PART 6 - EDDY CURRENT

WINGS - SKIN

1. Purpose

   A. To detect cracks in the upper skin and broken second layer structure at the fuel filler fitting at WS 298.

   B. This inspection is divided into two parts:

      (1) Inspection between fasteners for cracks and location of fuel filler support to stringer joint.

      (2) Inspection for cracks out of fastener holes.

2. Equipment

   A. Eddy-Current Instrument and Probes - Any eddy current equipment that satisfies the requirements of this procedure is suitable for this inspection. The following equipment was used during development of this procedure.

      (1) NDT-3 or NDT-8L with: 500 Hz frequency module and corresponding probe (SPO-565), and 100 Hz frequency module and corresponding encircling probe (SPO -783).

      Nortec Corporation
      421 N. Quay
      Kennewick, Washington 99336

      (2) Zetec MIZ-8 or MIZ-10 with 500 Hz probe (550-5000) and 100 Hz encircling probe (1000-62,000)

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

      (3) Conventional surface crack detection equipment with surface or pencil probes (Ref Part 6, 51-00-00).

   B. Reference Standard - Fabricate per detail I.

Upper Skin at Fuel Filler Fitting at WS 298
Figure 1 (Sheet 1)

3. Preparation for Inspection

A. Wipe surface clean.

B. Paint removal not required.

C. Fastener removal not required.

4. Instrument Calibration for Inspection Between Fasteners and Location of Fuel Filler Support to Stringer Joint

A. NDT-3 or NDT-8L

(1) Install 500-Hz frequency module and probe per manufacturer's instructions.

(2) Center probe between fasteners on crack free area of reference standard (Ref detail II, position 1).

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

(4) Increase the X control by 20 units.

(5) 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 up-scale meter movement.

(6) Place probe on crack free location of reference standard as in step (2) and position instrument meter at 80% of full scale by adjusting the level and sensitivity controls as nesessary.

(7) Position probe on cracked area of reference standard as shown in detail II, position 2 and note meter reading.

(8) If meter reading difference between a good area and the cracked area is less than 70% of full meter scale, increase the sensitivity control. If minimum meter deflection cannot be obtained by increasing sensitivity, increase or decrease the X control setting and repeat step (5), (6) and (7) until a 70% deflection between a good area and a cracked area is obtained.

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

Upper Skin at Fuel Filler Fitting at WS 298
Figure 1 (Sheet 2)

B. MIZ-8 or MIZ-10

(1) Set frequency at 500 Hz,

(2) Center probe between fasteners on crack free are of reference standard (Ref detail II, position 1).

(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 0.003 inch (approximately the thickness of a sheet of paper).

(5) Place probe on standard as shown in detail II, position 1 and set meter at 80% of full scale with meter position control.

(6) Position probe over cracked area of standard as shown in detail II, position 2 and note meter reading.

(7) If meter reading difference between a good area and the cracked area is less than 70% of full scale increase sensitivity until a 70% of full scale deflection is obtained.

(8) With this setting cracks should be indicated by a downscale deflection.

5. Instrument Calibration for Inspection for Cracks out of Fastener Holes

A. NDT-3 or NDT-8L

(1) Install 100-Hz frequency module and encircling probe.

(2) Center probe over a good hole per detail II, position 3.

(3) Adjust instrument in same manner as in par. 4.A.(3) thru 4.A.(5).

(4) Center probe over a good hole and adjust meter to read 20% of full scale with level control.

(5) Center probe over cracked hole in standard (detail II, position 4) and note meter reading.

(6) If meter reading difference between a good hole and the cracked hole is less than 70% of full meter scale, increase sensitivity to obtain a 70% deflection.

(7) Cracks are indicated by an upscale meter deflection.

Upper Skin at Fuel Filler Fitting at WS 298
Figure 1 (Sheet 3)

B. MIZ-8 or MIZ-10

(1) Set frequency at 100 Hz and connect encircling probe.

(2) Center probe over good hole per detail II, position 3.

(3) Adjust instrument in same manner as in par. 4.B.(3) and 4.B.(4).

(4) Center probe as in step (2) and adjust instrument meter to read 80% of full scale with meter position control.

(5) Center probe over cracked hole in standard (detail II, position 4) and note meter reading.

(6) If meter reading difference between a good hole and a cracked hole is less than 70% of full meter scale increase sensitivity to obtain a 70% deflection.

(7) Cracks should be indicated by a downscale deflection.

6. Inspection Procedure for Cracks Between Fasteners and Locating Fuel Filler Support to Stringer Joint

A. With instrument calibrated per par. 4, inspect between fasteners designated in detail III.

B. A crack indication will be obtained from the fuel filler support to stringer joint. Mark this location and identify the fasteners on either side of the joint as shown in detail III.

NOTE: A small magnet may be used to locate fastener heads covered over with thick paint.

7. Inspection Procedure for Cracks out of Fastener Holes

A. Inspect for surface cracks out of fastener holes with conventional surface eddy-current instruments per Part 6, 51-00-00. Refer to detail III and par. 6.B. for fastener location. Cracks should lie in fwd/aft direction.

B. Inspection for cracks out of fastener holes in second layer structure.

(1) With instrument calibrated per par. 5 inspect fasteners designated in par. 6.B.

Upper Skin at Fuel Filler Fitting at WS 298
Figure 1 (Sheet 4)

8. Inspection Results

A. For par 6.A. and 7.B.

(1) Any crack indication greater than 40% of full scale should be considered significant and investigated further.

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

(a) A decrease in fastener spacing. Compare readings between equally spaced fasteners. (Applies to both par. 6.A. and 7.B.)

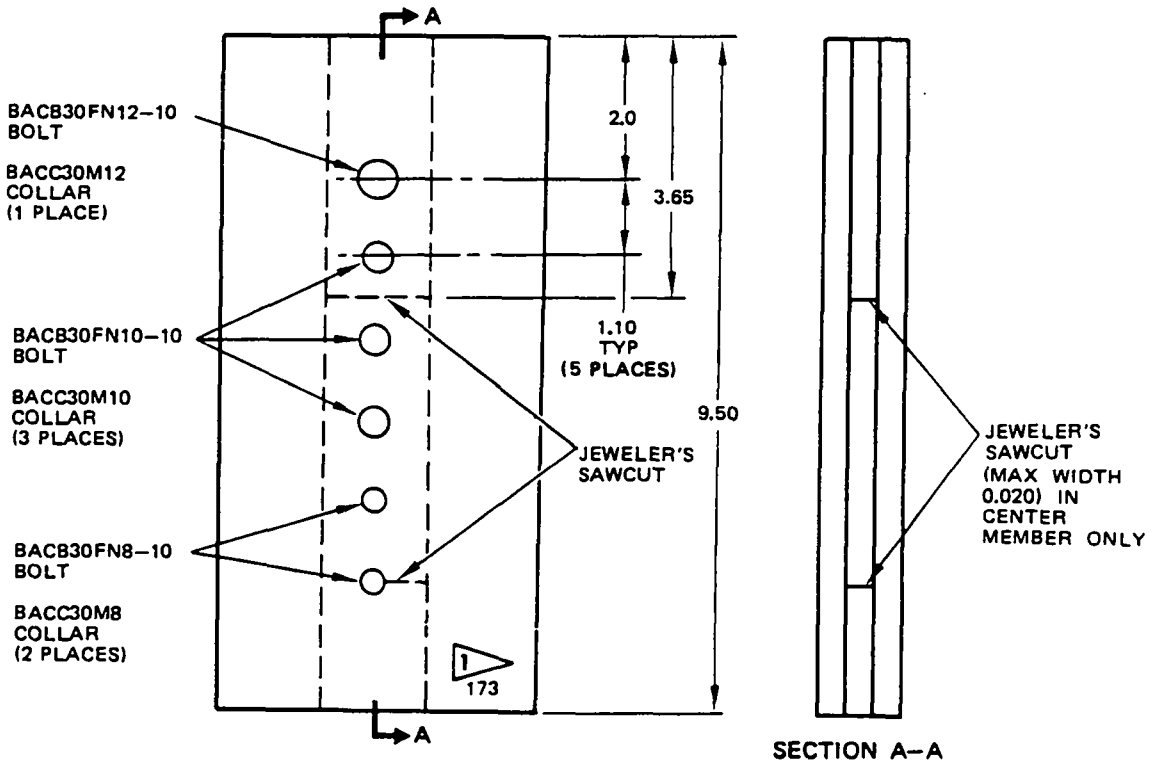
(b) A larger fastener diameter. Compare with a larger fastener on standard or similar fasteners on airplane. (Applies to par. 7.B. only.)

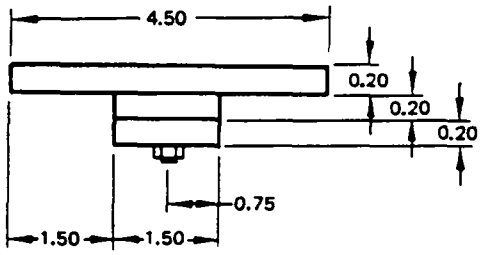
(c) A fastener that is not countersunk deep enough. Compare with a fastener in standard raised to the same height. (Applies to par. 7.B. only.)

B. For par. 7.A.

(1) Any crack indication greater than 20% of full meter scale should be considered significant and investigated further (Ref Part 6, 51-00-00).

Upper Skin at Fuel Filler Fitting at WS 298
Figure 1 (Sheet 5)





NOTES

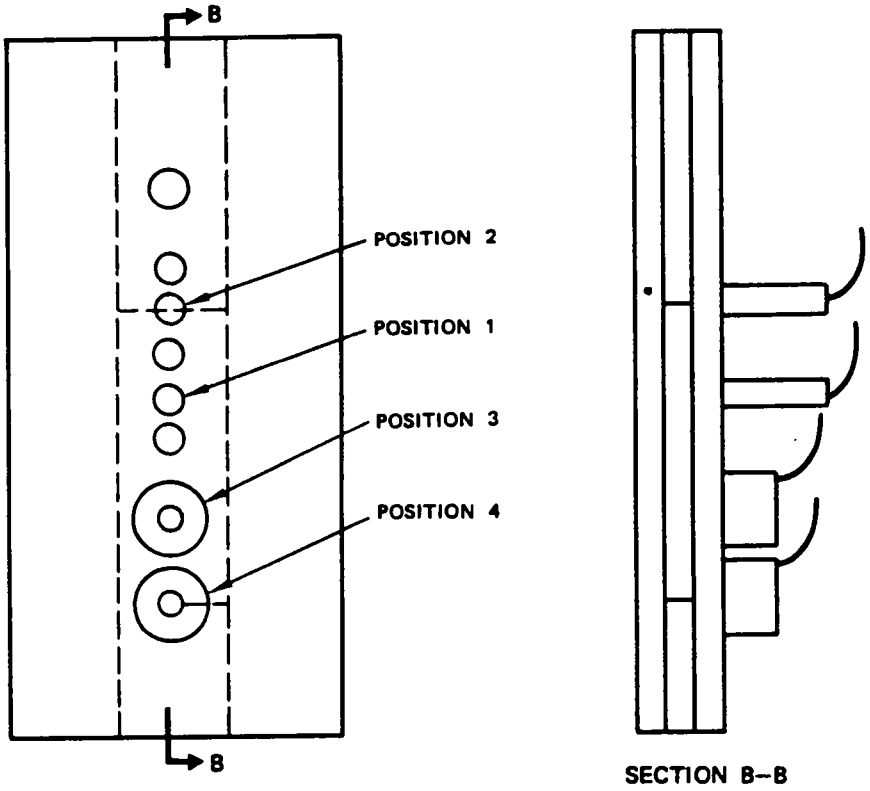
- ALL DIMENSIONS ARE IN INCHES
- TOLERANCE: ±0.030

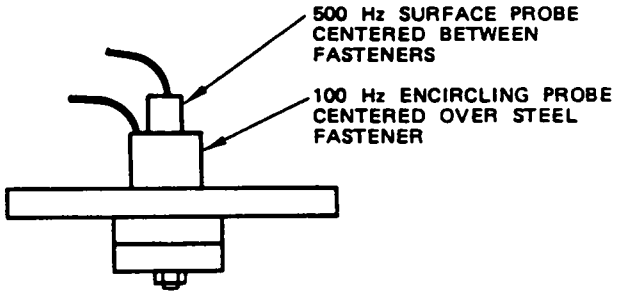
  MATERIAL: 2024-T4 OR 7075-T6 OR 7178-T6
- P/N 6412–23
  AVAILABLE FROM IDEAL
  SPECIALTY CO.

1 ETCH OR STEEL STAMP WITH 173

REFERENCE STANDARD
DETAIL I

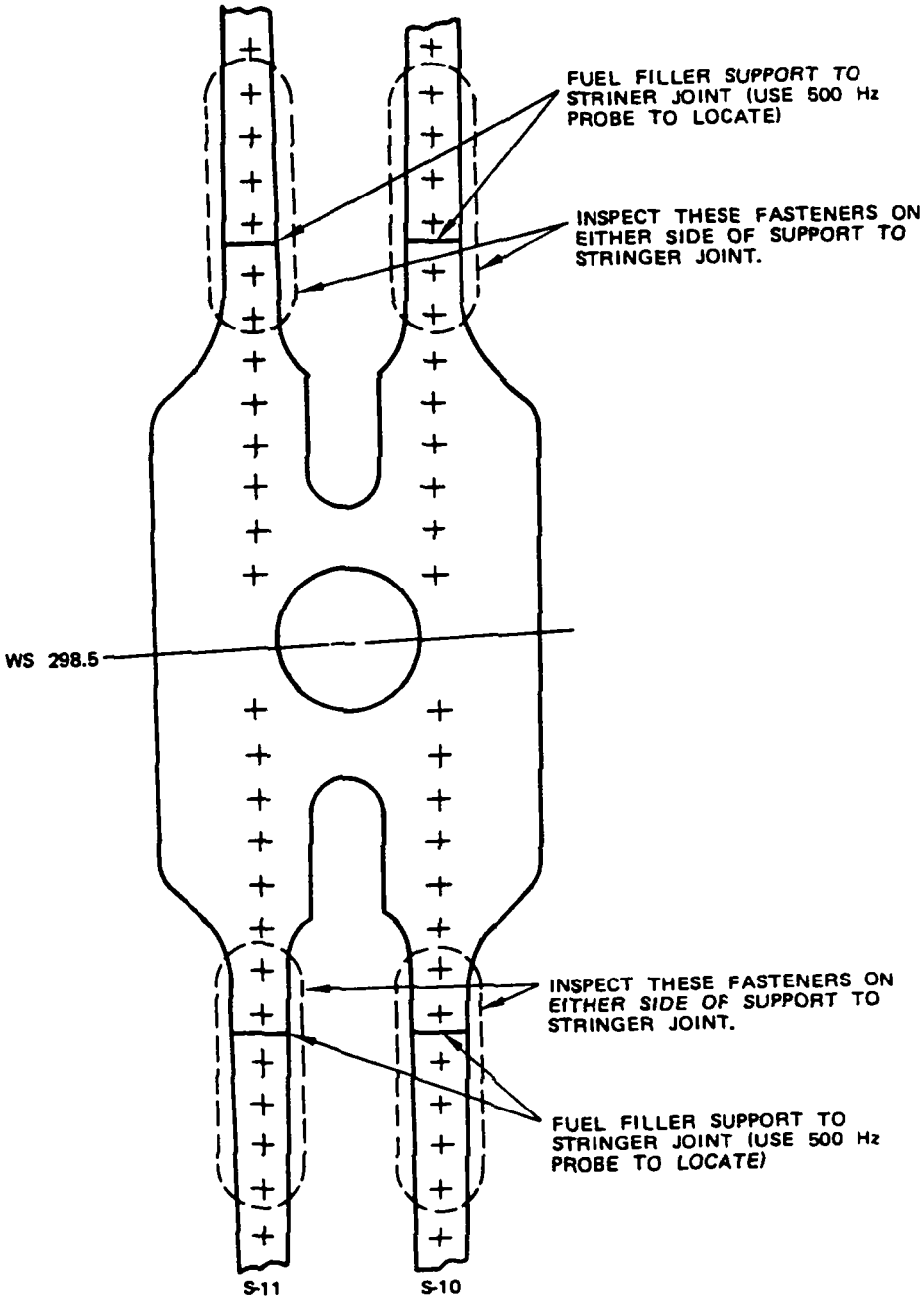
Upper Skin at Fuel Filler Fitting at WS 298
Figure 1 (Sheet 6)





PROBE POSITION FOR INSTRUMENT CALIBRATION
DETAIL II

Upper Skin at Fuel Filler Fitting at WS 298
Figure 1 (Sheet 7)



FUEL FILLER SUPPORT AT WS 298.5
LEFT HAND AND RIGHT HAND WING
DETAIL III

Upper Skin at Fuel Filler Fitting at WS 298
Figure 1 (Sheet 8)

PART 6 - EDDY CURRENT

WINGS - SKIN

1. Purpose

   A. To detect large cracks in the skin and broken second layer structure at the stringer to splice angle joints of stringer 1 to 12 between WBL 76 and 92.

   B. This inspection is divided into three parts:

      (1) Inspection between fasteners for locating stringer to splice angle joints.

      (2) Inspection for cracks out of fastener holes in the skin.

      (3) Inspection for cracks out of fastener holes in second layer structure.

2. Equipment

   A. Eddy-Current Instrument and Probes - Any eddy current equipment that satisfies the requirements of this procedure is suitable for this inspection. The following equipment was used during development of this procedure.

      (1) NDT-3 or NDT-8L with: 500 Hz frequency module and corresponding probe (SPO-565), and 100 Hz frequency module and corresponding encircling probe (SPO-783).

      Nortec Corporation
      421 N. Quay
      Kennewick, Washington 99336

      (2) Zetec MIZ-8 or MIZ-10 with 500 Hz probe (550-5000) and 100 Hz encircling probe (1000-62,000).

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

      (3) Conventional surface crack detection equipment with surface or pencil probes (Ref Part 6, 51-00-00).

   B. Reference Standard - Fabricate per detail I.

Skin and Structure at Stringer Splices -
Stringers 1 thru 12, WBL 76 and WBL 92
Figure 2 (Sheet 1)

3. Preparation for Inspection

A. Wipe surface clean.

B. Paint removal not required.

C. Fastener removal not required.

4. Instrument Calibration for Locating Stringer to Splice Angle Joints

A. NDT-3 or NDT-8L

(1) Install 500-Hz frequency module and probe per manufacturer's instructions.

(2) Center probe between fasteners on crack free area of reference standard (Ref detail II, position 1).

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

(4) Increase the X control by 20 units.

(5) 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.

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

(7) Position probe on cracked area of reference standard as shown in detail II, position 2 and note meter reading.

(8) If meter reading difference between a good area and the cracked area is less than 70% of full meter scale, increase the sensitivity control. If minimum meter deflection cannot be obtained by increasing sensitivity, increase or decrease the X control setting and repeat step (5), (6) and (7) until a 70% deflection between a good area and a cracked area is obtained.

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

Skin and Structure at Stringer Splices - Stringers 1 thru 12, WBL 76 and WBL 92
Figure 2 (Sheet 2)

B. MIZ-8 or MIZ-10

(1) Set frequency at 500 Hz.

(2) Center probe between fasteners on crack free area of reference standard (Ref detail II, position 1).

(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 0.003 inch (approximately the thickness of a sheet of paper).

(5) Place probe on standard as shown in detail II, position 1 and set meter at 80% of full scale with meter position control.

(6) Position probe over cracked area of standard as shown in detail II, position 2 and note meter reading.

(7) If meter reading difference between a good area and the cracked area is less than 70% of full scale, increase sensitivity until a 70% of full scale deflection is obtained.

(8) With this setting cracks should be indicated by a downscale deflection.

5. Instrument Calibration for Inspection for Cracks out of Fastener Holes in Second Layer Structure

A. NDT-3 or NDT-8L

(1) Install 100-Hz frequency module and encircling probe.

(2) Center probe over a good hole per detail II, position 3.

(3) Adjust instrument in same manner as in par. 4.A.(3) thru 4.A.(5).

(4) Center probe over a good hole and adjust meter to read 20% of full scale with level control.

(5) Center probe over cracked hole in standard (detail II, position 4) and note meter reading.

(6) If meter reading difference between a good hole and the cracked hole is less than 70% of full meter scale, increase sensitivity to obtain a 70% deflection.

(7) Cracks are indicated by an upscale meter deflection.

B. MIZ-8 or MIZ-10

(1) Set frequency at 100 Hz and connect encircling probe.

(2) Center probe over good hole per detail II, position 3.

(3) Adjust instrument in same manner as in par 4.B.(3) and 4.B.(4).

(4) Center probe as in step (2) and adjust instrument meter to read 80% of full scale with meter position control.

(5) Center probe over cracked hole in standard (detail II, position 4) and note meter reading.

(6) If meter reading difference between a good hole and a cracked hole is less than 70% of full meter scale increase sensitivity to obtain a 70% deflection.

(7) Cracks should be indicated by a downscale deflection.

6. Inspection Procedure for Locating Stringer to Splice Angle Joint

A. With instrument calibrated per par. 4 inspect between fasteners shown in detail III to locate the stringer to splice angle joint.

B. A crack indication will be obtained from the stringer to splice angle joint. Mark this location and identify the fasteners shown in detail III.

NOTE: A small magnet may be used to locate fastener heads covered over with thick paint.

7. Inspection Procedure for Cracks out of Fastener Holes in the Skin

A. Inspect fasteners identified in par. 6.B. for surface cracks out of fastener holes with conventional surface eddy-current instruments per Part 6, 51-00-00. Cracks should lie in fwd/aft direction.

8. Inspection Procedure for Cracks out of Fastener Holes in Second Layer Structure

A. With instrument calibrated per par. 5 inspect fasteners identified in par. 6.B.

Skin and Structure at Stringer Splices - Stringers 1 thru 12, WBL 76 and WBL 92
Figure 2 (Sheet 4)

9. Inspection Results

A. For par. 6 and 8

(1) Any crack indication greater than 40% of full scale should be considered significant and investigated further.

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

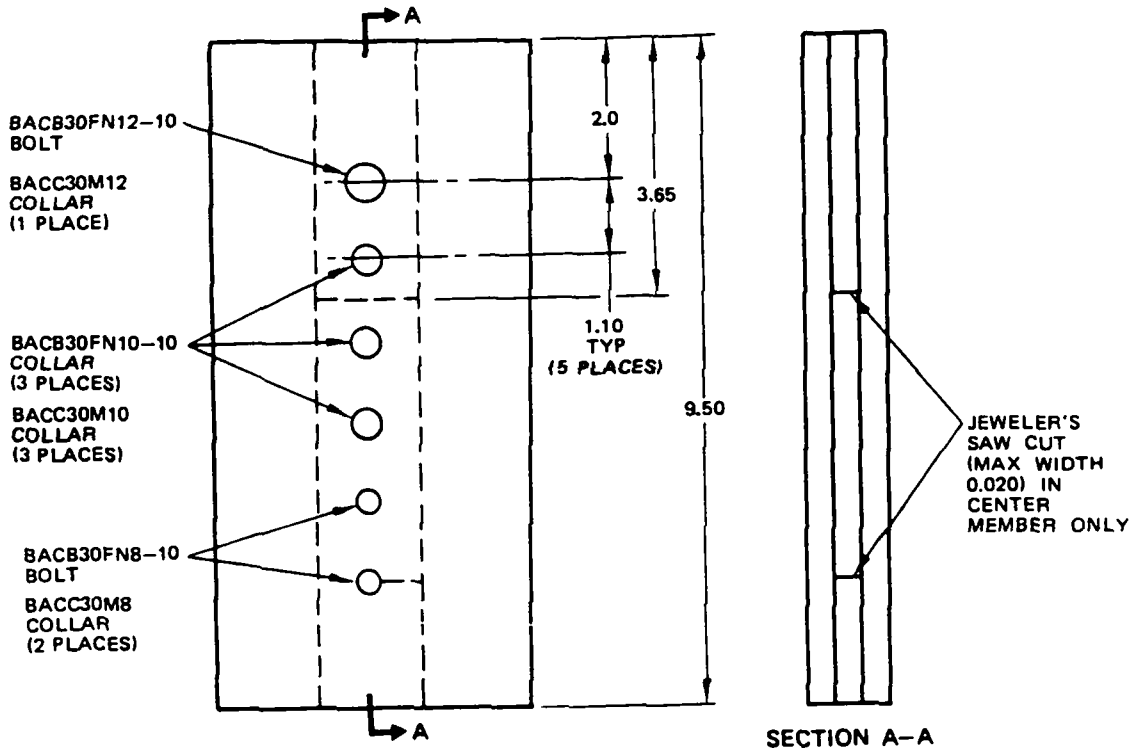
(a) A decrease in fastener spacing. Compare readings between equally space fasteners. (Applies to both par. 6 and 8.)

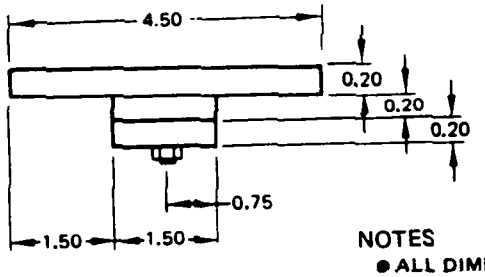
(b) A larger fastener diameter. Compare with a larger fastener on standard or similar fasteners on airplane. (Applies to par. 8 only.)

(c) A fastener that is not countersunk deep enough. Compare with a fastener in standard raised to the same height. (Applies to per. 8 only).

B. For par. 7

(1) Any crack indication greater than 20% of full meter scale should be considered significant and investigated further (Ref Part 6, 51-00-00).





NOTES

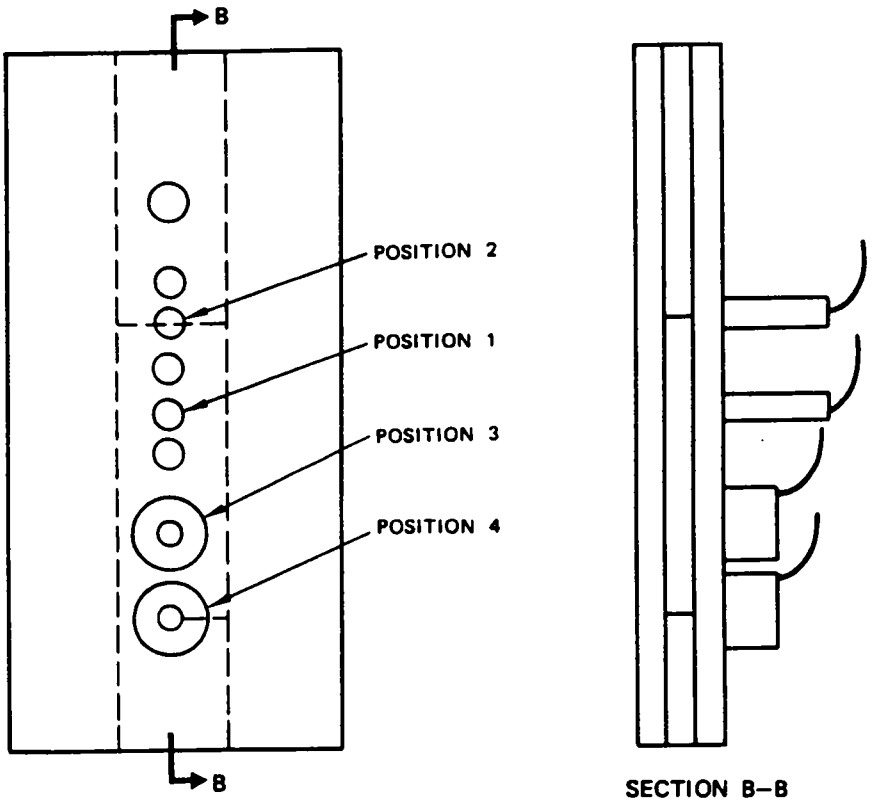
- ALL DIMENSIONS ARE IN INCHES
- TOLERANCE: ± 0.030
- MATERIAL: 2024-T4 OR 0 7075-T6 OR 7178-T6
- AVAILABLE FROM IDEAL SPECIALTY CO.

P/N 6412-23

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

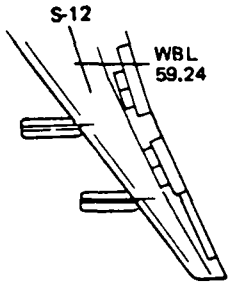
REFERENCE STANDARD
DETAIL I

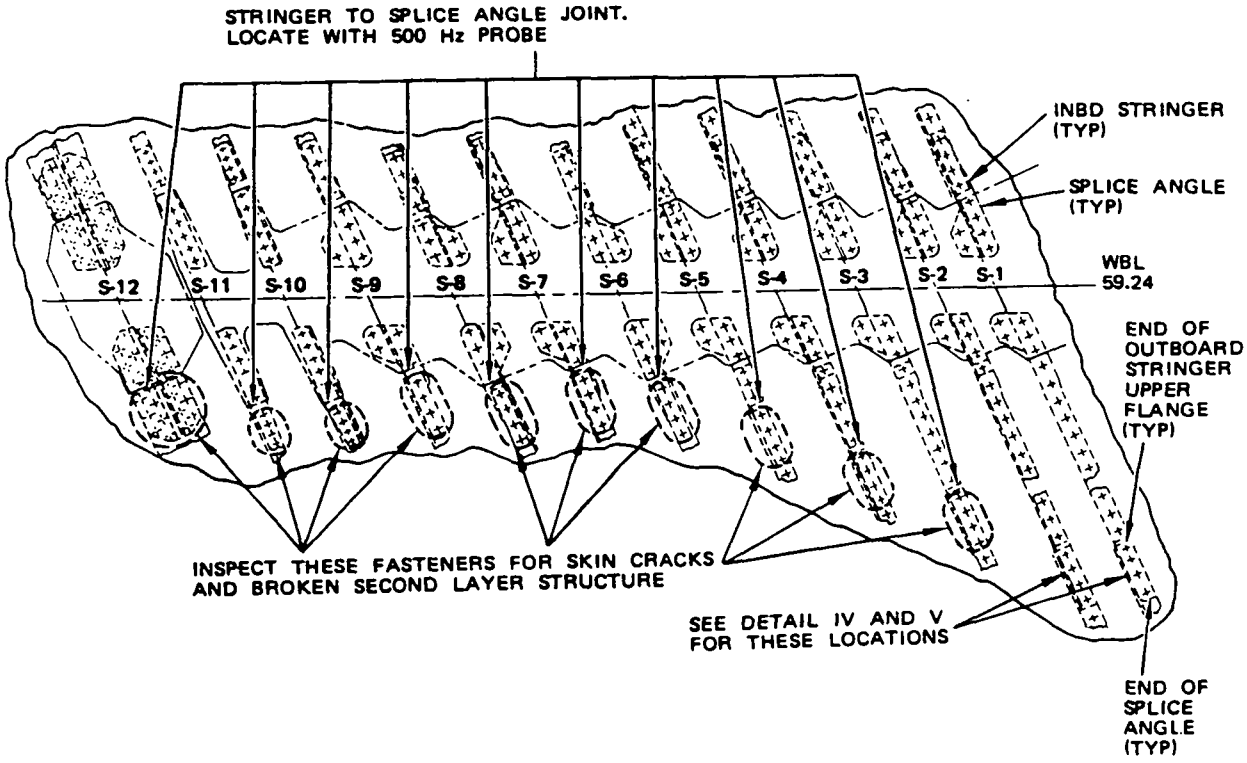
Skin and Structure at Stringer Splices - Stringers 1 thru 12,
WBL 76 and WBL 92
Figure 2 (Sheet 6)



PROBE POSITION FOR INSTRUMENT CALIBRATION
DETAIL II

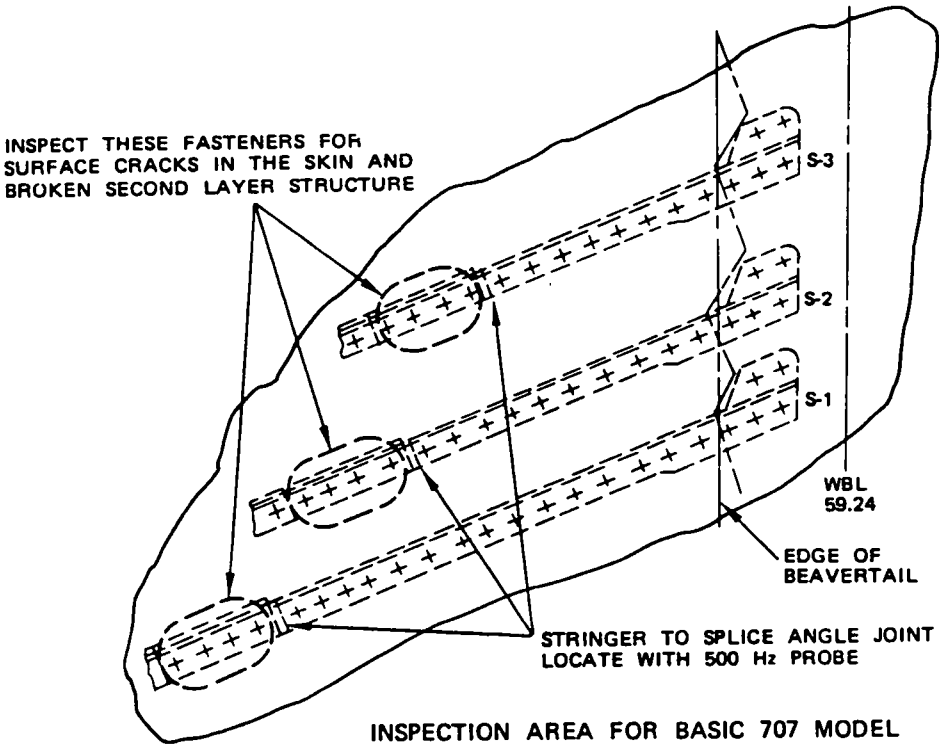
Skin and Structure at Stringer Splices - Stringers 1 thru 12,
WBL 76 and WBL 92
Figure 2 (Sheet 7)



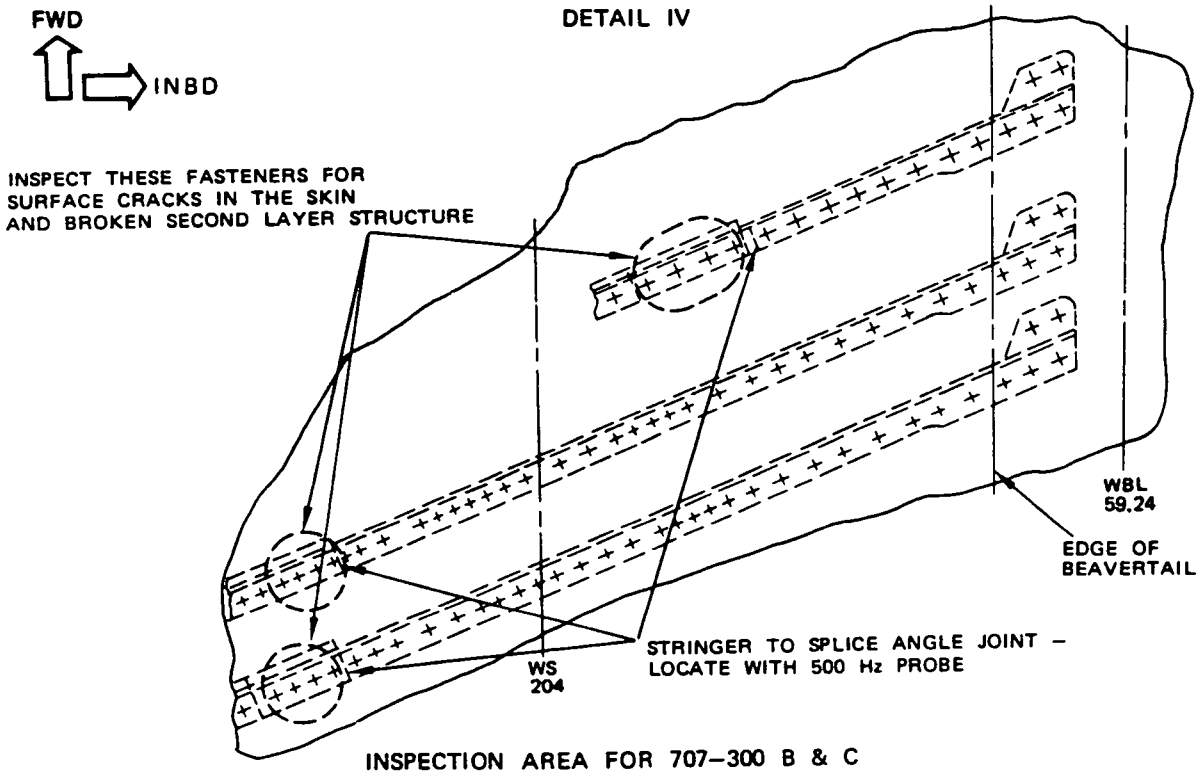


INSPECTION AREA
DETAIL III

Skin and Structure at Stringer Splices - Stringers 1 thru 12,
WBL 76 and WBL 92
Figure 2 (Sheet 8)



INSPECTION AREA FOR BASIC 707 MODEL
DETAIL IV



INSPECTION AREA FOR 707-300 B & C
DETAIL V

Skin and Structure at Stringer Splices - Stringers 1 thru 12, WBL 76 and WBL 92
Figure 2 (Sheet 9)

EFFECTIVITY
MODEL: 707-300/400
SERVICE BULLETIN
REFERENCE: 3280
SSI DOCUMENT (D6-44860)
REFERENCE:
SSD 57-A25-21
SSD 57-A35-21
SSD 57-A45-21

PART 6 - EDDY CURRENT

WINGS - SKIN

1. Purpose

   A. To detect large cracks in the skin and broken upper rear spar chords from WS 196 to 270.

   B. This inspection is divided into two parts:

      (1) Inspection for cracks out of fastener holes in the skin.

      (2) Inspection for cracks out of fastener holes in the upper rear spar chord.

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

            Nortec Corporation
            421 N. Quay
            Kennewick, Washington 99336

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

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

         (c) Conventional surface crack detection equipment with surface or pencil probes (Ref Part 6, 51-00-00).

      (2) Reference Standard

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

Skin and Rear Spar Chord WS 196 to 270
Figure 3 (Sheet 1)

3. Preparation for Inspection

A. Wipe surface clean.

B. Paint removal not required.

C. Fastener removal not required.

4. Instrument Calibration for Inspection for Cracks out of Fastener Holes in the Skin

A. Conventional surface crack detection equipment.

(1) Calibrate instrument per Part 6, 51-00-00, Fig. 4.

5. Instrument Calibration for Inspection out of Fastener Holes in Upper Rear Spar Chord

A. NDT-3 or NDT-8L

(1) Install 0.4-inch thick skin on reference standard.

(2) Install 100-Hz frequency module and encircling probe per manufacturer's instructions.

(3) Center probe over fastener on crack free area of reference standard (Ref detail II, position 1).

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

(5) Increase the X control by 20 units.

(6) 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.

(7) Place probe on crack free location of reference standard as in step (3) and position instrument meter at 20% of full scale by adjusting the level and sensitivity controls as necessary.

(8) Position probe on cracked area of reference standard as shown in detail II, position 2 and note meter reading.

Skin and Rear Spar Chord WS 196 to 270
Figure 3 (Sheet 2)

(9) If meter reading difference between a good area and the cracked area is less than 50% of full meter scale, increase the sensitivity control. If minimum meter deflection cannot be obtained by increasing sensitivity, increase or decrease the X control setting and repeat step (6), (7), and (8) until a 50% deflection between a good area and a cracked area is obtained.

(10) With the above instrument setup, cracks are indicated by an upscale meter deflection.

B. MIZ-8 or MIZ-10

(1) Install 0.4-inch thick skin on reference standard.

(2) Set frequency at 100 Hz.

(3) Center encircling probe over fastener on crack free area of reference standard (Ref detail II, position 1).

(4) Null instrument per manufacturer's instructions.

(5) 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 0.003 inch (approximately the thickness of a sheet of paper).

(6) Place probe on standard as shown in detail II, position 1 and set meter at 80% of full scale with meter position control.

(7) Position probe over cracked area of standard as shown in detail II, position 2 and note meter reading.

(8) If meter reading difference between a good area and the cracked area is less than 50% of full scale, increase sensitivity until a 50% of full scale deflection is obtained.

(9) With this setting cracks should be indicated by a downscale deflection.

6. Inspection Procedure for Cracks out of Fastener Holes

A. Inspect for surface cracks around fastener holes with conventional surface eddy-current instruments per Part 6, 51-00-00. Refer to detail III for fastener location. Cracks should lie in fwd/aft direction.

Skin and Rear Spar Chord WS 196 to 270
Figure 3 (Sheet 3)

B. Inspection for cracks out of fastener holes in second layer structure.

(1) With instrument calibrated per par. 5 inspect fasteners designated in detail III.

NOTE: The following conditions may give a crack like indication:

(a) A decrease in fastener spacing. Compare readings between equally spaced fasteners.

(b) A larger fastener diameter. Compare reading with a same size fastener on standard or a similar fastener on airplane.

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

(d) Short edge margin on rear spar chord (less than 0.5 inch). Compare with outer row on reference standard with same approximate skin thickness or similar fasteners on airplane. Refer to detils IV and V for inspection results at WS 196 and 208.

7. Inspection Results

A. For skin cracks

(1) Any crack indication greater than 20% of full meter scale should be considered significant and investigated further (Ref Part 6, 51-00-00).

B. For cracks out of fastener holes in upper rear spar chord.

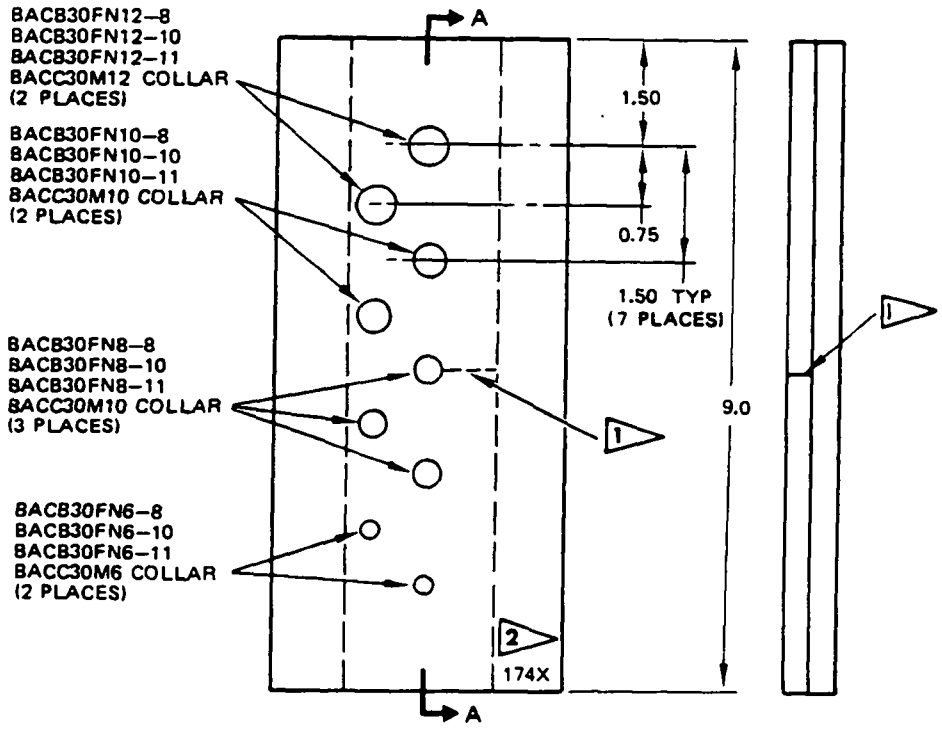
(1) Any crack indication equal to or greater than the significant indication listed in Table 1 should be investigated further.

WING STATION	SKIN THICKNESS OF AIRPLANE	SIGNIFICANT INDICATION % OF FULL METER SCALE
194 to 196	0.37	30
196 to 209	0.27	50
209 to 360	0.18	70

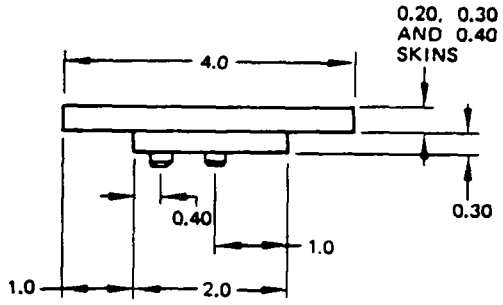
NOTE: Instrument calibration remains unchanged regardless of wing station.

SIGNIFICANT INDICATIONS
TABLE 1

Skin and Rear Spar Chord WS 196 to 270
Figure 3 (Sheet 4)



SECTION A–A



SEE TABLE I FOR FASTENER GRIP LENGTHS.

SKIN THICKNESS	FASTENER GRIP LENGTH	BOEING PART NUMBER
0.20 INCH	–8	174A
0.30 INCH	–10	174B
0.40 INCH	–11	174C

TABLE I

NOTES

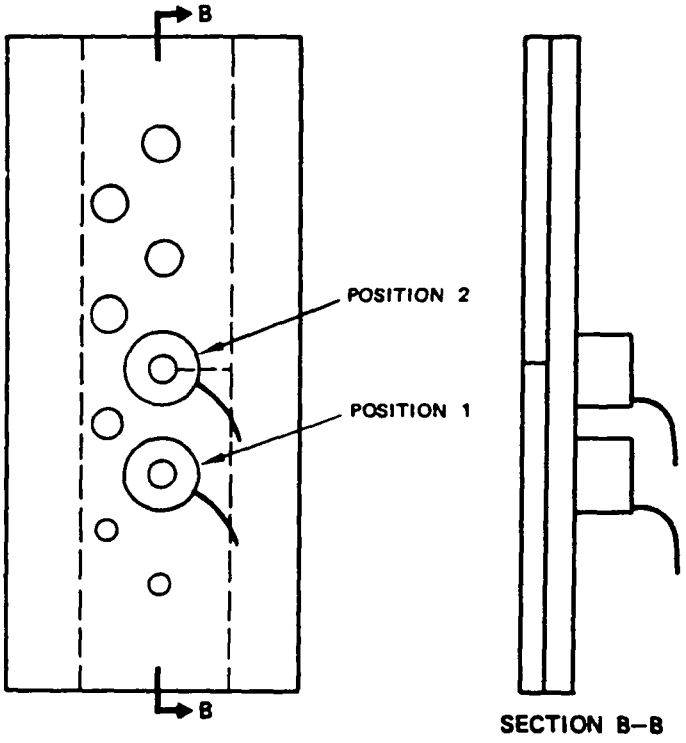
- ALL DIMENSIONS ARE IN INCHES
- TOLERANCE: ±0.030
- MATERIAL: 2024-T4, 7075-T6 OR 7178-T6 ALUMINUM
- P/N 6412–25 AVAILABLE FROM IDEAL SPECIALTY CO.

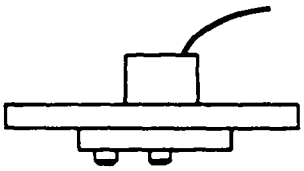
1 JEWELER'S SAWCUT 0.020 MAX WIDTH

2 ETCH OR STEEL STAMP WITH 174A, 174B, OR 174C

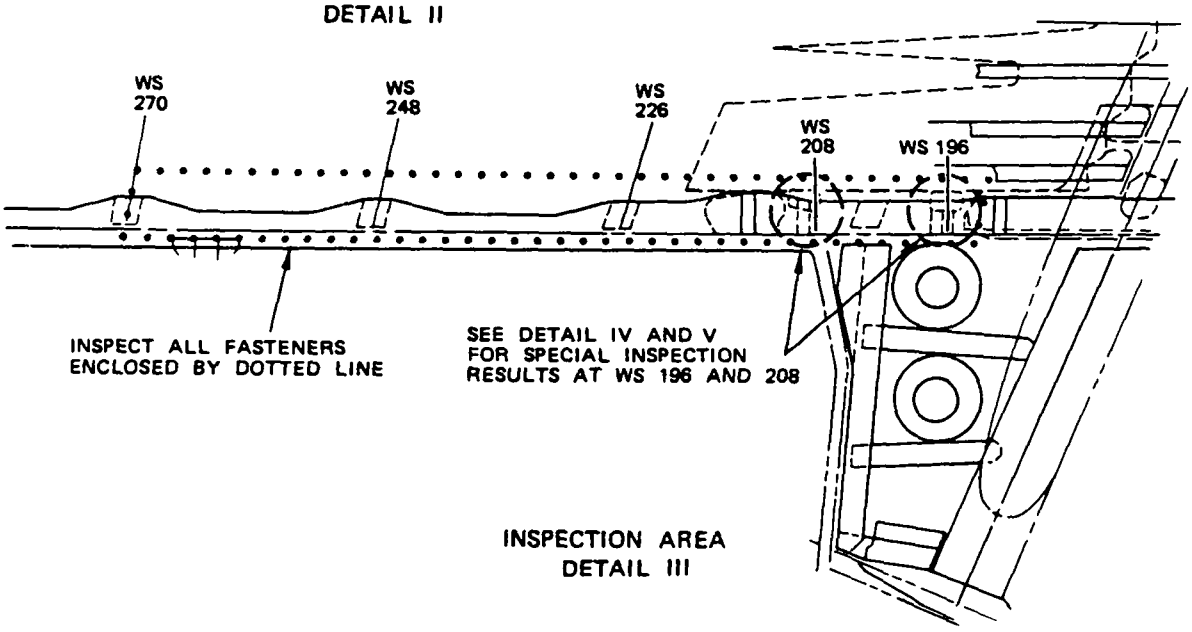
REFERENCE STANDARD DETAIL I

Skin and Rear Spar Chord WS 196 to 270
Figure 3 (Sheet 5)





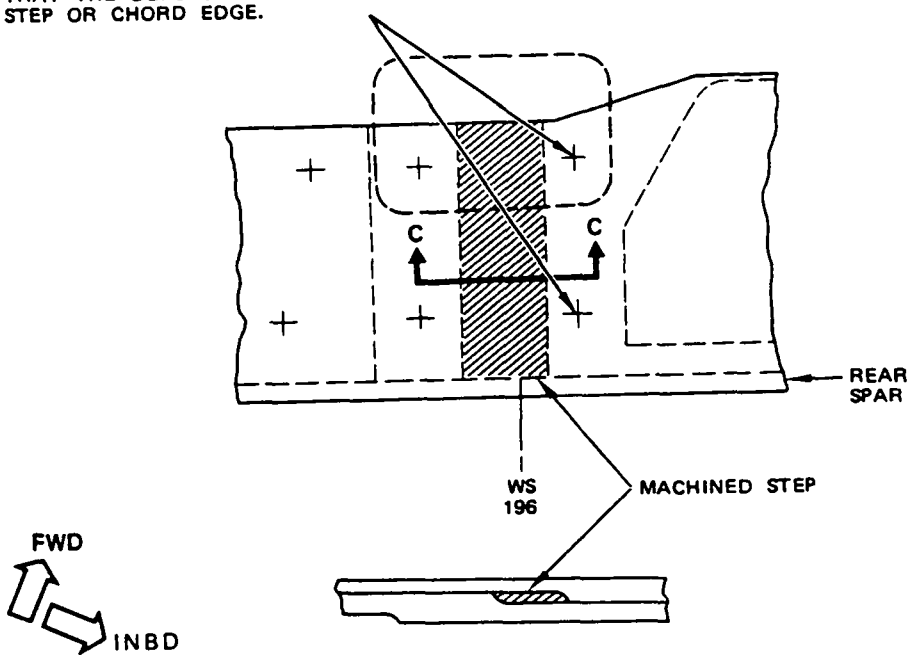
PROBE POSITION FOR CALIBRATION
DETAIL II



INSPECTION AREA
DETAIL III

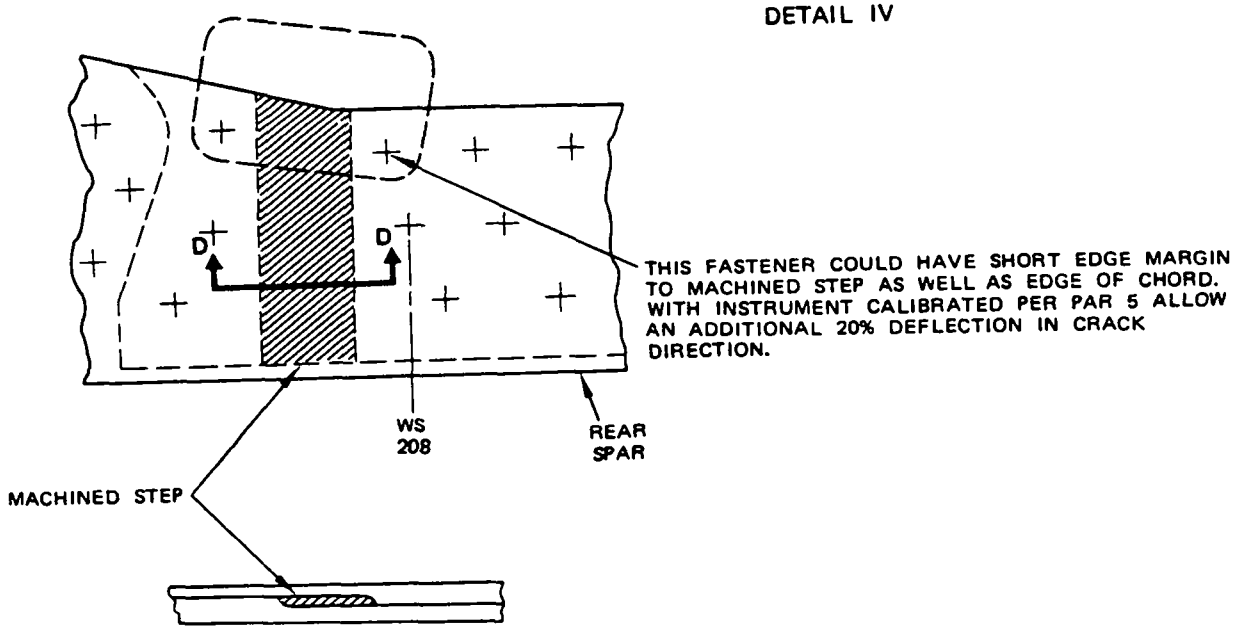
Skin and Rear Spar Chord WS 196 to 270
Figure 3 (Sheet 6)

IF CRACK INDICATIONS ARE OBTAINED FROM EITHER OF THESE FASTENERS CONSULT RADIOGRAPHS TAKEN DURING SERVICE BULLETIN 3168 TO VERIFY THAT THE DEFLECTIONS ARE NOT DUE TO SHORT EDGE MARGIN TO MACHINED STEP OR CHORD EDGE.



SECTION C–C

INSPECTION RESULTS AT WS 196
DETAIL IV



SECTION D–D

INSPECTION RESULTS AT WS 208
DETAIL V

Skin and Rear Spar Chord WS 196 to 270
Figure 3 (Sheet 7)

PART 6 - EDDY CURRENT

WINGS - PLATES/SKIN

1. Purpose

To detect surface cracks in the lower wing skin panel along the edges of the external rib chord (beavertail). See Detail I.

2. Equipment

A. Eddy Current 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) Magnaflux Corporation ED 520

B. Probe

(1) Eddy current surface probe per Part 1, 51-06-00, Fig. 1, Shielded Pencil Probe.

C. Reference Standard

(1) Fabricate reference standard per Part 6, 51-00-00, Fig. 4, Flat or Moderately Curved Surfaces of Aluminum Parts.

3. Preparation for Inspection

A. Sand lightly to smooth rough surfaces.

B. Remove sealant along edge of external chord, See Table I. It is not necessary to remove paint or finish from the surface.

C. Wipe surface clean.

4. Instrument Calibration

A. Adjust instrument and probe combination for lift-off and sensitivity per Part 6, 51-00-00, Fig. 4, Flat or Moderately Curved Surfaces of Aluminum Parts.

Lower Wing Skin Panel Along External Chord
Figure 4 (Sheet 1)

5. Test Procedure

A. Scan suspect areas per Table I. A crack is indicated by a rapid deflection of the instrument needle as the probe passes over the crack.

NOTE: (1) If a steel fastener is encountered along the scan path, it will cause an offscale meter deflection. Check with a small magnet to identify the presence of the steel fastener.

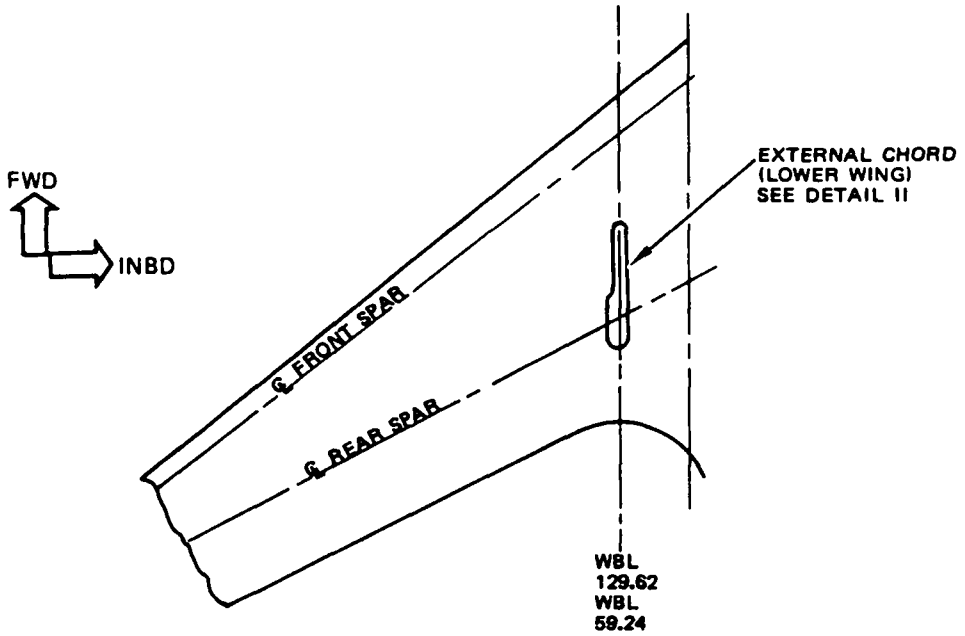
(2) Metal chips embedded in paint or sealant can cause crack-like indications. Remove paint or sealant and reinspect.

(3) Should a crack lie in a more parallel direction to the edge of the chord, the characteristic rapid meter deflection may not be obtained. Any unusual meter movement should be investigated to establish the cause.

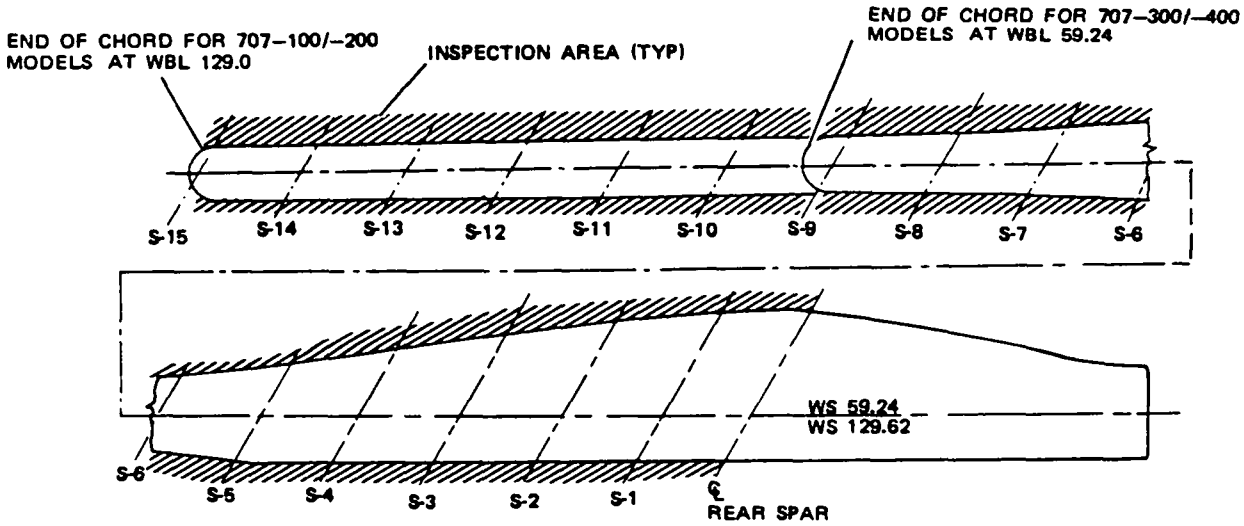
AIRPLANE MODEL/SERIES	INSPECTION AREA
707-100/200	EXTERNAL RIB CHORD AT WBL 129.62
720	EXTERNAL RIB CHORD AT WBL 129.62
707-300/400 (ALL MODELS)	EXTERNAL RIB CHORD AT WBL 59.24

EDDY CURRENT SURFACE INSPECTION AREA
TABLE I

Lower Wing Skin Panel Along External Chord
Figure 4 (Sheet 2)



R.H. WING – BOTTOM VIEW
(LH OPPOSITE)
DETAIL I



707/720 MODELS – END OF CHORD IS AT WBL 129.62,
STRINGER S–9 SIMILAR TO WBL 59.24 CHORDS

INSPECTION AREA – EXTERNAL CHORD
DETAIL II

Lower Wing Skin Panel Along External Chord
Figure 4 (Sheet 3)

EFFECTIVITY
MODEL: 707-100/200
SSI DOCUMENT: (D6-44860)
REFERENCE: SSD 57-A15-03

PART 6-EDDY CURRENT

WINGS - PLATES/SKIN

1. Purpose

   A. To detect cracks in the lower wing skin at side of body joint, BBL 70.5, which intersect fastener holes. This inspection is accomplished from inside of the wing without fastener removal. Some sealant removal is required.

   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 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 used one probe; any probe of similar size which will satisfy the performance requirements of this procedure is acceptable. The following probe was used in the development of this procedure.

      (1) Low frequency spot probe with 0.55-inch OD shielding usable at 500 Hz. Probe should not be taller than 1.0 inch. Nortec P/N SPO-1125.

      NOTE: Probe listed above available from:

      Nortec Inc.
      421 N. Quay
      Kennewick, Washington 99336

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

Wing Lower BBL 70.5 Splice 707-100/200 Airplanes
Figure 5 (Sheet 1)

C. Reference Standards

(1) Manufacture per Detail I.

3. Preparation for Inspection

A. Gain access to wing fuel tank just outboard of BBL 70.5.

B. Remove any sealant in excess of 0.02-inch thick forward and aft of fasteners coded A, Detail III. Do not remove sealant caps.

C. Wipe surface clean.

4. Instrument Calibration

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

(1) Set instrument frequency at 500 Hz.

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

(3) Balance instrument per manufacturer's instruction.

(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 0.02 inch.

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 fullscale 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, with a 0.02-inch nonconductive shim between the probe and the standard for both positions.

(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 respone.

Wing Lower BBL 70.5 Splice 707-100/200 Airplanes
Figure 5 (Sheet 2)

5. Inspection Procedure

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

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) Calibrate the instrument per par. 4.A.

(2) Note on the airplane the location of code A fasteners using Details III and IV.

(3) Inspect each code A fastener by placing the probe adjacent to the fastener on the forward and aft side.

NOTE: No inspection can be made on the aft side of fastener 210 due to tight spacing.

Where tack fasteners prevent probe from being centered between fasteners, place probe next to inboard side of tack fasteners. Do not remove sealant cap. See Detail III for possible tack fastener location.

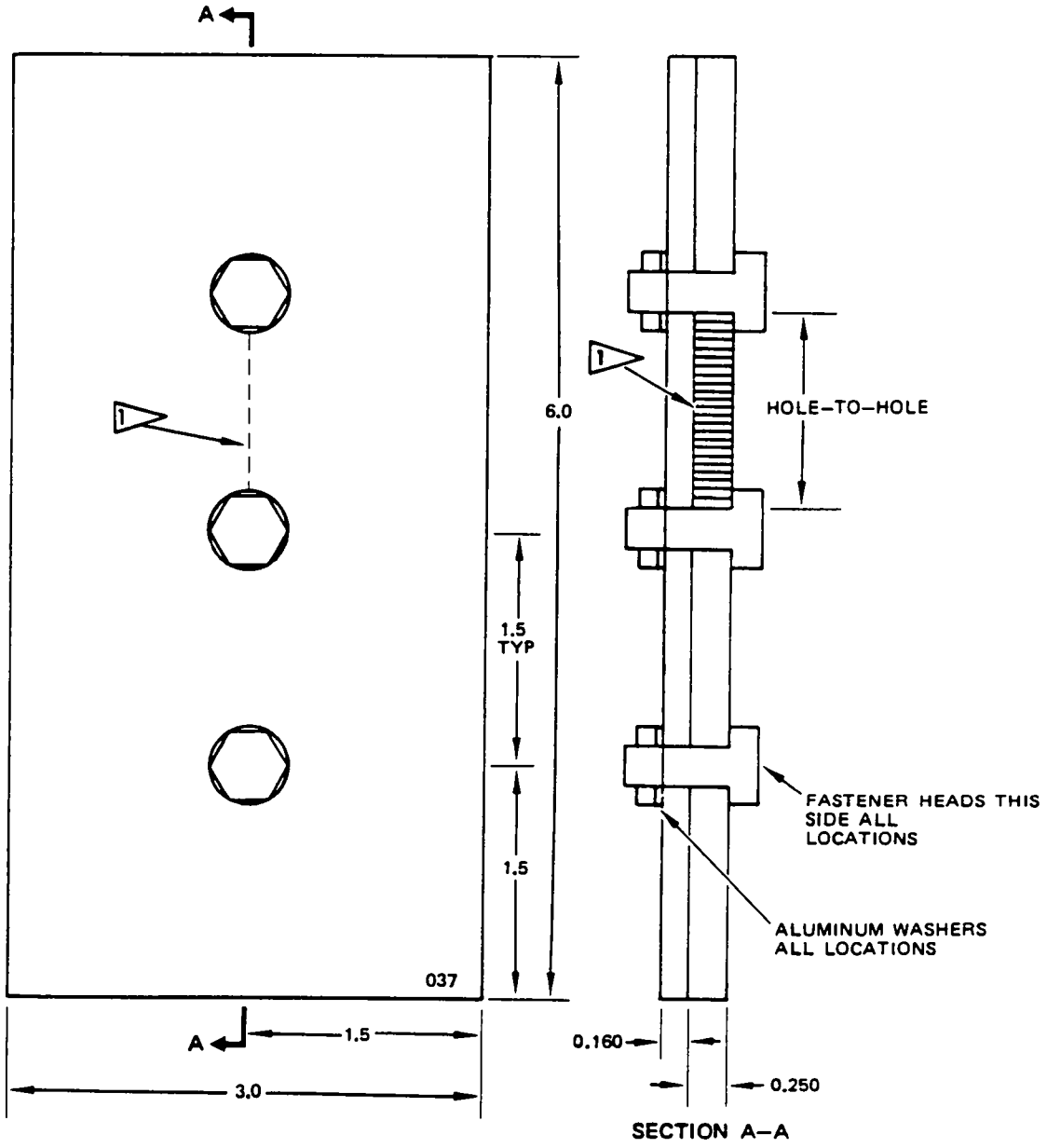
(4) Any location which gives a response which is 30% of full meter scale higher than the baseline response should be investigated further.

(5) The following could give crack-like indication:

(a) Too thick sealant - remove sealant and reinspect.

(b) Ferrous chips trapped in sealant - remove sealant and reinspect.

(c) Change in edge margin - compare fastener locations with similar edge margins.



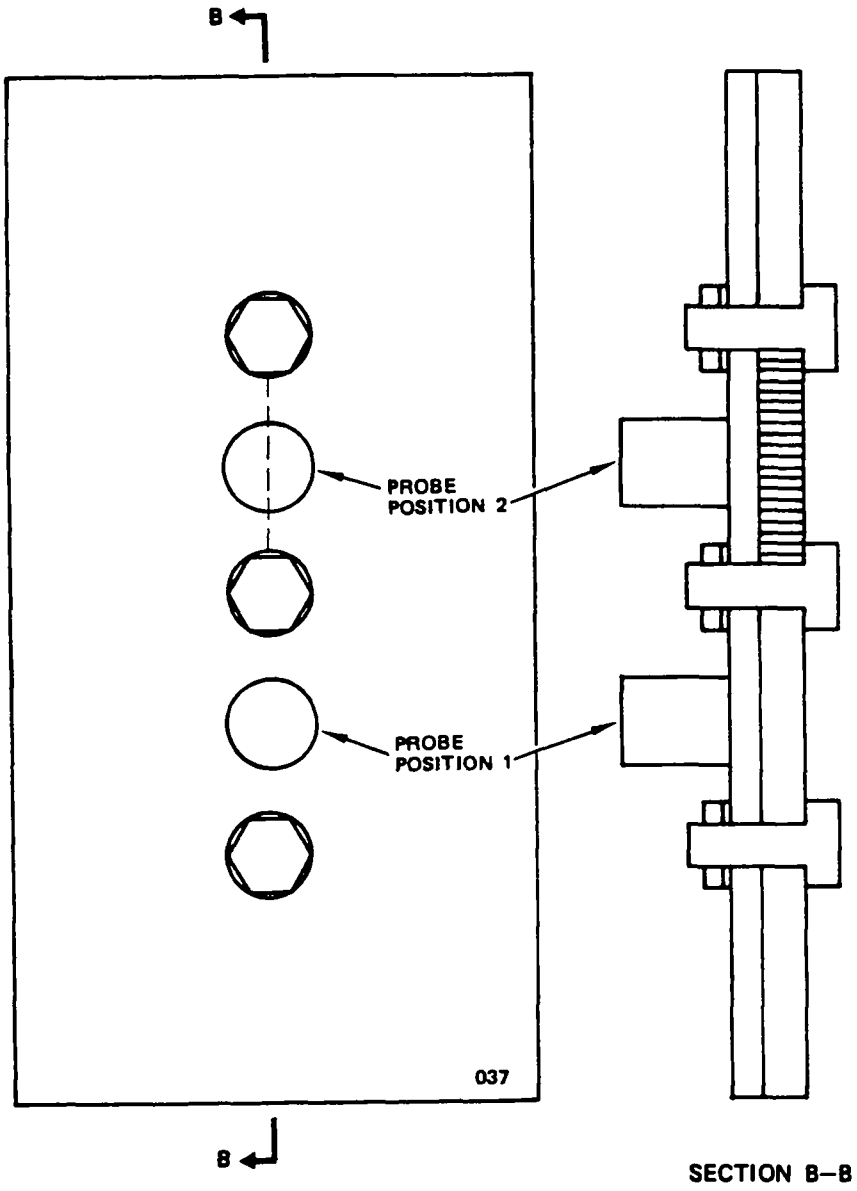
NOTES

- MATERIAL: 2024-T4 ALUMINUM
- TOLERANCE: X.X ± 0.05 X.XX ± 0.02 X.XXX ± 0.01
- ALL DIMENSIONS ARE IN INCHES
- BACB30NE5-7 FASTENER; BACN10JC-5 NUT (3 PLACES)
- ETCH OR STEEL STAMP WITH 037
- P/N 6412-65
  AVAILABLE FROM IDEAL SPECIALTY CO.

1 JEWELER'S SAWCUT 0.030 MAX WIDTH

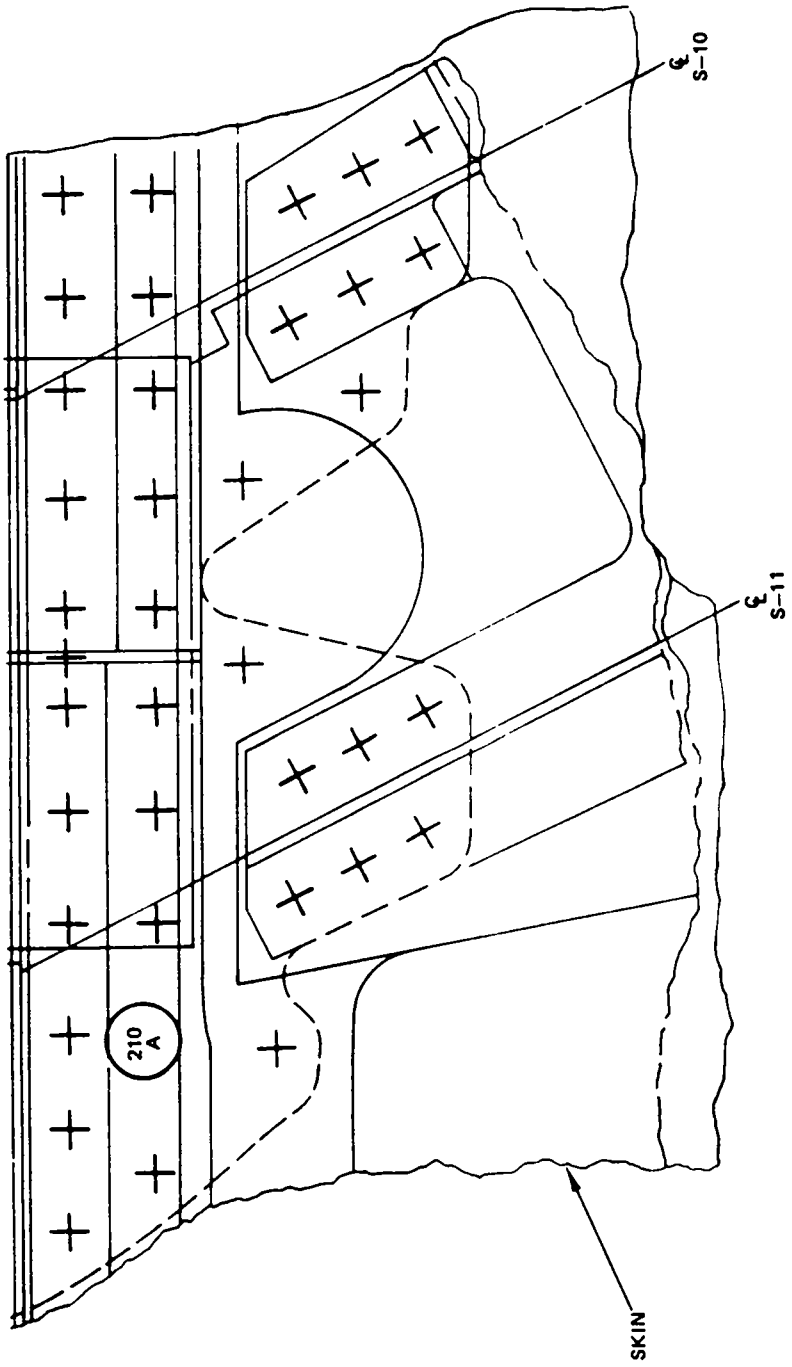
REFERENCE STANDARD 037
DETAIL 1

Wing Lower BBL 70.5 Splice (707-100/200 Airplanes)
Figure 5 (Sheet 4)

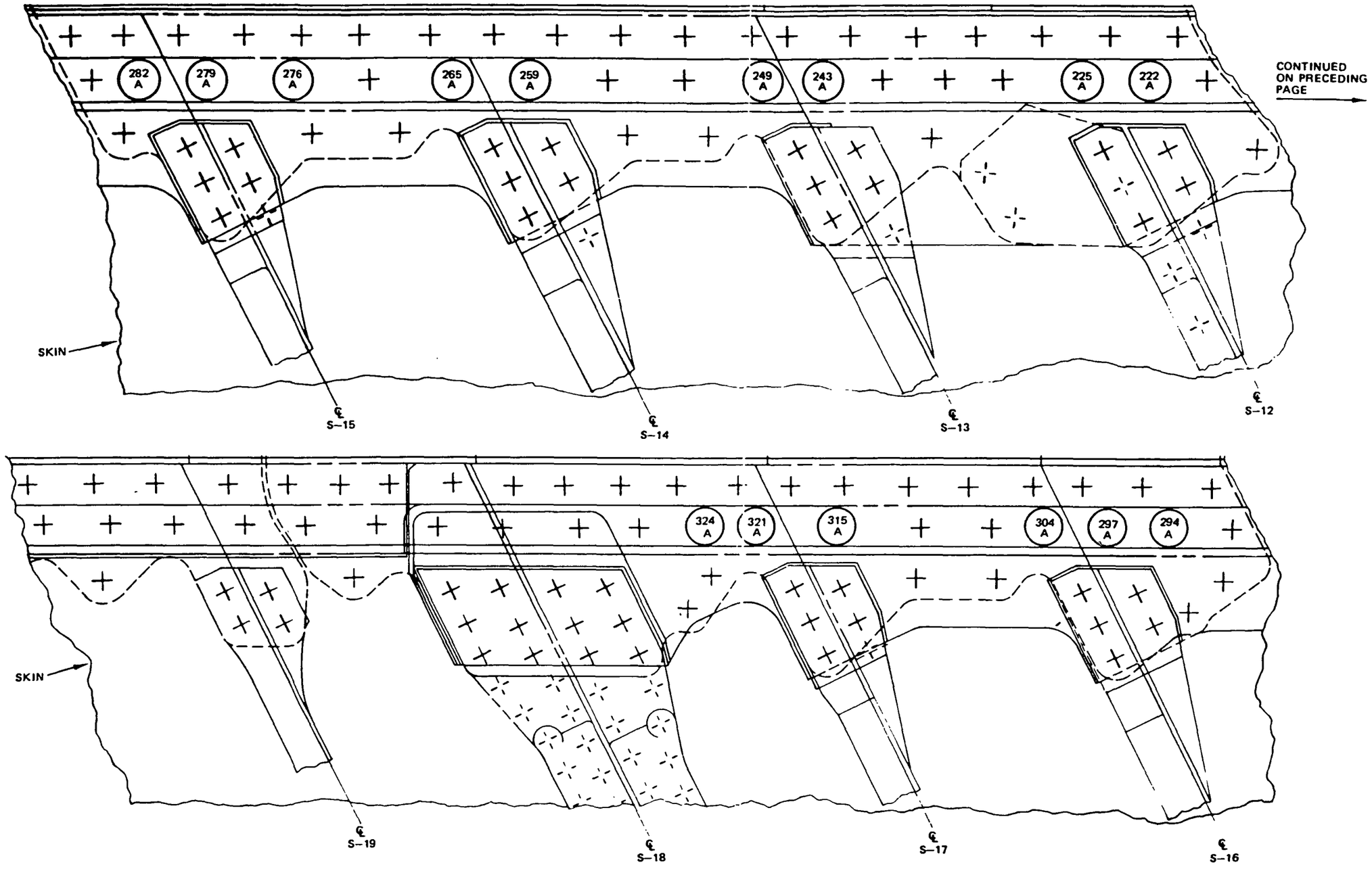


PROBE POSITION FOR
CALIBRATION ON
REFERENCE STANDARD 037

DETAIL II

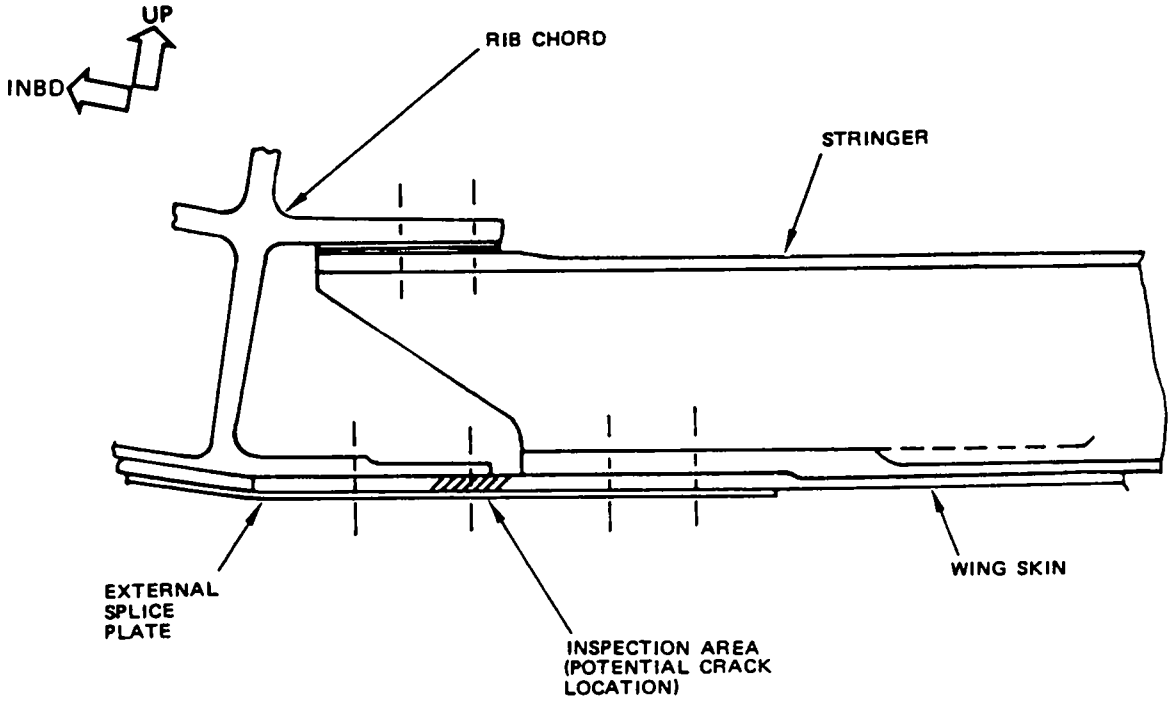


Wing Lower BBL 70.5 Splice 707-100/200 Airplanes
Figure 5 (Sheet 6)



DETAIL III (CONT)

Wing Lower BBL 70.5 Splice 707-100/200 Airplanes
Figure 5 (Sheet 7)



CROSS SECTION (TYPICAL)
(S–15 SHOWN, S–12 THRU S–18 SIMILAR)
DETAIL IV

Wing Lower BBL 70.5 Splice 707-100/200 Airplanes
Figure 5 (Sheet 8)

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 external eddy current inspection of the wing lower BBL 70.5 splice to detect cracks out of fastener holes:

      (1) In the aluminum skin at designated areas.

      (2) In the cadmium plated steel external splice plate.

2. Equipment

   A. For inspection of the aluminum skin:

      (1) Instrument

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

      (2) Probe

      Straight shielded pencil probe per Part 1, 51-06-00, Fig. 1.

      P/N P-50
      NDT Product Engineering
      P.O. Box 423
      Renton, WA 98057

      P/N PEN-100 PS
      VM Products
      7420 Park Ave. No. 20
      Tacoma, WA 98408

      (3) Reference Standard

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

   B. For inspection of the steel external splice plate:

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

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

Wing Lower BBL 70.5 Splice 707-100/200 Airplanes
Figure 6 (Sheet 1)

(2) Probe - 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.

(a) Low frequency spot probe, 0.31 OD, with external shielding, usable at 1 kHz on steel. Nortec P/N SPO 1284.

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 probes.

(3) Reference Standard

(a) Manufacture per Detail I.

3. Preparation for Inspection

A. Remove the lower wing to body fairing.

B. Wipe inspection surfaces clean.

4. Instrument Calibration

A. Inspection of Aluminum Skin

(1) Refer to Part 6, 51-00-00, Fig. 4.

B. Inspection of Steel External Splice Plate

(1) Connect probe to instrument.

(2) Set frequency to 1 kHz.

(3) Place probe on an unnotched area of the steel 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 0.003-inch (approximately the thickness of one sheet of paper).

NOTE: Probe is located at an unnotched location during liftoff calibration.

Wing Lower BBL 70.5 Splice 707-100/200 Airplanes
Figure 6 (Sheet 2)

(6) With the probe at an unnotched area, adjust meter response to read 20% of full scale with meter position control.

(7) Slide probe over the notch. Response should be upscale.

(8) Adjust instrument sensitivity to obtain a 30% of fullscale meter response when the probe is passed over the notch.

(9) Final adjustment to null and liftoff must be made on the airplane. Place probe on steel external splice plate to verify null and liftoff. Do not change instrument sensitivity. If readjustments are made, recheck crack response on notch standard to verify response direction. Response should be upscale.

(10) Cracks will be indicated by an upscale deflection of the needle as a crack is passed over.

5. Inspection Procedure

A. Inspection of Aluminum Skin

(1) Scan with the pencil probe on the aluminum skin adjacent to the steel external splice plate at designated areas, inboard and outboard of BBL 70.5 (Ref Detail II).

B. Inspection of Steel External Splice Plate

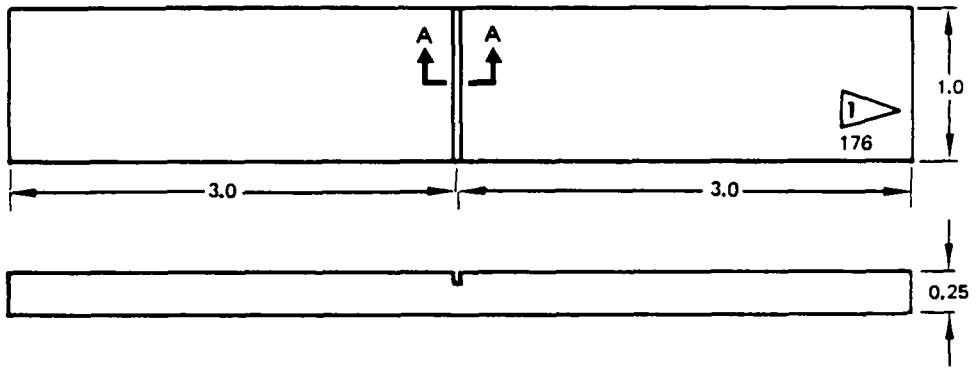
(1) Scan with the probe on the steel splice plate around designated fasteners, "E", inboard and outboard of BBL 70.5 (Ref Detail II).

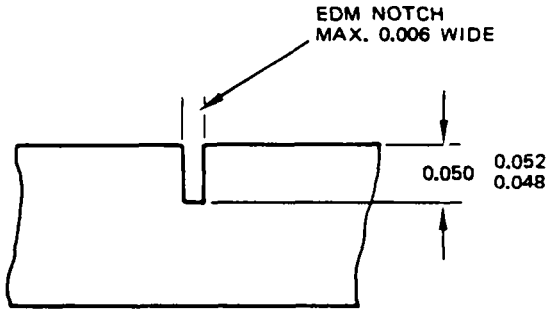
NOTE: At some locations, fastener position may prevent a complete 360° scan around a fastener. When this occurs, scan around the fastener to the extent possible, paying particular attention to the areas fore and aft of the fastener.

(2) Scan with the pencil probe on the external splice plate along the fore and aft edges of fairing clips, inboard of BBL 70.5 (Ref Detail II).

(3) Any location which gives a crack-like response of 20% or more should be investigated further.

Wing Lower BBL 70.5 Splice 707-100/200 Airplanes
Figure 6 (Sheet 3)





SECTION A–A

NOTES

- ALL DIMENSIONS ARE IN INCHES
- TOLERANCE ± 0.050 ON ALL DIMENSIONS EXCEPT AS NOTED
- MATERIAL:

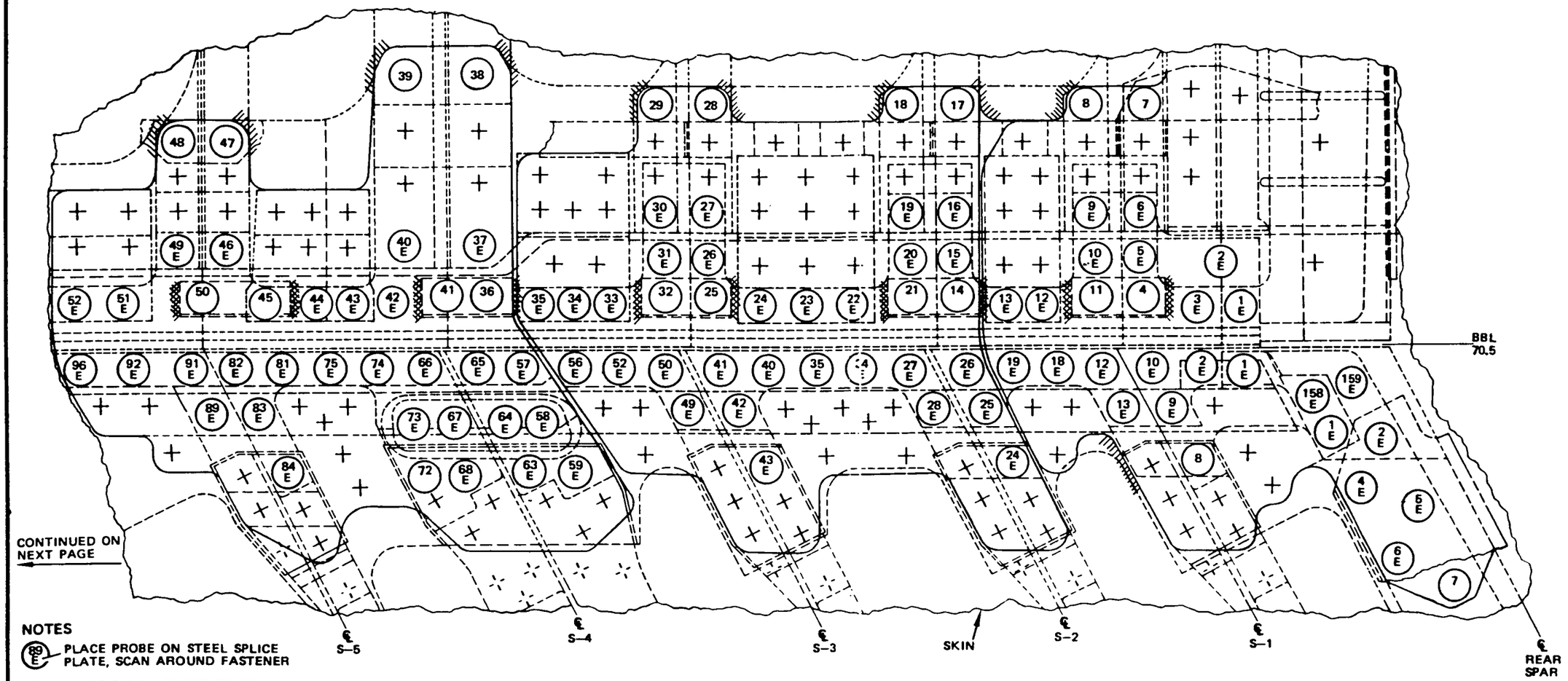
  4140 200–220
  4330 150–170
  4130 180–220 STEEL

- P/N 6412–66
  AVAILABLE FROM IDEAL SPECIALTY CO.

1 ETCH OR STEEL STAMP WITH 176

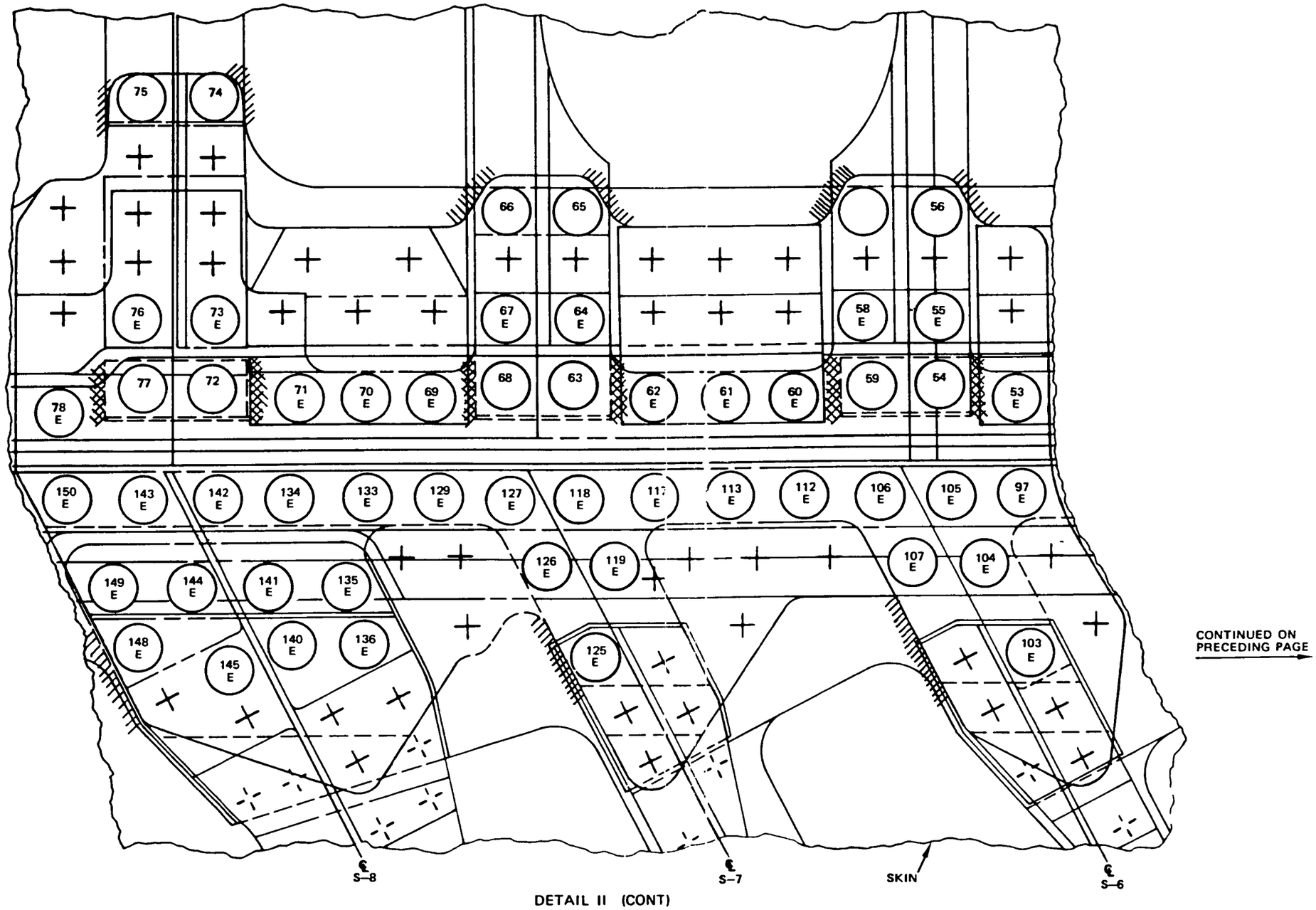
REFERENCE STANDARD FOR CALIBRATION
ON STEEL EXTERNAL SPLICE PLATE
DETAIL I

Wing Lower BBL 70.5 Splice 707-100/200 Airplanes
Figure 6 (Sheet 4)



FASTENER LOCATIONS TO BE INSPECTED
LOWER HORIZONTAL FLANGE BBL 70.5 SPLICE
(RIGHT SIDE SHOWN, LEFT SIDE SIMILAR)
DETAIL II

Wing Lower BBL 70.5 Splice 707-100/200 Airplanes
Figure 6 (Sheet 5)



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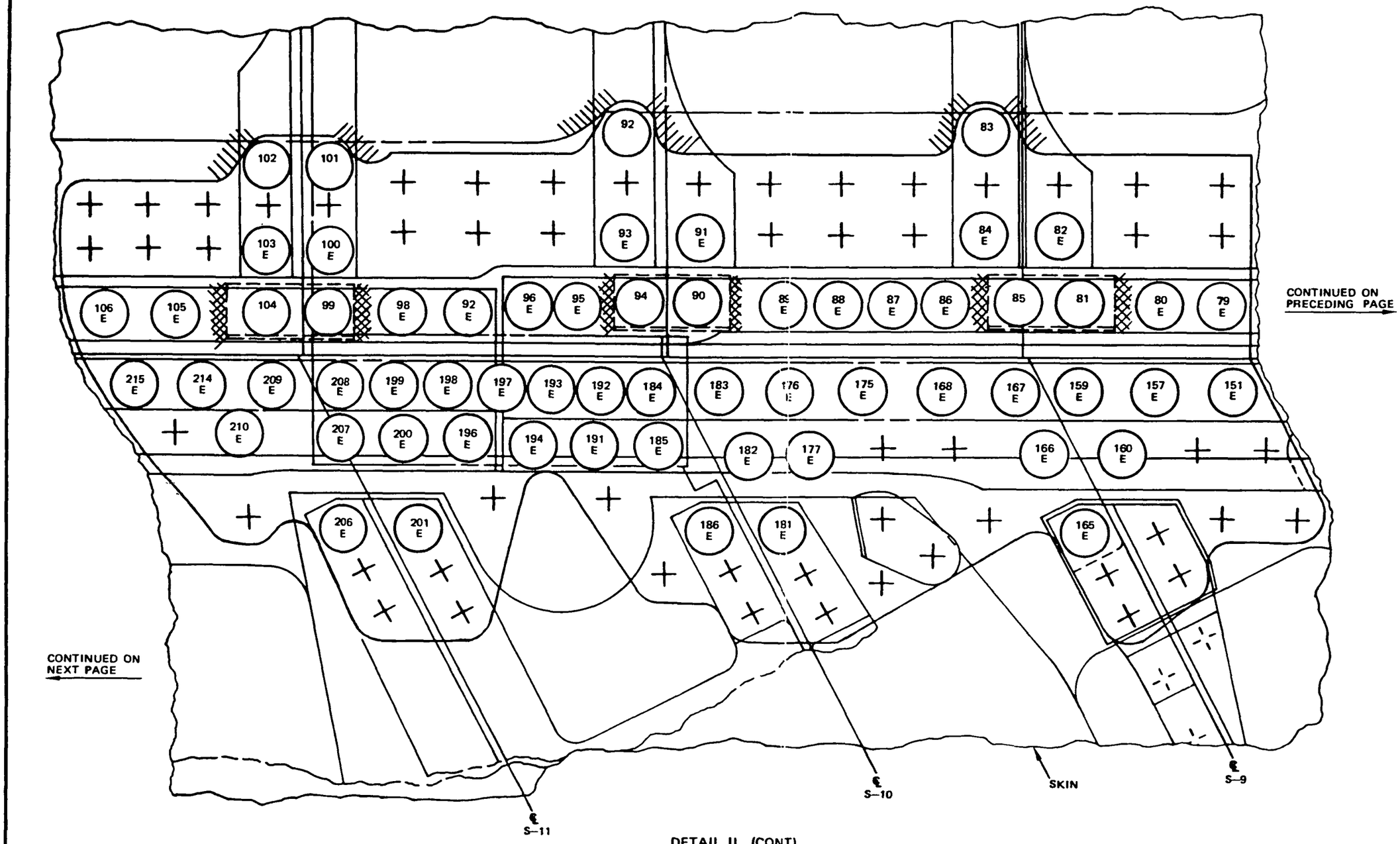
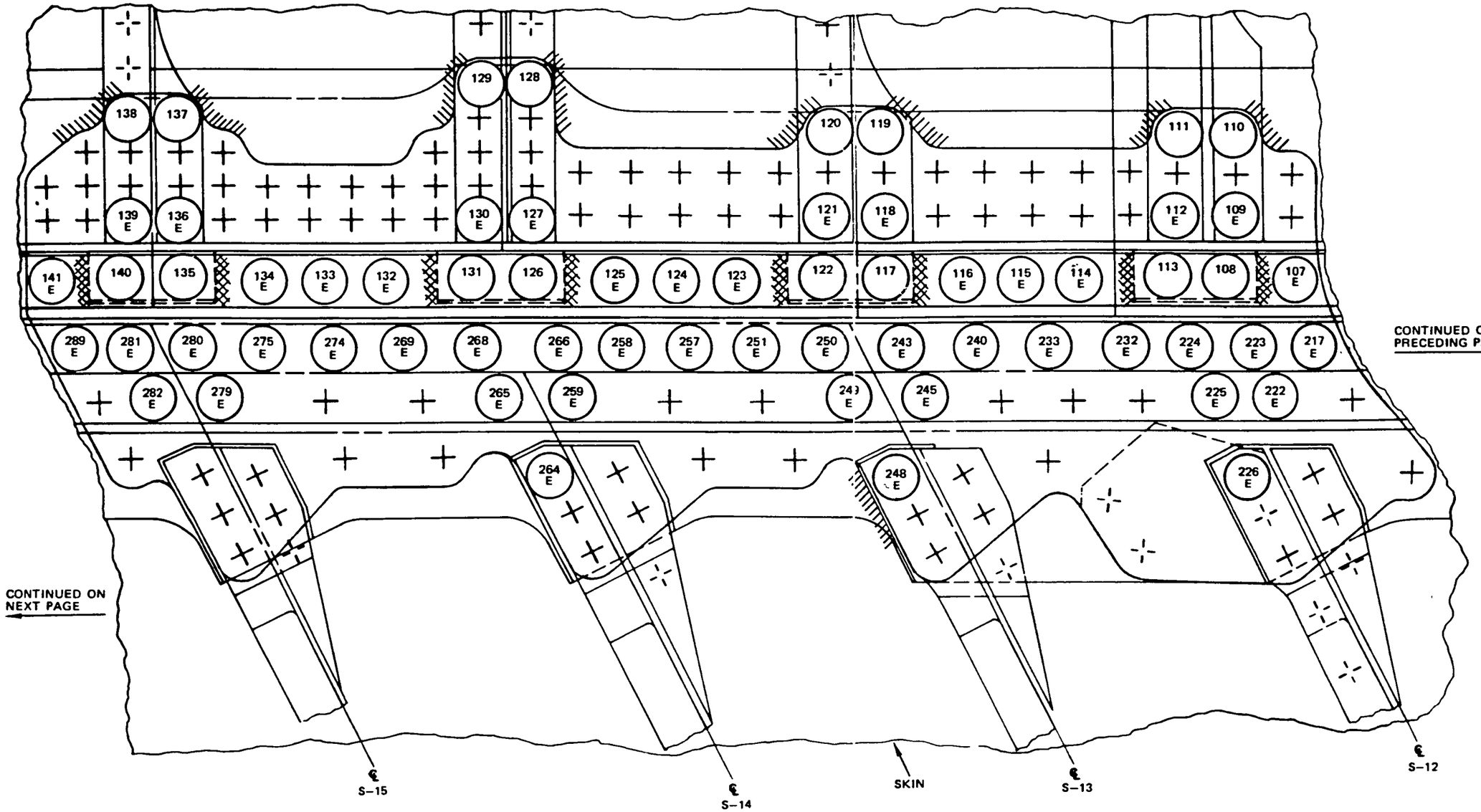
DETAIL II (CONT)

Wing Lower BBL 70.5 Splice 707/100/200 Airplanes
Figure 6 (Sheet 6)



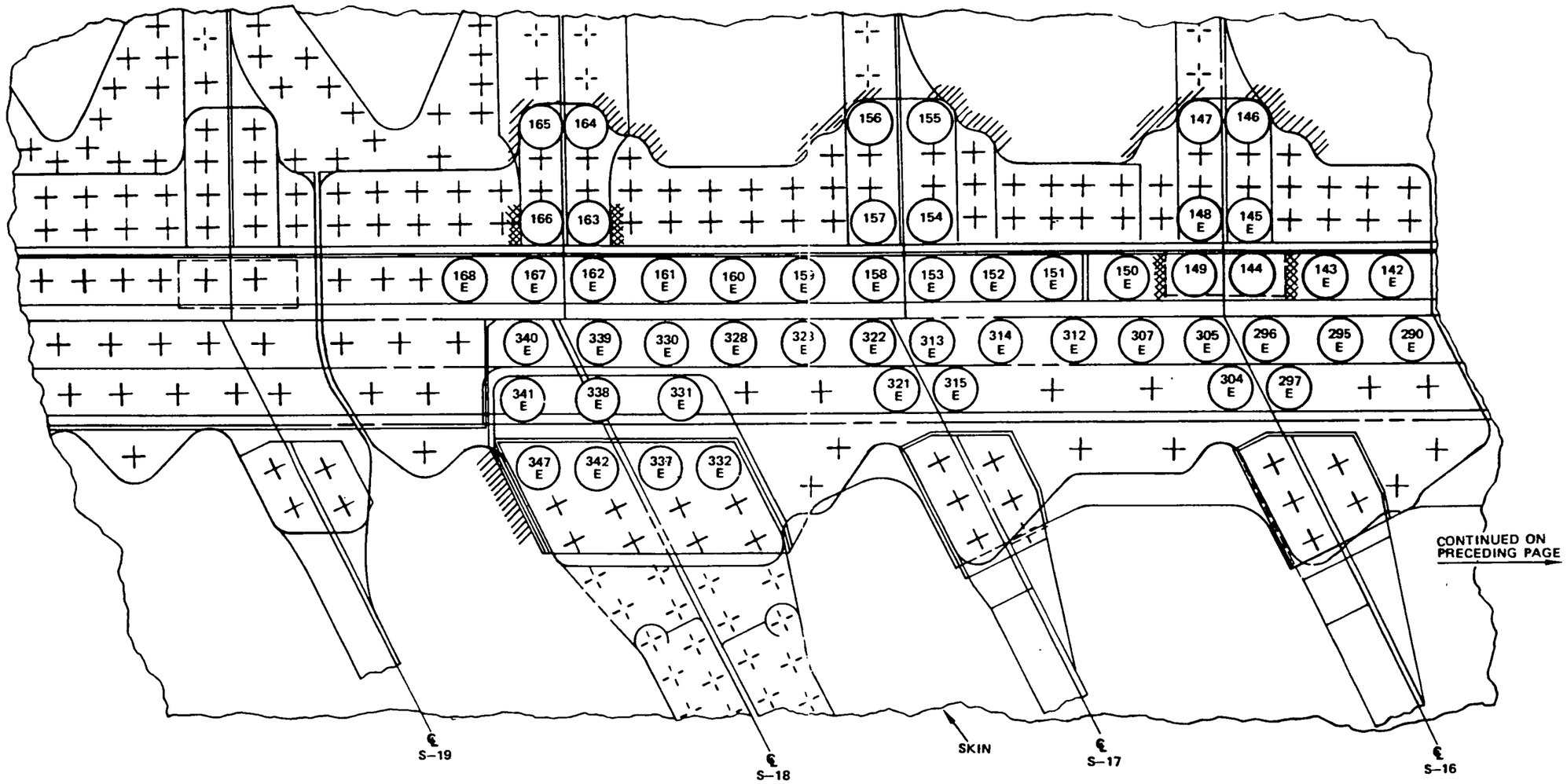
DETAIL II (CONT)

Wing Lower BBL 70.5 Splice 707-100/200 Airplanes
Figure 6 (Sheet 7)



DETAIL II (CONT)

Wing Lower BBL 70.5 Splice 707-100/200 Airplanes
Figure 6 (Sheet 8)



DETAIL II (CONT)

Wing Lower BBL 70.5 Splice 707-100/200 Airplanes
Figure 6 (Sheet 9)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To perform an external high frequency eddy current inspection of the wing lower BBL 70.5 splice to detect cracks out of fastener holes in the external splice plate.

2. Equipment

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

   B. Probe - Straight shielded pencil probe per Part 1, 51-06-00, Fig. 1.

   Shielded pencil probes are available from:

   P/N P-50
   NDT Production Engineering
   P.O. Box 423
   Renton WA 98057

   P/N PEN-100PS
   VM Products
   7420 Park Ave. No. 20
   Tacoma, WA 98408

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

3. Preparation for Inspection

   A. Remove the lower wing to body fairing.

   B. Wipe inspection surfaces clean.

4. Instrument Calibration

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

Wing Lower BBL 70.5 Splice 720 Airplanes
Figure 7 (Sheet 1)

5. Inspection Procedure

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

NOTE: Fasteners are indentified by circled numbers. See Detail I. These numbers should be used for fastener identification.

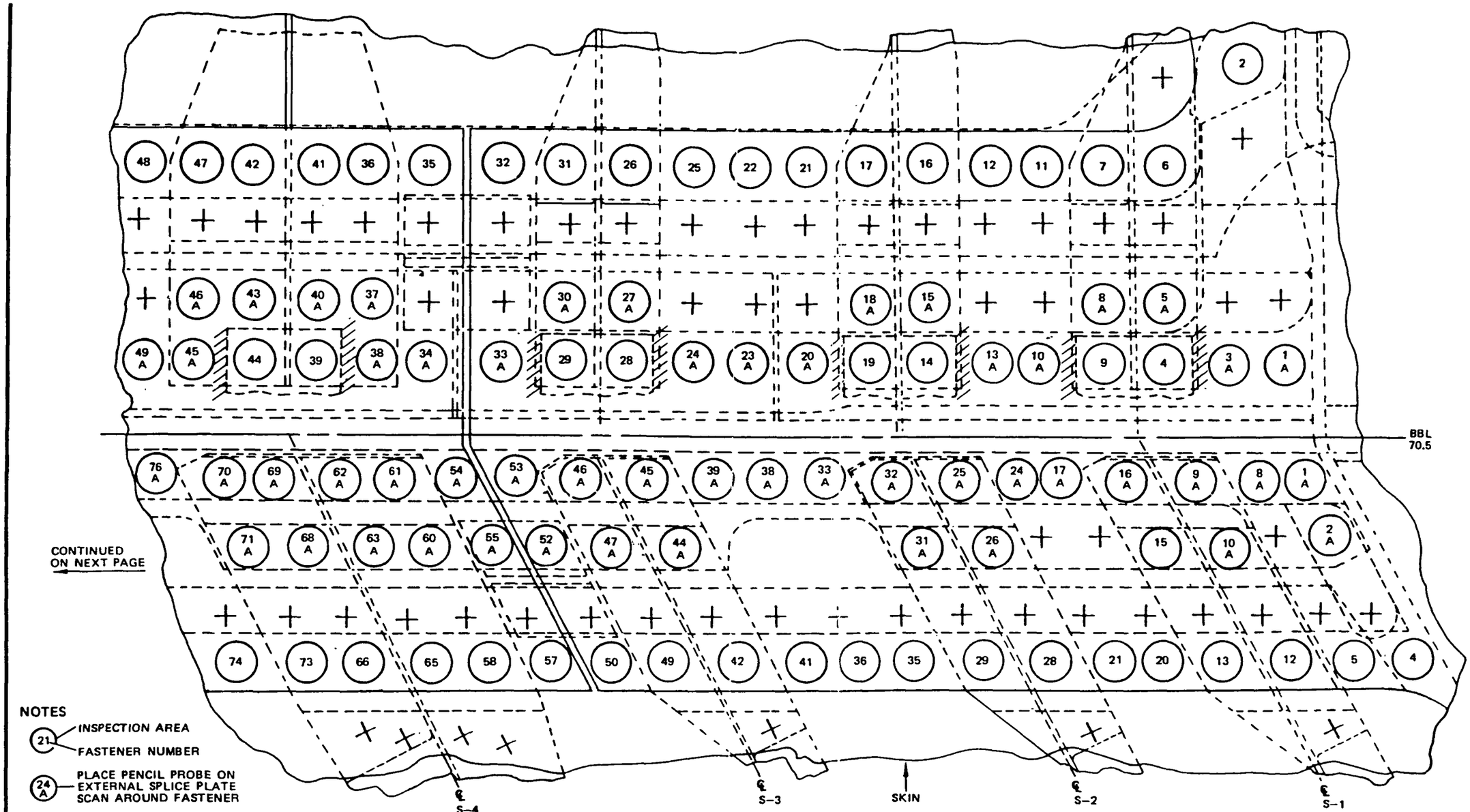
Cracks are expected to propagate fore and aft out of fastener holes, or in a direction normal to the stringer.

B. Scan with the pencil probe on the external splice plate around all fasteners designated by an "A" inside the numbered circle. See Detail I.

NOTE: At some locations, fastener position may prevent a complete 360° scan around a fastener. When this occurs, scan around the fastener to the extent possible, paying particular attention to the areas fore and aft of the fastener.

C. Scan with the pencil probe on designated locations of the external splice plate fore and aft of fairing clips, inboard of BBL 70.5. See Detail I.

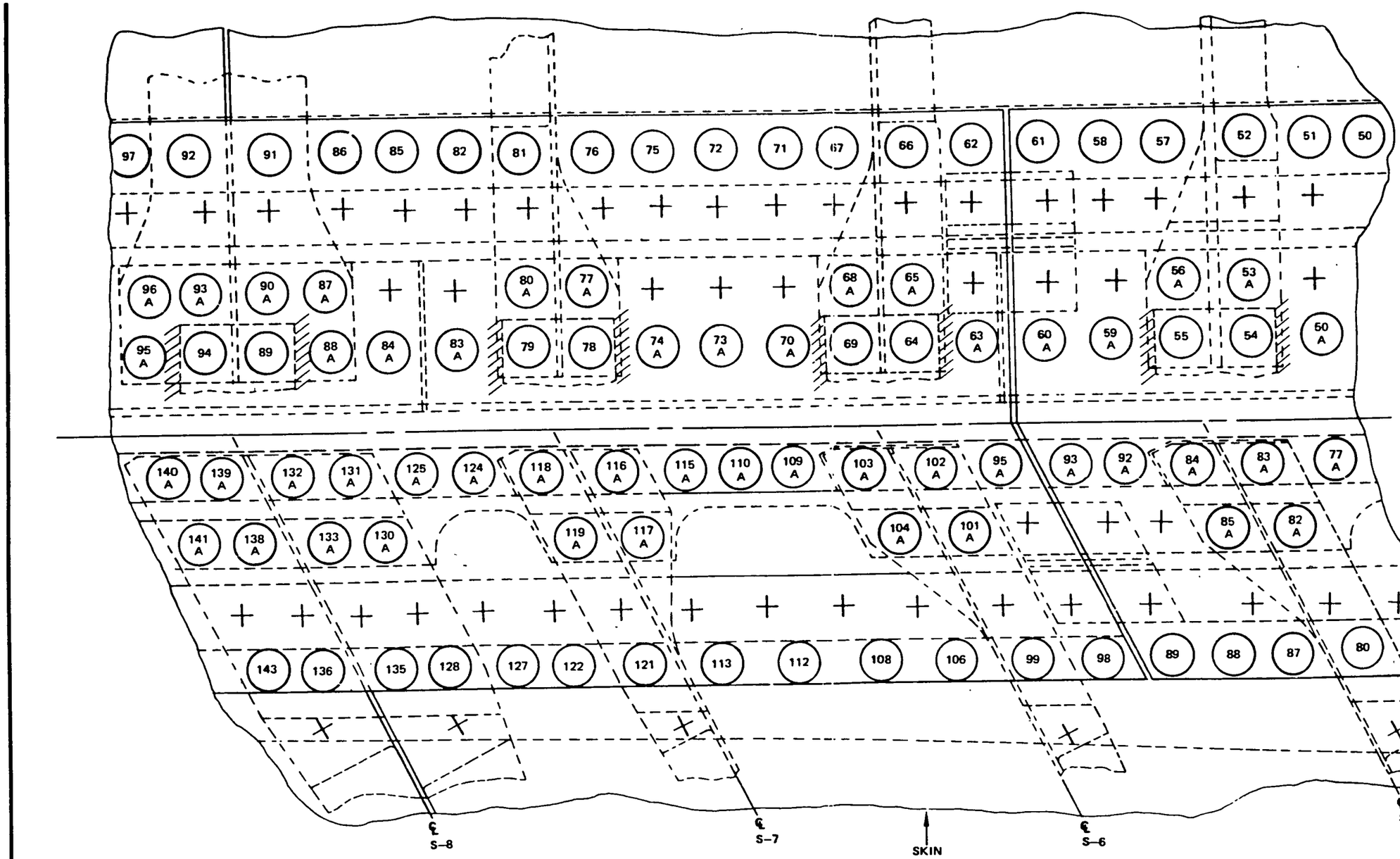
Wing Lower BBL 70.5 Splice 720 Airplanes
Figure 7 (Sheet 2)



FASTENERS TO BE INSPECTED
LOWER HORIZONTAL FLANGE–LOWER BBL 70.5 SPLICE
(RIGHT SIDE SHOWN–LEFT SIDE SIMILAR)

DETAIL I

Wing Lower BBL 70.5 Splice 720 Airplanes
Figure 7 (Sheet 3)



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DETAIL I (CONT)

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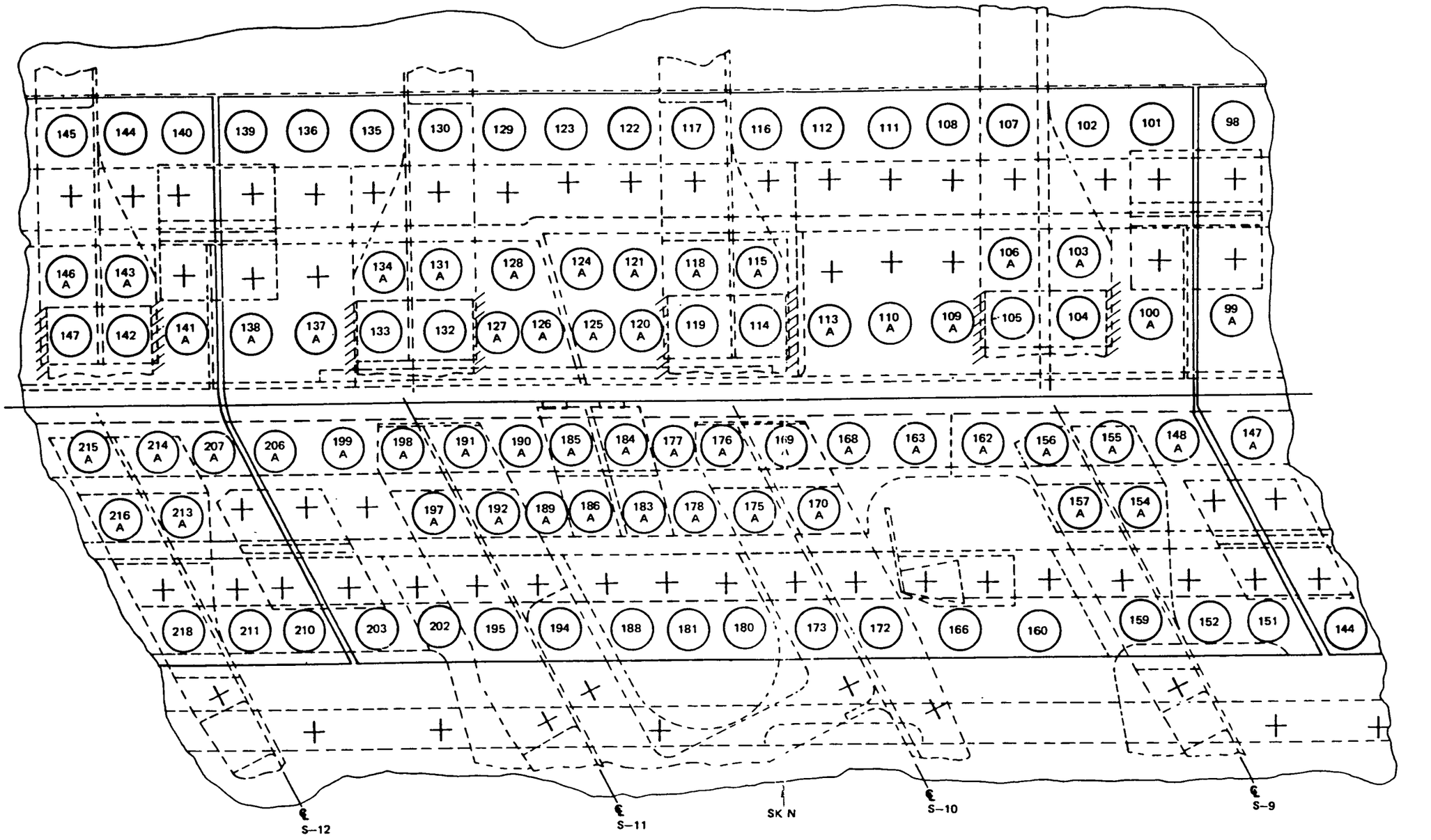
Wing Lower BBL 70.5 Splice 720 Airplanes
Figure 7 (Sheet 4)



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DETAIL I (CONT)

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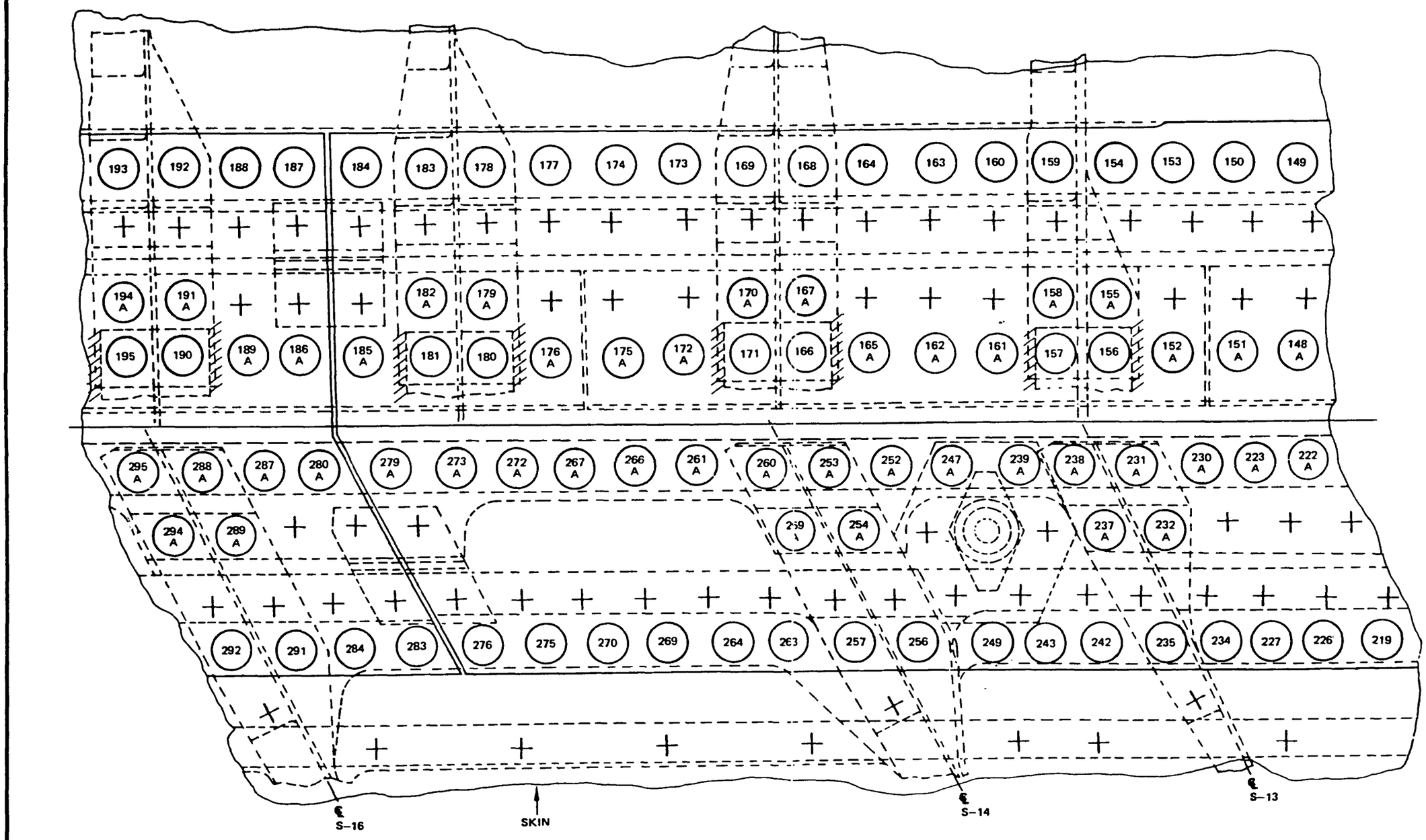
Wing Lower BBL 70.5 Splice 720 Airplanes
Figure 7 (Sheet 5)



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DETAIL I (CONT)

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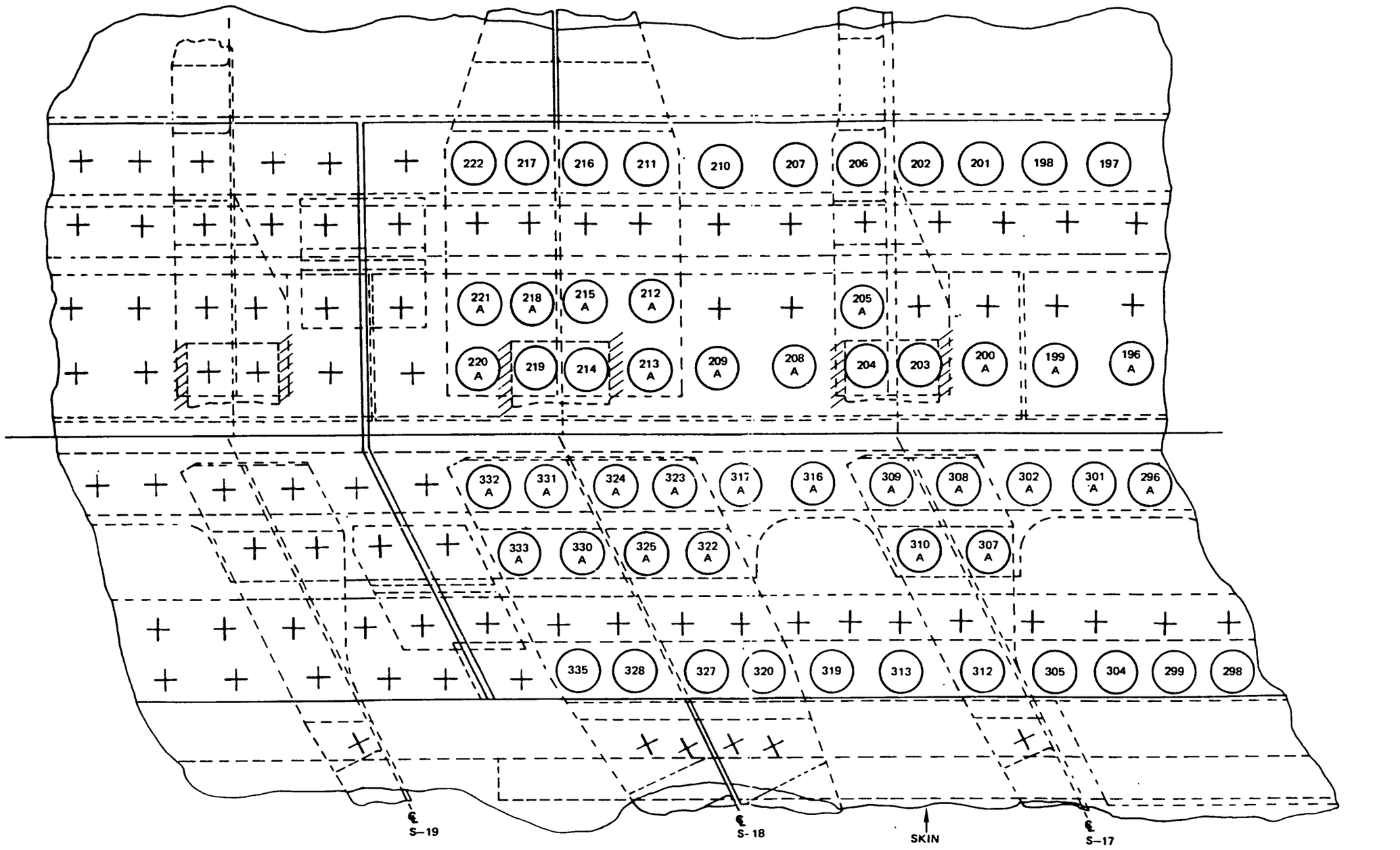
Wing Lower BBL 70.5 Splice 720 Airplanes
Figure 7 (Sheet 6)



DETAIL I (CONT)

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Wing Lower BBL 70.5 Splice 720 Airplanes
Figure 7 (Sheet 7)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

To detect cracks at the lower BBL 70.5 side-of-body splice, inboard and outboard of BBL 70.5, which intersects 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.

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 1.4-inch OD and 0.8-inch ID shielding, 100 Hz, P/N SPO-1274, Nortec Inc.

(2) Low frequency spot probe with 0.55-inch OD shielding usable at 500 Hz, P/N SPO-1125 or SPO 565, Nortec Inc.

NOTE: Specify instrument with which probe is to be used or instrument connector required when ordering probes. Refer to Part 1, 51-06-00, par. 7 for information on equipment manufacturers.

C. Reference Standards

(1) Manufacture per Details I and III.

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 8 (Sheet 1)

3. Preparation for Inspection

A. Remove lower wing-to-body fairing.

B. Wipe external splice plate surface clean.

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 I and Detail V 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 fastener hole cracks using 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 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,E,F, and G.

(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.

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 8 (Sheet 2)

(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 lift-off calibration. Once probe is calibrated for lift-off, 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 lift-off. If readjustments are made, recheck sensitivity per par. 4.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 D.

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

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

(3) Balance 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).

NOTE: Probe is located at Position 1 during lift-off 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.

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 8 (Sheet 3)

(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 lift-off. 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 a copy of Detail V be made and that it be used to record instrument responses at each fastener location. This is helpful in mainntaining 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,E,F,G.

(1) Accomplish inspections of codes in the order given in Table I. Inspect only those fasteners designated with a letter code.

(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.

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 8 (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 decrease in fastener spacing - compare with similarly spaced fasteners on the airplane.

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

A fastener that is different in length or uses different number of washers - compare with similar fastener in standard and on airplane.

A fastener close to edge of the external splice plate - compare with similar fasteners on airplane.

B. Inspection of Fastener Holes for Cracks Using a Spot Probe Adjacent to the Fastener. Inspection code D.

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

(2) Note on the airplane the location of code D fasteners using Detail V.

(3) Inspect each code D fastener by placing the probe adjacent to the forward and aft side of each 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.

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 8 (Sheet 5)

INSPECTION CODE [1]	REFERENCE STANDARD NO.	PROBE IDENTIFICATION [2]	INSTRUMENT FREQUENCY HZ	DETAIL NO. FOR CALIBRATION	PROBE CALIBRATION POSITION [3]	SPECIAL NOTES
A	038	(1)	100	II	1A, 2A	
B	038	(1)	100	II	1B, 2B	
C	039	(1)	100	IV	1D, 2D	[4]
D	039	(2)	500	IV	1E, 2E	
E	039	(1)	100	IV	1D, 2D	
F	039	(1)	100	IV	1E, 2E	
G	039	(1)	100	IV	1E, 2E	

NOTES

[1] CODE FOR SPECIFIC INSPECTION AREAS IDENTIFIED ON DETAIL V TO WHICH THE CALIBRATION REQUIREMENTS APPLY.

[2] PROBE IDENTIFICATION:

(1) P/N SPO 1274 1.4-INCH O.D. AND 0.8-INCH ID RING PROBE

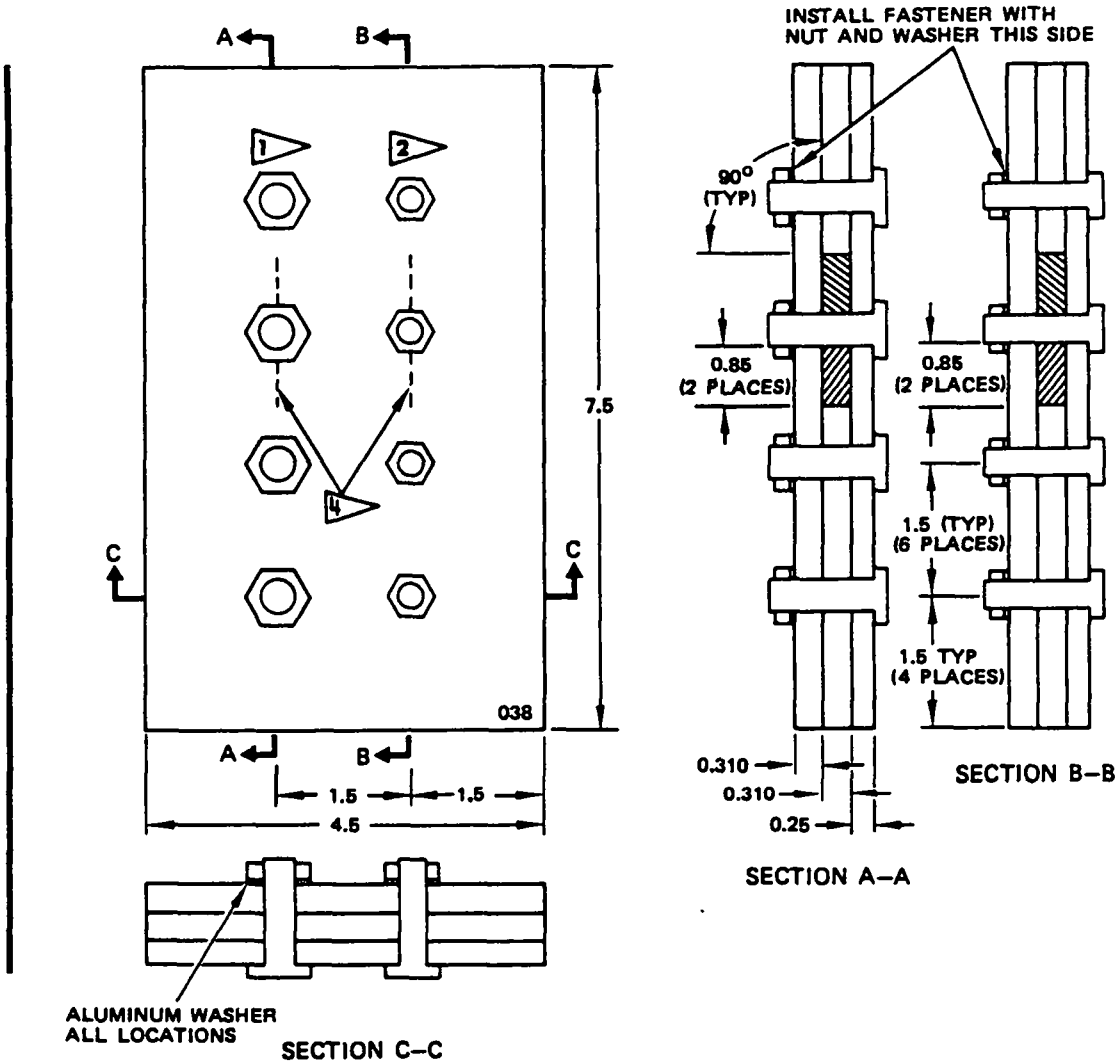
(2) P/N SPO 1125 OR SPO 565, 0.62-INCH O.D. SPOT PROBE

[3] REFERS TO PROBE POSITION FOR CALIBRATION. DETAILS (DETAILS II AND IV AS INDICATED IN THIS TABLE) IDENTIFY THAT SECTION OF THE REFERENCE STANDARD USED FOR THIS CALIBRATION.

[4] FASTENER NUMBERS 182 AND 181 WILL READ APPROXIMATELY 20% OF FULL METER SCALE HIGHER THAN ESTABLISHED BASELINE DUE TO THE SKIN JUNCTURE BENEATH THE EXTERNAL SPLICE PLATE.

CALIBRATION TABLE
TABLE I

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 8 (Sheet 6)



NOTES

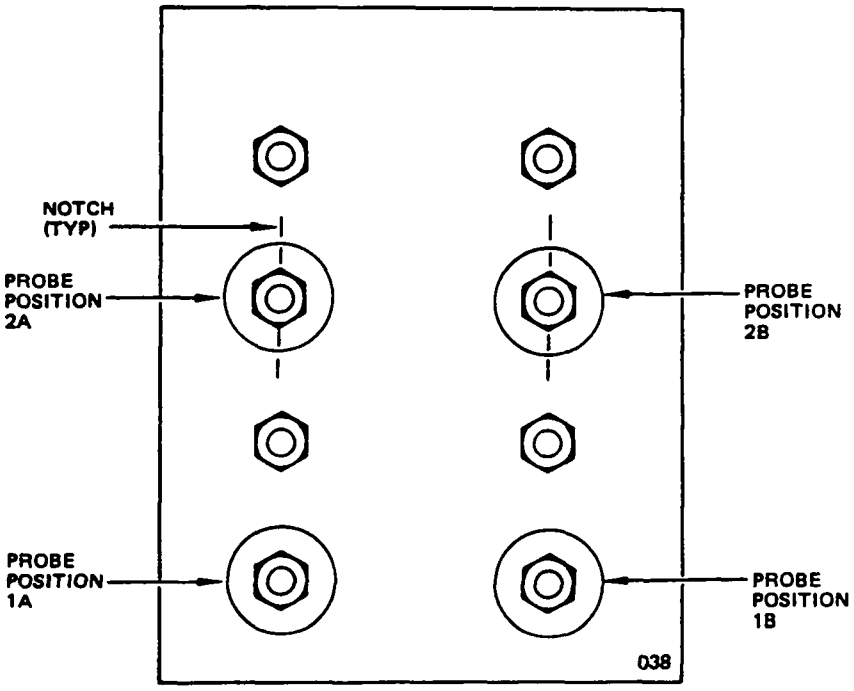
- TOLERANCE: X.X ± 0.05 X.XX ± 0.02 X.XXX ± 0.005
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T3 OR T4 ALUMINUM
- ETCH OR STEEL STAMP WITH 038
- P/N 6412–67
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

1 BACB30NE6–14 (STEEL FASTENER); BACN10JC6 NUT (4 PLACES)

2 BACB30NE5–14 (STEEL FASTENER); BACN10JC6 NUT (4 PLACES)

4 JEWELER'S SAWCUT 0.030 MAX WIDTH (4 PLACES)

REFERENCE STANDARD 038
DETAIL I

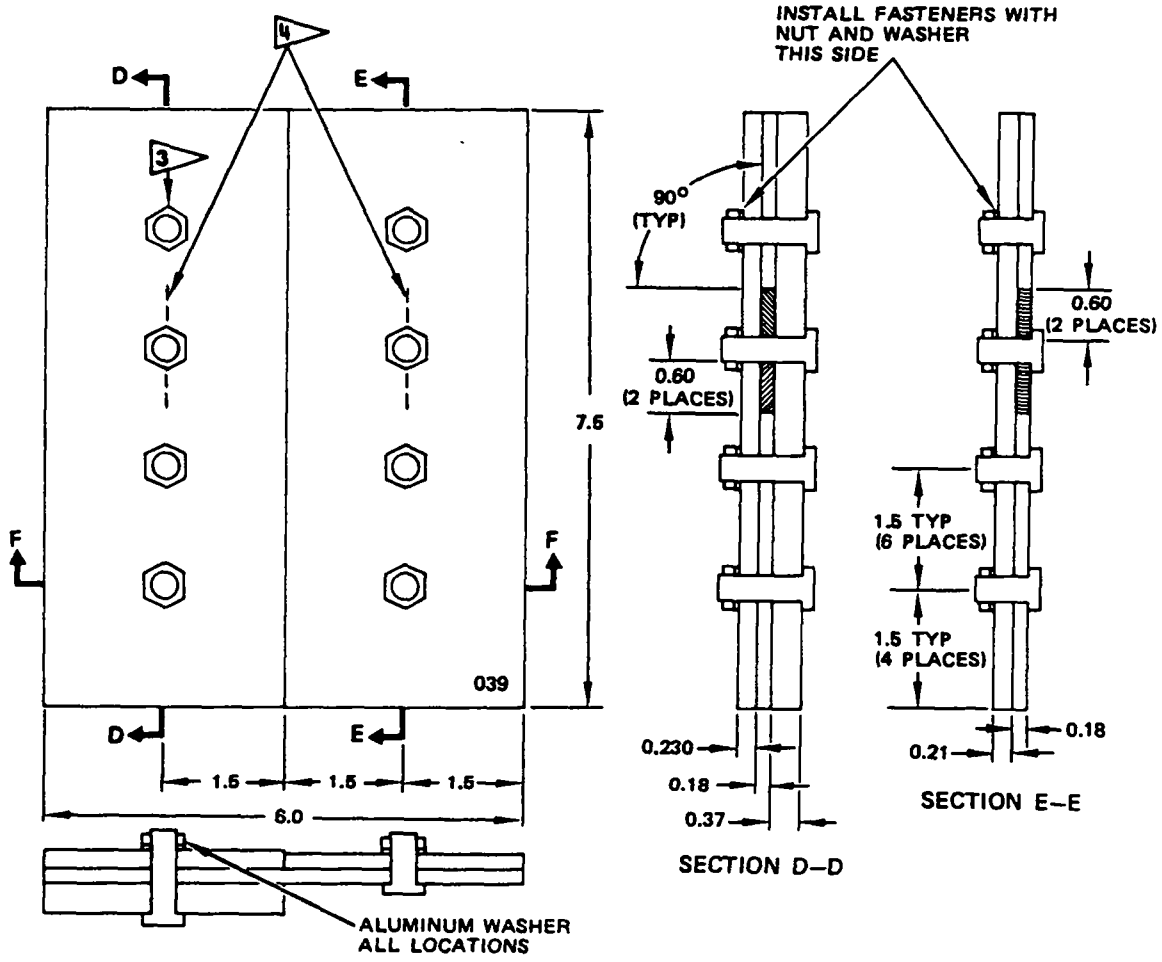


NOTE

- CALIBRATE WITH PROBE ON NUT SIDE OF STANDARD

PROBE POSITION FOR CALIBRATION
ON REFERNECE STANDARD 038

DETAIL II



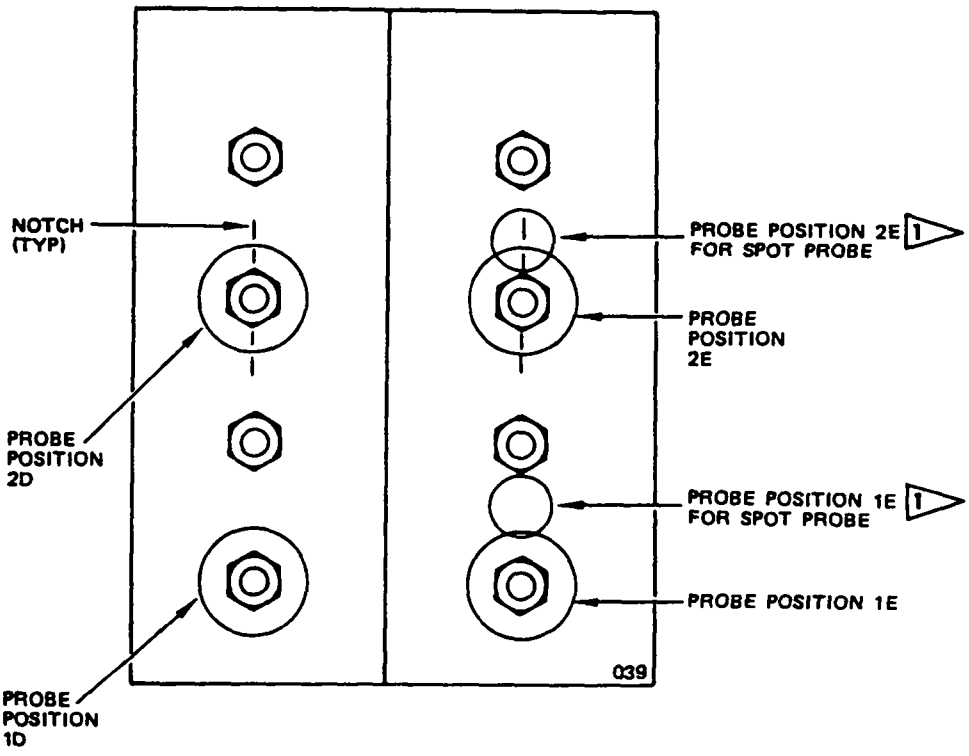
NOTES

- 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 039
- P/N 6412–68
  AVAILABLE FROM IDEAL SPECIALTY CO.

3 BACB30NE5–13 FASTENER; BACN10JC5 NUT (8 PLACES)

4 JEWELER'S SAWCUT 0.030 MAX WIDTH (4 PLACES)

REFERENCE STANDARD 039
DETAIL III

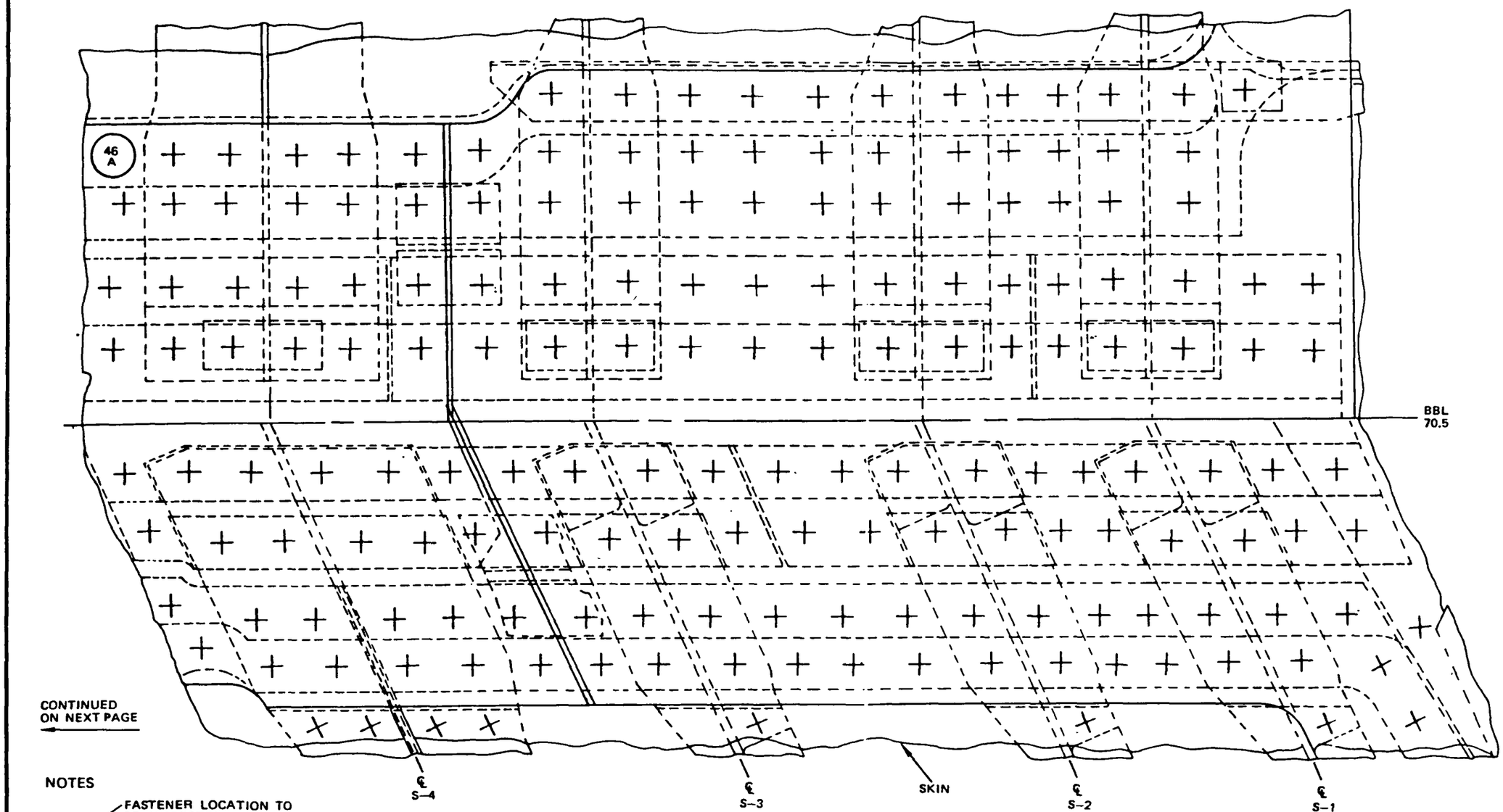


NOTES

- CALIBRATE WITH PROBE ON NUT SIDE OF STANDARD

1 REFER TO PAR. 4.C. FOR CALIBRATION USING SPOT PROBE

PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD 039
DETAIL IV



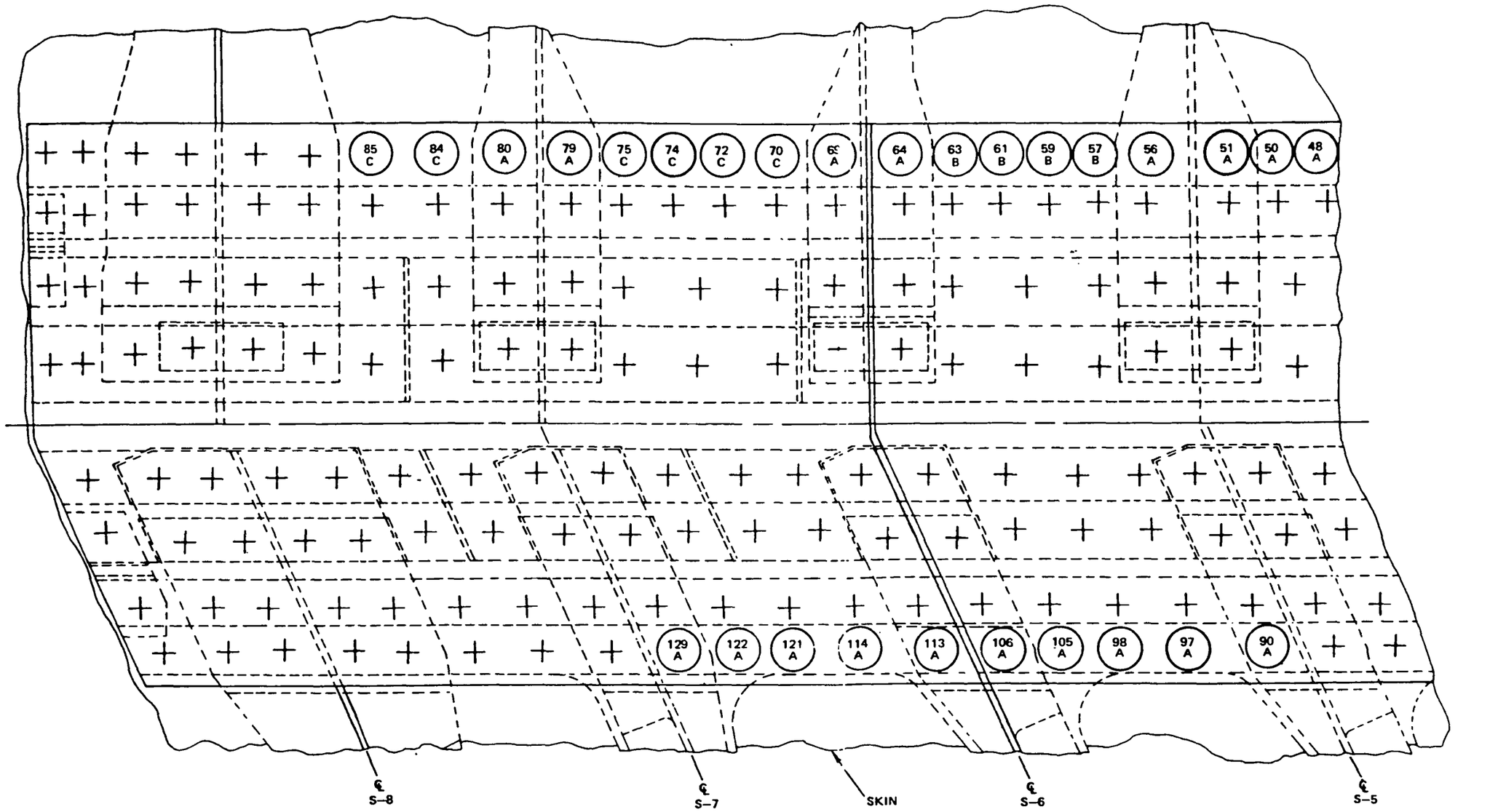
NOTES

46 A — FASTENER LOCATION TO BE INSPECTED; FASTENER NUMBER; INSPECTION CODE

[A] INSPECT FOR CUM LINE NUMBERS 13, 20, 35, 58, 61, 62, 68 AND 70

FASTENER LOCATIONS TO BE INSPECTED
LOWER HORIZONTAL FLANGE BBL 70.5 SPLICE
(RIGHT SIDE SHOWN, LEFT SIDE SIMILAR)
DETAIL V

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 8 (Sheet 11)



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DETAIL V (CONT)

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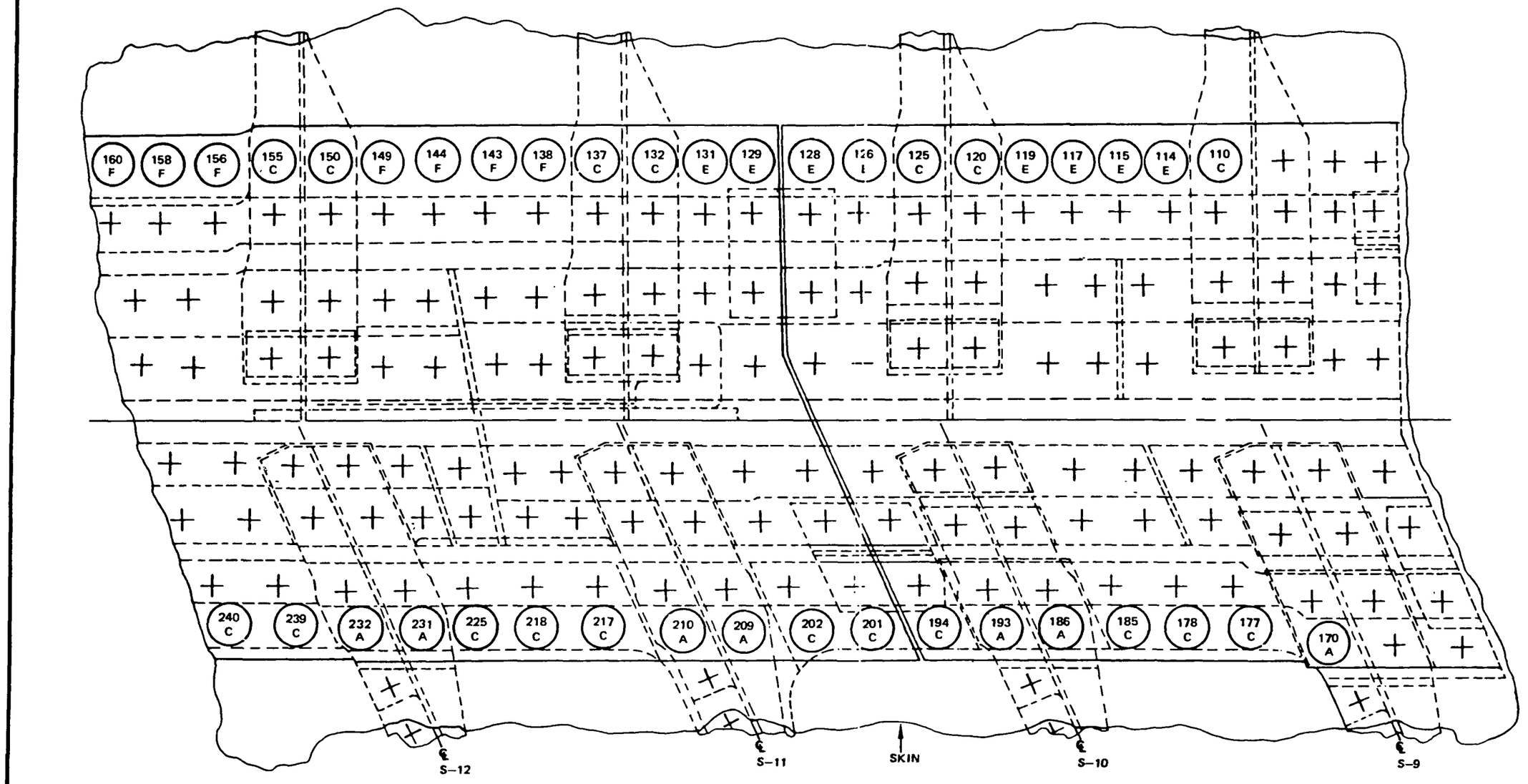
Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 8 (Sheet 12)



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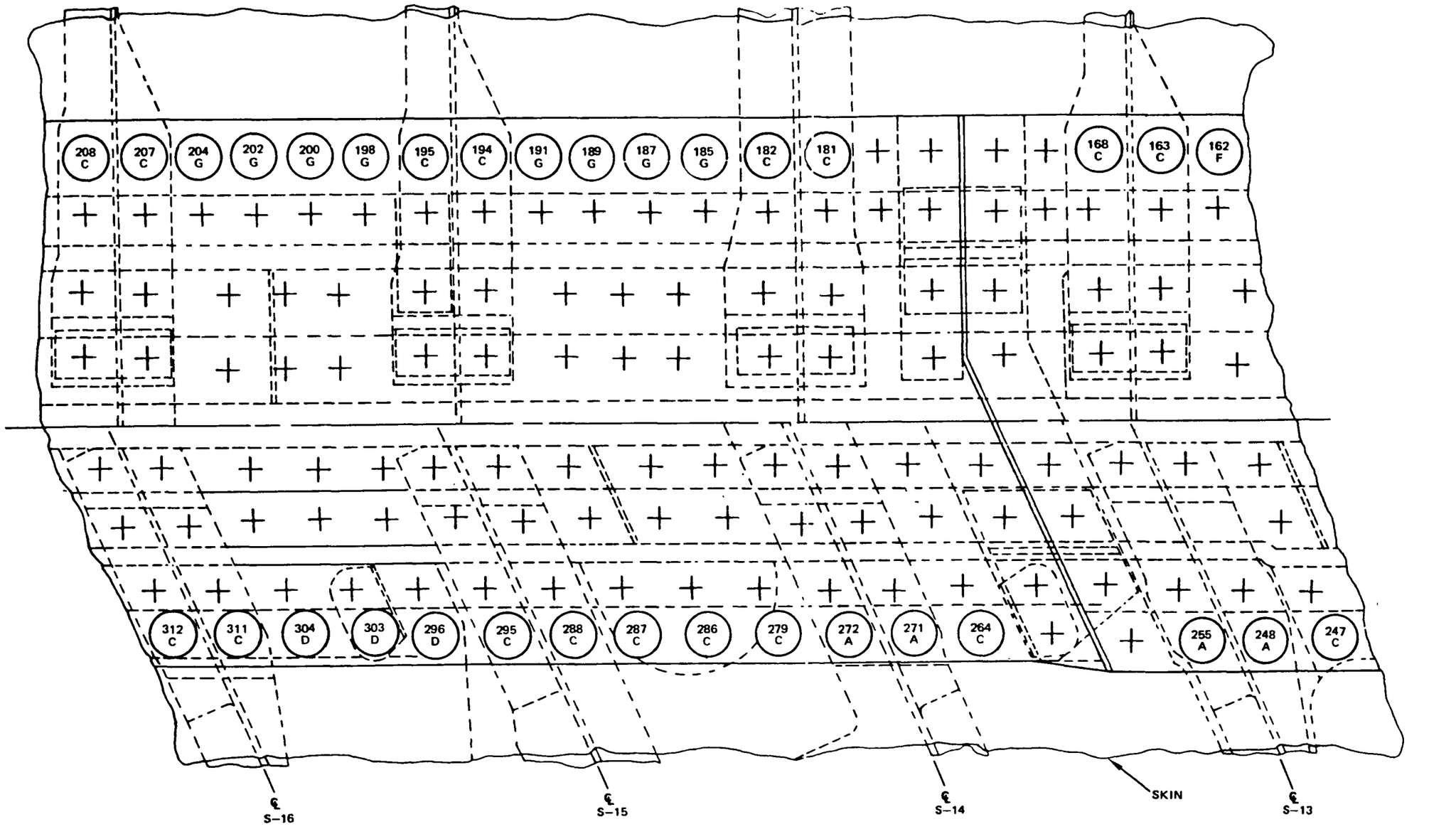
DETAIL V (CONT)

CONTINUED ON PRECEDING PAGE

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 8 (Sheet 13)



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DETAIL V (CONT)

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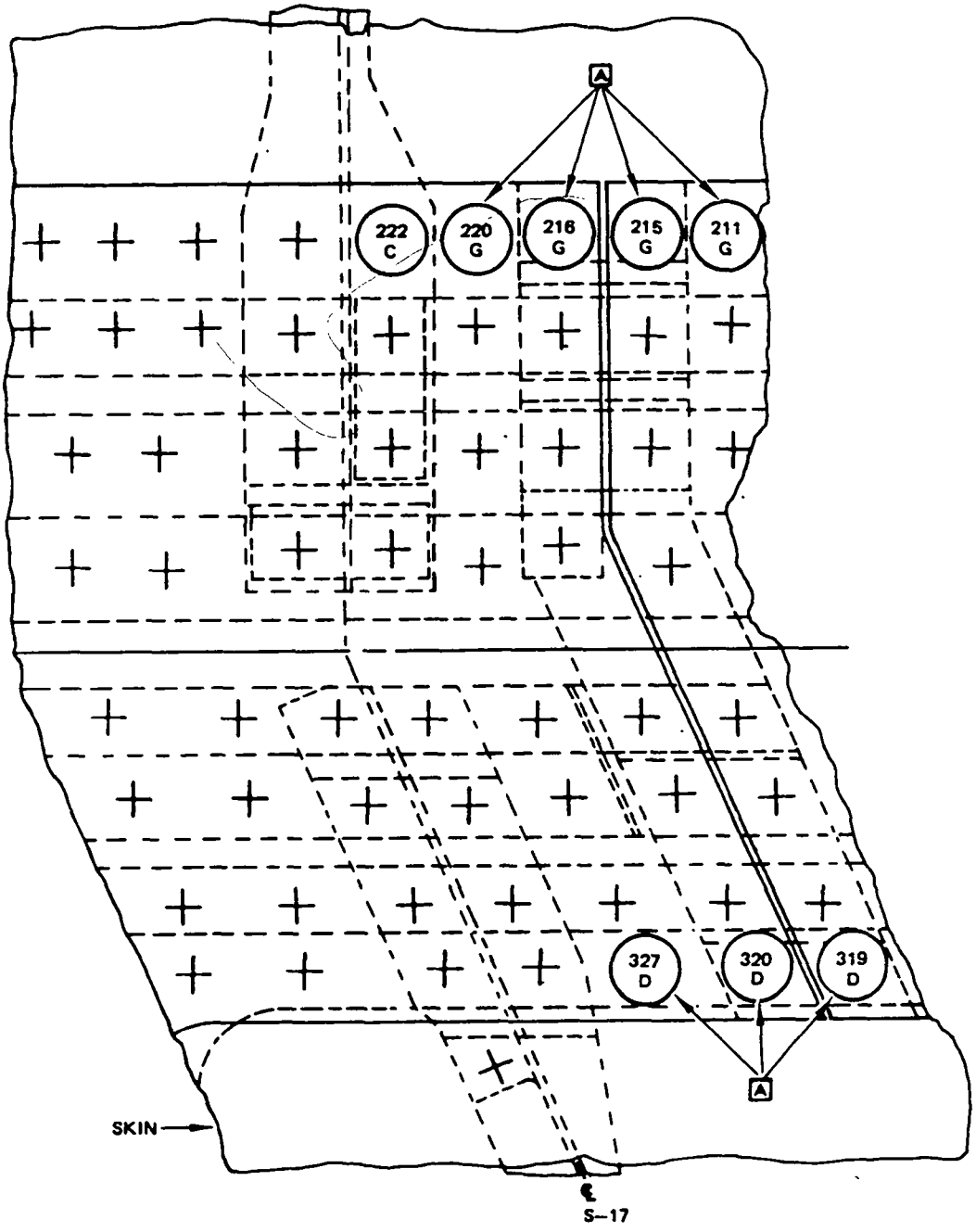
Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 8 (Sheet 14)



DETAIL V (CONT)

CONTINUED ON PRECEDING PAGE

EFFECTIVITY
MODEL: 707-300/400,
SSI DOCUMENT (D6-44860)
REFERENCE:
SSD 57-A20-03
SSD 57-A30-03
SSD 57-A40-03

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To perform an external high frequency eddy current inspection of the wing lower BBL 70.5 splice to detect cracks out of fastener holes in the external splice plate.

2. Equipment

   A. Instrument

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

   B. Probe

      Straight shielded pencil probe per Part 1, 51-06-00, Fig. 1.

      Shielded pencil probes available from:

      P/N P-50
      NDT Production Engineering
      P.O. Box 423
      Renton, WA 98057

      P/N PEN-100PS
      VM Products
      7420 Park Ave. No. 20
      Tacoma, WA 98408

   C. Reference Standard

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

3. Preparation for Inspection

   A. Remove the lower wing to body fairing.

   B. Wipe inspection surfaces clean.

4. Instrument Calibration

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

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 9 (Sheet 1)

5. Inspection Procedure

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

NOTE: Fasteners are indentified by circled numbers. See Detail I. These numbers should be used for fastener identification.

Cracks are expected to propagate fore and aft out of fastener holes, or in a direction normal to the stringer.

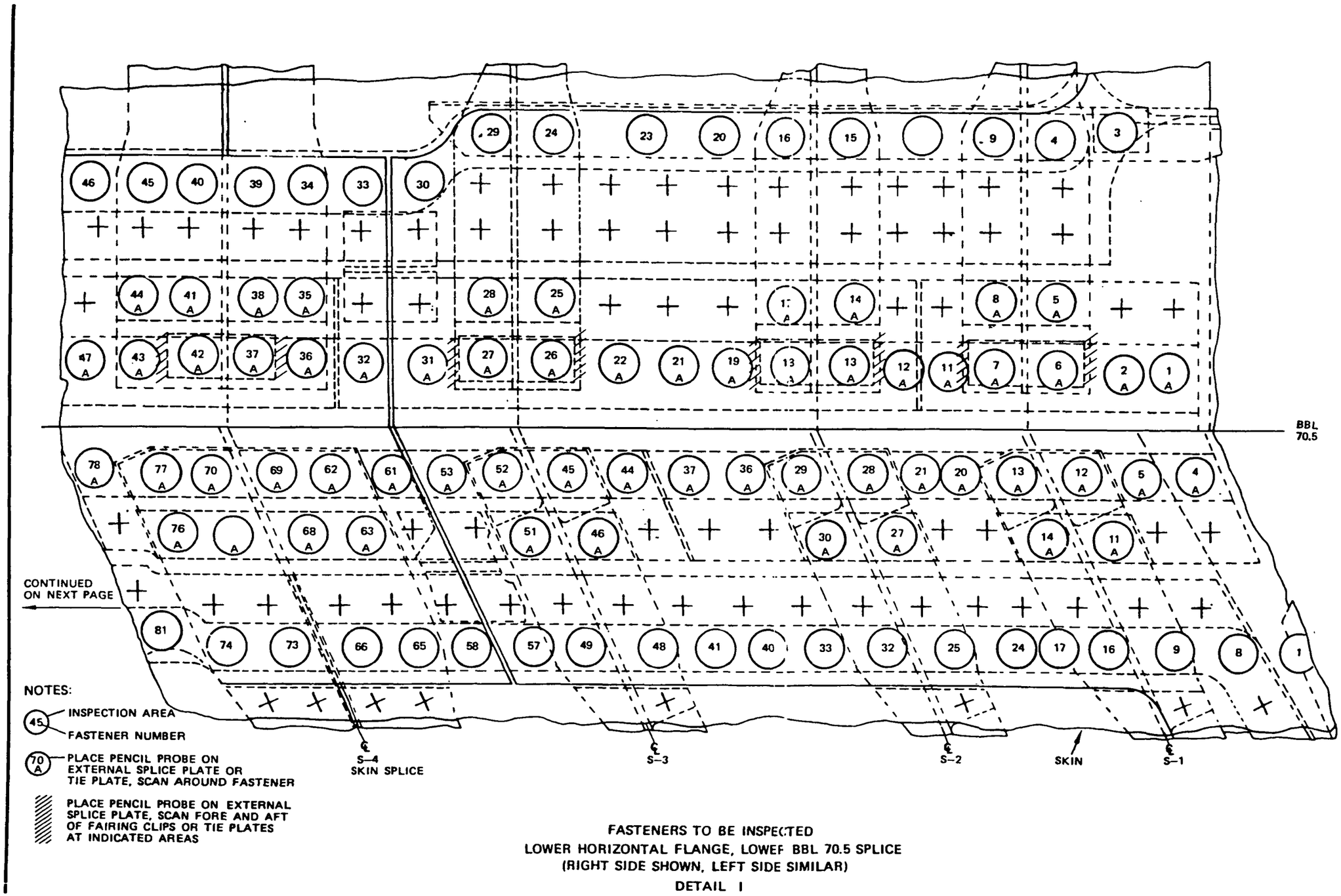
B. Scan with the pencil probe on the external splice plate around all fasteners designated by an A inside the numbered circle. See Detail I.

NOTE: At some locations, fastener position may prevent a complete 360° scan around a fastener. When this occurs, scan around the fastener to the extent possible, paying particular attention to the areas fore and aft of the fastener.

C. Scan with the pencil probe on designated locations of the external splice plate fore and aft of fairing clips, inboard of BBL 70.5. See Detail I.

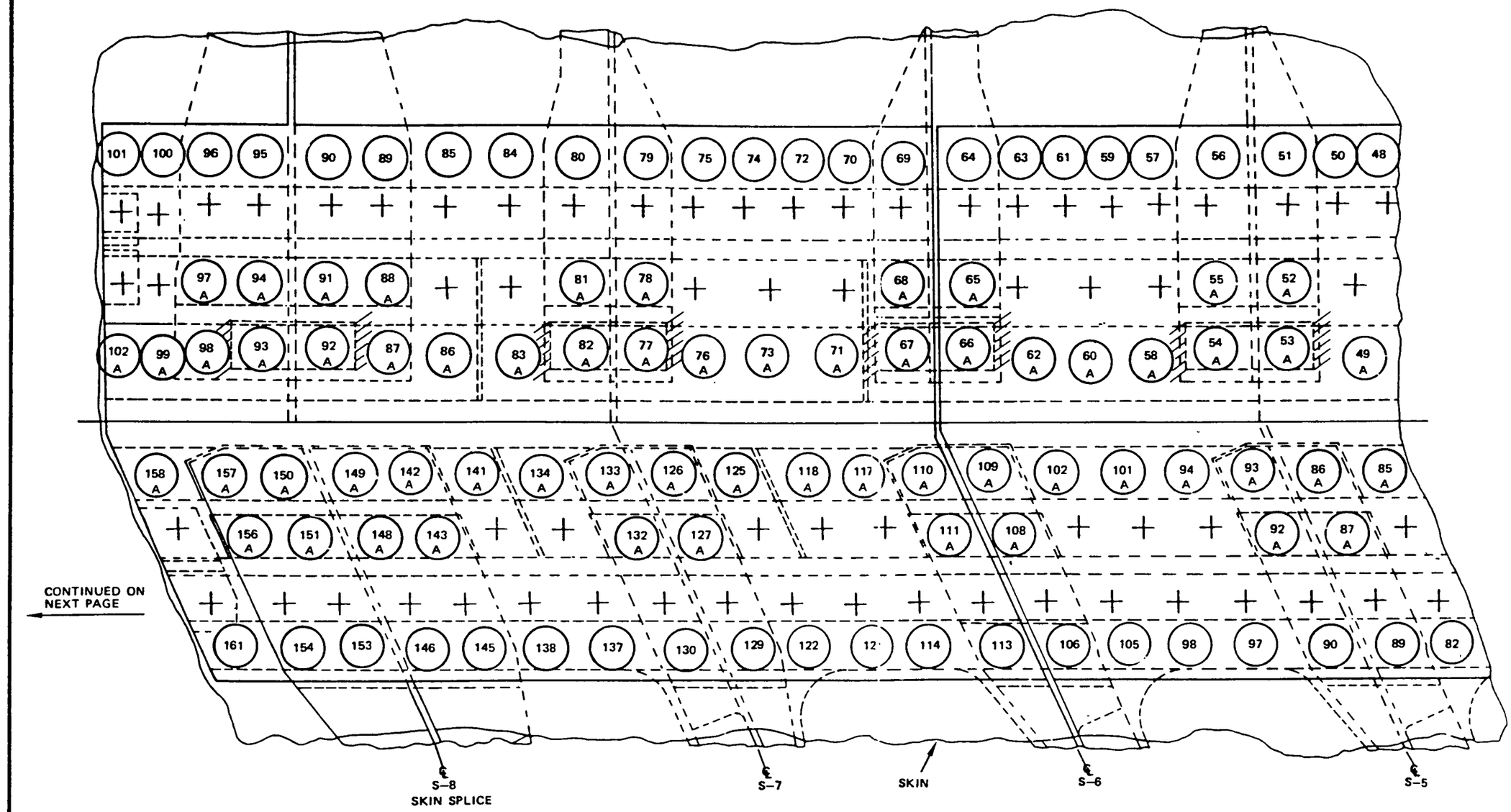
D. Scan with the pencil probe along edges of the tie plate between stringers S-13 and S-14 and between stringers S-16 and S-14 (See Detail I).

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 9 (Sheet 2)



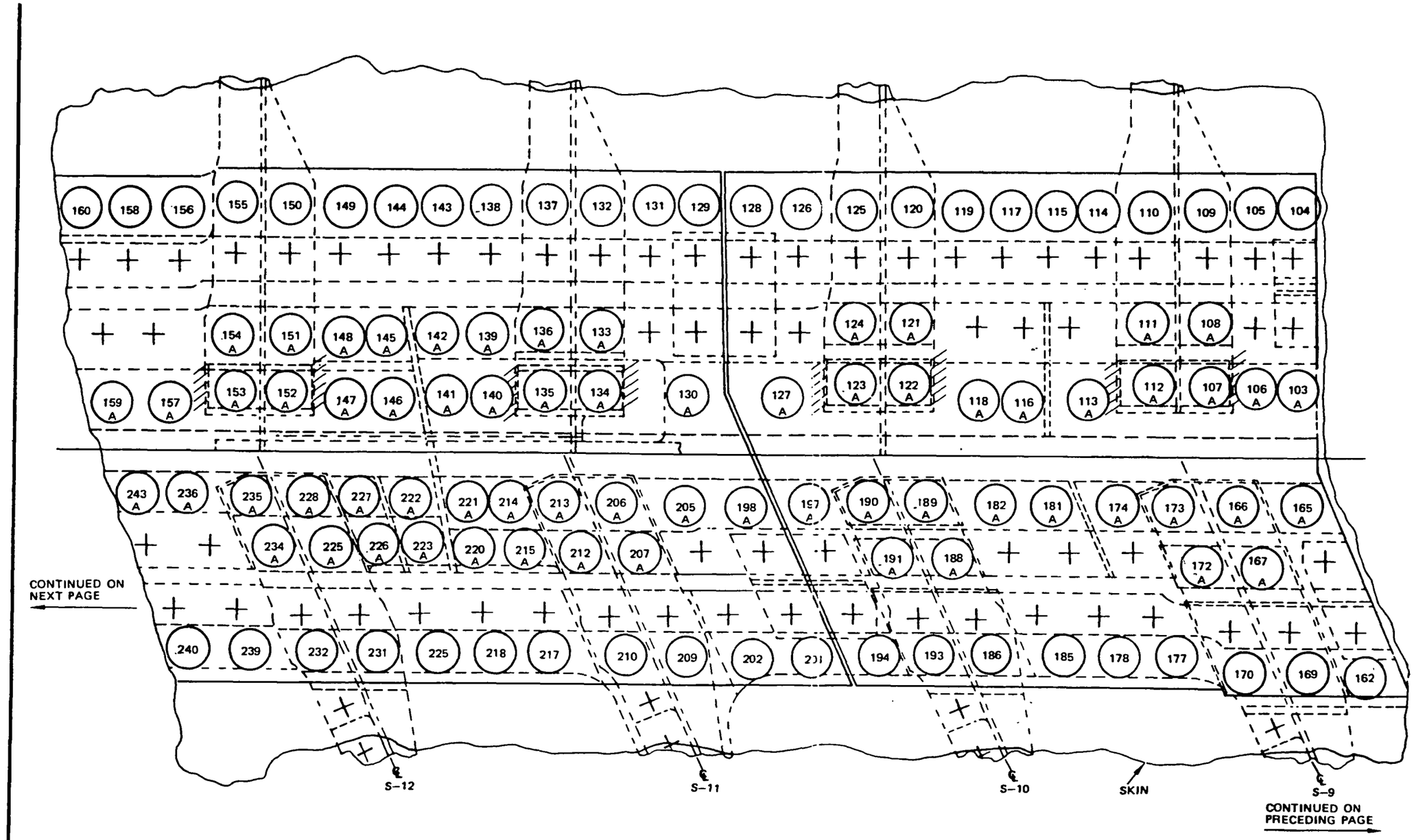
FASTENERS TO BE INSPECTED
LOWER HORIZONTAL FLANGE, LOWER BBL 70.5 SPLICE
(RIGHT SIDE SHOWN, LEFT SIDE SIMILAR)
DETAIL I

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 9 (Sheet 3)



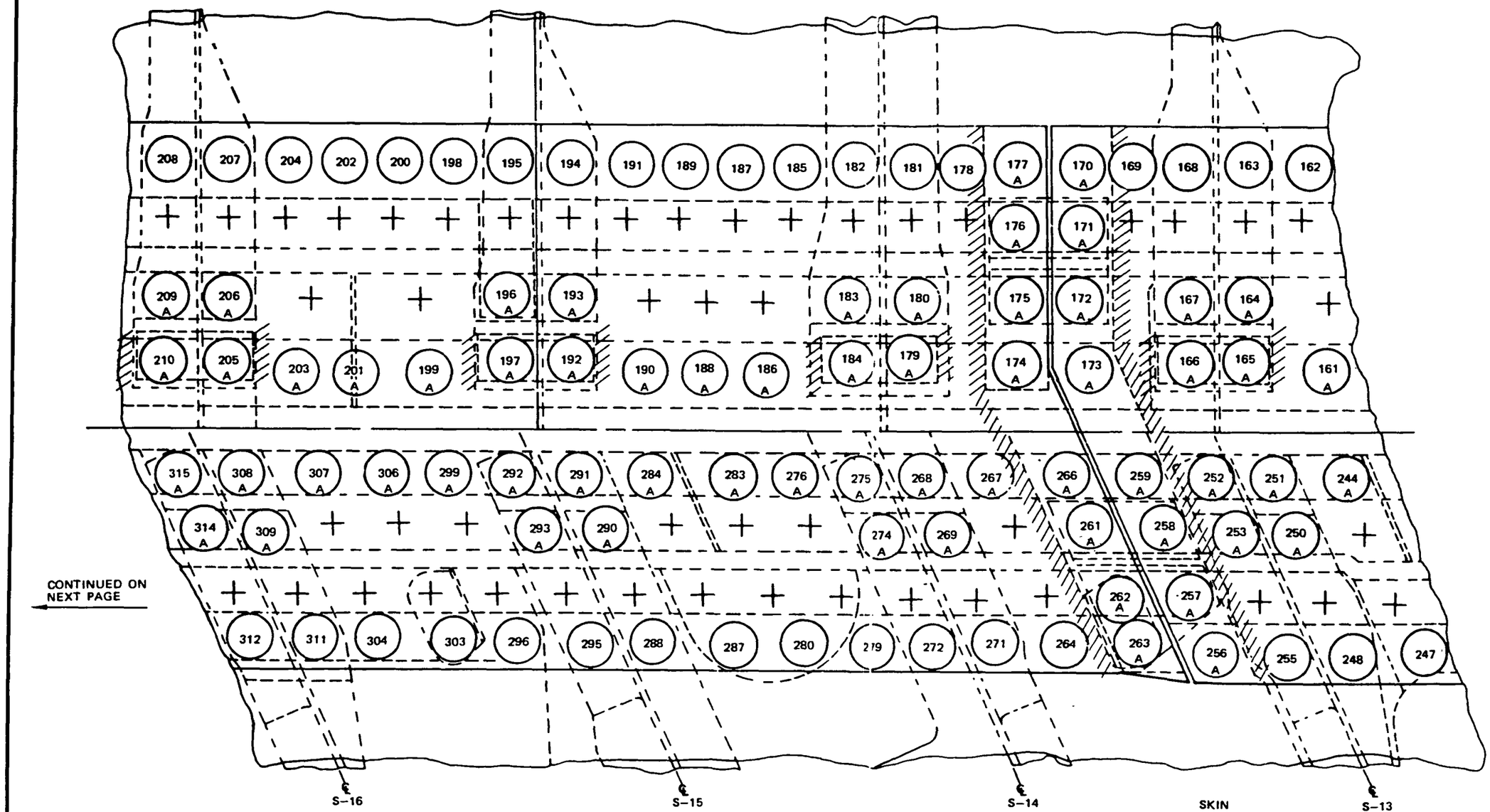
DETAIL I (CONT)

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 9 (Sheet 4)



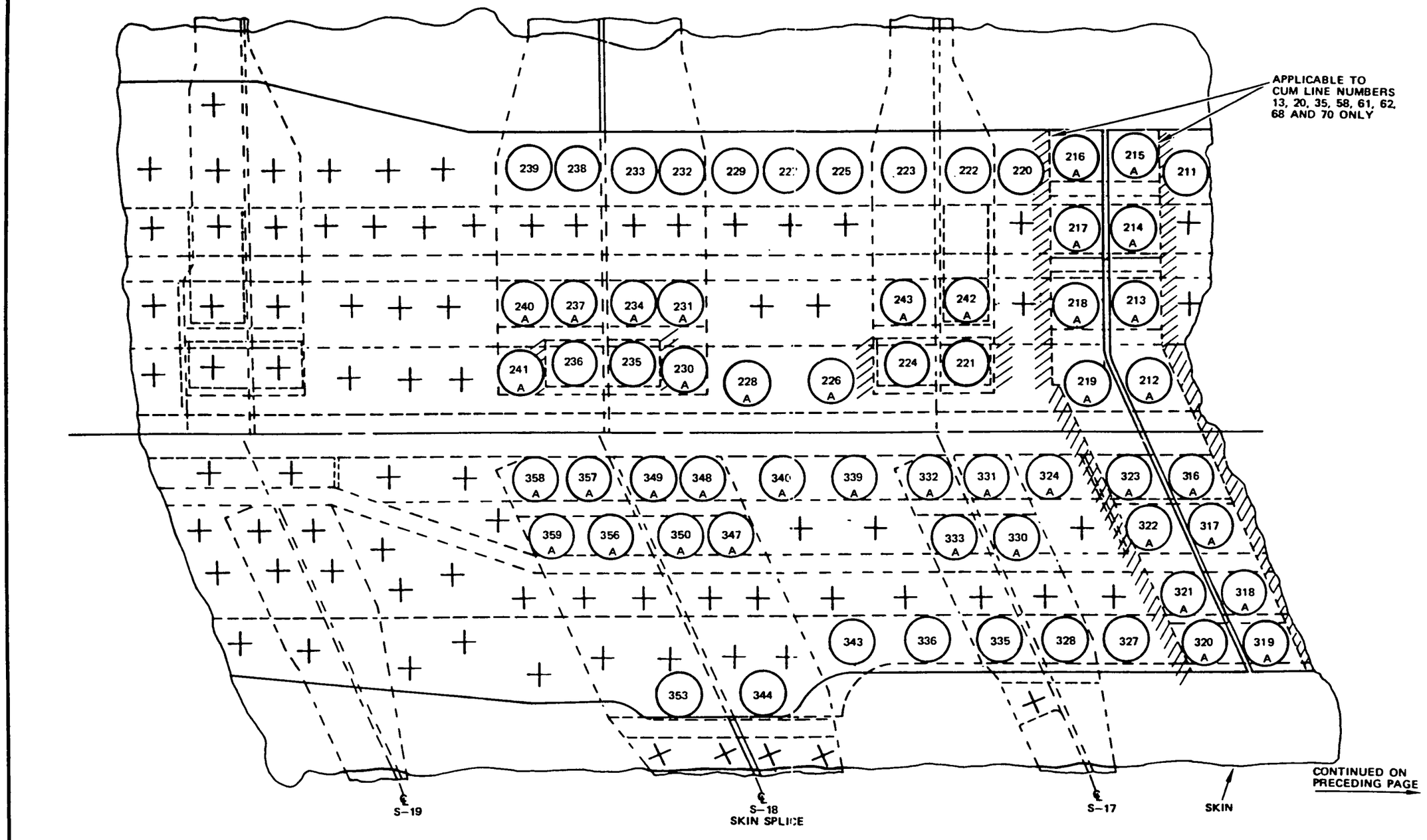
DETAIL I (CONT)

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 9 (Sheet 5)



DETAIL I (CONT)

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 9 (Sheet 6)



DETAIL 1 (CONT)

Wing Lower BBL 70.5 Splice 707-300/400 Airplanes
Figure 9 (Sheet 7)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks in the WBL 129.62 wing lower panel skin and splice plate at stringer S-18.

2. Equipment

   A. Instrument - Any instrument which satisfies the requirements of this procedure is suitable for this inspection. The following instrument was used during the development of this procedure.

      (1) MIZ 10
      Zetec Inc.
      1320 N.W. Mall
      Issaquah, WA 98207

   B. Probes - This procedure requires two probes; any probe of similar size which satisfies the requirements of this procedure is suitable for this inspection. The following probes were used during the development of this inspection:

      (1) Ring (encircling) probe with 0.50-inch ID and 1.25-inch OD, usable at 500 Hz, Nortec P/N SPO 783.

      (2) Spot probe with a 0.55-inch OD usable at 500 Hz, Nortec P/N SPO 565.

      NOTE: Probes listed above are available from:

      Nortec Inc.
      421 N. Quay
      Kennewick, WA 99336

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

   C. Reference Standard - Manufacture per Detail I.

Lower Wing Skin WBL 129.62 S-18 Splice Plate 707-100/200 Airplanes
Figure 10 (Sheet 1)

3. Preparation for Inspection

A. Wipe inspection surface clean.

4. Calibration

A. General

(1) Two basic inspection types are required.

(2) The two basic inspection types require several instrument calibrations to adjust for variations in structural geometry and fastener size.

(3) Detail III identifies fasteners to be inspected and Detail II identifies probe positions for calibration.

B. Calibration for fastener hole crack inspection using the ring probe centered on the fastener. The following calibration applies to fasteners 743, and 744. See Details II and III.

(1) Set instrument frequency to 500 Hz.

(2) Visually center the probe over unnotched reference standard hole, position 1.

(3) Balance the instrument per manufacturer's instructions.

(4) Adjust the 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 by 0.006-inch (approximate 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 the probe to obtain minimum meter response.

(5) Center the probe over the unnotched reference standard hole, position 1. Adjust the meter response to read 20% of full scale with the meter position control.

(6) Center the probe over the notched reference standard hole, 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.

Lower Wing Skin WBL 129.62 S-18 Splice Plate 707-100/200 Airplanes
Figure 10 (Sheet 2)

(8) Recheck the balance and liftoff. If readjustments are made, recheck instrument sensitivity per par. 4.B.(7).

(9) Cracks will be indicated by an upscale meter response.

C. Calibration for fasteners 707, 708, 712, 713, 741, 742, 746, and 747 using the ring (encircling) probe at 500 Hz. See Details II and III.

(1) Calibrate the instrument per par. 4.B.

(2) Center the probe over the smallest diameter fastener on the reference standard, position 3. Adjust the meter response to read 20% of fullscale with the meter position control.

(3) Cracks will be indicated by an upscale meter response.

D. Calibration for fastener numbers 709 and 710, using the ring (encircling) probe at 500 Hz. See Details II and III.

(1) Calibrate the instrument according to par. 4.B. Substitute probe positions 4 and 5 for positions 1 and 2.

E. Calibration for fastener hole crack inspection using the spot probe at the forward side of fasteners 692 and 693. See Details II and III.

(1) Set instrument frequency to 500 Hz.

(2) Place edge of probe against edge of fastener head as shown, position 6.

(3) Balance the instrument per manufacturer's instructions.

(4) Adjust the 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 by 0.006-inch (approximate thickness of two sheets of paper).

NOTE: Probe is located at position 6 during liftoff calibration.

(5) With the edge of the probe against the edge of the fastener (position 6), adjust meter response to read 20% of full scale with meter position control.

(6) Place the edge of the probe against the edge of the fastener and over the notch, position 7. Meter response should be upscale.

Lower Wing Skin WBL 129.62 S-18 Splice Plate 707-100/200 Airplanes
Figure 10 (Sheet 3)

(7) Adjust instrument sensitivity to obtain a 60% of full scale meter response difference between the unnotched side of the fastener hole (position 6) and the notched side (position 7).

(8) Reposition probe at position 6. Check instrument balance and liftoff. If readjustments are made, recheck instrument sensitivity per par. 4.E.(7).

(9) Cracks will be indicated by an upscale meter response.

5. Inspection Procedure

A. Inspection of fasteners 743 and 744.

(1) Calibrate the instrument per par. 4.B. See Details II and III.

(2) Center the probe over each of the two fasteners to be inspected by manipulating to obtain the minimum meter response. Note the response.

(3) If the airplane response is different than the standard response, establish an airplane baseline response by comparing with similar fasteners forward of the skin splice as designated in Detail III.

NOTE: The two fasteners immediately forward of fasteners 743 and 744 cannot be used for meter response comparison due to an interference from an edge margin in the subsurface structure.

(4) Any response difference which is 40% or greater than the baseline response is a potential crack and requires further investigation.

NOTE: A fastener that is different in countersink depth may cause a meter response change similar to a crack indication--compare with a similar fastener in the reference standard raised to the same height.

B. Inspection of fasteners 707, 708, 712, 713, 741, 742, 746, and 747. See Details II and III.

(1) Calibrate per par. 4.E.

(2) Center the probe over each of the fasteners to be inspected. Note the meter response.

(3) If the airplane response is different than the standard response, establish an airplane baseline response by comparing with adjacent fasteners of similar location and edge margin as designated in Detail III.

Lower Wing Skin WBL 129.62 S-18 Splice Plate 707-100/200 Airplanes
Figure 10 (Sheet 4)

(4) Any response difference which is 40% or greater than the baseline response is a potential crack and requires further investigation.

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

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

A fastener close to the skin gap--compare with similar fasteners as designated in Detail III.

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

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

C. Inspection of fasteners 709 and 710. See Details II and III.

(1) Calibrate per par. 4.D.

(2) Center the probe over each of the two fasteners to be inspected. Note the meter response and compare with the response of the other similar fastener aft of the skin splice designated in Detail III.

(3) Any response difference 40% or greater requires further investigation.

NOTE: Fasteners 692, 693, and the two fasteners immediately aft of their locations may not be used for a comparison of meter responses due to an interference from a short edge margin of subsurface structure.

D. Inspection of the forward side of fasteners 692 and 693. See Details II and III.

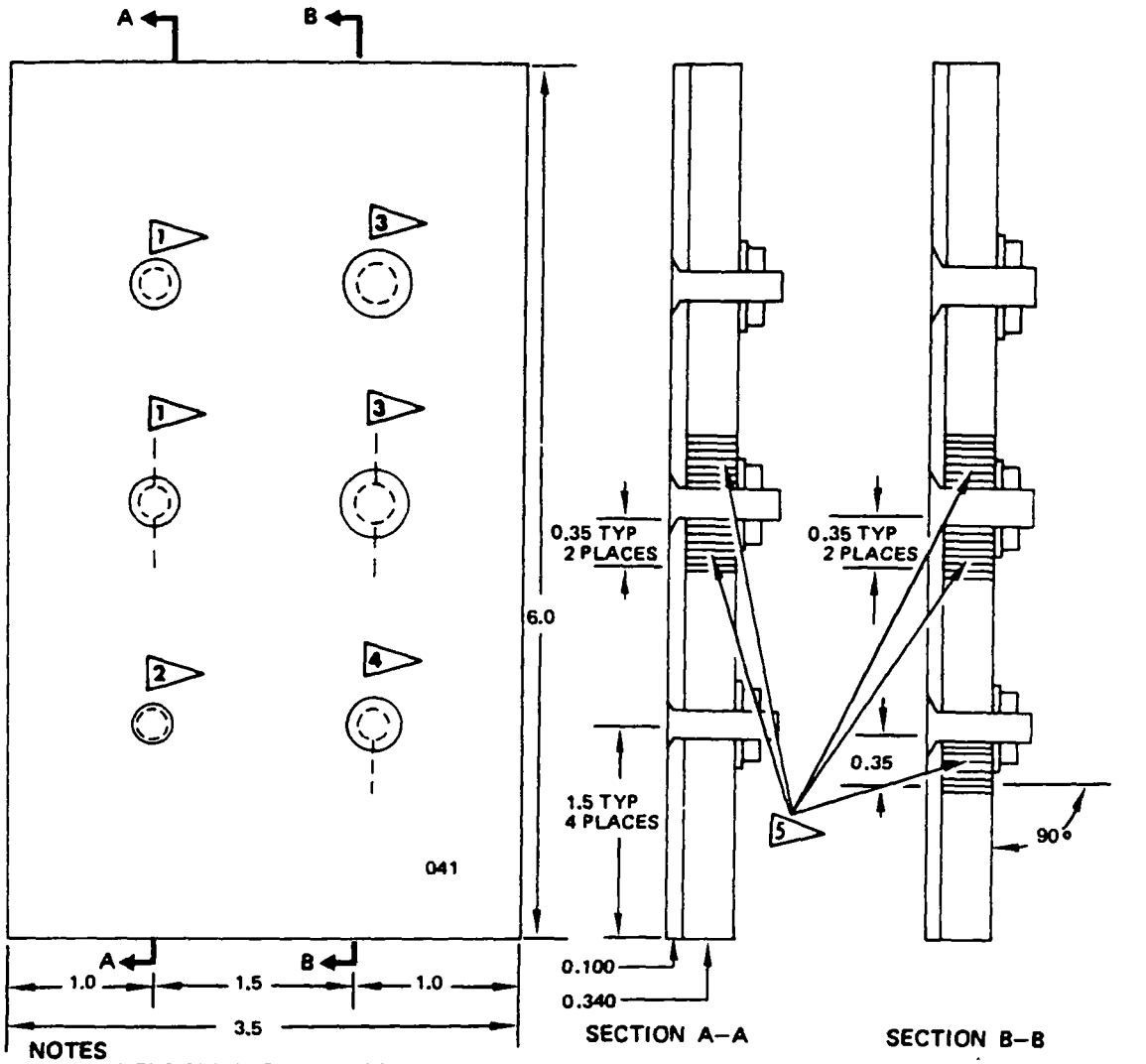
(1) Calibrate the instrument per par. 4.E.

(2) Place edge of probe against the forward edge of each fastener head. Note the response. Move the probe in an outboard/inboard direction to assure detection of potential cracks extending forward from the fastener hole.

(3) Any response difference 40% or greater required further investigation.

NOTE: In all cases where a significant response difference exists between standard and airplane, a further comparison can be made by using like fastener locations of the opposite wing.

Lower Wing Skin WBL 129.62 S-18 Splice Plate 707-100/200 Airplanes
Figure 10 (Sheet 5)

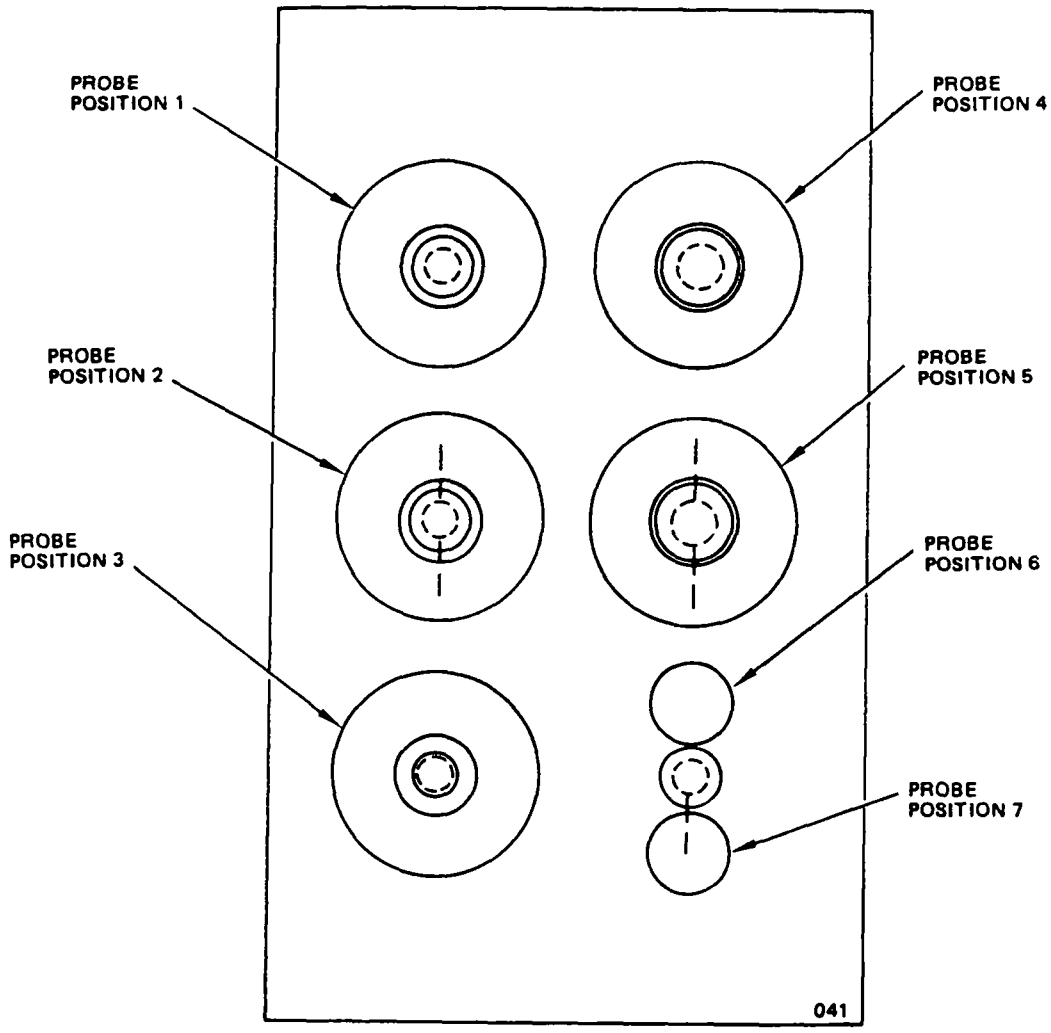


NOTES
- ALL DIMENSIONS ARE IN INCHES
- ETCH OR STEEL STAMP WITH 041
- MATERIAL 2024–T3 ALUMINUM
- TOLERANCES: HOLE DIMENSION; +0.004,–0.000
  CSK FLUSHNESS; + 0.010–0.005
  ALL OTHERS X.X± 0.05 X.XX ± 0.02
  X.XXX ± 0.005
- P/N 6412–107
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

1. BACB30LU3–7; BACN10JC3 NUT (2 PLACES)
2. BACB30FN6–7; BACC30M6 COLLAR (1 PLACE)
3. BACB30LU4–7; BACN10JC4 NUT (2 PLACES)
4. BACB30GY8–7; BACC30K8 COLLAR (1 PLACE)
5. JEWELER'S SAWCUT 0.030 MAX WIDTH (5 PLACES)

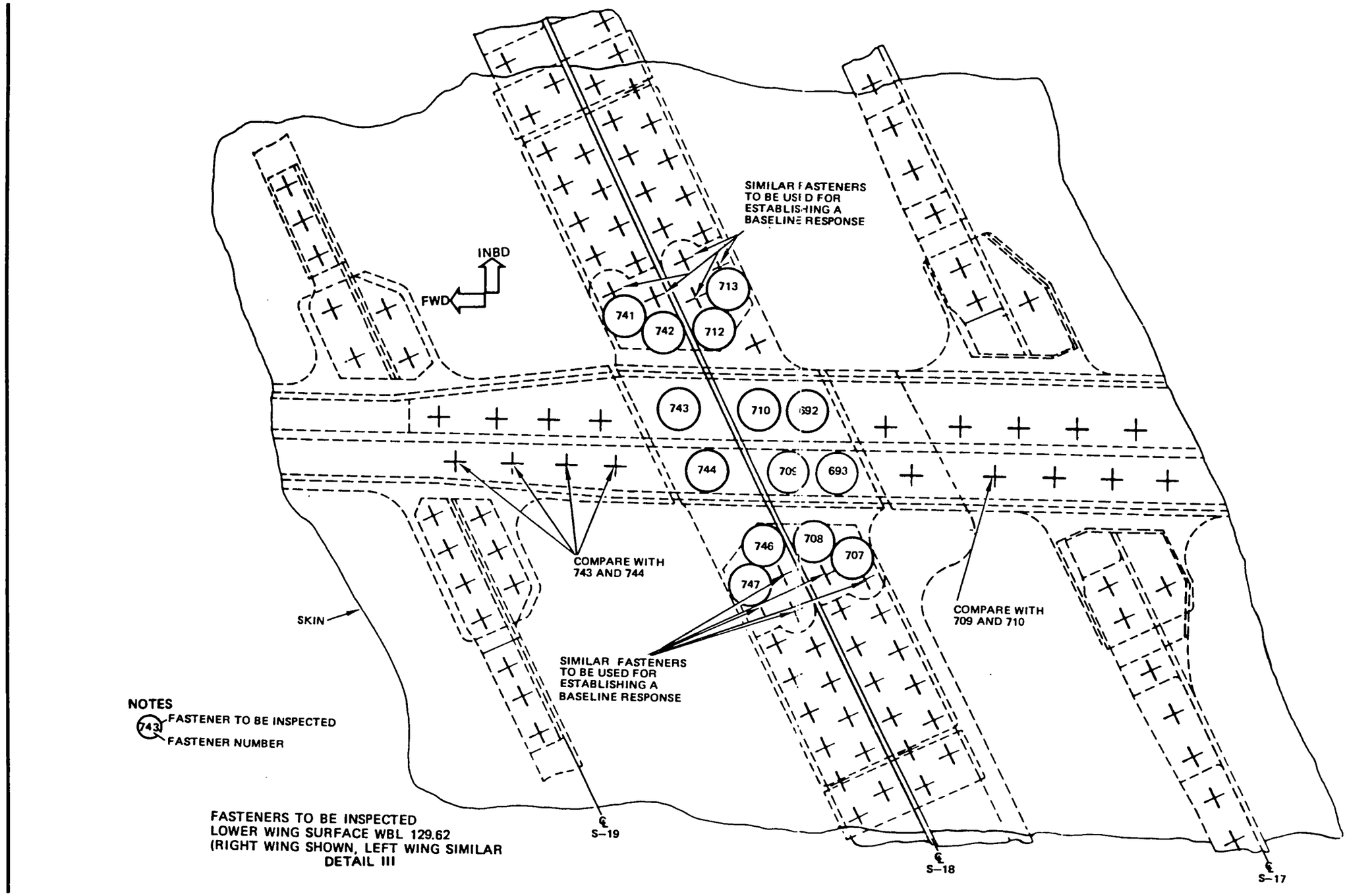
REFERENCE STANDARD 041
DETAIL I

Lower Wing Skin WBL 129.62 S-18 Splice Plate 707-100/200 Airplanes
Figure 10 (Sheet 6)



PROBE POSITION FOR
CALIBRATION ON
REFERENCE STANDARD 041
DETAIL II

Lower Wing Skin WBL 129.62 S-18 Splice Plate 707-100/200 Airplanes
Figure 10 (Sheet 7)



Lower Wing Skin WBL 129.62 S-18 Splice Plate 707-100/200 Airplanes
Figure 10 (Sheet 8)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

To detect skin cracks propagating from fastener holes in the wing lower panels at WBL 129.62 (707-720/100/200) or WBL 59.24 (707-300/400), forward of the beavertail.

2. Equipment

A. Instrument - Any 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 Corporation
6800 E. Washington Blvd.
Los Angeles, Calif. 90049

B. Probe - The probe used in this procedure is a shielded pencil type probe. See Part 1, 51-06-00, Fig. 1. Probes may be purchased from:

(1) P/N P-50
NDT Product Engineering
P.O. Box 423
Renton, WA 98057

(2) P/N VM100AS
VM Products
7420 Park Ave. No. 20
Tacoma, WA 98048

Lower Wing Skin Forward of Beavertail 707/720 Airplanes
Figure 11 (Sheet 1)

C. Standards

(1) See Part 6, 51-00-00, Fig. 4.

D. Probe Guide

(1) See Part 6, 51-00-00, Fig. 6.

3. Preparation for Inspection

A. Wipe skin surface clean.

4. Calibration

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

5. Inspection Procedure

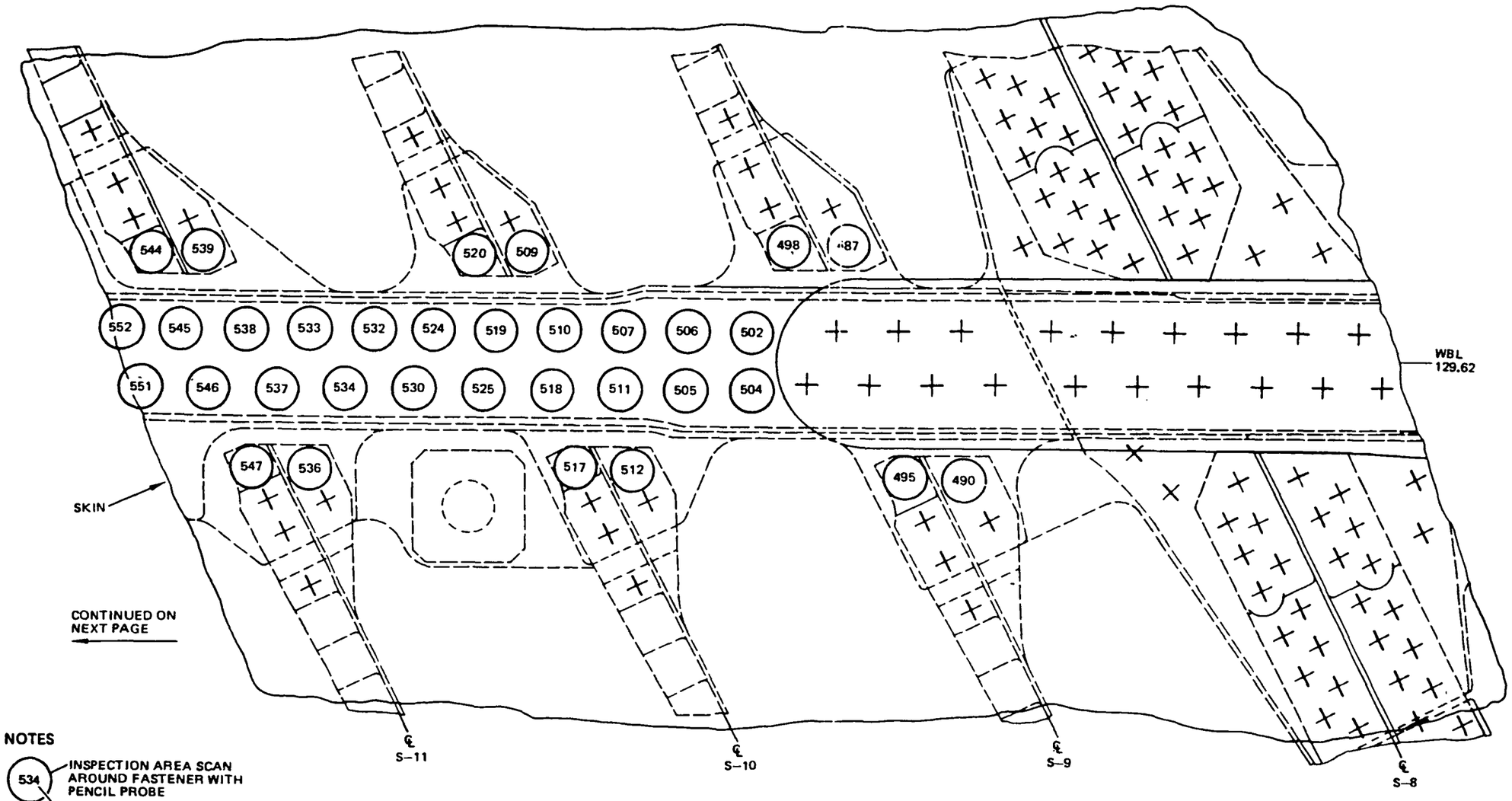
A. Scan around fastener heads using the procedure described in Part 6, 51-00-00, Fig. 6. Identify fasteners for inspection as follows:

(1) See Detail I for 720 airplanes.

(2) See Details II and III for 707-100/200 airplanes.

(3) See Detail IV for 700-300/400 airplanes.

Lower Wing Skin Forward of Beavertail 707/720 Airplanes
Figure 11 (Sheet 2)

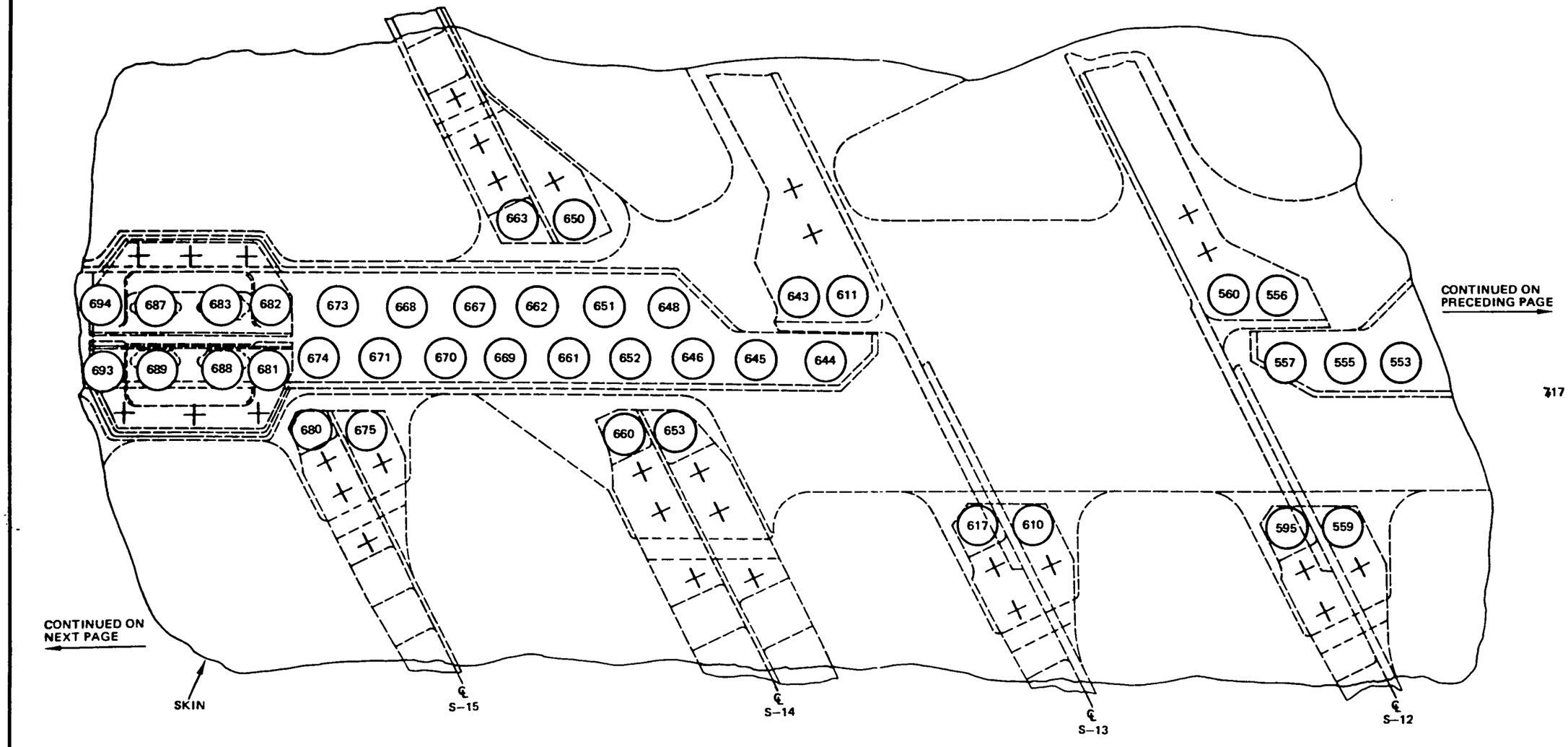


FASTENER LOCATIONS TO BE INSPECTED
LOWER WING SKIN WBL 129.62 -BEAVERTAIL
(720 AIRPLANES)

(RIGHT WING SHOWN, LEFT WING SIMILAR)

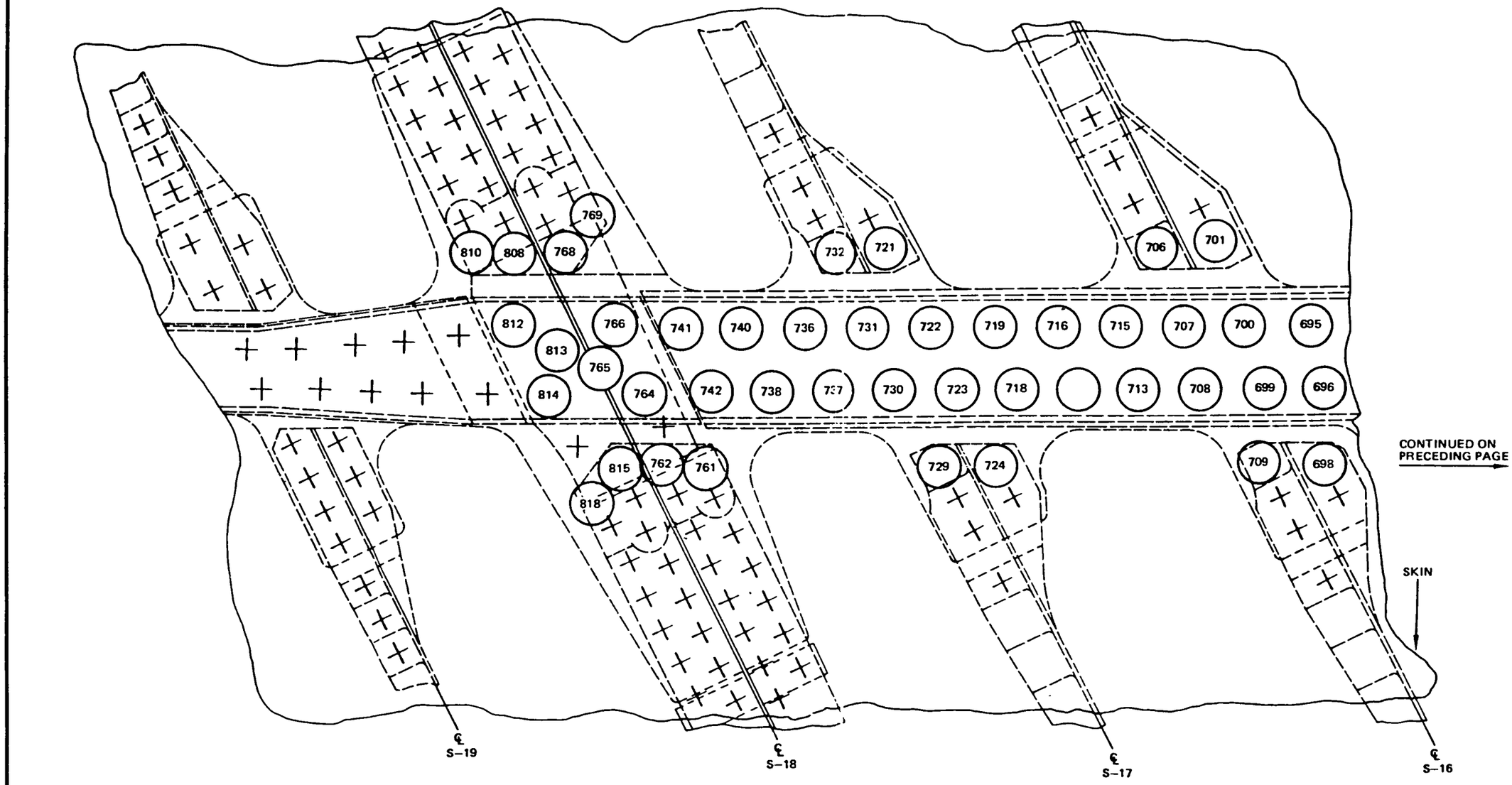
DETAIL J

Lower Wing Skin Forward of Beavertail 707/720 Airplanes
Figure 11 (Sheet 3)



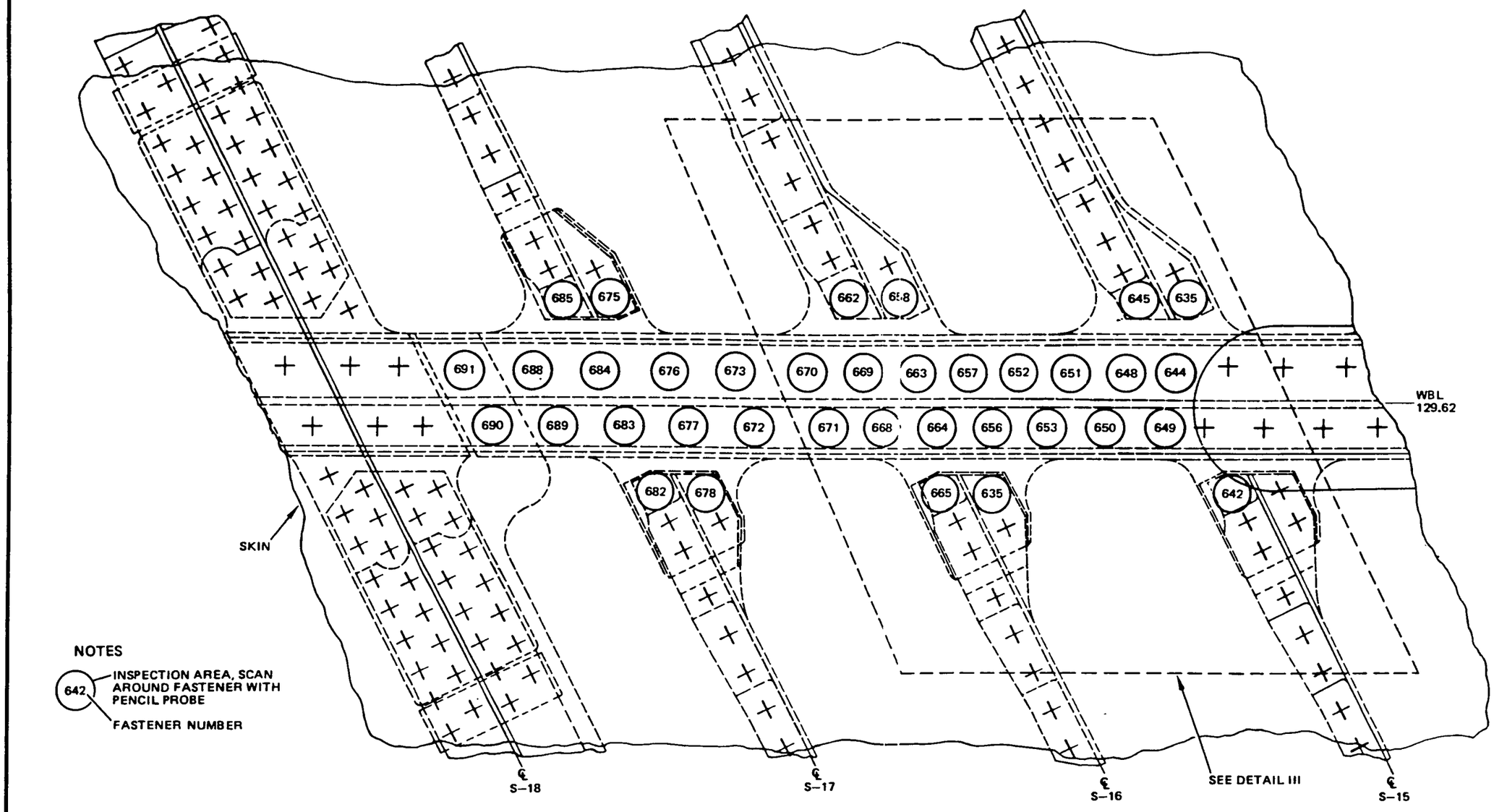
DETAIL I (CONT)

Lower Wing Skin Forward of Beavertail 707/720 Airplanes
Figure 11 (Sheet 4)



DETAIL I (CONT)

Lower Wing Skin Forward of Beavertail 707/720 Airplanes
Figure 11 (Sheet 5)

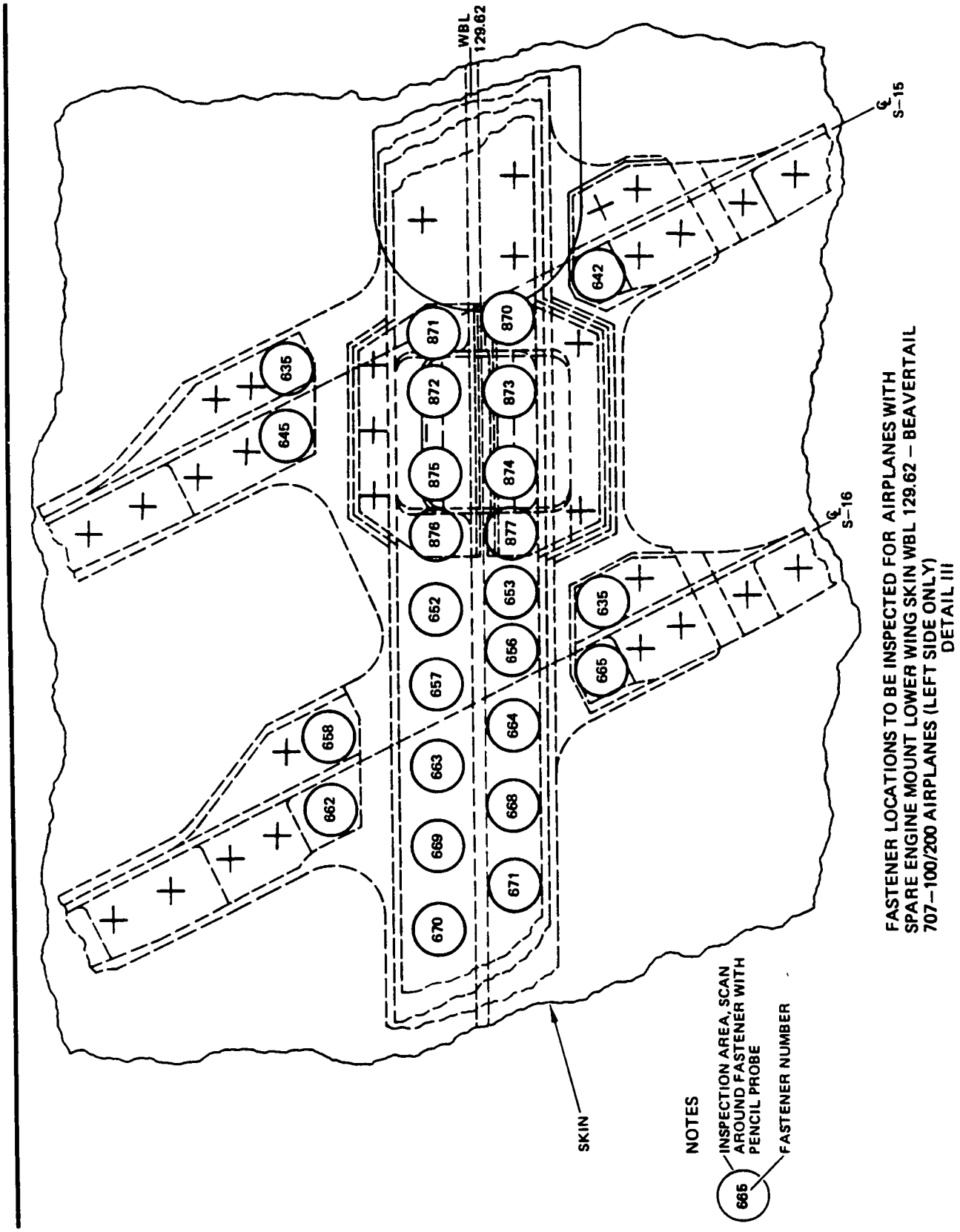


FASTENER LOCATIONS TO BE INSPECTED
LOWER WING SKIN WBL 129.62 - BEAVERTAIL
(707–100/200 AIRPLANES)

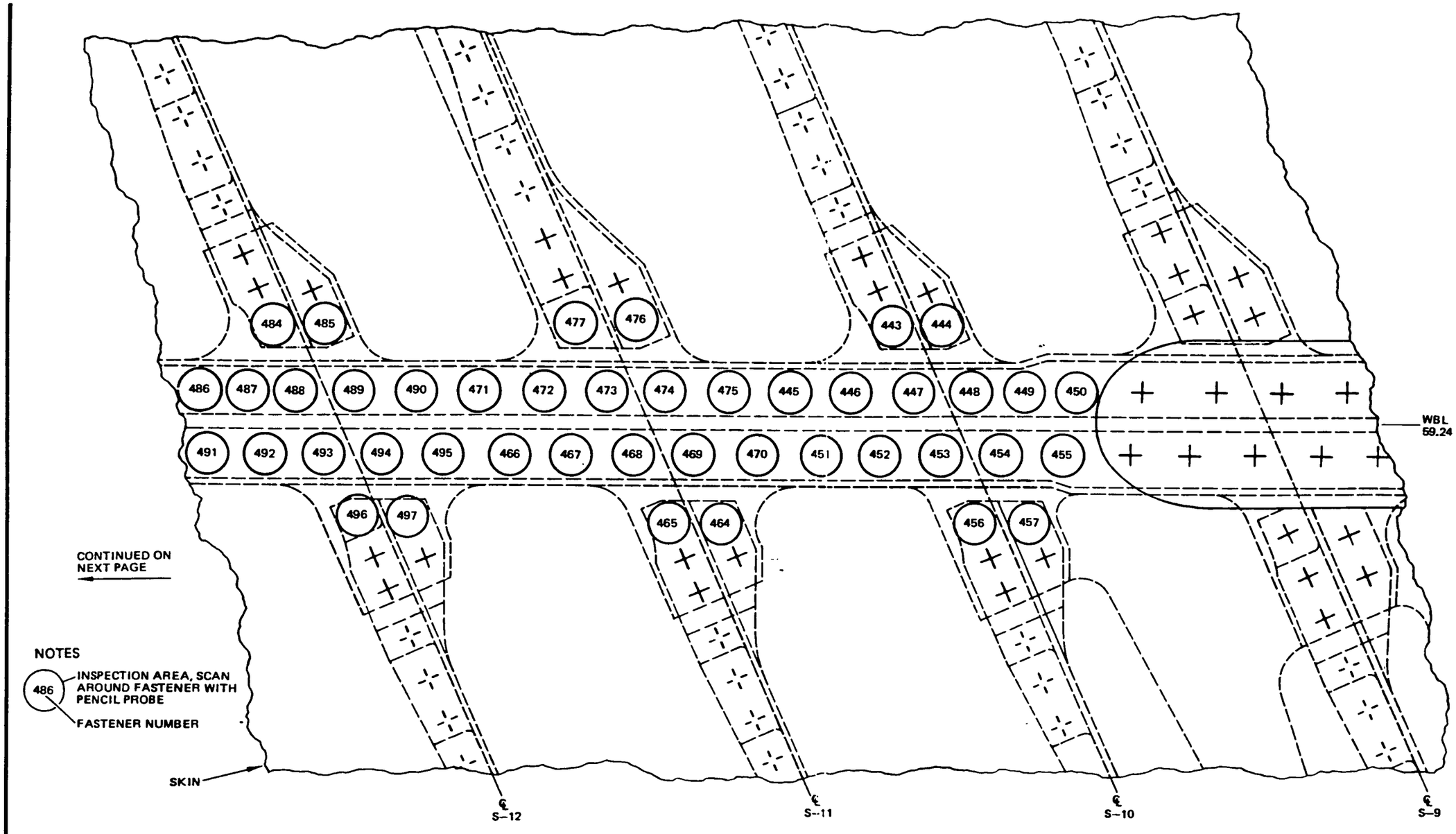
(RIGHT WING SHOWN, LEFT WING SIMILAR)

DETAIL II

Lower Wing Skin Forward of Beavertail 707/720 Airplanes
Figure 11 (Sheet 6)



Lower Wing Skin Forward of Beavertail 707/720 Airplanes
Figure 11 (Sheet 7)

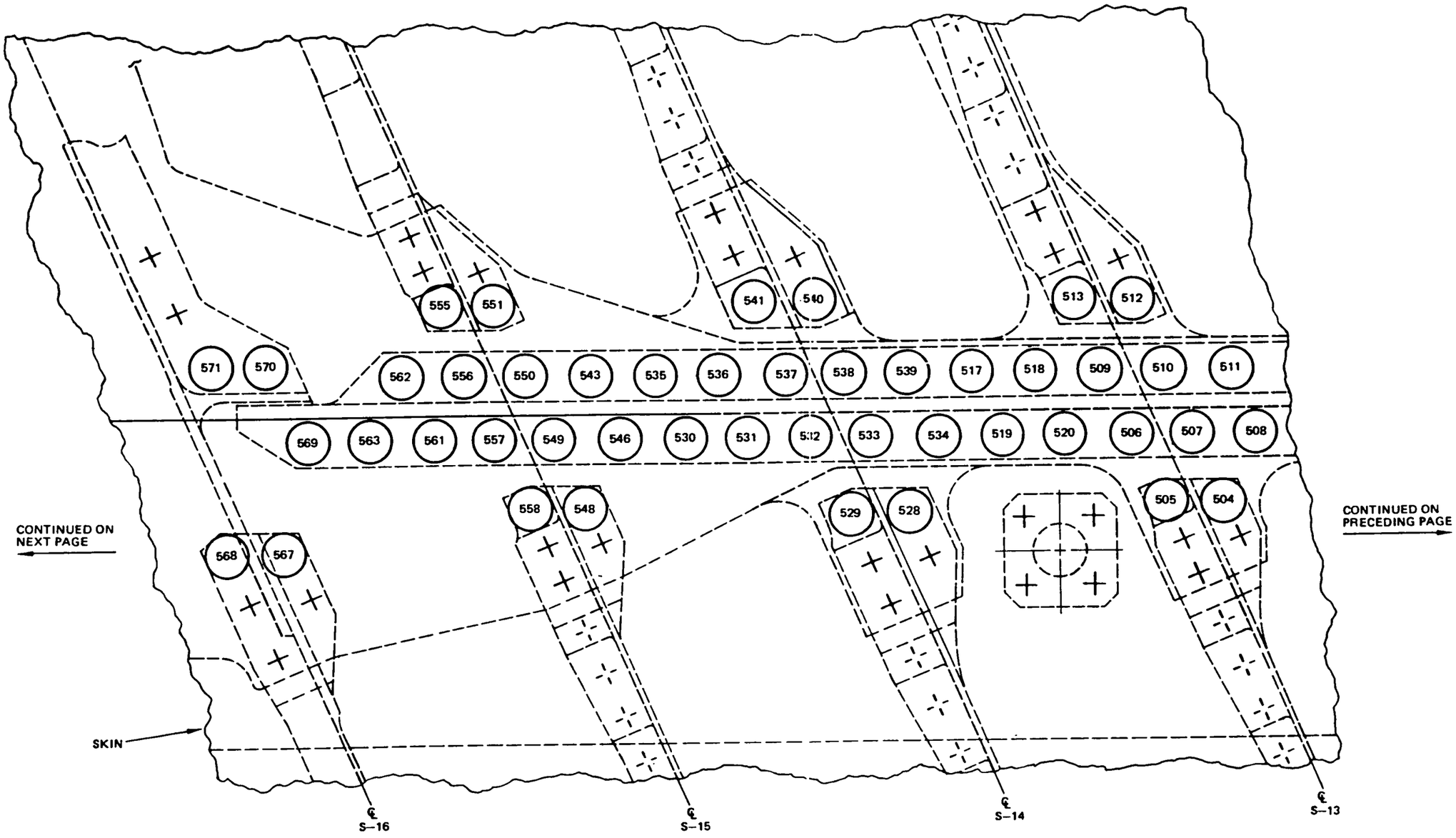


FASTENER LOCATIONS TO BE INSPECTED
LOWER WING SKIN WBL 59.24 – BEAVERTAIL

(707–300/400 AIRPLANES)
(RIGHT WING SHOWN, LEFT WING SIMILAR)

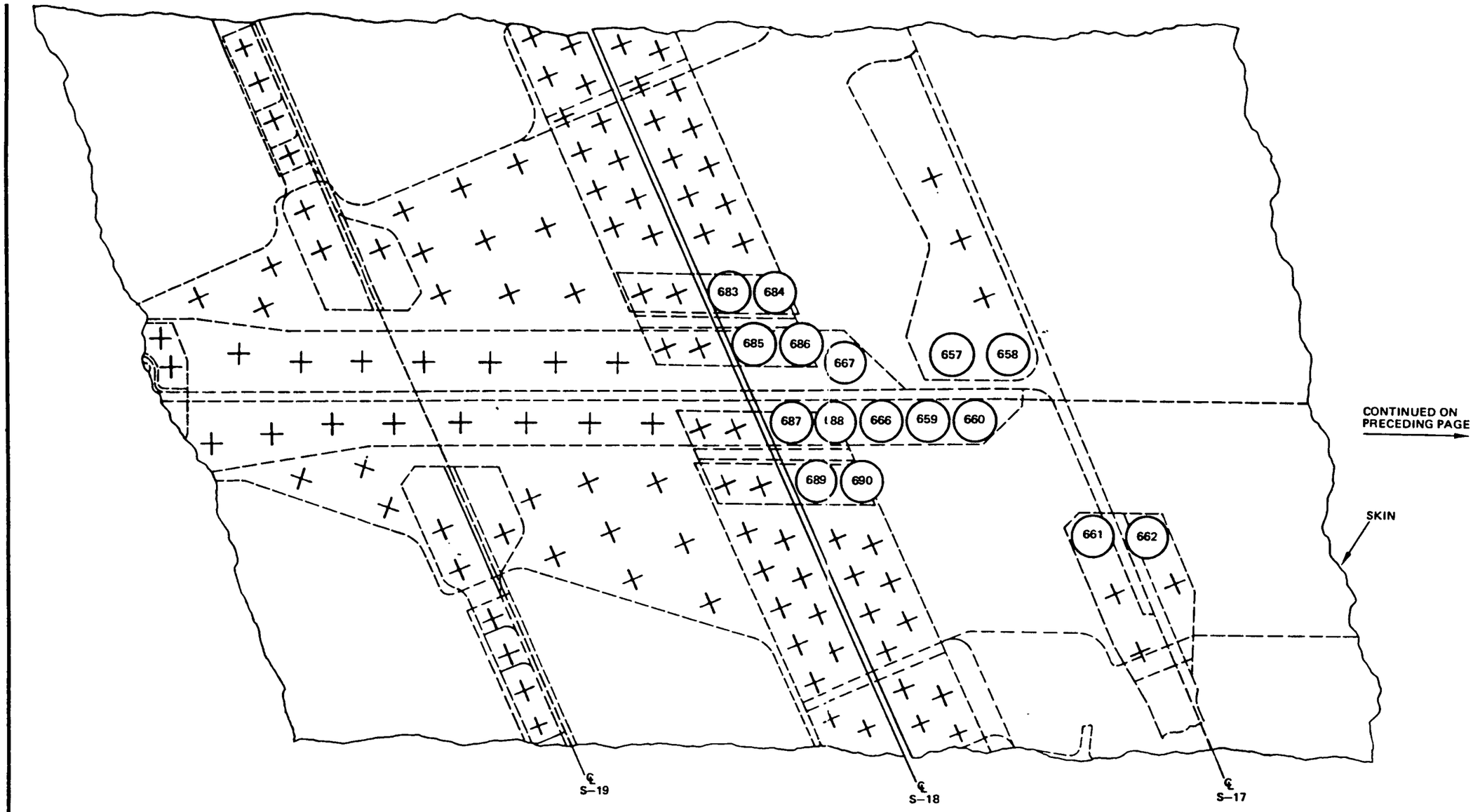
DETAIL IV

Lower Wing Skin Forward of Beavertail 707/720 Airplanes
Figure 11 (Sheet 8)



DETAIL IV (CONT)

Lower Wing Skin Forward of Beavertail 707/720 Airplanes
Figure 11 (Sheet 9)



DETAIL IV (CONT)

Lower Wing Skin Forward of Beavertail 707/720 Airplanes
Figure 11 (Sheet 10)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To detect cracks in the WBL 59.24 lower surface skin and splice plate forward of the skin splice at stringer S-18.

2. Equipment

   A. Instrument - Any eddy current instrument which satisfies the requirements of this procedure is suitable for this inspection. The folllowing instrument was used during the development of this procedure:

      MIZ 10
      Zetec Inc.
      1320 N.W. Mall
      Issaquah, WA 98207

   B. Probes - Any probe of similar size which satisfies the requirements of this procedure is acceptable. The following probe was used during the development of this procedure.

      (a) Ring (encircling) probe with 0.50-inch ID and 1.25-inch OD, usable at 100 Hz Nortec P/N SPO 783.

      NOTE: Probe listed above is available from:

      Nortec Inc.
      421 N. Quay
      Kennewick, Washington 99336

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

Lower Wing Skin WBL 59.24 S-18 Splice Plate 707-300/400 Airplanes
Figure 12 (Sheet 1)

C. Reference Standards

(1) Manufacture per Detail I.

3. Preparation for Inspection

A. Wipe skin surface clean.

4. Instrument Calibration

A. General

(1) One basic inspection method is required.

(2) The inspection method requires two calibration procedures to adjust for variations in fastener location.

(3) Detail III identifies fasteners to be inspected and Detail II identifies probe positions for calibration.

B. Calibration for fasteners 720, 722, 724 and 726. See Details II and III.

(1) Set instrument frequency to 100 Hz.

(2) Visually center probe over unnotched reference standard hole, position 1. See Detail II.

(3) Balance instrument per manufacturer's instructions.

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

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

(5) Center the probe over the unnotched reference standard hole, position 1, and adjust the meter response to read 20% of full scale with the meter position control.

(6) Center the probe over the notched reference standard hole, position 2. Meter response should be upscale.

Lower Wing Skin WBL 59.24 S-18 Splice Plate 707-300/400 Airplanes
Figure 12 (Sheet 2)

(7) Adjust instrument sensitivity to obtain a minimum 60% of full scale meter response difference between the notched and unnotched reference standard fastener holes.

(8) Recheck the balance and liftoff. If readjustments are made, recheck instrument sensitivity per par. 4.B.(7).

(9) Center the probe over the smaller diameter fastener, position 3. Note that the response is approximately 20% less as a result of the smaller fastener.

(10) Cracks will be indicated by an upscale meter response.

C. Calibration for fasteners 719, 721, 723, and 725.

(1) Calibrate the instrument according to par. 4.B. See Detail II. Substitude probe positions 4, 5, and 6 for positions 1, 2, and 3.

5. Inspection Procedure

A. Fasteners 720, 722, 724, and 726. See Detail III.

(1) Center probe over each fastener with the larger diameter head by manipulating to obtain the minimum meter response. Note response.

(2) Center probe over the fastener with the smaller diameter head. The response should be approximately 20% less than that obtained from the larger diameter fasteners. See calibration procedure.

(3) Use the lowest meter response obtained in par. 5.A.(1) as the baseline response. Any response difference 40% greater than the baseline response (except as modified by par. 5.A.(2)) should be investigated further.

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

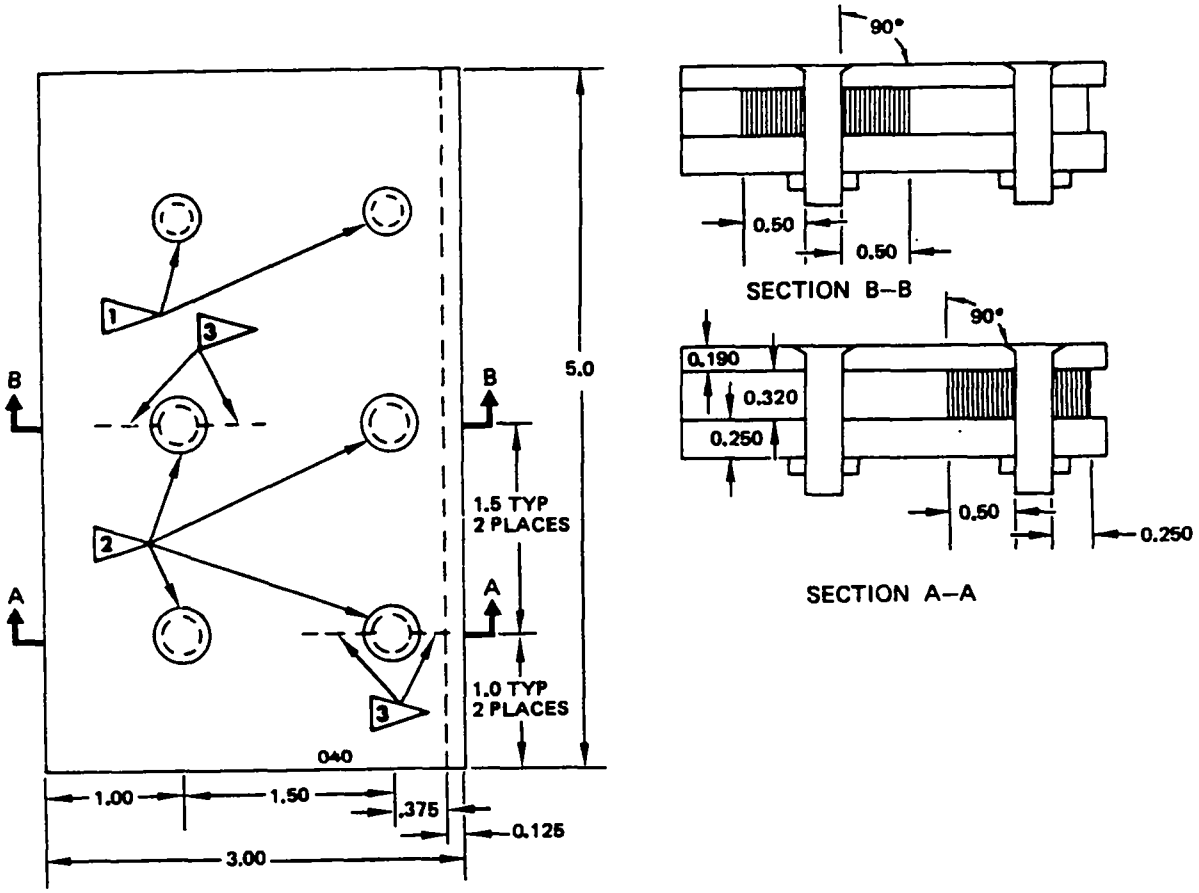
A fastener that is different in countersink depth. Compare with a similar fastener in standard raised to the same height.

A fastener close to the skin gap. Compare with similar fasteners at that locations.

B. Fasteners 719, 721, 723, and 725.

(1) Repeat par. 5.A., except use the baseline response adjusted for edge margin effect (positions 4, 5, and 6 on the reference standard).

Lower Wing Skin WBL 59.24 S-18 Splice Plate 707-300/400 Airplanes
Figure 12 (Sheet 3)

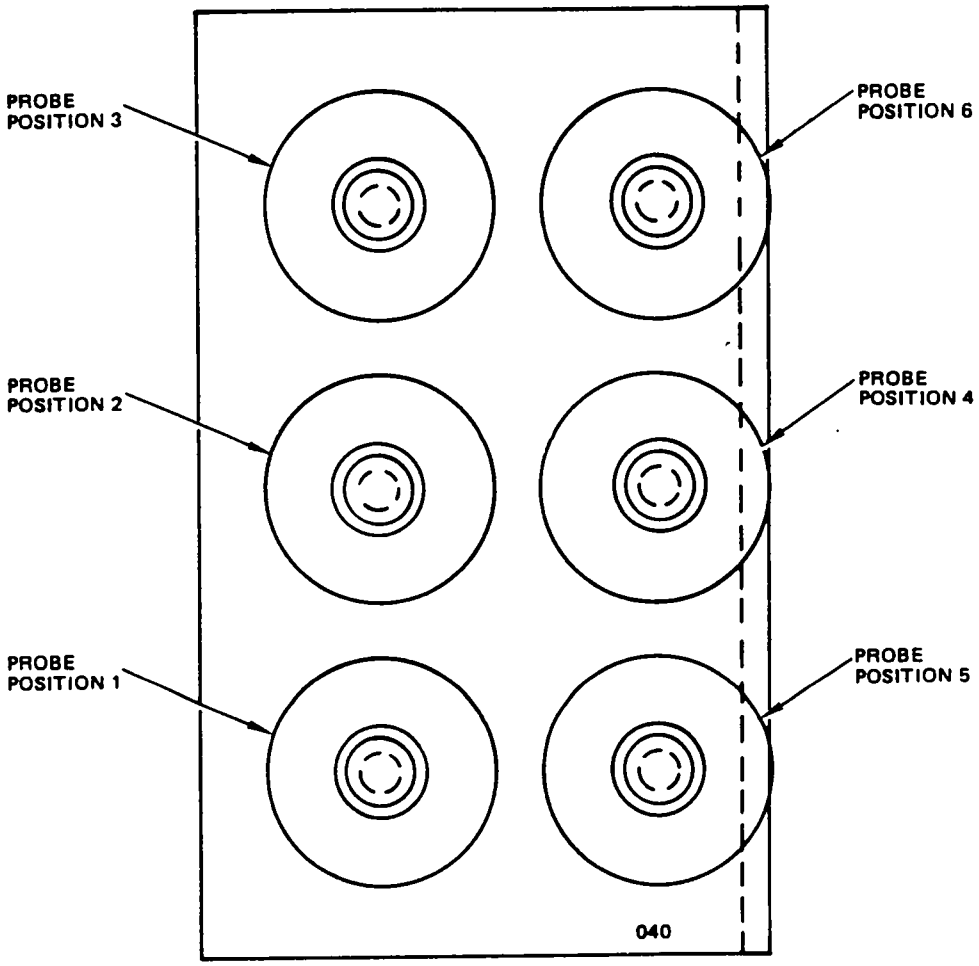


NOTES

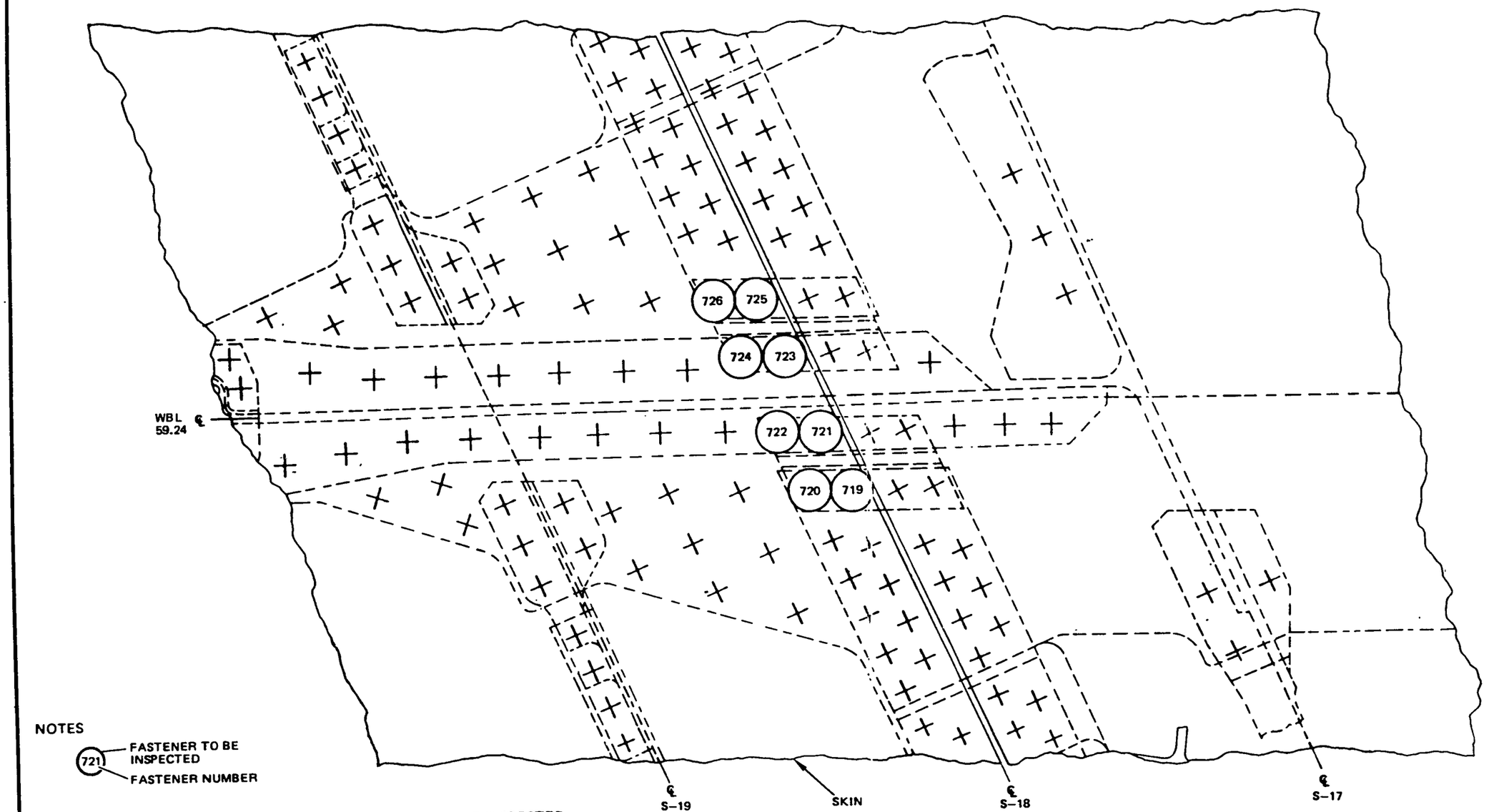
- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: 2024–T4 ALUMINUM
- TOLERANCE: X.X ± 0.05 X.XX ± 0.02 X.XXX ± 0.005
- ETCH OR STEEL STAMP WITH 040
- P/N 6412–70
  AVAILABLE FROM IDEAL SPECIALTY CO.
  2531 E. INDEPENDENCE ST.
  TULSA, OKLAHOMA 74110

1. BACB30LU3–13; BACN10JC3 NUT (2 PLACES)
2. BACB30FN8–13; BACC30M8 COLLAR (4 PLACES)
3. JEWELER'S SAWCUT 0.030 MAX WIDTH

REFERENCE STANDARD 040
DETAIL I



PROBE POSITION FOR CALIBRATION
ON REFERENCE STANDARD 040
DETAIL II



FASTENER LOCATIONS TO BE INSPECTED
LOWER WING SURFACE WBL 59.24
(RIGHT WING SHOWN, LEFT WING SIMILAR)
DETAIL III

Lower Wing Skin WBL 59.24 S-18 Splice Plate 707-300/400 Airplanes
Figure 12 (Sheet 6)

PART 6 - EDDY CURRENT

WINGS - MAIN FRAME

1. Purpose

   A. To inspect for wing skin cracks around selected fasteners in the wing lower panel at front spar stringer runouts (Details I and II).

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 the development of this procedure:

   P/N ED 520
   Magnaflux Corp.
   6800 E. Washington Blvd.
   Los Angeles, Ca 90049

   B. Probe - Shielded pencil probe per Part 1, 51-06-00, Fig. 1.

   (1) P/N P-50
   NDT Product Engineering
   P.O. Box 423
   Renton, Wa 98057

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

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

Lower Wing Skin Stringer Runouts (707/720 Airplanes)
Figure 13 (Sheet 1)

3. Preparation for Inspection

A. Identify the inspection areas per Details I or II and wipe skin surface clean.

4. Instrument Calibration

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

5. Inspection Procedures

A. Inspect around designated fastener heads according to Part 6, 51-00-00, Fig. 6.

(1) Typical stringer front spar runout inspection.

(a) Refer to Detail III for fastener locations to be inspected for typical stringer runouts, all models.

(2) Splice stringer front spar runout inspection.

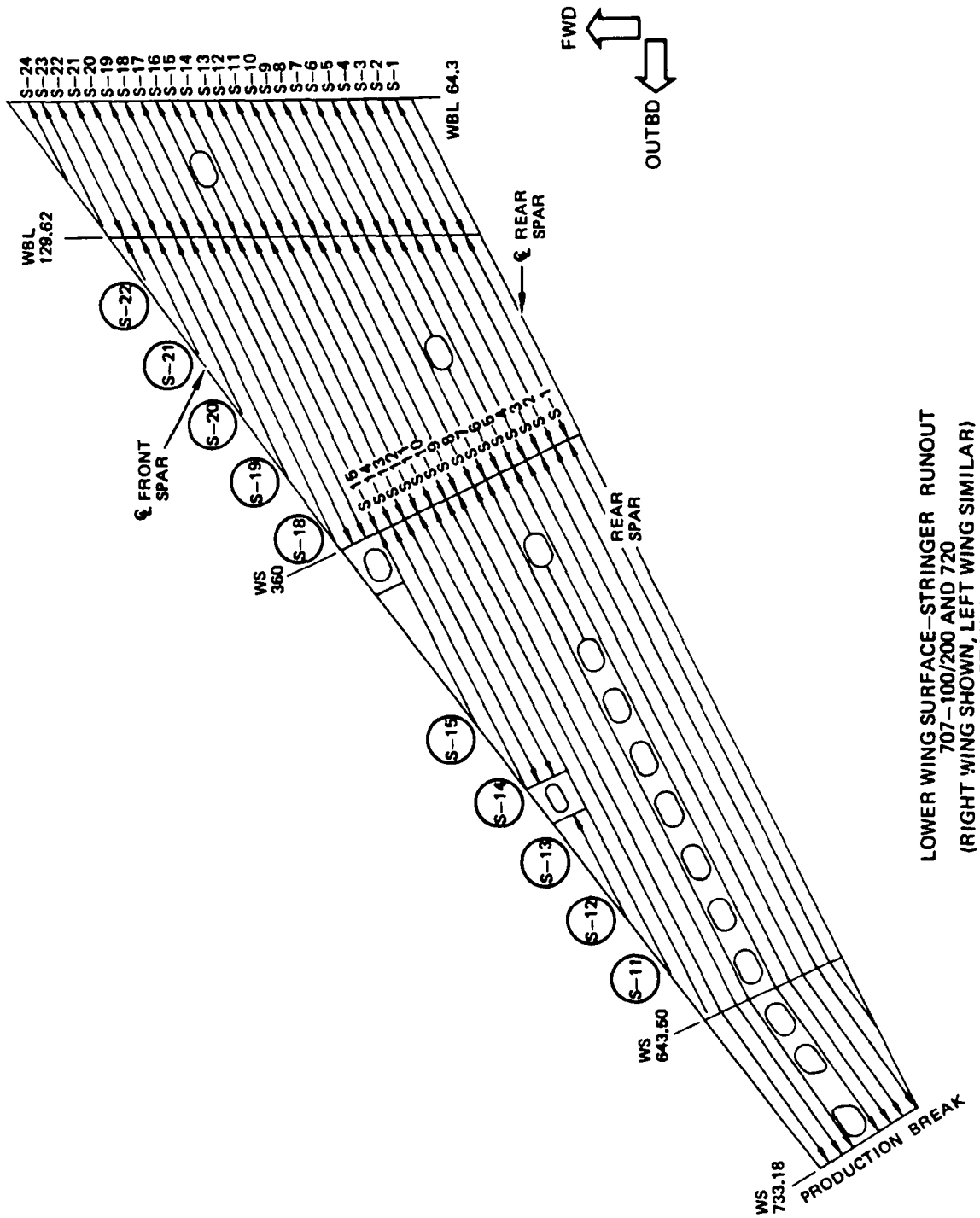
(a) 707-100/200 and 720 Airplanes

Refer to Detail IV for fastener locations to be inspected and typical fastener patterns for stringers S-14 and S-18.

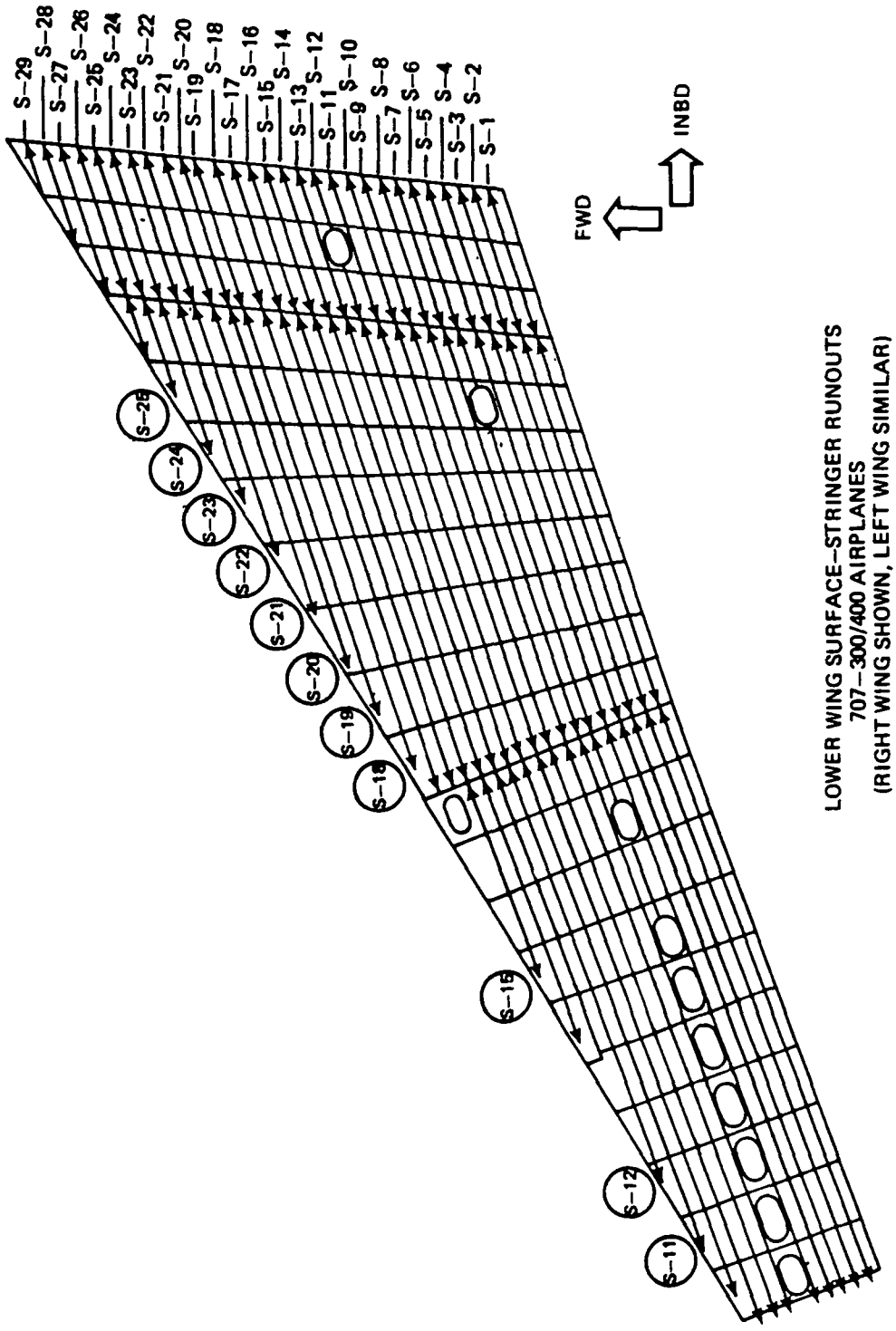
(b) 707-300/400 Airplanes

Refer to Detail V for fastener locations to be inspected and typical fastener patterns for stringers S-14, S-18, and S-25.

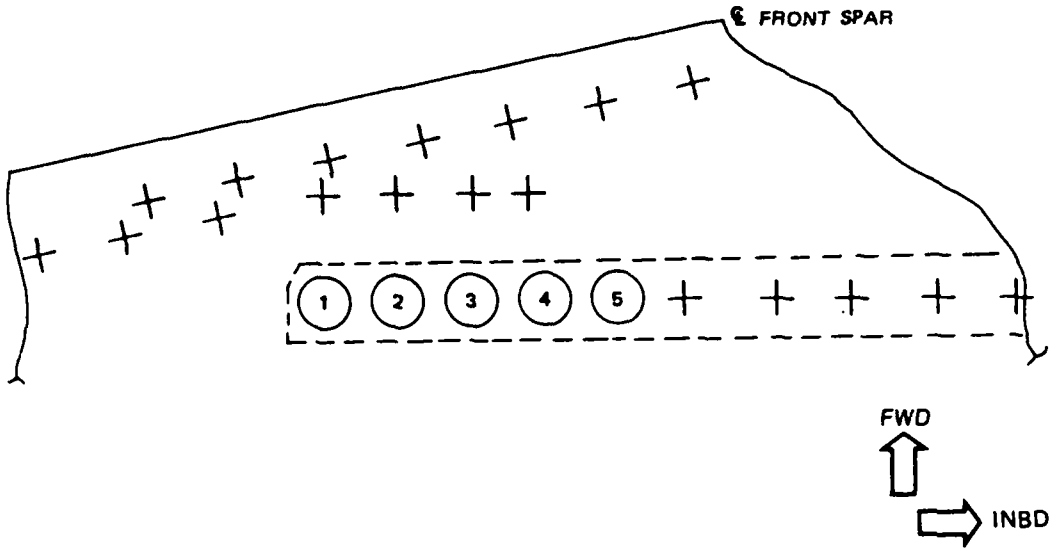
Lower Wing Skin Stringer Runouts (707/720 Airplanes)
Figure 13 (Sheet 2)



Lower Wing Skin Stringer Runouts (707/720 Airplanes)
Figure 13 (Sheet 3)



Lower Wing Skin Stringer Runouts (707/720 Airplanes)
Figure 13 (Sheet 4)



NOTES

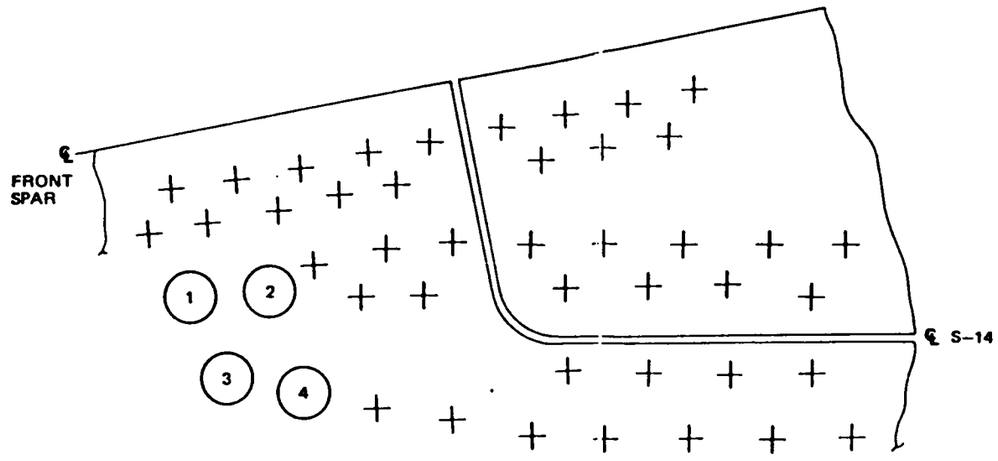
- TYPICAL OR SIMILAR FOR THE FOLLOWING STRINGER RUNOUTS

100/200	720	300/400
S-11	S-11	S-11
12	12	12
13	13	–
15	15	15
19	19	19
20	20	20
21	21	21
22	22	22
		23
		24

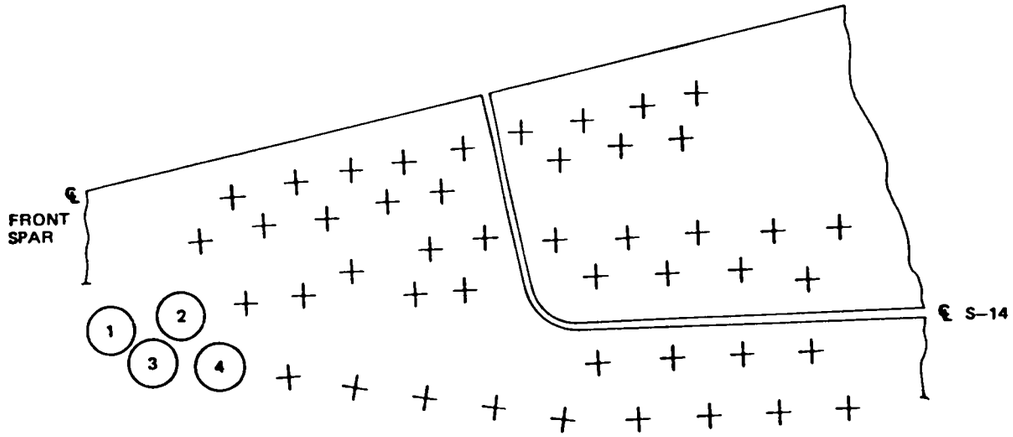
(1) — FASTENER REQUIRING INSPECTION

FASTENER LOCATIONS TO BE INSPECTED
WING LOWER PANEL TYPICAL STRINGER FRONT SPAR
RUNOUTS
707/720
(RIGHT WING SHOWN , LEFT WING SIMILAR)
DETAIL III

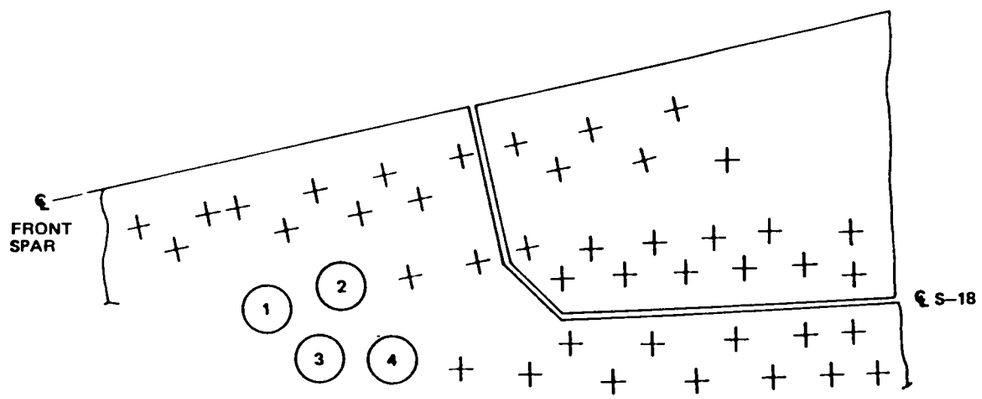
Lower Wing Skin Stringer Runouts (707/720 Airplanes)
Figure 13 (Sheet 5)



(TYPICAL S–14)



(TYPICAL S–14)
(707–100/200 AIRPLANES)



(TYPICAL S–18)

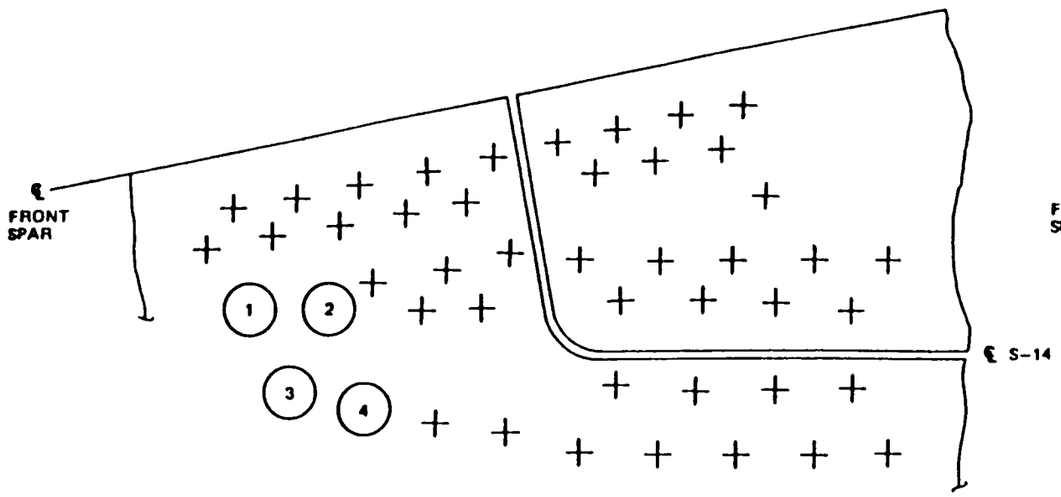
NOTES

(1) — FASTENER REQUIRING INSPECTION

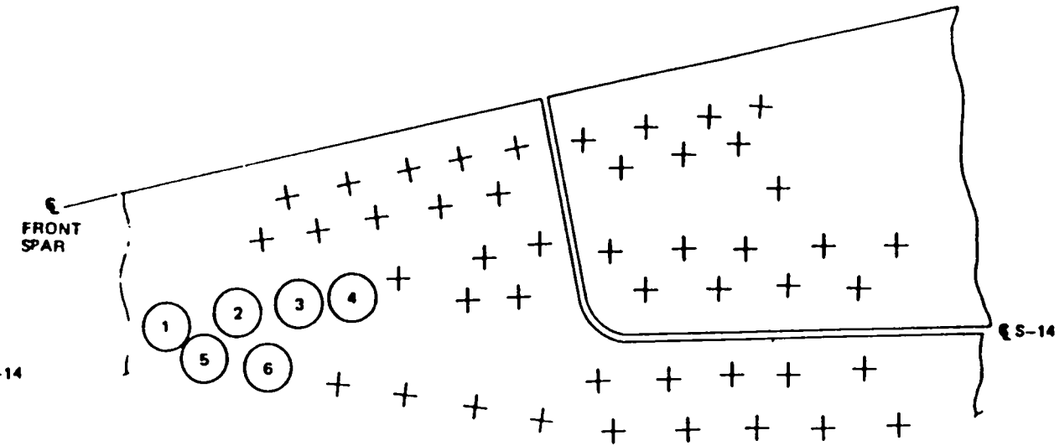
FWD
INBD

INSPECTION LOCATIONS ON TYPICAL FASTENER PATTERNS
WING LOWER PANEL FRONT SPAR SPLICE STRINGER RUNOUTS
(707–100/200 AND 720 AIRPLANES)
(RIGHT WING SHOWN, LEFT WING SIMILAR)
DETAIL IV

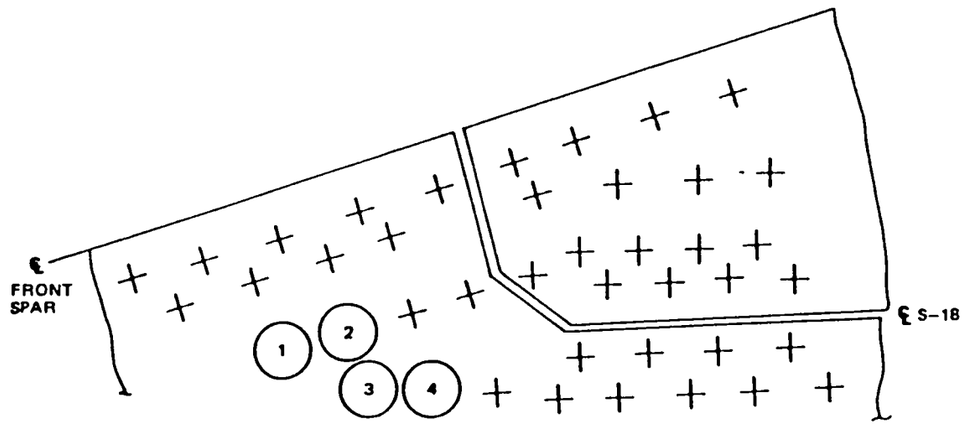
Lower Wing Skin Stringer Runouts (707/720 Airplanes)
Figure 13 (Sheet 6)



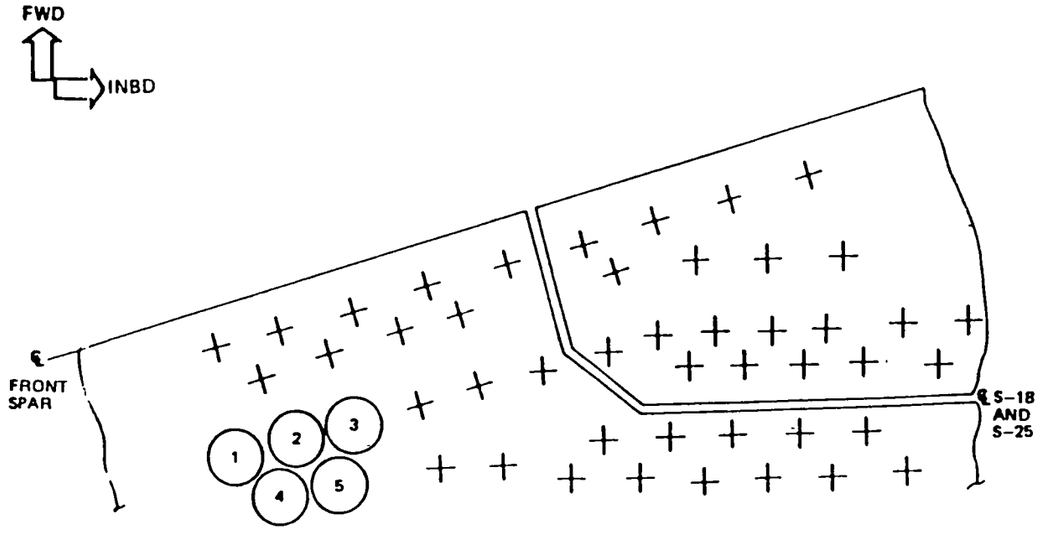
(TYPICAL S–14)



(TYPICAL S–14)



(TYPICAL S–18)



(TYPICAL S–18 AND S–25)

NOTES

(1) — FASTENER REQUIRING INSPECTION

INSPECTION LOCATIONS ON TYPICAL FASTENER PATTERNS
WING LOWER PANEL FRONT SPAR SPLICE STRINGER RUNOUTS
(707–300/400, –300B AND –300C AIRPLANES)
(RIGHT WING SHOWN, LEFT WING SIMILAR)

DETAIL V

Lower Wing Skin Stringer Runouts (707/720 Airplanes)
Figure 13 (Sheet 7)

EFFECTIVITY
MODEL: 707/720
SSI DOCUMENT (D6-44860)
REFERENCE:
SSD 57-A00-07
57-A10-07
57-A20-07
57-A30-07
57-A40-07

PART 6 - EDDY CURRENT

WING - PLATES/SKIN

1. Purpose

   A. To detect cracks in the area around the lower skin surface access cutouts at WS 300 (315 for 300/400 models), WS 400 and WS 460.

   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 - Straight shielded pencil probe per Part 1, 51-06-00.

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

Lower Skin Surface Access Cutouts at WS 300, 400 and 460
Figure 15 (Sheet 1)

3. Prepare for Inspection

   A. Drain applicable fuel tanks, purge for entry with eddy current test equipment.

   B. Open access doors at WS 300, WS 400, and WS 460.

   C. Wipe inspection surfaces clean.

4. Instrument Calibration

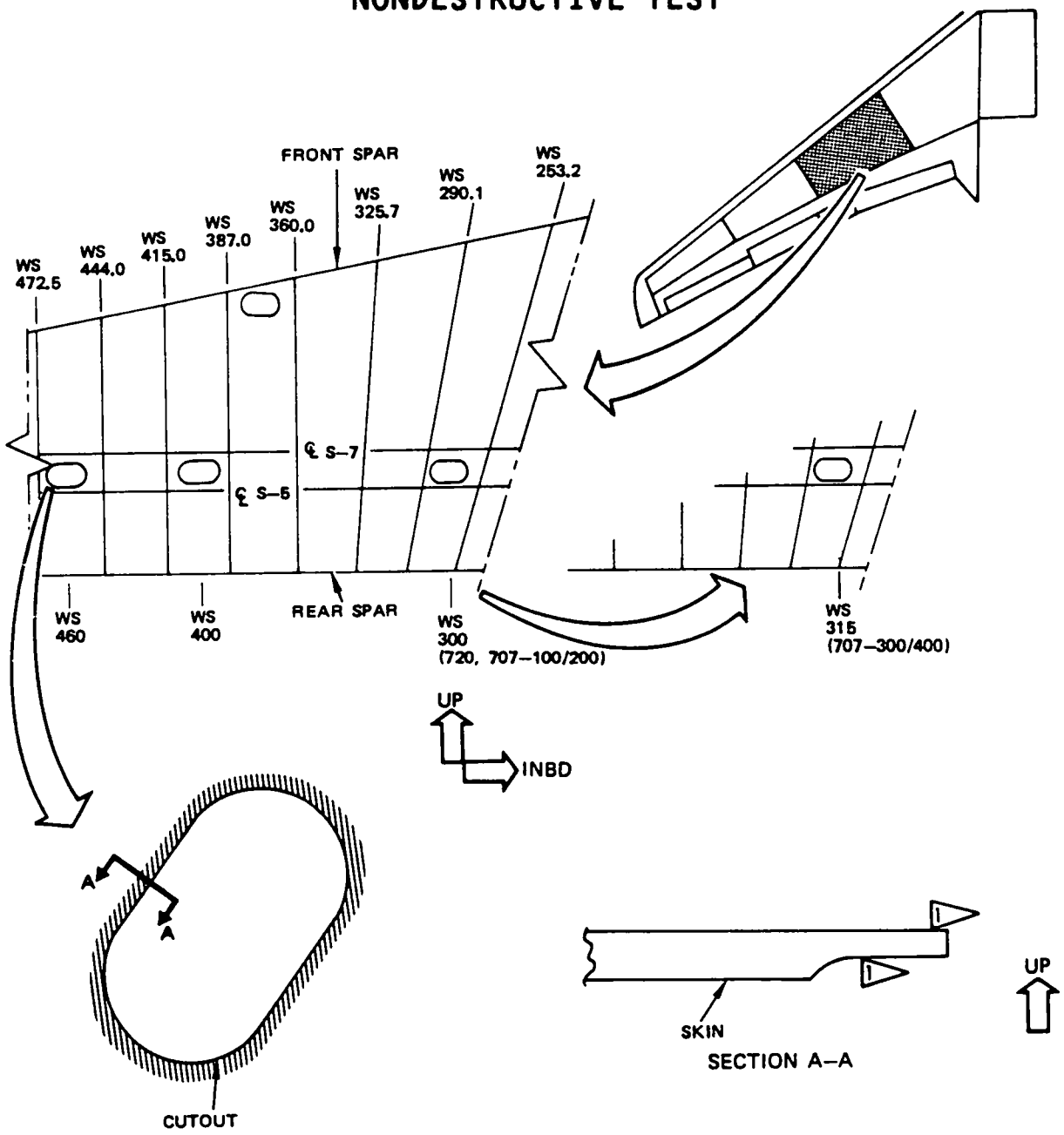
   A. Refer to Part 6, 51-00-00, Fig. 4.

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.

   Scan pencil probe on skin around periphery of access cutouts at the locations indicated. See Detail I.

Lower Skin Surface Access Cutouts at WS 300, 400 and 460
Figure 15 (Sheet 2)



NOTES

1. PLACE PENCIL PROBE ON SKIN, SCAN AROUND PERIPHERY OF CUTOUT

INSPECTION AREA

SKIN INSPECTION OF
WING LOWER SURFACE ACCESS CUTOUTS
DETAIL I

Lower Skin Surface Access Cutouts WS 300, 400 and 460
Figure 15 (Sheet 3)