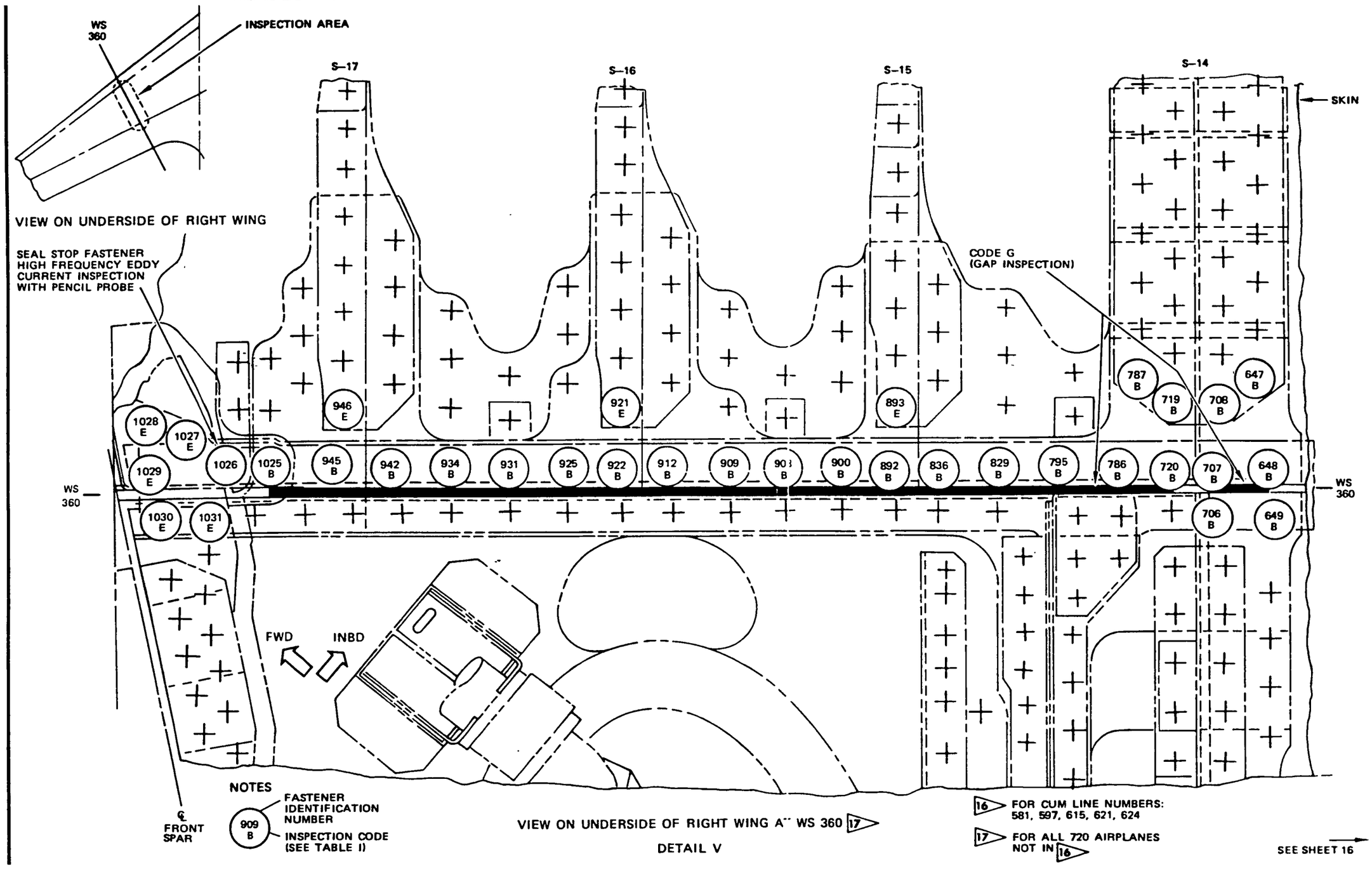
PROBE POSITION FOR CALIBRATION ON REFERENCE STANDARD 011

DETAIL IV

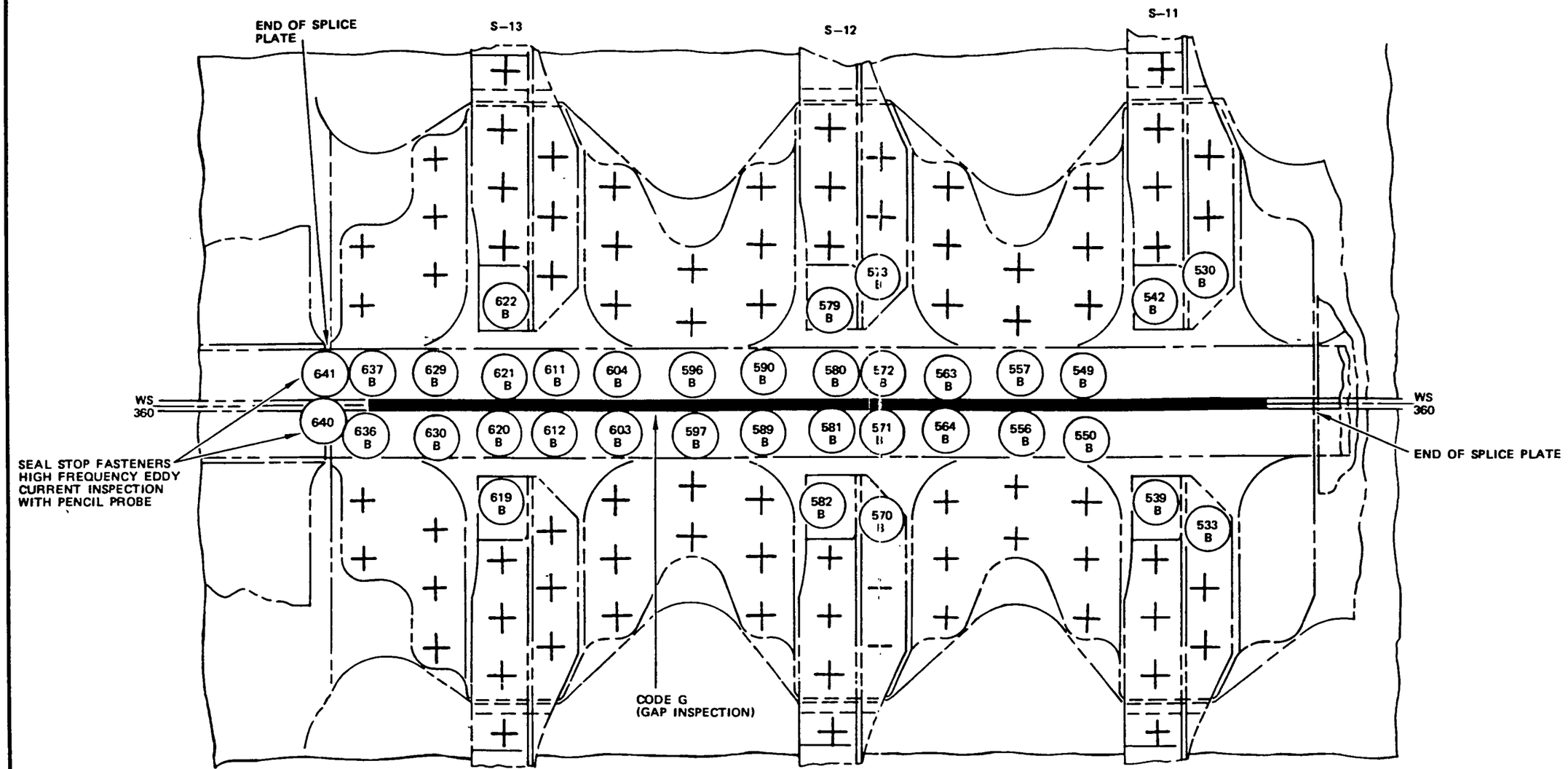
Lower Wing Splice Plate at WS 360
Figure 21 (Sheet 13)



Lower Wing Splice Plate at WS 360
Figure 21 (Sheet 14)



Lower Wing Splice Plate at WS 360
Figure 21 (Sheet 15)



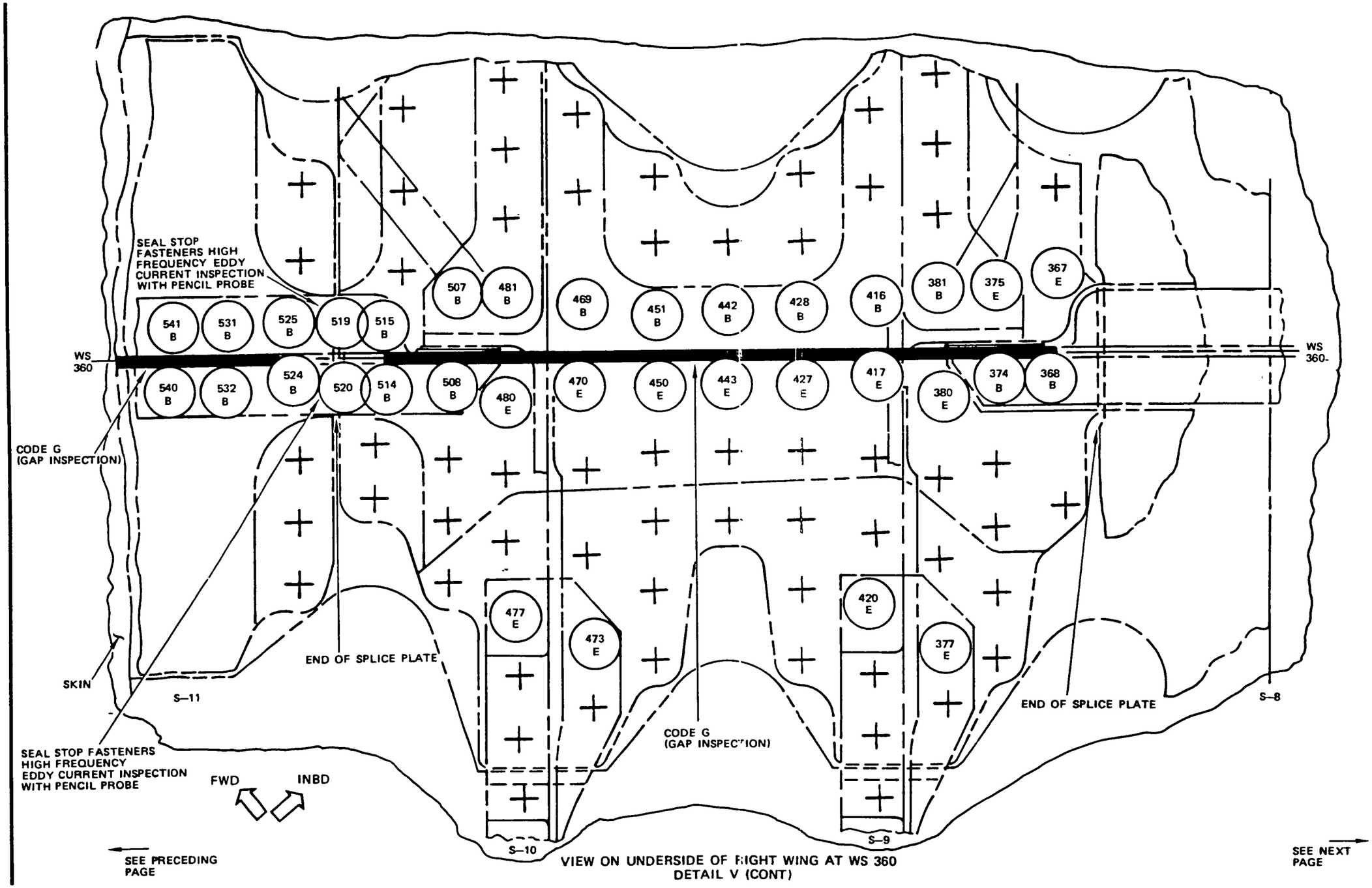
SEE PRECEDING PAGE

VIEW ON UNDERSIDE OF RIGHT WING AT WS 360

DETAIL V (CONT)

SEE NEXT PAGE

Lower Wing Splice Plate at WS 360
Figure 21 (Sheet 16)

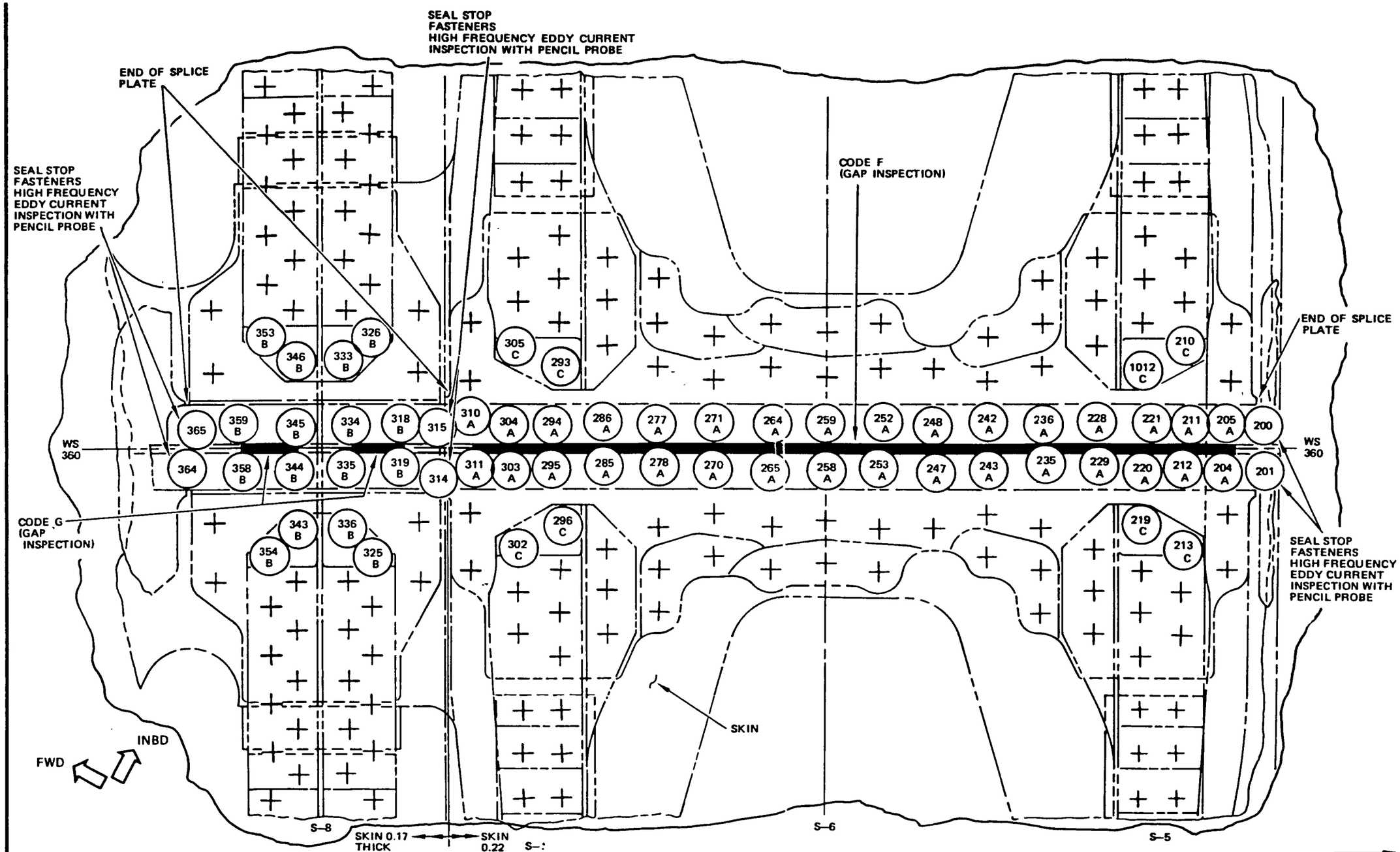


SEE PRECEDING PAGE

VIEW ON UNDERSIDE OF RIGHT WING AT WS 360
DETAIL V (CONT)

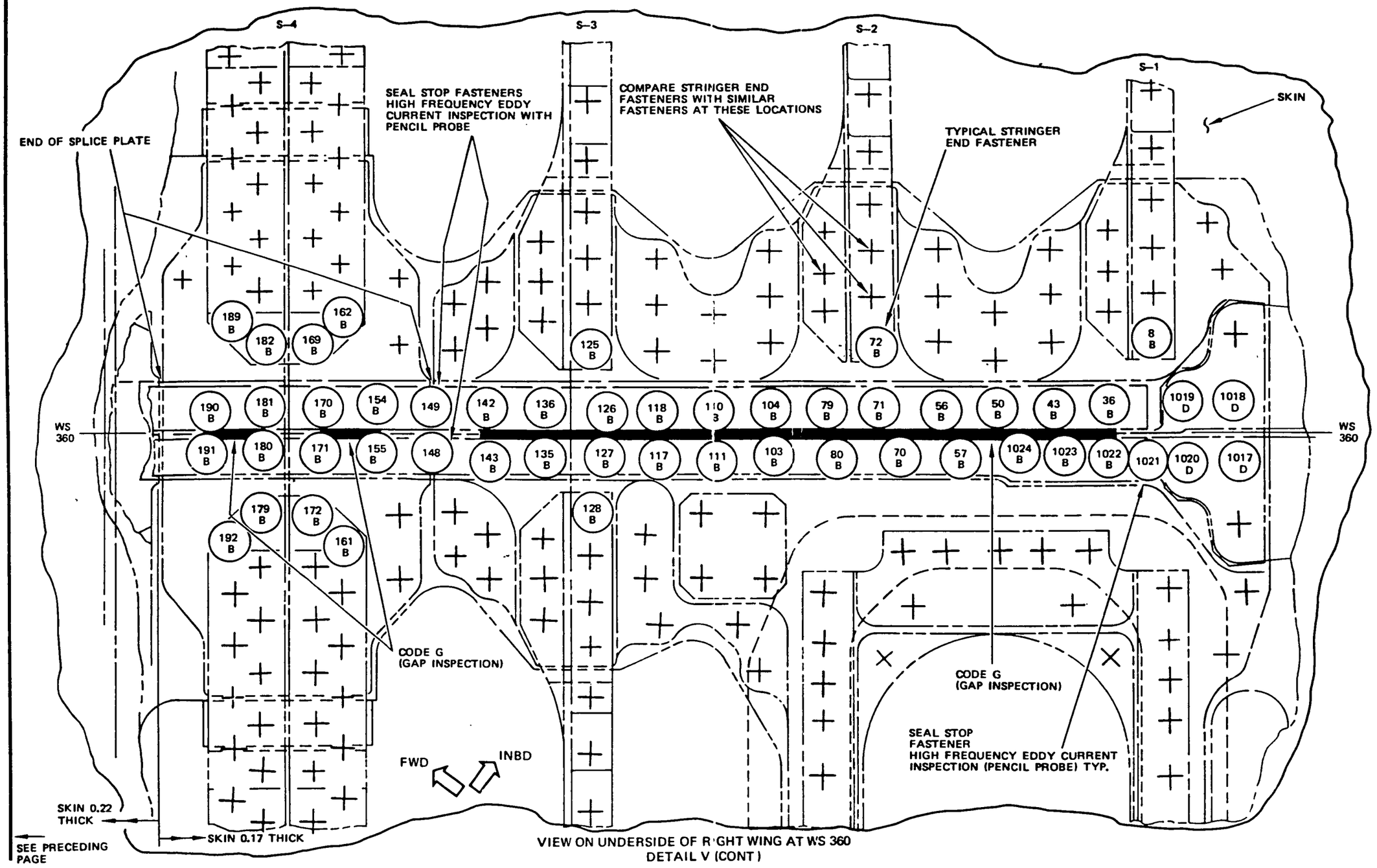
SEE NEXT PAGE

Lower Wing Splice Plate at WS 360
Figure 21 (Sheet 17)



VIEW ON UNDERSIDE OF RIGHT WING AT WS 360
DETAIL V (CONT)

Lower Wing Splice Plate at WS 360
Figure 21 (Sheet 18)



Lower Wing Splice Plate at WS 360
Figure 21 (Sheet 19)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks in the lower WS 360 splice plate which intersect fastener holes. This inspection is accomplished from outside of the wing without fastener removal.

   B. To detect cracks in the splice plate along the gap between the wing skins at WS 360 splice.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec Inc.
      1320 N.W. Mall
      Issaquah, WA 98027

   B. Probes - This procedure uses four probes; any probe of similar size which will satisfy the performance requirements of this procedure is acceptable. The following probes were used in the development of this procedure.

      (1) Ring (encircling) probe with 1-inch OD and 0.5 -inch ID shielding, 100 Hz, Nortec P/N SPO-783

      (2) Ring (encircling) probe with 1.1-inch OD and 0.625-inch ID shielding, 100 Hz, Nortec P/N SPO-1154

Lower Wing Splice Plate at WS 360
Figure 22 (Sheet 1)

(3) Ring probe with 0.7-inch OD and 0.3-inch ID shielding usable at 500 Hz, Nortec P/N SPO-996

(4) Low frequency spot probe with 0.55-inch OD shielding usable at 500 Hz, Nortec P/N SPO-1125

NOTE: Probes listed above are available from:
Nortec Inc.
421 N. Quay
Kennewick, Washington 99336

Specify instrument with which probe is to be used or instrument connector required when ordering probes.

C. Reference Standards

(1) Manufacture per Details I and III

3. Preparation for Inspection

A. Wipe skin surface clean.

B. It is suggested that fastener locations requiring the same instrument calibration for inspection be identified on the airplane by a colored circle. Water washable crayons, pencils or felt pens are suitable. Refer to Table I and Detail V for inspection requirements.

4. Instrument Calibration

A. General

(1) Three basic inspection types are required.

(a) Inspection for fastener hole cracks using a ring probe centered on the fastener.

(b) Inspection for fastener hole cracks using a spot probe positioned adjacent to a fastener.

(c) Inspection for cracks along the WS 360 splice skin-gap using a ring probe as a spot probe.

(2) The three basic inspections require several instrument calibrations to adjust for variations in structure geometry and materials.

(3) Detail V identifies inspection coverage for a particular calibration, and Table I provides specific calibration information for that inspection.

B. Calibration for fastener hole crack inspection using the ring probe centered on the fastener. The following calibration applies to inspection codes A and B.

(1) Identify code for fasteners to be inspected from Detail V.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

(3) Visually center probe over the unnotched reference standard hole, Position 1.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(6) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

(7) Center probe over the notched reference standard hole, Position 2. Response should be upscale.

(8) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(9) Recheck null and liftoff. If readjustments are made recheck sensitivity per par. B.(8).

(10) Cracks will be indicated by a higher meter response.

C. Calibration for cracks in the splice plate along the gap between wing skins at W.S. 360 splice using a ring probe as a spot probe. The following calibration applies to inspection codes D and E.

(1) Refer to Detail V for inspection coverage coding along WS 360 centerline.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

Lower Wing Splice Plate at WS 360
Figure 22 (Sheet 3)

(3) Visually center probe over unnotched area of the skin gap on the reference standard, Position 1.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006-inch (approximately the thickness of two sheets of paper). Care should be taken to hold the probe in the same position relative to the skin gap to avoid confusion during liftoff adjustment.

(6) Recenter the probe at Position 1 and set meter response at 20% of full scale with meter position control.

NOTE: Probe is centered over the skin gap by moving the probe across the gap to obtain a maximum meter response.

(7) Center probe over skin gap at notched location, Position 2. Meter response should be upscale.

(8) Adjust instrument sensitivity to obtain a 50% of full scale meter response difference between the notched and unnotched positions.

(9) Recheck null and liftoff. If readjustments are made, recheck sensitivity per par. C.(8).

(10) Cracks will be indicated by a higher meter response.

D. Calibration for fastener hole crack inspection using a spot probe placed adjacent to the fastener head. The following calibration applies to inspection code C.

(1) Refer to Table I for reference standard, probe, and calibration details for inspection code C.

(2) Place probe adjacent to the unnotched reference standard hole, Position 1.

(3) Balance instrument per manufacturer's instructions.

(4) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006-inch (approximately the thickness of two sheets of paper).

NOTE: Probe is located at Position 1 during liftoff calibration.

Lower Wing Splice Plate at WS 360
Figure 22 (Sheet 4)

(5) With the probe adjacent to the unnotched hole Position 1, adjust meter response to read 20% of full scale with meter position control.

(6) Position probe adjacent to the notched reference standard hole, Position 2. Response should be upscale.

(7) Adjust instrument sensitivity to obtain a 50% of full scale meter response difference between the notched and unnotched holes, Positions 1 and 2.

(8) Reposition probe at Position 1 and check null and liftoff. If readjustments are made recheck sensitivity per par. B.(7).

(9) Cracks will be indicated by a higher meter response.

5. Inspection Procedure

NOTE: An inspection code is used to identify locations having similar inspection conditions. A single instrument calibration is usually used to inspect these locations.

It is suggested that a copy of Detail V be made and that it be used to record instrument responses at each fastener location. This is helpful in maintaining continuity between the groups of fastener during inspection.

A. Inspection of fastener holes for cracks using the ring probe centered on the fastener. Inspection codes A and B.

(1) Accomplish inspections of codes A and B in the order given in Table I.

(2) Calibrate instrument per par. 4.B. and Table I.

(3) Note on the airplane the location of those fasteners having the same inspection code by using Detail V.

(4) Use several fasteners of the same code to establish the airplane baseline response for an acceptable fastener.

(a) Select a representative fastener from this group and set its response to 20% of full meter scale.

NOTE: Do not change instrument sensitivity when establishing the airplane baseline response.

(b) Refer back to this fastener periodically to ensure that the instrument response is the same as originally recorded. (Changes in meter response may occur as a result of instrument drift or probe temperature change.)

Lower Wing Splice Plate at WS 360
Figure 22 (Sheet 5)

(5) Inspect each fastener having the same inspection code by centering the probe on the fastener and manipulating to obtain a minimum response.

NOTE: Review the "Special Notes" called out in Table I for conditions which affect the inspection.

(6) The following are potential crack indications and further investigation is required.

(a) Fastener locations with inspection coding A (Ref Table I) which give a response which is 30% of full meter scale higher than the established baseline.

(b) Fastener locations with inspection coding B (Ref Table I) which give a response which is 40% of full meter scale higher than the established baseline.

NOTE: The following conditions may cause meter reading changes similar to crack indications:

1) A decrease in fastener spacing - compare with similarly spaced fasteners on the airplane.

2) End of splice plate - check Detail V for splice plate locations.

3) A larger or smaller fastener - compare with similar fasteners of reference standard and on airplane.

4) A fastener that is different in countersink depth - compare with similar fastener in standard raised to the same height.

5) A fastener close to edge of skin - compare with similar fasteners on airplane.

6) Differences in conductivity between skin panels - compare only the fastener location common to a skin panel.

B. Inspection of the splice plate along the gap between wing skins at WS 360 splice using a ring probe as a spot probe. Inspection codes D and E.

(1) Accomplish inspection of codes D and E, in the order given in Table I.

Lower Wing Splice Plate at WS 360
Figure 22 (Sheet 6)

(2) Calibrate instrument per par. 4.C. and Table I.

(3) Start the inspection at Stringer S-1.

(4) Select a section of wing skin splice in the area of Stringer S-1, which has fastener spacing and edge margin similar to the reference standard.

(5) Center the probe on the skin joint at this location to establish a baseline response. Note this location and periodically refer to it to ensure that the instrument response has not changed.

NOTE: Minor adjustments to the meter position control will be required since the reference standard does not exactly duplicate the airplane structure. The minor adjustments must be made with the probe on a crack-free area of the structure. Do not change instrument sensitivity when establishing the airplane baseline response.

(a) When the maximum gap response is obtained over a crack-free area, the probe will be directly centered on the skin gap.

(b) A double check can also be made by positioning the probe over the end of the splice plate. Check Detail V for locating ends of splice plates. This will result in a typical full meter deflection, as in a crack indication. Comparing this indication with meter readings taken at other locations will aid in selecting a crack-free area for the final minor adjustments to the instrument before inspection.

(6) Inspect the length of the splice plate indicated for the particular calibration code, see Detail V. Perform the inspection by slowly scanning the probe across the skin joint (inbd/outbd direction) to obtain the maximum meter response. If inspection cannot be accomplished because fasteners are spaced too close to the edge of the skin, inspect between fasteners along the centerline of the splice plate.

NOTE: Review the "Special Notes" listed in Table I for conditions which affect the inspection.

(7) Any location which gives a response 30% of full meter scale higher than the established baseline should be investigated further.

NOTE: Metal chips trapped in the sealant at the skin joint may cause a crack-like indication. Remove sealant and reinspect.

Lower Wing Splice Plate at WS 360
Figure 22 (Sheet 7)

C. Inspection of fastener holes for cracks using a spot probe adjacent to the fastener (inspection code C).

(1) Calibrate the instrument per par. 4.D. and Table I.

(2) Note on the airplane the location of code C fasteners using Detail V.

(3) Inspect each code C fastener by placing the probe adjacent to the fastener head and scanning about the head.

NOTE: The WS 360 skin splice may prevent a complete inspection around the fastener head. Inspect to the extent possible.

When scanning about a fastener head maintain a uniform distance between probe and fastener head.

(4) Any location which gives a response which is 30% of full meter scale higher than the baseline response should be investigated further.

INSPECTION CODE [1]	REFERENCE STANDARD NO.	PROBE IDENTIFICATION [2]	INSTRUMENT FREQUENCY HZ	DETAIL NO. FOR CALIBRATION	PROBE CALIBRATION POSITION [3]	SPECIAL NOTES
A	017	(1)	100	II	A	4, 8
B	017	(2)	100	II	C	4
C	018	(3)	500	IV	A	5
D	017	(4)	300	II	B	6
E	018	(4)	500	IV	B	7

CALIBRATION TABLE
TABLE I

NOTES:

[1] Code for specific inspection areas identified on Detail V to which the calibration requirements apply.

[2] Probe Identification:

(1) P/N SPO-783 - 1-inch OD and 0.5-inch ID ring probe
(2) P/N SPO-1154 - 1.1-inch OD and 0.62-inch ID ring probe
(3) P/N SPO-1125 - 0.55-inch OD shielding, spot probe
(4) P/N SPO-996 - 0.70-inch OD and 0.3-inch (ring probe) used as a spot probe

Lower Wing Splice Plate at WS 360
Figure 22 (Sheet 8)

3 Flagnote refers to "Probe Position for Calibration" details (Details II and IV, as indicated in this table) and identifies that part of the reference standard used for this calibration.

4 Fastener locations at stringer ends may be compared with similar adjacent fasteners common to the stringer end being inspected and further away from WS 360. See Detail V (typical example).

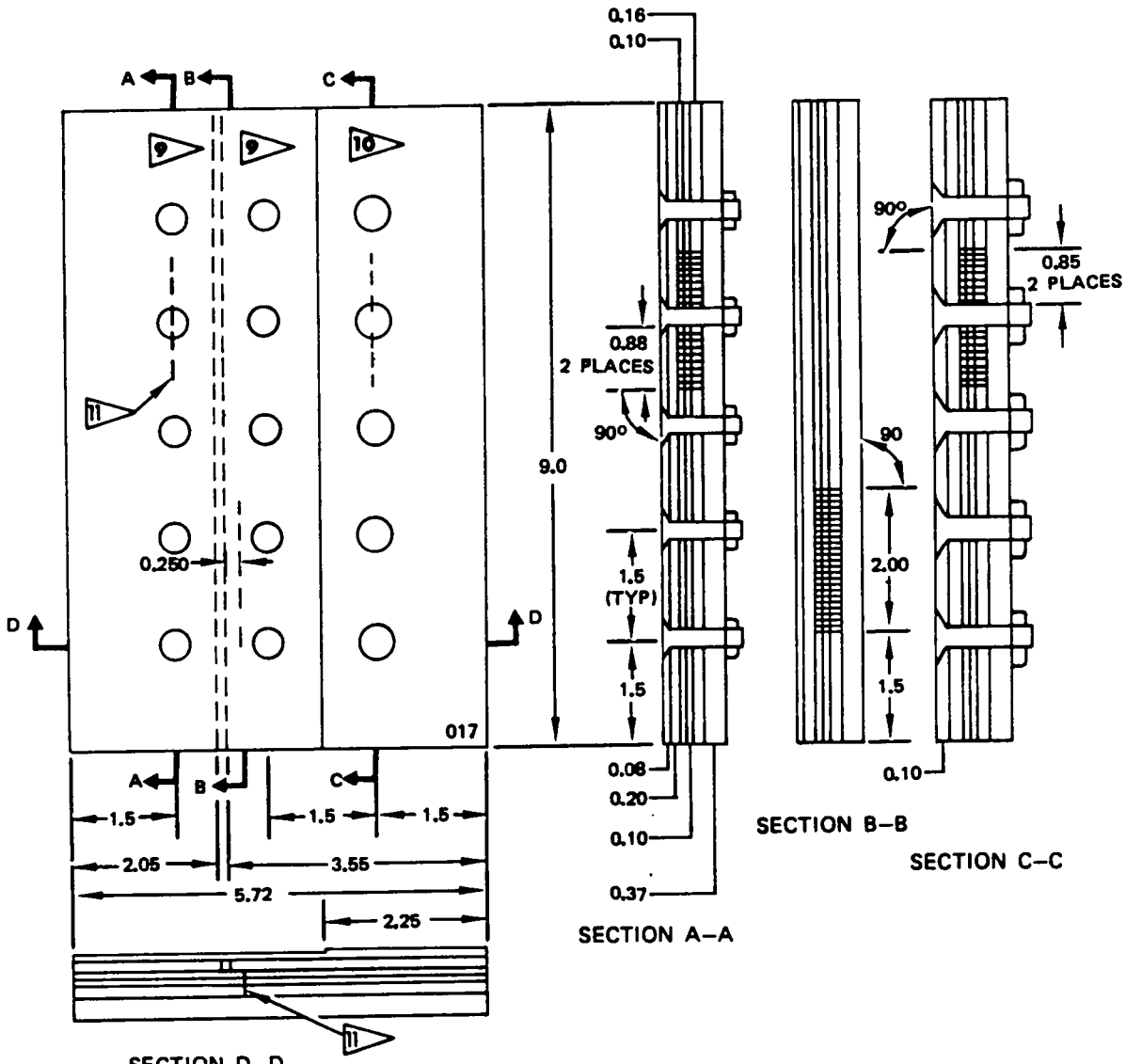
5 No inspection on the aft side of fastener numbers 212, 213, 116 or the forward side of fastener 141 due to interference from shorter edge margin to second layer structure.

6 The baseline response will increase approximately 50% of full meter scale when going forward or stringer S-4 due to an increase in skin thickness.

7 The inboard skin panel forward of stringer S-14 is chamfered along the inner edge at WS 360. This loss of material causes the probe to obtain its maximum response when it is approximately 0.3-inch off center of skin gap towards the inboard side. The baseline response for this condition will be approximately 50% of full meter scale lower than the baseline response established between stringer S-9 and S-13. Readjust liftoff, re-establish the baseline response and inspect in same manner.

8 Fastener numbers 188, 189, 190, 196, 198, and 211 will give approximately 20% of full meter scale higher response due to larger diameter heads.

Lower Wing Splice Plate at WS 360
Figure 22 (Sheet 9)



NOTES

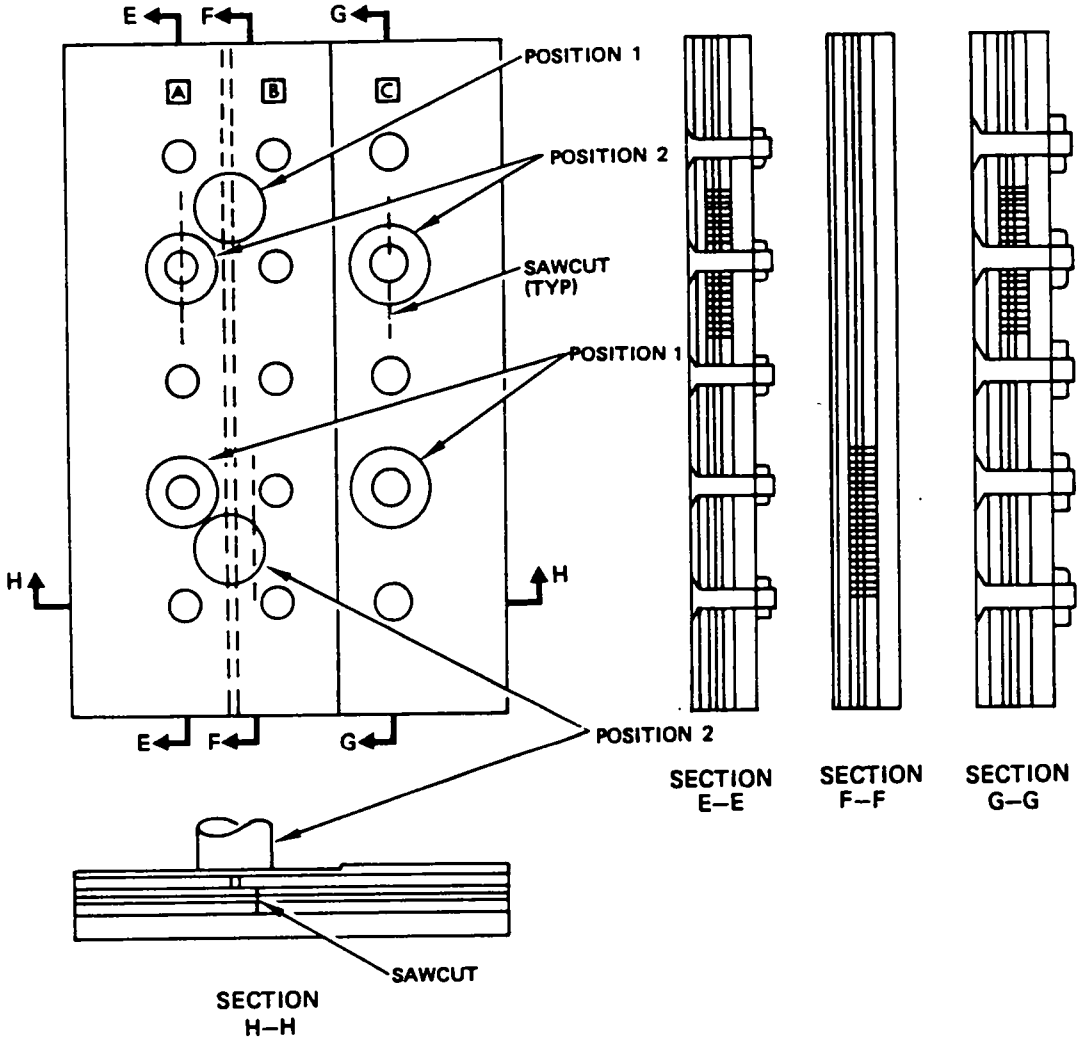
- TOLERANCE: X.X ± 0.05 X.XX ± 0.02 X.XXX ± 0.005
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T3 OR T4 ALUMINUM
- ETCH OR STEEL STAMP WITH 017
- P/N 6412-40
  AVAILABLE FROM IDEAL SPECIALTY CO.,
  2531 E. INDEPENDENCE
  TULSA, OKLA. 74110

9 BACB30FN8–16 FASTENER
BACC30M8 COLLAR (10 PLACES)

10 BACB30FN10–16 FASTENER
BACC30M10 COLLAR (5 PLACES)

11 JEWELER'S SAWCUT 0.030 MAX WIDTH (3 PLACES)

REFERENCE STANDARD 017
DETAIL I
Lower Wing Splice Plate at WS 360
Figure 22 (Sheet 10)



NOTES

[A] PROBE CALIBRATION POSITIONS (REF TABLE I, CALIBRATION TABLE)

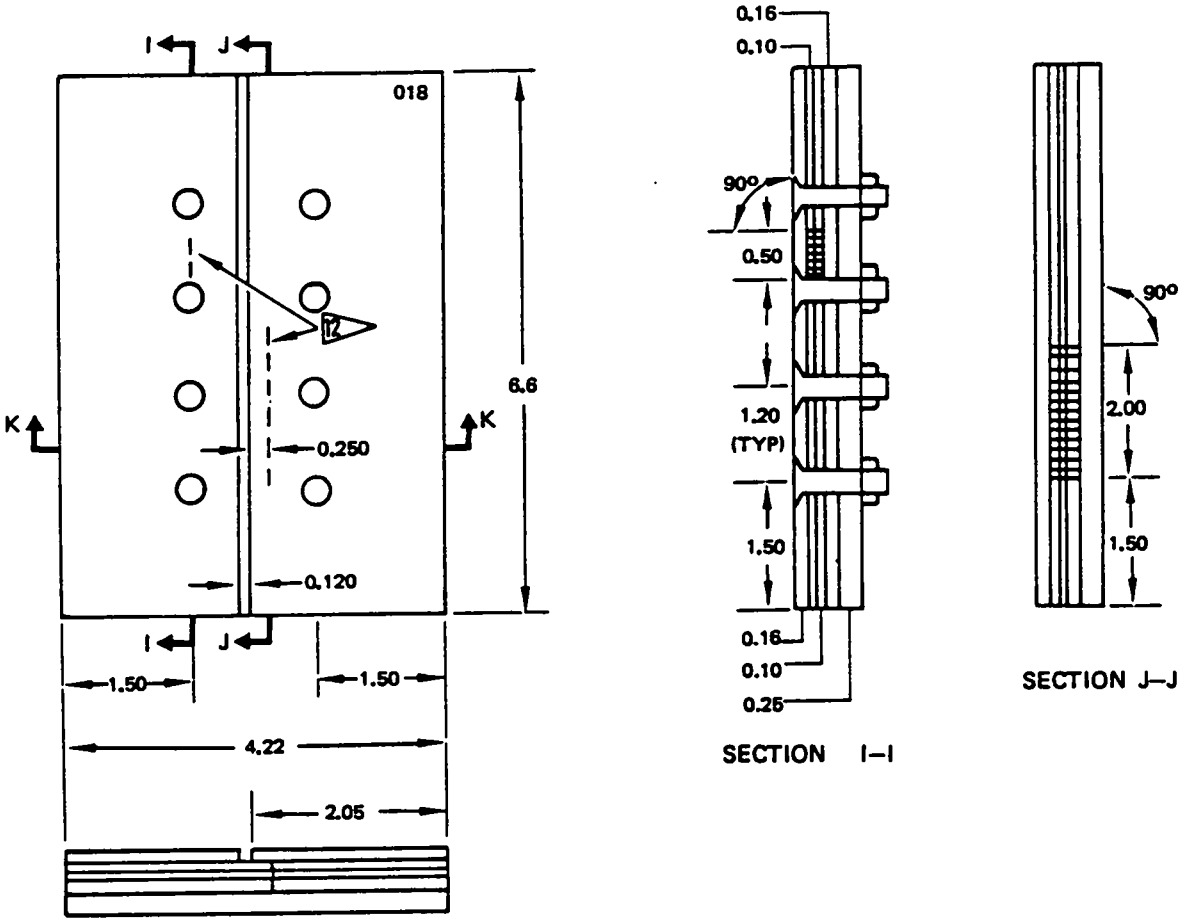
[B] PROBE CALIBRATION POSITIONS (REF TABLE I, CALIBRATION TABLE)

[C] PROBE CALIBRATION POSITIONS (REF TABLE I, CALIBRATION TABLE)

PROBE POSITION FOR CALIBRATION ON REFERENCE STANDARD 017

DETAIL II

Lower Wing Splice Plate at WS 360
Figure 22 (Sheet 11)



SECTION K–K

SECTION I–I

SECTION J–J

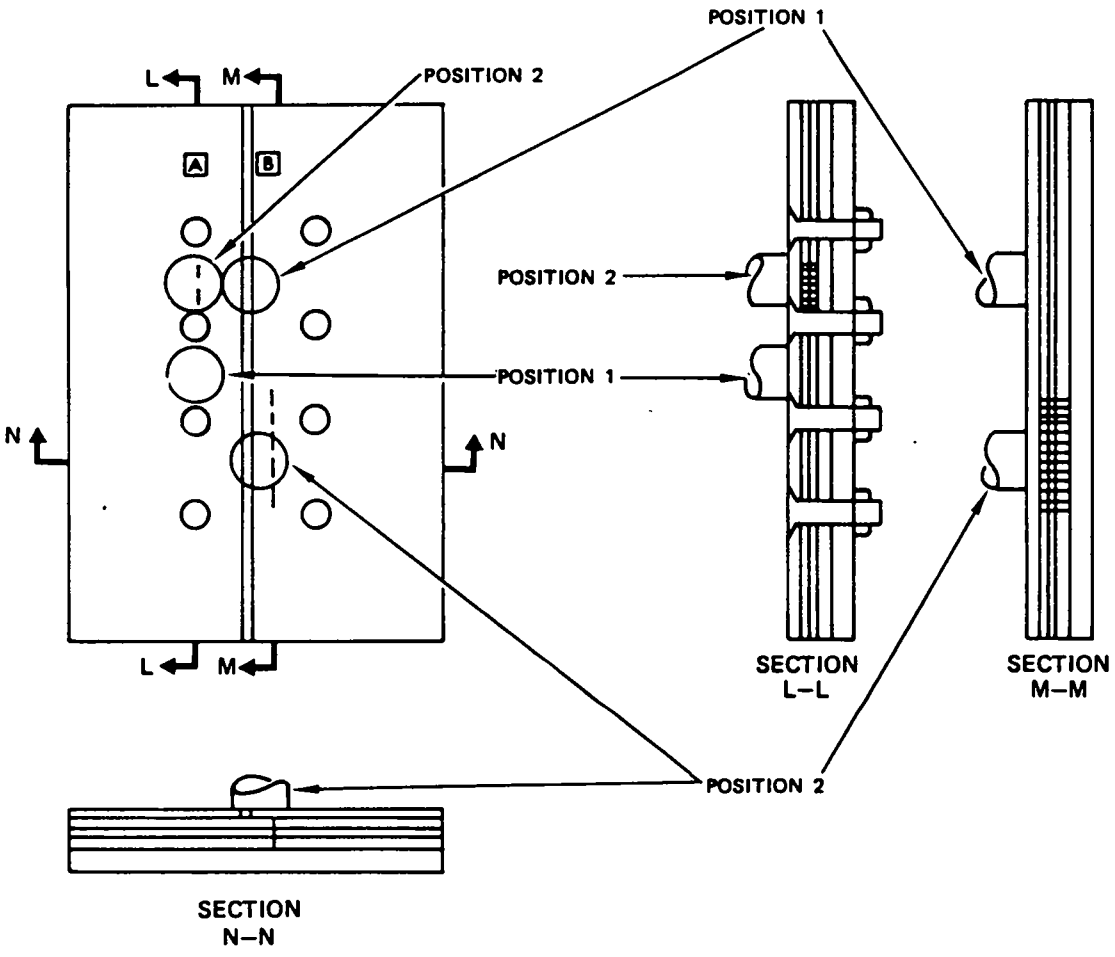
NOTES

- ALL DIMENSIONS ARE IN INCHES
- BACB30FN8–12 FASTENER; BACC30M8 COLLAR (8 PLACES)
- MATERIAL: 2024–T3 OR T4 ALUMINUM
- ETCH OR STEEL STAMP WITH 018
- TOLERANCE: X.X ± 0.05 X.XX ± 0.02 X.XXX ± 0.005
- P/N 6412 - 41
  AVAILABLE FROM IDEAL SPECIALTY CO.,
  2531 E. INDEPENDENCE
  TULSA, OKLA. 74110

12 JEWELER'S SAWCUT 0.030 MAX WIDTH (3 PLACES)

REFERENCE STANDARD 018
DETAIL III

Lower Wing Splice Plate at WS 360
Figure 22 (Sheet 12)



NOTES

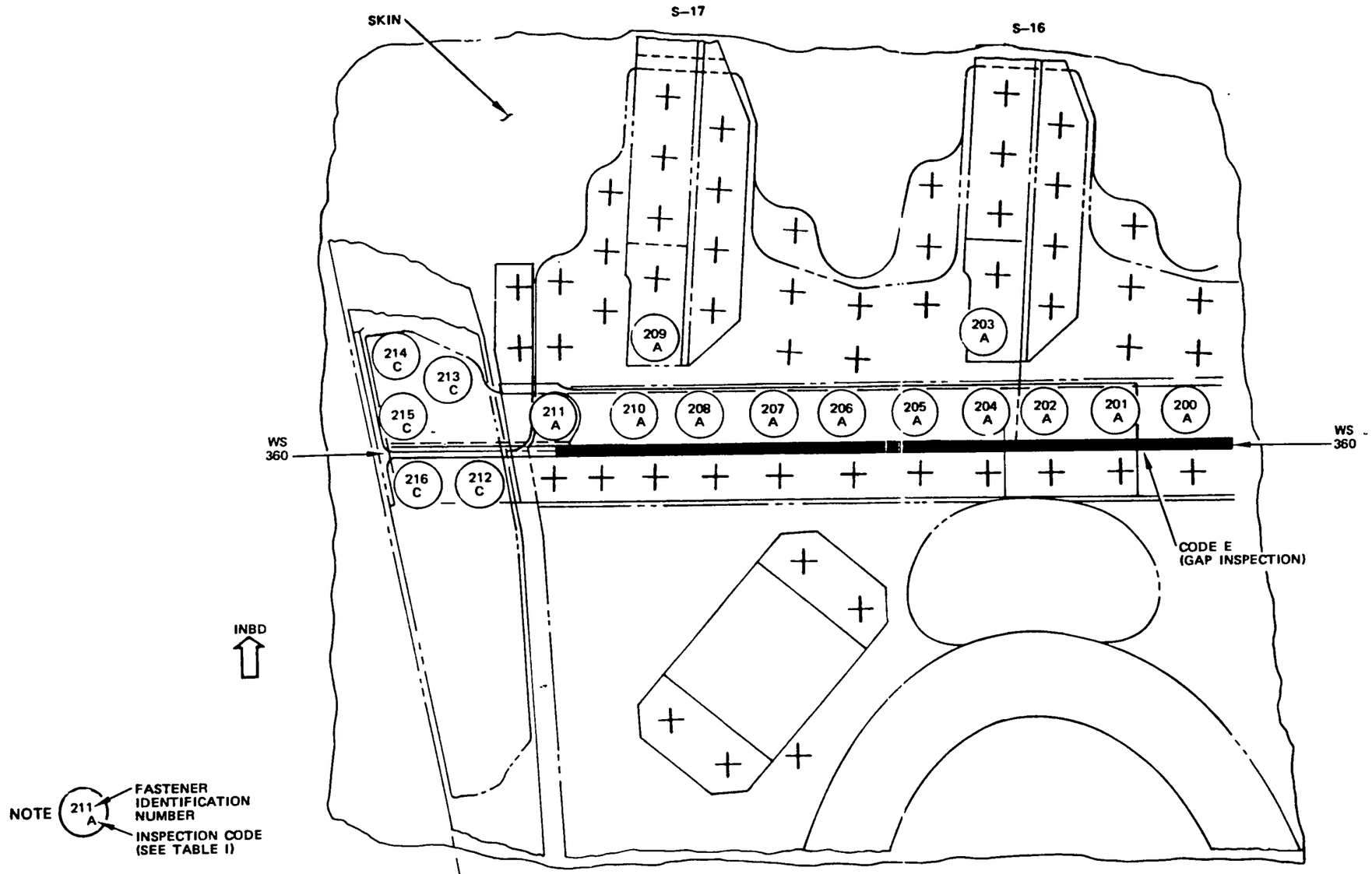
A PROBE CALIBRATION POSITIONS (REF TABLE I, CALIBRATION TABLE)

B PROBE CALIBRATION POSITIONS (REF TABLE I, CALIBRATION TABLE)

PROBE POSITION FOR CALIBRATION ON
REFERENCE STANDARD 018

DETAIL IV

Lower Wing Splice Plate at WS 360
Figure 22 (Sheet 13)

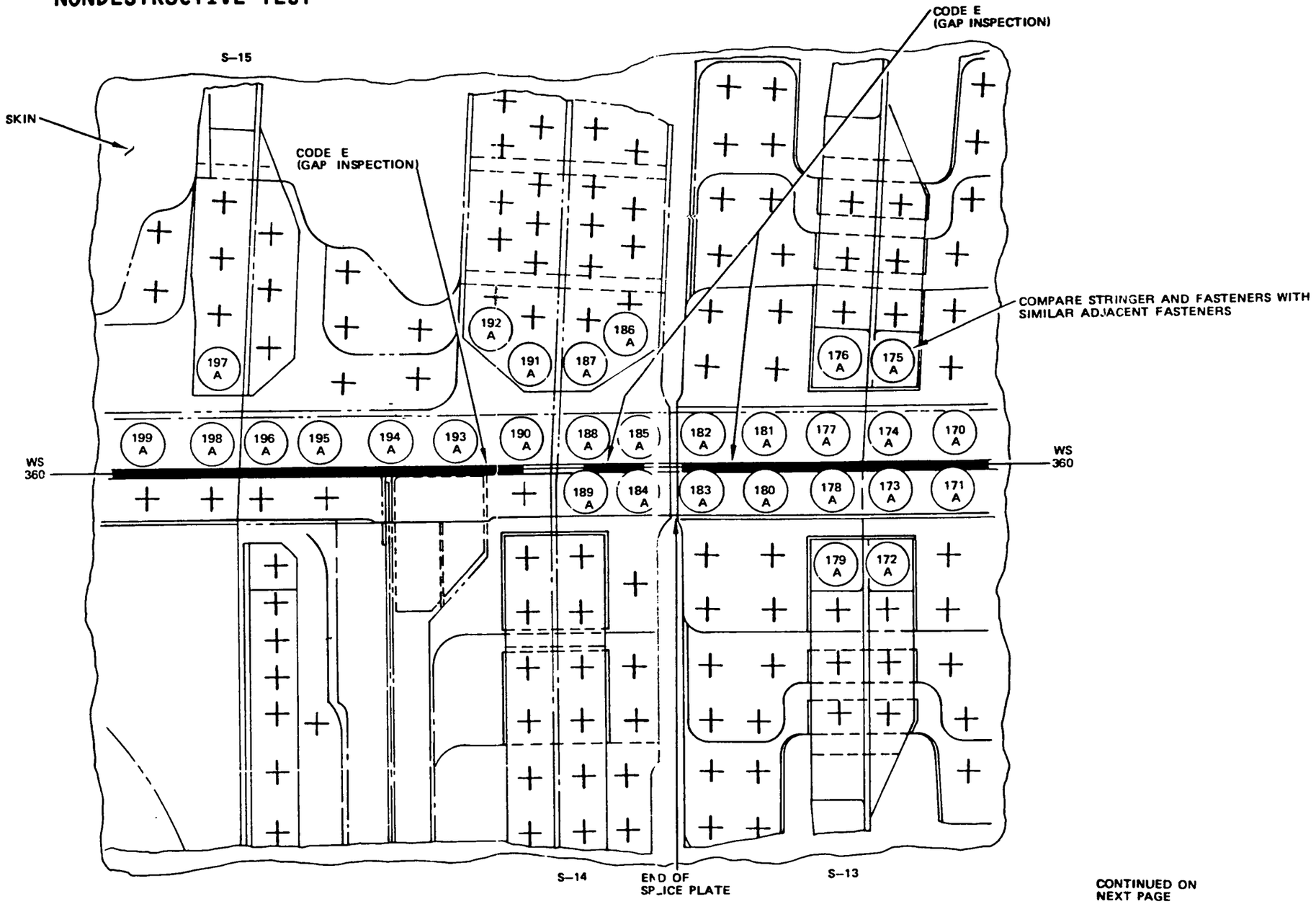


VIEW ON UNDERSIDE OF RIGHT WING (LEFT SIDE SIMILAR)
FOR CUM LINE NUMBERS 672 AND ON

DETAIL V

CONTINUED ON NEXT PAGE

Lower Wing Splice Plate at WS 360
Figure 22 (Sheet 14)



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PRECEDING PAGE

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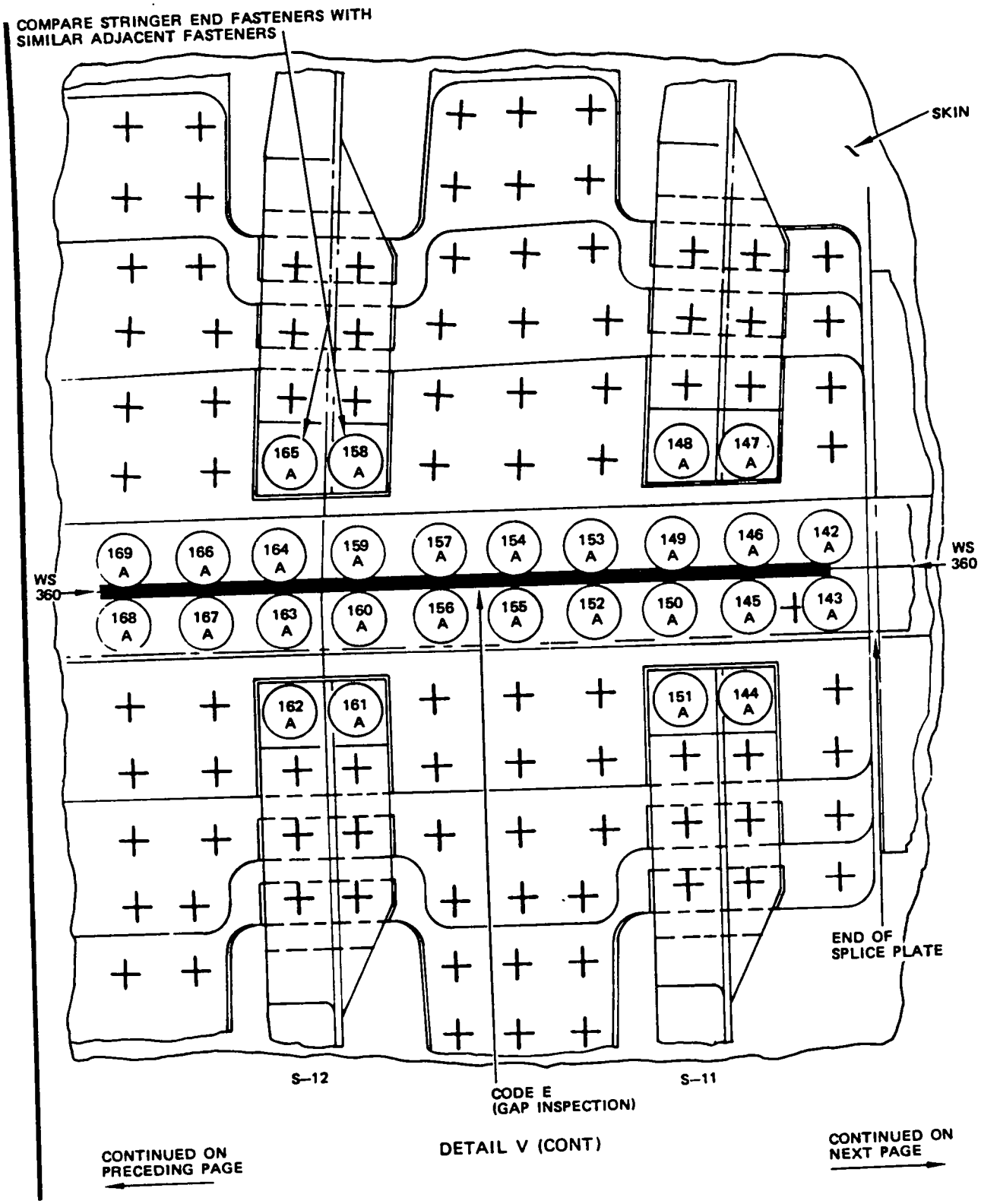
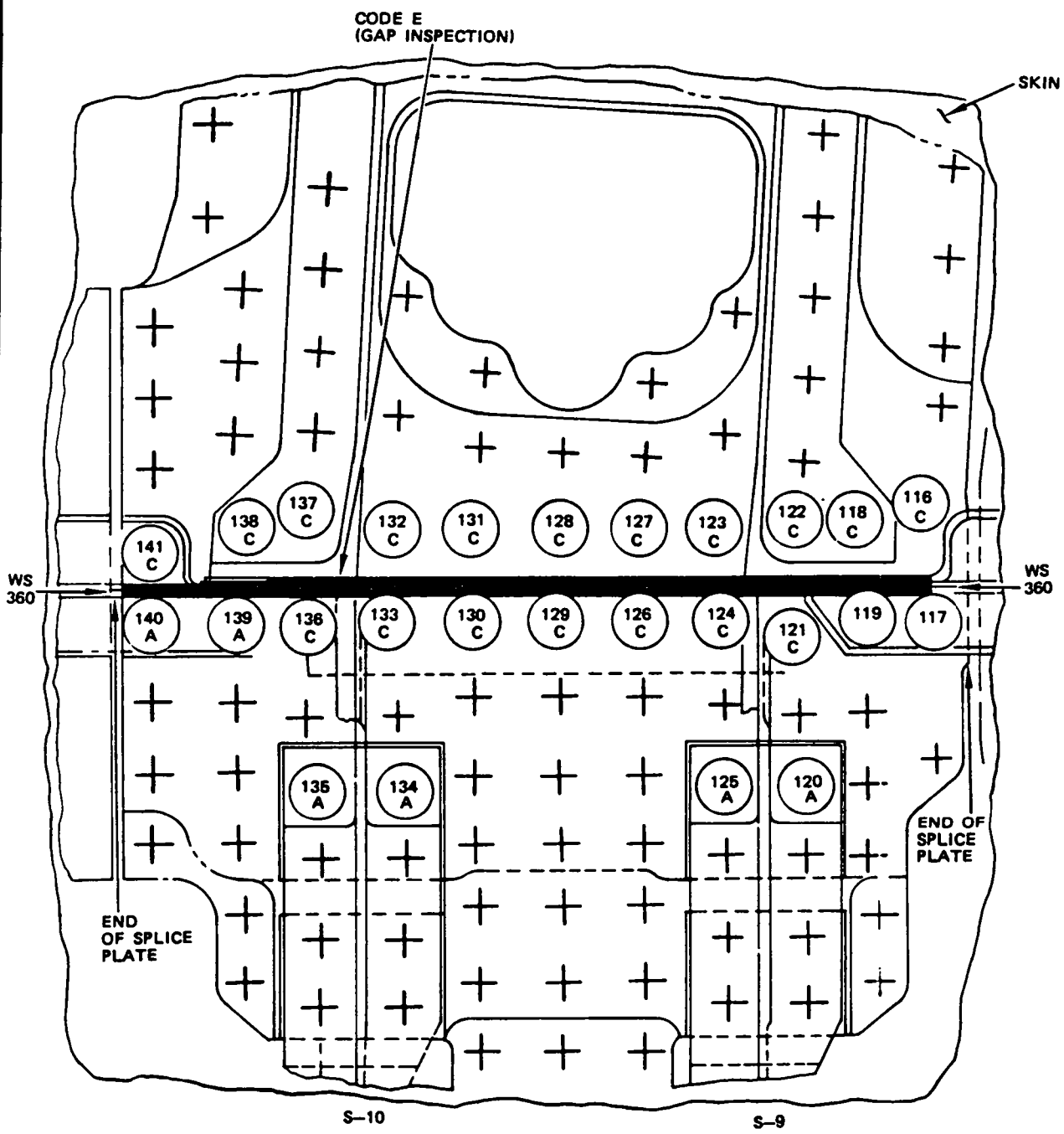
NEXT PAGE

DETAIL V (CONT)

Lower Wing Splice Plate at WS 360
Figure 22 (Sheet 15)



Lower Wing Splice Plate at WS 360
Figure 22 (Sheet 16)



DETAIL V (CONT)

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PRECEDING PAGE

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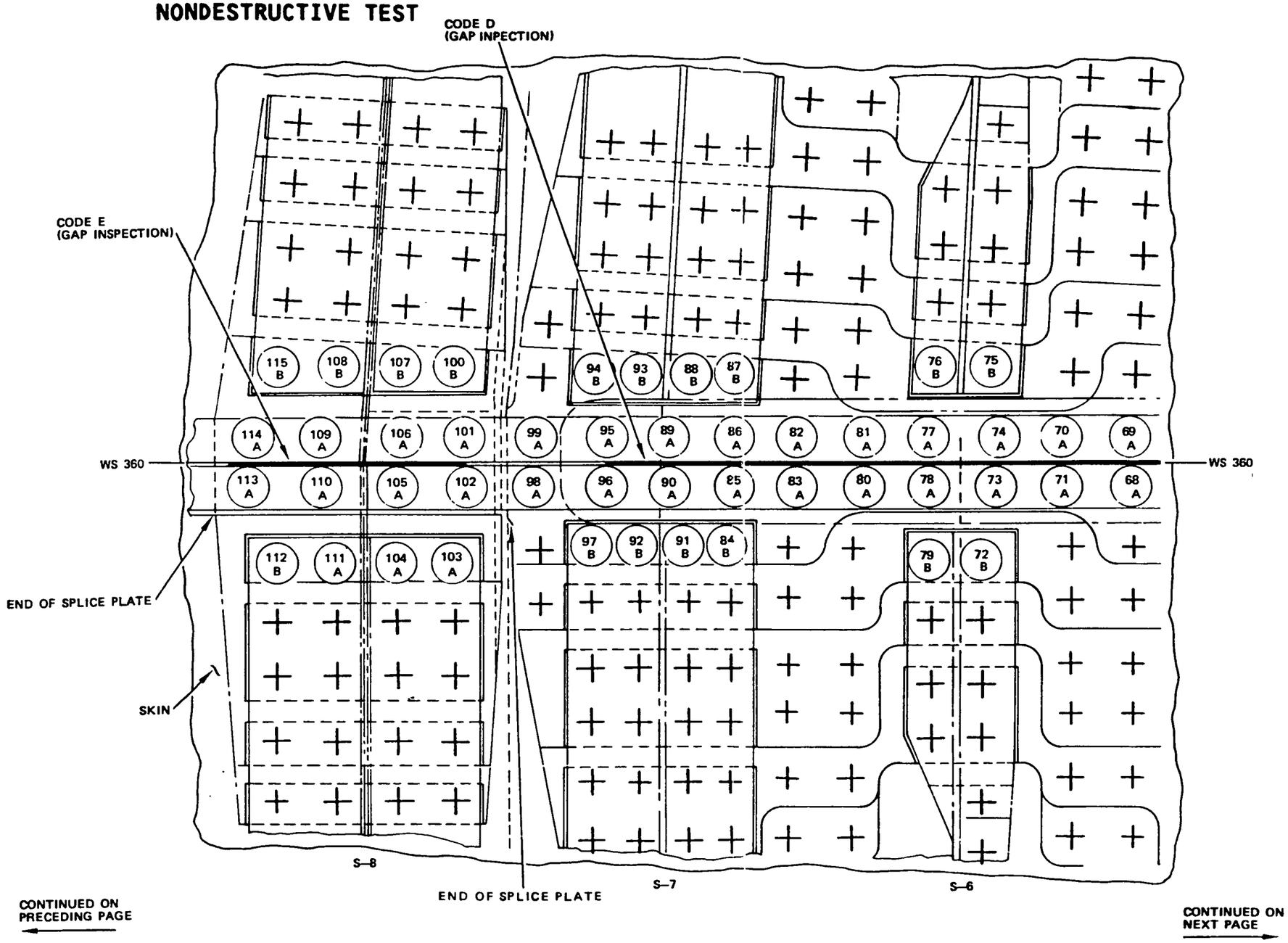
NEXT PAGE

Lower Wing Splice Plate at WS 360
Figure 22 (Sheet 17)



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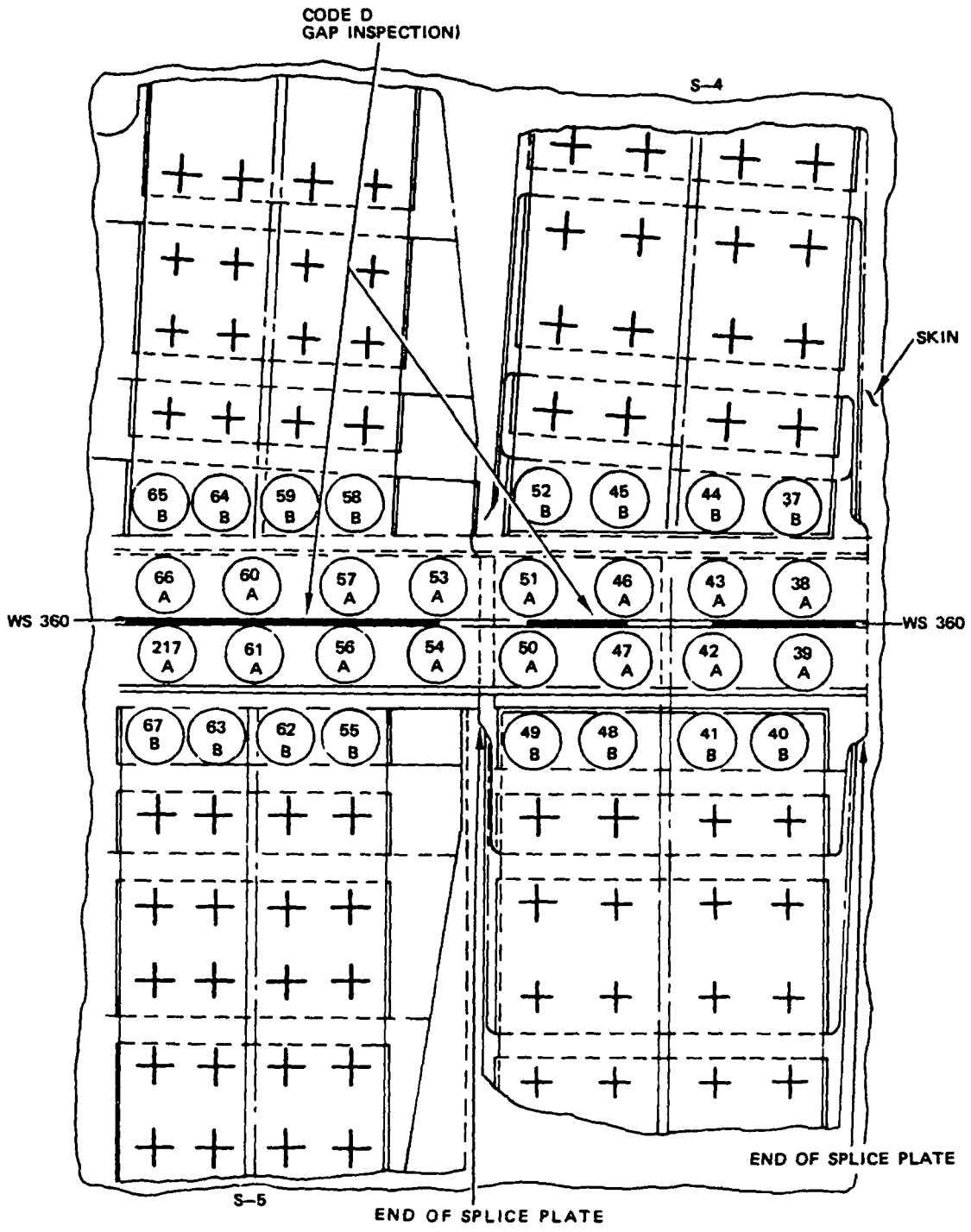
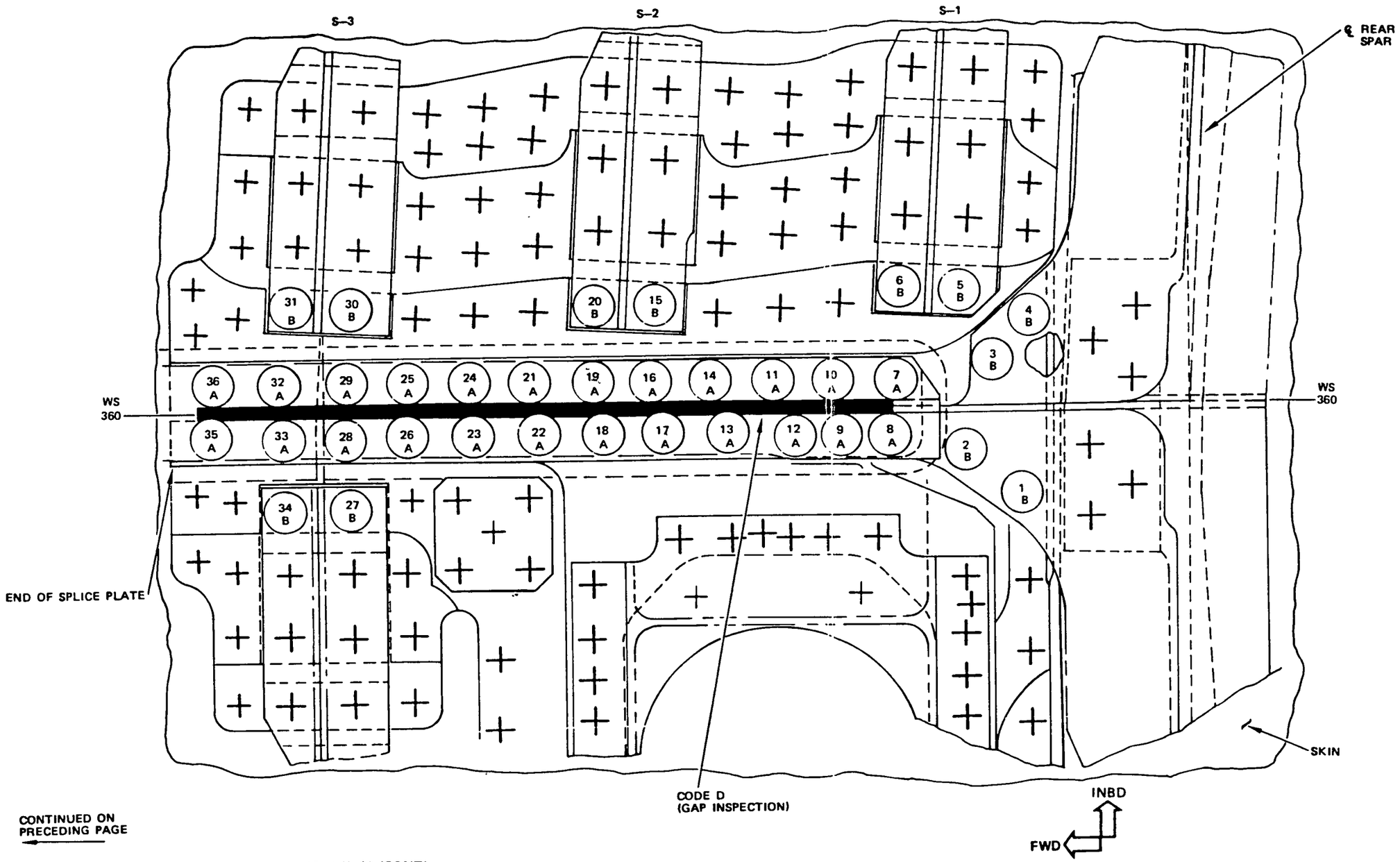
DETAIL V (CONT)

Lower Wing Splice Plate at WS 360
Figure 22 (Sheet 18)



Lower Wing Splice Plate at WS 360
Figure 22 (Sheet 19)



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DETAIL V (CONT)

Lower Wing Splice Plate at WS 360
Figure 22 (Sheet 20)

EFFECTIVITY
MODEL: 707-300B/300C, CUM LINE NUMBER 672 AND ON SERVICE BULLETIN REFERENCE: 2427, 2607, 2626, 2640, 3168, 3239 SSI DOCUMENT (D6-44860) REFERENCE: SSD 57-A35-08C SSD 57-A45-08C

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To perform a high frequency surface eddy current crack inspection of the upper WBL 59.24 splice (beavertail).

      (1) External inspection about the periphery of the forward end of the beavertail (Stringer S-11 to S-14).

      (2) External inspection of the wing skin panels at specified fastener locations forward of the beavertail.

      (3) Internal inspection of stringer, splice fitting, and chord tang at specified locations.

   B. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

   NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Any eddy current instrument that will satisfy the performance requirements of this procedure is acceptable. The following instrument was used during the development of this procedure.

      (1) ED 520
      Magnaflux Corp.
      6800 E. Washington Blvd.
      Los Angeles, CA 90049

Stringer, Splice Fitting, Plus Chord and Upper and Wing Skin at Beavertail - Upper WBL 59.24
Figure 23 (Sheet 1)

B. Probes

(1) Shielded straight and shielded right-angle pencil probes, per Part 1, 51-06-00, Fig. 1.

(a) Straight, P-50
Right Angle, P-905-50
NDT Product Engineering
P.O. Box 423
Renton, WA 98057

(b) Straight, VM100PS
Right-Angle, VM100AS
VM Products
7420 Park Avenue No. 20
Tacoma , WA 98408

NOTE: Diameter of coil end of shielded right angle probe should not exceed 0.2 inch for internal inspection.

(2) Reference standard, per Part 6, 51-00-00, Fig. 4.

3. Preparation for Inspection

A. Internal Inspection

(1) Drain and purge applicable fuel tank on both sides of WBL 59.24 joint to permit tank entry by an inspector with an eddy current instrument.

B. External Inspection

(1) Remove sealant which is more than 0.25 inch from forward end of beavertail. See Detail I.

(2) Wipe skin surface clean.

4. Instrument Calibration

A. Calibrate per Part 6, 51-00-00, Fig. 4.

Stringer, Splice Fitting, Plus Chord and Upper Wing
Skin at Beavertail - Upper WBL 59.24
Figure 23 (Sheet 2)

5. Inspection Procedure

A. External Inspection

(1) Scan around periphery of beavertail as shown in Detail I. A crack is indicated by a rapid deflection of the instrument needle as the probe passes over the crack.

NOTE: If a steel fastener is encountered at the edge of the beavertail, it will cause an off scale meter deflection. Inspect around the head of the fastener as shown in Detail I.

Metal chips embedded in paint or sealant can cause crack-like indications. Remove paint or sealant and reinspect.

Should a crack lie in a more parallel direction to the edge of the beavertail, the characteristic rapid meter deflection may not be obtained. Any unusual meter movement should be investigated.

(2) Scan around heads of selected fasteners forward of the beavertail as shown in Detail II (Part 6, 51-00-00, Fig. 6).

B. Internal Inspection

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

NOTE: Refer to Detail III for fastener location and Details IV and V for probe positions.

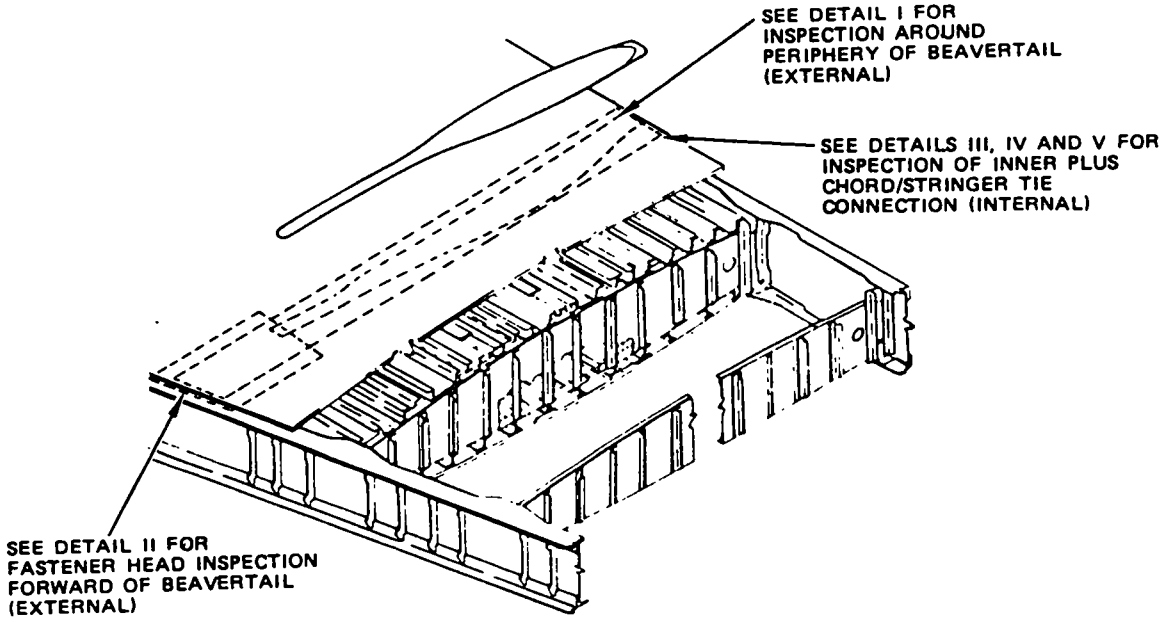
Stringers S-18 and S-19 are fuel vent stringers and do not have a chord inner tang.

(1) For stringers S-1 thru S-25 at fasteners 2, 3, 4 and 6 locations, scan chord inner tang around fastener nut/collar (Detail IV).

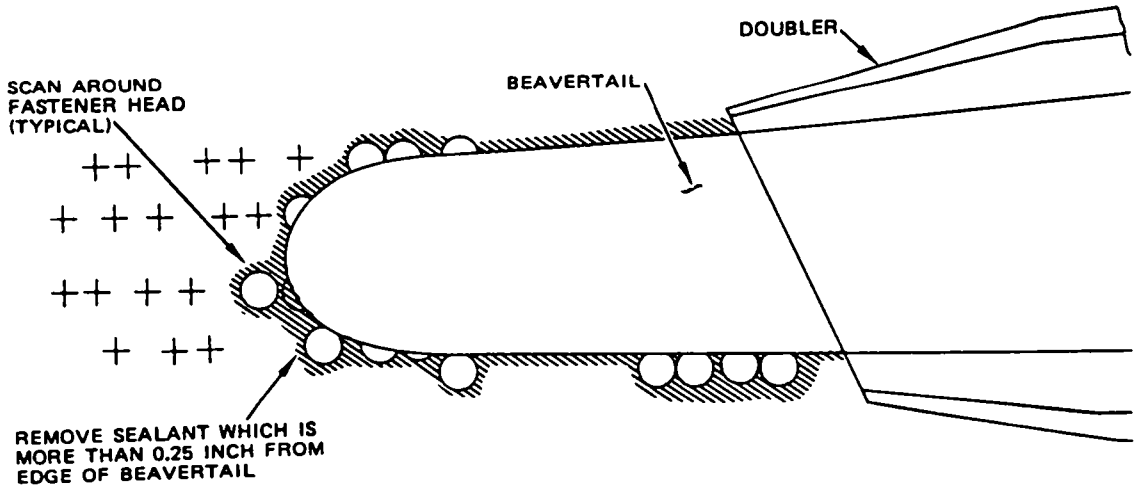
(2) For stringers S-1 thru S-25 at fasteners 1 and 5 locations, scan stringer inner flange around fastener head (Detail V).

(3) For stringer S-1 thru S-25 at fasteners 1 and 5 locations, scan along edge and along inside radius of splice fitting (Detail IV).

Stringer, Splice Fitting, Plus Chord and Upper Wing Skin at Beavertail - Upper WBL 59.24
Figure 23 (Sheet 3)



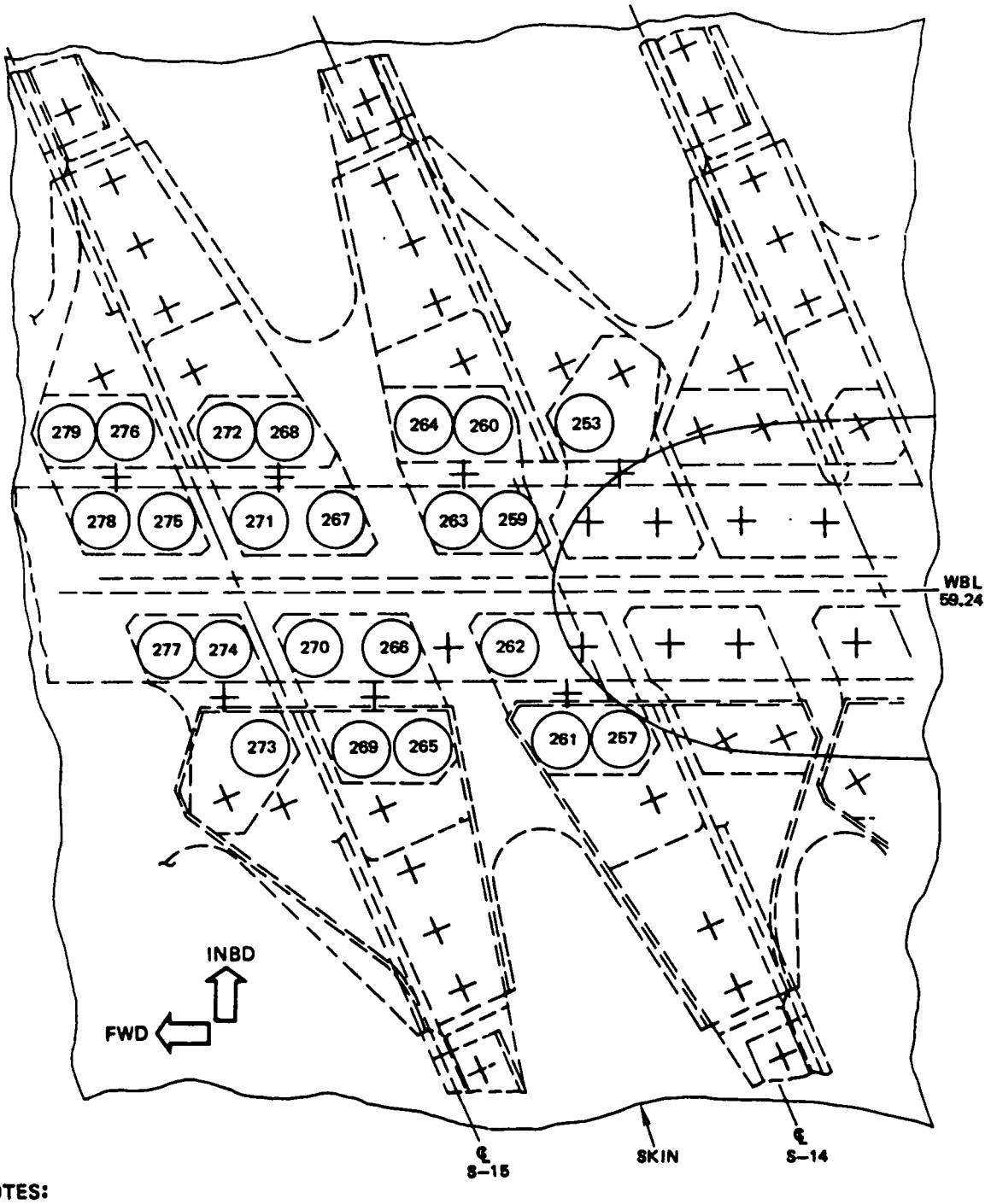
VIEW OF UPPER WING SURFACE
AT BEAVERTAIL



NOTE:
INSPECTION AREA

INSPECTION AROUND PERIPHERY OF EXTERNAL
CHORD FORWARD OF DOUBLER UPPER WBL 59.24
DETAIL I

Stringer, Splice Fitting, Plus Chord and Upper Wing
Skin at Beavertail - Upper WBL 59.24
Figure 23 (Sheet 4)

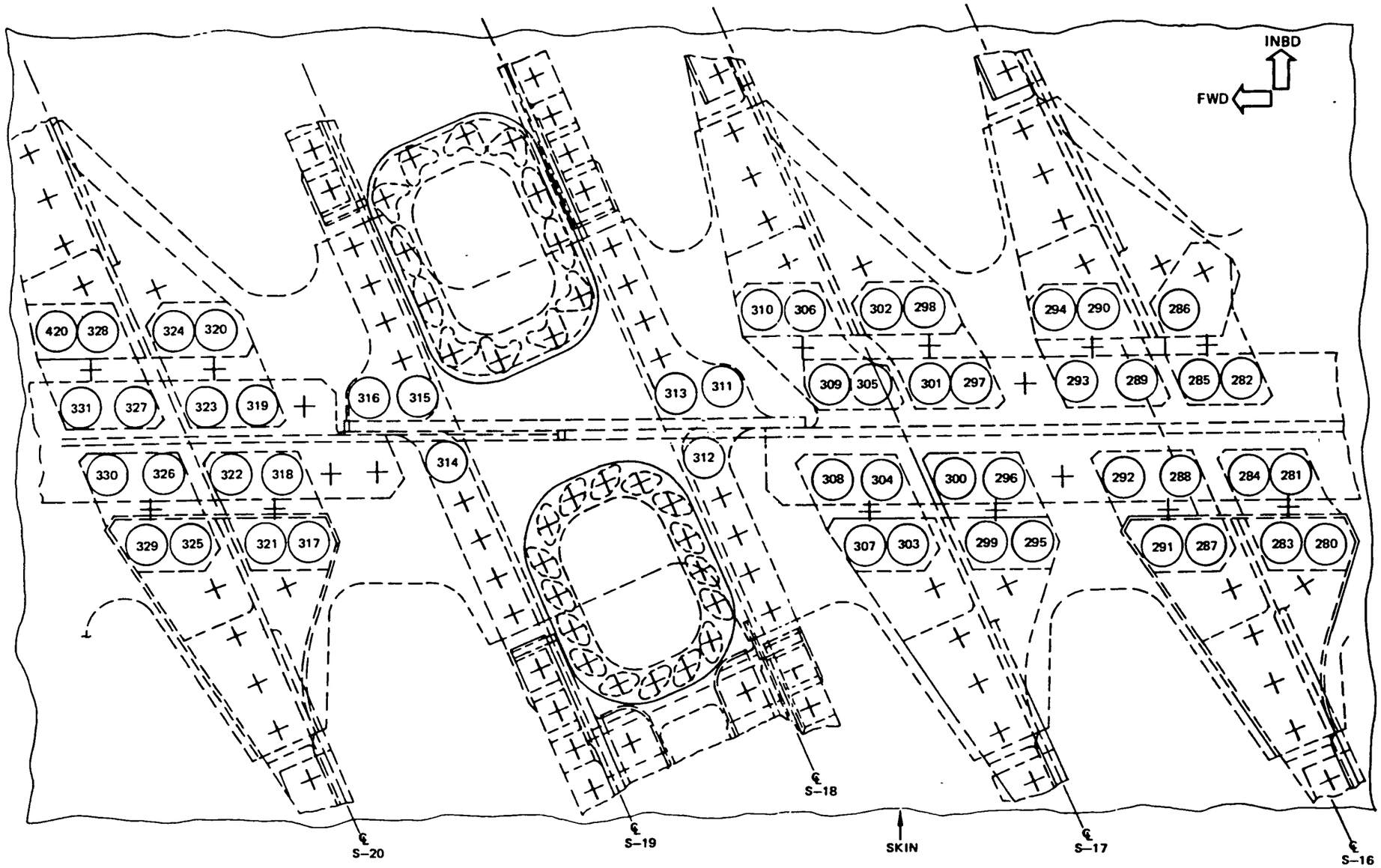


NOTES:
278 INSPECTION AREA
FASTENER NUMBER

CONTINUED ON NEXT PAGE

SELECTED FASTENER HEAD INSPECTION AREA
(LEFT WING SHOW, RIGHT WING SIMILAR)
DETAIL II

Stringer, Splice Fitting, Plus Chord and Upper Wing Skin at Beavertail - Upper WBL 59.24
Figure 23 (Sheet 5)



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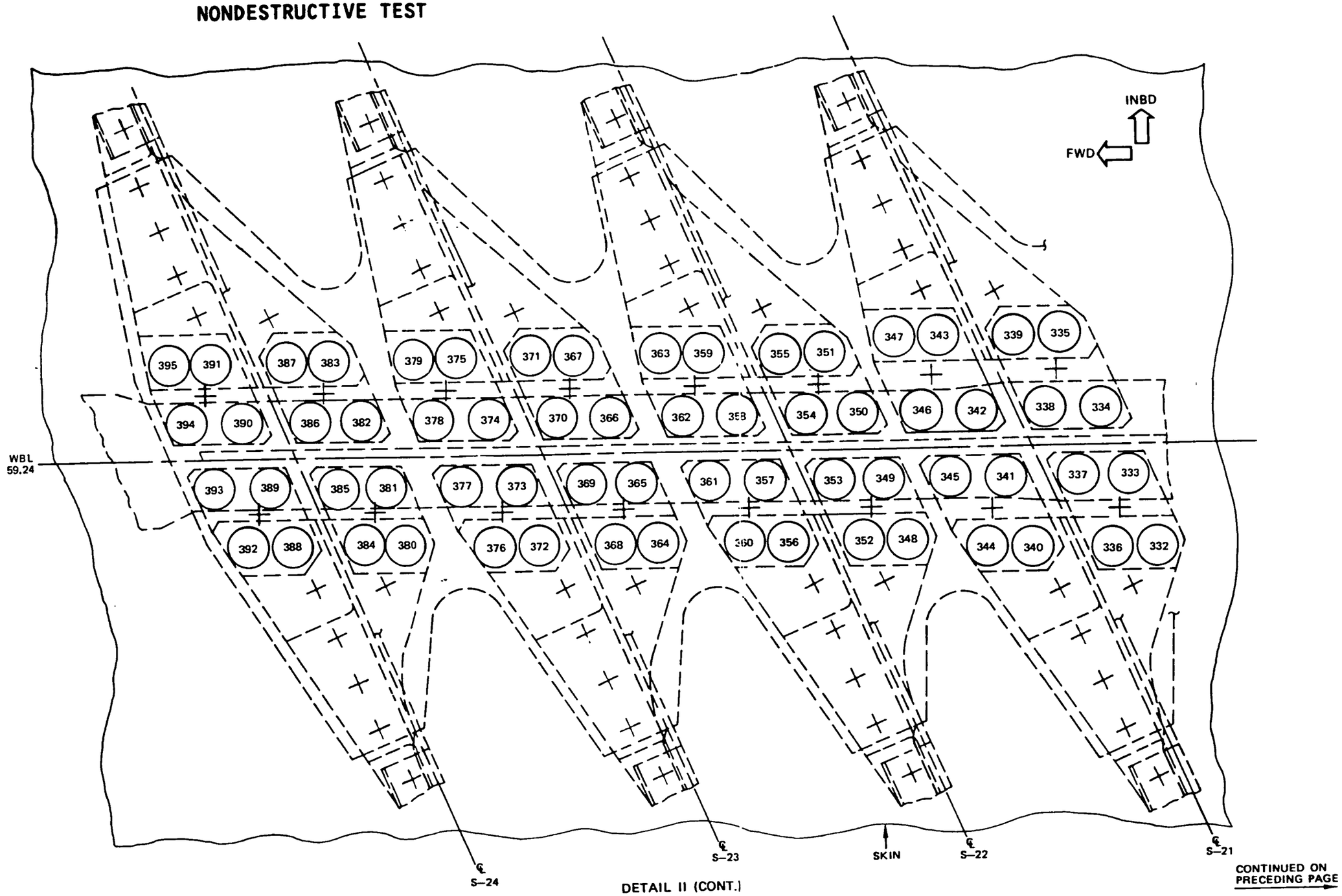
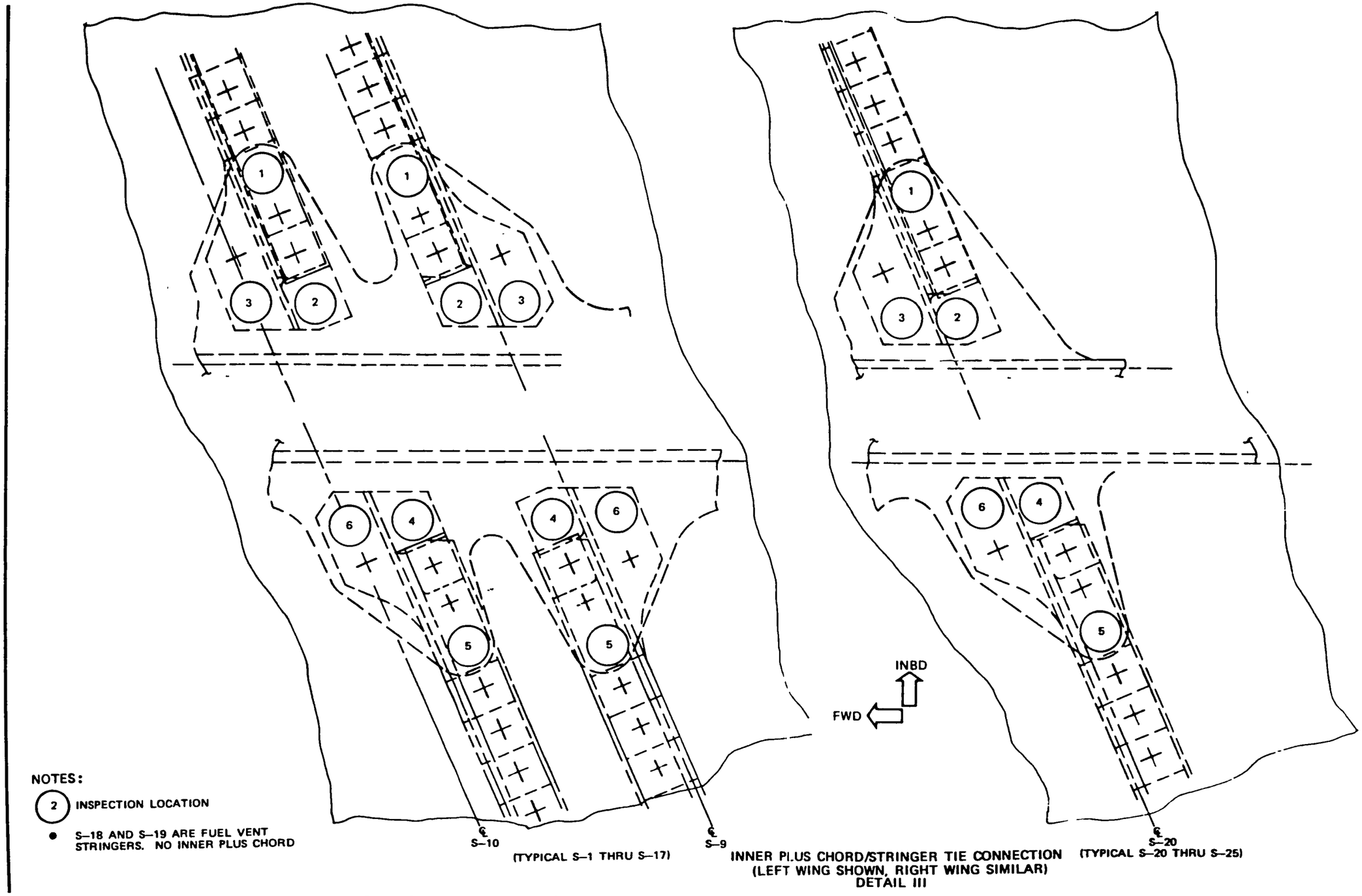
DETAIL II (CONT.)

Stringer, Splice Fitting, Plus Chord and Upper Wing Skin at Beavertail - Upper WBL 59.24
Figure 23 (Sheet 6)



Stringer, Splice Fitting, Plus Chord and Upper Wing Skin at Beavertail-Upper WBL 59.24
Figure 23 (Sheet 7)

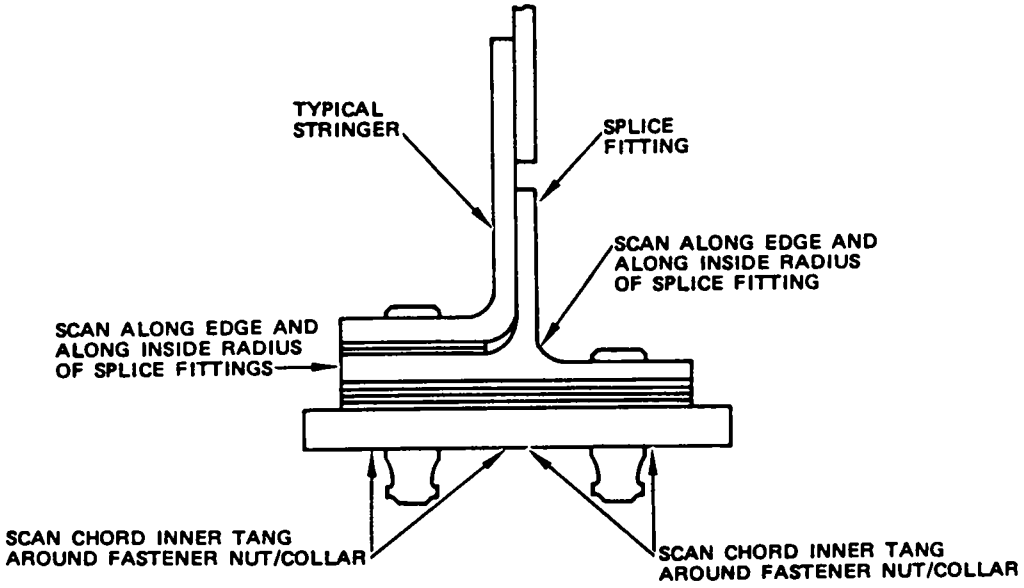


(TYPICAL S–1 THRU S–17)

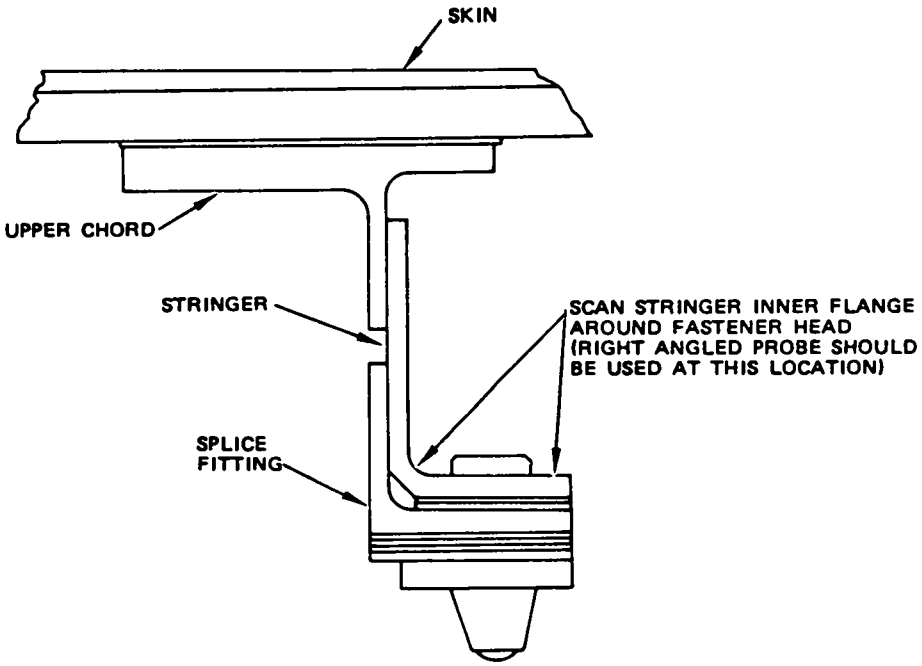
INNER PLUS CHORD/STRINGER TIE CONNECTION
(LEFT WING SHOWN, RIGHT WING SIMILAR)
DETAIL III

(TYPICAL S–20 THRU S–25)

Stringer, Splice Fitting, Plus Chord and Upper Wing
Skin at Beavertail - Upper WBL 59.24
Figure 23 (Sheet 8)



CROSS SECTION OF TYPICAL STRINGER SPLICE
DETAIL IV



CROSS SECTION OF TYPICAL STRINGER SPLICE
DETAIL V

Stringer, Splice Fitting, Plus Chord and Upper Wing Skin at Beavertail - Upper WBL 59.24
Figure 23 (Sheet 9)

EFFECTIVITY
MODEL: 707-300/400, 300B,300C
CUM LINE NUMBERS 1 THRU 671
SERVICE BULLETIN REFERENCE: 2607
SSI DOCUMENT (D6-44860) REFERENCE:
SSD 57-A25-08B
SSD 57-A35-08B
SSD 57-A45-08B

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To perform a high frequency surface eddy current crack inspection of the upper WBL 59.24 splice (beavertail).

      (1) External inspection is as follows:

         (a) About the periphery of the beavertail forward of the rear spar.

         (b) Wing skin panels at specified fastener locations forward of the beavertail.

      (2) Internal inspection is of stringers, splice straps, and chord tang at specified locations.

   B. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Any eddy current instrument that will satisfy the requirements of this procedure is acceptable. The following instrument was used during the development of this procedure.

      (1) ED 520
      Magnaflux Corp.
      6800 E. Washington Blvd.
      Los Angeles, CA 90049

Stringer, Splice Fitting, Chord, Upper Wing Skin and Beavertail - Upper WBL 59.24
Figure 24 (Sheet 1)

B. Probes

(1) Shielded straight and shielded right-angle pencil probes per Part 1, 51-06-00, Fig. 1.

(a) Straight, P-50
Right Angle, P-905-50
NDT Product Engineering
P.O. Box 423
Renton, WA 98057

(b) Straight, VM100PS
Right-Angle, VM100AS
VM Products
7420 Park Avenue No. 20
Tacoma, WA 98408

NOTE: Diameter of coil end of shielded right-angle probe should not exceed 0.2 inch for internal inspection.

C. Reference standard per Part 6, 51-00-00, Fig. 4.

3. Preparation for Inspection

A. Internal Inspection

(1) Drain and purge applicable fuel tank on both sides of 59.24 joint to permit tank entry.

B. External Inspection

(1) Remove sealant which is more than 0.25 inch from edge of beavertail.

(2) Wipe skin surface clean.

4. Instrument Calibration

A. Calibrate per Part 6, 51-00-00, Fig. 4.

5. Inspection Procedure

A. External Inspection

(1) Scan around periphery of beavertail as shown in Detail I. A crack is indicated by a rapid deflection of the instrument needle as the probe passes over the crack.

(a) For airplanes with external skin doublers under beavertail (from rear spar to S-12); inspect wing skin at beavertail periphery forward of doublers. See Detail VI.

Stringer, Splice Fitting, Chord, and Upper Wing Skin and Beavertail - Upper WBL 59.24
Figure 24 (Sheet 2)

(b) For airplanes with external skin doublers forward S-12 (from rear spar to doupler); inspect wing skin at beavertail periphery to doubler (Detail V).

(c) If a steel fastener is encountered at the edge of the beavertail, it will cause an off scale meter deflection. Inspect around the head of the fastener as shown in Detail I.

(d) Metal chips embedded in paint or sealant can cause crack-like indications. Remove paint or sealant and reinspect.

(e) Should a crack lie in a more parallel direction to the edge of the beavertail, the characteristic rapid meter deflection may not be obtained. Any unusual meter movement should be investigated.

(2) Scan wing skin around heads of selected fasteners forward of the beavertail as shown in Detail II (Ref Part 6, 51-00-00, Fig. 6).

NOTE: For airplanes modified with external doubler (forward of skin splice at S-12); inspection starts forward of external doubler (Detail V).

B. Internal Inspection

NOTE: Refer to Detail III for fastener location and Detail IV for probe positions.

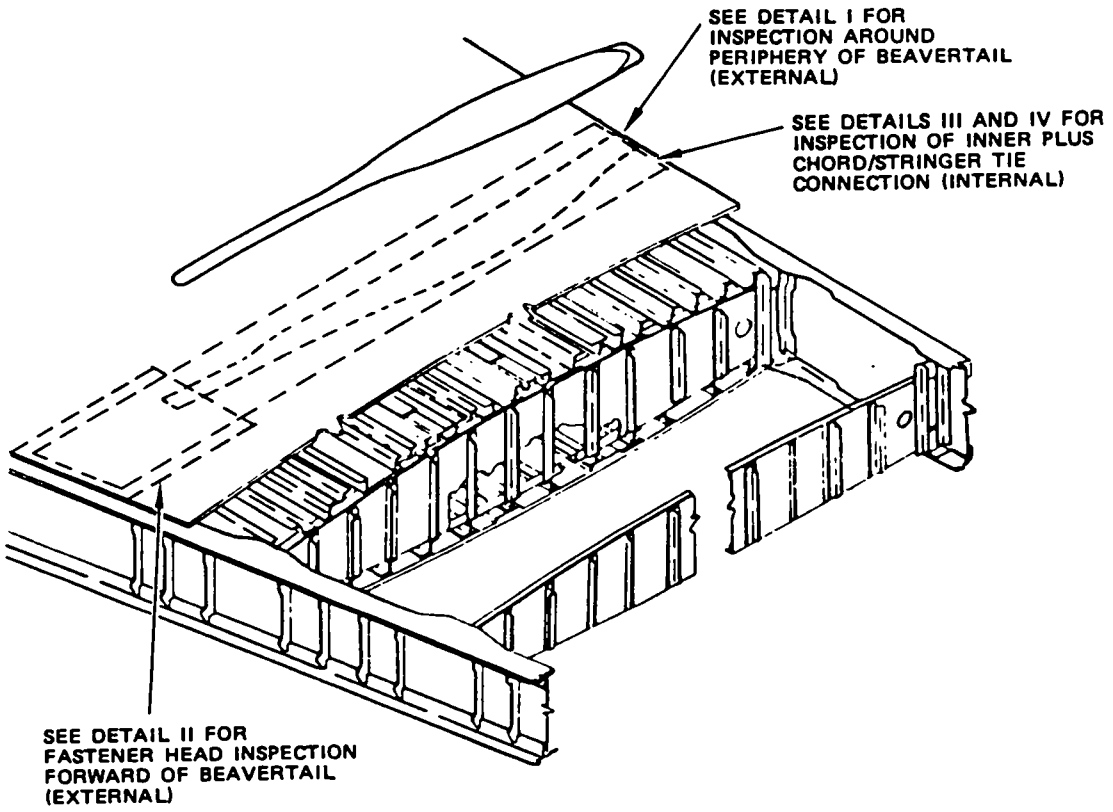
Stringers S-18 and S-19 are fuel vent stringers and do not have a chord inner tang.

(1) For stringers S-1 thru S-25, at fasteners 3 and 4 locations, scan chord inner tang around fastener nut/collar (Detail IV).

(2) For stringers S-1 thru S-25, at fasteners 1, 2, 5 and 6 locations, scan stringer inner flange around fastener head (Detail IV).

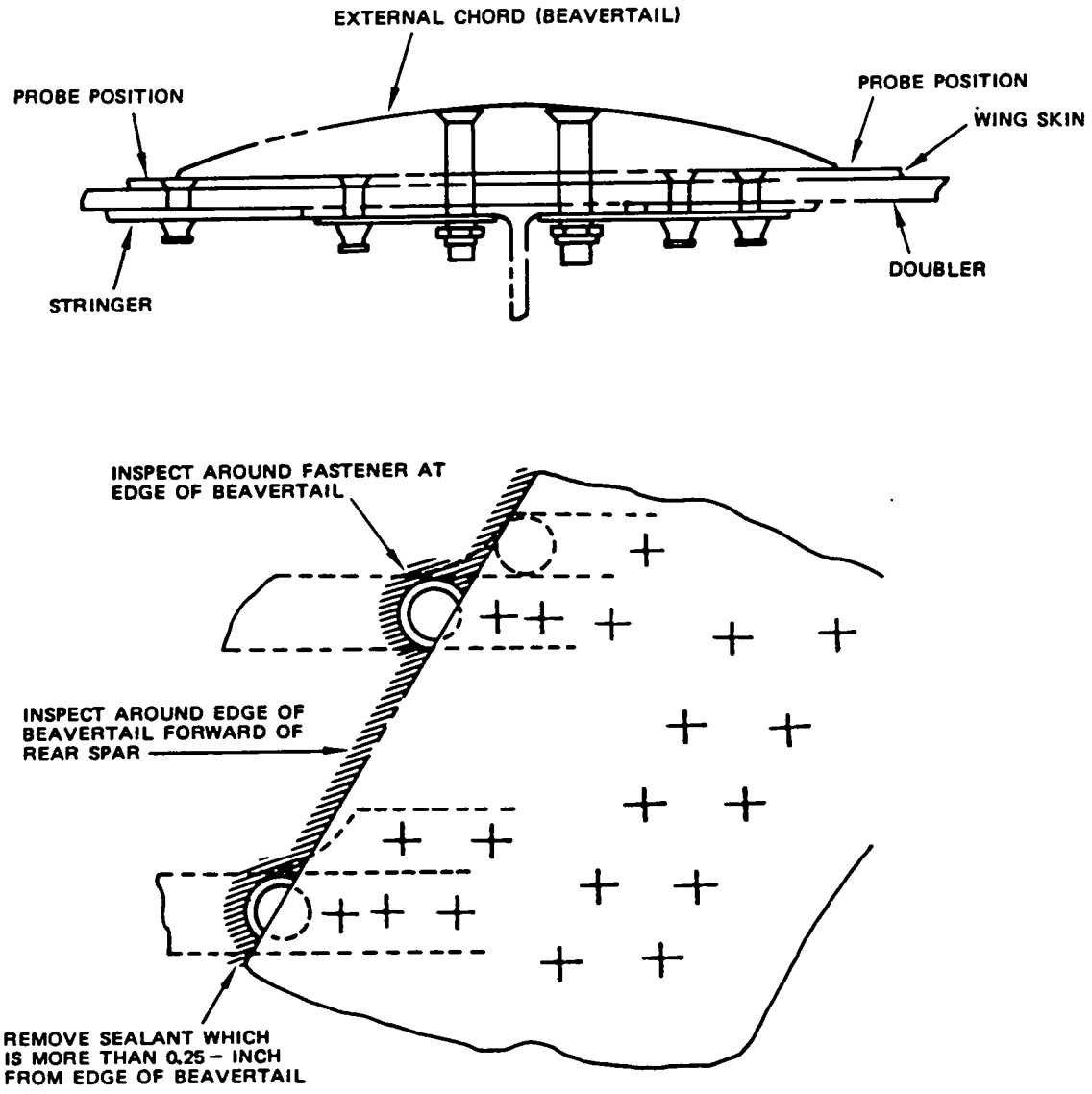
(3) For stringers S-1 thru S-25, at fasteners 2 and 5 locations, scan both sides of splice fitting (Detail IV).

Stringer, Splice Fitting, Chord, and Upper Wing Skin and Beavertail - Upper WBL 59.24
Figure 24 (Sheet 3)



VIEW OF UPPER WING SURFACE AT BEAVERTAIL

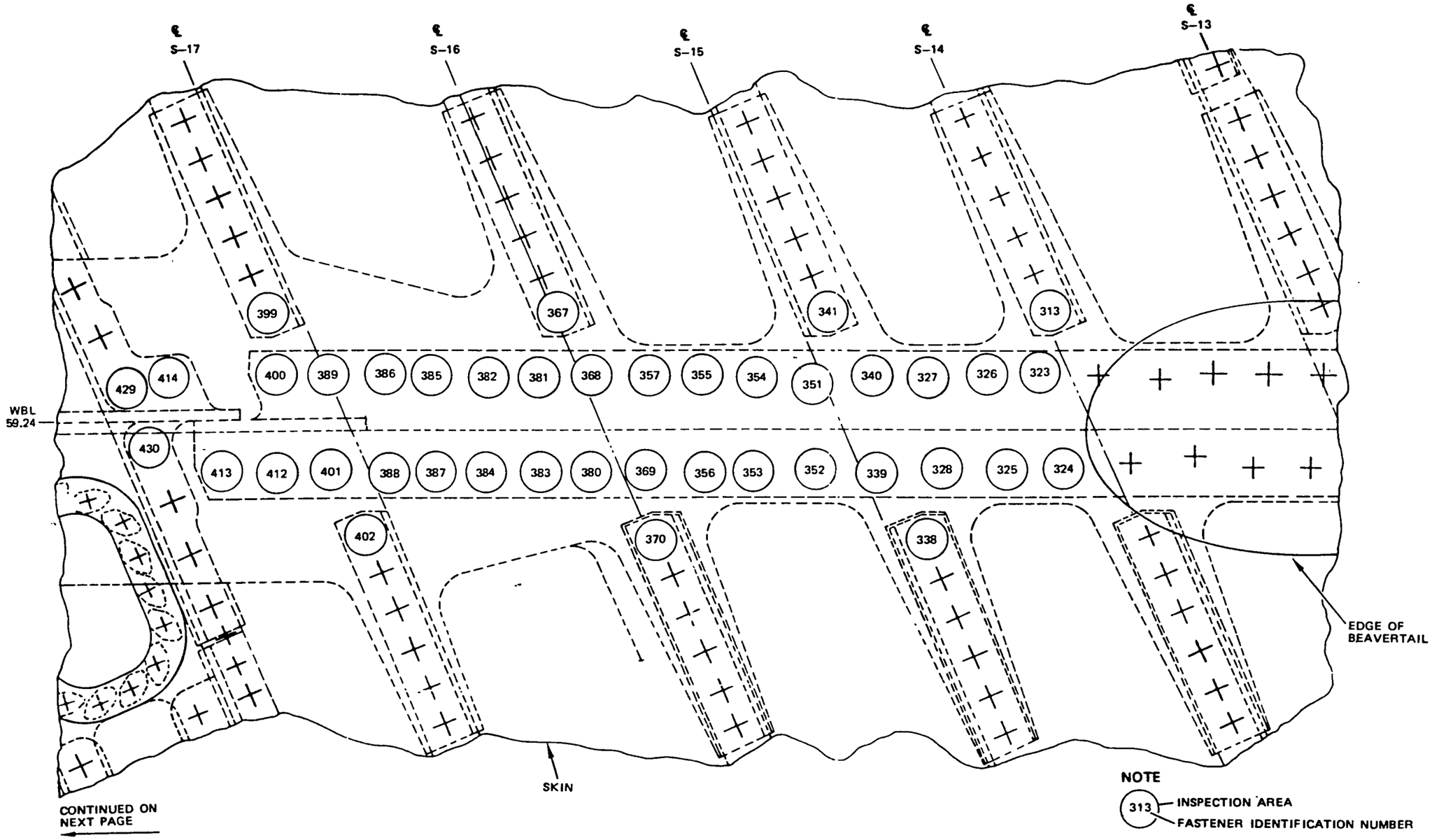
Stringer, Splice Fitting, Chord, and Upper Wing Skin and Beavertail - Upper WBL 59.24
Figure 24 (Sheet 4)



INSPECTION AROUND PERIPHERY OF EXTERNAL CHORD
UPPER WBL 59.24

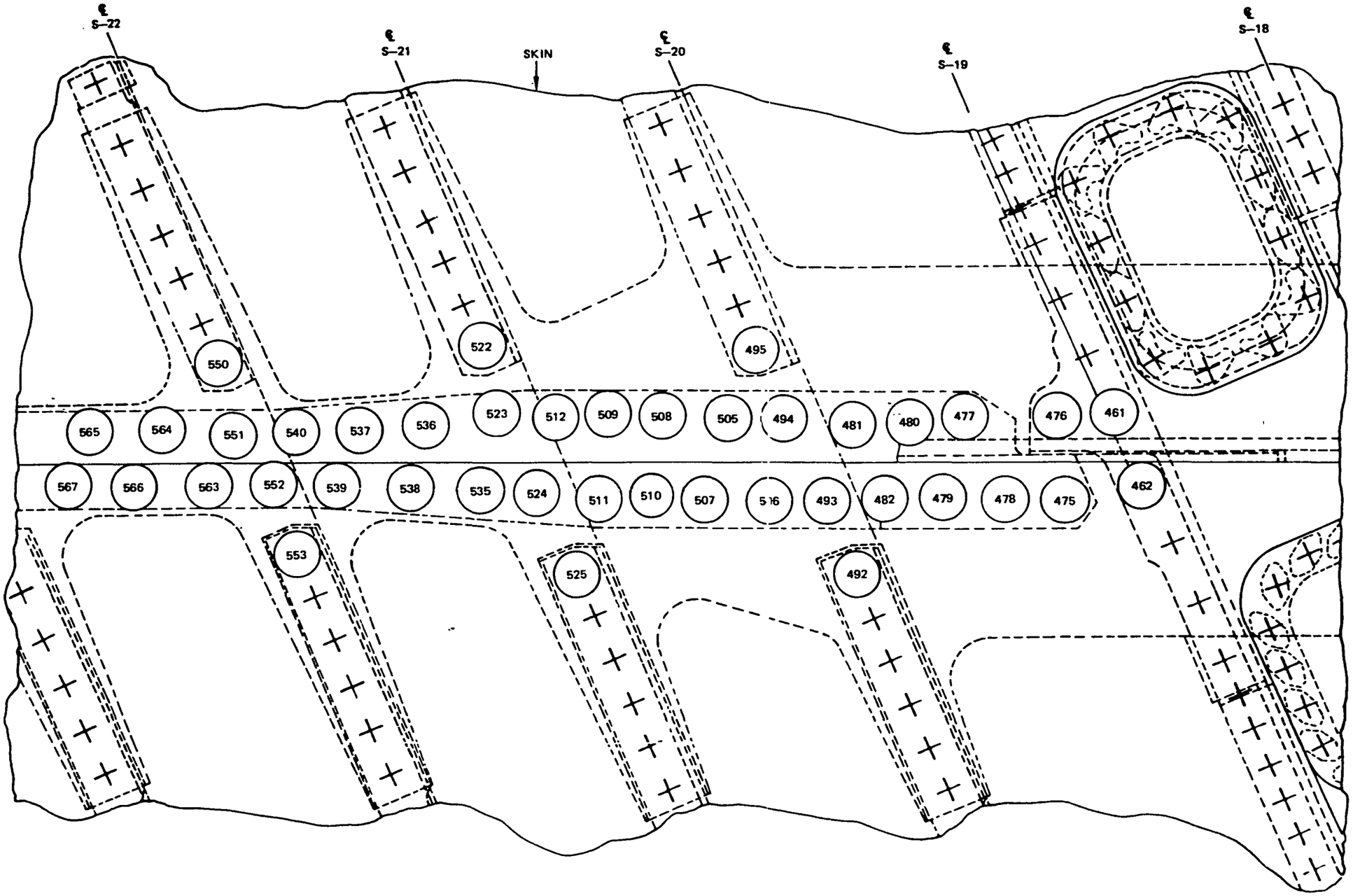
DETAIL I

Stringer, Splice Fitting, Chord, and Upper Wing Skin and Beavertail - Upper WBL 59.24
Figure 24 (Sheet 5)



SELECTED FASTENER HEAD INSPECTION AREA
(LEFT WING SHOWN, RIGHT WING SIMILAR)
DETAIL II

Stringer, Splice Fitting, Chord, and Upper Wing
Skin and Beavertail - Upper WBL 59.24
Figure 24 (Sheet 6)



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DETAIL II (CONT.)

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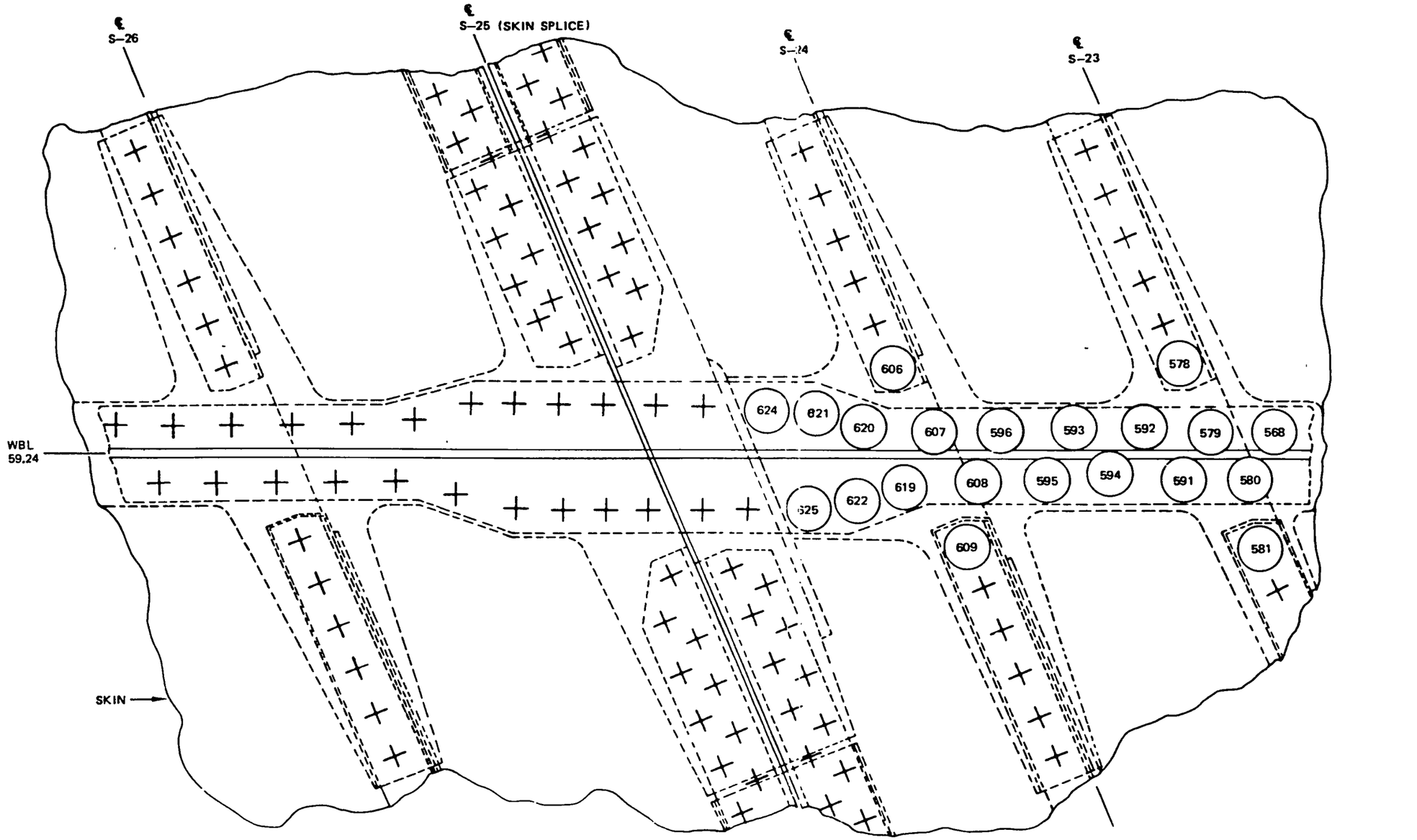
Stringer, Splice Fitting, Chord, and Upper Wing Skin and Beavertail - Upper WBL 59.24
Figure 24 (Sheet 7)



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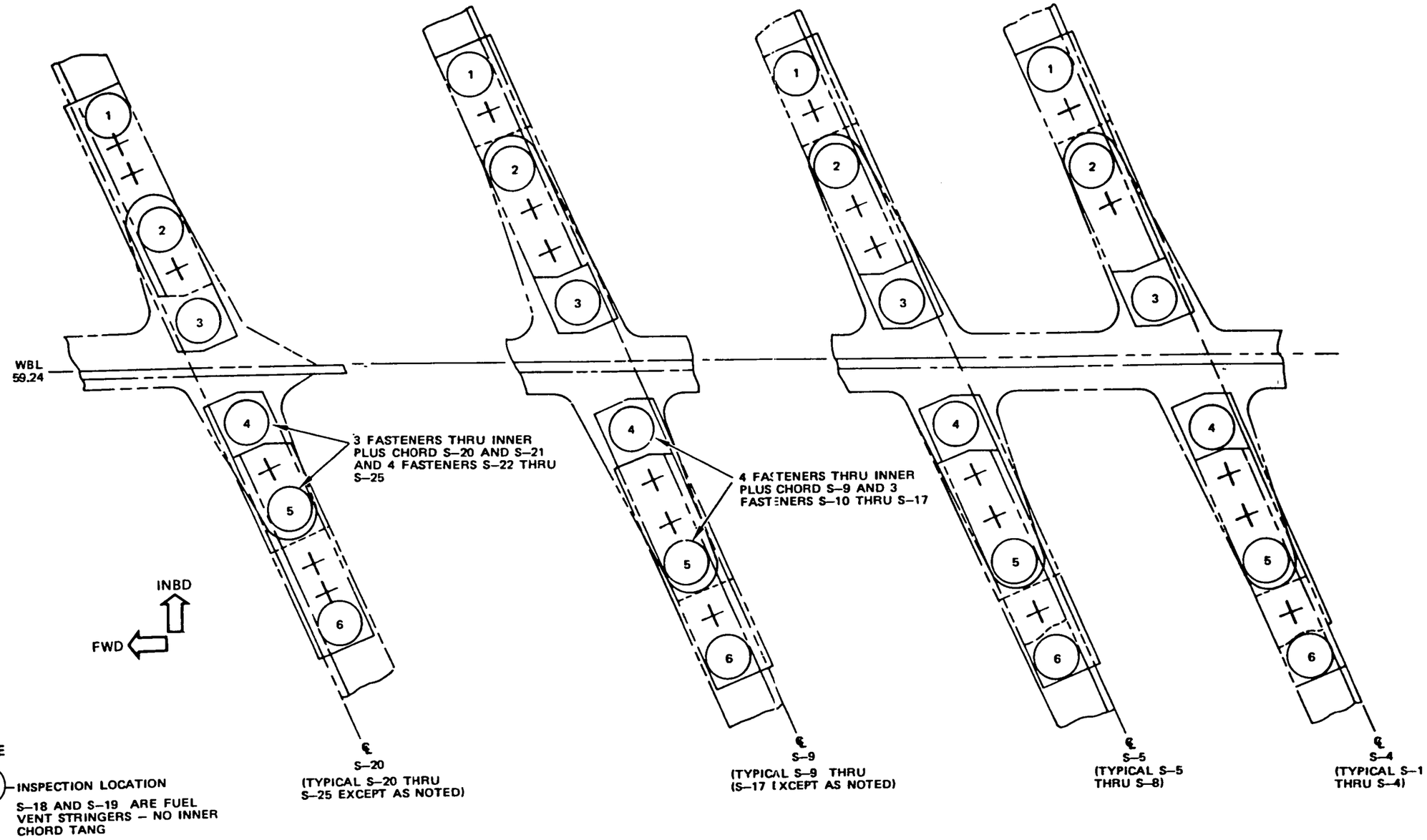
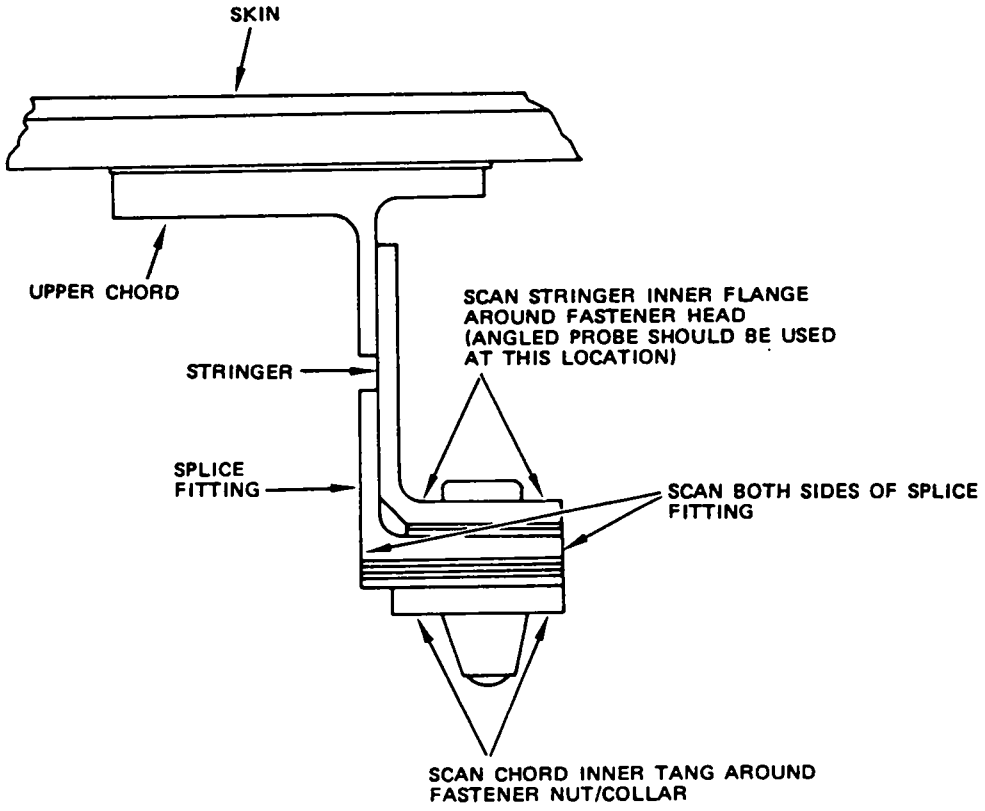
DETAIL II (CONT)

Stringer, Splice Fitting, Chord, and Upper Wing Skin and Beavertail - Upper WBL 59.24
Figure 24 (Sheet 8)



INNER PLUS CHORD/STRINGER TIE CONNECTION
(LEFT WING SHOWN, RIGHT WING SIMILAR)
DETAIL III

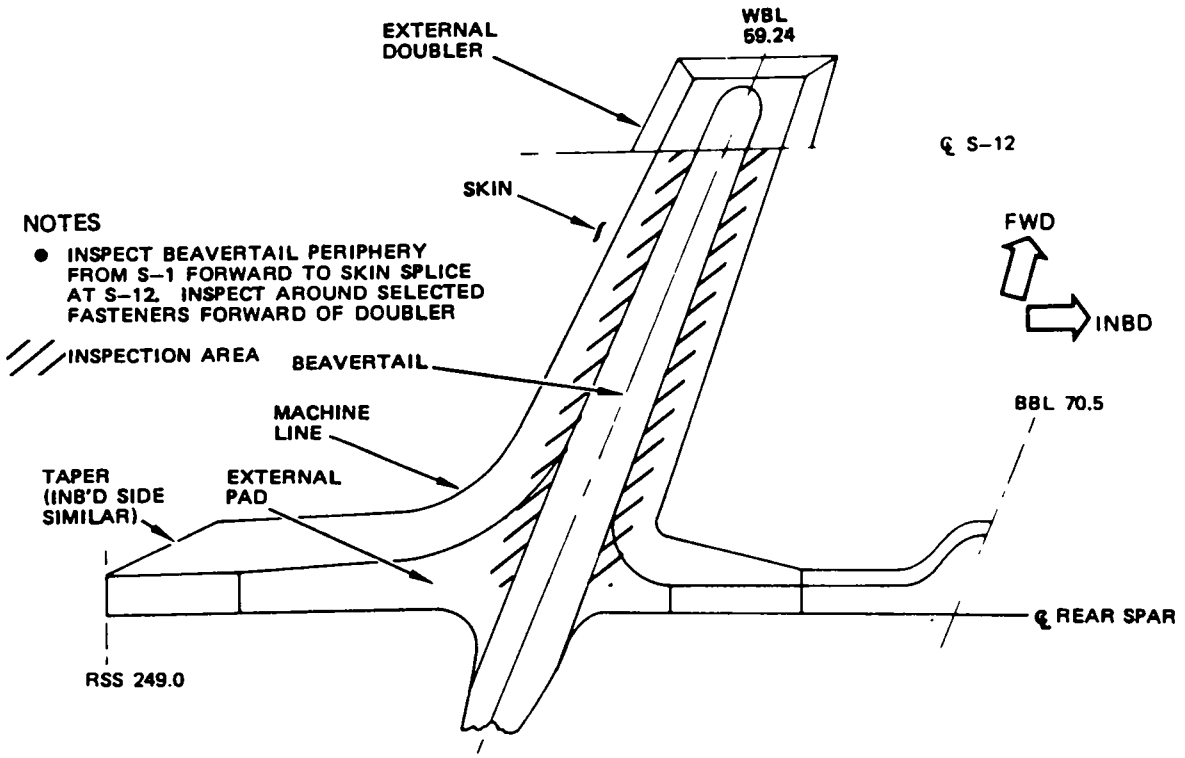
Stringer, Splice Fitting, Chord, and Upper Wing Skin and Beavertail - Upper WBL 59.24
Figure 24 (Sheet 9)



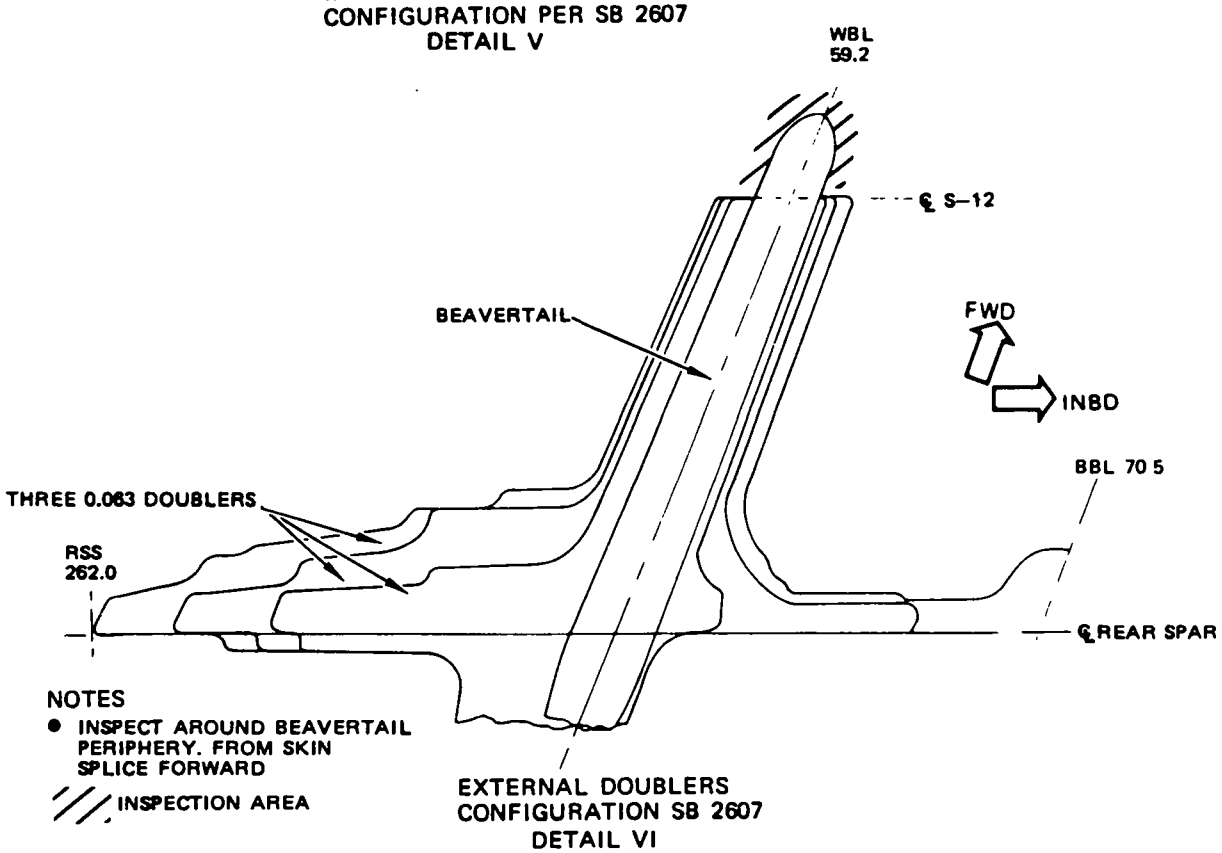
CROSS SECTION OF TYPICAL STRINGER SPLICE

DETAIL IV

Stringer, Splice Fitting, Chord, and Upper Wing Skin and Beavertail - Upper WBL 59.24
Figure 24 (Sheet 10)



INTERGRAL MACHINED PAD
CONFIGURATION PER SB 2607
DETAIL V



EXTERNAL DOUBLERS
CONFIGURATION SB 2607
DETAIL VI

Stringer, Splice Fitting, Chord, and Upper Wing
Skin and Beavertail - Upper WBL 59.24
Figure 24 (Sheet 11)

EFFECTIVITY
MODEL: 720 SSI DOCUMENT (D6-44860) REFERENCE: SSD 57-A00-010

PART 6 - EDDY CURRENT

WINGS MAIN FRAME

1. Purpose

A. To perform a high frequency surface eddy current crack inspection of the upper WBL 129.62 splice (beavertail).

(1) External inspection about the periphery of the beavertail forward of the rear spar, and specified fasteners forward of the beavertail.

(2) Internal inspection of stringer, splice straps, and chord tang at specified locations.

B. This inspectin requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

A. Any eddy current instrument that will satisfy the performance requirements of this procedure is acceptable. The following instrument was used during the development of this procedure.

(1) ED 520
Magnaflux Corp.
6800 E. Washington Blvd.
Los Angeles, CA 90049

B. Probes

(1) Shielded straight and shielded right-angle pencil probes, per Part 1, 51-06-00, Fig. 1.

(a) Straight, P-50
Right Angle, P-905-50
NDT Product Engineering
P.O. Box 423
Renton, WA 98057

Stringer, Splice Strap, Chord and Upper Wing Skin
at Beavertail - Upper WBL 129.62
Figure 25 (Sheet 1)

(b) Straight, VM100PS
Right-Angle, VM100AS
VM Products
7420 Park Avenue No. 20
Tacoma, WA 98408

NOTE: Diameter of coil end of shielded right angle probe should not exceed 0.2 inch for internal inspection.

(2) Reference standard per Part 6, 51-00-00, Fig. 4.

3. Preparation for Inspection

A. Internal Inspection

(1) Drain and purge applicable fuel tank on both sides of 129.62 joint to permit tank entry by an inspector with an eddy current instrument.

B. External Inspection

(1) Remove fairing from aft end of beavertail.

(2) Remove sealant which is more than 0.25 inch from edge of beavertail.

4. Instrument Calibration

A. Calibrate per Part 6, 51-00-00, Fig. 4.

5. Inspection Procedure

A. External Inspection

(1) Scan around periphery of beavertail as shown in Detail I. A crack is indicated by a rapid deflection of the instrument needle as the probe passes over the crack.

NOTE: If a steel fastener is encountered at the edge of the beavertail, it will cause an off scale meter deflection. Inspect around the head of the fastener as shown in Detail I.

Metal chips embedded in paint or sealant can cause crack-like indications. Remove paint or sealant and reinspect.

Should a crack lie in a more parallel direction to the edge of the beavertail, the characteristic rapid meter deflection may not be obtained. Any unusual meter movement should be investigated.

(2) Scan around heads of selected fasteners forward of the beavertail as shown in Details II and III (Ref Part 6, 51-00-00, Fig. 6).

B. Internal Inspection

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. USE ONLY BATTERY-OPERATED, EXPLOSIONPROOF LIGHTS IN VICINITY OF OPEN FUEL TANKS. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

NOTE: Refer to Detail IV for fastener location and Detail V for probe positions.

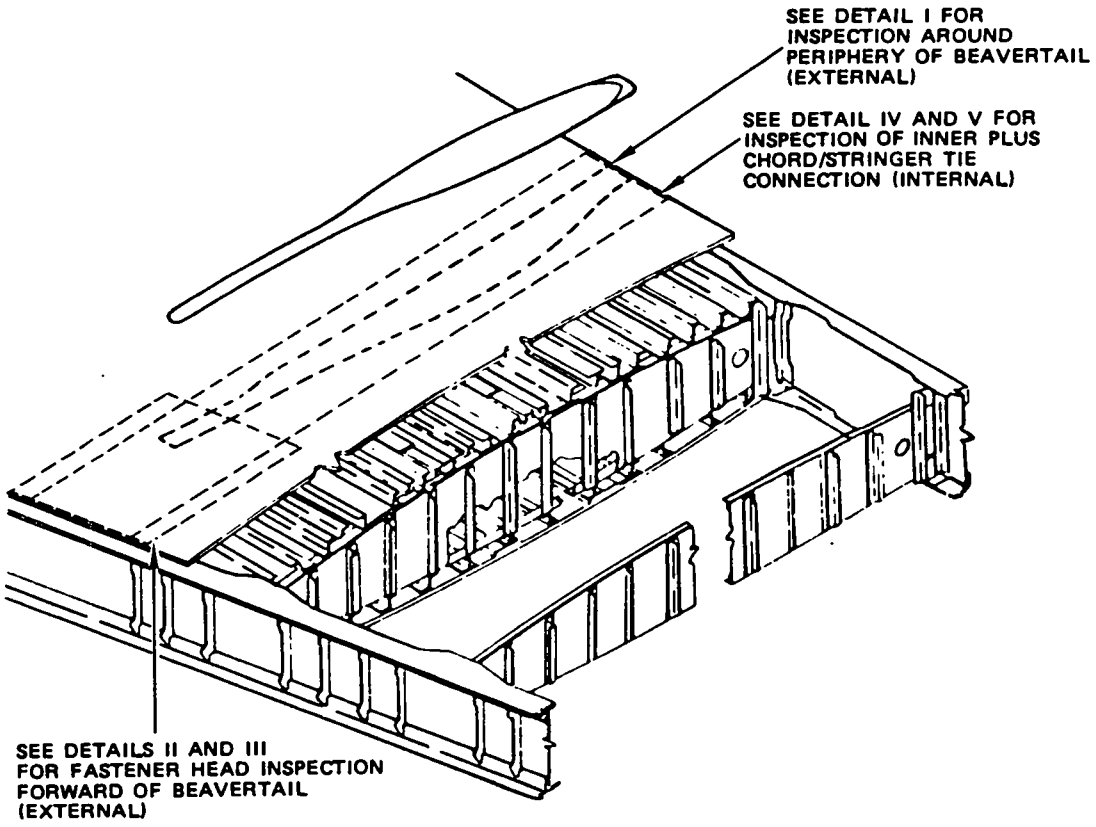
Stringers S-13 and S-14 are fuel vent stringers and do not have a chord inner tang.

(1) Scan chord inner tang around fastener nut/collar. For stringers S-1 thru S-12, inspect around fastener locations 2, 3, 4, and 5; and for stringers S-15 thru S-21, inspect around fastener locations 2 and 3 (Detail V).

(2) Scan stringer inner flange around fastener head. For stringers S-1 thru S-12, scan around fastener locations 1 and 6; and for stringers S-15 thru S-21, scan around fastener locations 1 and 4 (Detail V).

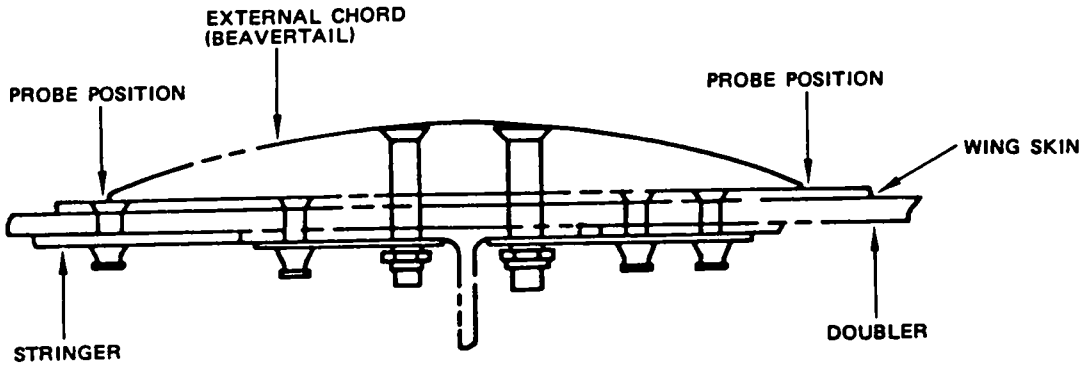
(3) Scan both sides of splice strap adjacent to fasteners. For stringers S-15, S-16, and S-21, scan edge of strap adjacent to fastener locations 1 and 4 (Detail V).

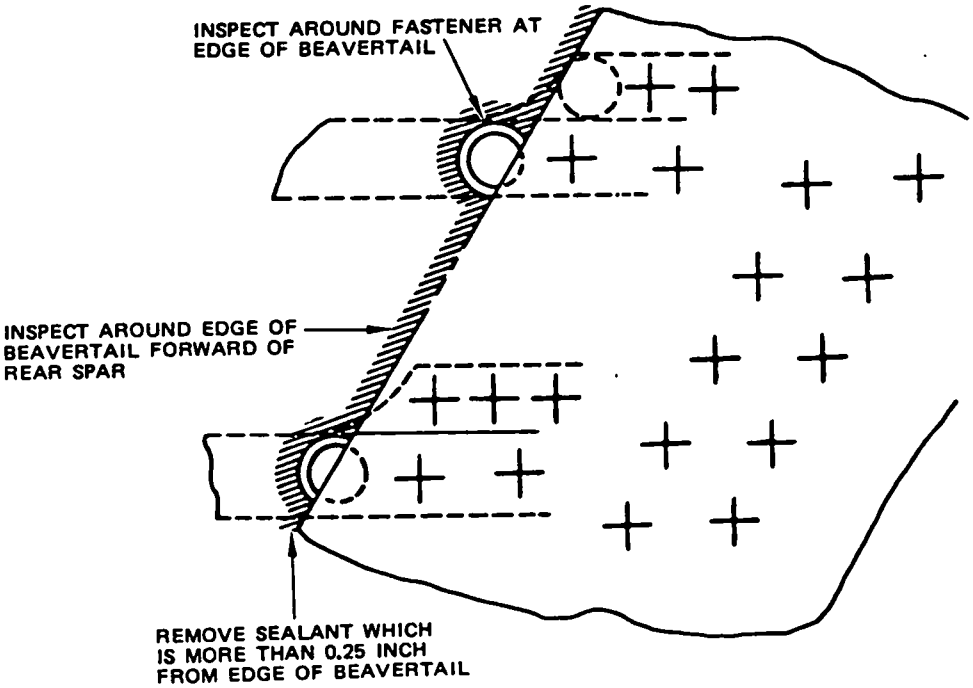
Stringer, Splice Strap, Chord and Upper Wing Skin
at Beavertail - Upper WBL 129.62
Figure 25 (Sheet 3)



VIEW OF UPPER WING SURFACE
AT BEAVERTAIL

Stringer, Splice Strap, Chord and Upper Wing Skin
at Beavertail - Upper WBL 129.62
Figure 25 (Sheet 4)

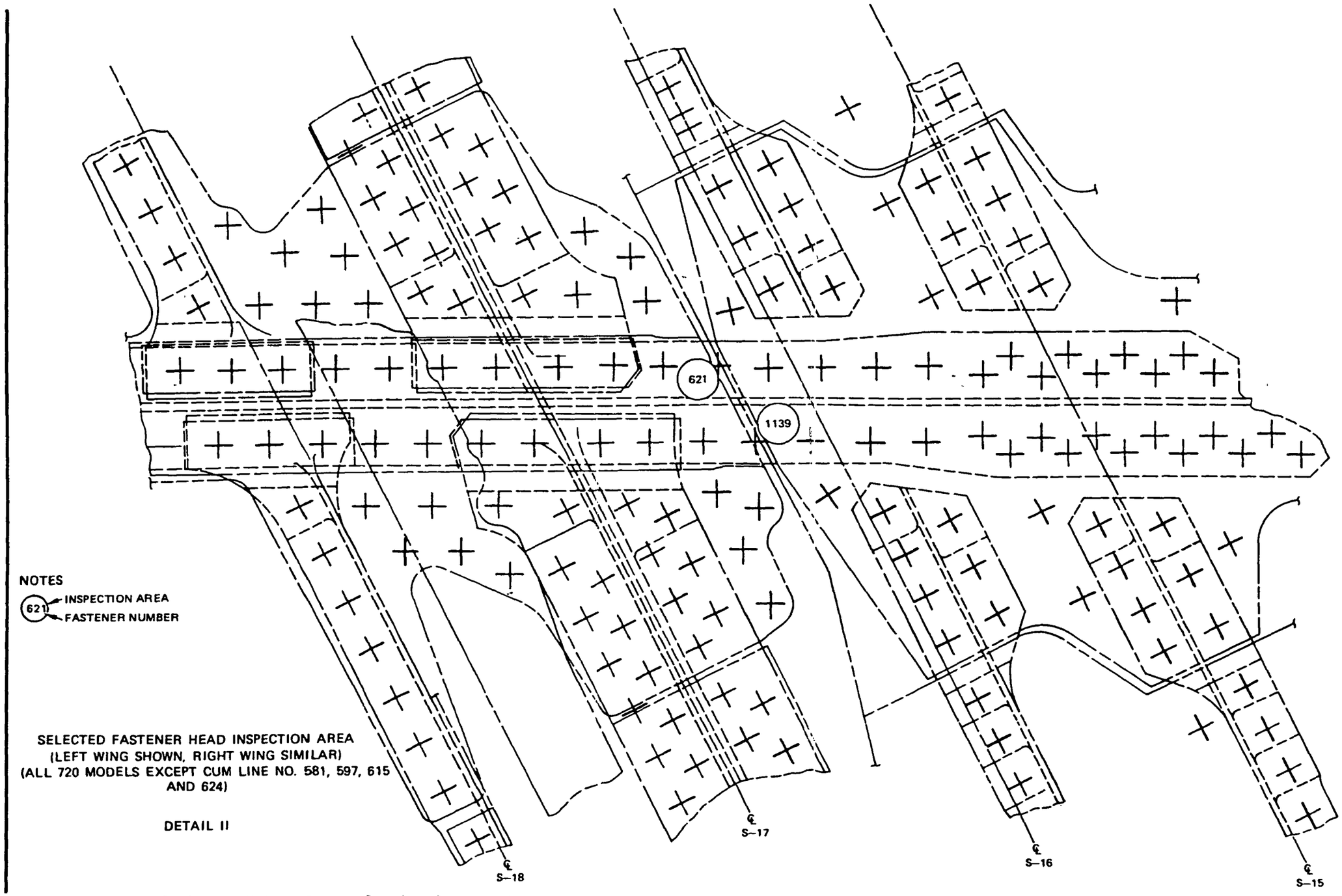




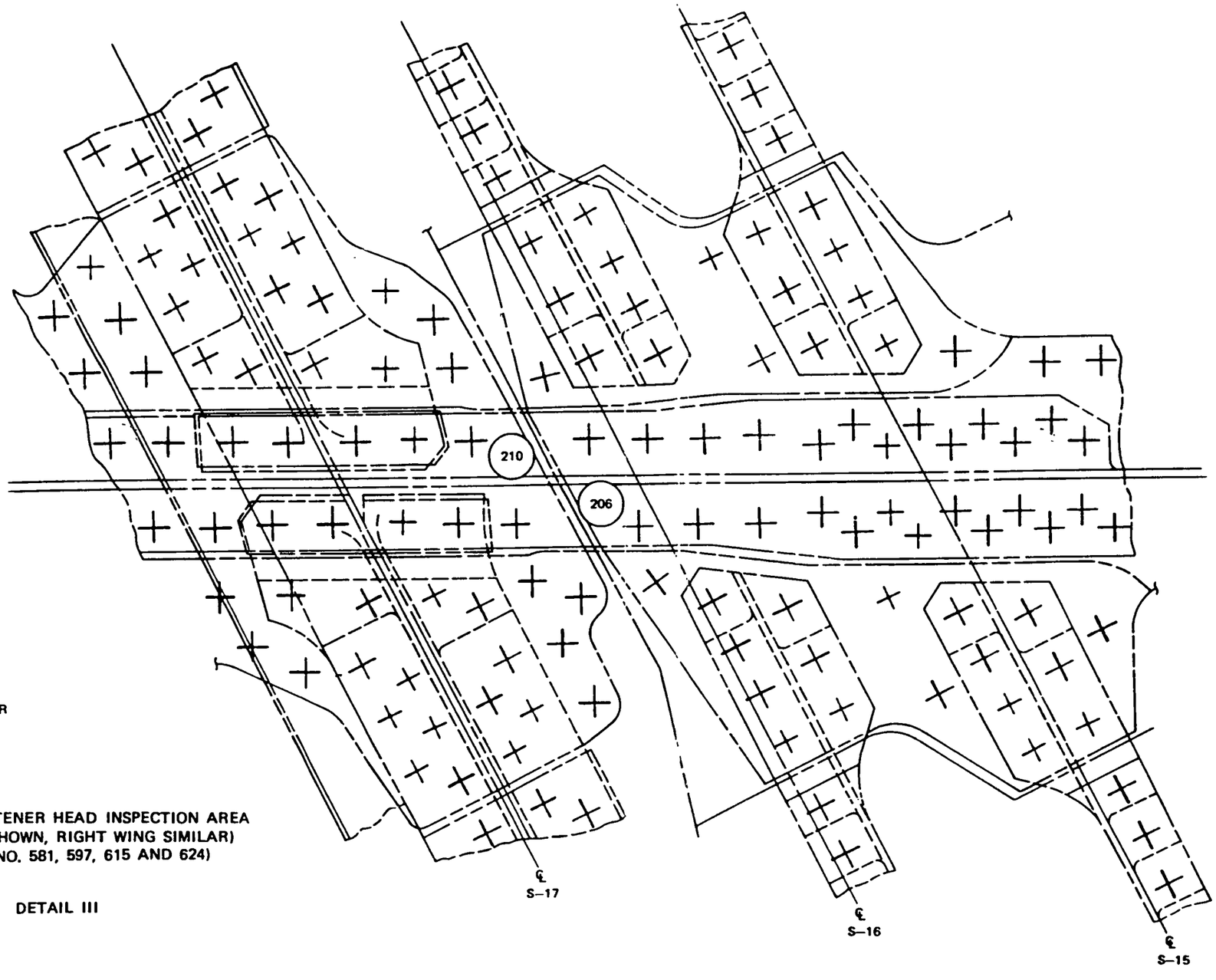
NOTES

INSPECTION AREA (TYPICAL)

Stringer, Splice Strap, Chord and Upper Wing Skin
at Beavertail - Upper WBL 129.62
Figure 25 (Sheet 5)



Stringer, Splice Strap, Chord and Upper Wing Skin
at Beavertail - Upper WBL 129.62
Figure 25 (Sheet 6)



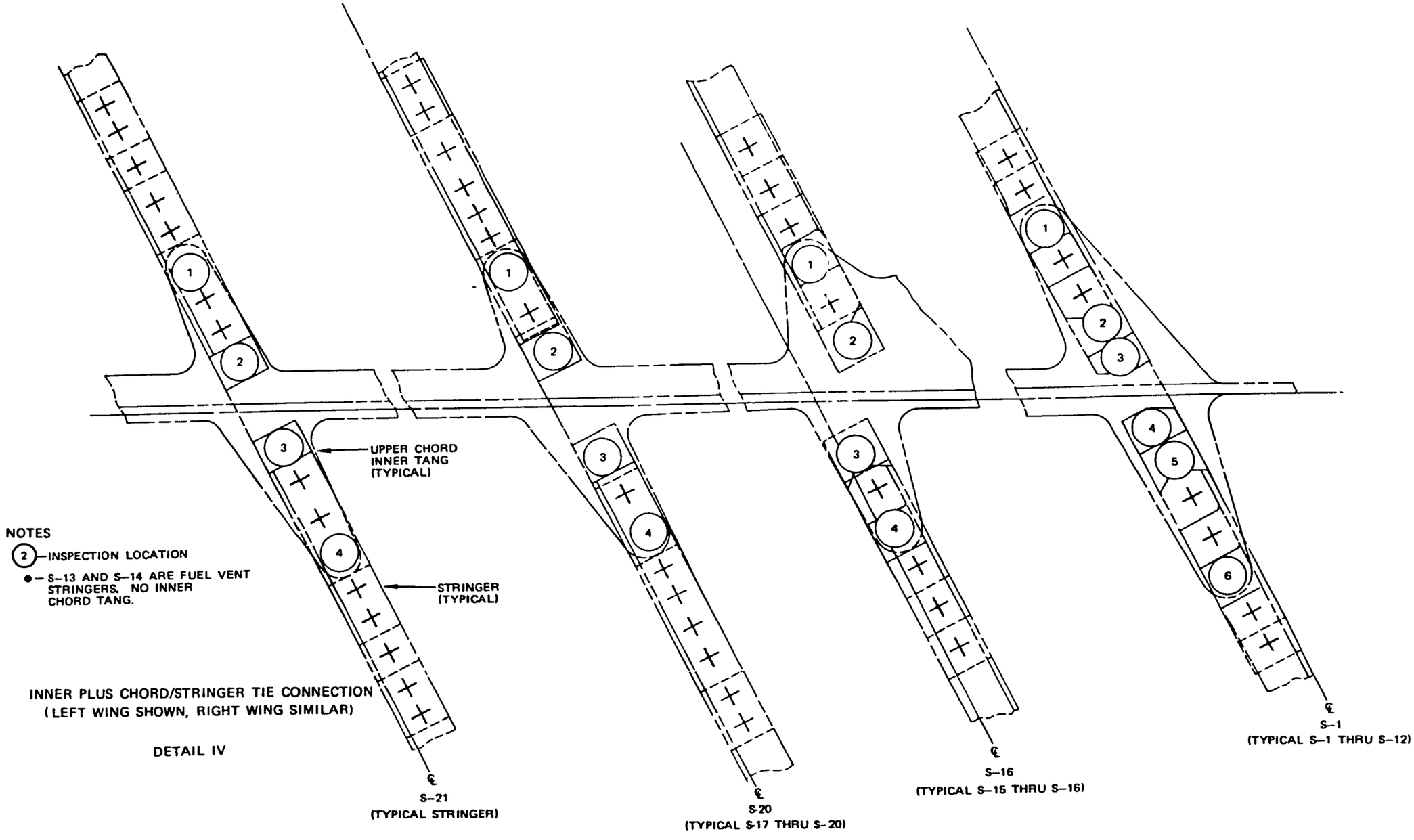
NOTES

210 INSPECTION AREA
FASTENER NUMBER

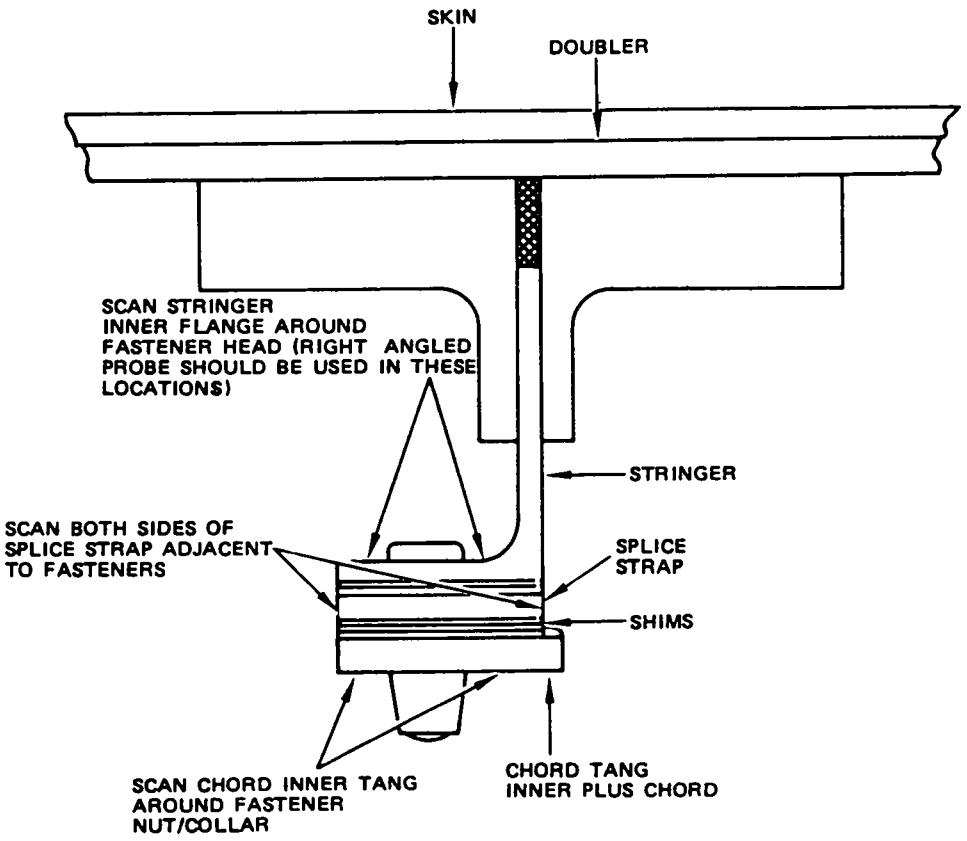
SELECTED FASTENER HEAD INSPECTION AREA
(LEFT WING SHOWN, RIGHT WING SIMILAR)
(CUM LINE NO. 581, 597, 615 AND 624)

DETAIL III

Stringer, Splice Strap, Chord and Upper Wing Skin
at Beavertail - Upper WBL 129.62
Figure 25 (Sheet 7)



Stringer, Splice Strap, Chord and Upper Wing Skin
at Beavertail - Upper WBL 129.62
Figure 25 (Sheet 8)



CROSS SECTION OF STRINGER SPLICE
(TYPICAL)

DETAIL V

Stringer, Splice Strap, Chord and Upper Wing Skin
at Beavertail-Upper WBL 129.62
Figure 25 (Sheet 9)

EFFECTIVITY
MODEL: 707-100/200
SSI DOCUMENT (D6-44860)
REFERENCE:
SSD 57-A15-08

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

A. To perform a surface eddy current crack inspection of the upper WBL 129.62 splice (beavertail).

(1) External inspection about the periphery of the beavertail forward of the rear spar.

(2) External inspection of the wing skin panels at specified fastener locations forward of the beavertail.

(3) Internal inspection of stringer, splice straps, and chord tang at specified locations.

B. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

A. Any eddy current insutrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during the development of this procedure.

(1) ED 520
Magnaflux Corp.
6800 E. Washington Blvd.
Los Angeles, CA 90049

B. Probes

(1) Shielded straight and shielded right-angled pencil probes, per Part 1, 51-06-00, Fig. 1.

(a) Straight, P-50
Right-Angle, P-905-50
NDT Product Engineering
P.O. Box 423
Renton, WA 98057

Stringer, Splice Strap, Chord, and Upper Wing Skin at Beavertail Upper WBL 129.62
Figure 26 (Sheet 1)

(b) Straight, VM100PS
Right-Angle, VM100AS
VM Products
7420 Park Avenue No. 20
Tacoma, WA 98408

NOTE: Diameter of coil end of shielded right angle probe should not exceed 0.2 inch for internal inspection.

(2) Reference standard per Part 6, 51-00-00, Fig. 4.

3. Preparation for Inspection

A. Internal Inspection

(1) Drain and purge applicable fuel tank on both sides of 129.62 joint to permit tank entry by an inspector with an eddy current instrument.

B. External Inspection

(1) Remove fairing from aft end of beavertail.

(2) Remove sealant which is more than 0.25-inch from edge of beavertail.

4. Instrument Calibration

A. Calibrate per Part 6, 51-00-00, Fig. 4.

5. Inspection Procedure

A. External Inspection

(1) Scan around periphery of beavertail as shown in Detail I. A crack is indicated by a rapid deflection of the instrument needle as the probe passes over the crack.

NOTE: If a steel fastener is encountered at the edge of the beavertail, it will cause an off scale meter deflection. Inspect around the head of the fastener as shown in Detail I.

Metal chips embedded in paint or sealant can cause crack-like indications. Remove paint or sealant and reinspect.

Should a crack lie in a more parallel direction to the edge of the beavertail, the characteristic rapid meter deflection may not be obtained. Any unusual meter movement should be investigated.

Stringer, Splice Strap, Chord and Upper Wing Skin
at Beavertail - Upper WBL 129.62
Figure 26 (Sheet 2)

(2) Scan around heads of selected fasteners forward of the beavertail as shown in Detail II (Part 6, 51-00-00, Fig. 6).

B. Internal Inspection

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

NOTE: There are two stringer tie configurations (Details IV and V). The stringer tie configuration for a particular airplane is determined by visual observation.

(1) Inspection of Detail IV stringer tie configuration.

NOTE: Refer to Detail III for fastener location and Detail IV for probe positions.

- Stringers S-13 and S-14 are fuel vent stringers and do not have a chord inner tang.

(a) For stringers S-1 thru S-21, at fasteners 2 and 3 locations, scan chord inner tang around fastener nut/collar. See Detail IV.

(b) For stringers S-1 thru S-21, at fasteners 1 and 4 locations, scan stringer inner flange around fastener head. See Detail IV.

(c) For stringers S-1 thru S-21, at fasteners 1 and 4 locations, scan both sides of splice fitting adjacent to fasteners. See Detail IV.

(2) Inspection of Detail V stringer tie configuration.

NOTE: Refer to Detail III for fastener location and Detail V for probe positions.

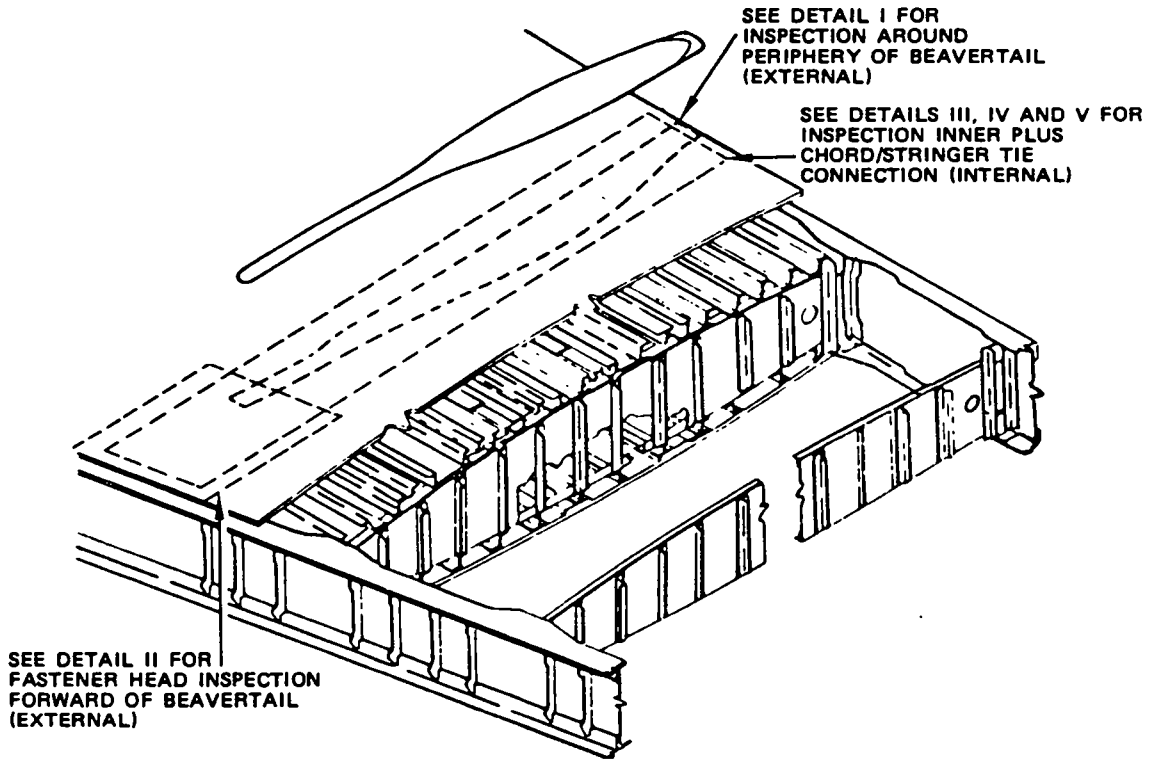
Stringers S-13 and S-14 are fuel vent stringers and do not have a chord inner tang.

(a) For stringers S-1 thru S-21, at fasteners 2 and 3 locations, scan chord inner tang around fastener nut/collar. See Detail V.

(b) For stringers S-1 thru S-21, at fasteners 1 and 4 locations, scan stringer inner flange around fastener head. See Detail V.

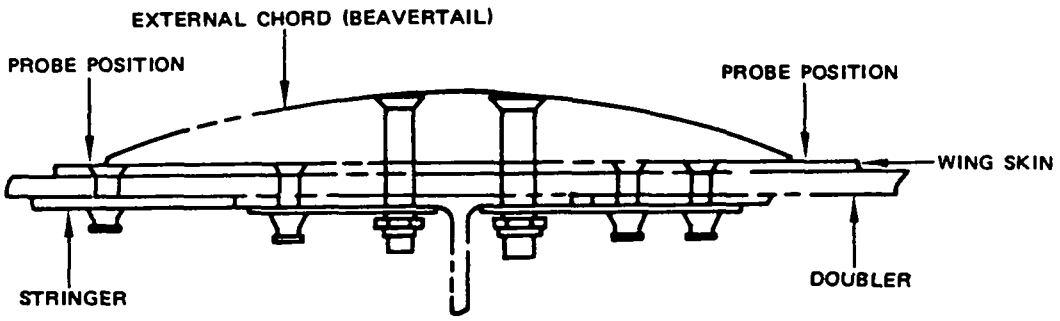
(c) For stringers S-1 thru S-21, at fasteners 1 and 4 locations, scan both sides of splice fitting adjacent to fasteners. See Detail V.

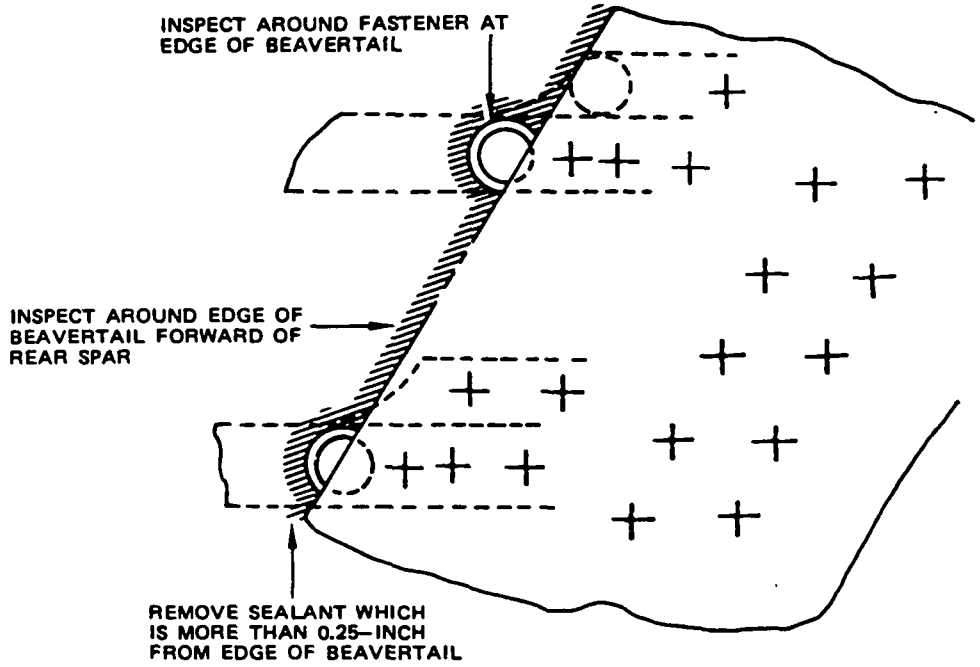
(d) For stringers S-1 thru S-21, scan inner surface of the splice fitting adjacent to fastener locations 1 and 4. See Detail V.



VIEW OF UPPER WING SURFACE AT BEAVERTAIL

Stringer, Splice Fitting, Plus Chord and Upper Wing Skin at Beavertail - Upper WBL 129.62
Figure 26 (Sheet 4)





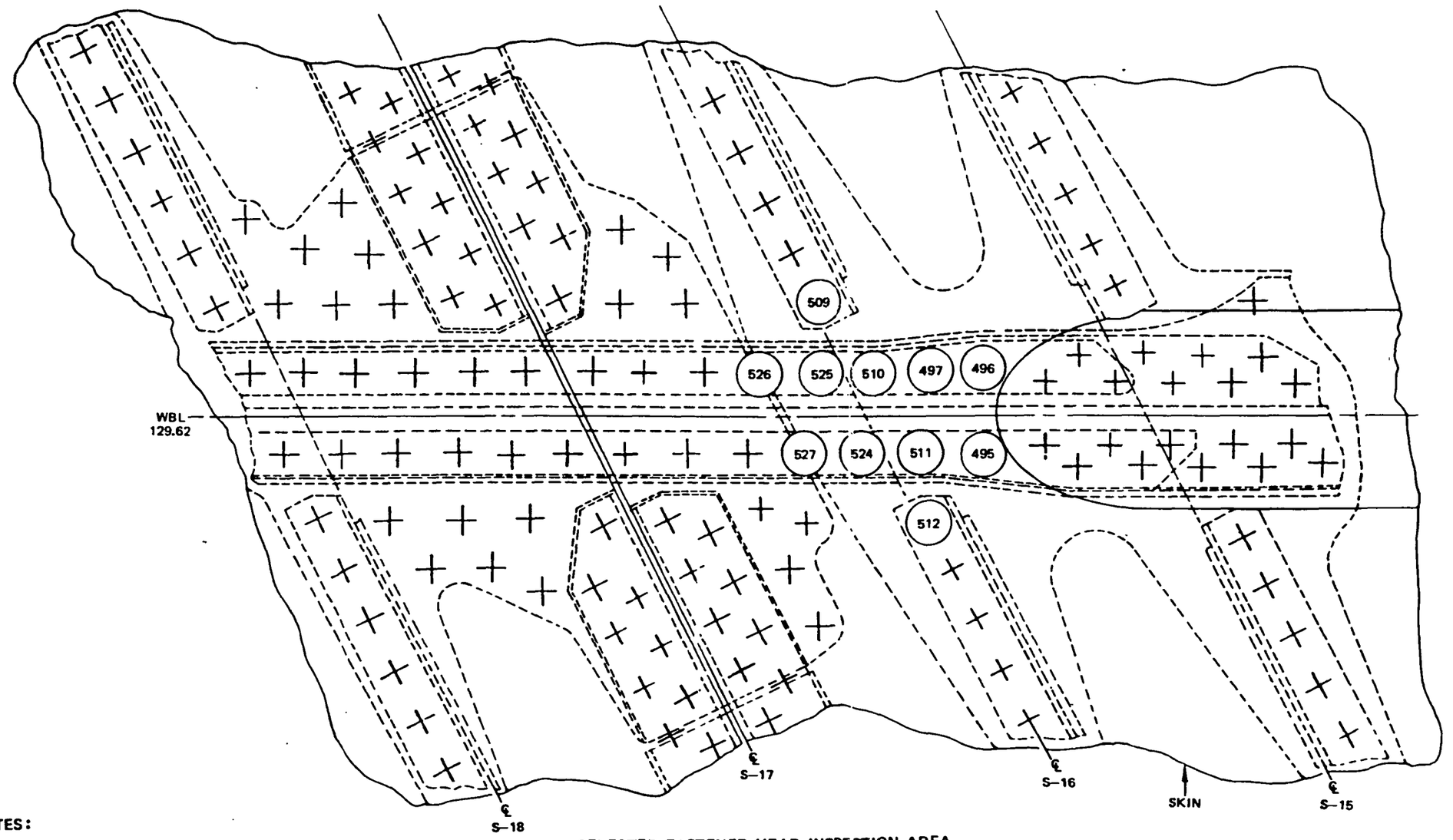
NOTES:

INSPECTION AREA (TYPICAL)

INSPECTION AROUND PERIPHERY OF EXTERNAL CHORD
UPPER WBL 129.62

DETAIL I

Stringer, Splice Fitting, Plus Chord and Upper Wing Skin at Beavertail - Upper WBL 129.62
Figure 26 (Sheet 5)



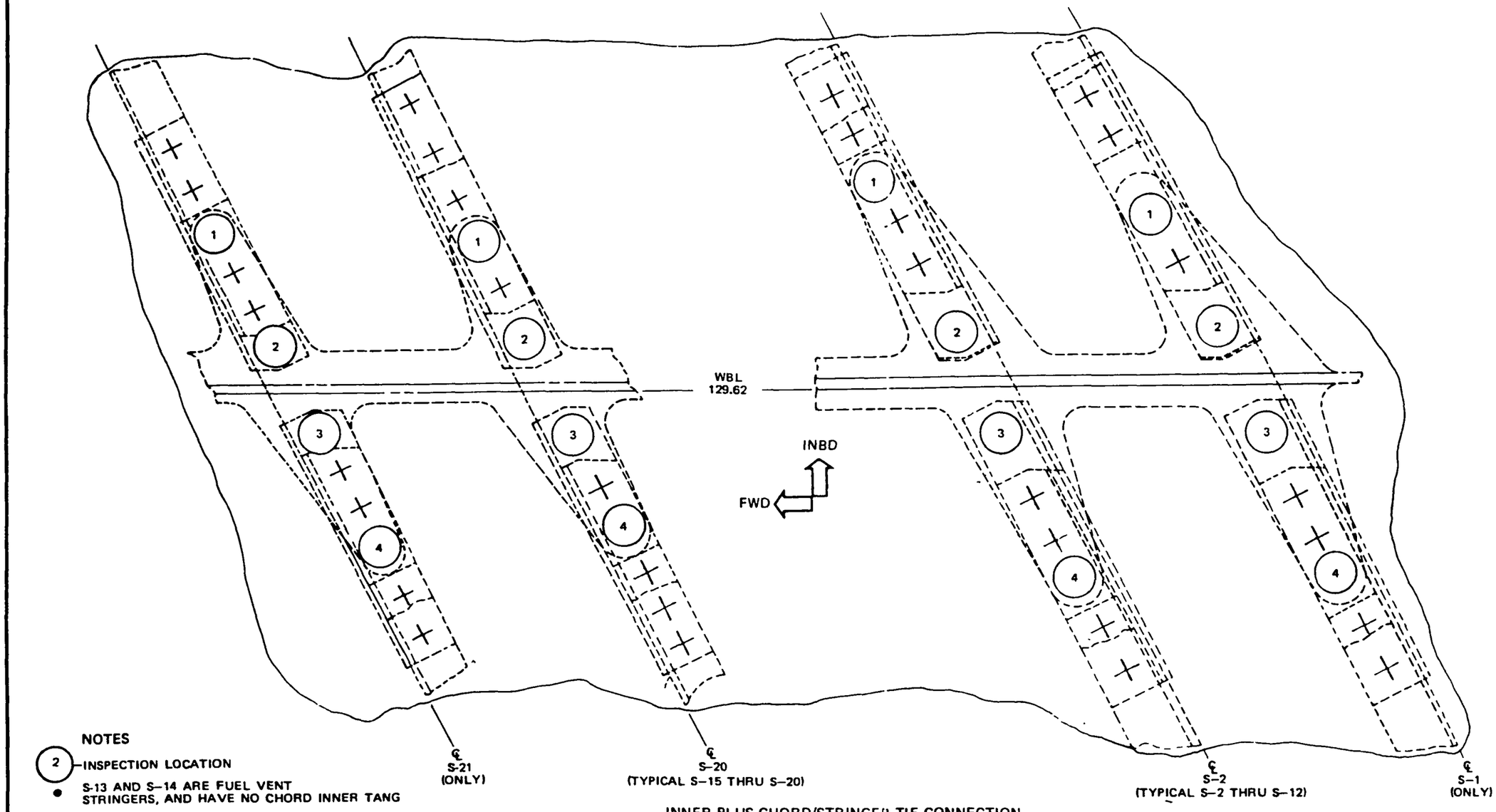
NOTES:

524 — INSPECTION AREA
FASTENER NUMBER

SELECTED FASTENER HEAD INSPECTION AREA
(LEFT WING SHOWN RIGHT WING SIMILAR)

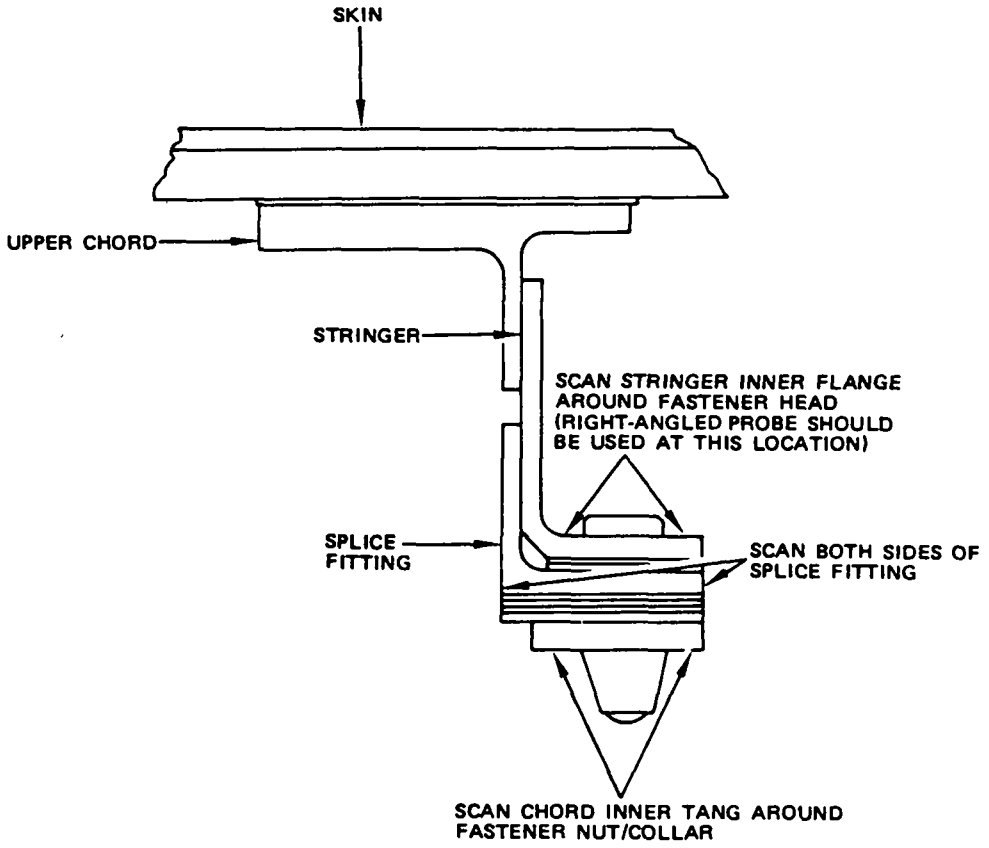
DETAIL II

Stringer, Splice Fitting, Plus Chord and Upper Wing
Skin at Beavertail - Upper WBL 129.62
Figure 26 (Sheet 6)



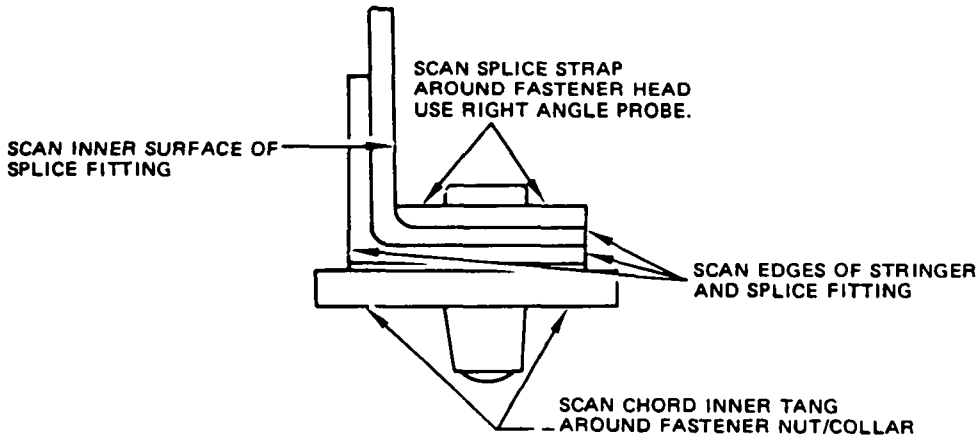
INNER PLUS CHORD/STRINGER TIE CONNECTION
(LEFT WING SHOWN RIGHT WING SIMILAR)
DETAIL II

Stringer, Splice Fitting, Plus Chord and Upper Wing
Skin at Beavertail - Upper WBL 129.62
Figure 26 (Sheet 7)



CROSS SECTION OF TYPICAL STRINGER SPLICE

DETAIL IV



CROSS SECTION VIEW TYPICAL STRINGER INNER SPLICE
DETAIL V

Stringer, Splice Fitting, Plus Chord and Upper Wing Skin at Beavertail - Upper WBL 129.62
Figure 26 (Sheet 8)

EFFECTIVITY
MODEL: 707-300,-400, 300B,300C UP TO CUM LINE NO. 671 EXCEPT 78,99, 118,283 AND 328
SSI DOCUMENT (D6-44860)
REFERENCE: SSD 57-A25-08 SSD 57-A35-08 SSD 57-A45-08

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To inspect for fastener hole cracks in the skin and splice plate at upper WBL 59.25 (beavertail) and stringer S-25.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec Inc.
      1320 N.W. Mall
      Issaquah, WA 98027

   B. Probes - This procedure uses two probes; any probe of similar size which will satisfy the performance requirements of this procedure is acceptable. The following probes were used in the development of this procedure.

      (1) Ring (encircling) probe with 1-inch OD and 0.5-inch ID shielding, 100 Hz, Nortec P/N SPO-783

      NOTE: Probes listed above are available from:
      Nortec Inc.
      421 N. Quay
      Kennewick, Washington 99336

      Specify instrument with which probe is to be used or instrument connector required when ordering probes.

   C. Reference Standards

      (1) Manufacture per Detail I.

Upper WBL 59.25 and Stringer S-25
Figure 27 (Sheet 1)

3. Preparation for Inspection

A. Wipe skin surface clean.

4. Instrument Calibration

A. Calibration for fastener hole crack inspection using the ring probe centered on the fastener (Detail II).

(1) Set instrument frequency to 300 Hz.

(2) Visually center probe over the unnotched reference standard hole, Position 1.

(3) Balance instrument per manufacturer's instructions.

(4) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006-inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(5) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

(6) Center probe over the notched reference standard hole, Position 2. Response should be upscale.

(7) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(8) Recheck null and liftoff. If readjustments are made recheck sensitivity per par. B.(7).

(9) Cracks will be indicated by a higher meter response.

5. Inspection Procedures

A. Identify fasteners to be inspected by using Detail III.

B. Calibrate instrument per par. 4.A.

Upper WBL 59.25 and Stringer S-25
Figure 27 (Sheet 2)

C. Use several fasteners of the same type to establish the airplane baseline response for an acceptable fastener.

(1) Select a representative fastener from this group and set its response to 20% of full meter scale.

NOTE: Do not change instrument sensitivity when establishing the airplane baseline response.

(2) Refer back to this fastener periodically to ensure that the instrument response is the same as originally recorded. (Changes in meter response is the same as originally recorded. (Changes in meter response may occur as a result of instrument drift or probe temperature change.)

NOTE: See Detail III for additional fasteners which may be used for comparison in establishing a baseline response.

D. Inspect each fastener by centering the probe on the fastener and manipulating to obtain a minimum response.

E. Any fastener location which gives a response which is 40% of full meter scale higher than the established baseline is a potential crack and further investigation is required.

NOTE: The following conditions may cause meter reading changes similar to crack indications:

1) A decrease in fastener spacing - compare with similarly spaced fasteners on the airplane.

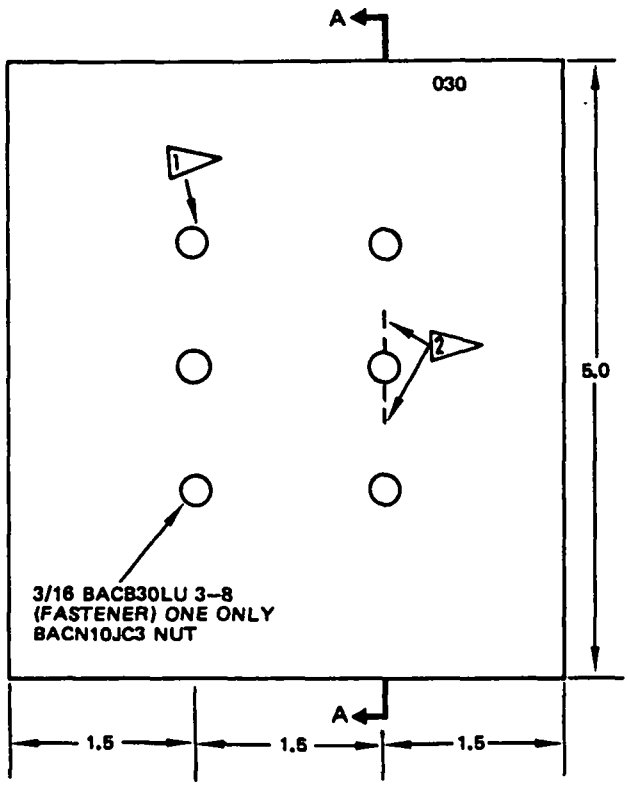
2) A larger or smaller fastener - compare with similar fasteners of reference standard and on airplane.

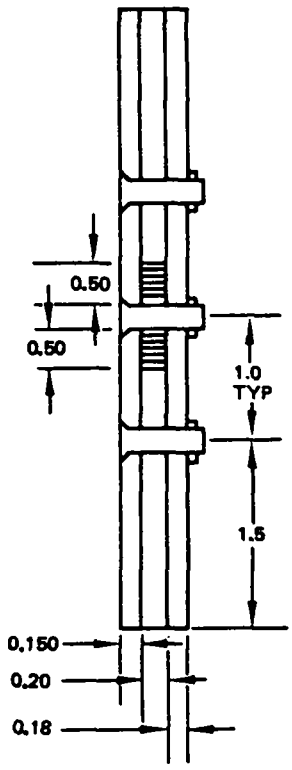
3) A fastener that is different in countersink depth - compare with similar fastener in standard raised to the same height.

4) A fastener close to edge of skin - compare with similar fasteners on airplane.

5) Differences in conductivity between skin panels - compare only the fastener locations common to a skin panel.

Upper WBL 59.25 and Stringer S-25
Figure 27 (Sheet 3)





SECTION A-A

NOTES

- TOLERANCE: X.X ± 0.05 X.XX ± 0.020 X.XXX ± 0.005
- MATERIAL 7075-T6 ALUMINUM
- ALL DIMENSIONS ARE IN INCHES
- ETCH OR STEEL STAMP WITH 030
- P/N 6412-42
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2631 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

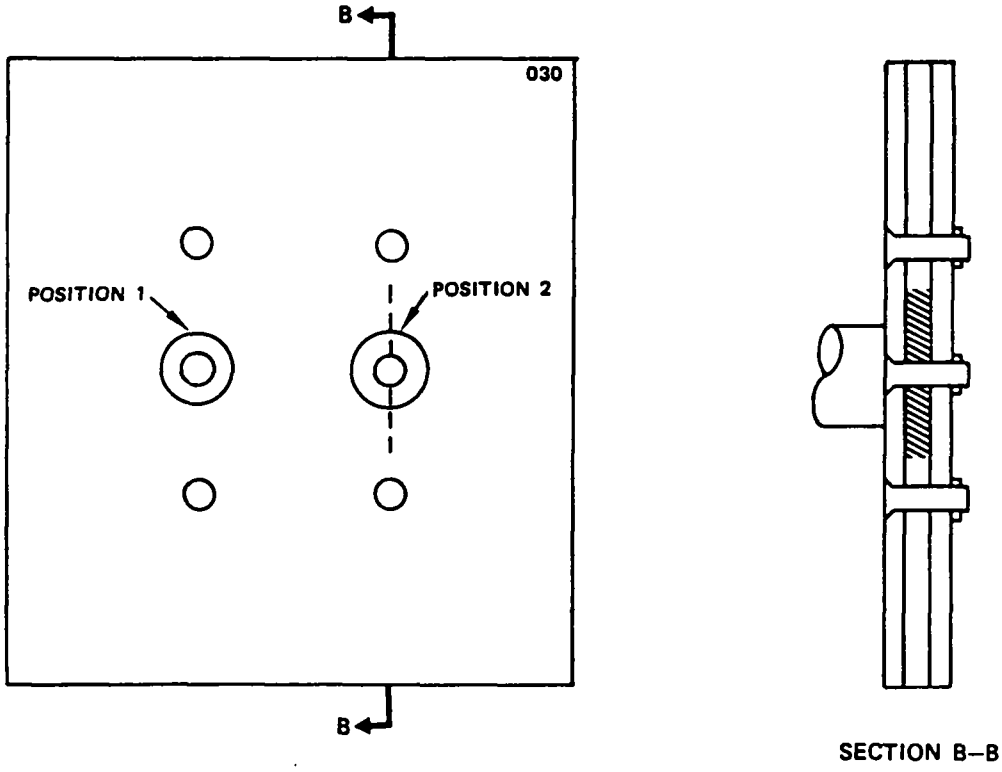
1 BACB30GY6-8 FASTENER; BACC30K6 COLLAR (5 PLACES)

2 JEWELER'S SAWCUT 0.030 MAX WIDTH

REFERENCE STANDARD 030

DETAIL I

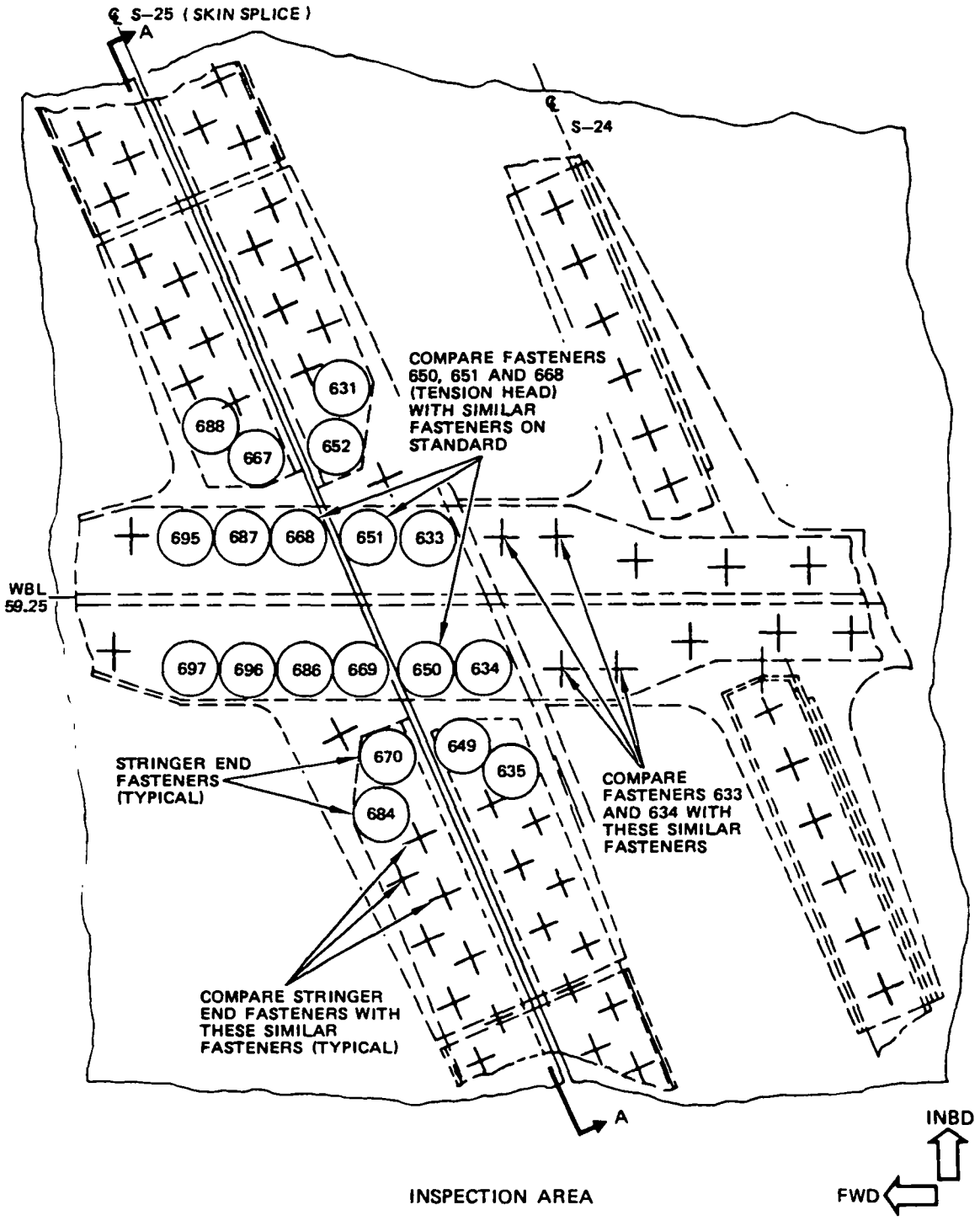
Upper WBL 59.25 and Stringer S-25
Figure 27 (Sheet 4)



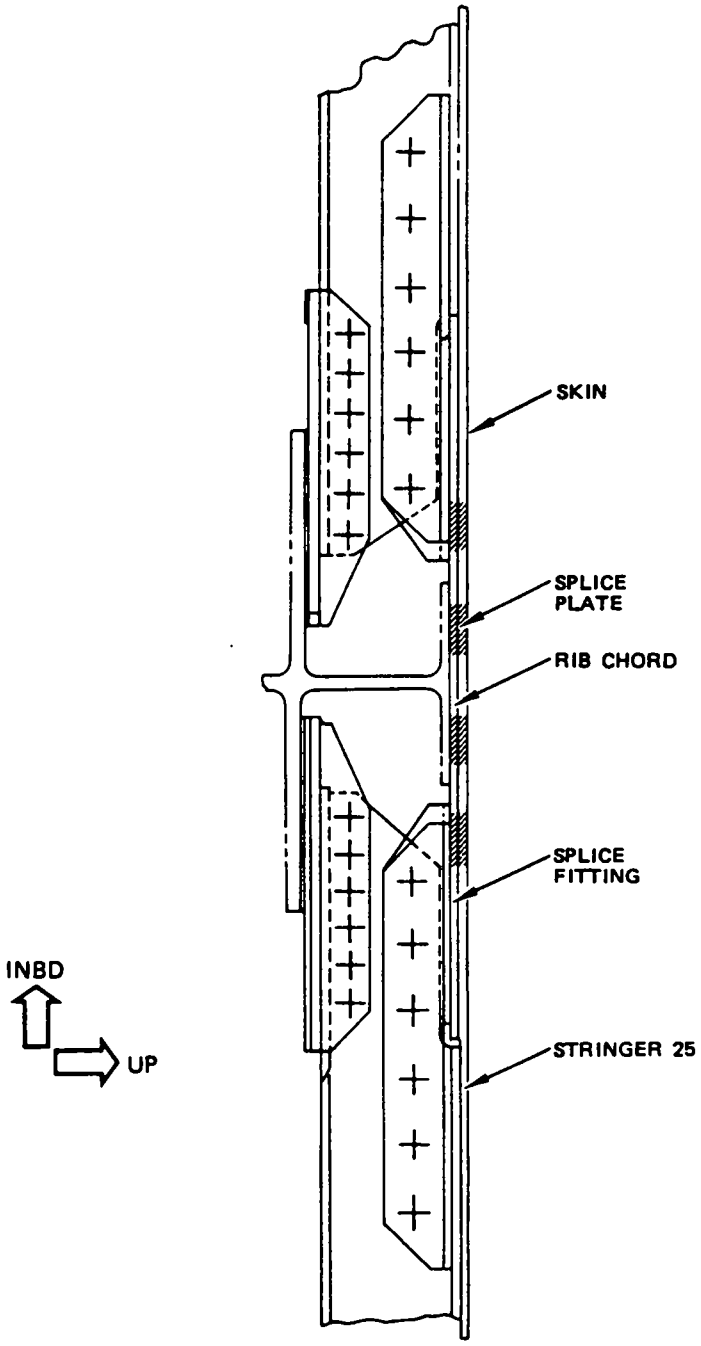
PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD 030

DETAIL II

Upper WBL 59.25 and Stringer S-25
Figure 27 (Sheet 5)



Upper WBL 59.25 and Stringer S-25
Figure 27 (Sheet 6)



NOTES

INSPECTION AREA

687 INSPECTION AREA FASTENER NUMBER

SECTION A–A

DETAIL III (CONT)

Upper WBL 59.25 and Stringer S-25
Figure 27 (Sheet 7)

EFFECTIVITY
MODEL: 707-300B/300C/
CUM LINE NO. 672 AND ON
SERVICE BULLETIN
REFERENCE: 2427
2607, 2626, 2640
3168, 3239
SSI DOCUMENT (D6-44860)
REFERENCE:
SSD 57-A35-08C
57-A45-08C

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To inspect for cracks in the wing upper panel at WBL 59.24 (beavertail).

      (1) Inspection of selected fastener holes for wing skin and splice plate cracks at the intersection of WBL 59.24 and stringer S-25, Detail IX.

      (2) Inspection of selected fastener holes through the external doubler for skin cracks, Detail VIII.

      (3) Inspection along the edge of the beavertail, through the external doubler for skin crack extending from under the beavertail, Detail VII.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec Inc.
      1320 N.W. Mall
      Issaquah, WA 98027

   B. Probes - This procedure uses two probes; any probe of similar size which will satisfy the performance requirements of this procedure is acceptable. The following probes were used in the development of this procedure.

      (1) Ring (encircling) probe with 1-inch OD and 0.5-inch ID shielding, 100 Hz, Nortec P/N SPO-783

Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 28 (Sheet 1)

(2) Ring probe with 0.7-inch OD and 0.3-inch ID shielding, 500 Hz, Nortec P/N SPO-996

NOTE: Probes listed above are available from:

Nortec Inc.
421 N. Quay
Kennewick, Washington 99336

Specify instrument with which probe is to be used or instrument connector required when ordering probes.

C. Reference Standards

(1) Manufacture per Details I, III, and V.

3. Preparation for Inspection

A. Wipe skin surface clean.

B. It is suggested that fastener locations requiring the same instrument calibration for inspection be identified on the airplane by colored, water washable crayons, pencils, or felt pens. Refer to Table I and Details VII, VIII and IX for inspection requirements.

4. Instrument Calibration

A. General

(1) Two basic inspection types are required.

(a) Inspection for fastener hole cracks using a ring probe centered on the fastener.

(b) Inspection for cracks which extend beyond the edge of the beavertail using a ring probe as a spot probe.

(2) The two basic inspections require several instrument calibrations to adjust for variations in structure geometry and materials.

(3) Details VII, VIII, and IX identify inspection coverage for a particular calibration, and Table I provides specific calibration information for that inspection.

Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 28 (Sheet 2)

B. Calibration for fastener hole crack inspection using the ring probe centered on the fastener. The following calibration applies to inspection codes B thru F.

(1) Identify code for fasteners to be inspected from Details VIII and IX.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

(3) Visually center probe over the unnotched reference standard hole, Position 1.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006-inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(6) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

(7) Center probe over the notched reference standard hole, Position 2. Response should be upscale.

(8) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(9) Recheck null and liftoff. If readjustments are made recheck sensitivity per par. B.(8).

(10) Cracks will be indicated by a higher meter response.

C. Calibration for cracks in the skin under the doubler, extending beyond the edge of the beavertail. For this inspection a ring probe is used as a spot probe. The following calibration applies to inspection code A.

(1) Refer to Detail VII for inspection coverage.

(2) Refer to Table I inspection code A, for reference standard, probe, and calibration details.

(3) Place the probe at an unnotched area adjacent to the simulated "beavertail" on the reference standard, Position 1, Detail II.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006-inch (approximately the thickness of two sheets of paper).

(6) Keep the probe at Position 1 and set meter response at 20% of full scale with meter position control.

(7) Slide probe to the notched location, Position 2. Meter response should be upscale.

(8) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched positions.

(9) Recheck null and liftoff. If readjustments are made, recheck sensitivity per par. C.(7).

(10) Cracks will be indicated by a higher meter response.

5. Inspection Procedure

NOTE: An inspection code is used to identify locations having similar inspection conditions. A single instrument calibration is usually used to inspect these locations.

It is suggested that a copy of Details VIII and IX be made and that it be used to record instrument responses at each fastener location. This is helpful in maintaining continuity between the groups of fasteners during inspection.

A. Inspection of fastener holes for cracks using the ring probe centered on the fastener. Inspection codes B thru F.

(1) Calibrate instrument per par. 4.B. and Table I.

(2) Note on the airplane the location of those fasteners having the same inspection code by using Details VIII and IX.

(3) Use several fasteners of the same code to establish the airplane baseline response for an acceptable fastener.

(a) Select a representative fastener from this group and set its response to 20% of full meter scale.

NOTE: Do not change instrument sensitivity when establishing the airplane baseline response.

(b) Refer back to this fastener periodically to ensure that the instrument response is the same as originally recorded. (Changes in meter response may occur as a result of instrument drift or probe temperature change.)

(4) Inspect each fastener having the same inspection code by centering the probe on the fastener and manipulating to obtain a minimum response.

NOTE: Review the notes called out in Table I for conditions which affect the inspection.

(5) The following are potential crack indications and further investigation is required.

(a) Fastener locations which give a response which is 40% of full meter scale higher than the established baseline.

NOTE: The following conditions may cause meter reading changes similar to crack indications:

1) A decrease in fastener spacing - compare with similarly spaced fasteners on the airplane.

2) A larger or smaller fastener - compare with similar fasteners of reference standard and on airplane.

3) A fastener that is different in countersink depth - compare with similar fastener in standard raised to the same height.

4) A fastener close to edge of skin - compare with similar fasteners on airplane.

5) Differences in conductivity between skin panels - compare only the fastener location common to a skin panel.

B. Inspection of the skin under the doubler along the edge of the beavertail using a ring probe as a spot probe. Inspection code A.

(1) Calibrate instrument per par. 4.C. and Table I.

(2) Select a section of the doubler between the rear spar and stringer S-1.

(3) Place the probe adjacent to the beavertail at this location to establish a baseline response. Note this location and periodically refer to it to ensure that the instrument response has not changed.

NOTE: Minor adjustments to the meter position control will be required since the reference standard does not exactly duplicate the airplane structure. The minor adjustments must be made with the probe on a crack-free area of the structure. Do not change instrument sensitivity when establishing the airplane baseline response.

The baseline will gradually change as the probe is moved forward. It will rise 10-15% over a distance of 3 to 4 stringers. Re-establish the baseline as necessary on crack-free areas.

(4) Inspect the skin forward of the rear spar where it is covered by the doubler. Perform the inspection by slowly scanning the probe adjacent to the beavertail. If fasteners are partially exposed at the edge of the beavertail, scan around the fastener (Detail VII).

(5) Any location which gives a response 30% of full meter scale higher than the established baseline should be investigated further.

NOTE: The following conditions may cause meter reading changes similar to crack indications:

1) Metal chips trapped in the sealant at the edge of the beavertail. Remove sealant and reinspect.

2) A steel fastener under the beavertail, very close to the edge. Refer to Detail VIII to check fastener locations, scrape sealant at the edge of the beavertail to see if a small portion of the fastener is visible.

3. A tack rivet through the doubler in the inspection area. Visually check for the presence of one. (If the probe passes over the centerline of the tack rivet, there will be a double indication.)

W ng Upper Panel Skin and Splice Plate at Beavertail
Figure 28 (Sheet 6)

INSPECTION CODE (1)	REFERENCE STANDARD NO.	PROBE IDENTIFICATION (2)	INSTRUMENT FREQUENCY HZ	DETAIL NO. FOR CALIBRATION (3)	PROBE CALIBRATION POSITION	SPECIAL NOTES
A	031	(1)	500	II		(4)
B	032	(1)	300	IV	[A]	(5) (6)
C	032	(2)	300	IV	[B]	(6)
D	032	(2)	300	IV	[C]	(6)
E	033	(2)	300	VI	[D]	
F	033	(2)	300	VI	[E]	

CALIBRATION TABLE
TABLE I

NOTES

(1) Code for specific inspection areas identified on Details VII, VIII, and IX to which the calibration requirements apply.

(2) Probe Identifications:

(1) P/N SPO-783 - 1-inch OD and 0.5-inch ID

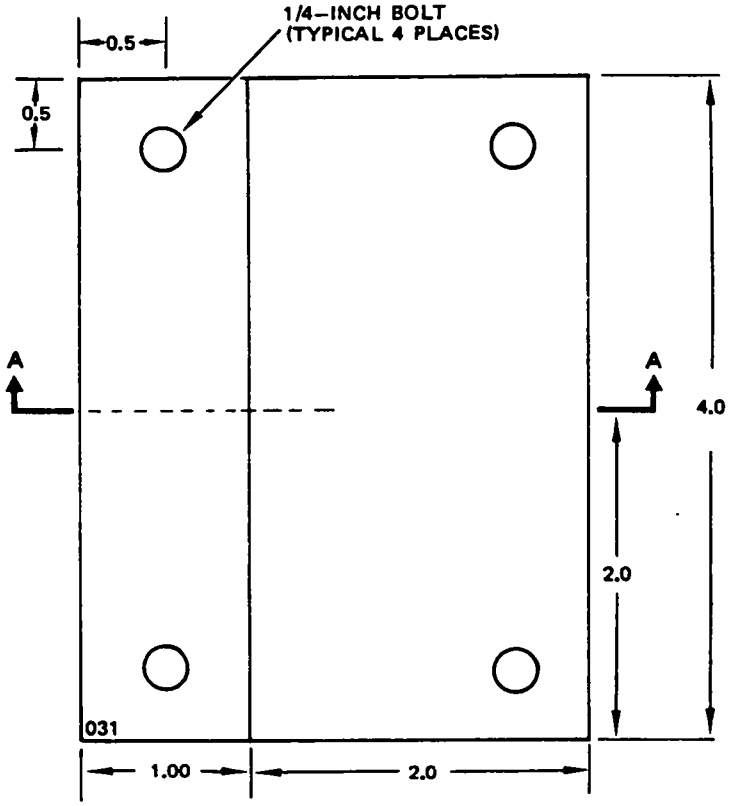
(2) P/N SPO-996 - 0.7-inch OD and 0.3-inch ID ring probe used as a spot probe.

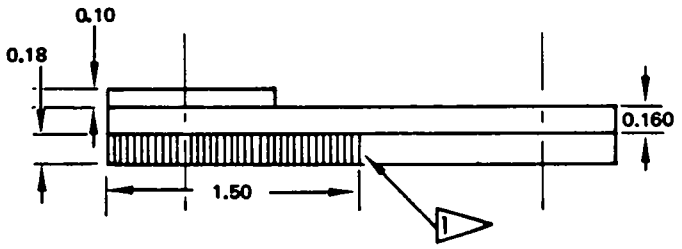
(3) Flagnote refers to probe position for calibration details (see Details II, IV, and VI as indicated in this table) and identifies that part of the reference standard used for this calibration.

4> On the outboard side of the beavertail between stringer S-11 and S-12, an abrupt change in underlying structure may cause a crack-like response of approximately 20%.

5> These aluminum fasteners are microshaved and may be difficult to locate visually on the airplane. Use Detail VIII to determine the approximate location. Then locate the fastener by scanning the probe in that area watching for a double indication as the probe passes over the fastener.

6> The fasteners called out under this inspection code should be the first fasteners common to the doubler, skin, and stringer. If the fastener is not common to the doubler (if it is countersunk into the skin), inspect the adjacent fastener common to the doubler.





NOTES

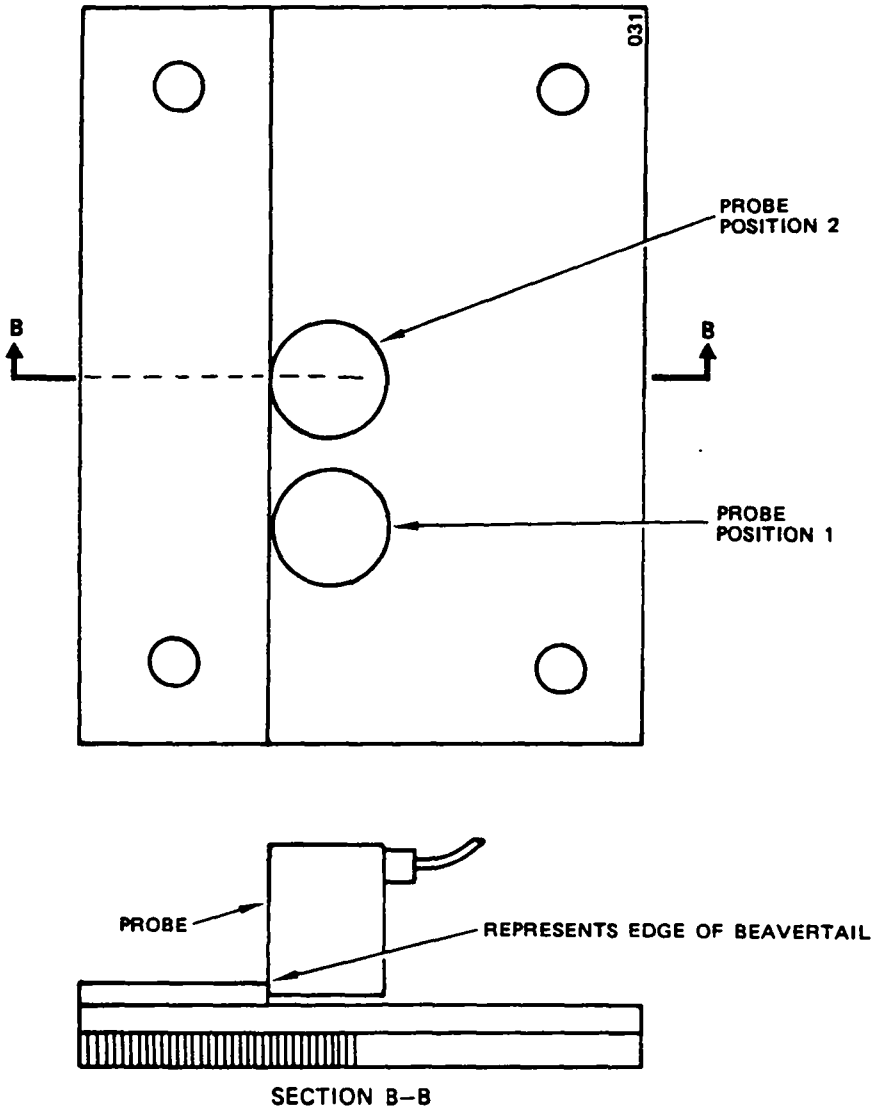
- TOLERANCE: X.X ± 0.05, X.XX ± 0.02
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 7075–T6 ALUMINUM
- STEEL STAMP OR ETCH WITH 031
- FASTENER AND NUT TYPES ARE NOT CRITICAL
- P/N 6412–43
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

1 JEWELER'S SAWCUT 0.030 MAX WIDTH

REFERENCE STANDARD 031

DETAIL I

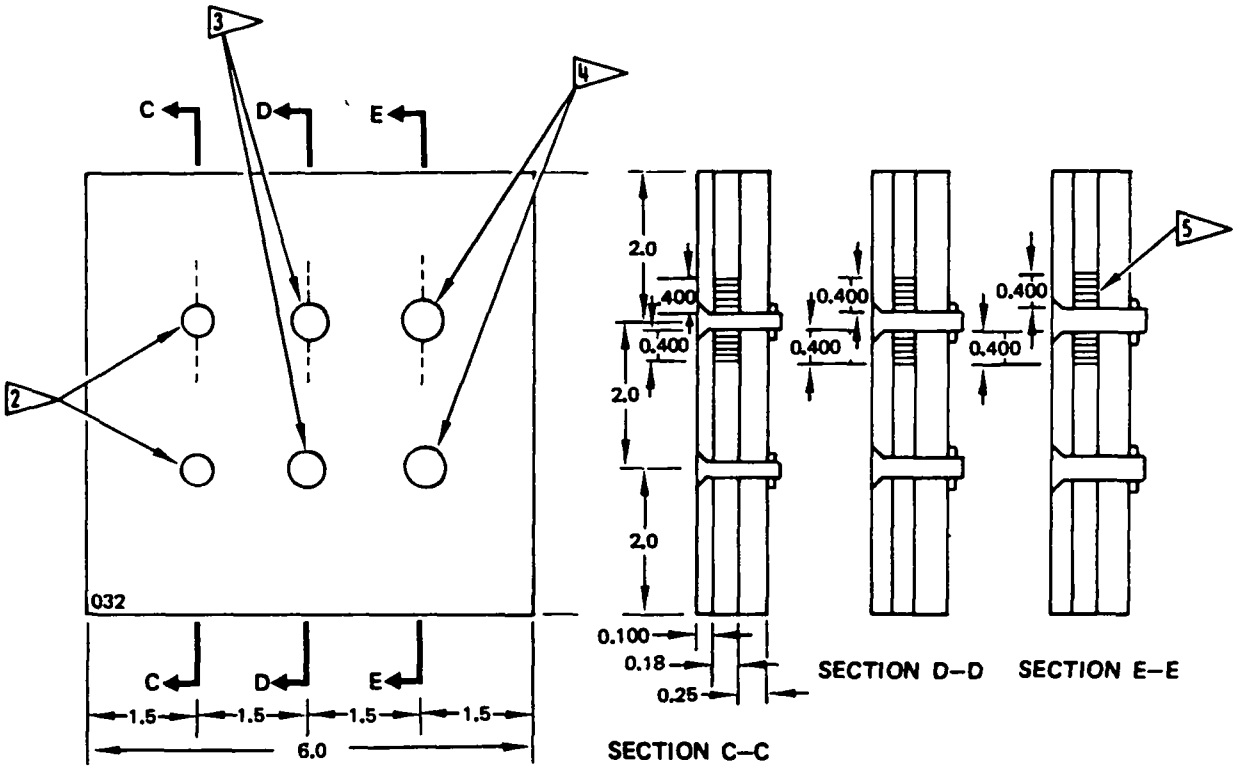
Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 28 (Sheet 9)



PROBE POSITION FOR CALIBRATION ON REFERENCE STANDARD 031

DETAIL II

Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 28 (Sheet 10)



NOTES

- TOLERANCE: X.X ± 0.05, X.XX ± 0.02, X.XXX ± 0.010
- MATERIAL: 7075–T6 ALUMINUM
- ETCH OR STEEL STAMP WITH 032
- P/N 6412–44
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

2 BACB30GY8–8 FASTENER, BACC30K8 COLLAR (2 PLACES)

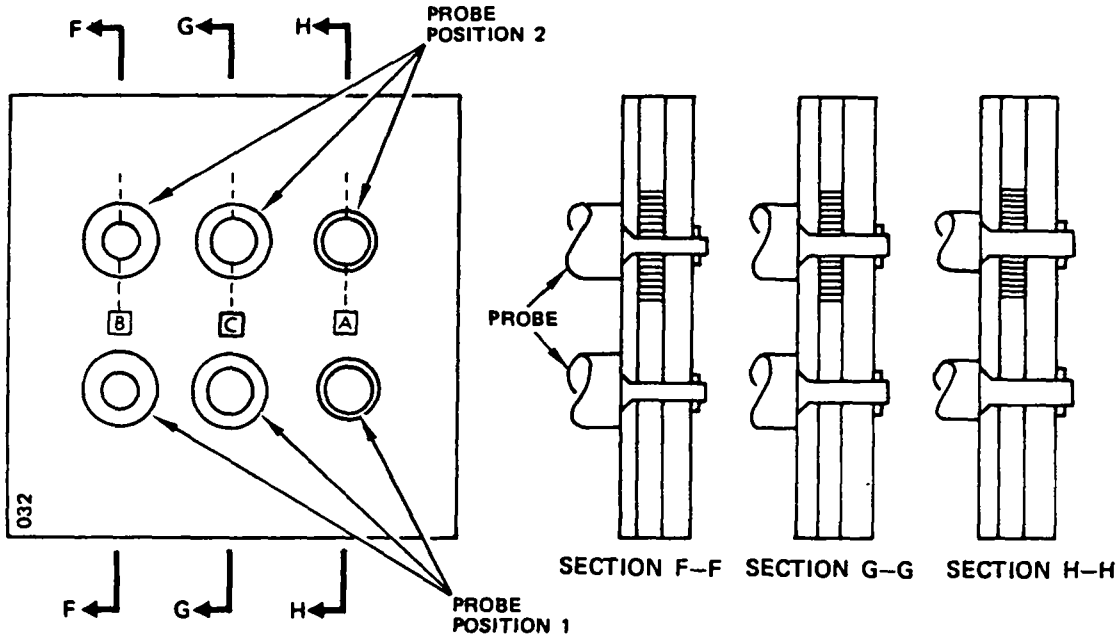
3 BACB30GY10–8 FASTENER, BACC30K10 COLLAR (2 PLACES)

4 BACR15BA10D12 RIVETS

5 JEWELER'S SAWCUT 0.030 MAX WIDTH (6 PLACES)

REFERENCE STANDARD 032
DETAIL III

Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 28 (Sheet 11)



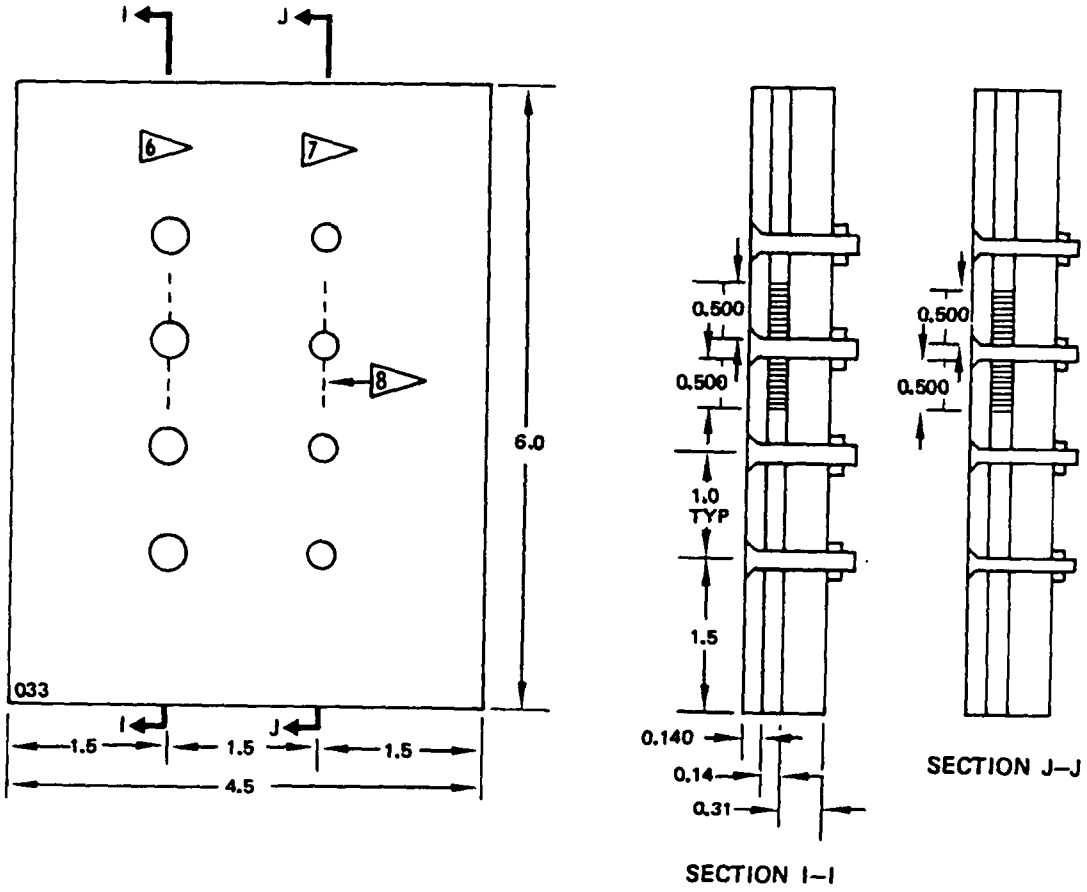
NOTES

[A] [B] [C] PROBE CALIBRATION POSITION (REF TABLE I, CALIBRATION TABLE)

PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD 032

DETAIL IV

Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 28 (Sheet 12)



NOTES

- TOLERANCE: X.X ± 0.05, X.XX ± 0.02, X.XXX ± 0.010
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 7075–T6 ALUMINUM
- ETCH OR STEEL STAMP WITH 033
- P/N 6412–45
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

6 BACB30FN8–9 FASTENERS; BACC30M8 COLLAR (4 PLACES)

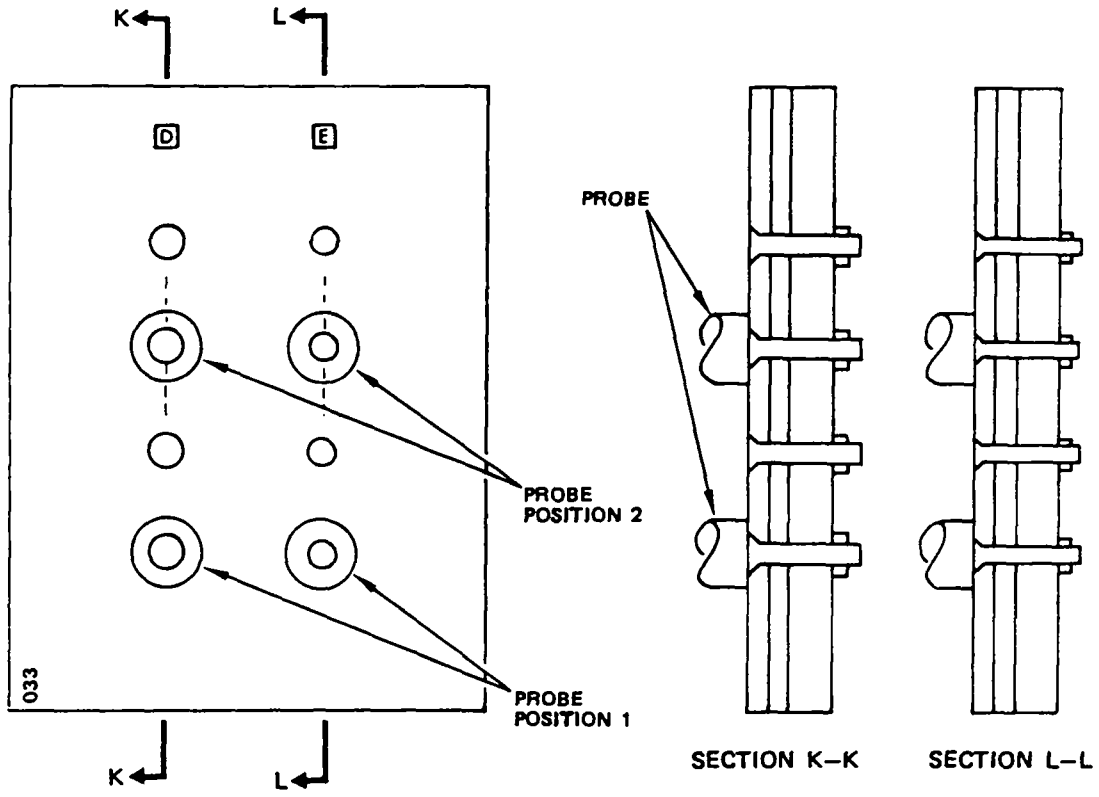
7 BACB30FN6–9 FASTENER; BACC30M6 COLLAR (4 PLACES)

8 JEWELER'S SAWCUT 0.030 MAX WIDTH (4 PLACES)

REFERENCE STANDARD 033

DETAIL V

Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 28 (Sheet 13)



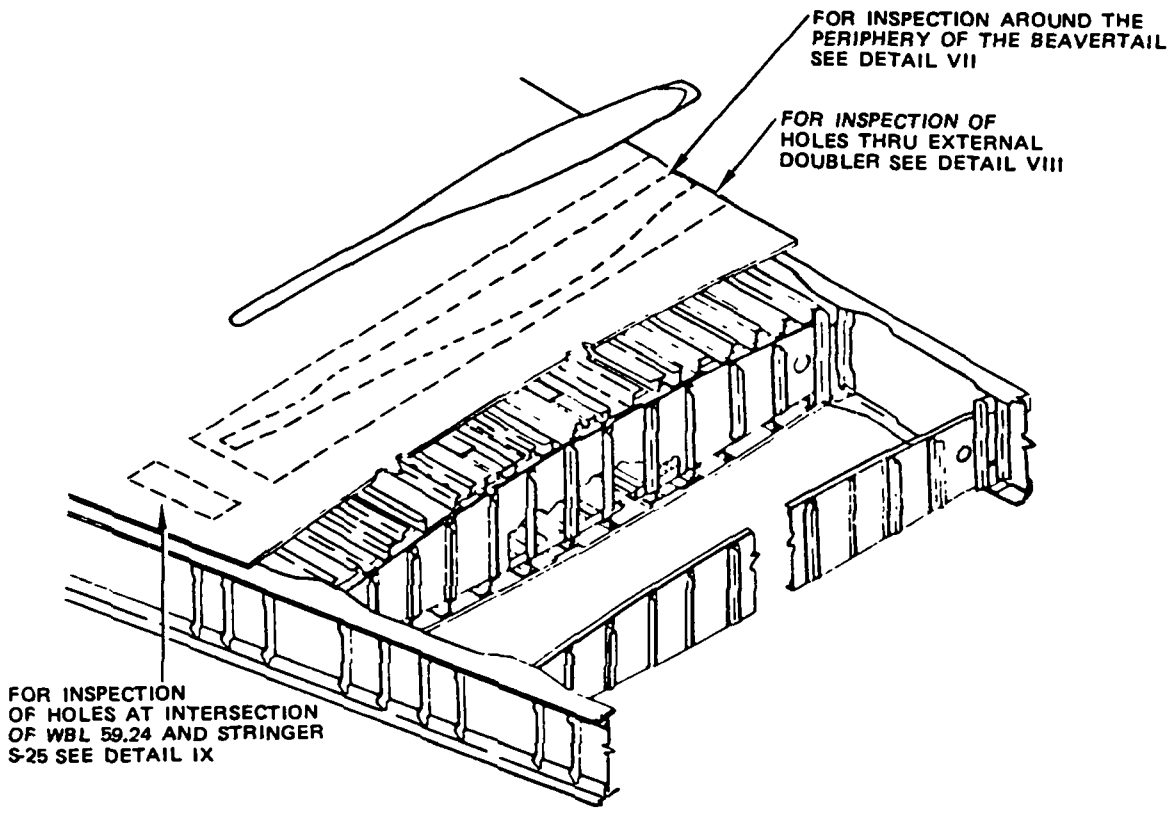
NOTES

D E PROBE CALIBRATION POSITION (REF TABLE I, CALIBRATION TABLE)

PROBE POSITION FOR CALIBRATION ON REFERENCE STANDARD 033

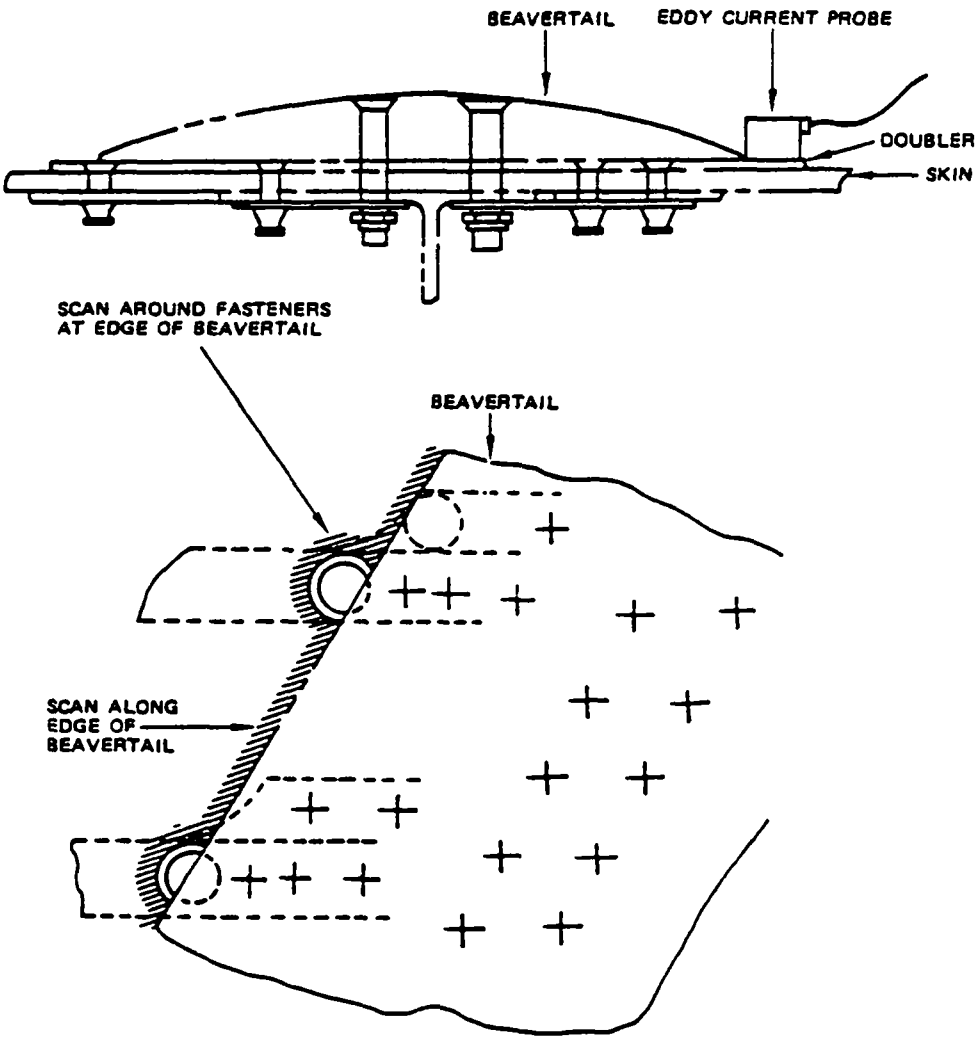
DETAIL VI

Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 28 (Sheet 14)



UPPER WING SURFACE AT BEAVERTAIL

Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 28 (Sheet 15)



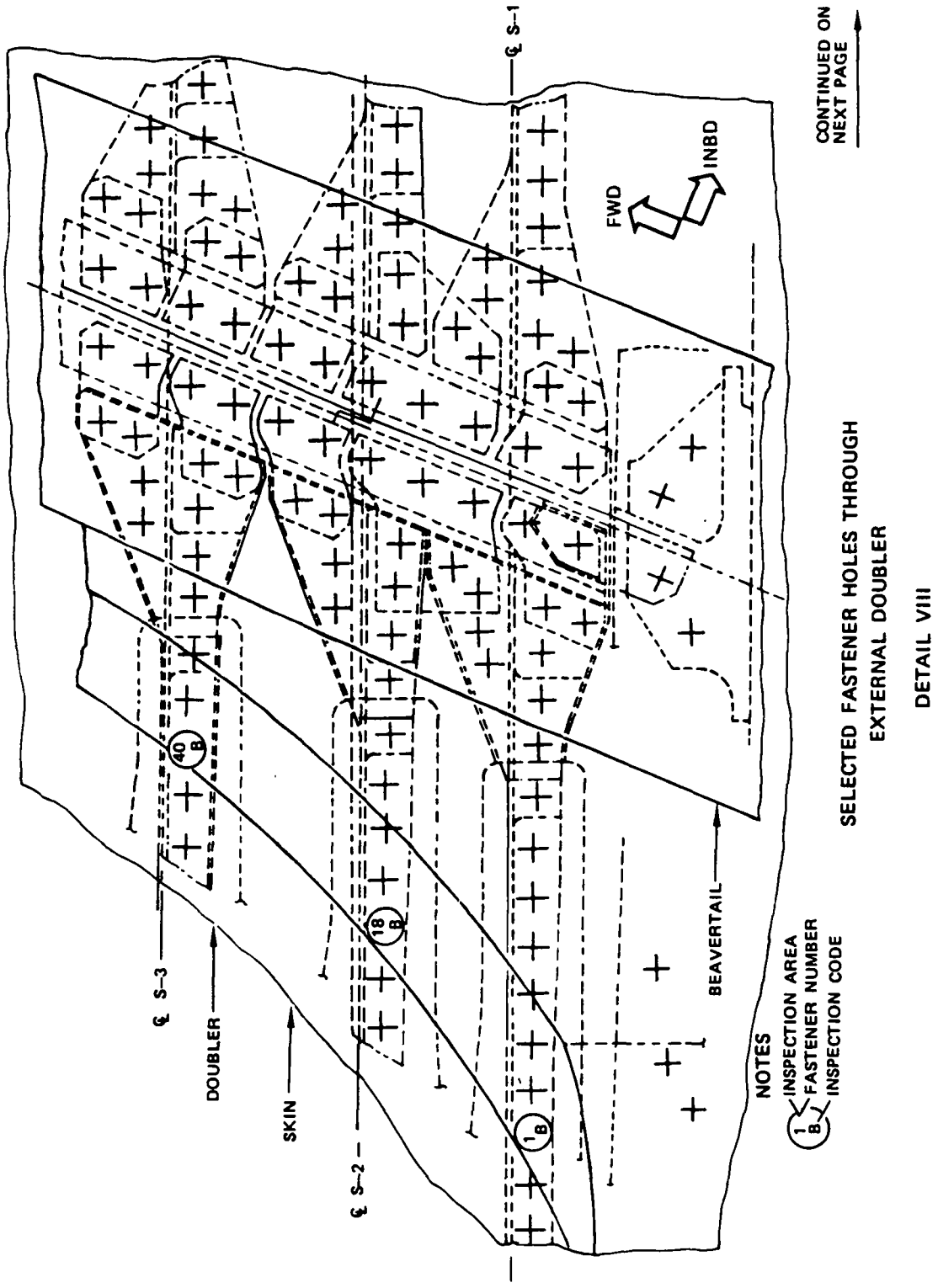
NOTES

INSPECTION AREA (TYPICAL)

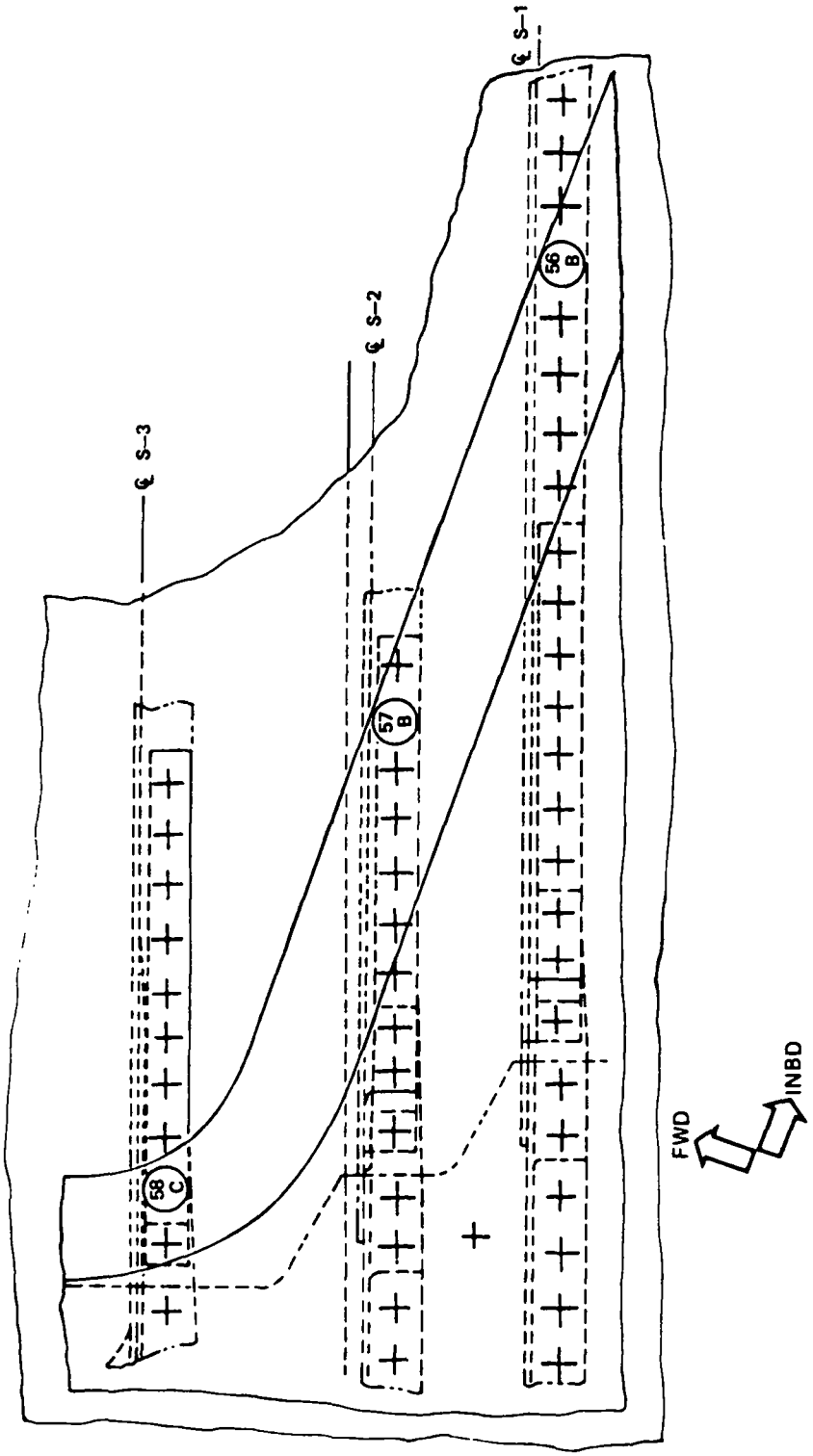
INSPECTION AROUND THE PERIPHERY OF THE BEAVERTAIL

DETAIL VII

Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 28 (Sheet 16)



Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 28 (Sheet 17)



DETAIL VIII (CONT.)

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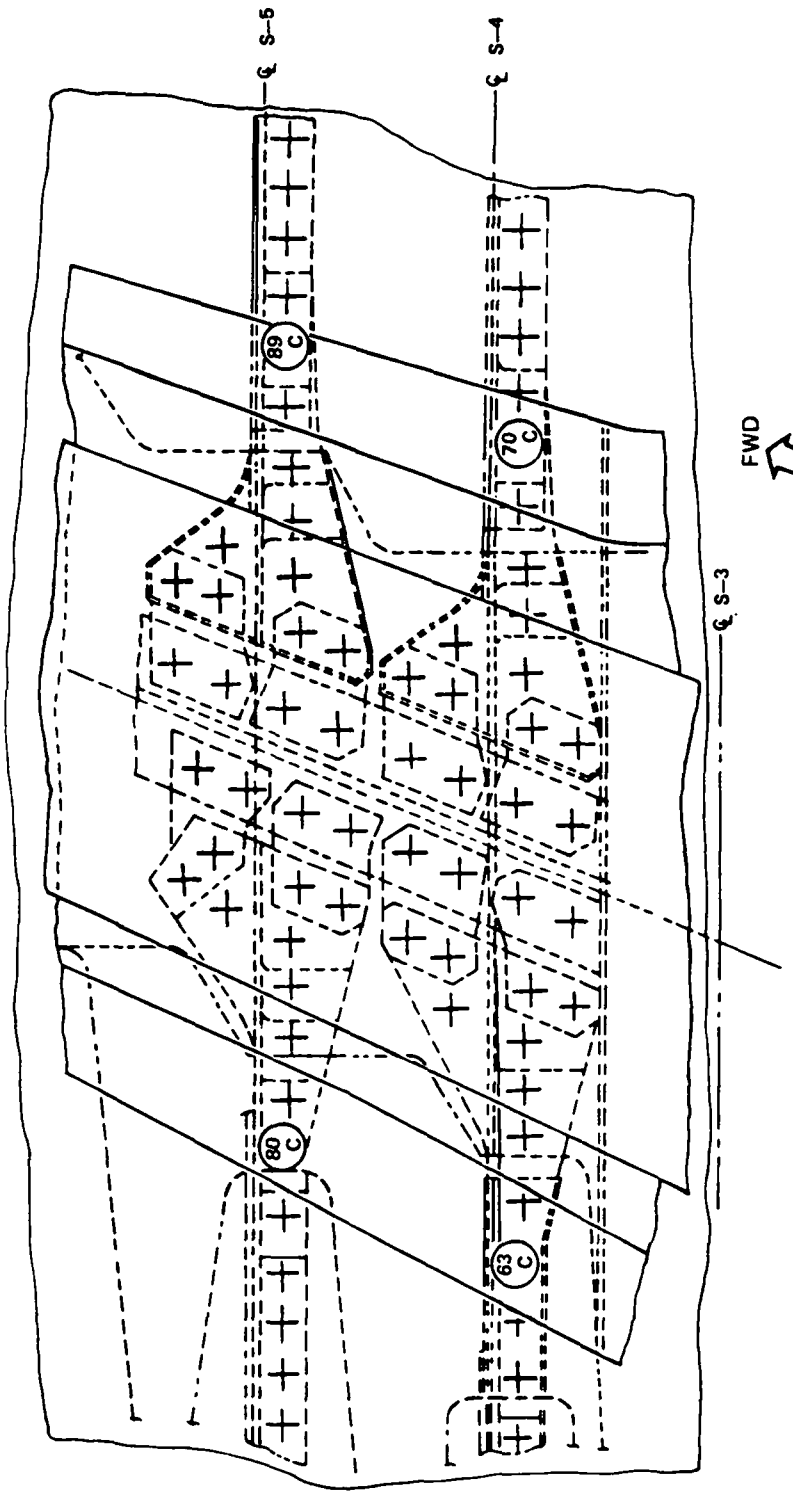
Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 28 (Sheet 18)



DETAIL VIII (CONT.)

CONTINUED ON NEXT PAGE

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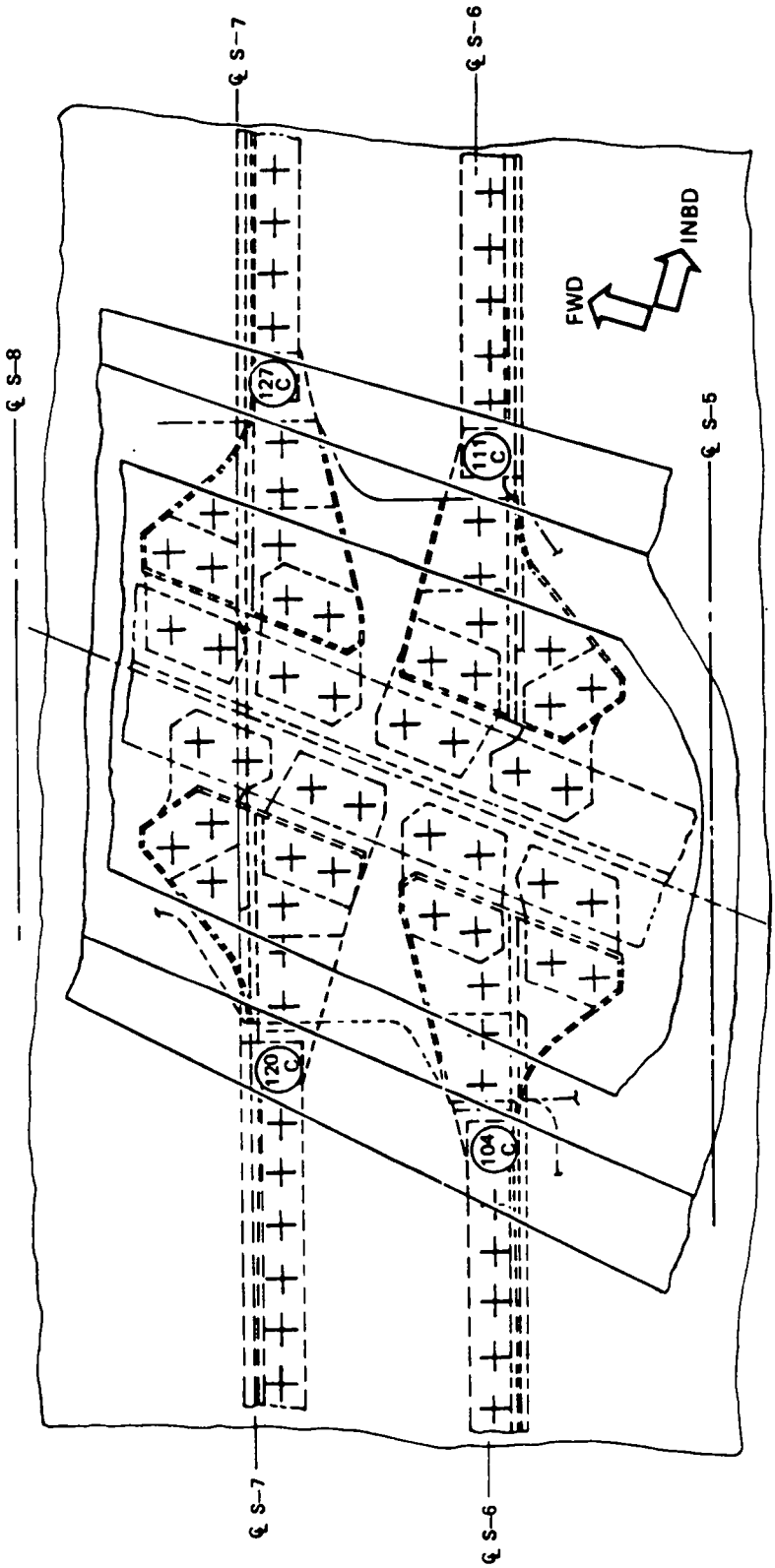
Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 28 (Sheet 19)



DETAIL VIII (CONT.)

CONTINUED ON NEXT PAGE

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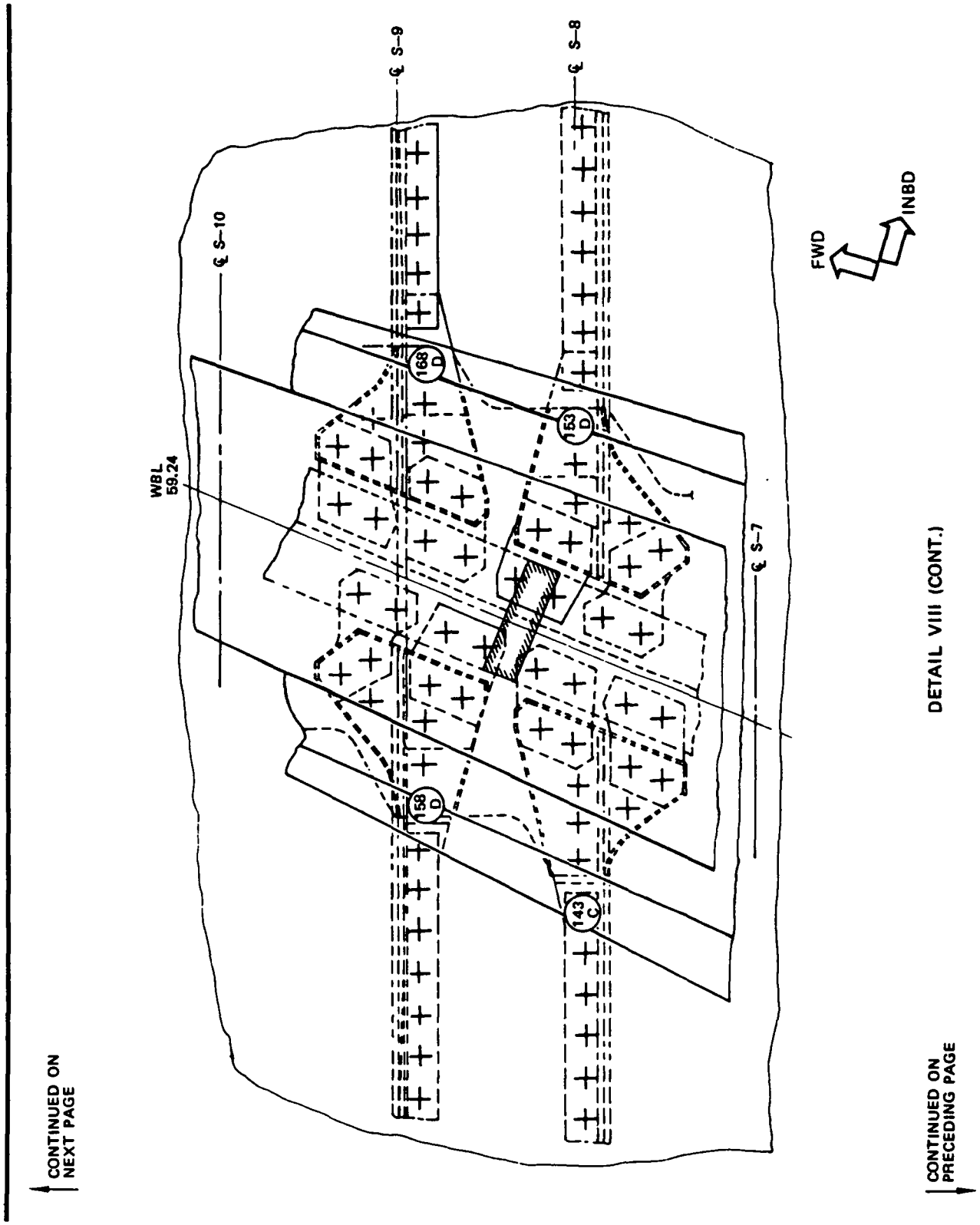
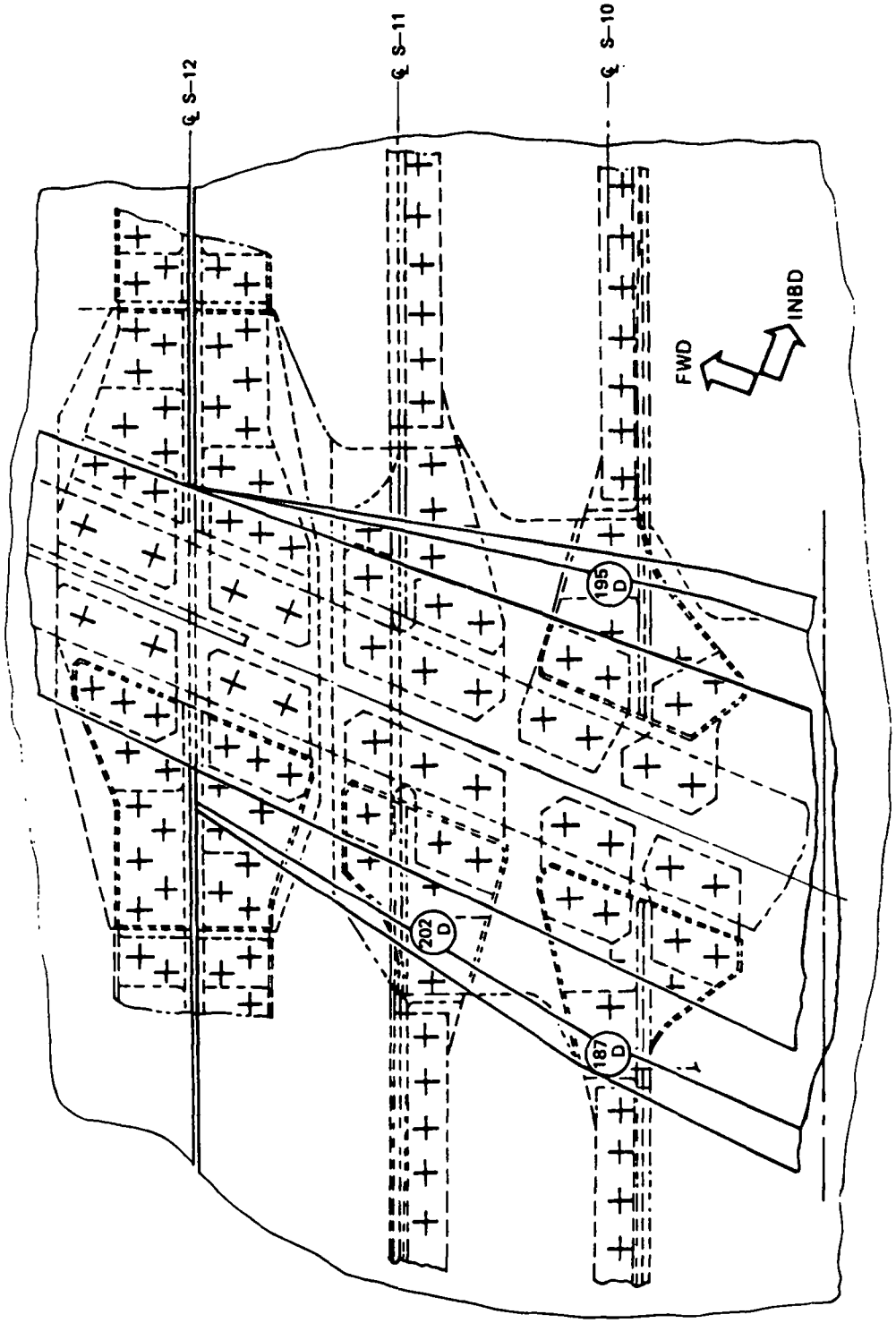
Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 28 (Sheet 20)



Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 28 (Sheet 21)



DETAIL VIII (CONT.)

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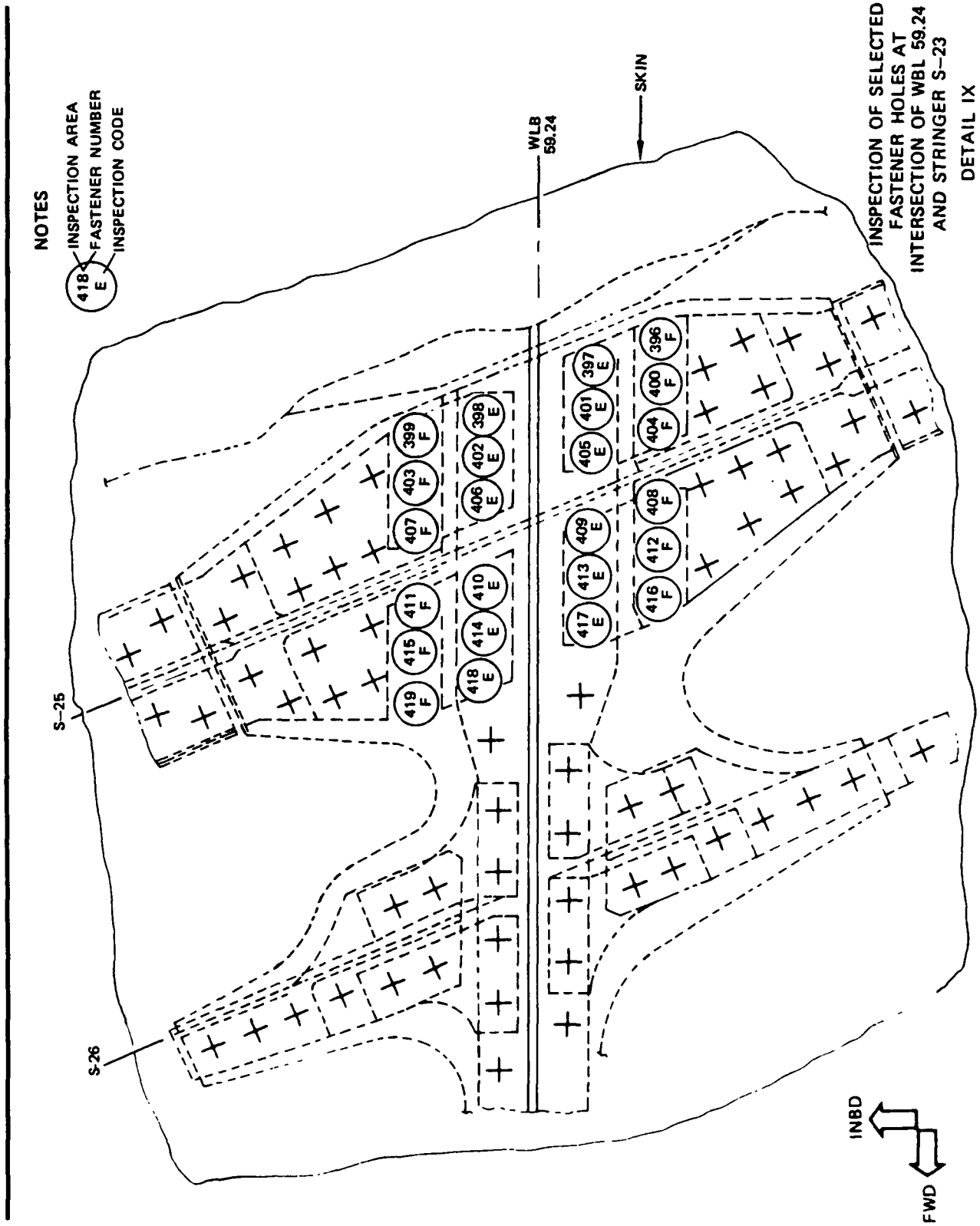
Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 28 (Sheet 22)



Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 28 (Sheet 23)

EFFECTIVITY
MODEL: 707
SSI DOCUMENT (D6-44860)
REFERENCE:
SSD 57-A10-01
SSD 57-A20-01
SSD 57-A30-01
SSD 57-A40-01

PART 6 - EDDY CURRENT

WING - MAIN FRAME

1. Purpose

   A. Inspect vertical flange of lower rear spar chord - wing center section, with low frequency eddy current (Detail I).

   B. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Instrument

      (1) Any eddy current instrument which satisfies the performance requirements of this procedure is acceptable. The following equipment was used during the development of this procedure and found acceptable.

         (a) MIZ-10
         Zetec Inc.
         1320 N.W. Mall
         Issaquah, WA 98027

   B. Probe

      (1) 0.4-inch ID ring probe, No. SPO-1074, Nortec Corporation, Richland Washington, or equivalent

         NOTE: The reference probe has two separate coils, one reference and one probe. Separate coils are not a requirement of this specification.

   C. Reference Standard

      (1) Fabricate reference standard per Detail II.

Rear Spar Lower Chord Vertical Flange,
Wing Center Section
Figure 29 (Sheet 1)

3. Preparation for Inspection

A. Inspection is accomplished from inside of the fuel tank. Gain access to the inspection area through the access door in the wing center section.

B. Remove fuel cells as necessary for access to the lower rear spar vertical flange.

C. Purge and ventilate center wing tank as required to permit entry into the tank with eddy current test equipment.

D. Wipe inspection surface clean.

4. Instrument Calibration

A. Calibration for inspection around the upper row of fasteners (Detail I).

(1) Attach the 0.4-inch ID ring probe to the instrument.

NOTE: For probe with separate reference and probe coil, keep the reference coil away from conductive materials during calibration and inspection.

(2) Set instrument frequency at 200 Hz.

(3) Visually center probe over the unnotched reference standard hole, Position 1 (Detail III).

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006-inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(6) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

(7) Center probe over the notched reference standard hole, Position 2. Response should be upscale.

(8) Adjust instrument sensitivity to obtain a 75% of full scale meter response difference between the notched and unnotched holes.

Rear Spar Lower Chord Vertical Flange,
Wing Center Section
Figure 29 (Sheet 2)

(9) Recheck null and liftoff. If readjustments are made, recheck sensitivity per par. A.(8).

(10) Cracks will be indicated by a higher meter response.

B. Calibration for Inspection Between the Upper Row of Fasteners

(1) Attach ring probe to instrument.

NOTE: For probe with separate reference and probe coils, keep the reference coil away from conductive materials during calibration and inspection.

(2) Set instrument frequency at 300 Hz.

(3) Set probe at Position 3, on reference standard. See Detail III.

(4) Balance instrument per manufacturer's instruction.

(5) With probe at Position 3, adjust instrument for 0.006-inch liftoff per manufacturer's instruction.

(6) Place probe at Position 3 and set meter response with balance control at 20% of full meter scale.

(7) Place probe over reference standard notch at Position 4. Response should be upscale.

NOTE: If notch response is not upscale, adjust liftoff control to obtain an upscale notch response. Recheck liftoff per par. B.(5).

(8) Adjust sensitivity to obtain a 75% of full meter scale difference between Positions 3 and 4.

5. Inspection Procedure

A. Inspection of upper row of fastener holes (Detail I).

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DAMGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

(1) With the instrument calibrated according to par. 4.A., inspect the entire upper row of fasteners common to backing board attach angle, web and rear spar vertical flange.

NOTE: If responses from fasteners on airplane are consistently different from the reference standard, recalibrate instrument on the airplane per par. 4.A. Do not change instrument sensitivity.

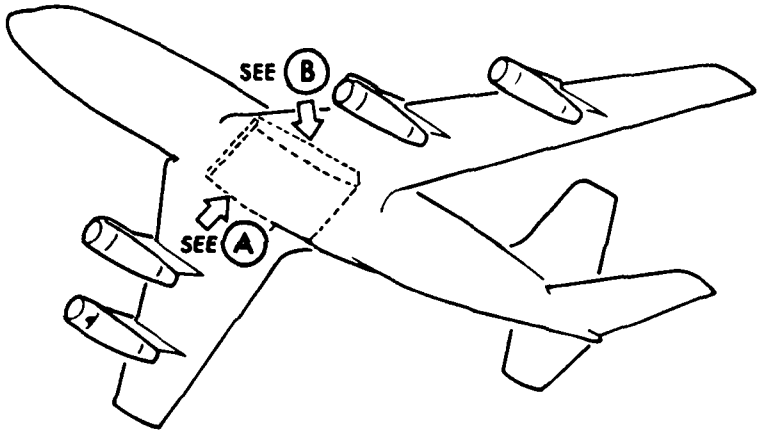
(2) Any change in the baseline response which is greater than 50% of full meter scale should be considered significant and investigated further.

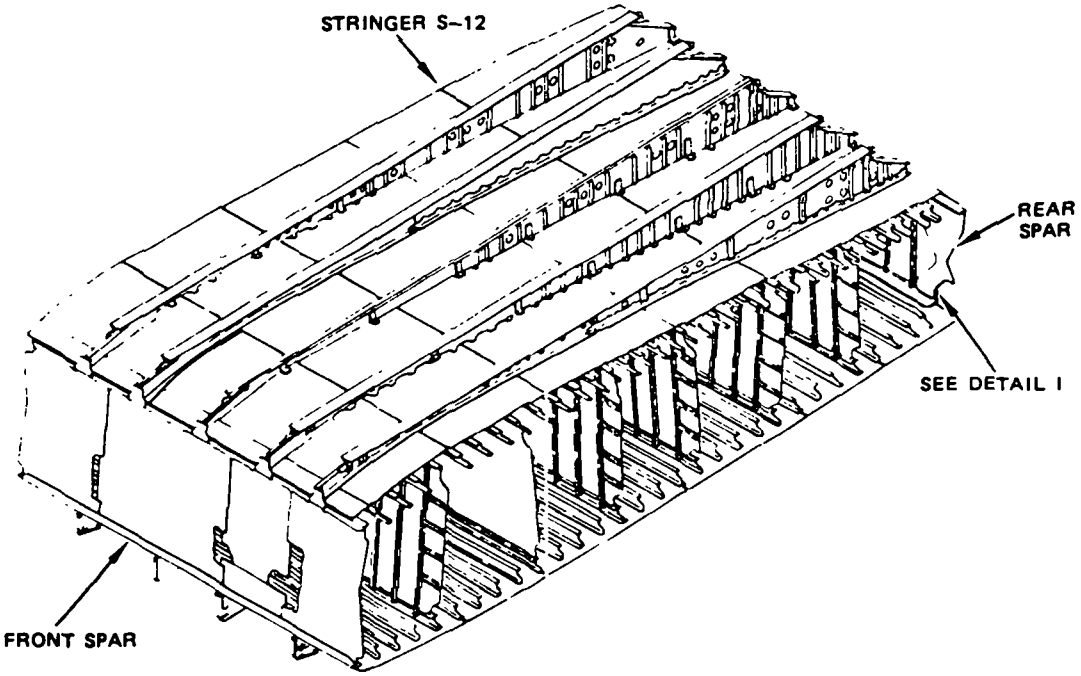
B. Inspection of area between fasteners (upper row), for cracks out of lower row of fasteners.

(1) With the instrument calibrated according to par. 4.B., inspect between fasteners in the upper row.

NOTE: If responses from fasteners on airplane are consistently different from the reference standard, recalibrate instrument on the airplane per par. 4.A. Do not change instrument sensitivity.

(2) Any change in the baseline response which is greater than 50% of full scale should be considered significant and investigated further.



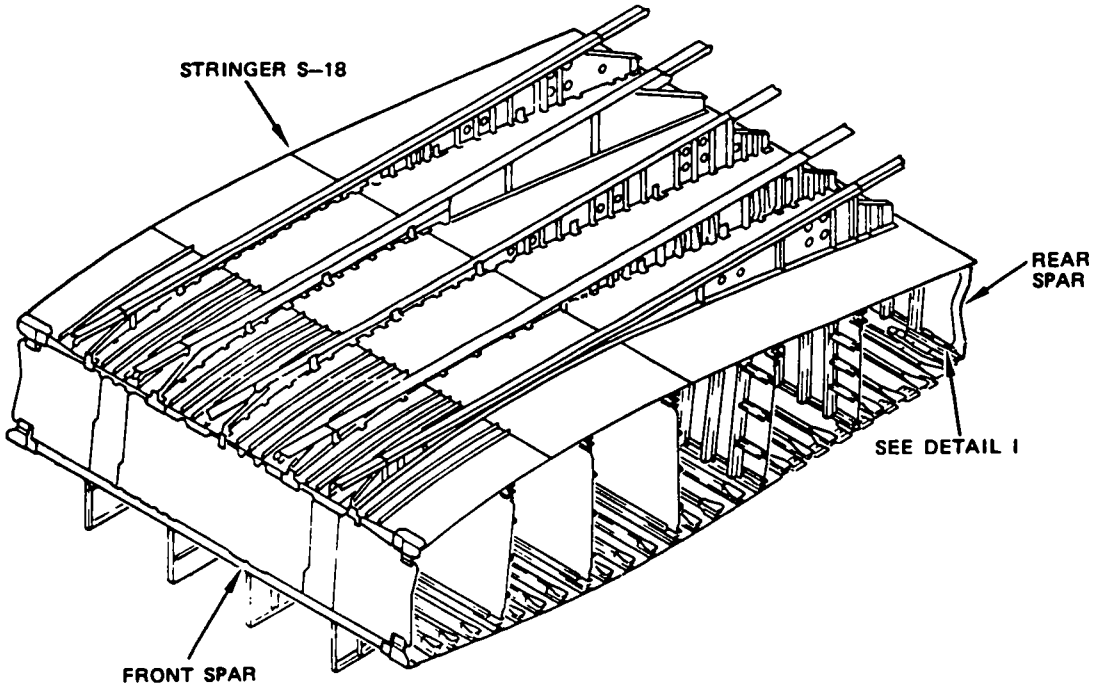


A

MODELS 707-300/-400/-300B/-300C

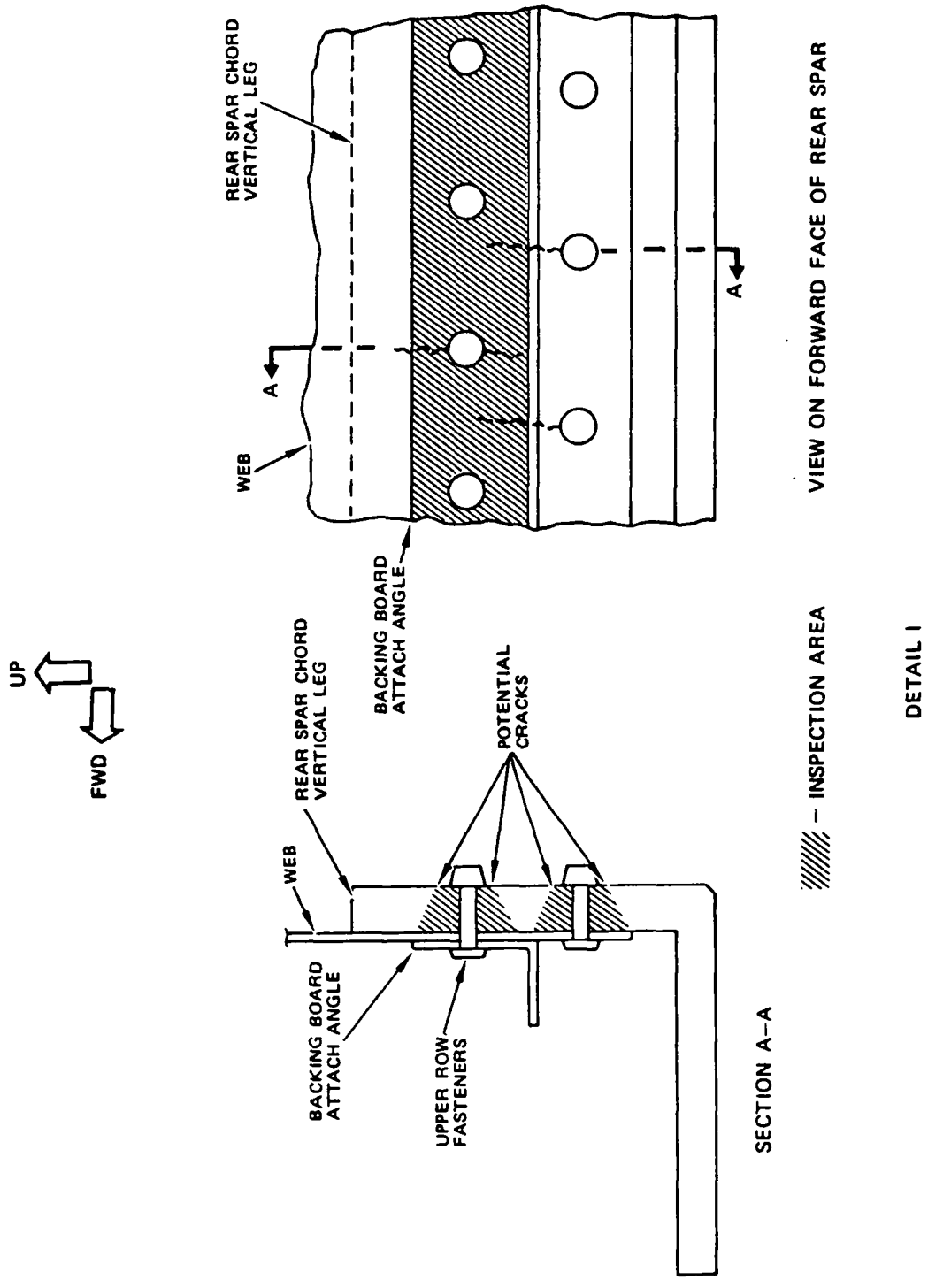
WING CENTER SECTION STRUCTURE

Rear Spar Lower Chord Vertical Flange,
Wing Center Section
Figure 29 (Sheet 5)

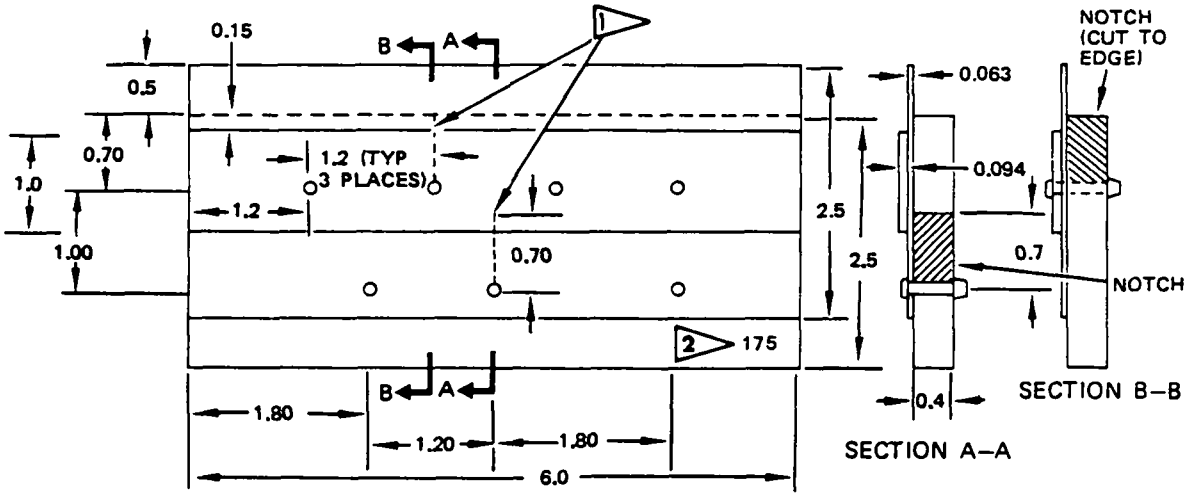


B

Rear Spar Lower Chord Vertical Flange,
Wing Center Section
Figure 29 (Sheet 6)



Rear Spar Lower Chord Vertical Flange,
Wing Center Section
Figure 29 (Sheet 7)

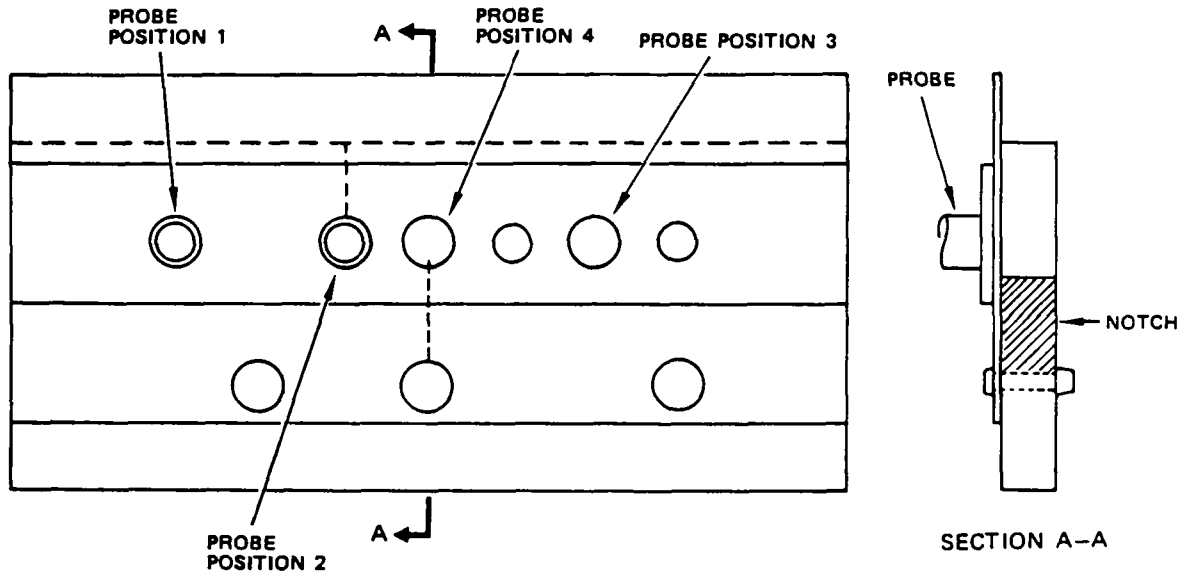


NOTES

- TOLERANCE: X.X = ± 0.05 X.XX = ± 0.03
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 7075–T6 ALUMINUM
- BAC830GW8–9 FASTENER; BACC30K8 COLLAR (7 PLACES)
- CALIBRATE USING 1/4–INCH FASTENERS SUITABLE FOR INSPECTION OF CENTER SECTION LOWER CHORD WITH 1/4 OR 3/16–INCH FASTENERS
- P/N 6412–46 AVAILABLE FROM IDEAL SPECIALTY CO.

1 JEWELER'S SAWCUT 0.030 MAX WIDTH
2 ETCH OR STEEL STAMP WITH 175

REFERENCE STANDARD
DETAIL II



PROBE POSITION FOR CALIBRATION
DETAIL III

Rear Spar Lower Chord Vertical Flange, Wing Center Section
Figure 29 (Sheet 8)

EFFECTIVITY
MODEL: 720, THRU CUM LINE NO. 514 SERVICE BULLETIN REFERENCE: 3423 SSI DOCUMENT (D6-44860) SSD 57-A00-06

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks in the upper WS 360 splice plate which intersects fastener holes.

   B. To detect cracks in the splice plate along the gap between the wing skins at WS 360 splice.

      NOTE: This inspection applies to Model 720 airplanes that have been modified by retrofit kit (reference Model 720 Wing Modification Program Document D3-4235-3).

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10, Zetec Inc.

   B. Probes - This procedure uses three probes; any probe of similar size which will satisfy the performance requirements of this procedure is acceptable. The following probes were used in the development of this procedure.

      (1) Ring (encircling) probe with 1.1-inch OD and 0.625-inch ID shielding, 100 Hz, P/N SPO-1154, Nortec Inc.

      (2) Ring probe with 0.7-inch OD and 0.3-inch ID shielding, usable at 500 Hz, P/N SPO-996, Nortec Inc.

Upper Wing Splice Plates at WS 360,
Model 720 (Retrofit Configuration)
Figure 30 (Sheet 1)

(3) Low frequency spot probe with 0.55-inch OD shielding, usable at 500 Hz, Nortec P/N SPO-1125

NOTE: Probes listed above are available from:
Nortec Inc.
421 N. Quay
Kennewick, Washington 99336

Specify instrument with which probe is to be used or instrument connector required when ordering probes.

C. Reference Standards

(1) Manufacture per Details I, II and V.

3. Preparation for Inspection

A. Wipe skin surface clean.

B. It is suggested that fastener locations requiring the same instrument calibration for inspection be identified on the airplane by a colored circle. Water washable crayons, pencils or felt pens are suitable. Refer to Table I and Details VII thru XI for inspection locations having similar requirements.

4. Instrument Calibration

A. General

(1) Three basic inspection types are required.

(a) Inspection for fastener hole cracks using a ring probe centered on the fastener.

(b) Inspection for fastener hole cracks using a spot probe positioned adjacent to a fastener.

(c) Inspection for cracks along the WS 360 splice skin gap using a spot probe forward of stringer S-17 and a ring probe as a spot probe aft of stringer S-17.

(2) The three basic inspections require several instrument calibrations to adjust for variations in structure geometry and materials.

(3) Details VII thru XI identify inspection coverage for a particular calibration, and Table I provides specific calibration information for that inspection.

B. Calibration for fastener hole crack inspection using the ring probe centered on the fastener. The following calibration applies to inspection codes A, B, and C.

(1) Identify code for fasteners to be inspected from Details VII thru XI.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

(3) Visually center probe over the unnotched reference standard hole, Position 1 in the appropriate calibration position row.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(6) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

(7) Center probe over the notched reference standard hole, Position 2 in the appropriate calibration position row. Response should be upscale.

(8) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(9) Recheck null and liftoff. If readjustments are made recheck sensitivity per par. 4.B.(8).

(10) Cracks will be indicated by a higher meter response.

C. Calibration for cracks in the splice plate beneath the gap between wing skins aft of stringer S-17 and external splice plates above the skin gap forward of stringer S-17 at WS 360. The following calibration applies to inspection codes E and G.

(1) Refer to Details VII thru XI for inspection coverage coding along WS 360 centerline.

Upper Wing Splice Plates at WS 360,
Model 720 (Retrofit Configuration)
Figure 30 (Sheet 3)

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

(3) Visually center probe over unnotched area of the skin gap on the reference standard, Position 1.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper). Care should be taken to hold the probe in the same position relative to the skin gap to avoid confusion during liftoff adjustment.

(6) Recenter the probe at Position 1 and set meter response at 20% of full scale with meter position control.

NOTE: For code E only, probe is centered over the skin gap by moving the probe across the gap to obtain a maximum meter response.

(7) Center probe over skin gap at notched location, Position 2. Meter response should be upscale.

(8) Adjust instrument sensitivity to obtain a 50% of full scale meter response difference between the notched and unnotched positions.

(9) Recheck null and liftoff. If readjustments are made, recheck sensitivity per par. 4.C.(8).

(10) Cracks will be indicated by a higher meter response.

D. Calibration for fastener hole crack inspection using a spot probe placed adjacent to the fastener head. The following calibration applies to inspection codes D and F.

(1) Refer to Table I for reference standard, probe, and calibration details for inspection codes D and F.

(2) Place probe adjacent to the unnotched reference standard hole, Position 1 in the appropriate calibration position row.

(3) Balance instrument per manufacturer's instructions.

(4) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is located at Position 1 during liftoff calibration.

(5) With the probe adjacent to the unnotched hole, Position 1, adjust meter response to read 20% of full scale with meter position control.

(6) Position probe adjacent to the notched reference standard hole, Position 2. Response should be upscale.

(7) Adjust instrument sensitivity to obtain a 50% of full scale meter response difference between the notched and unnotched holes, Positions 1 and 2.

(8) Reposition probe at Position 1 and check null and liftoff. If readjustments are made recheck sensitivity per par. 4.B.(7).

(9) Cracks will be indicated by a higher meter response.

5. Inspection Procedure

NOTE: An inspection code is used to identify locations having similar inspection conditions. A single instrument calibration is usually used to inspect these locations.

It is suggested that copies of Details VII thru XI be made and that they be used to record instrument responses at each fastener location. This is helpful in maintaining continuity between the groups of fasteners during inspection.

A. Inspection of fastener holes for cracks using the ring probe centered on the fastener (inspection codes A, B, and C).

(1) Accomplish inspections of codes A, B, and C in the order given in Table I.

(2) Calibrate instrument per par. 4.B. and Table I.

(3) Note on the airplane the locations of those fasteners having the same inspection code by using Details VII thru XI.

Upper Wing Splice Plates at WS 360
Model 720 (Retrofit Configuration)
Figure 30 (Sheet 5)

(4) Use several fasteners of the same code to establish the airplane baseline response for an acceptable fastener.

(a) Select a representative fastener from this group and set its response to 20% of full meter scale.

NOTE: Do not change instrument sensitivity when establishing the airplane baseline response.

(b) Refer back to this fastener periodically to ensure that the instrument response is the same as originally recorded; changes in meter response may occur as a result of instrument drift or probe temperature change.

(5) Inspect each fastener having the same inspection code by centering the probe on the fastener and manipulating to obtain a minimum response.

NOTE: Review the "Special Notes" called out in Table I for conditions which affect the inspection.

(a) Fastener locations which give a response which is 40% of full meter scale higher than the established baseline are potential crack indications and further investigation is required.

NOTE: The following conditions may cause meter reading changes similar to crack indications:

1) A decrease in fastener spacing. Compare with similarly spaced fasteners on the airplane.

2) End of splice plate. Check Details VII thru XI for splice plate locations.

3) A larger or smaller fastener. Compare with similar fasteners of reference standard and on airplane.

4) A fastener that is different in countersink depth. Compare with similar fastener in standard raised to the same height.

5) A fastener close to edge of skin. Compare with similar fasteners on airplane.

6) Differences in conductivity between skin panels. Compare only the fastener locations common to a skin panel.

Upper Wing Splice Plates at WS 360,
Model 720 (Retrofit Configuration)
Figure 30 (Sheet 6)

B. Inspection of the splice plate along the gap between wing skins at WS 360 splice using a ring probe as a spot probe (inspection codes E).

(1) Calibrate instrument per par. 4.C. and Table I.

(2) Start the inspection at Stringer S-1.

(3) Select a section of wing skin splice in the area of Stringer S-1 that has fastener spacing and edge margin similar to the reference standard.

(4) Center the probe on the skin joint at this location to establish a baseline response. Note this location and periodically refer to it to ensure that the instrument response has not changed.

NOTE: Minor adjustments to the meter position control will be required since the reference standard does not exactly duplicate the airplane structure. The minor adjustments must be made with the probe on a crack-free area of the structure. Do not change instrument sensitivity when establishing the airplane baseline response.

(a) When the maximum gap response is obtained over a crack-free area, the probe will be directly centered on the skin gap.

(b) A double check can also be made by positioning the probe over the end of the splice plate. Check Details VII thru XI for locating ends of splice plates. This will result in a typical full meter deflection, as in a crack indication. Comparing this indication with meter readings taken at other locations will aid in selecting a crack-free area for the final minor adjustments to the instrument before inspection.

(5) Inspect the length of the splice plate indicated for the particular calibration code (Details VII thru XI). Perform the inspection by slowly scanning the probe across the skin joint (inbd/outbd direction) to obtain the maximum meter response. If inspection cannot be accomplished because fasteners are spaced too close to the edge of the skin, inspect between fasteners along the centerline of the splice plate.

NOTE: Review the "Special Notes" listed in Table I for conditions which affect the inspection.

(6) Any location which gives a response 30% of full meter scale higher than the established baseline should be investigated further.

NOTE: Metal chips trapped in the sealant at the skin joint may cause a crack-like indication. Remove sealant and reinspect.

Upper Wing Splice Plates at WS 360,
Model 720 (Retrofit Configuration)
Figure 30 (Sheet 7)

C. Inspection of the second layer of the external laminated splice plate above the skin gaps at WS 360 fwd of Stringer S-17 using a spot probe (inspection code G).

(1) Calibrate instrument per par. 4.C. and Table I.

(2) Start the inspection at the aft end of the external splice plates.

(3) Select a section of wing skin splice which has fastener spacing and edge margin similar to the reference standard.

(4) Center the probe on the skin joint at this location to establish a baseline response. Note this location and periodically refer to it to ensure that the instrument response has not changed.

(5) Inspect the length of each external splice plate indicated for the code (Details VII thru XI). Perform the inspection by slowly scanning the probe across the skin joint (inbd/outbd direction). If inspection cannot be accomplished because fasteners are spaced too close, inspect by spotting probe between fasteners along the centerline of the splice plate.

NOTE: Review the "Special Notes" listed in Table 1 for conditions which affect the inspection.

(6) In addition to inspecting the splice plate above the skin gap, scan the probe between fasteners 1291 and 1270 and between fasteners 1291 and 1270 and between fasteners 1435 and 1422 (Detail XI).

(7) Any location which gives a response 30% of full meter scale higher than the established baseline should be investigated further.

D. Inspection of fastener holes for cracks using a spot probe adjacent to the fastener (inspection code F).

(1) Calibrate the instrument per par. 4.D. and Table I.

(2) Note on the airplane the location of code F fasteners using Details VII thru XI.

Upper Wing Splice Plates at WS 360,
Model 720 (Retrofit Configuration)
Figure 30 (Sheet 8)

(3) Inspect each code F fastener by placing the probe adjacent to the fastener head and scanning about the head.

NOTE: The WS 360 skin splice may prevent a complete inspection around the fastener head. Inspect to the extent possible.

When scanning about a fastener head, a hole template may be used to maintain a uniform distance between probe and fastener head.

(4) Any location which gives a response which is 30% of full meter scale higher than the baseline response should be investigated further.

INSPECTION CODE 1	REFERENCE STANDARD NO.	PROBE IDENTIFICATION 2	INSTRUMENT FREQUENCY HZ	DETAIL NO. FOR CALIBRATION	PROBE CALIBRATION POSITION 3	SPECIAL NOTES
A	014	(1)	100	II	A	4
B	015	(1)	100	IV	B	
C	015	(1)	100	IV	A	
D	014	(3)	500	II	C	5 6
E	014	(2)	500	II	B	
F	016	(3)	500	VI	A	6
G	016	(3)	4000	VI	B	7

CALIBRATION TABLE
TABLE I

NOTES:

1 Codes for the specific areas, identified on Details VII thru XI, to which the calibration requirements apply.

2 Probe Identification:

(1) P/N SPO-1154, 1.1-inch OD and 0.625-inch ID ring probe
(2) P/N SPO-996, 0.7-inch OD and 0.3-inch ID ring probe used as a spot probe
(3) P/N SPO-1125, 0.55-inch OD spot probe

Upper Wing Splice Plates at WS 360,
Model 720 (Retrofit Configuration)
Figure 30 (Sheet 9)

3> Letter identifies fastener row (or gap) on the reference standard used for this calibration.

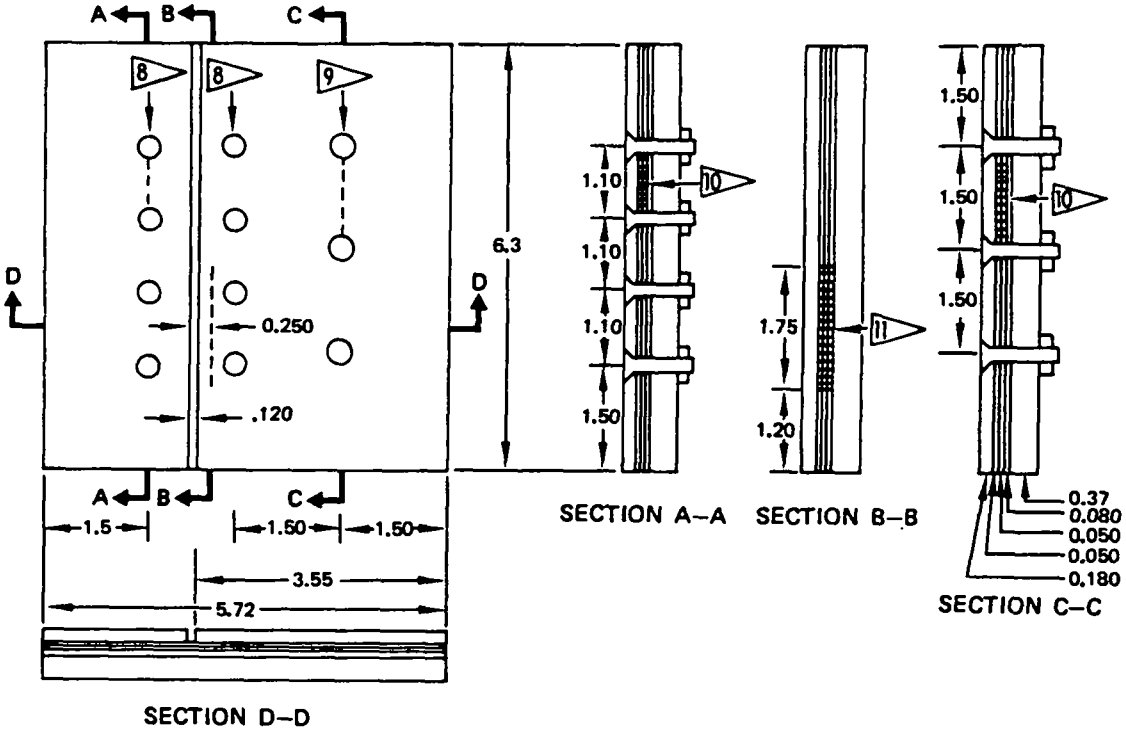
4> Fastener No. 87 is a smaller diameter fastener and will give a response which is 20% of full meter scale lower than the established baseline.

5> The aft outboard fastener common to the front spar cannot be inspected on the aft side due to interference from a short edge margin of subsurface structure.

6> Inspect on the forward and aft sides of each coded fastener with the probe placed adjacent to the fastener head.

7> Scan across the hidden skin gap in an inboard/outboard direction. The skin gap should not affect the instrument response due to the higher instrument frequency (shallower eddy current penetration).

Upper Wing Splice Plates at WS 360,
Model 720 (Retrofit Configuration)
Figure 30 (Sheet 10)



NOTES

- TOLERANCE: X.X ± 0.05 X.XX ± 0.02 X.XXX ± 0.005
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 7075–T6 ALUMINUM
- ETCH OR STEEL STAMP WITH 014
- P/N 6412–47
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

8 BACB30FN10–12 FASTENERS; BACC30M10 COLLAR (8 PLACES)

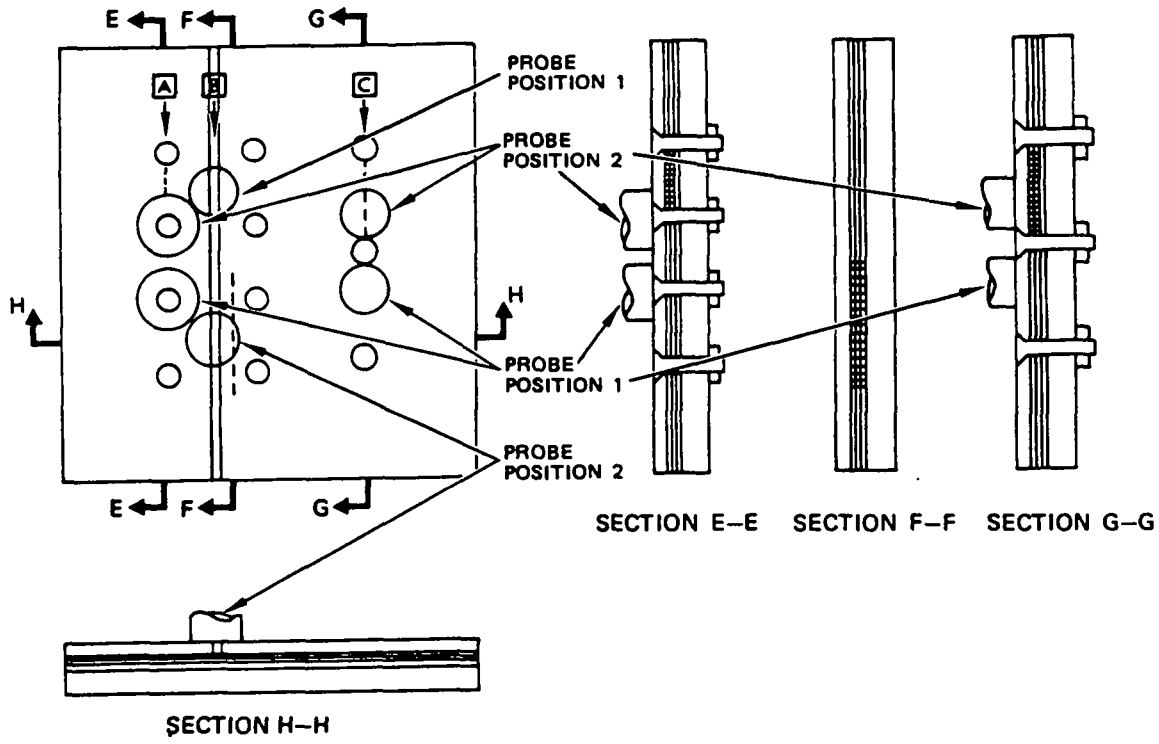
9 BACB30FN12–12 FASTENERS; BACC30M12 COLLAR (3 PLACES)

10 JEWELER'S SAWCUT 0.030 MAX WIDTH (2 PLACES)
IN 2ND AND 3RD LAYER ONLY (HOLE TO HOLE)

11 JEWELER'S SAWCUT 0.030 MAX WIDTH
SAWCUT IN 2ND, 3RD, AND 4TH LAYERS ONLY

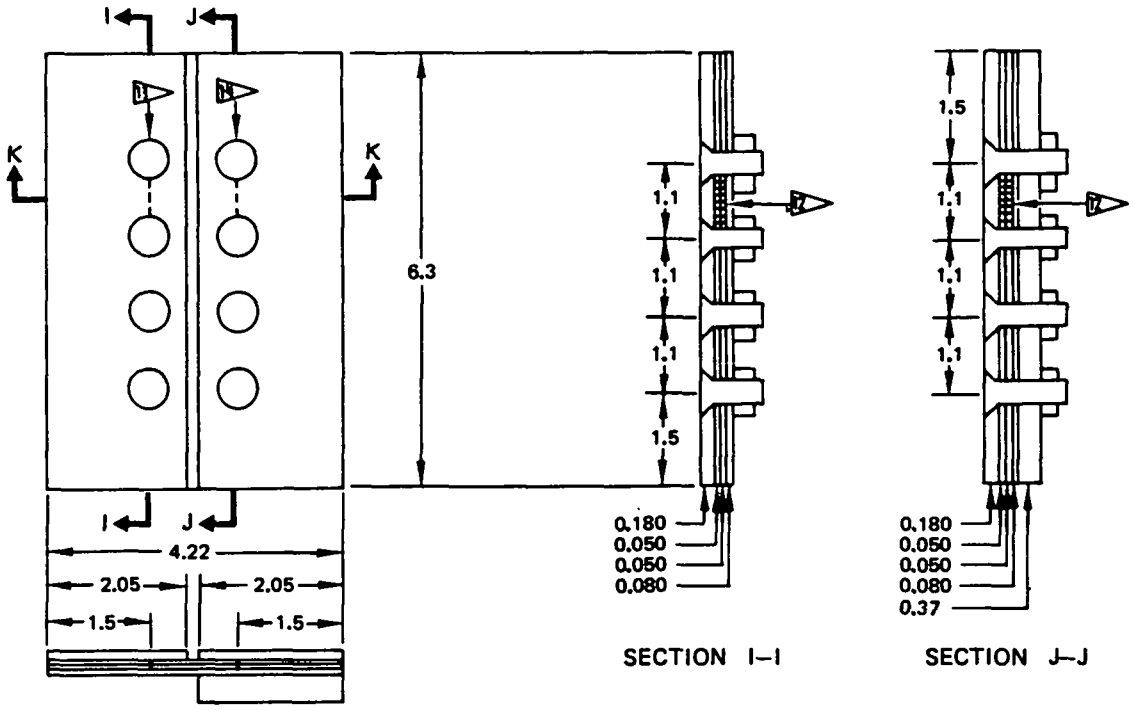
REFERENCE STANDARD 014
DETAIL I

Upper Wing Splice Plates at WS360
Model 720 (Retrofit Configuration)
Figure 30 (Sheet 10)



PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD "014"
DETAIL II

Upper Wing Splice Plates at WS360
Model 720 (Retrofit Configuration)
Figure 30 (Sheet 11)



NOTES

- TOLERANCE : X.X ± 0.05 X.XX ± 0.02 X.XXX ± 0.005
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 7075–T6 ALUMINUM
- ETCH OR STEEL STAMP WITH 015
- P/N 6412–48
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2631 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

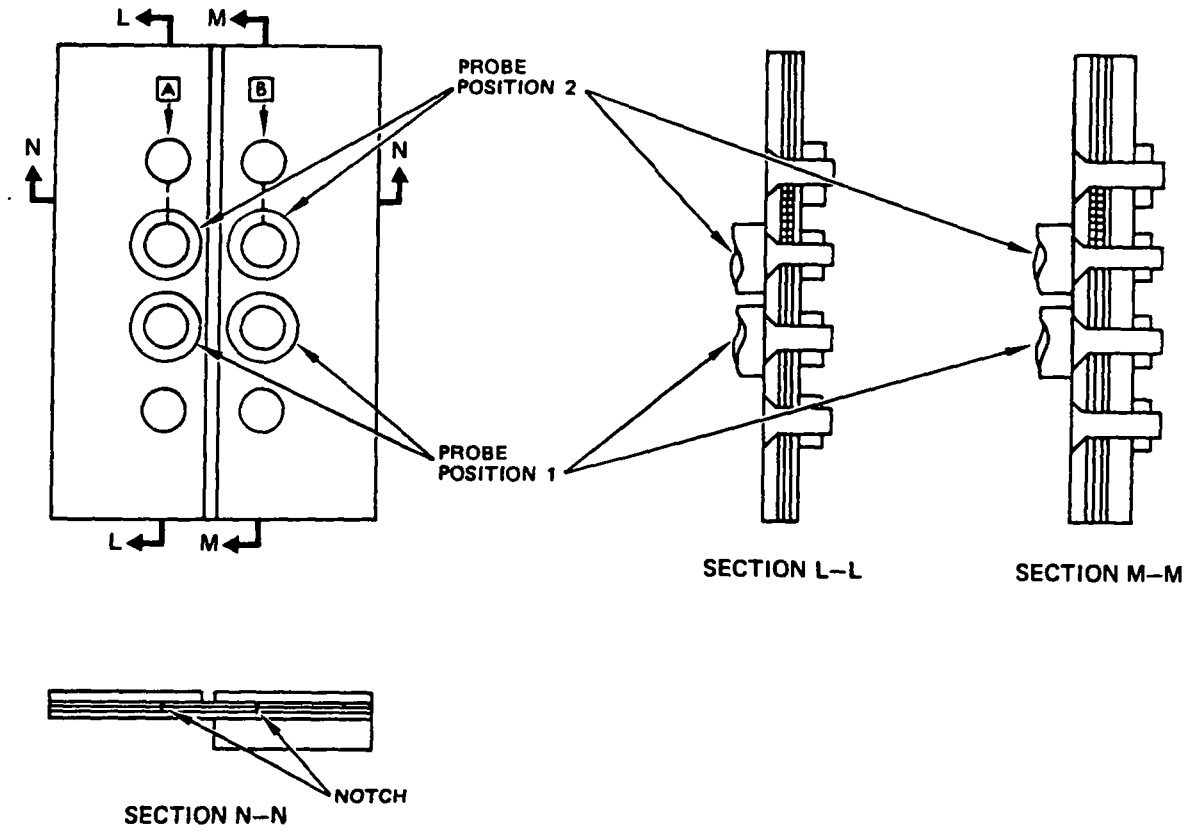
12 JEWELER'S SAWCUT 0.030 MAX WIDTH (2 PLACES)
HOLE TO HOLE IN 2ND AND 3RD LAYERS ONLY

13 BACB30LU5–6 FASTENERS (4 PLACES)

14 BACB30LU5–12 FASTENERS; (4 PLACES)
BACN10JC5 NUT (8 PLACES)

REFERENCE STANDARD 015
DETAIL III

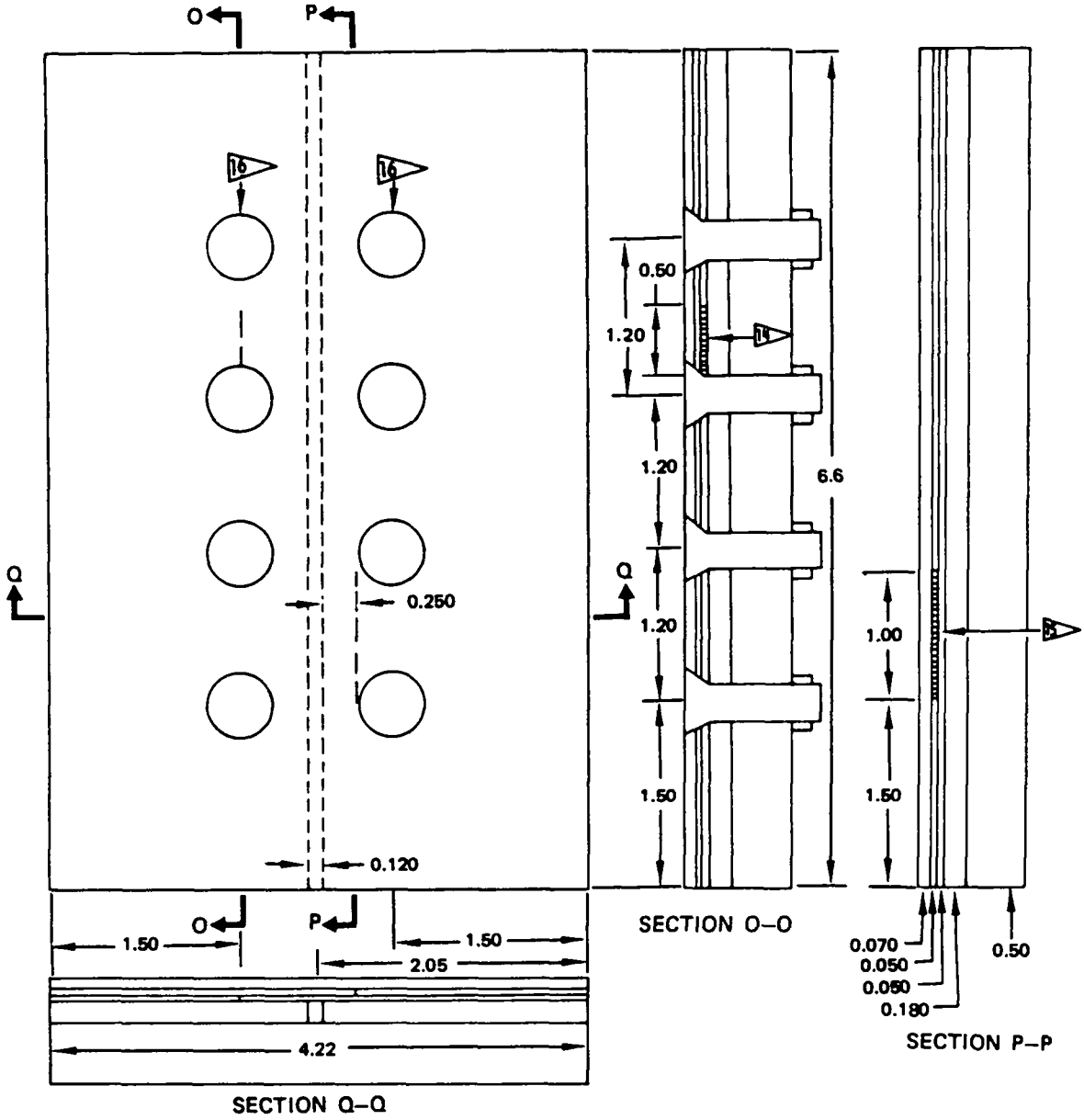
Upper Wing Splice Plates at WS360
Model 720 (Retrofit Configuration)
Figure 30 (Sheet 12)



PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD 015

DETAIL IV

Upper Wing Splice Plates at WS360
Model 720 (Retrofit Configuration)
Figure 30 (Sheet 13)



NOTES

- TOLERANCE: X.X ± 0.05 X.XX ± 0.02 X.XXX ± 0.005
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL 7075–T6 ALUMINUM
- ETCH OR STEEL STAMP WITH 016
- P/N 6412–49
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. N INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

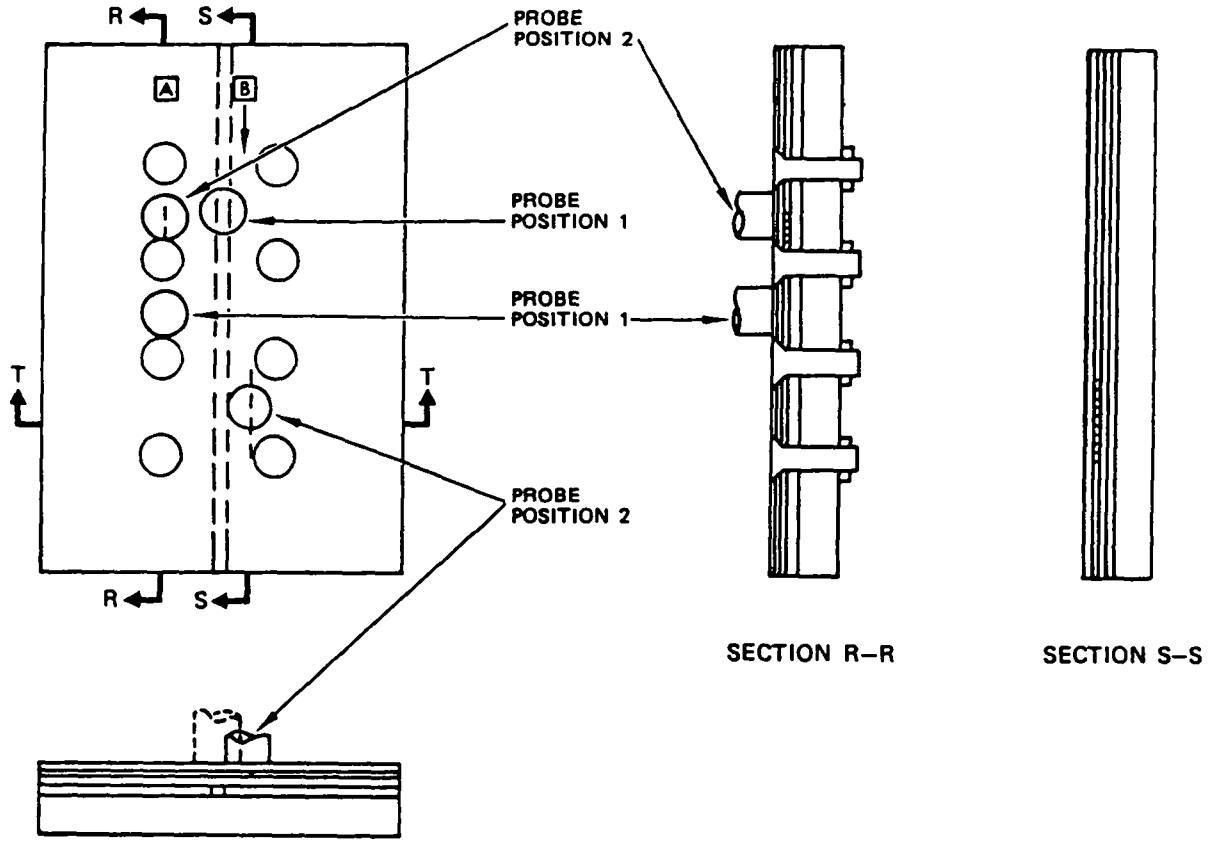
14 JEWELER'S SAWCUT 0.030 MAX WIDTH IN 3RD LAYER ONLY

15 JEWELER'S SAWCUT 0.030 MAX WIDTH IN 2ND LAYER ONLY

16 BACB30LU4–14 FASTENER; BACN10JC4 NUT (8 PLACES)

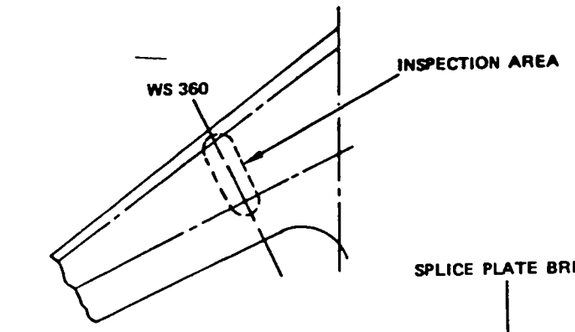
REFERENCE STANDARD 016
DETAIL V

Upper Wing Splice Plates at WS360
Model 720 (Retrofit Configuration)
Figure 30 (Sheet 14)

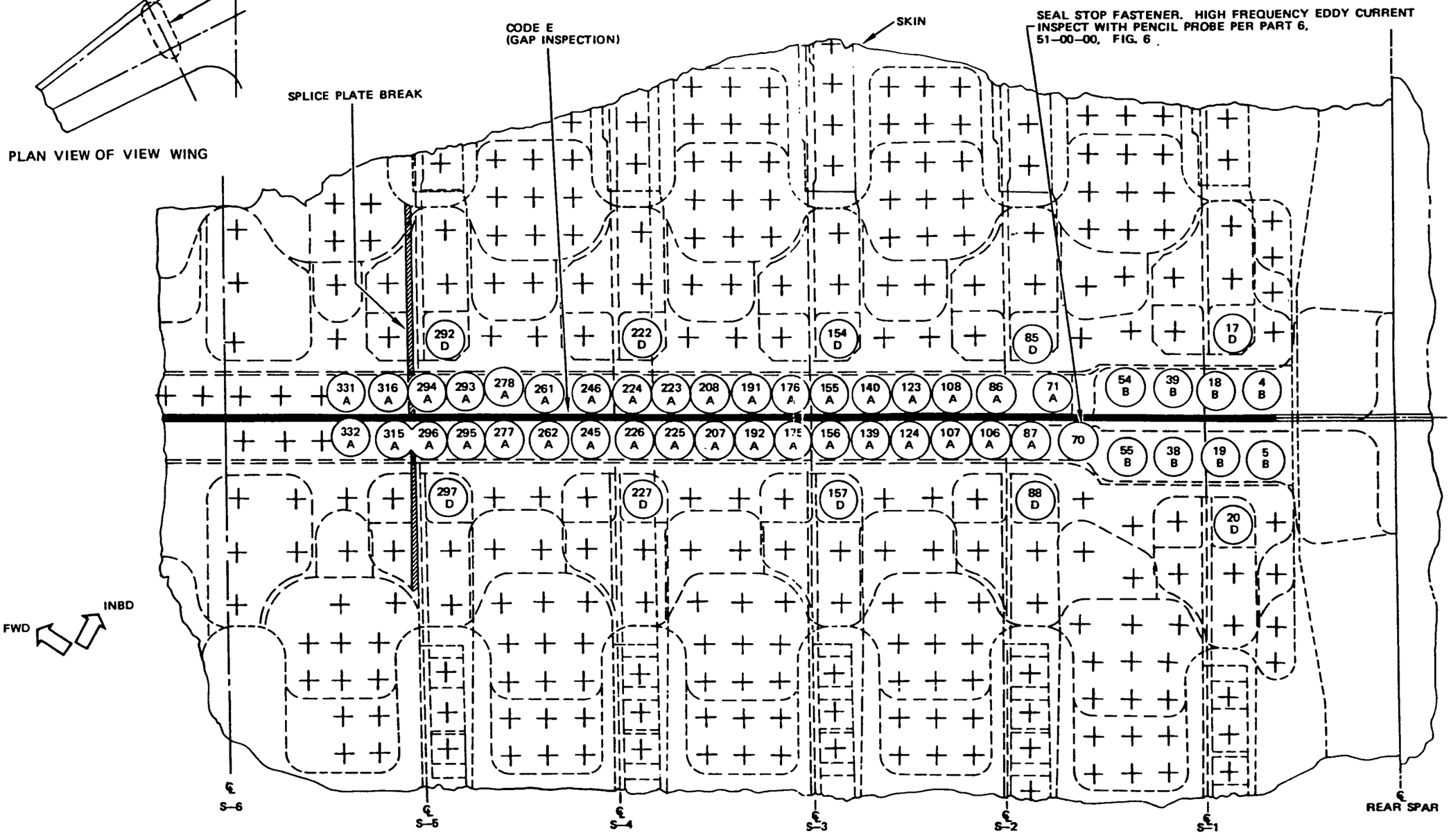


PROBE FOR CALIBRATION
ON REFERENCE STANDARD 016
DETAIL VI

Upper Wing Splice Plates at WS360
Model 720 (Retrofit Configuration)
Figure 30 (Sheet 15)

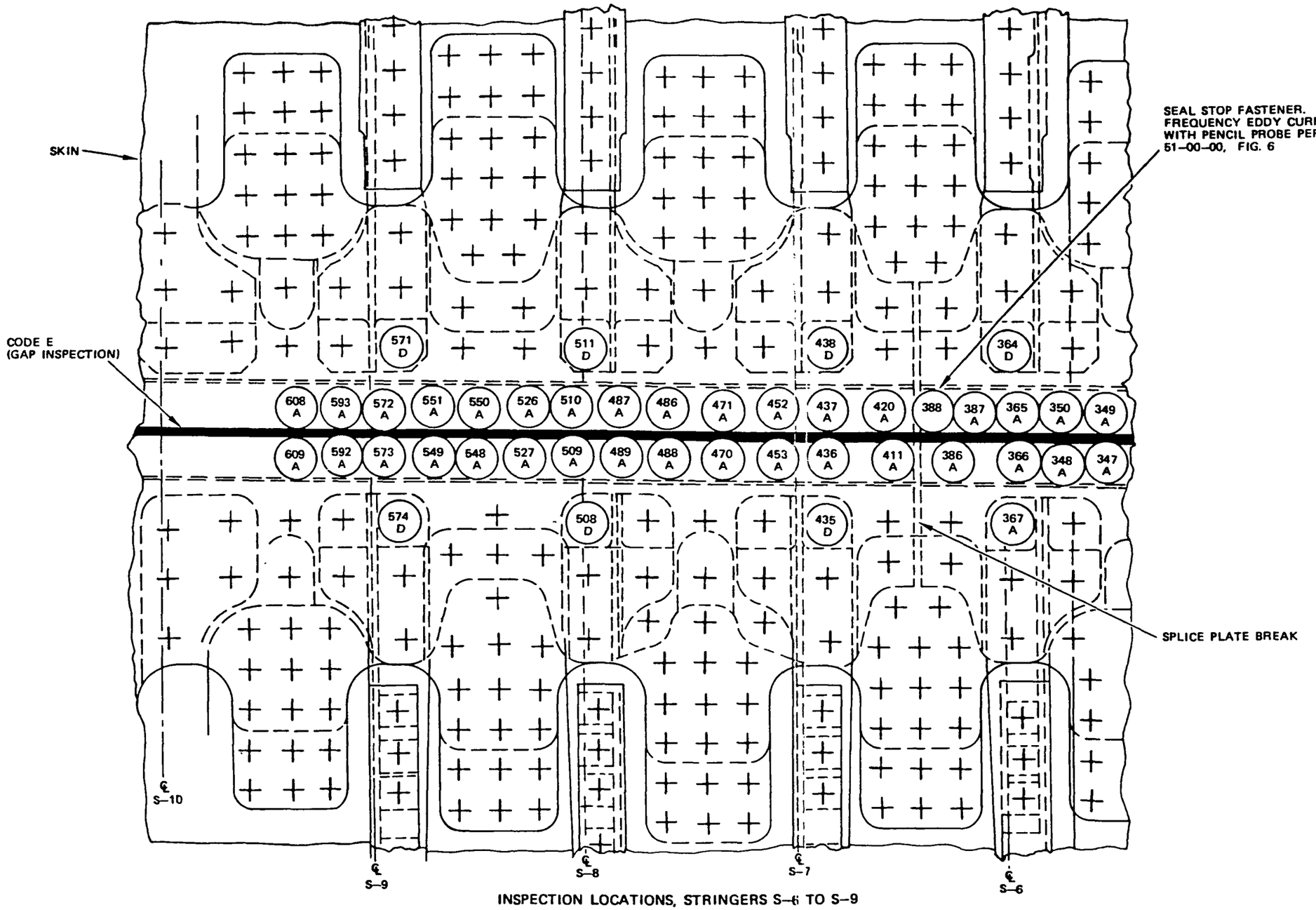


PLAN VIEW OF VIEW WING



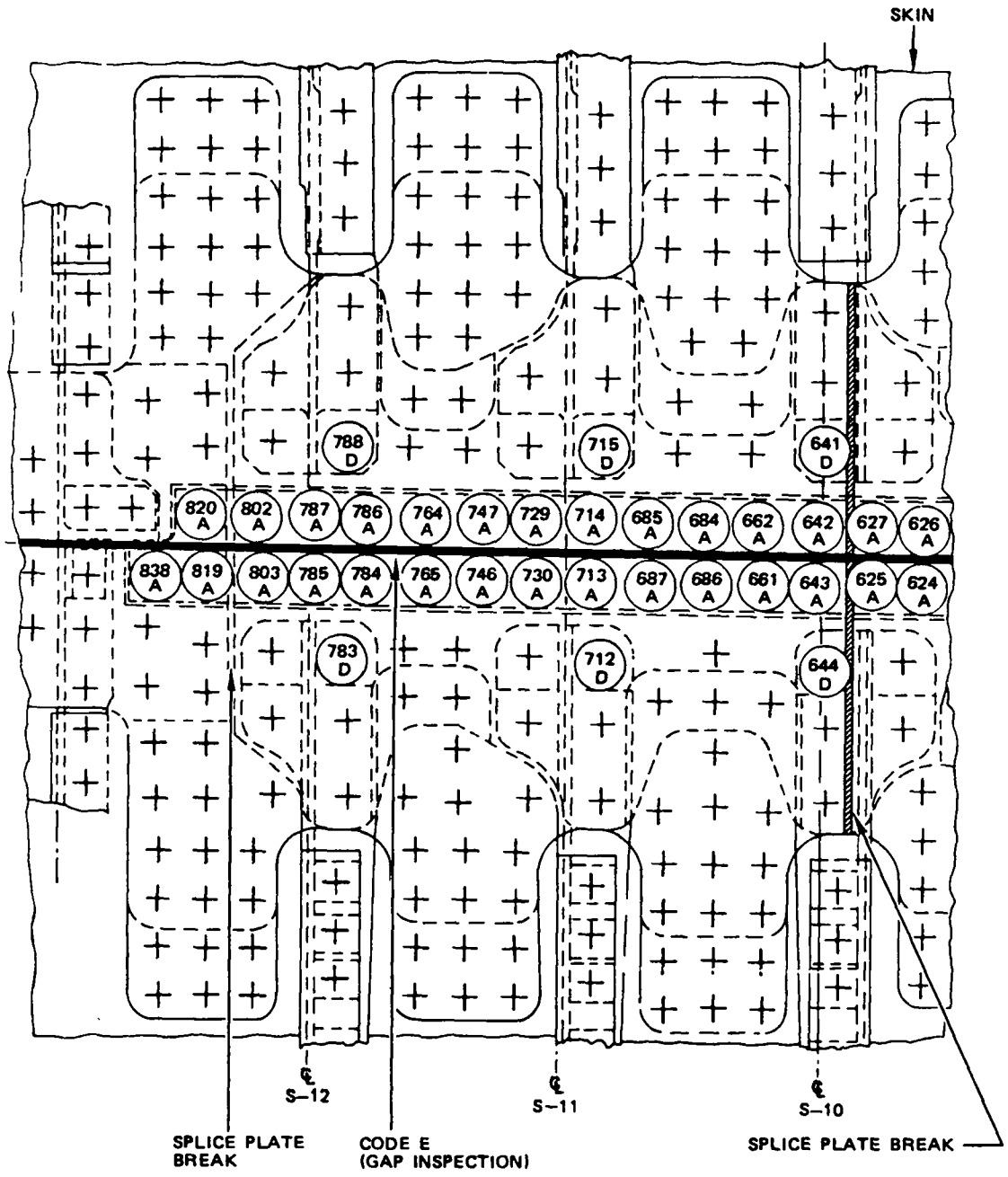
INSPECTION LOCATIONS, STRINGERS S-1 TO S-5
DETAIL VII

Upper Wing Splice Plates at WS 360
Model 720 (Retrofit Configuration)
Figure 30 (Sheet 16)



INSPECTION LOCATIONS, STRINGERS S-6 TO S-9
DETAIL VIII

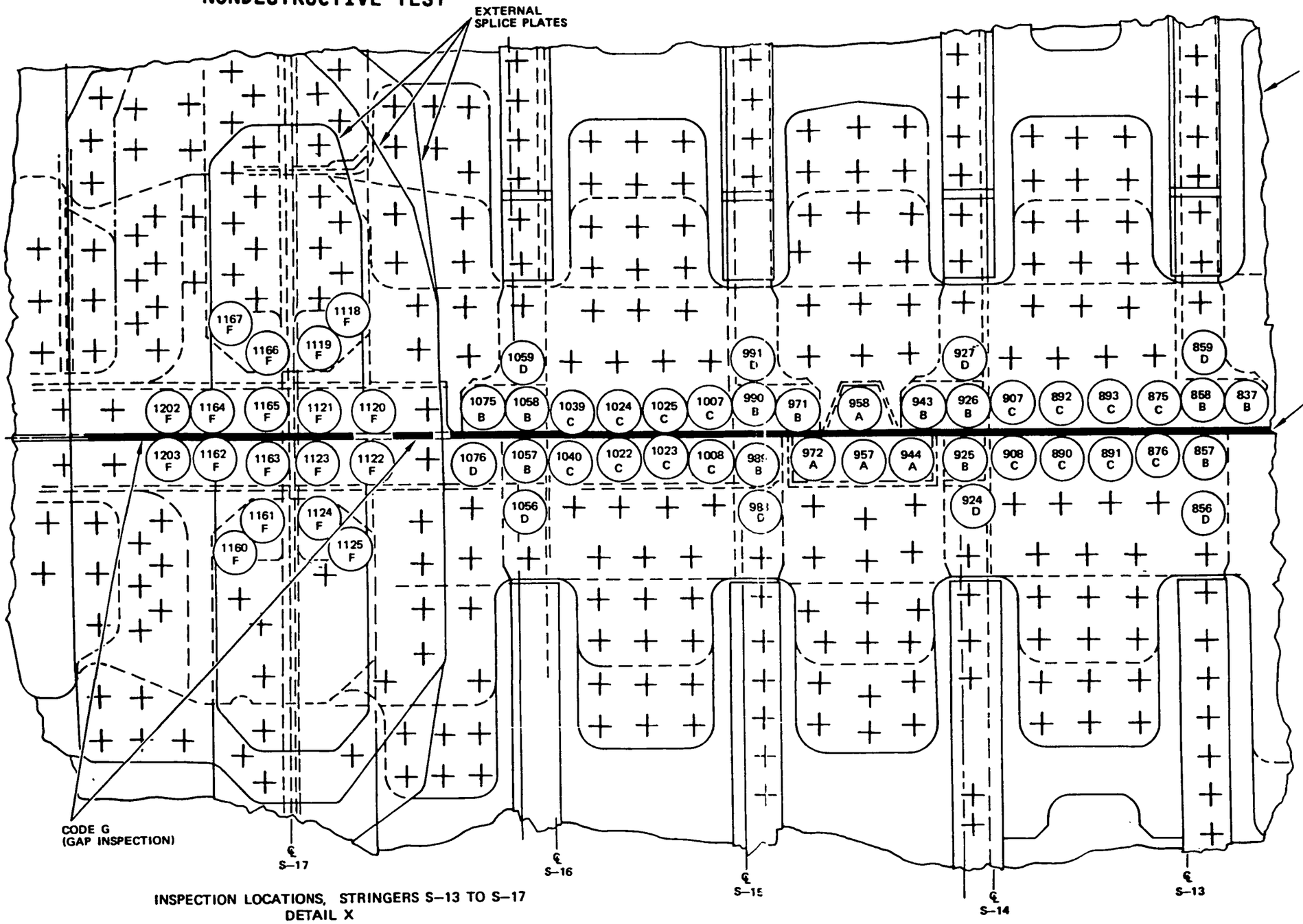
Upper Wing Splice Plates at WS 360
Model 720 (Retrofit Configuration)
Figure 30 (Sheet 17)



INSPECTION LOCATIONS, STRINGERS S–10 TO S–12

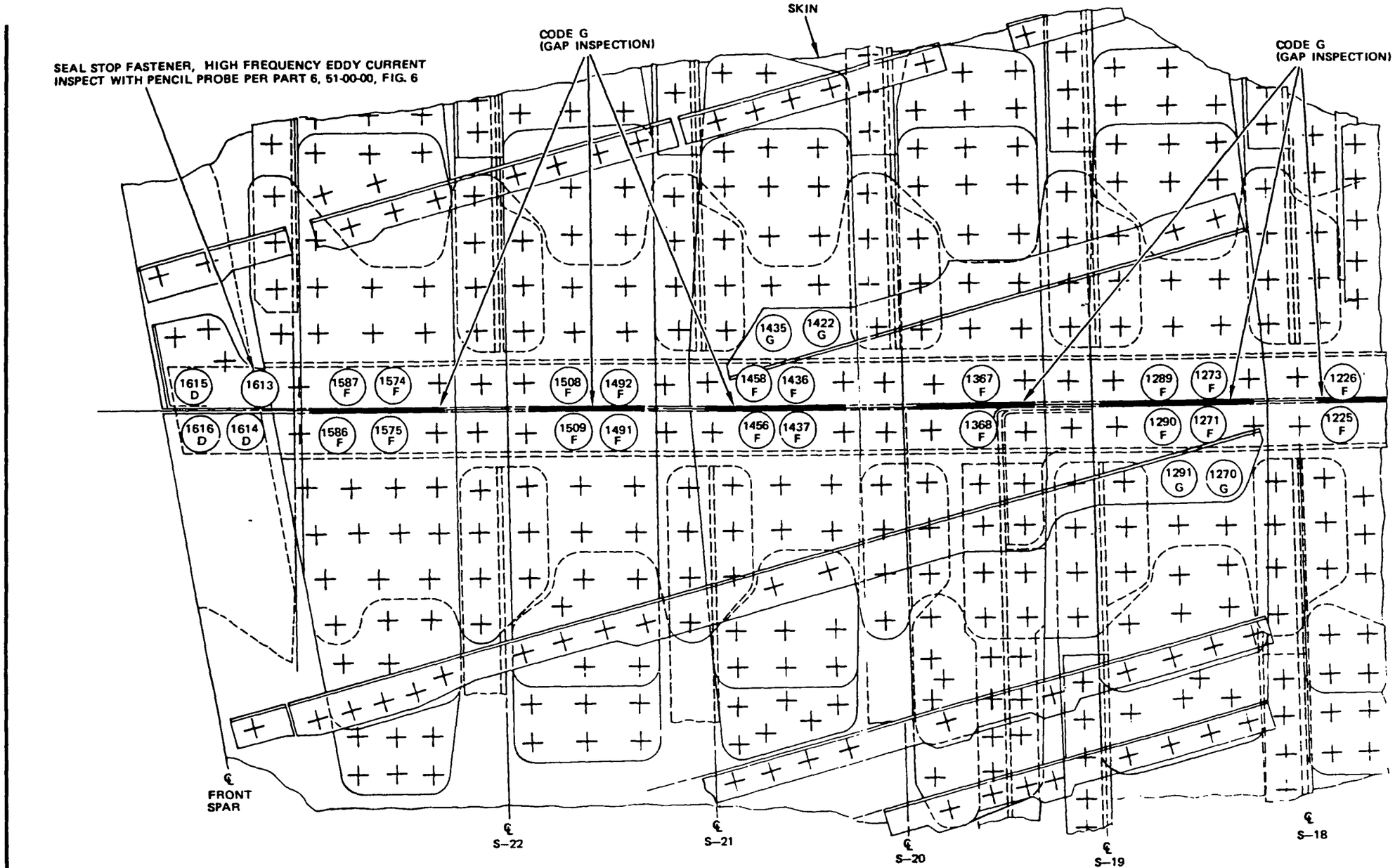
DETAIL IX

Upper Wing Splice Plates at WS 360
Model 720 (Retrofit Configuration)
Figure 30 (Sheet 18)



INSPECTION LOCATIONS, STRINGERS S-13 TO S-17
DETAIL X

Upper Wing Splice Plates at WS 360
Model 720 (Retrofit Configuration)
Figure 30 (Sheet 19)



INSPECTION LOCATIONS, STRINGERS S–18 TO FRONT SPAR

DETAIL XI

Upper Wing Splice Plates at WS 360
Model 720 (Retrofit Configuration)
Figure 30 (Sheet 20)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To inspect for fastener hole cracks in the wing upper skin and internal doubler at upper WBL 129.62, forward of the beavertail.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec Inc.
      1320 N.W. Mall
      Issaquah, WA 98027

   B. Probes - This procedure uses two probes; any probe of similar size which will satisfy the performance requirements of this procedure is acceptable. The following probes were used in the development of this procedure.

      (1) Ring (encircling) probe, 1-inch OD and 0.5-inch ID, OD and ID shielding, usable at 300 Hz, Nortec P/N SPO-783.

      (2) Ring (encircling) probe, 0.75-inch OD and 0.3-inch ID, OD and ID shielding, usable at 300 Hz, Nortec P/N SPO-996.

      NOTE: Probes listed above are available from:
      Nortec Inc.
      421 N. Quay
      Kennewick, Washington 99336

      Specify instrument with which probe is to be used or instrument connector required when ordering probes.

Upper Wing Skin and Internal Doubler Forward of Beavertail
Figure 31 (Sheet 1)

C. Reference Standards

(1) Manufacture per Detail I.

3. Preparation for Inspection

A. Identify the inspection area and wipe skin surface clean.

4. Instrument Calibration

NOTE: The inspection of holes with steel fasteners requires three separate calibrations to adjust for variations in fastener head size and edge margin.

A. Calibration for steel fastener (Inspection Code "B", Detail II) using 0.5-inch ID ring probe.

(1) Set instrument frequency to 300 Hz.

(2) Visually center probe over the unnotched reference standard hole (Inspection Code "B" in Position Row No. 1, Detail II).

(3) Balance instrument per manufacturer's instructions.

(4) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(5) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

(6) Center probe over the notched reference standard hole (Position Row No. 2, Inspection Code "B"). Response should be upscale.

(7) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(8) Recheck null and liftoff. If readjustments are made, recheck sensitivity per par. 4.A.(7).

(9) Cracks will be indicated by a higher meter response.

NOTE: If fasteners similar to those with Inspection Code "B" are encountered on the airplane with close edge margin, calibrate using fastener with Inspection Code "D" (Detail II) for inspection of these fasteners.

B. Calibration for steel fastener (Inspection Code "A", Detail II) using 0.5-inch ID ring probe.

(1) Calibrate per par. 4.A. except use fasteners with Inspection Code "A".

C. Calibration for aluminum rivet (Inspection Code "C", Detail II) using 0.3-inch ID ring probe.

(1) Calibrate per par. 4.A. except use fasteners with Inspection Code "C".

5. Inspection Procedure

A. Inspection of steel fasteners, Inspection Codes "A" or "B", using the 0.5-inch ID probe.

(1) Identify fasteners to be inspected by using Details III and IV.

NOTE: It is suggested that copies be made of Details III and IV and that they be used to record instrument responses at each fastener location. This is helpful in maintaining continuity between the groups of fasteners during inspection.

(2) Calibrate instrument per par. 4.A.

(3) Use several fasteners of the same type to establish the airplane baseline response for an acceptable fastener.

(a) Select a representative fastener from this group and set its response to 20% of full meter scale.

NOTE: Do not change instrument sensitivity when establishing the airplane baseline response.

(b) Refer back to this fastener periodically to ensure that the instrument response is the same as originally recorded, since changes in meter response may occur as a result of instrument drift or probe temperature change.

(4) Inspect each fastener by centering the probe on the fastener and manipulating to obtain a minimum response.

(5) Any fastener location that gives a response that is 40% of full meter scale higher than the established baseline is a potential crack and further investigation is required.

NOTE: The following conditions may cause meter reading changes similar to crack indications:

1) A decrease in fastener spacing. Compare with similarly spaced fasteners on the airplane.

2) A larger or smaller fastener. Compare with similar fasteners on reference standard and on airplane.

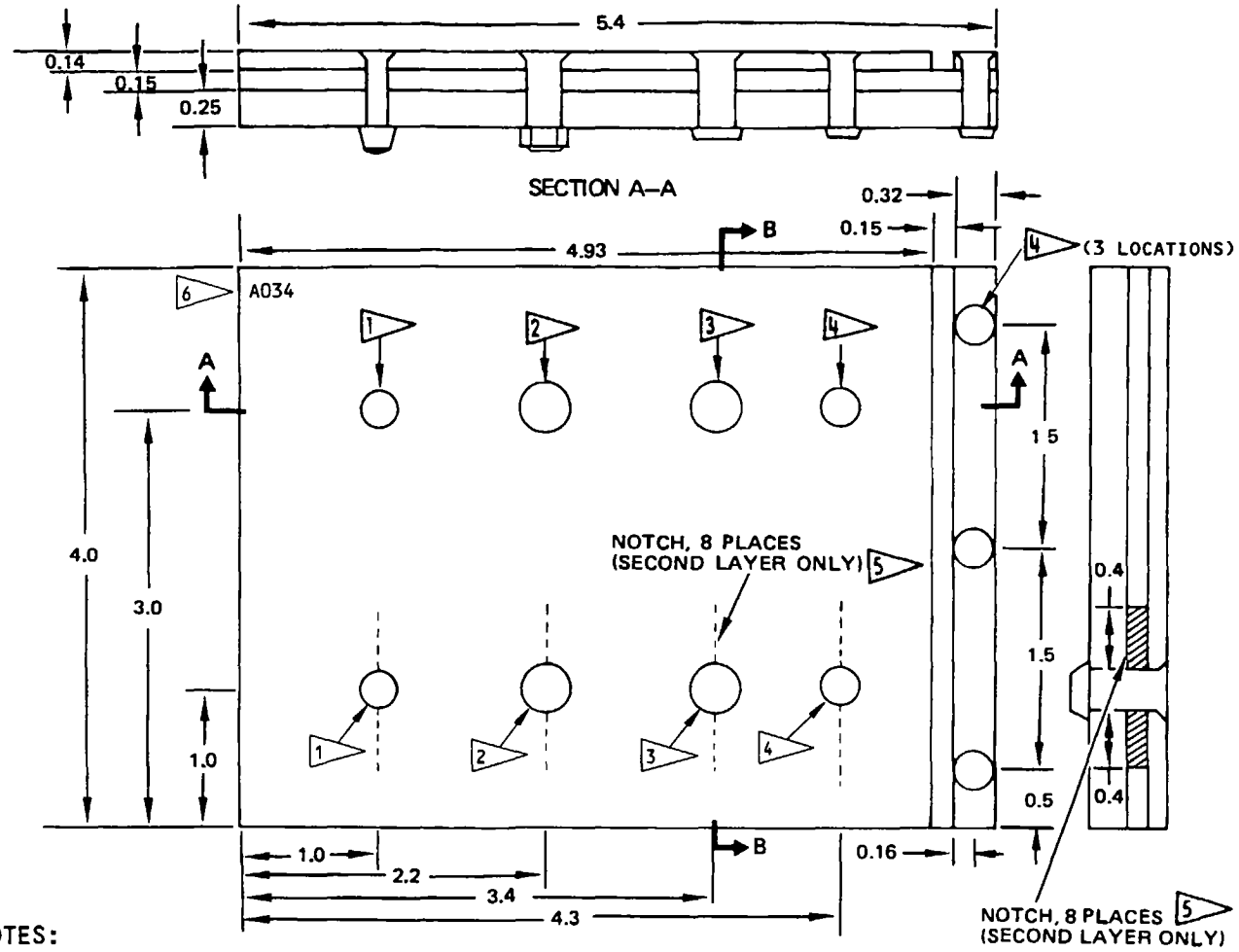
3) A fastener that is different in countersink depth. Compare with similar fastener in standard raised to the same height.

4) A fastener close to edge of skin. Compare with similar fasteners on airplane.

5) Differences in conductivity between skin panels. Compare only the fastener locations common to a skin panel.

B. Inspection of aluminum fasteners, Inspection Code "C", using the 0.3-inch ID ring probe.

(1) Proceed as in par. 5.A.



NOTES:

- TOLERANCE. X.X ± 0.05
  X.XX ± 0.02
  X.XXX ± 0.01
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL 7178–T6 OR 2024–T4 ALUMINUM
- ETCH OR STEEL STAMP WITH A034
- SEE PART 1, 51-01-00 FOR MANUFACTURING AND ORDERING INFORMATION.

1 > BACB30FN8–9 FASTENERS; BACC30M8 COLLAR (2 PLACES)

2 > BACB30LU4–9 FASTENERS; BACN10JC4 NUT (2 PLACES)

3 > BACR15BA8D12 FASTENERS. THESE RIVETS MUST HAVE A CONVERSION COATED (ALODINED) FINISH. TO MAKE SURE THE FINISH IS ALODINE, REFER TO PART 1, 51-06-01. INSTALL THE RIVETS AS SPECIFIED IN PART 1, 51-01-04.

4 > BACR15BA6D12 FASTENERS. THESE RIVETS MUST HAVE A CONVERSION COATED (ALODINED) FINISH. TO MAKE SURE THE FINISH IS ALODINE, REFER TO PART 1, 51-06-01. INSTALL THE RIVETS AS SPECIFIED IN PART 1, 51-01-04.

5 > JEWELER'S SAWCUT 0.030 MAX WIDTH (8 PLACES)

6 > PUT A LETTER "A" IN FRONT OF THE REFERENCE STANDARD NUMBER TO SHOW THAT IT HAS ALODINED RIVETS. SEE FLAGNOTES 3 AND 4.

REFERENCE STANDARD A034
DETAIL I
Upper Wing Skin and Internal Doubler
Forward of Beavertail
Figure 31 (Sheet 5)

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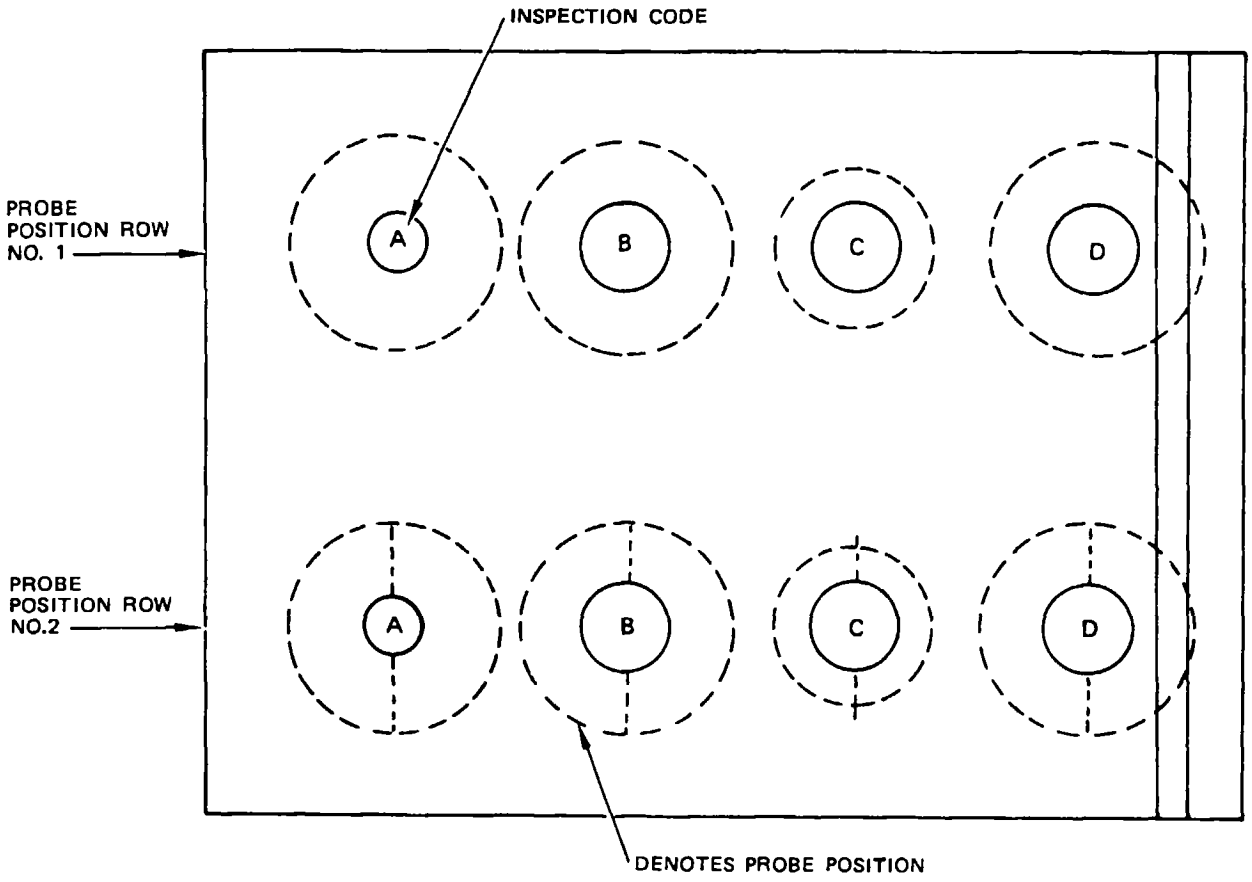
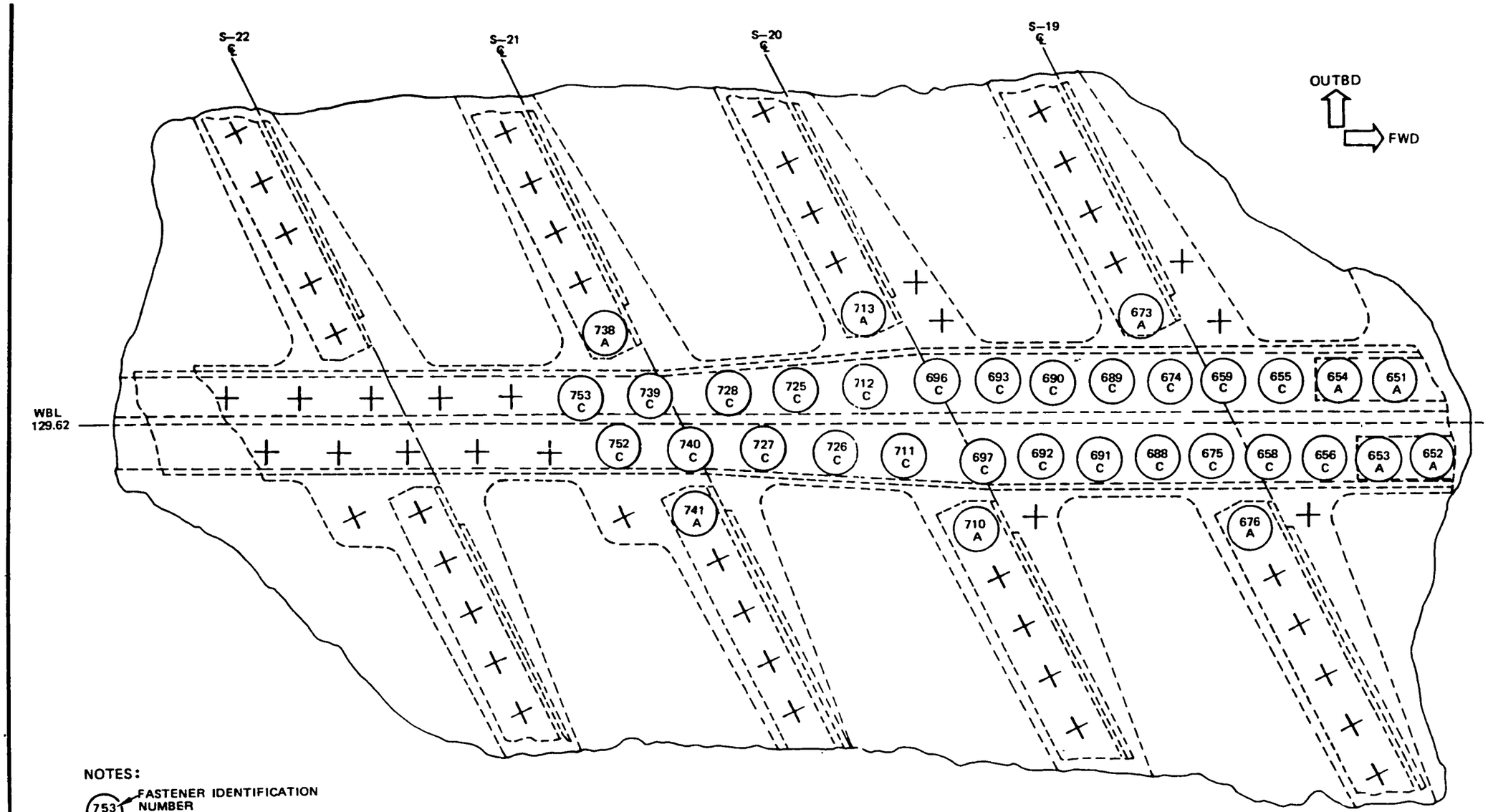


PROBE POSITIONS FOR CALIBRATION ON
REFERENCE STANDARD A034
DETAIL II

Upper Wing Skin and Internal Doubler
Forward of Beavertail
Figure 31 (Sheet 6)

BOEING PROPRIETARY - Copyright © - Unpublished Work - See title page for details.



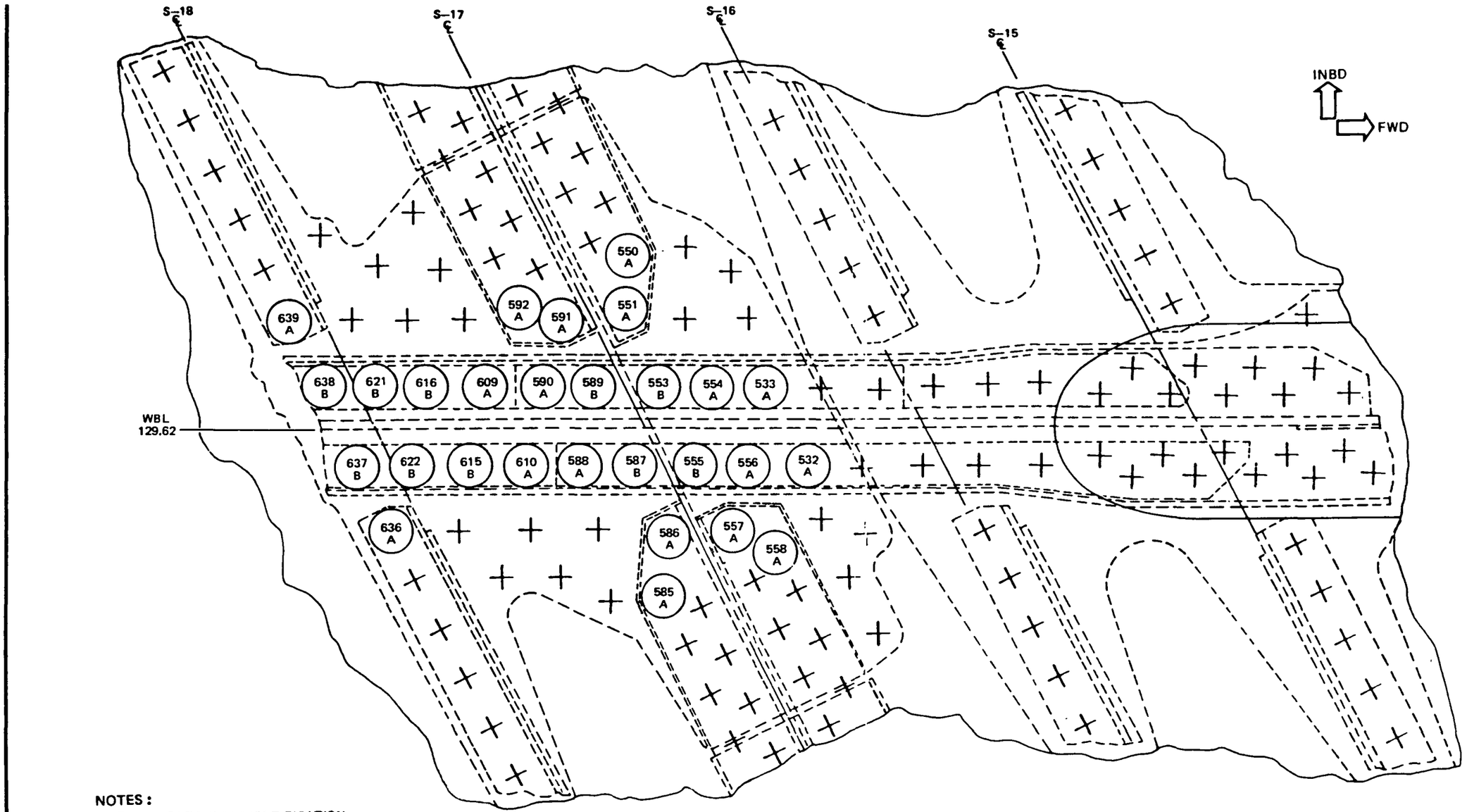
NOTES:

753 C — FASTENER IDENTIFICATION NUMBER; INSPECTION CODE

LOCATION OF FASTENERS TO BE INSPECTED
STRINGERS S–19 THROUGH S–21 LOOKING DOWN

DETAIL III

Upper Wing Skin and Internal Doubler
Forward of Beavertail
Figure 31 (Sheet 7)



LOCATION OF FASTENERS TO BE INSPECTED
STRINGERS S-17 AND S-18, LOOKING DOWN
DETAIL IV

Upper Wing Skin and Internal Doubler
Forward of Beavertail
Figure 31 (Sheet 8)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To inspect for fastener hole cracks in the wing skin, internal doubler, and splice plate at upper WBL 129.62, forward of the beavertail.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec Inc.
      1320 NW Mall
      Issaquah, WA 98027

   B. Probes - This procedure uses two probes; any probe of similar size that will satisfy the performance requirements of this procedure is acceptable. The following probes were used in the development of this procedure.

      (1) Ring (encircling) probe, 1-inch OD and 0.5-inch ID, OD and ID shielding, usable at 100 Hz, Nortec P/N SPO-783.

      (2) Low frequency spot probe with 0.65-inch OD case, 0.55-inch OD active element, and 1.0-inch maximum height of case, usable at 500 Hz, Nortec P/N SPO-1125.

      NOTE: Probes listed above are available from:

      Nortec Inc.
      421 N. Quay
      Kennewick, WA 99336

      Specify instrument with which probe is to be used or instrument connector required when ordering probes.

Upper Wing Skin and Internal Doubler
at WBL 129.62 Forward of Beavertail
Figure 32 (Sheet 1)

C. Reference Standards

(1) Manufacture per Details I and II.

3. Preparation for Inspection

A. Remove leading edge glove fairing as required to perform inspection.

B. Identify the inspection area and wipe skin surface clean.

4. Instrument Calibration

A. Calibration for steel fasteners (Inspection Codes "A", "B", or "C") using a 0.5-inch I D ring probe and the Detail I reference standard.

(1) Set instrument frequency to 100 Hz.

(2) Visually center probe over the unnotched reference standard hole (Inspection Code "A" at Position No. 1, Detail III).

NOTE: Fasteners in Detail III that have Inspection Codes "A", "B", and "C" are similar to fasteners in Details V, VI, VII, and VIII that have Inspection Codes "A", "B", and "C".

(3) Balance instrument per manufacturer's instructions.

(4) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006-inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(5) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

(6) Center probe over the notched reference standard hole (Position No. 2, Inspection Code "A". Response should be upscale.

(7) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(8) Recheck null and liftoff. If readjustments are made, recheck sensitivity per par. 4.A.(7).

(9) Cracks will be indicated by a higher meter response.

NOTE: When calibrating for inspection of fasteners with Inspection Codes "B" or "C" (Details V, VI, VII, or VIII), reset instrument baseline response to 20% using fastener with corresponding Inspection Code "B" or "C" on the reference standard (Detail III). Do not change instrument sensitivity when making this adjustment.

B. Calibration for Inspection Code "D" fasteners using a 0.55-inch O D spot probe and the Detail II reference standard.

(1) Set instrument frequency to 500 Hz.

(2) Place probe adjacent to the unnotched reference standard hole (Position No. 1, Detail IV).

(3) Balance instrument per manufacturer's instructions.

(4) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006-inch (approximately the thickness of two sheets of paper).

NOTE: Probe is located at Position No. 1 during liftoff calibration.

(5) With the probe adjacent to the unnotched hole (Position No. 1) adjust meter response to read 20% of full scale with meter position control.

(6) Position probe adjacent to the notched reference standard hole (Position No. 2). Response should be upscale.

(7) Manipulate probe to obtain a maximum notch response. Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes (Positions Nos. 1 and 2).

(8) Reposition probe at position No. 1 and check null and liftoff. If readjustments are made, recheck sensitivity per par. 4.B.(7).

5. Inspection Procedure

A. Inspection of steel fasteners, Inspection Codes "A", "B", or "C", using the 0.5-inch I.D. probe.

(1) Identify fasteners to be inspected by using Details V, VI, VII, and VIII.

NOTE: It is suggested that copies be made of Details V, VI, VII, and VIII and that they be used to record instrument responses at each fastener location. This is helpful in maintaining continuity between the groups of fasteners during inspection.

(2) Calibrate instrument per par. 4.A.

(3) Use several fasteners of the same type to establish the airplane baseline response for an acceptable fastener.

(a) Select a representative fastener from this group and set its response to 20% of full meter scale.

NOTE: Do not change instrument sensitivity when establishing the airplane baseline response.

(b) Refer back to this fastener periodically to ensure that the instrument response is the same as originally recorded, since changes in meter response may occur as a result of instrument drift or probe temperature change.

(4) Inspect each fastener by centering the probe on the fastener and manipulating to obtain a minimum response.

(5) Any fastener location that gives a response that is 30% of full meter scale higher than the established baseline is a potential crack and further investigation is required.

NOTE: The following conditions may cause meter reading changes similar to crack indications:

1) A decrease in fastener spacing. Compare with similarly spaced fasteners on the airplane.

2) A larger or smaller fastener. Compare with similar fasteners on reference standard and on airplane.

3) A fastener close to edge of skin. Compare with similar fasteners on airplane.

4) Differences in conductivity between skin panels. Compare only the fastener locations common to a skin panel.

In places where the glove fairing support members interfere with inspection fasteners, inspect to the extent possible.

B. Inspection of fasteners, Inspection Code "D", using the 0.65-inch spot probe.

(1) Identify fasteners to be inspected by using Details V, VI, VII, and VIII.

NOTE: It is suggested that copies be made of Details V, VI, VII, and VIII and that they be used to record instrument responses at each fastener location. This is helpful in maintaining continuity between the groups of fasteners during inspection.

(2) Calibrate instrument per par. 4.A.

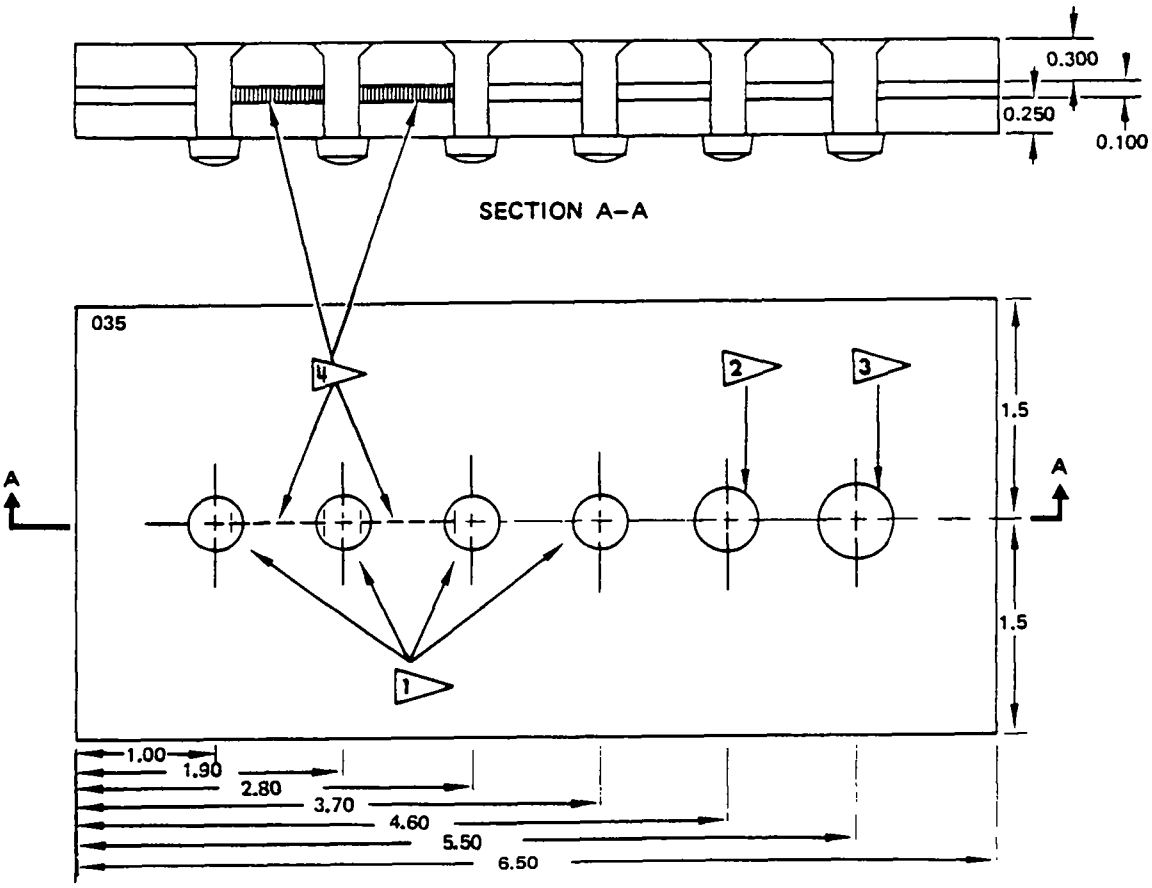
(3) Inspect each fastener by placing the probe adjacent to the fastener head on forward and aft sides of fasteners.

NOTE: When placing the probe adjacent to a fastener head, maintain the same distance between probe and fastener head as was used with the reference standard during calibration.

(4) Any fastener location that gives a response that is 40% of full meter scale higher than the established baseline is a potential crack and further investigation is required.

NOTE: In places where the glove fairing support members interfere with inspection fasteners, inspect to the extent possible.

Upper Wing Skin and Internal Doubler
at WBL 129.62 Forward of Beavertail
Figure 32 (Sheet 6)



NOTES

- TOLERANCES: X.X ± 0.05
  X.XX ± 0.01
  X.XXX ± 0.005
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 7178-T6 OR 2024-T4 ALUMINUM
- ETCH OR STEEL STAMP WITH 035
- COUNTERSINK FLUSHNESS: + 0.010 / − 0.005
- HOLE DIAMETER: + 0.004 / − 0.000
- P/N 6412-51
  AVAILABLE FROM IDEAL SPECIALTY CO
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

1 BACB30FN8-14 FASTENER; BACC30M8 COLLAR (4 PLACES)

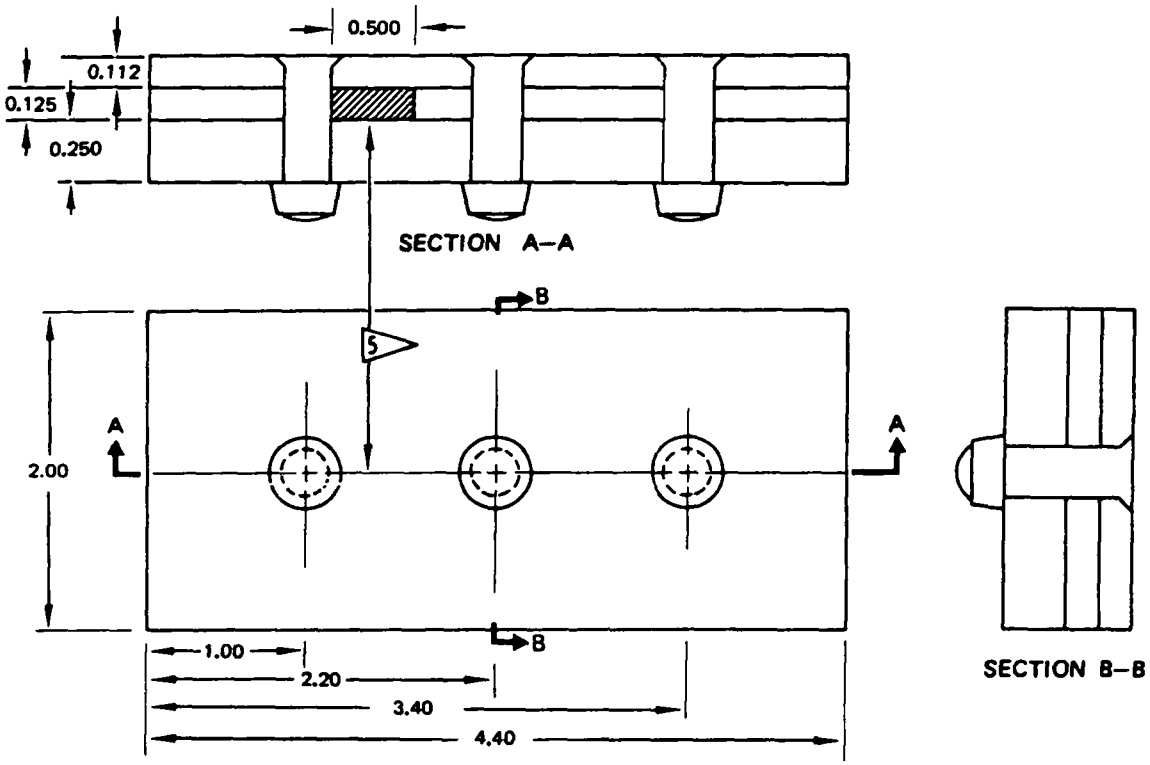
2 BACB30FN10-14 FASTENER; BACC30M10 COLLAR (1 PLACE)

3 BACB30LU4-14 FASTENER; BACN10JC4 NUT (1 PLACE)

4 JEWELER'S SAWCUT 0.030 MAX WIDTH (2 PLACES) IN SECOND LAYER ONLY (HOLE TO HOLE)

REFERENCE STANDARD 035
DETAIL I

Upper Wing Skin and Internal Doubler
at WBL 129.62 Forward of Beavertail
Figure 32 (Sheet 7)



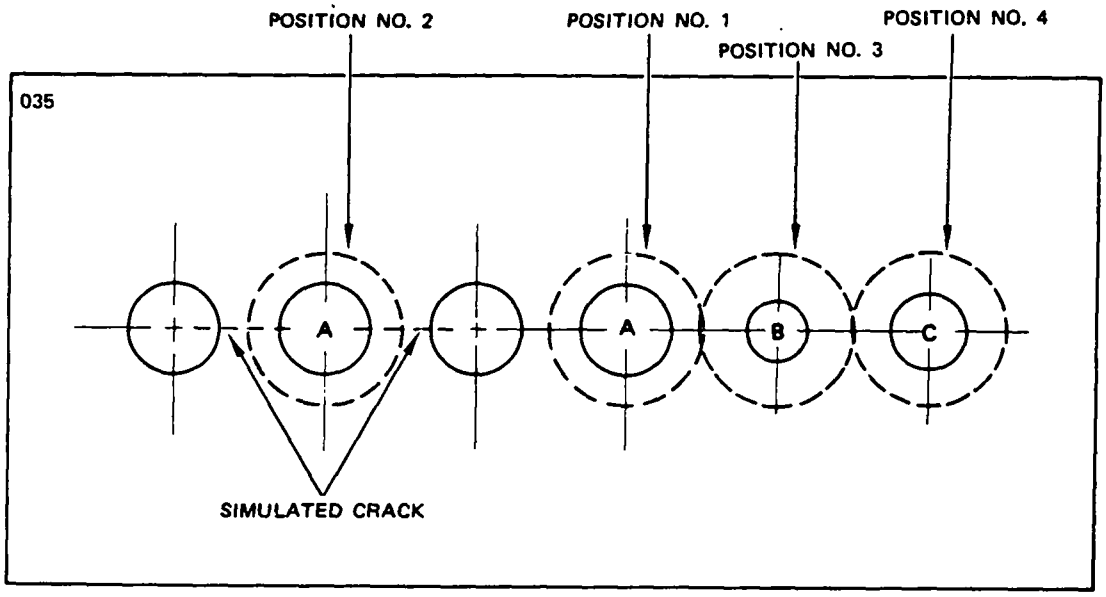
NOTES

- TOLERANCES: X.X ± 0.05
  X.XX ± 0.01
  X.XXX ± 0.005
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 7178–T6 OR 2024–T4 ALUMINUM
- ETCH OR STEEL STAMP WITH 036
- COUNTERSINK FLUSHNESS: + 0.010 / − 0.005
- HOLE DIAMETER: + 0.004 / − 0.000
- BACB30FN10–8 FASTENERS; BACC30M10 COLLAR (3 PLACES)
- P/N 6412–52
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

5 JEWELER'S SAWCUT 0.030 MAX WIDTH SECOND LAYER ONLY

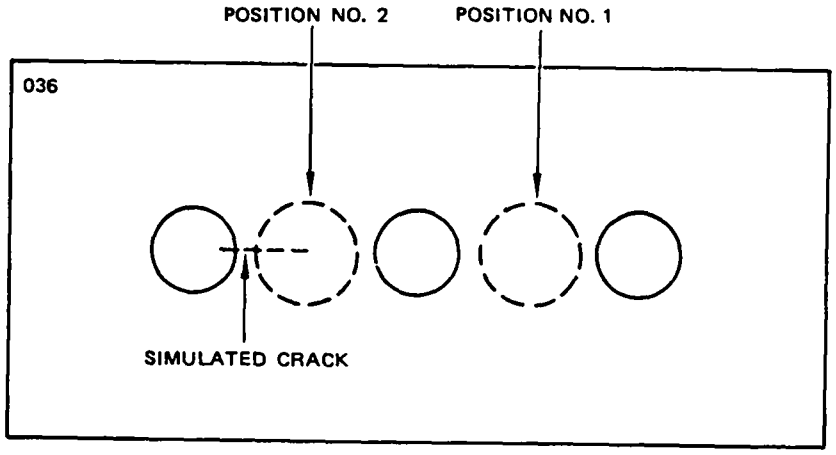
REFERENCE STANDARD 036
DETAIL II

Upper Wing Skin and Internal Doubler
at WBL 129.62 Forward of Beavertail
Figure 32 (Sheet 8)



PROBE POSITIONS FOR CALIBRATION
ON REFERENCE STANDARD 035

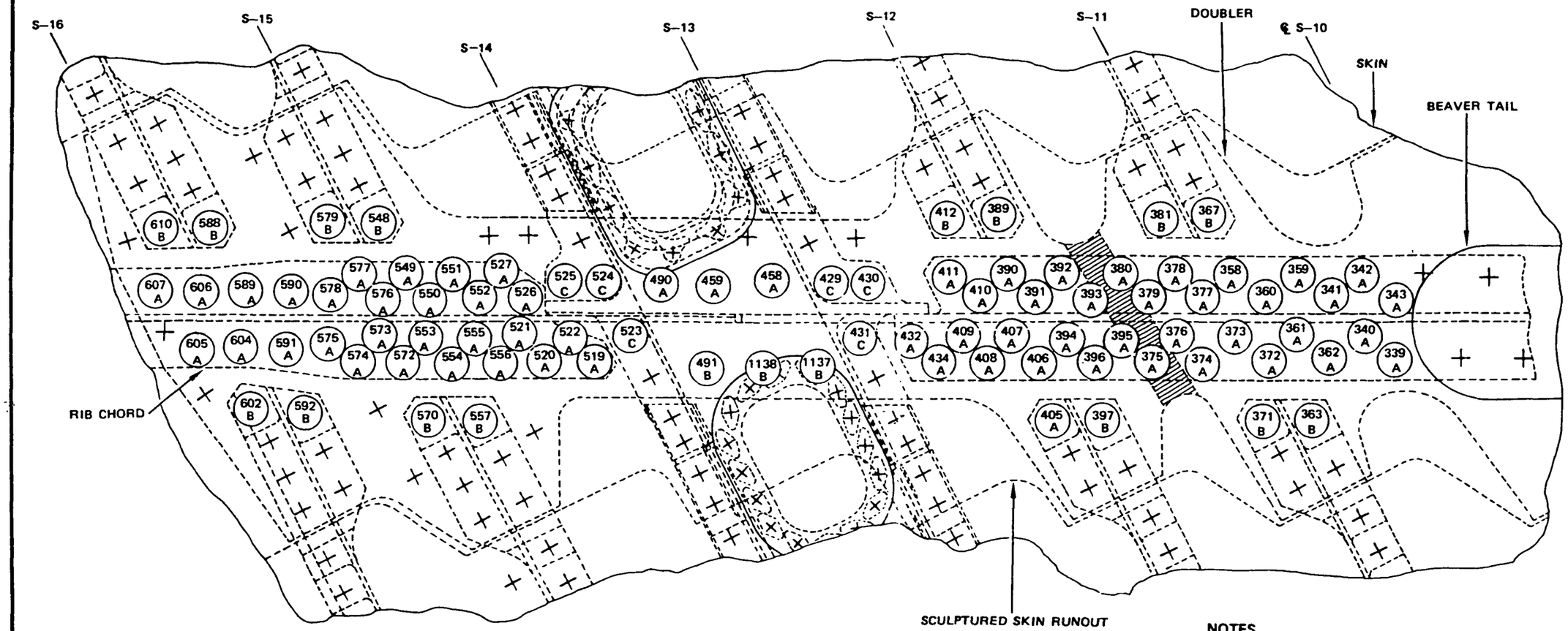
DETAIL III



PROBE POSITIONS FOR CALIBRATION
ON REFERENCE STANDARD 036

DETAIL IV

Upper Wing Skin and Internal Doubler
at WBL 129.62 Forward of Beavertail
Figure 32 (Sheet 9)



NOTES

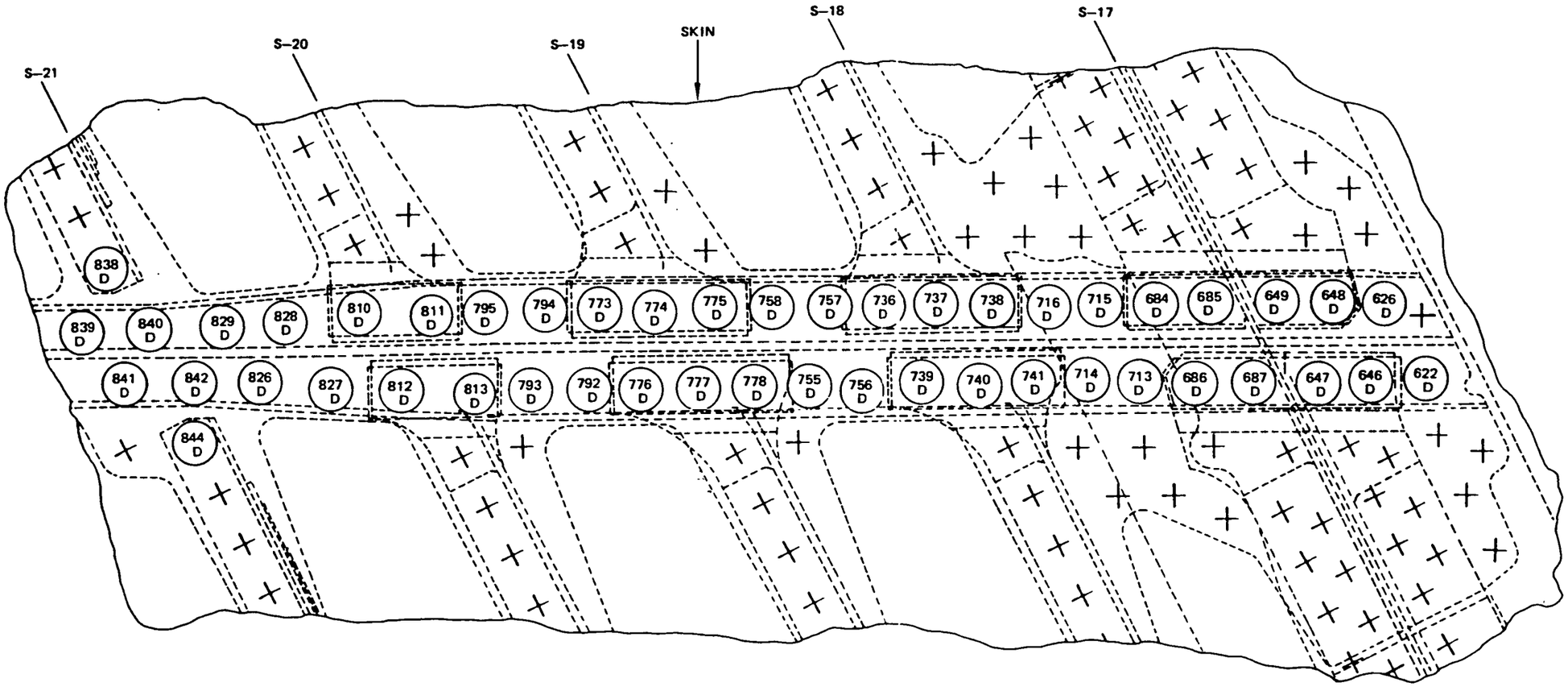
371 B — FASTENER IDENTIFICATION NUMBER; INSPECTION CODE

THIS DETAIL APPLIES TO MODEL 720 AIRPLANES THROUGH CUM LINE NO. 514

INSPECTION LOCATIONS

DETAIL V

Upper Wing Skin and Internal Doubler
at WBL 129.62 Forward of Beavertail
Figure 32 (Sheet 10)



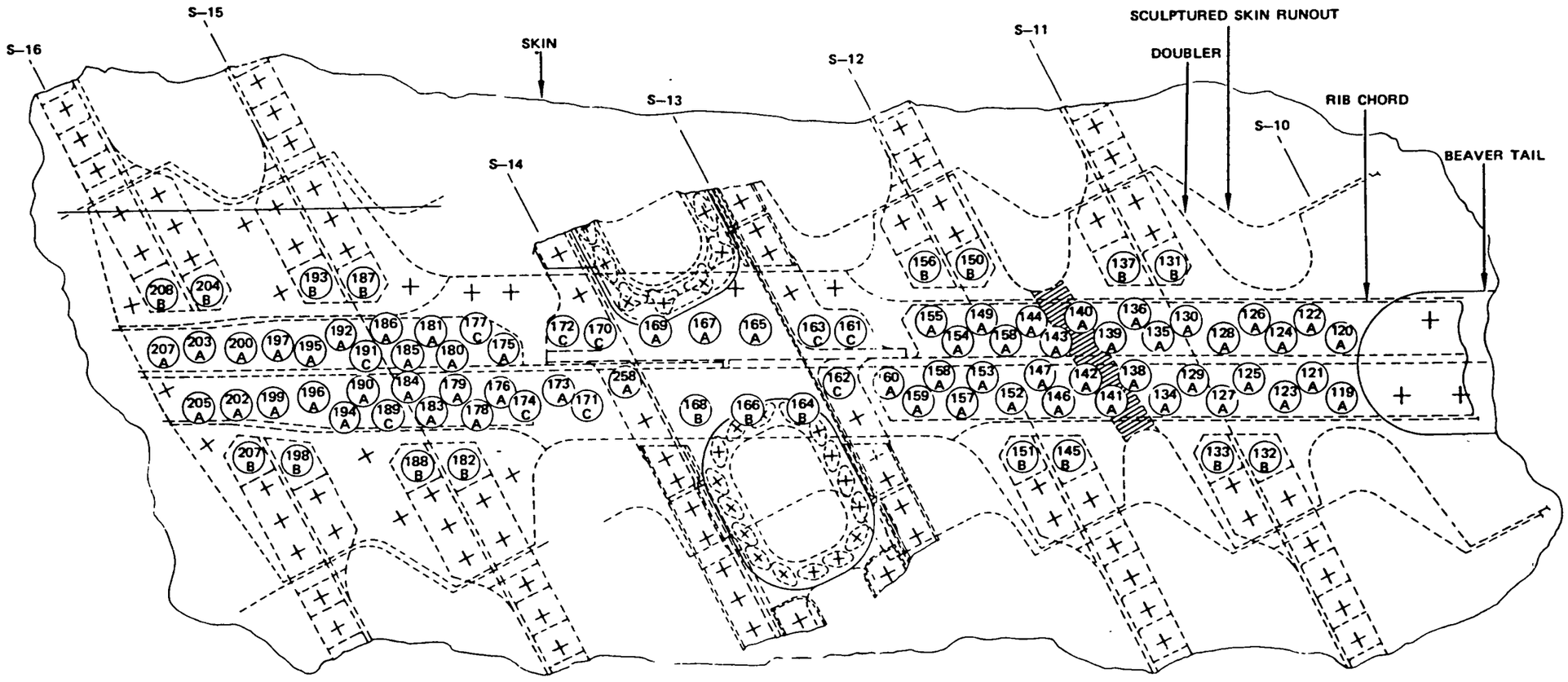
NOTES

THIS DETAIL APPLIES TO MODEL 720 AIRPLANES THROUGH CUM LINE NO. 514

INSPECTION LOCATIONS

DETAIL VI

Upper Wing Skin and Internal Doubler
at WBL 129.62 Forward of Beavertail
Figure 32 (Sheet 11)



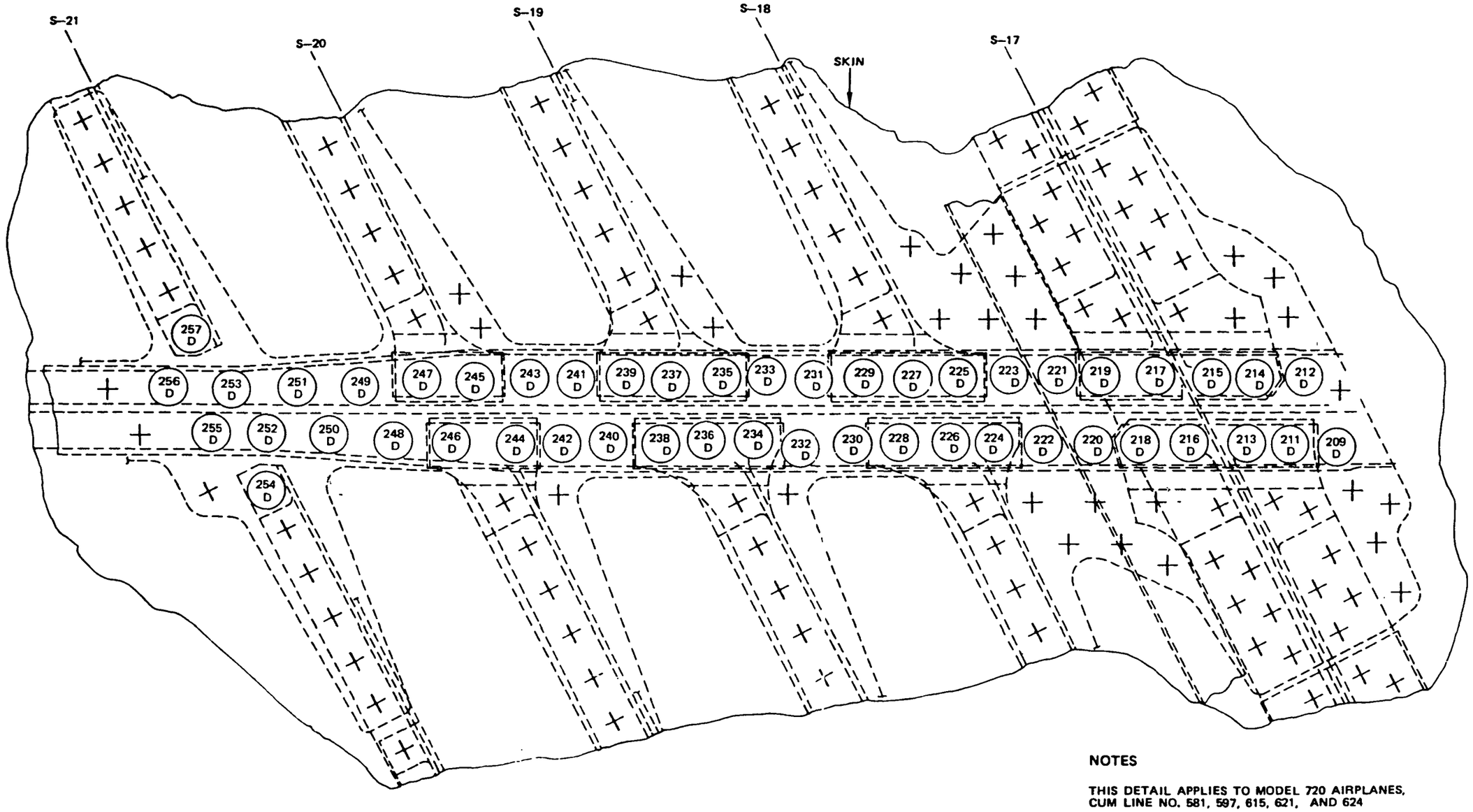
NOTES

THIS DETAIL APPLIES TO MODEL 720 AIRPLANES, CUM LINE NO. 581,597, 615, 621 AND 624

INSPECTION LOCATIONS

DETAIL VII

Upper Wing Skin and Internal Doubler at WBL 129.62 Forward of Beavertail
Figure 32 (Sheet 12)



NOTES

THIS DETAIL APPLIES TO MODEL 720 AIRPLANES, CUM LINE NO. 581, 597, 615, 621, AND 624

INSPECTION LOCATIONS

DETAIL VIII

Upper Wing Skin and Internal Doubler
at WBL 129.62 Forward of Beavertail
Figure 32 (Sheet 13)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks out of fastener holes at stringer inner horizontal flange splices common to upper WS 360 splice.

   B. To detect cracks in splice plate at stringers 19, 19A and 20, with leading edge glove installed.

   C. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Instrument - Refer to Part 6, 51-00-00, Fig. 4.

   B. Probes - Shielded right angle pencil probe per Part 1, 51-06-00, Fig. 1. Either of the following probes is acceptable:

      (1) P/N: P-905-50
      NDT Product Engineering
      P.O. Box 423
      Renton, WA 98057

      (2) P/N: VM 100AS
      VM Products
      7420 Park Avenue No. 20
      Tacoma, WA 98408

   C. Standards - Refer to Part 6, 51-00-00, Fig. 4.

3. Preparation for Inspection

   A. Gain access to inboard and outboard sides of WS 360 joint per operator's standard procedure.

Upper WS 360 Splice, Stringer-to-Inner
Horizontal Flange of Rib Chord
Figure 33 (Sheet 1)

B. Purge fuel tanks to permit tank entry with eddy current test equipment.

C. Clean dirt, sealant, fuel, etc. from inspection areas.

4. Instrument Calibration

A. Refer to Part 6, 51-00-00, Fig. 4.

5. Inspection Procedure

NOTE: Stringers S-13 thru S-16 are fuel vent stringers and are not a part of this inspection.

A. Inspect stringer inner horizontal flange.

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

(1) Scan pencil probe around end of each designated inner splice fastener. See Details I, II, and III.

NOTE: At some locations, fastener positions may prevent a 360-degree scan around fastener. When this occurs, scan around fastener to the extent possible. Then scan in radius or along stringer leg adjacent to the fastener.

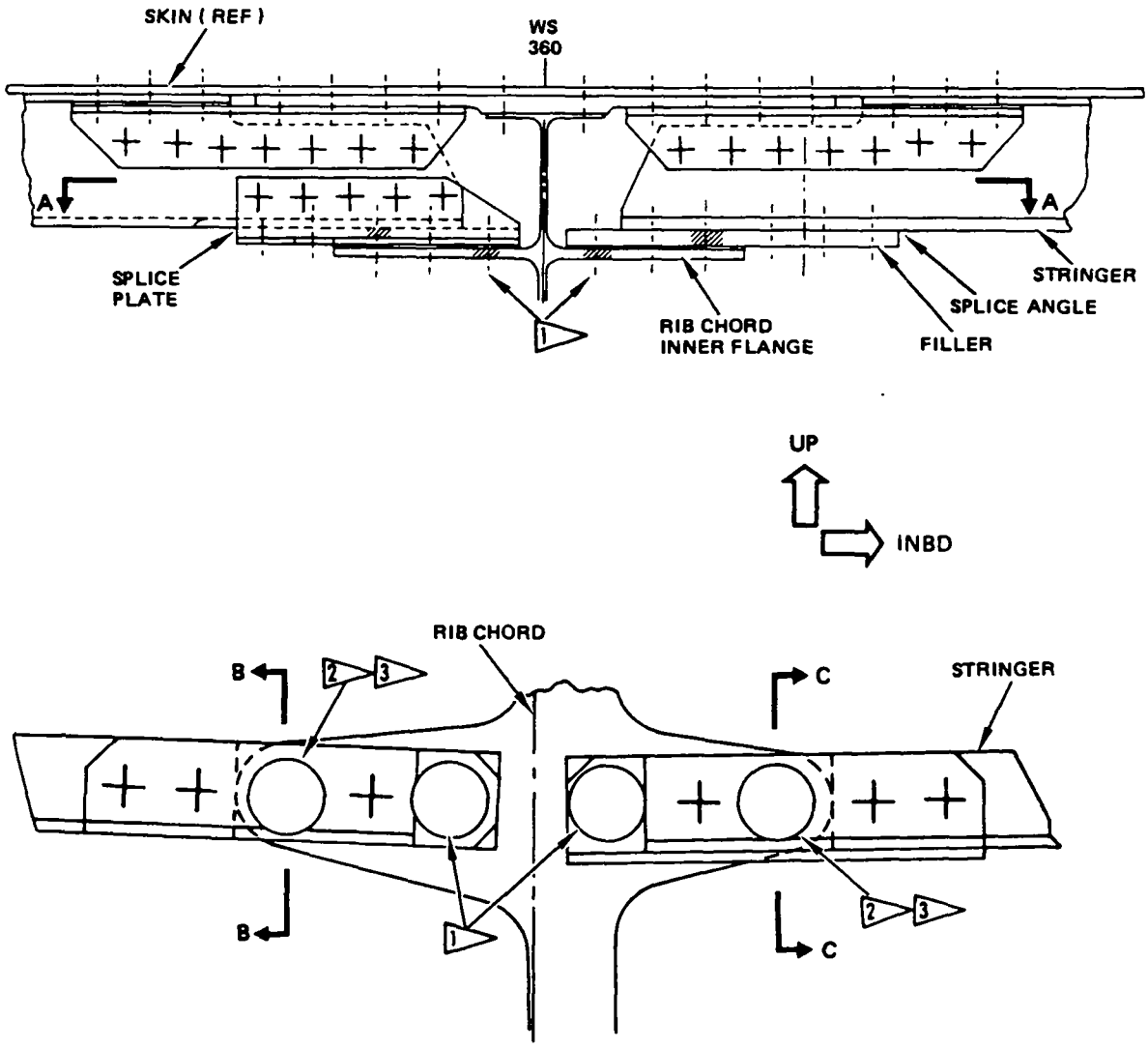
(2) Scan pencil probe along fore and aft edges of splice plates, tees, or angles. See Details I, II, and III.

(3) Scan pencil probe along accessible fore and aft edges of any fillers with a thickness of 0.12-inch or more . See Details I, II, and III.

B. Inspect splice plate at stringers 19, 19A and 20, on airplanes with leading edge gloves.

(1) Scan pencil probe on splice plate along fwd and aft edges of stringer. See Detail IV.

Upper WS 360 Splice, Stringer-to-Inner
Horizontal Flange of Rib Chord
Figure 33 (Sheet 2)

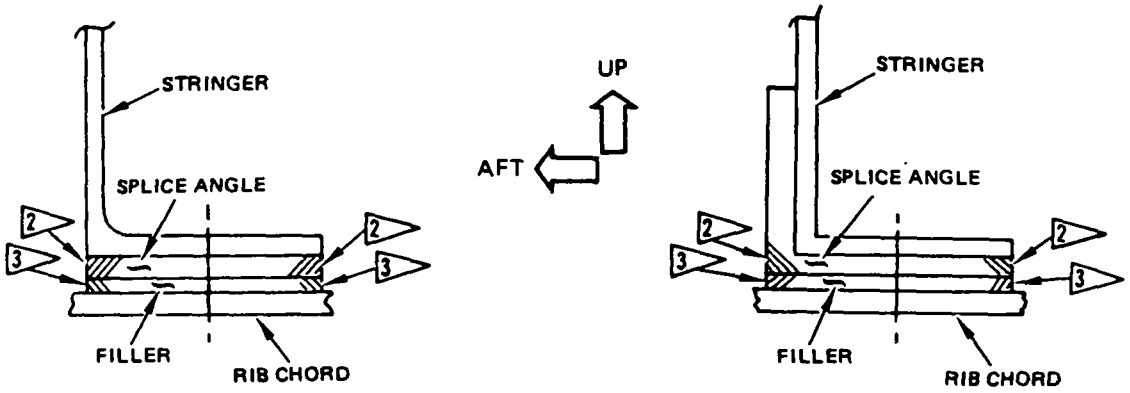


SECTION A–A

INNER RIB CHORD HORIZONTAL FLANGE SPLICE AT
UPPER WS 360, TYPICAL FOR STRINGERS
S-1 THROUGH S-4, S-11, S-12, AND S-17 (INBOARD AND OUTBOARD)
AND STRINGERS S-18 THROUGH S-22 (INBOARD ONLY)

DETAIL I

Upper WS360 Splice, Stringer-to-Inner
Horizontal Flange of Rib Chord
Figure 33 (Sheet 3)



SECTION B–B

SECTION C–C

NOTES

FASTENERS TO BE INSPECTED

INSPECTION AREAS

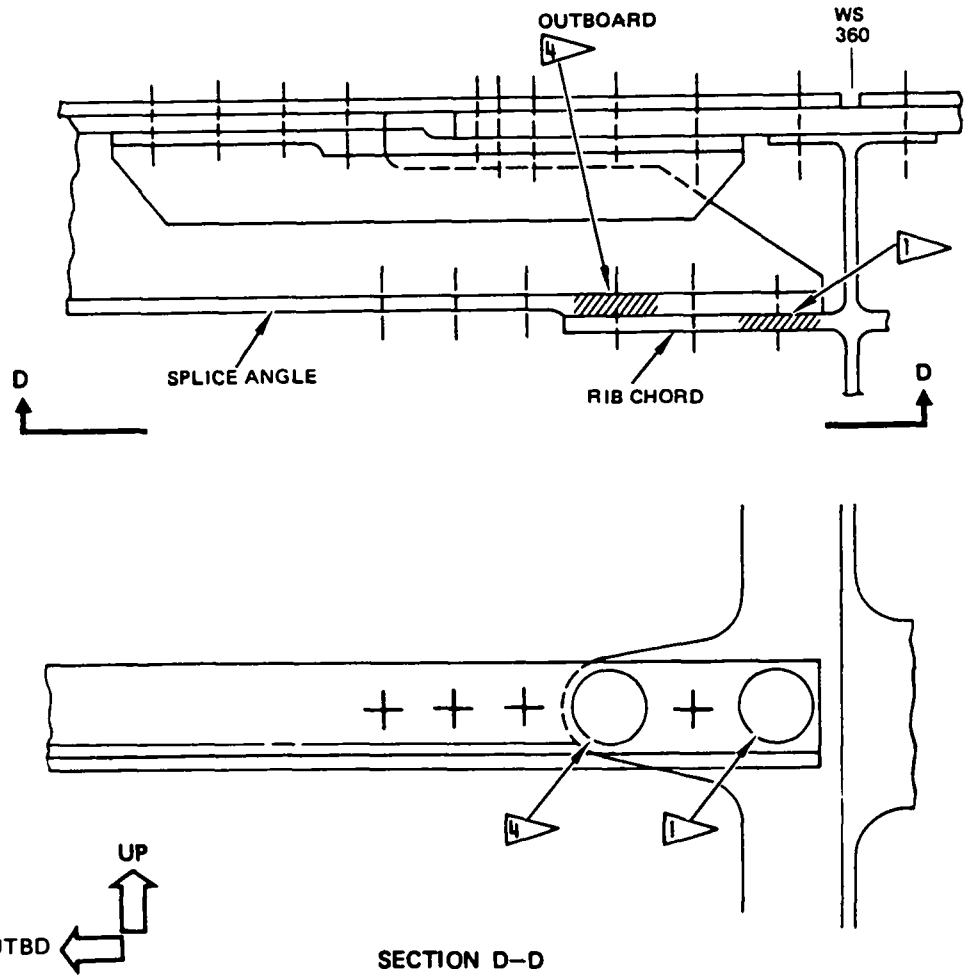
1 PLACE PENCIL PROBE ON RIB CHORD AND SCAN AROUND FASTENER END

2 PLACE PENCIL PROBE ON EDGES OF SPLICE PLATE OR ANGLE AND SCAN PAST FASTENER

3 PLACE PENCIL PROBE ON EDGES OF FILLER AND SCAN PAST FASTENER. INSPECT ONLY THOSE FILLERS THAT ARE 0.125 INCH THICK OR THICKER

DETAIL I (CONT)

Upper WS 360 Splice, Stringer-to-Inner
Horizontal Flange of Rib Chord
Figure 33 (Sheet 4)



SECTION D–D

NOTES

FASTENERS TO BE INSPECTED

INSPECTION AREA

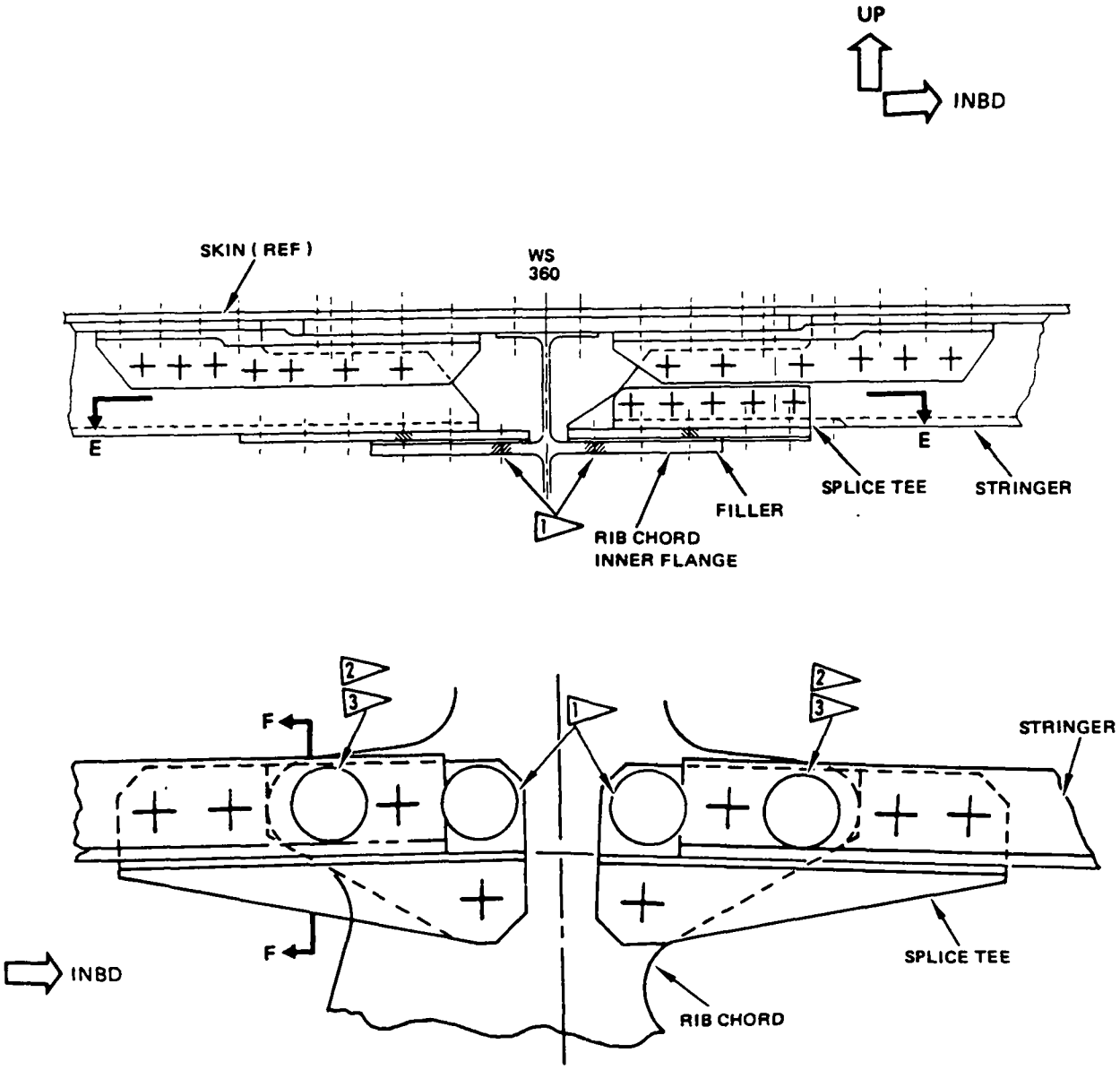
1 PLACE PENCIL PROBE ON RIB CHORD AND SCAN AROUND FASTENER END

4 PLACE PENCIL PROBE ON SPLICE ANGLE AND SCAN AROUND FASTENER.

INNER RIB CHORD HORIZONTAL FLANGE SPLICE AT UPPER WS 360, TYPICAL FOR STRINGERS S–18 THROUGH S–22, OUTBOARD OF WS 360

DETAIL II

Upper WS 360 Splice, Stringer-to-Inner Horizontal Flange Of Rib Chord
Figure 33 (Sheet 5)

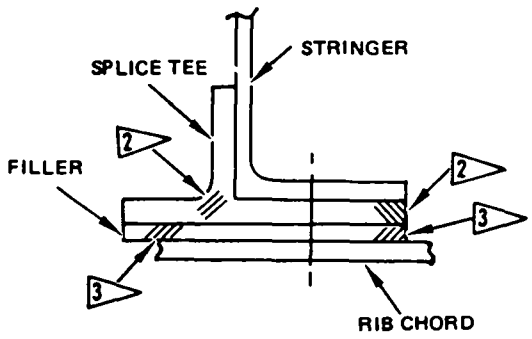


SECTION E-E

INNER RIB CHORD HORIZONTAL FLANGE SPLICE AT
UPPER WS 360 , TYPICAL FOR STRINGERS
S-5 THROUGH S-10

DETAIL III

Upper WS 360 Splice, Stinger-to-Inner
Horizontal Flange of Rib Chord
Figure 33 (Sheet 6)



SECTION F–F

NOTES

////// INSPECTION AREA

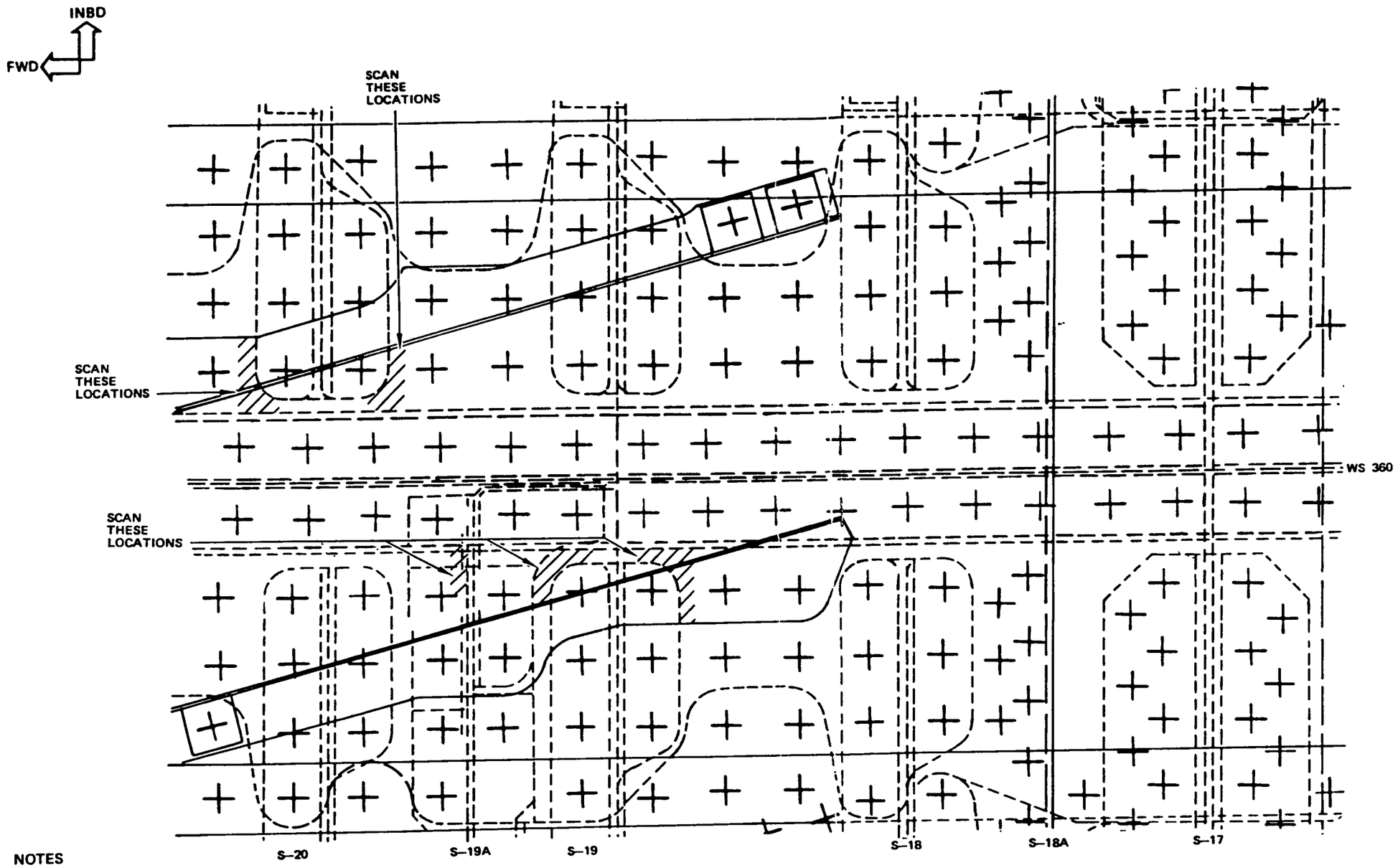
1 PLACE PENCIL PROBE ON RIB CHORD AND SCAN AROUND FASTENER END

2 PLACE PENCIL PROBE ON EDGES OF SPLICE TEE AND SCAN PAST FASTENER

3 PLACE PENCIL PROBE ON EDGES OF FILLER AND SCAN PAST FASTENER. INSPECT ONLY THOSE FILLERS THAT ARE 0.125 INCH THICK OR THICKER

INNER RIB CHORD HORIZONTAL FLANGE SPLICE AT UPPER WS 360, TYPICAL FOR STRINGERS S–5 THROUGH S–10
DETAIL III (CONT)

Upper WS 360 Splice, Stinger-to-Inner Horizontal Flange of Rib Chord
Figure 33 (Sheet 7)



NOTES
- LEFT WING SHOWN, RIGHT WING SIMILAR

//// INTERNALLY SCAN ALONG S-19, S-19A AND S-20 IN SHADED AREAS

INTERNAL INSPECTION FOR AIRPLANES WITH LEADING EDGE GLOVES
DETAIL IV

EFFECTIVITY
MODEL: 707-300/400, -300B,-300C, THRU CUM LINE NO. 671
SSI DOCUMENT (D6-44860)
REFERENCE: SSD 57-A25-11, SSD 57-A35-11, SSD 57-A45-11

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks out of fastener holes at stringer inner horizontal flange splices common to the upper WS 360 splice.

   B. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Instrument - Refer to Part 6, 51-00-00, Fig. 4.

   B. Probes - Shielded right angle pencil probe per Part 1, 51-06-00, Fig. 1. Either of the following probes is acceptable:

      (1) P/N P-905-50, obtainable from:
      NDT Product Engineering
      P.O. Box 423
      Renton, WA 98057

      (2) P/N VM 100AS, obtainable from:
      VM Products
      7420 Park Avenue No. 20
      Tacoma, WA 98408

   C. Standards - Refer to Part 6, 51-00-00, Fig. 4.

Upper WS 360 Splice, Stringer-to-Inner
Horizontal Flange of Rib Chord
Figure 34 (Sheet 1)

3. Preparation for Inspection

   A. Gain access to inboard and outboard sides of WS 360 joint per operator's standard procedure.

   B. Purge fuel tanks to permit tank entry with eddy current test equipment.

   C. Clean dirt, sealant, fuel, etc. from inspection areas.

4. Instrument Calibration

   A. Refer to Part 6, 51-00-00, Fig. 4.

5. Inspection Procedure

   WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

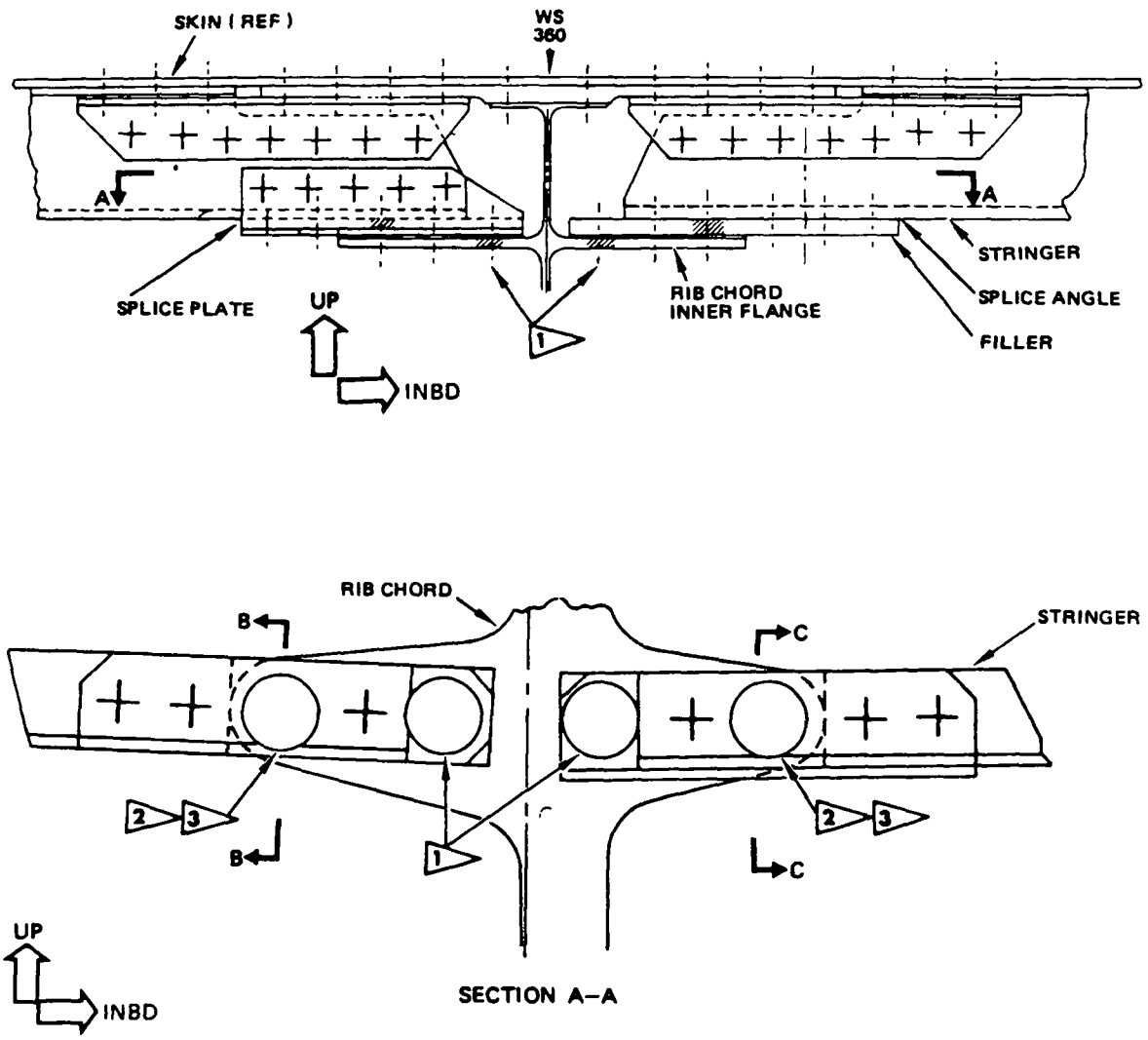
   NOTE: Stringers S-5, S-6, S-15, and S-16 are fuel vent stringers and are not a part of this inspection.

   A. Scan the pencil probe around end of each designated inner splice fastener. See Details I and II.

   B. Scan the pencil probe along the fore and aft edges of splice plates, tees, or angles. See Details I and II.

   C. Scan the pencil probe along the accessible fore and aft edges of fillers that have a thickness of 0.125-inch or more. See Details I and II.

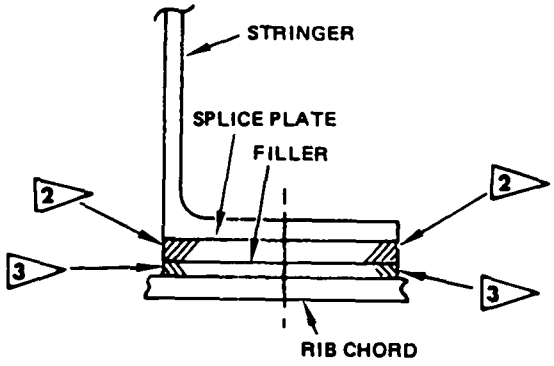
Upper WS 360 Splice, Stringer-to-Inner
Horizontal Flange of Rib Chord
Figure 34 (Sheet 2)

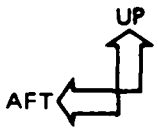


INNER RIB CHORD HORIZONTAL FLANGE SPLICE AT UPPER WS 360, TYPICAL OR SIMILAR FOR STRINGERS S-1 THROUGH S-4, S,11, S-12, S-17, THROUGH S-19 (INBOARD AND OUTBOARD OF WS 360) , S-20 THROUGH S-22 (INBOARD), AND S-20 THROUGH S-22 (OUTBOARD) THAT HAVE THE CONFIGURATION SHOWN IN SECTION B–B

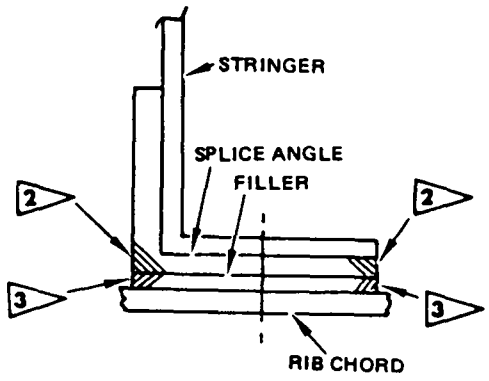
DETAIL I

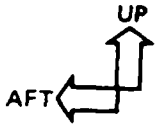
Upper WS 360 Splice, Stringer-to-Inner
Horizontal Flange of Rib Chord
Figure 34 (Sheet 3)





SECTION B–B





SECTION C–C

NOTES:

INSPECTION AREAS

FASTENERS TO BE INSPECTED

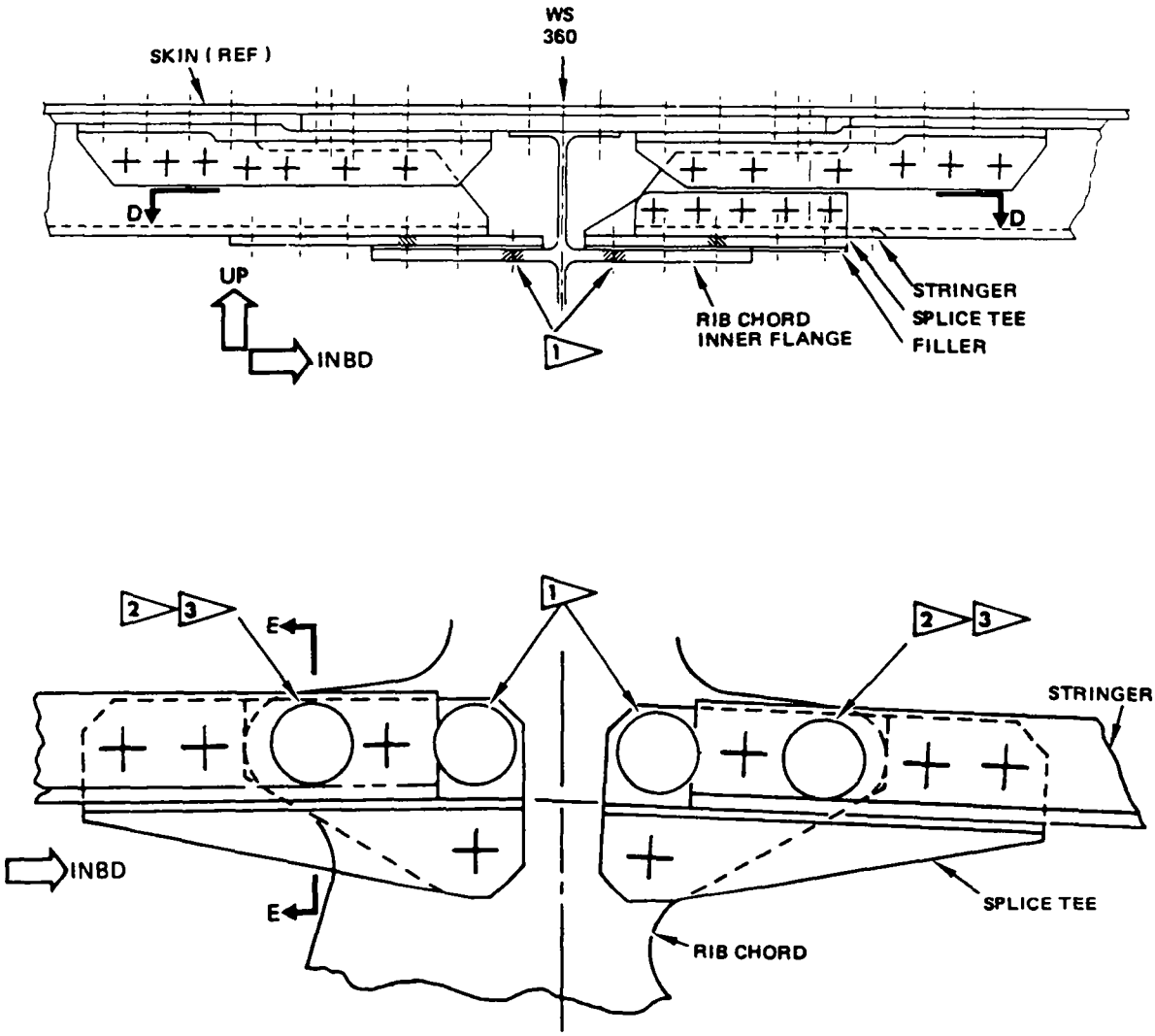
1 PLACE PENCIL PROBE ON RIB CHORD AND SCAN AROUND FASTENER END

2 PLACE PENCIL PROBE ON EDGES OF SPLICE PLATE OR ANGLE AND SCAN PAST FASTENER

3 PLACE PENCIL PROBE ON EDGES OF FILLER AND SCAN PAST FASTENER. INSPECT ONLY THOSE FILLERS THAT ARE 0.125–INCH THICK OR THICKER.

DETAIL 1 (CONT)

Upper WS 360 Splice, Stringer-to-Inner Horizontal Flange of Rib Chord
Figure 34 (Sheet 4)

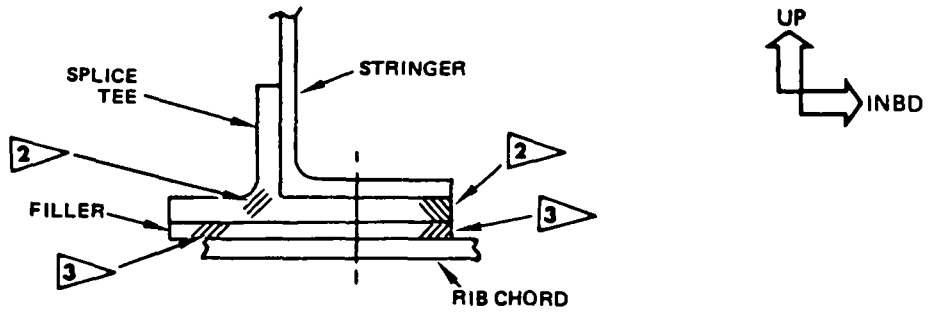


SECTION D–D

INNER RIB CHORD HORIZONTAL FLANGE SPLICE AT UPPER WS 360, TYPICAL OR SIMILAR FOR STRINGERS S-7 THRU S-10, S-13, S-14 (INBOARD AND OUTBOARD OF WS 360) , AND S-20 THROUGH S-22 (OUTBOARD) THAT HAVE THE CONFIGURATION SHOWN IN SECTION E–E

DETAIL II

Upper WS 360 Splice, Stringer-to-Inner Horizontal Flange of Rib Chord
Figure 34 (Sheet 5)



SECTION E–E

NOTES

INSPECTION AREAS

FASTENERS TO BE INSPECTED

1 PLACE PENCIL PROBE ON RIB CHORD AND SCAN AROUND FASTENER END

2 PLACE PENCIL PROBE ON EDGES OF SPLICE TEE AND SCAN PAST FASTENER

3 PLACE PENCIL PROBE ON EDGES OF FILLER AND SCAN PAST FASTENER. INSPECT ONLY THOSE FILLERS THAT ARE 0.125 – INCH THICK OR THICKER.

DETAIL II (CONT)

Upper WS 360 Splice, Stringer-to-Inner
Horizontal Flange of Rib Chord
Figure 34 (Sheet 6)

EFFECTIVITY
MODEL: 720 CUM LINE NO. 581, 597, 615, 621, and 624 SSI DOCUMENT (D6-44860) REFERENCE: SSD 57-A00-06

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks in the upper WS 360 splice plate and at the rib chord inner horizontal flange-to-stringer splice.

   B. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during the development of this procedure:

      (1) ED 520, obtainable from:
      Magnaflux Corporation
      6800 E. Washington Blvd.
      Los Angeles, CA 90047
      or
      7300 W. Lawrence Ave.
      Chicago, IL 60656

Upper WS 360 Splice-Joint
Figure 35 (Sheet 1)

B. Probes - Shielded straight and shielded right angle pencil probes per Part 1, 51-06-00, Fig. 1. The following probes are acceptable:

(1) P/N P-50 (straight probe)
P/N P-950-50 (angle probe), both obtainable from:
NDT Product Engineering
P.O. Box 423
Renton, WA 98055

(2) P/N VM100PS (straight probe)
P/N VM100AS (angle probe), both obtainable from:
VM Products
7420 Park Avenue No. 20
Tacoma, WA 98408

C. Standards - Reference standard per Part 6, 51-00-00, Fig. 4.

3. Preparation for Inspection

A. Internal Inspection

(1) Drain and purge applicable fuel tanks on both sides of WS 360 splice to permit tank entry with an eddy current instrument.

(2) Remove sealant that interferes with the performance of this inspection.

(3) Wipe inspection surfaces clean.

4. Instrument Calibration

A. Refer to Part 6, 51-00-00, Fig. 4.

5. Inspection Procedure

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

NOTE: Stringers S-13 thru S-16 are fuel vent stringers and are not a part of this inspection.

A. Scan the pencil probe around end of each designated inner splice fastener. Details I and II.

NOTE: At some locations, fastener positions may prevent a 360-degree scan around the fastener. When this occurs, scan around the fastener to the extent possible. Then scan in the radius or along the stringer leg adjacent to the fastener.

Upper WS 360 Splice-Joint
Figure 35 (Sheet 2)

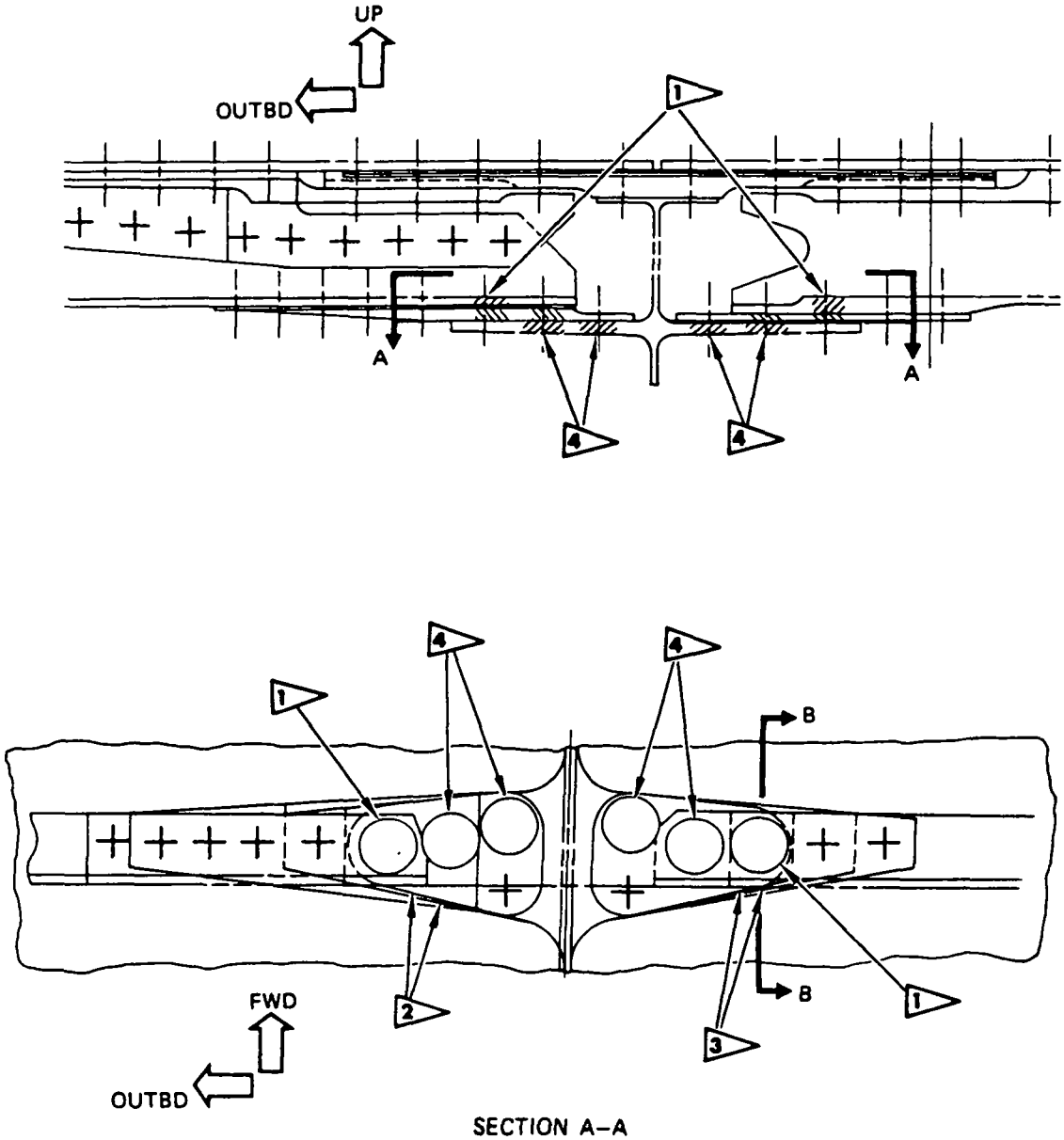
B. Scan the pencil probe along the accessible fore and aft edges of the splice plates, tees, or angles. See Details I and II.

C. Scan the pencil probe along the accessible fore and aft edges of any structural shims that are 0.125 inch thick or thicker. See Details I and II.

NOTE: Structural shims are optional and may be installed between the splice plate and the rib chord. Inspect only shims that are 0.125 inch thick or thicker.

D. Inspect splice plate adjacent to stringer S-19 outboard of WS 360 and adjacent to stringer S-20 inboard of WS 360 by scanning along the fore and aft sides of the stringers adjacent to the end fasteners. See Detail III for inspection locations and probe positions.

Upper WS 360 Splice-Joint
Figure 35 (Sheet 2A)

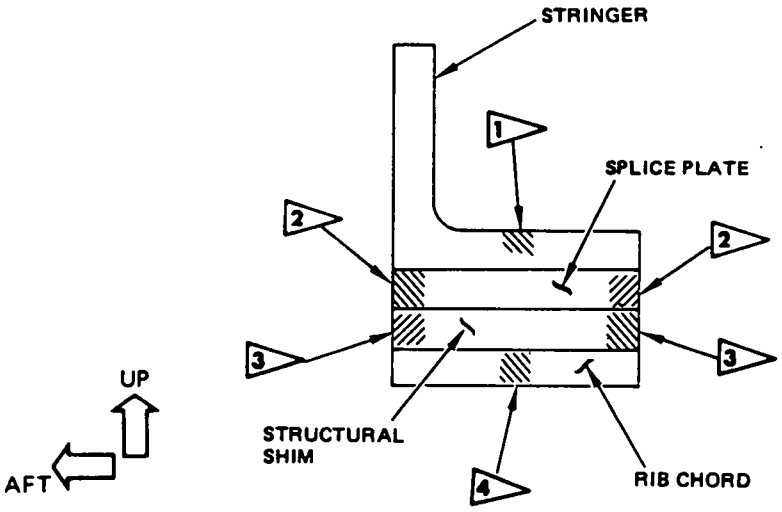


SECTION A–A

INNER RIB CHORD HORIZONTAL FLANGE SPLICE AT
UPPER WS 360, TYPICAL OR SIMILAR FOR
STRINGERS S-1 THROUGH S-12 AND S-17 THROUGH S-19
(INBOARD AND OUTBOARD OF WS 360), AND
S-20 THROUGH S-22 (INBOARD ONLY)

DETAIL I

Upper WS 360 Splice Joint
Figure 35 (Sheet 3)



SECTION B–B

NOTES:

FASTENERS TO BE INSPECTED

INSPECTION AREAS

1 PLACE THE PENCIL PROBE ON THE STRINGER AND SCAN AROUND FASTENER END.

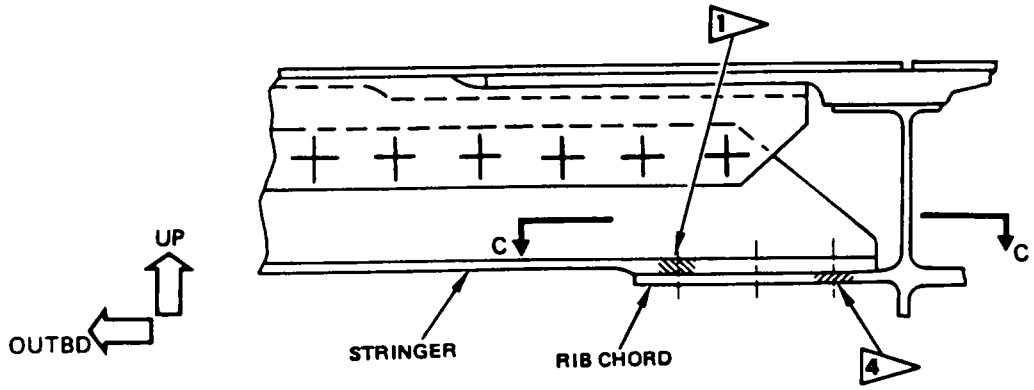
2 PLACE THE PENCIL PROBE ON THE ACCESSIBLE EDGES OF THE SPLICE PLATE AND SCAN ADJACENT TO THE FASTENERS

3 PLACE THE PENCIL PROBE ON THE ACCESSIBLE EDGES OF THE STRUCTURAL SHIM AND SCAN ADJACENT TO THE FASTENERS. INSPECT ONLY THOSE SHIMS THAT ARE 0.125 INCH THICK OR THICKER

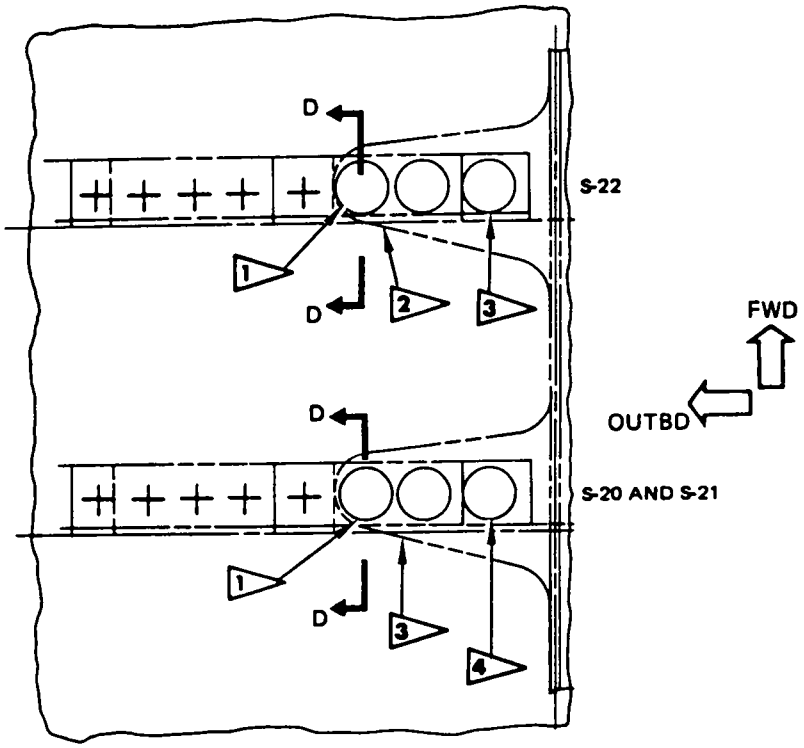
4 PLACE THE PENCIL PROBE ON THE RIB CHORD AND SCAN AROUND FASTENER ENDS.

DETAIL I (CONT)

Upper WS 360 Splice Joint
Figure 35 (Sheet 4)



CROSS SECTION STRINGERS S-20, S-21, AND S-22 (TYPICAL)

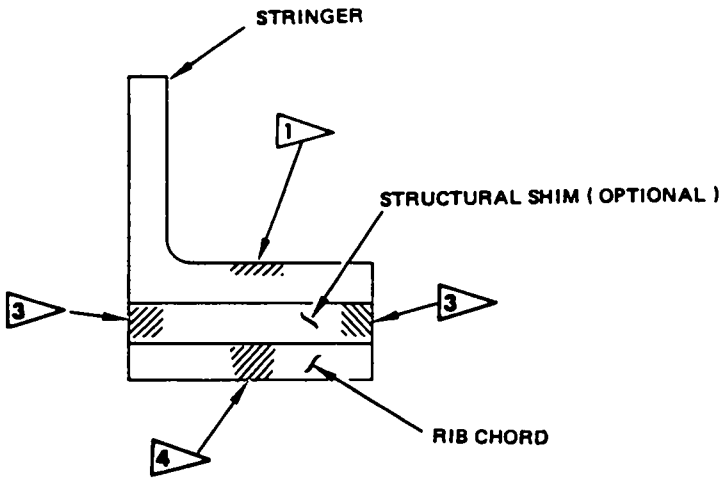


SECTION C–C

INNER RIB CHORD HORIZONTAL FLANGE SPLICE AT
UPPER WS 360, TYPICAL OR SIMILAR FOR
STRINGERS S-20 THROUGH S-22 (OUTBOARD OF WS 360)

DETAIL II

Upper WS 360 Splice Joint
Figure 35 (Sheet 5)



SECTION D–D
(TYPICAL)

NOTES

FASTENERS TO BE INSPECTED

INSPECTION AREAS

INSPECT ONLY THOSE SHIMS THAT ARE 0.125 INCH THICK OR THICKER.

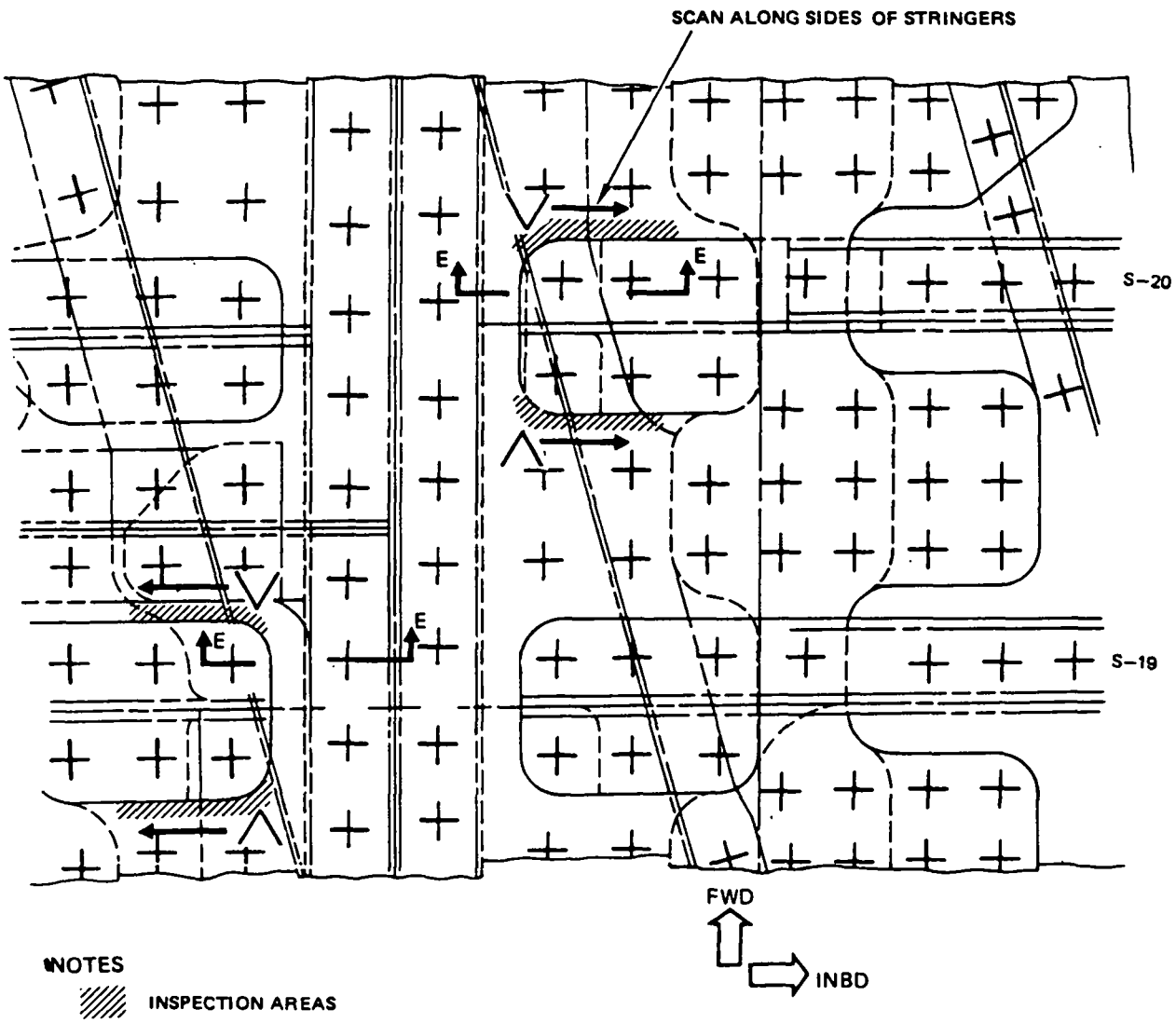
1 PLACE THE PENCIL PROBE ON STRINGER AND SCAN AROUND FASTENER END

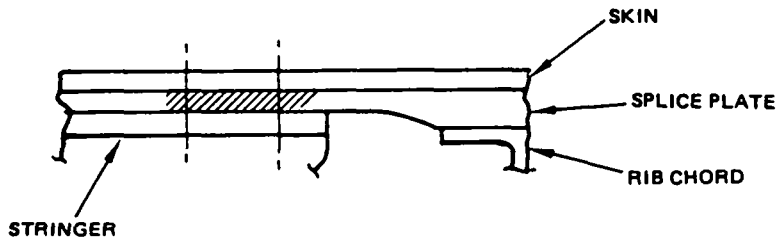
3 PLACE THE PENCIL PROBE ON THE ACCESSIBLE EDGES OF THE STRUCTURAL SHIM AND SCAN ADJACENT TO THE FASTENER

4 PLACE THE PENCIL PROBE ON RIB CHORD AND SCAN AROUND FASTENER END

DETAIL II (CONT)

Upper WS 360 Splice Joint
Figure 35 (Sheet 6)





SECTION E-E
(TYPICAL)

WS 360 UPPER SPLICE PLATE AT STRINGERS S-19 AND S-20
DETAIL III

Upper WS 360 Splice Joint
Figure 35 (Sheet 7)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks out of fastener holes at stringer inner horizontal flange splices common to the upper WS 360 splice.

   B. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Instrument - Refer to Part 6, 51-00-00, Fig. 4.

   B. Probes - Shielded right angle pencil probe per Part 1, 51-06-00, Fig. 1. Either of the following probes is acceptable:

      (1) P/N P-905-50, obtainable from:
      NDT Product Engineering
      P.O. Box 423
      Renton, WA 98057

      (2) P/N VM 100AS, obtainable from:
      VM Products
      7420 Park Avenue No. 20
      Tacoma, WA 98408

   C. Reference Standards - Refer to Part 6, 51-00-00, Fig. 4.

Upper WS 360 Splice, Stringer-to-Inner
Horizontal Flange of Rib Chord
Figure 36 (Sheet 1)

3. Preparation for Inspection

A. Gain access to inboard and outboard sides of WS 360 joint per operator's standard procedure.

B. Purge fuel tanks to permit tank entry with eddy current test equipment.

C. Clean dirt, sealant, fuel, etc. from inspection areas.

4. Instrument Calibration

A. Refer to Part 6, 51-00-00, Fig. 4.

5. Inspection Procedure

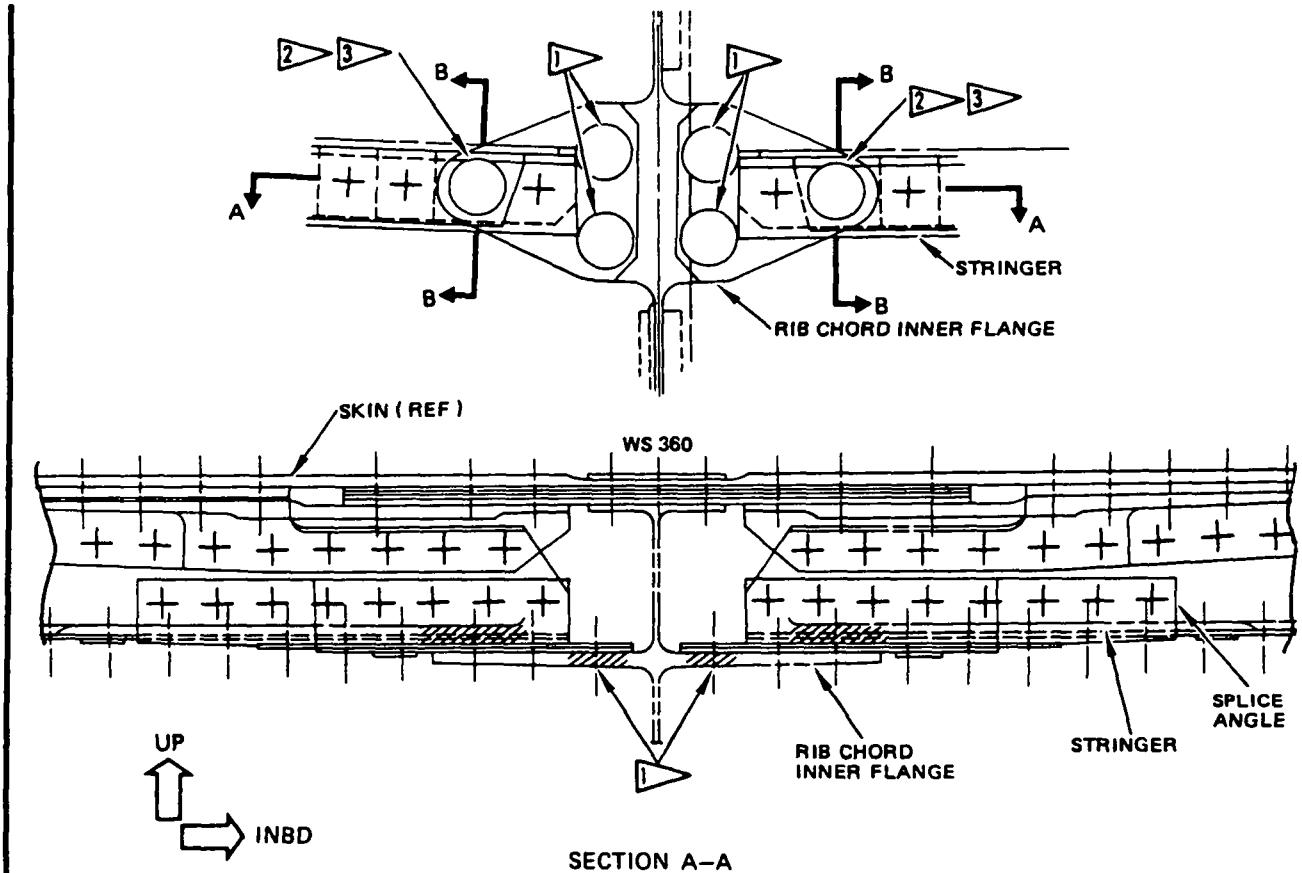
WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

A. Scan the pencil probe around end of each designated inner splice fastener. See Details I and II.

NOTE: At some locations, fastener positions may prevent a 360-degree scan around the fastener. When this occurs, scan around the fastener to the extent possible. The in scan in the radius or along the stringer leg adjacent to the fastener.

B. Scan the pencil probe along the fore and aft edges of splice plates, tees, or angles. See Details I and II.

Upper WS 360 Splice, Stringer-to-Inner
Horizontal Flange of Rib Chord
Figure 36 (Sheet 2)

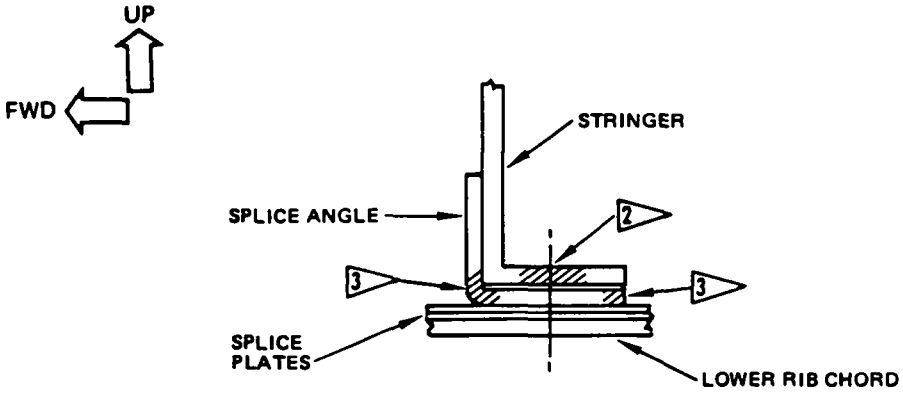


SECTION A–A

INNER RIB CHORD HORIZONTAL FLANGE SPLICE AT
UPPER WS 360, TYPICAL OR SIMILAR FOR
STRINGERS S-1 AND S-2

DETAIL I

Upper WS 360 Splice, Stringer-to-Inner
Horizontal Flange of Rib Chord
Figure 36 (Sheet 3)



SECTION B–B

NOTES

1. PLACE PENCIL PROBE ON RIB CHORD AND SCAN AROUND FASTENER END
2. PLACE PENCIL PROBE ON STRINGER AND SCAN AROUND FASTENER END
3. PLACE PENCIL PROBE ON ACCESSIBLE EDGES OF SPLICE ANGLE AND SCAN PAST FASTENER.

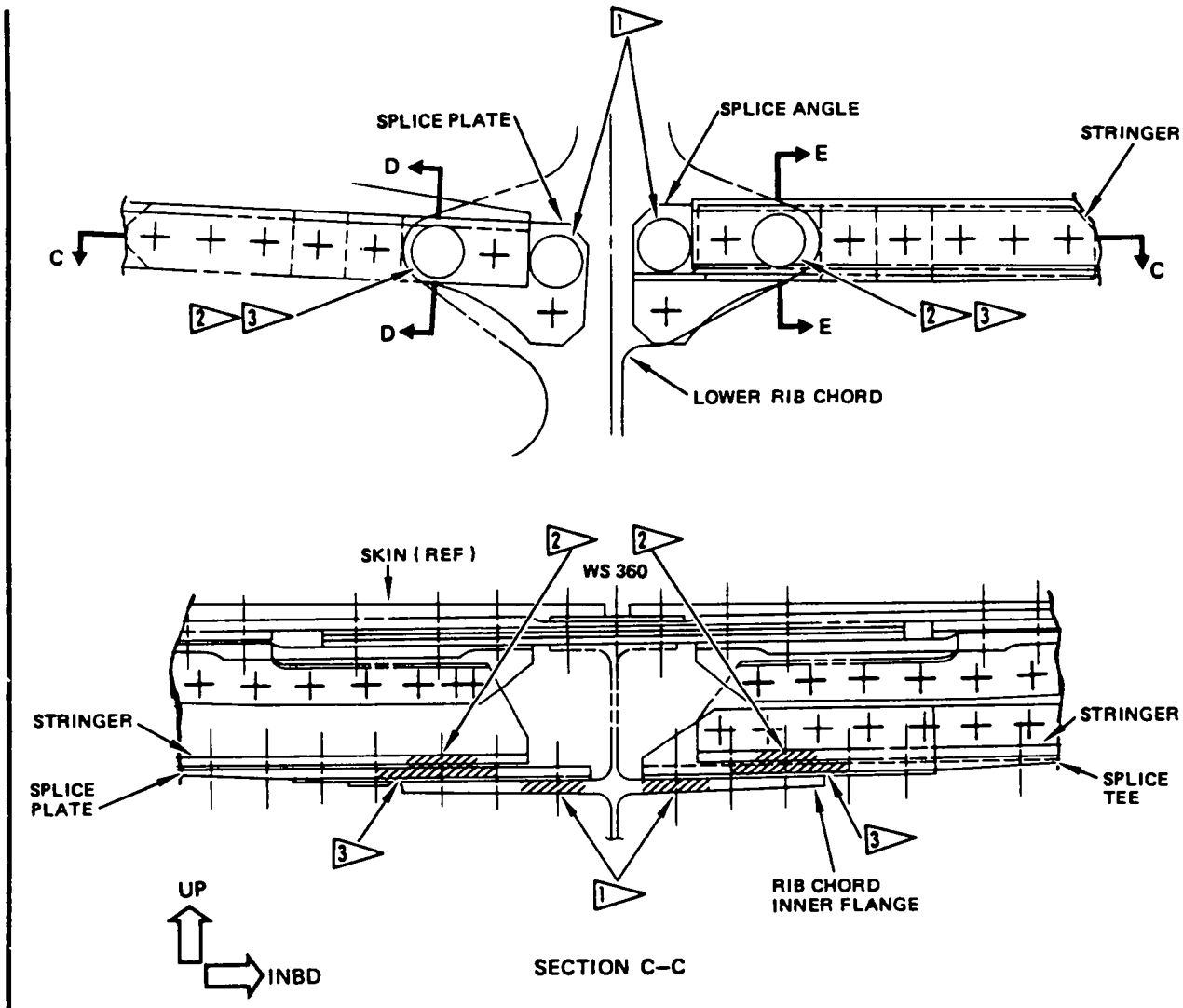
INSPECTION AREAS

FASTENERS TO BE INSPECTED

INNER RIB CHORD HORIZONTAL FLANGE SPLICE AT
UPPER WS 360, TYPICAL OR SIMILAR FOR
STRINGERS S-1 AND S-2

DETAIL I (CONT)

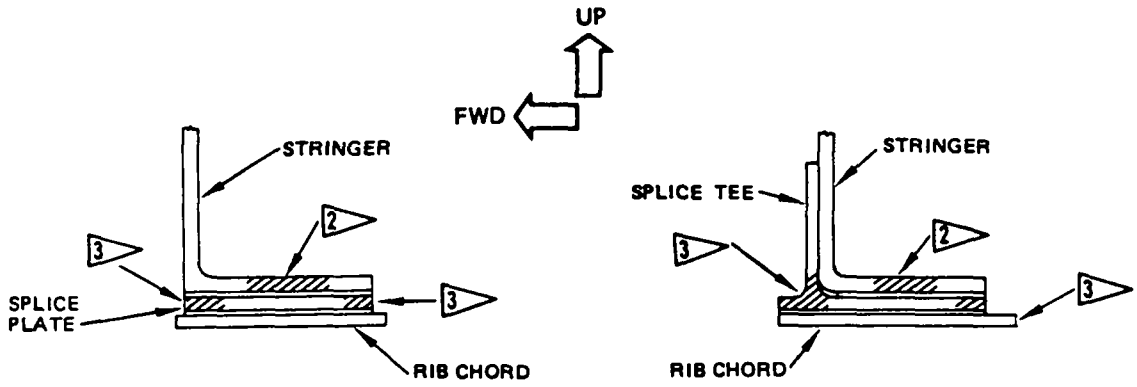
Upper WS 360 Splice, Stringer-to-Inner
Horizontal Flange of Rib Chord
Figure 36 (Sheet 4)



INNER RIB CHORD HORIZONTAL FLANGE SPLICE AT
UPPER WS 360 , TYPICAL OR SIMILAR FOR
STRINGERS S-3 THROUGH S-22

DETAIL II

Upper WS 360 Splice, Stringer-to-Inner
Horizontal Flange of Rib Chord
Figure 36 (Sheet 5)



NOTES

1. PLACE PENCIL PROBE ON RIB CHORD AND SCAN AROUND FASTENER END.
2. PLACE PENCIL PROBE ON STRINGER AND SCAN AROUND FASTENER END.
3. PLACE PENCIL PROBE ON ACCESSIBLE EDGES OF SPLICE PLATE OR TEE AND SCAN PAST FASTENER.

INSPECTION AREAS

FASTENERS TO BE INSPECTED

DETAIL II (CONT)

Upper WS 360 Splice, Stringer-to-Inner
Horizontal Flange of Rib Chord
Figure 36 (Sheet 6)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks at the upper WS 360 rib chord inner horizontal flange-to-stringer splice.

      NOTE: This procedure applies to the configuration after installation of retrofit kit (reference Model 720 Wing Modification Program Document D3-4235-3).

   B. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during the development of this procedure:

      (1) ED 520, obtainable from:
      Magnaflux Corporation
      6800 E. Washington Blvd.
      Los Angeles, CA 90047
      or
      7300 W. Lawrence Ave.
      Chicago, IL 60656

   B. Probes - Shielded straight and shielded right angle pencil probes per Part 1, 51-06-00, Fig. 1. The following probes are acceptable:

      (1) P/N P-50 (straight probe)
      P/N P-950-50 (angle probe), both obtainable from:
      NDT Product Engineering
      P.O. Box 423
      Renton, WA 98057

Upper WS 360 Splice, Stringer-to-Inner Horizontal Flange of Rib Chord (Retrofit Configuration)
Figure 37 (Sheet 1)

(2) P/N VM100PS (straight probe)
P/N VM100AS (angle probe), both obtainable from:
VM Products
7420 Park Avenue No. 20
Tacoma, WA 98408

C. Reference Standards - Refer to Part 6, 51-00-00, Fig. 4.

3. Preparation for Inspection

A. Internal Inspection

(1) Drain and purge applicable fuel tanks on both sides of WS 360 splice to permit tank entry with an eddy current instrument.

(2) Remove sealant that interferes with the performance of this inspection.

(3) Wipe inspection surfaces clean.

4. Instrument Calibration

A. Refer to Part 6, 51-00-00, Fig. 4.

5. Inspection Procedure

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

NOTE: Stringers S-13 thru S-16 are fuel vent stringers and are not a part of this inspection.

A. Scan the pencil probe around end of each designated inner splice fastener. See Details I, II, III, and IV.

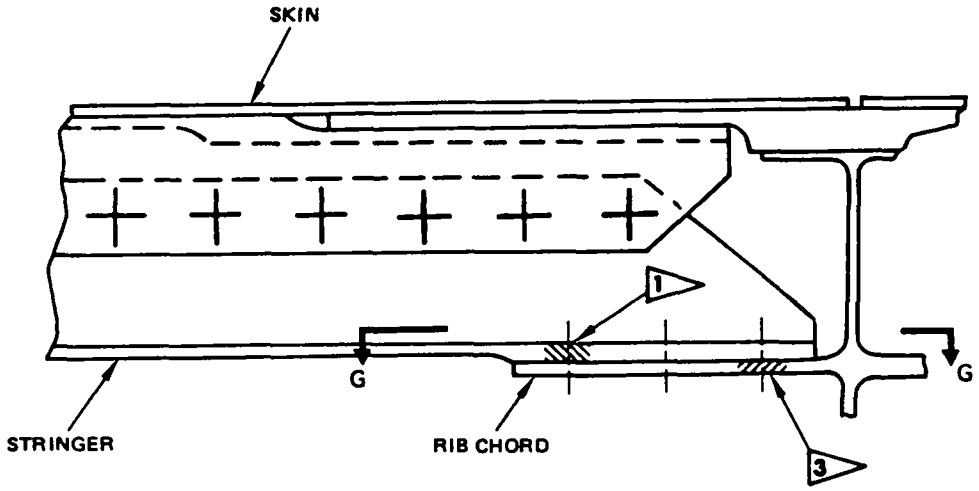
NOTE: At some locations, fastener positions may prevent a 360-degree scan around the fastener. When this occurs, scan around the fastener to the extent possible. Then scan in the radius or along the stringer leg adjacent to the fastener.

Upper WS 360 Splice, Stringer-to-Inner Horizontal Flange of Rib Chord (Retrofit Configuration)
Figure 37 (Sheet 2)

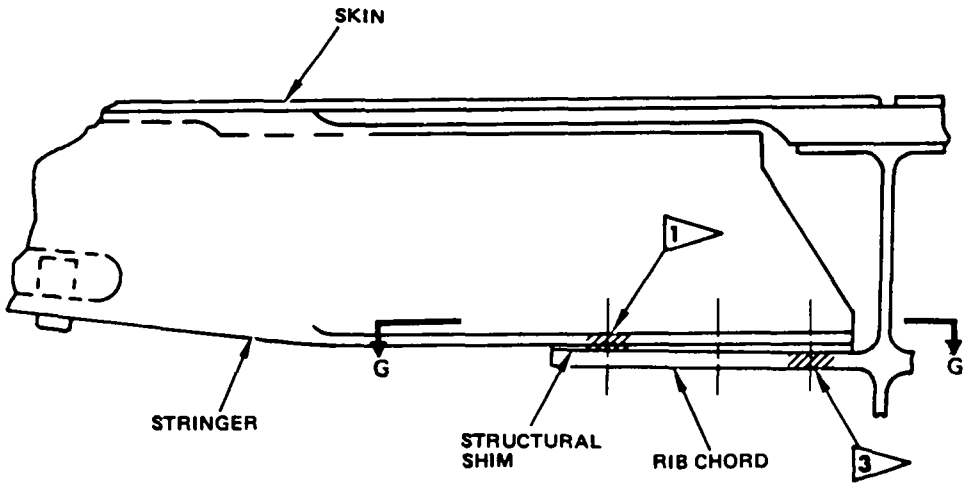
B. Scan the pencil probe along the accessible fore and aft edges of the splice plates, tees, or angles. See Details I, II, III, and IV.

C. Scan the pencil probe along the accessible fore and aft edges of any structural shims that are 0.125 inch thick or thicker. See Details I, II, III, and IV.

NOTE: Structural shims are optional and may be installed between the splice plate and the rib chord. Inspect only shims that are 0.125 inch thick or thicker.



TYPICAL AT STRINGERS S-20 AND S-21

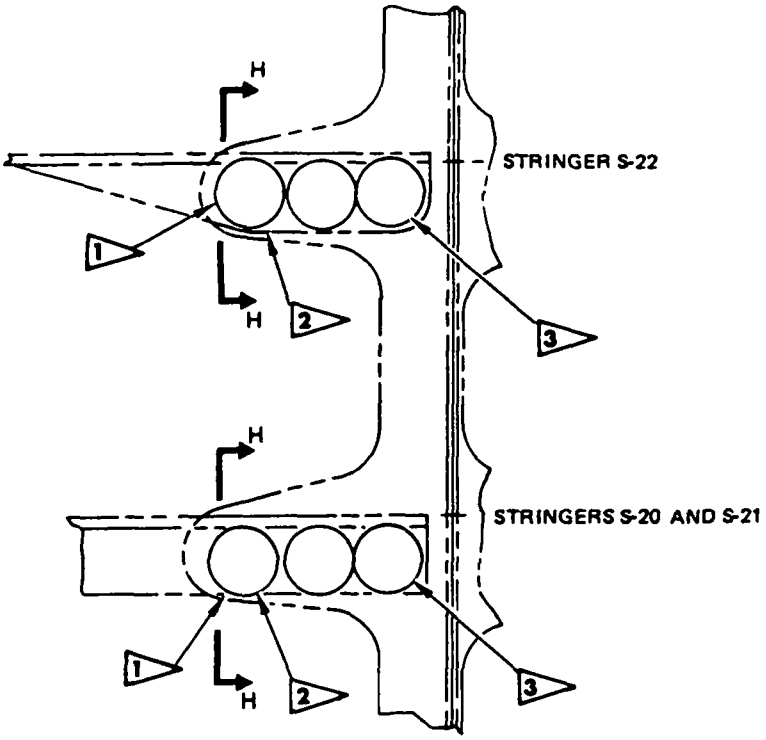


TYPICAL AT STRINGER S-22

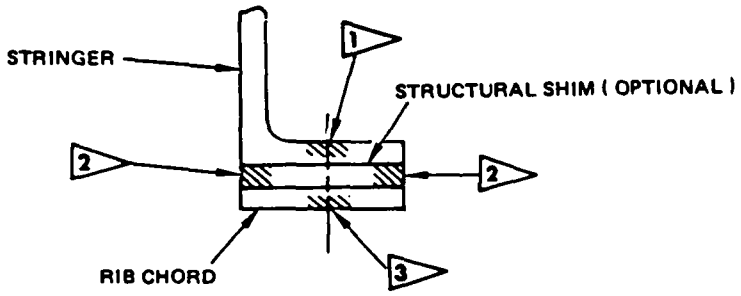
INNER RIB CHORD HORIZONTAL FLANGE SPLICE AT UPPER WS 360, STRINGERS S-20 THROUGH S-22 (OUTBOARD OF WS 360)

DETAIL IV

Upper WS 360 Splice, Stringer-to-Inner Horizontal Flange of Rib Chord (Retrofit Configuration)
Figure 37 (Sheet 3)



SECTION G–G



SECTION H–H

NOTES

INSPECTION AREAS

FASTENERS TO BE INSPECTED

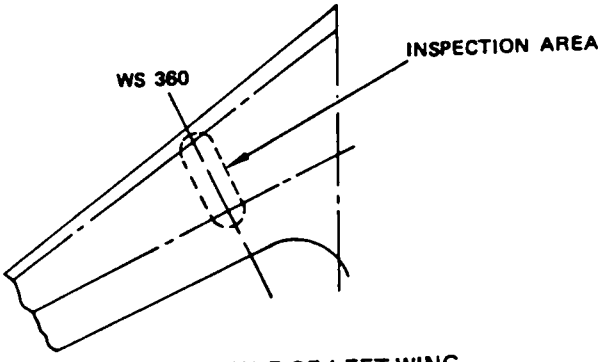
1 PLACE PENCIL PROBE ON STRINGER AND SCAN AROUND FASTENER END

2 PLACE PENCIL PROBE ON THE EDGE OF THE STRUCTURAL SHIM AND SCAN ADJACENT TO FASTENER. INSPECT ONLY THOSE SHIMS THAT ARE 0.125 INCH THICK OR THICKER.

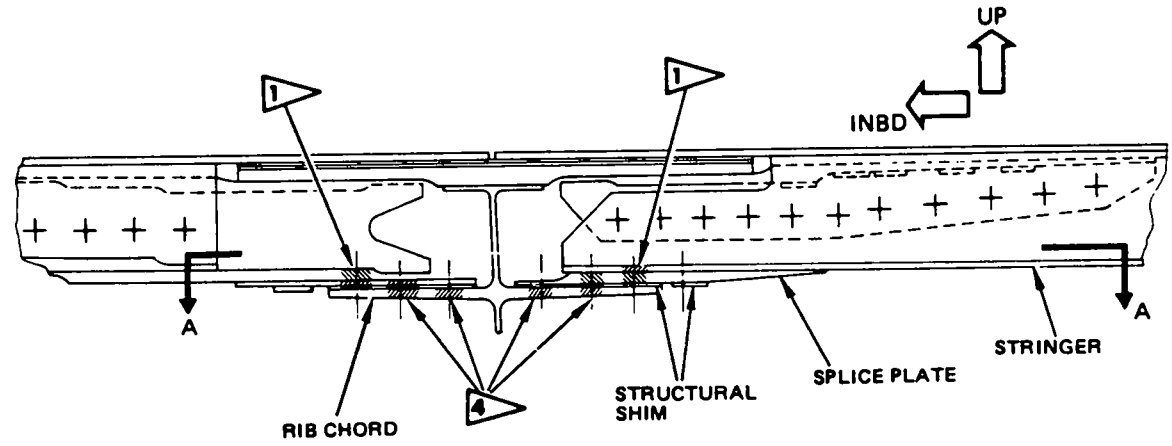
3 PLACE PENCIL PROBE ON RIB CHORD AND SCAN AROUND FASTENER END

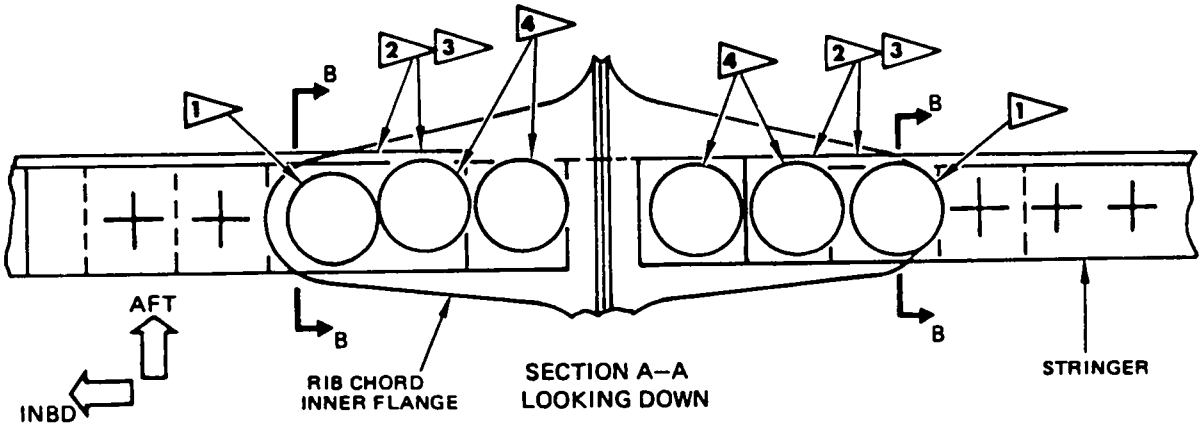
DETAIL IV (CONT)

Upper WS 360 Splice, Stringer-to-Inner Horizontal Flange of Rib Chord (Retrofit Configuration)
Figure 37 (Sheet 4)



VIEW ON UPPER SIDE OF LEFT WING

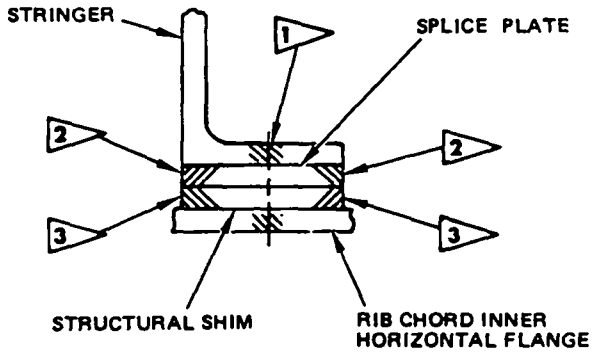




INNER RIB CHORD HORIZONTAL FLANGE SPLICE AT UPPER WS 360, TYPICAL OR SIMILAR FOR STRINGERS S-1 THROUGH S-4, S-11, AND S-12 (INBOARD AND OUTBOARD OF WS 360), AND S–18 THROUGH S–22 (INBOARD ONLY)

DETAIL I

Upper WS 360 Splice, Stringer-to-Inner Horizontal Flange of Rib Chord (Retrofit Configuration)
Figure 37 (Sheet 5)



SECTION B–B

NOTES

INSPECTION AREAS

FASTENERS TO BE INSPECTED

1 PLACE THE PENCIL PROBE ON THE STRINGER AND SCAN AROUND FASTENER END.

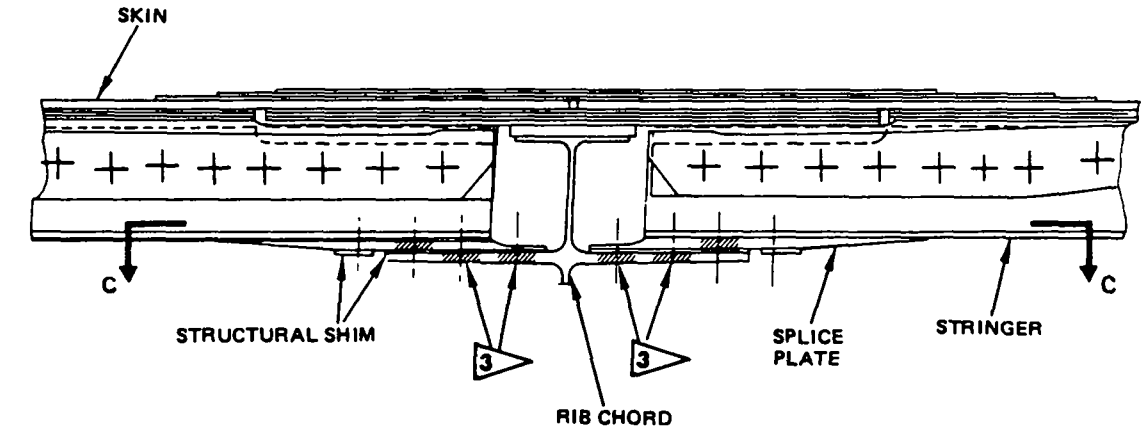
2 PLACE THE PENCIL PROBE ON THE EDGE OF THE SPLICE PLATE AND SCAN ADJACENT TO FASTENERS.

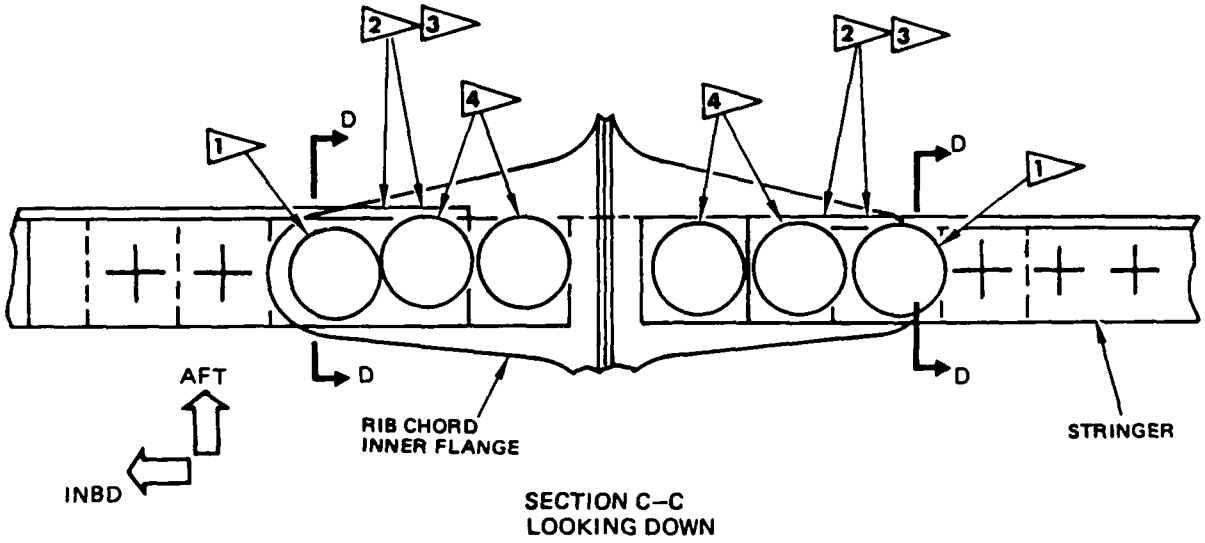
3 PLACE THE PENCIL PROBE ON THE EDGE OF THE STRUCTURAL SHIM AND SCAN ADJACENT TO FASTENERS. INSPECT ONLY THOSE SHIMS THAT ARE 0.125 – INCH THICK OR THICKER.

4 PLACE THE PENCIL PROBE ON RIB CHORD AND SCAN AROUND FASTENER ENDS.

DETAIL I (CONT)

Upper WS 360 Splice, Stringer-to-Inner Horizontal Flange of Rib Chord (Retrofit Configuration)
Figure 37 (Sheet 6)



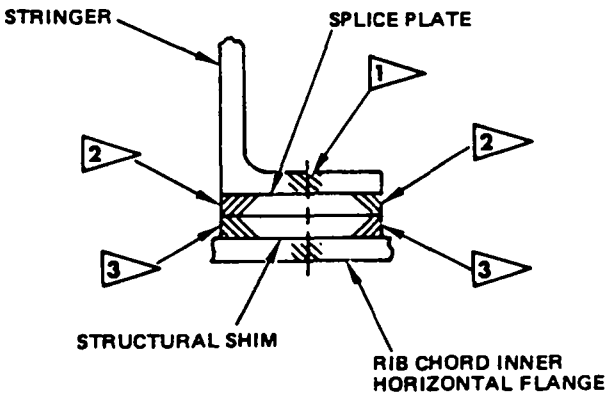


SECTION C–C
LOOKING DOWN

INNER RIB CHORD HORIZONTAL FLANGE SPLICE AT UPPER WS 360, STRINGER S-17

DETAIL II

Upper WS 360 Splice, Stringer-to-Inner Horizontal Flange of Rib Chord (Retrofit Configuration)
Figure 37 (Sheet 7)



SECTION D–D

NOTES

INSPECTION AREAS

FASTENERS TO BE INSPECTED

1 PLACE THE PENCIL PROBE ON THE STRINGER AND SCAN AROUND FASTENER END.

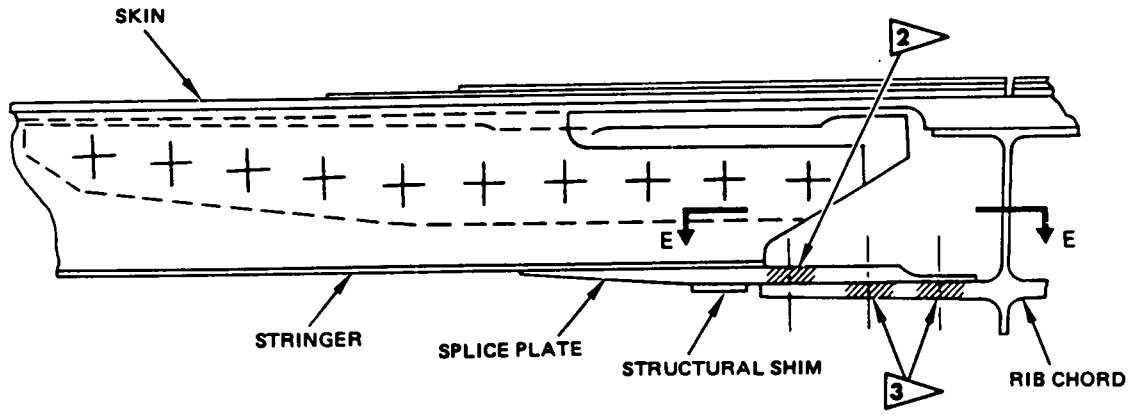
2 PLACE THE PENCIL PROBE ON THE EDGE OF THE SPLICE PLATE AND SCAN ADJACENT TO FASTENERS.

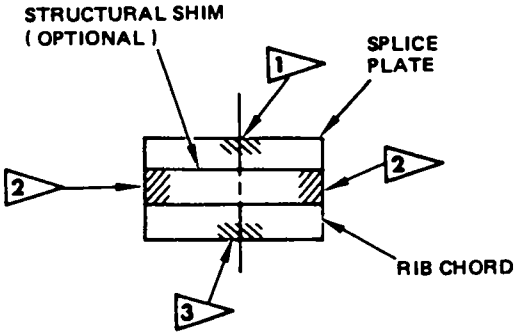
3 PLACE THE PENCIL PROBE ON THE EDGE OF THE STRUCTURAL SHIM AND SCAN ADJACENT TO FASTENERS. INSPECT ONLY THOSE SHIMS THAT ARE 0.125 – INCH THICK OR THICKER.

4 PLACE THE PENCIL PROBE ON RIB CHORD AND SCAN AROUND FASTENER ENDS.

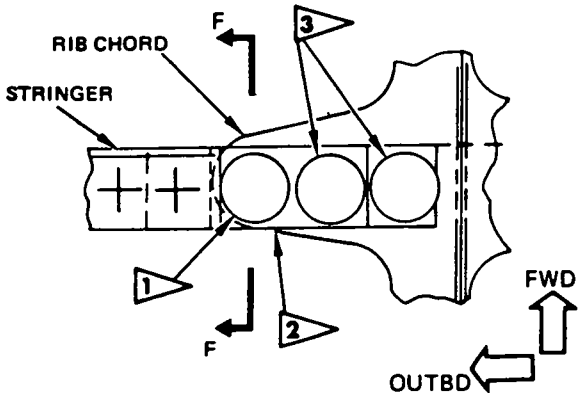
DETAIL II (CONT)

Upper WS 360 Splice, Stringer-to-Inner Horizontal Flange of Rib Chord (Retrofit Configuration)
Figure 37 (Sheet 8)





SECTION F–F



SECTION E–E

NOTES

INSPECTION AREAS

FASTENERS TO BE INSPECTED

1 PLACE PENCIL PROBE ON SPLICE PLATE AND SCAN AROUND FASTENER END

2 PLACE PENCIL PROBE ON THE EDGE OF THE STRUCTURAL SHIM AND SCAN ADJACENT TO FASTENER. INSPECT ONLY THOSE SHIMS THAT ARE 0.125 – INCH THICK OR THICKER.

3 PLACE PENCIL PROBE ON RIB CHORD AND SCAN AROUND FASTENER END

INNER RIB CHORD HORIZONTAL FLANGE SPLICE AT UPPER WS 360, STRINGERS S-18 AND S-19 (OUTBOARD OF WS 360)

DETAIL III

Upper WS 360 Splice, Stringer-to-Inner Horizontal Flange of Rib Chord (Retrofit Configuration)
Figure 37 (Sheet 9)

EFFECTIVITY
MODEL: 707-100,-200, -300/400,-300B, -300C
SSI DOCUMENT (D6-44860)
REFERENCE:
SSD 57-A15-11
SSD 57-A25-11
SSD 57-A35-11
SSD 57-A45-11

PART 6 - EDDY CURRENT

WINGS

1. Purpose

   A. To perform a surface eddy current inspection of upper WS 360 seal stop fasteners.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during the development of this procedure:

      ED-520
      Magnaflux Corp.
      6800 E. Washington Blvd
      Los Angeles, CA 90049

   B. Probes - Shielded straight pencil probe per Part 1, 51-06-00, Fig. 1.

      (1) NDT Product Eng.
      P.O. Box 423
      Renton, WA 98057
      P/N P-50

      (2) VM Products
      7420 Park Avenue No. 20
      Tacoma, WA 98408
      P/N VM100PS

   C. Reference Standard - Refer to Part 6, 51-00-00, Fig. 4.

Upper WS 360 Seal Stop Fasteners
Figure 38 (Sheet 1)

3. Preparation for Inspection

A. Wipe inspection surface clean.

4. Instrument Calibration

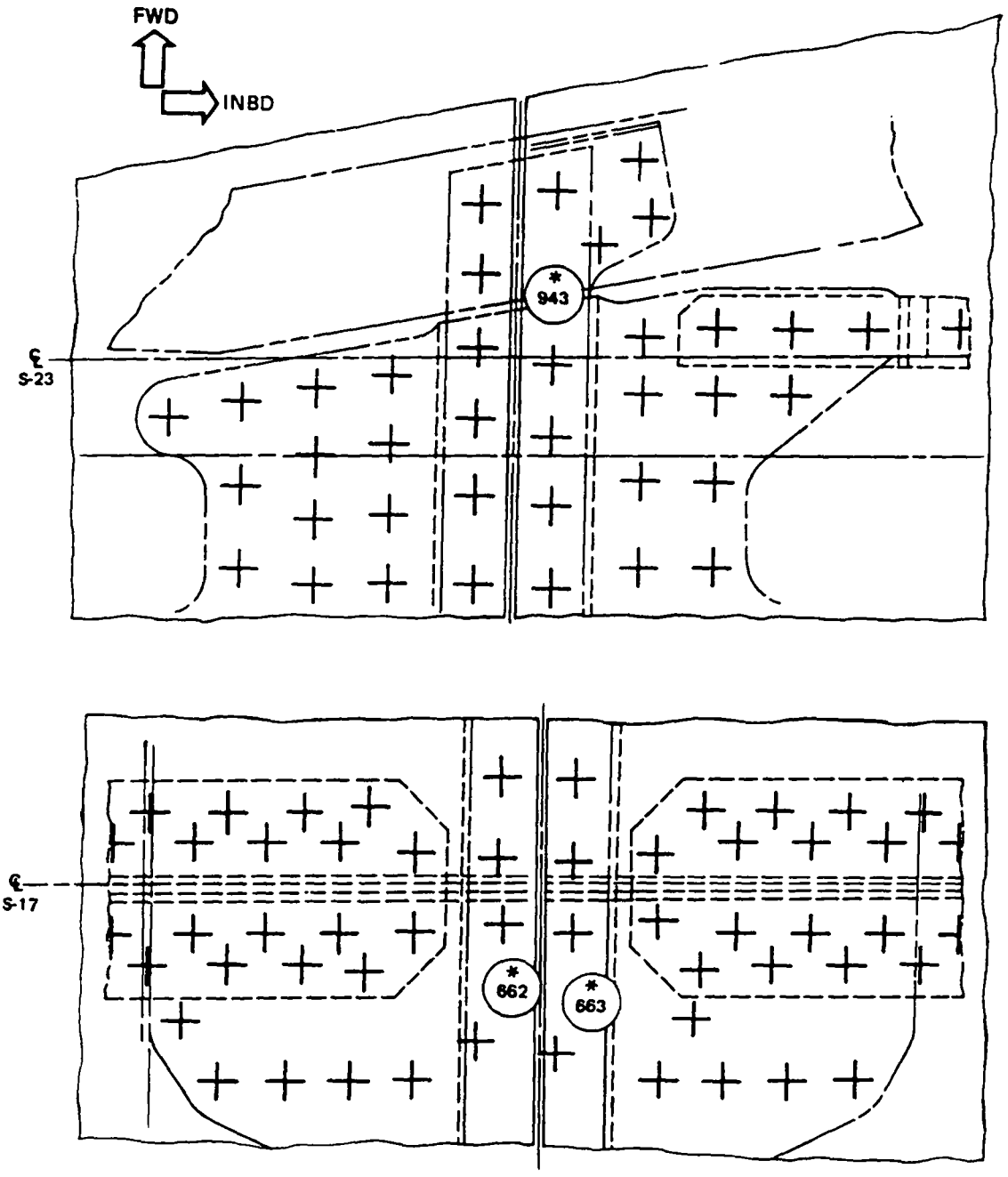
A. Calibrate per Part 6, 51-00-00, Fig.4.

5. Inspection Procedure

A. Inspect around heads of seal stop fasteners in accordance with Part 6, 51-00-00, Fig. 6.

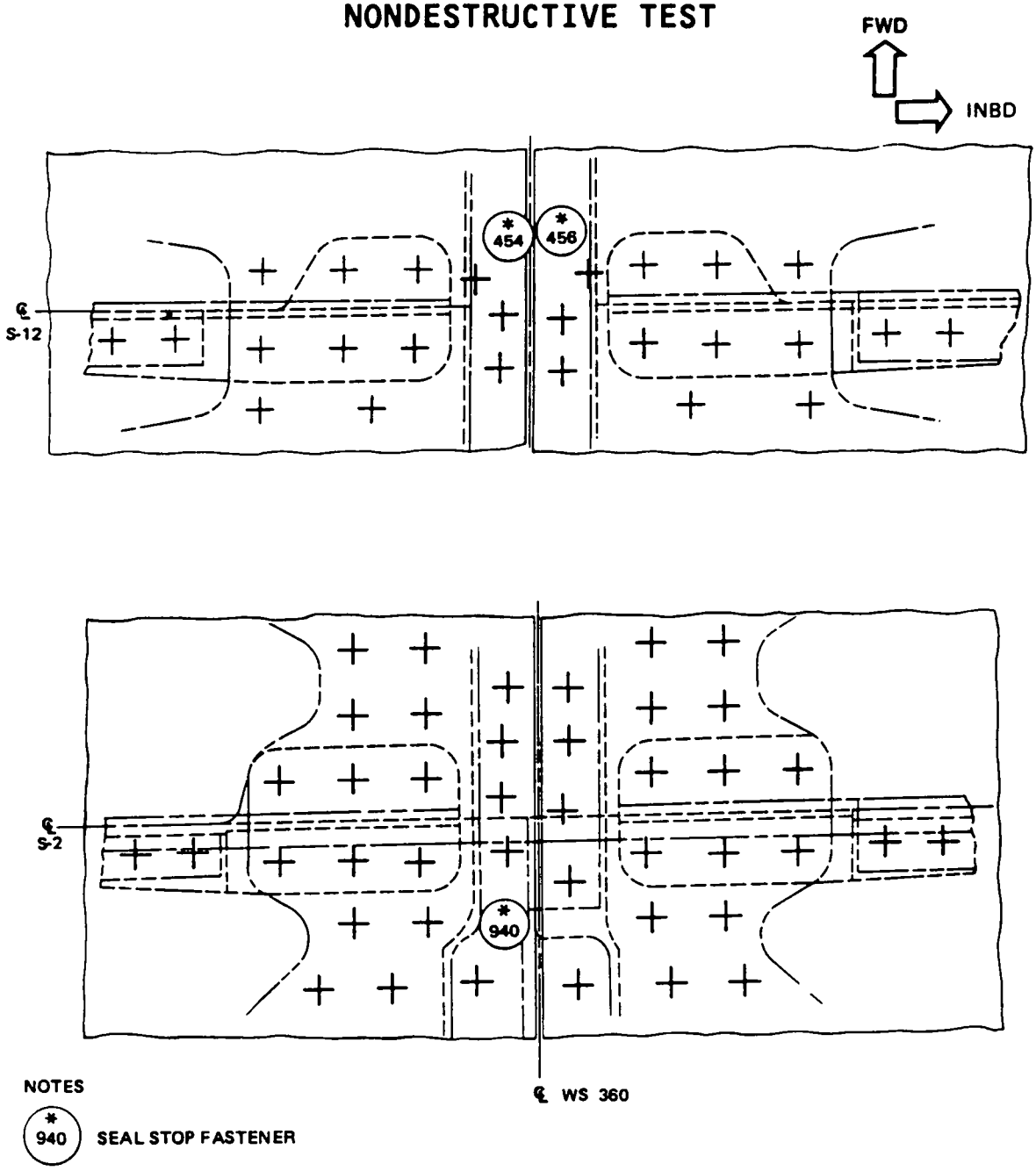
B. Inspect seal stop fasteners as shown in Details I and II.

Upper WS 360 Seal Stop Fasteners
Figure 38 (Sheet 2)



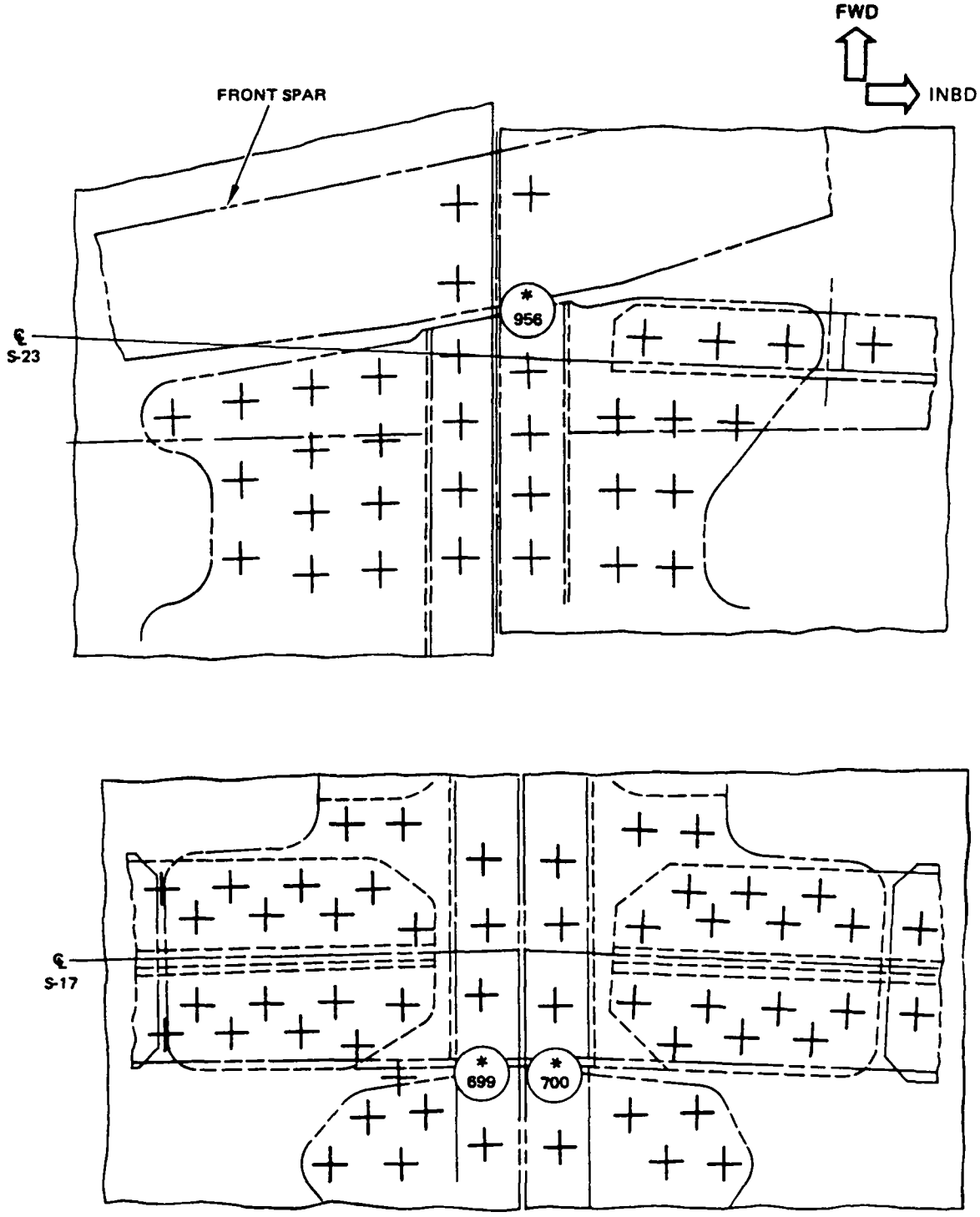
LEFT WING SHOWN, RIGHT WING SIMILAR
FOR 707-100/200
(TYPICAL)
DETAIL I

Upper WS 360 Seal Stop Fasteners
Figure 38 (Sheet 3)



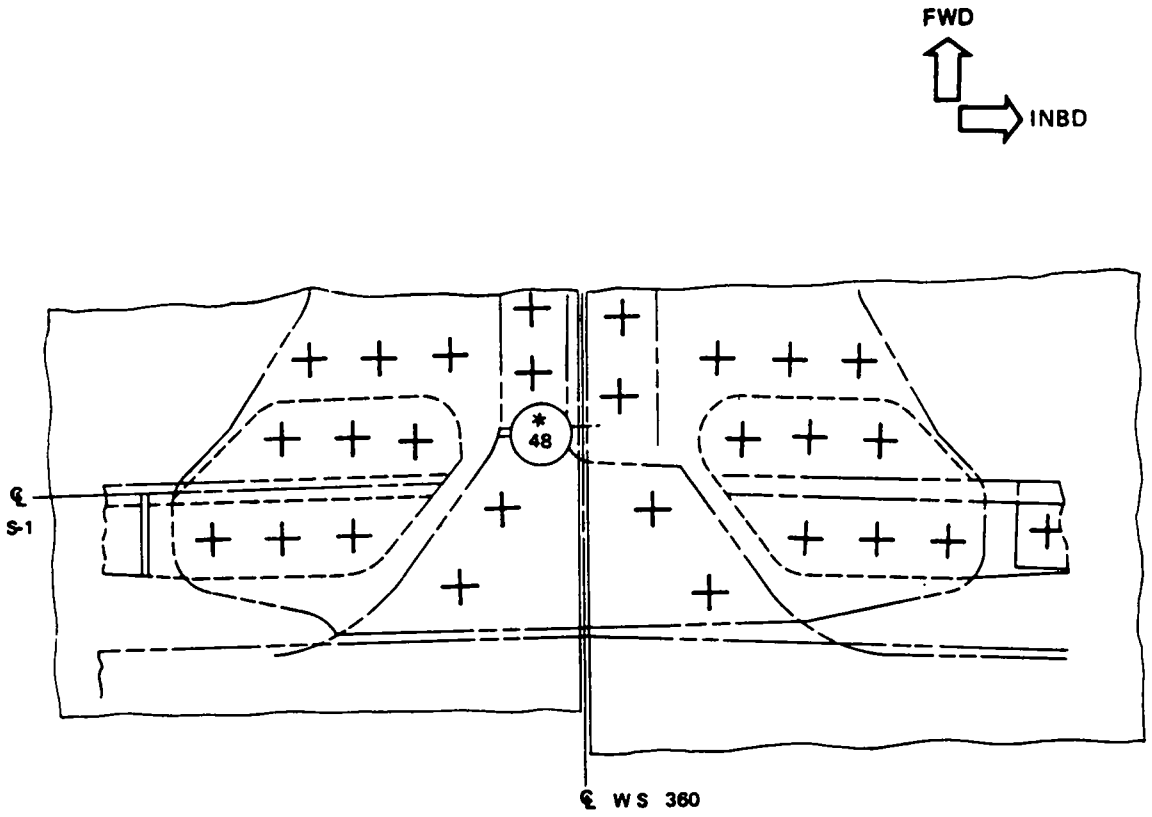
DETAIL I (CONT)

Upper WS 360 Seal Stop Fasteners
Figure 38 (Sheet 4)



LEFT WING SHOWN, RIGHT WING SIMILAR
FOR 707-300/400, 300B, 300C
(TYPICAL)
DETAIL II

Upper WS 360 Seal Stop Fasteners
Figure 38 (Sheet 5)



NOTES:

(* 48) SEAL STOP FASTENER

DETAIL II (CONT)

Upper WS 360 Seal Stop Fasteners
Figure 38 (Sheet 6)

EFFECTIVITY
MODEL: 720, CUM LINE NO. 581,597,615, 621 AND 624
SSI DOCUMENT (D6-44860)
REFERENCE: SSD 57-A00-06

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks in the upper WS 360 splice plate which intersect fastener holes. This inspection is accomplished from outside of the wing without fastener removal.

   B. To detect cracks in the splice plate along the gap between the wing skins at WS 360 splice.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec Inc.
      1320 N. W. Mall
      Issaquah, WA 98027

   B. Probes - This procedure uses three probes; any probe of similar size which will satisfy the performance requirements of this procedure is acceptable. The following probes were used in the development of this procedure.

      (1) Ring (encircling) probe with 1-inch OD and 0.5-inch ID shielding, 100 Hz, Nortec P/N SPO-783

      (2) Ring (encircling) probe with 1.1-inch OD and 0.625-inch ID shielding, 100 Hz, Nortec P/N SPO-1154

Upper WS 360 Splice Plate
Figure 39 (Sheet 1)

(3) Ring probe with 0.7-inch OD and 0.3-inch ID shielding usable at 500 Hz, Nortec P/N SPO-996

NOTE: Probes listed above are available from:
Nortec Inc.
421 N. Quay
Kennewick, Washington 99336

Specify instrument with which probe is to be used or instrument connector required when ordering probes.

C. Reference Standards

(1) Manufacture per Details I and III.

3. Preparation for Inspection

A. Wipe skin surface clean.

B. It is suggested that fastener locations requiring the same instrument calibration for inspection be identified on the airplane by a colored circle. Water washable crayons, pencils or felt pens are suitable. Refer to Table I and Details V thru VIII for inspection locations having similar requirements.

4. Instrument Calibration

A. General

(1) Two basic inspection types are required.

(a) Inspection for fastener hole cracks using a ring probe centered on the fastener.

(b) Inspection for cracks along the WS 360 splice skin gap using a ring probe as a spot probe.

(2) The two basic inspections require several instrument calibrations to adjust for variations in structure geometry and materials.

(3) Details V thru VIII identify inspection coverage for a particular calibration, and Table I provides specific calibration information for that inspection.

Upper WS 360 Splice Plate
Figure 39 (Sheet 2)

B. Calibration for fastener hole crack inspection using the ring probe centered on the fastener. The following calibration applies to inspection codes A, B, C, D, and E.

(1) Identify code for fasteners to be inspected from Details V thru VIII.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

(3) Visually center probe over the unnotched reference standard hole, Position 1 in the appropriate calibration position row.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(6) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

(7) Center probe over the notched reference standard hole, Position 2 in the appropriate calibration position row. Response should be upscale.

(8) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(9) Recheck null and liftoff. If readjustments are made recheck sensitivity per par. 4.B.(8).

(10) Cracks will be indicated by a higher meter response.

C. Calibration for cracks in the splice plate along the gap between wing skins at WS 360 splice using a ring probe as a spot probe. The following calibration applies to inspection codes F and G.

(1) Refer to Details V thru VIII for inspection coverage coding along WS 360 centerline.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

Upper WS 360 Splice Plate
Figure 39 (Sheet 3)

(3) Visually center probe over unnotched area of the skin gap on the reference standard, Position 1.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper). Care should be taken to hold the probe in the same position relative to the skin gap to avoid confusion during liftoff adjustment.

(6) Recenter the probe at Position 1 and set meter response at 20% of full scale with meter position control.

NOTE: Probe is centered over the skin gap by moving the probe across the gap to obtain a maximum meter response.

(7) Center probe over skin gap at notched location, Position 2. Meter response should be upscale.

(8) Adjust instrument sensitivity to obtain a 50% of full scale meter response difference between the notched and unnotched positions.

(9) Recheck null and liftoff. If readjustments are made, recheck sensitivity per par. 4.C.(8).

(10) Cracks will be indicated by a higher meter response.

5. Inspection Procedure

NOTE: An inspection code is used to identify locations having similar inspection conditions. A single instrument calibration is usually used to inspect these locations.

It is suggested that copies of Details V thru VIII be made and that they be used to record instrument responses at each fastener location. This is helpful in maintaining continuity between the groups of fasteners during inspection.

A. Inspection of fastener holes for cracks using the ring probe centered on the fastener (Inspection codes A, B, C, D, and E).

(1) Accomplish inspections of codes A, B, C, and D in the order given in Table I.

(2) Calibrate instrument per par. 4.B. and Table I.

(3) Note on the airplane the locations of those fasteners having the same inspection code by using Details V thru VIII.

(4) Use several fasteners of the same code to establish the airplane baseline response for an acceptable fastener.

(a) Select a representative fastener from this group and set its response to 20% of full meter scale.

NOTE: Do not change instrument sensitivity when establishing the airplane baseline response.

(b) Refer back to this fastener periodically to ensure that the instrument response is the same as originally recorded since changes in meter response may occur as a result of instrument drift or probe temperature change.

(5) Inspect each fastener having the same inspection code by centering the probe on the fastener and manipulating to obtain a minimum response.

NOTE: Review the "Special Notes" called out in Table I for conditions which affect the inspection.

(6) The following are potential crack indications and further investigation is required.

(a) Fastener locations with inspection codes A, B, or C (Table I) which give a response which is 30% of full meter scale higher than the established baseline.

(b) Fastener locations with inspection codes D or E (Table I) which give a response which is 40% of full meter scale higher than the established value.

NOTE: The following conditions may cause meter reading changes similar to crack indications:

1) A decrease in fastener spacing. Compare with similarly spaced fasteners on the airplane.

2) End of splice plate. Check Details V thru VIII for splice plate locations.

3) A larger or smaller fastener. Compare with similar fasteners of reference standard and on airplane.

Upper WS 360 Splice Plate
Figure 39 (Sheet 5)

4) A fastener that is different in countersink depth. Compare with similar fastener in standard raised to the same height.

5) A fastener close to edge of skin - compare with similar fasteners on airplane.

6) Differences in conductivity between skin panels. - Compare only the fastener locations common to a skin panel.

B. Inspection of the splice plate along the gap between wing skins at WS 360 splice using a ring probe as a spot probe (inspection codes F and G).

(1) Accomplish inspection of inspection codes F and G in the order given in Table I.

(2) Calibrate instrument per par. 4.C. and Table I.

(3) Start the inspection at Stringer 1.

(4) Select a section of wing skin splice in the area of Stringer 1 that has fastener spacing and edge margin similar to the reference standard.

(5) Center the probe on the skin joint at this location to establish a baseline response. Note this location and periodically refer to it to ensure that the instrument response has not changed.

NOTE: Minor adjustments to the meter position control will be required since the reference standard does not exactly duplicate the airplane structure. The minor adjustments must be made with the probe on a crack-free area of the structure. Do not change instrument sensitivity when establishing the airplane baseline response.

(a) When the maximum gap response is obtained over a crack-free area, the probe will be directly centered on the skin gap.

(b) A double check can also be made by positioning the probe over the end of the splice plate. Check Details V thru VIII for locating ends of splice plates. This will result in a typical full meter deflection, as in a crack indication. Comparing this indication with meter readings taken at other locations will aid in selecting a crack-free area for the final minor adjustments to the instrument before inspection.

Upper WS 360 Splice Plate
Figure 39 (Sheet 6)

(6) Inspect the length of the splice plate indicated for the particular calibration code (Details V thru VIII). Perform the inspection by slowly scanning the probe across the skin joint (inbd/outbd direction) to obtain the maximum meter response. If inspection cannot be accomplished because fasteners are spaced too close to the edge of the skin, inspect between fasteners along the centerline of the splice plate.

NOTE: Review the "Special Notes" listed in Table I for conditions which affect the inspection.

(7) Any location which gives a response 30% of full meter scale higher than the established baseline should be investigated further.

NOTE: The following conditions may cause meter changes which are similar to crack indications:

1) Metal chips trapped in the sealant at the skin joint. Remove sealant and reinspect.

2) Close fastener spacing. Inspect where spacing permits.

3) Positioning of the probe at the ends of upper splice plates. Check Details V thru VIII for locations of ends of splice plates.

INSPECTION CODE [1]	REFERENCE STANDARD NO.	PROBE IDENTIFICATION [2]	INSTRUMENT FREQUENCY HZ	DETAIL NO. FOR CALIBRATION	PROBE CALIBRATION POSITION ROW [3]	SPECIAL NOTES
A	028	(1)	100	II	[A]	[4]
B	029	(1)	100	IV	[C]	
C	029	(1)	100	IV	[A]	[5]
D	028	(2)	100	II	[C]	[7]
E	028	(2)	100	II	[C]	[4]
F	028	(3)	500	II	[B]	[6]
G	029	(3)	500	IV	[B]	

CALIBRATION TABLE
TABLE I

Upper WS 360 Splice Plate
Figure 39 (Sheet 7)

NOTES:

1> Codes for the inspection area, identified on Details V thru VIII, to which the calibration requirement applies.

2> Probe Identification:

(1) P/N SPO-783, 1-inch OD and 0.5-inch ID ring probe

(2) P/N SPO-1154, 1.1-inch OD and 0.625-inch ID ring probe

(3) P/N SPO-996, 0.70-inch OD and 0.3-inch ID ring probe used as a spot probe

3> Letter identifies fastener row (or gap) on the reference standard used for this calibration.

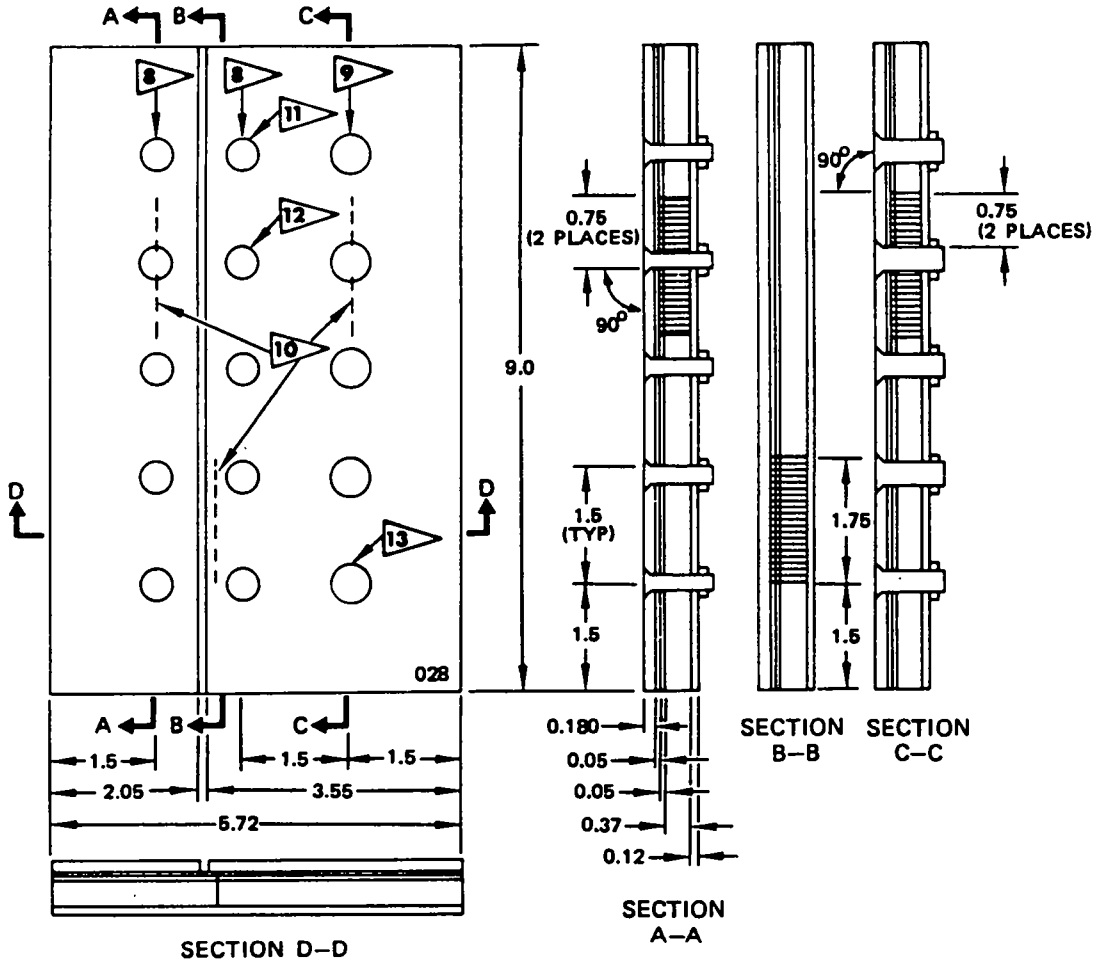
4> Fastener locations at stringer ends may be compared with similar adjacent fasteners in the stringer end being inspected and further away from WS 360 (Details V thru VIII).

5> Fastener numbers 251 and 248 are 3/16-inch diameter fasteners with 0.37-inch diameter countersinks. Compare with each other and with reference standard number 029.

6> Caution: Interface sealant exists between skin and splice plates at some locations (See Details V thru VIII for locations) and may give crack-like indication. If crack indication is obtained at these areas, further investigation is required.

7> Compare these fasteners with the BACB30FN 5/16 inch diameter fasteners in Detail I (reference standard 028).

Upper WS 360 Splice Plate
Figure 39 (Sheet 8)



NOTES

- TOLERANCE: X.X ± 0.05 X.XX ± .02 X.XXX ± 0.05
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 7075–T6 ALUMINUM
- ETCH OR STEEL STAMP WITH 028
- P/N 6412–53
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

8 BACB30FN8–12 FASTENER; BACC30M8 COLLAR (8 PLACES) EXCEPT AS NOTED

9 BACB30FN10–12 FASTENER; BACC30M10 COLLAR (4 PLACES) EXCEPT AS NOTED

10 JEWELER'S SAWCUT 0.030 MAX WIDTH (5 PLACES)

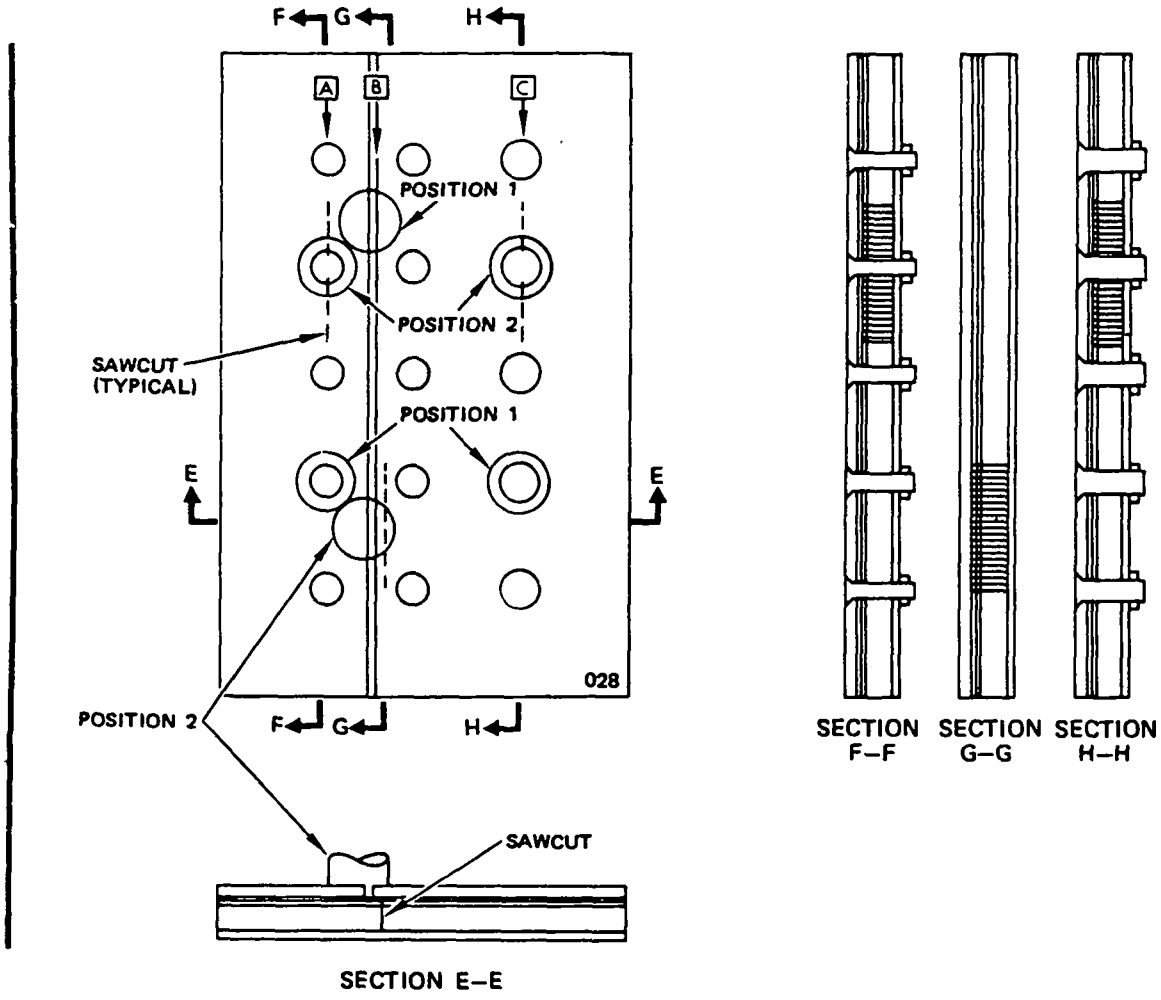
11 BACB30LU4–12 BOLT; BACN10JC4 NUT (1 PLACE)

12 BACB30FM8–12 HI–LOK; BACC30M8 COLLAR (1 PLACE)

13 BACB30LU5–12 BOLT; BACN10JC5 NUT (1 PLACE)

REFERENCE STANDARD 028
DETAIL I

Upper WS 360 Splice Plate
Figure 39 (Sheet 9)



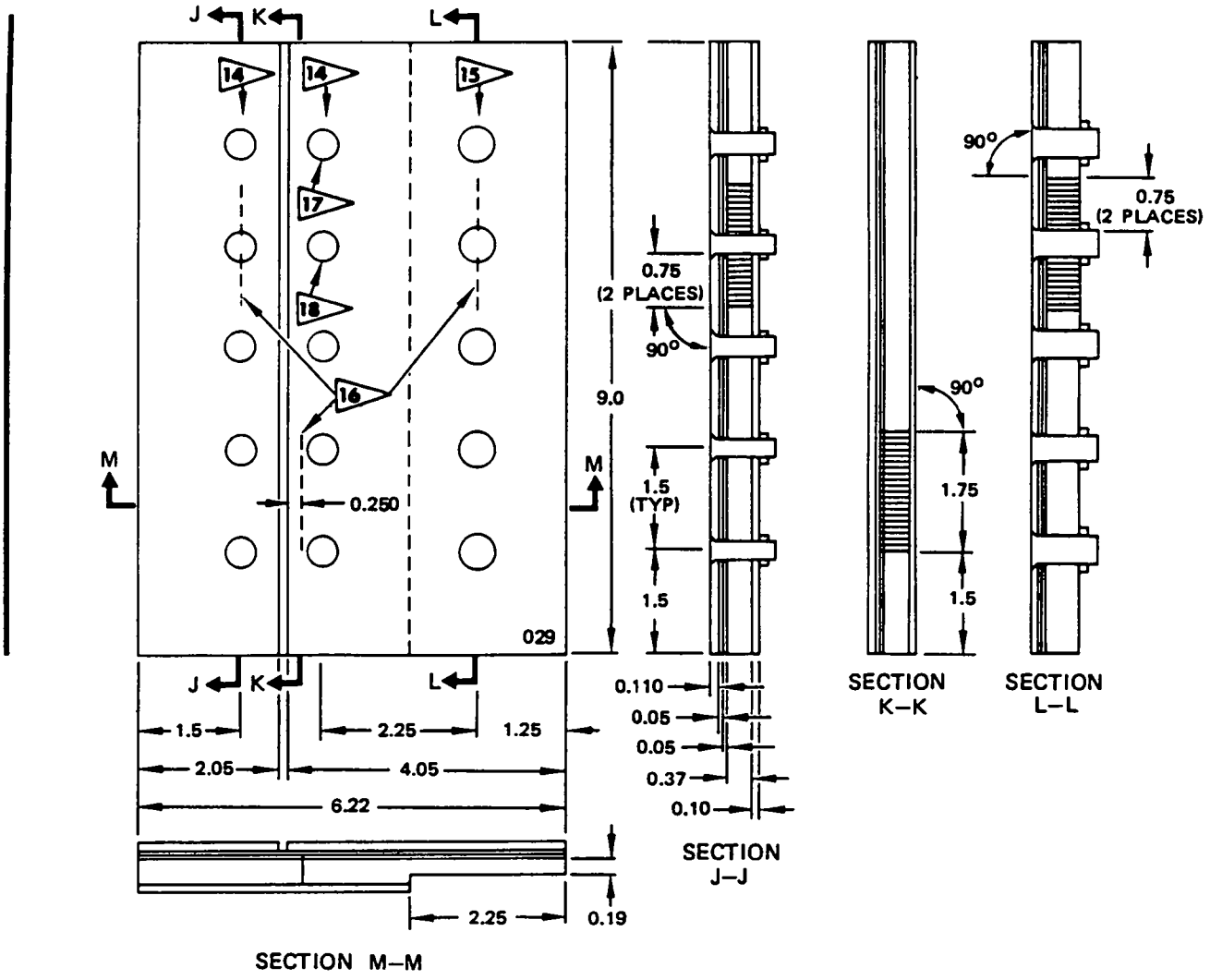
NOTES

A, B, C PROBE CALIBRATION POSITION ROWS (REF TABLE I, CALIBRATION TABLE)

PROBE POSITIONS FOR CALIBRATION ON REFERENCE STANDARD 028

DETAIL II

Upper WS 360 Splice Plate
Figure 39 (Sheet 10)



NOTES

- TOLERANCE: X.X ± 0.05 X.XX ± 0.02 X.XXX ± 0.05
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 7075–T6 ALUMINUM
- ETCH OR STEEL STAMP WITH 029
- P/N 6412–54
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

14 BACB30FN6–11 FASTENER; BACC30M6 COLLAR (8 PLACES) EXCEPT AS NOTED

15 BACB30LU4–11 FASTENER; BACN10JC4 NUT (5 PLACES)

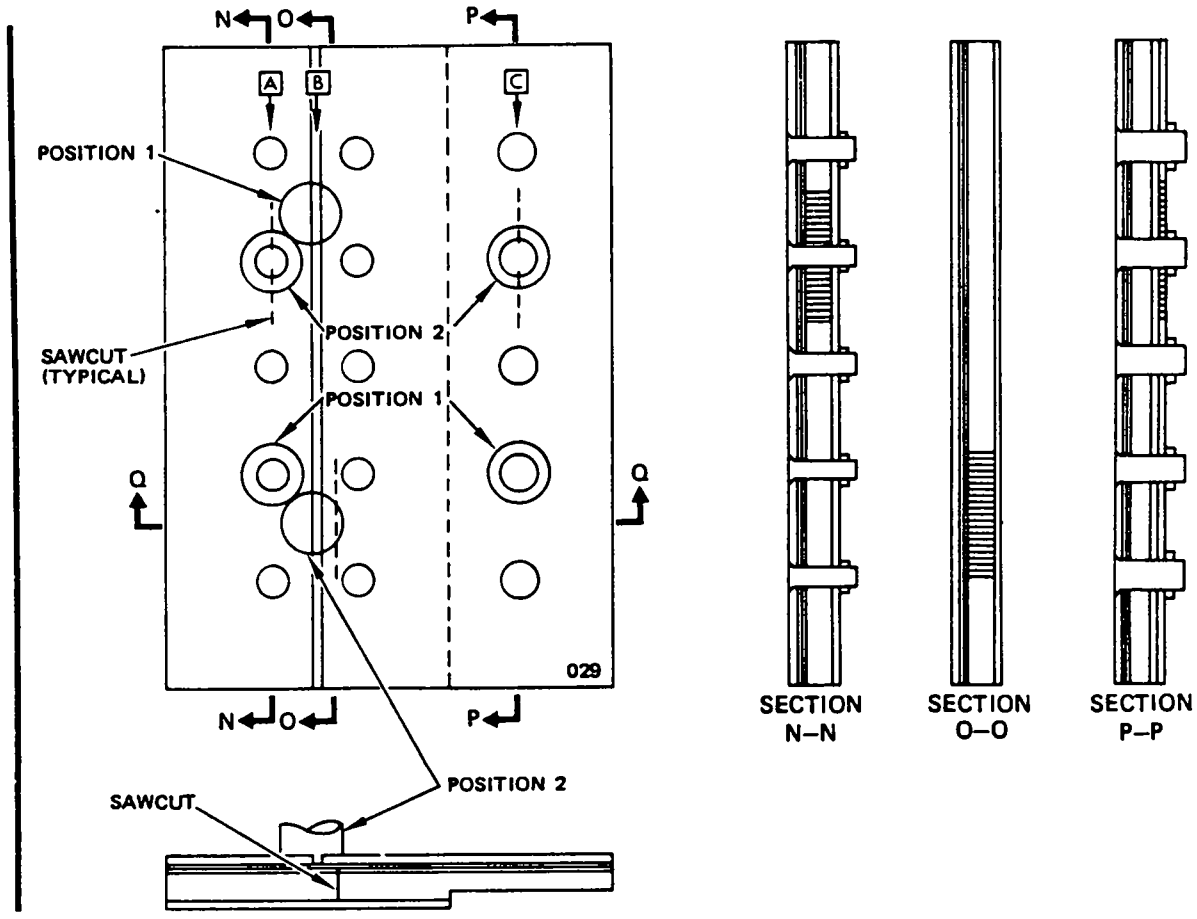
16 JEWELER'S SAWCUT 0.030 MAX WIDTH (5 PLACES)

17 BACB30LU3–11 BOLT; BACN10JC3 NUT (1 PLACE)

18 BACB30FM6–11 HI–LOK; BACC30M6 COLLAR (1 PLACE)

REFERENCE STANDARD 029
DETAIL III

Upper WS 360 Splice Plate
Figure 39 (Sheet 11)



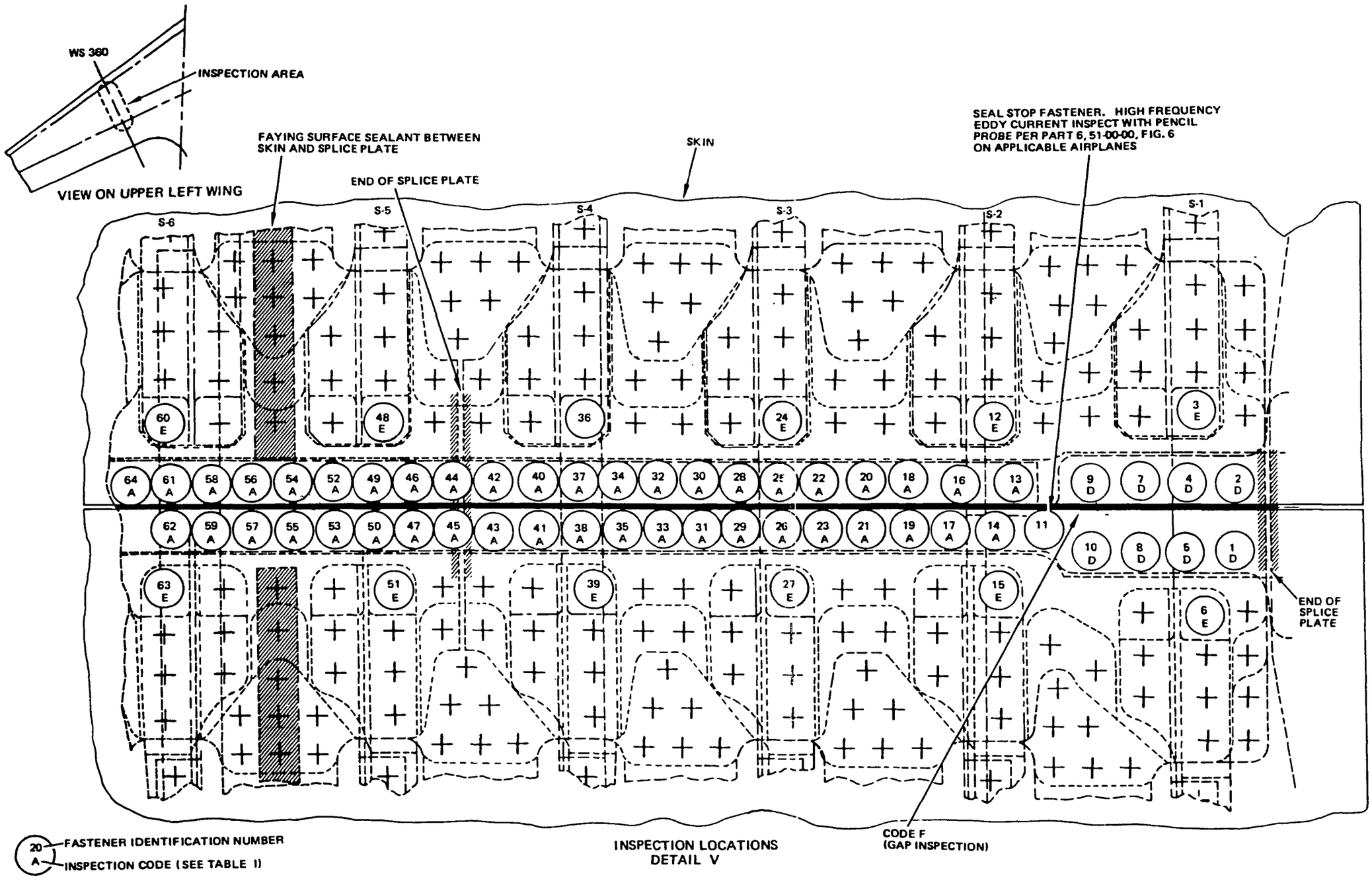
SECTION Q–Q

NOTES

A, B, C PROBE CALIBRATION POSITION ROWS (REF TABLE I, CALIBRATION TABLE)

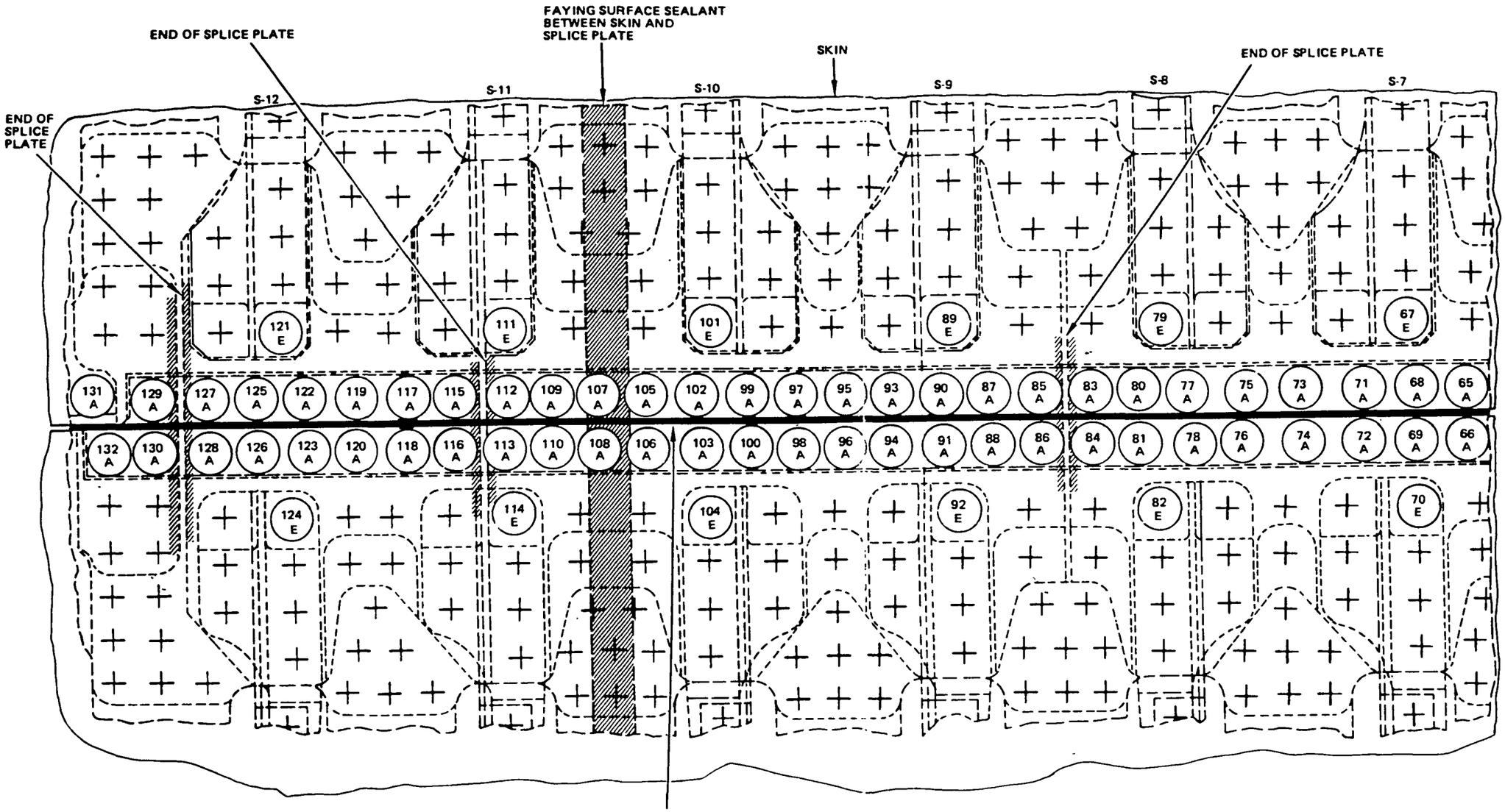
PROBE POSITIONS FOR CALIBRATION ON REFERENCE STANDARD 029
DETAIL IV

Upper WS 360 Splice Plate
Figure 39 (Sheet 12)



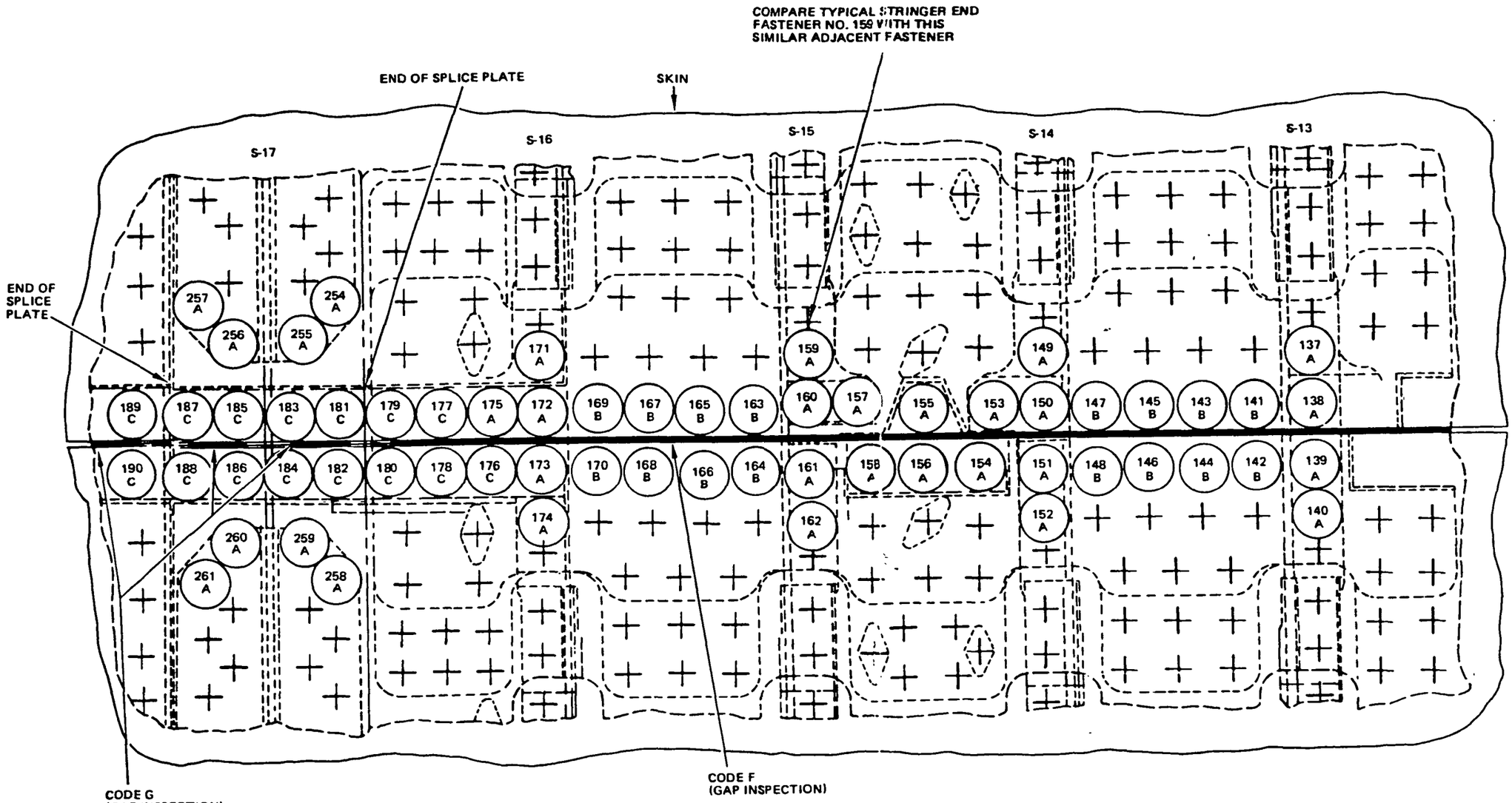
INSPECTION LOCATIONS
DETAIL V

Upper WS 360 Splice Plate
Figure 39 (Sheet 13)



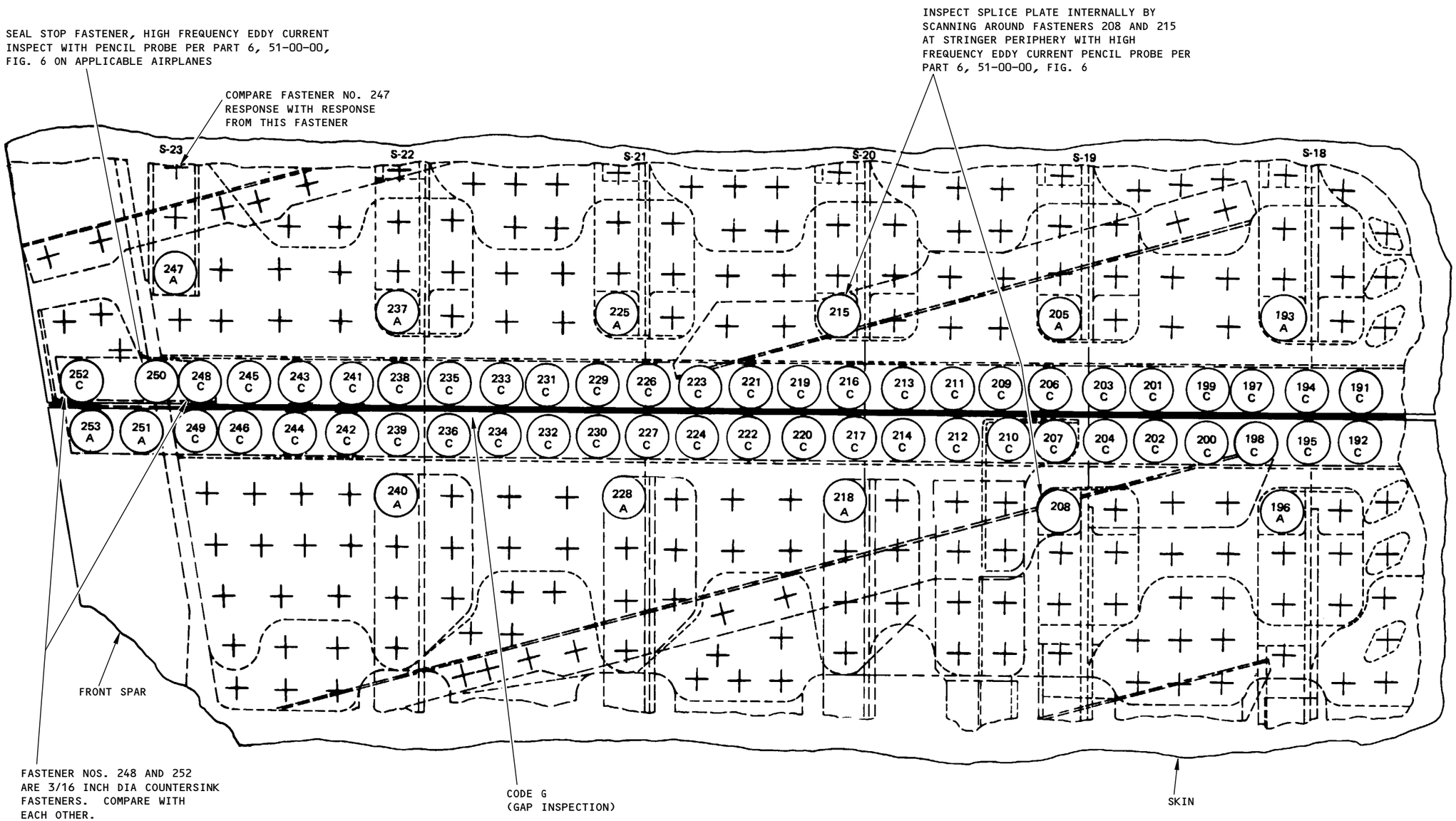
INSPECTION LOCATIONS
DETAIL VI

Upper WS 360 Splice Plate
Figure 39 (Sheet 14)



INSPECTION LOCATIONS
DETAIL VII

Upper WS 360 Splice Plate
Figure 39 (Sheet 15)



INSPECTION LOCATIONS
DETAIL VIII

Upper WS 360 Splice Plate
Figure 39 (Sheet 16)

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PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks in upper WS 360 splice plate which intersect a fastener hole. This inspection is accomplished from outside of the wing without fastener removal.

   B. To detect cracks in the splice plate along the gap between the wing skins at WS 360 splice.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

   (1) MIZ-10
   Zetec Inc.
   1320 N.W. Mall
   Issaquah, WA 98027

   B. Probes - This procedure uses three probes; any probe of similar size which will satisfy the performance requirements of this procedure is acceptable. The following probes were used in the development of this procedure.

   (1) Ring (encircling) probe with 1-inch OD and 0.5 -inch ID shielding, 100 Hz, Nortec P/N SPO-783

   (2) Ring (encircling) probe with 1.1-inch OD and 0.625-inch ID shielding, 100 Hz, Nortec P/N SPO-1154

Upper WS 360 Splice Plate
Figure 40 (Sheet 1)

(3) Ring probe with 0.7-inch OD shielding and 0.3-inch ID shielding, usable at 500 Hz, Nortec P/N SPO-996

NOTE: Probes listed above are available from:
Nortec Inc.
421 N. Quay
Kennewick, Washington 99336

Specify instrument with which probe is to be used or instrument connector required when ordering probes.

C. Reference Standards

(1) Manufacture per Details I and III.

3. Preparation for Inspection

A. Wipe skin surface clean.

B. It is suggested that fastener locations requiring the same instrument calibration for inspection be identified on the airplane by a colored circle. Water washable crayons, pencils or felt pens are suitable. Refer to Table I and Details V thru VIII for inspection locations having the same calibration requirements.

4. Instrument Calibration

A. General

(1) Two basic inspection types are required.

(a) Inspection for fastener hole cracks using g ring probe centered on the fastener.

(b) Inspection for cracks along the WS 360 splice skin gap using a ring probe as a spot probe.

(2) The two basic inspections require several instrument calibrations to adjust for variations in structure geometry and materials.

(3) Details V thru VIII identify inspection coverage for a particular calibration, and Table I provides specific calibration information for that inspection.

Upper WS 360 Splice Plate
Figure 40 (Sheet 2)

B. Calibration for fastener hole crack inspection using the ring probe centered on the fastener. The following calibration applies to inspection codes A and B.

(1) Identify code for fasteners to be inspected from Details V thru VIII.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

(3) Visually center probe over the unnotched reference standard hole, Position 1 in the appropriate calibration position row.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006-inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(6) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

(7) Center probe over the notched reference standard hole, Position 2 in the appropriate calibration position row. Response should be upscale.

(8) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(9) Recheck null and liftoff. If readjustments are made recheck sensitivity per par. 4.B.(8).

(10) Cracks will be indicated by a higher meter response.

C. Calibration for cracks in the splice plate along the gap between wing skins at WS 360 splice using a ring probe as a spot probe. The following calibration applies to inspection codes C and D.

(1) Refer to Details V thru VIII for inspection coverage coding along WS 360 centerline.

Upper WS 360 Splice Plate
Figure 40 (Sheet 3)

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

(3) Visually center probe over unnotched area of the skin gap on the reference standard, Position 1.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006-inch (apoximately the thickness of two sheets of paper). Care should be taken to hold the probe in the same position relative to the skin gap to avoid confusion during liftoff adjustment.

(6) Recenter the probe at Position 1 and set meter response at 20% of full scale with meter position control.

NOTE: Probe is centered over the skin gap by moving the probe across the gap to obtain a maximum meter response.

(7) Center probe over skin gap at notched location, Position 2. Meter response should be upscale.

(8) Adjust instrument sensitivity to obtain a 50% of full scale meter response difference between the notched and unnotched positions.

(9) Recheck null and liftoff. If readjustments are made, recheck sensitivity per par. 4.C.(8).

(10) Cracks will be indicated by a higher meter response.

5. Inspection Procedure

A. Inspection of fastener holes for cracks using the ring probe centered on the fastener (inspection codes A and B).

(1) Accomplish inspections of codes A and B in the order given in Table I.

(2) Calibrate instrument per par. 4.B. and Table I.

Upper WS 360 Splice Plate
Figure 40 (Sheet 4)

(3) Note on the airplane the locations of those fasteners having the same inspection code by using Details V thru VIII.

NOTE: An inspection code is used to identify locations having similar inspection conditions. A single instrument calibration is usually used to inspect these locations.

It is suggested that copies of Details V thru VIII be made and that they be used to record instrument responses at each fastener location. This is helpful in maintaining continuity between the groups of fastener during inspection.

(4) Use several fasteners to establish the airplane baseline response for an acceptable fastener.

(a) Select a representative fastener from this group and set its response to 20% of full meter scale.

NOTE: Do not change instrument sensitivity when establishing the airplane baseline response.

(b) Refer back to this fastener periodically to ensure that the instrument response is the same as originally recorded, since changes in meter response may occur as a result of instrument drift or probe temperature change.

(5) Inspect each fastener having the same inspection code by centering the probe on the fastener and manipulating to obtain a minimum response.

NOTE: Review the notes called out in Table I for conditions which affect the inspection.

(6) The following are potential crack indications and further investigation is required.

(a) Fastener locations with inspection code A (Ref Table I) which give a response which is 30% of full meter scale higher than the established baseline.

Upper WS 360 Splice Plate
Figure 40 (Sheet 5)

(b) Fastener locations with inspection coding B, E or F (Ref Table I) which give a response which is 40% of full meter scale higher than the established baseline.

NOTE: The following conditions may cause meter reading changes similar to crack indications:

1) A decrease in fastener spacing. Compare with similarly spaced fasteners on the airplane and on reference standards.

2) End of splice plate. Check Details V thru VIII for splice plate locations.

3) A larger or smaller fastener. Compare with similar fasteners of reference standard and on airplane.

4) A fastener that is different in countersink depth. Compare with similar fastener in standard raised to the same height.

5) A fastener close to edge of skin. Compare with similar fasteners on airplane.

6) Differences in conductivity between skin panels. Compare only the fastener location common to a skin panel.

B. Inspection of the splice plate along the gap between wing skins at WS 360 splice using a ring probe as a spot probe (inspection codes C and D).

(1) Accomplish inspection of Inspection codes C and D, in the order given in Table I.

(2) Calibrate instrument per par. 4.C. and Table I.

(3) Start the inspection at Stringer S-1.

(4) Select a section of wing skin splice in the area of Stringer S-1 that has fastener spacing and edge margin similar to the reference standard.

Upper WS 360 Splice Plate
Figure 40 (Sheet 6)

(5) Center the probe on the skin joint at this location to establish a baseline response. Note this location and periodically refer to it to ensure that the instrument response has not changed.

NOTE: Minor adjustments to the meter position control will be required since the reference standard does not exactly duplicate the airplane structure. The minor adjustments must be made with the probe on a crack-free area of the structure. Do not change instrument sensitivity when establishing the airplane baseline response.

(a) When the maximum gap response is obtained over a crack-free area, the probe will be directly centered on the skin gap.

(b) A double check can also be made by positioning the probe over the end of the splice plate. Check Details V thru VIII for locating ends of splice plates. This will result in a typical full meter deflection, as in a crack indication. Comparing this deflection with meter readings taken at other locations will aid in selecting a crack-free area for the final minor adjustments to the instrument before inspection.

(6) Inspect the length of the splice plate indicated for the particular calibration code (Details V thru VIII). Perform the inspection by slowly scanning the probe across the skin joint (inbd/outbd direction) to obtain the maximum meter response. If inspection cannot be accomplished because fasteners are spaced too close to the edge of the skin, inspect between fasteners along the centerline of the splice plate.

NOTE: Review the notes called out in Table I for conditions which affect the inspection.

(7) Any location which gives a response 30% of full meter scale higher than the established baseline should be investigated further.

NOTE: The following conditions may cause meter change which are similar to crack indications:

1) Metal chips trapped in the sealant at the skin joint. Remove sealant and reinspect.

2) Close fastener spacing. Inspect where spacing permits.

3) Positioning of the probe at the ends of upper splice plates. Check Details V thru VIII for locations of ends of splice plates.

Upper WS 360 Splice Plate
Figure 40 (Sheet 7)

INSPECTION CODE (1)	REFERENCE STANDARD NO.	PROBE IDENTIFICATION (2)	INSTRUMENT FREQUENCY HZ	DETAIL NO. FOR CALIBRATION	PROBE CALIBRATION POSITION ROW (3)	SPECIAL NOTES
A	026	(1)	100	II	A	3 5 6
B	026	(2)	100	II	C	4
C	026	(3)	500	II	B	7
D	027	(3)	500	IV	A	

CALIBRATION TABLE
TABLE I

NOTES

(1) Codes for the specific areas, identified on Details V thru VIII, to which the calibration requirements apply.

(2) Probe Identification:

(1) P/N SPO-783, 1-inch OD and 0.5-inch ID ring probe
(2) P/N SPO-1154, 1.1-inch OD and 0.625-inch ID ring probe
(3) P/N SPO-996, 0.7-inch OD and 0.3-inch ID ring probe used as a spot probe.

(3) Letter identifies fastener row (or gap) on the reference standard used for this calibration.

Upper WS 360 Splice Plate
Figure 40 (Sheet 8)

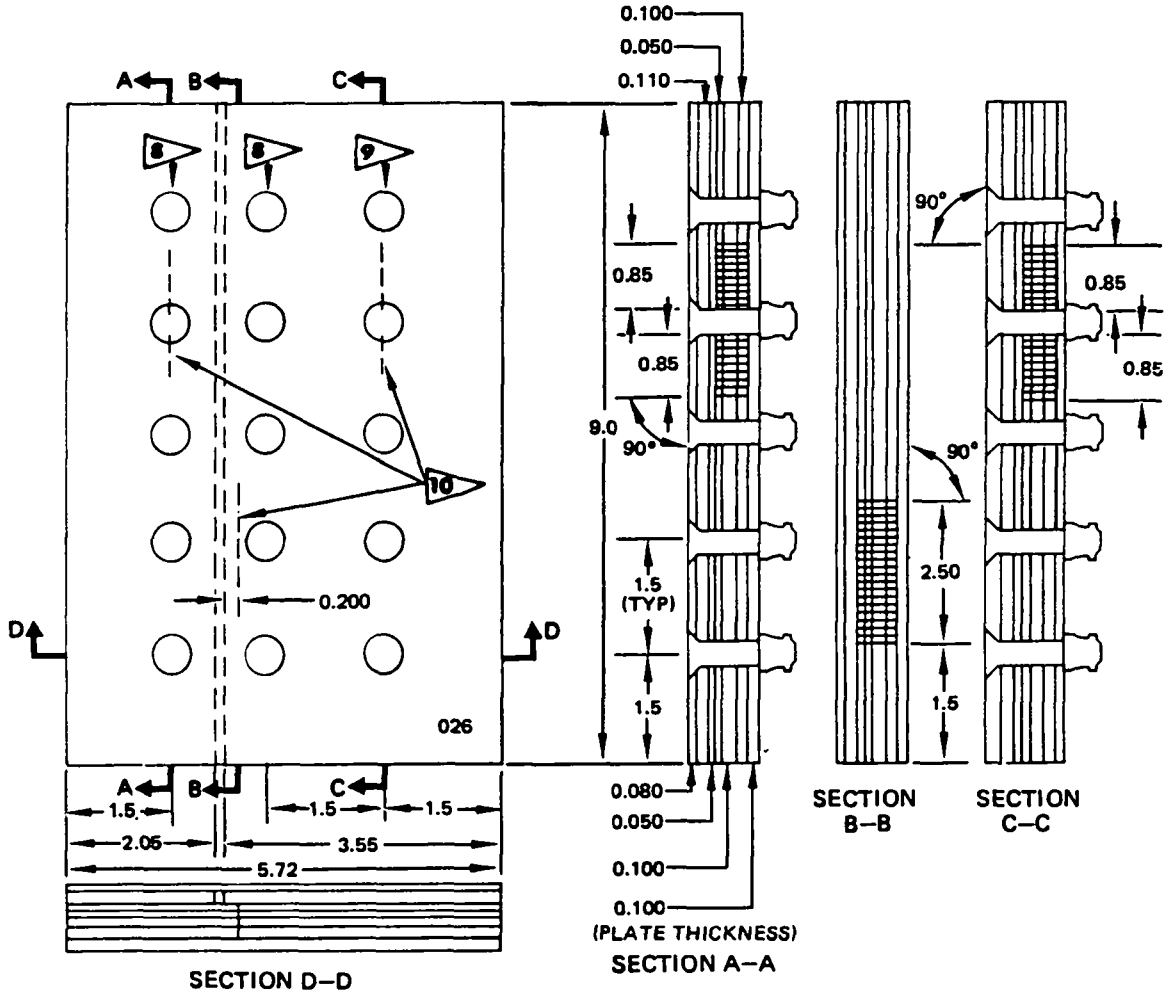
4> Fastener locations at stringer ends may be compared with similar adjacent fasteners in the stringer end being inspected and further away from WS 360 (Details V thru VIII).

5> Fastener numbers 230, 232, 271, and 277 are 3/16-inch diameter fasteners with 0.37-inch diameter countersinks. Compare with each other and with reference standard number 027.

6> The baseline response will increase 20% of full meter scale when going forward from rear spar to stringer 21 due to a decrease in total stack-up thickness.

7> Skin juncture at stringer S-12 will cause a slight increase in response (approximately 20% of full meter scale) above baseline response.

Upper WS 360 Splice Plate
Figure 40 (Sheet 9)



NOTES

- TOLERANCE: X.X±0.05 X.XX±.02 X.XXX±0.005
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 7075-T6 ALUMINUM
- P/N 6412–55
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110
- ETCH OR STEEL STAMP WITH 026

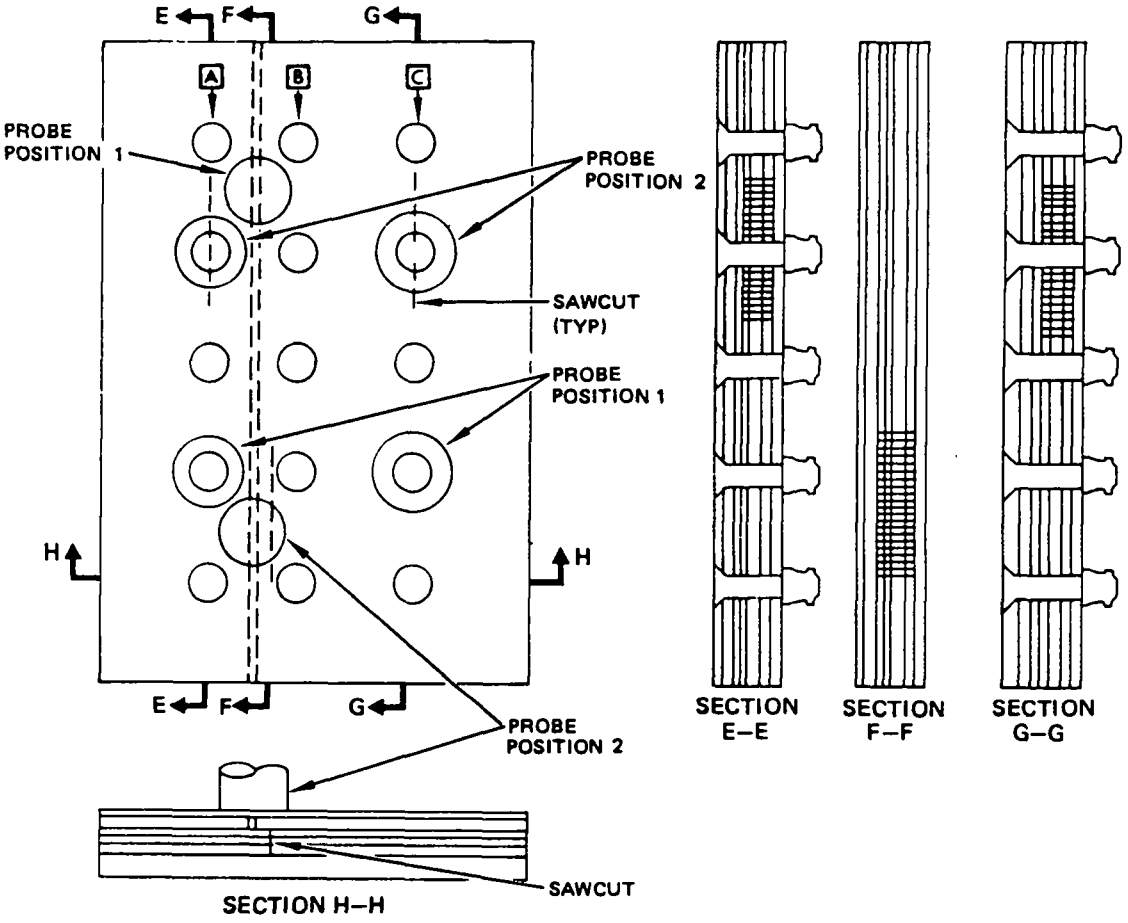
8 BACB30FN8–10 FASTENERS; BACC30M8 COLLAR (10 PLACES)

9 BACB30FN10–10 FASTENERS; BACC30M10 COLLAR (5 PLACES)

10 JEWELER'S SAWCUT 0.030 MAX WIDTH

REFERENCE STANDARD 026
DETAIL I

Upper WS 360 Splice Plate
Figure 40 (Sheet 10)



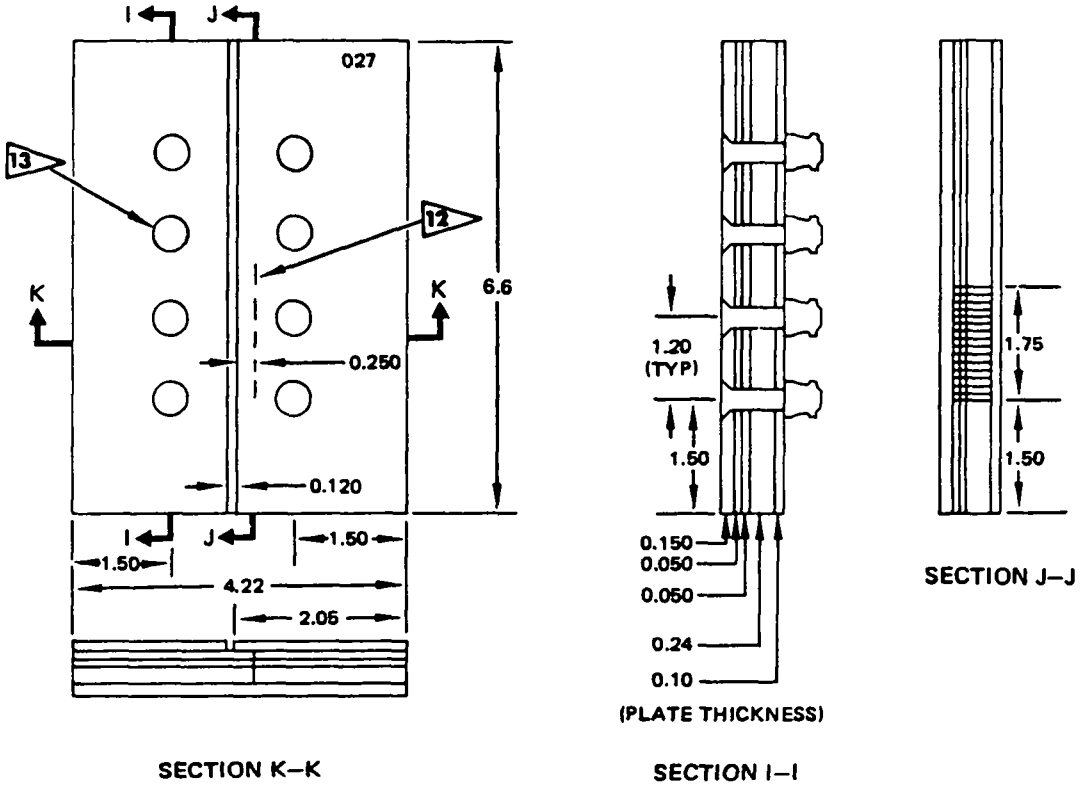
NOTES

Ⓐ, Ⓑ, Ⓒ PROBE CALIBRATION POSITION ROWS (REF TABLE I, CALIBRATION TABLE)

PROBE POSITION FOR CALIBRATION ON REFERENCE STANDARD 026

DETAIL II

Upper WS 360 Splice Plate
Figure 40 (Sheet 11)



NOTES

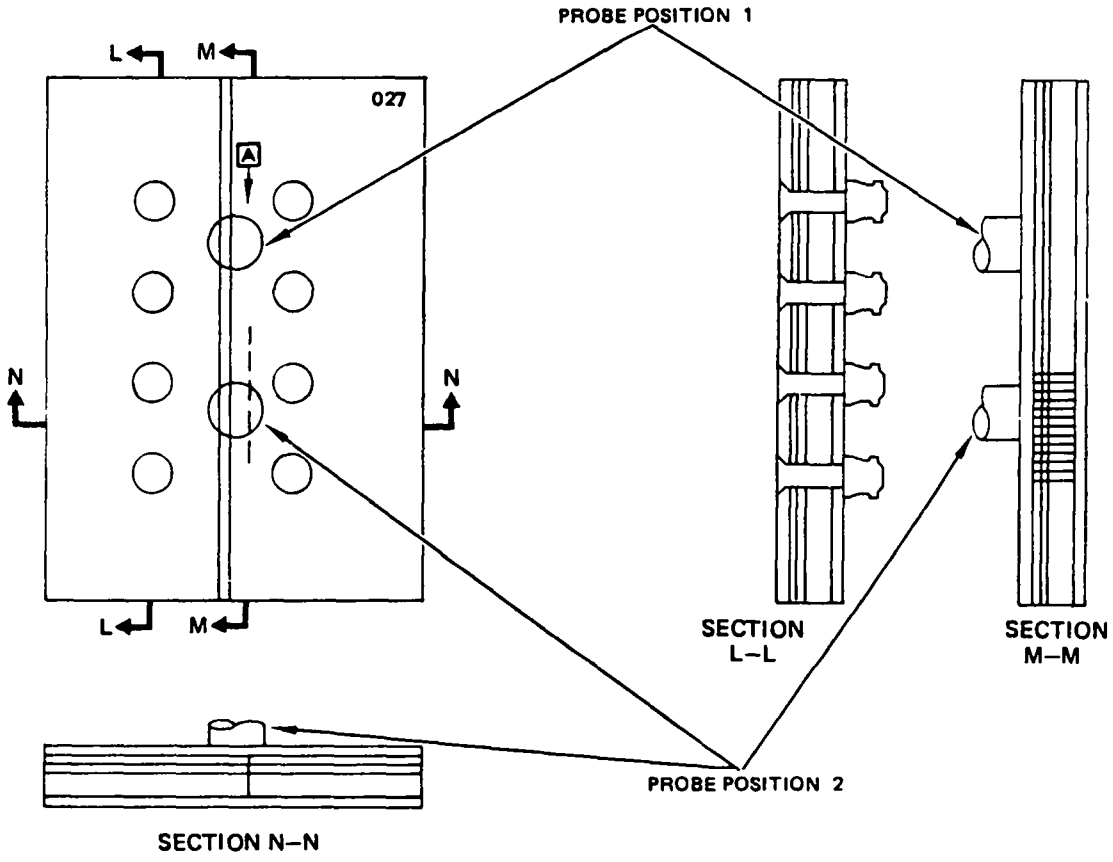
- BACB30FN8–9 FASTENER; BACC30M8 COLLAR (7 PLACES)
- MATERIAL: 7075-T6 ALUMINUM
- TOLERANCE: X.X±0.05 X.XX±0.02 X.XXX ±0.005
- P/N 6412–56
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110
- ETCH OR STEEL STAMP WITH 027

12 JEWELER'S SAWCUT 0.030 MAX WIDTH

13 BACB30LU3–9 FASTENER; BACN10JC3 NUT (1 PLACE)

REFERENCE STANDARD 027
DETAIL III

Upper WS 360 Splice Plate
Figure 40 (Sheet 12)



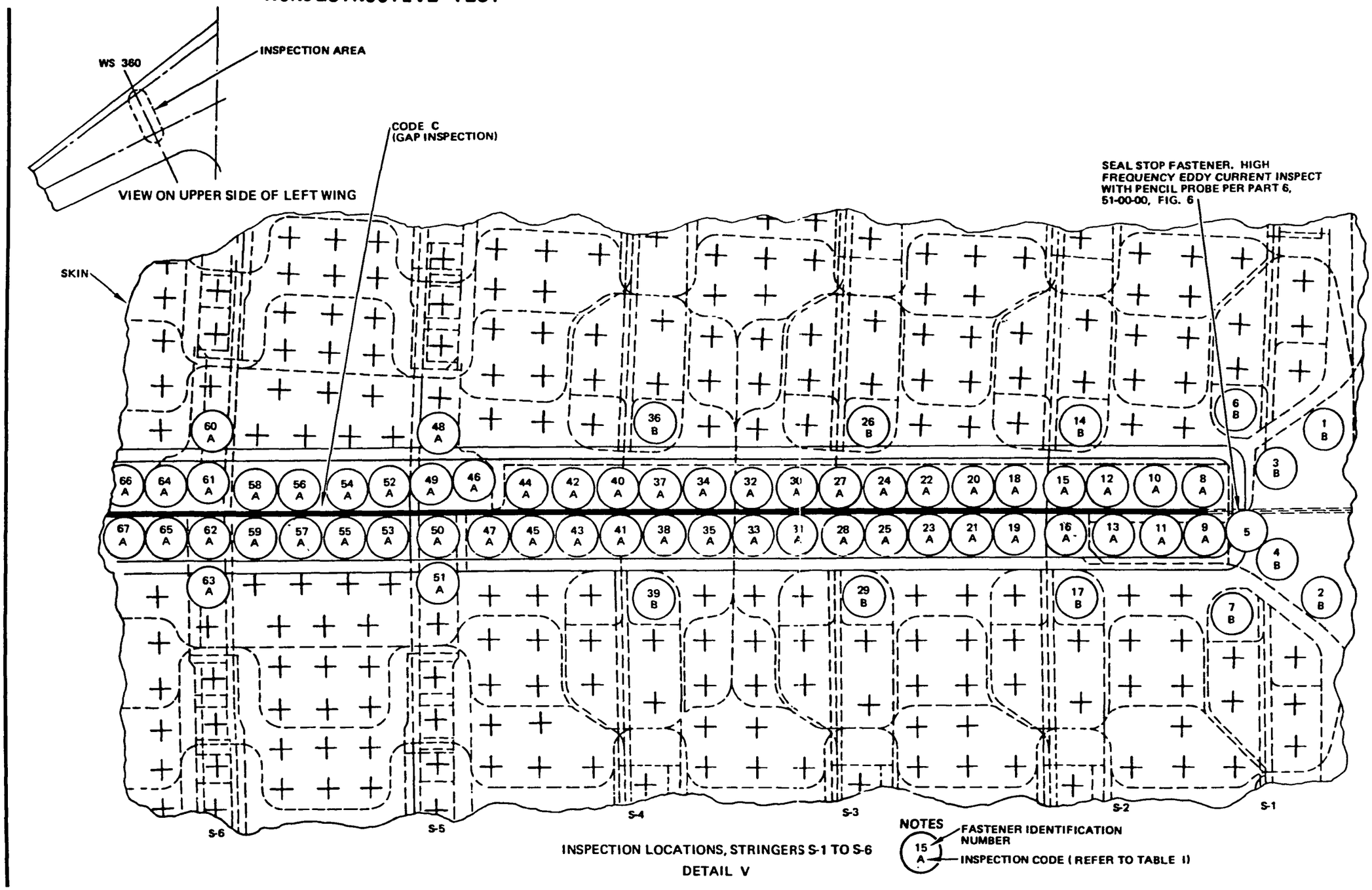
NOTES

[A] PROBE CALIBRATION POSITION ROW I REF TABLE I, CALIBRATION TABLE)

PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD 027

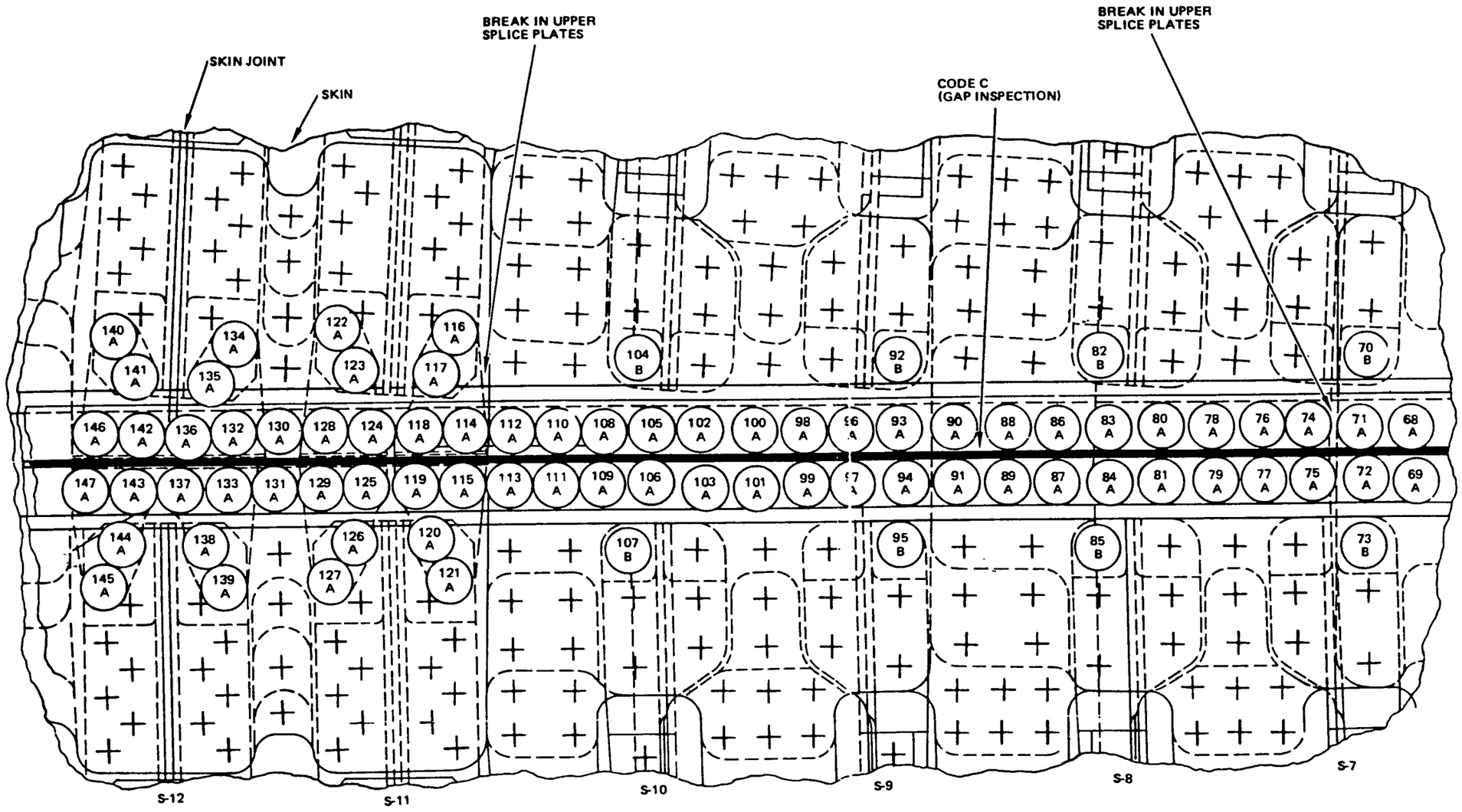
DETAIL IV

Upper WS 360 Splice Plate
Figure 40 (Sheet 13)



INSPECTION LOCATIONS, STRINGERS S-1 TO S-6
DETAIL V

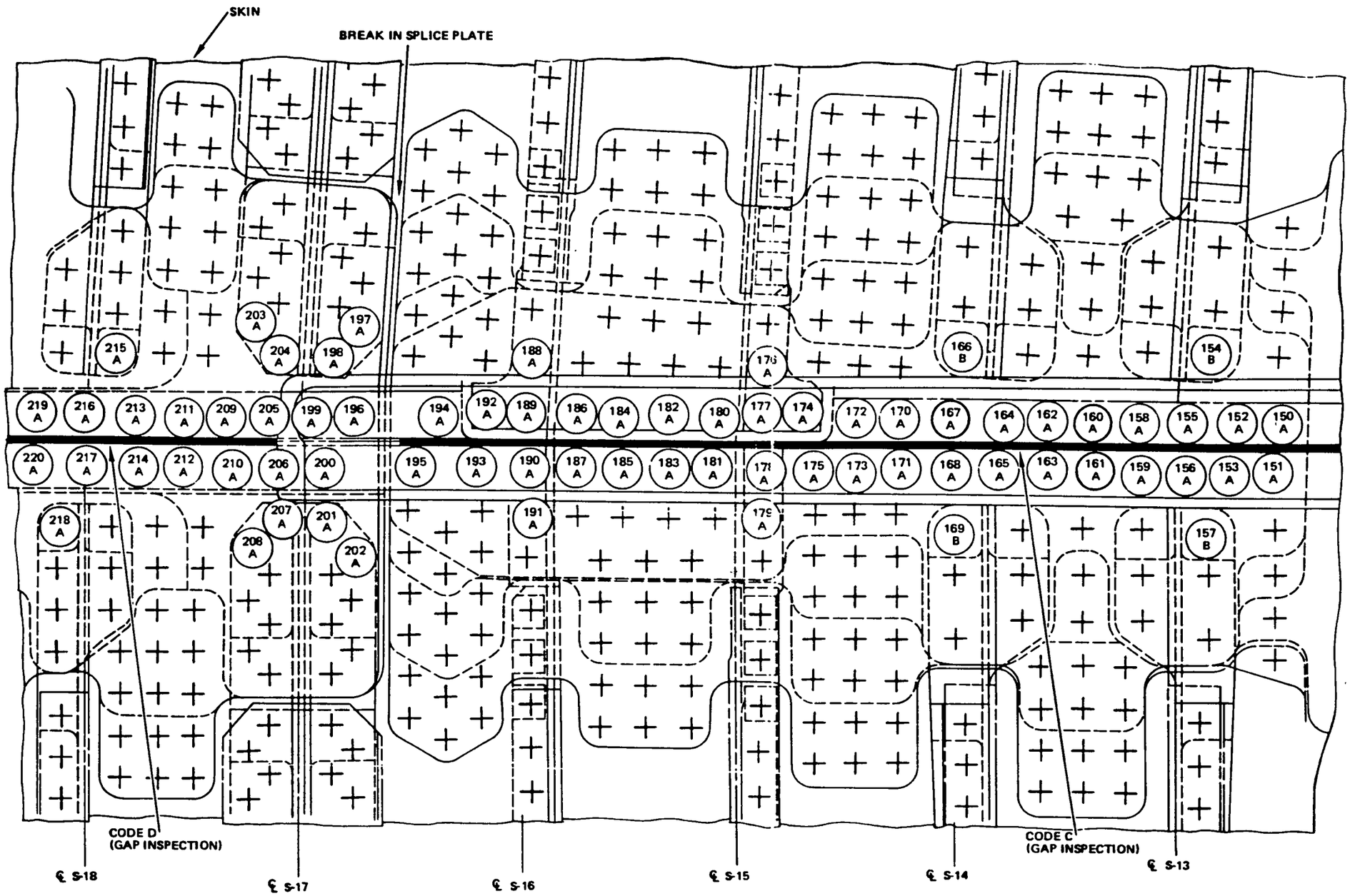
Upper WS 360 Splice Plate
Figure 40 (Sheet 14)



INSPECTION LOCATIONS, STRINGERS S-7 TO S-12

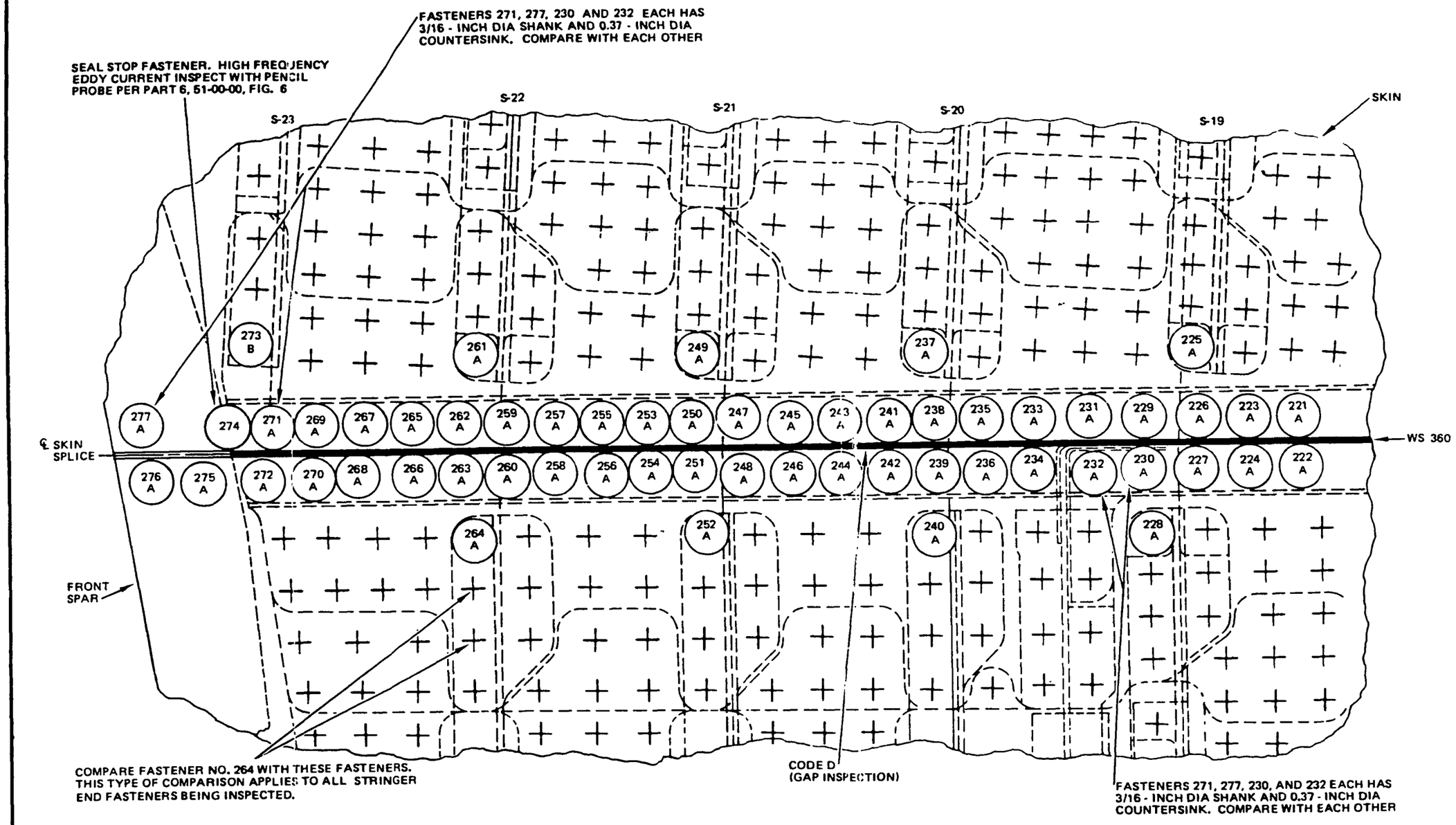
DETAIL VI

Upper WS 360 Splice Plate
Figure 40 (Sheet 15)



INSPECTION LOCATIONS, STRINGERS S-13 TO S-18
DETAIL VII

Upper WS 360 Splice Plate
Figure 40 (Sheet 16)



INSPECTION LOCATIONS, STRINGERS S-19 TO FRONT SPAR
DETAIL VIII

Upper WS 360 Splice Plate
Figure 40 (Sheet 17)

EFFECTIVITY
MODEL: 707-300/400, -300B,-300C, THRU CUM LINE NO. 671
SSI DOCUMENT (D6-44860)
REFERENCE: SSD 57-A25-11 SSD 57-A35-11 SSD 57-A45-11

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To provide an inspection of upper WS 360 splice for those airplanes on which preventive modification has been incorporated by retrofit kits. To identify modification configuration, compare airplane configuration with Details XIII and XIV.

   B. To detect cracks in the upper WS 360 splice plate which intersect fastener holes. This inspection is accomplished from outside of the wing without fastener removal.

   C. To detect cracks in the splice plate along the gap between the wing skins at WS 360 splice.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec Inc.
      1320 N. W. Mall
      Issaquah, WA 98027

   B. Probes - This procedure uses two probes; any probe of similar size which will satisfy the performance requirements of this procedure is acceptable. The following probes were used in the development of this procedure.

      (1) Ring (encircling) probe with 1.1-inch OD and 0.625-inch ID shielding, 100 Hz, Nortec P/N SPO-1154

Upper WS 360 Splice Plate
Figure 41 (Sheet 1)

(2) Ring probe with 0.7-inch OD shielding and 0.3-inch ID shielding, usable at 500 Hz, Nortec P/N SPO-996

NOTE: Probes listed above are available from:
Nortec Inc.
421 N. Quay
Kennewick, Washington 99336

Specify instrument with which probe is to be used or instrument connector required when ordering probes.

C. Reference Standards

(1) Manufacture per Details I and III.

3. Preparation for Inspection

A. Wipe skin surface clean.

B. It is suggested that fastener locations requiring the same instrument calibration for inspection be identified on the airplane by a colored circle. Water washable crayons, pencils or felt pens are suitable. Refer to Table I and Details V thru XII for inspection locations having similar requirements.

4. Instrument Calibration

A. General

(1) Two basic inspection types are required.

(a) Inspection for fastener hole cracks using a ring probe centered on the fastener.

(b) Inspection for cracks along the WS 360 splice skin gap using a ring probe as a spot probe.

(2) The two basic inspections require several instrument calibrations to adjust for variations in structure geometry and materials.

(3) Details V thru XII identify inspection coverage for a particular calibration, and Table I provides specific calibration information for that inspection.

Upper WS 360 Splice Plate
Figure 41 (Sheet 2)

B. Calibration for fastener hole crack inspection using the ring probe centered on the fastener. The following calibration applies to inspection codes A, B, C, and D.

(1) Identify code for fasteners to be inspected from Details V thru XII.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

(3) Visually center probe over the unnotched reference standard hole, Position 1 in the appropriate calibration position row.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(6) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

(7) Center probe over the notched reference standard hole, Position 2 in the appropriate calibration position row. Response should be upscale.

(8) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(9) Recheck null and liftoff. If readjustments are made recheck sensitivity per par. 4.B.(8).

(10) Cracks will be indicated by a higher meter response.

C. Calibration for cracks in the splice plate beneath the gap between wing skins at WS 360 splice using a ring probe as a spot probe. The following calibration applies to inspection code E.

(1) Refer to Details V thru XII for inspection coverage coding along WS 360 centerline.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

Upper WS 360 Splice Plate
Figure 41 (Sheet 3)

(3) Visually center probe over unnotched area of the skin gap on the reference standard, Position 1.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper). Care should be taken to hold the probe in the same position relative to the skin gap to avoid confusion during liftoff adjustment.

(6) Recenter the probe at Position 1 and set meter response at 20% of full scale with meter position control.

NOTE: Probe is centered over the skin gap by moving the probe across the gap to obtain a minimum meter response.

(7) Center probe over skin gap at notched location, Position 2. Meter response should be upscale.

(8) Adjust instrument sensitivity to obtain a 50% of full scale meter response difference between the notched and unnotched positions.

(9) Recheck null and liftoff. If readjustments are made, recheck sensitivity per par. 4.C.(8).

(10) Cracks will be indicated by a higher meter response.

5. Inspection Procedure

A. Inspection of fastener holes for cracks using the righ probe centered on the fastener (inspection codes A, B, C, and D).

(1) Accomplish inspections of codes in the order given in Table I.

(2) Calibrate instrument per par. 4.B. and Table I.

Upper WS 360 Splice Plate
Figure 41 (Sheet 4)

(3) Note on the airplane the locations of those fasteners having the same inspection code by using Details V thru XII.

NOTE: An inspection code is used to identify locations having similar inspection conditions. A single instrument calibration is usually used to inspect these locations.

It is suggested that a copy of Details V thru XII be made and that they be used to record instrument responses at each fastener location. This is helpful in maintaining continuity between the groups of fastener during inspection.

Refer to Details XIII and XIV to identify airplane configuration and to Details V thru XII for inspection locations. Configurations B and B1 are identical to configurations A and A1 except for the addition of local splice plates with longer spanwise runout in the area of Stringers S-11 to S-13. Configurations C and C1 are identical to configurations A and A1 except for the addition of local splice plates with longer spanwise runout in the area of Stringers S-16 to S-18. Configurations B and C combined constitute configuration D. Configurations B1 and C1 combined constitute configuration D1. Details V thru X give inspection locations for configurations A and A1. Details XI and XII give inspection locations for the local splice plate modifications in the areas of Stringers S-11 to S-13 and S-16 to S-18 respectively. Thus, inspection locations for all configurations shown in Details XIII and XIV can be arrived at by referring to Details V thru XII in conjunction therewith.

Upper WS 360 Splice Plate
Figure 41 (Sheet 5)

(4) Use several fasteners to establish the airplane baseline response for an acceptable fastener.

(a) Select a representative fastener from this group and set its response to 20% of full meter scale.

NOTE: Do not change instrument sensitivity when establishing the airplane baseline response.

(b) Refer back to this fastener periodically to ensure that the instrument response is the same as originally recorded, since changes in meter response may occur as a result of instrument drift or probe temperature change.

(5) Inspect each fastener having the same inspection code by centering the probe on the fastener and manipulating to obtain a minimum response.

(6) Fastener locations which give a response which is 30% of full meter scale higher than the established baseline are potential crack indications and further investigation is required.

NOTE: The following conditions may cause meter reading changes similar to crack indications:

1) A decrease in fastener spacing. Compare with similarly spaced fasteners on the airplane.

2) End of splice plate. Check Details V thru XIV for splice plate locations.

3) A larger or smaller fastener. Compare with similar fasteners of reference standard and on airplane.

4) A fastener that is different in countersink depth. Compare with similar fastener in standard raised to the same height.

5) A fastener close to edge of skin. Compare with similar fasteners on airplane.

6) Differences in conductivity between skin panels. Compare only the fastener location common to a skin panel.

Upper WS 360 Splice Plate
Figure 41 (Sheet 6)

B. Inspection of the external splice plates over the gap between wing skin at WS 360 splice using a ring probe as a spot probe (inspection code E).

(1) Calibrate instrument per par. 4.C. and Table I.

(2) Start the inspection at Stringer S-1.

(3) Select a section of wing skin splice in the area of Stringer S-1 that has fastener spacing and edge margin similar to the reference standard.

(4) Center the probe on the skin joint at this location to establish a baseline response. Note this location and periodically refer to it to ensure that the instrument response has not changed.

NOTE: Minor adjustments to the meter position control will be required since the reference standard does not exactly duplicate the airplane structure. The minor adjustments must be made with the probe on a crack-free area of the structure. Do not change instrument sensitivity when establishing the airplane baseline response.

(a) When the minimum gap response is obtained over a crack-free area, the probe will be directly centered on the skin gap.

(5) Inspect the length of the splice plates (Details V thru XII). Perform the inspection by slowly scanning the probe across the skin joint (inbd/outbd direction) to obtain the minimum meter response. If insepction cannot be accomplished because fasteners are spaced too close to the edge of the skin, inspect between fasteners along the centerline of the splice plate.

(6) Any location which gives a response 30% of full meter scale higher than the established baseline should be investigated further.

Upper WS 360 Splice Plate
Figure 41 (Sheet 7)

INSPECTION CODE [1]	REFERENCE STANDARD	PROBE IDENTIFICATION [2]	INSTRUMENT FREQUENCY HZ	DETAIL NO. FOR CALIBRATION	PROBE CALIBRATION POSITION ROW [3]
A	012 (Detail I)	(1)	100	II	A
B	012 (Detail I)	(1)	100	II	C
C	013 (Detail III)	(1)	100	IV	A
D	013 (Detail III)	(1)	100	IV	B
E	012 (Detail I)	(2)	300	II	B

TABLE I

CALIBRATION TABLE

NOTES:

[1] See Details V thru XII for specific areas to which calibration applies.

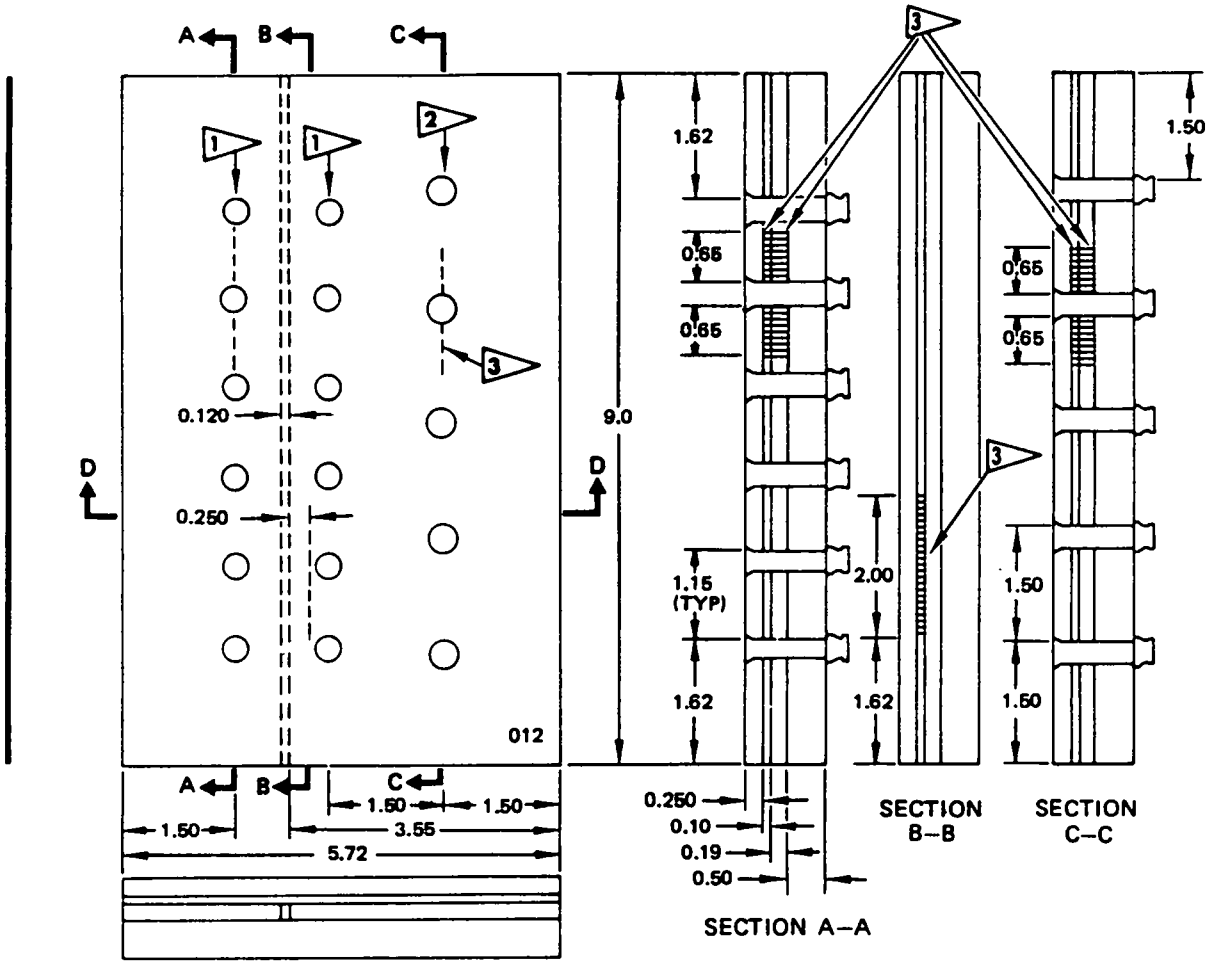
[2] Probe identification:

(1) P/N SPO 1154, 1.1-inch O.D. and 0.62-inch I.D. ring probe

(2) P/N SPO 996, 0.7-inch O.D. and 0.3-inch I.D. (ring probe) used as a spot probe

[3] Identifies that part of the reference standard used for this calibration.

Upper WS 360 Splice Plate
Figure 41 (Sheet 8)



NOTES

- MATERIAL: 7075–T6 ALUMINUM
- TOLERANCE: X.X ± 0.05 X.XX ± 0.02 X.XXX ± 0.005
- ALL DIMENSIONS ARE IN INCHES
- P/N 6412–57
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110
- ETCH OR STEEL STAMP WITH 012

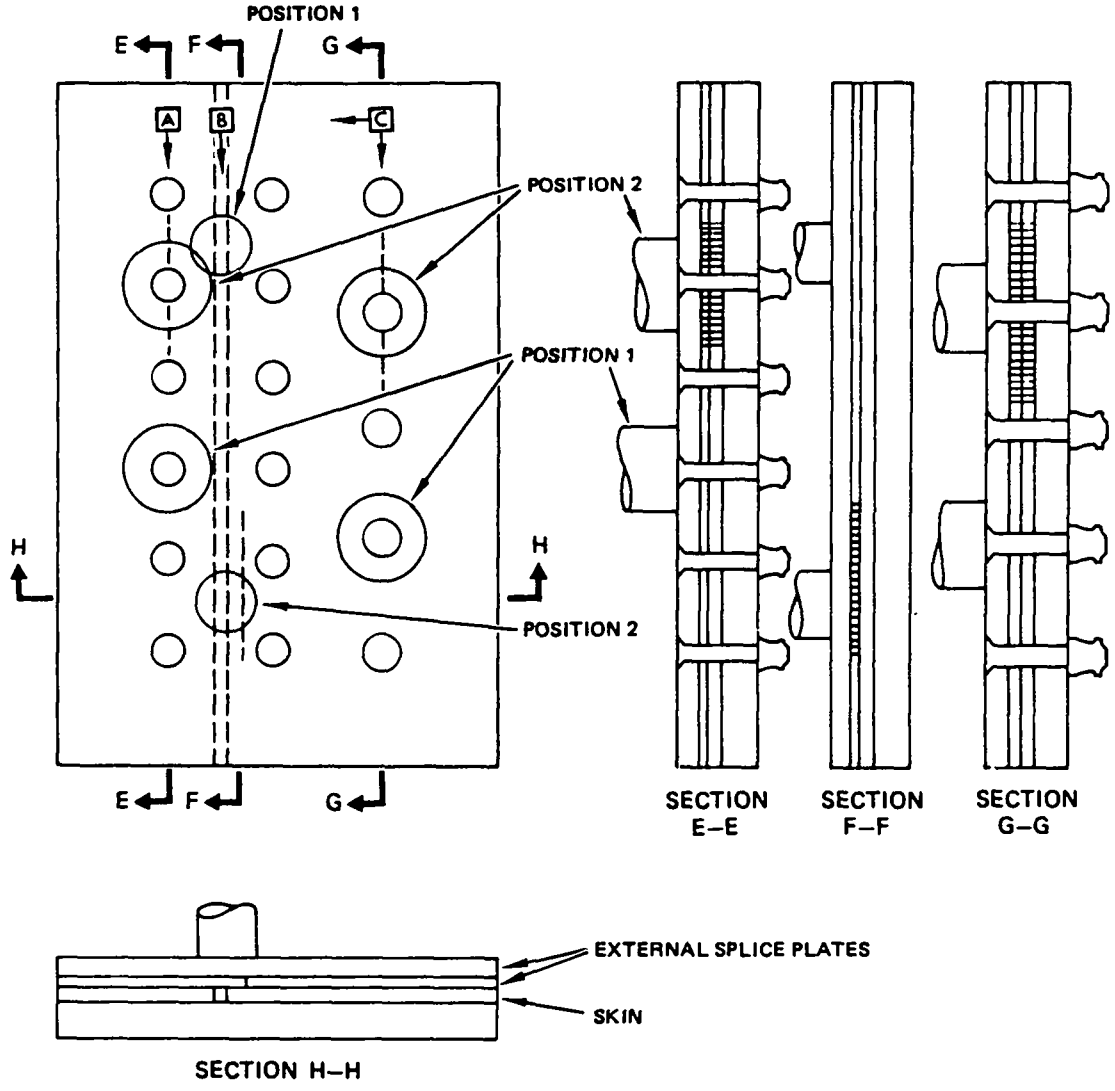
1 BACB30KF10–17 FASTENERS; BACC30R10 COLLAR (12 PLACES)

2 BACB30KF12–17 FASTENERS; BACC30R12 COLLARS (6 PLACES)

3 JEWELER'S SAWCUT 0.030 MAX WIDTH (5 PLACES)

REFERENCE STANDARD 012
DETAIL I

Upper WS 360 Splice Plate
Figure 41 (Sheet 8A)



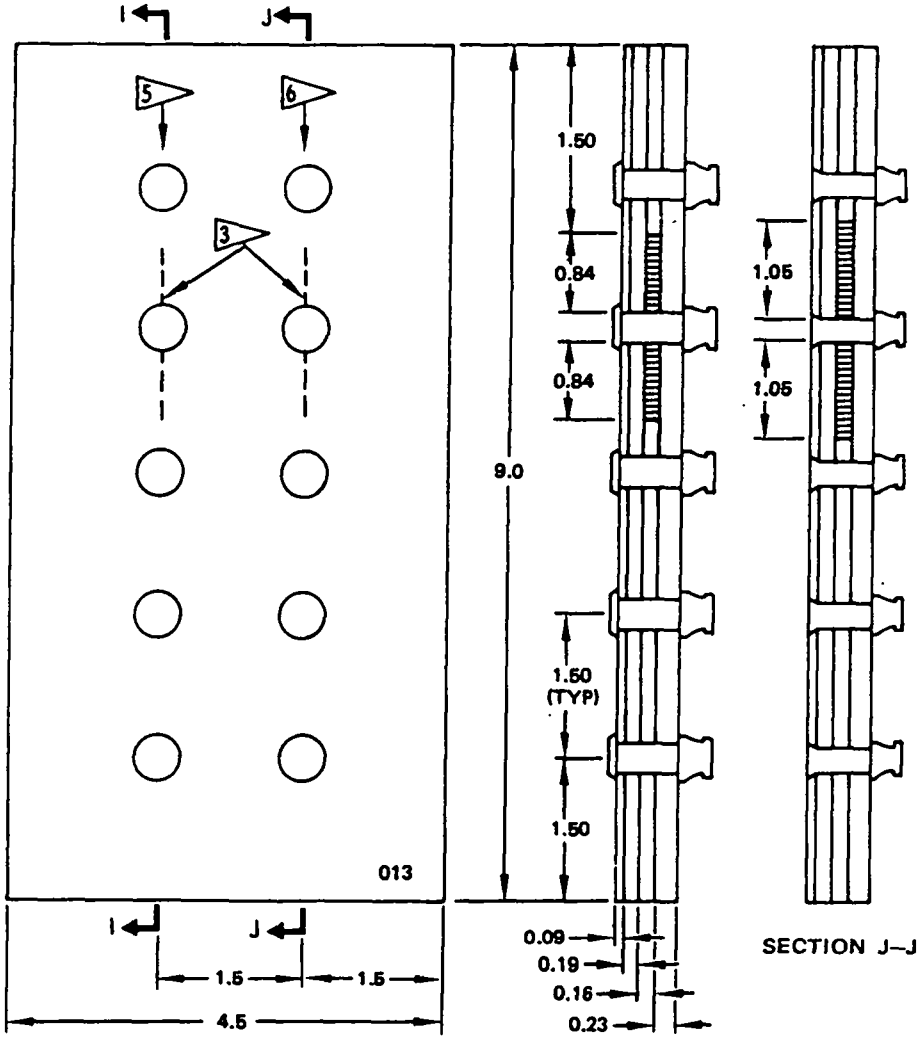
NOTE

A B C PROBE CALIBRATION POSITION ROWS (SEE CALIBRATION TABLE, TABLE 1)

PROBE POSITIONS FOR CALIBRATION ON REFERENCE STANDARD 012

DETAIL II

Upper WS 360 Splice Plate
Figure 41 (Sheet 9)



NOTES

- MATERIAL: 7075–T6 ALUMINUM
- TOLERANCE: X.X ± 0.05 X.XX ± 0.02
- ALL DIMENSIONS ARE IN INCHES
- P/N 6412–58
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110
- ETCH OR STEEL STAMP WITH 013

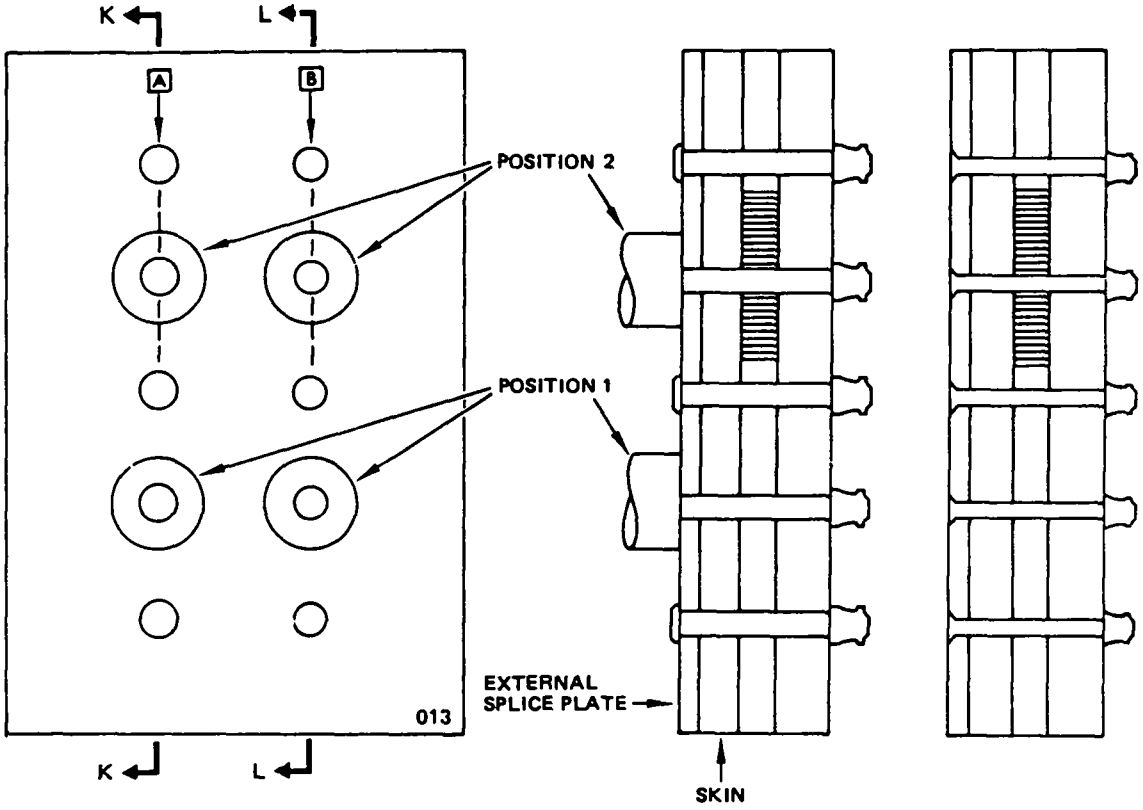
3 JEWELER'S SAWCUT 0.030 MAX WIDTH (4 PLACES)

5 BACB30FM10–11 FASTENER; BACC30M10 COLLAR (5 PLACES)

6 BACB30FN8–11 FASTENER; BACC30M8 COLLAR (5 PLACES)

REFERENCE STANDARD 013
DETAIL III

Upper WS 360 Splice Plate
Figure 41 (Sheet 10)



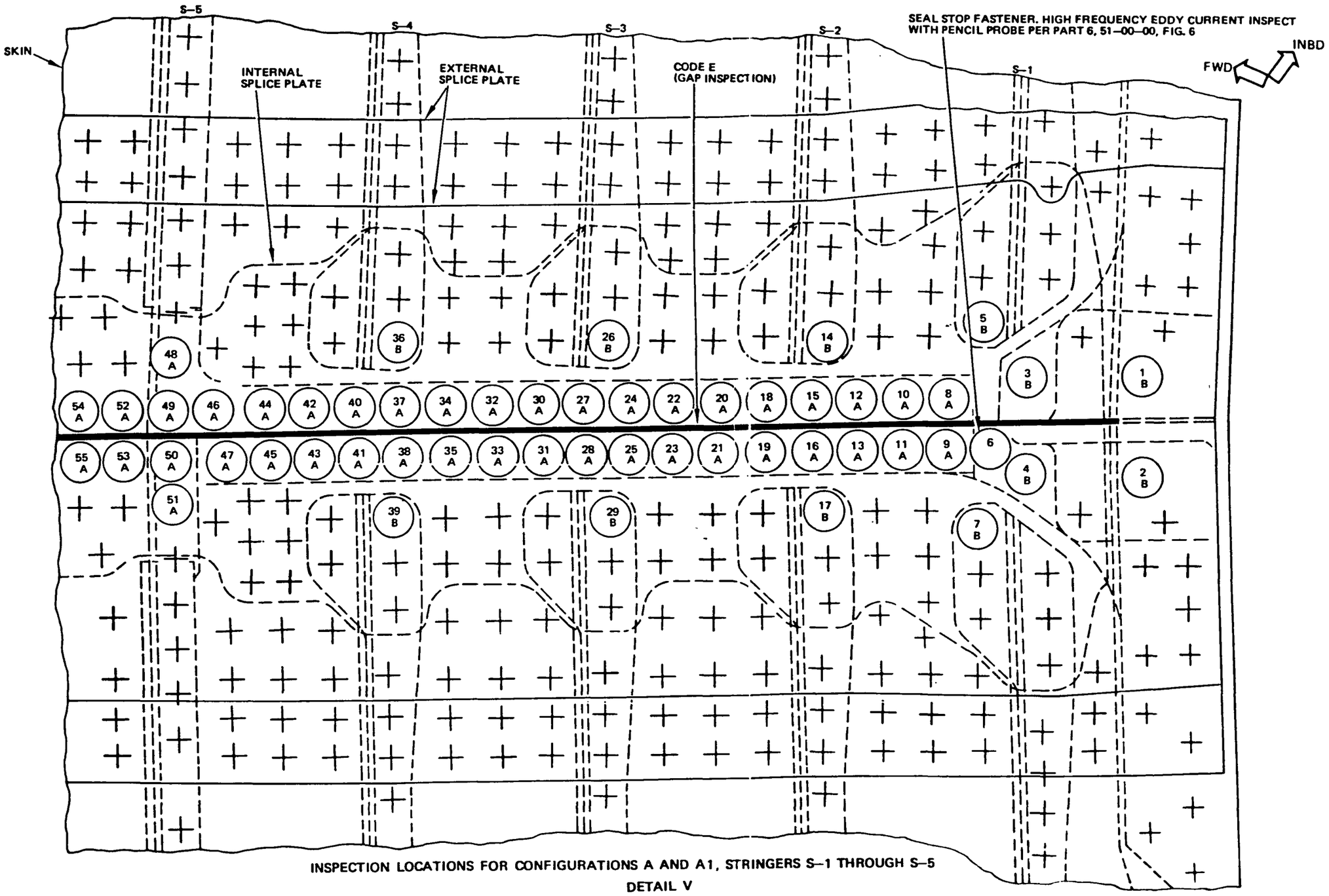
NOTE

A B PROBE CALIBRATION POSITION ROWS
(SEE CALIBRATION TABLE, TABLE I)

PROBE POSITIONS FOR CALIBRATION ON REFERENCE STANDARD 013

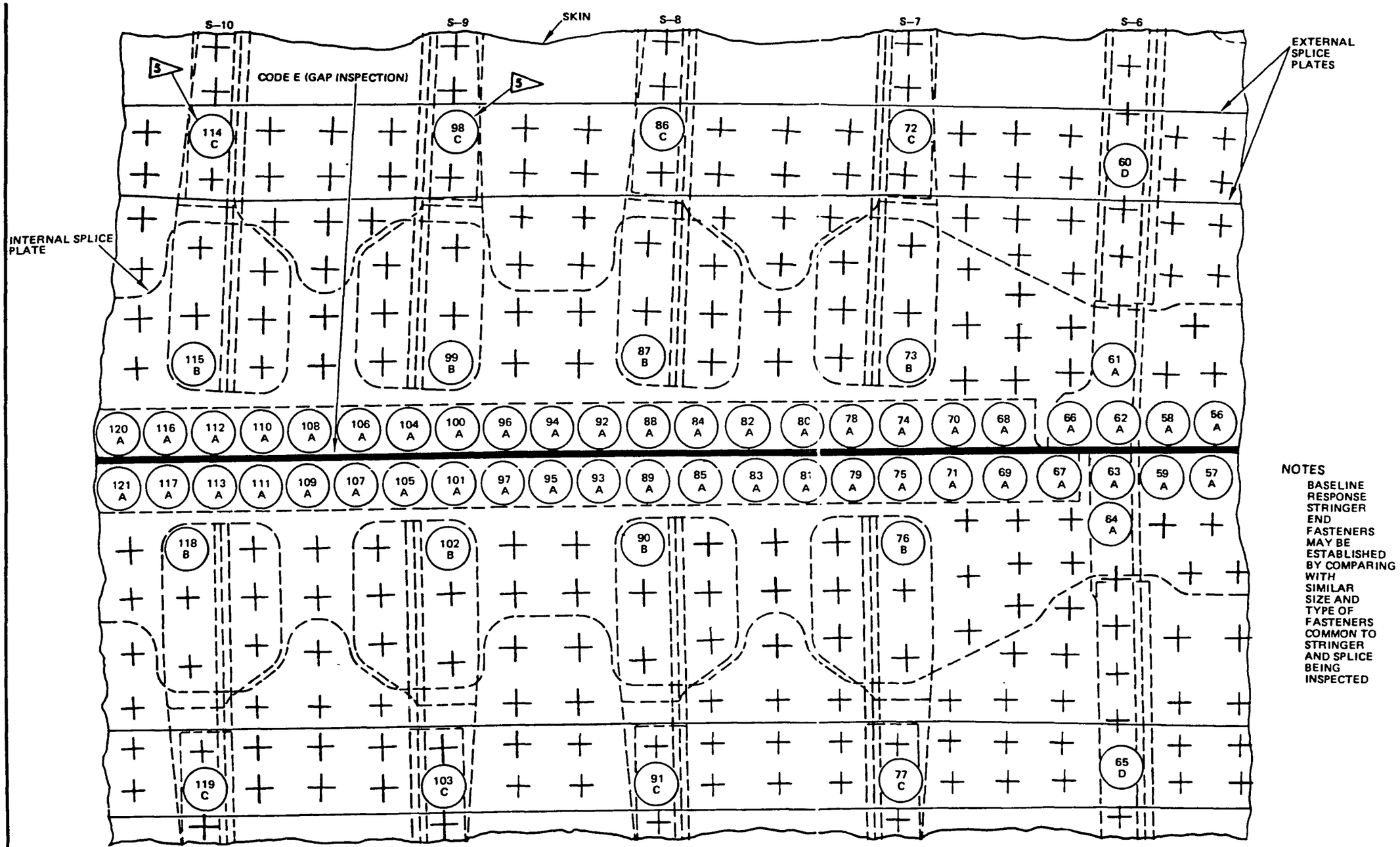
DETAIL IV

Upper WS 360 Splice Plate
Figure 41 (Sheet 11)



INSPECTION LOCATIONS FOR CONFIGURATIONS A AND A1, STRINGERS S–1 THROUGH S–5
DETAIL V

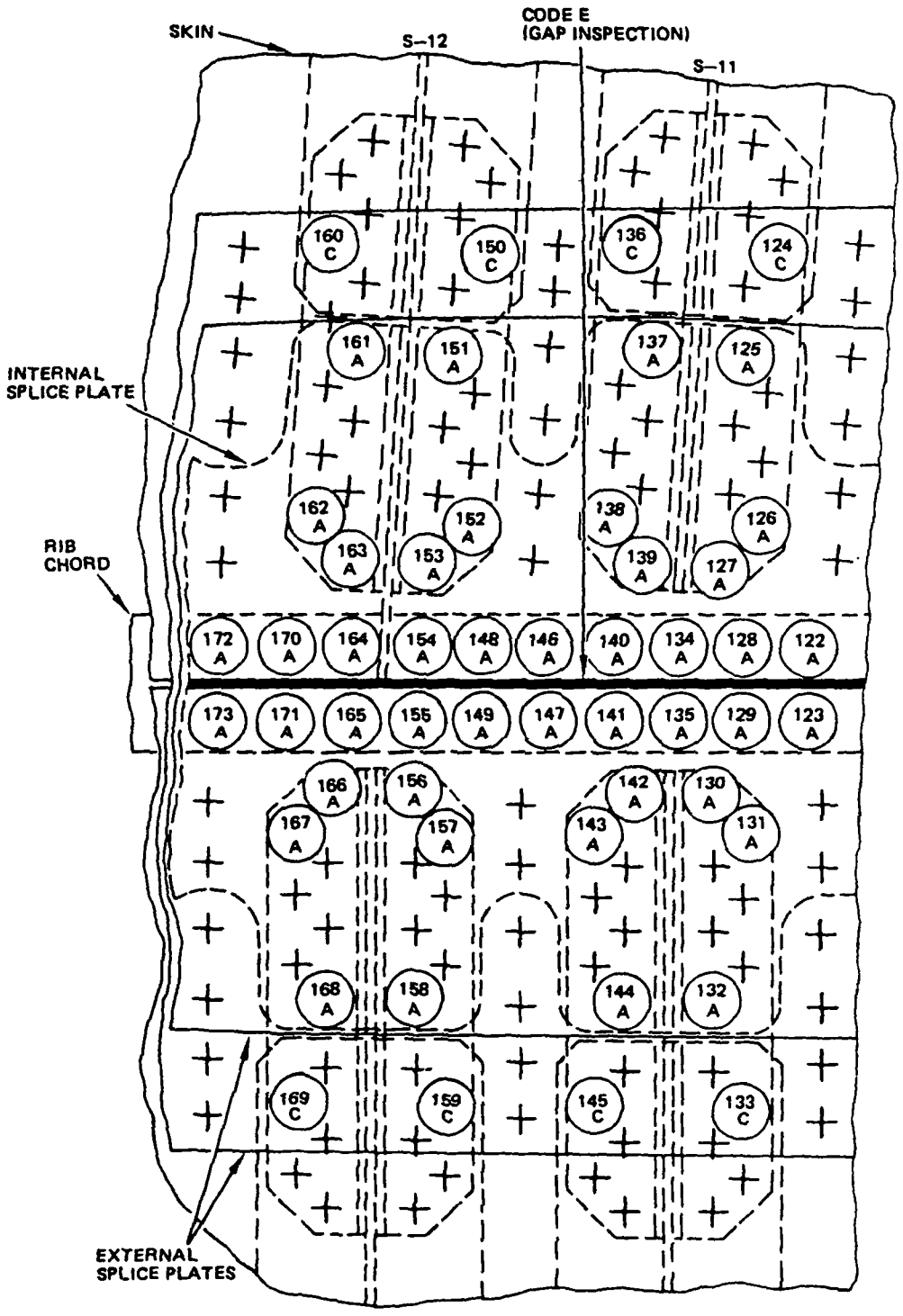
Upper WS 360 Splice Plate
Figure 41 (Sheet 12)



NOTES
BASELINE RESPONSE STRINGER END FASTENERS MAY BE ESTABLISHED BY COMPARING WITH SIMILAR SIZE AND TYPE OF FASTENERS COMMON TO STRINGER AND SPLICE BEING INSPECTED

INSPECTION LOCATIONS FOR CONFIGURATIONS A AND A_1, STRINGERS S–6 THROUGH S–10
DETAIL VI

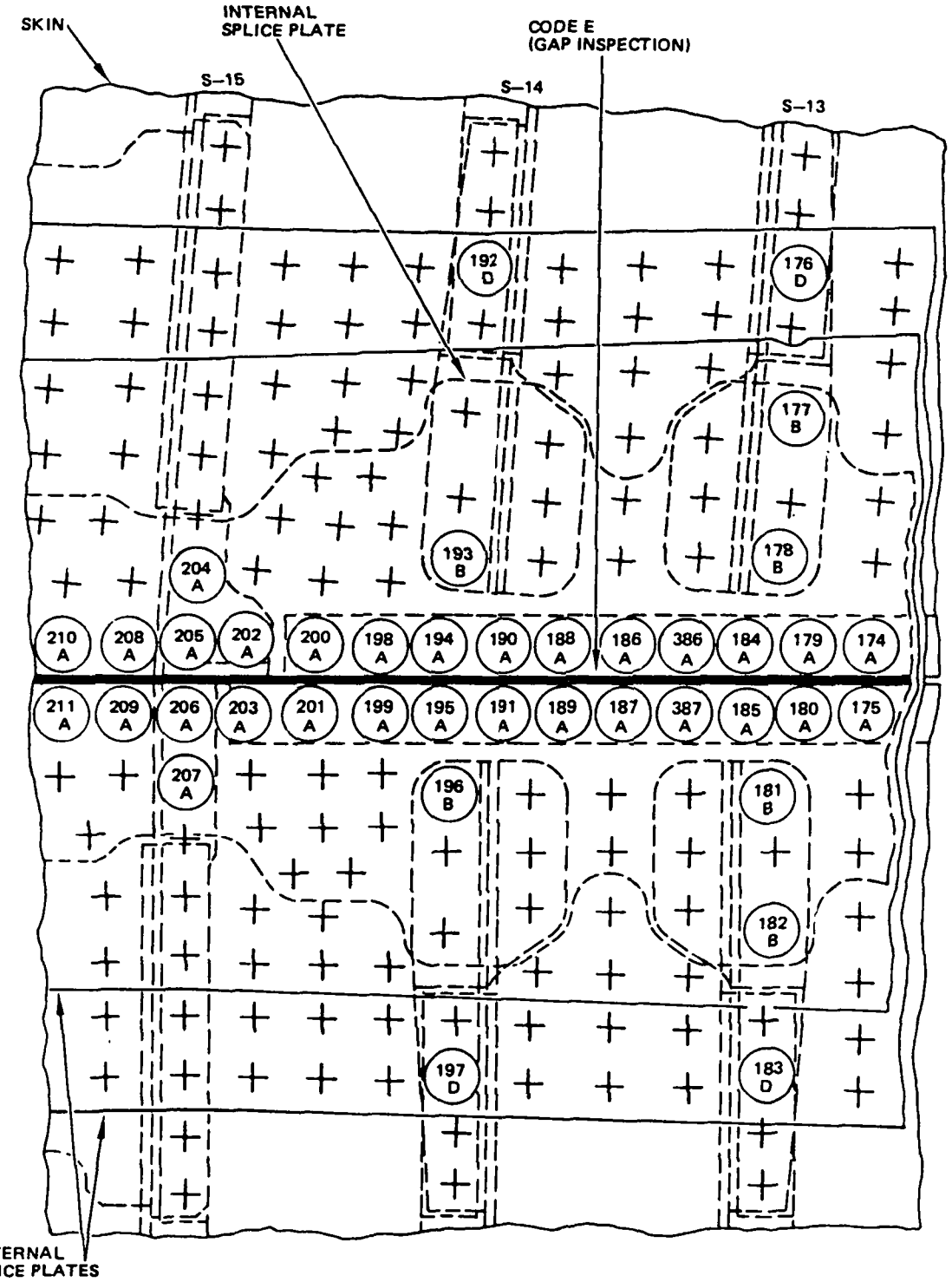
Upper WS 360 Splice Plate
Figure 41 (Sheet 13)



INSPECTION LOCATIONS FOR CONFIGURATIONS A AND A1, STRINGERS S–11 AND S–12

DETAIL VII

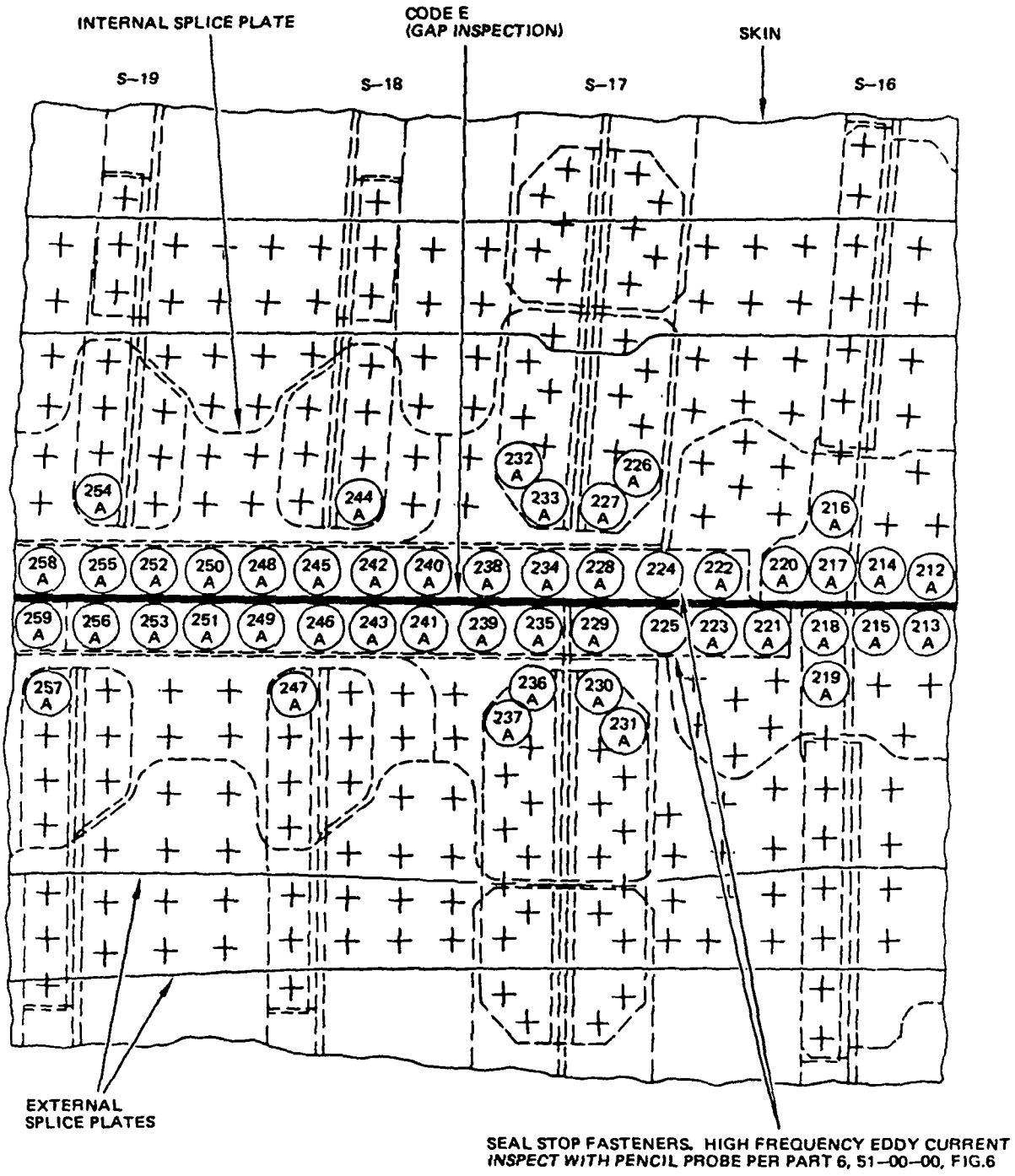
Upper WS 360 Splice Plate
Figure 41 (Sheet 14)



INSPECTION LOCATIONS FOR CONFIGURATIONS A AND A1, STRINGERS S–13 THROUGH S–15

DETAIL VIII

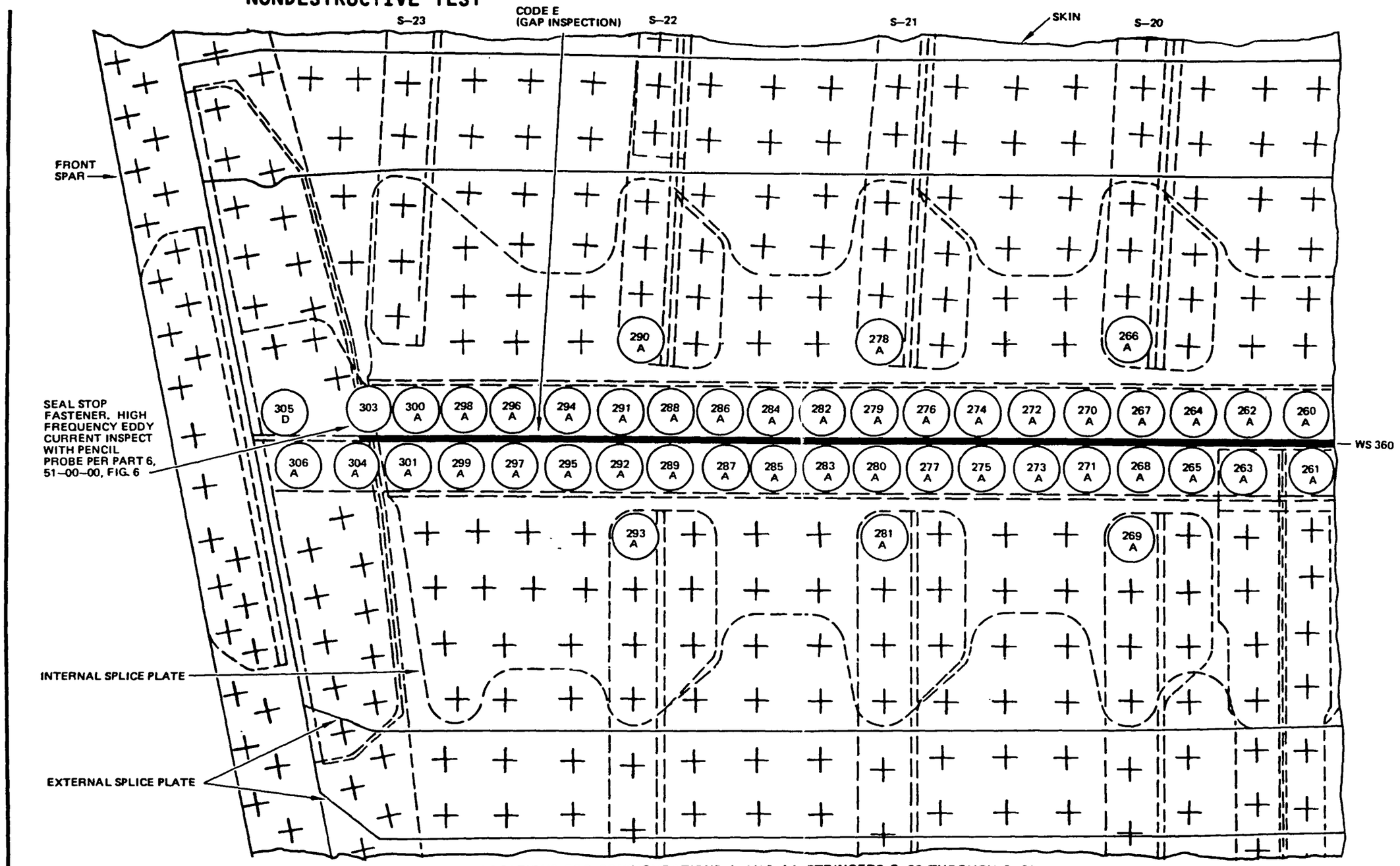
Upper WS 360 Splice Plate
Figure 41 (Sheet 15)



INSPECTION LOCATIONS FOR CONFIGURATIONS A AND A1, STRINGERS S–16 THROUGH S–19

DETAIL IX

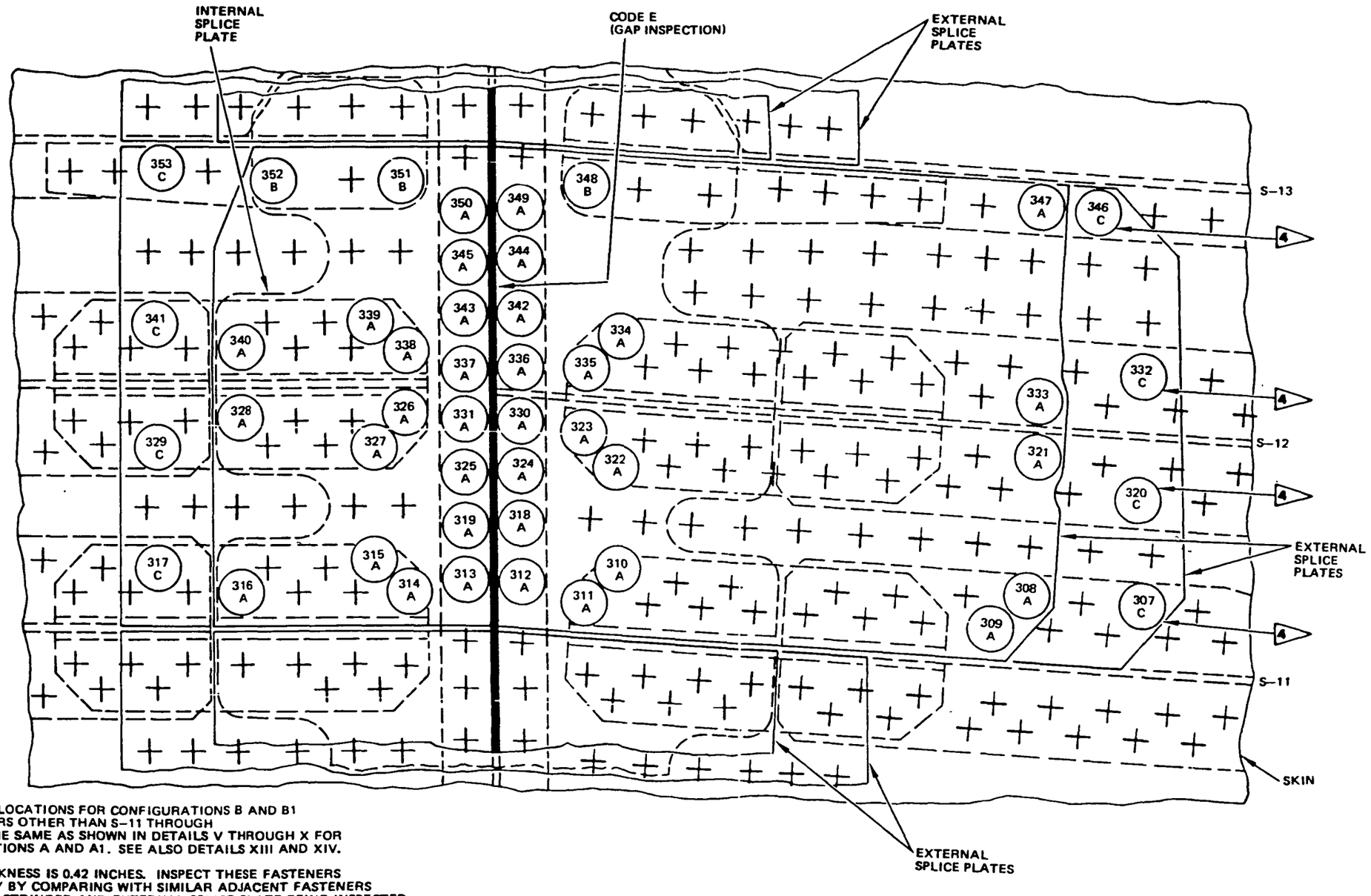
Upper WS 360 Splice Plate
Figure 41 (Sheet 16)



INSPECTION LOCATIONS FOR CONFIGURATIONS A AND A1, STRINGERS S–20 THROUGH S–23

DETAIL X

Upper WS 360 Splice Plate
Figure 41 (Sheet 17)



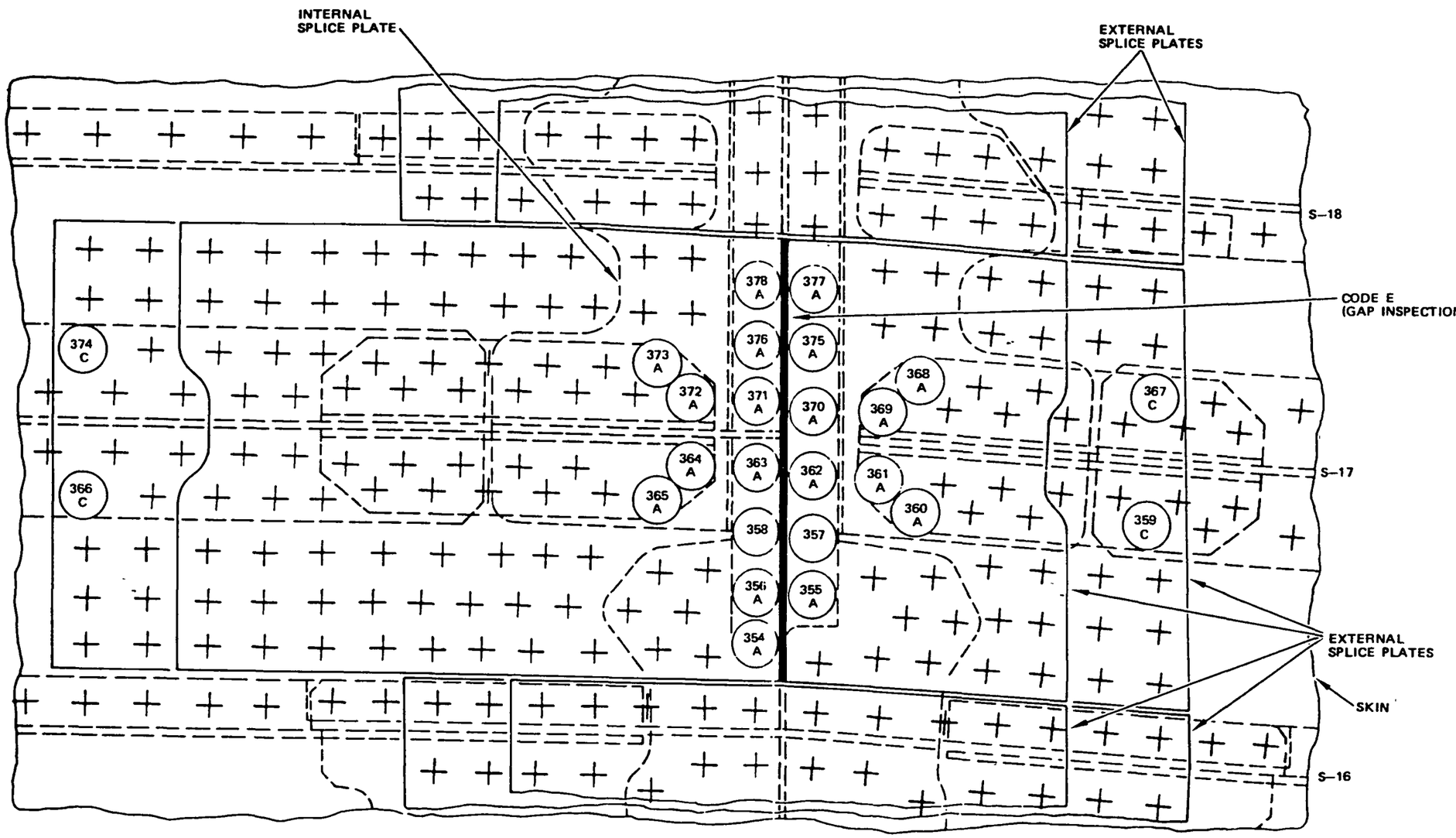
NOTES

- INSPECTION LOCATIONS FOR CONFIGURATIONS B AND B1 AT STRINGERS OTHER THAN S–11 THROUGH S–13 ARE THE SAME AS SHOWN IN DETAILS V THROUGH X FOR CONFIGURATIONS A AND A1. SEE ALSO DETAILS XIII AND XIV.

(4) TOTAL THICKNESS IS 0.42 INCHES. INSPECT THESE FASTENERS SEPARATELY BY COMPARING WITH SIMILAR ADJACENT FASTENERS COMMON TO STRINGER AND EXTERNAL SPLICE PLATE BEING INSPECTED.

INSPECTION LOCATIONS FOR CONFIGURATIONS B AND B1, STRINGERS S–11 THROUGH S–13
DETAIL XI

Upper WS 360 Splice Plate
Figure 41 (Sheet 18)

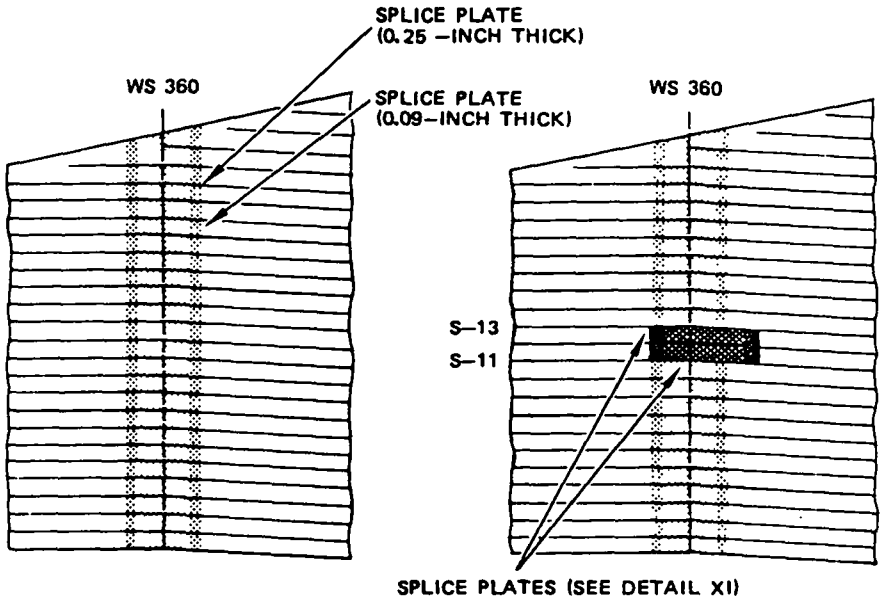


NOTES

- INSPECTION LOCATIONS FOR CONFIGURATIONS C AND C1 AT LOCATIONS OTHER THAN BETWEEN STRINGERS S – 16 AND S – 18 ARE THE SAME AS SHOWN IN DETAILS V THROUGH X FOR CONFIGURATIONS A AND A1. SEE ALSO DETAILS XIII AND XIV.

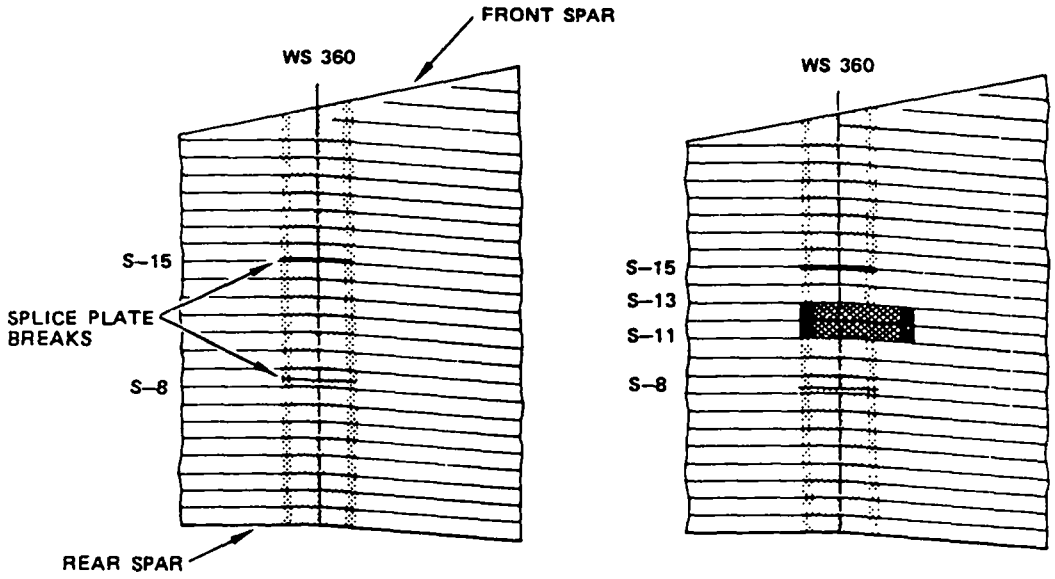
INSPECTION LOCATIONS FOR CONFIGURATIONS C AND C1, BETWEEN STRINGERS S–16 AND S–18
DETAIL XII

Upper WS 360 Splice Plate
Figure 41 (Sheet 19)



CONFIGURATION A

CONFIGURATION B

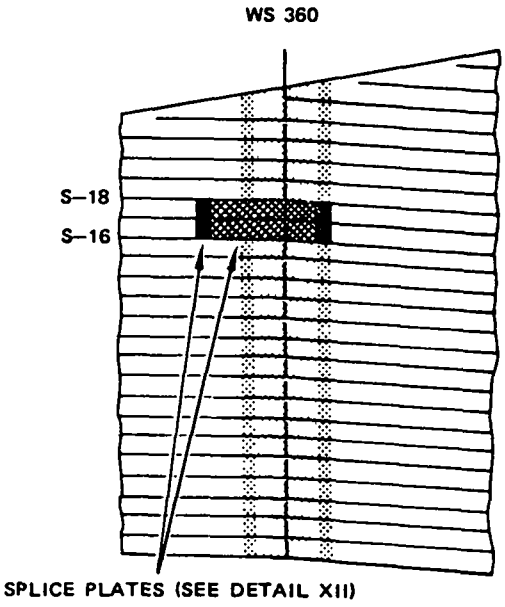


CONFIGURATION A1

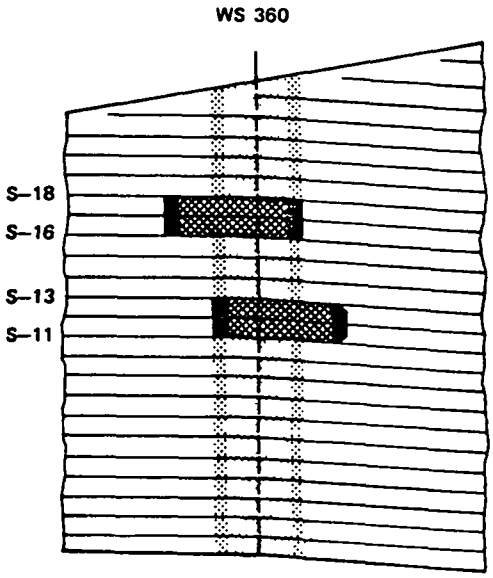
CONFIGURATION B1

GENERAL CONFIGURATION DEFINITIONS
DETAIL XIII

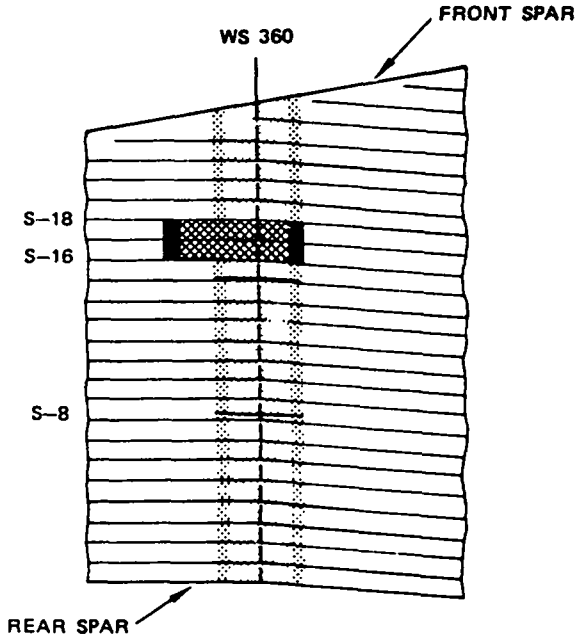
Upper WS 360 Splice Plate
Figure 41 (Sheet 20)



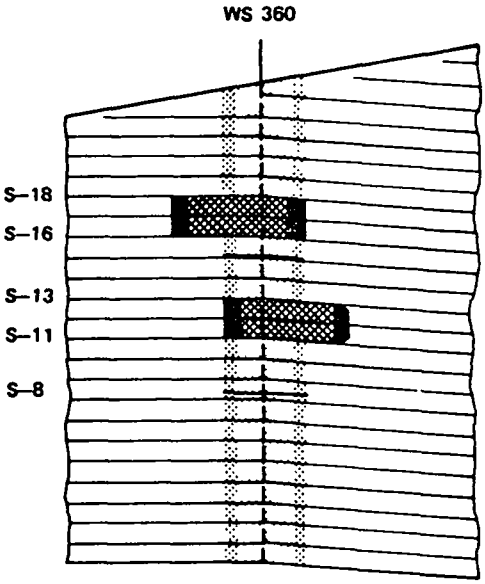
CONFIGURATION C



CONFIGURATION D



CONFIGURATION C1



CONFIGURATION D1

GENERAL CONFIGURATION DEFINITIONS
DETAIL XIV

Upper WS 360 Splice Plate
Figure 41 (Sheet 21)

EFFECTIVITY
MODEL: 707/720 SERVICE BULLETIN REFERENCE: 2661, 2703, 2708 SSI DOCUMENT (D6-44860) REFERENCE: SSD 57-A05-07 SSD 57-A15-07 SSD 57-A25-07 SSD 57-A35-07 SSD 57-A45-07

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To perform internal surface eddy current crack inspection of the lower wing stringer splice at the beavertail.

      (1) WBL 129.62 for 707-100/200 and 720

      (2) WBL 59.24 for 707-300/400/300B/300C

   B. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during the development of this procedure.

      (1) ED 520
      Magnaflux Corp.
      6800 E. Washington Blvd.
      Los Angeles, CA 90049

Lower Inner Plus Chord/Stringer Tie Connection
Figure 42 (Sheet 1)

B. Probes

(1) Shielded straight and shielded right-angled pencil probes, per Part 1, 51-06-00, Fig. 1.

(a) Straight, P-50
Rt. Angle, P-905-50
NDT Product Engineering
P.O. Box 423
Renton, WA 98057

(b) Straight, VM100PS
Rt. Angle, VM100AS
VM Products
7420 Park Avenue No. 20
Tacoma, WA 98408

NOTE: Diameter of coil end of shielded right angle probe should not exceed 0.29-inch for internal inspection.

(2) Reference standard, Part 6, 51-00-00, Fig. 4.

3. Preparation for Inspection

A. Drain and purge applicable fuel tanks on both sides of the wing bulkhead at beavertail to permit tank entry by an inspector with an eddy current instrument.

4. Instrument Calibration

A. Calibrate per Part 6, 51-00-00, Fig. 4.

5. Inspection Procedure

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

A. Model 707-100/200, all versions

NOTE: There are no stringer inner flange splices at stringer S-5, jacking support fitting, and stringers S-12 and S-13, fuel boost pump fitting.

Lower Inner Plus Chord/Stringer Tie Connection
Figure 42 (Sheet 2)

(1) Inner plus chord/stringer splice.

(a) Scan the plus chord inner tang around fasteners common to the stringer or splice strap (Details I and II).

(b) Scan the probe along the fore and aft edges of splice strap adjacent to fasteners indicated (Detail I).

(c) Scan stringer inner flange around fasteners common to the splice strap or plus chord tang (Details I and II).

NOTE: At some locations, fastener positions may prevent a 360-degree scan around the fastener end. When this occurs, scan around the fastener to the extent possible.

Lower Inner Plus Chord/Stringer Tie Connection
Figure 42 (Sheet 2A)

(2) Jacking support fitting (Detail V).

(a) Scan the probe along the edge of the jacking support fitting flange to the extent possible.

(b) Scan the probe around fasteners common to the splice fitting.

(c) Scan the probe around fasteners common to the stringer flanges.

(3) Fuel boost pump support fitting (Detail VI).

(a) Scan the probe around both ends of fasteners common to the stringer and boost pump fitting.

B. Model 720 all versions

(1) Inner plus chord/stringer tie.

(a) Inspect according to 5.A.(1) except use Detail III.

(2) Jacking support fitting.

(a) Inspect according to 5.A.(2).

(3) Fuel boost pump support fitting.

(a) Inspect according to 5.A.(3).

C. Model 707-300/400 all versions

(1) Inner plus chord/stringer tie.

(a) Inspect according to 5.A.(1) except use Detail IV.

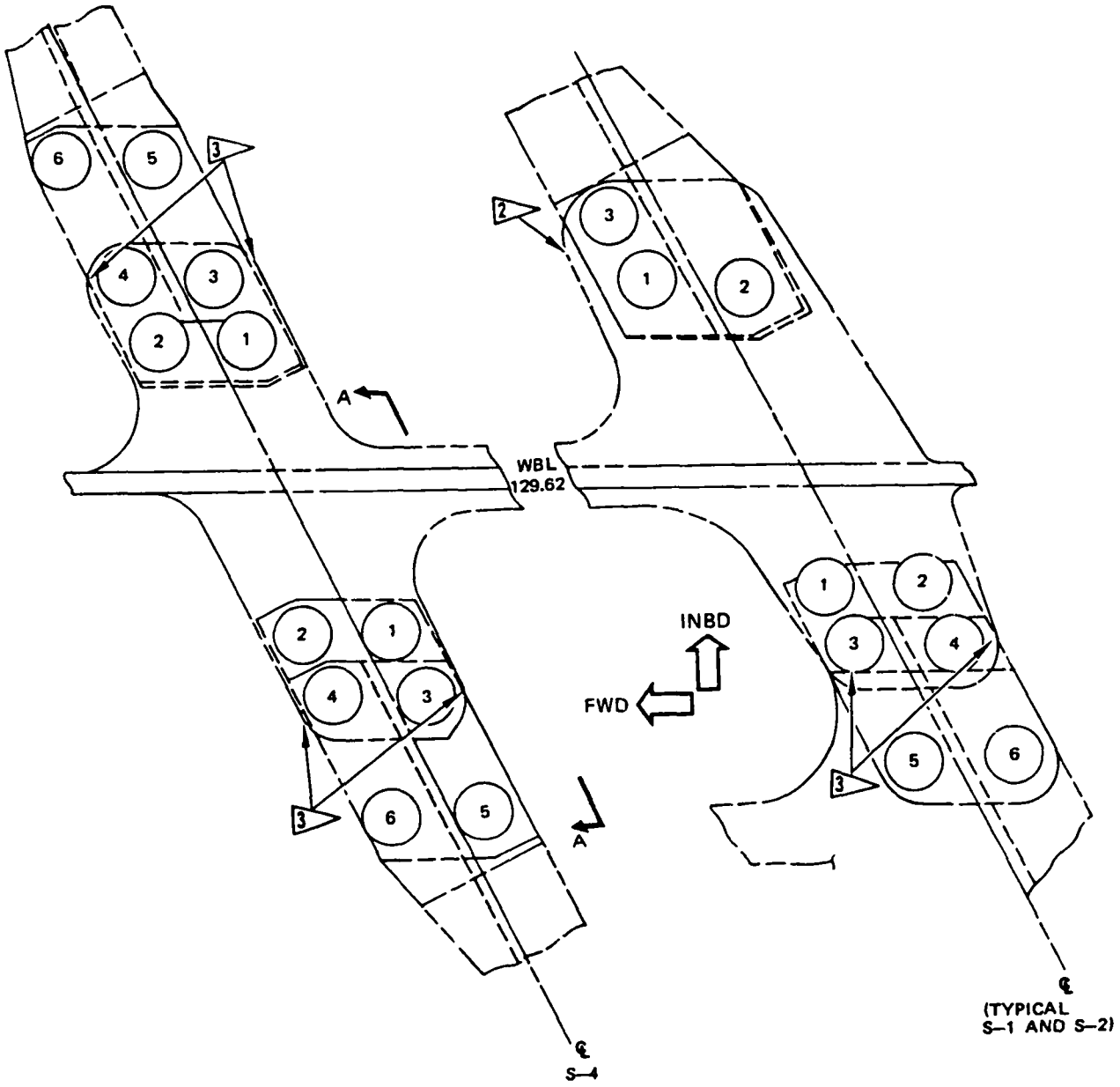
(2) Jacking support fitting.

(a) Inspect according to 5.A.(2).

(3) Fuel boost pump support fitting.

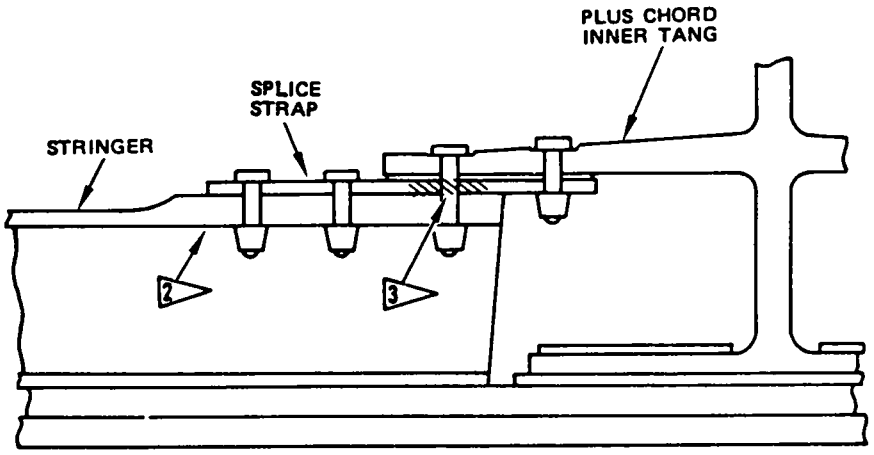
(a) Inspect according to 5.A.(3).

Lower Inner Plus Chord/Stringer Tie Connection
Figure 42 (Sheet 3)

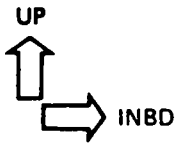


WBL 129.62 RIB CHORD/STRINGER SPLICE
(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)
(707-100/200 AIRPLANES)
DETAIL I

Lower Inner Plus Chord/Stringer Tie Connection
Figure 42 (Sheet 4)



SECTION A–A



NOTES

EDGE SCAN SPLICE STRAP

6 INSPECTION AREA
FASTENER NUMBER

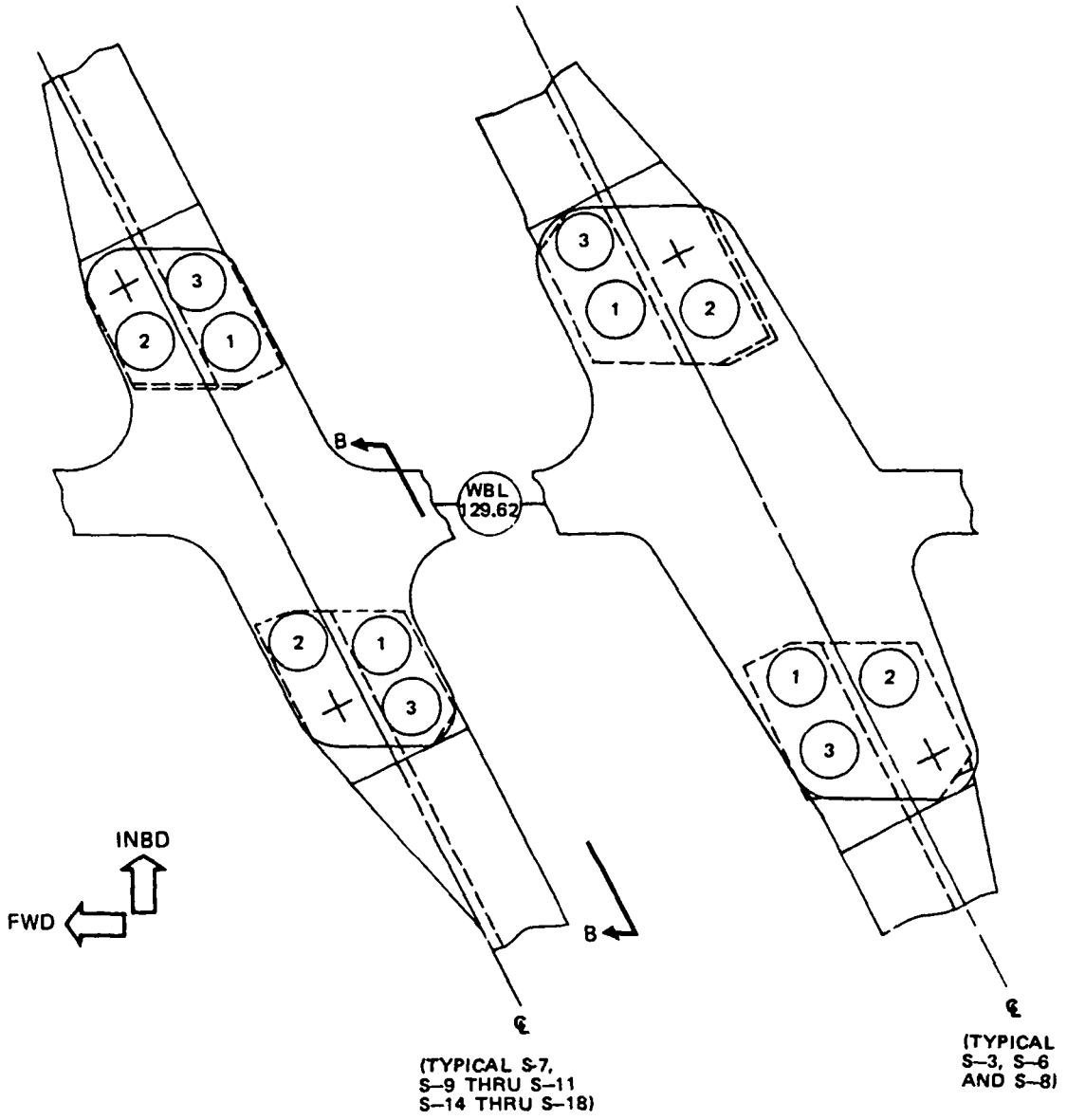
1 PLACE PROBE ON PLUS CHORD INNER TANG AND SCAN AROUND FASTENERS 1 AND 2

2 PLACE PROBE ON STRINGER FLANGE AND SCAN AROUND END OF FASTENERS 5 AND 6; AND FASTENER 3, S–1 AND S–2, AS INDICATED

3 PLACE PROBE ON EDGES OF SPLICE STRAP AND SCAN PAST FASTENERS 3 AND 4

DETAIL I (CONT)

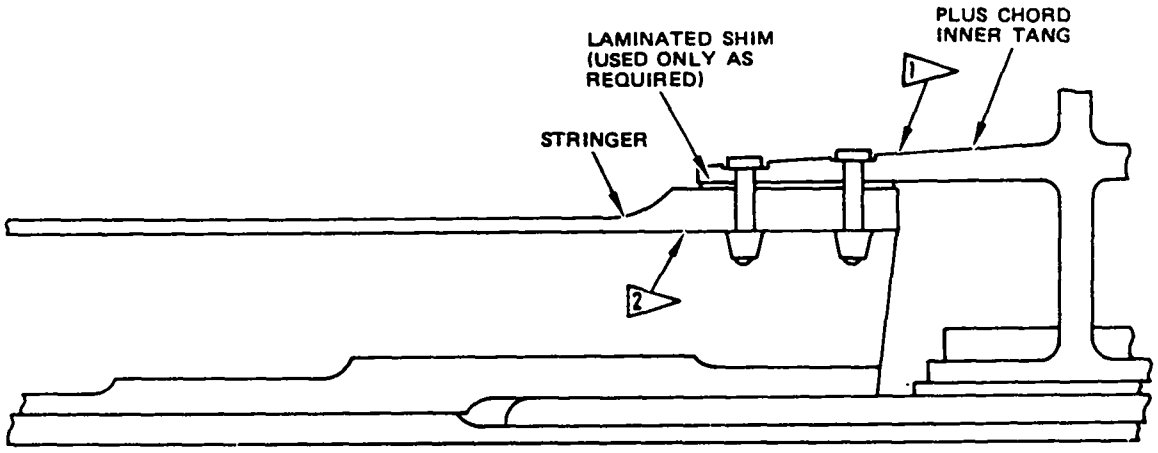
Lower Inner Plus Chord/Stringer Tie Connection
Figure 42 (Sheet 5)



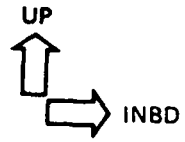
WBL 129.62 RIB CHORD/STRINGER SPLICE
(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)
(707-100/200 AIRPLANES)

DETAIL II

Lower Inner Plus Chord/Stringer Tie Connection
Figure 42 (Sheet 6)



SECTION B–B



NOTES

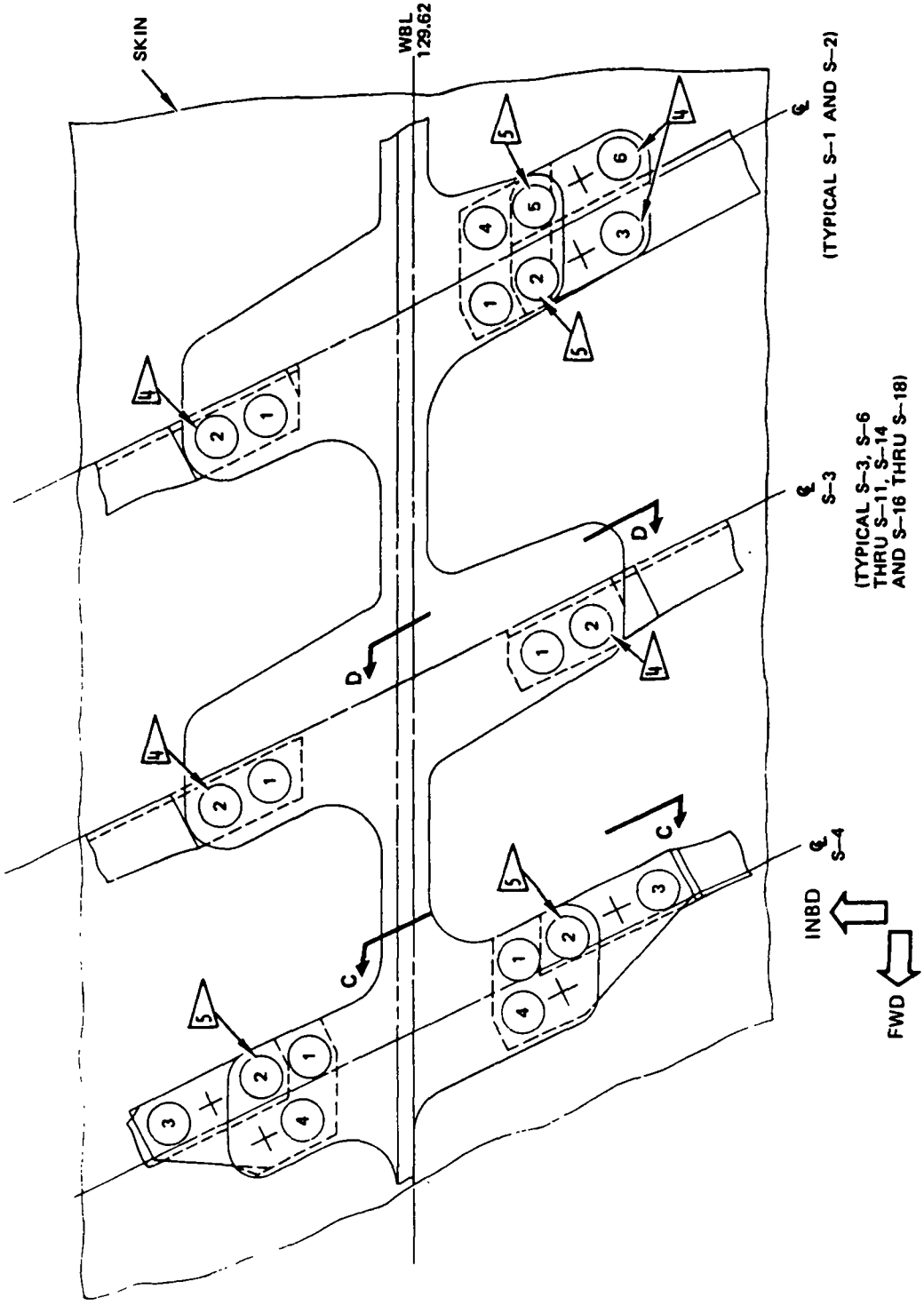
(2) INSPECTION AREA
FASTENER NUMBER

1 PLACE PROBE ON PLUS CHORD INNER TANG AND SCAN AROUND FASTENERS 1 AND 2

2 PLACE PROBE ON STRINGER FLANGE AND SCAN AROUND FASTENER 3

DETAIL II (CONT)

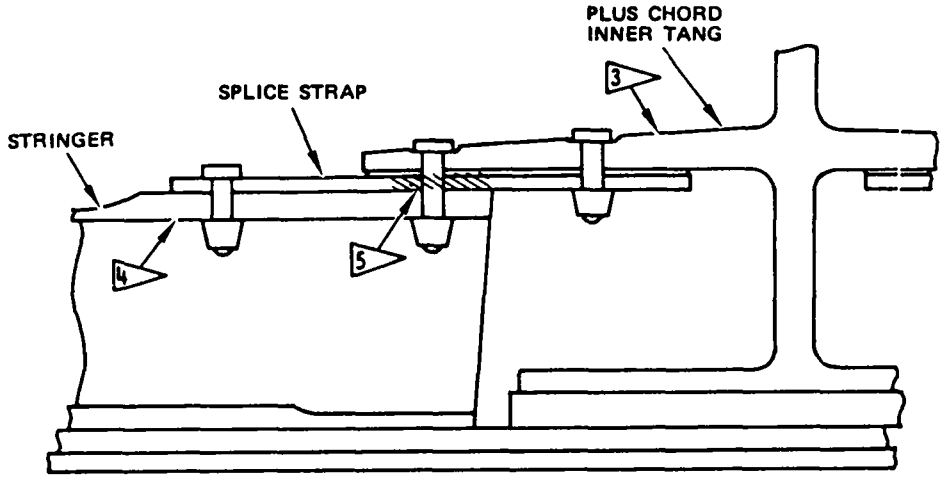
Lower Inner Plus Chord/Stringer Tie Connection
Figure 42 (Sheet 7)



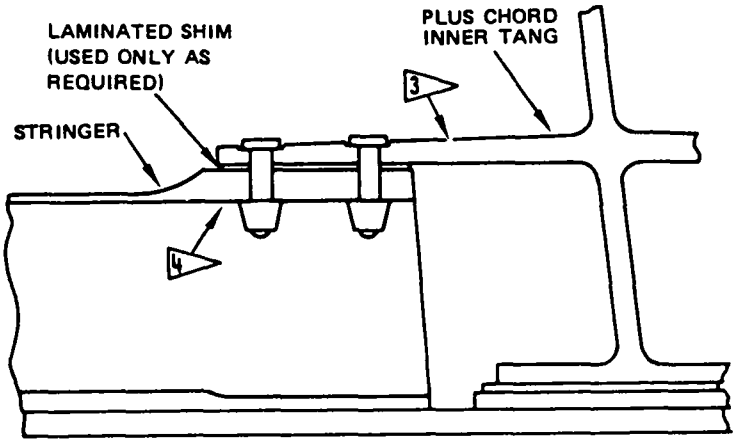
WBL 129.62 RIB CHORD/STRINGER SPLICE
(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)
(720 AIRPLANES)

DETAIL III

Lower Inner Plus Chord/Stringer Tie Connection
Figure 42 (Sheet 8)



SECTION C–C



SECTION D–D

NOTES

EDGE SCAN SPLICE STRAP

5 — INSPECTION AREA
FASTENER NUMBER

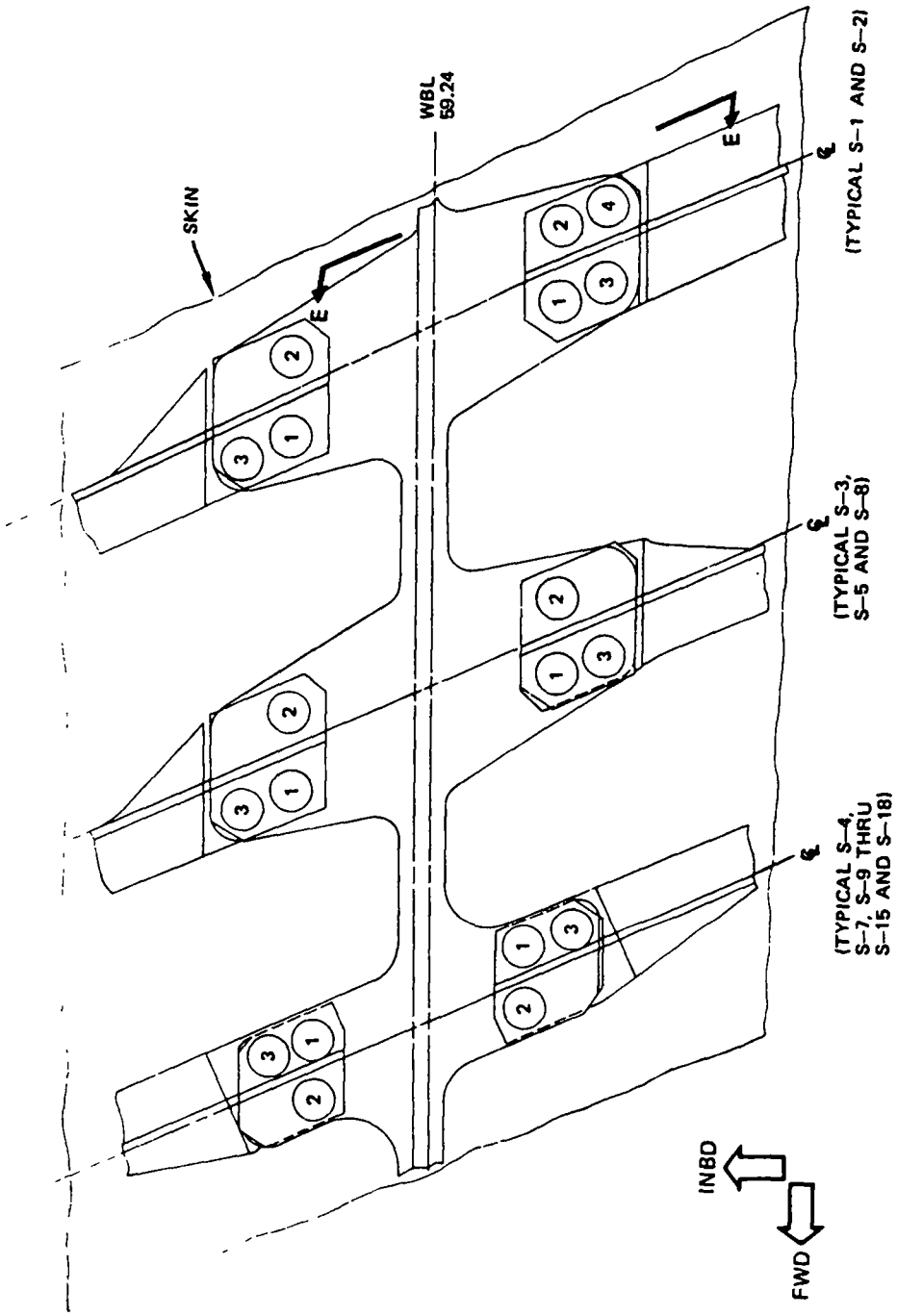
3 PLACE PROBE ON PLUS CHORD INNER TANG
SCAN AROUND FASTENERS 1AND 4

4 PLACE PROBE ON STRINGER FLANGE AND SCAN
AROUND FASTENERS 3 AND 6 AND
FASTENER 2 AS INDICATED

5 PLACE PROBE ON EDGES OF SPLICE STRAP –
SCAN PAST FASTENERS 2 AND 5 AS INDICATED

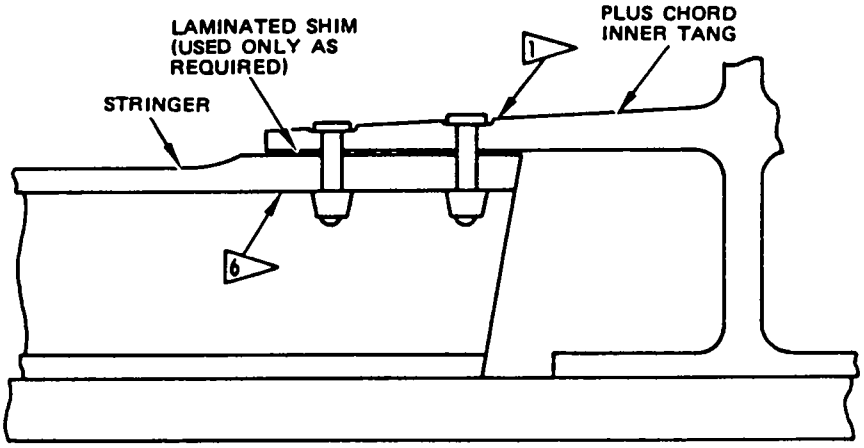
DETAIL III (CONT.)

Lower Inner Plus Chord/Stringer Tie Connection
Figure 42 (Sheet 9)

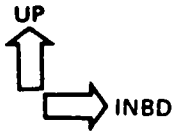


WBL 129.62 RIB CHORD/STRINGER SPLICE
(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)
(707-300/-400/-300B/-300C)
DETAIL IV

Lower Inner Plus Chord/Stringer Tie Connection
Figure 42 (Sheet 10)



SECTION E–E



NOTES

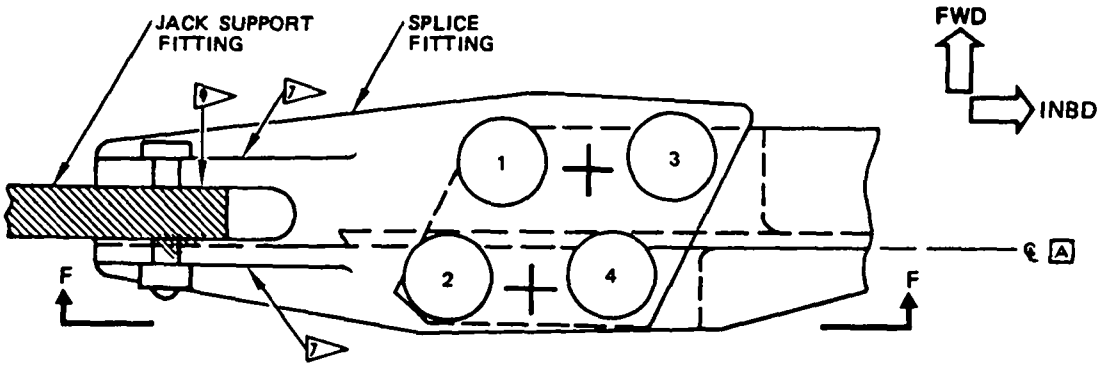
1 – INSPECTION AREA
FASTENER NUMBER

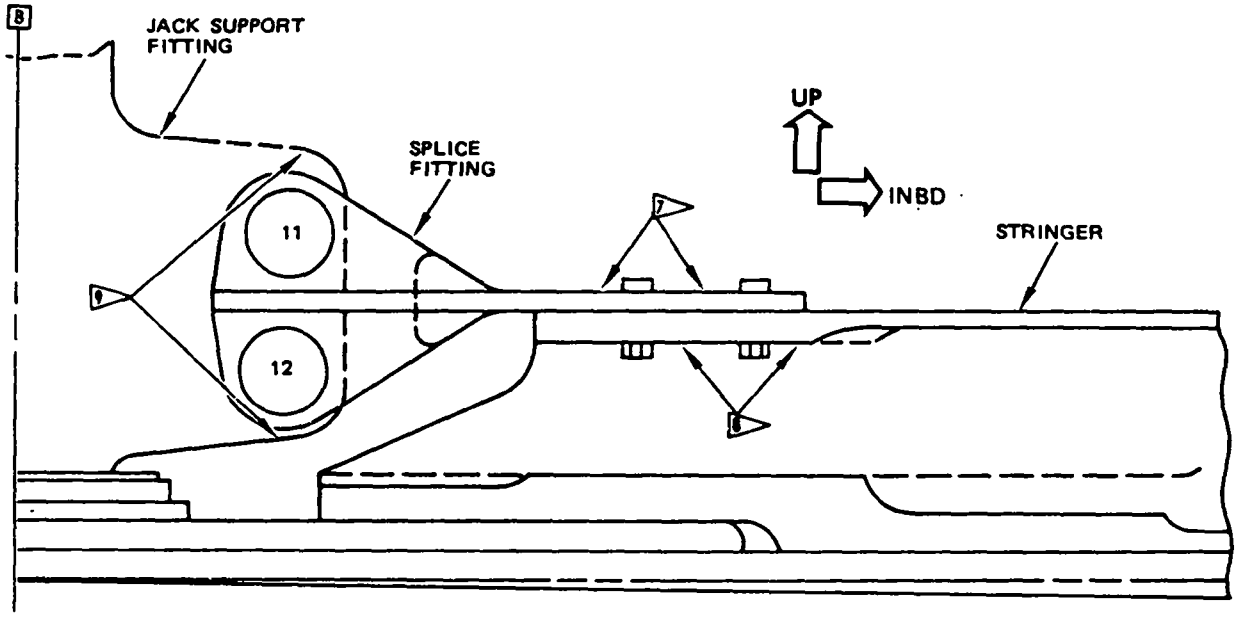
1 PLACE PROBE ON PLUS CHORD INNER TANG AND SCAN AROUND FASTENERS 1 AND 2

6 PLACE PROBE ON STRINGER FLANGE AND SCAN AROUND FASTENERS 3 AND 4

DETAIL IV (CONT.)

Lower Inner Plus Chord/Stringer Tie Connection
Figure 42 (Sheet 11)





SECTION F–F

NOTES

EDGE SCAN JACKING SUPPORT FITTING FLANGE

2 — INSPECTION AREA; FASTENER NUMBER

A — S–5 FOR –100/200 AND 720
S–6 FOR –300/400/300B/300C

B — WBL 57.24 FOR –300/400/300B/300C
WBL 129.62 FOR –100/200 AND 720

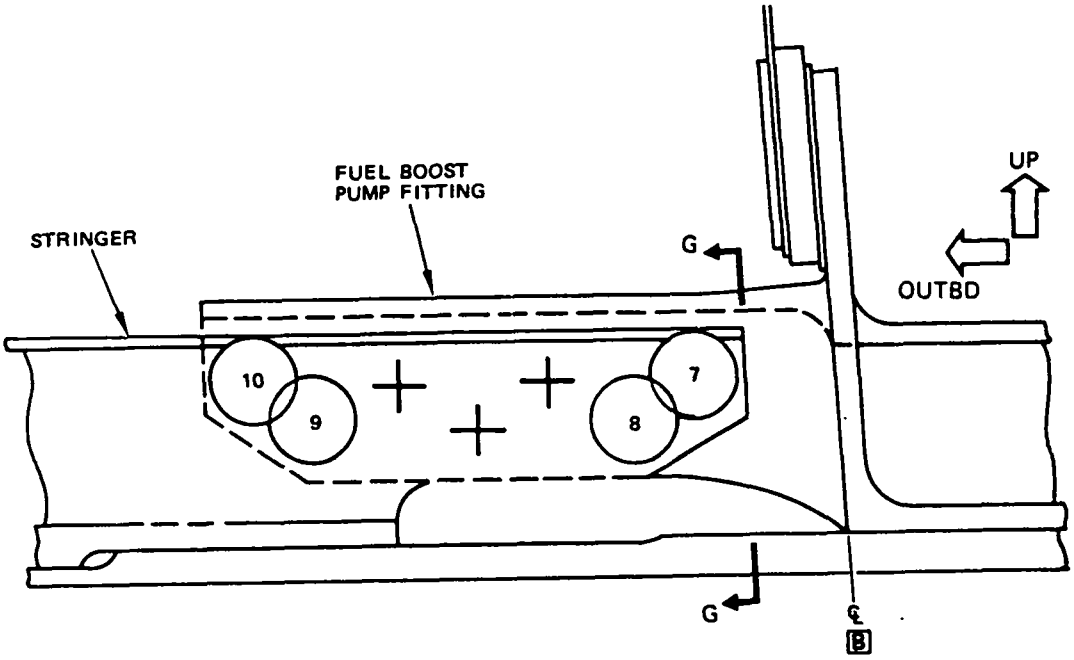
7 — PLACE PROBE ON SPLICE FITTING SCAN AROUND FASTENERS 1, 2, 3, 4, 11 AND 12

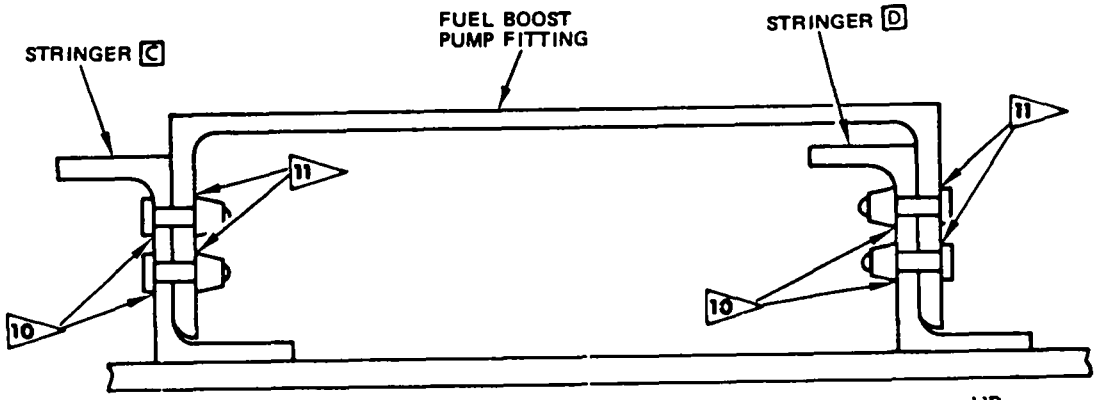
8 — PLACE PROBE ON STRINGER FLANGE SCAN AROUND FASTENERS 1, 2, 3, AND 4

9 — PLACE PROBE ON JACKING SUPPORT FITTING FLANGE EDGE AND SCAN PAST FASTENERS 11 & 12 TO EXTENT POSSIBLE

JACKING SUPPORT FITTING
(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)
DETAIL V

Lower Inner Plus Chord/Stringer Tie Connection
Figure 42 (Sheet 12)





SECTION G-G

NOTES

(7) INSPECTION AREA
FASTENER NUMBER

B WBL 59.24 707-300/-400
WBL 129.62 707-100/-200, 720

C S-12 FOR -100/-200 AND 720
S-16 FOR -300/-400/-300B/-300C

D S-13 FOR -100/-200 AND 720
S-17 FOR -300/-400/-300B/-300C

10 PLACE PROBE ON VERTICAL FLANGE AND SCAN AROUND FASTENERS 7 THRU 10

11 PLACE PROBE ON BOOST PUMP FITTING AND SCAN AROUND FASTENERS 7 THRU 10

BOOST PUMP FITTING
(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)

DETAIL VI

Lower Inner Plus Chord/Stringer Tie Connection
Figure 42 (Sheet 13)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To perform an internal high frequency eddy current inspection of the wing lower BBL 70.5 splice, to detect cracks out of fastener holes:

      (1) Common to the lower wing skin and lower horizontal flanges, of the rib chord and stringers.

      (2) Common to the upper horizontal flanges, of the rib chord and stringers and to the splice fittings.

   B. To perform an internal bolt hole inspection of selected fastener holes common to the upper flange of the lower BBL 70.5 splice, on models which have fuel cells. See Detail III.

   C. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Instrument

      (1) Refer to Part 6, 51-00-0, Fig. 4.

   B. Probes

      (1) Low profile, right angle shielded pencil probe per Part 1, 51-06-00, Fig. 1, as specified in Detail I. Shielded probes available from:

P/N: PEN-100AS	P/N: P901-60B
VM Product	NDT Product Engineering
7420 Park Ave. No. 20	P.O. Box 423
Tacoma, WA 98408	Renton, WA 98057

      Specify dimensions desired when ordering from VM Products. It is also recommended to have a straight shielded pencil probe for areas where access is not a problem.

Wing Lower BBL 70.5 Splice 720 Airplanes
Figure 43 (Sheet 1)

(2) Bolt Hole Probes: 3/8 and 1/4 diameter, per Part 6, 51-00-00, Fig. 1, required for models with fuel bladders in the wing center section.

C. Reference Standards

(1) Pencil Probe Standard: refer to Part 6, 51-00-00, Fig. 4.

(2) Bolt Hole Probe Standard: refer to Part 6, 51-00-00, Fig. 1.

3. Preparation for Inspection

A. Internal, Wing Center Section

(1) Defuel and gain access into center wing.

(2) Remove fuel cells and lower surface backing panels as necessary to gain access to inspection areas.

(3) Purge fuel tanks to permit tank entry with eddy current test equipment.

CAUTION: DO NOT REMOVE MORE THAN ONE ANGLE ASSEMBLY PER WING AT ONE TIME.

(4) Remove the bladder spacer and angle assemblies at stringers S-1 to S-8 and S-18 for bolt hole inspection on applicable models. See Detail III.

(5) Remove sealant from the lower flange at designated inspection locations to permit eddy current probe access. For inspection fore and aft of fasteners, remove sealant to permit inspection within 0.5-inch of fastener C/L. Remove sealant on the rib chord under drain fittings to the extent possible.

(6) Wipe inspection areas clean.

B. Internal, Wing Tank Outboard of BBL 70.5.

(1) Defuel and gain access into wing tank.

(2) Purge fuel tanks to permit tank entry with eddy current test equipment.

(3) Remove sealant on the lower horizontal flange at designated areas fore and aft of fastener sealant caps. Sealant caps need be removed only when spacing is not adequate for probe access between the sealant cap and adjacent structure.

(4) Wipe inspection areas clean.

Wing Lower BBL 70.5 Splice 720 Airplanes
Figure 43 (Sheet 2)

4. Instrument Calibration

A. Pencil Probe

Refer to Part 6, 51-00-00, Fig. 4.

B. Bolt Hole Probe

Refer to Part 6, 51-00-00, Fig. 1.

5. Inspection Procedure

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

NOTE: Cracks are expected to propagate out of fastener holes, for and aft or in a direction normal to the stringer.

A. Inspection of the inboard side of the lower BBL 70.5 joint. (Inspection areas is accessible from inside the wing center section.)

(1) Inspection of the lower horizontal flange of rib chord and stringer.

(a) Scan with the pencil probe on the rib chord, stringers, and skin at specified locations and fore and aft of designated fasteners. Scan within 0.5-inch of fastener. See Detail II.

NOTE: Where drain fittings prevent access to inspection areas on the rib chord, inspect to the extent possible.

At some locations on the stringer flange, fastener position may prevent a scan adjacent to the fastener. When this occurs, scan the stringer in the radius or along the stringer vertical leg.

(2) Inspection of the upper horizontal flange of rib chord and stringers.

(a) Bolt Hole Probe

1) After removing the bladder spacer and angle assemblies, inspect the resulting open holes per Part 6, 51-00-00, Fig. 1. See Detail III.

Wing Lower BBL 70.5 Splice 720 Airplanes
Figure 43 (Sheet 3)

(b) Pencil Probe

1) Scan with the pencil probe on the rib chord as close as possible to fore and aft edges of designated fasteners. See Details III and IV.

NOTE: At spanwise beams it will be necessary to scan fore and aft of the spice fittings which cover the rib chord. See Detail IV.

2) Scan with the pencil probe on the splice fittings around designated fasteners. See Details III and IV.

B. Inspection of the Outboard Side of the Lower BBL 70.5 Joint. (Access to the outboard side of the 70.5 joint is through the wing fuel tank.)

(1) Lower horizontal flanges of rib chord and stringers.

NOTE: Stringer S-15 does not tie in to the outboard side of the lower BBL 70.5 splice because of an access hole.

(a) Scan with the pencil probe on the rib chord, stringer and skin, fore and aft of fastener seal caps. See Detail II.

(b) Scan with the pencil probe on the skin and rib chord at designated areas. See Detail V.

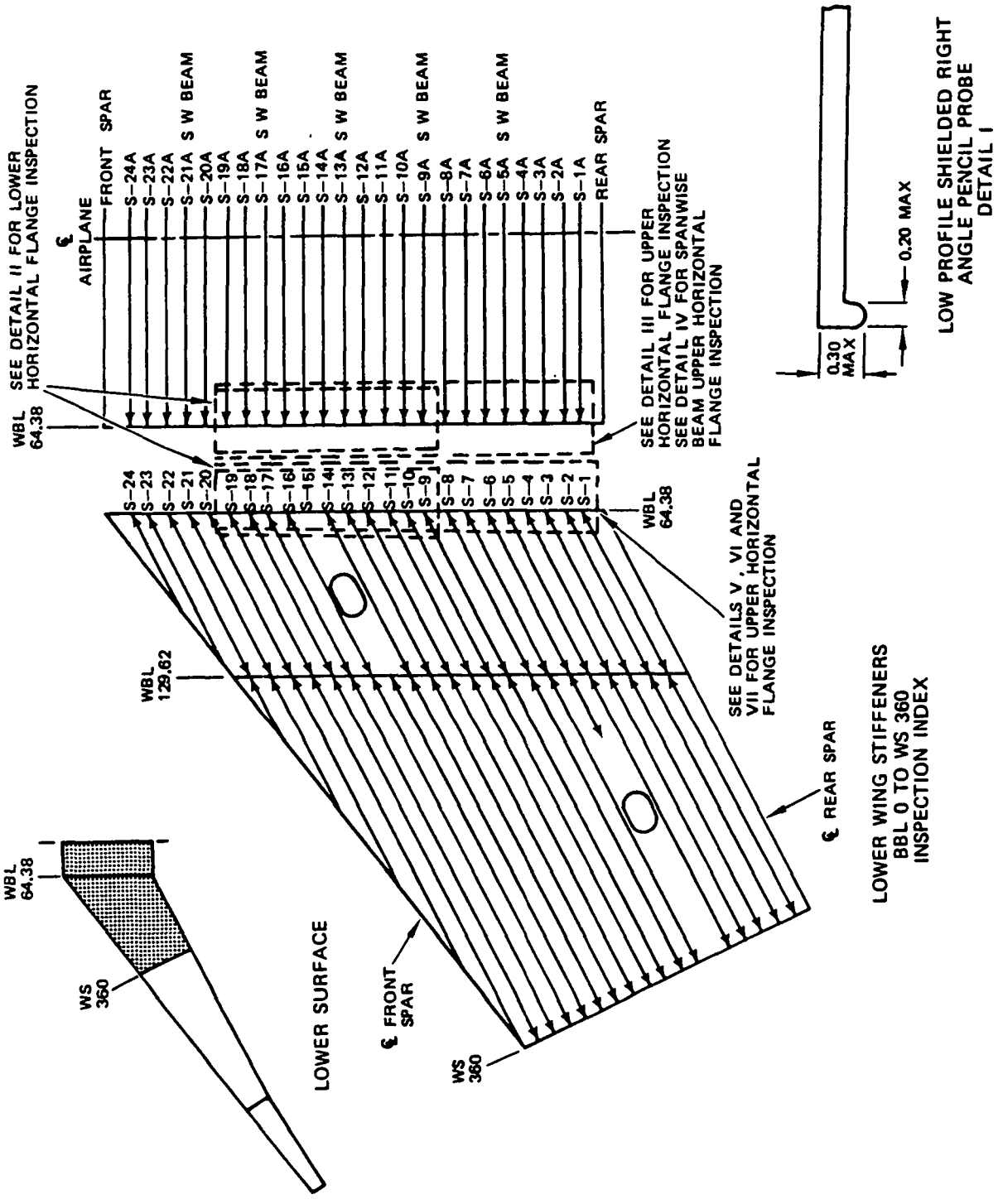
(2) Inspection of the upper horizontal flange at stringers and rib chord.

(a) Scan with the pencil probe around fasteners common to the upper horizontal flange. See Details V, VI and VII.

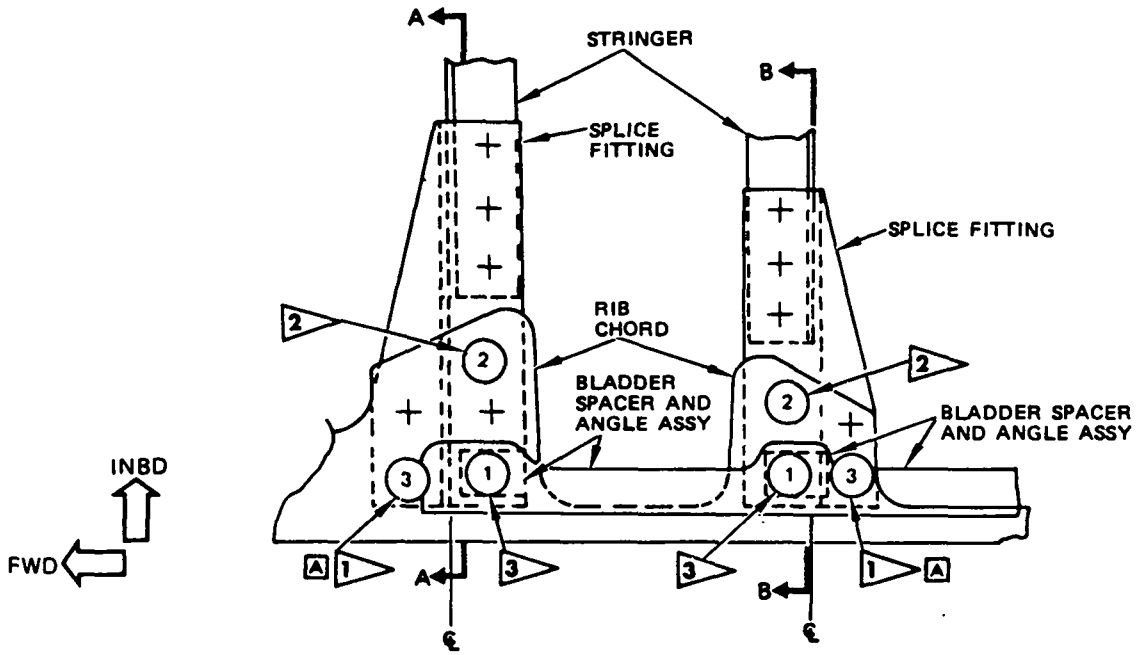
(b) Scan with the pencil probe along the fore and aft edges of the spice strap at designated areas of stringer S-10. See Detail VI.

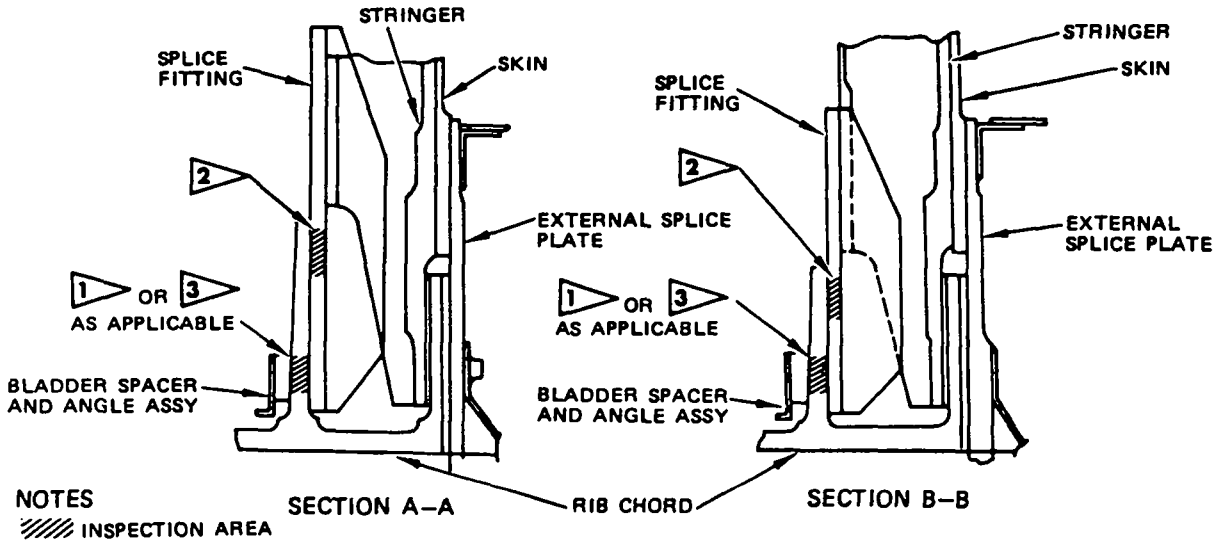
(c) Scan with the pencil probe on the stringer along the fore and aft edges of the radius filler ad designated areas, stringers S-10 and S-11. See Details VI and VII.

Wing Lower BBL 70.5 Splice 720 Airplanes
Figure 43 (Sheet 4)



Wing Lower BBL 70.5 Splice 720 Airplanes
Figure 43 (Sheet 5)





NOTES

INSPECTION AREA

A RIGHT ANGLE PENCIL PROBE REQUIRED

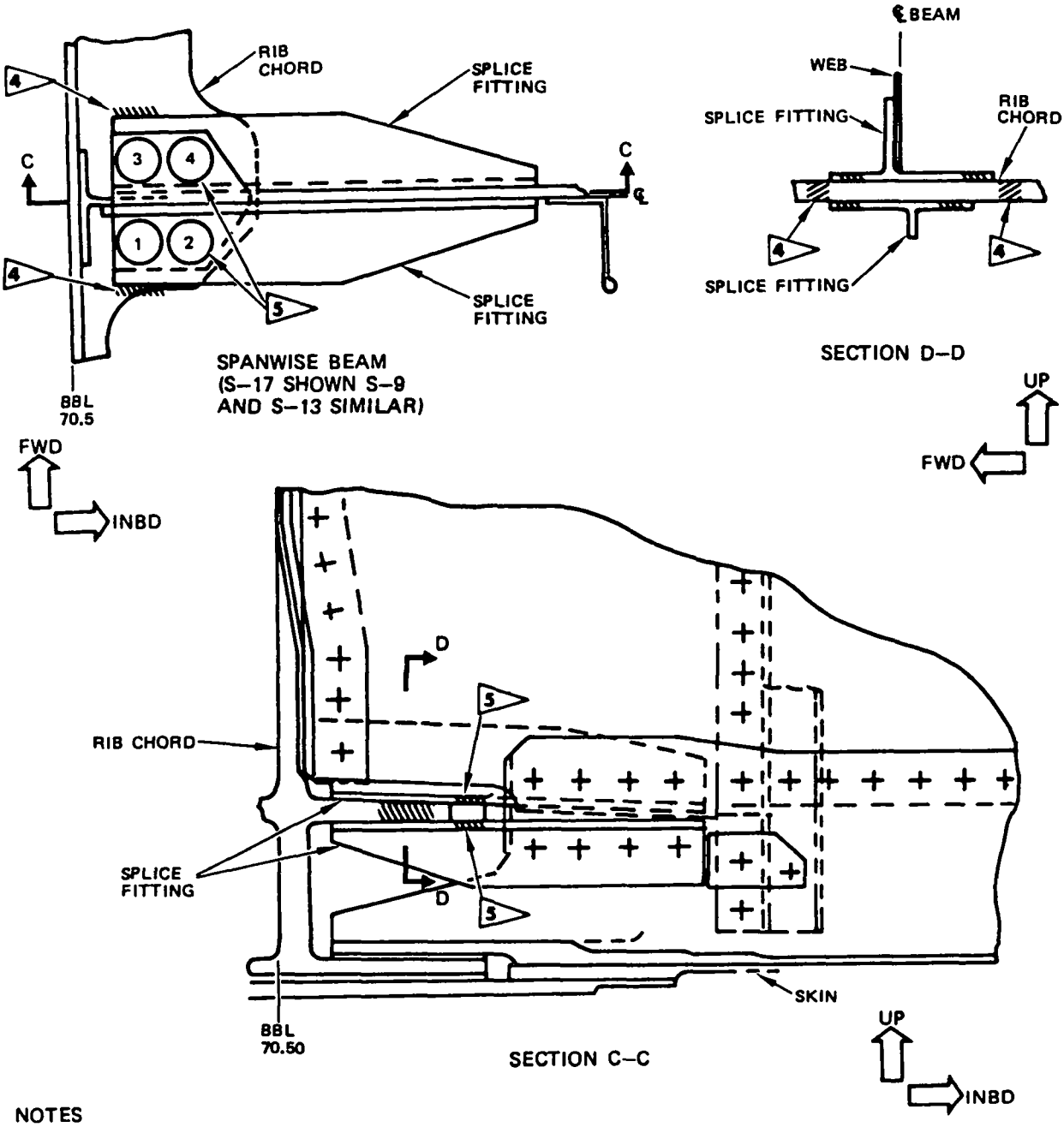
1 PLACE PENCIL PROBE ON RIB CHORD, SCAN FORE AND AFT OF FASTENER

2 PLACE PENCIL PROBE ON SPLICE FITTING, SCAN AROUND FASTENER

3 BOLT HOLE INSPECT PLUS CHORD AT OPEN HOLES RESULTING FROM REMOVAL OF BLADDER SPACER AND ANGLE ASSY

UPPER HORIZONTAL FLANGE, INBOARD
LOWER BBL 70.5 SPLICE
(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)

DETAIL III



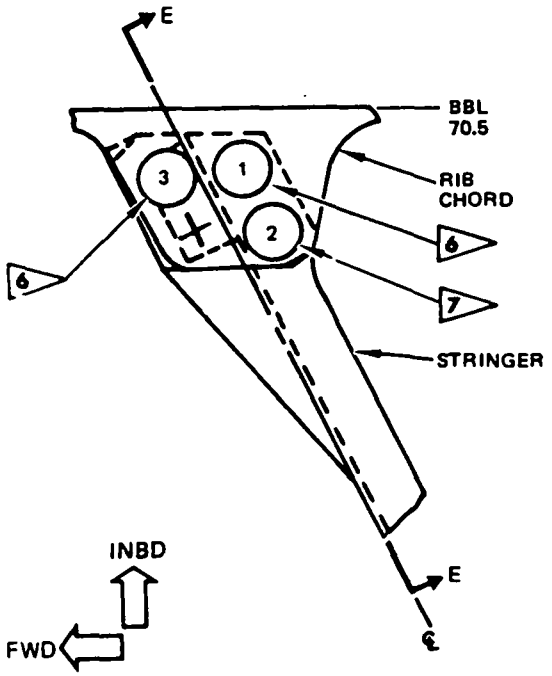
NOTES

INSPECTION AREA

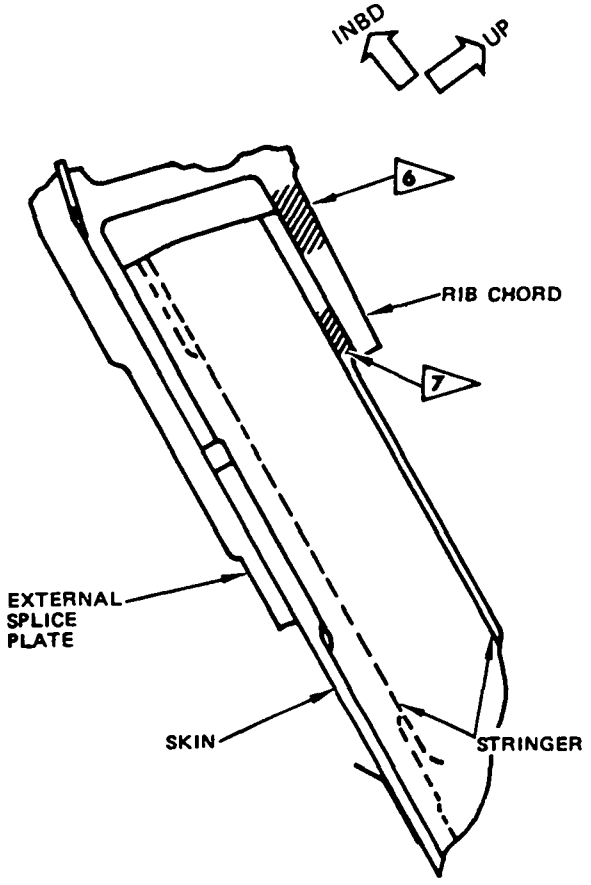
4 PLACE PENCIL PROBE ON RIB CHORD, SCAN ALONG EDGES OF SPLICE FITTING

5 PLACE PENCIL PROBE ON SPLICE FITTINGS, SCAN AROUND FASTENER ENDS.

UPPER HORIZONTAL FLANGE, INBOARD SPANWISE BEAMS
LOWER BBL 70.5 SPLICE
(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)
DETAIL IV



(S–7 SHOWN, S–1 TO S–3, S–5 TO S–7, S–9, S–12 TO S–14, AND S–16 TO S–18 SIMILAR)



SECTION E–E

NOTES

////////, INSPECTION AREA

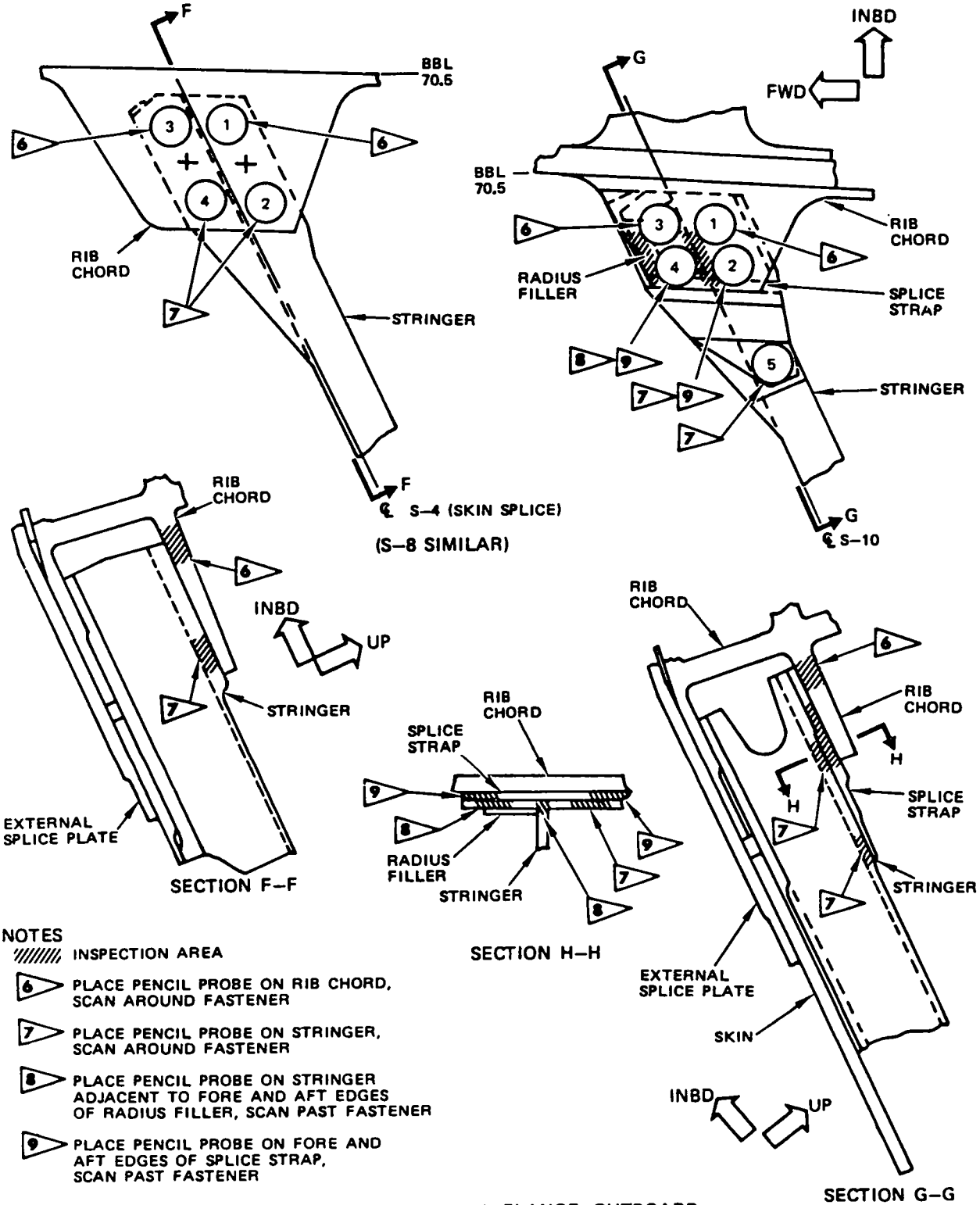
6 PLACE PENCIL PROBE ON RIB CHORD, SCAN AROUND FASTENER

7 PLACE PENCIL PROBE ON STRINGER, SCAN AROUND FASTENER

UPPER HORIZONTAL FLANGE, OUTBOARD
LOWER BBL 70.5 SPLICE

(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)

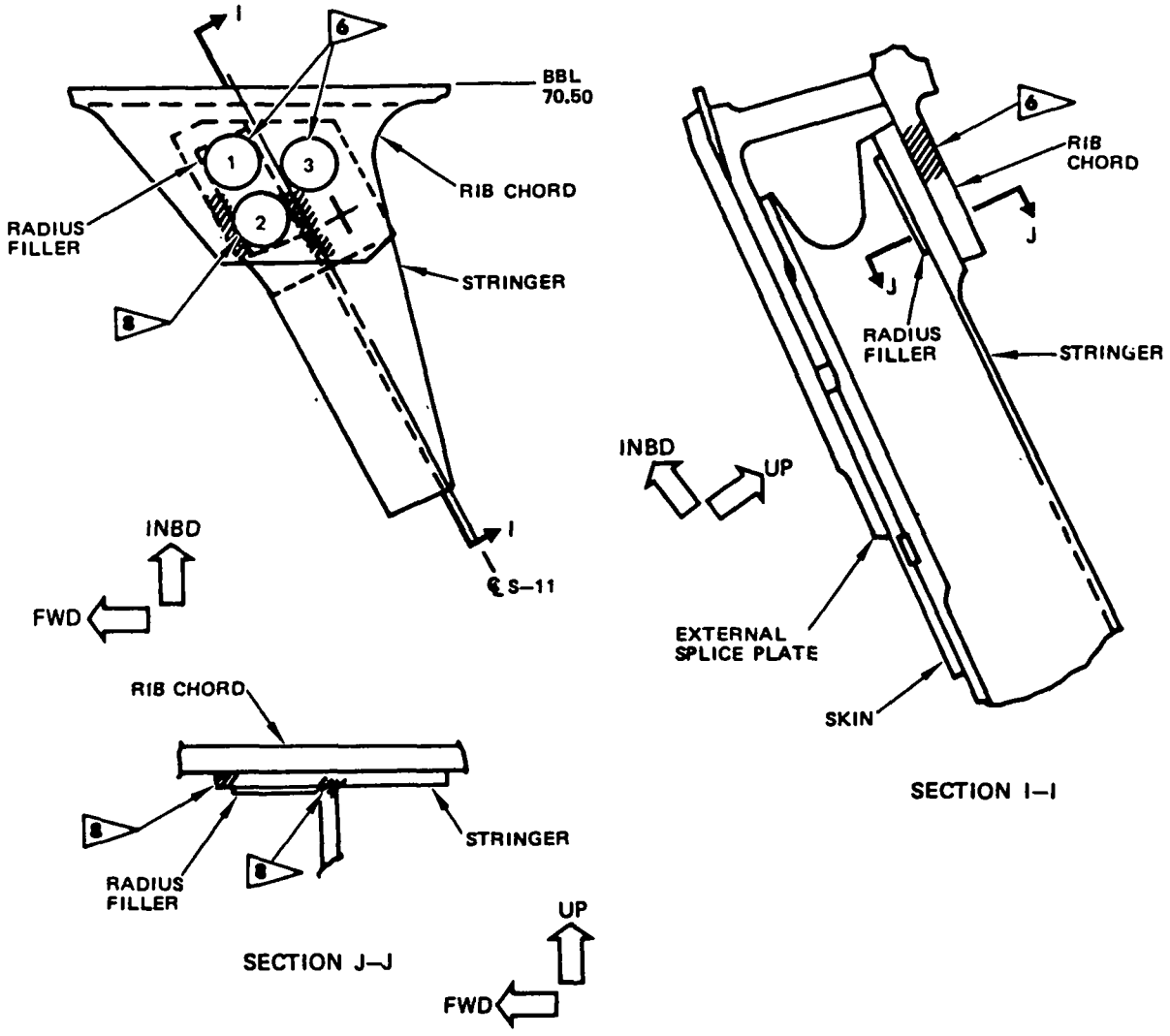
DETAIL V



NOTES

- INSPECTION AREA
- 6 PLACE PENCIL PROBE ON RIB CHORD, SCAN AROUND FASTENER
- 7 PLACE PENCIL PROBE ON STRINGER, SCAN AROUND FASTENER
- 8 PLACE PENCIL PROBE ON STRINGER ADJACENT TO FORE AND AFT EDGES OF RADIUS FILLER, SCAN PAST FASTENER
- 9 PLACE PENCIL PROBE ON FORE AND AFT EDGES OF SPLICE STRAP, SCAN PAST FASTENER

UPPER HORIZONTAL FLANGE, OUTBOARD
LOWER BBL 70.5 P SPLICE
(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)
DETAIL VI



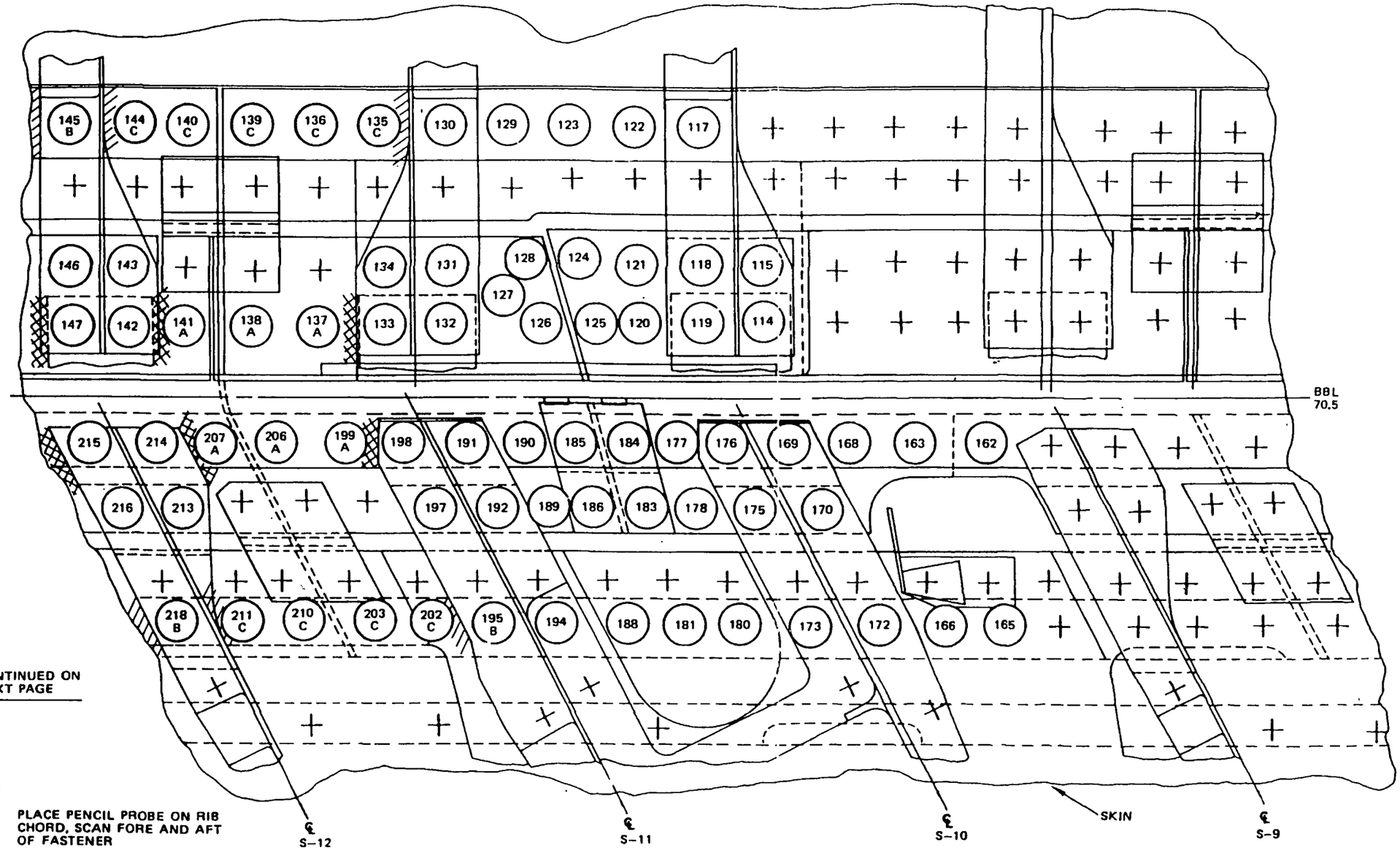
NOTES

////// INSPECTION AREA

6 PLACE PENCIL PROBE ON RIB CHORD, SCAN AROUND FASTENER

8 PLACE PENCIL PROBE ON STRINGER ADJACENT TO FORE AND AFT EDGES OF RADIUS FILLER, SCAN PAST FASTENER

UPPER HORIZONTAL FLANGE, OUTBOARD
LOWER BBL 70.5 SPLICE
(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)
DETAIL VII



NOTES

(137 A) PLACE PENCIL PROBE ON RIB CHORD, SCAN FORE AND AFT OF FASTENER

(145 B) PLACE PENCIL PROBE ON STRINGER, SCAN FORE AND AFT OF FASTENER

(136 C) PLACE PENCIL PROBE ON SKIN SCAN FORE AND AFT OF FASTENER

PLACE PENCIL PROBE ON RIB CHORD SCAN AT DESIGNATED AREAS

PLACE PENCIL PROBE ON STRINGER FLANGE, SCAN AT DESIGNATED AREAS

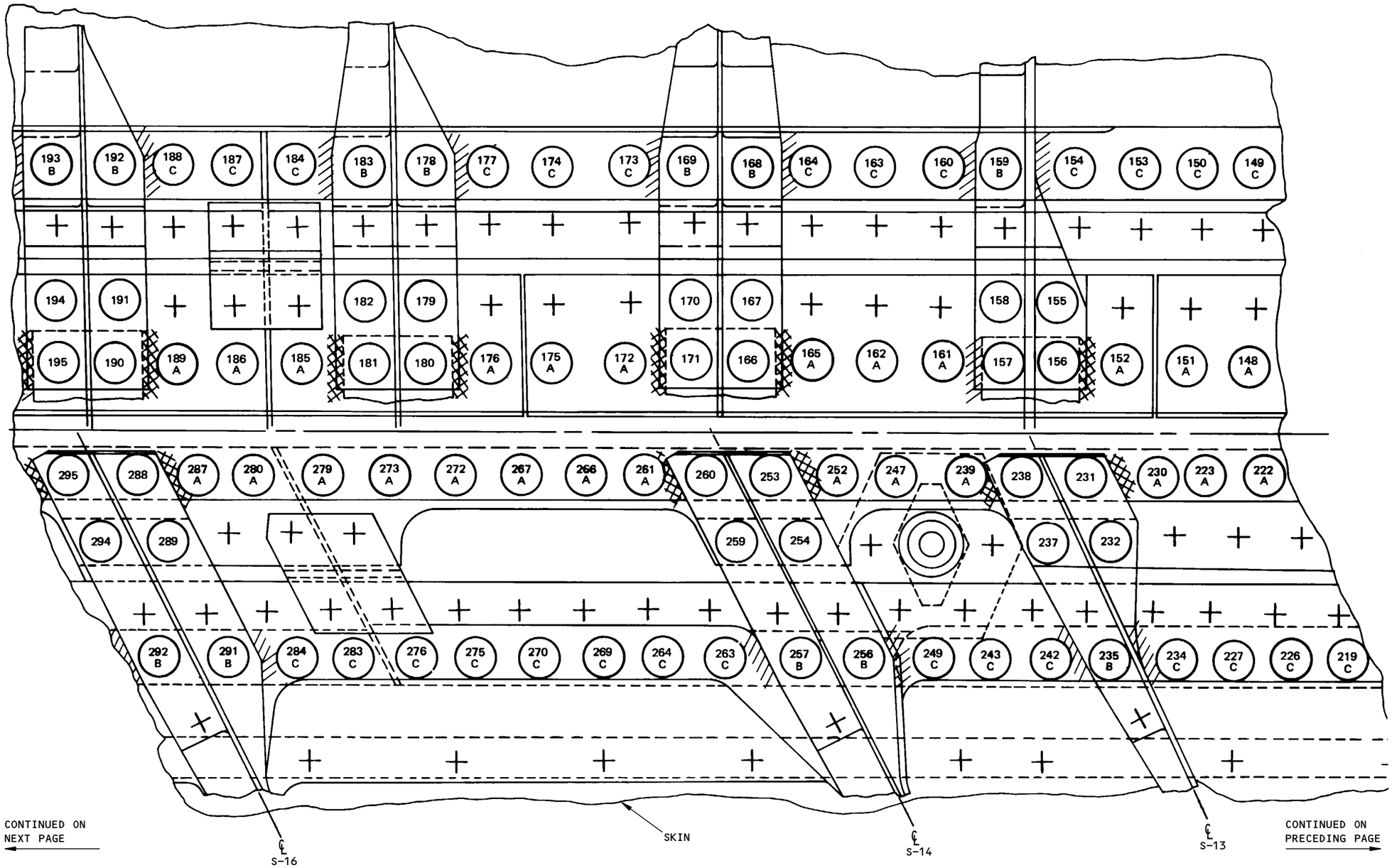
FASTENER LOCATIONS TO BE INSPECTED

LOWER HORIZONTAL FLANGE–LOWER BBL 70.5 SPLICE

(LEFT WING SHOWN, RIGHT WING SIMILAR)
DETAIL II

G76512

Wing Lower BBL 70.5 Splice 720 Airplanes
Figure 43 (Sheet 11)



DETAIL II (CONT)

Wing Lower BBL 70.5 Splice 720 Airplanes
Figure 43 (Sheet 12)

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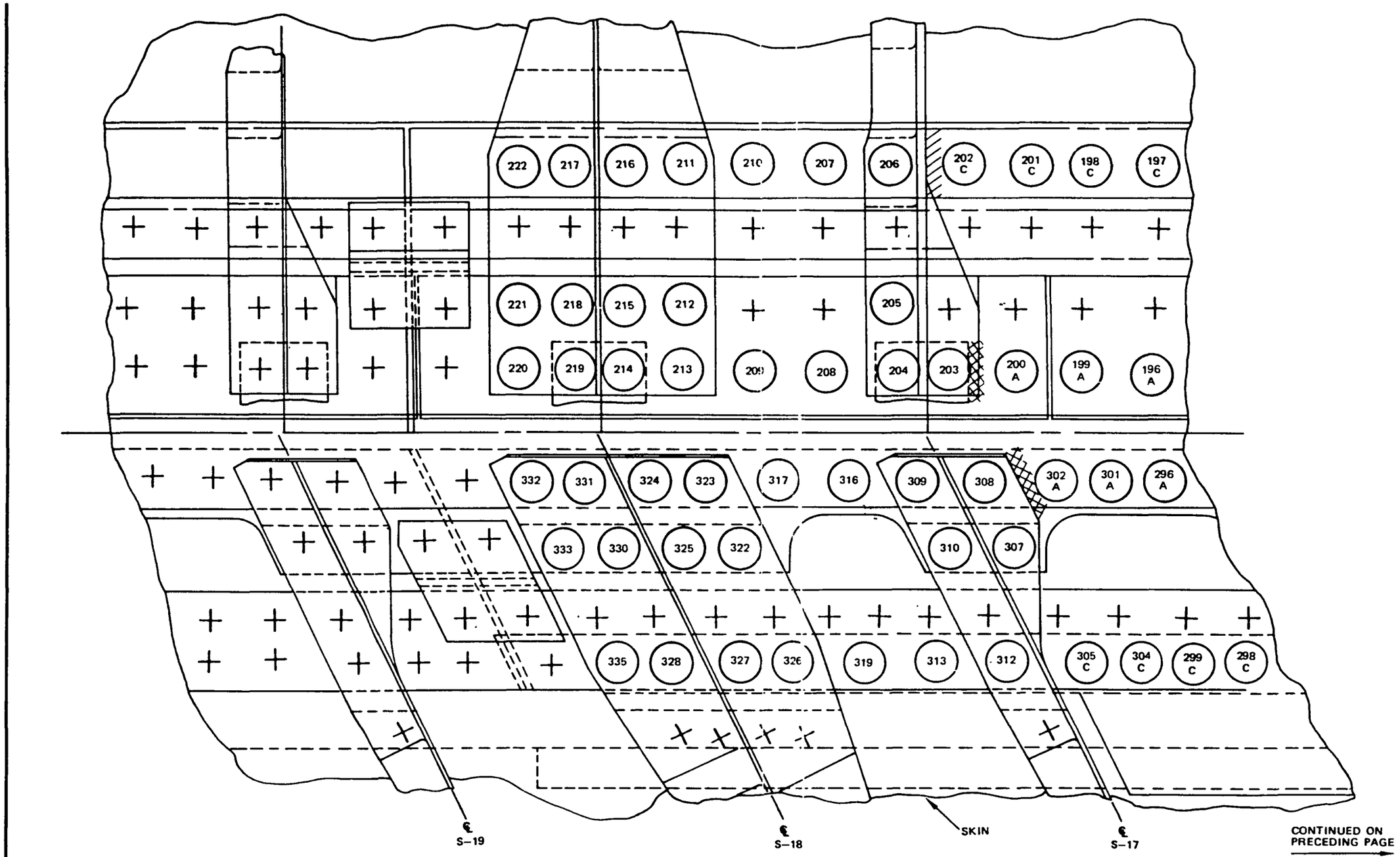


DETAIL II (CONT)

Wing Lower BBL 70.5 Splice 720 Airplanes
Figure 43 (Sheet 13)

PART 6 - EDDY CURRENT

WING - MAIN FRAME

1. Purpose

   A. To perform an internal high frequency eddy current inspection of the wing lower BBL 70.5 splice, to detect cracks out of fastener holes:

      (1) Common to the lower wing skin and lower horizontal flanges, of the rib chord and stringers.

      (2) Common to the upper horizontal flanges, of the rib chord and stringers and to the splice fittings.

   B. To perform an internal bolt hole inspection of selected fastener holes common to the upper flange of the lower BBL 70.5 splice, on models which have fuel cells. See Detail III.

   C. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Instrument

      (1) Refer to Part 6, 51-00-0, Fig. 4.

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 44 (Sheet 1)

B. Probes

(1) Low profile, right angle shielded pencil probe per Part 1, 51-06-00, Fig. 1, as specified in Detail I. Shielded probes available from:

P/N: PEN-100AS
VM Product
7420 Park Ave. No. 20
Tacoma, WA 98408

P/N: P901-60B
NDT Product Engineering
P.O. Box 423
Renton, WA 98057

Specify dimensions desired when ordering from VM Products. It is also recommended to have a straight shielded pencil probe for areas where access is not a problem.

(2) Bolt Hole Probes: 3/8, 5/16, and 1/4-inch diameter, per Part 6, 51-00-00, Fig. 1, required for models with fuel bladders in the wing center section.

C. Standards

(1) Pencil Probe: refer to Part 6, 51-00-00, Fig. 4.

(2) Bolt Hole Probe: refer to Part 6, 51-00-00, Fig. 1.

3. Preparation for Inspection

A. Internal, Wing Center Section

(1) Defuel and gain access into center wing.

(2) Remove fuel cells and lower surface backing panels as necessary to gain access to inspection areas.

(3) Purge fuel tanks to permit tank entry with eddy current test equipment.

CAUTION: DO NOT REMOVE MORE THAN ONE ANGLE ASSEMBLY PER WING AT ONE TIME.

(4) Remove the bladder spacer and angle assemblies at stringers S-1 to S-18 for bolt hole inspection on applicable models. See Details III and IV.

(5) Remove sealant from the lower flange at designated inspection locations to permit eddy current probe access. For inspection fore and aft of fasteners, remove sealant to permit inspection within 0.5-inch of fastener C/L. Remove sealant on the rib chord under drain fittings to the extent possible.

(6) Wipe inspection areas clean.

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 44 (Sheet 2)

B. Internal, Wing Tank Outboard of BBL 70.5.

(1) Defuel and gain access into wing tank.

(2) Purge fuel tanks to permit tank entry with eddy current test equipment.

(3) Remove boost pump screen at stringer S-14 and S-15 to gain access to inspection area.

(4) Remove sealant on the lower horizontal flange at designated areas fore and aft of fastener sealant caps. Sealant caps need be removed only when spacing is not adequate for probe access between the sealant cap and adjacent structure.

(5) Wipe inspection areas clean.

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 44 (Sheet 2A)

4. Instrument Calibration

A. Pencil Probe

Refer to Part 6, 51-00-00, Fig. 4.

B. Bolt Hole Probe

Refer to Part 6, 51-00-00, Fig. 1.

5. Inspection Procedure

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

NOTE: Cracks are expected to propagate out of fastener holes, for and aft or in a direction normal to the stringer.

A. Inspection of the inboard side of the lower BBL 70.5 joint. (Inspection areas is accessible from inside the wing center section.)

(1) Inspection of the lower horizontal flange of rib chord and stringer.

(a) Scan with the pencil probe on the rib chord, stringers, and skin at specified locations and fore and aft of designated fasteners. Scan within 0.5-inch of fastener. See Detail II.

NOTE: Where drain fittings prevent access to inspection areas on the rib chord, inspect to the extent possible.

At some locations on the stringer flange, fastener position may prevent a scan adjacent to the fastener. When this occurs, scan the stringer in the radius or along the stringer vertical leg.

(2) Inspection of the upper horizontal flange of rib chord and stringers.

(a) Bolt Hole Probe

1) After removing the bladder spacer and angle assemblies, and fastener 3 at stringer S-4, inspect the resulting open holes per Part 6, 51-00-00, Fig. 1. See Details III and IV.

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 44 (Sheet 3)

(b) Pencil Probe

1) Scan with the pencil probe on the rib chord as close as possible to fore and aft edges of designated fasteners (Details III, IV and V).

NOTE: At spanwise beams it will be necessary to scan fore and aft of the splice fittings which cover the rib chord (Detail V).

2) Scan with the pencil probe on the splice fittings around designated fasteners (Details III and IV).

B. Inspection of the Outboard Side of the Lower BBL 70.5 Joint. (Access to the outboard side of the 70.5 joint is through the wing fuel tank.)

(1) Lower horizontal flanges of rib chord and stringers.

(a) Scan with the pencil probe on the rib chord, stringer and skin, fore and aft of fastener seal caps (Detail II).

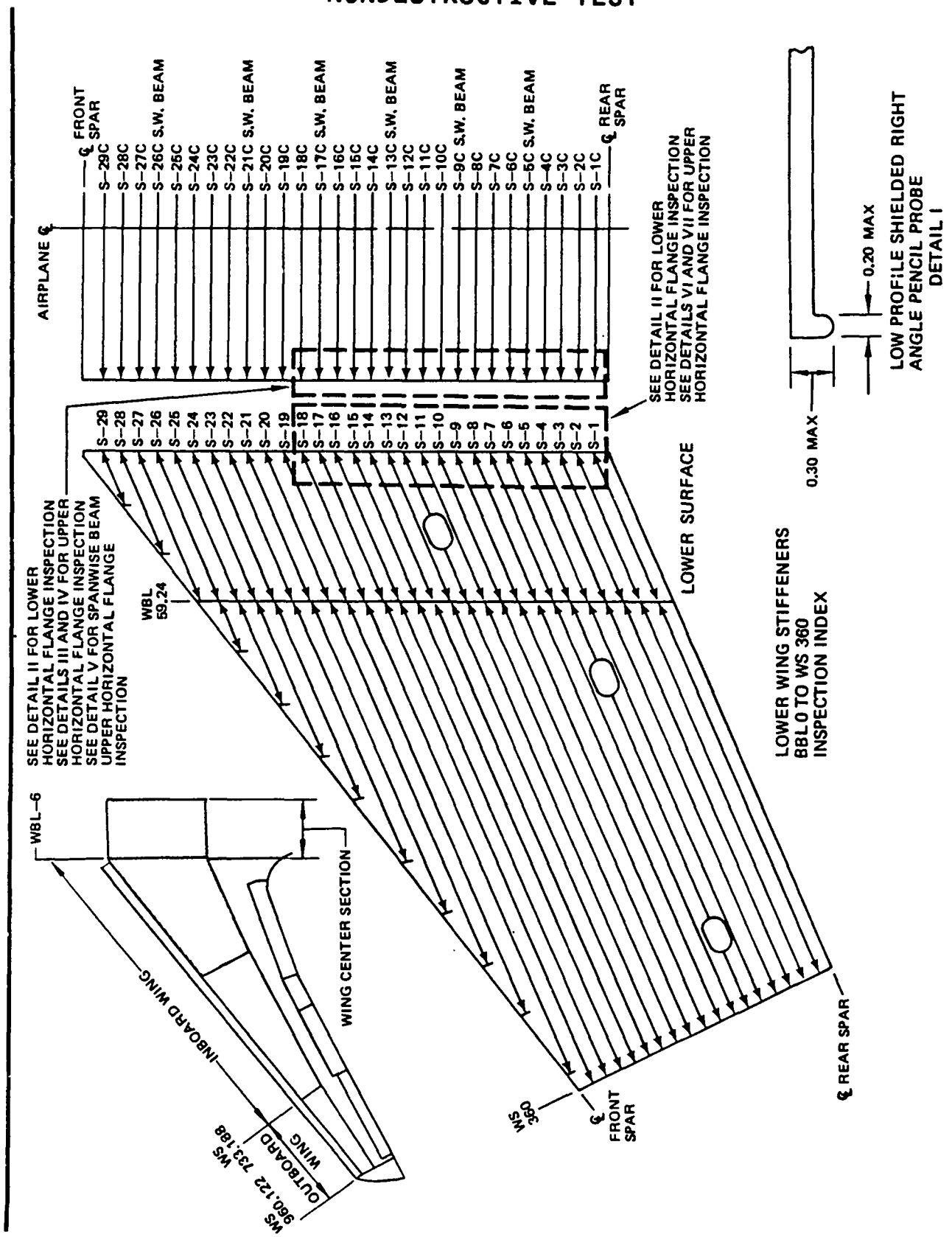
(b) Scan with the pencil probe on the skin designated areas (Detail II).

(2) Inspection of the upper horizontal flange at stringers and rib chord.

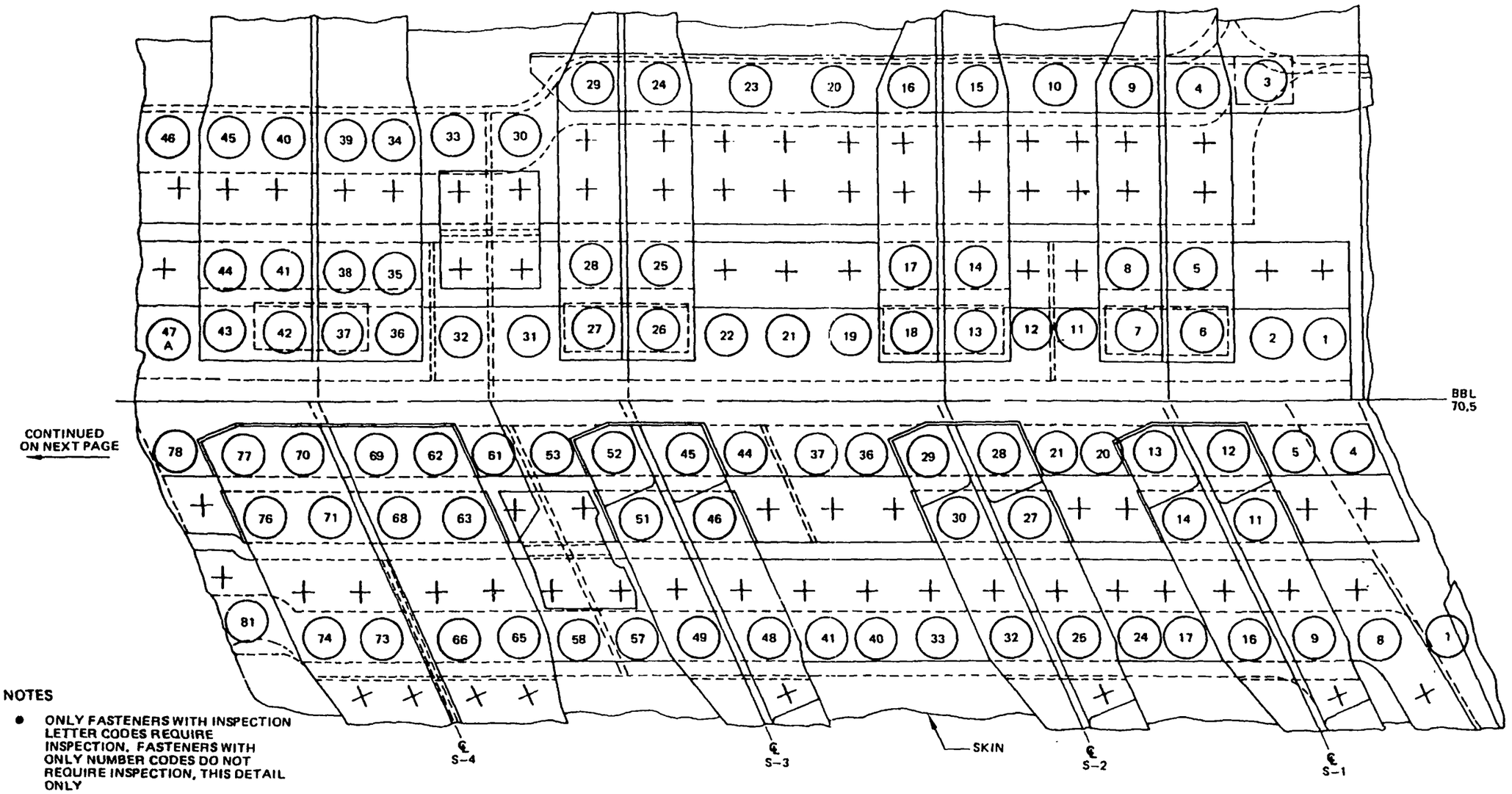
(a) Scan with the pencil probe around fasteners common to the upper horizontal flange (Details VI and VII).

NOTE: At stringer S-14 and S-15, where the stringer is covered by a bracket assembly, scan as close as possible to the fore and aft side of fastener (Detail VII).

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 44 (Sheet 4)



Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 44 (Sheet 5)



NOTES

- ONLY FASTENERS WITH INSPECTION LETTER CODES REQUIRE INSPECTION. FASTENERS WITH ONLY NUMBER CODES DO NOT REQUIRE INSPECTION, THIS DETAIL ONLY

47 A — PLACE PENCIL PROBE ON RIB CHORD, SCAN FORE AND AFT OF FASTENER

64 B — PLACE PENCIL PROBE ON STRINGER, SCAN FORE AND AFT OF FASTENER

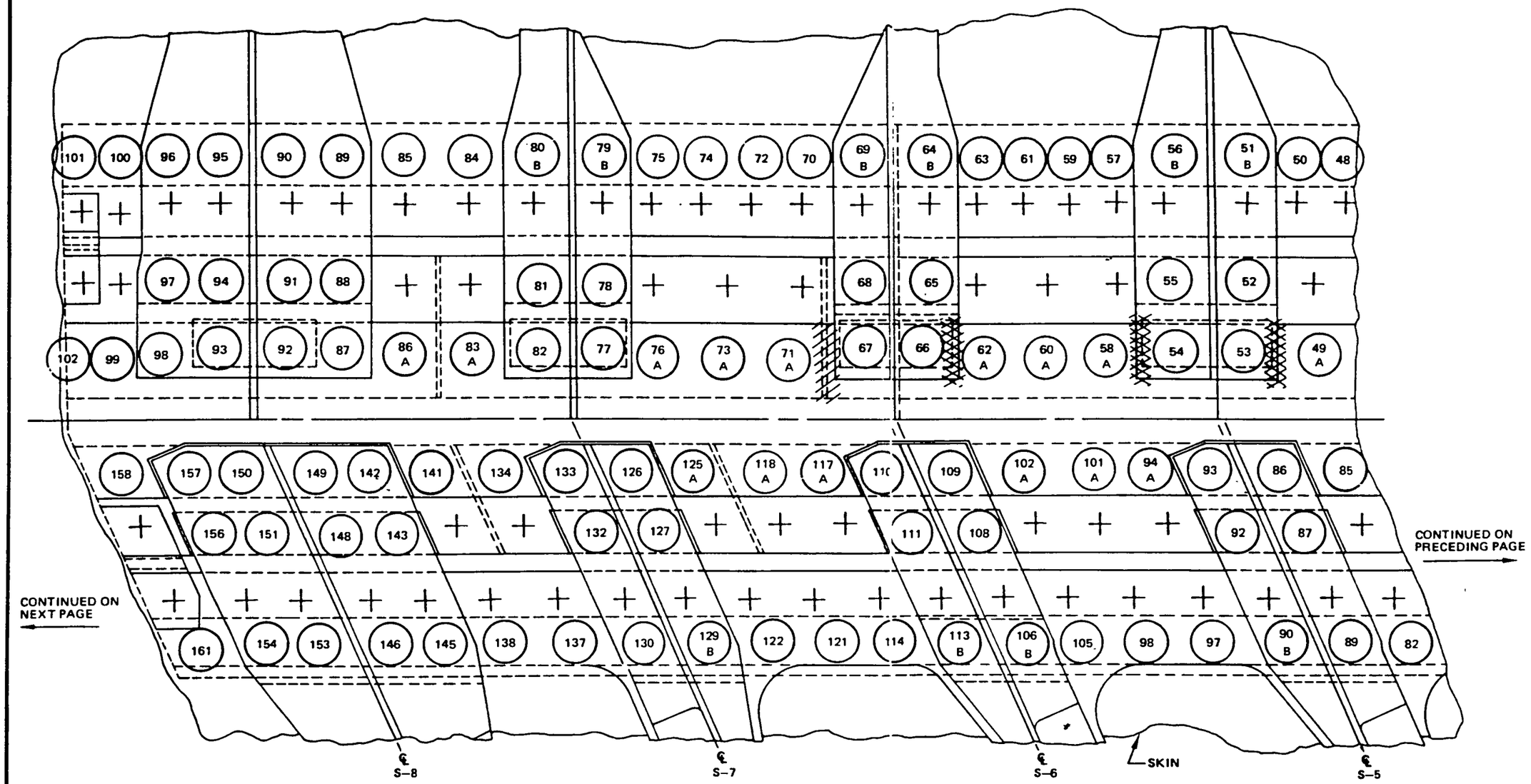
170 C — PLACE PENCIL PROBE ON SKIN SCAN FORE AND AFT OF FASTENER

PLACE PENCIL PROBE ON RIB CHORD, SCAN AT DESIGNATED AREAS

PLACE PENCIL PROBE ON STRINGER FLANGE, SCAN AT DESIGNATED AREAS

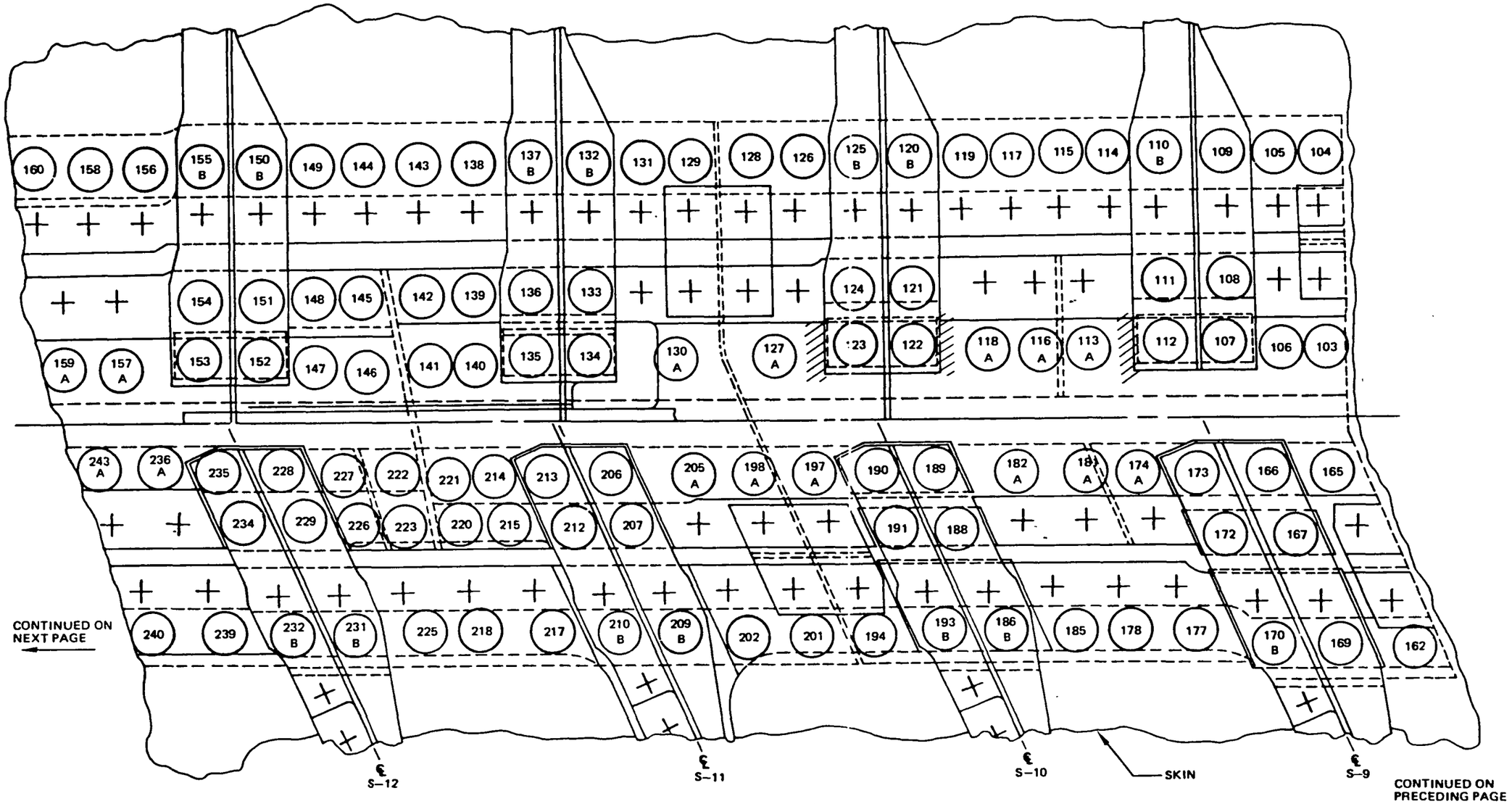
FASTENERS TO BE INSPECTED
LOWER HORIZONTAL FLANGE–LOWER BBL 70.5 SPLICE
(LEFT WING SHOWN, RIGHT WING SIMILAR)
DETAIL II

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 44 (Sheet 6)



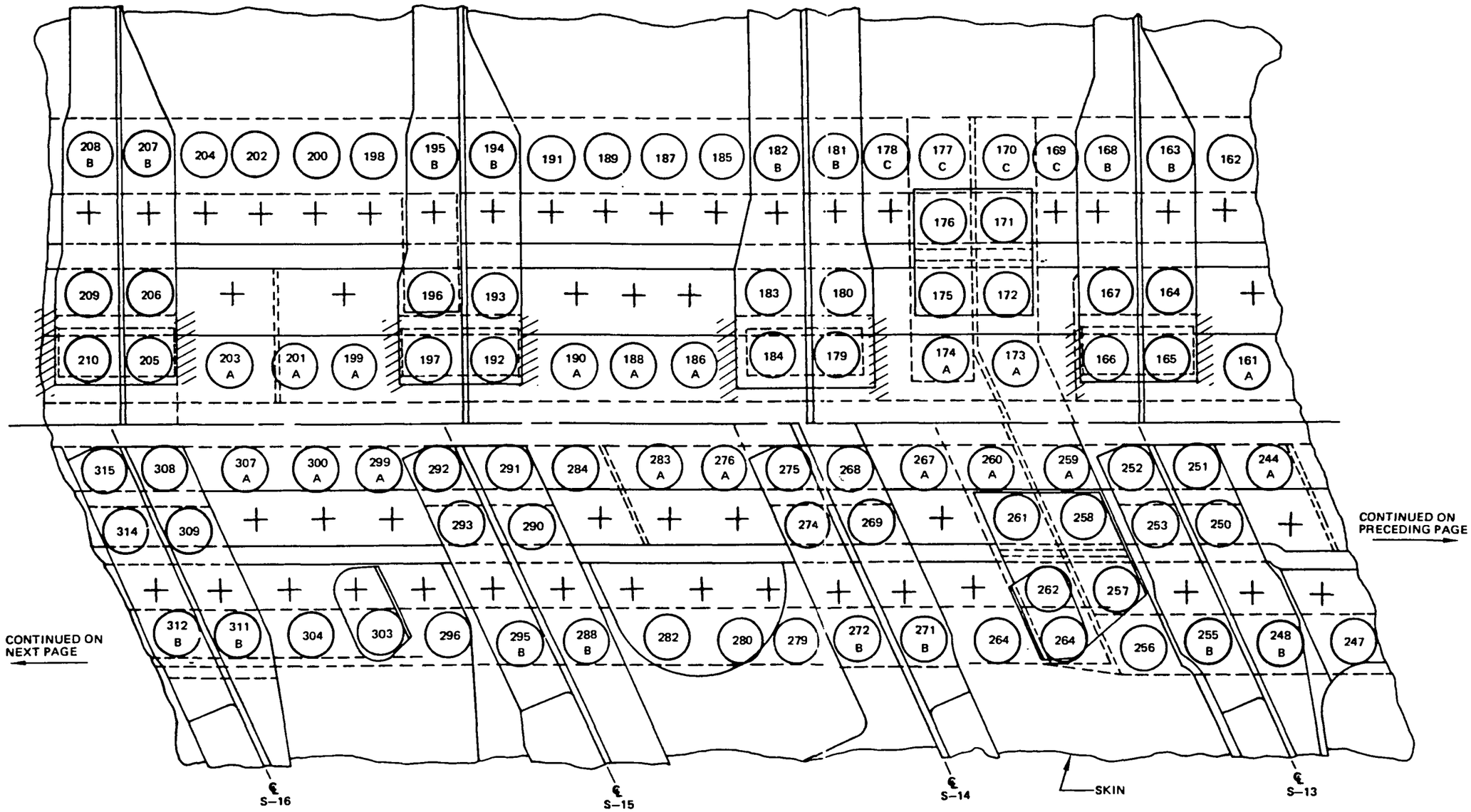
DETAIL II (CONT)

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 44 (Sheet 7)



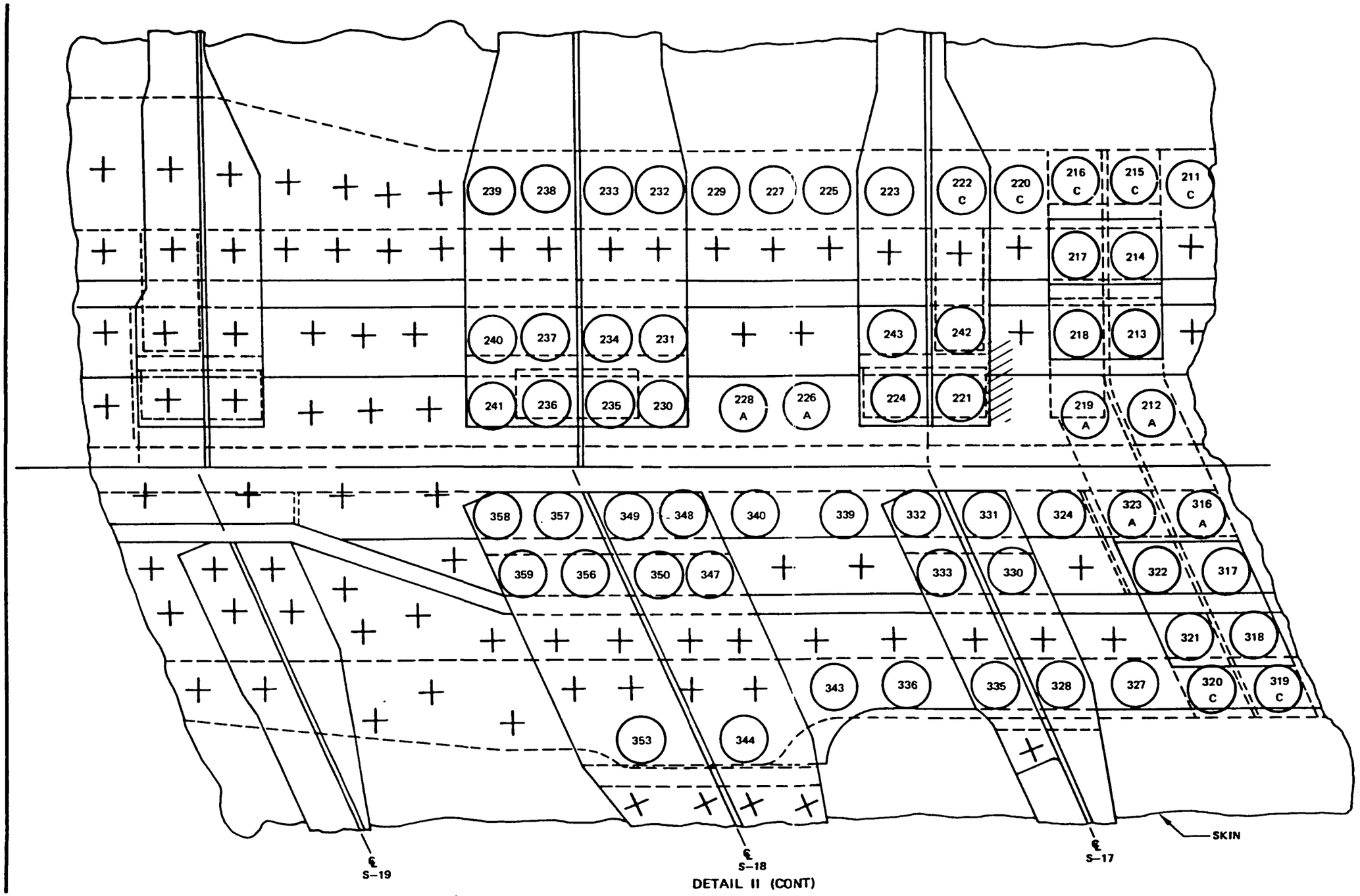
DETAIL II (CONT)

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 44 (Sheet 8)



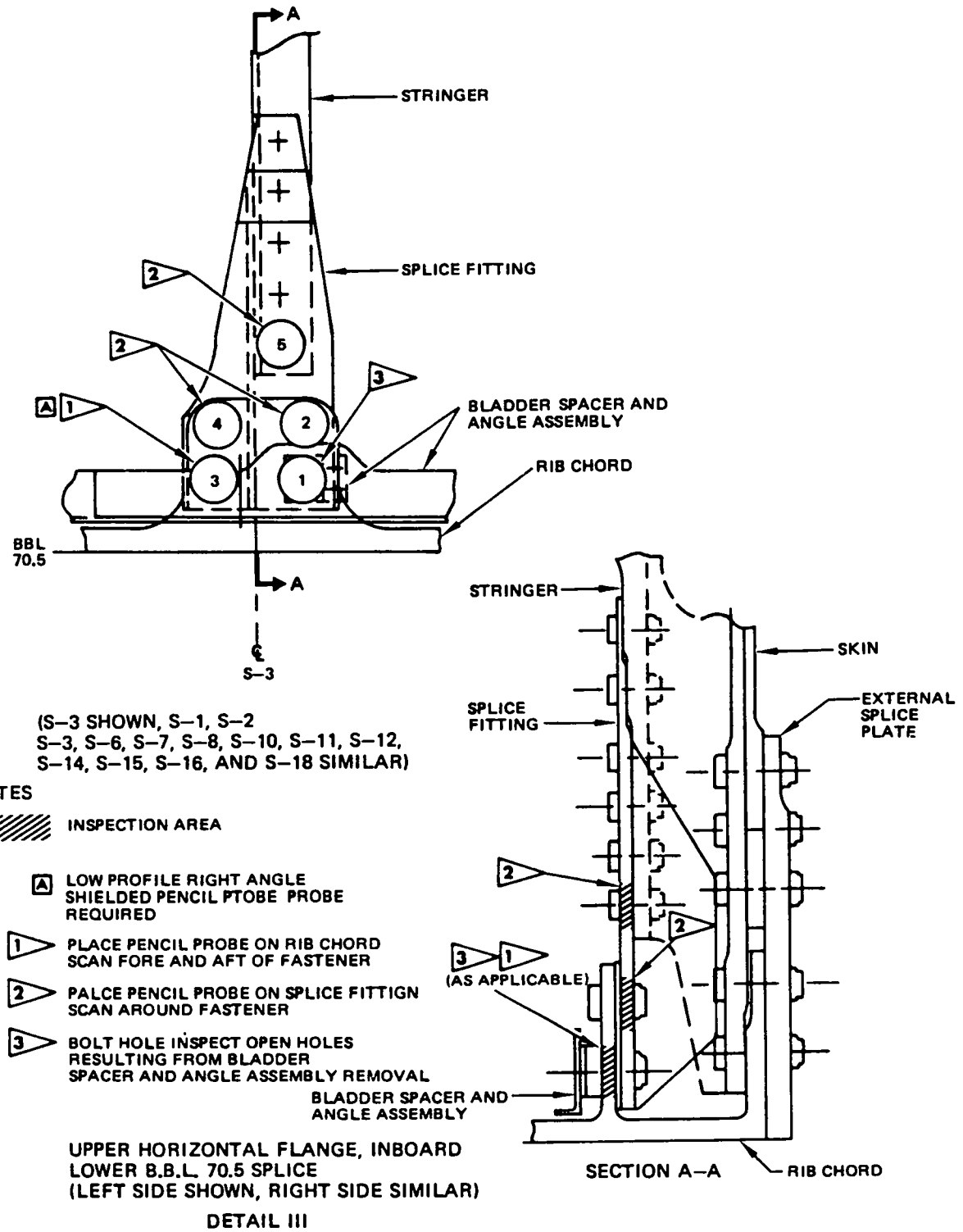
DETAIL II (CONT)

Wing Lower BBL 70.5 Splice 707-200/400 Airplanes
Figure 44 (Sheet 9)

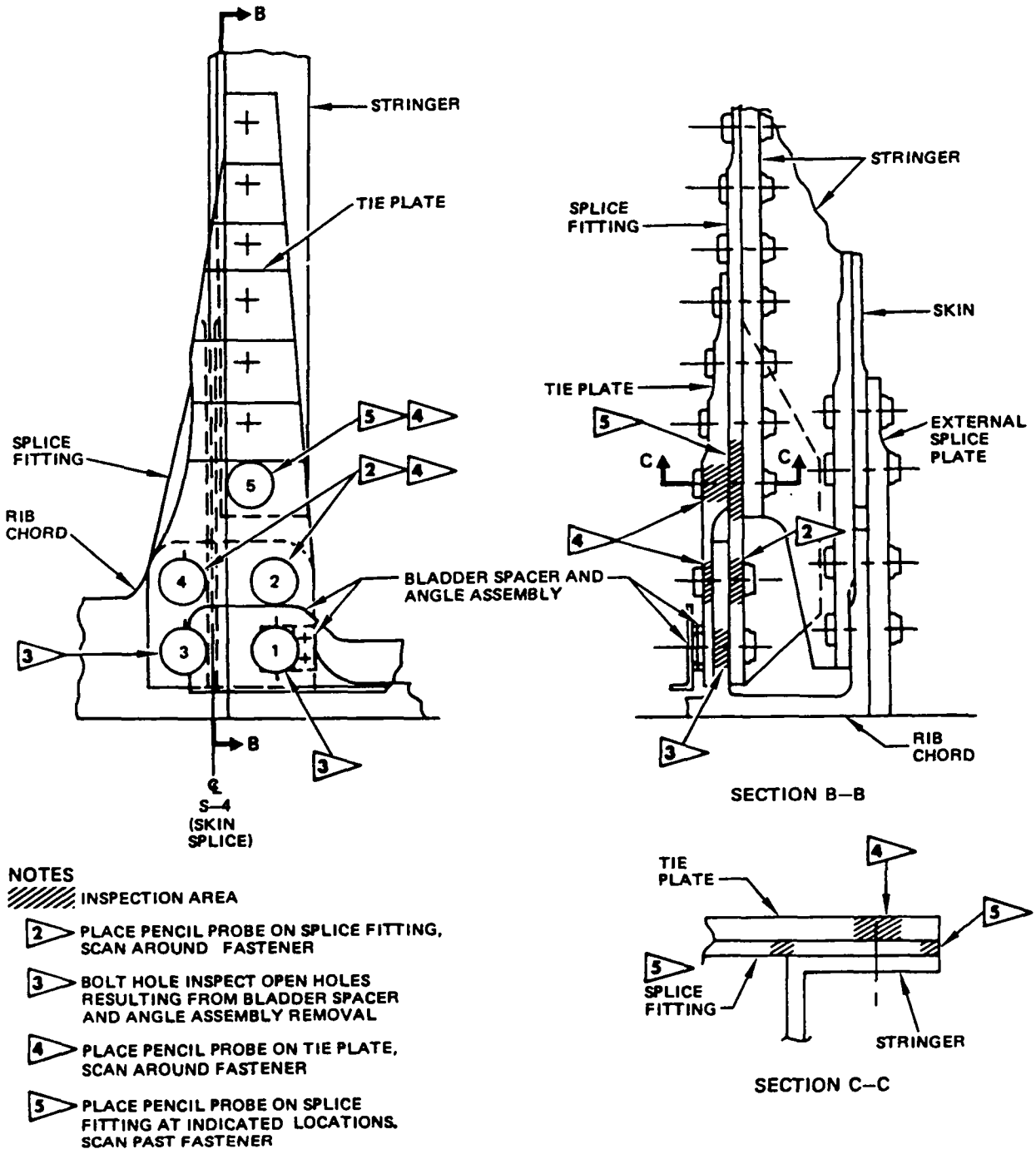


DETAIL II (CONT)

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 44 (Sheet 10)



Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 44 (Sheet 11)



NOTES

INSPECTION AREA

2 PLACE PENCIL PROBE ON SPLICE FITTING, SCAN AROUND FASTENER

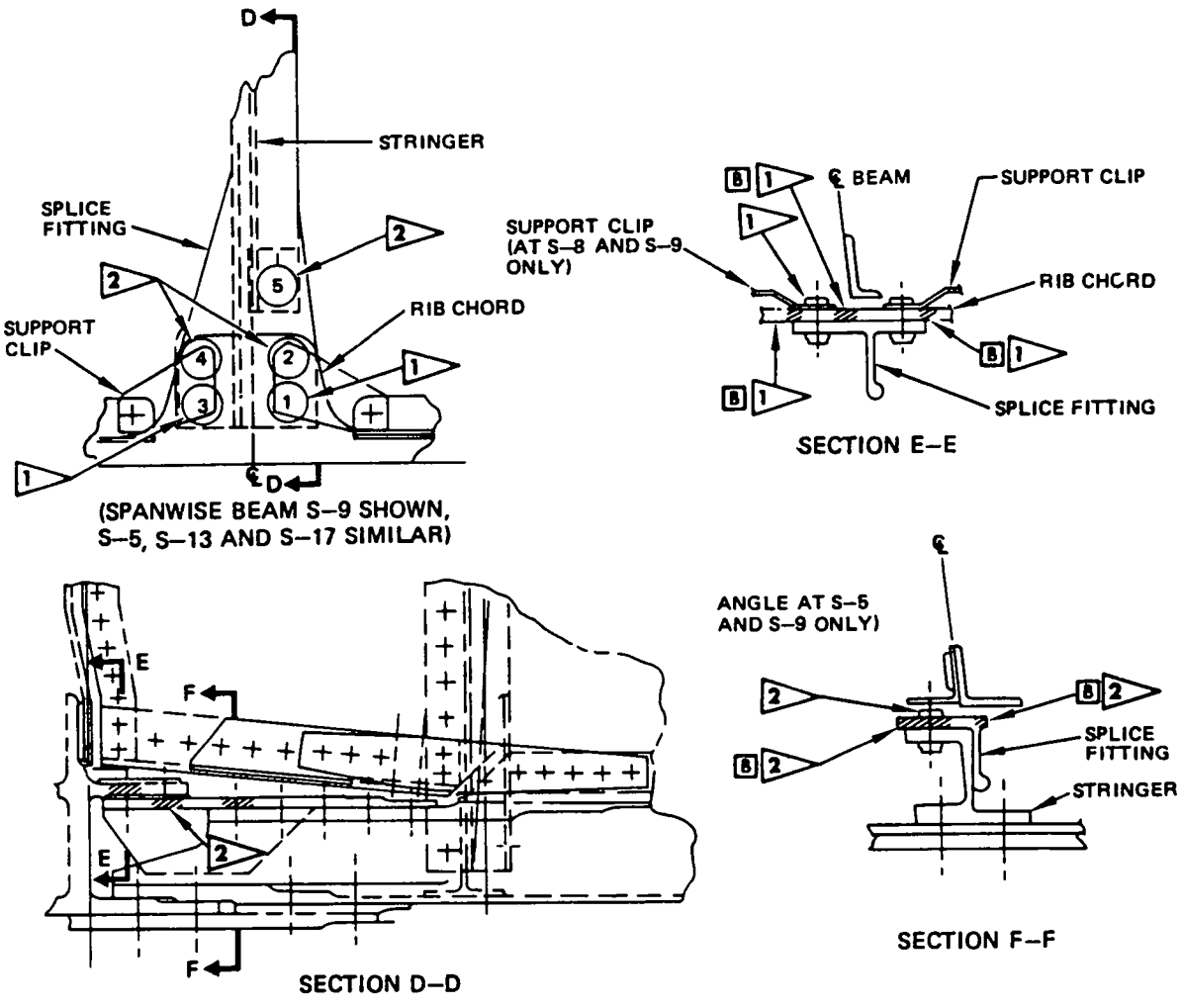
3 BOLT HOLE INSPECT OPEN HOLES RESULTING FROM BLADDER SPACER AND ANGLE ASSEMBLY REMOVAL

4 PLACE PENCIL PROBE ON TIE PLATE, SCAN AROUND FASTENER

5 PLACE PENCIL PROBE ON SPLICE FITTING AT INDICATED LOCATIONS. SCAN PAST FASTENER

UPPER HORIZONTAL FLANGE, INBOARD
LOWER BBL 70.5 SPLICE
(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)
DETAIL IV

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 44 (Sheet 12)



NOTES

INSPECTION AREA

B OR AS CLOSE AS POSSIBLE TO FORE AND AFT SIDES WHERE ADJACENT STRUCTURE INTERFERES

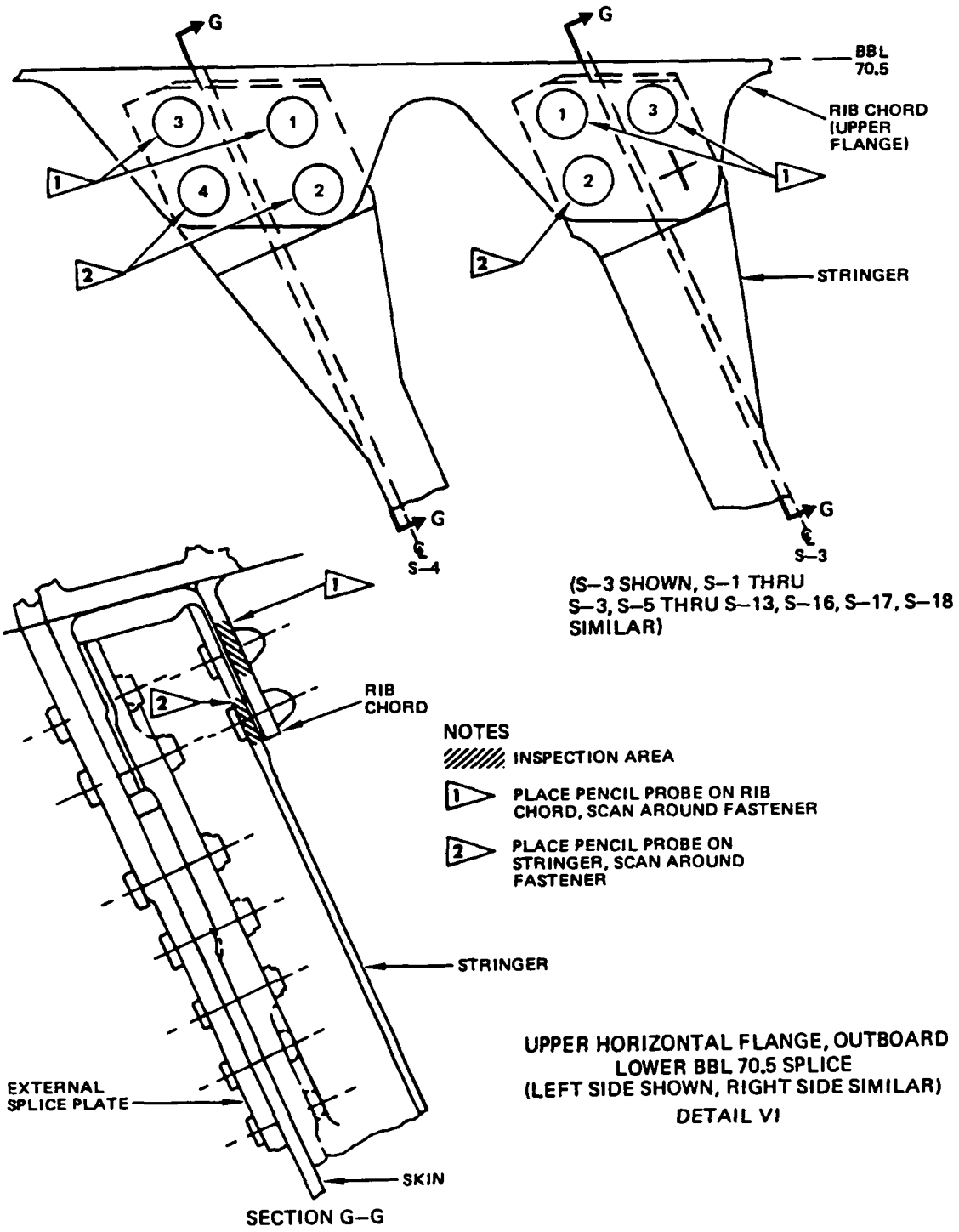
1 PLACE PENCIL PROBE ON RIB CHORD, SCAN AROUND FASTENER

2 PLACE PENCIL PROBE ON SPLICE FITTING, SCAN AROUND FASTENER

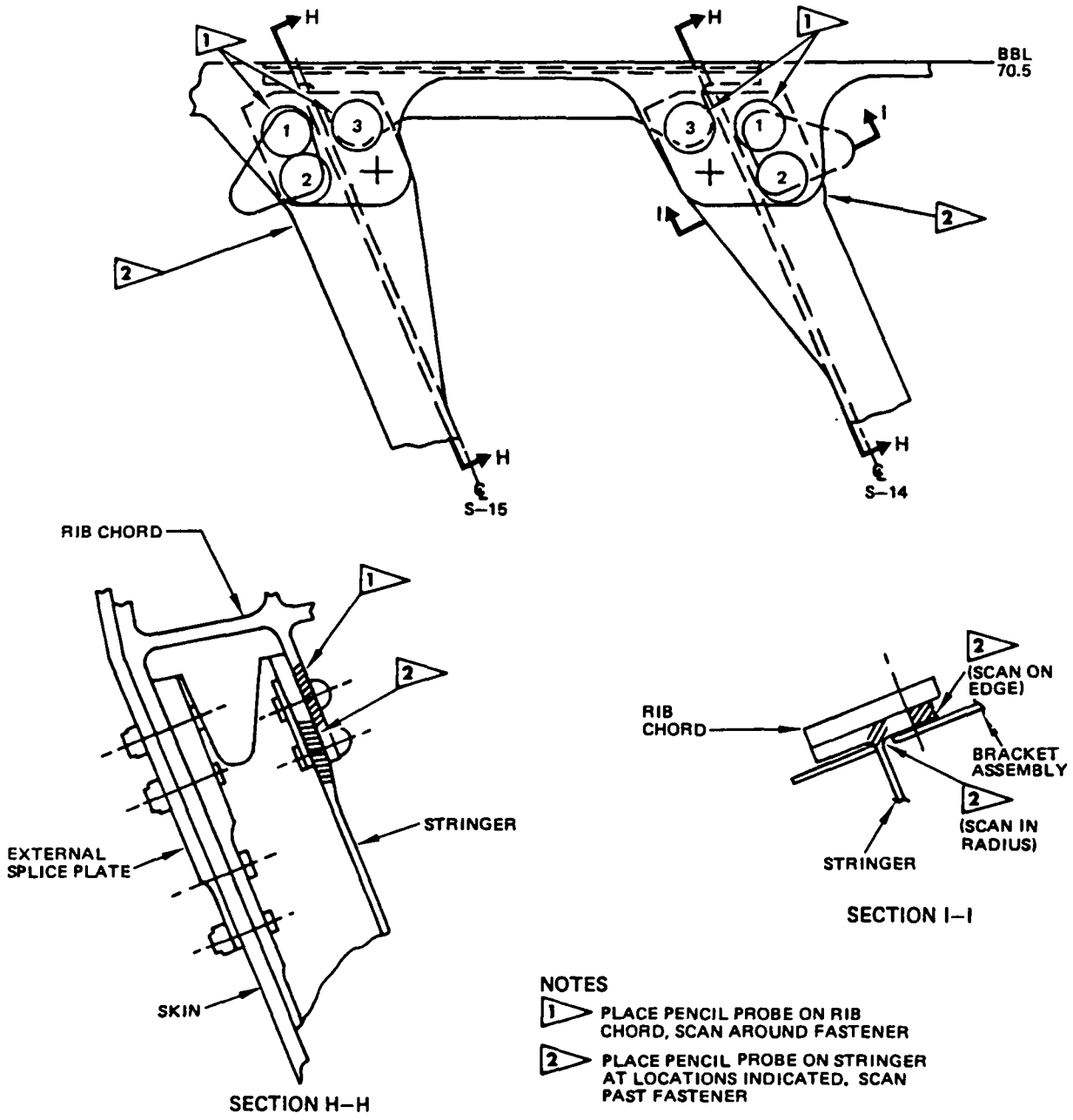
UPPER HORIZONTAL FLANGE, INBOARD SPANWISE BEAMS
LOWER BBL 70.5 SPLICE
(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)

DETAIL V

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 44 (Sheet 13)



Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 44 (Sheet 14)



UPPER HORIZONTAL FLANGE, OUTBOARD
LOWER BBL 70.5
(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)
DETAIL VII

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 44 (Sheet 15)

EFFECTIVITY
MODEL: 707-100/200
SSI DOCUMENT (D6-44860)
REFERENCE:
SSD 57-A15-03

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To perform an internal high frequency eddy current inspection of the wing lower BBL 70.5 splice, to detect cracks out of fastener holes:

      (1) Common to the lower wing skin and lower horizontal flanges, of the rib chord and stringers.

      (2) Common to the upper horizontal flanges, of the rib chord and stringers and to the splice fittings.

   B. To perform an internal bolt hole inspection of selected fastener holes common to the upper flange of the lower BBL 70.5 splice, on models which have fuel cells. See Details III and IV.

   C. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Instrument

      (1) Refer to Part 6, 51-00-0, Fig. 4.

   B. Probes

      (1) Low profile, right angle shielded pencil probe per Part 1, 51-06-00, Fig. 1, as specified in Detail I. Shielded probes available from:

      P/N: PEN-100AS
      VM Product
      7420 Park Ave. No. 20
      Tacoma, WA 98408

      P/N: P901-60B
      NDT Product Engineering
      P.O. Box 423
      Renton, WA 98057

      Specify dimensions desired when ordering from VM Products. It is also recommended to have a straight shielded pencil probe for areas where access is not a problem.

Wing Lower BBL 70.5 Splice 707-100/200 Airplanes
Figure 45 (Sheet 1)

(2) Bolt Hole Probes: 3/8, 5/16, and 1/4-inch diameter, per Part 6, 51-00-00, Fig. 1, required for models with fuel bladders in the wing center section.

C. Standards

(1) Pencil Probe: refer to Part 6, 51-00-00, Fig. 4.

(2) Bolt Hole Probe: refer to Part 6, 51-00-00, Fig. 1.

3. Preparation for Inspection

A. Internal, Wing Center Section

(1) Defuel and gain access into center wing.

(2) Remove fuel cells and lower surface backing panels as necessary to gain access to inspection areas.

(3) Purge fuel tanks to permit tank entry with eddy current test equipment.

CAUTION: DO NOT REMOVE MORE THAN ONE ANGLE ASSEMBLY PER WING AT ONE TIME.

(4) Remove the bladder spacer and angle assemblies at stringers S-1 to S-18 for bolt hole inspection on applicable models. See Detail III and IV.

(5) Reomove sealant from the lower flange at designated inspection locations to permit eddy current probe access. For inspection fore and aft of fasteners, remove sealant to permit inspection within 0.5 inch of fastener C/L.

(6) Wipe inspection areas clean.

B. Internal, Wing Tank Outboard of BBL 70.5.

(1) Defuel and gain access into wing tank.

(2) Purge fuel tanks to permit tank entry with eddy current test equipment.

(3) Remove sealant on the lower horizontal flange at designated areas.

(4) Wipe inspection areas clean.

4. Instrument Calibration

A. Pencil Probe

Refer to Part 6, 51-00-00, Fig. 4.

B. Bolt Hole Probe

Refer to Part 6, 51-00-00, Fig. 1.

5. Inspection Procedure

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

NOTE: Cracks are expected to propagate out of fastener holes, fore and aft or in a direction normal to the stringer.

A. Inspection of the inboard side of the lower BBL 70.5 joint (Inspection area is accessible from inside the wing center section).

(1) Inspection of the lower horizontal flange of rib chord and stringer.

(a) Scan with the pencil probe on the rib chord along fore and aft edges of splice fittings and at specified locations.

(b) Scan with the pencil probe on the splice fitting and stringers, fore and aft of designated fasteners. Scan within 0.5-inch of fastener C/L. See Detail I.

NOTE: At some locations on the stringer flange, fastener position may prevent a scan adjacent to the fastener. When this occurs, scan the stringer in the radius or along the stringer vertical leg.

(2) Inspection of the upper horizontal flange of rib chord and stringers.

(a) Bolt Hole Probe

1) After removing the bladder spacer and angle assemblies, inspect the resulting open holes per Part 6, 51-00-00, Fig. 1. See Details III and IV.

Wing Lower BBL 70.5 Splice 707-100/200 Airplanes
Figure 45 (Sheet 3)

(b) Pencil Probe

1) Scan with the pencil probe on the rib chord as close as possible to fore and aft edges of designated fasteners (Details III, IV and V).

NOTE: At spanwise beams it will be necessary to scan fore and aft of the angle which covers the rib chord (Detail V).

2) Scan with the pencil probe on the splice fittings around designated fasteners (Details III,IV and V).

3) Scan with the pencil probe along the accessible fore and aft edge of any solid shims that have a thickness of 0.125-inch or more (Details III and IV).

B. Inspection of the Outboard Side of the Lower BBL 70.5 Joint (Access to the outboard side of the 70.5 joint is through the wing fuel tank).

(1) Lower horizontal flanges of rib chord and skin.

(a) Scan with the pencil probe on the rib chord at designated areas (Detail VI).

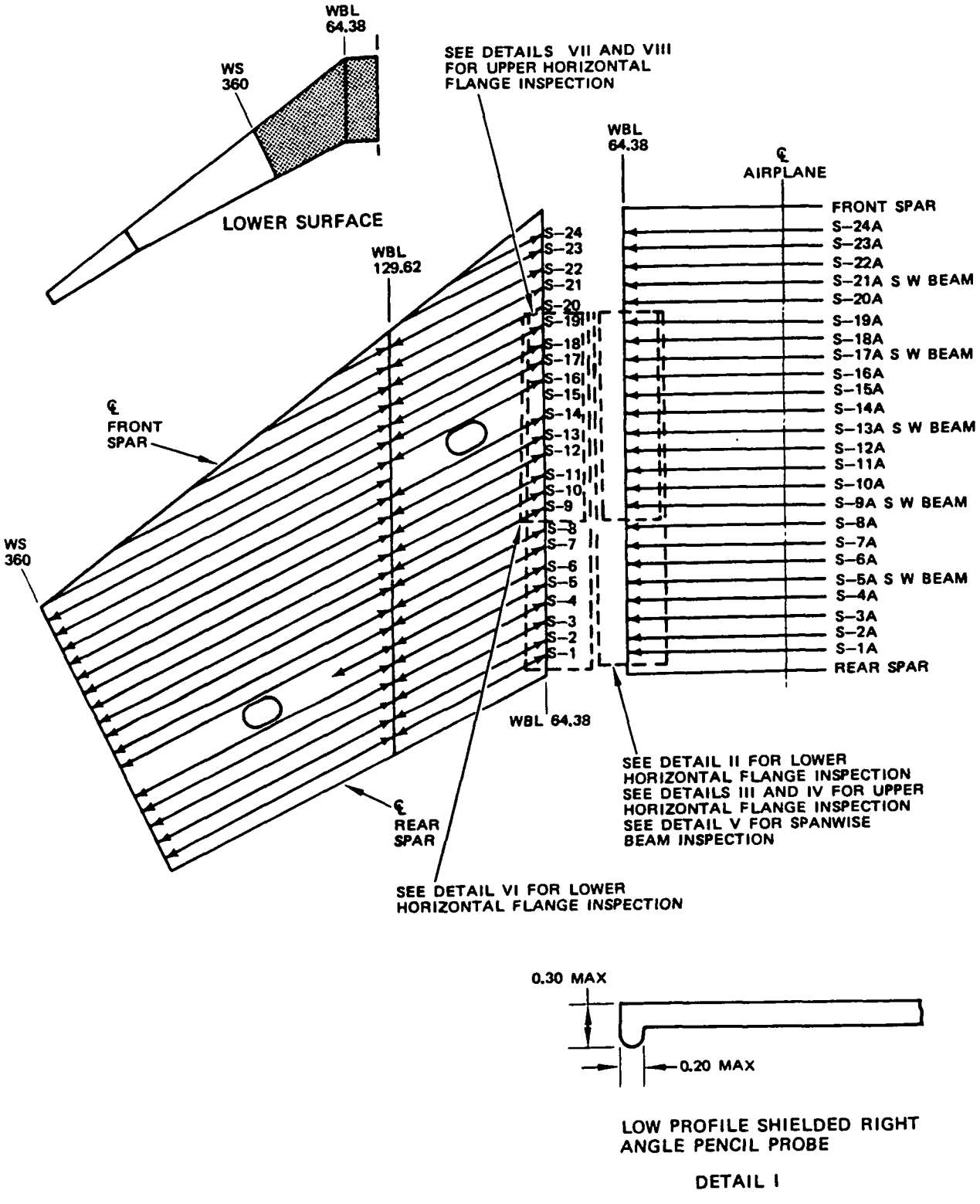
(b) Scan with the pencil probe on the skin as closely as possible to the edge of the stringer flange at designated areas (Detail VI).

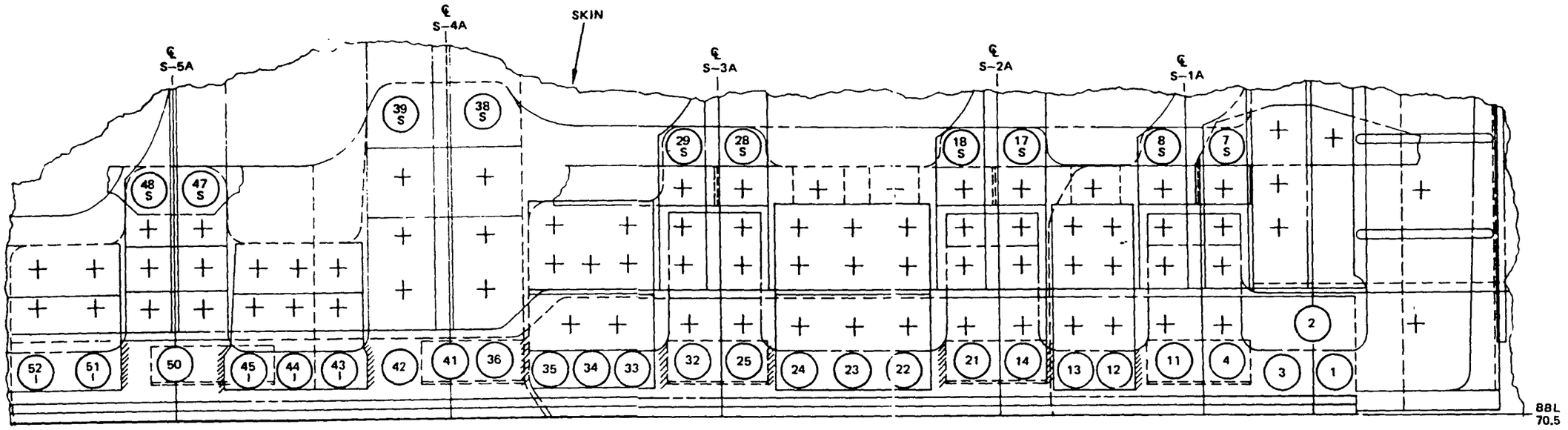
(2) Inspection of the upper horizontal flange at stringers and rib chord.

(a) Scan with the pencil probe around fasteners common to the upper horizontal flange (Details VII and VIII).

NOTE: Fastener position may prevent a complete 360-degree scan around fasteners. When this occurs, scan around the fastener to the extent possible. When adjacent to a stringer vertical leg, scan in the radius or along the vertical leg adjacent to the fastener.

Wing Lower BBL 70.5 Splice 707-100/200 Airplanes
Figure 45 (Sheet 4)


WBL 64.38
WS 360
LOWER SURFACE
SEE DETAILS VII AND VIII FOR UPPER HORIZONTAL FLANGE INSPECTION
WBL 64.38
℄ AIRPLANE
FRONT SPAR
S–24A
S–23A
S–22A
S–21A S W BEAM
S–20A
S–19A
S–18A
S–17A S W BEAM
S–16A
S–15A
S–14A
S–13A S W BEAM
S–12A
S–11A
S–10A
S–9A S W BEAM
S–8A
S–7A
S–6A
S–5A S W BEAM
S–4A
S–3A
S–2A
S–1A
REAR SPAR
WBL 129.62
℄ FRONT SPAR
WS 360
S–24
S–23
S–22
S–21
S–20
S–19
S–18
S–17
S–16
S–15
S–14
S–13
S–12
S–11
S–10
S–9
S–8
S–7
S–6
S–5
S–4
S–3
S–2
S–1
WBL 64.38
SEE DETAIL II FOR LOWER HORIZONTAL FLANGE INSPECTION
SEE DETAILS III AND IV FOR UPPER HORIZONTAL FLANGE INSPECTION
SEE DETAIL V FOR SPANWISE BEAM INSPECTION
℄ REAR SPAR
SEE DETAIL VI FOR LOWER HORIZONTAL FLANGE INSPECTION
0.30 MAX
0.20 MAX
LOW PROFILE SHIELDED RIGHT ANGLE PENCIL PROBE
DETAIL I



CONTINUED ON NEXT PAGE

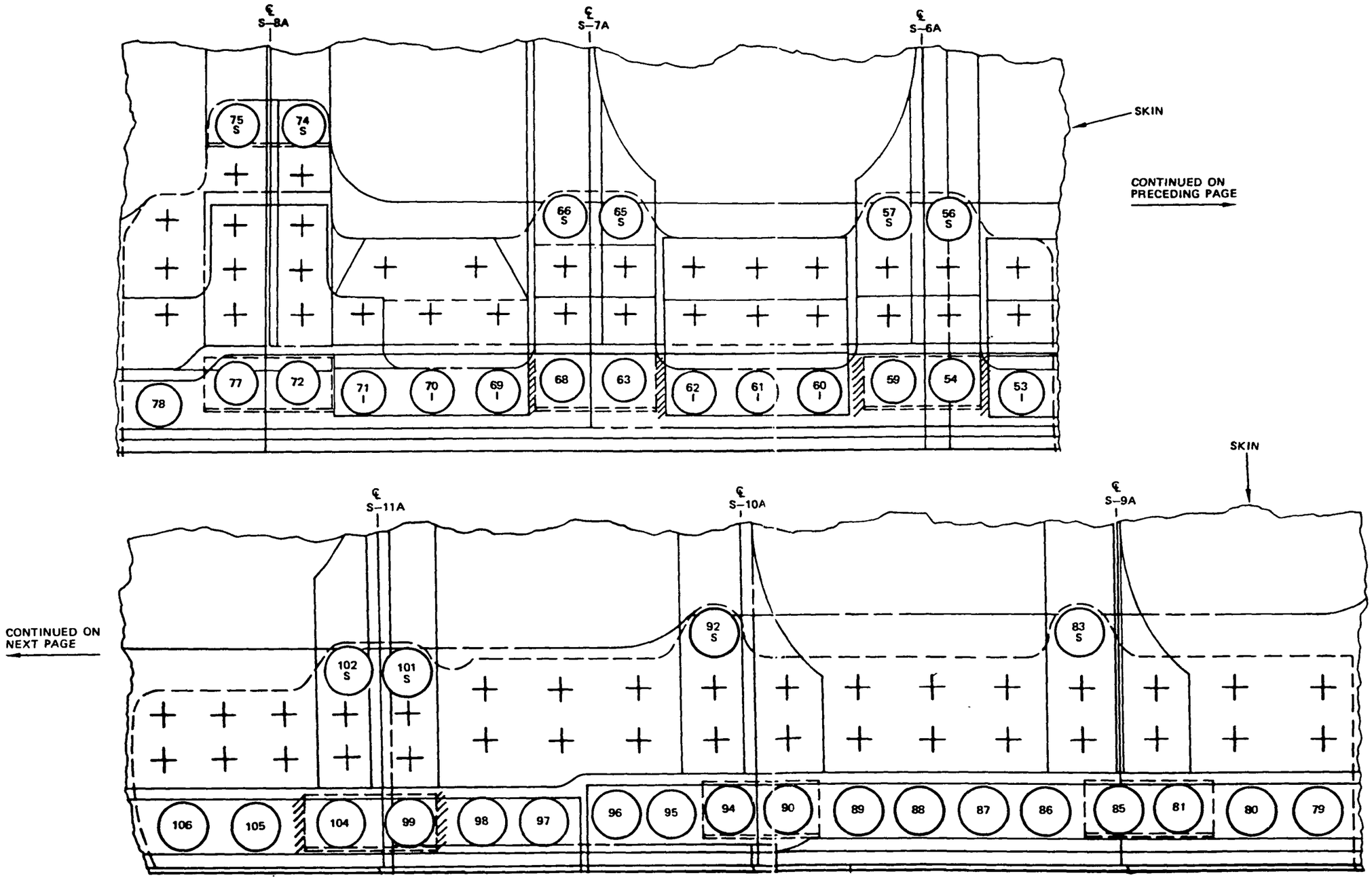
NOTES

- PLACE PENCIL PROBE ON RIB CHORD, SCAN ALONG FORE AND AFT EDGES OF SPLICE FITTINGS, AND AT INDICATED AREAS
- (45 I) PLACE PENCIL PROBE ON SPLICE FITTING, SCAN FORE AND AFT OF FASTENER
- (48 S) PLACE PENCIL PROBE ON STRINGER, SCAN FORE AND AFT OF DESIGNATED FASTENERS

FASTENERS TO BE INSPECTED–INBOARD
LOWER HORIZONTAL FLANGE–LOWER BBL 70.5
(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)

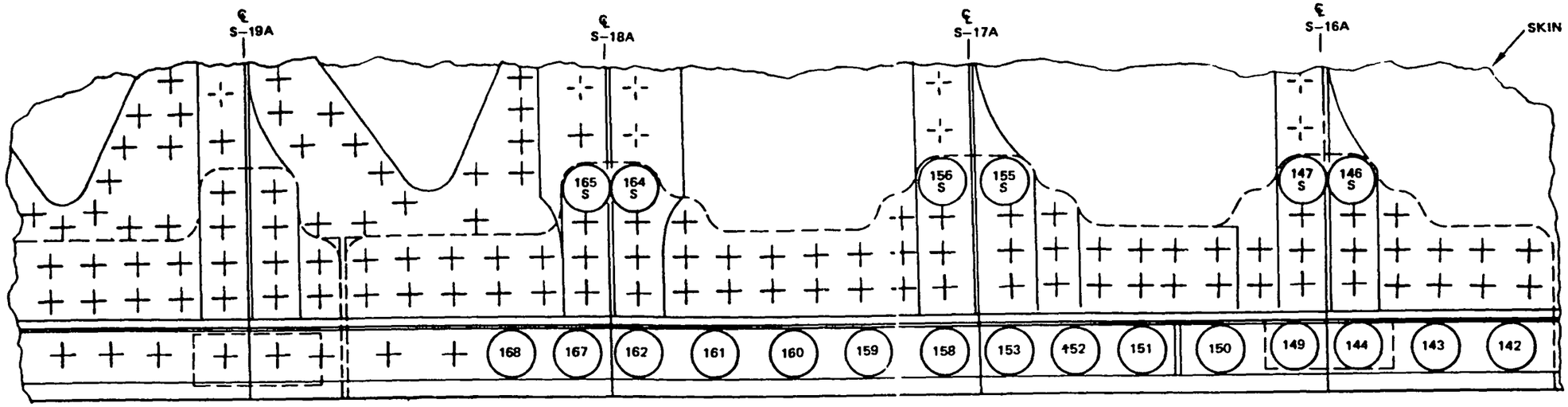
DETAIL II

Wing Lower BBL 70.5 Splice 707-100/200 Airplanes
Figure 45 (Sheet 6)



DETAIL II (CONT)

Wing Lower BBL 70.5 Splice 707-100/200 Airplanes
Figure 45 (Sheet 7)



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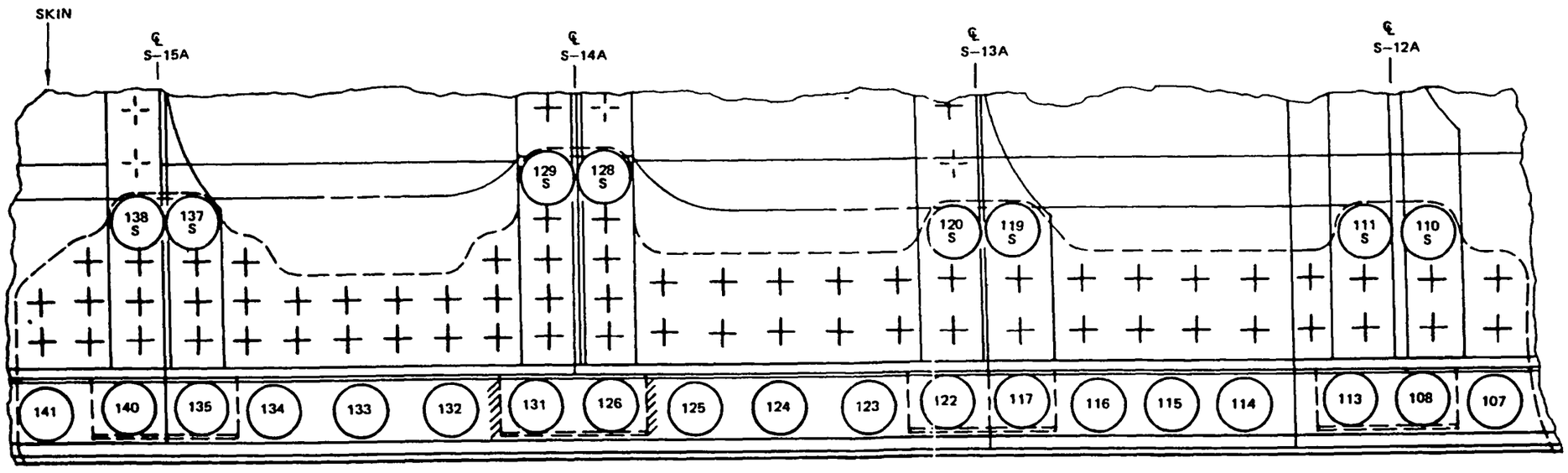
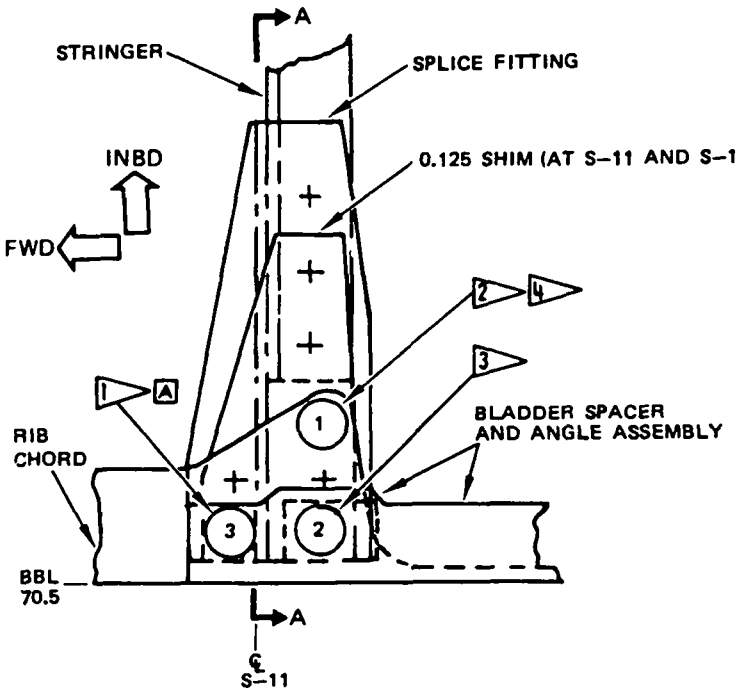
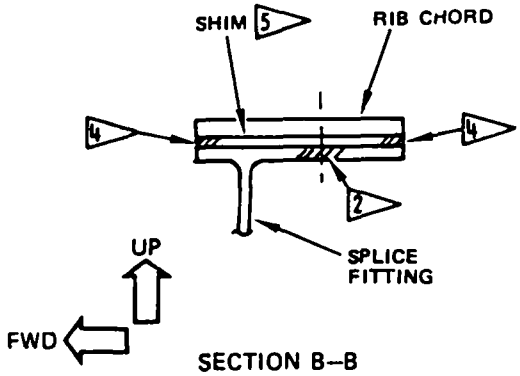


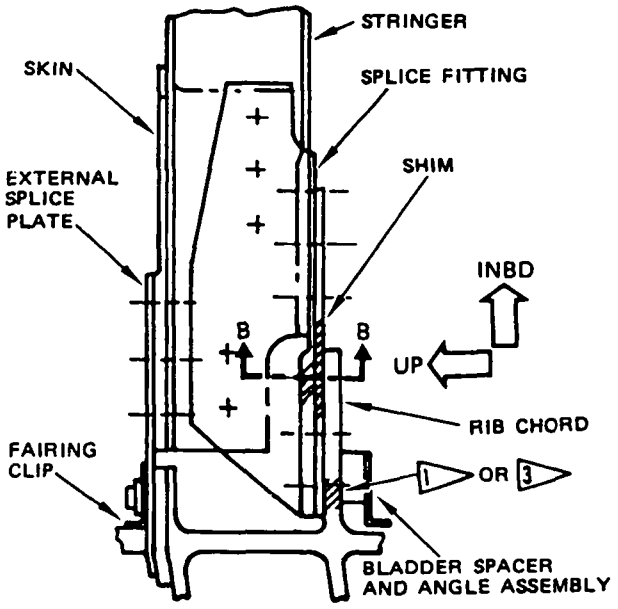
DETAIL II (CONT)

Wing Lower BBL 70.5 Splice 707-100/200 Airplanes
Figure 45 (Sheet 8)





SECTION B–B



SECTION A–A

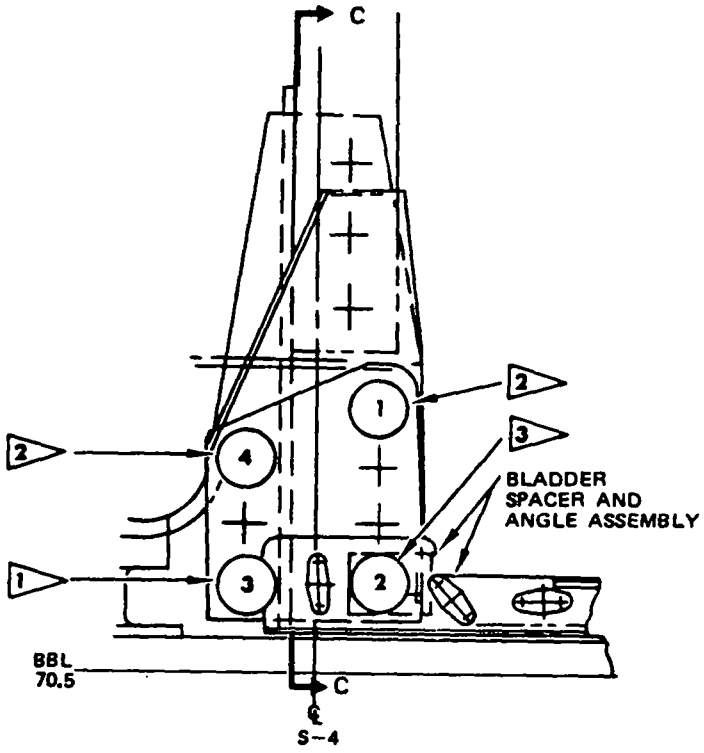
(S–11 SHOWN, S–1, S–2, S–3, S–6, S–7, S–8 S–10 AND S–12 SIMILAR)

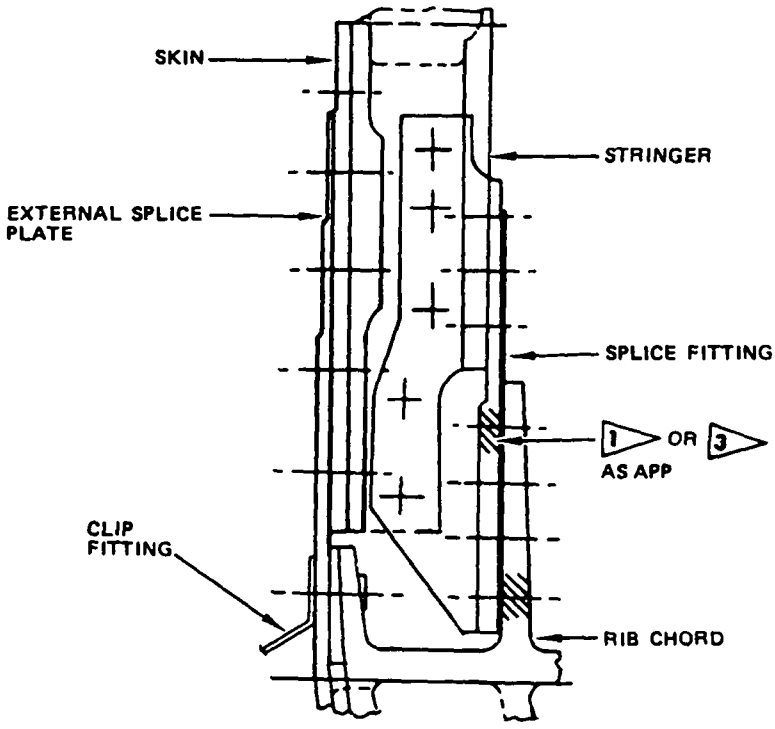
NOTES

- INSPECTION AREA
- A RIGHT ANGLE PENCIL PROBE REQUIRED
- 1 PLACE PENCIL PROBE ON RIB CHORD, SCAN FORE AND AFT OF FASTENER
- 2 PLACE PENCIL PROBE ON SPLICE FITTING, SCAN AROUND FASTENER
- 3 BOLT HOLE INSPECT RIB CHORD AT OPEN HOLE RESULTING FROM BLADDER SPACER AND ANGLE ASSEMBLY REMOVAL
- 4 FOR SOLID SHIMS 0.125 INCH THICK OR THICKER PLACE PENCIL PROBE ON FORE AND AFT EDGES OF SHIM AND SCAN PAST FASTENER (S–11 AND S–12 ONLY)
- 5 INSPECT ONLY THOSE SOLID SHIMS WHICH ARE 0.125 INCH THICK

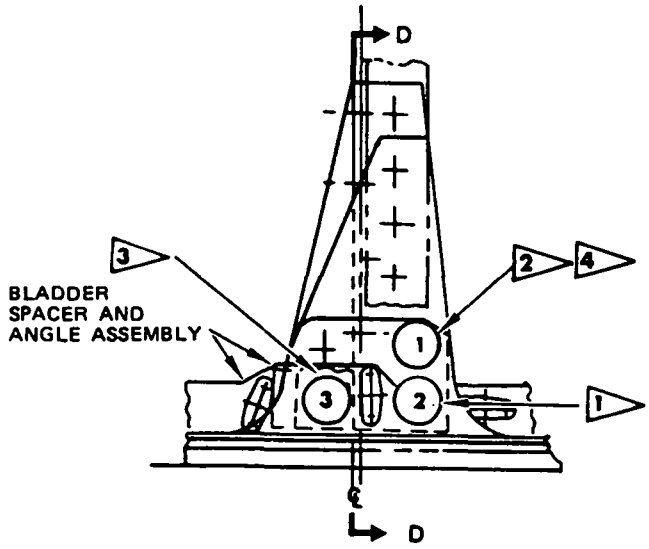
UPPER HORIZONTAL FLANGE, INBOARD
LOWER BBL 70.5 SPLICE
(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)

DETAIL III

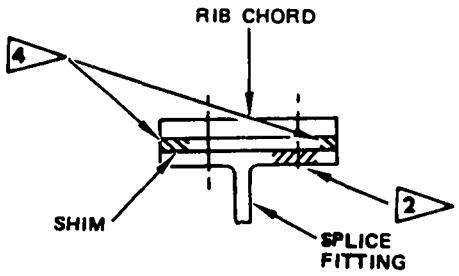

C
2
1
3
2
4
BLADDER
SPACER AND
ANGLE ASSEMBLY
1
3
2
BBL
70.5
C
℄
S-4


SKIN
STRINGER
EXTERNAL SPLICE
PLATE
SPLICE FITTING
1 OR 3
AS APP
CLIP
FITTING
RIB CHORD

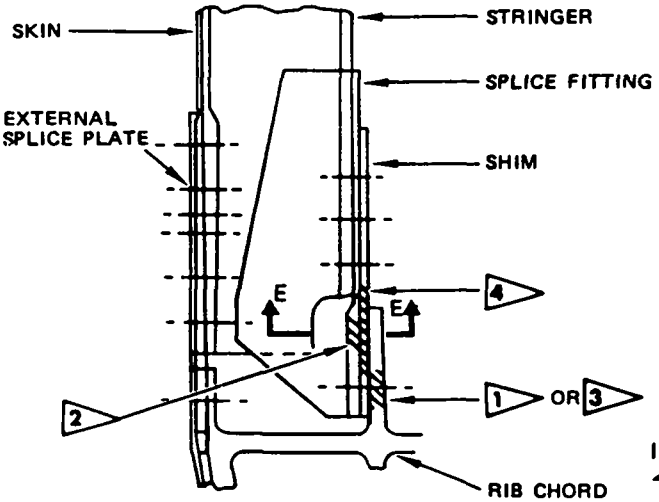
SECTION C-C



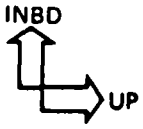
S–15 SHOWN, S–14, S–16
AND S–18 SIMILAR



SECTION E–E



SECTION D--D



NOTES

INSPECTION AREA

A RIGHT ANGLE PENCIL PROBE REQUIRED

1 PLACE PENCIL PROBE ON RIB CHORD, SCAN FORE AND AFT OF FASTENER

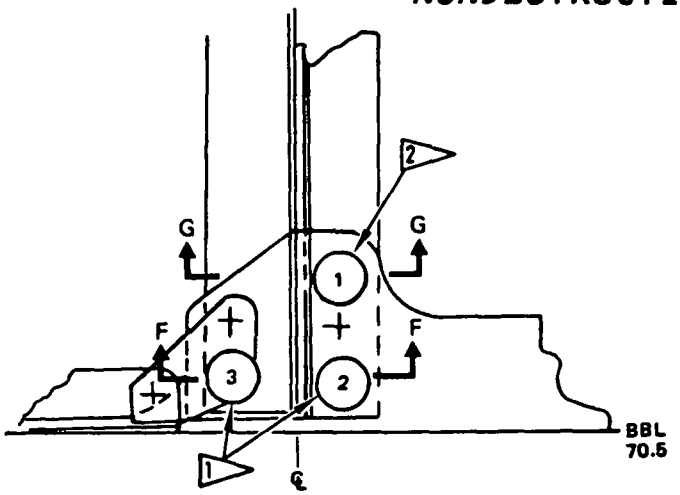
2 PLACE PENCIL PROBE ON SPLICE FITTING, SCAN AROUND FASTENER

3 BOLT HOLE INSPECT RIB CHORD AT OPEN HOLES RESULTING FORM BLADDER SPACER AND ANGLE ASSEMBLY REMOVAL

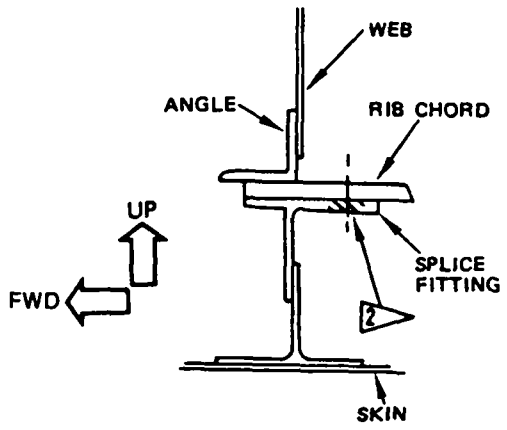
4 FOR SOLID SHIMS 0.125 INCH THICK OR THICKER, PLACE PENCIL PROBE ON FORE AND AFT EDGES OF THE SHIM AND SCAN PAST FASTENER

UPPER HORIZONTAL FLANGE, INBOARD
LOWER BBL70.5 SPLICE
(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)

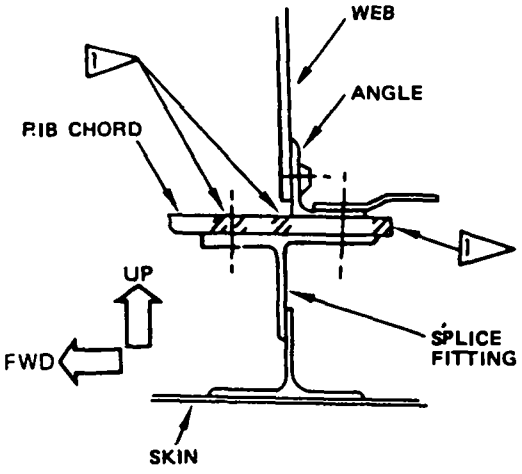
DETAIL IV



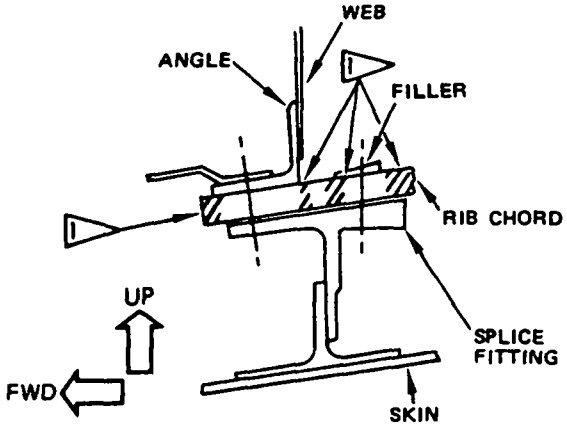
(SPANWISE BEAM S-9 SHOWN, S-5, S-13 AND S-17 SIMILAR)



SECTION G-G



SECTION F-F
(SPANWISE BEAM S-13 AND S-17)

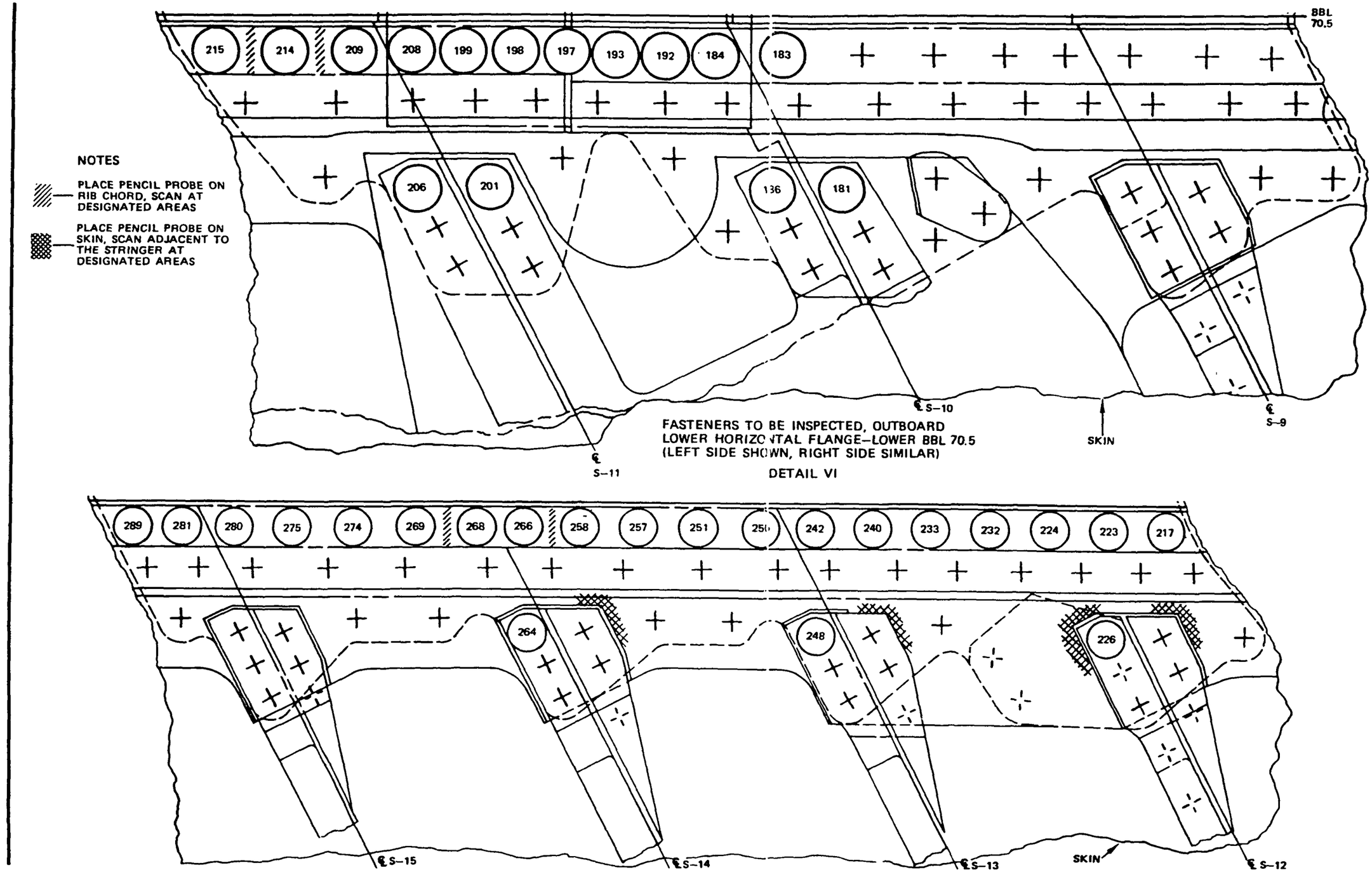


SECTION F-F
(SPANWISE BEAMS S-5 AND S-9)

NOTES

- INSPECTION AREA
- 1 PLACE PENCIL PROBE ON RIB CHORD, SCAN FORWARD AND AFT OF FASTENERS AT INSPECTION AREAS
- 2 PLACE PENCIL PROBE ON SPLICE FITTING, SCAN AROUND FASTENER

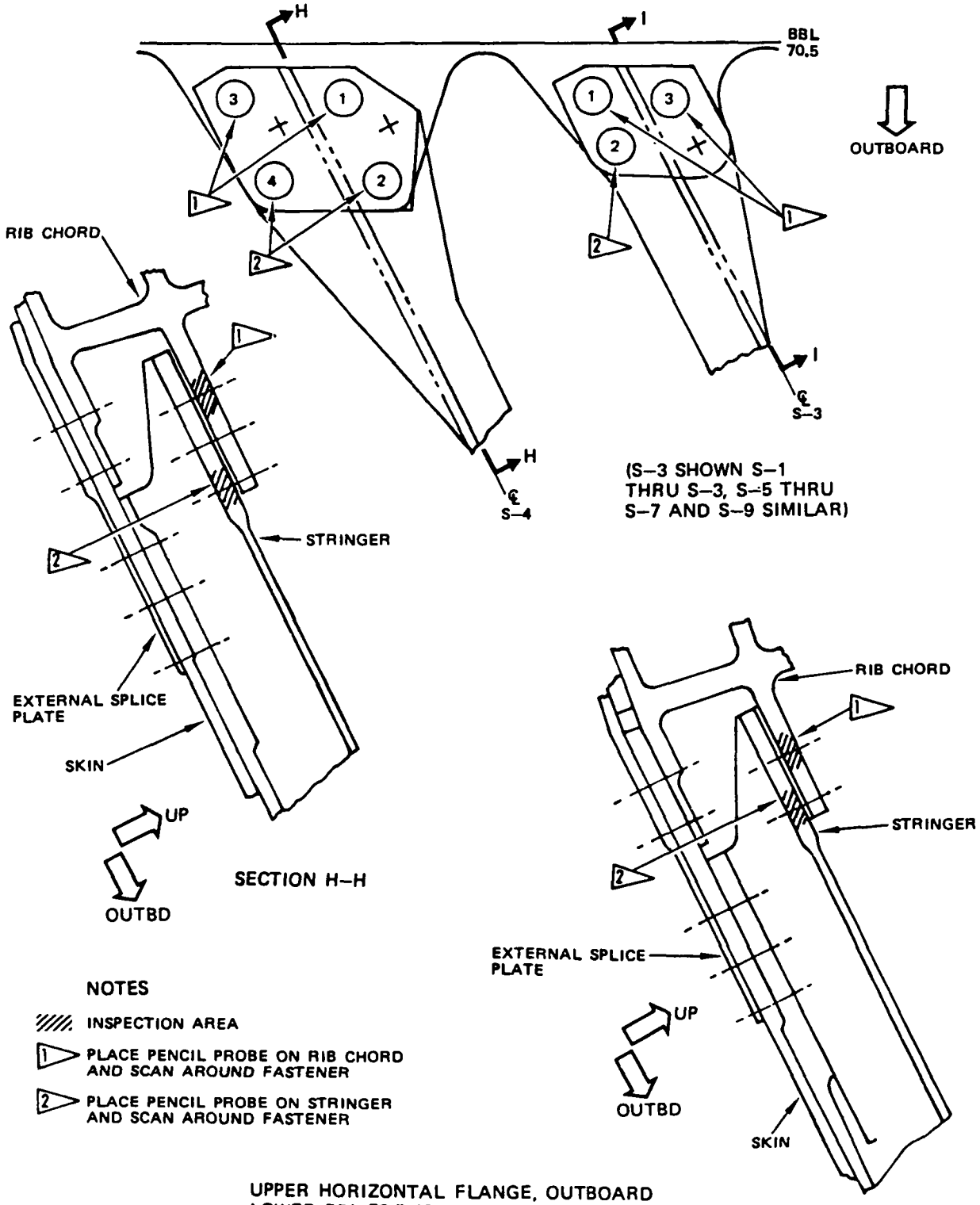
UPPER HORIZONTAL FLANGE, INBOARD SPANWISE BEAMS
LOWER BBL 70.5 SPLICE
(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)
DETAIL V



FASTENERS TO BE INSPECTED, OUTBOARD LOWER HORIZONTAL FLANGE–LOWER BBL 70.5 (LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)

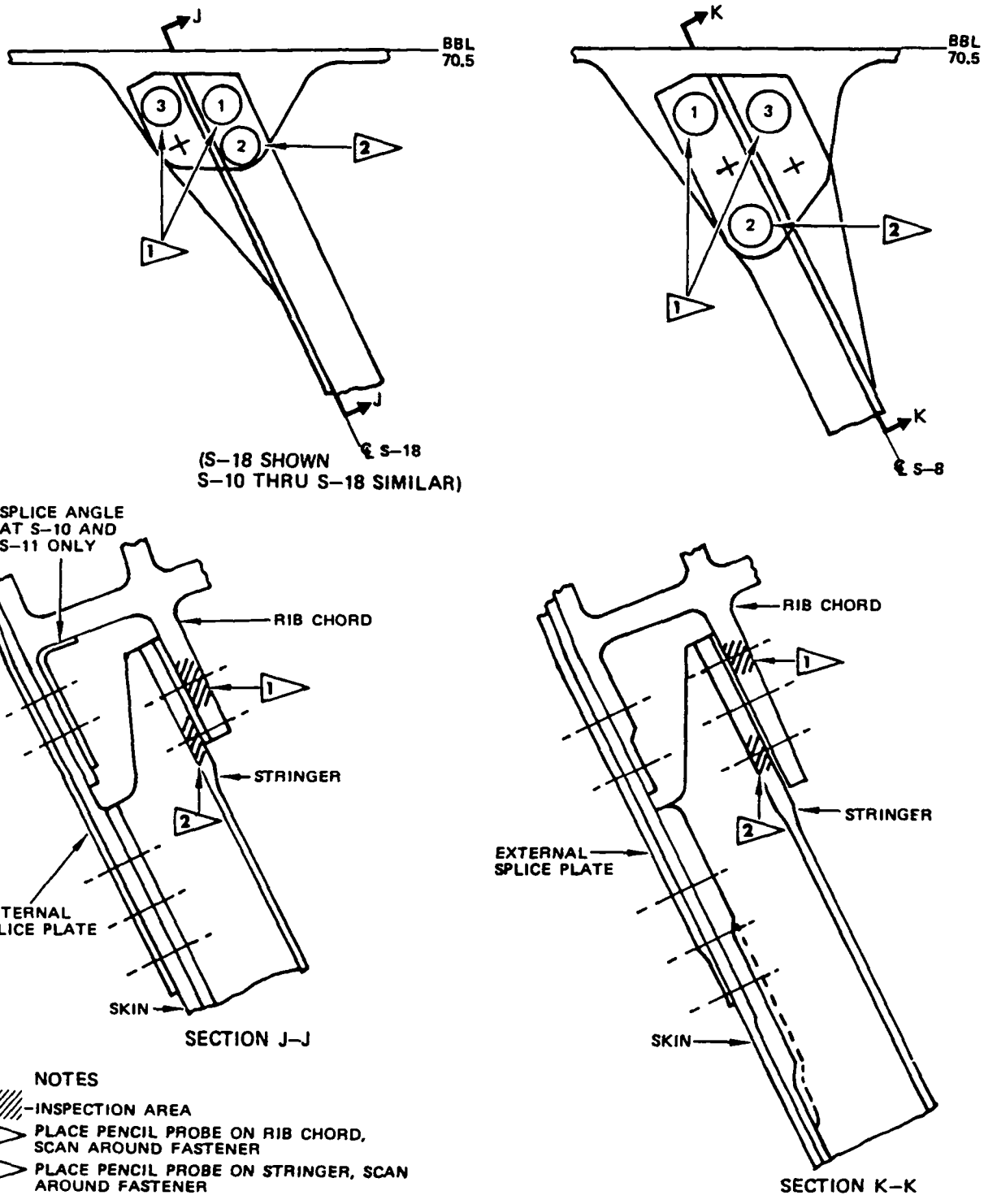
DETAIL VI

Wing Lower BBL 70.5 Splice 707-100/200 Airplanes
Figure 45 (Sheet 13)



UPPER HORIZONTAL FLANGE, OUTBOARD
LOWER BBL 70.5 SPLICE
(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)

DETAIL VII



UPPER HORIZONTAL FLANGE, OUTBOARD
LOWER BBL70.5 SPLICE
(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)

DETAIL VIII

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To inspect for fastener hole cracks in the wing skin, horizontal flange of the front spar chord, and stringer ends at stringers S-14 and S-18 ronouts. See Detail I.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec Inc.
      1320 NW Mall
      Issaquah, WA 98027

   B. Probes - The following probe was used in the development of this procedure. Any probe of similar size that will satisfy the performance requirements of this procedure is acceptable.

      (1) Ring (encircling) probe, 1-inch OD and 0.5-inch ID, OD and ID shielding, usable at 350 Hz, Nortec P/N SPO 783.

      NOTE: The probe listed above is available from:

      Nortec Inc.
      421 N. Quay
      Kennewick, WA 99336

      Specify instrument with which probe is to be used or instrument connector required when ordering probes.

   C. Reference Standards - Manufacture per Details II and III.

3. Preparation for Inspection

   A. Identify the inspection area and wipe skin surface clean.

Lower Front Spar Stringer Runouts (720 Airplanes)
Figure 46 (Sheet 1)

4. Instrument Calibration

A. To calibrate for stringer S-14 runout inspection, use Detail II standard. To calibrate for stringer S-18 runout inspection, use Detail III standard.

(1) Set instrument frequency to 350 Hz.

(2) Visually center probe over the unnotched reference standard hole, Position 1, Detail IV.

(3) Balance instrument per manufacturer's instructions.

(4) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006-inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(5) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

(6) Center probe over the notched reference standard hole, Position 2, Detail IV. Response should be upscale.

(7) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(8) Recheck null and liftoff. If readjustments are made, recheck sensitivity per par. 4.A.(7).

(9) Cracks will be indicated by a higher meter response.

(10) Center probe on larger and smaller fasteners, 5/16 and 3/16-inch diameter, Positions 3 and 4, Detail IV, and note response change due to a change in fastener size.

(11) Center probe on fastener close to the edge, Position 5, Detail IV, and note response change due to short edge margin.

NOTE: Fastener diameter and close edge margin response corrections may be necessary to adjust for airplane inspection conditions.

Lower Front Spar Stringer Runouts (720 Airplanes)
Figure 46 (Sheet 2)

5. Inspection Procedure

NOTE: Stringer runouts have internal structure that can result in variations in second layer edge margin from one wing to another. To adjust for this, the inspection procedure identifies several fasteners with similar configuration that are used to baseline the response. Adjustment for fastener size and visible close edge margin may also be necessary to establish a particular fastener response.

A. Inspection of Fasteners at Stringer S-14 Runout

(1) Calibrate the instrument according to par. 4 using the Detail II reference standard.

NOTE: It is suggested that a copy be made of Detail V and that it be used to record instrument response at each fastener location. This is helpful in maintaining continuity between the groups of fasteners during inspection.

(3) Refer to Detail V and select a group of fasteners identified as having similar inspection conditions.

(4) Locate this group on the airplane and center probe on each fastener in the group and note the response. Adjust the instrument to set the lowest response obtained to 20% of full meter scale.

NOTE: Do not change instrument sensitivity.

(5) Determine the actual response for a particular fastener by correcting the response obtained for the effect of fastener size and close edge margin.

NOTE: Determine the amount of response adjustment to be made by comparison with similar conditions on the calibration standard.

(6) Repeat par. (3), (4), and (5) for all fastener groups identified in Detail V.

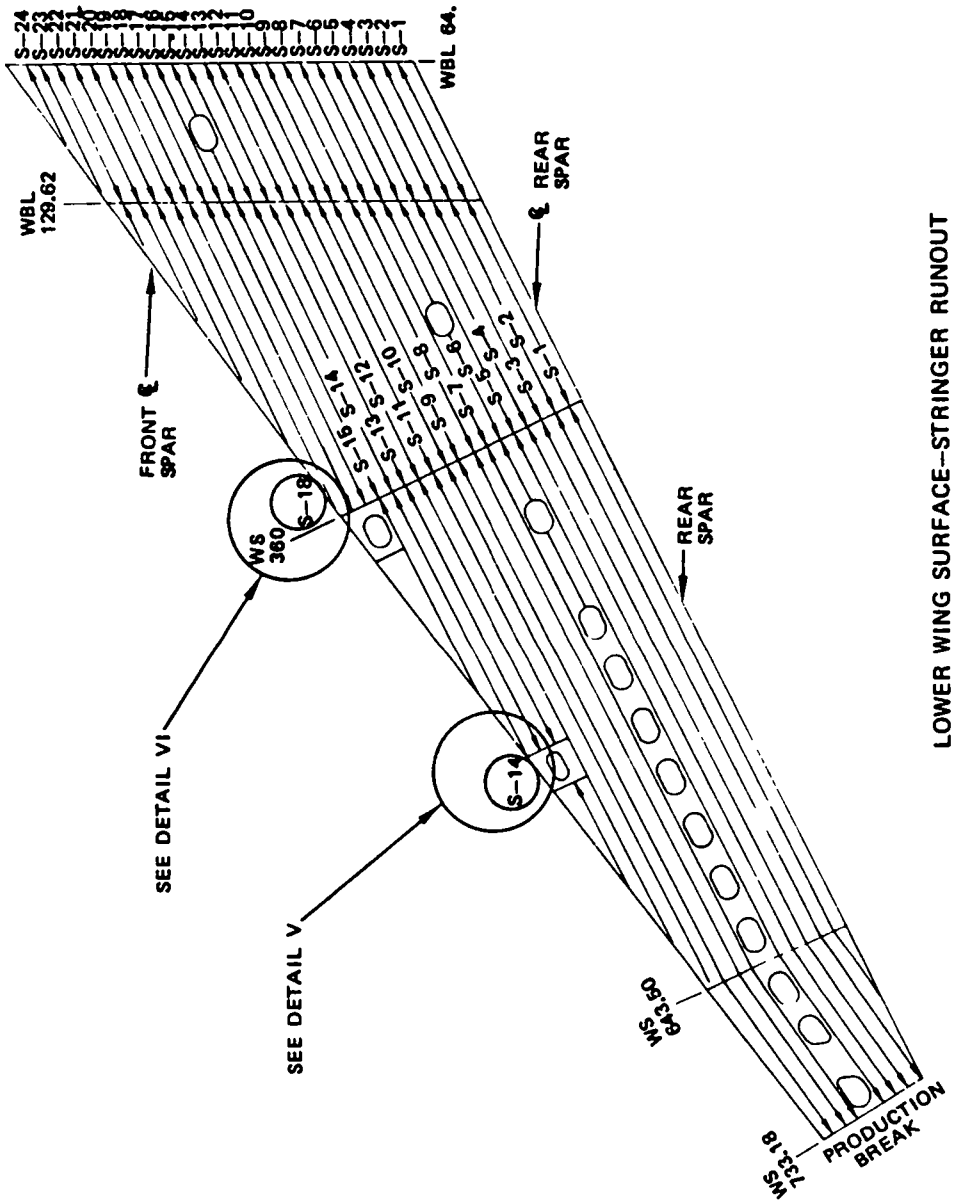
(7) Fastener locations that give a response that is 40% of full meter scale higher than the fastener group baseline response are potential cracks and further investigation is required.

B. Inspection of Fasteners at Stringer S-18 Runout

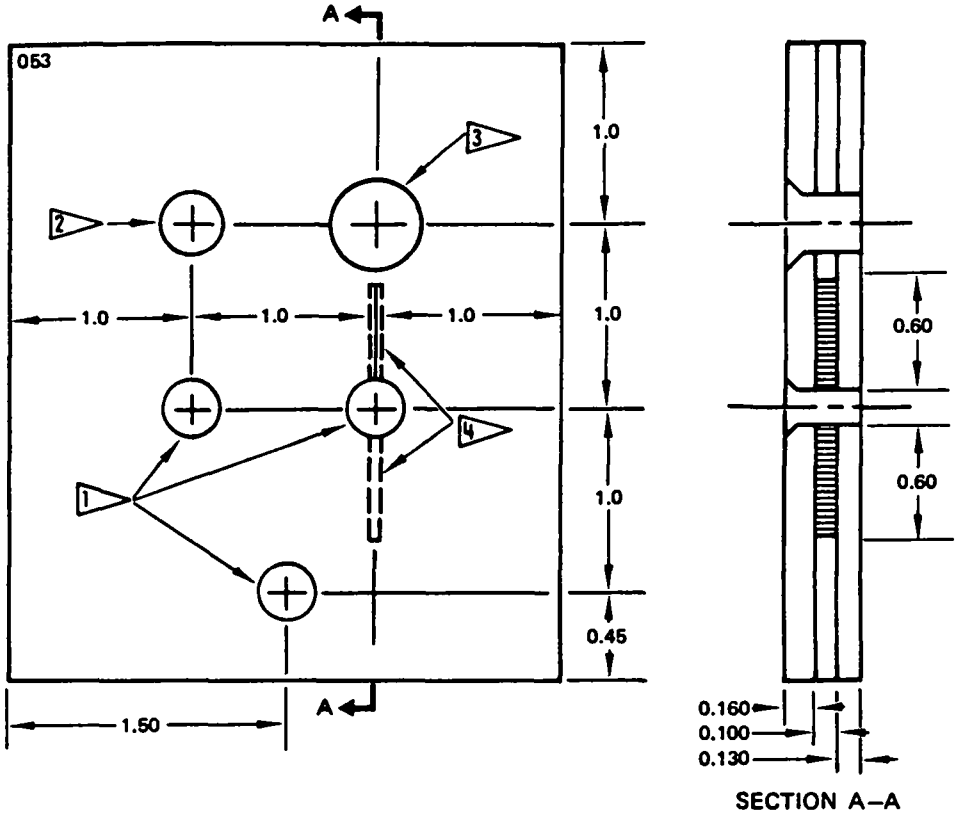
(1) Inspect according to par. 5.A. except calibrate using the Detail III standard.

(2) Use Detail VI to identify fasteners requiring inspection.

Lower Front Spar Stringer Runouts (720 Airplanes)
Figure 46 (Sheet 3)



Lower Front Spar Stringer Runouts (720 Airplanes)
Figure 46 (Sheet 4)



NOTES

- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T3 ALUMINUM
- TOLERANCES: X.X ± 0.05 X.XX ± 0.01
  X.XXX ± 0.005
  HOLE: +0.004 –0.000
- FASTENER FLUSHNESS: +0.010 –0.005
- ETCH OR STEEL STAMP WITH 053
- P/N 6412–59
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

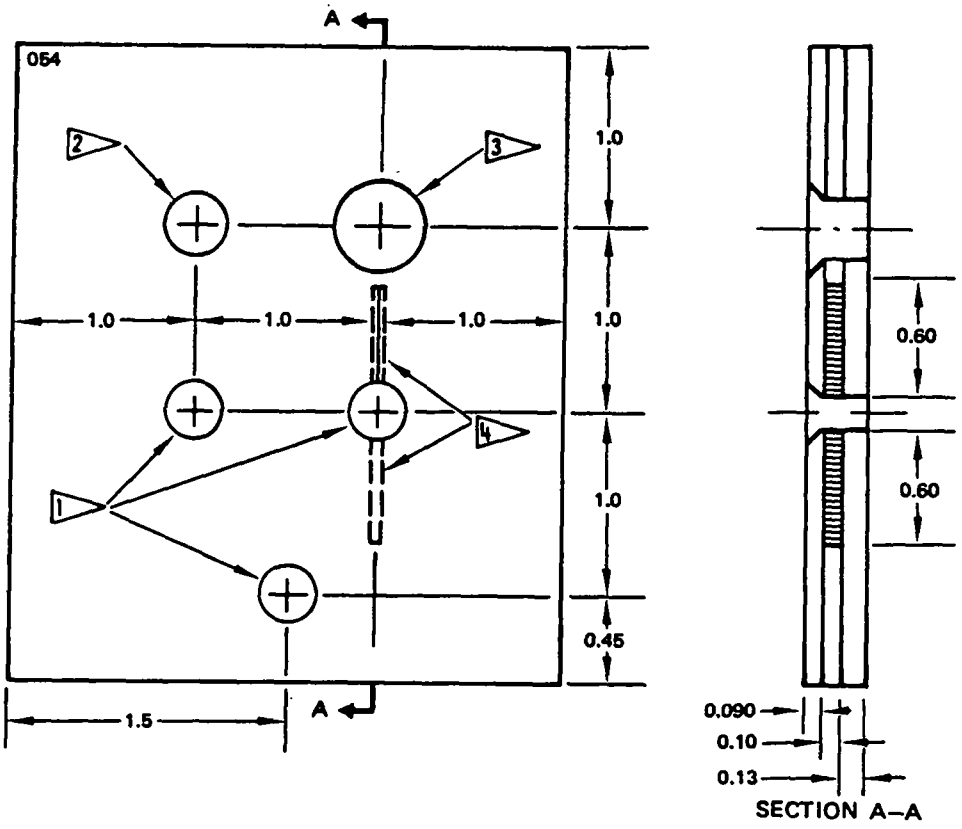
1 BACB30GY8–7 FASTENERS; BACC30K8 COLLARS (3 PLACES)

2 BACB30GY6–7 FASTENER; BACC30K6 COLLAR (1 PLACE)

3 BACB30GY10–7 FASTENER; BACC30K10 COLLAR (1 PLACE)

4 JEWELER'S SAWCUT 0.030 MAX WIDTH (2 PLACES)

REFERENCE STANDARD 053 STRINGER S–14 RUNOUT
DETAIL II

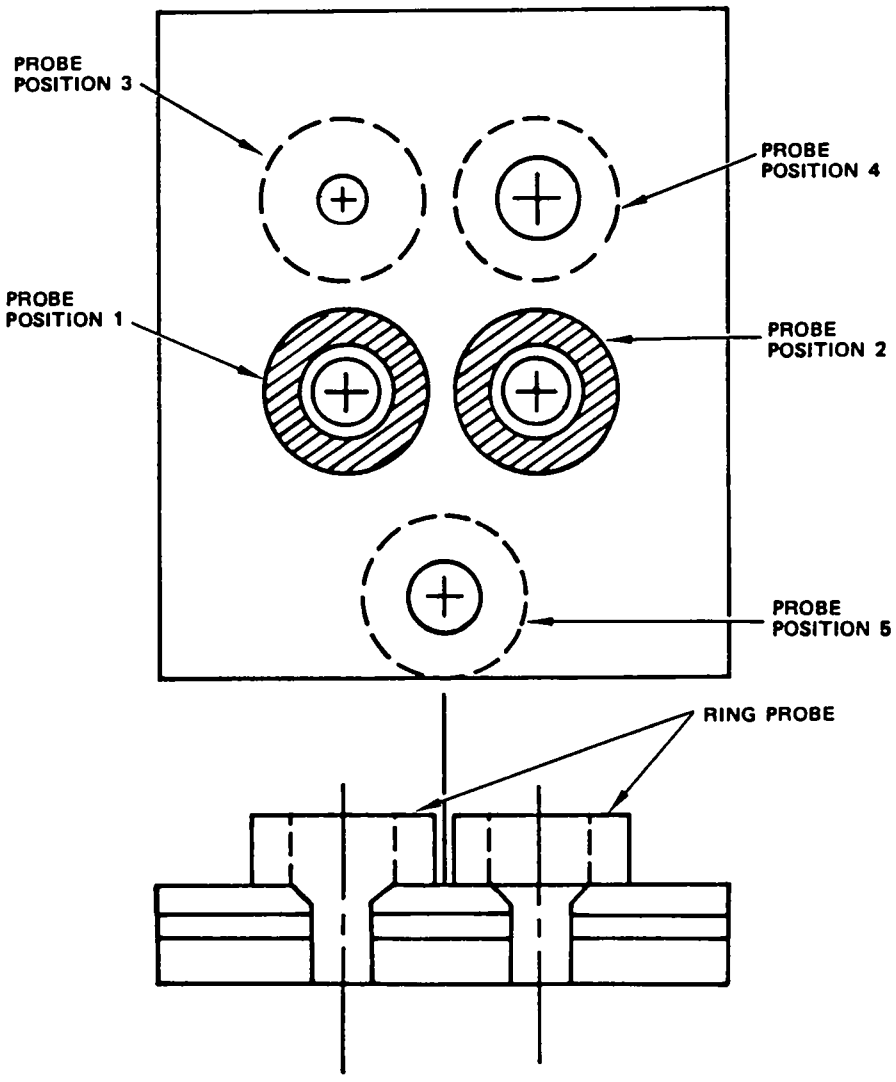


NOTES

- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T3 ALUMINUM
- TOLERANCES: X.X ± 0.05; X.XX ± 0.01; X.XXX ± 0.005
  HOLE: +0.004 – 0.000
- FASTENER FLUSHNESS: +0.010 –0.005
- ETCH OR STEEL STAMP WITH 054
- P/N 6412–60
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

1. BACB30GY8–6 FASTENER (100° C/S, SHEAR HEAD); BACC30K8 COLLAR (3 PLACES)
2. BACB30GY6–6 FASTENER (100° C/S SHEAR HEAD); BACC30K6 COLLAR (1 PLACE)
3. BACB30GY10–6 FASTENER (100° C/S SHEAR HEAD); BACC30K10 COLLAR (1 PLACE)
4. JEWELER'S SAWCUT 0.030 MAX WIDTH (2 PLACES)

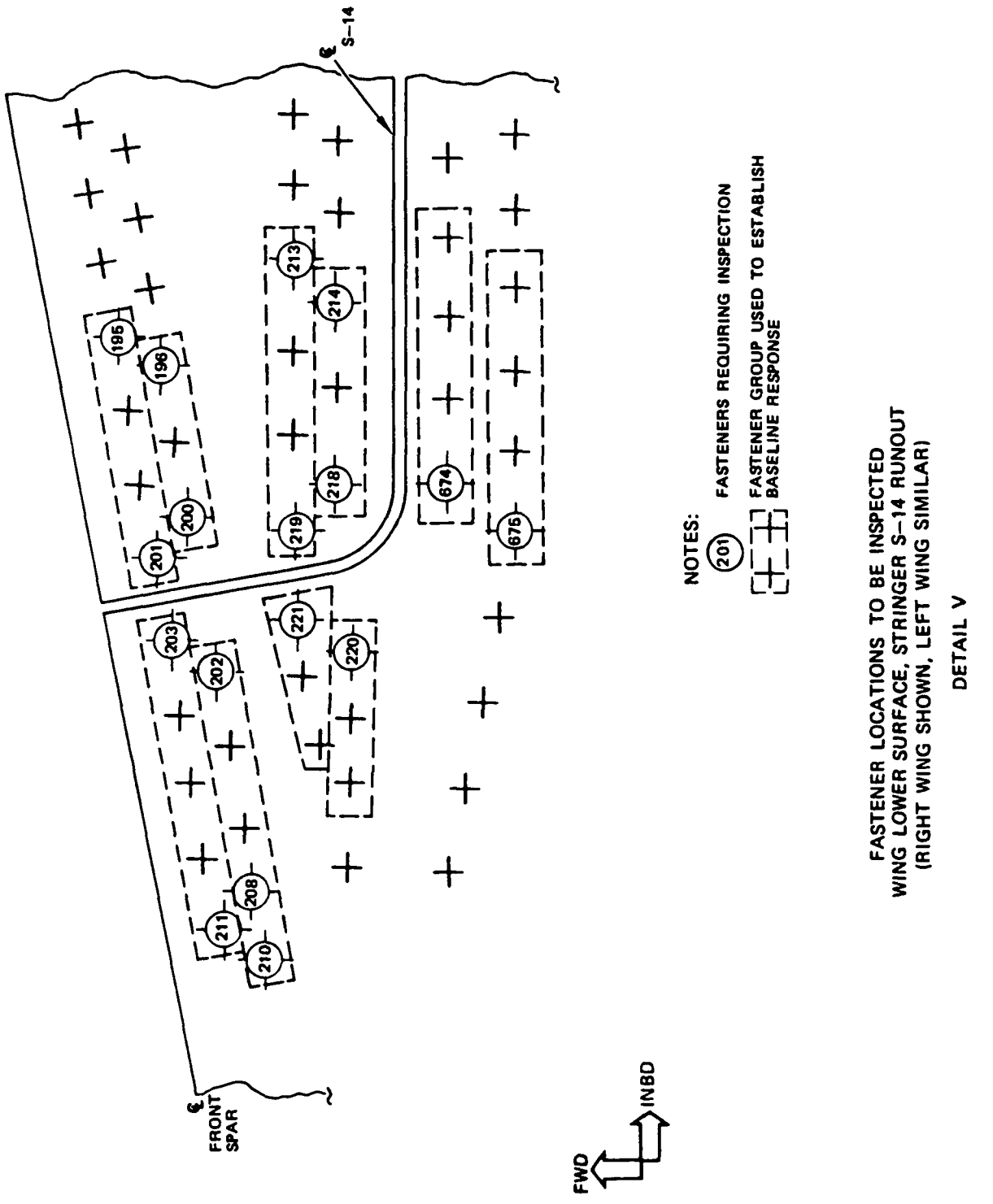
REFERENCE STANDARD 054 STRINGER S–14 RUNOUT
DETAIL III



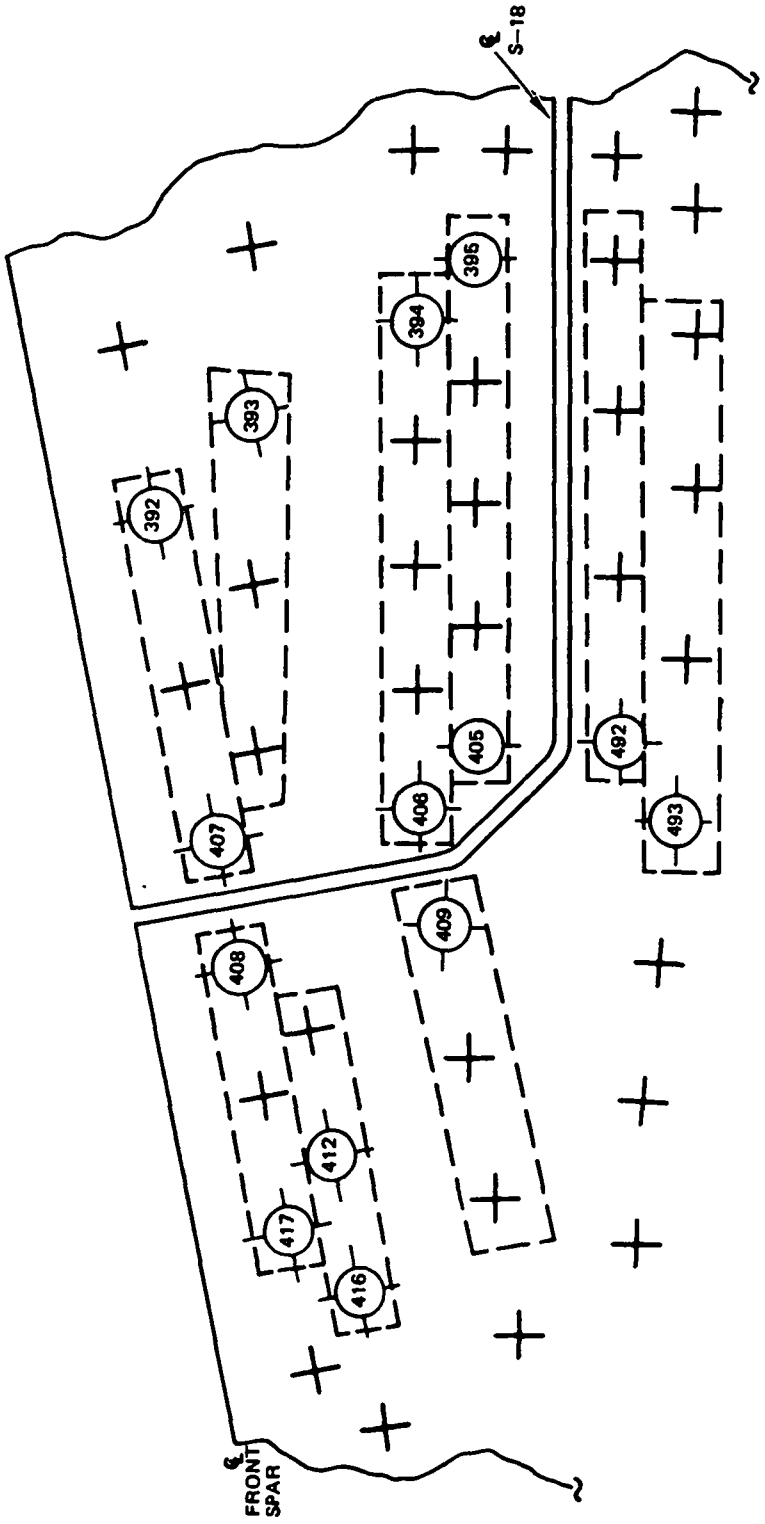
NOTES

- STANDARD 053 FOR STRINGER S–14 RUNOUT
- STANDARD 054 FOR STRINGER S–18 RUNOUT
- 60% SIGNAL DIFFERENCE BETWEEN POSITION 1 AND 2

PROBE POSITIONS FOR CALIBRATION
REFERENCE STANDARDS 053 AND 054
DETAIL IV



Lower Front Spar Stringer Runouts (720 Airplanes)
Figure 46 (Sheet 8)



FASTENER LOCATION TO BE INSPECTED
LOWER WING SURFACE, STRINGER S-18 RUNOUT
(RIGHT WING SHOWN, LEFT WING SIMILAR)
DETAIL VI

Lower Front Spar Stringer Runouts (720 Airplanes)
Figure 46 (Sheet 9)

EFFECTIVITY
MODEL: 707-300/400, -300B, 300C
SSI DOCUMENT (D6-44860)
REFERENCE: SSD 57-A25-14, SSD 57-A35-14, SSD 57-A45-14

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To inspect for fastener hole cracks in the lower wing skin, horizontal flange of the front spar chord, and stringer ends at stringer S-14, S-18, and S-25 runouts. See Detail I.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec Inc.
      1320 NW Mall
      Issaquah, WA 98027

   B. Probes - The following probe was used in the development of this procedure. Any probe of similar size that will satisfy the performance requirements of this procedure is acceptable.

      (1) Ring (encircling) probe, 1-inch OD and 0.5-inch ID, OD and ID shielding, usable at 350 Hz, Nortex P/N SPO 783.

      NOTE: The probe listed above is available from:

      Nortec Inc.
      421 N. Quay
      Kennewick, WA 99336

      Specify instrument with which probe is to be used or instrument connector required when ordering probes.

   C. Reference Standards - Manufacture per Details II and III.

Lower Front Spar Stringer Runouts (707-300/400 Airplanes)
Figure 47 (Sheet 1)

3. Preparation for Inspection

A. To calibrate for stringer S-14 runout inspection, use Detail II standard. To calibrate for stringer S-18 and S-25 runout inspection, use Detail III standard.

(1) Set instrument frequency to 350 Hz.

(2) Visually center probe over the unnotched reference standard hole, Position 1, Detail IV.

(3) Balance instrument per manufacturer's instructions.

(4) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006-inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(5) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

(6) Center probe over the notched reference standard hole, Position 2, Detail IV. Response should be upscale.

(7) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(8) Recheck null and liftoff. If readjustments are made, recheck sensitivity per par. 4.A.(7).

(9) Cracks will be indicated by a higher meter response.

(10) Center probe on larger and smaller fasteners, 5/16 and 3/16-inch diameter, Positions 3 and 4, Detail IV, and note response change due to a change in fastener size.

(11) Center probe on fastener close to the edge, Position 5, Detail IV, and note response change due to short edge margin.

NOTE: Fastener diameter and close edge margin response corrections may be necessary to adjust for airplane test conditions.

Lower Front Spar Stringer Runouts (707-300/400 Airplanes)
Figure 47 (Sheet 2)

5. Inspection Procedure

NOTE: Stringer runouts have internal structure that can result in variations in second layer edge margin from one wing to another. To adjust for this, the inspection procedure identifies several fasteners with similar configuration that are used to baseline the response. Adjustment for fastener size and visible close edge margin may also be necessary to esablish a particular fastener response.

A. Inspection of Fasteners at Stringer S-14 Runout

(1) Calibrate the instrument according to par. 4 using the Detail II reference standard.

(2) Identify fasteners to be inspected by using Detail V.

NOTE: It is suggested that a copy be made of Detail V and that it be used to record instrument response at each fastener location. This is helpful in maintaining continuity between the groups of fasteners during inspection.

(3) Refer to Detail V and select a group of fasteners identified as having similar inspection conditions.

(4) Locate this group on the airplane and center probe on each fastener in the group and note the response. Adjust the instrument to set the lowest response obtained to 20% of full meter scale.

NOTE: Do not change instrument sensitivity.

(5) Determine the actual response for a particular fastener by correcting the response obtained for the effect of fastener size and close edge margin.

NOTE: Determine the amount of response adjustment to be made by comparison with similar conditions on the calibration standard.

(6) Repeat par. (3), (4), and (5) for all fastener groups identified in Detail V.

(7) Fastener locations that give a response that is 40% of full meter scale higher than the fastener group baseline response are potential cracks and further investigation is required.

Lower Front Spar Stringer Runouts (707-300/400 Airplanes)
Figure 47 (Sheet 3)

B. Inspection of Fasteners at Stringer S-18 Runout

(1) Inspect according to par. 5.A. except calibrate using the Detail III standard.

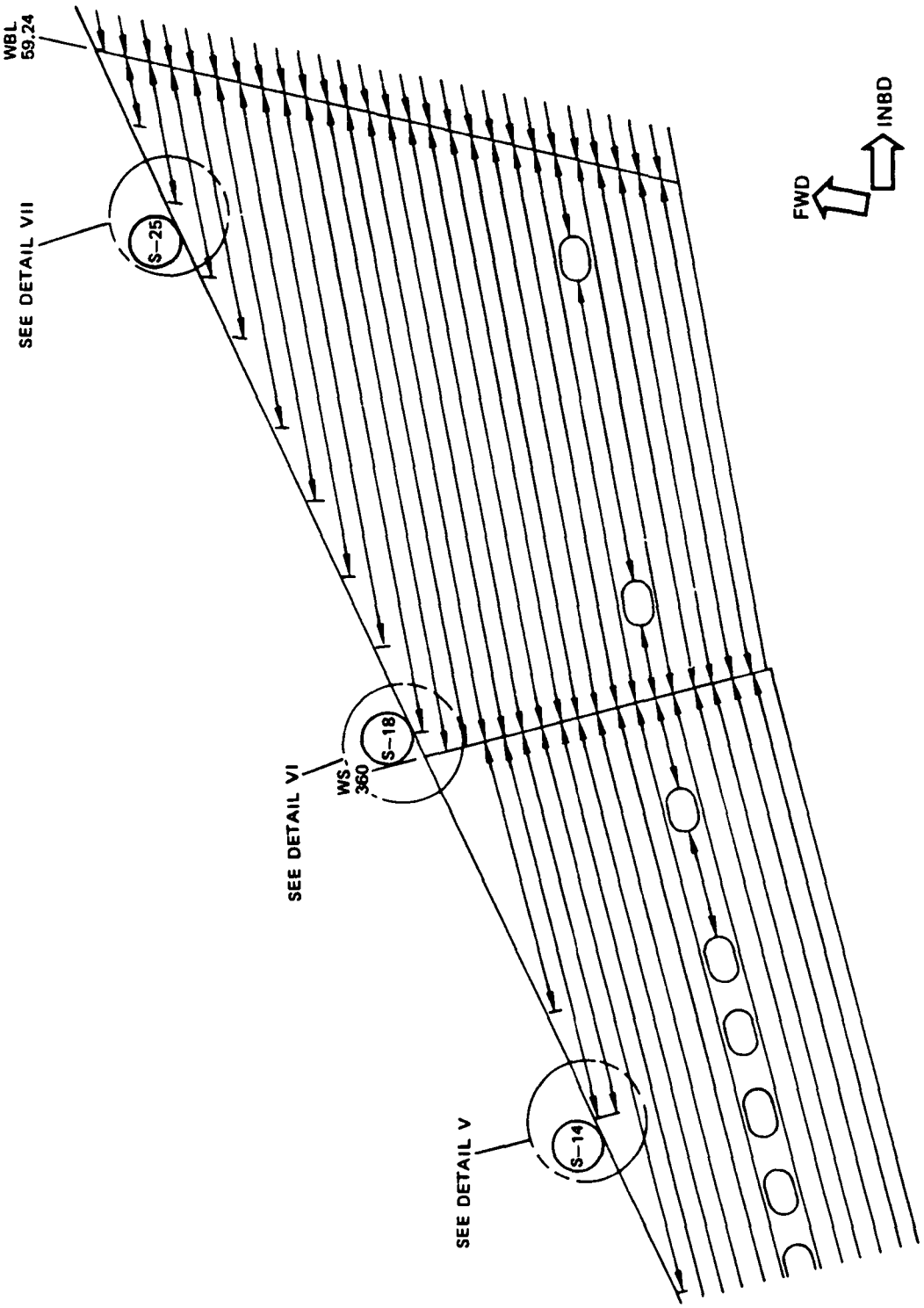
(2) Use Detail VI to identify fasteners requiring inspection.

C. Inspection of Fasteners at Stringer S-25 Runout

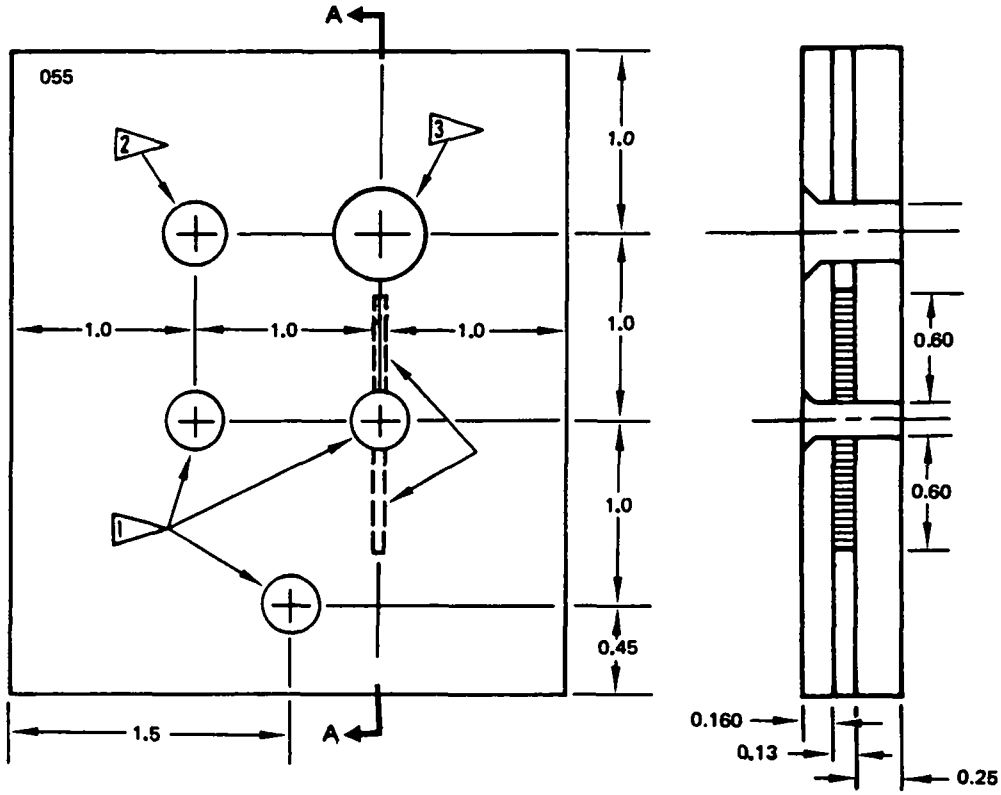
(1) Inspect according to par. 5.A. except calibrate using the Detail III standard.

(2) Use Detail VII to identify fasteners requiring inspection.

Lower Front Spar Stringer Runouts (707-300/400 Airplanes)
Figure 47 (Sheet 4)



Lower Front Spar Stringer Runouts (707-300/400 Airplanes)
Figure 47 (Sheet 5)



SECTION A–A

NOTES

- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T3 ALUMINUM
- TOLERANCES: X.X ± 0.05, X.XX ± 0.01; X.XXX ± 0.005

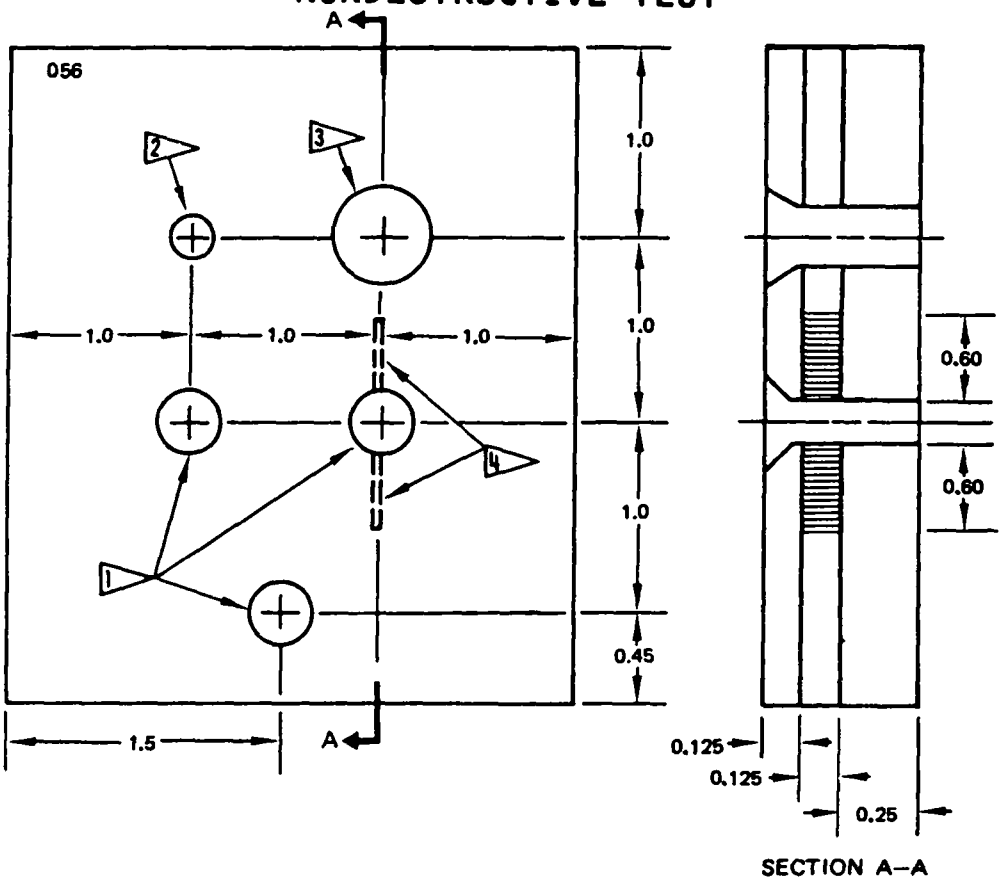
  HOLE: +0.004 −0.000

  FASTENER FLUSHNESS: +0.010 −0.005
- ETCH OR STEEL STAMP WITH 055
- P/N 6412–61 AVAILABLE FROM IDEAL SPECIALTY CO. 2631 E. INDEPENDENCE ST. TULSA, OKLAHOMA 74110

1. BACB30GY8–9 FASTENER (100° C/S, SHEAR HEAD); BACC30K8 COLLAR (3 PLACES)
2. BACB30GY6–9 FASTENER (100° C/S, SHEAR HEAD); BACC30K6 COLLAR (1 PLACE)
3. BACB30GY10–9 FASTENER (100° C/S, SHEAR HEAD) BACC30K10 COLLAR (1 PLACE)
4. JEWELER'S SAWCUT 0.030 MAX WIDTH (2 PLACES)

REFERENCE STANDARD, STRINGERS S–14 RUNOUT
DETAIL II

NONDESTRUCTIVE TEST



SECTION A–A

NOTES

- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T3 ALUMINUM
- TOLERANCES: X.X ± 0.05; X.XX ± 0.01; X.XXX ± 0.005

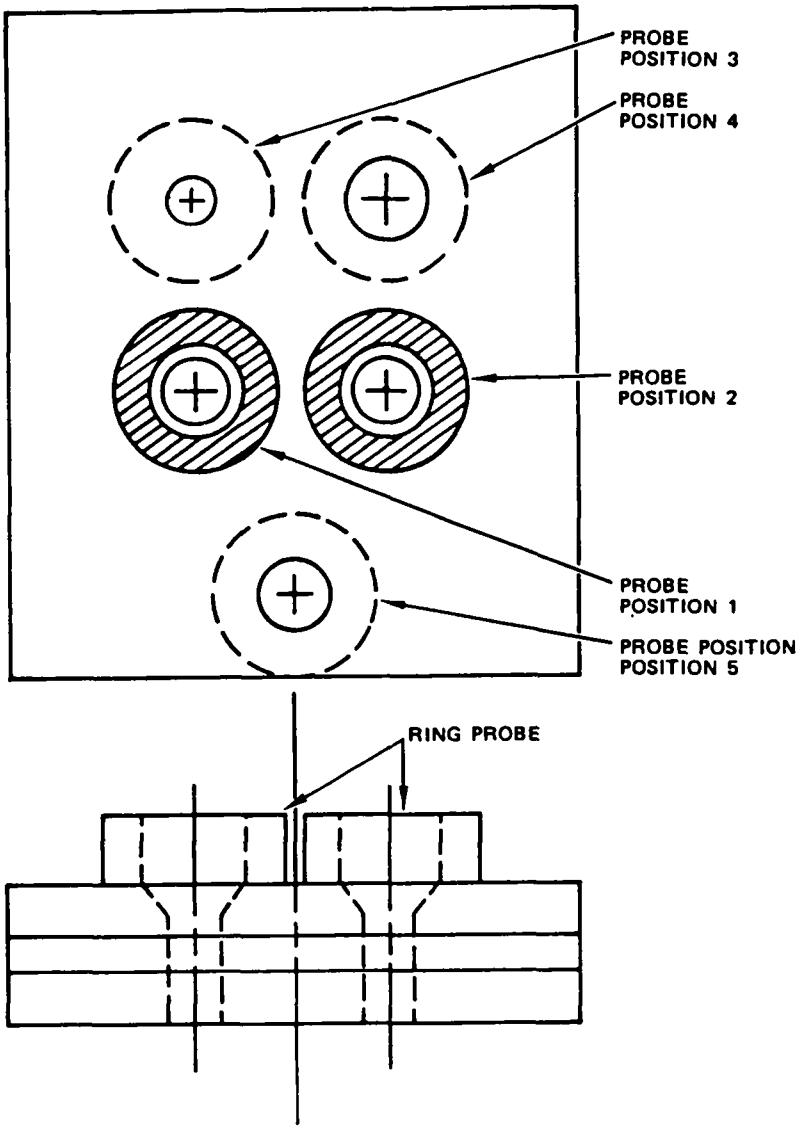
  HOLE: + 0.004 / –0.000

  FASTENER FLUSHNESS: + 0.010 / –0.005

- ETCH OR STEEL STAMP WITH 056
- P/N 6412–62
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

1. BACB30GY8–9 FASTENER (100° C/S, SHEAR HEAD); BACC30K8 COLLAR (3 PLACES)
2. BACB30GY6–9 FASTENER (100° C/S, SHEAR HEAD); BACC30K6 COLLAR (1 PLACE)
3. BACB30GY10–9 FASTENER (100° C/S, SHEAR HEAD) BACC30K10 COLLAR (1 PLACE)
4. JEWELER'S SAWCUT 0.030 MAX WIDTH (2 PLACES)

REFERENCE STANDARD, STRINGER S–18 AND S–25 RUNOUT
DETAIL III

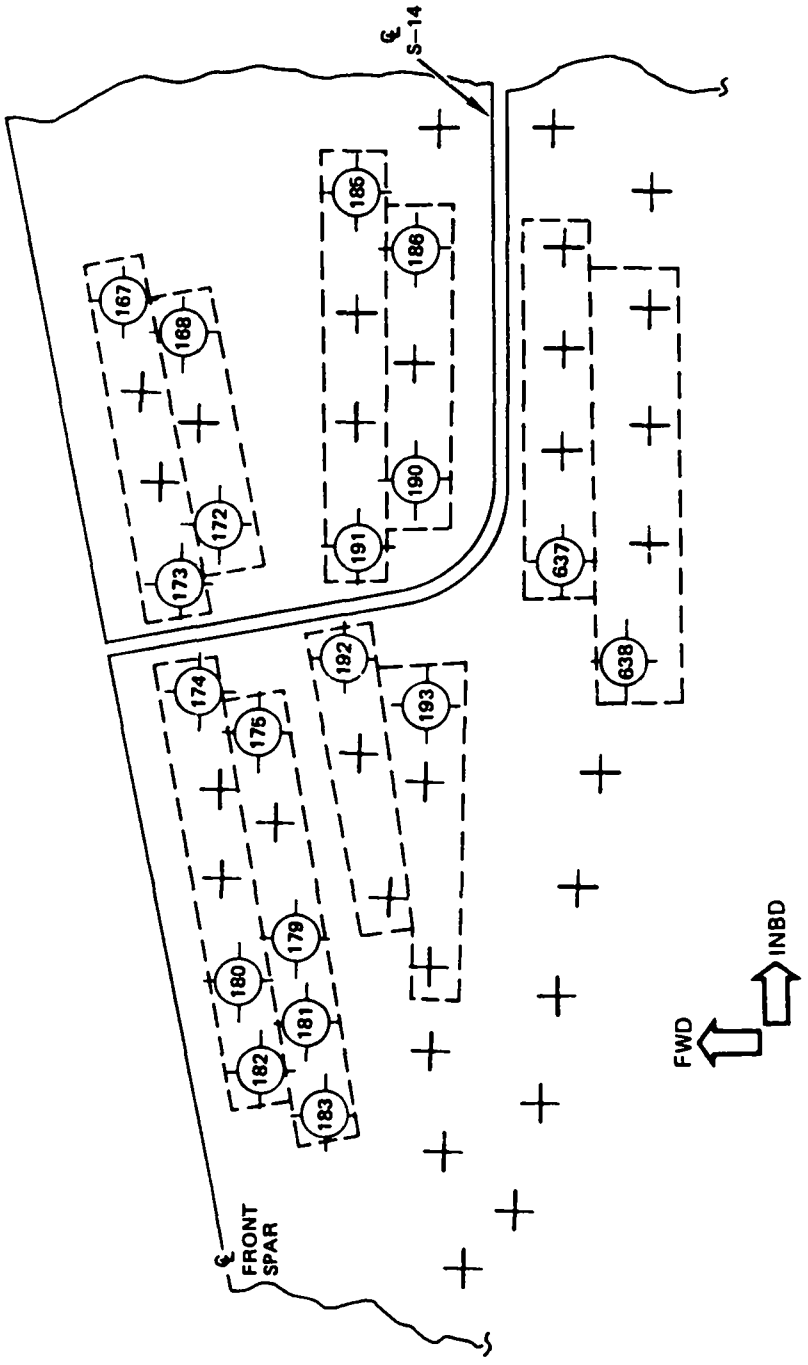


NOTES

- STANDARD 055 FOR STRINGER S–14 RUNOUT
- STANDARD 056 FOR STRINGER S–18 AND STRINGER S–25 RUNOUTS
- 60% SIGNAL DIFFERENCE BETWEEN POSITION 1 AND 2

PROBE POSITIONS FOR CALIBRATION, REFERENCE STANDARDS 055 AND 056

DETAIL IV



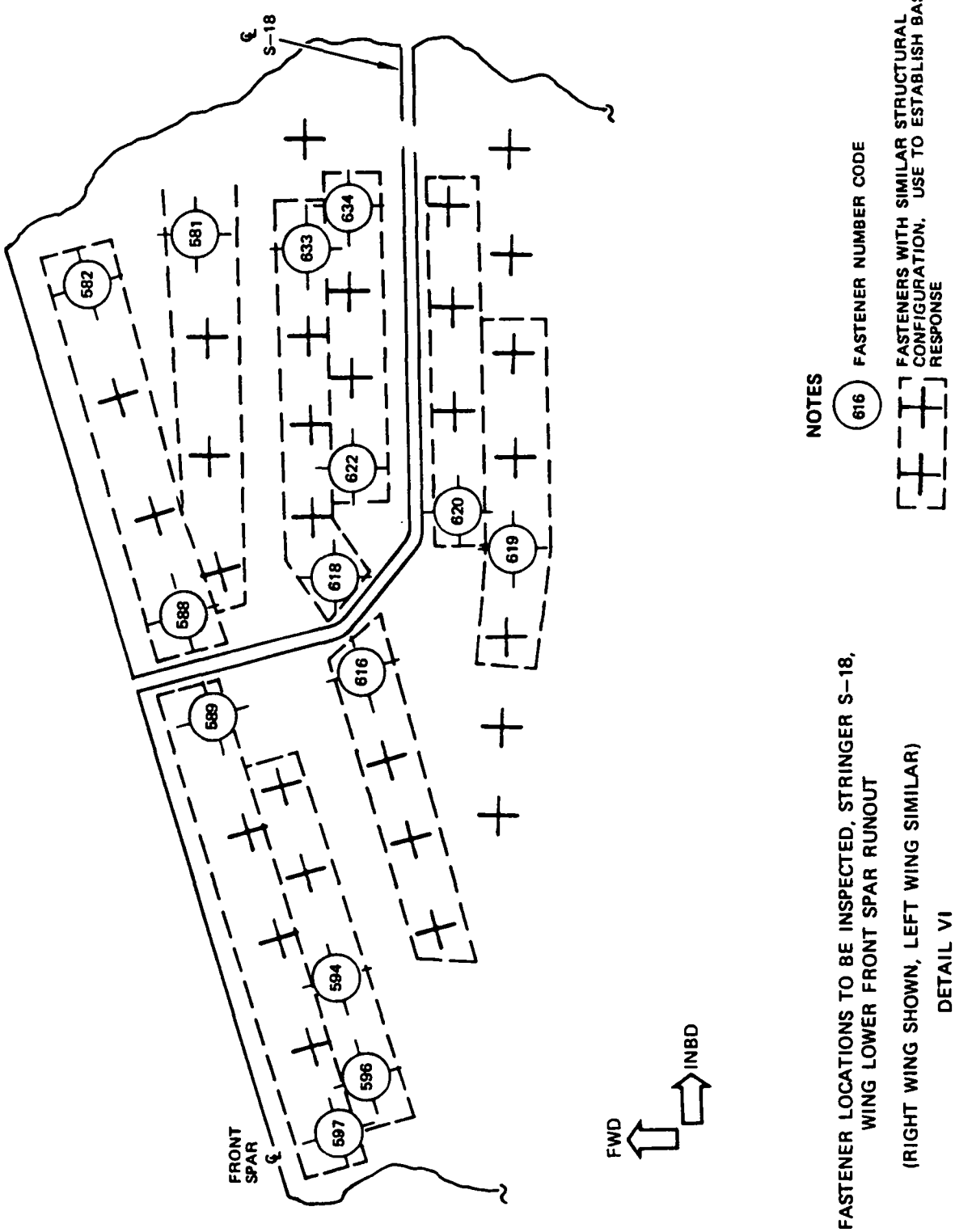
NOTES:

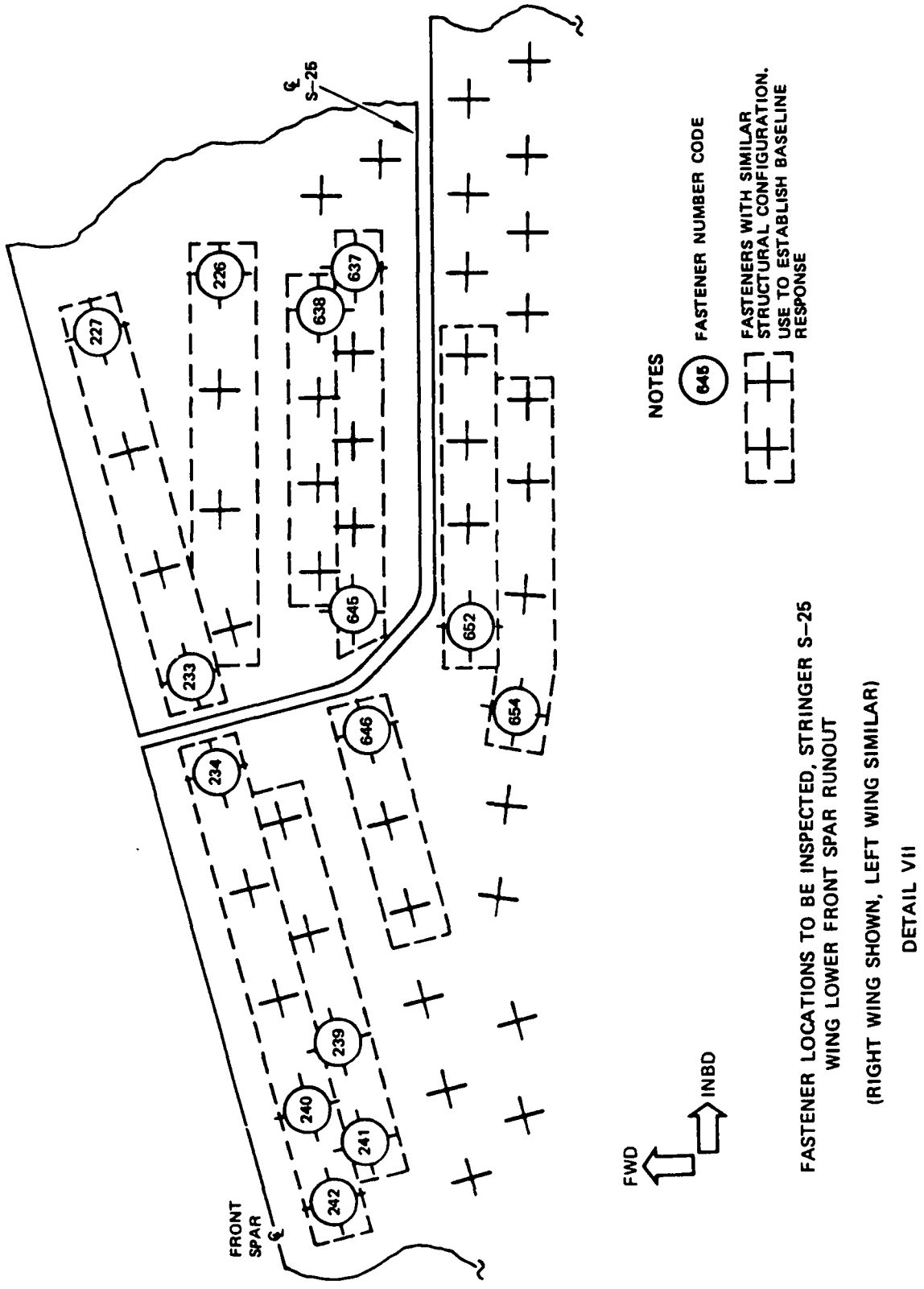
(191) FASTENER NUMBER CODE

FASTENERS WITH SIMILAR STRUCTURAL CONFIGURATION. USE TO ESTABLISH BASELINE RESPONSE.

FASTENER LOCATIONS TO BE INSPECTED,
STRINGER S-14 WING LOWER FRONT SPAR RUNOUT
(RIGHT WING SHOWN , LEFT WING SIMILAR)

DETAIL V


℄ S-18
582
581
634
633
622
620
619
618
588
616
589
594
596
597
FRONT SPAR ℄
FWD
INBD
NOTES
616 FASTENER NUMBER CODE
FASTENERS WITH SIMILAR STRUCTURAL CONFIGURATION, USE TO ESTABLISH BASELINE RESPONSE
FASTENER LOCATIONS TO BE INSPECTED, STRINGER S-18, WING LOWER FRONT SPAR RUNOUT
(RIGHT WING SHOWN, LEFT WING SIMILAR)
DETAIL VI



Lower Front Spar Stringer Runouts (707-300/400 Airplanes)
Figure 47 (Sheet 11)

EFFECTIVITY
MODEL: 707-100/200
SSI DOCUMENT (D6-44860)
REFERENCE: SSD 57-A15-14

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To inspect for fastener hole cracks in the wing skin, horizontal flange of the front spar chord, and stringer ends at stringers S-14 and S-18 runouts. See Detail I.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec Inc
      1320 NW Mall
      Issaquah, WA 98027

   B. Probes - The following probe was used in the development of this procedure. Any probe of similar size that will satisfy the requirements of this procedure is acceptable.

      (1) Ring (encircling) probe, 1-inch OD and 0.5-inch ID, OD and ID shielding, usable at 350 Hz; Nortec P/N SPO 783.

      NOTE: The probe listed above is available from:

      Nortec Inc.
      421 N. Quay
      Kennewick, WA 99336

      Specify instrument with which probe is to be used or instrument connector required when ordering probes.

   C. Reference Standards - Manufacture per Details II and III.

3. Preparation for Inspection

   A. Identify the inspection area and wipe skin surface clean.

Lower Front Spar Stringer Runouts (707-100/200 Airplanes)
Figure 48 (Sheet 1)

4. Instrument Calibration

A. To calibrate for stringer S-14 runout inspection, use Detail II standard. To calibrate for stringer S-18 runout inspection, use Detail III standard.

(1) Set instrument frequency to 350 Hz.

(2) Visually center probe over the unnotched reference standard hole, Position 1, Detail IV.

(3) Balance instrument per manufacturer's instructions.

(4) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006-inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(5) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

(6) Center probe over the notched reference standard hole, Position 2, Detail IV. Response should be upscale.

(7) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(8) Recheck null and liftoff. If readjustments are made, recheck sensitivity per par. 4.A.(7).

(9) Cracks will be indicated by a higher meter response.

(10) Center probe on larger and smaller fasteners, 5/16 and 3/16-inch diameter, Positions 3 and 4, Detail IV, and note response change due to a change in fastener size.

(11) Center probe on fastener close to the edge, Position 5, Detail IV, and note response change due to short edge margin.

NOTE: Fastener diameter and close edge margin response corrections may be necessary to adjust for airplane test conditions.

Lower Front Spar Stringer Runouts (707-100/200 Airplanes)
Figure 48 (Sheet 2)

5. Inspection Procedure

NOTE: Stringer runouts have internal structure that can result in variations in second layer edge margin from one wing to another. To adjust for this, the inspection procedure identifies several fasteners with similar configuration that are used to baseline the response. Adjustment for fastener size and visible close edge margin may also be necessary to establish a corrected response for a particular fastener.

A. Inspection of Fasteners at Stringer S-14 Runout

(1) Calibrate the instrument according to par. 4 using the Detail II reference standard.

(2) Identify fasteners to be inspected by using Detail V.

NOTE: It is suggested that a copy be made of Detail V and that it be used to record instrument response at each fastener location. This is helpful in maintaining continuity between the groups of fasteners during inspection.

(3) Refer to Detail V and select a group of fasteners identified as having similar inspection conditions.

(4) Locate this group on the airplane and center probe on each fastener in the group and note the response. Adjust the instrument to set the lowest response obtained to 20% of full meter scale.

NOTE: Do not change instrument sensitivity.

(5) Determine the actual response for a particular fastener by correcting the response obtained for the effect of fastener size and close edge margin.

NOTE: Determine the amount of response adjustment to be made by comparison with similar conditions on the calibration standard.

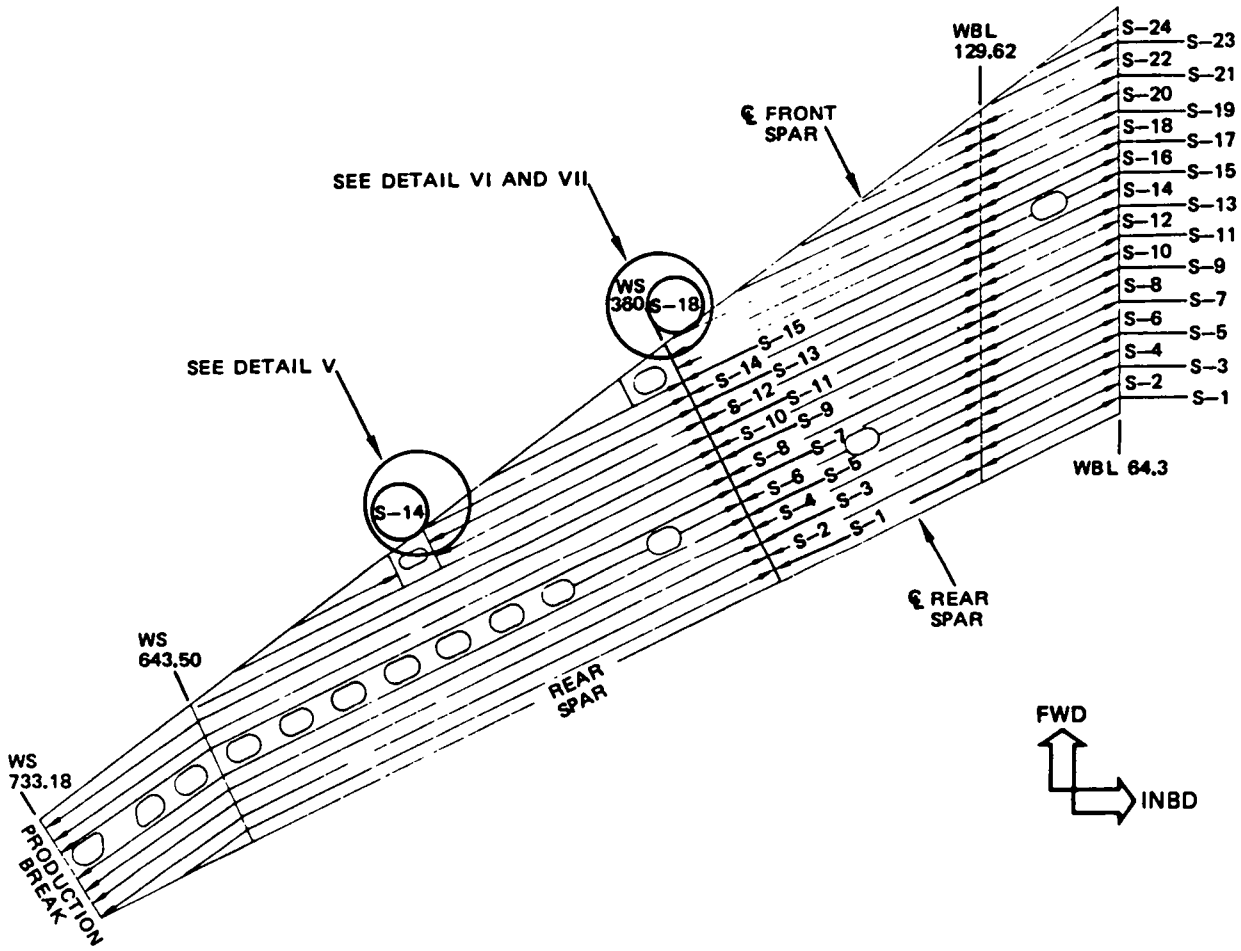
(6) Repeat par. (3), (4), and (5) for all fastener groups identified in Detail V.

(7) Fastener locations that give a response that is 40% of full meter scale higher than the fastener group baseline response are potential cracks and further investigation is required.

B. Inspection of Fasteners at Stringer S-18 Runout

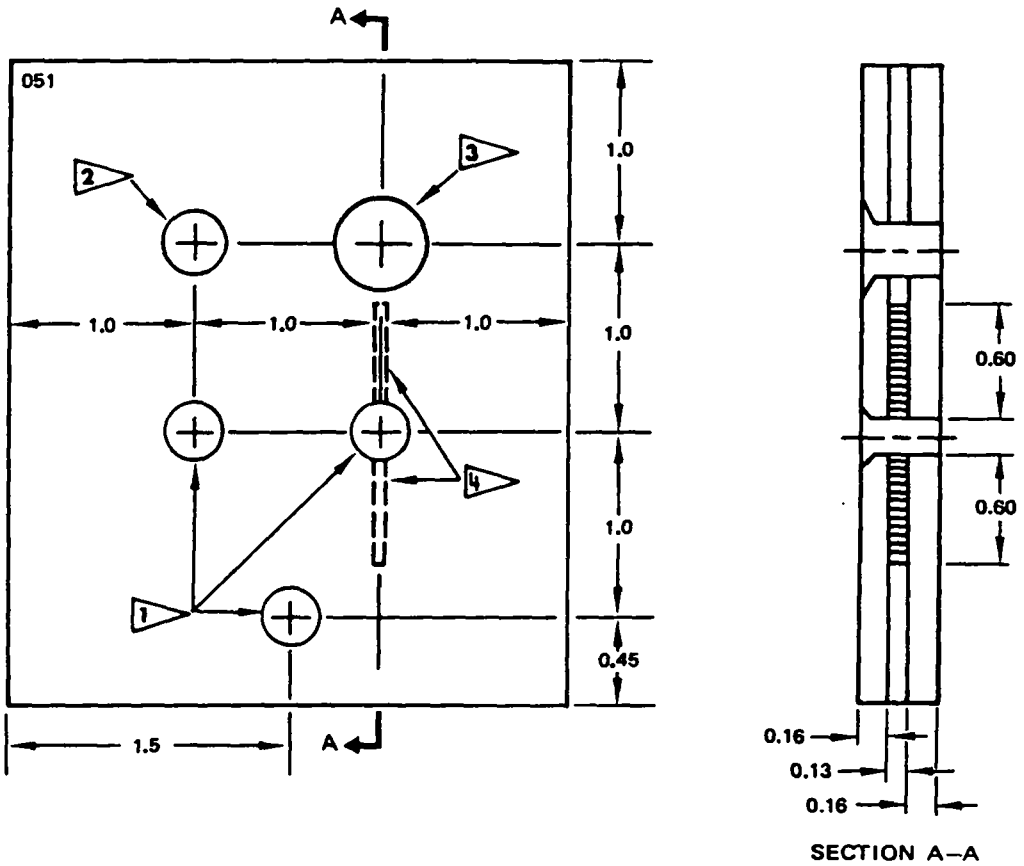
(1) Inspect according to par. 5.A. except calibrate using the Detail III standard.

(2) Use Detail VI to identify fasteners requiring inspection.



LOWER WING SURFACE–STRINGER RUNOUT
(RIGHT SIDE SHOWN, LEFT SIDE SIMILAR)

DETAIL I



SECTION A–A

NOTES

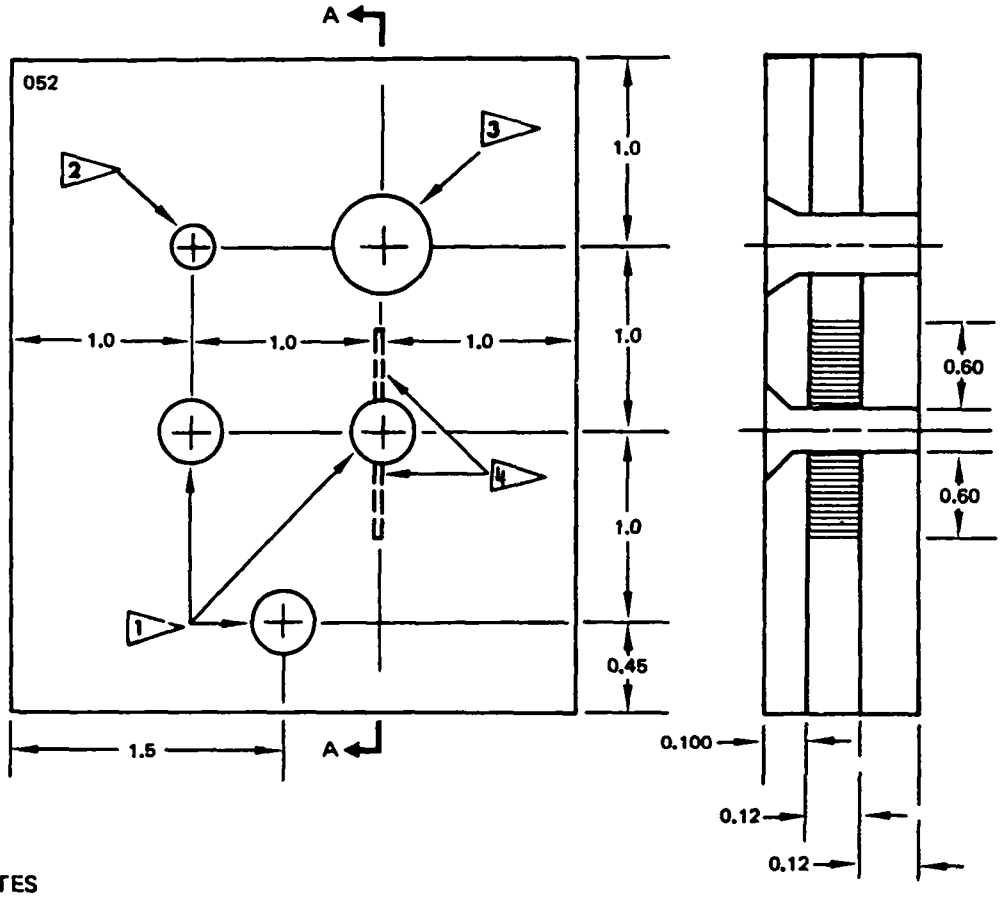
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T3 ALUMINUM
- TOLERANCE X.X ± 0.05; X.XX ± 0.01; X.XXX ± 0.005
  HOLE: +0.004 −0.000 FASTENER FLUSHNESS: +0.010 −0.005
- ETCH OR STEEL STAMP WITH 051
- P/N 6412–94
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

1. BACB30GY8–7; BACC30K8 COLLAR (3 PLACES)
2. BACB30GY6–7; BACC30K6 COLLAR (1 PLACE)
3. BACB30GY10–7; BACC30K10 COLLAR (1 PLACE)
4. JEWELER'S SAWCUT 0.030 MAX WIDTH (2 PLACES)

REFERENCE STANDARD, STRINGER S–14 FRONT SPAR RUNOUT

DETAIL II

Lower Front Spar Stringer Runouts (707-100/200 Airplanes)
Figure 48 (Sheet 5)



SECTION A–A

NOTES

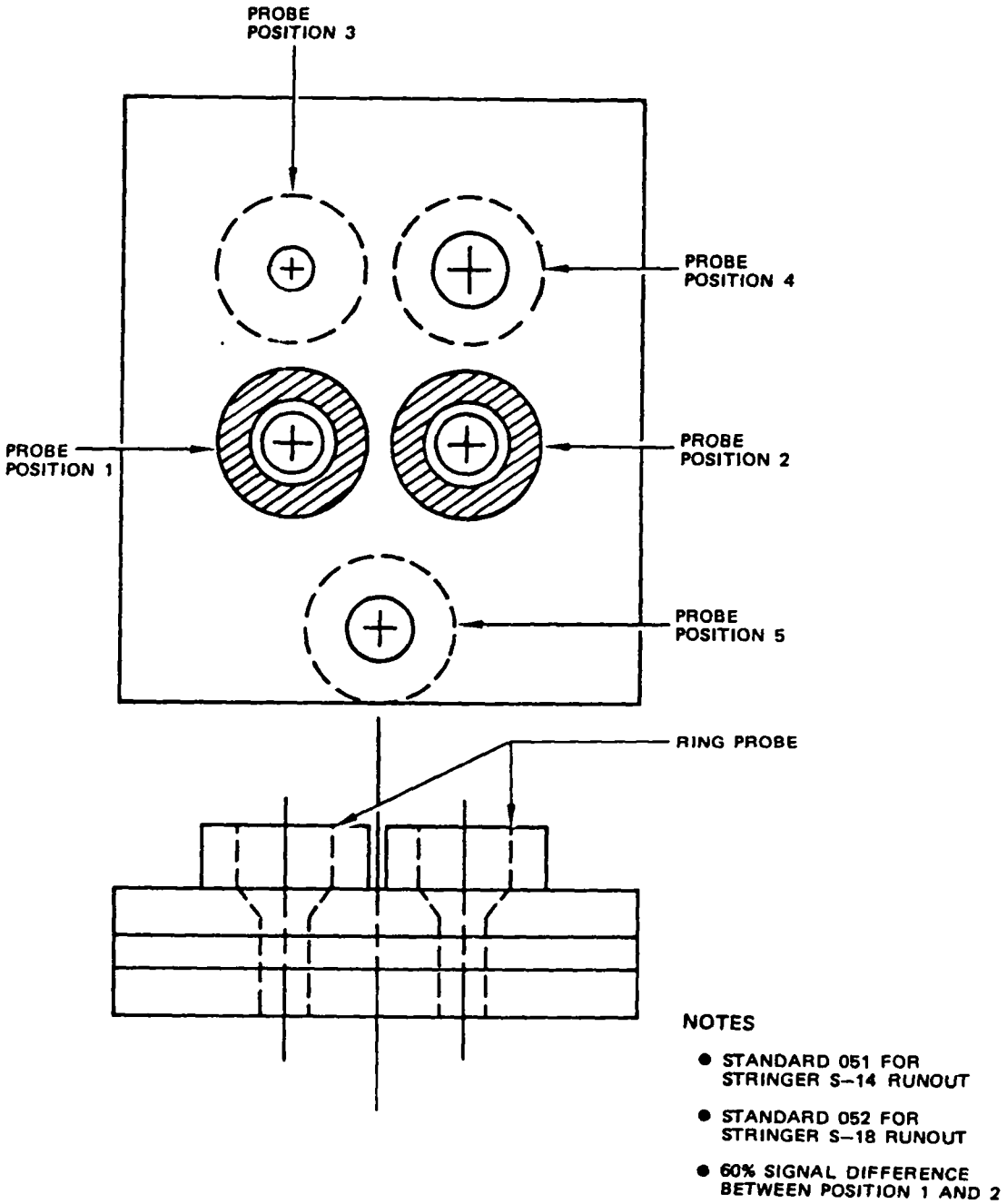
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T3 ALUMINUM
- TOLERANCE: X.X ± 0.05; X.XX ±0.01; X.XXX ± 0.005
  HOLE: $^{+0.004}_{-0.000}$
  FASTENER FLUSHNESS: $^{+0.010}_{-0.005}$
- ETCH OR STEEL STAMP WITH 052
- P/N 6412–64
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

1. BACB30GY–6; BACC30K8 COLLAR (3 PLACES)
2. BACB30GY6–6; BACC30K6 COLLAR (1 PLACE)
3. BACB30GY10–6; BACC30K10 COLLAR (1 PLACE)
4. JEWELER'S SAWCUT 0.030 MAX WIDTH (2 PLACES)

REFERENCE STANDARD, STRINGER S–18 FRONT SPAR RUNOUT

DETAIL III

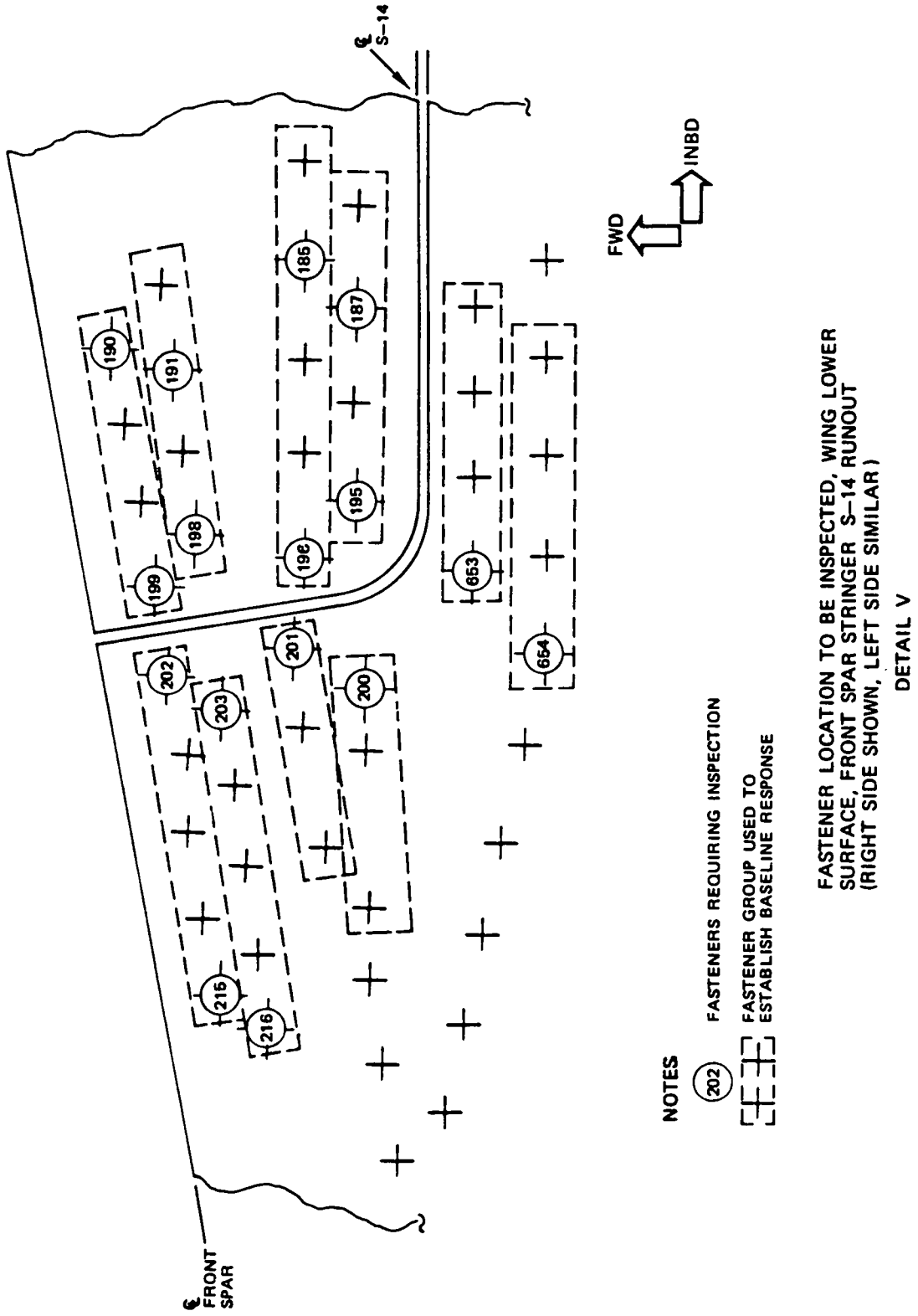
Lower Front Spar Stringer Runouts (707-100/200 Airplanes)
Figure 48 (Sheet 6)



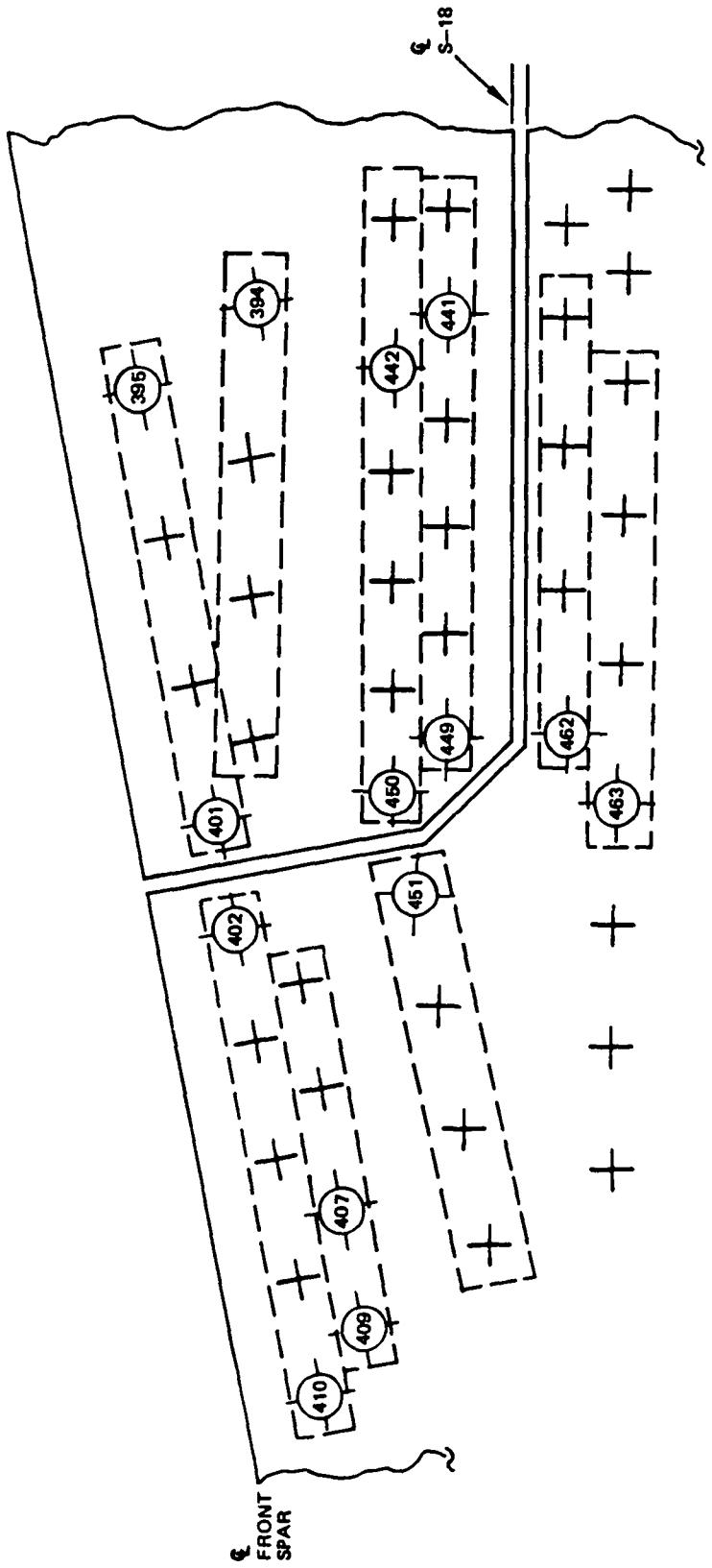
PROBE POSITIONS FOR CALIBRATION, REFERENCE STANDARDS 051 AND 052

DETAIL IV

Lower Front Spar Stringer Runouts (707-100/200 Airplanes)
Figure 48 (Sheet 7)



Lower Front Spar Stringer Runouts (707-100/200 Airplanes)
Figure 48 (Sheet 8)



FASTENER LOCATIONS TO BE INSPECTED
LOWER WING SURFACE–FRONT SPAR
STRINGER S–18 RUNOUT
(CUM LINE NUMBERS 1–126, 201–415, 501–511, 601–1999)
(RIGHT SIDE SHOWN, LEFT SIDE SIMILAR)

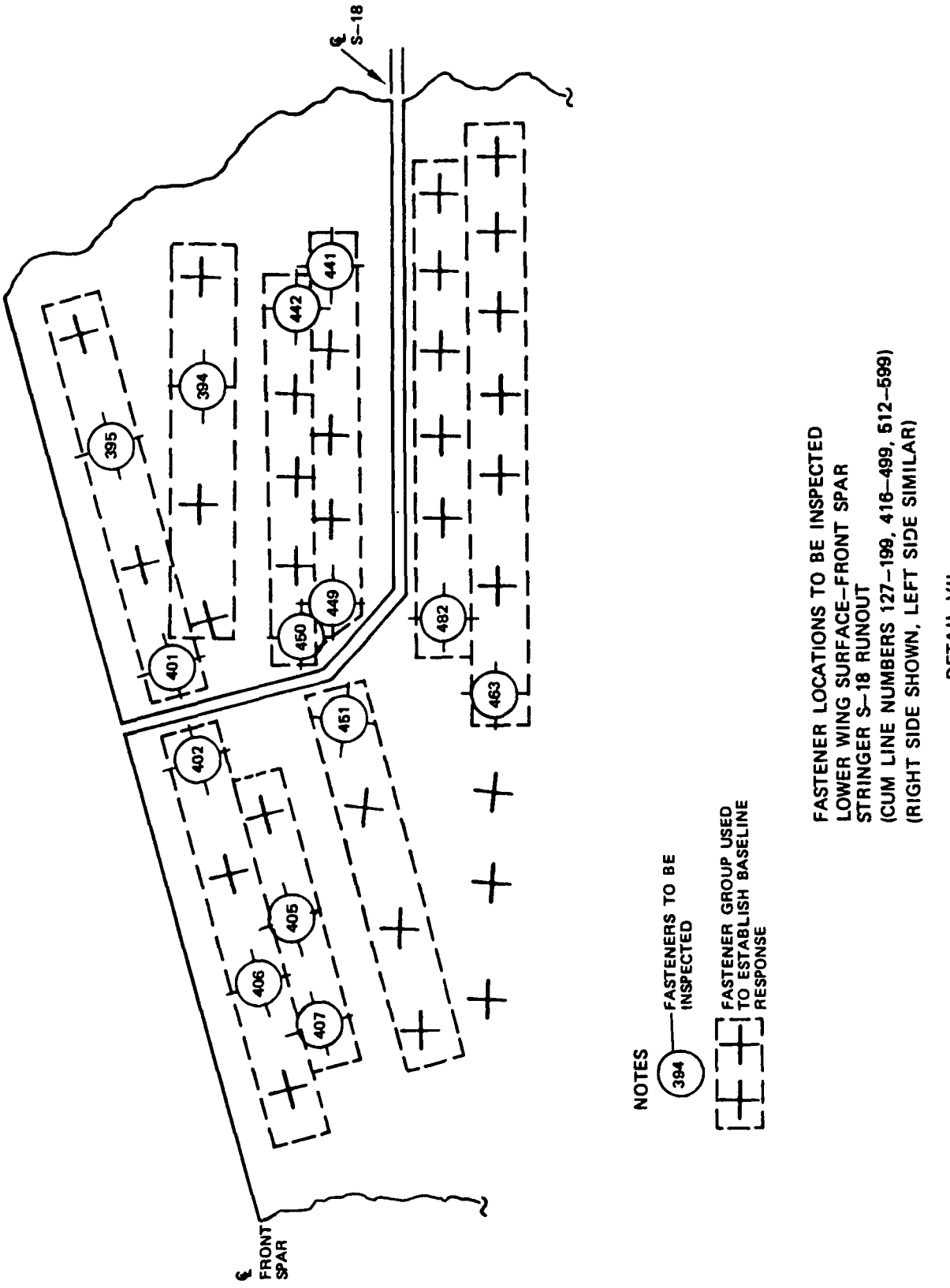
DETAIL VI

NOTES

(461) FASTENERS TO BE INSPECTED

FASTENER GROUP USED TO ESTABLISH BASELINE RESPONSE

Lower Front Spar Stringer Runouts (707-100/200 Airplanes)
Figure 48 (Sheet 9)



Lower Front Spar Stringer Runouts (707-100/200 Airplanes)
Figure 48 (Sheet 10)

EFFECTIVITY
MODEL: 720 SERVICE BULLETIN REFERENCE: NONE SSI DOCUMENT (D6-44860) REFERENCE: SSD 57-A05-09 57-A05-12

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks as fastener holes common to the lower wing skin and rear spar chord in the horizontal flange. This inspection is accomplished from outside of the wing without fastener removal.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec Inc.
      1320 N.W. Mall
      Issaquah, WA 98207

   B. Probes - This procedure uses two probes; any probe of similar size which will satisfy the performance requirements of this procedure is acceptable. The following probes were used in the development of this procedure.

      (1) Ring (encircling) probe with 1-inch OD and 0.5-inch ID shielding, 100 Hz, Nortec P/N SPO-783

      (2) Ring (encircling) probe with 1.1-inch OD and 0.625-inch ID shielding, 100 Hz, Nortec P/N SPO-1154

      NOTE: Probes listed above are available from:
      Nortec Inc.
      421 N. Quay
      Kennewick, Washington 99336

      Specify instrument with which probe is to be used or instrument connector required when ordering probe.

   C. Manufacture Reference Standards per Details I and III.

Rear Spar Chord Horizontal Flange Of Wing
Figure 49 (Sheet 1)

3. Prepare for Inspection

A. Wipe skin surface clean.

B. It is suggested that fastener locations requiring the same instrument calibration for inspection be identified on the airplane by a colored circle. Water washable crayons, pencils, or felt pens are suitable.

C. Refer to Table I and Details V and VI for inspection requirements.

4. Instrument Calibration

A. General

(1) This procedure was one basic type of inspection for fastener hole cracks using a ring probe centered on the fastener.

(2) The basic inspections require several instrument calibrations to adjust for variations in structure geometry and materials.

(3) Detail V and VI identifies inspection coverage for a particular calibration, and Table I provides specific calibration information for that inspection.

B. Calibrate for fastener hole crack inspection using the ring probe centered on the fastener. This calibration applies to inspection codes A through F.

(1) Identify code for fasteners to be inspected from Detail V and VI.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

(3) Visually center probe over the unnotched reference standard hole, Position 1.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(6) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

(7) Center probe over the notched reference standard hole, Position 2. Response should be upscale.

(8) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(9) Recheck null and liftoff. If readjustments are made, recheck sensitivity per par. B.(8).

(10) Cracks will be indicated by a higher meter response.

5. Inspection Procedure

NOTE: An inspection code is used to identify locations having similar inspection conditions. A single instrument calibration is usually used to inspect these locations.

It is suggested that a copy of detail V and VI be made and that it be used to record instrument responses at each fastener location. This is helpful in maintaining continuity between the groups of fasteners during inspection.

A. Inspect fastener holes for cracks using the ring probe or spot probe centered on the fastener. (Inspection codes A thru F.)

(1) Accomplish inspections of codes A through F in the order given in Table I.

(2) Calibrate instrument per par. 4.B and Table I.

(3) Note on the airplane the location of those fasteners having the same inspection code by using Detail V and VI.

(4) Use several fasteners of the same code to establish the airplane baseline response for an acceptable fastener.

(a) Select a representative fastener from this group and set its response to 20% of full meter scale.

NOTE: Do not change instrument sensitivity when establishing the airplane baseline response.

(b) Refer back to this fastener periodically to ensure that the instrument response is the same as originally recorded. (Changes in meter response may occur as a result of instrument drift or probe temperature change.)

(5) Inspect each fastener having the same inspection code by centering the probe on the fastener and manipulating to obtain a minimum response.

NOTE: Review the Special Notes called out in Table I for conditions which affect the inspection.

(6) Fastener locations which give a response which is 40% of full meter scale higher than the established baseline are potential crack indications and further investigation is required.

(7) The following conditions may cause meter reading changes similar to crack indications:

(a) A decrease in fastener spacing. Compare with similarly spaced fasteners on the airplane.

(b) Fastener spaced closer to edge of spar chord (second layer). Compare fastener alignment with adjacent fasteners.

(c) A larger or smaller fastener - compare with similar fasteners of reference standard and on airplane.

(d) A fastener that is different in countersink depth - compare with similar fastener in standard raised to the same height.

(e) A fastener closed to edge of skin - compare with similar fasteners on airplane.

(f) Differences in conductivity between skin panels - compare only the fastener locations common to a skin panel.

Rear Spar Chord Horizontal Flange of Wing
Figure 49 (Sheet 4)

INSPECTION CODE [1]	REFERENCE STANDARD NO.	PROBE IDENTIFICATION [2]	INSTRUMENT FREQUENCY HZ	DETAIL NO. FOR CALIBRATION	PROBE CALIBRATION POSITION [3]	SPECIAL NOTES
A	067	(2)	100	II	A	
B	068	(2)	100	IV	A	[6]
C	068	(1)	100	IV	B	[5]
D	068	(1)	100	IV	C	
E	068	(1)	100	IV	C	[4]
F	068	(1)	100	IV	C	[4]

CALIBRATION TABLE
TABLE I

NOTE:

[1] Code for specific inspection areas identified on Detail to which the calibration requirements apply.

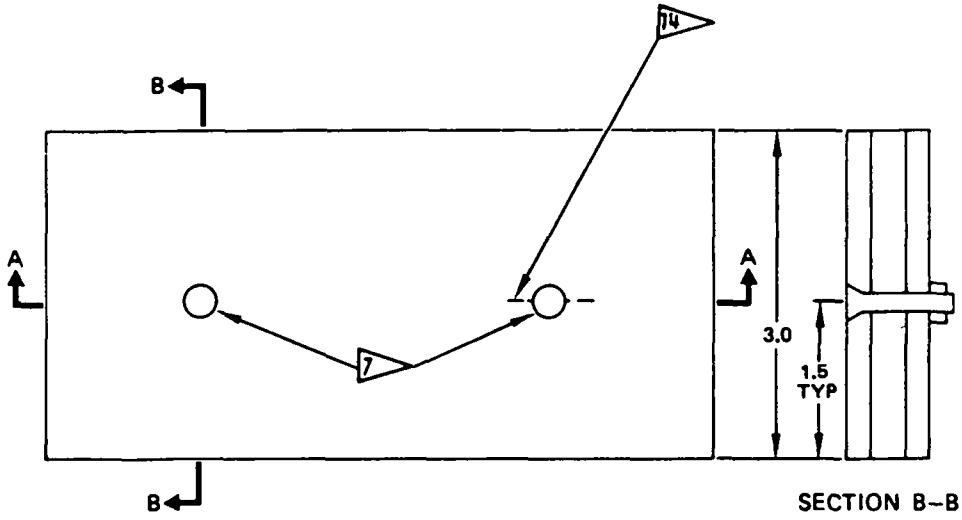
[2] Probe Identification:
(1) SPO-783: 1-inch OD and 0.5-inch ID ring probe
(2) SPO-1154: 1.1-inch OD and 0.62-inch ID ring probe

[3] Identifies row of fasteners in the reference standard used for this calibration (details II and IV).

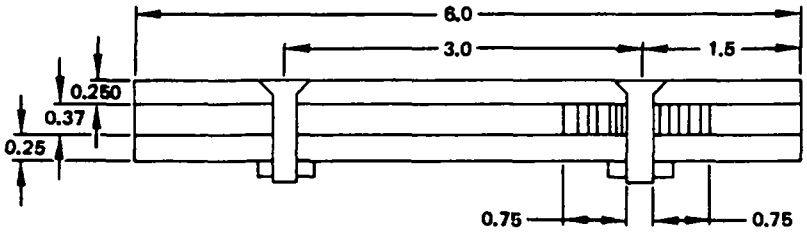
[4] The total structure thickness decreases in the outboard direction. Use several similar adjacent fasteners on the inboard and outboard side of the inspection fastener (unless they are covered by another inspection code) to establish the baseline response.

[5] This code covers two styles of countersunk heads, a small difference in response will be noted between them. Compare fasteners with similar head styles.

[6] Compare these fasteners with each other and the reference standard.



SECTION B–B



SECTION A–A

NOTES

- ALL DIMENSIONS ARE IN INCHES
- ETCH OR STEEL STAMP WITH 067
- MATERIAL: 2024–T3 OR T4 ALUMINUM
- TOLERANCE: X.X ± 0.05 X.XX ± 0.02 X.XXX ± 0.005
- P/N 6412–95
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

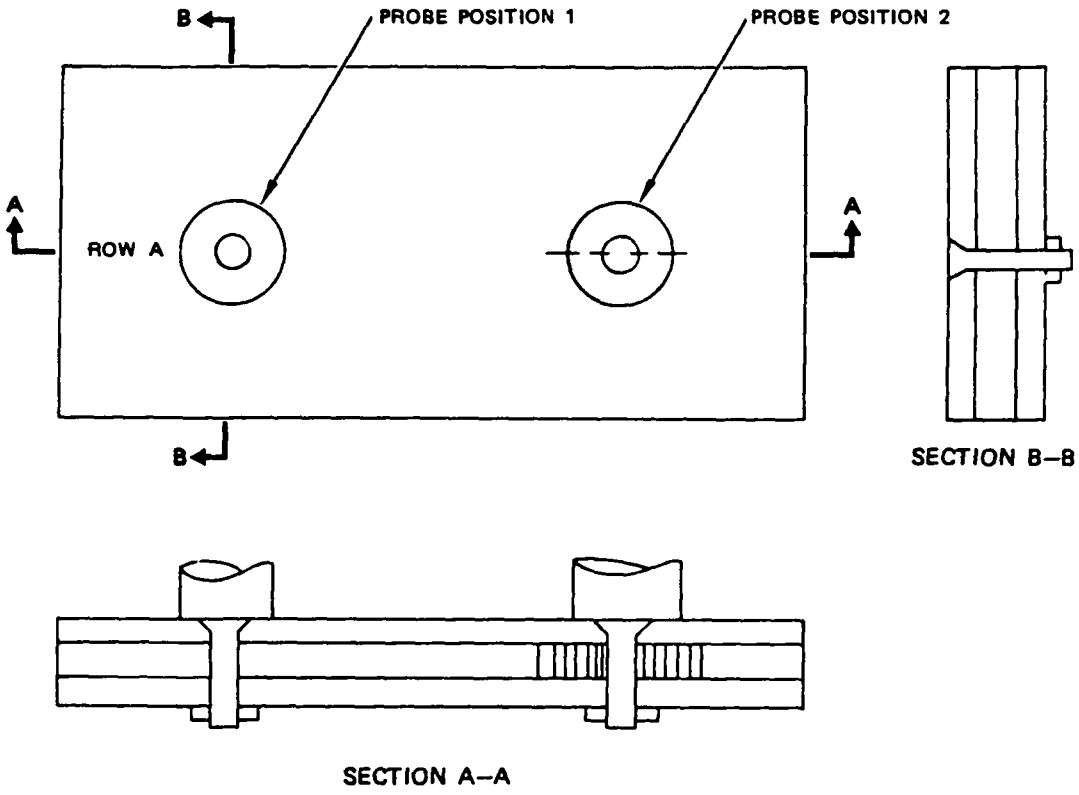
7 BACB30LU5–14 FASTENERS; BACN10JC5 NUTS

14 JEWELER'S SAWCUT 0.030 MAX WIDTH (2 PLACES)

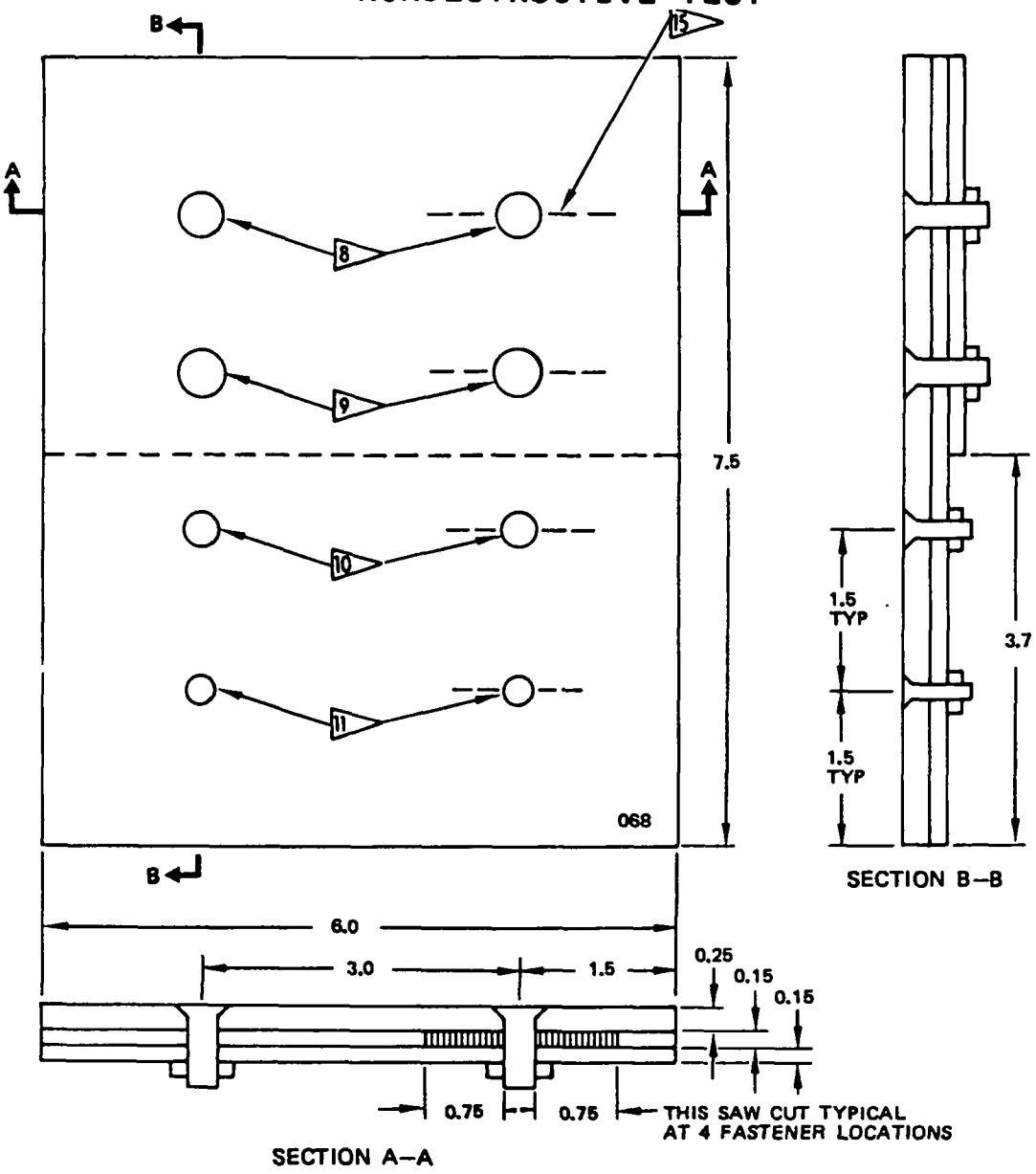
REFERENCE STANDARD 067

DETAIL I

Rear Spar Chord Horizontal Flange of Wing
Figure 49 (Sheet 6)



PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD 067
DETAIL II



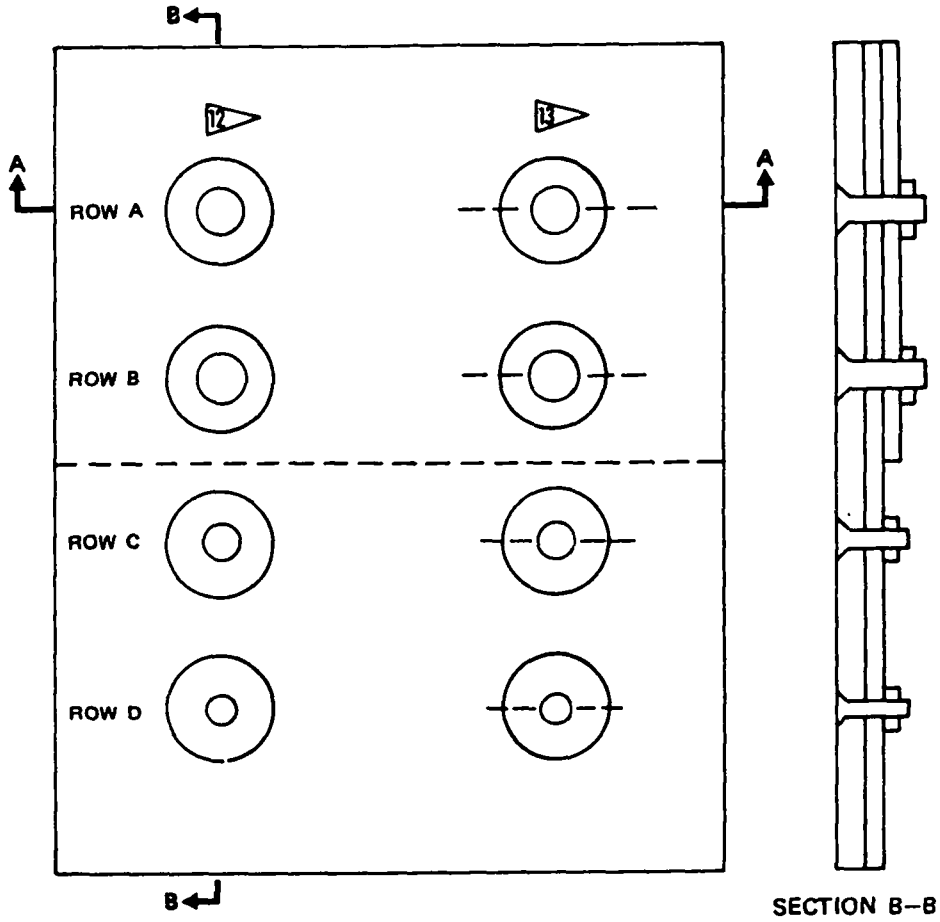
NOTES

- ALL DIMENSIONS ARE IN INCHES
- ETCH OR STEEL STAMP WITH 068
- MATERIAL: 2024–T3 OR T4 ALUMINUM
- TOLERANCE: X.X ± 0.05 X.XX ± 0.02 X.XXX ± 0.005
- P/N 6412–96
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

8 > BACB30FN10–9 FASTENERS; BACC30M10 COLLAR
9 > BACB30LU4–9 FASTENERS; BACN10JC4 NUT
10 > BACB30FN8–7 FASTENERS; BACC30M8 COLLAR
11 > BACB30FN6–7 FASTENERS; BACC30M6 COLLAR
15 > JEWELER'S SAWCUT 0.030 MAX WIDTH (8 PLACES)

REFERENCE STANDARD 068
DETAIL III

Rear Spar Chord Horizontal Flange of Wing
Figure 49 (Sheet 8)



NOTES

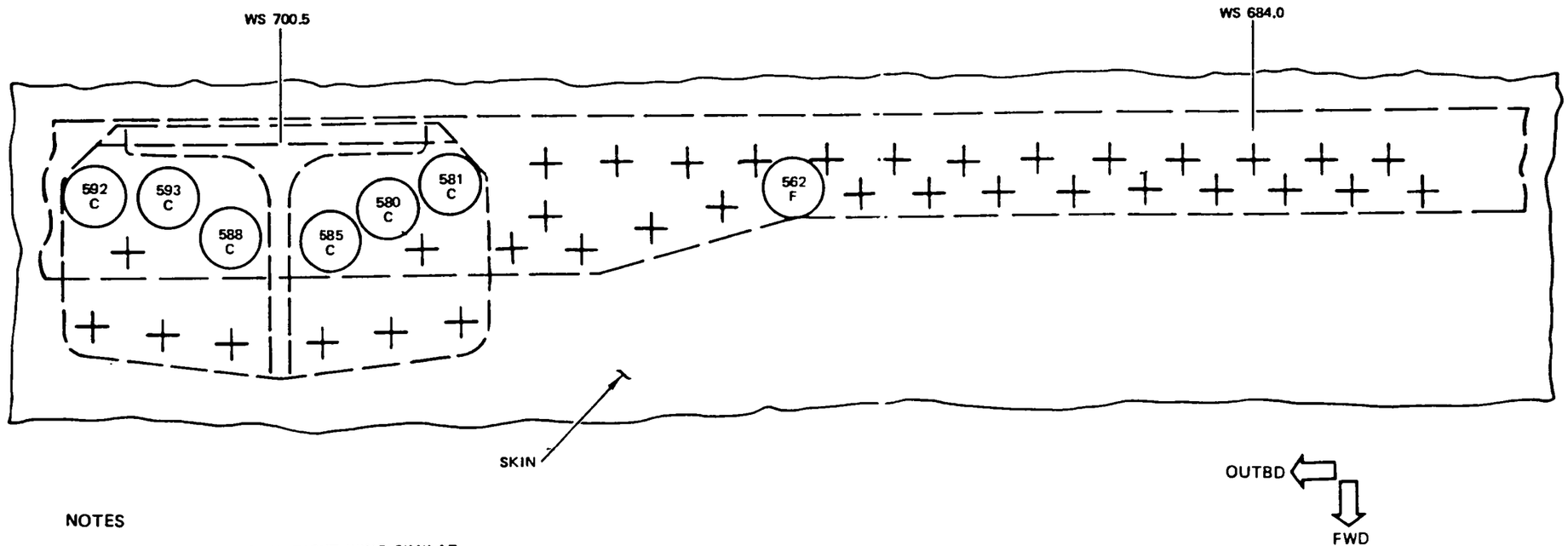
PROBE POSITION 1, THIS COLUMN TYPICAL

PROBE POSITION 2, THIS COLUMN TYPICAL

PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD 068

DETAIL IV

Rear Spar Chord Horizontal Flange of Wing
Figure 49 (Sheet 9)

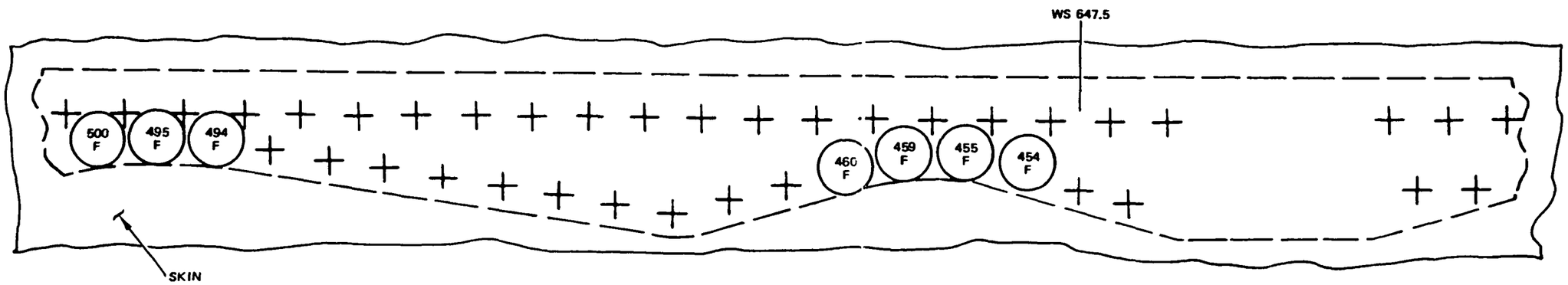


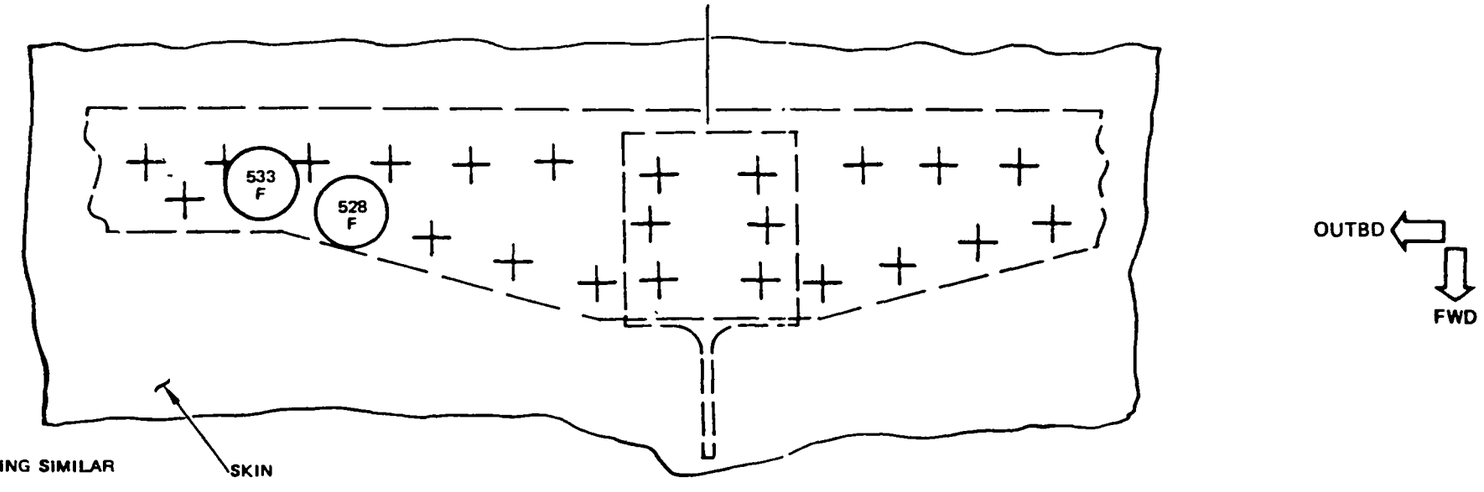
NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- VIEW LOOKING UP

581 C —FASTENERS TO BE INSPECTED

LOWER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL V

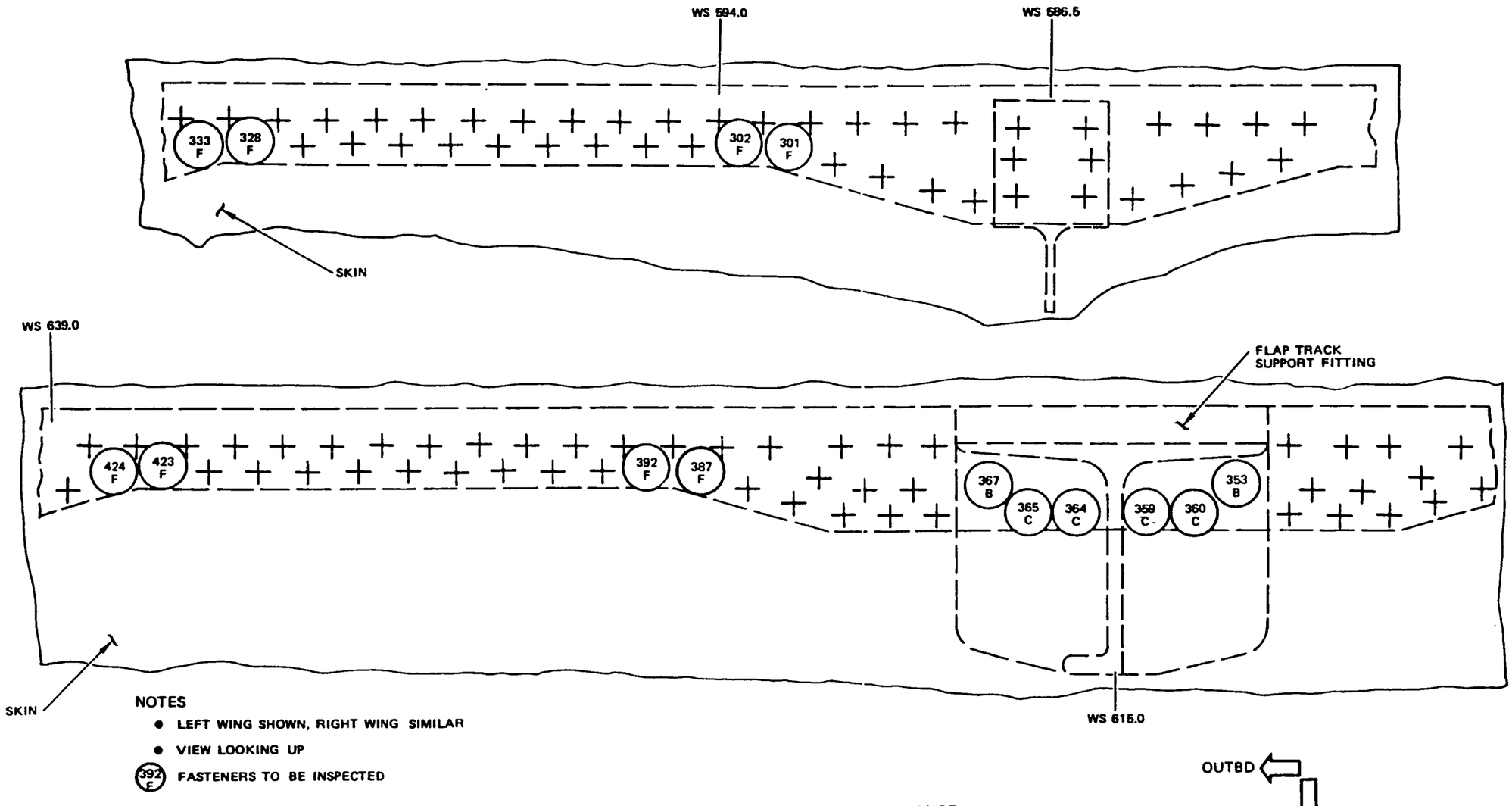




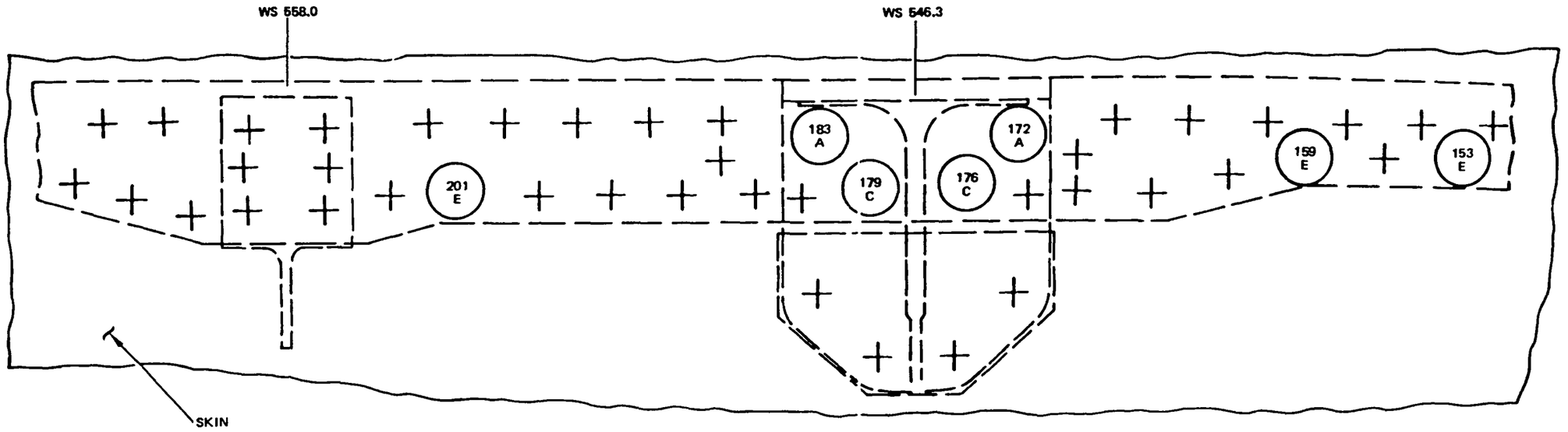
NOTES
- LEFT WING SHOWN, RIGHT WING SIMILAR
- VIEW LOOKING UP

460 F FASTENERS TO BE INSPECTED

LOWER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL V (CONT)



LOWER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL V (CONT)

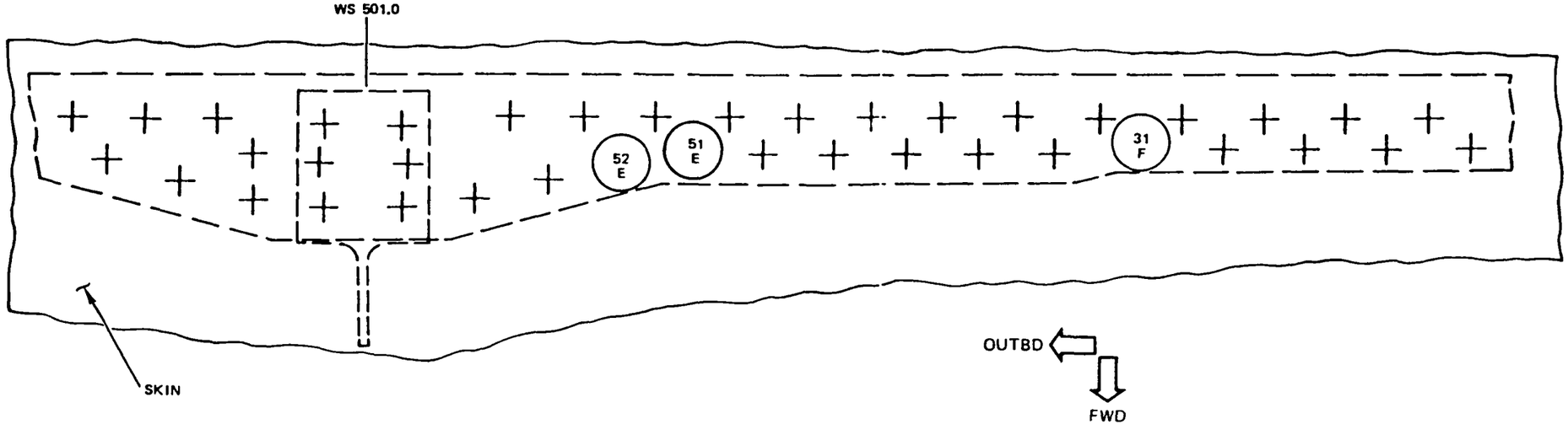


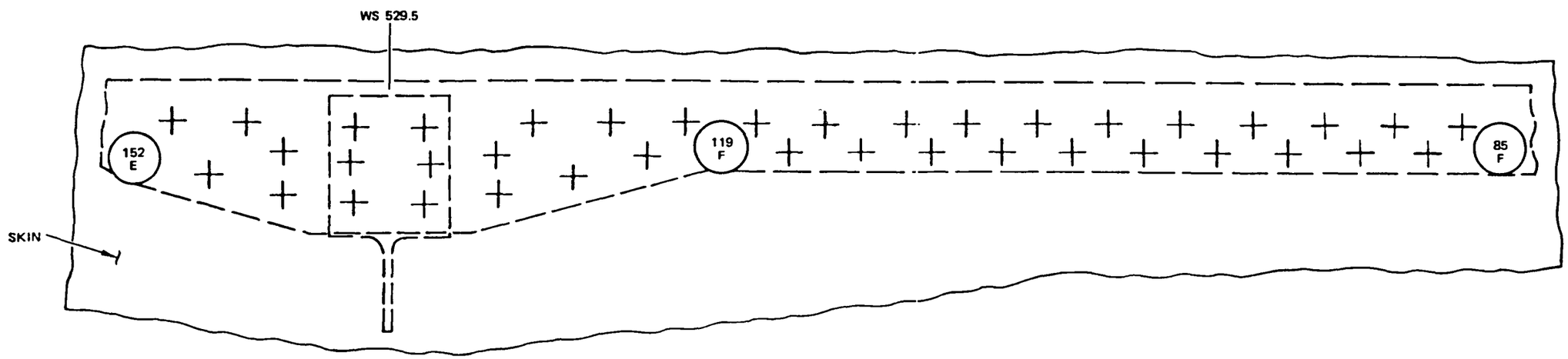
NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- VIEW LOOKING UP

(176 C) FASTENERS TO BE INSPECTED

LOWER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL V (CONT)



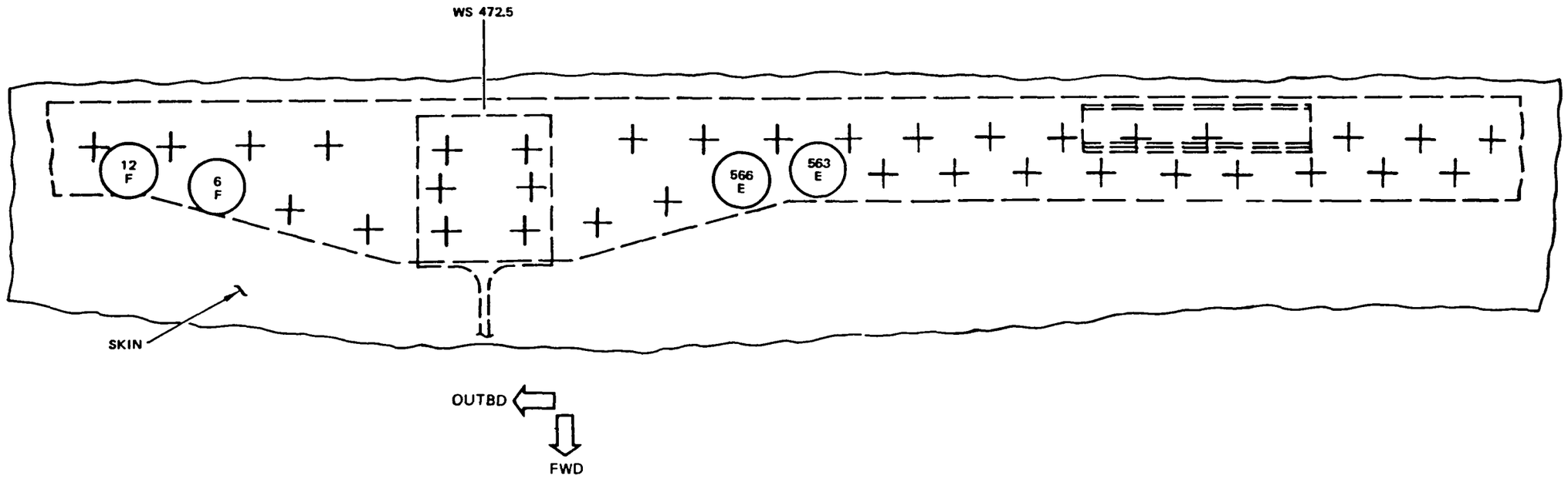


NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- VIEW LOOKING UP

(119 F) FASTENERS TO BE INSPECTED

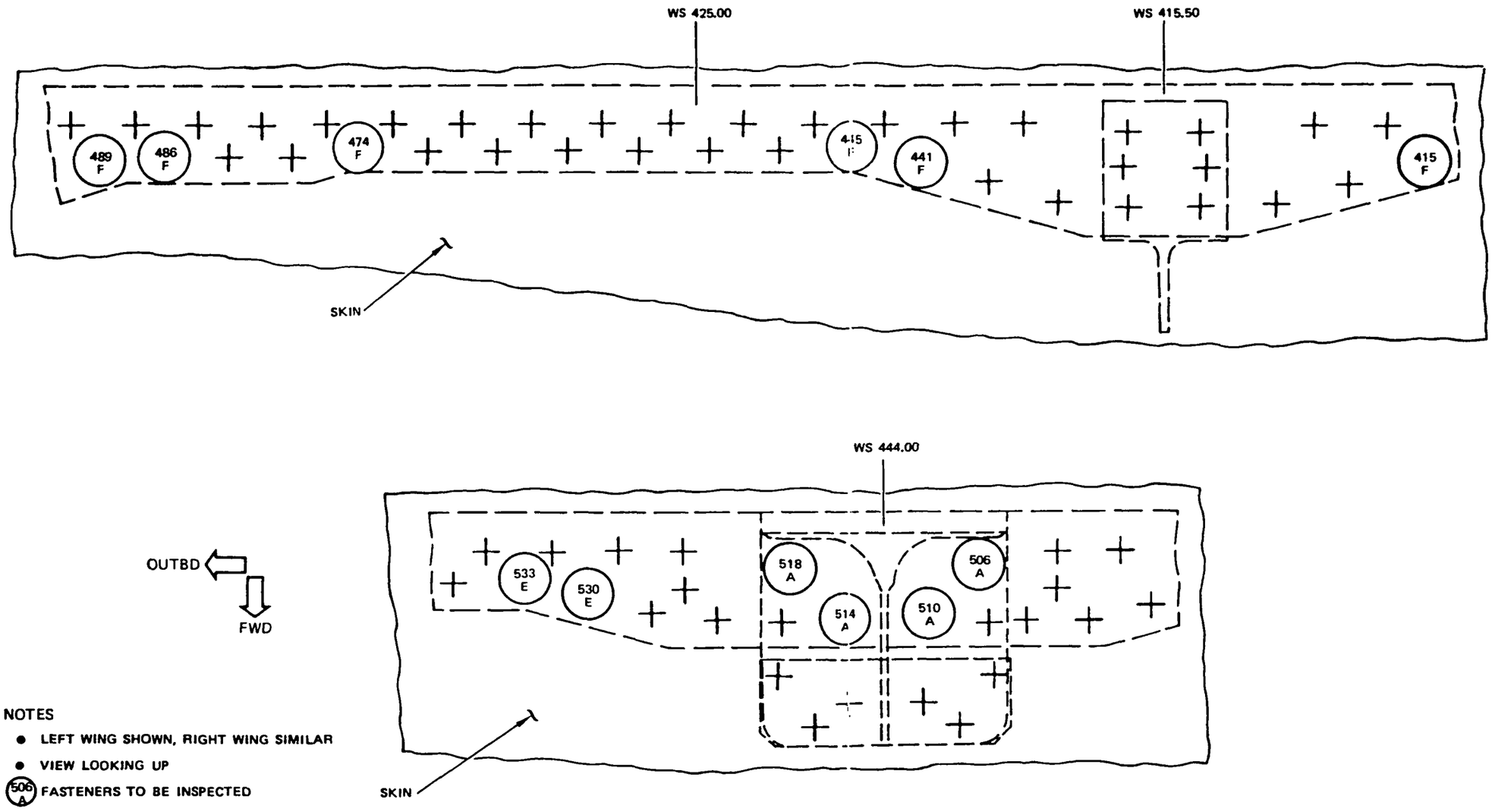
LOWER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL V (CONT)



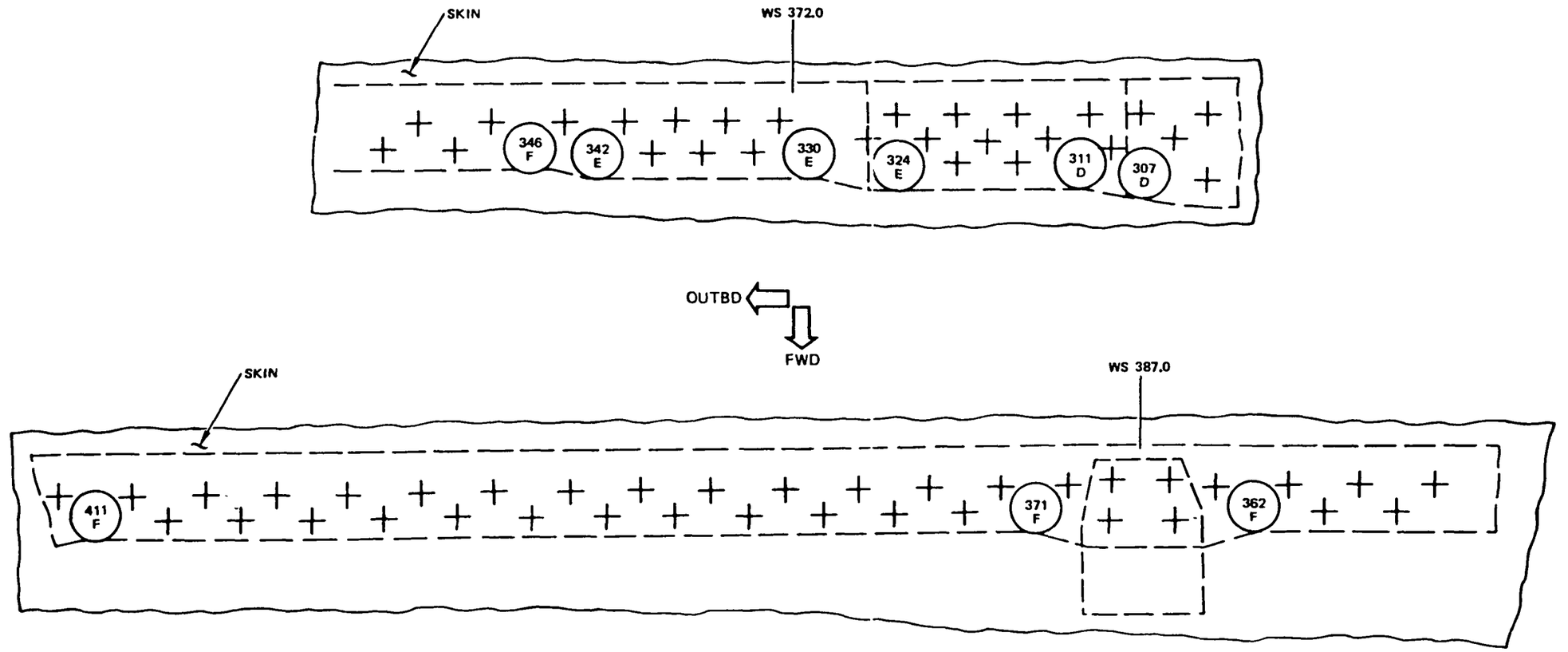
NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- VIEW LOOKING UP
- (566 E) FASTENERS TO BE INSPECTED

LOWER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL V (CONT)



LOWER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL V (CONT)

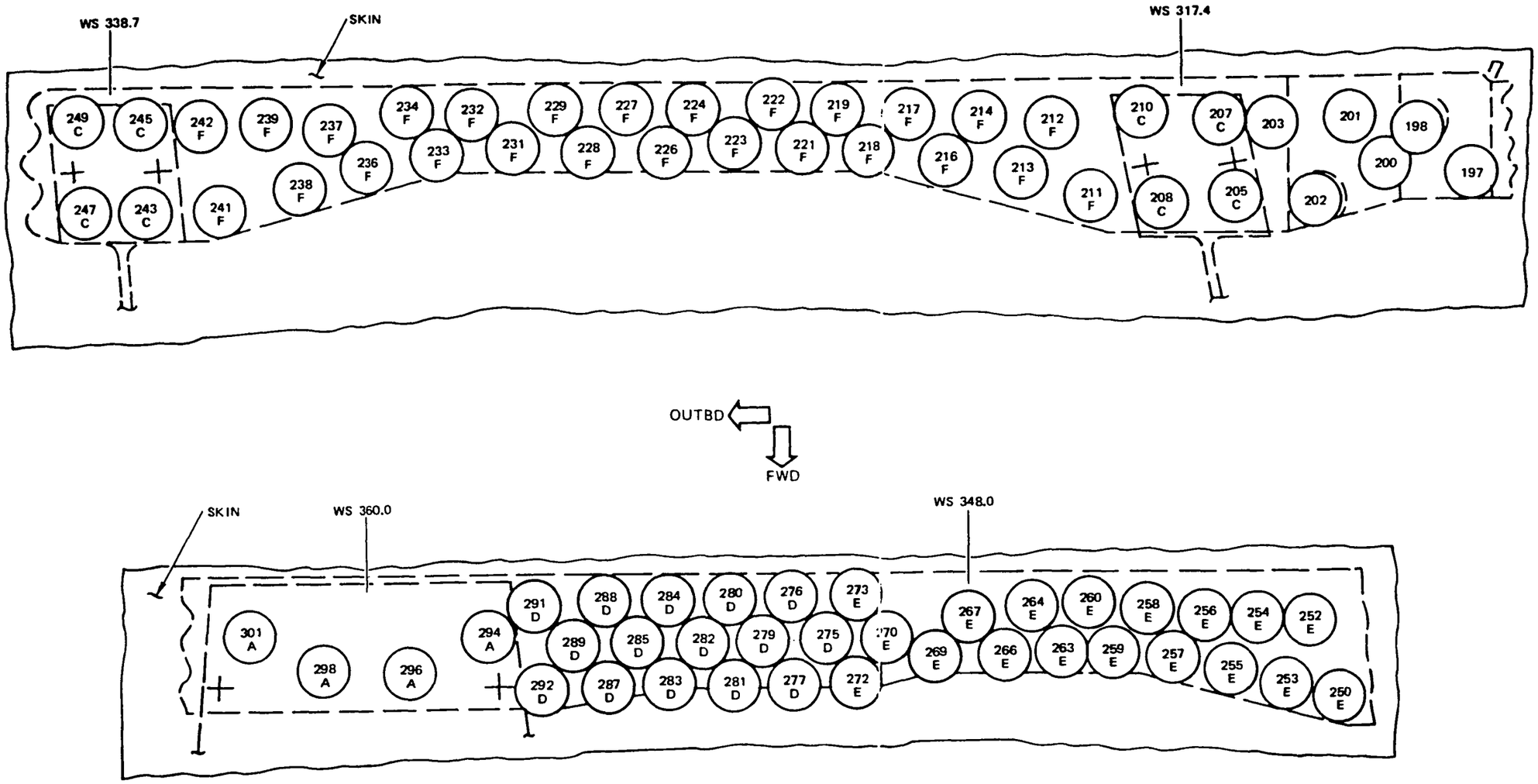


NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- VIEW LOOKING UP

(324 E) FASTENERS TO BE INSPECTED

LOWER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL V (CONT)



NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- VIEW LOOKING UP
- (218 F) FASTENERS TO BE INSPECTED

LOWER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL V (CONT)

Rear Spar Chord Horizontal Flange of Wing
Figure 49 (Sheet 18)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks in the horizontal flange of the lower rear spar chord which intersect fastener holes. This inspection is accomplished from outside of the wing without fastener removal.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec Inc.
      1320 N.W. Mall
      Issaquah, WA 98207

   B. Probes - This procedure uses four probes. See Table II for probe requirement for a particular airplane. Any probe of similar size which will satisfy the performance requirements of this procedure is acceptable. The following probes were used in the development of this procedure.

      (1) Ring (encircling) probe with 1-inch OD and 0.5-inch ID shielding, 100 Hz, Nortec P/N SPO-783

      (2) Ring (encircling) probe with 1.1-inch OD and 0.625-inch ID shielding, 100 Hz, Nortec P/N SPO-1154

      (3) Ring probe with 0.7-inch OD and 0.3-inch ID shielding usable at 200 Hz, Nortec P/N SPO-996.

Lower Rear Spar Chord Horizontal Flange Of Wing
Figure 50 (Sheet 1)

(4) Low frequency spot probe with 1.0-inch OD shielding usable at 300 Hz; Nortec P/N SPO-1153.

(5) Probes listed above are available from:
Nortec Inc.
421 N. Quay
Kennewick, Washington 99336

NOTE: Specify instrument with which probe is to be used for required instrument connector when ordering probe.

C. Reference Standards

(1) This procedure uses four standards. See Table II for standard requirement for a particular airplane. Manufacture standards per Details I, III, V, or VII.

3. Preparation for Inspection

A. Wipe skin surface clean.

B. Paint removal may be required for areas where paint hides microshaved rivets.

C. It is suggested that fastener locations requiring the same instrument calibration for inspection be identified on the airplane by a colored circle. Water washable crayons, pencils, or felt pens are suitable. Refer to Table II to identify appropriate detail showing inspection locations.

4. Instrument Calibration

A. General

(1) Three basic inspection types are required.

(a) Inspection for fastener hole cracks using a ring probe centered on the fastener.

(b) Inspection for fastener hole cracks using a spot probe centered on the microshaved rivet.

(c) Inspection for fastener hole cracks using a spot probe positioned adjacent to fastener.

Lower Rear Spar Chord Horizontal Flange Of Wing
Figure 50 (Sheet 2)

(2) The three basic inspections require several instrument calibrations to adjust for variations in structure geometry and materials.

(3) Details IX through XII identify inspection coverage for a particular calibration, and Table I provides specific calibration information for that inspection.

B. Calibration for fastener hole crack inspection using the ring probe or a spot probe centered on the fastener. The following calibration applies to inspection codes A through E and G through L.

(1) Identify airplane effectivity and related inspection area detail from Table II. From the inspection area detail identify the code of fasteners to be inspected.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

(3) Visually center probe over the unnotched reference standard hole, Position 1.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(6) Recenter probe over the unnotched hole and adjust meter response to read 20% full scale with meter position control.

(7) Center probe over the notched reference standard hole, Position 2. Response should be upscale.

(8) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(9) Recheck null and liftoff. If readjustments are made recheck sensitivity per par. B.(8).

(10) Cracks will be indicated by a higher meter response.

C. Calibration for fastener hole crack inspection using a spot probe placed adjacent to the fastener head. The following calibration applies to inspection code F, see Detail X, code M, see Detail IX; and code N, see detail XII. Refer to Table II to identify airplane effectivity for inspection area.

(1) Refer to Table I for reference standard, probe, and calibration details for inspection code.

(2) Place probe adjacent to the unnotched reference standard hole. Position 1.

(3) Balance instrument per manufacturer's instructions.

(4) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is located at Position 1 during liftoff calibration.

(5) With the probe adjacent to the unnotched hole Position 1, adjust meter response to read 20% of full scale with meter position control.

(6) Position probe adjacent to the notched reference standard hole, Position 2. Response should be upscale.

(7) Adjust instrument sensitivity to obtain a 50% of full scale meter response difference between the notched and unnotched holes, Positions 1 and 2.

(8) Reposition probe at Position 1 and check null and liftoff when readjustments are made, recheck sensitivity per par. C(7).

(9) Cracks will be indicated by a higher meter response.

5. Inspection Procedure

NOTE: An inspection code is used to identify locations having similar inspection conditions. A single instrument calibration is usually used to inspect these locations.

It is suggested that a copy of Details IX, X, XI, or XII (depending on A/P effectivity) be made and that it be used to record instrument responses at each fastener location. This is helpful in maintaining continuity between the groups of fasteners during inspection.

A. Inspection of fastener holes for cracks using the ring probe or probe centered on the fastener. Inspection codes A through E and G through L.

(1) Accomplish inspections of codes A through E and G through L in the order given in Table I.

(2) Calibrate instrument per Section 4.B and Table I.

(3) Note on the airplane the location of those fasteners having the same inspection code by using Details IX, X, XI, or XII, depending on A/P effectivity. See Table II for effectivity.

(4) Use several fasteners of the same code to establish the airplane baseline response for an acceptable fastener.

(a) Select a representative fastener from this group and set its response to 20% of full meter scale.

NOTE: Do not change instrument sensitivity when establishing the airplane baseline response.

(b) Refer back to this fastener periodically to ensure that the instrument response is the same as originally recorded. (Changes in meter response may occur as a result of instrument drift or probe temperature change.)

(5) Inspect each fastener having the same inspection code by centering the probe on the fastener and manipulating to obtain a minimum response.

NOTE: Review the "Special Notes" called out in Table I for conditions which affect the inspection.

(6) Fastener locations which give a response which is 40% of full meter scale higher than the established baseline are potential crack indications and further investigation is required.

NOTE: The following conditions may cause meter reading changes similar to crack indications:

1) A decrease in fastener spacing - compare with similarly spaced fasteners on the airplane.

2) Fastener spaced closer to edge of spar chord (second layer). Compare fastener alignment with adjacent fasteners.

3) A larger or smaller fastener - compare with similar fasteners of reference standard and on airplane.

4) A fastener that is different in countersink depth - compare with similar fastener in standard raised to the same height.

5) A fastener close to edge of skin - compare with similar fasteners on airplane.

6) Differences in conductivity between skin panels - compare only the fastener locations common to a skin panel.

B. Inspection of fastener holes for cracks using a spot probe adjacent to the fastener (Inspection code F) and by scanning along aft edge of skin (code M and N).

(1) Calibrate the instrument per par. 4.C and Table I.

(2) Note location of code F fastener on the airplane using Detail X; Code M using Detail IX; and Code N using Detail XII.

(3) Inspect code F fastener by placing probe adjacent to the fastener head on the forward and aft side. Inspect code M and N scans per 28 of Table I.

(4) Any location which gives a response which is 30% of full meter scale higher than the baseline response should be investigated further.

Lower Rear Spar Chord Horizontal Flange Of Wing
Figure 50 (Sheet 6)

INSPECTION CODE [21]	REFERENCE STANDARD NO.	PROBE IDENTIFICATION [22]	INSTRUMENT FREQUENCY Hz	DETAIL NO. FOR CALIBRATION	PROBE CALIBRATION POSITION	SPECIAL NOTES
A	063	(2)	100	II	A	
B	063	(2)	100	II	B	[23]
C	063	(2)	100	II	C	
D	063	(1)	100	II	D	[23]
E	064	(3)	300	IV	A	[23]
F	063	(4)	200	II	A	
G	066	(2)	100	VIII	A	
H	065	(2)	100	VI	A	[23]
I	065	(2)	100	VI	B	
J	065	(1)	100	VI	C	
K	066	(1)	100	VIII	B	[23]
L	065	(1)	100	VI	D	[23]
M	063	(4)	200	II	A	[23]
N	066	(4)	200	VIII		[23]

CALIBRATION TABLE
TABLE I

NOTES

[21] Code for specific inspection areas identified on Details IX, X, XI, and XII, to which the calibration requirements apply

[22] Probe Identification:
(1) P/N SPO-783 - 1 inch OD and 0.5-inch ID ring probe
(2) P/N SPO-1154 - 1.1 inch OD and 0.62 inch ID ring probe
(3) P/N SPO-1153 - 1.0 inch OD spot probe
(4) P/N SPO-996 - 0.7 inch OD and 0.3 inch ID ring probe used as a spot probe

[23] Flagnote refers to "Probe Position for Calibration" Details (Details II, IV, VI, or VIII as indicated in this table) and identifies that row of fasteners in the reference standard used for this calibration

[24] The total structure thickness decreases in the outboard direction. Use several similar adjacent fasteners on the inboard and outboard side of the inspection fastener (unless they are covered by another inspection code) to establish the baseline response

[25] This code covers two styles of countersink heads, a small difference in response will be noted between them. Compare fasteners with similar head styles

Lower Rear Spar Chord Horizontal Flange Of Wing
Figure 50 (Sheet 7)

26 Heavy paint may obscure the location of micro shaved rivets. If in doubt remove paint

27 Compare these fasteners with each other and the reference standard

28 Scan probe along aft edge of skin. Hold edge of probe approximately 0.1 inch forward of rabbet area on skin trailing edge. See Detail IX or Detail XII for limit of scan

A/P EFF. CUM LINE NO.	INSPECTION AREA DETAIL NO.	REFERENCE STANDARD DETAIL NO.	PROBES REQUIRED
ALL 707-300B 300C	IX	I	SPO 783 SPO 1154 SPO 996
29	X	I and III	SPO 783 SPO 1154 SPO 1153 and SPO 996
30	XI	V	SPO 783 SPO 1154
32	XII	V and VII	SPO 783 SPO 1154 SPO 996

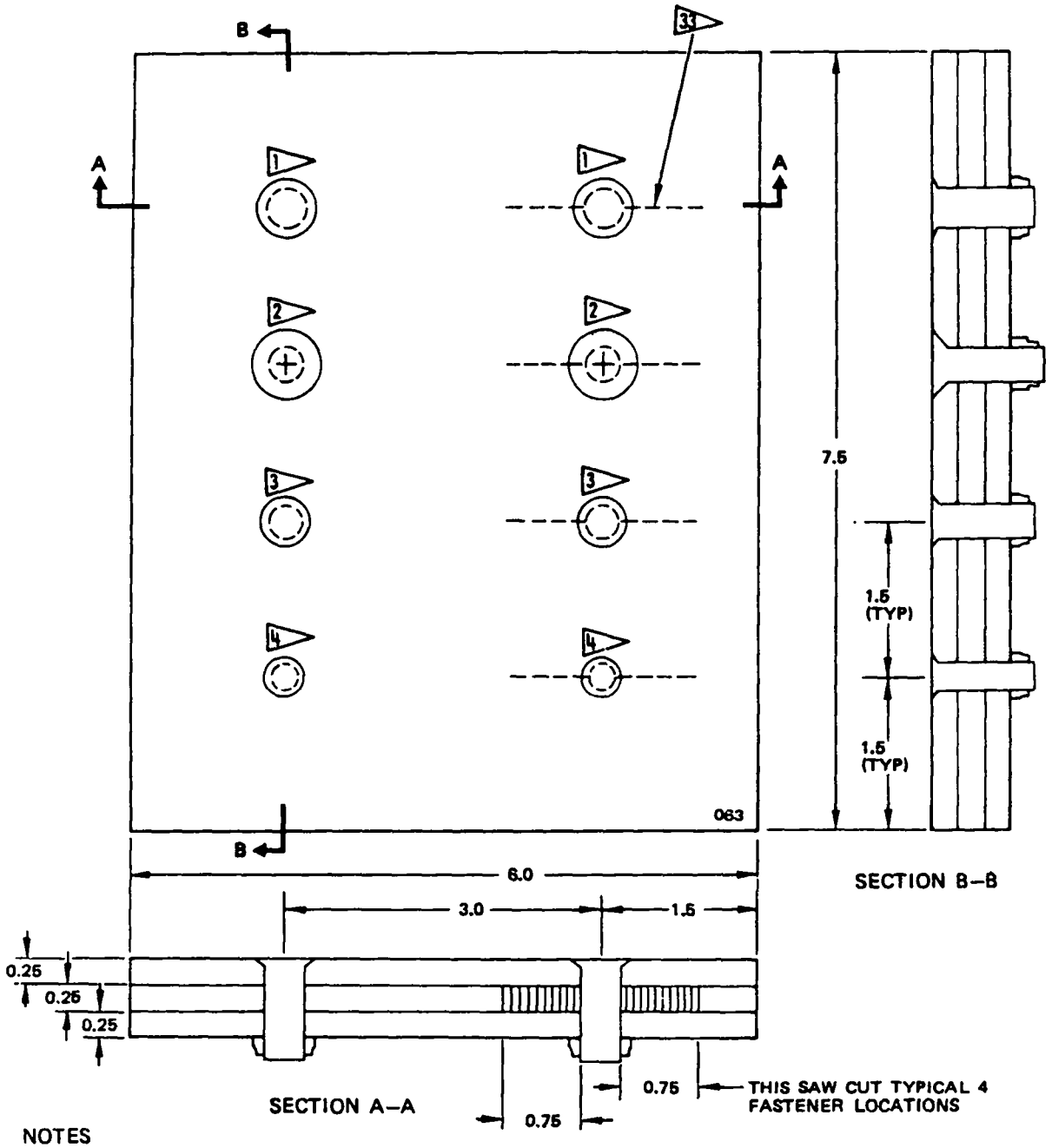
EFFECTIVITY TABLE
TABLE II

29 Cum Line No. 744 thru 748, 749 thru 770, 772 thru 776, 778 thru 786, 788 thru 793, 795 thru 800, 802 and on

30 Cum Line No. 13, 20, 35, 58, 61, 62, 65, 68 thru 71, 73 thru 76, 78 thru 83, 85, 86, 88 thru 94, 98 thru 107, 110 thru 118, 121 thru 129, 133 thru 139, 144, 145, 151 thru 155, 159 thru 165, 167 thru 171, 175, 176, 192, 200, 205, 209, 216, 217, 264 thru 272, 274 thru 276, 282, 283, 287, 292, 293, 302, 303, 320, 323, 325 thru 336, 341 thru 346, 348 thru 350, 352 thru 360, 362 thru 373, 375 thru 379, 384, 387, 389, 394, 397 thru 400, 403, 403, 405 thru 409, 411 thru 413, 415 thru 421, 424, 425, 428, 430, 431, 434 thru 441, 443 thru 457, 459 thru 462, 464 thru 469, 471, 472, 475 thru 478, 480, 482 thru 485, 487, 488, 494 thru 502, 504, 505, 507 thru 509, 511, 513, 515 thru 525, 527 thru 529, 531, 532, 534, 536 thru 538, 540 thru 557, 559, 561, 563, 566, 568, 570, 572, 574, 576, 578, 580, 582, 585, 587, 588, 590, 592, 594, 599, 601, 603, 605, 607, 618, 620, 623, 625 thru 743

Lower Rear Spar Chord Horizontal Flange Of Wing
Figure 50 (Sheet 8)

33 Cum Line Nos. 13, 20, 35, 58, 61, 62, 65, 68 thru 71, 73 thru 76, 78 thru 83, 85, 86, 88 thru 94, 98 thru 107, 110 thru 118, 121 thru 129, 133 thru 139, 144, 145, 151 thru 155, 159 thru 165, 167 thru 171, 175, 176, 192, 200, 205, 209, 216, 217, 264 thru 266, 269 thru 272, 274, 275, 282, 283, 293, 302, 328, 330, 334, 353



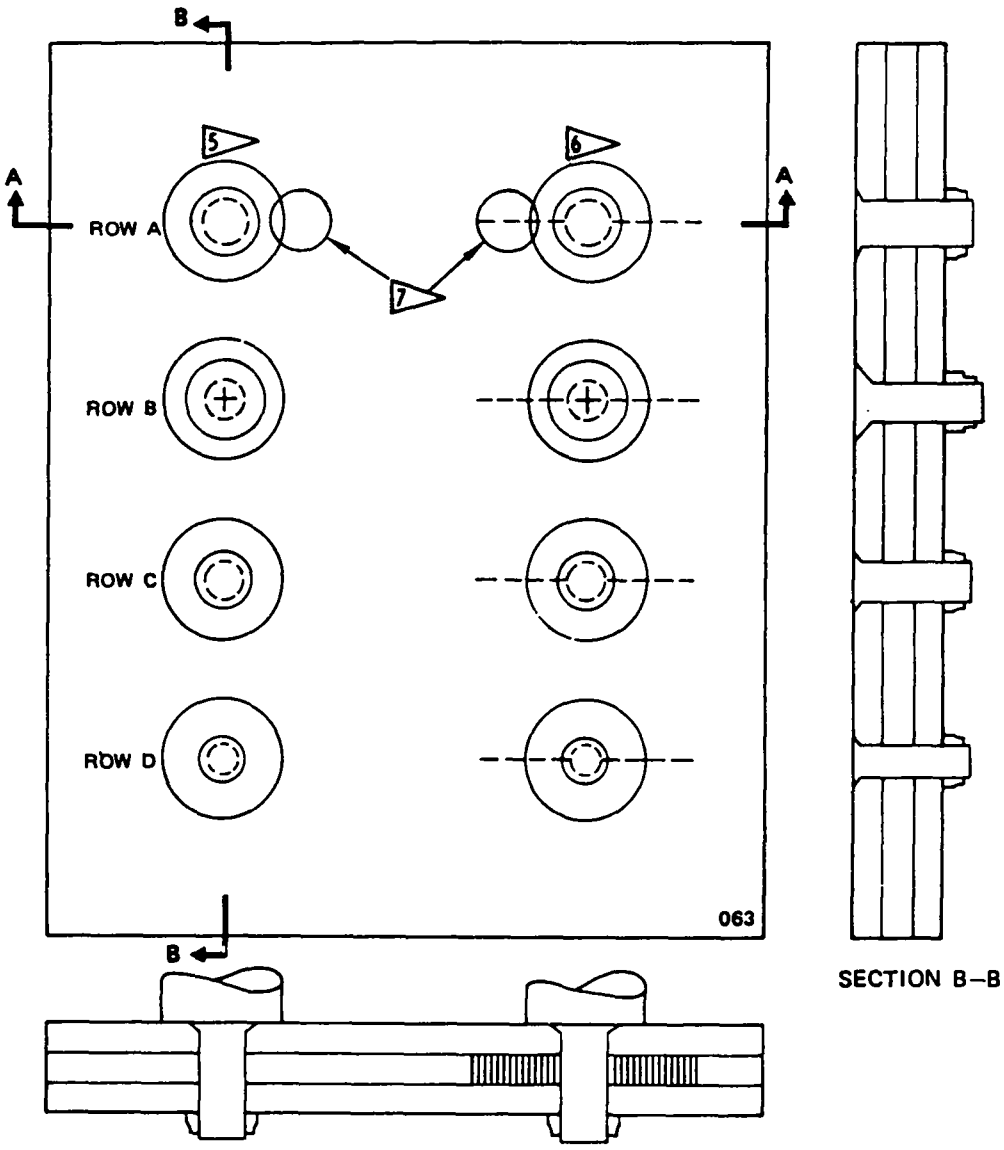
NOTES

- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T3 OR T4 ALUMINUM
- ETCH OR STEEL STAMP WITH 063
- TOLERANCE X.X ± 0.05 X.XX ± 0.02
- P/N 6412–97
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

1 BACB30FN12–12 FASTENER; BACC30M12 COLLAR
2 BACB30LU5–12 FASTENER; BACN10JC5 NUT
3 BACB30FN10–12 FASTENER; BACC30M10 COLLAR
4 BACB30FN8–12 FASTENER; BACC30M8 COLLAR
33 JEWELER'S SAWCUT 0.030 MAX WIDTH (8 PLACES)

REFERENCE STANDARD 063
DETAIL I

Lower Rear Spar Chord Horizontal Flange of Wing
Figure 50 (Sheet 10)



SECTION B–B

SECTION A–A

NOTES

5 PROBE POSITION 1 THIS COLUMN TYPICAL

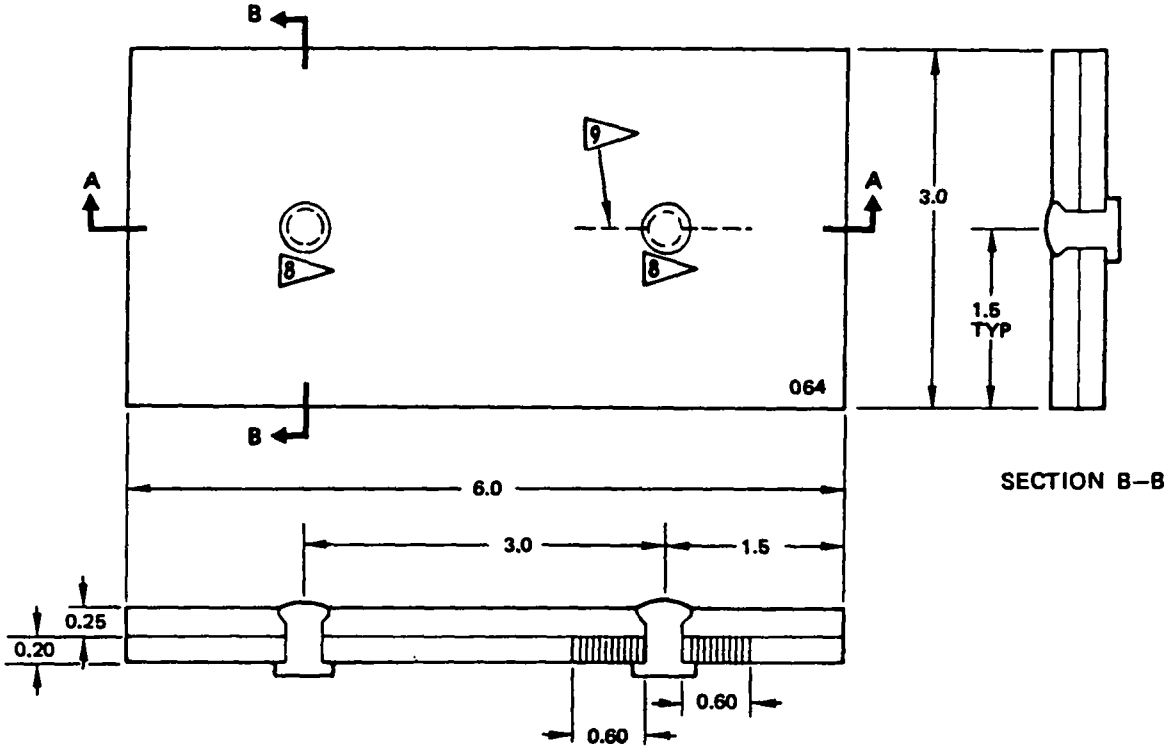
6 PROBE POSITON 2 THIS COLUMN TYPICAL

7 FOR CODE F FASTENER AND CODE M SCAN ONLY

PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD 063

DETAIL II

Lower Rear Spar Chord Horizontal Flange of Wing
Figure 50 (Sheet 11)



NOTES

- ALL DIMENSIONS ARE IN INCHES
- ETCH OR STEEL STAMP WITH 064
- INSTALL MICROSHAVED RIVETS PER BAC 5047
- MATERIAL: 2024–T3 OR T4 ALUMINUM
- TOLERANCE: X.X ± 0.05 X.XX ± 0.02 X.XXX ± 0.005
- P/N 6412–98
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

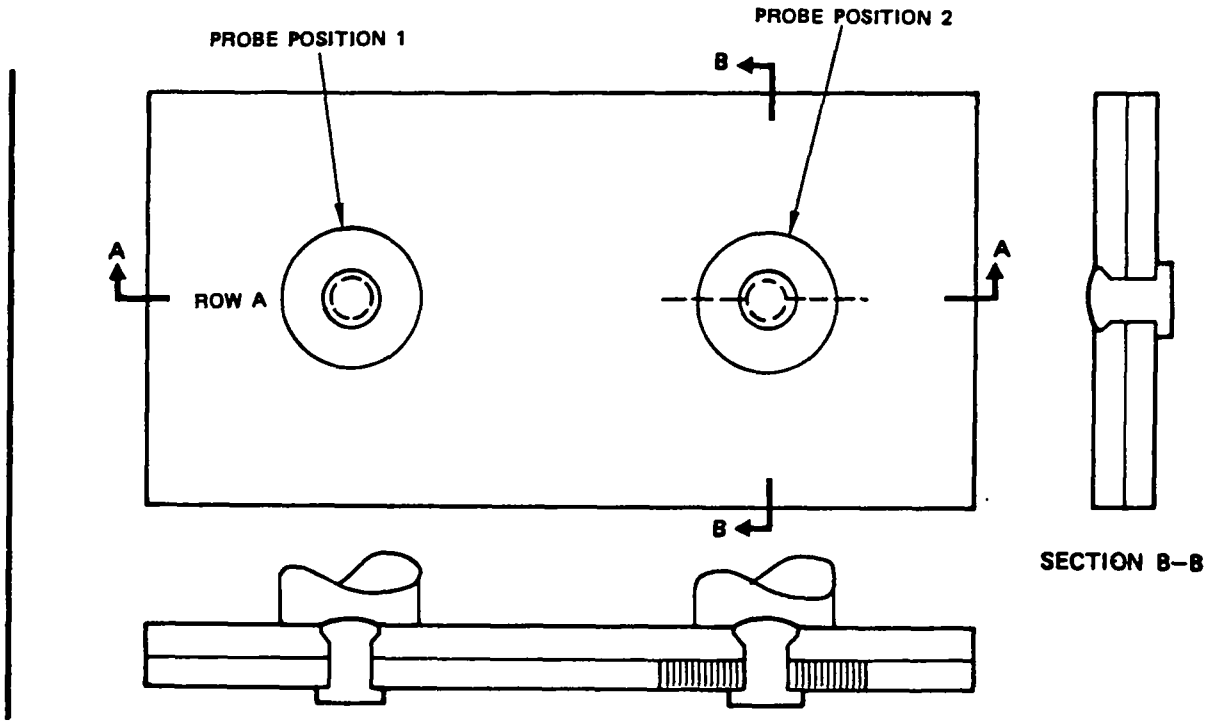
8 BACR15DG10AD7 RIVETS

9 JEWELER'S SAWCUT 0.030 MAX WIDTH (2 PLACES)

REFERENCE STANDARD 064

DETAIL III

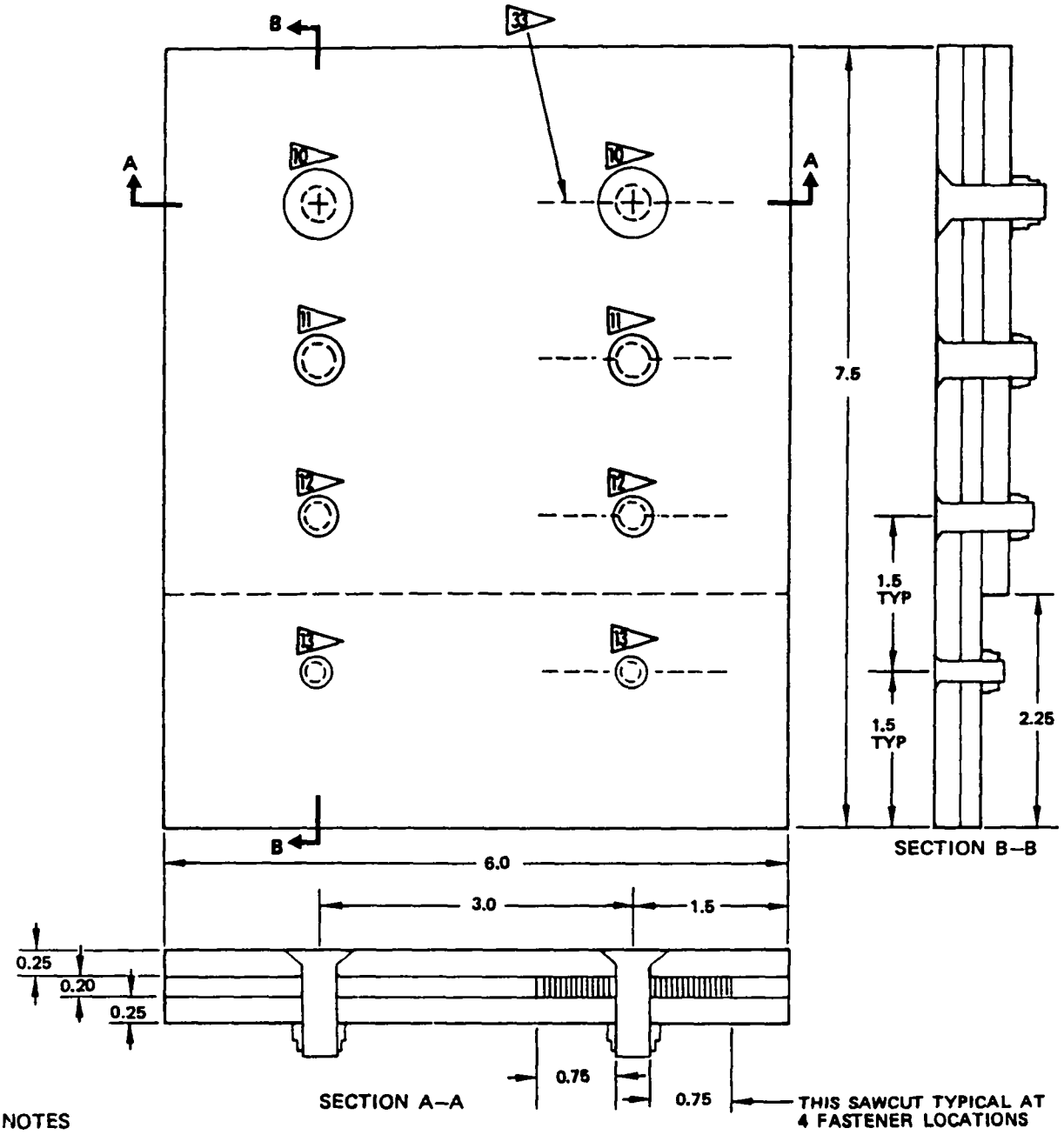
Lower Rear Spar Chord Horizontal Flange of Wing
Figure 50 (Sheet 12)



PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD 064

DETAIL IV

Lower Rear Spar Chord Horizontal Flange of Wing
Figure 50 (Sheet 13)



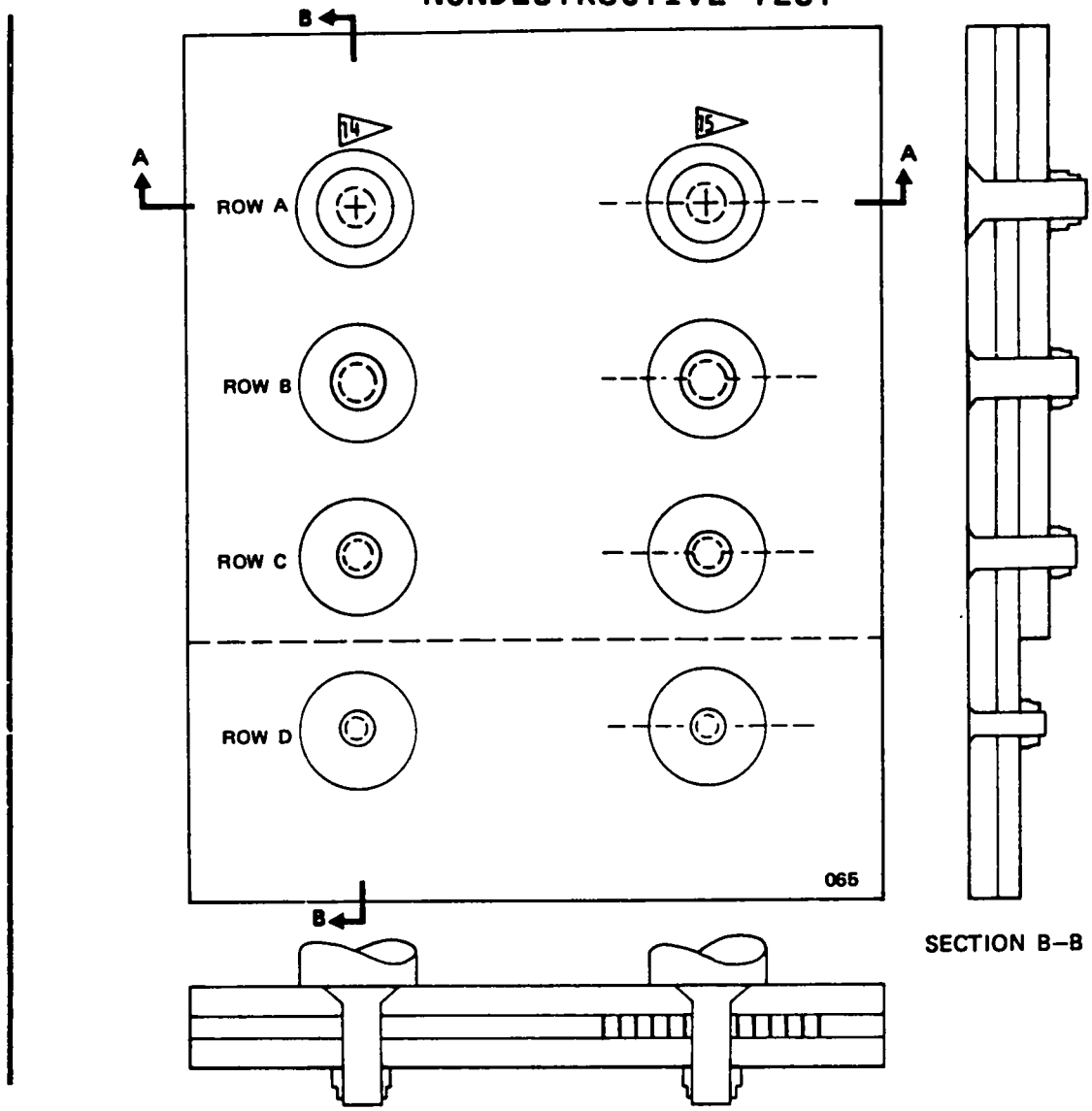
NOTES

- ALL DIMENSIONS ARE IN INCHES
- ETCH OR STEEL STAMP WITH 065
- MATERIAL: 2024–T3 OR T4 ALUMINUM
- TOLERANCE: X.X ± 0.05 X.XX ± 0.02 X.XXX ± 0.005
- P/N 6412–99
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA

10 BACB30LU5–11 FASTENER; BACN10JC5 NUT
11 BACB30FN10–11 FASTENER; BACC30M10 COLLAR
12 BACB30FN8–11 FASTENER; BACC30M10 COLLAR
13 BACB30FN6–7 FASTENER; BACC30M6 COLLAR
33 JEWELER'S SAWCUT 0.030 MAX WIDTH (8 PLACES)

REFERENCE STANDARD 065
DETAIL V

Lower Rear Spar Chord Horizontal Flange of Wing
Figure 50 (Sheet 14)



NOTES

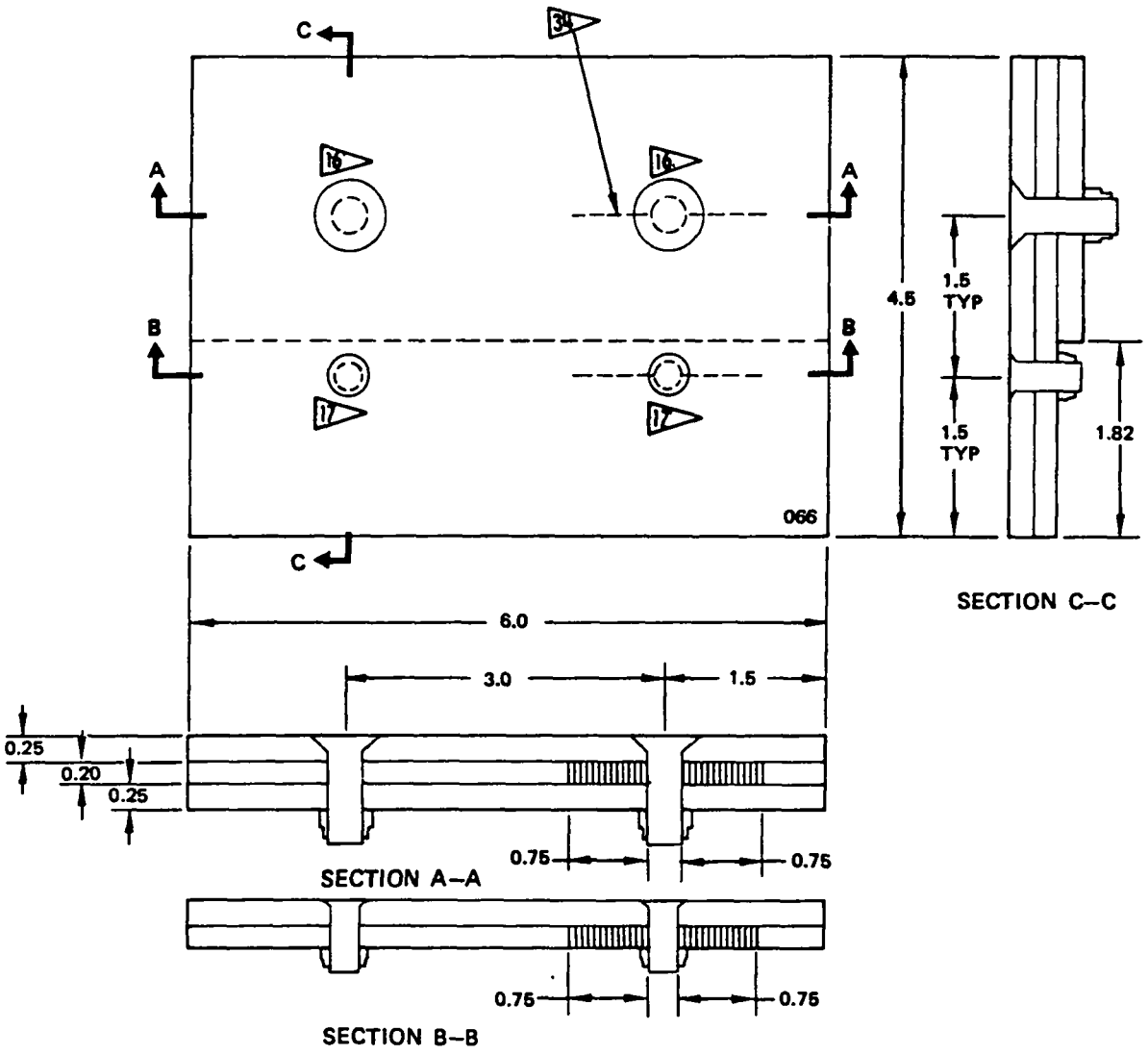
14 PROBE POSITION 1 THIS COLUMN TYPICAL

15 PROBE POSITON 2 THIS COLUMN TYPICAL

PROBE POSITION FOR CALIBRATION
REFERENCE STANDARD 065

DETAIL VI

Lower Rear Spar Chord Horizontal Flange of Wing
Figure 50 (Sheet 15)



NOTES

- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T3 OR T4 ALUMINUM
- TOLERANCE: X.X ± 0.05 X.XX ± 0.02 X.XXX ± 0.005
- ETCH OR STEEL STAMP WITH 066
- P/N 6412–103
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

16 BACB30LL6–12 FASTENERS; BACN10JC6 NUT

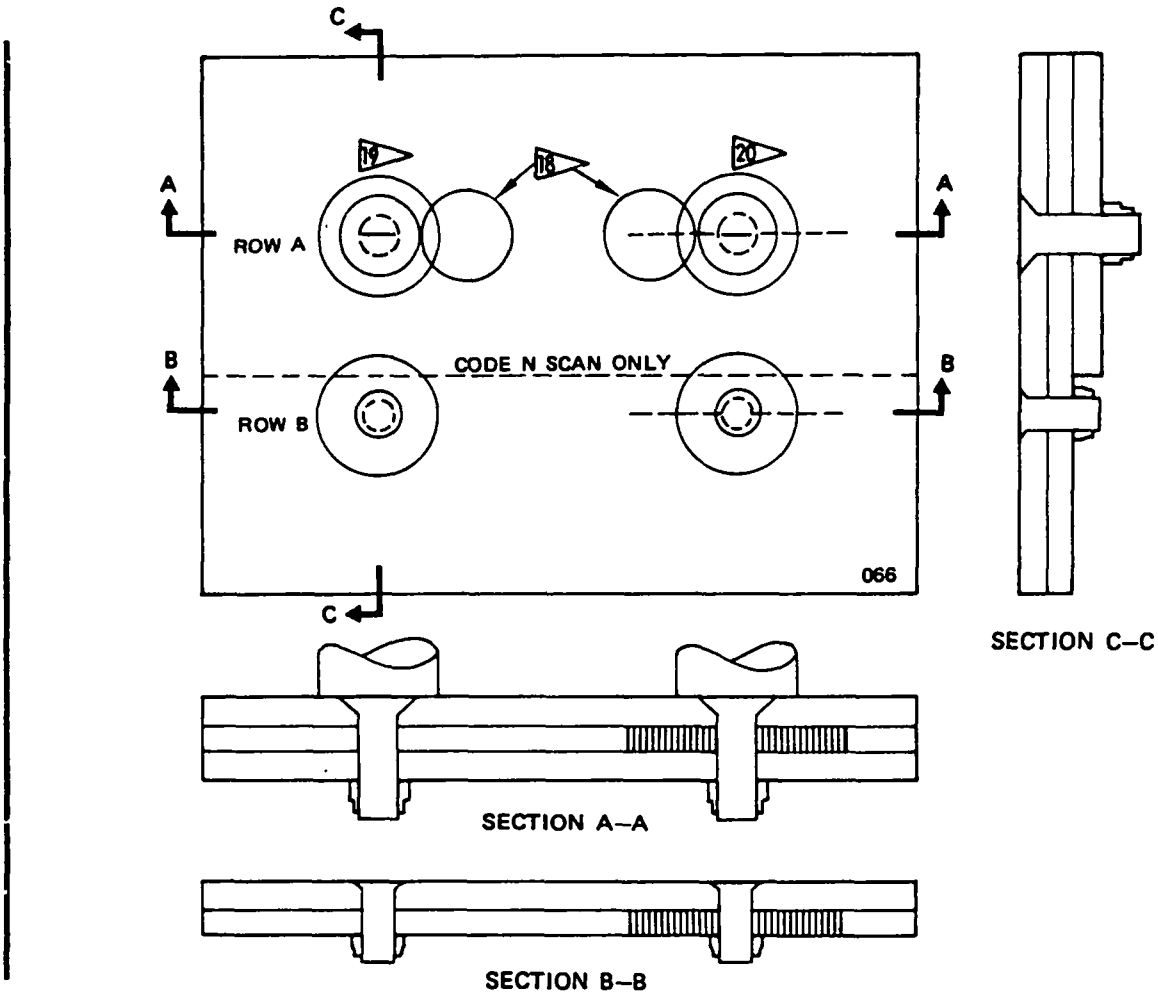
17 BACB30FN8–7 FASTENERS; BACC30M8 COLLAR

34 JEWELER'S SAWCUT 0.030 MAX WIDTH (4 PLACES)

REFERENCE STANDARD 066

DETAIL VII

Lower Rear Spar Chord Horizontal Flange of Wing
Figure 50 (Sheet 16)



NOTES

18 FOR CODE N SCAN ONLY

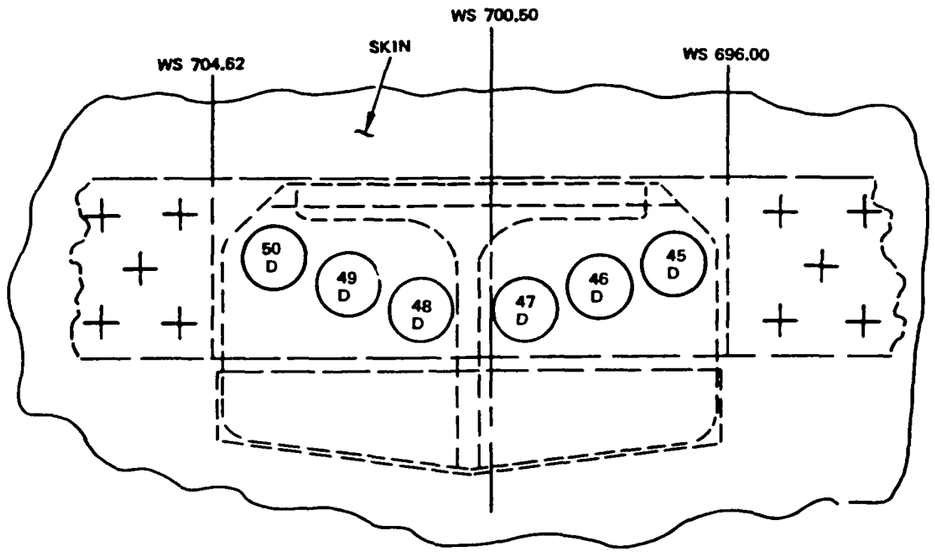
19 PROBE POSITION 1 THIS COLUMN TYPICAL

20 PROBE POSITION 2 THIS COLUMN TYPICAL

PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD 066

DETAIL VIII

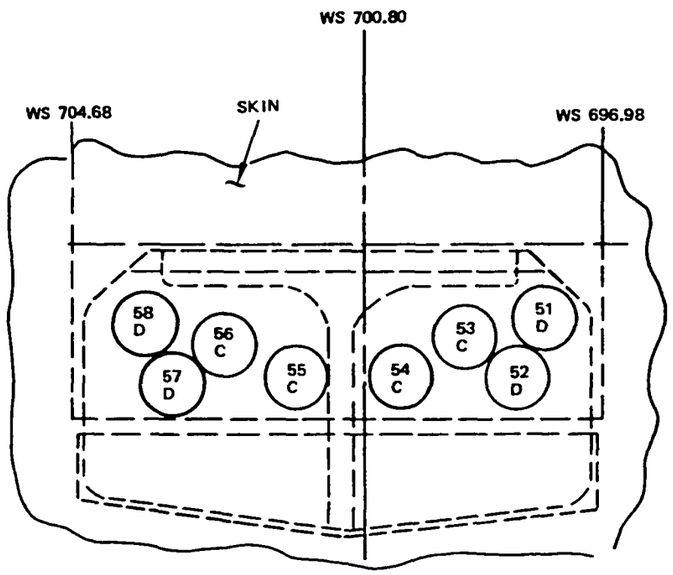
Lower Rear Spar Chord Horizontal Flange of Wing
Figure 50 (Sheet 17)



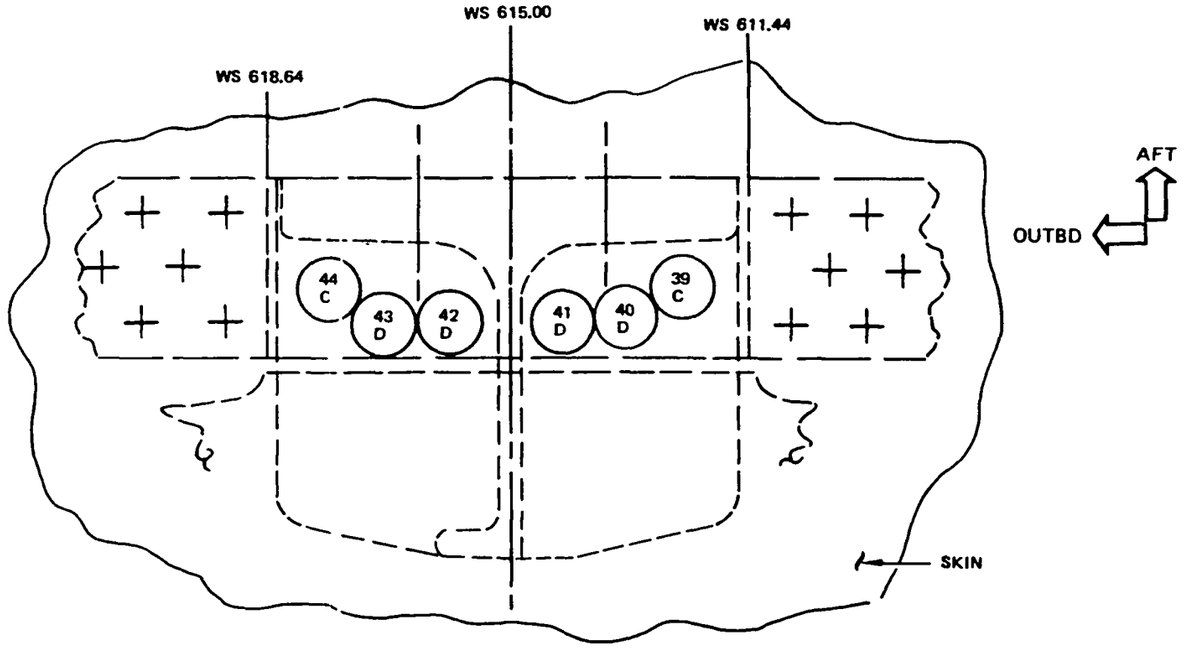
CUM LINE NO. 1 THRU 847

NOTES

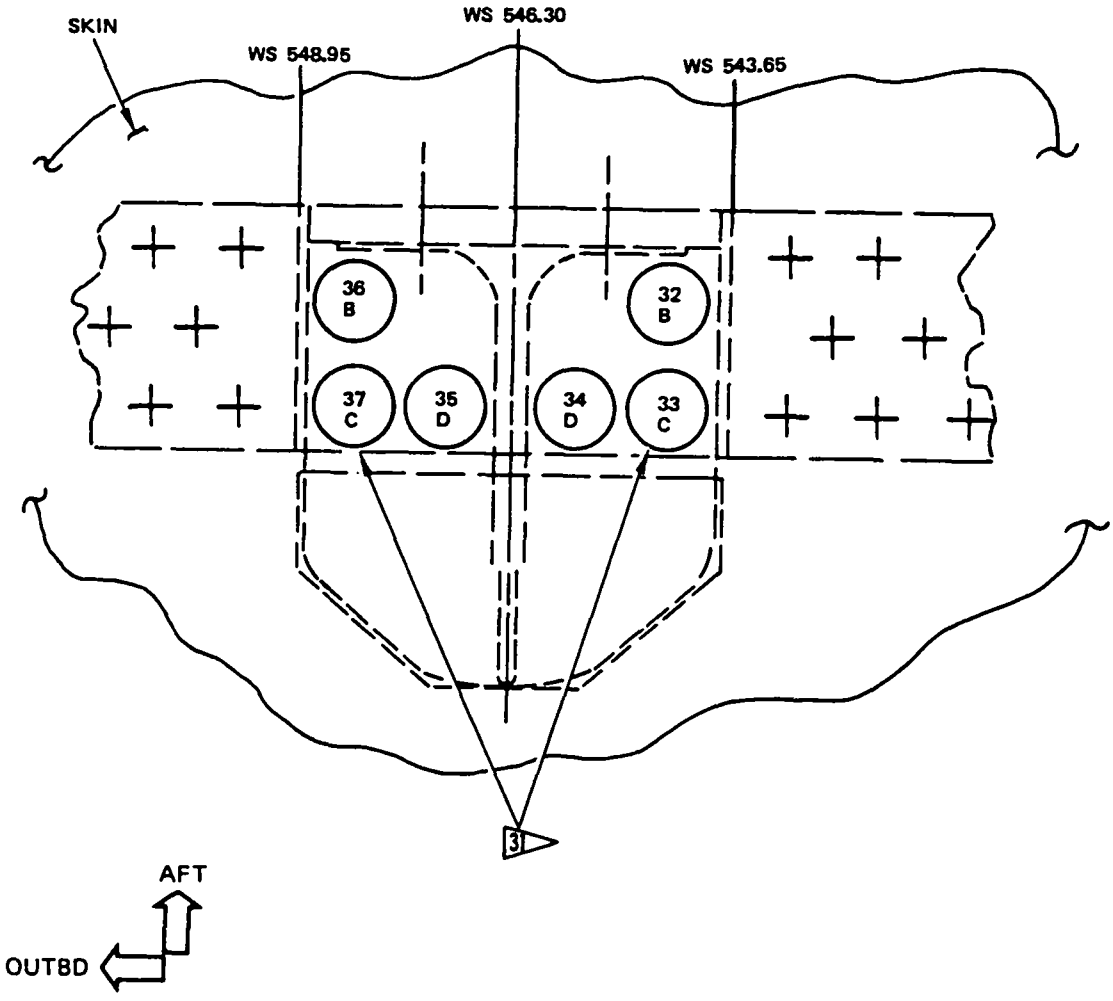
54 C — FASTENER IDENTIFICATION NUMBER / FASTENER CODE



CUM LINE NO. 848 AND ON



LOWER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL IX



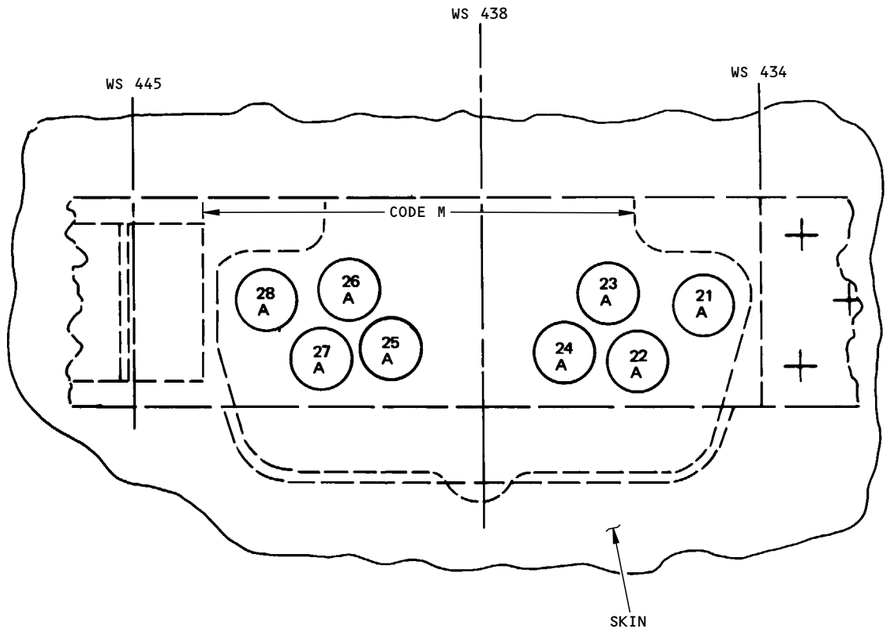
NOTE

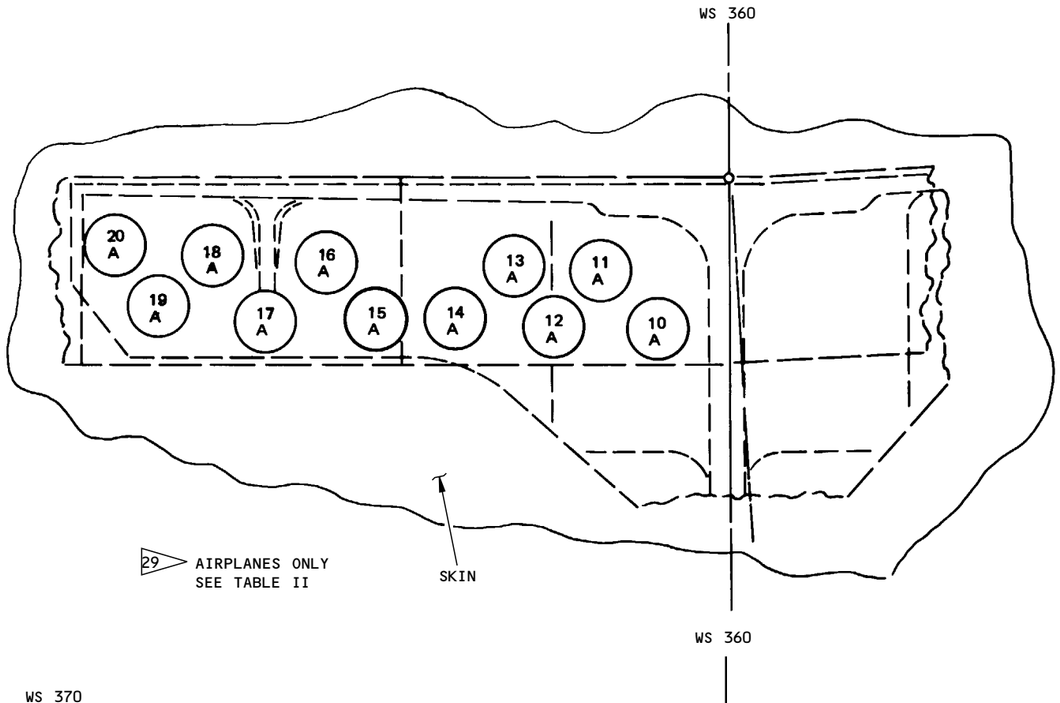
3 FOR CUM LINE NOS 848 THRU 850, 852, 855 THRU 861, 864 THRU 868, 871 THRU 879, 881, 883 THRU 895, 899, 900, 903, 905, 906, 908, 910 THRU 915, 917 THRU 919, 922, 923 925, 928, 929 ONLY

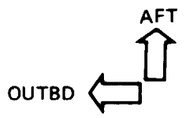
LOWER REAR SPAR CHORD HORIZONTAL FLANGE

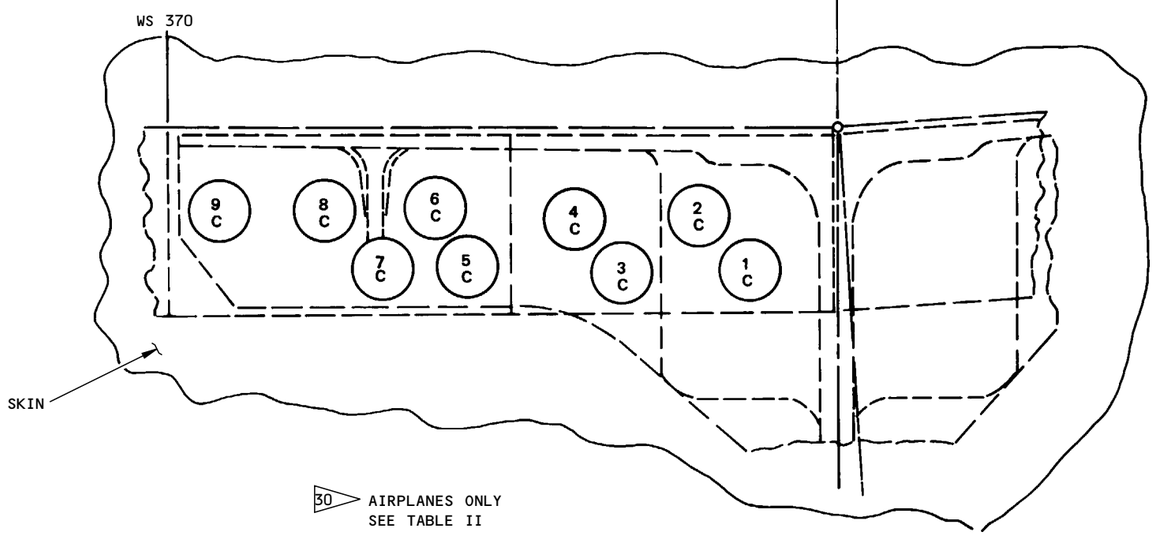
DETAIL IX (CONT)

Lower Rear Spar Chord Horizontal Flange of Wing
Figure 50 (Sheet 19)









LOWER REAR SPAR CHORD HORIZONTAL FLANGE

DETAIL IX (CONT)

Lower Rear Spar Chord Horizontal Flange of Wing
Figure 50 (Sheet 20)

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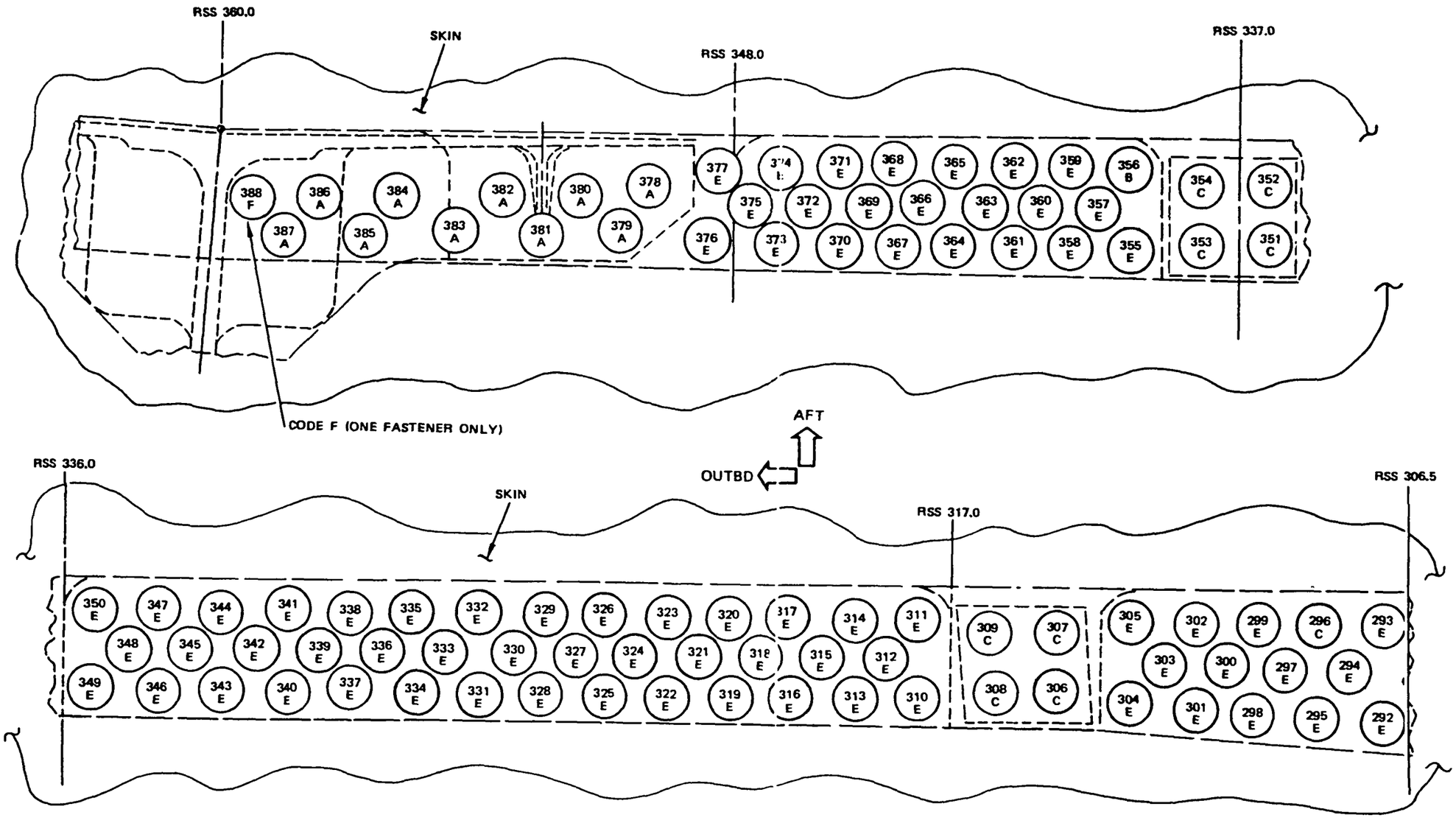
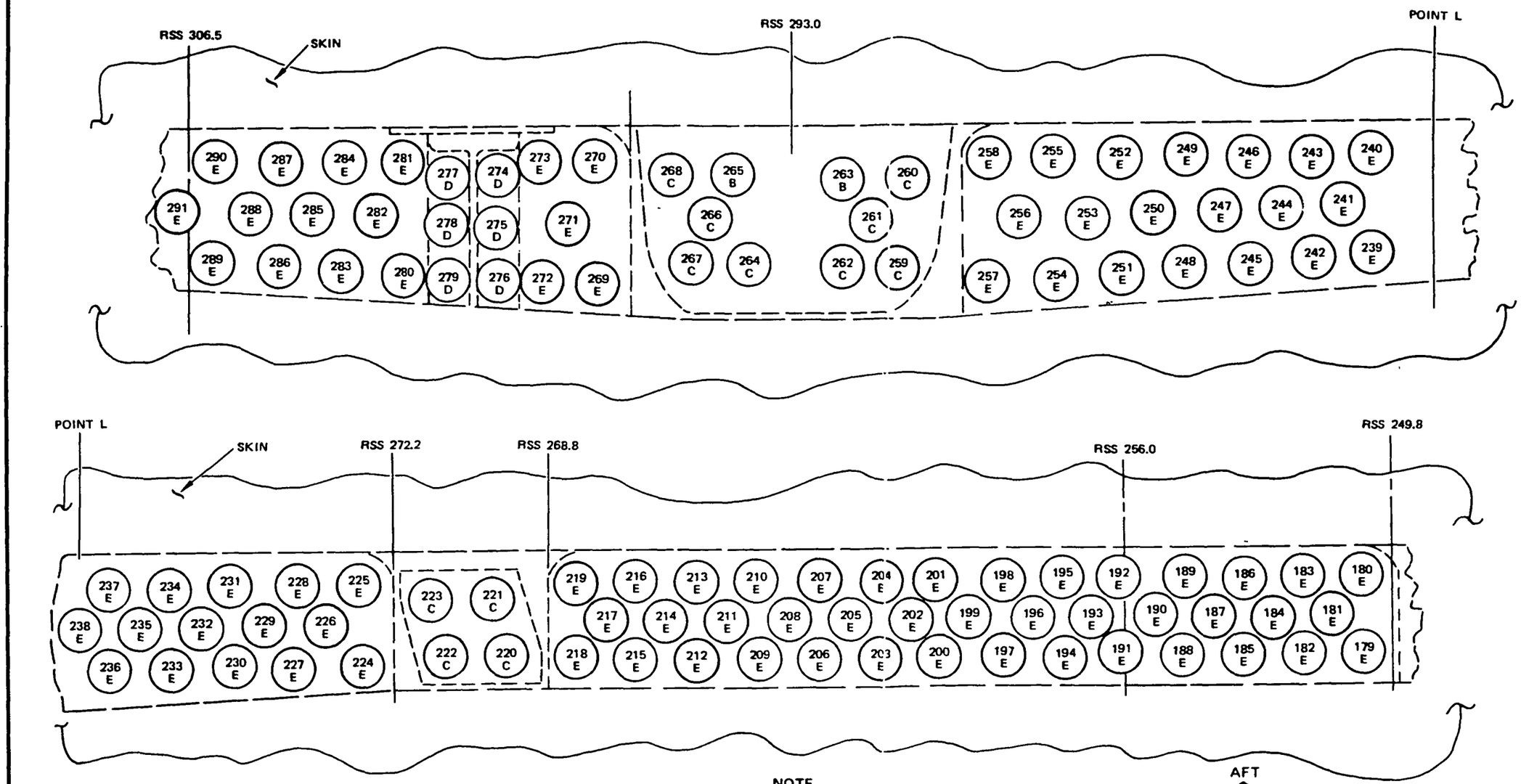
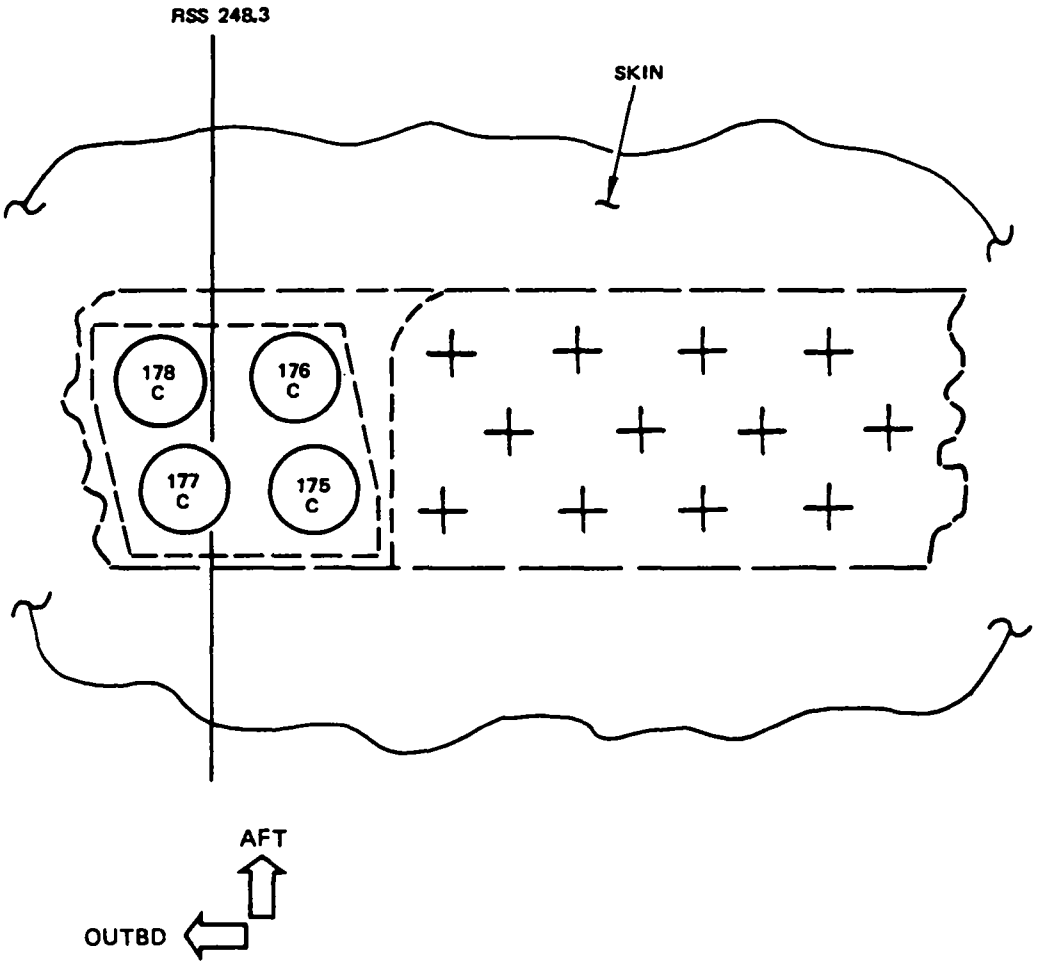


LOWER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL X

Lower Rear Spar Chord Horizontal Flange of Wing
Figure 50 (Sheet 21)



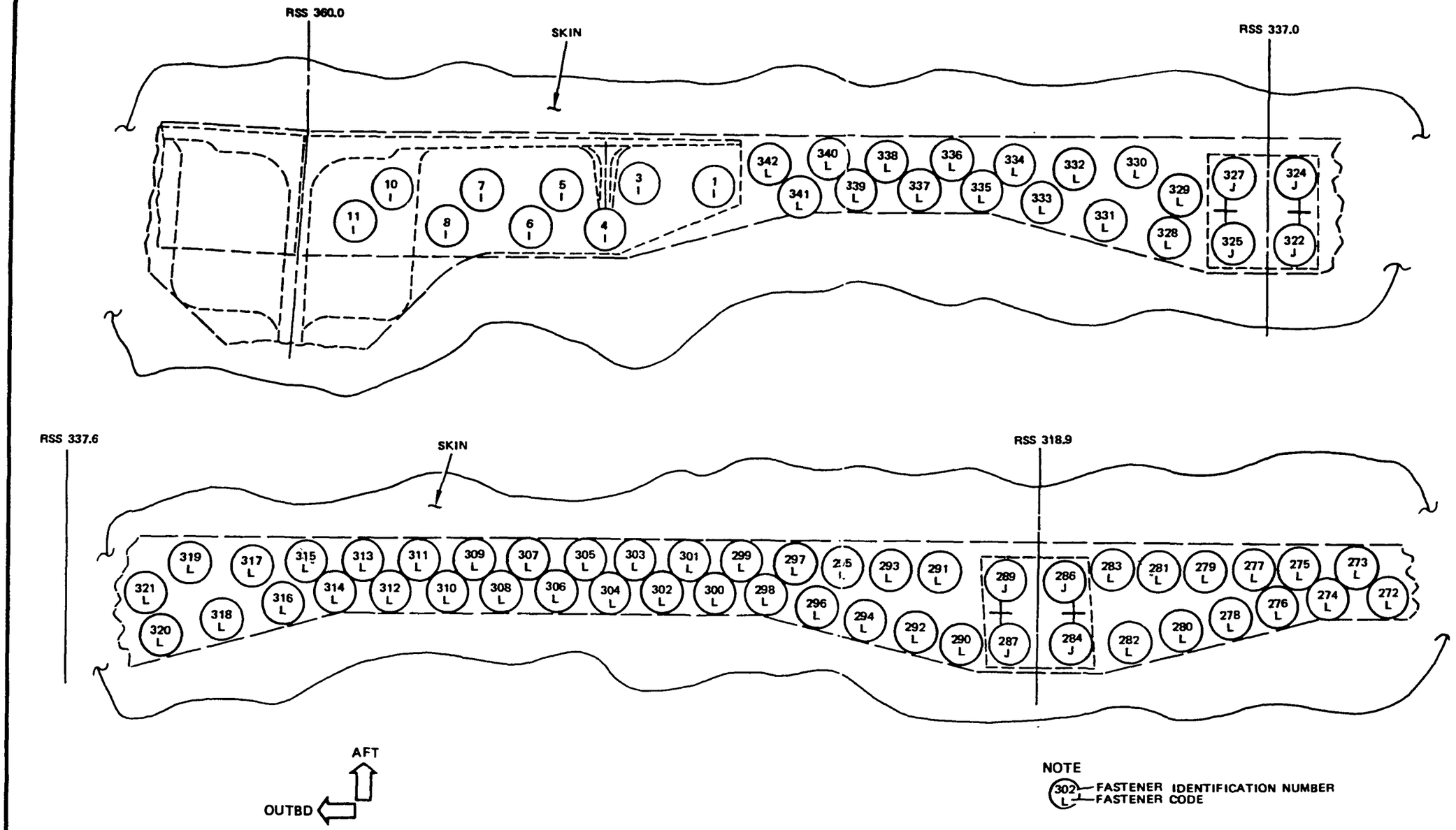
LOWER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL X (CONT)



LOWER REAR SPAR CHORD HORIZONTAL FLANGE

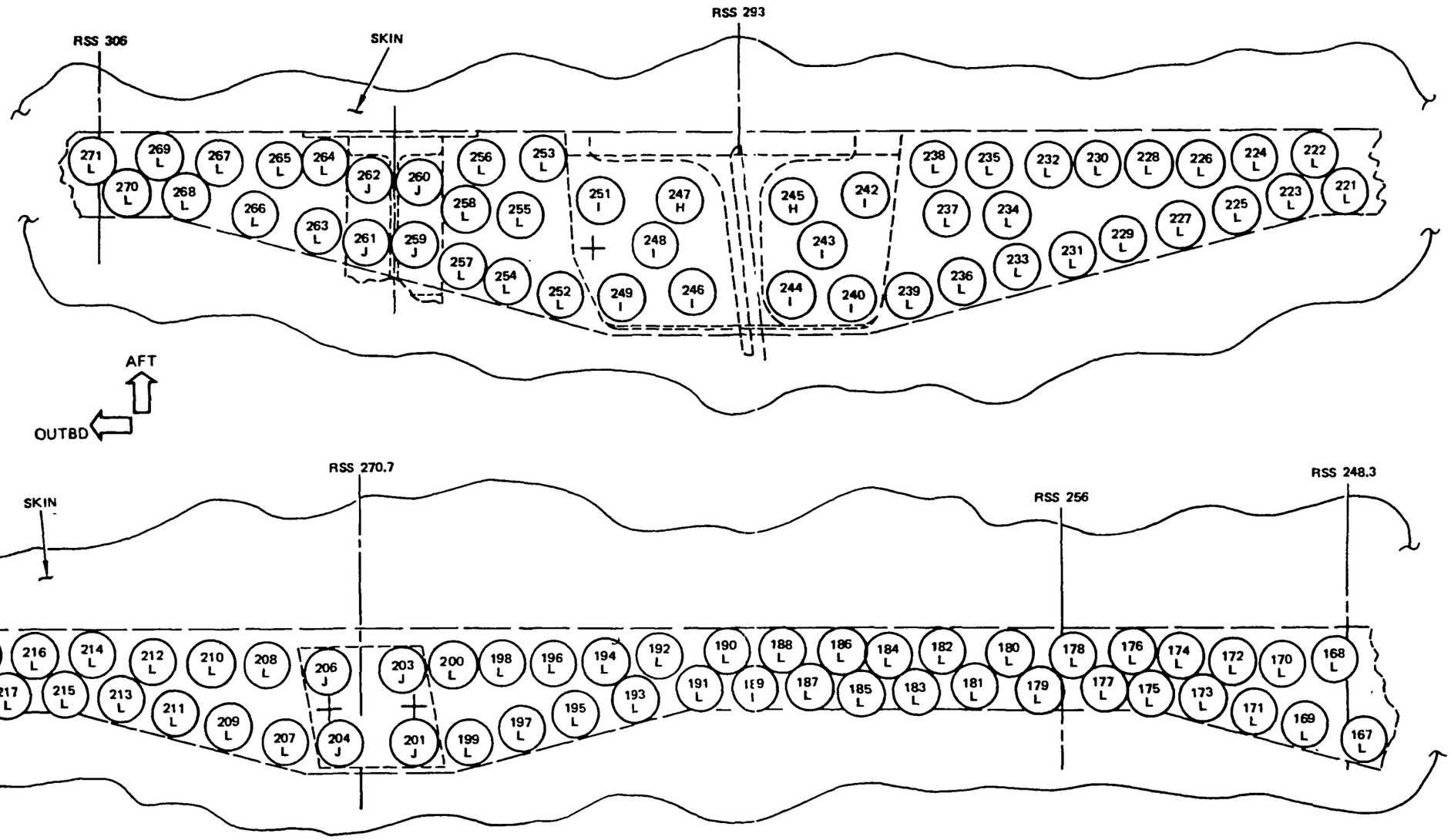
DETAIL X (CONT)

Lower Rear Spar Chord Horizontal Flange of Wing
Figure 50 (Sheet 23)

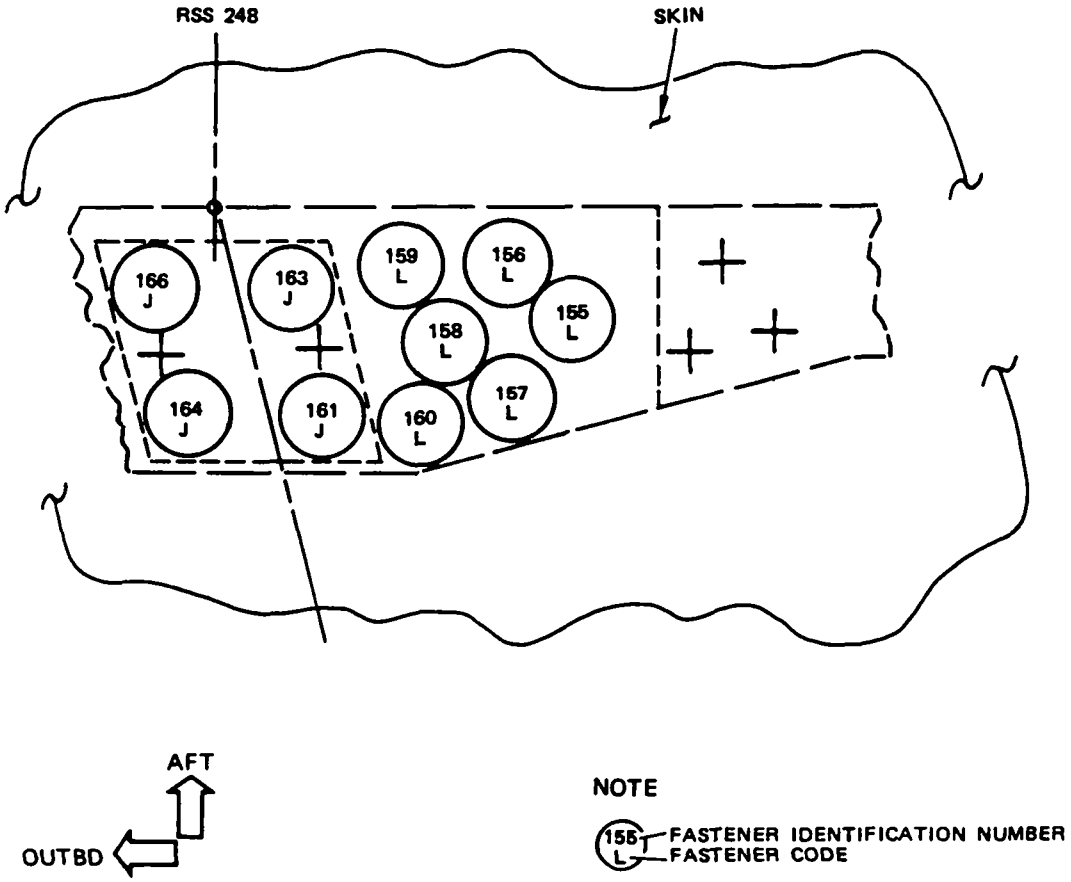


LOWER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL XI

Lower Rear Spar Chord Horizontal Flange of Wing
Figure 50 (Sheet 24)

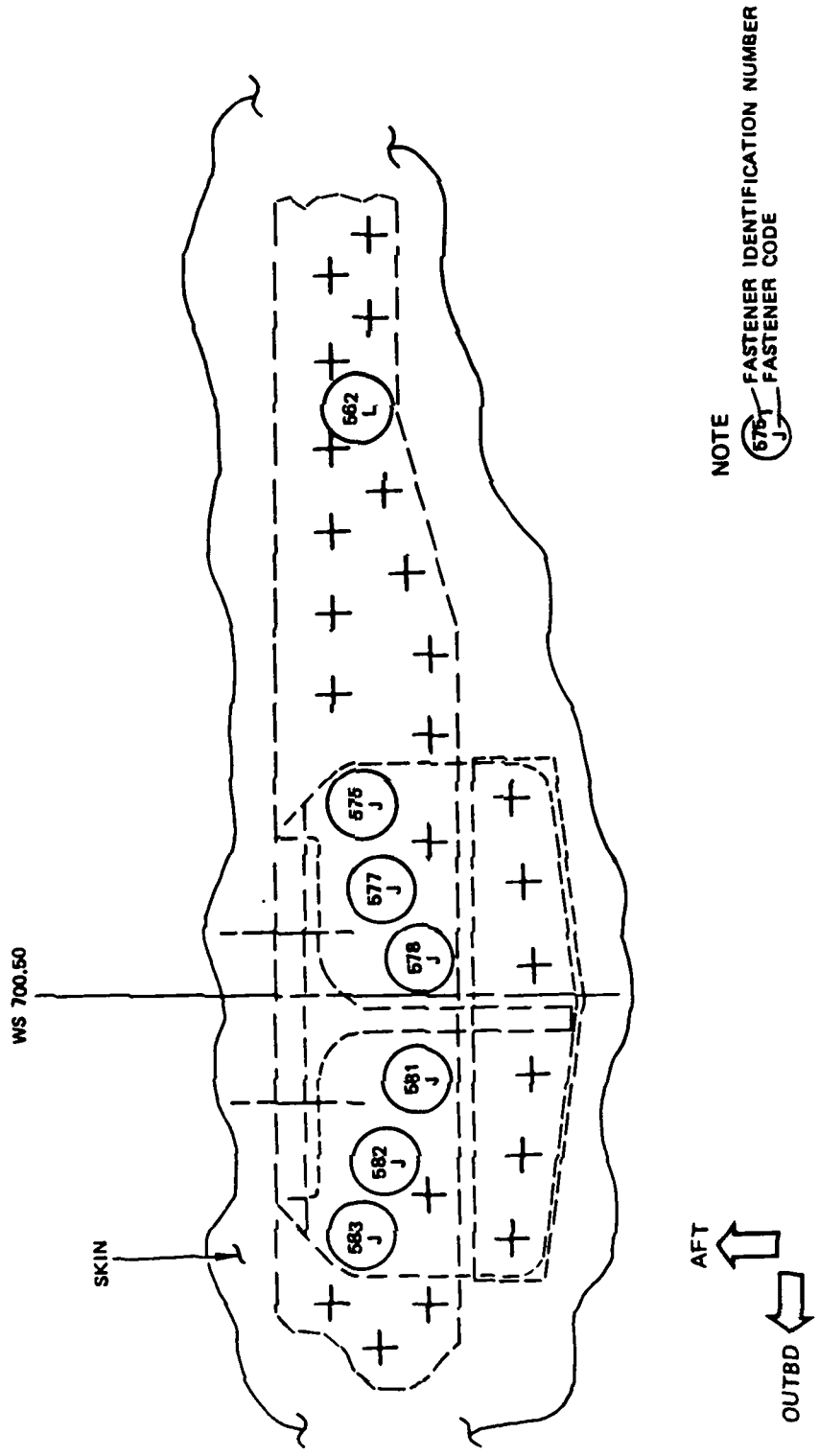


LOWER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL XI (CONT)

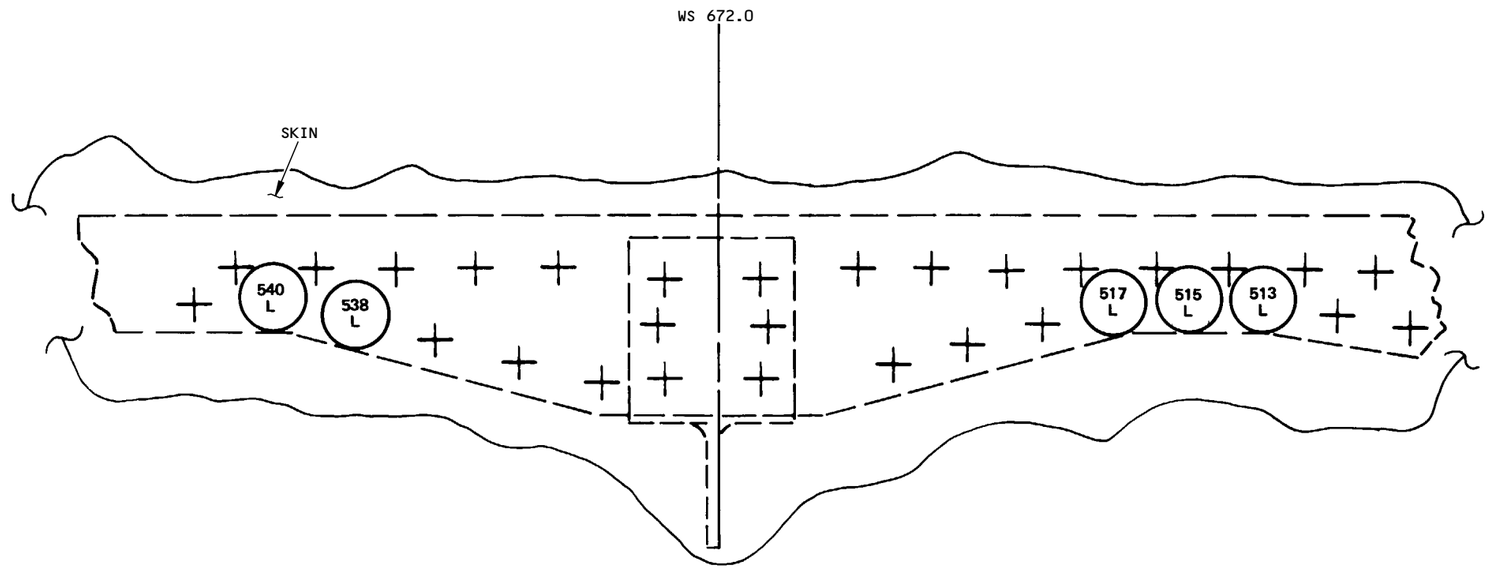


LOWER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL XI (CONT)

Lower Rear Spar Chord Horizontal Flange of Wing
Figure 50 (Sheet 26)



Lower Rear Spar Chord Horizontal Flange of Wing
Figure 50 (Sheet 27)



LOWER REAR SPAR CHORD HORIZONTAL FLANGE

DETAIL XII (CONT)

Lower Rear Spar Chord Horizontal Flange of Wing
Figure 50 (Sheet 28)

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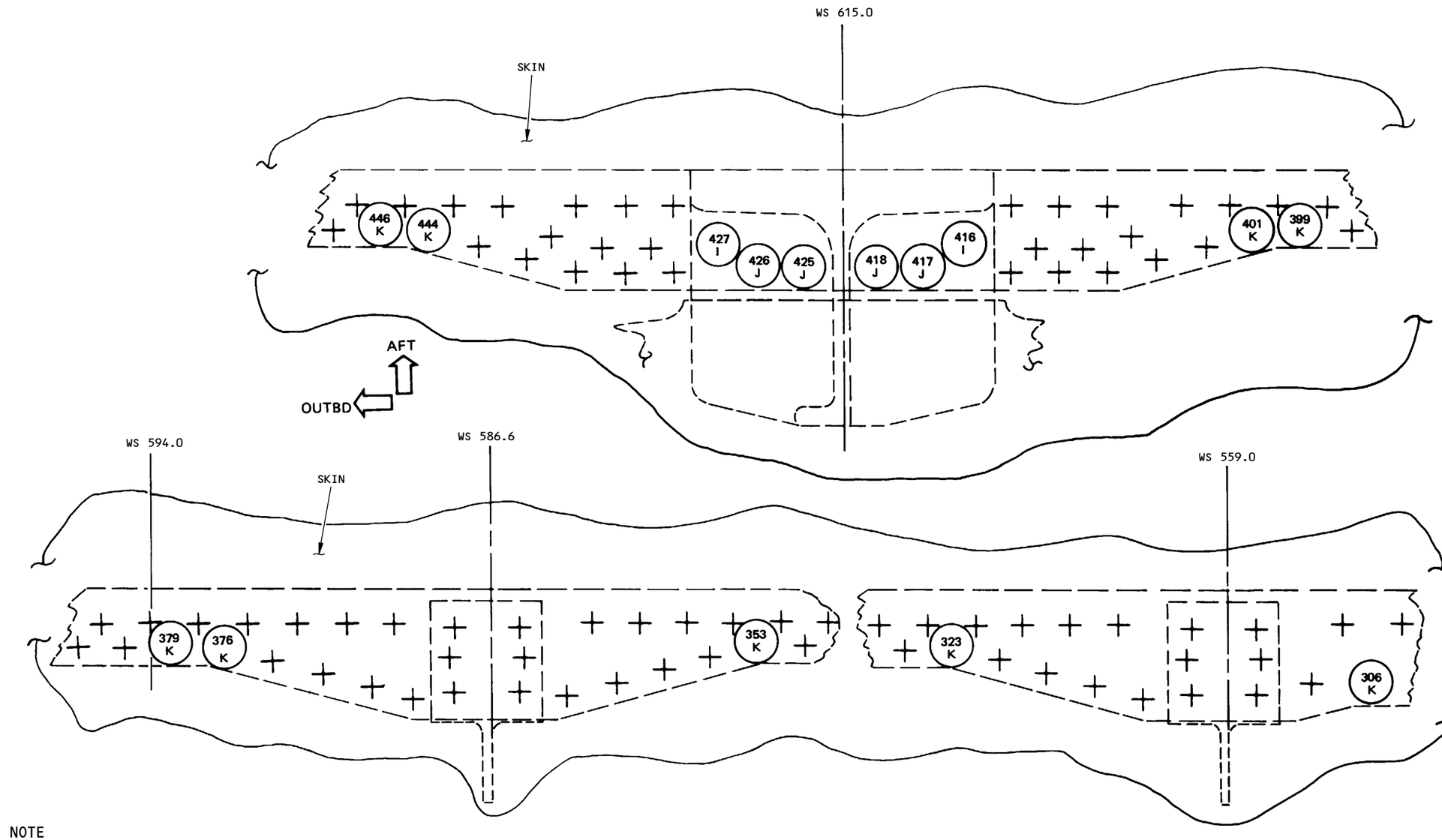

LOWER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL XII (CONT)

Lower Rear Spar Chord Horizontal Flange of Wing
Figure 50 (Sheet 29)

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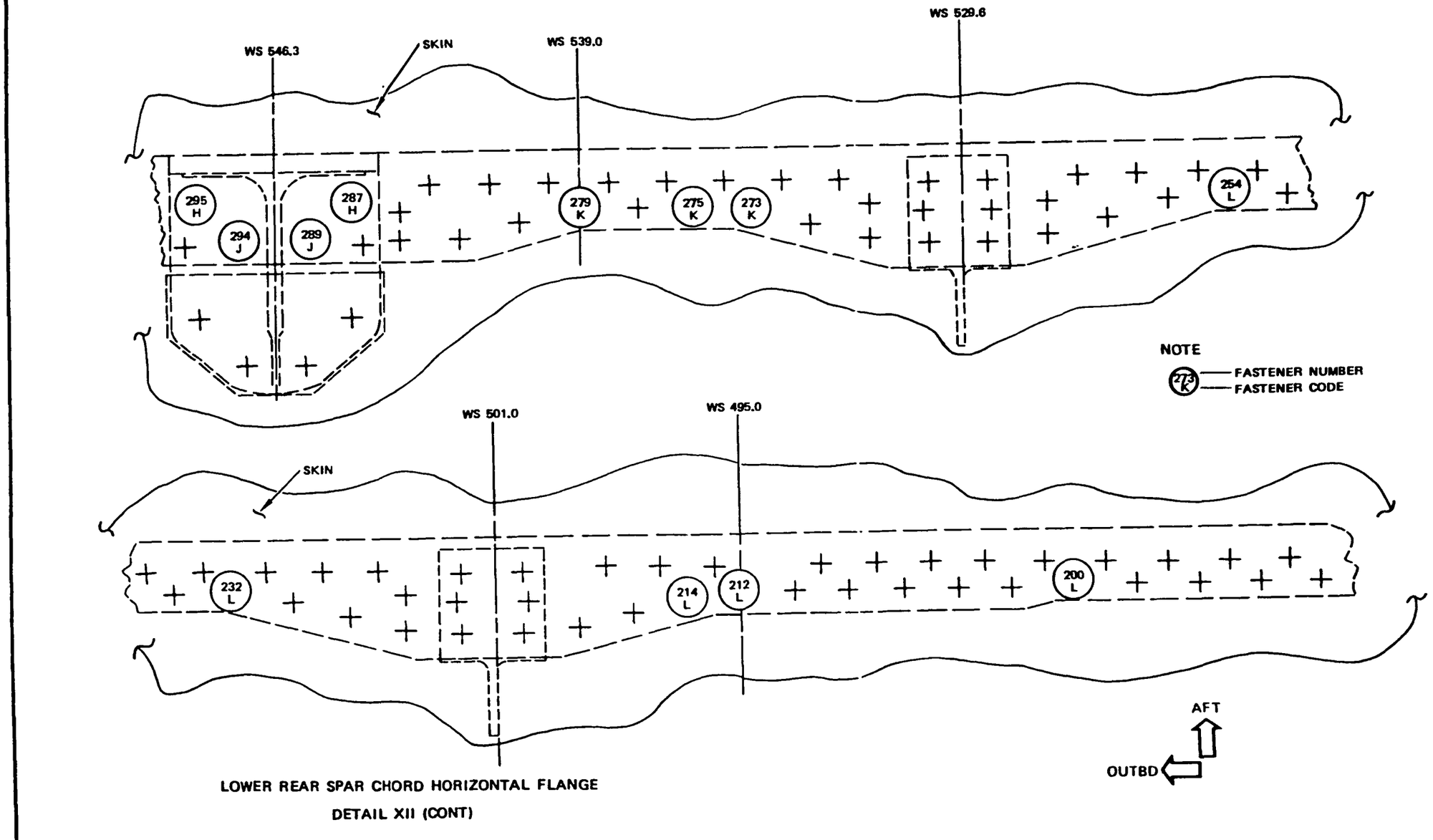
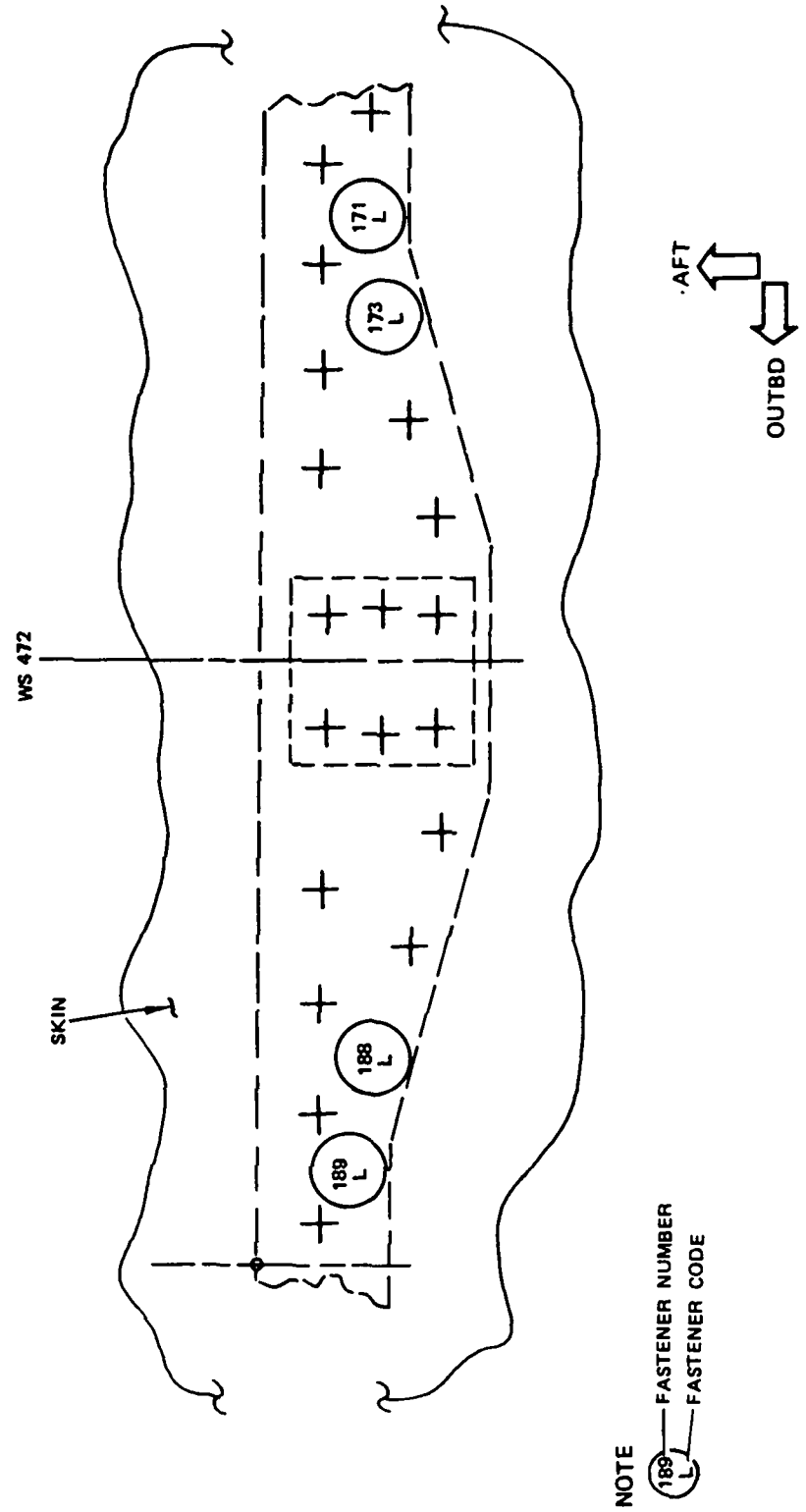


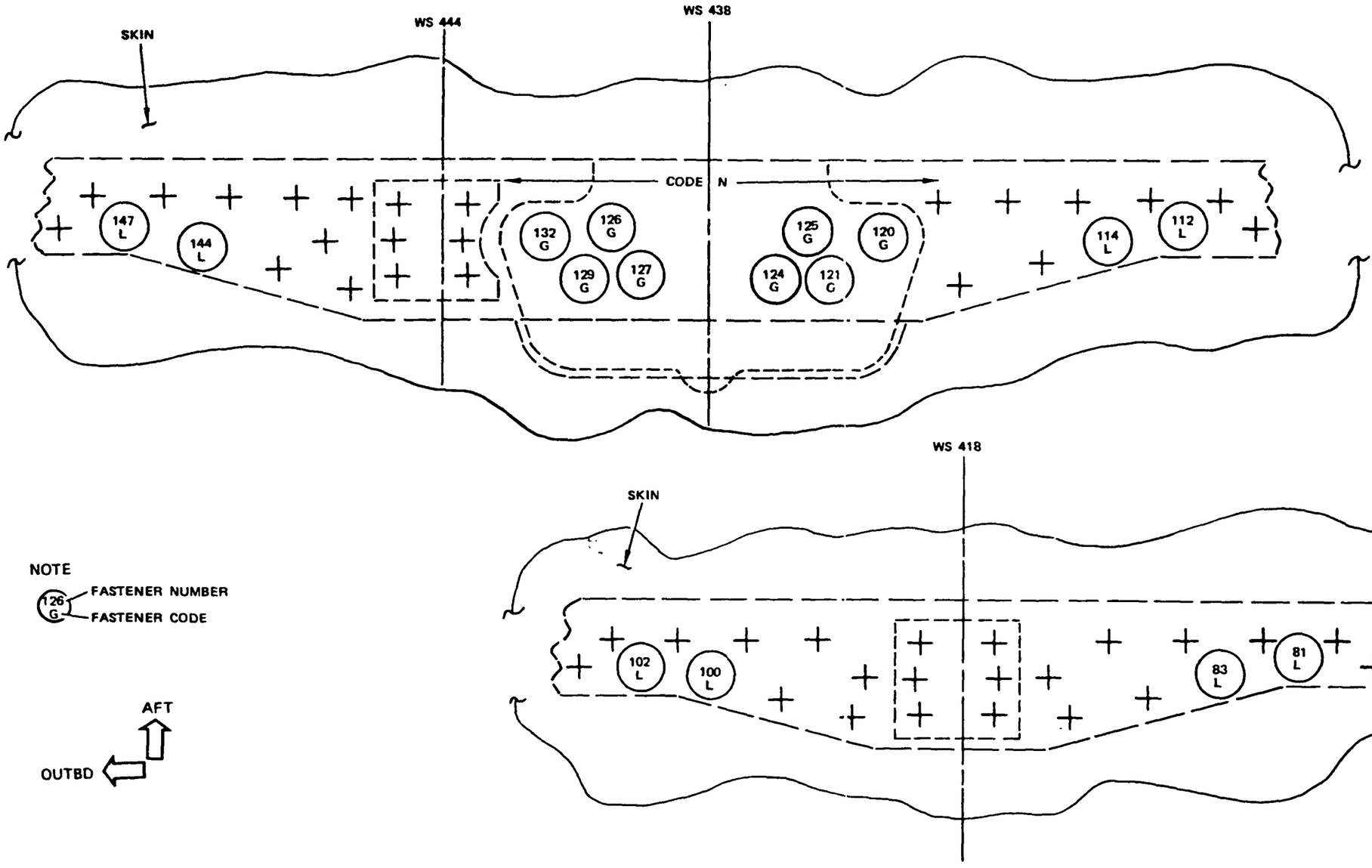
LOWER REAR SPAR CHORD HORIZONTAL FLANGE

DETAIL XII (CONT)

Lower Rear Spar Chord Horizontal Flange of Wing
Figure 50 (Sheet 30)



Lower Rear Spar Chord Horizontal Flange of Wing
Figure 50 (Sheet 31)

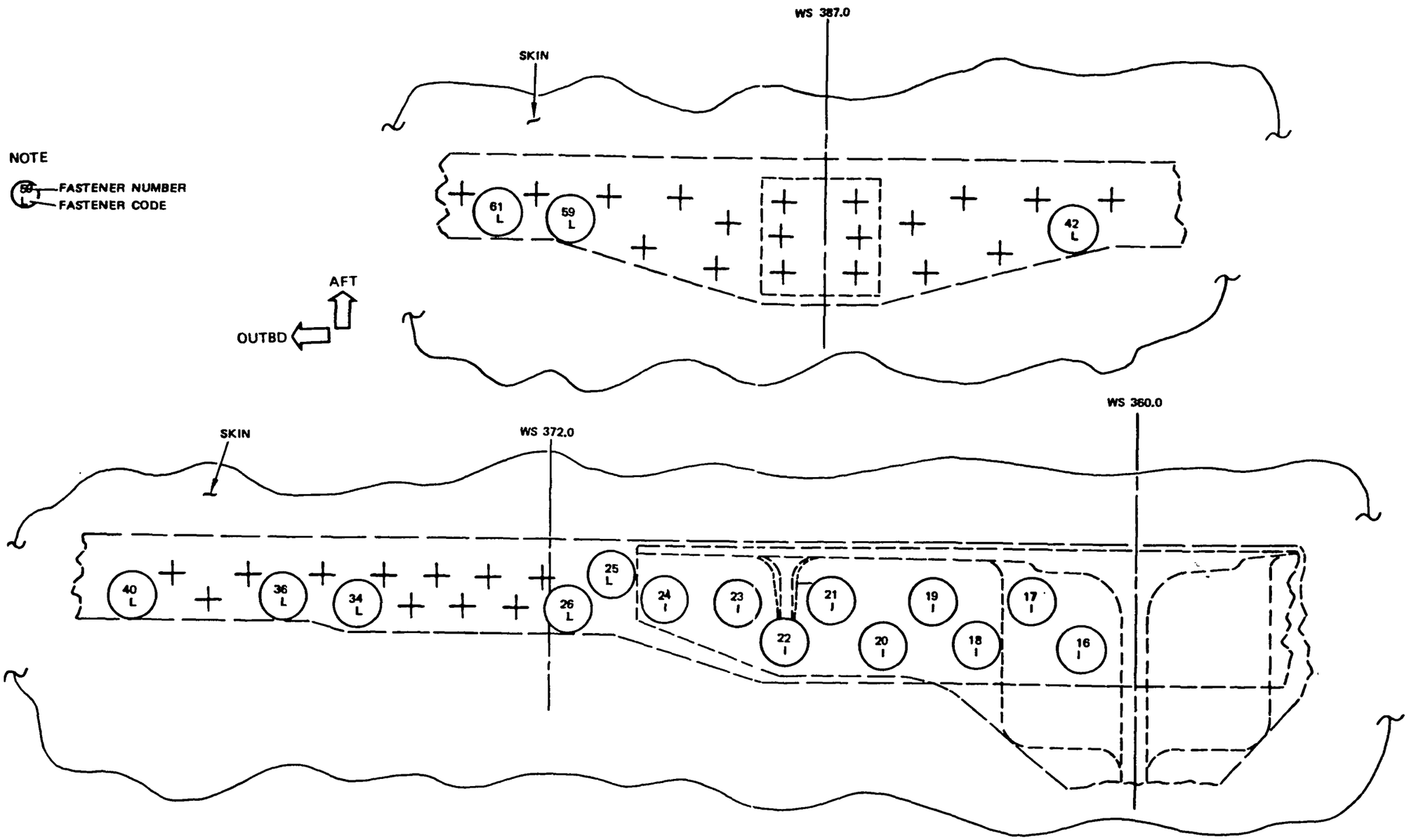


LOWER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL XII (CONT)

Lower Rear Spar Chord Horizontal Flange of Wing
Figure 50 (Sheet 32)

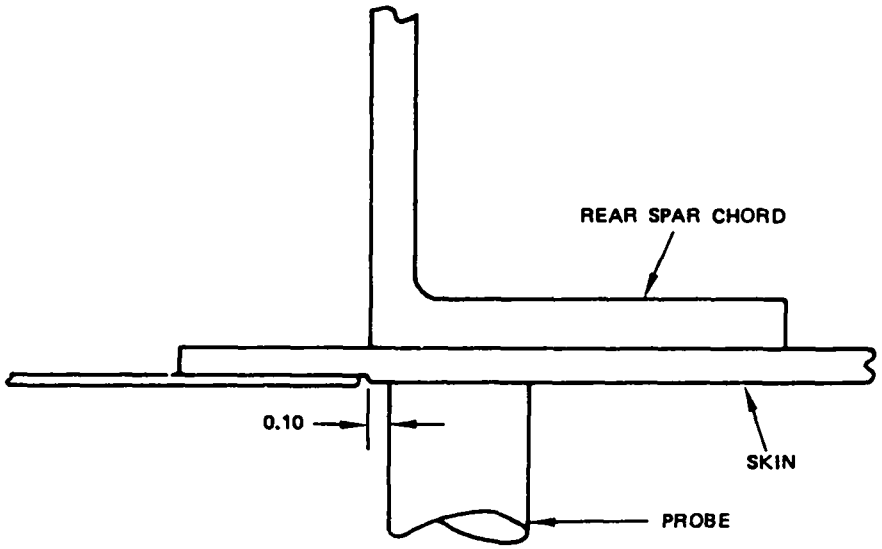
NOTE

59 L — FASTENER NUMBER
FASTENER CODE



LOWER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL XII (CONT)

Lower Rear Spar Chord Horizontal Flange of Wing
Figure 50 (Sheet 33)



PROBE POSITION FOR SCANS M AND N
DETAIL XIII

Lower Rear Spar Chord Horizontal Flange of Wing
Figure 50 (Sheet 34)

EFFECTIVITY
MODEL: 707-100/200
SERVICE BULLETIN
REFERENCE: 2583
SSI DOCUMENT (D6-44860)
REFERENCE:
SSD 57-A15-05
57-A15-06
57-A15-09
57-A15-12

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To perform an external inspection for cracks out of fastener holes in the vertical flange of the lower rear spar chord, the side of body terminal fitting, and lower wing skin common to the rear spar, from BBL 70.5 to WS 733.0 production break.

   B. To perform an internal inspection for cracks out of fastener holes in the lower rear spar chord horizontal flange, side of body terminal fitting, and splice fittings on rear spar chord vertical flange at selected locations, BBL 70.5 WS 733.0 production break.

   C. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Refer to Part 6, 51-00-00, Fig. 4 for the Instrument.

   B. Probes

      (1) Straight shielded pencil probe per Part 1, 51-06-00, Fig. 1.

      (2) Low profile, right angle, shielded pencil probe with a maximum height clearance of 0.3 inch, a 2.5-inch-long handle, and a maximum diameter of 0.2 inch.

Wing Lower Rear Spar Horizontal and Vertical Flanges
Figure 51 (Sheet 1)

(3) Long extension shielded pencil probe angle variable to the surface.

NOTE: This probe required to reach several inspection locations on rear spar vertical flange.

Shielded pencil probes are available from:

NDT Product Engineering
P.O. Box 423
Renton, WA 98057

P/N 1. P-50
2. P-901-25
3. PVAE-11

VM Products
7420 Park Ave. No. 20
Tacoma, WA 98408

P/N: 1. VM100PS
2. VM100AS
3. VM100PS-18

When ordering from VM products, specify dimensions desired for probe 2., VM100AS.

C. Reference Standards - Refer to part 6, 51-00-00, Fig. 4.

3. Prepare for Inspection

A. External

(1) Remove inboard and outboard sailboat fairings and lower wing to body fairing.

(2) Open trailing edge access panels, fuel dump chute and remove manifold-to-dump chute for inspection of the lower rear spar chord vertical flange.

(3) Clean inspection surfaces thoroughly.

B. Internal

(1) Defuel and gain access into wing tanks at inspection locations.

(2) Purge fuel tanks to permit entry with eddy current test equipment.

(3) Remove sealant for eddy current probe placement as necessary for inspection.

Wing Lower Rear Spar Horizontal and Vertical Flanges
Figure 51 (Sheet 2)

4. Calibrate Instrument

Refer to Part 6, 51-00-00, Fig. 4 for instrument calibration.

5. Inspection Procedure

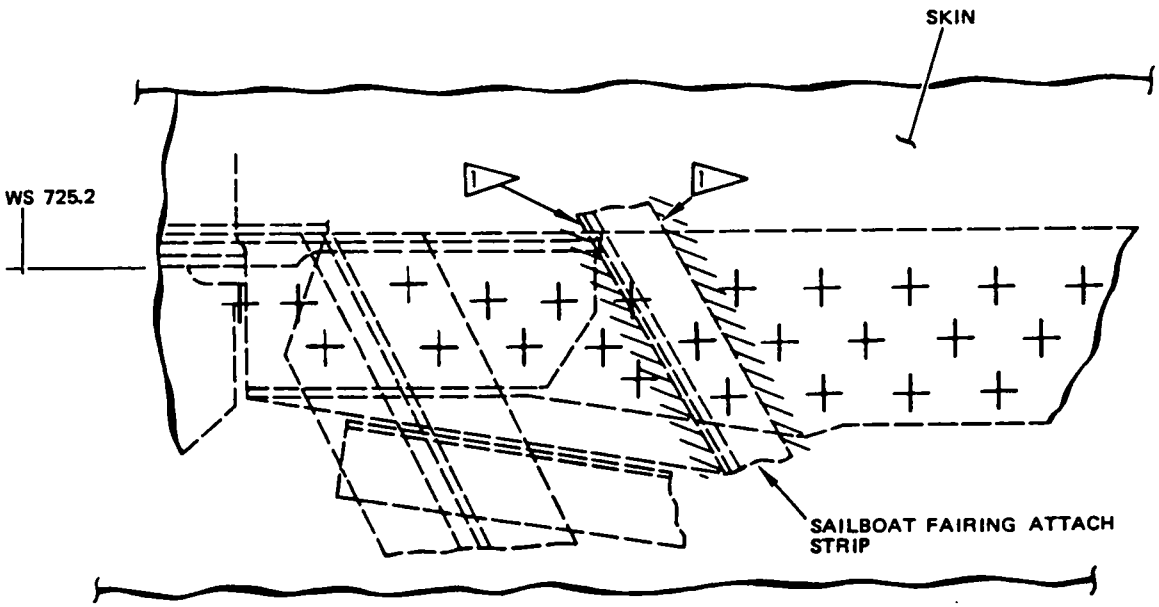
A. Refer to Details I and II for inspection procedure and locations.

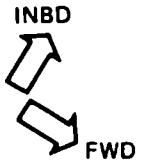
WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

B. Perform inspection scan around fastener ends per Part 6, 51-00-00, Fig. 6.

C. Perform all other scans per Part 6, 51-00-00, Fig. 4.

Wing Lower Rear Spar Horizontal and Vertical Flanges
Figure 51 (Sheet 3)





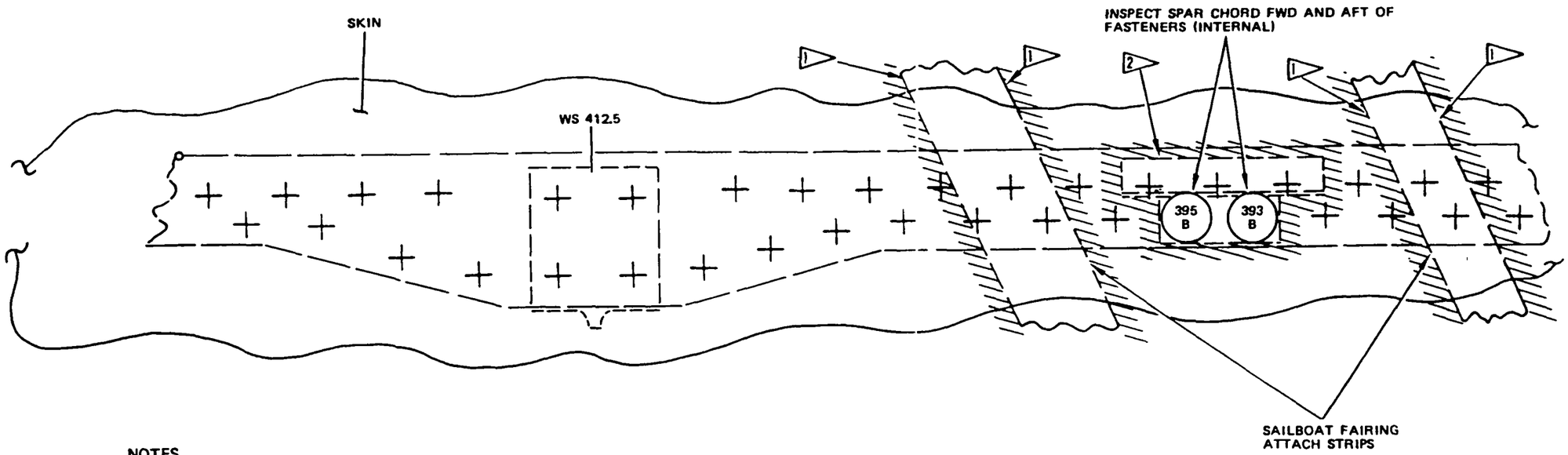
NOTES:

- LEFT WING SHOWN, RIGHT WING SIMILAR
- SCAN AREA
- EXTERNAL INSPECTION:
- PLACE PENCIL PROBE ON SKIN AND SCAN ALONG INBOARD AND OUTBOARD EDGES OF FAIRING ATTACH STRIPS FOR 5 OR 6 INCHES

LOWER REAR SPAR CHORD HORIZONTAL FLANGE
INTERNAL INSPECTION

DETAIL I (CONT)

Wing Lower Rear Spar Horizontal and Vertical Flanges
Figure 51 (Sheet 4)



NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR

EXTERNAL INSPECTION:

1 PLACE PENCIL PROBE ON SKIN AND SCAN ALONG INBOARD AND OUTBOARD EDGES OF FAIRING ATTACH STRIPS FOR 5 OR 6 INCHES

2 PLACE PENCIL PROBE ON SKIN, SCAN AROUND BRACKET COMMON TO DESIGNATED FASTENERS

SCAN AREA

INTERNAL INSPECTION:

393 B PLACE PENCIL PROBE ON REAR SPAR CHORD, SCAN FORE AND AFT OF FASTENERS

- INTERNAL INSPECTION REQUIRED AS SPAR CHORD IS NOT EXTERNALLY ACCESSIBLE DUE TO EXTERNAL FITTING

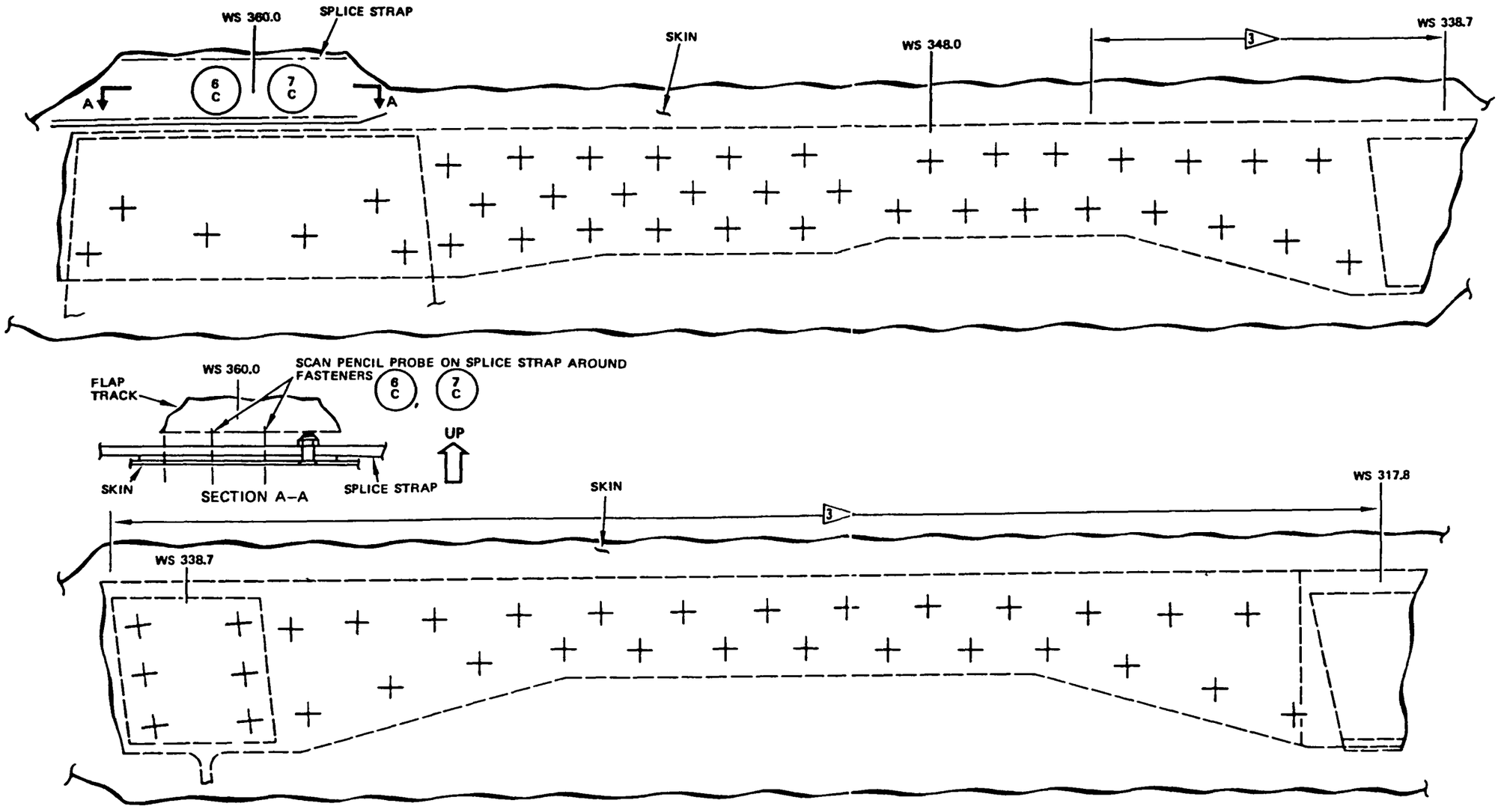
INBD

FWD

LOWER REAR SPAR CHORD HORIZONTAL FLANGE

DETAIL I (CONT)

Wing Lower Rear Spar Horizontal and Vertical Flanges
Figure 51 (Sheet 5)



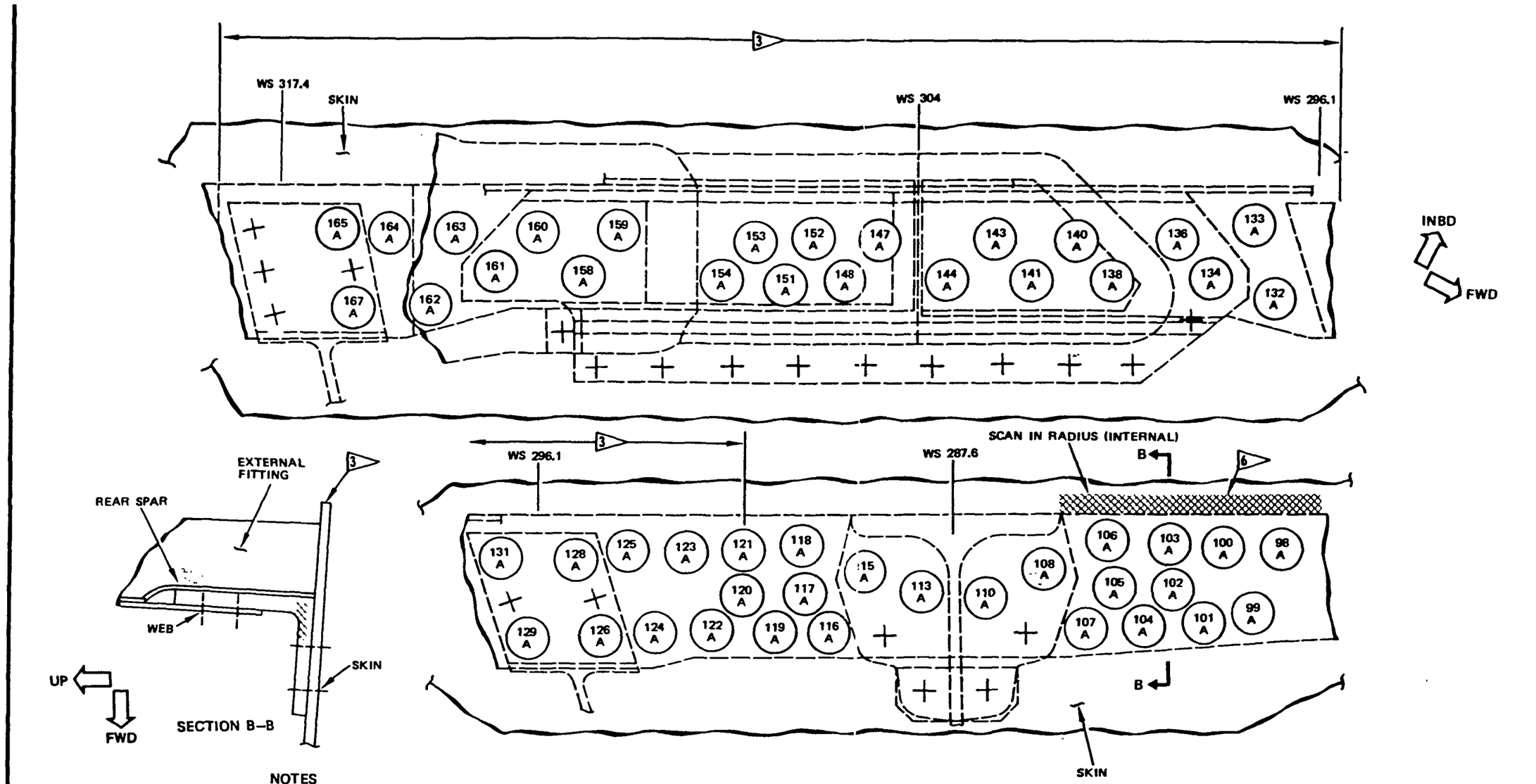
NOTES

EXTERNAL INSPECTION:

(6 C) PLACE PENCIL PROBE ON SKIN SPLICE STRAP AFT OF REAR SPAR AT WS 360.6 SCAN AROUND DESIGNATED FASTENERS

(3) PLACE PENCIL PROBE ON SKIN TRAILING EDGE, SCAN AT FUEL JETTISON CHUTE (SECTION B-B)

LOWER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL I (CONT)



NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR

EXTERNAL INSPECTION:

3 PLACE PENCIL PROBE ON SKIN TRAILING EDGE, SCAN AT FUEL JETTISON CHUTE

128 A PLACE PENCIL PROBE ON SKIN. SCAN AROUND DESIGNATED FASTENERS

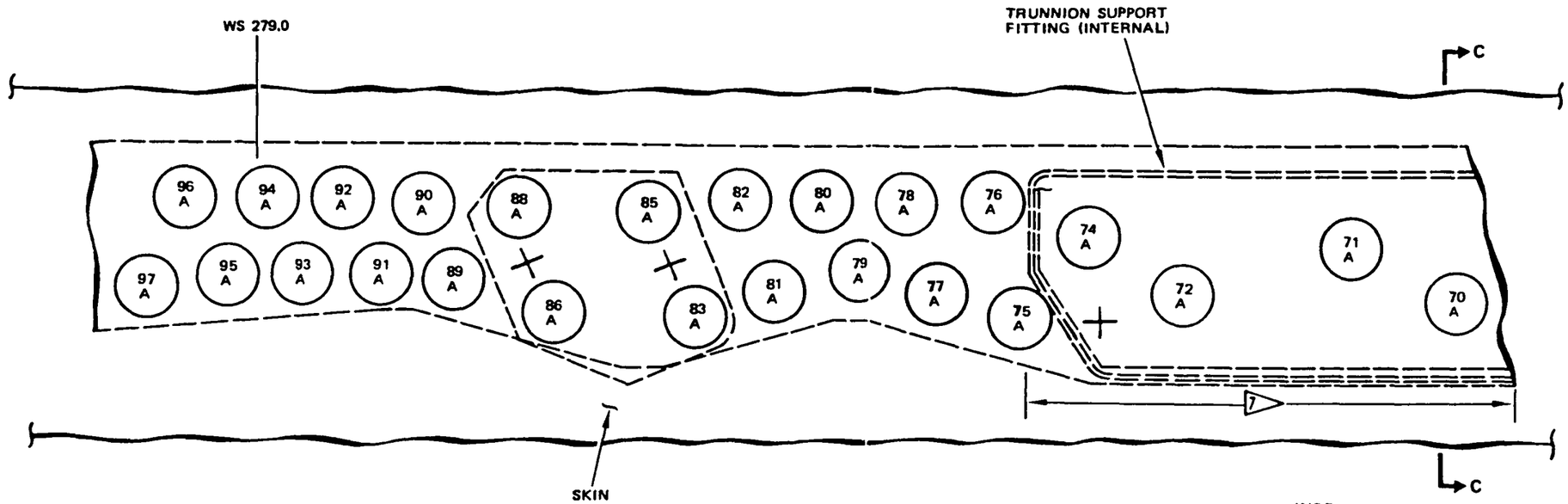
INTERNAL INSPECTION:

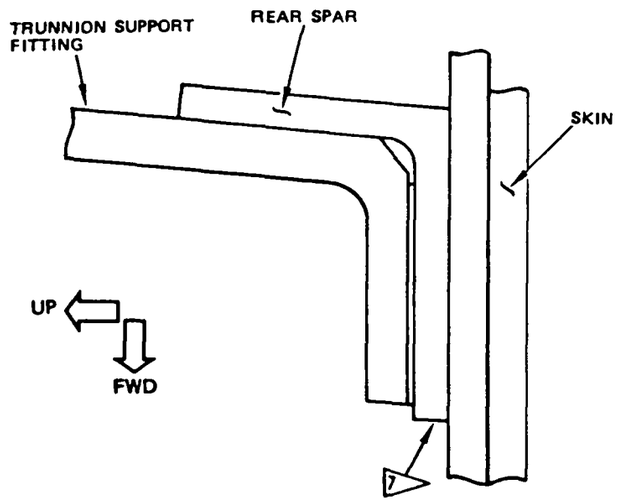
INTERNAL SCAN AREA

6 PLACE PENCIL PROBE ON REAR SPAR CHORD. SCAN IN RADIUS AT DESIGNATED AREAS

LOWER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL 1 (CONT)

Wing Lower Rear Spar Horizontal and Vertical Flanges
Figure 51 (Sheet 7)





SECTION C–C

NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR

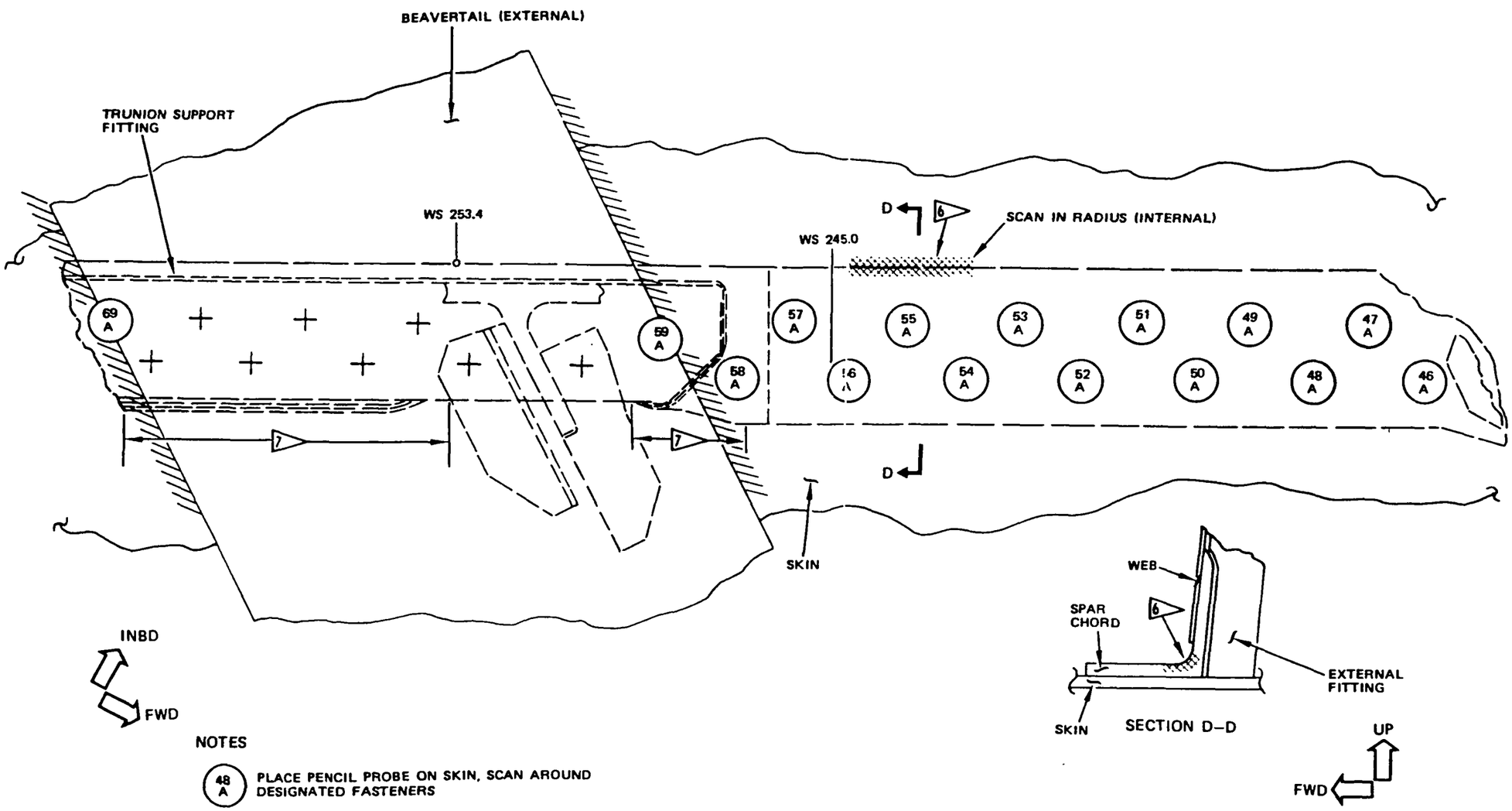
EXTERNAL INSPECTION:

(86 A) PLACE PENCIL PROBE ON SKIN. SCAN AROUND DESIGNATED FASTENERS

INTERNAL INSPECTION:

7 PLACE PENCIL PROBE ON THE FORWARD EDGE OF THE REAR SPAR, SCAN AT DESIGNATED AREAS

LOWER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL I (CONT)



NOTES

(48 A) PLACE PENCIL PROBE ON SKIN, SCAN AROUND DESIGNATED FASTENERS

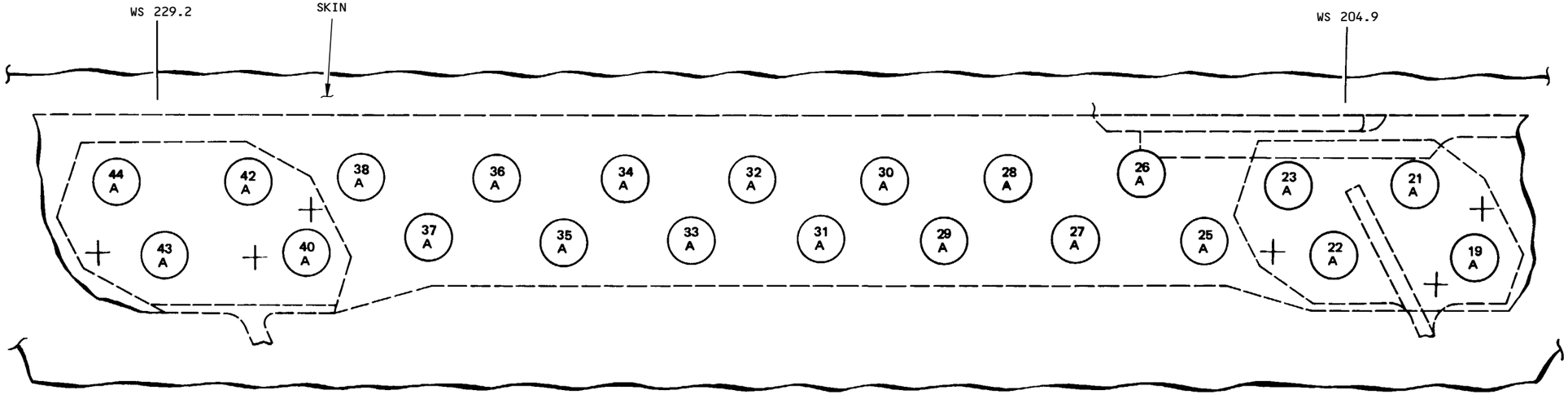
6 PLACE PENCIL PROBE ON REAR SPAR CHORD, SCAN IN RADIUS AT DESIGNATED AREAS

7 PLACE PENCIL PROBE ON THE FORWARD EDGE OF THE REAR SPAR, SCAN AT DESIGNATED AREAS

INTERNAL SCAN AREA

EXTERNAL SCAN AREA

LOWER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL 1 (CONT)



NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR

EXTERNAL INSPECTION:

(40 A) PLACE PENCIL PROBE ON SKIN, SCAN AROUND DESIGNATED FASTENERS

LOWER REAR SPAR CHORD HORIZONTAL FLANGE

DETAIL I (CONT)

Wing Lower Rear Spar Horizontal and Vertical Flanges
Figure 51 (Sheet 10)

L17948

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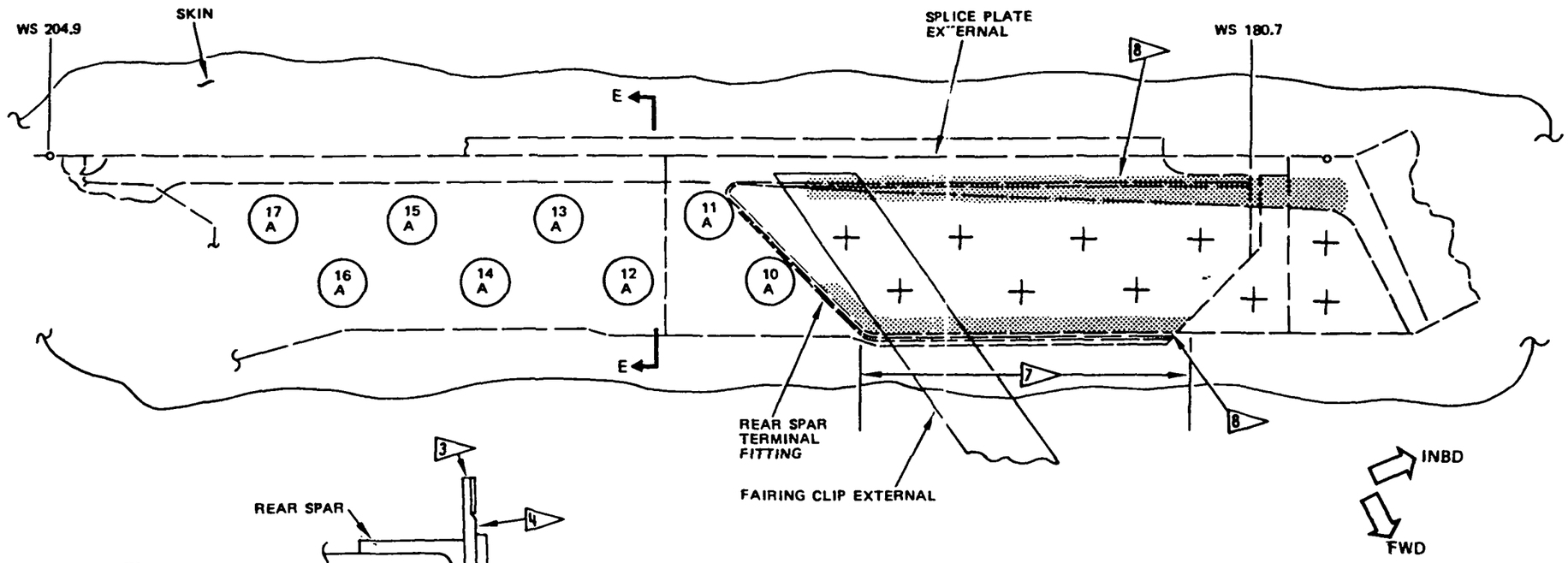
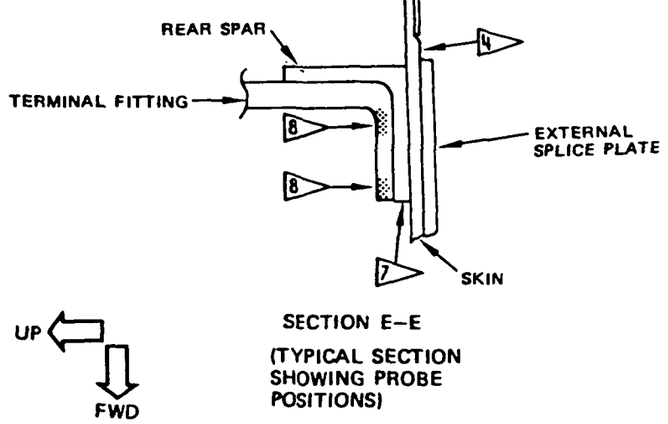




SECTION E–E

(TYPICAL SECTION SHOWING PROBE POSITIONS)

NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR

EXTERNAL INSPECTION:

1 PLACE PENCIL PROBE ON SKIN AND SCAN ALONG INBOARD AND OUTBOARD EDGES OF FAIRING ATTACH STRIPS FOR 5 OR 6 INCHES

3 PLACE PENCIL PROBE ON SKIN TRAILING EDGE, SCAN AT FUEL JETTISON CHUTE

4 PLACE PENCIL PROBE ON SKIN AS FAR AFT AS POSSIBLE. SCAN FROM SIDE OF BODY TO WS 733 PRODUCTION BREAK. SEE 1 AND 5 FOR INACCESSIBLE AREAS

5 PLACE PENCIL PROBE ON SKIN AND SCAN ALONG EDGE OF BEAVERTAIL FROM FORWARD EDGE OF SPAR AS FAR AFT AS POSSIBLE

14 A PLACE PENCIL PROBE ON SKIN SCAN AROUND DESIGNATED FASTENERS

INTERNAL INSPECTION:

- INTERNAL INSPECTION REQUIRED BECAUSE *SPAR CHORD IS NOT ACCESSIBLE* EXTERNALLY DUE TO EXTERNAL FITTING

REAR SPAR TERMINAL FITTING SCAN AREA

6 PLACE PENCIL PROBE ON REAR SPAR CHORD. SCAN IN RADIUS AT DESIGNATED AREAS

7 PLACE PENCIL PROBE ON THE FORWARD EDGE OF THE REAR SPAR, SCAN AT DESIGNATED AREAS

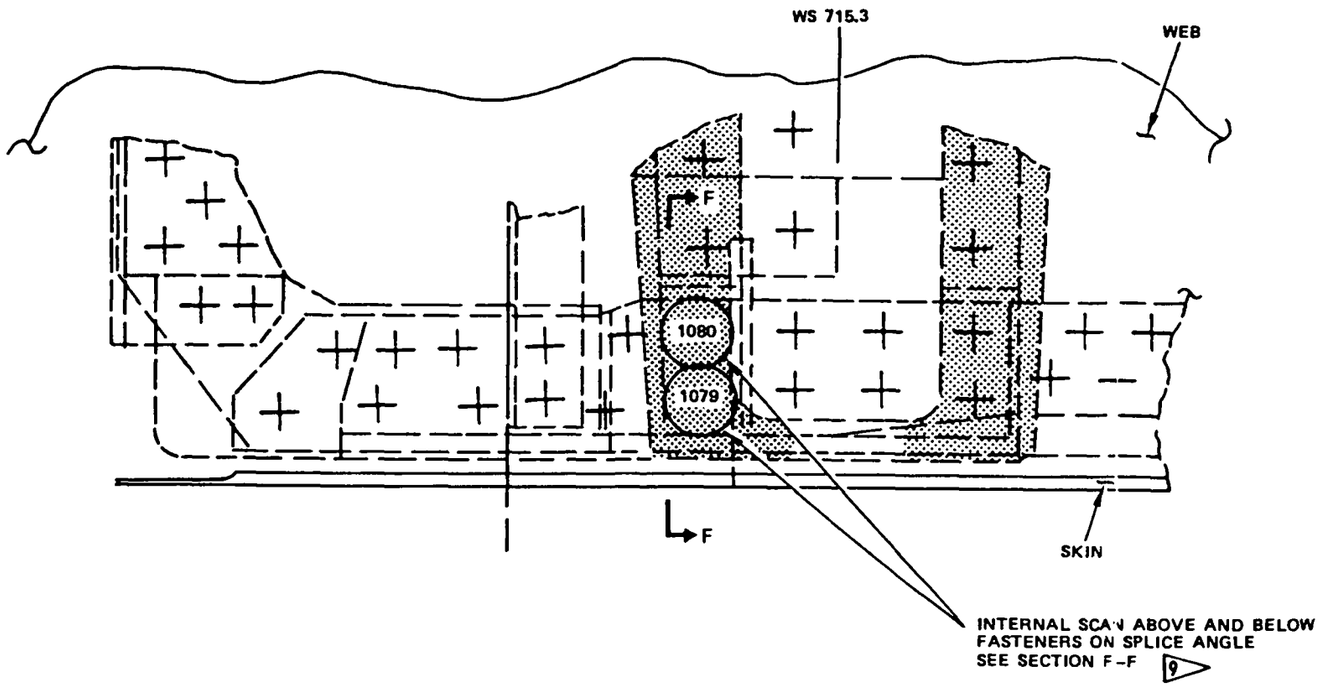
8 PLACE PENCIL PROBE ON TERMINAL FITTING, SCAN AT INDICATED AREAS

11 A PLACE PENCIL PROBE ON REAR SPAR CHORD, SCAN FORE AND AFT OF FASTENERS

LOWER REAR SPAR CHORD HORIZONTAL FLANGE

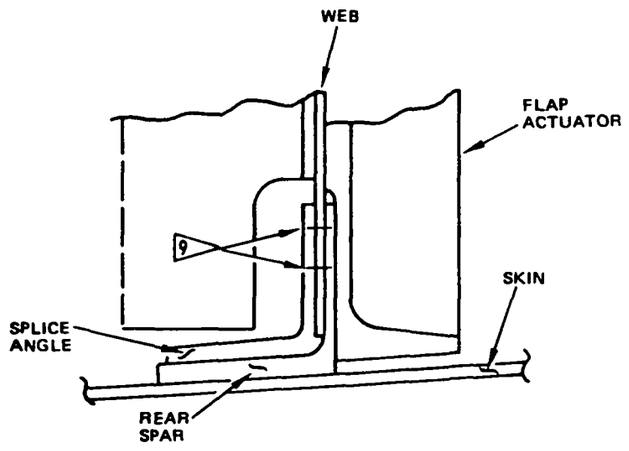
DETAIL 1 (CONT)

Wing Lower Rear Spar Horizontal and Vertical Flanges
Figure 51 (Sheet 11)



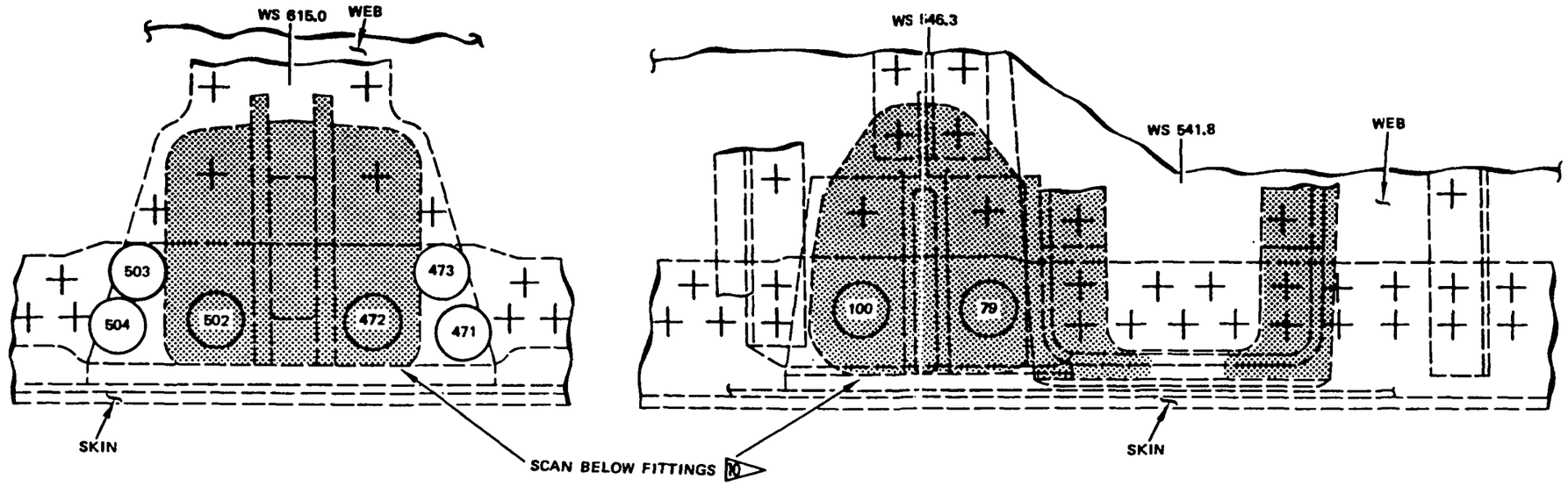
NOTES

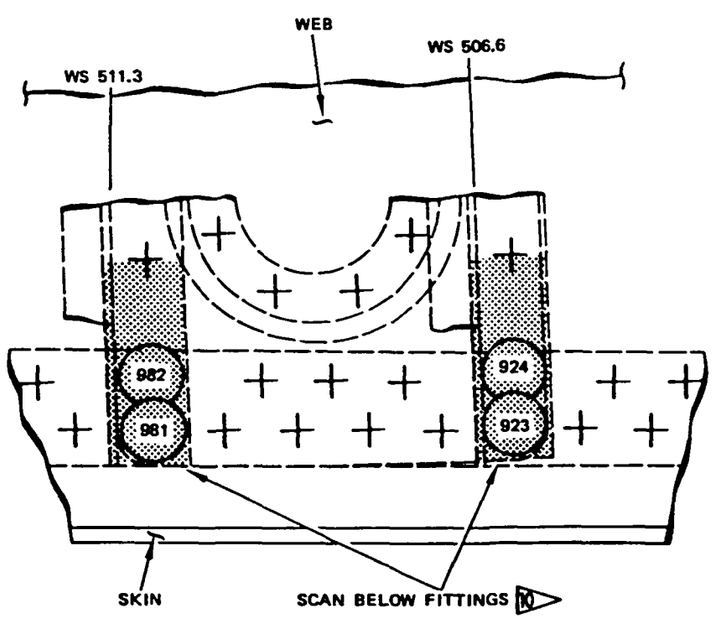
- LEFT WING SHOWN, RIGHT WING SIMILAR
- EXTERNAL FITTINGS
- INTERNAL INSPECTION (SEALANT REMOVAL REQ'D)
- 9 PLACE PENCIL PROBE ON THE SPLICE ANGLE, SCAN ABOVE AND BELOW FASTENERS 1079 AND 1080

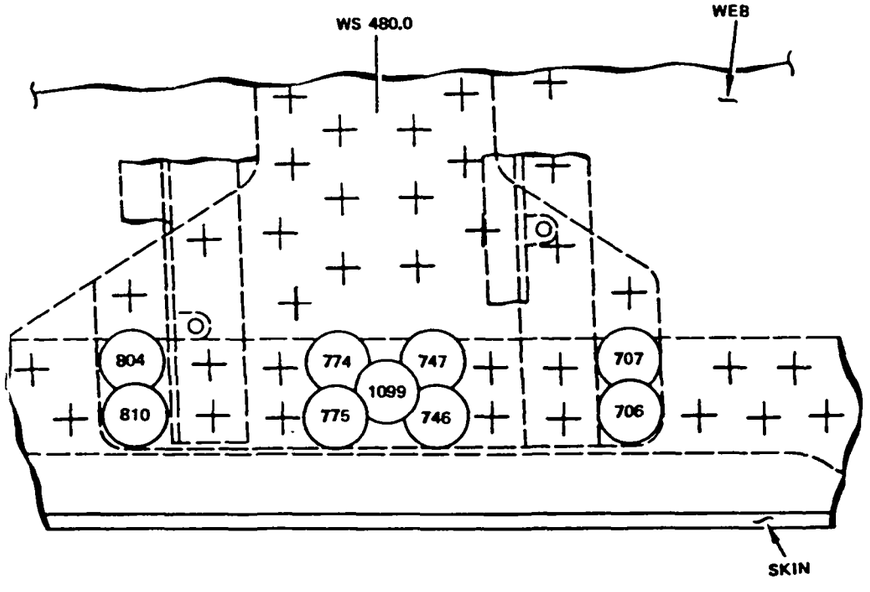


SECTION F–F

LOWER REAR SPAR CHORD VERTICAL FLANGE
DETAIL II







NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR

EXTERNAL FITTINGS

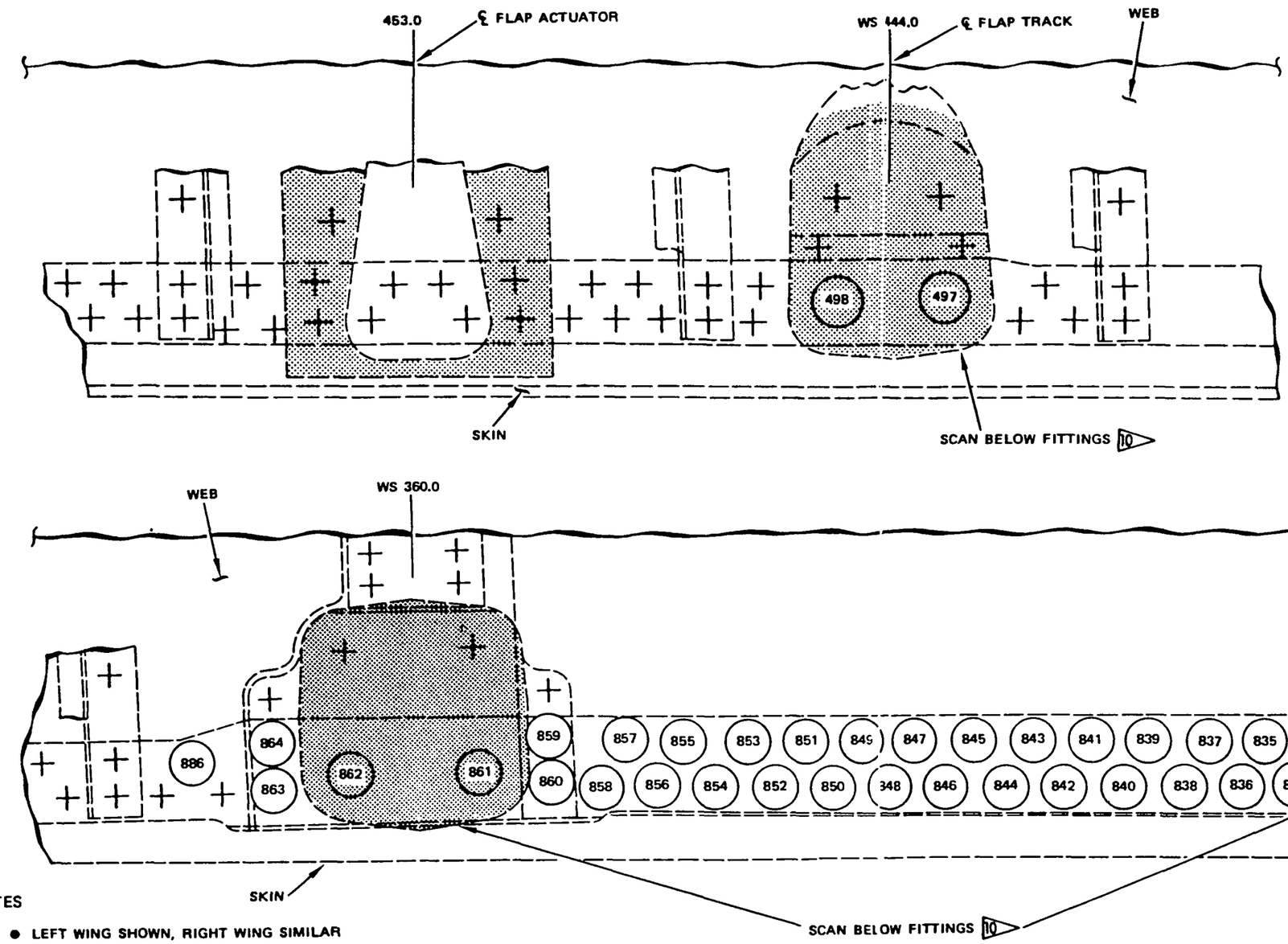
EXTERNAL INSPECTION

K PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD. SCAN ABOVE AND BELOW EXTERNAL FITTINGS AS SHOWN

(810) PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD. SCAN ABOVE AND BELOW DESIGNATED FASTENERS WHICH ARE NOT COMMON TO EXTERNAL FITTINGS

LOWER REAR SPAR CHORD VERTICAL FLANGE
DETAIL II (CONT)

Wing Lower Rear Spar Horizontal and Vertical Flanges
Figure 51 (Sheet 13)



NOTES

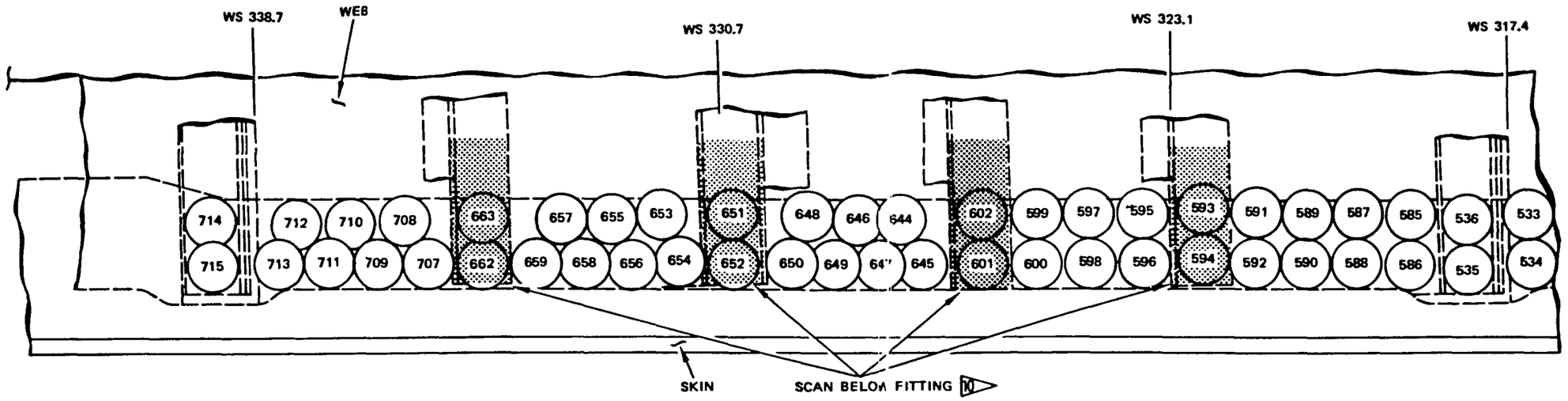
- ● LEFT WING SHOWN, RIGHT WING SIMILAR
- ▒ EXTERNAL FITTINGS

EXTERNAL INSPECTION:

- 10 PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD. SCAN ABOVE AND BELOW EXTERNAL FITTINGS AS SHOWN.
- (848) PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD. SCAN ABOVE AND BELOW DESIGNATED FASTENERS WHICH ARE NOT COMMON TO EXTERNAL FITTINGS.

LOWER REAR SPAR CHORD VERTICAL FLANGE
DETAIL II (CONT)

Wing Lower Rear Spar Horizontal and Vertical Flanges
Figure 51 (Sheet 14)



NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR

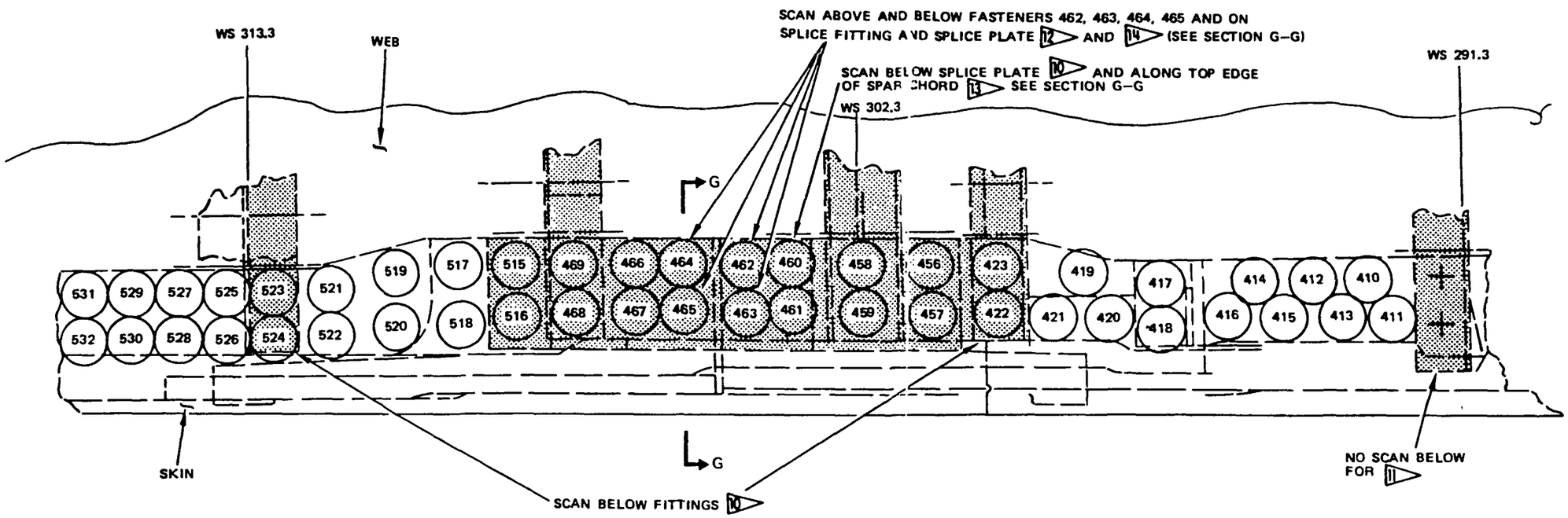
EXTERNAL FITTINGS

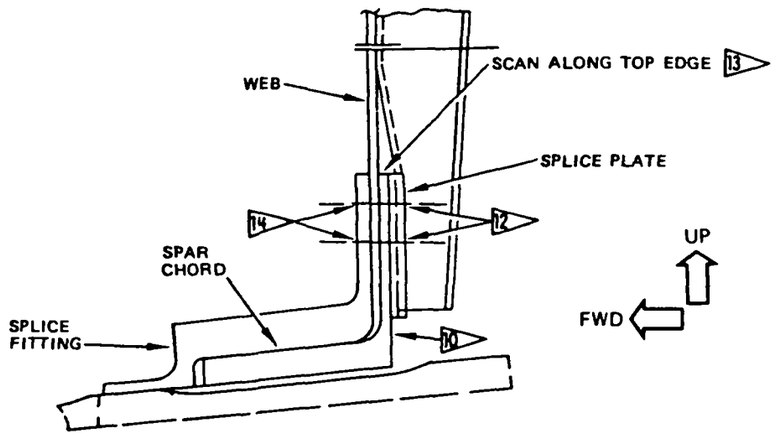
EXTERNAL INSPECTION:

PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD. SCAN ABOVE AND BELOW EXTERNAL FITTINGS AS SHOWN

(649) PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD. SCAN ABOVE AND BELOW DESIGNATED FASTENERS WHICH ARE NOT COMMON TO EXTERNAL FITTINGS

LOWER REAR SPAR CHORD VERTICAL FLANGE
DETAIL II (CONT)





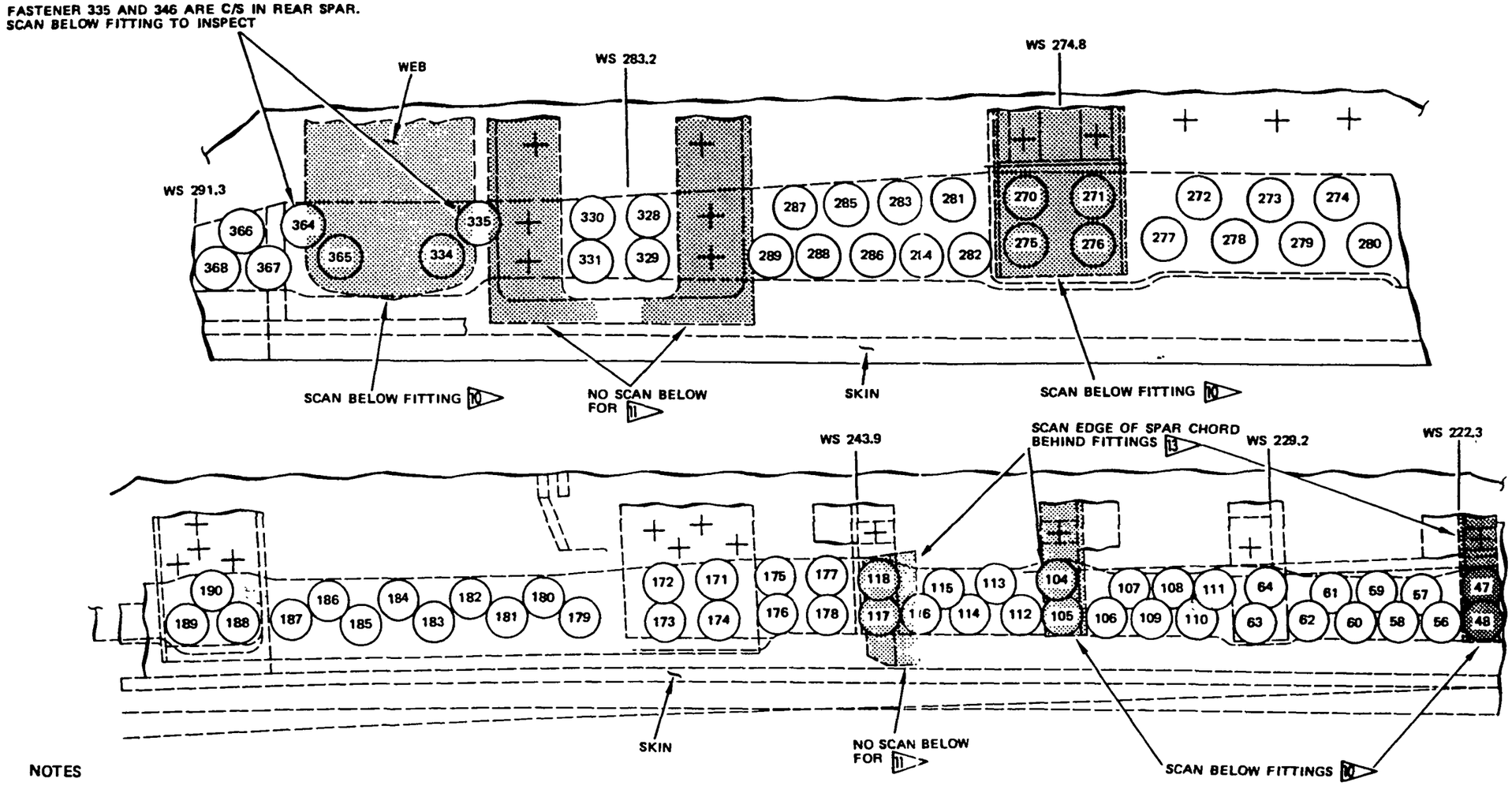
SECTION G–G

NOTES

- ● LEFT WING SHOWN, RIGHT WING SIMILAR
- EXTERNAL INSPECTION
- INTERNAL INSPECTION (SEALANT REMOVAL REQ'D)
- 10 PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD. SCAN ABOVE AND BELOW EXTERNAL FITTINGS AS SHOWN
- 11 PLACE PENCIL PROBE ON REAR SPAR CHORD VERTICAL FLANGE ADJACENT TO LOWER SKIN. SCAN FROM SIDE TO OF BODY TO WS 317.4
- 12 PLACE PENCIL PROBE ON SPLICE PLATE. SCAN ABOVE AND BELOW DESIGNATED FASTENERS
- 13 PLACE PENCIL PROBE ON EDGE OF REAR SPAR VERTICAL FLANGE. SCAN BEHIND EXTERNAL FITTING
- 14 PLACE THE PENCIL PROBE ON THE SPLICE FITTING, SCAN ABOVE AND BELOW FASTENERS 462, 463, 464, AND 465
- (463) PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD, SCAN ABOVE AND BELOW DESIGNATED FASTENERS WHICH ARE NOT COMMON TO EXTERNAL FITTINGS

LOWER REAR SPAR CHORD VERTICAL FLANGE
DETAIL II (CONT)

Wing Lower Rear Spar Horizontal and Vertical Flanges
Figure 51 (Sheet 16)



NOTES

10 PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD, SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

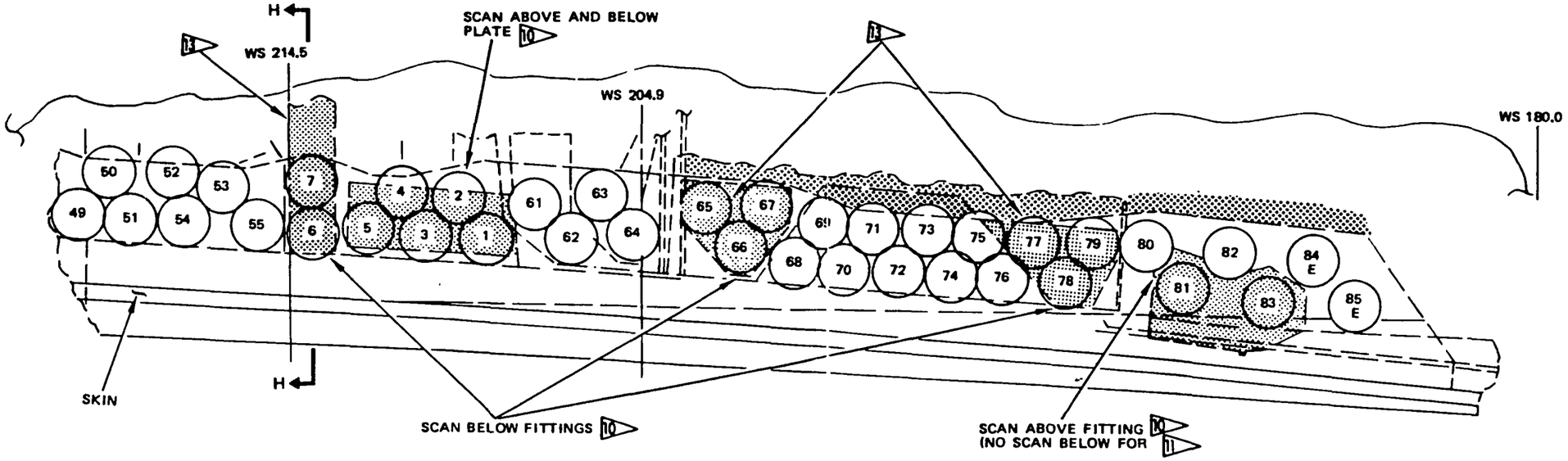
11 PLACE PENCIL PROBE ON SPAR CHORD VERTICAL FLANGE ADJACENT TO LOWER WING SKIN, SCAN FROM SIDE OF BODY TO WS 317.4

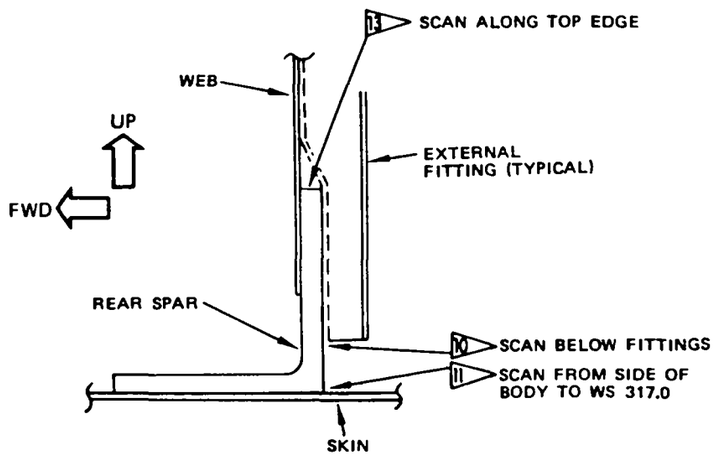
13 PLACE PENCIL PROBE ON EDGE OF REAR SPAR CHORD VERTICAL FLANGE, SCAN BEHING EXTERNAL FITTINGS

EXTERNAL FITTING

(116) PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD. SCAN ABOVE AND BELOW DESIGNATED FASTENERS WHICH ARE NOT COMMON TO EXTERNAL FITTINGS

LOWER REAR SPAR CHORD VERTICAL FLANGE
DETAIL II (CONT)





SECTION H–H

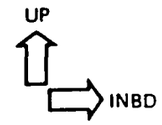
(TYPICAL SECTION SHOWING PROBE POSITIONS)

NOTES

- ● LEFT WING SHOWN, RIGHT WING SIMILAR
- EXTERNAL FITTINGS
- INTERNAL INSPECTION (SEALANT REMOVAL REQ'D)
- (85 E) PLACE PENCIL PROBE ON THE TERMINAL FITTING. SCAN ABOVE AND BELOW FASTENERS 84 AND 85

EXTERNAL INSPECTION

- 10 PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD. SCAN ABOVE AND BELOW EXTERNAL FITTINGS AS SHOWN
- 11 PLACE PENCIL PROBE ON REAR SPAR CHORD VERTICAL FLANGE ADJACENT TO LOWER SKIN. SCAN FROM SIDE OF BODY TO WS 317.4
- 12 PLACE PENCIL PROBE ON SPLICE PLATE. SCAN ABOVE AND BELOW DESIGNATED FASTENERS
- 13 PLACE PENCIL PROBE ON EDGE OF REAR SPAR VERTICAL FLANGE. SCAN BEHIND EXTERNAL FITTING
- (3) PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD. SCAN ABOVE AND BELOW DESIGNATED FASTENERS WHICH ARE NOT COMMON TO EXTERNAL FITTINGS
- PLACE PENCIL PROBE ON SIDE OF BODY TERMINAL FITTING SCAN AT DESIGNATED LOCATION



LOWER REAR SPAR CHORD VERTICAL FLANGE
DETAIL II (CONT)

EFFECTIVITY
MODEL: 720
SERVICE BULLETIN
SSI DOCUMENT (D6-44860)
REFERENCE: NONE
SSD 57-A00-09
57-A05-05
57-A05-09
57-A05-12

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To perform an external inspection for cracks out of fastener holes in the vertical flange of the lower rear spar chord, the side of body terminal fitting, and lower wing skin common to the rear spar, from BBL 70.5 to WS 733 production break.

   B. To perform an internal inspection for cracks out of fastener holes in the lower rear spar chord horizontal flange, side of body terminal fitting, and splice fittings on rear spar chord vertical flange at selected locations, from BBL 70.5 to WS 733 production break.

   C. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Refer to Part 6, 51-00-00, Fig. 4 for the instrument requirements.

   B. Probes

      (1) Straight shielded pencil probe per Part 1, 51-06-00, Fig. 1.

      (2) Low profile, right angle, shielded pencil probe with a maximum height clearance of 0.3 inch, a 2.5-inch long handle, and a maximum diameter of 0.2 inch.

      (3) Long extension shielded pencil probe angle variable to the surface.

         NOTE: Probe (3) is required to reach several inspection locations on rear spar vertical flange.

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 52 (Sheet 1)

Shielded pencil probes are available from:

NDT Product Engineering
P.O. Box 423
Renton, WA 98057

P/N (1) P-50
(2) P-901-25
(3) PVAE-11

VM Products
7420 Park Ave. No. 20
Tacoma, WA 98408

P/N: (1) VM100PS
(2) VM100AS
(3) VM100PS-18

When ordering from VM products, specify dimensions desired for probe (2) VM100AS.

C. Refer to Part 6, 51-00-00, Fig. 4. for information on Reference Standards.

3. Prepare for Inspection

A. External

(1) Remove inboard and outboard sailboat fairings and lower wing-to-body fairing.

(2) Open trailing edge access panels, fuel dump chute and remove manifold to dump chute for inspection of the lower rear spar chord vertical flange.

(3) Clean inspection surfaces thoroughly.

B. Internal

(1) Defuel and gain access into wing tanks at inspection locations.

(2) Purge fuel tanks to permit entry with eddy current test equipment.

(3) Remove sealant for eddy current probe placement as necessary for inspection.

4. Instrument Calibration

Refer to Part 6, 51-00-00, Fig. 4 for procedure on calibration.

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 52 (Sheet 2)

5. Inspection Procedure

A. Refer to Details I and II for inspection locations.

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

B. Perform inspection scan around fastener ends per Part 6, 51-00-00, Fig. 6.

C. Perform all other scans per Part 6, 51-00-00, Fig. 4.

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 52 (Sheet 2A)

NOTES

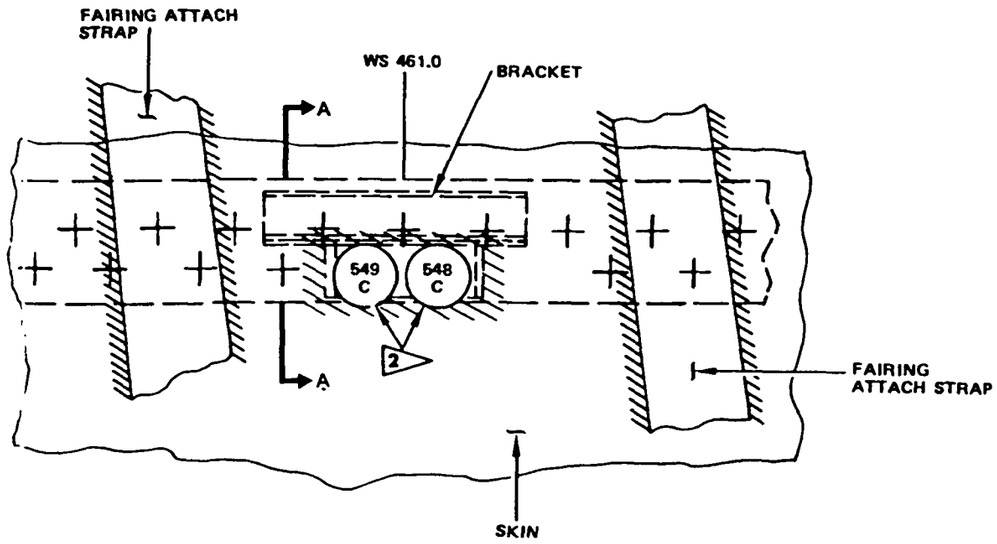
PLACE PENCIL PROBE ON SKIN, SCAN AROUND BRACKET

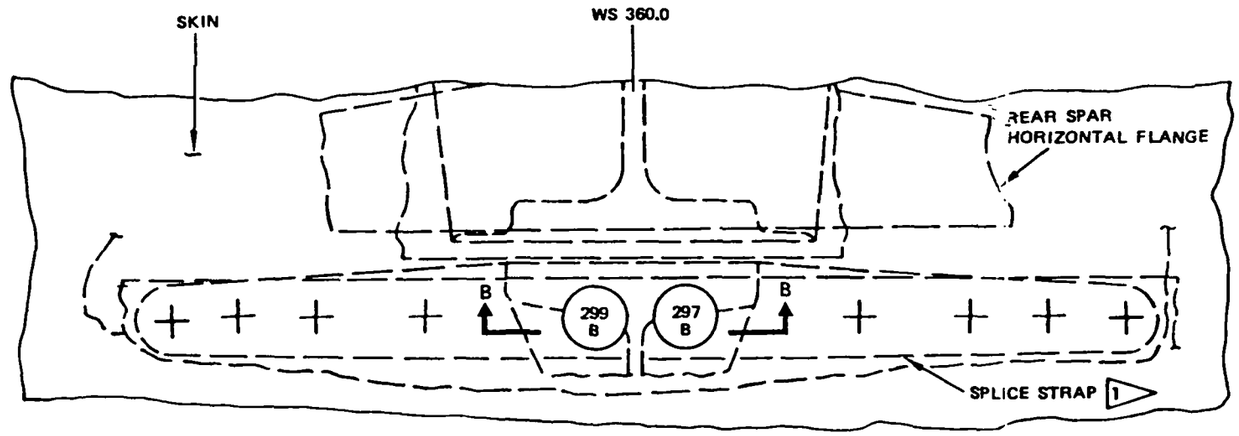
PLACE PENCIL PROBE ON SKIN AND SCAN ALONG INBOARD AND OUTBOARD EDGES OF FAIRING ATTACH STRAPS FOR 5 TO 6 INCHES

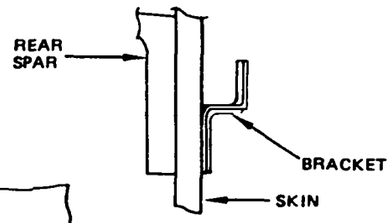
1 SCAN AROUND FASTENERS ON SPLICE STRAP

2 549 C PLACE PENCIL PROBE ON REAR SPAR, SCAN FORE AND AFT OF FASTENERS

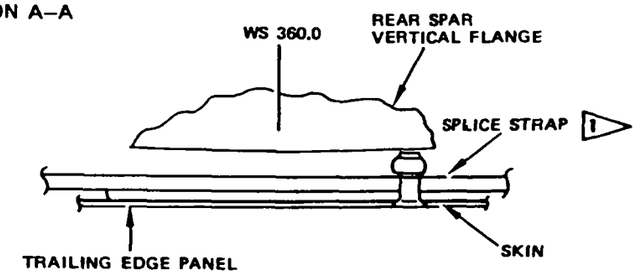
3 299 B PLACE PENCIL PROBE ON THE SPLICE STRAP (AT WS 360 AFT OF REAR SPAR). SCAN AROUND FASTENER







SECTION A–A

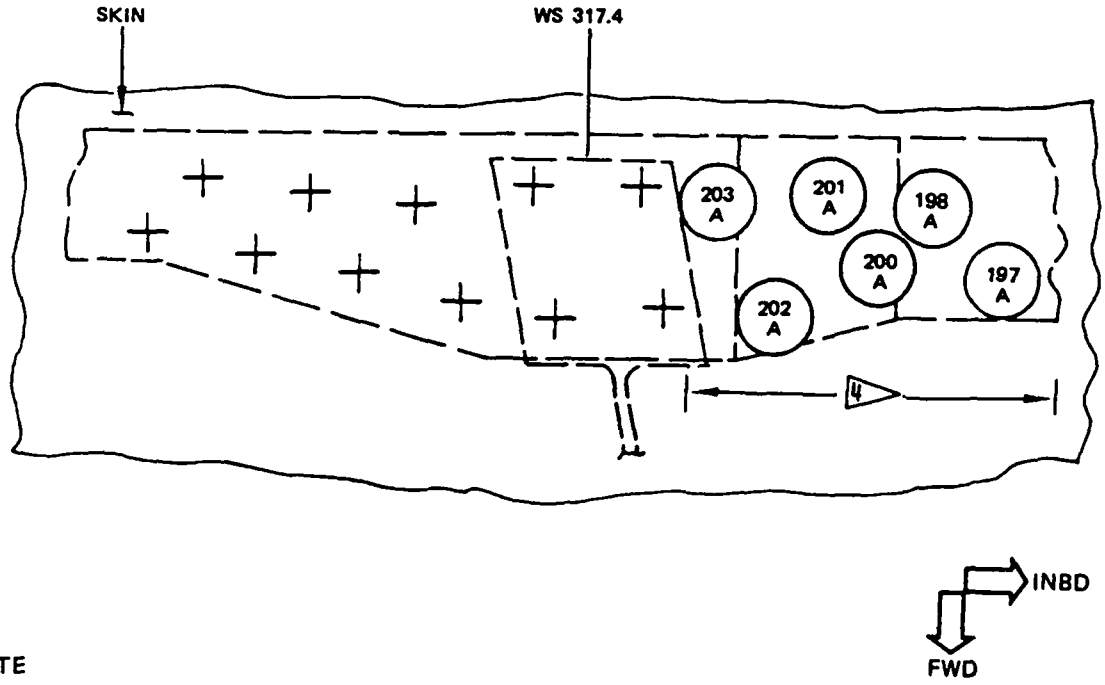


SECTION B–B

LOWER REAR SPAR CHORD HORIZONTAL FLANGE
INTERNAL INSPECTION

DETAIL 1 (CONT)

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 52 (Sheet 3)



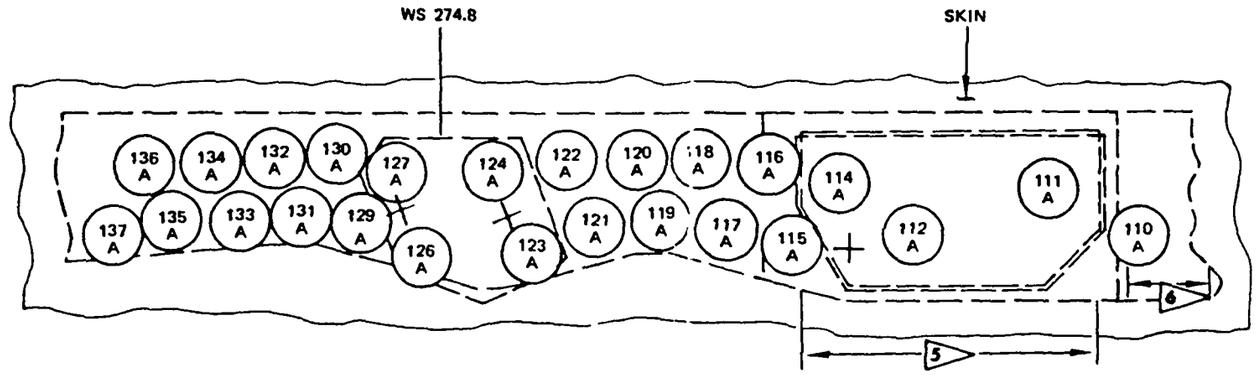
NOTE

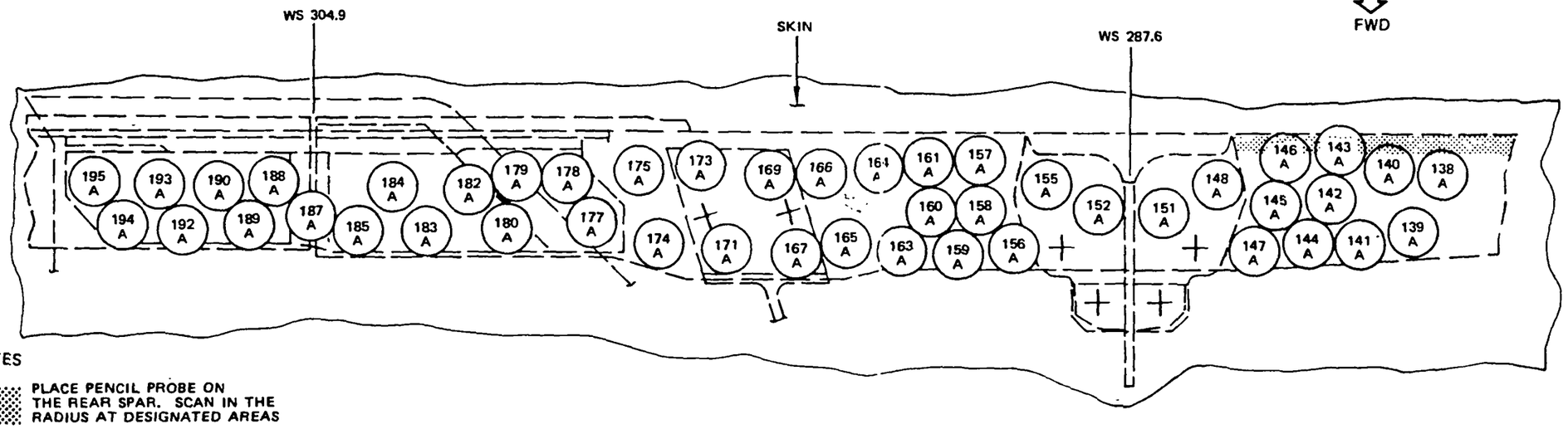
4 201 A PLACE PENCIL PROBE ON SKIN OR SIDE OF BODY EXTERNAL SPLICE PLATE, SCAN AROUND FASTENERS

LOWER REAR SPAR CHORD HORIZONTAL FLANGE
INTERNAL INSPECTION

DETAIL I (CONT)

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 52 (Sheet 4)





NOTES

PLACE PENCIL PROBE ON THE REAR SPAR. SCAN IN THE RADIUS AT DESIGNATED AREAS

132 A — PLACE PENCIL PROBE ON SKIN OR SIDE OF BODY EXTERNAL SPLICE PLATE, SCAN AROUND FASTENERS

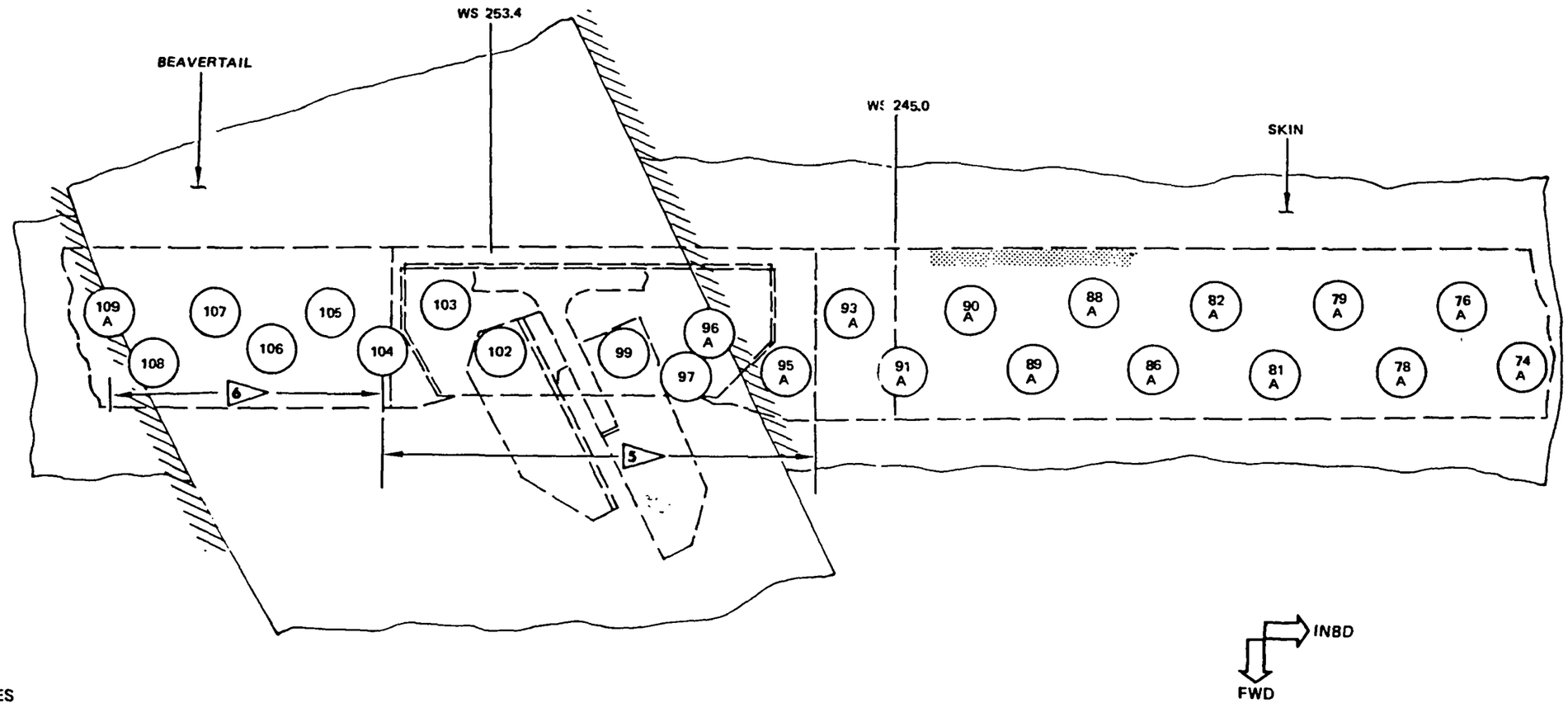
5 — PLACE PENCIL PROBE ON THE FORWARD EDGE OF THE REAR SPAR. SCAN AT DESIGNATED AREA

6 — PLACE PENCIL PROBE ON THE REAR SPAR. SCAN AT DESIGNATED AREA

LOWER REAR SPAR CHORD HORIZONTAL FLANGE
INTERNAL INSPECTION

DETAIL I (CONT)

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 52 (Sheet 5)



NOTES

PLACE PENCIL PROBE ON SKIN AND SCAN ALONG EDGE OF BEAVERTAIL FROM FORWARD EDGE OF REAR SPAR TO AS FAR AFT AS POSSIBLE

109 A — PLACE PENCIL PROBE ON SKIN OR SIDE OF BODY EXTERNAL SPLICE PLATE, SCAN AROUND FASTENERS

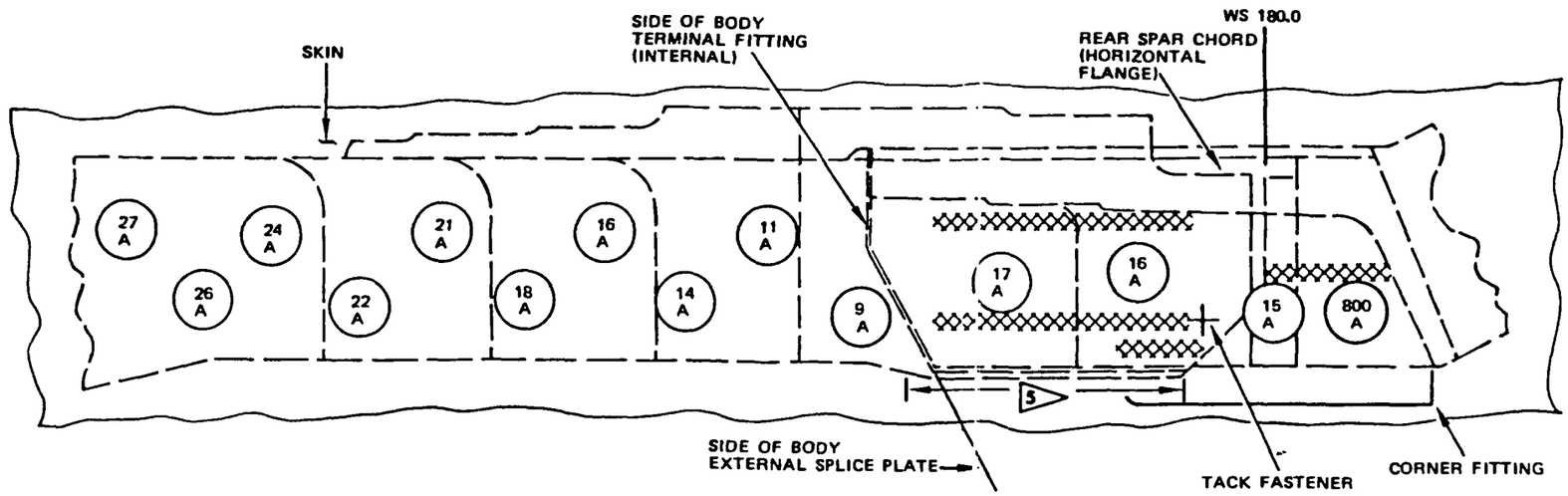
5 — PLACE PENCIL PROBE ON THE FORWARD EDGE OF THE REAR SPAR. SCAN AT DESIGNATED AREA

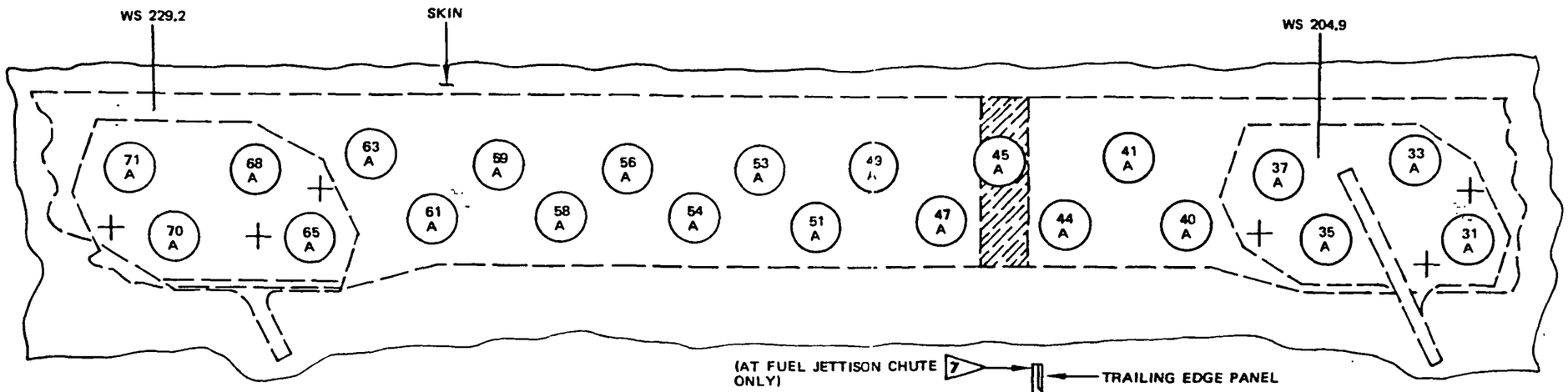
6 — PLACE PENCIL PROBE ON THE REAR SPAR. SCAN AT DESIGNATED AREA

LOWER REAR SPAR CHORD HORIZONTAL FLANGE
INTERNAL INSPECTION

DETAIL 1 (CONT)

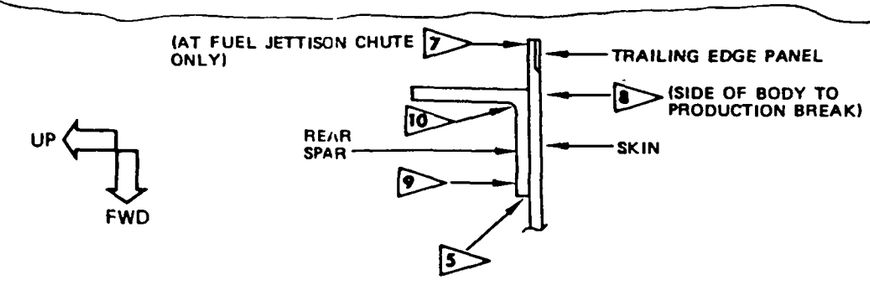
Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 52 (Sheet 6)





NOTES:

- 5 PLACE THE PENCIL PROBE ON THE FORWARD EDGE OF THE REAR SPAR , SCAN AT DESIGNATED AREAS
- 7 PLACE PENCIL PROBE ON SKIN TRAILING EDGE AT THE FUEL JETTISON CHUTE, SCAN
- 8 PLACE PENCIL PROBE ON SKIN AS FAR AFT AS POSSIBLE, SCAN FROM SIDE OF BODY TO PRODUCTION BREAK
- 9 PLACE THE PENCIL PROBE ON THE REAR SPAR. SCAN AT DESIGNATED AREA
- 10 PLACE THE PENCIL PROBE ON THE REAR SPAR, SCAN IN THE RADIUS AT DESIGNATED AREAS
- PLACE THE PENCIL PROBE ON THE TERMINAL FITTING SCAN AT DESIGNATED AREAS
- 27 A PLACE PENCIL PROBE ON SKIN OR SIDE OF BODY EXTERNAL SPLICE PLATE, SCAN AROUND FASTENERS

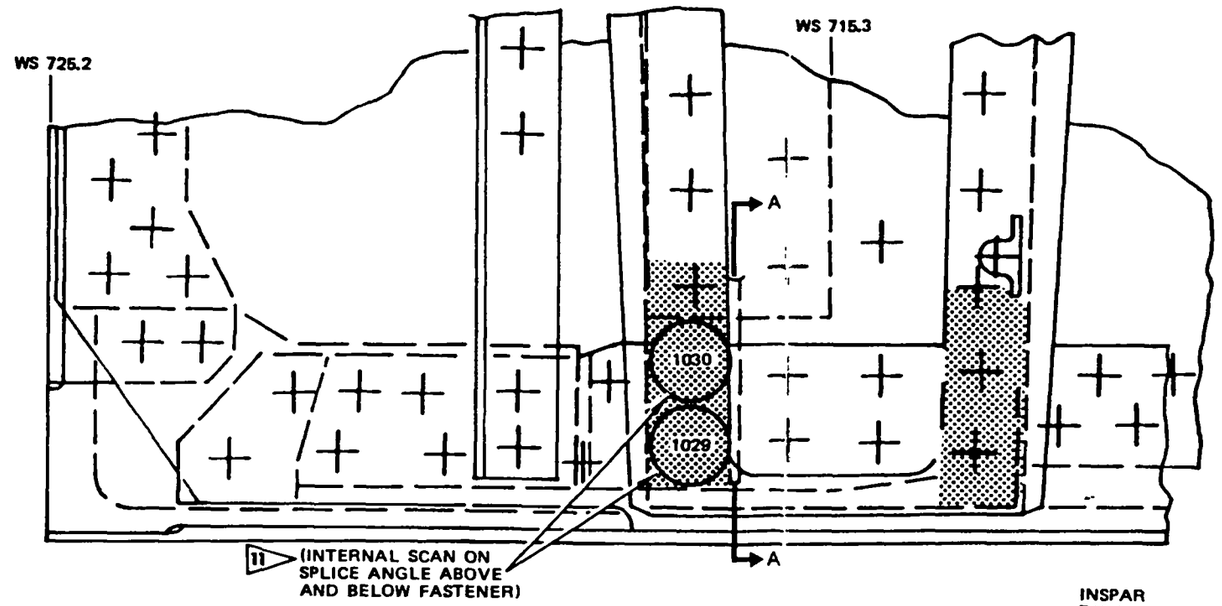


PROBE POSITIONS

LOWER REAR SPAR CHORD HORIZONTAL FLANGE
INTERNAL INSPECTION

DETAIL I

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 52 (Sheet 7)



NOTES

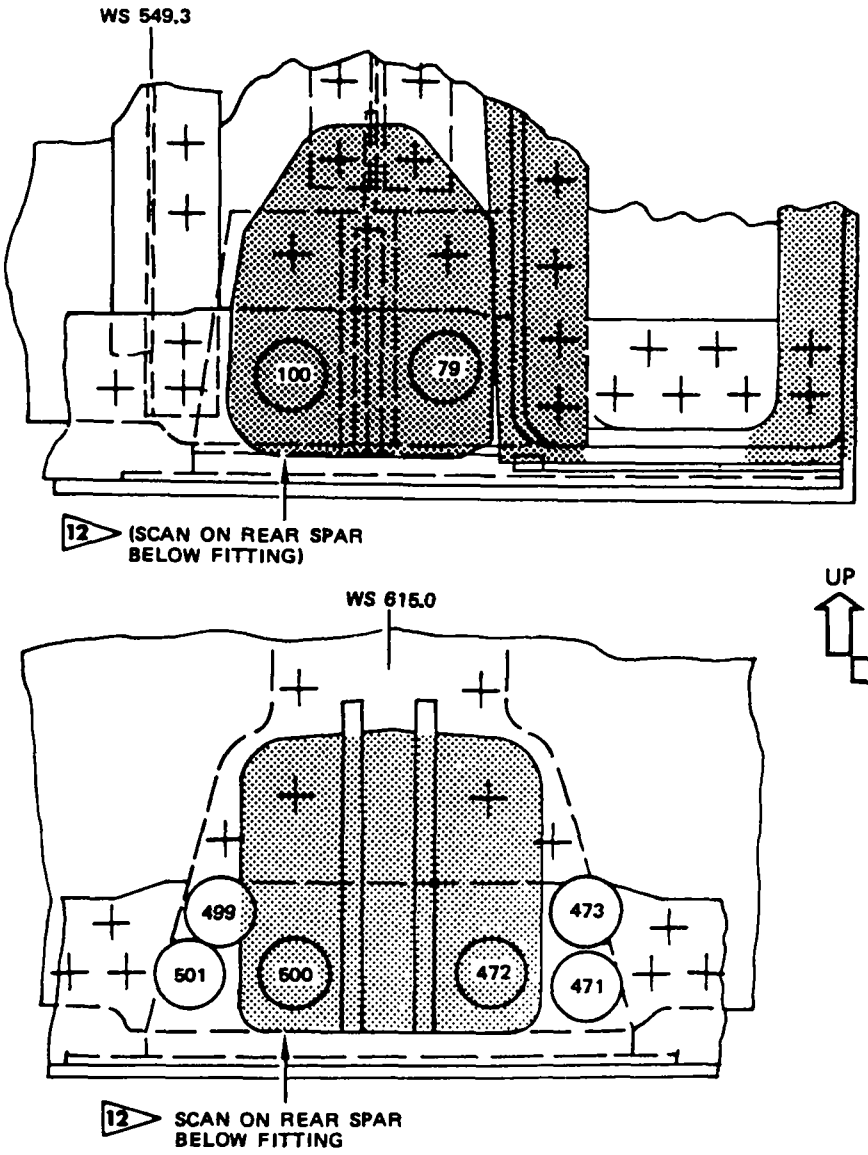
EXTERNAL FITTING, SHADED IN REAR VIEW (TYPICAL)

11 PLACE THE PENCIL PROBE ON THE SPLICE ANGLE, SCAN ABOVE AND BELOW FASTENERS.

LOWER REAR SPAR CHORD VERTICAL FLANGE
EXTERNAL INSPECTION

DETAIL II

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 52 (Sheet 8)



NOTES

EXTERNAL FITTING, SHADED IN REAR VIEW, TYPICAL

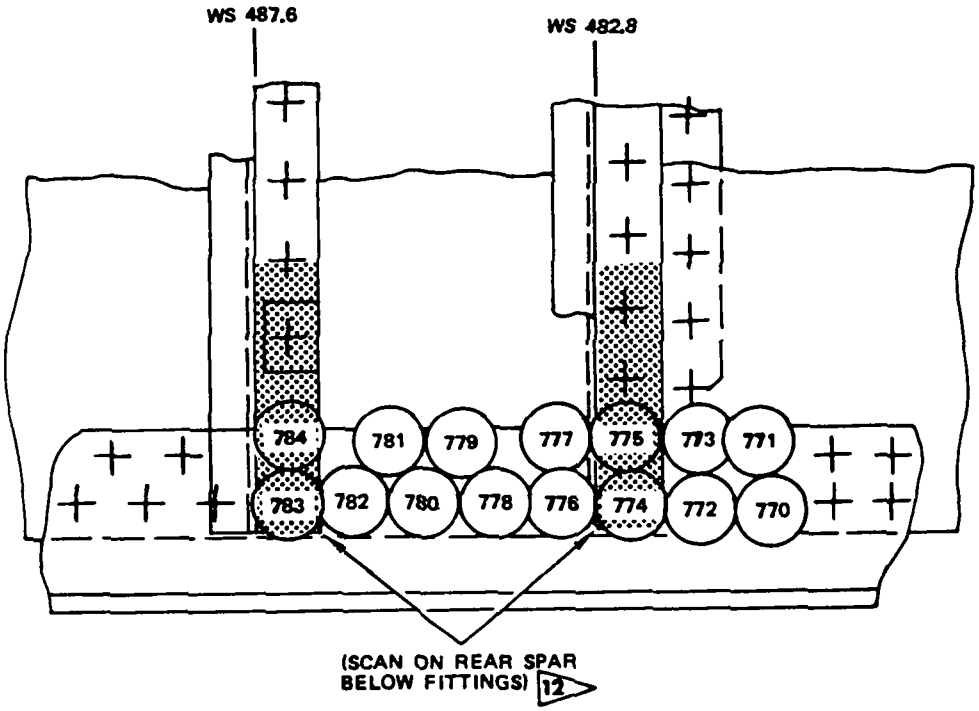
499 PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD. SCAN ABOVE AND BELOW DESIGNATED FASTENERS WHICH ARE NOT COMMON TO EXTERNAL FITTINGS

12 PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD, SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

LOWER REAR SPAR CHORD VERTICAL FLANGE
EXTERNAL INSPECTION

DETAIL II (CONT)

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 52 (Sheet 9)



NOTES

EXTERNAL FITTING, SHADED IN REAR VIEW, TYPICAL

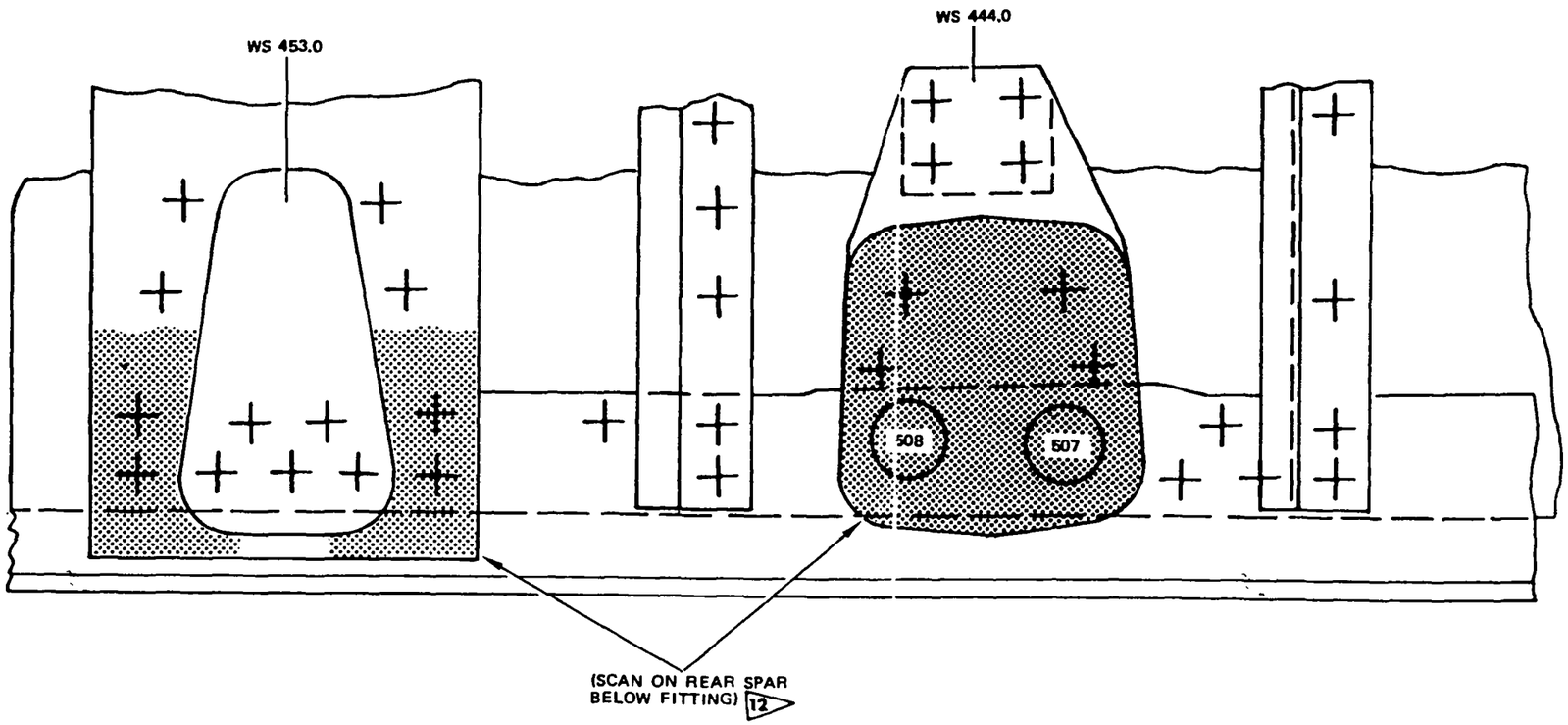
772 FASTENER TO BE INSPECTED

12 PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD, SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

LOWER REAR SPAR CHORD VERTICAL FLANGE
EXTERNAL INSPECTION

DETAIL II (CONT)

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 52 (Sheet 10)



NOTES

EXTERNAL FITTING, SHADED IN REAR VIEW, TYPICAL

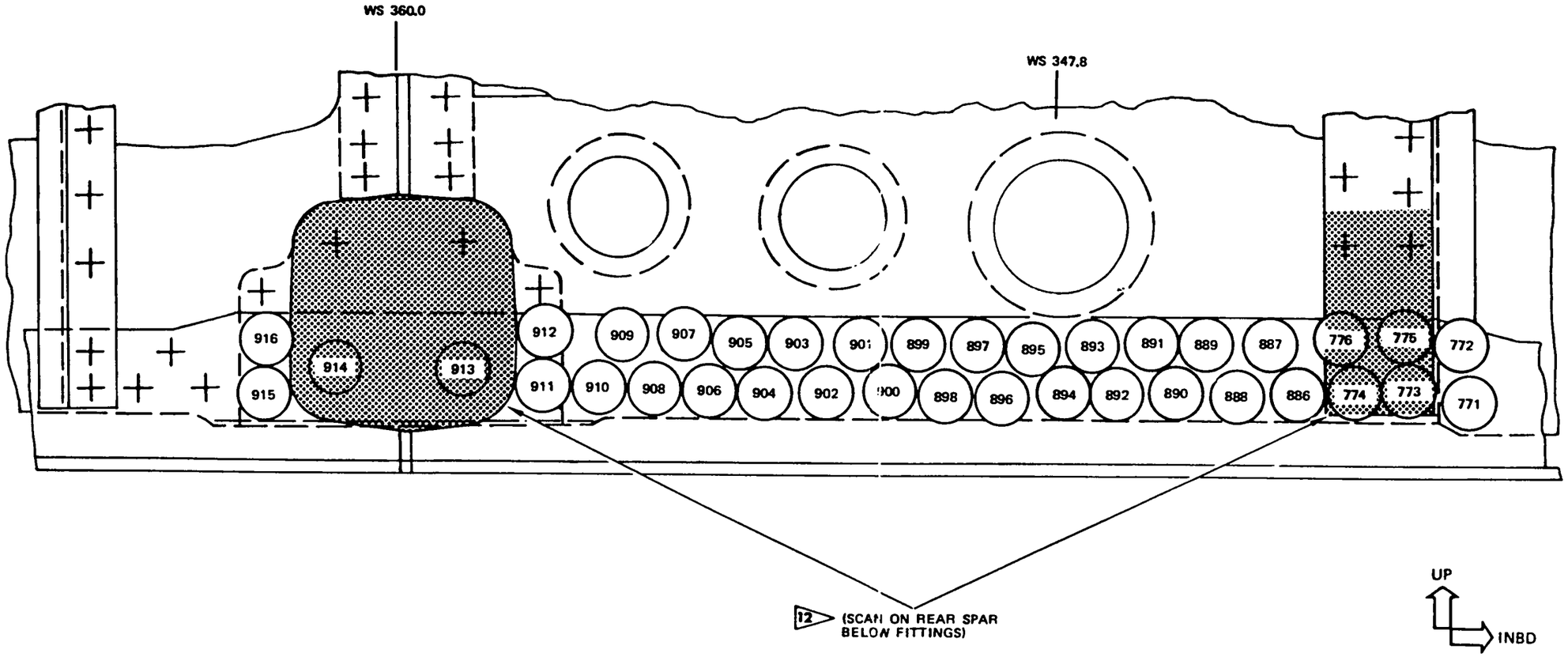
508 FASTENER TO BE INSPECTED

12 PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD, SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

LOWER REAR SPAR CHORD VERTICAL FLANGE
EXTERNAL INSPECTION

DETAIL II (CONT)

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 52 (Sheet 11)



NOTES

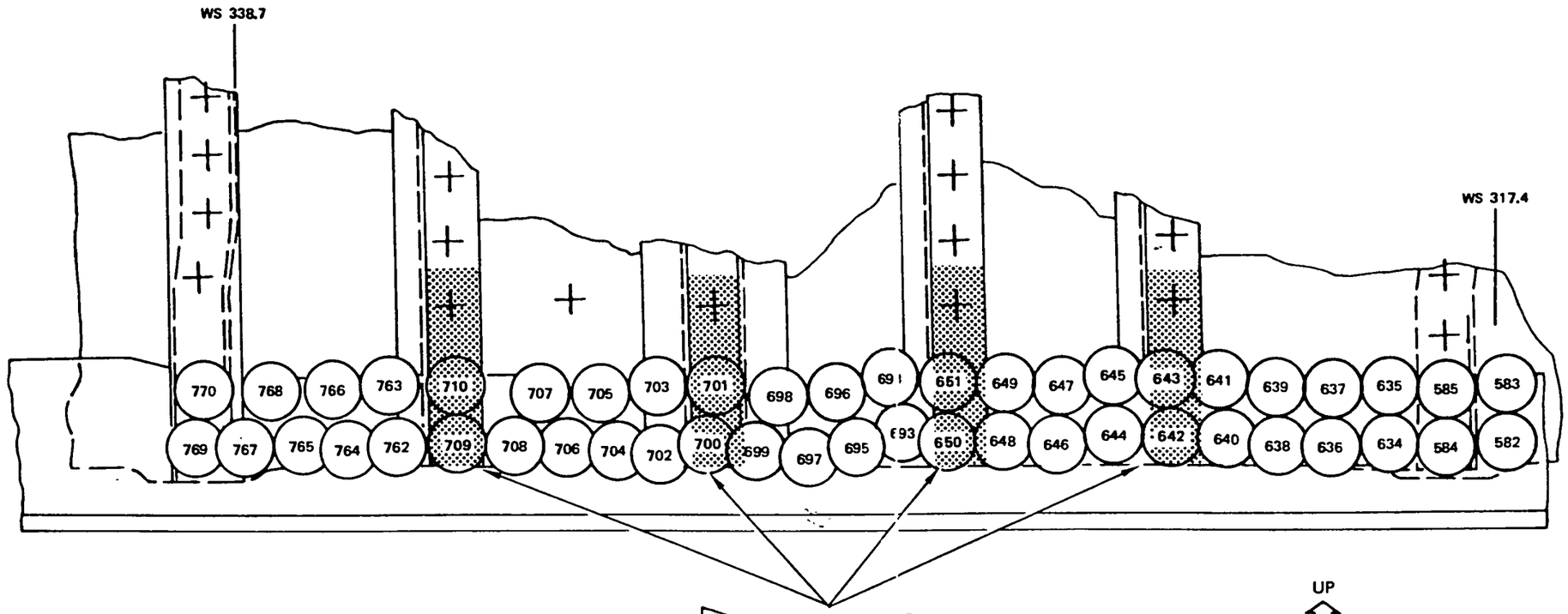
12 PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD, SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

915 FASTENER TO BE INSPECTED

EXTERNAL FITTING, SHADED IN REAR VIEW, TYPICAL

LOWER REAR SPAR CHORD VERTICAL FLANGE
EXTERNAL INSPECTION

DETAIL II (CONT)



NOTES

12 PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD, SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

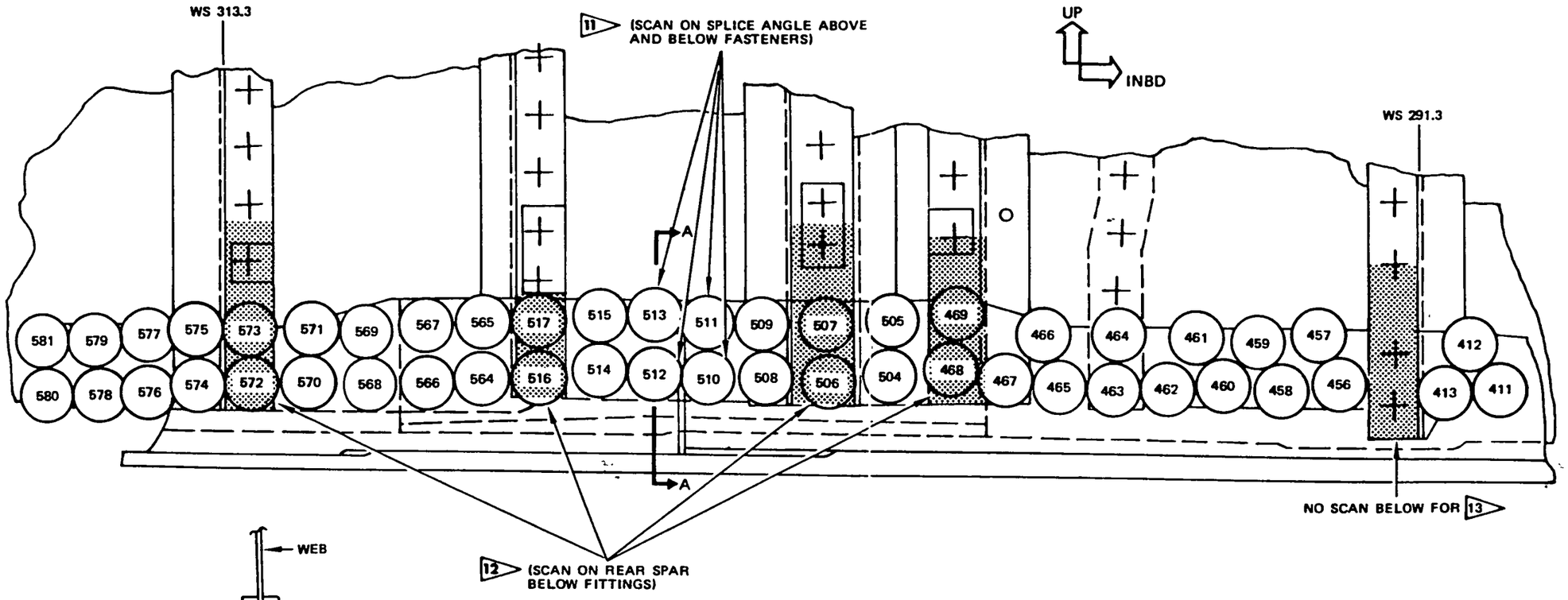
13 PLACE PENCIL PROBE ON SPAR CHORD VERTICAL FLANGE ADJACENT TO LOWER WING SKIN, SCAN FROM SIDE OF BODY TO WS 314

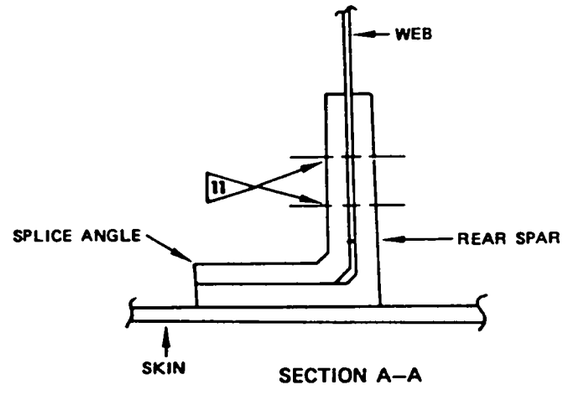
643 FASTENER TO BE INSPECTED

EXTERNAL FITTING, SHADED IN REAR VIEW, TYPICAL

LOWER REAR SPAR CHORD VERTICAL FLANGE
EXTERNAL INSPECTION

DETAIL II (CONT)





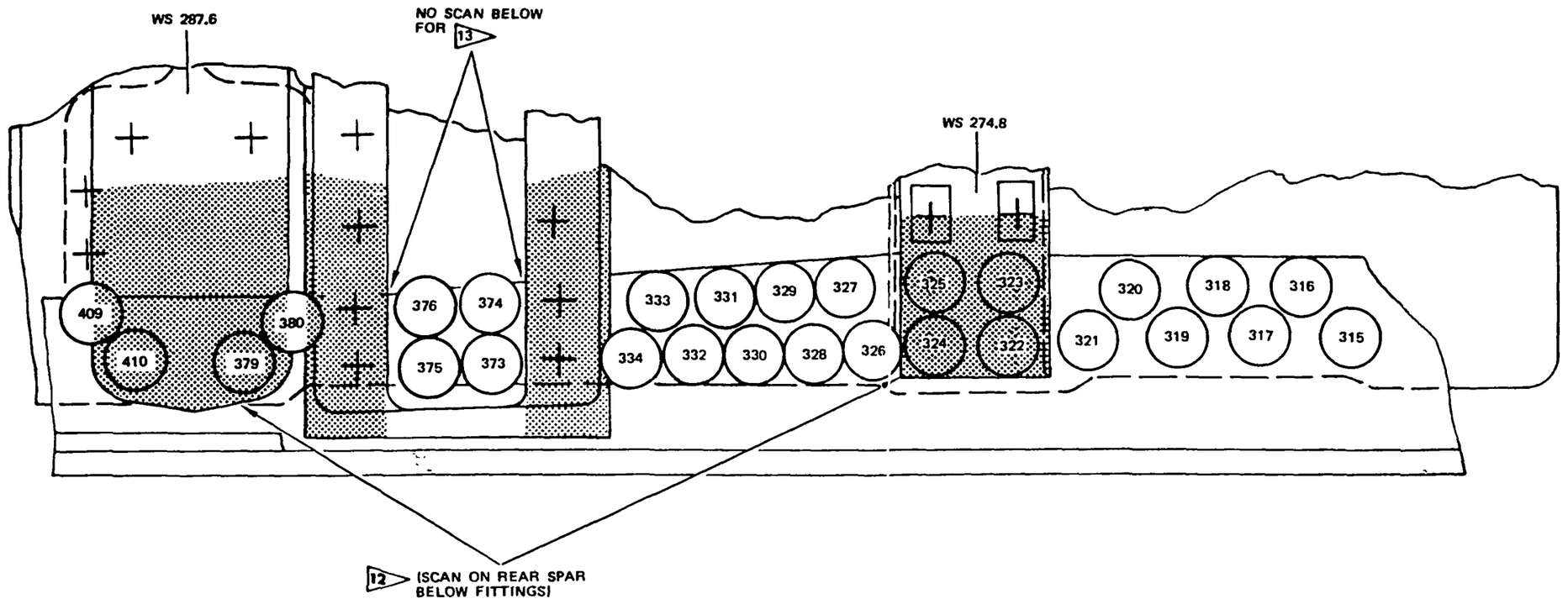
NOTES

- EXTERNAL FITTING, SHADED IN REAR VIEW, TYPICAL
- 504 FASTENER TO BE INSPECTED
- 11 PLACE THE PENCIL PROBE ON THE SPLICE ANGLE, SCAN ABOVE AND BELOW FASTENERS
- 12 PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD, SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED
- 13 PLACE PENCIL PROBE ON SPAR CHORD VERTICAL FLANGE ADJACENT TO LOWER WING SKIN, SCAN FROM SIDE OF BODY TO WS 314

LOWER REAR SPAR CHORD VERTICAL FLANGE
EXTERNAL INSPECTION

DETAIL II (CONT)

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 52 (Sheet 14)



NOTES

EXTERNAL FITTING, SHADED IN REAR VIEW, TYPICAL

375 FASTENER TO BE INSPECTED

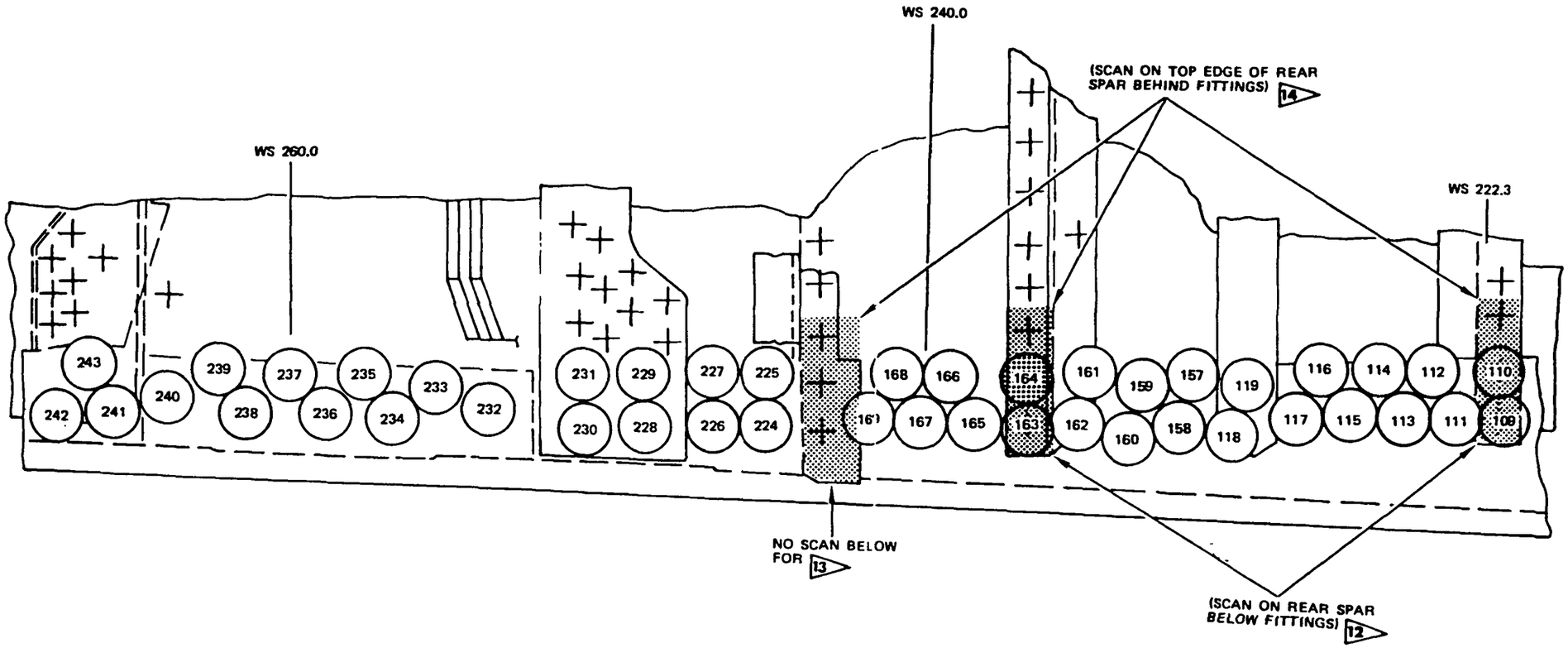
12 PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD, SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

13 PLACE PENCIL PROBE ON SPAR CHORD VERTICAL FLANGE ADJACENT TO LOWER WING SKIN, SCAN FROM SIDE OF BODY TO WS 314

LOWER REAR SPAR CHORD VERTICAL FLANGE
EXTERNAL INSPECTION

DETAIL II (CONT)

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 52 (Sheet 15)



NOTES

EXTERNAL FITTING, SHADED IN REAR VIEW, TYPICAL

240 FASTENER TO BE INSPECTED

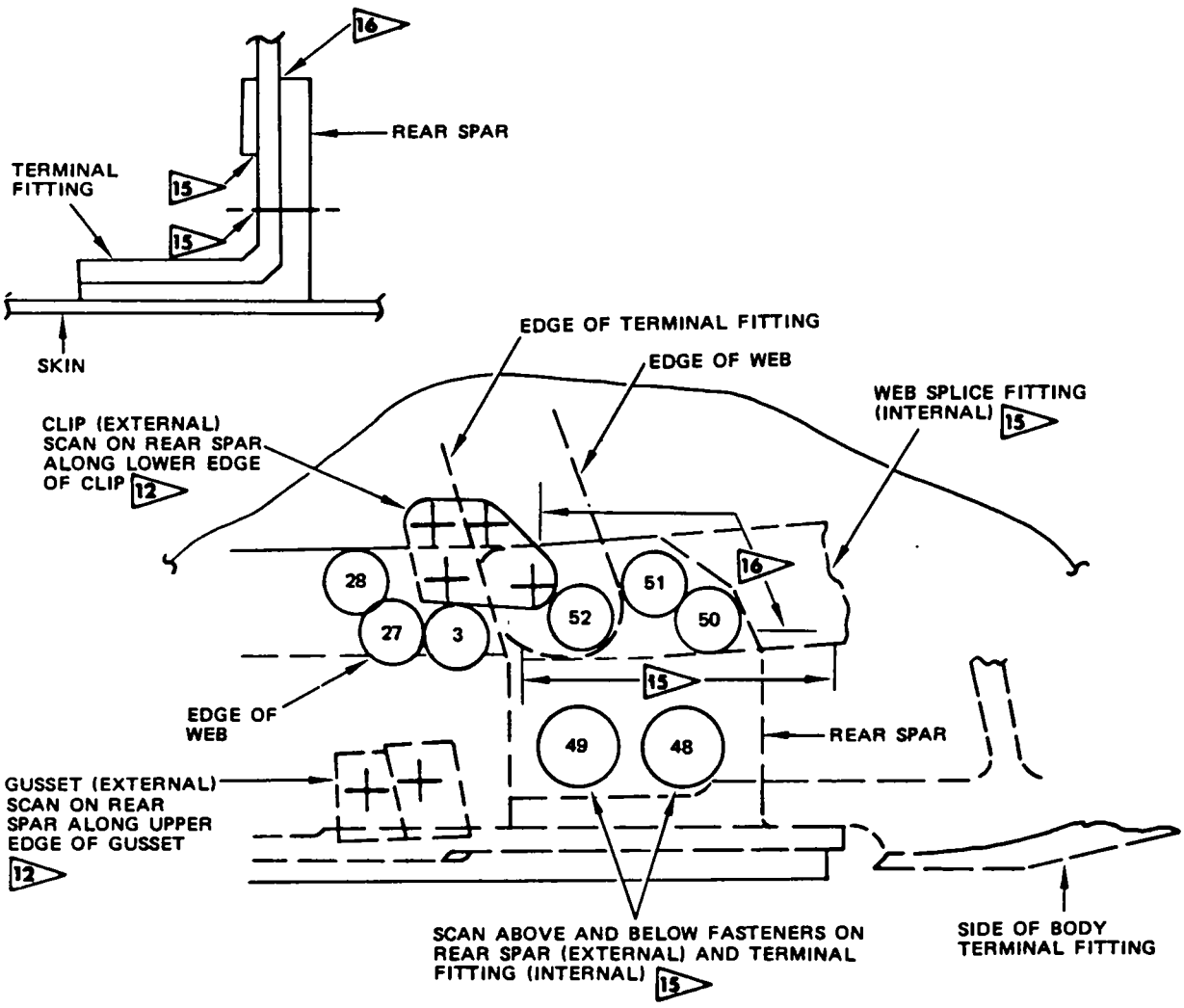
12 PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD, SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

13 PLACE PENCIL PROBE ON SPAR CHORD VERTICAL FLANGE ADJACENT TO LOWER WING SKIN, SCAN FROM SIDE OF BODY TO WS 314

14 PLACE PENCIL PROBE ON EDGE OF REAR SPAR CHORD VERTICAL FLANGE, SCAN BEHIND EXTERNAL FITTINGS

LOWER REAR SPAR CHORD VERTICAL FLANGE
EXTERNAL INSPECTION

DETAIL II (CONT)



NOTES

50 SCAN ON REAR SPAR ABOVE AND BELOW FASTENER

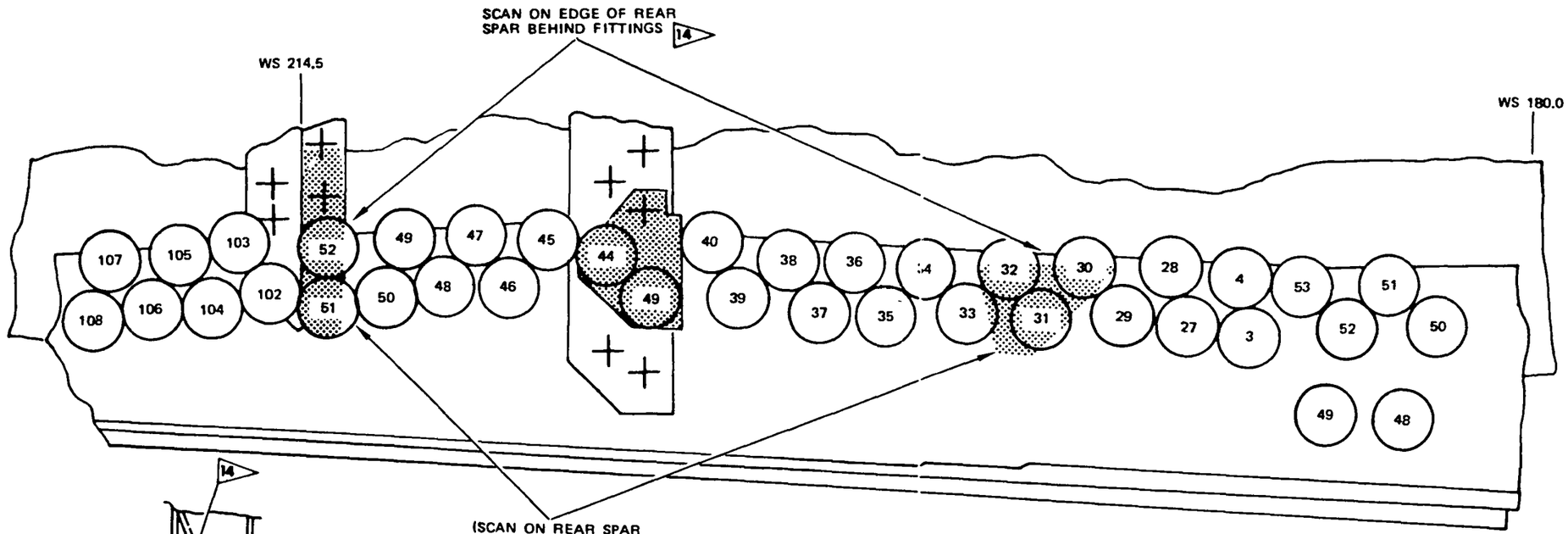
12 PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD, SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

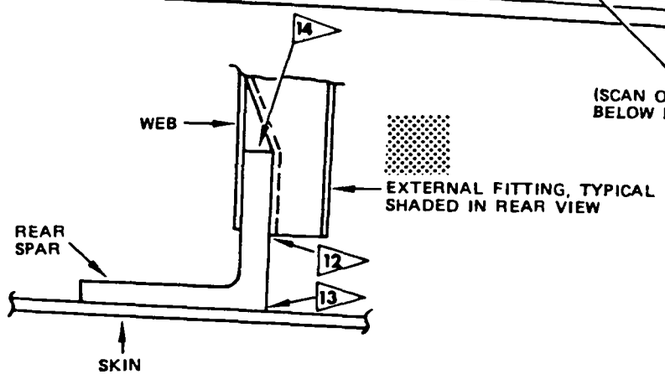
15 SCAN ON TERMINAL FITTING (INTERNAL) ALONG EDGE OF REAR SPAR AT INDICATED AREAS

16 SCAN ON TERMINAL FITTING (EXTERNAL) ALONG LOWER EDGE OF WEB SPLICE FITTING

LOWER REAR SPAR CHORD VERTICAL FLANGE
EXTERNAL INSPECTION

DETAIL II (CONT)





TYPICAL SECTION FOR PROBE POSITIONS

NOTES

EXTERNAL FITTING, SHADED IN REAR VIEW, TYPICAL

28 FASTENER TO BE INSPECTED

12 PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD, SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

13 PLACE PENCIL PROBE ON SPAR CHORD VERTICAL FLANGE ADJACENT TO LOWER WING SKIN, SCAN FROM SIDE OF BODY TO WS 314

14 PLACE PENCIL PROBE ON EDGE OF REAR SPAR CHORD VERTICAL FLANGE, SCAN BEHIND EXTERNAL FITTINGS

LOWER REAR SPAR CHORD VERTICAL FLANGE
EXTERNAL INSPECTION

DETAIL II

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 52 (Sheet 18)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To perform an external inspection for cracks out of fastener holes in the vertical flange of the lower rear spar chord, the side of body terminal fitting, and lower wing skin common to the rear spar, from BBL 70.5 to WS 733 production break.

   B. To perform an internal inspection for cracks out of fastener holes in the lower rear spar chord horizontal flange, side of body terminal fitting, and splice fittings on the rear spar chord vertical flange at selected locations, BBL 70.5 to WS 733 production break.

   C. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Refer to Part 6, 51-00-00, Fig. 4. for the instrument.

   B. Probes

      (1) Straight shielded pencil probe per Part 1, 51-06-00, Fig. 1.

      (2) Low profile, right angle, shielded pencil probe with a maximum height clearance of 0.3 inch, a 2.5-inch-long handle, and a maximum diameter of 0.2 inch.

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 53 (Sheet 1)

(3) Long extension shielded pencil probe with probe angle variable to the surface.

NOTE: This probe required to reach several inspection locations on rear spar vertical flange.

Shielded pencil probes are available from:

NDT Product Engineering
P.O. Box 423
Renton, WA 98057

P/N: 1. P-50
2. P-901-25
3. PVAE-11

VM Products
7420 Park Ave. No. 20
Tacoma, WA 98408

P/N: 1. VM100PS
2. VM202RA-125
3. VM100PS-18

When ordering from VM Products, specify dimensions desired for probe 2., VM100AS.

C. Refer to Part 6, 51-00-00, Fig. 4 for Reference Standards.

3. Prepare for Inspection

A. External

(1) Remove inboard and outboard sailboat fairings and lower wing to body fairing.

(2) Open trailing edge access panels, fuel dump chute and remove manifold to dump chute for inspection of the lower rear spar chord vertical flange.

(3) Clean inspection surfaces thoroughly.

B. Internal

(1) Defuel and gain access into wing tanks at inspection locations.

(2) Purge fuel tanks to permit entry with eddy current test equipment.

(3) Remove sealant for eddy current probe placement as necessary for inspection.

4. Calibrate Instrument

Refer to Part 6, 51-00-00, Fig. 4 for instrument calibration.

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 53 (Sheet 2)

5. Inspection Procedure

A. Most of the inspection is performed externally for cracks out of fastener holes in the skin, rear spar, and terminal fitting. The internal inspection of the lower rear spar horizontal and vertical flanges will require sealant removal.

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

B. Lower Rear Spar Chord Horizontal Flange Inspection.

(1) Inspect horizontal flange for Detail I.

NOTE: Detail I internal and external inspection procedures are defined on each sheet by appropriate flagnotes.

C. Lower Rear Spar Chord Vertical Flange Inspection.

(1) Inspect vertical flange per Detail II.

NOTE: Detail II internal and external inspection procedures are defined on each sheet by appropriate flagnotes.

D. Airplane Effectivity

(1) Table I consists of a series of effectivities defined by flagnotes. These flagnotes are called out in Details I and II.

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 53 (Sheet 3)

A/P EFFECTIVITY CUM LINE NO.S
1 CUM LINE NO.S 13, 20, 35, 58, 61, 62, 68, 70
2 CUM LINE NO.S 13, 20, 35, 58, 61, 62, 68 THRU 71, 73 THRU 76, 78 THRU 84, 86, 88 THRU 94, 98 THRU 101, 103 THRU 107, 110 THRU 118, 121 THRU 129, 133 THRU 139, 144, 145, 151 THRU 155, 159 THRU 164, 167 THRU 171, 175, 176, 192, 200, 205, 209, 216, 217, 264, 266, 268 THRU 272, 274 THRU 276, 282, 283, 287, 292, 293, 302, 303, 305, 320, 323, 325 THRU 336, 341 THRU 346, 348 THRU 350, 352 THRU 360, 362 THRU 373, 375 THRU 379, 383, 386 THRU 389, 394, 397 THRU 409, 411 THRU 413, 415 THRU 419, 421, 423 THRU 425, 430, 431, 434 THRU 469, 471, 472, 475 THRU 478, 480, 482 THRU 485, 487, 488, 494 THRU 505, 507 THRU 511, 513, 515 THRU 525, 527 THRU 529, 531, 532, 534, 536 THRU 538, 540 THRU 557, 559 THRU 561, 563, 566, 569, 570, 572, 574, 576, 580, 582, 584, 585, 587, 588, 590, 592, 594, 596, 599, 601, 603, 605, 607 THRU 614, 616 THRU 620, 623, 625 THRU 679, 681 683 THRU 743
3 CUM LINE NO.S 69, 71, 73 THRU 76, 78 THRU 84, 86, 88 THRU 94, 98 THRU 101, 103 THRU 107, 110 THRU 118, 121 THRU 129, 133 THRU 139, 144, 145, 151 THRU 155, 159 THRU 164, 167 THRU 171, 175, 176, 192, 200, 205, 209, 216, 217, 264, 266, 268 THRU 272, 274 THRU 276, 282, 283, 287, 292, 293, 302, 303, 305, 320, 323, 325 THRU 336, 341 THRU 346, 348 THRU 350, 352 THRU 360, 362 THRU 373, 375 THRU 379, 383, 386 THRU 389, 394, 397 THRU 409, 411 THRU 413, 415 THRU 419, 421, 423 THRU 425, 428, 430, 431, 434 THRU 469, 471, 472, 475 THRU 478, 480, 482 THRU 485, 487, 488, 494 THRU 505, 507 THRU 511, 513, 515 THRU 525, 527 THRU 529, 531, 532, 534, 536 THRU 538, 540 THRU 557, 559 THRU 561, 563, 566, 569, 570, 572, 574, 576, 578, 580, 582, 584, 585, 587, 588, 590, 592, 594, 596, 599, 601, 603, 605, 607 THRU 614, 616 THRU 620, 623, 625 THRU 668, 670 THRU 679, 681, 683 THRU 770, 772 THRU 776, 778 THRU 786, 788 THRU 793, 795 THRU 800, 802 THRU 897, 899, 900, 903, 905, 906, 908, 910 THRU 912, 914 THRU 919, 922, 923, 925, 928, 929, 936, 938, 951 AND ON
4 CUM LINE NO.S 744 THRU 770, 772 THRU 776, 778 THRU 786, 788 THRU 793, 795 THRU 800, 802 THRU 897, 899, 900, 903, 905, 906, 908, 910 THRU 912, 914 THRU 919, 922, 923, 925, 928, 929, 936, 938, 951 AND ON
5 CUM LINE NO.S 13, 20, 35, 58, 61, 62, 65, 68 THRU 71, 73 THRU 76, 78 THRU 84, 86, 88 THRU 94, 98 THRU 101, 103 THRU 107, 110 THRU 118, 121 THRU 129, 133 THRU 139, 144, 145, 151 THRU 155, 159 THRU 164, 167 THRU 171, 175, 176, 192, 200, 205, 209, 216, 217, 264, 266, 269, 271, 272, 274, 275, 282, 283, 302, 328, 330, 334, 353
6 CUM LINE NO.S 268, 270, 276, 287, 292, 303, 305, 320, 323, 325 THRU 327, 329, 331 THRU 333, 335, 386, 341 THRU 346, 348 THRU 350, 352, 354 THRU 360, 362 THRU 373, 375 THRU 379, 383, 386 THRU 389, 394, 397 THRU 409, 411 THRU 413, 415 THRU 419, 421, 423 THRU 425, 428, 430, 431, 434 THRU 469, 471, 472, 475 THRU 478, 480, 482 THRU 485, 487, 488, 494 THRU 505, 507 THRU 511, 513, 515 THRU 525, 527 THRU 529, 531, 532, 534, 536 THRU 538, 540 THRU 557, 559 THRU 561, 563, 566, 569, 570, 572, 574, 576, 580, 582, 584, 585, 587, 588, 590, 592, 594, 596, 599, 601, 603, 605, 607 THRU 614, 616 THRU 620, 623, 625 THRU 668, 670 THRU 679, 681, 683 THRU 770, 772 THRU 786, 788 THRU 793, 795 THRU 800, 802 THRU 897, 899, 900, 903, 905, 906, 908, 910, THRU 912, 914 THRU 919, 922, 923, 925, 928, 929, 936, 938, 951 AND ON
7 CUM LINE NO.S 13, 20, 35, 58, 61, 62, 68 THRU 71, 73 THRU 76, 78 THRU 84, 86, 88 THRU 94, 98 THRU 101, 103 THRU 107, 110 THRU 118, 121 THRU 129, 133 THRU 139, 144, 145, 151 THRU 155, 159 THRU 164, 167 THRU 171, 175, 176, 192, 200, 205, 209, 216, 217, 264, 266, 268 THRU 272, 274 THRU 276, 282, 283, 287, 292, 293, 302, 303, 305, 320, 323, 325 THRU 336, 341 THRU 346, 348 THRU 350, 352 THRU 360, 362 THRU 373, 375 THRU 379, 383, 386 THRU 389, 394, 397 THRU 409, 411 THRU 413, 415 THRU 419, 421, 423 THRU 425, 430, 431, 434 THRU 469, 471, 472, 475 THRU 478, 480, 482 THRU 485, 487, 488, 494 THRU 505, 507 THRU 511, 513, 515 THRU 525, 527 THRU 529, 531, 532, 534, 536 THRU 538, 540 THRU 557, 559 THRU 561, 563, 566, 569, 570, 572, 574, 576, 580, 582.

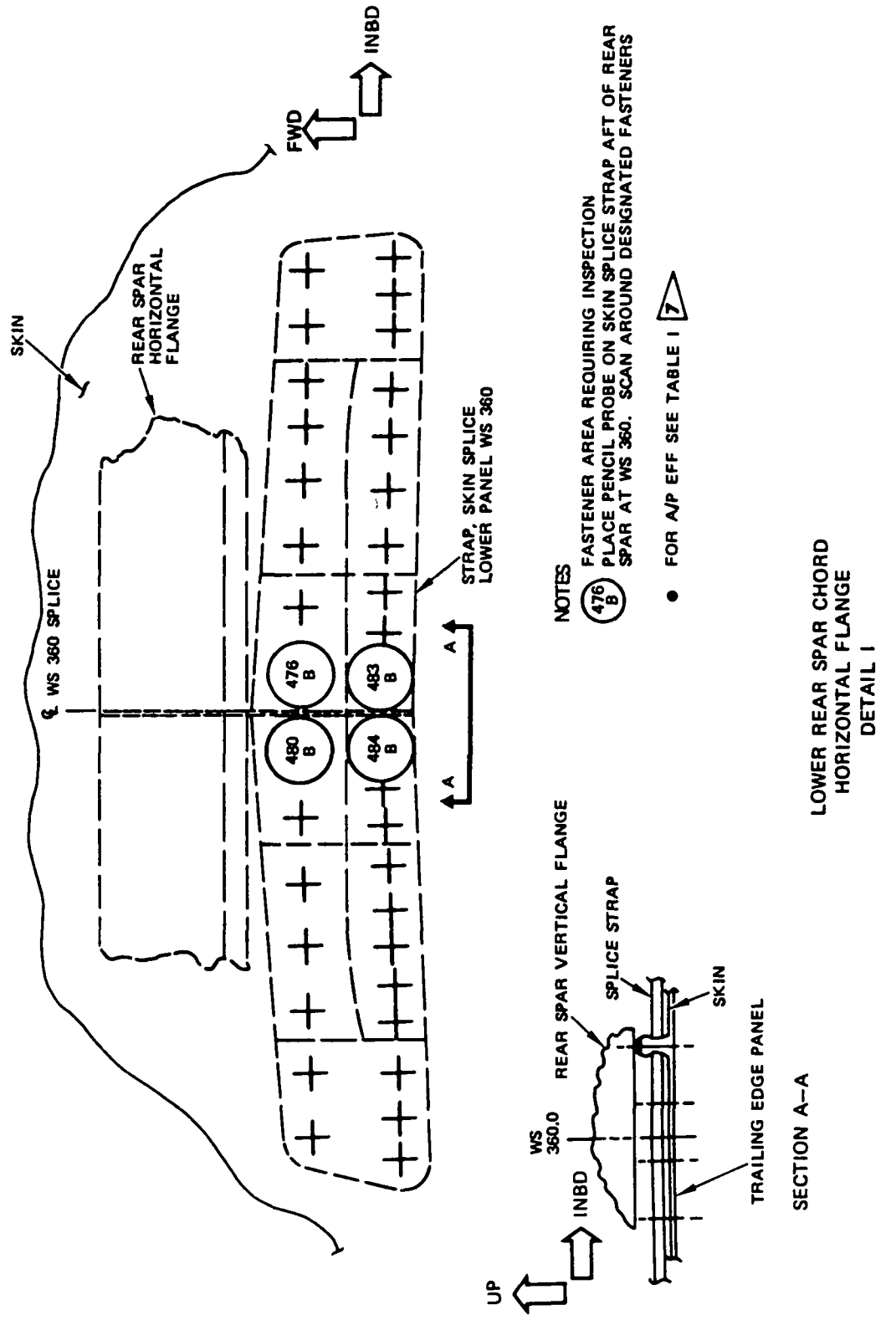
EFFECTIVITY TABLE
TABLE I (CONT)

A/P EFFECTIVITY CUM LINE NO.S
7 CUM LINE NO.S (CONT) 584, 585, 587, 588, 590, 592, 594, 596, 599, 601, 603, 605, 607 THRU 614, 616 THRU 620, 623, 625 THRU 668, 670 THRU 679, 681, 683 THRU 770, 772 THRU 776, 778 THRU 786, 788 THRU 793, 795 THRU 800, 802 THRU 897, 899, 900, 903, 905, 906, 908, 910 THRU 912, 914 THRU 919, 922, 923, 925, 928, 929, 936, 938, 951 AND ON
8 CUM LINE NO.S 69, 71, 73 THRU 76, 78 THRU 84, 86, 88 THRU 94, 98 THRU 101, 103 THRU 107, 110 THRU 118, 121 THRU 129, 133 THRU 139, 144, 145, 151 THRU 155, 159 THRU 164, 167 THRU 171, 175, 176, 192, 200, 205, 209, 216, 217, 264, 266, 268 THRU 272, 274 THRU 276, 282, 283, 287, 292, 293, 302, 303, 305, 320, 323, 325 THRU 336, 341 THRU 346, 348 THRU 350, 352 THRU 360, 362 THRU 373, 375 THRU 379, 383, 386 THRU 389, 394, 397 THRU 409, 411, THRU 413, 415 THRU 419, 421, 423 THRU 425, 428, 430, 431, 434 THRU 469, 471, 472, 475 THRU 478, 480, 482 THRU 485, 487, 488, 494 THRU 505, 507 THRU 511, 513, 515 THRU 525, 527 THRU 529, 531, 532, 534, 536 THRU 538, 540 THRU 557, 559 THRU 561, 563, 566, 569, 570, 572, 574, 576, 578, 580, 582, 584, 585, 587, 588, 590, 592, 594, 596, 599, 601, 603, 605, 607 THRU 614, 616 THRU 620, 623, 625 THRU 668, 670 THRU 679, 681, 683 THRU 743.

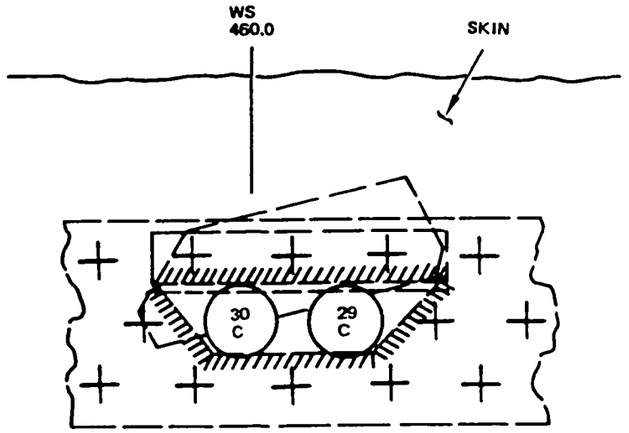
EFFECTIVITY TABLE
TABLE 1

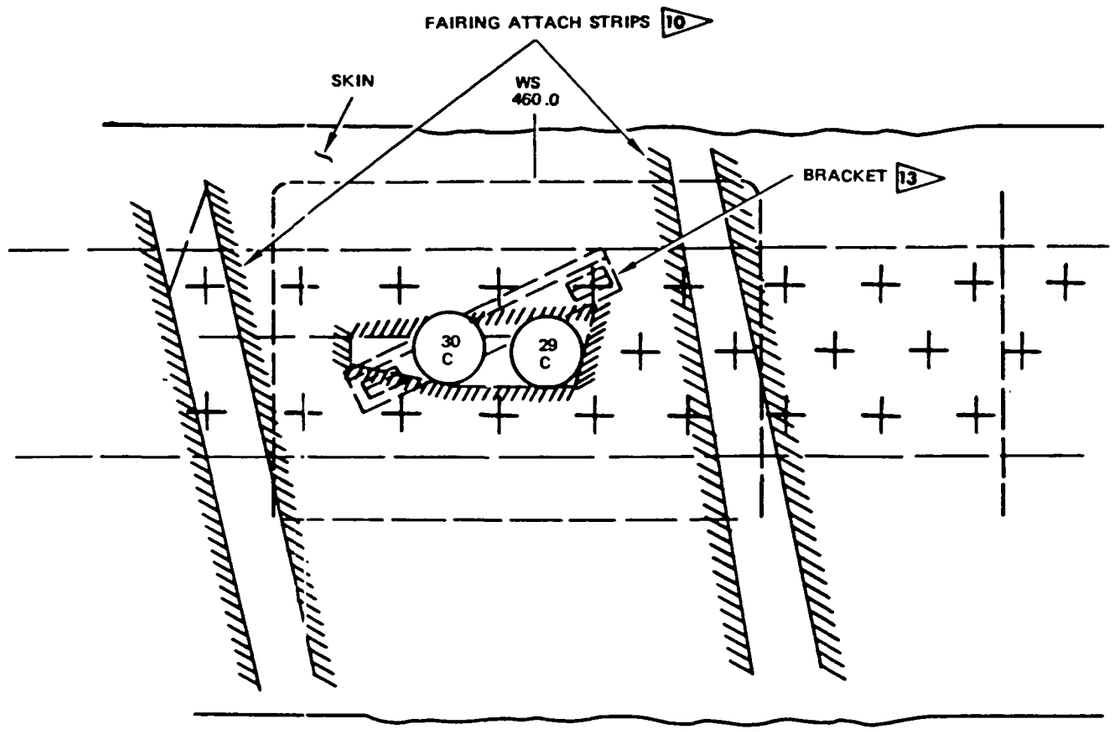
NOTES

THIS TABLE LISTS
THE FLAGNOTES USED ON
DETAILS I AND II WHICH DEFINE
THE APPROPRIATE A/P EFFECTIVITY



Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 53 (Sheet 5)





NOTES

////// SCAN AREA – EXTERNAL

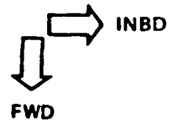
(29 C) FASTENER AREA REQUIRING INSPECTION
PLACE PENCIL PROBE ON HORIZONTAL FLANGE OF REAR SPAR CHORD. SCAN FORE AND AFT OF FASTENER. (INTERNAL)

● FOR A/P EFF SEE TABLE I 6

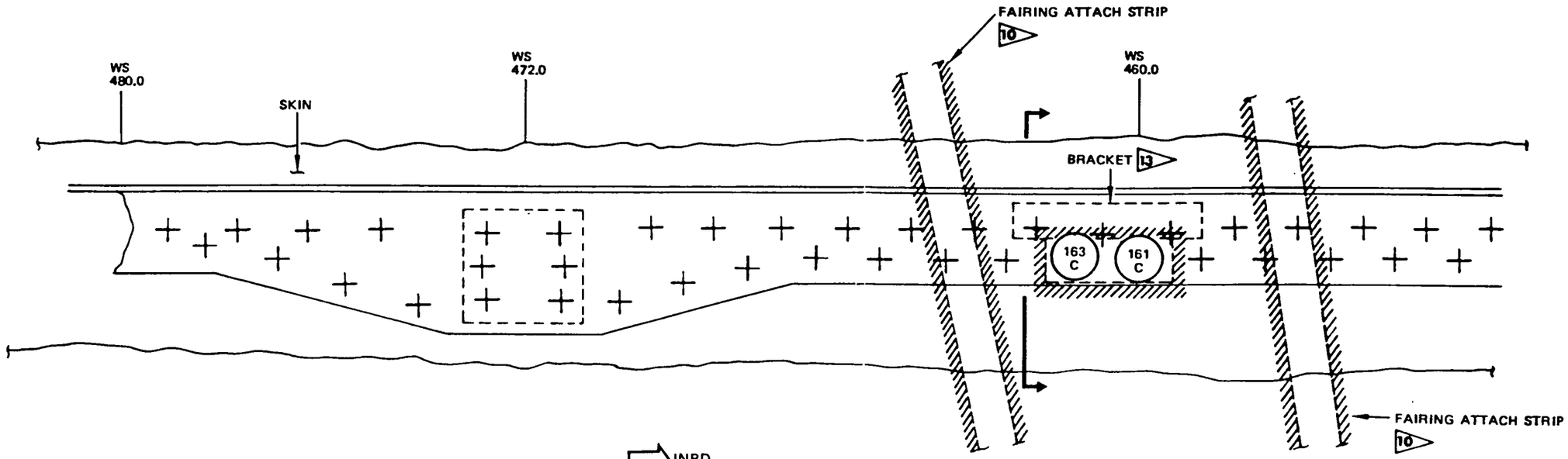
EXTERNAL INSPECTION

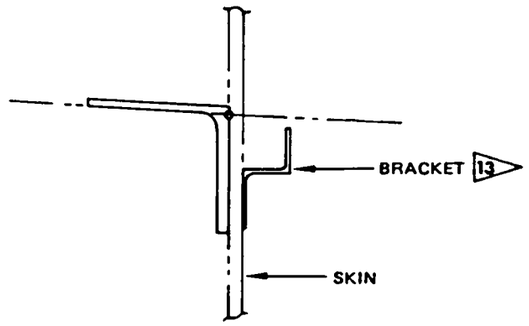
10 PLACE PENCIL PROBE ON SKIN AND SCAN ALONG INBOARD AND OUTBOARD EDGES OF FAIRING ATTACH STRIPS FOR 5–6 INCHES

13 PLACE PENCIL PROBE ON SKIN, SCAN AROUND BRACKET COMMON TO DESIGNATED FASTENERS



LOWER REAR SPAR CHORD
HORIZONTAL FLANGE
DETAIL I (CONT)





NOTES

SCAN AREA – EXTERNAL

161 C — FASTENER AREA REQUIRING INSPECTION. PLACE PENCIL PROBE ON HORIZONTAL FLANGE OF REAR SPAR CHORD. SCAN FORE AND AFT OF FASTENER (INTERNAL)

- FOR A/P EFF SEE TABLE I 5

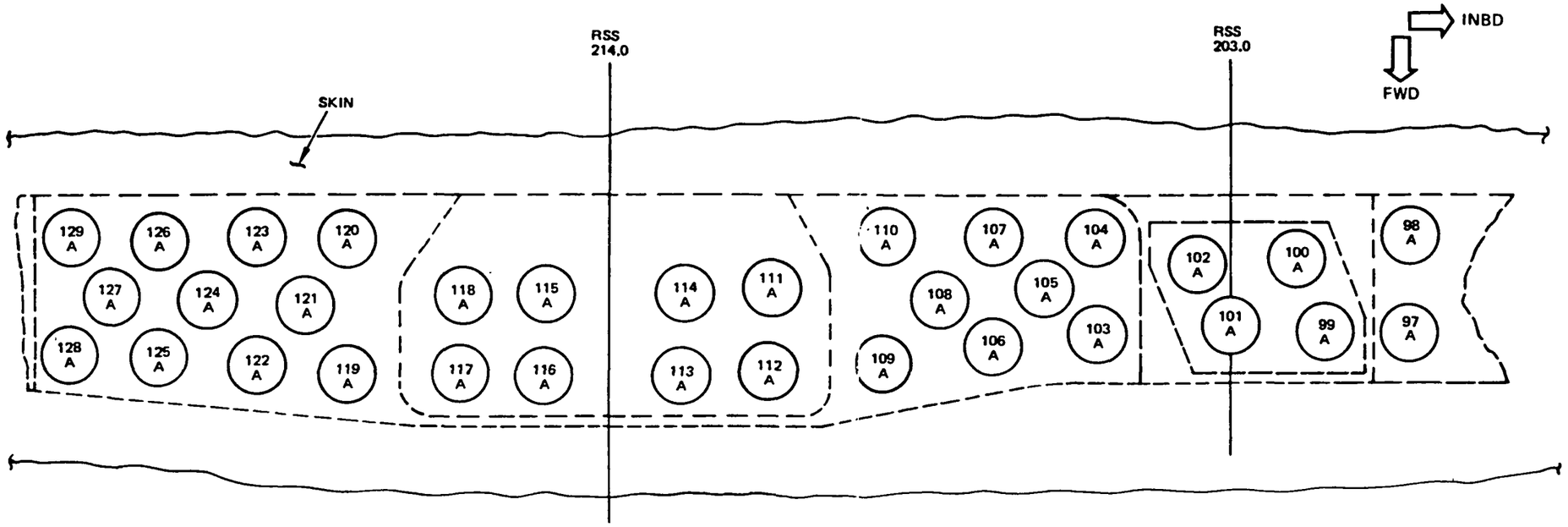
EXTERNAL INSPECTION

10 PLACE PENCIL PROBE ON SKIN AND SCAN ALONG INBOARD AND OUTBOARD EDGES OF FAIRING ATTACH STRIPS FOR 5–6 INCHES

13 PLACE PENCIL PROBE ON SKIN, SCAN AROUND BRACKET COMMON TO DESIGNATED FASTENERS

LOWER REAR SPAR CHORD
HORIZONTAL FLANGE

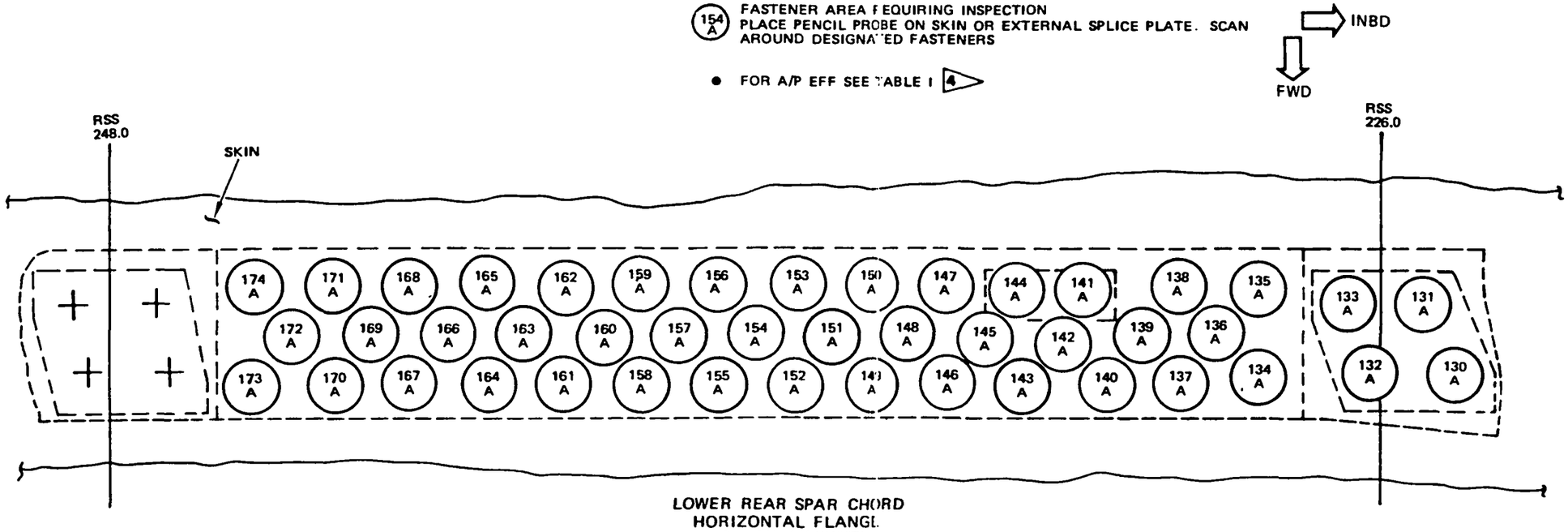
DETAIL I (CONT)



NOTES

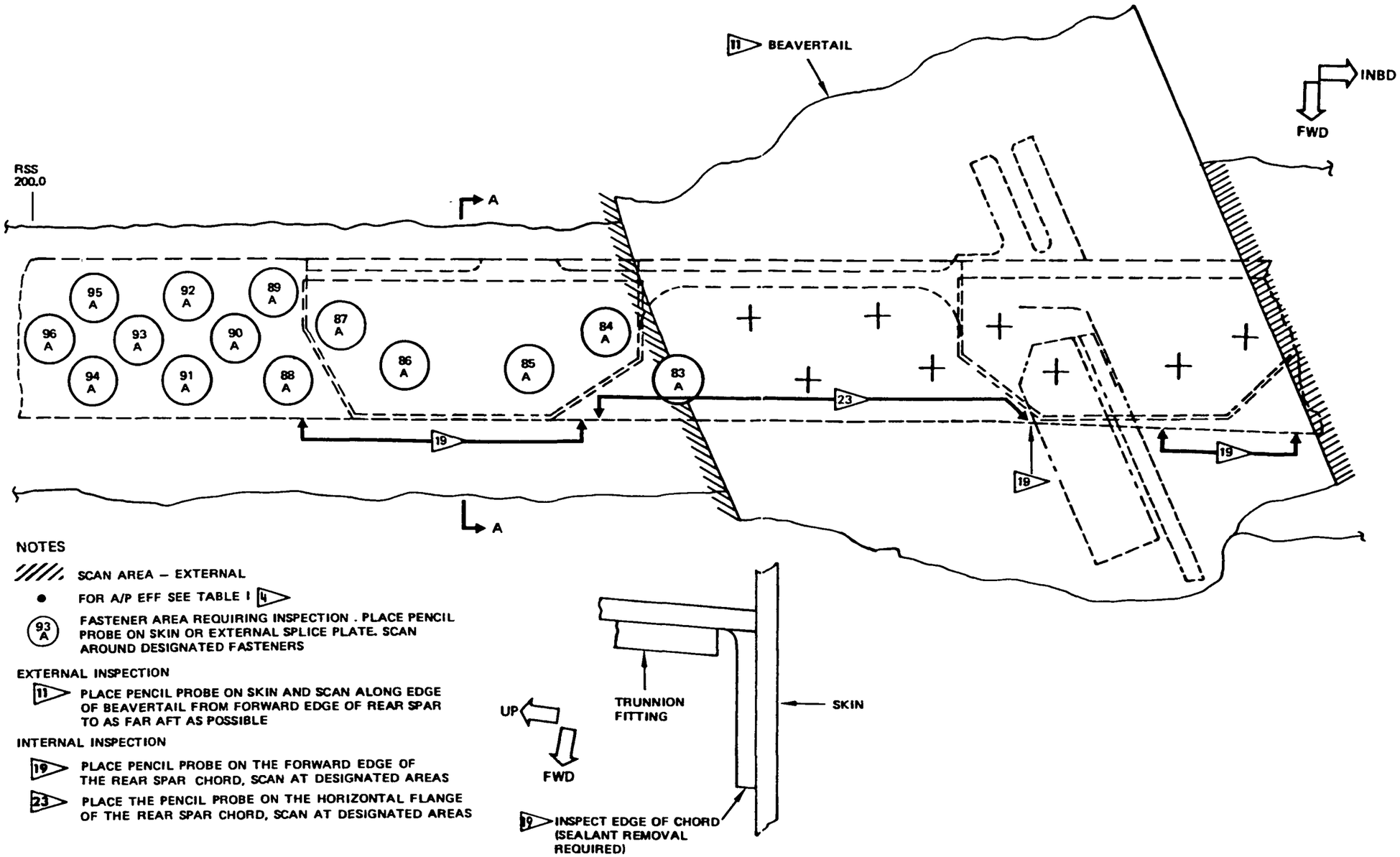
(154 A) FASTENER AREA REQUIRING INSPECTION
PLACE PENCIL PROBE ON SKIN OR EXTERNAL SPLICE PLATE. SCAN AROUND DESIGNATED FASTENERS

● FOR A/P EFF SEE TABLE I 4



LOWER REAR SPAR CHORD
HORIZONTAL FLANGE
DETAIL I (CONT)

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 53 (Sheet 8)



NOTES

SCAN AREA – EXTERNAL

● FOR A/P EFF SEE TABLE I 4

(93 A) FASTENER AREA REQUIRING INSPECTION . PLACE PENCIL PROBE ON SKIN OR EXTERNAL SPLICE PLATE. SCAN AROUND DESIGNATED FASTENERS

EXTERNAL INSPECTION

11 PLACE PENCIL PROBE ON SKIN AND SCAN ALONG EDGE OF BEAVERTAIL FROM FORWARD EDGE OF REAR SPAR TO AS FAR AFT AS POSSIBLE

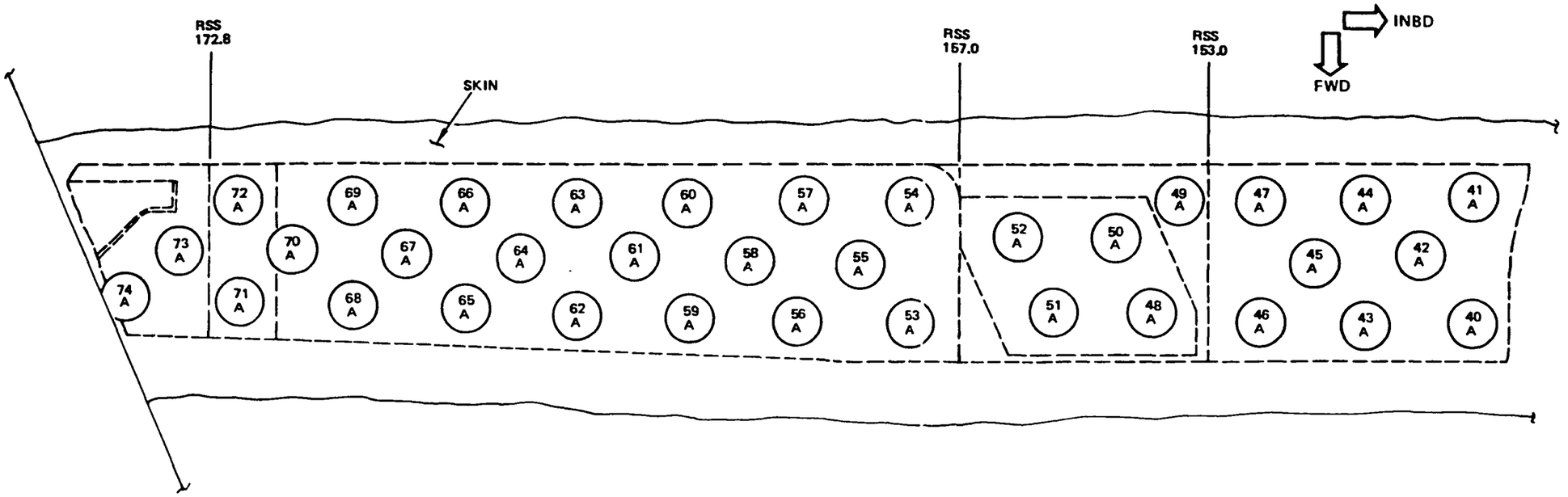
INTERNAL INSPECTION

19 PLACE PENCIL PROBE ON THE FORWARD EDGE OF THE REAR SPAR CHORD, SCAN AT DESIGNATED AREAS

23 PLACE THE PENCIL PROBE ON THE HORIZONTAL FLANGE OF THE REAR SPAR CHORD, SCAN AT DESIGNATED AREAS

SECTION A–A

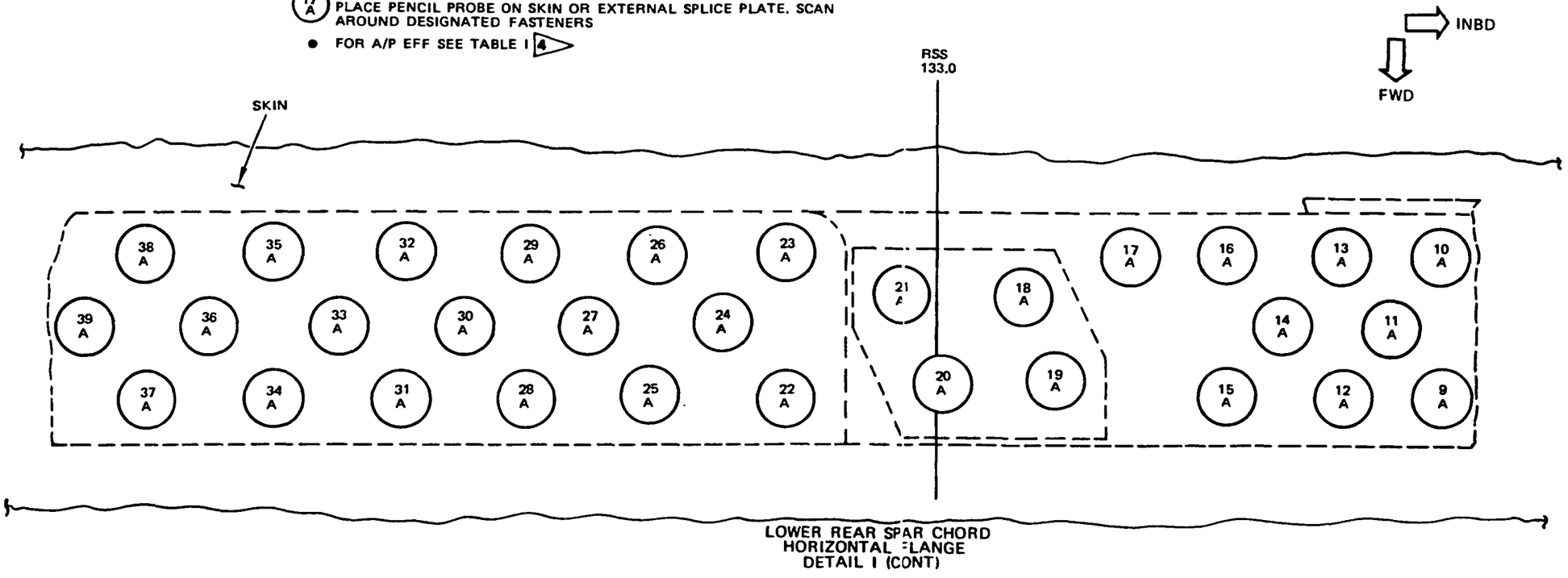
Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 53 (Sheet 9)



NOTES

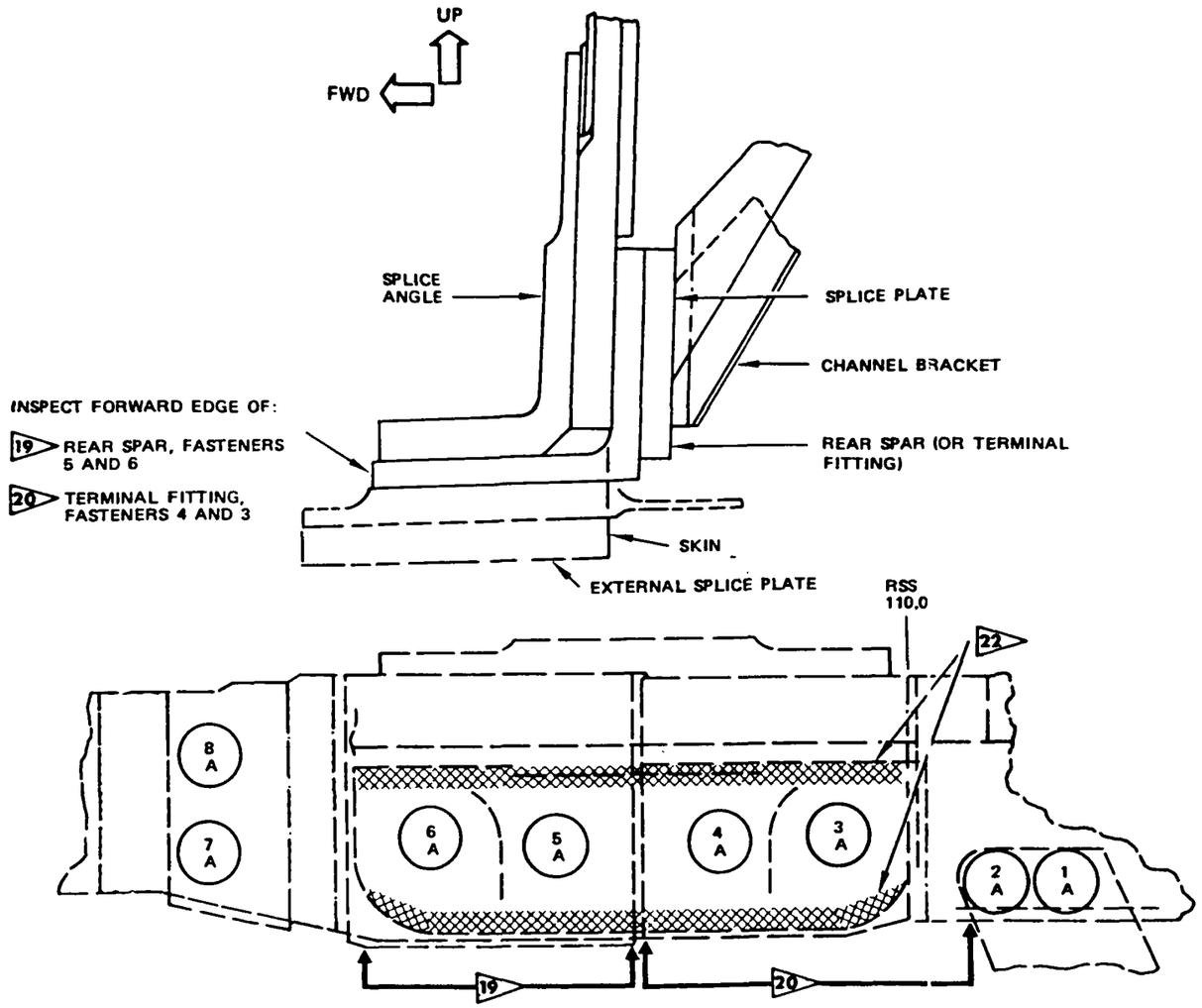
(17 A) FASTENER AREA REQUIRING INSPECTION
PLACE PENCIL PROBE ON SKIN OR EXTERNAL SPLICE PLATE. SCAN AROUND DESIGNATED FASTENERS

● FOR A/P EFF SEE TABLE I 4



LOWER REAR SPAR CHORD
HORIZONTAL FLANGE
DETAIL I (CONT)

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 53 (Sheet 10)



NOTES

SCAN AREA – INTERNAL (SEALANT REMOVAL AS REQUIRED)

5 A FASTENER AREA REQUIRING INSPECTION PLACE PENCIL PROBE ON SKIN OR EXTERNAL SPLICE PLATE. SCAN AROUND DESIGNATED FASTENERS

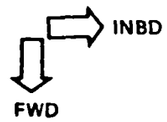
● FOR A/P EFF SEE TABLE I, 3

INTERNAL INSPECTION

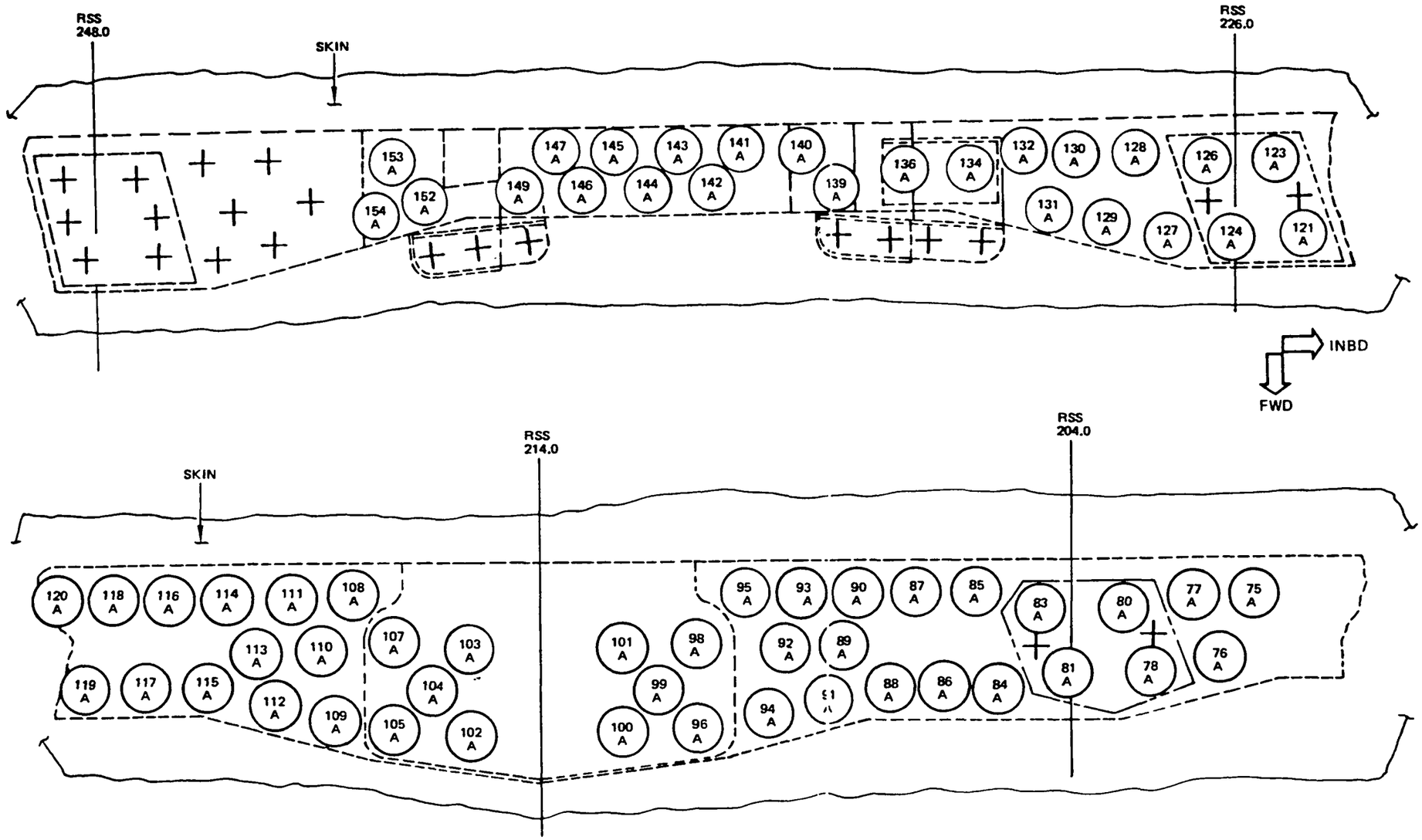
19 PLACE PENCIL PROBE ON THE FORWARD EDGE OF THE REAR SPAR CHORD, SCAN AT DESIGNATED AREAS

20 PLACE PENCIL PROBE ON THE FORWARD EDGE OF THE TERMINAL FITTING, SCAN AT DESIGNATED AREAS

22 PLACE THE PENCIL PROBE ON THE SPLICE ANGLE SCAN AT DESIGNATED AREAS



LOWER REAR SPAR CHORD
HORIZONTAL FLANGE
DETAIL I (CONT)

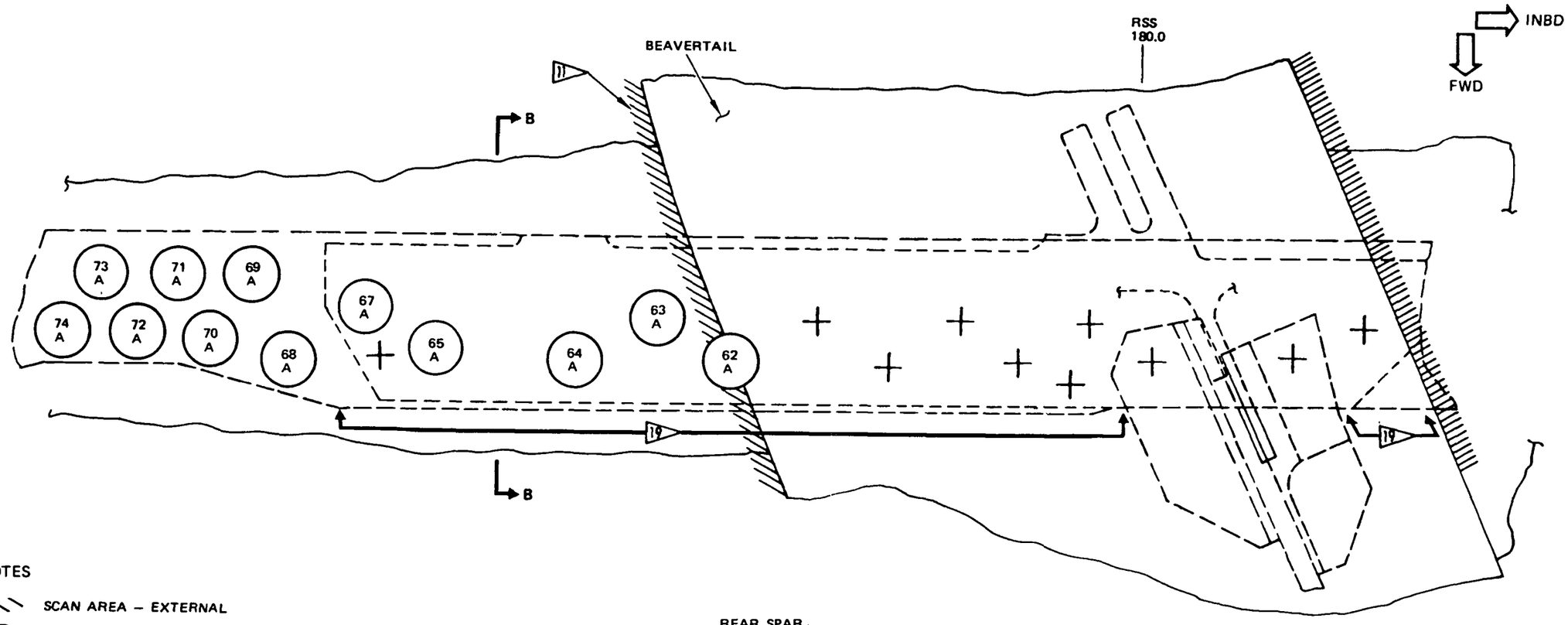


NOTES

132 A — FASTENER AREA REQUIRING INSPECTION
PLACE PENCIL PROBE ON SKIN OR EXTERNAL SPLICE PLATE.
SCAN AROUND DESIGNATED FASTENERS

- FOR A/P EFF SEE TABLE I 2

LOWER REAR SPAR CHORD
HORIZONTAL FLANGE
DETAIL I (CONT)



NOTES

SCAN AREA – EXTERNAL

(71 A) FASTENER AREA REQUIRING INSPECTION
PLACE PENCIL PROBE ON SKIN OR EXTERNAL SPLICE PLATE. SCAN AROUND DESIGNATED FASTENERS

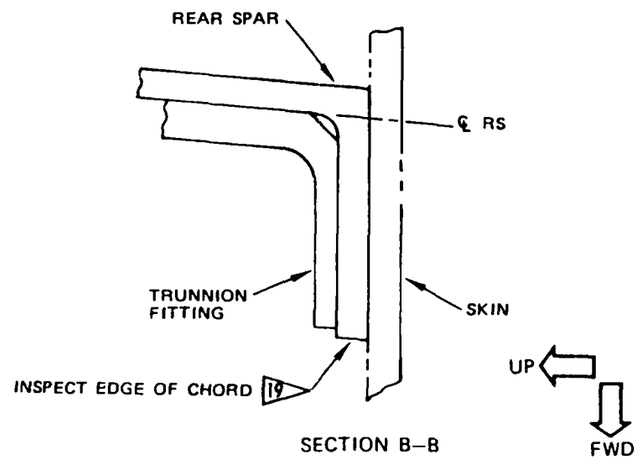
● FOR A/P EFF SEE TABLE 1, 2

EXTERNAL INSPECTION

11 PLACE PENCIL PROBE ON SKIN AND SCAN ALONG EDGE OF BEAVERTAIL FROM FORWARD EDGE OF REAR SPAR TO AS FAR AFT AS POSSIBLE

INTERNAL INSPECTION

19 PLACE PENCIL PROBE ON THE FORWARD EDGE OF THE REAR SPAR CHORD, SCAN AT DESIGNATED AREAS

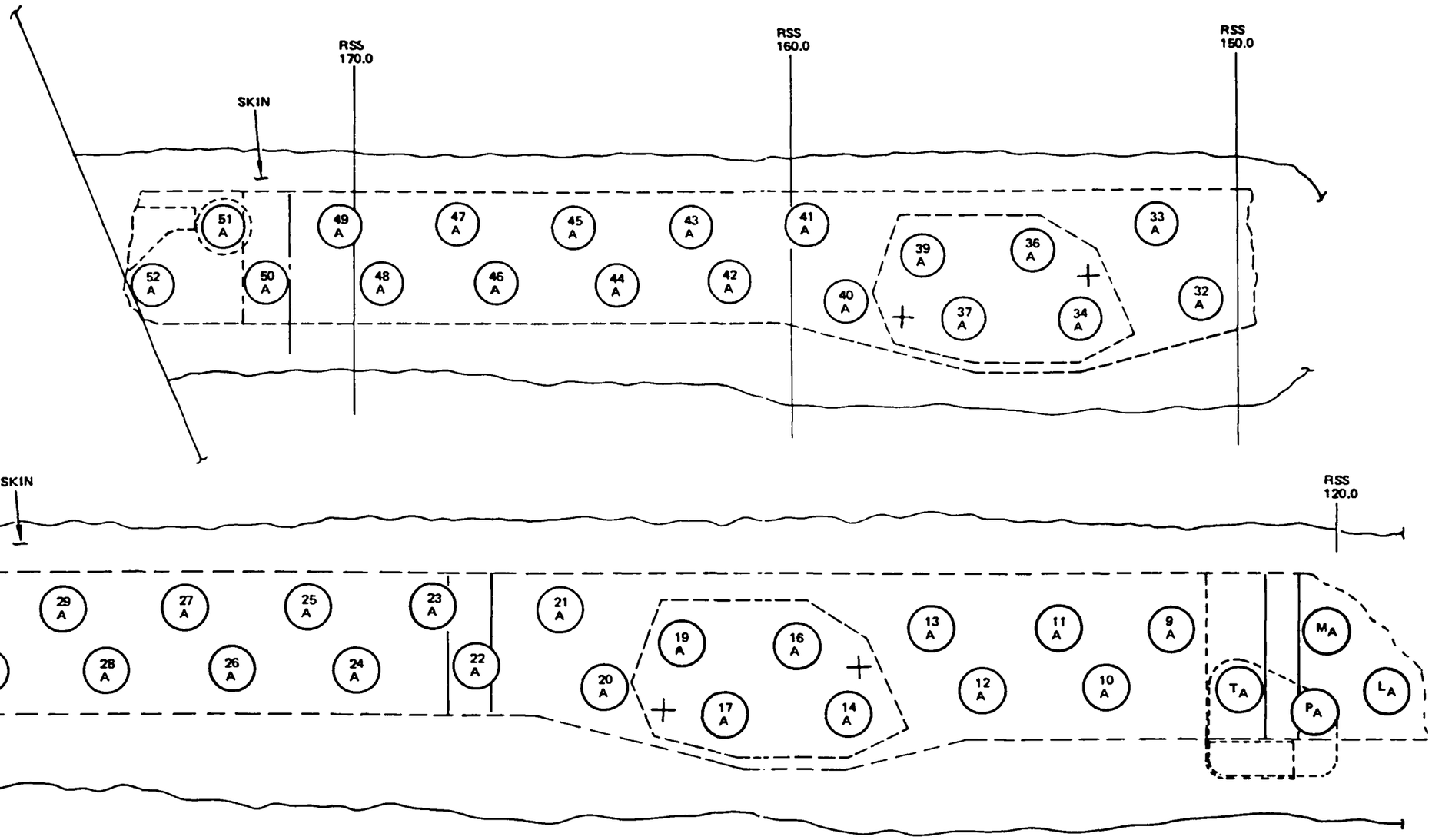


SECTION B–B

LOWER REAR SPAR CHORD
HORIZONTAL FLANGE

DETAIL 1 (CONT)

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 53 (Sheet 13)

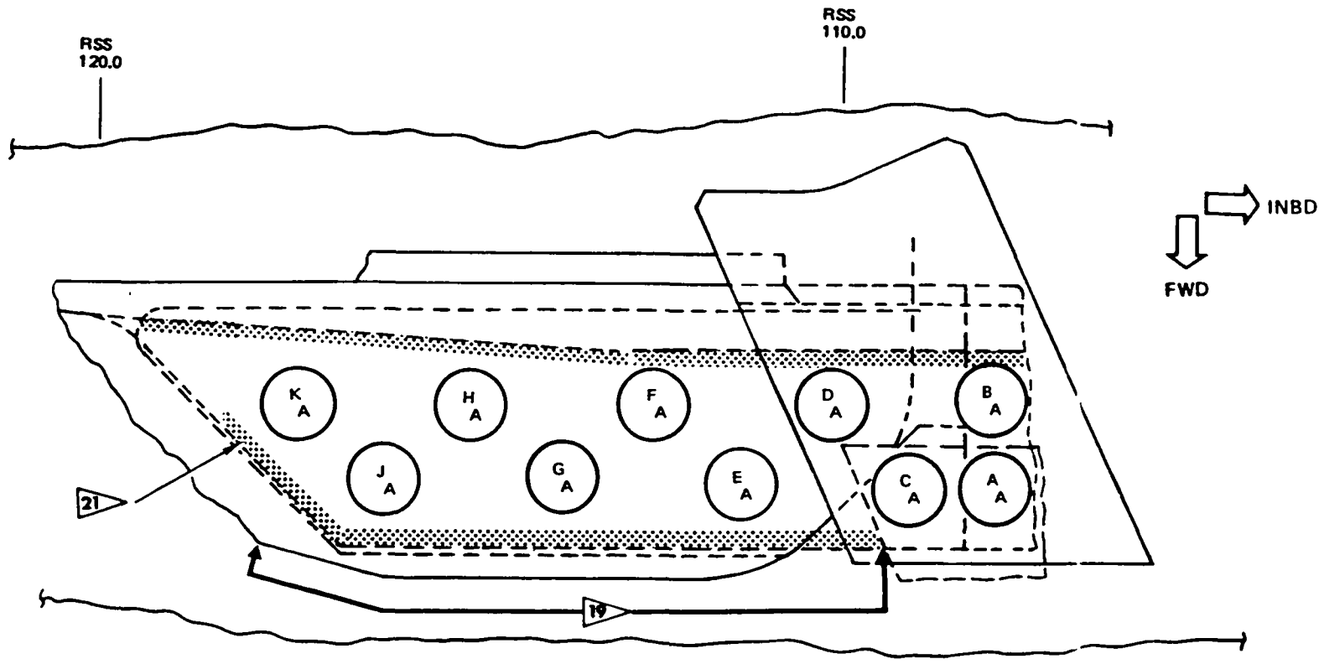


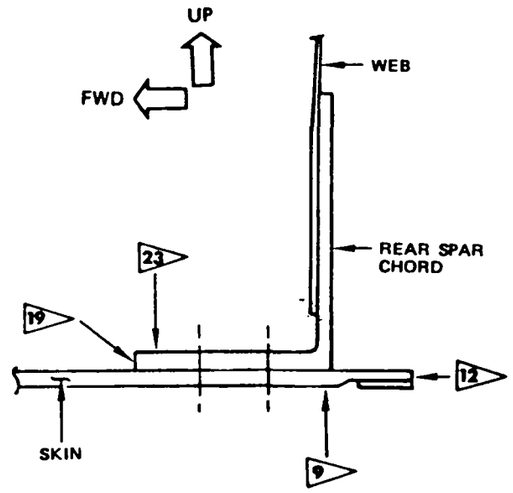
NOTES

(21 A) FASTENER AREA REQUIRING INSPECTION
PLACE PENCIL PROBE ON SKIN OR EXTERNAL SPLICE PLATE. SCAN AROUND DESIGNATED FASTENERS

● FOR A/P EFF SEE TABLE I (2)

LOWER REAR SPAR CHORD
HORIZONTAL FLANGE
DETAIL I (CONT)





TYPICAL SECTION FOR PROBE POSITIONS

NOTES

SCAN AREA – INTERNAL

(H A) FASTENER AREA REQUIRING INSPECTION
PLACE PENCIL PROBE ON SKIN OR EXTERNAL SPLICE PLATE. SCAN AROUND DESIGNATED FASTENERS

● FOR A/P EFF SEE TABLE I 1

EXTERNAL INSPECTION

9 PLACE PENCIL PROBE ON SKIN AS FAR AFT AS POSSIBLE, SCAN FROM SIDE OF BODY TO WS 733 PRODUCTION BREAK. FOR INSPECTION AT INACCESSIBLE LOCATIONS, SEE 19 AND 21

12 PLACE PENCIL PROBE ON SKIN TRAILING EDGE, SCAN AT FUEL JETTISON CHUTE

INTERNAL INSPECTION

19 PLACE PENCIL PROBE ON THE FORWARD EDGE OF THE REAR SPAR CHORD, SCAN AT DESIGNATED AREAS

21 PLACE THE PENCIL PROBE ON THE TERMINAL FITTING. SCAN AT DESIGNATED AREAS

23 PLACE THE PENCIL PROBE ON THE HORIZONTAL FLANGE OF THE REAR SPAR CHORD, SCAN AT DESIGNATED AREAS

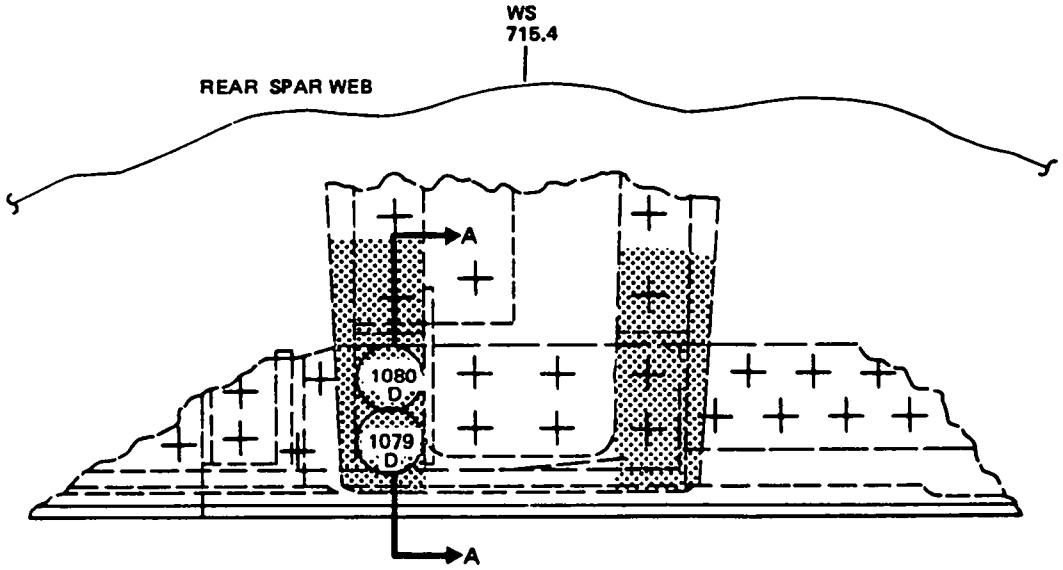
LOWER REAR SPAR CHORD
HORIZONTAL FLANGE
DETAIL I (CONT)

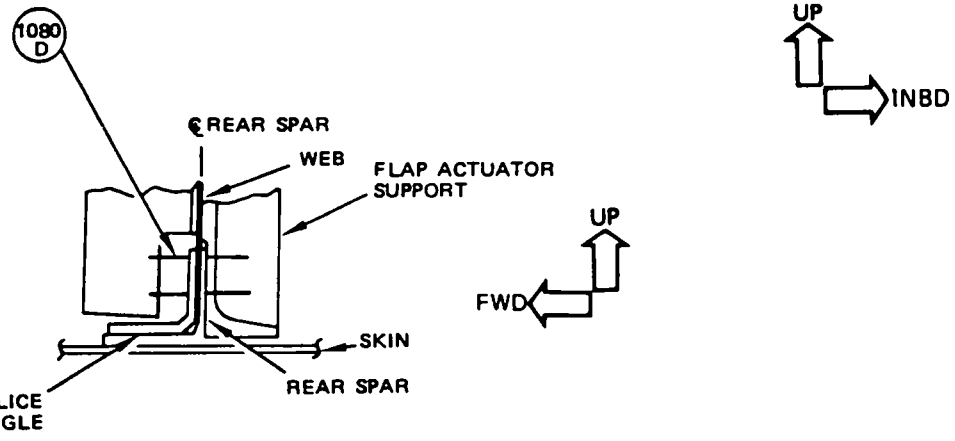
NOTES

SCAN AREA – INTERNAL

1080 D FASTENER AREA REQUIRING INSPECTION
PLACE PENCIL PROBE ON THE SPLICE ANGLE. SCAN ABOVE AND BELOW FASTENERS.

● FOR A/P EFF SEE TABLE I 7

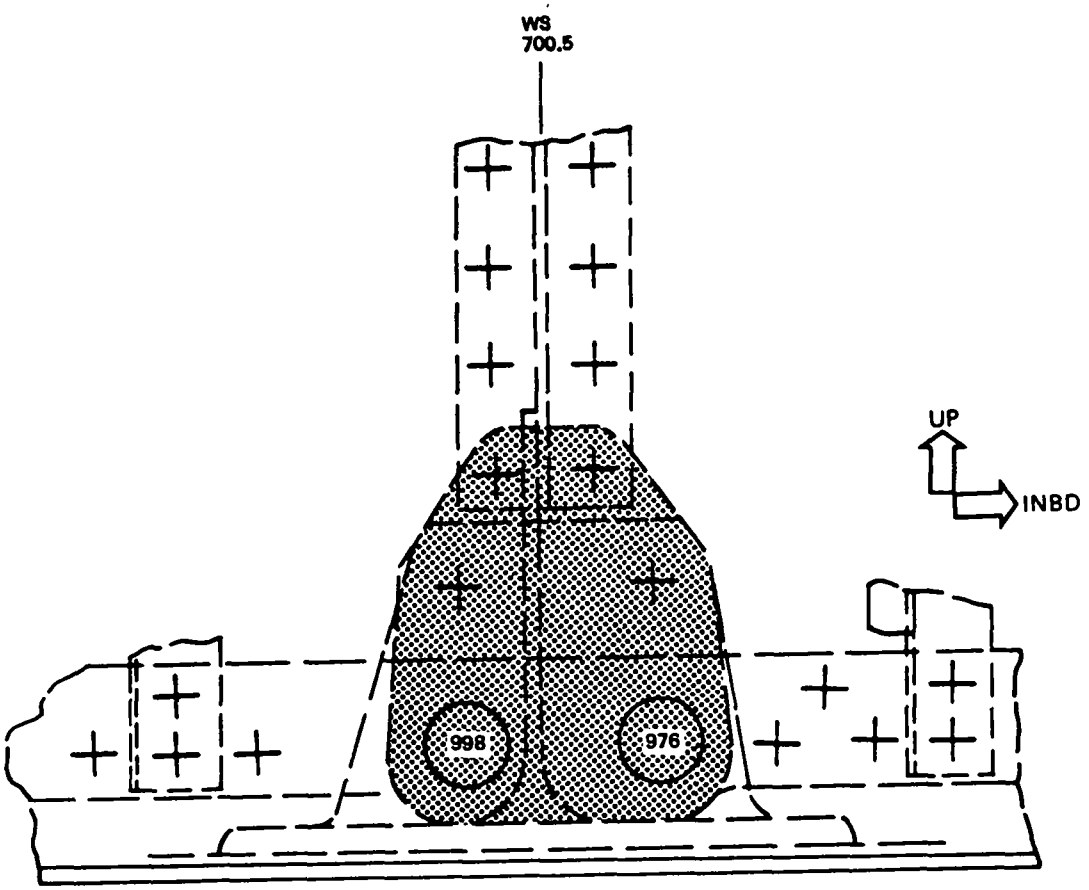




SECTION A–A

LOWER REAR SPAR CHORD
VERTICAL FLANGE
DETAIL II

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 53 (Sheet 16)



LOWER REAR SPAR CHORD
VERTICAL FLANGE
DETAIL II (CONT)

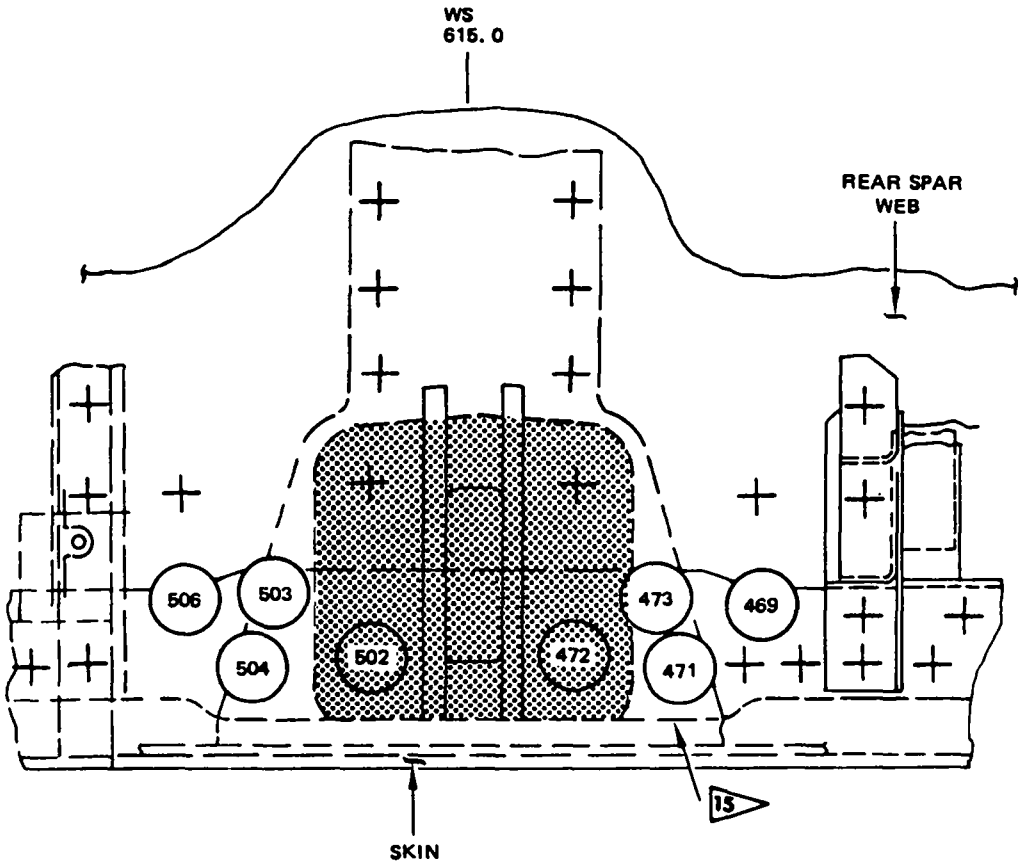
NOTES

SCAN AREA – INTERNAL

(976) FASTENER AREA REQUIRING INSPECTION
PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD
SCAN ABOVE AND BELOW DESIGNATED FASTENERS WHICH ARE
NOT COMMON TO EXTERNAL FITTINGS.

- FOR A/P EFF SEE TABLE I 7

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 53 (Sheet 17)



NOTES:

SCAN AREA – INTERNAL

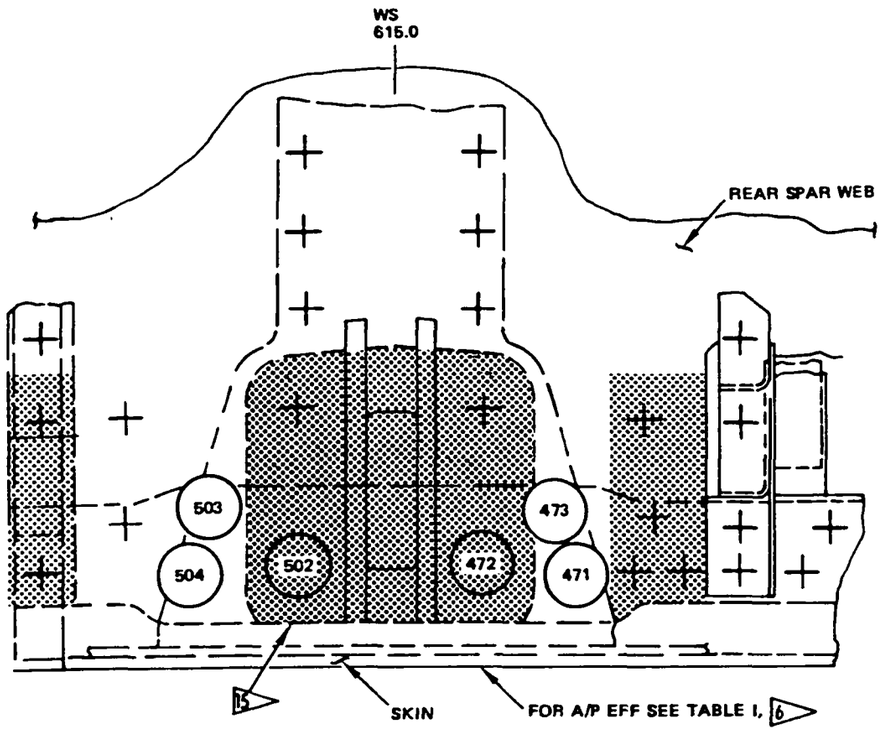
506 FASTENER AREA REQUIRING INSPECTION
PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD.
SCAN ABOVE AND BELOW DESIGNATED FASTENERS WHICH ARE
NOT COMMON TO EXTERNAL FITTINGS.

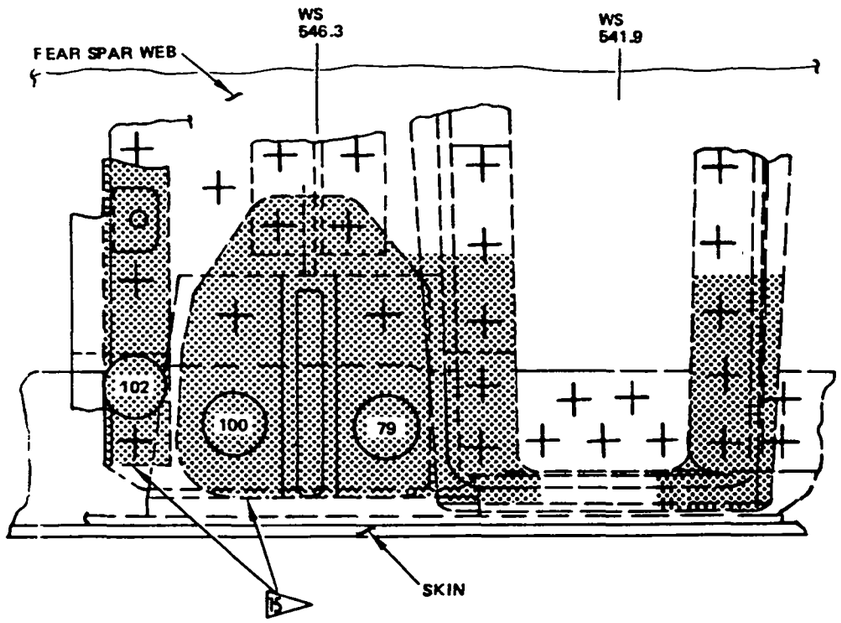
EXTERNAL

15 PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD,
SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED.

• FOR A/P EFF SEE TABLE I, 5

LOWER REAR SPAR CHORD
VERTICAL FLANGE
DETAIL II (CONT)





NOTE:

SCAN AREA – INTERNAL

(79) FASTENER AREA REQUIRING INSPECTION
PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD.
SCAN ABOVE AND BELOW DESIGNATED FASTENERS WHICH ARE
NOT COMMON TO EXTERNAL FITTINGS

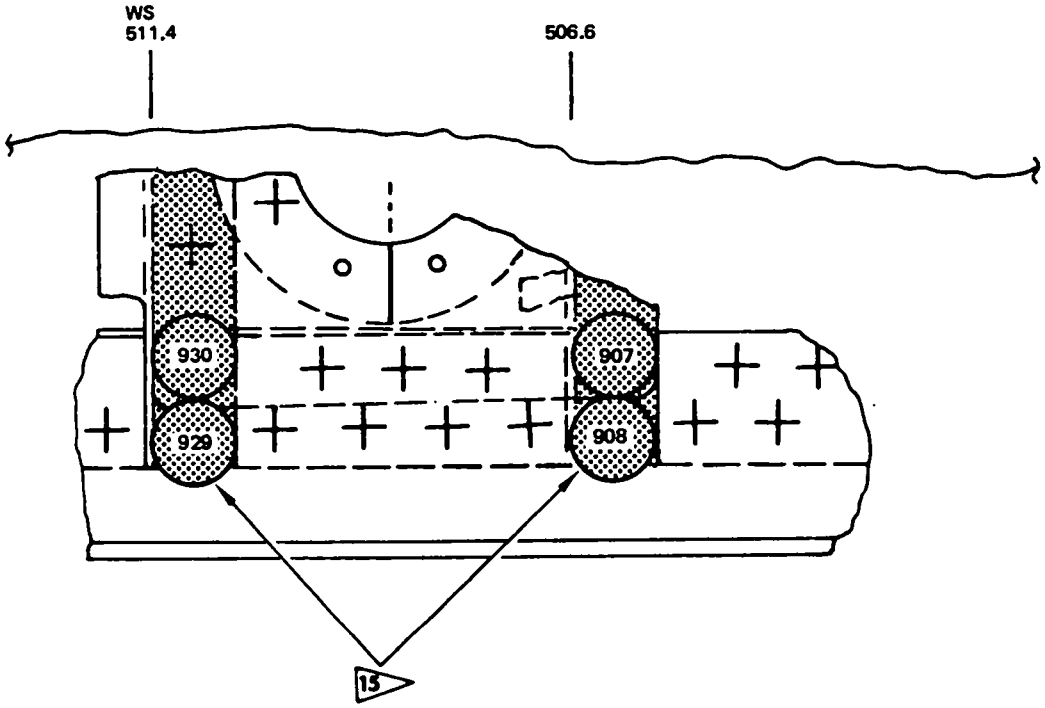
● FOR A/P EFF SEE TABLE I, 7

15 PLACE PENCIL PROBLE ON VERTICAL FLANGE OF SPAR CHORD,
SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

UP
INBD

LOWER REAR SPAR CHORD
VERTICAL FLANGE
DETAIL II (CONT)

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 53 (Sheet 19)



NOTES

SCAN AREA – INTERNAL

(930) FASTENER AREA REQUIRING INSPECTION
PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD
SCAN ABOVE AND BELOW DESIGNATED FASTENERS WHICH ARE
NOT COMMON TO EXTERNAL FITTINGS

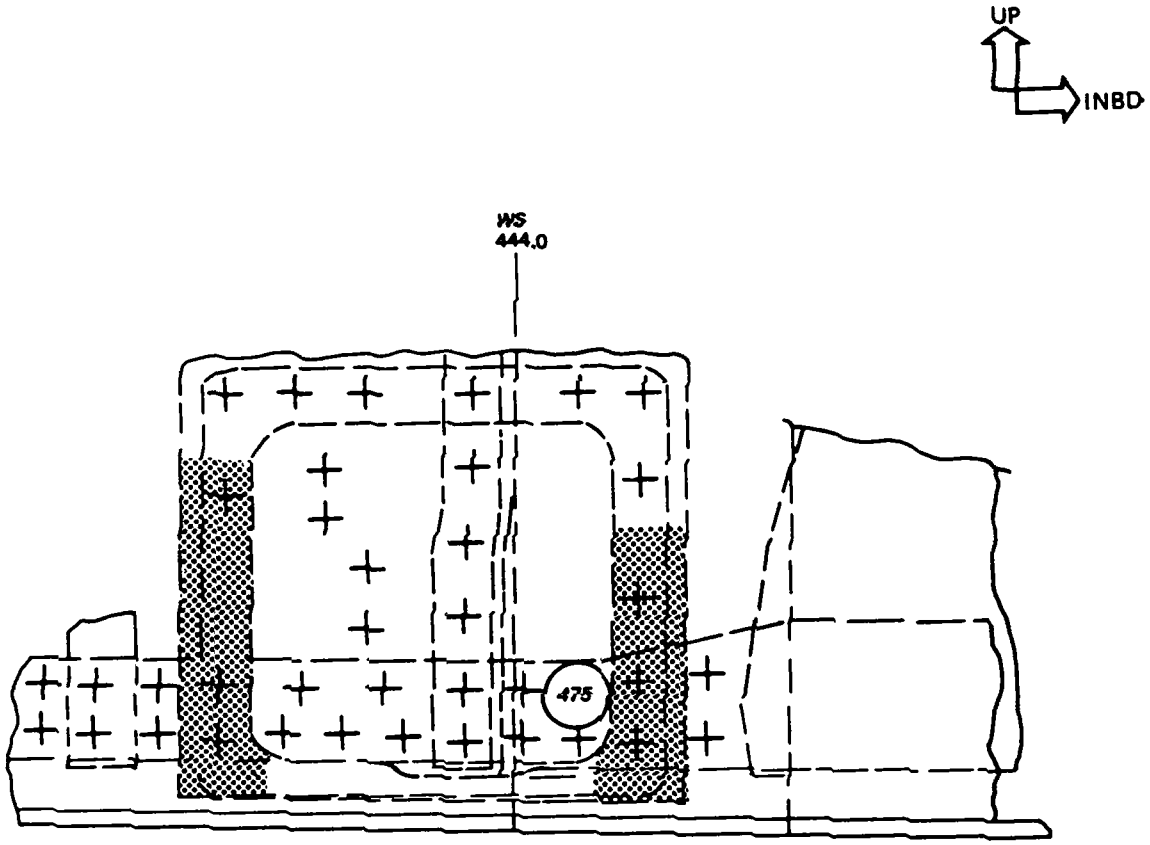
● FOR A/P EFF SEE TABLE I 7

EXTERNAL

15 PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD.
SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

LOWER REAR SPAR CHORD
VERTICAL FLANGE
DETAIL II (CONT)

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 53 (Sheet 20)



LOWER REAR SPAR CHORD
VERTICAL FLANGE
DETAIL II (CONT)

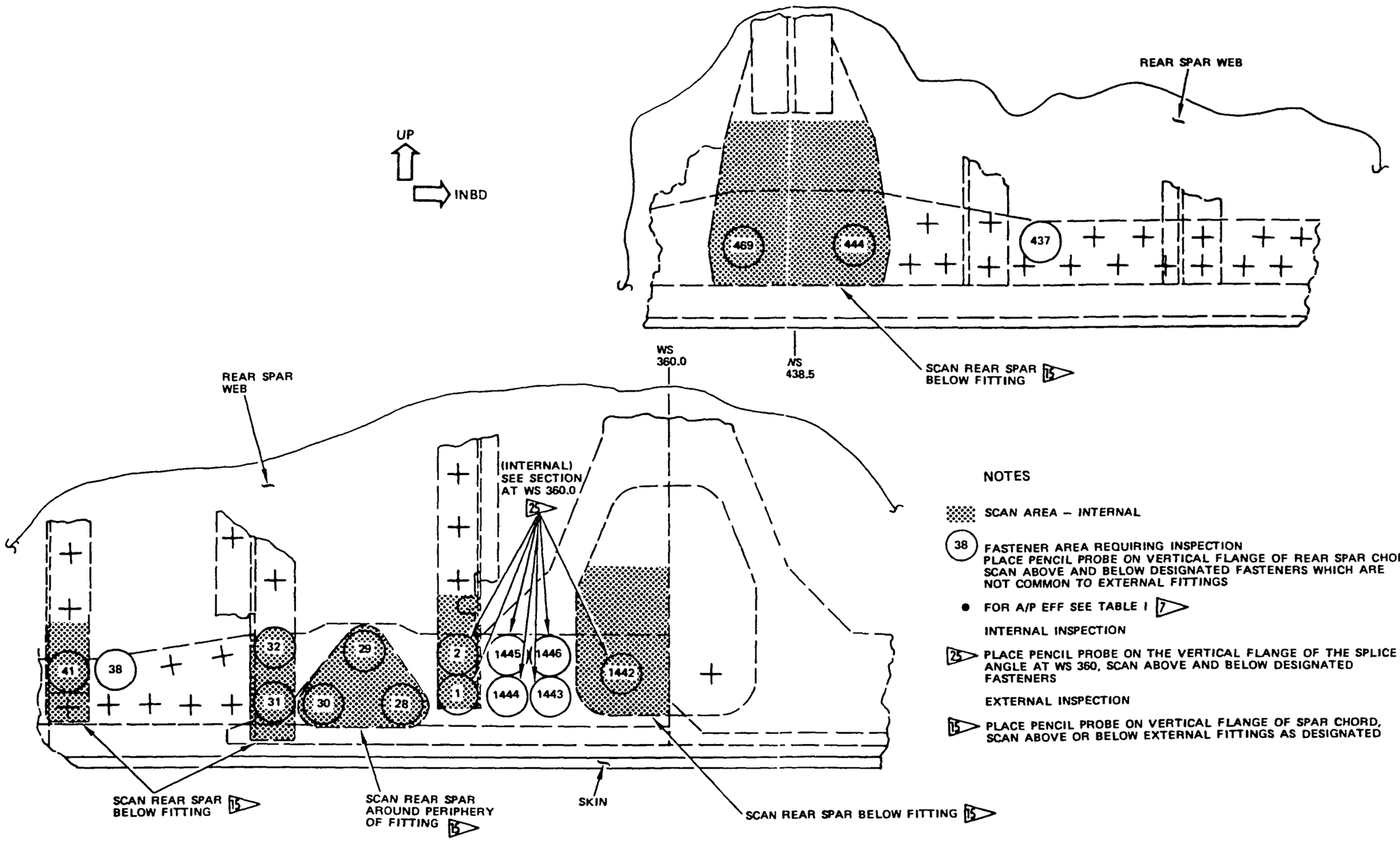
NOTES

SCAN AREA – INTERNAL

● FOR A/P EFF SEE TABLE I 7

(475) FASTENER AREA REQUIRING INSPECTION
PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD. SCAN ABOVE AND BELOW DESIGNATED FASTENERS WHICH ARE NOT COMMON TO EXTERNAL FITTINGS

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 53 (Sheet 21)



NOTES

SCAN AREA – INTERNAL

(38) FASTENER AREA REQUIRING INSPECTION
PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD. SCAN ABOVE AND BELOW DESIGNATED FASTENERS WHICH ARE NOT COMMON TO EXTERNAL FITTINGS

- FOR A/P EFF SEE TABLE I 7

INTERNAL INSPECTION

25 PLACE PENCIL PROBE ON THE VERTICAL FLANGE OF THE SPLICE ANGLE AT WS 360, SCAN ABOVE AND BELOW DESIGNATED FASTENERS

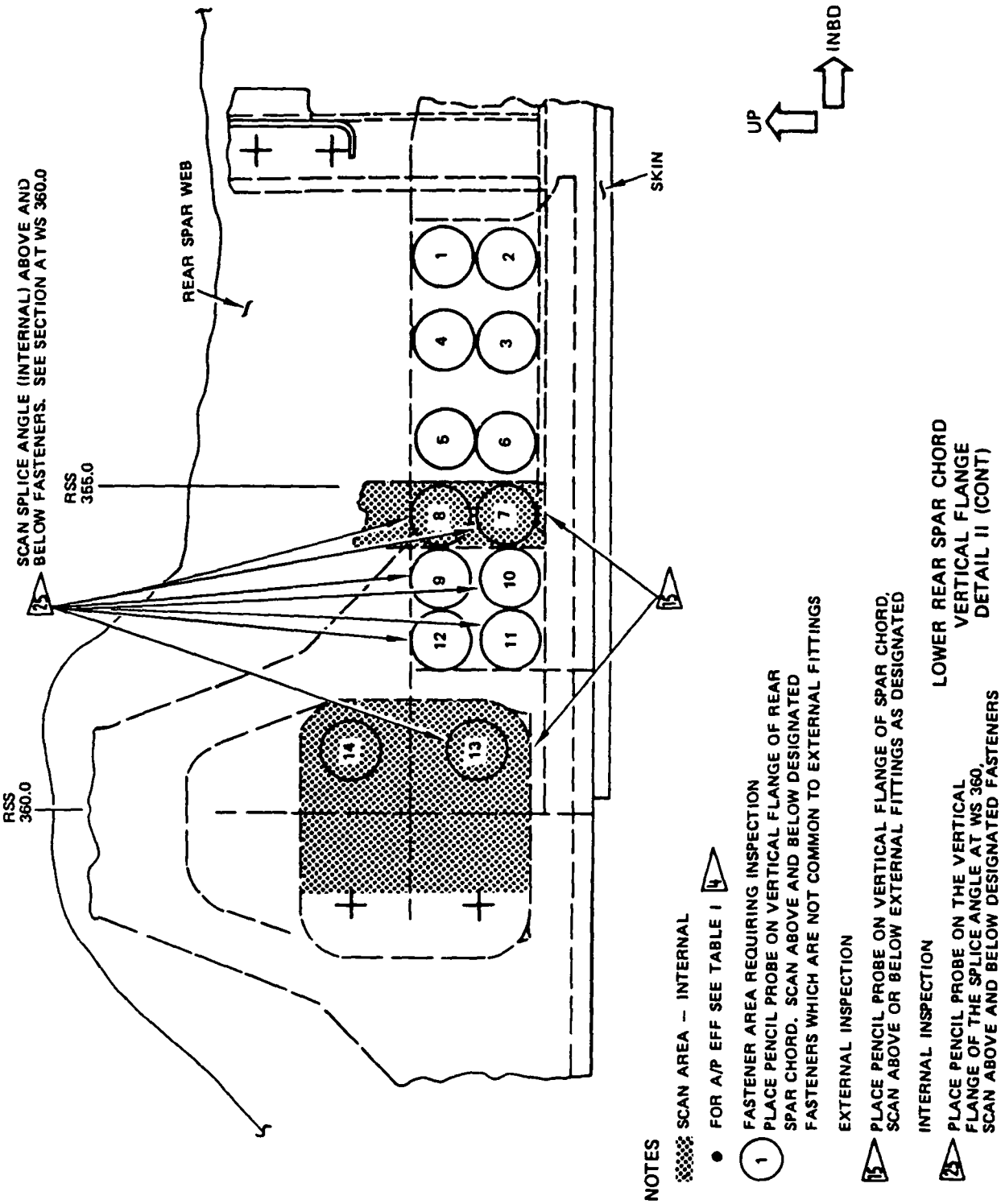
EXTERNAL INSPECTION

15 PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD, SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

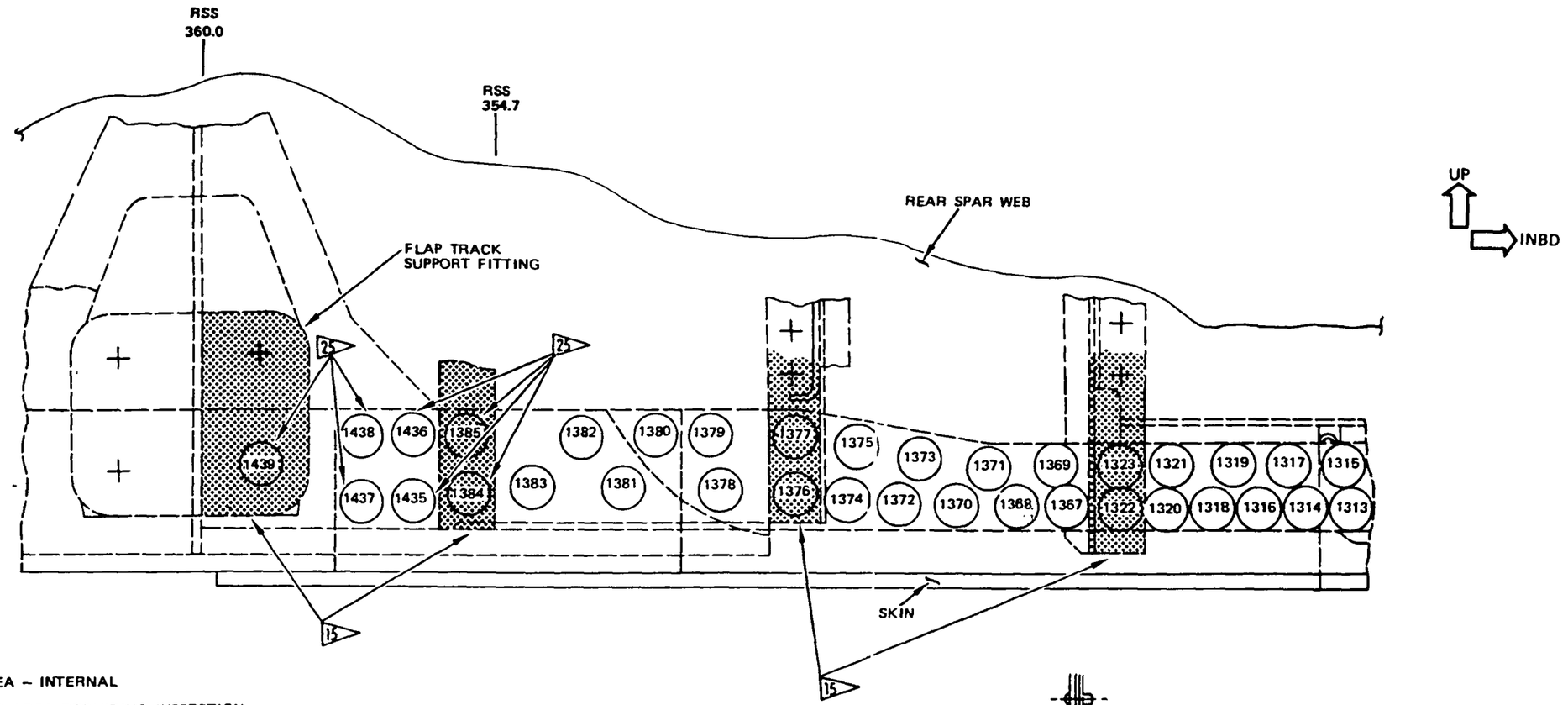
LOWER REAR SPAR CHORD
VERTICAL FLANGE

DETAIL II (CONT)

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 53 (Sheet 22)



Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 53 (Sheet 23)



NOTES

SCAN AREA – INTERNAL

(1373) FASTENER AREA REQUIRING INSPECTION
PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD, SCAN ABOVE AND BELOW DESIGNATED FASTENERS WHICH ARE NOT COMMON TO EXTERNAL FITTINGS

- FOR A/P EFF SEE TABLE I (7)

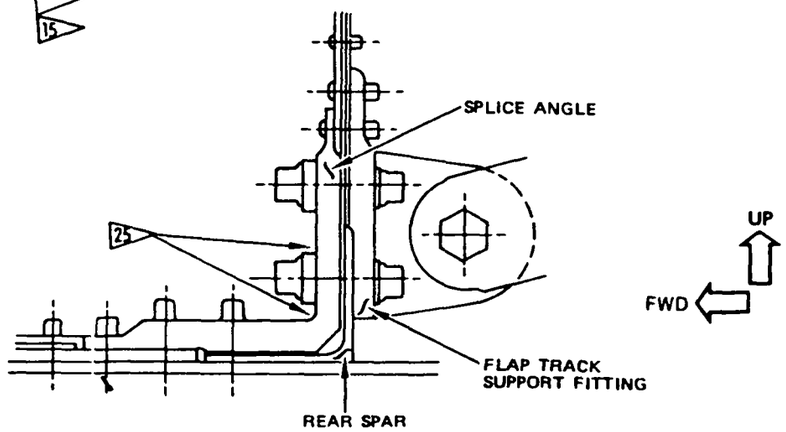
EXTERNAL INSPECTION

(15) PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD, SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

INTERNAL INSPECTION

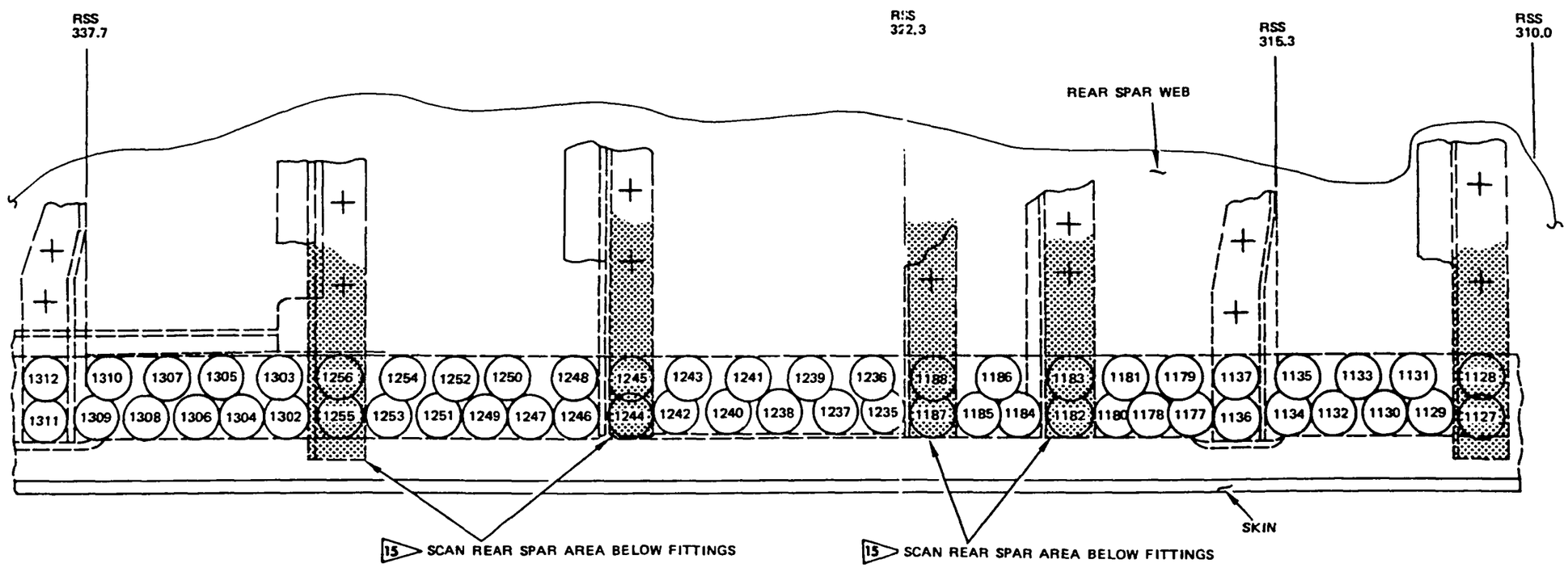
(25) PLACE PENCIL PROBE ON THE VERTICAL FLANGE OF THE SPLICE ANGLE AT WS 360, SCAN ABOVE AND BELOW DESIGNATED FASTENERS

LOWER REAR SPAR CHORD
VERTICAL FLANGE
DETAIL II (CONT)



SECTION AT ℄ WS 360

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 53 (Sheet 24)



NOTES

SCAN AREA – INTERNAL

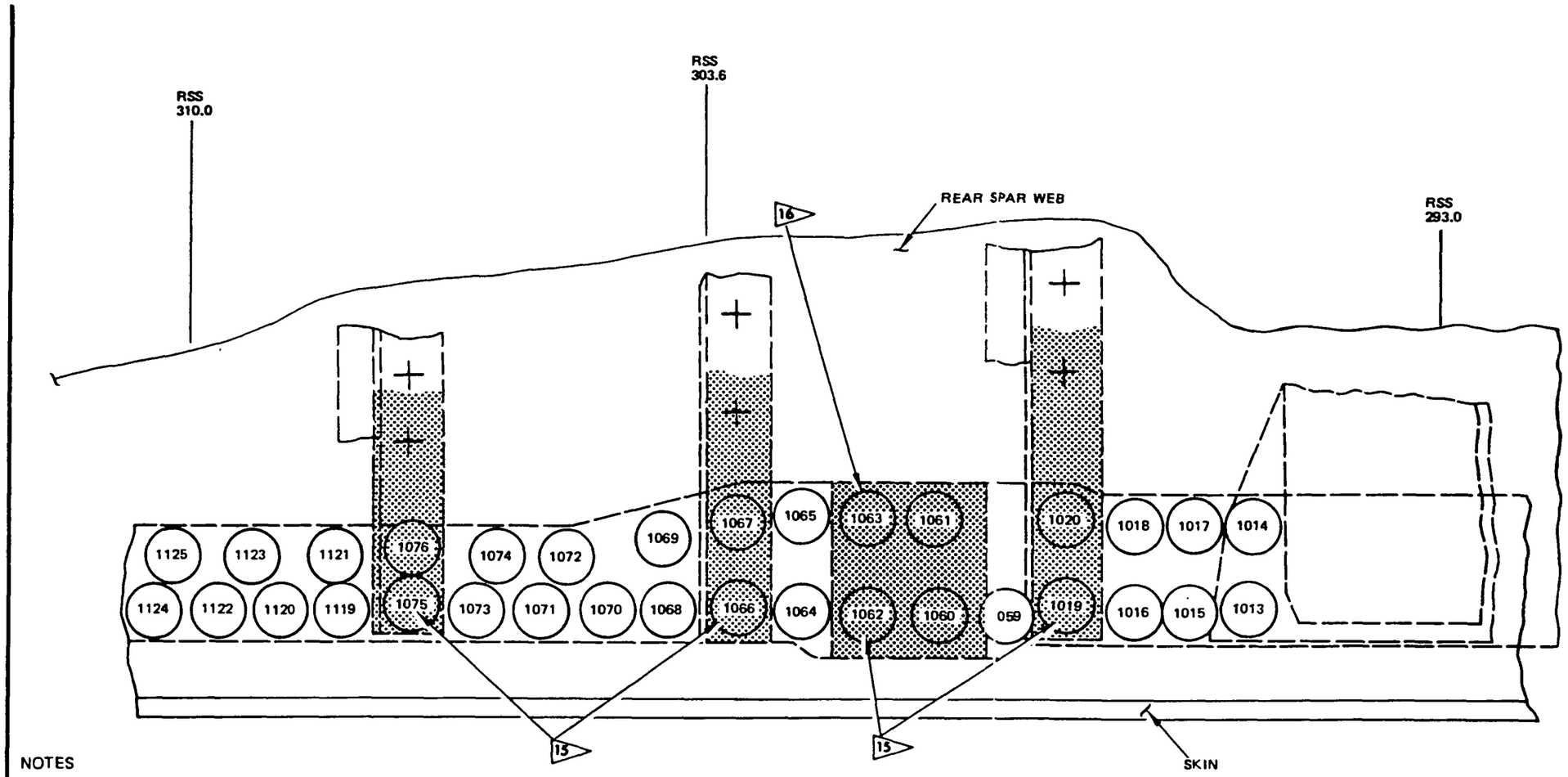
(1236) FASTENER AREA REQUIRING INSPECTION
PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD, SCAN ABOVE AND BELOW DESIGNATED FASTENERS WHICH ARE NOT COMMON TO EXTERNAL FITTINGS

● FOR A/P EFF SEE TABLE I 7

15 EXTERNAL
PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD. SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

UP
INBD

LOWER REAR SPAR CHORD
VERTICAL FLANGE
DETAIL II (CONT)



NOTES

SCAN AREA – INTERNAL

(1013) FASTENER AREA REQUIRING INSPECTION
PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD
SCAN ABOVE AND BELOW DESIGNATED FASTENERS WHICH ARE
NOT COMMON TO EXTERNAL FITTINGS

• FOR A/P EFF SEE TABLE I 7

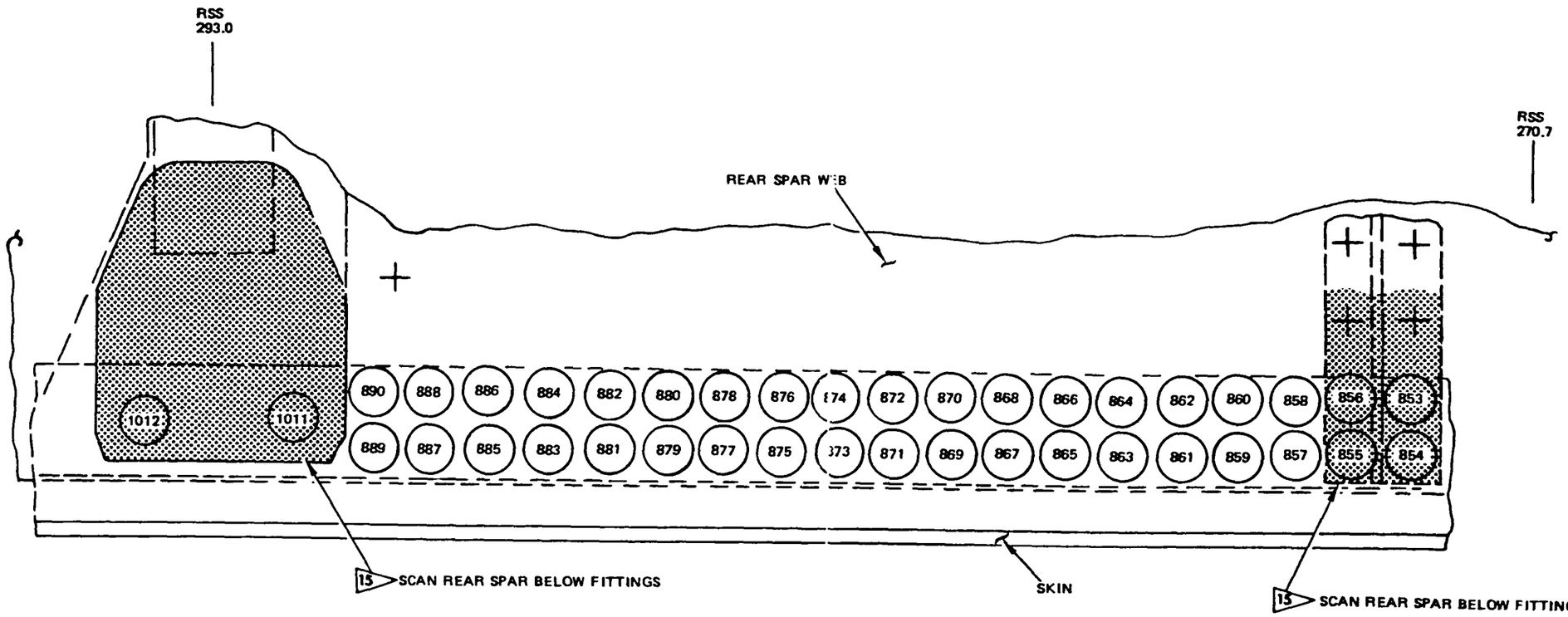
EXTERNAL

15 PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD,
SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

16 PLACE PENCIL PROBE ON EDGE OF REAR SPAR CHORD VERTICAL
FLANGE, SCAN BEHIND EXTERNAL FITTINGS

UP
INBD

LOWER REAR SPAR CHORD
VERTICAL FLANGE
DETAIL II (CONT)



NOTES

SCAN AREA – INTERNAL

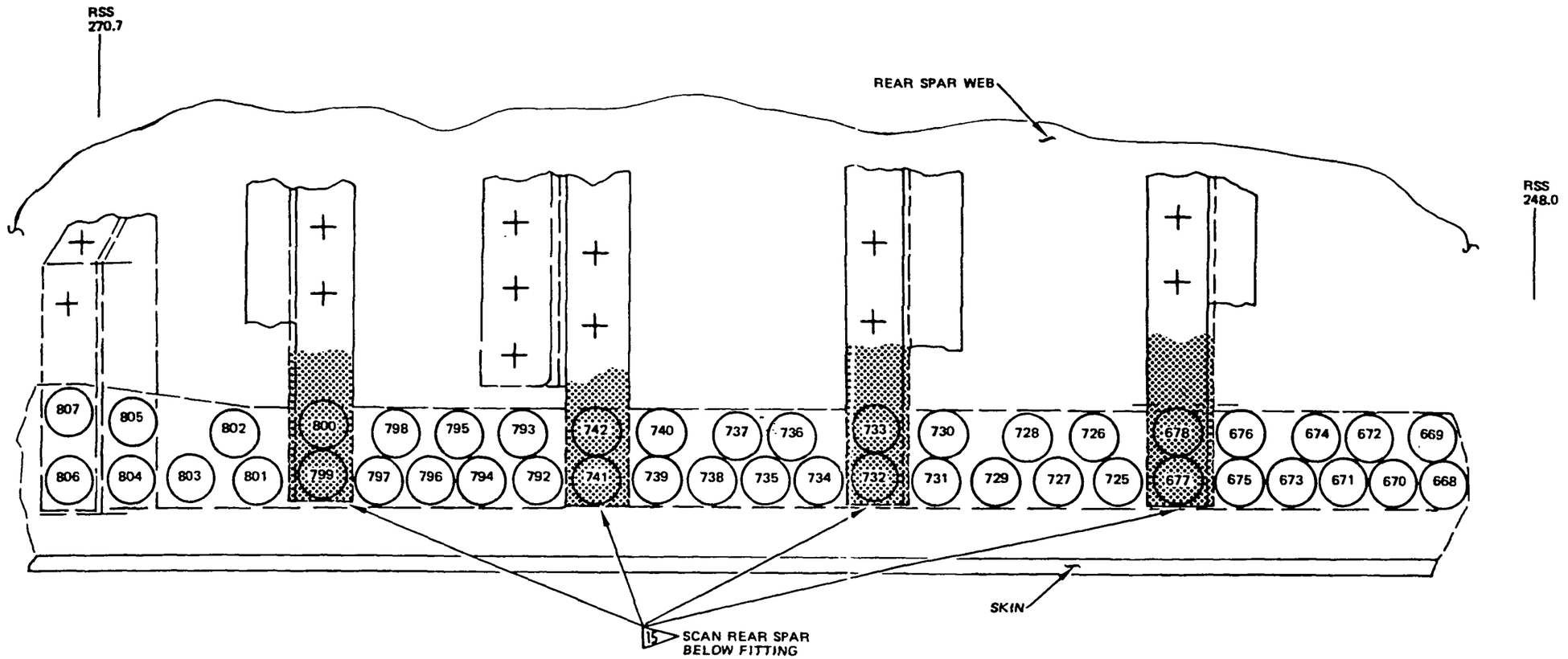
857 FASTENER AREA REQUIRING INSPECTION
PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD
SCAN ABOVE AND BELOW DESIGNATED FASTENERS WHICH ARE
NOT COMMON TO EXTERNAL FITTINGS

● FOR A/P EFF SEE TABLE 1 7
EXTERNAL

15 PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD,
SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

UP
INBD

LOWER REAR SPAR CHORD
VERTICAL FLANGE
DETAIL II (CONT)



NOTES

SCAN AREA – INTERNAL

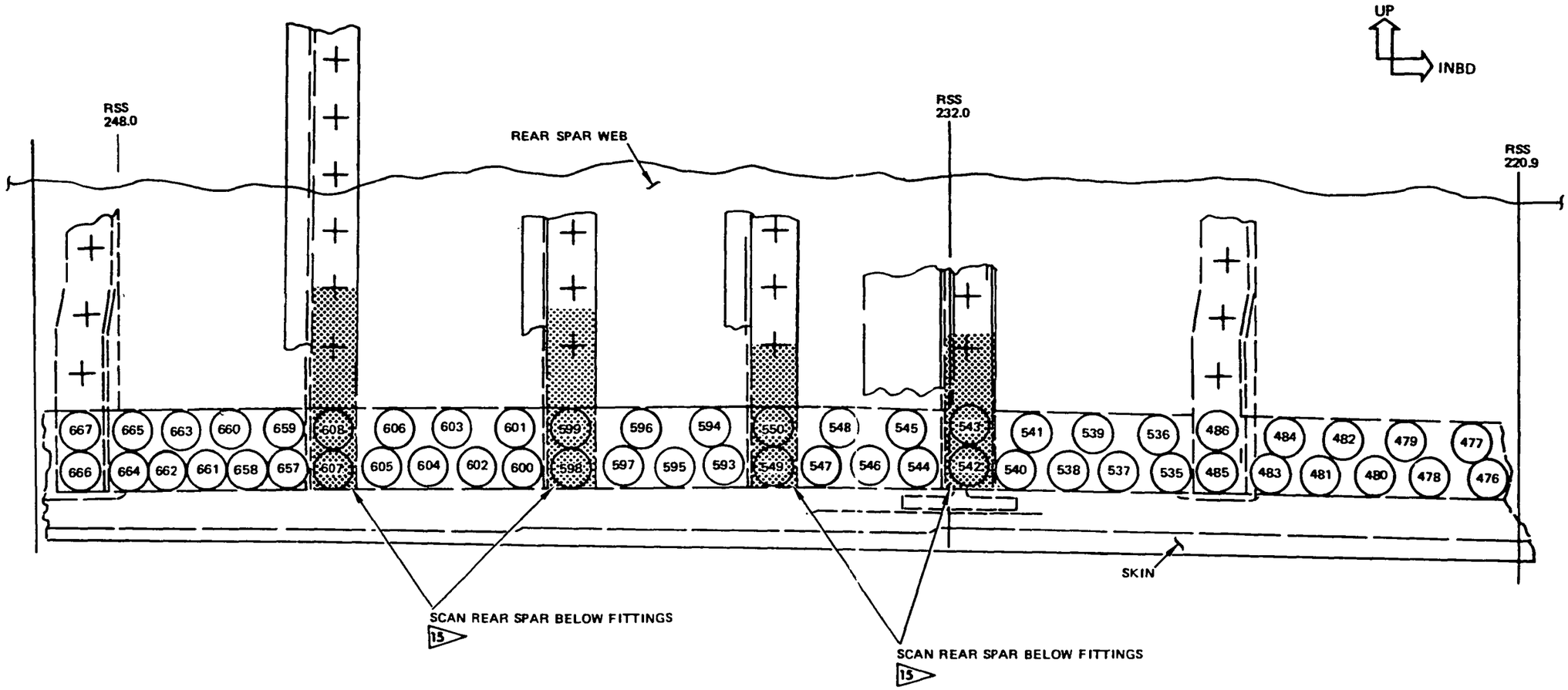
• FOR A/P EFF SEE TABLE I 7

(737) FASTENER AREA REQUIRING INSPECTION
PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD
SCAN ABOVE AND BELOW DESIGNATED FASTENERS WHICH ARE
NOT COMMON TO EXTERNAL FITTINGS

15 PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD,
SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

LOWER REAR SPAR CHORD VERTICAL FLANGE
DETAIL II (CONT)

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 53 (Sheet 28)



NOTES

SCAN AREA – INTERNAL

● FOR A/P EFF SEE TABLE I 7

(536) FASTENER AREA REQUIRING INSPECTION
PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD. SCAN ABOVE AND BELOW DESIGNATED FASTENERS WHICH ARE NOT COMMON TO EXTERNAL FITTINGS

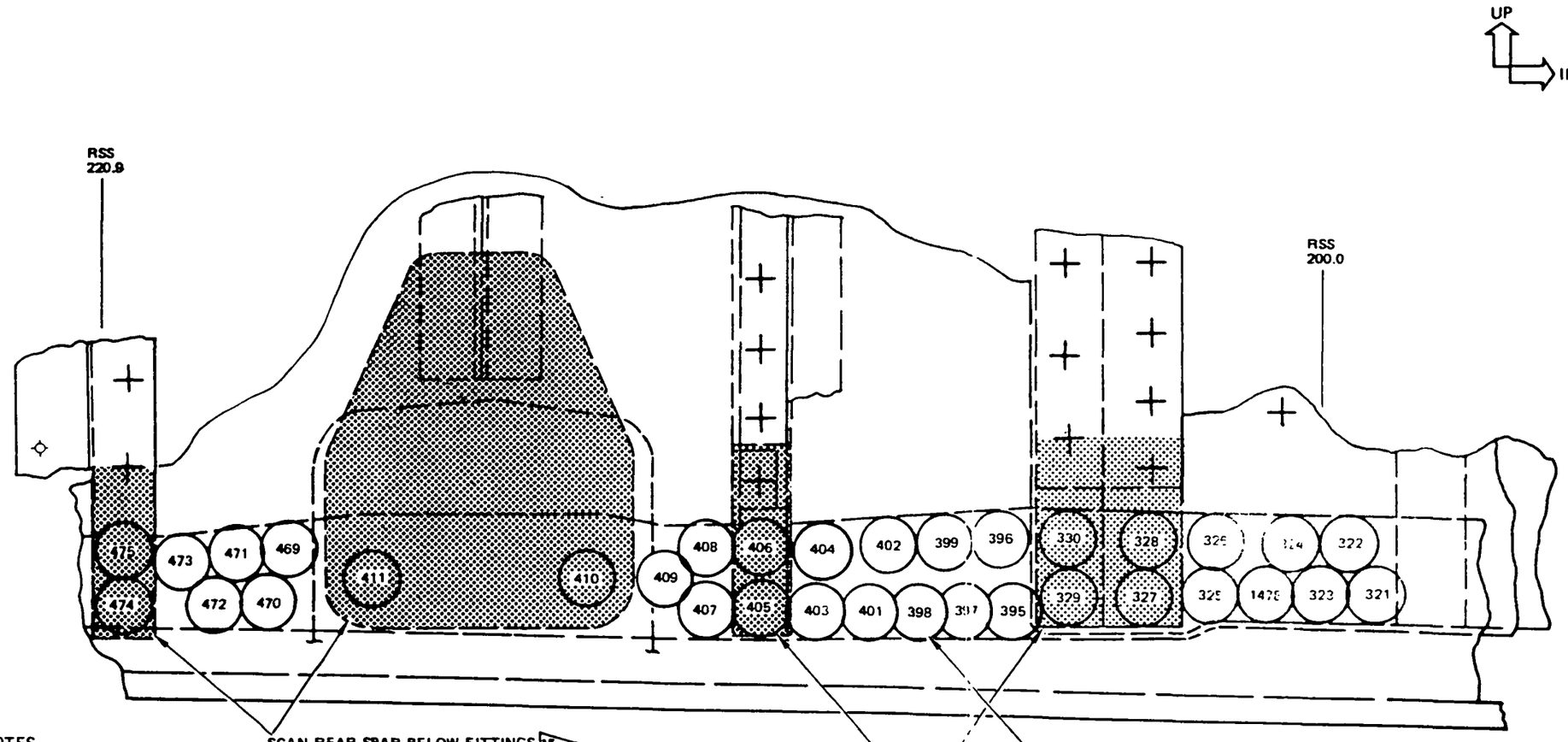
EXTERNAL

15 PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD, SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

LOWER REAR SPAR CHORD
VERTICAL FLANGE

DETAIL II (CONT)

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 53 (Sheet 29)



NOTES

SCAN AREA – INTERNAL

● FOR A/P EFF SEE TABLE I 7

(410) FASTENER AREA REQUIRING INSPECTION
PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD.
SCAN ABOVE AND BELOW DESIGNATED FASTENERS WHICH ARE NOT COMMON TO EXTERNAL FITTINGS

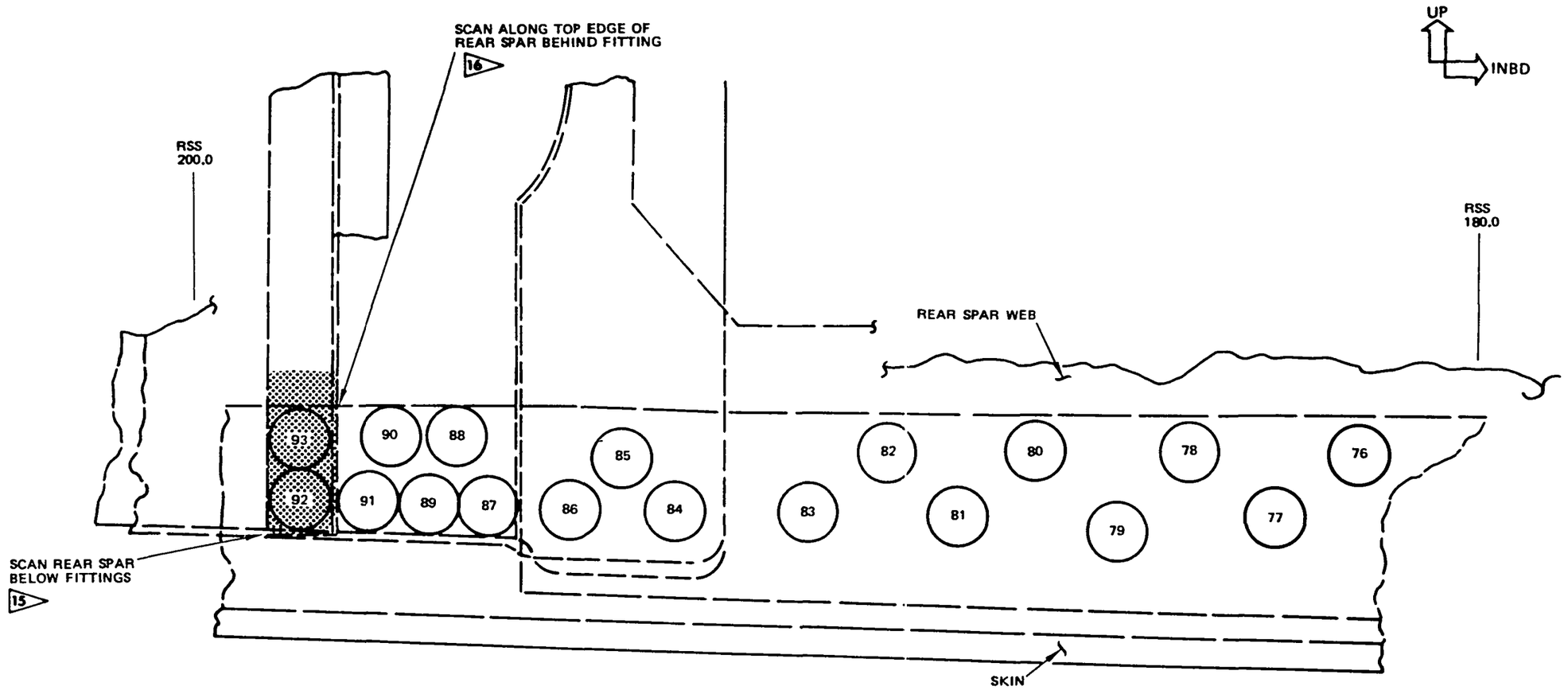
EXTERNAL

15 PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

LOWER REAR SPAR CHORD
VERTICAL FLANGE

DETAIL II (CONT)

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 53 (Sheet 30)



NOTES

SCAN AREA – INTERNAL

● FOR A/P EFF SEE TABLE I 7

(80) FASTENER AREA REQUIRING INSPECTION PLACE PENCIL PROBE ONVERTICAL FLANGE OF REAR SPAR CHORD .SCAN ABOVE AND BELOW DESIGNATED FASTENERS WHICH ARE NOT COMMON TO EXTERNAL FITTINGS

EXTERNAL

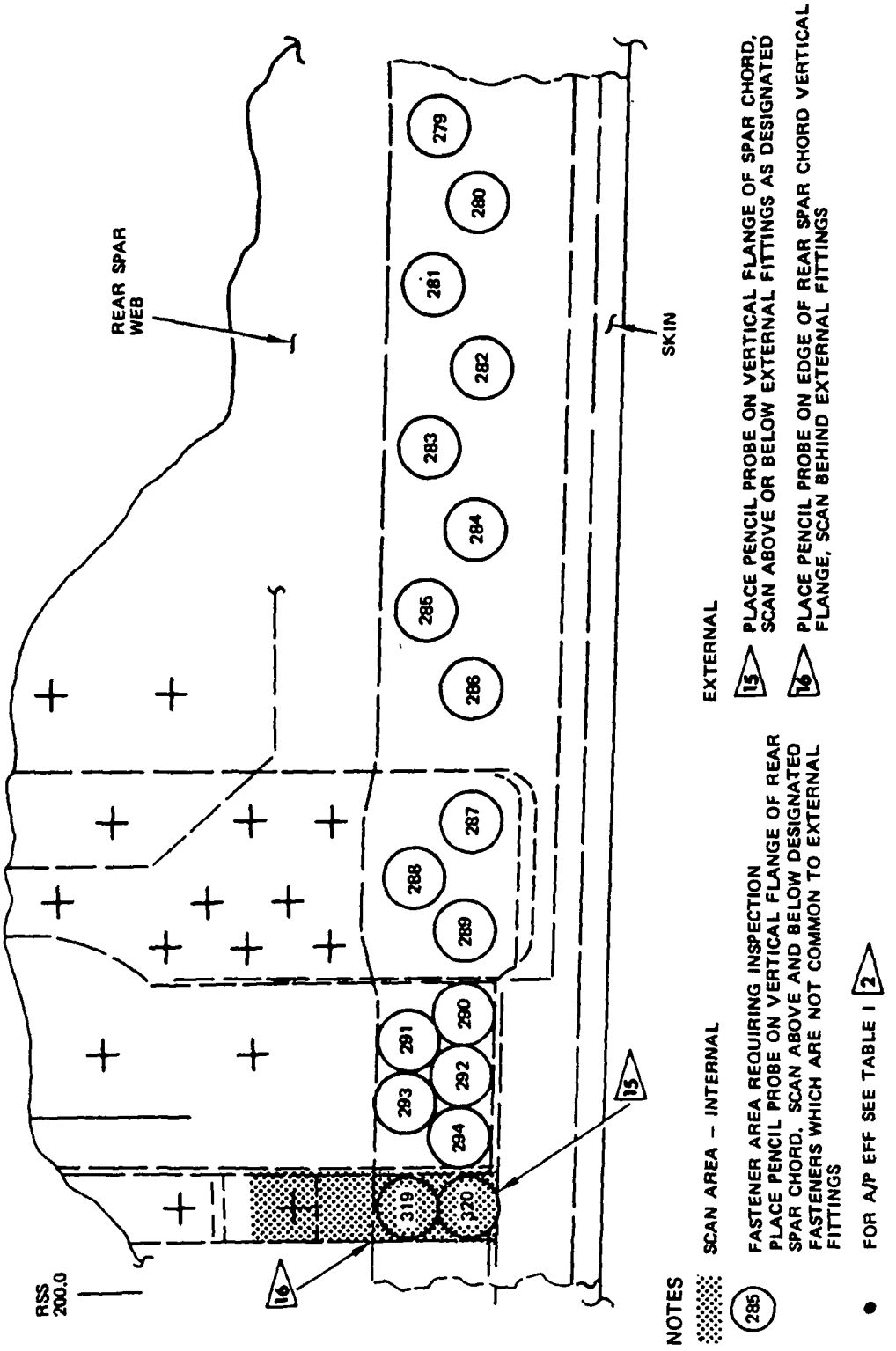
15 PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD,SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

16 PLACE PENCIL PROBE ON EDGE OF REAR SPAR CHORD VERTICAL FLANGE , SCAN BEHIND EXTERNAL FITTINGS

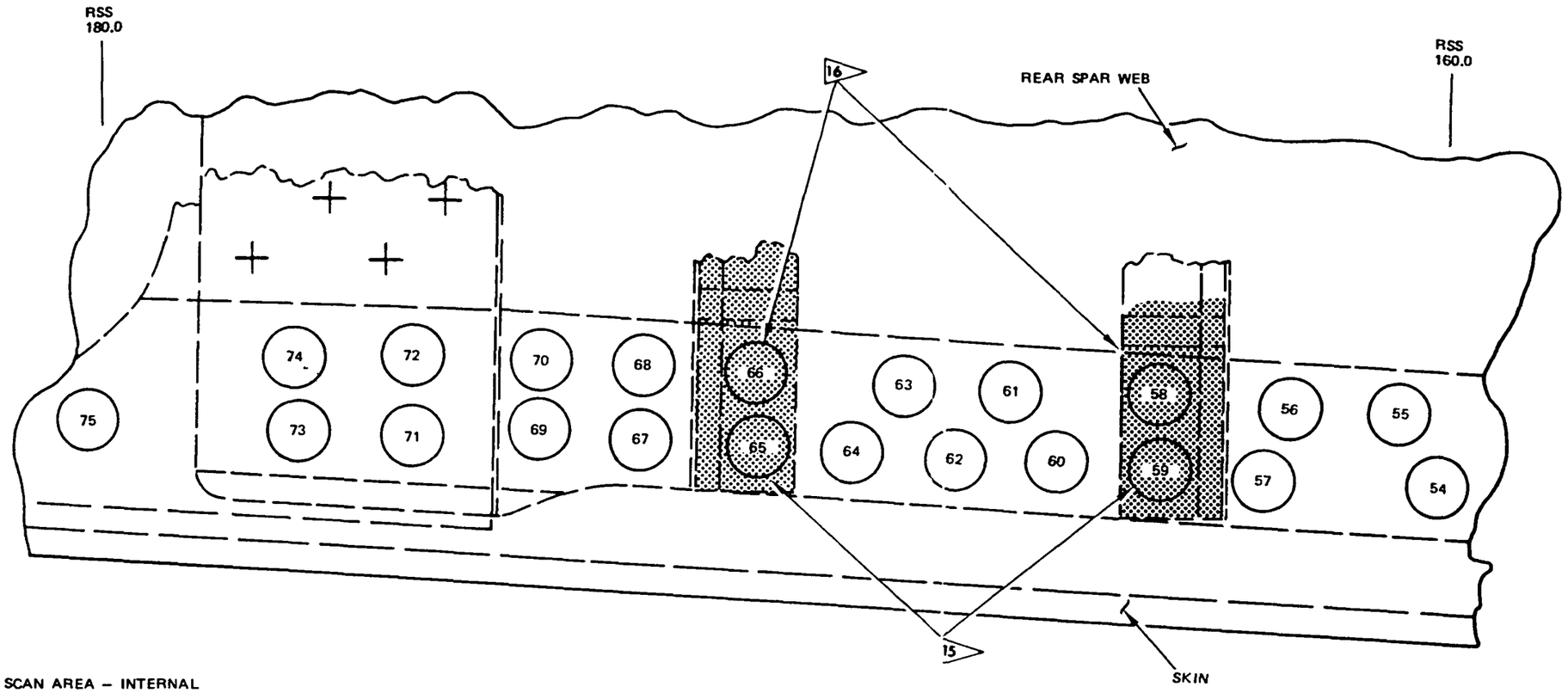
LOWER REAR SPAR CHORD
VERTICAL FLANGE

DETAIL II (CONT)

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 53 (Sheet 31)



Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 53 (Sheet 32)



NOTES

SCAN AREA – INTERNAL

72 FASTENER AREA REQUIRING INSPECTION
PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD
SCAN ABOVE AND BELOW DEISGNATED FASTENERS WHICH ARE
NOT COMMON TO EXTERNAL FITTINGS

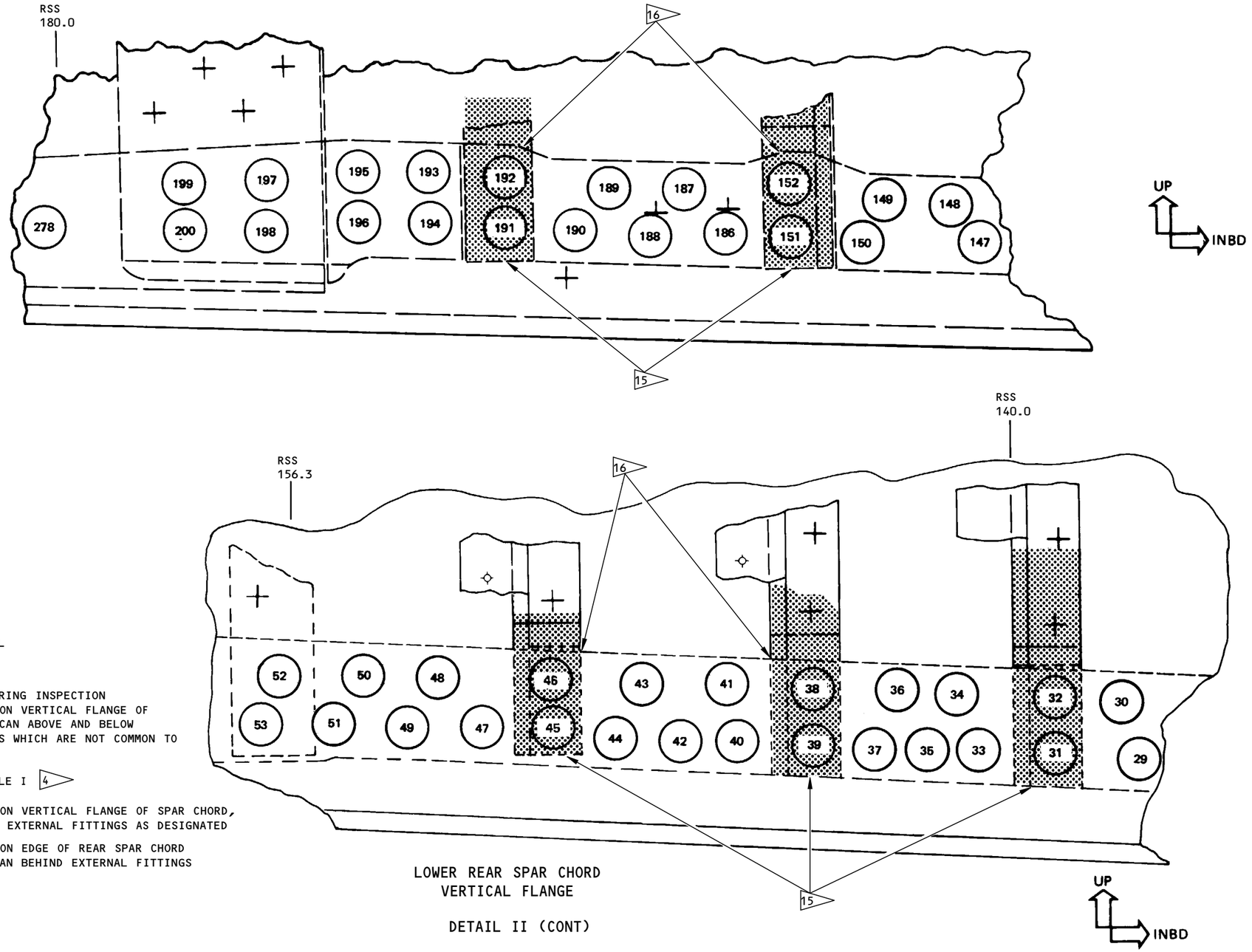
• FOR A/P EFF SEE TABLE I 4

EXTERNAL

15 PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD,
SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

16 PLACE PENCIL PROBE ON EDGE OF REAR SPAR CHORD VERTICAL
FLANGE, SCAN BEHIND EXTERNAL FITTINGS

LOWER REAR SPAR CHORD
VERTICAL FLANGE
DETAIL II (CONT)



NOTES

SCAN AREA - INTERNAL

(41) FASTENER AREA REQUIRING INSPECTION PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD. SCAN ABOVE AND BELOW DESIGNATED FASTENERS WHICH ARE NOT COMMON TO EXTERNAL FITTINGS

• FOR A/P EFF SEE TABLE I (4)

(15) PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD, SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

(16) PLACE PENCIL PROBE ON EDGE OF REAR SPAR CHORD VERTICAL FLANGE, SCAN BEHIND EXTERNAL FITTINGS

LOWER REAR SPAR CHORD
VERTICAL FLANGE

DETAIL II (CONT)

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 53 (Sheet 34)

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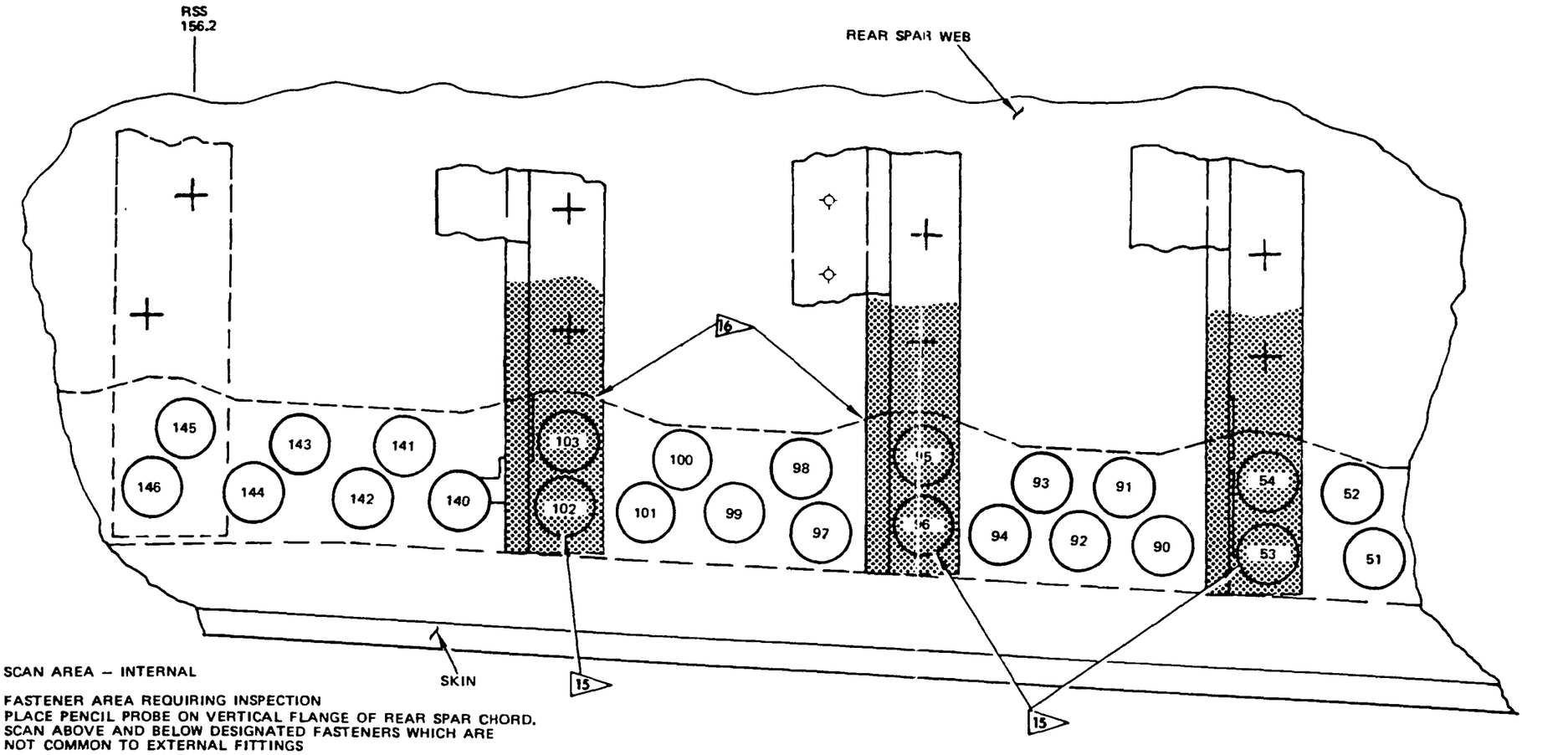


NOTES

SCAN AREA – INTERNAL

91 FASTENER AREA REQUIRING INSPECTION
PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD. SCAN ABOVE AND BELOW DESIGNATED FASTENERS WHICH ARE NOT COMMON TO EXTERNAL FITTINGS

• FOR A/P EFF SEE TABLE I 2

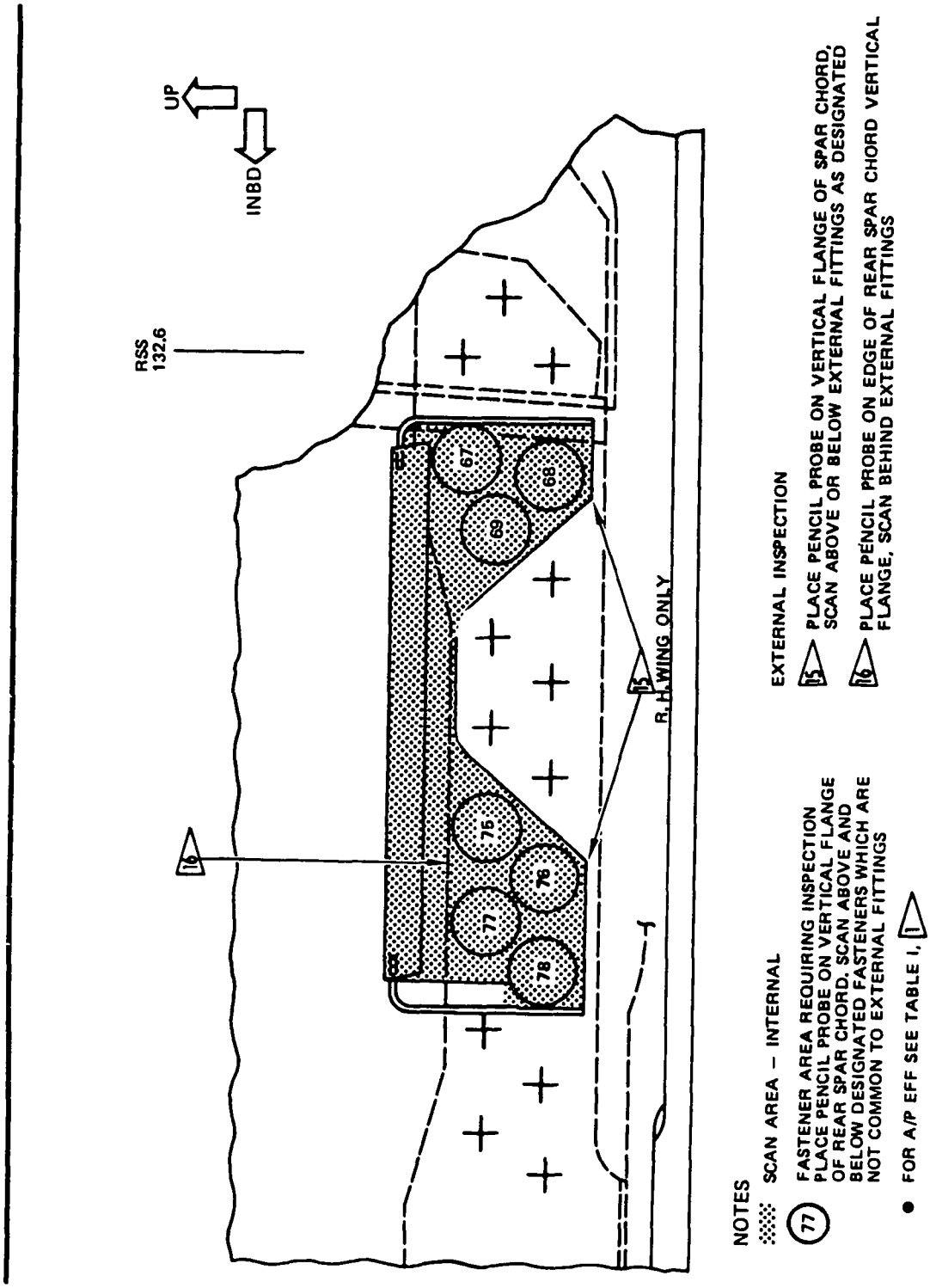
EXTERNAL INSPECTION

15 PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD, SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

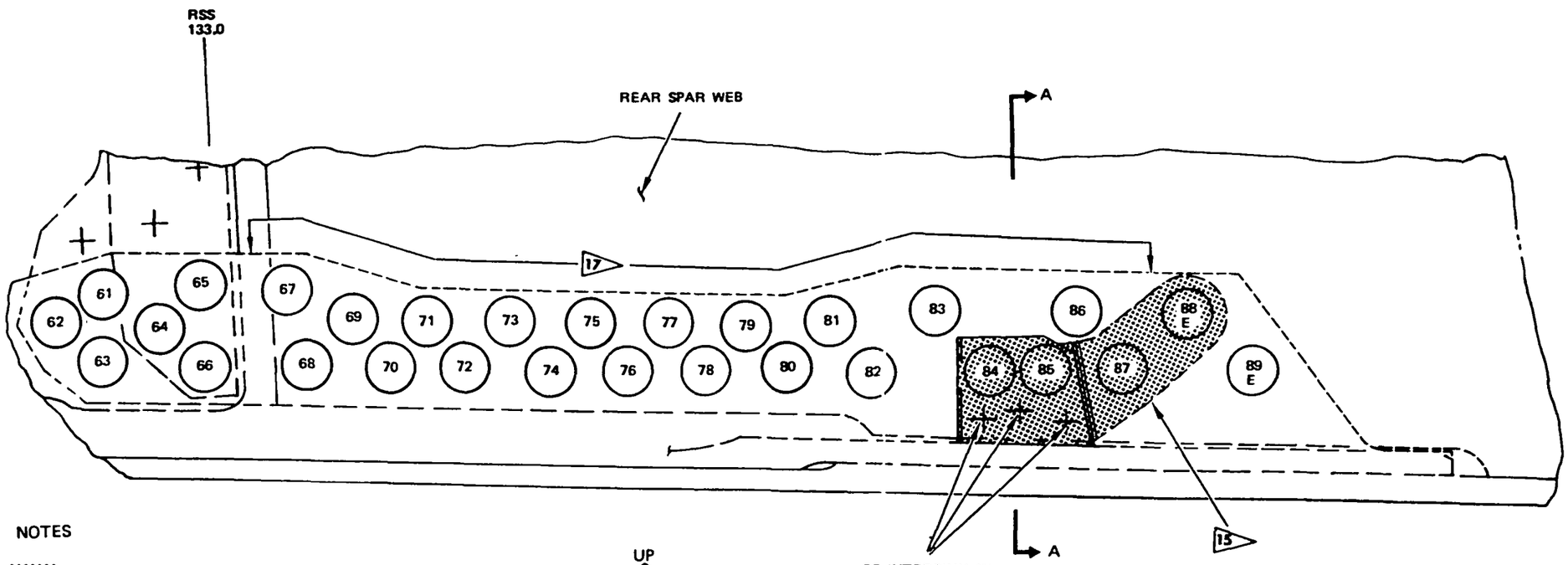
16 PLACE PENCIL PROBE ON EDGE OF REAR SPAR CHORD VERTICAL FLANGE, SCAN BEHIND EXTERNAL FITTINGS

LOWER REAR SPAR CHORD
VERTICAL FLANGE
DETAIL II (CONT)

Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 53 (Sheet 35)



Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 53 (Sheet 36)



NOTES

SCAN AREA–INTERNAL

(71) FASTENER AREA REQUIRING INSPECTION
PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD. SCAN ABOVE AND BELOW DESIGNATED FASTENERS WHICH ARE NOT COMMON TO EXTERNAL FITTING

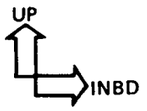
(89 E) FASTENER AREA REQUIRING INSPECTION
PLACE THE PENCIL PROBE ON THE TERMINAL FITTING VERTICAL FLANGE. SCAN ABOVE AND BELOW DESIGNATED FASTENERS

- FOR A/P SEE TABLE I. 1

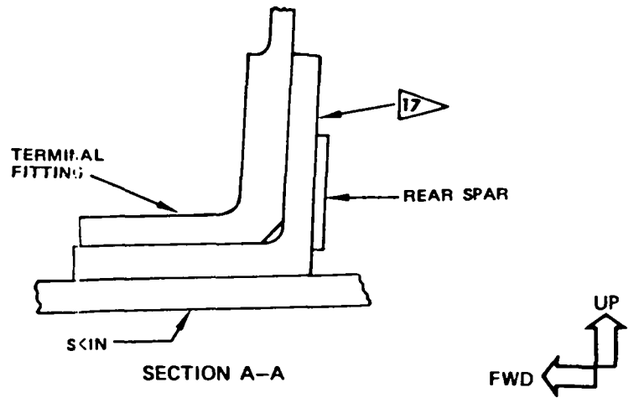
EXTERNAL INSPECTION

15 PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD. SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

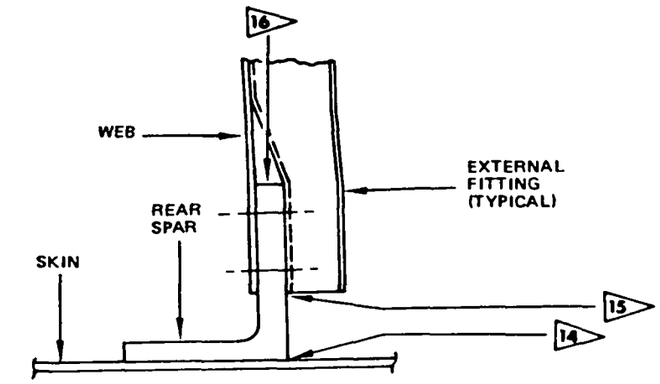
17 PLACE PENCIL PROBE ON SIDE OF BODY TERMINAL FITTING, SCAN AT DESIGNATED LOCATIONS



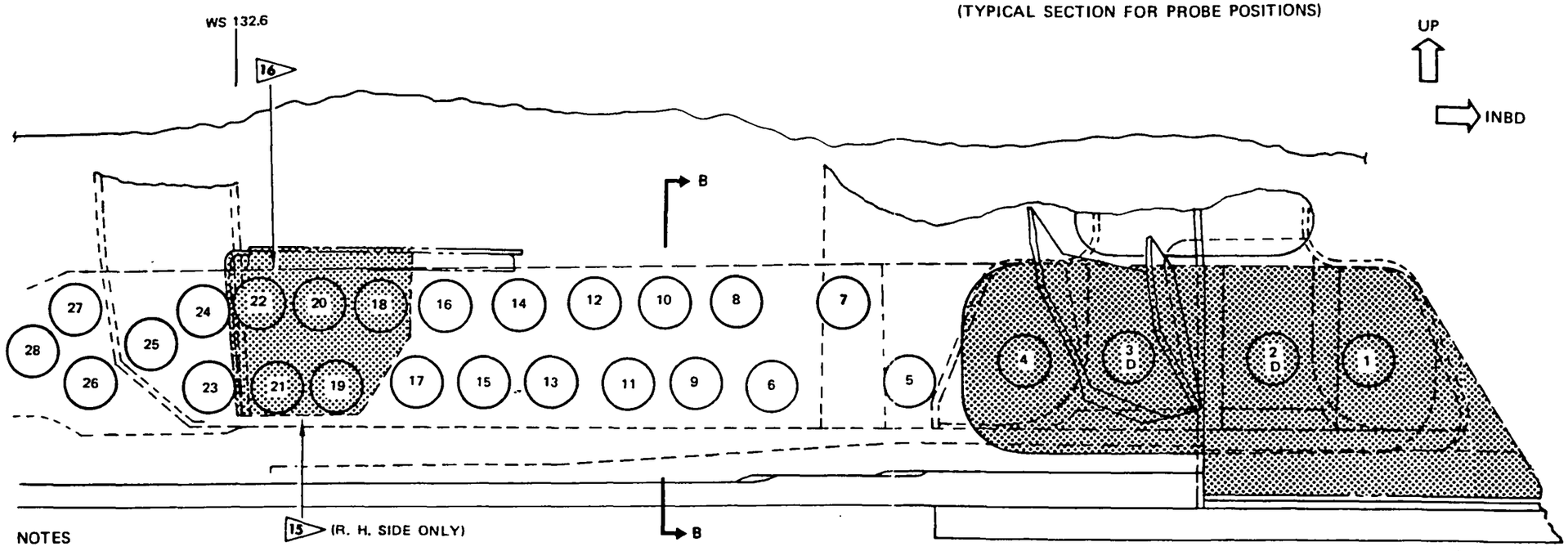
COUNTERSINK IN GUSSET



LOWER REAR SPAR CHORD
VERTICAL FLANGE
DETAIL II (CONT)



SECTION B–B
(TYPICAL SECTION FOR PROBE POSITIONS)



NOTES

SCAN AREA – INTERNAL

(12) FASTENER AREA REQUIRING INSPECTION PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD. SCAN ABOVE AND BELOW DESIGNATED FASTENERS WHICH ARE NO COMMON TO EXTERNAL FITTINGS

(3 D) FASTENER AREA REQUIRING INSPECTION PLACE PENCIL PROBE ON THE SPLICE ANGLE. SCAN ABOVE AND BELOW FASTENERS

● FOR A/P EFF SEE TABLE I 4

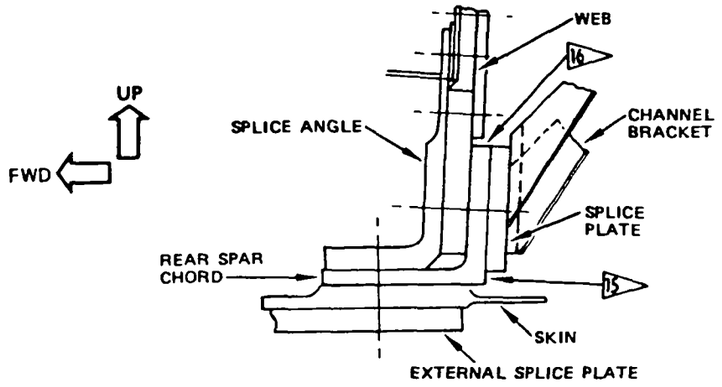
14 PLACE PENCIL PROBE ON SPAR CHORD VERTICAL FLANGE ADJACENT TO LOWER WING SKIN , SCAN FROM SIDE OF BODY TO WS 248

15 PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD, SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

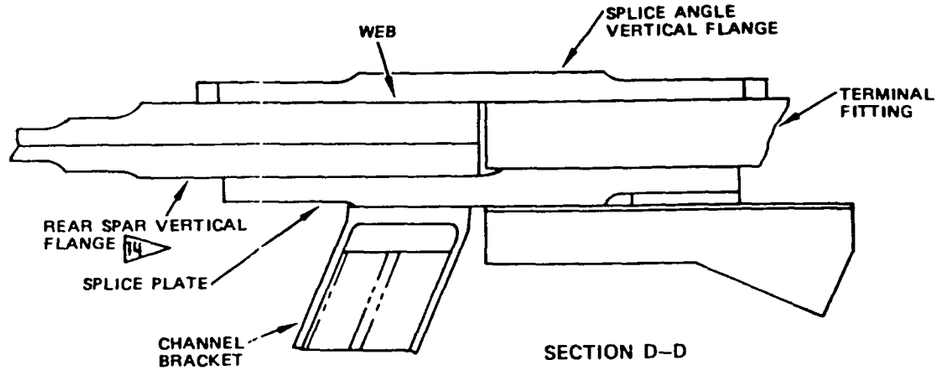
16 PLACE PENCIL PROBE ON EDGE OF REAR SPAR CHORD VERTICAL FLANGE , SCAN BEHIND EXTERNAL FITTINGS

LOWER REAR SPAR CHORD VERTICAL FLANGE DETAIL II (CONT)

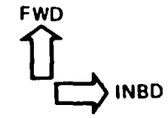
Wing Lower Rear Spar Chord Horizontal and Vertical Flanges
Figure 53 (Sheet 38)

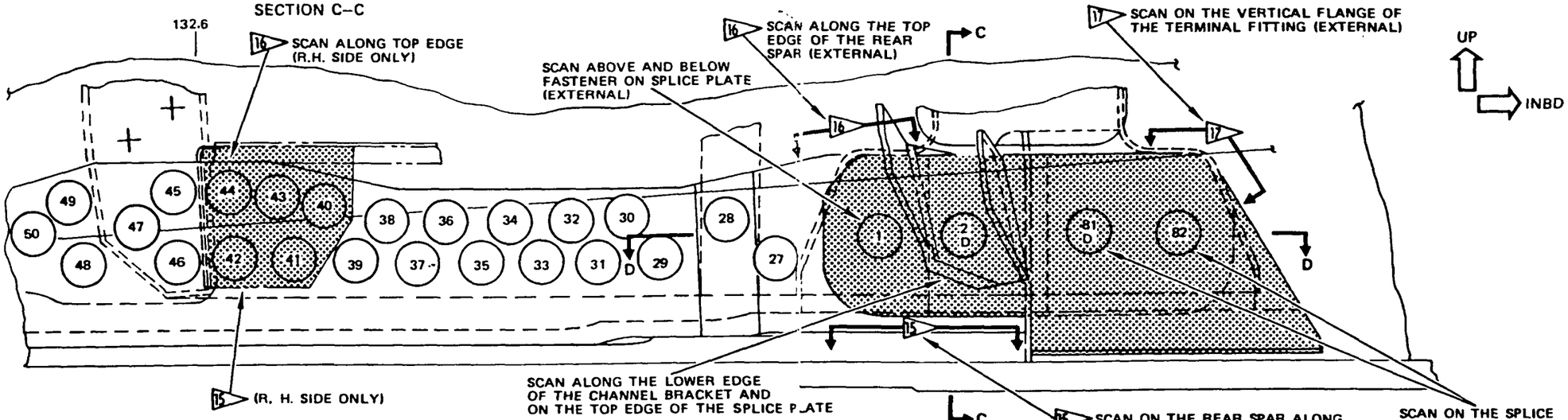


SECTION C–C



SECTION D–D





NOTES

SCAN AREA – INTERNAL

(28) FASTENER AREA REQUIRING INSPECTION
PLACE PENCIL PROBE ON VERTICAL FLANGE OF REAR SPAR CHORD. SCAN ABOVE AND BELOW DESIGNATED FASTENERS WHICH ARE NOT COMMON TO EXTERNAL

(2 D) FASTENER AREA REQUIRING INSPECTION
PLACE PENCIL PROBE ON THE SPLICE ANGLE. SCAN ABOVE AND BELOW FASTENERS

• FOR A/P EFF SEE TABLE I. 8

EXTERNAL INSPECTION

14 PLACE PENCIL PROBE ON SPAR CHORD VERTICAL FLANGE ADJACENT TO LOWER WING SKIN, SCAN FROM SIDE OF BODY TO WS 248

15 PLACE PENCIL PROBE ON VERTICAL FLANGE OF SPAR CHORD, SCAN ABOVE OR BELOW EXTERNAL FITTINGS AS DESIGNATED

16 PLACE PENCIL PROBE ON EDGE OF REAR SPAR CHORD VERTICAL FLANGE, SCAN BEHIND EXTERNAL FITTINGS

17 PLACE PENCIL PROBE ON SIDE OF BODY TERMINAL FITTING, SCAN AT DESIGNATED LOCATIONS

LOWER REAR SPAR CHORD VERTICAL FLANGE
DETAIL II (CONT)

EFFECTIVITY
MODEL: 707-300/400 SERVICE BULLETIN REFERENCE: 2570,2605 SSI DOCUMENT (D6-44860) REFERENCE: SSD 57-A25-05 57-A35-05 57-A45-05

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks out of a fastener hole in the external splice plate which connects the side of body terminal fitting with the lower rear spar chord vertical flange. This inspection is accomplished from outside of the wing without fastener removal.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec Inc.
      1320 N.W. Mall
      Issaquah, WA 98207

   B. Probes - This procedure uses one probe; any probe of similar size which will satisfy the performance requirements of this procedure is acceptable. The probe used in the development of this procedure is available from Nortec Inc., 421 N. Quay, Kennewick, WA 99336.

      (1) 0.55 inch dia. spot probe usable at 700 Hz; Part No. SPO 565.

      NOTE: Specify instrument with which probe is to be used when ordering probe (for required instrument connector).

   C. Reference Standard - Manufacture per Detail I.

Wing Lower Rear Spar External Splice Plate
Figure 54 (Sheet 1)

3. Preparation for Inspection

A. Wipe inspection surface clean.

NOTE: Access is from inside the wheel well.

4. Instrument Calibration

A. Calibration for fastener hole crack inspection using spot probe, Detail I reference standard, and Detail II for probe position.

(1) Set frequency at 700 Hz.

(2) Place probe adjacent to the unnotched side of the reference standard hole, Position 1.

(3) Balance instrument per manufacturer's instructions.

(4) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006-inch (approximately the thickness of two sheets of paper).

NOTE: Probe is located at Position 1 during liftoff calibration.

(5) With the probe adjacent to the unnotched side of the hole, Position 1, adjust meter response to read 20% of full scale with meter position control.

(6) Position probe adjacent to the notched side of the reference standard hole, Position 2. Response should be upscale.

(7) Adjust instrument sensitivity to obtain a 50% of full scale meter response difference between the notched and unnotched sides of the hole, Positions 1 and 2.

(8) Reposition probe at Position 1 and check null and liftoff. If readjustments are made recheck sensitivity per par. (7).

(9) Cracks will be indicated by a higher meter response.

Wing Lower Rear Spar External Splice Plate
Figure 54 (Sheet 2)

5. Inspection Procedure

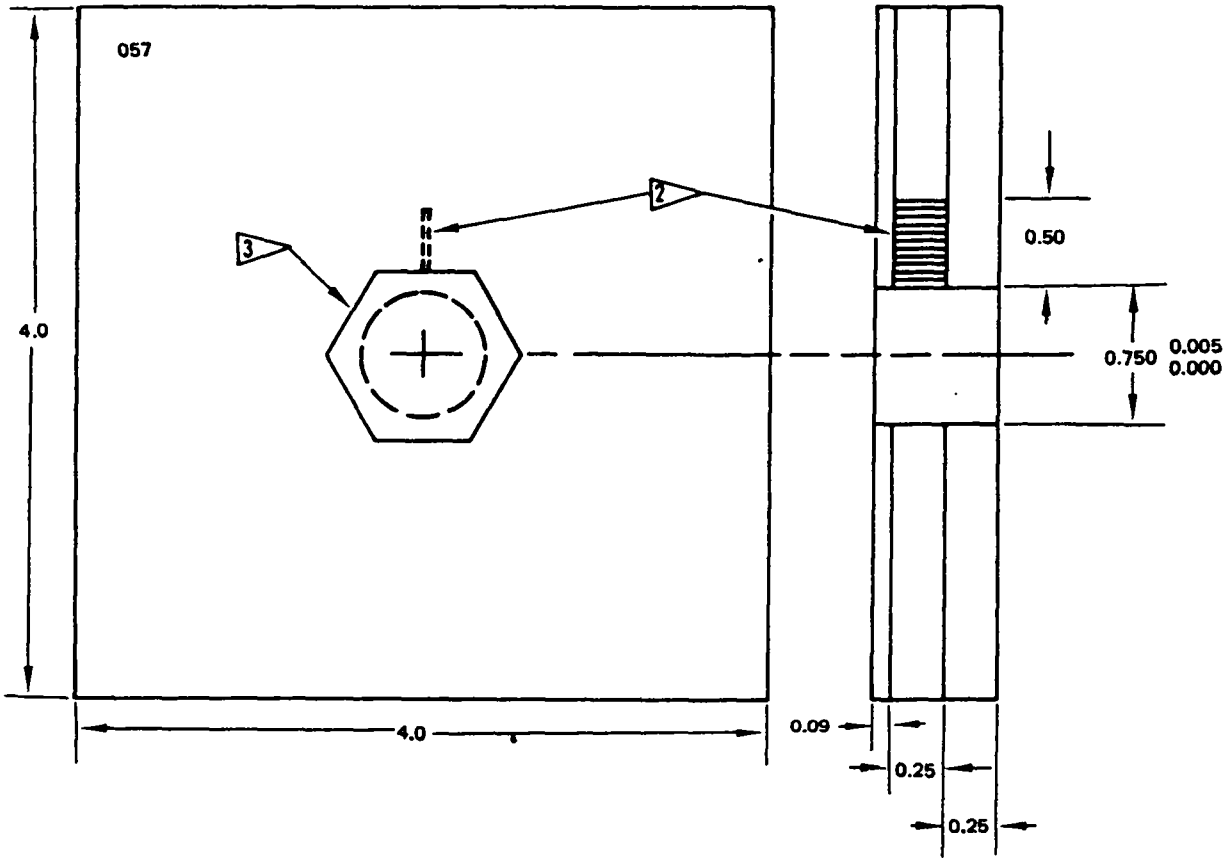
A. Calibrate the instrument per par. 4.A.

B. Identify the fastener to be inspected using Detail III.

C. Scan probe about the fastener above and below as indicated.

NOTE: The first layer edge margin outboard of the fastener and the second layer edge margin inboard of the fastener limit the scan past the fastener to a short distance. The fastener just inboard of the one to be inspected may be used to establish the airplane baseline response (detail III).

D. A response 30% of full meter scale higher than the baseline response should be investigated further.



NOTES

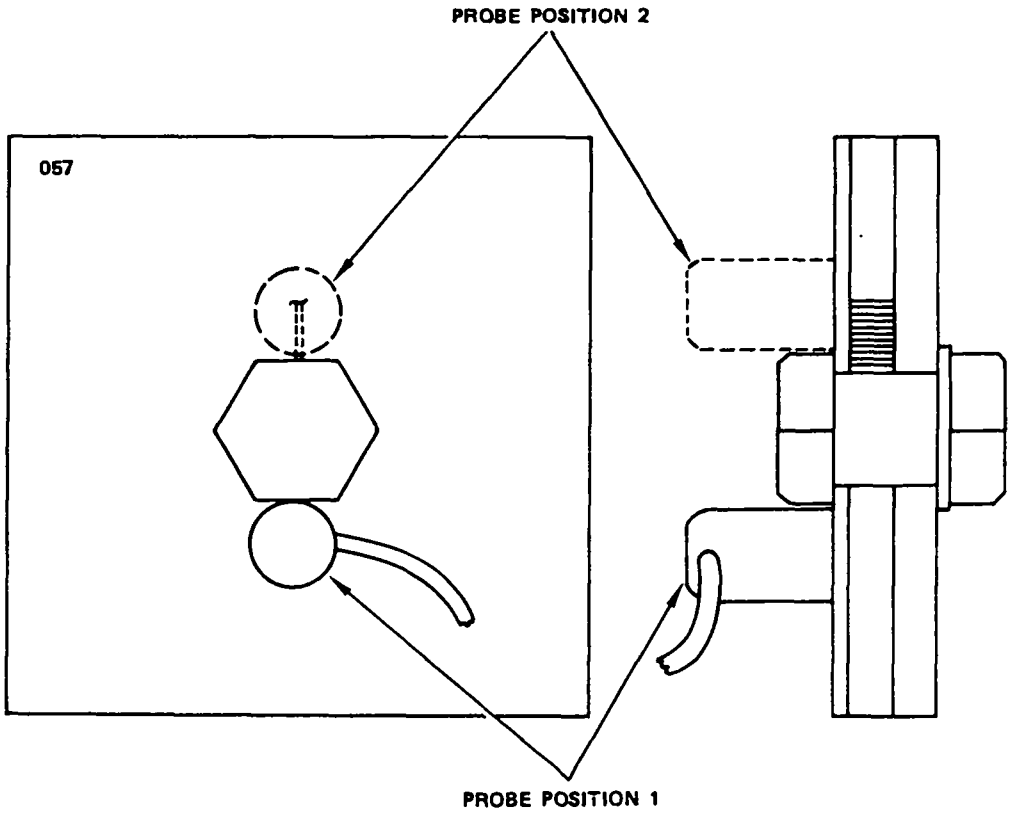
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T3 OR–T4 ALUMINUM
- TOLERANCE: X.X ± 0.050 X.XX ± 0.010
- P/N 6412–104
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110
- ETCH OR STEEL STAMP WITH 057

2 JEWELER'S SAWCUT 0.030 MAX WIDTH

3 3/4 – INCH STEEL BOLT NAS 1112–10 OR EQUIVALENT; BACN10JC12 NUT OR EQUIVALENT (STEEL WASHER ON FAR SIDE, BOLT HEAD ON NEAR SIDE)

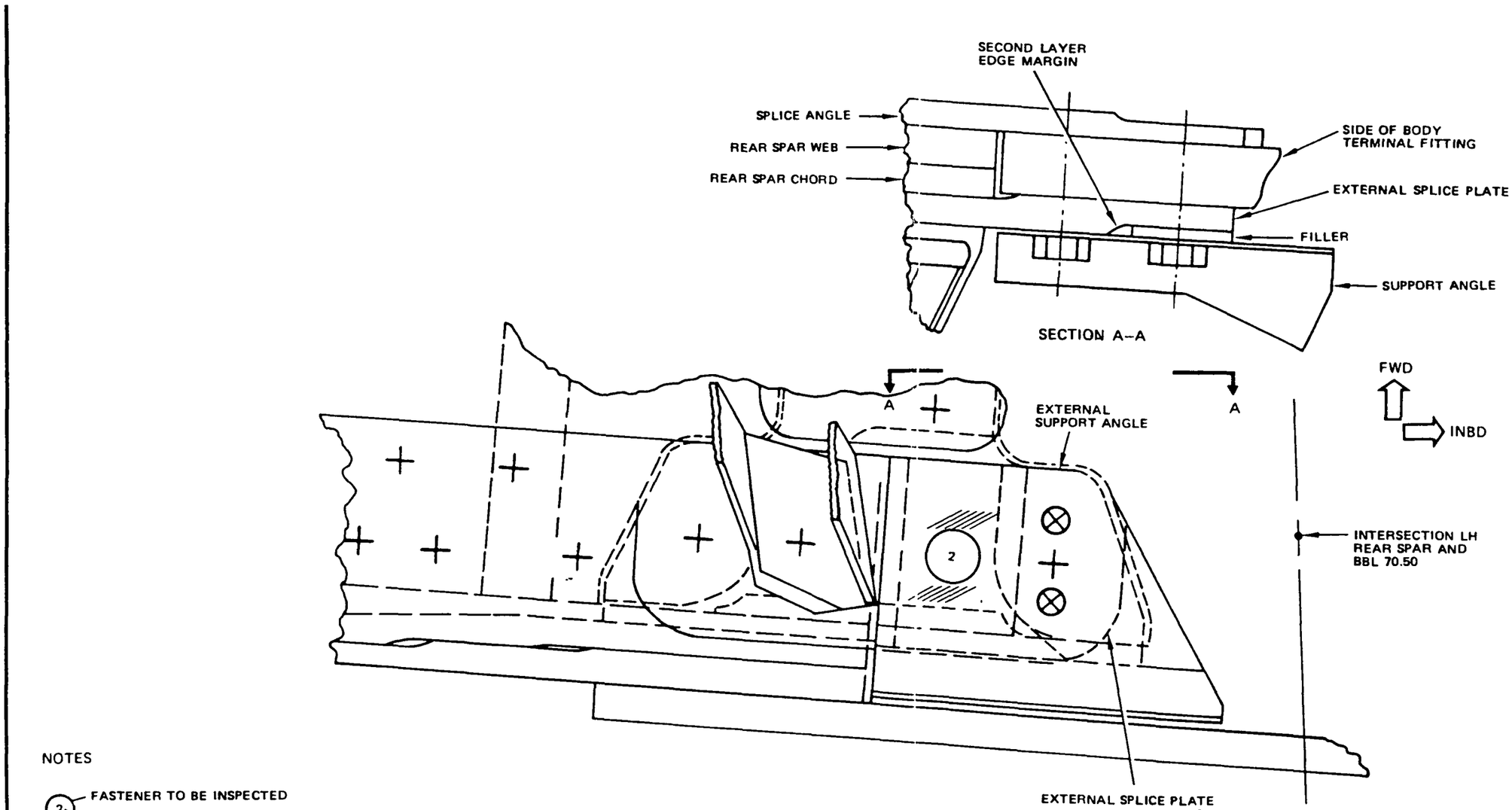
REFERENCE STANDARD 057
DETAIL I

Wing Lower Rear Spar External Splice Plate
Figure 54 (Sheet 4)



PROBE POSITION 057
DETAIL II

Wing Lower Rear Spar External Splice Plate
Figure 54 (Sheet 5)



NOTES

(2) FASTENER TO BE INSPECTED
2 FASTENER NUMBER
LEFT WING SHOWN. RIGHT WING OPPOSITE.
PROBE LOCATION FOR BASELINE COMPARISON
INSPECTION AREA

LOWER REAR SPAR CHORD
VERTICAL LEG AT SIDE OF BODY
DETAIL III

Wing Lower Rear Spar External Splice Plate
Figure 54 (Sheet 6)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks in the horizontal flange of the upper rear spar chord fastener holes from WS 360 to production break. This inspection is accomplished from outside of the wing without fastener removal.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the requirements of this procedure is suitable. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec Inc.
      1320 N.W. Mall
      Issaquah, WA 98027

   B. Probes - This procedure uses three probes; any probe of similar size which will satisfy the requirements of this procedure is acceptable. The following were used in the development of this procedure.

      (1) Ring (encircling) probe with 1.0-inch OD and 0.5-inch ID shielding, 100 Hz, Nortec P/N SPO-783

      (2) Ring (encircling) probe with 1.1-inch OD and 0.625-inch ID shielding, 100 Hz, Nortec P/N SPO-1154

      (3) Ring probe with 0.7-inch OD and 0.3-inch ID shielding usable at 500 Hz, Nortec P/N SPO-996.

      NOTE: Probes listed above are available from:
      Nortec Inc.
      421 N. Quay
      Kennewick, Washington 99336

      Specify instrument with which probe is to be used or instrument connector required when ordering probes.

Upper Rear Spar Chord Horizontal Flange of Wings-WS 360 to Production Break
Figure 55 (Sheet 1)

C. Manufacture Reference Standard per Detail I.

3. Prepare for Inspection

A. Wipe skin surface clean.

B. Some paint removal may be required to permit location of fasteners.

NOTE: It is suggested that fastener locations requiring the same instrument calibration for inspection be identified on the airplane by a colored circle. Water washable crayons, pencils or felt pens are suitable.

C. Refer to Table I and Detail III for inspection requirements

4. Calibrate Instrument

A. General

(1) Two basic inspections are required.

(a) Inspection for fastener hole cracks using a ring probe centered on the fastener.

(b) Inspection for fastener hole cracks using a ring probe as a spot probe positioned adjacent to a fastener.

(2) The two basic inspections require several instrument calibrations to adjust for variations in structure geometry and materials.

(3) Detail III identifies inspection coverage for a particular calibration, and Table I provides specific calibration information for that inspection.

B. Calibrate for fastener hole crack inspection using the ring probe centered on the fastener. (This calibration applies to inspection codes A thru D.)

(1) Identify code for fasteners to be inspected from Detail III.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

(3) Visually center probe over the unnotched reference standard hole, Position 1.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minumum meter response.

(6) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

(7) Center probe over the notched reference standard hole, Position 2. Response should be upscale.

(8) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(9) Recheck null and liftoff. If readjustments are made recheck sensitivity per par. B.(8).

(10) Cracks will be indicated by a higher meter response.

C. Calibrate for fastener hole crack inspection using a ring probe as a spot probe placed adjacent to the fastener head. (This calibration applies to inspection codes E and F.)

(1) Refer to Table I for reference standard, probe, and calibration details for inspection codes E and F.

(2) Place probe adjacent to the unnotched reference standard hole, Position 1.

(3) Balance instrument per manufacturer's instructions.

(4) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is located at Position 1 during liftoff calibration.

(5) With the probe adjacent to the unnotched hole Position 1, adjust meter response to read 20% of full scale with meter position control.

(6) Position probe adjacent to the notched reference standard hole, Position 2. Response should be upscale.

(7) Adjust instrument sensitivity to obtain a 50% of full scale meter response difference between the notched and unnotched holes, Positions 1 and 2.

(8) Reposition probe at Position 1 and check null and liftoff. If readjustments are made recheck sensitivity per par. B.(7).

(9) Cracks will be indicated by a higher meter response.

5. Inspection Procedure

NOTE: 1) An inspection code is used to identify locations having similar inspection conditions. A single instrument calibration is usually used to inspect these locations.

2) It is suggested that a copy of Detail III be made and that it be used to record instrument responses at each fastener location. This is helpful in maintaining continuity between the groups of fasteners during inspection.

A. Inspect fastener holes for cracks using the ring probe centered on the fastener (inspection codes A thru D).

(1) Accomplish inspections of codes A thru D in the order given in Table I.

(2) Calibrate instrument per par. 4.B. and Table I.

(3) Note on the airplane the location of those fasteners having the same inspection code by using Detail III.

Upper Rear Spar Chord Horizontal Flange of Wings-WS 360 to Production Break
Figure 55 (Sheet 4)

(4) Use several fasteners of the same code to establish the airplane baseline response for an acceptable fastener.

(a) Select a representative fastener from this group and set its response to 20% of full meter scale.

NOTE: Do not change instrument sensitivity when establishing the airplane baseline response.

(b) Refer back to this fastener periodically to ensure that the instrument response is the same as originally recorded. (Changes in meter response may occur as a result of instrument drift or probe temperature change.)

(5) Inspect each fastener having the same inspection code by centering the probe on the fastener and manipulating to obtain a minimum response.

NOTE: Review the Special Notes in Table I for conditions which affect the inspection.

(6) Fastener locations which give a response which is 40% of full meter scale higher than the established baseline are potential crack indications and further investigation is required.

(7) The following conditions may cause meter reading changes similar to crack indications:

(a) A decrease in fastener spacing. Compare with similarly spaced fasteners on the airplane.

(b) Edge of rear spar chord. Check Detail III for location of edge.

(c) A larger or smaller fastener. Compare with similar fasteners of reference standard and on airplane.

(d) A fastener that is different in countersink depth. Compare with similar fastener in standard raised to the same height.

(e) A fastener close to edge of skin. Compare with similar fasteners on airplane.

(f) Differences in conductivity between skin panels. Compare only the fastener locations common to a skin panel.

B. Inspect Fastener Holes for Cracks Using a Spot Probe Adjacent to the Fastener (inspection codes E and F).

(1) Calibrate the instrument per par. 4.C. and Table I.

(2) Note on the airplane the location of code E fasteners and code F scan using Detail III.

(3) Inspect each code E fastener per 7 and scan F per 9 of Table I.

(4) Any location which gives a response which is 30% of full meter scale higher than the baseline response should be investigated further.

Upper Rear Spar Chord Horizontal Flange of Wings-WS 360 to Production Break
Figure 55 (Sheet 6)

Inspection Code [1]	Reference Standard No.	Probe Identification [2]	Instrument Frequency (Hz)	Detail No. for Calibration	Probe Calibration Position [3]	Special Notes
A	043	(1)	100	II	[A]	
B	043	(2)	100	II	[A]	[5] [6]
C	043	(2)	100	II	[B]	
D	043	(2)	100	II	[B]	[5] [6]
E	043	(3)	300	II	[A]	[7]
F	043	(3)	300	II	[A]	[8]

CALIBRATION TABLE
TABLE I

NOTES:

[1] Code for specific inspection areas identified on Detail III and IV to which the calibration requirements apply.

[2] Probe Identification:
(1) SPO 1154 (1.1-inch OD and 0.62-inch ID ring probe)
(2) SPO 783 (1.0-inch OD and 0.5-inch ID ring probe)
(3) SPO 996 (0.7-inch OD and 0.3-inch ID ring probe)

[3] Refers to Detail II and identifies that column of the reference standard used for calibration.

[4] See Detail III for fastener locations where specific fasteners are to be used in establishing the baseline response. Outboard of W S 472.0, establish baseline response by comparing with similar fasteners on the inboard and outboard side of the inspection fastener.

[5] a) Compare fastener number 311 with fastener numbers 398 and 395. These fasteners are 3/16-inch diameter with small heads.

b) Compare fasteners numbers 309 and 312 with fasteners 396 and 397. These are 3/16-inch diameter fasteners with larger heads.

[6] Begin inspection of code D fasteners at fastener location number 175 and proceed in inboard direction to W S 318 before inspecting the fasteners outboard. This will aid in setting up a fastener pattern which will help in locating fasteners covered by heavy walkway paint.

Upper Rear Spar Chord Horizontal Flange of Wings-WS 360 to Production Break
Figure 55 (Sheet 7)

NONDESTRUCTIVE TEST

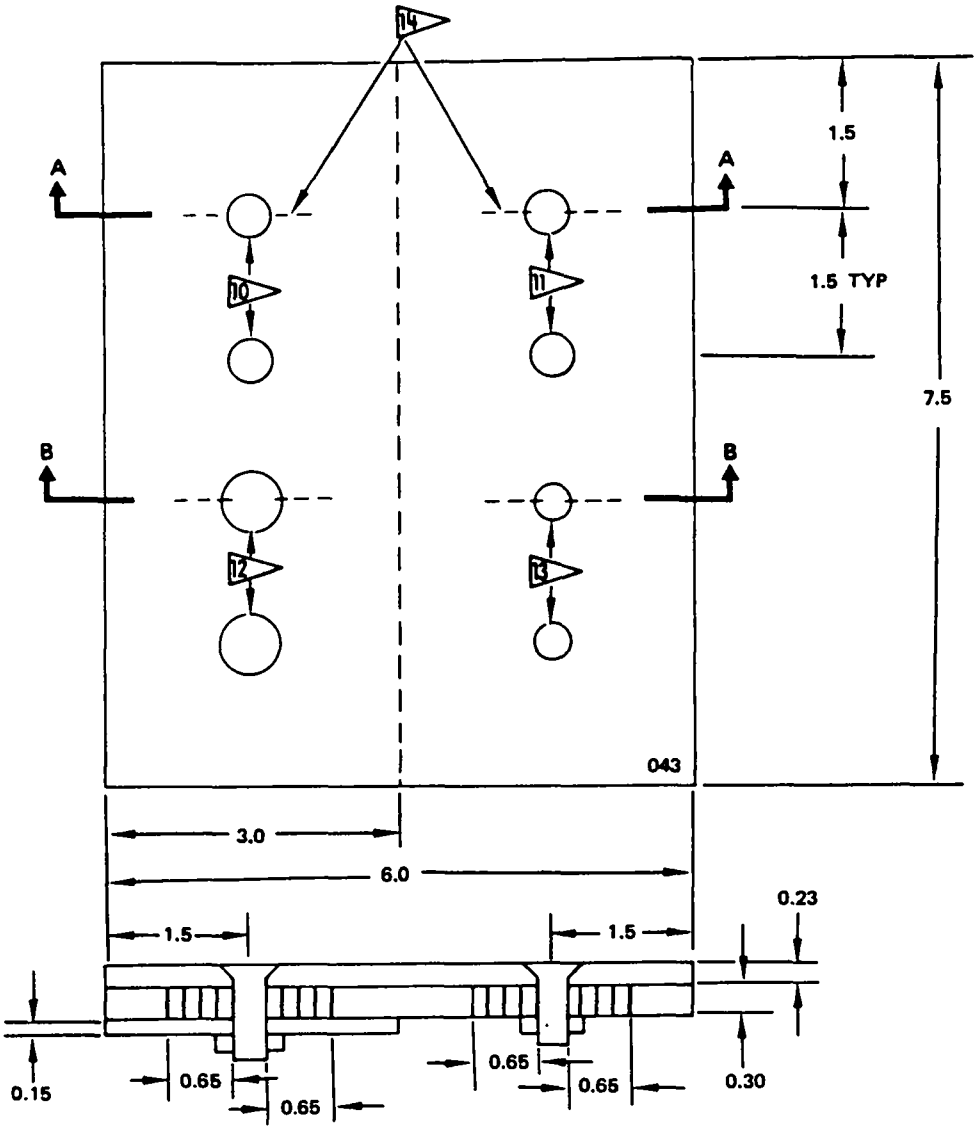
7 a) Inspect fastener number 213 by placing the probe on the aft side and adjacent to the fastener head. Baseline for a good response may be established by comparing response with probe similarly positioned on fastener numbers 216, 214, and 211.

b) Inspect fastener number 308 by placing the probe on the aft side of the fastener head and between fastener numbers 308 and 309. See Detail III and IV for information on establishing the baseline.

8 Fastener numbers 266, 270, 272, and 276 are 5/16-inch diameter and will read higher than other code B fasteners; compare these fasteners separately.

9 Scan probe along aft edge of skin between fastener numbers 210 and 217. Hold edge of probe approximately 0.1-inch from aft edge of skin, scan to within 0.2-inch of skin juncture at W S 360.

Upper Rear Spar Chord Horizontal Flange of Wings-WS 360 to Production Break
Figure 55 (Sheet 8)



SECTIONS A–A AND B–B

NOTES

- TOLERANCE: X.X ± 0.05 X.XX ± 0.02
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T3 OR T4 ALUMINUM
- ETCH OR STEEL STAMP WITH 043
- P/N 6412–106
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

10 BACB30FN8–11 FASTENERS; BACC30M8 COLLARS

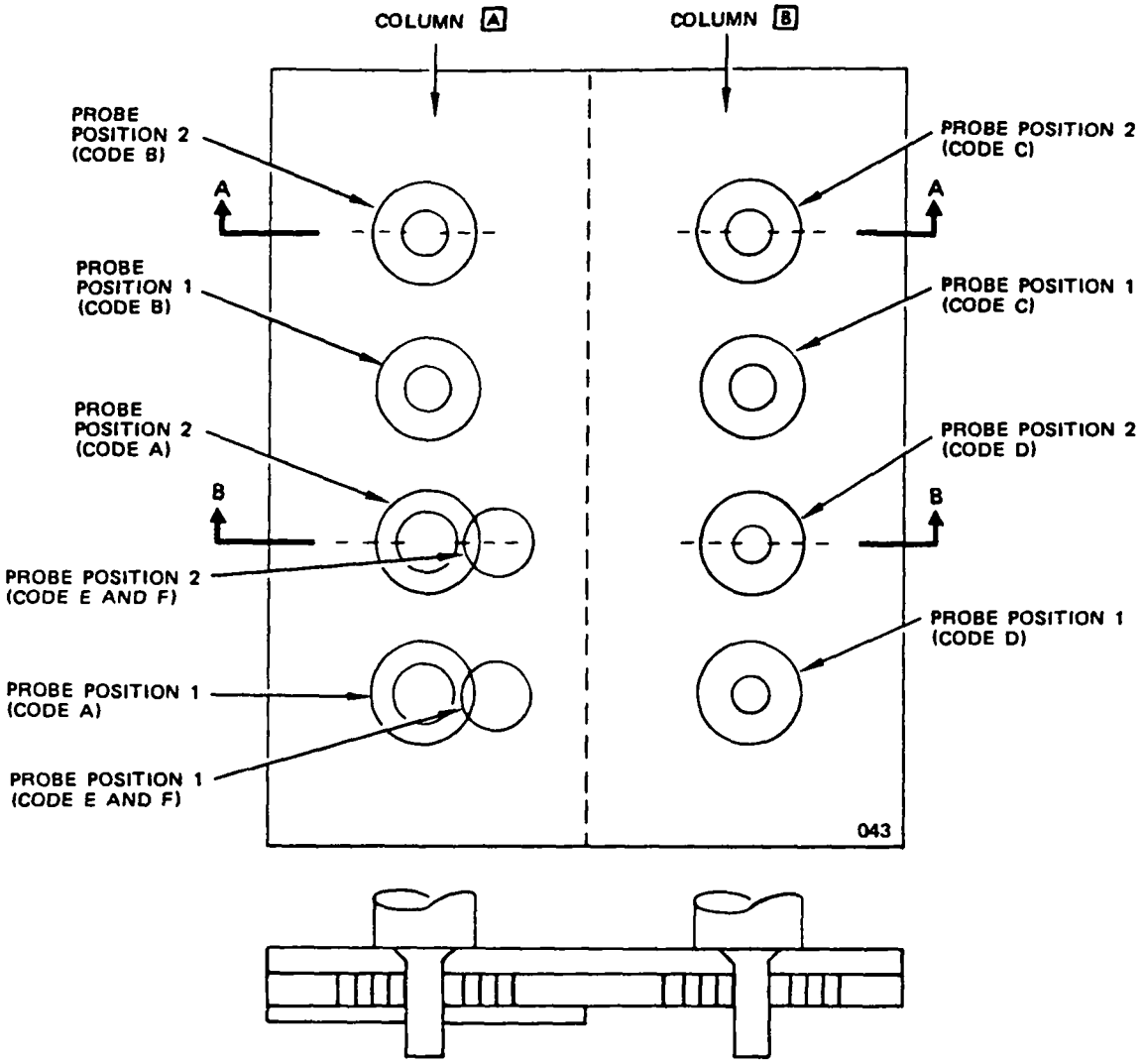
11 BACB30FN8–8 FASTENERS; BACC30M8 COLLARS

12 BACB30LU5–11 FASTENERS; BACN10JC5 NUTS

13 BACB30FN6–8 FASTENERS; BACC30M6 COLLARS

14 JEWELER'S SAWCUT 0 03 INCH MAX WIDTH (TYPICAL 8 PLACES)

REFERENCE STAND 043
DETAIL I
Upper Rear Spar Chord Horizontal Flange of Wings-
WS 360 to Production Break
Figure 55 (Sheet 9)



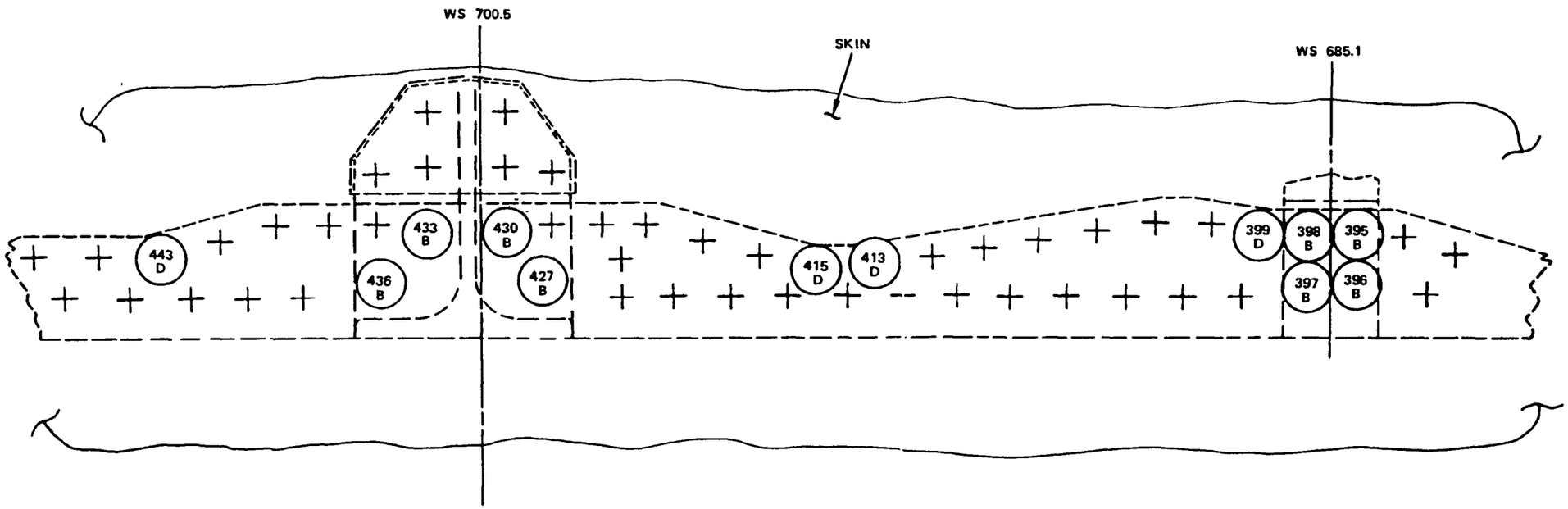
SECTION A–A AND B–B

NOTES

A B (REF TABLE I)

PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD 043
DETAIL II

Upper Rear Spar Chord Horizontal Flange of Wings-
WS 360 to Production Break
Figure 55 (Sheet 10)

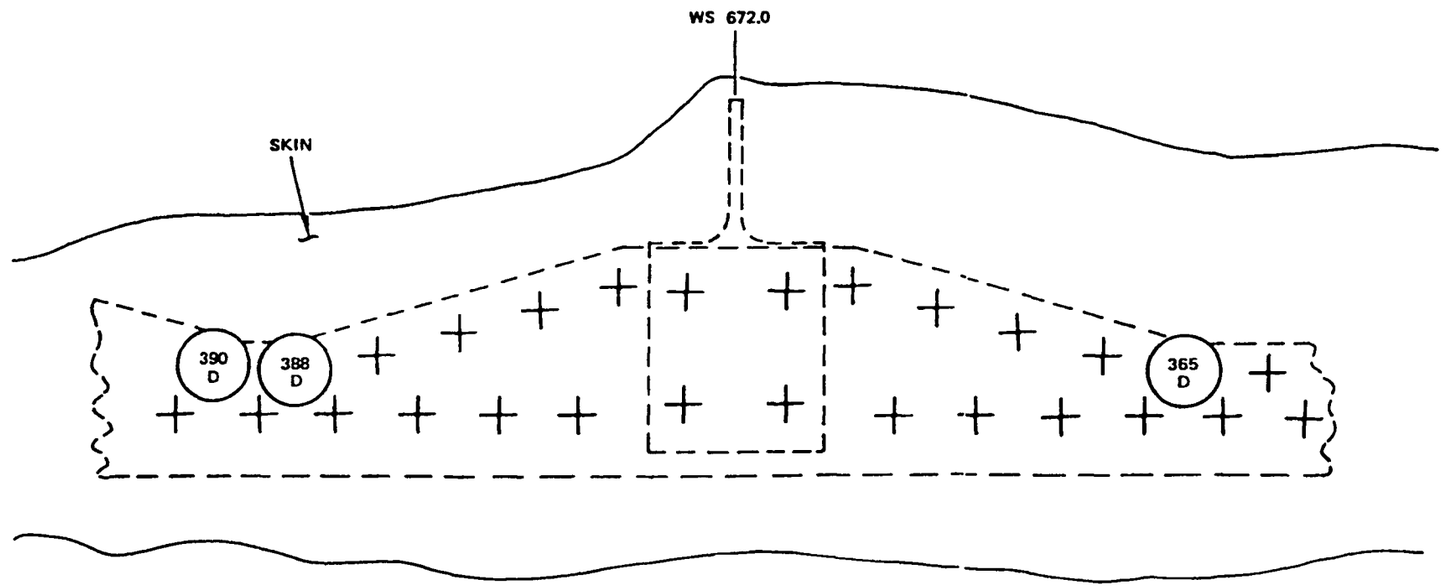


NOTES

- LEFT WING SHOWN , RIGHT WING SIMILAR
- 427 B — FASTENER IDENTIFICATION NUMBER / INSPECTION CODE (SEE TABLE I)

UPPER REAR SPAR HORIZONTAL FLANGE OF WING
DETAIL III

Upper Rear Spar Chord Horizontal Flange of Wings-
WS 360 to Production Break
Figure 55 (Sheet 11)



UPPER REAR SPAR HORIZONTAL FLANGE OF WING

DETAIL III (CONT)

Upper Rear Spar Chord Horizontal Flange of Wings -
WS 360 to Production Break
Figure 55 (Sheet 12)

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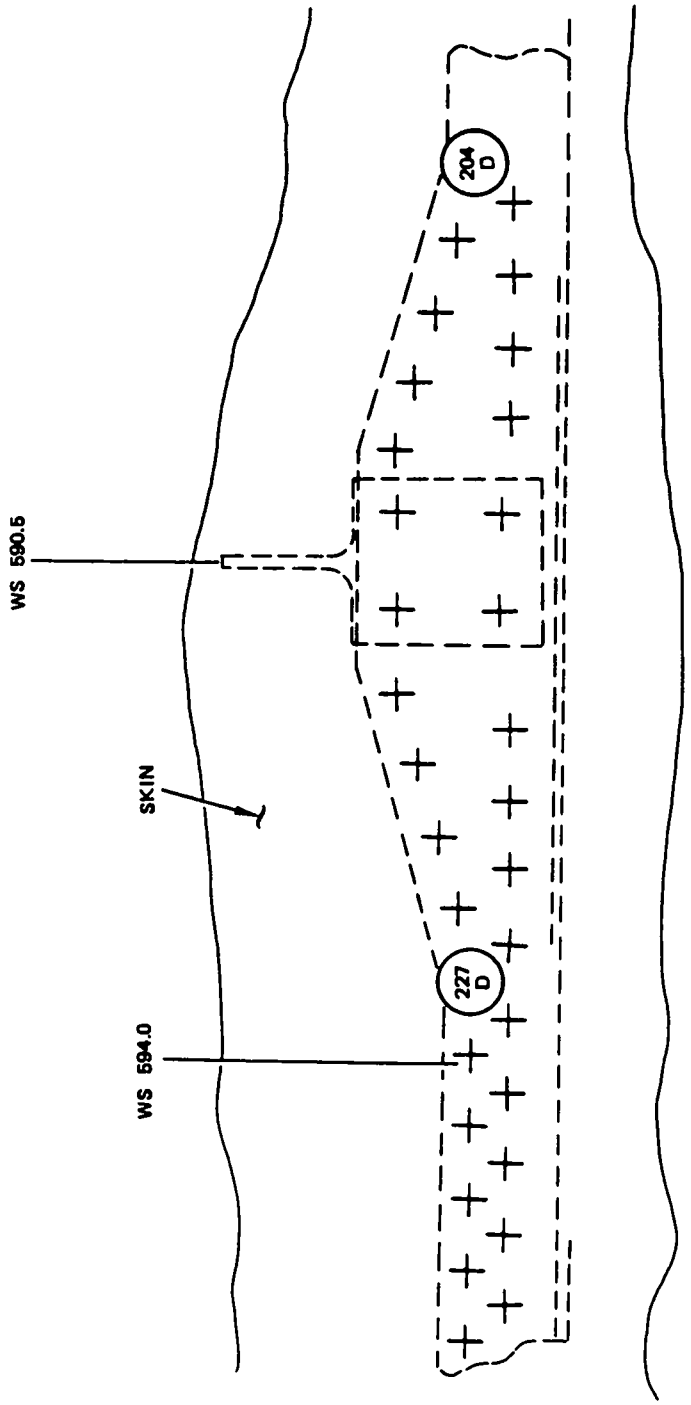
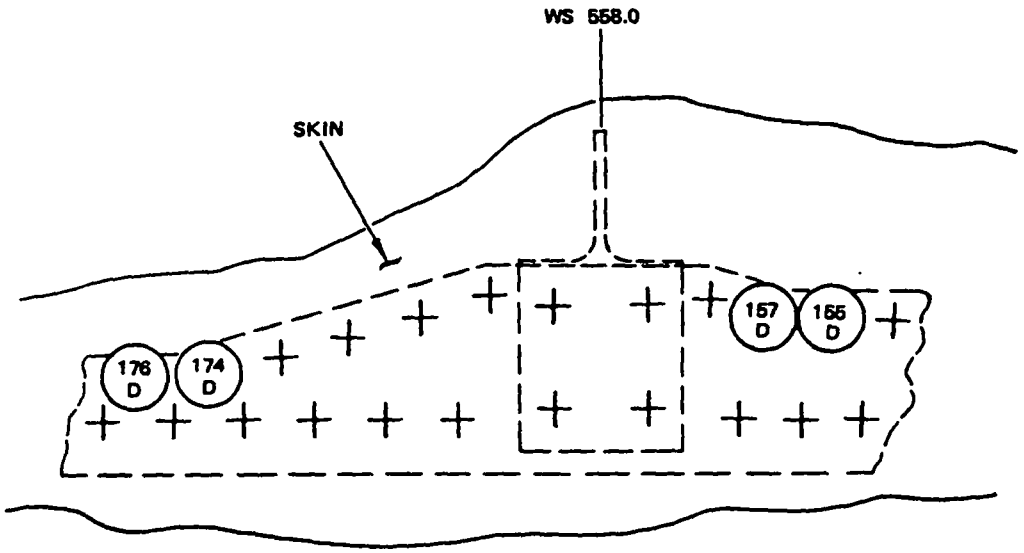


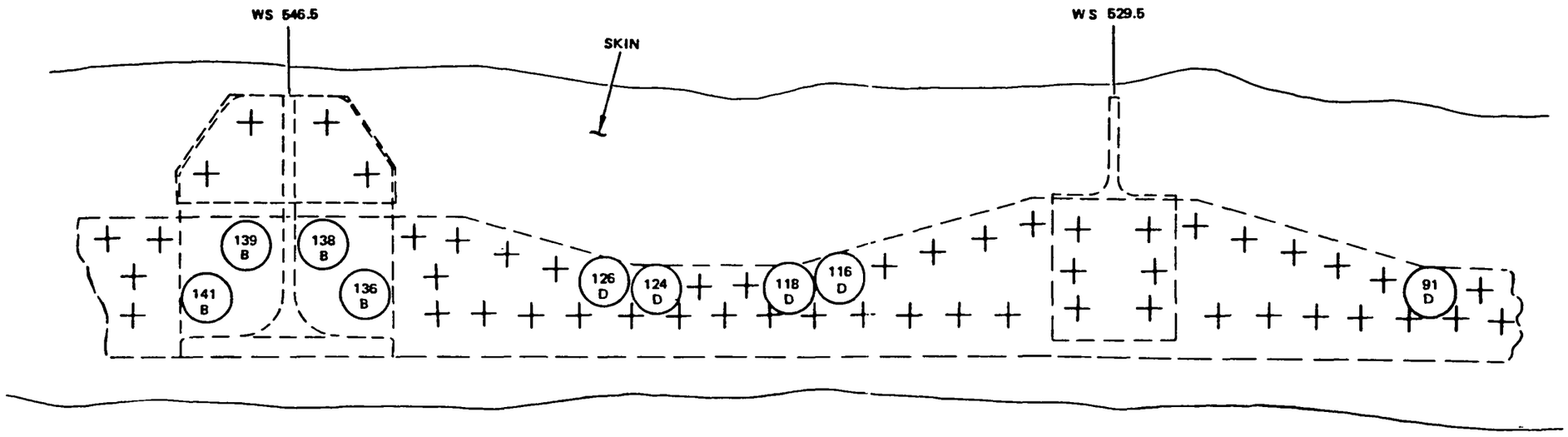
UPPER REAR SPAR HORIZONTAL FLANGE OF WING
DETAIL III (CONT)

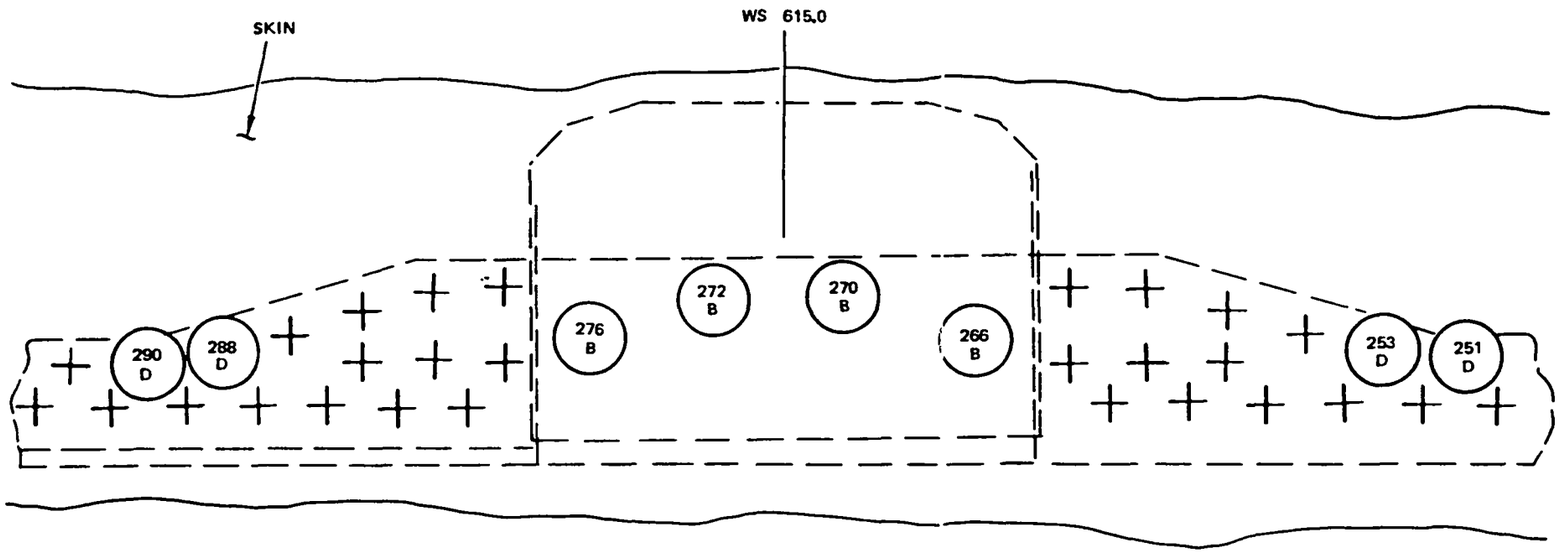
Upper Rear Spar Chord Horizontal Flange of Wings-
WS 360 to Production Break
Figure 55 (Sheet 13)



UPPER REAR SPAR HORIZONTAL FLANGE OF WING
DETAIL III (CONT)

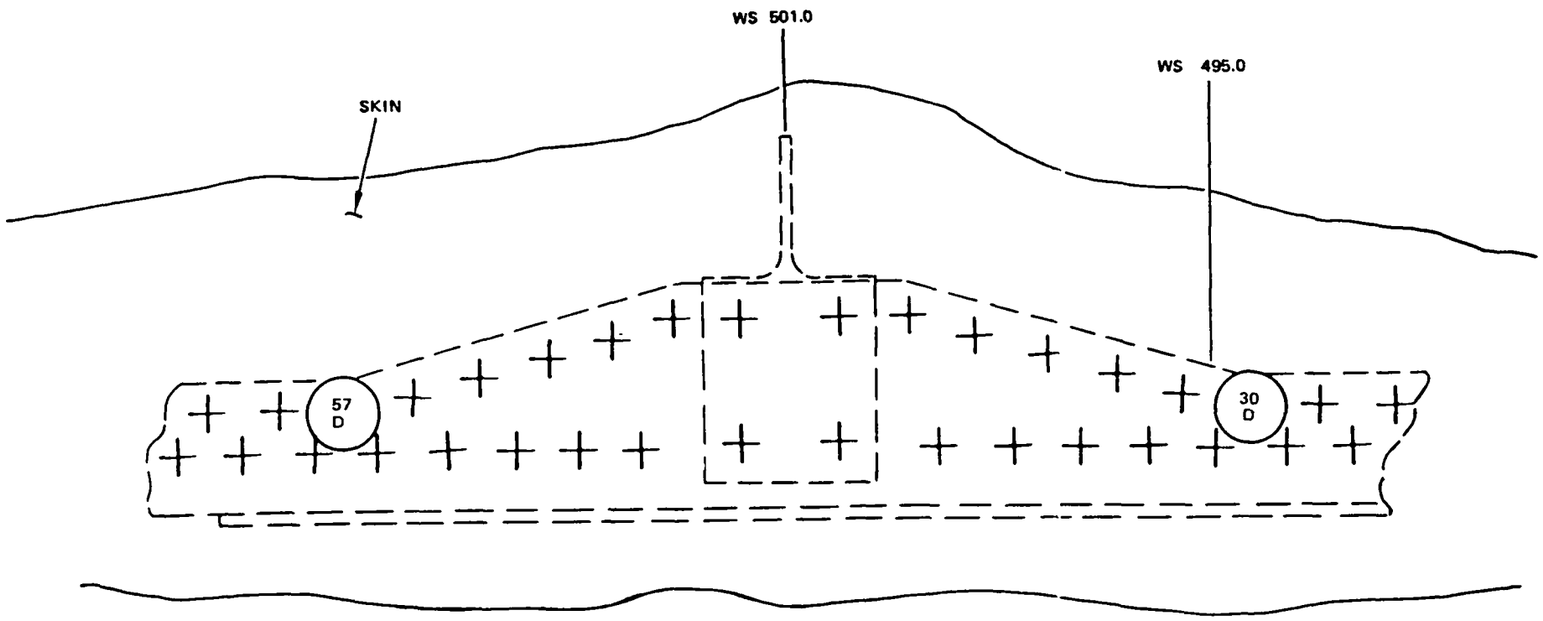
Upper Rear Spar Chord Horizontal Flange of Wings-
WS 360 to Production Break
Figure 55 (Sheet 14)

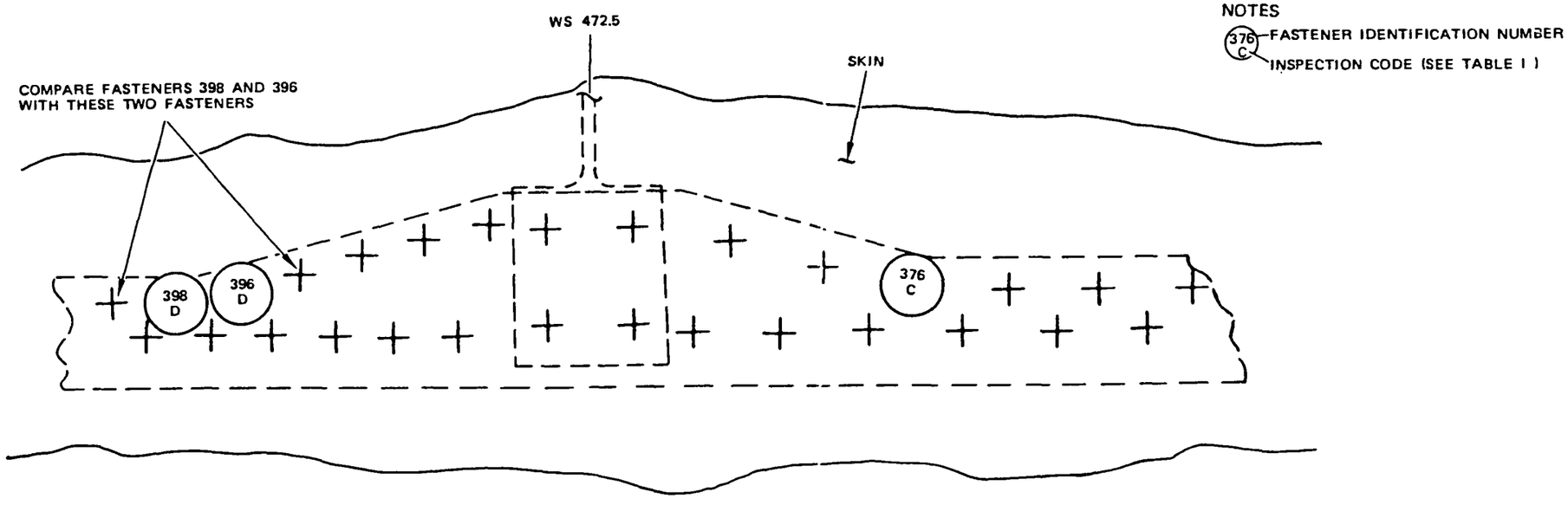




UPPER REAR SPAR HORIZONTAL FLANGE OF WING
DETAIL III (CONT)

Upper Rear Spar Chord Horizontal Flange of Wings-
WS 360 to Production Break
Figure 55 (Sheet 15)

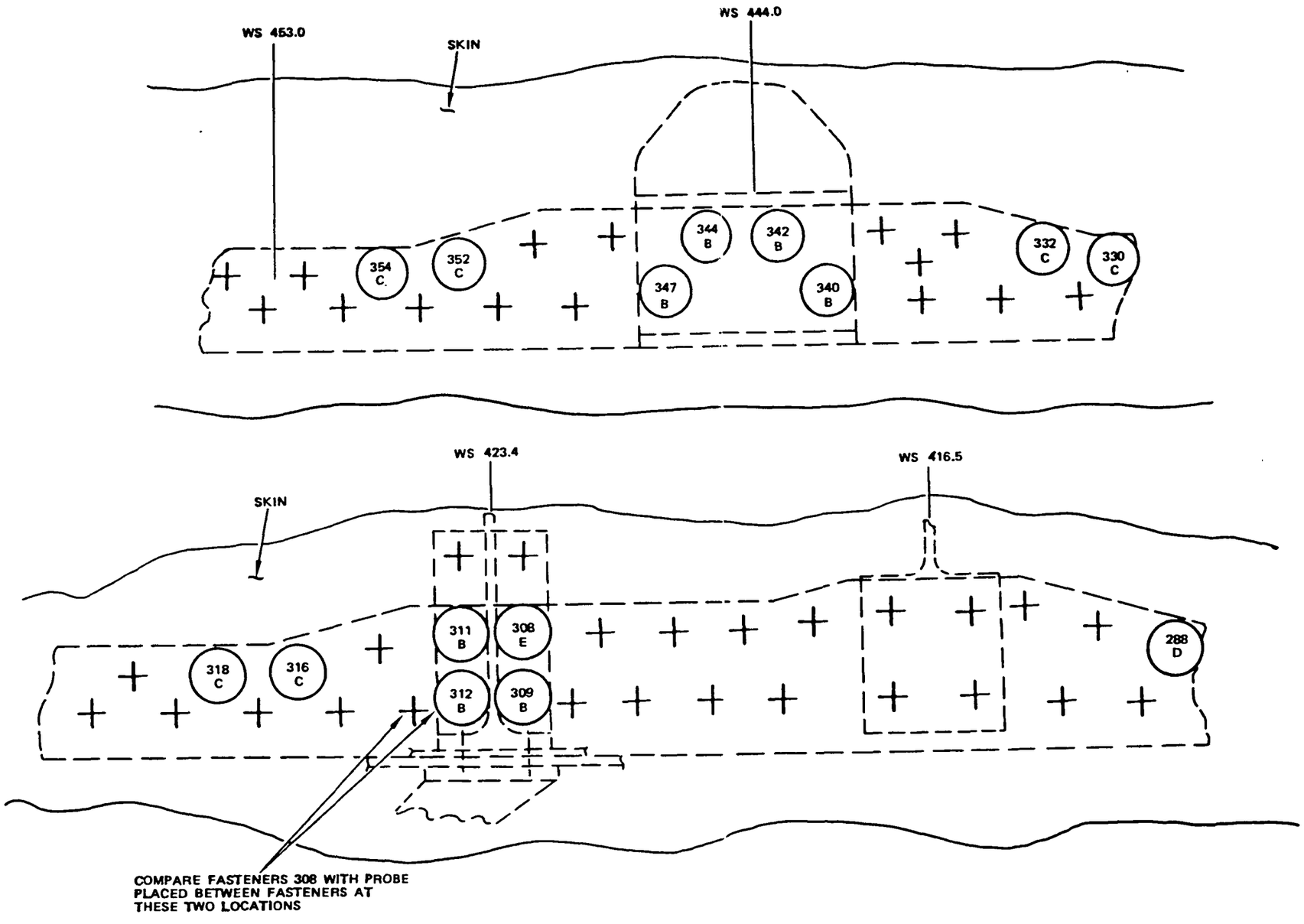




UPPER REAR SPAR HORIZONTAL FLANGE OF WING

DETAIL III (CONT)

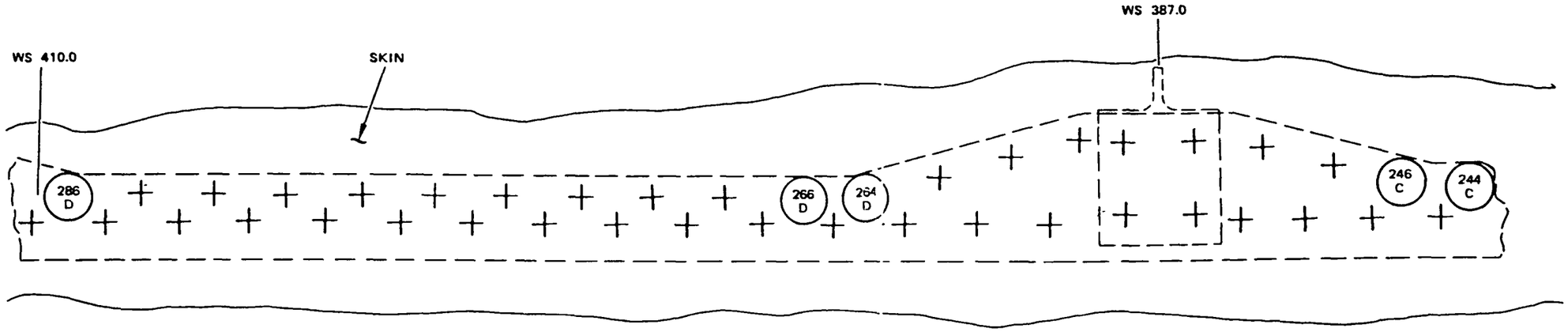
Upper Rear Spar Chord Horizontal Flange of Wings-
WS 360 to Production Break
Figure 55 (Sheet 16)



UPPER REAR SPAR HORIZONTAL FLANGE OF WING

DETAIL III (CONT)

Upper Rear Spar Chord Horizontal Flange of Wings-
WS 360 to Production Break
Figure 55 (Sheet 17)



UPPER REAR SPAR HORIZONTAL FLANGE OF WING

DETAIL III

Upper Rear Spar Chord Horizontal Flange of Wings-
WS 360 to Production Break
Figure 55 (Sheet 18)

EFFECTIVITY
MODEL: 720 SERVICE BULLETIN REFERENCE: NONE SSI DOCUMENT (D6-44860) REFERENCE: SSD 57-A00-14 57-A00-15

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks in the horizontal flange of the upper rear spar chord fastener holes. This inspection is accomplished from outside of the wing without fastener removal.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec Inc.
      1320 N.W. Mall
      Issaquah, WA 98027

   B. Probes - This procedure uses four probes; any probe of similar size which will satisfy the performance requirements of this procedure is acceptable. The following probes were used in the development of this procedure.

      (1) Ring (encircling) probe with 1-inch OD and 0.5-inch ID shielding, 100 Hz, Nortec P/N SPO-783

      (2) Ring (encircling) probe with 1.1-inch OD and 0.625-inch ID shielding, 100 Hz, Nortec P/N SPO-1154

      (3) Low frequency spot probe with 1.0-inch OD shielding usable at 300 Hz, Nortec P/N SPO-1153

Upper Rear Spar Chord Horizontal Flange of Wing
Figure 56 (Sheet 1)

(4) Ring probe with 0.7-inch OD and 0.3-inch ID shielding usable at 300 Hz; Nortec P/N SPO-996

(5) Probes listed above are available from:
Nortec Inc.
421 N. Quay
Kennewick, Washington 99336

NOTE: Specify instrument with which probes are to be used or instrument connector required when ordering probes.

C. Manufacture Reference Standards per Details I, III, V, VII, or IX. See Table II for airplane effectivity and related reference standard.

3. Preparation for Inspection

A. Wipe skin surface clean.

B. Some paint removal may be required to permit location of fasteners.

C. It is suggested that fastener locations requiring the same instrument calibration for inspection be identified on the airplane by a colored circle. Water washable crayons, pencils or felt pens are suitable. Refer to Table II to identify appropriate detail showing inspection requirements.

4. Instrument Calibration

A. General

(1) Three basic inspection types are required.

(a) Inspection for fastener hole cracks using a ring probe centered on the fastener.

(b) Inspection for fastener hole cracks using a spot probe centered on the fastener.

(c) Inspection for cracks in rear spar chord using a ring probe as a spot probe.

(2) The three basic inspections require several instrument calibrations to adjust for variations in structure geometry and materials.

(3) Details XI and XII identify inspection coverage for a particular calibration, and Table I provides specific calibration information for that inspection.

Upper Rear Spar Chord Horizontal Flange of Wing
Figure 56 (Sheet 2)

B. Calibration for fastener hole crack inspection using the ring probe or spot probe centered on the fastener. The following calibration applies to inspection codes A through P.

(1) Identify code for fasteners to be inspected from Table II and Details XI or XII.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

(3) Visually center probe over the unnotched reference standard hole, Position 1.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(6) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

NOTE: Probe is centered by manipulating to obtain a minimum meter response.

(7) Center probe over the notched reference standard hole, Position 2. Response should be upscale.

(8) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(9) Recheck null and liftoff. If readjustments are made recheck sensitivity per par. B.(8).

(10) Cracks will be indicated by a higher meter response.

C. Calibration for crack inspection using a spot probe placed adjacent to the fastener head. The following calibration applies to inspection codes Q and R.

(1) Refer to Table I for reference standard, probe, and calibration details for inspection codes Q and R.

(2) Place probe adjacent to the unnotched reference standard hole, Position 1.

(3) Balance instrument per manufacturer's instructions.

(4) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is located at Position 1 during liftoff calibration.

(5) With the probe adjacent to the unnotched hole Position 1, adjust meter response to read 20% of full scale with meter position control.

(6) Position probe adjacent to the notched reference standard hole, Position 2. Response should be upscale.

(7) Adjust instrument sensitivity to obtain a 50% of full scale meter response difference between the notched and unnotched holes, Positions 1 and 2.

(8) Reposition probe at Position 1 and check null and liftoff. If readjustments are made recheck sensitivity per par. B(7).

(9) Cracks will be indicated by a higher meter response.

5. Inspection Procedure

NOTE: An inspection code is used to identify locations having similar inspection conditions. A single instrument calibration is usually used to inspect these locations.

It is suggested that a copy of Details XI or XII be made and that it be used to record instrument responses at each fastener location. This is helpful in maintaining continuity between the groups of fasteners during inspection.

NONDESTRUCTIVE TEST

A. Inspection of fastener holes for cracks using the ring probe or spot probe centered on the fastener (Inspection codes A through P).

(1) Accomplish inspections of codes A through P in the order given in Table I.

(2) Calibrate instrument per par. 4.B. and Table I.

(3) Note on the airplane the location of those fasteners having the same inspection code by using Details XI or XII depending on airplane effectivity. See Table II for effectivity.

(4) Use several fasteners of the same code to establish the airplane baseline response for an acceptable fastener.

(a) Select a representative fastener from this group and set its response to 20% of full meter scale.

(b) Do not change instrument sensitivity when establishing the airplane baseline response.

(c) Refer back to this fastener periodically to ensure that the instrument response is the same as originally recorded.

NOTE: Changes in meter response may occur as a result of instrument drift or probe temperature change.

(5) Inspect each fastener having the same inspection code by centering the probe on the fastener and manipulating to obtain a minimum response.

NOTE: Review the Special Notes called out in Table I for conditions which affect the inspection.

(6) Fastener locations which give a response which is 40% of full meter scale higher than the established baseline are potential crack indications and further investigation is required.

NOTE: The following conditions may cause meter reading changes similar to crack indications:

(a) A decrease in fastener spacing. Compare with similarly spaced fasteners on the airplane.

(b) Fasteners closer to forward edge of rear spar. Compare with fastener having similar edge margin.

(c) A larger or smaller fastener. Compare with similar fasteners of reference standard and on airplane.

(d) A fastener that is different in countersink depth. Compare with similar fastener in standard raised to the same height.

(e) A fastener close to edge of skin. Compare with similar fasteners on airplane.

(f) Differences in conductivity between skin panels. Compare only the fastener locations common to a skin panel.

B. Inspection for Cracks Using a Spot Probe. Inspection codes Q and R.

(1) Calibrate the instrument per par. 4.C and Table I.

(2) Note location of codes Q and R scans on the airplane using Details XI or XII.

(3) Scan the probe in the inboard/outboard direction with the edge of the probe approximately 0.1 inch from aft edge of skin. Scan to within 0.2 inch of skin juncture at WS 360. See Detail XI or XII for scan limits.

(4) Any location which gives a response which is 30% of full meter scale higher than the baseline response should be investigated further.

Inspection Code [1]	Reference Standard No.	Probe Identification [2]	Instrument Frequency Hz	Detail No. for Calibration	Probe Calibration Position [3]	Special Notes
A	069	(2)	100	II	A	
B	069	(2)	100	II	B	
C	069	(1)	100	II	C	[4]
D	069	(1)	100	II	D	[4]
E	069	(1)	100	II	C	[4]
F	069	(1)	100	II	D	[4]
G	071	(1)	100	VI	A	
H	070	(1)	300	IV	A	
I	070	(1)	300	IV	B	[4]
J	071	(3)	300	VI	B	[7]
K	072	(2)	100	VIII	A	
L	072	(2)	100	VIII	B	
M	072	(1)	100	VIII	C	[6]
P	073	(3)	300	X	A	[5] [7]
Q	072	(4)	500	VIII	A	[24]
R	069	(4)	500	II	A	[24]

CALIBRATION TABLE
TABLE I

NOTES:

[1] Code for specific inspection areas identified on Details XI and XII to which the calibration requirements apply.

[2] Probe Identification:
(1) P/N SPO-783 - 1 inch OD and 0.5-inch ID ring probe
(2) P/N SPO-1154 - 1.1 inch OD and 0.62-inch ID ring probe
(3) P/N SPO-1153 - 1.0 inch OD spot probe
(4) P/N SPO-996 - 0.70 OD ring probe used as a spot probe

[3] Letters refer to "Probe Position for Calibration Details" and identifies that row of fasteners in the reference standard for this calibration.

[4] See Detail XI for additional information regarding fastener grouping during inspection. This grouping within an inspection code is due to structural thickness changes.

[5] See Detail XII for additional information regarding fastener grouping during inspection. This grouping within an inspection code is due to structural thickness changes.

6> This inspection code covers two styles of countersunk heads, a small difference in response will be noted between them. Compare fasteners with similar head styles.

7> Heavy paint may obscure the location of microshaved rivets. If in doubt remove paint.

24> At WS 541.0 area, scan on skin forward of the trailing edge panel. To reduce noise, maintain a constant distance from the machined cutout in the skin by guiding the probe along a nonconductive straight edge. Compare the meter readings adjacent to fasteners separately from meter readings between fasteners.

A/P BLOCK NO'S.	INSPECTION AREA DETAIL NO.	REFERENCE STANDARD DETAIL NO.
8>	XI	I, III AND V
9>	XII	VII AND IX

Effectivity Table
Table II

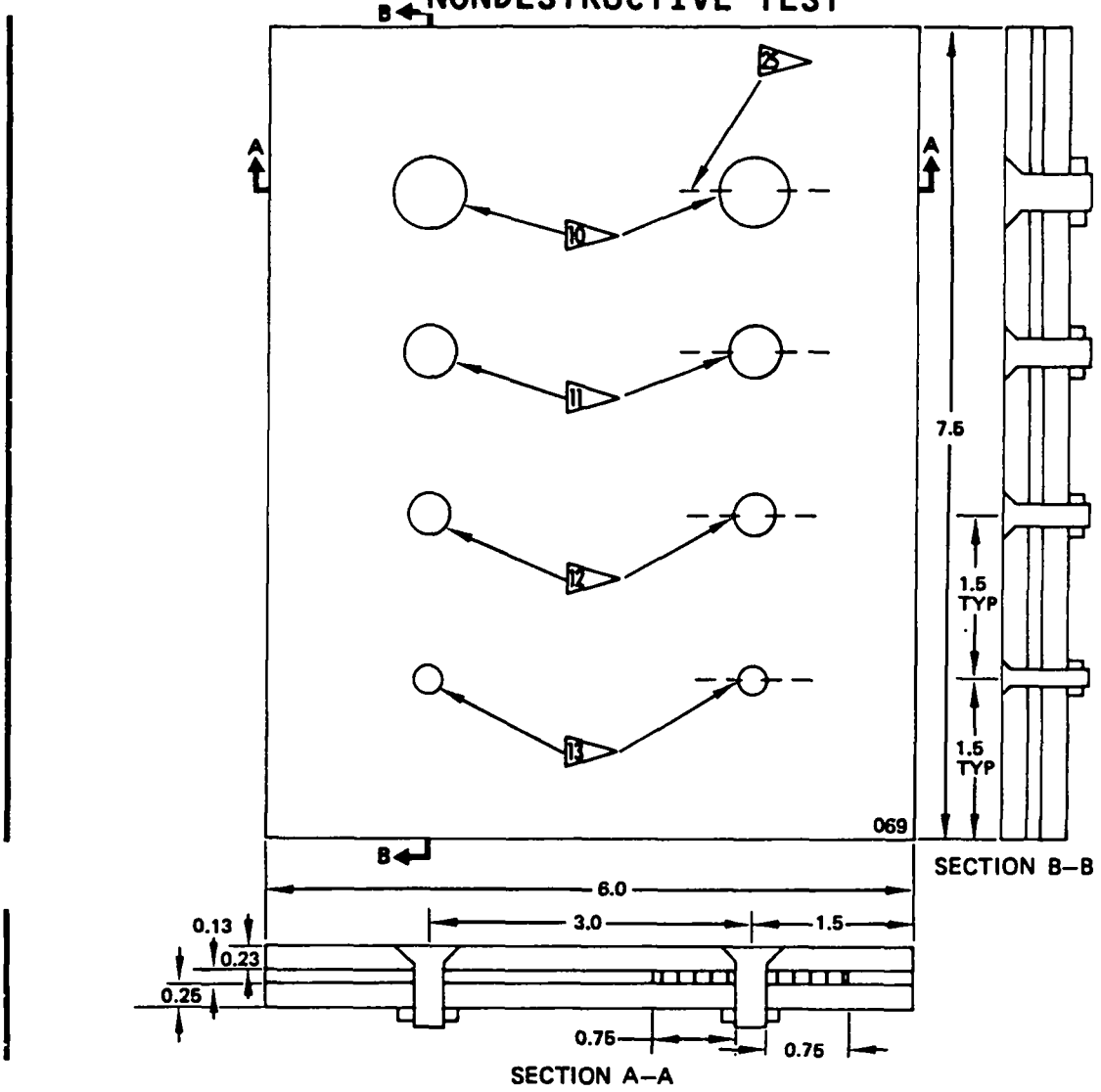
NOTES:

8> FOR CUM LINE NUMBERS:
85, 95, 109, 120, 130 THRU 132, 141 THRU 143, 146 THRU 150, 156 THRU 158, 165, 166, 172 THRU 174, 177 THRU 191, 193 THRU 199, 202 THRU 204, 206 THRU 208, 210, 211, 213 THRU 215, 218 THRU 226, 230 THRU 263, 265, 267, 273, 278, 279, 281, 282, 284, 285, 288 THRU 290, 295, 297, 298, 300, 304, 307, 310, 314, 319, 321, 322, 324, 337 THRU 340, 347, 351, 361, 374, 380, 381, 384, 390, 401, 410, 414, 423, 427, 429, 433, 442, 470, 473, 474, 481, 512, 514

9> FOR CUM LINE NUMBERS:
581, 597, 615, 621, 624

Upper Rear Spar Chord Horizontal Flange of Wing
Figure 56 (Sheet 8)

NONDESTRUCTIVE TEST



NOTES

- ALL DIMENSIONS ARE IN INCHES
- ETCH OR STEEL STAMP WITH 069
- MATERIAL: 7075–T6 ALUMINUM
- TOLERANCE: X.X ± 0.05 X.XX ± 0.02
- P/N 6412–72
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

10 BACB30LU5–10 FASTENERS; BACN10JC5 COLLARS; (2 PLACES)

11 BACB30FN10–10 FASTENERS; BACC30M10 COLLARS; (2 PLACES)

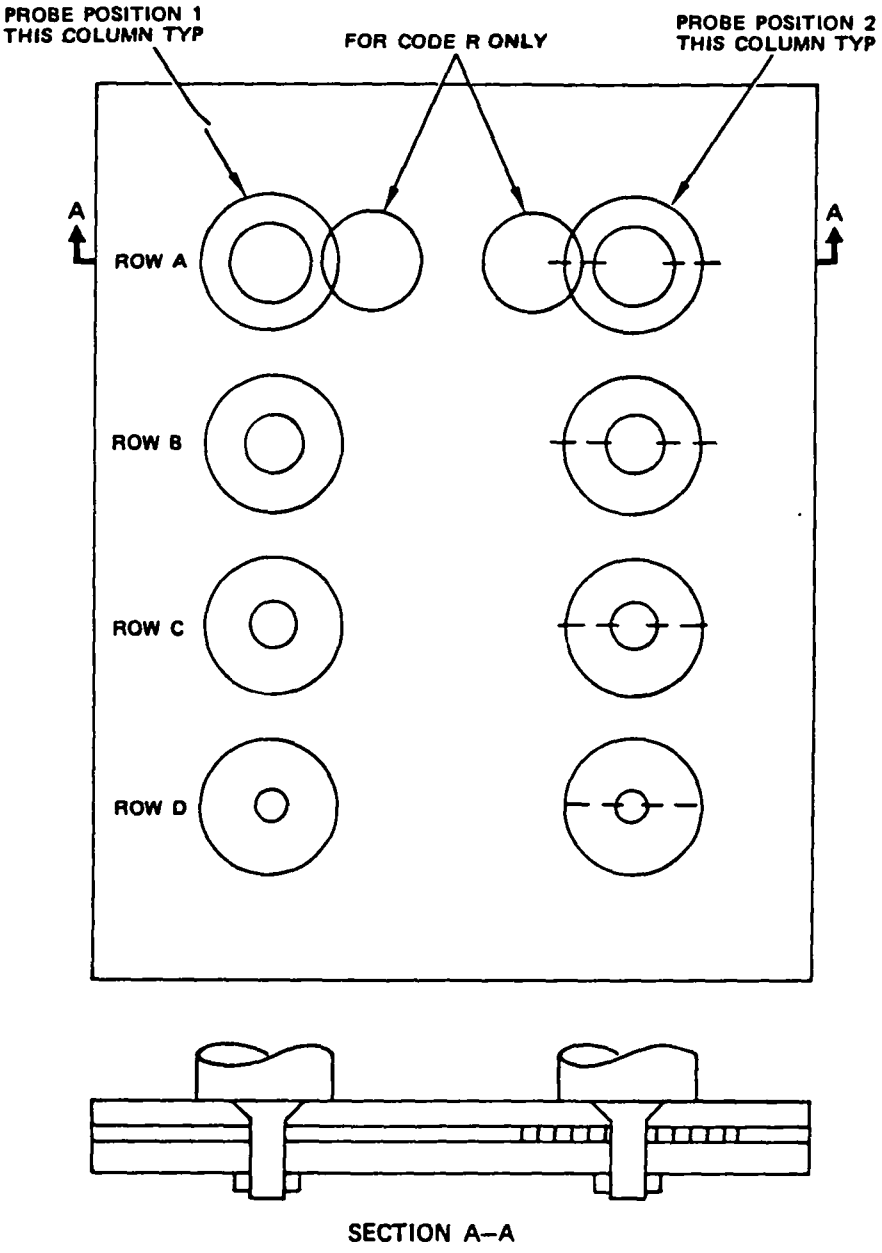
12 BACB30FN8–10 FASTENERS; BACC30M8 COLLARS; (2 PLACES)

13 BACB30FN6–10 FASTENERS; BACC30M6 COLLARS; (2 PLACES)

25 JEWELER'S SAWCUT 0.030 MAX WIDTH (8 PLACES)

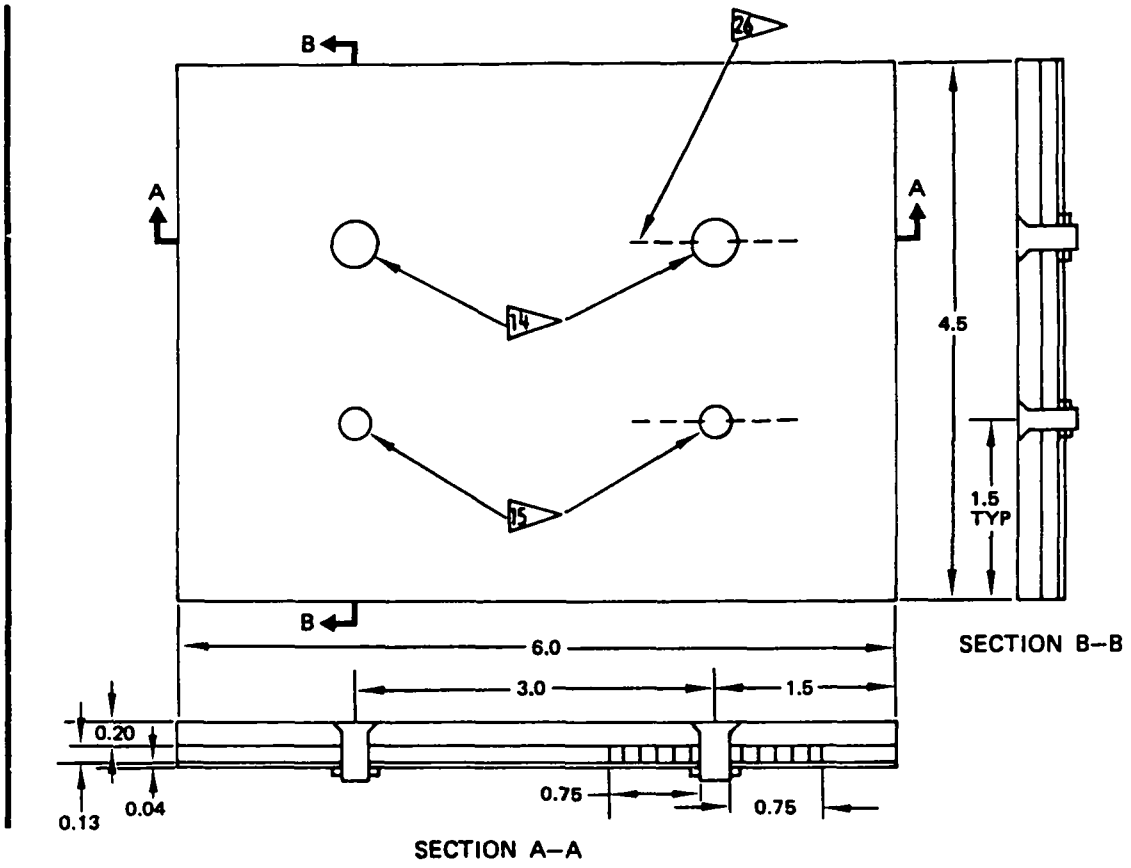
REFERENCE STANDARD 069
DETAIL I

Upper Rear Spar Chord Horizontal Flange of Wing
Figure 56 (Sheet 9)



PROBE POSITION FOR CALIBRATION ON
REFERENCE STANDARD 069
DETAIL II

Upper Rear Spar Chord Horizontal Flange of Wing
Figure 56 (Sheet 10)



NOTES

- ALL DIMENSIONS ARE IN INCHES
- ETCH OR STEEL STAMP WITH 070
- MATERIAL: 7075–T6 ALUMINUM
- TOLERANCE: X.X ± 0.05 X.XX ± 0.02
- P/N 6412–73
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

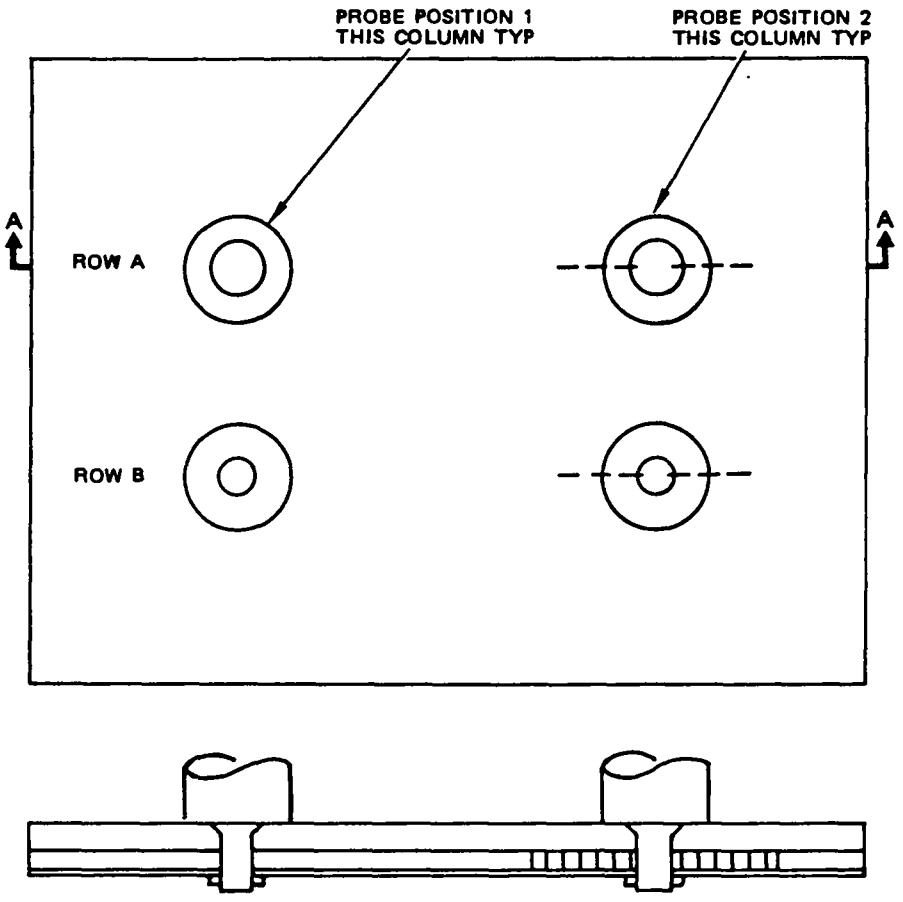
26 JEWELER'S SAWCUT 0.030 MAX WIDTH (4 PLACES)

14 BACB30FN8–6 FASTENERS; BACC30M8 COLLARS; (2 PLACES)

15 BACB30FN6–6 FASTENERS; BACC30M6 COLLARS; (2 PLACES)

REFERENCE STANDARD 070
DETAIL III

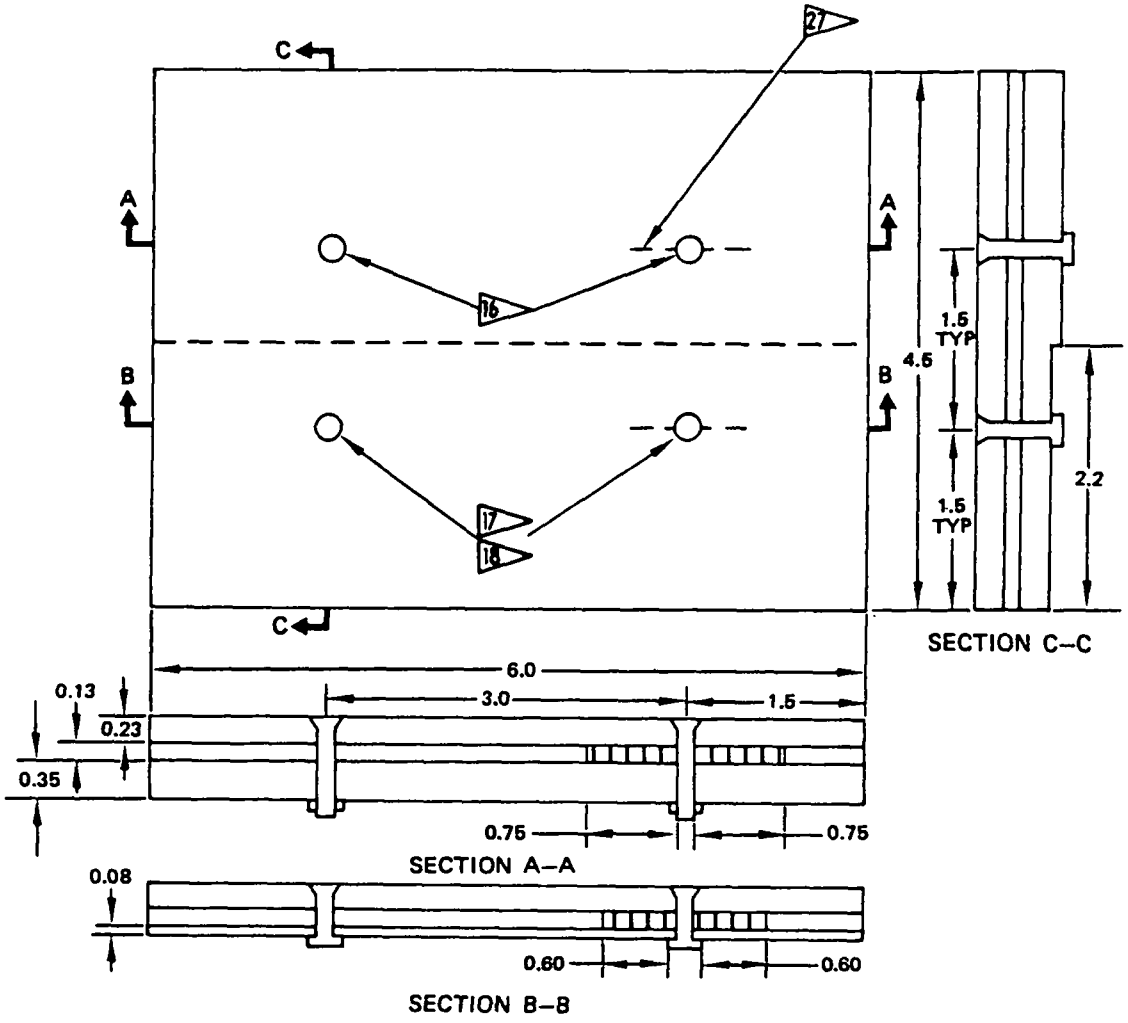
Upper Rear Spar Chord Horizontal Flange of Wing
Figure 56 (Sheet 11)



SECTION A–A

PROBE POSITION FOR CALIBRATION ON
REFERENCE STANDARD 070

DETAIL IV



NOTES

- ALL DIMENSIONS ARE IN INCHES
- ETCH OR STEEL STAMP WITH 071
- MATERIAL: 7075–T6 ALUMINUM
- TOLERANCE: X.X ± 0.05 X.XX ± 0.02
- P/N 6412–74
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

16 BAC830LU3–11 FASTENERS; BACN10JC3 NUTS; (2 PLACES)

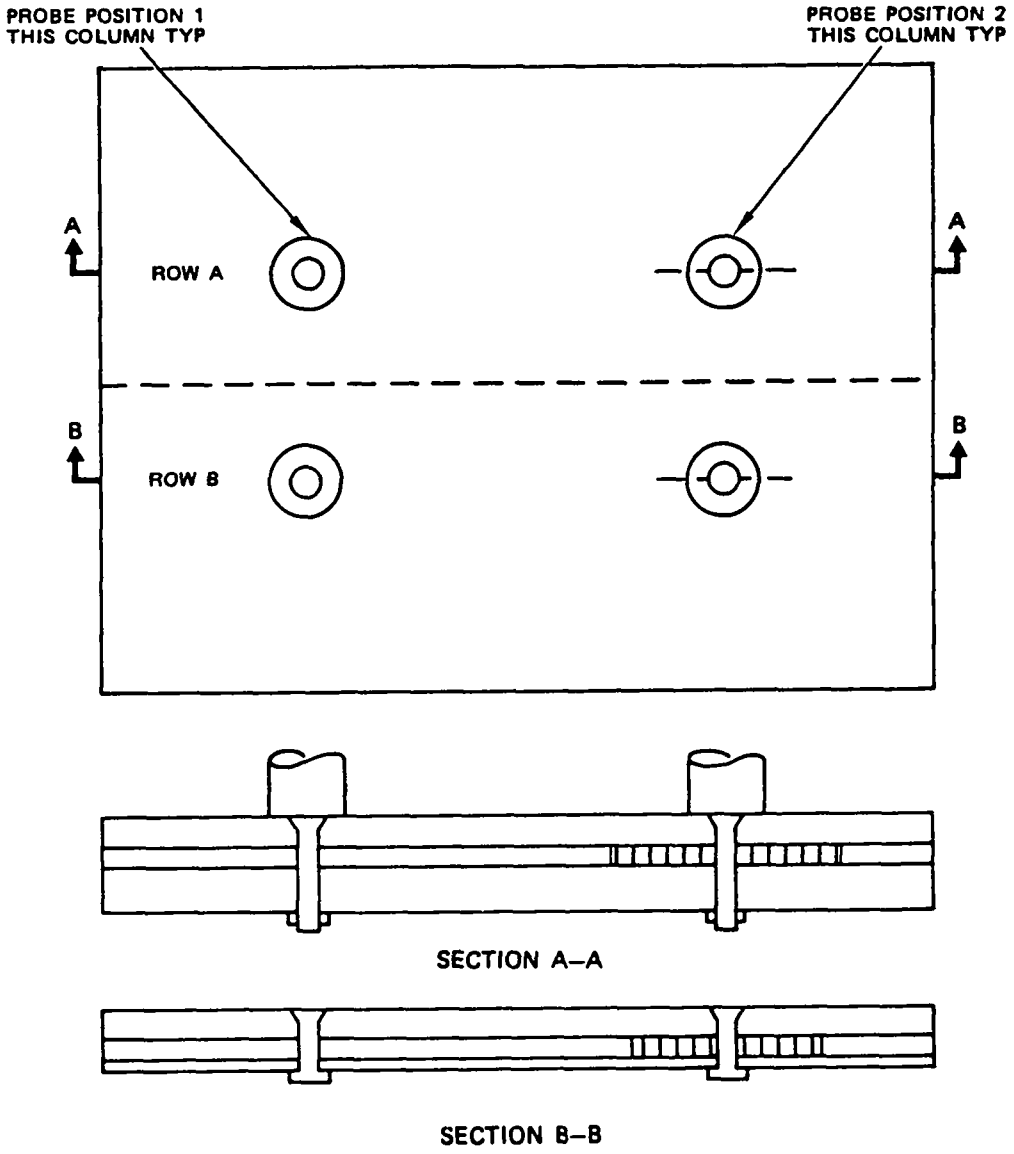
17 BACR15DG10AD–12 RIVETS; (2 PLACES)

18 INSTALL MICROSHAVED RIVETS PER BAC5047

27 JEWELER'S SAWCUT 0.030 MAX WIDTH (4 PLACES)

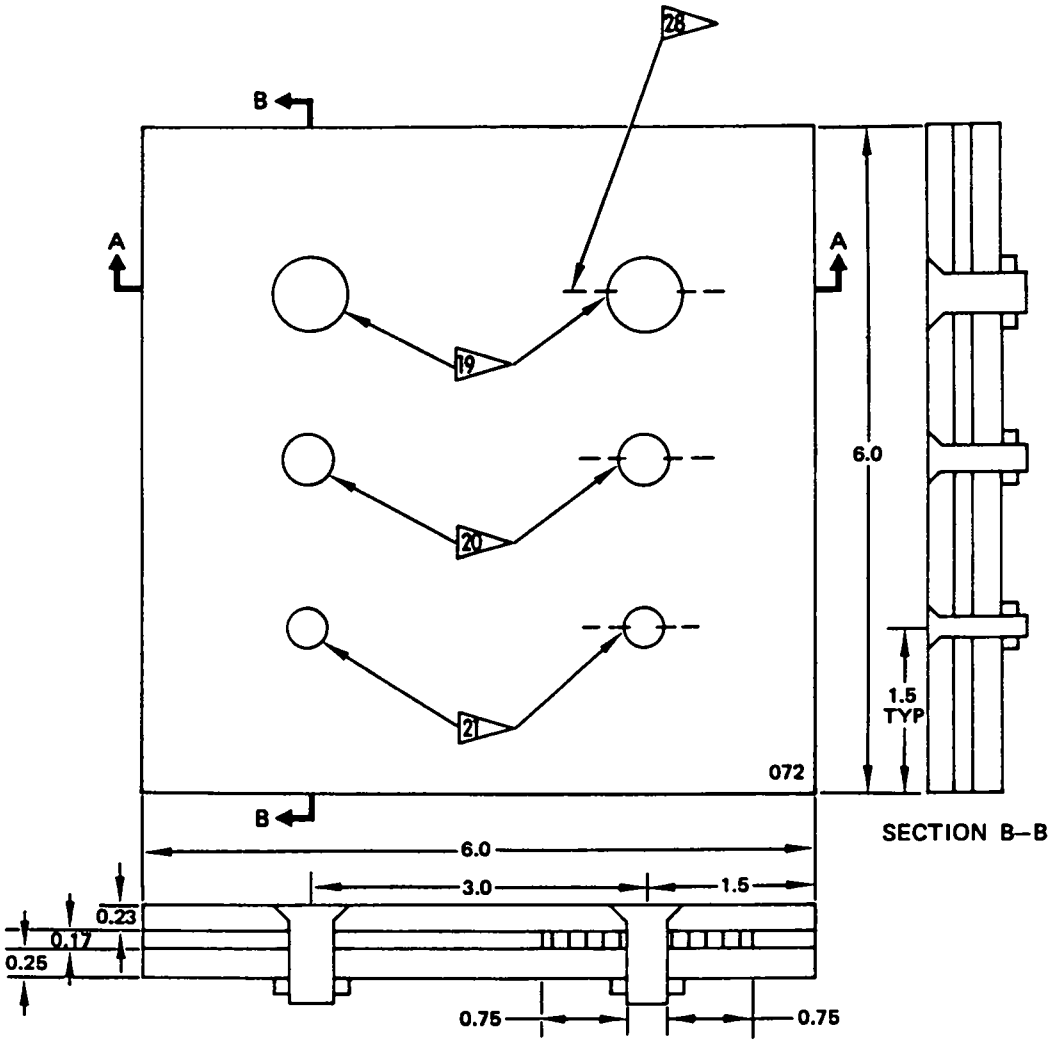
REFERENCE STANDARD 071
DETAIL V

Upper Rear Spar Chord Horizontal Flange of Wing
Figure 56 (Sheet 13)



PROBE POSITION FOR CALIBRATION ON
REFERENCE STANDARD 071
DETAIL VI

Upper Rear Spar Chord Horizontal Flange of Wing
Figure 56 (Sheet 14)



NOTES

- ALL DIMENSIONS ARE IN INCHES
- ETCH OR STEEL STAMP WITH 072
- MATERIAL: 7075–T6 ALUMINUM
- TOLERANCE: X.X ± 0.05 X.XX ± 0.02 X.XXX ± 0.005
- P/N 6412–75
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

28 JEWELER'S SAWCUT
0.030 MAX WIDTH (6 PLACES)

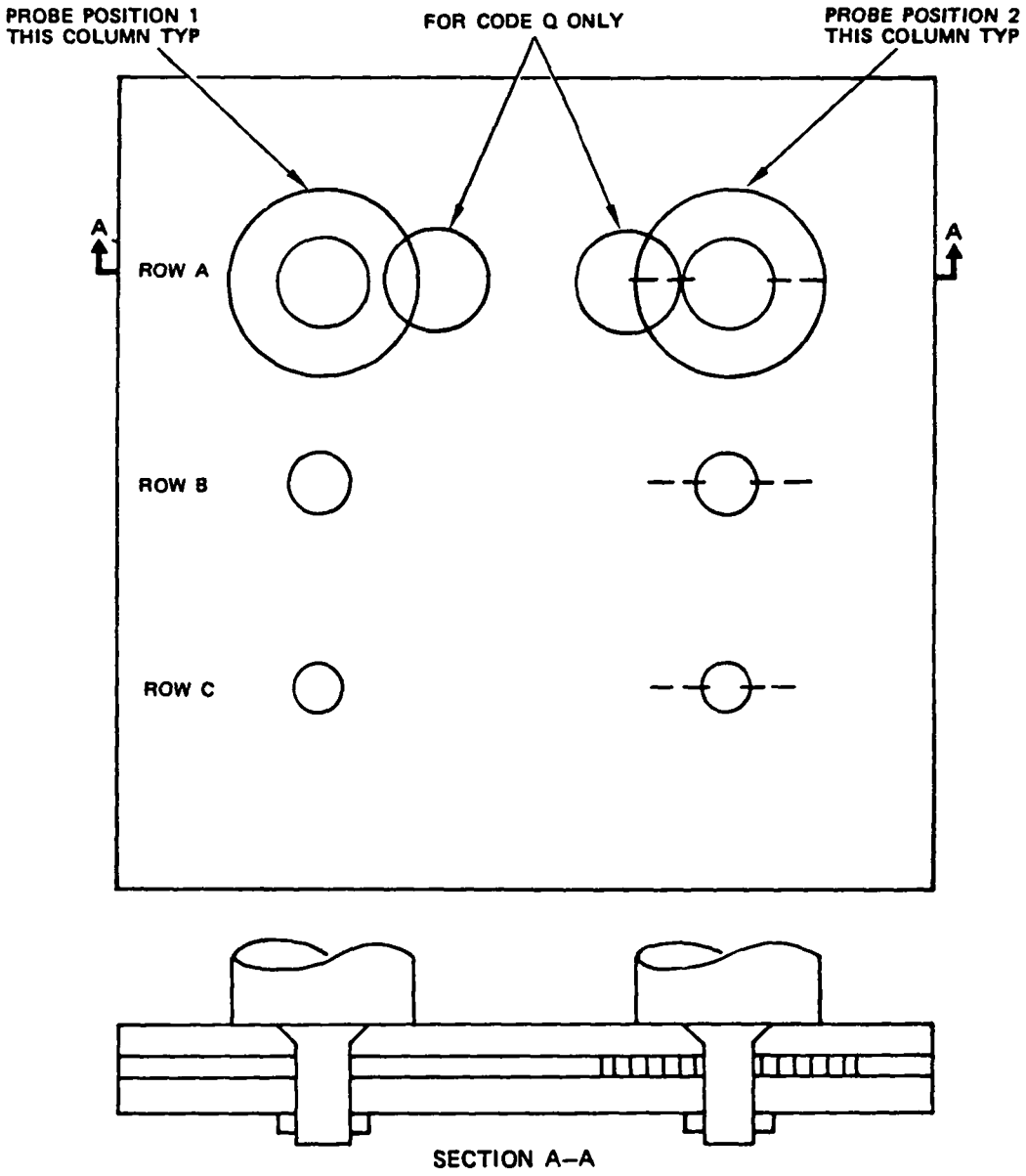
19 BACB30LU5–10, FASTENERS; BACN10JC5 NUTS

20 BACB30FN10–10 FASTENERS; BACC30M10 COLLARS

21 BACB30FN8–10 FASTENERS; BACC30M8 COLLARS

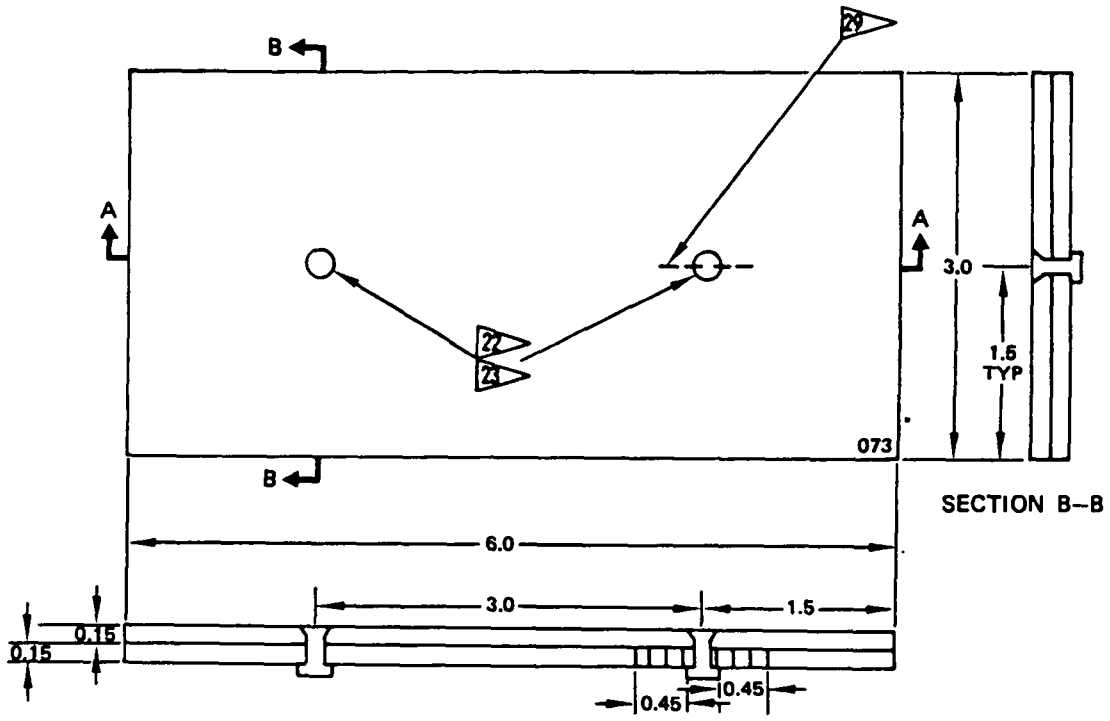
REFERENCE STANDARD 072
DETAIL VII

Upper Rear Spar Chord Horizontal Flange of Wing
Figure 56 (Sheet 15)



PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD 072

DETAIL VIII



NOTES

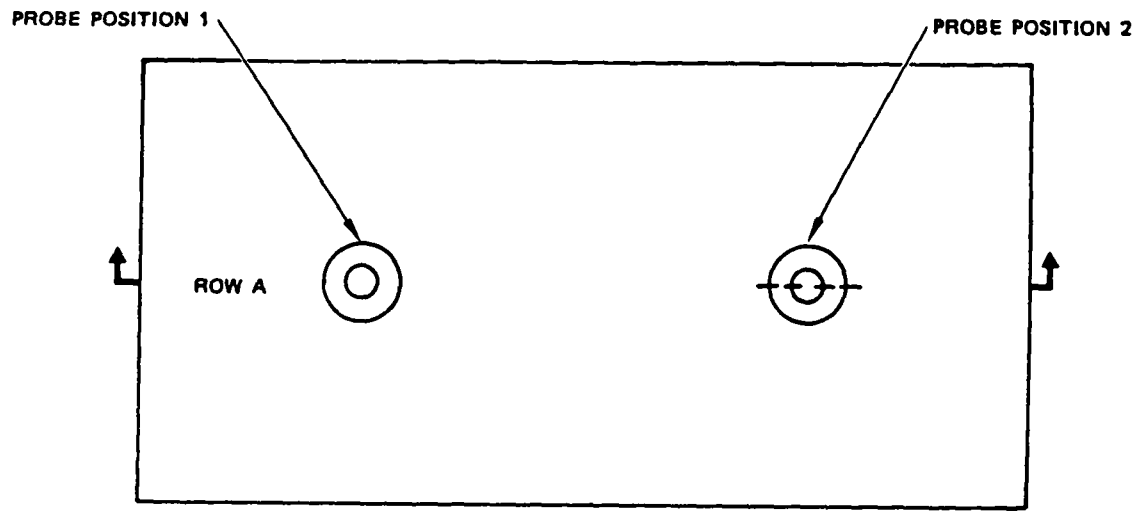
- ALL DIMENSIONS ARE IN INCHES
- ETCH OR STEEL STAMP WITH 073
- MATERIAL: 7075–T6 ALUMINUM
- TOLERANCE: X.X ± 0.05 X.XX ± 0.02
- P/N 6412–76
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

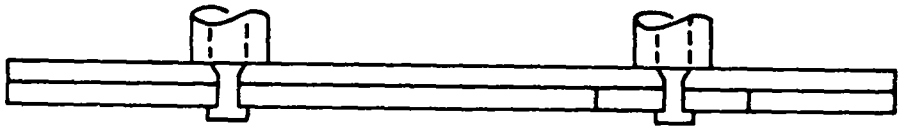
22 BACR15DG8AD9 RIVET

23 INSTALL MICROSHAVED RIVETS PER BAC5047

29 JEWELER'S SAWCUT 0.030 MAX WIDTH (2 PLACES)

REFERENCE STANDARD 073
DETAIL IX

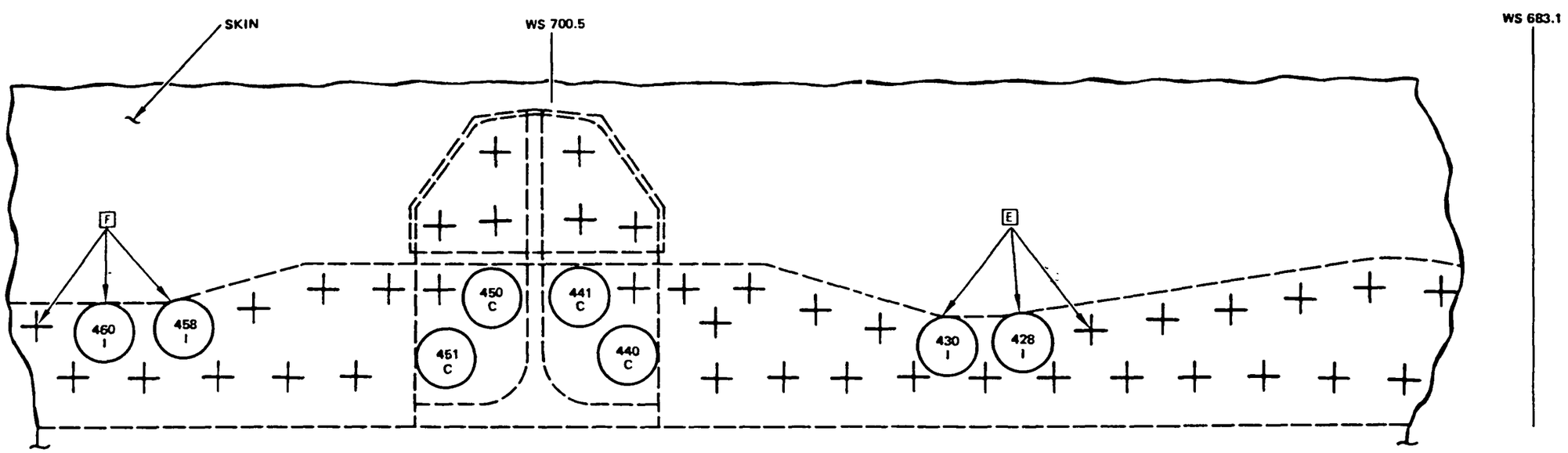




SECTION A–A

PROBE POSITION FOR CALIBRATION ON
REFERENCE STANDARD 073
DETAIL X

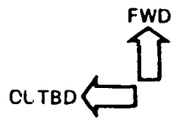
Upper Rear Spar Chord Horizontal Flange of Wing
Figure 56 (Sheet 18)



NOTES

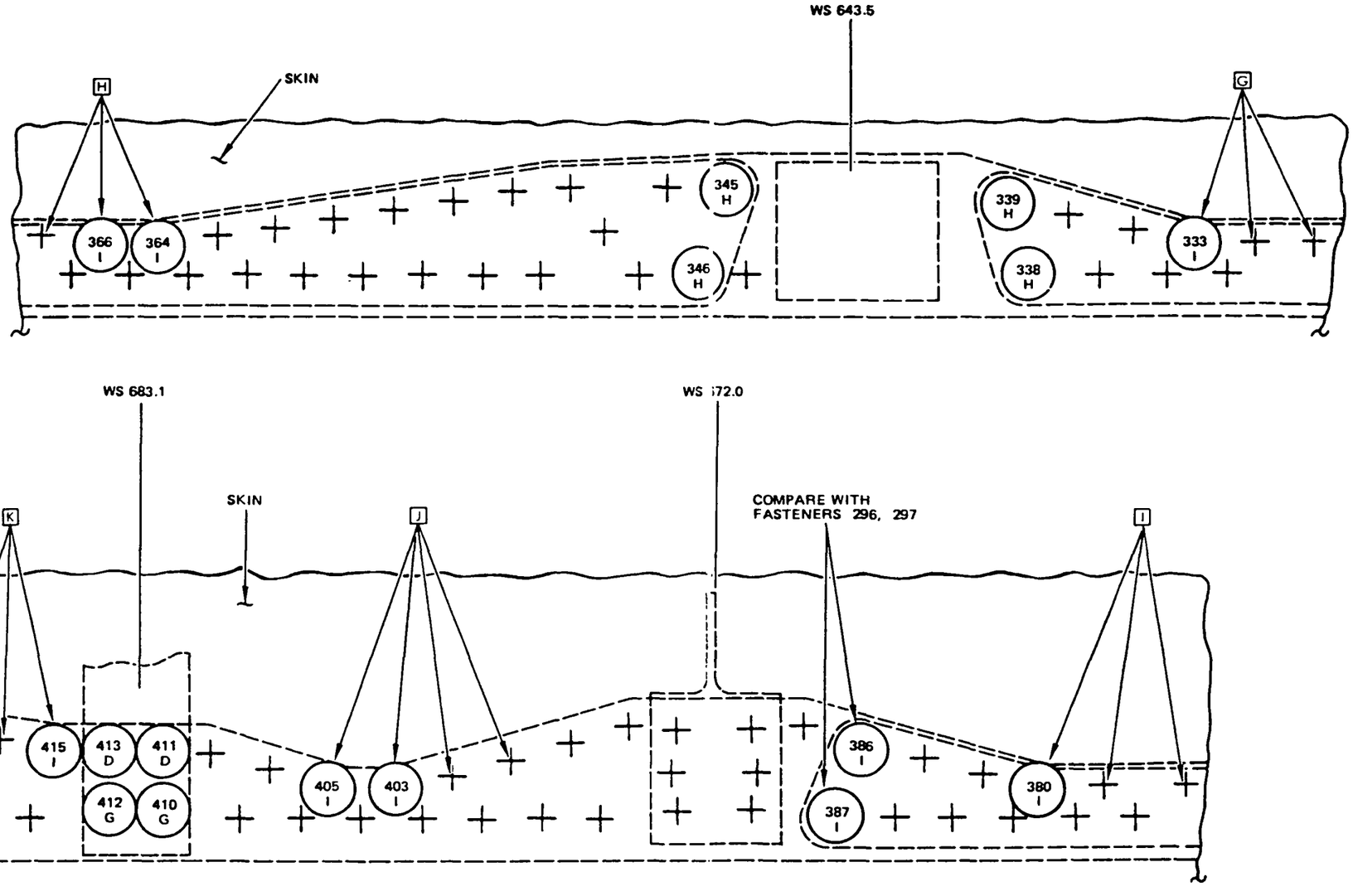
460 I — FASTENER LOCATION TO BE INSPECTED; FASTENER NUMBER; INSPECTION CODE

[E] COMPARE LETTERED FASTENERS WITH OTHER SAME LETTERED FASTENERS



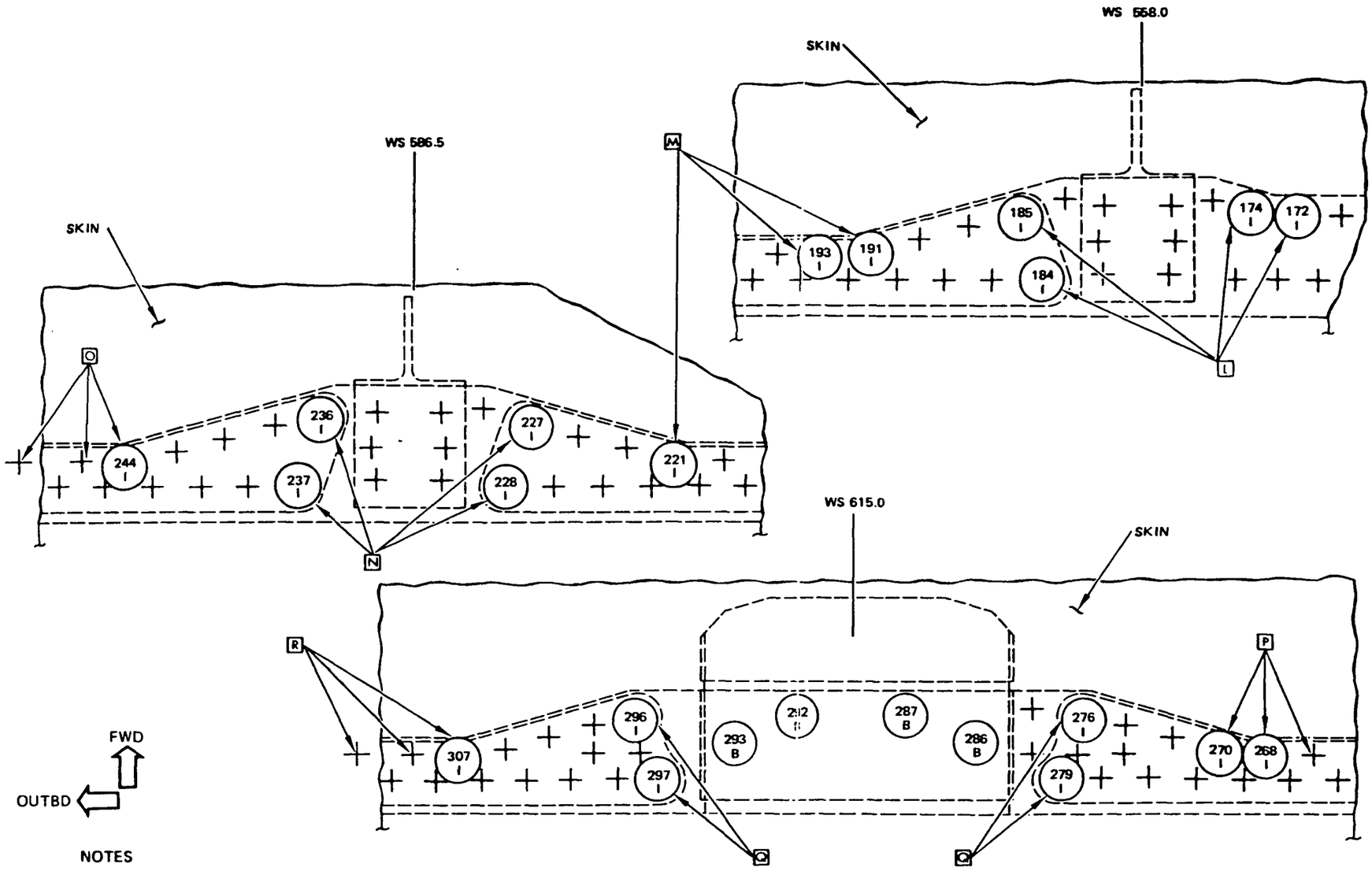
UPPER REAR SPAR CHORD HORIZONTAL FLANGE

DETAIL XI



UPPER REAR SPAR CHORD HORIZONTAL FLANGE

DETAIL XI (CONT)

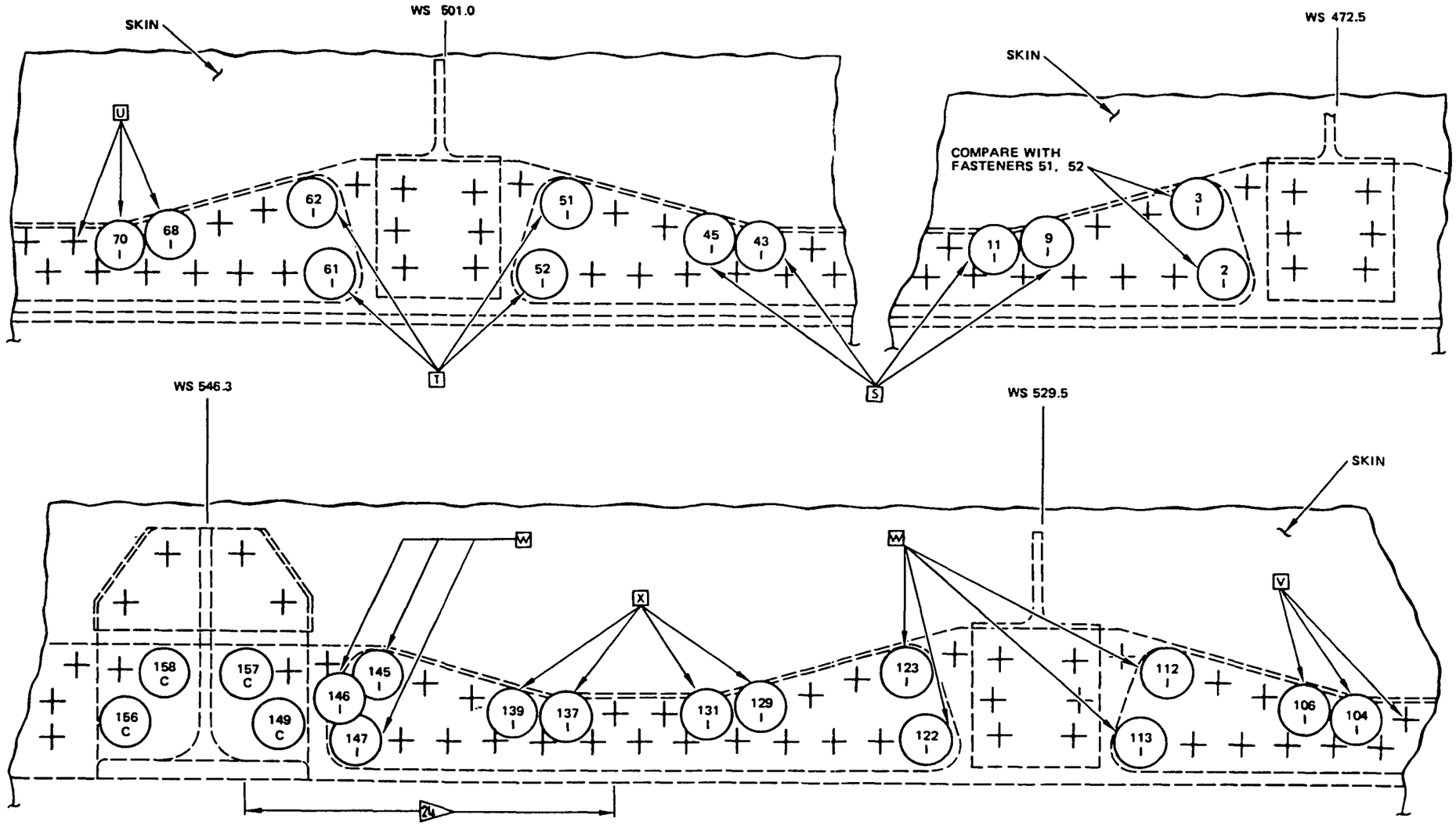


NOTES

L COMPARE LETTERED FASTENERS WITH OTHER SAME LETTERED FASTENERS

UPPER REAR SPAR CHORD HORIZONTAL FLANGE

DETAIL XI (CONT)



NOTES

24 AT WS 541.0 AREA, SCAN ON SKIN FORWARD OF THE TRAILING EDGE PANEL. TO REDUCE NOISE, MAINTAIN A CONSTANT DISTANCE FROM THE MACHINED CUTOUT IN THE SKIN BY GUIDING THE PROBE ALONG A NONCONDUCTIVE STRAIGHT EDGE. COMPARE THE METER READINGS ADJACENT TO FASTENERS SEPARATELY FROM METER READINGS BETWEEN FASTENERS

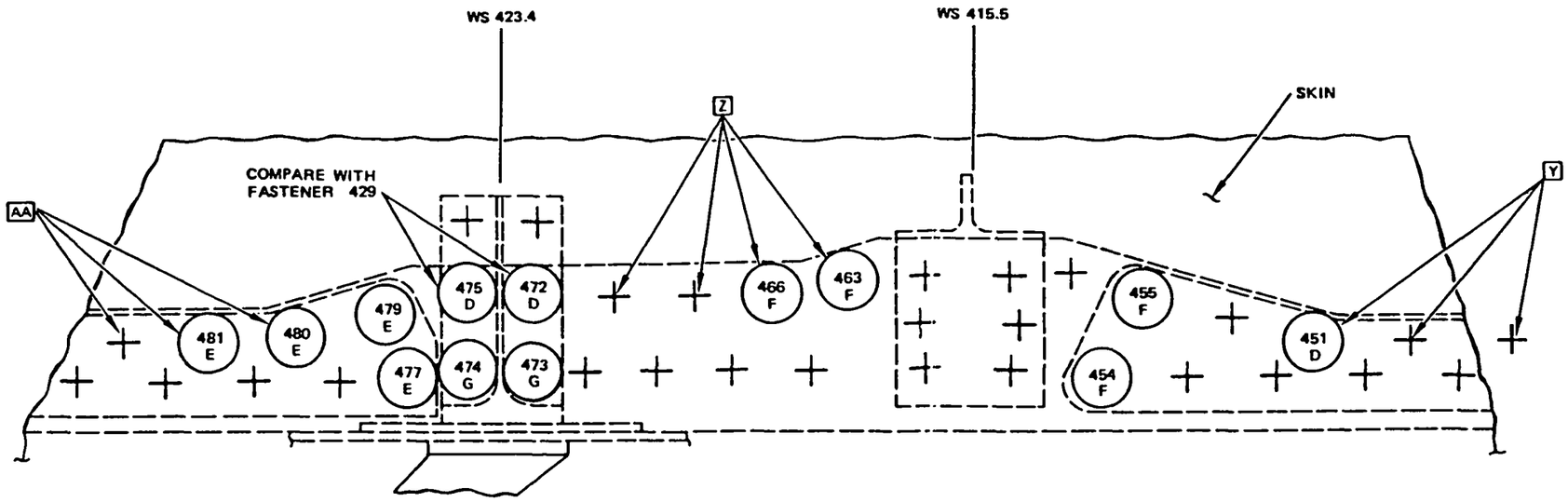
[S] COMPARE LETTERED FASTENERS WITH OTHER SAME LETTERED FASTENERS

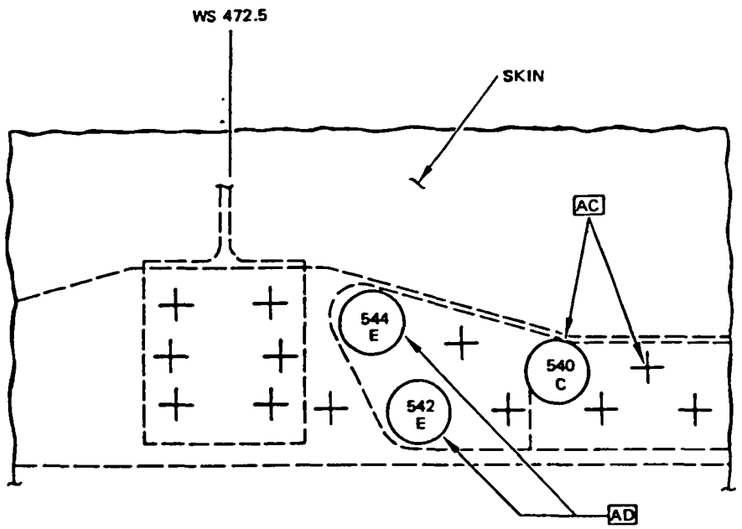
FWD
OUTBD

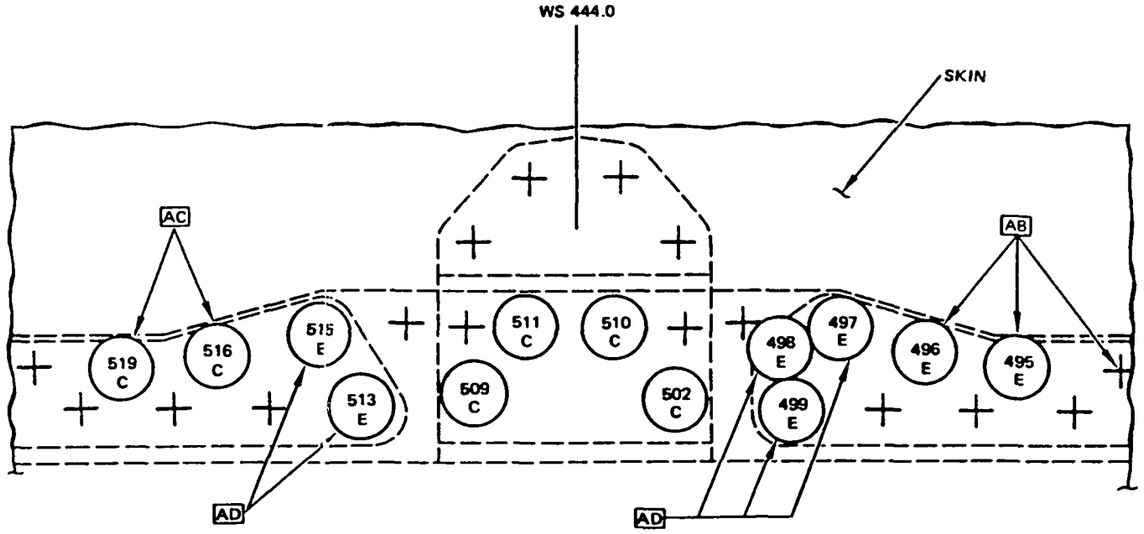
UPPER REAR SPAR CHORD HORIZONTAL FLANGE

DETAIL XI (CONT)

Upper Rear Spar Chord Horizontal Flange of Wing
Figure 56 (Sheet 22)

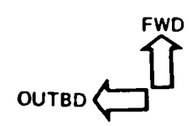






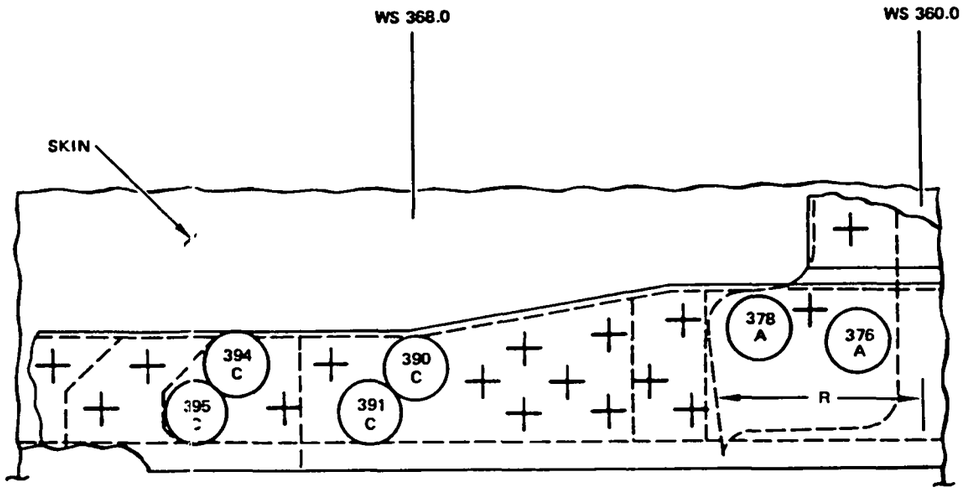
NOTES

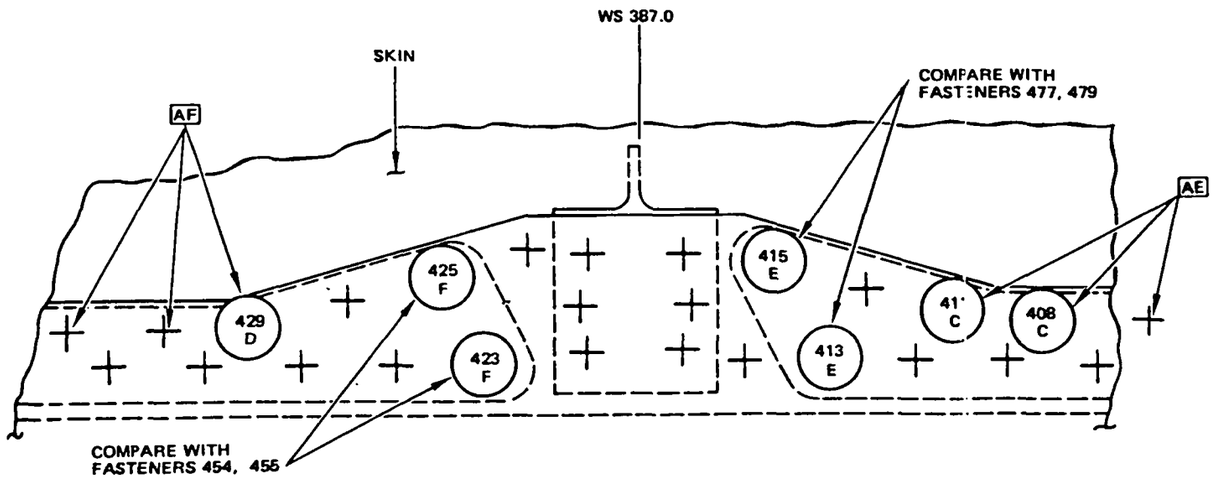
AA COMPARE LETTERED FASTENERS WITH OTHER SAME LETTERED FASTENERS

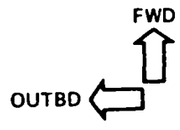


UPPER REAR SPAR CHORD HORIZONTAL FLANGE

DETAIL XI (CONT)





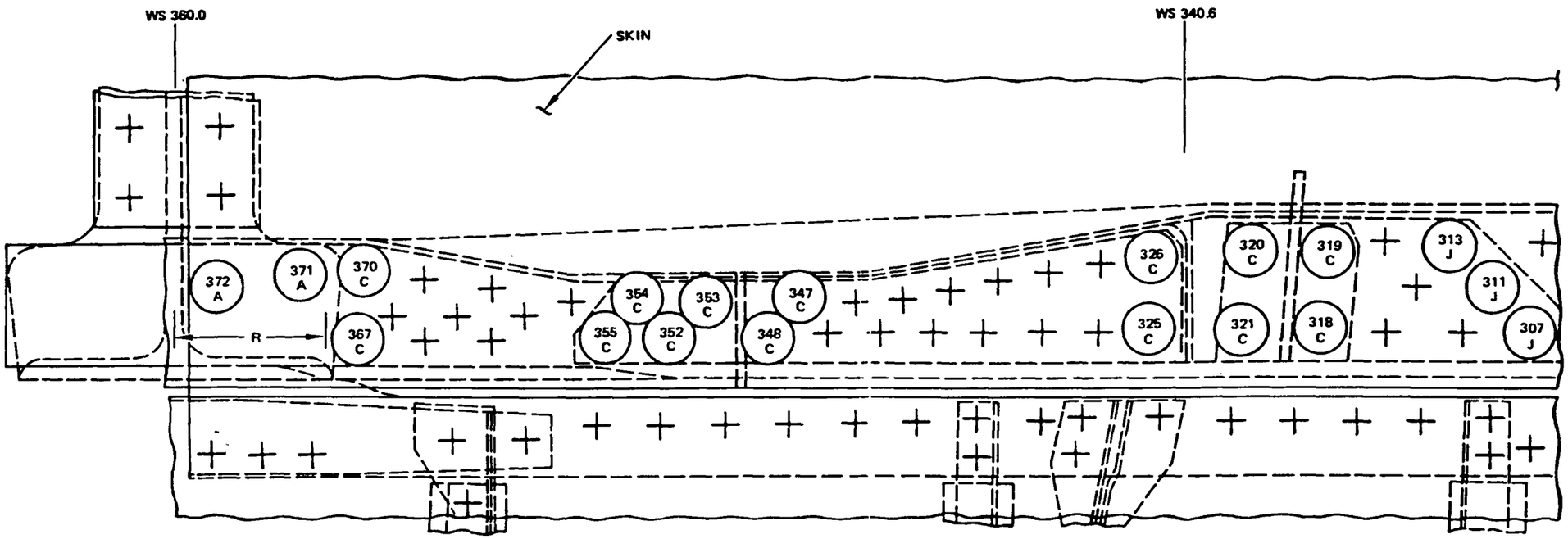


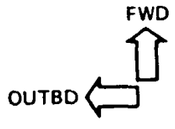
NOTES

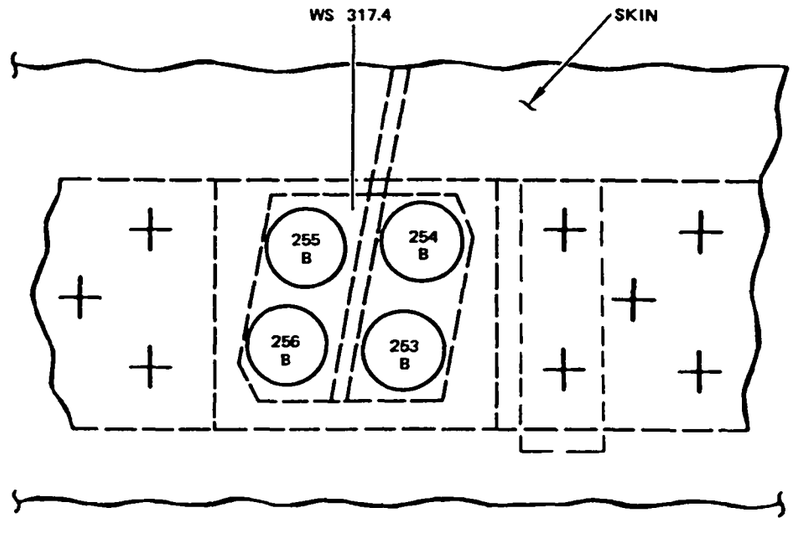
AE COMPARE LETTERED FASTENERS WITH OTHER SAME LETTERED FASTENERS

UPPER REAR SPAR CHORD HORIZONTAL FLANGE

DETAIL XI (CONT)

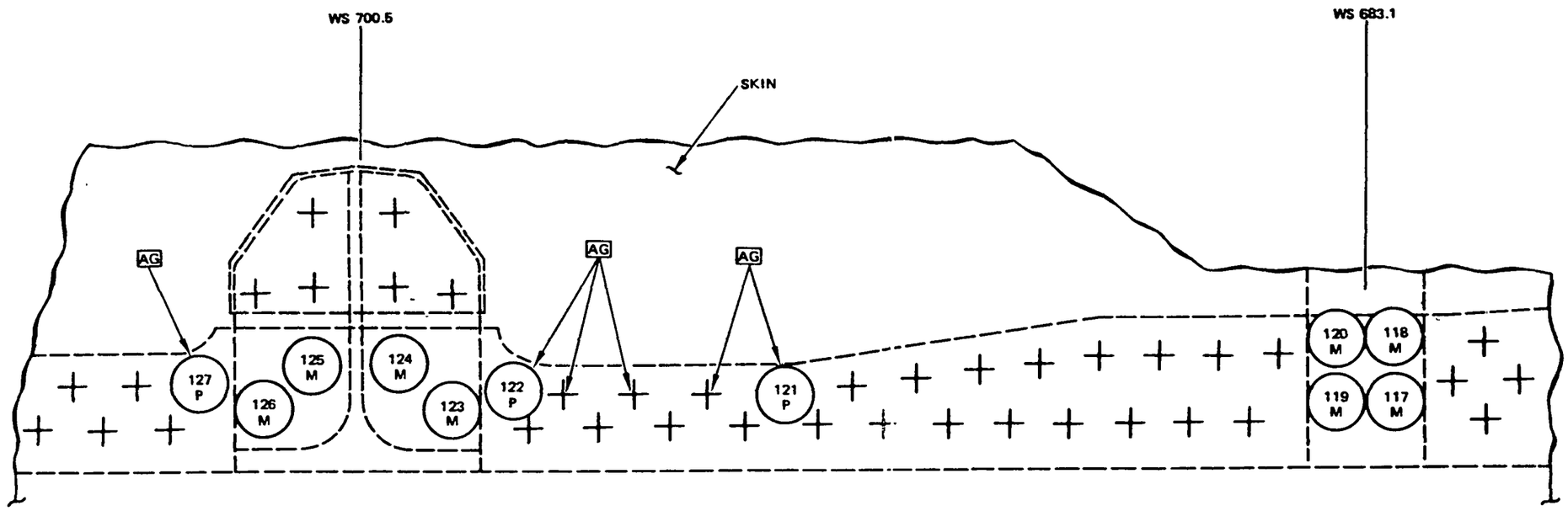






UPPER REAR SPAR CHORD HORIZONTAL FLANGE

DETAIL XI

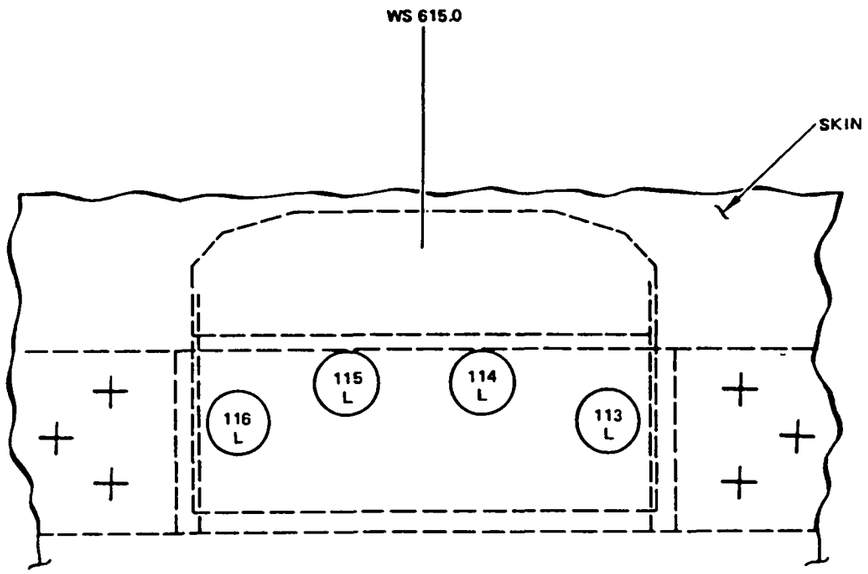


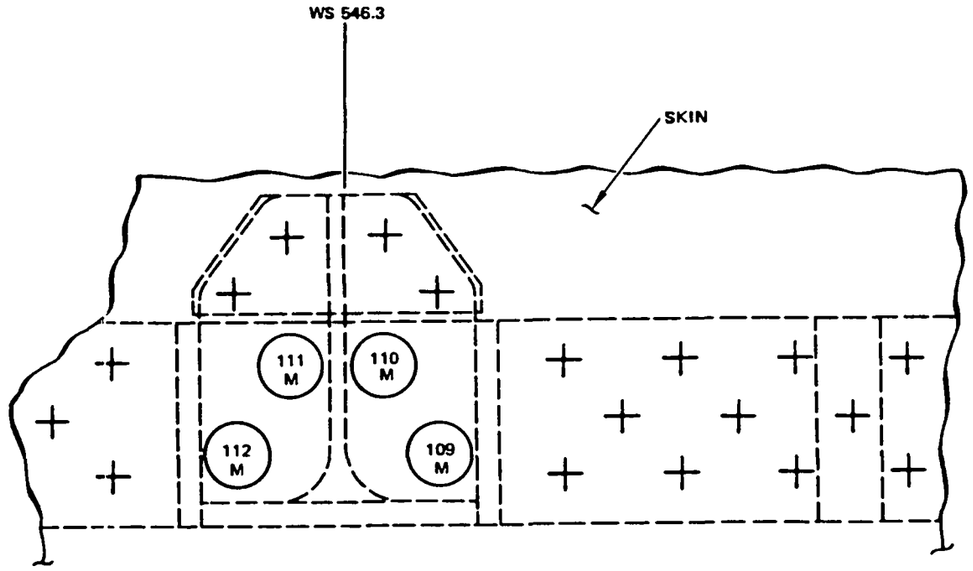
NOTES

AG COMPARE LETTERED FASTENERS WITH OTHER SAME LETTERED FASTENERS

UPPER REAR SPAR CHORD HORIZONTAL FLANGE

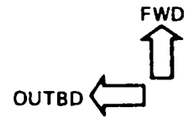
DETAIL XII





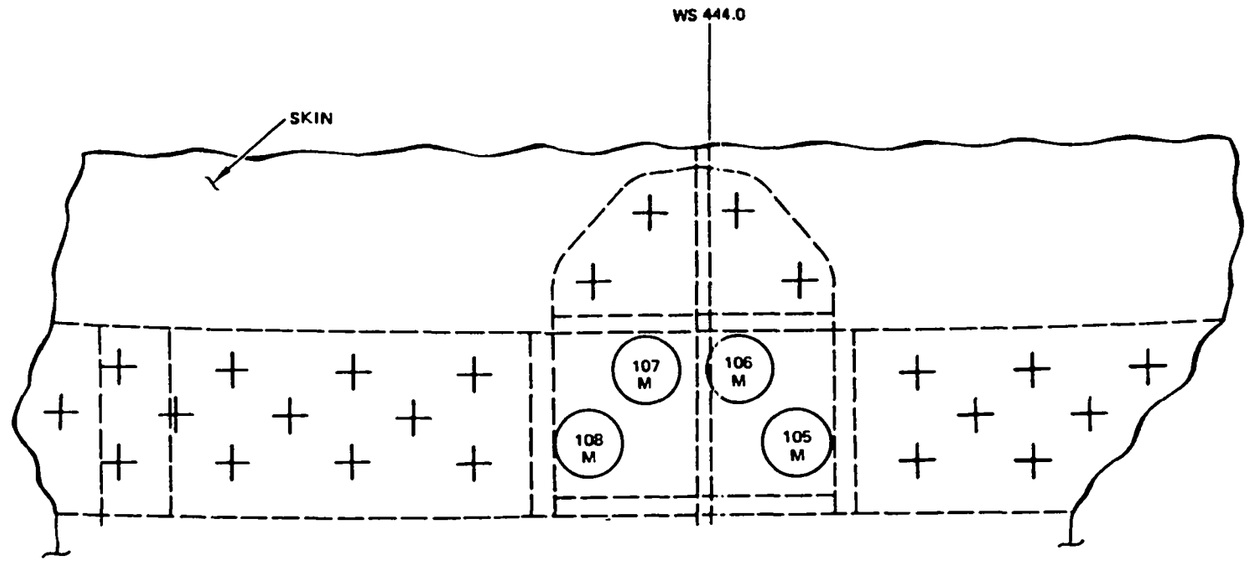
NOTES

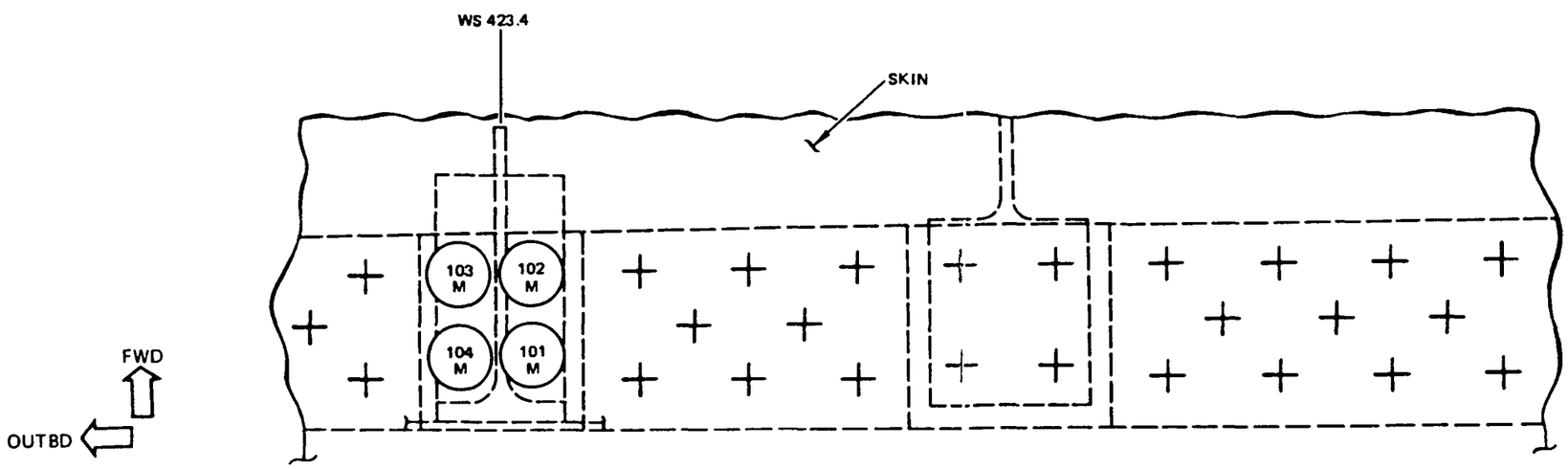
24 AT WS 541.0 AREA, SCAN ON SKIN FORWARD OF THE TRAILING EDGE PANEL. TO REDUCE NOISE, MAINTAIN A CONSTANT DISTANCE FROM THE MACHINED CUTOUT IN THE SKIN BY GUIDING THE PROBE ALONG A NONCONDUCTIVE STRAIGHT EDGE. COMPARE THE METER READINGS ADJACENT TO FASTENERS SEPARATELY FROM METER READINGS BETWEEN FASTENERS



UPPER REAR SPAR CHORD HORIZONTAL FLANGE

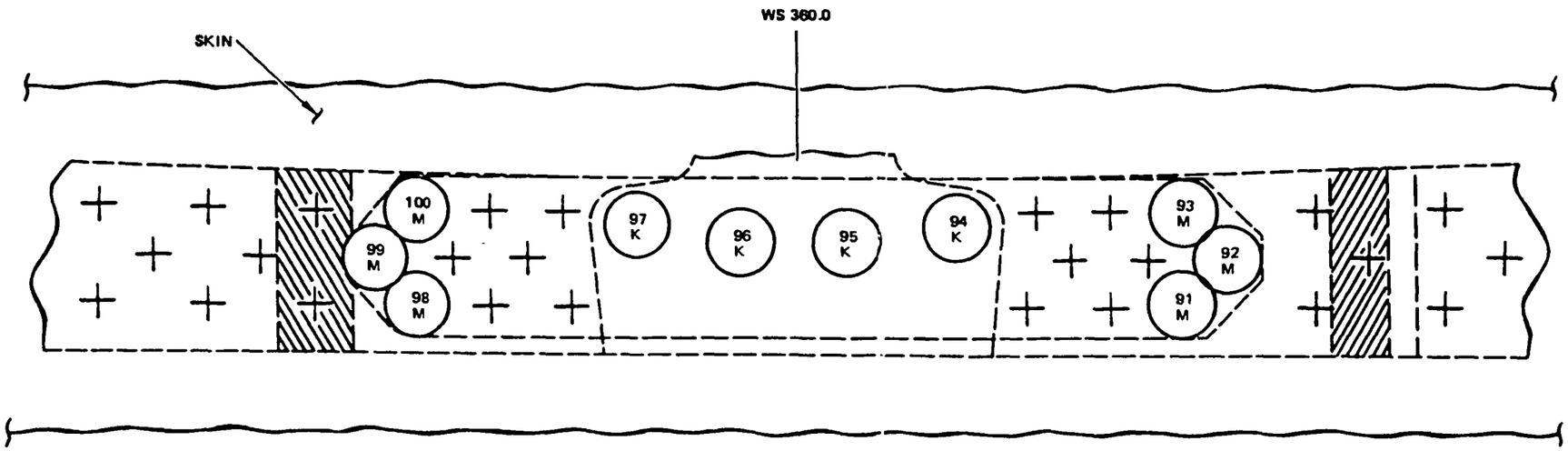
DETAIL XII (CONT)





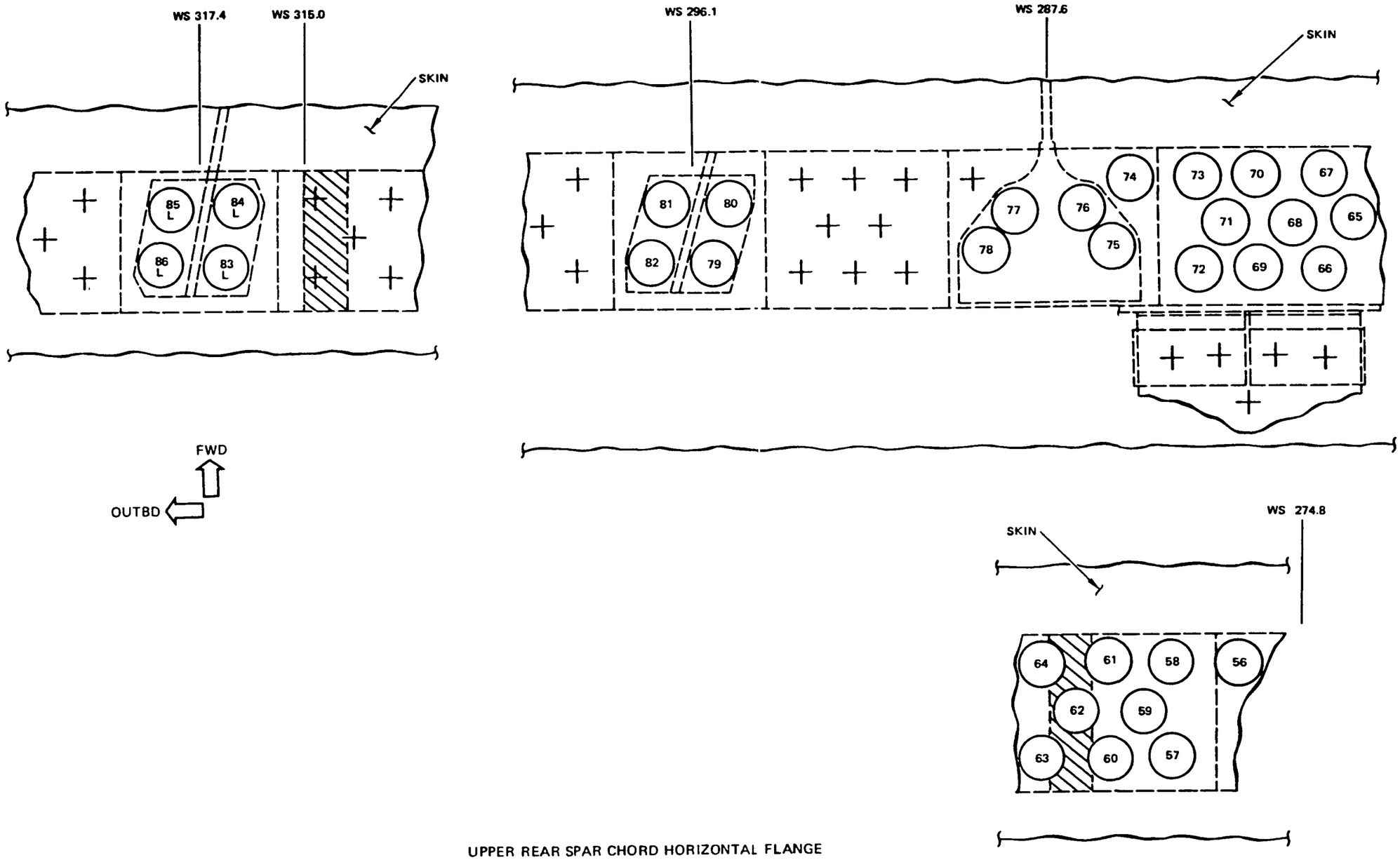
UPPER REAR SPAR CHORD HORIZONTAL FLANGE

DETAIL XII (CONT)



UPPER REAR SPAR CHORD HORIZONTAL FLANGE

DETAIL XII (CONT)



UPPER REAR SPAR CHORD HORIZONTAL FLANGE

DETAIL XII

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks in the horizontal flange of the upper rear spar chord fastener holes from WS 262 to WS 360. This inspection is accomplished from outside of the wing without fastener removal.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec Inc.
      1320 N.W. Mall
      Issaquah, WA 98027

   B. Probes - This procedure uses three probes. Any probe of similar size which will satisfy the performance requirements of this procedure is acceptable. The following probes were used in the development of this procedure.

      (1) Ring (encircling) probe with 1-inch OD and 0.5-inch ID shielding, 100 Hz, Nortec P/N SPO-783

      (2) Ring (encircling) probe with 1.1-inch OD and 0.625-inch ID shielding, 100 Hz, Nortec P/N SPO-1154

Horizontal Flange Upper Rear Spar Chord
Figure 57 (Sheet 1)

(3) Low frequency spot probe with 1.0-inch OD shielding usable at 300 Hz, Nortec P/N SPO-1153

NOTE: 1. Probes listed above are available from:
Nortec Inc.
421 N. Quay
Kennewick, Washington 99336

2. Specify instrument with which probe is to be used or instrument connector required when ordering probes.

C. Reference Standard - Manufacture Reference Standards per Detail I and III.

3. Preparation for Inspection

A. Wipe skin surface clean.

B. Remove paint if required to locate fasteners.

C. It is suggested that fastener locations on Detail V requiring the same instrument calibration for inspection be identified on the airplane by a colored circle. Water washable crayons, pencils or felt pens are suitable.

4. Instrument Calibration

A. General

(1) Two basic inspection types are required.

(a) Inspection for fastener hole cracks using a ring probe centered on the fastener.

(b) Inspection for fastener hole cracks using a spot probe centered on the microshaved rivet.

(2) The two basic inspections require several instrument calibrations to adjust for variations in structure geometry and materials.

(3) Detail V identifies inspection coverage for a particular calibration, and Table I provides specific calibration information for that inspection.

Horizontal Flange Upper Rear Spar Chord
Figure 57 (Sheet 2)

B. Calibration for fastener hole crack inspection using the ring probe or spot probe centered on the fastener. The following calibration applies to inspection codes H, I, J and M.

(1) Identify code for fasteners to be inspected from Detail V.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

(3) Visually center probe over the unnotched hole (Position 1) on the reference standard.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(6) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

NOTE: Probe is centered by manipulating to obtain minimum meter response.

(7) Center probe over the notched reference standard hole (Position 2). Response should be upscale.

(8) Adjust instrument sensitivity to obtain 60% of full scale meter response difference between the notched and unnotched holes.

(9) Recheck null and liftoff. If readjustments are made recheck sensitivity per par. 4.B.(8).

(10) Cracks will be indicated by a higher meter response.

5. Inspection Procedure

NOTE: An inspection code is used to identify locations having similar inspection conditions. A single instrument calibration is usually used to inspect these locations.

It is suggested that a copy of Detail V be made and that it be used to record instrument responses at each fastener location. This is helpful in maintaining continuity between the groups of fasteners during inspection.

A. Inspect fastener holes for cracks using the ring probe or spot probe centered on the fastener (Inspection codes H, I, J and M).

(1) Accomplish inspections of codes H, I, J and M in the order given in Table I.

(2) Calibrate instrument per par. 4.B. and Table I.

(3) Note on the airplane the location of those fasteners having the same inspection code by using Detail V.

(4) Use several fasteners of the same code to establish the airplane baseline response for an acceptable fastener.

(a) Select a representative fastener from this group and set its response to 20% of full meter scale.

NOTE: Do not change instrument sensitivity when establishing the airplane baseline response.

(b) Refer back to this fastener periodically to ensure that the instrument response is the same as originally recorded. (Changes in meter response may occur as a result of instrument drift or probe temperature change.)

(5) Inspect each fastener having the same inspection code by centering the probe on the fastener and manipulating to obtain a minimum response.

NOTE: Review the Special Notes called out in Table I for conditions which affect the inspection.

(6) Fastener locations which give a response which is 40% of full meter scale higher than the established baseline are potential crack indications and further investigation is required.

NOTE: The following conditions may cause meter reading changes similar to crack indications:

(a) A decrease in fastener spacing. Compare with similarly spaced fasteners on the airplane.

(b) Edge of rear spar chord (check Detail V for spar chord edge).

(c) A larger or smaller fastener. Compare with similar fasteners of reference standard and on airplane.

(d) A fastener that is different in countersink depth. Compare with similar fastener in standard raised to the same height.

(e) A fastener close to edge of skin. Compare with similar fasteners on airplane.

(f) Differences in conductivity between skin panels (compare only the fastener locations common to a skin panel).

Inspection Code (1)	Reference Standard No.	Probe Identification (2)	Instrument Frequency Hz	Calibration Detail No.	Probe Calibration Position (3)	Special Notes
H	060	(2)	100	II	C	
I	062	(2)	100	IV	A	
J	060	(1)	100	II	D	(4) (5)
M	062	(3)	300	IV	B	

Calibration Table
Table I

NOTES:

(1) Code for specific inspection areas identified on Details XI thru XIV to which the calibration requirements apply.

(2) Probe Identification:
(1) P/N SPO-783 (1-inch OD and 0.5-inch ID ring probe)
(2) P/N SPO-1154 (1.1-inch OD and 0.62-inch ID ring probe)
(3) P/N SPO-1153 (1.0-inch OD spot probe)

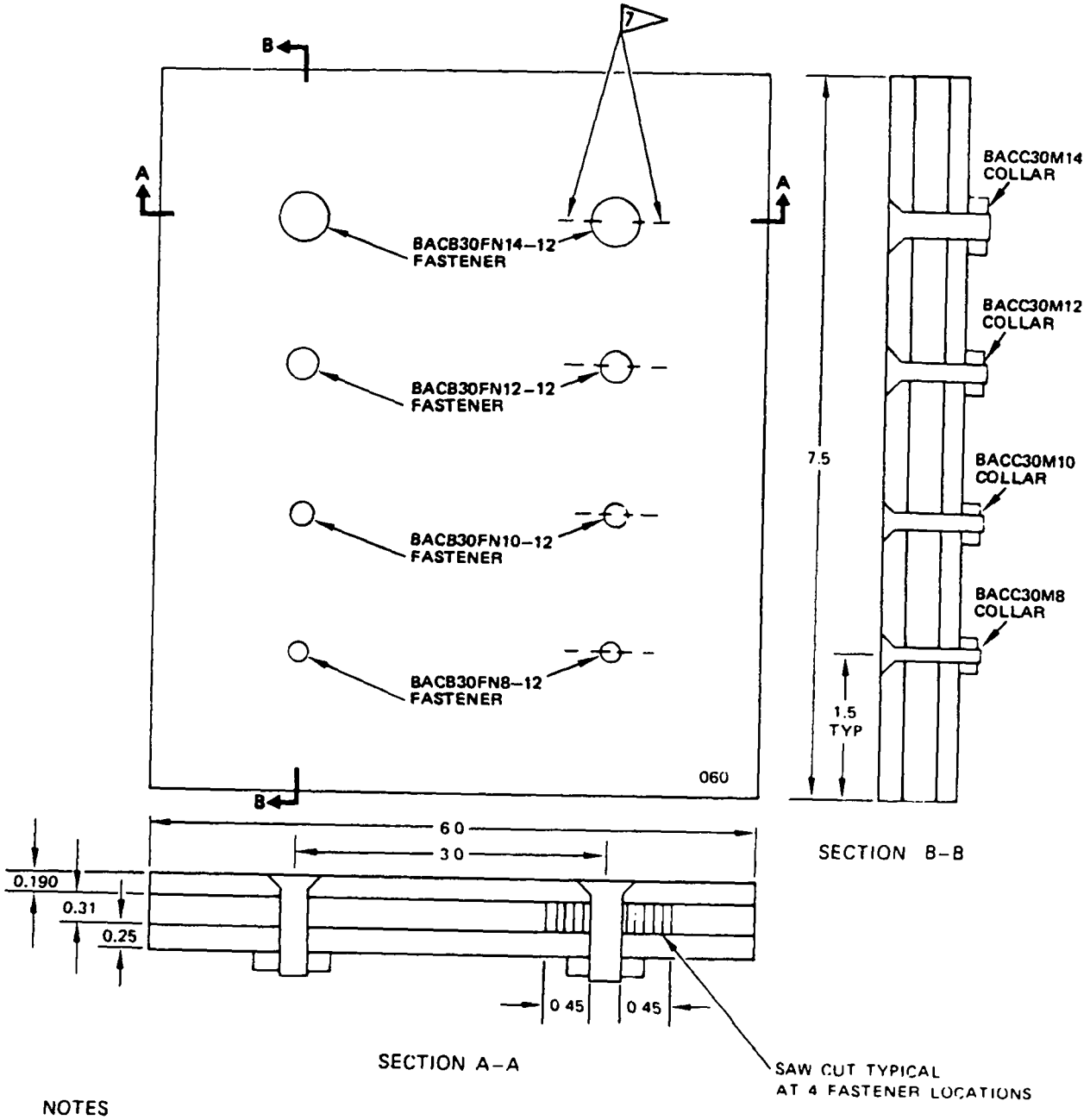
NOTES: (CONT)

(3) LETTERS REFER TO "PROBE POSITION FOR CALIBRATION DETAILS" AND IDENTIFIES THAT ROW OF FASTENERS IN THE REFERENCE STANDARD FOR THIS CALIBRATION.

(4) THIS CODE COVERS TWO STYLES OF COUNTERSUNK HEADS, A SMALL DIFFERENCE IN RESPONSE WILL BE NOTED BETWEEN THEM. COMPARE FASTENERS WITH SIMILAR HEAD STYLES.

(5) HEAVY PAINT MAY OBSCURE THE LOCATION OF MICROSHAVED RIVETS. REMOVE PAINT AS NECESSARY TO DETERMINE LOCATION OF INSPECTION FASTENERS.

Horizontal Flange Upper Rear Spar Chord
Figure 57 (Sheet 6)



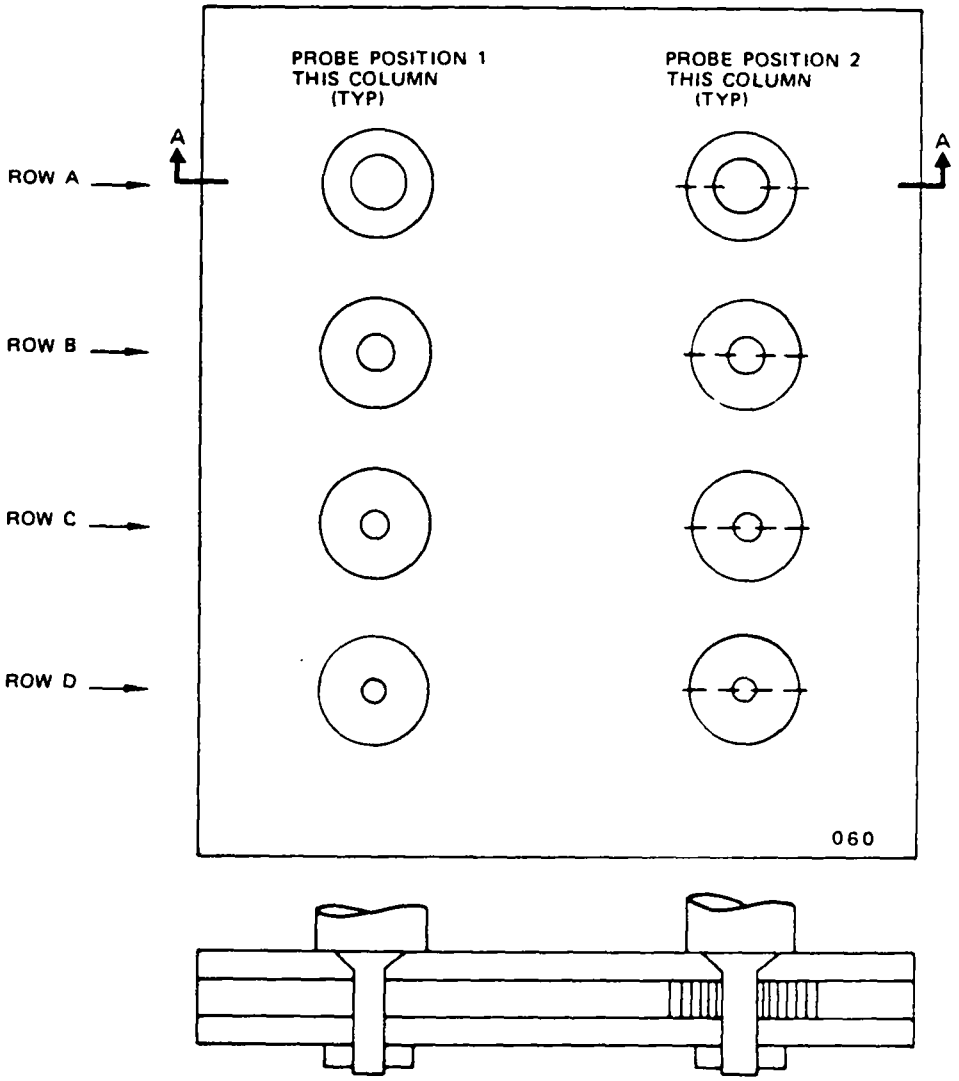
NOTES

- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 7075-T6 ALUMINUM
- TOLERANCE: X.X ± 0.05, X.XX ± 0.02, X.XXX ± 0.005
- P/N 6412-79
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110
- ETCH OR STEEL STAMP WITH 060

7 JEWELER'S SAWCUT 0.030 MAX WIDTH (8 PLACES)

REFERENCE STANDARD 060
DETAIL I

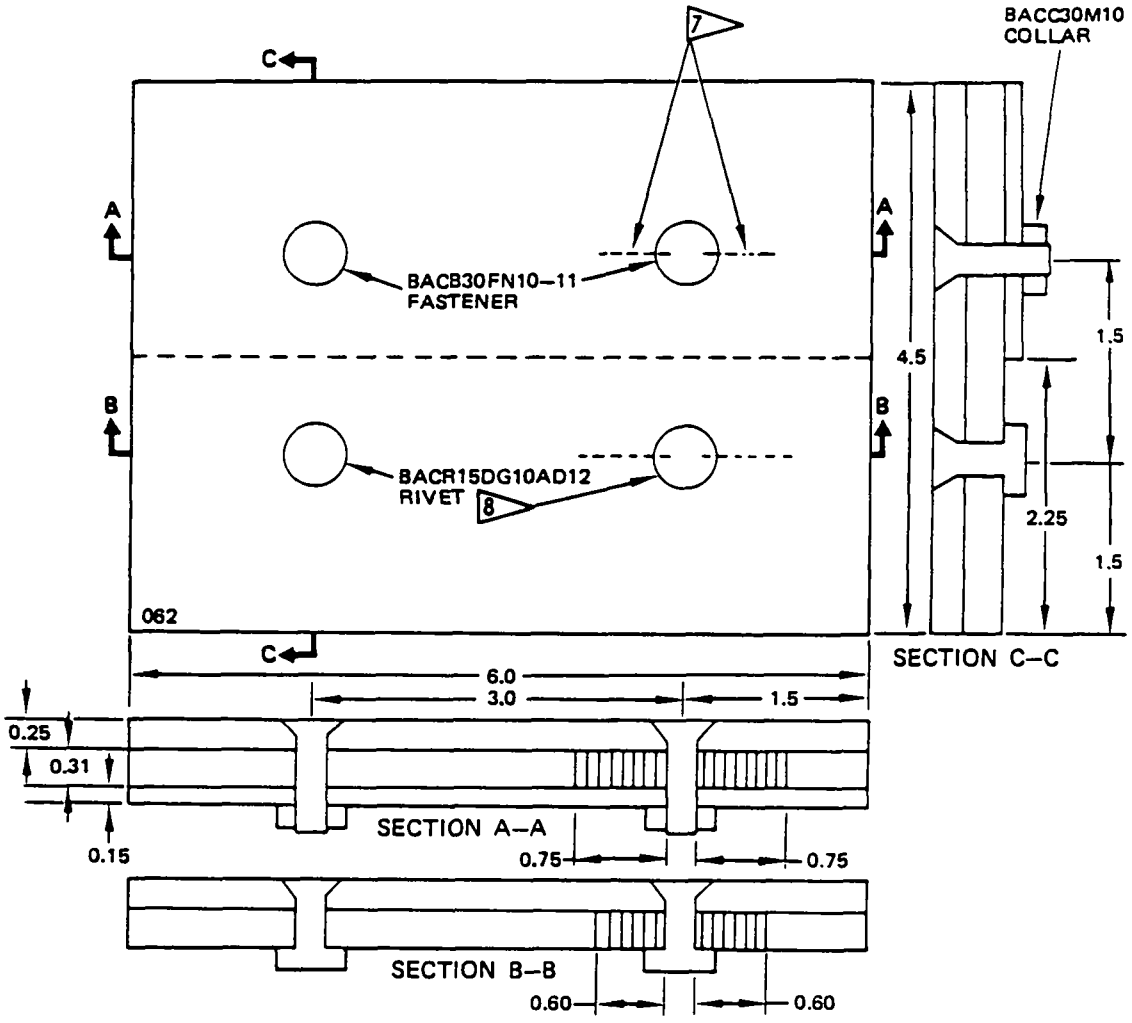
Horizontal Flange Upper Rear Spar Chord
Figure 57 (Sheet 7)



SECTION A-A

PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD 060
DETAIL II

Horizontal Flange Upper Rear Spar Chord
Figure 57 (Sheet 8)



NOTES

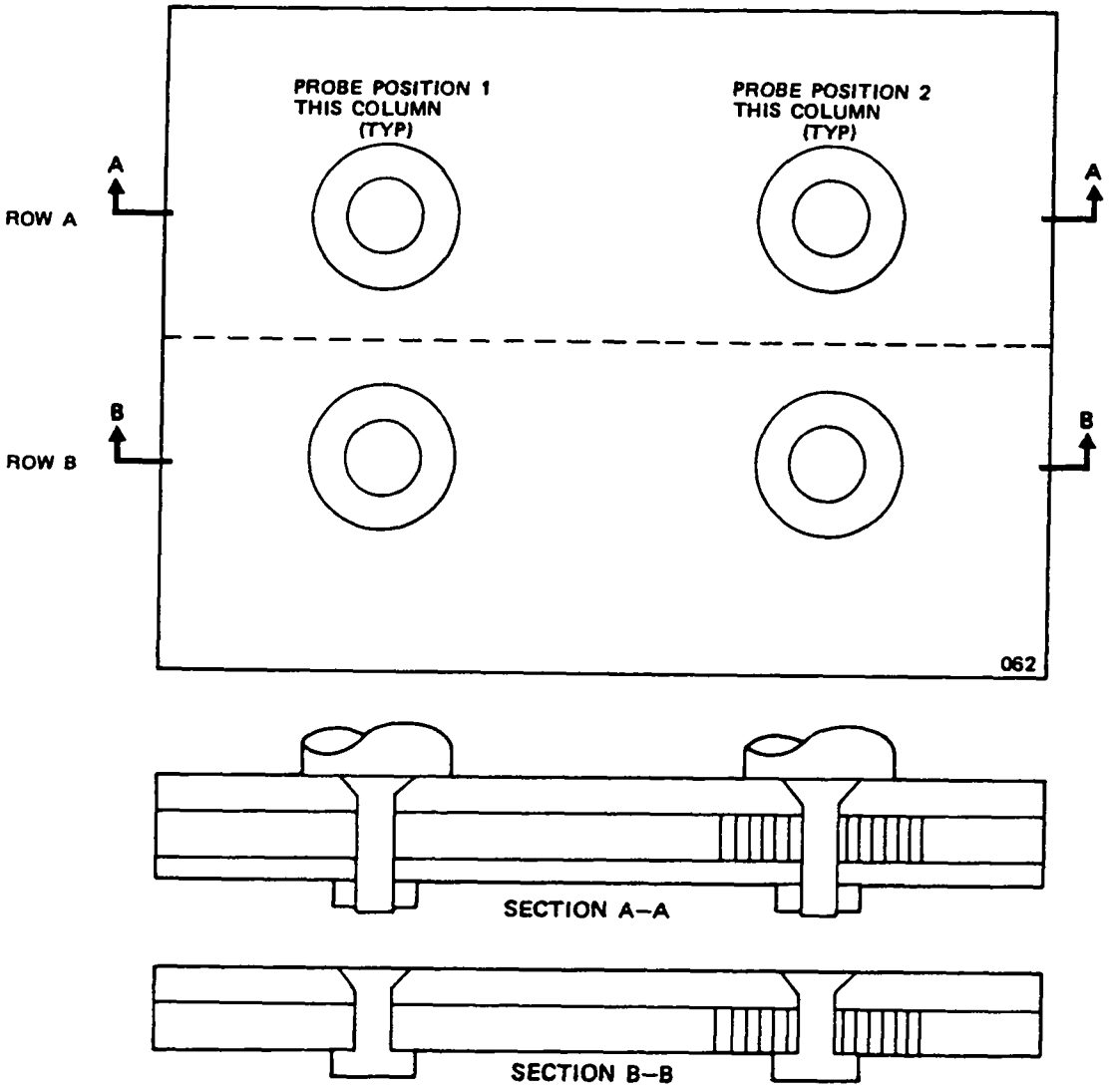
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 7075–T6 ALUMINUM
- TOLERANCE: X.X ± 0.05, X.XX ± 0.02, X.XXX ± 0.005
- P/N 6412–81
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110
- ETCH OR STEEL STAMP WITH 062

7 JEWELER'S SAWCUT 0.030 MAX WIDTH (4 PLACES)

8 INSTALL MICROSHAVED RIVETS PER BAC 5047

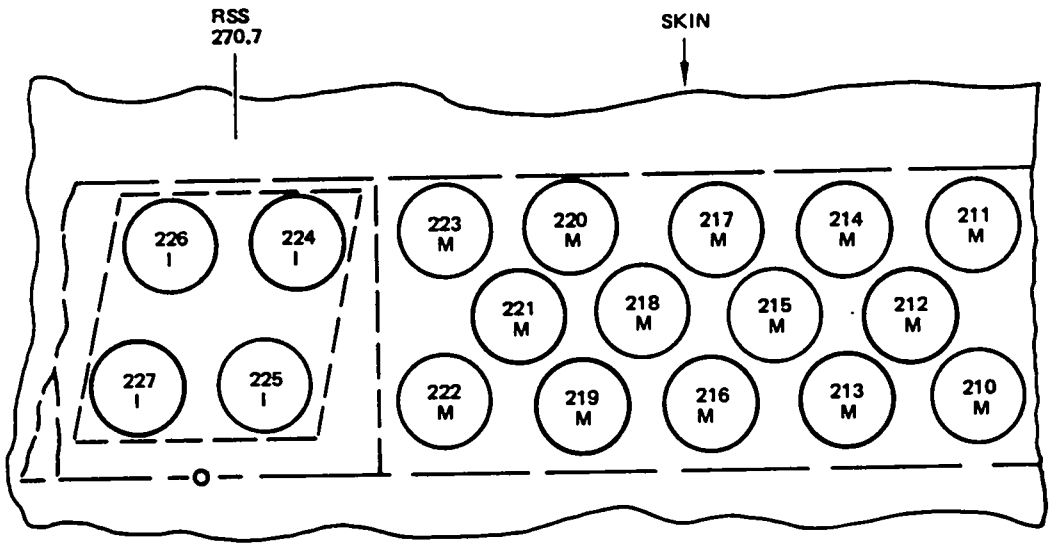
REFERENCE STANDARD 062
DETAIL III

Horizontal Flange Upper Rear Spar Chord
Figure 57 (Sheet 9)



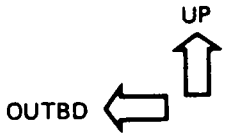
PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD 062
DETAIL IV

Horizontal Flange Upper Rear Spar Chord
Figure 57 (Sheet 10)

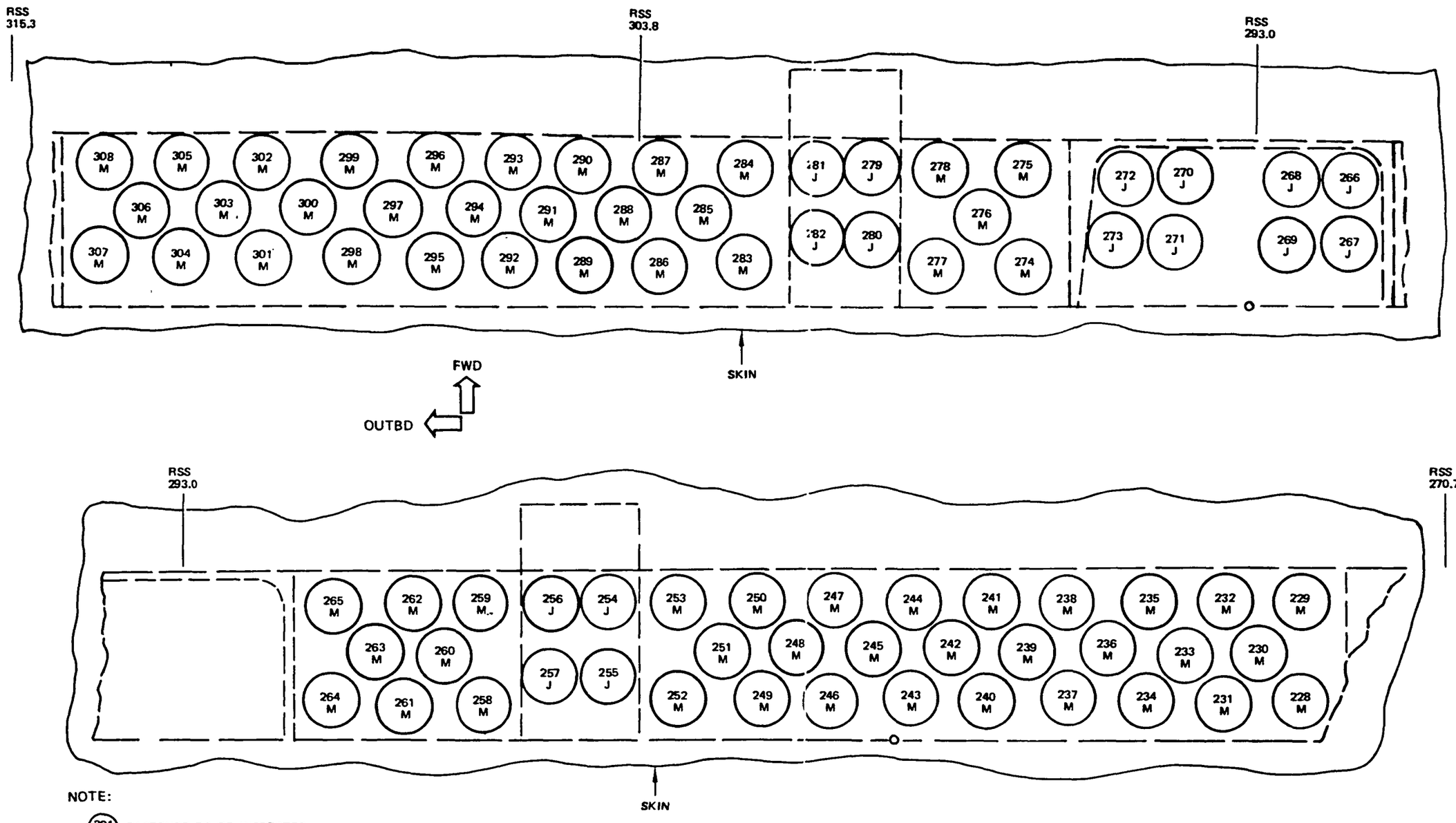


NOTES:

(225) FASTENER TO BE INSPECTED



INSPECTION AREA
DETAIL V

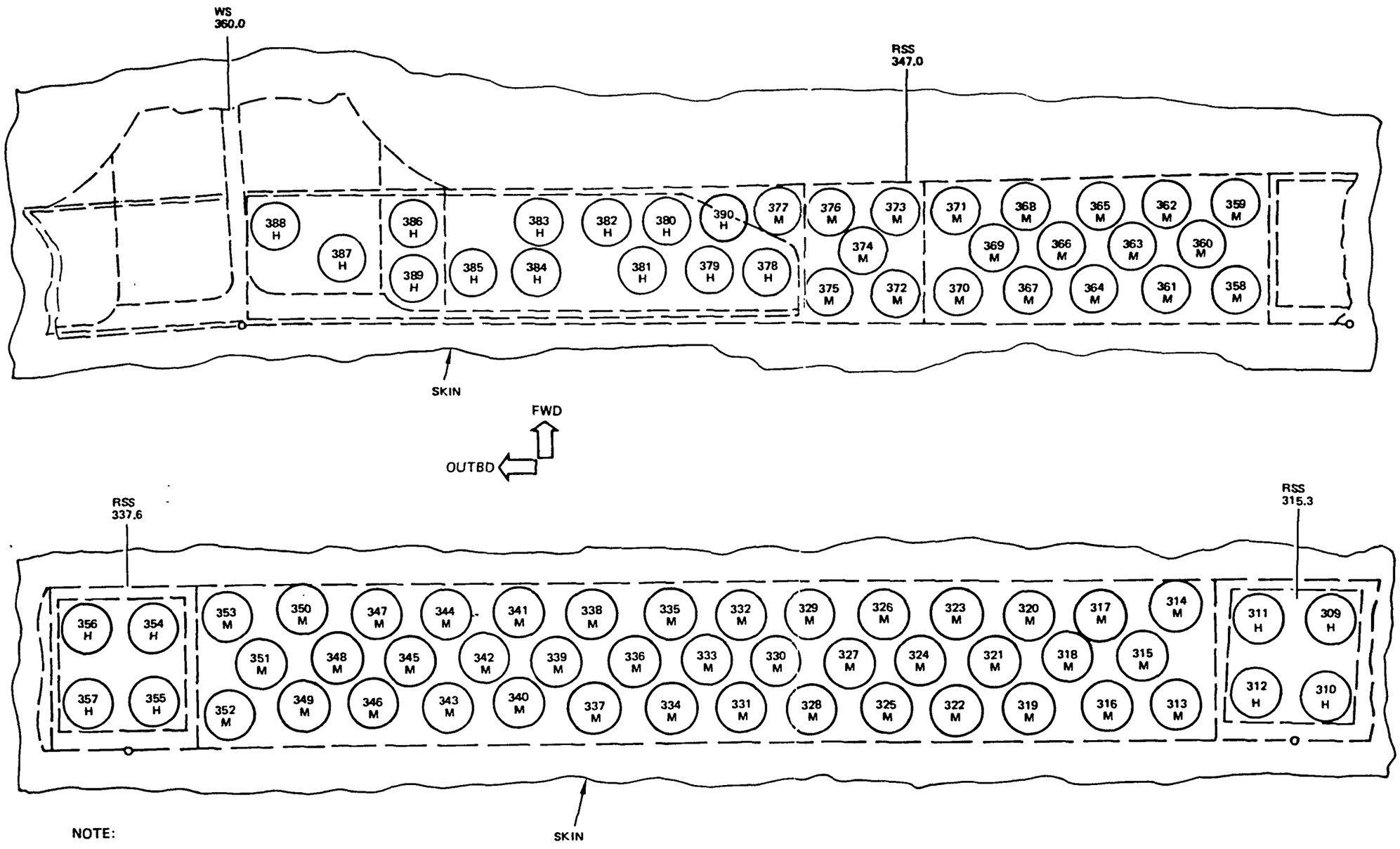


NOTE:

(301 M) FASTENER TO BE INSPECTED

DETAIL V (CONT)

Horizontal Flange Upper Rear Spar Chord
Figure 57 (Sheet 12)



NOTE:

(320 M) – FASTENER TO BE INSPECTED

DETAIL V (CONT)

Horizontal Flange Upper Rear Spar Chord
Figure 57 (Sheet 13)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To perform an external inspection for cracks out of fastener holes in the vertical flange of the upper rear spar chord and upper wing skin common to the rear spar, from WS 360 to WS 733 production break.

   B. To perform an internal inspection for cracks out of fastener holes in the upper rear spar chord horizontal flange, and the rear spar chord vertical flange at selected locations, WS 360 to WS 733 production break.

   C. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Instrument

      Refer to Part 6, 51-00-00, Fig. 4.

   B. Probes

      (1) Straight shielded pencil probe per 51-06-00, Part 1, Fig. 1.

      (2) Low profile, right angle, shielded pencil probe with a maximum height clearance of 0.3 inch, a 2.5-inch long handle, and a maximum diameter of 0.2 inch.

      (3) Long extension shielded pencil probe with probe angle variable to the surface.

         NOTE: This probe is required to reach several inspection locations on rear spar vertical flange.

Wing Upper Rear Spar Horizontal and Vertical Flanges
Figure 58 (Sheet 1)

Shielded pencil probes are available from:

NDT Product Engineering	VM Products
P.O. Box 423	7630 Pacific Ave. #20
Renton, WA 98057	Tacoma, WA 98408
P/N: 1. P-50	P/N: 1. VM100PS
2. P-901-25	2. VM100AS
3. PVAE-11	3. VM100PS-18

When ordering from VM products, specify dimensions desired for probe 2., VM100AS.

C. Standards

Refer to Part 6, 51-00-00, Fig. 4.

3. Preparation for Inspection

A. External

(1) Remove upper wing to body fairing.

(2) Open access panels at the trailing edge for inspection of the upper rear spar chord vertical flange outboard of WS 360.

(3) Clean inspection surfaces thoroughly.

B. Internal

(1) Defuel and gain access into wing tanks at inspection locations.

(2) Purge fuel tanks to permit entry with eddy current test equipment.

(3) Remove sealant for eddy current probe placement as necessary for inspection.

4. Instrument Calibration

Refer to Part 6, 51-00-00, Fig. 4.

Wing Upper Rear Spar Horizontal and Vertical Flanges
Figure 58 (Sheet 2)

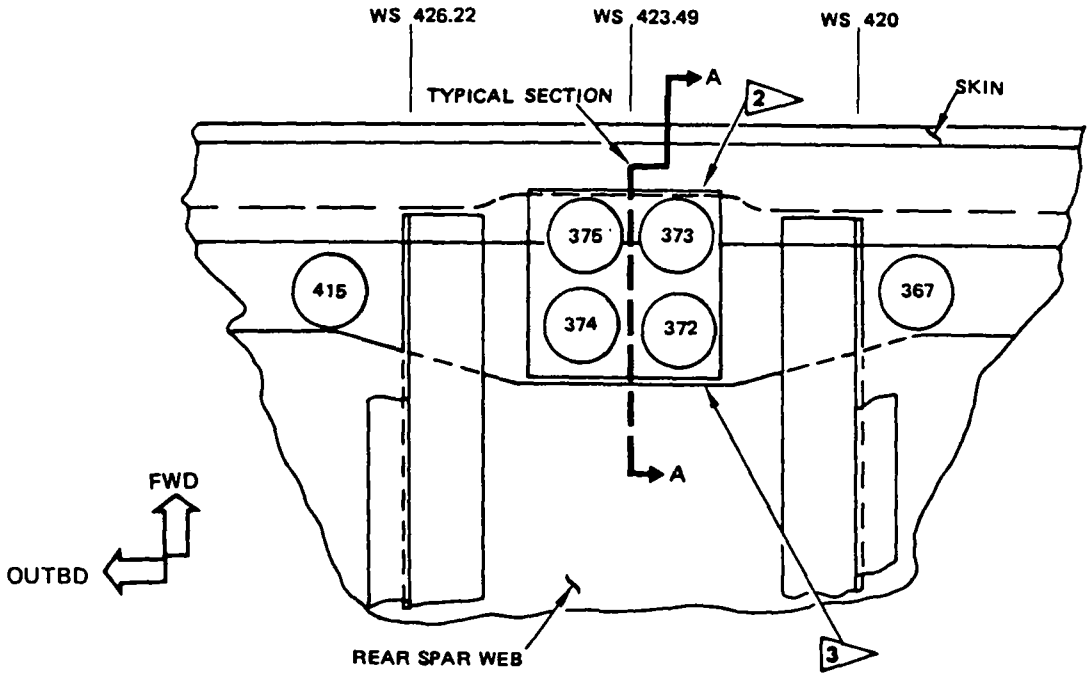
5. Inspection Procedure

A. Refer to Details I thru VII for inspection procedures and locations.

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

NOTE: Perform inspection scan around fastener ends per Part 6, 51-00-00, Fig. 6. All other scans to be performed per Part 6, 51-00-00, Fig. 4.

Wing Upper Rear Spar Horizontal and Vertical Flanges
Figure 58 (Sheet 2A)



EXTERNAL INSPECTION

NOTES

- SCAN PENCIL PROBE ON REAR SPAR CHORD, ABOVE AND BELOW, INSPECTION FASTENER NOT COMMON TO EXTERNAL FITTINGS

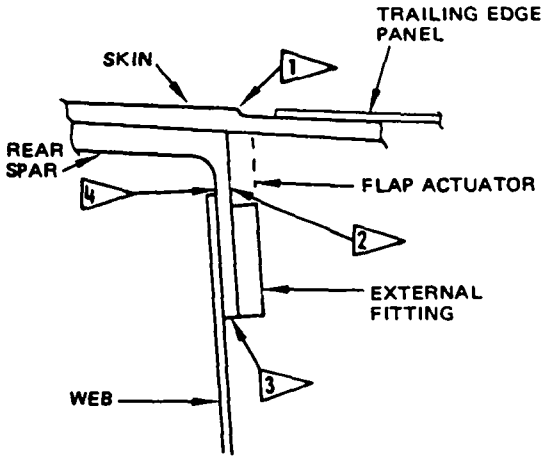
(415) INSPECTION FASTENER
FASTENER IDENTIFICATION NUMBER

1 PLACE PENCIL PROBE ON SKIN AS FAR AFT AS POSSIBLE. SCAN FROM WS 360. TO PRODUCTION BREAK. (SEE SECTION B–B)

2 SCAN EDDY CURRENT PENCIL PROBE ON SPAR CHORD ABOVE EXTERNAL FITTINGS.

3 SCAN EDDY CURRENT PENCIL PROBE ON EDGE OF SPAR CHORD VERTICAL FLANGE BE–LOW FITTINGS

4 PLACE PENCIL PROBE ON THE REAR SPAR CHORD VERTICAL FLANGE, SCAN ALONG EDGE OF WEB AT INDICATED LOCATIONS (INTERNAL INSPECTION)

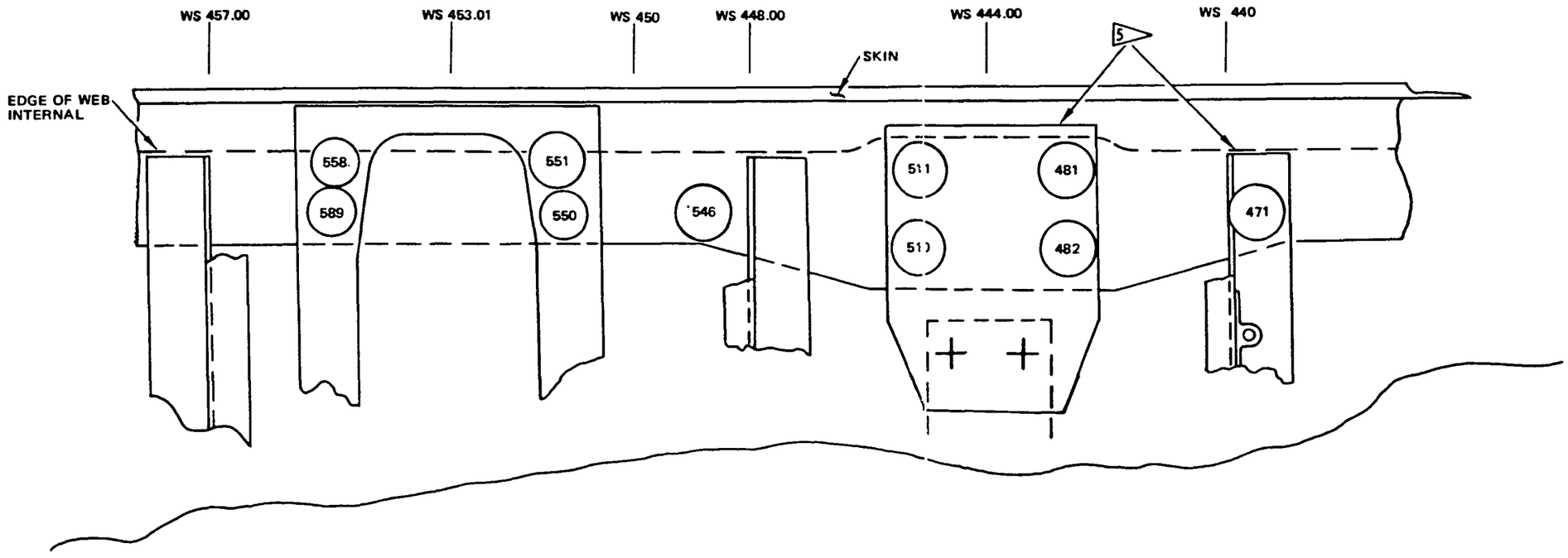


TYPICAL SECTION A–A

WING UPPER REAR SPAR CHORD VERTICAL FLANGE

DETAIL I

Wing Upper Rear Spar Horizontal and Vertical Flanges
Figure 58 (Sheet 3)



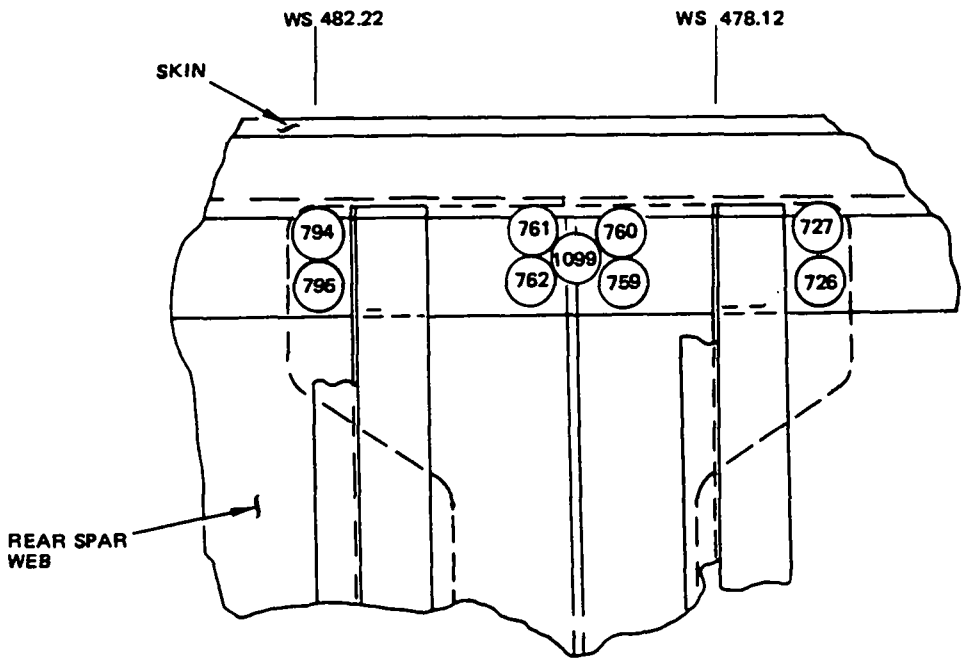
NOTES

5 SCAN ABOVE FITTINGS

WING UPPER REAR SPAR CHORD
VERTICAL FLANGE

DETAIL II

Wing Upper Rear Spar Horizontal and Vertical Flanges
Figure 58 (Sheet 4)



NOTES

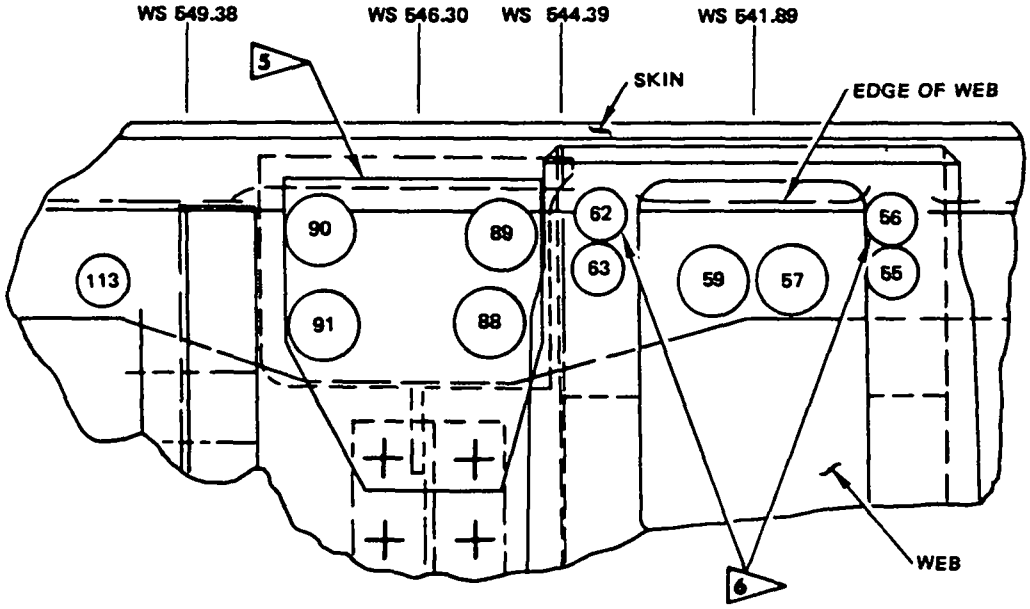
- INTERNAL INSPECTION

794 — INSPECTION AREA
FASTENER IDENTIFICATION NUMBER

WING UPPER REAR SPAR CHORD
VERTICAL FLANGE

DETAIL III

Wing Upper Rear Spar Horizontal and Vertical Flanges
Figure 58 (Sheet 5)



NOTES

(89) INSPECTION FASTENER

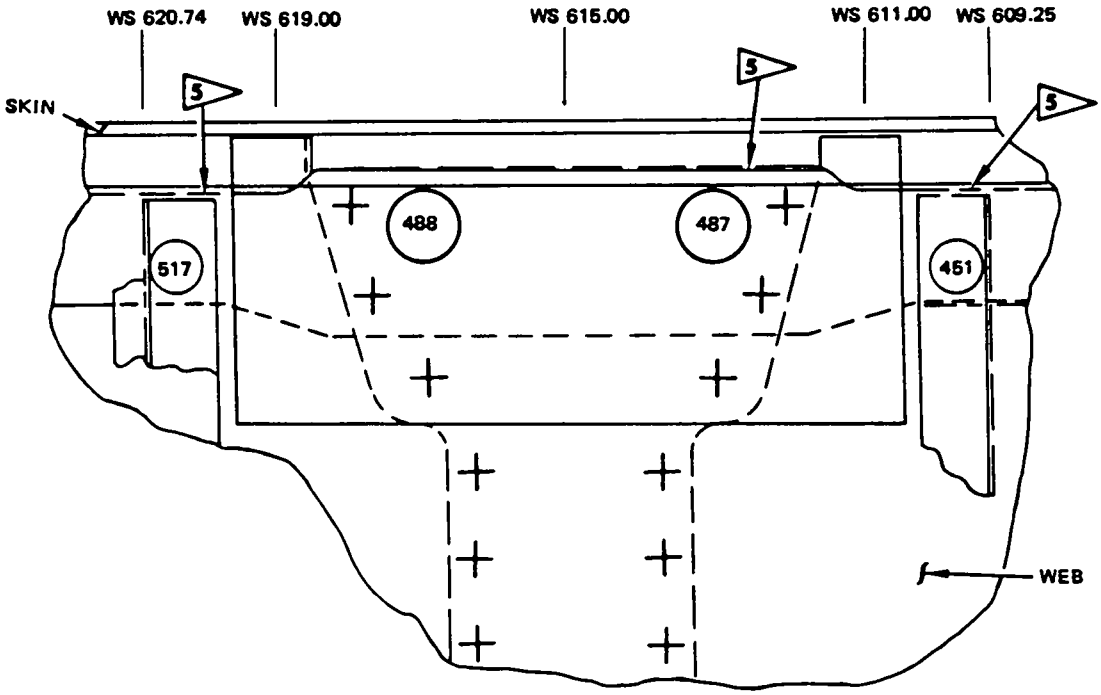
5 SCAN ABOVE FITTINGS

6 INTERNAL SCAN ON REAR SPAR ALONG EDGE OF WEB ABOVE FASTENERS 56 and 62

WING UPPER REAR SPAR CHORD
VERTICAL FLANGE

DETAIL IV

Wing Upper Rear Spar Horizontal and Vertical Flanges
Figure 58 (Sheet 6)

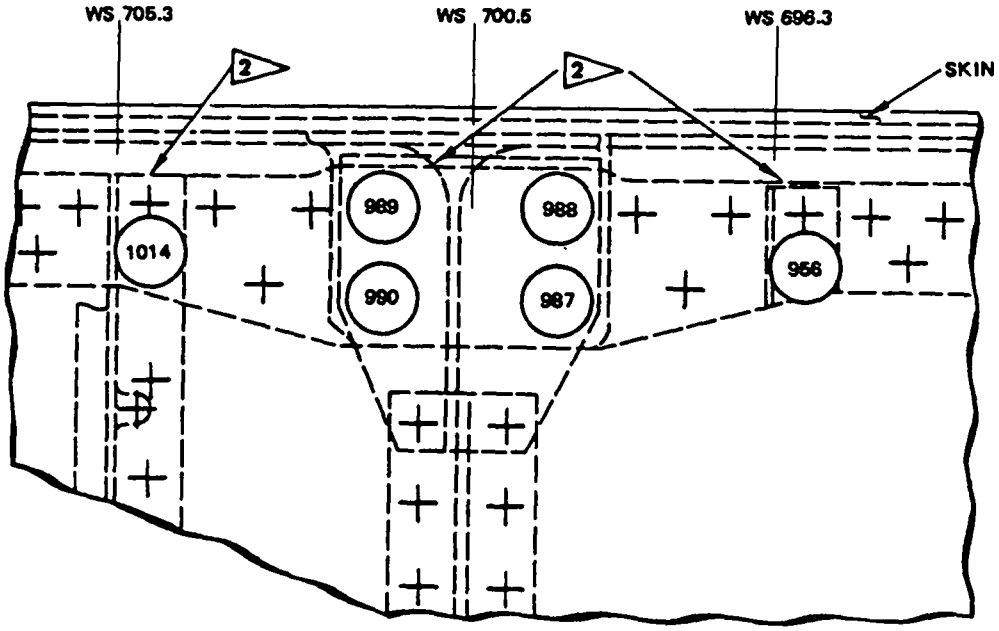


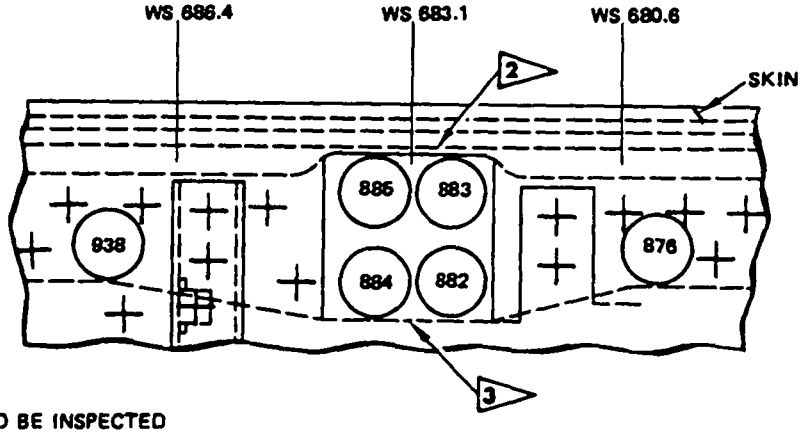
NOTES
5 SCAN ABOVE FITTINGS

WING UPPER REAR SPAR CHORD
VERTICAL FLANGE

DETAIL V

Wing Upper Rear Spar Horizontal and Vertical Flanges
Figure 58 (Sheet 7)





NOTES

(990) FASTENER TO BE INSPECTED

2 SCAN EDDY CURRENT PENCIL PROBE ON SPAR CHORD ABOVE EXTERNAL FITTINGS

3 SCAN EDDY CURRENT PENCIL PROBE ON EDGE OF REAR SPAR CHORD FLANGE BELOW FITTINGS

WING UPPER REAR SPAR CHORD VERTICAL FLANGE

DETAIL VI

Wing Upper Rear Spar Horizontal and Vertical Flanges
Figure 58 (Sheet 8)

EFFECTIVITY
MODEL: 720
SERVICE BULLETIN
REFERENCE: NONE
SSI DOCUMENT (D6-44860)
REFERENCE:
SSD 57-A00-14
57-A00-15

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To inspect for cracks in the wing upper rear spar chord and the adjacent skin and structure at specified locations using high frequency eddy current.

   B. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Refer to Part 6, 51-00-00, Fig. 4 for the Instrument

   B. Probes

      (1) Three different probes are required to perform these inspections:

      Probe No. 1 Shielded pencil probe per Part 1, 51-06-00, Fig. 1.

      Probe No. 2 Low profile-right angle shielded pencil probe that will meet the following requirements:

      (a) Handle length approximately 2.5 inches long.

      (b) Maximum shank length from coil tip to top of shank; 0.3 inch.

      (c) Shank and handle O.D. - 0.2 inch maximum.

Wing - Rear Spar Chord - Upper Panel Skin
Figure 59 (Sheet 1)

Probe No. 3 Shielded pencil probe and extension handle that will allow probe to be set at a variable angle to the inspection surface.

NOTE: Probes that meet the preceding requirements are available from:

(a) NDT Product Engineering
P.O. Box 423
Renton, Wa. 98057

Probe No. 1: Part Number P-50
Probe No. 2: Part Number P-901-25
Probe No. 3: Part Number PVAE-11

(b) V.M. Products
7420 Park Ave. No. 20
Tacoma, Wa. 98408

Probe No. 1: Part Number VM100PS
Probe No. 2: Part Number VM100AS
Probe No. 3: Part Number VM100PS-18

NOTE: Specify probe dimensions when ordering.

C. Refer to Part 6, 51-00-00, Fig. 4 for reference.

3. Prepare for Inspection

A. Refer to Table I for the airplane effectivity cross reference to inspection Details I, II, and III.

B. External

(1) Open trailing edge access doors and fuel dump chute.

(2) Open landing gear torque box access panels on wing upper surface.

(3) Clean inspection surfaces thoroughly.

C. Internal

(1) Defuel and purge fuel tanks to permit fuel cell entry with an eddy current instrument.

(2) Remove sealant as necessary to allow eddy current probe contact with inspection surface.

(3) Wipe surface clean.

4. Instrument Calibration

A. Select probe best suited to contact area where inspection is to be performed, connect to instrument, and calibrate according to Part 6, 51-00-00, Fig. 4.

5. Inspection Procedure

A. Refer to Details I, II, or III for inspection locations and instructions.

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

NOTE: Refer to Table I for airplane effectivity cross reference to Details I, II, and III.

B. Perform eddy current inspection scan around fasterner ends per Part 6, 51-00-00, Fig. 6. All other inspection scans are to be performed per Part 6, 51-00-00, Fig. 4.

Wing - Rear Spar Chord - Upper Panel Skin
Figure 59 (Sheet 3)

	A/P EFF	DETAIL NO.S
Vertical Flange	1	I
Horizontal Flange	2	II
Horizontal Flange	3	III

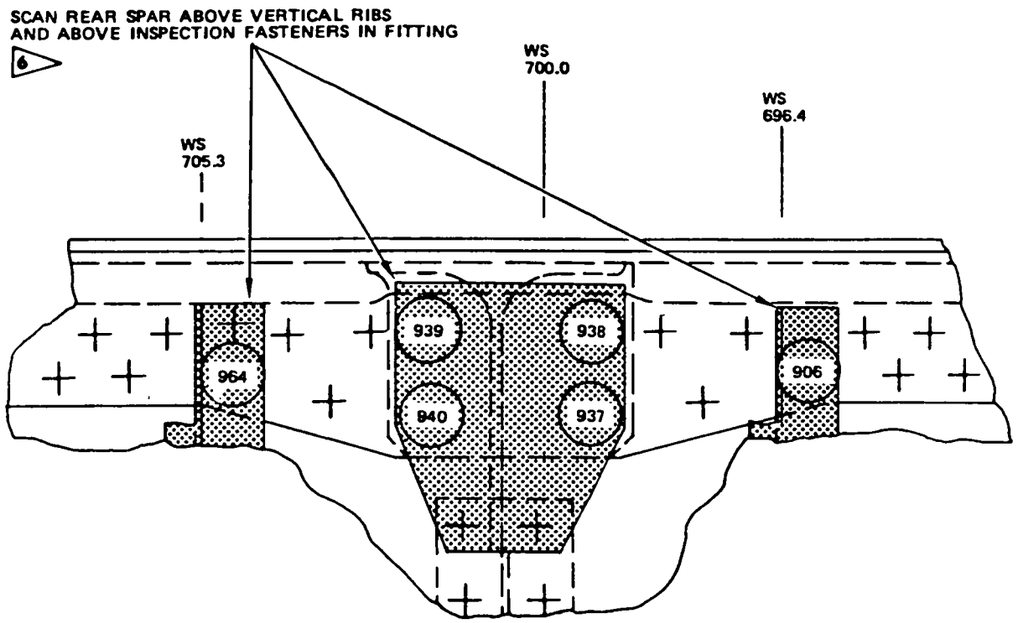
EFFECTIVITY TABLE
TABLE I

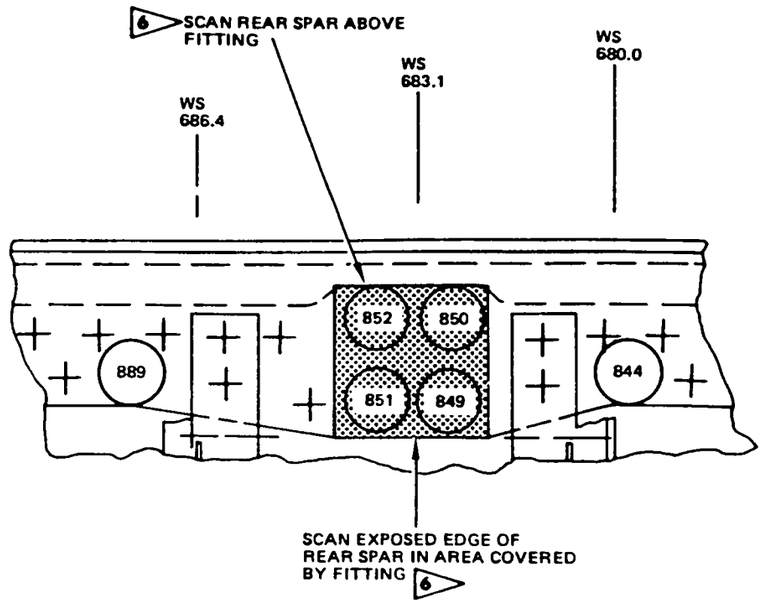
NOTES:

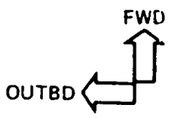
1 ALL A/P's

2 CUM LINE NUMBERS
85, 95, 109, 120, 130 thru 132, 141 thru 143, 146 thru 150, 156 thru 158, 165, 166, 172 thru 174, 177 thru 191, 193 thru 199, 202 thru 204, 206 thru 208, 210, 211, 213 thru 215, 218 thru 226, 230 thru 263, 265, 267, 273, 278, 279, 281, 284, 285, 288 thru 290, 295, 297, 298, 300, 304, 307, 310, 314, 319, 321, 322, 324, 337 thru 340, 347, 351, 361, 374, 380 thru 382, 384, 390, 401, 410, 414, 423, 427, 429, 433, 442, 470, 473, 474, 481, 512, 514

3 CUM LINE NUMBERS
581, 597, 615, 621, 624







NOTES

FITTINGS OR VERTICAL RIBS COMMON TO INSPECTION FASTENERS, EXTERNAL TO THE REAR SPAR

SCAN AREA–EXTERNAL

SCAN AREA–INTERNAL

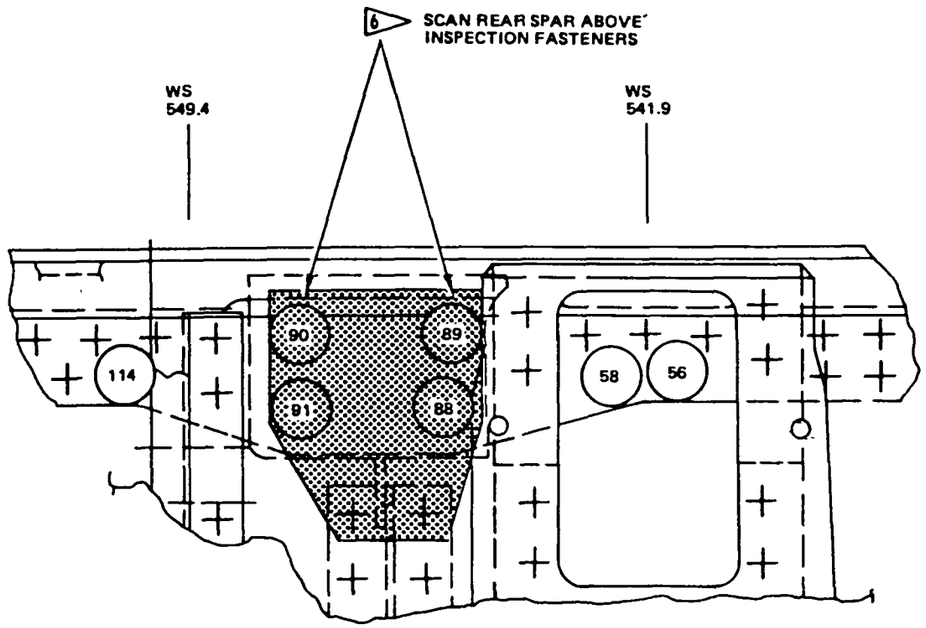
EXTERNAL INSPECTION

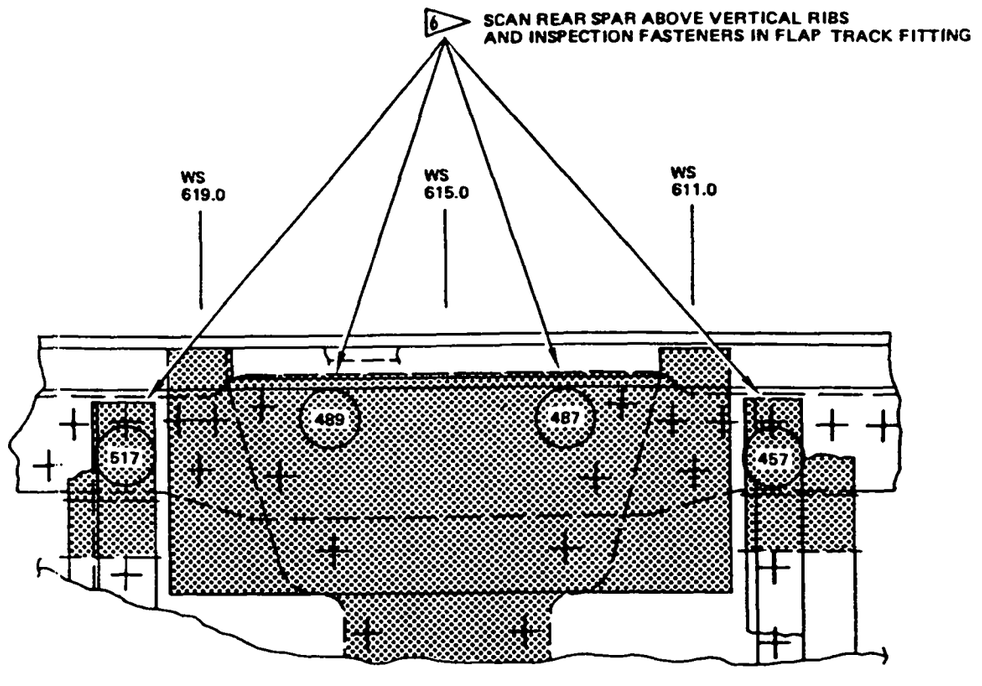
(852) FASTENER REQUIRING INSPECTION
PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE. SCAN CHORD ABOVE AND BELOW INSPECTION FASTENERS NOT COMMON TO EXTERNAL FITTINGS OR RIBS.

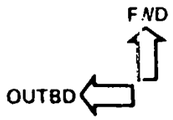
6 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE. SCAN ALONG EDGES OF FITTING AND RIBS AS NOTED.

WING UPPER REAR SPAR CHORD
VERTICAL FLANGE INSPECTION

DETAIL I (CONT)







NOTES

FITTINGS OR VERTICAL RIBS COMMON TO INSPECTION FASTENERS, EXTERNAL TO THE REAR SPAR

EXTERNAL INSPECTION

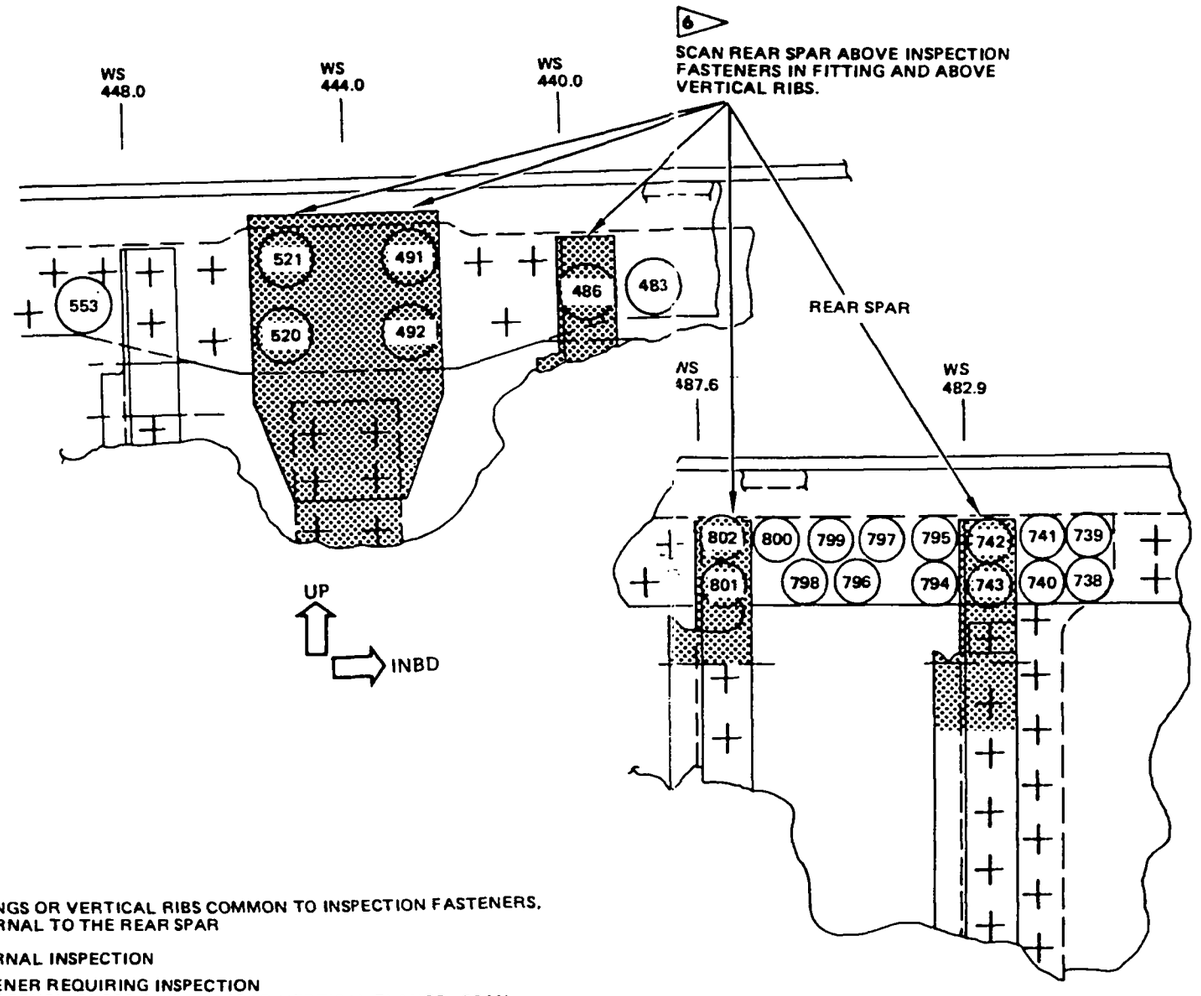
(109) FASTENER REQUIRING INSPECTION
PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE. SCAN CHORD ABOVE AND BELOW INSPECTION FASTENERS NOT COMMON TO EXTERNAL FITTINGS OR RIBS.

6 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE. SCAN ALONG EDGES OF FITTING AND RIBS AS NOTED.

● LEFT WING SHOWN, RIGHT WING SIMILAR

WING UPPER REAR SPAR CHORD
VERTICAL FLANGE INSPECTION

DETAIL I (CONT)



NOTES

FITTINGS OR VERTICAL RIBS COMMON TO INSPECTION FASTENERS, EXTERNAL TO THE REAR SPAR

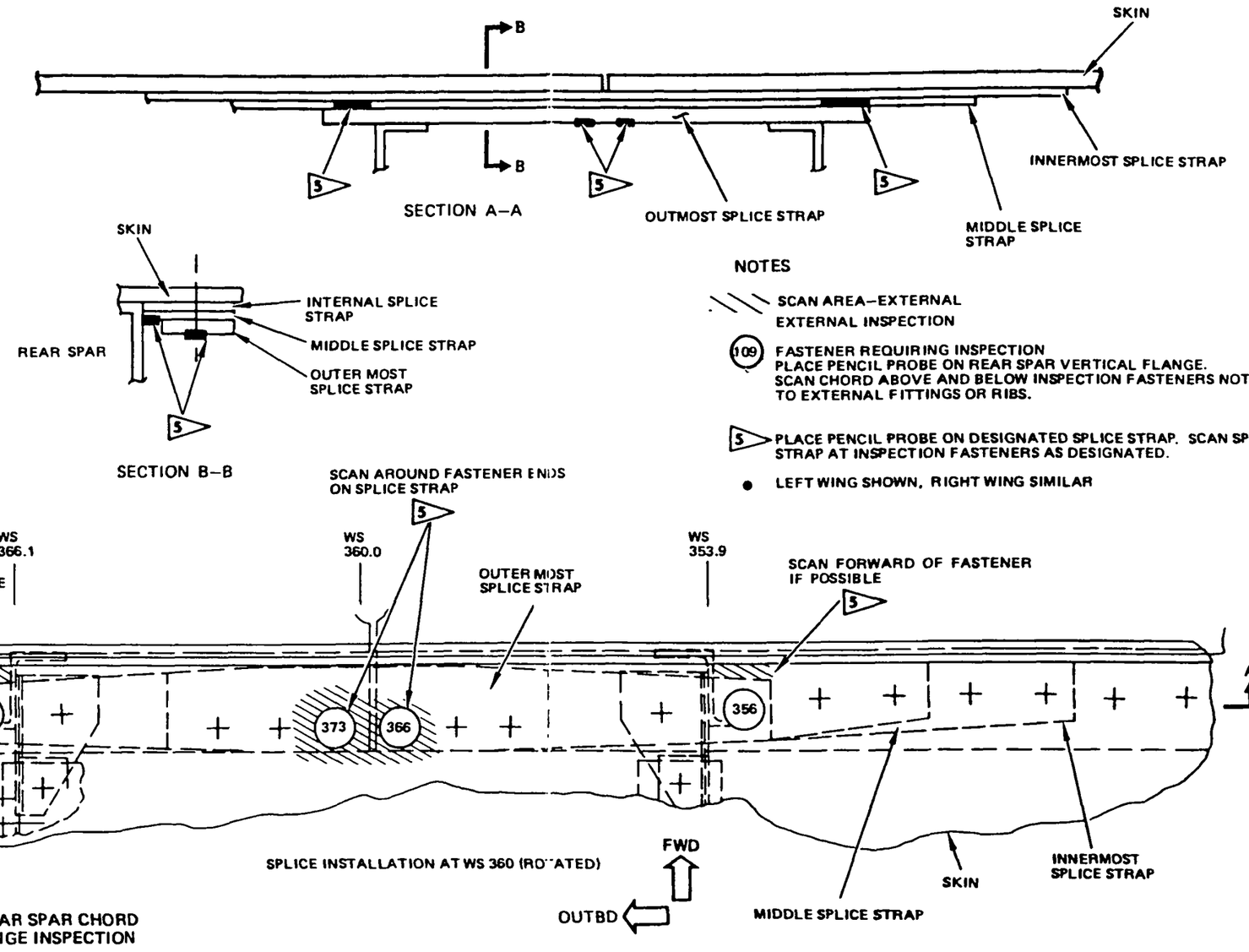
(742) EXTERNAL INSPECTION
FASTENER REQUIRING INSPECTION
PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE. SCAN CHORD ABOVE AND BELOW INSPECTION FASTENERS NOT COMMON TO EXTERNAL FITTINGS OR RIBS.

(6) PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE. SCAN ALONG EDGES OF FITTING AND RIBS AS NOTED.

- LEFT WING SHOWN, RIGHT WING SIMILAR

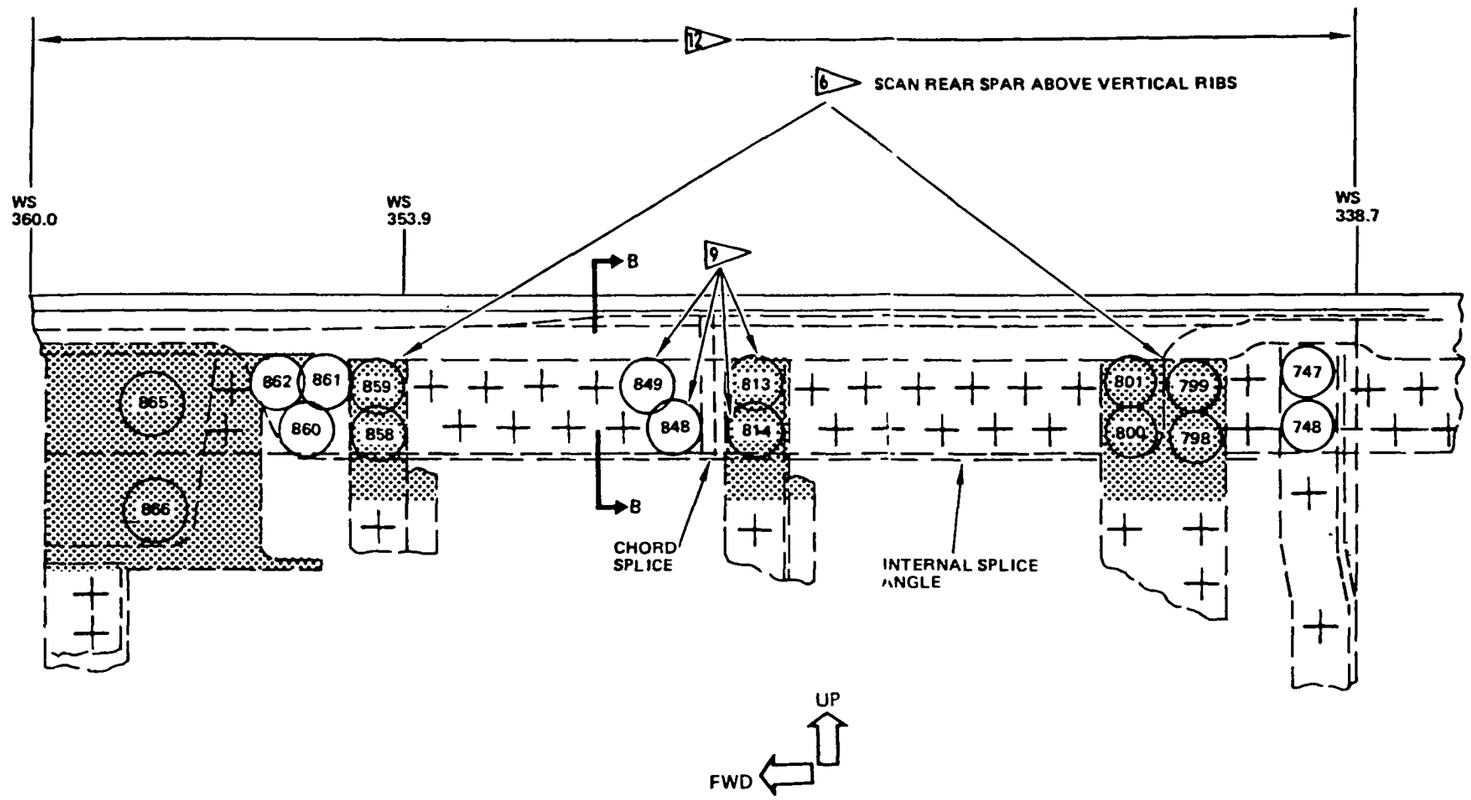
WING UPPER REAR SPAR CHORD
VERTICAL FLANGE INSPECTION

DETAIL I (CONT)



WING UPPER REAR SPAR CHORD VERTICAL FLANGE INSPECTION

DETAIL 1 (CONT)



NOTES

FITTINGS OR VERTICAL RIBS COMMON TO INSPECTION FASTENERS, EXTERNAL TO THE REAR SPAR.

EXTERNAL INSPECTION

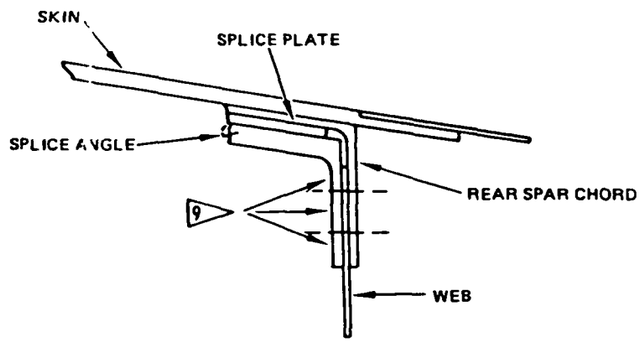
(109) FASTENER REQUIRING INSPECTION
PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE. SCAN CHORD ABOVE AND BELOW INSPECTION FASTENERS NOT COMMON TO EXTERNAL FITTINGS OR RIBS.

6 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE. SCAN ALONG EDGES OF FITTING AND RIBS AS NOTED.

9 PLACE PENCIL PROBE ON SPLICE ANGLE. SCAN ABOVE AND BELOW FASTENERS 813, 814, 848 AND 849.
INTERNAL INSPECTION (SEALANT REMOVAL REQUIRED)

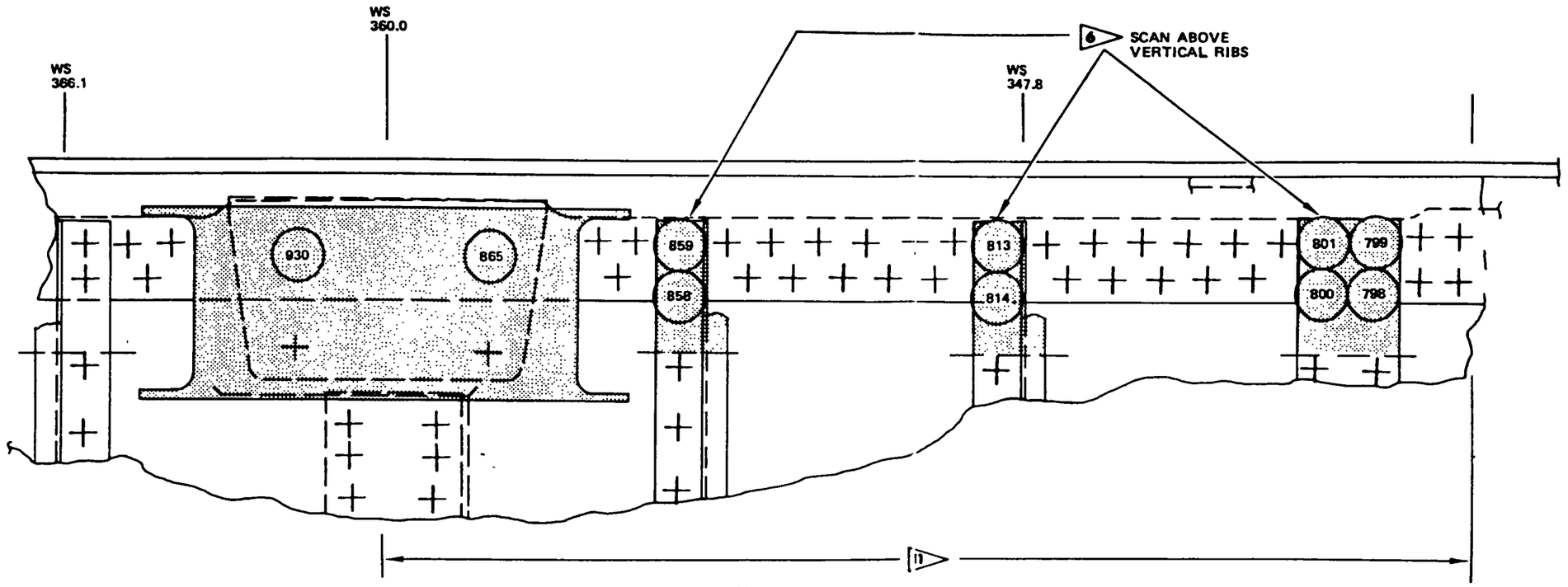
12 FOR A/P EFF SEE TABLE 1. 2

● LEFT WING SHOWN, RIGHT WING SIMILAR



SECTION B–B

WING UPPER REAR SPAR CHORD VERTICAL FLANGE INSPECTION DETAIL 1 (CONT)



NOTES

FITTINGS OR VERTICAL RIBS COMMON TO INSPECTION FASTENERS, EXTERNAL TO THE REAR SPAR.

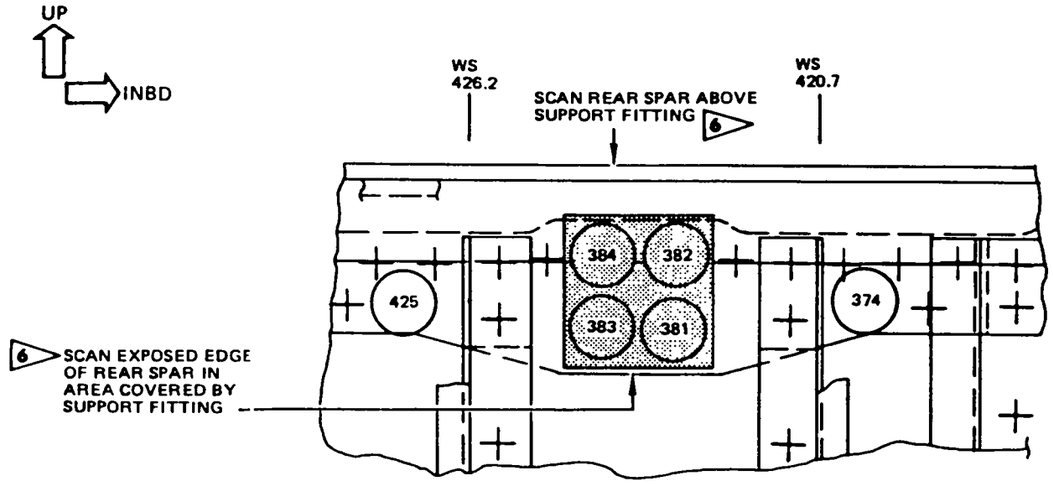
EXTERNAL INSPECTION

(109) FASTENER REQUIRING INSPECTION
PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE. SCAN CHORD ABOVE AND BELOW INSPECTION FASTENERS NOT COMMON TO EXTERNAL FITTINGS OR RIBS.

6 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE. SCAN ALONG EDGES OF FITTING AND RIBS AS NOTED.

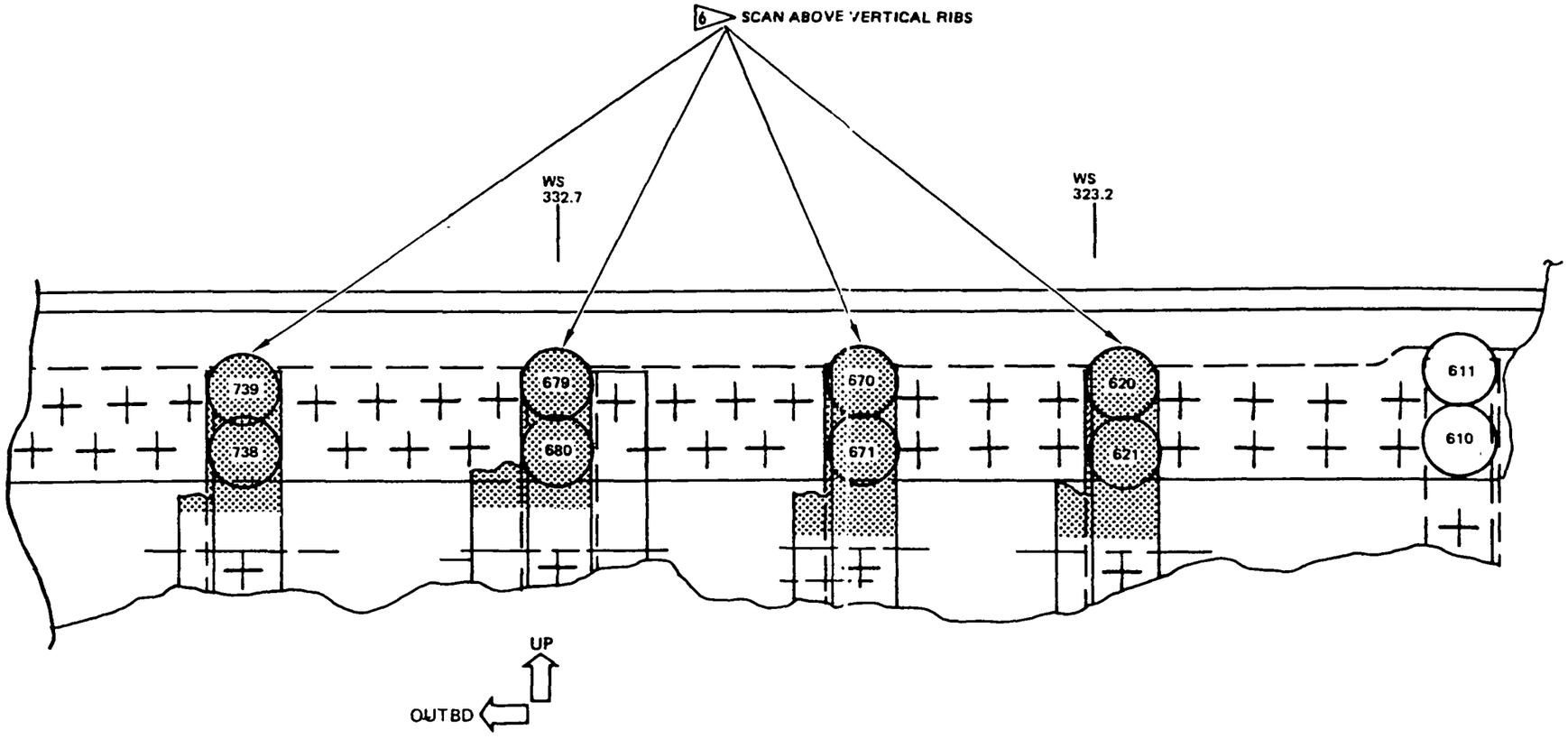
11 FOR A/P EFFECTIVITY SEE TABLE I

● LEFT WING SHOWN, RIGHT WING SIMILAR



WING UPPER REAR SPAR CHORD VERTICAL FLANGE INSPECTION

DETAIL I (CONT)



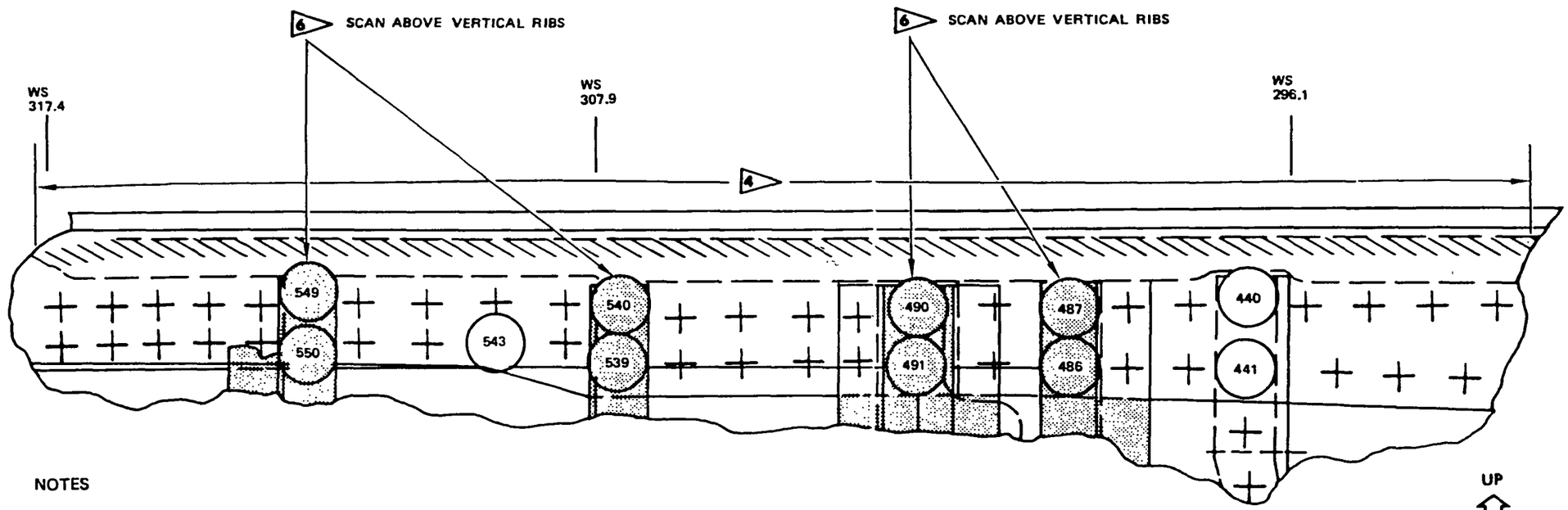
NOTES

FITTINGS OR VERTICAL RIBS COMMON TO INSPECTION FASTENERS, EXTERNAL TO THE REAR SPAR

(109) FASTENER REQUIRING INSPECTION
PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE. SCAN CHORD ABOVE AND BELOW INSPECTION FASTENERS NOT COMMON TO EXTERNAL FITTINGS OR RIBS

6 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE. SCAN ALONG EDGES OF FITTING AND RIBS AS NOTED

WING UPPER REAR SPAR CHORD
VERTICAL FLANGE INSPECTION
DETAIL I (CONT)



NOTES

FITTINGS OR VERTICAL RIBS COMMON TO INSPECTION FASTENERS, EXTERNAL TO THE REAR SPAR

SCAN AREA–EXTERNAL

EXTERNAL INSPECTION

(109) FASTENER REQUIRING INSPECTION
PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE.
SCAN CHORD ABOVE AND BELOW INSPECTION FASTENERS NOT COMMON TO EXTERNAL FITTING OR RIBS.

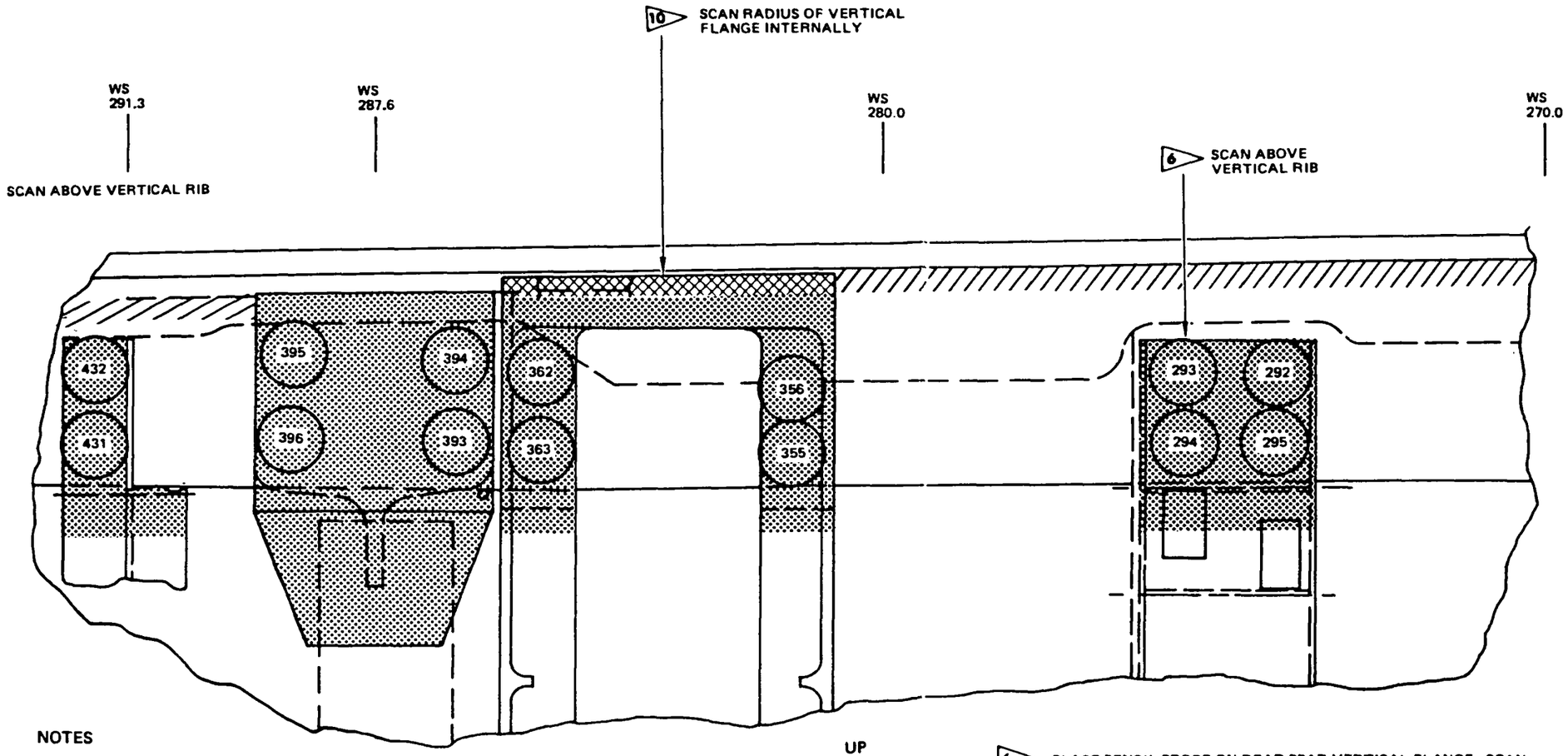
4 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE AT HORIZONTAL FLANGE JUNCTION. SCAN FROM SIDE OF BODY TO WS 317.4.

6 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE. SCAN ALONG EDGES OF FITTING AND RIBS AS NOTED

● LEFT WING SHOWN, RIGHT WING SIMILAR

WING UPPER REAR SPAR CHORD
VERTICAL FLANGE INSPECTION

DETAIL I (CONT)



NOTES

FITTINGS OR VERTICAL RIBS COMMON TO INSPECTION FASTENERS, EXTERNAL TO THE REAR SPAR

//// SCAN AREA – EXTERNAL

SCAN AREA –INTERNAL

EXTERNAL INSPECTION

(109) FASTENER REQUIRING INSPECTION
PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE.
SCAN CHORD ABOVE AND BELOW INSPECTION FASTENERS NOT COMMON TO EXTERNAL FITTINGS OR RIBS.

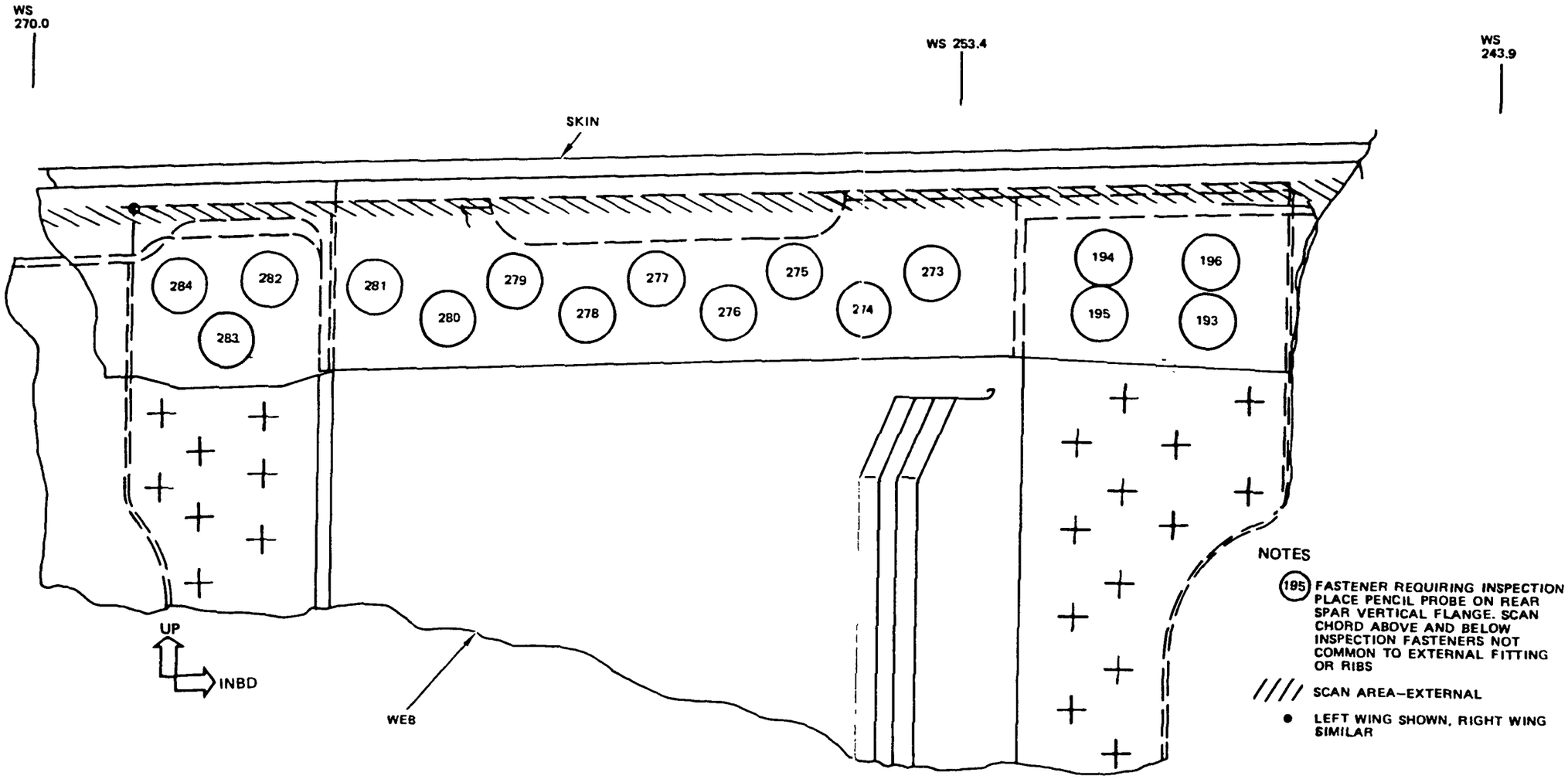
6 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE. SCAN ALONG EDGES OF FITTING AND RIBS AS NOTED.

10 SCAN RADIUS OF REAR SPAR VERTICAL FLANGE IN AREAS WHERE EXTERNAL INSPECTION IS NOT POSSIBLE. (SEALANT REMOVAL REQUIRED)

● LEFT WING SHOWN, RIGHT WING SIMILAR

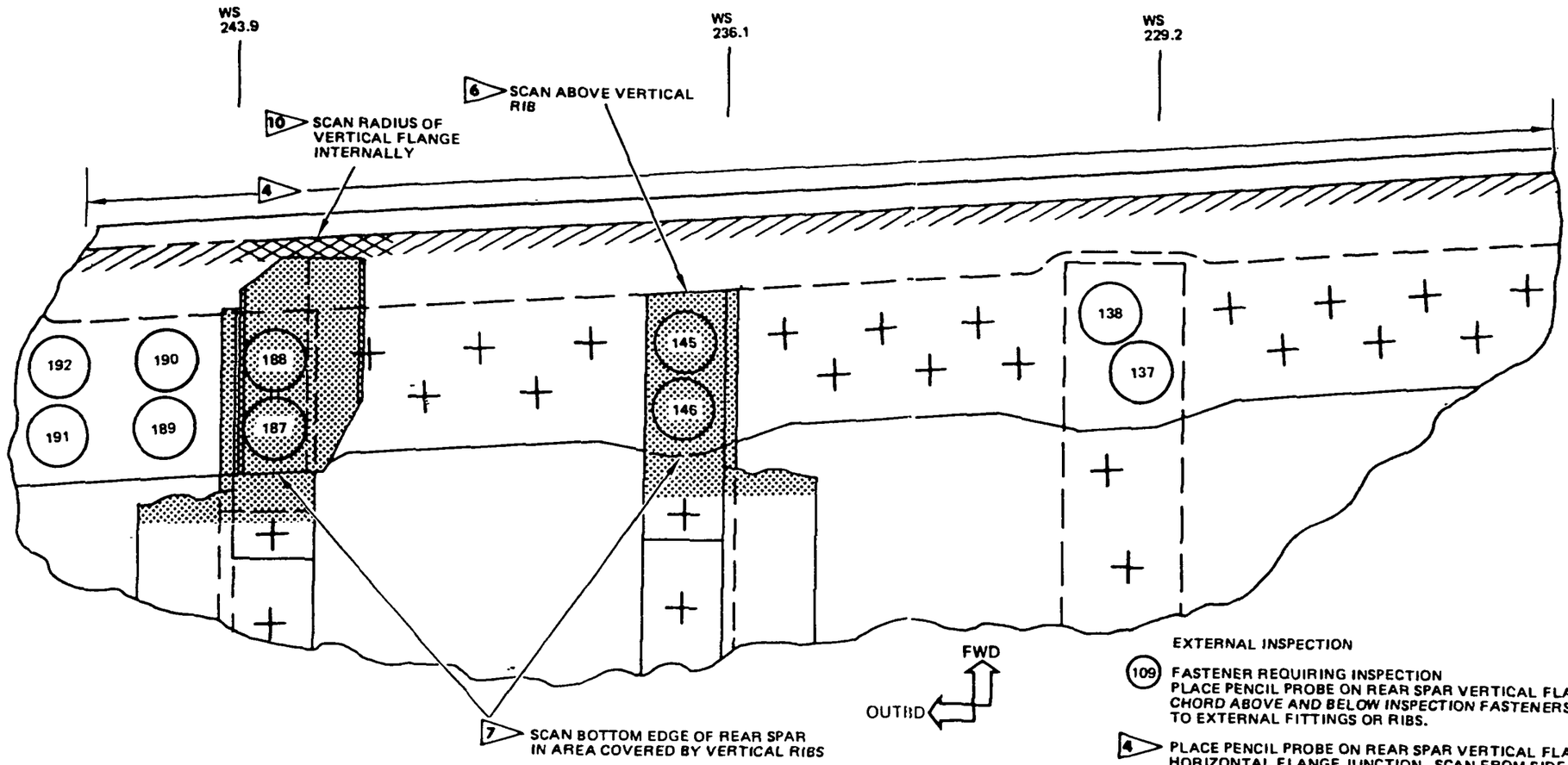
WING UPPER REAR SPAR CHORD
VERTICAL FLANGE INSPECTION

DETAIL I (CONT)



WING UPPER REAR SPAR CHORD
VERTICAL FLANGE INSPECTION

DETAIL I (CONT)



NOTES

FITTINGS OR VERTICAL RIBS COMMON TO INSPECTION FASTENERS, EXTERNAL TO THE REAR SPAR.

SCAN AREA – EXTERNAL

SCAN AREA – INTERNAL

EXTERNAL INSPECTION

(109) FASTENER REQUIRING INSPECTION
PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE. SCAN CHORD ABOVE AND BELOW INSPECTION FASTENERS NOT COMMON TO EXTERNAL FITTINGS OR RIBS.

4 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE AT HORIZONTAL FLANGE JUNCTION. SCAN FROM SIDE OF BODY TO WS 317.4

6 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE. SCAN ALONG EDGES OF FITTING AND RIBS AS NOTED.

7 PLACE PENCIL PROBE ON EDGE OF REAR SPAR CHORD VERTICAL FLANGE AND SCAN BEHIND RIB (REQUIRES LOW PROFILE RIGHT ANGLE PROBE)

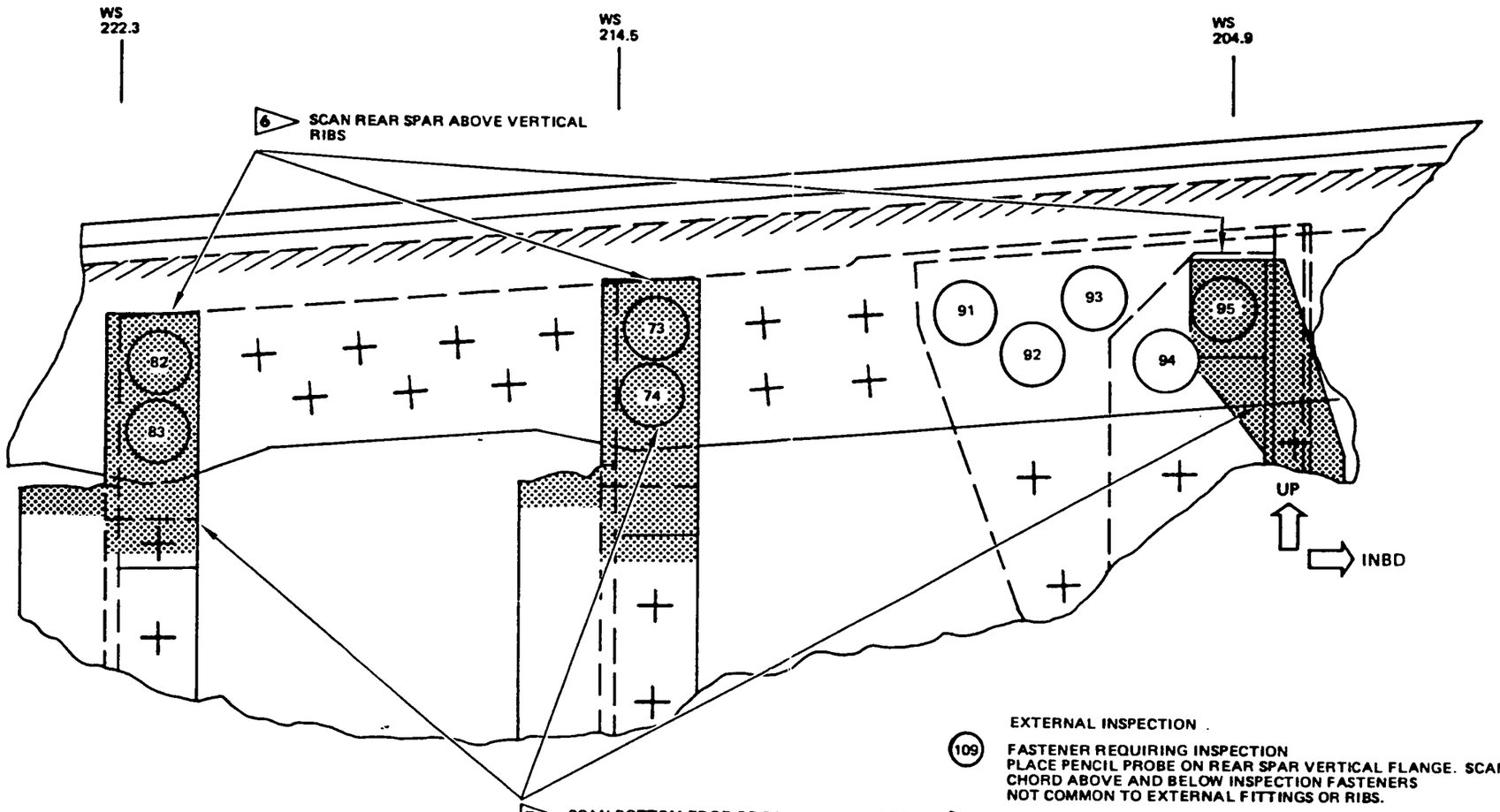
INTERNAL INSPECTION (SEALANT REMOVAL REQUIRED)

10 SCAN RADIUS OF REAR SPAR VERTICAL FLANGE IN AREAS WHERE EXTERNAL INSPECTION IS NOT POSSIBLE.

● LEFT WING SHOWN, RIGHT WING SIMILAR

WING UPPER REAR SPAR CHORD
VERTICAL FLANGE INSPECTION

DETAIL 1 (CONT)



NOTES

FITTINGS OR VERTICAL RIBS COMMON TO INSPECTION FASTENERS, EXTERNAL TO THE REAR SPAR.

SCAN AREA–EXTERNAL

SCAN AREA – INTERNAL

EXTERNAL INSPECTION

(109) FASTENER REQUIRING INSPECTION
PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE. SCAN CHORD ABOVE AND BELOW INSPECTION FASTENERS NOT COMMON TO EXTERNAL FITTINGS OR RIBS.

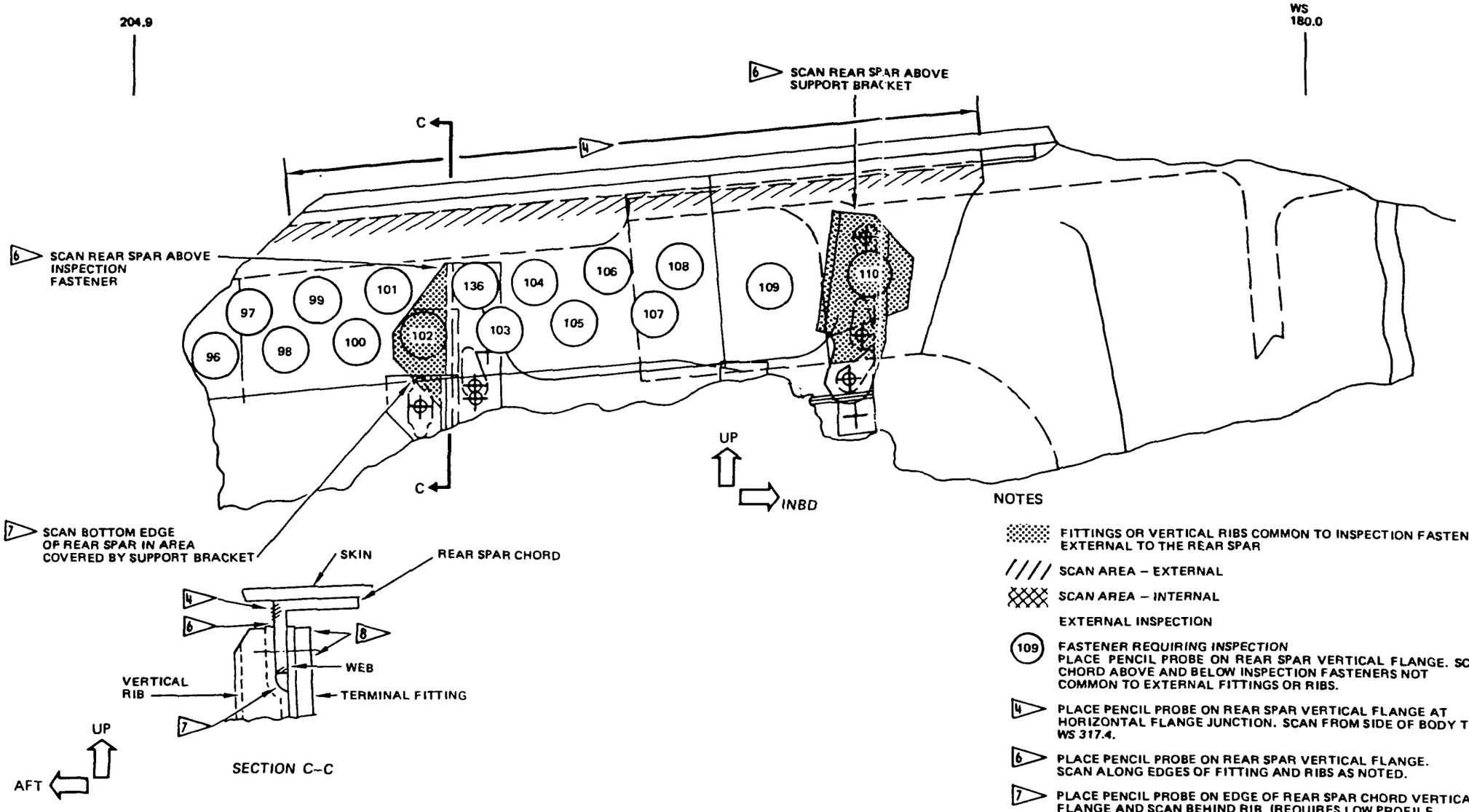
6 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE. SCAN ALONG EDGES OF FITTING AND RIBS AS NOTED

7 PLACE PENCIL PROBE ON EDGE OF REAR SPAR CHORD VERTICAL FLANGE, AND SCAN BEHIND RIB (REQUIRES LOW PROFILE RIGHT ANGLE PROBE)

● LEFT WING SHOWN, RIGHT WING SIMILAR

WING UPPER REAR SPAR CHORD
VERTICAL FLANGE

DETAIL I (CONT)



NOTES

- FITTINGS OR VERTICAL RIBS COMMON TO INSPECTION FASTENERS, EXTERNAL TO THE REAR SPAR
- //// SCAN AREA – EXTERNAL
- SCAN AREA – INTERNAL

EXTERNAL INSPECTION

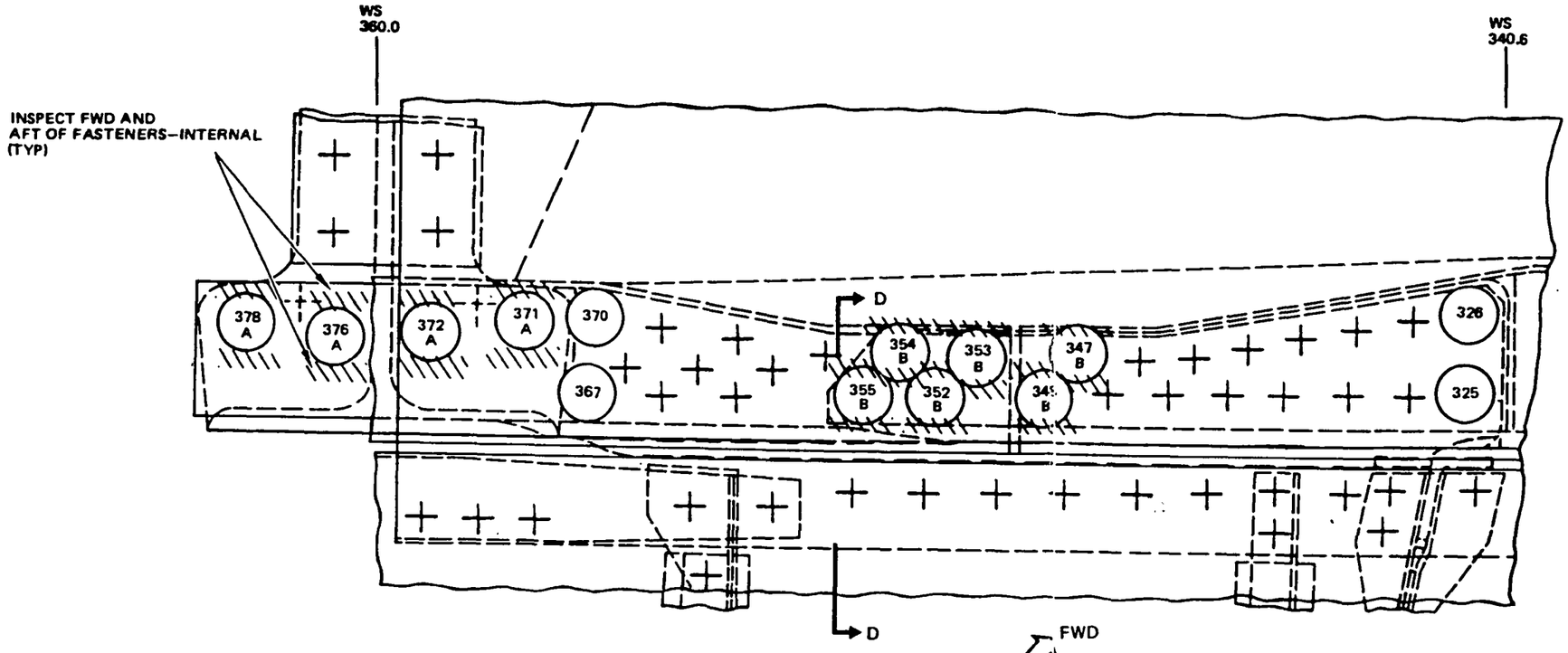
- (109) FASTENER REQUIRING INSPECTION. PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE. SCAN CHORD ABOVE AND BELOW INSPECTION FASTENERS NOT COMMON TO EXTERNAL FITTINGS OR RIBS.
- 4 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE AT HORIZONTAL FLANGE JUNCTION. SCAN FROM SIDE OF BODY TO WS 317.4.
- 6 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE. SCAN ALONG EDGES OF FITTING AND RIBS AS NOTED.
- 7 PLACE PENCIL PROBE ON EDGE OF REAR SPAR CHORD VERTICAL FLANGE AND SCAN BEHIND RIB (REQUIRES LOW PROFILE RIGHT ANGLE PROBE)

INTERNAL INSPECTION (SEALANT REMOVAL REQUIRED)

- 8 PLACE PENCIL PROBE ON TERMINAL FITTING. SCAN ABOVE AND BELOW FASTENERS 109 AND 110.

WING UPPER REAR SPAR CHORD
VERTICAL FLANGE INSPECTION

DETAIL I (CONT)



NOTES

///, SCAN AREA

- LEFT WING SHOWN, RIGHT WING SIMILAR

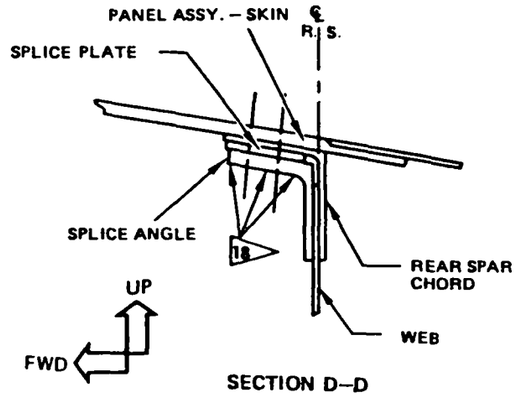
EXTERNAL INSPECTION

(26) FASTENER REQUIRING INSPECTION
PLACE PENCIL PROBE ON SKIN OR EXTERNAL SPLICE PLATE – SCAN AROUND FASTENER END.

INTERNAL INSPECTION

18 PLACE PENCIL PROBE ON SPLICE ANGLE – SCAN FORWARD AND AFT OF FASTENERS 347, 348, 352, 353, 354, 355. SEALANT REMOVAL REQUIRED.

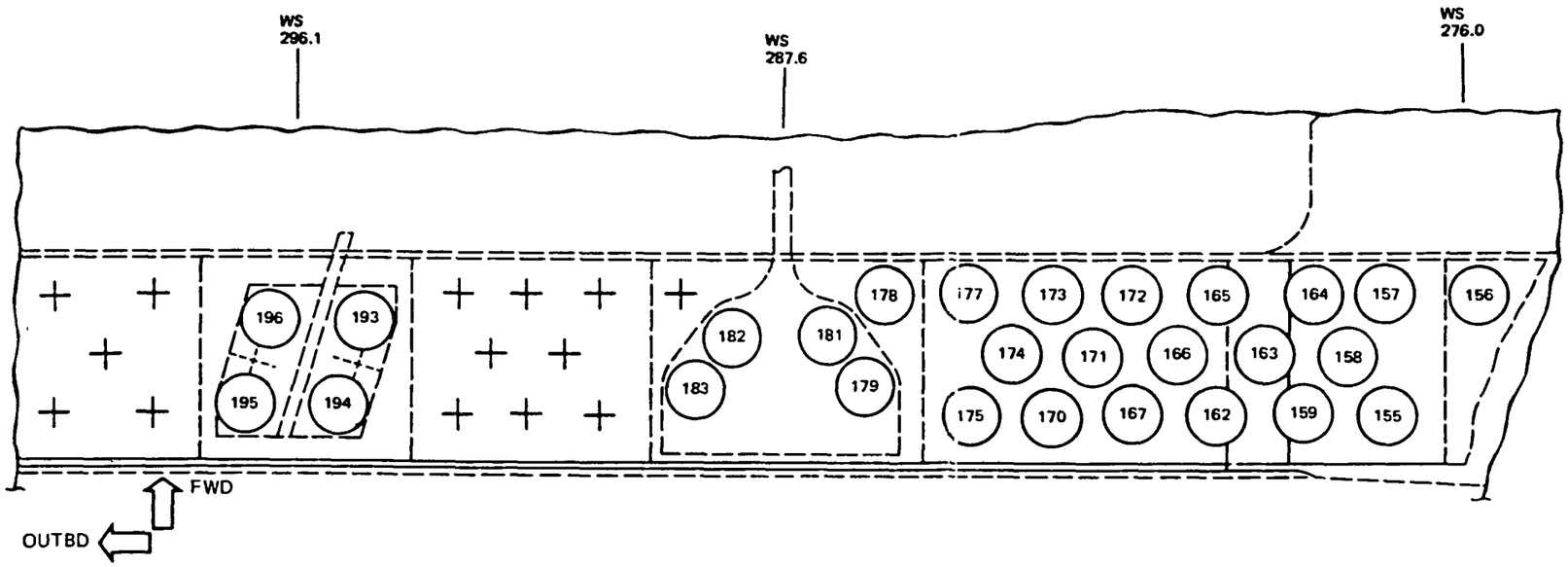
(122 A) PLACE PENCIL PROBE ON FLAP TRACK SUPPORT FITTING. SCAN FORWARD AND AFT OF FASTENERS 371, 372, 376, 378. SEALANT REMOVAL REQUIRED.

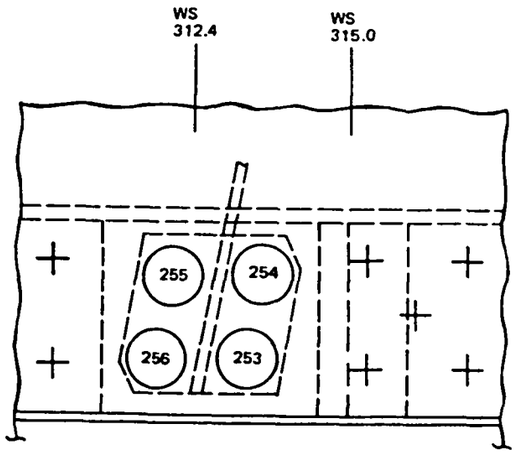


SECTION D–D

WING UPPER REAR SPAR CHORD
HORIZONTAL FLANGE INSPECTION

DETAIL II





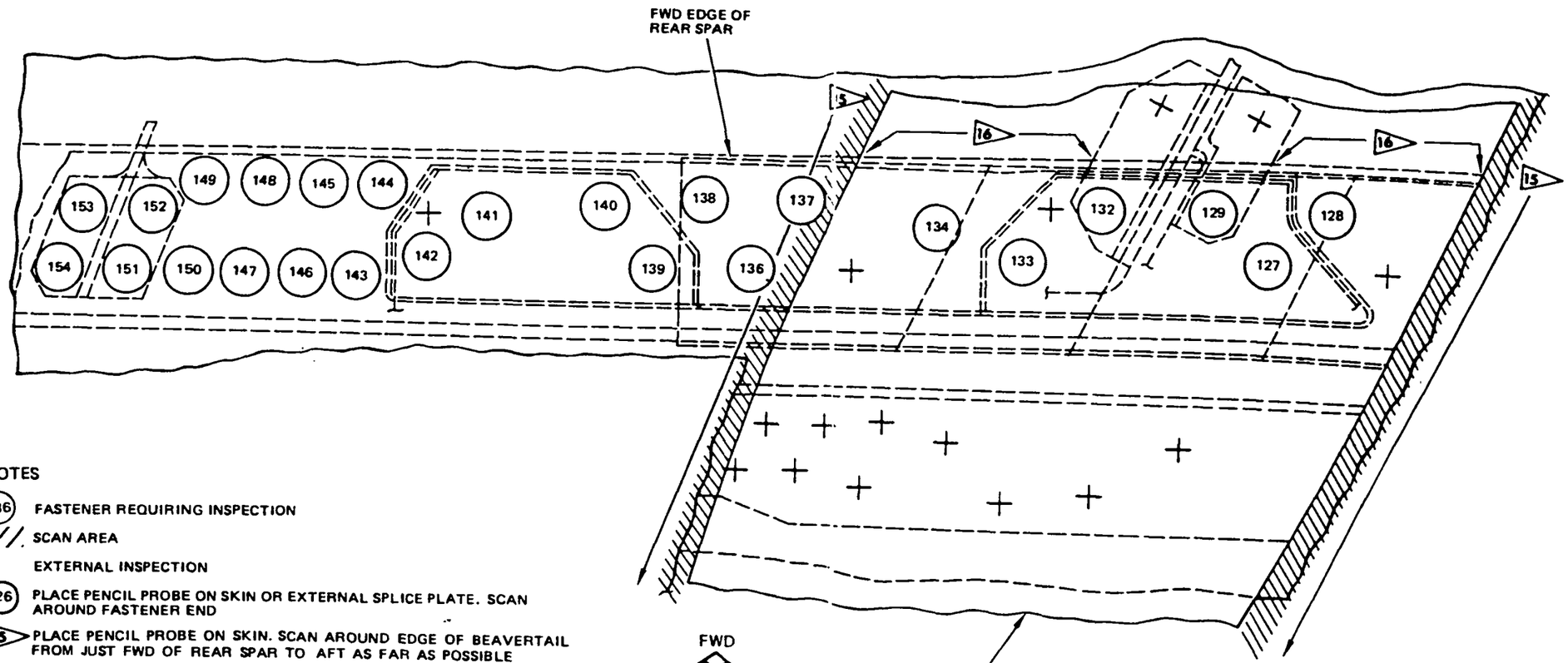
NOTES

(178) FASTENER REQUIRING INSPECTION PLACE PENCIL PROBE ON SKIN OR EXTERNAL SPLICE PLATE. SCAN AROUND FASTENER END.

● LEFT WING SHOWN, RIGHT WING SIMILAR

WING UPPER REAR SPAR CHORD
HORIZONTAL FLANGE INSPECTION

DETAIL II (CONT)



NOTES

(136) FASTENER REQUIRING INSPECTION

//// SCAN AREA

EXTERNAL INSPECTION

(26) PLACE PENCIL PROBE ON SKIN OR EXTERNAL SPLICE PLATE. SCAN AROUND FASTENER END

15 PLACE PENCIL PROBE ON SKIN. SCAN AROUND EDGE OF BEAVERTAIL FROM JUST FWD OF REAR SPAR TO AFT AS FAR AS POSSIBLE

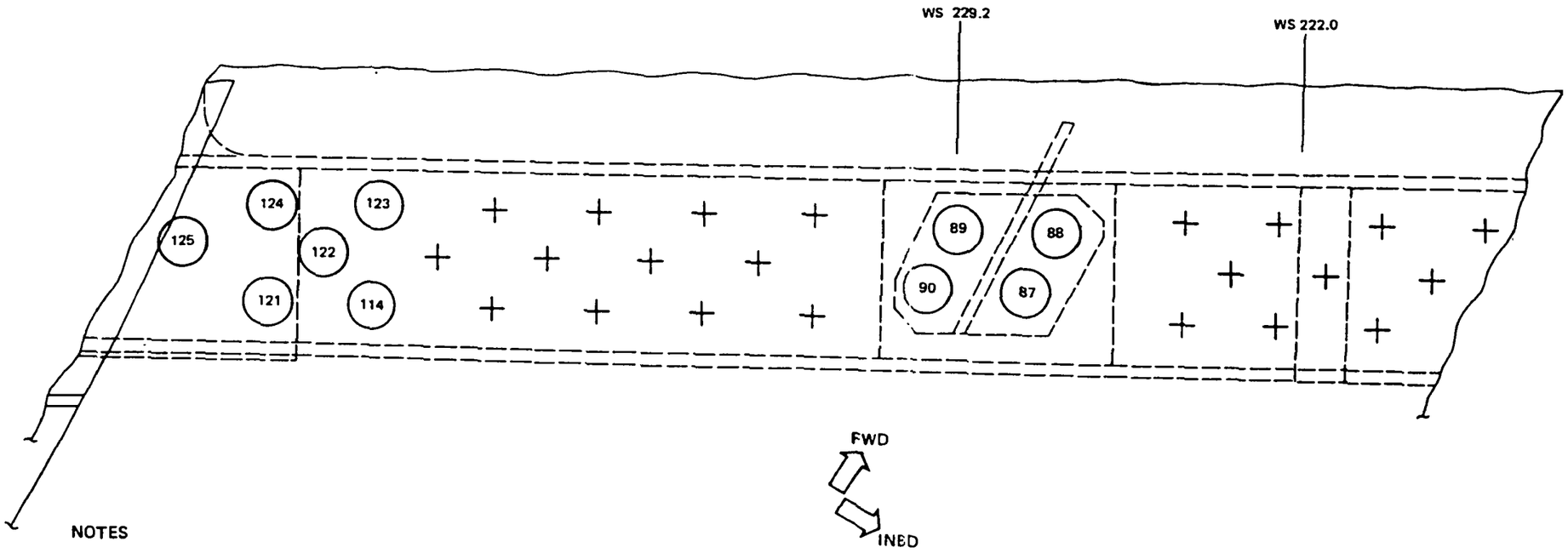
INTERNAL INSPECTION

16 PLACE PENCIL PROBE ON FORWARD EDGE OF REAR SPAR CHORD. SCAN ALONG DESIGNATED AREAS. SEALANT REMOVAL REQUIRED

● LEFT WING SHOWN, RIGHT WING SIMILAR.

WING UPPER REAR SPAR CHORD
HORIZONTAL FLANGE INSPECTION

DETAIL II (CONT)



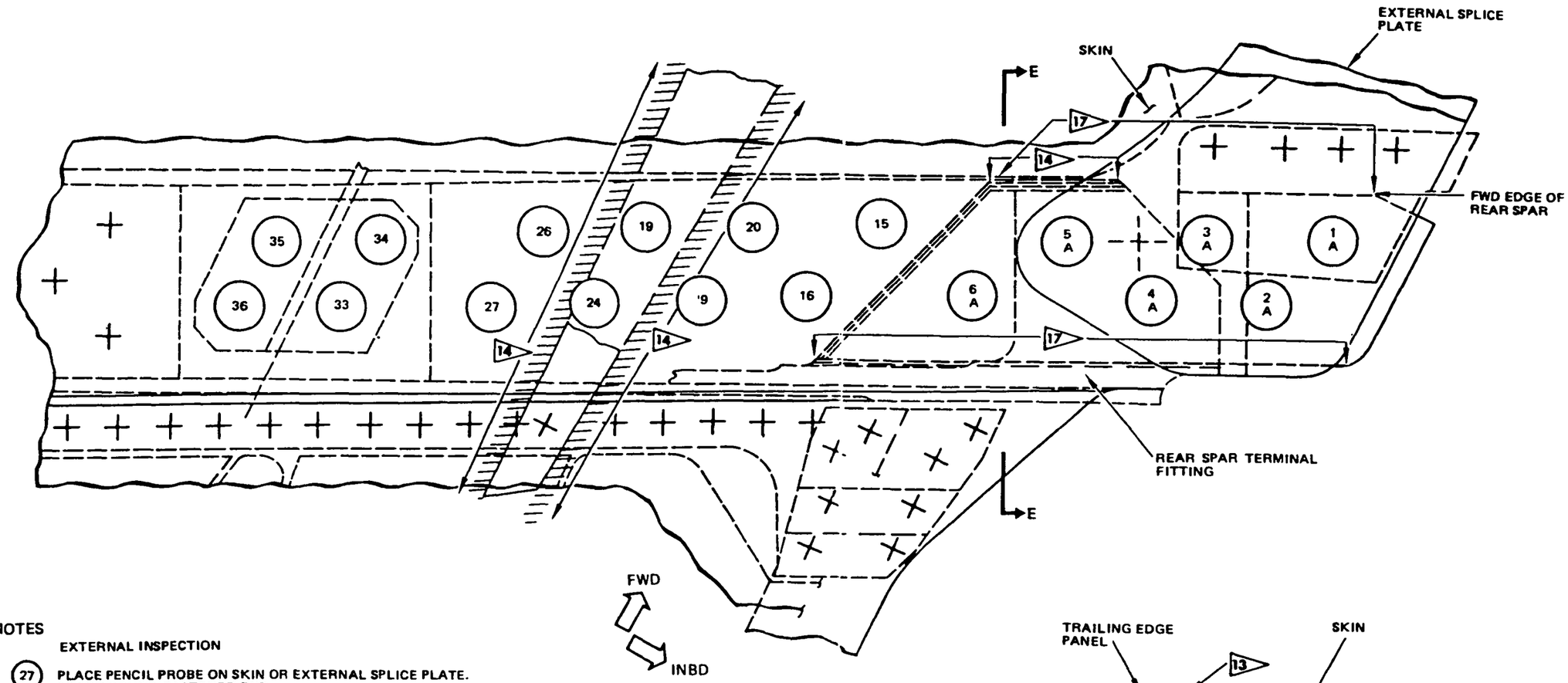
NOTES

(26) FASTENER REQUIRING INSPECTION
PLACE PENCIL PROBE ON SKIN OR EXTERNAL SPLICE PLATE.
SCAN AROUND FASTENER END.

- LEFT WING SHOWN, RIGHT WING SIMILAR

WING UPPER REAR SPAR CHORD
HORIZONTAL FLANGE INSPECTION

DETAIL II (CONT)



NOTES

EXTERNAL INSPECTION

(27) PLACE PENCIL PROBE ON SKIN OR EXTERNAL SPLICE PLATE. SCAN AROUND FASTENER END

13 PLACE PENCIL PROBE ON SKIN AS FAR AFT AS POSSIBE - SCAN FROM SIDE OF BODY TO PRODUCTION BREAK

14 PLACE PENCIL PROBE ON SKIN. SCAN ALONG THE INBD AND OUTBD EDGES OF FAIRINGS AND ATTACH STRIPS FOR 5–6 INCHES

INTERNAL INSPECTION

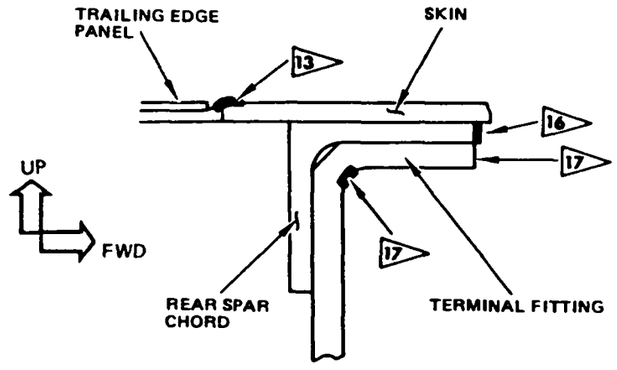
16 PLACE PENCIL PROBE ON FORWARD EDGE OF REAR SPAR CHORD SCAN ALONG DESIGNATED AREAS. SEALANT REMOVAL REQUIRED

17 PLACE PENCIL PROBE ON TERMINAL FITTINGS. SCAN ALONG DESIGNATED AREAS. SEALANT REMOVAL REQUIRED

/// SCAN AREA

(26) FASTENER REQUIRING INSPECTION

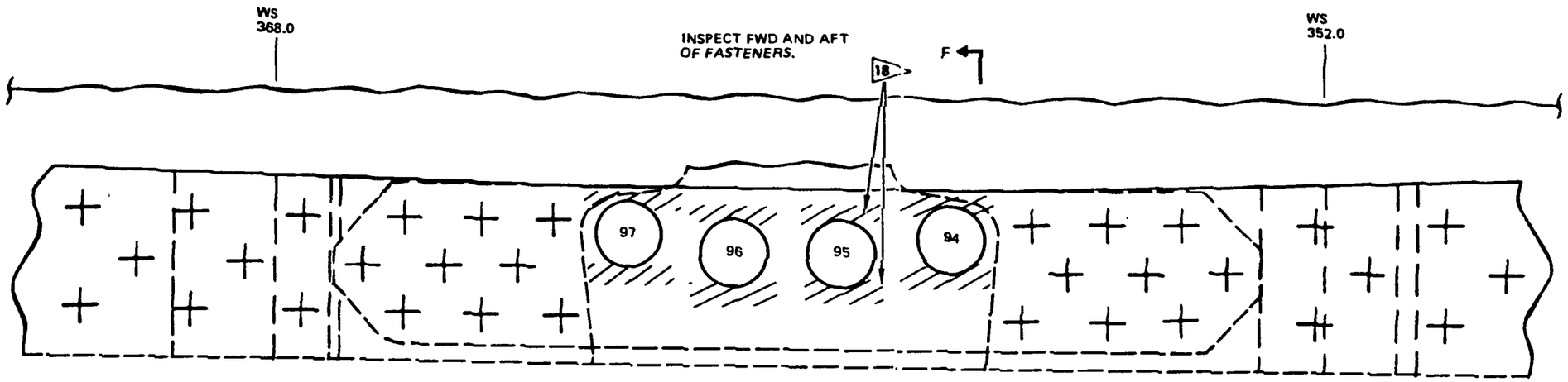
• LEFT WING SHOWN
RIGHT WING SIMILAR



SECTION E–E
(ROTATED)

WING UPPER REAR SPAR CHORD
HORIZONTAL FLANGE INSPECTION

DETAIL II



NOTES

/// SCAN AREA

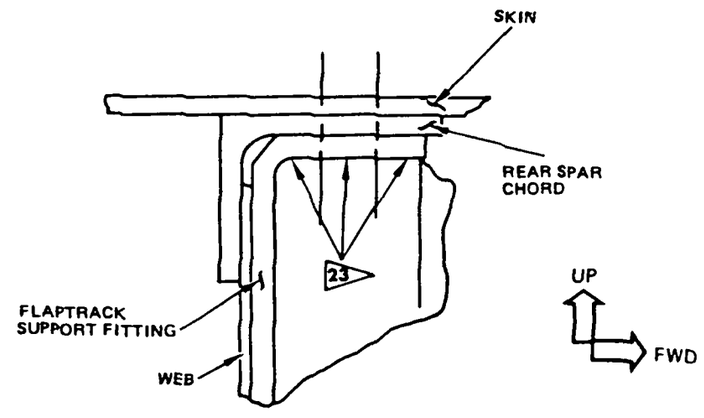
● LEFT WING SHOWN, RIGHT WING SIMILAR

EXTERNAL INSPECTION

(15) FASTENER REQUIRING INSPECTION.
PLACE PENCIL PROBE ON FORWARD EDGE OF REAR SPAR CHORD.
SCAN AROUND FASTENER END

INTERNAL INSPECTION

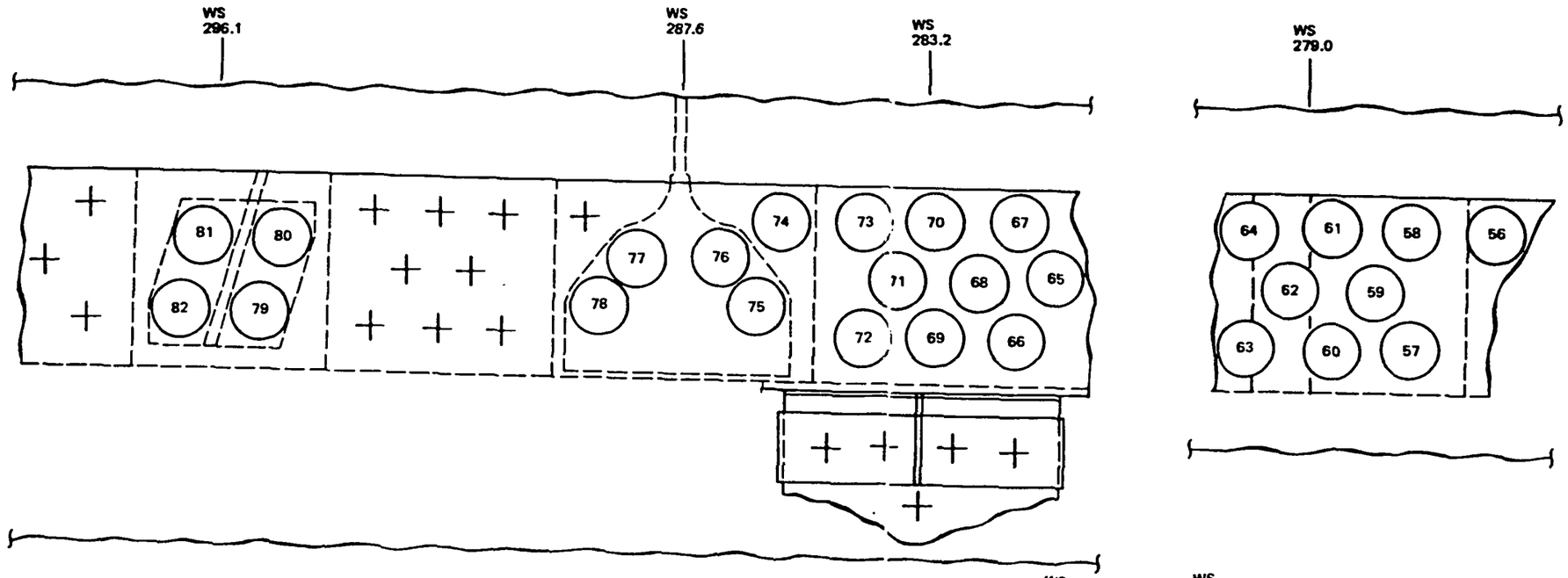
18 PLACE PENCIL PROBE ON FLAP TRACK SUPPORT FITTING.
SCAN FORWARD AND AFT OF INSPECTION FASTENERS

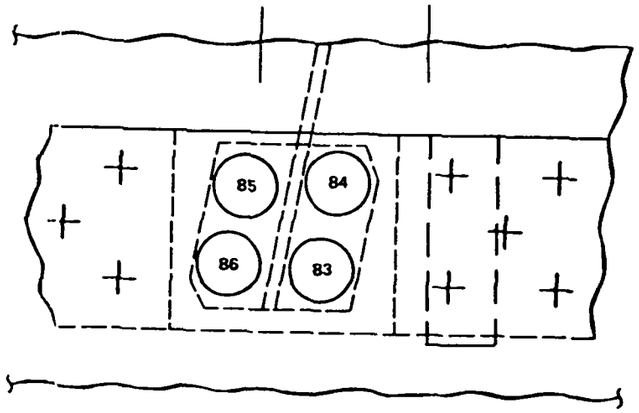


SECTION F–F
(ROTATED)

WING UPPER REAR SPAR CHORD
HORIZONTAL FLANGE INSPECTION

DETAIL III (CONT)





NOTES

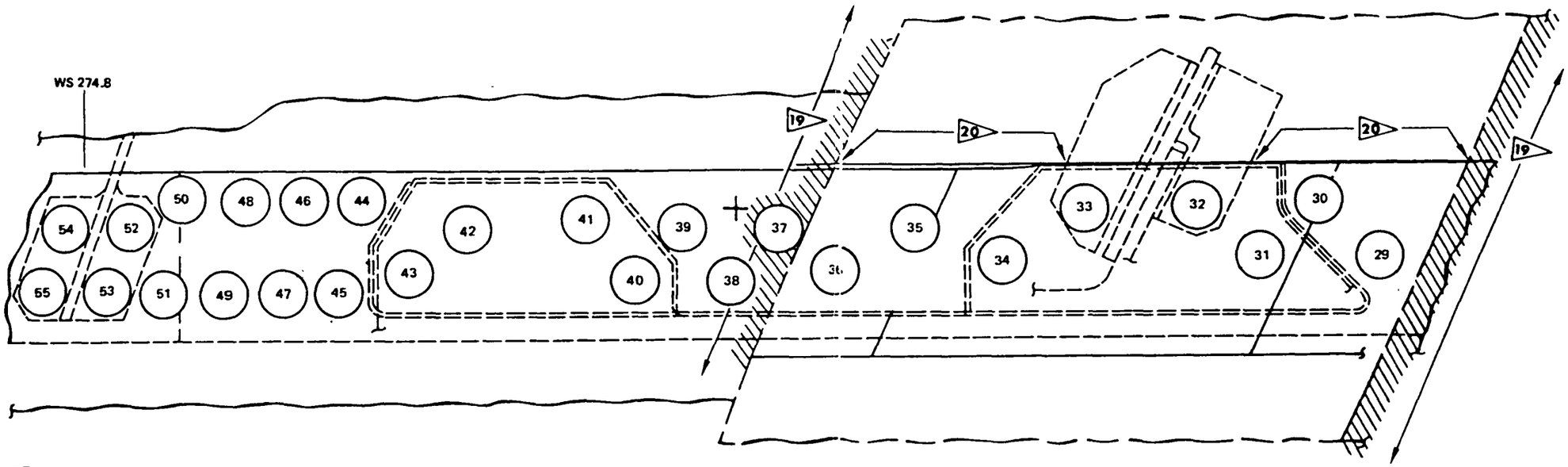
(74) FASTENER REQUIRING INSPECTION

PLACE PENCIL PROBE ON SKIN OR EXTERNAL SPLICE PLATE. SCAN AROUND FASTENER END.

- LEFT WING SHOWN, RIGHT WING SIMILAR.

WING UPPER REAR SPAR CHORD
HORIZONTAL FLANGE INSPECTION

DETAIL III (CONT)



NOTES

'///' SCAN AREA

● LEFT WING SHOWN' RIGHT WING SIMILAR.

EXTERNAL INSPECTION.

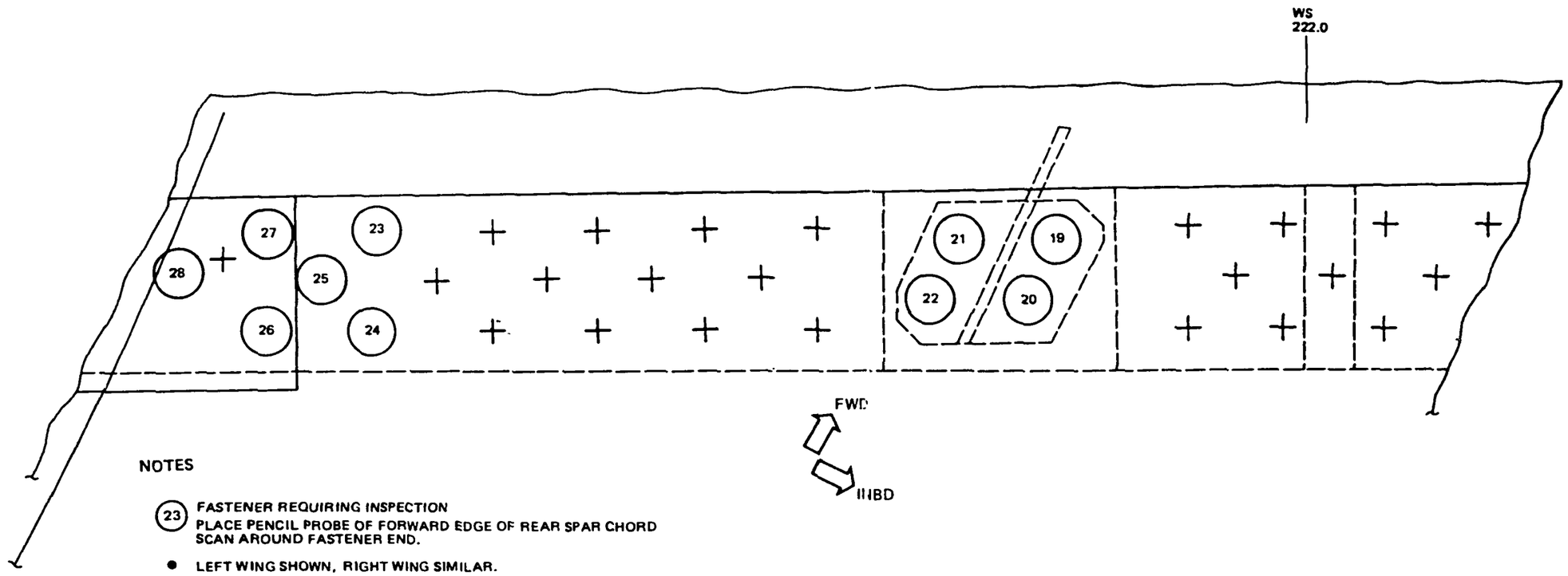
(15) FASTENER REQURING INSPECTION
PLACE PENCIL PROBE ON FORWARD EDGE OF REAR SPAR CHORD.
SCAN AROUND FASTENER END.

19 PLACE PENCIL PROBE ON SKIN. SCAN AROUND EDGE OF BEAVERTAIL FROM JUST FORWARD OF REAR SPAR TO AS FAR AFT AS POSSIBLE.

INTERNAL INSPECTION.

20 PLACE PENCIL PROBE ON FORWARD EDGE OF REAR SPAR CHORD.
SCAN ALONG DESIGNATED AREAS. SEALANT REMOVAL REQUIRED.

WING UPPER REAR SPAR CHORD
HORIZONTAL FLANGE INSPECTION
DETAIL III (CONT)

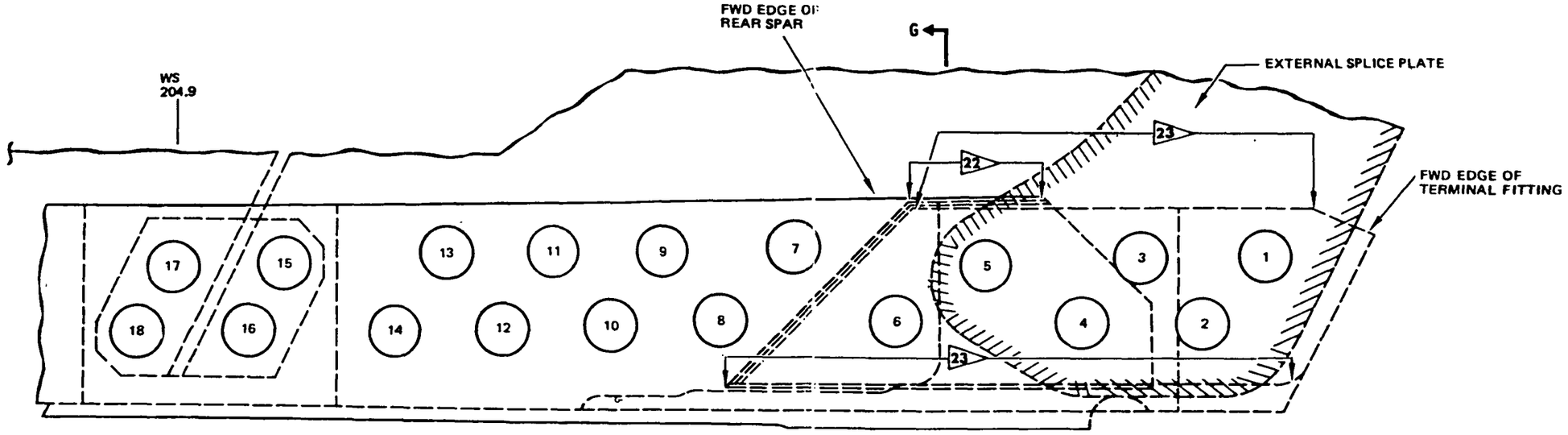


NOTES

(23) FASTENER REQUIRING INSPECTION
PLACE PENCIL PROBE OF FORWARD EDGE OF REAR SPAR CHORD
SCAN AROUND FASTENER END.

- LEFT WING SHOWN, RIGHT WING SIMILAR.

WING UPPER REAR SPAR CHORD
HORIZONTAL FLANGE INSPECTION
DETAIL III (CONT)



NOTES

///, SCAN AREA

● LEFT WING SHOWN, RIGHT WING SIMILAR

EXTERNAL INSPECTION

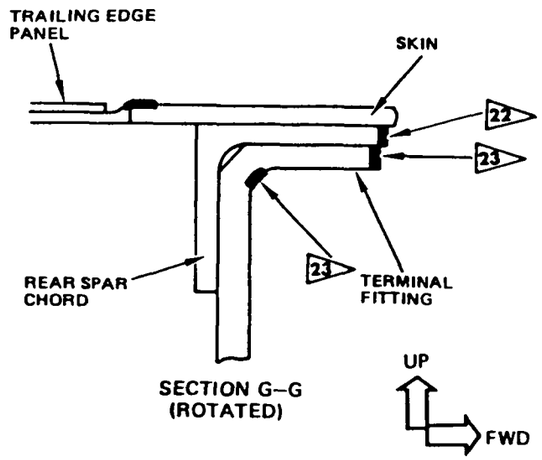
(15) FASTENER REQUIRING INSPECTION
PLACE PENCIL PROBE ON FORWARD EDGE OF REAR SPAR CHORD.
SCAN AROUND FASTENER END.

21 PLACE PENCIL PROBE ON SKIN AS FAR AFT AS POSSIBLE. SCAN FROM SIDE OF BODY TO PRODUCTION BREAK.

INTERNAL INSPECTION

22 PLACE PENCIL PROBE ON FORWARD EDGE OF REAR SPAR CHORD.
SCAN ALONG DESIGNATED AREAS. SEALANT REMOVAL REQUIRED.

23 PLACE PENCIL PROBE ON TERMINAL FITTING. SCAN ALONG AFT EDGE OF FLANGE AND IN RADIUS. SEALANT REMOVAL REQUIRED.



SECTION G–G
(ROTATED)

WING UPPER REAR SPAR CHORD
HORIZONTAL FLANGE INSPECTION

DETAIL III (CONT)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To inspect for cracks in the wing upper rear spar chord and the adjacent skin and structure from WS 360 to WS 733.

   B. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Refer to Part 6, 51-00-00, Fig. 4 for instrument.

   B. Probes

      (1) Three different probes are required to perform these inspections:

         Probe No. 1: Shielded pencil probe per Part 1, 51-06-00, Fig. 1.

         Probe No. 2: Low profile, right angle shielded pencil probe that meets the following requirements:

            (a) Handle length approximately 2.5 inches long.

            (b) Maximum shank length from coil tip to top of shank is 0.3 inch.

            (c) Shank and handle OD 0.2 inch maximum.

Wing Upper Panel Skin and Rear Spar Chord
Figure 60 (Sheet 1)

Probe No. 3 Shielded pencil probe and extension handle that will allow probe to be set at a variable angle to the inspection surface.

NOTE: Probes that meet the preceding requirements are available from:

(a) NDT Product Engineering
P.O. Box 423
Renton, Wa 98057

Probe No. 1: Part Number P-50

Probe No. 2: Part Number P-901-25

Probe No. 3: Part Number PVAE-11

(b) V.M. Products
7420 Park Ave. No. 20
Tacoma, Wa 98408

Probe No. 1: Part Number VM 100 PS

Probe No. 2: Part Number VM 100 AS

NOTE: Specify probe dimensions when ordering Probe No. 2.

Probe No. 3: Part Number VM 100 PS-18

C. Reference Standards - Refer to Part 6, 51-00-00, Fig.4

3. Prepare for Inspection

A. External Inspection

(1) Open trailing edge access doors and fuel dump chute.

(2) Open landing gear torque box access panels on wing upper surface.

(3) Clean inspection surfaces thoroughly.

Wing Upper Panel Skin and Rear Spar Chord
Figure 60 (Sheet 2)

B. Internal Inspection

(1) Defuel and purge fuel tanks to permit fuel cell entry with an eddy current instrument.

(2) Remove sealant, as necessary, to allow eddy current probe contact with inspection surface.

(3) Wipe surface clean.

4. Calibrate Instrument

A. Select probe best suited to contact area where inspection is to be performed.

B. Connect probe to instrument and calibrate per Part 6, 51-00-00, Fig. 4.

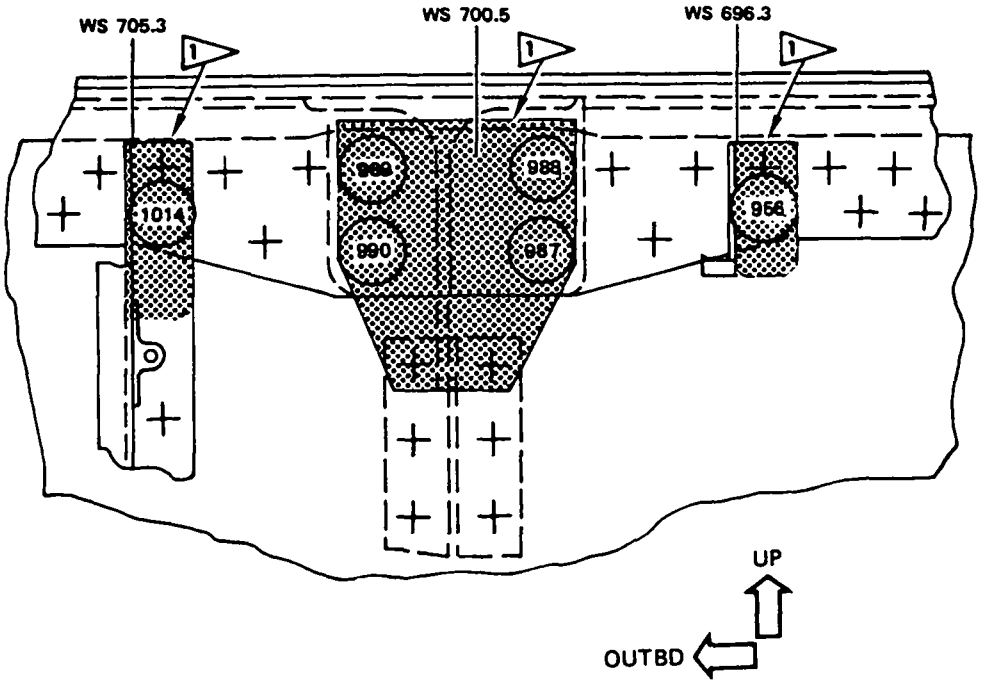
5. Inspection Procedure

A. Refer to Details I, and II for inspection locations and procedures.

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

B. Perform inspection scan around fastener ends per Part 6, 51-00-00, Fig. 6. Perform all other inspection scans per Part 6, 51-00-00, Fig. 4.

Wing Upper Panel Skin and Rear Spar Chord
Figure 60 (Sheet 3)



NOTES

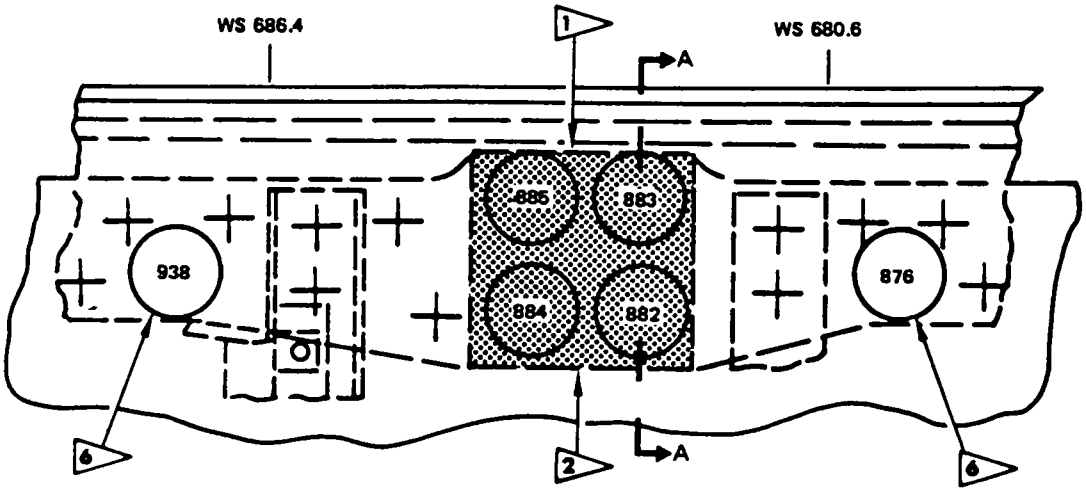
- LEFT WING SHOWN, RIGHT WING SIMILAR, VIEW LOOKING FWD

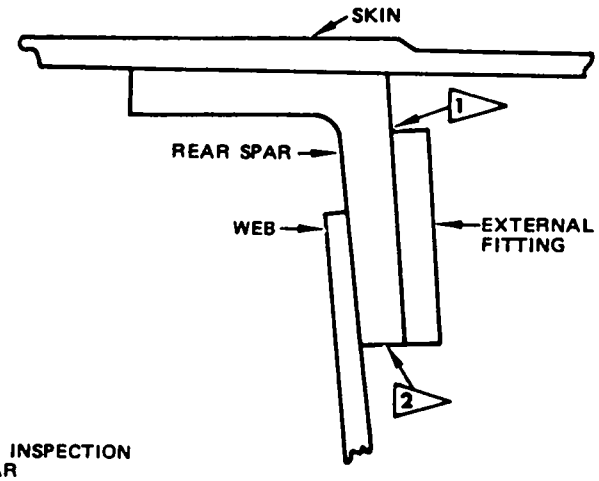
(956) FASTENER LOCATION TO BE INSPECTED

FITTINGS OR VERTICAL RIBS COMMON TO INSPECTION FASTENERS AND EXTERNAL TO REAR SPAR.

1 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE AND SCAN ALONG EDGES OF FITTINGS – EXTERNAL INSPECTION.

AREA TO BE INSPECTED
DETAIL I





SECTION A–A

NOTES

(450) FASTENER LOCATION TO BE INSPECTED

FITTINGS OR VERTICAL RIBS COMMON TO INSPECTION FASTENERS AND EXTERNAL TO REAR SPAR

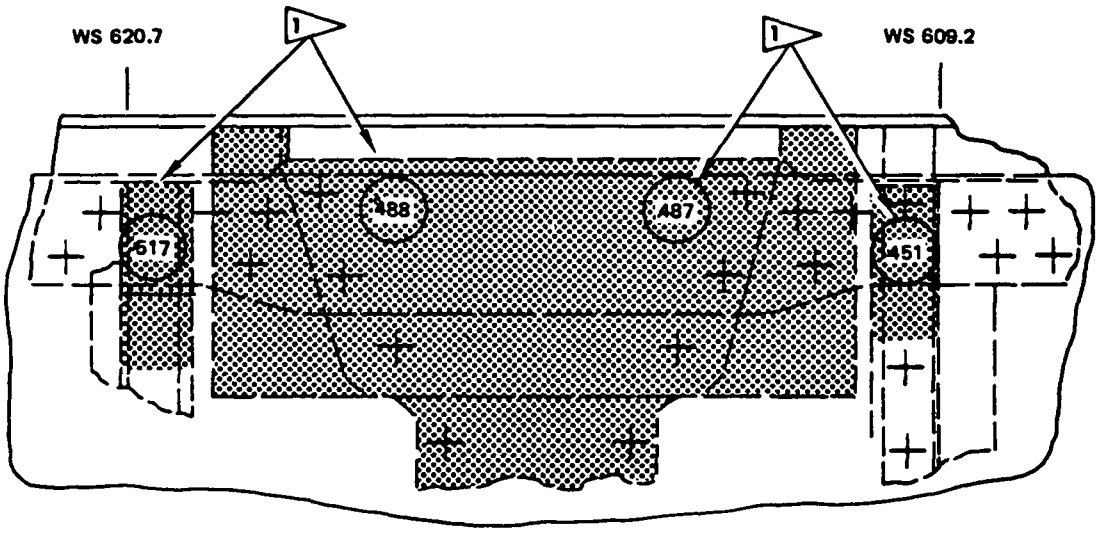
1 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE AND SCAN ALONG EDGES OF FITTINGS – EXTERNAL INSPECTION

2 PLACE PROBE ON EDGE OF REAR SPAR CHORD VERTICAL FLANGE AND SCAN BEHIND RIB. USE LOW PROFILE RIGHT ANGLE PROBE EXTERNAL INSPECTION

6 SCAN PENCIL PROBE ON REAR SPAR VERTICAL FLANGE ABOVE & BELOW INSPECTION FASTENERS THAT ARE NOT COMMON TO EXTERNAL FITTINGS.

AREA TO BE INSPECTED
DETAIL I (CONT)

SCAN REAR SPAR ABOUT FASTENERS AND ABOVE VERTICAL RIBS



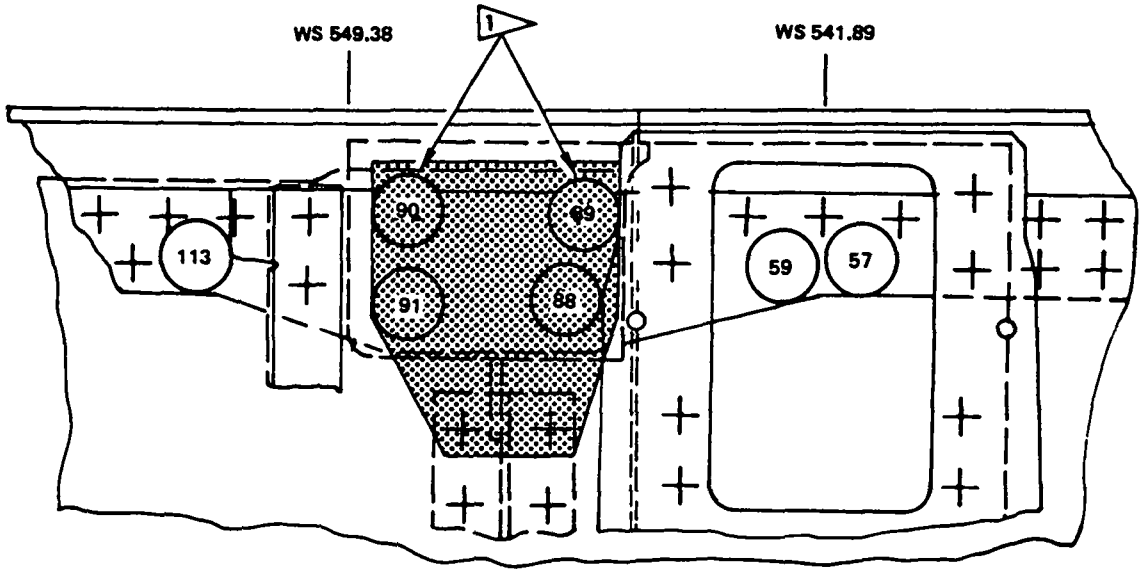
NOTES

450 FASTENER LOCATION TO BE INSPECTED

FITTINGS OR VERTICAL RIBS COMMON TO INSPECTION FASTENERS AND EXTERNAL TO REAR SPAR

1 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE AND SCAN ALONG EDGES OF FITTINGS – EXTERNAL INSPECTION

DETAIL I (CONT)



NOTES

90 FASTENER LOCATION TO BE INSPECTED

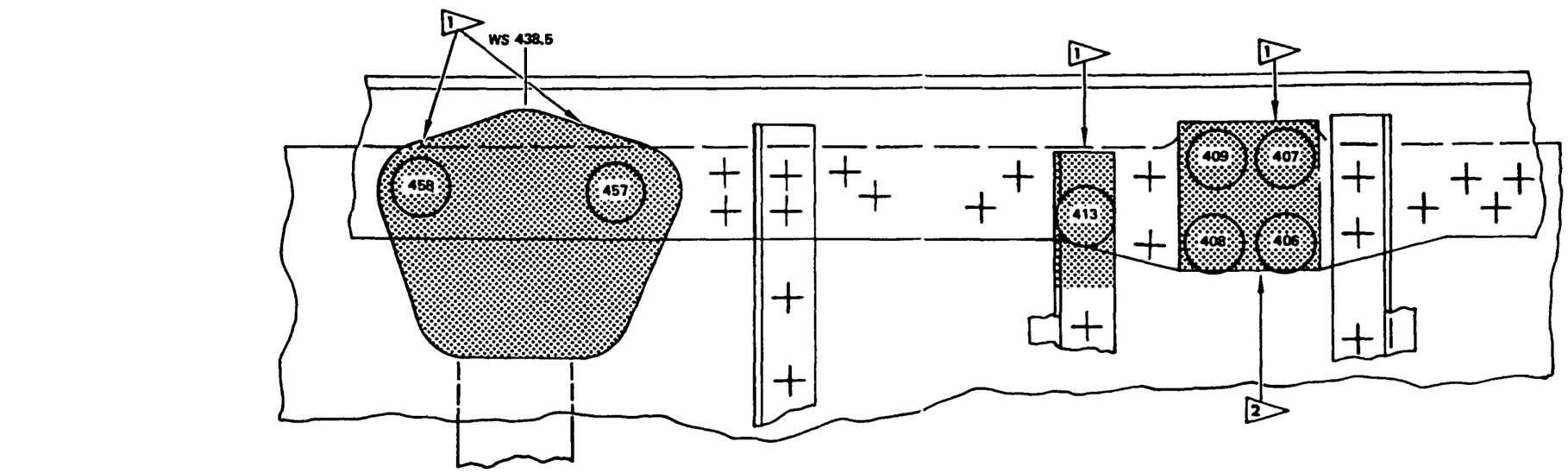
FITTINGS OR VERTICAL RIBS COMMON TO INSPECTION FASTENERS AND EXTERNAL TO REAR SPAR

1 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE AND SCAN ALONG EDGES OF FITTINGS – EXTERNAL INSPECTION

AREA TO BE INSPECTED
DETAIL I (CONT)

BOEING COMMERCIAL JET

NONDESTRUCTIVE TEST



NOTES

(13) FASTENER LOCATION TO BE INSPECTED

FITTINGS OR VERTICAL RIBS COMMON TO INSPECTION FASTENERS AND EXTERNAL TO REAR SPAR

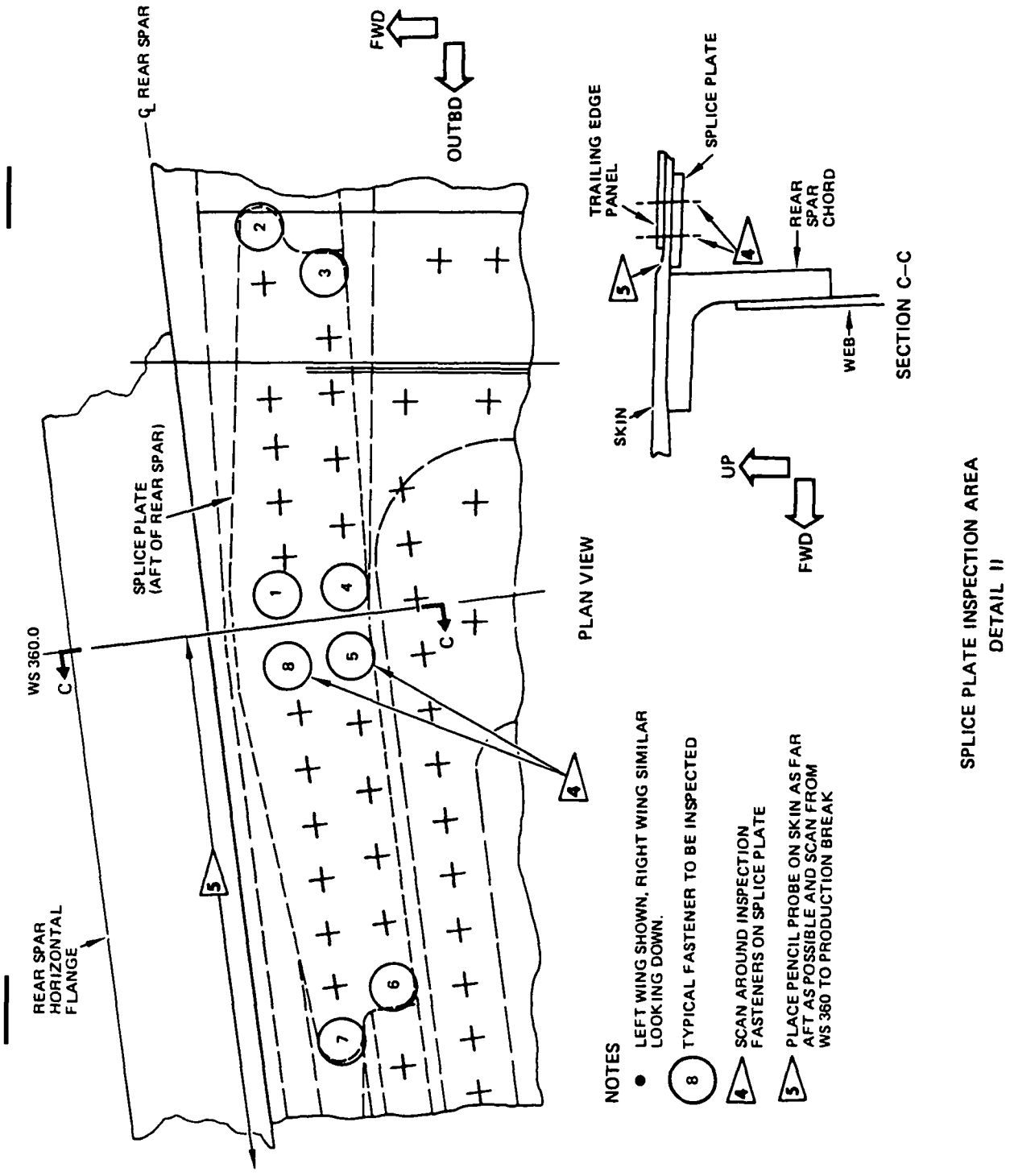
1 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE AND SCAN ALONG EDGES OF FITTINGS – EXTERNAL INSPECTION

2 PROBE ON EDGE OF REAR SPAR CHORD VERTICAL FLANGE AND SCAN BEHIND RIB. USE LOW PROFILE RIGHT ANGLE PROBE – EXTERNAL INSPECTION

3 PLACE PENCIL PROBE ON FLAPTRACK SUPPORT FITTING. SCAN ABOVE AND BELOW FASTENERS 1474 THRU 1477, 12 AND 13 – INTERNAL INSPECTION

DETAIL I

SECTION B–B



Wing Upper Panel Skin and Rear Spar Chord
Figure 60 (Sheet 9)

EFFECTIVITY
MODEL: 707-100/200 SERVICE BULLETIN REFERENCE: None SSI DOCUMENT (D6-44860) REFERENCE: SSD 57-A15-09 57-A15-12

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks at fastener holes common to the lower wing skin and rear spar chord in the horizontal flange. This inspection is accomplished from outside of the wing without fastener removal.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec Inc.
      1320 N.W. Mall
      Issaquah, WA 98027

   B. Probes - This procedure uses two probes; any probe of similar size which will satisfy the performance requirements of this procedure is acceptable. The following probes were used in the development of this procedure.

      (1) Ring (encircling) probe with 1-inch OD and 0.5-inch ID shielding, 100 Hz, Nortec P/N SPO-783

      (2) Ring (encircling) probe with 1.1-inch OD and 0.625-inch ID shielding, 100 Hz, Nortec P/N SPO-1154

      NOTE: Probes listed above are availabe from:
      Nortec Inc.
      421 N. Quay
      Kennewick, Washington 99336

      Specify instrument with which probe is to be used or instrument connector required when ordering probe.

Wing Lower Rear Spar Chord Horizontal Flange
Figure 61 (Sheet 1)

C. Manufacture Reference Standard per Detail I.

3. Prepare for Inspection

A. Wipe skin surface clean.

NOTE: It is suggested that fastener locations requiring the same instrument calibration for inspection be identified on the airplane by a colored circle. Water washable crayons or felt pens are suitable.

B. Refer to Table I and Detail III for inspection requirements.

4. Calibrate Instrument

A. Calibrate for fastener hole crack inspection using ring probe centered on the fastener for inspection codes A, B, C, D, E, and F.

(1) Identify code for fasteners to be inspected from Detail III.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

(3) Visually center probe over the unnotched reference standard hole, Position 1.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(6) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

(7) Center probe over the notched reference standard hole, Position 2. Response should be upscale.

(8) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(9) Recheck null and liftoff. If readjustments are made recheck sensitivity per par. B.(8).

(10) Cracks will be indicated by a higher meter response.

5. Inspection Procedure

NOTE: It is suggested that a copy of Detail III be made to record instrument responses at each fastener location. This is helpful in maintaining continuity between the groups of fasteners during inspection.

A. Inspect fastener holes for cracks using the ring probe or spot probe centered on the fastener (Inspection codes A, B, C, D, E, and F).

(1) Accomplish inspection of codes in the order given in Table I.

(2) Calibrate instrument per par. 4.A and Table I.

(3) Note on the airplane the location of those fasteners having the same inspection code by using Detail III.

(4) Use several fasteners of the same code to establish the airplane baseline response for an acceptable fastener. Some inspection codes may require more than one baseline due to differences in edge margin between forward and aft rows or distance between adjacent fasteners.

(a) Select a representative fastener from this group and set its response to 20% of full meter scale.

NOTE: Do not change instrument sensitivity when establishing the airplane baseline response.

(b) Refer back to this fastener periodically to ensure that the instrument response is the same as originally recorded. (Changes in meter response may occur as a result of instrument drift or probe temperature change).

(5) Inspect each fastener having the same inspection code by centering the probe on the fastener and manipulating to obtain a minimum response.

NOTE: Review the Special Notes of Table I for conditions which affect the inspection.

(6) Fastener locations which give a response which is 40% of full meter scale higher than the established baseline are potential crack indications and further investigation is required.

(7) The following conditions may cause meter reading changes similar to crack indications:

(a) A decrease in fastener spacing. Compare with similarly spaced fasteners on the airplane.

(b) Fastener spaced closer to edge of spar chord (second layer). Compare fastener alignment with adjacent fasteners.

(c) A larger or smaller fastener. Compare with similar fasteners of reference standard and on airplane.

(d) A fastener that is different in countersink depth. Compare with similar fastener in standard raised to the same height.

(e) A fastener closed to edge of skin. Compare with similar fasteners on airplane.

(f) Differences in conductivity between skin panels. Compare only the fastener locations common to a skin panel.

Wing Lower Rear Spar Chord Horizontal Flange
Figure 61 (Sheet 4)

Inspection Code [1]	Reference Standard No.	Probe Identification [2]	Instrument Frequency Hz	Detail No. for Calibration	Probe Calibration Position [3]	Special Notes
A	042	(1)	100	II	A	5
B	042	(2)	100	II	A	5
C	042	(2)	100	II	B	5
D	042	(2)	100	II	B	5, 4
E	042	(2)	100	II	B	
F	042	(2)	100	II	B	4

Calibration Table
Table I

NOTES

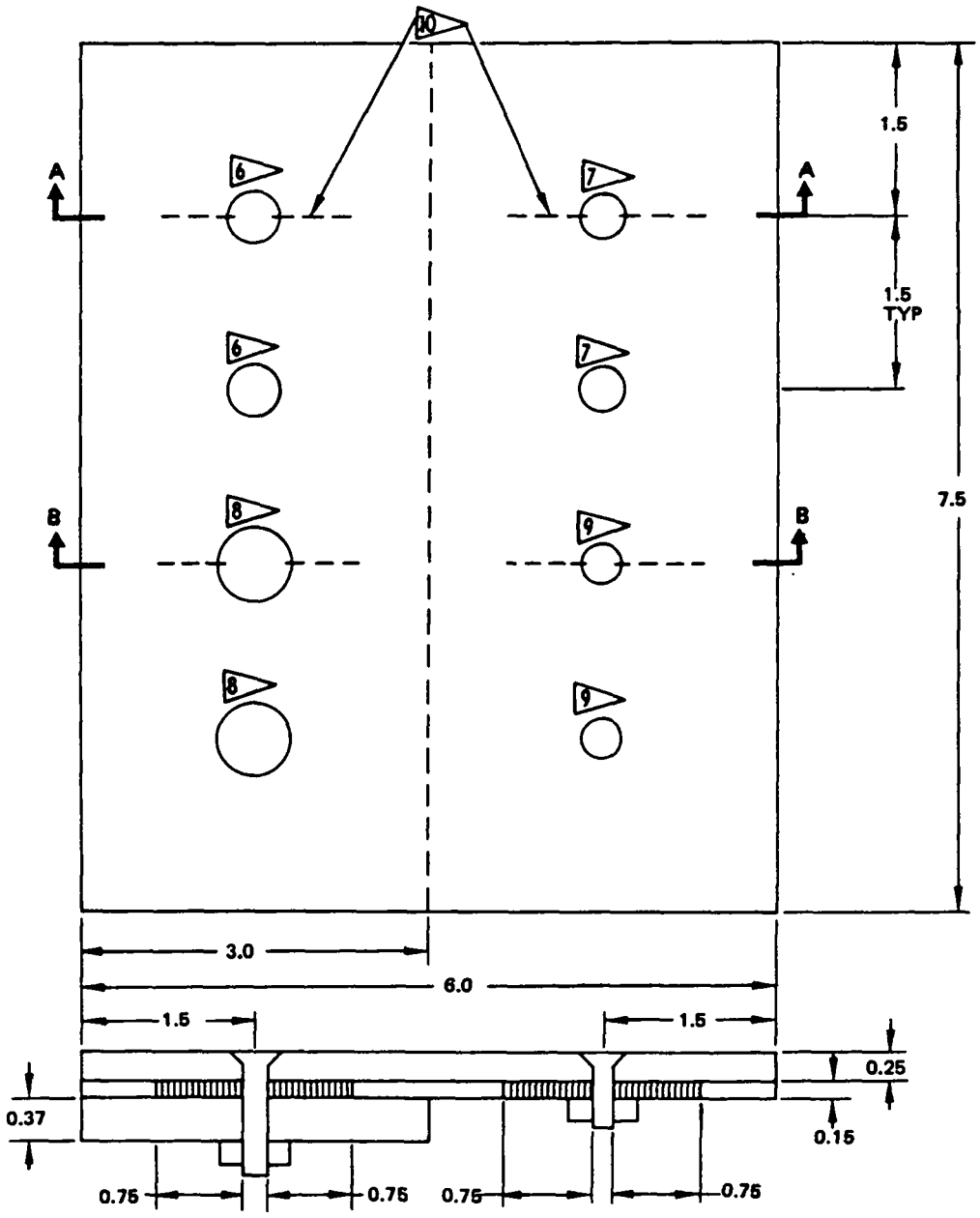
[1] Code for specific inspection areas identified on Detail III to which the calibration requirements apply.

[2] Probe Identification:
(1) SPO 1154 (1-inch OD and 0.62-inch ID ring probe).
(2) SPO 783 (1.0-inch OD and 0.5-inch ID ring probe).

[3] Refers to Detail II, which identifies that section of the reference standard used for calibration.

[4] The total structure thickness decreases in the outboard direction. Use similar adjacent fasteners on the inboard and outboard side of the inspection fastener (unless they are covered by a different inspection code) to establish the baseline response for the inspection fastener.

[5] See Detail III for fastener locations where specific fasteners are to be used in establishing the baseline response.



SECTION A–A

SECTION B–B

NOTES

- TOLERANCE: X.X ± 0.05 X.XX ± 0.02
- MATERIAL: 2024T3 OR T4 ALUMINUM
- ETCH OR STEEL STAMP WITH 042
- P/N 6412–82
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA

6 BAC830FN8–12 FASTENERS; BACC30M8 COLLAR

7 BAC830FN8–6 FASTENERS; BACC30M8 COLLAR

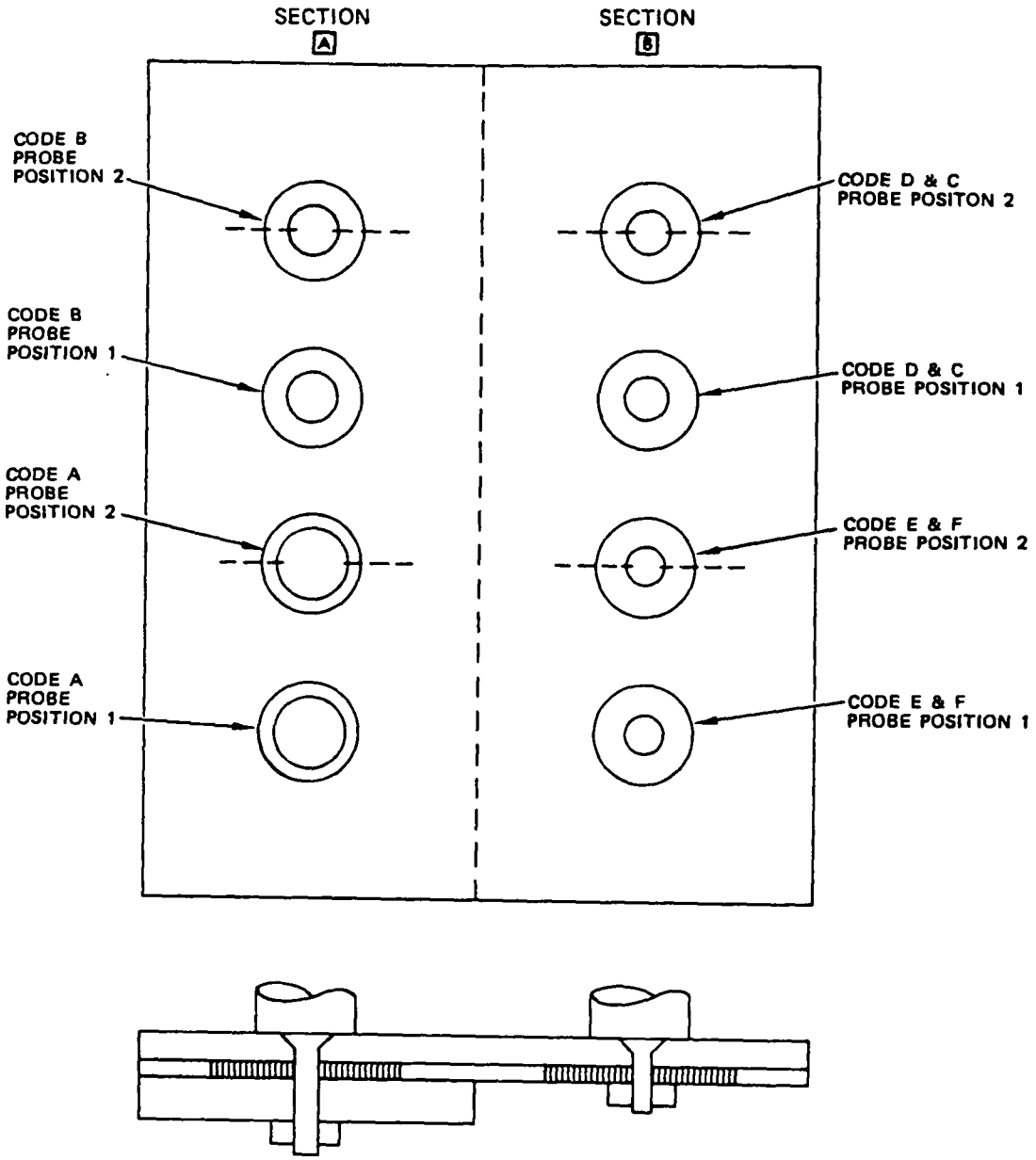
8 BAC830LU5–12 FASTENERS; BACN10JC5 NUT

9 BAC830FN6–6 FASTENERS; BACC30M6 COLLAR

10 JEWELER'S SAWCUT 0.030 MAX WIDTH (8 PLACES)

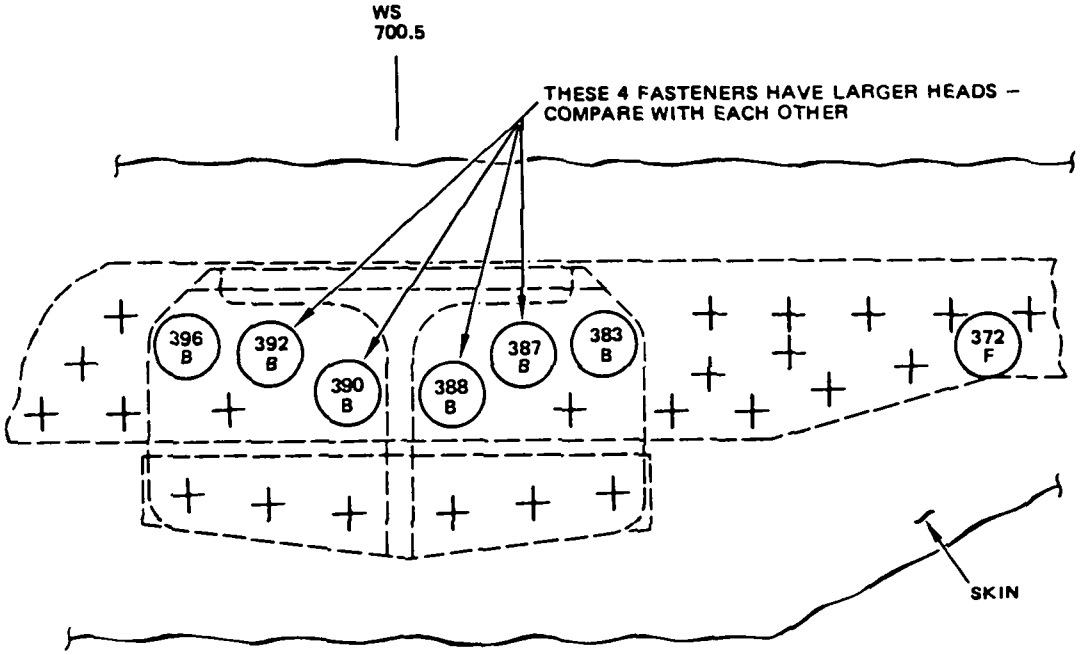
REFERENCE STANDARD 042

DETAIL I



PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD 042

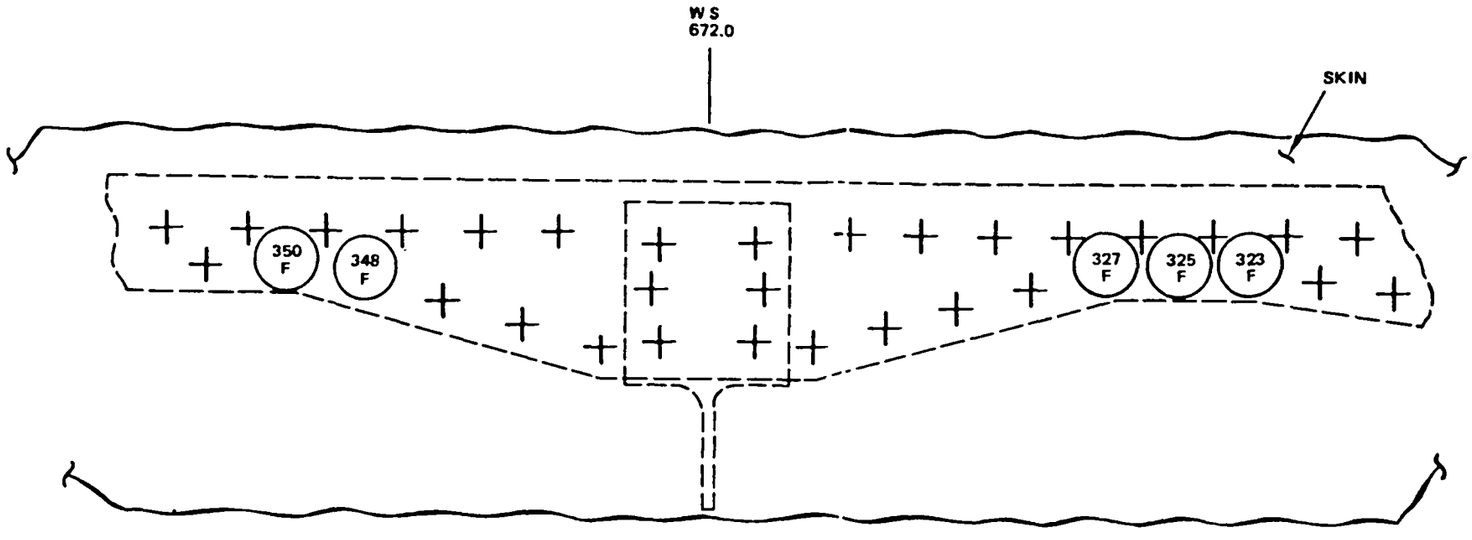
DETAIL II

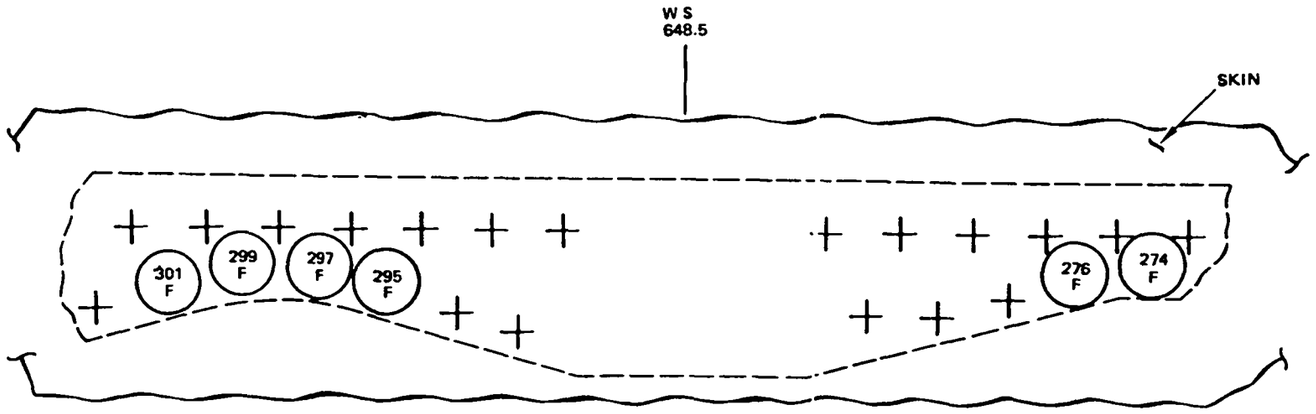


NOTES

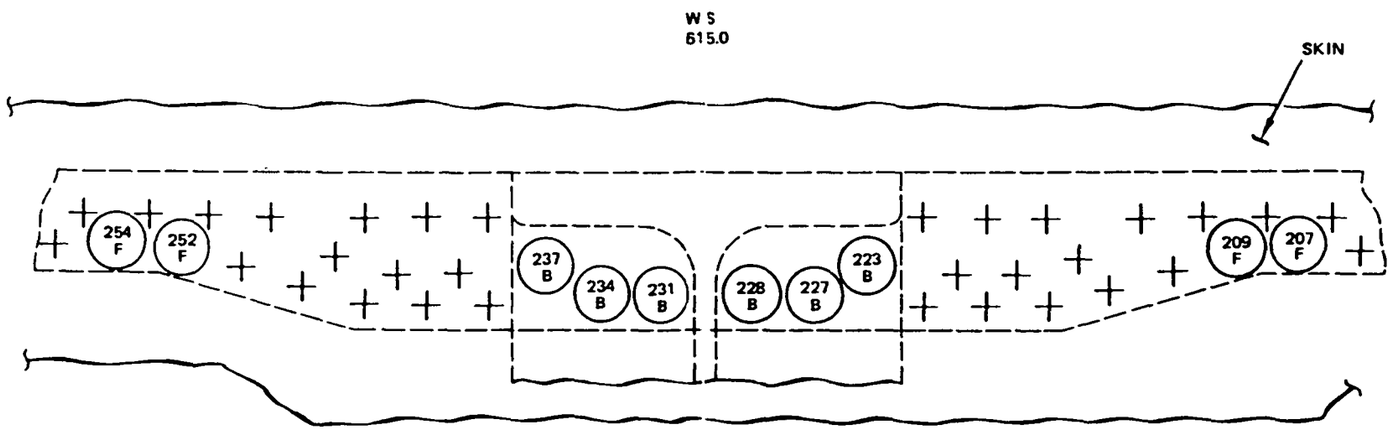
372 F — FASTENER TO BE INSPECTED

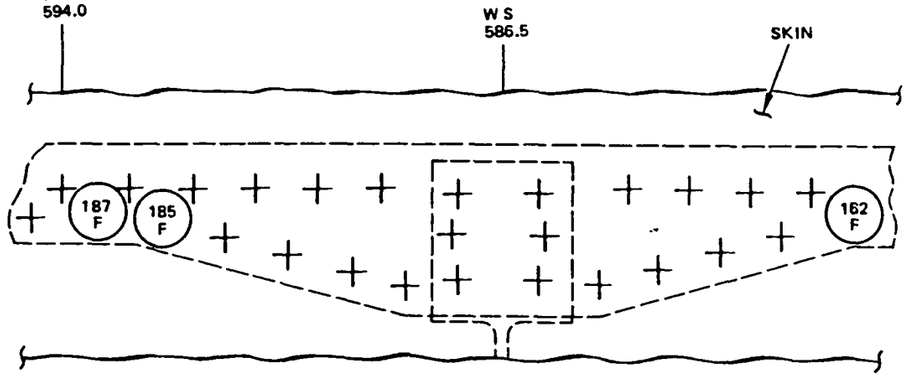
DETAIL III

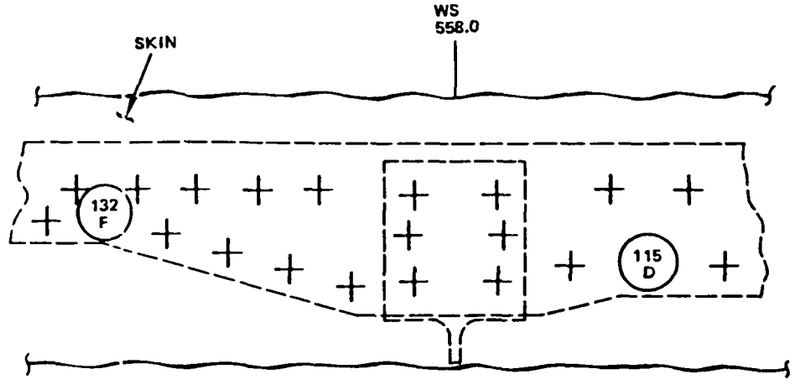




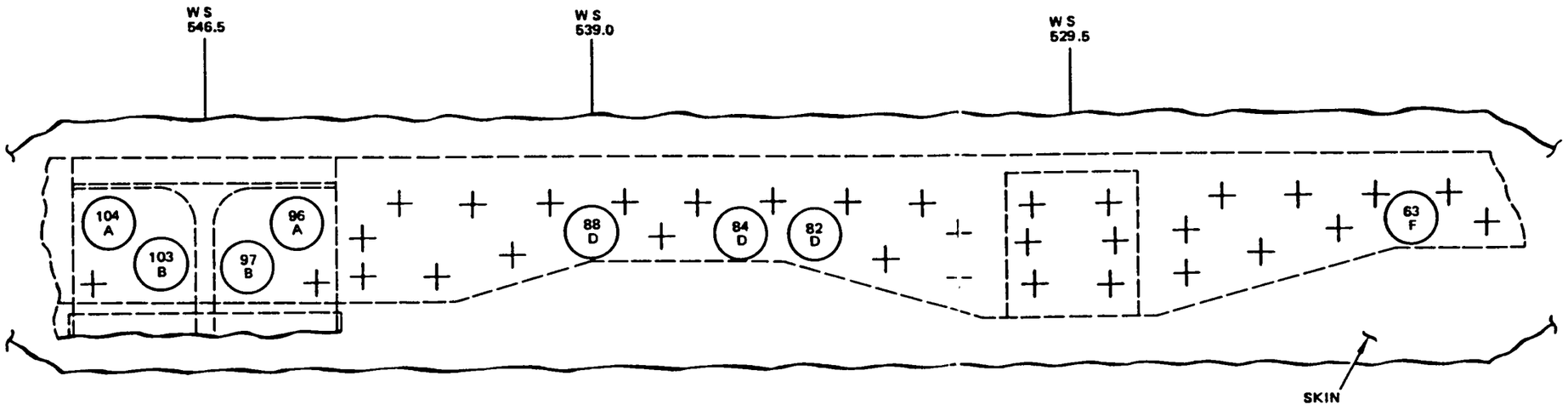
DETAIL III (CONT)

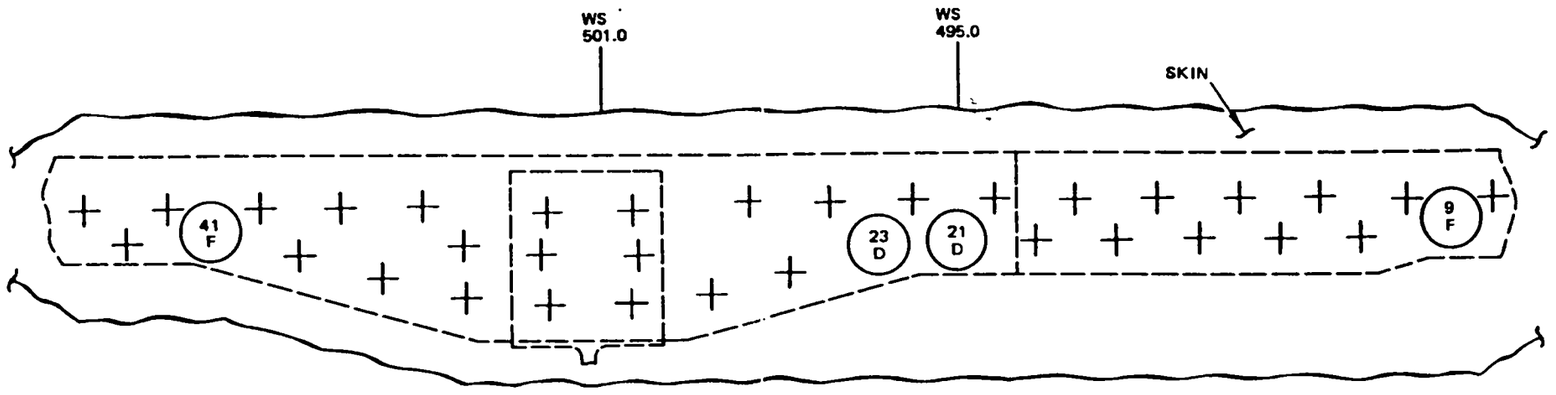






DETAIL III (CONT)





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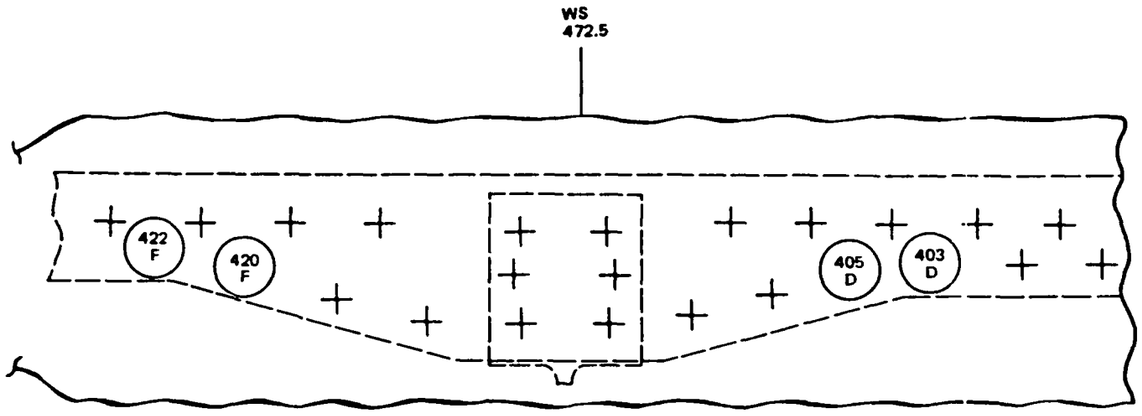

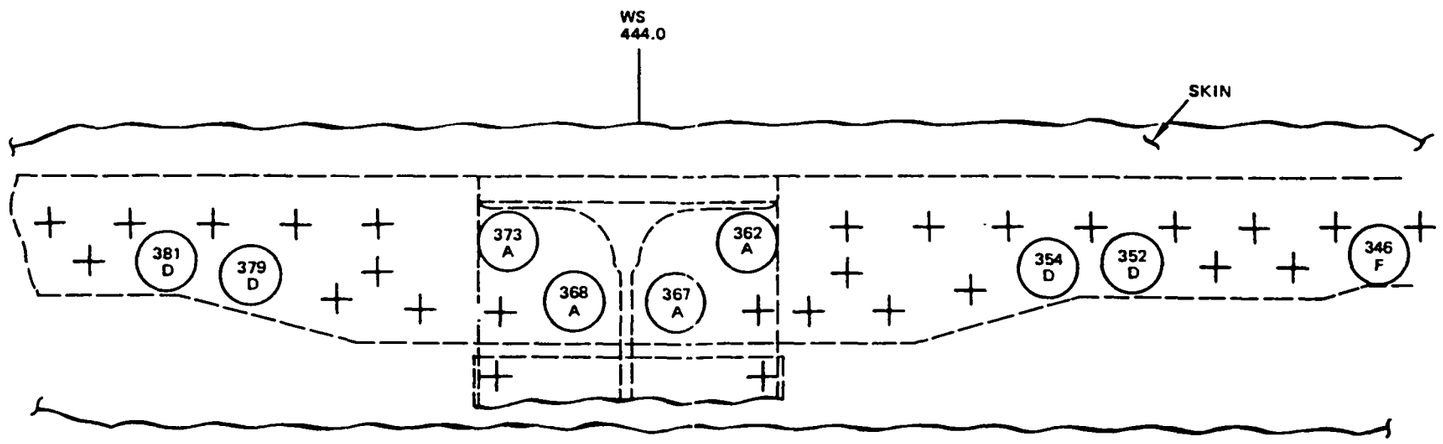

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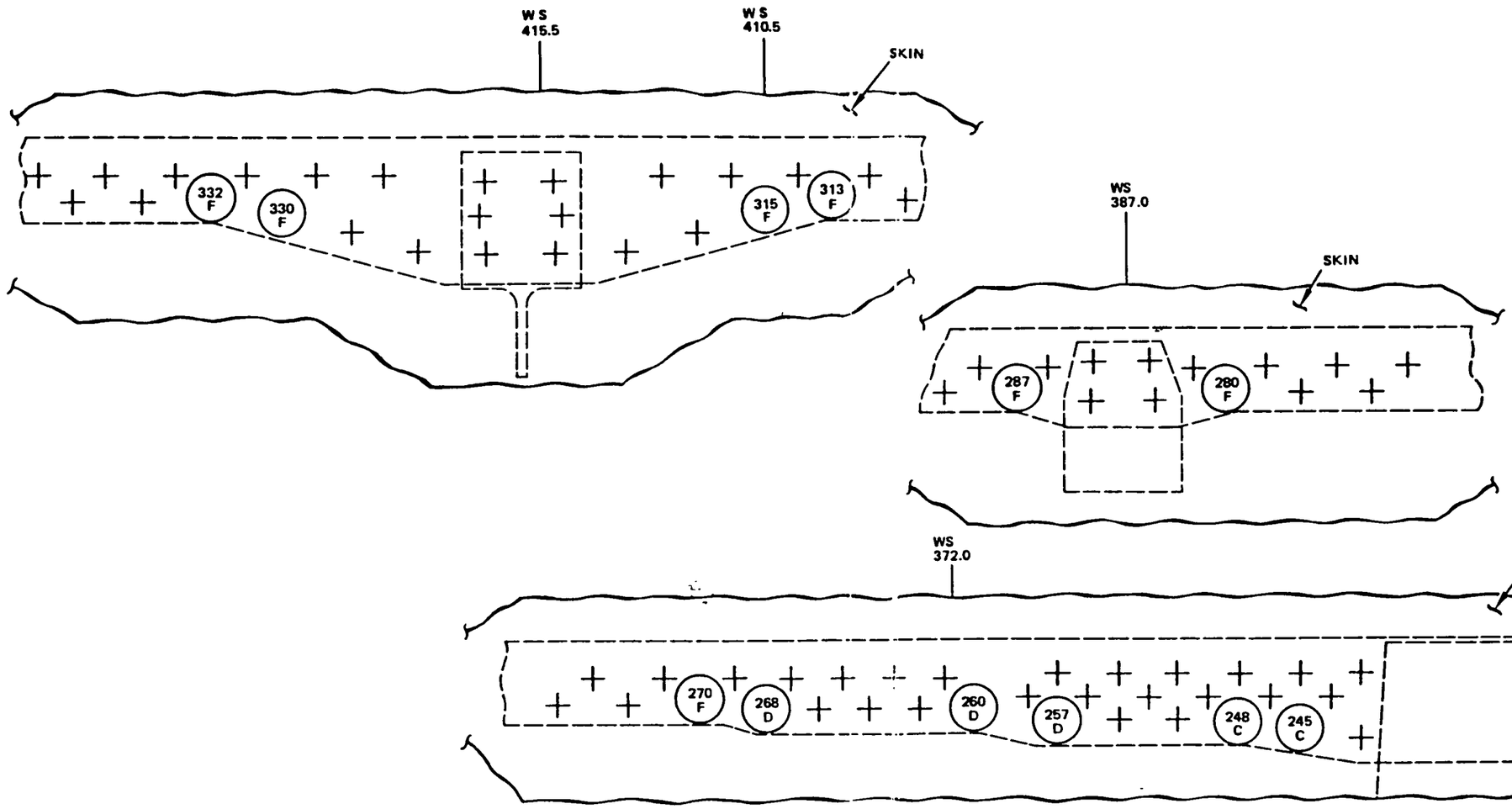

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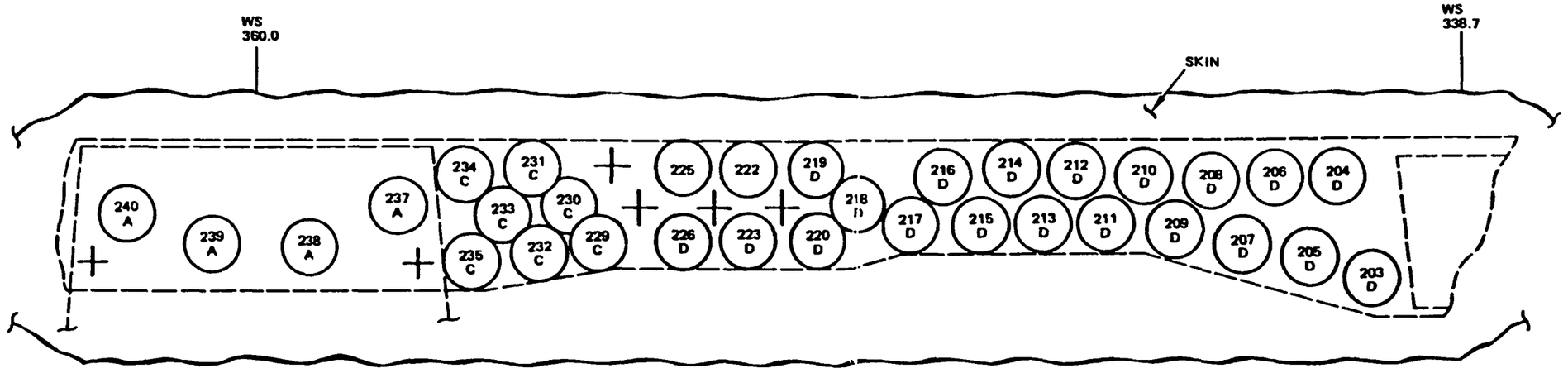
WS 360.0
SKIN
WS 338.7
240 A
239 A
238 A
237 A
234 C
231 C
233 C
230 C
235 C
232 C
229 C
225
222
219 D
226 D
223 D
220 D
218 D
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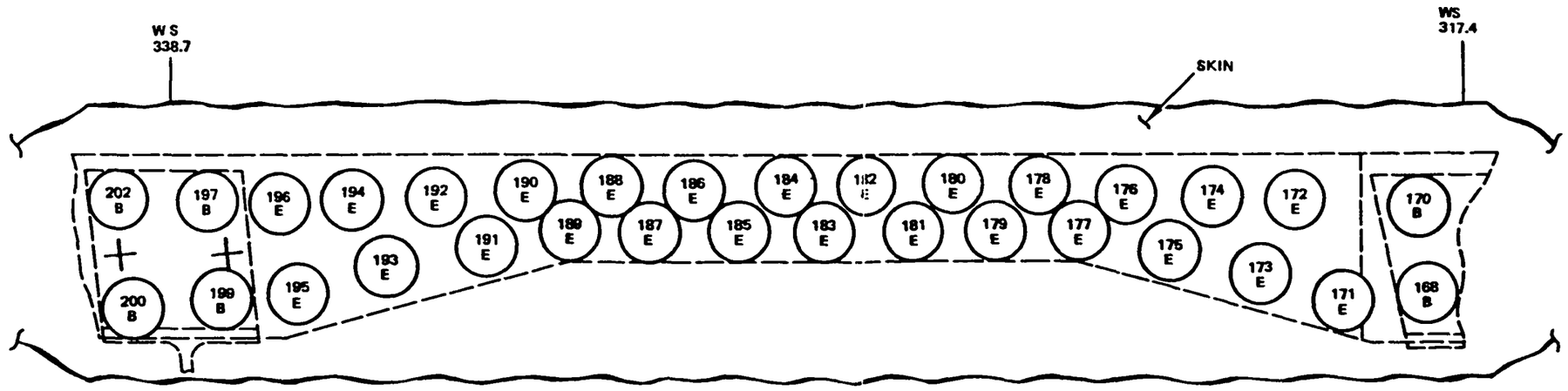
209 D
207 D
205 D
203 D


WS 338.7
SKIN
WS 317.4
202 B
197 B
196 E
194 E
192 E
190 E
188 E
186 E
184 E
182 E
180 E
178 E
176 E
174 E
172 E
170 B
200 B
199 B
195 E
193 E
191 E
189 E
187 E
185 E
183 E
181 E
179 E
177 E
175 E
173 E
171 E
168 B

DETAIL III

EFFECTIVITY:
MODEL: 707/720 SERVICE BULLETION REFERENCE: 2492 SSI DOCUMENT (D6-44860) REFERENCE: SSD 57-A05-15 57-A15-15 57-A25-15 57-A35-15 57-A45-15

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect surface cracks at specified wing fuel boost pump cutouts and adjacent structure using high frequency eddy current.

   B. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Instrument - Any eddy current instrument that satisfies the requirements of this procedure is suitable. Refer to Part 6, 51-00-00, Figure 4.

   B. Probes - Any probe that satisfies the requirements of this procedure. The following was used in the development of this procedure:

      (1) Right angle shielded pencil probe per Part 1, 51-06-00, Figure 1.

   C. Reference Standard - Refer to Part 6, 51-00-00, Figure 4.

3. Prepare for Inspection

   A. External

      (1) Remove cover plates from wing fuel boost pump locations.

      (2) Wipe surface clean.

Wing Fuel Boost Pump Cutouts
Figure 62 (Sheet 1)

B. Internal

(1) Drain and purge wing fuel cells inboard and outboard of WS 360 to allow fuel tank entry with an eddy current instrument.

(2) Gain access to wing fuel cells.

(3) Remove sealant and sealant caps as necessary to perform inspections.

(4) Wipe surface clean.

4. Calibrate instrument per Part 6, 51-00-00, Fig. 4.

5. Inspection Procedure (Internal and External)

A. See Table I for appropriate inspection detail for a particular airplane.

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

B. Scan probe around fasteners, straps, splice plates, and flanges at designated locations per Part 6, 51-00-00, Fig. 4.

Wing Fuel Boost Pump Cutouts
Figure 62 (Sheet 2)

AIRPLANE MODEL	EFF	EXTERNAL INSPECTION DETAILS			INTERNAL INSPECTION DETAILS			
		INBD WS 360.0	OUTBD WS 360.0	SIDE OF BODY	INBD WS 360.0	OUTBD WS 360.0	WS 360 SPLICE TEE	SIDE OF BODY
720	ALL	IV	IV	VIII	XIII	X	IX	XVI
100/200	ALL	IV	V	VIII	XIII	XI	IX	XVI
300/400	1	IV	V	VIII	XIII	XI	IX	XVI
	2	VI	VII	VIII	XIV	XII	IX	XVII
	3	VI	VII	VIII	XV	XII	IX	XVII
	3	VI	VII	VIII	XV	XII	IX	XVII

BOOST PUMP INSPECTION DETAIL REFERENCE
TABLE I

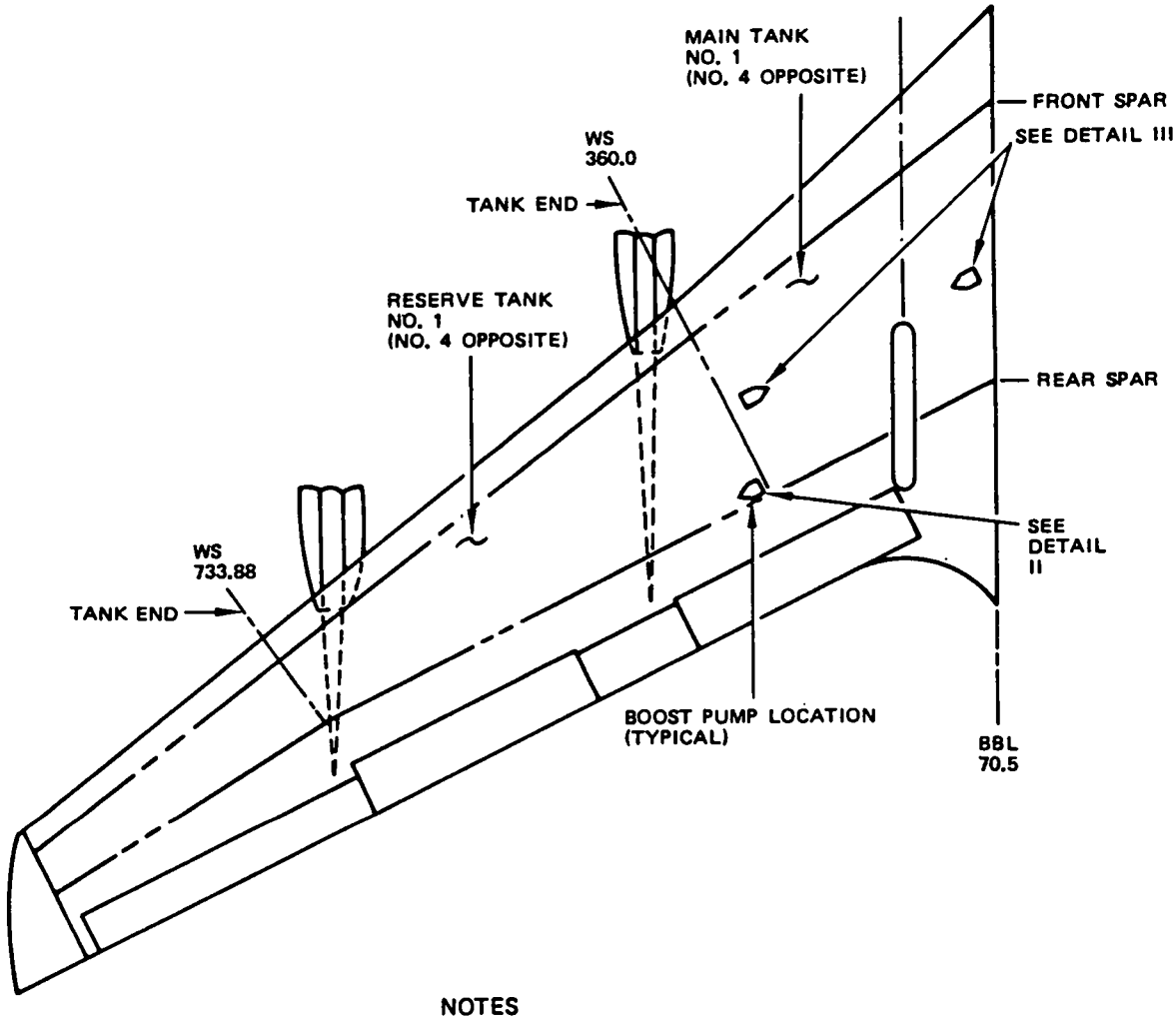
NOTES

1 CUM LINE NO'S: 13, 20, 35, 58, 61, 62, 65, 68 thru 71, 73 thru 76, 78 thru 84, 86, 88 thru 94, 98 thru 101, 103 thru 107, 110 thru 118, 121 thru 129, 133 thru 139, 144, 145, 151 thru 155, 159 thru 164, 167 thru 171, 175, 176, 192, 200, 205, 209, 216, 217, 264, 266, 268 thru 272, 274 thru 276, 282, 283, 287, 292, 293, 302, 303, 305, 320, 323, 325 thru 336, 341 thru 346, 348 thru 350, 352 thru 360, 361 thru 373, 375 thru 379, 383, 386, 387, 389, 394, 397 thru 400, 402 thru 409, 411 thru 413, 415 thru 419, 421, 424, 425, 428, 430, 431, 434 thru 441, 443 thru 469, 471, 472, 475 thru 478, 480, 482 thru 485, 487, 488, 494 thru 505, 507 thru 511, 513, 515 thru 525, 527 thru 529, 531, 532, 534, 536 thru 538, 540 thru 557, 559 thru 561, 563, 566, 568, 570, 572, 574, 576, 578, 580, 582, 584, 585, 587, 588, 590, 592, 594, 596, 599, 601, 603, 605, 607 thru 614, 616 thru 620, 623, 625 thru 668, 670, 671, 689, 693, 703, 707, 716, 737, 845 and 846.

2 CUM LINE NO'S: 672 thru 679, 681, 683 thru 688, 690 thru 692, 694 thru 702, 704 thru 706, 708 thru 715, 717 thru 730

3 CUM LINE NO'S: 731 thru 770, 772 thru 776, 778 thru 786, 788 thru 793, 795 thru 800, 802 thru 897, 899, 900, 903, 905, 906, 908, 910 thru 912, 914, 915, 917 thru 919, 922, 923, 925, 928, 929, and on

Wing Fuel Boost Pump Cutouts
Figure 62 (Sheet 2A)



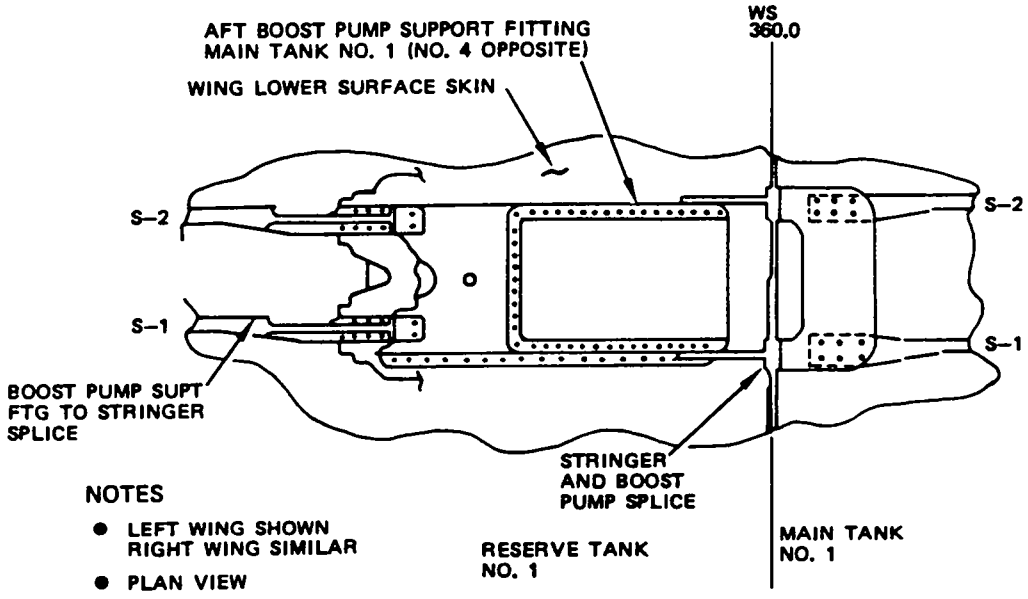
NOTES

- LEFT WING SHOWN
  RIGHT WING SIMILAR
- PLAN VIEW

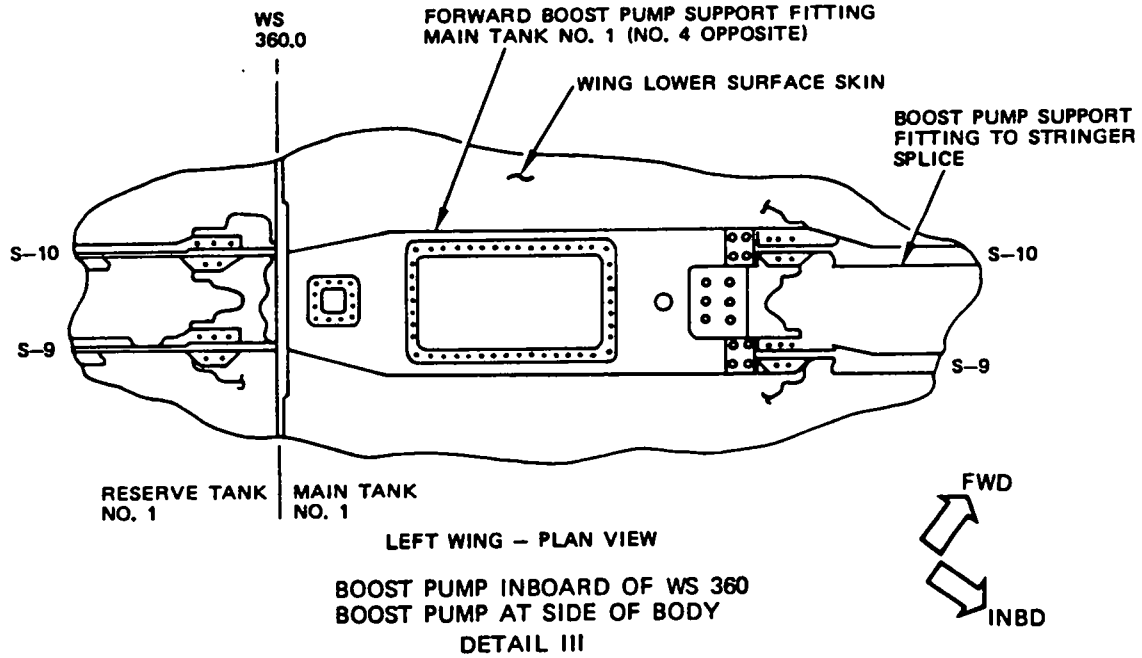
WING FUEL BOOST PUMP CUTOUTS
INSPECTION LOCATIONS

DETAIL I

Wing Fuel Boost Pump Cutouts
Figure 62 (Sheet 3)



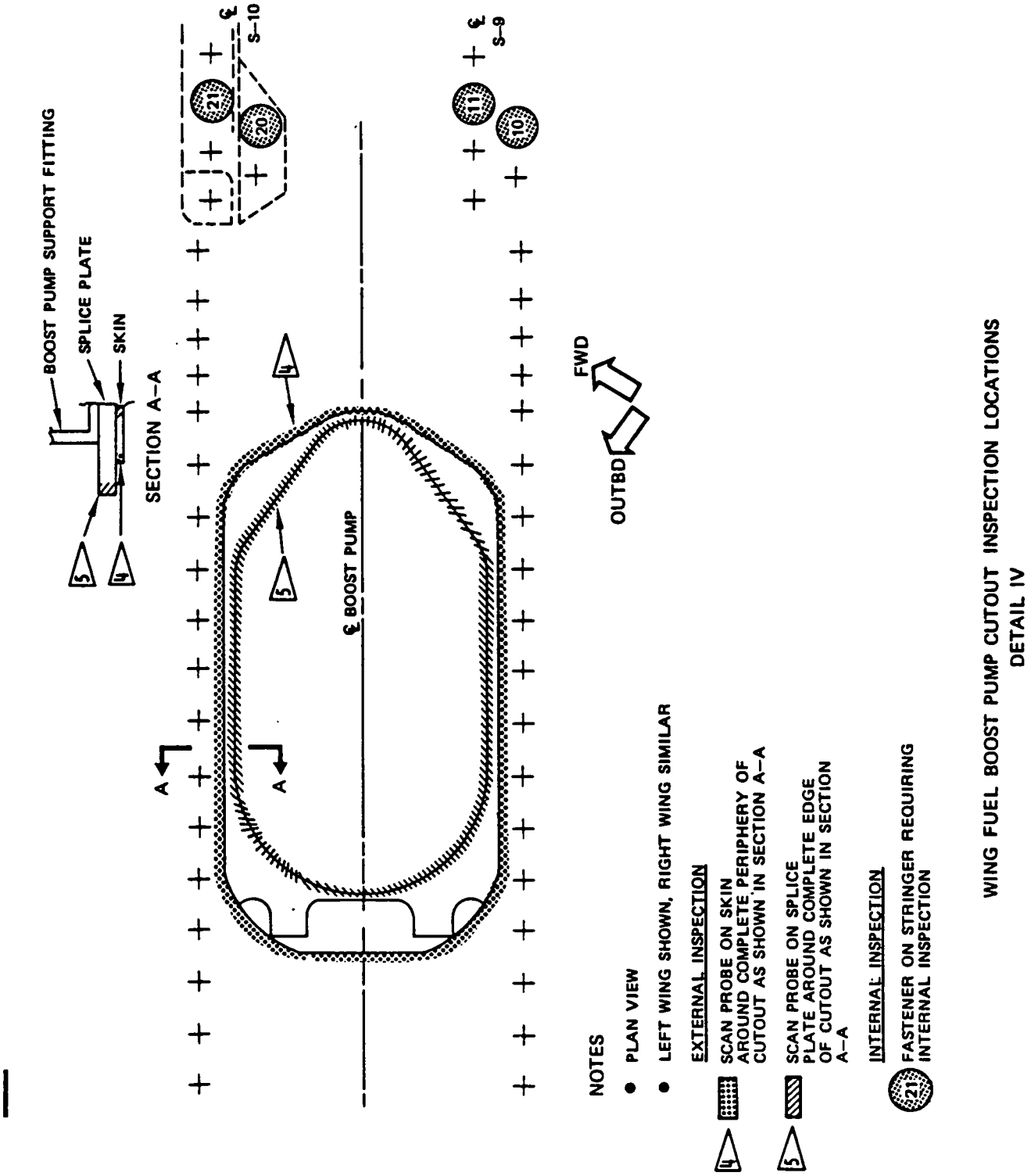
BOOST PUMP OUTBOARD OF WS360
DETAIL II



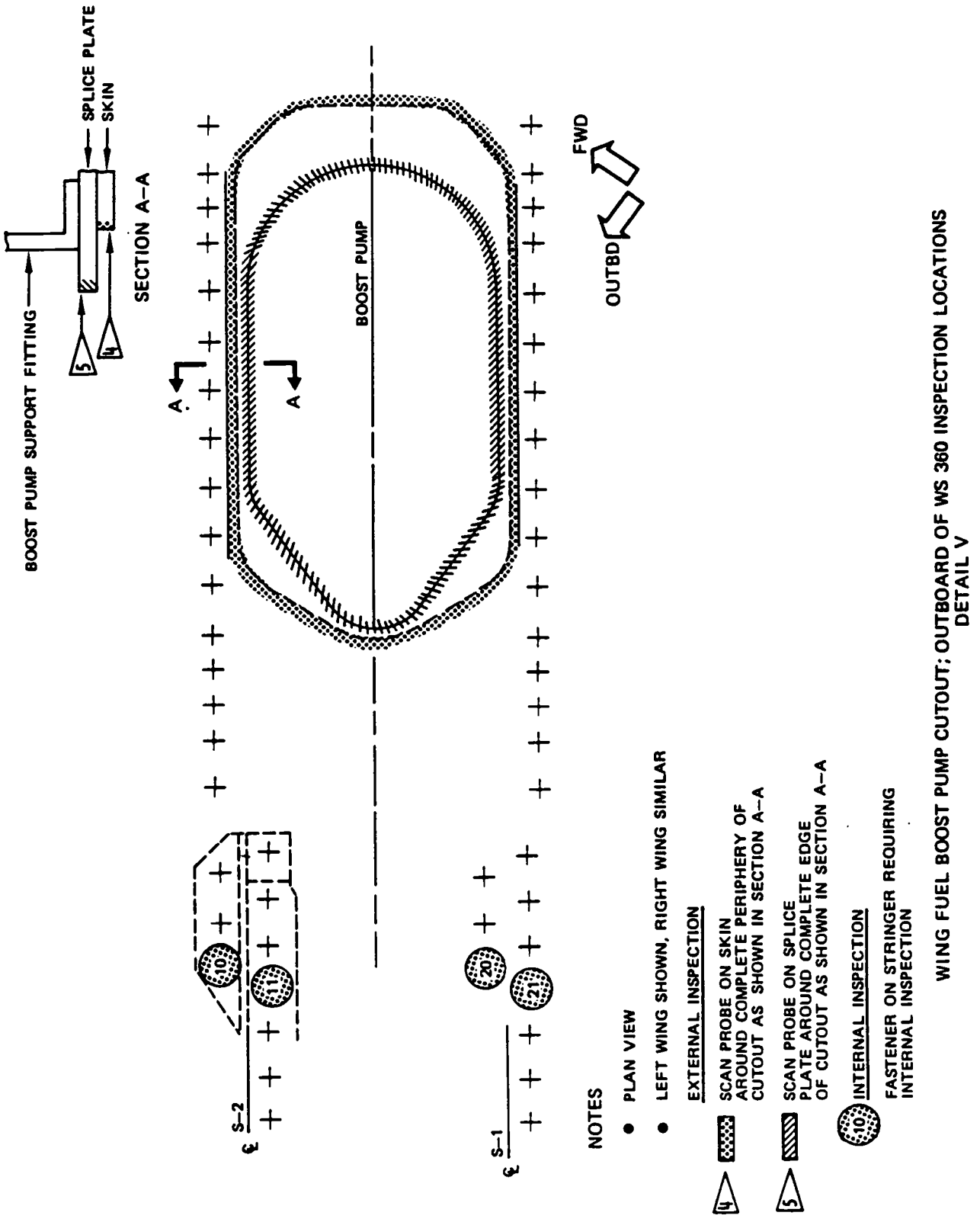
LEFT WING – PLAN VIEW

BOOST PUMP INBOARD OF WS 360
BOOST PUMP AT SIDE OF BODY
DETAIL III

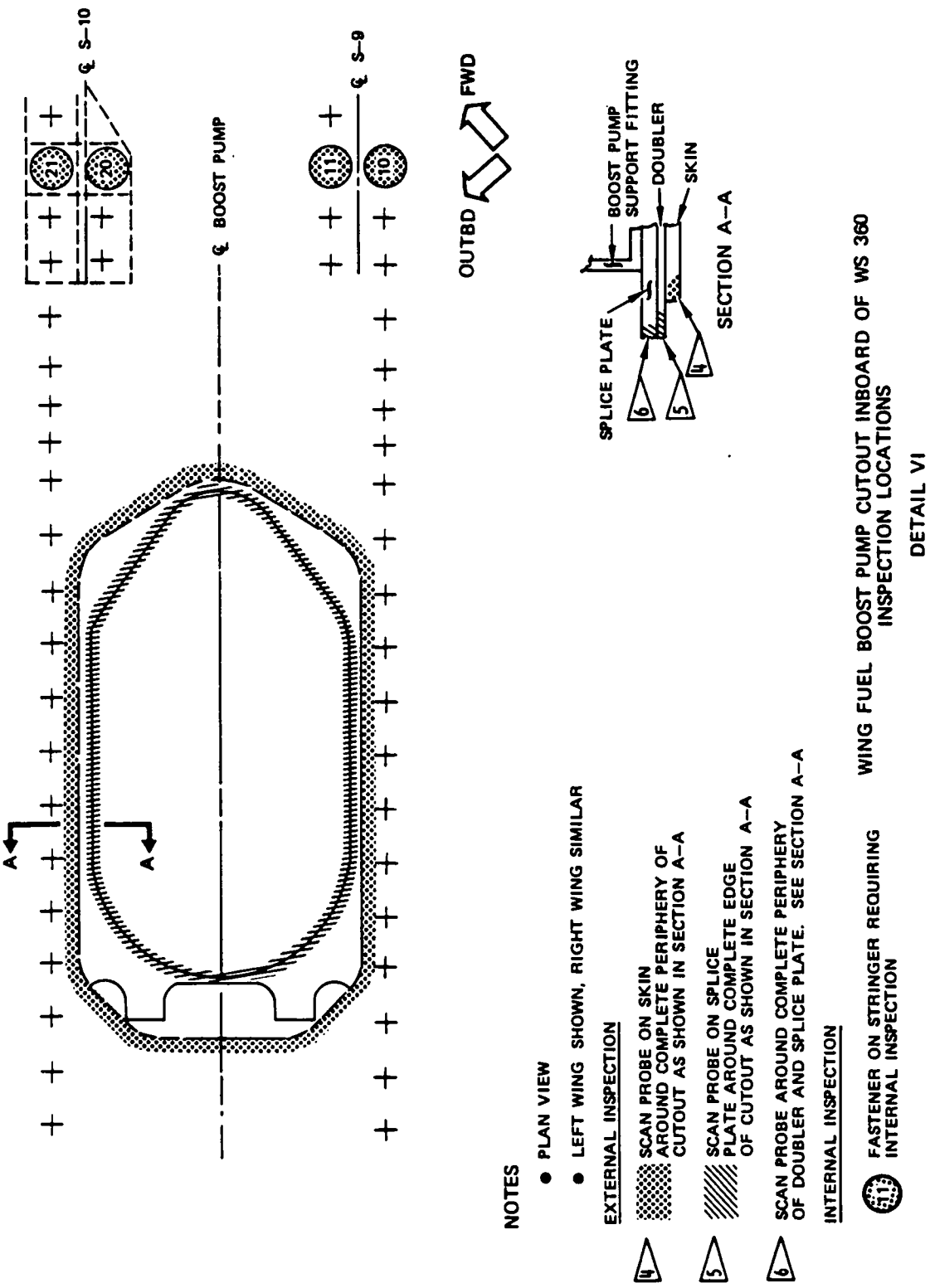
Wing Fuel Boost Pump Cutouts
Figure 62 (Sheet 4)



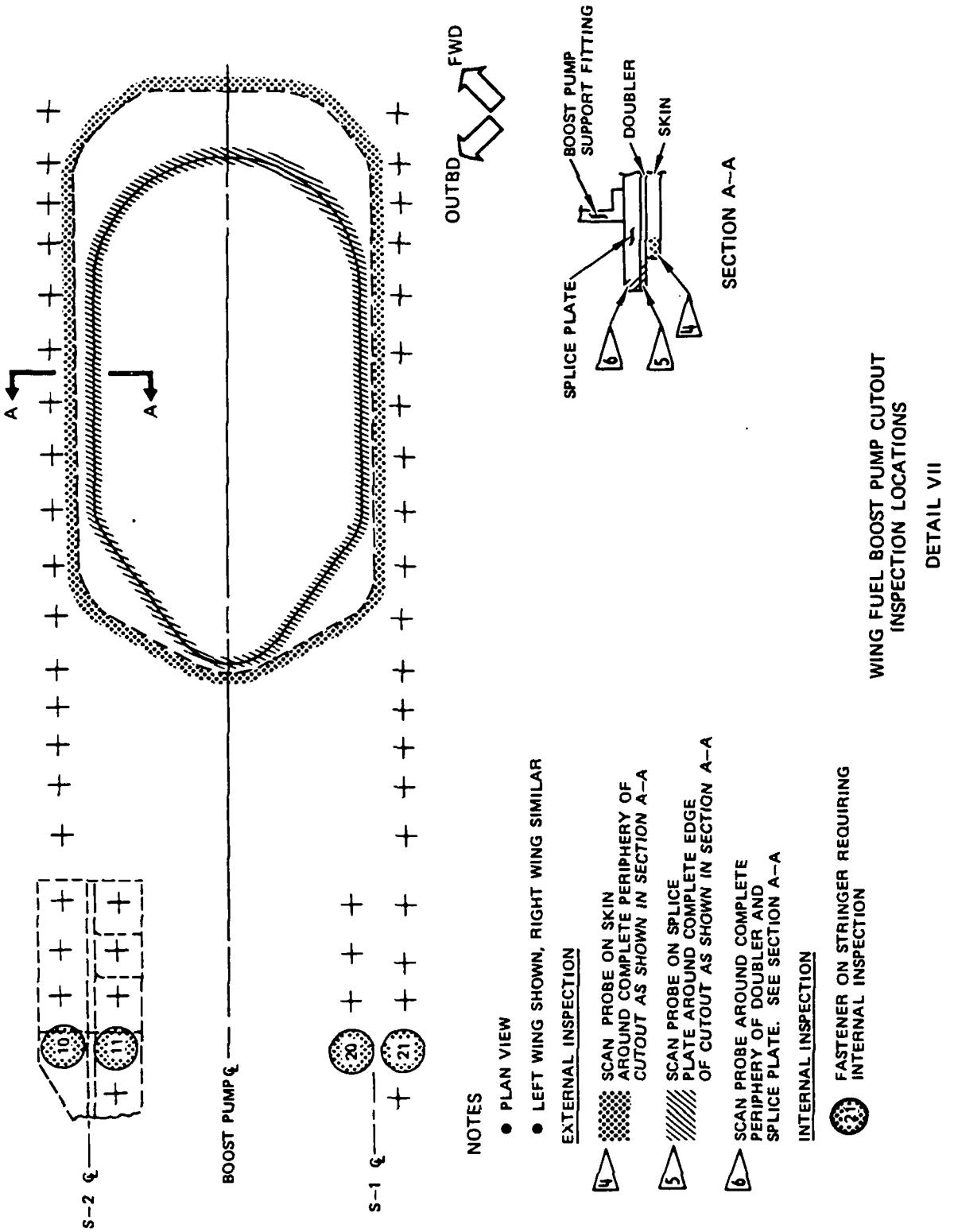
Wing Fuel Boost Pump Cutouts
Figure 62 (Sheet 5)



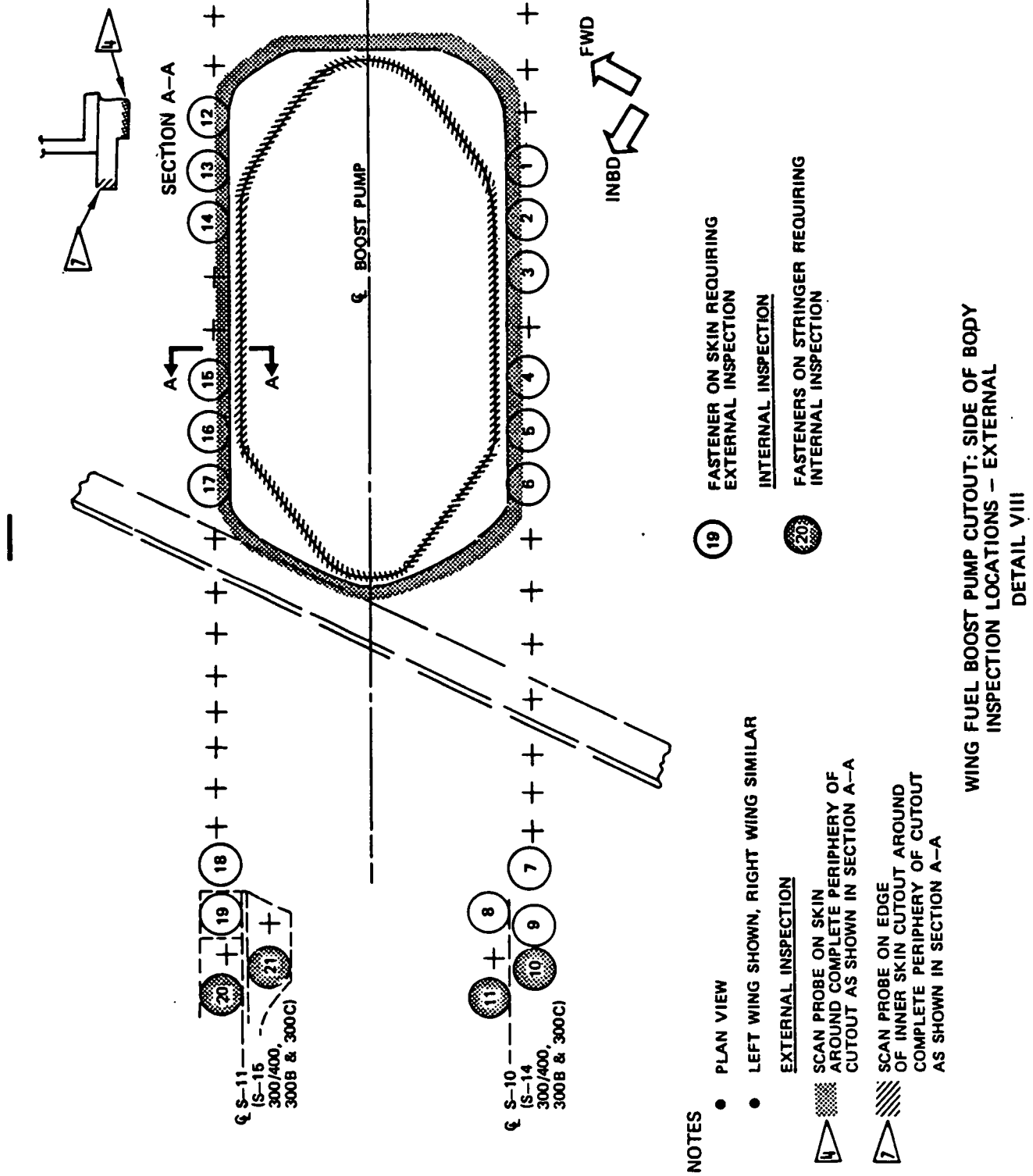
Wing Fuel Boost Pump Cutouts
Figure 62 (Sheet 6)



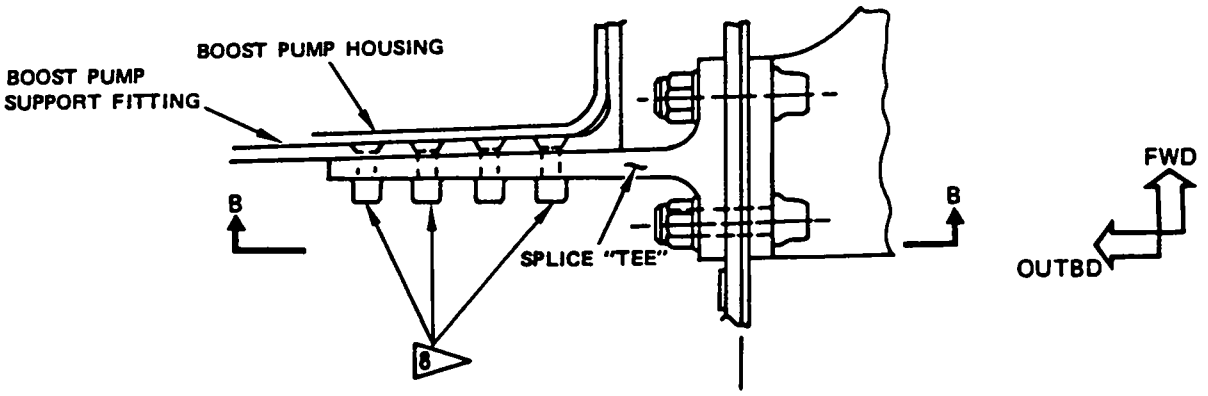
Wing Fuel Boost Pump Cutouts
Figure 62 (Sheet 7)



Wing Fuel Boost Pump Cutouts
Figure 62 (Sheet 8)



Wing Fuel Boost Pump Cutouts
Figure 62 (Sheet 9)



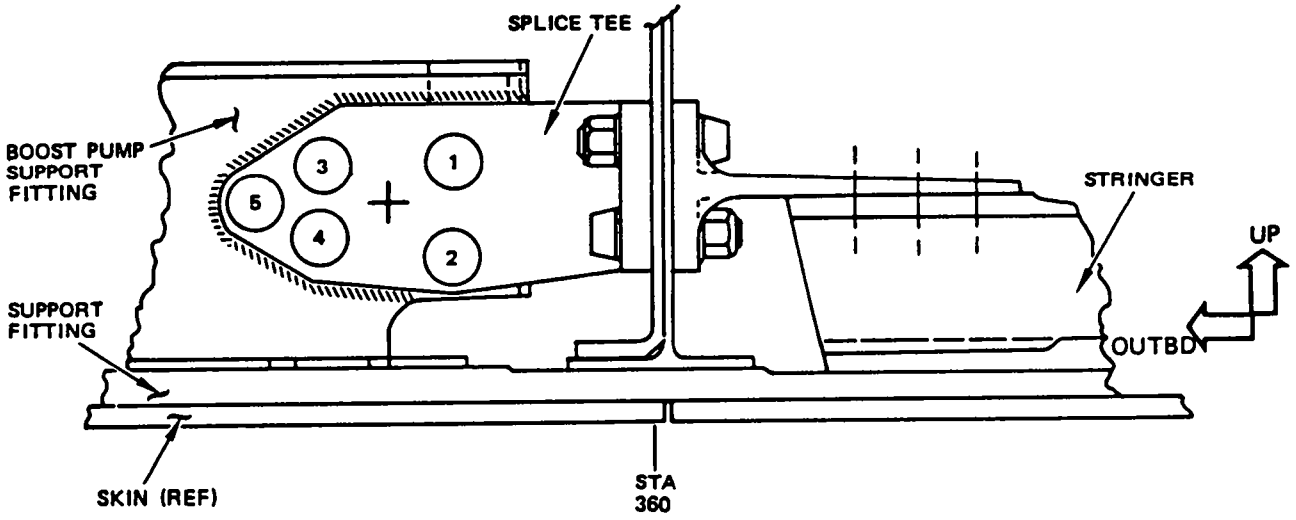
NOTES

- STRINGER 1 SHOWN
  STRINGER 2 TYPICAL
- LEFT WING SHOWN, RIGHT WING SIMILAR

PLACE PENCIL PROBE ON BOOST PUMP SUPPORT FITTING AND SCAN AROUND SPLICE TEE

(X) PLACE PENCIL PROBE ON SPLICE TEE AND SCAN AROUND FASTENER HEAD

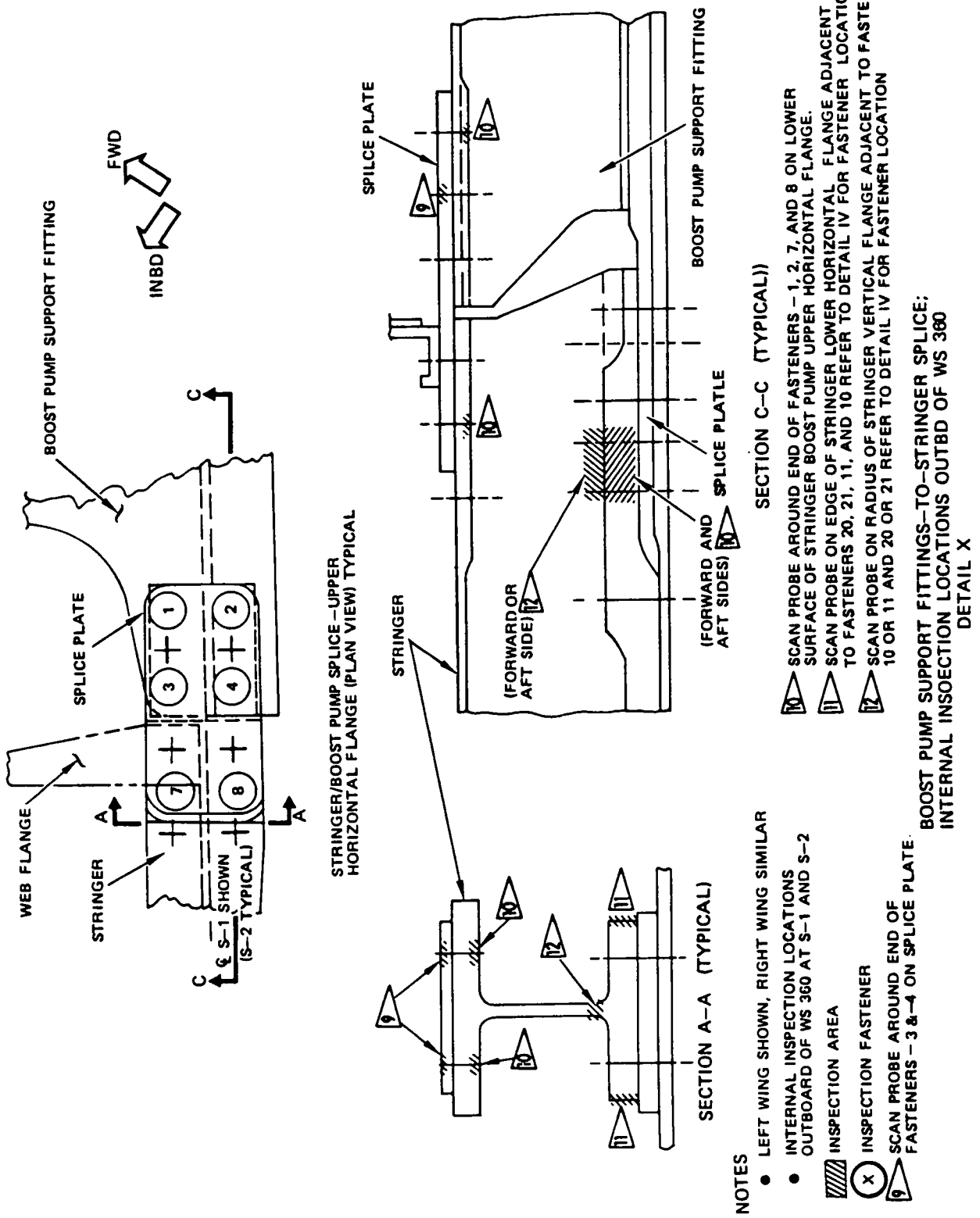
8 SCAN AROUND FASTENERS



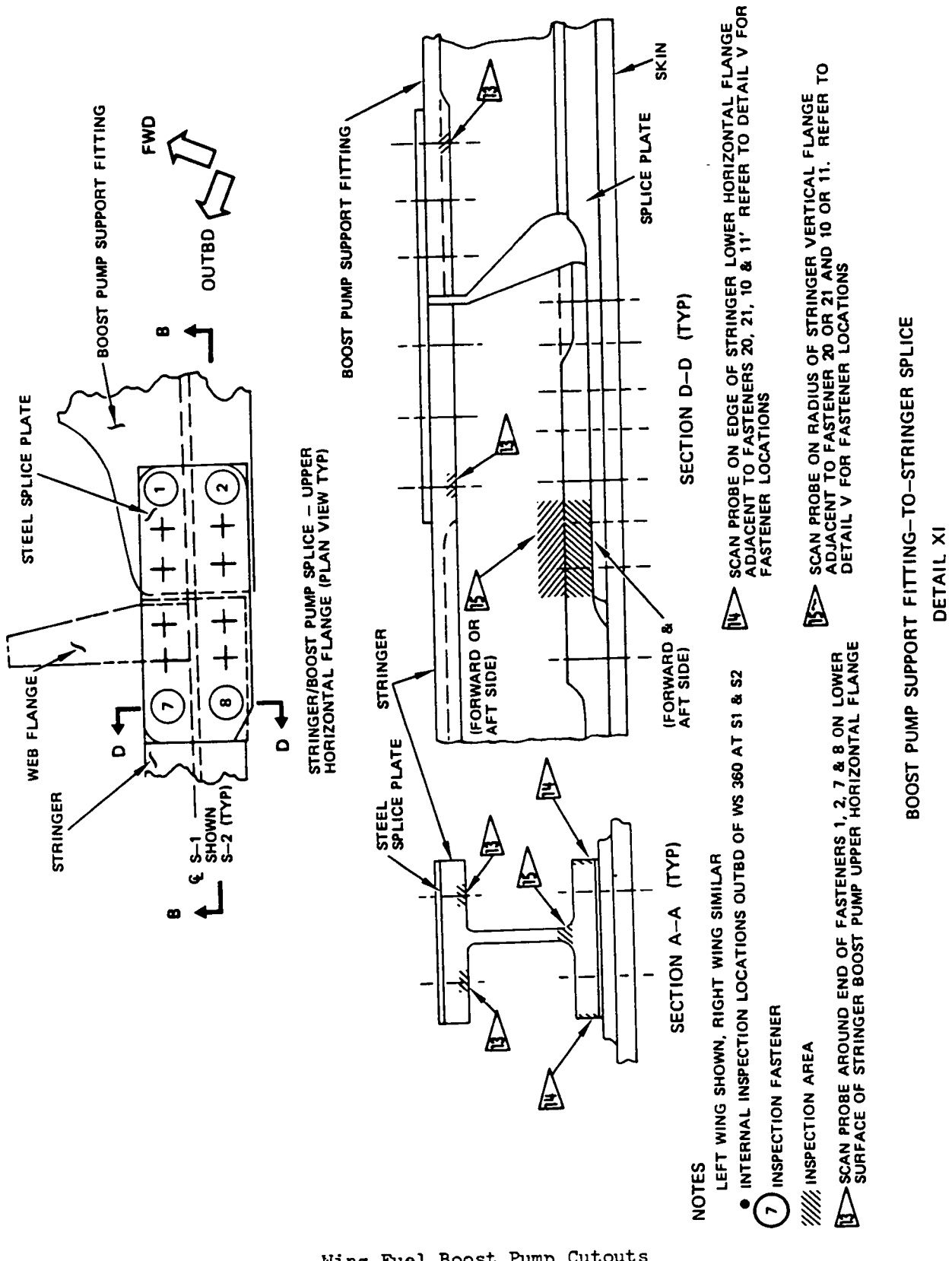
SECTION B–B (TYPICAL)

STRINGER AND BOOST PUMP SPLICE AT WS 360;
INTERNAL INSPECTION LOCATIONS
DETAIL IX

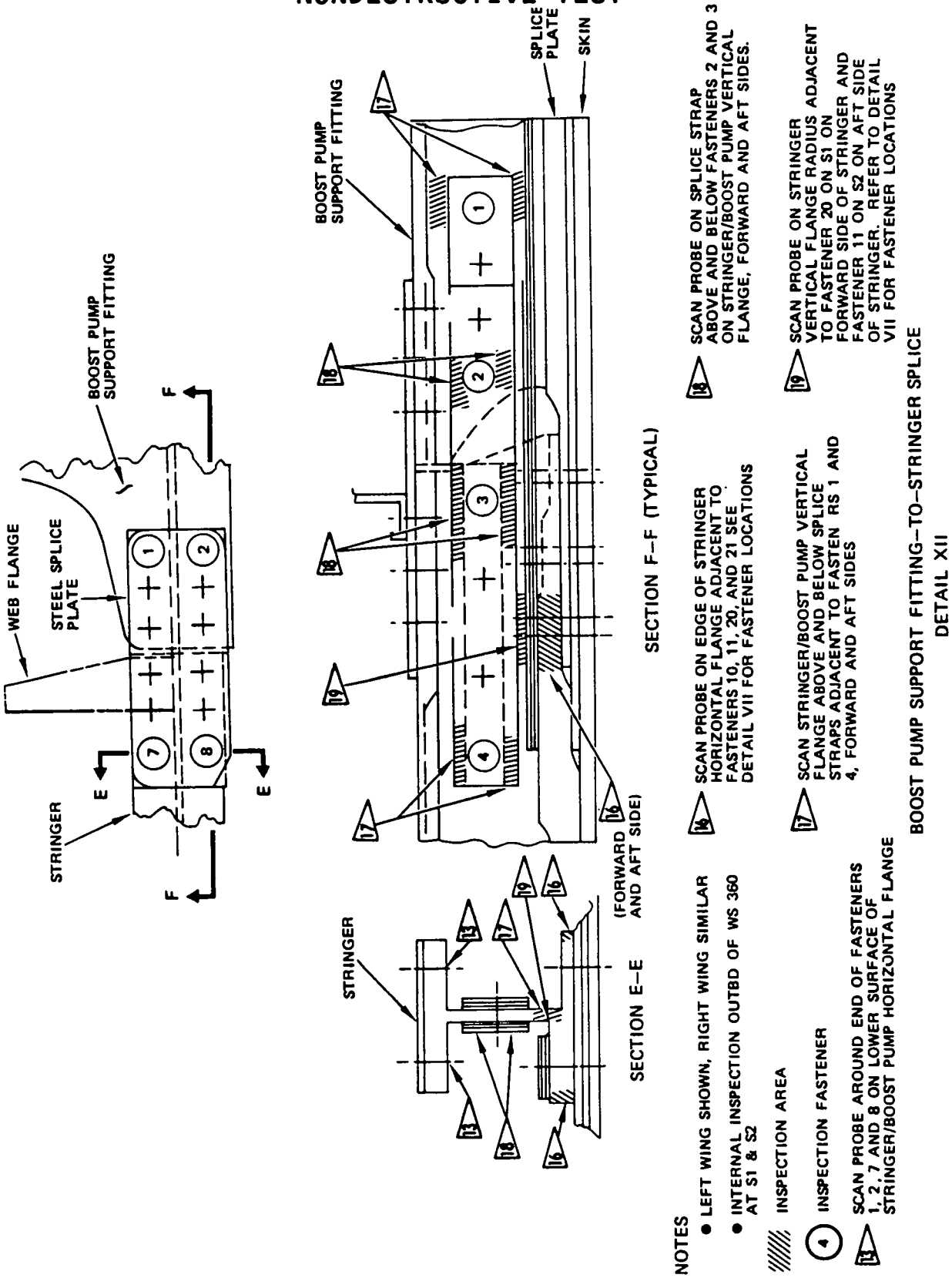
Wing Fuel Boost Pump Cutouts
Figure 62 (Sheet 10)



Wing Fuel Boost Pump Cutouts
Figure 62 (Sheet 11)



Wing Fuel Boost Pump Cutouts
Figure 62 (Sheet 12)

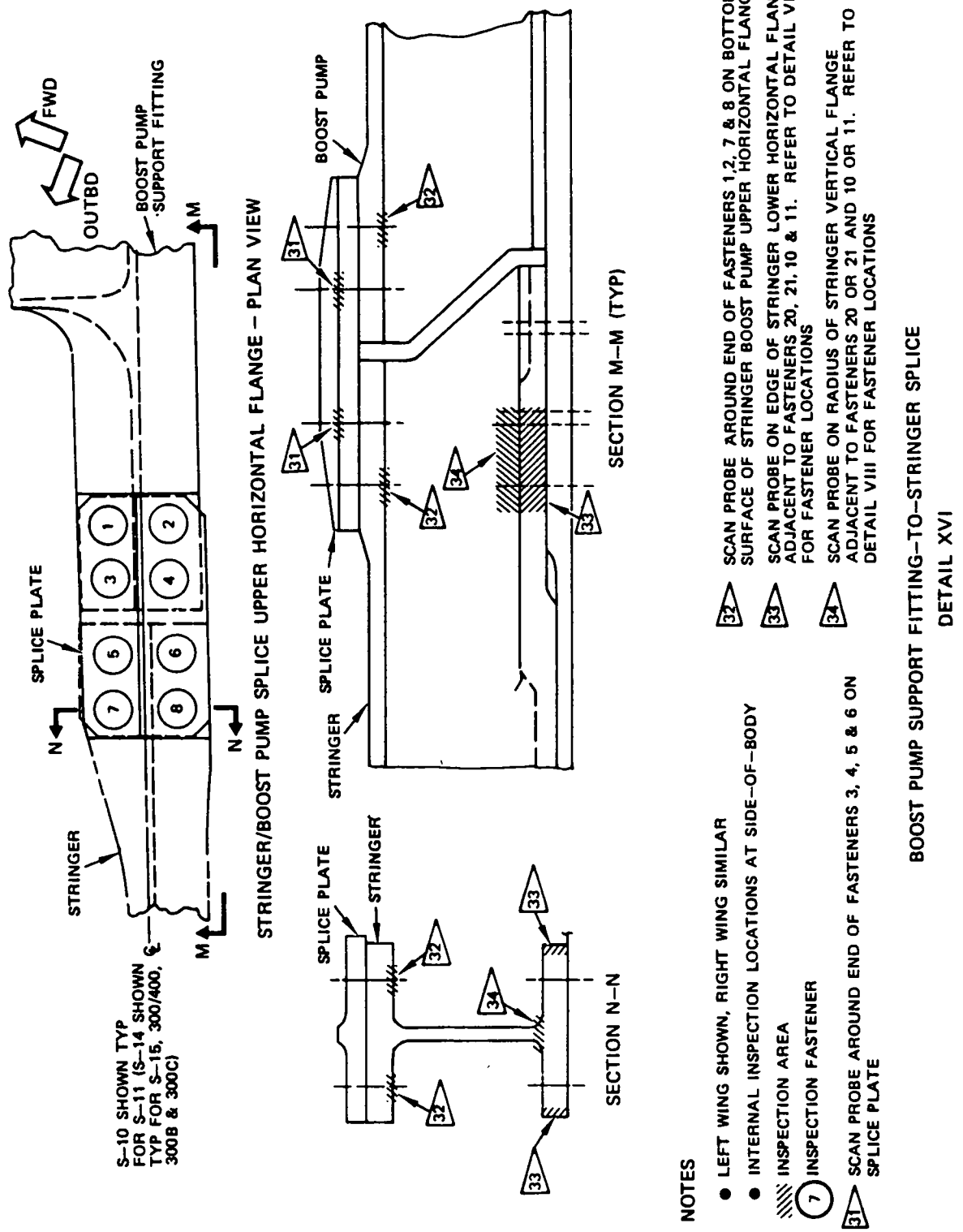


Wing Fuel Boost Pump Cutouts
Figure 62 (Sheet 13)

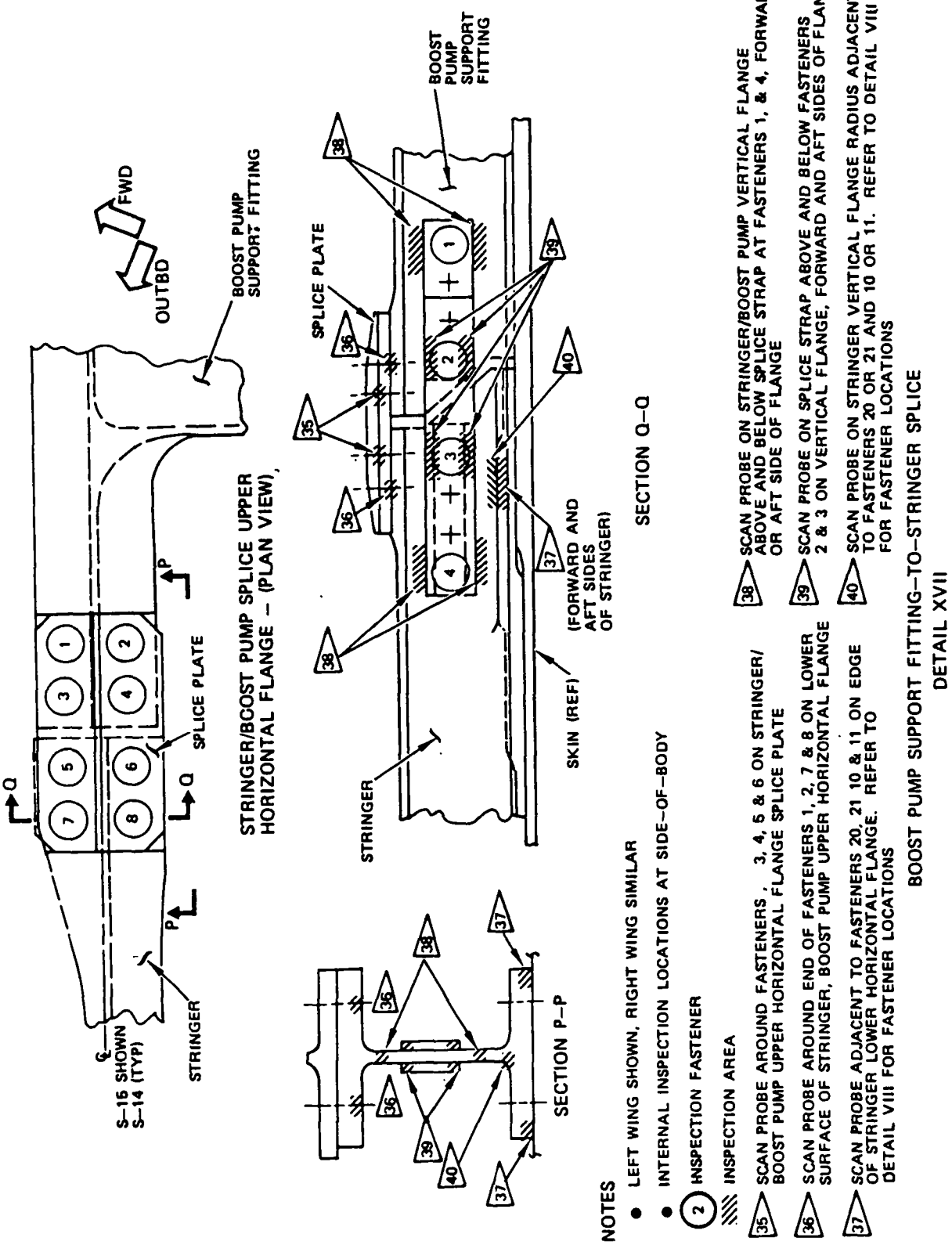
Wing Fuel Boost Pump Cutouts
Figure 62 (Sheet 14)

Wing Fuel Boost Pump Cutouts
Figure 62 (Sheet 15)

Wing Fuel Boost Pump Cutouts
Figure 62 (Sheet 16)



Wing Fuel Boost Pump Cutouts
Figure 62 (Sheet 17)



Wing Fuel Boost Pump Cutouts
Figure 62 (Sheet 18)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To perform an external low frequency eddy current inspection of the upper and lower rear spar vertical flanges at fasteners common to the flap actuator support fitting at WS 453.

   B. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Instrument - Any eddy-current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used for development of this procedure:

      (1) MIZ-10
      Zetec Inc.
      1320 NW Mall
      Issaquah, WA 98027

   B. Probe - This procedure uses one probe; any probe of similar size that will satisfy the procedure requirements is acceptable. The following probe was used in the development of this procedure.

      (1) Ring (encircling) probe with 1.1-inch OD and 0.4-inch ID shielding, 400 Hz, Nortec P/N SPO-1074 with separate reference and probe coils.

      NOTE: 1. The probe listed above is available from:

      Nortec Inc.
      421 N. Quay
      Kennewick, WA 99336

      2. Specify instrument with which probe is to be used or instrument connector required when ordering probes.

Upper and Lower Rear Spar Vertical Flange and
Flap Actuator Support Fittings
Figure 63 (Sheet 1)

C. Manufacture Reference Standard per detail I.

3. Preparation for Inspection

A. Gain access to fuel tank and purge for entry with eddy current test equipment.

B. Remove sealant caps and sealant from around inspection fasteners to permit eddy current probe access. See Detail III.

4. Calibrate Instrument

A. Calibrate for fastener hole crack inspection using a ring probe centered on the fastener.

(1) Connect probes to instrument.

NOTE: The separate reference coil is active and should be kept away from conductive material during calibration and inspection to avoid altering the calibration.

(2) Set frequency to 400 Hz.

(3) Visually center probe inspection coil over the unnotched reference standard hole, Detail II, Position 1.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is accomplished by manipulating the probe to obtain a minimum meter response.

(6) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

NOTE: Probe is centered by manipulating to obtain a minimum meter response.

(7) Center probe over the notched reference standard hole, Position 2. Response should be upscale.

(8) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(9) Recheck null and liftoff. If readjustments are made, recheck sensitivity per par. A.(8).

(10) Cracks will be indicated by a higher meter response.

5. Inspection Procedure

A. Calibrate instrument per par. 4.A.

B. Note on the airplane the location of those fasteners requiring inspection by using Detail III.

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

C. Use several fasteners to establish the airplane base response for an acceptable fastener.

(1) Select a representative fastener from the inspection group and set its response to 20% of full meter scale.

NOTE: Do not change instrument sensitivity when establishing the airplane baseline response.

(2) Refer back to this fastener periodically to ensure that the instrument response is the same as originally recorded.

NOTE: Changes in meter response may occur as a result of instrument drift or probe temperature change.

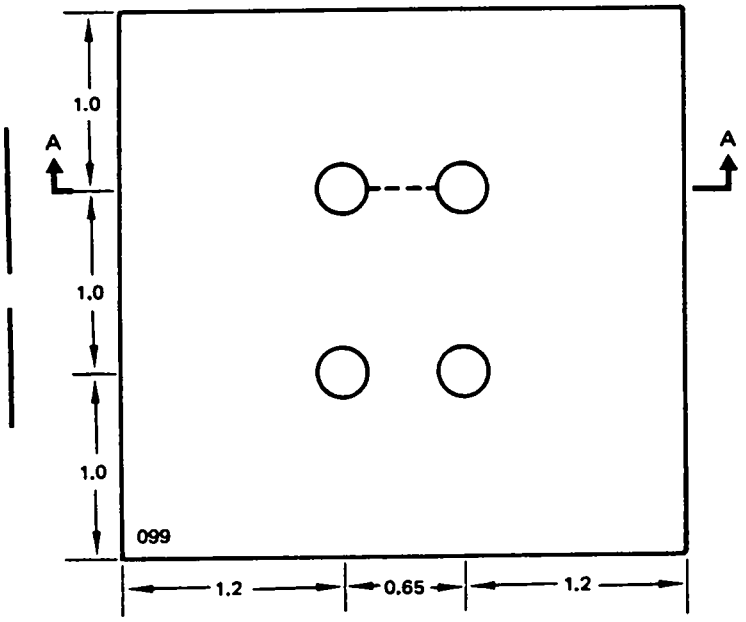
D. Inspect each fastener by centering the probe on the fstener and manipulating to obtain a minimum response.

E. The following is a potential crack indication and further investigation is required:

(1) Fastener locations that give a response 40% of full meter scale higher than the established baseline.

NOTE: A decrease in fastener spacing may cause meter reading changes similar to crack indications:

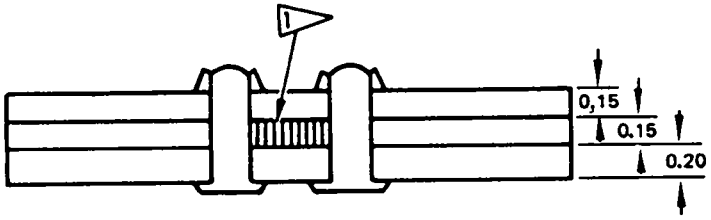
(a) Compare with similarly spaced fasteners on the airplane.



NOTES

- MATERIAL: 2024–T4 ALUMINUM
- TOLERANCE: X.X ± 0.030
  X.XX ± 0.010
- FASTENERS: BAC830DX6–8 FASTENER;
  NAS1080–06
  COLLAR; (4 PLACES)
  INSTALL PER
  SECTION VIEW
- ALL DIMENSIONS ARE IN INCHES
- P/N 6412–83
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110
- STEEL STAMP OR ETCH
  WITH 099

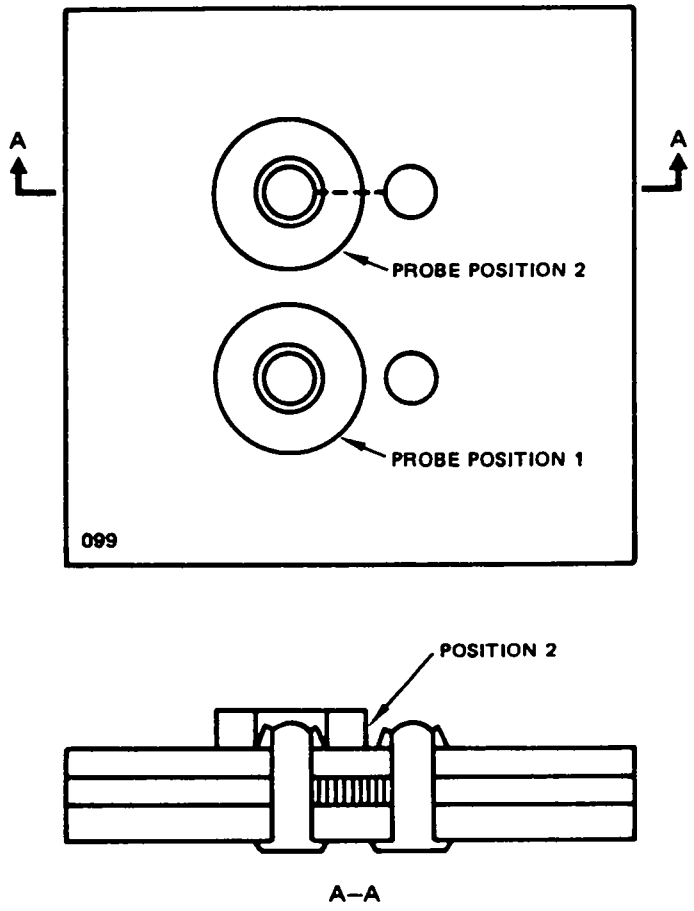
1 JEWELER'S SAWCUT 0.030 MAX WIDTH
(HOLE TO HOLE)



SECTION A–A

REFERENCE STANDARD 099 FOR INSPECTION OF UPPER AND
LOWER REAR SPAR VERTICAL FLANGE AT WS 453
DETAIL I

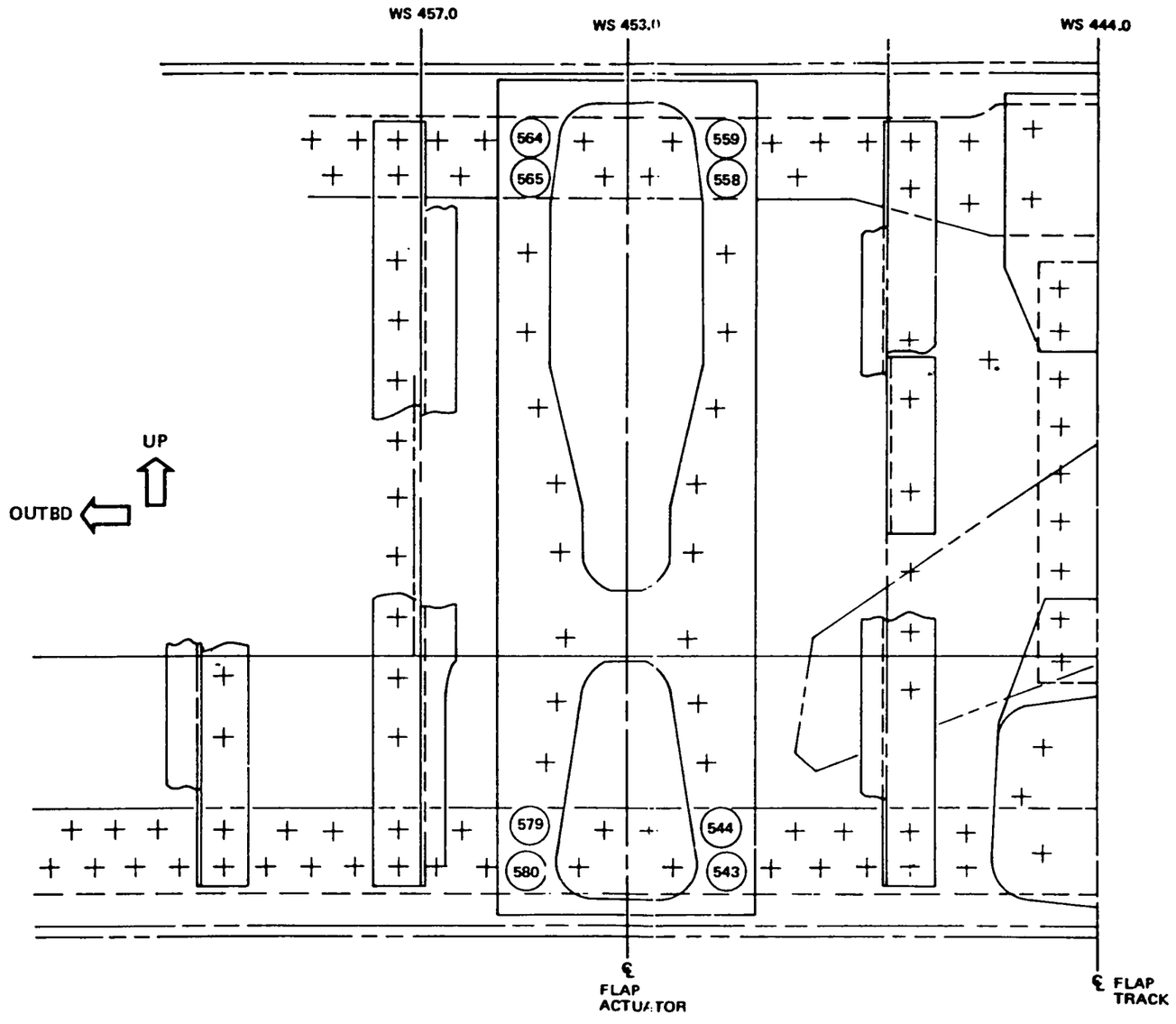
Upper and Lower Rear Spar Vertical Flange and
Flap Actuator Support Fittings
Figure 63 (Sheet 4)



PROBE POSITION FOR CALIBRATION ON REFERENCE STANDARD 099

DETAIL II

Upper and Lower Rear Spar Vertical Flange and Flap Actuator Support Fittings
Figure 63 (Sheet 5)



NOTE
- ● REAR VIEW SHOWN OF LEFT WING
- (564) FASTENER TO BE INSPECTED

REAR SPAR VERTICAL F_ANGE

DETAIL III

Upper and Lower Rear Spar Vertical Flange and
Flap Actuator Support Fittings
Figure 63 (Sheet 6)

Figure 64 was deleted during the August 5, 2001 Revision

Wing Front and Rear Spar Terminal Fitting
Figure 64 (Sheet 1)

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EFFECTIVITY:
MODEL 707/720
SERVICE BULLETIN
REFERENCE:
2492
SSI DOCUMENT (D6-44860)
REFERENCE:
SSD 57-A05-15
57-A15-15
57-A25-15
57-A35-15
57-A45-15

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

To detect cracks at specified fastener locations, adjacent to the WS 360 fuel boost pump cutouts, using low frequency eddy current.

2. Equipment

A. Any eddy current instrument that will satisfy the performance requirements of this procedure is acceptable. The following instrument was used during the development of this procedure:

MIZ 10
Zetec Inc.
1320 N.W. Mall
Issaquah, WA 98027

B. Any probe that will satisfy the performance requirements of this procedure is acceptable. The following probes were used during the development of this procedure:

(1) A ring (encircling) probe with a 0.50-inch I.D. and a 1.25-inch O.D. shielding. Must be usable at 100 Hz. Nortec part number is SPO 783.

(2) A spot probe with a 0.55 inch O.D. Must be usable at 500 Hz. Nortec part number is SPO 565.

C. Manufacture Reference Standards per Table I.

Wing Fuel Boost Pump Cutouts WS 360.0
Figure 65 (Sheet 1)

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3. Prepare for Inspection

Wipe surface clean.

4. Calibrate Instrument

A. General

(1) One calibration procedure with subsequent meter position adjustments is required to adjust for differences found in fastener sizes in both A and B inspections.

(2) Refer to Table I for reference standards and calibration details for specific airplane models.

B. Calibrate for inspection of Code A fasteners using a ring probe centered on the fastener.

(1) Select reference standard and calibration detail from Table I.

(2) Set instrument frequency at 100 Hz.

(3) Visually center probe over the unnotched hole in reference standard, Position 1.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control to obtain the same response when the probe is on the bare part as when probe is lifted off the part by 0.006 inch (approximate thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe and instrument are calibrated for liftoff condition, centering is accomplished by manipulating the probe to obtain the minimum meter response.

(6) Center probe over Position 1 fastener and set baseline response at 20% of full meter scale.

(7) Place probe over notched hole in reference standard Position 2. Meter response should be upscale.

(8) Adjust instrument sensitivity to obtain a response difference of 60% of full scale, between the notched and unnotched holes.

(9) Recheck balance and liftoff. If readjustments are made, recheck sensitivity per par. B.(8).

(10) Cracks will be indicated by an upscale meter response.

C. Calibrate for inspection of Code B fasteners.

(1) Calibrate per par. 4.B.

(2) Center probe over Code B equivalent fastener in reference standard, Position 3.

(3) Adjust meter position control to set instrument response at 20% of full meter scale.

(4) Instrument is now calibrated for inspection of Code B fasteners.

D. Calibrate to inspect oversized code S fasteners with head diameters of 0.43-inch.

NOTE: If fastener head size is approximately 0.35-inch, oversizing has not been accomplished and fasteners should be inspected per Code B.

(1) Calibrate per par. 4.B.

(2) Center probe over oversized fastener in reference standard, Position 4.

(3) Adjust meter response with meter position control to read 20% of full meter scale.

(4) Instrument is now calibrated for inspection at oversized fastener locations.

E. Calibrate to inspect oversized code S fasteners with head diameters greater than 0.45-inch.

(1) Refer to Details III and IV for appropriate reference standards and calibration positions.

(2) Attach 0.55-inch O.D. spot probe to instrument.

(3) Set instrument frequency to 500 Hz.

(4) Place probe on reference standard, on unnotched side of fastener hole, Position 4.

Wing Fuel Boost Pump Cutout WS 360.0
Figure 65 (Sheet 3)

(5) Balance instrument per manufacturer's instructions.

(6) Adjust liftoff controls to obtain the same response when he probe is on the bare part as when probe is lifted off the part by 0.006 inch (approximate thickness of two sheets of paper).

(a) Take care to keep probe in the same position relative to fastener head to avoid confusion from edge effect during liftoff adjustment.

(7) Place probe at same position used during liftoff calibration in par. (6) and adjust meter response with meter position control to read 20% of full scale.

(8) Place probe adjacent to fastener head on notched side, Position 5. Meter response should be upscale.

(9) Adjust instrument sensitivity to obtain a response difference of 50% of full scale meter between the unnotched and the notched positions at the fastener.

(10) Recheck balance and liftoff. If readjustments are made, recheck sensitivity per par. (9)

(11) Cracks will be indicated by an up scale meter response.

5. Inspection Procedure

NOTE: An inspection code is used to identify locations having similar inspection conditions. A single calibration is usually used to inspect these locations.

It is suggested that a copy of the applicable Details XI thru XVI be made and used to record instrument responses at each fastener location. This is helpful in maintaining continuity between the fastener groups during inspection.

A. Inspect Codes A, B and S for oversized fasteners up to 0.45-inch diameter. Inspect fastener holes for cracks using the ring probe centered on the fastener.

(1) Inspect Codes A, B and S in the order given.

(2) Calibrate instrument per par. 4.

(3) Identify inspection locations for a particular airplane model using Table I.

Wing Fuel Boost Pump Cutouts WS 360.0
Figure 65 (Sheet 4)

(4) Use several fasteners of the same code to establish the airplane baseline response for an acceptable fastener.

(a) Select a representative fastener from this group and set its response to 20% of full meter scale. Do not change instrument sensitivity when establishing the airplane baseline response.

(b) Refer back to this fastener periodically to ensure that instrument response is the same as originally recorded.

NOTE: Changes in meter response may occur as a result of instrument drift or probe temperature change.

(5) Inspect each fastener having the same inspection code by centering probe on the fastener and manipulating to obtain a minimum response.

NOTE: Review the Special Notes called out in Table I for conditions which affect the inspection.

(6) Fastener locations which give a response 30% of full meter scale higher than the established baseline are potential crack indications and further investigation is required.

(7) The following conditions may cause meter reading changes similar to crack indications:

(a) A decrease in fastener spacing. Compare with similarly spaced fasteners on the airplane.

(b) A larger or smaller fastener. Compare with similar fasteners on reference standard and on airplane.

(c) A difference in countersink depth of a fastener. Compare with similar fastener in standard raised to the same height.

(d) A fastener close to edge of skin. Compare with similar fasteners on airplane.

B. Inspect fasteners with head diameter greater than 0.45 inch with spot probe placed adjacent to oversized fastener.

(1) Calibrate instrument per par. 4.E.

(2) Identify oversized fasteners on airplane.

(3) Place probe adjacent to fastener head and scan 360° around fastener head.

(4) Locations which give a response 30% of full scale higher than minimum meter response are potential crack indications and require further investigation.

AIRPLANE MODEL	EFFECTIVITY	REFERENCE STANDARD DETAIL	INSPECTION LOCATION DETAILS		CALIBRATION DETAIL	INSPECTION CODES	NOTES
			INBD OF WS 360	OUTBD OF WS 360			
720	ALL	I	XI	XII	II	A,B,S	4
100/200	ALL	III	XIII		IV	A,B,S	4, 5
		V		XIV	VI	A,S	4
300/400	1	III	XIII		IV	A,B,S	4, 5
		V		XIV	VI	A,S	4
300/400	2	VII	XV		VIII	A,B	4
		V		XVI	VI	A	
300/400	3	VII	XV		VIII	A,B	4
		IX		XVI	X	A	

INSPECTION INFORMATION
TABLE I

Wing Fuel Boost Pump Cutouts WS 360.0
Figure 65 (Sheet 6)

NOTES

1. FOR CUM LINE NUMBERS: 13, 20, 35, 58, 61, 62, 65, 68 thru 71, 73 thru 76, 78 thru 84, 86, 88 thru 94, 98 thru 101, 103 thru 107, 110 thru 118, 121 thru 129, 133 thru 139, 144, 145, 151 thru 155, 159 thru 164, 167 thru 171, 175, 176, 192, 200, 205, 209, 212, 216, 217, 264, 266, 268 thru 272, 274 thru 276, 282, 283, 287, 292, 293, 302, 303, 305, 320, 323, 325 thru 336, 341 thru 346, 348, 349, 350, 352 thru 360, 362 thru 373, 375 thru 379, 383, 386, 387, 389, 394, 397 thru 400, 402 thru 409, 411, 412, 413, 415 thru 419, 421, 424, 425, 428, 430, 431, 434 thru 441, 443 thru 469, 471, 472, 475 thru 478, 480, 482 thru 485, 487, 488, 494 thru 505, 507 thru 511, 513, 515 thru 525, 527, 528, 529, 531, 532, 534, 536, 537, 538, 540 thru 557, 559, 560, 561, 563, 566, 568, 570, 572, 574, 576, 578, 580, 582, 584, 585, 587, 588, 590, 592, 594, 596, 599, 601, 603, 605, 607 thru 614, 616 thru 620, 623, 625 thru 668, 670, 671, 845 and 846.

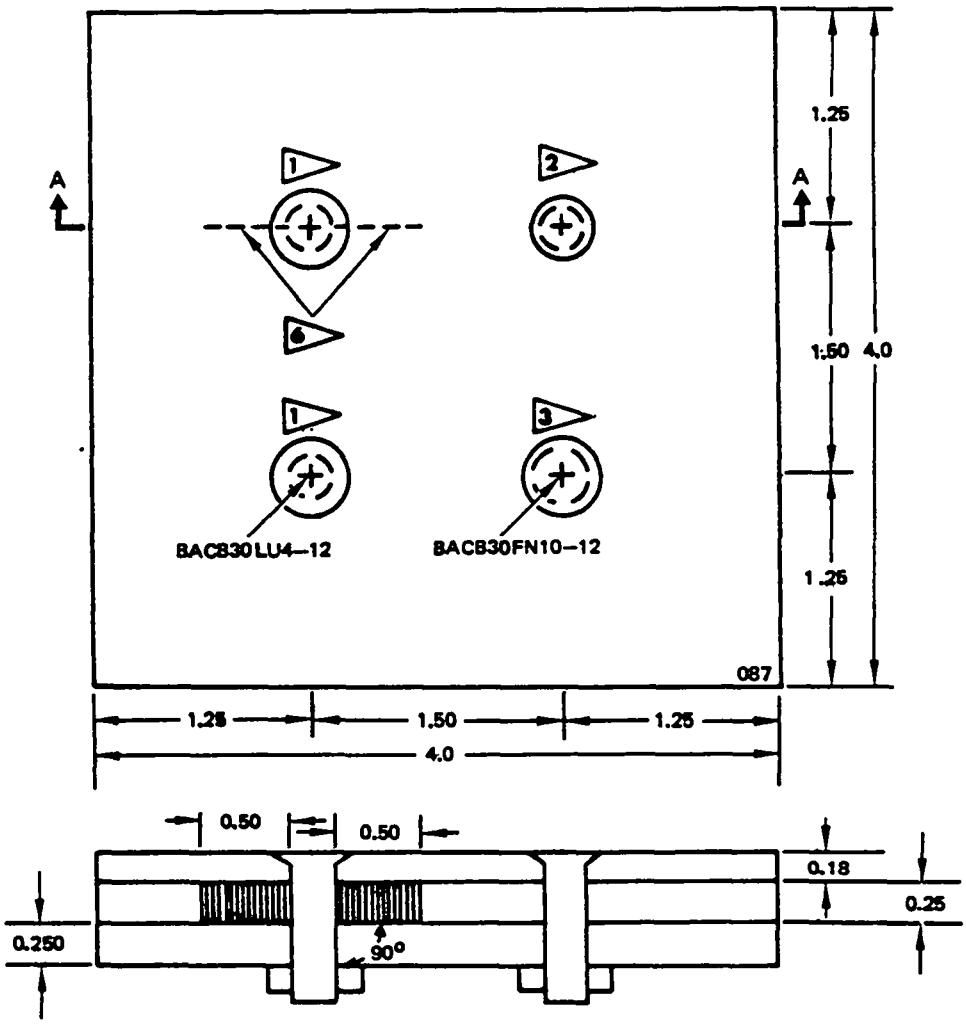
2. FOR CUM LINE NUMBERS: 899, 903, 905, 906, 908, 910, 911, 912, 914, 915, 917, 918, 919, 922, 923, 925, 928, 929, 936, 938 and 941.

3. FOR CUM LINE NUMBERS: 352, 532, 561, 672 thru 679, 681, 683 thru 770, 772 thru 776, 778 thru 786, 788 thru 793, 795 thru 800, 802 thru 897 and 900.

4. Basic calibration is for Code A fasteners. For Code B fasteners or Code S oversized fastener, with head diameters of 0.43 inch compare airplane response with corresponding response from same diameter fastener in the reference standard.

5. For oversized Code S fasteners having a head size greater than 0.45 inch, inspect using a spot probe alongside the fastener. Calibrate according to par. 4.E.

Wing Fuel Boost Pump Cutouts WS 360.0
Figure 65 (Sheet 7)



SECTION A–A

NOTES

- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T3 OR T4 ALUMINUM
- ETCH OR STEEL STAMP WITH 087
- TOLERANCE: X.X ± 0.05, X.XX ±0.01, X.XXX ± 0.005
- FASTENER FLUSHNESS: +0.010 –0.005
- P/N 6412–84
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

1 BAC830LU4–12 FASTENERS (2 PLACES TYP); BACN10JC4 NUT

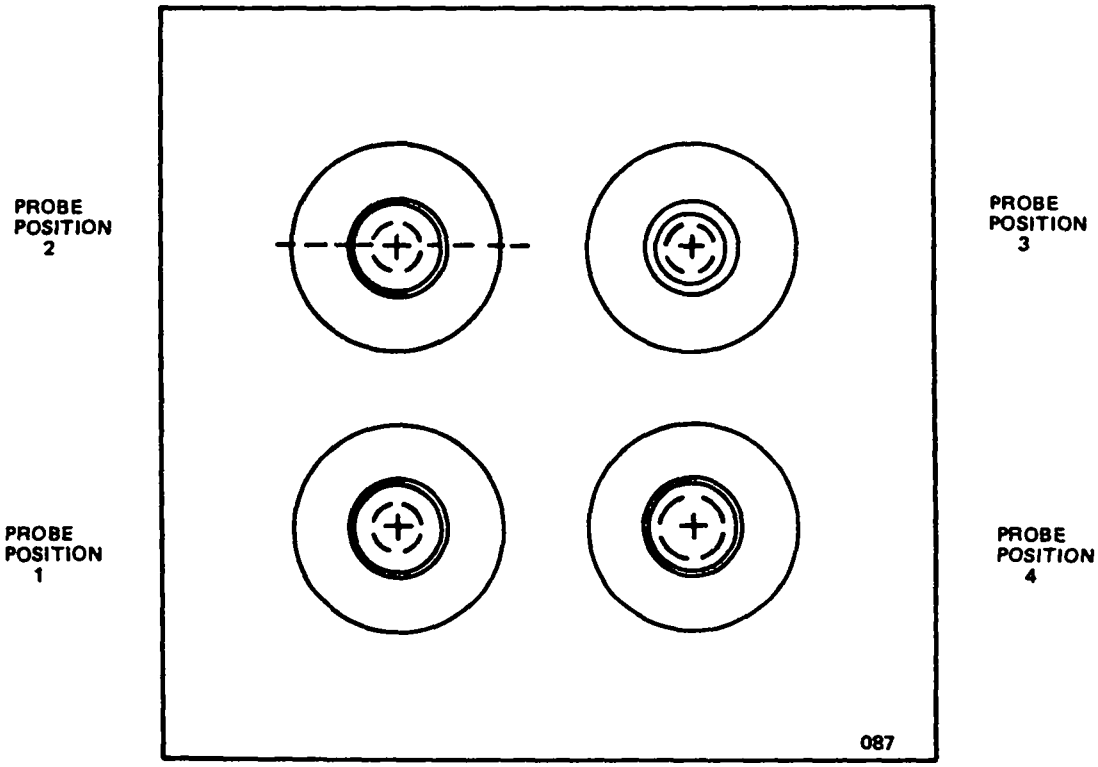
2 BAC830FN8–12 FASTENER (1 PLACE TYP); BACC30M8 COLLAR

3 BAC830FN10–12 FASTENER (1 PLACE TYP); BACC30M10 COLLAR

6 JEWELER'S SAWCUT 0.030 MAX WIDTH (2 PLACES)

REFERENCE STANDARD 087

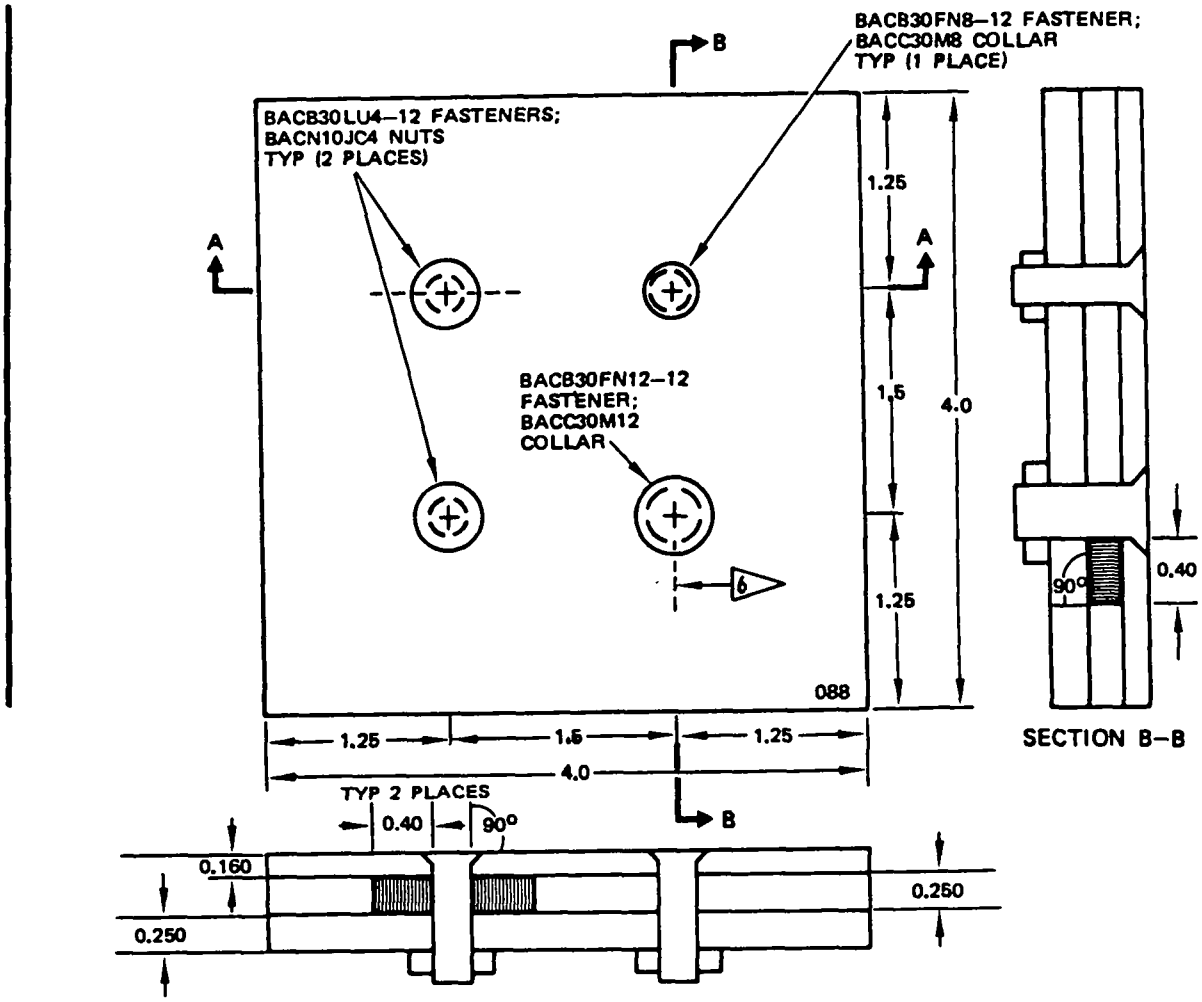
DETAIL I



PROBE POSITION FOR CALIBRATION ON REFERENCE STANDARD 087

DETAIL II

Wing Fuel Boost Pump Cutouts WS 360.0
Figure 65 (Sheet 9)



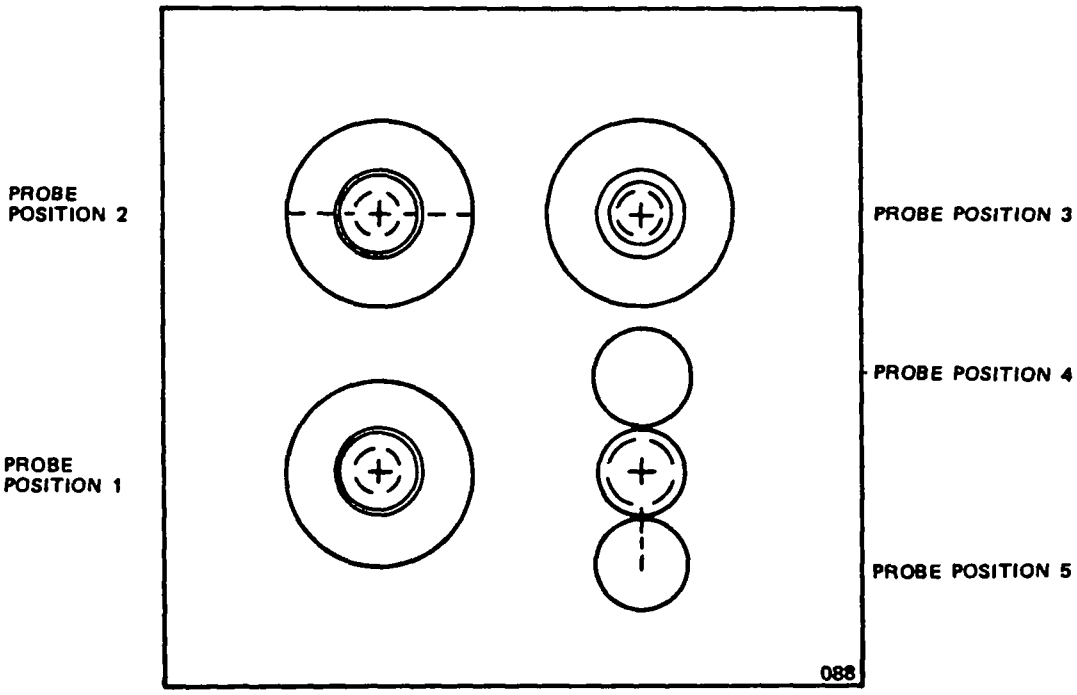
NOTES

- MATERIAL: 2024–T3 OR T4 ALUMINUM
- TOLERANCE: X.X ± 0.05, X.XX ± 0.01, X.XXX ± 0.005
- FASTENER FLUSHNESS TOLERANCE: +0.010 –0.005
- ETCH OR STEEL STAMP WITH 088
- ALL DIMENSIONS ARE IN INCHES
- P/N 6412–85
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

6 JEWELER'S SAWCUT 0.030 MAX WIDTH

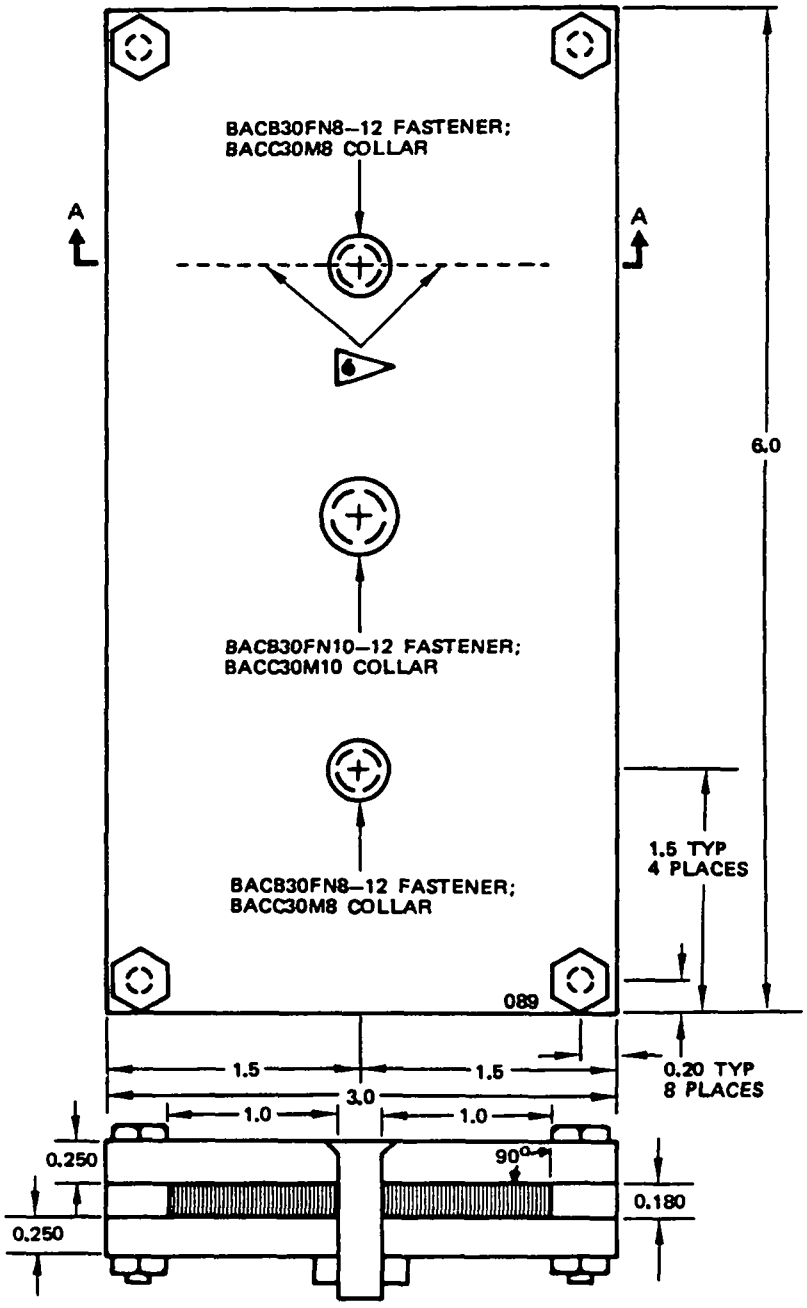
REFERENCE STANDARD 088
DETAIL III

Wing Fuel Boost Pump Cutouts WS 360.0
Figure 65 (Sheet 10)



PROBE POSITION FOR CALIBRATION ON
REFERENCE STANDARD 088

DETAIL IV



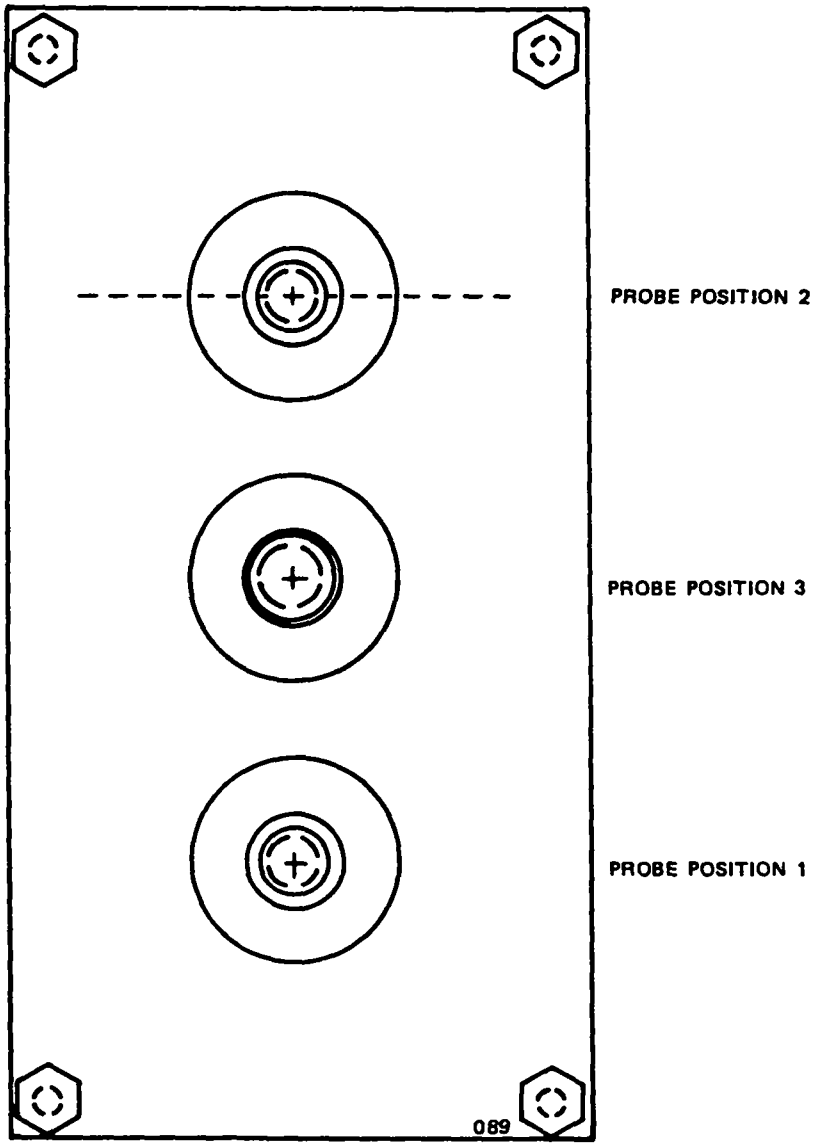
NOTES

- MATERIAL – 2024 T3 OR T4 ALUMINUM
- TOLERANCE – X.X ± 0.05
  X.XX ± 0.01
  X.XXX ± 0.005
- FASTENER FLUSHNESS +0.010 –0.005
- STEEL STAMP OR ETCH WITH 089
- ALL DIMENSIONS ARE IN INCHES
- P/N 6412–86 AVAILABLE FROM IDEAL SPECIALTY CO. 2631 E. INDEPENDENCE ST. TULSA, OKLAHOMA 74110

6 JEWELER'S SAWCUT 0.030 MAX WIDTH (2 PLACES)

SECTION A–A

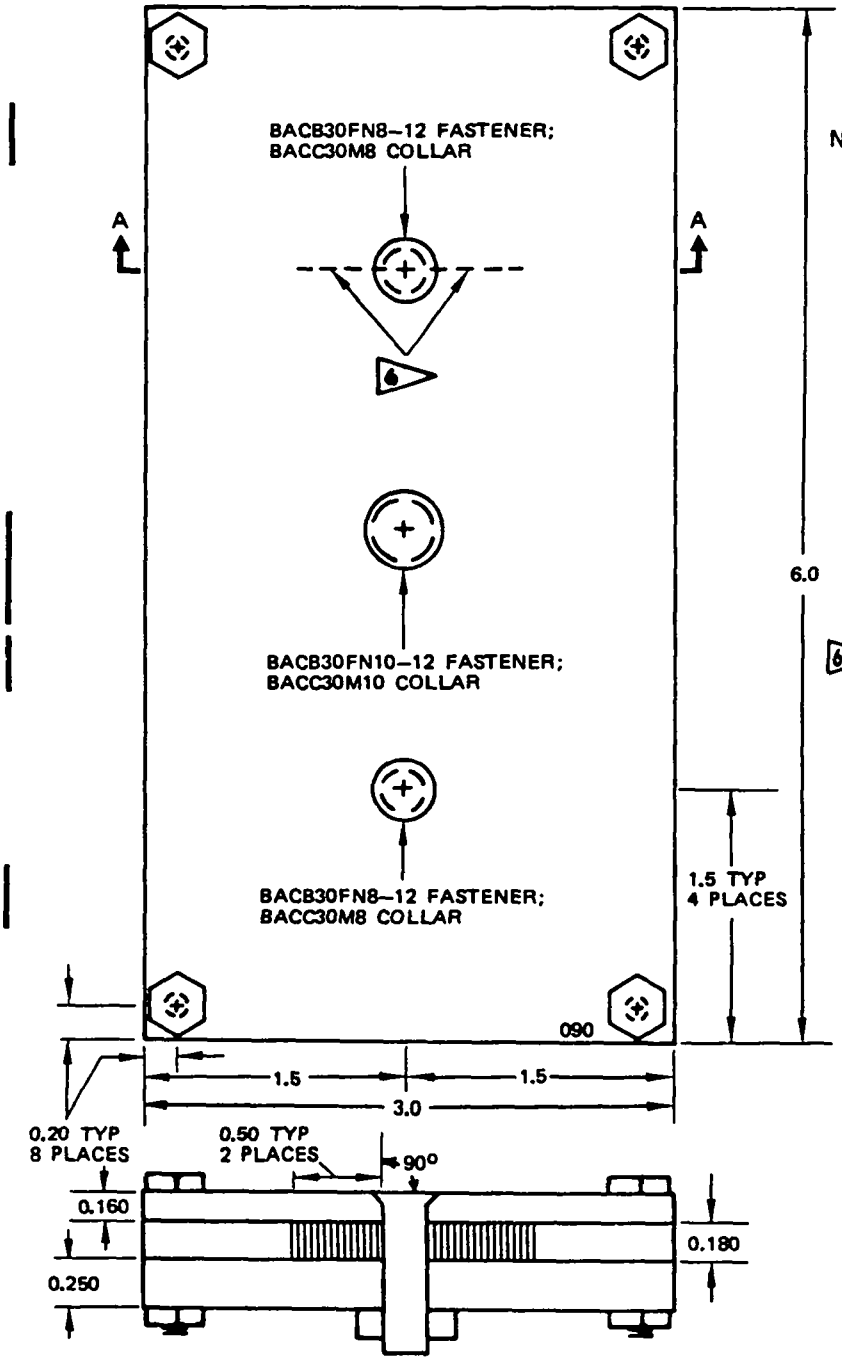
REFERENCE STANDARD 089
DETAIL V



PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD 089

DETAIL VI

Wing Fuel Boost Pump Cutouts WS 360.0
Figure 65 (Sheet 13)



SECTION A–A

NOTES

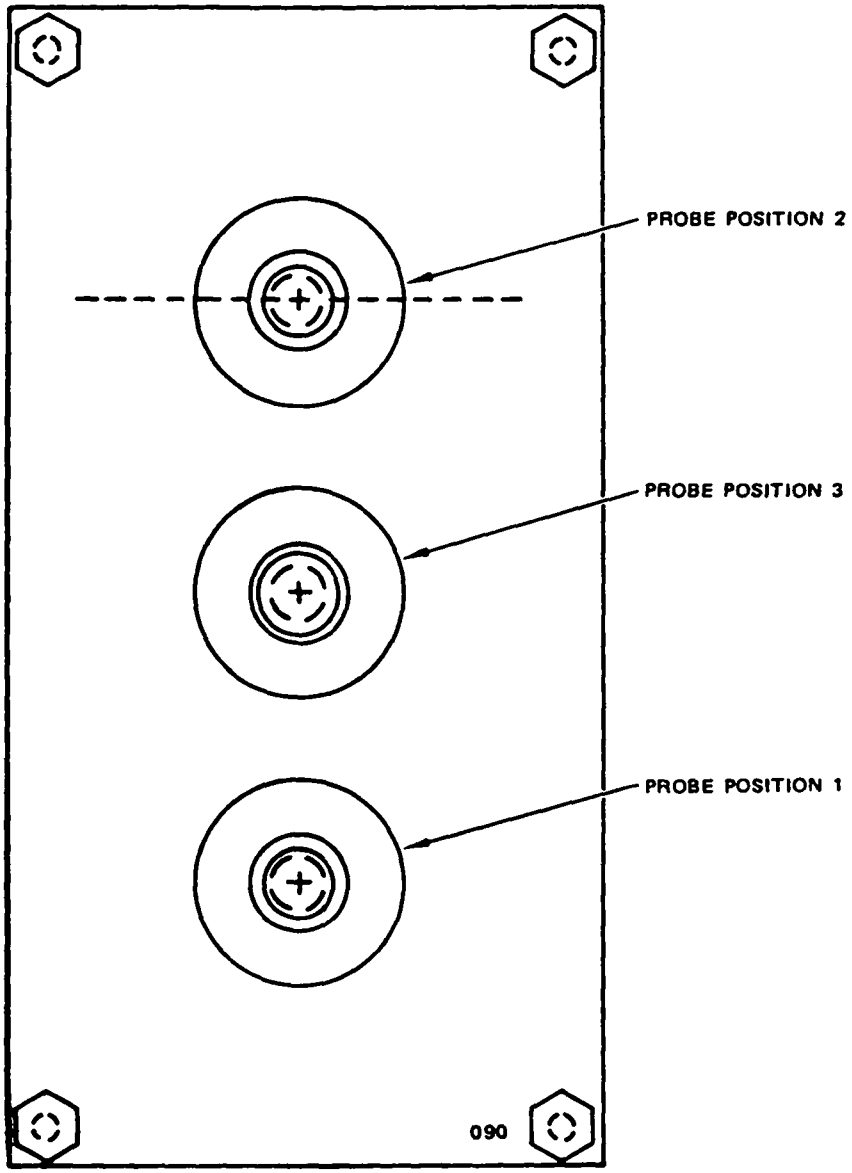
- MATERIAL: 2024–T3 OR T4 ALUMINUM
- TOLERANCE: X.X ± 0.05
  X.XX ± 0.01
  X.XXX ± 0.005
- FASTENER FLUSHNESS +0.010 –0.005
- STEEL STAMP OR ETCH WITH 090
- ALL DIMENSIONS ARE IN INCHES
- P/N 6412–87 AVAILABLE FROM IDEAL SPECIALTY CO. 2531 E. INDEPENDENCE ST. TULSA, OKLAHOMA 74110

6 JEWELER'S SAWCUT 0.030 MAX WIDTH (2 PLACES)

REFERENCE STANDARD 090

DETAIL VII

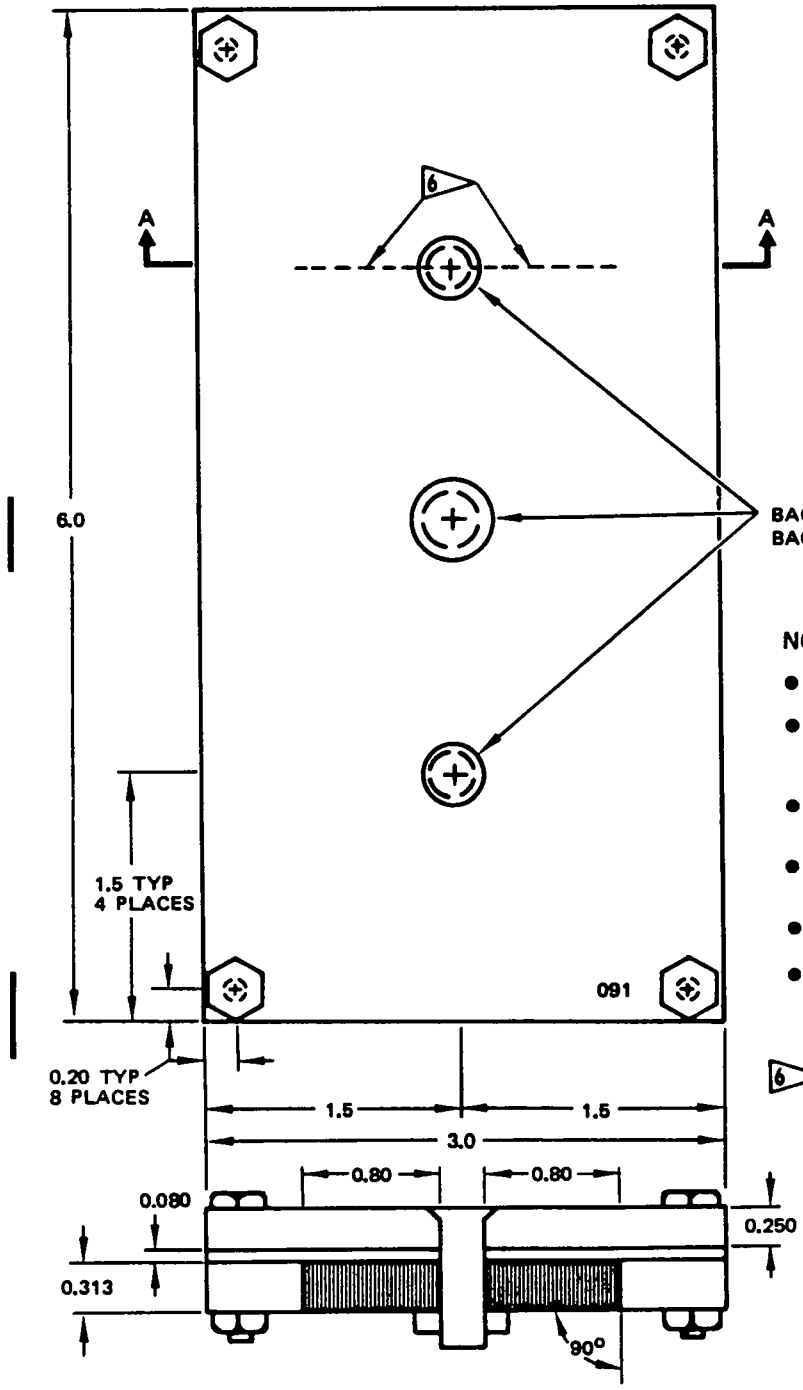
Wing Fuel Boost Pump Cutouts WS 360.0
Figure 65 (Sheet 14)



PROBE POSITION FOR CALIBRATION ON
REFERENCE STANDARD 090

DETAIL VIII

Wing Fuel Boost Pump Cutouts
Figure 65 (Sheet 15)



NOTES

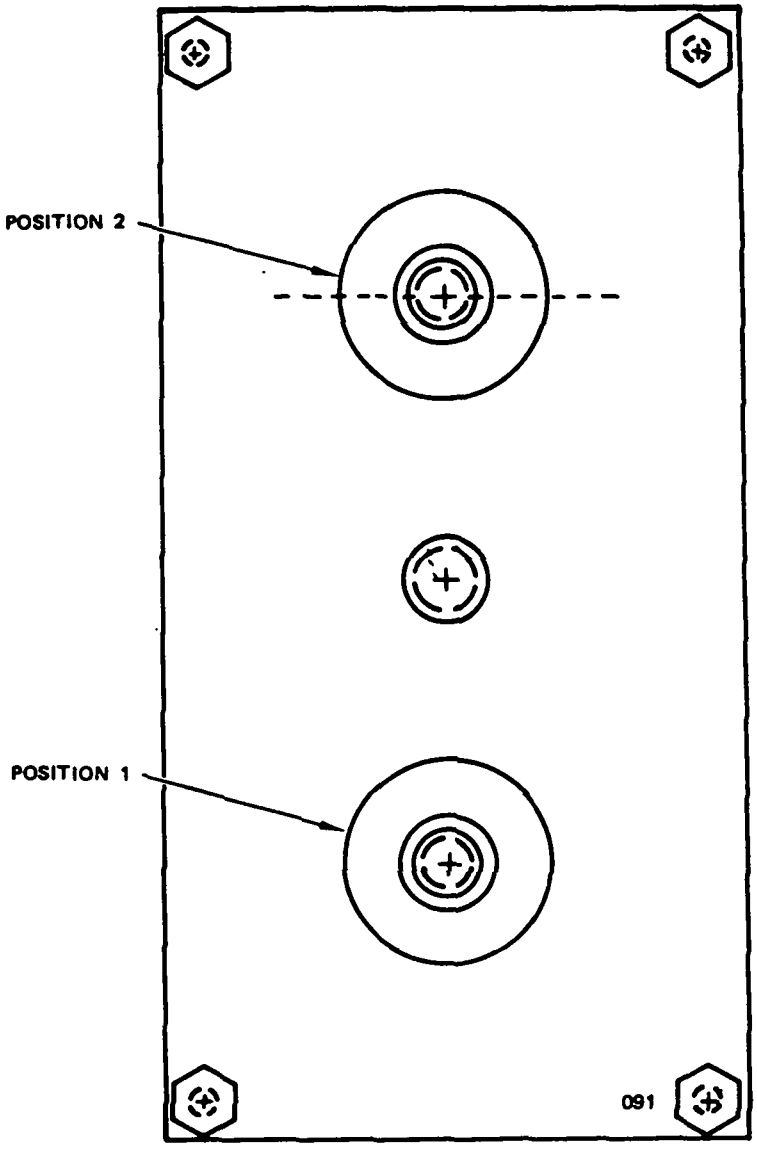
- MATERIAL: 2024–T3 OR T4 ALUMINUM
- TOLERANCE: X.X ± 0.05
  X.XX ± 0.01
  X.XXX ± 0.005
- FASTENER FLUSHNESS +0.010
  −0.005
- STEEL STAMP OR ETCH WITH 091
- ALL DIMENSIONS ARE IN INCHES
- P/N 6412–88
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

6 JEWELER'S SAWCUT
0.030 MAX WIDTH
(2 PLACES)

SECTION A–A

REFERENCE STANDARD 091

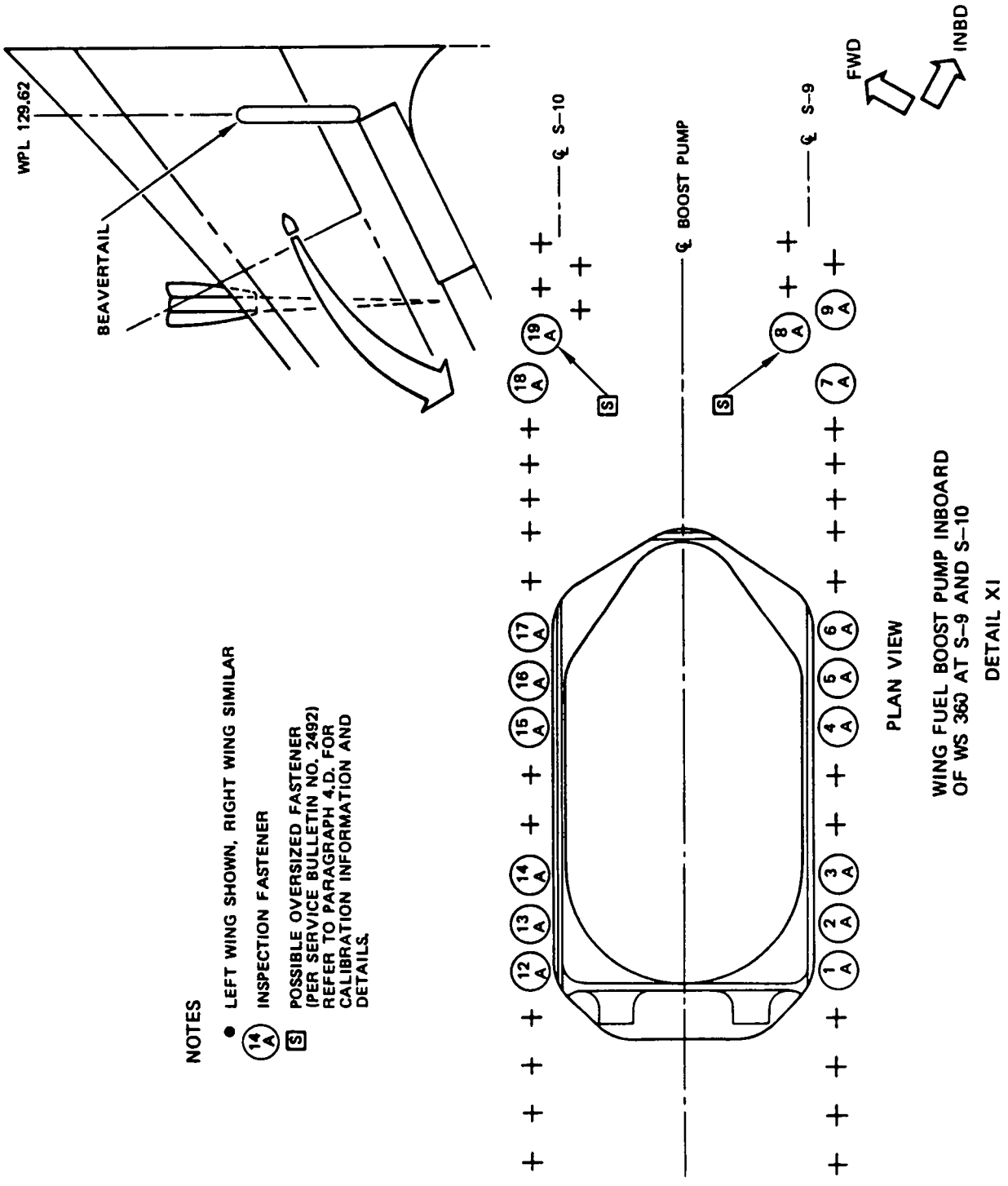
DETAIL IX



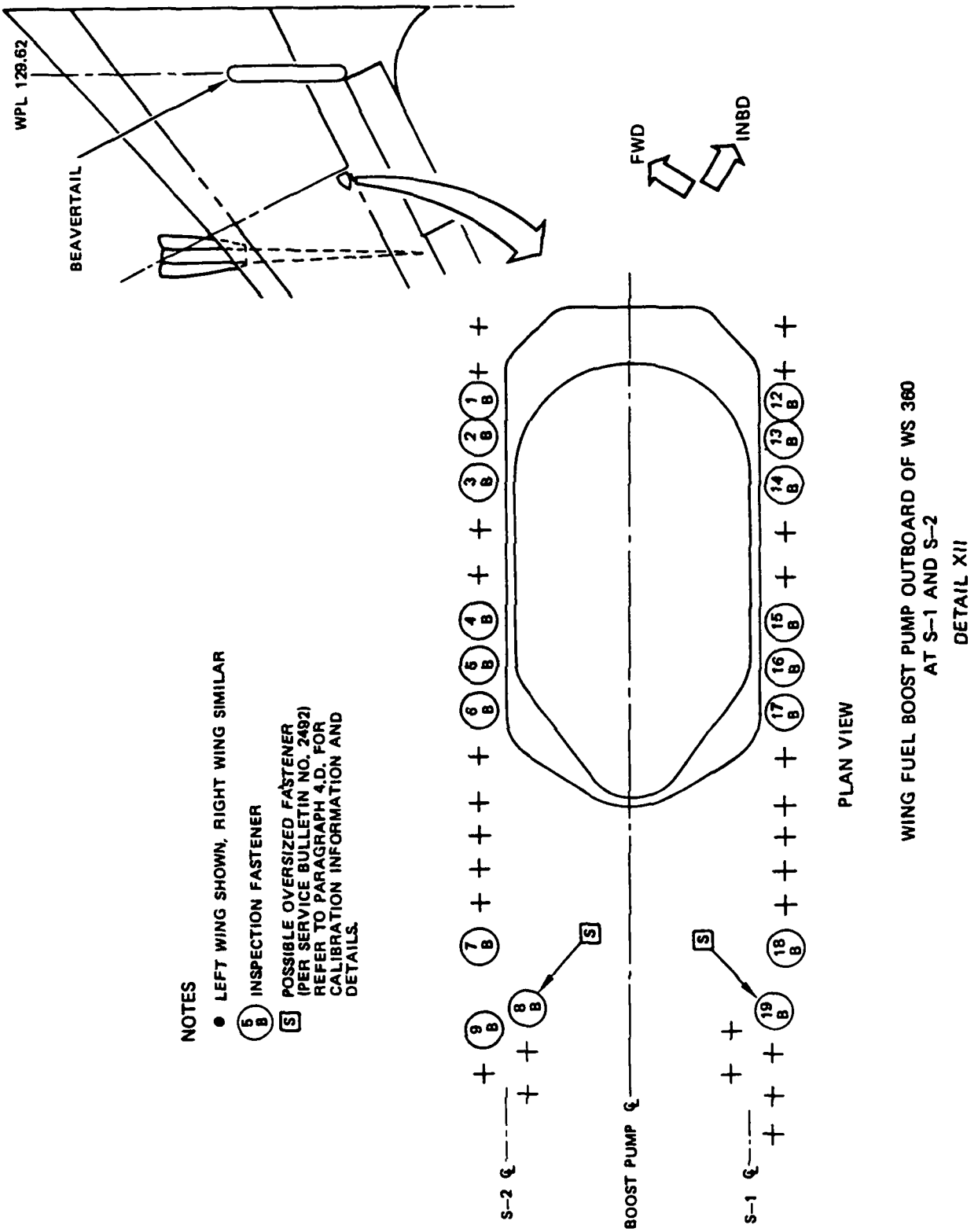
PROBE POSITION FOR CALIBRATION ON
REFERENCE STANDARD 091

DETAIL X

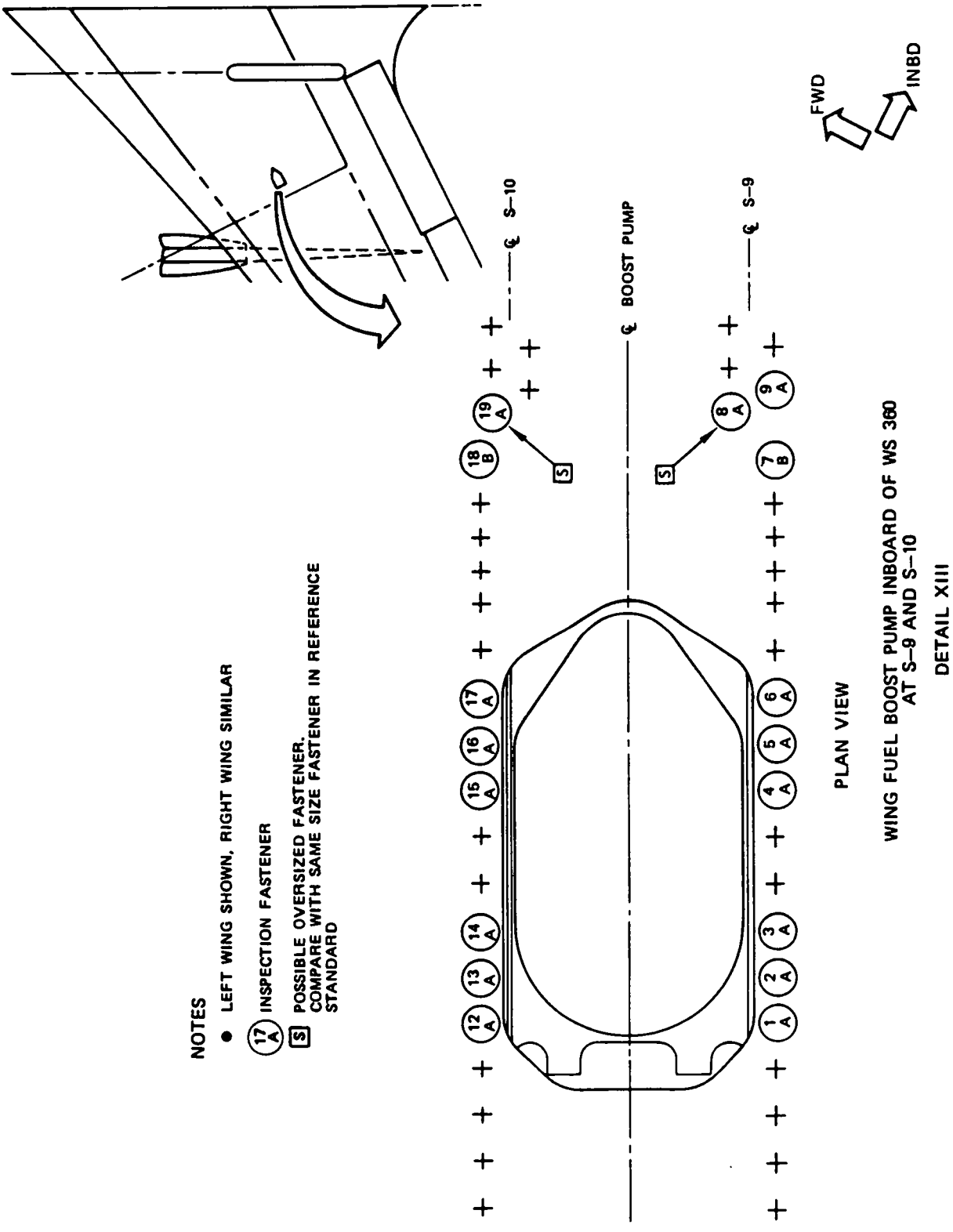
Wing Fuel Boost Pump Cutouts WS 360.0
Figure 65 (Sheet 17)



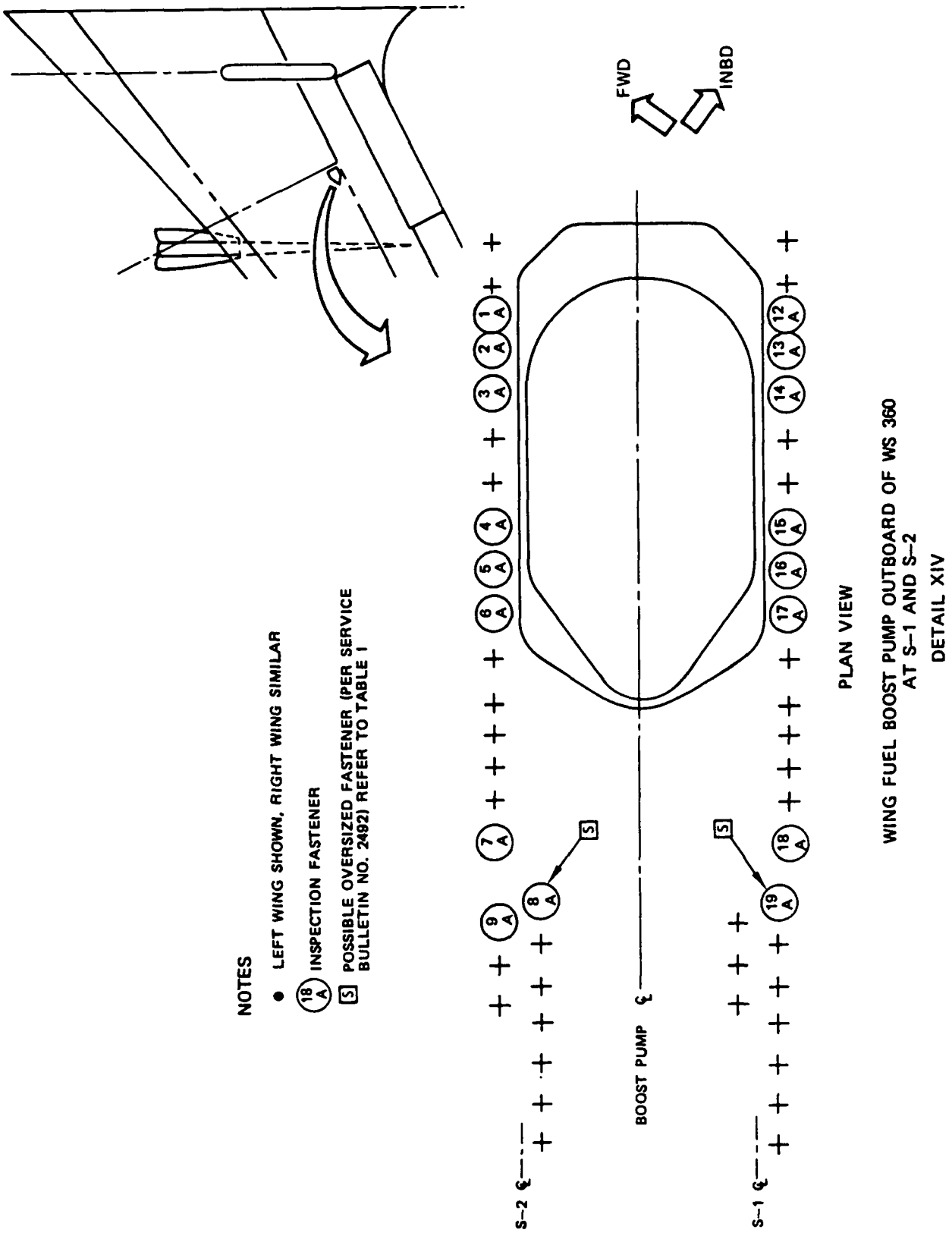
Wing Fuel Boost Pump Cutouts WS 360.0
Figure 65 (Sheet 18)



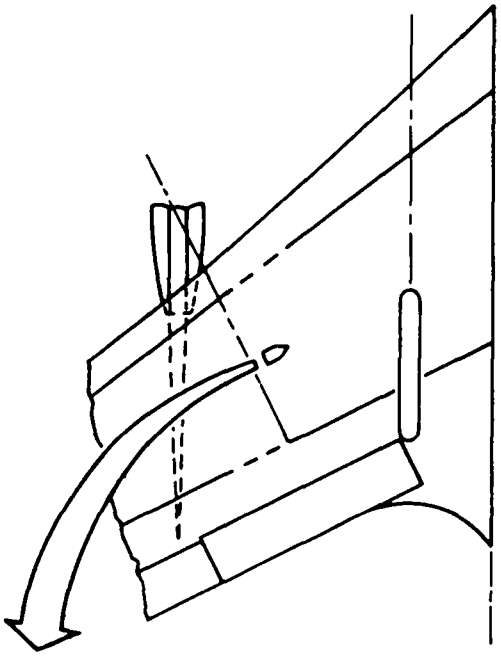
Wing Fuel Boost Pump Cutouts WS 360.0
Figure 65 (Sheet 19)

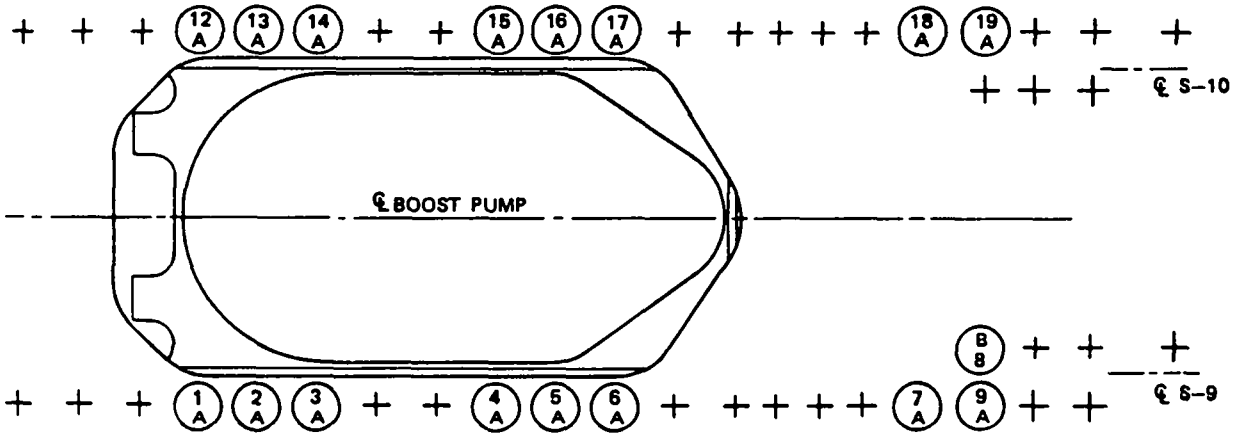


Wing Fuel Boost Pump Cutouts WS 360.0
Figure 65 (Sheet 20)



Wing Fuel Boost Pump Cutouts WS 360.0
Figure 65 (Sheet 21)





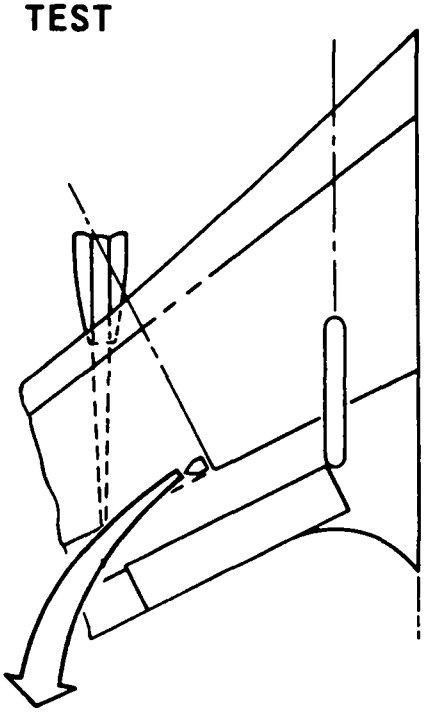
PLAN VIEW

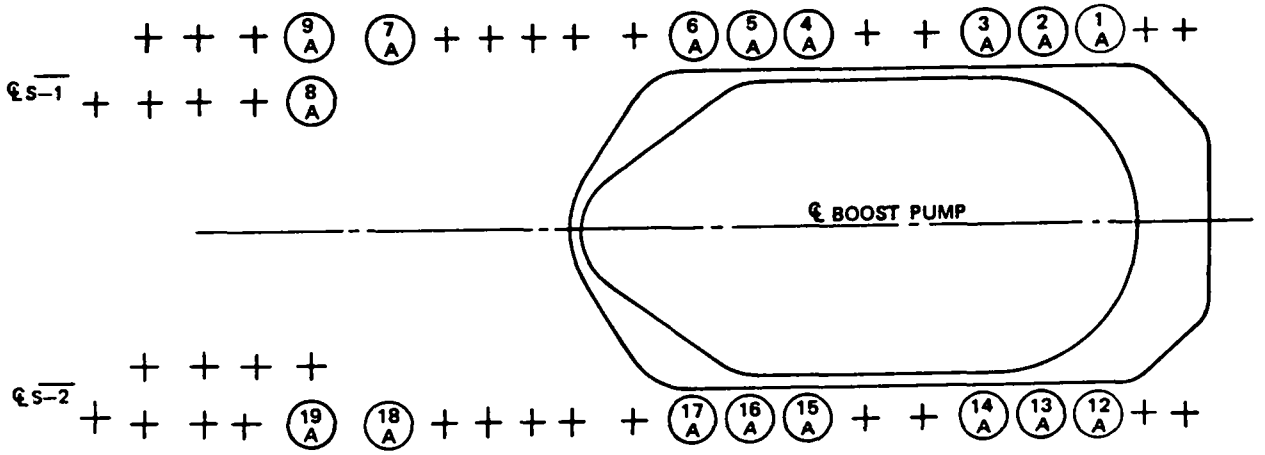
NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- (12A) INSPECTION FASTENER

WING FUEL BOOST PUMP INBOARD OF WS 360
AT S-9 AND S-10
DETAIL XV

Wing Fuel Boost Pump Cutouts WS 360.0
Figure 65 (Sheet 22)





PLAN VIEW

FWD

INBD

NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR

(7 A) INSPECTION FASTENER

WING FUEL BOOST PUMP OUTBOARD OF WS 360
AT S–1 AND S–2

DETAIL XVI

Wing Fuel Boost Pump Cutouts WS 360.0
Figure 65 (Sheet 23)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks in the horizontal flange of the upper rear spar chord fastener holes from WS 360 to WS 733 using low frequency eddy current. This inspection is accomplished from outside of the wing without fastener removal.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec Inc.
      1320 N.W. Mall
      Issaquah, WA 98027

   B. Probes - This procedure uses three probes depending on airplane effectivity (see Table II); any probe of similar size which satisfies the requirements of this procedure is acceptable. The following probes were used in the development of this procedure.

      (1) Ring (encircling) probe with 1-inch OD and 0.5-inch ID shielding, 100 Hz, Nortec P/N SPO-783

      (2) Ring (encircling) probe with 1.1-inch OD and 0.625-inch ID shielding, 100 Hz, Nortec P/N SPO-1154

Horizontal Flange Upper Rear Spar Chord-WS360 to 733
Figure 66 (Sheet 1)

(3) Low frequency spot probe with 1.0-inch OD shielding usable at 300 Hz, Nortec P/N SPO-1153

NOTE: 1. Probes listed above are available from:
Nortec Inc.
421 N. Quay
Kennewick, Washington 99336

2. Specify instrument with which probe is to be used or instrument connector required when ordering probes.

C. Manufacture Reference Standards per Details I, III, V or VII. See Table II for effectivity.

3. Prepare for Inspection

A. Wipe skin surface clean.

B. Some paint removal may be required to permit location of fasteners.

C. It is suggested that fastener locations requiring the same instrument inspection calibration be identified on the airplane by a colored circle. Water washable crayons, pencils or felt pens are suitable. Refer to Table II to identify appropriate detail showing inspection requirements for the various airplane effectivities.

4. Calibrate Instrument

A. General

(1) Two basic inspection types are required, depending on airplane effectivity.

(a) Inspection for fastener hole cracks using a ring probe centered on the fastener.

(b) Inspection for fastener hole cracks using a spot probe centered on the microshaved rivet.

(2) The two basic inspections require several instrument calibrations to adjust for variations in structure geometry and materials.

(3) Details IX and X identify inspection coverage for a particular calibration, and Table I provides specific calibration information for that inspection.

Horizontal Flange Upper Rear Spar Chord-WS 360 to 733
Figure 66 (Sheet 2)

B. Calibrate for fastener hole crack inspection using the ring probe or spot probe centered on the fastener. The following applies to inspection codes A thru N:

(1) Identify code for fasteners to be inspected from Table II and Details IX and X.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

(3) Visually center probe over the unnotched hole (Position 1) on the reference standard.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(6) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

NOTE: Probe is centered by manipulating to obtain minimum meter response.

(7) Center probe over the notched reference standard hole (Position 2). Response should be upscale.

(8) Adjust instrument sensitivity to obtain 60% of full scale meter response difference between the notched and unnotched holes.

(9) Recheck null and liftoff. If readjustments are made recheck sensitivity per par. 4.B.(8).

(10) Cracks will be indicated by a higher meter response.

Horizontal Flange Upper Rear Spar Chord-WS 360 to 733
Figure 66 (Sheet 3)

5. Inspection Procedure

NOTE: An inspection code is used to identify locations having similar inspection conditions. A single instrument calibration is usually used to inspect these locations.

It is suggested that a copy of Details IX or X (depending on airplane effectivity) be made and used to record instrument responses at each fastener location. This is helpful in maintaining continuity between the groups of fasteners during inspection.

A. Inspect fastener holes for cracks using the ring probe or spot probe centered on the fastener (Inspection codes A thru N).

(1) Accomplish inspections of codes A thru N in the order given in Table I.

(2) Calibrate instrument per par. 4.B. and Table I.

(3) Note on the airplane the location of those fasteners having the same inspection code by using Details IX or X depending on airplane effectivity. See Table II for airplane effectivity.

(4) Use several fasteners of the same code to establish the airplane baseline response for an acceptable fastener.

(a) Select a representative fastener from this group and set its response to 20% of full meter scale.

NOTE: Do not change instrument sensitivity when establishing the airplane baseline response.

(b) Refer back to this fastener periodically to ensure that instrument response is the same as originally recorded. (Changes in meter response may occur as a result of instrument drift or probe temperature change.)

(5) Inspect each fastener having the same inspection code by centering the probe on the fastener and manipulating to obtain a minimum response.

NOTE: Review the Special Notes called out in Table I for conditions which affect the inspection.

Horizontal Flange Upper Rear Spar Chord-WS 360 to 733
Figure 66 (Sheet 4)

(6) Fastener locations which give a response which is 40% of full meter scale higher than the established baseline are potential crack indications and further investigation is required.

NOTE: The following conditions may cause meter reading changes similar to crack indications:

(a) A decrease in fastener spacing. Compare with similarly spaced fasteners on the airplane.

(b) Edge of rear spar chord. Check Details IX or X for spar chord edge.

(c) A larger or smaller fastener. Compare with similar fasteners of reference standard and on airplane.

(d) A fastener that is different in countersink depth. Compare with similar fastener in standard raised to the same height.

(e) A fastener close to edge of skin. Compare with similar fasteners on airplane.

(f) Differences in conductivity between skin panels. Compare only the fastener locations common to a skin panel.

Inspection Code (1)	Reference Standard No.	Probe Identification (2)	Instrument Frequency Hz	Calibration Detail No.	Probe Calibration Position (3)	Special Notes
A	059	(2)	100	IV	A	
B	058	(2)	100	II	A	
C	058	(1)	100	II	B	(5)
D	058	(1)	100	II	C	(4)
E	059	(1)	100	IV	B	(5)
F	060	(2)	100	VI	A	(7)
G	060	(2)	100	VI	B	
H	060	(2)	100	VI	C	
J	060	(1)	100	VI	D	(5)
K	061	(1)	100	VIII	A	
L	061	(1)	100	VIII	B	(8)
N	061	(3)	300	VIII	C	(6)

Calibration Table
Table I

Horizontal Flange Upper Rear Spar Chord-WS 360 to 733
Figure 66 (Sheet 5)

NOTES:

1. Code for specific inspection areas identified on Details IX thru XVI to which the calibration requirements apply.

2. Probe Identification:
   (1) P/N SPO-783 (1.0-inch OD and 0.5-inch ID ring probe)
   (2) P/N SPO-1154 (1.1-inch OD and 0.62-inch ID ring probe)
   (3) P/N SPO-1153 (1.0-inch OD spot probe)

3. Letters refer to "Probe Position for Calibration Details" and identify that row of fasteners in the reference standard for this calibration.

4. The total structure thickness decreases in the outboard direction. Use several similar adjacent fasteners on the inboard and outboard side of the inspection fastener (unless they are covered by another inspection code) to establish the baseline response.

5. This code covers two styles of countersunk heads, a small difference in response will be noted between them. Compare fasteners with similar head styles.

6. Heavy paint may obscure the location of microshaved rivets. Remove paint as necessary to determine location of inspection fasteners.

7. Compare these fasteners with each other and the reference standard.

8. These two fasteners have a shorter edge margin - compare with each other and with fasteners marked on Detail X.

A/P Cum Line Nos.	Inspection Area Detail	Reference Standard Detail	Probes Required
9	IX	I & III	SPO 783 SPO 1154
10	IX. Refer to Details XII and XVI for WS 546.0 and WS 360.0	I, III, & V	SPO 783 SPO 1154 SPO 1153
11	X, XI, XIII, XV, XVI	V & VII	SPO 783 SPO 1154 SPO 1153

Table II
Effectivity Table

Horizontal Flange Upper Rear Spar Chord-WS 360 to 733
Figure 66 (Sheet 6)

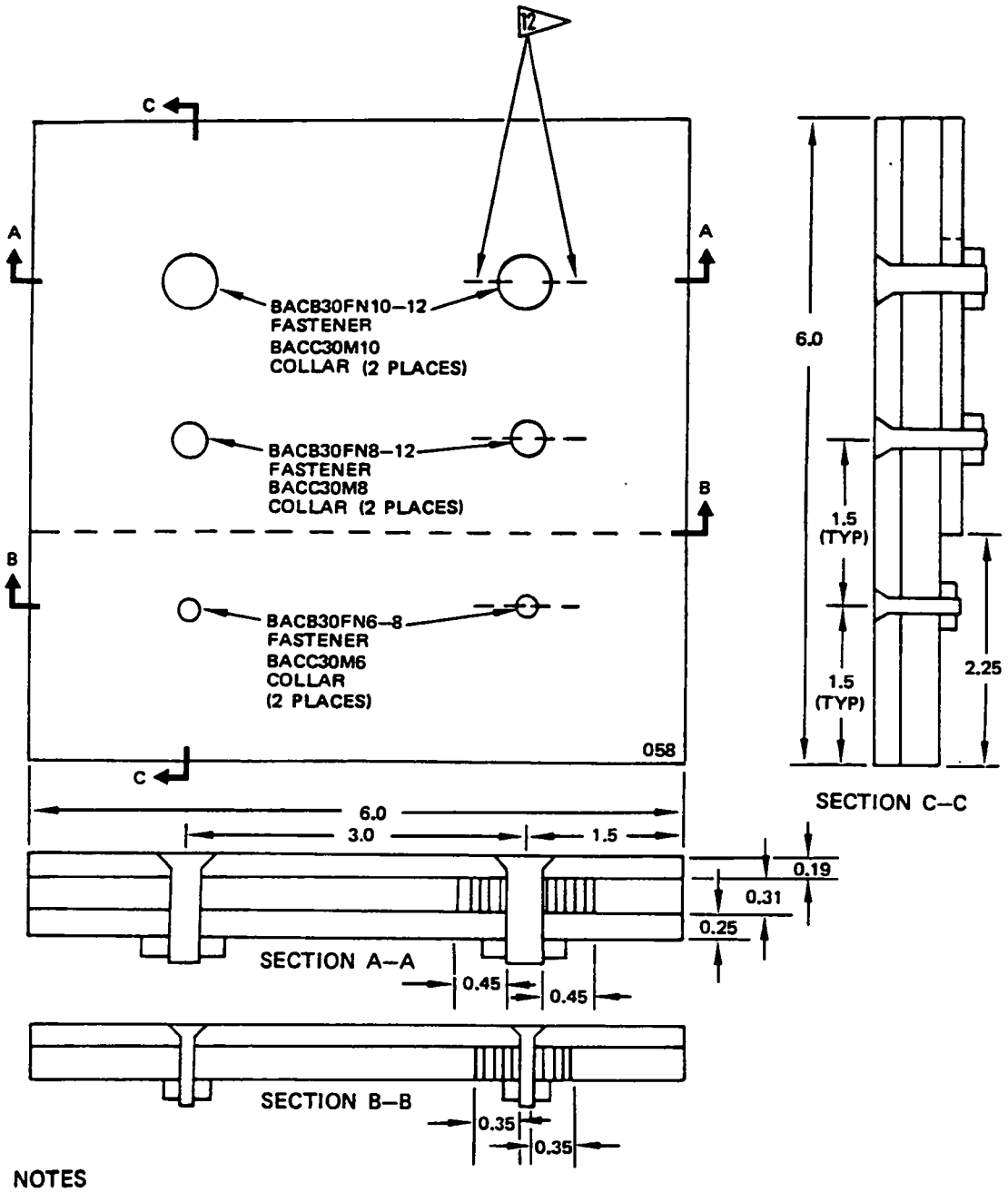
NOTES: (CONT)

9 LINE NUMBERS 13, 20, 35, 58, 61, 62, 65, 68 thru 71, 73 thru 76, 78 thru 84, 86, 88 thru 94, 98 thru 101, 103 thru 107, 110 thru 118, 121 thru 129, 133 thru 139, 144, 145, 151 thru 155, 159 thru 164, 167 thru 171, 175, 176, 192, 200, 205, 209, 212, 216, 217, 264, 266, 269, 271, 272, 274, 275, 282, 283, 293, 302, 328, 330, 334 and 353.

10 LINE NUMBERS 268, 270, 276, 287, 292, 303, 305, 320, 323, 325, 326, 327, 329, 331, 332, 333, 335, 336, 341 thru 346, 348, 349, 350, 352, 354 thru 360, 362 thru 373, 375 thru 379, 383, 386, 387, 389, 394, 397 thru 400, 402 thru 409, 411, 412, 413, 415 thru 419, 421, 424, 425, 428, 430, 431, 434 thru 441, 443 thru 469, 471, 472, 475, 476, 477, 478, 480, 482 thru 485, 487, 488, 494 thru 505, 507 thru 511, 513, 515 thru 525, 527, 528, 529, 531, 532, 534, 536, 537, 538, 540 thru 557, 559, 560, 561, 563, 566, 568, 570, 572, 574, 576, 578, 580, 582, 584, 585, 587, 588, 590, 592, 594, 596, 599, 601, 603, 605, 607 thru 614, 616 thru 620, 623, 625 thru 668, 670, 671.

11 LINE NUMBERS 672 thru 679, 681, 683 thru 770, 772 thru 776, 778 thru 786, 788 thru 793, 795 thru 800, 802 thru 897, 899, 900, 903, 905, 906, 908, 910, 911, 912, 914, 915, 917, 918, 919, 922, 923, 925, 928, 929, 936, 938, 941.

Horizontal Flange Upper Rear Spar Chord WS 360 to WS 733
Figure 66 (Sheet 7)



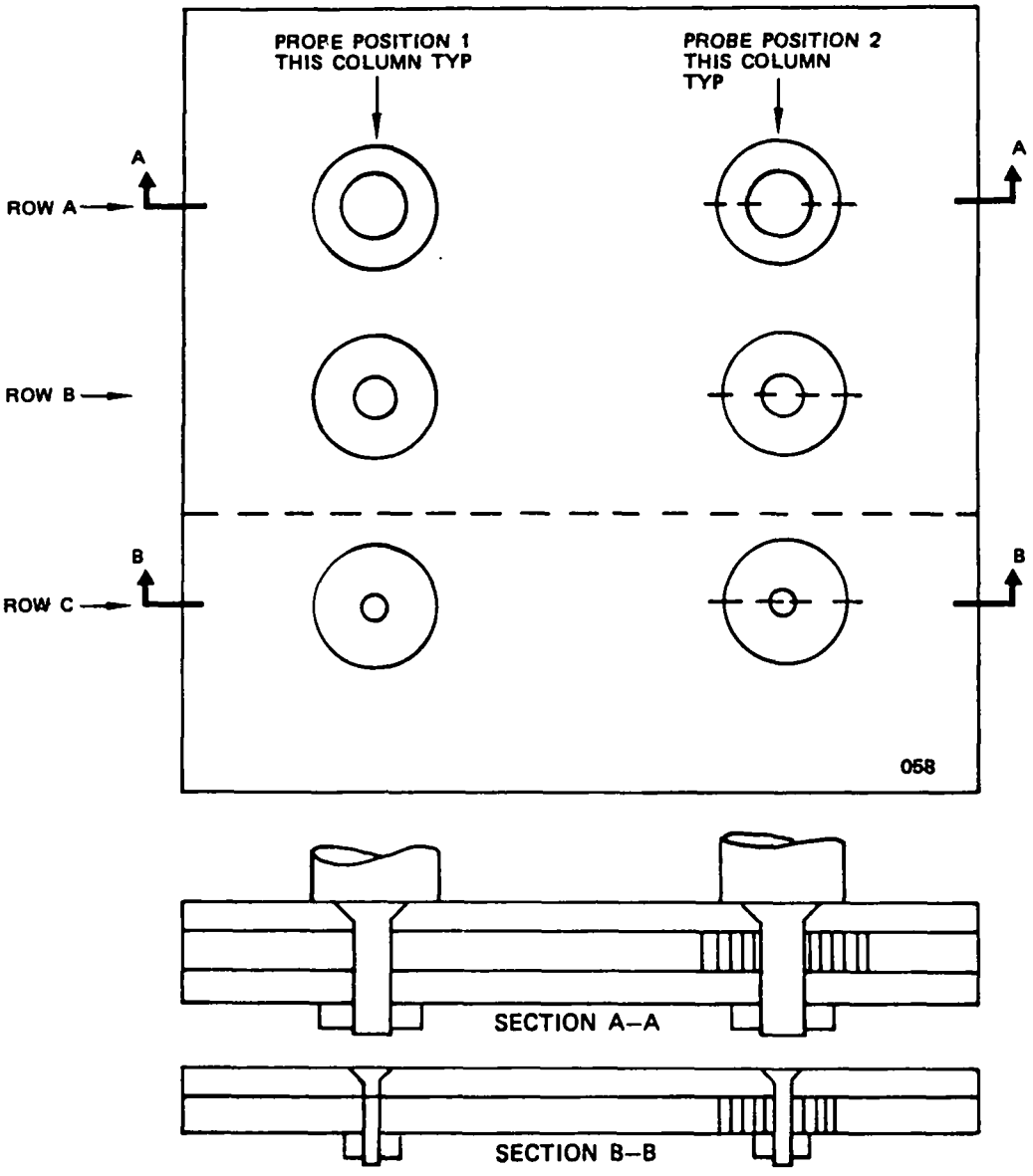
NOTES

- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 7075–T6 ALUMINUM
- TOLERANCE: X.X ± 0.05, X.XX ± 0.02, X.XXX ± 0.005
- ETCH OR STEEL STAMP WITH 058

12 JEWELER'S SAWCUT
0.030 MAX WIDTH (6 PLACES)

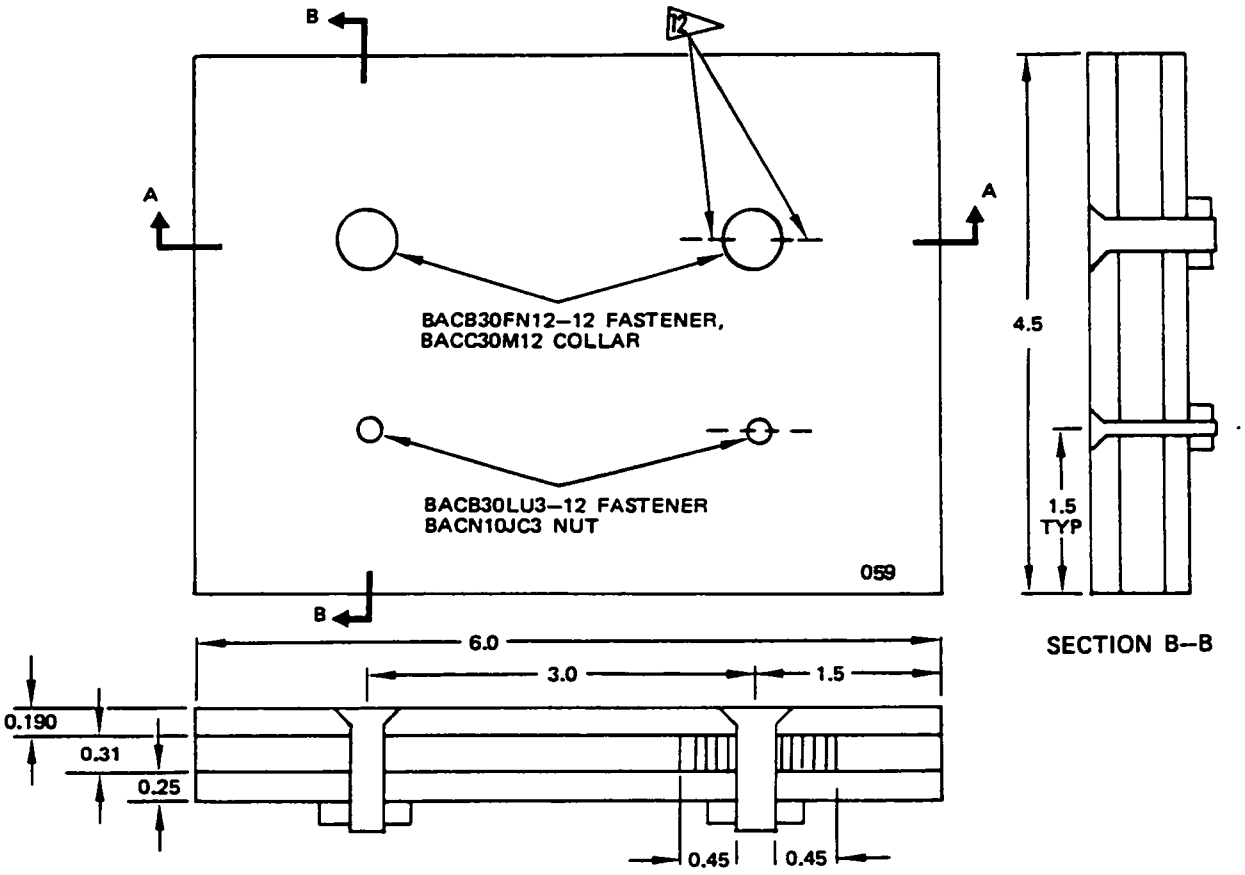
REFERENCE STANDARD 058
DETAIL I

Horizontal Flange Upper Rear Spar Chord - WS 360 to 733
Figure 66 (Sheet 8)



PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD 058

DETAIL II



SECTION A–A

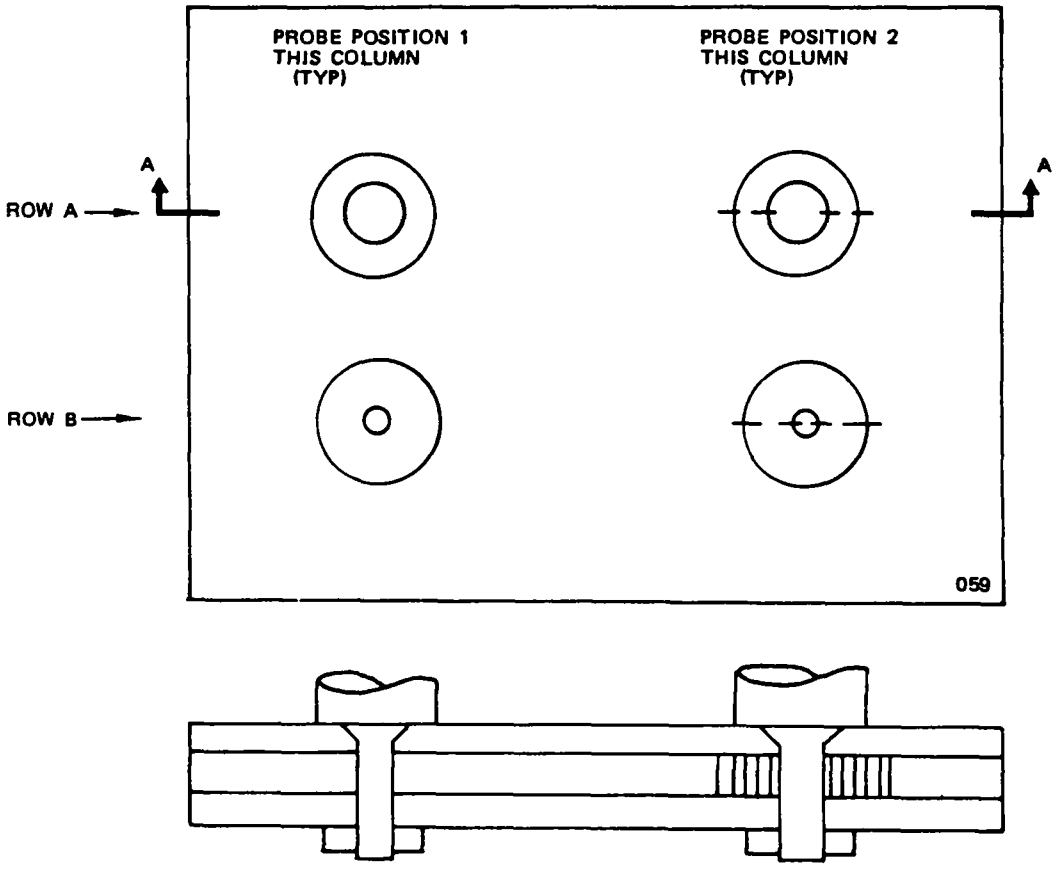
NOTES

- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 7075–T6 ALUMINUM
- TOLERANCE: X.X ± 0.05, X.XX ± 0.02. X.XXX ± 0.005
- ETCH OR STEEL STAMP WITH 059

12 JEWELER'S SAWCUT 0.030 MAX WIDTH (4 PLACES)

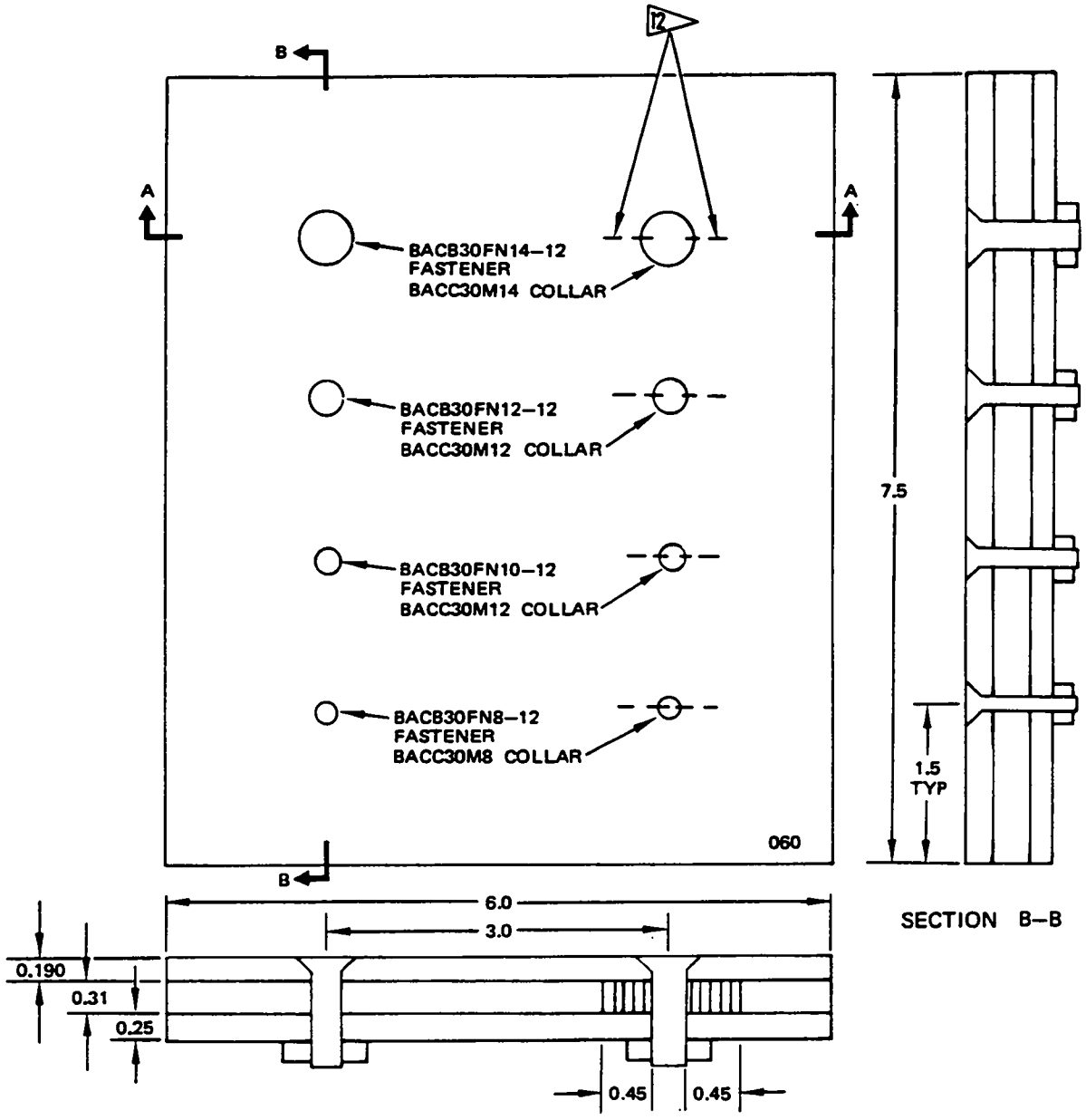
REFERENCE STANDARD 059
DETAIL III

Horizontal Flange Upper Rear Spar Chord - WS 360 to 733
Figure 66 (Sheet 10)



SECTION A–A

PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD 059
DETAIL IV



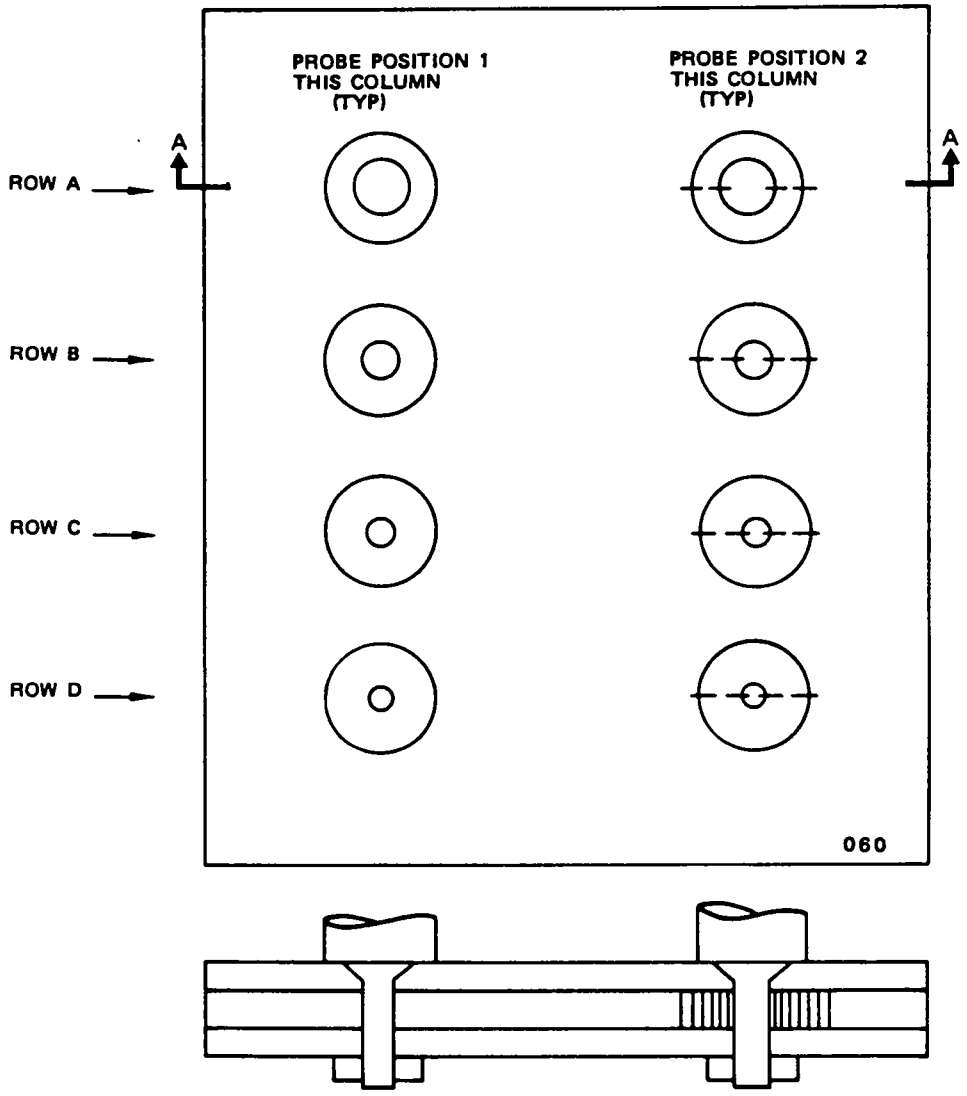
NOTES:

- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 7075–T6 ALUMINUM
- TOLERANCE: X.X + 0.05, X.XX + 0.02, X.XXX + 0.005
- ETCH OR STEEL STAMP WITH 060

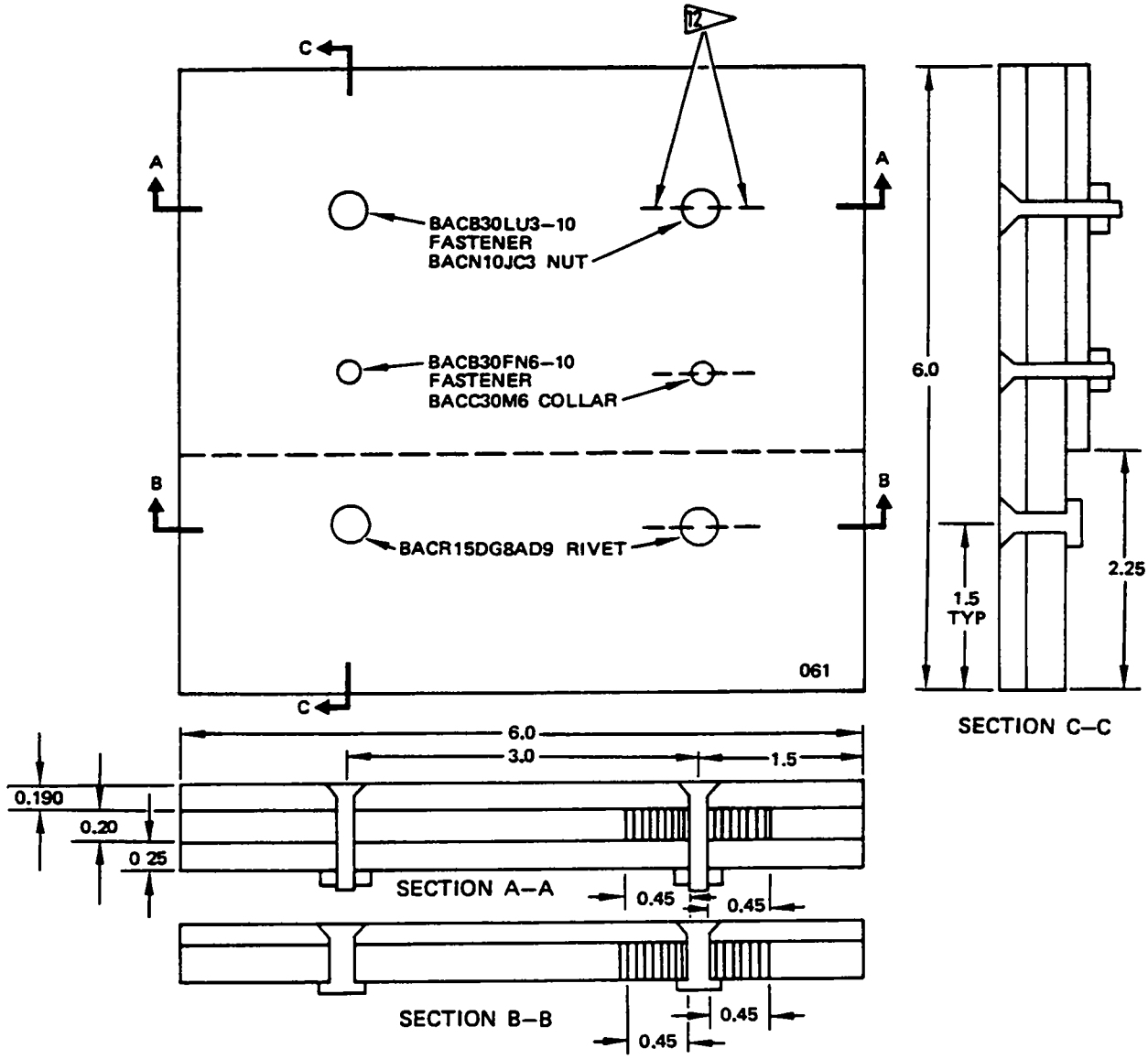
12 JEWELER'S SAWCUT 0.030 MAX WIDTH (8 PLACES)

REFERENCE STANDARD 060
DETAIL V

Horizontal Flange Upper Rear Spar Chord - WS 360 to 733
Figure 66 (Sheet 12)



PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD 060
DETAIL VI



NOTES:

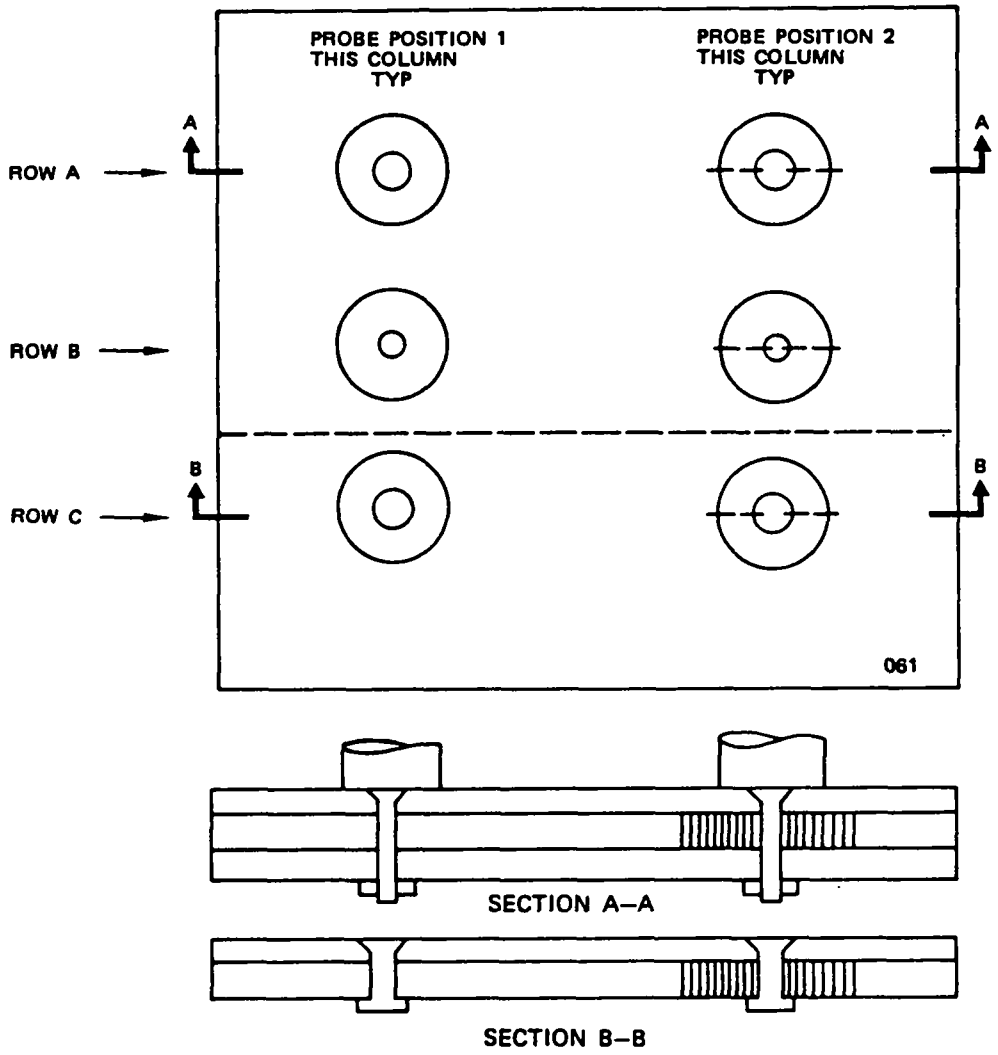
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 7075-T6 ALUMINUM
- TOLERANCE: X.X ± 0.05, X.XX ± 0.02, X.XXX ± 0.005
- INSTALL MICROSHAVED RIVETS PER BAC 5047
- ETCH OR STEEL STAMP WITH 061

12 JEWELER'S SAWCUT 0.030 MAX WIDTH (6 PLACES)

REFERENCE STANDARD 061

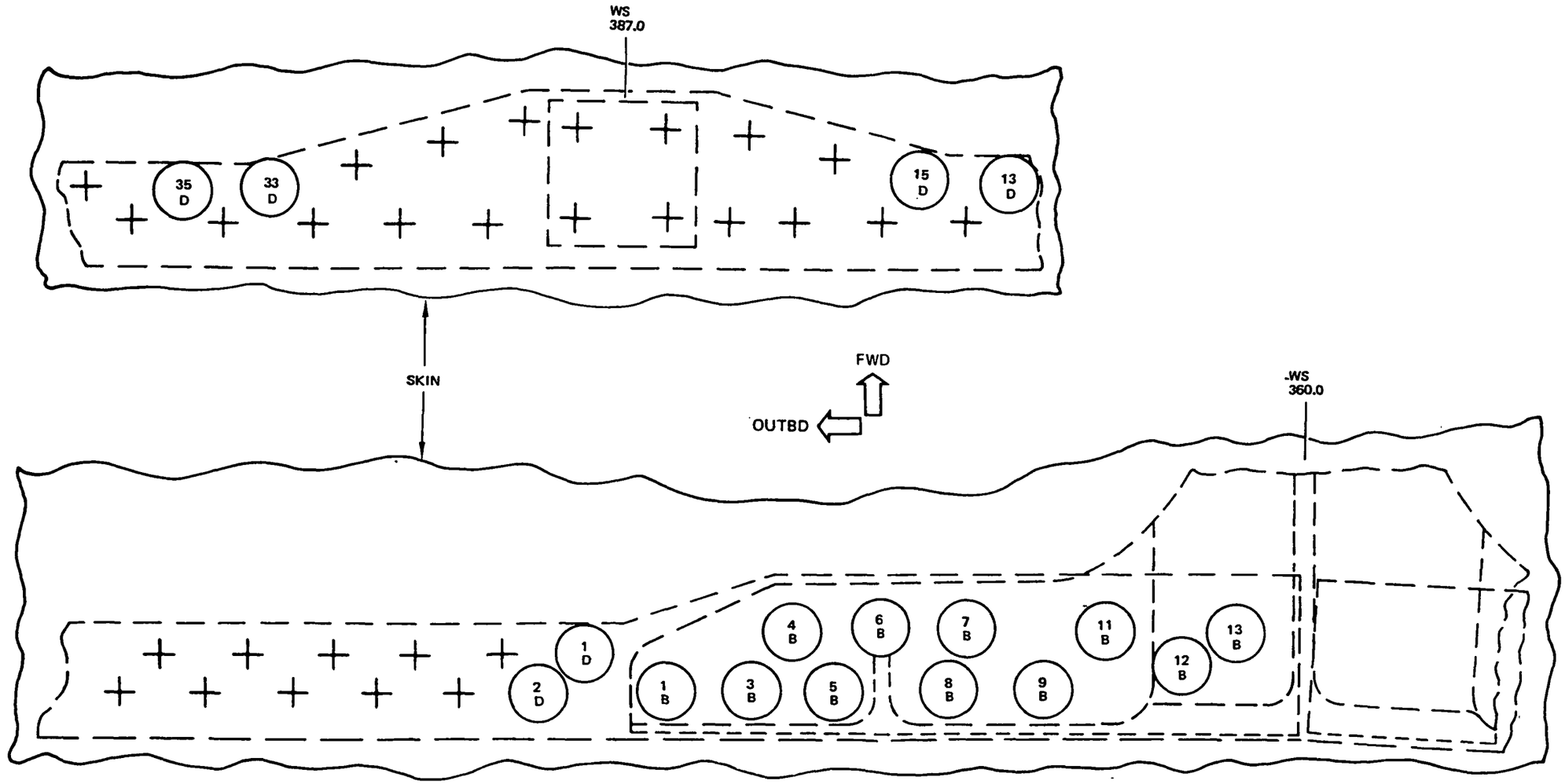
DETAIL VII

Horizontal Flange Upper Rear Spar Chord - WS 360 to 733
Figure 66 (Sheet 14)



PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD 061

DETAIL VIII

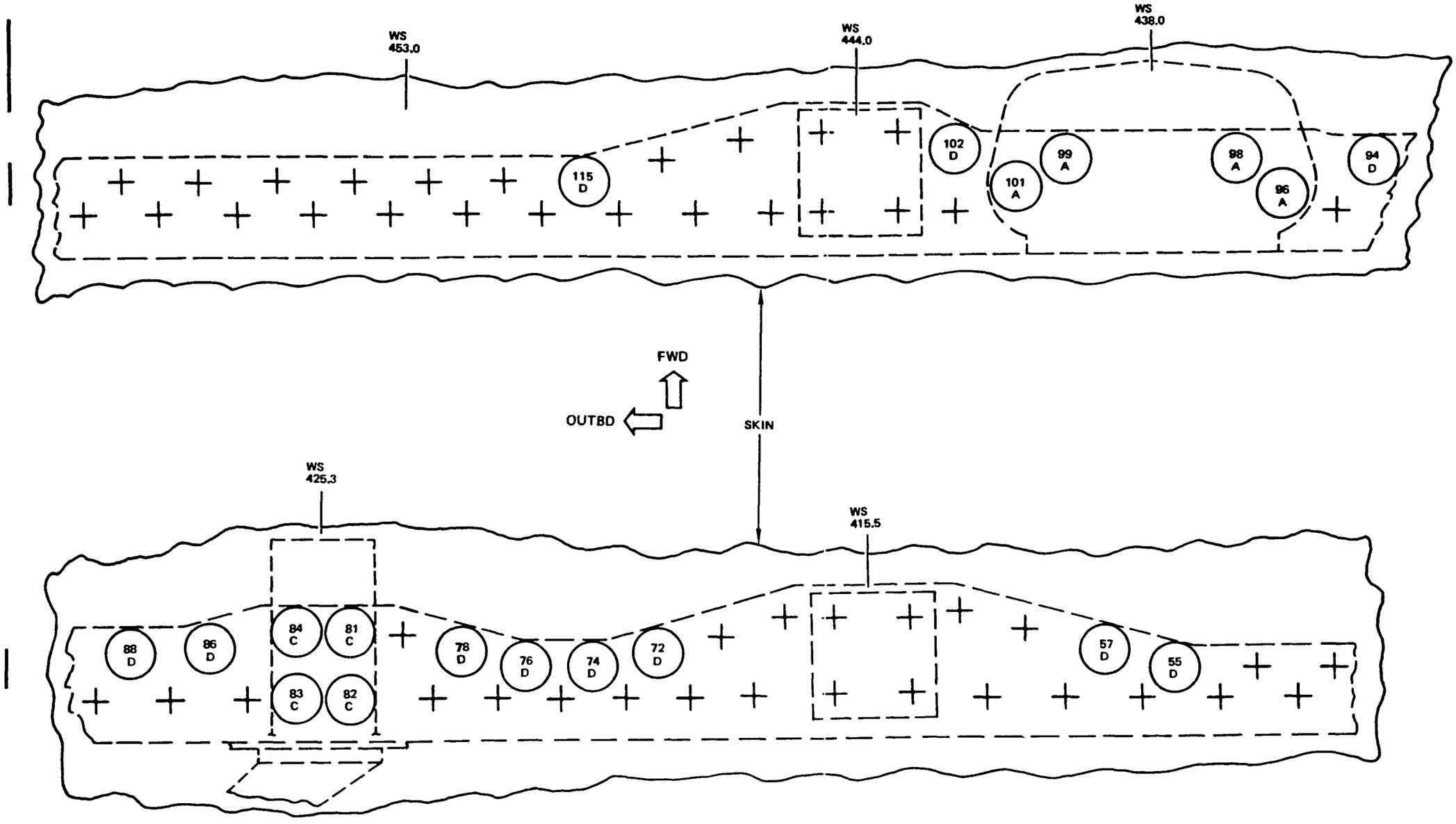


NOTE:

(1 D) FASTENER TO BE INSPECTED

INSPECTION AREA
DETAIL IX

Horizontal Flange Upper Rear Spar Chord - WS 360 to 733
Figure 66 (Sheet 16)

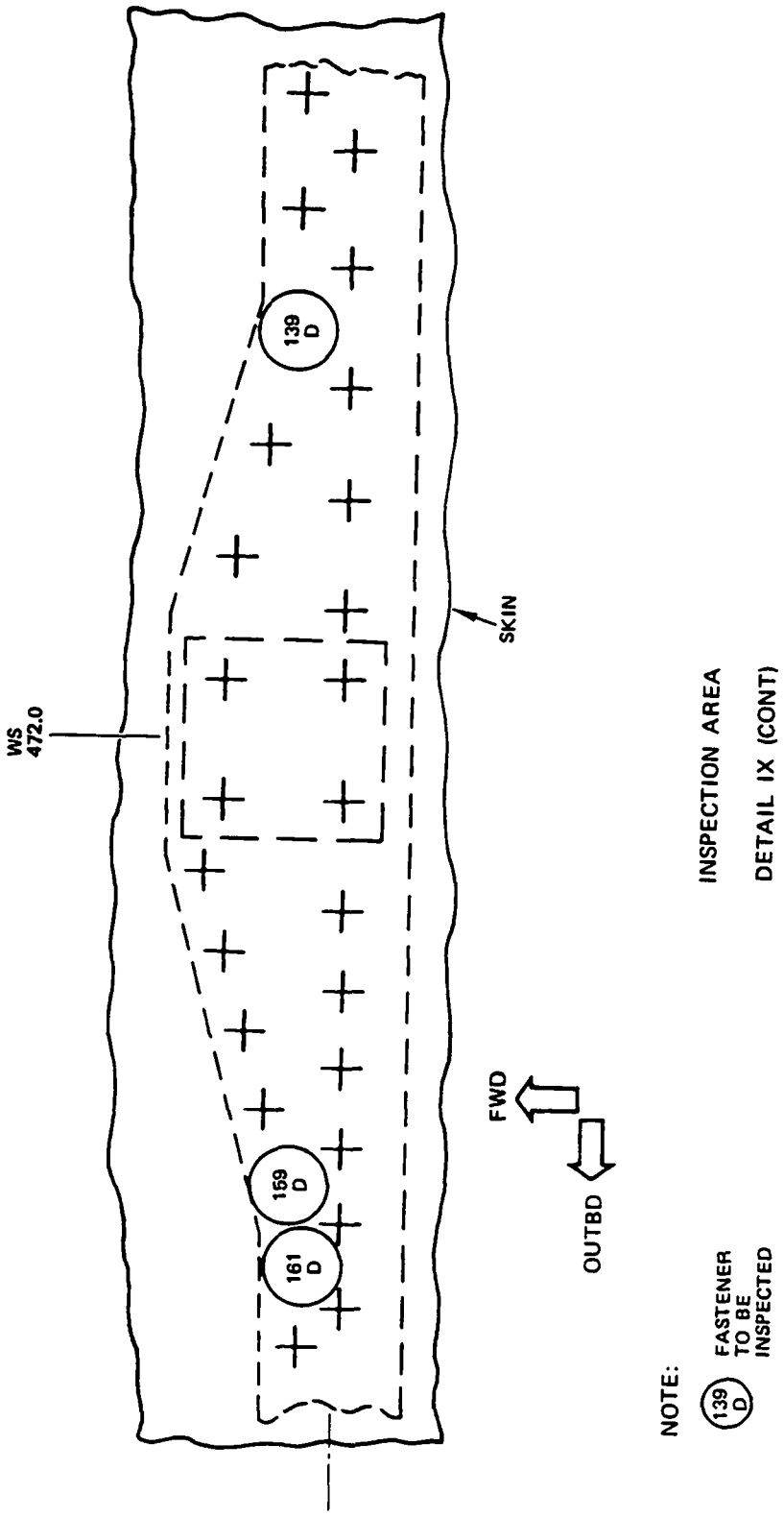


NOTE:

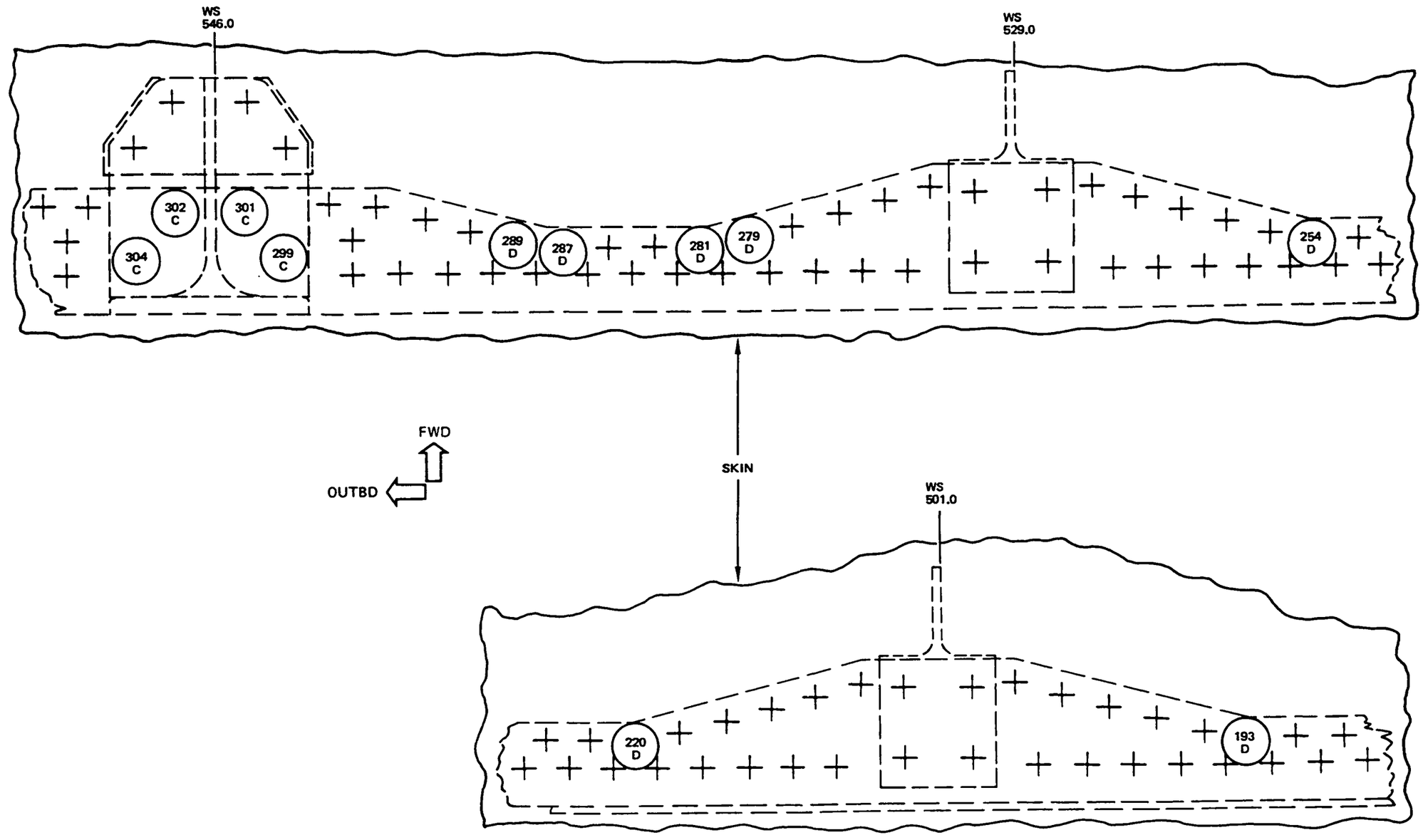
(82 C) FASTENER TO BE INSPECTED

INSPECTION AREA
DETAIL IX (CONT)

Horizontal Flange Upper Rear Spar Chord - WS 360 to 733
Figure 66 (Sheet 17)



Horizontal Flange Upper Rear Spar Chord - WS 360 to 733
Figure 66 (Sheet 18)



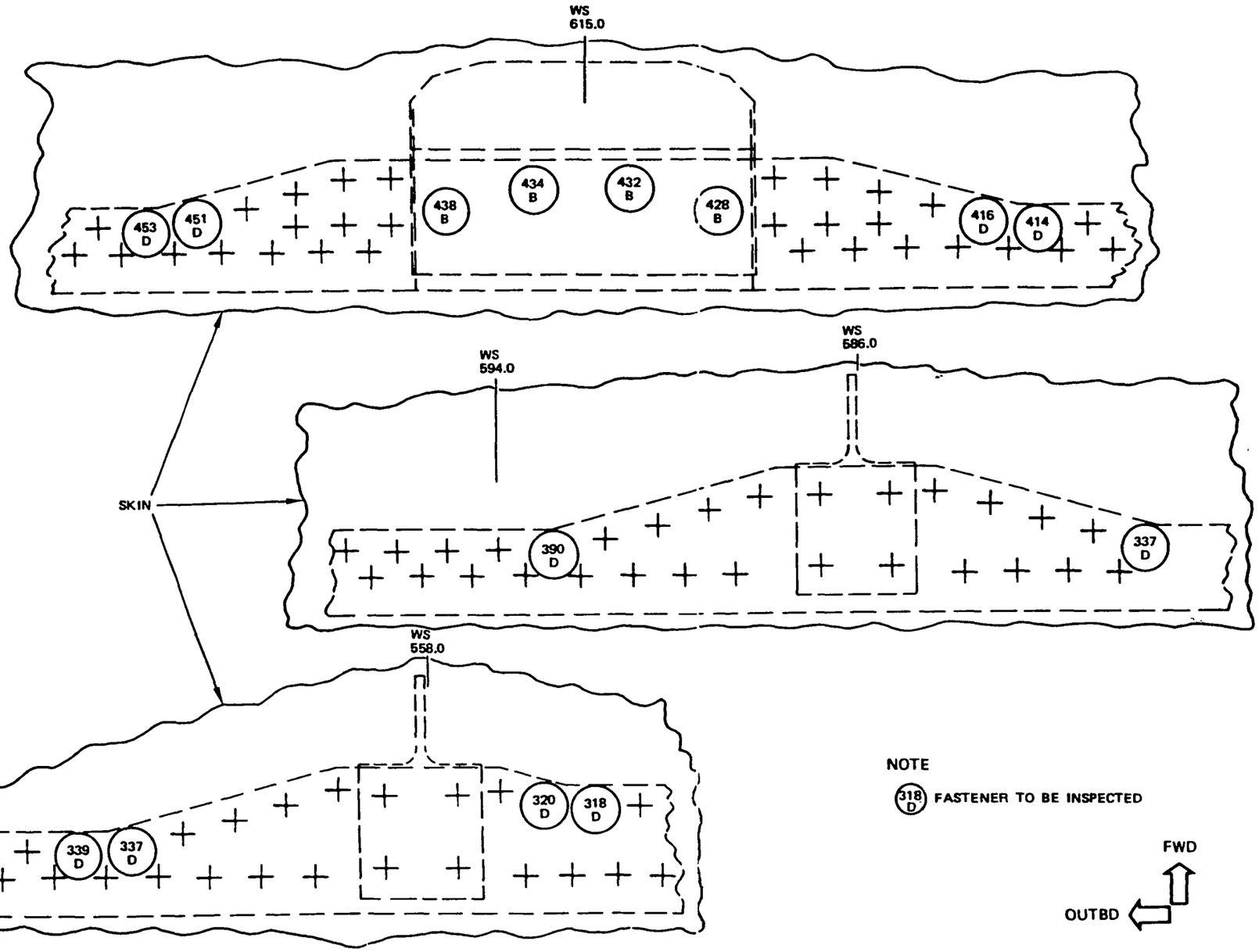
NOTE:

279 D FASTENER TO BE INSPECTED

INSPECTION AREA

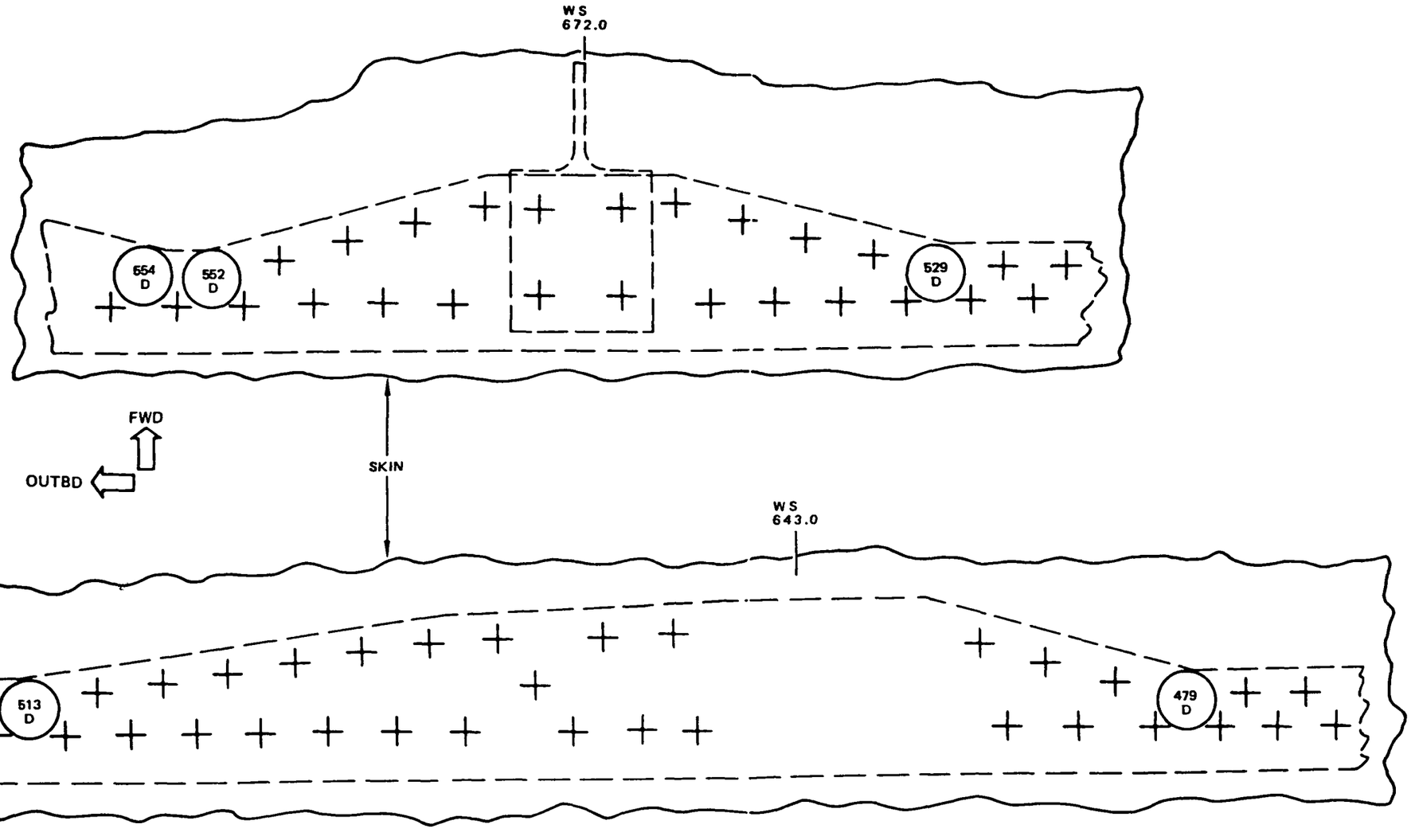
DETAIL IX (CONT)

Horizontal Flange Upper Rear Spar Chord - WS 360 to 733
Figure 66 (Sheet 19)



INSPECTION AREA

DETAIL IX (CONT)

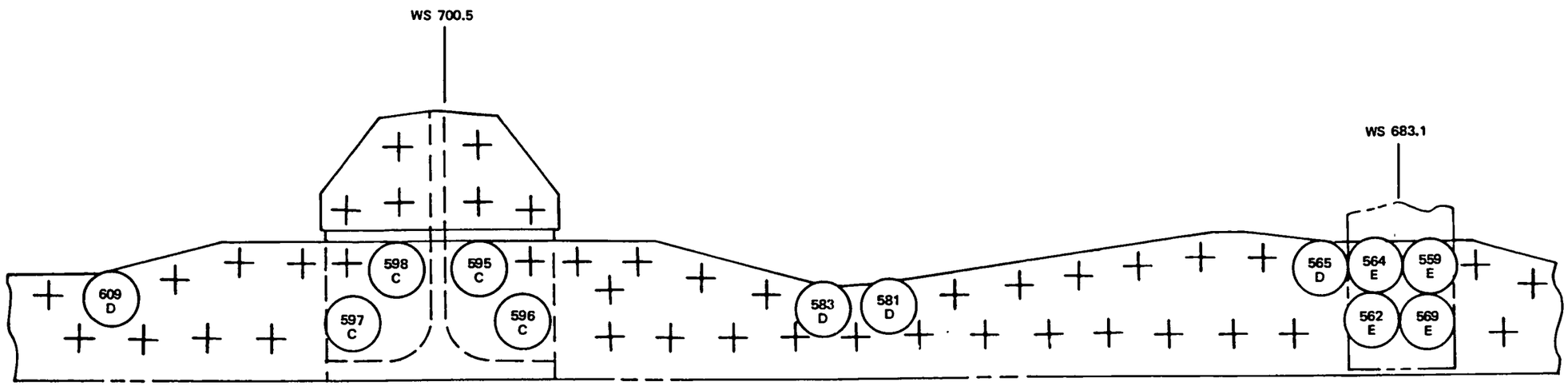


NOTE

(513 D) FASTENER TO BE INSPECTED

INSPECTION AREA

DETAIL IX (CONT)



FWD

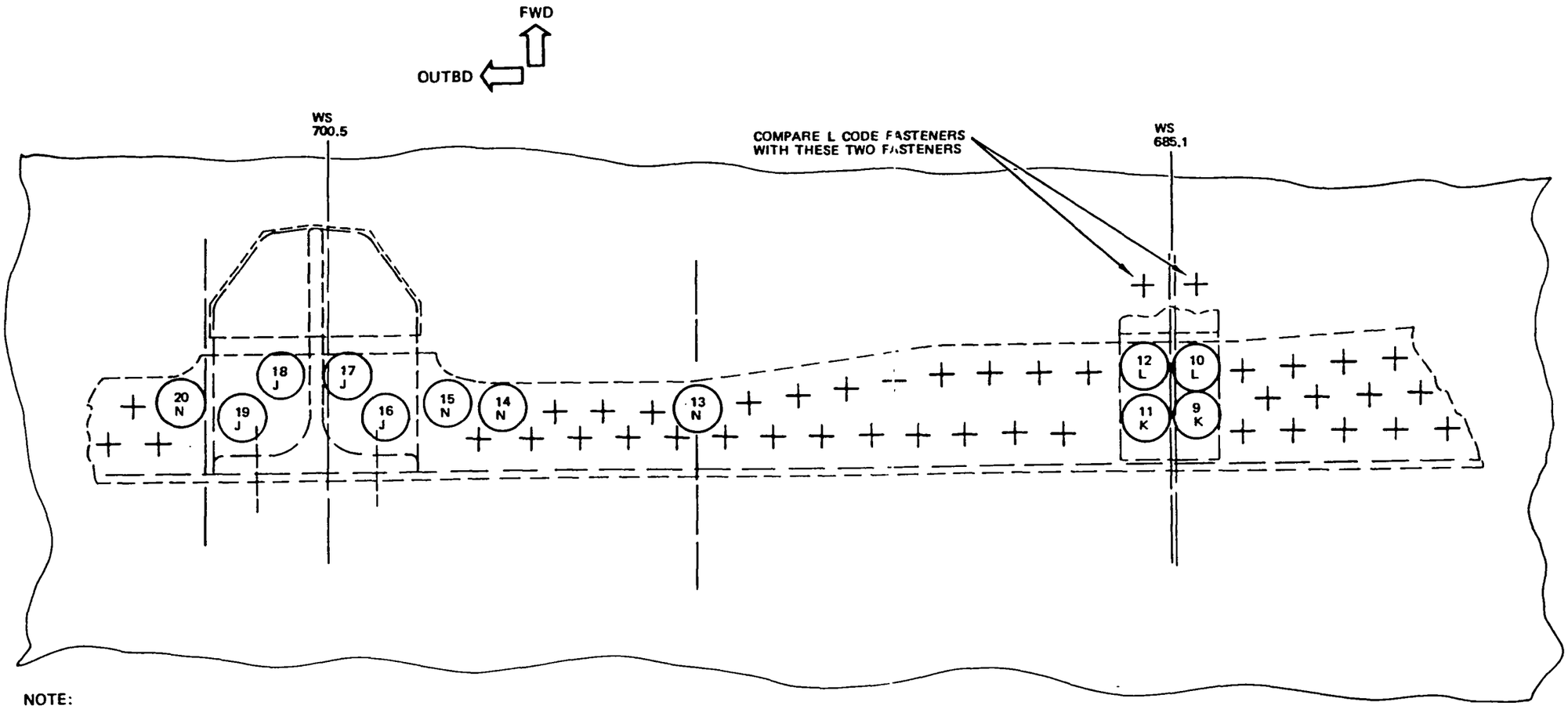
OUTBD

NOTE

583 D FASTENER TO BE INSPECTED

INSPECTION AREA
DETAIL IX

Horizontal Flange Upper Rear Spar Chord - WS 360 to 733
Figure 66 (Sheet 22)

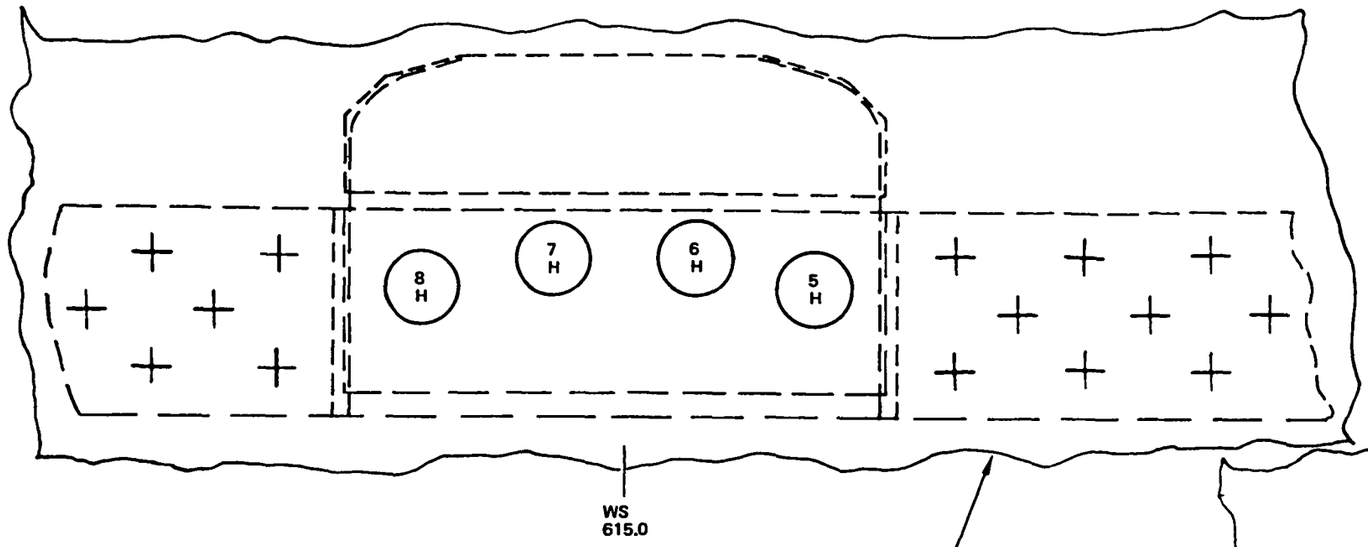


NOTE:

(14 N) FASTENER TO BE INSPECTED

INSPECTION AREA

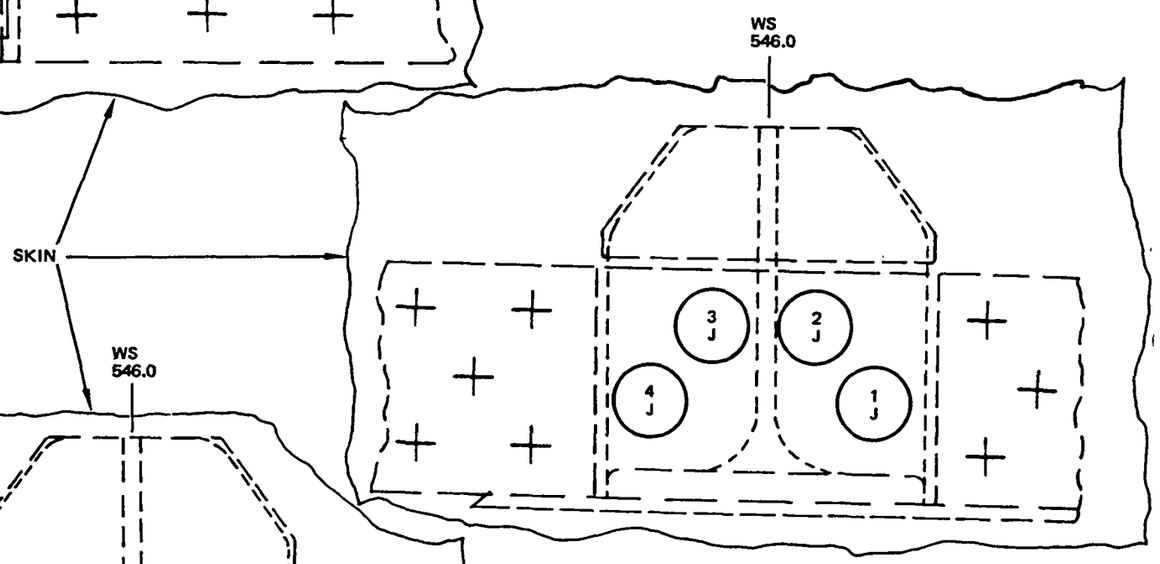
DETAIL X (CONT)



DETAIL XI

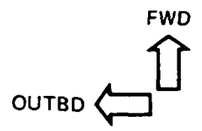
NOTES

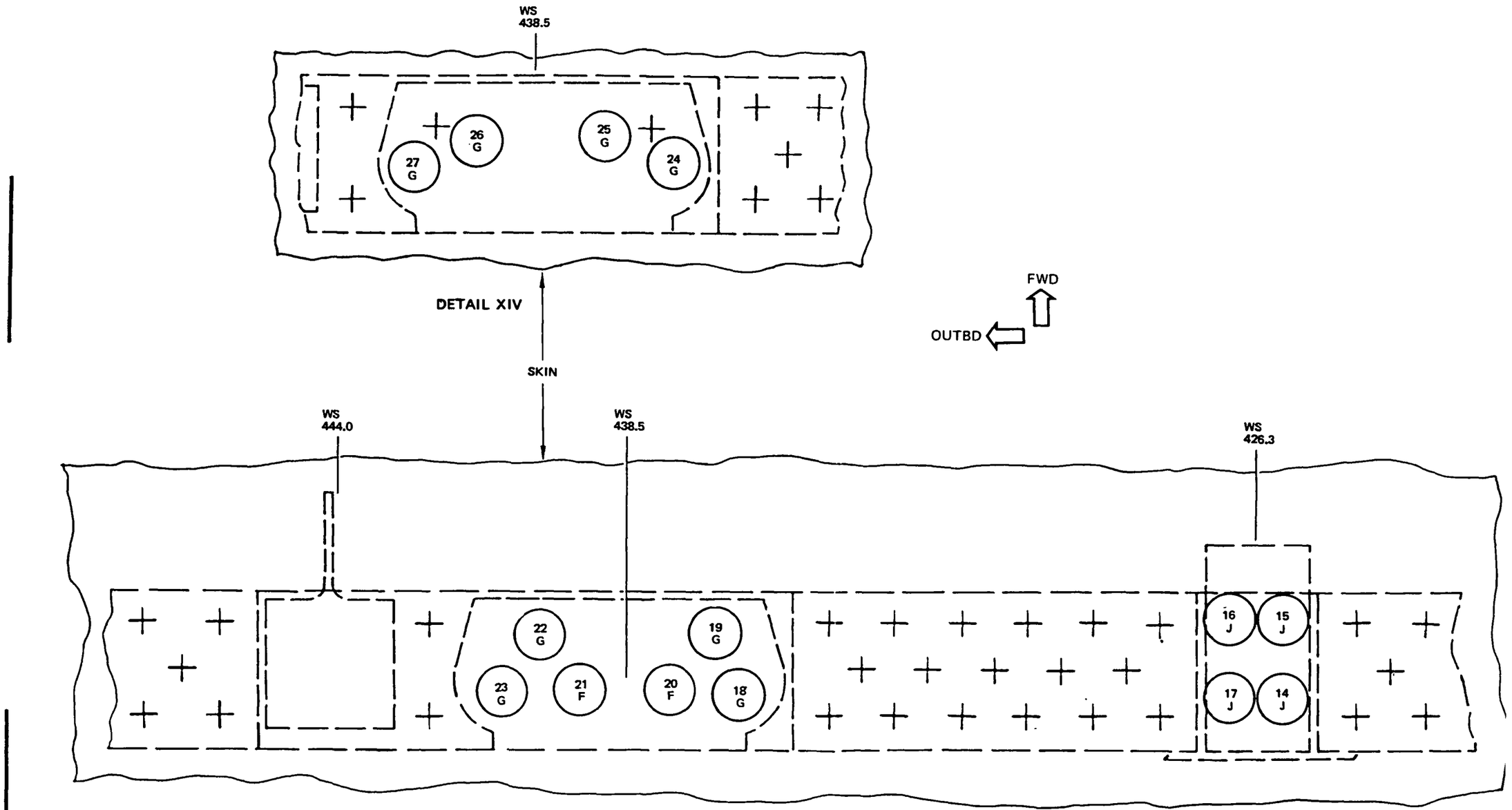
(8 H) FASTENER TO BE INSPECTED



DETAIL XII

DETAIL XIII

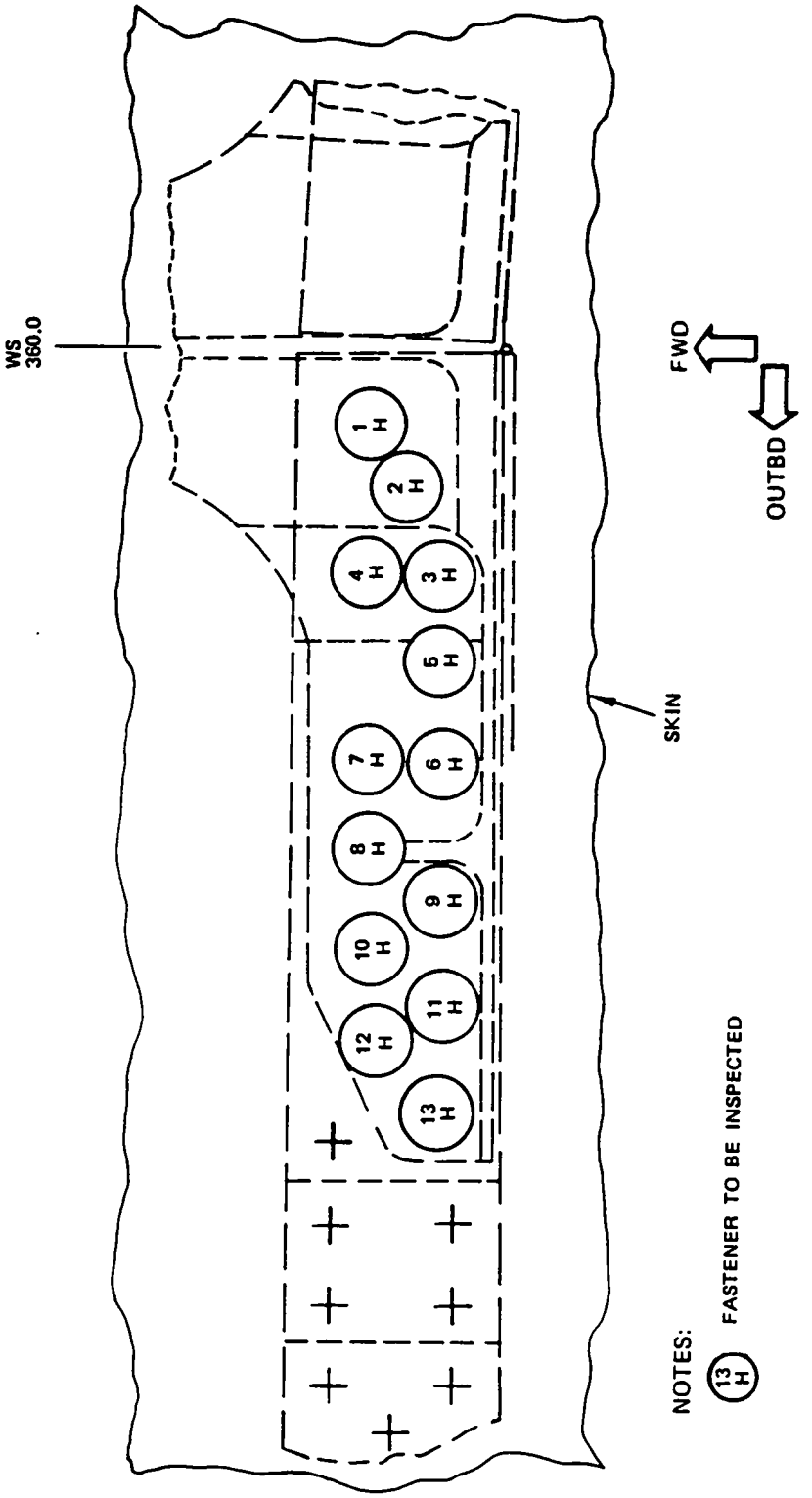




NOTE

(22 G) FASTENER TO BE INSPECTED

DETAIL XV



Horizontal Flange Upper Rear Spar Chord - WS 360 to 733
Figure 66 (Sheet 26)

EFFECTIVITY
MODEL: 707-300/400, -300B,-300C
SERVICE BULLETIN REFERENCE: 3376
SSI DOCUMENT REFERENCE: (D6-44860)
SSD: 57-A25-26 57-A35-26 57-A45-26

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks propagating from the rear spar chord horizontal flange into the vertical flange.

2. Equipment

   Refer to Part 6, 51-00-00, Fig. 4.

3. Prepare to Inspect

   A. Gain access to aft face of rear spar upper chord vertical flange immediately inboard of the beavertail.

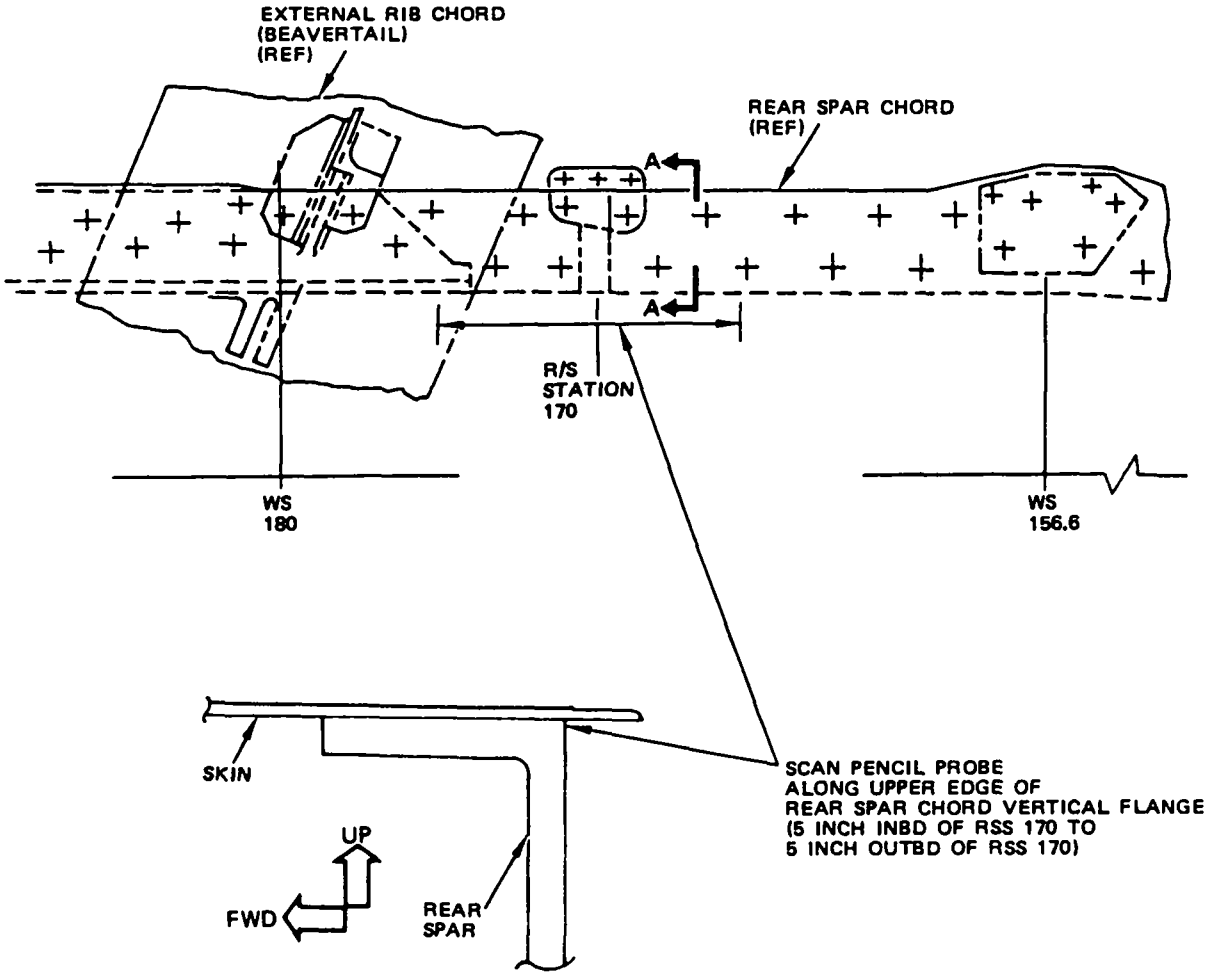
   B. Remove any sealant at the upper edge of the chord vertical flange to cleanly expose the edge for a distance of five inches inboard and outboard of the skin and chord steps at rear spar Station 170. See Detail I.

4. Calibrate Instrument

   Refer to Part 6, 51-00-00, Fig.

   Place surface probe on the upper edge of chord vertical flange. Scan along the exposed ten inch length for cracks propagating from the horizontal flange into the vertical flange.

Wing, Upper Rear Spar Chord Horizontal Flange
Figure 67 (Sheet 1)



SECTION A–A
(ROTATED 90°)

INSPECTION AREA

DETAIL I

Wing, Upper Rear Spar Chord Horizontal Flange
Figure 67 (Sheet 2)

EFFECTIVITY
MODEL: 720
SERVICE BULLETIN
REFERENCE: A3395
SSI DOCUMENT (D6-44860)
REFERENCE:
SSD: 57-A00-16

PART 6 - EDDY CURRENT

WING - MAIN FRAME

1. Purpose

To detect cracks in the lower wing skin flanges of S-5 and S-7 from WS 265 to WS 470 using low frequency eddy current.

2. Equipment

A. Instrument - Any eddy-current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used for development of this procedure:

(1) MIZ-10
Zetec, In.
1320 N.W. Mall
Issaquah, WA 98027

B. Probe - This procedure uses one probe; any probe of similar size that will satisfy the performance requirements of this procedure is acceptable. The following probe was used in the development of this procedure:

(1) Ring (encircling) probe with 1.0-inch OD and 0.5-inch ID shielding, 100 Hz, Nortec P/N SPO-783.

NOTE: 1. The probe listed above is available from:

Nortec, Inc.
421 N. Quay
Kennewick, WA 99336

2. Specify instrument with which probe is to be used or instrument connector required when ordering probes.

C. Reference Standards - Manufacture per Detail I.

Lower Wing Skin Flanges of S-5 and S-7 from WS 265 to 470
Figure 68 (Sheet 1)

3. Preparation for Inspection

A. Wipe skin surface clean.

4. Instrument Calibration

A. Calibrate for fastener hole crack inspection using a ring probe centered on the fastener.

(1) Connect probe to instrument

(2) Set frequency to 250 Hz.

(3) Visually center probe over the unnotched hole of the reference standard, Position 1. See Detail II.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is accomplished by manipulating the probe to obtain a minimum meter response.

(6) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

NOTE: Probe is centered by manipulating to obtain a minimum meter response.

(7) Center probe over the notched reference standard hole, Position 2. Response should be upscale.

(8) Adjust instrument sensitivity to obtain 60% of full scale meter response difference between the notched and unnotched holes.

(9) Recheck null and liftoff. If readjustments are made, recheck sensitivity per par. (8).

(10) Cracks will be indicated by a higher meter response.

5. Inspection Procedure

A. Calibrate instrument per par. 4.A.

B. Note on the airplane the location of those fasteners requiring inspection by using Detail III.

C. Use several fasteners to establish the airplane baseline response for an acceptable fastener.

(1) Select a representative fastener from this group and set its response to 20% of full meter scale.

(2) Do not change instrument sensitivity when establishing the airplane baseline response.

(3) Refer back to this fastener periodically to ensure that the instrument response is the same as originally recorded.

NOTE: Changes in meter response may occur as a result of instrument drift or probe temperature change.

D. Inspect each fastener by centering the probe on the fastener and manipulating to obtain a minimum response.

E. The following is a potential crack indication and further investigation is required:

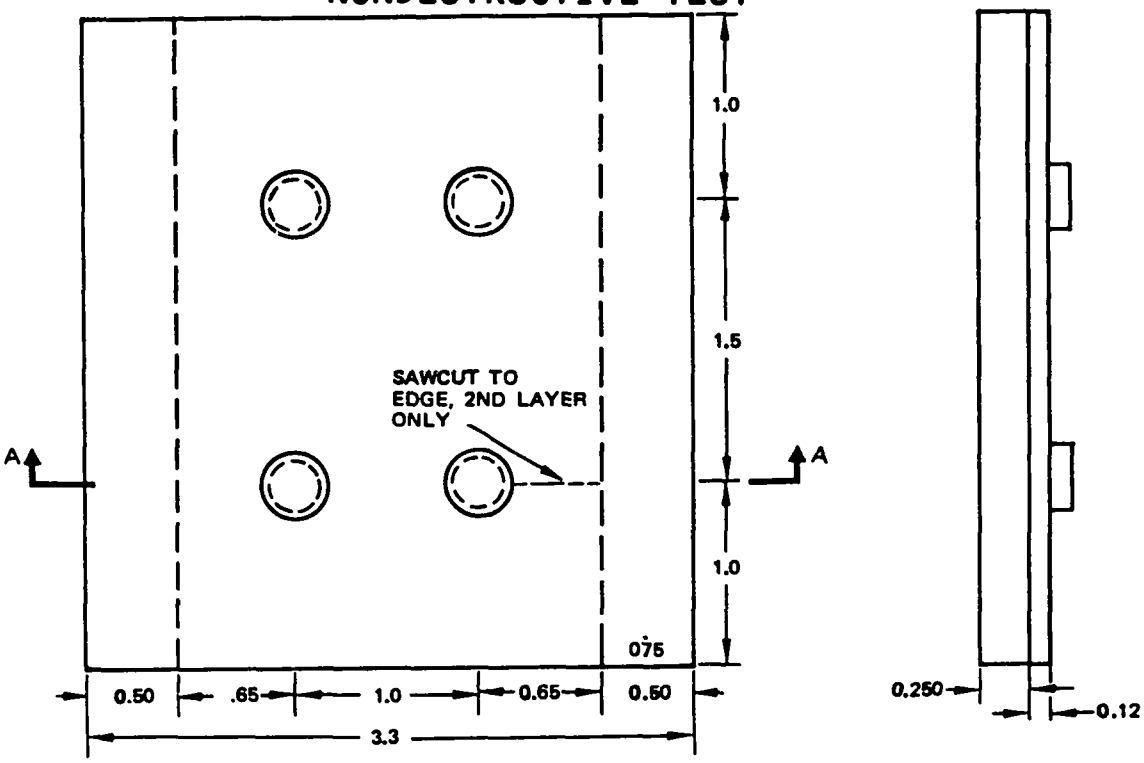
(1) Fastener locations that give a response 40% of full meter scale higher than the established baseline.

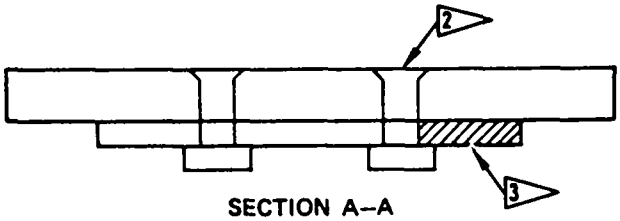
NOTE: The following conditions may cause meter reading changes similar to crack indications:

(a) A decrease in fastener spacing. (Compare with similarly spaced fasteners on the airplane.)

(b) A fastener that is different in countersink depth. (Compare with similar fastener in Reference Standard raised to the same height.)

Lower Wing Skin Flanges of S-5 and S-7 from WS 265 to 470
Figure 68 (Sheet 3)





SECTION A–A

NOTES

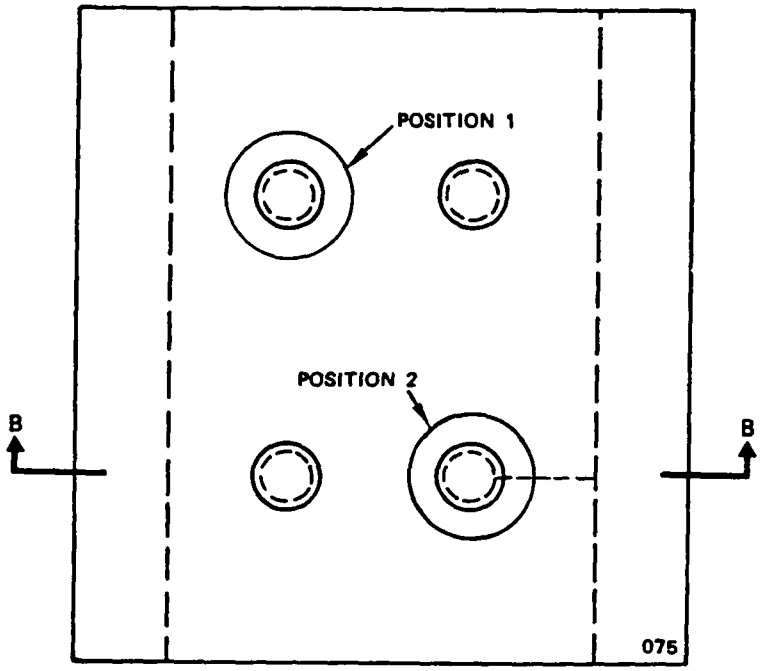
- ALL DIMENSIONS ARE IN INCHES
- TOLERANCE: X.X ± 0.020 X.XX ± 0.010 X.XXX ± 0.005
- MATERIAL: 2024–T4 ALUMINUM
- ETCH OR STEEL STAMP WITH 075
- P/N 6412–89
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

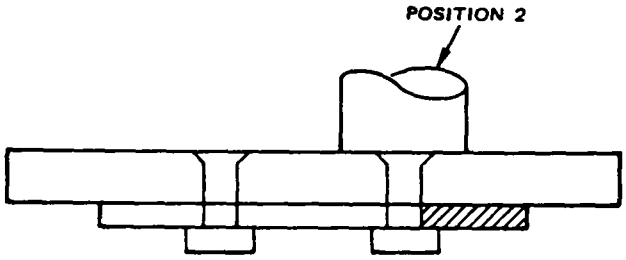
2 BACB30GY8–7 FASTENERS; (4 PLACES)
BACC30K8 COLLARS

3 JEWELER'S SAWCUT 0.030 MAX WIDTH

REFERENCE STANDARD 075
DETAIL I

Lower Wing Skin Flanges of S-5 and S-7 from WS 265 to 470
Figure 68 (Sheet 4)



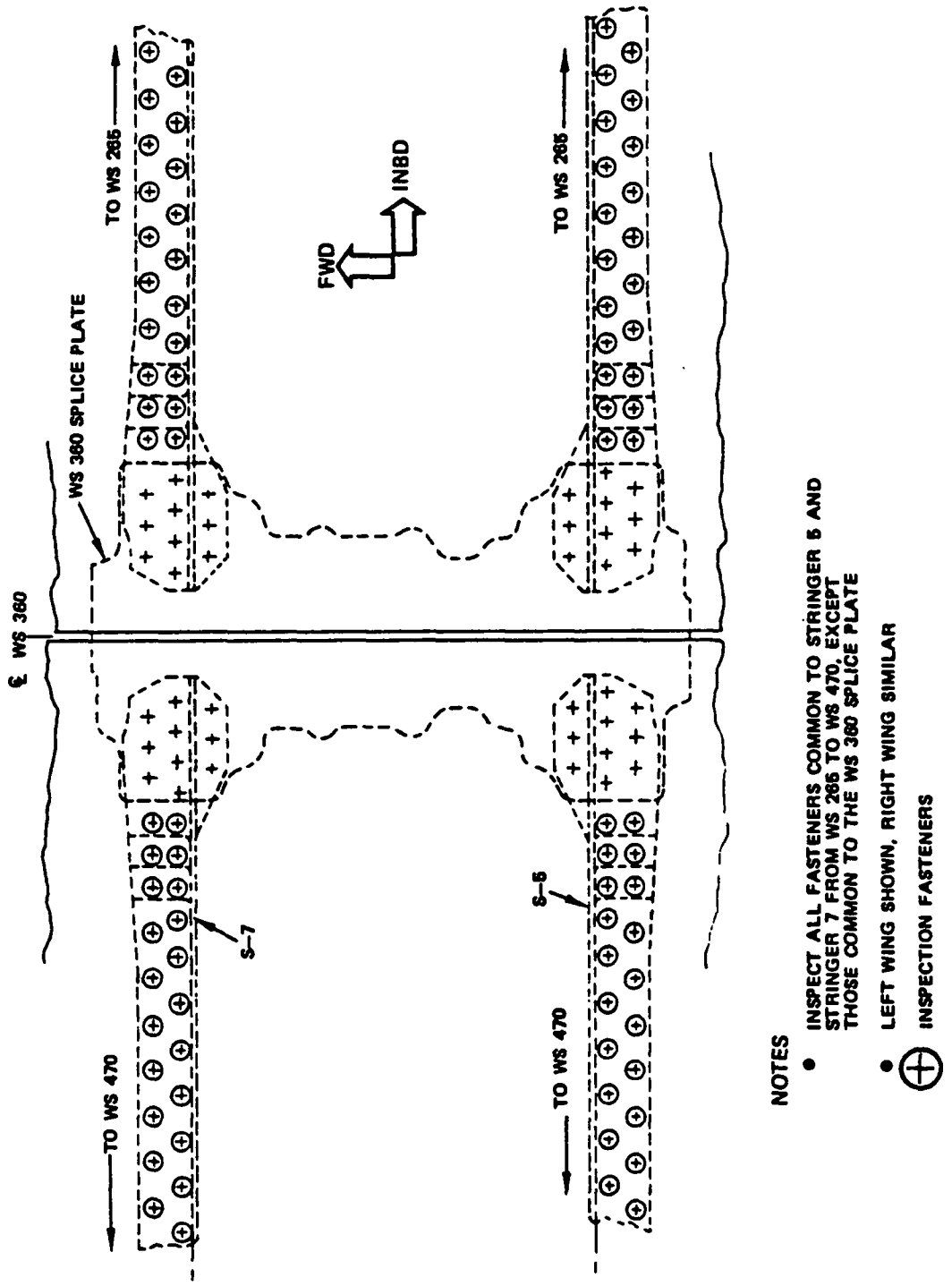


SECTION B–B

PROBE POSITION FOR CALIBRATION ON
REFERENCE STANDARD 075

DETAIL II

Lower Wing Skin Flanges of S-5 and S-7 from WS 265 to 470
Figure 68 (Sheet 5)



Lower Wing Skin Flanges of S-5 and S-7 from WS 265 to 470
Figure 68 (Sheet 6)

EFFECTIVITY
MODEL: 707-100/200 A/P'S WITH DOUBLERS OR TAPER LOCKS INSTALLED PER SERVICE BULLETINS SERVICE BULLETIN REFERENCE: A3304,2577 Rev 2 SSI DOCUMENT (D6-44860) REFERENCE: SSD 57-A15-21B

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To perform an external inspection for cracks out of fastener holes in the vertical flange of the upper rear spar chord and upper wing skin common to the rear spar, from side of body to and including WS 360 splice.

   B. To perform an internal inspection for cracks out of fastener holes in the upper rear spar chord horizontal flange, and the rear spar chord vertical flange at selected locations, side of body to and including WS 360 splice.

   C. This procedure uses high frequency eddy current.

   D. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Refer to Part 6, 51-00-00, Figure 4 for the Instrument.

   B. Probes

      (1) Straight shielded pencil probe per Part 1, 51-06-00, Figure 1.

      (2) Low profile, right angle, shielded pencil probe with a maximum height clearance of 0.3 inch, a 2.5-inch-long handle, and a maximum diameter of 0.2 inch.

Wing Upper Rear Spar Chord Side of Body
to WS 360 and the WS 360 Splice
Figure 69 (Sheet 1)

(3) Long extension shielded pencil probe with probe angle variable to the surface.

NOTE: This probe is required to reach several inspection locations on rear spar vertical flange.

Shielded pencil probes are available from:

NDT Product Engineering P.O. Box 423 Renton, WA 98057	VM Products 7420 Park Ave. No. 20 Tacoma, WA 98408
P/N: (1) P-50 (2) P-901-25 (3) PVAE-11	P/N: (1) VM100PS (2) VM100AS (3) VM100PS-18

When ordering from VM Products, specify dimensions desired for Probe (2), VM100AS.

C. Refer to Part 6, 51-00-00, Figure 4 Standards.

3. Preparation for inspection

A. External

(1) Remove upper wing to body fairing.

(2) Open access panels at the trailing edge for inspection of the upper rear spar chord vertical flange.

(3) Clean inspection surfaces thoroughly.

B. Internal

(1) Defuel and gain access to wing tanks at inspection locations.

(2) Purge fuel tanks to permit entry with eddy current test equipment.

(3) Remove sealant for eddy current probe placement as necessary for inspection.

4. INSTRUMENT CALIBRATION

Refer to Part 6, 51-00-00, figure 4.

5. Inspection Procedure

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

A. Perform inspection scan around fastener ends per Part 6, 51-00-00, Figure 6. Performed all other scans per Part 6, 51-00-00, Figure 4.

B. Upper Rear Spar Chord Horizontal Flange

(1) See Detail I, for inspection details and locations.

(2) For locations where inspection requirements differ due to the installation of doublers per SB, see Table I.

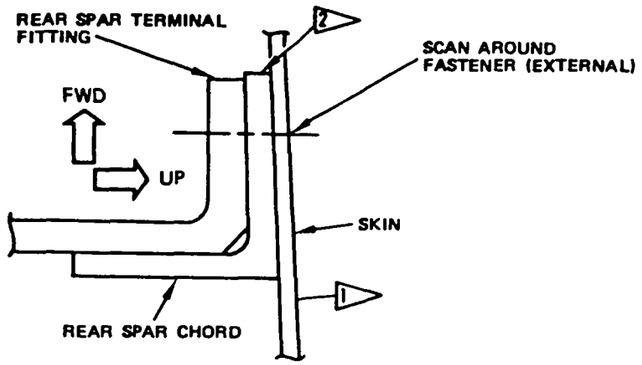
LOCATION	INSPECTION DETAIL	REFERENCE SB
Side of Body to Beavertail	Detail II	A3304
WS 270 to 290	Detail III	2238
WS 298 to 312	Detail IV	2177 Rework
WS 294 to 315	Detail V	2177 Repair
WS 360 splice	Detail VI	2576

SERVICE BULLETIN INSPECTION DETAILS
TABLE I

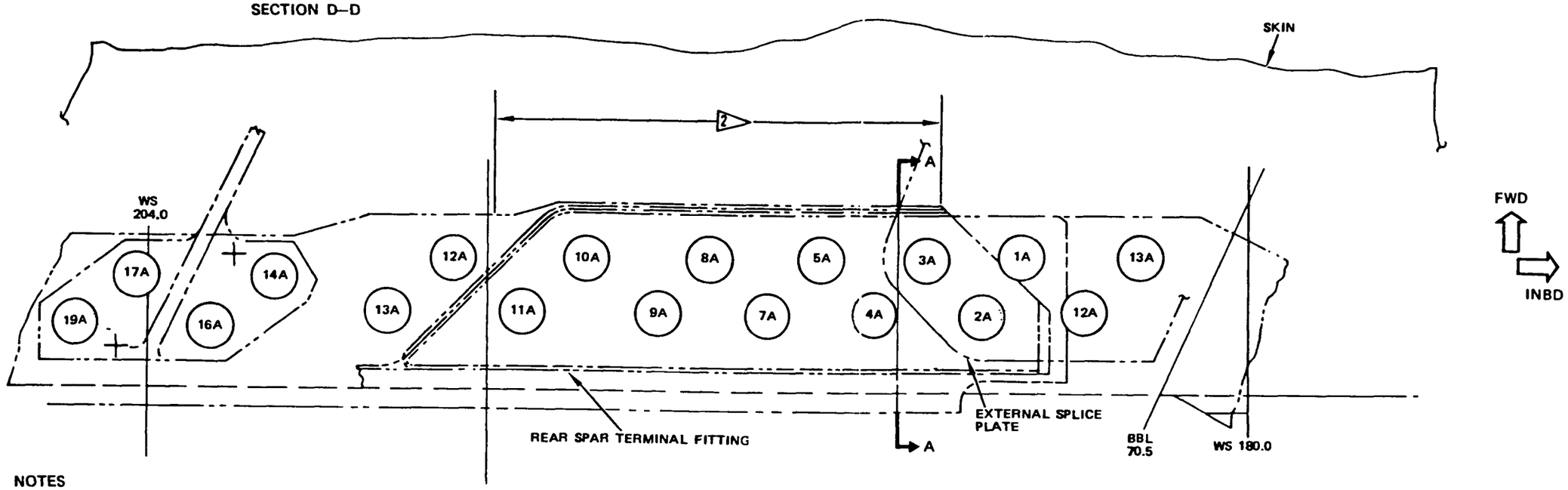
C. Upper Rear Spar Chord Vertical Flange

(1) See Detail VII for inspection details and locations.

Wing Upper Rear Spar Chord Side of Body to WS 360 and the WS 360 Splice
Figure 69 (Sheet 3)



SECTION D–D

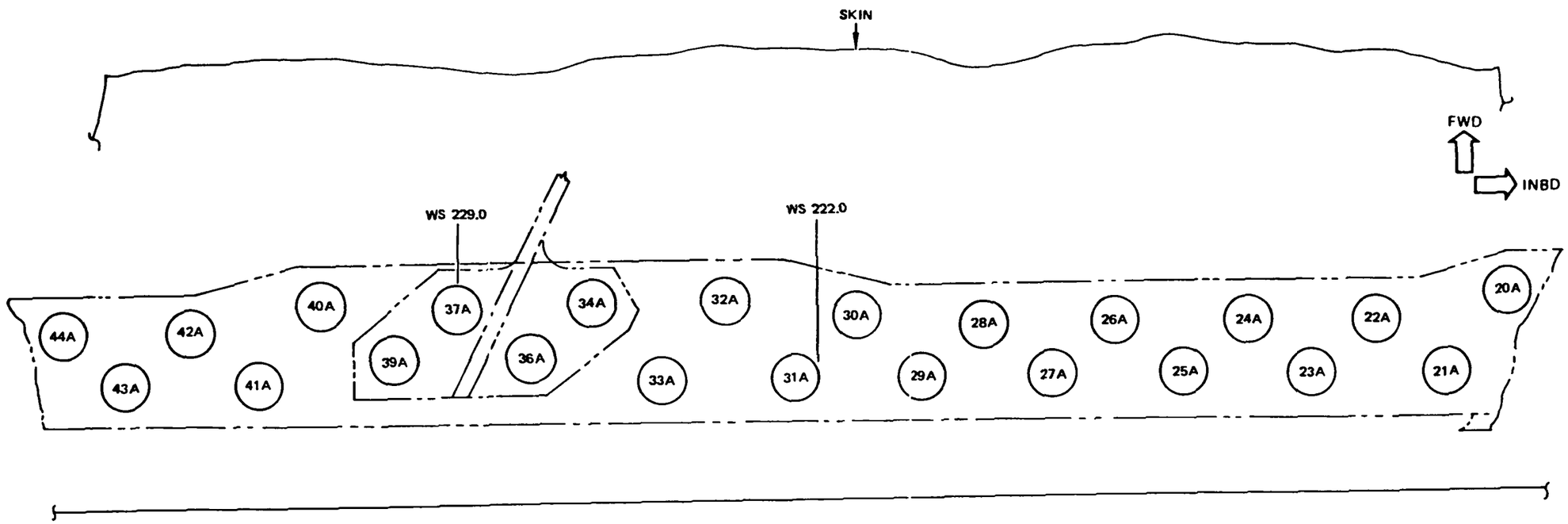


NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- (14A) PLACE PENCIL PROBE ON SKIN OR WING TO BODY SPLICE PLATE, SCAN AROUND FASTENER
- 1 PLACE PENCIL PROBE ON SKIN AS FAR AFT AS POSSIBLE, SCAN FROM SIDE OF BODY TO WS 360. SCAN THE OUTBD SECTION OF THE SPLICE
- 2 PLACE PENCIL PROBE ON THE FORWARD EDGE OF THE REAR SPAR CHORD, SCAN AT DESIGNATED AREAS. REMOVE SEALANT AS NECCESSARY

UPPER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL I

Wing Upper Rear Spar Chord Side of Body
to WS 360 and the WS 360 Splice
Figure 69 (Sheet 4)

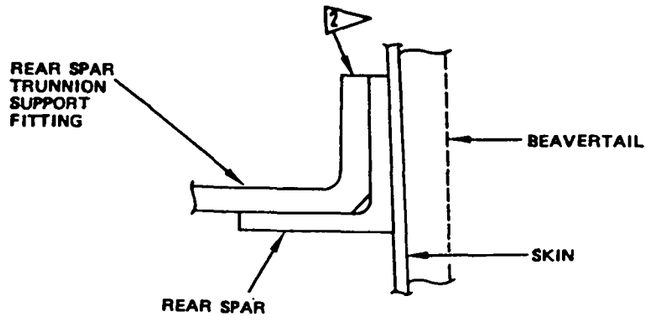


NOTES
- LEFT WING SHOWN, RIGHT WING SIMILAR

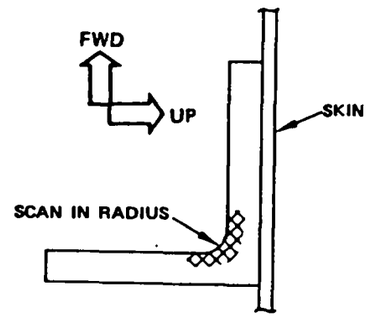
(39A) PLACE PENCIL PROBE ON SKIN OR WING TO BODY SPLICE PLATE, SCAN AROUND FASTENER

UPPER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL I (CONT)

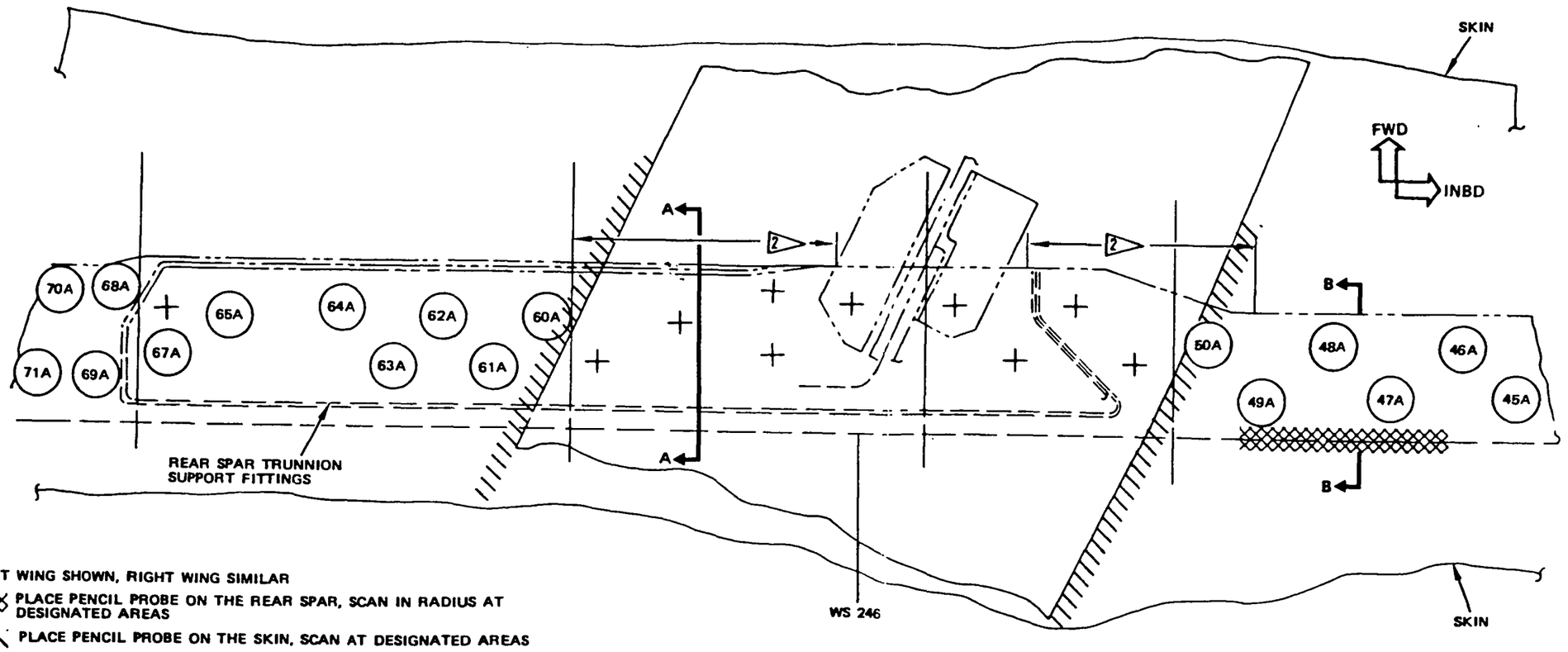
Wing Upper Rear Spar Chord Side of Body
to WS 360 and the WS 360 Splice
Figure 69 (Sheet 5)



SECTION A–A



SECTION B–B

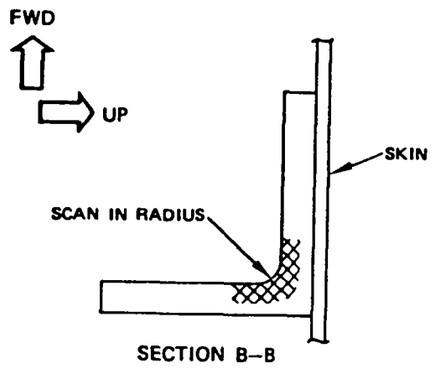


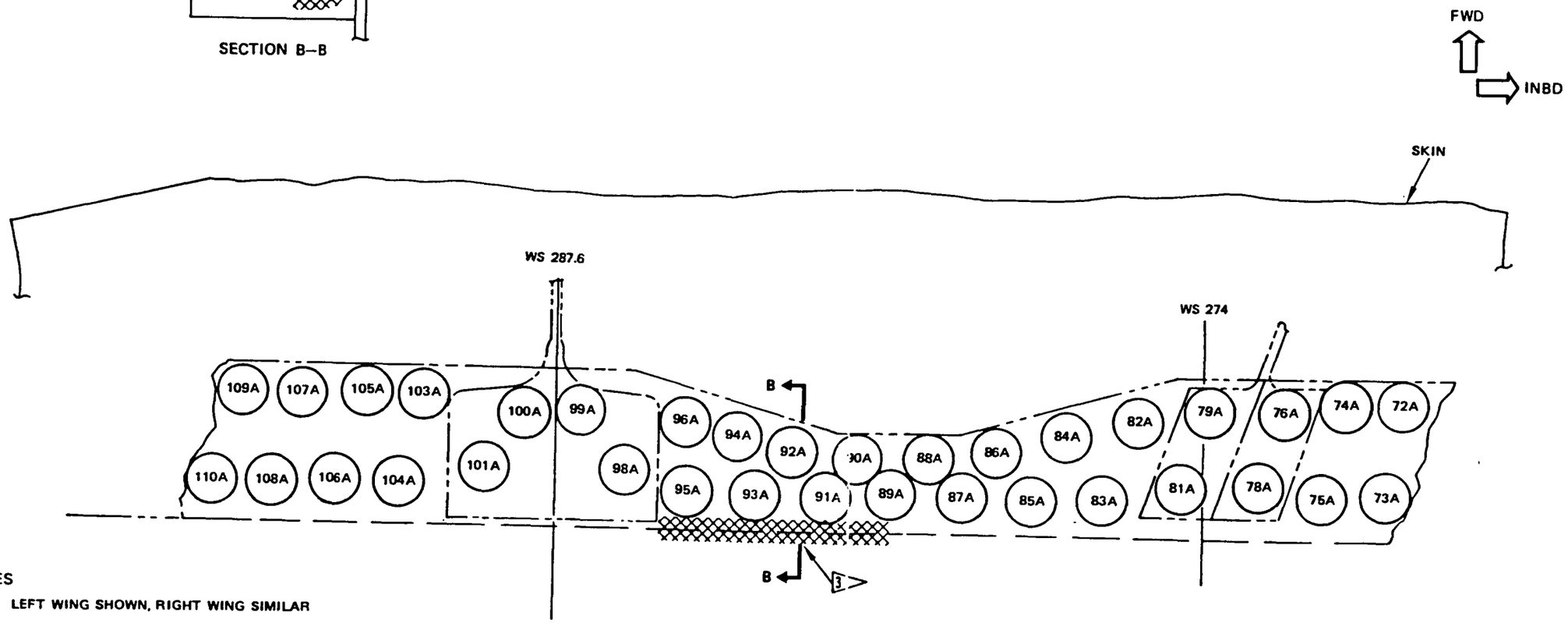
NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- PLACE PENCIL PROBE ON THE REAR SPAR, SCAN IN RADIUS AT DESIGNATED AREAS
- PLACE PENCIL PROBE ON THE SKIN, SCAN AT DESIGNATED AREAS
- 70A FASTENER TO BE INSPECTED SCAN AROUND FASTENERS
- 2 PLACE PENCIL PROBE ON THE FORWARD EDGE OF THE REAR SPAR CHORD, SCAN AT DESIGNATED AREAS. REMOVE SEALANT AS NECESSARY

UPPER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL I (CONT)

Wing Upper Rear Spar Chord Side of Body
to WS 360 and the WS 360 Splice
Figure 69 (Sheet 6)



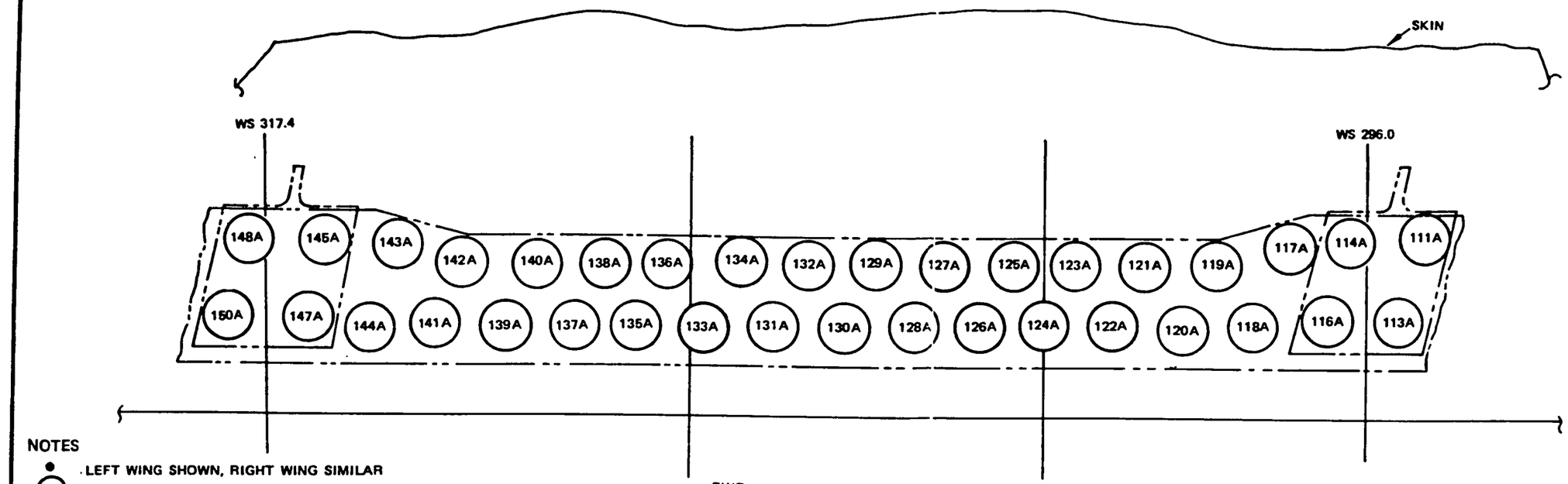


NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- PLACE PENCIL PROBE ON THE REAR SPAR, SCAN IN RADIUS AT DESIGNATED AREAS
- (108A) PLACE PENCIL PROBE ON SKIN OR WING TO BODY SPLICE PLATE, SCAN AROUND FASTENER
- (3) SCAN INSIDE THE RADIUS, SEE SECTION B–B

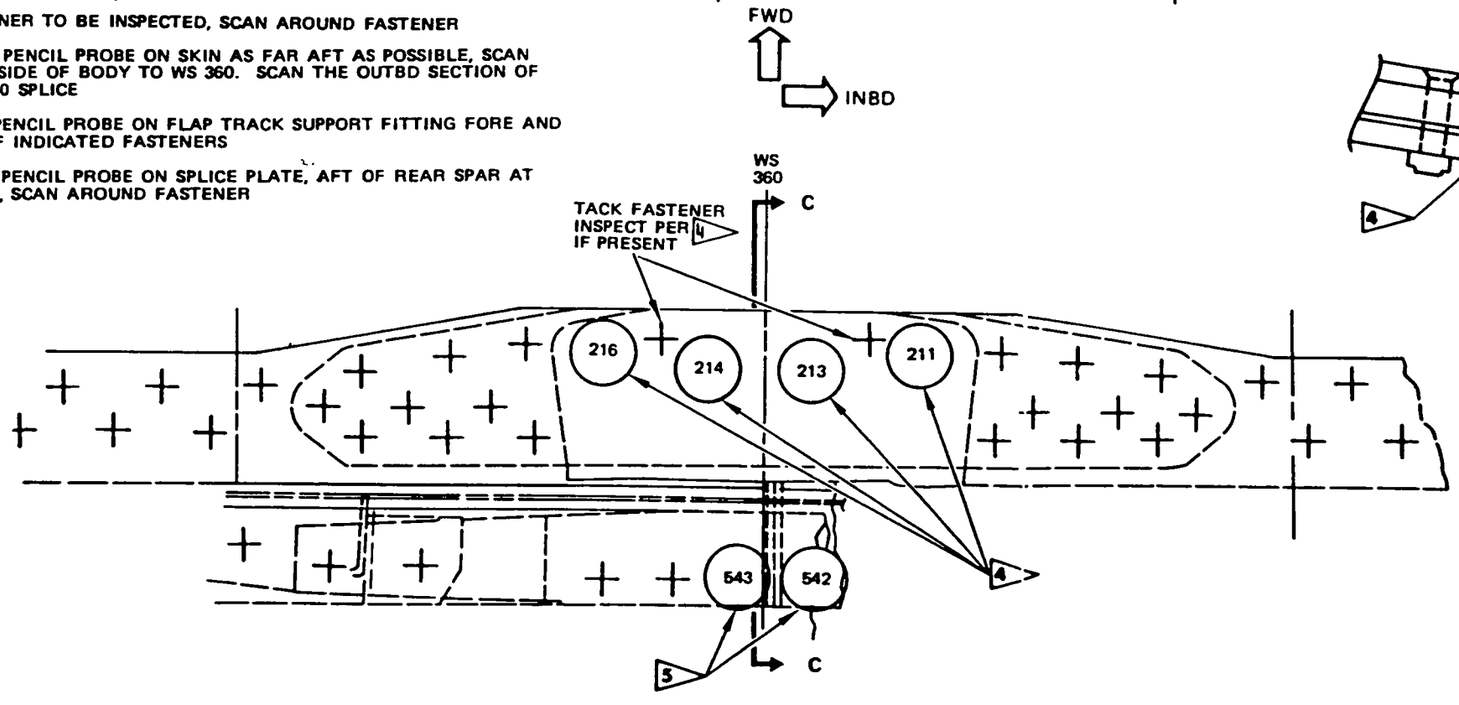
UPPER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL I (CONT)

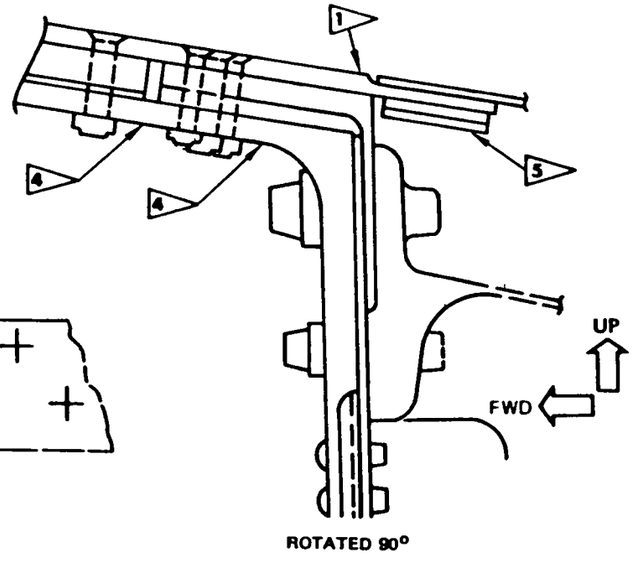
Wing Upper Rear Spar Chord Side of Body
to WS 360 and the WS 360 Splice
Figure 69 (Sheet 7)



NOTES

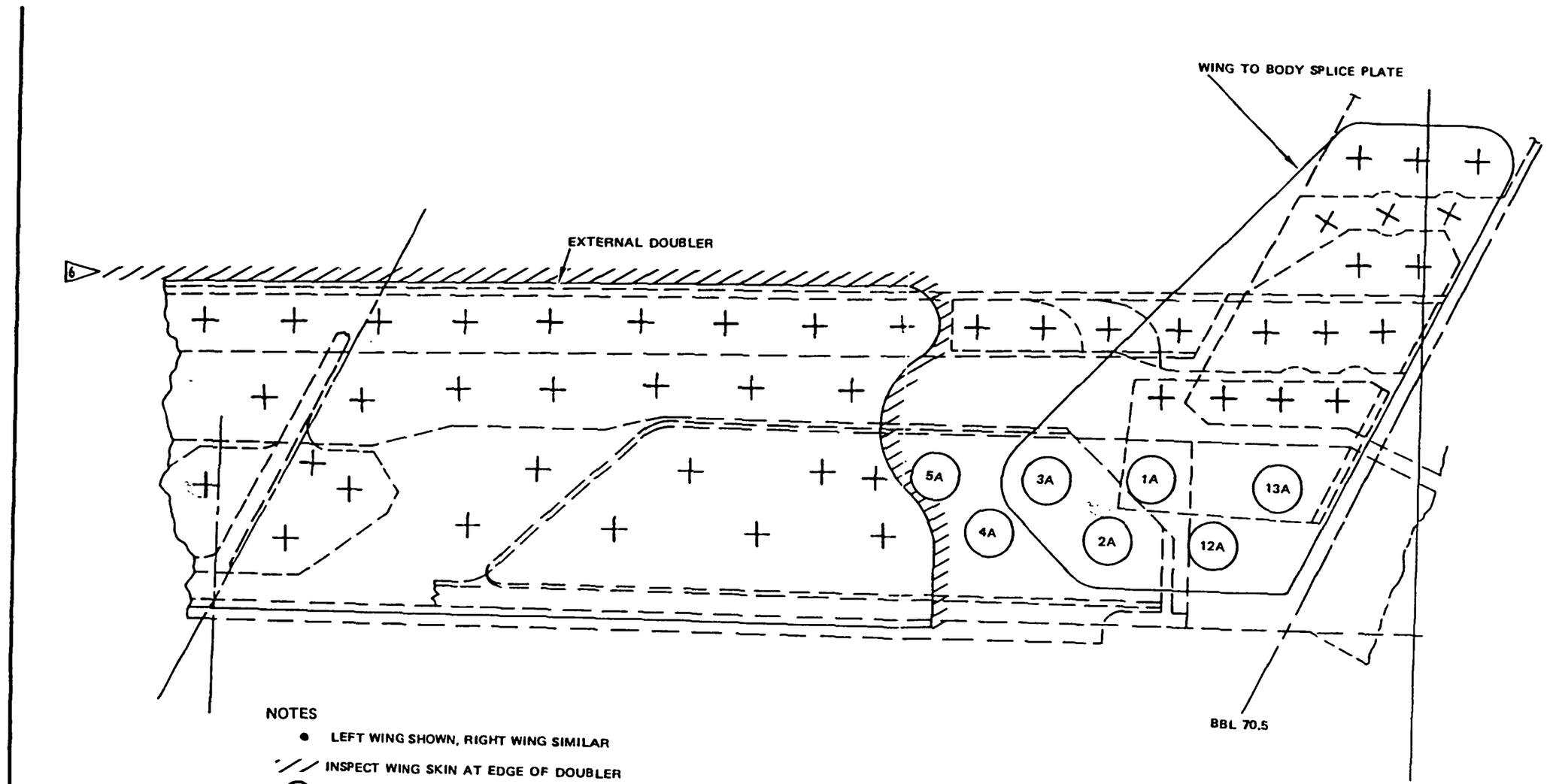
- LEFT WING SHOWN, RIGHT WING SIMILAR
- (216) FASTENER TO BE INSPECTED, SCAN AROUND FASTENER
- 1 PLACE PENCIL PROBE ON SKIN AS FAR AFT AS POSSIBLE, SCAN FROM SIDE OF BODY TO WS 360. SCAN THE OUTBD SECTION OF THE 360 SPLICE
- 4 SCAN PENCIL PROBE ON FLAP TRACK SUPPORT FITTING FORE AND AFT OF INDICATED FASTENERS
- 5 PLACE PENCIL PROBE ON SPLICE PLATE, AFT OF REAR SPAR AT WS 360, SCAN AROUND FASTENER





SECTION C–C

UPPER REAR SPAR CHORD HORIZONTAL FLANGE
DETAIL I (CONT)
Wing Upper Rear Spar Chord Side of Body
to WS 360 and the WS 360 Splice
Figure 69 (Sheet 8)

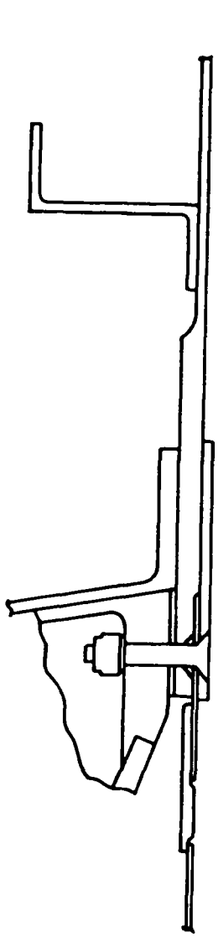


NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- INSPECT WING SKIN AT EDGE OF DOUBLER
- (5A) INSPECTION FASTENER, PLACE PROBE ON SKIN OR PLATE, SCAN AROUND FASTENER
- (6) CONTINUE INSPECTION TO THE BEAVERTAIL

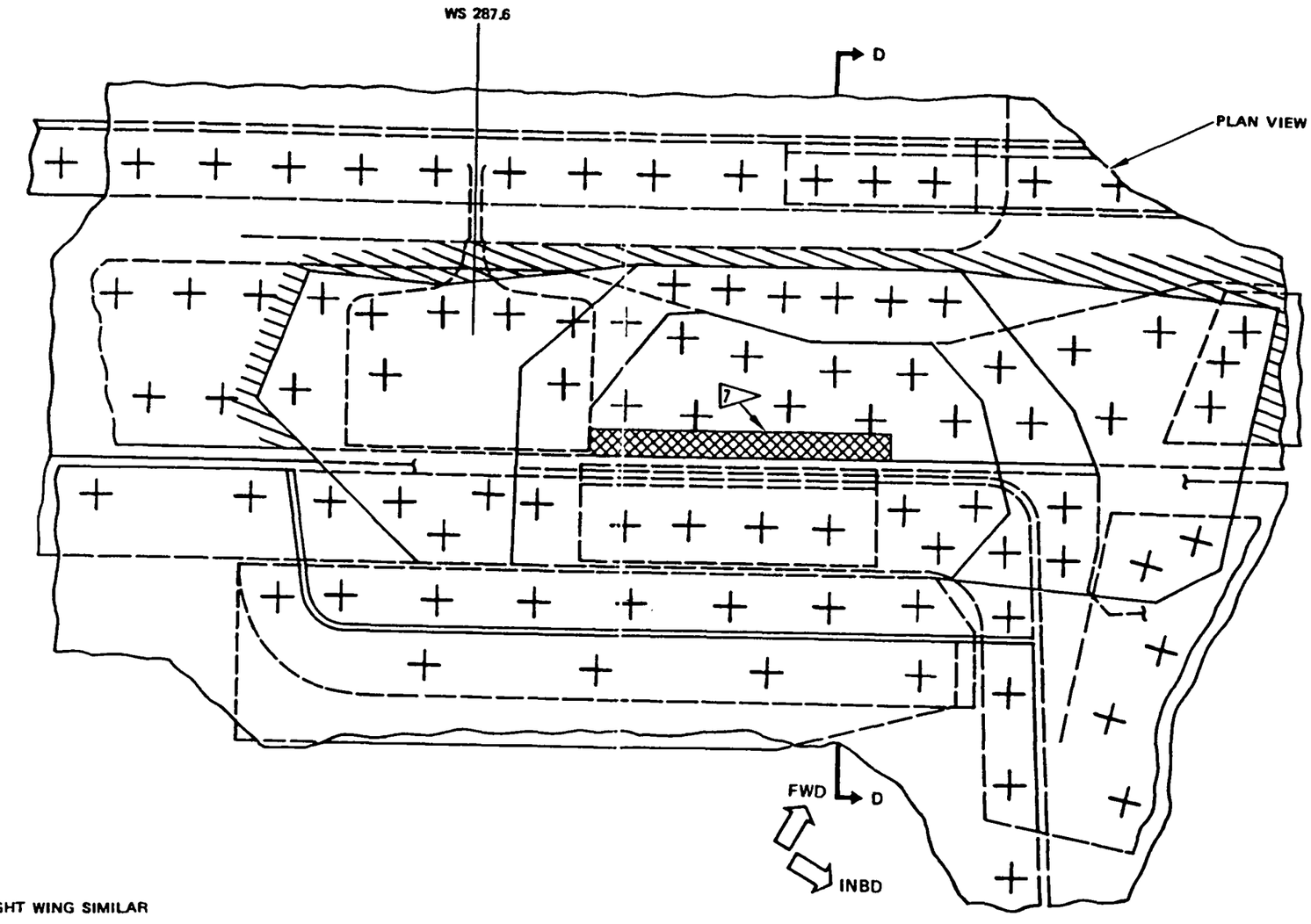
SIDE OF BODY TO BEAVERTAIL (SB A3304)
DETAIL II

Wing Upper Rear Spar Chord Side of Body
to WS 360 and the WS 360 Splice
Figure 69 (Sheet 9)



NOTES

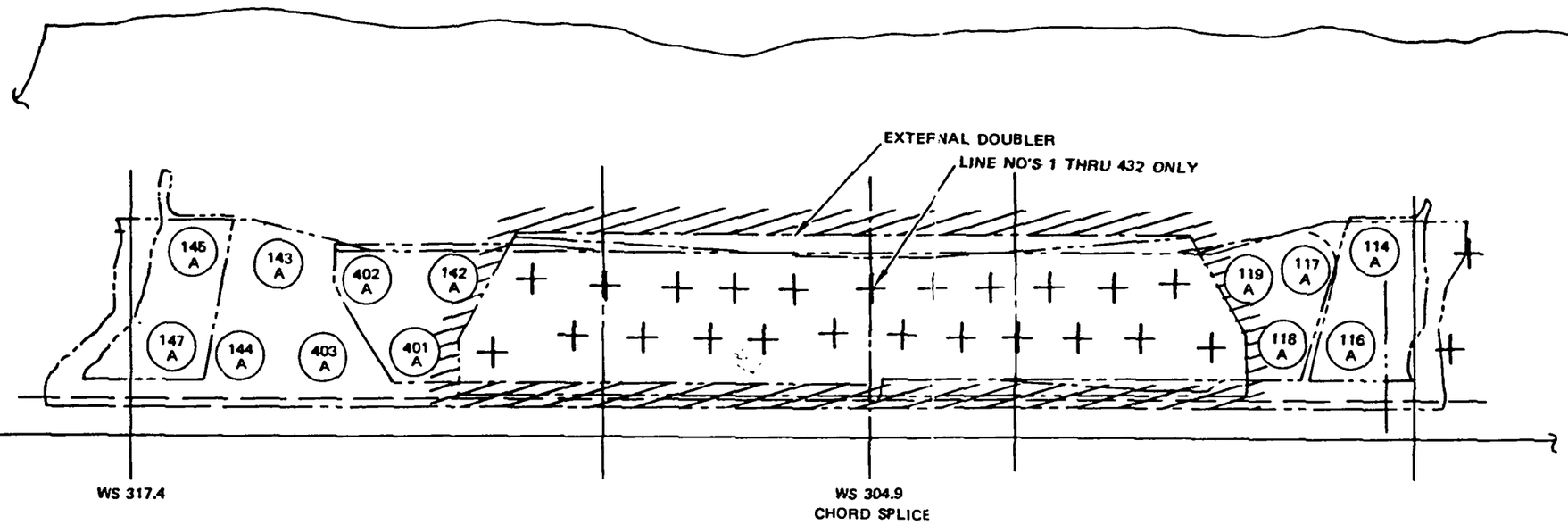
- LEFT WING SHOWN, RIGHT WING SIMILAR
- EDDY CURRENT INSPECT WING SKIN AT EDGE OF DOUBLER
- PLACE PENCIL PROBE ON REAR SPAR, SCAN IN RADIUS AT DESIGNATED AREAS
- 7 SCAN INSIDE OF RADIUS. SEE SECTION B–B



ALTERNATE CONFIGURATION – EXTERNAL DOUBLER OVER WING SKIN AT REAR SPAR WS 270 TO 290 (SB 2238)

DETAIL II

Wing Upper Rear Spar Chord Side of Body to WS 360 and the WS 360 Splice
Figure 69 (Sheet 10)



NOTES

INSPECT WING SKIN AT EDGE OF DOUBLER

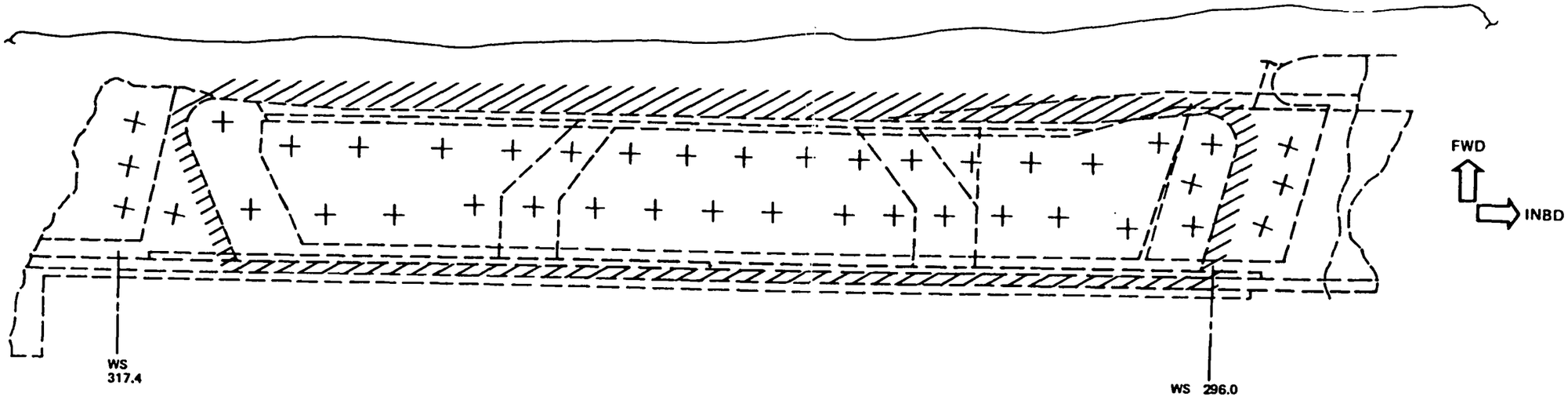
145 A FASTENERS TO BE INSPECTED

8 CUM LINE NO'S 1 THRU 12, 14 THRU 19, 21 THRU 34, 36 THRU 60, 63, 64, 66, 67, 72, 77, 87, 96, 97, 102, 108, 119, 140, 201, 227, 228, 229, 296, 299, 301, 306, 308, 309, 311–313, 315 THRU 318, 385, 388, 391, 392, 393, 395, 396, 420, 422, 426, 432, 479, 486, 489, 490, 492, 495, 506, 526, 530, 533, 535, 539, 558

ALTERNATE CONFIGURATION – WS 298 TO 312 EXTERNAL DOUBLER OVEF WING SKIN AT REAR SPAR (SB 2177 PREVENTIVE MODIFICATION) 8

DETAIL IV

Wing Upper Rear Spar Chord Side of Body to WS 360 and the WS 360 Splice
Figure 69 (Sheet 11)



NOTES

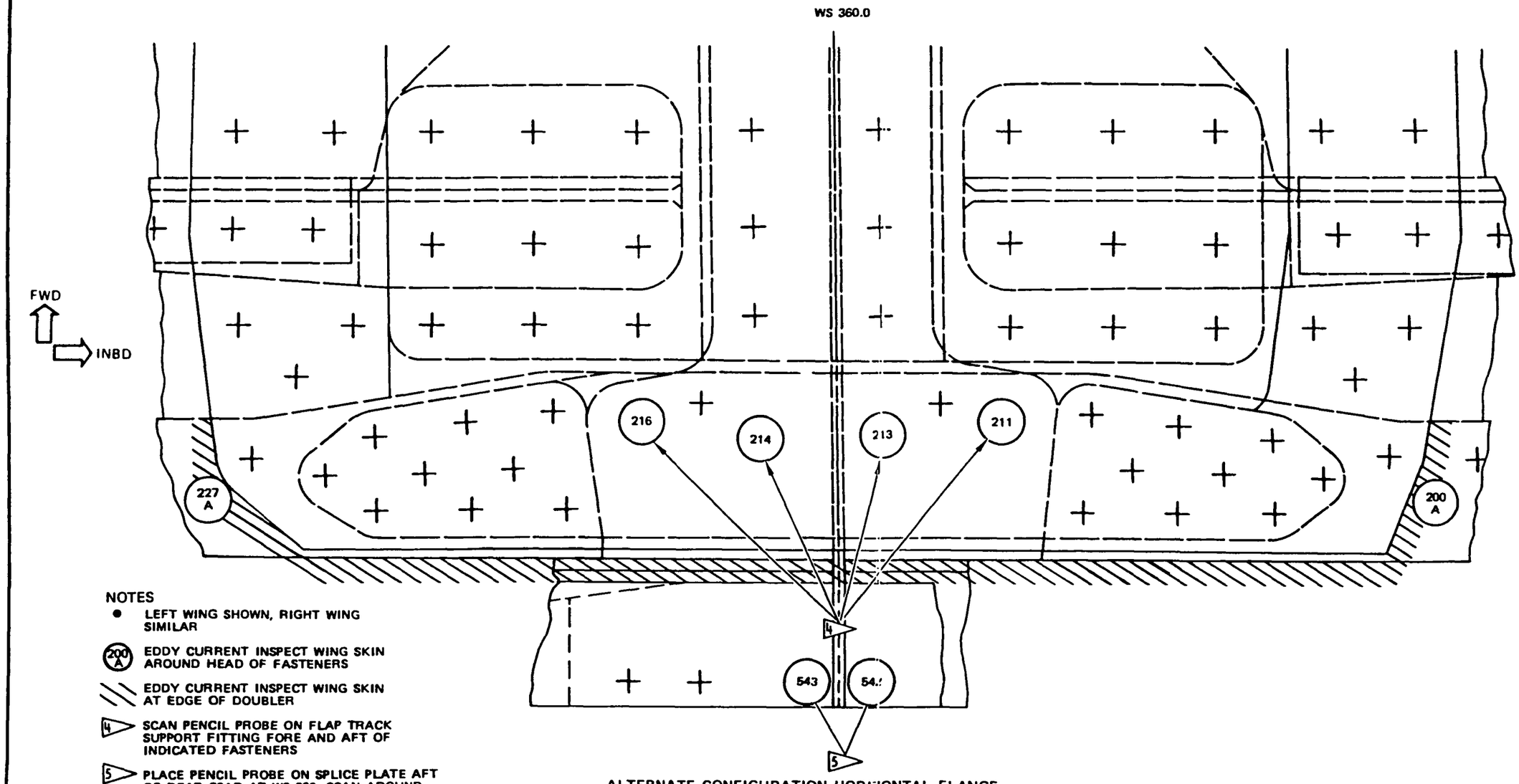
- LEFT WING SHOWN, RIGHT WING SIMILAR

EDDY CURRENT INSPECT WING SKIN AT EDGE OF DOUBLER

9 CUM LINE NO'S 1 THRU 12, 14 THRU 19, 21 THRU 34, 36 THRU 60, 63, 64, 66, 67, 72, 77, 87, 96, 97, 102, 108, 119, 140, 201, 227, 228, 229, 296, 299, 301, 306, 308, 309, 311, 312, 313, 315 THRU 318, 385, 388, 391, 392, 393, 395, 396, 420, 422, 426, 432

ALTERNATE CONFIGURATION – EXTERNAL DOUBLER OVER WING SKIN AT REAR SPAR WS 298 TO 315 (SB2177 REPAIR CONFIGURATION) 9
DETAIL V

Wing Upper Rear Spar Chord Side of Body to WS 360 and the WS 360 Splice
Figure 69 (Sheet 12)



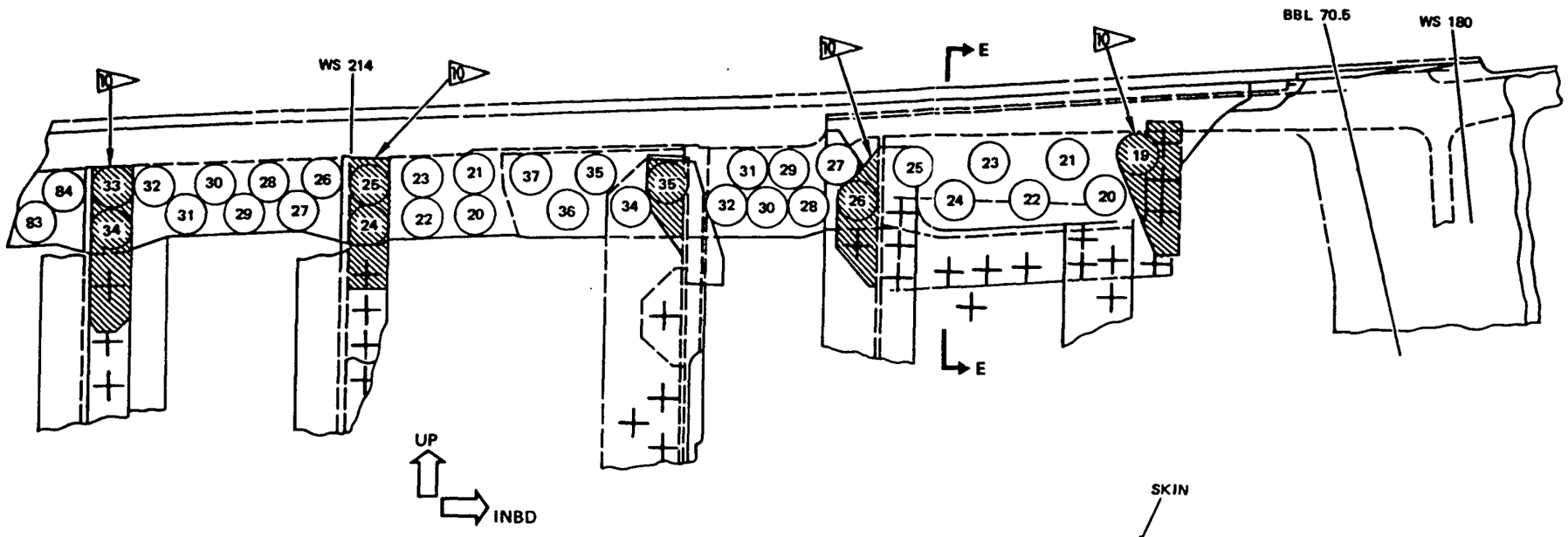
NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- (200 A) EDDY CURRENT INSPECT WING SKIN AROUND HEAD OF FASTENERS
- EDDY CURRENT INSPECT WING SKIN AT EDGE OF DOUBLER
- (4) SCAN PENCIL PROBE ON FLAP TRACK SUPPORT FITTING FORE AND AFT OF INDICATED FASTENERS
- (5) PLACE PENCIL PROBE ON SPLICE PLATE AFT OF REAR SPAR AT WS 360, SCAN AROUND FASTENERS

ALTERNATE CONFIGURATION HORIZONTAL FLANGE WS 360 SPLICE EXTERNAL DOUBLER OVER WING SKIN AT REAR SPAR (SB2576)

DETAIL VI

Wing Upper Rear Spar Chord Side of Body to WS 360 and the WS 360 Splice
Figure 69 (Sheet 13)



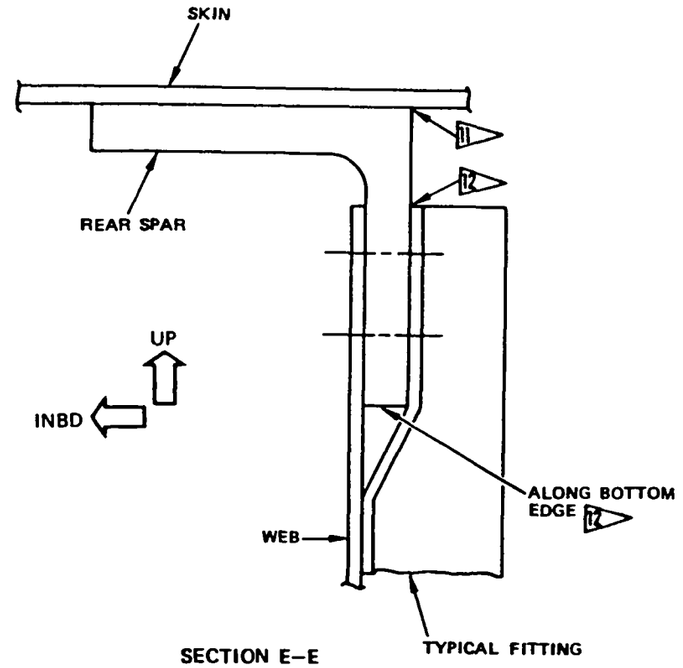
NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR

EXTERNAL INSPECTION

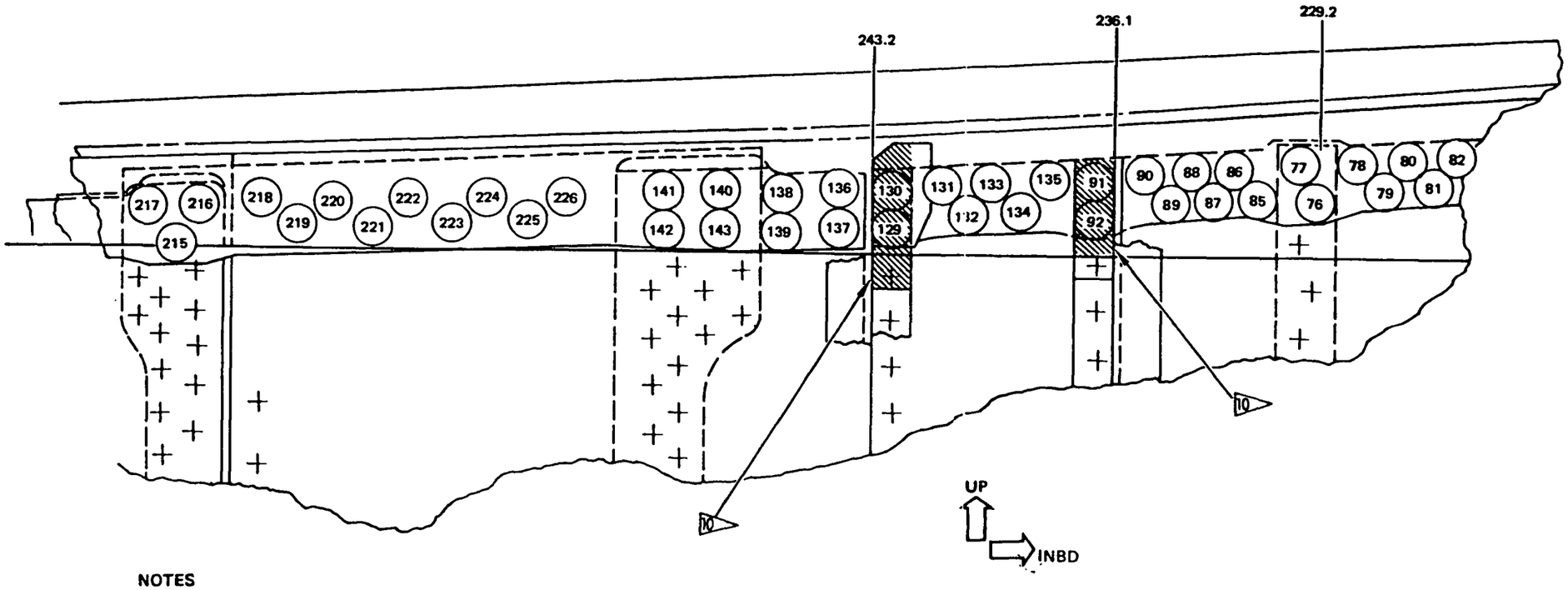
- EXTERNAL FITTINGS COMMON TO INSPECTION FASTENERS
- (32) INSPECTION FASTENERS. PLACE PENCIL PROBE ON VERTICAL FLANGE. SCAN ABOVE AND BELOW FASTENERS WHICH ARE NOT COMMON TO EXTERNAL FITTINGS.
- [10] SCAN ABOVE FITTINGS AND ALONG BOTTOM OF REAR SPAR [12]
- [11] PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE AT JUNCTION OF HORIZONTAL FLANGE. SCAN FROM WS 180 TO 317.4
- [12] PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE SCAN ALONG EDGES OF EXTERNAL FITTINGS

UPPER REAR SPAR CHORD VERTICAL FLANGE
DETAIL VII



SECTION E–E

Wing Upper Rear Spar Chord Side of Body
to WS 360 and the WS 360 Splice
Figure 69 (Sheet 14)



NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR

EXTERNAL INSPECTION

EXTERNAL FITTINGS COMMON TO INSPECTION FASTENERS

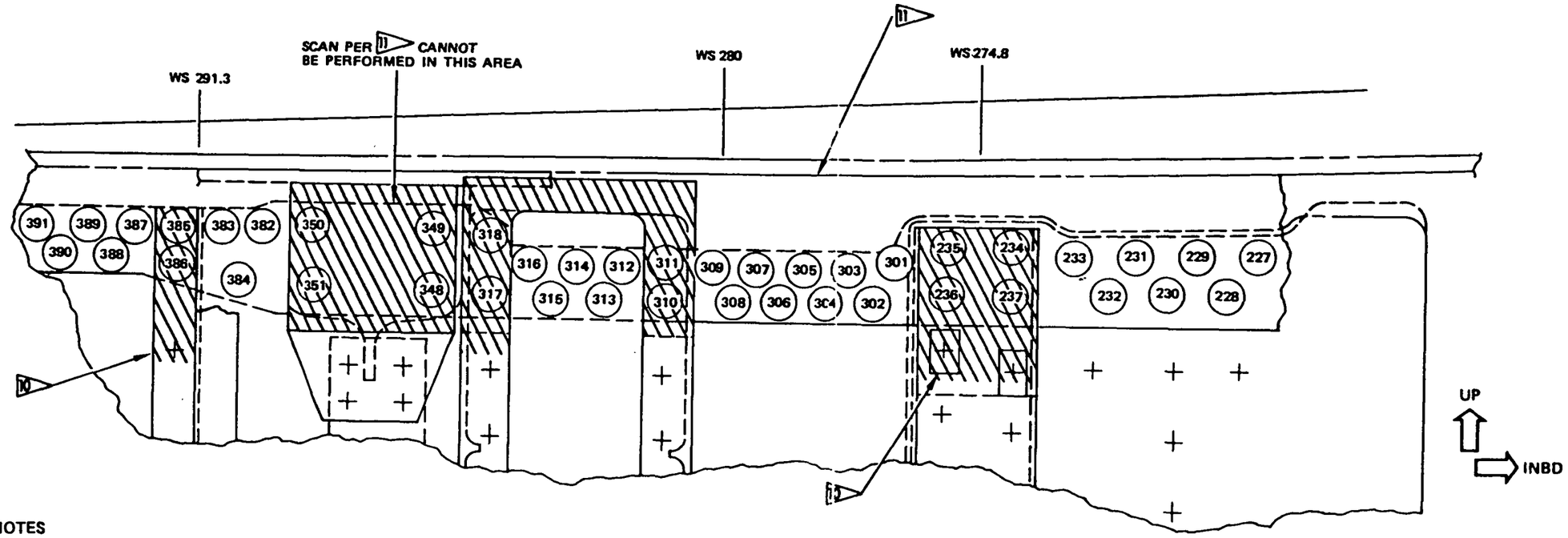
(132) INSPECTION FASTENERS. PLACE PENCIL PROBE ON VERTICAL FLANGE. SCAN ABOVE AND BELOW FASTENERS WHICH ARE NOT COMMON TO EXTERNAL FITTINGS

10 SCAN ABOVE FITTINGS AND ALONG BOTTOM OF REAR SPAR 12

12 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE SCAN ALONG EDGES OF EXTERNAL FITTINGS

UPPER REAR SPAR CHORD VERTICAL FLANGE
(DETAIL VII (CONT)

Wing Upper Rear Spar Chord Side of Body
to WS 360 and the WS 360 Splice
Figure 69 (Sheet 15)



NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR

EXTERNAL INSPECTION

\\\\ EXTERNAL FITTINGS COMMON TO INSPECTION FASTENERS

(316) INSPECTION FASTENERS. PLACE PENCIL PROBE ON VERTICAL FLANGE. SCAN ABOVE AND BELOW FASTENERS WHICH ARE NOT COMMON TO EXTERNAL FITTINGS

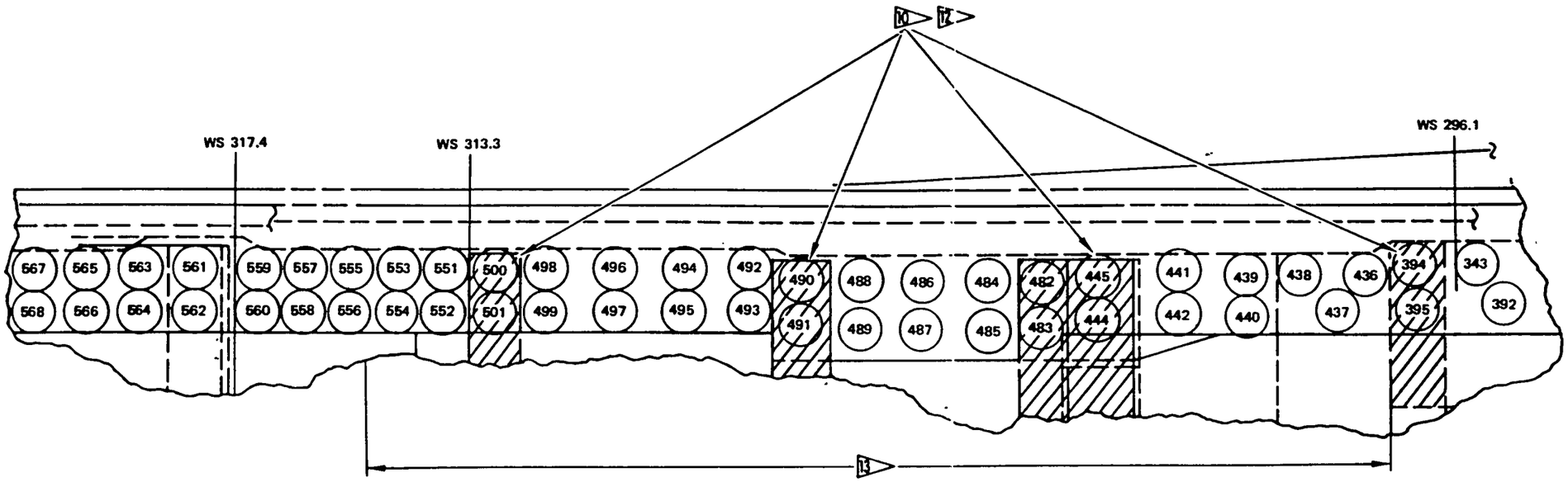
10 SCAN ABOVE FITTINGS AND ALONG BOTTOM OF REAR SPAR 12

11 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE AT JUNCTION OF HORIZONTAL FLANGE . SCAN FROM WS 180 TO 317.4

12 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE SCAN ALONG EDGES OF EXTERNAL FITTINGS

UPPER REAR SPAR CHORD VERTICAL FLANGE
DETAIL VII (CONT)

Wing Upper Rear Spar Chord Side of Body
to WS 360 and the WS 360 Splice
Figure 69 (Sheet 16)



NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR

EXTERNAL INSPECTION

/// EXTERNAL FITTINGS COMMON TO INSPECTION FASTENERS

(493) INSPECTION FASTENERS. PLACE PENCIL PROBE ON VERTICAL FLANGE. SCAN ABOVE AND BELOW FASTENERS WHICH ARE NOT COMMON TO EXTERNAL FITTINGS

10 SCAN ABOVE FITTINGS AND ALONG BOTTOM OF REAR SPAR 12

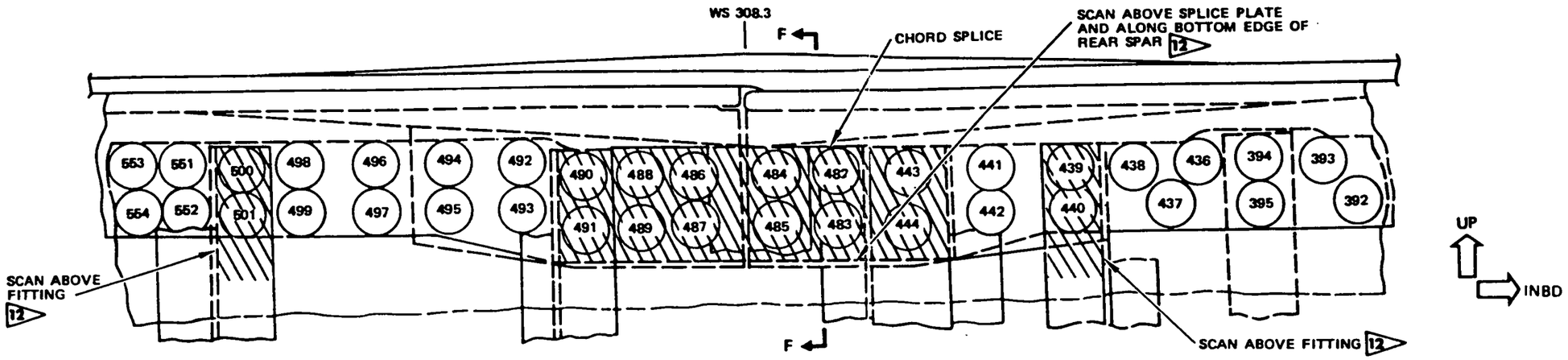
12 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE SCAN ALONG EDGES OF EXTERNAL FITTINGS

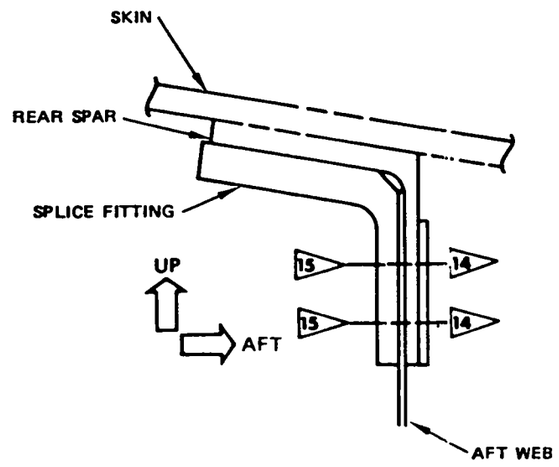
13 CONFIGURATION FOR CUM LINES NOS 1 THRU 12, 14 THRU 19, 21 THRU 34, 36 THRU 60, 63, 64, 66, 67, 72 77, 87, 96, 97, 102, 108, 119, 140, 201, 227, 228, 229, 296, 299, 301, 306, 308, 309, 311 THRU 313, 315 THRU 318, 385, 388, 391, 394, 393, 395, 396, 420, 422, 426, 432, 479, 486, 489, 490, 491, 492, 495, 506, 526, 530, 533, 535, 539, 558

UP
INBD

UPPER REAR SPAR CHORD VERTICAL FLANGE
DETAIL VII (CONT)

Wing Upper Rear Spar Chord Side of Body
to WS 360 and the WS 360 Splice
Figure 69 (Sheet 17)





SECTION F–F

NOTES

- LEFT WING SHOWN, RIGHT WING OPPOSITE
- THIS PAGE SHOWS CONFIGURATIONS FOR THE FOLLOWING AIRPLANES: CUM LINE NOS. 1 THRU 12, 14 THRU 19, 21 THRU 34, 36 THRU 60, 63, 64, 66, 67, 72, 77, 87, 96, 97, 102, 108, 119, 140, 201, 227, 228, 229, 296, 299, 301, 306, 308, 309, 311 THRU 313, 315 THRU 318, 385, 388, 391, 392, 393, 395, 396, 420, 422, 426, 432, 479, 486, 489, 490, 491, 492, 495, 506, 526, 530, 533, 535, 537, 558.

EXTERNAL INSPECTION

12 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE. SCAN ALONG EDGES OF EXTERNAL FITTINGS

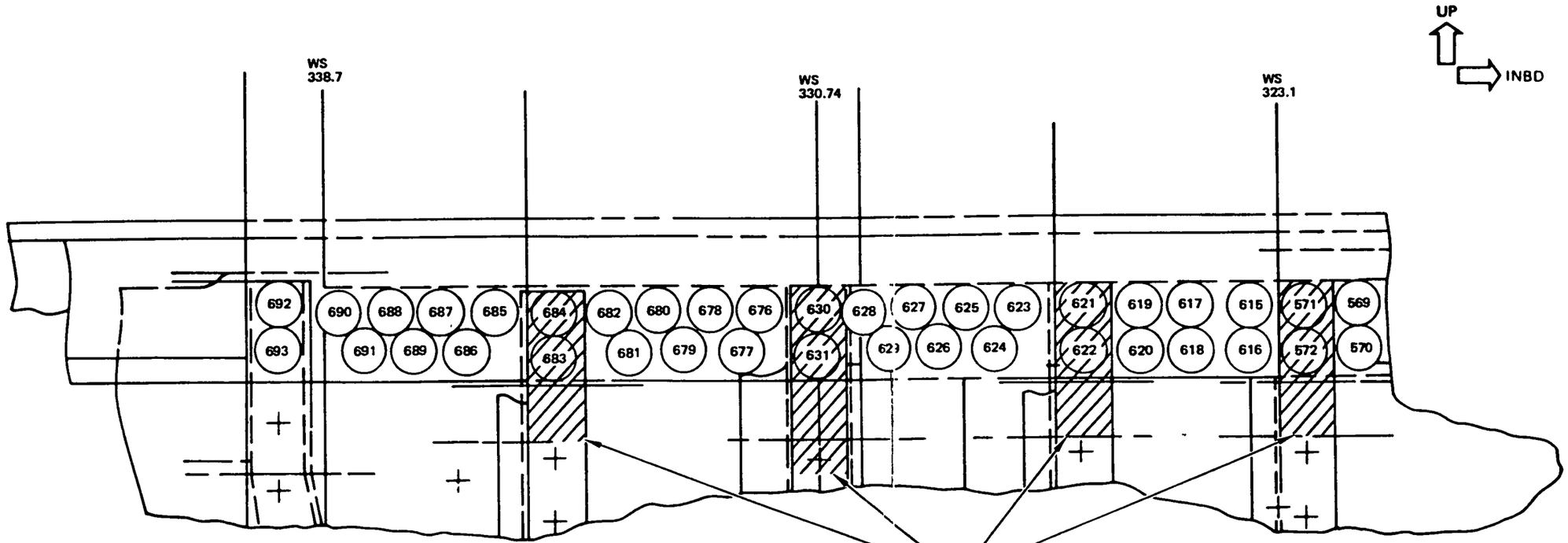
14 PLACE PENCIL PROBE ON THE SPLICE PLATE. SCAN AROUND FASTENERS 484 TO 487

550 INSPECTION FASTENERS. PLACE PENCIL PROBE ON VERTICAL FLANGE. SCAN ABOVE AND BELOW FASTENERS WHICH ARE NOT COMMON TO EXTERNAL FITTINGS

INTERNAL INSPECTION

15 PLACE PENCIL PROBE ON THE SPLICE FITTING, SCAN ABOVE AND BELOW FASTENERS 484 TO 487

UPPER REAR SPAR CHORD VERTICAL FLANGE
DETAIL VII (CONT)



NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR

EXTERNAL INSPECTION

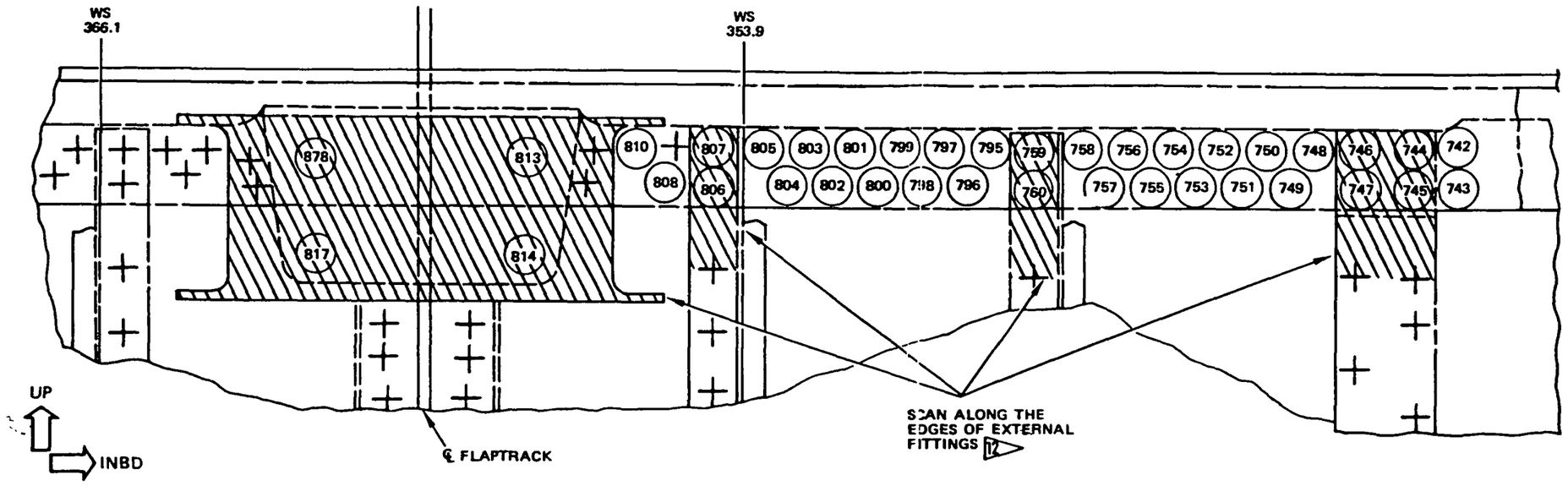
///, EXTERNAL FITTINGS COMMON TO INSPECTION FASTENERS.

(676) INSPECTION FASTENERS. PLACE PENCIL PROBE ON VERTICAL FLANGE. SCAN ABOVE AND BELOW FASTENERS WHICH ARE NOT COMMON TO EXTERNAL FITTINGS

12 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE. SCAN ALONG EDGES OF EXTERNAL FITTINGS.

UPPER REAR SPAR CHORD VERTICAL FLANGE
DETAIL VII (CONT)

Wing Upper Rear Spar Chord Side of Body to WS 360 and the WS 360 Splice
Figure 69 (Sheet 19)



NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR

EXTERNAL INSPECTION

EXTERNAL FITTINGS COMMON TO INSPECTION FASTENERS

799 INSPECTION FASTENERS. PLACE PENCIL PROBE ON VERTICAL FLANGE. SCAN ABOVE AND BELOW FASTENERS WHICH ARE NOT COMMON TO EXTERNAL FITTINGS

12 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE. SCAN ALONG EDGES OF EXTERNAL FITTINGS.

UPPER REAR SPAR CHORD VERTICAL FLANGE
DETAIL VII (CONT)

Wing Upper Rear Spar Chord Side of Body
to WS 360 and the WS 360 Splice
Figure 69 (Sheet 20)

EFFECTIVITY
MODEL: 707/720 SERVICE BULLETIN REFERENCE: A3304, 2577 Rev. 2 SSI DOCUMENT (D6-44860) REFERENCE: 57-A15-21B

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks in the horizontal flange of the upper rear spar chord fastener holes in aircraft modified per Service Bulletins in effectivity block. This inspection is accomplished from outside of the wing without fastener removal and uses low frequency eddy current.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec Inc.
      1320 N.W. Mall
      Issaquah, WA 98027

   B. Probes - This procedure uses four probes; any probe of similar size which will satisfy the performance requirements of this procedure is acceptable. The following probes were used in the development of this procedure.

      (1) Ring (encircling) probe with 1-inch OD and 0.5-inch ID shielding, 100 Hz, Nortec P/N SPO-783

      (2) Ring (encircling) probe with 1.1-inch OD and 0.625-inch ID shielding, 100 Hz, Nortec P/N SPO-1154

      (3) Ring probe with 0.7-inch OD and 0.3-inch ID shielding usable at 500 Hz, Nortec P/N SPO-996.

      (4) Low frequency spot probe with 0.625 OD case and 0.55-inch OD shielding usable at 1000 Hz, Nortec P/N SPO-1125

Wing Upper Rear Spar Chord Horizontal Flange
Figure 70 (Sheet 1)

(5) Probes listed above are available from:
Nortec Inc.
421 N. Quay
Kennewick, Washington 99336

NOTE: Specify instrument with which probes are to be used or instrument connector required when ordering probes.

C. Manufacture Reference Standards per Details I and III.

3. Preparation for Inspection

A. Wipe skin surface clean.

B. Some paint removal may be required to permit location of fasteners.

C. It is suggested that fastener locations requiring the same instrument calibration for inspection be identified on the airplane by a colored circle. Water washable crayons, or felt pens are suitable. Refer to Table I and Detail V for inspection requirements.

4. Instrument Calibration

A. General

(1) Three basic inspection types are required.

(a) Inspection for fastener hole cracks using a ring probe centered on the fastener.

(b) Inspection for fastener hole cracks using a spot probe or a ring probe as a spot probe positioned adjacent to a fastener.

(2) The two basic inspections require several instrument calibrations to adjust for variations in structure geometry and materials.

(3) Detail III identifies inspection coverage for a particular calibration, and Table I provides specific calibration information for that inspection.

B. Calibrate for fastener hole crack inspection using the ring probe centered on the fastener. The following calibration applies to inspection codes A through D.

(1) Identify code for fasteners to be inspected from Detail V.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

(3) Visually center probe over the unnotched reference standard hole, Position 1.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(6) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

NOTE: Probe is centered by manipulating to obtain a minimum meter response.

(7) Center probe over the notched reference standard hole, Position 2. Response should be upscale.

(8) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(9) Recheck null and liftoff. If readjustments are made recheck sensitivity per par. B.(8).

(10) Cracks will be indicated by a higher meter response.

C. Calibrate for crack inspection using a ring probe or spot probe placed adjacent to the fastener head. The following calibration applies to inspection codes E, F, & G.

(1) Refer to Table I for reference standard, probe, and calibration details for inspection codes E, F, & G.

(2) Place probe adjacent to the unnotched reference standard hole, Position 1.

(3) Balance instrument per manufacturer's instructions.

(4) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is located at Position 1 during liftoff calibration.

(5) With the probe adjacent to the unnotched hole Position 1, adjust meter response to read 20% of full scale with meter position control.

(6) Position probe adjacent to the notched reference standard hole, Position 2. Response should be upscale.

(7) Adjust instrument sensitivity to obtain a 50% of full scale meter response difference between the notched and unnotched holes, Positions 1 and 2.

(8) Reposition probe at Position 1 and check null and liftoff. If readjustments are made recheck sensitivity per par. B(7).

(9) Cracks will be indicated by a higher meter response.

5. Inspection Procedure

NOTE: An inspection code is used to identify locations having similar inspection conditions. A single instrument calibration is usually used to inspect these locations.

It is suggested that a copy of Detail V, be made and used to record instrument responses at each fastener location. This is helpful in maintaining continuity between the groups of fasteners during inspection.

A. Inspect fastener holes for cracks using the ring probe or spot probe centered on the fastener (Inspection codes A through D).

(1) Accomplish inspections of codes A through P in the order given in Table I.

(2) Calibrate instrument per par. 4.B and Table I.

(3) Note on the airplane the location of those fasteners having the same inspection code by using Detail V.

(4) Use several fasteners of the same code to establish the airplane baseline response for an acceptable fastener.

(a) Select a representative fastener from this group and set its response to 20% of full meter scale.

(b) Do not change instrument sensitivity when establishing the airplane baseline response.

(c) Refer back to this fastener periodically to ensure that the instrument response is the same as originally recorded.

NOTE: Changes in meter response may occur as a result of instrument drift or probe temperature change.

(5) Inspect each fastener having the same inspection code by centering the probe on the fastener and manipulating to obtain a minimum response.

NOTE: Review the Special Notes called out in Table I for conditions which affect the inspection.

(6) Fastener locations which give a response which is 40% of full meter scale higher than the established baseline are potential crack indications and further investigation is required.

(7) The following conditions may cause meter reading changes similar to crack indications:

(a) A decrease in fastener spacing. Compare with similarly spaced fasteners on the airplane.

(b) Fasteners closer to forward edge of rear spar. Check Detail III for location of edge.

(c) A larger or smaller fastener. Compare with similar fasteners of reference standard and on airplane.

(d) A fastener that is different in countersink depth. Compare with similar fastener in standard raised to the same height.

(e) A fastener close to edge of skin. Compare with similar fasteners on airplane.

(f) Differences in conductivity between skin panels. Compare only the fastener locations common to a skin panel.

B. Inspect for Cracks Using a Spot Probe. Inspection codes Q and R.

(1) Calibrate the instrument per par. 4.C. and Table I.

(2) Note location of codes E and G fasteners, and code F scan using Detail V.

(3) Inspect each code E and G fastener and scan F of Table 1 per the applicable flagnotes.

(4) Any location which gives a response which is 30% of full meter scale higher than the baseline response should be investigated further.

Wing Upper Rear Spar Chord Horizontal Flange
Figure 70 (Sheet 6)

INSPECTION CODE (1)	REFERENCE STANDARD NO.	PROBE IDENTIFICATION (2)	INSTRUMENT FREQUENCY HZ	DETAIL NO. FOR CALIBRATION	PROBE CALIBRATION POSITION (3)	SPECIAL NOTES
A	043	(1)	100	II	A	4
B	043	(2)	100	II	A	
C	043	(2)	100	II	B	
D	043	(2)	100	II	B	5
E	043	(3)	300	II	A	6
F	043	(3)	300	II	A	7
G	041	(4)	1000	VI	A	8

CALIBRATION
TABLE I

NOTES

(1) CODE FOR SPECIFIC INSPECTION AREAS IDENTIFIED ON DETAILS V TO WHICH THE CALIBRATION REQUIREMENTS APPLY.

(2) NORTEC PROBE IDENTIFICATION:
(1) SPO 1154 1.1-INCH OD AND 0.62-INCH ID RING PROBE
(2) SPO 783 1.0-INCH OD AND 0.5-INCH ID RING PROBE
(3) SPO 996 0.7-INCH OD AND 0.3-INCH ID RING PROBE
(4) SPO 1125 0.625 OD CASE, SPOT PROBE

(3) REFERS TO DETAIL II AND IDENTIFIES THAT SECTION OF THE REFERENCE STANDARD USED FOR CALIBRATION.

(4) BEGIN INSPECTION OF CODE B FASTENER LOCATIONS AT FASTENER NUMBER 177 TO 182 AND ESTABLISH A BASELINE RESPONSE FOR A GOOD FASTENER LOCATION. NEXT, INSPECT FASTENER LOCATIONS 148 AND 150 (SOME PAINT REMOVAL MAY BE REQUIRED TO LOCATE THESE TWO FASTENERS) AND REMAINING CODE B FASTENERS.

(5) BEGIN INSPECTION OF CODE D FASTENERS AT FASTENER LOCATION NUMBER 175 AND PROCEED IN INBOARD DIRECTION TO WS 318 BEFORE INSPECTING THE FASTENERS OUTBOARD. THIS WILL AID IN SETTING UP A FASTENER PATTERN WHICH WILL HELP IN LOCATING FASTENERS COVERED BY HEAVY WALKWAY PAINT.

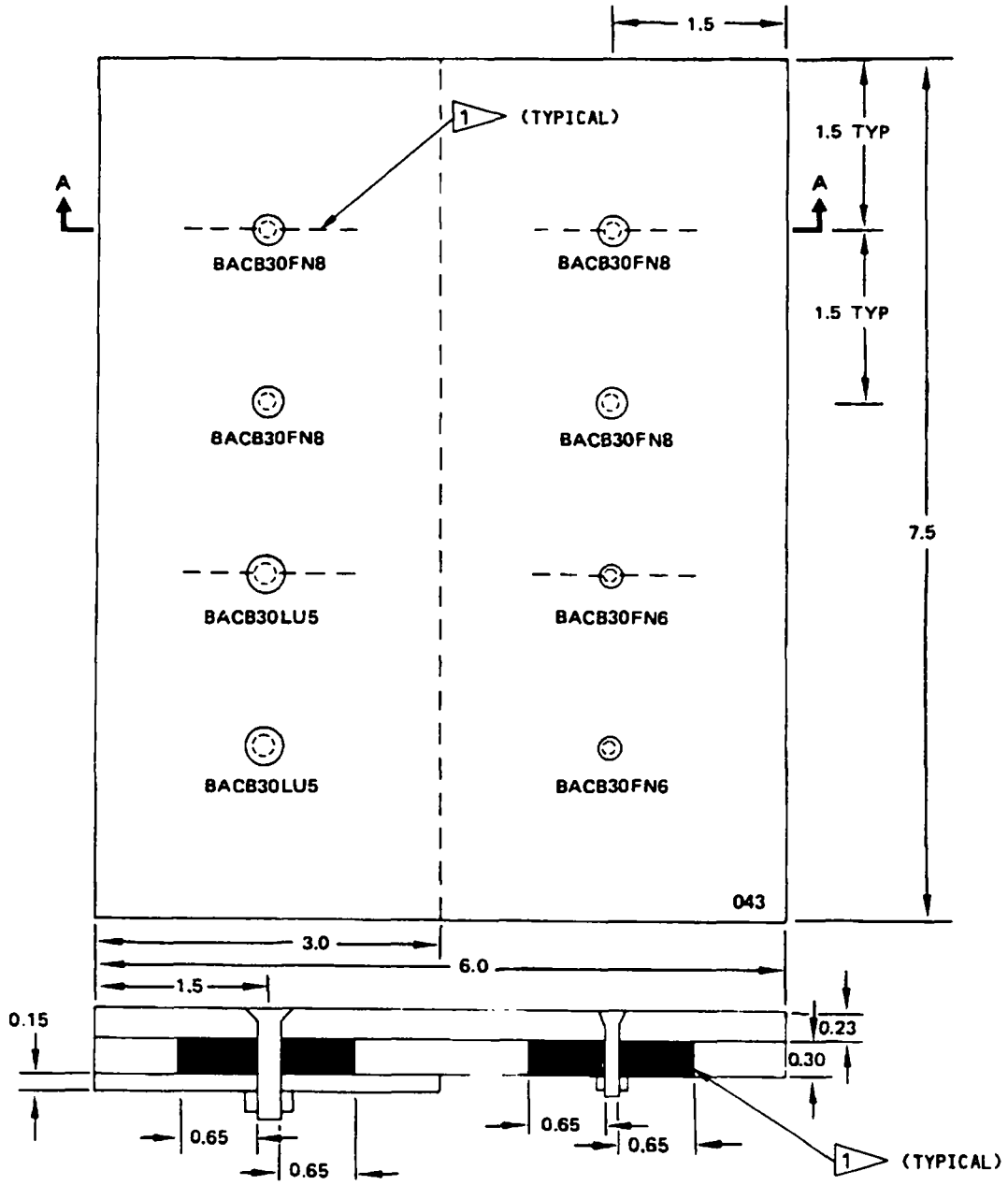
NONDESTRUCTIVE TEST

6. INSPECT FASTENER NUMBER 213 BY PLACING THE PROBE ON THE AFT SIDE AND ADJACENT TO THE FASTENER HEAD. BASELINE FOR A GOOD RESPONSE MAY BE ESTABLISHED BY COMPARING RESPONSE WITH PROBE SIMILARLY POSITIONED ON FASTENERS NUMBERS 216, 214, and 211.

7. SCAN PROBE ALONG AFT EDGE OF SKIN BETWEEN FASTENERS NUMBERS 210 AND 217. HOLD EDGE OF PROBE APPROXIMATELY 0.1 INCH FROM AFT EDGE OF SKIN, SCAN TO WITHIN 0.2 INCH OF SKIN JUNCTURE AT WS 360.

8. SCAN PROBE AROUND THE FORE AND AFT EDGES OF EACH CODE G FASTENER TO THE EXTENT POSSIBLE. SHORT EDGE MARGINS PREVENT A COMPLETE SCAN AROUND THE FASTENER.

Wing Upper Rear Spar Chord Horizontal Flange
Figure 70 (Sheet 8)



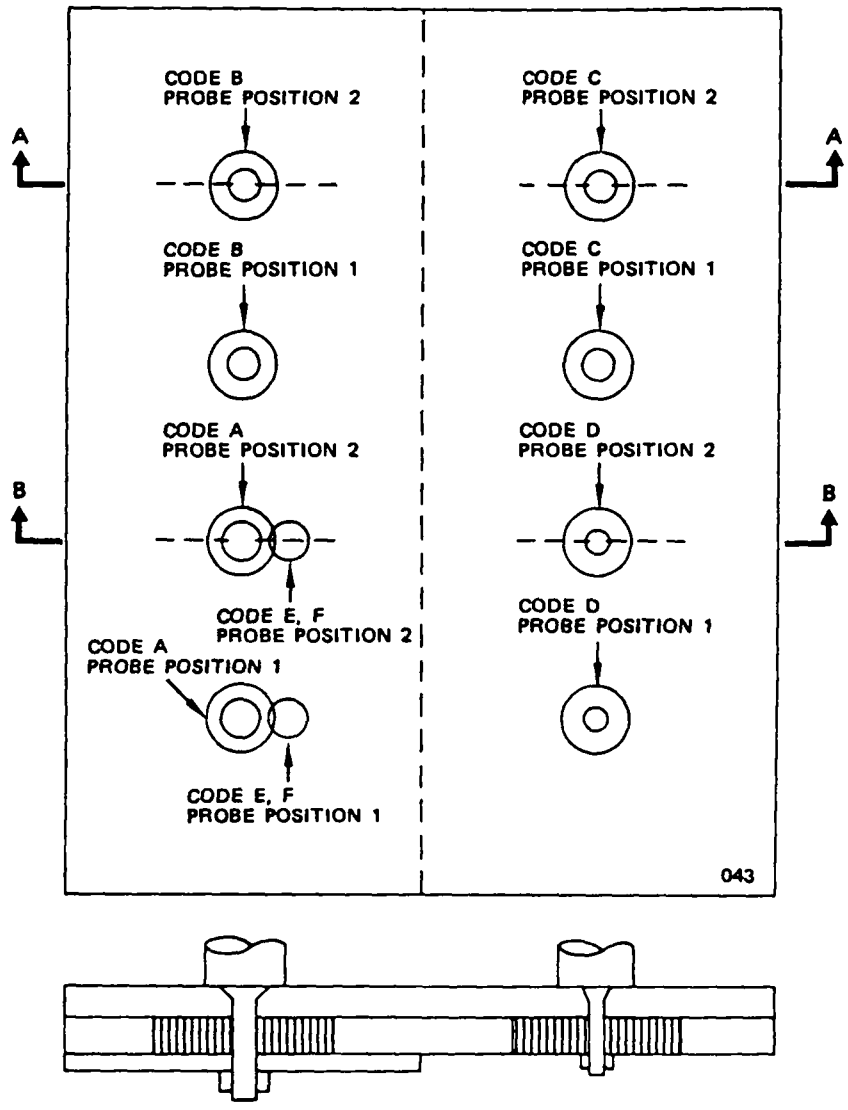
SECTION A–A

NOTES

- TOLERANCES: X.X ± 0.05 X.XX ± 0.02
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T3 OR T4 ALUMINUM
- ETCH OR STEEL STAMP WITH 043
- P/N 6412–106 AVAILABLE FROM IDEAL SPECIALTY CO. 2531 E. INDEPENDENCE ST. TULSA, OKLAHOMA 74110

1 JEWELER'S SAWCUT 0.030 MAX WIDTH (8 PLACES)

REFERENCE STANDARD 043
DETAIL I
Wing Upper Rear Spar Chord Horizontal Flange
Figure 70 (Sheet 8A)



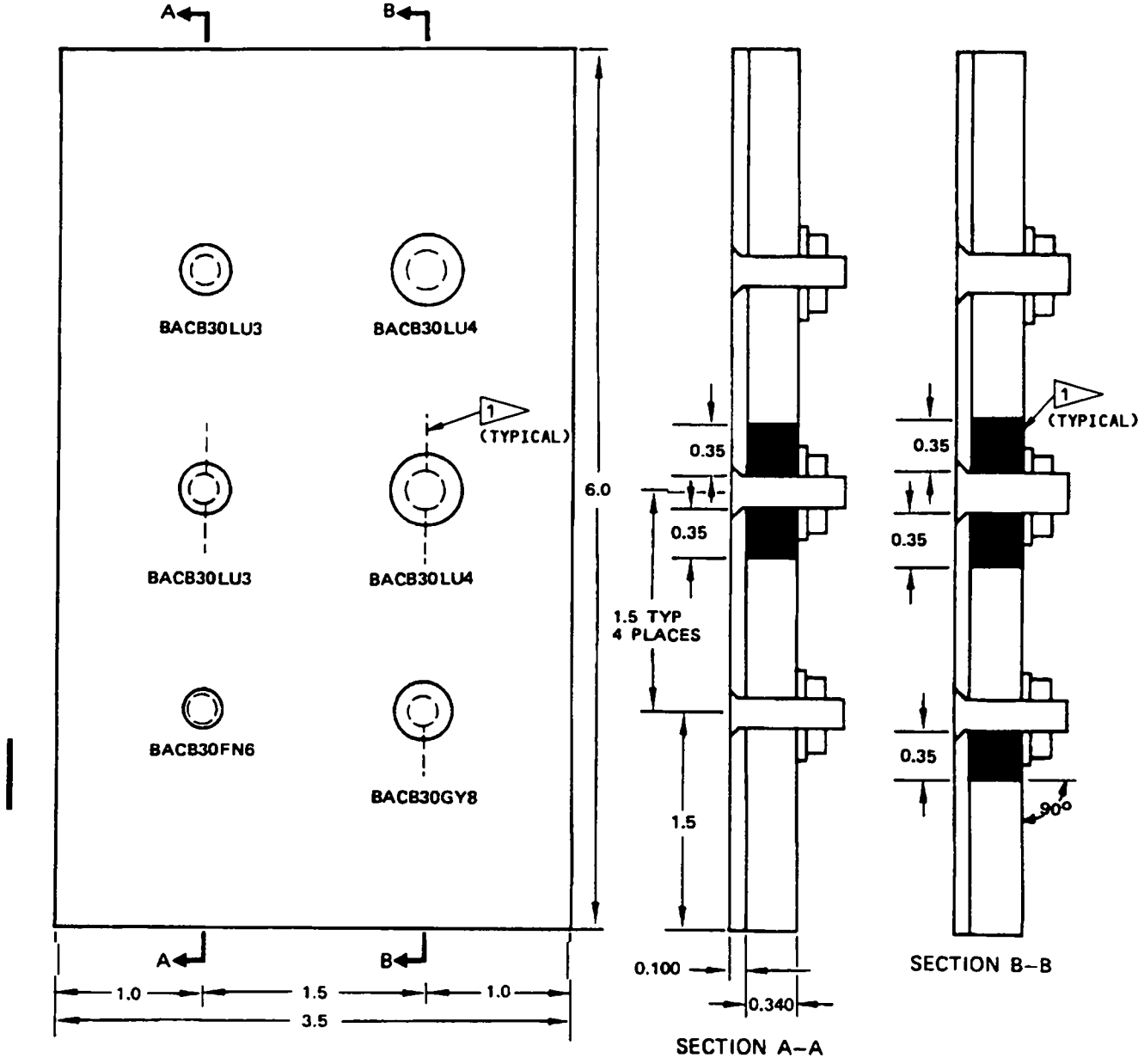
SECTION A–A AND B–B

NOTES

- PROBE CALIBRATION POSITION (REF. TABLE I CALIBRATION TABLE)

PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD 043
DETAIL II

Wing Upper Rear Spar Chord Horizontal Flange
Figure 70 (Sheet 9)

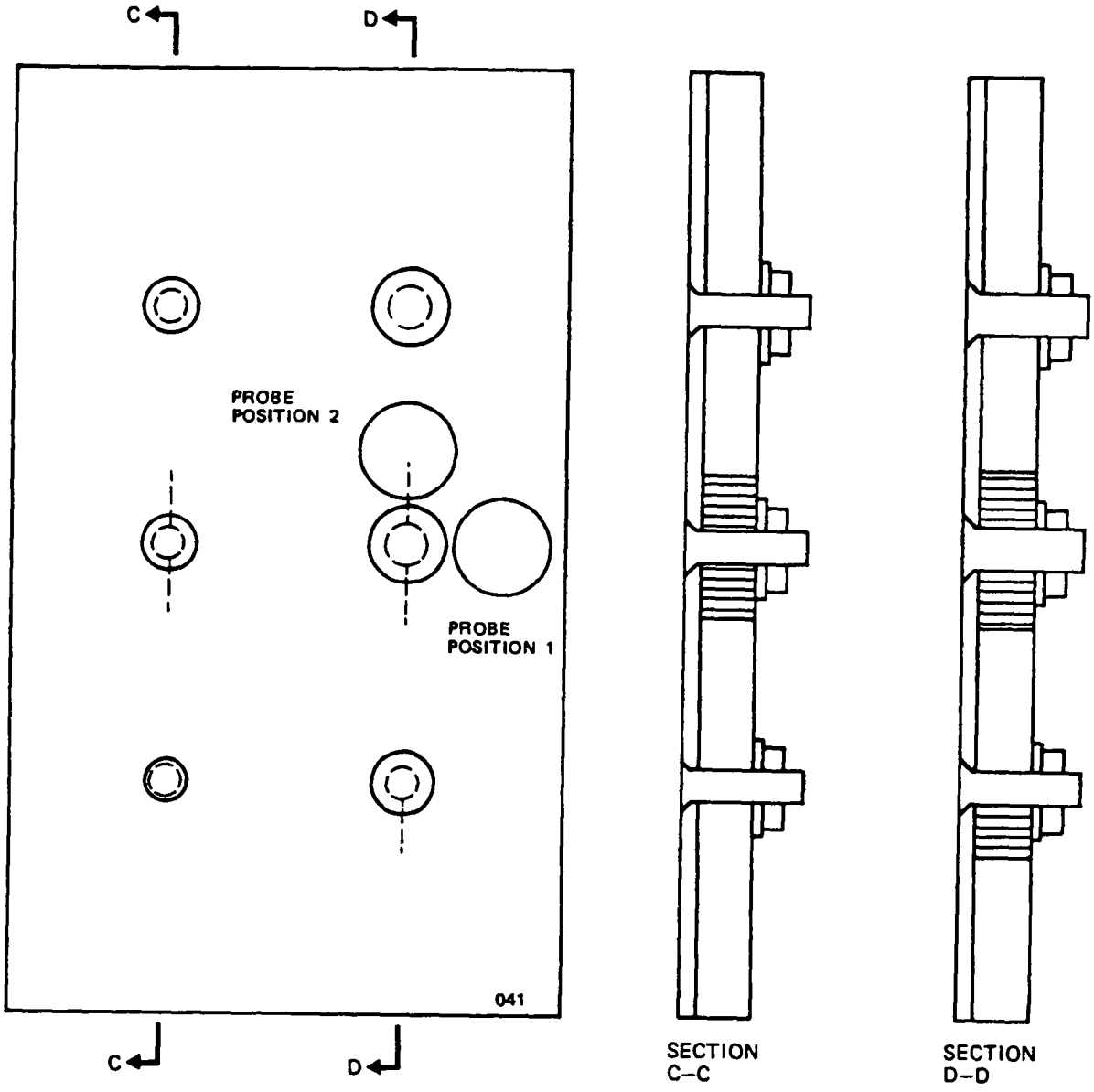


NOTES

- TOLERANCE: HOLE DIMENSION +.004, –.000
  COUNTERSINK FLUSHNESS +.010, –.005
  X.X ± .05 X.XX ± .02 X.XXX ± .005
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL. 2024–T3 ALUMINUM
- ETCH OR STEEL STAMP WITH 041
- P/N 6412–107
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

1 JEWELER'S SAWCUT 0.030 MAX WIDTH (5 PLACES)

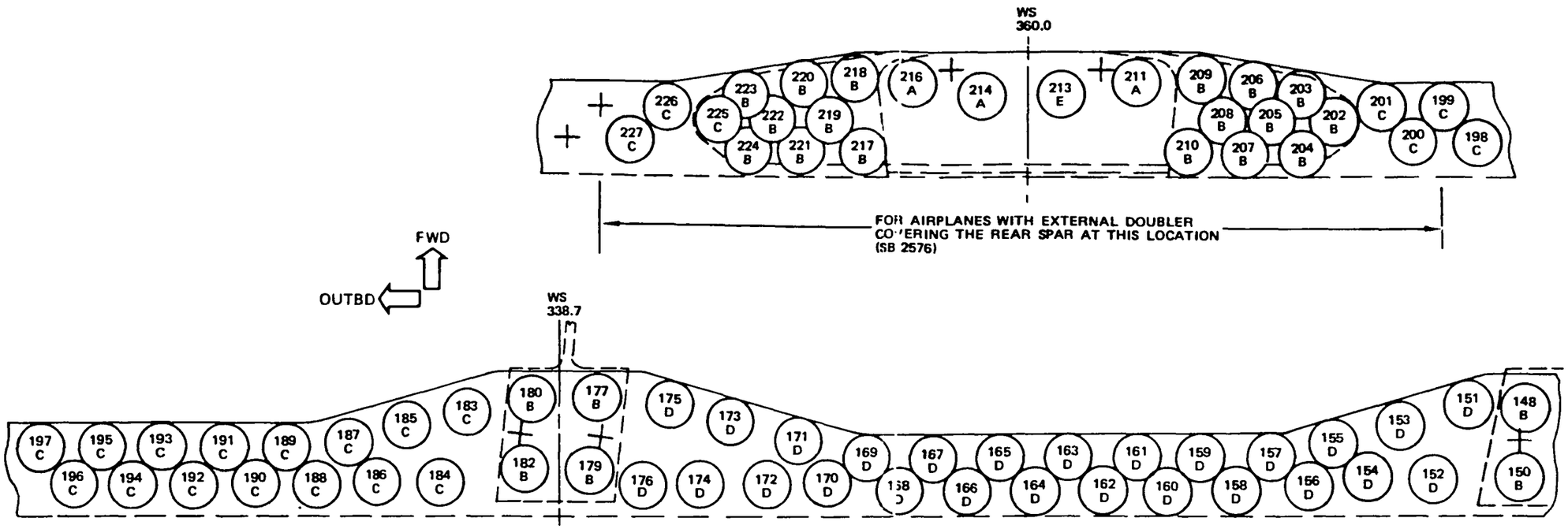
REFERENCE STANDARD 041
DETAIL III
Wing Upper Rear Spar Chord Horizontal Flange
Figure 70 (Sheet 10)



NOTES: CODE G CALIBRATION
(REF. TABLE I CALIBRATION TABLE)

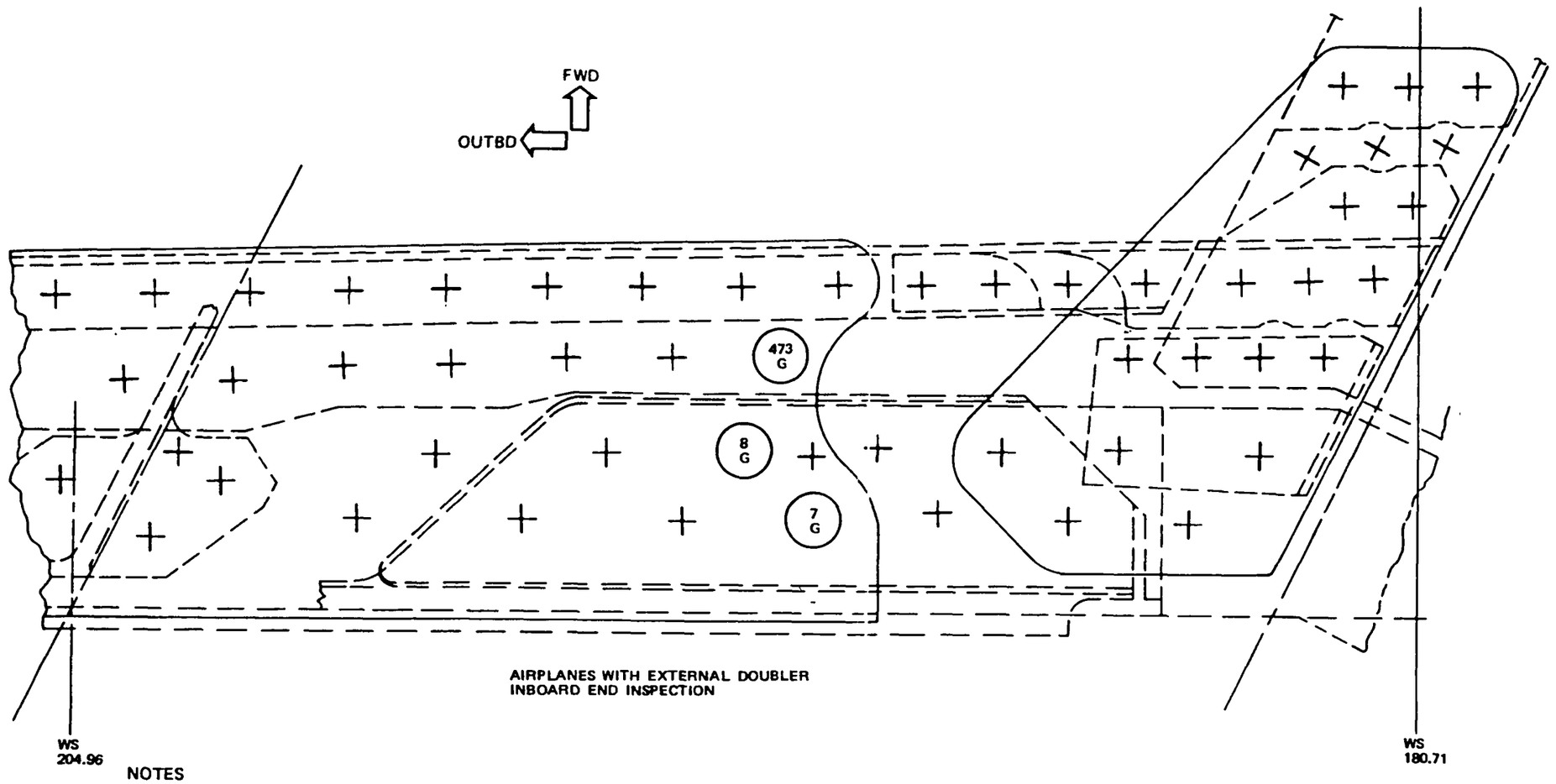
PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD 041
DETAIL IV

Wing Upper Rear Spar Chord Horizontal Flange
Figure 70 (Sheet 11)



WING UPPER REAR SPAR CHORD HORIZONTAL FLANGE INSPECTION
DETAIL V

Wing Upper Rear Spar Chord Horizontal Flange
Figure 70 (Sheet 12)



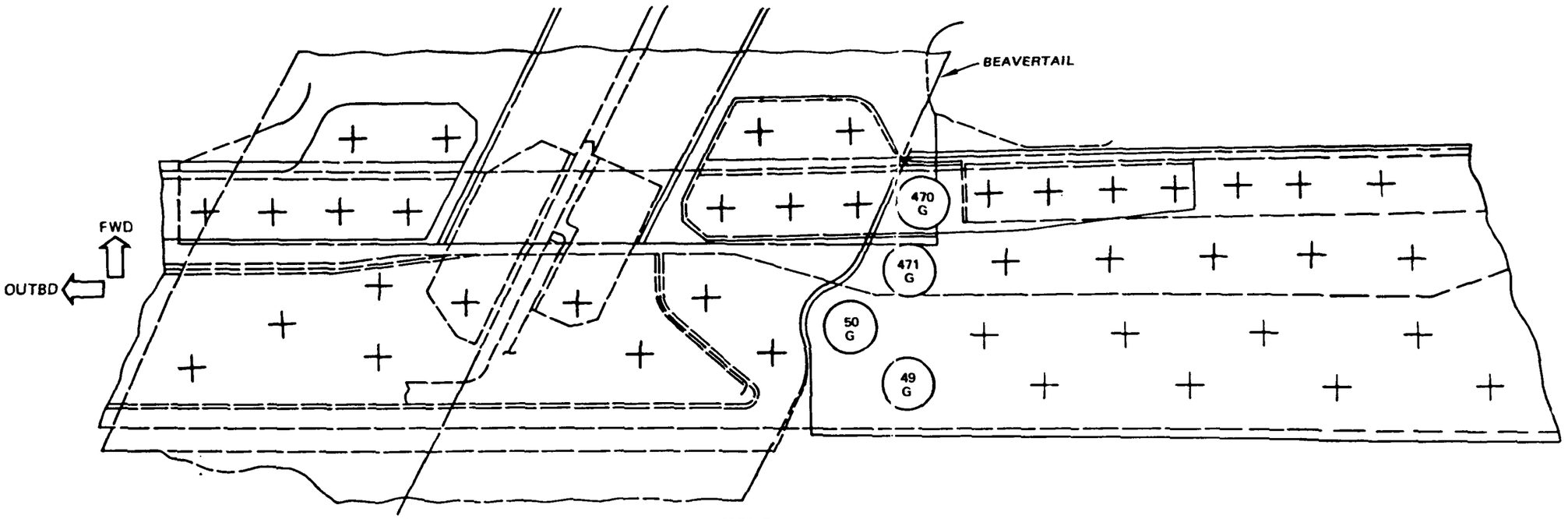
AIRPLANES WITH EXTERNAL DOUBLER
INBOARD END INSPECTION

NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR

8 G 1 — FASTENER TO BE INSPECTED
INSPECTION CODE REF TABLE I

WING UPPER REAR SPAR CHORD HORIZONTAL FLANGE INSPECTION
DETAIL V (CONT)



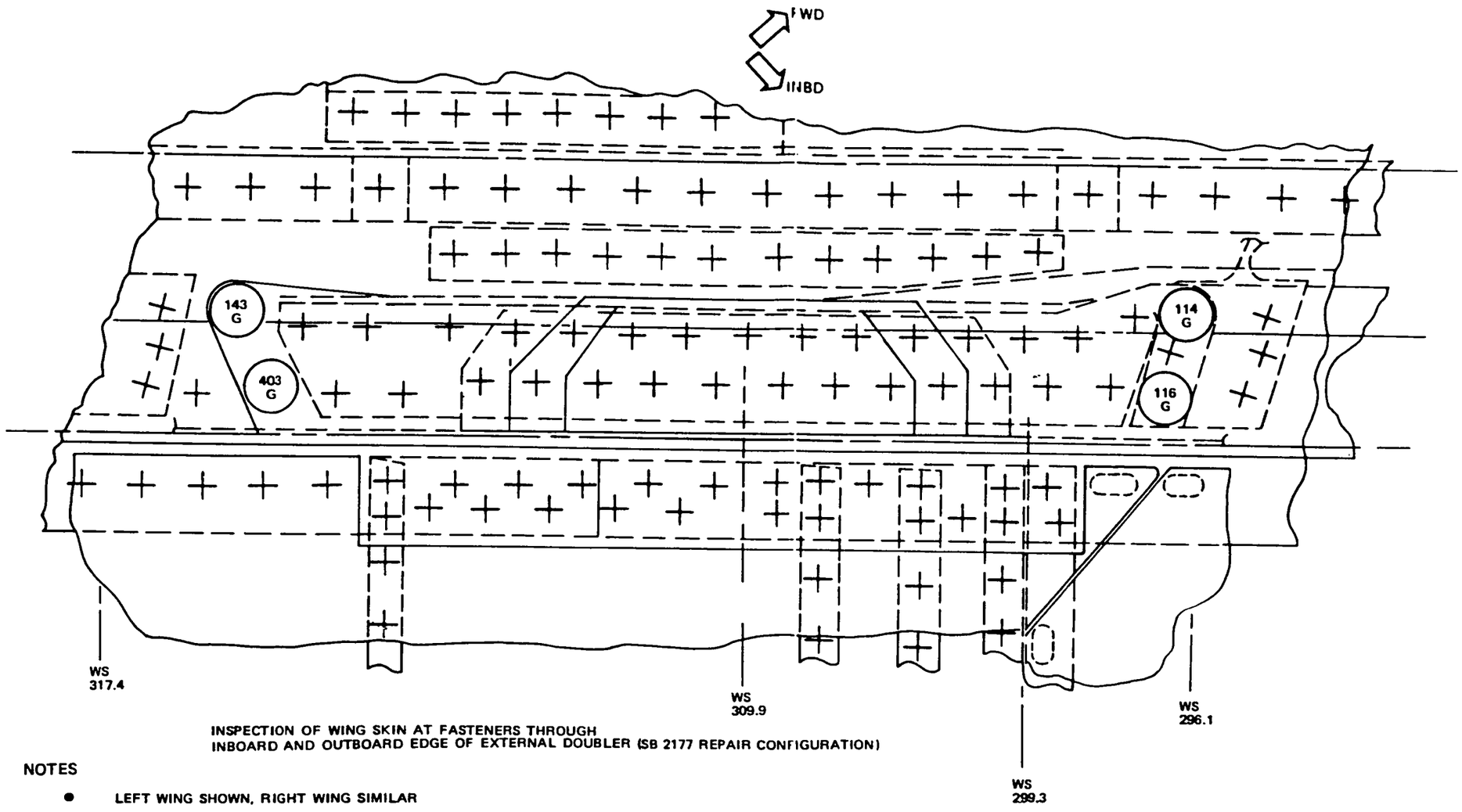
NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- 50 G — FASTENER TO BE INSPECTED
- INSPECTION CODE REF TABLE I

WING UPPER REAR SPAR CHORD HORIZONTAL FLANGE INSPECTION

DETAIL V (CONT)

Wing Upper Rear Spar Chord Horizontal Flange
Figure 70 (Sheet 14)



INSPECTION OF WING SKIN AT FASTENERS THROUGH
INBOARD AND OUTBOARD EDGE OF EXTERNAL DOUBLER (SB 2177 REPAIR CONFIGURATION)

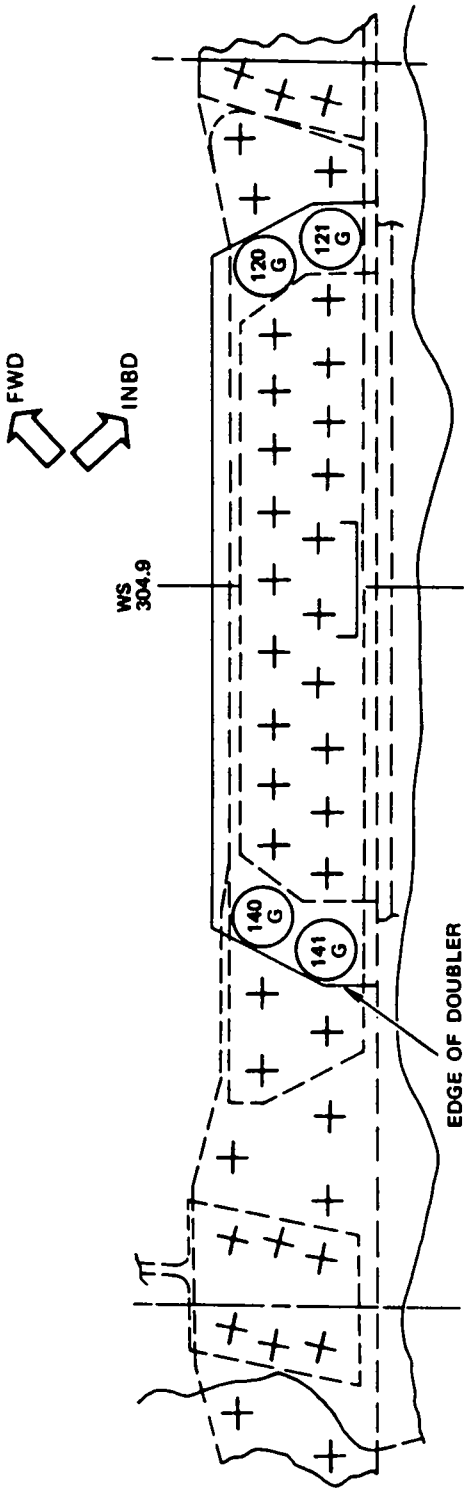
NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR

143 G — FASTENER TO BE INSPECTED
INSPECTION CODE REF TABLE I

WING UPPER REAR SPAR CHORD HORIZONTAL
FLANGE INSPECTION

DETAIL V (CONT)



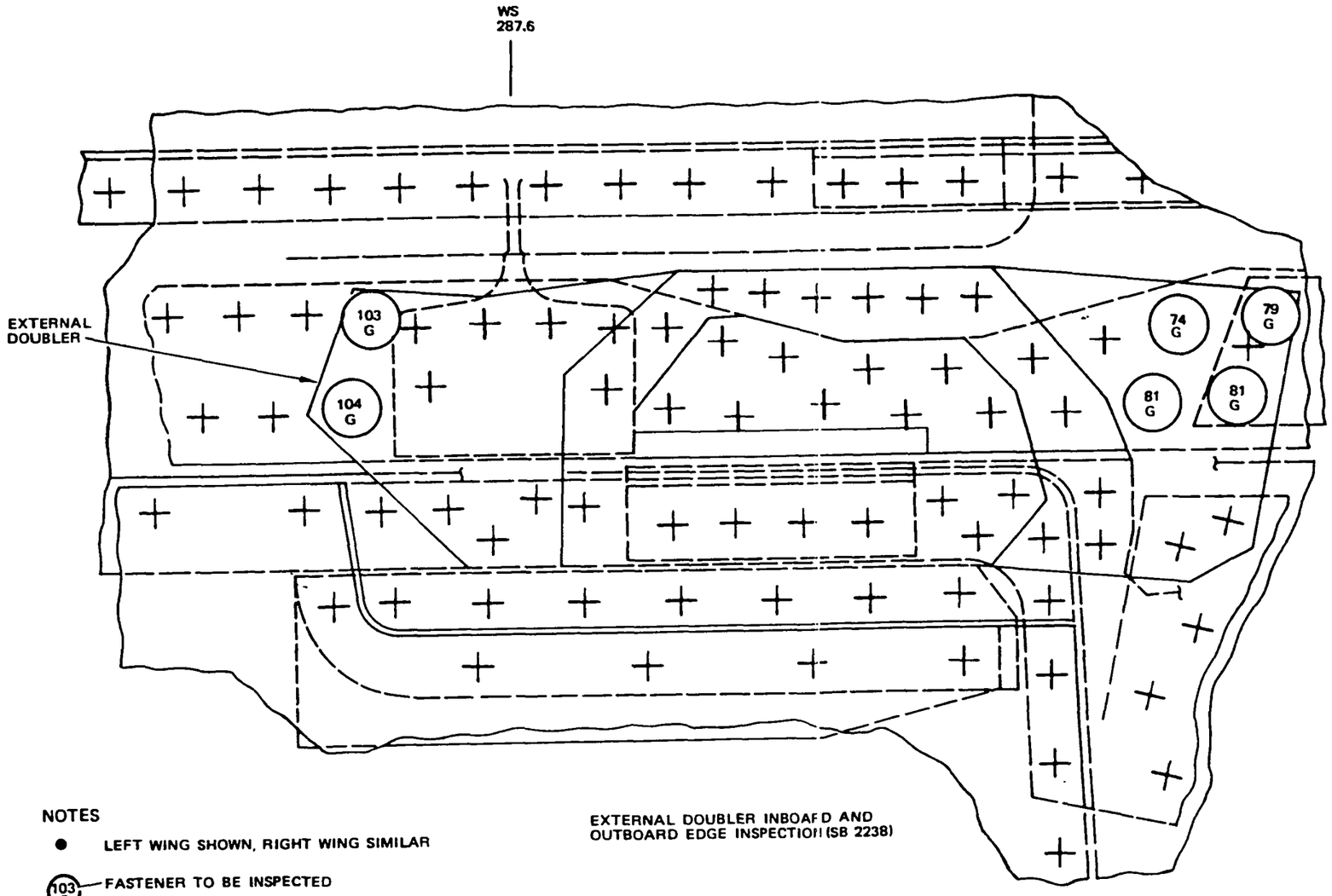
INSPECTION OF WING SKIN AT FASTENERS THROUGH INBOARD AND OUTBOARD EDGE OF EXTERNAL DOUBLER (SB 2177 PREVENTIVE MODIFICATION)

NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- 140 G — FASTENER TO BE INSPECTED
- INSPECTION CODE REF TABLE I

WING UPPER REAR SPAR CHORD HORIZONTAL FLANGE INSPECTION DETAIL V (CONT)

Wing Upper Rear Spar Chord Horizontal Flange
Figure 70 (Sheet 16)



NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- (103 G) FASTENER TO BE INSPECTED
  INSPECTION CODE REF TABLE I

EXTERNAL DOUBLER INBOARD AND OUTBOARD EDGE INSPECTION (SB 2238)

WING UPPER REAR SPAR CHORD HORIZONTAL FLANGE INSPECTION
DETAIL V (CONT)

Wing Upper Rear Spar Chord Horizontal Flange
Figure 70 (Sheet 17)

[A] MODEL: 707-300/400,300B,300C/A/P's UP TO LINE NO. 671 MODIFIED PER SERVICE BULLETIN AND CUM LINE NO'S 672 AND ON
SERVICE BULLETIN REFERENCE: 2606 AND 2731 OR 2427 PART Xa OR 2607
SSI DOCUMENT (D6-44860)
REFERENCE:
SSD 57-A25-21B, 57-A25-21C, 57-A25-21D, 57-A35-21B, 57-A35-21C, 57-A35-21D, 57-A35-21E, 57-A45-21B, 57-A45-21C, 57-A45-21D, 57-A45-21E

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

A. To inspect for cracks in the wing upper rear spar chord and the adjacent skin and structure at specified locations using high frequency eddy current from the side of the body to WS 360.

B. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

A. Refer to Part 6, 51-00-00, Fig. 4 for the instrument.

B. Probes - Three different probes as follows are required to perform these inspections:

(1) Shielded pencil probe per Part 1, 51-06-00, Fig. 1.

(2) Low profile, right angle shielded pencil probe with handle length approximately 2.5 inches, maximum shank length from coil tip to top of shank, 0.3 inch, shank and handle OD 0.2 inch maximum.

Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 1)

(3) Shielded pencil probe and extension handle that will allow probe to be set at a variable angle to the inspection surface.

Probes that meet the preceding requirements are available from:

NDT Product Engineering P.O. Box 423 Renton, Wa 98057	VM Products 7420 Park Ave. No. 20 Tacoma, Wa. 98408
P/N (1) P-50 (2) P-901-25 (3) PVAE-11	P/N (1) VM100PS (2) VM202RA-125 (3) VM100PS-18

NOTE: Specify probe dimensions and angle when ordering probe (2) when ordering from VM Products.

C. Refer to Part 6, 51-00-00, Fig. 4 for reference standards.

3. Prepare for Inspection

A. External Inspection

(1) Open trailing edge access doors and fuel dump chute.

(2) Open landing gear torque box access panels on wing upper surface.

(3) Clean inspection surfaces thoroughly.

B. Internal Inspection

(1) Defuel and purge fuel tanks to permit fuel cell entry with an eddy current instrument.

(2) Remove sealant as necessary to allow eddy current probe contact with inspection surface.

(3) Wipe surface clean.

4. Calibrate Instrument

A. Select probe best suited to contact area where inspection is to be performed.

B. Connect probe to instrument and calibrate per Part 6, 51-00-00, Fig. 4.

Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 2)

5. Inspection Procedure

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

A. Inspect upper rear spar chord vertical flange and related structure.

NOTE: Inspection is accomplished externally except at RSS 354 to 360 where an internal inspection of the flaptrack support fitting is required.

(1) Refer to Table I for airplane effectivity and inspection detail.

(2) Accomplish surface eddy current inspection at fastener holes common to the upper rear spar chord vertical flange. Where structure prevents access to the spar chord at a fastener location, scan an adjacent area of the chord. See Inspection Details for locations and procedures.

(3) Perform inspection around fastener ends per Part 6, 51-00-00, Fig. 6. Perform all other inspections per part 6, 51-00-00, Fig. 4.

B. Inspect upper rear spar chord horizontal flange and related structure.

NOTE: Inspection of several locations of the upper rear spar structure, both internal and external, is required.

(1) Refer to Table I for airplane effectivity and related inspection detail.

(2) Accomplish inspection around end of fasteners common to skin and rear spar. If an external doubler covers the skin, inspection around the fastener end is not required. See appropriate detail for inspection locations and procedures.

(3) Perform inspection around fastener ends per Part 6, 51-00-00, Fig. 6. Perform all other inspections per Part 6, 51-00-00, Fig. 4.

Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 3)

DETAIL NO.	HORIZONTAL FLANGE	VERTICAL FLANGE
I		All Airplanes
II	1	
III	2	
IV	3	
V	4	
VI	5	

EFFECTIVITY TABLE
TABLE I

NOTES

1. CUM LINE NO.S 672 AND ON

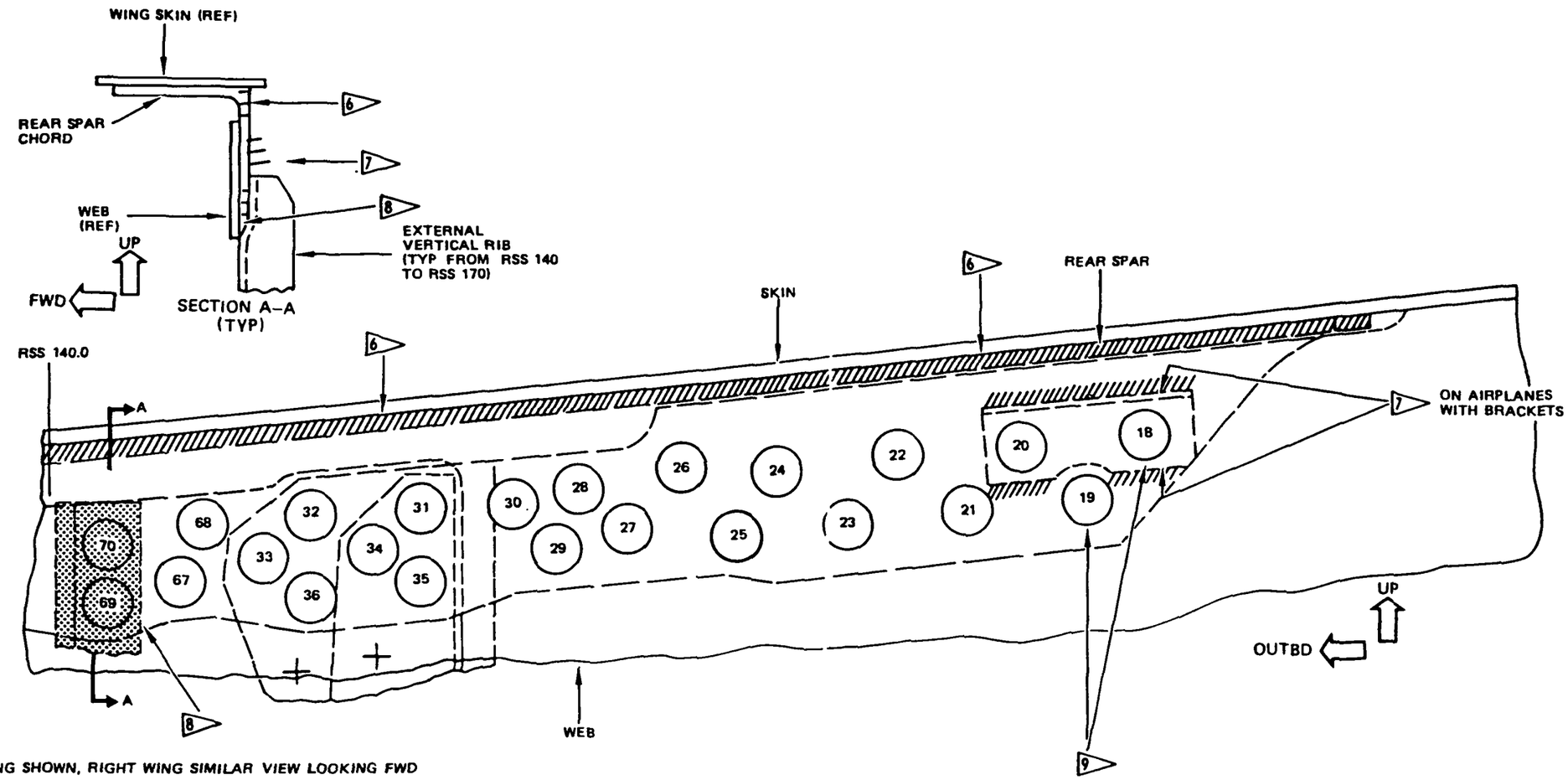
2. CUM LINE NO.S 13 THRU 671 WITH FASTENER OVERSIZING ACCOMPLISHED PER SB 2606 AND 2731

3. CUM LINE NO.S 13 THRU 671 WITH INSTALLATION OF 3 BONDED EXTERNAL DOUBLERS ACCOMPLISHED PER SB 2427 PART XA.

4. CUM LINE NO.S 13 THRU 671 WITH NEW SKIN AND CHORD AND 3 EXTERNAL BONDED DOUBLERS INSTALLED PER SB 2607.

5. CUM LINE NO.S 13 THRU 671 WITH NEW SKIN WITH INTEGRALLY MACHINED EXTERNAL PAD AND NEW CHORD INSTALLED PER SB 2607.

Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 4)



NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR VIEW LOOKING FWD
- SCAN ABOVE AND BELOW FASTENERS ON VERTICAL FLANGE

(70) FASTENER LOCATION TO BE INSPECTED

FITTINGS OR VERTICAL RIBS COMMON TO INSPECTION FASTENERS AND EXTERNAL TO REAR SPAR

/// INSPECTION AREA

(6) PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE AT HORIZONTAL FLANGE JUNCTION AND SCAN FROM SIDE OF BODY TO WS 360. EXTERNAL INSPECTION ON CUM LINE NOS. 672 AND ON SCAN TO WS 262. SEE SECTION A–A

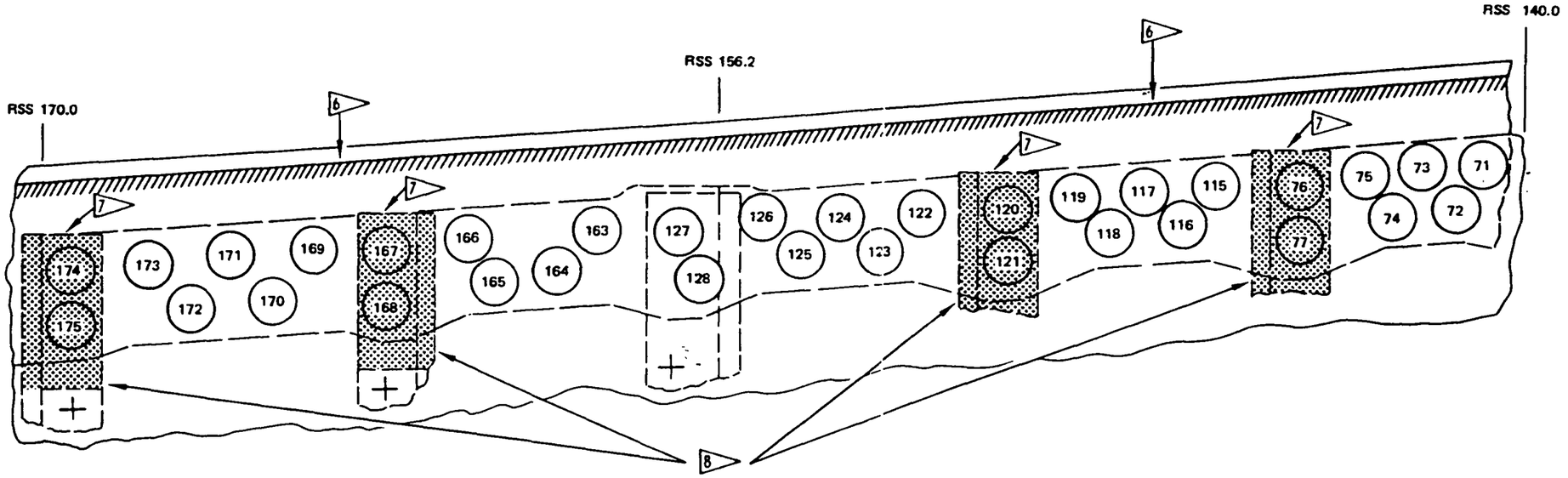
(7) PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE AND SCAN ALONG EDGES OF FITTINGS – EXTERNAL INSPECTION SEE SECTION A–A

(8) PLACE PROBE ON EDGE OF REAR SPAR CHORD VERTICAL FLANGE AND SCAN BEHIND RIB. USE LOW PROFILE RIGHT ANGLE PROBE. EXTERNAL INSPECTION

(9) PLACE PENCIL PROBE ON TERMINAL FITTING AND SCAN ABOVE AND BELOW FASTENERS (18) AND (19). INTERNAL INSPECTION, SEALANT REMOVAL MAY BE REQUIRED

WING UPPER REAR SPAR CHORD VERTICAL FLANGE INSPECTION
DETAIL I

Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 5)



NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR

////// INSPECTION AREA

FITTINGS OR VERTICAL RIBS COMMON TO INSPECTION FASTENERS AND EXTERNAL TO REAR SPAR

(165) FASTENER LOCATION TO BE INSPECTED. SCAN ABOVE AND BELOW FASTENERS ON VERTICAL FLANGE

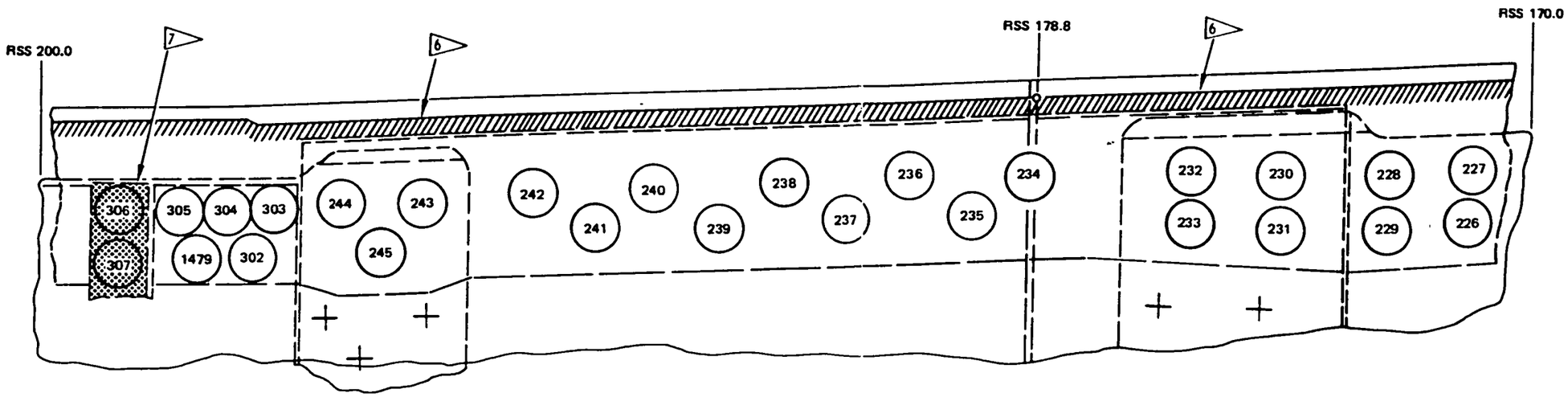
6 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE AT HORIZONTAL FLANGE JUNCTION, SCAN FROM SIDE OF BODY TO WS 360. EXTERNAL INSPECTION CUM LINE NO 672 AND ON SCAN TO WS 262. SEE SECTION A--A

7 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE AND SCAN ALONG EDGES OF FITTINGS, EXTERNAL INSPECTION. SEE SECTION A–A

8 PLACE PROBE ON EDGE OF REAR SPAR CHORD VERTICAL FLANGE AND SCAN BEHIND RIB. USE LOW PROFILE RIGHT ANGLE PROBE, EXTERNAL INSPECTION. SEE SECTION A–A

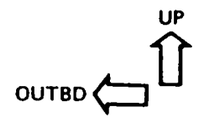
WING UPPER REAR SPAR CHORD VERTICAL FLANGE INSPECTION
DETAIL I (CONT)

Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 6)



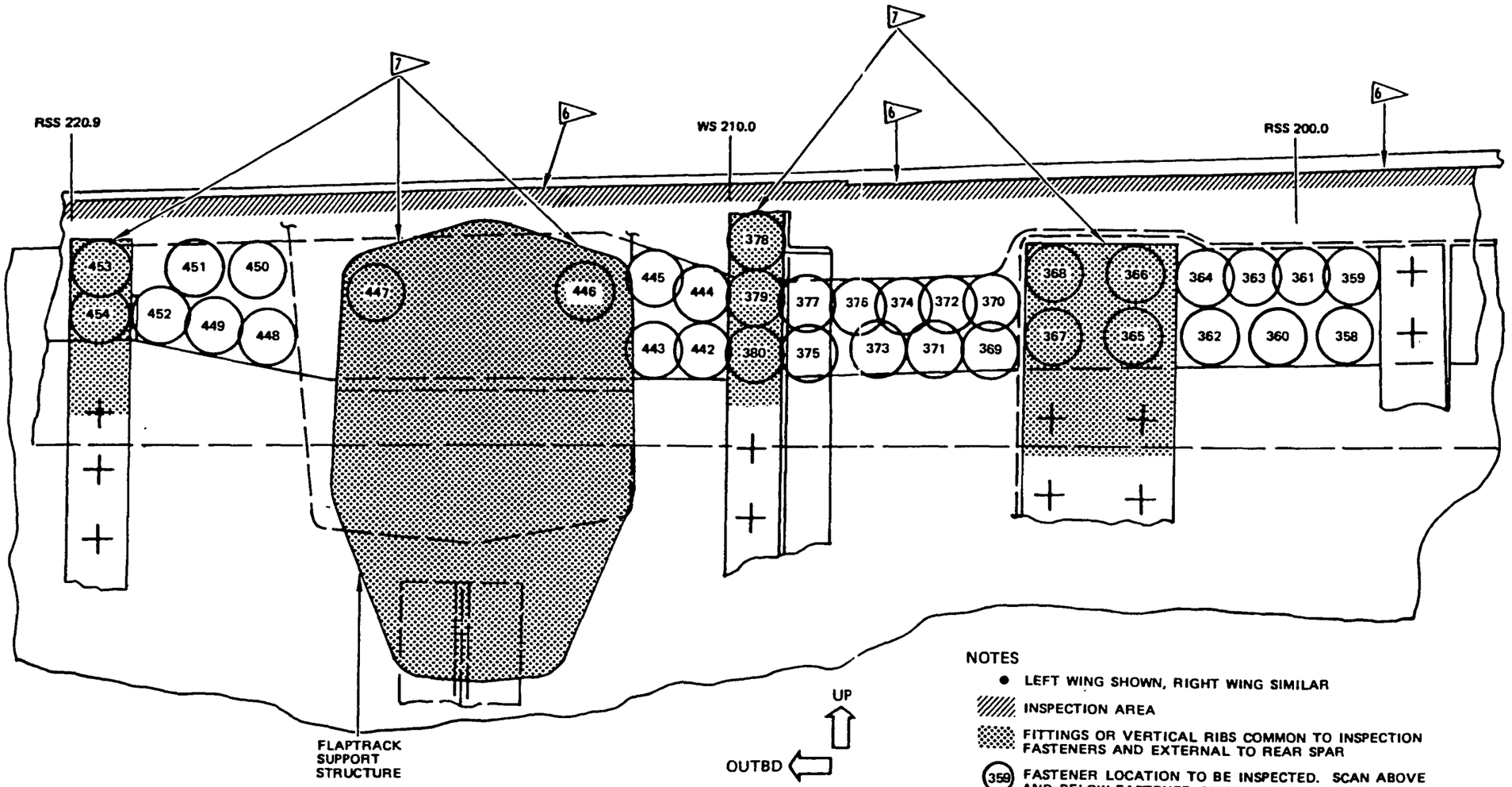
NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- INSPECTION AREA
- FITTINGS OR VERTICAL RIB COMMON TO INSPECTION FASTENERS AND EXTERNAL TO REAR SPAR
- (238) FASTENER TO BE INSPECTED. SCAN ABOVE AND BELOW FASTENERS ON VERTICAL FLANGE
- (6) PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE AT HORIZONTAL FLANGE JUNCTION. SCAN FROM SIDE OF BODY TO WS 360. EXTERNAL INSPECTION ON CUM LINE NOS. 672 AND ON, SCAN TO WS 262. SEE SECTION A–A
- (7) PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE AND SCAN ALONG EDGES OF FITTINGS. SEE SECTION A–A



WING UPPER REAR SPAR CHORD VERTICAL FLANGE INSPECTION
DETAIL I (CONT)

Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 7)

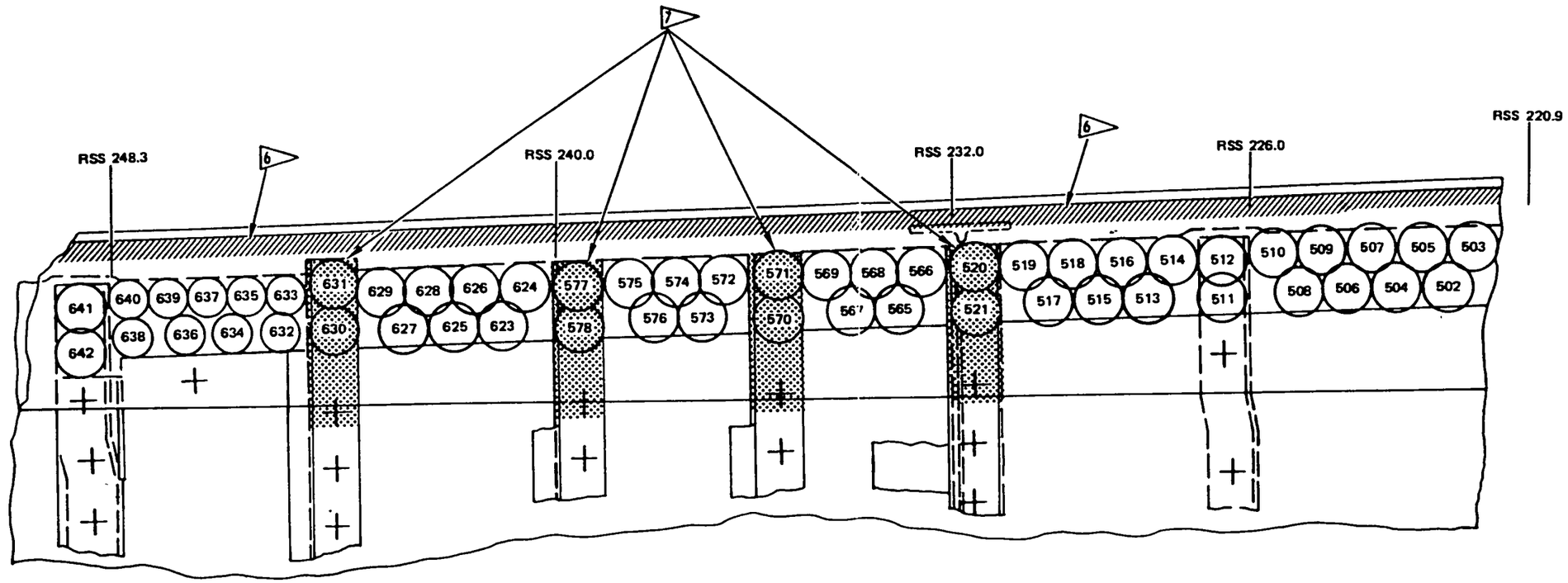


NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- INSPECTION AREA
- FITTINGS OR VERTICAL RIBS COMMON TO INSPECTION FASTENERS AND EXTERNAL TO REAR SPAR
- (359) FASTENER LOCATION TO BE INSPECTED. SCAN ABOVE AND BELOW FASTENER ON VERTICAL FLANGE
- (6) PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE AT HORIZONTAL FLANGE JUNCTION AND SCAN FROM SIDE OF BODY TO WS 360. EXTERNAL INSPECTION ON CUM LINE NOS. 672 AND ON, SCAN TO WS 262. SEE SECTION A–A
- (7) PLACE PENCIL PROBE ON REAR SPAR VERTICL VERTICAL FLANGE AND SCAN ALONG EDGES OF FITTINGS. EXTERNAL INSPECTION. SEE SECTION A–A

WING UPPER REAR SPAR CHORD VERTICAL FLANGE INSPECTION
DETAIL I (CONT)

Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 8)



NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR

INSPECTION AREA

FITTINGS OR VERTICAL RIBS COMMON TO INSPECTION FASTENERS AND EXTERNAL TO REAR SPAR.

(504) FASTENER LOCATION TO BE INSPECTED SCAN ABOVE AND BELOW FASTENERS OF ON VERTICAL FLANGE

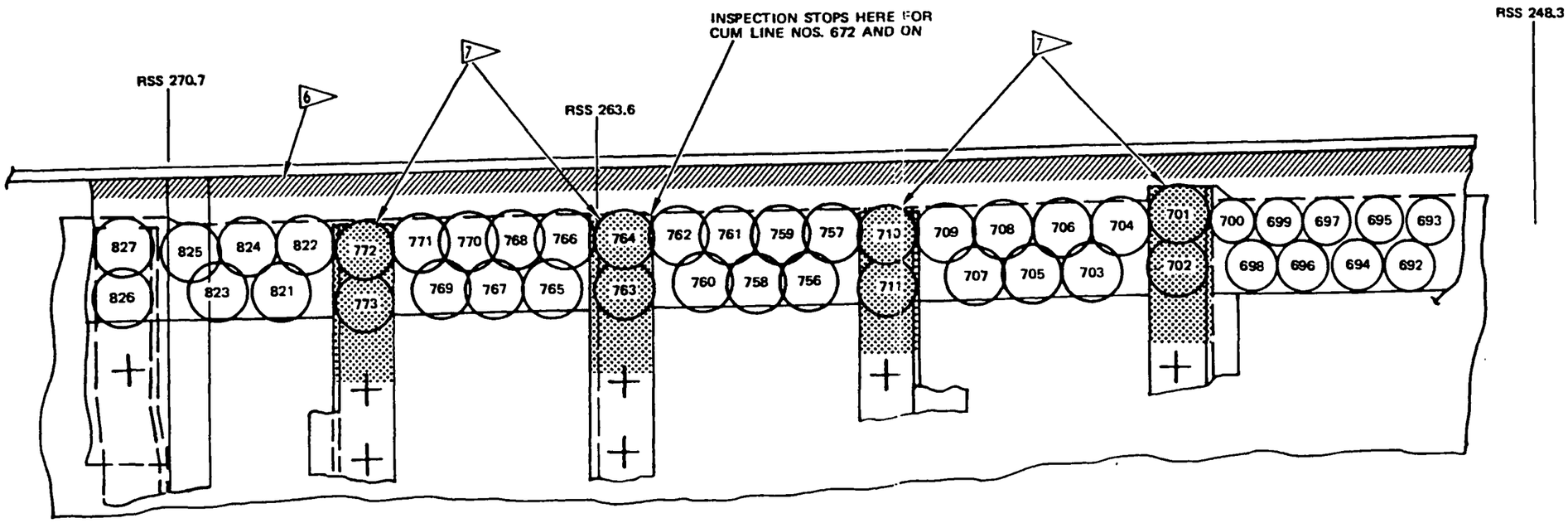
6 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE JUNCTION AND SCAN FROM SIDE OF BODY TO WS 360, EXTERNAL INSPECTION. FOR CUM LINE NOS 672 AND ON SCAN TO WS 262. SEE SECTION A–A

7 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE AND SCAN ALONG EDGES OF FITTINGS. EXTERNAL INSPECTION. SEE SECTION A–A

UP
OUTBD

WING UPPER REAR SPAR CHORD VERTICAL FLANGE INSPECTION
DETAIL I (CONT)

Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 9)



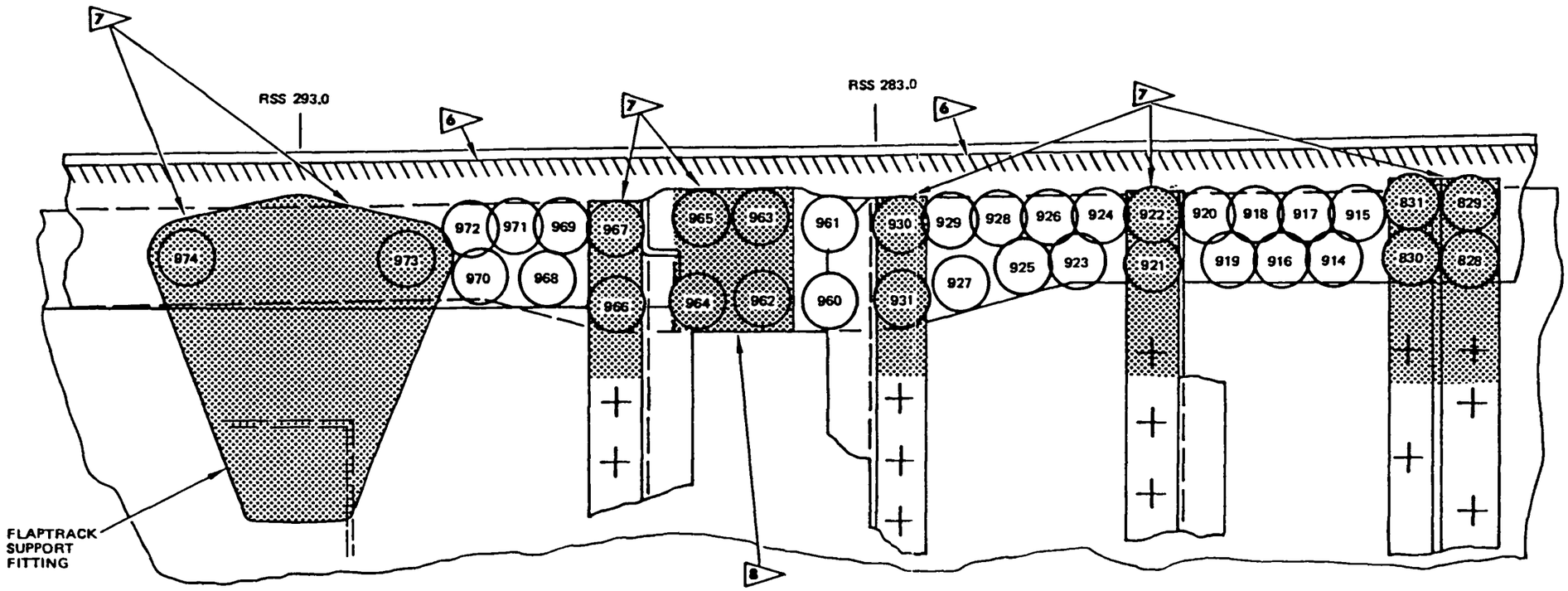
NOTES

- ● LEFT WING SHOWN, RIGHT WING SIMILAR
- INSPECTION AREA
- FITTINGS OR VERTICAL RIBS COMMON TO INSPECTION FASTENERS AND EXTERNAL TO REAR SPAR
- (699) FASTENER LOCATION TO BE INSPECTED SCAN ABOVE AND BELOW FASTENERS ON VERTICAL FLANGE.
- 6 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE AT HORIZONTAL FLANGE JUNCTION AND SCAN FROM SIDE OF BODY TO WS 360 EXTERNAL INSPECTION FOR CUM LINE NOS. 672 AND ON SCAN TO WS 262. SEE SECTION A–A
- 7 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE AND SCAN ALONG EDGES OF FITTINGS. EXTERNAL INSPECTION SEE SECTION A–A.

UP
OUTBD

WING UPPER REAR SPAR CHORD VERTICAL FLANGE INSPECTION
DETAIL I (CONT)

Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 10)



NOTES

6 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE JUNCTION AND SCAN FROM SIDE OF BODY TO WS 360. EXTERNAL INSPECTION. SEE SECTION A–A

7 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE AND SCAN ALONG EDGES OF FITTINGS. EXTERNAL INSPECTION SEE SECTION A–A

8 PLACE PROBE ON EDGE OF REAR SPAR CHORD VERTICAL FLANGE AND SCAN BEHIND RIB. USE LOW PROFILE RIGHT ANGLE PROBE. EXTERNAL INSPECTION SEE SECTION A–A.

● LEFT WING SHOWN, RIGHT WING SIMILAR.

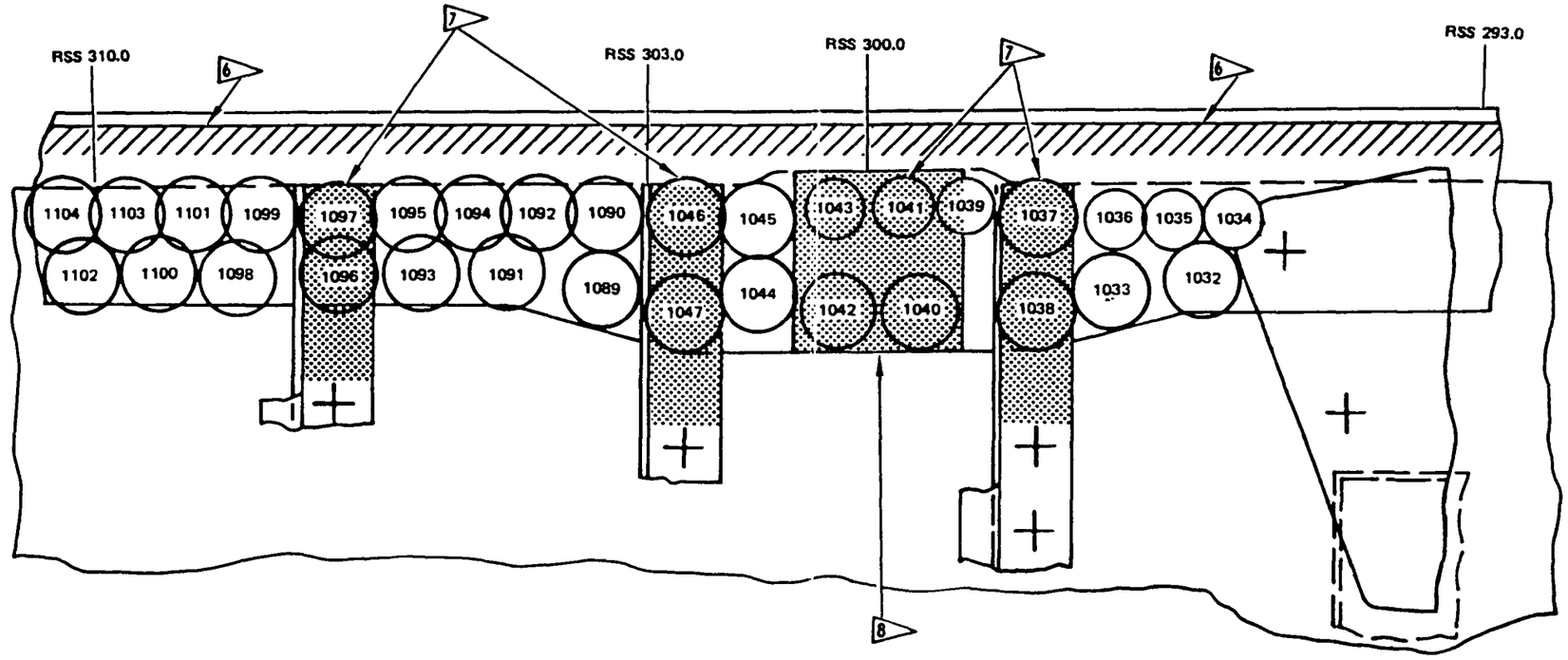
INSPECTION AREA

FITTINGS OR VERTICAL RIBS COMMON TO INSPECTION FASTENERS AND EXTERNAL TO REAR SPAR

970 FASTENER LOCATION TO BE INSPECTED. SCAN ABOVE AND BELOW FASTENERS ON VERTICAL FLANGE.

WING UPPER REAR SPAR CHORD VERTICAL FLANGE INSPECTION
DETAIL I (CONT)

Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 11)



NOTES

(1037) FASTENER LOCATION TO BE INSPECTED

INSPECTION AREA

FITTINGS OR VERTICAL RIBS COMMON TO INSPECTION FASTENERS AND EXTERNAL TO REAR SPAR

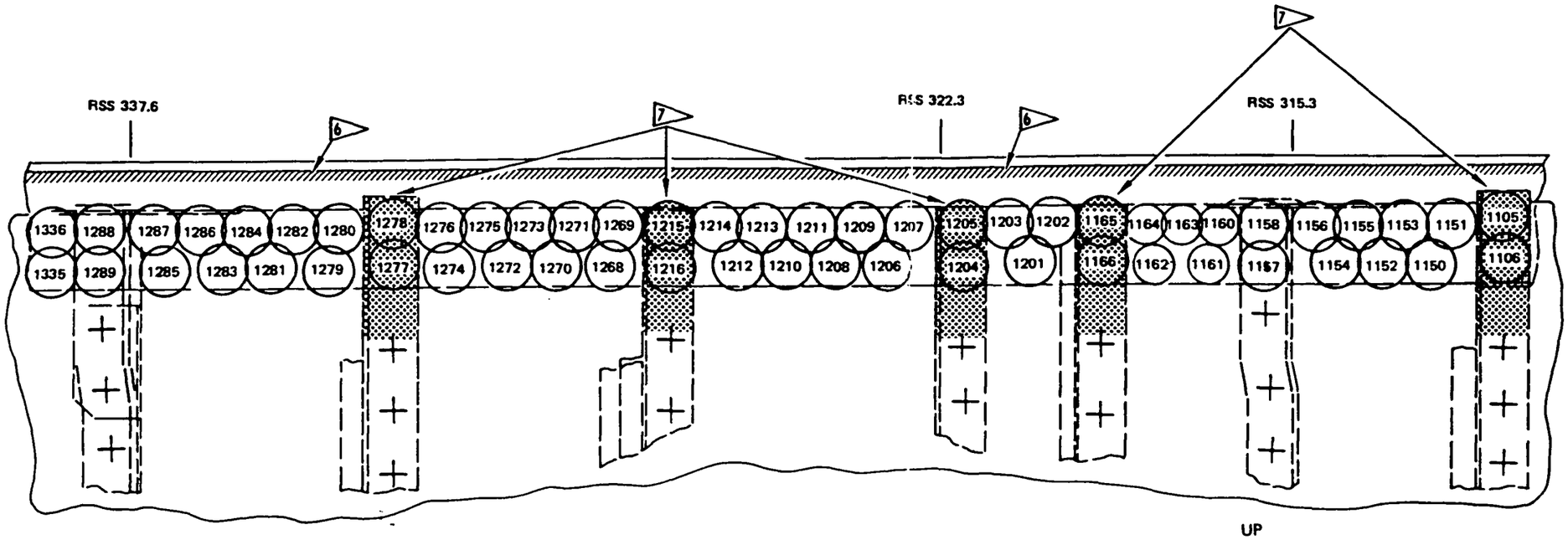
6 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE AT HORIZONTAL FLANGE JUNCTION AND SCAN FROM SIDE OF BODY TO WS 360. EXTERNAL INSPECTION. SEE SECTION A–A. SCAN TO WS 262 ON CUM LINE NOS. 672 AND ON

7 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE AND SCAN ALONG EDGES OF FITTINGS. EXTERNAL INSPECTION.

8 PLACE PROBE ON EDGE OF REAR SPAR VERTICAL FLANGE AND SCAN BEHIND RIB USE LOW PROFILE RIGHT ANGLE PROBE. EXTERNAL INSPECTION. SEE SECTION A–A

WING UPPER REAR SPAR CHORD VERTICAL FLANGE INSPECTION
DETAIL I (CONT)

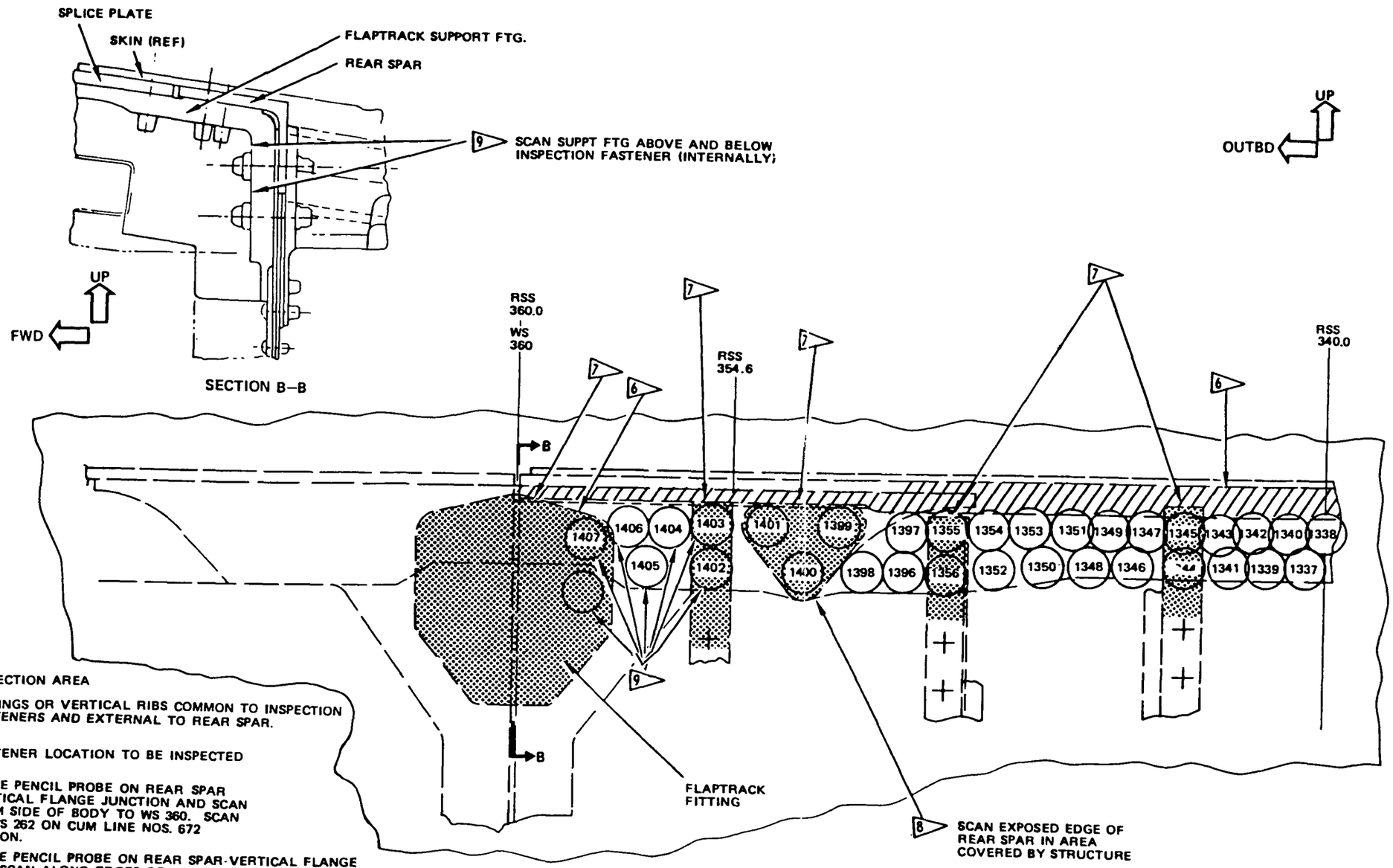
Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 12)



NOTES

- ● LEFT WING SHOWN, RIGHT WING SIMILAR.
- ////// INSPECTION AREA.
- ▒▒▒▒ FITTINGS OR VERTICAL RIBS COMMON TO INSPECTION FASTENERS AND EXTERNAL TO REAR SPAR.
- (1157) FASTENER LOCATION TO BE INSPECTED SCAN ABOVE AND BELOW FASTENER ON VERTICAL FLANGE.
- 6 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE AT HORIZONTAL FLANGE JUNCTIONA AND SCAN FROM SIDE OF BODY TO WS 360. SCAN TO WS 262 ON CUM LINE NOS 672 AND ON. SEE SECTION A–A. EXTERNAL INSPECTION
- 7 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE AND SCAN ALONG EDGES OF FITTINGS. EXTERNAL INSPECTION. SEE SECTION A–A

WING UPPER REAR SPAR CHORD VERTICAL FLANGE INSPECTION
DETAIL I (CONT)



NOTES

//// INSPECTION AREA

FITTINGS OR VERTICAL RIBS COMMON TO INSPECTION FASTENERS AND EXTERNAL TO REAR SPAR.

(1343) FASTENER LOCATION TO BE INSPECTED

6 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE JUNCTION AND SCAN FROM SIDE OF BODY TO WS 360. SCAN TO WS 262 ON CUM LINE NOS. 672 AND ON.

7 PLACE PENCIL PROBE ON REAR SPAR VERTICAL FLANGE AND SCAN ALONG EDGES OF FITTINGS EXTERNAL INSPECTION. SEE SECTION A–A

8 PLACE PENCIL PROBE ON EDGE OF REAR SPAR CHORD VERTICAL FLANGE AND SCAN BEHIND RIB. USE LOW PROFILE RIGHT ANGLE PROBE. EXTERNAL INSPECTION. SEE SECTION A–A

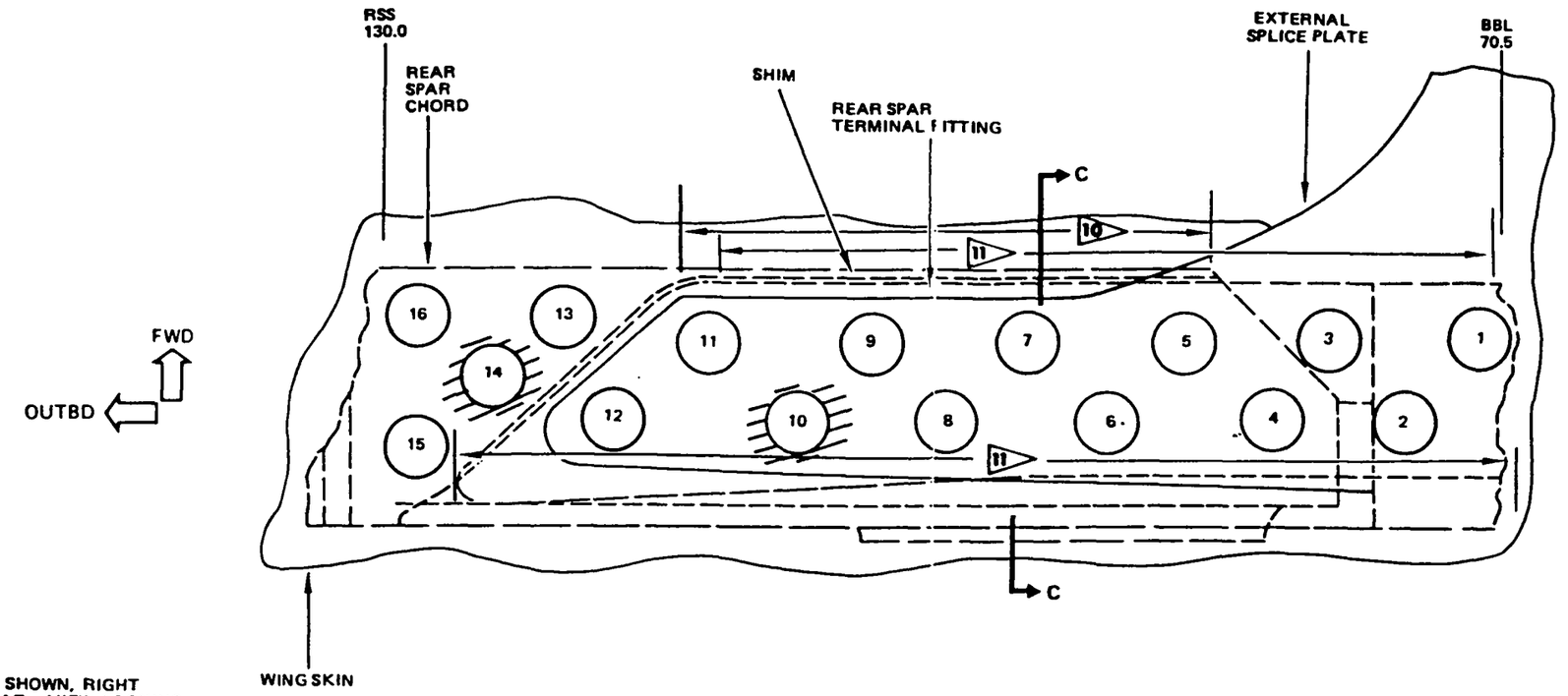
9 PLACE PENCIL PROBE ON FLAPTRACK SUPPORT FITTINGS. SCAN ABOVE AND BELOW FASTENERS THRU 1402. INTERNAL INSPECTION .

WING UPPER REAR SPAR CHORD VERTICAL FLANGE INSPECTION

DETAIL I (CONT)

Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 14)

Dec 15/80



NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR. VIEW LOOKING DOWN.

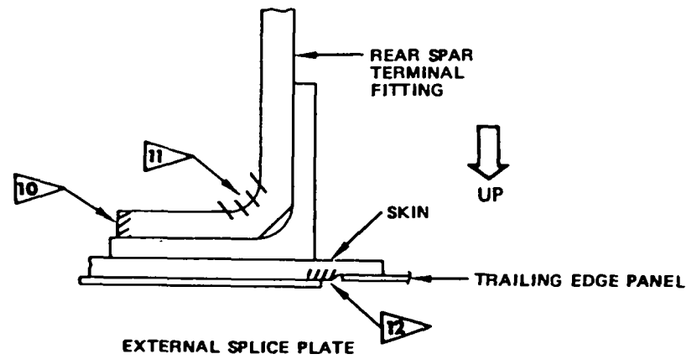
/// INSPECTION AREA

(16) FASTENER LOCATION TO BE INSPECTED. EXTERNAL SCAN AROUND FASTENER.

10 PLACE PENCIL PROBE ON FORWARD EDGE OF REAR SPAR AND SCAN ALONG DESIGNATED AREAS. INTERNAL INSPECTION, SEALANT REMOVAL REQUIRED.

11 PLACE PENCIL PROBE ON TERMINAL FITTING AND SCAN DESIGNATED AREAS. INTERNAL INSPECTION, SEALANT REMOVAL REQUIRED.

12 PLACE PENCIL PROBE ON SKIN AS FAR AFT AS POSSIBLE AND SCAN FROM SIDE OF BODY TO PRODUCTION BREAK (WS 360) EXCEPT WHERE DOUBLER COVERS INSPECTION LOCATIONS. SEE SECTION A–A

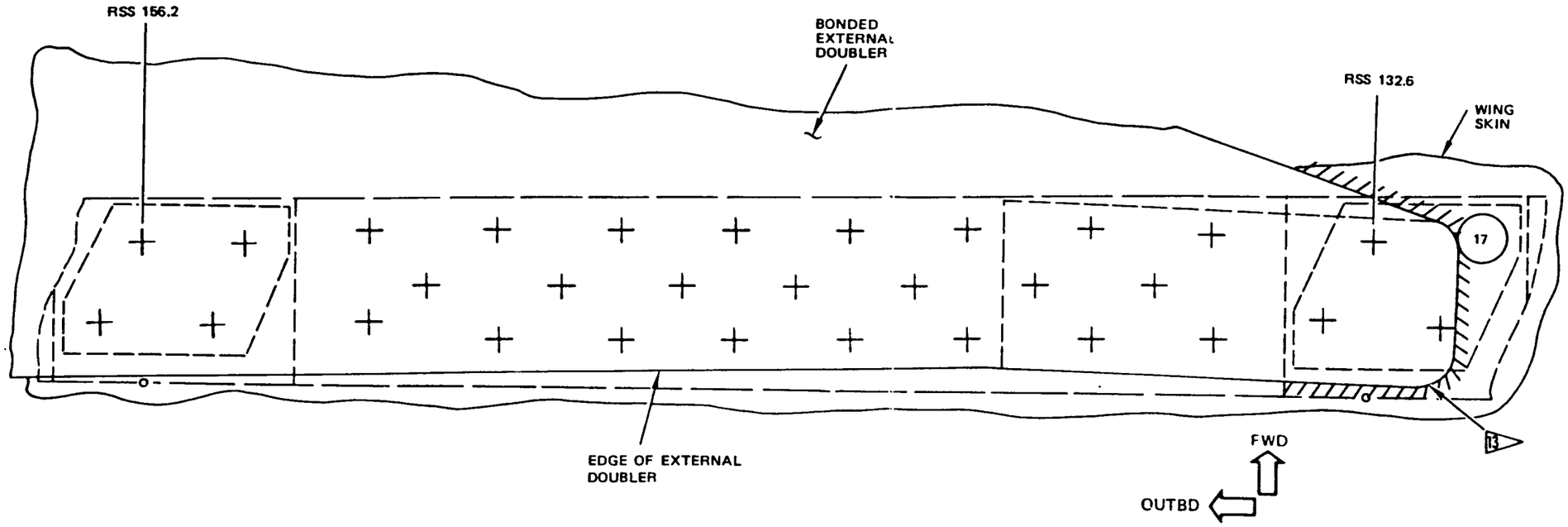


SECTION C–C (ROTATED 90°)

INSPECTION OF UPPER REAR SPAR CHORD HORIZONTAL FLANGE (BBL 70.5 TO RSS 360)

DETAIL II

Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 15)



NOTES

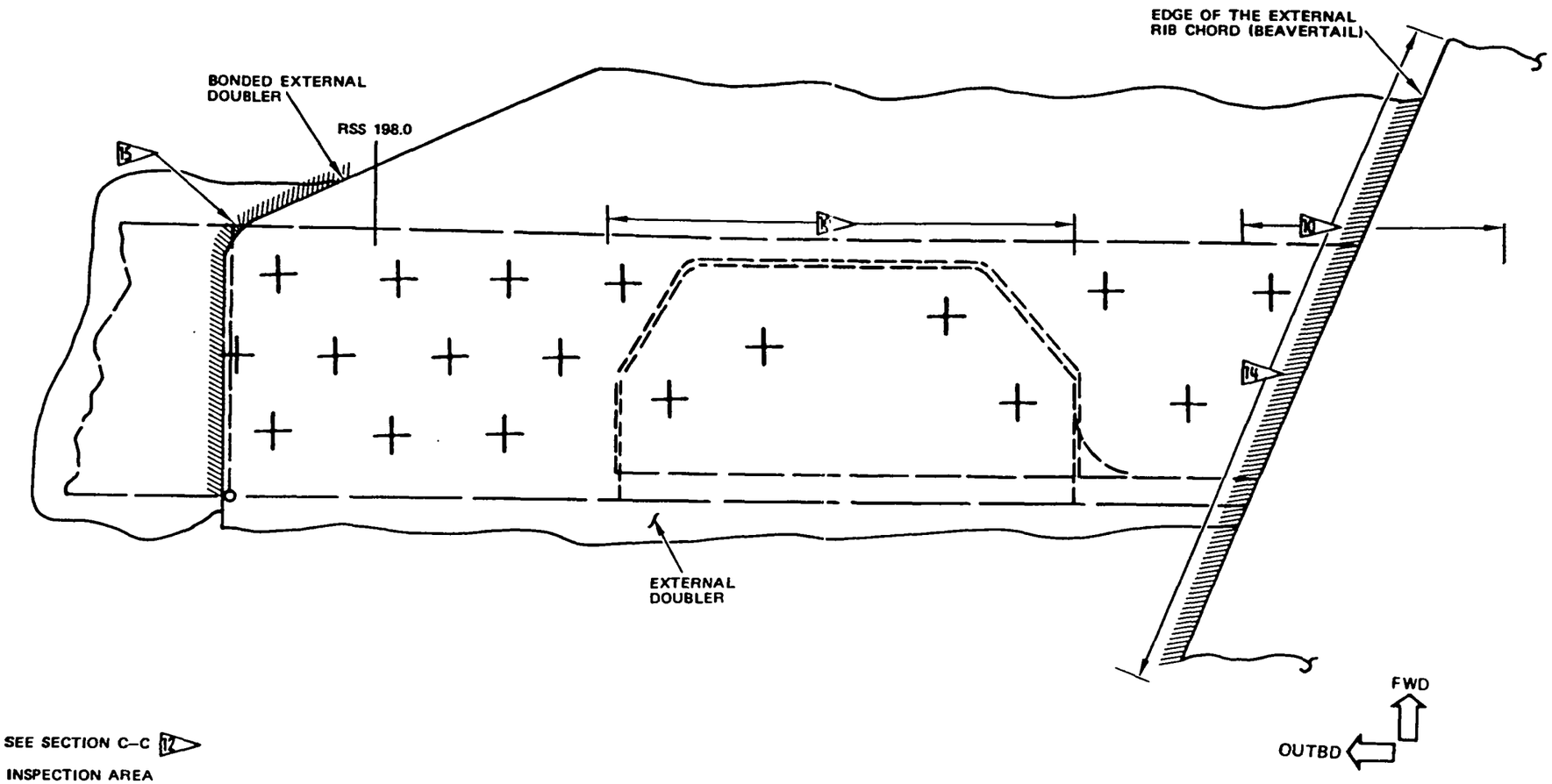
- SEE SECTION C–C 12
- LEFT WING SHOWN, RIGHT WING SIMILAR

/// INSPECTION AREA

(17) FASTENER LOCATION TO BE INSPECTED – EXTERNAL SCAN AROUND FASTENER

13 PLACE PENCIL PROBE ON SKIN AND SCAN AROUND END OF DOUBLER

INSPECTION OF UPPER REAR SPAR CHORD HORIZONTAL FLANGE (BBL 70.5 TO RSS 360)
DETAIL II (CONT)

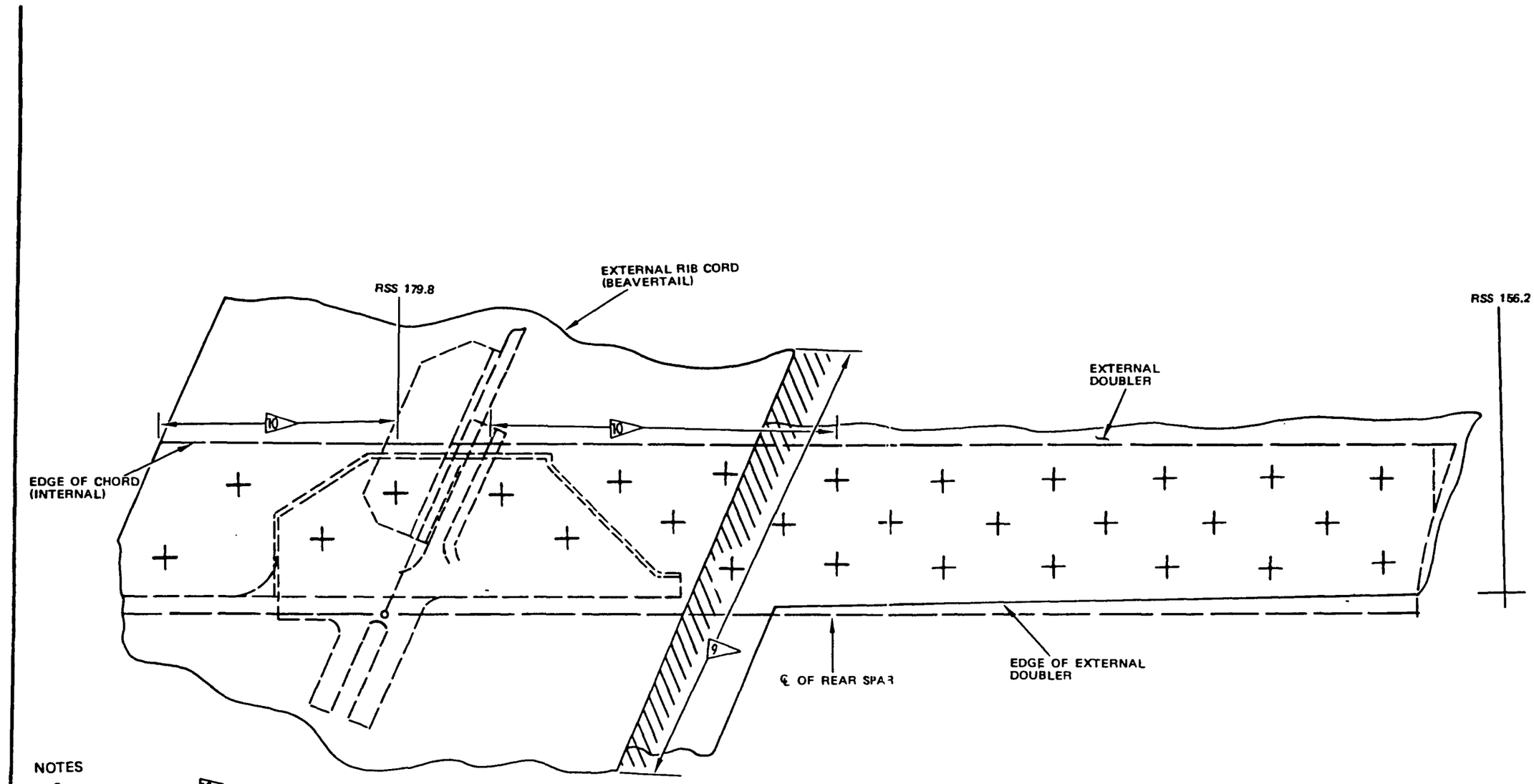


NOTES

- SEE SECTION C–C 12
- INSPECTION AREA
- 10 PLACE PENCIL PROBE ON FORWARD EDGE OF REAR SPAR AND SCAN ALONG DESIGNATED AREA, INTERNAL INSPECTION, SEALANT REMOVAL REQUIRED
- 14 PLACE PENCIL PROBE ON SKIN OR EXTERNAL DOUBLER AND SCAN AROUND EDGE OF BEAVERTAIL FROM FWD OF REAR SPAR TO AS FAS FAR AFT AS POSSIBLE
- 15 PLACE PENCIL PROBE ON SKIN AND SCAN AROUND END OF DOUBLER

INSPECTION OF UPPER REAR CHORD HORIZONTAL FLANGE (BBL 70.5 TO RSS 360)

DETAIL II (CONT)



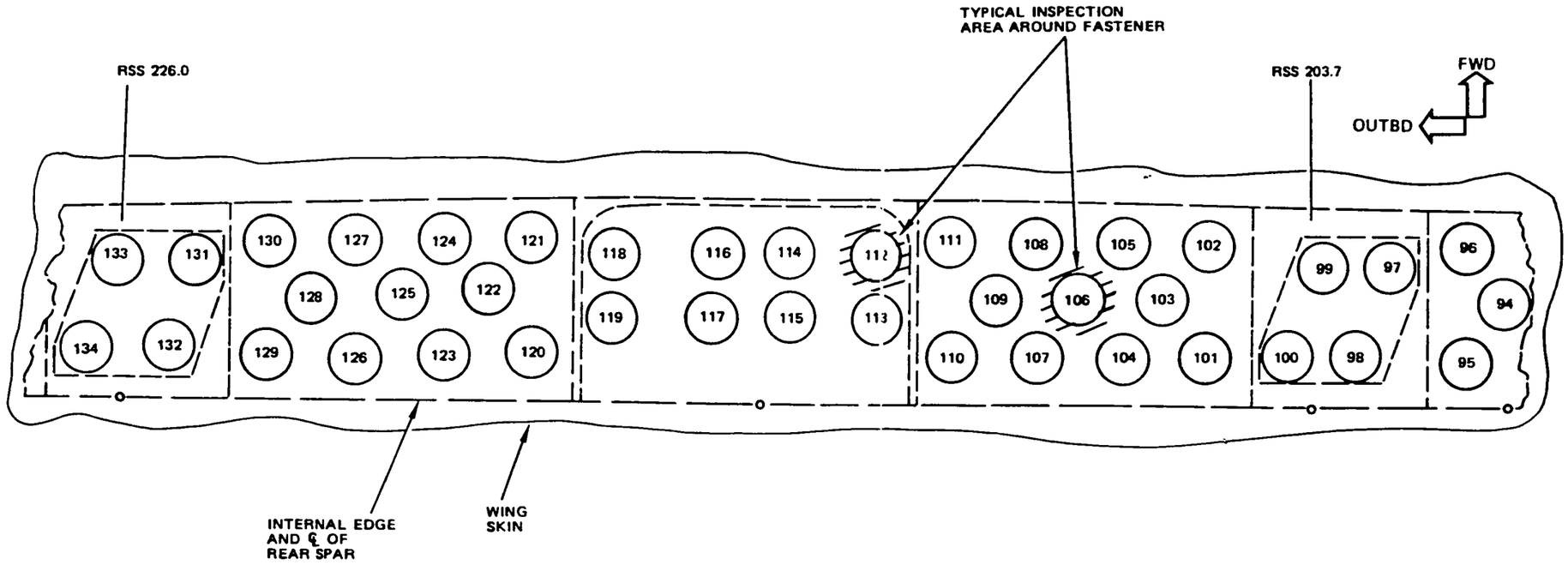
NOTES

- SEE SECTION C–C 12
- INSPECTION AREA
- 10 PLACE PENCIL PROBE ON FORWARD EDGE OF REAR SPAR AND SCAN ALONG DESIGNATED AREAS. INTERNAL INSPECTION. SEALANT REMOVAL REQUIRED SEE SHEET 1 AND SECTION A–A
- 14 PLACE PENCIL PROBE ON SKIN OR EXTERNAL DOUBLER AND SCAN AROUND EDGE OF BEAVERTAIL FROM FORWARD OF REAR SPAR TO AS FAR AFT AS POSSIBLE EXTERNAL INSPECTION

INSPECTION OF UPPER REAR SPAR CHORD
HORIZONTAL FLANGE (BBL 70.5 TO RSS 360)

DETAIL II (CONT)

Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 18)



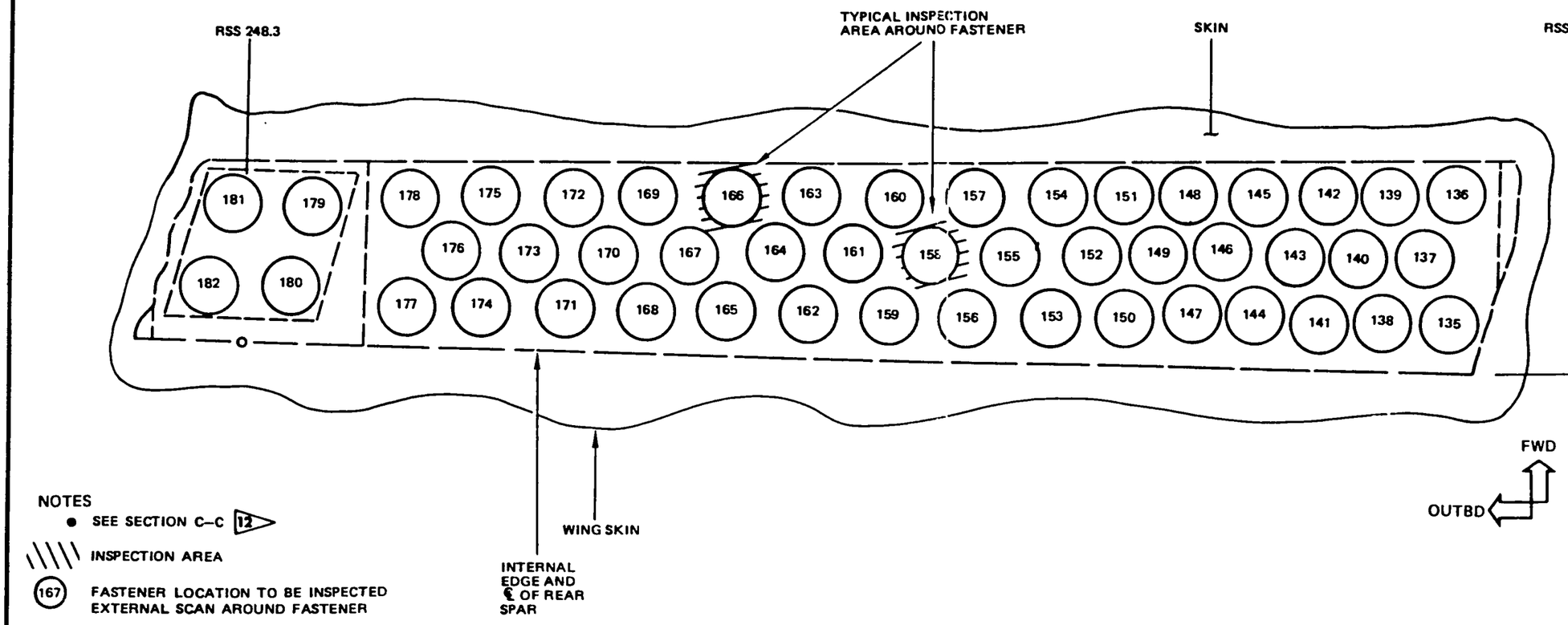
NOTES

- SEE SECTION C–C 12
- INSPECTION AREA
- (105) FASTENER LOCATION TO BE INSPECTED

INSPECTION OF UPPER REAR SPAR CHORD HORIZONTAL FLANGE (BBL 70.5 TO RSS 360)

DETAIL II (CONT)

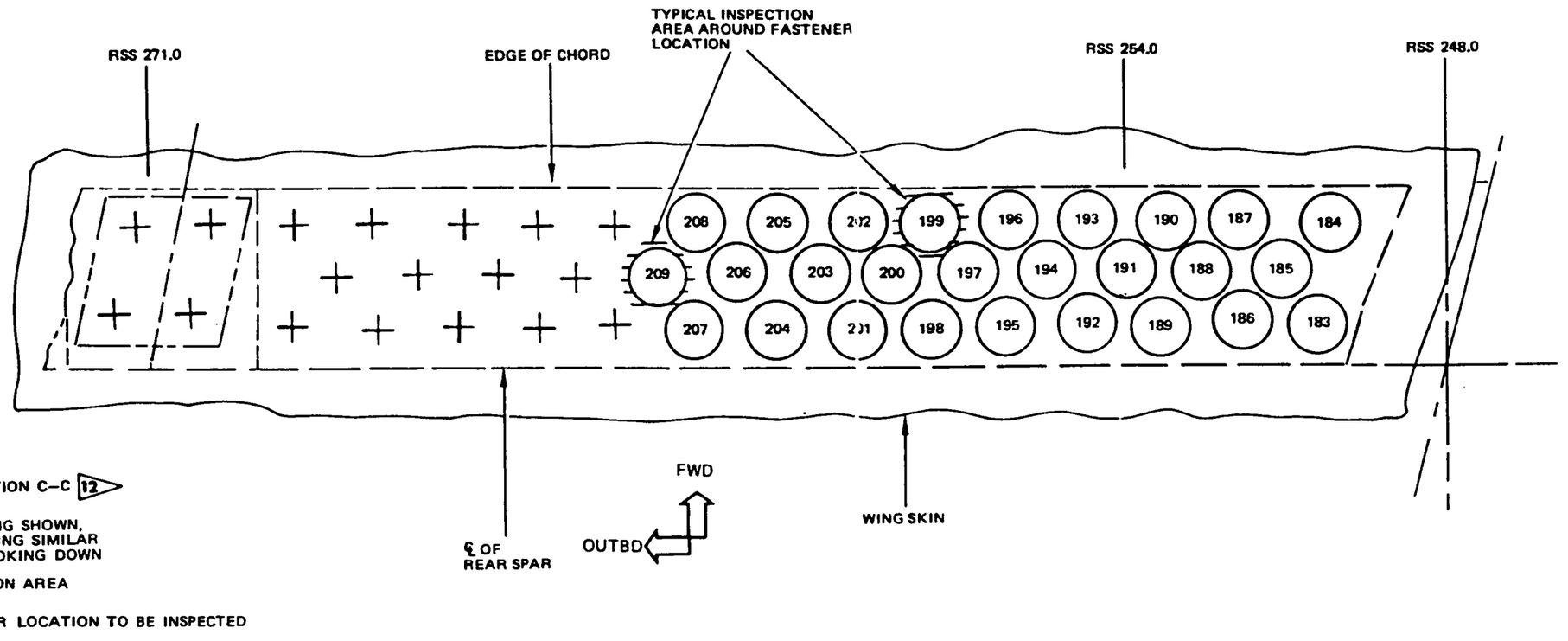
Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 19)



INSPECTION OF UPPER REAR SPAR CHORD HORIZONTAL FLANGE (BBL 70.5 TO RSS 360)

DETAIL II (CONT)

Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 20)



NOTES

- SEE SECTION C–C 12
- LEFT WING SHOWN, RIGHT WING SIMILAR VIEW LOOKING DOWN

\\\ INSPECTION AREA

(208) FASTENER LOCATION TO BE INSPECTED

INSPECTION OF UPPER REAR SPAR CHORD HORIZONTAL FLANGE (BBL 70.5 TO RSS 360)
DETAIL II (CONT)

NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR

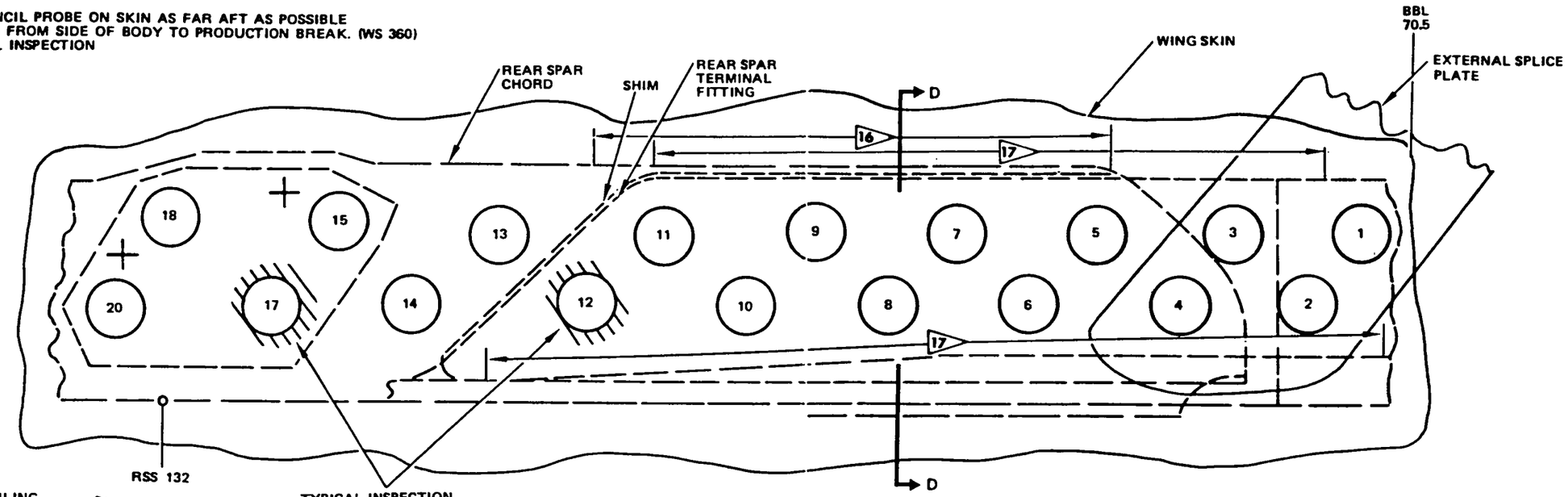
(18) FASTENER TO BE INSPECTED
EXTERNAL SCAN AROUND FASTENER

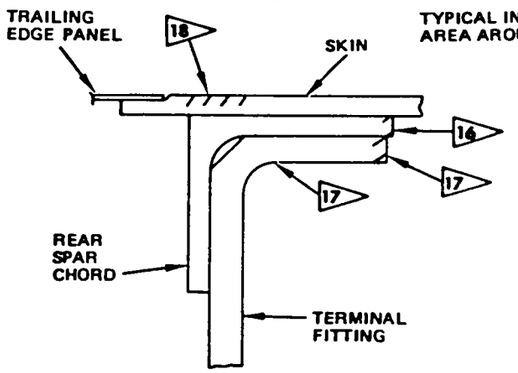
INSPECTION AREA

16 PLACE PENCIL PROBE ON FORWARD EDGE OF REAR SPAR, SCAN ALONG DESIGNATED AREAS. SEALANT REMOVAL REQUIRED. INTERNAL IS INSPECTION. SEE SECTION D–D

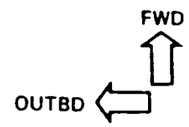
17 PLACE PENCIL PROBE ON TERMINAL FITTING AND SCAN DESIGNATED AREAS. SEALANT REMOVAL REQUIRED. INTERNAL INSPECTION.

18 PLACE PENCIL PROBE ON SKIN AS FAR AFT AS POSSIBLE AND SCAN FROM SIDE OF BODY TO PRODUCTION BREAK. (WS 360) EXTERNAL INSPECTION



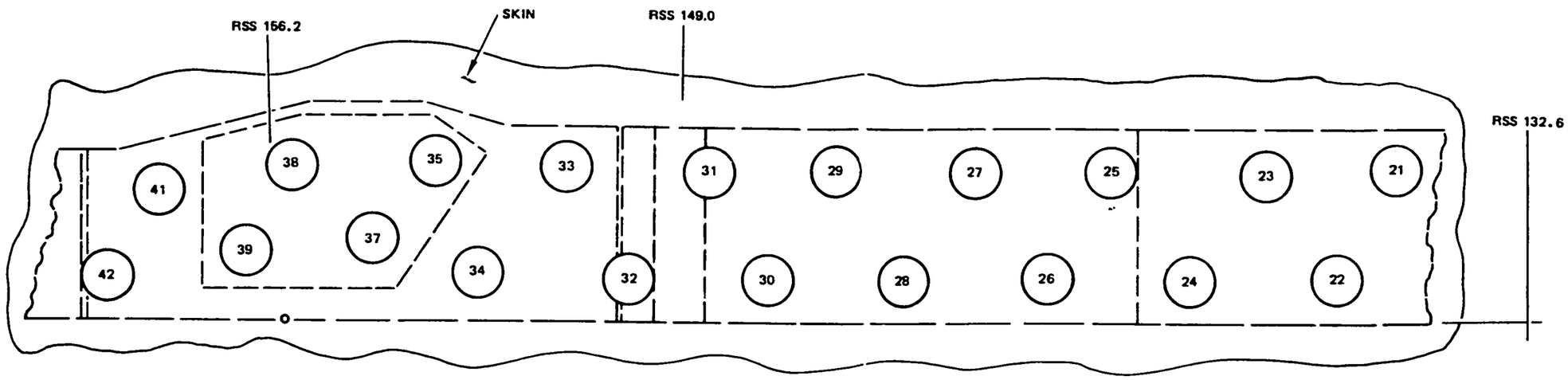


SECTION D–D (ROTATED)



WING UPPER REAR SPAR CHORD INSPECTION OF HORIZONTAL FLANGE (BBL 70.5 TO WS 360)
DETAIL III

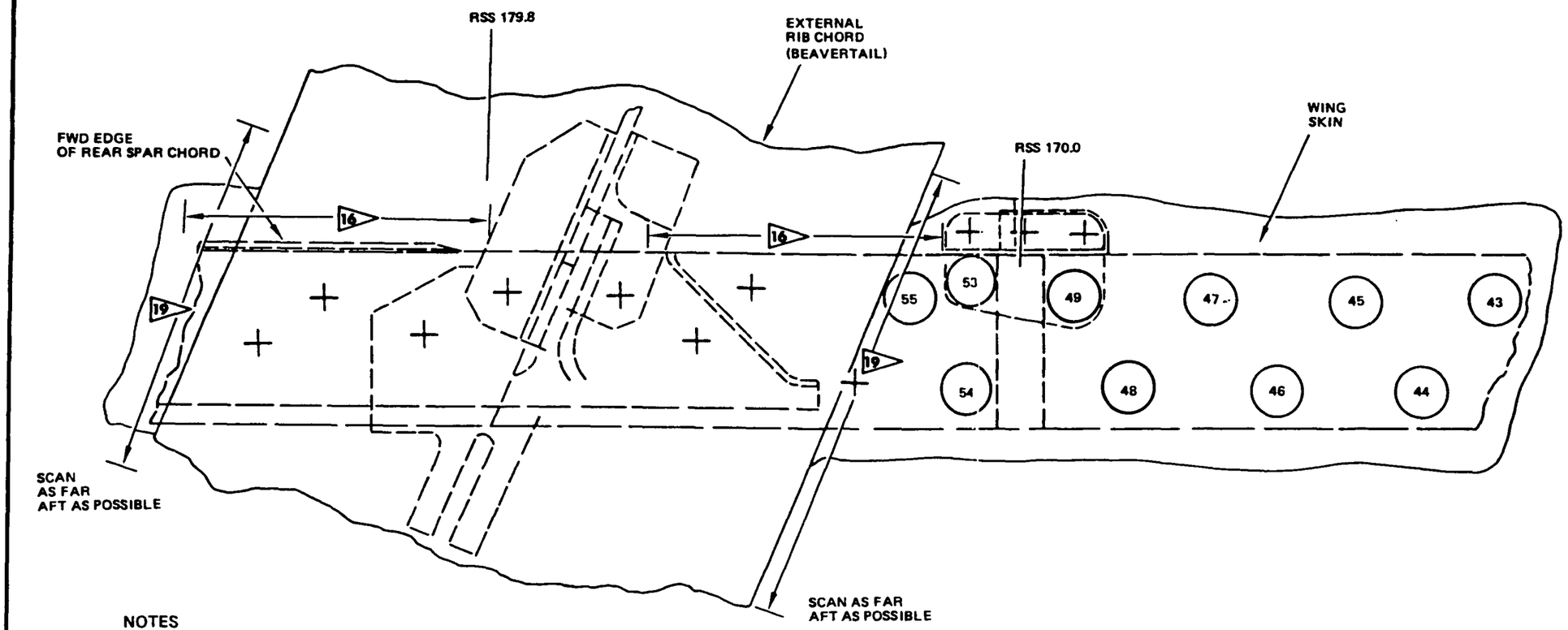
Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 22)



NOTES

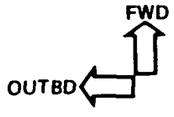
- LEFT WING SHOWN, RIGHT WING SIMILAR
- SEE SECTION D–D 18
- (41) FASTENER TO BE INSPECTED EXTERNAL SCAN AROUND FASTENERS

WING UPPER REAR SPAR CHORD
INSPECTION OF HORIZONTAL FLANGE (B3L 70.5 TO WS 360)
DETAIL III (CONT)



NOTES

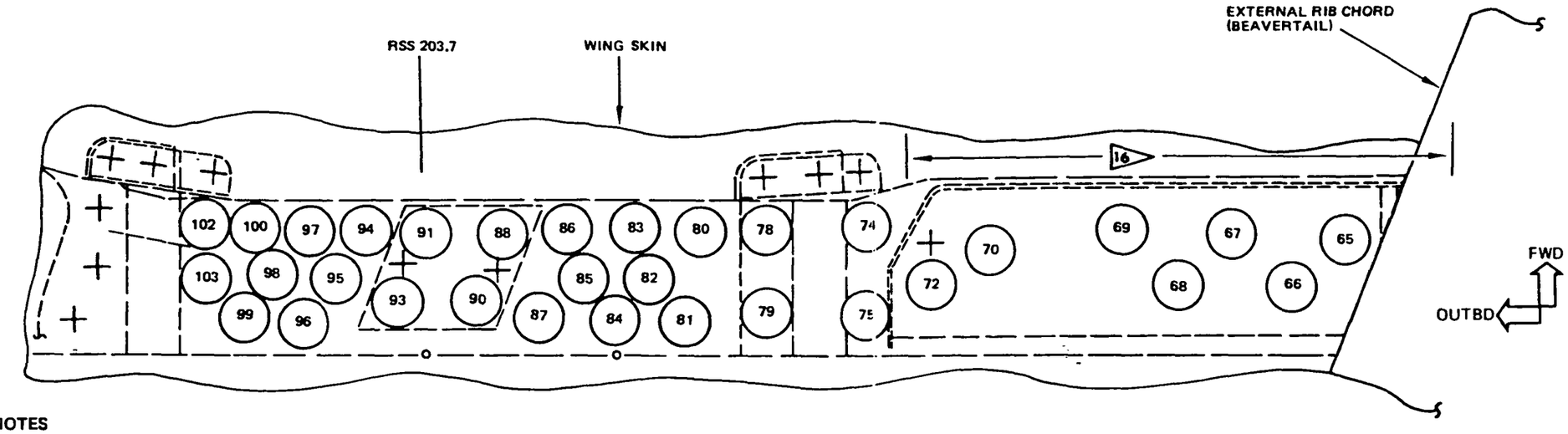
- ● LEFT WING SHOWN, RIGHT WING SIMILAR
- (47) FASTENERS TO BE INSPECTED
- 16 PLACE PENCIL PROBE ON FORWARD EDGE OF REAR SPAR AND SCAN ALONG DESIGNATED AREAS INTERNAL INSPECTION . SEE SECTION D–D
- 19 PLACE PENCIL PROBE ON SKIN AND SCAN AROUND EDGE OF BEAVERTAIL FROM JUST FORWARD OF REAR SPAR TO AS FAR AFT AS POSSIBLE EXTERNAL INSPECTION



WING UPPER REAR SPAR CHORD
INSPECTION OF HORIZONTAL FLANGE
(BBL 70.5 TO WS 360)

DETAIL III (CONT)

Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 24)



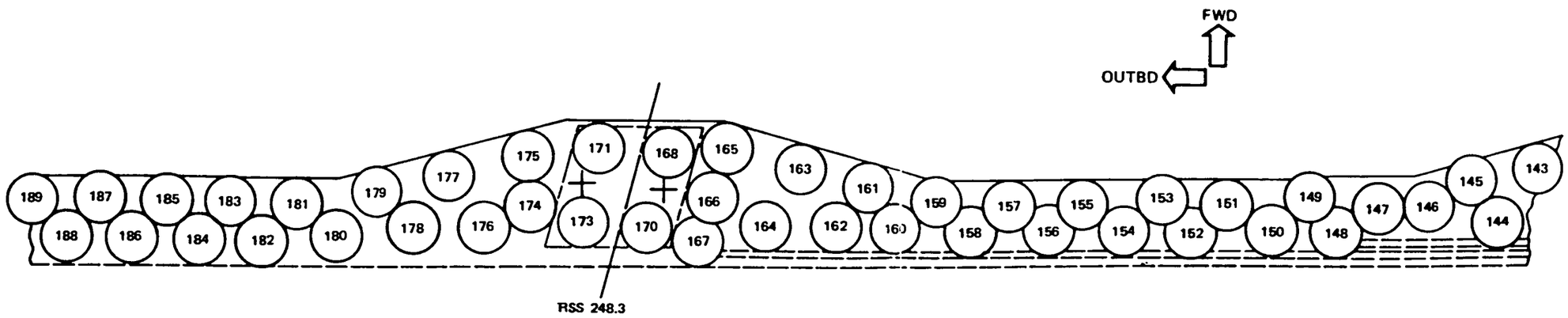
NOTES

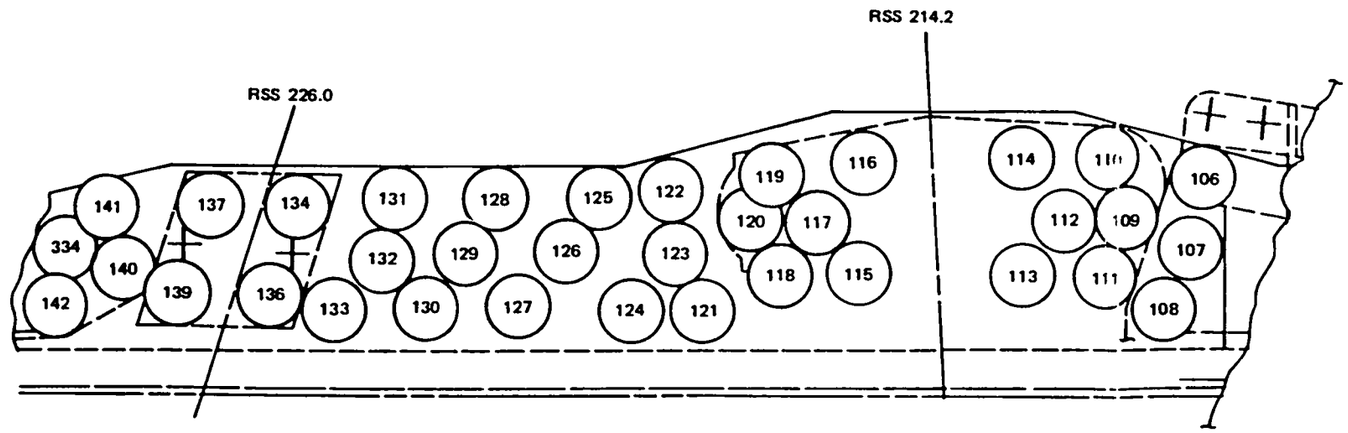
- LEFT WING SHOWN, RIGHT WING SIMILAR
- SEE SECTION D–D 18

(102) FASTENER TO BE INSPECTED
EXTERNAL SCAN AROUND FASTENER

16 PLACE PENCIL PROBE ON FORWARD EDGE OF REAR SPAR AND SCAN ALONG DESIGNATED AREAS. INTERNAL INSPECTION. SEE SECTION D–D

WING UPPER REAR SPAR CHORD INSPECTION OF HORIZONTAL FLANGE (BBL 70.5 TO WS 360)
DETAIL III (CONT)





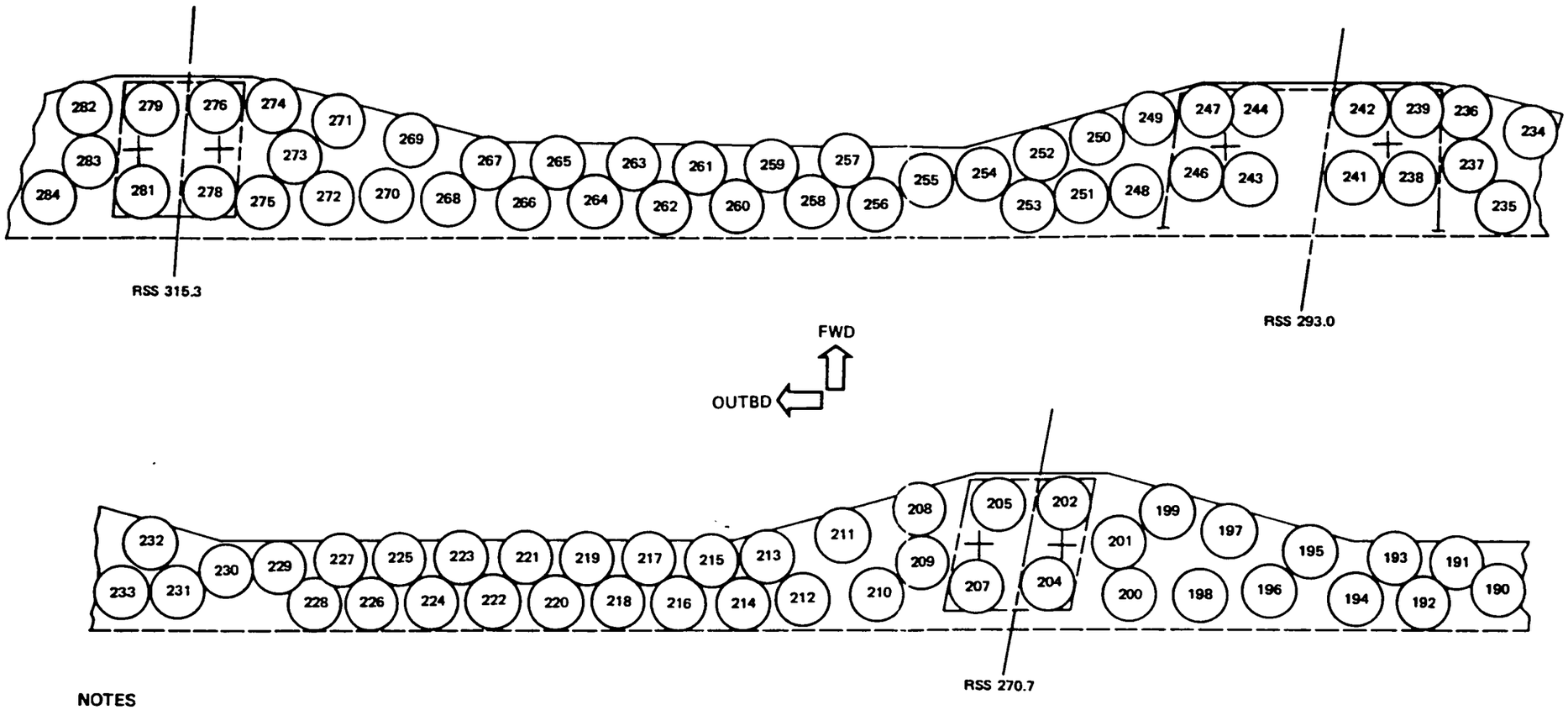
NOTES

- SEE SECTION D–D 18
- LEFT WING SHOWN, RIGHT WING SIMILAR

(108) FASTENERS TO BE INSPECTED EXTERNAL SCAN AROUND FASTENERS

INSPECTION OF HORIZONTAL FLANGE
WING UPPER REAR SPAR CHORD (BBL 70.5 TO RSS 360)
DETAIL III (CONT)

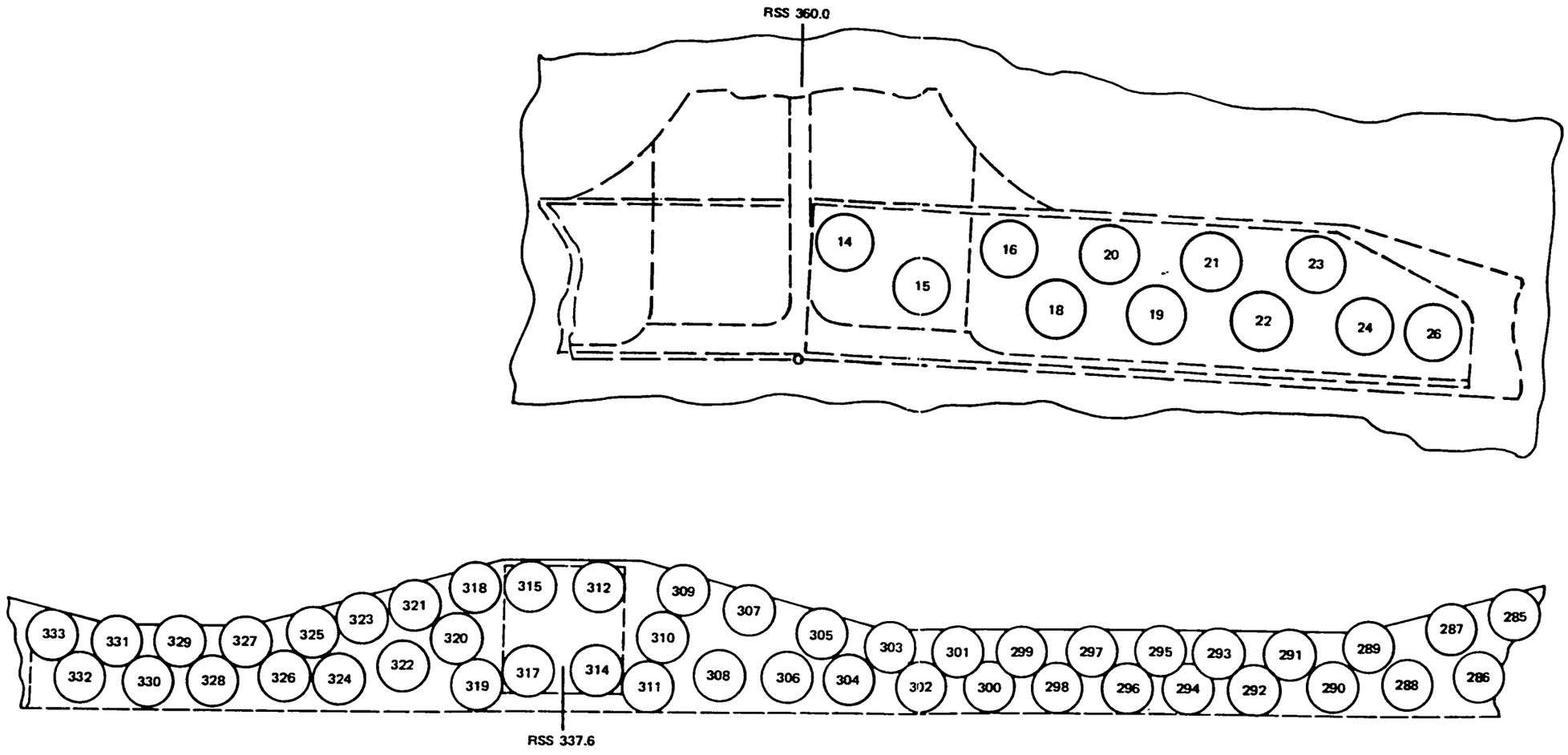
Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 26)



NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- SEE SECTION D–D 18
- (229) FASTENERS TO BE INSPECTED– EXTERNAL SCAN AROUND FASTENERS.

INSPECTION OF HORIZONTAL FLANGE WING UPPER REAR SPAR CHORD (BBL 70.5 TO WS 360)
DETAIL III (CONT)

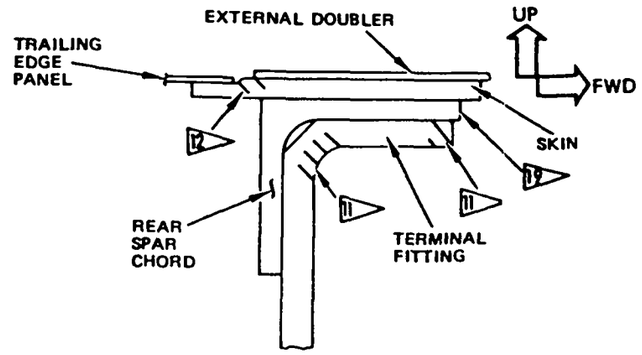


NOTES

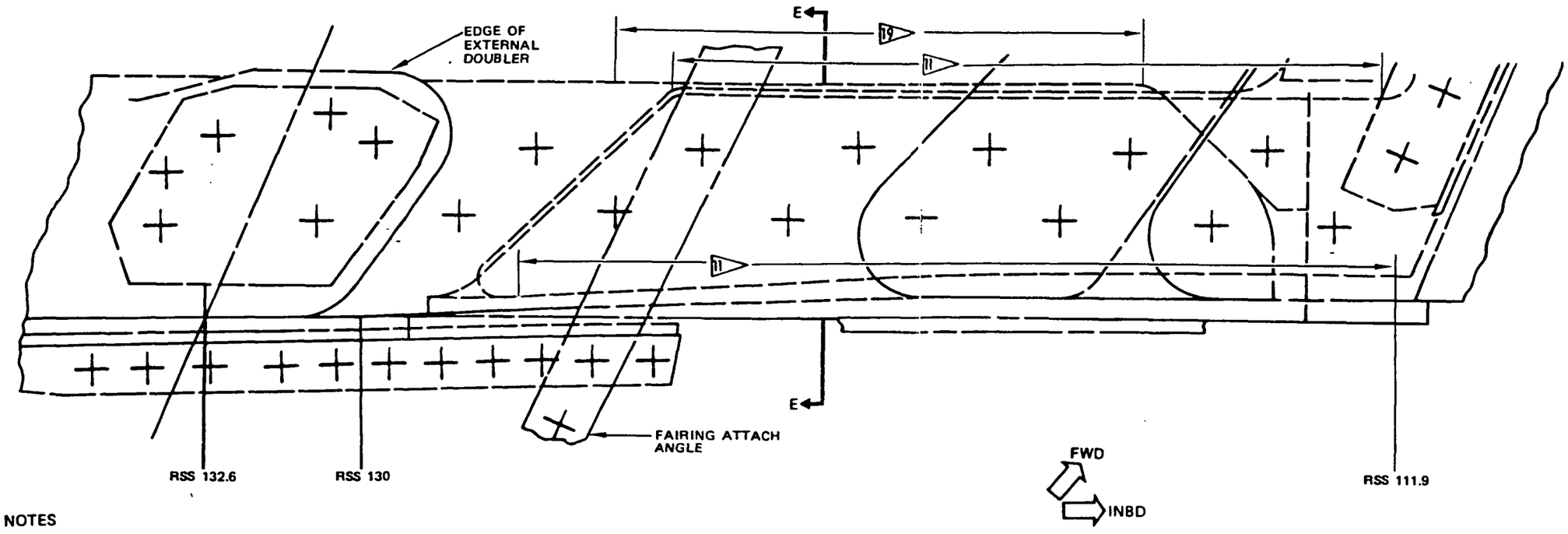
- PLACE PENCIL PROBE ON SKIN AS FAR AFT AS POSSIBLE AND SCAN FROM SIDE T OF BODY TO PRODUCTION BREAKS. SEE SECTION A–A
- LEFT WING SHOWN, RIGHT WING SIMILAR
- (333) FASTENER TO BE INSPECTED SCAN EXTERNALLY AROUND FASTENERS

WING UPPER REAR SPAR CHORD
INSPECTION OF HORIZONTAL FLANGE (BBL 70.5 TO WS 360)
DETAIL III (CONT)

Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 28)



SECTION E–E
(ROTATED)



NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR.

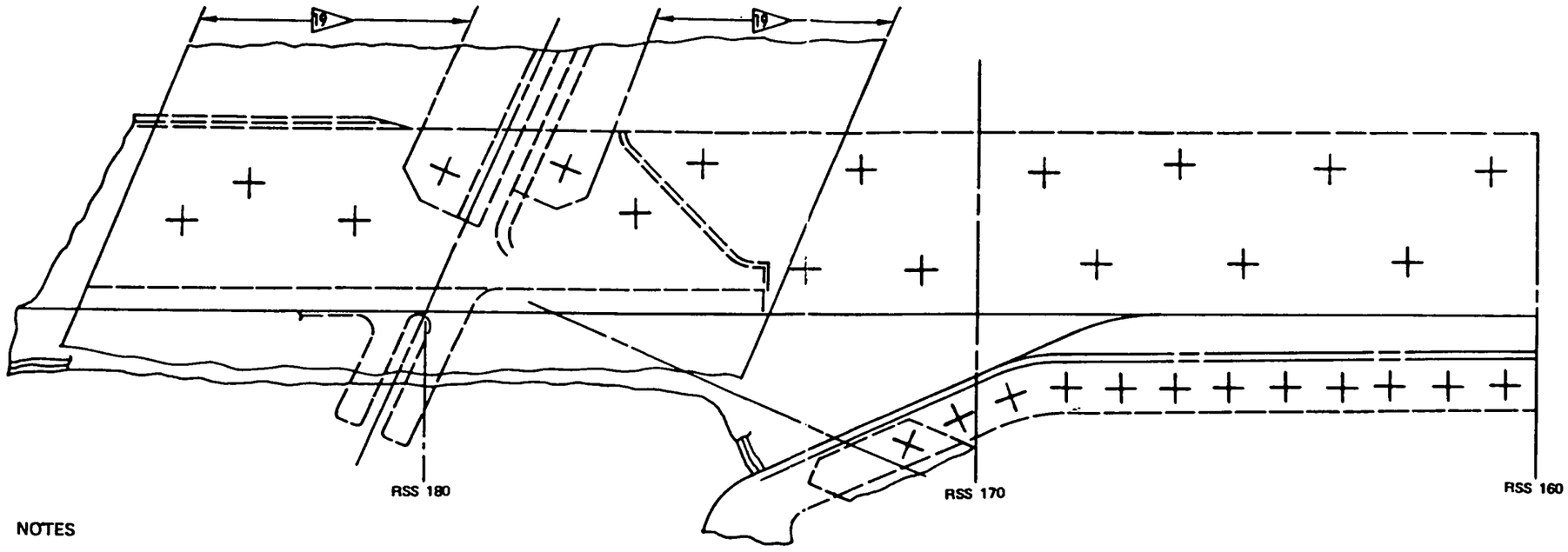
11 PLACE PENCIL PROBE ON TERMINAL FITTING, SCAN DESIGNATED AREAS. SEALANT REMOVAL REQUIRED

12 PLACE PENCIL PROBE ON SKIN AS FAR AFT AS POSSIBLE, SCAN FROM SIDE OF BODY TO WS 360 EXCEPT WHERE EXTERNAL DOUBLER COVERS SKIN AT INSPECTION LOCATION.

19 PLACE PENCIL PROBE ON FORWARD EDGE OF REAR SPAR, SEE DETAIL E–E. SCAN ALONG DESIGNATED AREAS. SEALANT REMOVAL REQUIRED.

UPPER REAR SPAR CHORD
HORIZONTAL FLANGE (BBL 70.5 TO WS 360)
DETAIL IV

Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 29)

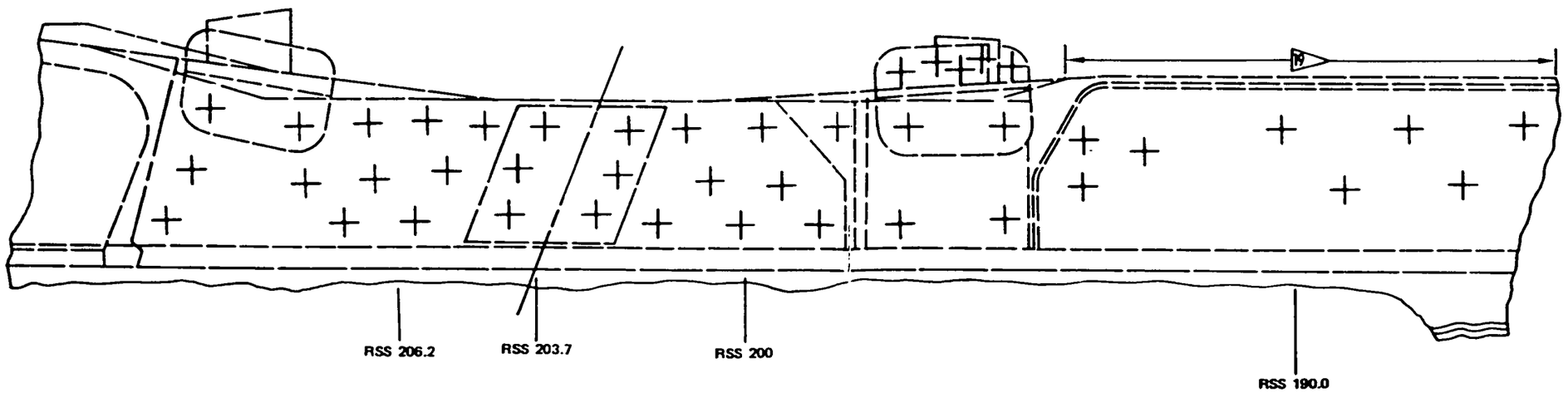


NOTES

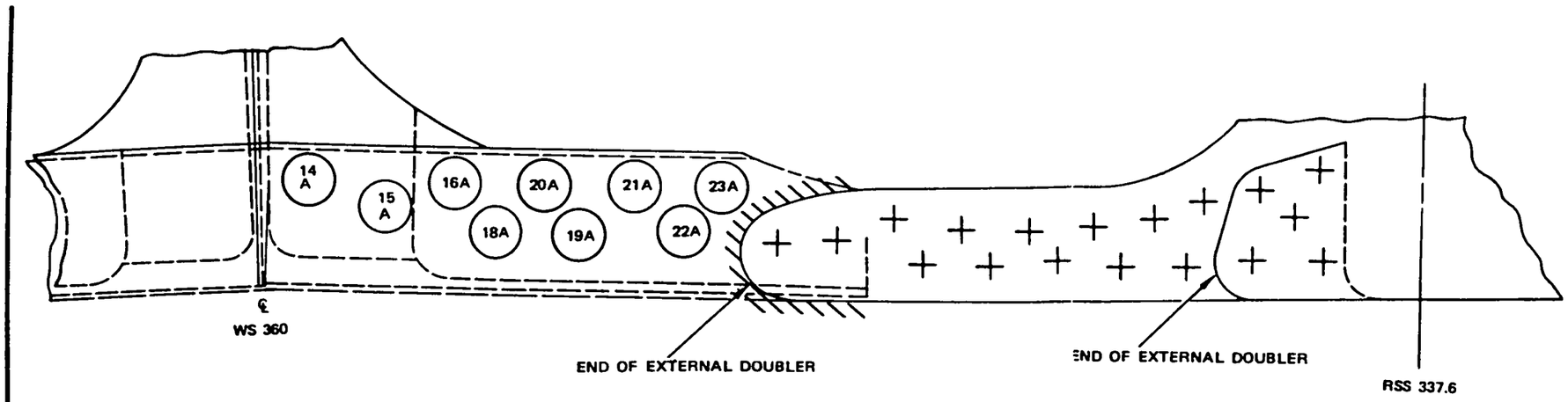
- LEFT WING SHOWN, RIGHT WING SIMILAR
- PLACE PENCIL PROBE ON SKIN AS FAR AFT AS POSSIBLE, SCAN FROM SIDE OF BODY TO WS 360 EXCEPT WHERE EXTERNAL DOUBLER COVERS SKIN AT INSPECTION LOCATION.

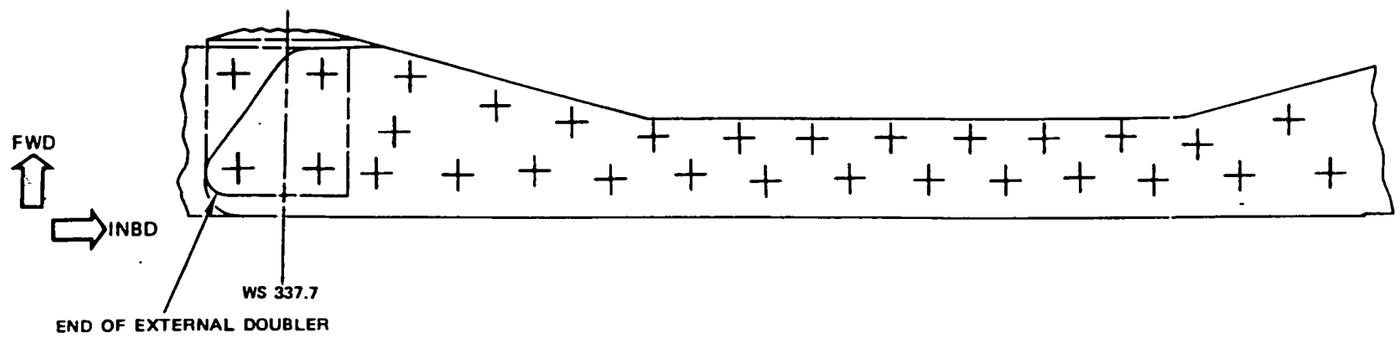
19 PLACE PENCIL PROBE ON FORWARD EDGE OF REAR SPAR, SCAN ALONG DESIGNATED AREAS. SEALANT REMOVAL REQUIRED.

FWD
INBD



UPPER REAR SPAR CHORD HORIZONTAL FLANGE (BBL 70.5 TO WS 360)
DETAIL IV (CONT)



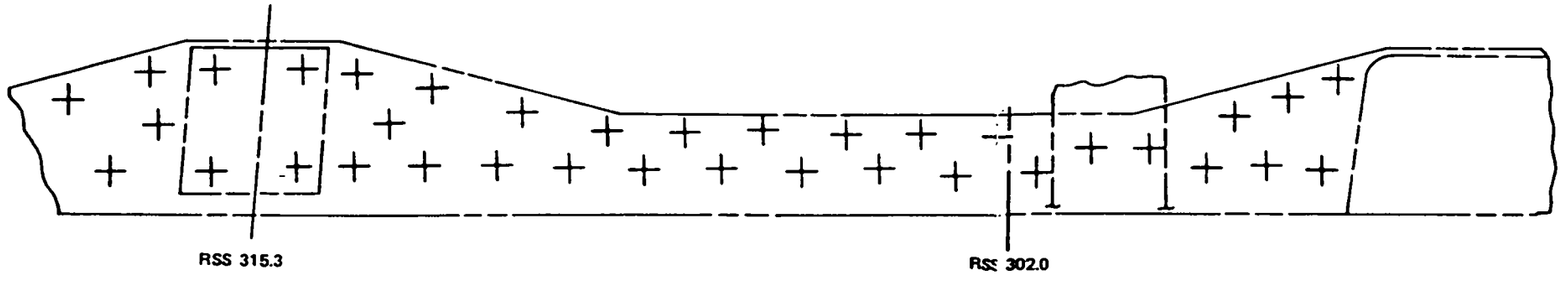


NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- PLACE PENCIL PROBE ON SKIN, AS FAR AFT AS POSSIBLE, SCAN FROM SIDE OF BODY TO WS 360 EXCEPT WHERE EXTERNAL DOUBLER COVERS SKIN AT INSPECTION LOCATION. SEE SECTION E–E

AREA TO BE INSPECTED – PLACE PENCIL PROBE ON SKIN AND SCAN AROUND END OF DOUBLER

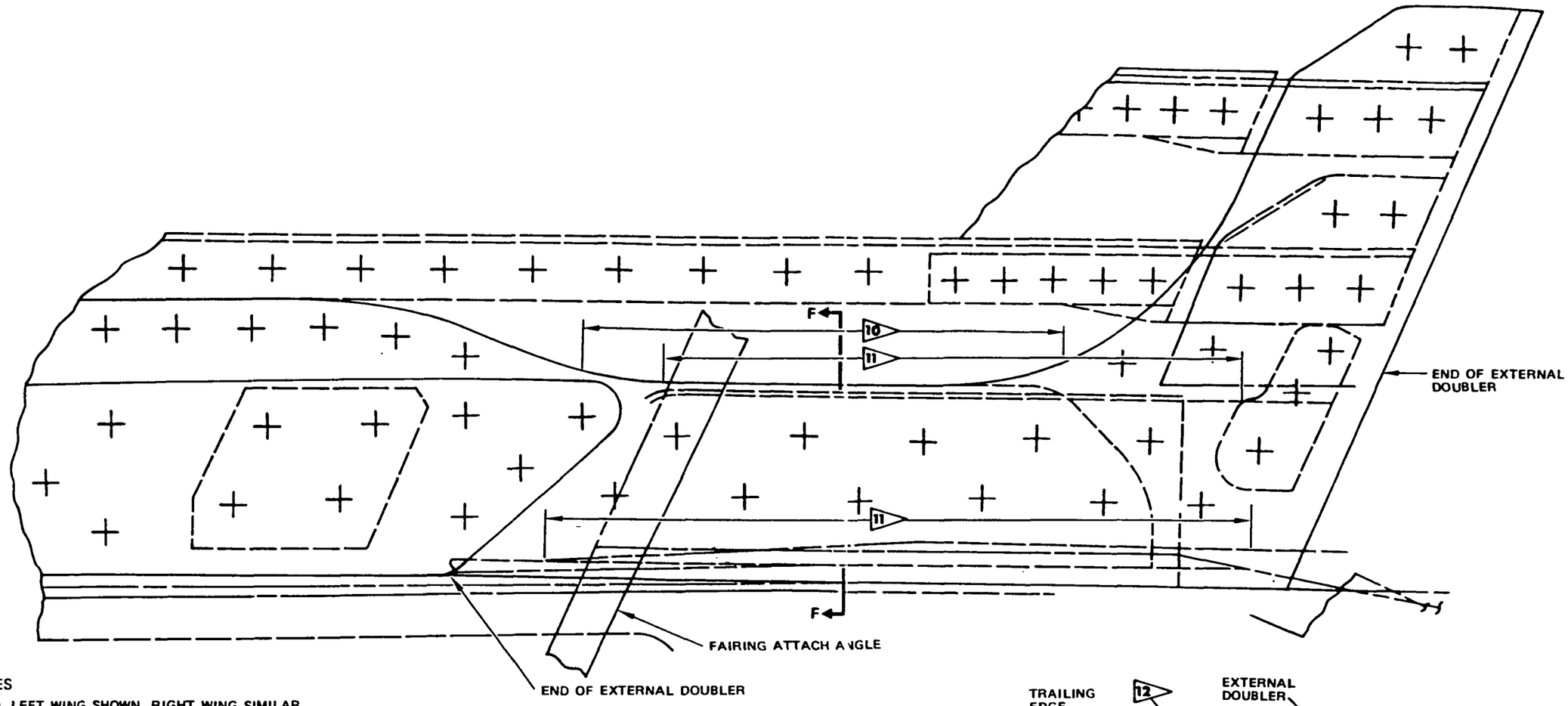
14A FASTENER LOCATION TO BE INSPECTED. EXTERNAL SCAN ON SKIN.



UPPER REAR SPAR CHORD HORIZONTAL FLANGE
(BBL 70.5 TO WS 360)

DETAIL IV (CONT)

Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 31)



NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR

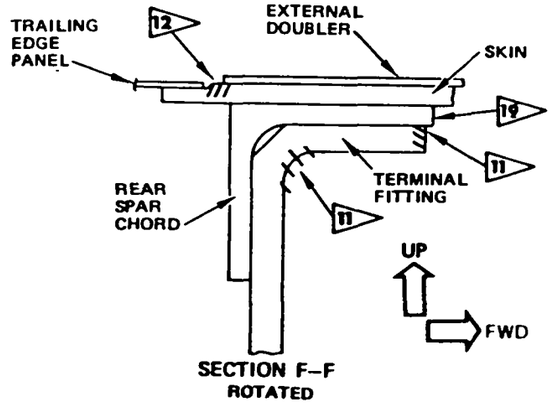
AREA TO BE INSPECTED SEE SECTION F–F

11 PLACE PENCIL PROBE ON TERMINAL FITTING SCAN AT DESIGNATED AREAS. SEALANT REMOVAL REQUIRED

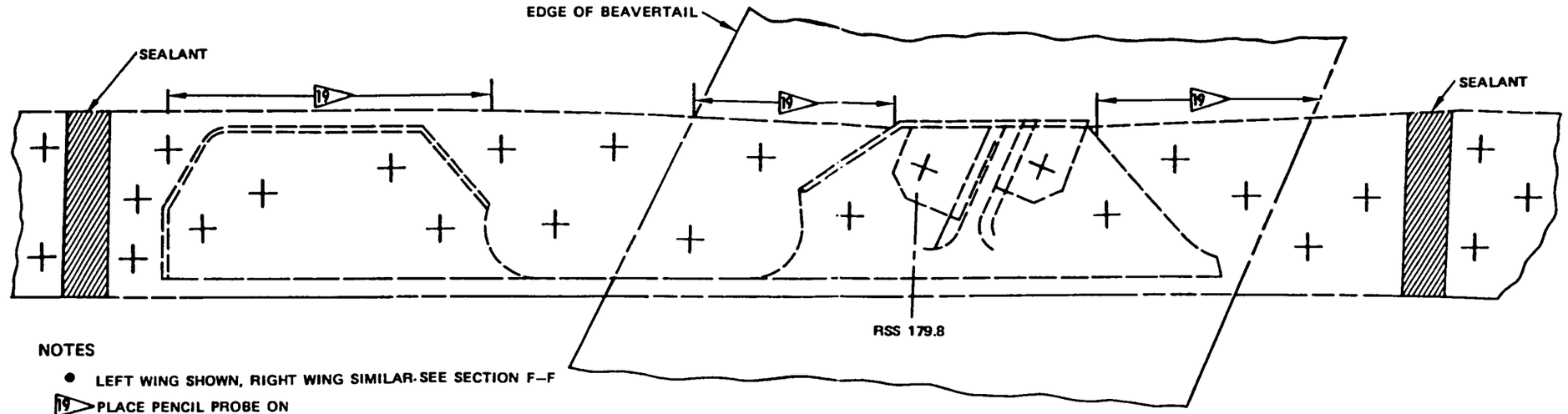
12 PLACE PENCIL PROBE ON SKIN AS FAR AFT AS POSSIBLE, SCAN FROM SIDE OF BODY TO WS 360 EXCEPT WHERE EXTERNAL DOUBLER COVERS SKIN AT INSPECTION LOCATION.

19 PLACE PENCIL PROBE ON FORWARD EDGE OF REAR SPAR, SCAN ALONG DESIGNATED AREAS. SEALANT REMOVAL REQUIRED.

UPPER REAR SPAR CHORD HORIZONTAL FLANGE (BBL 70.5 TO WS 360)
DETAIL V (CONT)



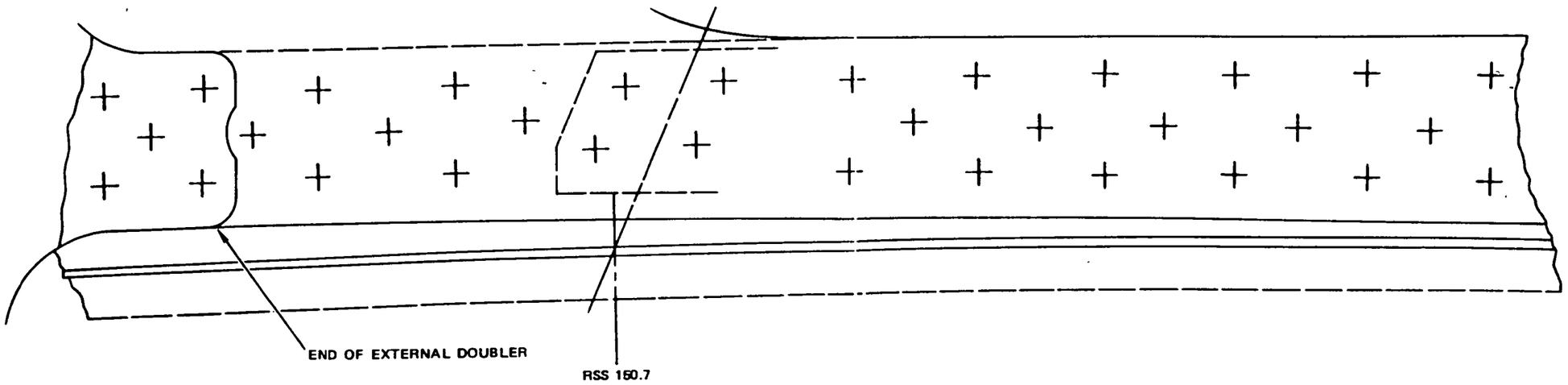
Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 32)



NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR. SEE SECTION F–F

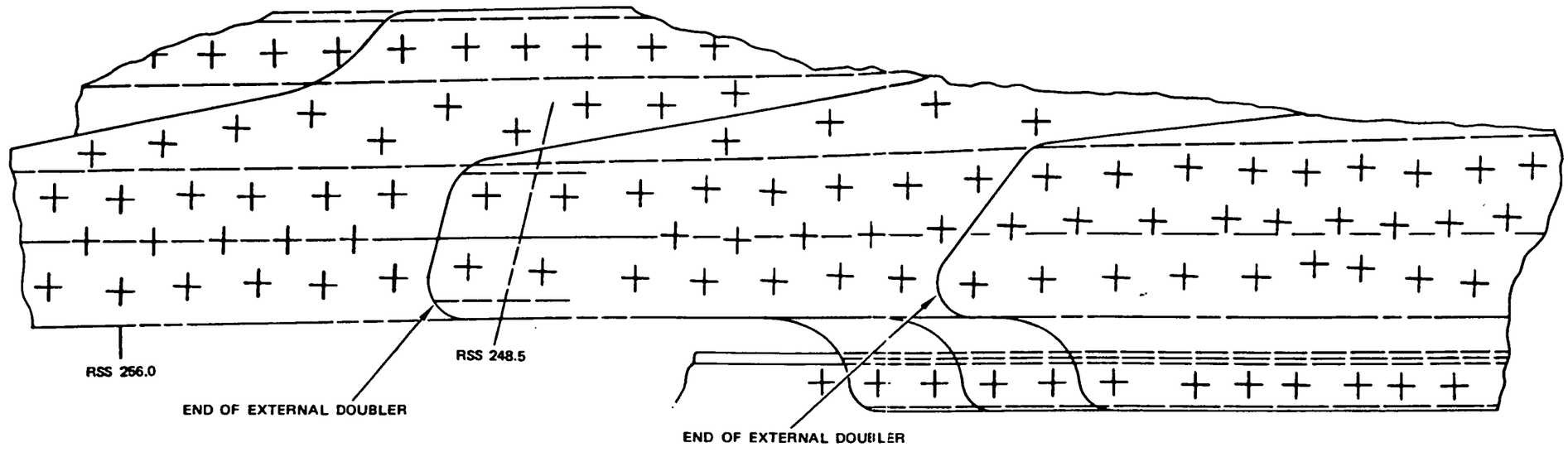
19 PLACE PENCIL PROBE ON FORWARD EDGE OF REAR SPAR SCAN ALONG DESIGNATED AREAS. SEALANT REMOVAL REQUIRED SEE SECTION F–F

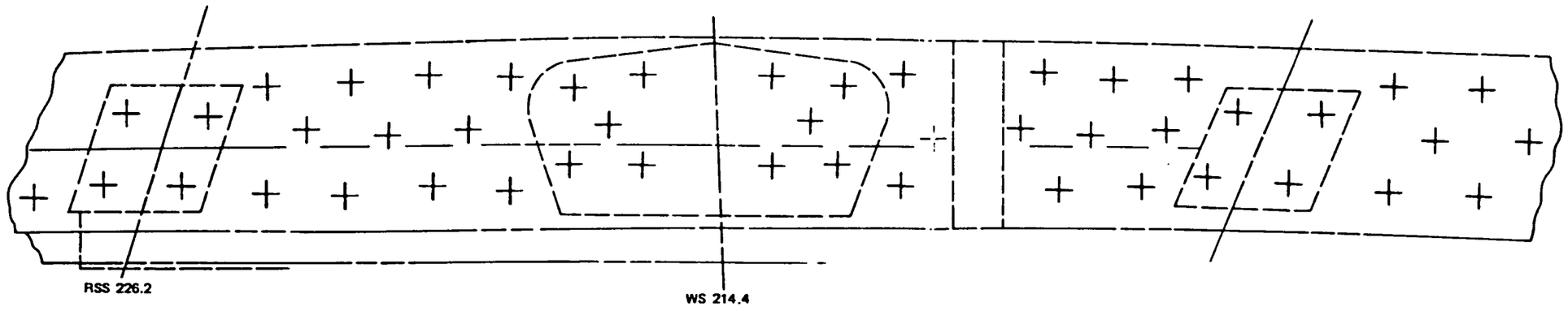


UPPER REAR SPAR CHORD
HORIZONTAL FLANGE (BBL 70.5 TO WS 360)

DETAIL V (CONT)

Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 33)



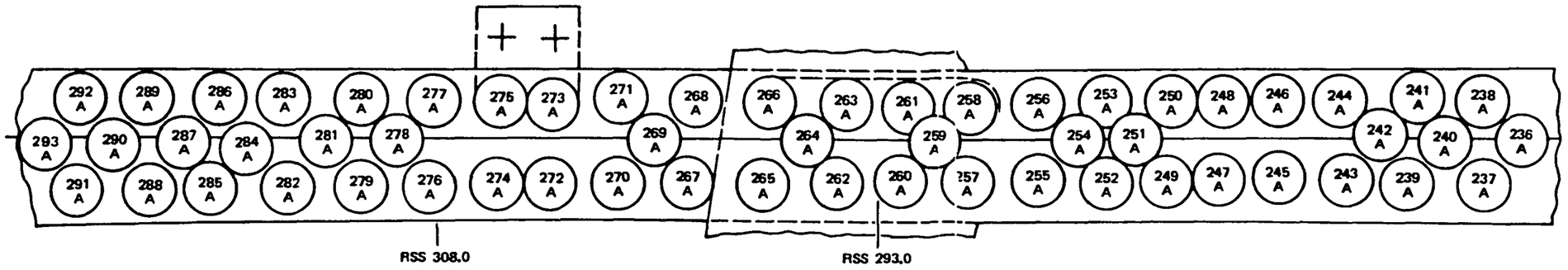


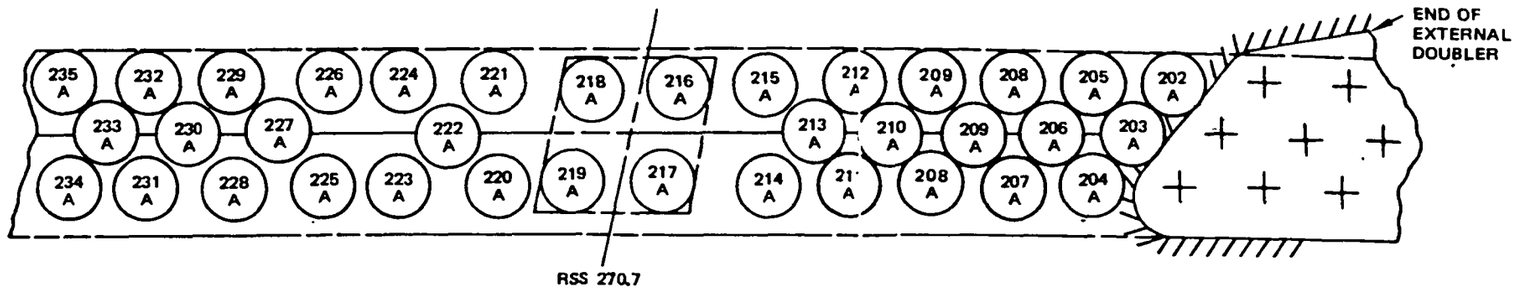
NOTE
- NO INSPECTION REQUIRED HERE, FOR REFERENCE ONLY

UPPER REAR SPAR CHORD HORIZONTAL FLANGE
(BBL 70.5 TO WS 360)

DETAIL V (CONT)

Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 34)





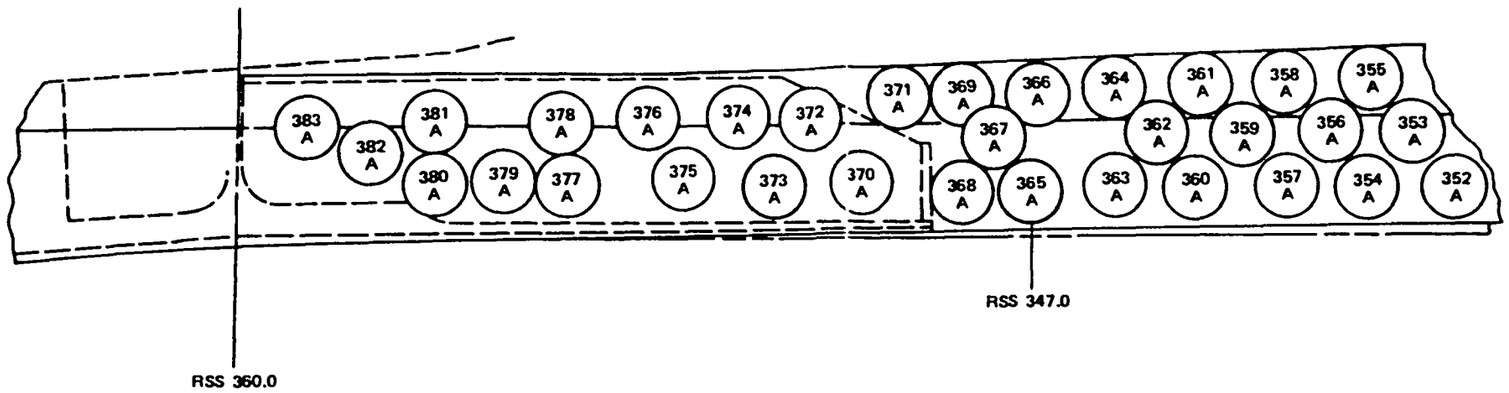
NOTES

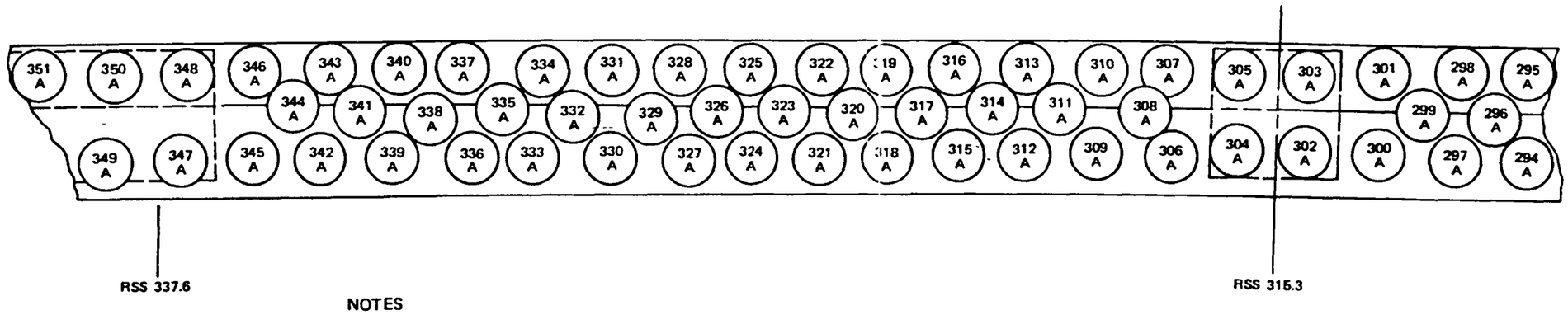
- ● LEFT WING SHOWN, RIGHT WING SIMILAR
- '///, INSPECTION AREA, PLACE PENCIL PROBE ON SKIN AND SCAN AROUND END OF DOUBLER
- (292) FASTENER LOCATION TO BE INSPECTED – EXTERNAL SCAN AROUND FASTENER

UPPER REAR SPAR CHORD
HORIZONTAL FLANGE (BBL 70.5 TO WS 360)

DETAIL V (CONT)

Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 35)

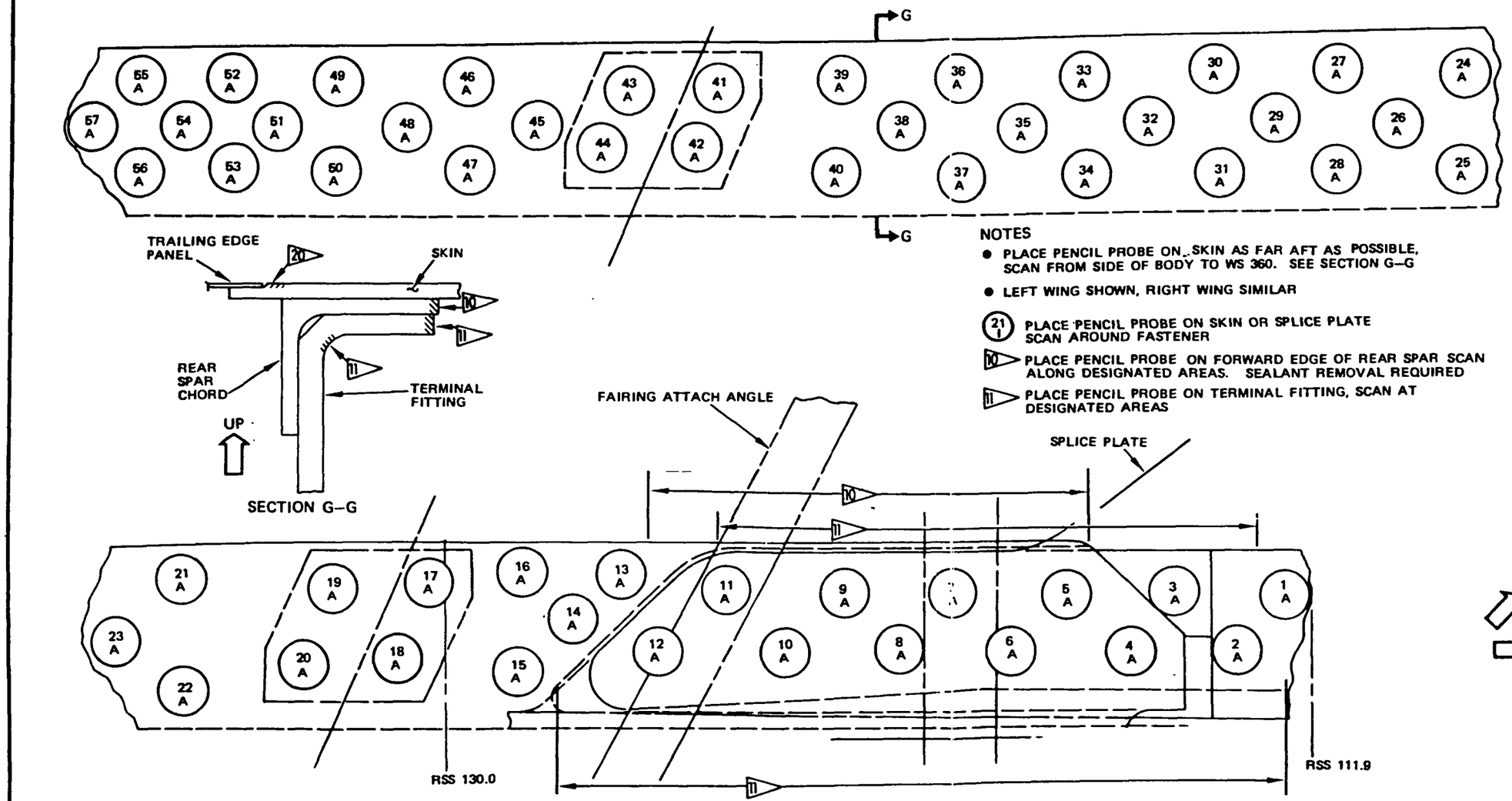




NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- (303 A) FASTENER LOCATION TO BE INSPECTED— EXTERNAL SCAN AROUND FASTENERS

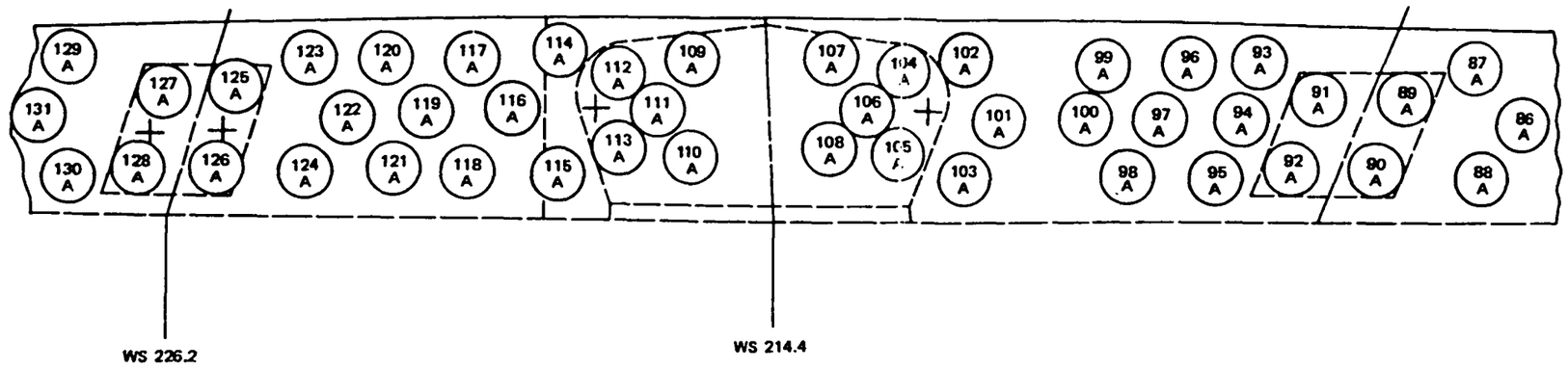
UPPER REAR SPAR CHORD
HORIZONTAL FLANGE (BBL 70.5 TO WS 360)
DETAIL V (CONT)



UPPER REAR SPAR CHORD
HORIZONTAL FLANGE (BBL 70.5 TO WS 360)

DETAIL VI

Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 37)



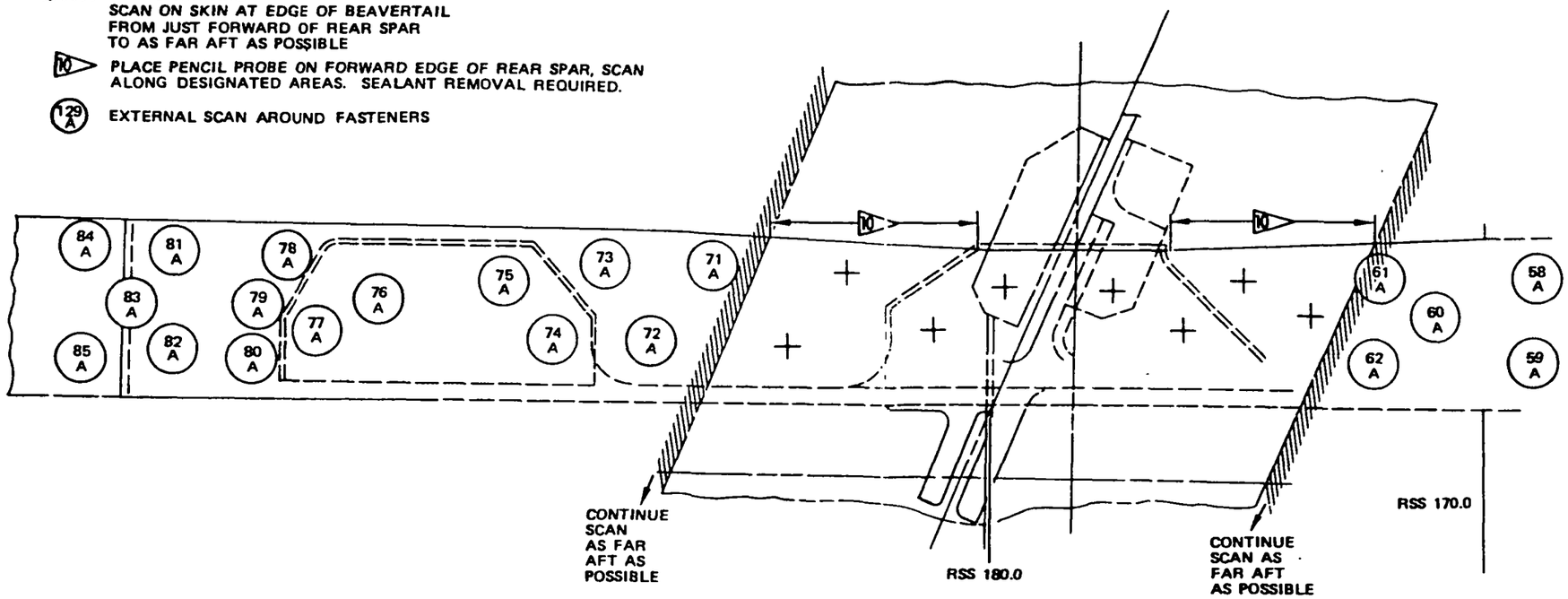
NOTES

- PLACE PENCIL PROBE ON SKIN AS FAR AFT AS POSSIBLE AND SCAN FROM SIDE OF BODY TO WS 360. SEE SECTION G–G

INSPECTION AREA
SCAN ON SKIN AT EDGE OF BEAVERTAIL FROM JUST FORWARD OF REAR SPAR TO AS FAR AFT AS POSSIBLE

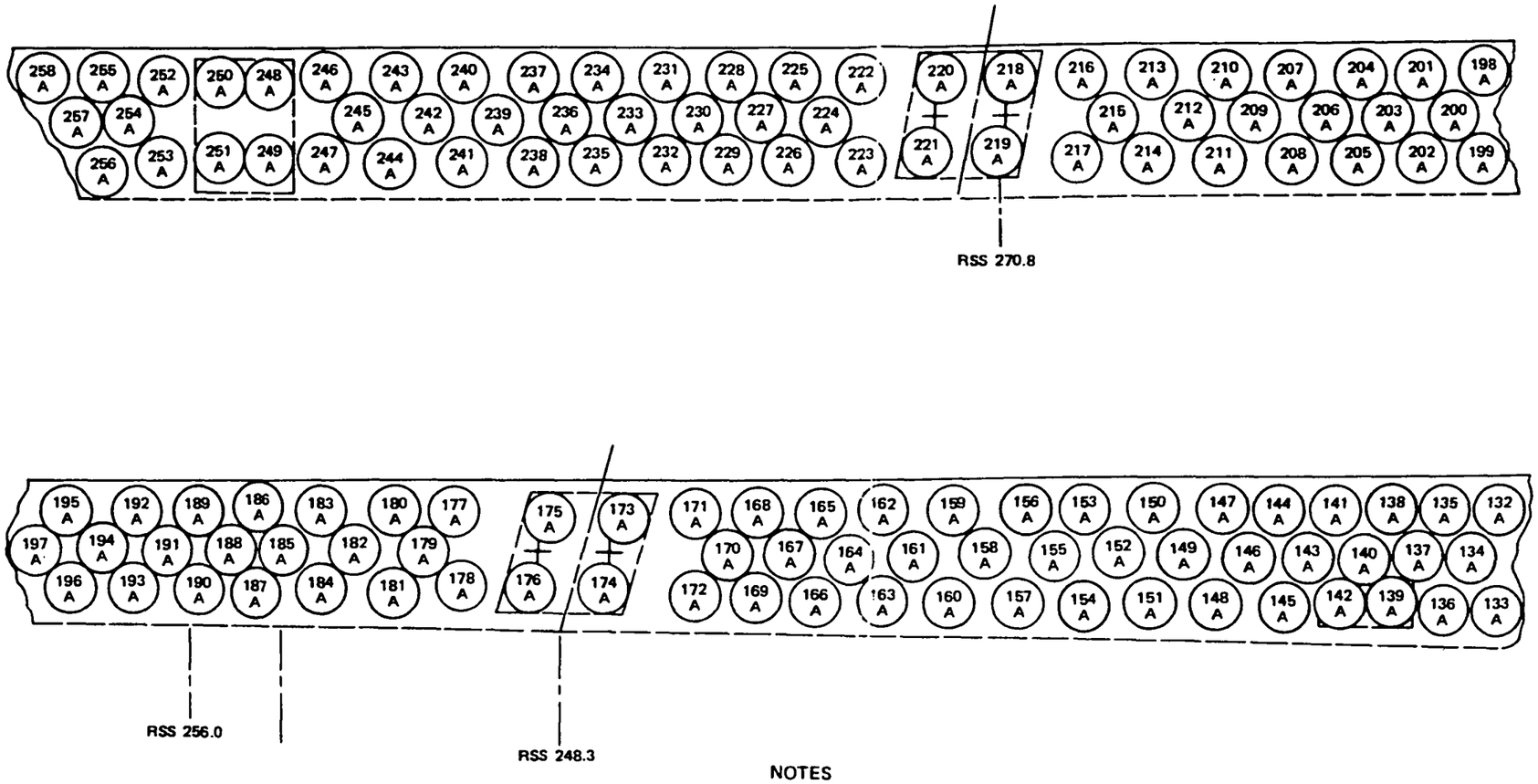
PLACE PENCIL PROBE ON FORWARD EDGE OF REAR SPAR, SCAN ALONG DESIGNATED AREAS. SEALANT REMOVAL REQUIRED.

EXTERNAL SCAN AROUND FASTENERS



UPPER REAR SPAR CHORD
HORIZONTAL FLANGE (BBL 70.5 TO RSS 360)

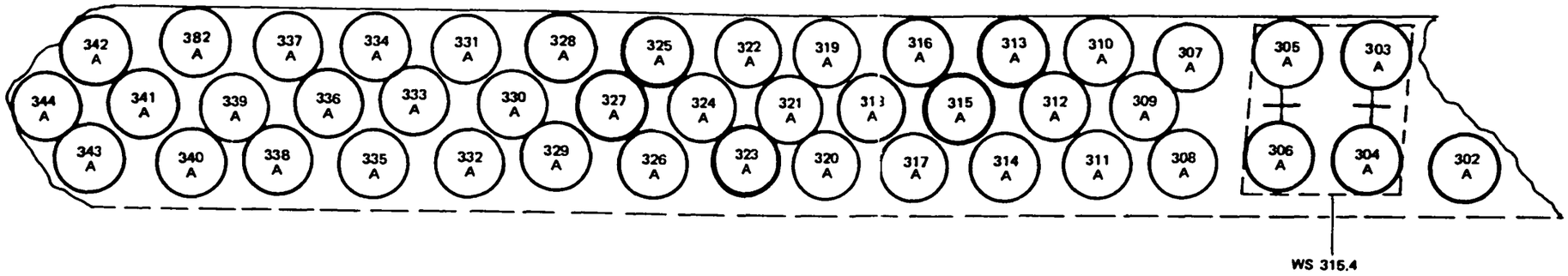
DETAIL VI (CONT)

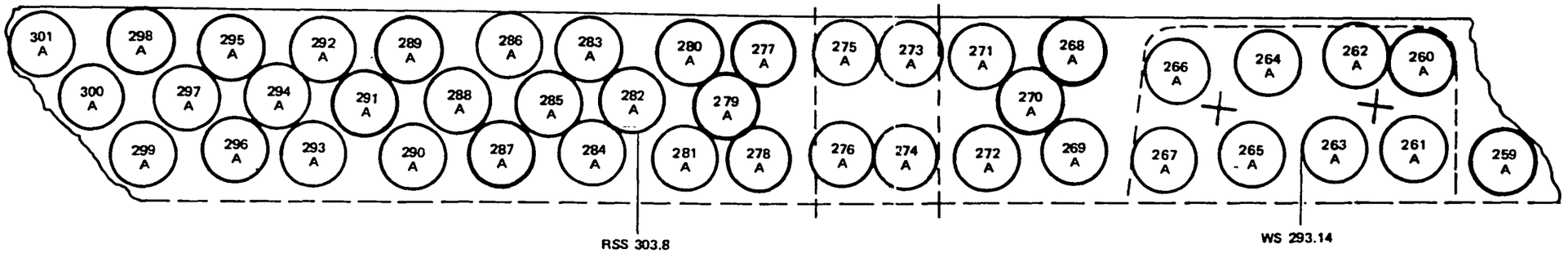


NOTES
- LEFT WING SHOWN, RIGHT WING SIMILAR
- 258 A — FASTENER TO BE INSPECTED
- 20 — PLACE PENCIL PROBE ON SKIN AS FAR AFT AS POSSIBLE AND SCAN FROM SIDE OF BODY TO PRODUCTION BREAK (WS 360) SEE SECTION G–G

UPPER REAR SPAR CHORD
HORIZONTAL FLANGE BBL 70.5 TO RSS 360

DETAIL VI (CONT)



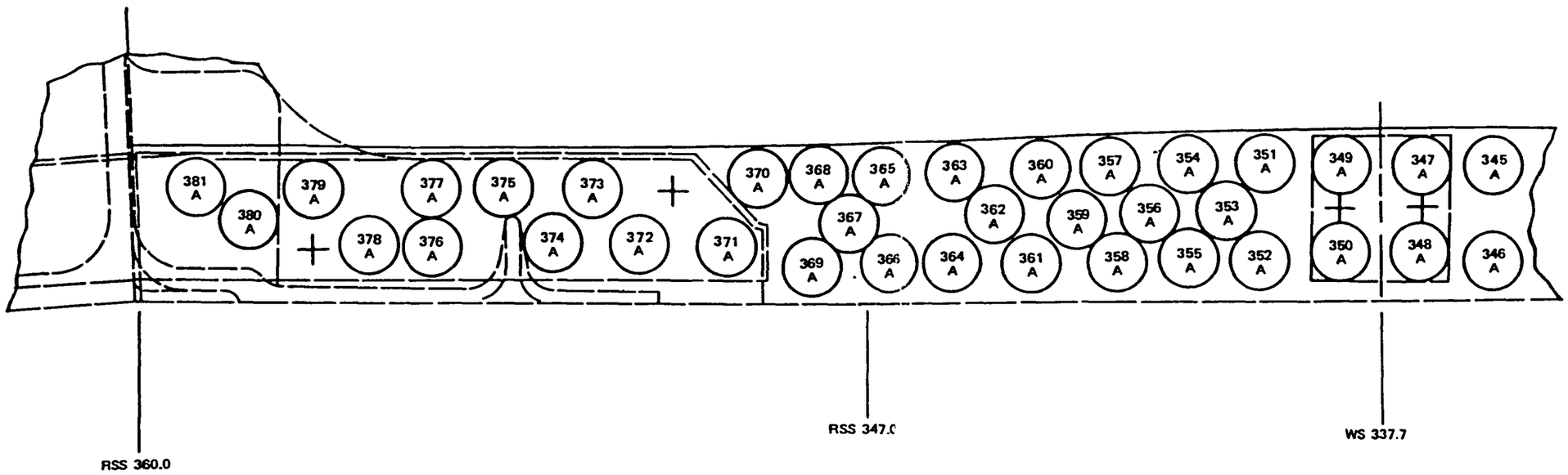


NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- PLACE PENCIL PROBE ON SKIN AS FAR AFT AS POSSIBLE AND SCAN FROM SIDE OF BODY TO WS 360. SEE SECTION G--G

(342 A) FASTENER TO BE INSPECTED, SCAN AROUND FASTENER

UPPER REAR SPAR CHORD
HORIZONTAL FLANGE (BBL 70.5 TO WS 360)
DETAIL VI (CONT)



NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR

(381 A) INSPECTION FASTENERS, PLACE PENCIL PROBE ON SKIN OR SPLICE PLATE, SCAN AROUND FASTENERS.

UPPER REAR SPAR CHORD
HORIZONTAL FLANGE (BBL 70.5 TO RSS 360)

DETAIL VI (CONT)

Wing Upper Panel Skin, Rear Spar Chord and Terminal Fitting
Figure 71 (Sheet 41)

EFFECTIVITY
MODEL: 707-300/400/ 300B/300C A/P's UP TO CUM LINE NO. 671 MODIFIED TO INTEGRAL MACHINED EXTERNAL PAD CONFIGURATION SERVICE BULLETIN REFERENCE: 2607 SSI DOCUMENT (D6-44860) REFERENCE: SSD 57-A25-08B 57-A35-08B 57-A45-08B

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect skin cracks at selected fastener locations, forward of the skin splice at S-12, that are common to the external doubler using low frequency eddy current.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec Inc.
      1320 N.W. Mall
      Issaquah, WA 98027

   B. Probes - This procedure uses one ring (encircling) probe with 1.25-inch OD and 0.63-inch ID shielding, 100 Hz, Nortec P/N SPO-783; any probe of similar size which will satisfy the performance requirements of this procedure is acceptable.

Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 72 (Sheet 1)

NOTE: Probe listed above is available from
Nortec Inc.
421 N. Quay
Kennewick, Washington 99336

Specify instrument with which probe is to be used or instrument connector required when ordering probe.

C. Reference Standards

(1) Manufacture per Detail I

3. Preparation for Inspection

A. Wipe skin surface clean.

B. It is suggested that fastener locations requiring the same instrument calibration for inspection be identified on the airplane by colored, water washable crayons, pencils, or felt pens. Refer to Table I and Detail III for inspection requirements.

4. Instrument Calibration

A. General

(1) One basic inspection type is required for inspection of fastener hole cracks using a ring probe centered on the fastener.

(2) The inspection requires two instrument calibrations to adjust for variations in fastener diameter.

(3) Detail III identifies the inspection for a particular calibration, and Table I provides specific calibration information for that inspection.

B. Calibration for fastener hole crack inspection using the ring probe centered on the fastener. The following calibration applies to inspection code A.

(1) Identify code for fasteners to be inspected from Detail III.

(2) Refer to Table I for specific information and calibration details for the selected inspection code.

(3) Visually center probe over the unnotched reference standard hole, Position 1.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006-inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(6) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

(7) Center probe over the notched reference standard hole, Position 2. Response should be upscale.

(8) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(9) Recheck null and liftoff. If readjustments are made recheck sensitivity per par. B.(8).

(10) Cracks will be indicated by a higher meter response.

C. Calibration for inspection code B.

(1) Calibrate instrument in accordance with par 4.A.

(2) Center probe on unnotched reference standard fastener hole, position 3, and adjust meter response to 20% of full scale with meter position control.

NOTE: Do not adjust instrument sensitivity when setting instrument response.

INSPECTION CODE [1]	REFERENCE STANDARD NO.	PROBE IDENTIFICATION [2]	INSTRUMENT FREQUENCY HZ	DETAIL NO. FOR CALIBRATION [3]	PROBE CALIBRATION POSITION	SPECIAL NOTES
A	103	(1)	500	II	A	[4]
B	103	(1)	500	II	B	[5]

CALIBRATION TABLE
TABLE I

NOTES

[1] Code for specific inspection areas identified on Detail III

[2] Probe Identifications:

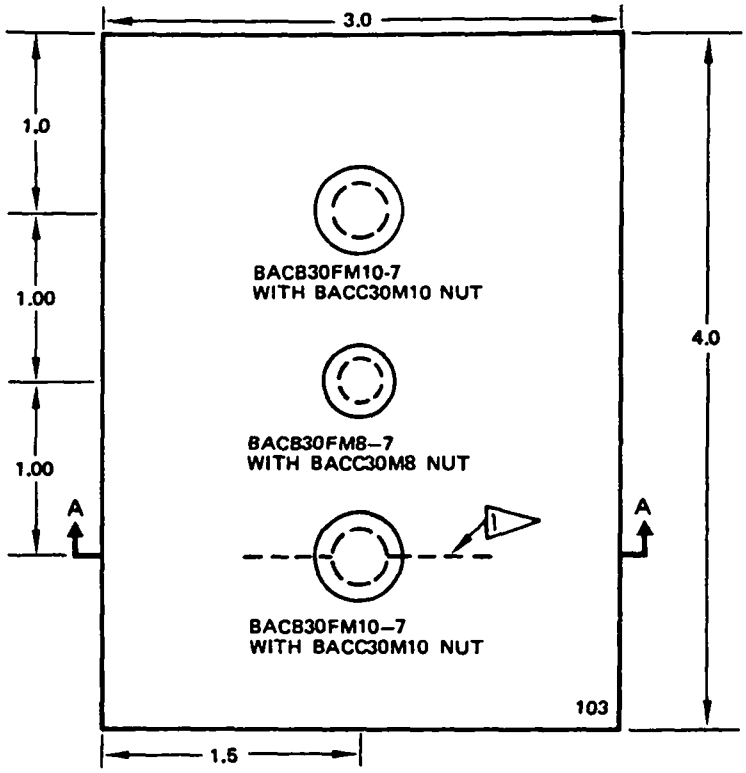
(1) P/N SPO-783 - 1.25-inch OD and 0.63-inch ID encircling (ring) probe.

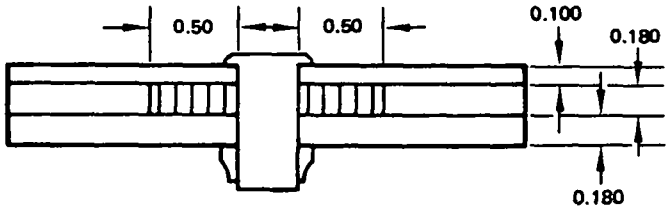
[3] Identifies that part of the reference standard used for this calibration.

[4] Meter response for fastener number 313 will read approximately 10 to 15% less than fasteners 247 and 260.

[5] Meter responses for fasteners 323 and 324 will read approximately 10% less than other code B fasteners.

Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 72 (Sheet 4)





SECTION A–A

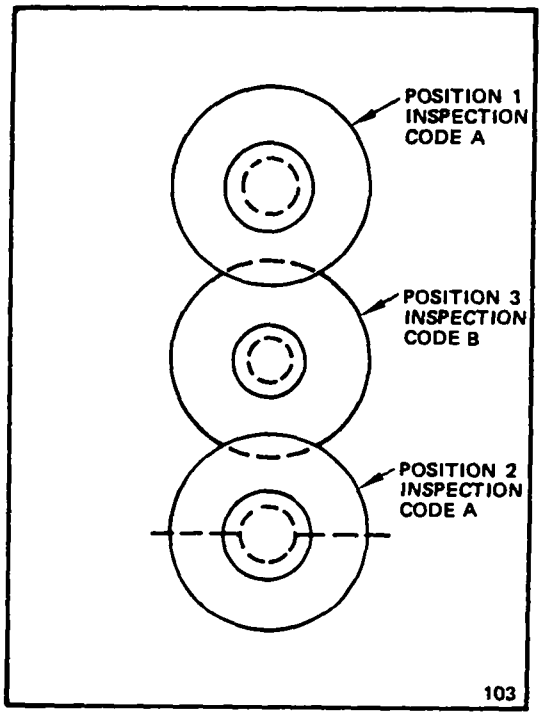
NOTES

- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T3 OR –T4 ALUMINUM
- TOLERANCE: X.X ± .05 X.XX ± 0.02 X.XXX ± 0.005
  HOLE DIMENSION TOLERANCE: + 0.004 –0.000
- ETCH OR STEEL STAMP WITH 103
- P/N 6412–108
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

1 JEWELER'S SAWCUT 0.030 MAX WIDTH

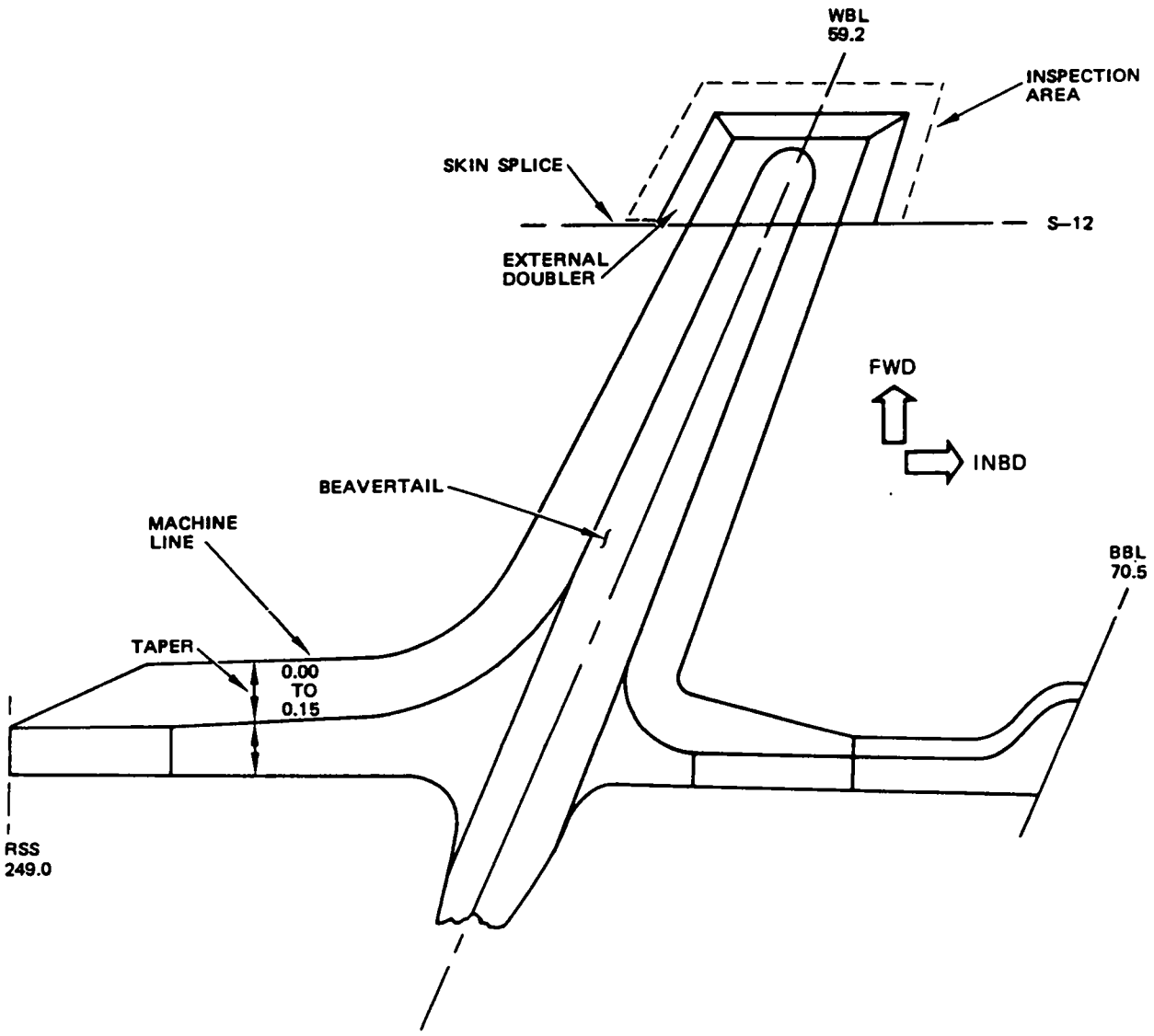
REFERENCE STANDARD 103
DETAIL I

Wing Upper Panel Skin and Splice
Plate at Beavertail
Figure 72 (Sheet 5)



PROBE POSITION 103
DETAIL II

Wing Upper Panel Skin and Splice
Plate at Beavertail
Figure 72 (Sheet 6)

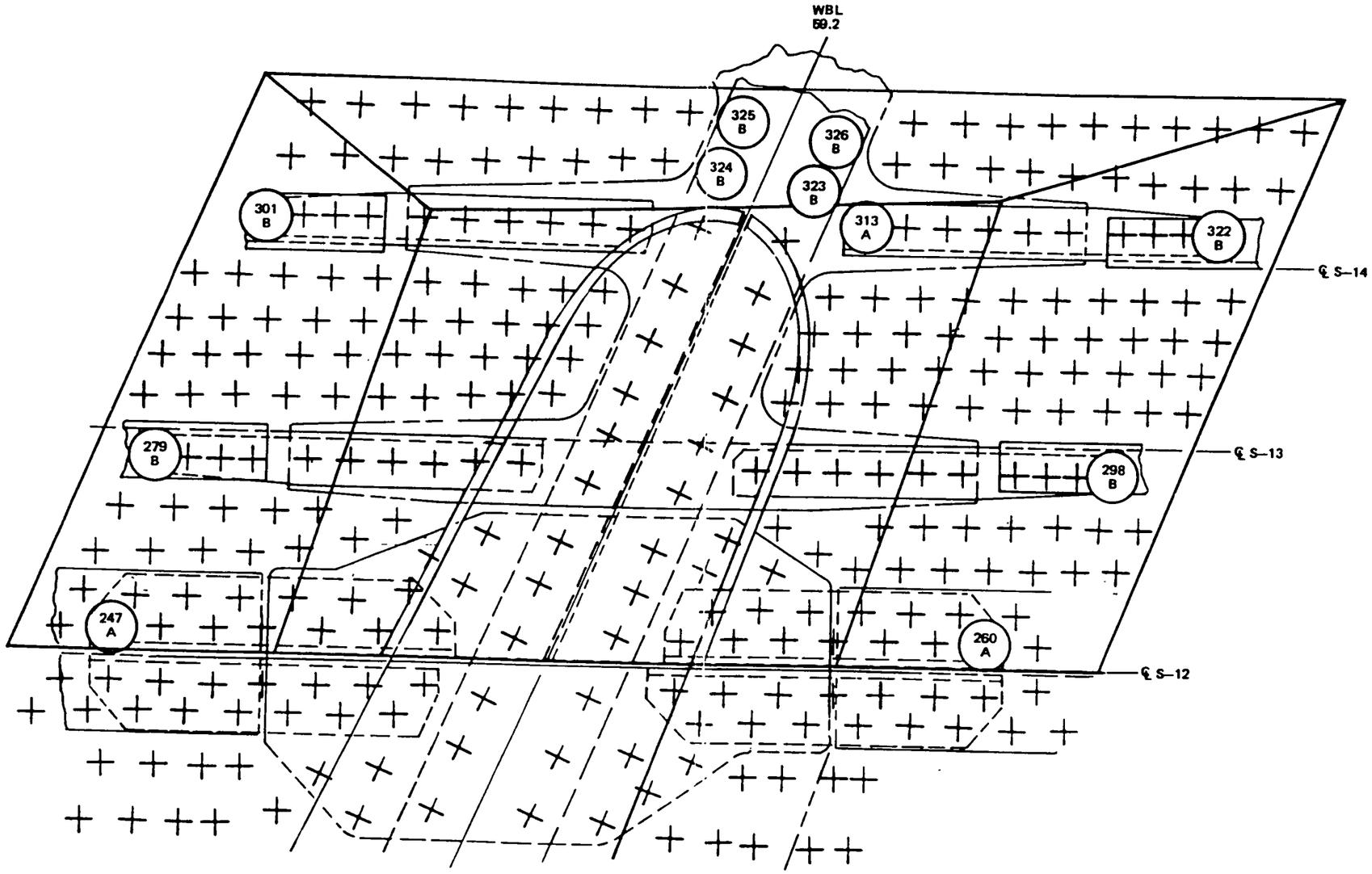


NOTES

- ALL DIMENSIONS ARE IN INCHES

INTEGRALLY MACHINED PAD CONFIGURATION
DETAIL III

Wing Upper Panel Skin and Splice
Plate at Beavertail
Figure 72 (Sheet 7)



NOTES

(247 A) FASTENER TO BE INSPECTED
INSPECTION CODE

- LEFT WING SHOWN, RIGHT WING SIMILAR
- INSPECTION FASTENERS ARE COMMON TO EXTERNAL DOUBLER FWD OF SKIN SPLICE AT S–12

WING UPPER SURFACE SKIN AT BEAVERTAIL INSPECTION
DETAIL III

Wing Upper Panel Skin and Splice
Plate at Beavertail
Figure 72 (Sheet 8)

EFFECTIVITY
MODEL: 707-300/400/ 300B/300C A/P's UP TO CUM LINE NO. 671 MODIFIED TO 3 - EXTERNAL DOUBLER CONFIGURATION SERVICE BULLETIN REFERENCE: 2607 SSI DOCUMENT (D6-44860) REFERENCE: SSD 57-A25-08B 57-A35-08B 57-A45-08B

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To inspect for cracks in the wing upper panel at WBL 59.24 (beavertail).

      (1) Inspection of selected fastener holes through an external doubler for skin cracks, Detail V.

      (2) Inspection along the edge of the beavertail, through three external doubler for skin crack extending from under the beavertail, Detail IV.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10-A
      Zetec Inc.
      1320 N.W. Mall
      Issaquah, WA 98027

   B. Probes - This procedure uses three probes; any probe of similar size which will satisfy the performance requirements of this procedure is acceptable. The following probes were used in the development of this procedure.

      (1) Ring (encircling) probe with 1.25-inch OD and 0.63-inch ID shielding, 100 Hz, Nortec P/N SPO-1154

      (2) Spot probe with 0.5-inch OD, 500 Hz, Nortec P/N SPO-1125.

Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 73 (Sheet 1)

(3) Spot probe with 0.40-inch OD, 1 to 3 kHz, Nortec P/N SPO-1402.

(4) Probes listed above are available from:
Nortec Inc.
421 N. Quay
Kennewick, Washington 99336

Specify instrument with which probe is to be used or instrument connector required when ordering probes.

C. Manufacture Reference Standards per Detail I.

3. Preparation for Inspection

A. Wipe skin surface clean.

B. It is suggested that fastener locations requiring the same instrument calibration for inspection be identified on the airplane by colored, water washable crayons, pencils, or felt pens. Refer to Table I and Details IV and V for inspection requirements.

4. Instrument Calibration

A. General

(1) Three basic inspection types are required.

(a) Inspection for fastener hole cracks using a ring probe centered on the fastener.

(b) Inspection for cracks which extend beyond the edge of the beavertail using a ring probe as a spot probe.

(c) Inspection for fastener hole cracks using a spot probe placed adjacent to the fastener head.

(2) The three basic inspections require several instrument calibrations to adjust for variations in structure geometry and materials.

(3) Details IV and V identify inspection coverage for a particular calibration, and Table I provides specific calibration information for that inspection.

Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 73 (Sheet 2)

B. Calibrate for fastener hole crack inspection using the ring probe centered on the fastener. The following calibration applies to inspection code A and B.

(1) Identify code for fasteners to be inspected from Detail V.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

(3) Visually center probe over the unnotched reference standard hole, Position 1.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006-inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating the probe to obtain a minimum meter response.

(6) Recenter probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

(7) Center probe over the notched reference standard hole, Position 2. Response should be upscale.

(8) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched holes.

(9) Recheck null and liftoff. If readjustments are made recheck sensitivity per par. B.(8).

(10) Cracks will be indicated by a higher meter response.

Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 73 (Sheet 3)

C. Calibrate for fastener hole crack inspection using the ring probe centered on the fastener. The following calibration applies to inspection code C.

(1) Identify code for fasteners to be inspected from Detail V.

(2) Refer to Table I for reference standard.

(3) Calibrate per par. 4.B. and Table I.

(4) Recenter probe over unnotched fastener, position 3, and adjust meter response to read 20% of full meter scale with meter position control.

(5) Instrument is now calibrated for code C fasteners.

NOTE: Do not adjust instrument sensitivity when setting instrument response.

D. Calibrate for cracks in the skin under the doubler using a spot probe. The following calibration applies to inspection codes D and E.

(1) Refer to Detail V for inspection coverage.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 73 (Sheet 4)

(3) Place the probe at the unnotched area on the reference standard per Table I and Detail II.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006-inch (approximately the thickness of two sheets of paper).

(6) Keep the probe at Position 1 and set meter response at 20% of full scale with meter position control.

(7) Slide probe to the notched location, Position 2. Meter response should be upscale.

(8) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the notched and unnotched positions.

(9) Recheck null and liftoff. If readjustments are made, recheck sensitivity per par. C.(7).

(10) Cracks will be indicated by a higher meter response.

5. Inspection Procedure

NOTE: An inspection code is used to identify locations having similar inspection conditions. A single instrument calibration is usually used to inspect these locations.

It is suggested that a copy of Detail V be made and that it be used to record instrument responses at each fastener location. This is helpful in maintaining continuity between the groups of fasteners during inspection.

A. Inspect fastener holes for cracks using the ring probe centered on the fastener. Inspection codes A and B.

(1) Calibrate instrument per par. 4.B. and Table I.

(2) Note on the airplane the location of those fasteners having the same inspection code by using Detail V.

Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 73 (Sheet 5)

(3) Use several fasteners of the same code to establish the airplane baseline response for an acceptable fastener.

(a) Select a representative fastener from this group and set its response to 20% of full meter scale.

NOTE: Do not change instrument sensitivity when establishing the airplane baseline response.

(b) Refer back to this fastener periodically to ensure that the instrument response is the same as originally recorded. (Changes in meter response may occur as a result of instrument drift or probe temperature change.)

(4) Inspect each fastener having the same inspection code by centering the probe on the fastener and manipulating to obtain a minimum response.

NOTE: Review the notes called out in Table I for conditions which affect the inspection.

(5) Fastener locations which give a response which is 40% of full meter scale higher than the established baseline are potential crack indications and further investigation is required.

NOTE: The following conditions may cause meter reading changes similar to crack indications:

(a) A decrease in fastener spacing - compare with similarly spaced fasteners on the airplane.

(b) A larger or smaller fastener - compare with similar fasteners of reference standard and on airplane.

(c) A fastener that is different in countersink depth - compare with similar fastener in standar d raised to the same height.

(d) A fastener close to edge of skin - compare with similar fasteners on airplane.

(e) Differences in conductivity between skin panels - compare only the fastener location common to a skin panel.

Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 73 (Sheet 6)

B. Inspect fastener holes for cracks using the ring probe centered on the fastener. Inspection code C.

(1) Perform inspection per 5.A.(1) except calibrate instrument per 4.C.

C. Inspect skin under the doubler along the edge of the beavertail using a ring probe as a spot probe. Inspection code A.

(1) Calibrate instrument per par. 4.C. and Table I.

(2) Select a section of the doubler between the rear spar and stringer S-1.

(3) Place the probe adjacent to the beavertail at this location to establish a baseline response. Note this location and periodically refer to it to ensure that the instrument response has not changed.

NOTE: Minor adjustments to the meter position control will be required since the reference standard does not exactly duplicate the airplane structure. The minor adjustments must be made with the probe on a crack-free area of the structure. Do not change instrument sensitivity when establishing the airplane baseline response.

(4) Inspect the skin forward of the rear spar where it is covered by the doubler. Perform the inspection by slowly scanning the probe adjacent to the beavertail. If fasteners are partially exposed at the edge of the beavertail, scan around the fastener (Detail IV).

(5) Any location which gives a response 30% of full meter scale higher than the established baseline should be investigated further.

Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 73 (Sheet 7)

(6) The following conditions may cause meter reading changes similar to crack indications:

(a) Metal chips trapped in the sealant at the edge of the beavertail. Remove sealant and reinspect.

(b) A steel fastener under the beavertail, very close to the edge. Refer to Detail V to check fastener locations, scrape sealant at the edge of the beavertail to see if a small portion of the fastener is visible.

(c) A tack rivet through the doubler in the inspection area. Visually check for the presence of one. (If the probe passes over the centerline of the tack rivet, there will be a double indication.)

D. Inspect skin under the doubler. Inspection code E.

(1) Calibrate instrument per Par. 4.C. and Table 1.

(2) Note on airplane the location of fasteners having the same inspection code by using Detail V.

(3) Inspect each code E fastener by placing the probe adjacent to the fastener head and scanning about the head, maintaining a uniform distance between probe and fastener head.

(4) Any location which gives a needle response 30% of full meter scale higher than the established baseline response should be investigated further.

Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 73 (Sheet 8)

INSPECTION CODE (1)	REFERENCE STANDARD	PROBE IDENTIFICATION (2)	INSTRUMENT FREQUENCY HZ	DETAIL NO. FOR CALIBRATION (3)	PROBE CALIBRATION POSITION	SPECIAL NOTES
A	Detail I	(1)	400	II	A	4
B	Detail I	(1)	400	III	B	5
C	Detail I	(1)	400	III	C	6
D	Detail I	(2)	400	II	D	
E	Detail I	(3)	2000	II	E	7

CALIBRATION TABLE
TABLE I

NOTES

(1) Code for specific inspection areas identified on Details to which the calibration requirements apply.

(2) Probe Identification

(1) P/N SPO-1154 - 1.25-inch OD and 0.63-inch ID encircling (ring) probe

(2) P/N SPO-1125 - 0.55-inch OD spot probe.

(3) P/N SPO-1402 - 0.40-inch OD spot probe.

(3) Flagnote refers to the probe position for calibration details (see Details II, and III as indicated in this table) and identifies that part of the reference standard used for this calibration.

(4) Use first four fasteners inboard of No's 1089 and 1085 for comparison.

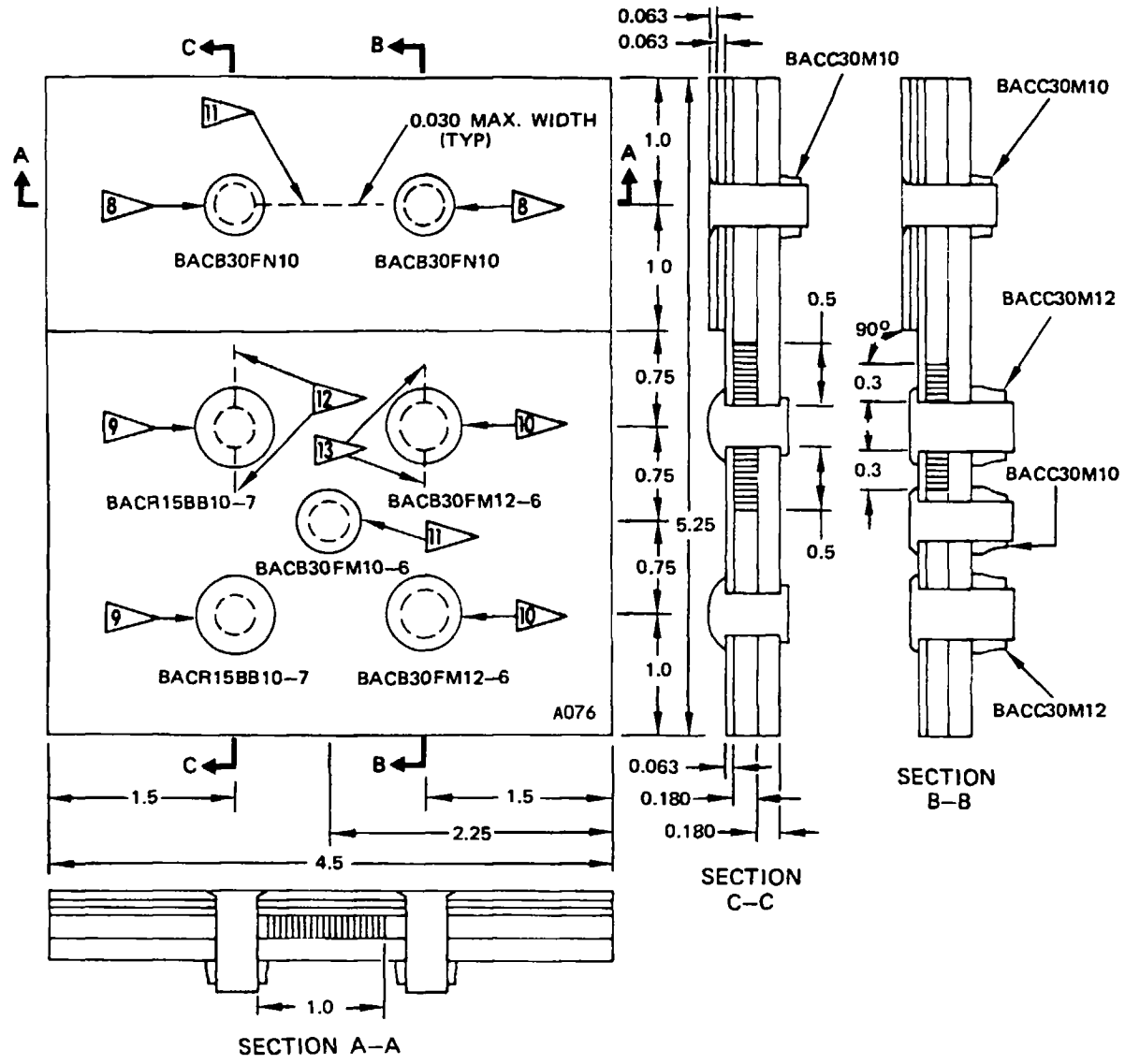
(5) Use first four fasteners outboard of No 1088, and first fastener outboard of No 1087 for comparison.

(6) Fasteners on the outboard side of the beavertail from S-6 forward will have responses approximately 20% less than those fasteners from S-5 aft, due to an internal material thickness change.

(7) Short edge margins or fastener spacing may prevent a complete inspection around the fastener head. Inspect to the extent possible.

Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 73 (Sheet 9)

BOEING PROPRIETARY - Copyright © - Unpublished Work - See title page for details.



NOTES:

- ALL DIMENSIONS ARE IN INCHES
- MATERIAL. 2024–T3 OR T4 ALUMINUM
- TOLERANCES.
  HOLE DIM +0.004 –0.000
  COUNTERSINK FLUSHNESS + 0.010, – 0.005
  X.X± 0.005, X.XX ± 0.002, X.XXX ± 0.005
- ETCH OR STEEL STAMP WITH A076. PUT A LETTER "A" IN FRONT OF THE REFERENCE STANDARD NUMBER TO SHOW THAT IT HAS ALODINED RIVETS. SEE FLAGNOTE 9.

8 BACB30FN10–8 FASTENERS; BACC30M10 COLLARS

9 BACR15BB10–7AD RIVETS. THESE RIVETS MUST HAVE A CONVERSION COATED (ALODINED) FINISH. TO MAKE SURE THE FINISH IS ALODINE, REFER TO PART 1, 51–06–01. INSTALL THE RIVETS AS SPECIFIED IN PART 1, 51–01–04.

10 BACB30FM12–6 BOLT; BACC30M–12 COLLARS

11 JEWELER'S SAWCUT 0.030 MAX WIDTH, 1.0 LONG

12 JEWELER'S SAWCUT 0.030 MAX WIDTH, 0.50 LONG

13 JEWELER'S SAWCUT 0.030 MAX WIDTH, 0.30 LONG

REFERENCE STANDARD A076
DETAIL I

Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 73 (Sheet 10)

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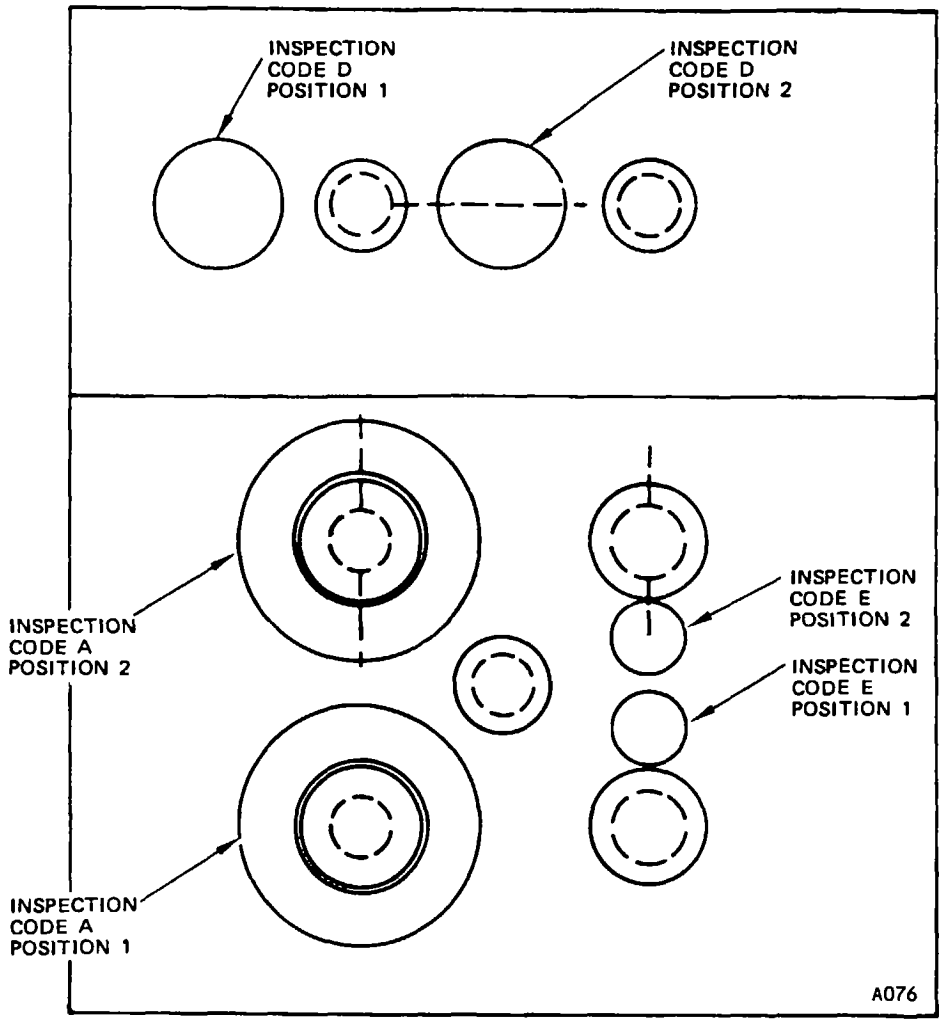

PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD A076
DETAIL II

Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 73 (Sheet 11)

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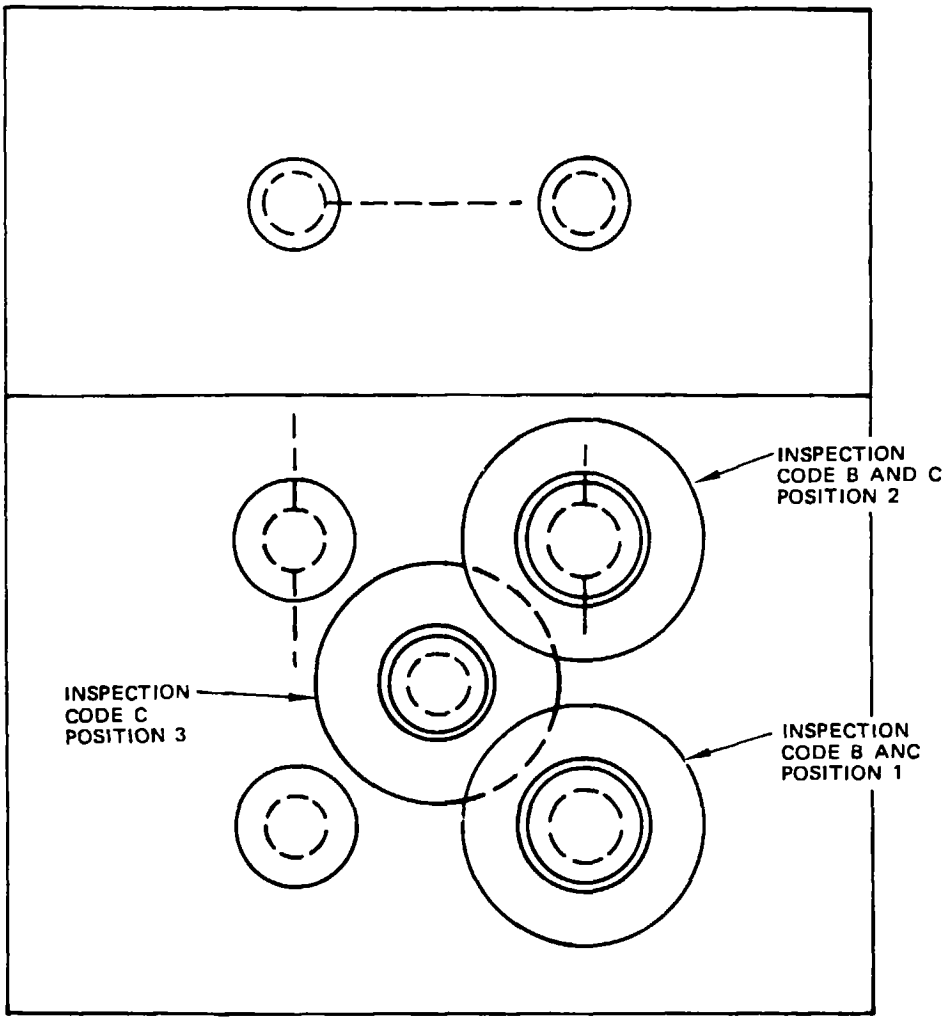

PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD A076
DETAIL III

Wing Upper Panel Skin and Splice Plate at Beavertail
Figure 73 (Sheet 12)

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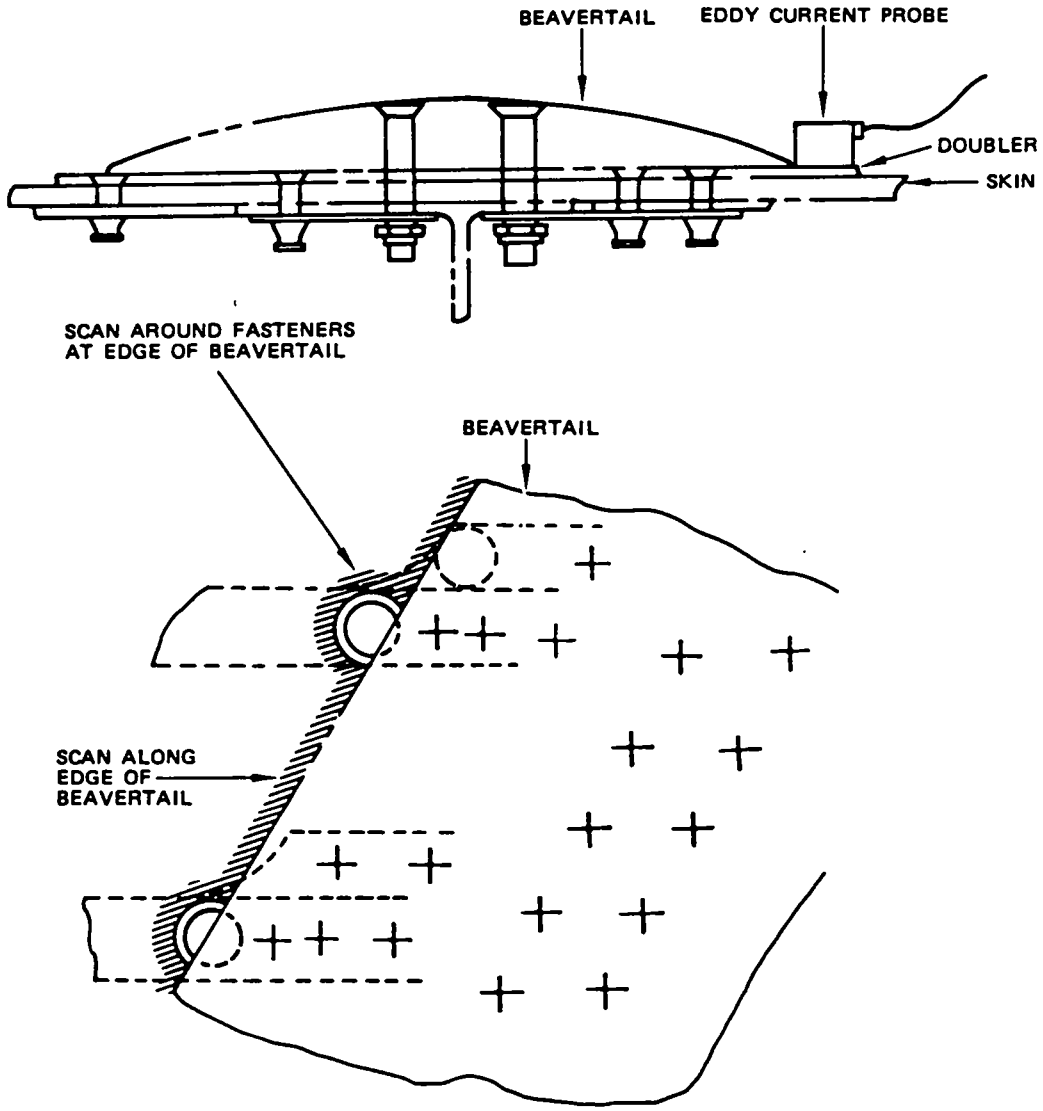


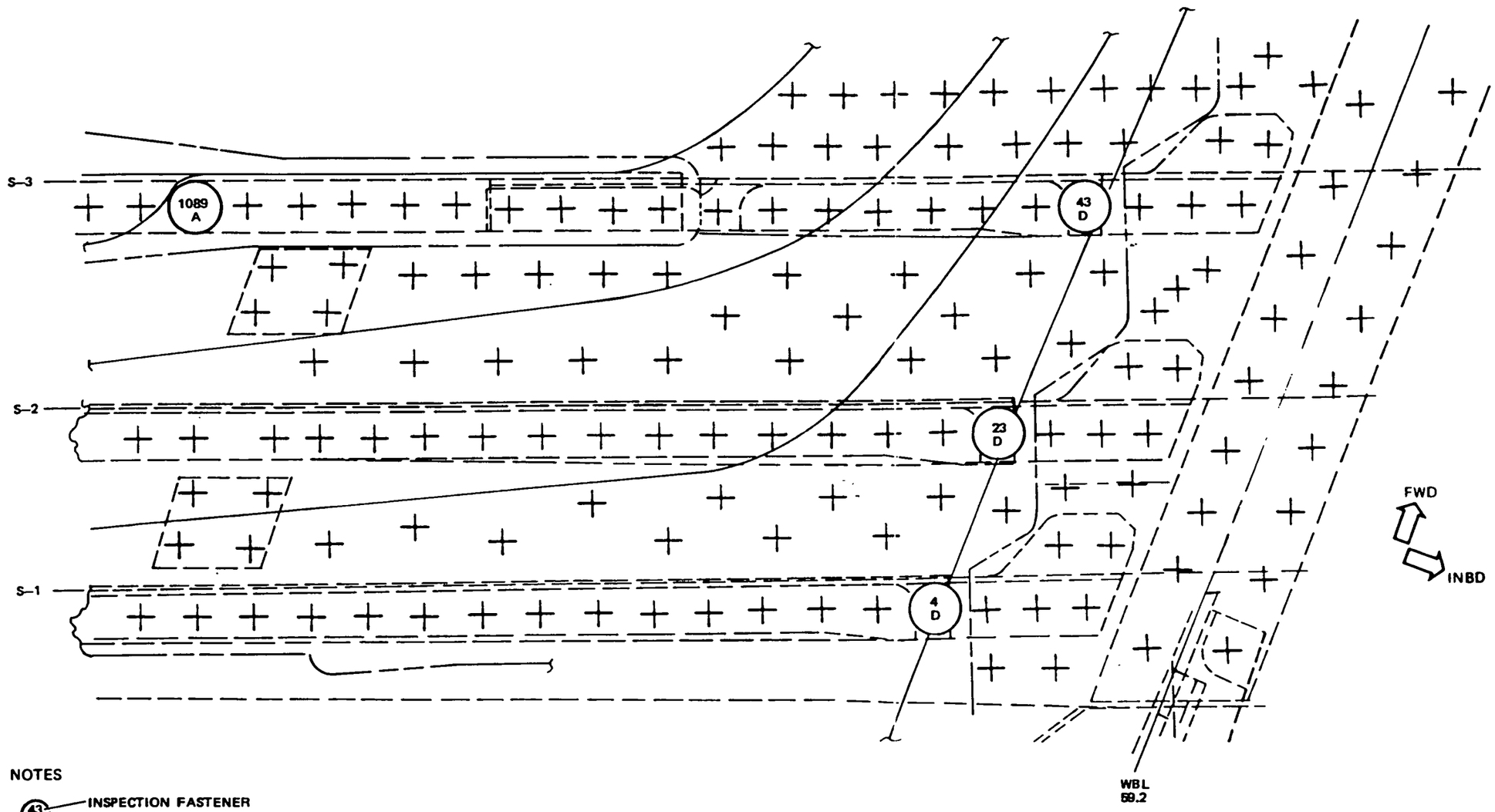
NOTES

INSPECTION AREA (TYPICAL)

INSPECTION AROUND THE PERIPHERY OF THE BEAVERTAIL

DETAIL IV

Wing Upper Panel Skin and Splice Plate
at Beavertail
Figure 73 (Sheet 13)



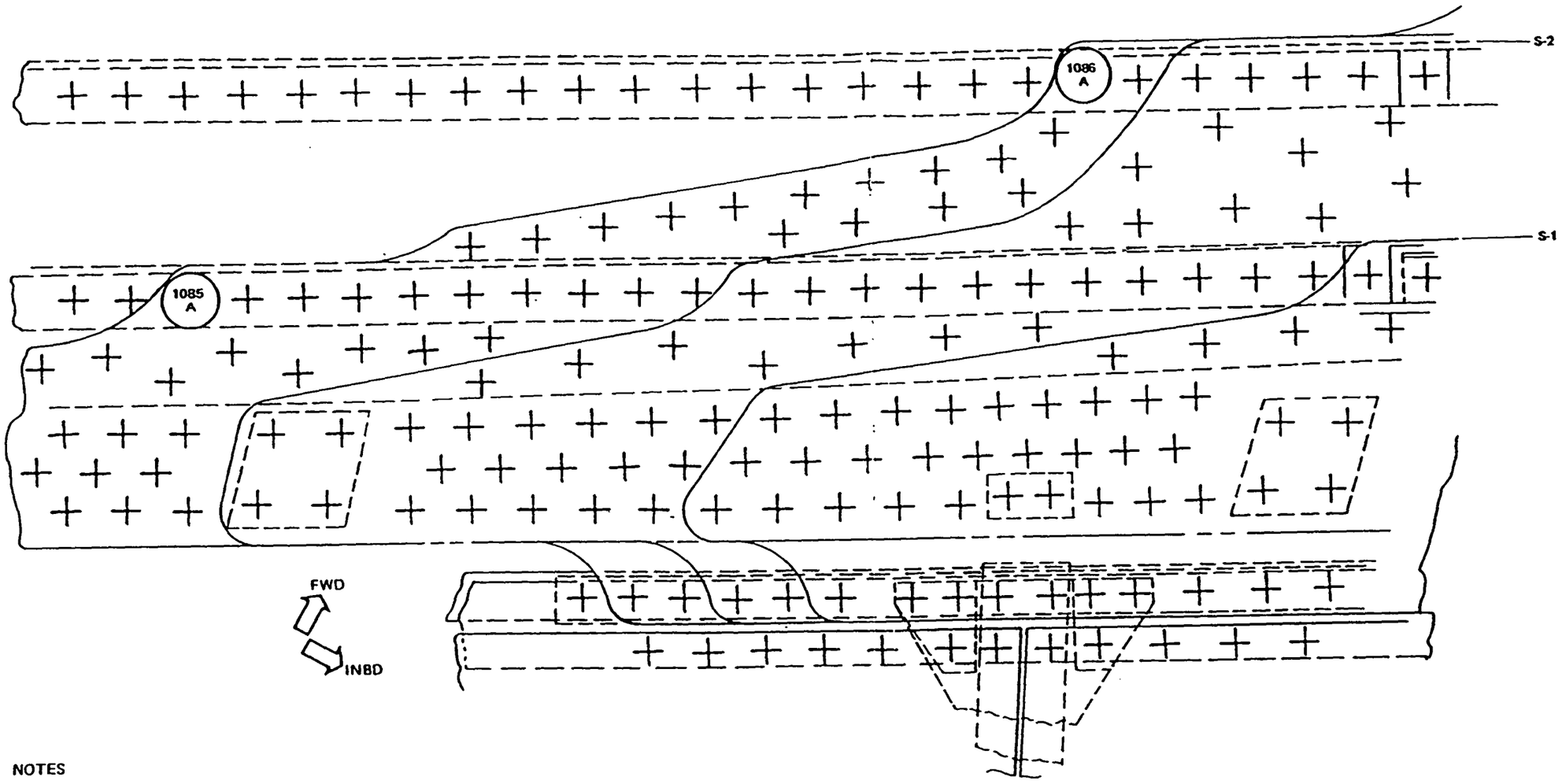
NOTES

43 D — INSPECTION FASTENER
INSPECTION CODE

WING UPPER SURFACE SKIN
AT BEAVERTAIL INSPECTION

DETAIL V

Wing Upper Panel Skin and Splice Plate
at Beavertail
Figure 73 (Sheet 14)



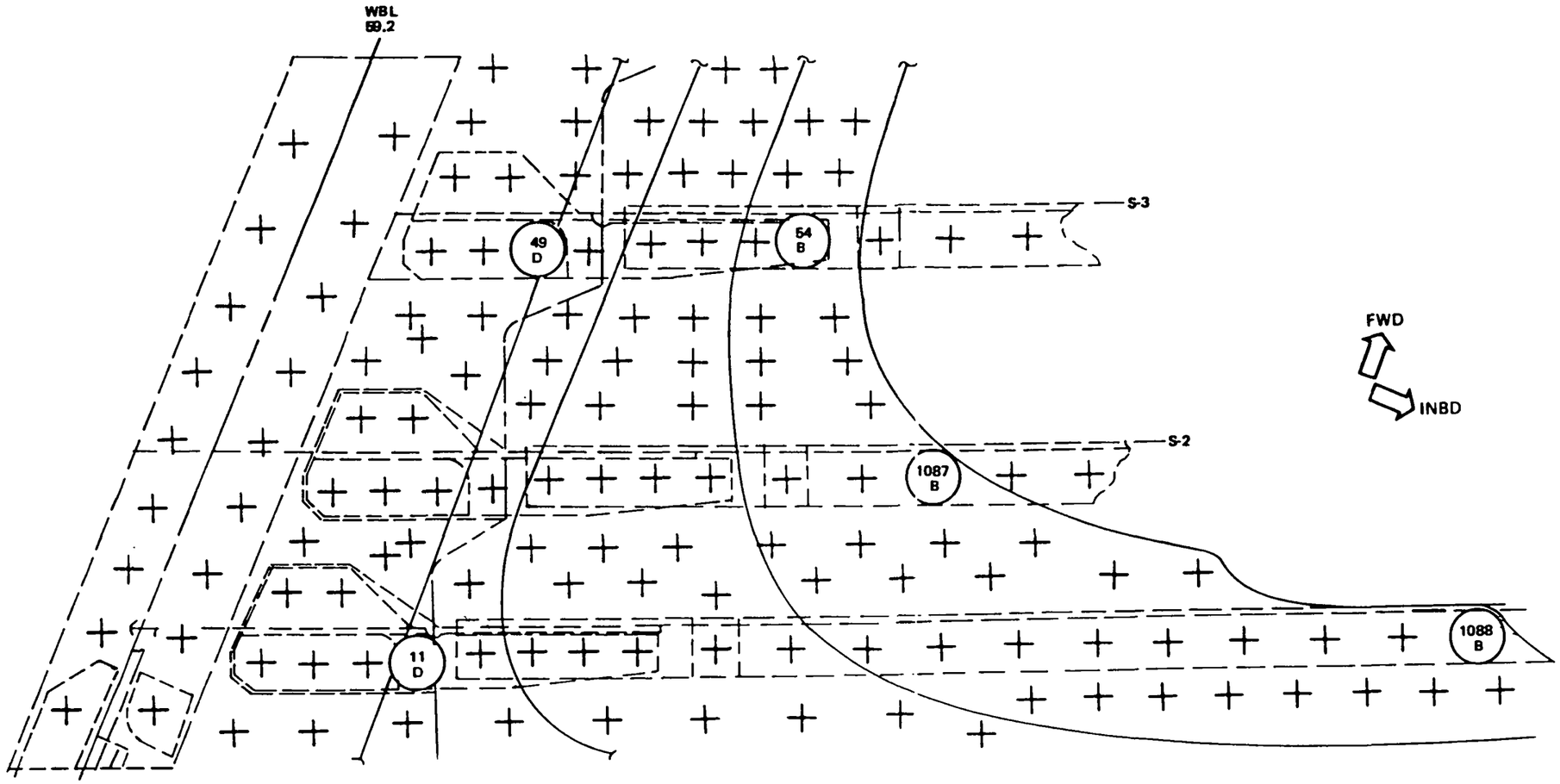
NOTES

1085 A — INSPECTION FASTENER
INSPECTION CODE

WING UPPER SURFACE SKIN
AT BEAVERTAIL INSPECTION

DETAIL V (CONT)

Wing Upper Panel Skin and Splice Plate
at Beavertail
Figure 73 (Sheet 15)

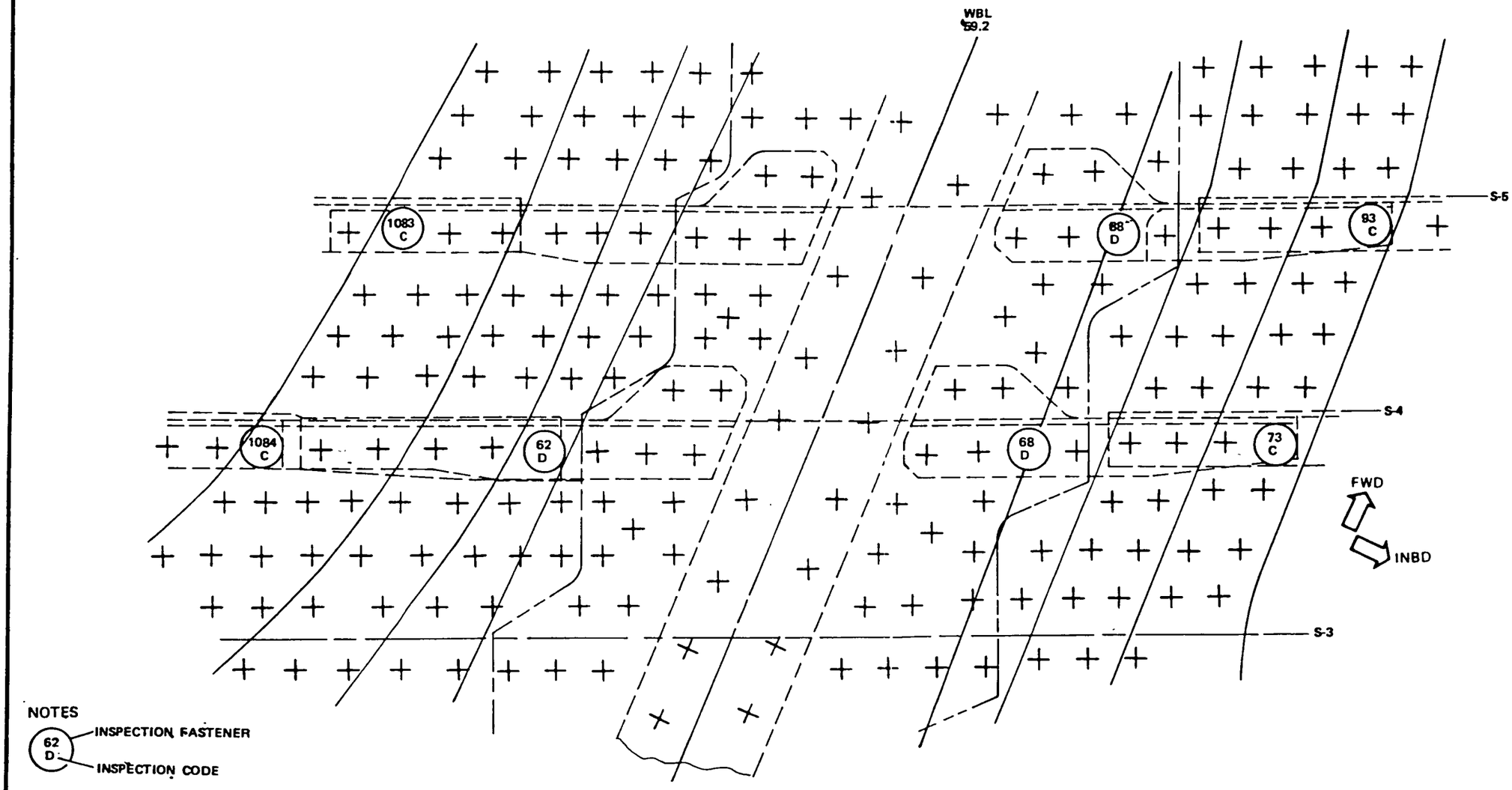


NOTES

(11 D) — INSPECTION FASTENER
INSPECTION CODE

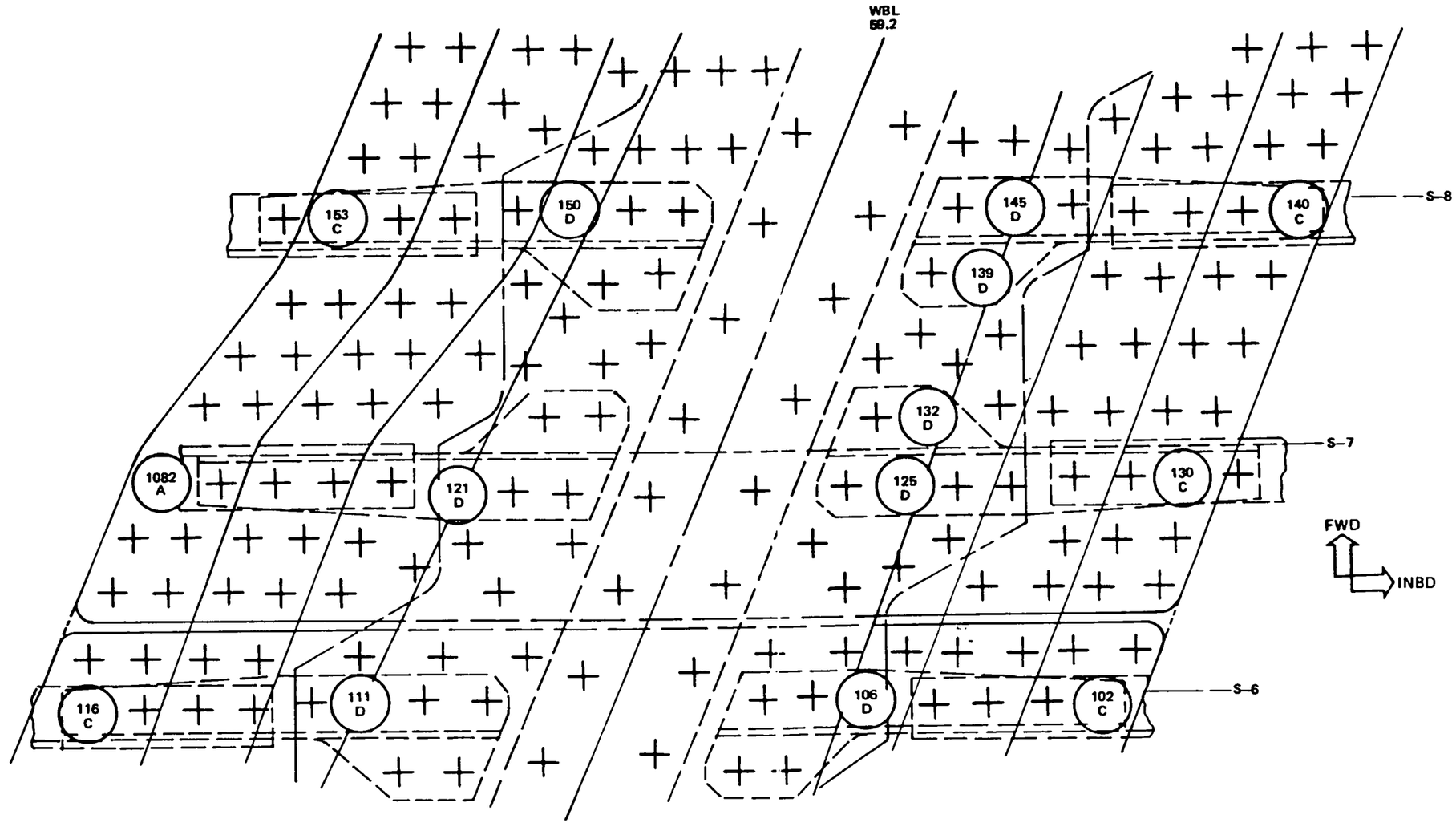
WING UPPER SURFACE SKIN
AT BEAVERTAIL INSPECTION
DETAIL V (CONT)

Wing Upper Panel Skin and Splice Plate
at Beavertail
Figure 73 (Sheet 16)



WING UPPER SURFACE SKIN
AT BEAVERTAIL INSPECTION
DETAIL V (CONT)

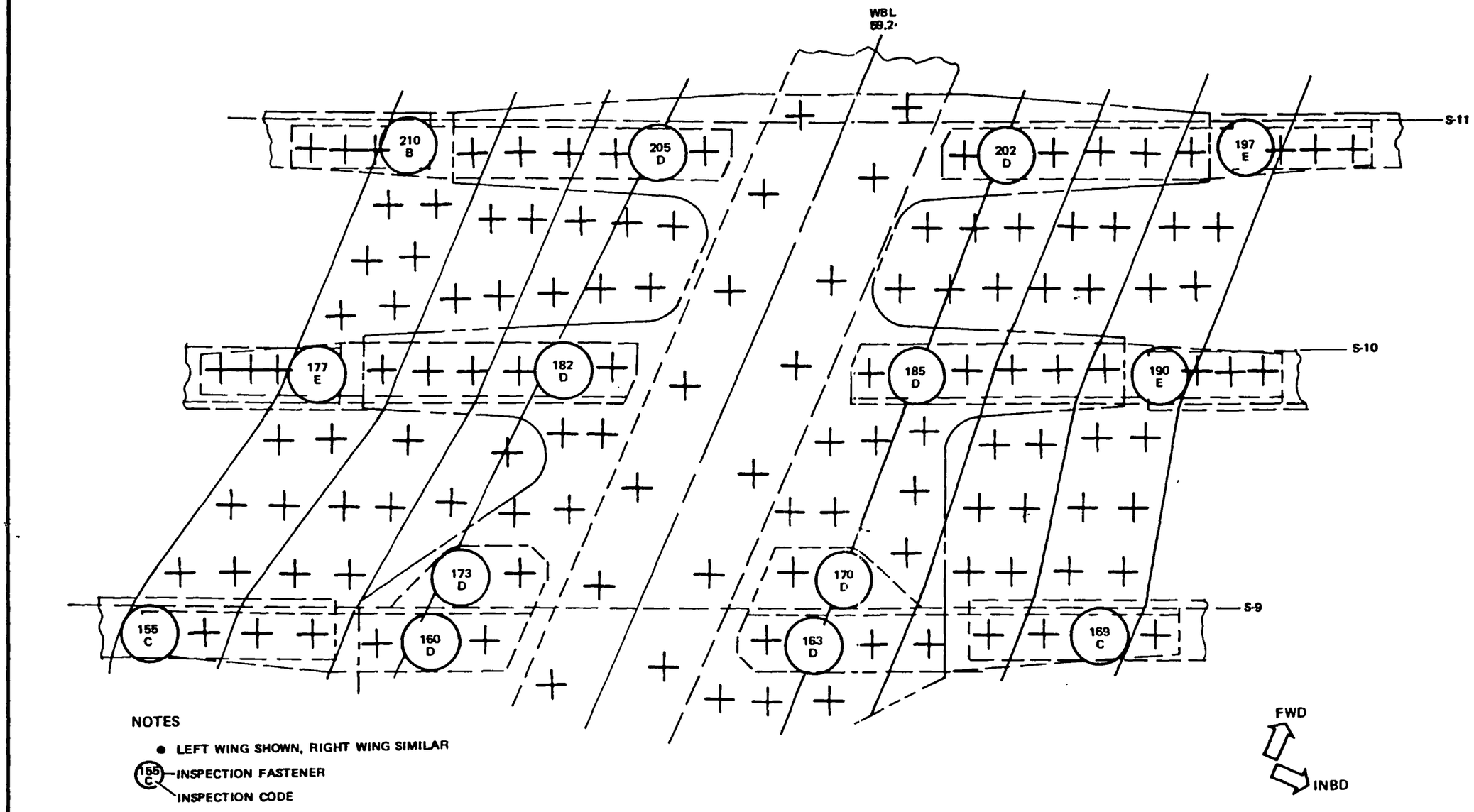
Wing Upper Panel Skin and Splice Plate
at Beavertail
Figure 73 (Sheet 17)



NOTES

116 C — INSPECTION FASTENER
INSPECTION CODE

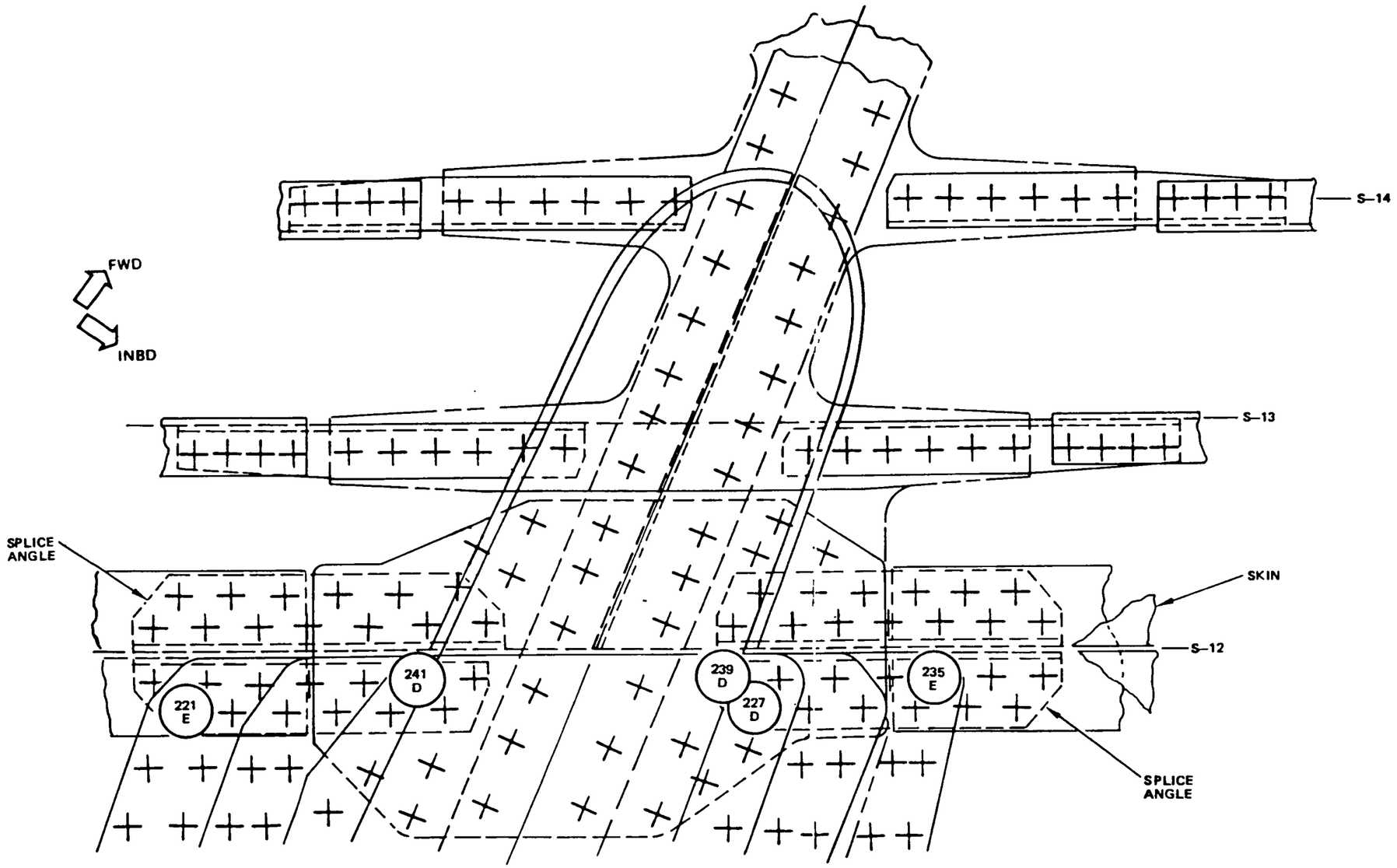
WING UPPER SURFACE SKIN AT BEAVERTAIL INSPECTION
DETAIL V (CONT)



WING UPPER SURFACE SKIN
AT BEAVERTAIL INSPECTION

DETAIL V (CONT)

Wing Upper Panel Skin and Splice Plate
at Beavertail
Figure 73 (Sheet 19)



NOTES

221 E — INSPECTION FASTENER / INSPECTION CODE

WING UPPER SURFACE SKIN
AT BEAVERTAIL INSPECTION

DETAIL V (CONT)
Wing Upper Panel Skin and Splice Plate
at Beavertail
Figure 73 (Sheet 20)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To provide a low-frequency eddy current inspection of upper WS 360 splice from S-1 through front spar on airplanes modified by the addition of external splice doublers.

   B. To detect cracks in upper WS 360 wing skin and external splice doublers that intersect fastener holes. This inspection is accomplished from outside the wing without fastener removal.

   C. To detect cracks in external splice doublers along the gap between wing skins at WS 360 splice.

2. Equipment

   A. Instrument - Any eddy current instrument that satisfies the requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure:

      (1) MIZ-10
      Zetec, Inc.
      1320 NW Mall
      Issaquah, WA 98027

   B. Probes - This procedure uses two probes; any probe of similar size that satisfies the requirements of this procedure is acceptable. The following probes were used in the development of this procedure:

      (1) Ring (encircling) probe with 1.1-inch OD and 0.6-inch ID shielding, 0.3-inch maximum height, Nortec P/N SPO-1240.

      (2) Spot probe with 0.55-inch OD shielding, 1.0-inch maximum height, usable at 500 Hz, Nortec P/N SPO-1125.

      NOTE: Probes listed are available from:

      Nortec, Inc.
      421 N. Quay
      Kennewick, WA 99336

      When ordering probes, specify instrument or instrument connector with which probe is to be used.

Upper WS 360 Splice External Doublers
Figure 74 (Sheet 1)

C. Reference Standards

(1) Manufacture per Details I and III.

3. Preparation for Inspection

A. Remove leading-edge glove fairing on applicable airplanes.

B. Wipe skin surface clean.

C. It is suggested that fastener locations requiring the same inspection calibration be identified on airplane by a colored circle. Water-washable crayons, pencils, or felt pens are suitable. Refer to Table I and Detail V for inspection locations having similar requirements.

4. Instrument Calibration

A. General

(1) Two inspection types are required:

(a) Inspect for fastener hole cracks using a ring probe centered on the fastener.

(b) Inspect for cracks along WS 360 splice skin gap using a spot probe.

(2) The two inspections require several instrument calibrations to adjust for variations in structure geometry and materials.

(3) Detail V identifies inspection coverage for a particular calibration, and Table I provides specific calibration information.

B. Calibrate for fastener hole crack inspection using ring probe centered on fastener. The following calibration applies to inspection codes A, B, C, and D.

(1) Identify fastener code per Detail V.

(2) Refer to Table I for reference standard, probe, and calibration details for selected inspection code.

(3) Visually center probe over unnotched reference standard hole, Position 1, in appropriate calibration position row.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain the same response when probe is on bare standard as with probe lifted off part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is accomplished by manipulating the probe to obtain a minimum meter response.

(6) Recenter probe over unnotched hole and adjust meter response to read 20% of full scale with meter position control.

(7) Center probe over notched reference standard hole, Position 2, in appropriate calibration position row. Response should be upscale.

(8) Adjust instrument sensitivity to obtain a difference of 60% of full scale meter response between notched and unnotched holes.

(9) Recheck null and liftoff. If readjustments are made, recheck sensitivity per par. 4.B.(8).

(10) Cracks will be indicated by a higher meter response.

C. Calibrate for external doubler cracks in the wing skins at WS 360 splice using a spot probe. The following calibration applies to inspection code E.

(1) Refer to Detail V for inspection coding along WS 360 centerline.

(2) Refer to Table I for reference standard, probe, and calibration details for the selected inspection code.

(3) Visually center probe over unnotched area of skin gap on the reference standard, Position 1.

(4) Balance instrument per manufacturer's instructions.

(5) Adjust liftoff control per manufacturer's instructions to obtain same response when the probe is on bare standard as with probe lifted off part by 0.006 inch (approximately the thickness of two sheets of paper).

(6) Recenter probe at Position 1 and set meter response at 20% of full scale with meter position control.

(7) Center probe over skin gap at notched location, Position 2. Meter response should be upscale.

Upper WS 360 Splice, External Doublers
Figure 74 (Sheet 3)

(8) Adjust instrument sensitivity to obtain a difference of 50% of full scale meter response between the notched and unnotched positions.

(9) Recheck null and liftoff. If readjustments are made, recheck sensitivity per par. 4.C.(8).

(10) Cracks will be indicated by a higher meter response.

5. Inspection Procedure

A. Inspect fastener holes for cracks using ring probe centered on fastener per inspection codes A, B, C, and D.

(1) Inspect in order given in Table I.

(2) Calibrate instrument per par. 4.B. and Table I.

(3) Note on airplane locations of fasteners with the same inspection code per Detail V.

NOTE: An inspection code is used to identify locations with similar inspection conditions. A single instrument calibration is used to inspect these locations.

It is suggested a copy of Detail V be made and used to record instrument responses at each fastener location. This is helpful to maintain continuity between fastener groups during inspection.

(4) Use several fasteners to establish airplane baseline response for an acceptable fastener.

(a) Select a fastener from this group and set its response to 20% of full meter scale.

(b) Do not change instrument sensitivity when establishing airplane baseline response.

(c) Refer to this fastener periodically to ensure that instrument response is the same as originally recorded, since changes in meter response may occur due to instrument drift or probe temperature change.

(5) Inspect each fastener with the same inspection code by centering probe on fastener and manipulating to obtain a minimum response.

(6) Fastener locations that give a response 30% of full meter scale higher than established baseline are potential crack indications and require further inspection.

(7) The following conditions may cause meter reading changes similar to crack indications:

(a) A decrease in fastener spacing. Compare with similarly spaced fasteners on airplane.

(b) A larger or smaller fastener. Compare with similar fasteners of reference standard and on airplane.

(c) A fastener that is different in countersink depth. Compare with similar fastener in standard raised to the same height.

(d) A fastener close to edge of skin. Compare with similar fasteners on airplane.

(e) Skin panel conducitivity differences. Compare only fastener locations common to a skin panel.

B. Inspect the external splice plates over the gap between wing skin at WS 360 splice using a spot probe (inspection code E).

(1) Calibrate instrument per par. 4.C. and Table I.

(2) Start inspection at Stringer S-1.

(3) Select wing skin splice section near Stringer S-1 that has fastener spacing and edge margin similar to reference standard.

(4) Center probe on skin joint at this location to establish a baseline response. Note this location and periodically refer to it to ensure that instrument response has not changed.

(5) Inspect length of the splice plates (Detail V). Inspect by slowly scanning the probe across skin joint (inboard-outboard direction). If inspection cannot be done as fasteners are spaced too close to the edge of the skin, inspect between fasteners along centerline of the splice plate.

(6) Any location that gives a response 30% of full meter scale higher than established baseline should be investigated further.

Upper WS 360 Splice, External Doublers
Figure 74 (Sheet 5)

INSPECTION CODE [1]	REFERENCE STANDARD	PROBE IDENTIFICATION [2]	INSTRUMENT FREQUENCY (Hz)	CALIBRATION DETAIL NO.	PROBE CALIBRATION POSITION ROW [3]
A	101 (Detail I)	(1)	100	II	C
B	101 (Detail I)	(1)	100	II	A
C	102 (Detail III)	(1)	100	IV	A
D	102 (Detail III)	(1)	100	IV	B
E	101 (Detail I)	(2)	500	II	B

CALIBRATION TABLE
TABLE I

NOTES

[1] See Detail V for specific areas to which calibration applies.

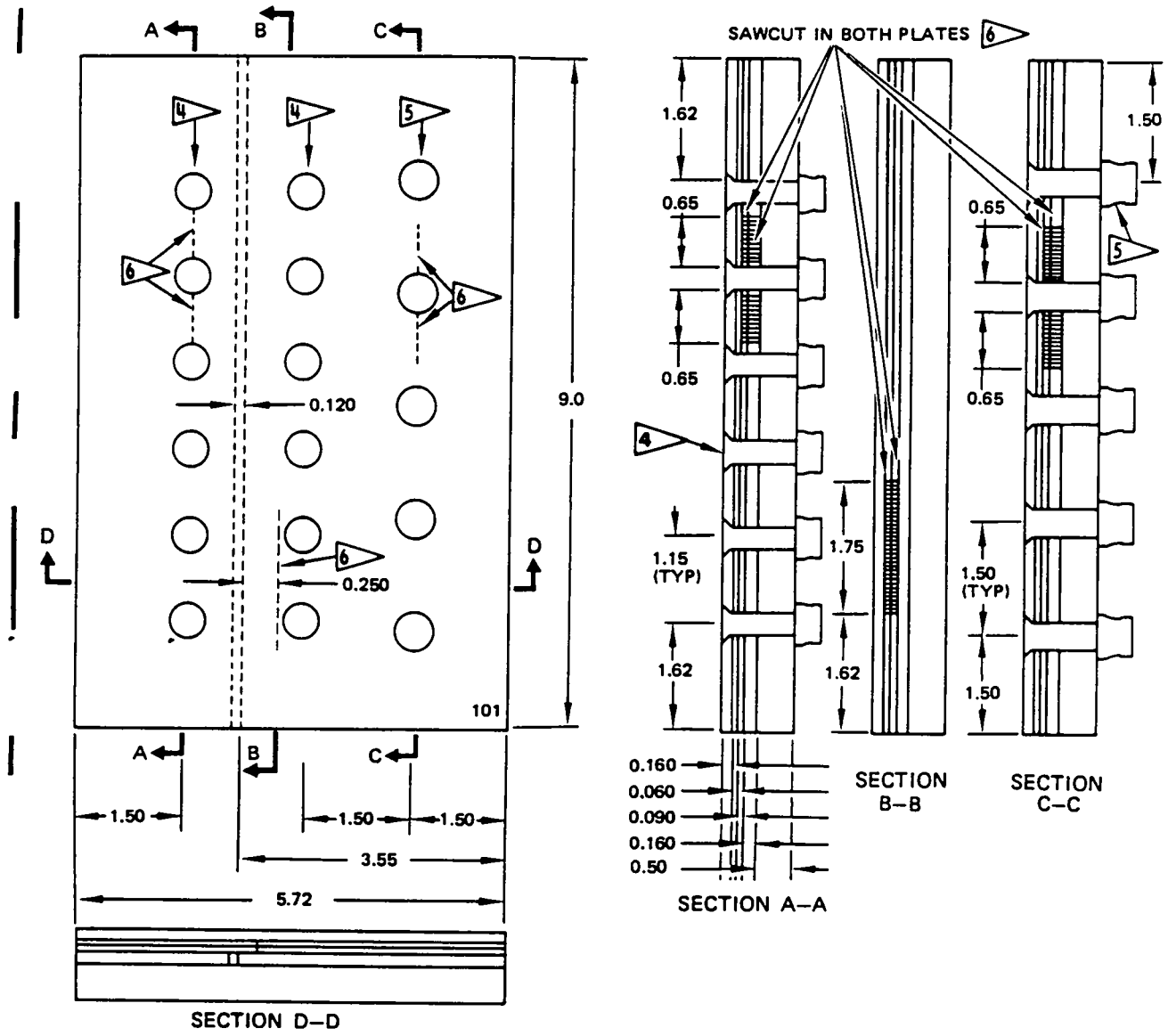
[2] Probe identification:

(1) P/N SPO-1240, 1.1-inch OD and 0.62-inch ID shielding ring probe.

(2) P/N SPO-1125, 0.55-inch OD shielding, spot probe.

[3] Identifies that part of reference standard used for calibration.

Upper WS 360 Splice, External Doublers
Figure 74 (Sheet 7)



NOTES

- MATERIAL: 7075–T6 ALUMINUM
- TOLERANCE: X.X ± 0.05 X.XX ± 0.02 X.XXX ± 0.005
- ALL DIMENSIONS ARE IN INCHES
- ETCH OR STEEL STAMP WITH 101
- P/N 6412–110 AVAILABLE FROM IDEAL SPECIALTY CO

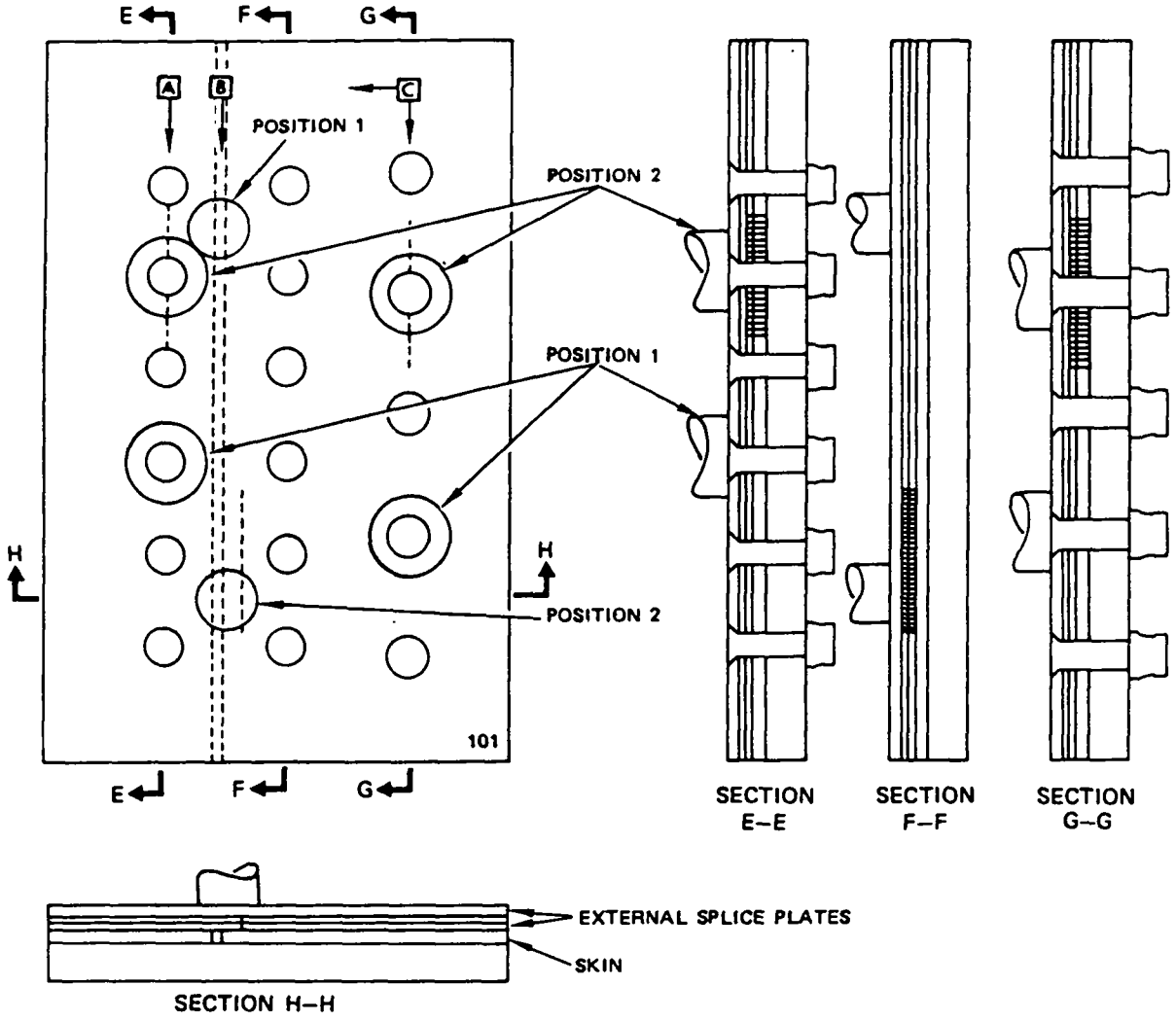
4 BACB30FN10–16 FASTENERS; BACC30M10 COLLAR (5 PLACES)

5 BACB30FN12–16 FASTENER; BACC30M12 COLLAR (5 PLACES)

6 JEWELER'S SAWCUT 0.030 MAX WIDTH

REFERENCE STANDARD 101
DETAIL I

Upper WS 360 Splice, External Doublers
Figure 74 (Sheet 8)



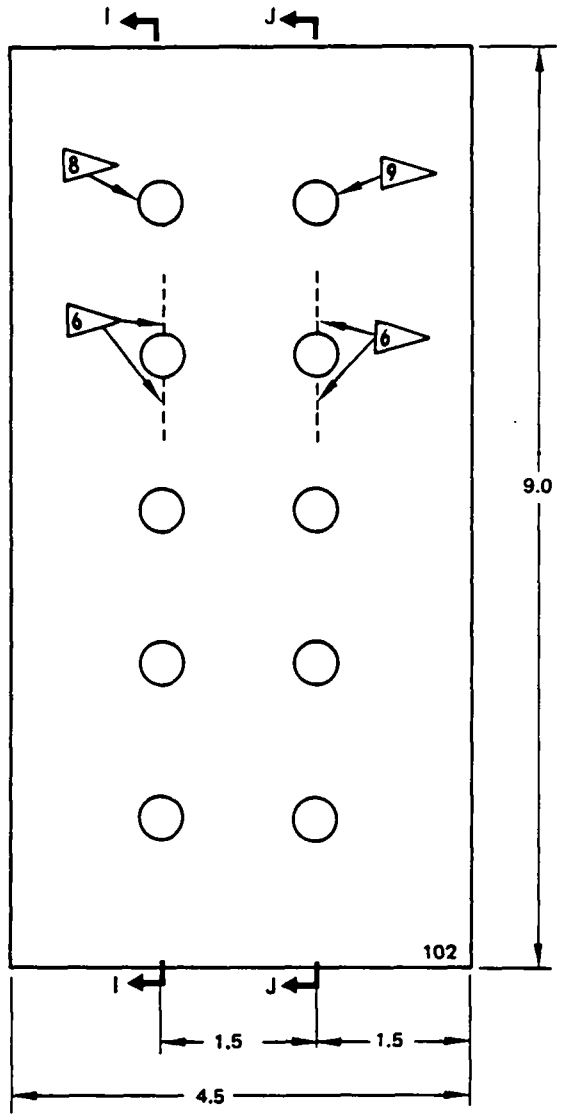
NOTES

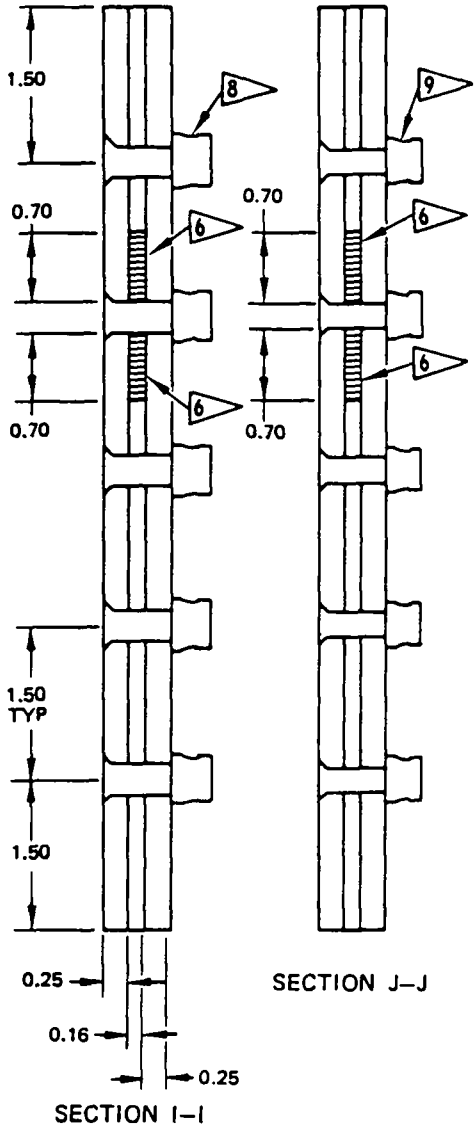
A B C PROBE CALIBRATION POSITION ROWS (SEE CALIBRATION TABLE, TABLE I)

PROBE CALIBRATION POSITIONS ON REFERENCE STANDARD 101

DETAIL II

Upper WS 360 Splice, External Doublers
Figure 74 (Sheet 9)





NOTES

- MATERIAL: 7075–T6 ALUMINUM
- TOLERANCE: X.X ± 0.05 X.XX ± 0.02
- ALL DIMENSIONS ARE IN INCHES
- ETCH OR STEEL STAMP WITH 102
- P/N 6412–111
  AVAILABLE FROM IDEAL SPECIALTY CO.

6 JEWELERS SAWCUT 0.030 MAX WIDTH

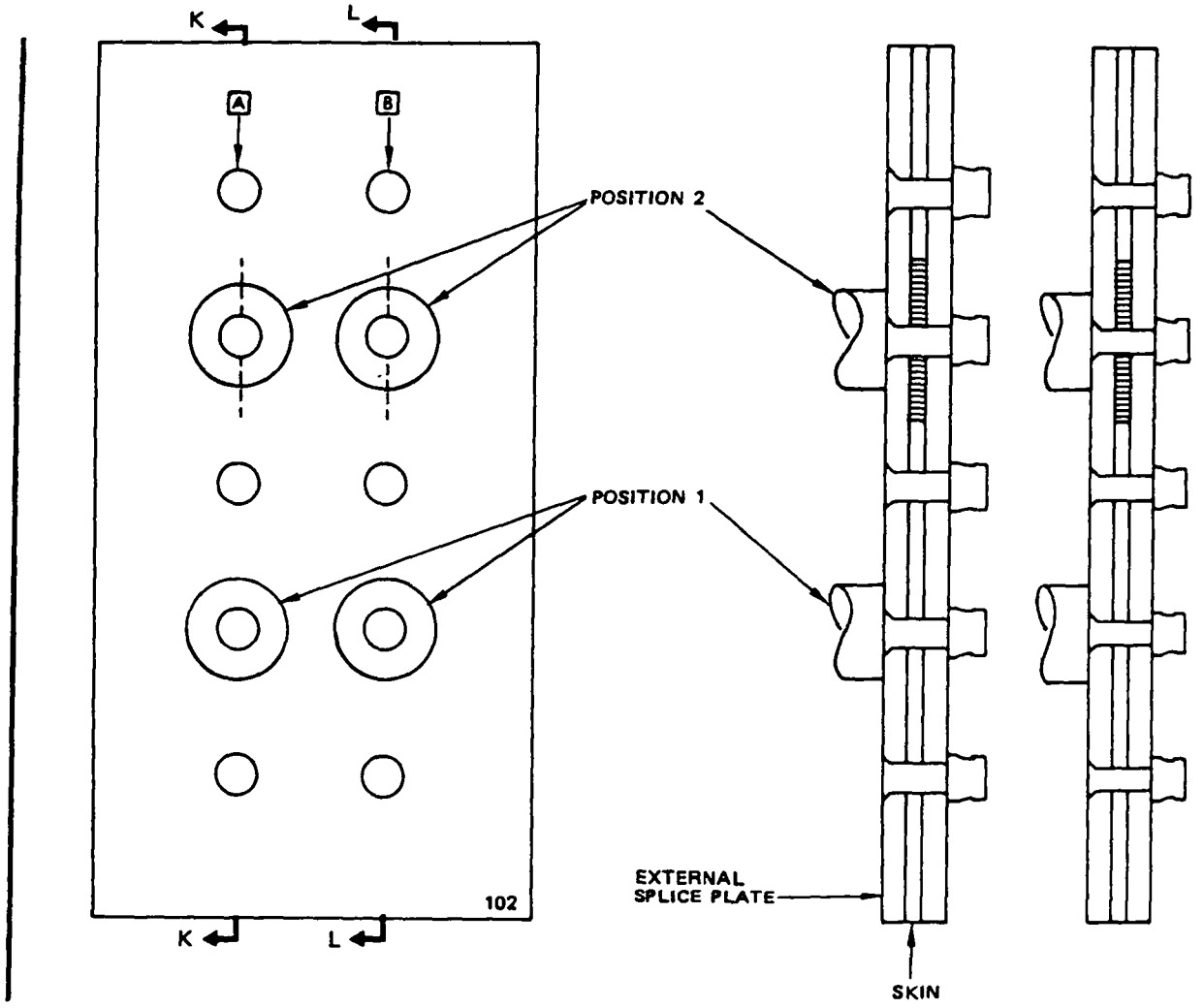
8 BACB30FN10–11 FASTENER; BACC30M10 COLLAR (5 PLACES)

9 BACB30FN8–11 FASTENER; BACC30M8 COLLAR (5 PLACES)

REFERNECE STANDARD 102

DETAIL III

Upper WS 360 Splice, External Doublers
Figure 74 (Sheet 10)



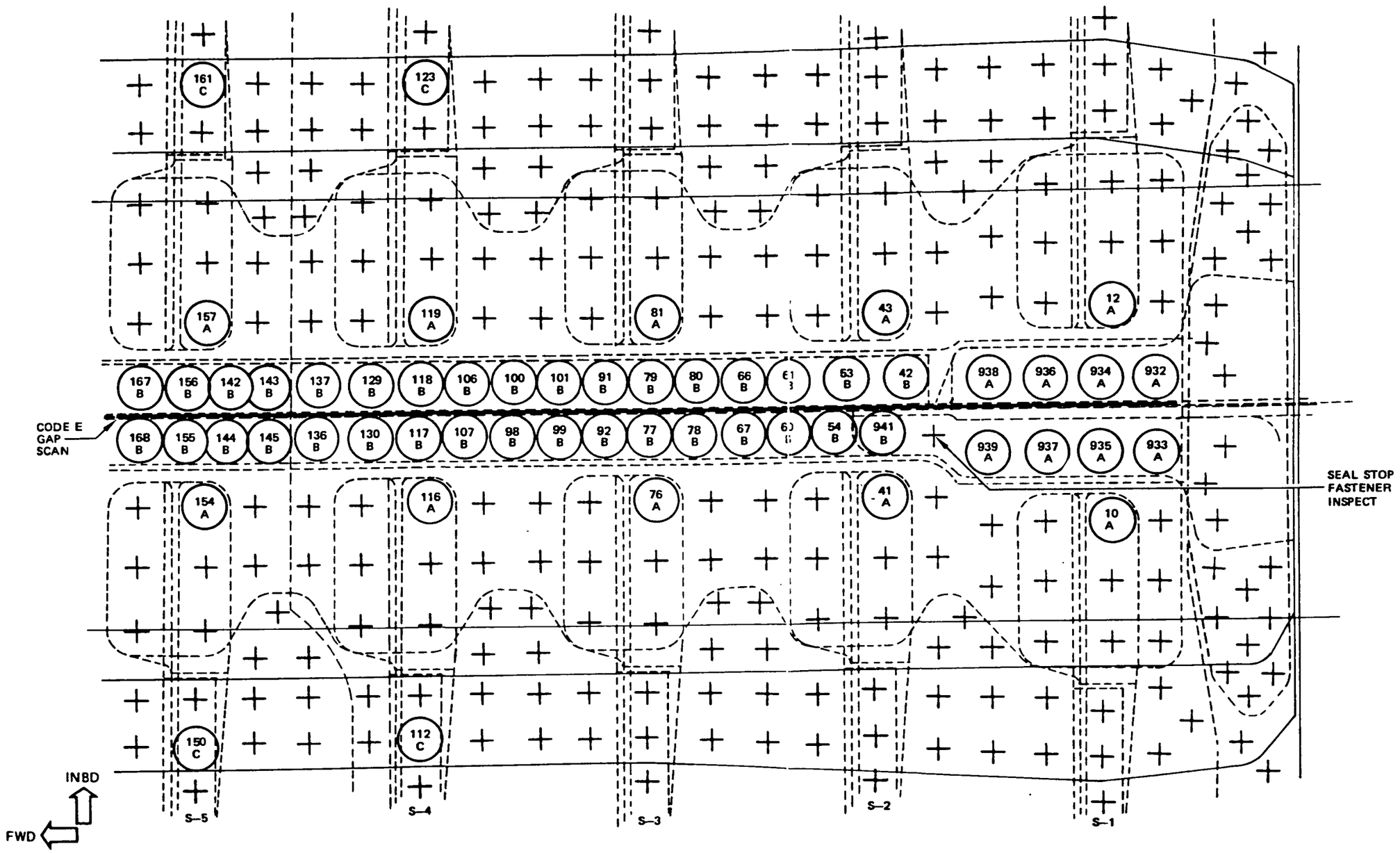
NOTE

A B PROBE CALIBRATION POSITIONS ROWS (SEE CALIBRATION TABLE, TABLE I)

PROBE CALIBRATION POSITIONS ON REFERENCE STANDARD 102

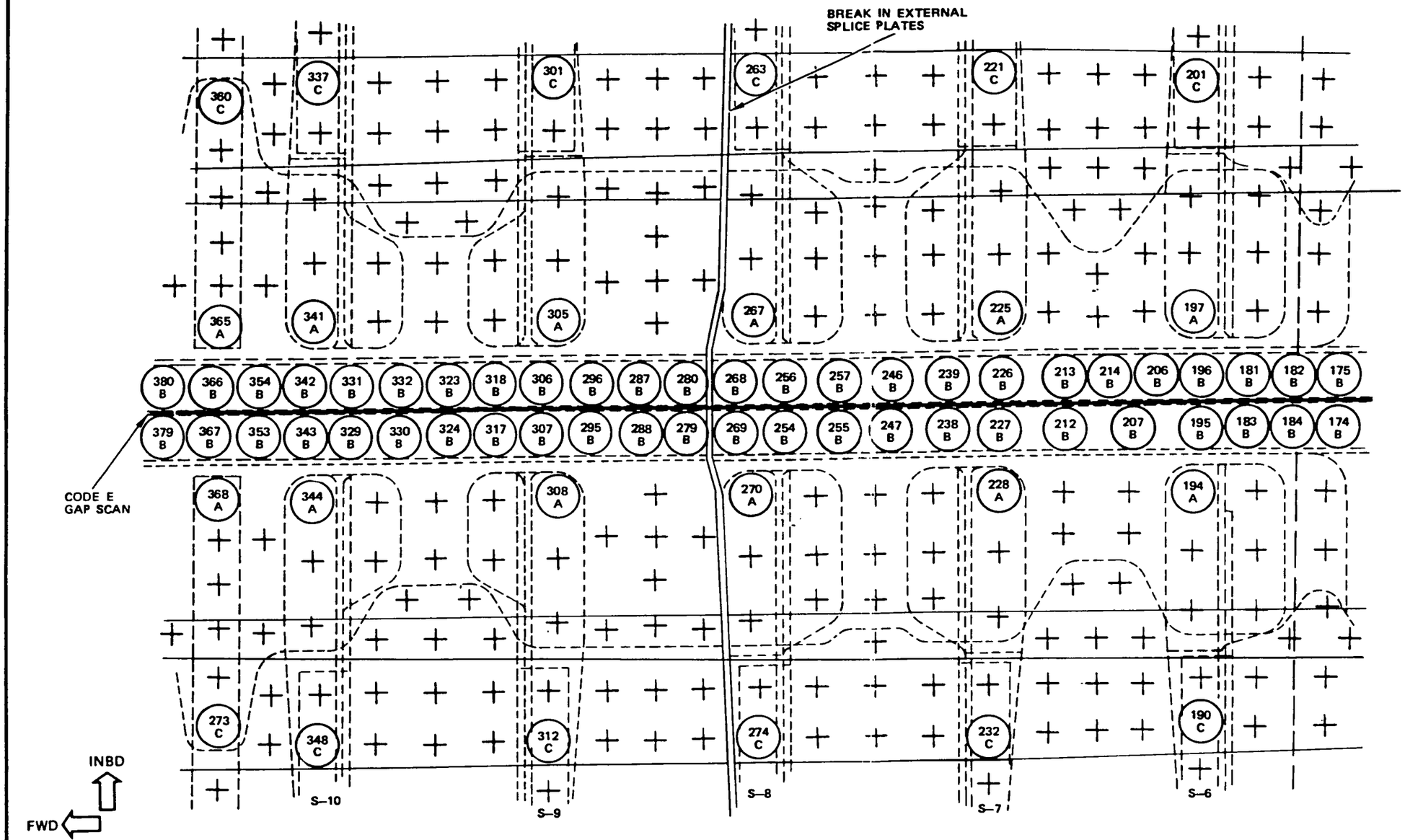
DETAIL IV

Upper WS 360 Splice, External Doublers
Figure 74 (Sheet 11)



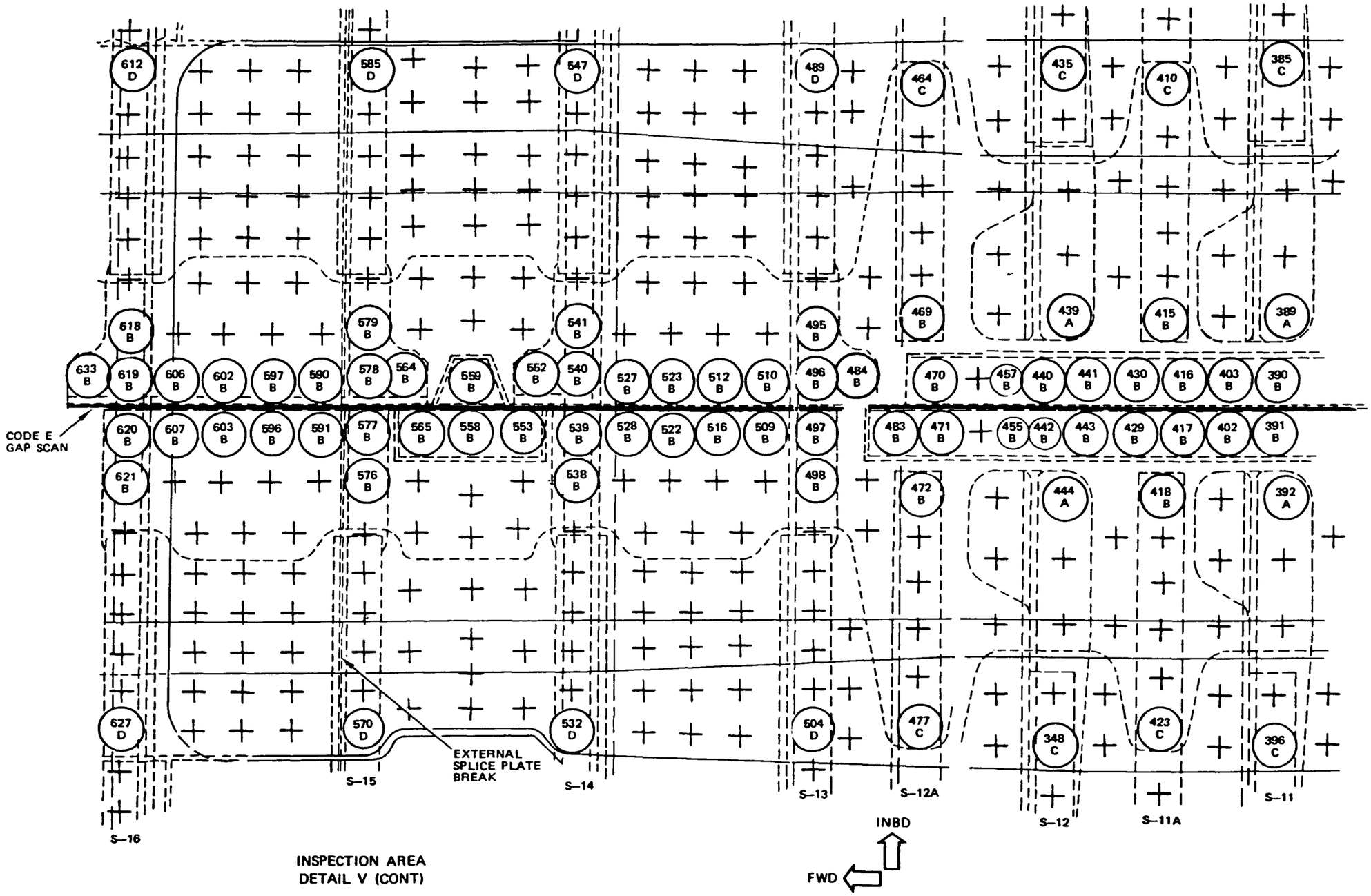
INSPECTION AREA
DETAIL V

Upper WS 360 Splice, External Doublers
Figure 74 (Sheet 12)



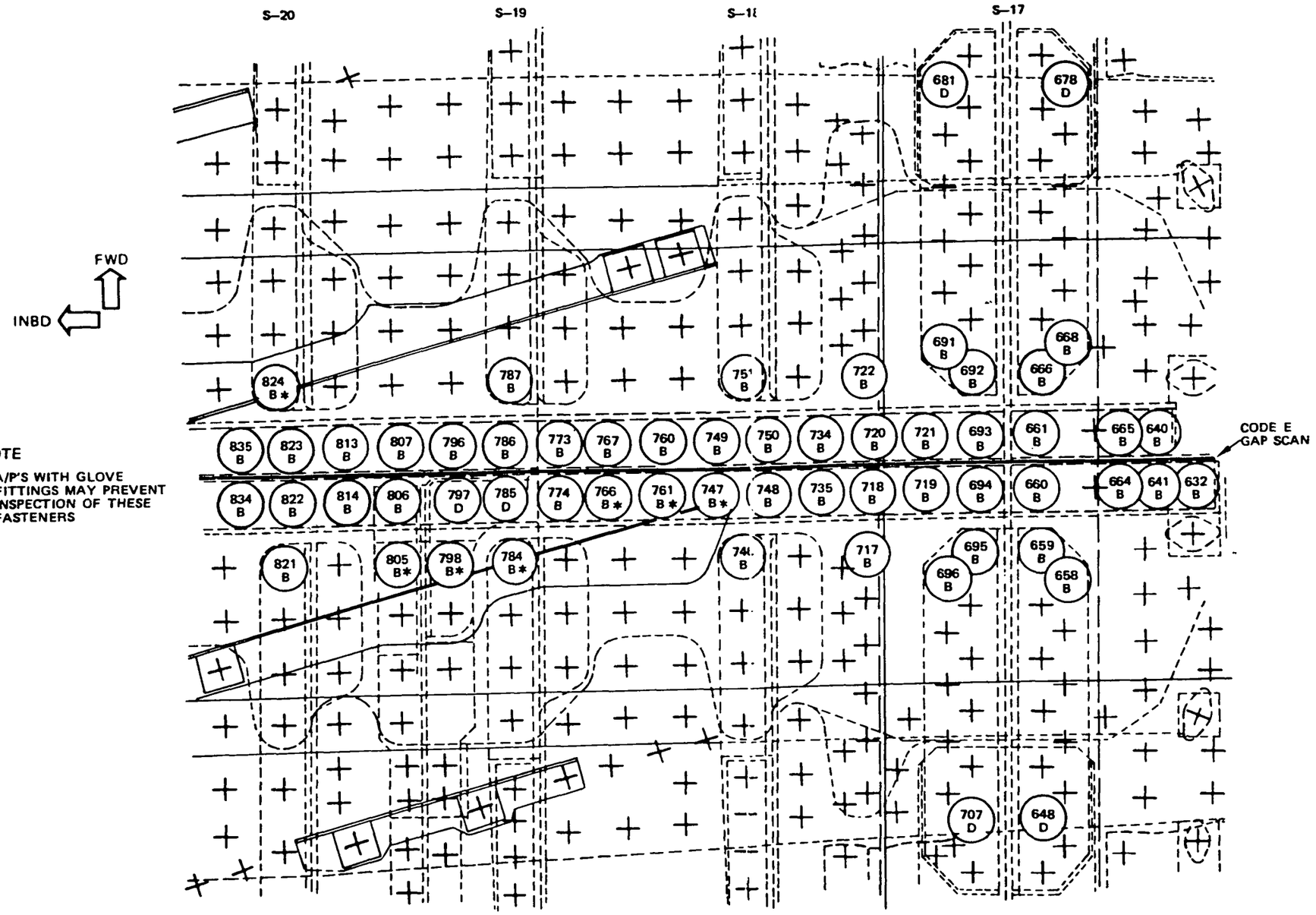
INSPECTION AREA
DETAIL V (CONT)

Upper WS 360 Splice, External Doublers
Figure 74 (Sheet 13)



INSPECTION AREA
DETAIL V (CONT)

Upper WS 360 Splice, External Doublers
Figure 74 (Sheet 14)

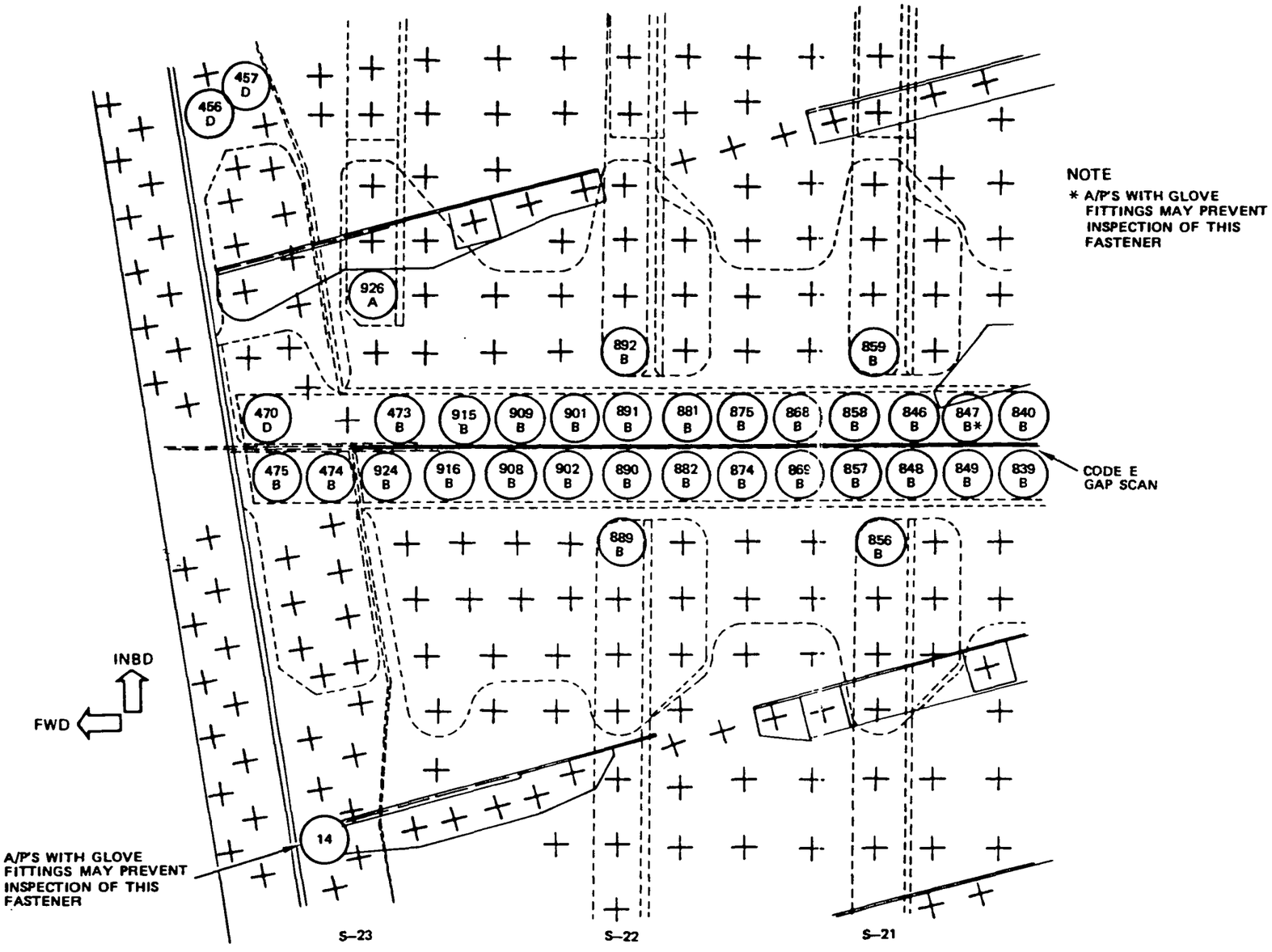


NOTE

* A/P'S WITH GLOVE FITTINGS MAY PREVENT INSPECTION OF THESE FASTENERS

INSPECTION AREA
DETAIL V (CONT)

Upper WS 360 Splice, External Doublers
Figure 74 (Sheet 15)



INSPECTION AREA
DETAIL V (CONT)

Upper WS 360 Splice, External Doublers
Figure 74 (Sheet 16)

PART 6 - EDDY CURRENT
WING - MAIN FRAME

1. Purpose

   A. To perform a high frequency surface eddy current inspection to detect cracks in lower wing stringers 5 and 7. The SSID's examine from WBL 59.24 to WS 470. To do Service Bulletin 707-A3395, examine from WBL 59.24 to WS 733.

   B. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the requirements of this procedure is acceptable. The following was used during the development of this procedure and found suitable.

      (1) ED-520
      Magnaflux Corp
      6800 E. Washington Blvd.
      Los Angeles, CA 90049

   B. Probes - Any 1/8-inch diameter straight shielded pencil probe per Part 6, 51-00-00, Fig. 4. The following was used and found acceptable.

      (1) P/N MP-50
      NDT Products
      P.O. Box 423
      Renton, WA 98057

      (2) P/N VM-200-6
      V.M. Products
      7420 Park Ave. No. 20
      Tacoma, WA 98408

   C. Reference Standard

      (1) Refer to Part 6, 51-00-00, Fig. 4.

Lower Wing Stringers S-5 and S-7 at WS 265 thru 470
Figure 75 (Sheet 1)

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3. Preparation for Inspection

   A. Defuel and Purge Tank

   B. Gain access to stringers 5 and 7 from WBL 59.24 to WS 470 for the SSID inspections and from WBL 59.24 to WS 733 for Service Bulletin 707-A3395.

   C. Remove top internal fairing covering portion of stringers 5 and 7 at approximately WS 440.

   D. Remove sealant as required from the forward and aft side of all fasteners common to the lower flanges of stringers 5 and 7 from WBL 59.24 to WS 470 for the SSID inspections and from WBL 59.24 to WS 733 for Service Bulletin 707-A3395.

4. Calibration

   A. Refer to part 6, 51-00-00, Fig. 4.

5. Inspection Procedure

   A. Scan forward and aft of all fasteners common to the lower flanges of stringers 5 and 7 from WBL 59.24 to WS 470 for the SSID inspections and from WBL 59.24 to WS 733 for Service Bulletin 707-A3395. See Detail I scans 1, 2 and 3.

      NOTE: When it is not possible to place probe between the stringer vertical web and the fastener in the horizontal flange, scan along the vertical leg above the fastener as shown in Detail I, Position 4.

Lower Wing Stringers S-5 and S-7 at WS 265 thru 470
Figure 75 (Sheet 2)

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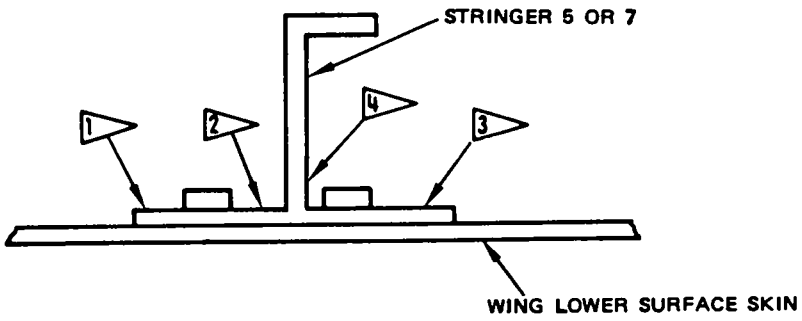


1 SCAN POSITION 1
2 SCAN POSITION 2
3 SCAN POSITION 3
4 SCAN POSITION 4

TYPICAL PROBE POSITIONS
DETAIL I

Lower Wing Stringers S-5 and S-7 at WS 265 thru 470
Figure 75 (Sheet 3)

EFFECTIVITY	
MODEL:	707/720 Modified by S/B 2582 2592, 2496
SERVICE BULLETIN REFERENCE:	2496, 2582, 2592
SSD	57-A05-10B 57-A15-10B 57-A25-10B 57-A35-10B 57-A45-10B

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks under external doublers at specified fastener locations common to the wing lower panel and external splice plates at the WS 360 splice using low-frequency eddy current.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure:

      (1) MIZ-10
      Zetec Inc.
      1320 N.W. Mall
      Issaquah, WA 98027

   B. Probes - This procedure uses one probe. Any probe if similar size (OD) and shielding that will satisfy the requirements of this procedure is acceptable. The following probe was used during the development of this procedure:

      (1) Low-frequency spot probe with 0.55-inch OD shielding and 0.625-inch maximum OD case, usable at 500 Hz, Nortec P/N SPO-1125.

      NOTE: Probe listed above is available from:

      Nortec, Inc.
      421 N. Quay
      Kennewick, WA 99336

      Specify instrument with which probe is to be used or instrument connector required when ordering probes.

   C. Reference Standard - Refer to Table I. Manufacture per Detail listed for a particular airplane model.

Wing Lower Panel WS 360 Splice
Figure 76 (Sheet 1)

3. Preparation for Inspection

A. Refer to Table I for inspection Detail for a particular airplane model.

B. Identify inspection areas on airplane structure.

C. Wipe surface clean.

4. Instrument Calibration

A. General

(1) One basic inspection is required, with adjustments to compensate for variations in structural geometry.

(2) Calibrations and inspections should be performed in alphabetical order.

B. Calibration for inspection code A. Calibrate for fastener hole crack inspection using a spot probe to inspect through two external doublers.

(1) Refer to Table I for reference standard and calibration Details for inspection code A.

(2) Place probe adjacent to the edge of the 0.09-inch upper plate, probe position 1.

(3) Balance instrument per manufacturer's instructions.

(4) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

(5) Keep the probe at position 1 and set meter response at 20% of full scale with meter position control.

(6) Slide probe to the notched location, position 2. Meter response should be upscale.

(7) Adjust instrument sensitivity to obtain a 50% of full scale meter response difference between the notched and unnotched positions.

(8) Recheck null and liftoff. If readjustments are made, recheck sensitivity per par. 4.B.(7).

(9) Cracks will be indicated by a higher meter response.

Wing Lower Panel WS 360 Splice
Figure 76 (Sheet 2)

C. Calibration for inspection code B. Calibrate for fastener hole crack inspection to detect cracks through one external doubler.

(1) Calibrate instrument per par. 4.B.

(2) Place probe adjacent to fastener head, position 3.

(3) Set meter response at 20% of full scale with meter position control only.

(4) Instrument is now calibrated for inspection of code B fasteners.

D. Calibration for inspection code C (720 airplanes only). Calibrate for fastener hole crack inspection using a spot probe to detect surface cracks.

(1) Calibrate instrument per par. 4.B.

(2) Place probe on reference standard, position 4, Detail II.

(3) Set meter response at 20% of full meter scale with meter position control only.

(4) Instrument is now calibrated for code C fasteners.

5. Inspection Procedure

A. Inspection of code A locations

(1) Calibrate instrument according to par. 4.B.

(2) Place probe on external doubler at code A inspection locations. Scan adjacent to inspection fasteners as indicated in the inspection area Detail.

NOTE: Use a probe guide if necessary to maintain a constant edge margin.

(3) Any location that gives a response 30% of full meter scale higher than the established baseline response should be investigated further.

Wing Lower Panel WS 360 Splice
Figure 76 (Sheet 3)

B. Inspection of Code B locations

(1) Calibrate instrument according to par. 4.C.

(2) Place probe adjacent to the fastener head at Code B inspection locations.

(3) Scan adjacent to fastener head to the extent possible, as shown in the inspection area detail.

(4) Any location that gives a response 30% of full meter scale higher than the established baseline response should be investigated further.

C. Inspection of wing skin at Code C locations (720 model only)

(1) Calibrate instrument according to par. 4.D.

(2) Place probe on skin adjacent to inspection fasteners 1118 and 1124 see Detail VI. Scan for approximately 1 inch in both directions.

(3) Any location that gives a response 30% of full meter scale higher than the established baseline response should be investigated further using a high frequency eddy current instrument and a pencil probe per Part 6, 51-00-00, Fig. 4.

AIRPLANE MODEL AND EFFECTIVITY	INSPECTION CODE [1]	REFERENCE STANDARD NO.	PROBE IDENTIFICATION	INSTRUMENT FREQUENCY, HZ	DETAIL NO. FOR CALIBRATION	DETAIL NO. FOR INSPECTION LOCATIONS
100/200	A, B	111	[2]	500	IV	V
300/400	A, B	111	[2]	500	IV	V
720	A, B, C	110	[2]	500	II	VI

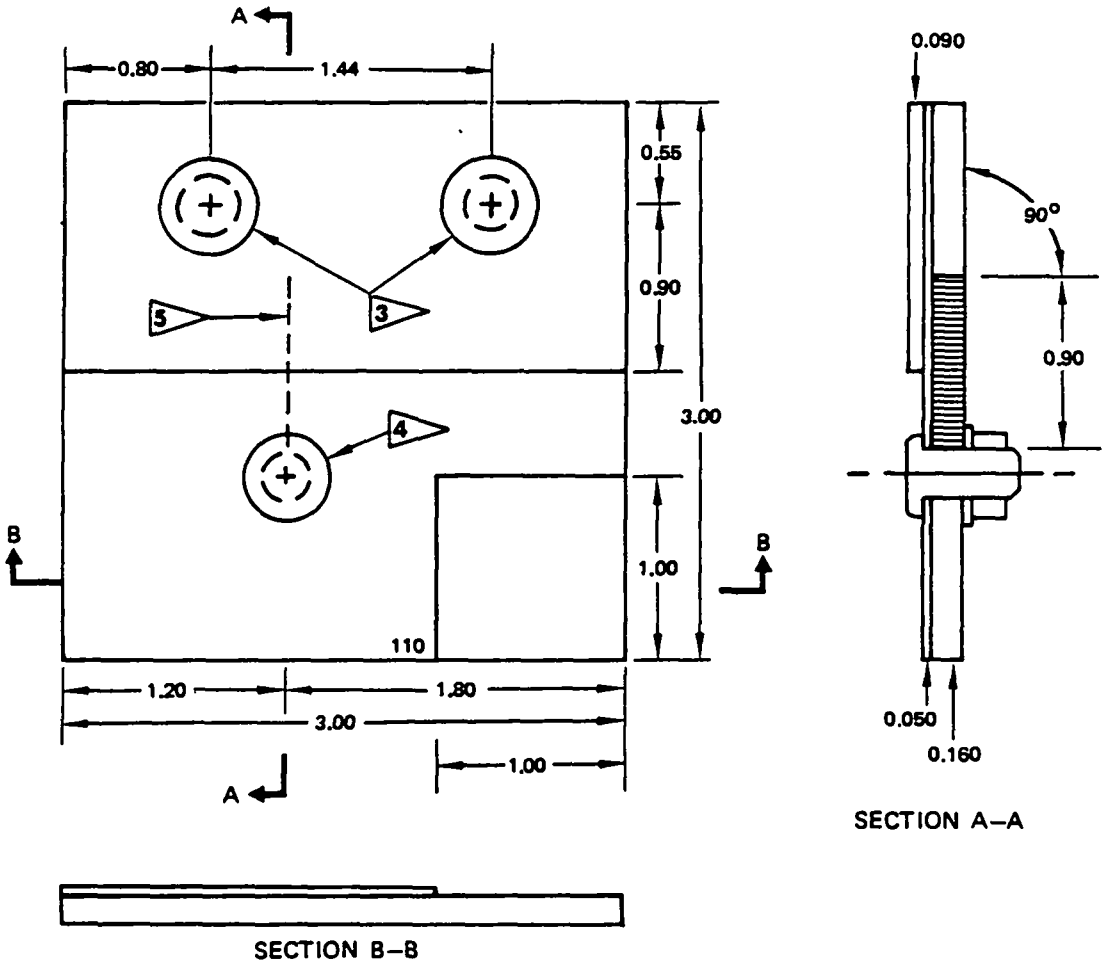
INSTRUMENT COVERAGE AND EFFECTIVITY
TABLE I

NOTES

[1] CODE FOR SPECIFIC INSPECTION AREAS. SEE DETAIL FOR INSPECTION LOCATIONS

[2] PROBE IDENTIFICATION: P/N SPO-1125, 0.55-INCH OD CASE, 0.525-INCH OD SHIELDING SPOT PROBE

Wing Lower Panel WS 360 Splice
Figure 76 (Sheet 4)



SECTION A–A

SECTION B–B

NOTES

- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T3 OR T4 ALUMINUM
- ETCH OR STEEL STAMP WITH 110
- TOLERANCES: HOLE DIMENSIONS; +0.004, –0.000

  OTHER DIMENSIONS X.X ± 0.05
  X.XX ± 0.02
  X.XXX ± 0.005
- P/N 6412–112
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

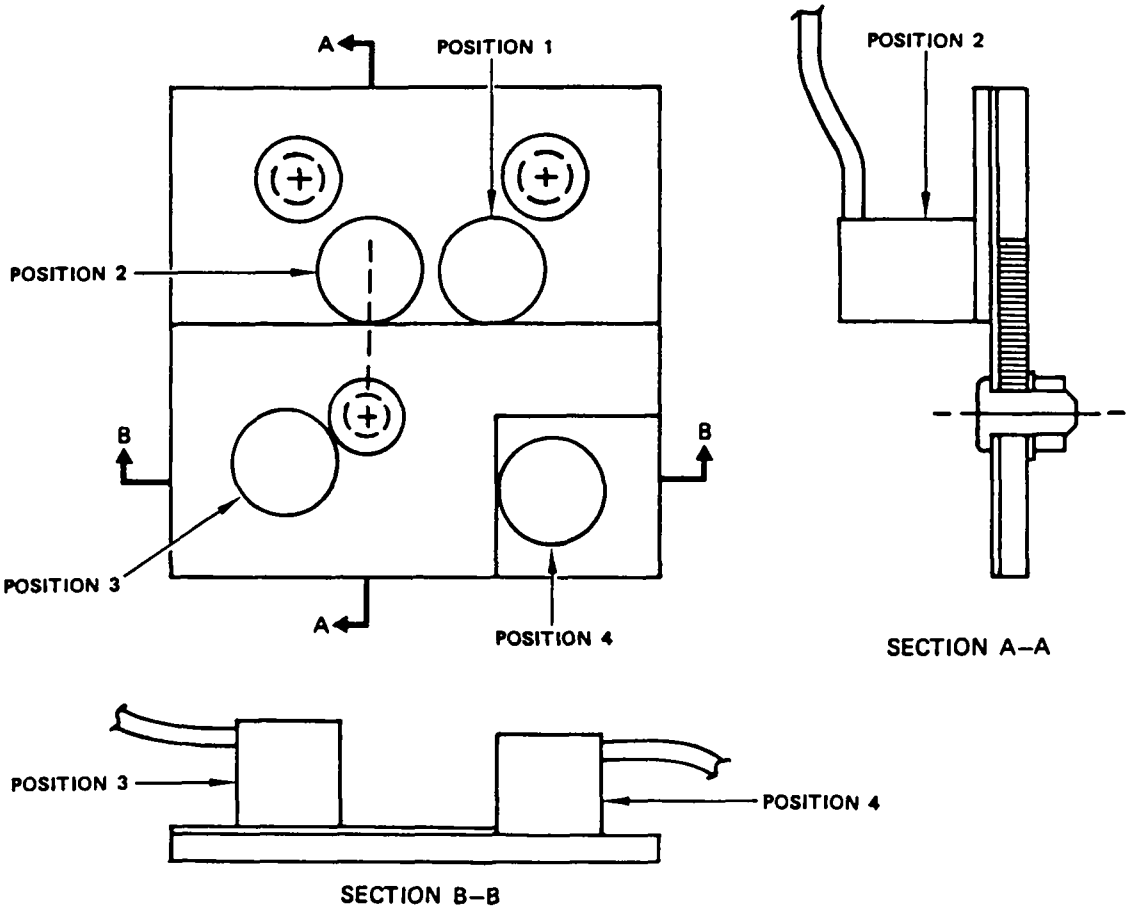
3 BACB30FM10–5 FASTENERS WITH BACC30M10 COLLARS (2 PLACES)

4 BACB30FM8–3 FASTENER, WITH BACC30M8 COLLAR

5 JEWELER'S SAW CUT 0.030 MAX WIDTH

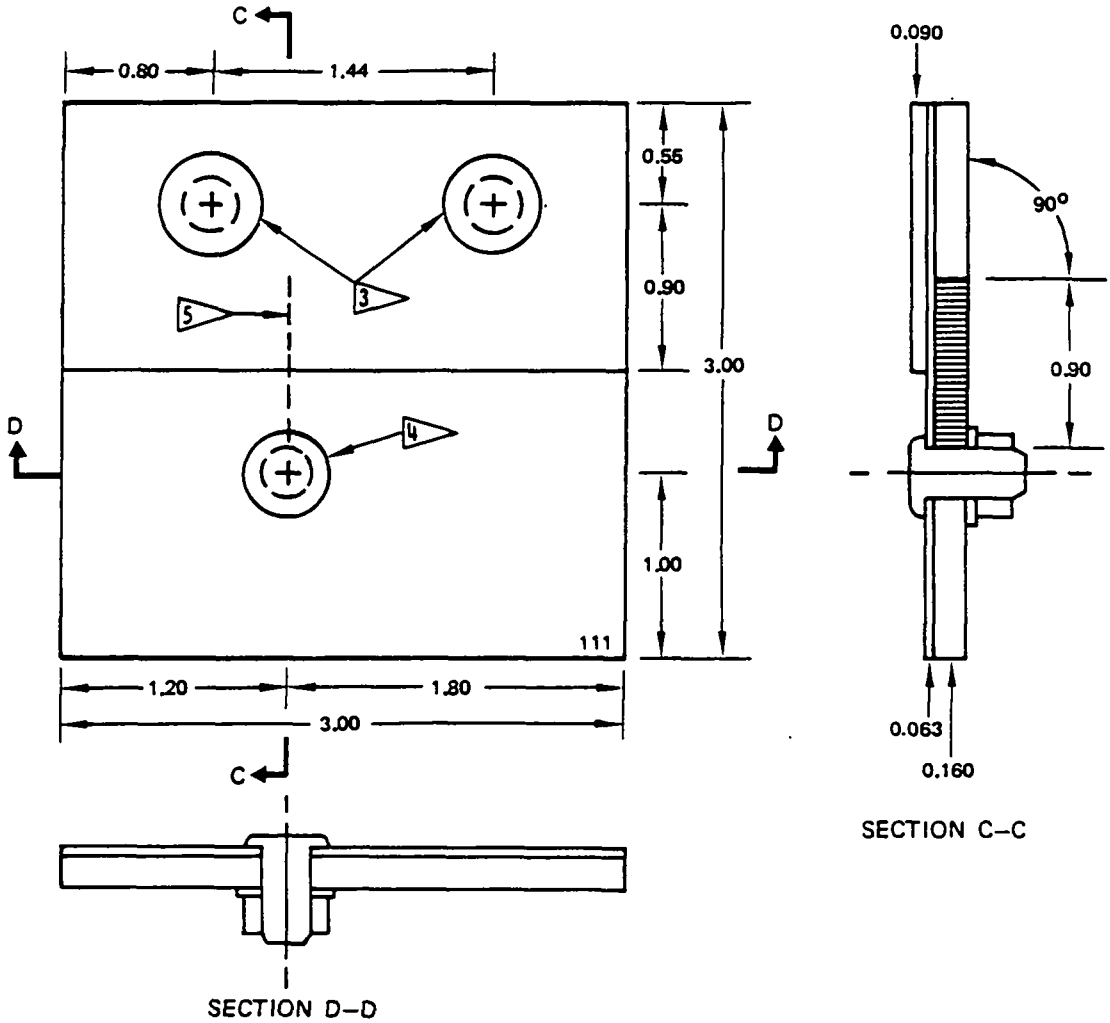
REFERENCE STANDARD 110
DETAIL I

Wing Lower Panel WS 360 Splice
Figure 76 (Sheet 5)



PROBE POSITIONS FOR CALIBRATION ON
REFERENCE STANDARD 110
DETAIL II

Wing Lower Panel WS 360 Splice
Figure 76 (Sheet 6)



NOTES

- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T3 OR T4 ALUMINUM
- ETCH OR STEEL STAMP WITH 111
- TOLERANCES: HOLE DIMENSIONS: +0.004, –0.000

  OTHER DIMENSIONS: X.X ± 0.05
  X.XX ± 0.02
  X.XXX ± 0.005
- P/N 6412–113
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

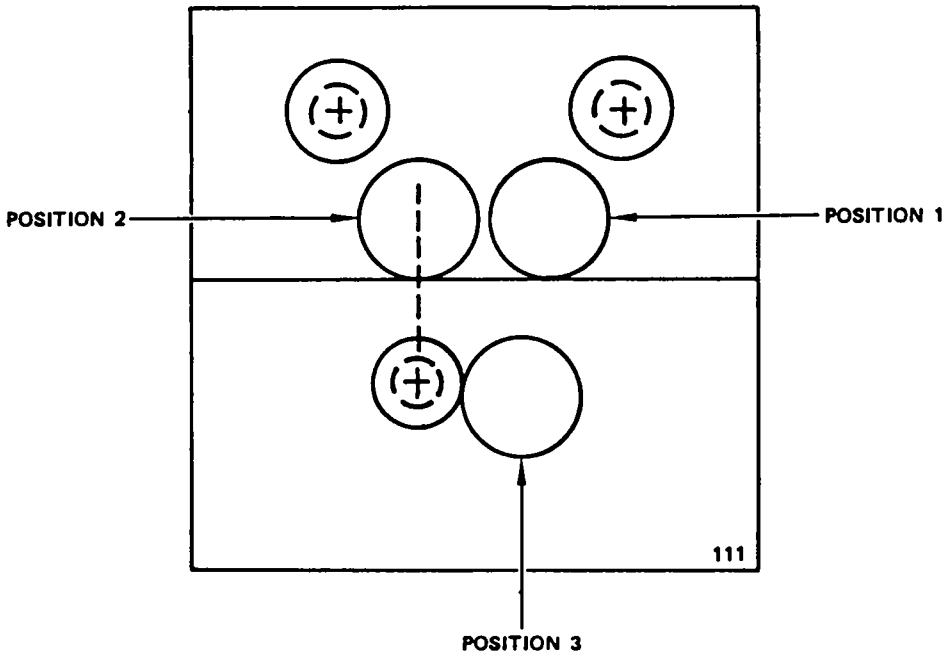
3 BACB30FM10–5 FASTENERS WITH BACC30M10 COLLARS (2 PLACES)

4 BACB30FM8–3 FASTENER, WITH BACC30M8 COLLAR (1 PLACE)

5 JEWELER'S SAW CUT 0.030 MAX WIDTH (1 PLACE)

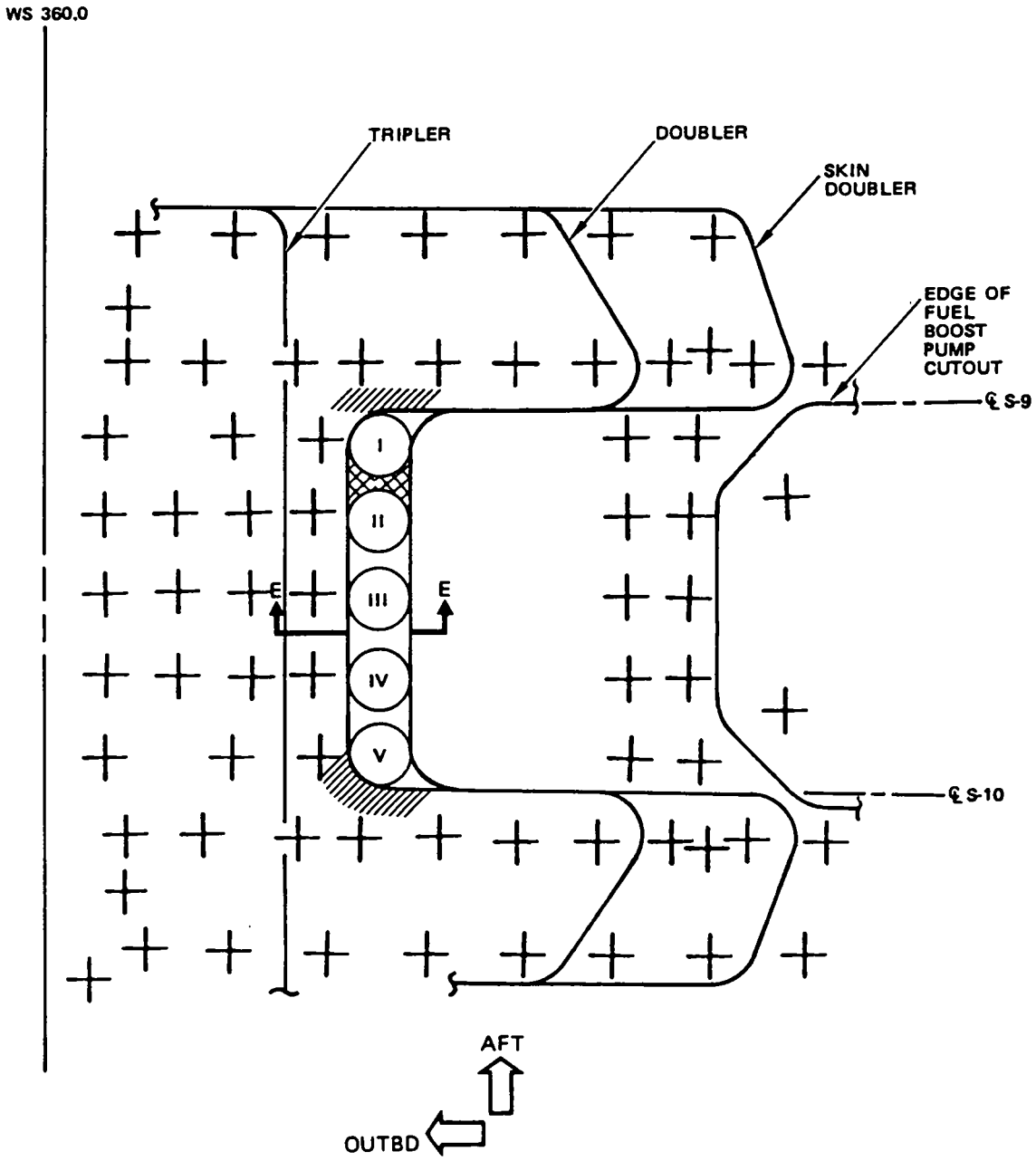
REFERENCE STANDARD 111
WING LOWER PANEL W S 360 SPLICE
DETAIL III

Wing Lower Panel WS 360 Splice
Figure 76 (Sheet 7)



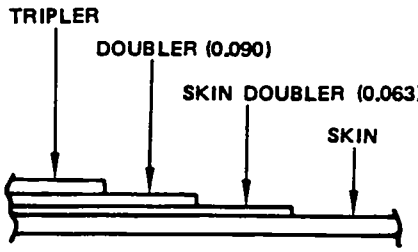
PROBE POSITIONS FOR CALIBRATION
ON REFERENCE STANDARD 111
DETAIL IV

Wing Lower Panel WS 360 Splice
Figure 76 (Sheet 8)



WING LOWER PANEL AT WS 360 SPLICE
DETAIL V

Wing Lower Panel WS 360 Splice
Figure 76 (Sheet 9)



SECTION E–E

FAST SYMB	AIRPLANE MODEL/FASTENER NO.	
	100/200	300/400
I	1329	1236
II	1330	1237
III	1331	1238
IV	1332	1239
V	1333	1240

AIRPLANE MODEL/FASTENER IDENTIFICATION NUMBER

NOTES

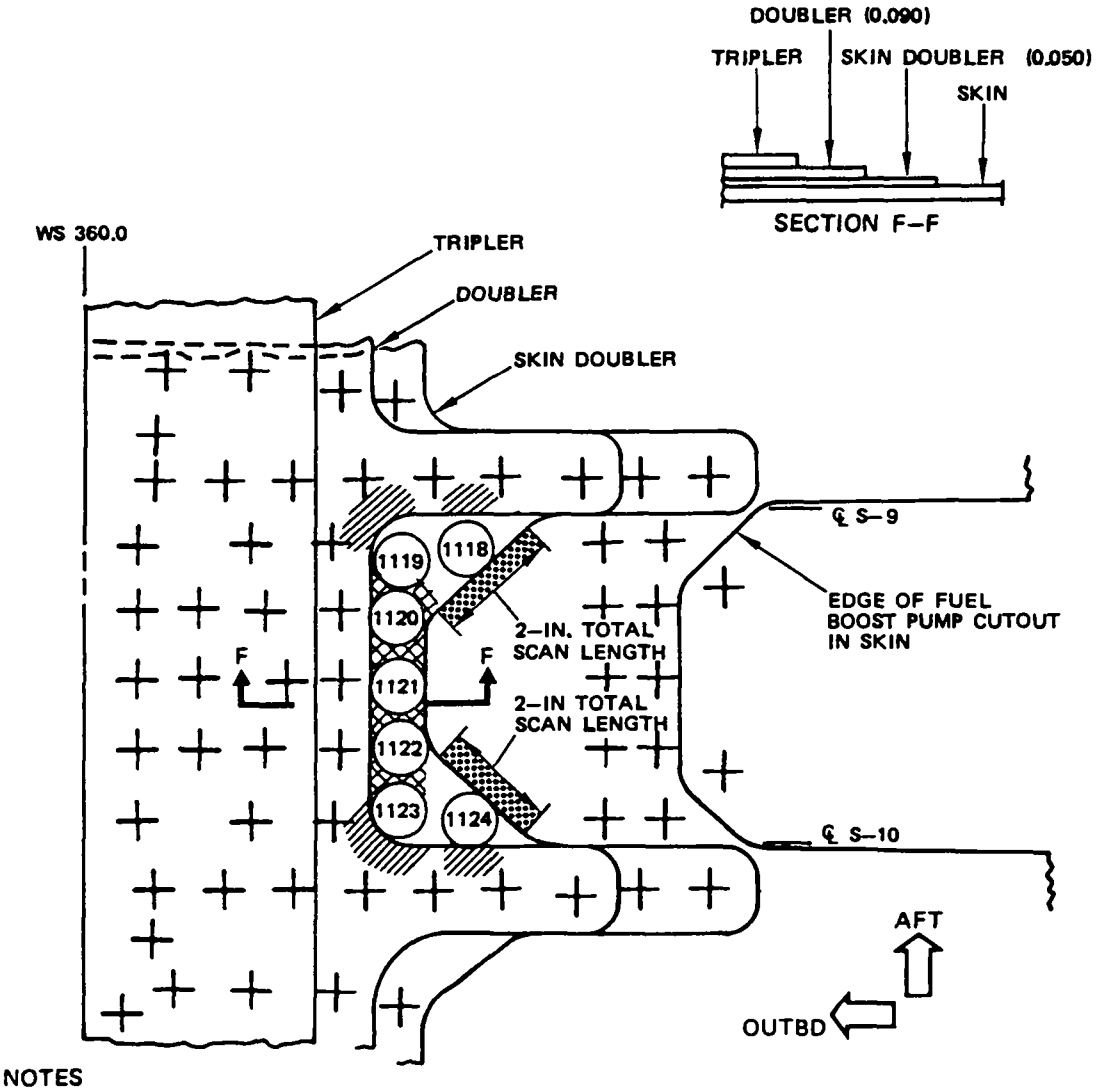
- EFFECTIVITY: 707–100/200, 300/400 AIRPLANES
- LEFT WING SHOWN, RIGHT SING SIMILAR. VIEW FACING UP
- INSPECTION AREAS:

CODE A – PLACE PROBE ON DOUBLER AND SCAN ALONG EDGE ADJACENT TO INSPECTION FASTENERS I AND V

CODE B – PLACE PROBE ON SKIN DOUBLER AND SCAN ADJACENT TO THE FASTENER HEAD TO THE EXTENT POSSIBLE

WING LOWER PANEL AT WS 360 SPLICE
DETAIL V (CONT)

Wing Lower Panel WS 360 Splice
Figure 76 (Sheet 10)



NOTES

- EFFECTIVITY: 720 AIRPLANES
- LEFT WING SHOWN, RIGHT WING SIMILAR. VIEW LOOKING UP
- INSPECTION AREAS:

CODE A – PLACE PROBE ON DOUBLER AND SCAN ALONG EDGE ADJACENT TO INSPECTION FASTENERS

CODE B – PLACE PROBE ON SKIN DOUBLER AND SCAN ADJACENT TO THE FASTENER HEAD TO THE EXTENT POSSIBLE

CODE C – PLACE PROBE ON SKIN AGAINST EDGE OF SKIN DOUBLER – SCAN ADJACENT TO INSPECTION FASTENERS

(1118) FASTENERS TO BE INSPECTED

WING LOWER PANEL AT WS 360 SPLICE
DETAIL VI

Wing Lower Panel WS 360 Splice
Figure 76 (Sheet 11)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks out of fastener holes common to the skin and front spar chord of the wing lower surface dry bay area, WS 501.0 to 520.5.

   B. This inspection is accomplished from outside of the wing without fastener removal and uses low frequency eddy current.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec, Inc.
      1320 N.W. Mall
      Issaquah, WA 98027

   B. Probes - Any probe of similar size which will satisfy the requirements of this procedure is acceptable. The following probe was used in the development of this procedure.

      (1) Ring (encircling) probe with 1.25-inch OD and 0.5 inch ID shielding; 100 Hz, Nortec P/N SPO-783. Probe listed available from:

      Nortec, Inc.
      421 N. Quay
      Kennewick, Wa 99336

      NOTE: Specify instrument with which probe is to be used or instrument connector required when ordering probes.

   C. Reference Standard

      (1) Manufacture per Detail I.

Wing Front Spar Chord Dry Bay-WS 501 to 529.5
Figure 78 (Sheet 1)

3. Preparation for Inspection

A. Identify inspection area from Table I and Detail II or III and wipe skin surface clean.

B. It is suggested that fastener locations requiring the same baseline for inspection be identified on the airplane by a colored circle. Water washable crayons, pencils, or felt pens are suitable. Refer to Table I for Detail number with appropriate fastener pattern and code.

4. Instrument Calibration

A. Fastener Code A

(1) Set Instrument at 300 Hz

(2) Visually center the probe over unnotched reference standard hole, Detail I, position 1.

(3) Balance instrument per manufacturer's instructions.

(4) Adjust liftoff control per manufacturer's instructions to obtain the same meter response with the probe on the bare standard a with the probe lifted off the part .005 to .006 inch. (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over the unnotched reference standard hole during liftoff calibration. Once calibrated the probe may be centered by manipulating to obtain minimum meter response.

(5) Center probe over unnotched reference standard hole, Detail I, Position 1. Adjust the meter response to read 20% of full scale with meter position control.

(6) Center the probe over the notched reference standard hole, Detail I, Position 2. Meter response should be upscale.

(7) Adjust instrument sensitivity to obtain a minimum 60% of full scale meter response difference between the unnotched and the notched reference standard holes.

(8) Recheck the balance and liftoff. If adjustment are made to instrument controls, recheck instrument sensitivity per par. 4.A.(7).

(9) Cracks will be indicated by an upscale meter response.

Wing Front Spar Chord Dry Bay-WS 501 to 529.5
Figure 78 (Sheet 2)

B. Fastener Code B

(1) Calibrate instrument according to par. 4.A.

NOTE: A baseline adjustment of approximately 20% may be required for code B fasteners. Accomplish this adjustment using code B fasteners on the airplane.

C. Fastener Code C

(1) Calibrate instrument according to par. 4.A.

NOTE: A baseline adjustment of approximately 30% may be required for code C fasteners. Accomplish this adjustment using code C fasteners on the airplane.

5. Inspection Procedures

A. Code A Fasteners

(1) Calibrate instrument per par. 4.A.

(2) Identify inspection area from Table I and Detail II or Detail III.

(3) Inspect the forward row of code A fasteners. Select several fasteners in this row to establish a baseline response. If different than standard response use meter position control to set airplane baseline response to 20%.

NOTE: If airplane baseline response is significantly different than calibration standard baseline response, rebalancing of instrument on the airplane may be necessary. This should be accomplished without changing instrument gain.

(4) Inspect forward and aft row of code A fasteners.

NOTE: A baseline response difference may exist between the forward and aft row of code A fasteners. Inspect each row separately if necessary.

(5) Any response which is 40% or greater than the airplane baseline response is a potential crack and requires further investigation.

NOTE: A fastener which is different in countersink depth may cause a response change similar to a crack. Compare with a like fastener of the same code on the airplane or to a standard fastener raised to the same height. If necessary, compare with response from a similar fastener located on the opposite wing of a like airplane model.

Wing Front Spar Chord Dry Bay-WS 501 to 529.5
Figure 78 (Sheet 3)

B. Code B Fasteners

(1) Calibrate instrument according to par. 4.B.

(2) Perform inspection in the same manner as code A fasteners.

NOTE: Code B fasteners have a larger head size and have approximately a 20% increase in baseline response over code A fasteners.

C. Code C Fasteners

(1) Calibrate instrument per par. 4.C.

NOTE: Code C fasteners are larger and have approximately a 30% increase in baseline response over code A fasteners.

EFFECTIVITY	DETAIL
1, 2, 3	II III NO DRY BAY

EFFECTIVITY TABLE
TABLE I

NOTES

1. CUM LINE NOS. 1-6, 13, 18, 19, 20, 21, 22, 23, 24, 25, 28, 29, 32 THRU 35, 37 THRU 40, 43 THRU 49, 54 THRU 62, 64, 65, 68 THRU 71, 73 THRU 76, 78 THRU 84, 86 THRU 94, 96 THRU 108, 110 THRU 129, 133 THRU 139, 144, 145, 151 THRU 155, 159 THRU 164, 167 THRU 171, 175, 176, 192, 200, 201, 205, 209, 216, 217, 227 THRU 229, 264, 266, 268 THRU 272, 274 THRU 277, 280, 282, 283, 286, 287, 291 THRU 294, 296, 299, 301, 305, 306, 308, 309, 311 THRU 313, 315 THRU 318, 320, 323, 326 THRU 336, 341, 344, 346, 349, 350, 353 THRU 360, 362 THRU 373, 376 THRU 379, 383, 385 THRU 389, 391 THRU 400, 403 THRU 409, 411 THRU 413, 415 THRU 419, 421, 424, 425, 428, 430, 431, 434 THRU 440, 443 THRU 445, 447 THRU 453, 455, 458 THRU 460, 462, 463, 465 THRU 469, 471, 472, 475, 480, 483 THRU 489, 492, 494 THRU 498, 500, 502 THRU 505, 507 THRU 511, 513, 515 THRU 519, 521 THRU 525, 527 THRU 532, 534, 536, 537, 540 THRU 544, 546, 548 THRU 561, 563, 564, 566 THRU 570, 572 THRU 574, 576 THRU 578, 580, 581 THRU 585, 587, 588, 590, 592, 594, 596, 598, 599, 601, 603, 605 THRU 614, 616 THRU 620, 623, 625 THRU 675, 677 THRU 681, 683 THRU 689, 691 THRU 694, 696 THRU 705, 707 THRU 730, 733 THRU 741, 743 THRU 750, 752 THRU 786, 788 THRU 800, 802 THRU 823, 825 THRU 828 AND 848

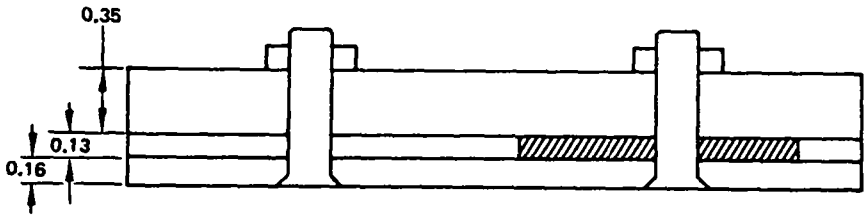
Wing Front Spar Chord Dry Bay-WS 501 to 529.5
Figure 78 (Sheet 4)

NOTES (CONT)

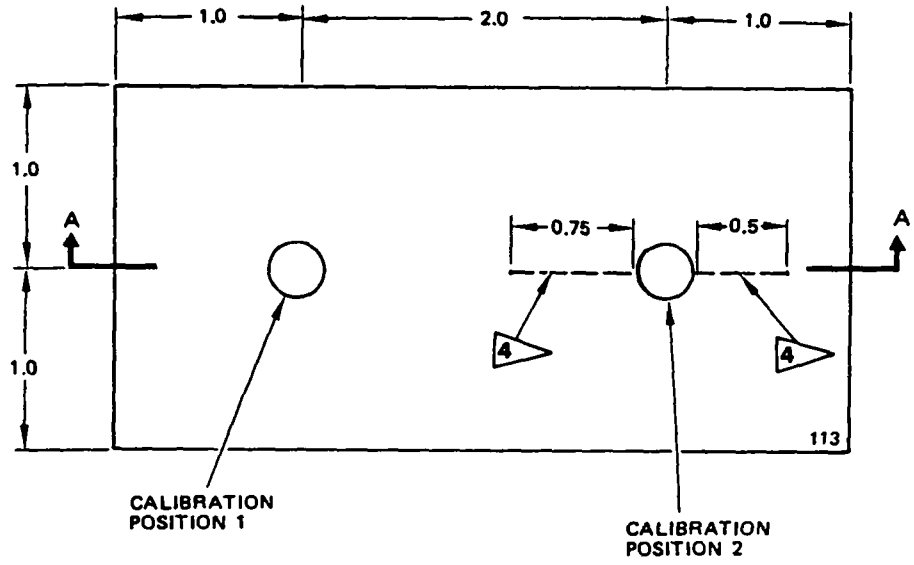
2 ALL AIRPLANES EXCEPT 1 AND 3

3 THERE IS NO DRY BAY AREA AT WS 501 TO 529.5 FOR CUM LINE NOS. 7 THRU 12, 14 THRU 17, 26, 30, 31, 36, 41, 42, 50 THRU 53, 63, 66, 67, 72, 77, 140, 420, 422, 426, 432, 490, 491, 493, 506, 526, 533, 535, 539, 562, 565, 571, 575, 579, 586, 589, 591, 593, 595, 600, 602, 604, 622, 682, 787, 794 AND 801

Wing Front Spar Chord Dry Bay WS 501 to 529.5
Figure 78 (Sheet 5)



SECTION A–A



NOTES

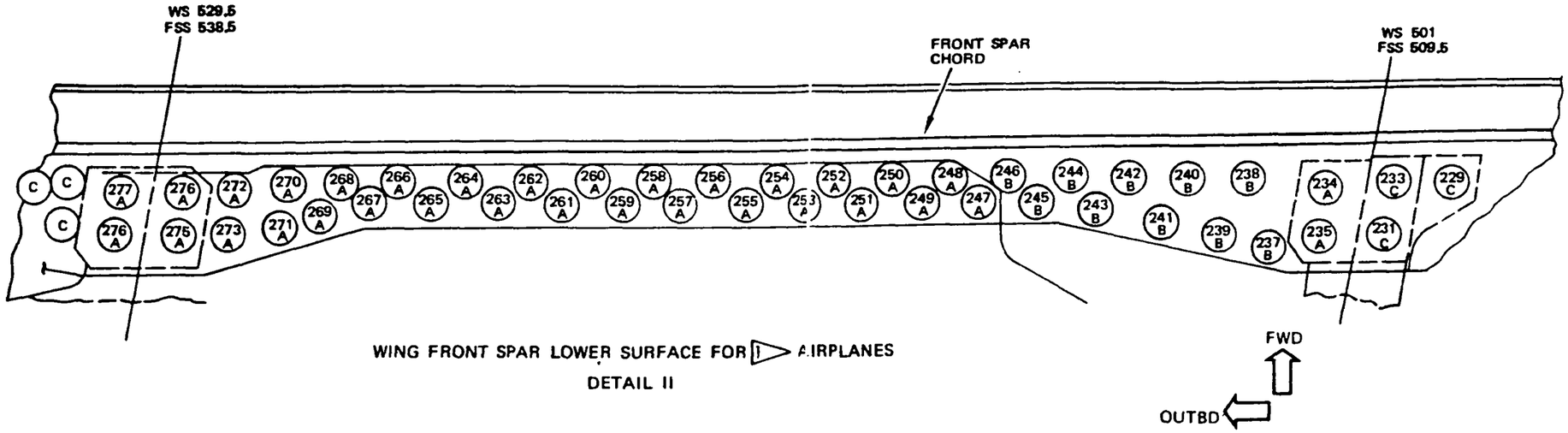
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T4 ALUMINUM
- ETCH OR STEEL STAMP WITH 113
- TOLERANCE: X.X ± 0.05, X.XX ± 0.010
- FASTENERS: BACB30GY8-10 LOCKBOLT
  BACC30K8 COLLAR (2 PLACES)
- P/N 6412–114
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

4 JEWELER'S SAWCUT MAX WIDTH 0.030 (2 PLACES)

REFERENCE STANDARD 113

DETAIL I

Wing Front Spar Chord Dry Bay - WS 501 to 529.5
Figure 78 (Sheet 6)



WING FRONT SPAR LOWER SURFACE FOR (1) AIRPLANES

DETAIL II

WING FRONT SPAR LOWER SURFACE FOR (2) AIRPLANES

DETAIL III

NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- (277 A) FASTENERS TO BE INSPECTED

Wing Front Spar Chord Dry Bay - WS 501 to 529.5
Figure 78 (Sheet 7)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks in the lower front spar chord in dry bay area WS 501 to 529.5 on 720 airplanes using high frequency eddy current.

2. Equipment

   A. Any eddy current instrument that will satisfy the requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) ED 520
      Magnaflux Corp.
      6800 E. Washington Blvd.
      Los Angeles, CA 90049

   B. Probe - 0.125-inch diameter shielded pencil probe per part 1, 51-06-00, Fig. 1

      (1) P/N MP-50
      NDT Products Engineering
      P.O. Box 423
      Renton, WA 98057

      (2) P/N VM-200-6
      VM Products
      7420 Park Ave. No. 20
      Tacoma, WA 98408

   C. Reference Standard per part 6, 51-00-00, Fig. 4.

3. Preparation for Inspection

   A. Inspection A (Internal). See Detail I, Internal Scan Positions 1 and 2.

      (1) Gain access into dry bay between WS 501 and 529.5.

      (2) Identify area of lower front spar chord to be inspected (Detail I).

      (3) Remove sealant from aft edge of chord and the radius formed by junction of chord horizontal and vertical flanges.

Wing Lower Dry Bay Front Spar Chord - WS 501.0 to 529.5
Figure 79 (Sheet 1)

A. Inspection B (External). See Detail I, Scan Position 3.

(1) Gain access to forward side of lower front spar chord.

(2) Remove sealant from radius formed by junction of chord horizontal and vertical flanges.

4. Instrument Calibration

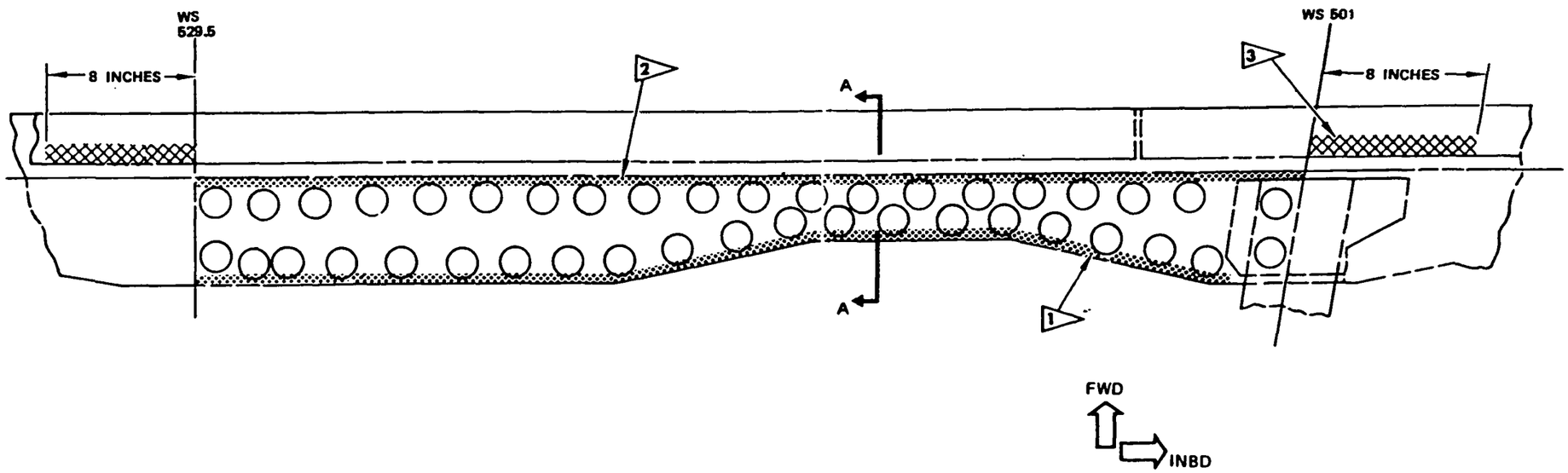
A. Refer to Part 6, 51-00-00, Fig. 4.

5. Inspection Procedure

A. Perform eddy current surface inspection of areas A and B as specified in Detail I.

NOTE: If an obstruction is encountered when scanning for inspection B (forward side of front spar chord), scan around the obstruction keeping probe in contact with the horizontal flange of the front spar chord.

Wing Lower Dry Bay Front Spar Chord - WS 501 to 529.5
Figure 79 (Sheet 2)



NOTES

- THE FOLLOWING AIRPLANES DO NOT HAVE THE WS 501 TO 529.5 DRY BAY. CUM LINE NOS: 120, 143, 149, 150, 156 THRU 158, 165, 166, 173, 174 177, 180, 181, 189, 193 THRU 195, 198, 199, 206, 207, 214, 215 AND 220
- LEFT SIDE SHOWN, RIGHT SIDE SIMILAR

SCAN A INTERNAL

SCAN B EXTERNAL

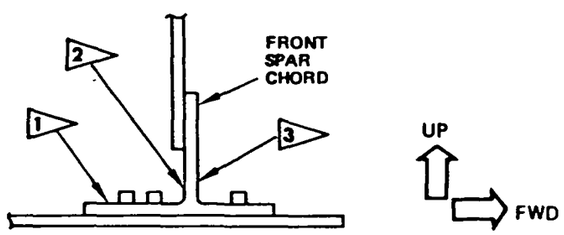
1 SCAN POSITION 1. SCAN INTERNAL AFT EDGE OF LOWER FRONT SPAR CHORD

2 SCAN POSITION 2. SCAN RADIUS FORMED BY HORIZONTAL AND VERTICAL FLANGES OF FRONT SPAR CHORD

3 SCAN POSITION 3. SCAN EXTERNAL RADIUS FORMED BY HORIZONTAL AND VERTICAL FLANGES OF FRONT SPAR CHORD.

INSPECTION AREAS WING FRONT SPAR LOWER CHORD

DETAIL I



SECTION A–A

Wing Lower Dry Bay Front Spar Chord - WS 501.0 to 529.5
Figure 79 (Sheet 3)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks in the lower front spar chord from WS 672 outboard approximately 10 inches.

   B. Inspection is performed from outside of wing.

2. Equipment

   A. Any Eddy Current Instrument that will satisfy the inspection requirements of this inspection procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) ED 520
      Magnaflux Corp.
      6800 E. Washington Blvd.
      Los Angeles, CA 90049

   B. Probes

      (1) 0.125-in. diameter shielded pencil probe per part 1, 51-06-00, Fig. 1

         (a) P/N MP-50
         NDT Product Engineering
         P.O. Box 423
         Renton, WA 98057

         (b) P/N VM-200-6
         VM Products
         7420 Park Ave. No. 20
         Tacoma, WA 98408

   C. Reference standard per part 6, 51-00-00, Fig. 4.

Lower Front Spar Chord Outboard of WS 672
Figure 80 (Sheet 1)

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3. Preparation for Inspection

A. Gain access to forward side of front spar at WS 672.

B. Clean inspection area. See Detail I.

4. Instrument Calibration

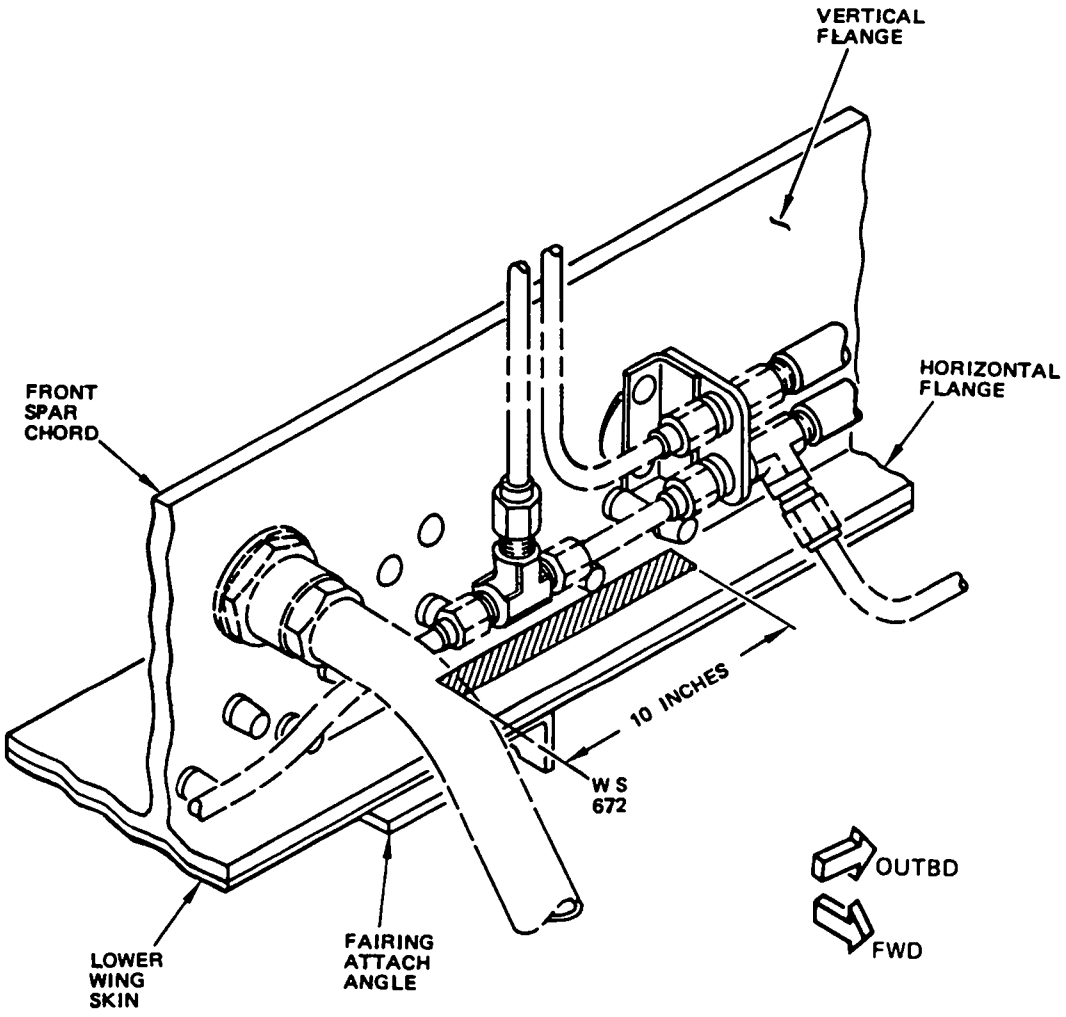
A. Refer to Part 6, 51-00-00, Fig. 4.

5. Inspection Procedure

A. Inspect lower front spar chord horizontal flange per Detail I.

NOTE: If obstructions are encountered, scan probe around obstruction on vertical or horizontal flange of the chord.

Lower Front Spar Chord Outboard of WS 672
Figure 80 (Sheet 2)



NOTE

INSPECTION AREA

FRONT SPAR CHORD

DETAIL I

Lower Front Spar Chord Outboard of WS 672
Figure 80 (Sheet 3)

EFFECTIVITY
MODEL: 720
SSI DOCUMENT (D6-44860)
REFERENCE: SSD 57-A05-23

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks, out of fastener holes common to the skin and front spar chord of the wing lower surface dry bay area from WS 655 to 672. This inspection is accomplished from outside of the wing without fastener removal using low frequency eddy current.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec, Inc.
      1320 N.W. Mall
      Issaquah, WA 98027

   B. Probes - Any probe of similar size which will satisfy the requirements of this procedure is acceptable. The following probe was used in the development of this procedure.

      (1) Ring (encircling) probe with 1.25-inch OD and 0.5 inch ID shielding, 100 Hz, Nortec P/N SPO-783

      NOTE: Above probe available from:

      Nortec, Inc.
      421 N. Quay
      Kennewick, Wa 99336

      Specify instrument with which probe is to be used or instrument connector required when ordering probes.

   C. Reference Standard - Manufacture per Detail I.

Wing Lower Surface Front Spar - WS 655 to 672
Figure 81 (Sheet 1)

3. Preparation for Inspection

A. Identify inspection area from Detail II. Wipe skin surface clean.

B. Mark fastener locations requiring the same baseline for inspection with a colored circle. Water washable crayons, pencils, or felt pens are suitable. See Detail II for fastener code and pattern.

4. Instrument Calibration

A. Set instrument frequency at 100 Hz

B. Visually center the probe over unnotched reference standard hole, Detail I, position 1.

C. Balance instrument per manufacturer's instructions.

D. Adjust liftoff control per manufacturer's instructions to obtain the same meter response with the probe on the bare standard a with the probe lifted off the part .005 to .006 inch. (approximately the thickness of two sheets of paper).

NOTE: The probe is visually centered over the unnotched reference standard hole during liftoff calibration. Once the probe is calibrated for liftoff, center by manipulating to obtain minimum meter response.

E. Center probe over the unnotched reference standard hole, Detail I, Position 1. Adjust the meter response to a 20% of full scale with meter position control.

F. Center the probe over the notched reference standard hole, Detail I, Position 2. Meter response should be upscale.

G. Adjust instrument sensitivity to obtain a minimum 60% of full scale meter response difference between the unnotched and the notched reference standard holes.

H. Recheck the balance and liftoff. If adjustment are made to instrument controls, recheck instrument sensitivity per step 4.G.

I. Cracks will be indicated by an upscale meter response.

Wing Lower Surface Front Spar - WS 655 to 672
Figure 81 (Sheet 2)

5. Inspection Procedures

A. Code A Fasteners

(1) Calibrate instrument per par. 4.

(2) Identify inspection area from Detail II.

(3) Begin inspection with the forward row of of code A fasteners. Select several fasteners in this row to establish a baseline response. If different than reference standard response, use meter position control to set airplane baseline response to 20%.

NOTE: If airplane baseline response is significantly different than calibration reference standard baseline response, rebalancing of instrument may be necessary. This should be accomplished without changing instrument gain.

(4) Inspect forward and aft row of code A fasteners.

NOTE: The aft row of fasteners may have a baseline response which is slightly different from the forward row of fasteners. Inspect each row separately if necessary.

(5) A response which is 40% or greater than the airplane baseline response is a potential crack and requires further investigation.

(6) fastener which is different in countersink depth may cause a response change similar to a crack. Compare with a like fastener of the same code on the airplane or the standard fastener raised to the same height.

NOTE: If necessary, compare response from a similar fastener located on the opposite wing or a like model airplane.

B. Code B Fasteners

(1) Instrument calibration is the same as for code A fasteners.

(2) Inspect the two code B fasteners. Adjust code B fastener baseline response by 30%.

NOTE: Code B fasteners are larger than code A fasteners resulting in about a 30% increase in response over the code A fastener baseline response.

If necessary use code B fasteners in both wings to establish an airplane baseline response.

Wing Lower Surface Front Spar - WS 655 to 672
Figure 81 (Sheet 3)

(3) A response 40% or greater than the baseline response requires further investigation.

C. Code C Fasteners

(1) Instrument Calibration is the same as for Code A fasteners.

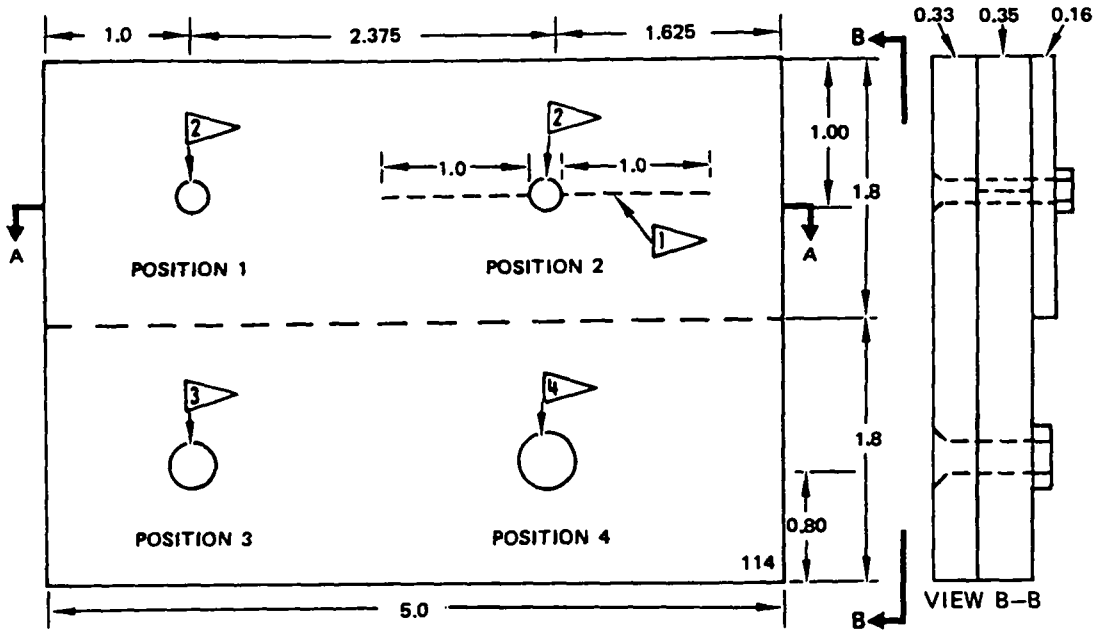
(2) Inspect the Code C fasteners. Adjust Code C fastener baseline response by 40%.

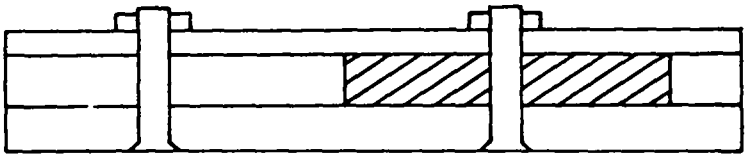
NOTE: The Code C fasteners are larger than Code A fasteners resulting in about a 40% increase in baseline response over the code A fastener baseline.

(3) Compare Code C fasteners in each wing with each other.

(4) A response which is 40% or greater than the baseline response requires further investigation.

Wing Lower Surface Front Spar - WS 655 to 672
Figure 81 (Sheet 3)





SECTION A–A

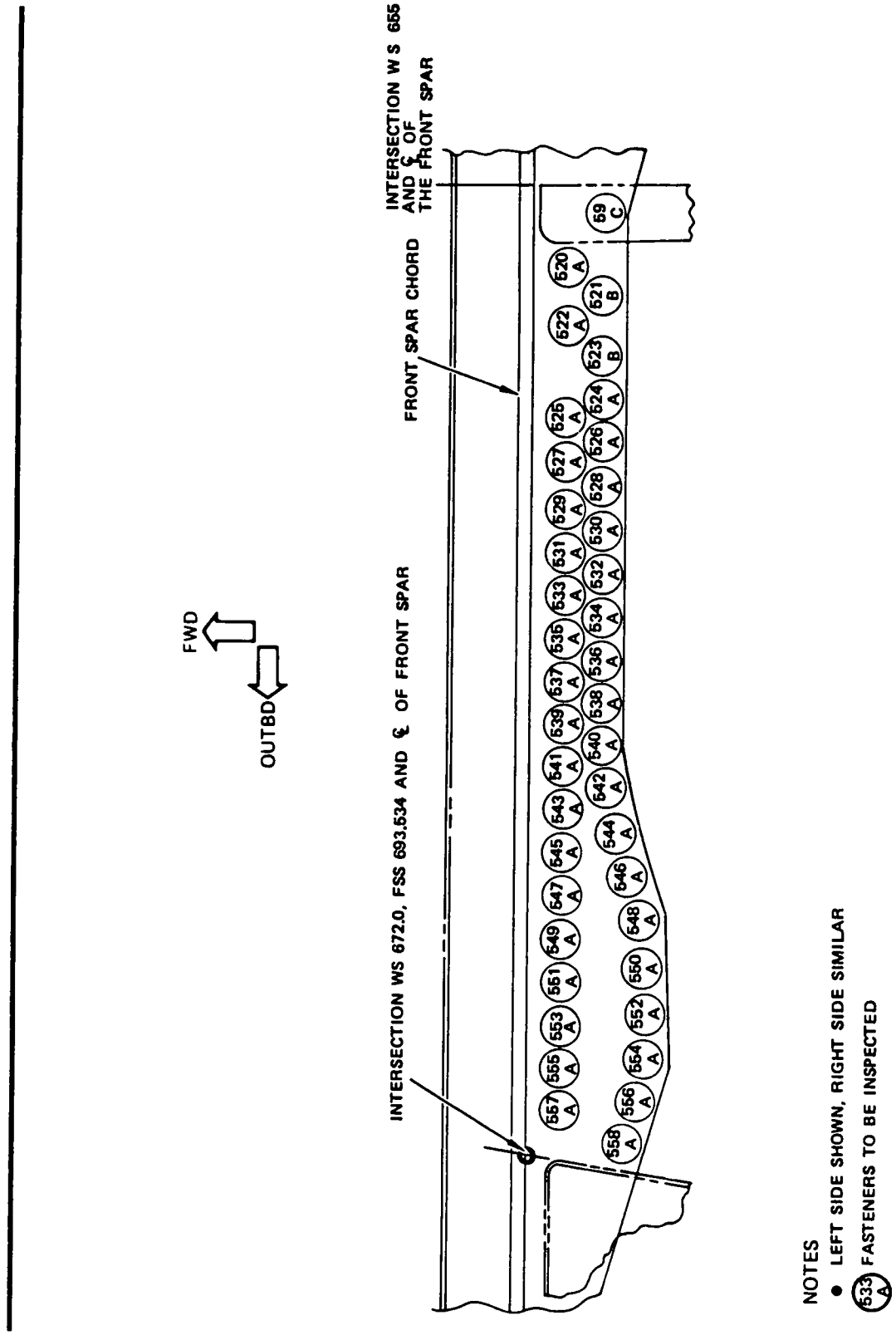
NOTES

- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T4 ALUMINUM
- ETCH OR STEEL STAMP WITH 114
- TOLERANCE: X.X ±0.05 AND X.XX ± 0.010
- P/N 6412–115
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA , OKLAHOMA 74110

1. JEWELER'S SAW CUT 0.030 MAX WIDTH (2 PLACES)
2. BAC30GY6–14 FASTENER
3. BAC30GY8–11 FASTENER
4. BAC30LU4–11 FASTENER

REFERENCE STANDARD 114
DETAIL I

Wing Lower Surface Front Spar - WS 655 to 672
Figure 81 (Sheet 5)



Wing Lower Surface Front Spar - WS 655 to 672
Figure 81 (Sheet 5)

EFFECTIVITY
MODEL: 707 100/200, 300/400
SSI DOCUMENT (D6-44860)
REFERENCE:
SSD 57-A15-23
57-A25-23
57-A35-23
57-A45-23

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks in the lower skin and front spar chord of the wing lower surface dry bay area W.S. 655 to 672. This inspection is accomplished from outside of the wing without fastener removal using low frequency eddy current.

2. Equipment

   A. Instrument - Any eddy current instrument that will satisfy the requirements of this procedure is suitable for this inspection. The following instrument was used during development of this procedure.

      (1) MIZ-10
      Zetec, Inc.
      1320 N.W. Mall
      Issaquah, WA 98027

   B. Probes - Any probe of similar size which will satisfy the requirements of this procedure is acceptable. The following probe was used in the development of this procedure.

      (1) Ring (encircling) probe with 1.25-inch OD and 0.5 inch ID shielding, 100 Hz, Nortec P/N SPO-783

      NOTE: Above probe available from:

      Nortec, Inc.
      421 N. Quay
      Kennewick, Wa 99336

      Specify instrument with which probe is to be used or instrument connector required when ordering probes.

   C. Manufacture Reference Standard per Detail I.

Wing Lower Surface Dry Bay Front Spar - WS 655 to 672
Figure 82 (Sheet 1)

3. Preparation for Inspection

A. Identify inspection area from Detail II or III and wipe skin surface clean.

B. It is suggested that fastener locations requiring the same baseline for inspection be identified on the airplane by a colored circle. Water washable crayons, pencils, or felt pens are suitable. Refer to Detail II or III for appropriate fastener code and pattern.

4. Instrument Calibration

A. Set instrument frequency at 300 Hz.

B. Visually center the probe over unnotched reference standard hole, Detail I, position 1.

C. Balance instrument per manufacturer's instructions.

D. Adjust liftoff control per manufacturer's instructions to obtain the same meter response with the probe on the bare standard as with the probe lifted off the part .005 to .006 inch (approximately the thickness of two sheets of paper).

NOTE: The probe is visually centered over the unnotched Reference Standard hole during liftoff calibration. Once the probe is calibrated for liftoff, centering is accomplished by manipulating to obtain minimum meter response.

E. Center probe over the unnotched Reference Standard hole, Detail I, Position 1. Adjust the meter response to 20% of full scale with meter position control.

F. Center the probe over the notched Reference Standard hole, Detail I, Position 2. Meter response should be upscale.

G. Adjust instrument sensitivity to obtain 60% of full scale meter response difference (minimum) between the unnotched and the notched Reference Standard holes.

H. Recheck the balance and liftoff. If adjustment are made to instrument controls, recheck instrument sensitivity per par. 4.G.

I. Cracks will be indicated by an upscale meter response.

Wing Lower Surface Dry Bay Front Spar - WS 655 to 672
Figure 82 (Sheet 2)

5. Inspection Procedure

A. Code A Fasteners

(1) Calibrate instrument per par. 4.

(2) Identify inspection area from Detail II or III.

(3) Begin inspection with the forward row of of code A fasteners. Select several fasteners in this row to establish a baseline response, use meter position control to set airplane baseline response to 20%.

NOTE: If airplane baseline response is significantly different than calibration Reference Standard baseline response, rebalancing of instrument may be necessary. This should be accomplished without changing instrument gain.

(4) Inspect aft row of code A fasteners.

NOTE: The aft row of fasteners may have a baseline response which is slightly different from the forward row of fasteners. If necessary establish a baseline for the aft row of fasteners.

(5) A response which is 40% or greater than the airplane baseline response is a potential crack and requires further investigation.

NOTE: (1) A fastener which is different in countersink depth may cause a response change similar to a crack. Compare with a like fastener of the same code on the airplane, or the standard fastener raised to the same height.

(2) If necessary, compare response from a similar fastener located on the opposite wing or a like model airplane.

B. Code B Fasteners

(1) Instrument calibration is the same as for code A fasteners.

(2) Inspect the two code B fasteners.

NOTE: (1) Code B fasteners are larger than code A fasteners, resulting in about a 10% increase in response over the code A fastener baseline response. Adjust code B fastener baseline response by 10%.

(2) If necessary use code B fasteners in both wings to establish an airplane baseline response.

(3) A response 40% or greater than the baseline response requires further investigation.

Wing Lower Surface Dry Bay Front Spar - WS 655 to 672
Figure 82 (Sheet 3)

C. Code C Fasteners

(1) Instrument Calibration is the same as for code A fasteners.

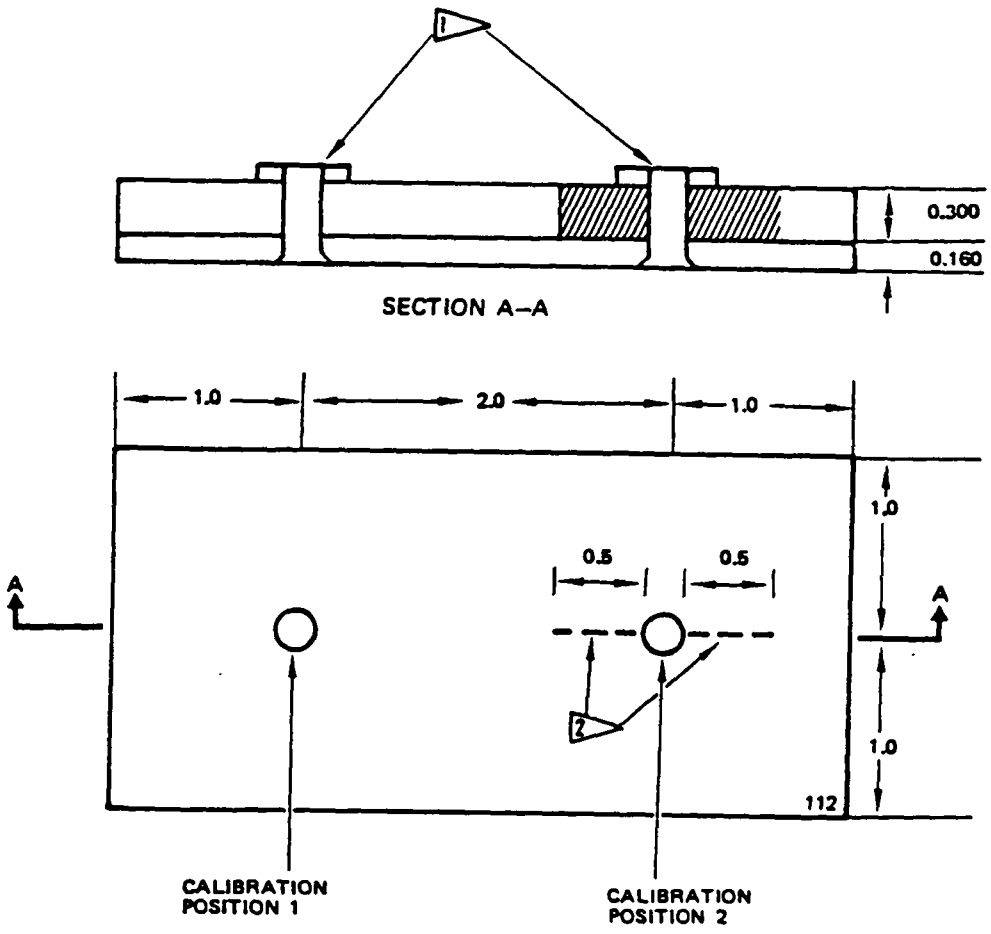
(2) Inspect the code C fasteners.

NOTE: (1) The code C fasteners are larger than code A fasteners resulting in about a 20% increase in baseline response over the code A fastener baseline. Adjust code C fastener baseline response by 20%.

(2) Compare code C fasteners in each wing with each other.

(3) A response which is 40% or greater than the baseline response requires further investigation.

Wing Lower Surface Dry Bay Front Spar - WS 655 to 672
Figure 82 (Sheet 4)



NOTES

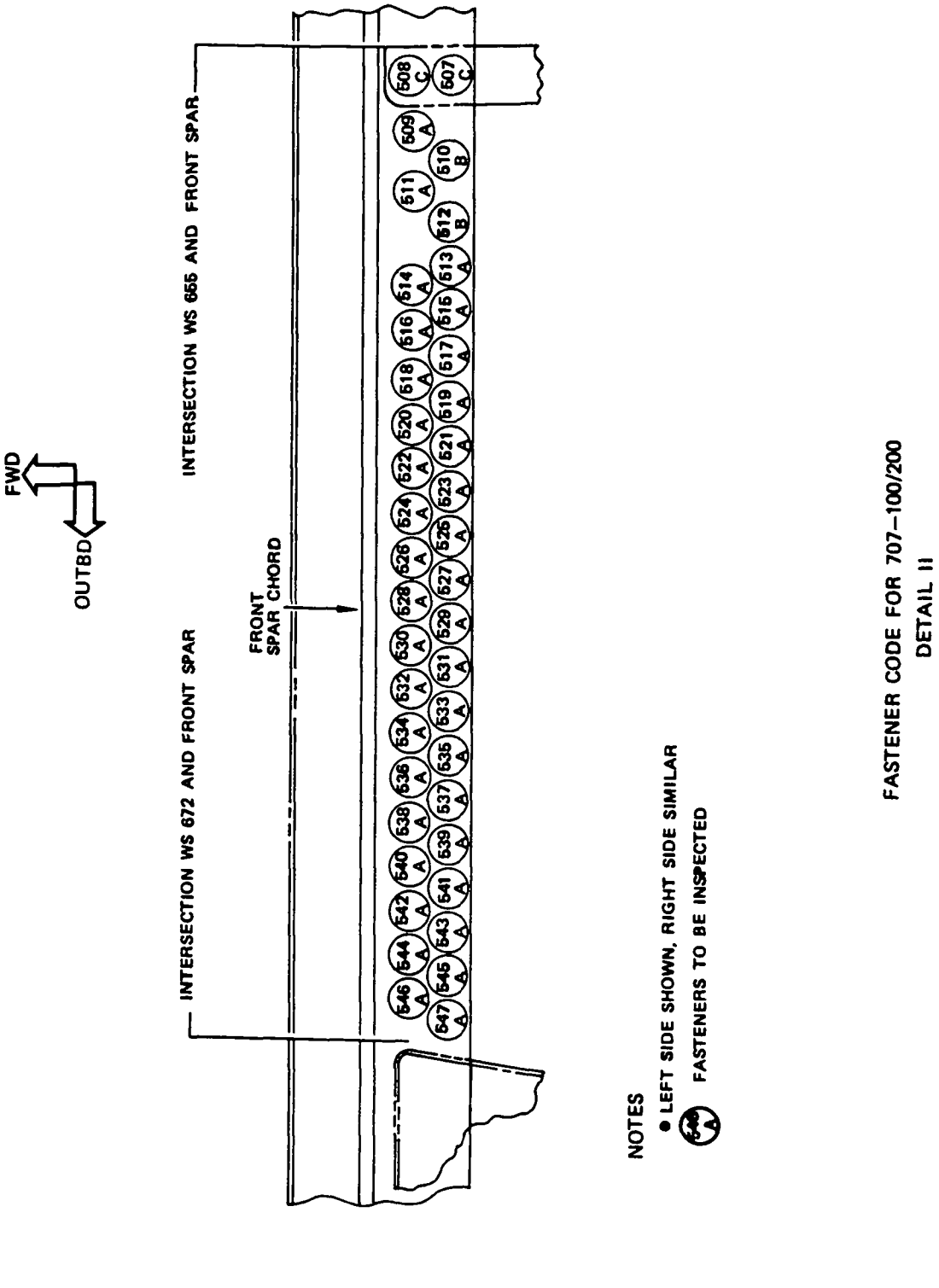
- ALL DIMENSIONS ARE IN INCHES
- ETCH OR STEEL STAMP WITH 112
- TOLERANCE: X.X ± 0.05, X.XX ± 0.02, X.XXX ± 0.010
- MATERIAL: 0.30–INCH THICK 7075–T6 ALUMINUM
  0.16–INCH THICK 2024–T4 ALUMINUM
- P/N 6412–116
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

1 BACB30GY6–7 FASTENERS (2 PLACES)

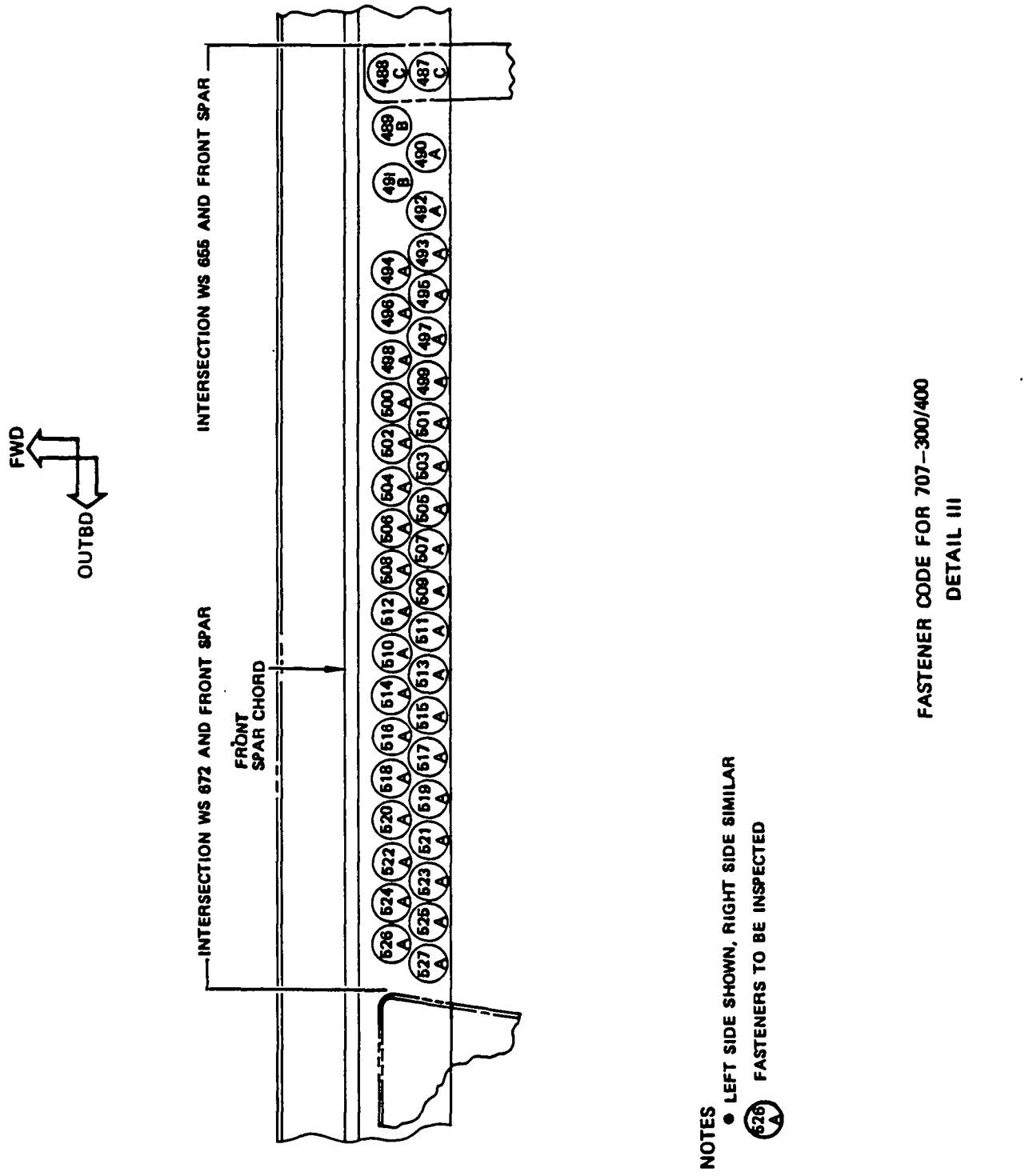
2 JEWELER'S SAW CUT 0.030 MAX WIDTH (2 PLACES)

REFERENCE STANDARD 112
DETAIL I

Wing Lower Surface Dry Bay Front Spar - WS 655 to 672
Figure 82 (Sheet 5)



Wing Lower Surface Dry Bay Front Spar - WS 655 to 672
Figure 82 (Sheet 6)



Wing Lower Surface Dry Bay Front Spar - WS 655 to 672
Figure 82 (Sheet 7)

EFFECTIVITY
MODEL: 707-100/200, 300/400, 300B, 300C
SERVICE BULLETIN REFERENCE: 707-A3395
SSI DOCUMENT (D6-44860) REFERENCE:
SSD: 57-A10-16
57-A20-16
57-A30-16
57-A40-16A
57-A40-16B

PART 6 - EDDY CURRENT

WING - MAIN FRAME

1. Purpose

To detect cracks in the lower wing skin flanges of S-5 and S-7 from WS 265 to WS 470 using low frequency eddy current.

NOTE: For 707-300C cargo configuration airplanes, the inspection is from WBL 59.29 (external rib chord) thru WS 470.

2. Equipment

A. Instrument - Any eddy-current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used for development of this procedure:

(1) P/N MIZ-10, Zetec, Inc. Refer to Part 6, 51-00-00, Fig. 4

B. Probe - This procedure uses one probe; any probe of similar size that will satisfy the performance requirements of this procedure is acceptable. The following probe was used in the development of this procedure:

(1) Ring (encircling) probe with 1.25-inch OD and 0.5-inch ID shielding, 100 Hz, Nortec P/N SPO-783.

NOTE: 1. Refer to Part 1, 51-06-00, par. 7 for information on equipment manufacturers.

2. Specify instrument with which probe is to be used or instrument connector required when ordering probes.

C. Reference Standard - Manufacture Reference Standard per Detail I.

Lower Wing Skin Flanges of S-5 and S-7 from WS 265 to 470
Figure 83 (Sheet 1)

G72509

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3. Preparation for Inspection

A. Externally identify lower wing Stringers 5 and 7 between WS 265 and WS 470 (between the external rib chord at WBL 59.24 and WS 470 on the 707-300C cargo configuration).

B. Wipe skin surface clean.

4. Instrument Calibration

A. Connect probe to instrument

B. Set frequency to 100 Hz.

C. Visually center probe over the unnotched hole of the reference standard, Position 1. See Detail I.

D. Balance instrument per manufacturer's instructions.

E. Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on the bare standard as with the probe lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is accomplished by manipulating the probe to obtain a minimum meter response.

F. Center probe over the unnotched hole and adjust meter response to read 20% of full scale with meter position control.

NOTE: Probe is centered by manipulating to obtain a minimum meter response.

G. Center probe over the notched reference standard hole, Detail I, Position 2. Response should be upscale.

H. Adjust instrument sensitivity to obtain 60% of full scale meter response difference between the notched and unnotched holes.

I. Recheck balance and liftoff. If readjustments are made, recheck sensitivity per par. H.

J. Cracks will be indicated by a higher meter response.

Lower Wing Skin Flanges of S-5 and S-7 from WS 265 to 470
Figure 83 (Sheet 2)

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5. Inspection Procedure

A. Calibrate instrument per par. 4.

B. Identify fasteners for Stringers 5 and 7 between WS 265 and 470 (between the external rib chord at WBL 59.24, and WS 470 on 707-300C cargo configuration). See Detail II.

C. Use several fasteners to establish the airplane baseline response for an acceptable fastener. Set airplane baseline response to 20%.

NOTE: If airplane baseline response is significantly different from calibration standard baseline response, rebalancing of the instrument on the airplane may be necessary. This should be accomplished without changing instrument sensitivity.

D. Inspect each fastener by centering the probe on the fastener and manipulating to obtain a minimum response.

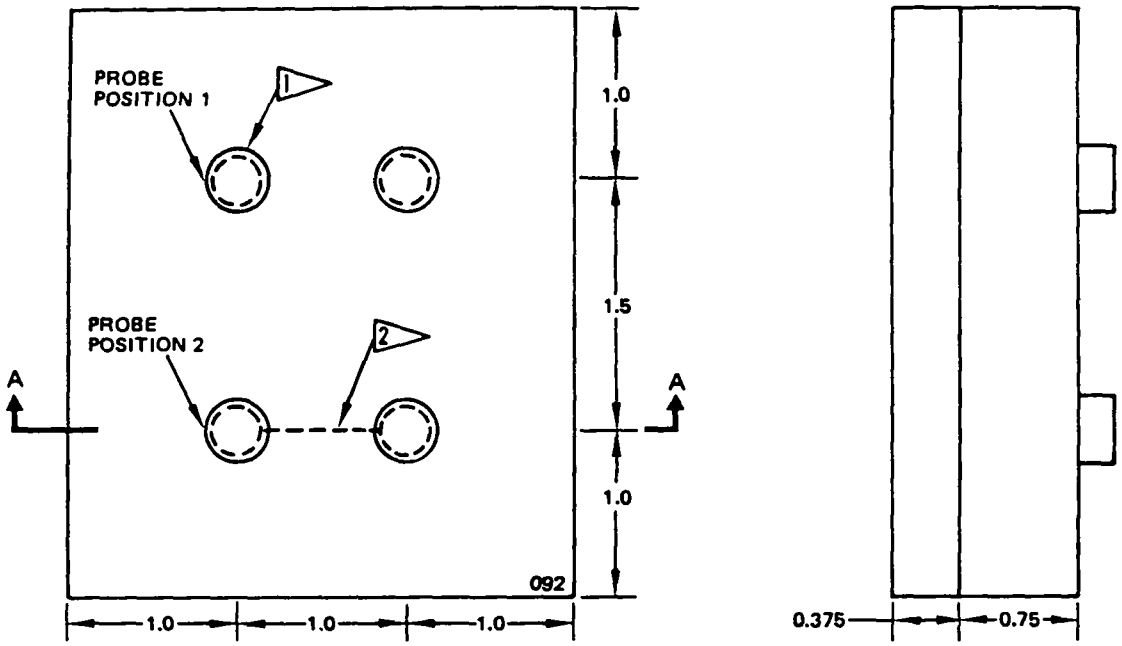
NOTE: Fasteners beneath the inboard nacelle diagonal brace fairing (sailboat fairing) and beneath any external splice plates at WS 360 are inaccessible for inspection by this procedure.

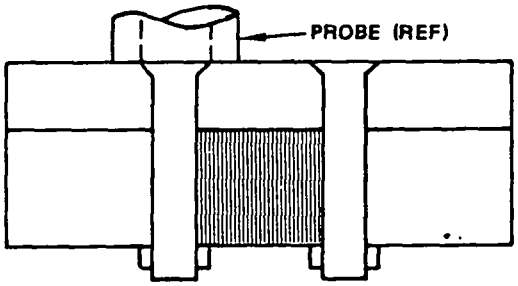
NOTE: For 707-300C cargo configuration airplanes: a baseline response change occurs at last fastener of the inboard stringer flange runout. See Detail III. Reestablish baseline and compare to similar fasteners on other chord and similar fasteners on other wing.

E. Any response which is 40% or greater than the airplane baseline response is a potential crack and requires further investigation.

NOTE: A fastener which is different in countersink depth may cause a response change similar to a crack. Compare with a like fastener on the airplane or to a fastener in the standard raised to the same height.

Lower Wing Skin Flanges of S-5 and S-7 from WS 265 to 470
Figure 83 (Sheet 3)





SECTION A–A

NOTES

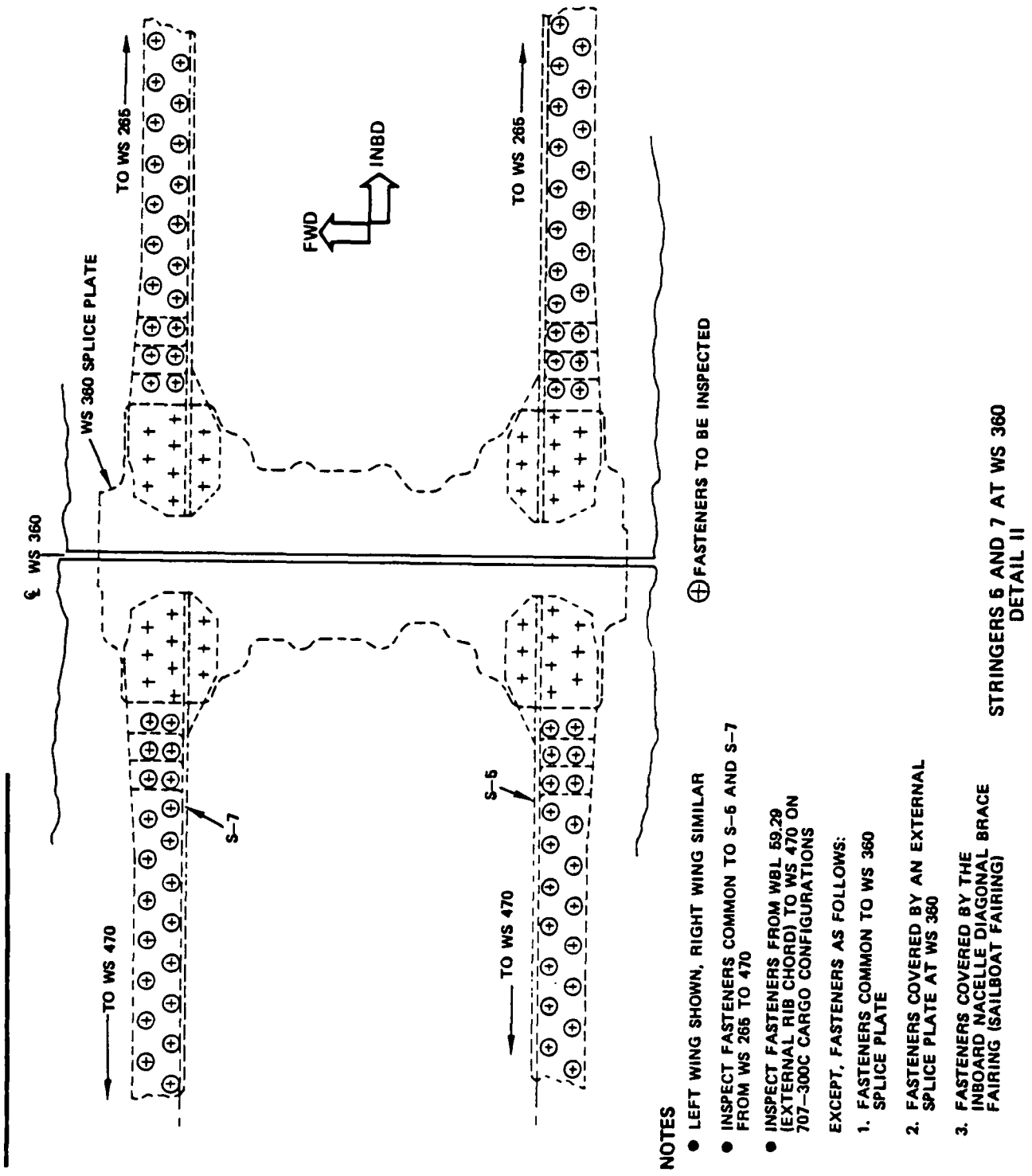
- ALL DIMENSIONS ARE IN INCHES
- TOLERANCE: X.X ± 0.020 X.XX ± 0.010 X.XXX ± 0.005
  HOLE: + 0.004 –0.00; FASTENER FLUSHNESS: $^{+0.010}_{-0.005}$
- MATERIAL: 2024–T4 ALUMINUM
- ETCH OR STEEL STAMP WITH 092
- P/N 6412–90
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

1 BACB30GY8–18 FASTENERS (TYP 4 PLACES) WITH BACC30K8 COLLAR

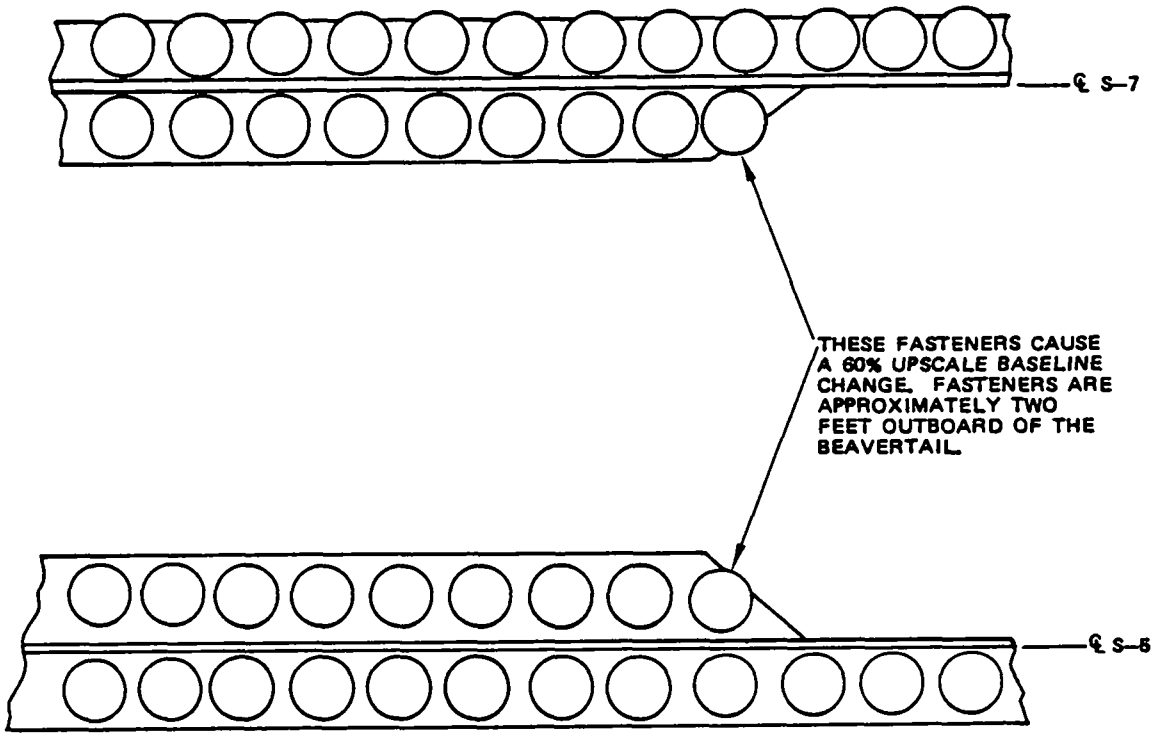
2 JEWELER'S SAWCUT 0.030 MAX WIDTH

REFERENCE STANDARD 092
DETAIL I

Lower Wing Skin Flanges of S-5 and S-7 from WS 265 to 470
Figure 83 (Sheet 4)



Lower Wing Skin Flanges of S-5 and S-7 from WS 265 to 470
Figure 83 (Sheet 5)



707-300C CARGO CONFIGURATION AIRPLANES,
INSPECTION AREA IS FROM WBL 59.29 THRU WS 470
FASTENERS WITH BASELINE CHANGE

DETAIL III

Lower Wing Skin Flanges of S-5 and S-7 from WS 265 to 470
Figure 83 (Sheet 6)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

To detect cracks around the periphery of the access door cutout and to detect cracks out of fastener holes common to the wing lower panel and front spar lower chord aft horizontal flange from WS 360 to 387 using high frequency eddy current.

2. Equipment

A. Instrument - Refer to part 6, 51-00-00, Fig. 4.

B. Probes - Any probe satisfying the requirements of this procedure is acceptable. The following probe was used during the development of this procedure and found acceptable:

P/N: M-P 905-50
NDT Product Engineering
P.O. Box 423
Renton, WA 98057

C. Reference Standard - Refer to Part 6, 51-00-00. Fig. 4.

3. Preparation for Inspection.

A. Gain access to the dry bay cavity through the access door located forward of the wing tank at WS 375.

B. Remove sealant from internal scan locations as necessary to perform inspections. See Detail III.

C. Wipe surfaces clean.

4. Calibrate Instrument

Calibrate per Part 6, 51-00-00, Fig. 4.

5. Inspection Procedure

A. External

(1) Place pencil probe on skin at access door cutout. Scan entire periphery per Part 6, 51-00-00, Fig. 4. See Detail I.

(2) Place pencil probe on skin adjacent to heads of fasteners common to skin and front spar chord. Scan around fastener heads from WS 360 to WS 387 per Part 6, 51-00-00, Fig. 6. See Detail II.

Wing Front Spar Chord and Dry Bay WS 360 to 387
Figure 84 (Sheet 1)

B. Internal

(1) Remove sealant as necessary to perform inspection. See Detail III.

(2) Place pencil probe on aft edge of front spar chord horizontal flange. Scan from wing Sta. 360 outboard to WS 387 per Part 6, 51-00-00, Fig. 4.

(3) Place pencil probe in fillet on aft side of front spar chord vertical flange where vertical flange joins horizontal flange. Scan from WS 360 outboard to WS 387 per part 6, 51-00-00, Fig. 4.

(4) Where fillet on aft side of chord vertical flange is inaccessible, externally scan fillet on forward side of chord.

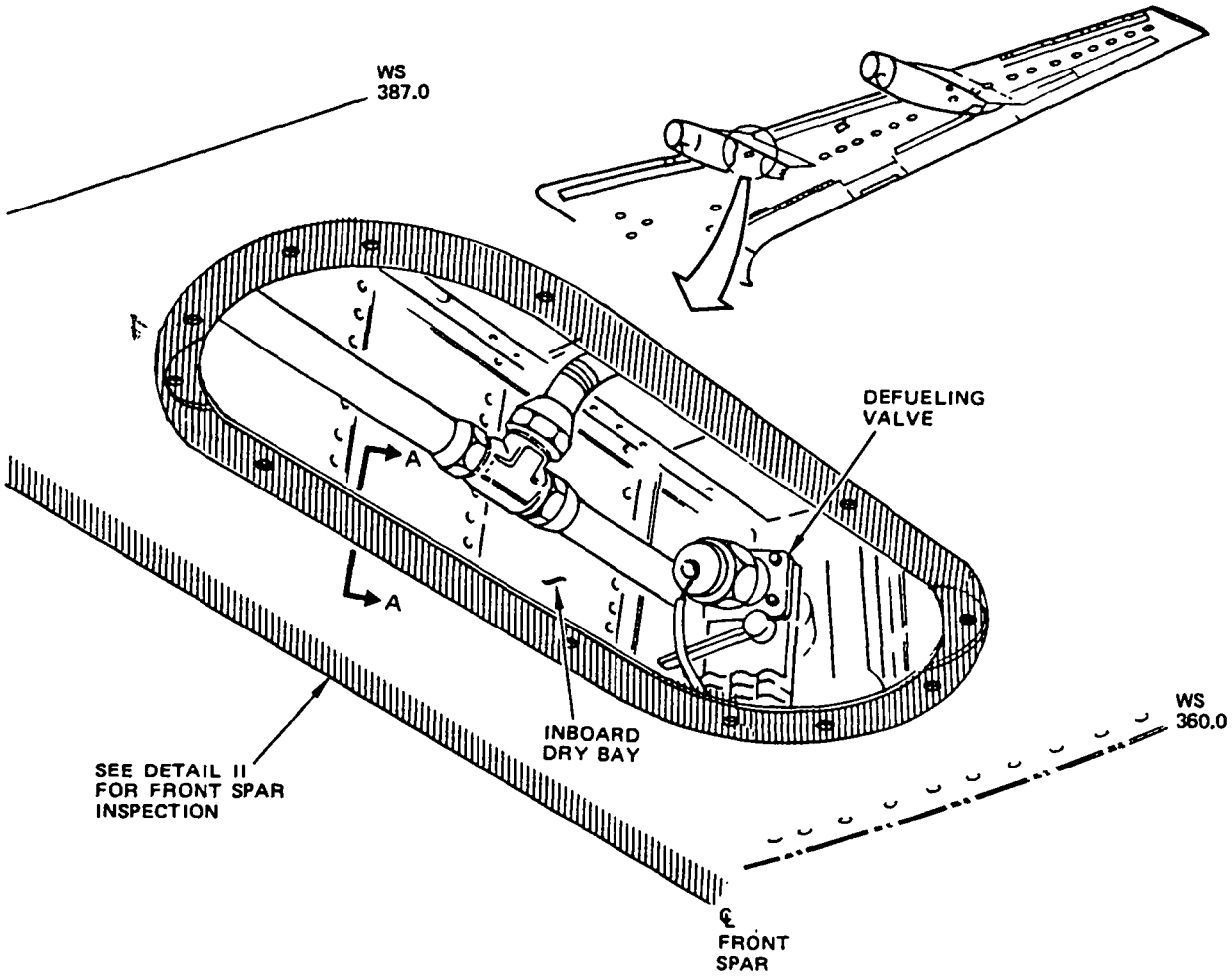
A/PS WITH INTERNAL REINFORCING STRAPS	A/PS WITHOUT INTERNAL REINFORCING STRAPS
2	1

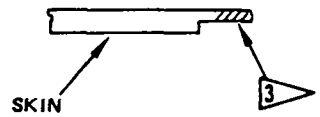
DETAIL III EFFECTIVITY TABLE
TABLE I

1 ALL 720 AIRPLANES EXCEPT 2

2 LINE NO. 581, 597, 615, 621 and 624

Wing Front Spar Chord and Dry Bay WS 360 to 387
Figure 84 (Sheet 2)





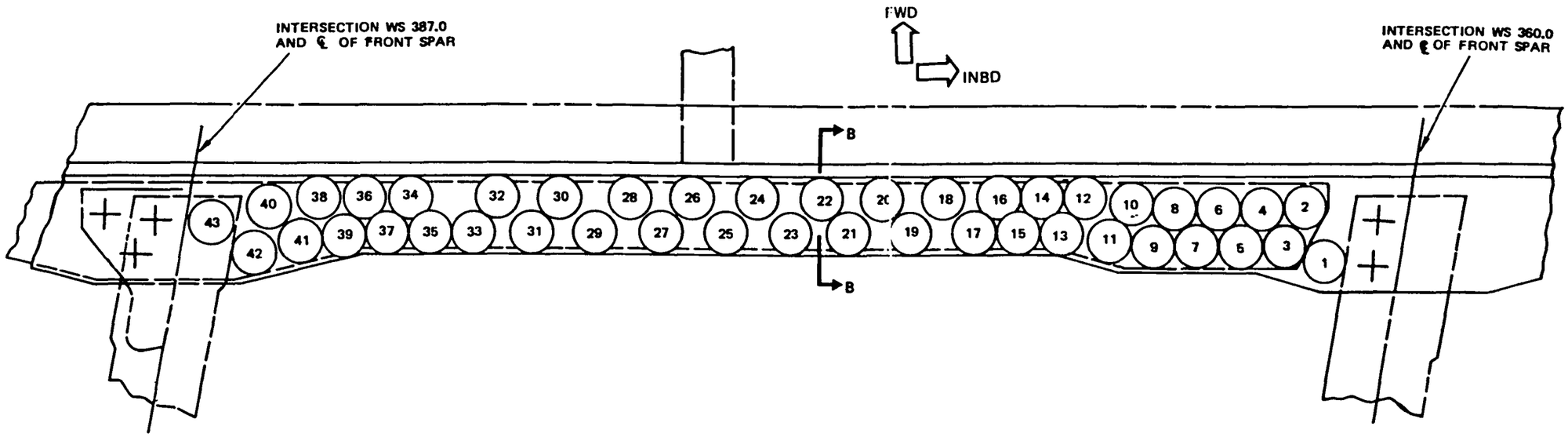
SECTION A–A

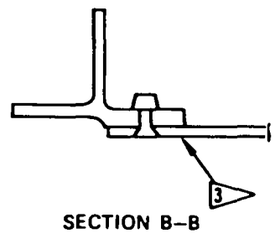
NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- AREA TO BE INSPECTED
- 3 PLACE PROBE ON SKIN AT ACCESS DOOR CUTOUT – SCAN ENTIRE PERIPHERY

INBOARD DEFUELING DRY BAY CAVITY – WS 375.0
DETAIL I

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 84 (Sheet 3)





SECTION B–B

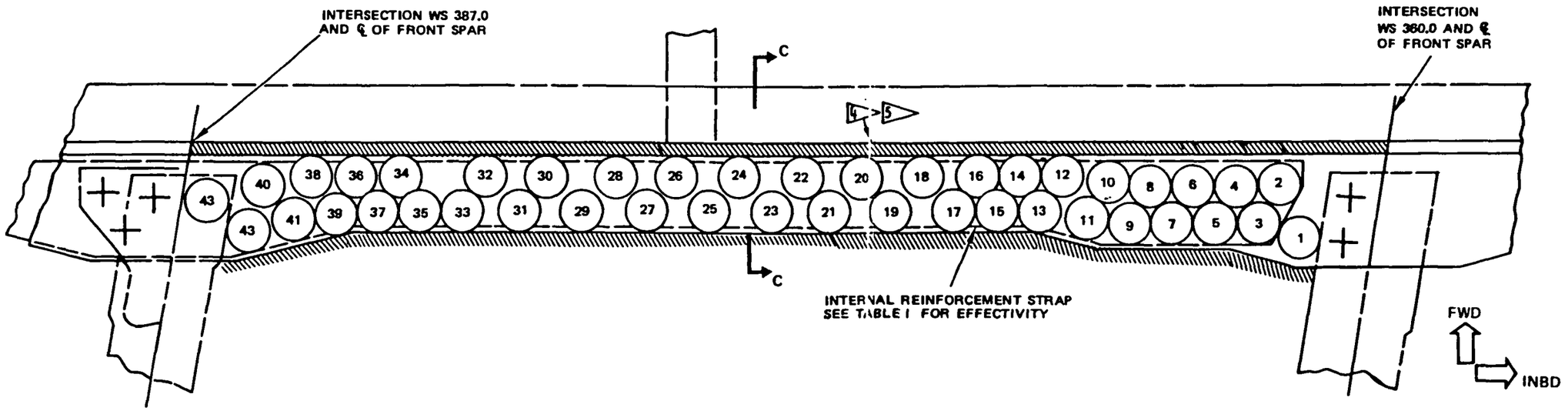
NOTES

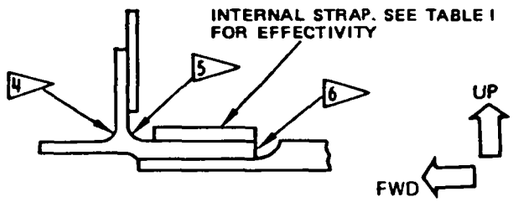
- LEFT WING SHOWN, RIGHT WING SIMILAR
- (21) FASTENERS TO BE INSPECTED
- 3 PLACE PENCIL PROBE ON SKIN ADJACENT TO FASTENERS AND SCAN AROUND FASTENER HEADS

EXTERNAL INSPECTION – INBOARD DEFUELING
DRY BAY, WS 7 375

DETAIL II

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 84 (Sheet 4)





SECTION C–C

NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- SEALANT REMOVAL MAY BE REQUIRED

INSPECTION AREA

(43) FASTENERS TO BE INSPECTED

4 PLACE PROBE ON AFT EDGE OF FRONT SPAR HORIZONTAL FLANGE – SCAN FROM WS 360 TO WS 387

5 PLACE PROBE ON AFT SIDE OF VERTICAL FLANGE IN FILLET – SCAN FROM WS 360 TO WS 387

6 WHERE FILLET OF CHORD ON AFT SIDE OF VERTICAL FLANGE IS INACCESSIBLE – SCAN FILLET OF CHORD ON FWD SIDE

EXTERNAL INSPECTION LOCATIONS, WS 375

DETAIL III

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 84 (Sheet 5)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

To detect cracks around the periphery of the defueling dry bay access door cutout and to detect cracks out of fastener holes common to the wing lower panel and front spar lower chord aft horizontal flange using high frequency eddy current - WS 360 to 387.

2. Equipment

A. Instrument - Refer to Part 6, 51-00-00, Fig. 4.

B. Probes - Any probe satisfying the requirements of this procedure is acceptable. The following probe was used during the development of this procedure and found acceptable:

P/N: M-P 905-50
NDT Product Engineering
P.O. Box 423
Renton, WA 98057

C. Reference Standard - Refer to Part 6, 51-00-00. Fig. 4.

3. Preparation for Inspection

A. Gain access to the dry bay cavity through the access door located forward of the wing tank at WS 375.

B. Remove sealant from internal scan locations as necessary to perform inspections. See Detail III.

C. Wipe surfaces clean.

4. Instrument Calibration

A. Calibrate instrument per Part 6, 51-00-00, Fig. 4.

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 85 (Sheet 1)

5. Inspection Procedure

A. For general instructions on surface eddy current inspection and inspection around fastener ends, refer to Part 6, 51-00-00, Fig. 4 and Fig. 6.

B. External

(1) Place pencil probe on skin at access door cutout. Scan entire periphery. See Detail I.

(2) Place pencil probe on skin adjacent to heads of fasteners common to skin and front spar chord. Scan around fastener heads from Wing Sta. 360 outboard to wing Sta. 387. See Detail II.

C. Internal

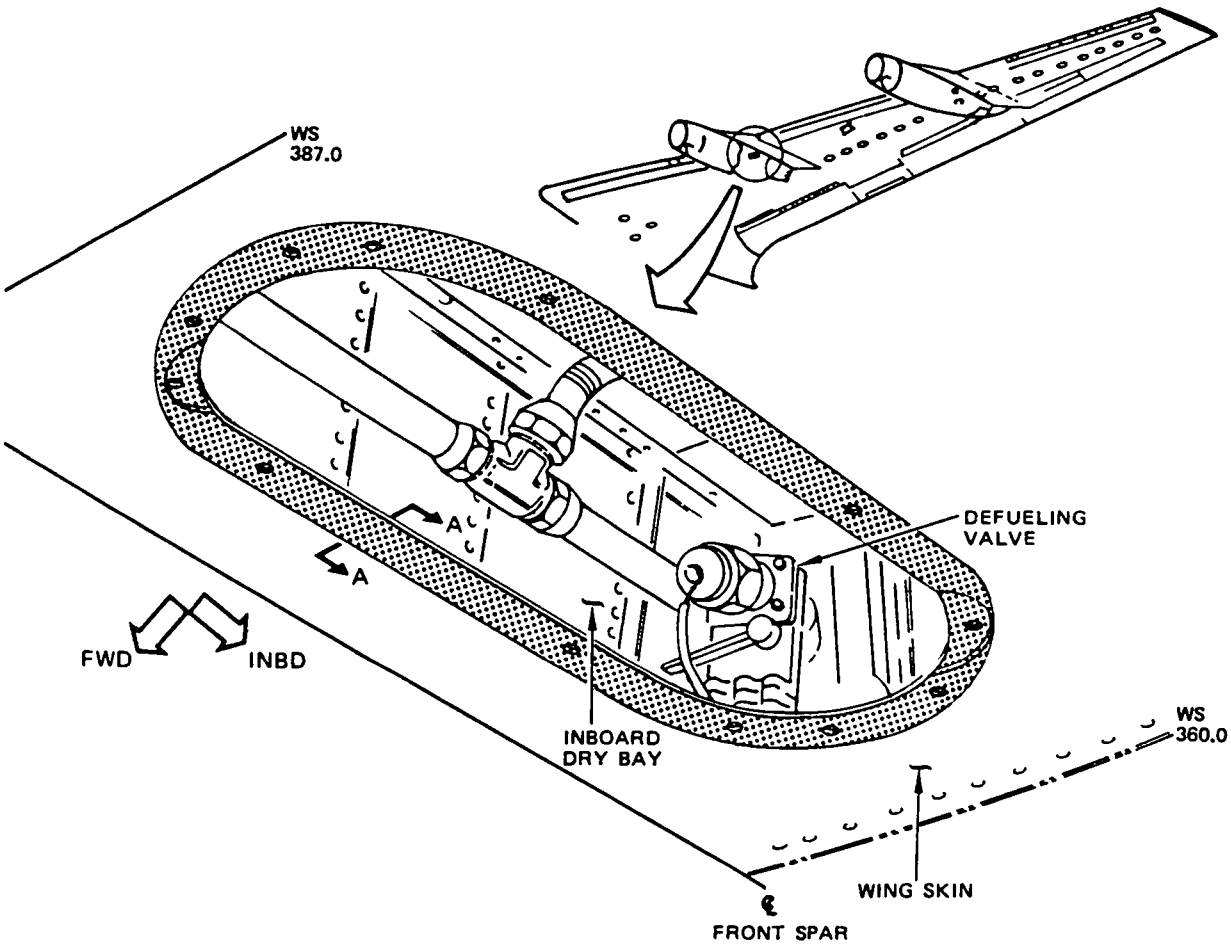
(1) Remove sealant as necessary to perform inspection. See Detail III.

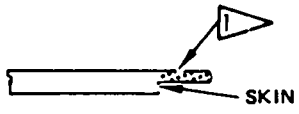
(2) Place probe on aft edge of lower front spar chord horizontal flange. Scan aft edge of flange from rib chord at WS 387 inboard to WS 360.

(3) Place pencil probe in fillet on aft side of front spar chord vertical leg where vertical leg joins horizontal flange. Scan from WS 360 outboard to WS 387.

(4) Where fillet on aft side of chord vertical leg is inaccessible, externally scan fillet on forward side of chord.

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 85 (Sheet 2)



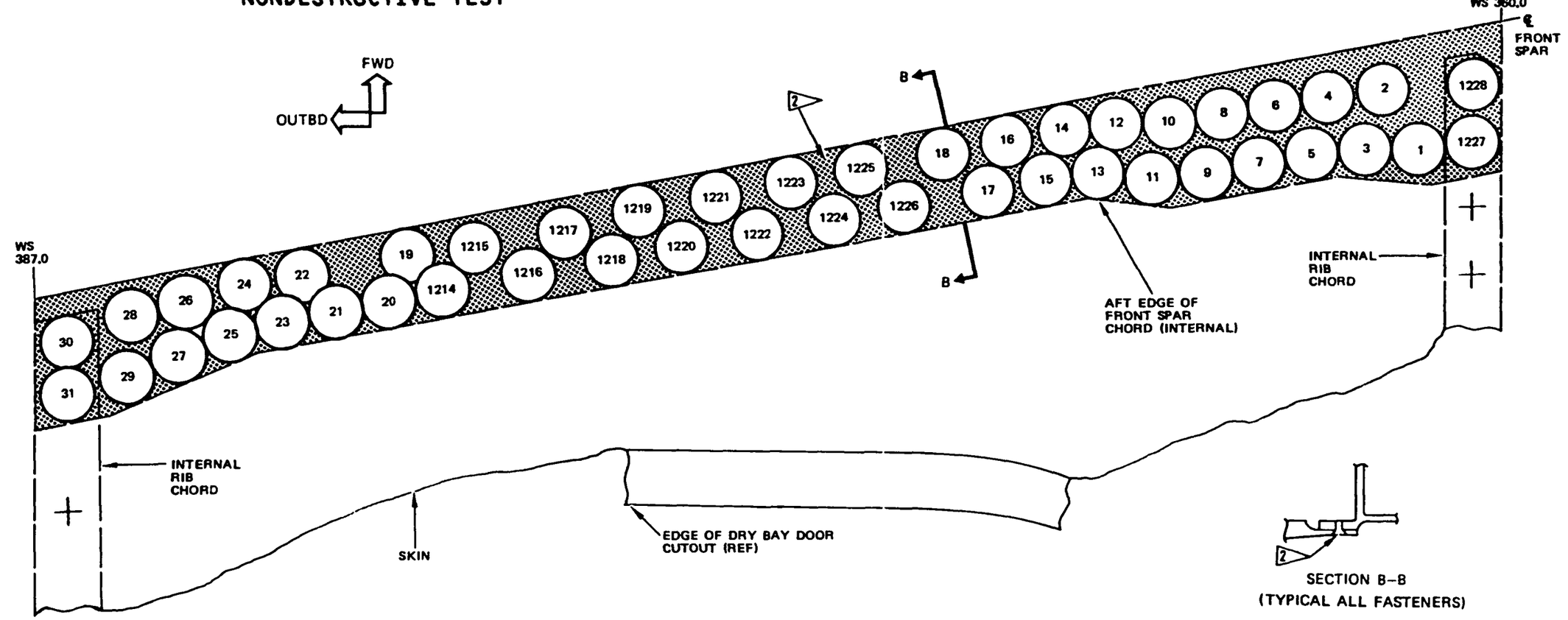


SECTION A–A

NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- INSPECTION AREA
- 1 PLACE PROBE ON SKIN AT ACCESS DOOR CUTOUT. SCAN

ACCESS DOOR PERIPHERY INSPECTION
DETAIL I
Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 85 (Sheet 3)



SECTION B–B
(TYPICAL ALL FASTENERS)

NOTES

- WING LOWER SURFACE, LOOKING UP
- LEFT WING SHOWN, RIGHT WING SIMILAR

INSPECTION AREA

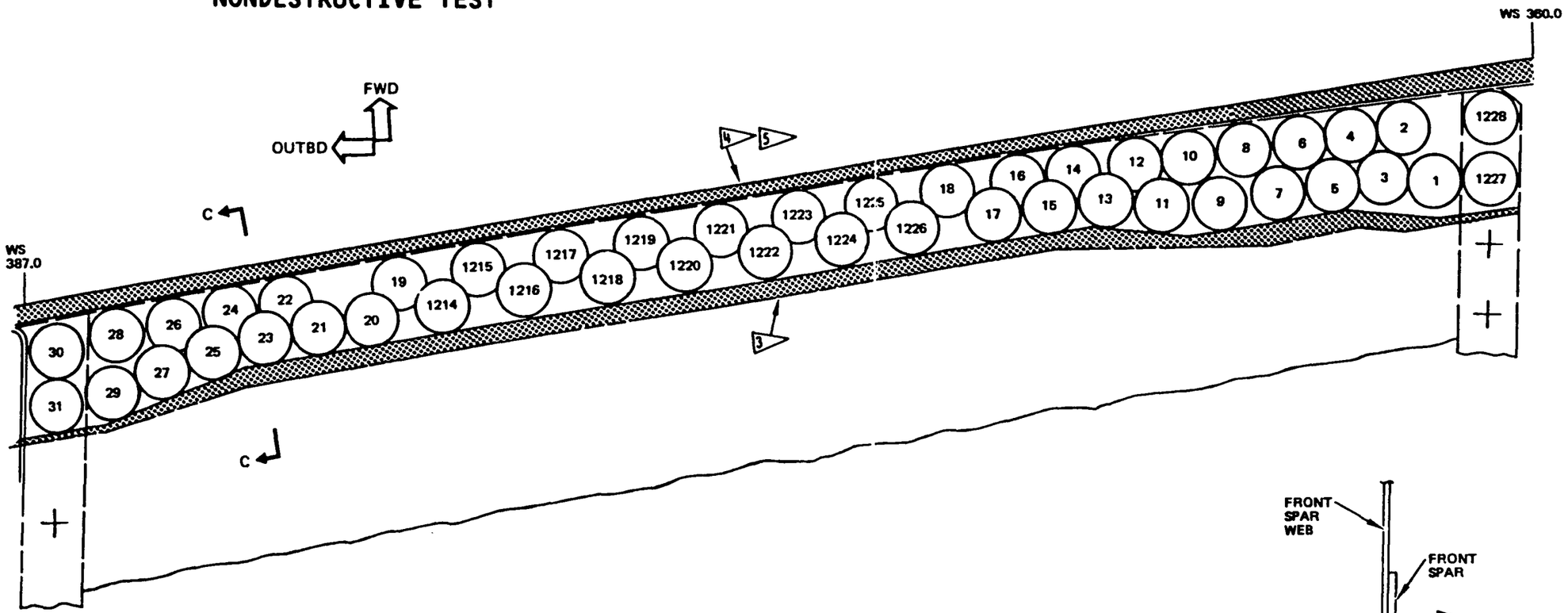
(18) FASTENERS TO BE INSPECTED

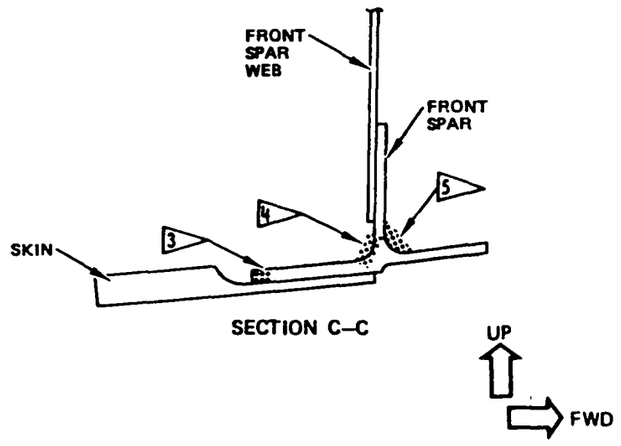
2 PLACE PROBE ON SKIN – SCAN AROUND FASTENER HEADS FROM WS 360 TO WS 387

EXTERNAL INSPECTION LOCATIONS

DETAIL II

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 85 (Sheet 4)





SECTION C–C

NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- (30) INSPECTION AREA
- FASTENERS TO BE INSPECTED
- (3) PLACE PROBE ON AFT EDGE OF FRONT SPAR CHORD HORIZONTAL FLANGE. SCAN FROM RIB CHORD AT WS 360 OUTBD
- (4) PLACE PENCIL PROBE ON AFT SIDE OF FRONT SPAR CHORD VERTICAL FLANGE IN FILLET – SCAN FROM WS 360 OUTBD W TO WS 387
- (5) SCAN FORWARD SIDE OF FRONT SPAR CHORD VERTICAL FLANGE IN FILLET WHERE AFT SIDE FILLET OF CHORD IS INACCESSIBLE .

INTERNAL INSPECTION LOCATIONS

DETAIL III

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 85 (Sheet 5)

EFFECTIVITY
MODEL: 707-100/200 SERVICE BULLETIN REFERENCE: 2487 AND 2765 SSI DOCUMENT (D6-44860) REFERENCE: SSD 57-A15-22C

BOEING COMMERCIAL JET

NONDESTRUCTIVE TEST

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To perform an external High Frequency Eddy Current surface inspection at the WS 375 inboard defueling dry bay to:

      (1) Detect cracks in the aluminum doubler around the periphery of the access door cutout.

      (2) Detect cracks in the corrosion resistant steel doublers around heads of fasteners common to doublers and front spar lower chord aft horizontal flange.

      (3) Detect cracks along aft edge of doubler installed per combined SB's 1995 and 2323.

   B. To detect cracks in the front spar lower chord aft horizontal flange.

   C. To inspect specified fastener locations adjacent to the WS 360 splice.

2. Equipment

   A. Instrument - Refer to Part 6, 51-00-00, Fig. 4.

   B. Probe - Any probe satisfying the requirements of this procedure is acceptable. The following probe was used during the development of this procedure and found acceptable:

      P/N: M-P 905-50
      NDT Product Engineering
      P.O. Box 423
      Renton, WA 98057

   C. Reference Standards - Three reference standards are required

      (1) For inspection of aluminum doubler at periphery of the access door cutout and front spar chord aft horizontal flange. Refer to Part 6, 51-00-00, Fig. 4.

      (2) For inspection of corrosion resistant steel doublers. Manufacture per Detail I.

      (3) For inspection of fastener holes. Refer to Part 6, 51-00-00, Fig. 1.

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 86 (Sheet 1)

3. Preparation for Inspection

A. Gain access to the dry bay cavity through the access door forward of the wing tank at WS 375.

B. Remove sealant from scan locations as necessary to perform inspections. Refer to Detail IV to identify internal inspection areas requiring sealant removal.

C. Remove two fasteners for bolt hole inspection. See Detail IIIB.

D. Wipe surfaces clean.

4. Instrument Calibration

A. Three separate instrument calibrations must be performed:

(1) For inspection of aluminum doubler at periphery of access door cutout and for inspection of lower front spar chord aft horizontal flange, calibrate per Part 6, 51-00-00, Fig. 4.

(2) For inspection of corrosion resistant steel doublers, calibrate per Part 6, 51-00-00, Fig. 4 except substitute the reference standard shown in part 6, 51-00-00, Fig. 4.

NOTE: Meter response from notch on corrosion resistant steel reference standard may be upscale.

(a) If excessive surface noise is experienced, place a small piece of tape (teflon or similar non conductive material) over probe face and recalibrate.

(3) For bolt hole inspection, calibrate per Part 6, 51-00-00, Fig. 1.

5. Inspection Procedure

NOTE: Five locations require inspection of airplanes modified by service bulletin 2323. Airplanes modified by combined service bulletin 1995 and 2323 have one additional location requiring inspection.

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 86 (Sheet 2)

A. Determine airplane configuration by comparison with Detail IIIA & IIIB.

B. External Inspections

(1) Access door periphery inspection. See Detail II.

(a) Calibrate per par. 4.A.(1).

(b) Place probe on aluminum doubler. Scan complete periphery of cutout per Part 6, 51-00-00, Fig. 4.

(2) Inspection of corrosion resistant steel doublers around heads of fasteners common to front spar lower chord aft horizontal flange, (applicable to all configurations). See Detail IIIA & IIIB.

(a) Calibrate per par. 4.A.(2).

(b) Place probe on outermost corrosion resistant steel plate and scan around fastener heads from WS 387 inboard to WS 360 per Part 6, 51-00-00, Fig. 6.

NOTE: Local permeability changes in corrosion resistant steel may produce indications similar in amplitude to a crack. However, indications due to permeability change occur over a broader area and do not give the sudden sharp indication characteristic of a crack. Compare response with that obtained from the standard notch.

(3) Inspection of corrosion resistant steel doubler adjacent to aft edge of tripler. See Detail IIIA. This inspection applies to airplanes modified per combined service bulletins 1995 and 2323 only.

(a) Calibrate per par. 4.A.(2).

(b) Place probe on doubler adjacent to aft edge of tripler and scan along edge of tripler as shown in Detail IIIA. See above note on effect of local permeability changes.

(4) Bolt hole inspection of two fastener holes common to the front spar aft horizontal flange and outboard side of WS 360 splice. See Detail IIIB.

(a) Calibrate and inspect per Part 1, 51-00-00, Fig. 1.

C. Internal Inspections. See Detail IV.

NOTE: Sealant removal is required.

(1) Inspection of front spar lower chord aft horizontal flange in fillet formed by juncture of chord horizontal and vertical flanges.

(a) Calibrate per par. 4.A.(1).

(b) Place probe in fillet on aft side of front spar chord and scan from WS 387 inboard to WS 360.

(c) Scan fillet on forward side of spar chord where fillet on aft side is inaccessible.

(2) Inspection of aft edge of front spar chord aft horizontal flange.

(a) Calibrate per par. 4.A.(1).

(b) Place probe on aft edge of horizontal flange. Scan aft edge of flange from rib chord at wing sta. 387 inboard to WS 360 in areas not covered by reinforcement plate.

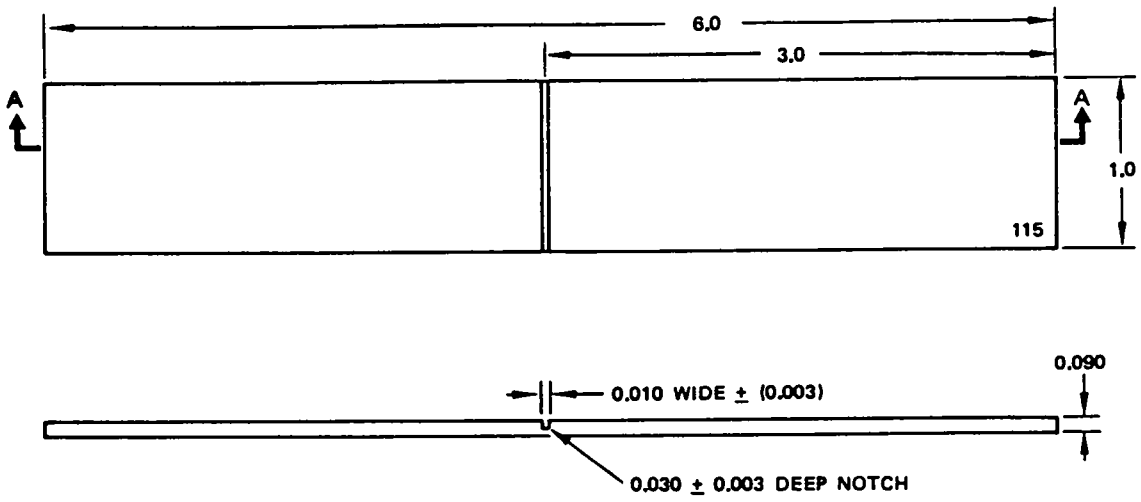
AIRPLANES WITH LARGE REINFORCING PLATE	AIRPLANES WITH SMALL REINFORCING PLATE
1	2

DETAIL IV EFFECTIVITY TABLE
TABLE I

1 LINE NO.S 62, 565, 571, 575, 579, 586, 589, 591, 593, 595, 600, 602, 604, AND 622

2 ALL EXCEPT 1

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 86 (Sheet 4)



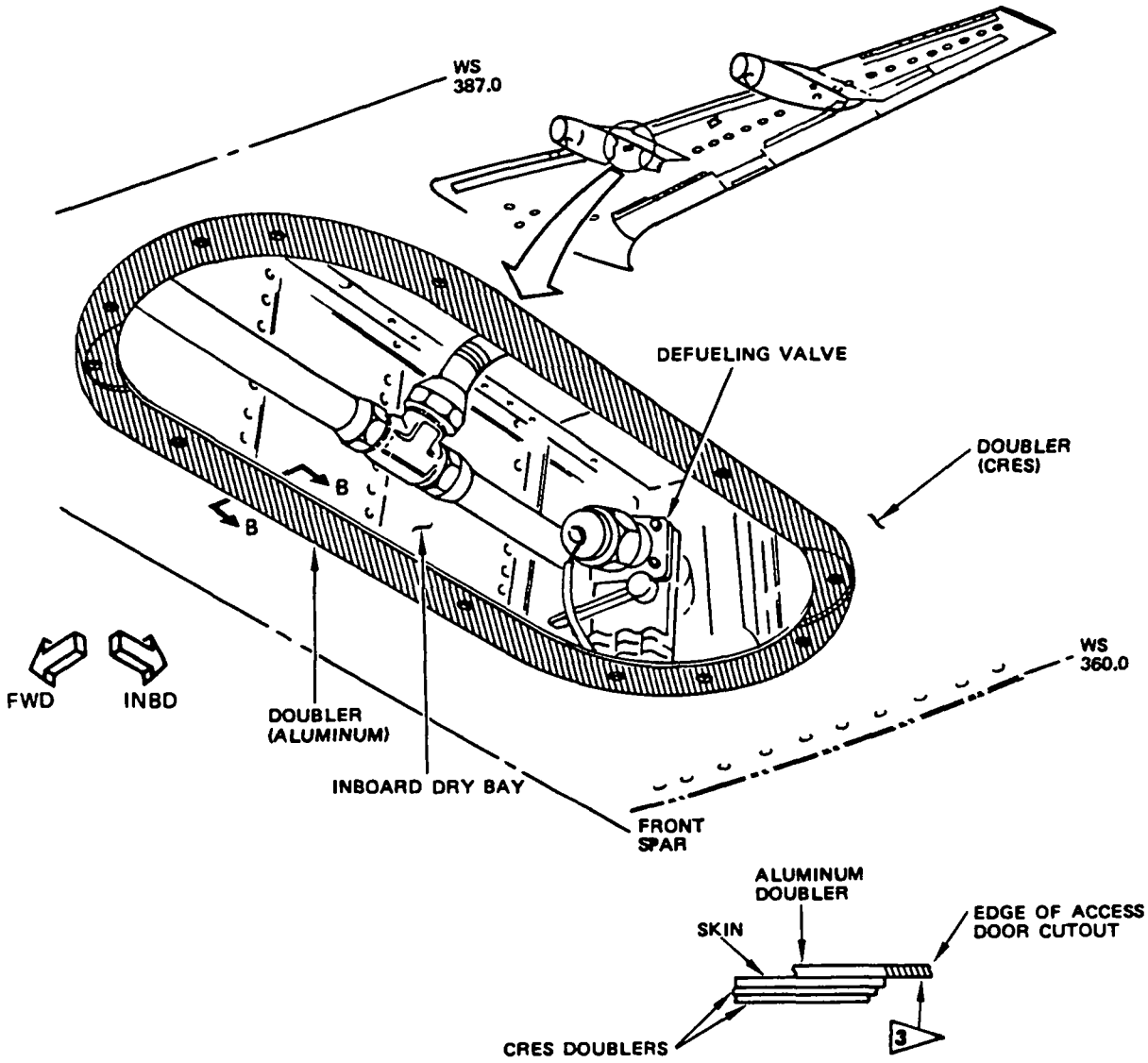
SECTION A–A

NOTES

- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 17–7 PH, MIL–S–25043 CRES, 150–170 KSI HT–TR
- ETCH OR STEEL STAMP WITH 115
- TOLERANCE: X.X = ± 0.05; X.XX = ± 0.02; X.XXX = ± 0.010 UNLESS OTHERWISE NOTED
- P/N 6412–117
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

REFERENCE STANDARD 115
DETAIL I

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 86 (Sheet 5)



SECTION B–B

NOTES

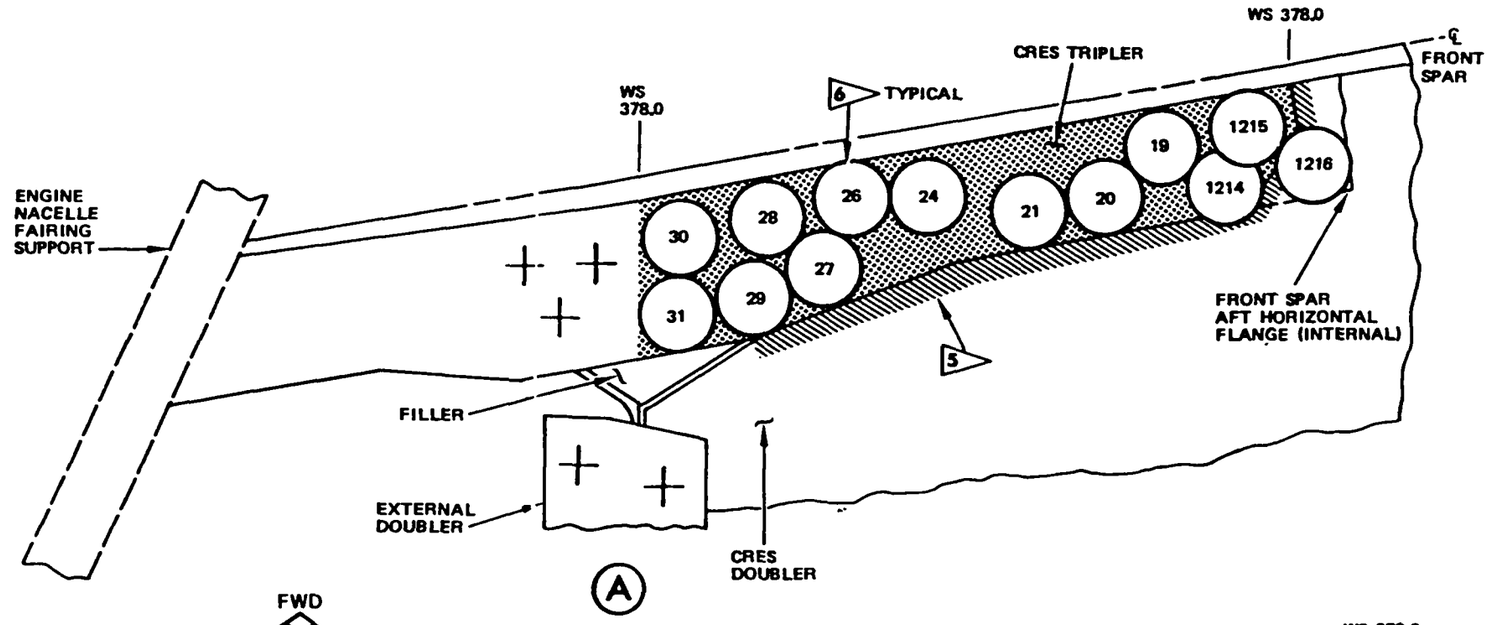
- LEFT WING SHOWN, RIGHT WING SIMILAR

INSPECTION AREA

3 PLACE PROBE ON ALUMINUM DOUBLER – SCAN ENTIRE PERIPHERY OF CUTOUT

ACCESS DOOR PERIPHERY INSPECTION
DETAIL II

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 86 (Sheet 6)



EXTERNAL INSPECTION LOCATIONS [B]

DETAIL III [A]

SECTION C–C

NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR

INSPECTION AREA

(30) FASTENERS TO BE INSPECTED

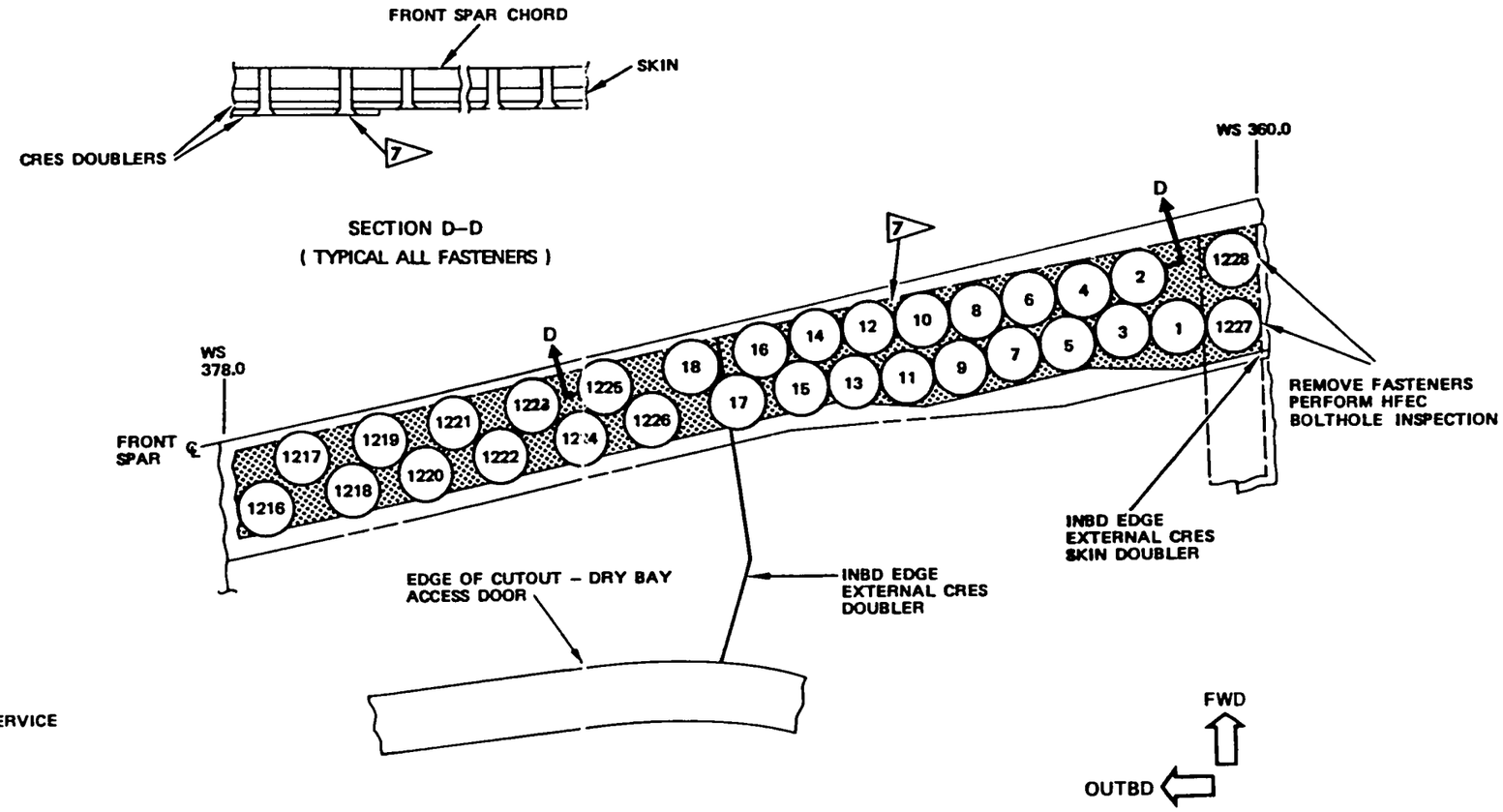
(A) CONFIGURATION AFTER MODIFICATION PER COMBINED SERVICE BULLETINS 1995 AND 2323

(B) CONFIGURATION AFTER MODIFICATION PER SERVICE BULLETIN 2323.

5 PLACE PROBE ON CRES DOUBLER ADJACENT TO AFT EDGE OF TRIPLER. SCAN FROM FILLER AT WS 387 INBOARD TO INBOARD END OF TRIPLER AT WS 378. AIRPLANES MODIFIED BY COMBINED SB'S 1995 AND 2323 ONLY

6 PLACE PROBE ON OUTERMOST CRES DOUBLER OR TRIPLER AND SCAN TO THE EXTENT POSSIBLE, AROUND HEADS OF FASTENERS COMMON TO FRONT SPAR AFT HORIZONTAL FLANGE FROM WS 387 INBD TO WING STA 378.

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 86 (Sheet 7)



NOTES

- CONFIGURATION AFTER MODIFICATION PER SERVICE BULLETIN 2323; 1995 AND 2323 COMBINED

INSPECTION AREA

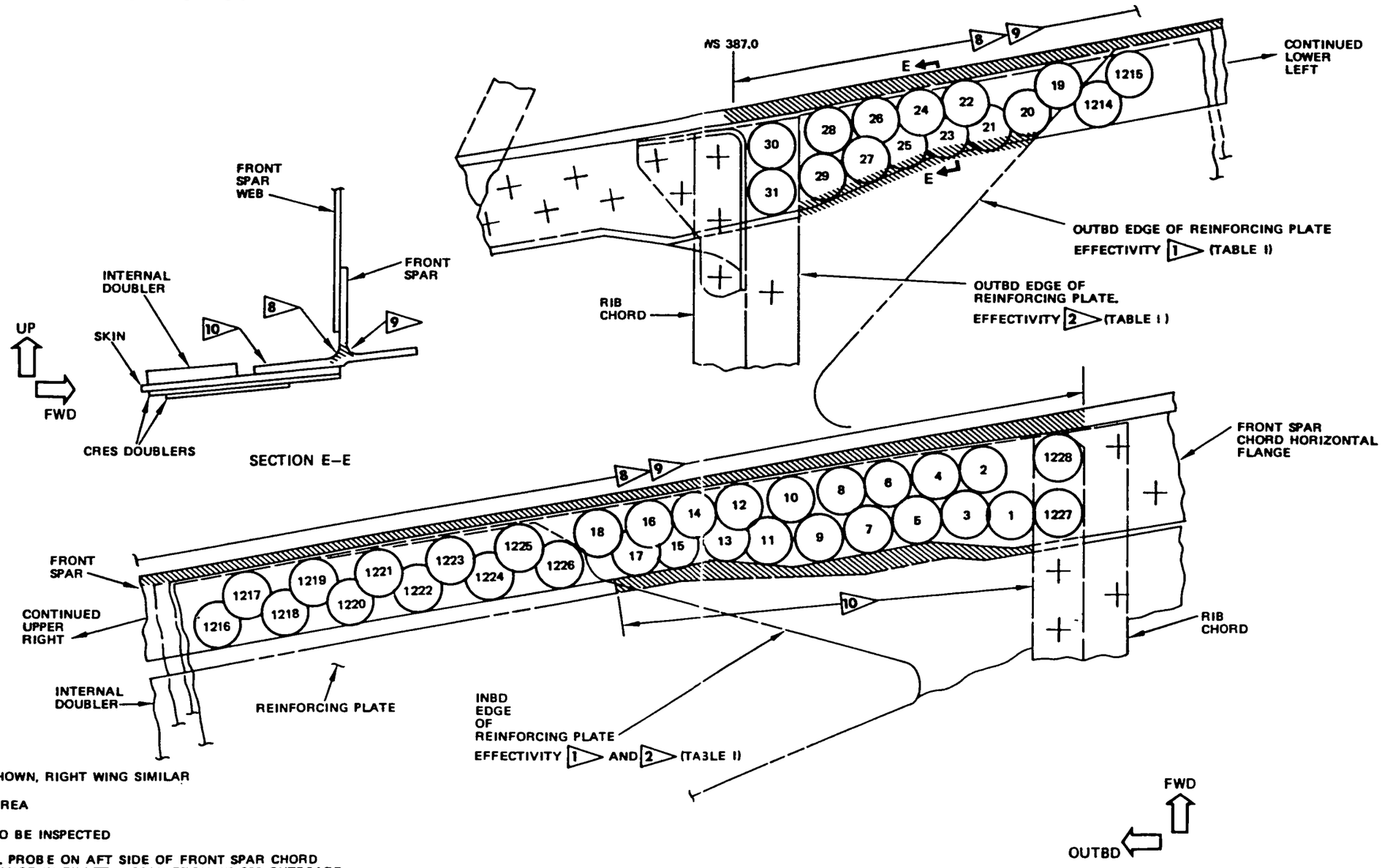
(1217) FASTENERS TO BE INSPECTED

7 PLACE PROBE ON OUTER CRES DOUBLER. SCAN TO THE EXTENT POSSIBLE, AROUND HEADS OF FASTENERS COMMON TO THE FRONT SPAR AFT HORIZONTAL FLANGE FROM WS 378 TO WS 360.

CONFIGURATION AFTER MODIFICATION
PER SERVICE BULLETIN 2323; 1995 AND 2323 COMBINED

DETAIL III B

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 86 (Sheet 8)



NOTES

- ● LEFT WING SHOWN, RIGHT WING SIMILAR
- INSPECTION AREA
- (17) FASTENERS TO BE INSPECTED
- 8 PLACE PENCIL PROBE ON AFT SIDE OF FRONT SPAR CHORD VERTICAL FLANGE IN FILLET – SCAN FROM WS 360 OUTBOARD TO WS 387
- 9 SCAN FORWARD SIDE OF FRONT SPAR CHORD VERTICAL FLANGE IN FILLET WHERE AFT SIDE FILLET OF CHORD IS INACCESSIBLE
- 10 PLACE PROBE ON AFT EDGE OF FRONT SPAR CHORD HORIZONTAL FLANGE – SCAN FROM RIB CHORD AT WS 360 OUTBD ON AREAS NOT COVERED BY REINFORCING PLATE

INTERNAL INSPECTION LOCATIONS

DETAIL IV

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 86 (Sheet 9)

EFFECTIVITY
MODEL: 707-300/400
SERVICE BULLETIN
REFERENCE: 2487 AND 2765
SSI DOCUMENT (D6-44860)
REFERENCE:
SSD 57-A25-22C

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

To detect cracks around the periphery of the inboard defueling dry bay access door cutout and to detect cracks propagating out of fastener holes common to the wing lower panel and front spar lower chord aft horizontal flange. Inspection is from WS 360 to WS 387 and uses high frequency eddy current.

2. Equipment

A. Instrument - Refer to Part 6, 51-00-00, Fig. 4.

B. Probes - Any probe satisfying the performance requirements of this procedure is acceptable. The following probe was used during the development of this procedure and found acceptable:

P/N: M-P 905-50
NDT Product Engineering
P.O. Box 423
Renton, WA 98057

C. Reference Standard - Refer to Part 6, 51-00-00. Fig. 4.

3. Preparation for Inspection

A. Gain access to the dry bay cavity through the access door located forward of the wing tank at WS 375.

B. Remove sealant from internal scan locations as necessary to perform inspections. See Detail III.

C. Wipe surfaces clean.

4. Instrument Calibrate

A. Calibrate per Part 6, 51-00-00, Fig. 4.

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 87 (Sheet 1)

5. Inspection Procedure

A. For general instructions on surface eddy current inspection and inspection around fastener ends, refer to Part 6, 51-00-00, Fig. 4.

B. External

(1) Place pencil probe on skin at access door cutout. Scan entire periphery. See Detail I.

(2) Place pencil probe on skin adjacent to heads of fasteners common to skin and front spar chord. Scan around fastener heads from wing Sta. 360 outboard to wing Sta. 387. See Detail II.

C. Internal

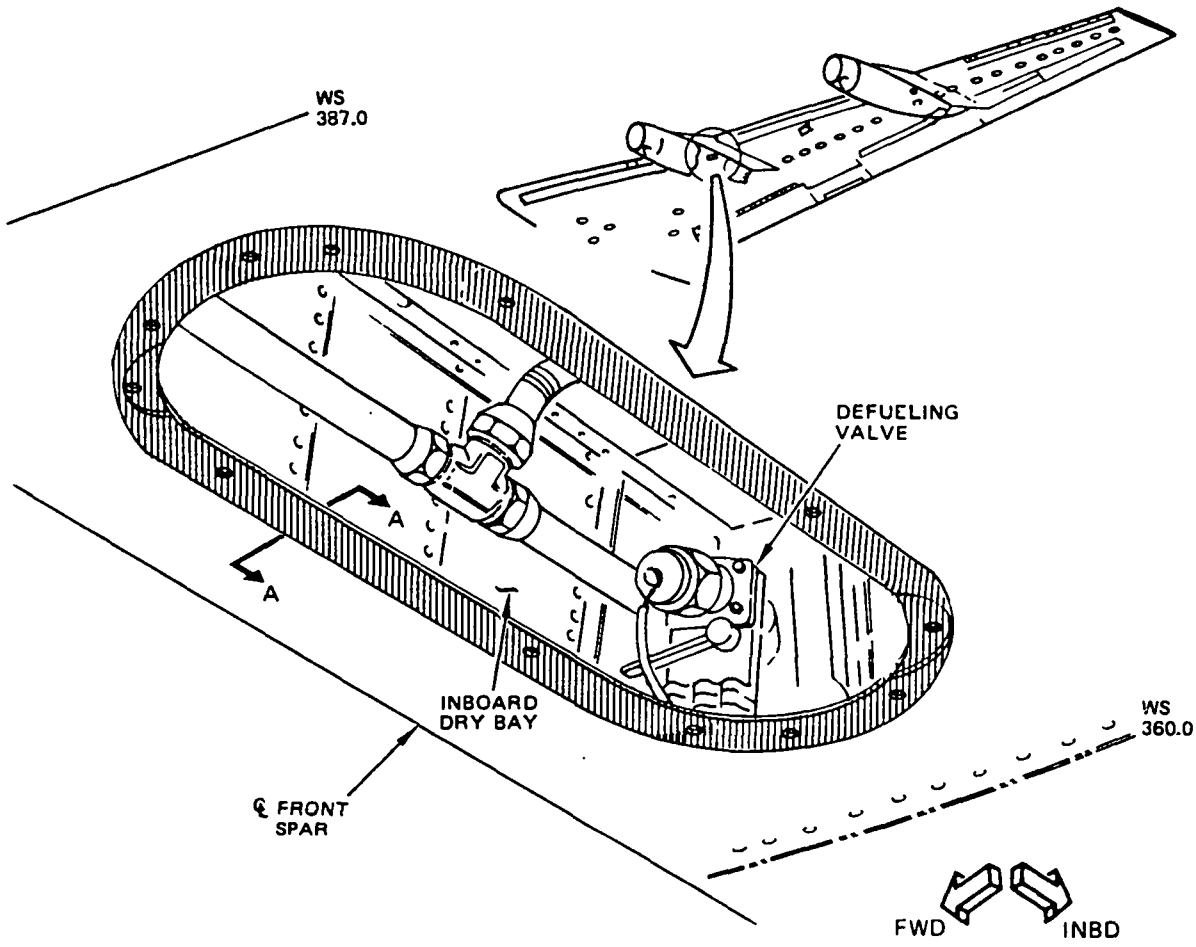
(1) Remove sealant as necessary to perform inspection. See Detail III.

(2) Place probe on aft edge of front spar chord horizontal flange. Scan aft edge of flange from rib chord at WS 387 inboard to WS 360.

(3) Place pencil probe in fillet on aft side of front spar chord vertical flange where vertical flange joints horizontal flange. Scan from WS 360 outboard to WS 387.

(4) Where fillet on aft side of chord vertical flange is inaccessible, externally scan fillet on forward side of chord.

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 87 (Sheet 2)



SECTION A–A

NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR

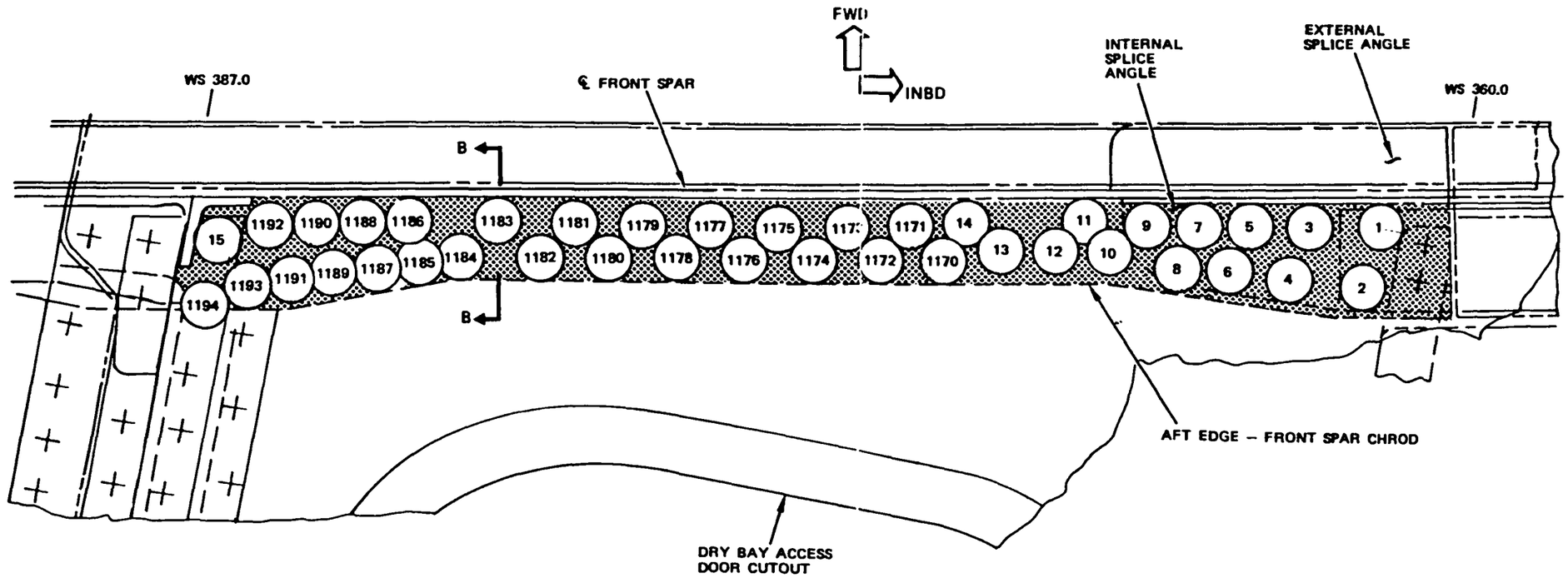
INSPECTION AREA

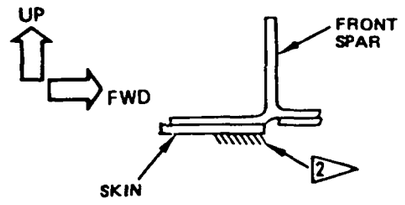
PLACE PROBE ON SKIN AT ACCESS DOOR CUTOUT SCAN ENTIRE PERIPHERY OF CUTOUT.

ACCESS DOOR PERIPHERY INSPECTION

DETAIL I

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 87 (Sheet 3)





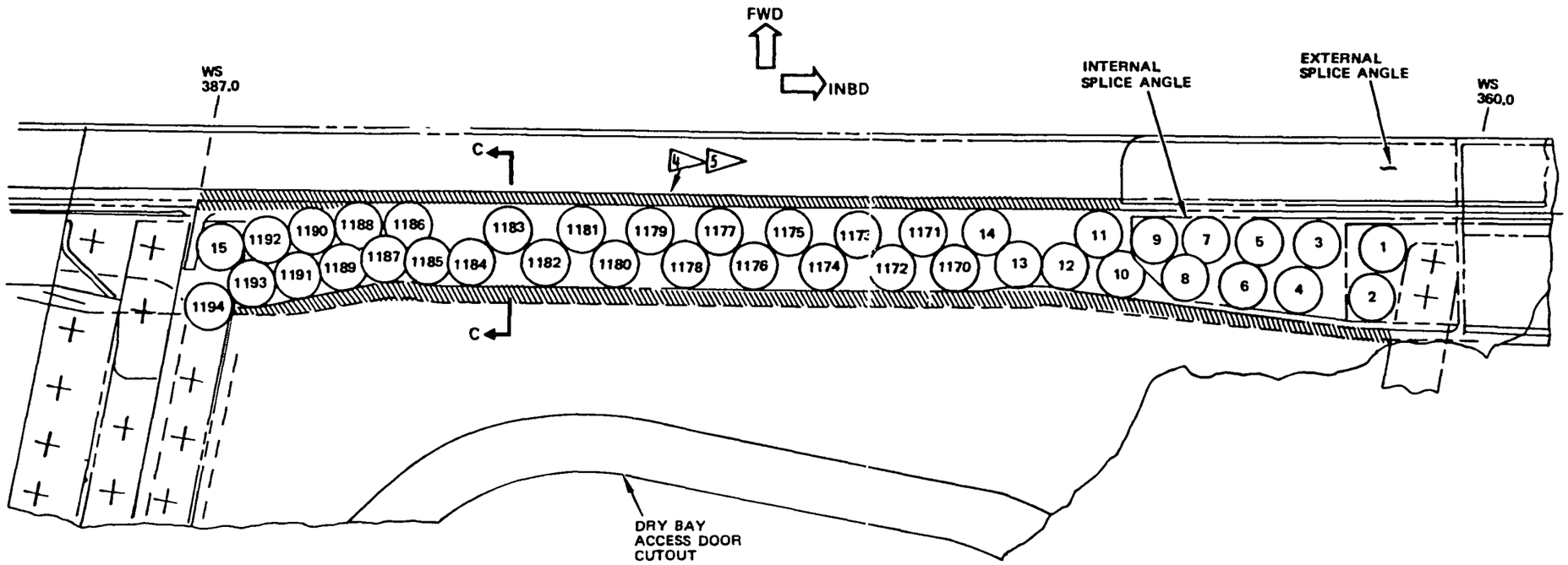
SECTION B–B

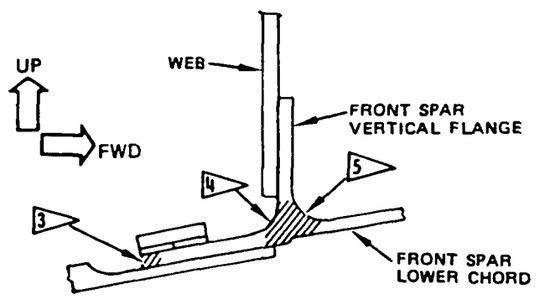
NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- INSPECTION AREA
- (1183) FASTENERS TO BE INSPECTED
- (2) PLACE PROBE ON SKIN – SCAN AROUND FASTENER HEADS FROM WS 360 TO WS 387.0

EXTERNAL INSPECTION DRY BAY WS 375
DETAIL II

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 87 (Sheet 4)





SECTION C–C

NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR (PLAN VIEW)
- INSPECTION AREA
- (14) FASTENERS TO BE INSPECTED
- (3) PLACE PROBE ON AFT EDGE OF FRONT SPAR CHORD HORIZONTAL FLANGE – SCAN FROM RIB CHORD AT WS 360.0 OUTBD TO WS 387.0
- (4) PLACE PROBE ON AFT SIDE OF FRONT SPAR CHOD CHORD VERTICAL FLANGE ON FILLET OF CHORD – SCAN FROM WS 360.0 TO WS 387.0
- (5) SCAN FORWARD SIDE OF FRONT SPAR CHORD VERTICAL FLANGE ON FILLET OF CHORD WHERE FILLET ON AFT SIDE OF CHORD IS INACCESSIBLE

INTERNAL INSPECTION AREAS
DETAIL III

Wing Front Spar Chord and Dry BAy
WS 360 to 387
Figure 87 (Sheet 5)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To perform an external High Frequency Eddy Current surface inspection at the WS 375 inboard defueling dry bay to:

      (1) Detect cracks in the aluminum doubler around the periphery of the access door cutout.

      (2) Detect cracks in the corrosion resistant steel doublers around heads of fasteners common to doublers and front spar lower chord aft horizontal flange.

      (3) Detect cracks along aft edge of doubler installed per combined SB's 1995 and 2323.

   B. To perform an internal Eddy Current surface inspections to detect cracks in the front spar lower chord aft horizontal flange.

   C. To perform an Eddy Current bolt hole inspection at specified fastener locations adjacent to the WS 360 splice.

2. Equipment

   A. Instrument - Refer to Part 6, 51-00-00, Fig. 4.

   B. Probe - Any probe satisfying the performance requirements of this procedure is acceptable. The following probe was used during the development of this procedure and found acceptable:

      P/N: M-P 905-50
      NDT Product Engineering
      P.O. Box 423
      Renton, WA 98057

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 88 (Sheet 1)

C. Reference Standards - Three reference standards are required:

(1) For inspection of aluminum doubler at periphery of the access door cutout and front spar chord aft horizontal flange, refer to Part 6, 51-00-00, Fig. 4.

(2) For inspection of corrosion resistant steel doublers, manufacture per Detail I.

(3) For inspection of fastener holes, refer to Part 6, 51-00-00, Fig. 1.

3. Preparation for Inspection

A. Gain access to the dry bay cavity through the access door forward of the wing tank at left and right WS 375.

B. Remove sealant from scan locations as necessary to perform inspections. Refer to Detail V to identify internal inspection areas requiring sealant removal.

C. Remove two fasteners for bolt hole inspection. See Detail III.

D. Wipe surfaces clean.

4. Instrument Calibration

A. Three separate instrument calibrations must be performed:

(1) Calibrate per Part 6, 51-00-00, Fig. 4 for inspection of aluminum doubler at periphery of access door cutout and for inspection of lower front spar chord aft horizontal flange.

(2) Calibrate per Part 6, 51-00-00, Fig. 4 for inspection of corrosion resistant steel doublers except:

(a) Substitute the Reference Standard shown in Detail I for Reference Standard shown in Part 6, 51-00-00, Fig. 4.

NOTE: Meter response from notch on corrosion resistant steel reference standard may be upscale.

(b) If excessive surface noise is experienced, place a small piece of tape (teflon or similar non conductive material) over probe face and recalibrate.

(3) Calibrate per Part 6, 51-00-00, Fig. 1 for bolt hole inspection.

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 88 (Sheet 2)

5. Inspection Procedure

NOTE: Five locations require inspection of airplanes modified by service bulletin 2323. Airplanes modified by combined service bulletin 1995 and 2323 have one additional location requiring inspection.

A. Determine airplane configuration by comparison with Detail III & IV.

B. External Inspections -

(1) Access door periphery inspection. See Detail II.

(a) Calibrate per par. 4.A.(1).

(b) Place probe on aluminum doubler. Scan complete periphery of cutout per Part 6, 51-00-00, Fig. 4.

(2) Inspection of corrosion resistant steel doublers around heads of fasteners common to front spar lower chord aft horizontal flange, (applicable to all configurations). See Detail III & IV.

(a) Calibrate per par. 4.A.(2).

(b) Place probe on outermost corrosion resistant steel plate and scan around fastener heads from WS 387 inboard to WS 360 per Part 6, 51-00-00, Fig. 6.

NOTE: Local permeability changes in corrosion resistant steel may produce indications similar in amplitude to a crack. However, indications due to permeability change occur over a broader area and do not give the sudden sharp indication characteristic of a crack. Compare response with that obtained from the standard notch.

(3) Inspection of corrosion resistant steel doubler adjacent to aft edge of tripler. See Detail III. This inspection applies to airplanes modified per combined service bulletins 1995 and 2323 only.

(a) Calibrate per par. 4.A.(2).

(b) Place probe on doubler adjacent to aft edge of tripler and scan along edge of tripler as shown in Detail III. See note on effect of local permeability changes.

(4) Bolt hole inspection of two fastener holes common to the front spar aft horizontal flange and outboard side of WS 360 splice. See Detail IV. This inspection applies to airplanes modified per service bulletin 2323 only.

(a) Calibrate and inspect per Part 1, 51-00-00, Fig. 1.

C. Internal Inspections - See Detail V.

NOTE: Sealant removal is required.

(1) Inspection of front spar lower chord aft horizontal flange in fillet formed by juncture of chord horizontal and vertical flanges.

(a) Calibrate per par. 4.A.(1).

(b) Place probe in fillet on aft side of front spar chord and scan from WS 387 inboard to WS 360.

(c) Scan fillet on forward side of spar chord where fillet on aft side is inaccessible.

(2) Inspection of aft edge of front spar chord aft horizontal flange.

(a) Calibrate per par. 4.A.(1).

(b) Place probe on aft edge of horizontal flange. Scan aft edge of flange from rib chord at WS 387 inboard to WS 360 in areas not covered by reinforcing plate.

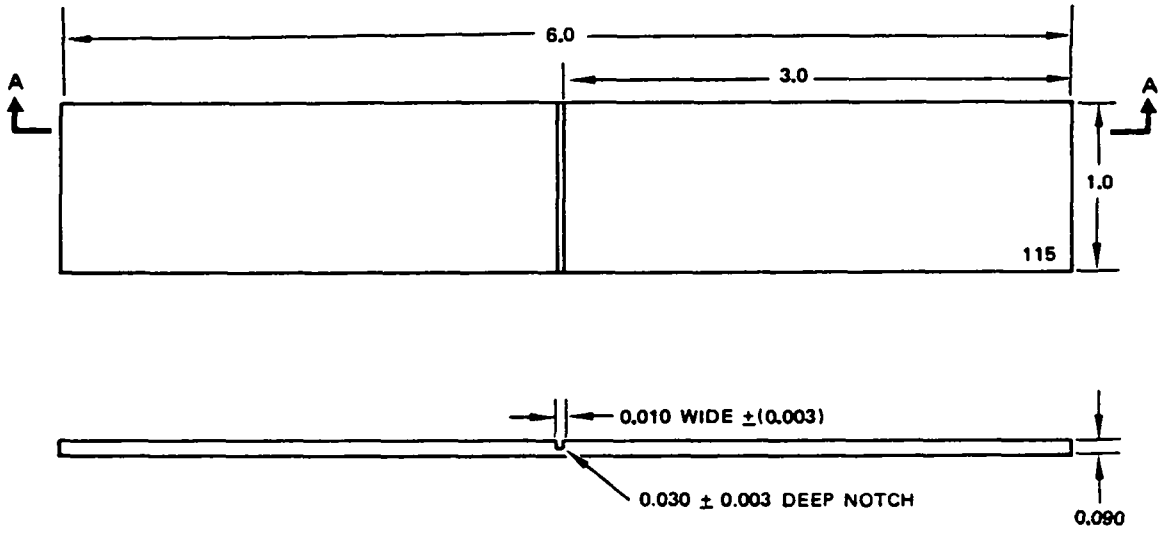
A/PS WITH REINFORCING PLATE	A/P'S WITHOUT REINFORCING PLATE
2	1

DETAIL V EFFECTIVITY TABLE
TABLE I

NOTES

1 CUM LINE NOS 123 THRU 125, 135 THRU 137, 175, 176, 266, 330, AND 334
2 ALL EXCEPT 1

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 88 (Sheet 4)



SECTION A–A

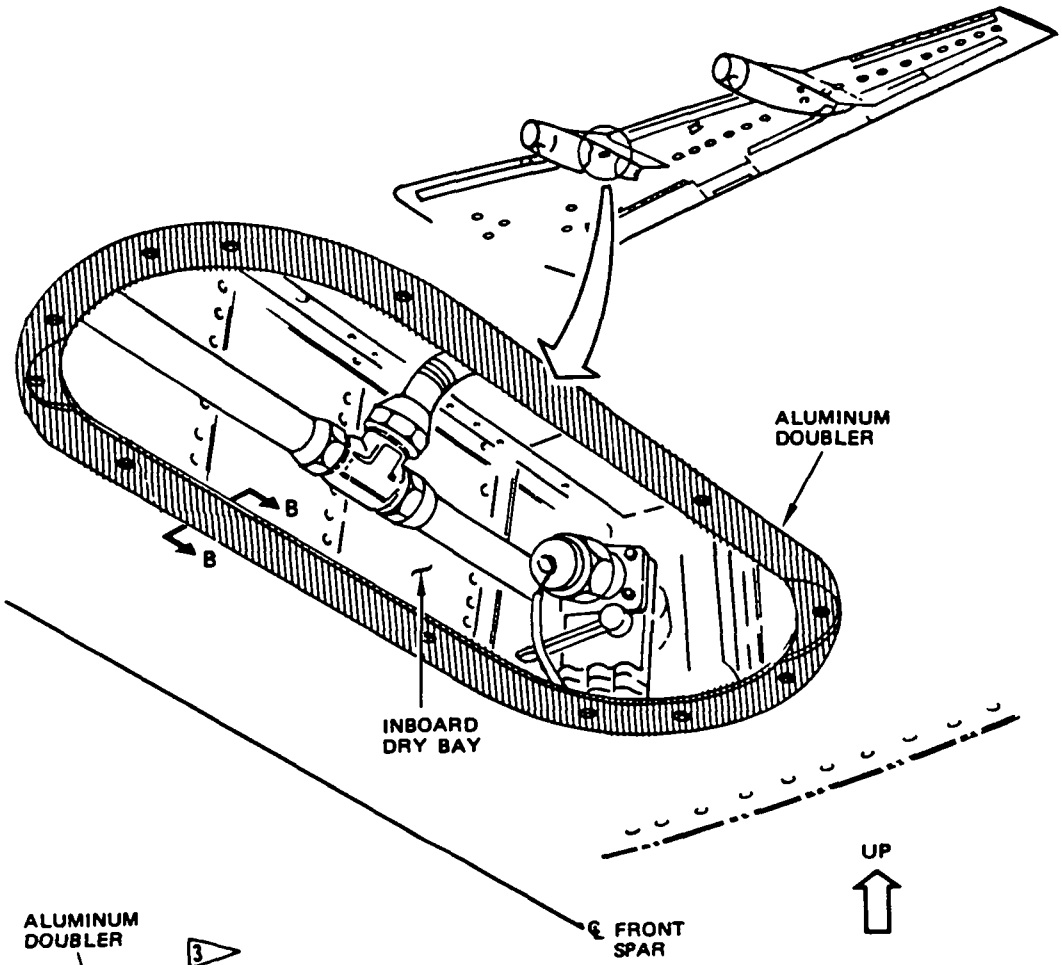
NOTES

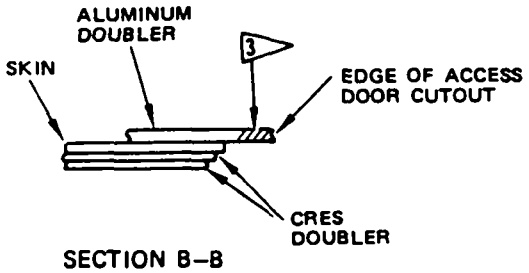
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 17–7 PH, MIL–S–25043 CRES, 150–170 KSI HT–TR
- ETCH OR STEEL STAMP WITH 115
- TOLERANCE: X.X = ± 0.05; X.XX = ± 0.02; X.XXX = ± 0.010 UNLESS OTHERWISE NOTED
- P/N 6412–117
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

REFERENCE STANDARD 115

DETAIL I

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 88 (Sheet 5)





SECTION B–B

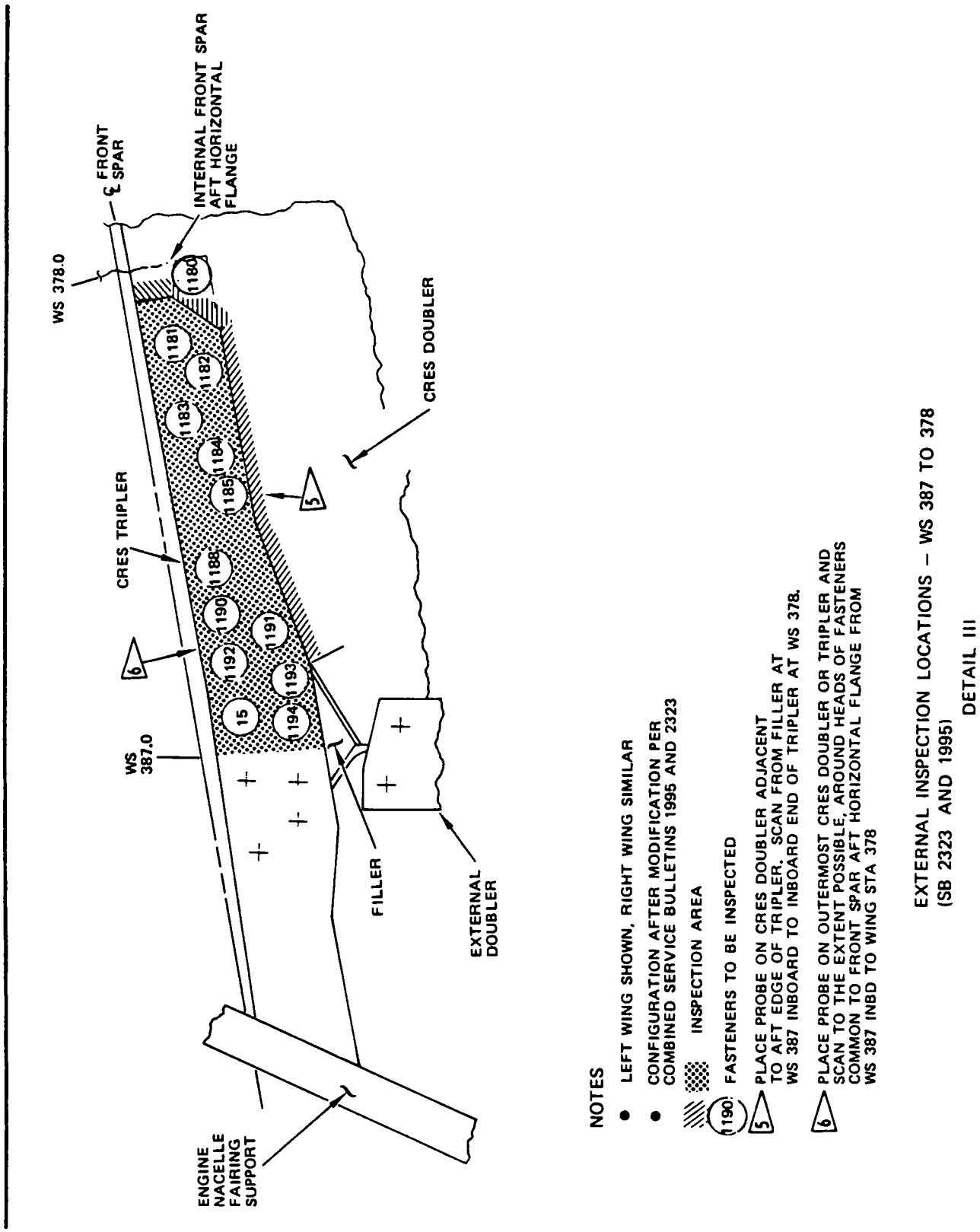
NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR

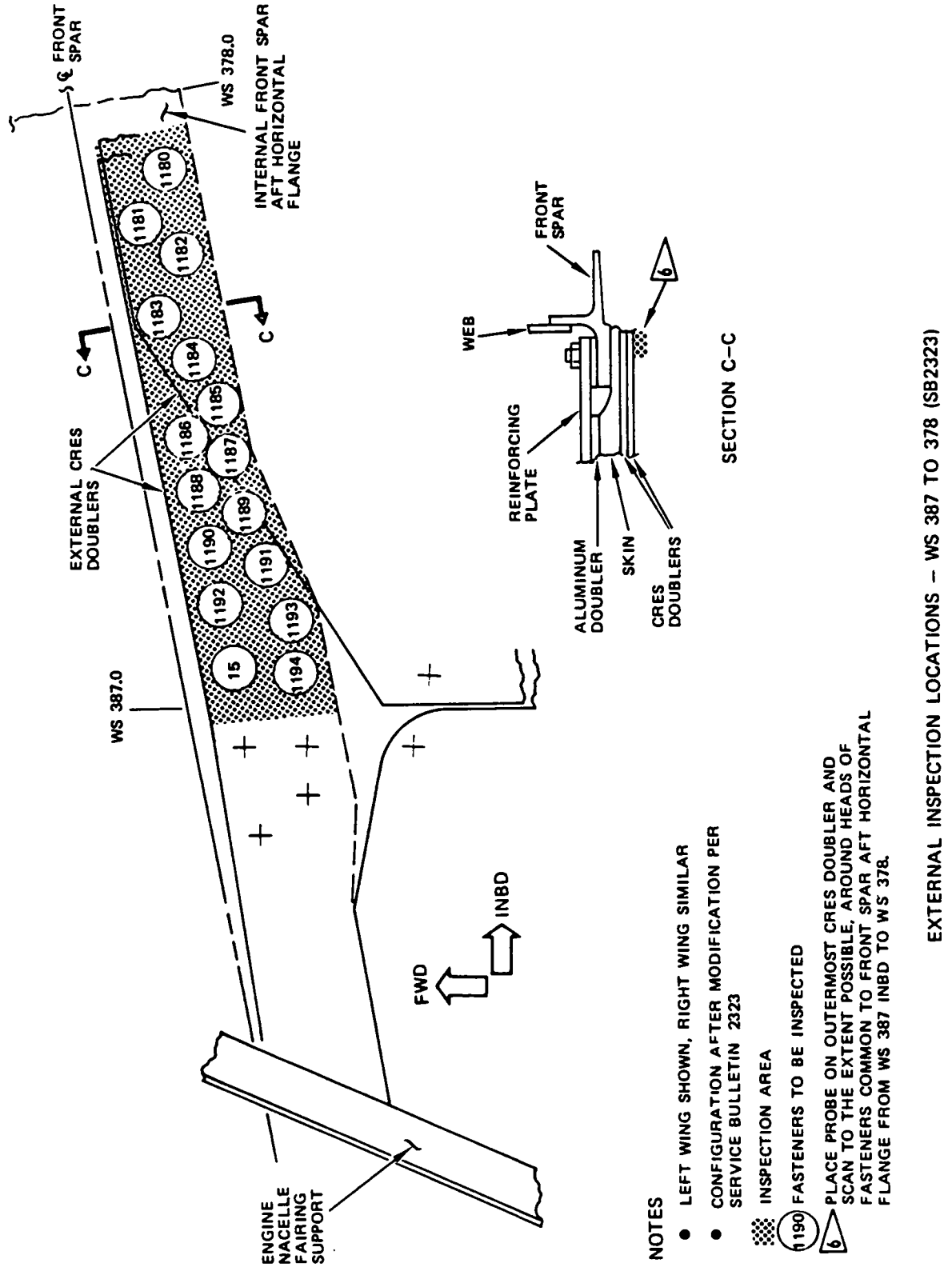
AREA TO BE INSPECTED

3 PLACE PROBE ON ALUMINUM DOUBLER – SCAN ENTIRE PERIPHERY OF CUTOUT

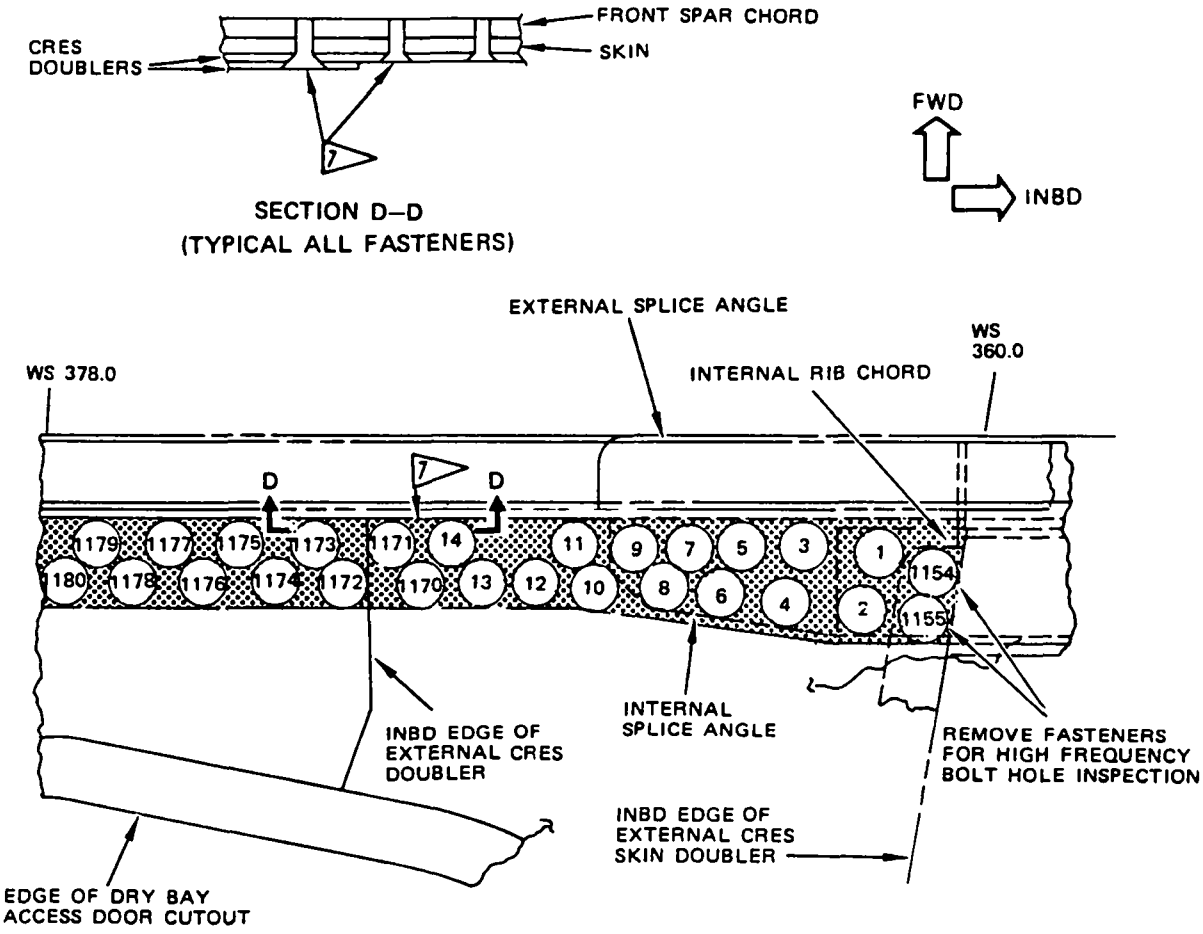
ACCESS DOOR PERIPHERY INSPECTION
DETAIL II
Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 88 (Sheet 6)



Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 88 (Sheet 7)



Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 88 (Sheet 8)



NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- CONFIGURATION AFTER MODIFICATION PER SB 2323 OR 1995 AND 2323 COMBINED

INSPECTION AREA

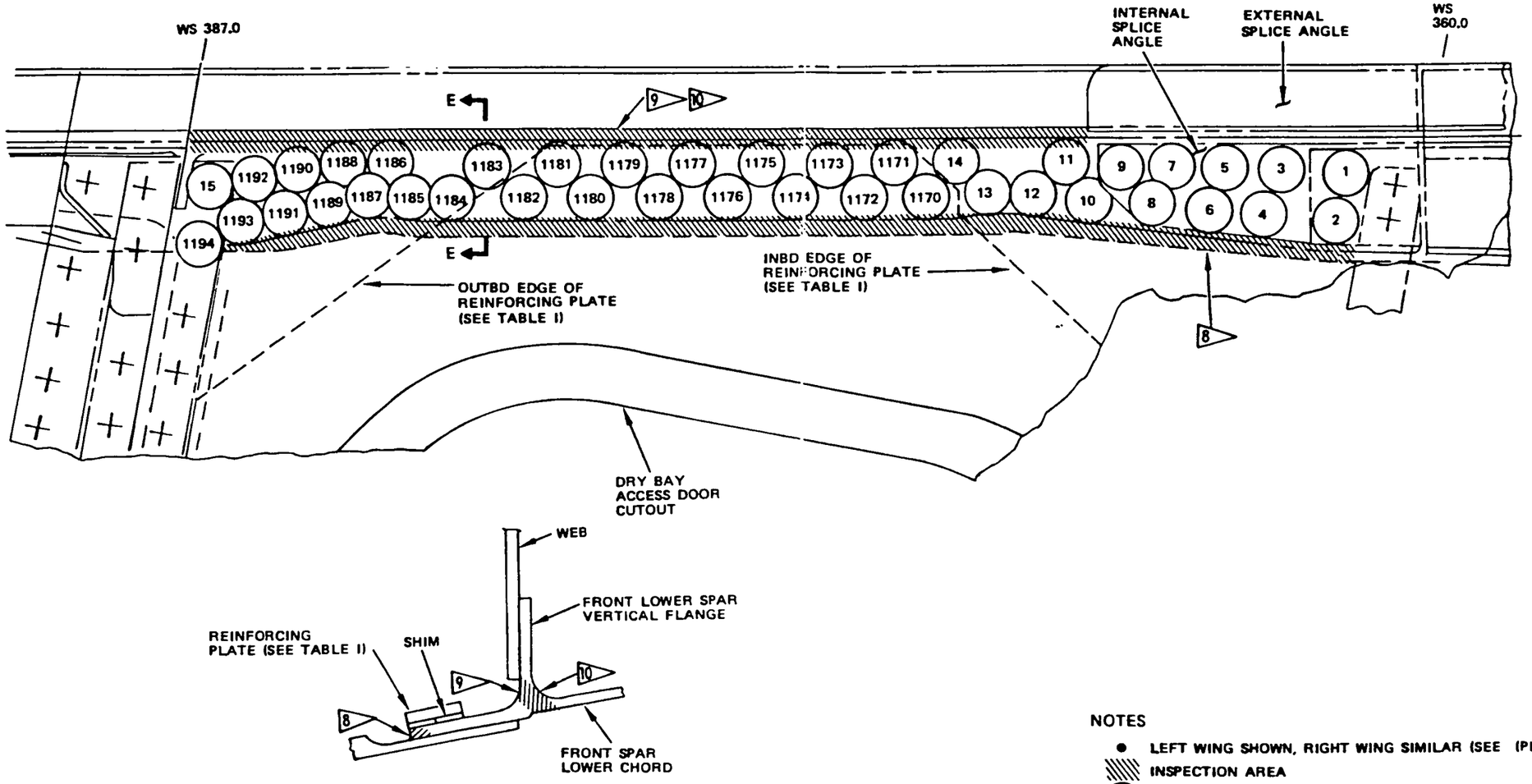
(14) FASTENERS TO BE INSPECTED

7 PLACE PROBE ON OUTERMOST CRES PLATE AND SCAN TO THE EXTENT POSSIBLE AROUND HEADS OF FASTENERS COMMON TO FRONT SPAR AFT HORIZONTAL FLANGE FROM WS 378 TO 360

EXTERNAL INSPECTION – WS 378 TO 360
(SB 2323 OR 1995 AND 2323 COMBINED)

DETAIL V

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 88 (Sheet 9)



SECTION E-E

NOTES

- ● LEFT WING SHOWN, RIGHT WING SIMILAR (SEE (PLAN VIEW)
- INSPECTION AREA
- (1172) FASTENERS TO BE INSPECTED
- (8) PLACE PROBE ON AFT EDGE OF FRONT SPAR CHORD HORIZONTAL FLANGE – SCAN FROM RIB CHORD AT WS 360.0 OUTBD TO WS 387.0 IN AREAS NOT COVERED BY REINFORCING PLATE.
- (9) PLACE PROBE ON AFT SIDE OF FRONT SPAR CHORD – VERTICAL FLANGE ON FILLET OF CHORD – SCAN FROM WS 360.0 TO WS 387.0
- (10) SCAN FORWARD SIDE OF FRONT SPAR CHORD VERTICAL FLANGE ON FILLET OF CHORD WHERE FILLET ON AFT SIDE OF CHORD IS INACCESSIBLE.

INTERNAL INSPECTION AREAS
DETAIL VI
Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 88 (Sheet 10)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

A. To perform an external High Frequency Eddy Current surface inspection at the WS 375 inboard defueling dry bay to:

(1) Detect cracks in the aluminum doubler around the periphery of the access door cutout.

(2) Detect cracks in the corrosion resistant steel doublers around heads of fasteners common to doublers and front spar lower chord aft horizontal flange.

(3) Detect cracks along aft edge of doubler installed per combined Service Bulletins 1995 and 2323.

B. To perform internal Eddy Current surface inspections to detect cracks in the front spar lower chord aft horizontal flange.

C. To perform an Eddy Current bolt hole inspection at specified fastener locations adjacent to the WS 360 splice.

2. Equipment

A. Equipment - Refer to Part 6, 51-00-00, Fig. 4.

B. Probe - Any probe satisfying the requirements of this procedure is acceptable. The following probe was used during the development of this procedure and found acceptable:

P/N: M-P 905-50
NDT Product Engineering
P.O. Box 423
Renton, WA 98057

C. Reference Standards

(1) Three Reference Standards are required:

(a) For inspection of aluminum doubler at periphery of the access door cutout and front spar chord aft horizontal flange; refer to Part 6, 51-00-00, Fig. 4.

Wing Front Spar Chord and Dry Bay
WS 360 to 387, 707 - 300B/300C
Figure 89 (Sheet 1)

(b) For inspection of corrosion resistant steel doublers; manufacture per Detail I.

(c) For inspection of fastener holes; refer to Part 6, 51-00-00, Fig. 1.

3. Preparation for Inspection

A. Gain access to the dry bay cavity through the access door forward of the wing tank at left and right WS 375.

B. Remove sealant from scan locations as necessary to perform inspections. See Detail IV to identify internal inspection areas requiring sealant removal.

C. Remove two fasteners for bolthole inspection. See Detail IIIB.

D. Wipe surfaces clean.

4. Instrument Calibration

A. General

Three separate instrument calibrations must be performed:

(1) Calibration for inspection of aluminum doubler at periphery of access door cutout and for inspection of lower front spar chord aft horizontal flange:

(a) Calibrate per Part 6, 51-00-00, Fig. 4.

(2) Calibration for inspection of corrosion resistant steel doublers:

(a) Calibrate per Part 6, 51-00-00, Fig. 4 except substitute the reference standard shown in Detail I for reference standard shown in Part 6, 51-00-00, Fig. 4.

NOTE: Meter response from notch on corrosion resistant steel reference standard may be upscale.

(b) If excessive surface noise is experienced, place a small piece of tape (Teflon or similar nonconductive material) over probe face and recalibrate.

(3) Calibration for bolt hole inspection:

(a) Calibrate per Part 6, 51-00-00, Fig. 1.

Wing Front Spar Chord and Dry Bay
WS 360 to 387 - 300B/300C
Figure 89 (Sheet 2)

5. Inspection Procedure

A. General

Five locations require inspection of airplanes modified by service bulletin 2323. Airplanes modified by combined service bulletin 1995 and 2323 have one additional location requiring inspection.

NOTE: Determine airplane configuration by comparison with Detail IIIA & IIIB.

B. External Inspections

(1) Access door periphery inspection. See Detail II.

(a) Calibrate per par. 4.A.(1).

(b) Place probe on aluminum doubler. Scan complete periphery of cutout per Part 6, 51-00-00, Fig. 4.

(2) Inspection of corrosion resistant steel doublers around heads of fasteners common to front spar lower chord aft horizontal flange, (applicable to all configurations). See Details IIIA & IIIB.

(a) Calibrate per par. 4.A.(2).

(b) Place probe on outermost corrosion resistant steel plate and scan around fastener heads from WS 387 inboard to WS 360 per Part 6, 51-00-00, Fig. 6.

NOTE: Local permeability changes in corrosion resistant steel may produce indications similar in amplitude to a crack. However, indications due to permeability change occur over a broader area and do not give the sudden sharp indication characteristic of a crack. Compare response with that obtained from the standard notch.

(3) Inspection of corrosion resistant steel doubler adjacent to aft edge of tripler. See Detail IIIA. This inspection applies to airplanes modified per combined service bulletins 1995 and 2323 only.

(a) Calibrate per par. 4.A.(2).

(b) Place probe on doubler adjacent to aft edge of tripler and scan along edge of tripler as shown in Detail IIIA. See note on effect of local permeability changes.

(4) Bolt hole inspection of two fastener holes common to the front spar aft horizontal flange and outboard side of WS 360 splice. See Detail IIIB.

(a) Calibrate and inspect per Part 1, 51-00-00, Fig. 1.

Wing Front Spar Chord and Dry Bay
WS 360 to 387 - 300B/300C
Figure 89 (Sheet 3)

C. Internal Inspections. See Detail IV.

NOTE: Sealant removal is required.

(1) Inspection of front spar lower chord aft horizontal flange in fillet formed by juncture of chord horizontal and vertical flanges.

(a) Calibrate per par. 4.A.(1).

(b) Place probe in fillet on aft side of front spar chord and scan from WS 387 inboard to WS 360.

(c) Scan fillet on forward side of spar chord where fillet on aft side is inaccessible.

(2) Inspection of aft edge of front spar chord aft horizontal flange.

(a) Calibrate per par. 4.A.(1).

(b) Place probe on aft edge of horizontal flange. Scan aft edge of flange from rib chord at WS 387 inboard to WS 360 in areas not covered by reinforcement plate.

(c) See Table I for airplane configuration and effectivity.

EFFECTIVITY	CONFIGURATION
8	SMALL REINFORCING PLATE WITH SHIM
9	LARGE REINFORCING PLATE WITH SHIM
10	NO REINFORCING PLATE

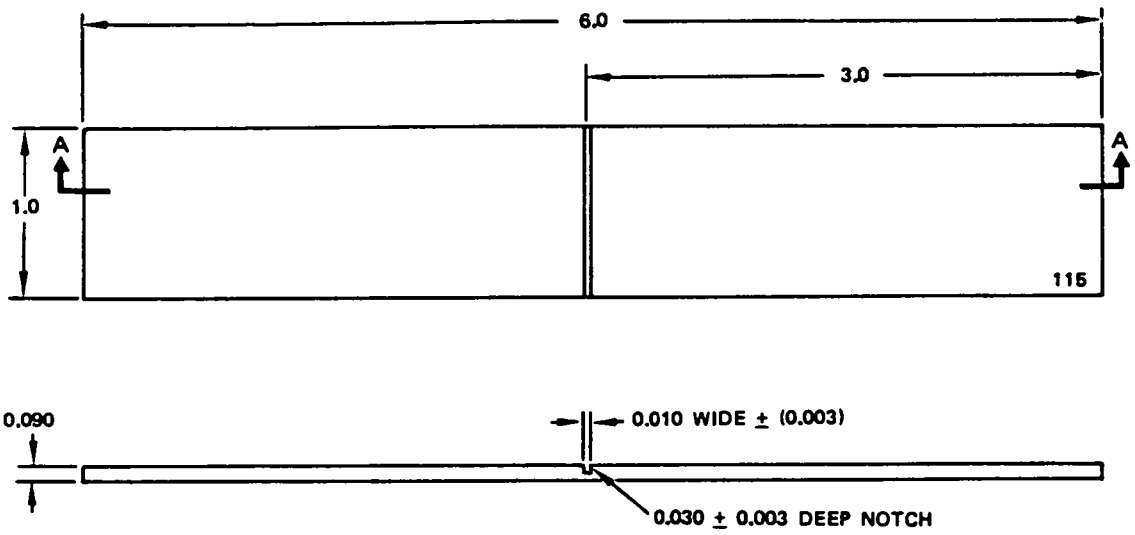
DETAIL IV EFFECTIVITY TABLE
TABLE I

8 CUM LINE NOS 268, 270, 276, 287, 292, 303, 305, 320, 323, 325 THRU 327, 329, 331 THRU 333, 335, 336, 341 THRU 343, 345, 348, 349, 350, 352, 354 THRU 360, 362 THRU 373, 375 THRU 379, 383, 386, 387, 389, 394, 397 THRU 400, 402 THRU 409, 411 THRU 413, 415 THRU 419, 421, 424, 425, 428, 434 THRU 441, 443 THRU 449, 451 THRU 469, 471, 472, 475 THRU 478, 480, 482 THRU 485, 487, 488, 494 THRU 499, 501, 503 THRU 505, 507 THRU 511, 515, 516, 518 THRU 525, 527 THRU 529, 572

Wing Front Spar Chord and Dry Bay
WS 360 to 387 - 300B/300C
Figure 89 (Sheet 4)

9 CUM LINE NOS 531, 435, 536, 537, 540 THRU 544, 546, 548 THRU 553, 555 THRU 557, 559, 560, 563, 566, 568, 570, 572, 574, 576, 578, 580, 582, 584, 585, 587, 588, 590, 592, 594, 596, 599, 601, 603, 605, 607 THRU 614, 616 THRU 620, 623, 626 THRU 631, 633, 634, 636 THRU 645, 647 THRU 660

10 CUM LINE NOS 350, 456, 459, 501, 520, 528, 536, 542, 543, 551, 555, 658, 661 THRU 668, 670 THRU 674, 676 THRU 679, 681, 683 THRU 690, 692 THRU 695, 697 THRU 743, 745, 746, 748, 749, 751 THRU 755, 757, 758, 760 THRU 770, 772 THRU 776, 778 THRU 785, 788 THRU 793, 795 THRU 799, 802 THRU 808, 810 THRU 818, 820 THRU 830, 832, 833, 835, 836, 838 THRU 841, 843 THRU 864 866, 869, 870, 872 THRU 887, 889 THRU 892, 894 THRU 897, 899, 900, 903, 905, 906, 908, 910 THRU 912, 914, 915, 917 THRU 919, 922, 923, 925, 928 AND 929 and on



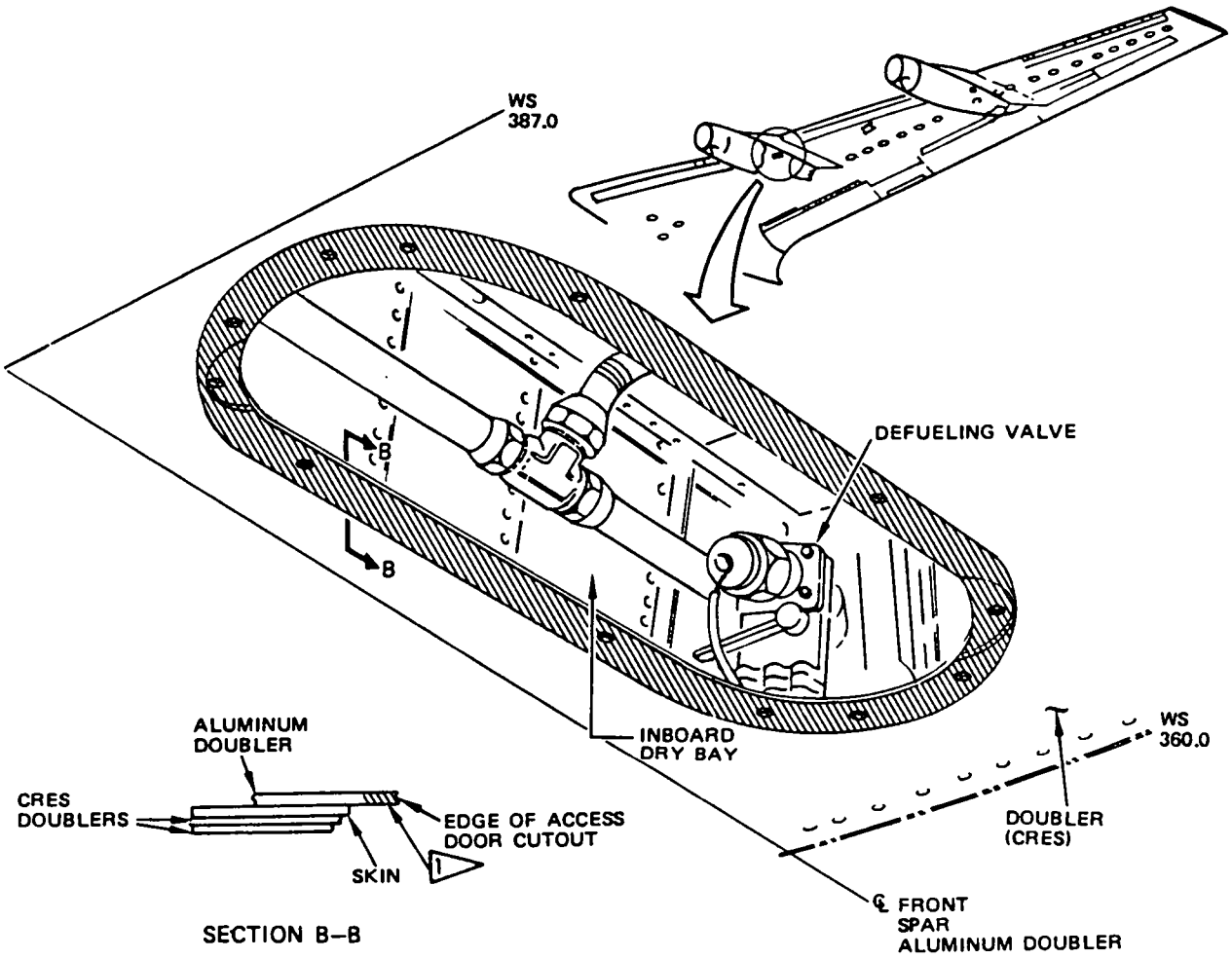
SECTION A–A

NOTES

- ALL DIMENSIONS ARE IN INCHES
- MATERIAL 17–7 PH, MIL–S–25043 CRES, 150–170 HT
- ETCH OR STEEL STAMP WITH 115
- TOLERANCE: X.X = ± 0.05; X.XX = ± 0.02; X.XXX = ± 0.010 UNLESS OTHERWISE NOTED
- P/N 6412–117
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2631 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

REFERENCE STANDARD 115
DETAIL I

Wing Front Spar Chord and Dry Bay
WS 360 to 387, 707-300B/300C
Figure 89 (Sheet 6)



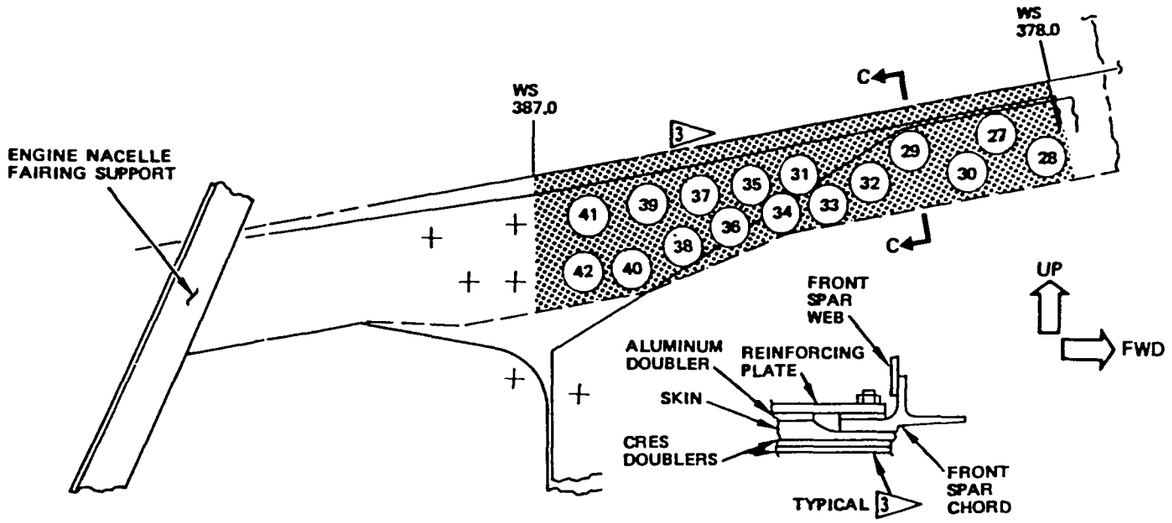
SECTION B–B

NOTES

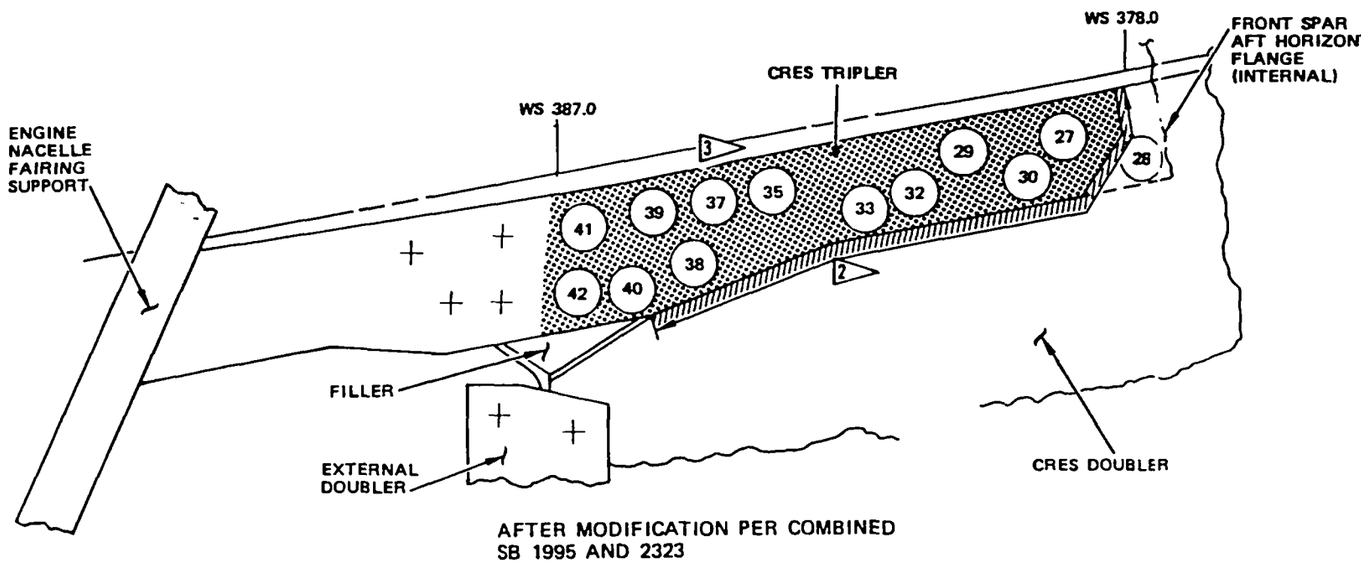
- LEFT WING SHOWN, RIGHT WING SIMILAR
- INSPECTION AREA
- PLACE PROBE ON ALUMINUM DOUBLER AND SCAN ENTIRE PERIPHERY OF CUTOUT

PERIPHERY INSPECTION
DETAIL II

Wing Front Spar Chord and Dry Bay
WS 360 to 387, 707-300B/300C
Figure 89 (Sheet 7)



SECTION C–C
(TYPICAL ALL FASTENERS)



AFTER MODIFICATION PER COMBINED
SB 1995 AND 2323

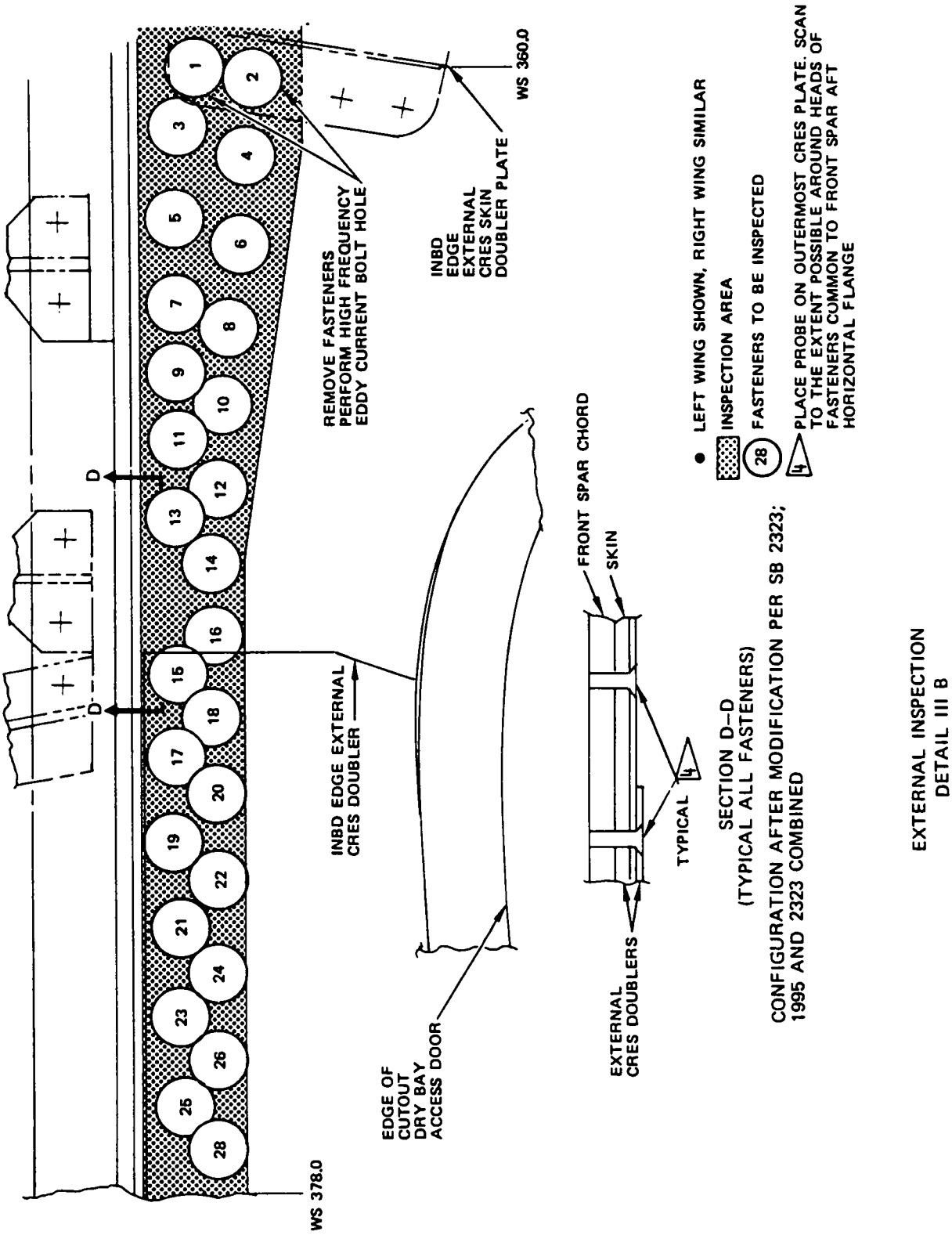
AFTER MODIFICATION
PER SB 2323

NOTES

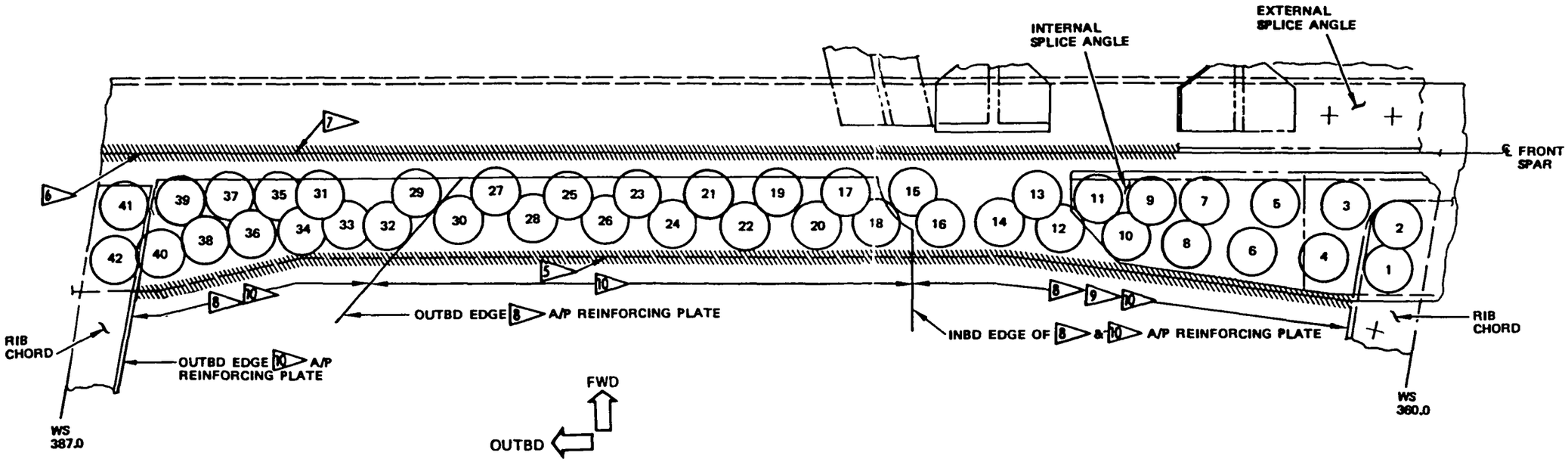
- ● LEFT WING SHOWN, RIGHT WING SIMILAR. PLAN VIEW
- INSPECTION AREA
- (41) FASTENERS TO BE INSPECTED
- 2 PLACE PROBE ON CRES DOUBLER ADJACENT TO AFT EDGE OF TRIPLER – SCAN FROM FILLER INBOARD FROM WS 387 TO WS 378. FOR AIRPLANES MODIFIED BY COMBINED SB 1995 AND 2323 ONLY
- 3 PLACE PROBE ON OUTERMOST CRES DOUBLER OR TRIPLER SCAN TO THE EXTENT POSSIBLE AROUND HEADS OF FASTENERS COMMON TO FRONT SPAR AFT HORIZONTAL FLANGE FROM WS 387 TO 378

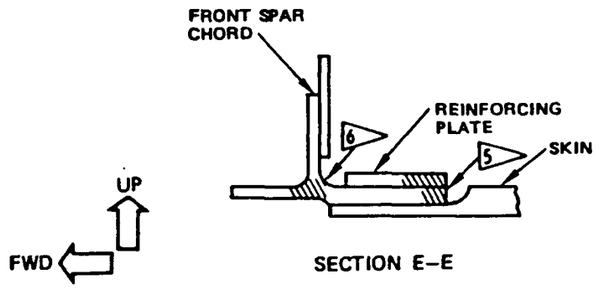
EXTERNAL INSPECTION LOCATIONS
DETAIL III A

Wing Front Spar Chord and Dry Bay
WS 360 to 387, 707-300B/300C
Figure 89 (Sheet 8)



Wing Front Spar Chord and Dry Bay
WS 360 to 387, 707-300B/300C
Figure 89 (Sheet 9)





SECTION E–E

NOTES

- ● LEFT WING SHOWN, RIGHT WING SIMILAR
- AREA TO BE INSPECTED
- (41) FASTENERS TO BE INSPECTED
- 5 PLACE PROBE ON AFT EDGE OF FRONT SPAR CHORD HORIZONTAL FLANGE–SCAN RIB CHORD AT WS 387 TO WS 360 ON AREAS NOT COVERED BY REINFORCING PLATE
- 6 PLACE PROBE ON AFT SIDE OF FRONT SPAR CHORD VERTICAL FLANGE ON FILLET OF CHORD–SCAN FROM WS 360 OUTBD TO WS 387
- 7 PLACE PROBE ON FORWARD SIDE OF FRONT SPAR CHORD VERTICAL FILLET–SCAN WHERE AFT CHORD FILLET IS INACCESSIBLE
- 8 9 10 SEE TABLE I

INTERNAL INSPECTION LOCATIONS
DETAIL IV

Wing Front Spar Chord and Dry Bay
WS 360 to 387, 707-300B/300C
Figure 89 (Sheet 10)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

To detect cracks around the periphery of the inboard defueling dry bay cavity access door cutout and to detect cracks out of fastener holes common to the wing lower panel and front spar lower chord aft horizontal flange using high frequency eddy current - WS 360 to WS 387.

2. Equipment

A. Instrument - Refer to Part 6, 51-00-00, Fig. 4.

B. Probe - Any probe satisfying the requirements of this procedure is acceptable. The following probe was used during the development of this procedure and found acceptable:

P/N: M-P 905-50
NDT Product Engineering
P.O. Box 423
Renton, WA 98057

C. Reference Standard - Refer to Part 6, 51-00-00. Fig. 4.

3. Preparation for Inspection

A. Gain access to the dry bay cavity through the access door located forward of the wing tank at WS 375.

B. Remove sealant from internal scan locations as necessary to perform inspections. See Detail III.

C. Wipe surfaces clean.

4. Calibration

A. Calibrate per Part 6, 51-00-00, Fig. 4.

Wing Front Spar Chord and Dry Bay -
WS 360 to 387
Figure 90 (Sheet 1)

5. Inspection Procedure

A. For general instructions on surface eddy current inspection and inspection around fastener ends, refer to Part 6, 51-00-00, Fig. 4 and Fig. 6.

B. External

(1) Place pencil probe on skin at access door cutout. Scan entire periphery. See Detail I.

(2) Place pencil probe on skin adjacent to heads of fasteners common to skin and front spar chord. Scan around fastener heads from Wing Sta. 360 outboard to Wing Sta. 387. See Detail II.

C. Internal

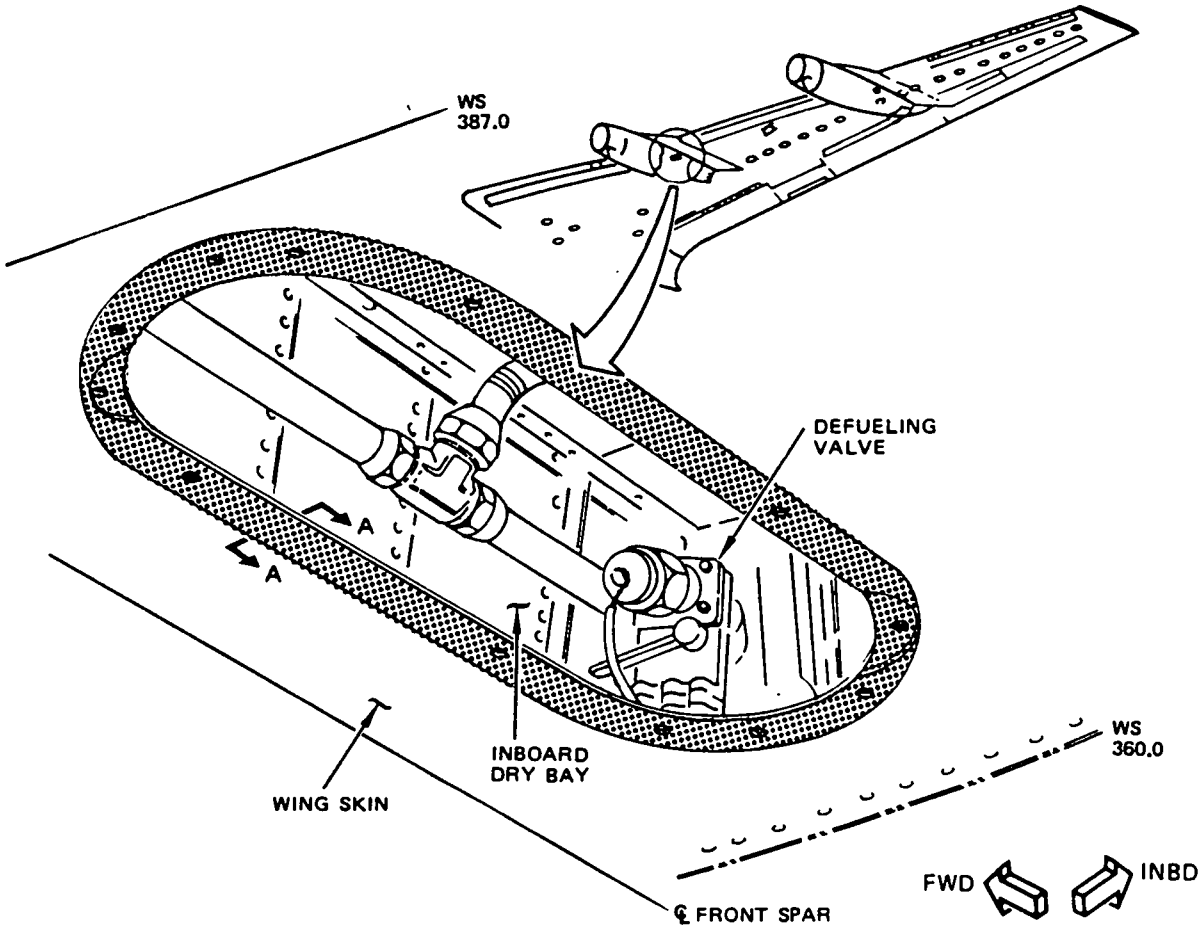
(1) Remove sealant as necessary to perform inspection. See Detail III.

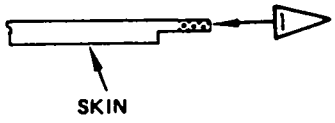
(2) Place probe on aft edge of lower front spar chord horizontal flange. Scan aft edge of flange from rib chord at WS 387 inboard to WS 360.

(3) Place pencil probe in fillet on aft side of front spar chord vertical flange where vertical flange joins horizontal flange. Scan from WS 360 outboard to WS 387.

(4) Where fillet on aft side of chord vertical leg is inaccessible, externally scan fillet on forward side of chord.

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 90 (Sheet 2)





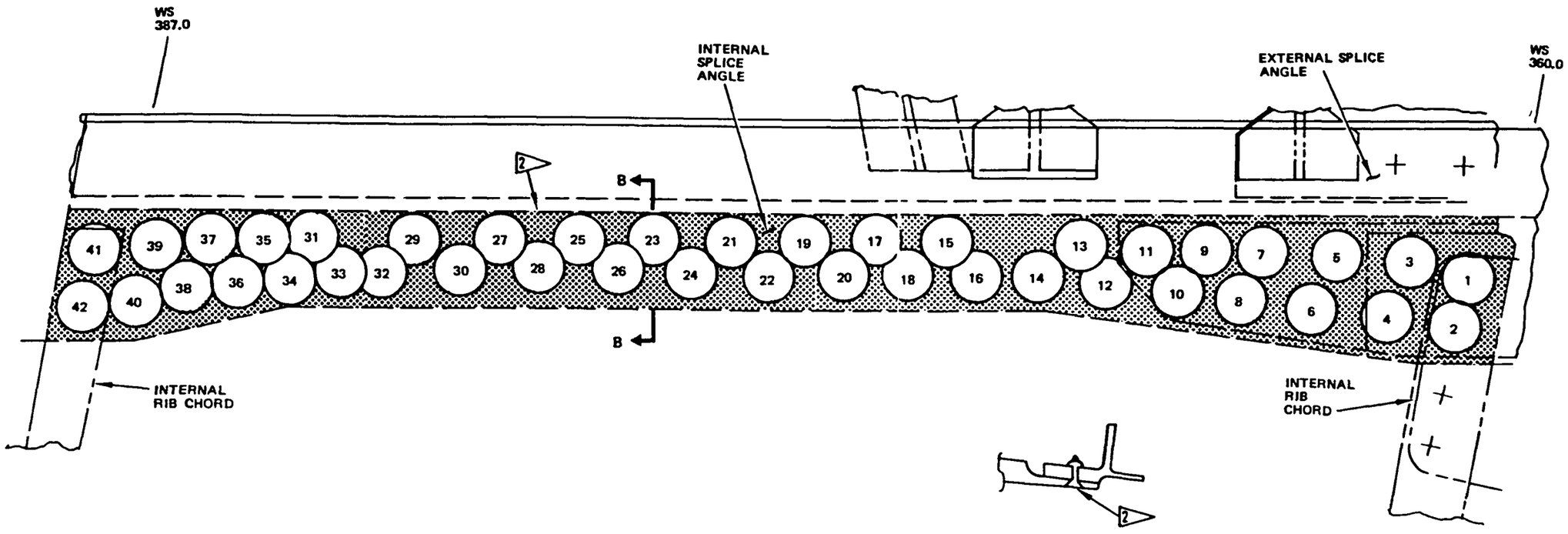
SECTION A–A

NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- INSPECTION AREA
- PLACE PROBE ON SKIN AT ACCESS DOOR CUTOUT AND SCAN ENTIRE PERIPHERY OF CUTOUT

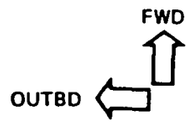
PERIPHERY INSPECTION
DETAIL I

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 90 (Sheet 3)



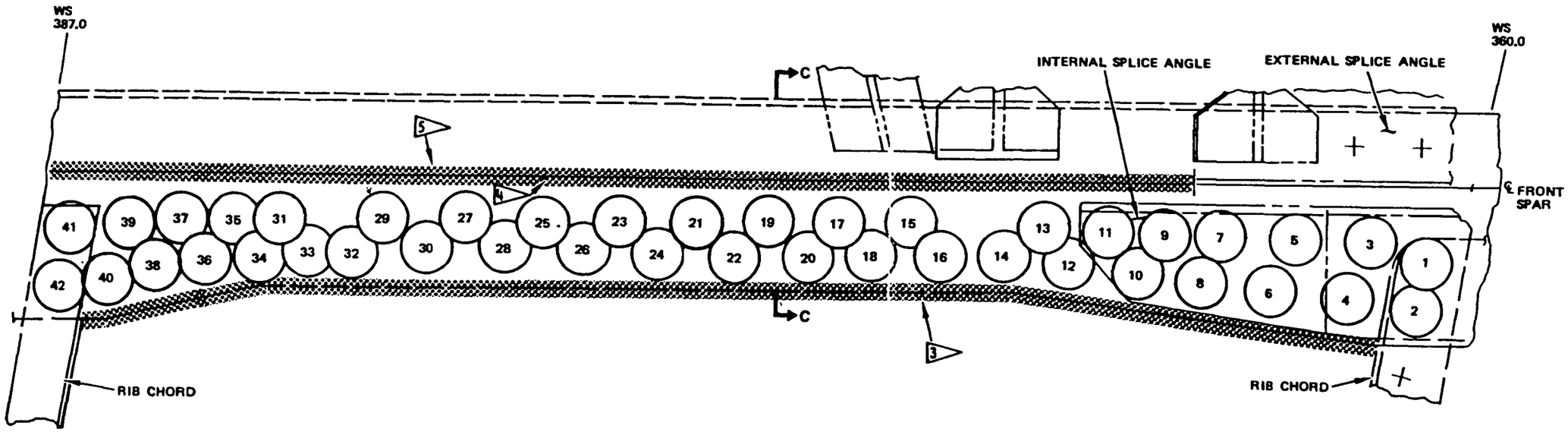
SECTION B–B
TYPICAL ALL FASTENERS

NOTES
- LEFT WING SHOWN, RIGHT WING SIMILAR
- INSPECTION AREA
- (41) FASTENERS TO BE INSPECTED
- (2) PLACE PROBE ON SKIN. SCAN AROUND FASTENER HEADS FROM WS 360 TO WS 387



EXTERNAL INSPECTION LOCATIONS
DETAIL II

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 90 (Sheet 4)



NOTES

- PLAN VIEW, LEFT WING SHOWN, RIGHT WING SIMILAR

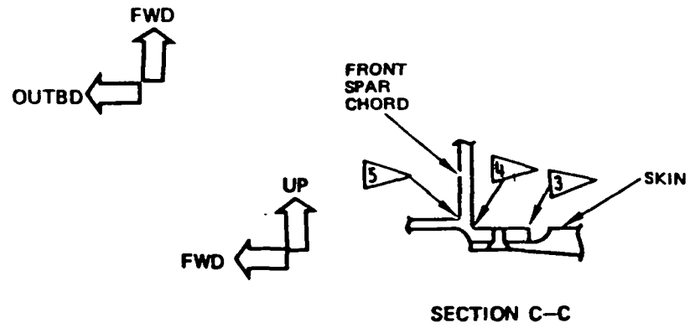
INSPECTION AREA

(42) FASTENERS TO BE INSPECTED

3 PLACE PROBE ON AFT EDGE OF FRONT SPAR CHORD HORIZONTAL FLANGE – SCAN FROM RIB CHORD AT WS 387 TO RIB CHORD AT WS 360

4 PLACE PROBE ON AFT SIDE OF FRONT SPAR CHORD VERTICAL FLANGE, FILLET. SCAN FROM WS 360 OTBD TO WS 387

5 PLACE PROBE ON FWD SIDE OF FRONT SPAR CHORD VERTICAL FLANGE FILLET. SCAN WHERE FILLET ON AFT SIDE OF CHORD IS INACCESSIBLE



SECTION C–C

INTERNAL INSPECTION LOCATIONS
DETAIL III

Wing Front Spar Chord and Dry Bay
WS 360 to 387
Figure 90 (Sheet 5)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. Inspect the wing lower surface front spar chord at the WBL 315 forward bay from WS 387 to 415 at specified locations using high frequency eddy current.

   B. This inspection requires wing tank entry. Fuel tank must be drained and purged to a "health safe" condition (as defined by Chapter 28 of the Maintenance Manual) before entering tank with an eddy current instrument. The eddy current instrument must be battery powered.

      NOTE: Approval for operating eddy current equipment in a fuel tank with the conditions stated above must be obtained from local Airline/Airport fire department.

2. Equipment

   A. Instrument and reference standard - Refer to Part 6, 51-00-00, Fig. 4.

   B. Probe -Shielded right angle pencil probe per the following dimensional requirements. Refer to Part 1, 51-06-00, Fig. 1.

      (1) A-Dimension: 0.2 inch.
      (2) B-Dimension: 0.325 inch.
      (3) C-Dimension: 5.0 inches.

      The following probe was used during the development of this procedure and found acceptable:

      MP 902-50B
      NDT Product Engineering
      P.O. Box 423
      Renton, WA 98057

Wing Lower Panel Forward Wet Bay
Figure 91 (Sheet 1)

3. Preparation for Inspection

A. External -

Gain access to the radius formed at the juncture of the lower front spar chord vertical and horizontal flanges (fillet area), between WS 387 and 410.

B. Internal—

(1) Drain and purge applicable fuel tanks to allow fuel tank entry with an eddy current instrument.

(2) Gain access to the fillet on the aft side of the lower front spar chord vertical flange between WS 407 and 418.

(3) Remove sealant as necessary to perform the inspection scan.

4. Instrument Calibration

Calibrate per Part 6, 51-00-00, Fig. 4.

5. Inspection Procedure

A. Refer to Table I for the inspection Detail applicable to each airplane model.

B. External Inspection -

(1) Inspect fillet of front spar lower chord as shown in inspection Detail and Part 6, 51-00-00, Fig. 4.

(2) For airplanes with external doubler installed at WS 387 by SB 1995 inspect about fastener heads according to note 4 of inspection Detail and Part 6, 51-00-00, Fig. 6.

Wing Lower Panel Forward Wet Bay
Figure 91 (Sheet 2)

C. Internal Inspection -

WARNING: PRECAUTIONS AND SAFETY PROCEDURES CONTAINED IN CHAPTER 28 OF THE MAINTENANCE MANUAL MUST BE FOLLOWED BY PERSONNEL ENTERING ANY TANK THAT HAS CONTAINED FUEL. POSSIBILITY OF EXPLOSION AND TOXIC DANGER EXISTS IN VICINITY OF FUEL TANKS WHICH HAVE CONTAINED FUEL.

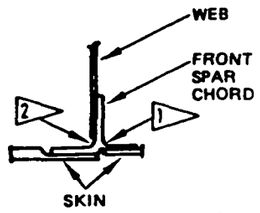
NOTE: Sealant removal may be required in inspection area.

Inspect internal fillet of front spar lower chord as shown in inspection Detail and Part 6, 51-00-00, Fig. 4.

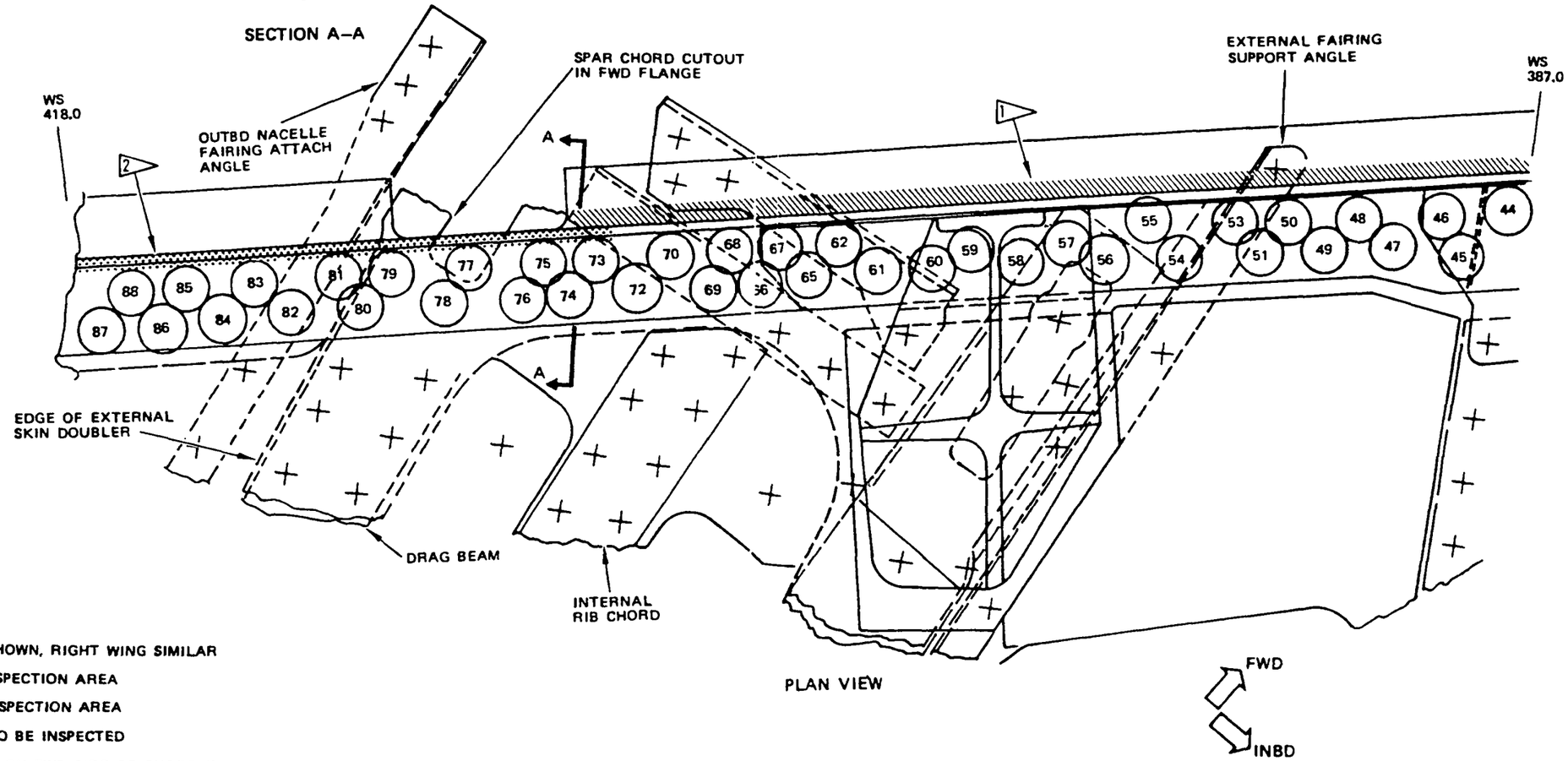
AIRPLANE MODEL	INSPECTION DETAIL
720	I
707-100/200	II
707-300/400	III
707-300B & 300C	IV

EFFECTIVITY TABLE
TABLE I

Wing Lower Panel Forward Wet Bay
Figure 91 (Sheet 3)



SECTION A-A



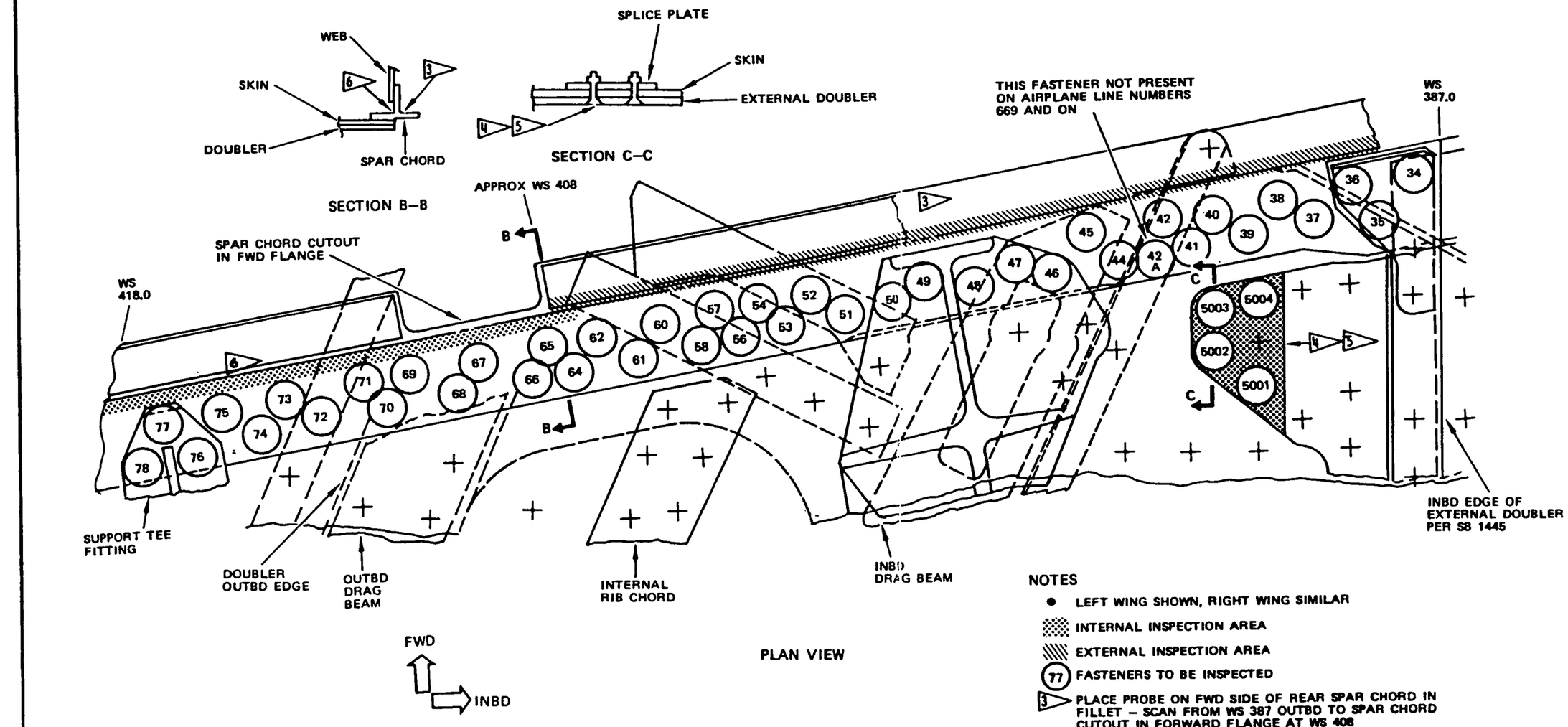
PLAN VIEW

NOTES

- ● LEFT WING SHOWN, RIGHT WING SIMILAR
- INTERNAL INSPECTION AREA
- EXTERNAL INSPECTION AREA
- (88) FASTENERS TO BE INSPECTED
- 1 PLACE PROBE ON FWD SIDE OF CHORD IN FILLET – SCAN FROM WS 387 OUTBD TO SPAR CHORD CUTOUT (APPROX WS 408)
- 2 PLACE PROBE ON AFT SIDE OF CHORD IN FILLET (BELOW WEB) SCAN FROM WS 407 OUTBD TO WS 418.0. SEALANT REMOVAL IS REQUIRED.

INSPECTION LOCATIONS, 720, WS 387 TO 415.5
DETAIL I

Wing Lower Panel Forward Wet Bay
Figure 91 (Sheet 4)

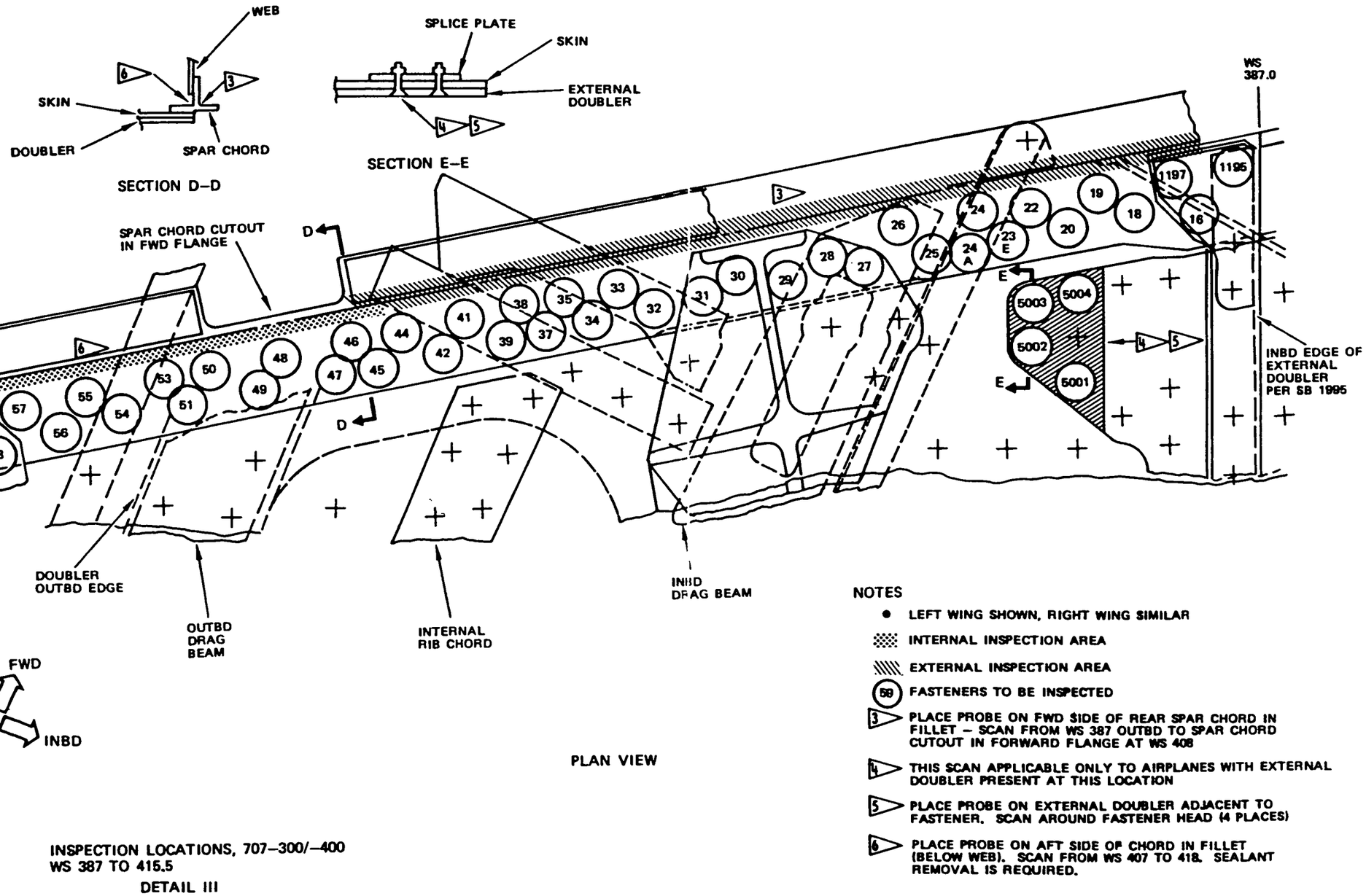


NOTES

- ● LEFT WING SHOWN, RIGHT WING SIMILAR
- INTERNAL INSPECTION AREA
- EXTERNAL INSPECTION AREA
- (77) FASTENERS TO BE INSPECTED
- 3 PLACE PROBE ON FWD SIDE OF REAR SPAR CHORD IN FILLET – SCAN FROM WS 387 OUTBD TO SPAR CHORD CUTOUT IN FORWARD FLANGE AT WS 408
- 4 THIS SCAN APPLICABLE ONLY TO AIRPLANES WITH EXTERNAL DOUBLER PRESENT AT THIS LOCATION
- 5 PLACE PROBE ON EXTERNAL DOUBLER ADJACENT TO FASTENER. SCAN AROUND FASTENER HEAD. (4 PLACES)
- 6 PLACE PROBE ON AFT SIDE OF CHORD IN FILLET (BELOW WEB). SCAN FROM WS 407 TO 418. SEALANT REMOVAL IS REQUIRED.

INSPECTION LOCATIONS, 707–100/–200
WS 387 TO 415.5
DETAIL II

Wing Lower Panel Forward Wet Bay
Figure 91 (Sheet 5)

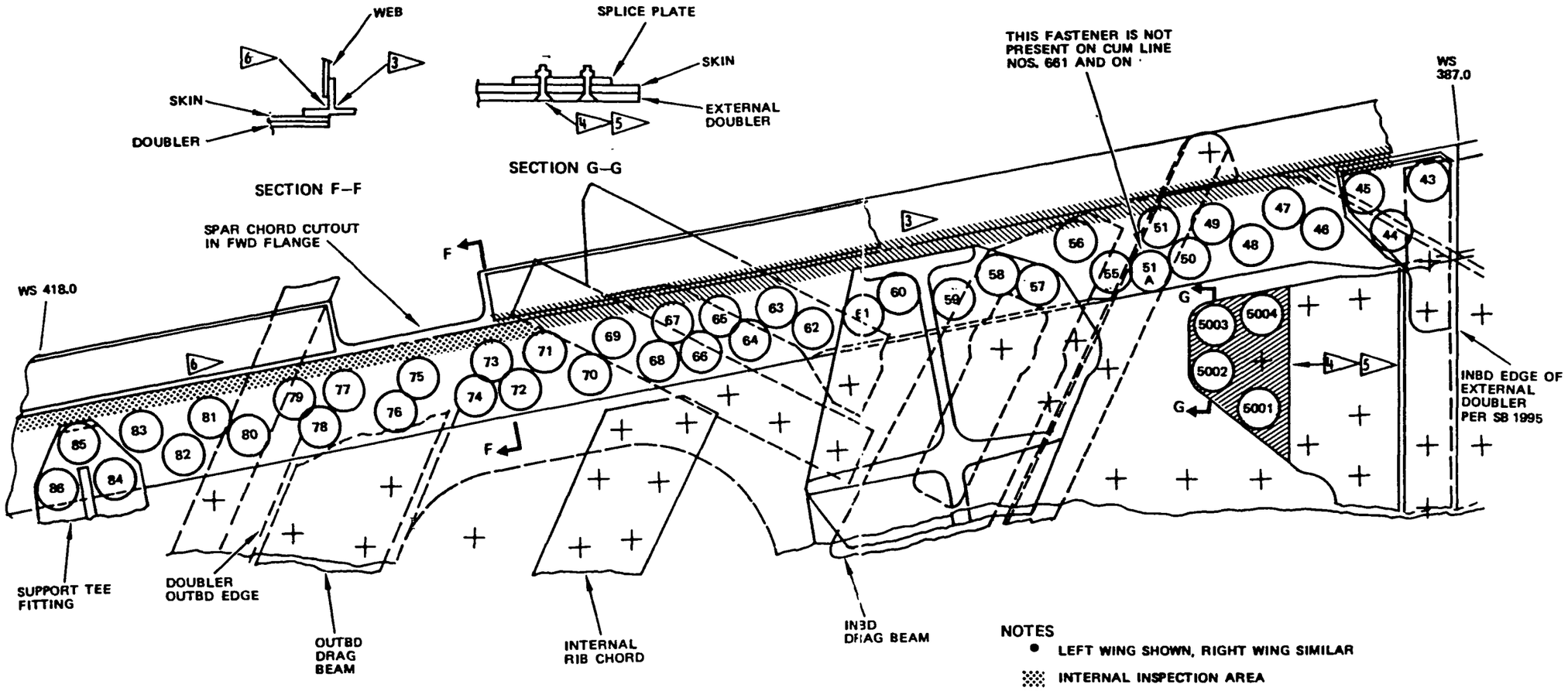


NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- INTERNAL INSPECTION AREA
- EXTERNAL INSPECTION AREA
- (59) FASTENERS TO BE INSPECTED
- 3 PLACE PROBE ON FWD SIDE OF REAR SPAR CHORD IN FILLET – SCAN FROM WS 387 OUTBD TO SPAR CHORD CUTOUT IN FORWARD FLANGE AT WS 408
- 4 THIS SCAN APPLICABLE ONLY TO AIRPLANES WITH EXTERNAL DOUBLER PRESENT AT THIS LOCATION
- 5 PLACE PROBE ON EXTERNAL DOUBLER ADJACENT TO FASTENER. SCAN AROUND FASTENER HEAD (4 PLACES)
- 6 PLACE PROBE ON AFT SIDE OF CHORD IN FILLET (BELOW WEB). SCAN FROM WS 407 TO 418. SEALANT REMOVAL IS REQUIRED.

INSPECTION LOCATIONS, 707–300/–400
WS 387 TO 415.5
DETAIL III

Wing Lower Panel Forward Wet Bay
Figure 91 (Sheet 6)



PLAN VIEW

NOTES

- LEFT WING SHOWN, RIGHT WING SIMILAR
- INTERNAL INSPECTION AREA
- EXTERNAL INSPECTION AREA
- (85) FASTENERS TO BE INSPECTED
- 3 PLACE PROBE ON FWD SIDE OF REAR SPAR CHORD IN FILLET – SCAN FROM WS 387 OUTBD TO SPAR CHORD CUTOUT IN FORWARD FLANGE AT WS 408
- 4 THIS SCAN APPLICABLE ONLY TO AIRPLANES WITH EXTERNAL DOUBLER PRESENT AT THIS LOCATION
- 5 PLACE PROBE ON EXTERNAL DOUBLER ADJACENT TO FASTENER. SCAN AROUND FASTENER HEAD (4 PLACES)
- 6 PLACE PROBE ON AFT SIDE OF CHORD IN FILLET (BELOW WEB). SCAN FROM WS 408 TO 418. SEALANT REMOVAL IS REQUIRED.

INSPECTION LOCATIONS, 707–3008/300C
WS 387 TO 415.5
DETAIL IV

Wing Lower Panel Forward Wet Bay
Figure 91 (Sheet 7)

PART 6 - EDDY CURRENT

WING - WING STATION 733 PRODUCTION SPLICE RIB LOWER CHORD

1. Purpose

To find cracks in the bolt holes of the Wing Station (WS) 733 production splice on the wing lower chord.

2. Equipment

NOTE: Refer to Part 1, 51-01-00 of this manual for instrument and probe manufacturers.

A. Instrument - Meter or impedance plane eddy current instruments are permitted for use. The instruments specified below were used to make this procedure:

(1) Zetec MIZ-10B (meter instrument).

(2) Staveley NDT 19 (impedance plane instrument).

B. Probe - A special, flexible, high frequency eddy current probe is used for this inspection.

The probe specified below was used to make this procedure:

NDT Engineering Corp., part number MP902-80FX.

C. Reference Standard - Refer to Part 6, 51-00-00, Fig. 4 for reference standard No. 126.

3. Prepare for Inspection

A. Remove the panel that covers the lower tension bolts at WS 733. Refer to Detail I.

B. Remove no more than ten of the tension bolts at a time so the parts will stay aligned. Replace the bolts after inspection and remove ten more until all bolt holes have had the inspection.

C. Make sure the inspection holes are clean and free from corrosion.

4. Calibration

A. Refer to Part 6, 51-00-00, Fig. 4 of this manual for the calibration procedure.

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WS 733 Production Splice
Figure 92 (Sheet 1)

5. Inspection Procedure

A. Find the inspection area. Refer to Detail I.

B. If not done, remove as many as ten of the tension bolts. Make sure the inspection holes are clean and free from corrosion.

NOTE: Do not remove more than ten tension bolts at one time so the parts will stay aligned.

C. Bend the probe to do the lower hole inspection. Refer to Detail II.

D. Put the probe into the first inspection hole and balance the instrument.

E. Make a scan in the lower hole through 190 degrees in 0.1 inch (2.5 mm) increments. Refer to Detail II.

F. Make a scan axially through the lower hole. Refer to Detail II.

NOTE: An edge effect signal will be seen at the production joint faying surface.

G. Do steps 5.D thru 5.F again on all prepared inspection holes.

H. Bend the probe to do the upper hole inspection. Refer to Detail II.

I. Put the probe in the first hole. Balance the instrument and do a scan of the upper hole through 190 degrees in 0.1 inch (2.5 mm) increments. Refer to Detail II.

J. Make a scan axially through the upper hole. Refer to Detail II.

K. Do steps 5.I thru 5.J again on all prepared inspection holes.

L. Install the bolts back into the inspection holes. Continue to remove as many as ten tension bolts and do steps 5.B thru 5.K again until all 38 bolt holes have been examined.

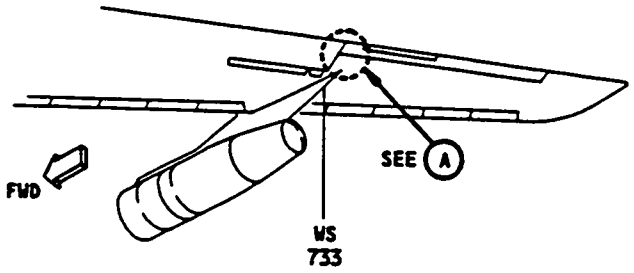
NOTE: Do not remove more than ten tension bolts at one time so the parts will stay aligned.

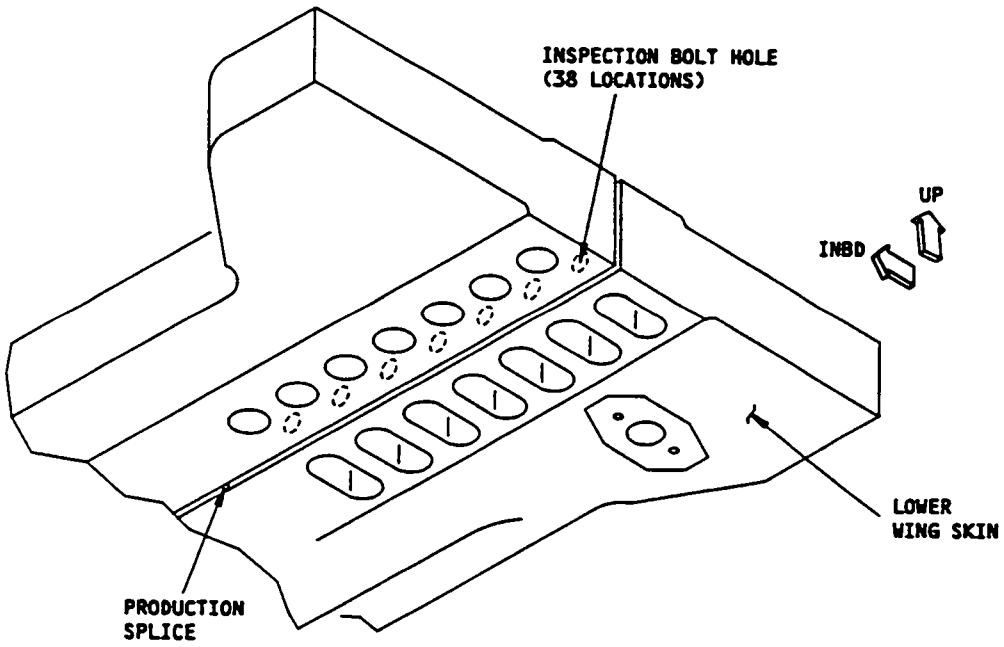
M. Do steps 5.A thru 5.L again on the opposite wing and look for a signal equivalent to that from the reference standard.

6. Inspection Results

A. Refer to the Inspection Results in Part 6, 51-00-00, Fig. 4 to make an analysis of the inspection data.

WS 733 Production Splice
Figure 92 (Sheet 2)





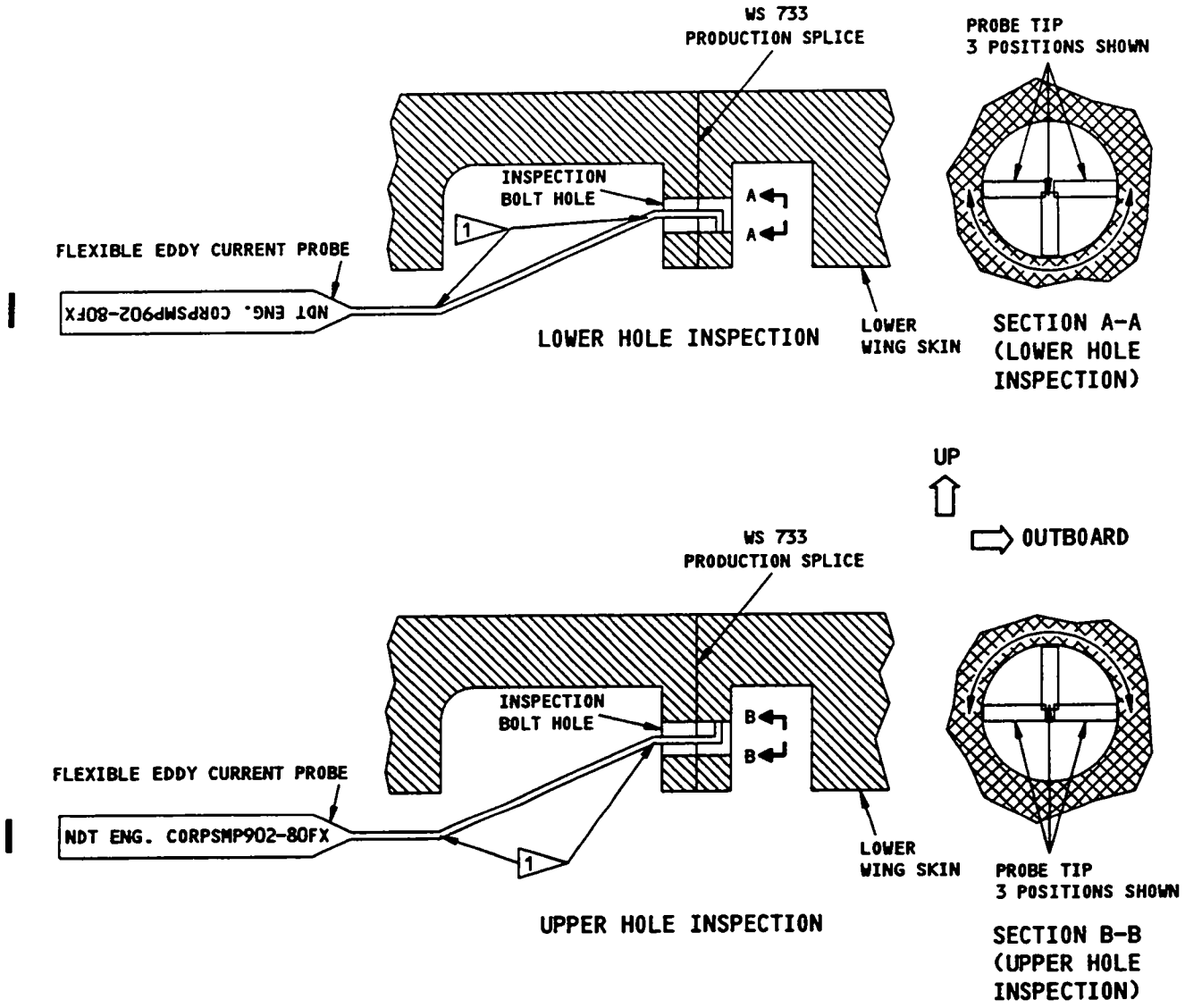
NOTE:

- RIGHT SIDE SHOWN, LEFT SIDE OPPOSITE

A

INSPECTION LOCATION
DETAIL I

WS 733 Production Splice
Figure 92 (Sheet 3)



NOTES:

- DO A SCAN 190 DEGREES AROUND THE LOWER AND UPPER HOLES IN 0.1 INCH INCREMENTS
- DO A SCAN AXIALLY THROUGH HOLE
- THERE WILL BE AN EDGE EFFECT FROM THE FAYING SURFACES

1 PROBE BEND LOCATIONS (EXAMPLE)

CROSS-SECTION THROUGH THE INSPECTION AREA
DETAIL II

WS 733 Production Splice
Figure 92 (Sheet 4)

A16313

PART 6 - EDDY CURRENT
WING FRONT SPAR LOWER CHORD at WS-529.50

1. Purpose

   A. This subsurface eddy current inspection will find cracks in the wing front spar lower chord at WS-529.50. This inspection is done with two ring probes that have different inner diameters and an impedance plane or meter display instrument.

   B. This inspection will find cracks at the fastener location in the horizontal flange of the lower chord, aft of the chord vertical flange. See Detail I.

2. Equipment

   NOTE: Refer to Part 1, 51-01-00, paragraph 6 for data about the equipment manufacturers.

   A. Instrument - All eddy current instruments with a meter display or an impedance plane display are permitted for use if they:

      (1) can operate at a frequency of 500 Hz.

      (2) can be calibrated as specified in the calibration instructions of this procedure. The instruments below were used to help prepare this procedure.

         (a) MIZ-10A, MIZ-10B - Zetec, Inc.

         (b) MIZ-20A - Zetec, Inc.

         (c) NDT-19, NDT-19E - Nortec/Staveley, Inc.

         (d) Phasec 1.1 - Hocking/Krautkramer

   B. Probes - Reflection ring probes of two different inner diameters are necessary to do this inspection. Probes that can operate at a frequency of 500 Hz and have approximate inner diameters of 0.30 inch (7.5 mm) and 0.50 inch (13 mm) are satisfactory for use. The probes identified below were used to help prepare this procedure.

Wing Front Spar Lower Chord at WS-529.50
Figure 93 (Sheet 1)

(1) Probes with inner diameter of 0.30 inch (7.5 mm).

(a) SPO-996R; 0.75 inch (19 mm) outer diameter (OD), 0.30 inch (7.5 mm) inner diameter (ID) - Nortec/Staveley, Inc.

(b) RR028-1; 0.80 inch (20 mm) OD, 0.30 inch (7.5 mm) ID - NDT Engineering Corp.

(2) Probes with inner diameter of 0.50 inch (13 mm).

(a) RR0110-1; 1.18 inch (30 mm) OD, 0.50 inch (13 mm) ID - NDT Engineering Corp.

(b) SPO-2030; 1.25 inch (32 mm) OD, 0.50 inch (13 mm) ID - Nortec/Staveley, Inc.

C. Reference Standard - Make reference standard NDT1031 as specified in Detail II.

3. Preparation For Inspection

A. Make sure that the instrument, probe, reference standard, and airplane are at the same temperature.

B. Clean the inspection areas identified in Detail I.

NOTE: Remove paint if necessary to view the fasteners.

4. Instrument Calibration

It is necessary to do two calibrations to do the inspection of all the fastener locations in Detail I.

A. Calibration for the code "A" fastener locations. See Detail I.

(1) Set the instrument frequency to 500 Hz.

(2) Use a probe with a 0.50 inch (13 mm) inside diameter for this calibration.

(3) Put the probe on reference standard NDT1031 at probe position 1 (fastener location without a notch) shown in Detail III.

NOTE: Make sure that the probe is in the center of the fastener head. To make sure the probe is in the center of the fastener head, move the probe around the fastener to get a minimum signal response.

Wing Front Spar Lower Chord at WS-529.50
Figure 93 (Sheet 2)

(4) Balance the instrument.

(5) Adjust the instrument lift-off.

(a) If a meter display instrument is used, adjust the phase control so that the meter needle moves no more than 5 percent of full scale for probe to part distance of 0.006 inch (0.15 mm). This is equivalent to the thickness of two sheets of paper.

(b) If an impedance plane instrument is used, adjust the phase control so that the signal moves horizontally from right to left when the probe is lifted off of the part surface.

(6) Set the instrument baseline.

(a) If a meter display instrument is used, set the meter needle to 20 percent of full scale. See Detail IV.

(b) If an impedance plane instrument is used, set the balance point in the lower right area of the screen, at 20 percent full screen height. See Detail IV.

(7) Put the probe on the reference standard at probe position 2 (fastener location with a notch). See Detail III. There must be an upscale response on the meter display instrument and a higher vertical response on the impedance plane instrument.

NOTE: Make sure that the probe is in the center of the fastener head.

(8) Adjust the instrument sensitivity.

(a) If a meter display instrument is used, set the meter needle response to 80 percent full scale. This is a 60 percent full scale difference between the fastener location without a notch and the fastener location with a notch. See Detail IV.

(b) If an impedance plane instrument is used, adjust the vertical signal response to 80 percent full screen height. This is a 60 percent full screen height difference between the fastener location without a notch and the fastener location with a notch. See Detail IV.

NOTE: It will be necessary to adjust the horizontal gain so it is lower than the vertical gain to help make the dot more stable and to stay on the screen display.

Wing Front Spar Lower Chord at WS-529.50
Figure 93 (Sheet 3)

B. Calibration for the code "B" fastener locations. See Detail I.

(1) Set the instrument frequency to 500 Hz.

(2) Use a probe with a 0.30 inch (7.5 mm) inside diameter, for this calibration.

(3) Do paragraph 4.A.(3) thru 4.A.(8) but use probe positions 3 and 4 of the reference standard.

5. Inspection Procedure

A. Inspection of the code "A" fastener locations.

(1) Calibrate the instrument as specified in paragraph 4.A.

(2) Identify the inspection areas. See Detail I.

(3) Do an inspection of three or more fasteners to set the baseline indication for the airplane.

NOTE: If necessary use the fastener locations identified as flagnote 1 in Detail I to help set the baseline indication for the airplane.

(4) Use one of the fasteners that gives an average response of the group and balance the instrument on that fastener.

(5) Do an inspection of the fastener locations identified. Refer back to the baseline fastener regularly to make sure there are no changes because of instrument drift or temperature changes.

B. Inspection of the code "B" fastener locations.

(1) Calibrate the instrument as specified in paragraph 4.B.

(2) Identify the inspection areas. See Detail I.

(3) Do paragraph 5.A.(3) and 5.A.(4) again.

(4) Do an inspection of the fastener locations identified. Refer back to the baseline fastener regularly to make sure there are no changes because of instrument drift or temperature changes.

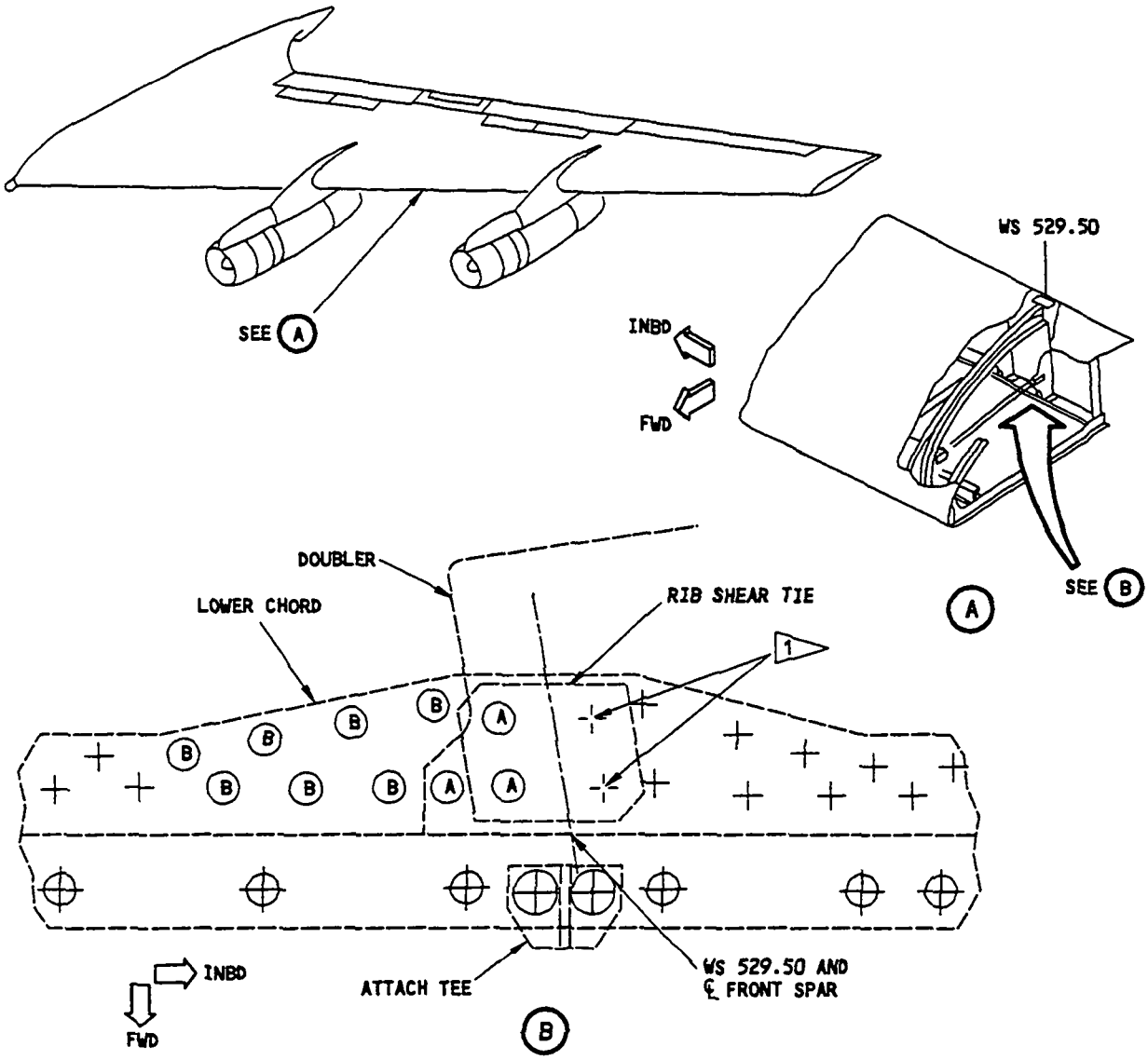
Wing Front Spar Lower Chord at WS-529.50
Figure 93 (Sheet 4)

6. Inspection Results

A. An upscale needle response that is 30 percent (or more) of the balance position on the meter display instrument is a sign of a possible crack. An indication on the impedance plane instrument that is 30 percent (or more) of full-screen higher than the balance point is a sign of a possible crack.

(1) Do a surface scan inspection around the fastener with the indication, on the inside surface of the chord, refer to Part 6, 51-00-00, Figure 4.

Wing Front Spar Lower Chord at WS-529.50
Figure 93 (Sheet 5)



ROTATED VIEW FROM LOWER SURFACE

NOTES:

- LEFT WING SHOWN; RIGHT WING OPPOSITE

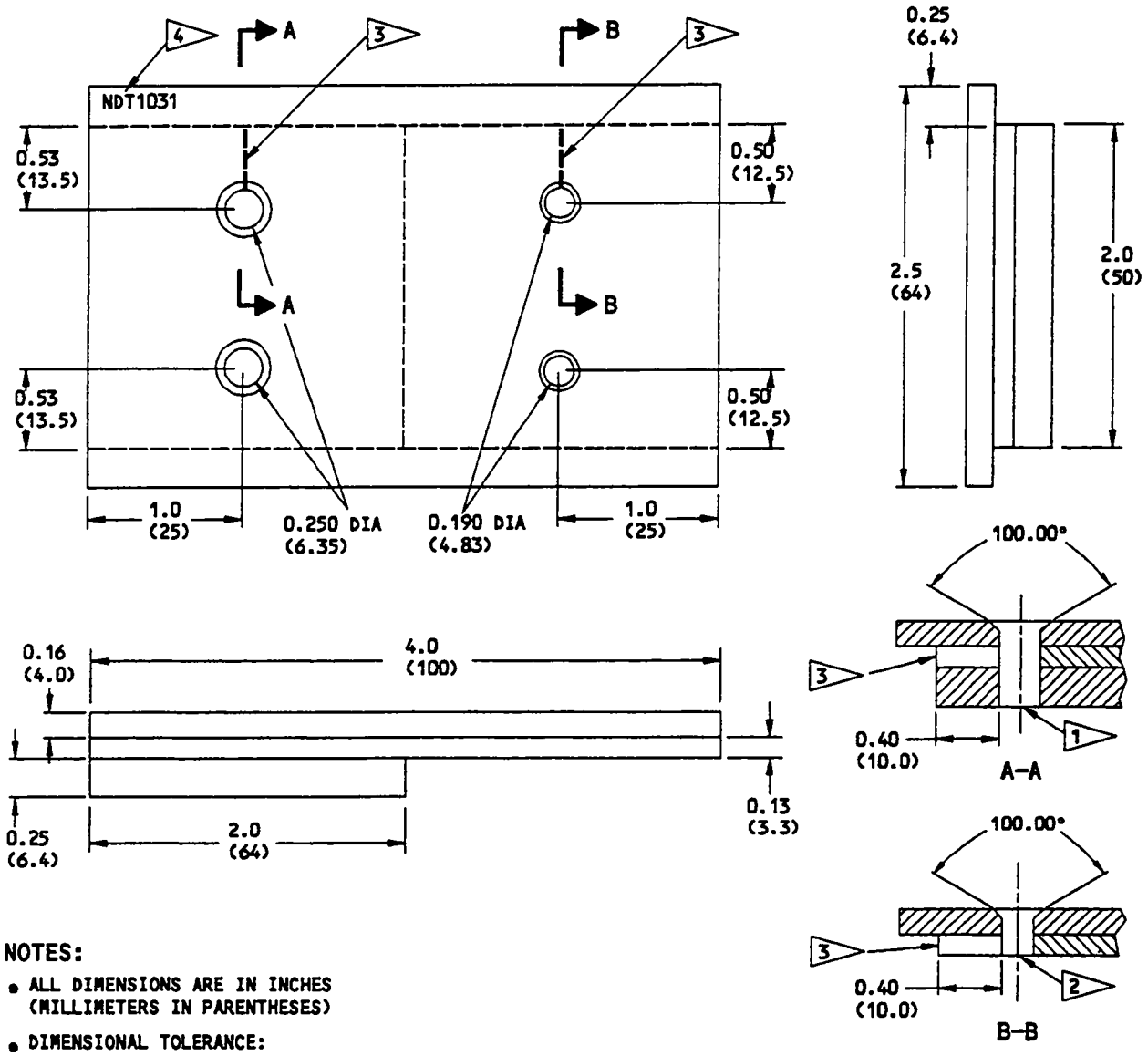
CODE (A) : CALIBRATE ON PROBE POSITIONS 1 & 2, SEE DETAIL III

CODE (B) : CALIBRATE ON PROBE POSITIONS 3 & 4, SEE DETAIL III

1 SAME AS CODE "A" FASTENERS TO HELP SET THE BASELINE INDICATION OF THE AIRPLANE

INSPECTION AREAS
DETAIL I

Wing Front Spar Lower Chord at WS-529.50
Figure 93 (Sheet 6)



NOTES:

- ALL DIMENSIONS ARE IN INCHES (MILLIMETERS IN PARENTHESES)
- DIMENSIONAL TOLERANCE:

INCHES	MILLIMETERS
X.XXX = ±0.005	X.XX = ±0.1
X.XX = ±0.025	X.X = ±0.5
X.X = ±0.050	X = ±1
ANGULAR = ± 1.0 DEGREE	

- NOTCH TOLERANCE: WIDTH = 0.030 (0.75) MAXIMUM
  LENGTH = ±10% OF THE DIMENSION SHOWN
  DEPTH = THROUGH THE THICKNESS
- MATERIAL: 2024-T4 CLAD OR ALL AIRPLANE QUALITY MATERIAL WITH AN ELECTRICAL CONDUCTIVITY BETWEEN 28% IACS AND 43% IACS, SUCH AS 2024-T3; 7075-T6XXX, -T735XXX, -T76XXX; 7175-T6, -T735XX, -T74

1. BACB30FN8-9 - STEEL FLUSH-HEAD HI-LOC
   BACC30M-8 - ALUMINUM COLLAR
2. BACB30FN6-5 - STEEL FLUSH-HEAD HI-LOC
   BACC30M-6 - ALUMINUM COLLAR
3. JEWELERS SAWCUT OR EDM NOTCH
4. ETCH OR STEEL STAMP THE REFERENCE STANDARD NUMBER NDT1031

REFERENCE STANDARD NDT1031
DETAIL II

Wing Front Spar Lower Chord at WS-529.50
Figure 93 (Sheet 7)

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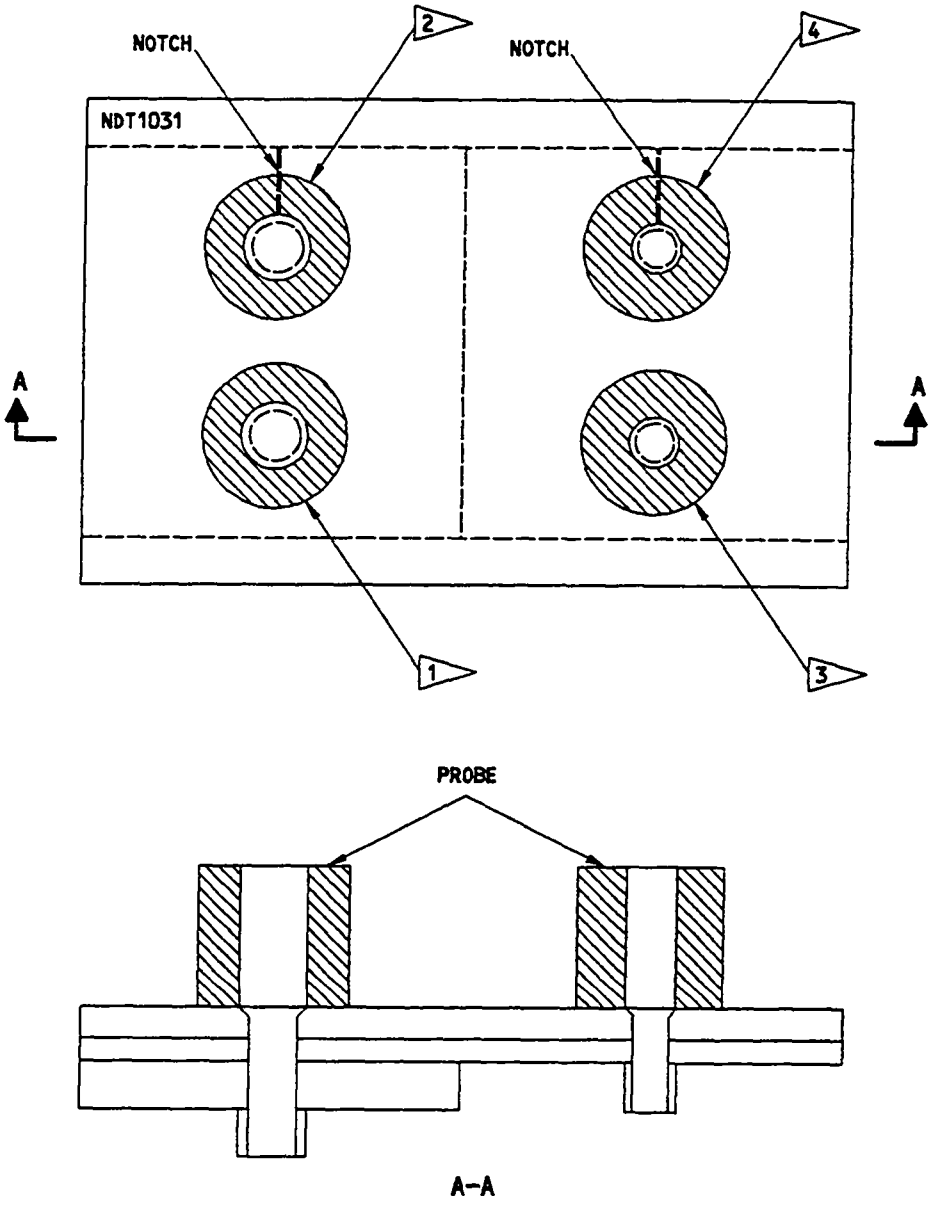


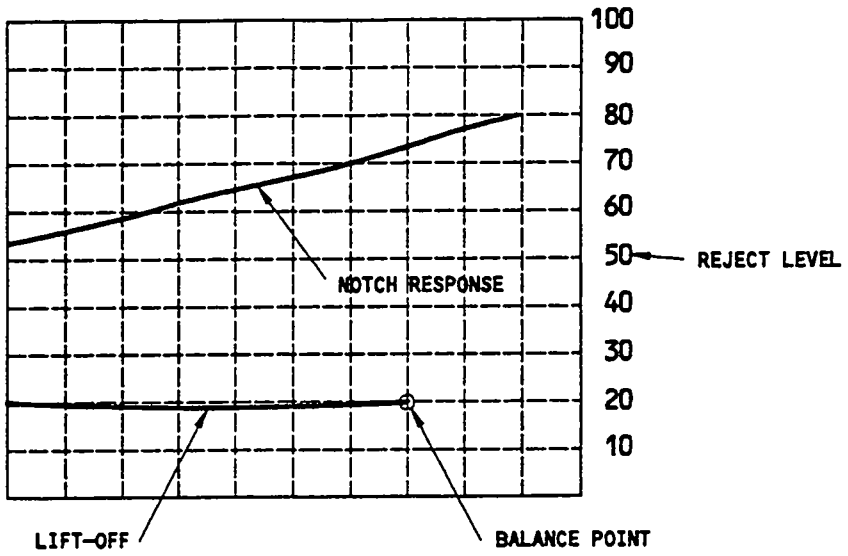
A-A

NOTE:

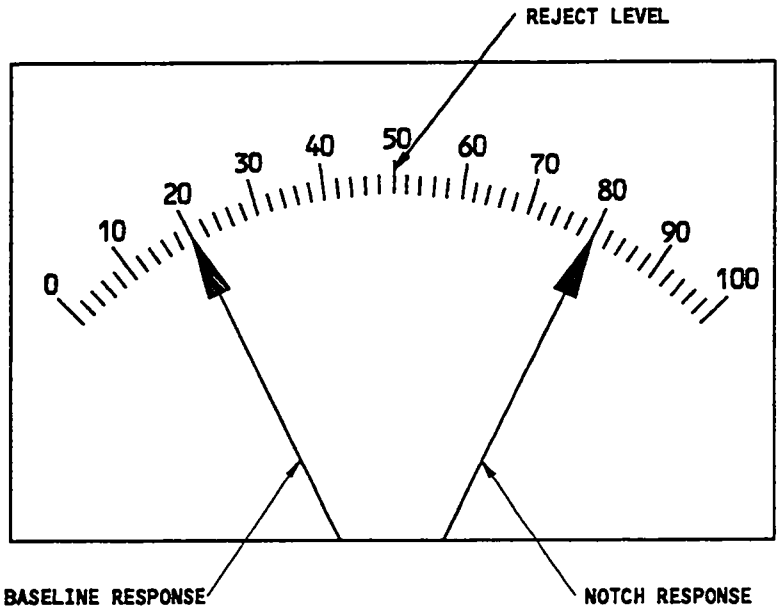
(X) PROBE POSITION; X IS THE POSITION NUMBER SPECIFIED IN THE PROCEDURE.

PROBE POSITION FOR INSTRUMENT CALIBRATION
DETAIL III

Wing Front Spar Lower Chord at WS-529.50
Figure 93 (Sheet 8)



IMPEDANCE PLANE INSTRUMENT



METER DISPLAY INSTRUMENT

INSTRUMENT DISPLAYS OF BASELINE AND SENSITIVITY RESPONSES
DETAIL IV

Wing Front Spar Lower Chord at WS-529.50
Figure 93 (Sheet 9)

EFFECTIVITY
MODEL: 707/720 SSI DOCUMENT (D6-44860) REFERENCE: ITEMS: 57-A00-17 57-A10-17 57-A20-17 57-A30-17 57-A40-17

PART 6 - EDDY CURRENT WING FRONT SPAR UPPER CHORD

1. Purpose

   A. This surface eddy current inspection will find cracks in the vertical leg of the upper chord of the wing front spar. This inspection is done with a shielded pencil probe and meter display or an impedance plane display instrument.

   B. This inspection will find cracks that move vertically from the fastener holes of the upper chord where there is attached structure (stiffeners, angles, fittings). The cracks must extend at least 0.10 inch (2.5mm) or more above the edge of the attached structure. Detail IV shows an example of the inspection area for a stiffener; the inspection areas are almost the same at locations where other structure is attached to the upper chord.

   C. This inspection is done on the upper chord within the Front Spar Stations (FSS) specified below:

      - 707-100 & -200 airplanes: FSS 107.203 to 365.95 (see Detail I).

      - 707-300 & -400 airplanes: FSS 87.96 to 358.68 (see Detail II).

      - 720 airplanes: FSS 107.203 to 365.95 (see Detail III).

2. Equipment

   NOTE: Refer to Part 1, 51-01-00, paragraph 6 for data about the equipment manufacturers.

   A. Instrument - All eddy current instruments with a meter display or an impedance plane display are permitted for use if they:

      (1) can operate at a frequency between 100 and 500 kHz.

      (2) can be calibrated as specified in the calibration instructions of this procedure. The instruments below were used to help prepare this procedure.

Wing Front Spar Upper Chord
Figure 94 (Sheet 1)

(a) Meter display instruments;

(1) MIZ-10A, MIZ-10B - Zetec, Inc.

(2) Locator UH - Hocking/Krautkramer

(b) Impedance Plane Display Instruments:

(1) MIZ-20A - Zetec, Inc.

(2) NDT-19, NDT-19E - Nortec/Staveley, Inc.

(3) Phasec 1.1 - Hocking/Krautkramer

B. Probe - Use a shielded, right angle, pencil probe that can operate at a frequency between 100 and 500 kHz. Use a probe with a maximum diameter of 0.125 inch (3.18 mm) and a probe drop that will allow access to all the inspection areas. Refer to Part 6, 51-00-00, Figure 4 for more probe data.

C. Reference Standard - Refer to Part 6, 51-00-00, Figure 4, for the surface crack reference standard; part number 126.

3. Preparation For Inspection

A. Remove all leading edge panels necessary to get access to all the inspection areas. See Details I thru III for your airplane.

B. Remove or move all structures such as, hydraulic lines and leading edge duct, that prevent the access to all the inspection areas of the upper chord.

C. Clean all the inspection areas. See Detail IV for an example of the usual inspection area for each location along the upper chord where there is attached structure. Remove sealant where necessary.

4. Instrument Calibration

A. Set the frequency between 100 and 500 kHz.

B. If the inspection area is painted, make all instrument adjustments with a non-conductive shim on the surface of the reference standard. The shim must be the same thickness as the paint within $\pm$ 0.003 inch (0.07 mm).

C. Put the probe on the surface of the reference standard so that it is at least 0.50 inch (13.0 mm) away from the edge and the notch of the reference standard.

Wing Front Spar Upper Chord
Figure 94 (Sheet 2)

D. Balance the instrument as specified in the manufacturers' instructions.

E. Adjust the instrument for lift-off.

NOTE: One sheet of regular writing paper, approximately 0.003-inch (0.07 mm) thick, can be used for a non-conductive shim.

(1) If a meter display instrument is used: Adjust the instrument so the meter needle moves no more than 5 percent of full scale when the probe is moved from the surface of the reference standard on to a 0.002 to 0.004 inch (0.05 to 0.10 mm) non-conductive shim.

(2) If an impedance plane display instrument is used: Adjust the phase rotation control so that the signal moves horizontally from right to left when the probe is lifted off the surface of the reference standard.

F. Set the instrument baseline

(1) If a meter display instrument is used: Set the meter needle to 20 percent of full scale. See Detail V, View I, for an instrument display example.

(2) If an impedance plane display instrument is used: Set the balance point in the lower right area of the screen. See Detail V, View II, for an instrument display example.

G. Move the probe across the reference standard notch and adjust the gain control to get the maximum signal as follows:

NOTE: Filters will affect signals. Do not use the High Pass Filter (HPF = 0). Make sure the Low Pass Filter is set as high as possible but so that the noise is kept to a minimum.

(1) If a meter display instrument is used: Adjust the gain control to get the meter needle to move upward 30-60 percent of full scale when the probe is moved from the balance point position across the notch on the reference standard. See Detail V, View I, for an instrument display example.

NOTE: The signal-to-noise ratio must be 3:1 or better.

(2) If an impedance plane display instrument is used: Adjust the gain control to get a vertical signal that is between 20 to 40 percent of full screen height and a horizontal signal that stays on the screen. See Detail V, View II, for an example screen display with a horizontal to vertical gain ratio of 1:2.

NOTE: The signal-to-noise ratio must be 3:1 or better. For impedance plane display instruments, increase the vertical gain if the vertical signal is below 20 percent of full screen height.

Wing Front Spar Upper Chord
Figure 94 (Sheet 3)

H. It is recommended to use instruments that have an audible and/or a visual alarm. The use of an alarm can help you do the scan inspections faster.

(1) If a meter display instrument is used: Set the alarm to start at 50 percent of the signal you got from the reference standard notch. See Detail V, View I for an instrument display example.

(2) If an impedance plane display instrument is used: Set the alarm to alarm at 50 percent of the vertical signal from the reference standard notch. See Detail V, View II for an instrument display example.

I. To find the maximum speed to do an inspection scan, move the probe across the reference standard notch and increase the scan speed until the results below occur.

(1) If a meter display instrument is used:

(a) Instruments without an alarm:

The needle movement is less than 80 percent of the calibration signal.

(b) Instruments with an alarm:

The alarm will not operate.

(2) If an impedance plane display instrument is used:

(a) Instruments without an alarm:

The vertical signal is less than 80 percent of the calibration signal.

(b) Instruments with an alarm:

The alarm will not operate.

Wing Front Spar Upper Chord
Figure 94 (Sheet 4)

5. Inspection Procedure

A. Calibrate the instrument as specified in paragraph 4.

B. Identify the inspection areas of the upper chord within the front spar stations shown in the applicable Detail (of Details I thru III). Detail IV shows an example of the usual inspection area for each location along the upper chord where there is attached structure.

C. Put the probe on the inspection surface of the upper chord.

D. Do a balance and lift-off check. If necessary, make instrument adjustments with the probe on the surface of the upper chord.

NOTE: Do not adjust the gain.

E. Do a scan of all the inspection areas. The best signal will occur when the probe is moved across a crack. The maximum speed to do a scan inspection must be no faster than that found in paragraph 4.I.

F. Do a check of the instrument/probe calibration signals regularly. For balance and lift-off signals, refer to paragraph 5.C and 5.D. For gain signals refer to paragraph 4.G. If the above signals are unsatisfactory, do a calibration again and make an inspection again of all areas that were examined since the last calibration.

G. Identify all locations that give a signal almost the same as the signal you got from reference standard notch.

(1) If a meter display instrument used, look for a needle movement where the needle moves upscale fast.

(2) If an impedance plane display instrument is used, look for a vertical signal. See Detail VI for an example of the signals on an impedance plane display.

NOTE: Be careful to keep the probe as vertical to the part surface as possible during the inspection.

6. Inspection Results

A. Meter display instrument: A fast, upscale, meter needle movement that is 50 percent (or more) of the meter needle movement you got from the reference standard notch is a possible crack.

B. For an impedance plane display instrument: A vertical signal on the screen display that is 50 percent or more of the vertical signal you got from the reference standard notch is a possible crack. See Detail VI for an example of a crack signal.

Wing Front Spar Upper Chord
Figure 94 (Sheet 5)

C. Compare the crack signal to the signal you get from the reference standard notch. Make sure the probe is moved at the same speed for each scan inspection.

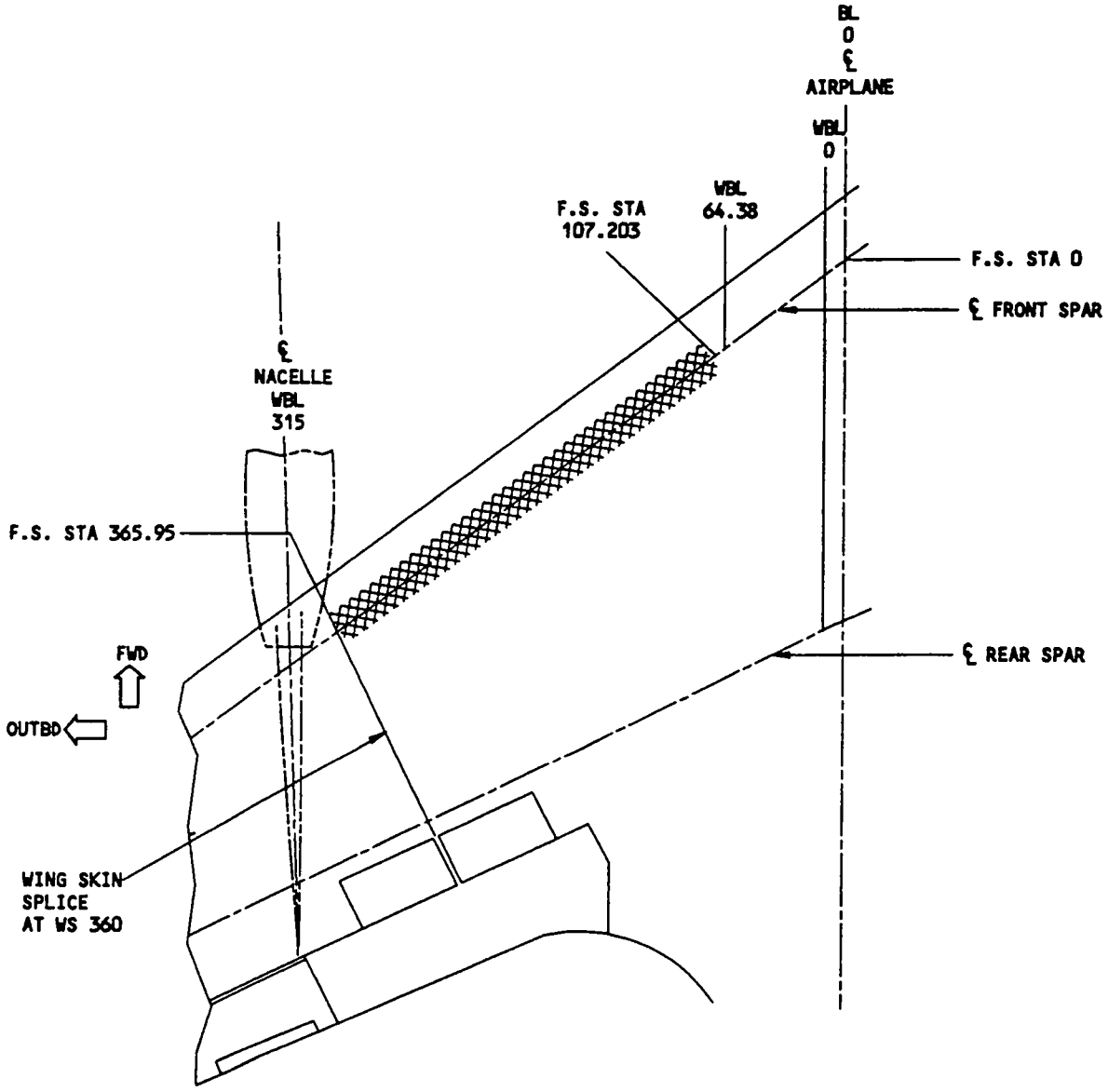
D. Do other nondestructive examinations in the area(s) that cause crack indications as follows:

(1) Do a visual examination of the bare surface of the upper chord at 10 to 25 times magnification with sufficient light. If a crack is found during visual examination, no other inspection is necessary.

(2) Do a high gain, fluorescent penetrant inspection. Refer to the Standard Overhaul Practices Manual Subject 20-20-02, "Penetrant Methods of Inspection."

NOTE: To make penetrant results show better on areas with metal smear or on tight fatigue cracks, do a chemical etch on the surface. To do an etch, local engineering approval is necessary.

Wing Front Spar Upper Chord
Figure 94 (Sheet 6)



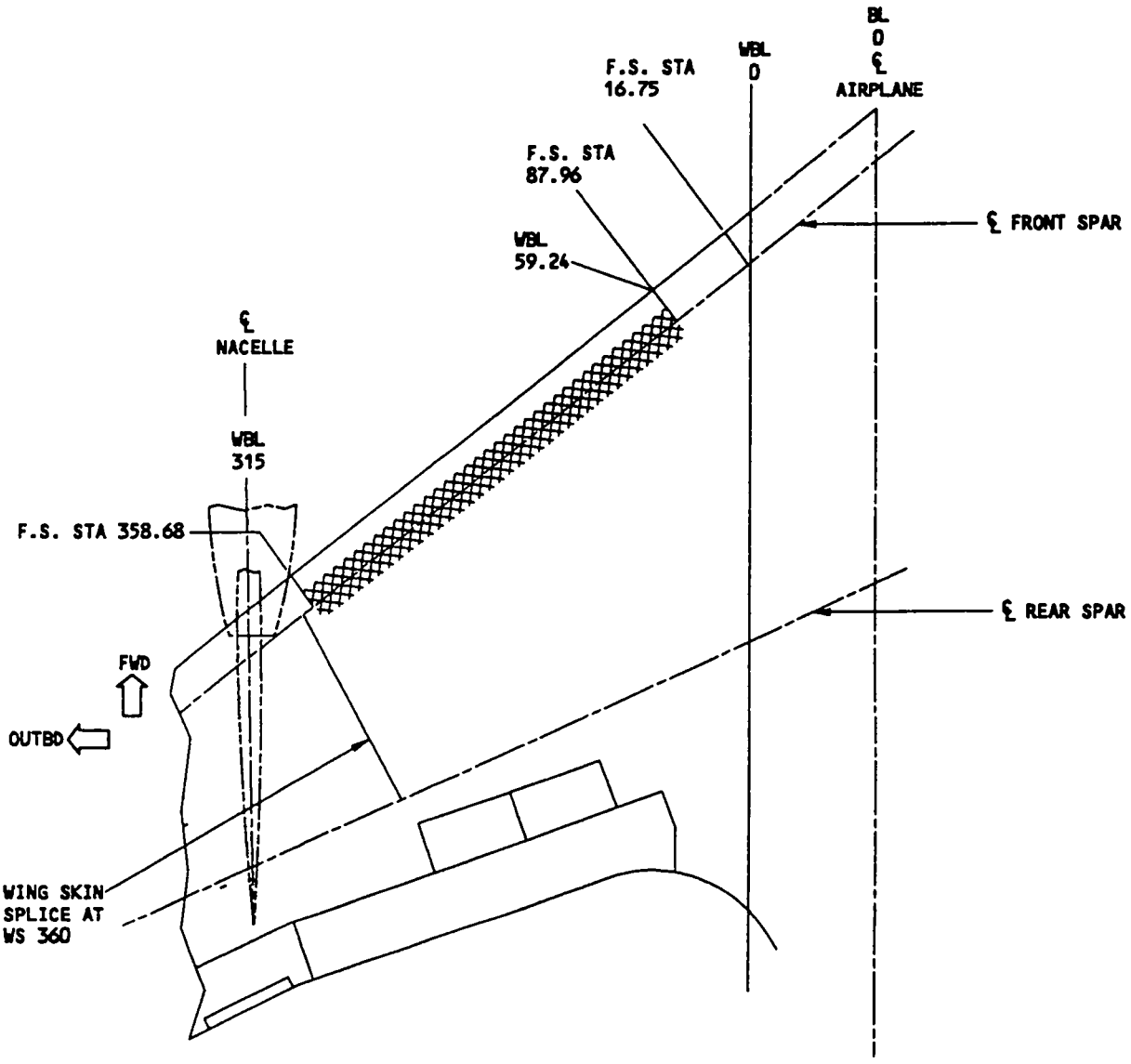
NOTES:

XXXX INSPECTION AREA. THE UPPER CHORD IS EXAMINED ONLY IN THE AREAS WHERE THERE IS STRUCTURE ATTACHED TO IT. SEE DETAIL IV FOR AN EXAMPLE.

• THE LEFT WING IS SHOWN; THE RIGHT WING IS OPPOSITE

707-100 & -200 AIRPLANES - UPPER CHORD INSPECTION AREA
DETAIL I
Wing Front Spar Upper Chord
Figure 94 (Sheet 7)

E18099



NOTES:

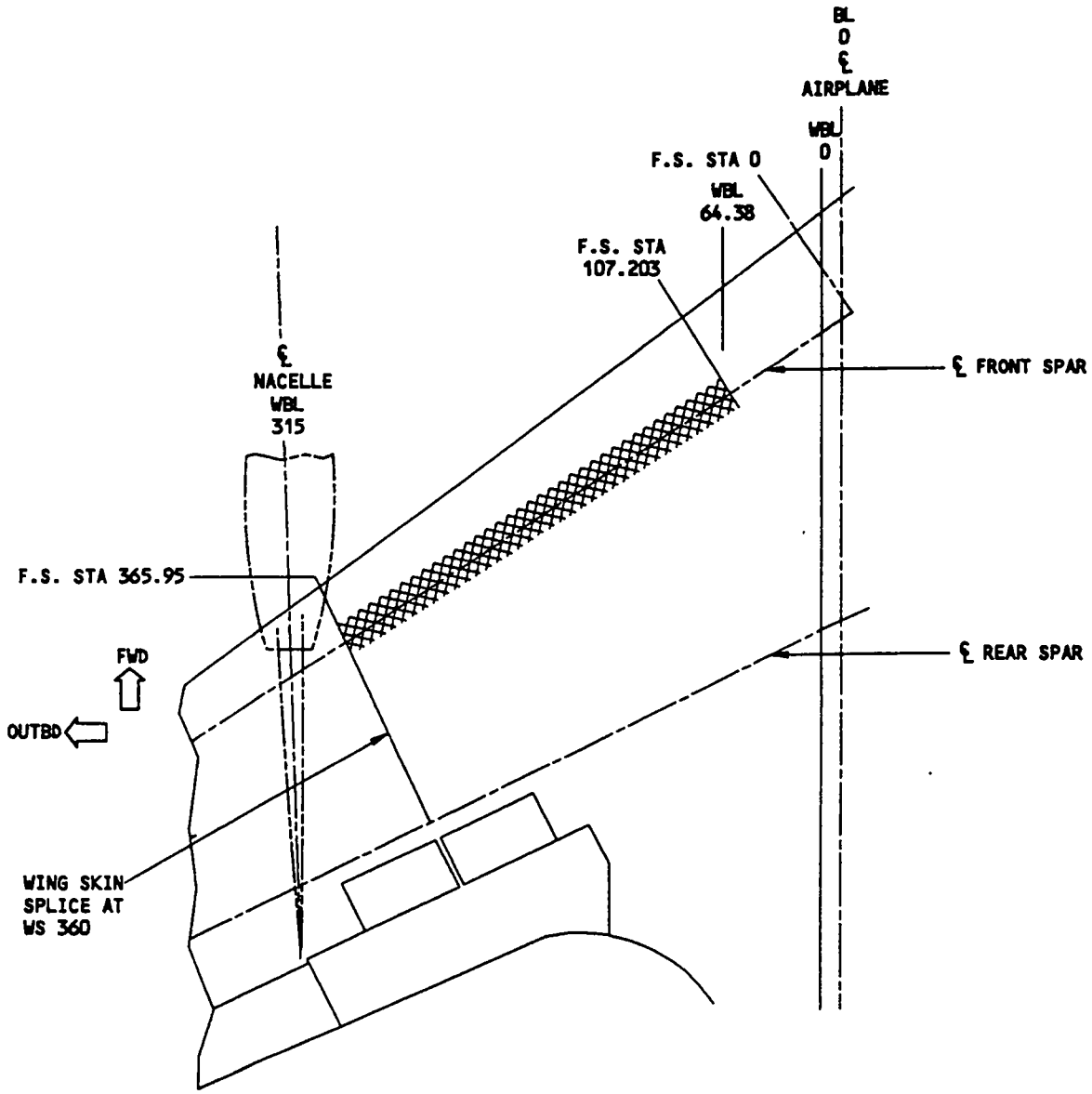
XXXX INSPECTION AREA. THE UPPER CHORD IS EXAMINED ONLY IN THE AREAS WHERE THERE IS STRUCTURE ATTACHED TO IT. SEE DETAIL IV FOR AN EXAMPLE.

- THE LEFT WING IS SHOWN; THE RIGHT WING IS OPPOSITE

707-300 & -400 AIRPLANES - UPPER CHORD INSPECTION AREA
DETAIL II

Wing Front Spar Upper Chord
Figure 94 (Sheet 8)

E18091



NOTES:

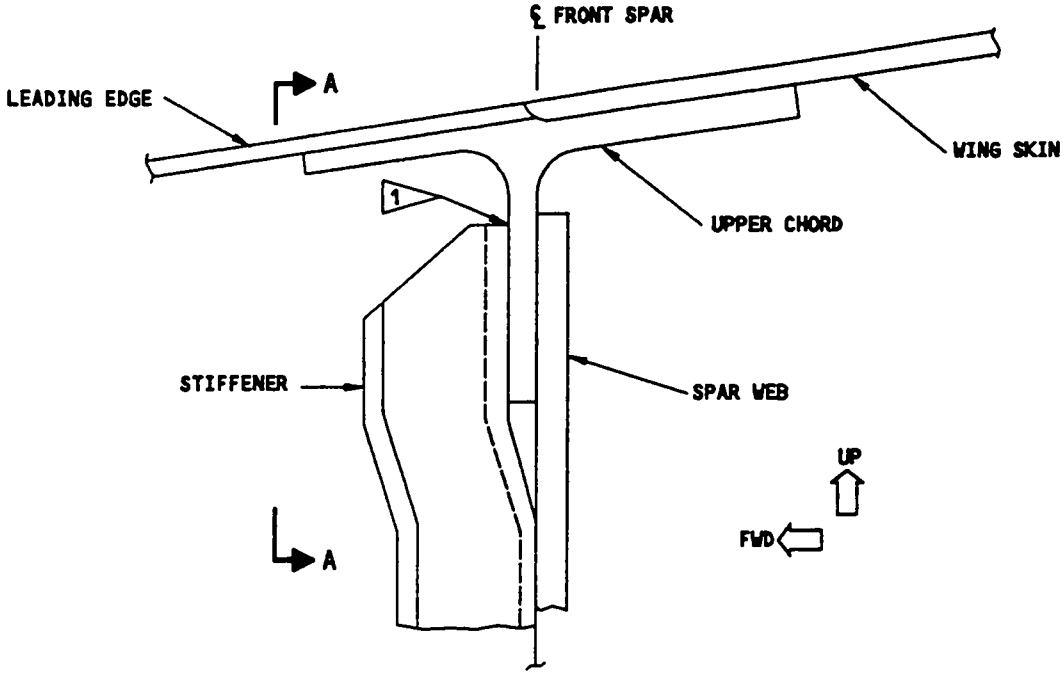
XXXX INSPECTION AREA. THE UPPER CHORD IS EXAMINED ONLY IN THE AREAS WHERE THERE IS STRUCTURE ATTACHED TO IT. SEE DETAIL IV FOR AN EXAMPLE.

- THE LEFT WING IS SHOWN; THE RIGHT WING IS OPPOSITE

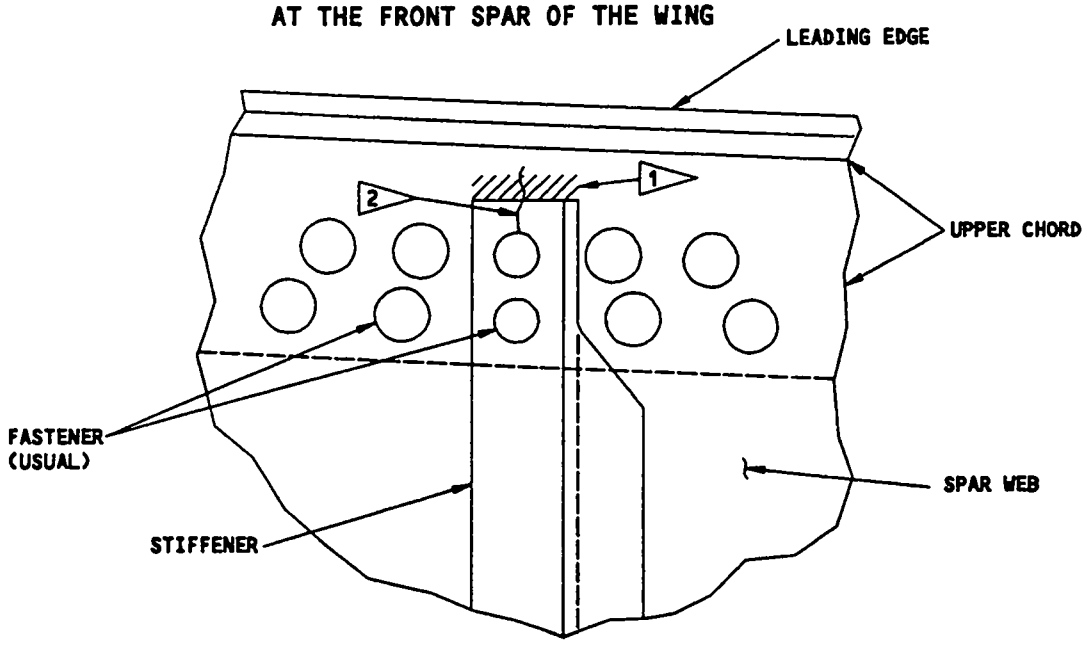
720 AIRPLANES - UPPER CHORD INSPECTION AREA
DETAIL III

Wing Front Spar Upper Chord
Figure 94 (Sheet 9)

E18098



USUAL CROSS-SECTION VIEW OF THE UPPER CHORD
AT THE FRONT SPAR OF THE WING



A-A

NOTES:

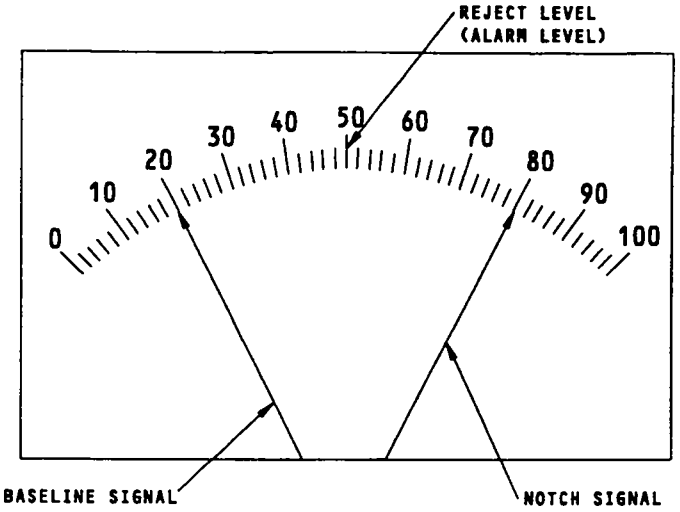
XXXX INSPECTION AREA

1 INSPECTION AREA FOR USUAL ATTACHED STRUCTURE (STIFFENER, ANGLES, FITTINGS)

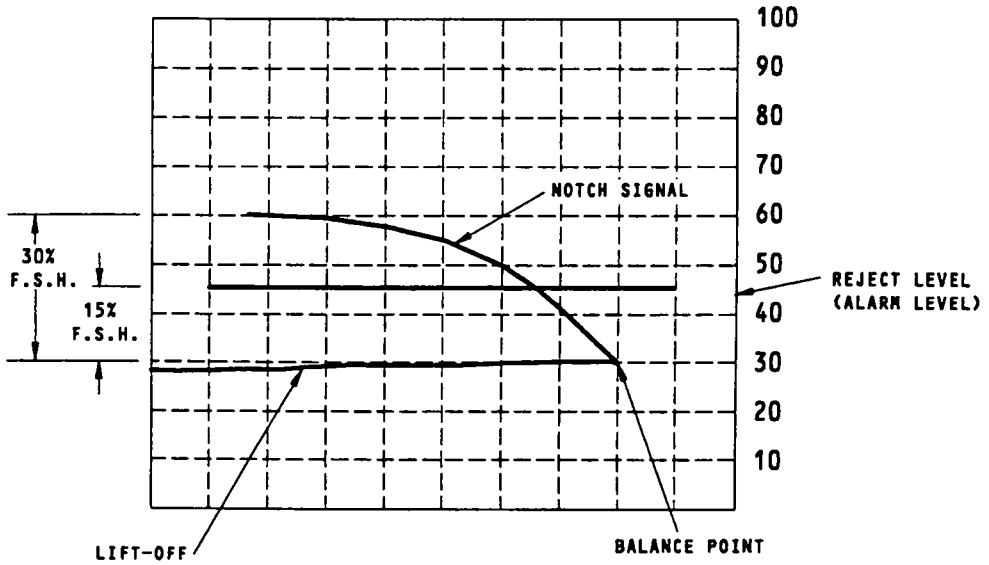
2 POSSIBLE CRACK

INSPECTION AREA EXAMPLE
DETAIL IV
Wing Front Spar Upper Chord
Figure 94 (Sheet 10)

E18105



METER DISPLAY INSTRUMENT
VIEW I



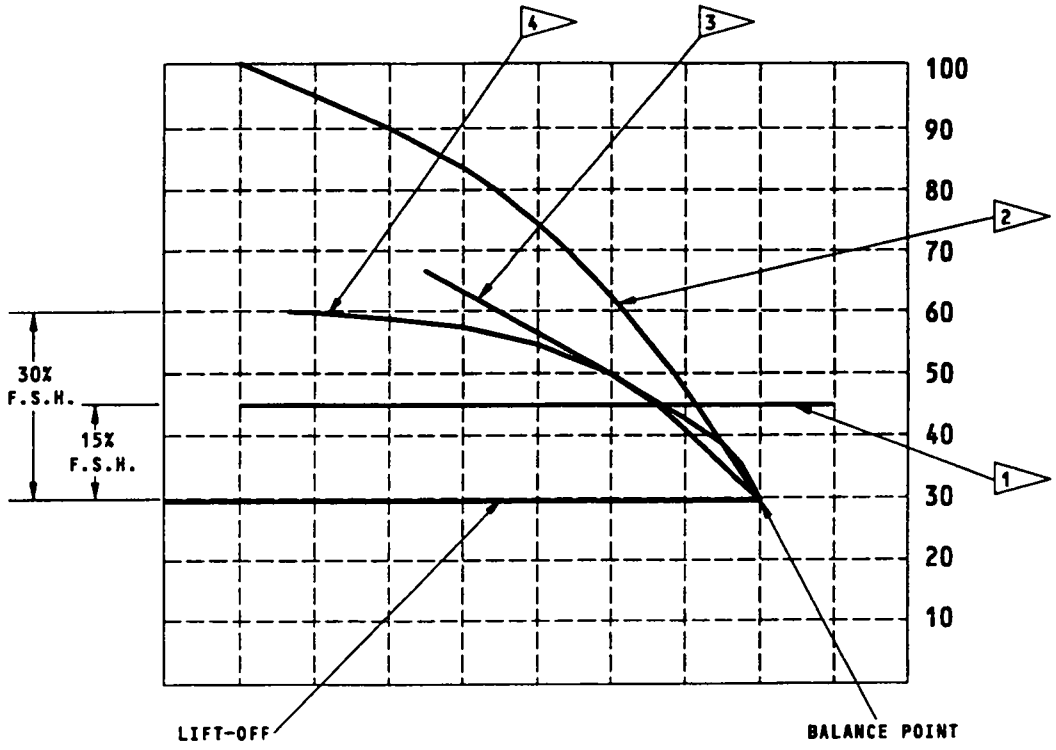
IMPEDANCE PLANE INSTRUMENT
VIEW II

NOTES:

- THE IMPEDANCE PLANE DISPLAY EXAMPLE, VIEW II, SHOWS THE SIGNAL FROM THE 0.020 INCH (0.50 MM) SURFACE NOTCH OF REFERENCE STANDARD 126, AT A HORIZONTAL TO VERTICAL SENSITIVITY RATIO OF 1:2.
- THE IMPEDANCE PLANE DISPLAY SIGNAL IS DONE WITH A 200 KHZ PENCIL PROBE. OTHER PROBES AND FREQUENCIES COULD GIVE A DIFFERENT NOTCH SIGNAL.
- F.S.H. = FULL SCREEN HEIGHT

INSTRUMENT CALIBRATION SCREEN DISPLAY EXAMPLES
DETAIL V
Wing Front Spar Upper Chord
Figure 94 (Sheet 11)

E18109



NOTES:

- THE SCREEN DISPLAY ABOVE SHOWS WHAT THE SIGNAL FROM THE NOTCH IN REFERENCE STANDARD 126 AND AN APPROXIMATE 0.020 INCH (0.50 MM) DEEP CRACK SHOULD LOOK LIKE WITH A HORIZONTAL TO VERTICAL SENSITIVITY RATIO OF 1:2.
- THE IMPEDANCE PLANE DISPLAY SIGNAL ARE DONE WITH A 200 KHZ PENCIL PROBE. OTHER PROBES AND FREQUENCIES COULD GIVE A DIFFERENT NOTCH AND CRACK SIGNAL.
- F.S.H. = FULL SCREEN HEIGHT

1. ALARM LEVEL
2. EDGE EFFECT SIGNAL
3. APPROXIMATE 0.020 INCH (0.50 MM) DEEP CRACK SIGNAL
4. 0.020 INCH (0.50 MM) NOTCH SIGNAL FROM REFERENCE STANDARD 126

IMPEDANCE PLANE DISPLAY OF A NOTCH AND CRACK SIGNAL
DETAIL VI

Wing Front Spar Upper Chord
Figure 94 (Sheet 12)

E18110