

**BOEING**  
**707**  
**INTERCONTINENTAL**  
**STRUCTURAL REPAIR**



CHAPTER 57

WINGS

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## STRUCTURAL REPAIR

### Subject

### Subject No.

|                                                                        |        |
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## STRUCTURAL REPAIR

| <u>Subject</u>                                                   | <u>Subject No.</u> |
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## STRUCTURAL REPAIR

### WINGS

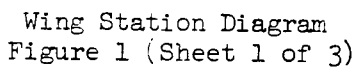
#### 1. General

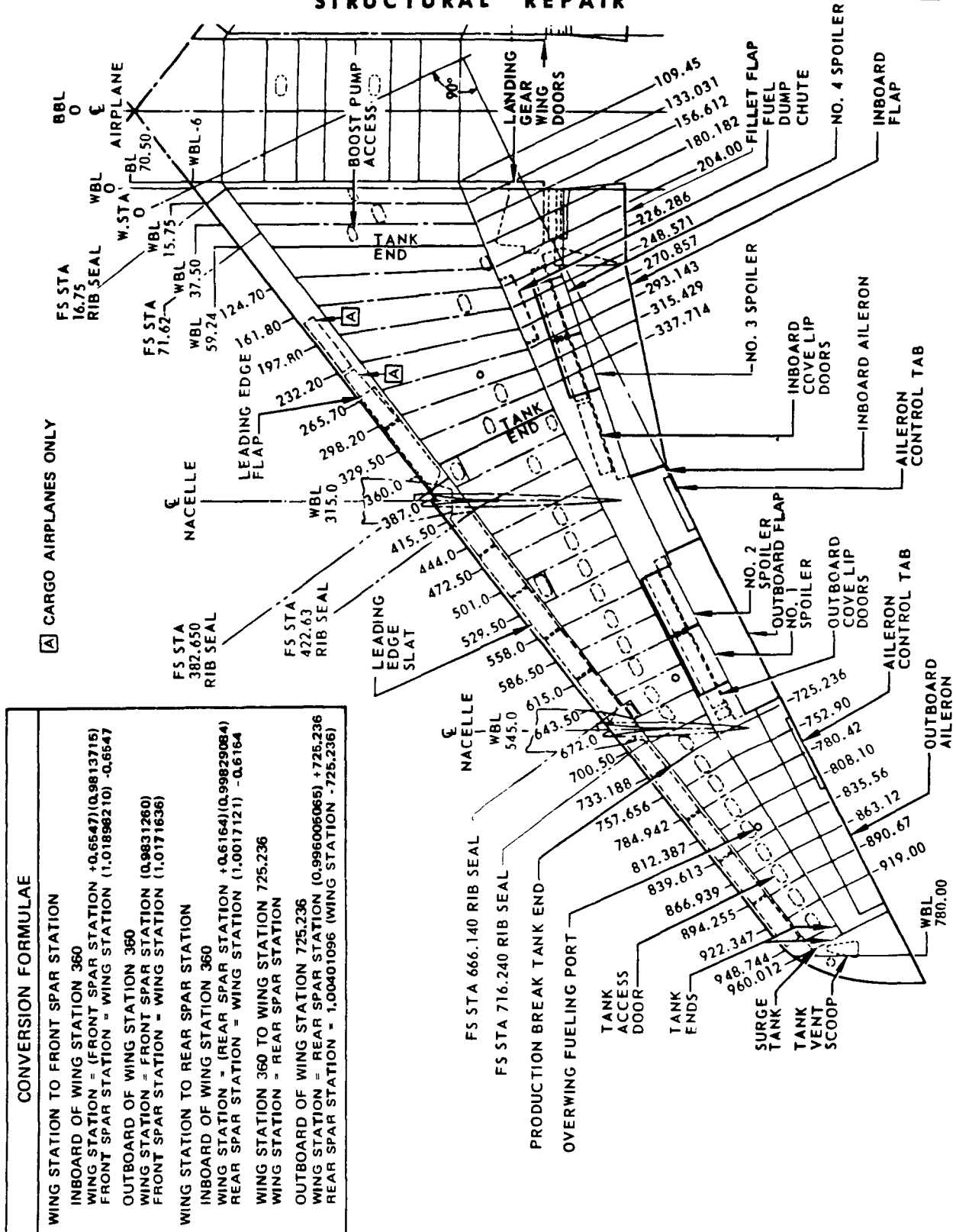
- A. This chapter contains information concerning structural components of the wing, including wing leading edge, wing trailing edge, wing center section, flaps, ailerons, and spoilers.
- B. Materials of these structural components, are tabulated, and their location and arrangement shown by illustrations.
- C. Allowable damage for wing components is defined and illustrated in 57-2-1.
- D. Typical repairs with instructions and illustrations are included in this chapter. Procedures for repair of metal bonded assemblies and honeycomb assemblies are described in 51-9-1, and 51-10-1, respectively.
- E. Part of the wing interspar structure acts as an integral fuel tank. Sealing of integral tank structural repairs is described in 57-2-2.
- F. Procedure for moisture removal from aluminum honeycomb assemblies is described in 51-10-2.

END



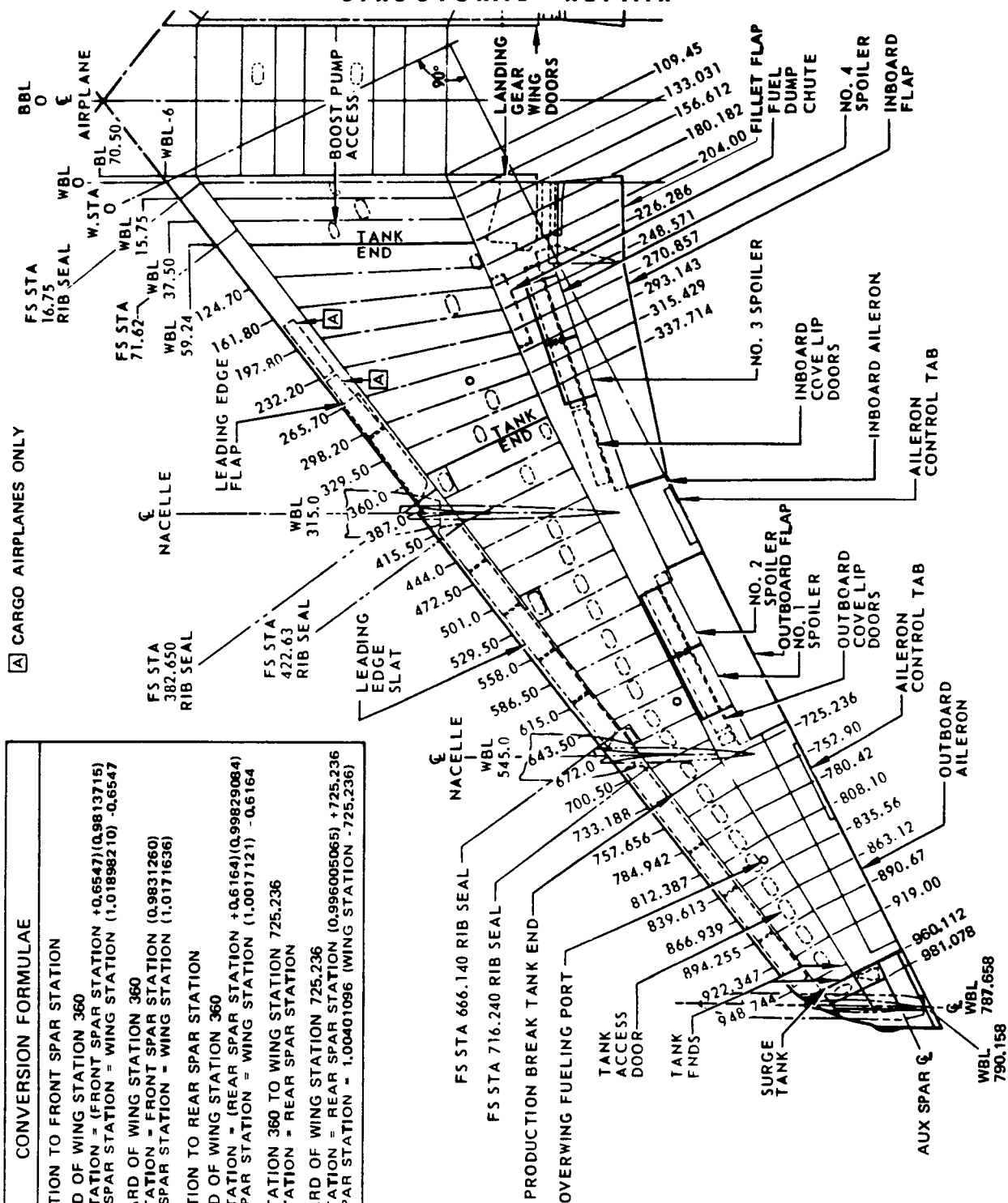
**BOEING** *767* *Intercontinental*   
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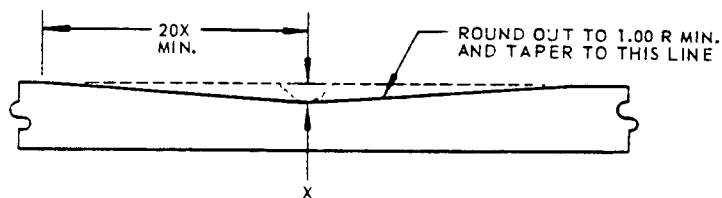
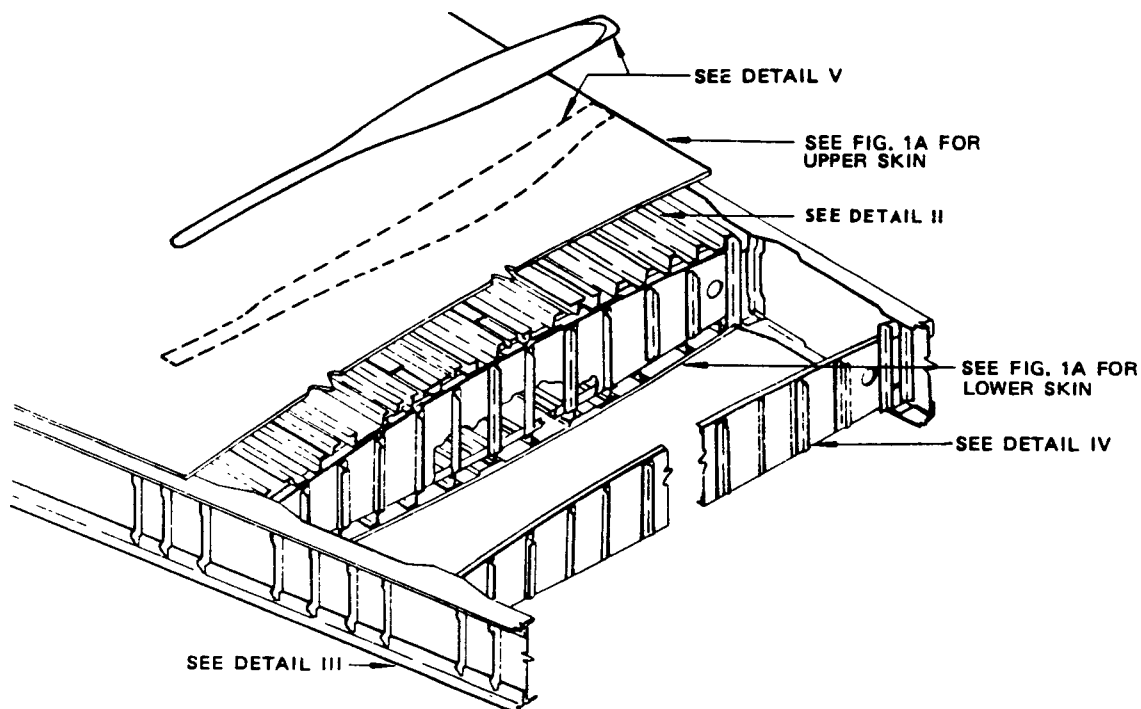
Wing Station Diagram  
Figure 1 (Sheet 2 of 3)

**DC 20317 AND 20318**

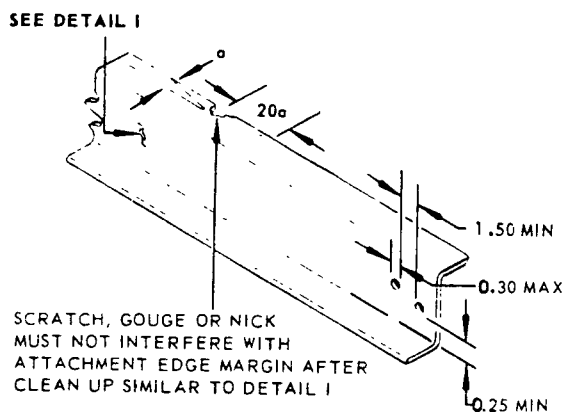


Wing Station Diagram  
Figure 1 (Sheet 3 of 3)

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DETAIL I - SECTION THROUGH GOUGE



DETAIL II - INTERSPAR WING UPPER STIFFENERS

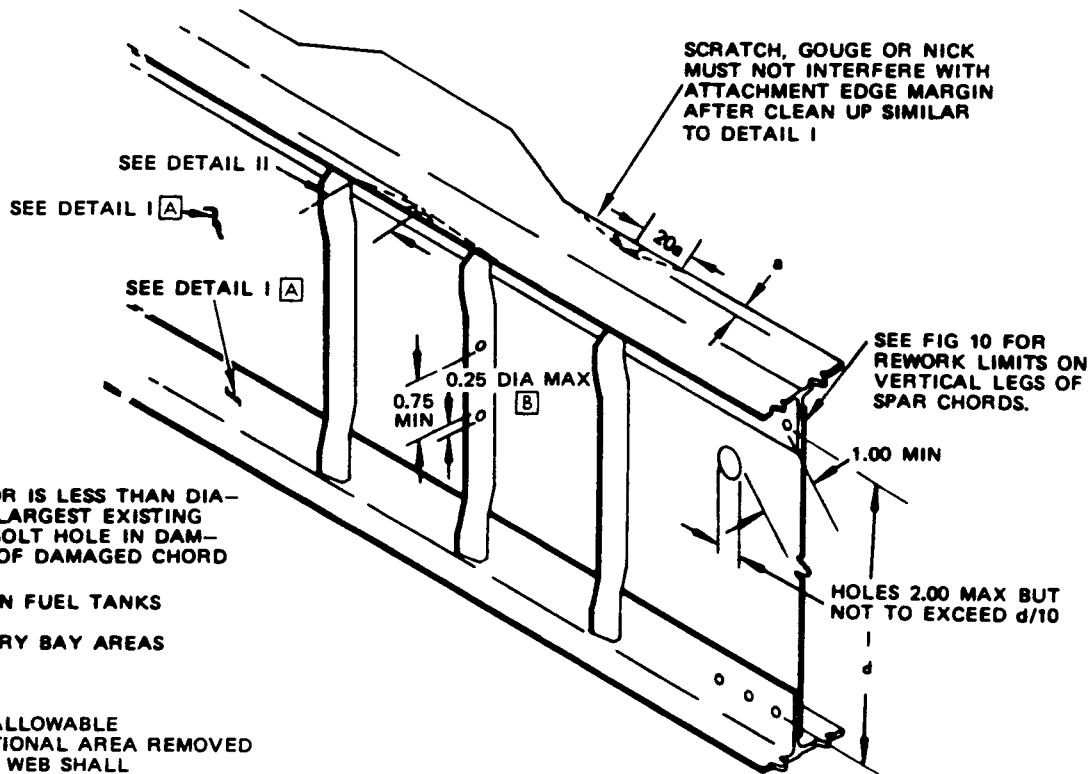
**NOTES**

a EQUALS OR IS LESS THAN DIAMETER OF LARGEST EXISTING RIVET OR BOLT HOLE IN DAMAGE AREA OF DAMAGED COMPONENT

MAXIMUM DEPTH X OF SCRATCH OR GOUGE IS 0.05 BUT NOT TO EXCEED 20 PERCENT OF MATERIAL THICKNESS. SEE DETAIL I

Allowable Damage - Interspar Wing Structure  
Figure 1 (Sheet 1)

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**NOTES**

• EQUALS OR IS LESS THAN DIAMETER OF LARGEST EXISTING RIVET OR BOLT HOLE IN DAMAGE AREA OF DAMAGED CHORD

NO HOLES IN FUEL TANKS

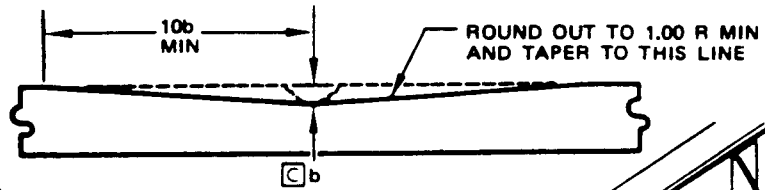
HOLES IN DRY BAY AREAS AS SHOWN

[A] MAXIMUM ALLOWABLE CROSS SECTIONAL AREA REMOVED FROM SPAR WEB SHALL NOT EXCEED 20 PERCENT INCLUDING EXISTING HOLES. MAXIMUM DEPTH X OF SCRATCH OR GOUGE IS 20 PERCENT THICKNESS OF WEB. FOR CHORD, MAXIMUM DEPTH X OF SCRATCH OR GOUGE IS 0.05 BUT NOT TO EXCEED 20 PERCENT OF MATERIAL THICKNESS

[B] NUMBER OF HOLES IN ANY SINGLE STIFFENER NOT TO EXCEED 4.

**DETAIL III - SPAR**

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**NOTES**

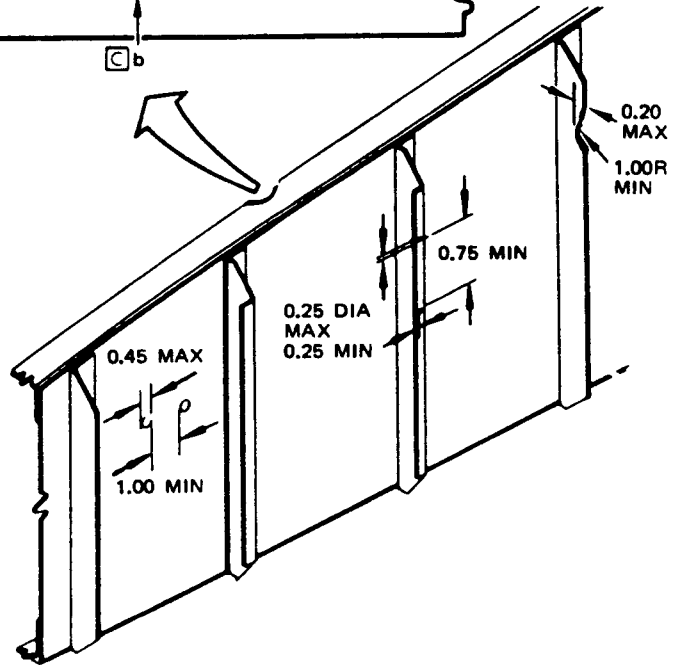
NO HOLES IN TANK END RIBS

RIB WEBS  
MAXIMUM NUMBER OF HOLES ALLOWED IS  
3 PER ANY PANEL

RIB STIFFENERS  
MAXIMUM DEPTH OF SCRATCH OR GOUGE IS  
0.05 BUT NOT TO EXCEED 20 PERCENT  
MATERIAL THICKNESS.  
MAXIMUM NUMBER OF HOLES PER STIFFENER  
IS 4.

RIB CHORD  
MAXIMUM DEPTH OF SCRATCH OR GOUGE IS  
0.04 BUT NOT TO EXCEED 20 PERCENT  
MATERIAL THICKNESS. ROUND OUT  
SCRATCHES AND GOUGES AS SHOWN IN  
DETAIL I.

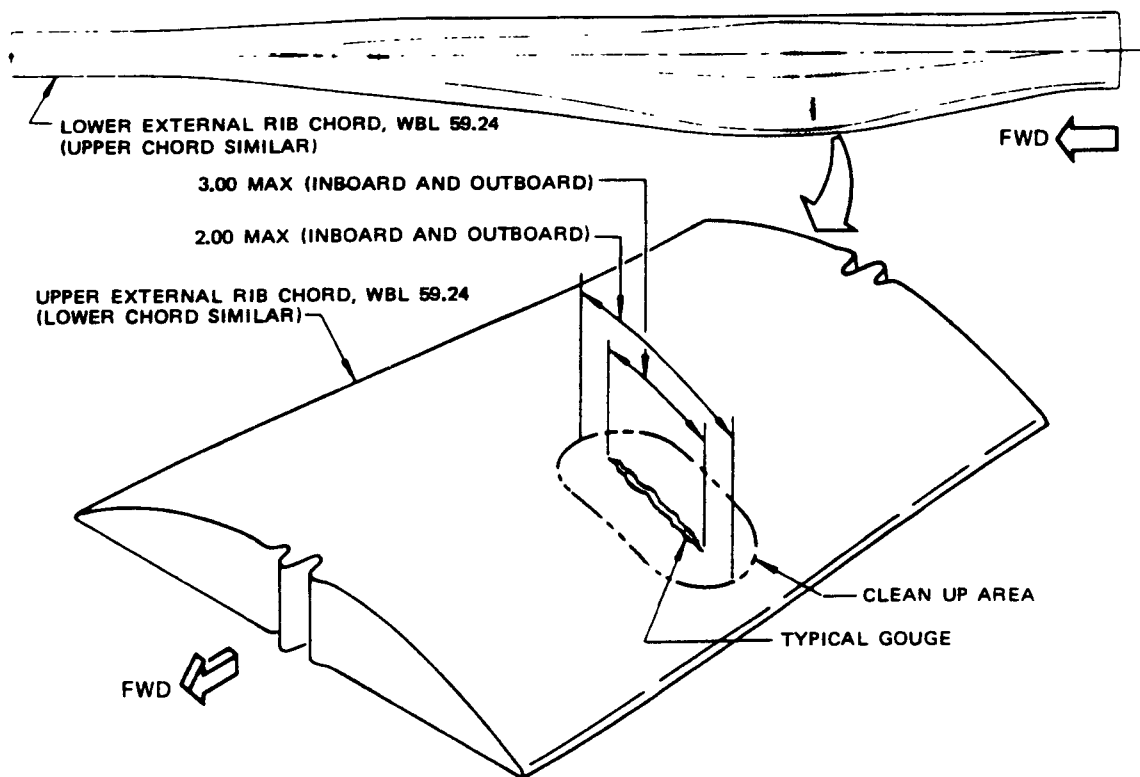
□ b EQUALS OR IS LESS THAN DIAMETER OF  
LARGEST EXISTING RIVET OR BOLT HOLE  
IN DAMAGE AREA OF DAMAGED CHORD.



DETAIL IV - INTERSPAR RIBS



**INTERCONTINENTAL  
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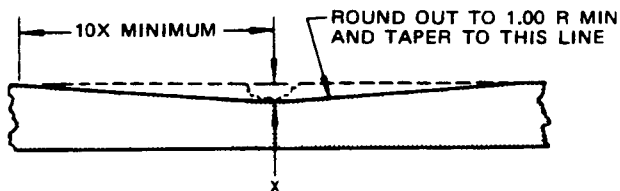
**NOTES**

THE MAXIMUM ALLOWABLE DAMAGE AT ANY ONE CROSS SECTION OF THE BEAVERTAIL IS A CRACK (OR GOUGE) WITH A MAXIMUM LENGTH OF 2.00 (IN THE INBOARD AND OUTBOARD DIRECTION AND A MAXIMUM REWORKED DEPTH OF 0.15 (0.12 CRACK PLUS 0.03 REWORK) OR 25% OF THE MATERIAL THICKNESS, WHICHEVER IS LESS. FOR DAMAGE WHICH EXCEEDS THESE ALLOWABLES, CONSULT THE BOEING COMPANY.

SMOOTH OUT DAMAGED AREA WITH A 1.00 MINIMUM RADIUS AS INDICATED. EXTEND THE CLEANUP 0.50 BEYOND THE END OF THE DAMAGE.

DYE CHECK TO ASSURE COMPLETE REMOVAL OF CRACK OR GOUGE.

REFINISH THE REWORKED AREA. BRUSH ALODIZE PER 51-8-1; APPLY ONE COAT OF BMS 10-11, TYPE I PRIMER AND ONE COAT OF ANDREW BROWN EPOXY ENAMEL A423, BOEING COLOR 8751, GREY SEMI-GLOSS OR EQUIVALENT PER MAINTENANCE MANUAL.



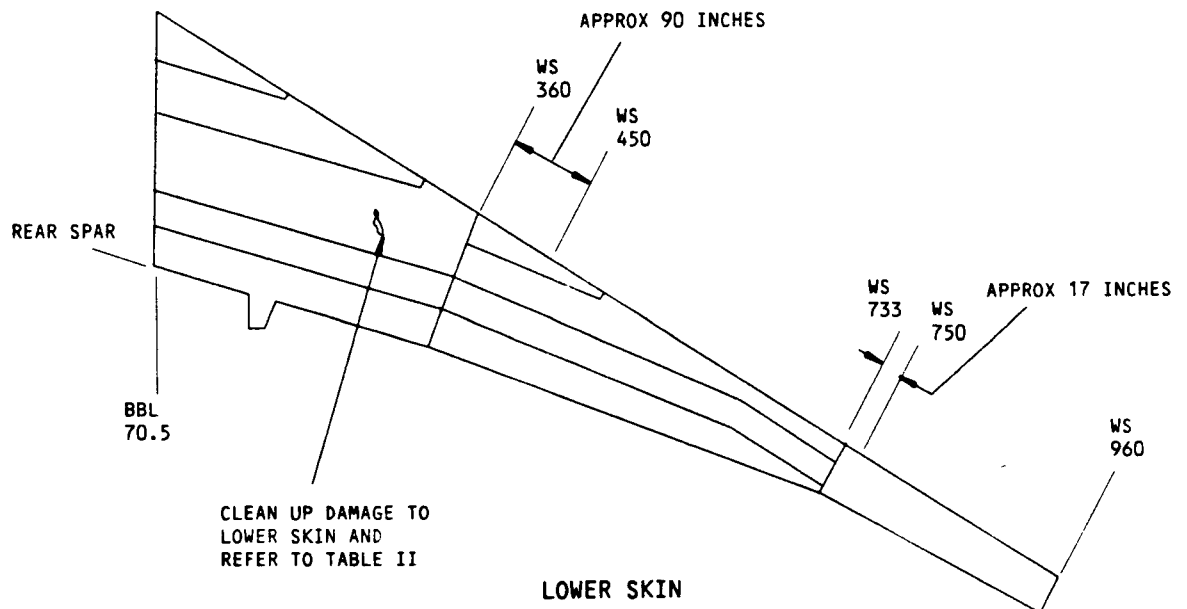
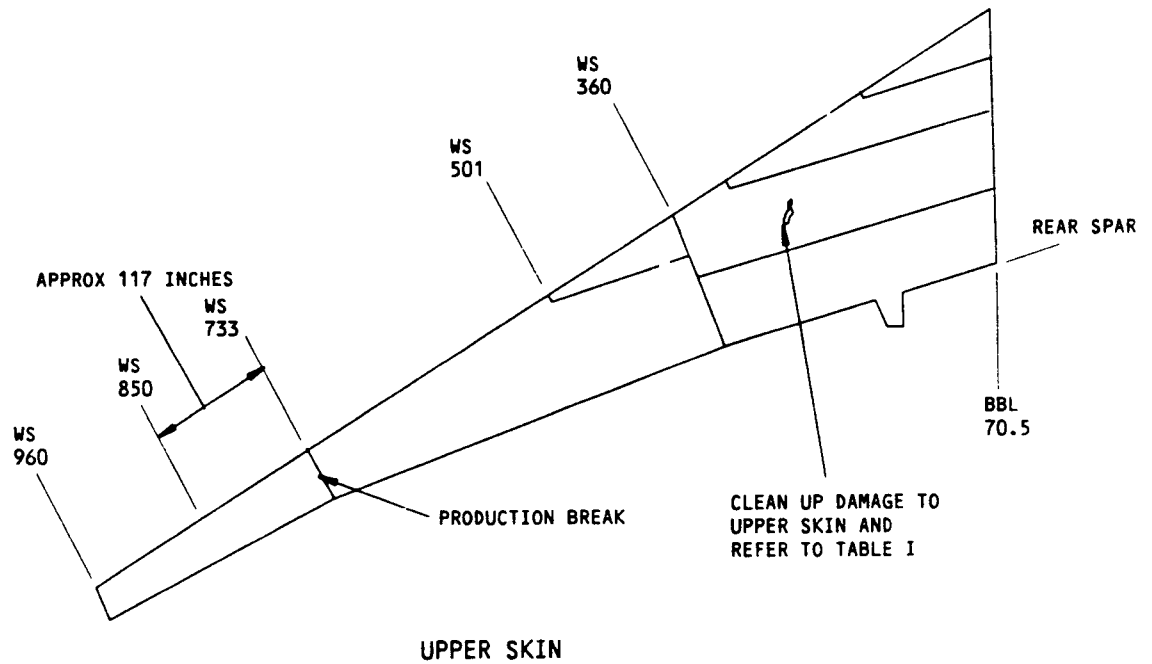
**SECTION THROUGH GOUGE**

**DETAIL V - BEAVERTAIL ALLOWABLE DAMAGE**

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**INTERCONTINENTAL  
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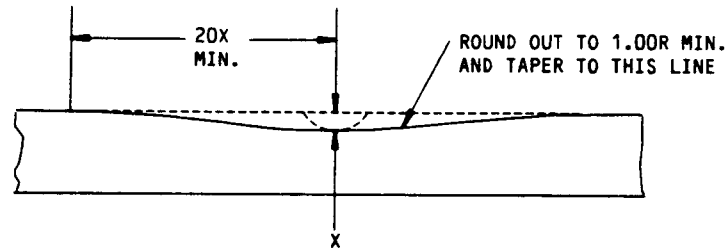
**Allowable Damage - Wing Skin Outboard of BBL 70.5**  
**Figure 1A (Sheet 1)**



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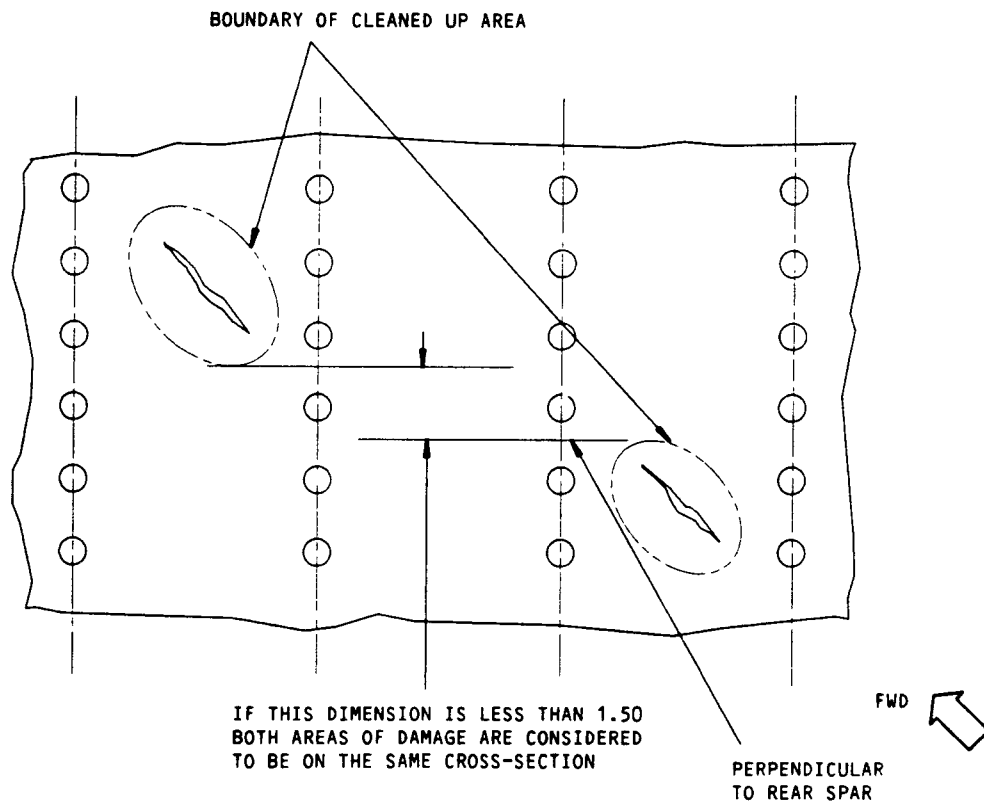


**INTERCONTINENTAL  
STRUCTURAL REPAIR**



**SECTION THROUGH CLEANED UP DAMAGE**

**DETAIL I**



**ADDITIVE DAMAGE**

**DETAIL II**

**Allowable Damage - Wing Skin Outboard of BBL 70.5**  
**Figure 1A (Sheet 2)**

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NOTES

DAMAGE TO INSPAR WING SKINS BY NICKS, SCRATCHES, GOUGES, CRACKS, ABRASIONS AND CORROSION IS ALLOWABLE PROVIDED THAT ALL OF THE LIMITATIONS IN TABLE I OR TABLE II ARE NOT EXCEEDED. DAMAGE DEPTH AND LOSS OF CROSS-SECTIONAL AREA ARE TO BE DETERMINED AFTER CLEAN-UP (SEE DETAIL I)

THESE ALLOWABLE DAMAGE LIMITS ARE NOT APPLICABLE IF THERE IS UNREPAIRED DAMAGE TO ANY STIFFENER IN THE SAME AREA.

- Ⓐ ALLOWABLE DAMAGE LIMITATIONS ARE NOT APPLICABLE IN THE FOLLOWING AREAS (CONSULT THE BOEING COMMERCIAL AIRPLANE CO. FOR SPECIFIC INSTRUCTIONS).

1. WITHIN 1.50 OF ANY CHORD-WISE ROW OF FASTENERS.
2. FORWARD OF A LINE 1.50 AFT OF THE AFT ROW OF FASTENERS ATTACHING THE SKIN TO THE FRONT SPAR.

3. AFT OF A LINE 1.50 FORWARD OF THE FORWARD ROW OF FASTENERS ATTACHING THE SKIN TO THE REAR SPAR.

4. WITHIN 1.50 OF FASTENERS IN THE SPANWISE SKIN SPLICES.

- Ⓑ LOSS OF CROSS-SECTIONAL AREA ON A LINE PERPENDICULAR TO THE REAR SPAR. MULTIPLE AREAS OF DAMAGE ARE TO BE CONSIDERED ON THE SAME LINE IF LESS THAN 1.50 FROM EACH OTHER MEASURED SPANWISE (SEE DETAIL II).

- Ⓒ WHERE THE STIFFENER ADJACENT TO A SPAR FORMS A TAPERED PANEL WITH THE SPAR, THE ALLOWABLE DAMAGE LIMITATIONS APPLY TO THE AREA BETWEEN THE SPAR AND THE SECOND STIFFENER, UNLESS THE DISTANCE BETWEEN THE SPAR AND ADJACENT STIFFENER IS EQUIVALENT TO LOCAL STIFFENER SPACING.

- Ⓓ DISREGARD STIFFENERS 5A, 6A, AND 7A, BETWEEN WS 948 AND WS 960 IF INSTALLED.

Allowable Damage - Wing Skin Outboard Of BBL 70.5  
Figure 1A (Sheet 3)



# STRUCTURAL REPAIR

| ZONE                     | ALLOWABLE DAMAGE <b>A</b>  |                                                                                                                                             |                                                                                                                 |
|--------------------------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
|                          | MAX DEPTH<br>AFTER CLEANUP | MAX LOSS OF<br>CROSS-SECTIONAL<br>AREA BETWEEN<br>ADJACENT<br>STIFFENERS OR<br>BETWEEN SPAR<br>AND STIFFENER<br>(SQ. IN.) <b>B</b> <b>C</b> | TOTAL MAX<br>LOSS OF<br>CROSS-SECTIONAL<br>AREA BETWEEN<br>REAR SPAR<br>AND FRONT<br>SPAR (SQ. IN.)<br><b>B</b> |
| INBD OF WS 360           | 0.025                      | 0.064                                                                                                                                       | 1.00                                                                                                            |
| WS 360 TO WS 501         | 0.030                      | 0.070                                                                                                                                       | 1.16                                                                                                            |
| WS 501 TO<br>PRODN BREAK | 0.028                      | 0.064                                                                                                                                       | 0.62                                                                                                            |
| PRODN BREAK<br>TO WS 850 | 0.017                      | 0.043                                                                                                                                       | 0.34                                                                                                            |
| WS 850 TO WS 960         | 0.013                      | 0.073                                                                                                                                       | 0.44                                                                                                            |

ALLOWABLE DAMAGE UPPER SKIN  
TABLE I

| ZONE                     | ALLOWABLE DAMAGE <b>A</b>  |                                                                                                                                             |                                                                                                                 |
|--------------------------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
|                          | MAX DEPTH<br>AFTER CLEANUP | MAX LOSS OF<br>CROSS-SECTIONAL<br>AREA BETWEEN<br>ADJACENT<br>STIFFENERS OR<br>BETWEEN SPAR<br>AND STIFFENER<br>(SQ. IN.) <b>B</b> <b>C</b> | TOTAL MAX<br>LOSS OF<br>CROSS-SECTIONAL<br>AREA BETWEEN<br>REAR SPAR AND<br>FRONT SPAR<br>(SQ. IN.)<br><b>B</b> |
| BBL 70.5 TO<br>WS 360    | 0.051 *                    | 0.054                                                                                                                                       | 0.70                                                                                                            |
| WS 360 TO<br>WS 450      | 0.057 *                    | 0.066                                                                                                                                       | 0.68                                                                                                            |
| WS 450 TO<br>PRODN BREAK | 0.059 *                    | 0.069                                                                                                                                       | 0.57                                                                                                            |
| PRODN BREAK<br>TO WS 750 | 0.051 *                    | 0.054                                                                                                                                       | 0.25                                                                                                            |
| WS 750 TO<br>WS 960      | 0.032                      | 0.068 <b>D</b>                                                                                                                              | 0.35                                                                                                            |

MAX POSSIBLE DUE TO LIMITATIONS ON LOSS OF  
CROSS-SECTIONAL AREA

ALLOWABLE DAMAGE - LOWER SKIN  
TABLE II

Allowable Damage - Wing Skin Outboard of BBL 70.5  
Figure 1A (Sheet 4)

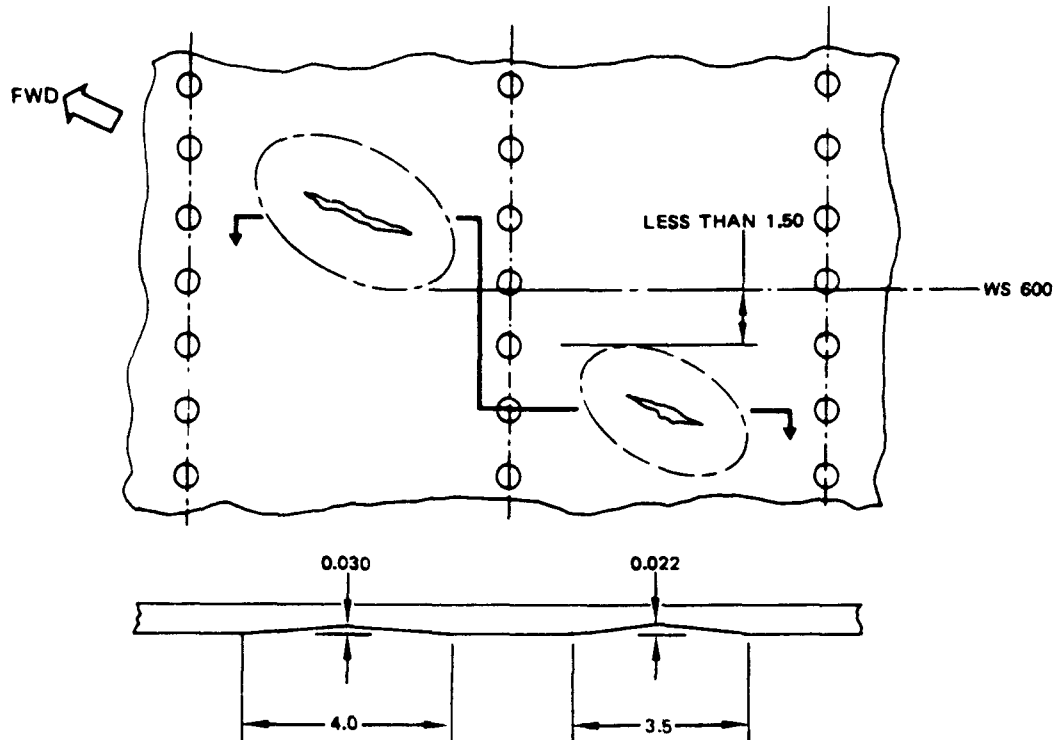
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**SAMPLE CALCULATION**

ASSUME THE DAMAGE IS TWO ABRASIONS LOCATED AS SHOWN ON THE LOWER SKIN:



SECTION THROUGH DAMAGE AFTER  
CLEAN-UP PERPENDICULAR TO REAR SPAR

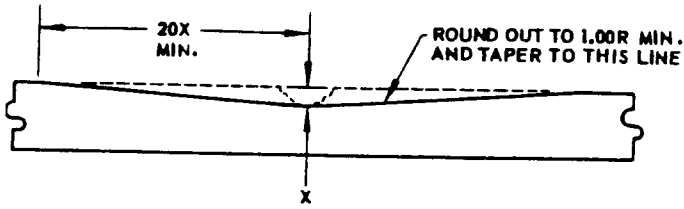
- STEP 1** - CHECK DEPTH OF DAMAGE.  
FROM TABLE II PERMITTED DEPTH OF DAMAGE BETWEEN  
WS 450 AND PRODUCTION BREAK IS 0.069. BOTH AREAS  
OF DAMAGE ARE WITHIN THIS LIMITATION.
- STEP 2** - CHECK LOSS IN AREA BETWEEN STIFFENERS.  
LOSS IN AREA OF FORWARD DAMAGE PERPENDICULAR  
TO REAR SPAR =  $\frac{4.0}{2} \times 0.030 = 0.060$  SQ. IN.
- LOSS IN AREA OF AFT DAMAGE =  $\frac{3.5}{2} \times 0.022 = 0.038$  SQ. IN
- THESE ARE BOTH WITHIN THE 0.069 LIMITATION OF TABLE II
- STEP 3** - CHECK THE TOTAL LOSS IN AREA BETWEEN FRONT AND REAR SPARS.  
AS THE TWO AREAS OF DAMAGE ARE LESS THAN  
1.50 APART (PERPENDICULAR TO R. S.) THE DAMAGE  
IS CUMULATIVE.  $0.060 + 0.038 = 0.098$  SQ. IN.  
THIS IS WITHIN THE 0.57 LIMITATION OF TABLE II
- AS ALL OF THE CRITERIA ARE WITHIN TABLE II LIMITATIONS  
THE DAMAGE SHOWN WOULD BE ACCEPTABLE



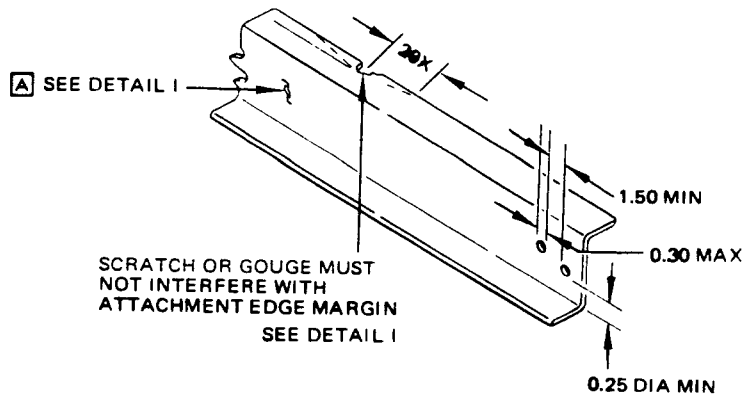
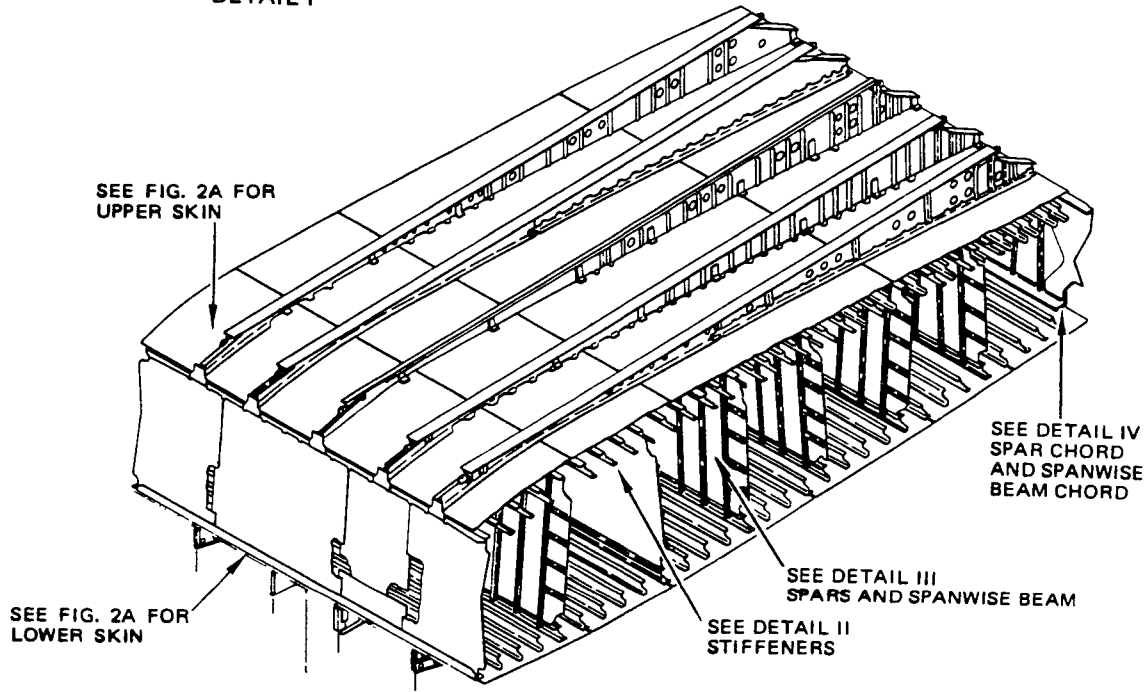
**INTERCONTINENTAL  
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**NOTE**

- A** MAXIMUM DEPTH OF SCRATCH OR GOUGE IS 0.05 BUT NOT TO EXCEED 20 PERCENT OF MATERIAL THICKNESS



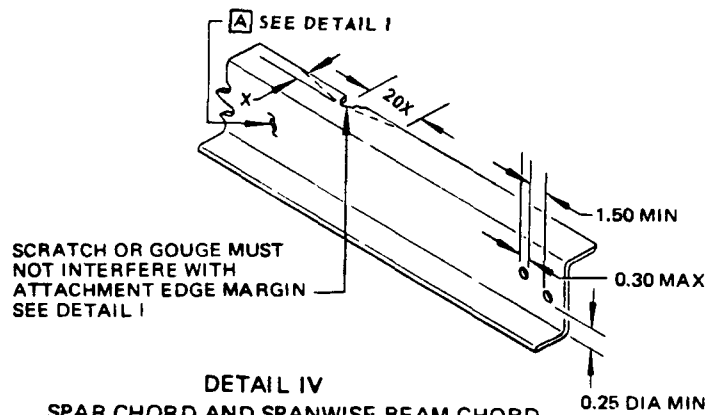
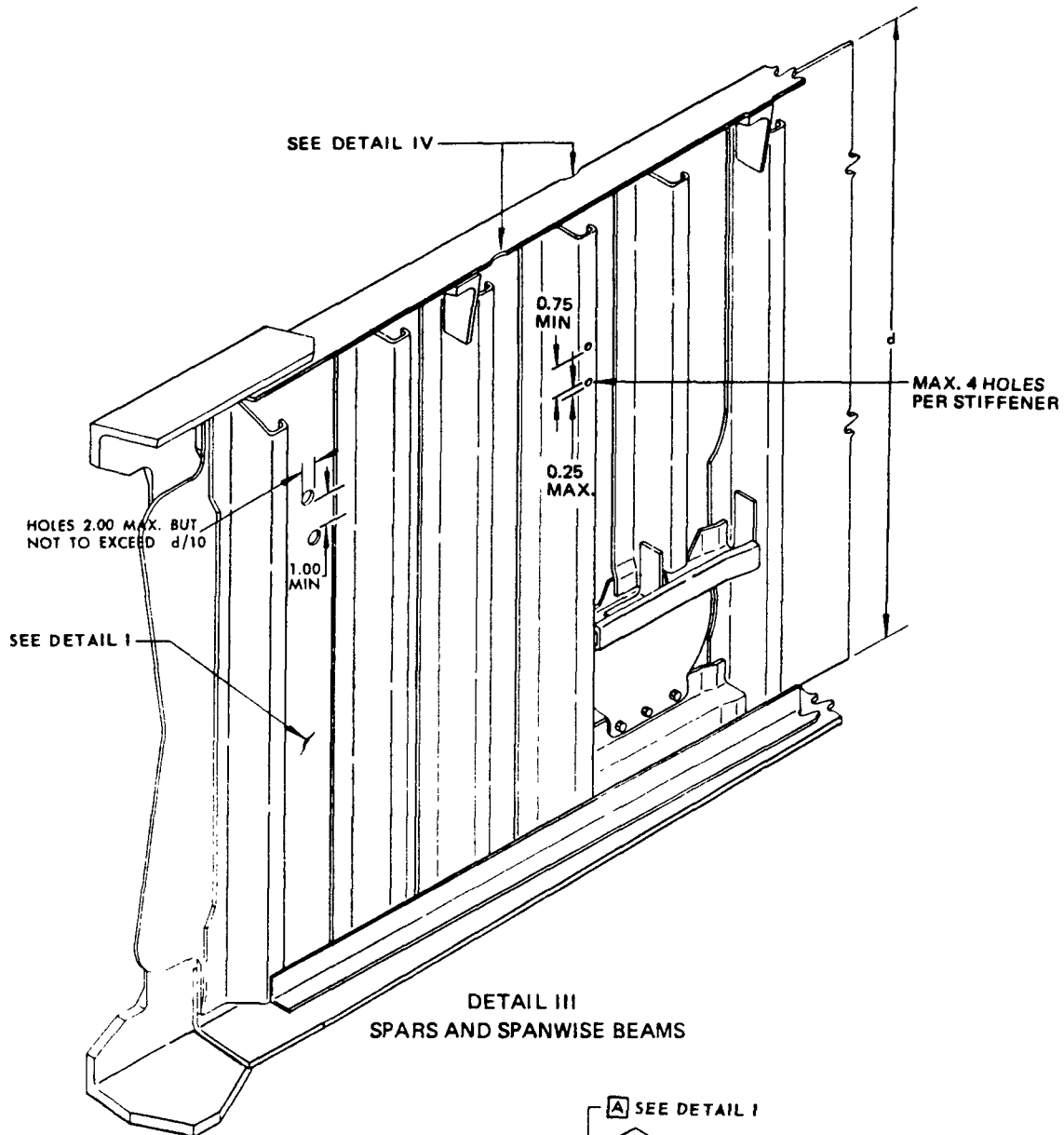
**SECTION THROUGH GOUGE  
DETAIL I**



**INTERSPAR WING UPPER STIFFENERS  
DETAIL II**

Allowable Damage - Wing Center Section  
Figure 2 (Sheet 1)

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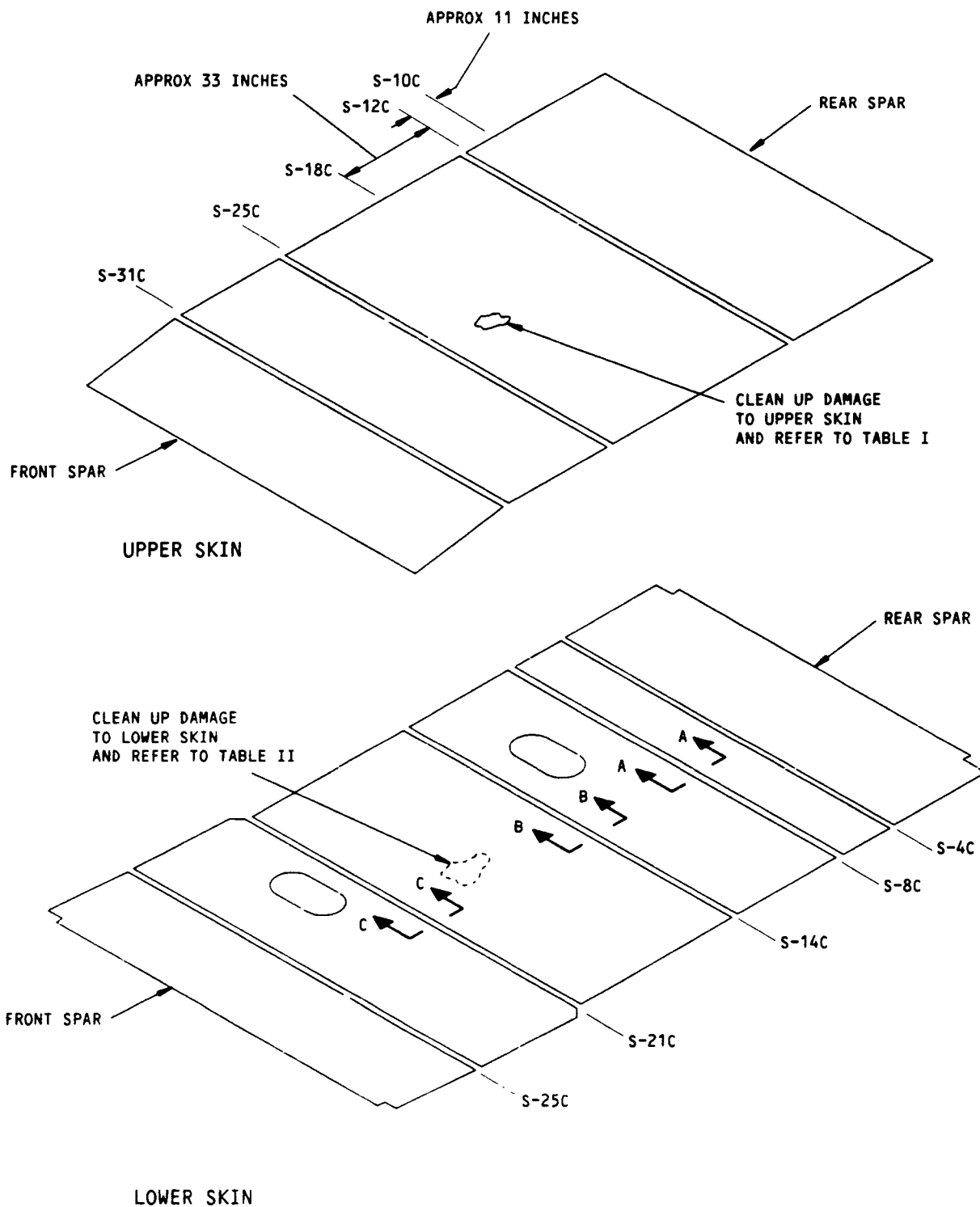



Allowable Damage - Wing Center Section  
Figure 2 (Sheet 2)

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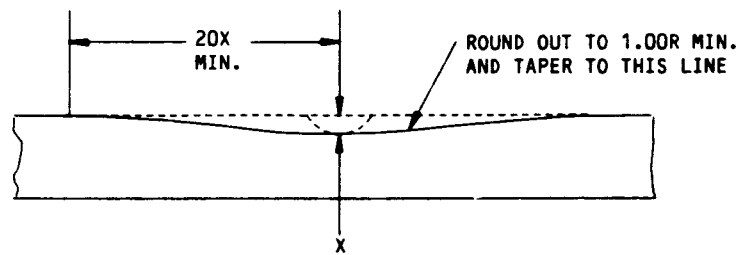


**INTERCONTINENTAL  
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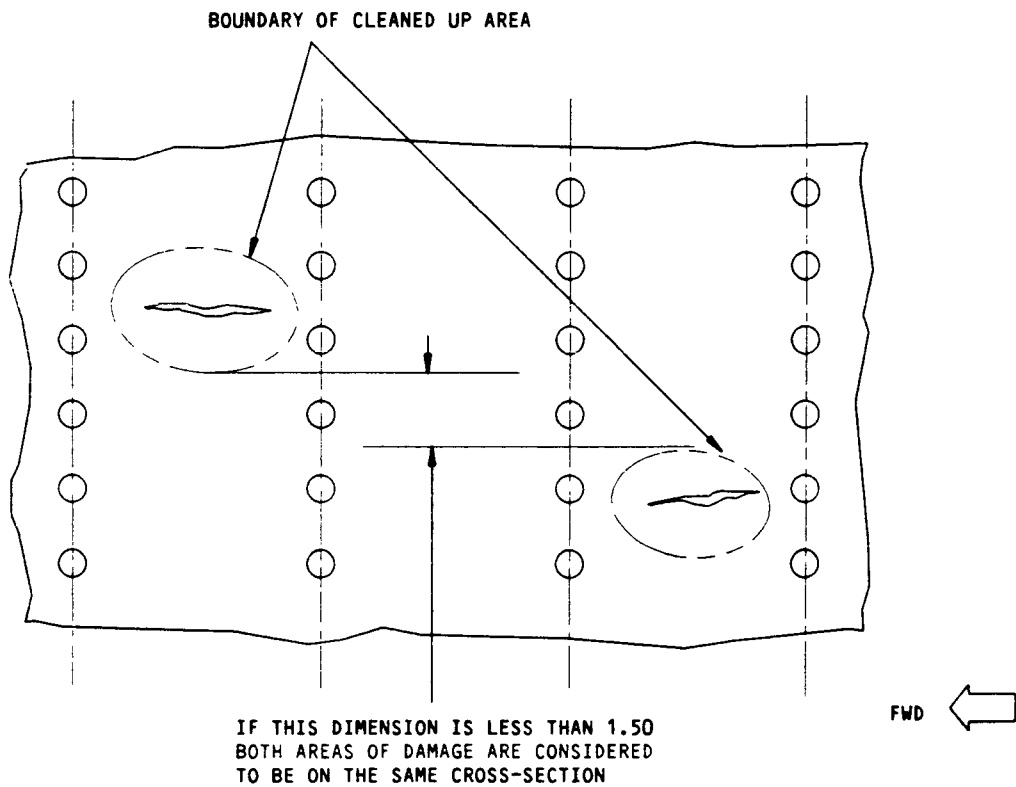
Allowable Damage - Wing Center Section Skin  
Figure 2A (Sheet 1)

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SECTION THROUGH CLEANED UP DAMAGE

DETAIL I



ADDITIVE DAMAGE

DETAIL II

Allowable Damage - Wing Center Section Skin  
Figure 2A (Sheet 2)

ZSAR-57-2-1'FIG2AII



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NOTES

DAMAGE TO CENTER WING SKINS BY NICKS, SCRATCHES GOUGES, CRACKS, ABRASIONS AND CORROSION IS ALLOWABLE PROVIDED THAT ALL OF THE LIMITATIONS IN TABLE I OR TABLE II ARE NOT EXCEEDED. DAMAGE DEPTH AND LOSS OF CROSS-SECTIONAL AREA ARE TO BE DETERMINED AFTER CLEAN-UP (SEE DETAIL I )

THESE ALLOWABLE DAMAGE LIMITS ARE NOT APPLICABLE IF THERE IS UNREPAIRED DAMAGE TO ANY STIFFENER IN THE SAME AREA.

SEE FIG. 1A FOR TYPICAL SAMPLE CALCULATION.

**[A]** ALLOWABLE DAMAGE LIMITATIONS ARE NOT APPLICABLE IN THE FOLLOWING AREAS (CONSULT THE BOEING COMMERCIAL AIRPLANE CO. FOR SPECIFIC INSTRUCTIONS)

1. WITHIN 1.50 OF ANY CHORDWISE ROW OF FASTENERS
2. FORWARD OF A LINE 1.50 AFT OF THE AFT ROW OF FASTENERS ATTACHING THE SKIN TO THE FRONT SPAR

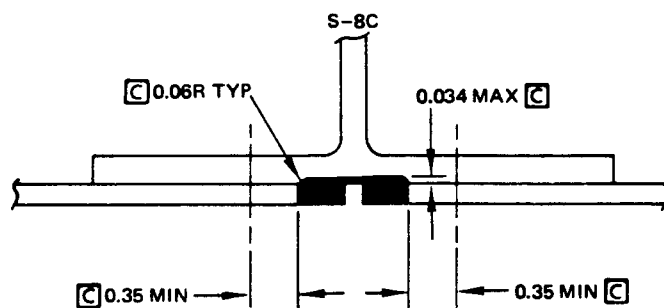
3. AFT OF A LINE 1.50 FORWARD OF THE FORWARD ROW OF FASTENERS ATTACHING THE SKIN TO THE REAR SPAR.

4. WITHIN 1.50 OF FASTENERS IN THE SPANWISE SKIN SPLICES EXCEPT AS SHOWN IN SECTIONS A-A, B-B AND C-C.

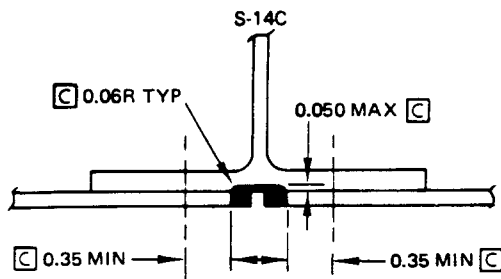
**[B]** LOSS OF CROSS-SECTIONAL AREA ON A LINE PERPENDICULAR TO THE REAR SPAR. MULTIPLE AREAS OF DAMAGE ARE TO BE CONSIDERED ON THE SAME LINE IF LESS THAN 1.50 FROM EACH OTHER MEASURED SPANWISE (SEE DETAIL II)

**[C]** REPAIRS ARE REQUIRED WHERE CLEAN-UP IS BEYOND LIMITS

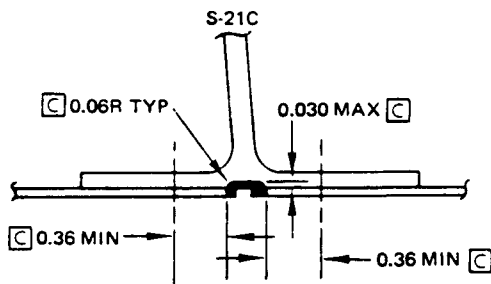
Allowable Damage - Wing Center Section Skin  
Figure 2A (Sheet 3)



SECTION A-A



SECTION B-B



SECTION C-C

Allowable Damage - Wing Center Section Skin  
Figure 2A (Sheet 4)

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



| ZONE           | ALLOWABLE DAMAGE [A]       |                                                                                                                               |                                                                                                            |
|----------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
|                | MAX DEPTH<br>AFTER CLEANUP | MAX LOSS OF<br>CROSS-SECTIONAL<br>AREA BETWEEN<br>ADJACENT<br>STIFFENERS OR<br>BETWEEN SPAR<br>AND STIFFENER<br>(SQ. IN.) [B] | TOTAL MAX<br>LOSS OF<br>CROSS-SECTIONAL<br>AREA BETWEEN<br>REAR SPAR<br>AND FRONT<br>SPAR (SQ. IN.)<br>[B] |
| RS TO S-10C    | 0.024                      | 0.065                                                                                                                         | 1.02                                                                                                       |
| S-10C TO S-12C | 0.020                      | 0.018                                                                                                                         |                                                                                                            |
| S-12C TO S-18C | 0.020                      | 0.018                                                                                                                         |                                                                                                            |
| S-18C TO S-25C | 0.020                      | 0.051                                                                                                                         |                                                                                                            |
| S-25C TO S-31C | 0.018                      | 0.058                                                                                                                         |                                                                                                            |
| S-31C TO FS    | 0.014                      | 0.054                                                                                                                         |                                                                                                            |

ALLOWABLE DAMAGE UPPER SKIN  
TABLE I

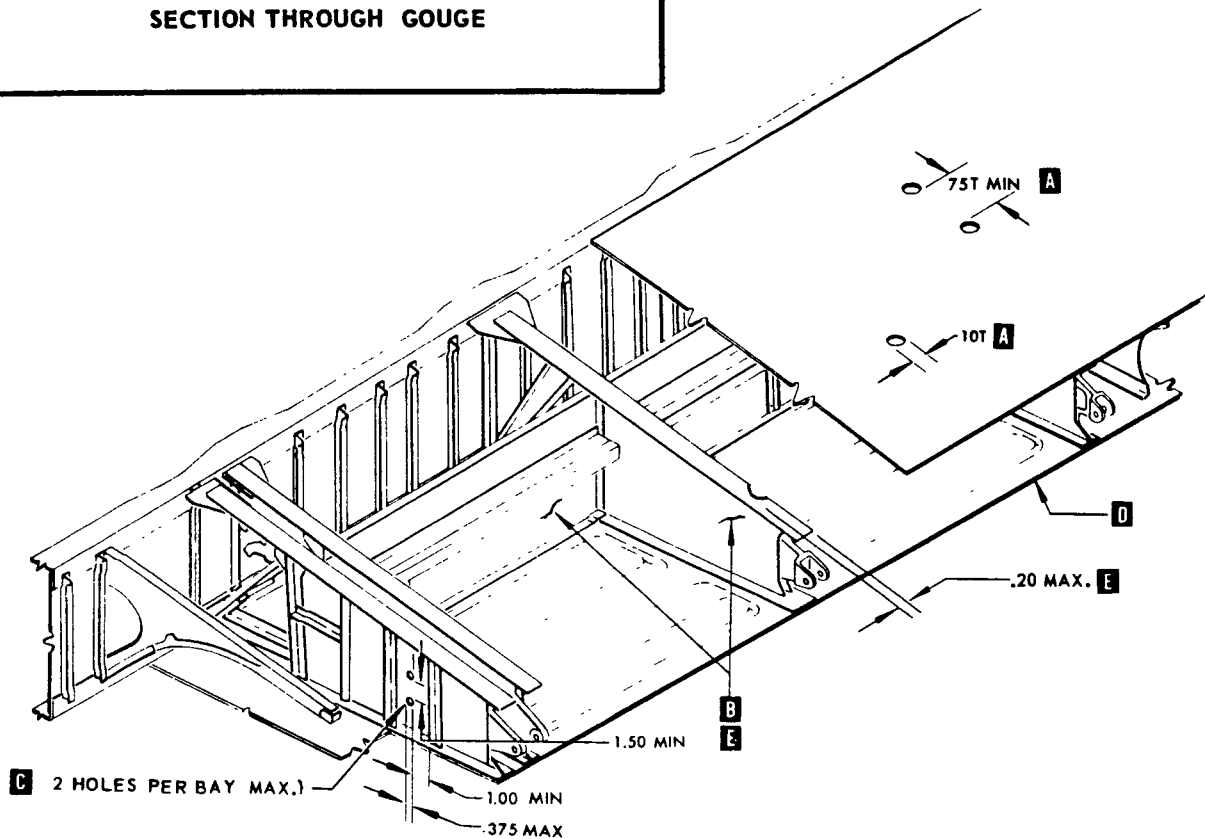
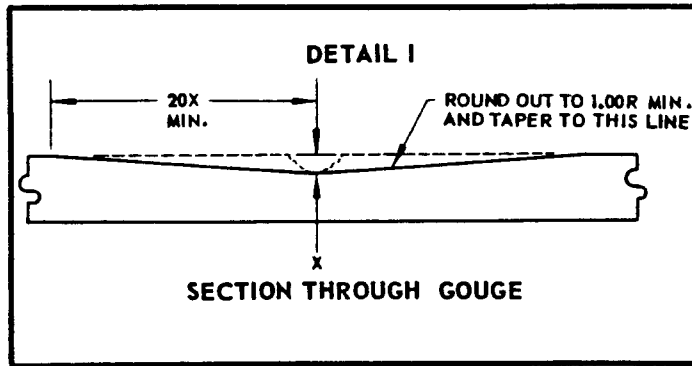
| ZONE           | ALLOWABLE DAMAGE [A]       |                                                                                                                               |                                                                                                            |
|----------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
|                | MAX DEPTH<br>AFTER CLEANUP | MAX LOSS OF<br>CROSS-SECTIONAL<br>AREA BETWEEN<br>ADJACENT<br>STIFFENERS OR<br>BETWEEN SPAR<br>AND STIFFENER<br>(SQ. IN.) [B] | TOTAL MAX<br>LOSS OF<br>CROSS-SECTIONAL<br>AREA BETWEEN<br>REAR SPAR AND<br>FRONT SPAR<br>(SQ. IN.)<br>[B] |
| RS TO S-4C     | 0.083 *                    | 0.137                                                                                                                         | 1.03                                                                                                       |
| S-4C TO S-8C   | 0.093 *                    | 0.174                                                                                                                         |                                                                                                            |
| S-8C TO S-14C  | 0.045                      | 0.105                                                                                                                         |                                                                                                            |
| S-14C TO S-21C | 0.035                      | 0.073                                                                                                                         |                                                                                                            |
| S-21C TO S-25C | 0.035                      | 0.100                                                                                                                         |                                                                                                            |
| S-25C TO FS    | 0.031                      | 0.089                                                                                                                         |                                                                                                            |

\* MAX POSSIBLE DUE TO LIMITATIONS ON LOSS OF  
CROSS-SECTIONAL AREA

ALLOWABLE DAMAGE - LOWER SKIN  
TABLE II

Allowable Damage - Wing Center Section Skin  
Figure 2A (Sheet 5)

**BOEING** *707*  
*Intercontinental*   
**STRUCTURAL REPAIR**



**NOTE**

MAINTAIN EDGE MARGIN ON ALL FASTENERS

- A** T=SHEET THICKNESS. NO OPEN HOLES IN BALANCE PANEL AREAS
- B** MAXIMUM DEPTH OF SCRATCH OR GOUGE NOT TO EXCEED 20 PERCENT MATERIAL THICKNESS
- C** MAXIMUM ALLOWABLE WEB CROSS SECTIONAL AREA REMOVED INCLUDING ALL EXISTING HOLES SHALL NOT EXCEED 20 PERCENT, IN SOLID WEB
- D** FOR HONEYCOMB ALLOWABLE DAMAGE AND REPAIR SEE 51-10-1
- E** CLEAN UP NICKS TO 1.00 MINIMUM RADIUS AS SHOWN IN DETAIL I

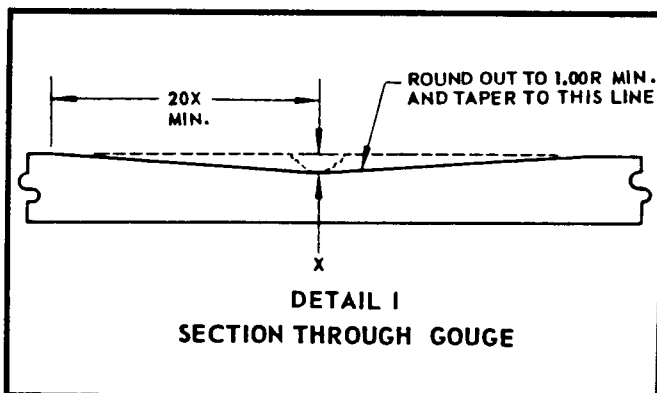
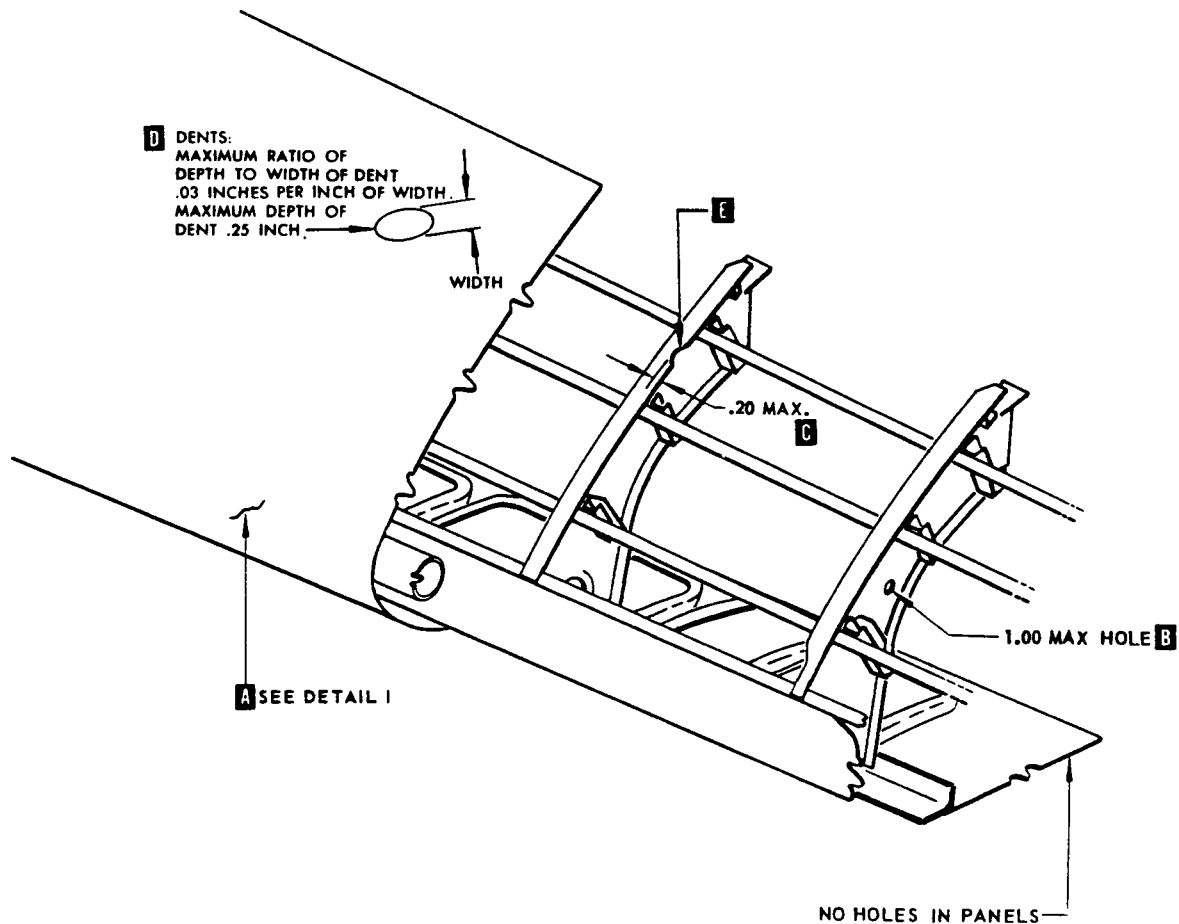
Jul 1/59

Allowable Damage-Wing Trailing Edge  
Figure 3

57-2-1  
Page 7

**BOEING**  
*Intercontinental*  
**707**

**STRUCTURAL REPAIR**



**NOTE**

FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS  
SEE 51-4-1

- A** MAXIMUM DEPTH OF SCRATCH OR GOUGE NOT TO EXCEED 20 PERCENT MATERIAL THICKNESS
- B** MAXIMUM ALLOWABLE RIB WEB CROSS SECTIONAL AREA REMOVED INCLUDING EXISTING HOLES SHALL NOT EXCEED 20 PERCENT
- C** CLEAN UP NICKS TO 1.00 MIN RADIUS AS SHOWN IN DETAIL I
- D** LIMITATION NOTED IS FOR OPTIMUM PERFORMANCE
- E** MAINTAIN EDGE MARGIN ON ALL FASTENERS

# STRUCTURAL REPAIR

## NOTE

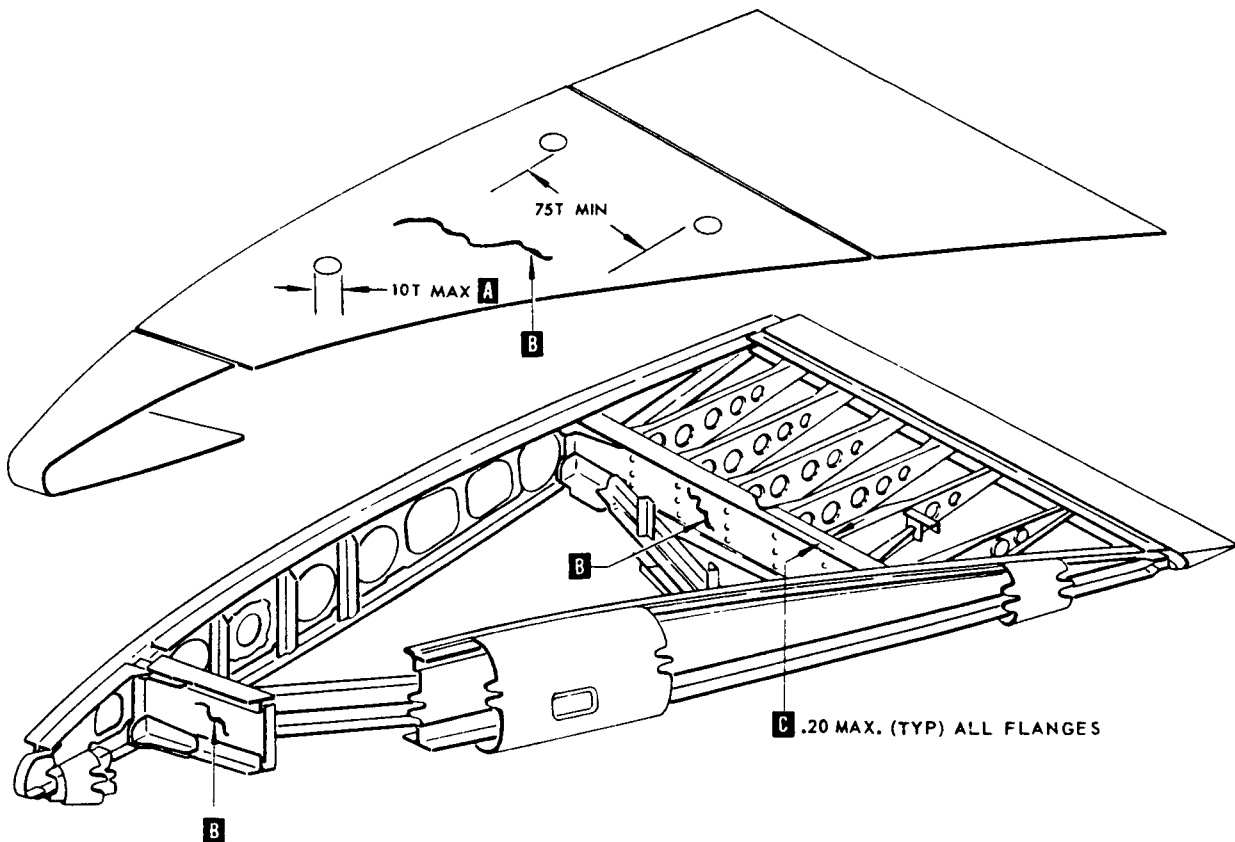
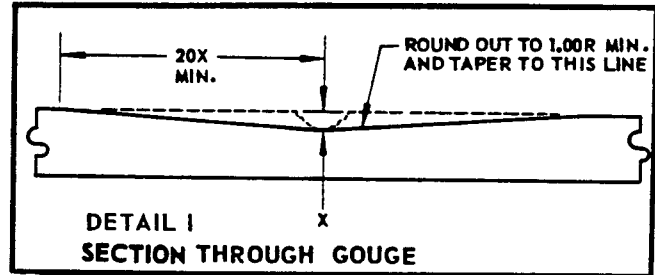
MAINTAIN EDGE MARGIN ON ALL FASTENERS.

FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS  
SEE 51-4-1

THERE ARE NO STRUCTURAL LIMITATIONS ON DENTS IN THE SKIN OF THE WING TIP. FOR OPTIMUM PERFORMANCE, HOWEVER, IT IS RECOMMENDED THAT DENTS OF APPRECIABLE SIZE BE REMOVED AT THE EARLIEST OPPORTUNITY.

MAXIMUM ALLOWABLE SPAR WEB CROSS SECTIONAL AREA REMOVED INCLUDING EXISTING HOLES SHALL NOT EXCEED 25 PERCENT

- A** T = SHEET THICKNESS
- B** MAXIMUM DEPTH OF SCRATCH OR GOUGE NOT TO EXCEED 25 PERCENT MATERIAL THICKNESS. ROUND OUT AND TREAT ALL SCRATCHES AND GOUGES PER DETAIL I
- C** CLEAN UP NICKS TO APPROXIMATELY 1.00 MIN. RADIUS.



**BOEING** *707* *Intercontinental*   
**STRUCTURAL REPAIR**

**NOTE**

MAXIMUM ALLOWABLE CROSS SECTIONAL  
AREA REMOVED FROM WEB SHALL NOT  
EXCEED 20 PERCENT INCLUDING  
EXISTING HOLES, SCRATCHES AND GOUGES

MAINTAIN EDGE MARGIN ON ALL FASTENERS

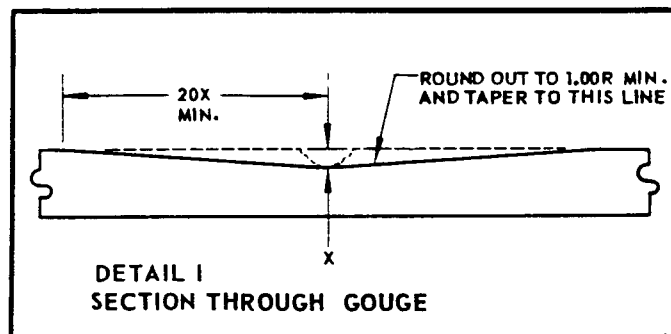
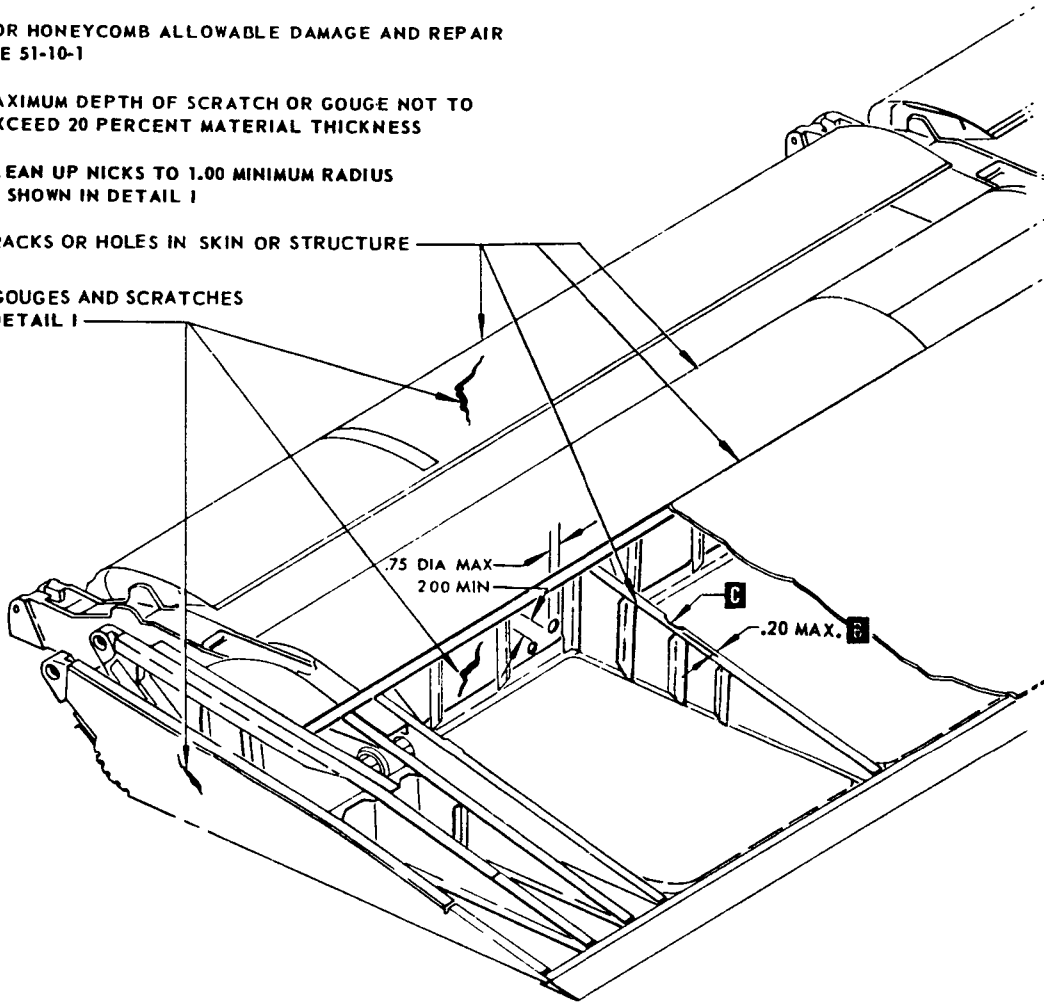
**A** FOR HONEYCOMB ALLOWABLE DAMAGE AND REPAIR  
SEE 51-10-1

**B** MAXIMUM DEPTH OF SCRATCH OR GOUGE NOT TO  
EXCEED 20 PERCENT MATERIAL THICKNESS

**C** CLEAN UP NICKS TO 1.00 MINIMUM RADIUS  
AS SHOWN IN DETAIL I

NO CRACKS OR HOLES IN SKIN OR STRUCTURE

FOR GOUGES AND SCRATCHES  
SEE DETAIL I



Allowable Damage-Flaps  
Figure 6

**BOEING** *707* *Intercontinental*   
**STRUCTURAL REPAIR**

**NOTE**

MAINTAIN EDGE MARGIN ON ALL FASTENERS

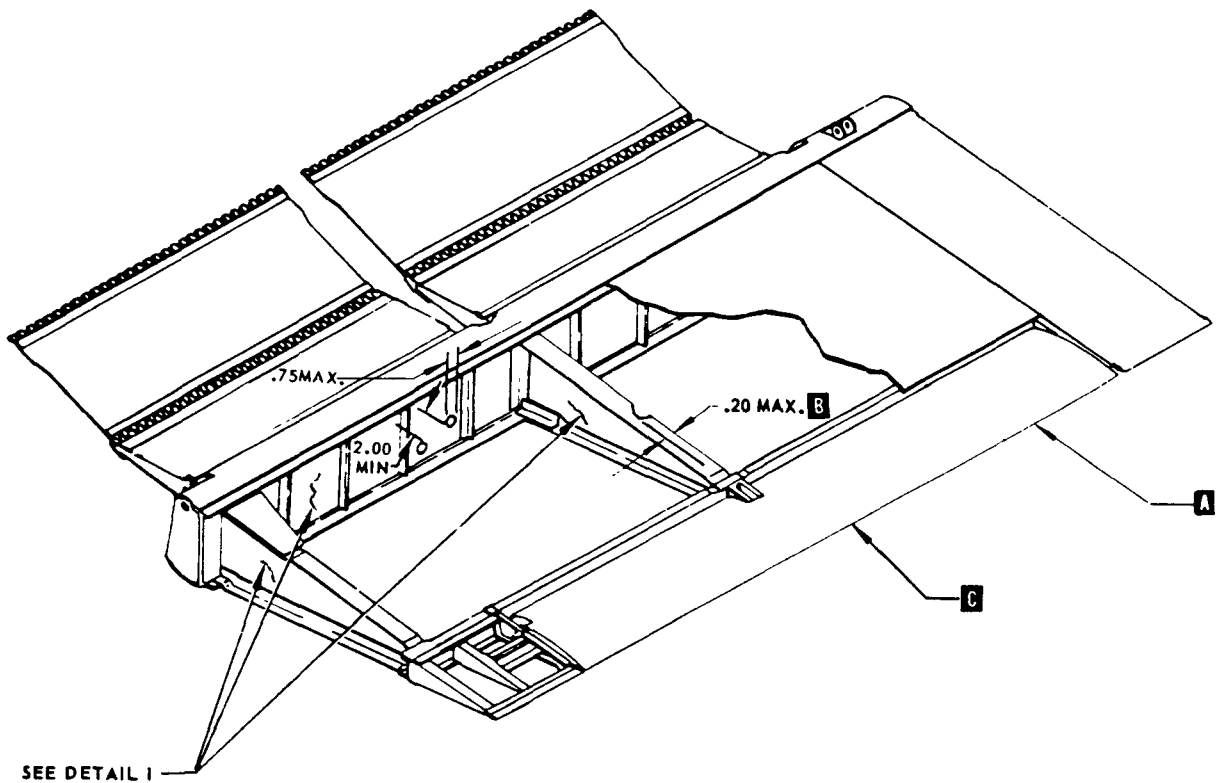
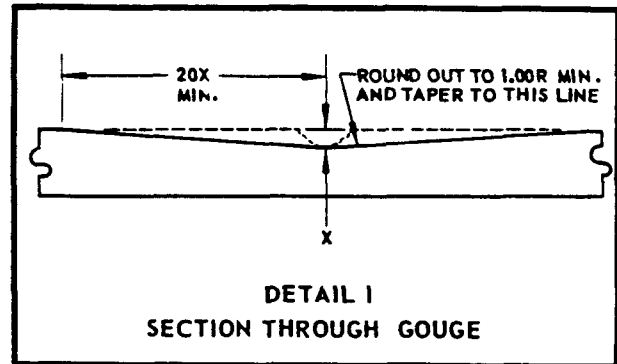
MAXIMUM DEPTH OF SCRATCH OR GOUGE NOT TO EXCEED 20 PERCENT MATERIAL THICKNESS

MAXIMUM ALLOWABLE AREA REMOVED FROM WEB INCLUDING HOLES AND SCRATCHES SHALL NOT EXCEED 20 PERCENT

**A** FOR HONEYCOMB ALLOWABLE DAMAGE AND REPAIR SEE 51-10-1

**B** CLEAN UP NICKS TO 1.00 MIN RADIUS AS SHOWN IN DETAIL I

**C** OUTBOARD AILERON TAB. THE ALLOWABLE WARPAGE OF A STRUCTURALLY SOUND TAB IS AS FOLLOWS: THE DISTANCE OF ANY POINT OF THE TAB TRAILING EDGE MEASURED FROM A STRAIGHT EDGE LAID ALONG THE TAB EDGE MUST NOT EXCEED 0.4 INCH. THE STRAIGHT EDGE LENGTH MUST BE EQUAL TO OR GREATER THAN TAB LENGTH.



Allowable Damage-Aileron  
Figure 7

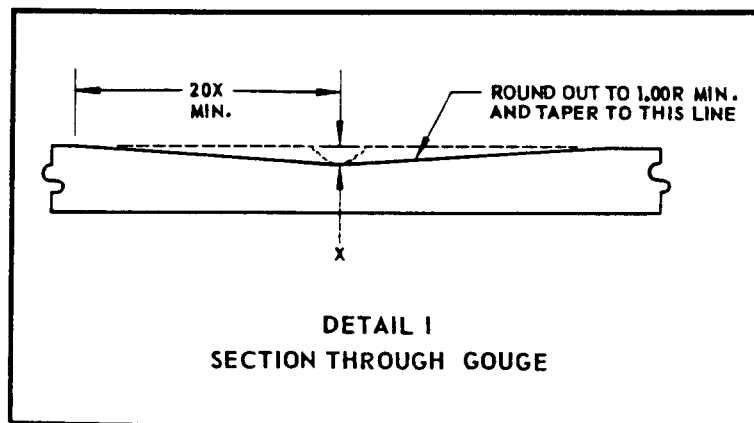
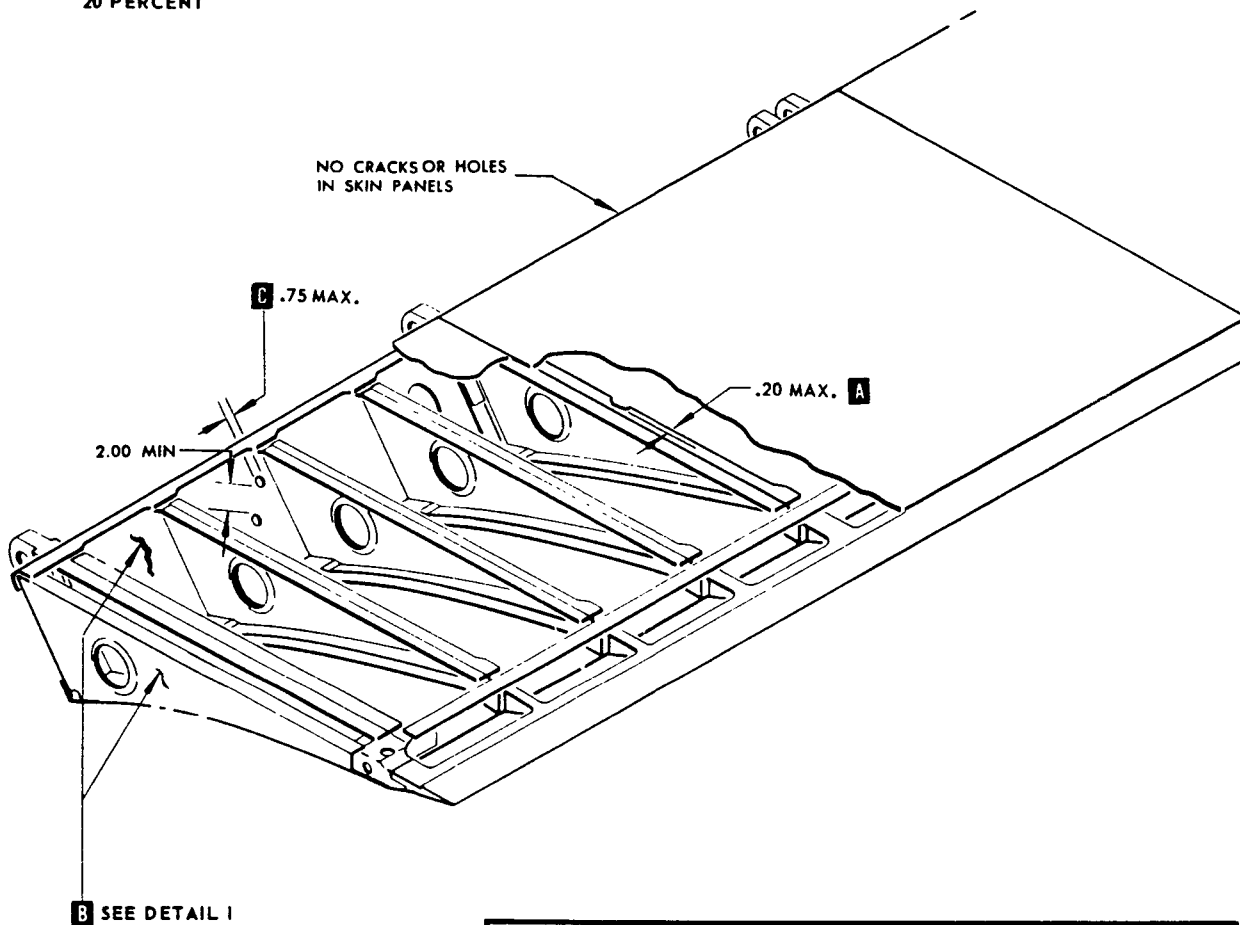


**BOEING**  
*Intercontinental*   
**STRUCTURAL REPAIR**

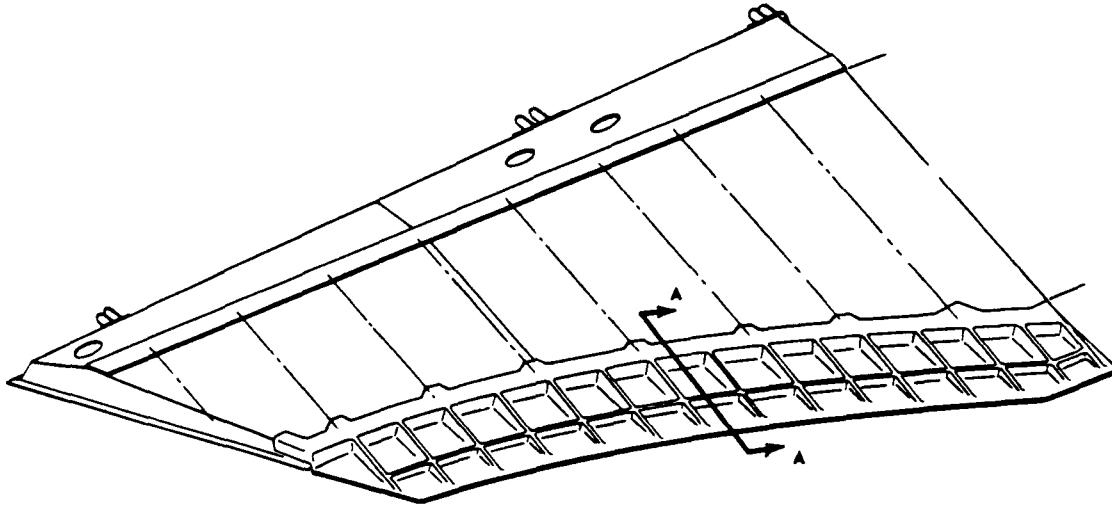
**NOTE**

MAINTAIN EDGE MARGIN ON ALL FASTENERS

- A** CLEAN UP NICKS TO 1.00 MINIMUM RADIUS
- B** MAXIMUM DEPTH OF SCRATCH OR GOUGE NOT TO EXCEED 20 PERCENT MATERIAL THICKNESS
- C** MAXIMUM ALLOWABLE AREA REMOVED FROM WEB INCLUDING HOLES AND SCRATCHES SHALL NOT EXCEED 20 PERCENT

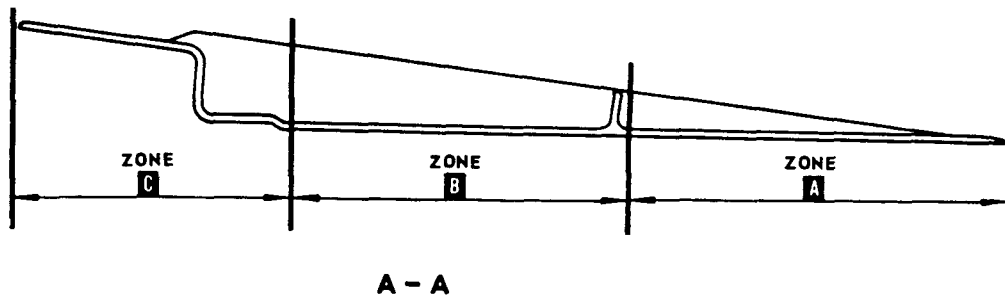


Allowable Damage-Spoilers  
Figure 8



NOTE: .188 INCH MINIMUM STOP DRILL HOLE

SEE DETAIL I FOR TABULATION  
OF DAMAGE CRITERIA.



Allowable Damage - Fillet Flap Casting  
Figure 9 (Sheet 1 of 2)

  
**STRUCTURAL REPAIR**

| ZONE OF DAMAGE | TYPE OF DAMAGE                      | CLEANUP (OR REPAIR) PROCEDURE                                                                                                                                                                                                                           | ALLOWABLE DAMAGE |    | CLEANUP PROCEDURE FOR ONE FLIGHT TO NEAREST MAIN BASE FOR REPAIR OR REPLACEMENT                                                                                                                                                                          | REPAIR OR REPLACE IMMEDIATELY |
|----------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
|                |                                     |                                                                                                                                                                                                                                                         | YES              | NO |                                                                                                                                                                                                                                                          |                               |
| <b>A</b>       | HOLE (ANY NUMBER)                   | 1. GRIND OR FILE TO A SMOOTH FAIR SURFACE WITH NO SHARP CORNERS OR EDGES<br>2. BRUSH ALODIZE PER 51-8-2.                                                                                                                                                | ✓                |    |                                                                                                                                                                                                                                                          |                               |
|                | CRACK (ANY NUMBER)                  | 1. DETERMINE END OF CRACK AFTER STOP DRILLING AND DYE CHECK PROCEDURES.<br>2. MAKE A FAIR SHAPED CUTOUT TO REMOVE MATERIAL IN CRACK REGION<br>3. GRIND OR FILE TO A SMOOTH FAIR SURFACE WITH NO SHARP CORNERS OR EDGES.<br>4. BRUSH ALODIZE PER 51-8-2. | ✓                |    |                                                                                                                                                                                                                                                          |                               |
| <b>B</b>       | HOLE IN WEB (LESS THAN .188 DIA)    | DRILL OUT AND PLUG RIVET FLUSH ON SKIN SURFACE BY INSTALLING 5056S ALUM ALLOY BY SQUEEZE METHOD OR 1100F RIVETS BY IMPACT DRIVING. USE 1/8, 5/32 OR 3/16 SIZES WITH MINIMUM SPACING OF 1.00                                                             | ✓                |    |                                                                                                                                                                                                                                                          |                               |
|                | CRACK OR HOLE GREATER THAN .188 DIA |                                                                                                                                                                                                                                                         |                  | ✓  | 1. DETERMINE END OF CRACK AFTER STOP DRILLING AND DYE CHECK PROCEDURES.<br>2. MAKE A FAIR SHAPED CUTOUT TO REMOVE MATERIAL IN CRACK REGION.<br>3. GRIND OR FILE TO A SMOOTH FAIR SURFACE WITH NO SHARP CORNERS OR EDGES.<br>4. BRUSH ALODIZE PER 51-8-2. |                               |
| <b>C</b>       | ANY CRACK OR HOLE                   |                                                                                                                                                                                                                                                         |                  | ✓  |                                                                                                                                                                                                                                                          | ✓                             |

DETAIL I



## OUTBOARD WING SPAR CHORDS - ALLOWABLE REWORK LIMITS

### 1. General

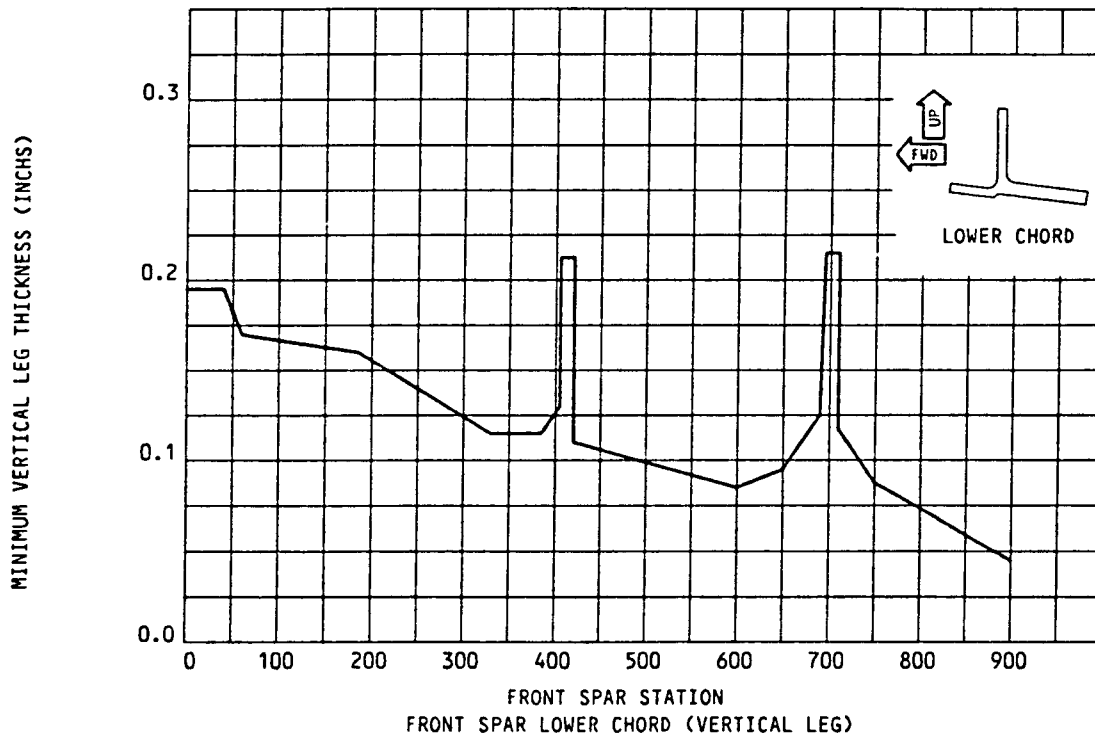
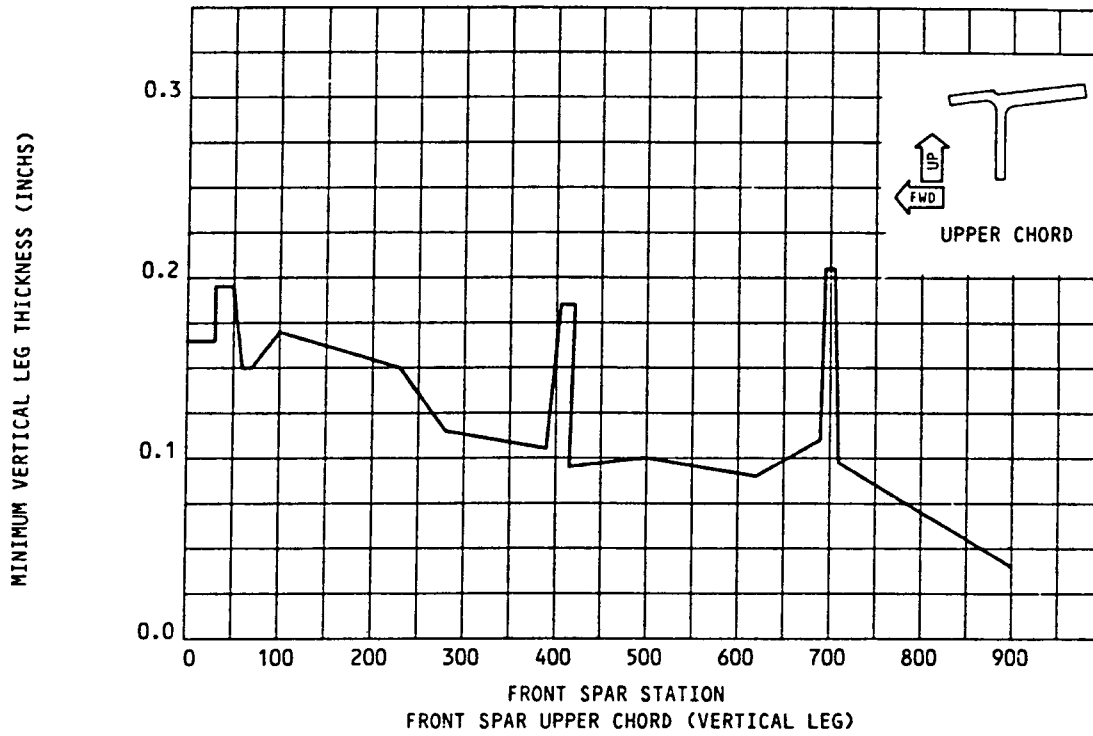
- A. Maintain records of all material removed by rework to wing structures. Include all rework of spar chords, webs, stringers and skin panels. The cumulative effect of such rework, at a particular wing station, could have a significant bearing on structural integrity.
- B. Extensive rework to the upper and lower skin panels and spar chords at any wing cross-section may produce a significant change in the wing properties at that cross section. Consult The Boeing Company when extensive rework is required.
- C. Rework damaged and corroded chords as shown in 51-8-1.

### 2. Horizontal Legs Refer to Detail III, Fig. 1 for rework limits on horizontal legs.

### 3. Vertical Legs

- A. Wing spar chord vertical legs may be reworked within limits defined by the accompanying graphs for the removal of damage and corrosion products.
- B. Where the thickness limits defined in these graphs are exceeded consult The Boeing Company or make a repair in accordance with SB 3240.
- C. The curves on these graphs are based on static strength criteria. Fatigue life of the component may be affected by rework.

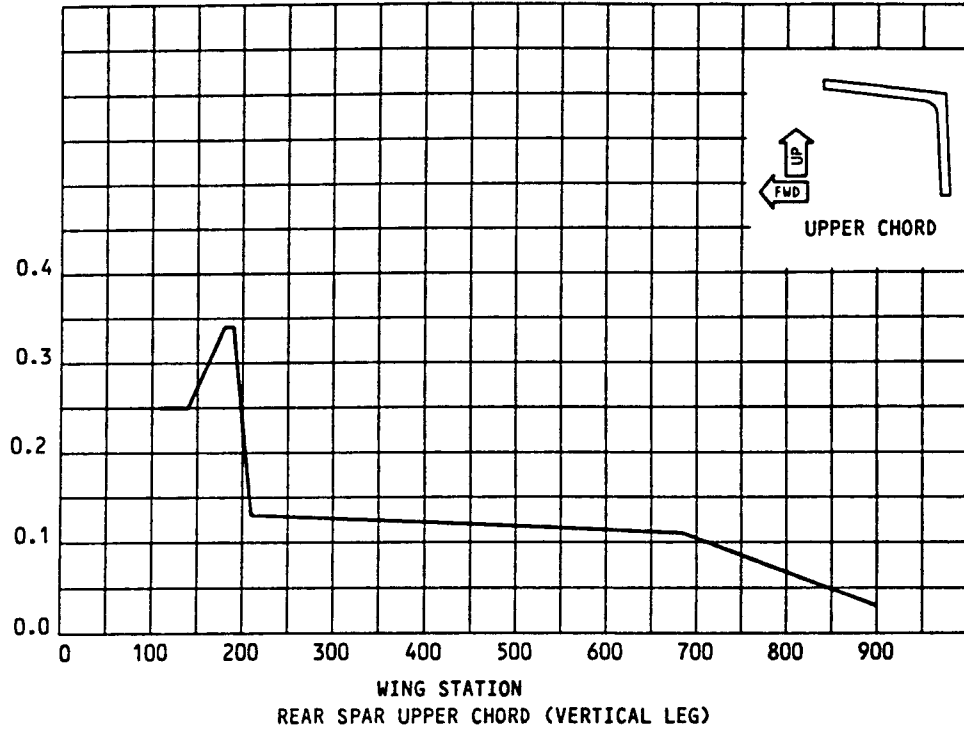
  
**STRUCTURAL REPAIR**



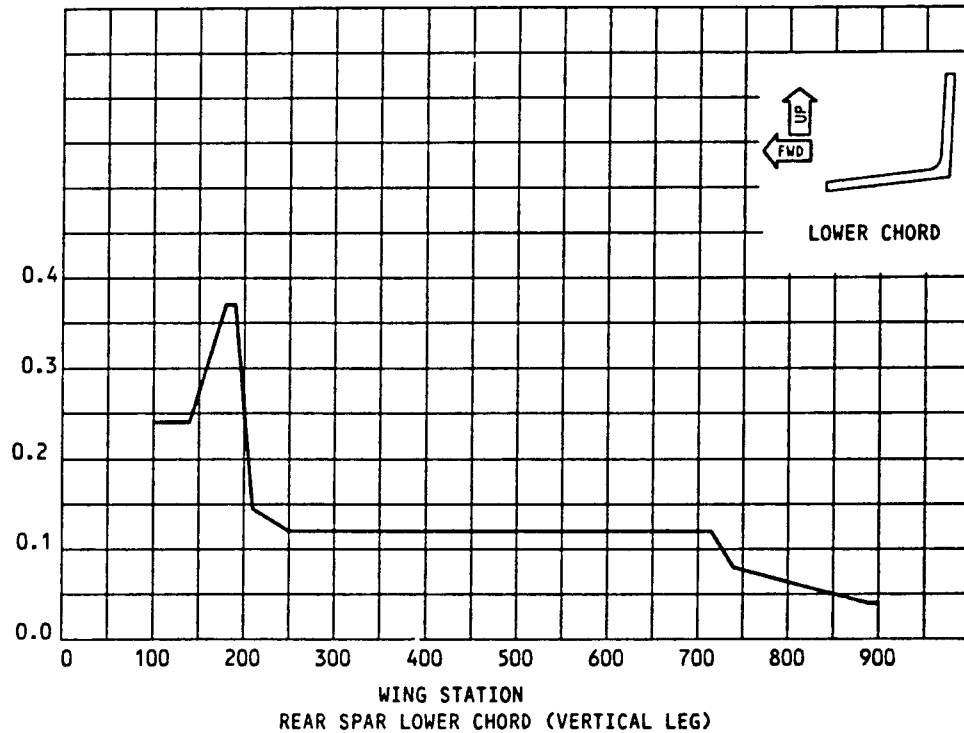
Allowable Rework Limits - Outboard Wing Spar Chords  
Figure 10 (Sheet 2)

# STRUCTURAL REPAIR

MINIMUM VERTICAL LEG THICKNESS (INCHES)



MINIMUM VERTICAL LEG THICKNESS (INCHES)



Allowable Rework Limits - Outboard Wing Spar Chords  
Figure 10 (Sheet 3)

**BOEING**  
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**INTERCONTINENTAL**  
**STRUCTURAL REPAIR**

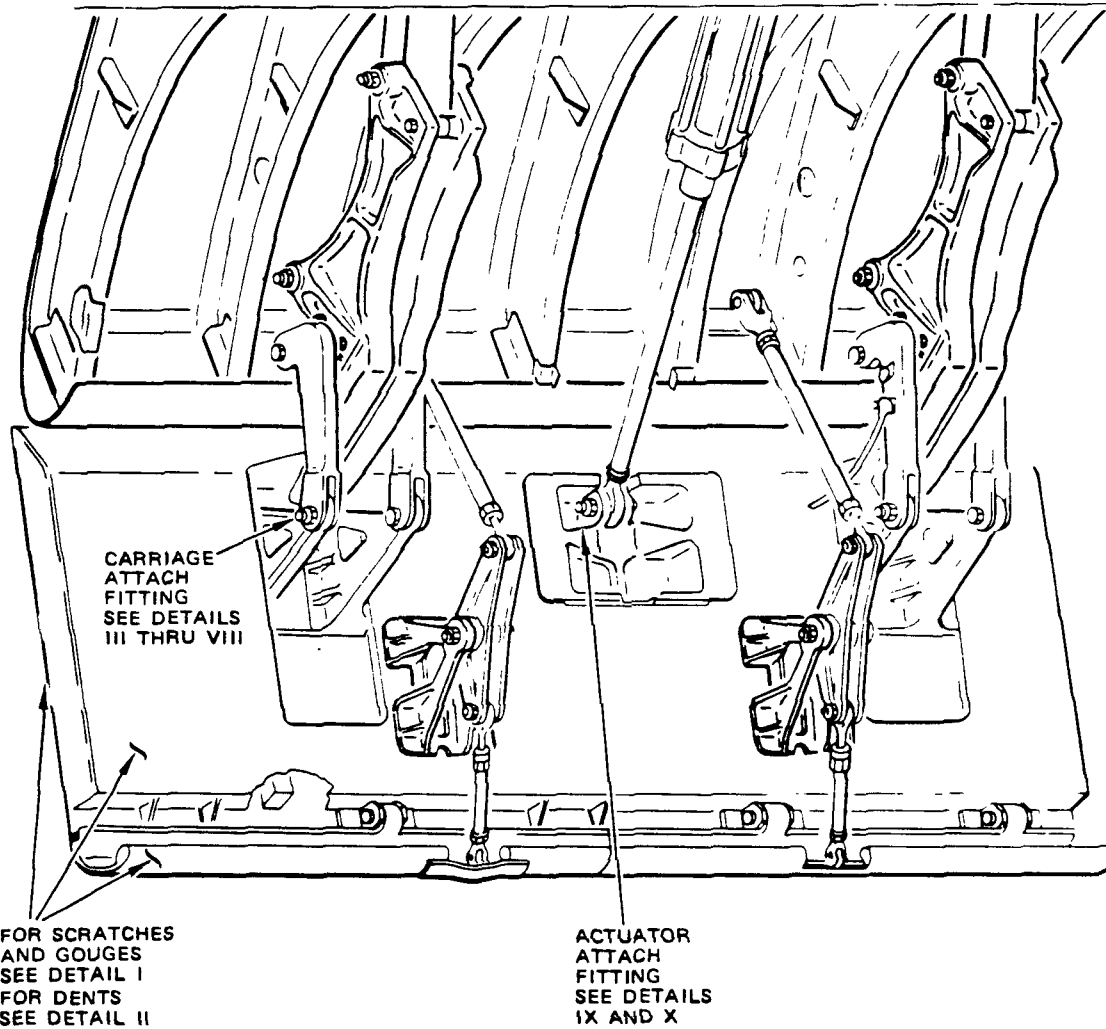


BOEING 707 INTERCONTINENTAL  
STRUCTURAL REPAIR

NOTES

- THE REWORK LIMITS SHOWN WITHIN INDICATE THE MAXIMUM REWORK PERMITTED AT ONE (1) CARRIAGE AND THE ACTUATOR ATTACH FITTING CAVITIES. SHOULD LIMITS BE EXCEEDED IN ONE (1) PARTICULAR AREA WITH LESS CORROSION IN OTHER AREAS, CONTACT THE BOEING COMPANY TO DETERMINE IF THE SLAT CAN BE REWORKED
- [A] MAXIMUM DEPTH OF SCRATCH OR GOUGE NOT TO EXCEED 20 PERCENT OF MATERIAL THICKNESS
- [B] MAXIMUM DEPTH OF DENT MUST NOT EXCEED  $Y=0.05$ . MAXIMUM Y/A RATIO MUST NOT EXCEED 0.03 INCHES PER INCH OF WIDTH
- [C] A MINIMUM OF ONE (1) FASTENER PER SIDE MUST NOT BE CRACKED FROM HOLE TO FREE EDGE. AT HOLES THAT ARE CRACKED TO FREE EDGE, EDDY CURRENT FOR ADDITIONAL CRACKS IN HOLE. IF NO ADDITIONAL CRACKS, OVERSIZE HOLE  $1/16$  INCH IN DIAMETER AND INSTALL OVERSIZE FASTENER
- [D] LOCAL CORROSION SPOTS IN THE LOWER HORIZONTAL FLANGE ARE ALLOWABLE IF DEPTH OF CORROSION IS LESS THAN OR EQUAL TO ONE-HALF OF MATERIAL THICKNESS AND THERE IS A MINIMUM OF 0.31 INCHES BETWEEN CORROSION AND NEAREST FASTENER.
- [E] 0.18 MAXIMUM REMOVABLE OVER ENTIRE SURFACE IS ALLOWABLE
- [F] A MINIMUM OF ONE-HALF OF THE ORIGINAL MATERIAL THICKNESS TO REMAIN OVER THE ENTIRE SURFACE
- [G] A MAXIMUM OF 0.05 REMOVABLE
- [H] 0.44 MAXIMUM HOLE HEIGHT THRU WEB OR REMOVE AVERAGE DEPTH OF 0.10 OVER TOTAL HEIGHT OF WEB
- [I] LOCAL CORROSION SPOTS IN LOWER SKIN, NON-PADDED AREA, ARE ALLOWABLE IF DEPTH OF CORROSION IS LESS THAN OR EQUAL TO ONE-HALF OF THE MATERIAL THICKNESS AND THERE IS A MINIMUM OF 0.25 INCHES BETWEEN CORROSION AND NEAREST FASTENER
- [J] SHOULD MATERIAL BE REMOVED FROM RAISED BOSSES AT FASTENER HOLES, SHIMS WILL HAVE TO BE USED WHEN REINSTALLING ACTUATOR FITTING
- [K] A MAXIMUM OF 0.07 REMOVABLE

Allowable Damage - Leading Edge Slats, Outboard Wing  
Figure 11 (Sheet 1)



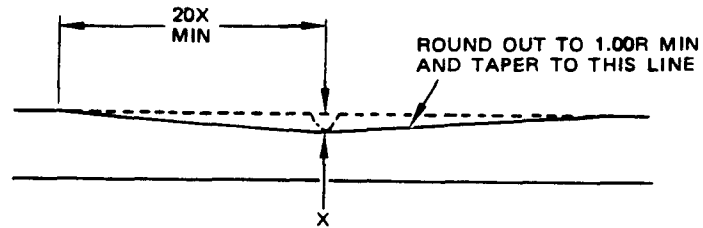
Allowable Damage - Leading Edge Slats, Outboard Wing  
Figure 11 (Sheet 2)



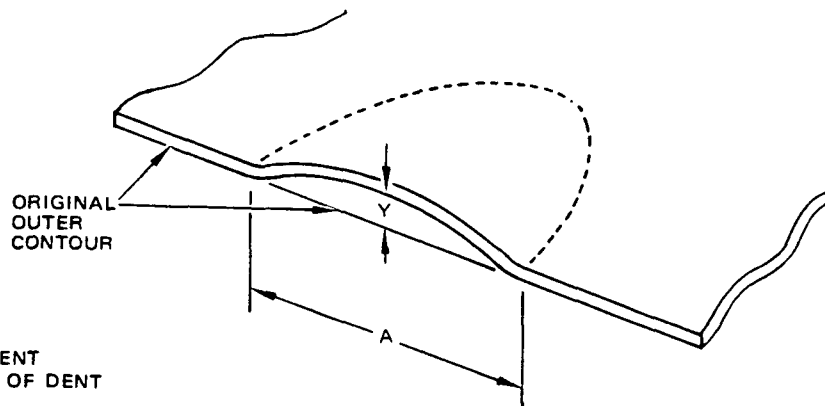
**BOEING**  
**707**



INTERCONTINENTAL  
STRUCTURAL REPAIR



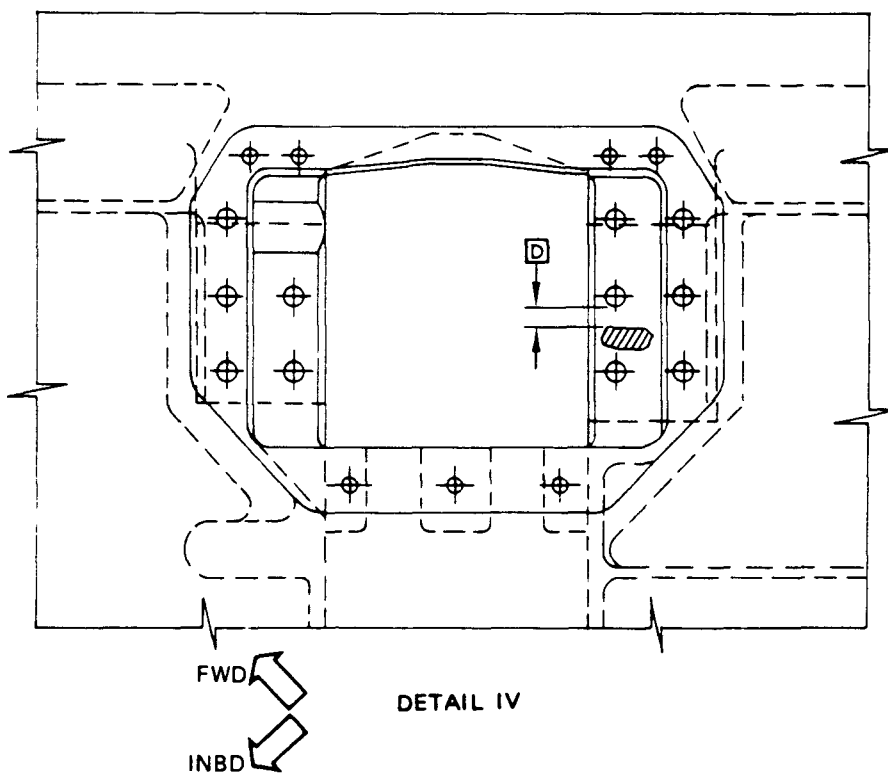
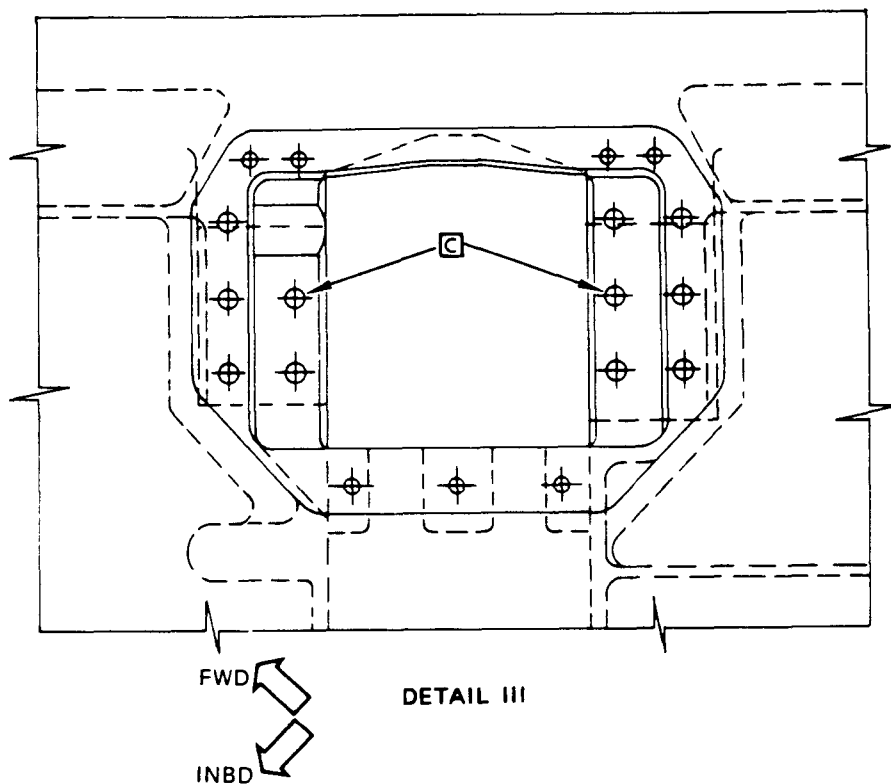
SECTION THROUGH GOUGE  
DETAIL I



Y = DEPTH OF DENT  
A = MINOR AXIS OF DENT

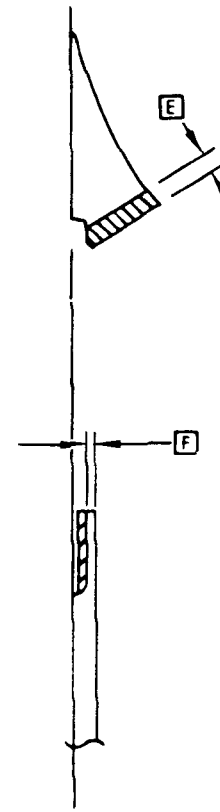
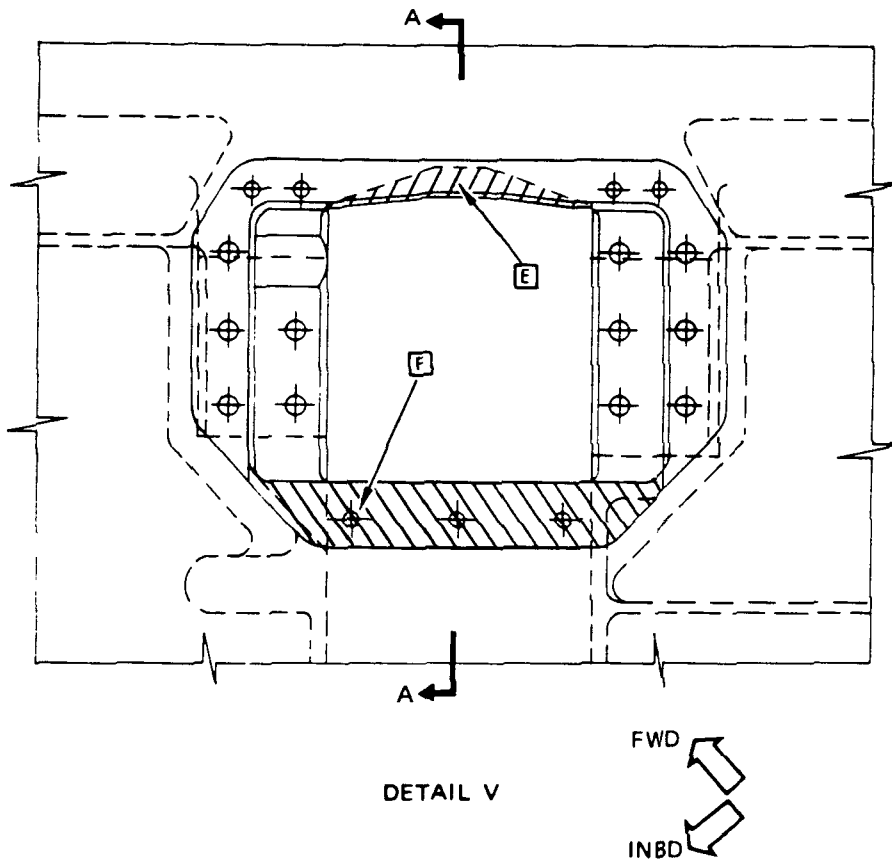
SECTION THROUGH DENT **B**  
DETAIL II

Allowable Damage - Leading Edge Slats, Outboard Wing  
Figure 11 (Sheet 3)



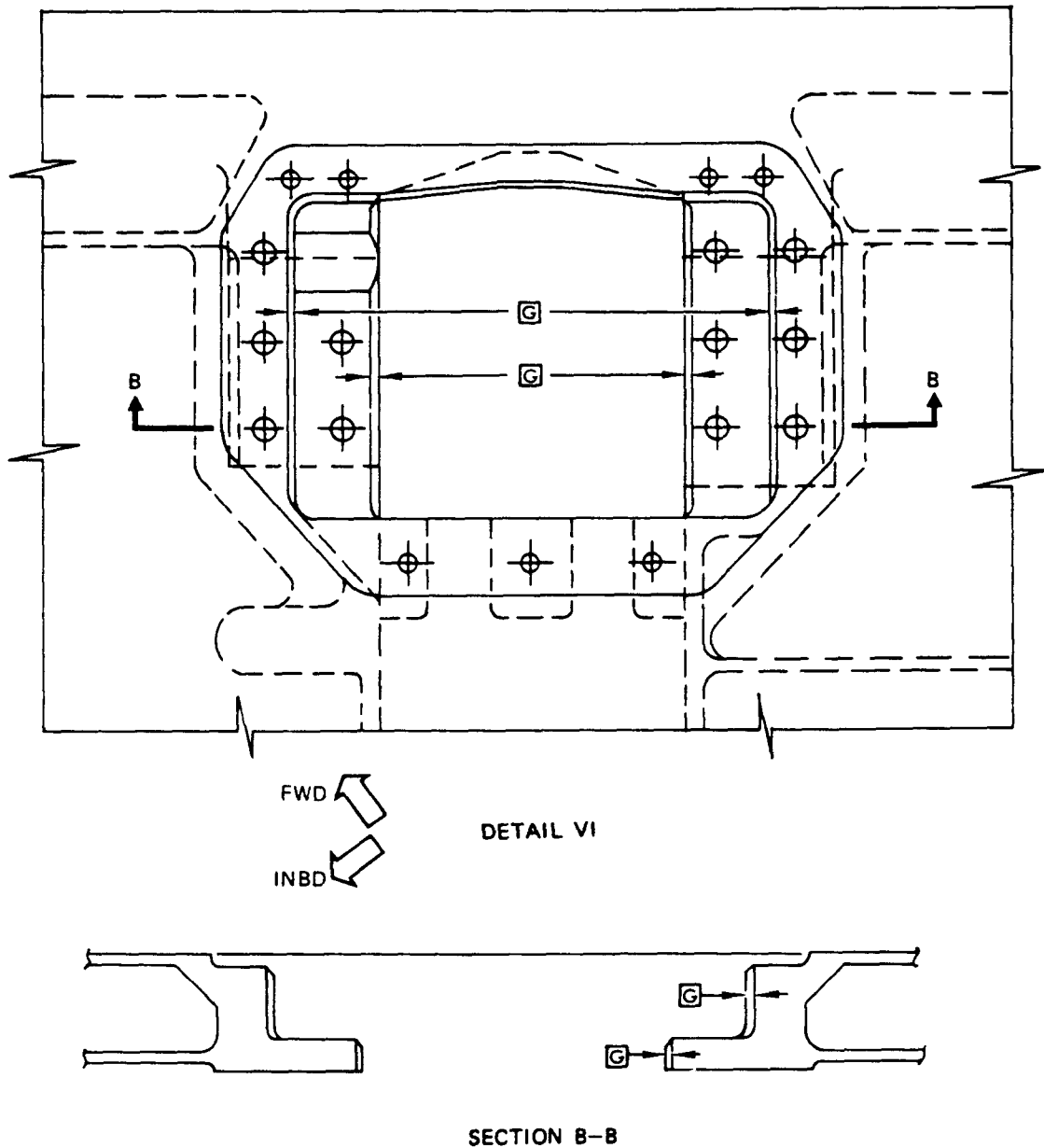
Allowable Damage - Leading Edge Slats, Outboard Wing

Figure 11 (Sheet 4)



SECTION A-A

Allowable Damage - Leading Edge Slats, Outboard Wing  
 Figure 11 (Sheet 5)

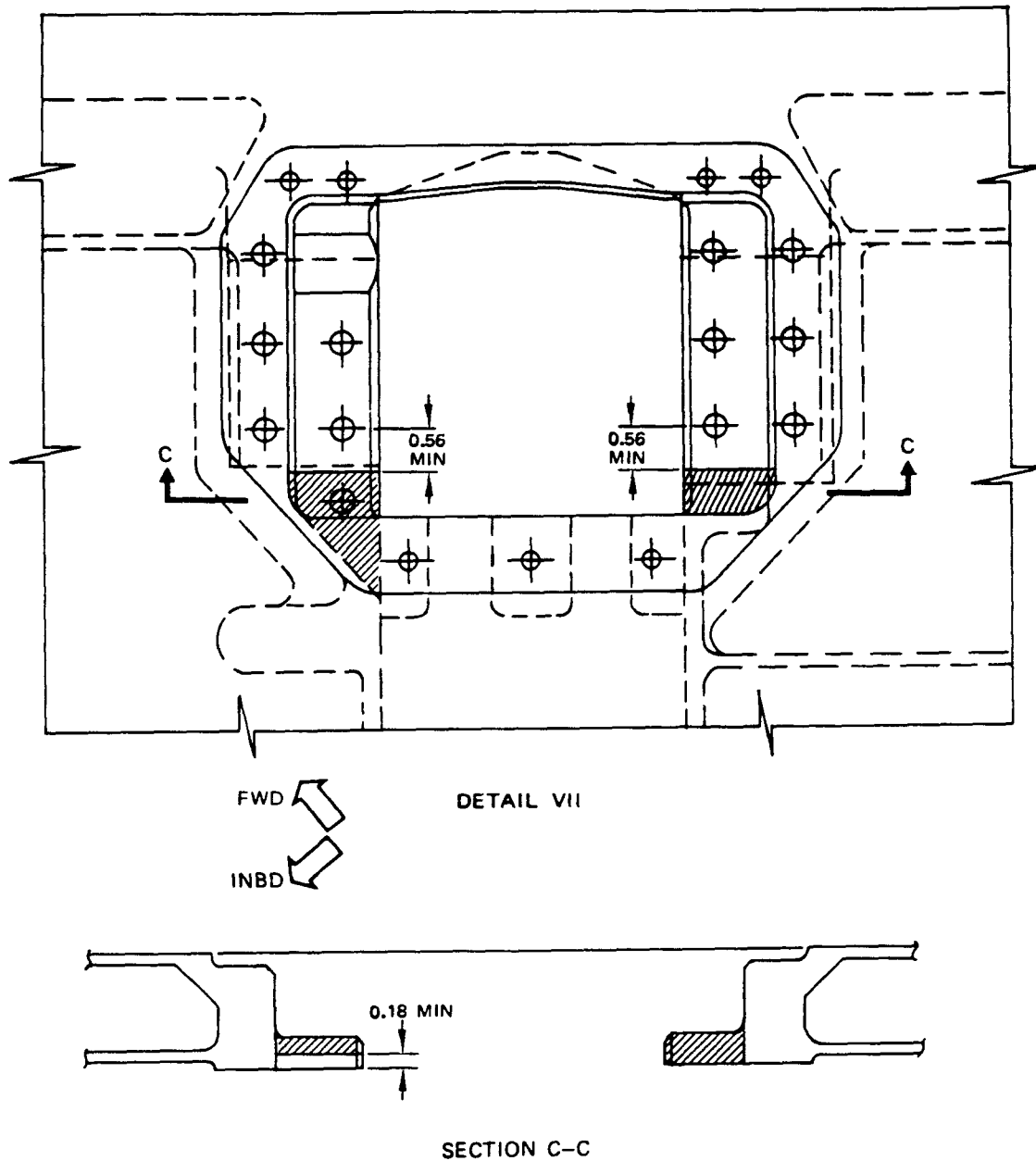


Allowable Damage - Leading Edge Slats, Outboard Wing  
 Figure 11 (Sheet 6)

**BOEING**  
**707**



INTERCONTINENTAL  
STRUCTURAL REPAIR

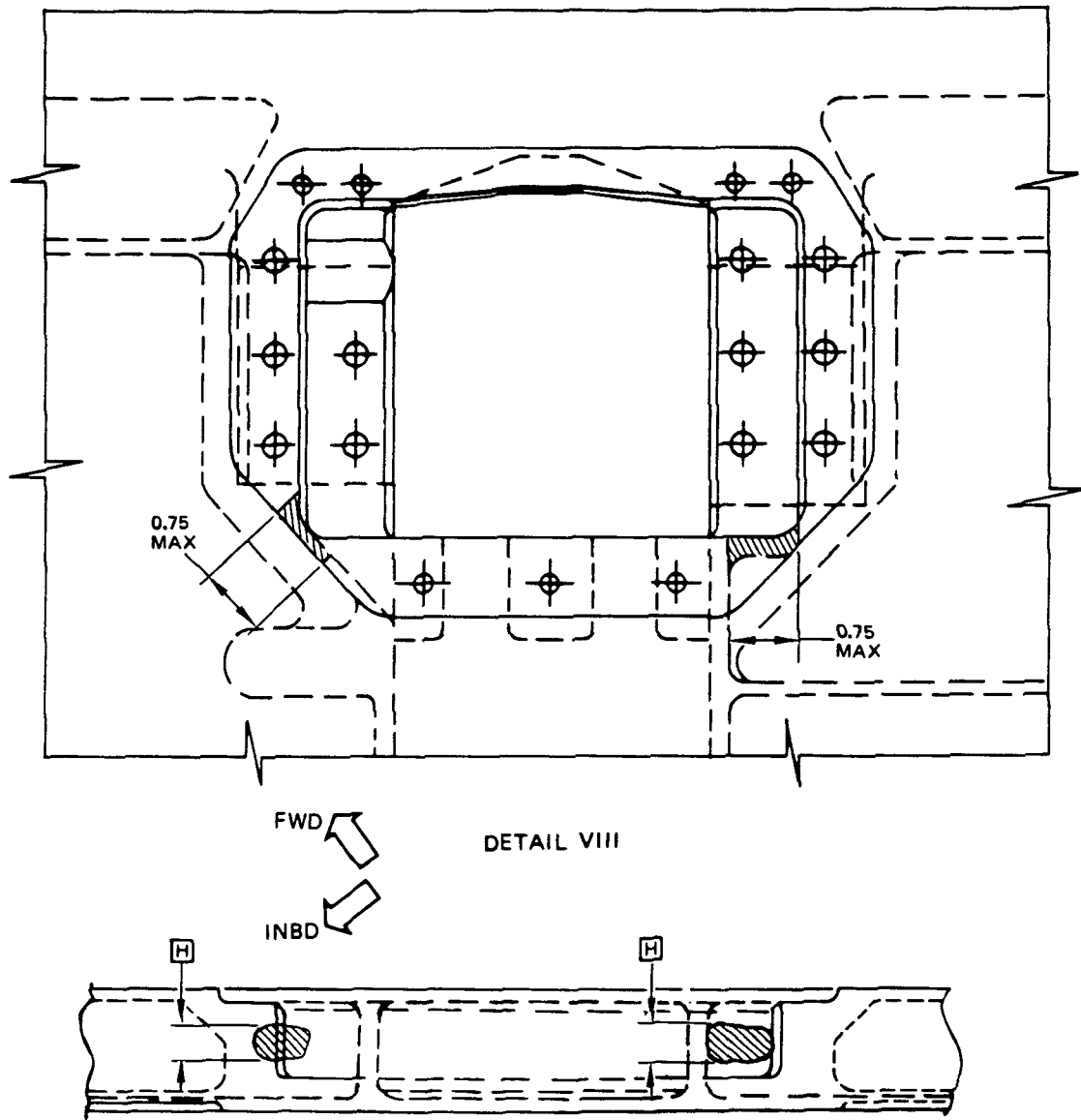


Allowable Damage - Leading Edge Slats, Outboard Wing  
Figure 11 (Sheet 7)

**BOEING**  
**707**



INTERCONTINENTAL  
STRUCTURAL REPAIR

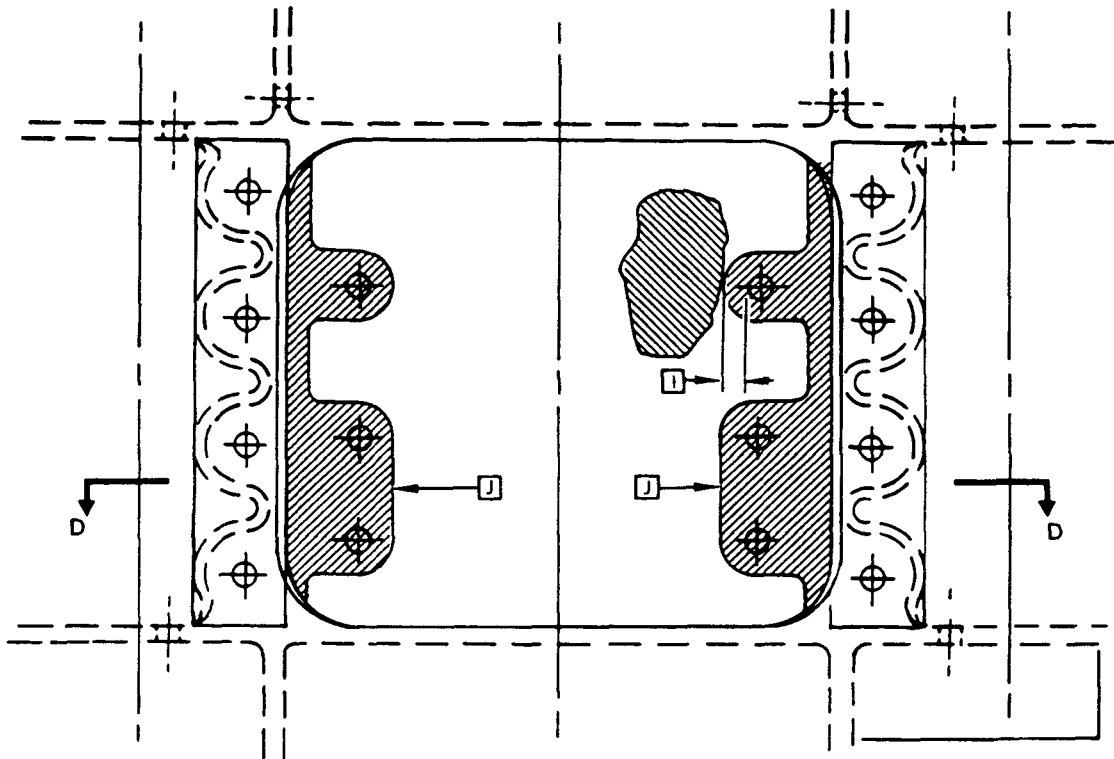


Allowable Damage - Leading Edge Slats, Outboard Wing  
Figure 11 (Sheet 8)

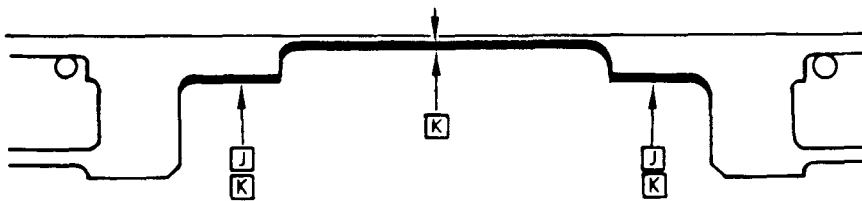
**BOEING**  
**707**



INTERCONTINENTAL  
STRUCTURAL REPAIR



DETAIL IX



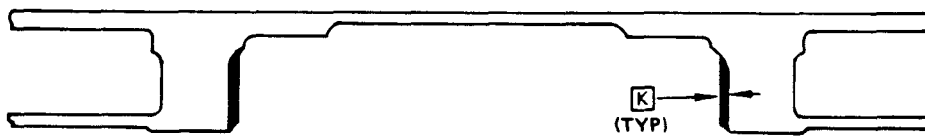
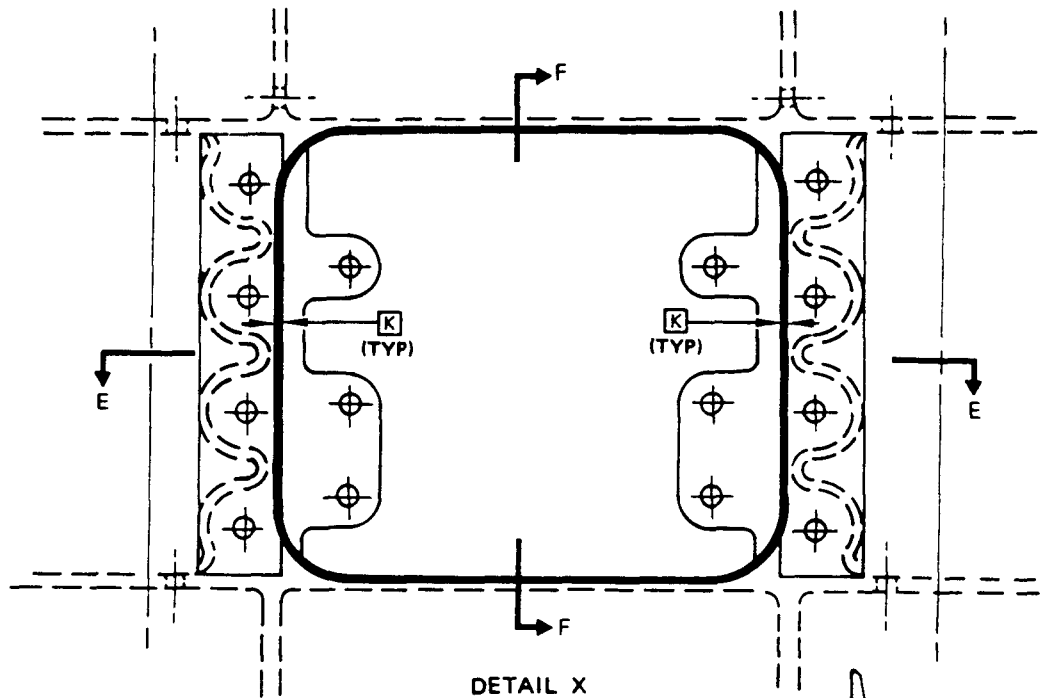
SECTION D-D

Allowable Damage - Leading Edge Slats, Outboard Wing  
Figure 11 (Sheet 9)

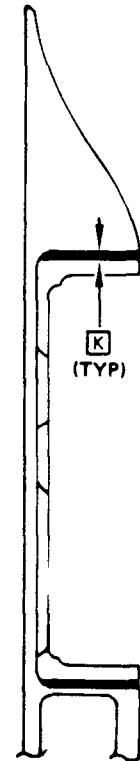
**BOEING**  
**707**



INTERCONTINENTAL  
STRUCTURAL REPAIR



SECTION E-E



SECTION F-F

Allowable Damage - Leading Edge Slats, Outboard Wing  
Figure 11 (Sheet 10)





## SEALING OF INTEGRAL FUEL TANK STRUCTURAL REPAIRS

### 1. General Instructions.

When making structural repairs to fuel tank walls, careful consideration must be given to maintaining the absolute fuel tight seal required in these areas. The seal plane must be recognized and the repair must be such that all possible paths of leakage through the seal plane are sealed. See Fuel Tank Sealing, Chapter 28 of the Maintenance Manual for further information on fuel tank sealing. It should be noted that some of the basic design criteria for the tank structure are as follows, and that these criteria shall govern all tank repairs.

- A. Install tension type lock bolts and bolts through the seal plane with close reamed holes in tank walls.
- B. Install rivets through the seal plane with a maximum hole clearance of 0.006 inch.
- C. Do not install hi-shear rivets through tank walls.
- D. Orient rivets correctly so that they seal on the seal plane.
- E. Install 82° sealing rivets through the skin into 82° countersunk holes in such a manner that the bucked head completely fills the countersink. (NACA method.) Microshave per 51-4-1.
- F. Do not spot weld or seam weld a tank wall or any of its structural components.
- G. Do not use magnesium or zinc-plated parts.
- H. Use fillet and injection type seals wherever possible as primary seals. Where this is not possible, use faying surface and prepack seals.
- J. Keep to a minimum the number of parts required when designing a repair for tank walls.
- K. Allow sufficient clearance between repair parts and original structure so that full size seals can be applied.
- L. Block all channels through the tank wall structure by a bolt or metal filler and sealant, or by filling with aluminum wool.
- M. Clean the head and shank, per applicable portion of paragraph 5.C., of any lock bolt or bolt which penetrates a tank wall prior to the application of BMS5-26 Type B sealant.
- N. Apply brush coating of Alodine per 51-8-0 to holes and countersinks through tank walls prior to installation of close tolerance fasteners.
- O. Clean up and remove from tank interiors all metal chips or scraps caused by sawing, drilling, reaming, deburring, countersinking or other mechanical operations used in effecting repairs.



## STRUCTURAL REPAIR

### 1. General Instructions (Cont.)

- P. Pro Seal 890A and Pro Seal 890B are sealants which may be used optionally per BMS5-26, in place of PR 1422A and PR 1422B respectively.

### 2. Repair of Leaks at Interspar Skin Fasteners

#### A. Rivets

- (1) After locating a leaking countersunk skin rivet, attempt to repair the leak by restriking the rivet.

NOTE: Do not use a restriking tool whose work surface diameter is greater than the visible diameter of the installed countersink head. The use of such a tool may affect sealing of adjacent rivets.

- (2) If restriking a countersunk skin rivet does not stop the leak, replace the rivet.
- (a) If the hole size and finish is acceptable, replace the rivet with another rivet of the same size and material.
- (b) If the hole size exceeds the allowable limits given in 51-2-5 figure 1 Table X, use an oversize 2117 or 5056 aluminum alloy rivet according to figure 1 below.
- (c) Both standard and oversize hole diameters may be exceeded provided the rivet is selectively fitted to the oversize hole so that the maximum rivet clearance does not exceed 0.006 inches.
- (3) Leaking rivets in webs of forward and rear spars. Do not restrike 2024-T31 aluminum rivets.
- (a) Replace such rivets with oversize close tolerance bolts or tension lock bolts, close reamed per 51-2-5, figure 1, as required. Seal heads of fasteners per 57-2-2 at the fuel side of the web.
- (4) An optional method of effecting a temporary repair at a leaking rivet on the upper or lower skins of the interspar wing is indicated below. This method is not recommended as a permanent repair and is considered strictly temporary.
- (a) Limitations
- 1) This repair is strictly limited to a leak which is not greater than a heavy seep as defined by Maintenance Manual 28-2-0.



## STRUCTURAL REPAIR

- 2) Keep close inspections of such a repair and if leakage again becomes evident, replace the rivet per paragraph (2).

### (b) Procedure

- 1) Clean the external surface of the skin and rivet per Maintenance Manual 28-2-0.
- 2) Fabricate a disk of aluminum alloy (.006 to .010 gage) with a diameter of not less than 1-1/4 inches.
- 3) Apply a coating of BMS 5-26 class A-1/2 (PR 1422A) with a pot life of one half hour, to one surface of the disk and place it on the leakage area.
- 4) Apply suitable pressure over the disk area to preclude air bubbles or other irregularities and wipe off any extruded sealant at edges.

### B. Lockbolt

- (1) Replace a leaking lockbolt with a new lockbolt of the same type and nominal size or oversize. As an option for a nominal size lockbolt, use a threaded bolt and lockwired castellated nut installation as indicated below. Torque the nut per 51-2-4. Use a bolt with the proper grip length to preclude threads in bearing.

NOTE: Do not revise an existing skin countersink. Check the existing hole size to assure a close ream fit prior to the installation. See paragraph 1. for general sealing instructions.

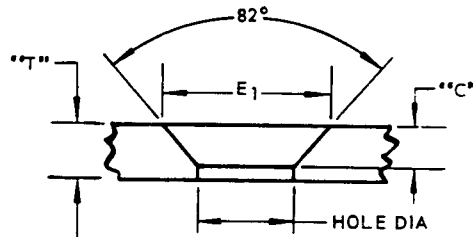
- (a) Replace a shear lockbolt with a BAC B3OEL (or BAC B3OFB) threaded bolt installation.
- (b) Replace a tension lockbolt with a threaded 100° head bolt installation after reworking the head in the manner which follows.
  - 1) Machine the bolt head to comply with the smoothness requirements of 51-4-1, paragraph 4.C. Surface roughness must not exceed 125 RMS per MIL-STD-10.
  - 2) Replace the cadmium plate finish per 51-8-0.

**BOEING**  
*Intercontinental*  
**707**

**STRUCTURAL REPAIR**

**NOTE**

FOR REPAIR PURPOSES, "T" MINUS "C" MUST BE 20% OR MORE OF "T," WHERE "T" IS THE ORIGINAL SHEET THICKNESS.



**NACA COUNTERSINK REPAIR**

| ORIGINAL<br>RIVET DIA. | OVERSIZE RIVET |           | HOLE DIA.   | REPAIR<br>NACA CSK DIMENSIONS |                            |
|------------------------|----------------|-----------|-------------|-------------------------------|----------------------------|
|                        | DIA.           | PART NO.  |             | DEPTH<br>"C" MAX.             | DIAMETER<br>E <sub>1</sub> |
| 1/8                    | 5/32           | MS20470   | .160 - .161 | .050                          | .249<br>.239               |
|                        |                | BAC R15BB | .159 - .162 |                               |                            |
| 5/32                   | 3/16           | MS20470   | .191 - .192 | .058                          | .294<br>.286               |
|                        |                | BAC R15BB | .190 - .193 |                               |                            |
| 3/16                   | 7/32           | BAC R15W  | .222 - .223 | .083                          | .368<br>.358               |
| 1/4                    | 9/32           | BAC R15W  | .285 - .286 | .109                          | .476<br>.466               |
| 5/16                   | 11/32          | BAC R15W  | .348 - .349 | .135                          | .584<br>.574               |
| 3/8                    | 13/32          | BAC R15W  | .411 - .412 | .161                          | .692<br>.684               |

Replacement of Fluid-Tight Rivets  
Figure 1



## STRUCTURAL REPAIR

### 3. Sealing of Integral Tank Repairs

Observe care in following instructions for properly preparing metal surfaces and using sealants with properly matched accelerator to insure an absolute fuel tight seal of a structural repair. Follow proper sequence in cleaning, repair parts fabrication, surface treatment and sealing operations. Compliance with sealing requirements as set forth in Fuel Tank Sealing, Chapter 28 of the Maintenance Manual, and as follows, is necessary for adequately sealed repairs.

### 4. General Preparations Prior to Repair

Take all preliminary precautionary procedures such as tank defueling, the use of explosion proof motors, lights and non-sparking tools, the procurement of proper clothing and adequate grounding of the airplane before attempting repair operations.

### 5. Removal of Original Sealant and Repair Sealant Application

- A. For cutting and removing original sealant use tools made from hardwood only. For filleting use tools made from plastic (such as micarta) or non-sparking metals (such as brass or bronze).

CAUTION: DO NOT USE ALUMINUM ALLOY MATERIAL FOR MAKING REMOVAL OR FILLETING TOOLS.

Take every precaution to avoid damage to the structure when using these tools. If the surface has been damaged, rework damaged areas per 57-2-1, clean and alodize reworked areas per 51-8-0.

- B. Trim out original filleted sealant by cutting it away in a smooth, continuous scarfed face. See figure 2. Allow at least one inch clearance between the cutaway and extreme ends of repair parts. Cuts must be clean. Chunks or flaps on the cut area are not allowed. Make all structure cutouts and necessary trimming. Remove all burrs, nicks, sharp edges and corners.

- C. Cleaning of Area Prior to Sealant Application.

- (1) Make preliminary cleaning with clean bristle brushes, or clean cheesecloth (with less than 0.75 per cent oil content) and methyl ethyl ketone to remove chips, dirt or any other foreign material in the general repair area.

WARNING: KEEP SOLVENT AWAY FROM EYES.

- (2) Make a final cleaning operation with clean cheesecloth and BMS 11-7 cleaner, Fuller TL-4119, W. P. Fuller and Co., Seattle 9, Washington, immediately prior to sealant application on all



surfaces to which sealant is to be applied. Laundered rags are not acceptable because of lint content. All wiping cloths shall contain less than 0.75 per cent oil. Wipe off all solvent while wet. Avoid excessive use of solvent. A clean surface may be identified by the absence of water break. Make successive applications of solvent and wipe until no visible soil remains on the final wiping cloth. Always clean a width wider than the width of the finally applied sealant.

NOTE: Use clean white gloves to prevent surface contamination to cleaned areas.

#### D. Sealant Application Sequence

To obtain an adequate seal perform the sealing operations in the order:

- (1) After the specified cleaning of surfaces, locate all preinstallation fillet, faying surface or pre-packed seals and parts "nested" in sealing compounds in the proper stages of installation.
- (2) Make all injection seals after specified cleaning and pre-coating applications.
- (3) Make all filleting seals after the specified cleaning and after repair parts have been held together by the required fasteners.
- (4) Make all fastener seals after the specified cleaning and pre-coating requirements.

#### E. Fuel Seal Application

Fuel sealing is accomplished with fuel tank sealant BMS 5-26, Class A and Class B. Class A sealant is a brushing sealant used for pre-coating for Class B sealant. Class B sealant is suitable for injection filleting and faying surface seals. Either Class can be obtained with proper accelerator to give it a work life suitable for the specific job. See 51-3-0 of the 707 Maintenance Manual for information on work life and cure time. An approved vendor's designation is PR 1422 A-2 and B-2, Products Research Co., 1326 Los Feliz Blvd., Los Angeles, California.

- (1) Mix a sufficient amount of sealant with the proper amount of matched accelerators. Mix until the mixture is of uniform color.

NOTE: Accelerator is marked with the batch number of the base compound with which it is to be used.

- (2) Apply a pre-coat of Class A sealant over area.



#### F. Fillet Sealant Application

- (1) Wing repairs which involve stiffeners, frequently require repair parts which may extend beyond the original damaged member and form a void in subsequent sealing as shown in figure 3. In order to preclude air entrapment within this void while completing the sealing portion of the repair, proceed in the following manner:
  - (a) Remove the top coating from the original fillet seal for about one inch away from the scarf cuts, with methyl ethyl ketone.
  - (b) Apply a precoating of BMS 5-26, Class A-2, over the fillet zone and the scarf cuts to the old top coating.
  - (c) Make the first fillet BMS 5-26, Class B-2, large enough to fill the void zone completely. Add sealant to complete the full-bodied seal and fair it in to lap the scarfed faces of the original sealant.
  - (d) When time permits, apply topcoat, PR1560, Minnesota Mining and Manufacturing Co., St. Paul, Minnesota, over the entire reworked fillet area. Allow it to lap the old top coating a minimum of .38 inch.
- (2) Wing stiffener repairs which require filleting seals in an area of the skin which is not spliced, must have sufficient adhesion surface available in vertical web surfaces as indicated on figure 4.
- (3) Whenever possible, round off or chamfer 45°, the corners of repair parts which are in a filleted seal area.

#### G. Injection Sealant Application

- (1) Damage to a stiffener in an area where the skin is spliced, requires adequate channeling for sealant retention between repair inserts and the original stiffener. Usually these channels will extend horizontally along the inner surface of the wing skin, and vertically along the stiffener web. Install the repair parts in such a manner as to provide channel widths of from 0.10 inch minimum to 0.20 inch maximum. A general formula for determining the length of any channel injection type seal is given below:

$L_c$  = Calculated length of channel, inches.

$L_a$  = Actual measured length of channel, inches.

$$L_c = (24) \frac{(\text{Cross sectional area})}{(\text{Cross sectional circumference})}$$

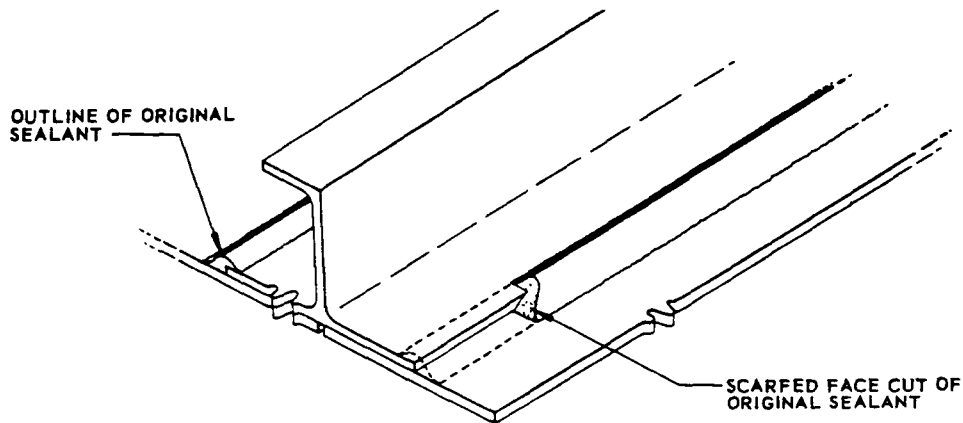


## STRUCTURAL REPAIR

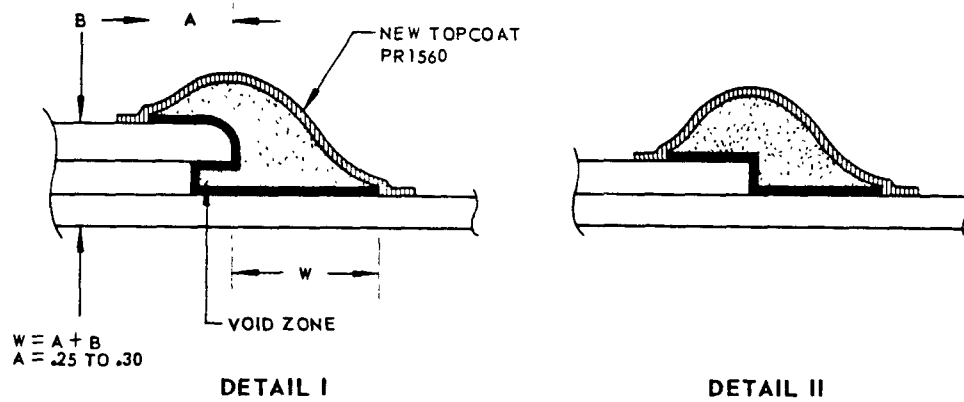
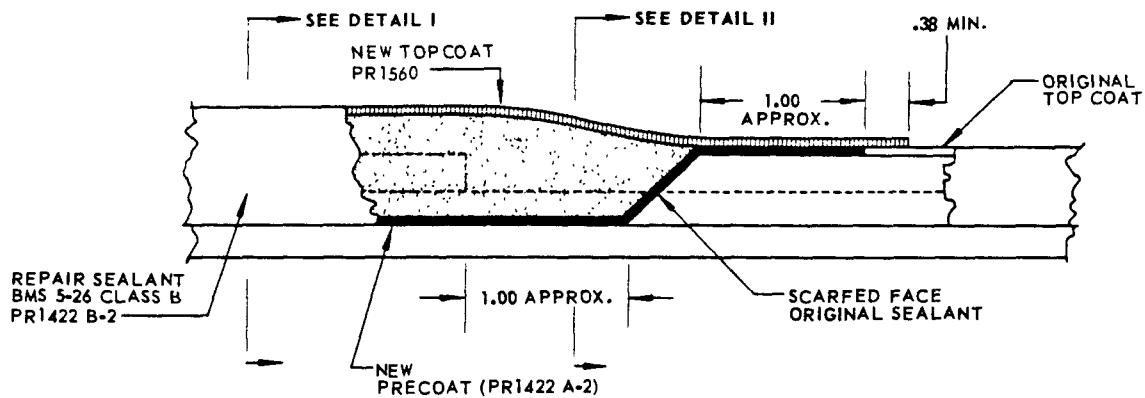
- (2) Prior to filling a sealing channel, make a calculation of  $L_c$  based on actual cross sectional dimensions of a channel per (1) above. Compare  $L_c$  with the actual measured channel length,  $L_a$ .
- (3) If  $L_a$  is equal to or greater than  $L_c$ , install blocking fasteners, after sealant injection, through those repair parts which have been previously installed with pre-pack sealant as shown in figure 5.
- (4) If  $L_a$  is less than  $L_c$ , clean the channel surface per C. above and pre-coat it per E. above. Impregnate small amounts of aluminum wool with BMS5-26 class B sealant. Fill the channel in alternate steps by inserting and tamping small amounts of impregnated aluminum wool. Smooth flush with surface by the use of a fairing tool.



**BOEING** *707* *Intercontinental*   
**STRUCTURAL REPAIR**



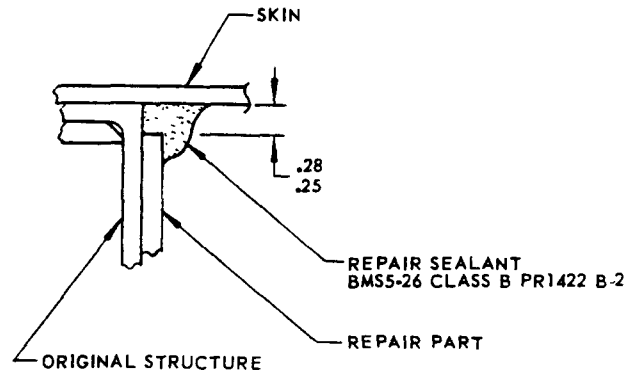
Original Sealant Removal  
 Figure 2



Fillet Sealant Installation  
 Figure 3

Oct 1/66

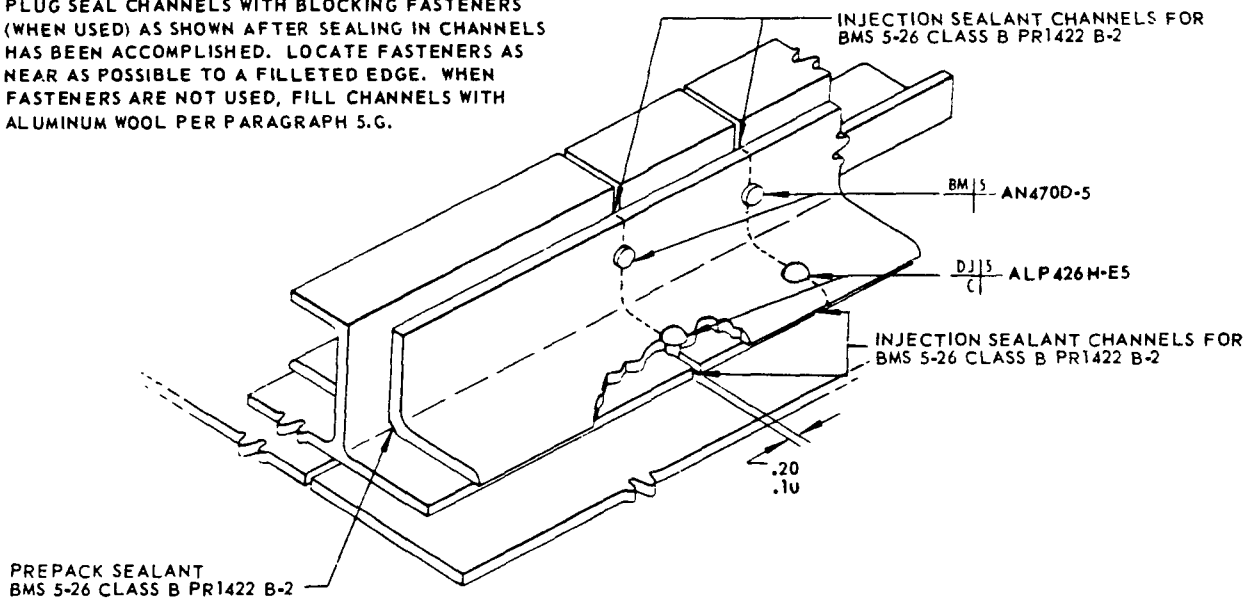
**BOEING**  
*Intercontinental*  
**707**  
**STRUCTURAL REPAIR**



Fillet Sealant at Stiffener Web  
Figure 4

**NOTE**

PLUG SEAL CHANNELS WITH BLOCKING FASTENERS (WHEN USED) AS SHOWN AFTER SEALING IN CHANNELS HAS BEEN ACCOMPLISHED. LOCATE FASTENERS AS NEAR AS POSSIBLE TO A FILLETED EDGE. WHEN FASTENERS ARE NOT USED, FILL CHANNELS WITH ALUMINUM WOOL PER PARAGRAPH 5.G.



**1**

Injection Sealant and Channel Blocking  
Figure 5



## STRUCTURAL REPAIR

### LEADING EDGE SKIN REPAIR SEALING

#### 1. General

A. Repair and make an intermediate seal to damaged leading edge skin in which damage exceeds the allowable as defined by 57-2-1. Seal a flush skin repair by filleting after installation of all repair components and fasteners with BMS 5-18, Type I, High Temperature Sealant per requirements of 51-3-0 of the 707 Maintenance Manual. Apply filleted seals to doubler edges and seal the fasteners on the high temperature side of the skin. Seal an external patch type repair by applying a faying surface seal between the patch and the original skin as follows:

- (1) Remove all grease, dirt or other contamination prior to sealant application from skin and patch with methyl ethyl ketone or equivalent solvent. Use only clean expendable gauze sponges, or equivalent absorbent materials and clean solvent.
  - (2) Wipe off all solvent while wet with a clean cloth.
  - (3) Repeat steps (1) and (2) above until no visible soil remains on the wiping cloth.
  - (4) Remove all solvent from the faying surfaces by a blast of oil and water-free air.
  - (5) Make a final cleaning with a cloth just damp with solvent and wipe dry.
  - (6) Apply the sealant, BMS 5-18, Type II, High Temperature Sealant Pro-Seal 714, Coast Pro-Seal and Manufacturing Company, Los Angeles, California or PR 810, Products Research Company, Glendale, California, to both surfaces by a flow gun or spatula. Apply the sealant to cover the faying surface to depth of .03 approximately. Do not thin the sealant with solvent.
  - (7) Spray a light coat of zinc chromate primer to sealant one hour after application as a protective coating, if required.
  - (8) Coat all fastener shanks and heads with sealant and install.
- NOTE: Complete all repair installations within the pot life of the sealant.
- (9) Wipe away any excess sealant which may extrude beyond the beveled edges of the patch doubler.
  - (10) Apply circulating warm air 140°F maximum, to accelerate curing time of the sealant.

END

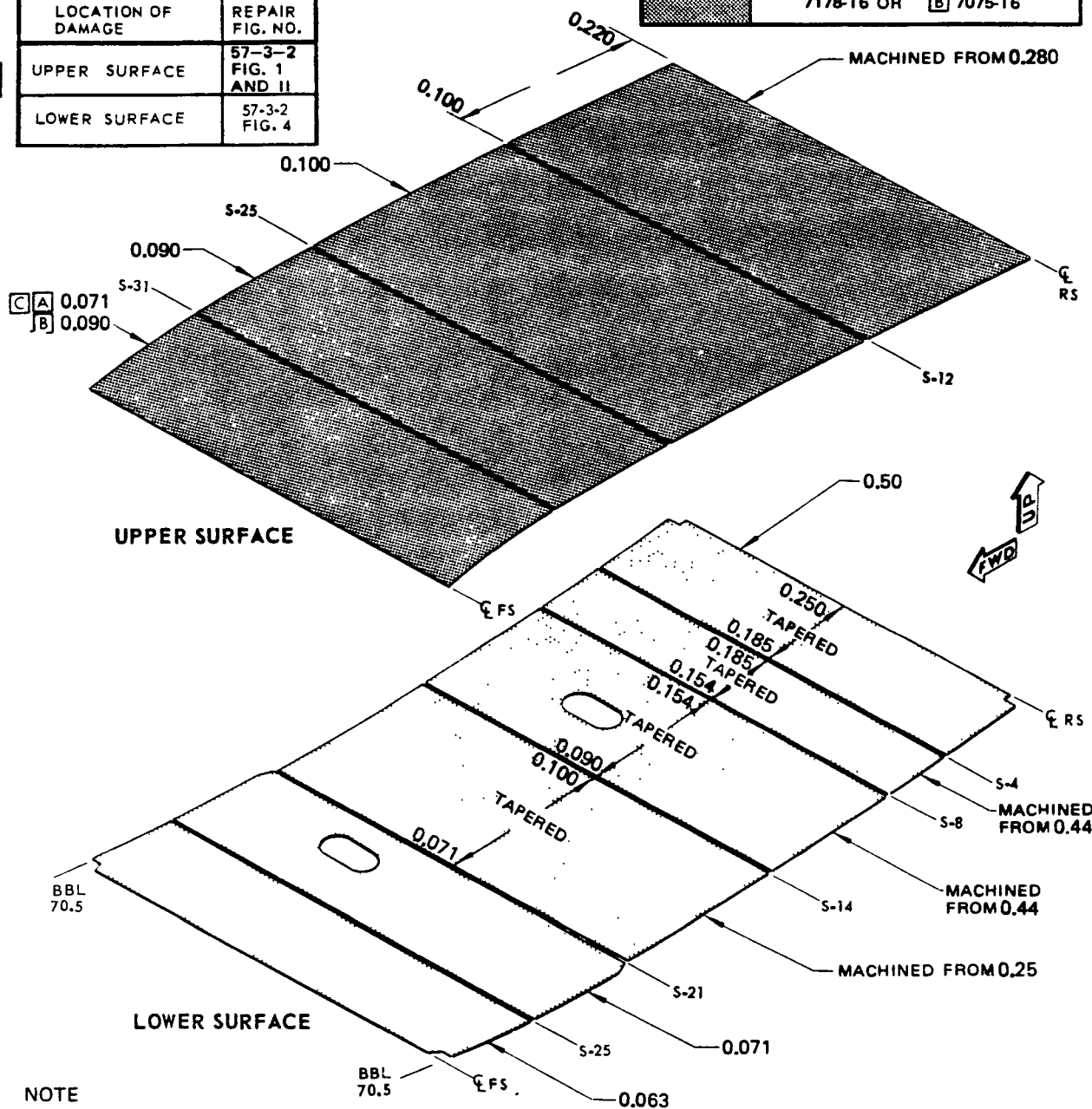
# BOEING 707

INTERCONTINENTAL  
STRUCTURAL REPAIR

REF DWG.  
65-1012

| SKIN REPAIR INDEX  |                            |
|--------------------|----------------------------|
| LOCATION OF DAMAGE | REPAIR FIG. NO.            |
| UPPER SURFACE      | 57-3-2<br>FIG. 1<br>AND II |
| LOWER SURFACE      | 57-3-2<br>FIG. 4           |

|  |                             |
|--|-----------------------------|
|  | 2024-T3 OR 2024-T4          |
|  | 7178-T6 OR <b>B</b> 7075-T6 |



## NOTE

**A** FOR ALL TURBOJET AIRPLANES THRU S/N 18694 AND FOR TURBOFAN AIRPLANE SERIAL NUMBERS UP TO AND INCLUDING THE SERIAL NUMBERS AS SHOWN:  
AA (19587 EXCEPT 19578, 19579, 19588), AF (19724), AI (19248), AIRLIFT (19416), ARG (19241), AVI (19741), BNF (19531), BOE (19000), BOAC (19498), BOAC-CUNARD (18925), EG (19590), CJ (19767), CAL (19869), DLH (19317), EJ (19664), EL AL (19502), ETH (19736), FTL (19355), IIA (19410), NWA (19634), OA (19760), PA (20034), PIA (19286), QEA (19630), SAA (19706), SAB (19211), SB (19841), SDI (19810), TAP (19740), TWA (19572 EXCEPT 19666 AND 19567), VAR (19322), WAI (19716), WARD (19789).

**B** FOR ALL AIRPLANES NOT LISTED IN **A**  
**C** FOR ALL AIRPLANES ON WHICH BOEING SERVICE BULLETIN 2590, DATED SEPT 22/69, HAS BEEN INCORPORATED.

Wing Center Section Skin Material Identification  
Figure 1

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57-3-1  
Page 1

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



NOTES

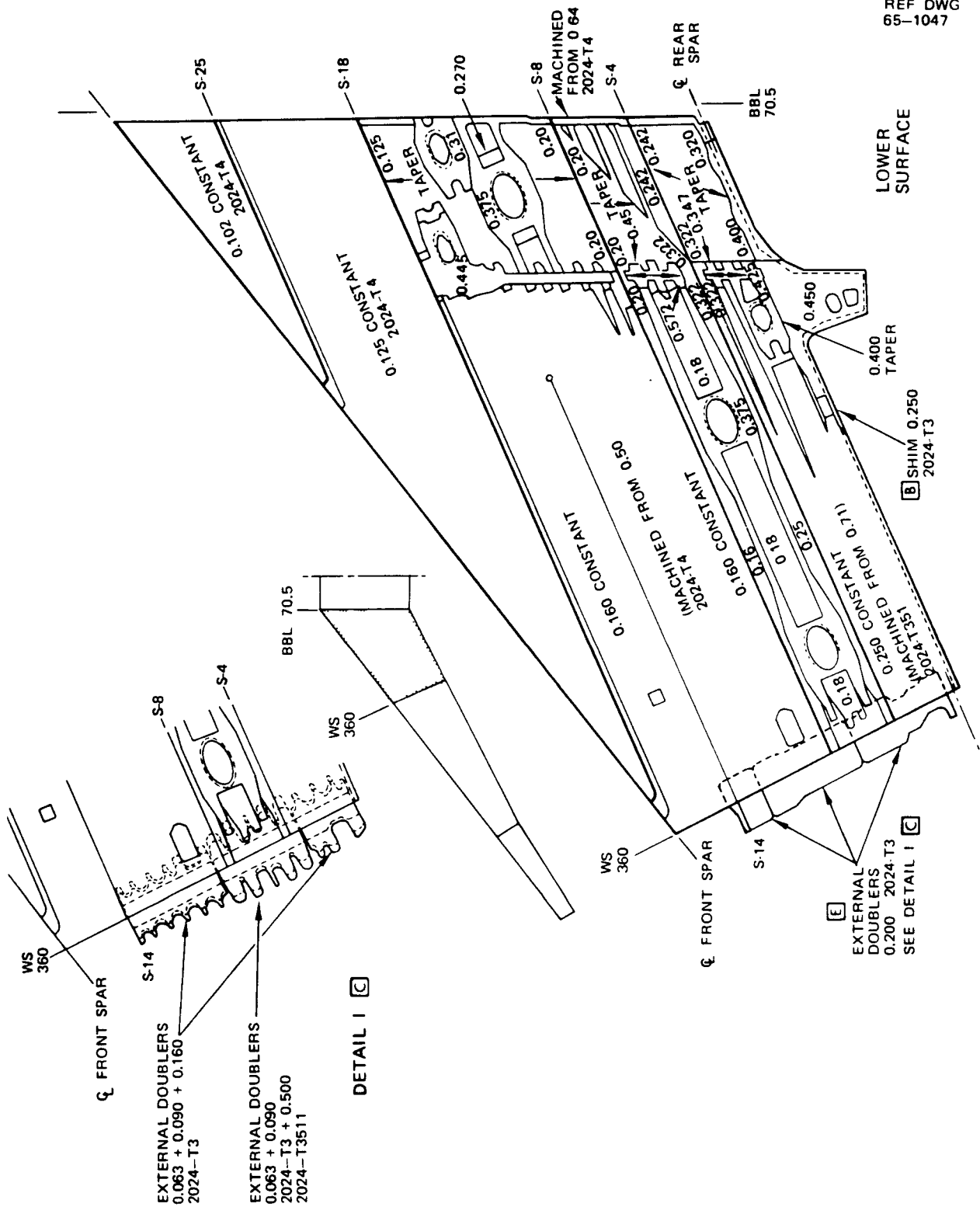
- ☐ A FOR AIRPLANES WITH SB 2487  
INCORPORATED
- ☐ B FOR AIRPLANES  
PA 19378 AND ON  
SA 19705 AND ON
- ☐ C FOR AIRPLANES WITH EXTERNAL  
DOUBLERS PER SB 2496
- ☐ D FOR AIRPLANES WITH EXTERNAL  
DOUBLERS INSTALLED TO SB 2510
- ☐ E FOR CUM LINE NUMBERS:  
909 AND ON
- ☐ F FOR CUM LINE NUMBERS:  
912, 914, 915, 917, 918

| SKIN REPAIR INDEX     |                                         |
|-----------------------|-----------------------------------------|
| LOCATION OF<br>DAMAGE | REPAIR<br>FIG. NO.                      |
| LOWER SURFACE         | 57-3-2<br>FIG. 4                        |
| UPPER SURFACE         | 57-3-2<br>FIG. 1A, 3,<br>7, 8, 10, & 11 |



# INTERCONTINENTAL STRUCTURAL REPAIR

REF DWG  
65-1047



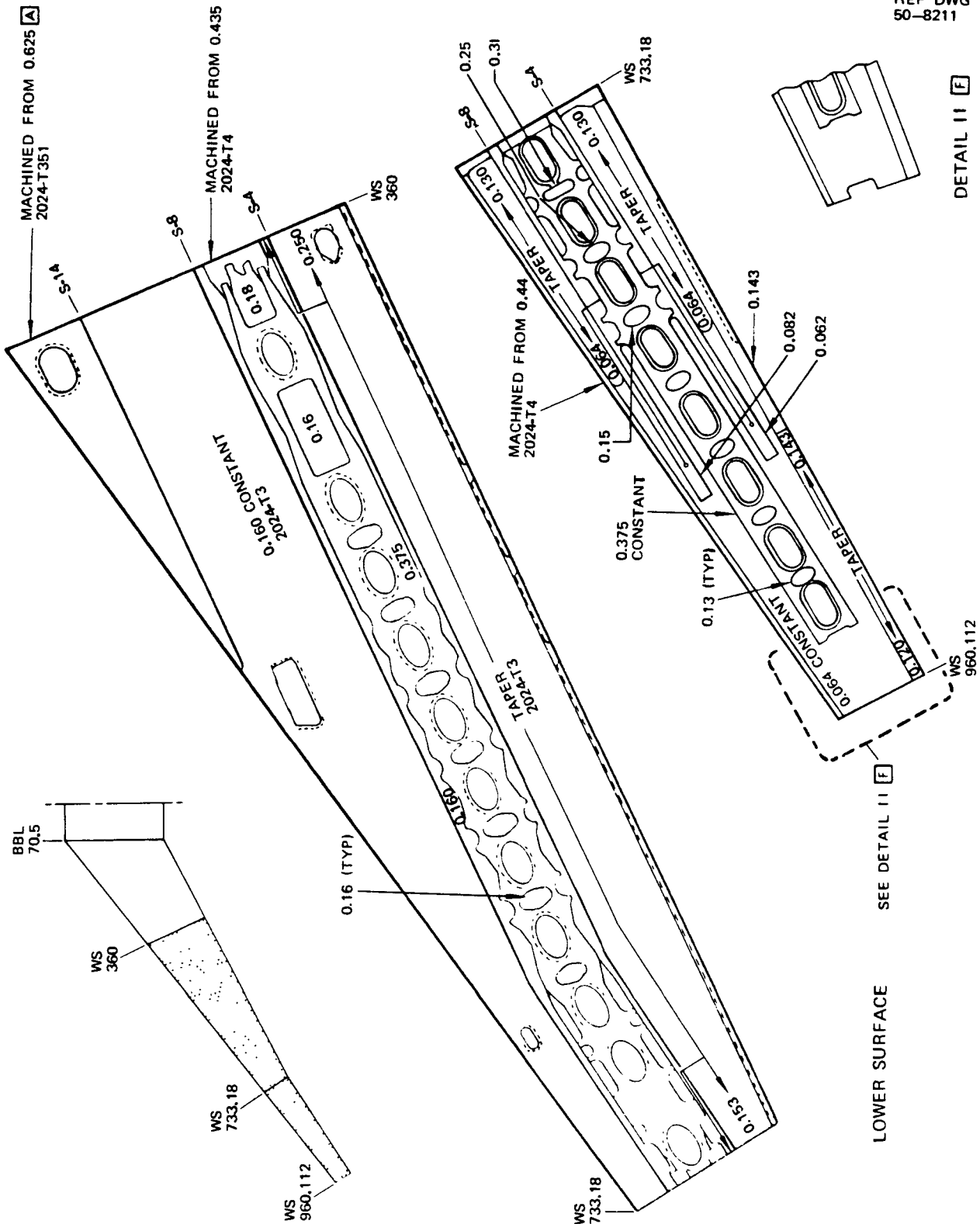
Wing Interspar Skin Material Identification  
Figure 2 (Sheet 2)



INTERCONTINENTAL  
STRUCTURAL REPAIR

REF DWG  
50-8211

DETAIL II **F**

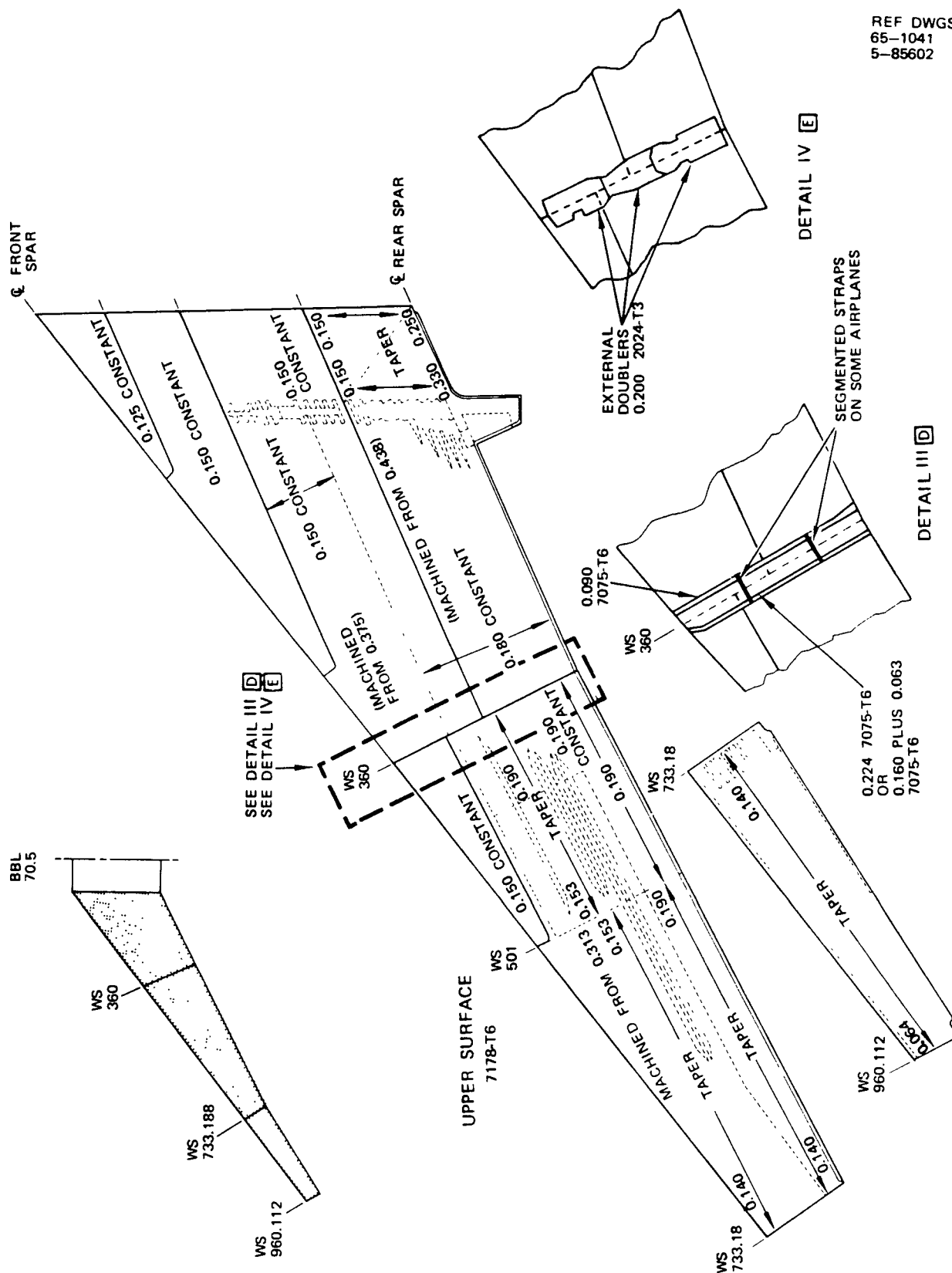


Wing Interspar Skin Material Identification  
Figure 2 (Sheet 3)

SRM 320  
Jul 10/80



REF DWGS  
65-1041  
5-85602



Wing Interspar Skin Material Identification  
Figure 2 (Sheet 4)



**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



REPAIR INSTRUCTIONS

1. Cut out the damaged portion of skin to form a rectangular hole parallel to stiffeners.
2. Fabricate repair parts.
3. Locate, drill and ream transition fit holes for repair fasteners. Prefit repair parts and check that the holes are in alignment.
4. Remove all burrs, nicks, sharp edges, and corners from the cut original parts and the repair parts. Chafer or radius 0.015 to 0.030 on all cut edges.
5. Brush alodize repair parts, trimmed original parts and all fastener holes.
6. Apply 2 coats of BMS 10-11 Type 1 primer to repair parts and surfaces of repair area.
7. Install repair parts as follows:
  - A. Apply BMS 5-26 Type A faying surface sealant to repair parts for corrosion prevention.
  - B. Install fasteners wet with BMS 5-26 Type A sealant.
  - C. Apply fillet seals to fasteners (on pressure side of seal plane) and along edges of repair parts.
  - D. Refer to 57-2-2 and Maintenance Manual 28-2-0 and 51-3-0 for sealing instructions.
8. Restore original finish according to the Maintenance Manual.

NOTES

- WING SHOULD BE ADEQUATELY SUPPORTED DURING REPAIR
  - EDDY CURRENT INSPECT ALL EXISTING FASTENER HOLES COMMON TO THE REPAIR (IF ANY)
  - REPLACE EXISTING FASTENERS COMMON TO THE REPAIR WITH 1/16 OVERSIZE DIAMETER FASTENERS
  - REFER TO THE FOLLOWING WHEN MAKING THIS REPAIR:
    - 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS
    - 51-8-0 FOR PROTECTIVE TREATMENT OF METAL
    - 57-2-2 FOR INTEGRAL FUEL TANK SEALING
    - 28-2-0 OF MAINTENANCE MANUAL FOR INTEGRAL FUEL TANK SEALING
    - 51-2-0 OF MAINTENANCE MANUAL FOR FINISHES
    - 51-3-0 OF MAINTENANCE MANUAL FOR SEALS AND SEALANTS
    - PART 6 OF THE NONDESTRUCTIVE TEST MANUAL FOR EDDY CURRENT INSPECTION PROCEDURES
- ☐ A FOR MATERIAL GAGES SEE TABLE I
- ☐ B USE CLAD IF AVAILABLE
- ☐ C FASTENER SPACING 4D MIN., EDGE MARGINS 2D MIN. (D = DIAMETER OF FASTENER)

Wing Center Section Upper Skin Repair-Typical  
Figure 1 (Sheet 1)

SRM 320  
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57-3-2  
Page 1

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



SYMBOLS

✦ REPAIR FASTENER LOCATION  
INSTALL BACB30GY OR BACB30FN  
REFER TO TABLE I FOR DIAMETER

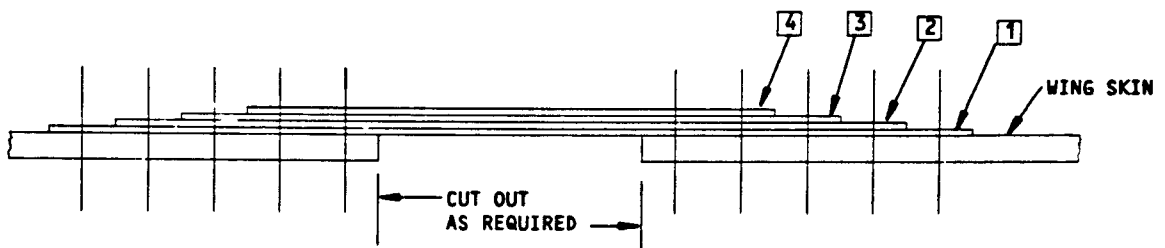
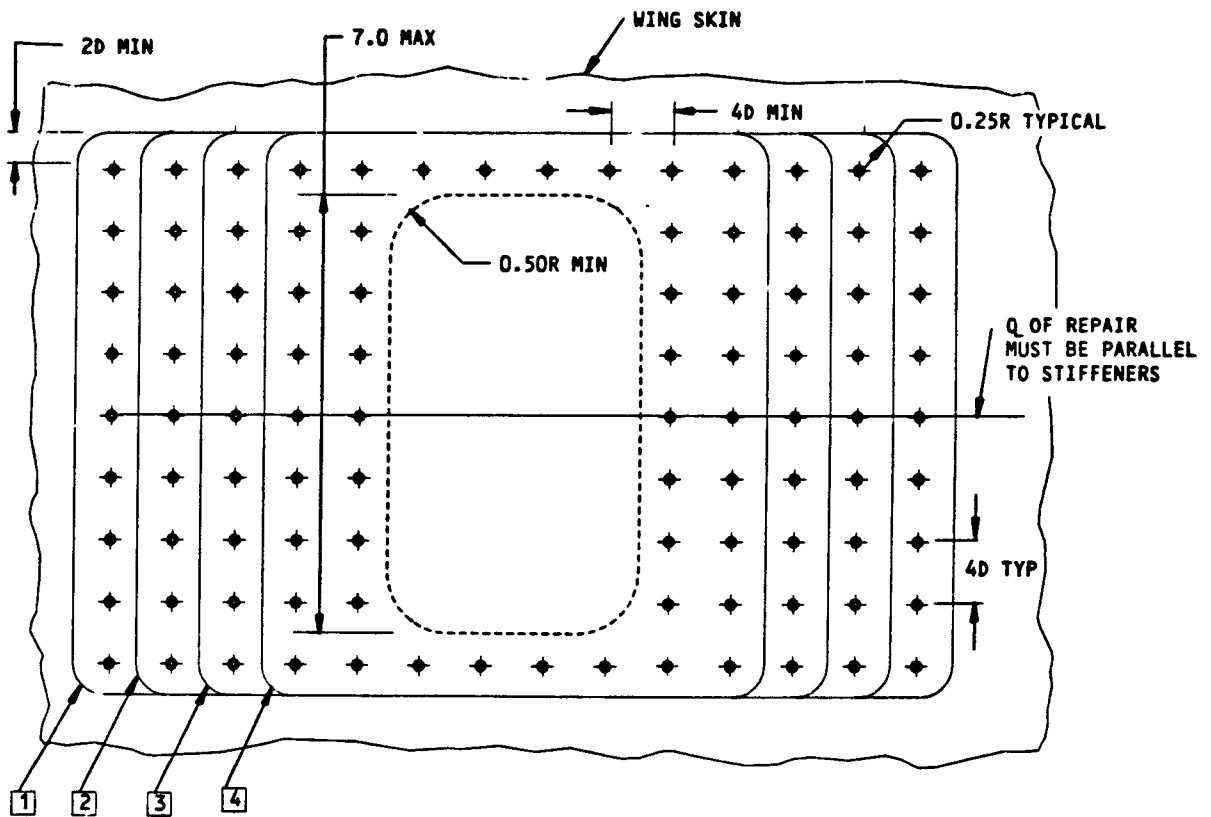
| REPAIR MATERIAL |       |     |                                                                                                                                                       |
|-----------------|-------|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------|
|                 | PART  | QTY | MATERIAL                                                                                                                                              |
| 1               | PLATE | 1   | 7075-T6 OR<br>7178-T6 <span style="border: 1px solid black; padding: 0 2px;">A</span> <span style="border: 1px solid black; padding: 0 2px;">B</span> |
| 2               | PLATE | 1   | 7075-T6 OR<br>7178-T6 <span style="border: 1px solid black; padding: 0 2px;">A</span> <span style="border: 1px solid black; padding: 0 2px;">B</span> |
| 3               | PLATE | 1   | 7075-T6 OR<br>7178-T6 <span style="border: 1px solid black; padding: 0 2px;">A</span> <span style="border: 1px solid black; padding: 0 2px;">B</span> |
| 4               | PLATE | 1   | 7075-T6 OR<br>7178-T6 <span style="border: 1px solid black; padding: 0 2px;">A</span> <span style="border: 1px solid black; padding: 0 2px;">B</span> |

| SKIN THICKNESS | REPAIR PLATE GAGE |         |         |              | REPAIR<br>FASTENER<br>DIAMETER<br><span style="border: 1px solid black; padding: 0 2px;">C</span> |
|----------------|-------------------|---------|---------|--------------|---------------------------------------------------------------------------------------------------|
|                | PLATE 1           | PLATE 2 | PLATE 3 | PLATE 4      |                                                                                                   |
| UP TO 0.063    | NOT REQUIRED      | 0.040   | 0.040   | NOT REQUIRED | 3/16                                                                                              |
| 0.064 TO 0.080 | NOT REQUIRED      | 0.050   | 0.050   | NOT REQUIRED | 3/16                                                                                              |
| 0.081 TO 0.100 | NOT REQUIRED      | 0.040   | 0.040   | 0.040        | 3/16                                                                                              |
| 0.101 TO 0.125 | 0.040             | 0.040   | 0.040   | 0.040        | 3/16                                                                                              |
| 0.126 TO 0.160 | 0.050             | 0.050   | 0.050   | 0.050        | 1/4                                                                                               |
| 0.161 TO 0.190 | 0.050             | 0.050   | 0.050   | 0.080        | 1/4                                                                                               |
| 0.191 TO 0.220 | 0.063             | 0.063   | 0.063   | 0.090        | 1/4                                                                                               |

TABLE I

Wing Center Section Upper Skin Repair - Typical  
Figure 1 (Sheet 2)

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



SECTION THROUGH REPAIR

Wing Center Section Upper Skin Repair - Typical  
Figure 1 (Sheet 3)

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



REPAIR INSTRUCTIONS

NOTES

1. Cut out the damaged portion of skin to form a rectangular hole parallel to stiffeners.
2. Fabricate repair parts.
3. Locate, drill and ream holes for repair fasteners. Prefit repair parts and check that the holes are in alignment.
4. Remove all burrs, nicks, sharp edges, and corners from the cut original parts and the repair parts. Chamfer or radius 0.015 to 0.030 on all cut edges.
5. Brush alodize repair parts, trimmed original parts and all fastener holes.
6. Apply 2 coats of BMS 10-20 Type 2 primer to repair parts and surfaces of repair area.
7. Install repair parts as follows:
  - A. Apply BMS 5-26 Type A faying surface sealant to repair parts for corrosion prevention.
  - B. Install fasteners wet with BMS 5-26 Type A sealant.
  - C. Apply fillet seals to fasteners (on pressure side of seal plane) and along edges of repair parts.
  - D. Refer to 57-2-2 and Maintenance Manual 28-2-0 and 51-3-0 for sealing instructions.
8. Fill skin gap with BMS 5-79 aerodynamic smoother.
9. Restore original finish according to the Maintenance Manual.

- WING SHOULD BE ADEQUATELY SUPPORTED DURING REPAIR
- EDDY CURRENT INSPECT ALL EXISTING FASTENER HOLES COMMON TO THE REPAIR (IF ANY)
- REPLACE EXISTING FASTENERS COMMON TO THE REPAIR WITH 1/16 OVERSIZE DIAMETER FASTENERS

- REFER TO THE FOLLOWING WHEN MAKING THIS REPAIR:

51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS

51-8-0 FOR PROTECTIVE TREATMENT OF METAL

57-2-2 FOR INTEGRAL FUEL TANK SEALING

28-2-0 OF MAINTENANCE MANUAL FOR INTEGRAL FUEL TANK SEALING

51-2-0 OF MAINTENANCE MANUAL FOR FINISHES

51-3-0 OF MAINTENANCE MANUAL FOR SEALS AND SEALANTS

PART 6 OF THE NONDESTRUCTIVE TEST MANUAL FOR EDDY CURRENT INSPECTION PROCEDURES

[A] FOR MATERIAL GAGES SEE TABLE I

[B] USE CLAD IF AVAILABLE

[C] FASTENER SPACING 4D MIN., EDGE MARGINS 2D MIN. (D = DIAMETER OF FASTENER)

[D] MAXIMUM CUTOUT DETERMINED BY - ALLOW 0.10 CLEARANCE BETWEEN WING STIFFENER AND REPAIR PARTS

Wing Inboard/Outboard Upper Skin Repair-Typical  
Figure 1A (Sheet 1)

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



SYMBOLS

◆ REPAIR FASTENER LOCATION  
INSTALL BACB30GY OR BACB30FN  
REFER TO TABLE I FOR DIAMETER

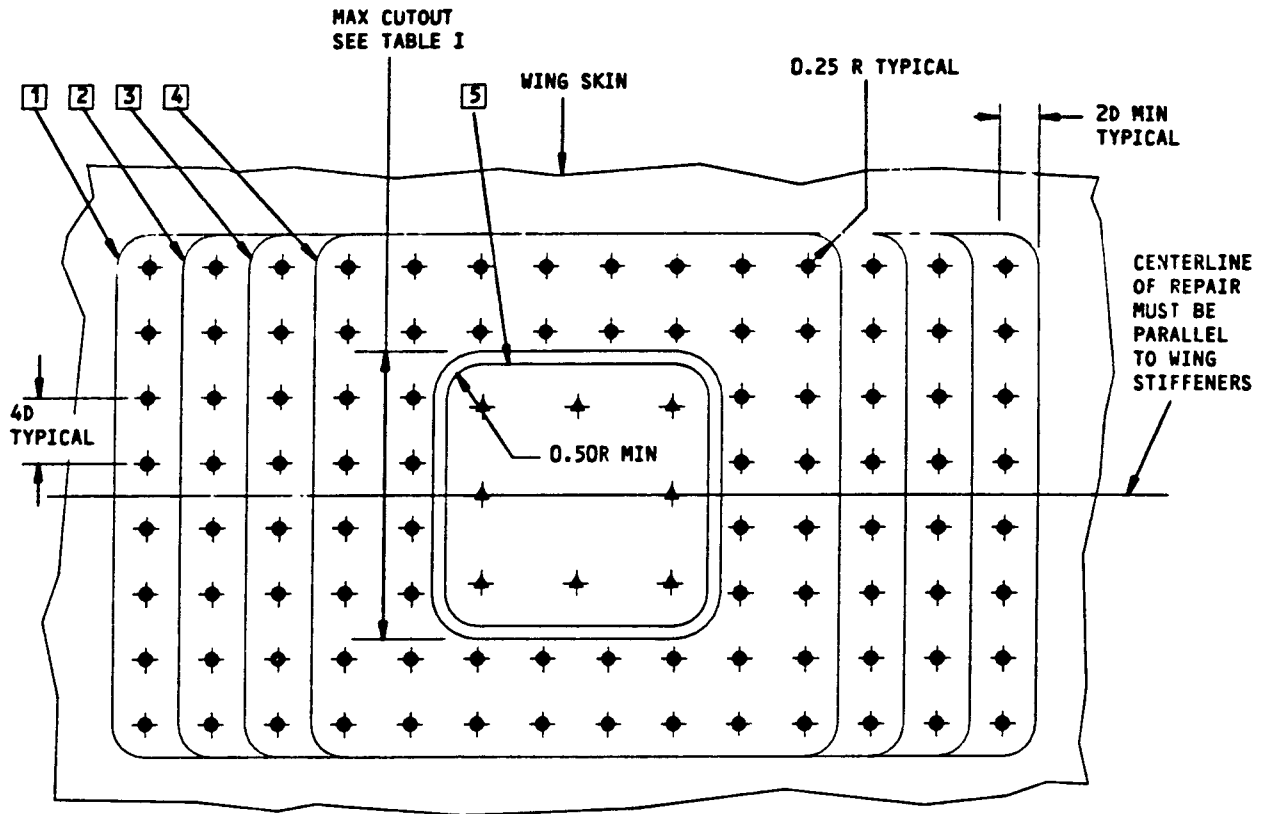
★ REPAIR FASTENER LOCATION  
INSTALL MS20426D5 RIVET

| REPAIR MATERIAL |        |     |                                                                                                                                                       |
|-----------------|--------|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| PART            |        | QTY | MATERIAL                                                                                                                                              |
| 1               | PLATE  | 1   | 7075-T6 OR<br>7178-T6 <span style="border: 1px solid black; padding: 0 2px;">A</span> <span style="border: 1px solid black; padding: 0 2px;">B</span> |
| 2               | PLATE  | 1   | 7075-T6 OR<br>7178-T6 <span style="border: 1px solid black; padding: 0 2px;">A</span> <span style="border: 1px solid black; padding: 0 2px;">B</span> |
| 3               | PLATE  | 1   | 7075-T6 OR<br>7178-T6 <span style="border: 1px solid black; padding: 0 2px;">A</span> <span style="border: 1px solid black; padding: 0 2px;">B</span> |
| 4               | PLATE  | 1   | 7075-T6 OR<br>7178-T6 <span style="border: 1px solid black; padding: 0 2px;">A</span> <span style="border: 1px solid black; padding: 0 2px;">B</span> |
| 5               | FILLER | 1   | CLAD 7075-T6<br>OR CLAD 7178-T6                                                                                                                       |

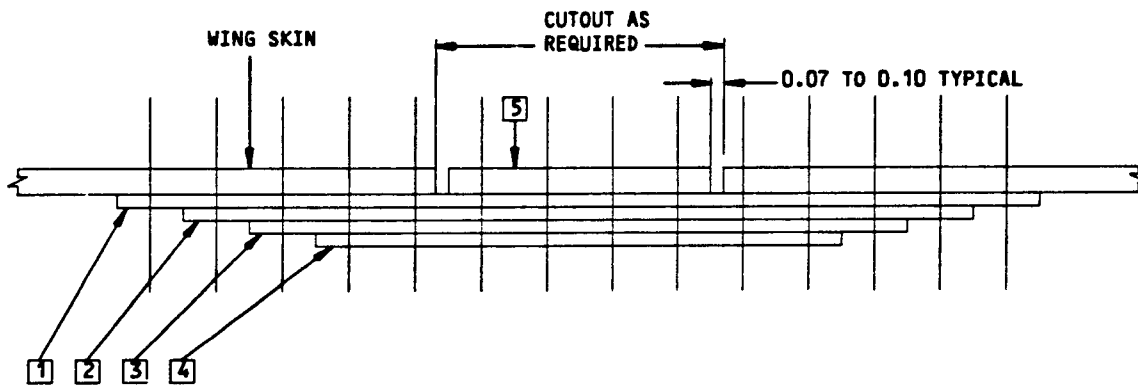
| SKIN THICKNESS | REPAIR PLATE GAGE |         |         |              | REPAIR<br>FASTENER<br>DIAMETER<br><span style="border: 1px solid black; padding: 0 2px;">C</span> | MAXIMUM<br>CUTOUT<br><span style="border: 1px solid black; padding: 0 2px;">D</span> |
|----------------|-------------------|---------|---------|--------------|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|                | PLATE 1           | PLATE 2 | PLATE 3 | PLATE 4      |                                                                                                   |                                                                                      |
| UP TO 0.063    | NOT REQUIRED      | 0.040   | 0.040   | NOT REQUIRED | 3/16                                                                                              | 3.5                                                                                  |
| 0.064 TO 0.080 | NOT REQUIRED      | 0.050   | 0.050   | NOT REQUIRED | 3/16                                                                                              | 3.5                                                                                  |
| 0.081 TO 0.100 | NOT REQUIRED      | 0.040   | 0.040   | 0.040        | 3/16                                                                                              | 3.5                                                                                  |
| 0.101 TO 0.125 | 0.040             | 0.040   | 0.040   | 0.040        | 3/16                                                                                              | 4.0                                                                                  |
| 0.126 TO 0.160 | 0.050             | 0.050   | 0.050   | 0.050        | 1/4                                                                                               | 4.0                                                                                  |
| 0.161 TO 0.190 | 0.050             | 0.050   | 0.050   | 0.080        | 1/4                                                                                               | 4.0                                                                                  |
| 0.191 TO 0.220 | 0.063             | 0.063   | 0.063   | 0.090        | 1/4                                                                                               | 4.0                                                                                  |
| 0.221 TO 0.250 | 0.071             | 0.071   | 0.071   | 0.100        | 1/4                                                                                               | 4.0                                                                                  |

Wing Inboard/Outboard Upper Skin Repair - Typical  
Figure 1A (Sheet 2)

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



PLAN VIEW



SECTION THROUGH REPAIR

Wing Inboard/Outboard Upper Skin Repair - Typical  
Figure 1A (Sheet 3)

# STRUCTURAL REPAIR

## NOTE

SEE 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION HOLE SIZES AND EDGE MARGINS.

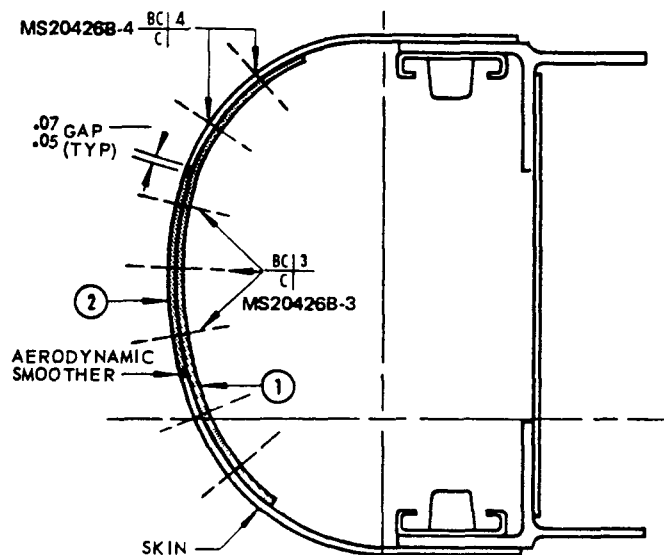
SEE 51-8-0 FOR METAL PROTECTIVE TREATMENT

- ✚ ORIGINAL FASTENER LOCATIONS
- ✚ REPAIR FASTENER LOCATIONS

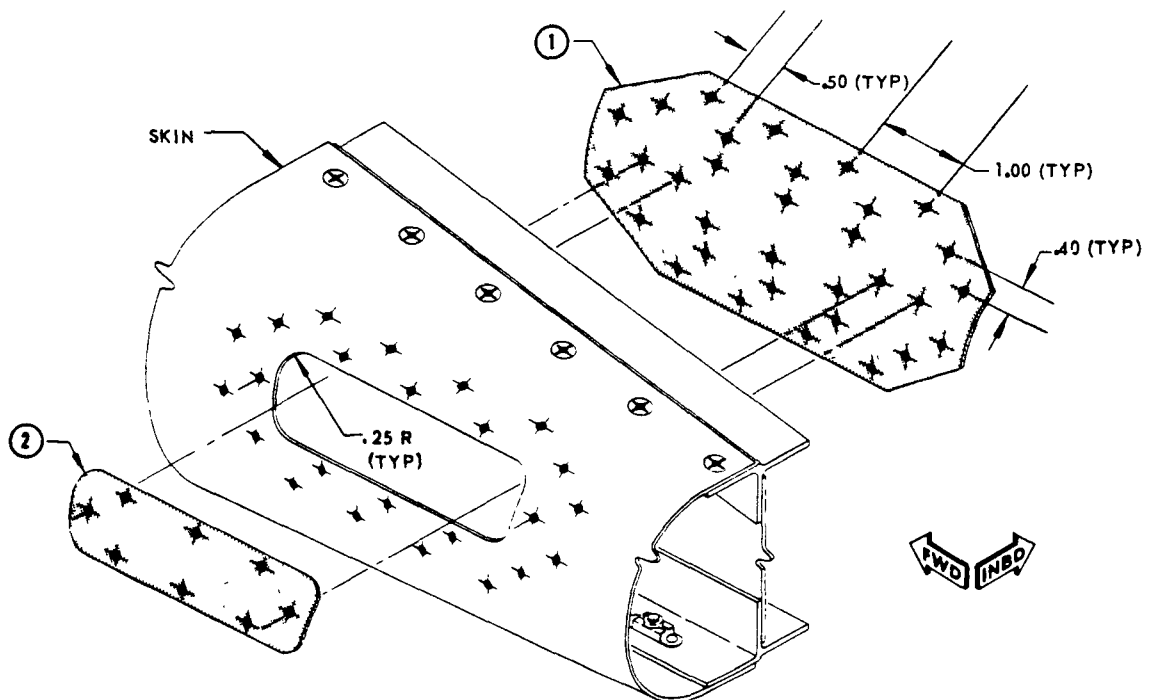
| REPAIR MATERIAL |     |              |  |
|-----------------|-----|--------------|--|
| PART            | QTY | MATERIAL     |  |
| ① DOUBLER       | 1   | .045 6061-T4 |  |
| ② FILLER        | 1   | .040 6061-T4 |  |

## REPAIR INSTRUCTIONS:

1. Remove wing tip cap by removing AN507 screws.
2. Cut out damaged area.
3. Make part 1 to suit inside contour of damaged area.
4. Make part 2 to suit original contour of damaged area.
5. Remove sharp edges and burrs from parts 1 and 2 and at damage area cutout.
6. Prior to assembly and installation of parts 1 and 2, alodize exposed edges and rivet holes in damage area per 51-8-0.
7. Install parts 1 and 2 assembly.
8. In aerodynamic smoothness critical areas apply aerodynamic smoother BMS 5-13 per Section 51-4-1.
9. Restore original exterior finish per Maintenance Manual, Section 51-2-0.
10. Replace wing tip cap.



SECTION THROUGH DAMAGE



Wing Tip Skin Flush Repair  
Figure 2

**INTERCONTINENTAL  
STRUCTURAL REPAIR****REPAIR INSTRUCTIONS**

1. Remove original fasteners and sealant as required.
2. Cut out the damaged portion of skin to form a rectangular hole parallel to stiffeners.
3. Cut the damaged stiffener midway between original fasteners according to 57-3-4, Figure 2.
4. Eddy current inspect all holes from which fasteners are removed.
5. Determine thickness of repair filler (6) as follows: the thickness of all the repair plates minus the stiffener flange thickness equals repair filler (6) thickness.
6. Determine stiffener repair and repair parts from 57-3-4, Figure 2.
7. Fabricate repair parts.
8. Locate, drill and ream holes for repair fasteners. Prefit repair parts and check that the holes are in alignment.
9. Remove all burrs, nicks, sharp edges, and corners from the cut original parts and the repair parts. Chamfer or radius 0.015 to 0.030 on all cut edges.
10. Brush alodize repair parts, trimmed original parts and all fastener holes.
11. Apply 2 coats of BMS 10-20 Type 2 primer to repair parts and surfaces of repair area.
12. Install repair parts as follows:
  - A. Apply BMS 5-26 Type A faying surface sealant to repair parts for corrosion prevention.
  - B. Install fasteners wet with BMS 5-26 Type A sealant.
  - C. Apply fillet seals to fasteners (on pressure side of seal plane) and along edges of repair parts.
  - D. Refer to 57-3-4, Figure 2 for stiffener sealing procedures.
  - E. Refer to 57-2-2 and Maintenance Manual 28-2-0 and 51-3-0 for sealing instructions.
13. Fill skin gap in external wing with BMS 5-79 aerodynamic smoother
14. Restore original finish according to the Maintenance Manual.

Wing Upper Skin at Zee Stiffener Repair-Typical  
Figure 3 (Sheet 1)



**BOEING**  
**707**  
**INTERCONTINENTAL**  
**STRUCTURAL REPAIR**



NOTES

- WING SHOULD BE ADEQUATELY SUPPORTED DURING REPAIR
- THIS REPAIR MUST NOT BE USED IN THE VICINITY OF MAJOR SKIN OR STIFFENER JOINT OR IN THE AREA OF STEP-MACHINED SKIN
- REPLACE EXISTING FASTENERS COMMON TO THE REPAIR WITH 1/16 OVERSIZE FASTENERS
- REFER TO 57-3-4, FIGURE 2 FOR STIFFENER REPAIR
- REFER TO THE FOLLOWING WHEN MAKING THIS REPAIR:
  - 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS
  - 51-8-0 FOR PROTECTIVE TREATMENT OF METAL
  - 57-2-2 FOR INTEGRAL FUEL TANK SEALING
  - 29-2-0 OR MAINTENANCE MANUAL FOR INTEGRAL FUEL TANK SEALING
  - 51-2-0 OF MAINTENANCE MANUAL FOR FINISHES
  - 51-3-0 OF MAINTENANCE MANUAL FOR SEALS AND SEALANTS
  - PART 6 OF THE NONDESTRUCTIVE TEST MANUAL FOR EDDY CURRENT INSPECTION PROCEDURES
- A** FOR MATERIAL GAGES SEE TABLE I
- B** USE CLAD IF AVAILABLE

- C** SAME THICKNESS AS SKIN
- D** THICKNESS IS THE DIFFERENCE BETWEEN THE THICKNESS OF ALL REPAIR PLATES AND STIFFENER FLANGE THICKNESS
- E** FASTENER SPACING 4D MIN., EDGE MARGIN 2D MIN. (D = DIAMETER OF FASTENER)

SYMBOLS

- +** EXISTING FASTENER LOCATION
- ✦** REPAIR FASTENER LOCATION  
INSTALL BACB30GY OR BACB30FN  
REFER TO TABLE I FOR DIAMETER
- ✦** REPAIR FASTENER LOCATION  
INSTALL MS20426D5 RIVET
- REFERENCE STIFFENER REPAIR FASTENER LOCATION, SEE 57-3-4 FIG. 2 FOR TYPE AND DIAMETER

Wing Upper Skin at Zee Stiffener Repair-Typical  
Figure 3 (Sheet 2)

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



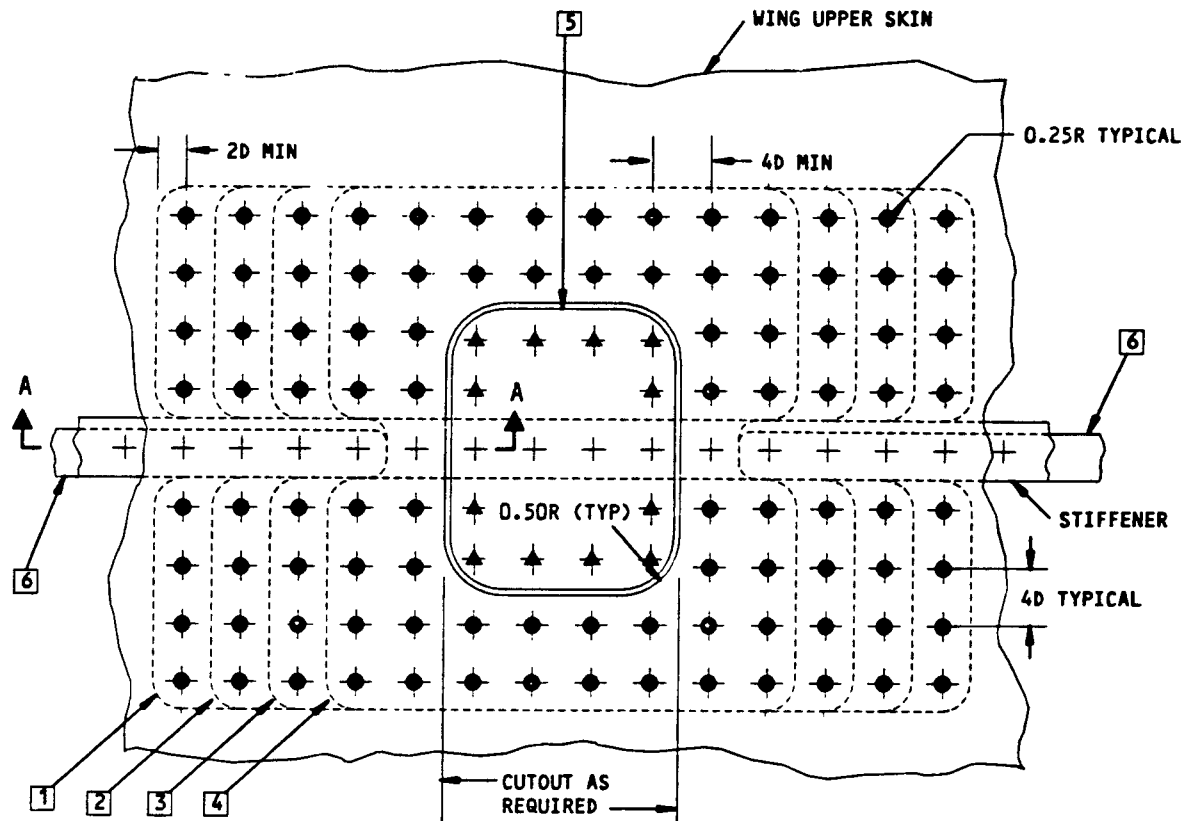
| REPAIR MATERIAL |        |     |                                          |
|-----------------|--------|-----|------------------------------------------|
| PART            |        | QTY | MATERIAL                                 |
| 1               | PLATE  | 1   | 7075-T6 OR<br>7178-T6 <b>A</b> <b>B</b>  |
| 2               | PLATE  | 1   | 7075-T6 OR<br>7178-T6 <b>A</b> <b>B</b>  |
| 3               | PLATE  | 1   | 7075-T6 OR<br>7178-T6 <b>A</b> <b>B</b>  |
| 4               | PLATE  | 1   | 7075-T6 OR<br>7178-T6 <b>A</b> <b>B</b>  |
| 5               | FILLER | 1   | CLAD 7075-T6 OR<br>CLAD 7178-T6 <b>C</b> |
| 6               | FILLER | 2   | 7075-T6 OR<br>7178-T6 <b>B</b> <b>D</b>  |

| SKIN<br>THICKNESS | REPAIR PLATE GAGE |         |         |              | REPAIR<br>FASTENER<br>DIAMETER<br><b>E</b> |
|-------------------|-------------------|---------|---------|--------------|--------------------------------------------|
|                   | PLATE 1           | PLATE 2 | PLATE 3 | PLATE 4      |                                            |
| UP TO 0.063       | NOT REQUIRED      | 0.040   | 0.040   | NOT REQUIRED | 3/16                                       |
| 0.064 TO 0.080    | NOT REQUIRED      | 0.050   | 0.050   | NOT REQUIRED | 3/16                                       |
| 0.081 TO 0.100    | NOT REQUIRED      | 0.040   | 0.040   | 0.040        | 3/16                                       |
| 0.101 TO 0.125    | 0.040             | 0.040   | 0.040   | 0.040        | 1/4                                        |
| 0.126 TO 0.160    | 0.050             | 0.050   | 0.050   | 0.050        | 1/4                                        |
| 0.161 TO 0.190    | 0.050             | 0.050   | 0.050   | 0.060        | 1/4                                        |
| 0.191 TO 0.220    | 0.063             | 0.063   | 0.063   | 0.090        | 1/4                                        |
| 0.221 TO 0.250    | 0.071             | 0.071   | 0.071   | 0.100        | 1/4                                        |

TABLE I

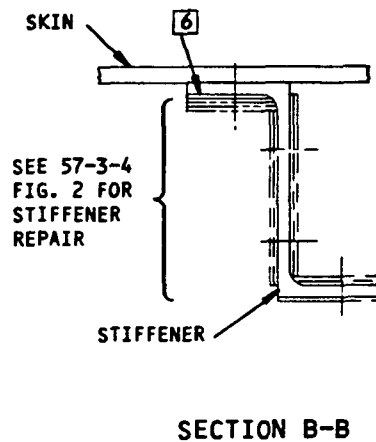
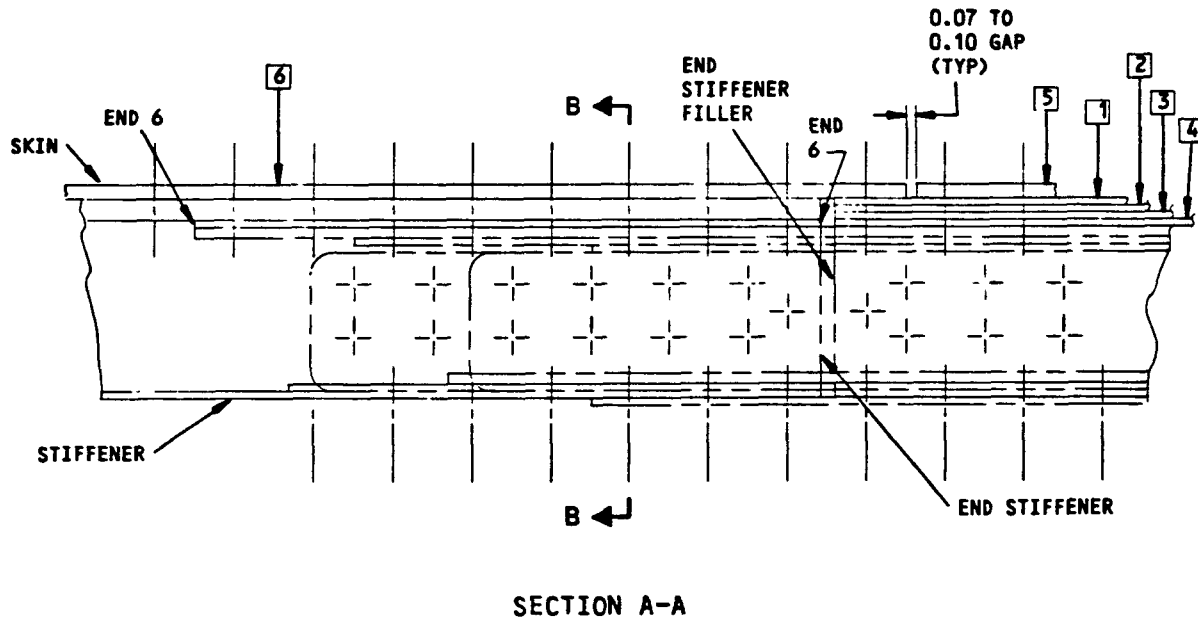
Wing Upper Skin at Zee Stiffener Repair - Typical  
Figure 3 (Sheet 3)

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



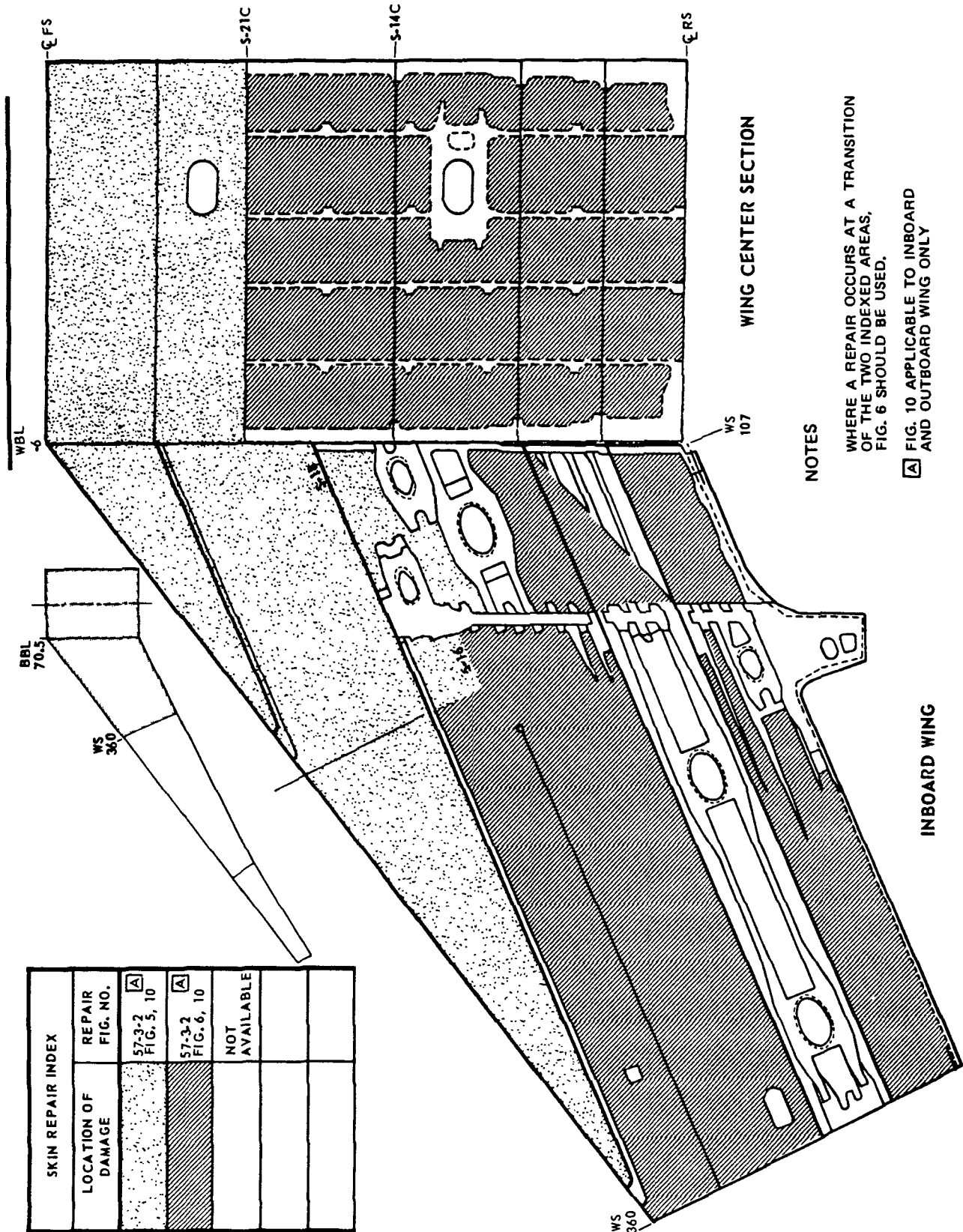
Wing Upper Skin at Zee Stiffener Repair - Typical  
Figure 3 (Sheet 4)

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR

Wing Upper Skin at Zee Stiffener Repair - Typical  
Figure 3 (Sheet 5)

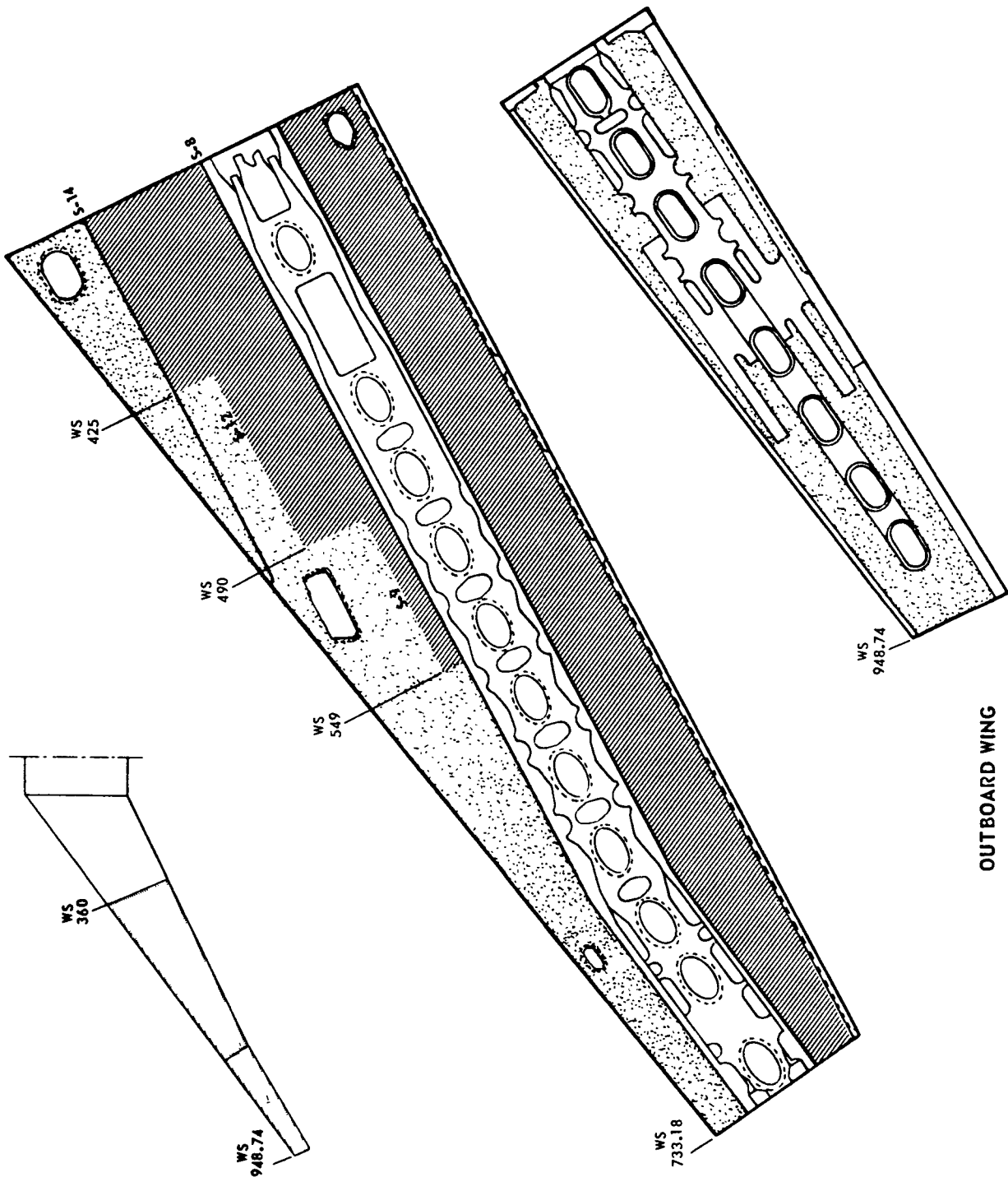
BOEING  
*Intercontinental*  
707  
STRUCTURAL REPAIR



NOTES

WHERE A REPAIR OCCURS AT A TRANSITION OF THE TWO INDEXED AREAS, FIG. 6 SHOULD BE USED.

FIG. 10 APPLICABLE TO INBOARD AND OUTBOARD WING ONLY



Wing Lower Skin Repair Index  
Figure 4 (Sheet 2 of 2)

## REPAIR INSTRUCTIONS

1. Clean up damage area as illustrated.
2. Locate, drill and countersink fastener holes.
3. Remove sharp edges and burrs from cutout and fastener holes.
4. Brush alodize per 51-8-0, cutout edges and hole countersinks.
5. Fabricate parts 1 and 2. Brush alodize per 51-8-0 all surfaces not anodic treated.
6. Install repair parts.
7. Make a filleted sealant installation per 57-2-2 at fillet between original skin and part 1.
8. Make a sealant installation per 57-2-2 at each fastener on the inner surface of repair.

## NOTE

CLOSE REAM HOLES PER 51-2-5

SEE 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS.

SEE 51-8-0 FOR METAL PROTECTIVE TREATMENT

BREAK SHARP EDGES 0.03 ALL REPAIR PARTS AND TRIMMED ORIGINAL PARTS



REPAIR FASTENER LOCATIONS

[A]

"t" EQUALS THE MAXIMUM LOCAL SKIN THICKNESS IN THE VICINITY OF THE REPAIR.

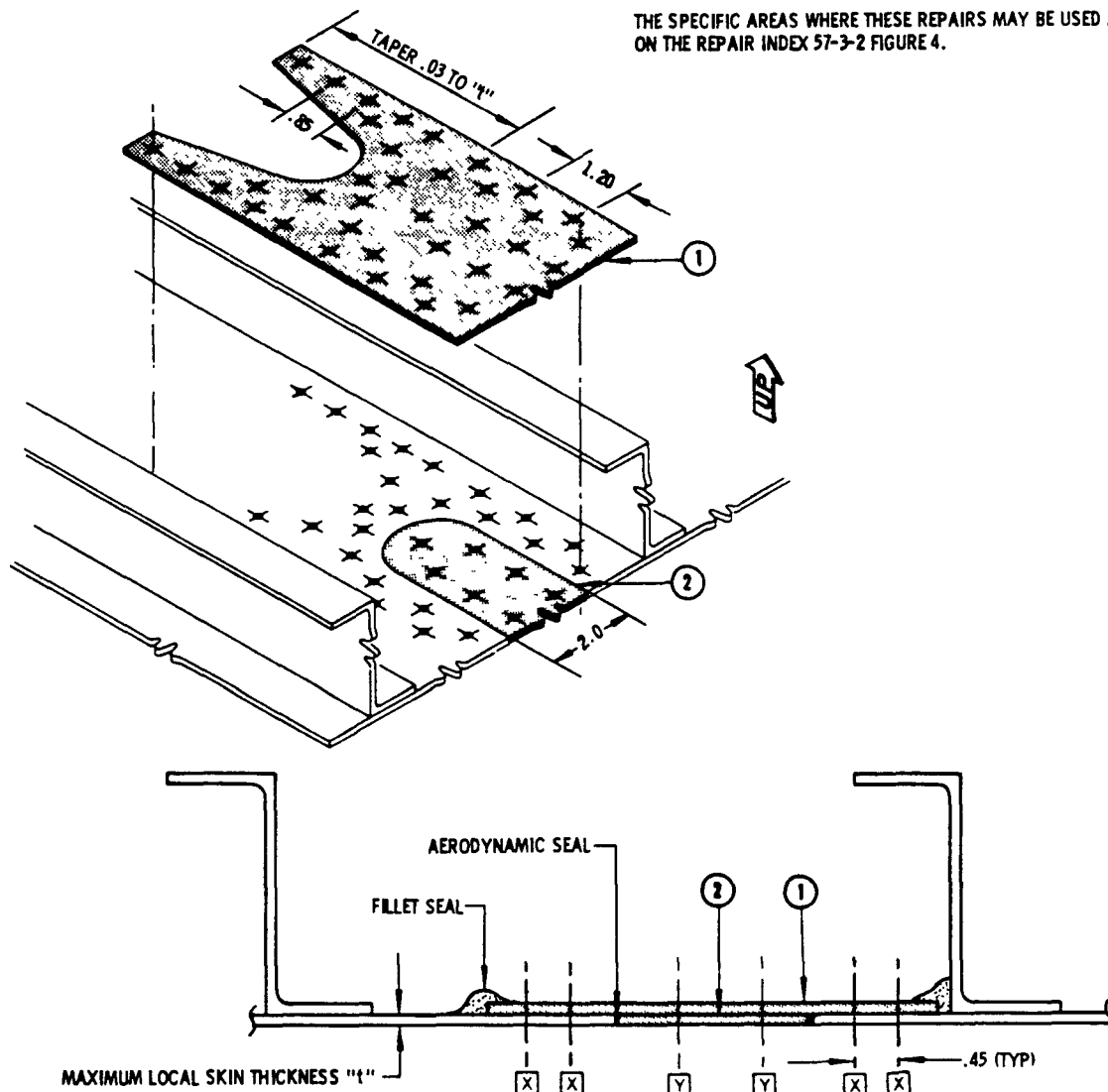
[B]

TWO EQUAL MACHINE STEPS OR THREE EQUAL GAGE PLATES OF AT LEAST TOTAL THICKNESS EQUAL TO "t".

## CAUTION:

THIS REPAIR MEETS STATIC STRENGTH REQUIREMENTS, HOWEVER FATIGUE LIFE WILL BE REDUCED.

THE SPECIFIC AREAS WHERE THESE REPAIRS MAY BE USED ARE SHOWN ON THE REPAIR INDEX 57-3-2 FIGURE 4.



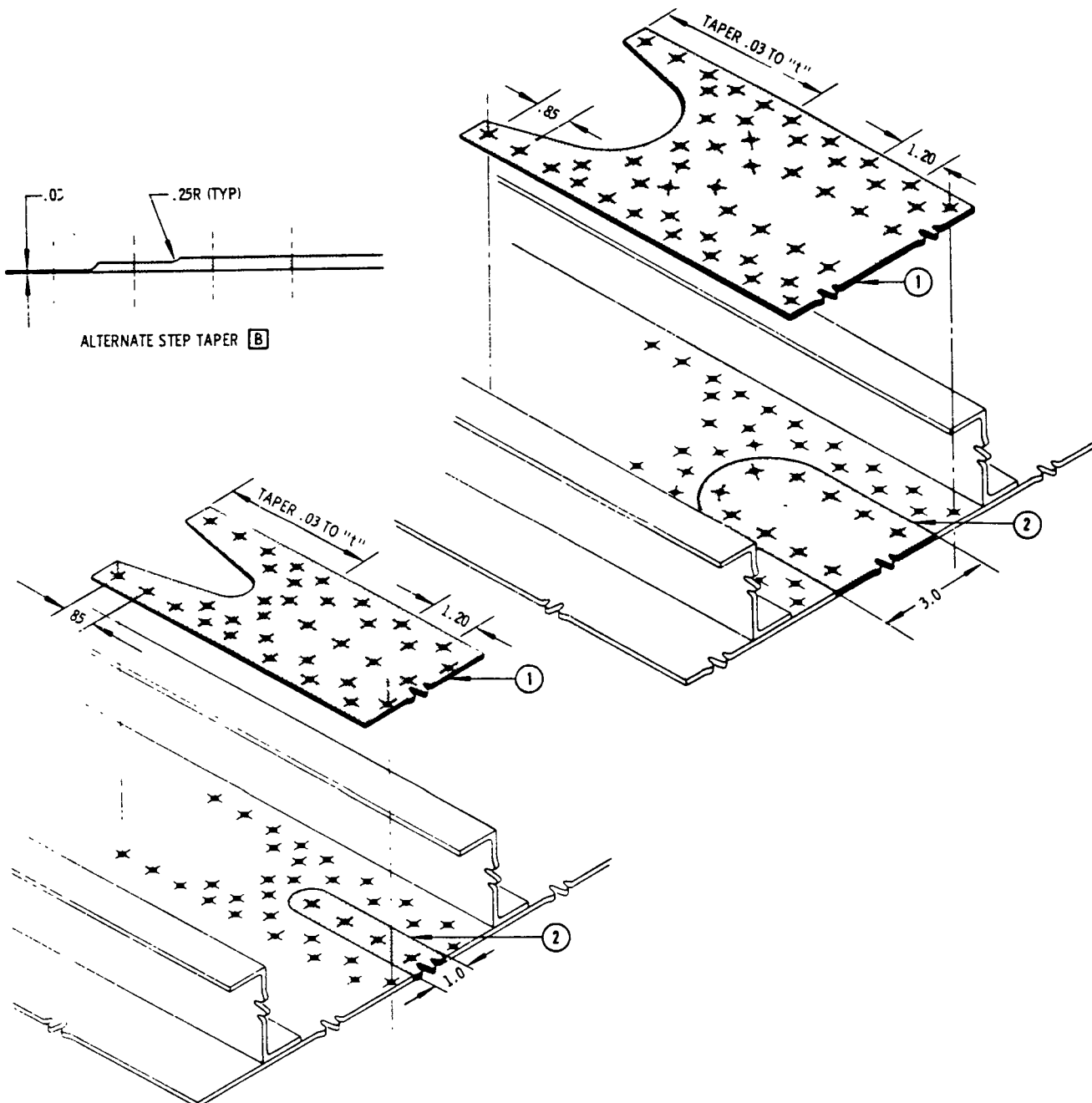
## TYPICAL SECTION THROUGH REPAIR

Wing Lower Skin Repair - Damage up to 3 Inches in Width  
Figure 5 (Sheet 1 of 2)

# STRUCTURAL REPAIR

## REPAIR MATERIAL

| WING CENTER SECTION |     |                                | INBD AND OUTBD WING |                                       |
|---------------------|-----|--------------------------------|---------------------|---------------------------------------|
| PART                | QTY | MATERIAL                       | QTY                 | MATERIAL                              |
| ① DOUBLER           | 1   | 2024-T3 OR 2024-T4             | 1                   | 2024-T3 OR 2024-T4                    |
| ② INSERT            |     |                                | 1                   | 2024-T3 OR 2024-T4                    |
| X FASTENER          |     | SALP-T6<br>(OPTIONAL NAS 1103) |                     | SAL 100-T6<br>(OPTIONAL) BAC-B30-EL-6 |
| Y FASTENER          |     |                                |                     | AN426D-5                              |



Wing Lower Skin Repair - Damage up to 3 Inches in Width  
Figure 5 (Sheet 2 of 2)





## REPAIR INSTRUCTIONS

1. Clean up damage area as illustrated.
2. Locate, drill and countersink fastener holes.
3. Remove sharp edges and burrs from cutout and fastener holes.
4. Brush alodize per 51-8-0, cutout edges and hole counter sinks.
5. Fabricate repair parts as illustrated. Brush alodize per 51-8-0 all surfaces not anodic treated.
6. Install repair parts.
7. Make a filleted sealant installation per 57-2-2 at fillet between original skin and repair parts.
8. Make a sealant installation per 57-2-2 at each fastener on the inner surface of repair.

## NOTE

CLOSE REAM HOLES PER 51-2-5

SEE 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS.

SEE 51-8-0 FOR METAL PROTECTIVE TREATMENT

BREAK SHARP EDGES 0.03 ALL REPAIR PARTS AND TRIMMED ORIGINAL PARTS

✚ ORIGINAL FASTENER LOCATIONS

✚ REPAIR FASTENER LOCATIONS

**A** "t" EQUALS THE MAXIMUM LOCAL SKIN THICKNESS IN THE VICINITY OF THE REPAIR.

**B** .050 GAGE FOR SKIN GAGE EQUAL TO OR LESS THAN .17 FOR SKIN GAGES GREATER THAN .17, ADD THE DIFFERENCE TO .050

EXAMPLE: SKIN GAGE .20;  $(.20 - .17) + .050 = .080$  IS GAGE REQUIRED FOR 2.

**C** PICK UP EXISTING FASTENERS

**D** TO LOCATE REPAIR, SELECT NEAREST FASTENER IN LINE WITH THE END OF DAMAGE CLEAN-UP AS ILLUSTRATED

**E** ADD EXTRA ROW OF FASTENERS WHEN .65 MAXIMUM IS EXCEEDED

CAUTION:

THIS REPAIR MEETS STATIC STRENGTH REQUIREMENTS, HOWEVER FATIGUE LIFE WILL BE REDUCED.

THE SPECIFIC AREAS WHERE THESE REPAIRS MAY BE USED ARE SHOWN ON THE REPAIR INDEX 57-3-2 FIGURE 4

**F** IF ORIGINAL FASTENERS ARE NOT NACA 82° RIVETS, APPLY SEALANT BMS 5-26 CLASS B PR1422 B-2 TO COUNTERSINK HEADS AND SHANKS WITHIN THE POT LIFE OF THE SEALANT

## REPAIR MATERIAL

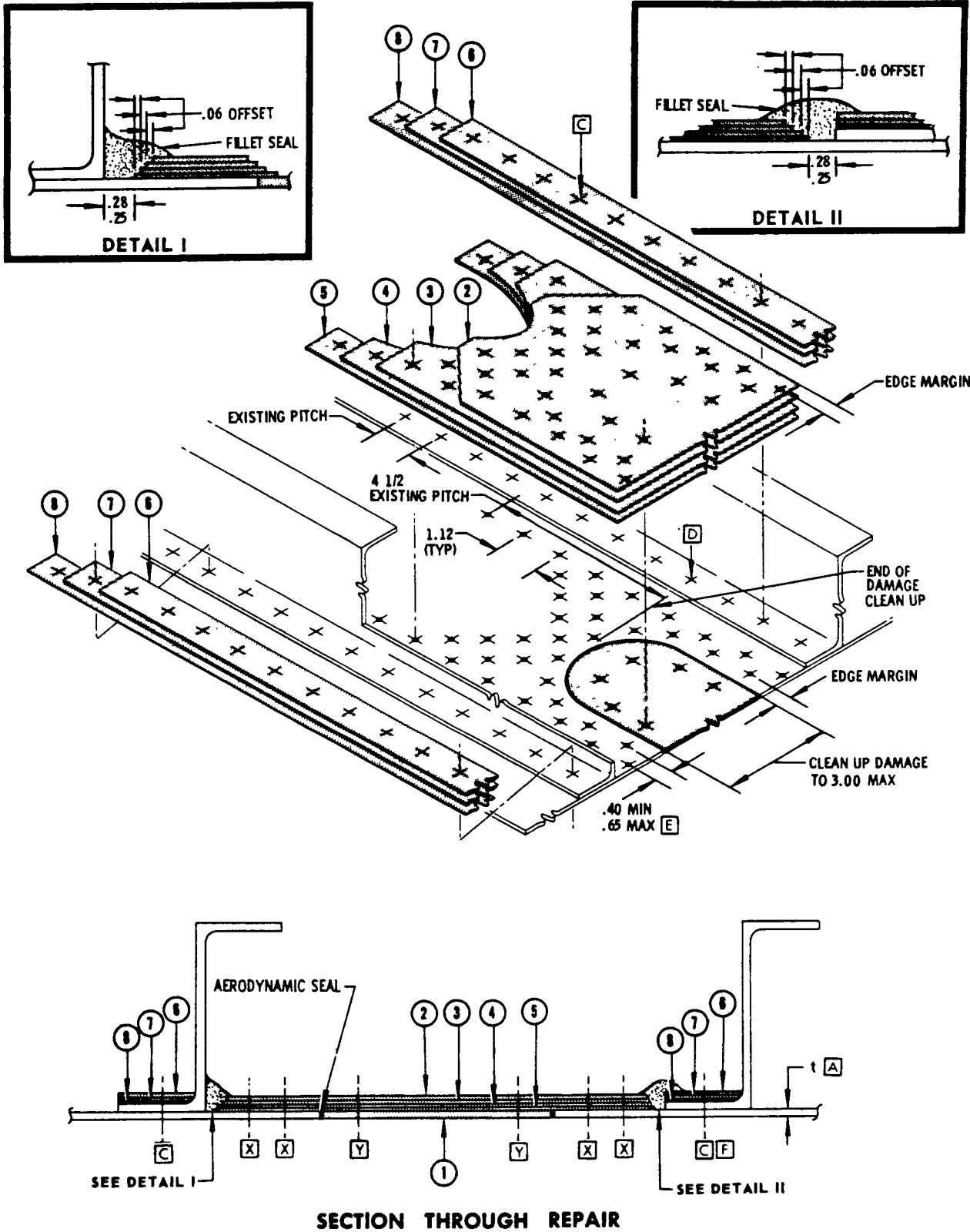
| WING CENTER SECTION |     |                                     | INBD AND OUTBD WING |                                          |
|---------------------|-----|-------------------------------------|---------------------|------------------------------------------|
| PART                | QTY | MATERIAL                            | QTY                 | MATERIAL                                 |
| ① FILLER            |     |                                     | 1                   | 2024-0, T3 OR T4                         |
| ② PLATE             | 1   | 2024-T3 <b>B</b>                    | 1                   | 2024-T3 <b>B</b>                         |
| ③ PLATE             | 1   | .050 2024-T3                        | 1                   | .050 2024-T3                             |
| ④ PLATE             | 1   | .040 2024-T3                        | 1                   | .040 2024-T3                             |
| ⑤ PLATE             | 1   | .040 2024-T3                        | 1                   | .040 2024-T3                             |
| ⑥ PLATE             | 2   | .040 2024-T3                        | 2                   | .040 2024-T3                             |
| ⑦ PLATE             | 2   | .040 2024-T3                        | 2                   | .040 2024-T3                             |
| ⑧ PLATE             | 2   | .032 2024-T3                        | 2                   | .032 2024-T3                             |
| <b>X</b> FASTENER   |     | SALP-T6 (OPT. NAS1503, AND NAS1504) |                     | SAL100-T (OPT. BAC B30-EL OR BAC-B30-FB) |
| <b>Y</b> FASTENER   |     |                                     |                     | MS20426D-5                               |

Wing Lower Skin Repair - Damage up to 3 Inches in Width  
Figure 6 (Sheet 1 of 2)

May 5/70

57-3-2  
Page 9

STRUCTURAL REPAIR



Wing Lower Skin Repair - Damage up to 3 Inches in Width  
Figure 6 (Sheet 2 of 2)

**BOEING**  
**707**  
**INTERCONTINENTAL**  
**STRUCTURAL REPAIR**



REPAIR INSTRUCTIONS

1. Remove original fasteners and sealant as required.
2. Cut out the damaged portion of skin to form a rectangular hole parallel to stiffeners. Do not cut into any stiffeners
3. If repair requires access to skin at vent extrusion, trim out at inner flange as shown in Detail III.
4. Eddy current inspect all holes from which fasteners are removed.
5. Fabricate repair parts.
6. Locate; drill and ream holes for repair fasteners. Prefit repair parts and check that the holes are in alignment.
7. Remove all burrs, nicks, sharp edges, and corners from the cut original parts and the repair parts. Chamfer or radius 0.015 to 0.030 on all cut edges.
8. Brush alodize repair parts, trimmed original parts and all fastener holes.
9. Apply 2 coats of BMS 10-20 Type 2 primer to repair parts and surfaces of repair area.
10. Seal repair parts as follows:
  - A. Apply BMS 5-26 Type A faying surface sealant to repair parts for corrosion prevention.
  - B. Apply prepack seals in chamfered corners of repair.
  - C. Install fasteners wet with BMS 5-26 Type A sealant.
  - D. Apply injection sealant at skin gap along repair parts (18) and (19).
  - E. Apply fillet seals to fasteners (on pressure side of seal plane) and along edges of repair parts.
  - F. Refer to 57-2-2 and Maintenance Manual 28-2-0 and 51-3-0 for sealing instructions.
11. Install repair parts as follows: (1) thru (12), followed by (18) and (19), followed by (13) thru (16), followed by (17).
12. When required, install bolts and bolt retainers on inner flange of vent extrusion. Fillet seal fasteners on inside of vent extrusion. Install plate (20).
13. Fill skin gap with BMS 5-79 aerodynamic smoother
14. Restore original finish according to the Maintenance Manual.

NOTES

- WING SHOULD BE ADEQUATELY SUPPORTED DURING REPAIR
- THIS REPAIR MUST NOT BE USED IN THE VICINITY OF MAJOR SKIN OR STIFFENER JOINT OR IN THE AREA OF STEP-MACHINED SKIN
- DAMAGE LIMITED TO SKIN ONLY. MAXIMUM REPAIRABLE SKIN GAGE IS 0.19

Wing Upper Skin Repair at Several Stiffeners  
Figure 7 (Sheet 1)



**INTERCONTINENTAL  
STRUCTURAL REPAIR**

NOTES (CONTINUED)

- REPLACE EXISTING FASTENERS COMMON TO THE REPAIR WITH 1/16 OVERSIZE DIAMETER FASTENERS
- FASTENER SPACING 4D MIN., EDGE MARGINS 2D MIN (D = DIAMETER OF FASTENER)
- IF W (SEE DETAIL V) IS LESS THAN 2D, REMOVE FASTENER AND PLUG HOLE IN EXISTING SKIN AND STIFFENER WITH MS20470D (SIZE AS REQUIRED) AT 82° COUNTERSINK. SEAL FASTERER. IF FASTENER FALLS WITHIN 0.14 SKIN GAP OR IMMEDIATELY ADJACENT TO EDGE OF EXISTING SKIN, REMOVE FASTENER AND PLUG HOLE IN STIFFENER ONLY WITH MS20470D. SEAL FASTENER. FILL HOLE IN EXISTING SKIN WITH AERODYNAMIC SMOOTHER BMS 5-79
- REFER TO THE FOLLOWING WHEN MAKING THIS REPAIR:
  - 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS
  - 51-8-0 FOR PROTECTIVE TREATMENT OF METAL
  - 57-2-2 FOR INTEGRAL FUEL TANK SEALING
  - 28-2-0 OF MAINTENANCE MANUAL FOR INTEGRAL FUEL TANK SEALING
  - 51-2-0 OF MAINTENANCE MANUAL FOR FINISHES
  - 51-3-0 OF MAINTENANCE MANUAL FOR SEALS AND SEALANTS

PART 6 OF THE NONDESTRUCTIVE TEST MANUAL FOR EDDY CURRENT INSPECTION PROCEDURES

- [A] QUANTITY DETERMINED BY SIZE AND LOCATION OF DAMAGE - QUANTITY FOR REPAIR SHOWN IS 6
- [B] QUANTITY DETERMINED BY NUMBER OF VENT EXTRUSIONS IN REPAIR TIMES 2 - QUANTITY FOR REPAIR SHOWN IS 2
- [C] QUANTITY DETERMINED BY NUMBER OF STIFFENER FLANGES ADJACENT TO DAMAGED SKIN TIMES 2 - QUANTITY FOR REPAIR SHOWN IS 10
- [D] FOR MATERIAL GAGE SEE TABLE I
- [E] USE CLAD IF AVAILABLE
- [F] SAME THICKNESS AS ADJACENT SKIN
- [G] JOGGLE TO SUIT GAGE DIFFERENCE BETWEEN REPAIR PLATES AND STIFFENER FLANGE
- [H] MATERIAL GAGE IS 80% OF INNER FLANGE THICKNESS OF VENT EXTRUSION
- [I] INJECT SEALANT AT SKIN GAP UNTIL SEALANT FLOWS FROM BOTH ENDS OF STRAP (18) OR ANGLE (19)

NOTES (CONTINUED)

- [J] INSTALL PREPACK SEALANT PRIOR  
TO INSTALLATION OF STRAPS (13)  
THRU (16)
- [K] FILL GAP COMPLETELY WITH  
AERODYNAMIC SMOOTHER BMS 5-79
- [L] REPAIR IS SYMMETRICAL ABOUT  
CENTER LINE
- [M] FILLET SEAL FASTENER AT  
INNER SURFACE

SYMBOLS

- + ORIGINAL FASTENER LOCATION  
REINSTALL SAME TYPE 1/16  
OVERSIZE DIAMETER FASTENER  
THROUGH REPAIR PARTS [M]
- ◆ REPAIR FASTENER LOCATION  
INSTALL BACB30GY OR BACB30FN  
SEE TABLE I FOR DIAMETER [M]
- ★ REPAIR FASTENER LOCATION  
INSTALL MS 20470D4 RIVET
- ⊙ REPAIR FASTENER LOCATION  
FOR BOLT RETAINER, INSTALL  
MS 20426D3F-5



INTERCONTINENTAL  
STRUCTURAL REPAIR

| REPAIR MATERIAL |       |     |          |     |
|-----------------|-------|-----|----------|-----|
| PART            |       | QTY | MATERIAL |     |
| 1               | PLATE | 2   | 7178-T6  | D E |
| 2               | PLATE | 2   | 7178-T6  | D E |
| 3               | PLATE | 2   | 7178-T6  | D E |
| 4               | PLATE | 2   | 7178-T6  | D E |
| 5               | PLATE | A   | 7178-T6  | D E |
| 6               | PLATE | A   | 7178-T6  | D E |
| 7               | PLATE | A   | 7178-T6  | D E |
| 8               | PLATE | A   | 7178-T6  | D E |
| 9               | PLATE | B   | 7178-T6  | D E |
| 10              | PLATE | B   | 7178-T6  | D E |

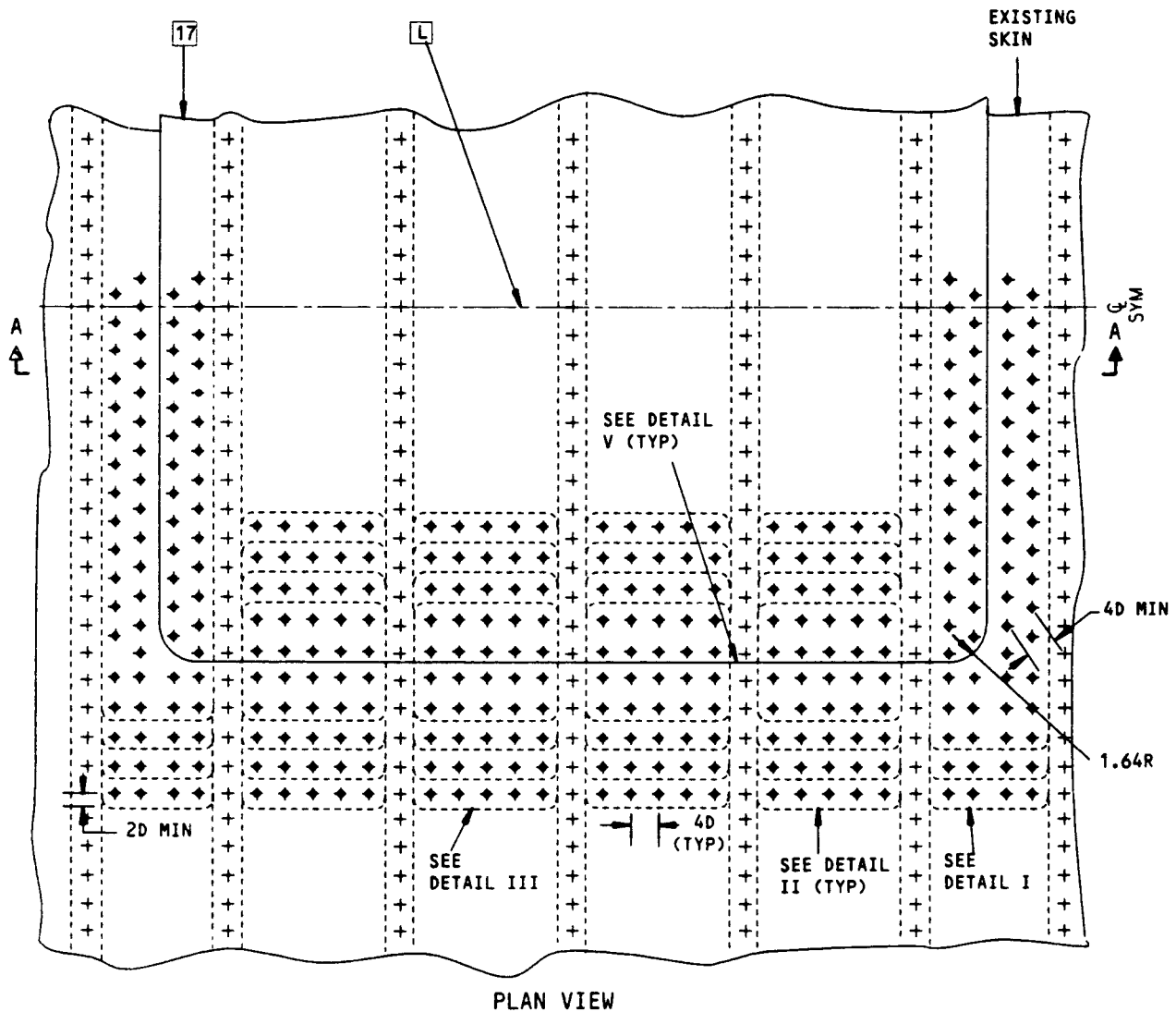
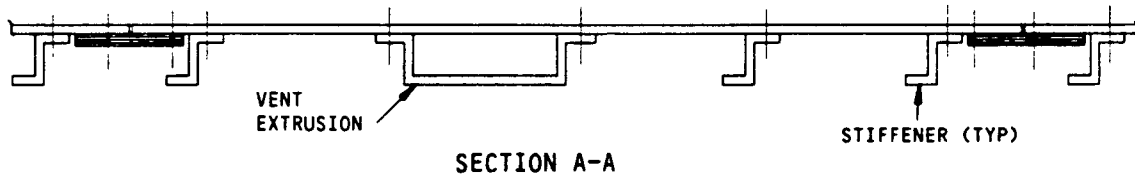
| REPAIR MATERIAL |        |     |               |     |
|-----------------|--------|-----|---------------|-----|
| PART            |        | QTY | MATERIAL      |     |
| 11              | PLATE  | B   | 7178-T6       | D E |
| 12              | PLATE  | B   | 7178-T6       | D E |
| 13              | STRAP  | C   | 7178-T6       | D F |
| 14              | STRAP  | C   | 7178-T6       | D E |
| 15              | STRAP  | C   | 7178-T6       | D E |
| 16              | STRAP  | C   | 7178-T6       | D E |
| 17              | FILLER | 1   | 7178-T6       | E F |
| 18              | STRAP  | C   | 0.040 7178-T6 | E   |
| 19              | ANGLE  | C   | 0.040 7178-T6 | F   |
| 20              | PLATE  | B   | 7178-T6       | E H |

| SKIN THICKNESS | REPAIR PART GAGE |           |           |              | REPAIR FASTENER DIAMETER |
|----------------|------------------|-----------|-----------|--------------|--------------------------|
|                | PART             | PART      | PART      | PART         |                          |
|                | 1 5 9 13         | 2 6 10 14 | 3 7 11 15 | 4 8 12 16    |                          |
| UP TO 0.063    | NOT REQUIRED     | 0.040     | 0.040     | NOT REQUIRED | 3/16                     |
| 0.064 TO 0.080 | NOT REQUIRED     | 0.050     | 0.050     | NOT REQUIRED | 3/16                     |
| 0.081 TO 0.100 | NOT REQUIRED     | 0.040     | 0.040     | 0.040        | 3/16                     |
| 0.101 TO 0.125 | 0.040            | 0.040     | 0.040     | 0.040        | 1/4                      |
| 0.126 TO 0.160 | 0.050            | 0.050     | 0.050     | 0.050        | 1/4                      |
| 0.161 TO 0.190 | 0.050            | 0.050     | 0.050     | 0.080        | 1/4                      |

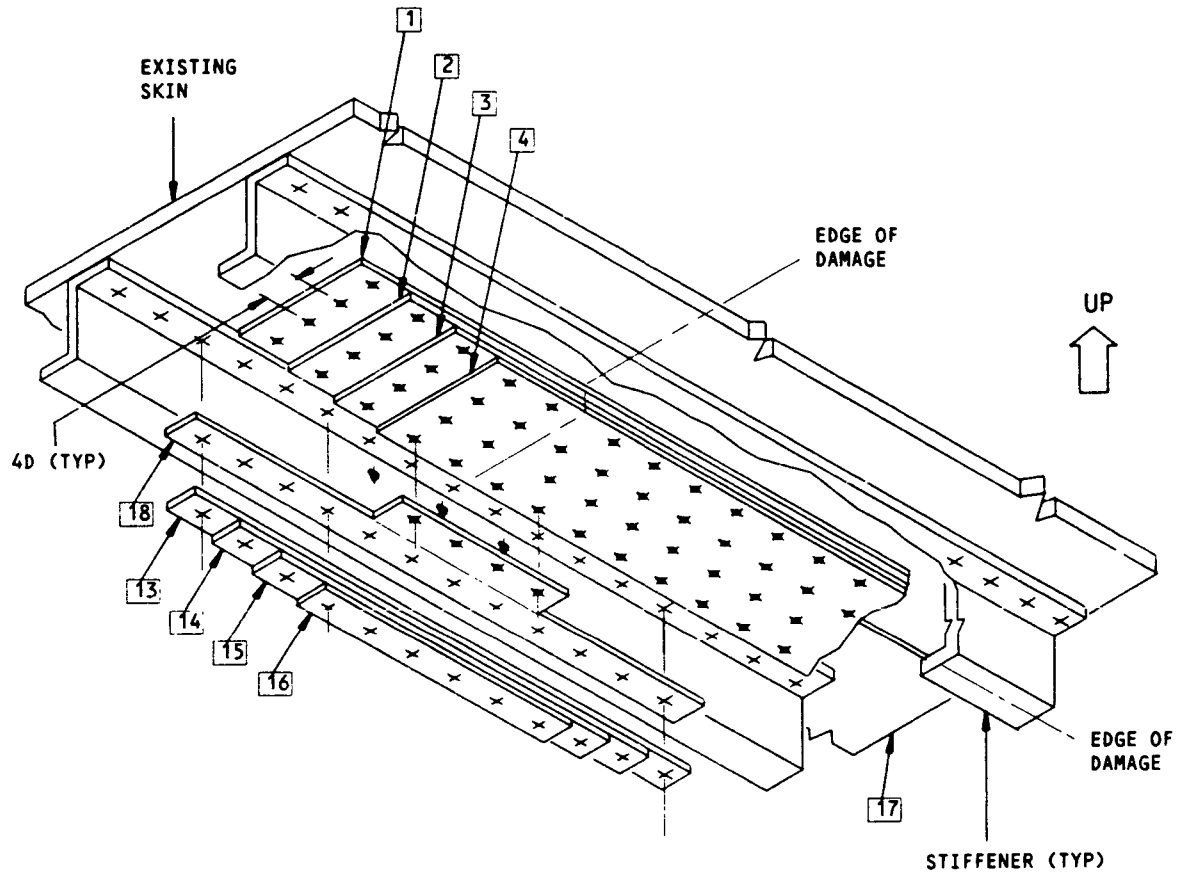
TABLE I

Wing Upper Skin Repair at Several Stiffeners  
Figure 7 (Sheet 4)

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



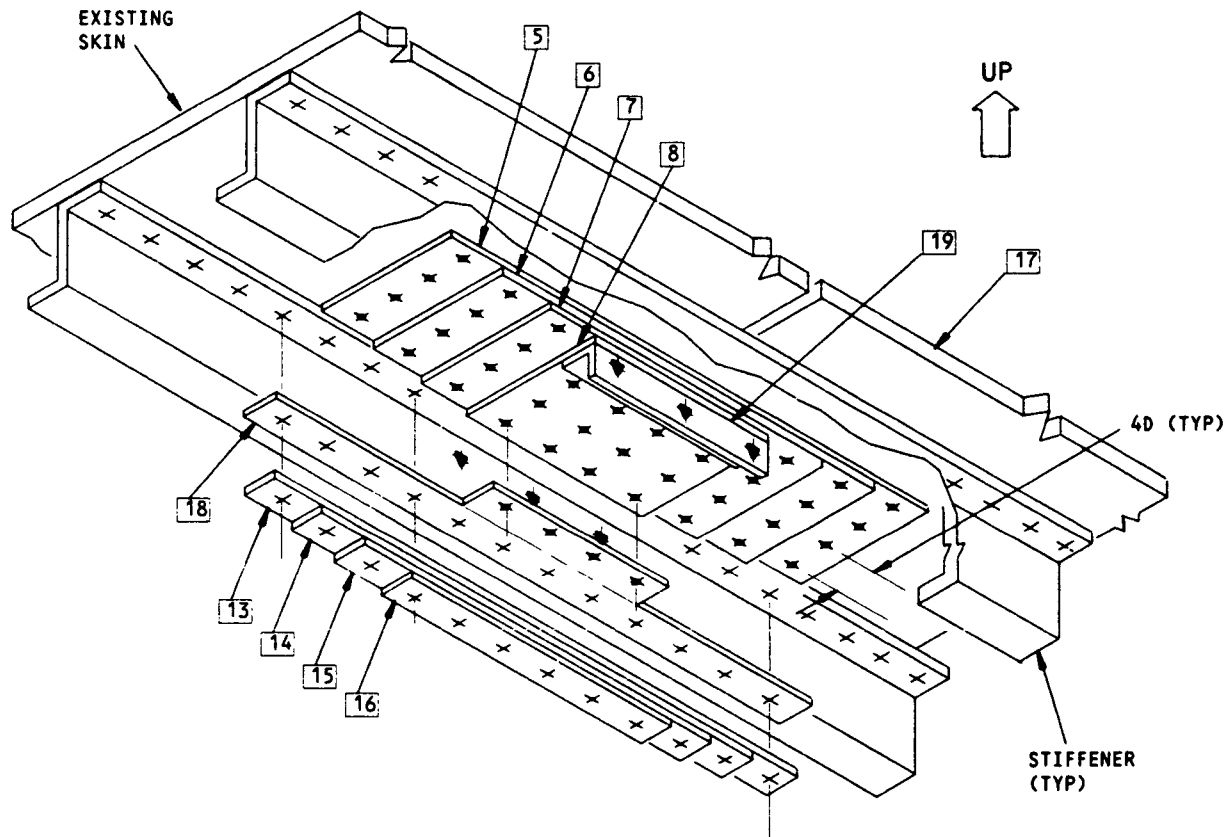
PLAN VIEW  
Wing Upper Skin Repair at Several Stiffeners  
Figure 7 (Sheet 5)



REPAIR ALONG SIDE  
 DETAIL I

Wing Upper Skin Repair at Several Stiffeners  
 Figure 7 (Sheet 6)





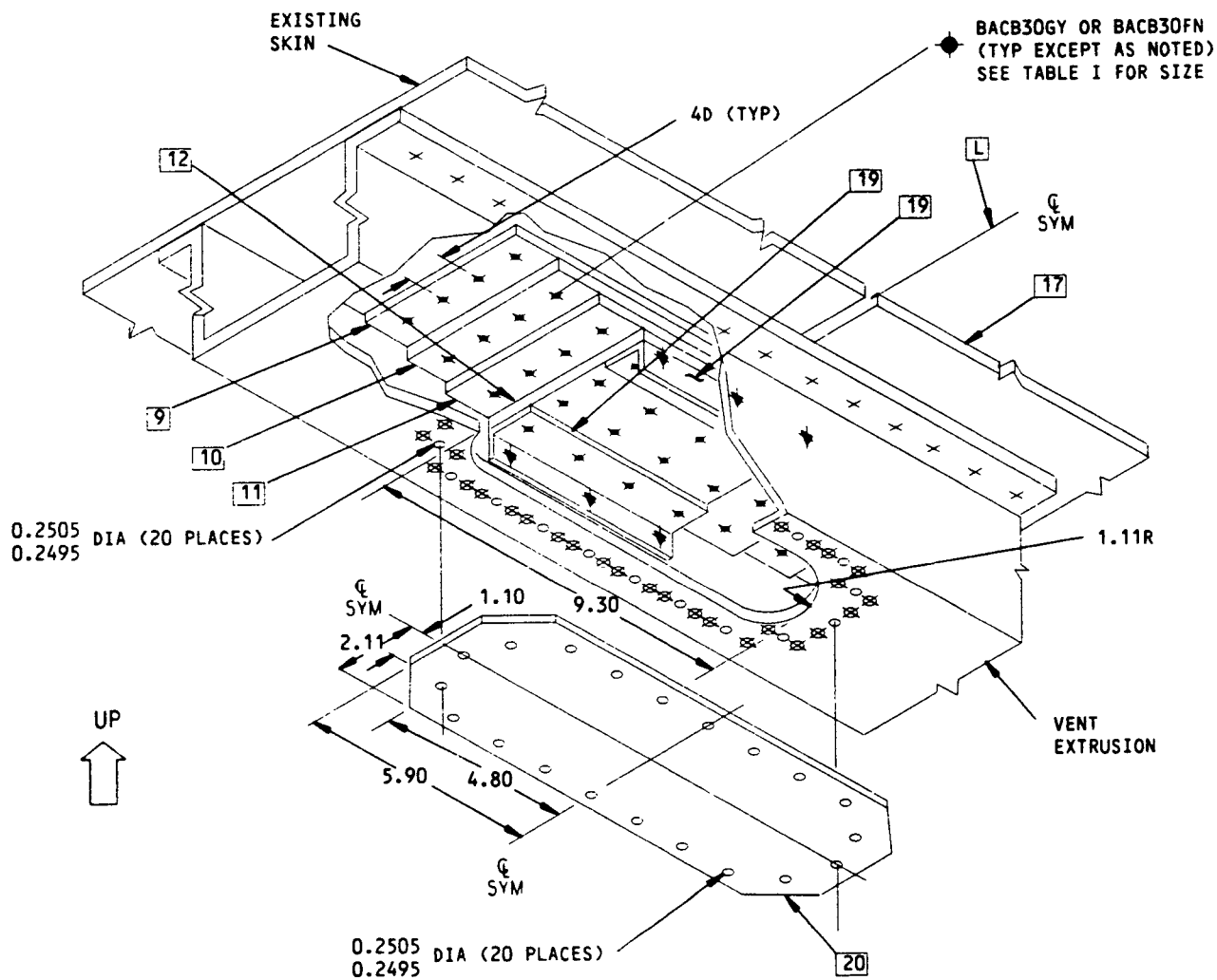
REPAIR BETWEEN STIFFENERS  
 DETAIL II

Wing Upper Skin Repair at Several Stiffeners  
 Figure 7 (Sheet 7)

**BOEING**  
**707**



INTERCONTINENTAL  
STRUCTURAL REPAIR



REPAIR AT VENT EXTRUSION

DETAIL III

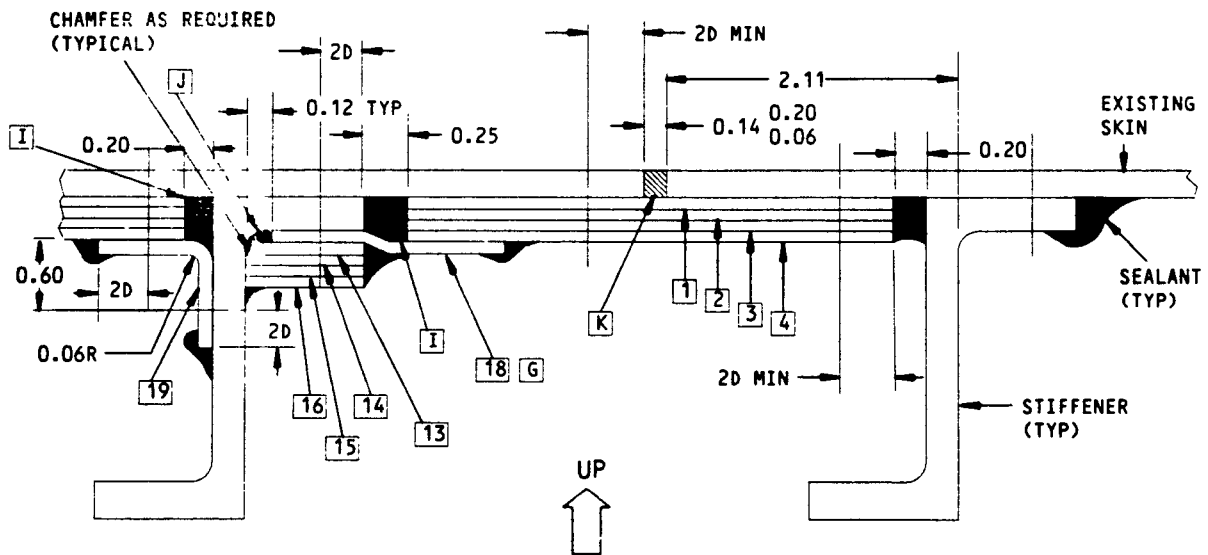
Wing Upper Skin Repair at Several Stiffeners  
Figure 7 (Sheet 8)

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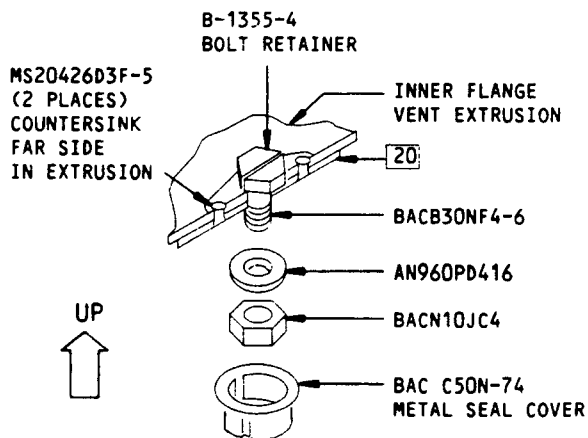
**BOEING**  
**707**



INTERCONTINENTAL  
STRUCTURAL REPAIR

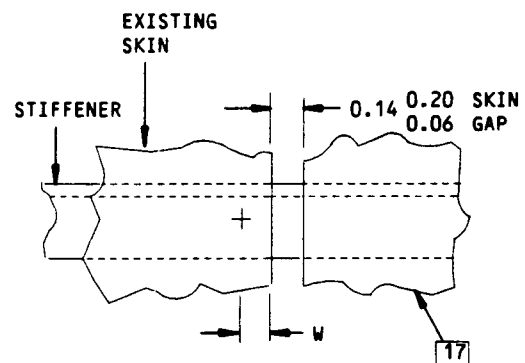


SECTION THROUGH DETAIL I



VENT EXTRUSION BOLT INSTALLATION

DETAIL IV



END OF DAMAGE

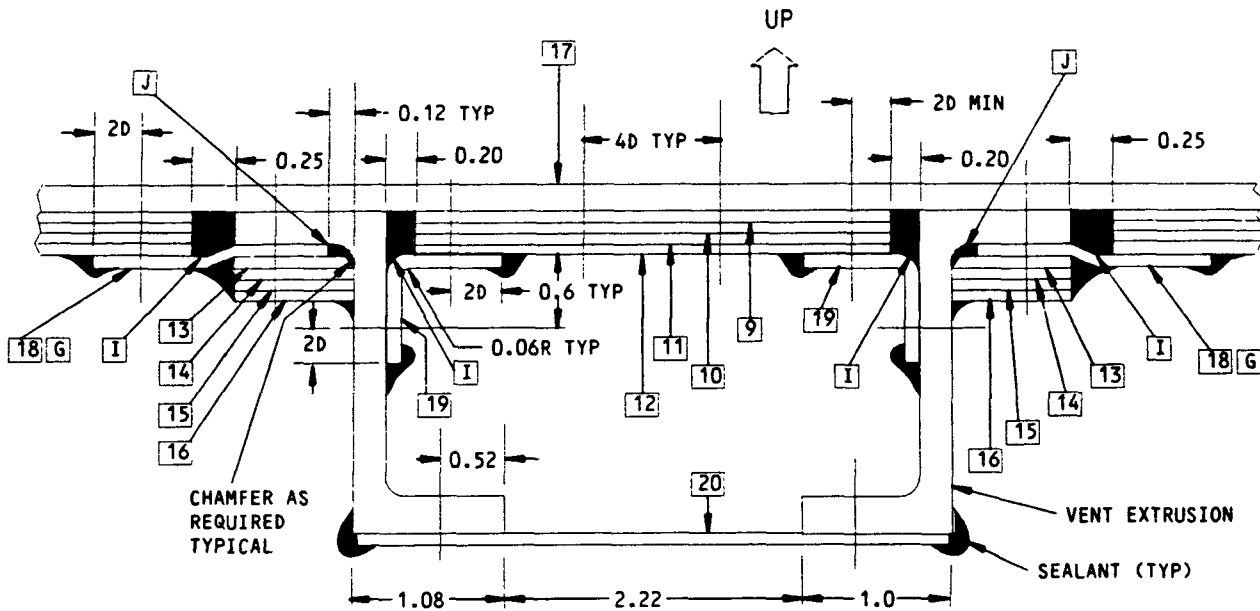
DETAIL V

Wing Upper Skin Repair at Several Stiffeners  
Figure 7 (Sheet 9)

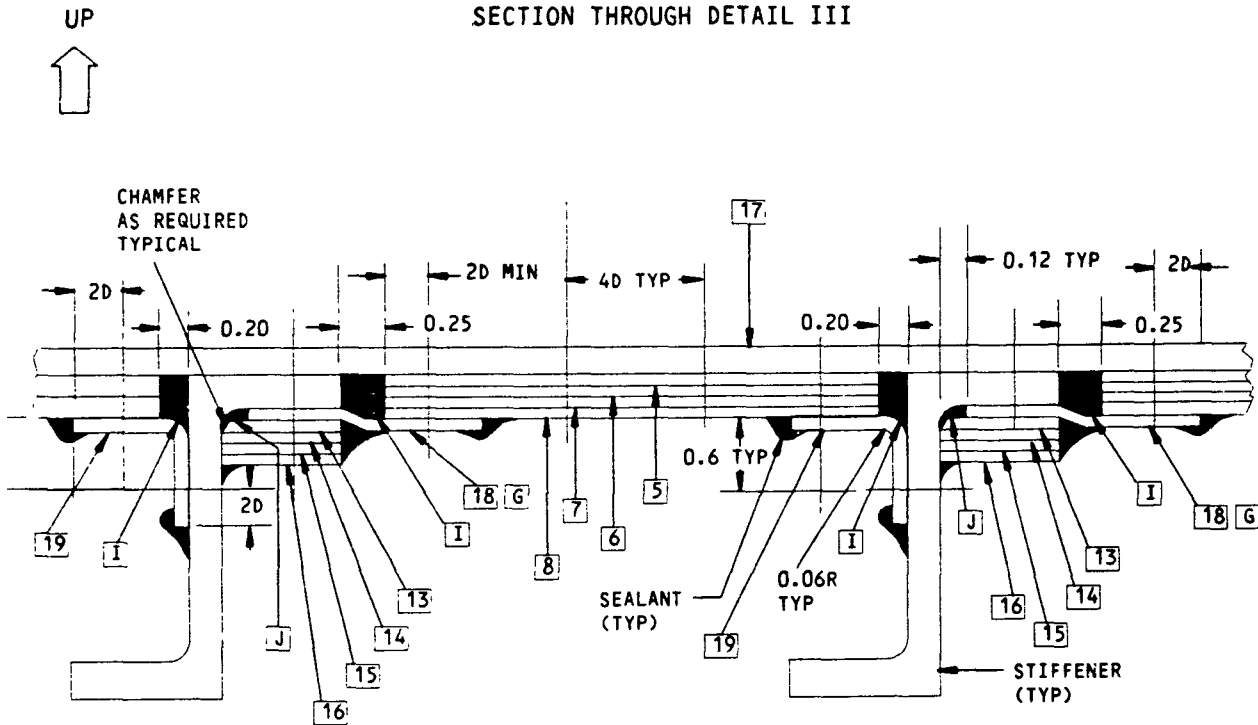
**BOEING**  
**707**



INTERCONTINENTAL  
STRUCTURAL REPAIR



SECTION THROUGH DETAIL III



SECTION THROUGH DETAIL II

Wing Upper Skin Repair at Several Stiffeners  
Figure 7 (Sheet 10)

**INTERCONTINENTAL  
STRUCTURAL REPAIR****REPAIR INSTRUCTIONS**

1. Make an eddy current inspection to locate the end of the crack in the skin.
2. Drill a 0.25 diameter hole at the end of the crack. Do not drill into the spar chord. Make an eddy current inspection of the hole to check that no other cracks exist forward of the hole edge.
3. Ream out the 0.25 diameter hole made in step 2 to 0.312 diameter and remove all burrs, sharp edges and scratches.
4. Remove as many fasteners as required to install the repair parts. Eddy current inspect all holes from which fasteners were removed.
5. Fabricate repair parts 1 and 2. Drill fastener holes. Match the original holes in the wing skin panel at existing fastener locations.
6. Remove all burrs, nicks, sharp edges, and corners from the repair parts. Chamfer or radius 0.015 to 0.030 on all cut edges. Break and polish edges of the 0.75 diameter holes in parts 1 and 2.
7. Apply 2 coats of BMS 10-11 Type 1 primer to repair parts and surfaces of repair area.
8. Fabricate repair washers and install in the original countersunk holes in the wing skin.

9. Apply a faying surface seal on the skin and between parts 1 and 2.
10. Install repair parts 1 and 2.
11. Apply a fillet seal at each fastener on the inner surface of the skin.
12. Restore original finish.

**NOTES**

- THIS REPAIR IS SUITABLE FOR USE AT WING STATIONS 672.61, 644.25, 619, 611, 585.75 AND 557.39
- REPLACE EXISTING FASTENERS COMMON TO THE REPAIR WITH 1/16 OVERSIZE FASTENERS
- REFER TO THE FOLLOWING WHEN MAKING THIS REPAIR:
  - 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS
  - 51-3-0 FOR PROTECTIVE TREATMENT OF METAL
  - 57-2-2 FOR INTEGRAL FUEL TANK SEALING
  - 28-2-0 OF MAINTENANCE MANUAL FOR INTEGRAL FUEL TANK SEALING
  - 51-2-0 OF MAINTENANCE MANUAL FOR FINISHES
  - 51-3-0 OF MAINTENANCE MANUAL FOR SEALS AND SEALANTS

Wing Upper Skin Panel Aft Edge Repair  
Figure 8 (Sheet 1)

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57-3-2  
Page 17

PART 6 OF THE NONDESTRUCTIVE  
TEST MANUAL FOR EDDY CURRENT  
INSPECTION PROCEDURES

- [A] IF ANY CRACK HAS PROGRESSED  
FORWARD OF THIS RIVET ROW  
CONSULT BOEING SERVICE UNIT  
FOR A SPECIAL REPAIR
- [B] PERIODICALLY CHECK FOR ANY  
EVIDENCE OF CRACKS EXTENDING  
PAST THE INSTALLED PLUG. IF  
CRACKING IS EVIDENT CONSULT  
BOEING SERVICE UNIT FOR A  
SPECIAL REPAIR

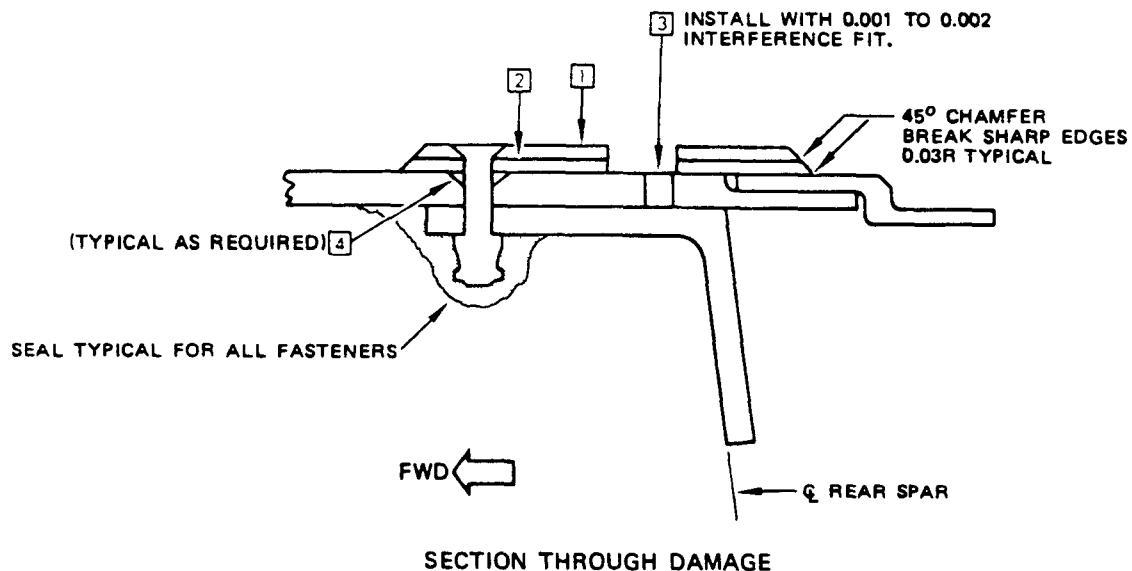
SYMBOLS

- + ORIGINAL FASTENER LOCATIONS  
REINSTALL SAME TYPE 1/16  
OVERSIZE FASTENER
- ◆ REPAIR FASTENER LOCATIONS  
INSTALL BACB 30GY6



INTERCONTINENTAL  
STRUCTURAL REPAIR

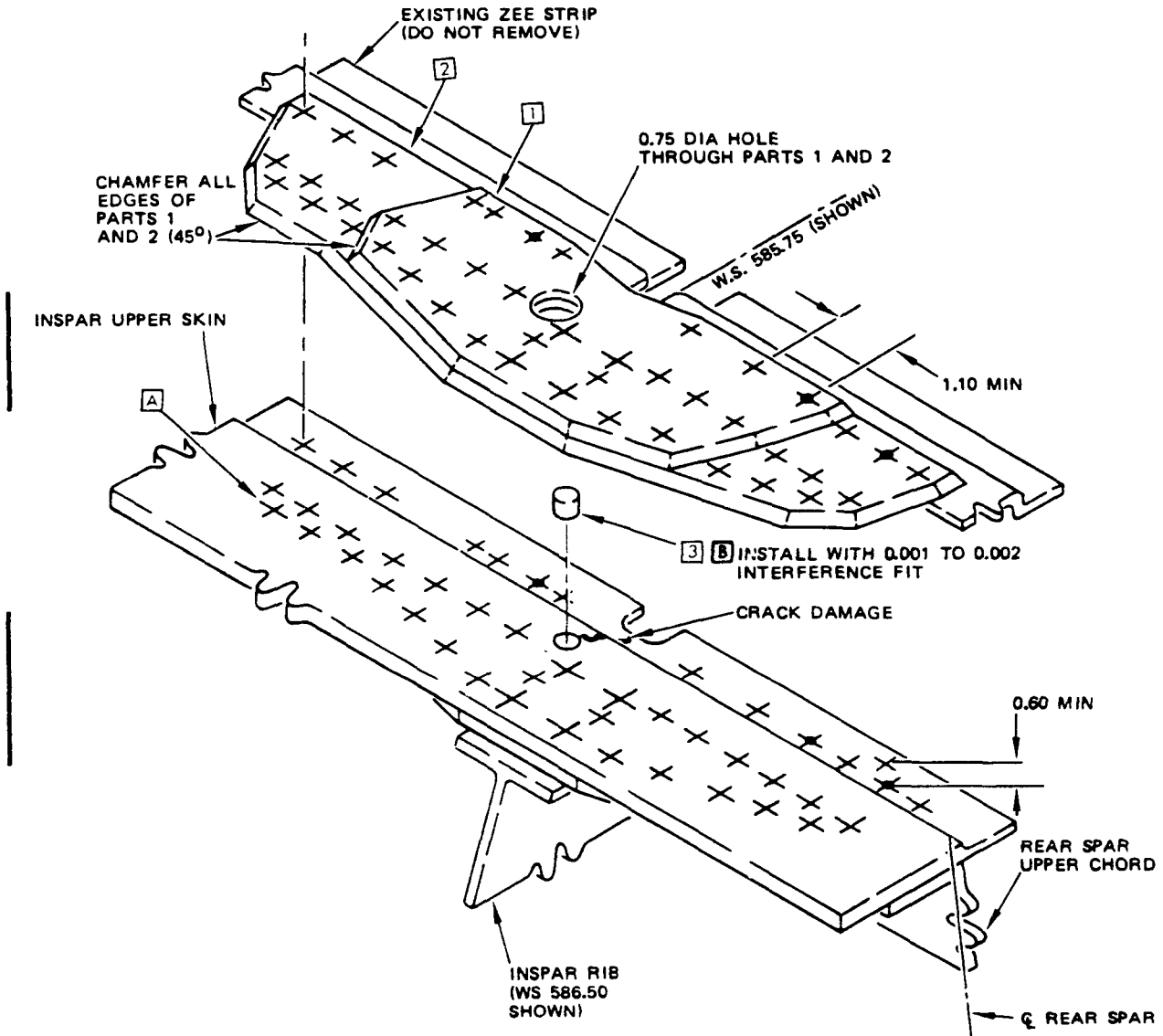
| REPAIR MATERIAL |        |            |                                          |
|-----------------|--------|------------|------------------------------------------|
| PART            | QTY    | MATERIAL   |                                          |
| 1               | PLATE  | 1          | 0.100 CLAD 7178-T6<br>OR CLAD 7075-T6    |
| 2               | PLATE  | 1          | 0.063 CLAD 7178-T6<br>OR CLAD 7075-T6    |
| 3               | PLUG   | 1          | 0.312 DIA<br>CLAD 2024-T4<br>OR 7075-T6  |
| 4               | WASHER | AS<br>REQD | MAKE AND INSTALL<br>PER 51-2-8 FIGURE 4. |



**BOEING**  
**707**



**INTERCONTINENTAL  
STRUCTURAL REPAIR**



Wing Upper Skin Panel Aft Edge Repair  
Figure 8 (Sheet 4)





## STRUCTURAL REPAIR

### REPAIR INSTRUCTIONS

**WARNING:** FIRE, EXPLOSIONS AND TOXICITY ARE INHERENT IN SOLVENT CLEANING, AND FINISHING OPERATIONS. NO WORK SHALL PROCEED UNTIL SAFE CONDITIONS HAVE BEEN ESTABLISHED. REFER TO CHAPTER 28 OF THE MAINTENANCE MANUAL.

1. Trim off the separated portion of the shield back to where the bond is still solid. The wing skin must not be damaged during this operation.
2. Construct a pattern of the removed armor skin area and cut a matching patch out of pre-coated armor skin material, Part 1 (.010 aluminum covered with BMS 5-95 and scrim cloth). If armor skin material is not available, substitute 0.010 OR 0.012 thick clad aluminum sheet and follow cleaning and priming operations as detailed for wing skin. Maximum gap between patch and armor skin must not exceed 0.10.
3. Clean and scrape the bulk of remaining adhesive off with a hardwood or plastic scraper. Clean up the last traces of adhesive by rubbing with clean gauze soaked in methyl-ethyl-ketone. Wipe the surface dry.
4. Apply BMS 3-2B solvent to surface by dispensing from a squirt or squeeze type bottle. Do not dip the cloth in the solvent container.
5. Rub the surface until the major portion of soil is removed. Scrub with a soft bristle brush if necessary to remove difficult soils.
6. Exchange soiled cloths for clean ones frequently.
7. Repeat above operations 4 thru 6 until cleaning cloths show no soil.
8. To dry, wipe off solvent with a clean dry cloth while the surface is still wet.
9. Wipe a portion of the area with a clean, white, lint-free cloth and the remaining portion with a clean, dark, lint-free cloth. Any visible deposit on either cloth is cause to repeat the cleaning operation.
10. Mask off surface around the area to be covered by the repair, allowing 1/4 inch to 3/8 inch excess over net size of the sheet on all sides.
11. Apply paint stripper using a cold solvent brush on stripper. Surface to be stripped must be thoroughly dry and the temperature at 50 - 100°F.
12. Brush on liberal amounts of well mixed stripper. Apply in one direction only and to an area which can be reasonably worked. The surface must remain moist.
13. Allow stripper to set undisturbed until paint is completely loosened as indicated by wrinkling.
14. Remove excess stripper and loosen paint with squeegee or rags.
15. Pressure water rinse.
16. Small areas not completely stripped can be spot stripped by repeating operations 11 thru 15, stripper can be reapplied only when surface is entirely dry.

Repair of Lightning Strike Armor Skin Over  
Vent Surge Tanks  
Figure 9 (Sheet 1)

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57-3-2  
Page 19



## STRUCTURAL REPAIR

### REPAIR INSTRUCTIONS (CONTINUED)

17. Solvent clean stripped surface using any of the solvent alkaline cleaners in dilutions as below:
  - Oakite 204 - 10 volumes of water to 1 volume of cleaner
  - Pennsalt 2271R - 10 volumes of water to 1 volume of cleaner
  - Pacific Chemical B-82 - 7 volumes of water to 1 volume of cleaner
- A. Apply the cleaning solution with swabs or brushes.
- B. Allow the cleaner to soak for at least 5 minutes. Do not allow the cleaner to dry on the surface. Scrub if required.
- C. Rinse thoroughly with clean warm (120°F max) water at least three times.
- D. Reclean if necessary.
- E. Dry the surface.
18. Apply primer BMS 10-11 Type 1. Do not apply primer when temp is below 50°F or relative humidity is over 85%.
19. Allow primer to dry a minimum of 7 hours at 50°F, 4 hours at 75°F or 60 minutes at 120°F. Minimum drying times at intermediate temperatures may be determined by straight line interpolation.
20. Protect primer from contamination from the time of coating until application of adhesive. Primer must be exposed to circulating air during drying period.
21. Mix BMS 5-95, Class B-1/2 adhesive in the ratio of 10 parts accelerator to 100 parts by weight of base. Spread a generous continuous layer of adhesive on both primed wing skin and patch. If clad aluminum alone is being used as a patch, a layer of Thalco 196 glass scrim cloth (or equivalent) must be layed in the wet sealant on the patch and trimmed to size.
22. Without letting coated surfaces touch, place coated patch in position with edge of patch next to trimmed edge of existing armor skin. (Gap not to exceed 0.10.) Tape edge of patch to existing armor skin to hold it in position while rolling down. Starting at joint edge of patch, progressively roll it down, going slowly and carefully to eliminate as much air as possible. Use of a rubber or plastic roller is recommended. When patch is completely down, apply tape in several spots to keep the edges from lifting.
23. Construct a vacuum bag over the patch with Osnaberg or similar cloth as a bleeder. Cure under 5 to 15 inches of mercury vacuum per detail 1. The B-1/2 material will be cured sufficiently in 20 hours at 75°F. Heat will accelerate cure. Warm air or heat lamps may be used to warm the sealant to 130°F maximum. At this temperature the adhesive will build up enough strength in about 30 minutes to allow removal of the vacuum bag.

Repair of Lightning Strike Armor Skin Over  
Vent Surge Tanks  
Figure 9 (Sheet 2)

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## STRUCTURAL REPAIR

### REPAIR INSTRUCTIONS (CONTINUED)

24. Trim adhesive squeezeout along outer edge of patch to provide a fillet about 1/4" wide which fairs into top surface of shield.
25. Remove tape and clean off adhesive squeezeout along joint between patch and original armor skin. Scrape off bulk of material and clean up last traces with MEK. Apply 3/4" wide conductive tape, Minnesota Mining & Manufacturing Company's No. X-1170, over entire joint to ground patch to armor skin.
26. Apply 2 inch wide Scotch Brand No. 850 or 853 or Permacel P95 pressure sensitive tape over the entire joint, for sealing purposes as follows:
  - A. Apply chordwise strips of tape first.
  - B. Extend tape at least 1 inch onto the adjacent armor.
  - C. Round the tape corners to a 1/4 to 1/2 inch radius.
27. Replace the rivets installed for electrical grounding purposes if missing or loose.
28. Seal all the outer edges of the patch and the remaining armor skin. Clean a strip about 2 inches wide around the edge of the shield and a similar area on the adjacent wing skin using clean cheese cloth soaked with naphtha solvent, and wipe dry.
29. Fair adhesive between the edge of the shield and the wing skin as follows:
  - A. Apply a bead of BMS 5-26 adhesive around the shield edge.
  - B. Smooth off adhesive with a suitable hardwood or plastic tool, so that it forms a fillet about 1/4 inch wide which fairs into the outer surface of the shield.
  - C. Allow the sealant to cure without heat or with heat (130°F max) until it has become rubbery and no longer flows.
30. Inspect the sealing tape periodically and replace as required if it erodes.
31. The lightning strike armor may be replaced in its entirety in a similar manner.
32. Restore finish per 51-2-0 of the Maintenance Manual.

| PRECOATED ARMOR SKIN<br>OBTAINABLE FROM BOEING SPARES |            |
|-------------------------------------------------------|------------|
| PANEL ASS'Y                                           | PART NO.   |
| LEFT SIDE, UPPER                                      | 65-28778-3 |
| RIGHT SIDE, UPPER                                     | 65-28778-4 |
| LEFT SIDE, LOWER                                      | 65-28778-5 |
| RIGHT SIDE, LOWER                                     | 65-28778-6 |

**BOEING**  
**707**  
**INTERCONTINENTAL**  
**STRUCTURAL REPAIR**



**NOTES**

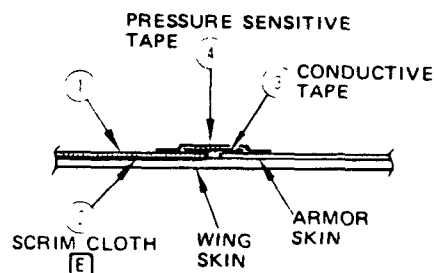
- FOR BMS REFERENCES REFER TO 51-1-2
- REFERENCE: SERVICE BULLETIN NO. 1642
- DAMAGE IS ASSUMED TO BE THE DELAMINATION OF LIGHTNING STRIKE ARMOR SKIN FROM SKIN OVER FUEL VENT SURGE TANKS

- [C] ALIGNMENT POINTS MUST BE VISIBLE AFTER PANEL INSTALLATION. 0.62 DIA HOLE IN PART 1 TO MATCH ALIGNMENT POINTS WITHIN 0.12 IN ANY DIRECTION
- [D] DELETED
- [E] SCRIM CLOTH REQUIRED TO PROVIDE THERMAL PROTECTION

[A] THALCO NO. 196  
THALCO GLASS CLOTH FIBER  
PRODUCTS LOS ANGELES,  
CALIFORNIA 90040

[B] SCOTCH BRAND TAPE AVAILABLE  
FROM MINNESOTA MINING AND  
MANUFACTURING CO., ST. PAUL,  
MINNESOTA 55101

PERMACEL TAPE AVAILABLE FROM  
PERMACEL DIV. OF JOHNSON AND  
JOHNSON, US HIGHWAY NO. 1, NEW  
BRUNSWICK, NJ 08901



SECTION A-A



SECTION B-B

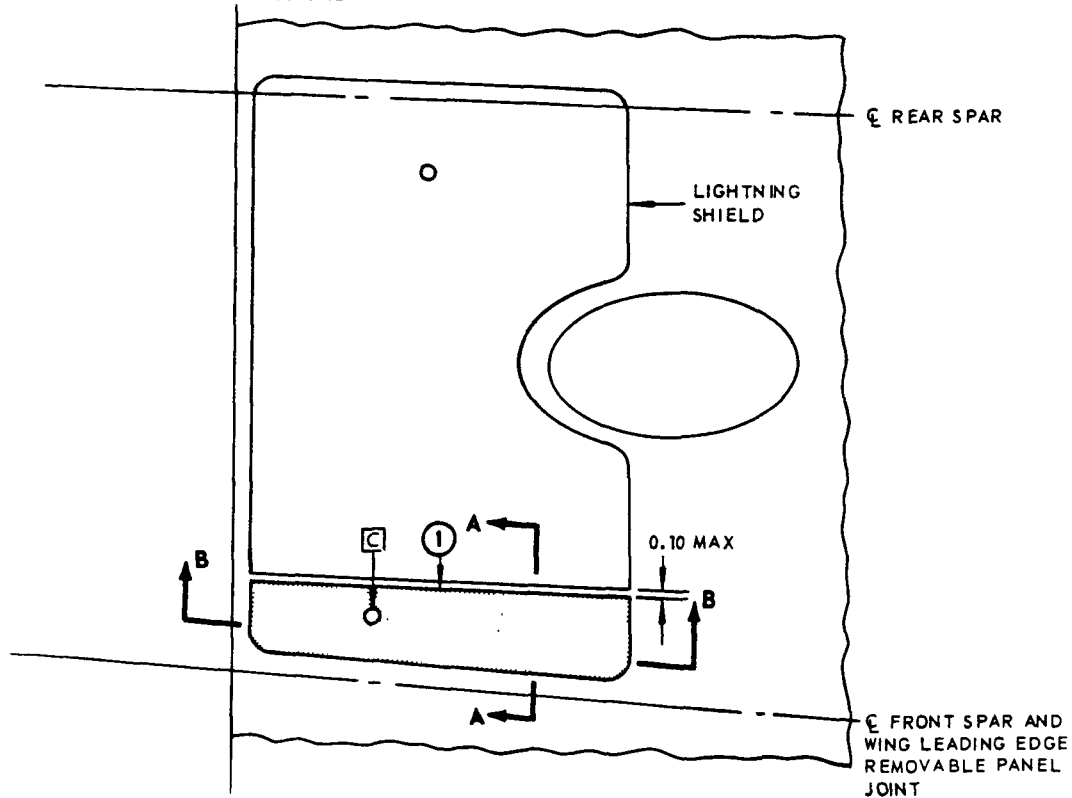
| REPAIR MATERIAL |                         |         |                                                       |                                   |
|-----------------|-------------------------|---------|-------------------------------------------------------|-----------------------------------|
| PART            |                         | QTY     | MATERIAL                                              |                                   |
|                 |                         |         | PREFERRED                                             | OPTIONAL                          |
| (1)             | PATCH                   | 1       | PRECOATED ARMOR SKIN MATERIAL                         | 0.010, 0.012 CLAD ALUM SH 2024-T3 |
| (2)             | SCRIM CLOTH             | AS REQD |                                                       | [A] [E]                           |
| (3)             | CONDUCTIVE TAPE         | AS REQD | 3 4" NO X-1170                                        | [F]                               |
| (4)             | PRESSURE SENSITIVE TAPE | AS REQD | 2-INCH WIDE SCOTCH BRAND NO. 850, 853 OR PERMACEL P95 | [B]                               |

Repair of Lightning Strike Armor Skin Over  
Vent Surge Tanks  
Figure 9 (Sheet 4)

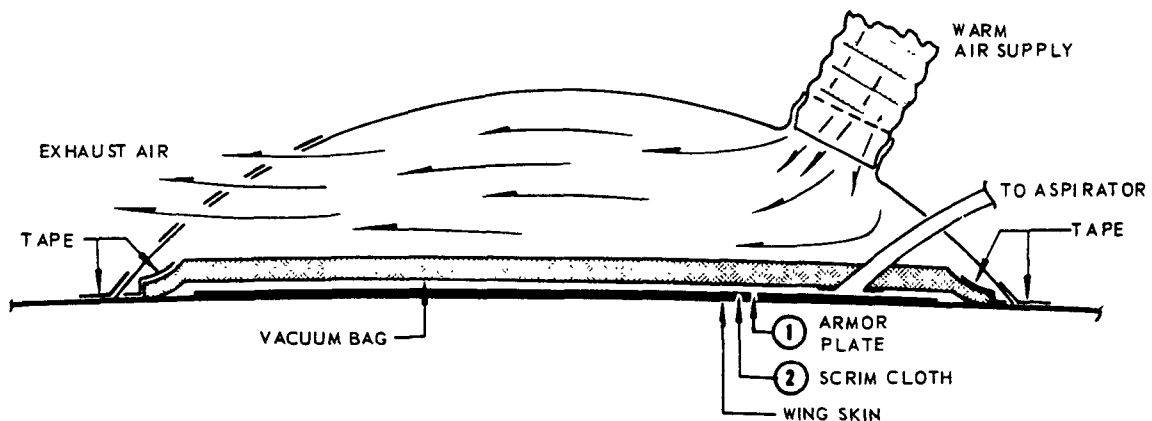
SRM 320  
Jul 10/80

# STRUCTURAL REPAIR

WING TIP SKIN JOINT  
AND WING STA 960.112



LOWER SURFACE SKIN SHOWN  
(UPPER SKIN SURFACE SIMILAR)



VACUUM BAG PRESSURE BONDING  
DETAIL I

Repair of Lightning Strike Armor Skin Over  
Vent Surge Tanks  
Figure 9 (Sheet 5)

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



REPAIR INSTRUCTIONS

1. Comply with the applicable requirements of 57-2-2, par. 1, 3 and 4.
2. Round out and deburr the damaged area to a hole 0.75-inch diameter maximum.
3. Fabricate parts 1 and 2.
4. Install parts 1 and 2  
Make a faying surface seal installation at the inner and outer surfaces of the skin for the doublers. Torque the nut 50-70 inch-pounds, per 51-2-4.
5. Make a fillet sealing installation at the inner surface. A seal cover over the sealant at the nut is recommended. Refer to 28-2-0 of the Maintenance Manual.

| REPAIR MATERIAL                                                         |     |                           |  |
|-------------------------------------------------------------------------|-----|---------------------------|--|
| PART                                                                    | QTY | MATERIAL                  |  |
| <span style="border: 1px solid black; padding: 0 2px;">1</span> DOUBLER | 2   | 0.10 2024-T4              |  |
| <span style="border: 1px solid black; padding: 0 2px;">2</span> FILLER  | 1   | 2024-T4 SAME GAGE AS SKIN |  |

NOTES

- REFER TO 51-8-0 FOR METAL PROTECTIVE TREATMENT
- REFER TO 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION
- FOR PERFORMANCE CONSIDERATIONS IN REGIONS OF CRITICAL SMOOTHNESS REFER TO 51-4-1

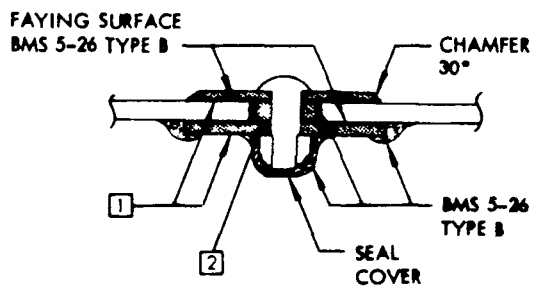
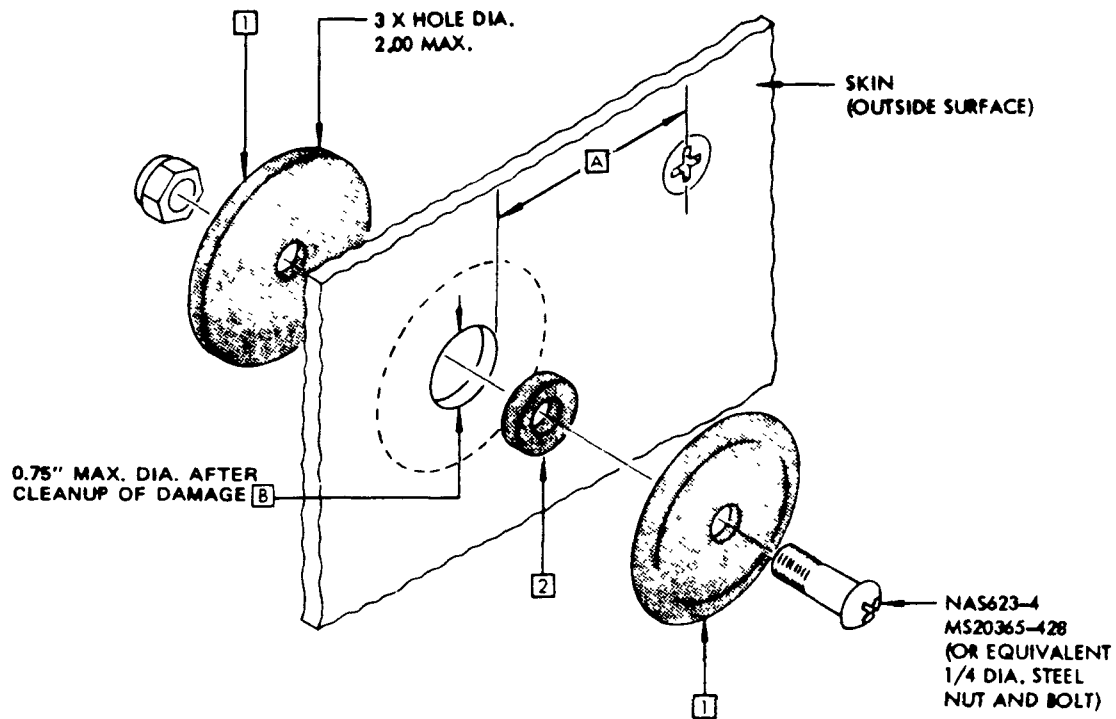
- THE REPAIR IS APPLICABLE TO THE UPPER AND LOWER SKIN AREA OF THE WING, EXCEPT AT SCULPTURED AREAS OF THE ACCESS DOOR PANELS OR OTHER LOCALLY PADDED AREAS. (THE REPAIR IS NOT APPLICABLE TO THE LOWER SURFACE OF THE WING CENTER SECTION)

CAUTION: NO EXTERNAL PATCHES SHOULD BE INSTALLED ON THE LOWER WING SURFACE WITHIN THE AREA DEFINED BY 12 INCHES ON EITHER SIDE OF THE WING BUTTOCK LINE PASSING THROUGH THE STICK SHAKER ACTUATOR VANE, FROM THE WING LEADING EDGE TO 6 INCHES AFT OF THE VANE

- THE REPAIR IS ACCEPTABLE FOR REVENUE FLIGHTS (NOT TO EXCEED 350 HOURS FLIGHT TIME) BEFORE REPAIRING PER 57-3-2, FIG. 5 OR 6
- REPAIR NOT APPLICABLE WHERE AREA OUT (DIAMETER OF HOLE X SKIN THICKNESS) EXCEEDS THE BETWEEN-ADJACENT-STIFFENER ALLOWABLES OF 57-2-1, FIGURE 1A, TABLE I OR TABLE II

- A EDGE OF THE 0.75 DIA HOLE IS TO BE AT A MINIMUM OF 2.5 D FROM THE CENTER OF AN EXISTING FASTENER WHERE "D" IS THE DIAMETER OF THE EXISTING FASTENER HOLE. THE 0.75 DIA HOLE SHOULD NOT BE LOCATED IN THE RADIUS OF ANY SKIN THICKNESS TRANSITION

Wing Skin - Time Limited Repair  
Figure 10 (Sheet 1)



**NOTE**

[B] AREA REMOVED MUST NOT EXCEED ALLOWABLE OF 57-2-1, FIG. 1A, TABLE I OR TABLE II.

SECTION THROUGH REPAIR

# STRUCTURAL REPAIR

## REPAIR INSTRUCTIONS

1. Clean up damage area as illustrated.
2. Locate, drill and countersink fastener holes.
3. Remove sharp edges and burrs from cutout and fastener holes.
4. Brush alodize per 51-8-0, cutout edges and hole countersinks.
5. Fabricate repair parts as illustrated. Brush alodize per 51-8-0 all surfaces nonanodic treated.
6. Install repair parts.
7. Fillet seal per 57-2-2 at fillet between original skin and repair parts.
8. Seal per 57-2-2 at each fastener on the inner surface of repair parts.

## NOTE

- REPAIRS SHOWN ARE NOT APPLICABLE IN SHADED AREAS INDICATED ON UPPER WING SKIN DIAGRAM.
- THIS REPAIR MEETS FATIGUE LIFE REQUIREMENTS.
- APPLY SEALANT BMS 5-26 CLASS B PR1422 B-2 TO COUNTERSINK HEADS AND SHANKS WITHIN THE POT LIFE OF THE SEALANT.
- BREAK SHARP EDGES 0.03 FOR ALL REPAIR PARTS AND TRIMMED ORIGINAL PARTS.
- USE TRANSITION FIT HOLES PER 51-2-5.

- SEE 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS.
- SEE 51-8-0 FOR METAL PROTECTIVE TREATMENT.

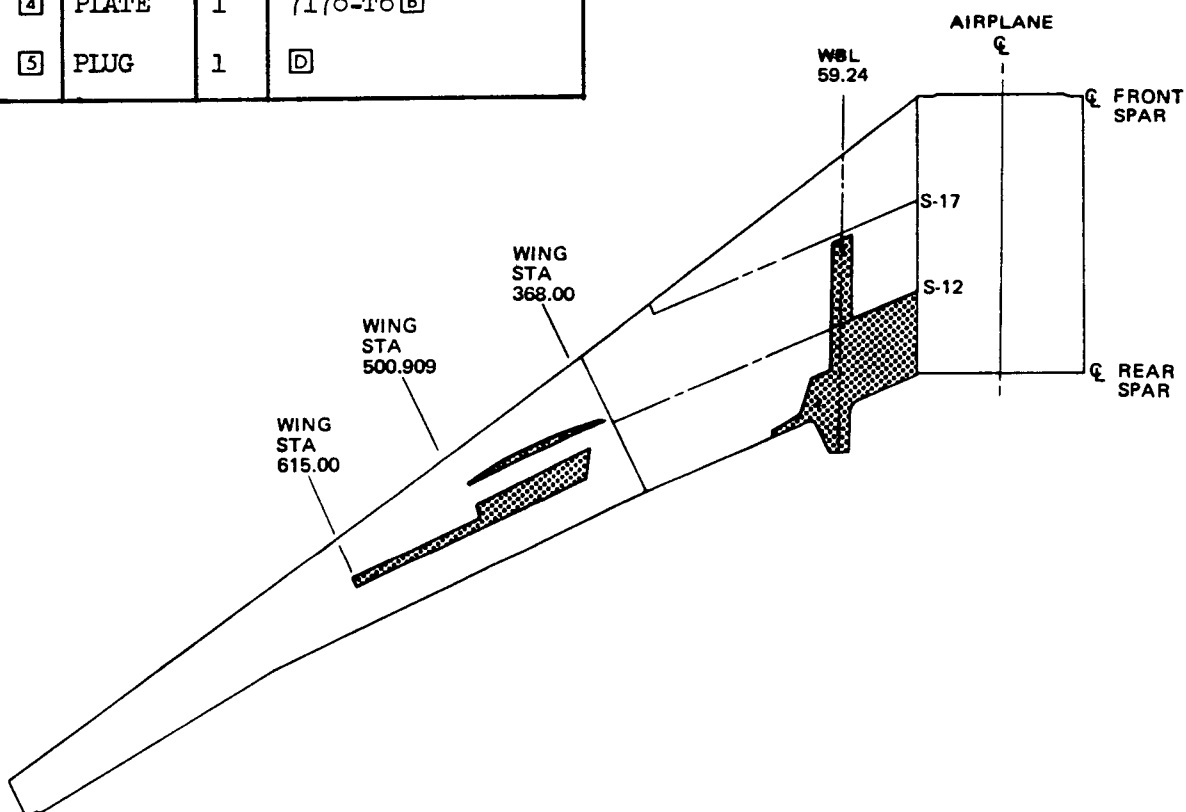
## ✦ REPAIR FASTENER LOCATION

- [A] FOR REPAIR PLATE GAGES, SEE DETAILS I AND II.
- [B] GAGE OF THIS PLATE SHALL BE 1.25 TIMES THE SKIN THICKNESS IN THE VICINITY OF THE REPAIR.
- [C] IF CRACK CANNOT BE CLEANED UP WITH 1.50 DIAMETER HOLE, USE ELONGATED SLOT AS REQUIRED. REPAIR PLATES ARE TO BE LENGTHENED ACCORDINGLY.
- [D] PLUG IS TO BE SAME GAGE AND MATERIAL AS SKIN IN THE IMMEDIATE VICINITY OF CRACK. PLUG MUST BE INTERFERENCE FIT (CIRCULAR PLUG ONLY). [F]
- [E] ALL FASTENERS TO BE 1/4 INCH EXCEPT OUTBOARD OF THE WING PRODUCTION BREAK AND IN THE WING CENTER SECTION. IN THOSE AREAS ALL FASTENERS SHALL BE 3/16 INCH.
- [F] MAXIMUM INTERFERENCE TO BE .003 TIMES THE DIAMETER.

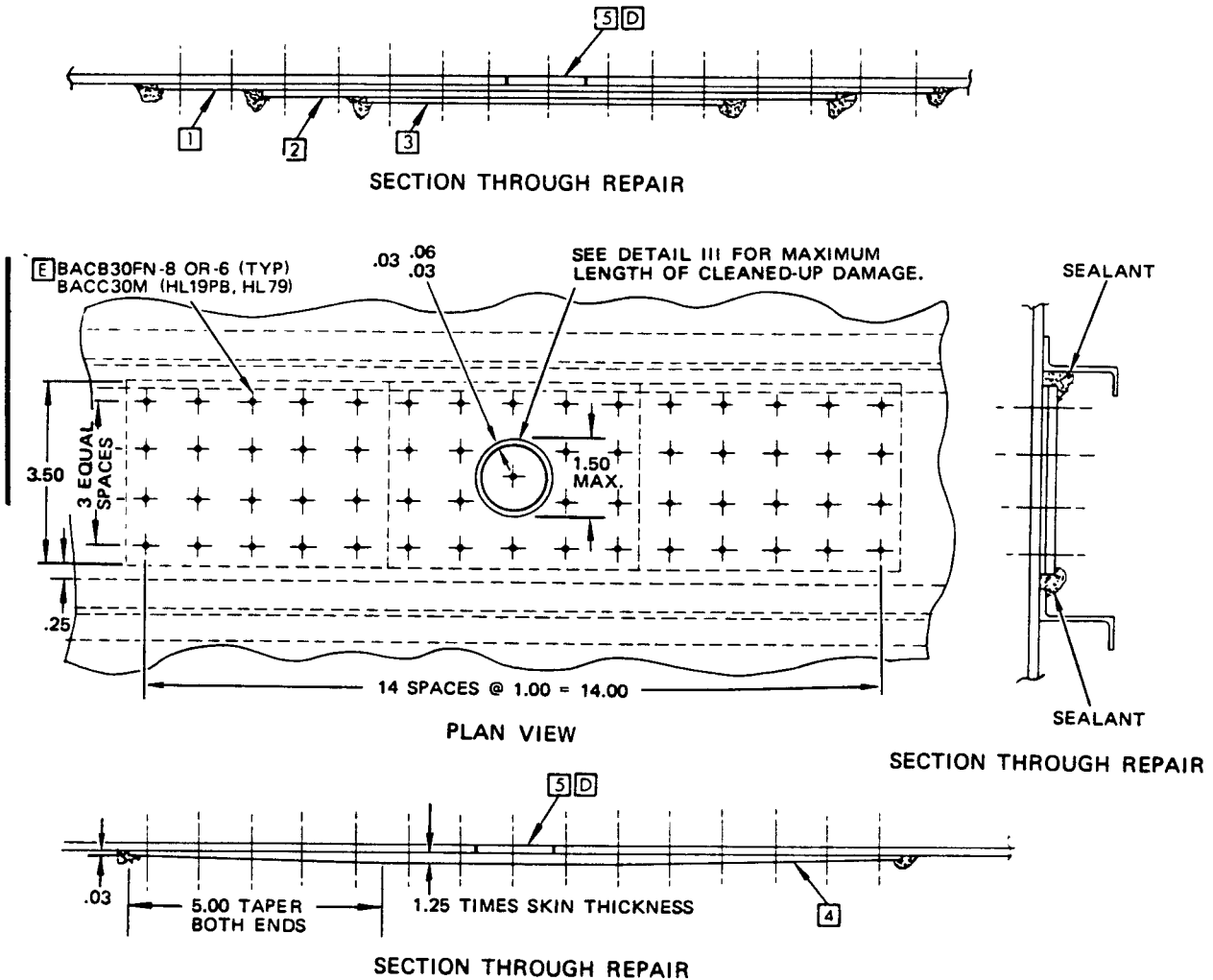
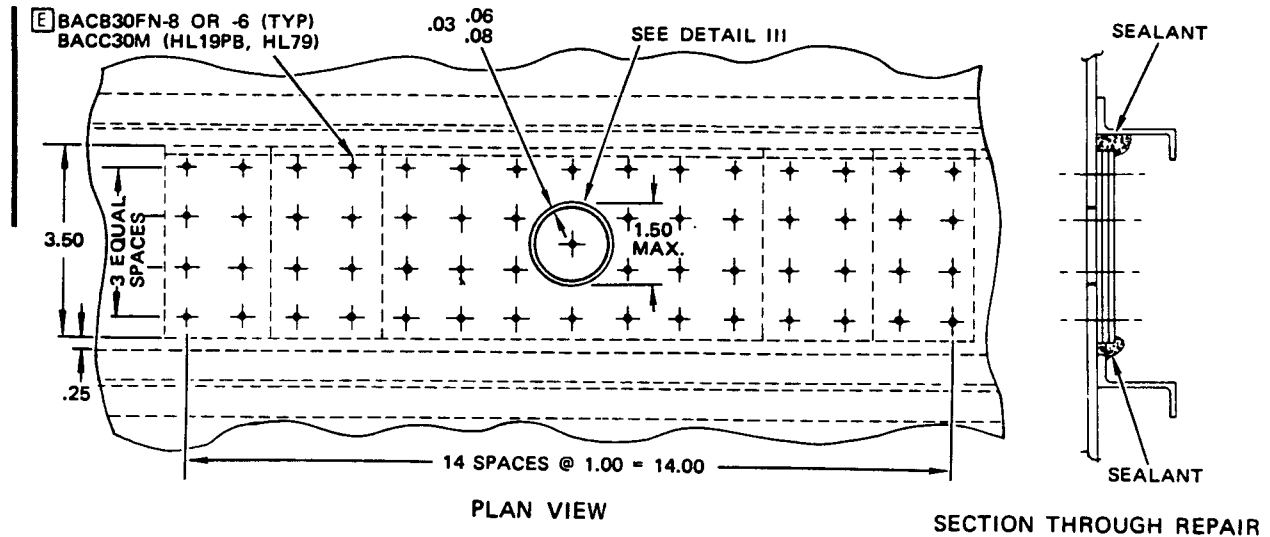


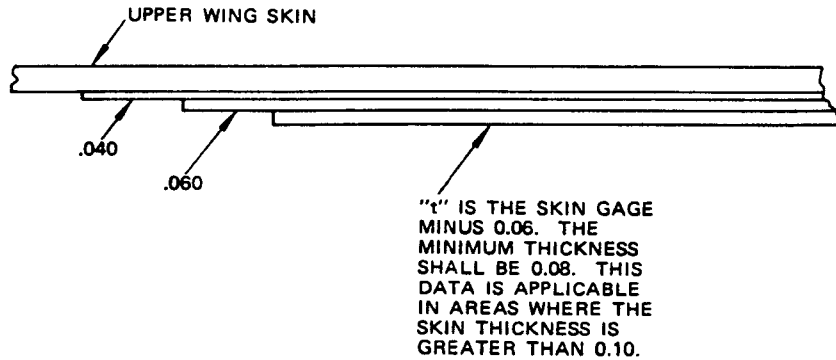
STRUCTURAL REPAIR

| REPAIR MATERIAL |     |                                                                                   |  |
|-----------------|-----|-----------------------------------------------------------------------------------|--|
| PART            | QTY | MATERIAL                                                                          |  |
| ① PLATE         | 1   | .040 CLAD<br>7178-T6                                                              |  |
| ② PLATE         | 1   | .060 CLAD<br>7178-T6                                                              |  |
| ③ PLATE         | 1   | t CLAD <span style="border: 1px solid black; padding: 0 2px;">A</span><br>7178-T6 |  |
| ④ PLATE         | 1   | 7178-T6 <span style="border: 1px solid black; padding: 0 2px;">B</span>           |  |
| ⑤ PLUG          | 1   | <span style="border: 1px solid black; padding: 0 2px;">D</span>                   |  |

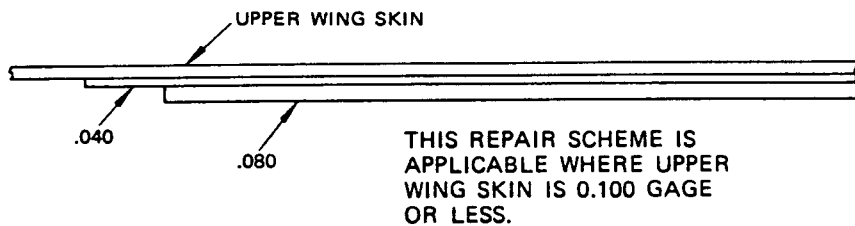


# STRUCTURAL REPAIR

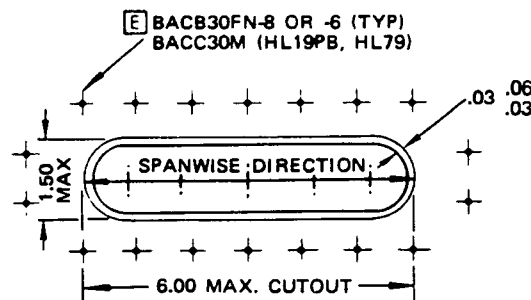




REPAIR PLATES FOR UPPER WING SKINS  
DETAIL I



REPAIR PLATES FOR UPPER WING SKINS  
DETAIL II



DETAIL III [C]



# STRUCTURAL REPAIR

| ITEM | MATERIAL                     | REPAIR<br>FIG NO. | ITEM | MATERIAL                   | REPAIR<br>FIG NO. | ITEM | MATERIAL                   | REPAIR<br>FIG NO. |
|------|------------------------------|-------------------|------|----------------------------|-------------------|------|----------------------------|-------------------|
| (1)  | FORGING<br>7079-T6           | 57-3-5<br>FIG. 1  | (26) | .312 CLAD<br>7075-T6       | 51-14-2<br>FIG. 1 | (51) | AND 10136-2404<br>2024-T4  | 57-3-5<br>FIG. 1  |
| (2)  | FORGING<br>7079-T6           | 57-3-5<br>FIG. 1  | (27) | BAC 1520-887<br>2024-T42   | 57-3-5<br>FIG. 1  | (52) | AND 10139-2004<br>7075-T6  | 51-14-4<br>FIG. 1 |
| (3)  | BAC 1510-326<br>7178-T6      | 51-14-4<br>FIG. 1 | (28) | BAC 1517-1079<br>7178-T6   | 51-14-4<br>FIG. 1 | (53) | BAC 1514-591<br>7075-T6    | 57-3-5<br>FIG. 1  |
| (4)  | BAC 1506-855<br>7178-T6      | 51-14-4<br>FIG. 1 | (29) | BAC 1520-888<br>2024-T42   | 57-3-5<br>FIG. 1  | (54) | AND 10134-1403<br>7075-T6  | 57-3-5<br>FIG. 1  |
| (5)  | BAC 1505-100207<br>7178-T6   | 51-14-4<br>FIG. 1 | (30) | .437<br>7178-T6            | 51-14-2<br>FIG. 1 | (55) | BAC 1503-100053<br>7075-T6 | 51-14-4<br>FIG. 1 |
| (6)  | FORGING<br>7079-T6           | 57-3-5<br>FIG. 1  | (31) | BAC 1517-1087<br>7178-T6   | 51-14-4<br>FIG. 1 | (56) | .020 CLAD<br>7075-T6       | 51-14-2<br>FIG. 1 |
| (7)  | BAC 1506-1118<br>7178-T6     | 51-14-4<br>FIG. 1 | (32) | AND 10138-1602<br>7178-T6  | 51-14-4<br>FIG. 1 | (57) | AND 10133-1404<br>7075-T6  | 51-14-4<br>FIG. 1 |
| (8)  | BAC 1510-326<br>7178-T6      | 51-14-4<br>FIG. 1 | (33) | .032 CLAD<br>7075-T6       | 51-14-2<br>FIG. 1 | (58) | AND 10136-1505<br>7075-T6  | 51-14-4<br>FIG. 1 |
| (9)  | .040 CLAD<br>7075-T6         | 51-14-2<br>FIG. 1 | (34) | AND 10134-1206<br>7075-T6  | 51-14-4<br>FIG. 1 | (59) | .063<br>7075-T6            |                   |
| (10) | FORGING<br>7079-T6           | 51-14-4<br>FIG. 1 | (35) | AND 10134-1235<br>7075-T6  | 51-14-4<br>FIG. 1 | (60) | BAC 1517-39<br>7075-T6     | 51-14-4<br>FIG. 1 |
| (11) | BAC 1506-915<br>7178-T6      | 51-14-4<br>FIG. 1 | (36) | AND 10139-1301<br>7075-T6  | 51-14-4<br>FIG. 1 | (61) | AND 10134-1001<br>7075-T6  | 51-14-4<br>FIG. 1 |
| (12) | BAC 1505-100205<br>7178-T6   | 51-14-4<br>FIG. 1 | (37) | AND 10141-1403<br>7075-T6  | 51-14-4<br>FIG. 1 | (62) | AND 10139-705<br>7075-T6   | 51-14-4<br>FIG. 1 |
| (13) | .180 CLAD<br>7075-T6         | 51-14-2<br>FIG. 1 | (38) | BAC 1503-100053<br>7075-T6 | 51-14-4<br>FIG. 1 | (63) | BAC 1506-1110<br>7075-T6   | 51-14-4<br>FIG. 1 |
| (14) | BAC 1503-4245<br>7075-T6     | 57-3-5<br>FIG. 1  | (39) | AND 10134-1604<br>7075-T6  | 51-14-4<br>FIG. 1 | (64) | BAC 1503-100019<br>7075-T6 | 51-14-4<br>FIG. 1 |
| (15) | BAC 1517-481<br>7075-T6 CLAD | 51-14-4<br>FIG. 1 | (40) | BAC 1520-889<br>7075-T6    | 57-3-5<br>FIG. 1  | (65) | AND 10134-1404<br>7075-T6  | 57-3-5<br>FIG. 1  |
| (16) | .025 CLAD<br>7075-T6         | 51-14-2<br>FIG. 1 | (41) | BAC 1520-704<br>2024-T42   | 57-3-5<br>FIG. 1  | (66) | AND 10136-1702<br>7075-T6  | 51-14-4<br>FIG. 1 |
| (17) | AND 10135-1004<br>7075-T6    | 51-14-4<br>FIG. 1 | (42) | BAC 1520-890<br>7075-T6    | 57-3-5<br>FIG. 1  | (67) | BAC 1505-100114<br>7075-T6 | 51-14-4<br>FIG. 1 |
| (18) | .050 CLAD<br>7075-T6         | 51-14-2<br>FIG. 1 | (43) | .071<br>7075-T6            | 51-14-2<br>FIG. 1 | (68) | AND 10136-1704<br>7075-T6  | 51-14-4<br>FIG. 1 |
| (19) | AND 10134-1404<br>7075-T6    | 51-14-4<br>FIG. 1 | (44) | .056 CLAD<br>7075-T6       | 51-14-2<br>FIG. 1 | (69) | AND 10136-2003<br>7075-T6  | 51-14-4<br>FIG. 1 |
| (20) | AND 10134-1408<br>7075-T6    | 57-3-5<br>FIG. 1  | (45) | BAC 1503-4205<br>7075-T6   | 51-14-4<br>FIG. 1 | (70) | AND 10134-702<br>7075-T6   | 51-14-4<br>FIG. 1 |
| (21) | AND 10134-1405<br>7075-T6    | 51-14-4<br>FIG. 1 | (46) | BAC 1506-674<br>7075-T6    | 51-14-4<br>FIG. 1 | (71) | AND 10136-2002<br>7075-T6  | 51-14-4<br>FIG. 1 |
| (22) | AND 10141-2002<br>7075-T6    | 51-14-4<br>FIG. 1 | (47) | BAC 1506-1111<br>7075-T6   | 51-14-4<br>FIG. 1 | (72) | BAC 1506-1134<br>7075-T6   | 57-3-5<br>FIG. 1  |
| (23) | AND 10133-1002<br>7075-T6    | 51-14-4<br>FIG. 1 | (48) | AND 10140-1002<br>7075-T6  | 51-14-4<br>FIG. 1 | (73) | BAC 1505-100081<br>7075-T6 | 51-14-4<br>FIG. 1 |
| (24) | AND 10133-1202<br>7075-T6    | 51-14-4<br>FIG. 1 | (49) | AND 10136-2404<br>7075-T6  | 57-3-5<br>FIG. 1  | (74) | AND 10141-2001<br>7075-T6  | 51-14-4<br>FIG. 1 |
| (25) | .063 CLAD<br>7075-T6         | 51-14-2<br>FIG. 1 | (50) | .050 CLAD<br>2024-T3       | 51-14-2<br>FIG. 1 | (75) | BAC 1506-1119<br>7075-T6   | 57-3-5<br>FIG. 1  |

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Wing Interspar Structure Identification  
Figure 1 (Sheet 1)

57-3-3  
Page 1

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



| ITEM  | MATERIAL                       | REPAIR FIG NO.    | ITEM  | MATERIAL                                            | REPAIR FIG NO.    | ITEM  | MATERIAL                                            | REPAIR FIG NO.    |
|-------|--------------------------------|-------------------|-------|-----------------------------------------------------|-------------------|-------|-----------------------------------------------------|-------------------|
| (76)  | AND 10139-1202<br>7075-T6      | 51-14-4<br>FIG. 1 | (101) | BAC 1503-1591<br>7075-T6                            | 51-14-4<br>FIG. 1 | (126) | 0.063<br>7075-T6 [F]                                |                   |
| (77)  | 0.080 CLAD<br>7075-T6          | 51-14-2<br>FIG. 1 | (102) | BAC 1503-10874<br>7075-T6                           | 57-3-5<br>FIG. 1  | (127) | 0.200 x 2024-T3<br>CLAD [F]                         |                   |
| (78)  | AND 10139-1006<br>7075-T6      | 51-14-4<br>FIG. 1 | (103) | BAC 1520-702<br>2024-T42                            | 57-3-5<br>FIG. 1  | (128) | AND 10133-0701<br>7075-T6511                        | 51-14-4<br>FIG. 1 |
| (79)  | AND 10134-1003<br>7075-T6      | 51-14-4<br>FIG. 1 | (104) | AND 10134-1206<br>7178-T6                           | 51-14-4<br>FIG. 1 | (129) | AND 10133-0701<br>7075-T6                           | 51-14-4<br>FIG. 1 |
| (80)  | AND 10136-2001<br>7075-T6      | 51-14-4<br>FIG. 1 | (105) | BAC 1505-100168<br>7075-T6                          |                   | (130) | AND 10136-3006<br>7075-T6                           | 51-14-4<br>FIG. 1 |
| (81)  | 0.090<br>7178-T6               | 51-14-2<br>FIG. 1 | (106) | BAC 1520-827<br>7075-T6                             | 57-3-5<br>FIG. 1  | (131) | BAC 1514-1261<br>7075-T6                            | 51-14-4<br>FIG. 1 |
| (82)  | AND 10134-1603<br>7075-T6      | 57-3-5<br>FIG. 1  | (107) | BAC 1503-1762<br>7075-T6                            | 51-14-4<br>FIG. 1 | (132) | MACHINED WEB<br>FROM 0.25 7075-T6<br>PLATE          |                   |
| (83)  | 0.112<br>7178-T6               | 51-14-2<br>FIG. 1 | (108) | 0.090<br>7075-T6                                    | 51-14-4<br>FIG. 1 | (133) | BAC 1503-100027<br>7075-T6511                       |                   |
| (84)  | BAC 1506-656<br>7075-T6        | 51-14-4<br>FIG. 1 | (109) | BAC 1514-524<br>7075-T6                             |                   | (134) | DELETED                                             |                   |
| (85)  | AND 10134-1601<br>7075-T6      | 57-3-5<br>FIG. 1  | (110) | 0.063<br>2024-T4                                    |                   | (135) | DELETED                                             |                   |
| (86)  | BAC 1520-928<br>7075-T6        | 51-14-4<br>FIG. 1 | (111) | AND 10134-1405<br>7075-T6                           | 57-3-5<br>FIG. 1  | (136) | DELETED                                             |                   |
| (87)  | BAC 1514-715<br>7178-T6        | 51-14-4<br>FIG. 1 | (112) | 0.050 CLAD<br>7075-T6                               | 51-14-4<br>FIG. 1 | (137) | FORGING [H]<br>7075-T73                             |                   |
| (88)  | AND 10133-1204<br>7178-T6      | 51-14-4<br>FIG. 1 | (113) | AND 10134-1404<br>7075-T6                           | 57-3-5<br>FIG. 1  | (138) | INBD SUPPORT FTG<br>FORGING 7075-T6                 |                   |
| (89)  | FORGING 7075-T6<br>7079-T6 OPT |                   | (114) | BAC 1505-1046<br>7075-T6                            |                   | (139) | OUTBD SUPPORT FTG<br>FORGING 7075-T6                |                   |
| (90)  | BAC 1505-39042<br>2024-T42     | 57-3-5<br>FIG. 1  | (115) | BAC 1505-1047<br>7075-T6                            |                   | (140) | JACK PAD FTG.<br>FORGING 7079-T6                    |                   |
| (91)  | AND 10134-1006<br>7075-T6      | 51-14-4<br>FIG. 1 | (116) | AND 10135-1001<br>7075-T6                           | 51-14-4<br>FIG. 1 | (141) | JACK PAD FTG<br>FORGING 7075-T73 [H]                |                   |
| (92)  | AND 10136-1401<br>7075-T6      | 51-14-4<br>FIG. 1 | (117) | UPPER SURFACE NACELLE<br>SUPPORT FORGING<br>7079-T6 |                   | (142) | UPPER EXTERNAL CHORD<br>FORGING 7075-T73 [H]        |                   |
| (93)  | AND 10133-0601<br>7075-T6      | 51-14-4<br>FIG. 1 | (118) | 0.032<br>7075-T6                                    |                   | (143) | RIB CHORD FORGING<br>7075-T73 [H]                   |                   |
| (94)  | AND 10133-1003<br>7075-T6      | 51-14-4<br>FIG. 1 | (119) | 0.045 CLAD<br>7075-T6                               |                   | (144) | UPPER SURFACE NACELLE<br>SUPPORT FORGING 7075-T73   |                   |
| (95)  | BAC 1503-1430<br>7075-T6       | 51-14-4<br>FIG. 1 | (120) | MACHINED FROM<br>70755-T6                           |                   | (145) | FWD INBD NACELLE DRAG<br>SUPPORT FORGING 7079-T6    |                   |
| (96)  | BAC 1506-1014<br>7075-T6       | 57-3-5<br>FIG. 1  | (121) | FORGING<br>7079-T6                                  |                   | (146) | FWD INBD NACELLE DRAG<br>SUPPORT FORGING 7075-T411  |                   |
| (97)  | BAC 1502-929<br>7075-T6        | 57-3-5<br>FIG. 1  | (122) | FORGING<br>7075-T6                                  |                   | (147) | FWD OUTBD NACELLE DRAG<br>SUPPORT FORGING 7079-T6   |                   |
| (98)  | BAC 1503-1761<br>7075-T6       | 51-14-4<br>FIG. 1 | (123) | MACHINED FROM<br>7075-T651                          |                   | (148) | FWD OUTBD NACELLE DRAG<br>SUPPORT FORGING 7075-T411 |                   |
| (99)  | AND 10134-1005<br>7075-T6      | 57-3-5<br>FIG. 1  | (124) | 0.063<br>7075-T6 [F]                                |                   | (149) | AFT NACELLE DRAG<br>SUPPORT FORGING 7079-T6         |                   |
| (100) | BAC 1503-2730<br>7075-T6       | 51-14-4<br>FIG. 1 | (125) | 0.063<br>7075-T6 [F]                                |                   | (150) | AFT NACELLE DRAG<br>SUPPORT FORGING 7075-T73        |                   |



INTERCONTINENTAL  
STRUCTURAL REPAIR

NOTES

**A** FOR PA 17592 AND 17593 ONLY

**B** FOR AIRPLANES NOT LISTED IN **A**

**C** FOR AIRPLANES:

AA 18689 THRU 18692 AND 18938  
AF 17613 THRU 17622, 17918 THRU  
17924, 18245 THRU 18247,  
18375 AND 18456  
AI 17722 THRU 17724, 18055,  
18414, 18415, 18708 AND  
18873  
BA 17703 THRU 17717, 18372,  
18373, 18411 THRU 18413  
CO N17321 THRU N17324  
IN 18737 AND 18880  
LH 17718 THRU 17721, 18056,  
18463, 18819 AND 18923  
LY 18070, 18071 AND 18357  
NW 18584 THRU 18586, 18693,  
18710, 18746, 18747, 18748,  
18888 AND 18889  
PA 18832 THRU 18841, 17674 THRU  
17689, 17592 THRU 17608,  
18083 THRU 18085, 18335 THRU  
18339, 18579, 18580, 18591,  
18714 THRU 18718, 18765 THRU  
18767, 18790 AND 18824  
QF 18808 AND 18809  
RG 17905, 17906 AND 18694  
SA 17928 THRU 17930  
SN 17623 THRU 17627, 18374,  
18460 AND 18890  
TW 17673, 17675, 17676, 17678,  
17679, 17681, 17682, 17684;  
17685, 17687, 17688, 17690,  
18405, 18407 AND 18408  
WY 18582, 18583 AND 18707

**D** FOR AIRPLANES NOT LISTED IN **C**

**E** FOR THE FOLLOWING AND SUBSEQUENT  
AIRPLANES:

PA 19378  
TW 18405  
AF 18456  
LH 18462

AI 18708  
SA 18891  
TP 18961  
OA 20035  
LY 19004  
AR 19238  
NW 18584  
AV 19741  
ML 19737  
SA 18705  
ET 18736  
EJ 19664  
SV 19809  
WD 18789  
SB 19840  
ST 19820  
BO 20008  
WA 19963

**F** FOR AIRPLANES WITH SB 2607  
INCORPORATED

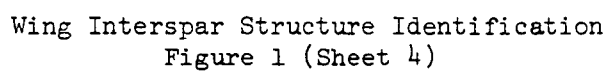
**G** FOR AIRPLANES WITH WING TIP  
REFUELING

**H** FORGINGS OF 7079-T6 MATERIAL  
HAVE BEEN REPLACED BY FORGINGS  
OF 7075-T73 IN PRODUCTION AND BY  
7075-T73 FORGINGS SHOULD FITTING  
REPLACEMENT BE REQUIRED BY  
SB 3173 R4; 7075-T73 FORGINGS ARE  
RECOMMENDED WHEN EXISTING STOCKS  
OF 7079-T6 ARE EXHAUSTED

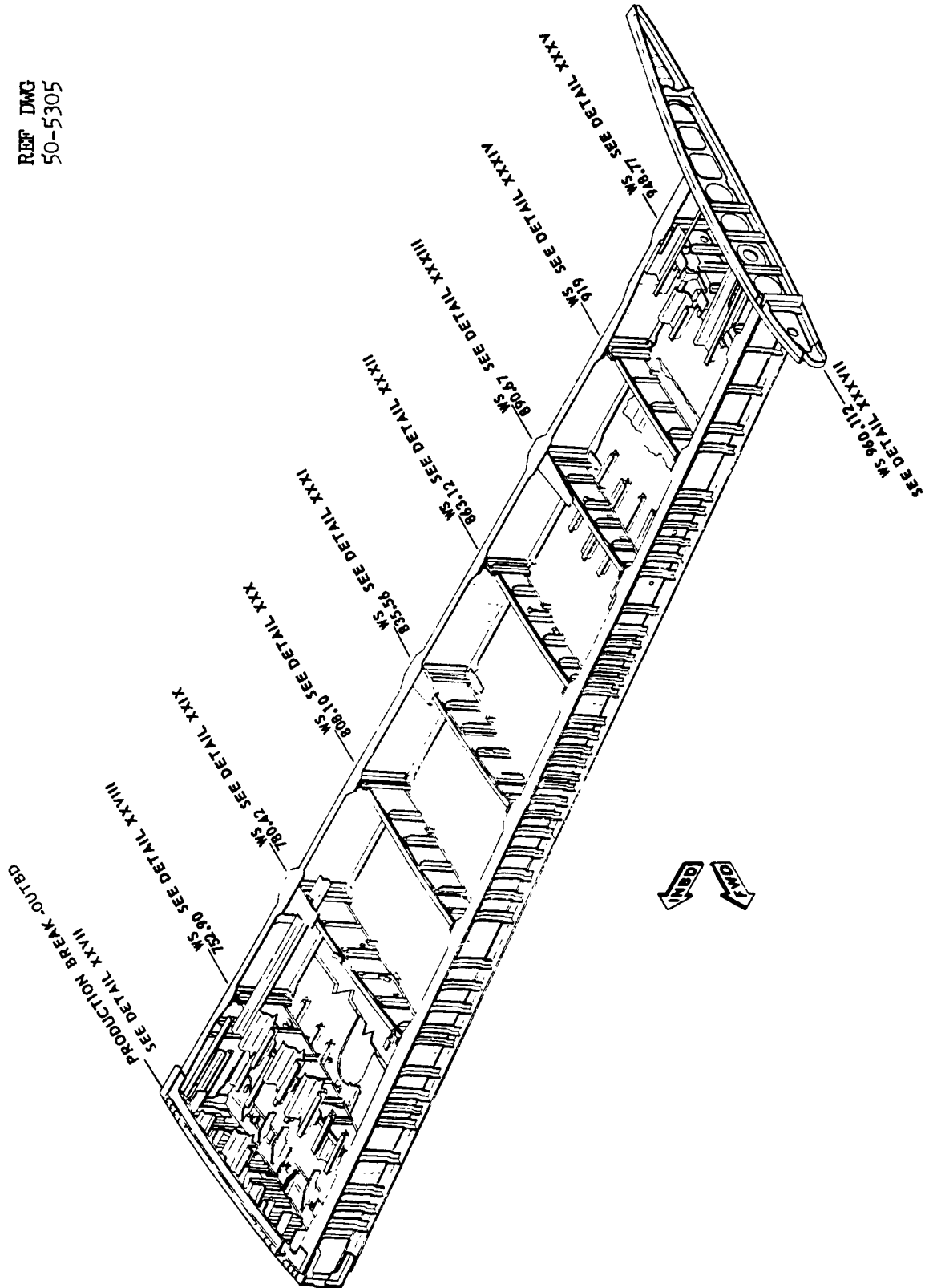
**K** WEB EXTENDS FROM REAR SPAR TO  
TRAILING EDGE

**L** FORGINGS OF 7079-T6 MATERIAL HAVE  
BEEN REPLACED BY FORGINGS OF  
7075-T411 MATERIAL IN PRODUCTION.  
7075-T411 FORGINGS ARE RECOM-  
MENDED WHEN EXISTING STOCKS OF  
7079-T6 ARE EXHAUSTED

**M** WEB EXTENDS FROM FRONT SPAR TO  
REAR SPAR



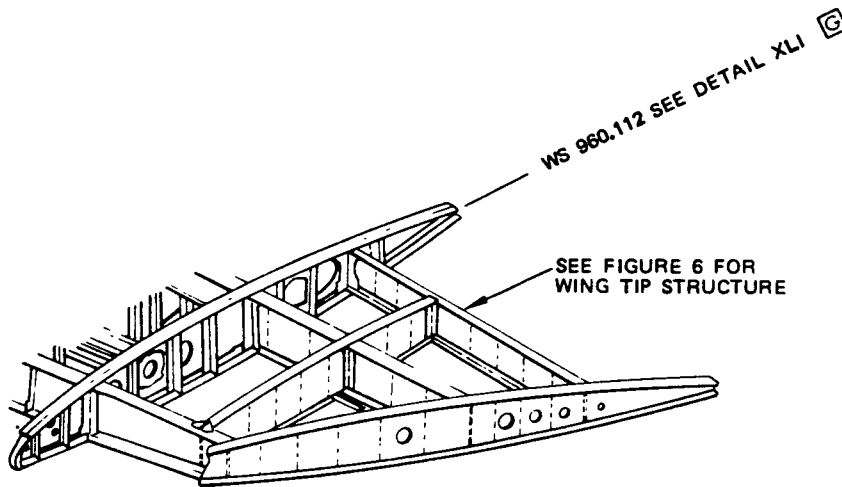
REF DWG  
50-5305



Wing Interspar Structure Identification  
Figure 1 (Sheet 5)

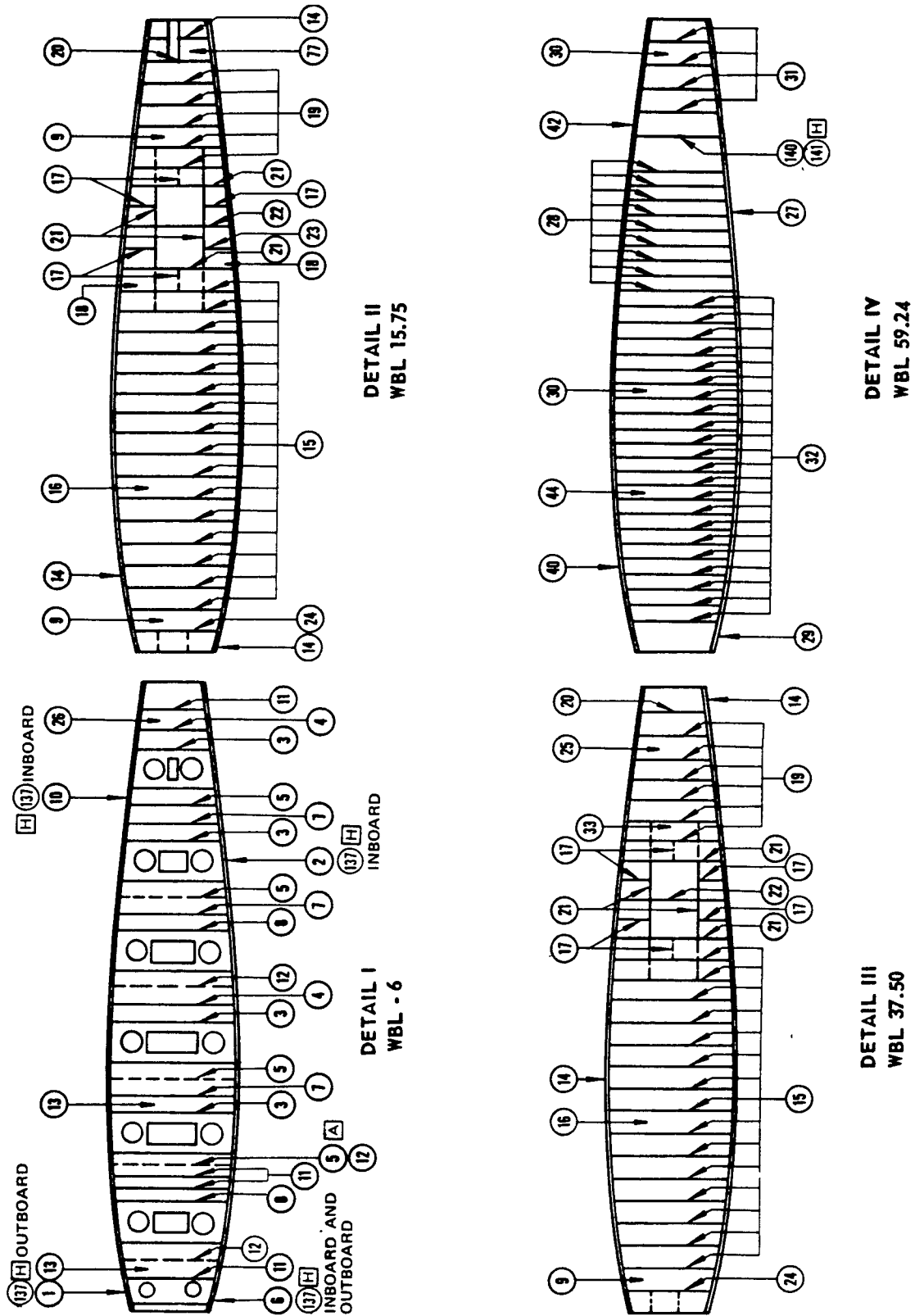
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Wing Interspar Structure Identification  
Figure 1 (Sheet 6)

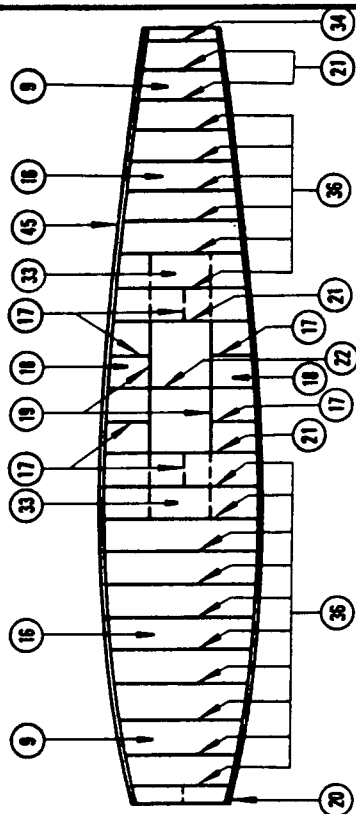
  
**STRUCTURAL REPAIR**



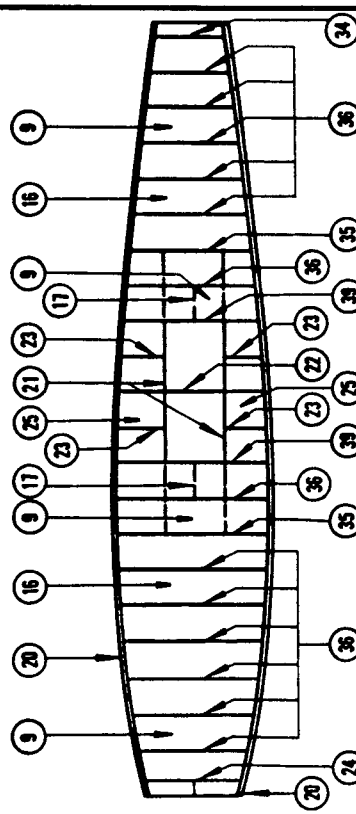
Wing Interspar Structure Identification  
Figure 1 (Sheet 7)

Jul 15/73

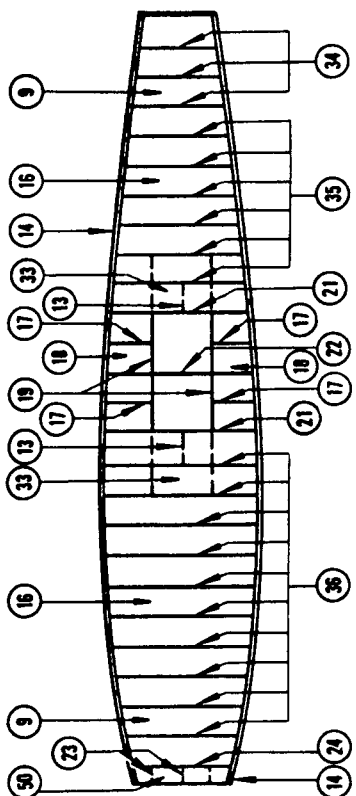
57-3-3  
Page 5



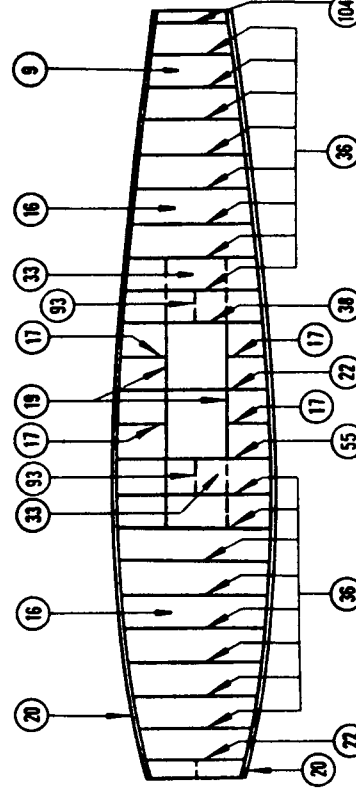
**DETAIL VI**  
**WS 226.286**



**DETAIL VIII**  
**WS 270.857**

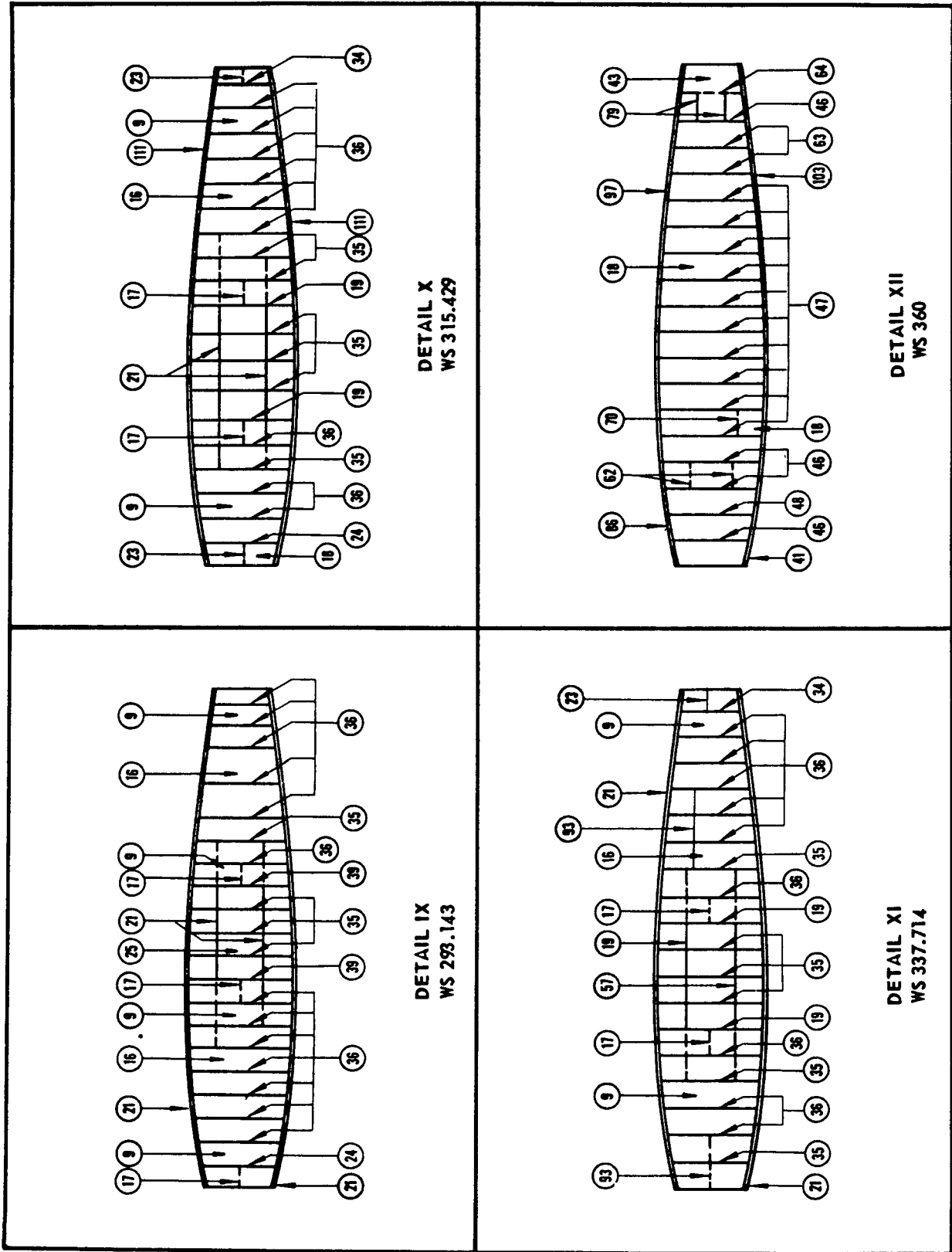


**DETAIL V**  
**WS 204.0**



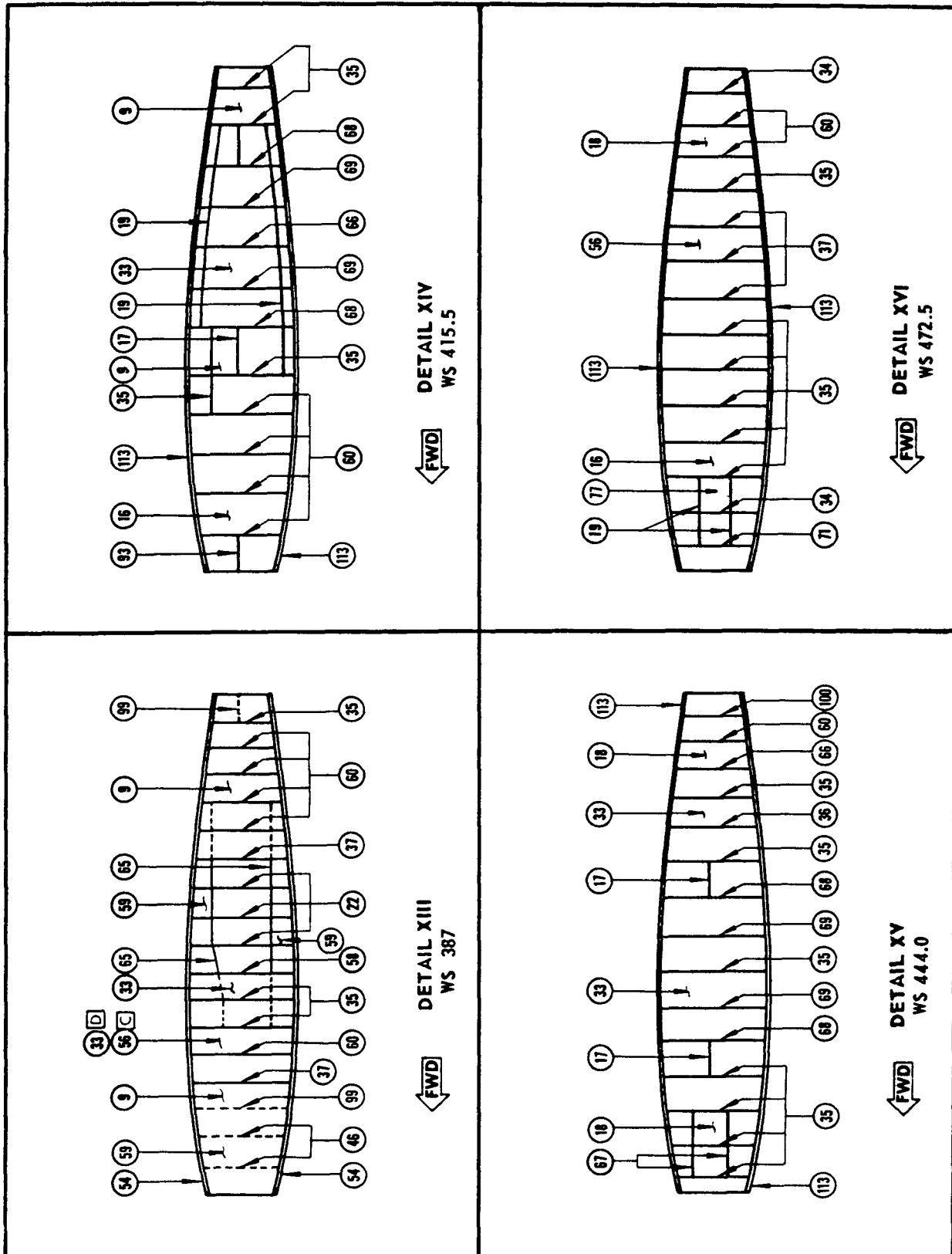
**DETAIL VII**  
**WS 248.571**

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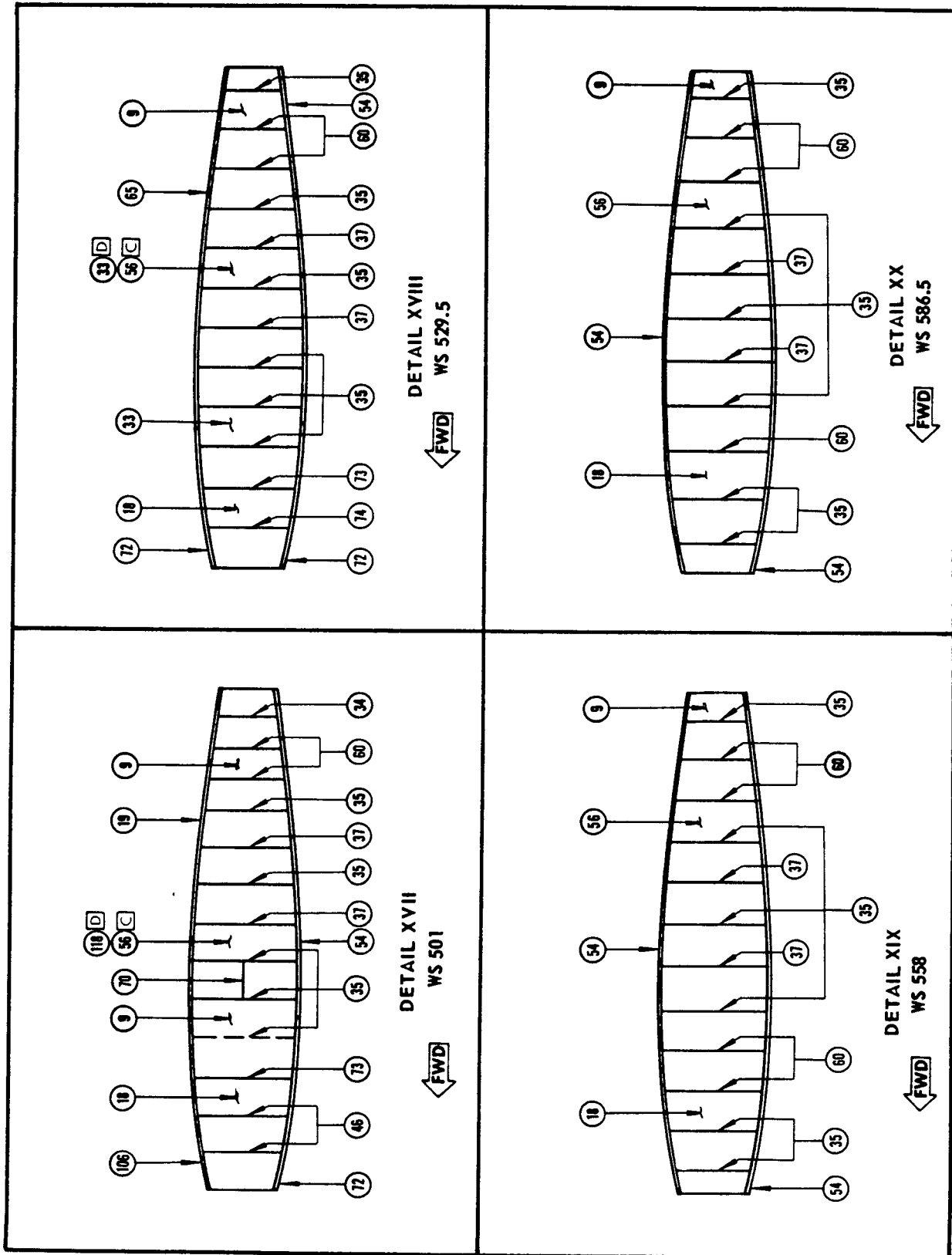
# STRUCTURAL REPAIR



Wing Interspar Structure Identification  
Figure 1 (Sheet 10)

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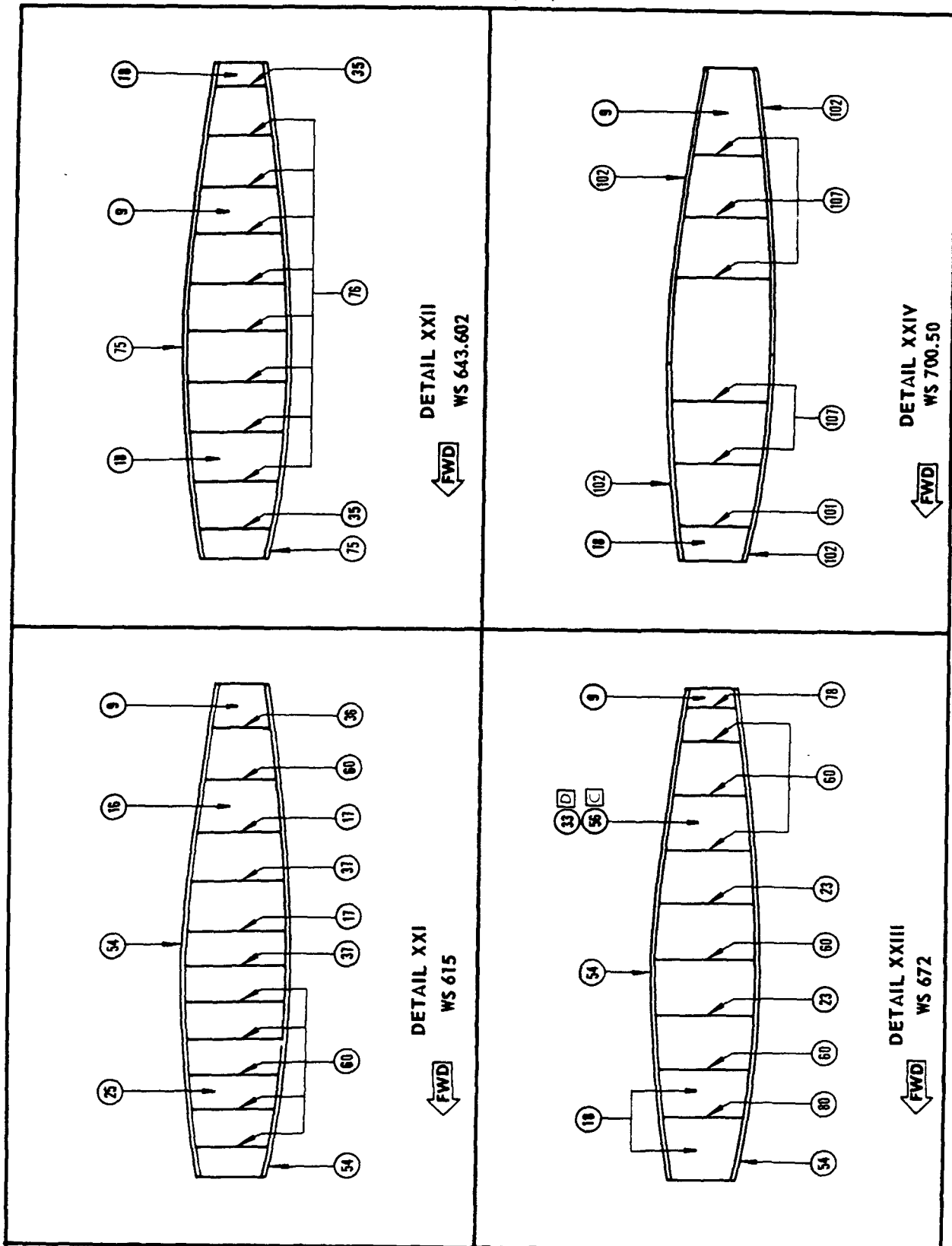
  
**STRUCTURAL REPAIR**



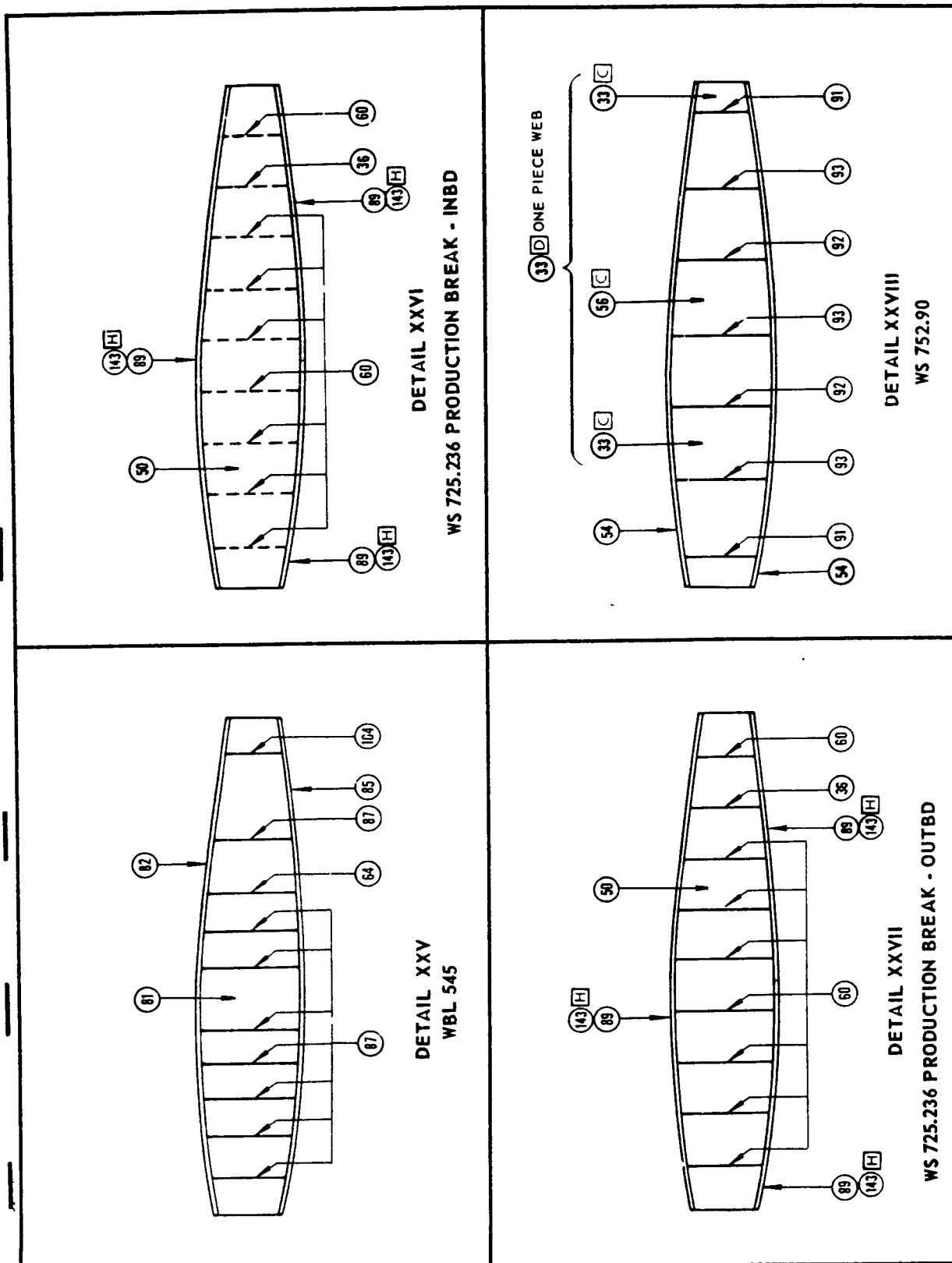
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Wing Interspar Structure Identification  
Figure 1 (Sheet 11)

STRUCTURAL REPAIR



Wing Interspar Structure Identification  
Figure 1 (Sheet 12)

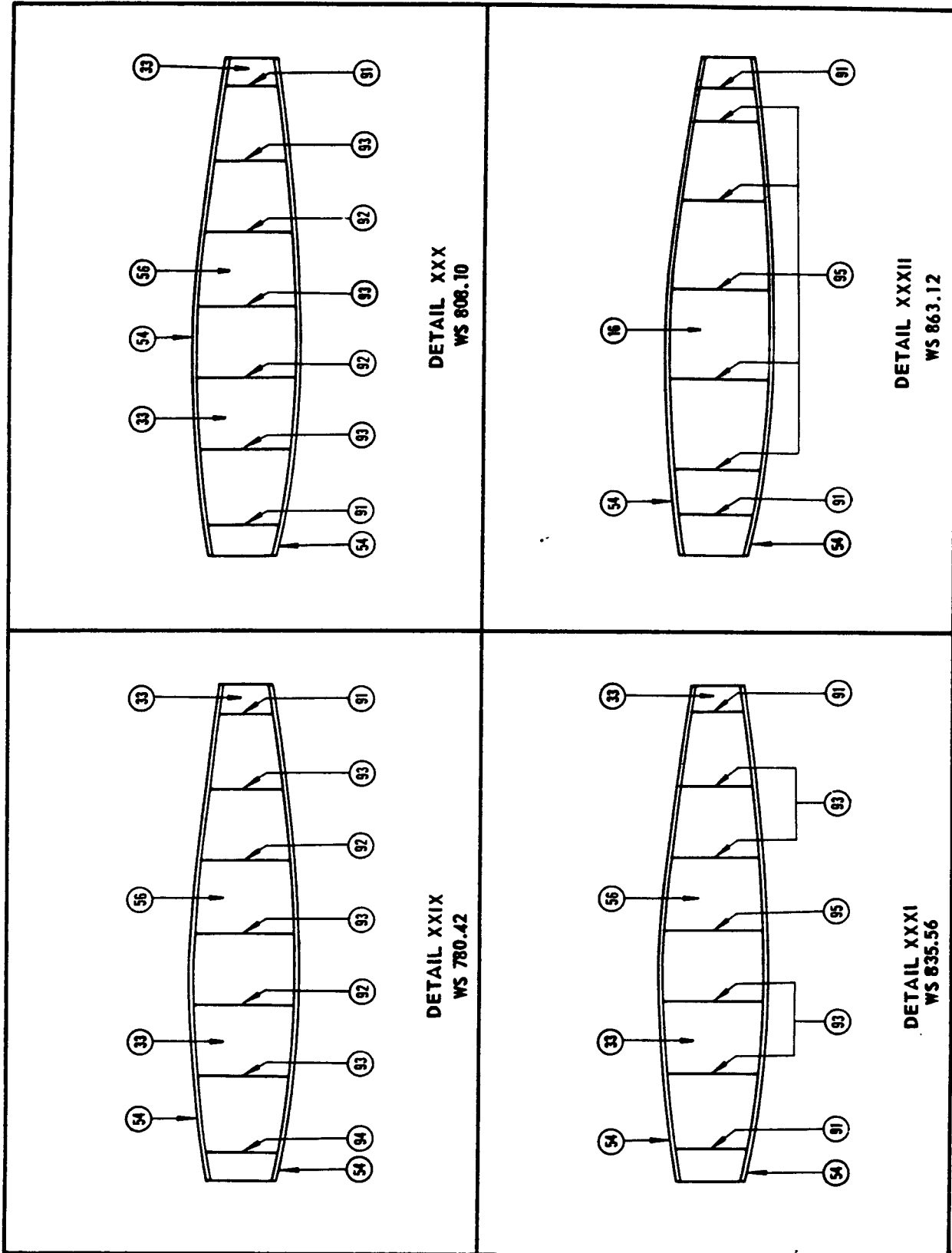


Wing Interspar Structure Identification  
 Figure 1 (Sheet 13)

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 Page 11

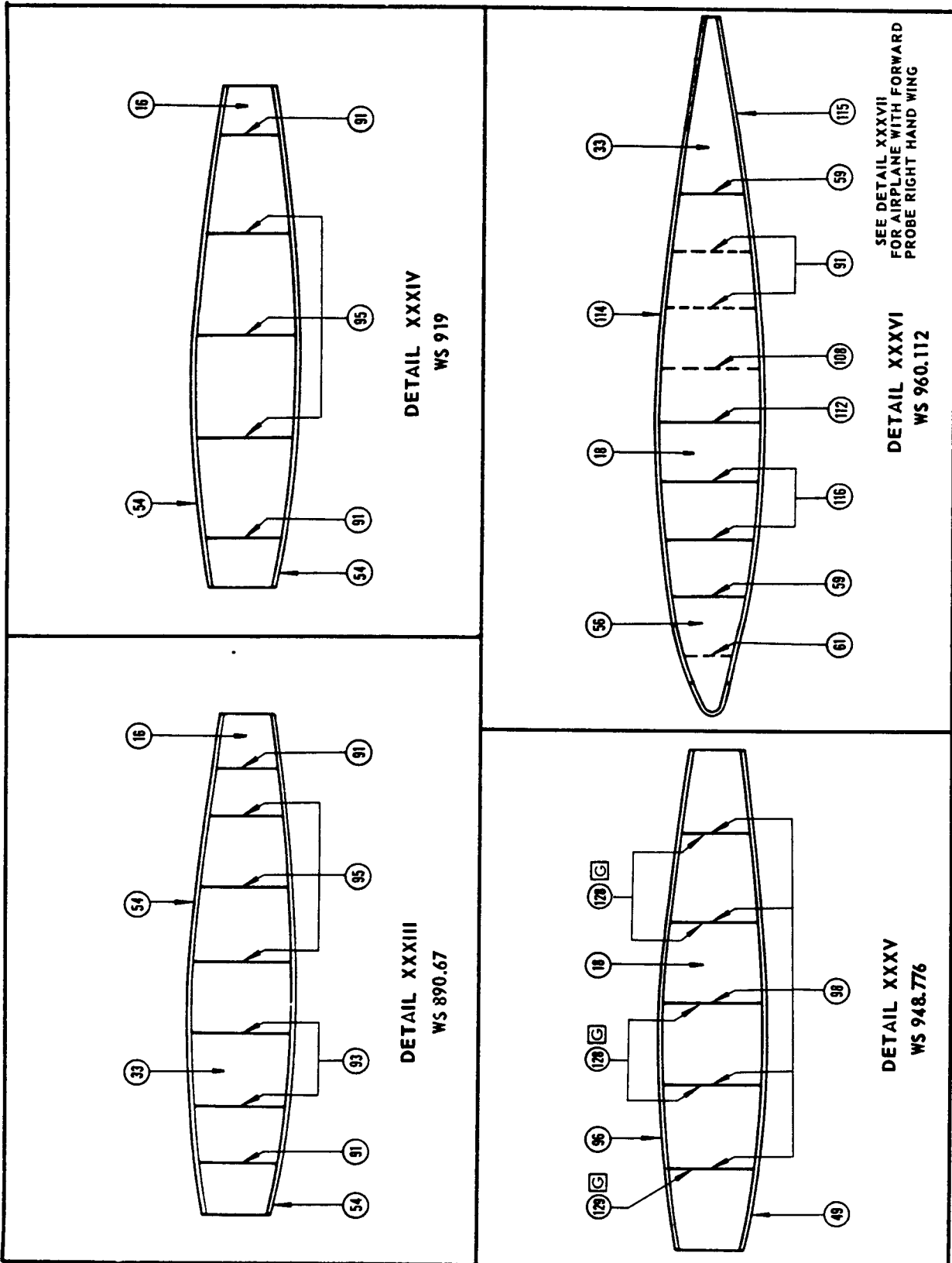




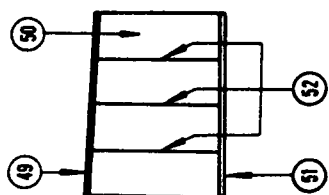
Wing Interspar Structure Identification  
Figure 1 (Sheet 14)

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STRUCTURAL REPAIR

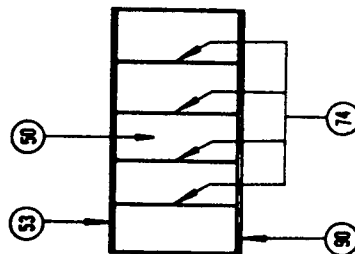


## STRUCTURAL REPAIR

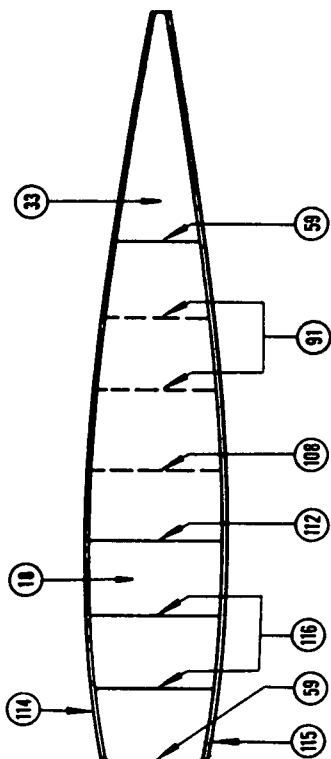


## DETAIL XXXVIII

WS 360-387

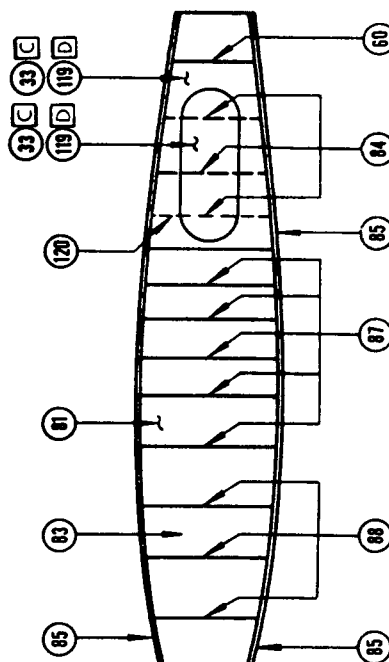


**DETAIL XL**  
**WS 501-529.5**



**DETAIL XXXVII**

WS 960.112



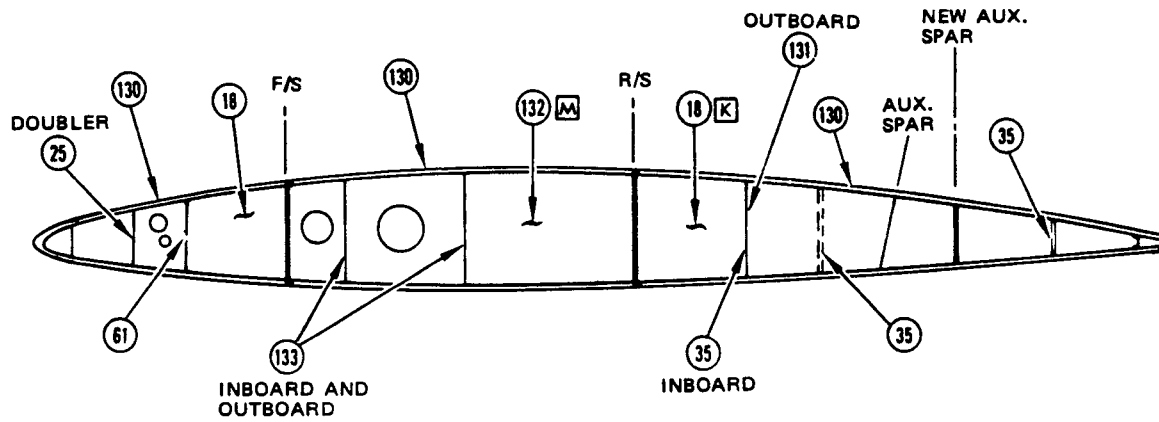
**FWD**

**DETAIL XXXIX**  
**WBL 315**

WBL 315

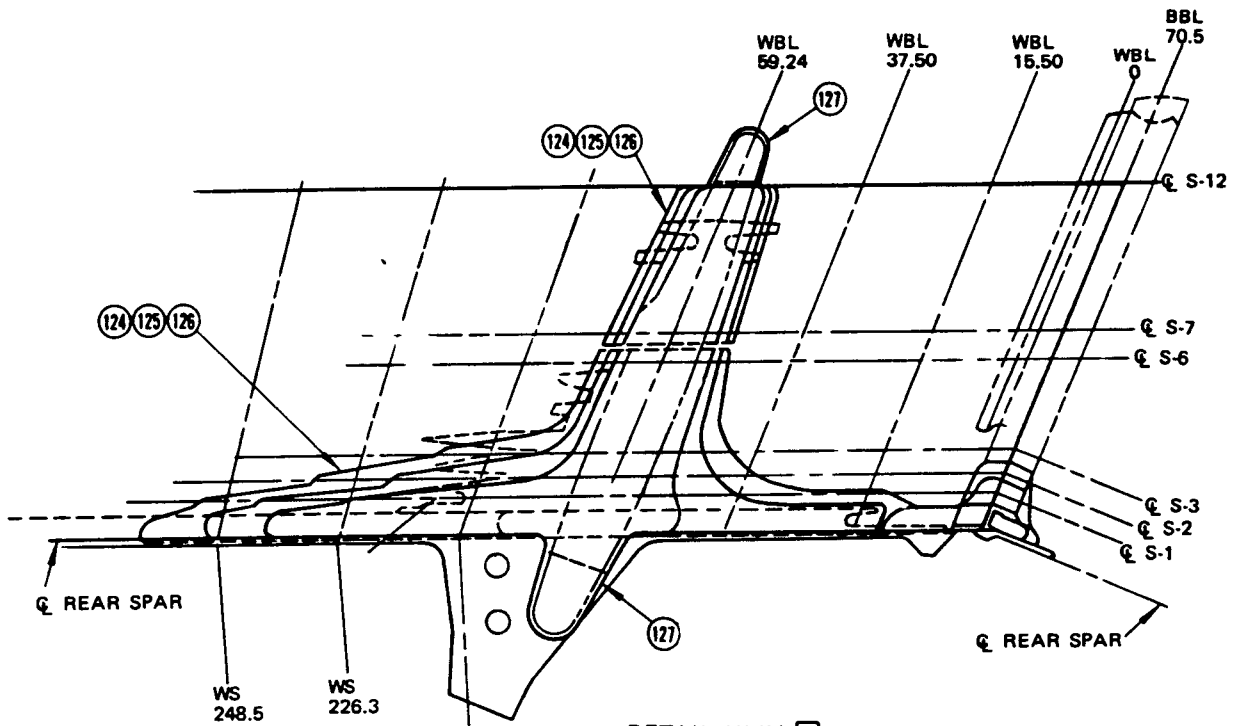
**FOR AIRPLANE WITH FORWARD PROBE RIGHT HAND WING**

**BOEING**  
**707**  
 INTERCONTINENTAL  
 STRUCTURAL REPAIR

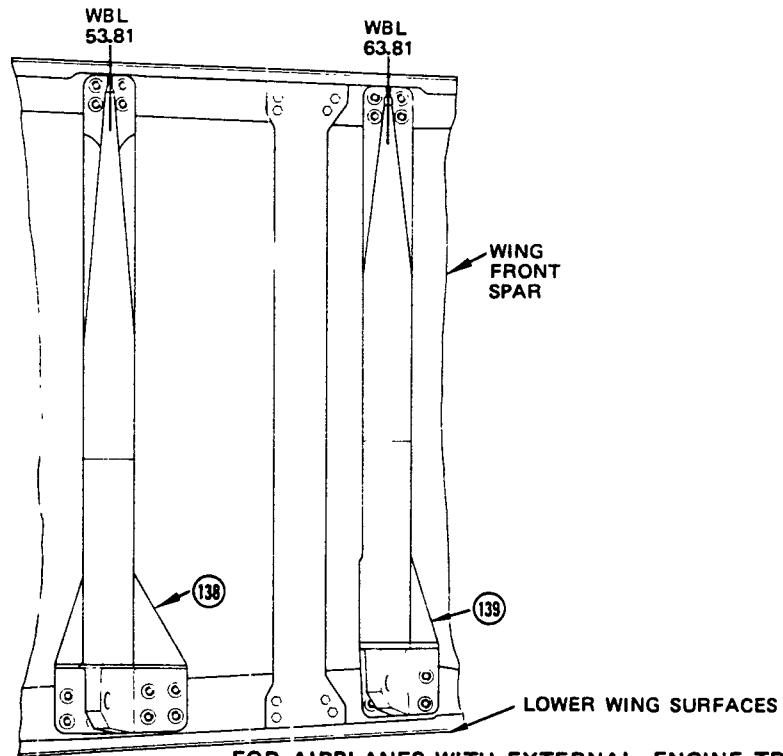


DETAIL XLI   
 WS 960.112

**BOEING** *Intercontinental*   
**STRUCTURAL REPAIR**



**DETAIL XLIV F**  
**SKIN DOUBLERS UNDER BEAVERTAIL**



**DETAIL XLV**

**Wing Interspar Structure Identification**  
**Figure 1 (Sheet 18)**

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## STRUCTURAL REPAIR

| ITEM | MATERIAL                 | REPAIR FIG NO.    | ITEM | MATERIAL                   | REPAIR FIG NO.    | ITEM | MATERIAL                                                                                   | REPAIR FIG NO.    |
|------|--------------------------|-------------------|------|----------------------------|-------------------|------|--------------------------------------------------------------------------------------------|-------------------|
| ①    | BAC 1517-1082<br>7075-T6 | 51-14-4<br>FIG. 1 | ⑪    | BAC 1514-1337<br>7075-T6   |                   | ③③   | BAC 1518-290<br>7075-T6                                                                    | 51-14-4<br>FIG. 1 |
| ②    | BAC 1506-933<br>7075-T6  | 51-14-4<br>FIG. 1 | ⑫    | BAC 1514-1338<br>7075-T6   |                   | ③④   | 0.063 CLAD<br>7075-T6                                                                      | 51-14-2<br>FIG. 1 |
| ③    | 0.050 CLAD<br>2024-T3    | 51-14-2<br>FIG. 1 | ⑬    | BAC 1517-1081<br>7075-T6   | 51-14-4<br>FIG. 1 | ③⑤   | BAC1506-2381<br>7178-T6                                                                    |                   |
| ④    | 0.040 CLAD<br>2024-T3    | 51-14-2<br>FIG. 1 | ⑭    | BAC 1517-1366<br>7178-T6   |                   | ③⑥   | BAC1506-2382<br>7178-T6                                                                    |                   |
| ⑤    | BAC 1514-1311<br>7075-T6 | 51-14-4<br>FIG. 1 | ⑮    | BAC 1514-1346<br>7075-T6   |                   | ③⑦   | BAC1503-100179<br>7075-T6511<br>(OPTIONAL AND10134-1204<br>OR BAC1503-2771,<br>7075-T6511) |                   |
| ⑥    | AND10135-1005<br>7075-T6 |                   | ⑯    | BAC 1506-935<br>7075-T6    | 51-14-4<br>FIG. 1 |      |                                                                                            |                   |
| ⑦    | BAC 1514-1144<br>2024-T4 | 51-14-4<br>FIG. 1 | ⑰    | BAC 1506-944<br>7075-T6    | 51-14-4<br>FIG. 1 | ③⑧   | BAC1504-8180<br>7075-T6511                                                                 | 51-14-4<br>FIG. 1 |
| ⑧    | BAC 1517-1084<br>7075-T6 |                   | ⑱    | BAC 1506-1217<br>7075-T6   | 51-14-4<br>FIG. 1 | ③⑨   | BAC1506-2381<br>7178-T6511                                                                 |                   |
| ⑨    | 0.050 CLAD<br>7075-T6    | 51-14-2<br>FIG. 1 | ⑲    | AND10134-2410<br>7178-T6   | 51-14-4<br>FIG. 1 | ④①   | BAC1506-2382<br>7178-T6511                                                                 |                   |
| ⑩    | 0.040 CLAD<br>7075-T6    | 51-14-2<br>FIG. 1 | ⑳    | BAC 1518-289<br>7075-T6    | 51-14-4<br>FIG. 1 | ④②   | 0.063<br>7075-T6                                                                           |                   |
| ⑪    | BAC 1520-950<br>7075-T6  |                   | ㉑    | BAC 1514-1313<br>7175-T6   |                   | ④③   | 0.090<br>7075-T6                                                                           |                   |
| ⑫    | 0.032 CLAD<br>7075-T6    | 51-14-2<br>FIG. 1 | ㉒    | BAC 1612-1084<br>7075-T6   | 51-14-4<br>FIG. 1 | ④④   | BAC1512-485<br>7075-T6511                                                                  |                   |
| ⑬    | BAC 1520-949<br>7075-T6  |                   | ㉓    | BAC 1506-934<br>7075-T6    | 51-14-4<br>FIG. 1 | ④⑤   | CHANNEL<br>0.050 2024-T42                                                                  |                   |
| ⑭    | 0.063<br>2024-T3         | 51-14-4<br>FIG. 1 | ㉔    | BAC 1506-1225<br>7075-T6   | 51-14-4<br>FIG. 1 | ④⑥   | ANGLE<br>AND10133-1403<br>7075-T6511                                                       |                   |
| ⑮    | BAC 1506-1167<br>7075-T6 | 51-14-2<br>FIG. 1 | ㉕    | BAC 1505-100289<br>7075-T6 |                   |      | CHANNEL<br>AND10137-2010<br>7075-T6511                                                     |                   |
| ⑯    | BAC 1517-1249<br>7075-T6 | 51-14-4<br>FIG. 1 | ㉖    | AND10135-1201<br>7075-T6   |                   |      |                                                                                            |                   |

Wing Center Section Structure Identification  
Figure 2 (Sheet 1)

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**707**



**INTERCONTINENTAL  
STRUCTURAL REPAIR**

**NOTE**

**[A]** FOR ALL AIRPLANES NOT LISTED IN NOTE **[B]**

**[B]** FOR ALL CARGO AIRPLANES EXCEPT NW

**[C]** FOR ALL TURBOJET AIRPLANES THRU SERIAL  
NUMBER 18004 AND FOR TURBOFAN AIRPLANES  
THRU SERIAL NUMBERS LISTED

AA 19587 EXCEPT 19578 THRU 19580  
AF 19724  
AI 19248  
AR 19241  
AV 19741  
BA 19590  
BN 19531  
BO 19000  
CO 19869  
EJ 19664  
ET 19736  
FT 19355  
IN 19410  
LH 19317  
LY 19502  
NW 19634  
OA 19760  
OF 19630  
PA 20034  
PK 19206  
RD 19416  
RG 19322  
SA 19706  
SB 19841  
SN 19211  
SV 19810  
TW 19572 EXCEPT 19566 AND 19567  
TP 19740  
WD 19789  
WY 19716  
ZC 19767

**[D]** FOR ALL AIRPLANES NOT LISTED IN NOTE **[C]**

**[E]** FOR AIRPLANES SERIAL NUMBERS LISTED

AA 19587 AND 19588  
AV 19741  
CO 19869  
ET 19736  
NW 19633 AND 19634  
PA 19379  
QF 19624 AND 19625  
SA 19705 AND 19706  
SB 19840 AND 19841  
TP 19740  
TW 19570 THRU 19572  
WD 19789

**[F]** FOR AIRPLANES

AA 19519, 19581 THRU 19588  
TW 18405 THRU 18409, 18764, 18913 THRU  
18918, 18978 THRU 18985, 19224 THRU  
19227, 19570 THRU 19572 AND FOR  
AIRPLANES WITH SERVICE BULLETIN  
2590 INCORPORATED

**[G]** FOR THE FOLLOWING LISTED 3008 AND  
SUBSEQUENT AIRPLANES

AF 19291  
AV 19741  
ML 19737  
NW 19633  
OA 20035  
TP 19740  
TW 19573

**[H]** FOR THE FOLLOWING LISTED 300C AND  
SUBSEQUENT AIRPLANES

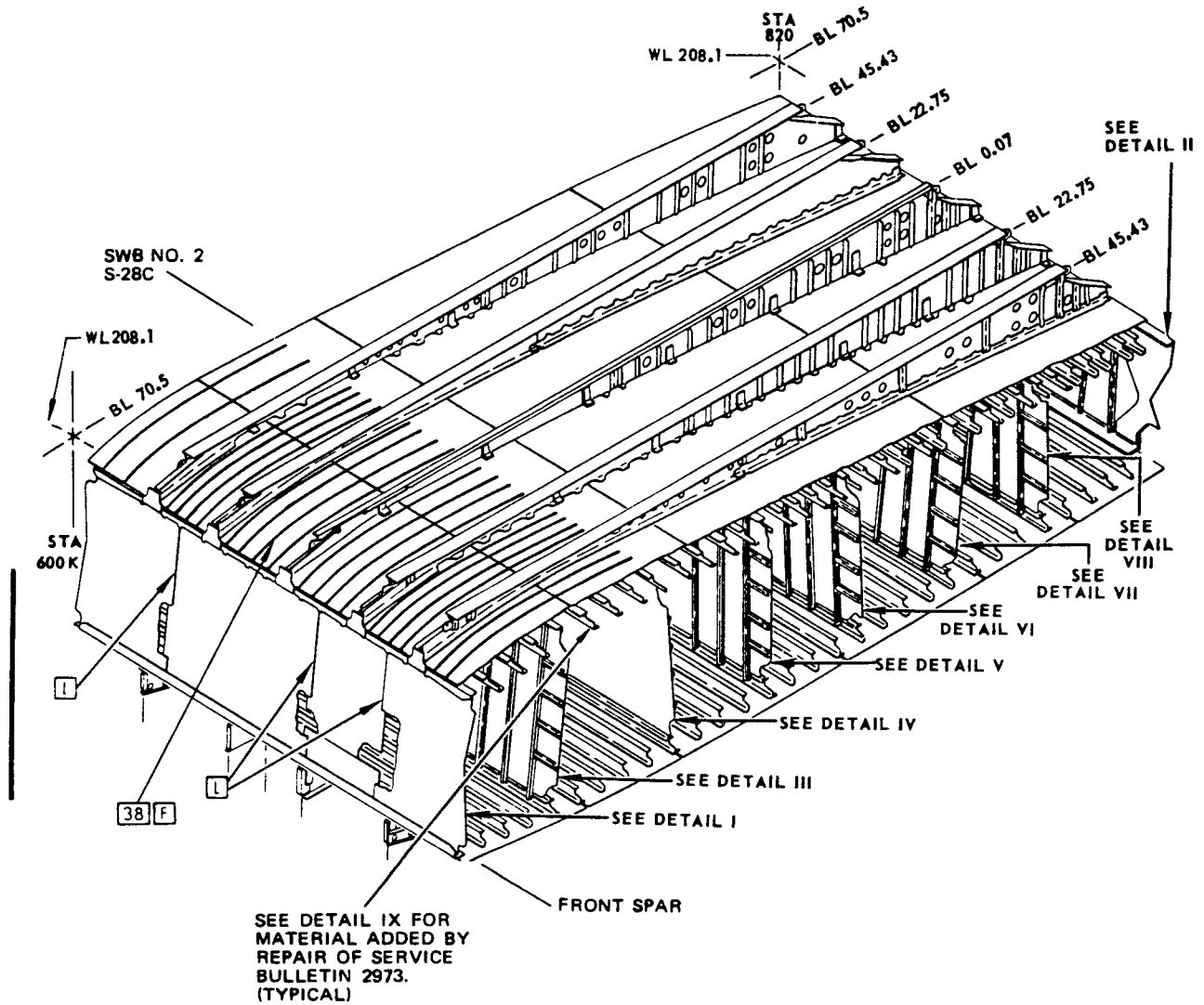
AA 19589  
AF 19723  
AI 19988  
AR 19961  
BA 19590  
BO 19000  
CI 20261  
CO 19869  
EJ 19664  
ET 19736  
GR 19997  
KU 20084  
LH 20123  
ME 20224  
MS 19844  
OA 19760  
PA 20016  
PK 19866  
QF 19621  
RD 20076  
RG 19822  
SA 19705  
SB 19840  
SV 19809  
SN 19996  
TW 19631  
WA 19963  
WD 19789  
WY 19715  
ZC 19767

**[J]** FOR AIRPLANES WITH THE REPAIR OF  
SERVICE BULLETIN 2973 INCORPORATED

**[K]** FOR IM AIRPLANES  
(REF. 9101 THRU 9199)

**[L]** 0.050 CLAD 2024-T3  
REINFORCING PLATE  
PRESENT AT WEB SPlice  
LOCATIONS ON AIRPLANES  
MODIFIED BY SB 3388

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**707**  
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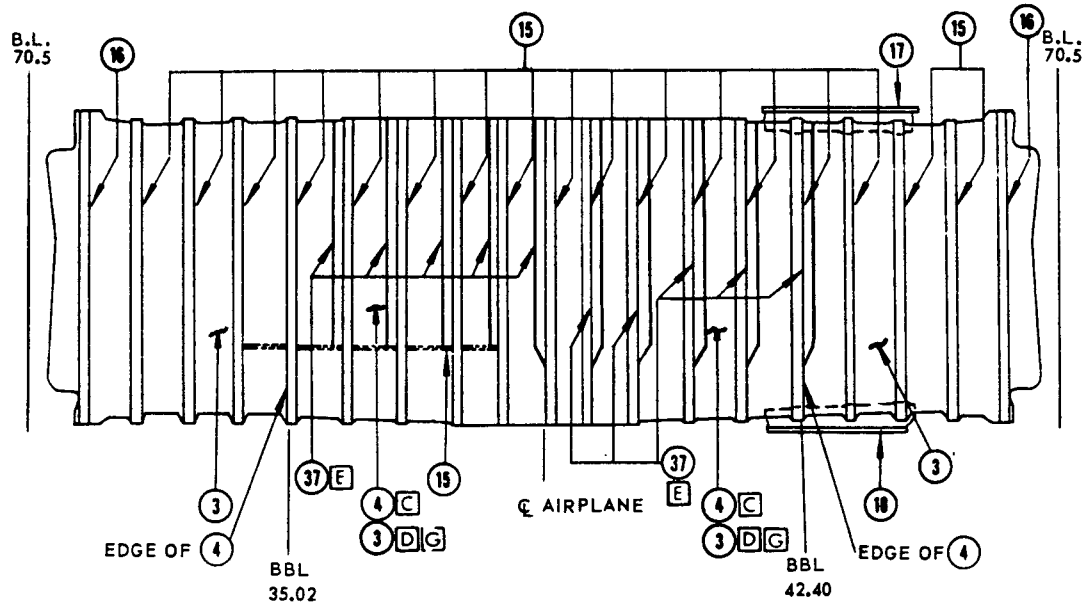
Wing Center Section Structure Identification  
Figure 2 (Sheet 3)



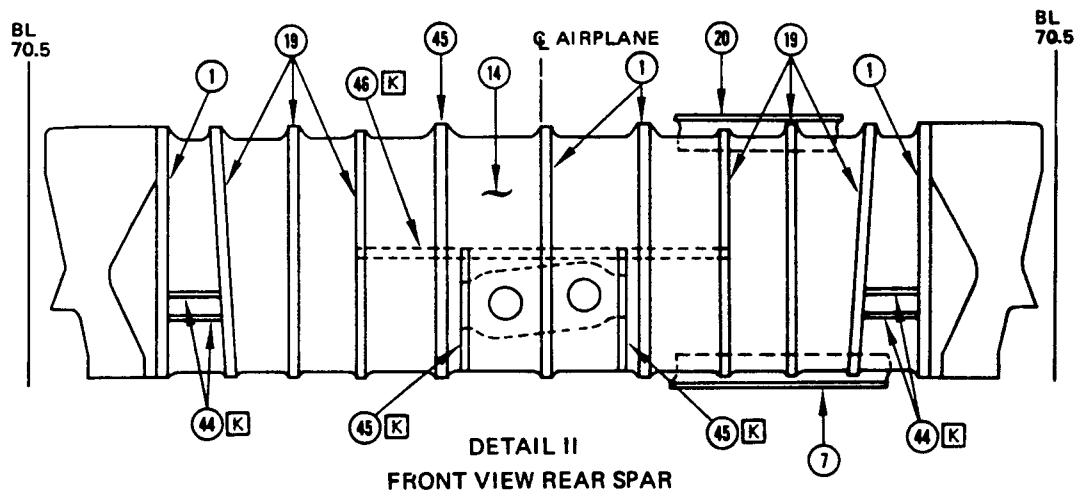
BOEING *707* Intercontinental

STRUCTURAL REPAIR

REF DWG 64-1001  
64-1002



DETAIL I  
REAR VIEW FRONT SPAR



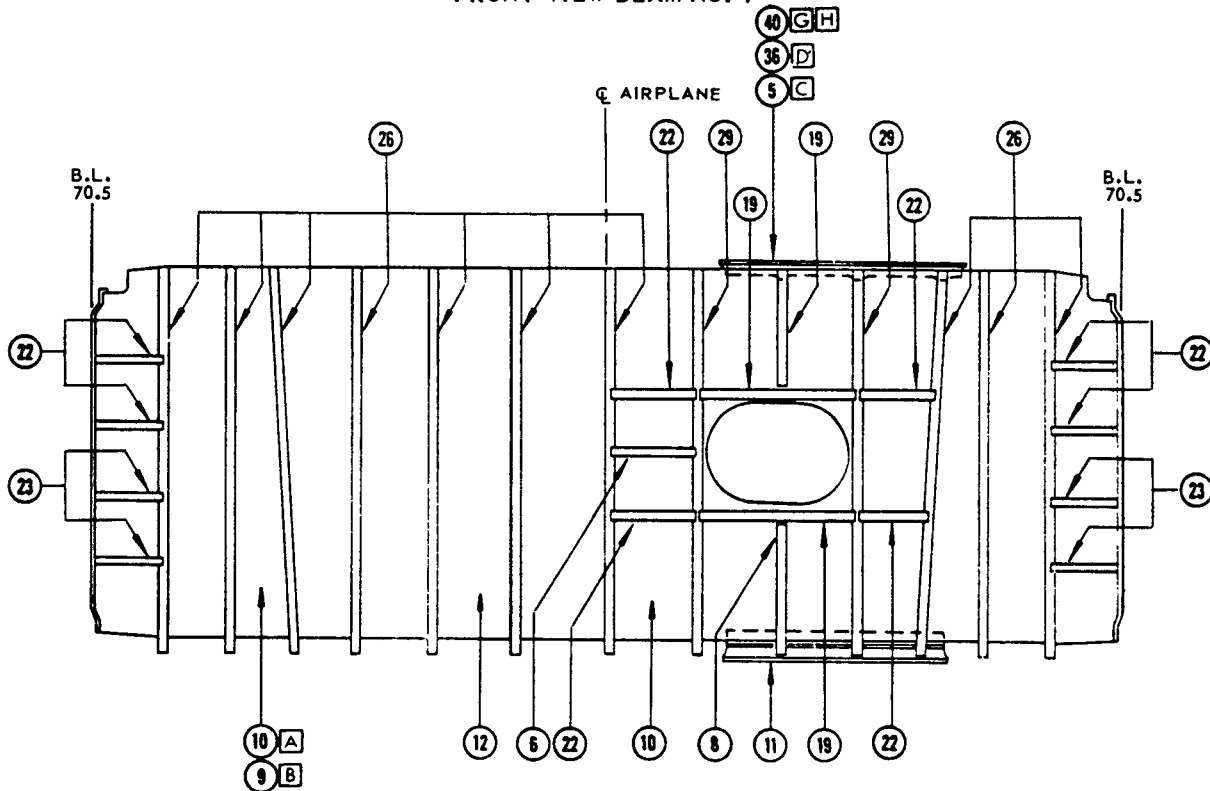
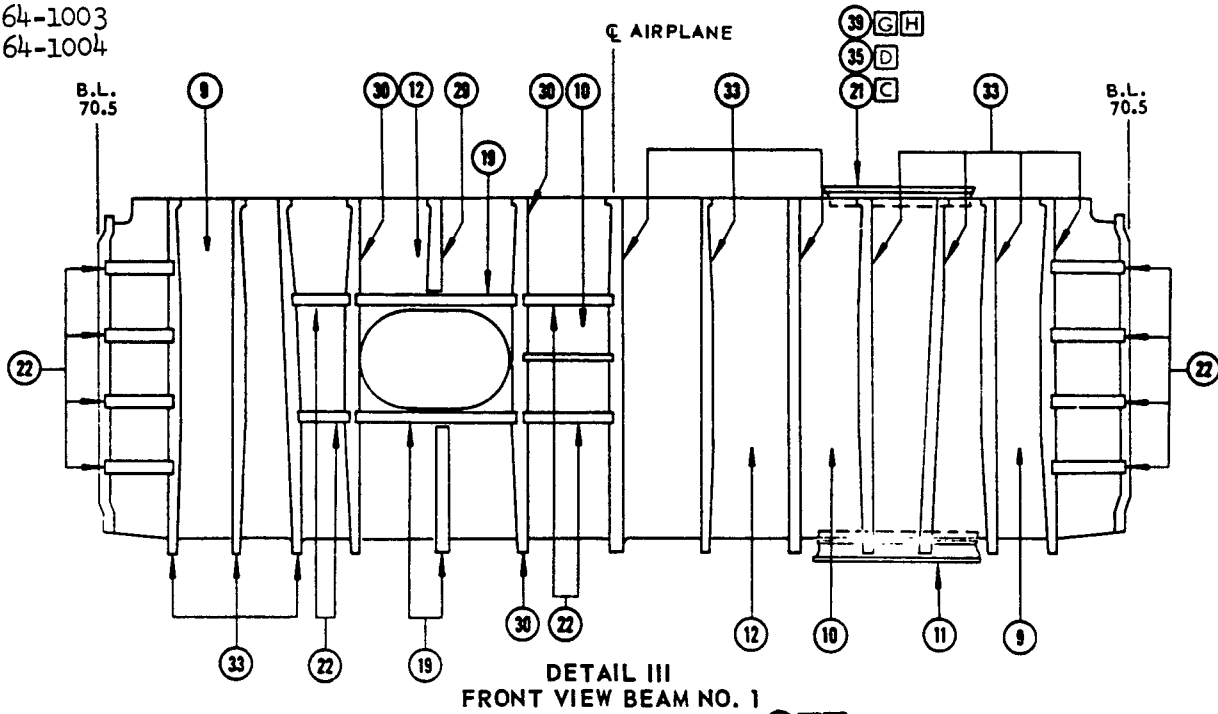
DETAIL II  
FRONT VIEW REAR SPAR

Wing Center Section Structure Identification  
Figure 2 (Sheet 4)



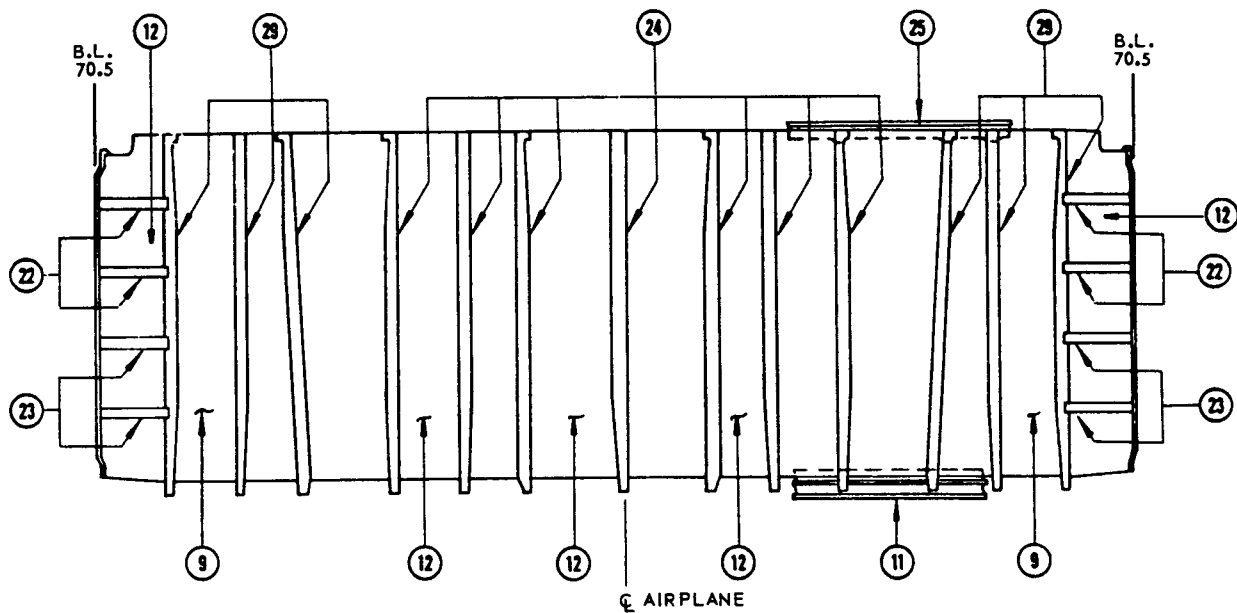
# STRUCTURAL REPAIR

REF DWG  
64-1003  
64-1004

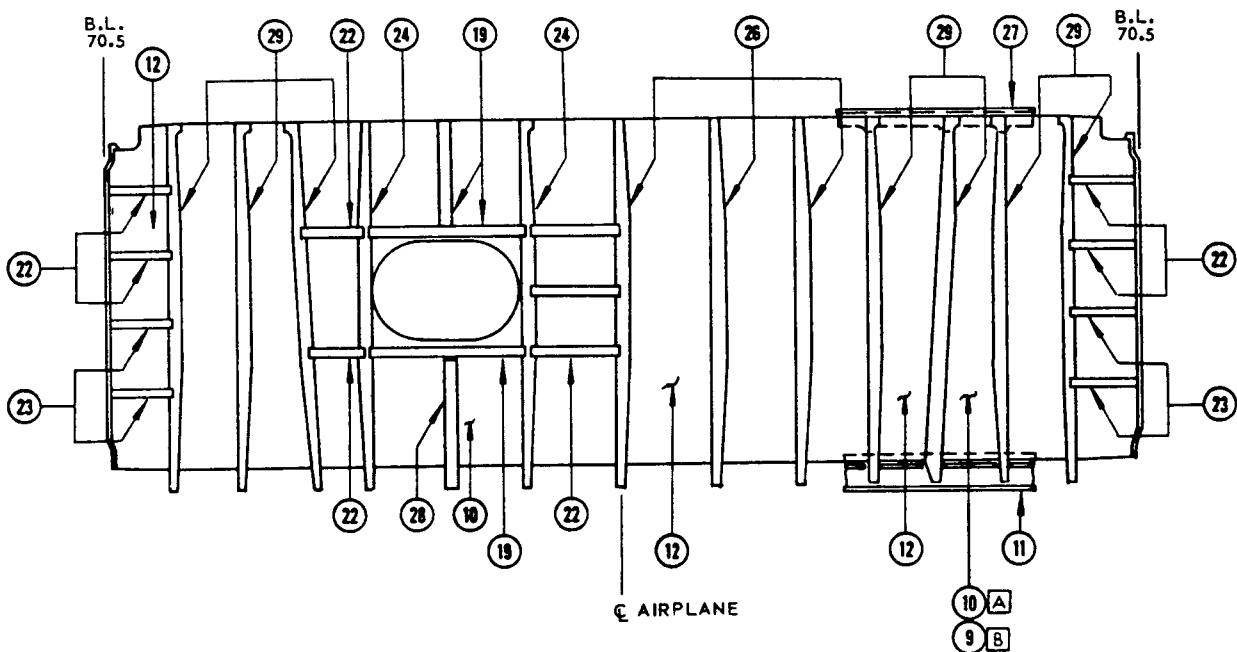


Wing Center Section Structure Identification  
Figure 2 (Sheet 5)

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**STRUCTURAL REPAIR**



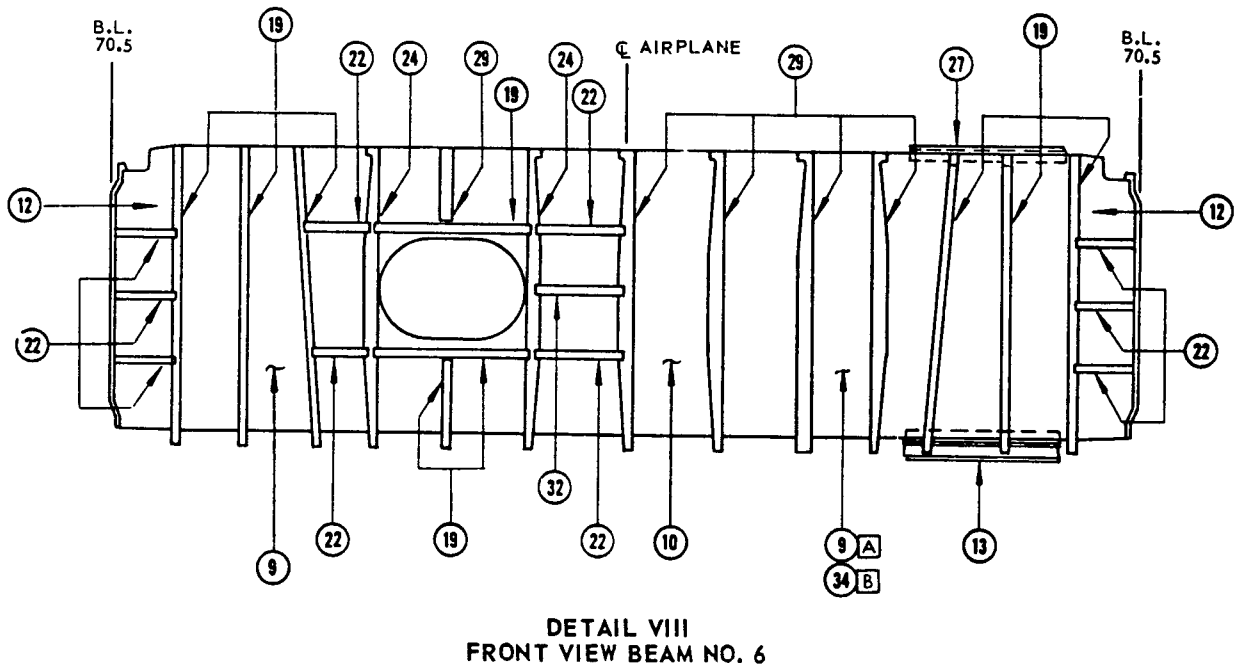
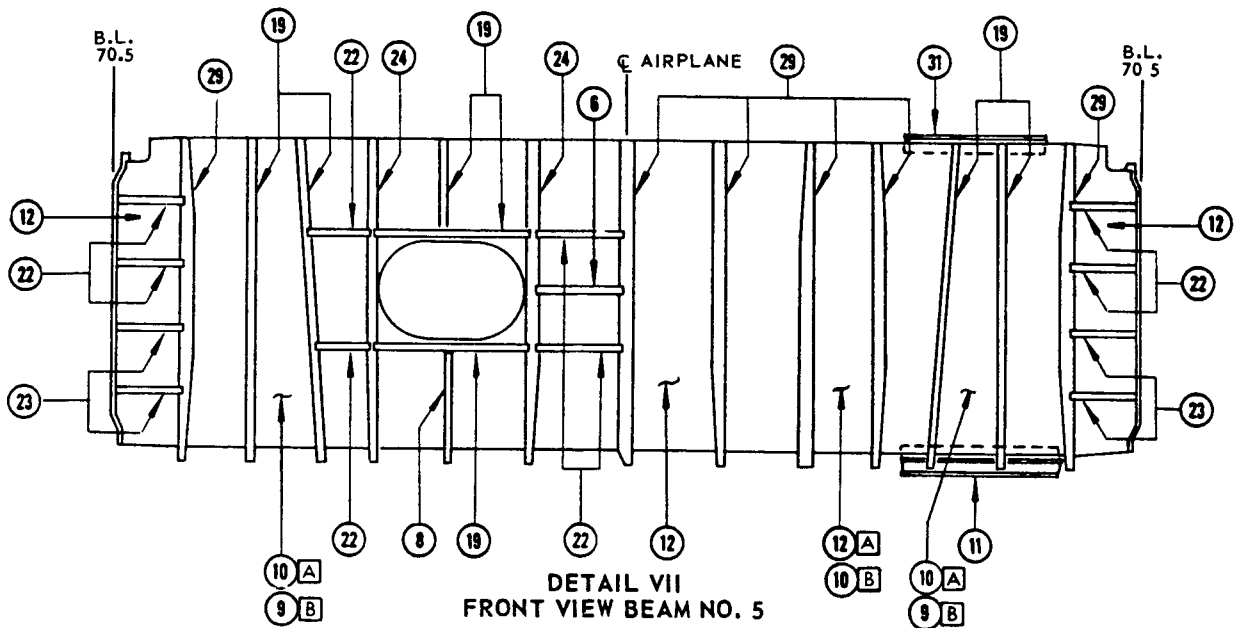
**DETAIL V**  
**FRONT VIEW BEAM NO. 3**



**DETAIL VI**  
**FRONT VIEW BEAM NO. 4**

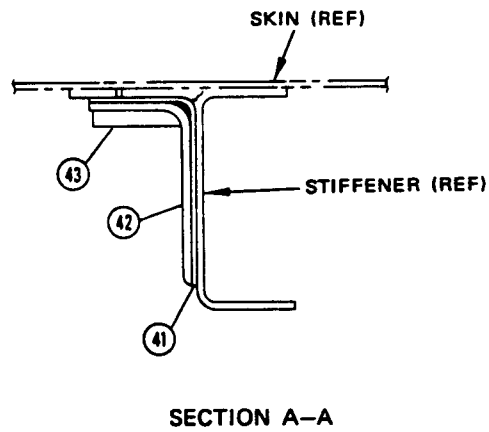
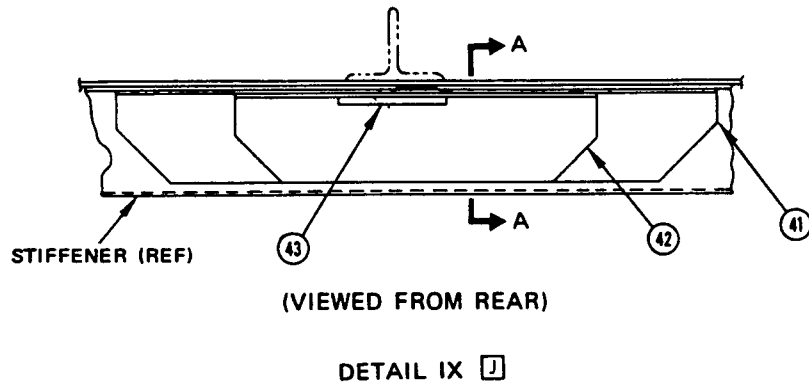
Wing Center Section Structure Identification  
 Figure 2 (Sheet 6)

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**STRUCTURAL REPAIR**



Wing Center Section Structure Identification  
 Figure 2 (Sheet 7)

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Wing Center Section Structure Identification  
Figure 2 (Sheet 8)



# STRUCTURAL REPAIR

| ITEM | MATERIAL                  | REPAIR<br>FIG. NO. | ITEM | MATERIAL                             | REPAIR<br>FIG. NO. |
|------|---------------------------|--------------------|------|--------------------------------------|--------------------|
| 1    | BAC1503-6633<br>7178-T6   | 51-14-4<br>Fig. 1  | 17   | 0.090<br>2024-T3                     | 57-3-6<br>Fig. 1   |
| 2    | BAC1517-1078<br>7178-T6   | 51-14-3<br>Fig. 1  | 18   | MACHINED FROM<br>0.250 PLATE 7075-T6 | 57-3-6<br>Fig. 1   |
| 3    | BAC1517-1079<br>7178-T6   | 51-14-3<br>Fig. 1  | 19   | BAC1506-879<br>7178-T6               |                    |
| 4    | BAC1517-476<br>7178-T6    | 51-14-3<br>Fig. 1  | 20   | BAC1506-1090<br>7050-T6              |                    |
| 5    | BAC1506-963<br>7178-T6    | 51-14-4<br>Fig. 1  | 21   | 0.100<br>2024-T3                     |                    |
| 6    | AND10139-1404<br>7178-T6  | 51-14-4<br>Fig. 1  | 22   | BAC1514-1090<br>7075-T6              |                    |
| 7    | BAC1506-939<br>7178-T6    | 51-14-4<br>Fig. 1  | 23   | BAC1514-1265<br>7075-T6              |                    |
| 8    | BAC1517-1034<br>7178-T6   | 51-14-3<br>Fig. 1  | 24   | AND10133-1002<br>7178-T6             | 51-14-4<br>Fig. 1  |
| 9    | AND10134-1405<br>7178-T6  |                    | 25   | BAC1514-1237<br>7178-T6              | 51-14-4<br>Fig. 1  |
| 10   | AND10134-1206<br>7178-T6  | 51-14-4<br>Fig. 1  | 26   | AND10133-1001<br>7178-T6             | 51-14-4<br>Fig. 1  |
| 11   | BAC1503-100018<br>7178-T6 | 51-14-4<br>Fig. 1  | 27   | BAC1514-533<br>7178-T6               | 51-14-4<br>Fig. 1  |
| 12   | BAC1514-1124<br>7178-T6   | 51-14-4<br>Fig. 1  | 28   | BAC1506-985<br>7178-T6               |                    |
| 13   | BAC1503-100019<br>7178-T6 | 51-14-4<br>Fig. 1  | 29   | BAC1506-1129<br>7075-T6              |                    |
| 14   | BAC1505-100172<br>7178-T6 | 51-14-4<br>Fig. 1  | 30   | BAC1517-1169<br>7178-T6              | 51-14-3<br>Fig. 1  |
| 15   | BAC1503-100022<br>7178-T6 |                    | 31   | MACHINED FROM<br>0.160 PLATE 2024-T4 |                    |
| 16   | AND10136-2402<br>7178-T6  | 51-4-4<br>Fig. 1   | 32   | BAC1517-1072<br>7178-T6              | 51-14-3<br>Fig. 1  |

Wing Front and Rear Spar Structure Identification  
Figure 3 (Sheet 1)



# STRUCTURAL REPAIR

| ITEM | MATERIAL                             | REPAIR<br>FIG. NO. | ITEM | MATERIAL                 | REPAIR<br>FIG. NO. |
|------|--------------------------------------|--------------------|------|--------------------------|--------------------|
| 33   | BAC1517-1070<br>7178-T6              | 51-14-3<br>Fig. 1  | 49   | BAC1505-39375<br>7075-T6 | 51-14-4<br>Fig. 1  |
| 34   | BAC1517-1071<br>7178-T6              | 51-14-3<br>Fig. 1  | 50   | BAC1506-333<br>7178-T6   | 51-14-4<br>Fig. 1  |
| 35   | BAC1517-1069<br>7178-T6              | 51-14-3<br>Fig. 1  | 51   | BAC1506-938<br>7178-T6   | 51-14-4<br>Fig. 1  |
| 36   | BAC1517-1068<br>7178-T6              | 51-14-3<br>Fig. 1  | 52   | AND10134-1404<br>7178-T6 | 51-14-4<br>Fig. 1  |
| 37   | MACHINED FROM<br>0.500 PLATE 7075-T6 |                    | 53   | BAC1514-1290<br>7178-T6  | 51-14-4<br>Fig. 1  |
| 38   | BAC1514-1090<br>7178-T6              |                    | 54   | BAC1514-1126<br>7178-T6  | 51-14-4<br>Fig. 1  |
| 39   | BAC1514-1091<br>7178-T6              | 51-14-4<br>Fig. 1  | 55   | BAC1506-910<br>7178-T6   | 51-14-4<br>Fig. 1  |
| 40   | BAC1503-100096<br>7178-T6            | 51-14-4<br>Fig. 1  | 56   | BAC1514-1101<br>7178-T6  | 51-14-4<br>Fig. 1  |
| 41   | AND10135-1201<br>7178-T6             | 51-14-4<br>Fig. 1  | 57   | BAC1514-1102<br>7178-T6  | 51-14-4<br>Fig. 1  |
| 42   | AND10134-1204<br>7178-T6             | 51-14-4<br>Fig. 1  | 58   | BAC1514-1103<br>7178-T6  | 51-14-4<br>Fig. 1  |
| 43   | 0.071<br>2024-T3                     | 57-3-6<br>Fig. 1   | 59   | BAC1514-813<br>7178-T6   | 51-14-4<br>Fig. 1  |
| 44   | 0.063<br>2024-T3                     |                    | 60   | AND10134-1005<br>7075-T6 |                    |
| 45   | BAC1506-982<br>7178-T6               |                    | 61   | BAC1514-1367<br>7178-T6  | 51-14-4<br>Fig. 1  |
| 46   | BAC1503-100089<br>7178-T6            | 51-14-4<br>Fig. 1  | 62   | BAC1514-1368<br>7178-T6  | 51-14-4<br>Fig. 1  |
| 47   | BAC1505-100199<br>7178-T6            | 51-14-4<br>Fig. 1  | 63   | BAC1514-1369<br>7178-T6  | 51-14-4<br>Fig. 1  |
| 48   | BAC1505-100202<br>7178-T6            | 51-14-4<br>Fig. 1  | 64   | BAC1514-1370<br>7178-T6  | 51-14-4<br>Fig. 1  |

Wing Front and Rear Spar Structure Identification  
Figure 3 (Sheet 2)



# STRUCTURAL REPAIR

| ITEM | MATERIAL                  | REPAIR<br>FIG. NO. | ITEM | MATERIAL                  | REPAIR<br>FIG. NO. |
|------|---------------------------|--------------------|------|---------------------------|--------------------|
| 65   | BAC1514-1124<br>7178-T6   | 51-14-4<br>Fig. 1  | 81   | 0.063<br>2024-T3          | 57-3-6<br>Fig. 1   |
| 66   | BAC1506-1156<br>7178-T6   |                    | 82   | AND10139-2005<br>7075-T6  | 51-14-4<br>Fig. 1  |
| 67   | BAC1517-316<br>7178-T6    | 51-14-3<br>Fig. 1  | 83   | BAC1503-100149<br>2024-T4 | 51-14-4<br>Fig. 1  |
| 68   | BAC1517-1149<br>7178-T6   | 51-14-3<br>Fig. 1  | 84   | BAC1503-100157<br>2024-T4 | 51-14-4<br>Fig. 1  |
| 69   | AND10139-1404<br>7178-T6  | 51-14-4<br>Fig. 1  | 85   | AND10137-2005<br>7178-T6  | 51-14-4<br>Fig. 1  |
| 70   | BAC1517-1071<br>7178-T6   | 51-14-3<br>Fig. 1  | 86   | BAC1517-1374<br>7178-T6   | 51-14-3<br>Fig. 1  |
| 71   | BAC1503-4162<br>7178-T6   | 51-14-4<br>Fig. 1  | 87   | BAC1517-1373<br>7178-T6   | 51-14-3<br>Fig. 1  |
| 72   | BAC1503-100103<br>7178-T6 | 51-14-4<br>Fig. 1  | 88   | BAC1517-198<br>7178-T6    | 51-14-3<br>Fig. 1  |
| 73   | BAC1514-1168<br>7178-T6   | 51-14-4<br>Fig. 1  | 89   | BAC1503-2773<br>7178-T6   | 51-14-4<br>Fig. 1  |
| 74   | BAC1514-812<br>7178-T6    | 51-14-4<br>Fig. 1  | 90   | BAC1506-975<br>7178-T6    | 51-14-4<br>Fig. 1  |
| 75   | BAC1517-1070<br>7178-T6   | 51-14-3<br>Fig. 1  | 91   | BAC1503-2963<br>7178-T6   | 51-14-4<br>Fig. 1  |
| 76   | BAC1517-1261<br>7178-T6   | 51-14-3<br>Fig. 1  | 92   | AND10134-2001<br>7178-T6  | 51-14-4<br>Fig. 1  |
| 77   | 0.090<br>7075-T6          | 51-14-4<br>Fig. 1  | 93   | BAC1503-5903<br>7178-T6   | 51-14-4<br>Fig. 1  |
| 78   | 0.071<br>7075-T6          | 51-14-4<br>Fig. 1  | 94   | BAC1503-2842<br>7178-T6   | 51-14-4<br>Fig. 1  |
| 79   | BAC1514-1279<br>7075-T6   |                    | 95   | AND10134-2003<br>7178-T6  |                    |
| 80   | 0.100<br>2024-T3          | 57-3-6<br>Fig. 1   | 96   | BAC1503-9741<br>7178-T6   | 51-14-4<br>Fig. 1  |

Wing Front and Rear Spar Structure Identification  
Figure 3 (Sheet 3)





# STRUCTURAL REPAIR

| ITEM | MATERIAL                               | REPAIR<br>FIG. NO. | ITEM | MATERIAL                                     | REPAIR<br>FIG. NO. |
|------|----------------------------------------|--------------------|------|----------------------------------------------|--------------------|
| 97   | AND10133-1002<br>7178-T6               | 51-14-4<br>Fig. 1  | 113  | BAC1514-1090<br>7075-T6511 [E]               |                    |
| 98   | 0.063<br>7075-T6                       |                    | 114  | FORGING<br>7075-T73                          |                    |
| 99   | BAC1505-100186<br>7075-T6              | 51-14-4<br>Fig. 1  | 115  | AND10136-3006<br>7075-T6511 [E]              |                    |
| 100  | BAC1506-913<br>7178-T6                 | 51-14-4<br>Fig. 1  | 116  | AND10136-2002<br>7075-T6511 [E]              |                    |
| 101  | BAC1517-1072<br>7178-T6                | 51-14-3<br>Fig. 1  | 117  | AND10133-1002<br>7075-T6511 [E]              |                    |
| 102  | 0.112<br>2024-T3                       |                    | 118  | AND10134-1206<br>7075-T6511 [E]              |                    |
| 103  | MACHINED FROM<br>0.815 PLATE 7075-T6   |                    | 119  | AND10134-1004<br>7075-T6511 [E]              |                    |
| 104  | BAC1506-540<br>7075-T6                 | 51-14-4<br>Fig. 1  | 120  | AND10139-1204<br>7075-T6511 [E]              |                    |
| 105  | BAC1505-100285<br>7178-T6 OPT. 7075-T6 | 51-14-4<br>Fig. 1  | 121  | FORGING<br>7075-T73 [G]                      |                    |
| 106  | 0.100<br>7075-T6                       |                    | 122  | WING TERMINAL FITTING<br>FORGING<br>7079-T6  |                    |
| 107  | BAC1505-100152<br>7075-T6              | 51-14-4<br>Fig. 1  | 123  | WING TERMINAL FITTING<br>FORGING<br>7075-T73 |                    |
| 108  | AND10134-1407<br>7075-T6               | 51-14-4<br>Fig. 1  |      |                                              |                    |
| 109  | BAC1503-100194<br>7075-T6              | 51-14-4<br>Fig. 1  |      |                                              |                    |
| 110  | BAC1517-1444<br>7075-T6                |                    |      |                                              |                    |
| 111  | 0.375<br>7075-T651                     |                    |      |                                              |                    |
| 112  | 0.16<br>7075-T6                        |                    |      |                                              |                    |

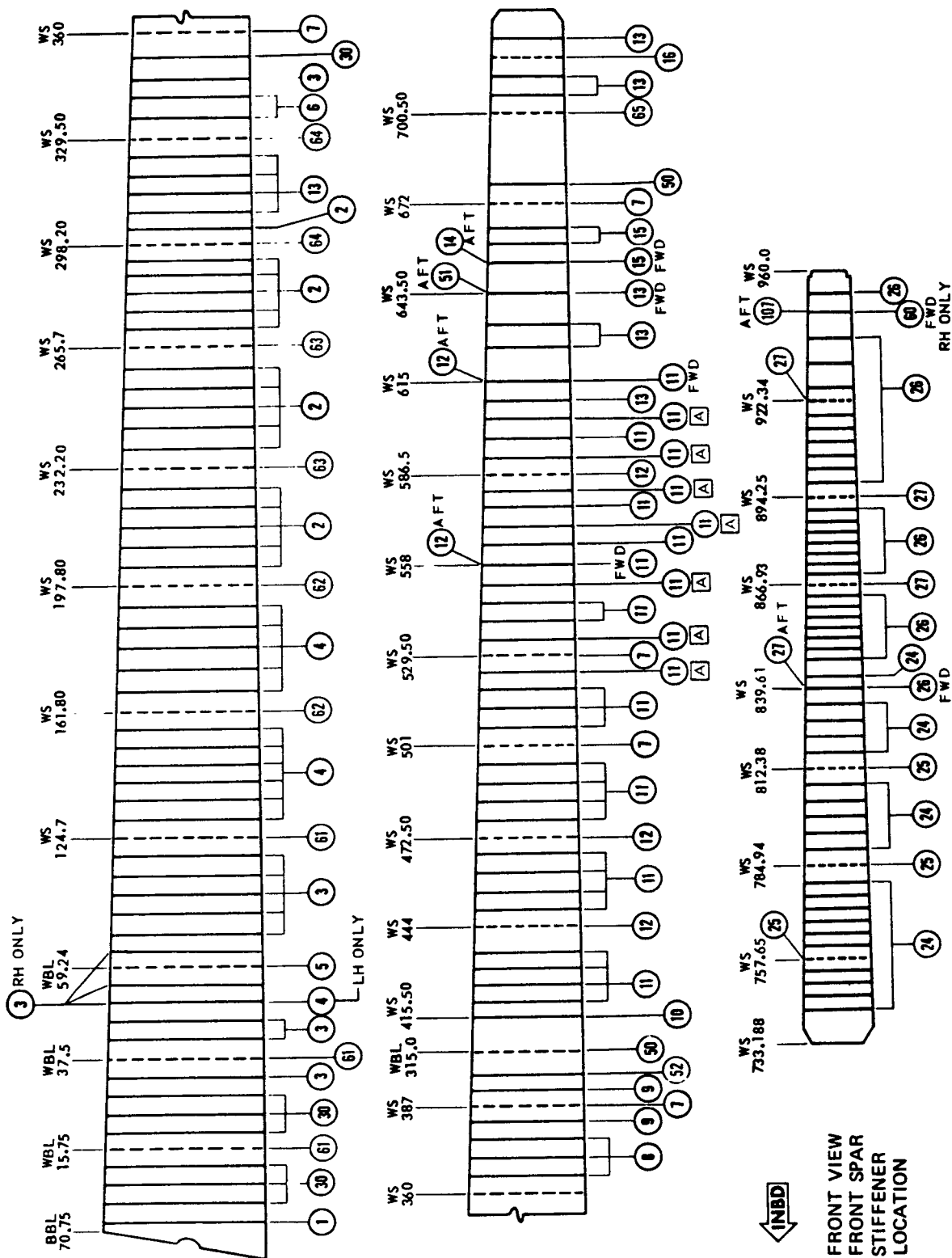
Wing Front and Rear Spar Structure Identification  
Figure 3 (Sheet 4)



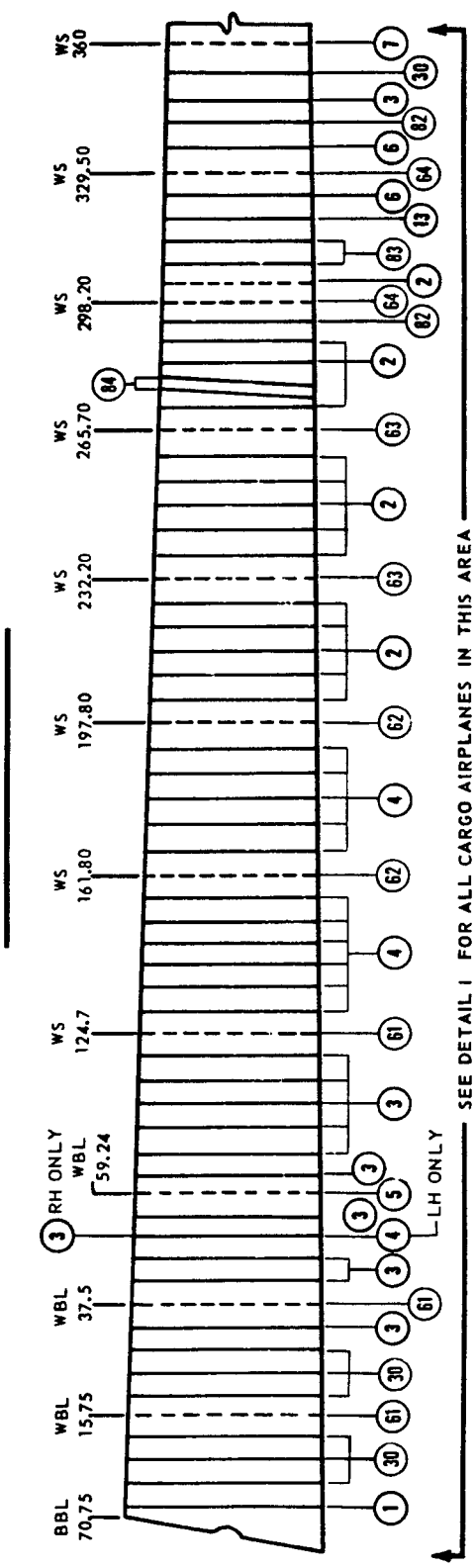
NOTES

- A** FOR PA 17592 AND 17593 ONLY
- B** FOR THE FOLLOWING AIRPLANES:  
BA 17703  
PA 17592 THRU 17598
- C** ALL AIRPLANES NOT LISTED IN **B**
- D** FOR AIRPLANES WITH SB 2352  
INCORPORATED
- E** FOR AIRPLANES WITH SB 2607  
INCORPORATED.
- F** FOR AIRPLANES WITH WINGTIP  
REFUELING CAPABILITY
- G** FORGINGS OF 7079-T6 MATERIAL  
HAVE BEEN REPLACED BY FORGINGS  
OF 7075-T73 IN PRODUCTION;  
7075-T73 FORGINGS ARE RECOM-  
MENDED WHEN EXISTING STOCKS OF  
7079-T6 ARE EXHAUSTED

|                        |
|------------------------|
| EFFECTIVITY            |
| ALL TURBOJET AIRPLANES |

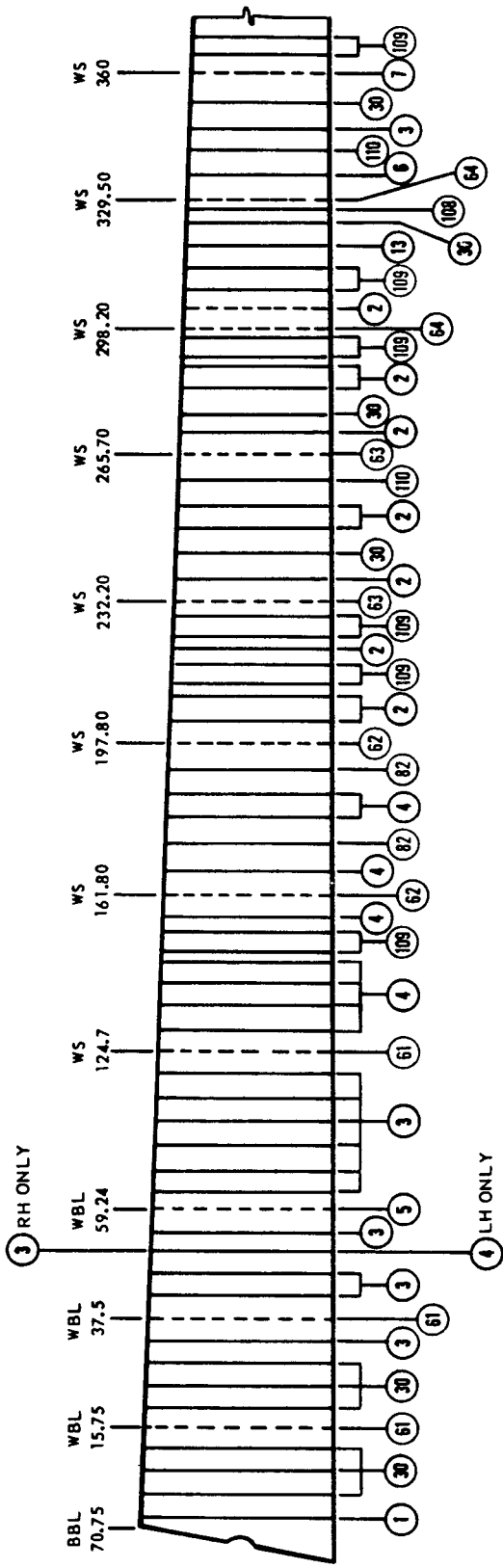


Wing Front and Rear Spar Structure Identification  
Figure 3 (Sheet 6)



FRONT VIEW  
FRONT SPAR  
STIFFENER  
LOCATION

INBD



ALL CARGO AIRPLANES  
DETAIL I

INBD

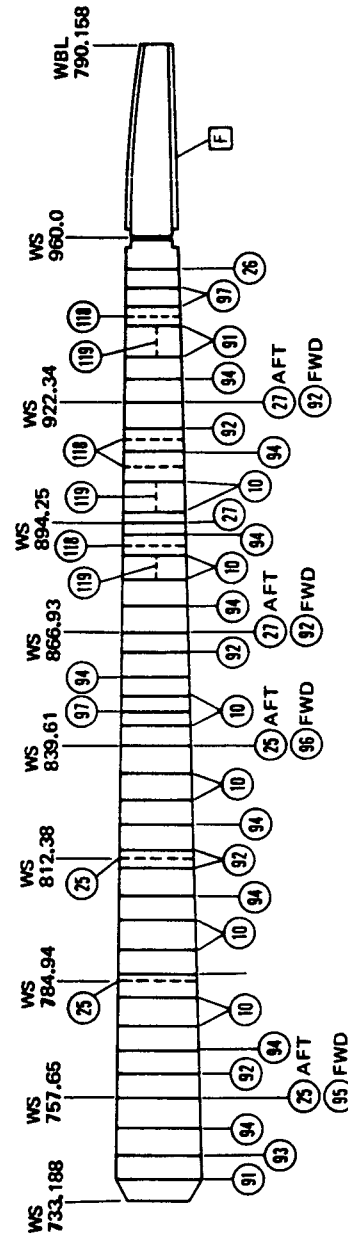
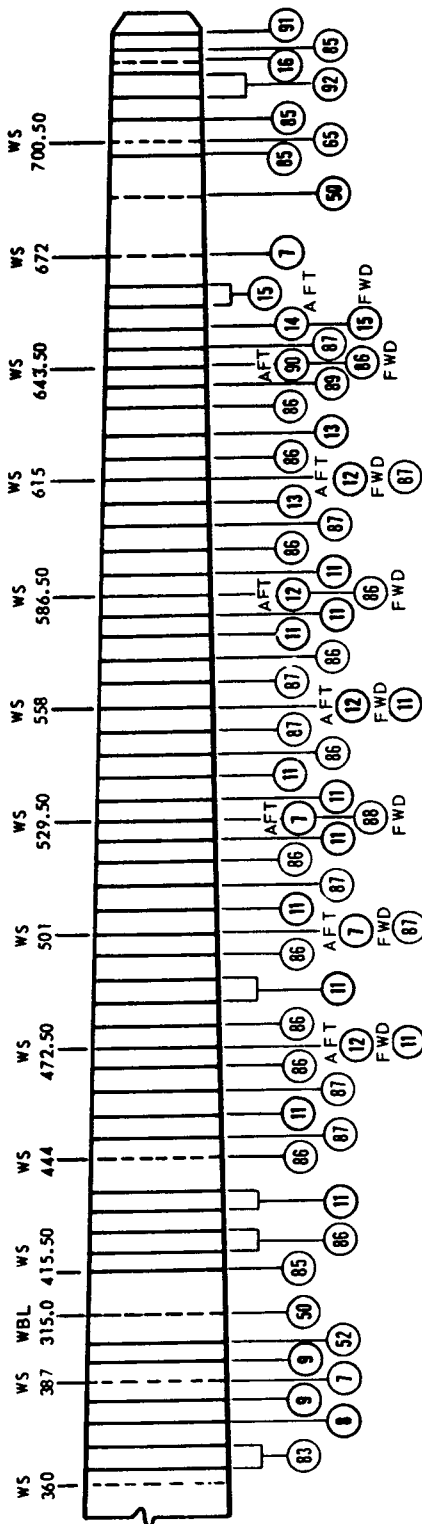
Wing Front and Rear Spar Structure Identification  
Figure 3 (Sheet 7)

## ALL TURBOFAN AIRPLANES

## ALL TURBOFAN AIRPLANES



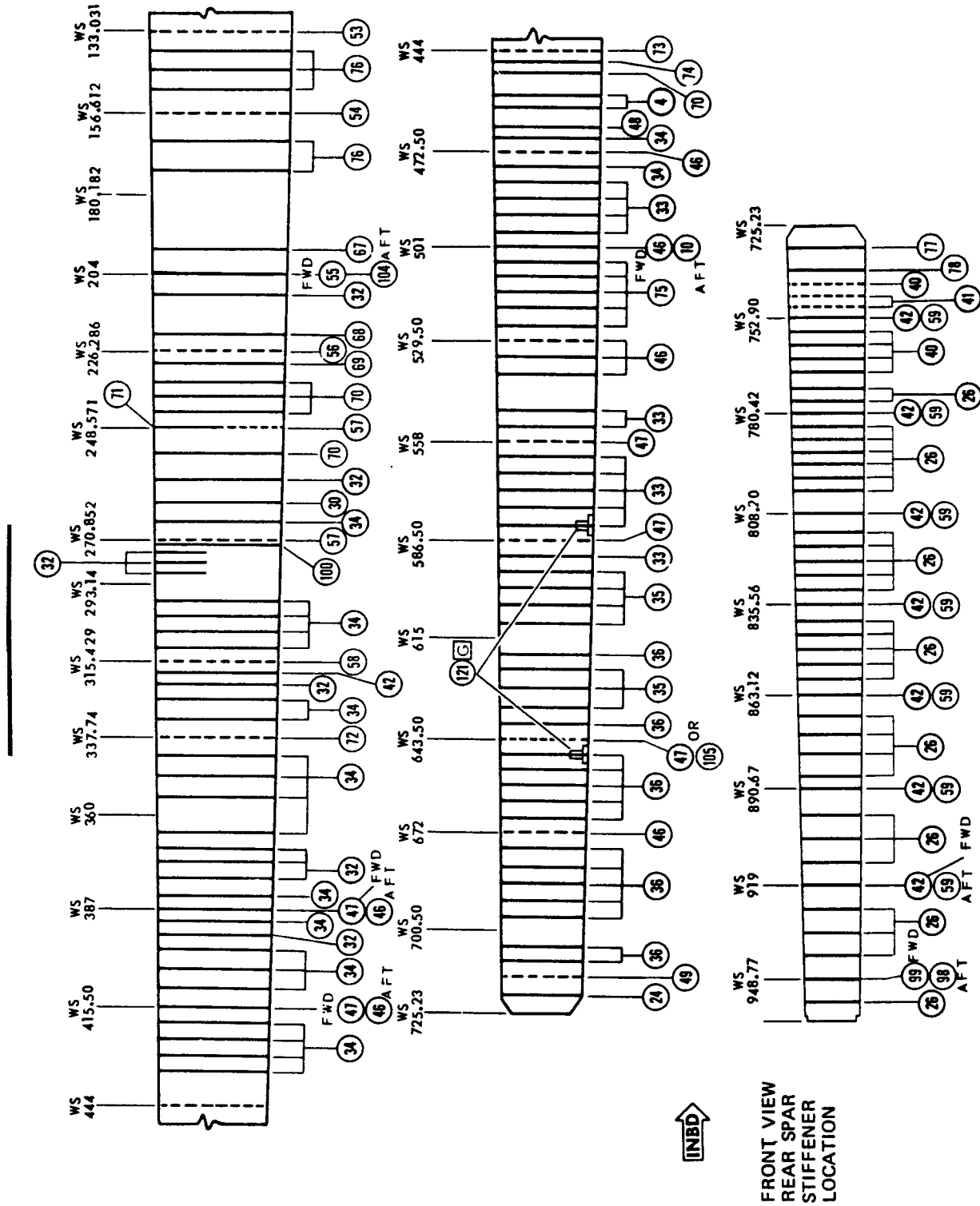
## STRUCTURAL REPAIR



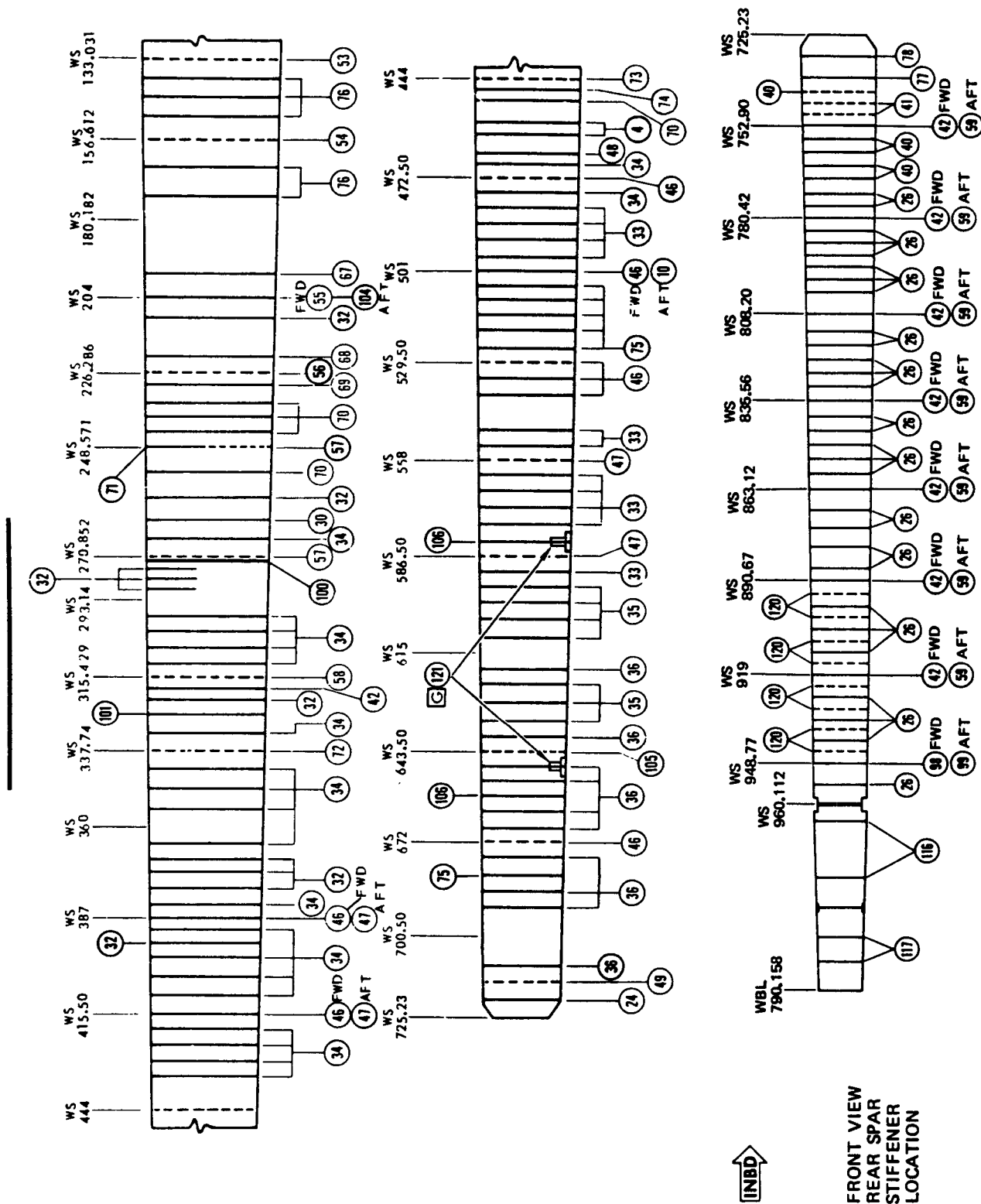
FRONT VIEW  
FRONT SPAR  
STIFFENER  
LOCATION



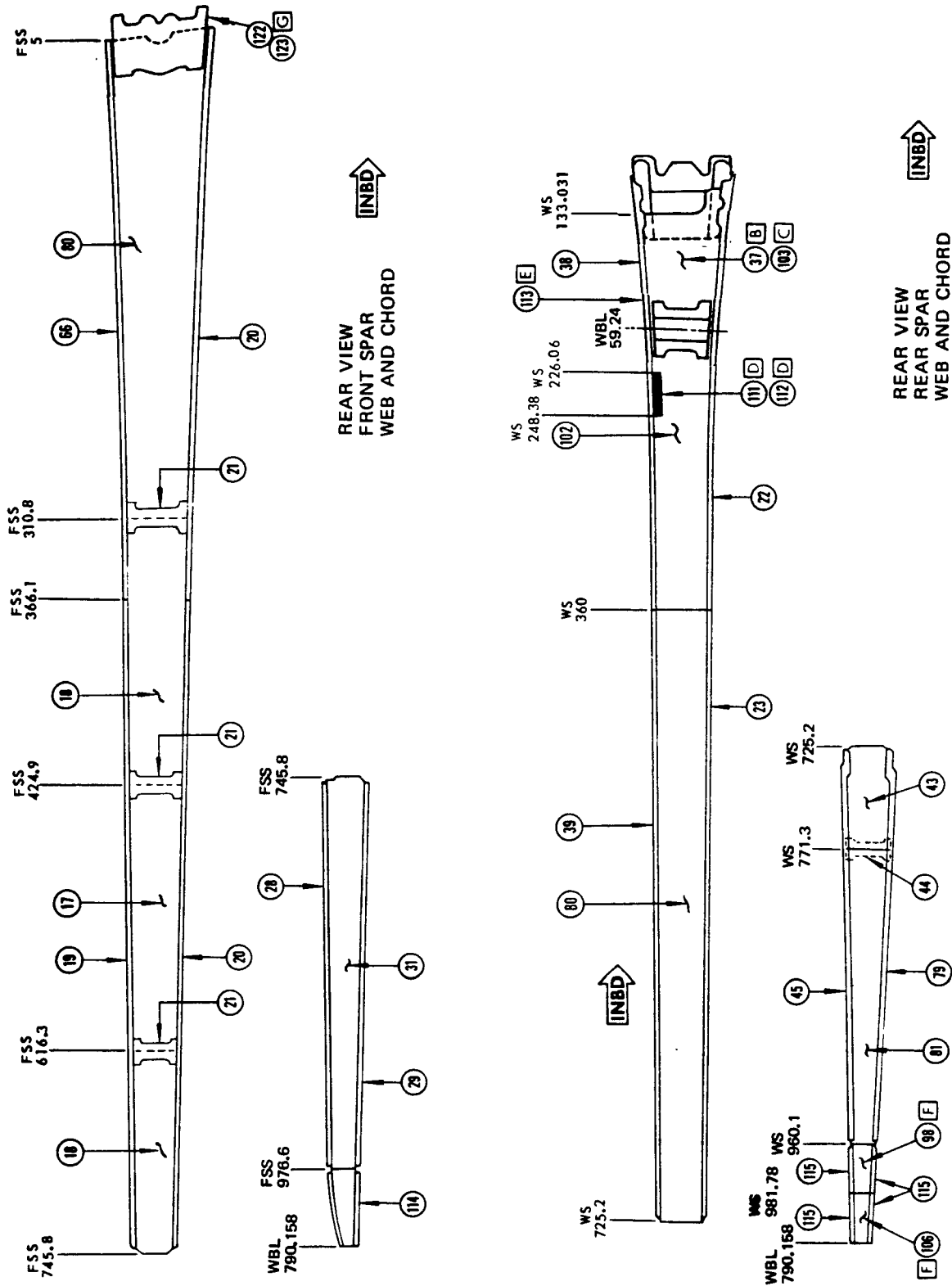
Wing Front and Rear Spar Structure Identification  
Figure 3 (Sheet 8)



Wing Front and Rear Spar Structure Identification  
Figure 3 (Sheet 9)



Wing Front and Rear Spar Structure Identification  
Figure 3 (Sheet 10)



Wing Front and Rear Spar Structure Identification  
Figure 3 (Sheet 11)



**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



| ITEM | MATERIAL                                | REPAIR<br>FIG NO. | ITEM | MATERIAL                                 | REPAIR<br>FIG NO.             | ITEM | MATERIAL                                               | REPAIR<br>FIG NO.        |
|------|-----------------------------------------|-------------------|------|------------------------------------------|-------------------------------|------|--------------------------------------------------------|--------------------------|
| ①    | BAC1518-250<br>7075-T6                  | L                 | ②0   | BAC1517-1151<br>7178-T6 OR<br>7178-T6511 | 57-3-4<br>FIG. 1              | ③9   | BAC1518-263<br>7075-T6                                 | L                        |
| ②    | BAC1518-251<br>7075-T6                  | L                 | ②1   | BAC1517-1150<br>7178-T6 OR<br>7178-T6511 | 57-3-4<br>FIG. 1              | ④0   | BAC1503-2812<br>7075-T6                                |                          |
| ③    | BAC1518-260<br>7075-T6                  | L                 | ②2   | BAC1506-857<br>7178-T6 OR<br>7178-T6511  | 57-3-4<br>FIG. 1              | ④1   | BAC1506-856<br>7075-T6                                 | L                        |
| ④    | BAC1518-245<br>7075-T6                  | L                 | ②3   | BAC1517-1149<br>7178-T6 OR<br>7178-T6511 | 57-3-4<br>FIG. 1              | ④2   | BAC1517-1050<br>7075-T6                                | L                        |
| ⑤    | BAC1518-249<br>7075-T6                  | L                 | ②4   | BAC1506-856<br>7178-T6 OR<br>7178-T6511  | 57-3-4<br>FIG. 1              | ④3   | BAC 1520-949<br>7075-T6                                | L                        |
| ⑥    | BAC1518-246<br>7075-T6                  | L                 | ②5   | BAC1517-1054<br>7178-T6 OR<br>7178-T6511 | 57-3-4<br>FIG. 1              | ④4   | BAC1520-950<br>7075-T6                                 | L                        |
| ⑦    | BAC1518-209<br>7075-T6                  | L                 | ②6   | BAC1510-320<br>7178-T6 OR<br>7178-T6511  | 57-3-4<br>FIG. 1              | ④5   | BAC1514-1311<br>7075-T6                                | 57-3-4<br>FIG. 1         |
| ⑧    | BAC1518-247<br>7075-T6                  | L                 | ②7   | BAC1517-1050<br>7178-T6 OR<br>7178-T6511 | 57-3-4<br>FIG. 1              | ④6   | BAC1514-1313<br>7178-T6                                | 57-3-4<br>FIG. 1         |
| ⑨    | BAC1518-248<br>7075-T6                  | L                 | ②8   | BAC1510-267<br>7178-T6 OR<br>7178-T6511  | 57-3-4<br>FIG. 1              | ④7   | BAC1514-1346<br>7075-T6                                | 57-3-4<br>FIG. 1         |
| ⑩    | AND10138-2404<br>7075-T6                | L                 | ②9   | BAC1517-1049<br>7178-T6                  | 57-3-4<br>FIG. 1              | ④8   | BAC1505-100289<br>7178-T6                              | 57-3-4<br>FIG. 1         |
| ⑪    | BAC1506-1128<br>7075-T6                 | L                 | ③0   | BAC1505-100216<br>7178-T6                | 57-3-4<br>FIG. 1              | ④9   | AND10134-2410<br>7178-T6                               | 57-3-4<br>FIG. 1         |
| ⑫    | BAC1518-259<br>7075-T6                  | L                 | ③1   | BAC1514-1166<br>7178-T6                  | 57-3-4<br>FIG. 1              | ⑤0   | BOOST PUMP<br>SUPPORT FITTING <sup>E</sup><br>7079-T6  | 57-3-4<br>FIG.<br>11, 12 |
| ⑬    | BAC1518-258<br>7075-T6                  | L                 | ③2   | BAC1503-2963<br>7178-T6                  | 57-3-4<br>FIG. 1              | ⑤1   | BAC1517-1334<br>7178-T6 OR<br>7178-T6511               | 57-3-4<br>FIG. 1         |
| ⑭    | BAC1506-1149<br>7075-T6                 | L                 | ③3   | BAC1510-268<br>7178-T6                   | 57-3-4<br>FIG. 1              | ⑤2   | BAC1506-1343<br>7178-T6 OR<br>7178-T6511               | 57-3-4<br>FIG. 1         |
| ⑮    | BAC1506-1150<br>7075-T6                 | L                 | ③4   | AND10138-2404<br>7075-T6                 | 57-3-4<br>FIG. 1 <sup>L</sup> | ⑤3   | BAC1506-2382<br>7178-T6 OR<br>7178-T6511               |                          |
| ⑯    | BAC1506-884<br>7075-T6                  | L                 | ③5   | BAC1517-1064<br>7178-T6                  | 57-3-4<br>FIG. 1              | ⑤4   | BAC1506-2381<br>7178-T6 OR<br>7178-T6511               |                          |
| ⑰    | BAC1517-1146<br>7178-T6                 | 57-3-4<br>FIG. 1  | ③6   | BAC1506-1227<br>7075-T6                  | L                             | ⑤5   | BOOST PUMP<br>SUPPORT FITTING <sup>F</sup><br>7075-T73 |                          |
| ⑱    | BAC1517-1063<br>7178-T6                 | 57-3-4<br>FIG. 1  | ③7   | BAC1506-1307<br>7075-T6                  | L                             | ⑤6   | BAC1517-1049<br>7075-T6 OR<br>7178-T6511               | L                        |
| ⑲    | BAC1506-871<br>7178-T6 OR<br>7178-T6511 | 57-3-4<br>FIG. 1  | ③8   | BAC1506-1230<br>7075-T6                  | L                             | ⑤7   | STIFFENER<br>END INSTALLATION                          |                          |
|      |                                         |                   |      |                                          |                               | ⑤8   | BAC1517-1148<br>7178-T6                                | 57-3-4<br>FIG. 1         |
|      |                                         |                   |      |                                          |                               | ⑤9   | BAC1506-950<br>7178-T6                                 |                          |
|      |                                         |                   |      |                                          |                               | ⑥0   | AND10133-1001<br>7075-T6511                            |                          |
|      |                                         |                   |      |                                          |                               | ⑥1   | AND10138-1403<br>7075-T6511                            |                          |
|      |                                         |                   |      |                                          |                               | ⑥2   | BAC1505-45585<br>2024-T3511                            |                          |
|      |                                         |                   |      |                                          |                               | ⑥3   | AND10133-1001<br>2024-T3511                            |                          |

Wing Interspar Stiffeners Identification  
Figure 4 (Sheet 1)

**BOEING**  
**707**   
INTERCONTINENTAL  
STRUCTURAL REPAIR

NOTES

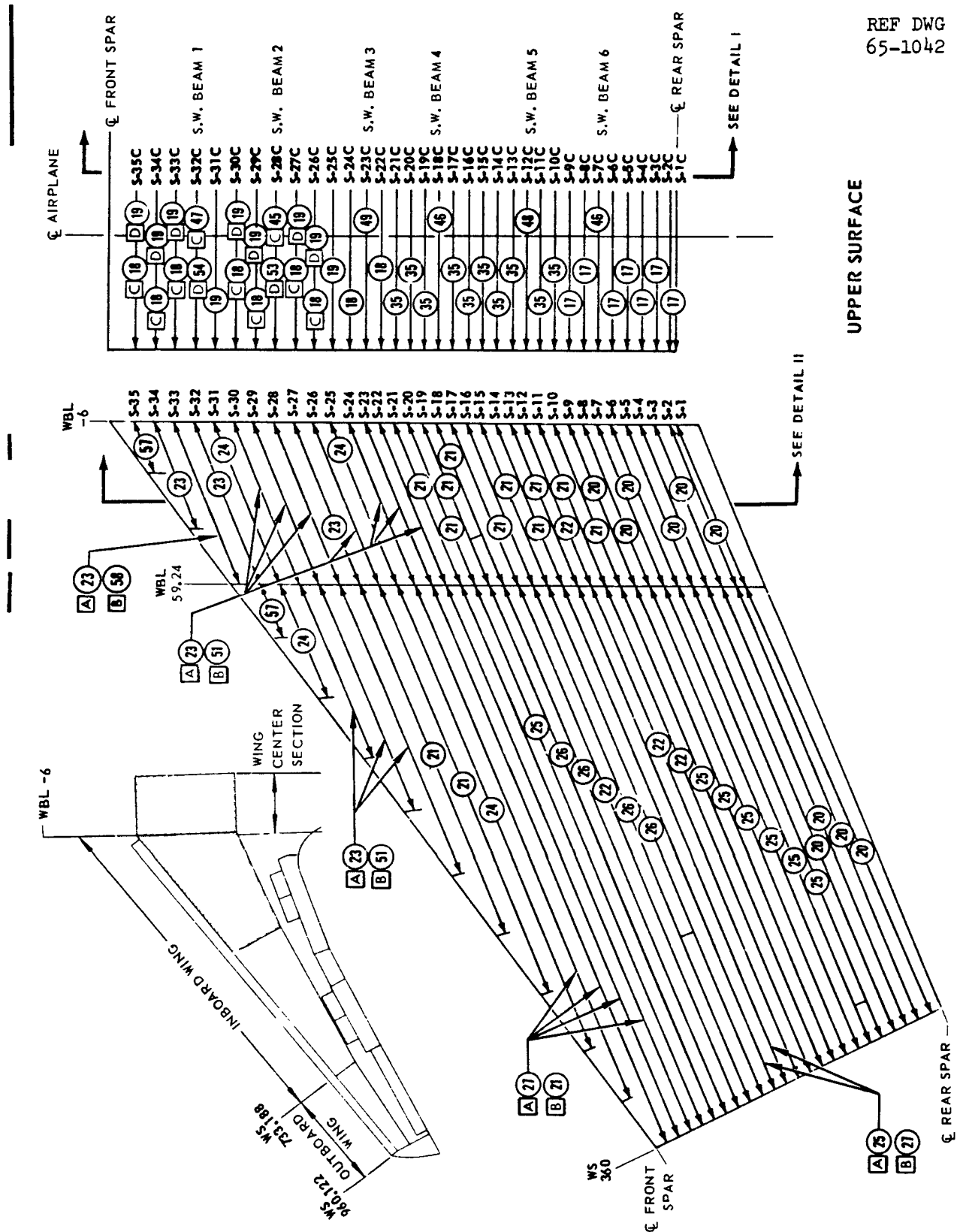
- ☐ A FOR CUM LINE NUMBERS THRU 765
- ☐ B FOR CUM LINE NUMBERS:  
766 AND ON
- ☐ C CUM LINE NUMBERS THRU 700
- ☐ D FOR CUM LINE NUMBERS:  
701 AND ON
- ☐ E FOR CUM LINE NUMBERS THRU 769
- ☐ F FOR CUM LINE NUMBERS:  
770 AND ON
- ☐ G DELETED
- ☐ H DELETED
- ☐ J FOR CUM LINE NUMBERS:  
826, 829, 894, 910
- ☐ K FOR ALL AIRPLANES WITH WING  
TIP REFUELING EXCEPT THOSE  
LISTED IN ☐ J
- ☐ L SELECT REPAIR FROM 57-3-4  
FIG. 8, 9 or 10 DEPENDING ON  
FINAL CONFIGURATION OF LOWER  
STIFFENERS AFTER MACHINING

**BOEING**  
**707**



INTERCONTINENTAL  
STRUCTURAL REPAIR

REF DWG  
65-1042



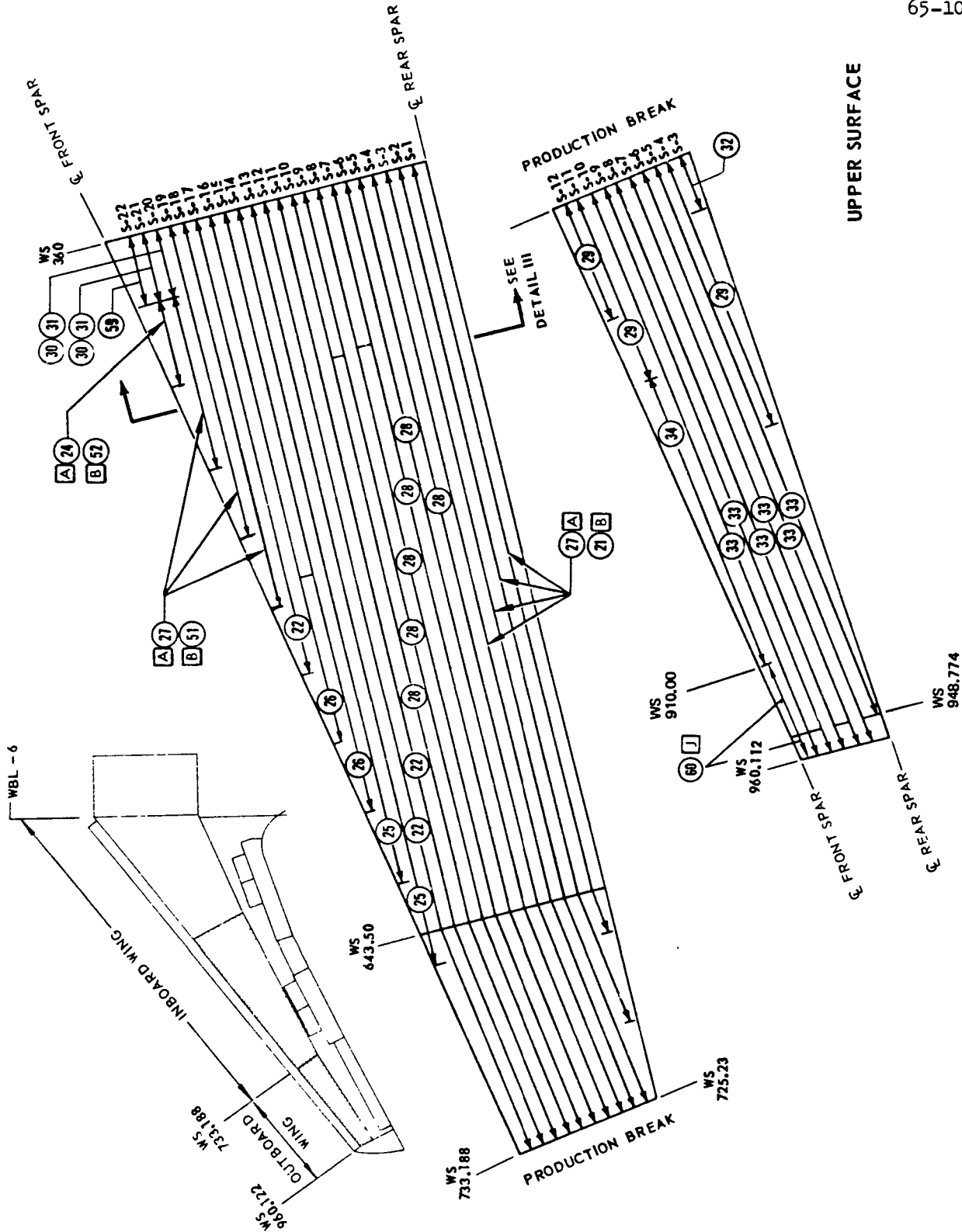
**BOEING**  
**707**



INTERCONTINENTAL  
STRUCTURAL REPAIR

REF DWG  
65-1043

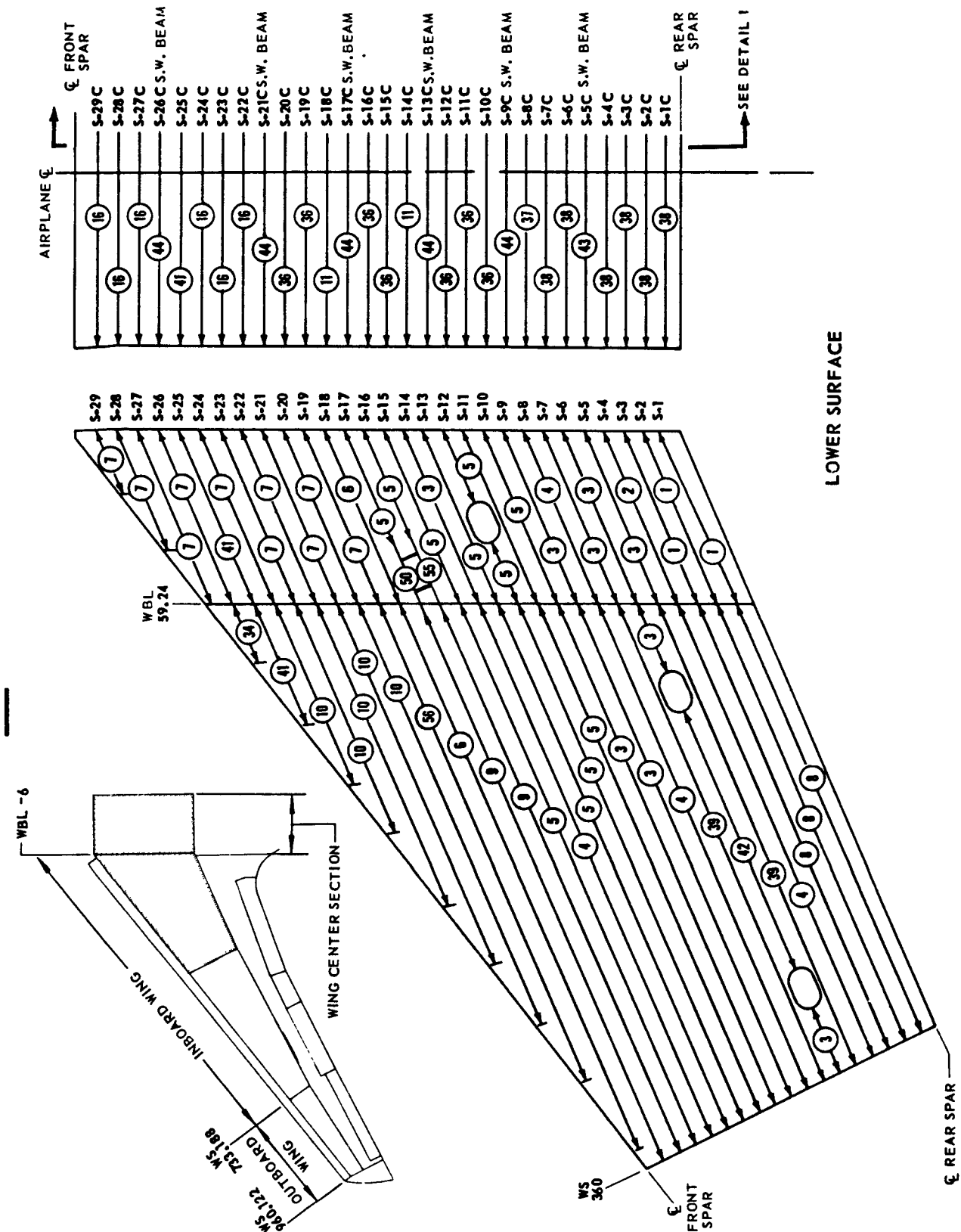
UPPER SURFACE



Wing Interspar Stiffeners Identification  
Figure 4 (Sheet 4)



# STRUCTURAL REPAIR



Wing Interspar Stiffeners Identification  
Figure 4 (Sheet 5 of 7)

Oct 1/69



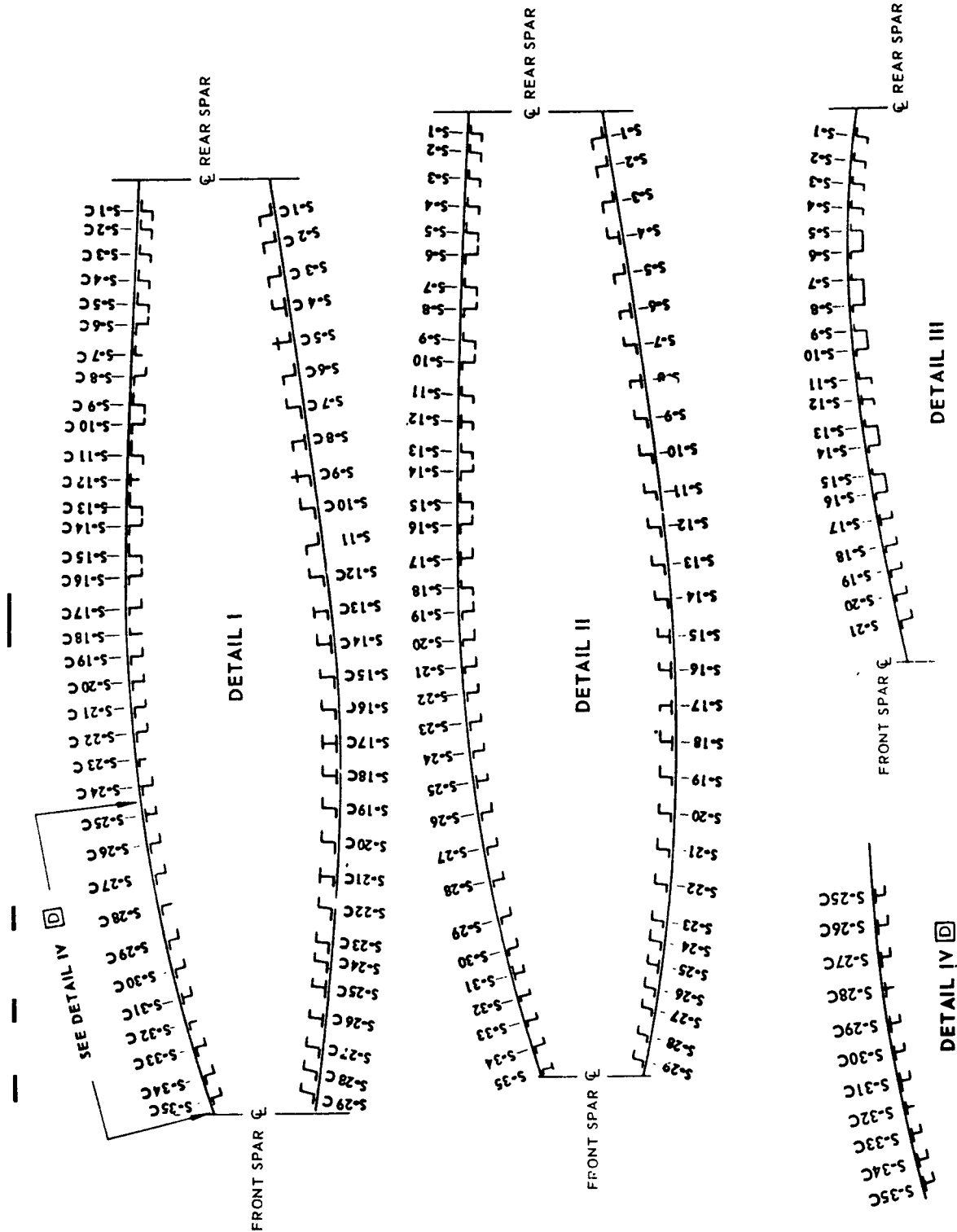
### Wing Interspar Stiffeners Identification

Figure 4 (Sheet 6)

**BOEING**  
**707**



**INTERCONTINENTAL  
STRUCTURAL REPAIR**



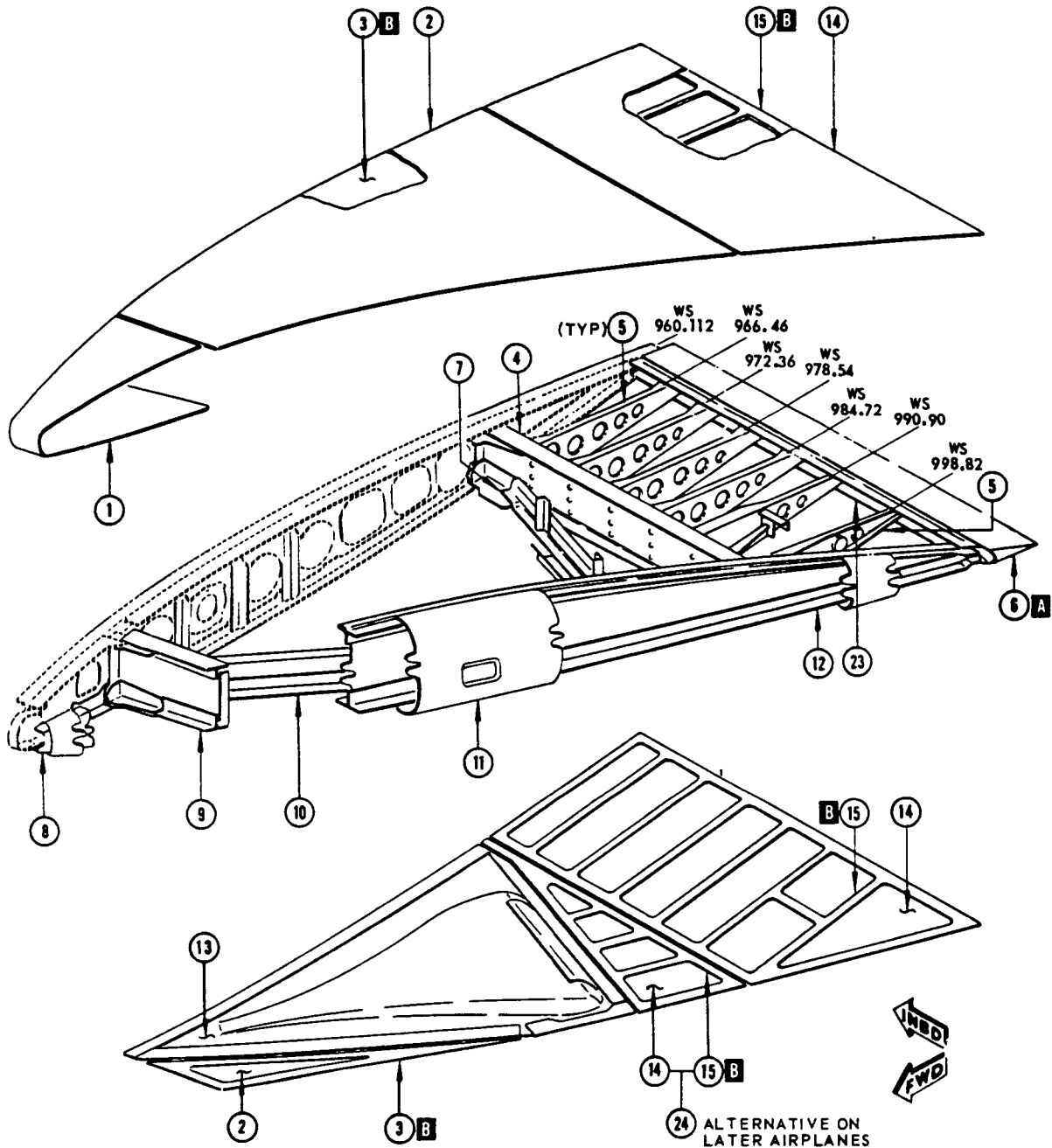


## STRUCTURAL REPAIR

| ITEM | UPPER CHORD                |                   | WEB OR FORMED SEC.                    |                   | LOWER CHORD                |                   |
|------|----------------------------|-------------------|---------------------------------------|-------------------|----------------------------|-------------------|
|      | MATERIAL                   | REPAIR FIG NO.    | MATERIAL                              | REPAIR FIG NO.    | MATERIAL                   | REPAIR FIG NO.    |
| ①    |                            |                   | .040 CLAD<br>2024-T3                  |                   |                            |                   |
| ②    |                            |                   | .025 CLAD<br>2024-T3                  | 51-9-2<br>FIG. 1  |                            |                   |
| ③    |                            |                   | .032 CLAD<br>2024-T3                  | 51-9-2<br>FIG. 1  |                            |                   |
| ④    | BAC 1506-1056<br>7075-T6   | 51-14-4<br>FIG. 1 | .032 CLAD<br>7075-T6                  | 51-14-2<br>FIG. 1 | BAC 1506-834<br>7075-T6    | 51-14-4<br>FIG. 1 |
| ⑤    |                            |                   | .032 CLAD<br>2024-T3                  | 51-14-3<br>FIG. 1 |                            |                   |
| ⑥    |                            |                   | .008 CLAD<br>2024-T3                  | 51-10-1<br>FIG. 1 |                            |                   |
| ⑦    | .040 CLAD<br>7075-T6       | 51-14-3<br>FIG. 1 |                                       |                   | BAC 1505-100120<br>7075-T6 | 51-14-4<br>FIG. 1 |
| ⑧    |                            |                   | .040 CLAD<br>7075-T6                  |                   |                            |                   |
| ⑨    | BAC 1506-1055<br>7075-T6   | 51-14-4<br>FIG. 1 | .025 CLAD<br>7075-T6                  | 51-14-2<br>FIG. 1 | BAC 1506-1054<br>7075-T6   | 51-14-4<br>FIG. 1 |
| ⑩    | .040 CLAD<br>7075-T6       |                   |                                       |                   | BAC 1505-100120<br>7075-T6 |                   |
| ⑪    |                            |                   | .040<br>6061-T4                       | 57-3-2<br>FIG. 2  |                            |                   |
| ⑫    | BAC 1506-1068<br>7075-T6   | 51-14-4<br>FIG. 1 | .020 CLAD<br>7075-T6                  | 51-14-2<br>FIG. 1 | BAC 1506-1069<br>7075-T6   | 51-14-4<br>FIG. 1 |
| ⑬    |                            |                   | .040<br>6061-T6                       |                   |                            |                   |
| ⑭    |                            |                   | .025 CLAD<br>2024-T3                  | 51-9-2<br>FIG. 1  |                            |                   |
| ⑮    |                            |                   | .020 CLAD<br>2024-T3                  | 51-9-2<br>FIG. 1  |                            |                   |
| ⑯    |                            |                   | .050 CLAD<br>7075-T6                  | 51-14-3<br>FIG. 1 |                            |                   |
| ⑰    | BAC 1505-100120<br>7075-T6 | 51-14-4<br>FIG. 1 | .020 CLAD<br>7075-T6                  | 51-14-2<br>FIG. 1 | BAC 1505-100120<br>7075-T6 | 51-14-4<br>FIG. 1 |
| ⑱    |                            |                   | .063 CLAD<br>7075-T6                  |                   |                            |                   |
| ⑲    | BAC 1506-1054<br>7075-T6   | 51-14-4<br>FIG. 1 | .050 CLAD<br>7075-T6                  | 51-14-2<br>FIG. 1 | BAC 1506-1054<br>7075-T6   | 51-14-4<br>FIG. 1 |
| ⑳    |                            |                   | .090 CLAD<br>7075-T6                  |                   |                            |                   |
| ㉑    |                            |                   | FIBERGLAS CLOTH<br>REINFORCED PLASTIC | 51-11-1<br>FIG. 1 |                            |                   |
| ㉒    |                            |                   | .224<br>7075-T6                       |                   |                            |                   |
| ㉓    | BAC 1510-303<br>2024-T4    |                   |                                       |                   |                            |                   |
| ㉔    |                            |                   | .071 CLAD<br>2024-T3                  |                   |                            |                   |



**BOEING** *707* *Intercontinental*   
**STRUCTURAL REPAIR**



**NOTE**

**A** PANEL CONTAINS ALUMINUM HONEYCOMB CORE

**B** BONDED DOUBLER

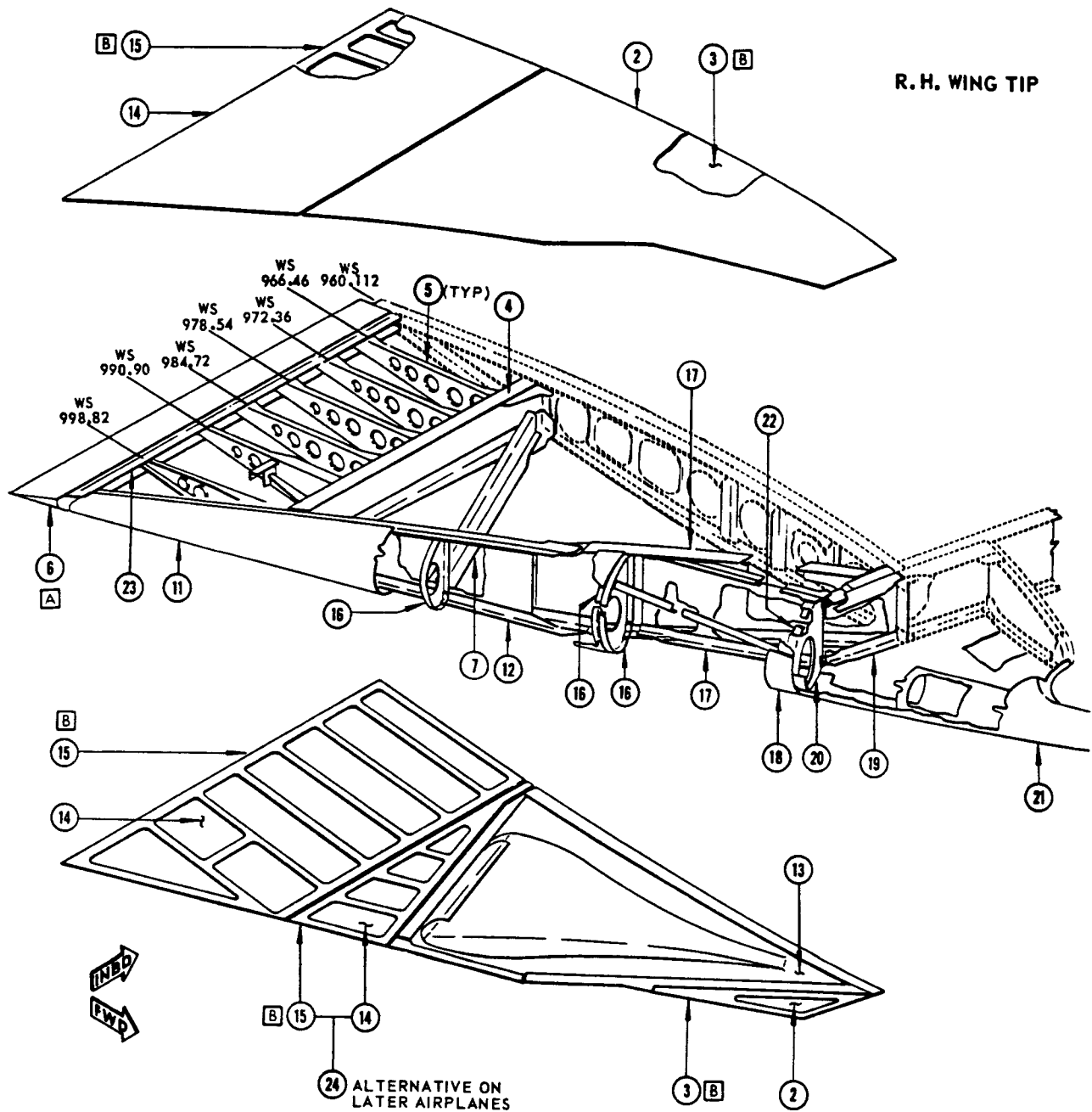
SEE SHEET 3 FOR AIRPLANES WITH WING TIP PROBE

**EFFECTIVITY**

**ALL TURBOJET AIRPLANES  
WITHOUT WING TIP PROBE**

Wing Tip Structure Identification - Turbojet  
 Figure 5 (Sheet 2 of 3)

BOEING *707* *Intercontinental*  
STRUCTURAL REPAIR



|                                               |
|-----------------------------------------------|
| <b>EFFECTIVITY</b>                            |
| ALL TURBOJET AIRPLANES<br>WITH WING TIP PROBE |

Apr 1/62

Wing Tip Structure Identification - Turbojet  
Figure 5 (Sheet 3 of 3)

57-3-3  
Page 31

**BOEING**  
**707**



INTERCONTINENTAL  
STRUCTURAL REPAIR

| ITEM | UPPER CHORD                         |                   | WEB OR FORMED SECTION |                   | LOWER CHORD                |                   |
|------|-------------------------------------|-------------------|-----------------------|-------------------|----------------------------|-------------------|
|      | MATERIAL                            | REPAIR FIG. NO.   | MATERIAL              | REPAIR FIG. NO.   | MATERIAL                   | REPAIR FIG. NO.   |
| 1    | BAC1505-100352<br>2024-T42          | 51-14-4<br>FIG. 1 | .025 CIAD<br>7075-T6  | 51-14-2<br>FIG. 1 | BAC1505-100352<br>2024-T42 |                   |
| 2    |                                     |                   | .050 CIAD<br>2024-T4  | 51-14-3<br>FIG. 1 |                            |                   |
| 3    | AND10133-1001<br>2024-T4            | 51-14-4<br>FIG. 1 | .063 CIAD<br>2024-T3  | 51-14-2<br>FIG. 1 | BAC1505-100120<br>7075-T6  | 51-14-4<br>FIG. 1 |
| 4    | BAC1506-539<br>7075-T6              | 51-14-4<br>FIG. 1 | .040 CIAD<br>7075-T6  | 51-14-2<br>FIG. 1 | BAC1506-478<br>2024-T6     | 51-14-4<br>FIG. 1 |
| 5    |                                     |                   | .050 CIAD<br>7075-T6  | 51-14-2<br>FIG. 1 | .050 CIAD<br>2024-T4       |                   |
| 6    |                                     |                   | .063 CIAD<br>2024-T3  |                   |                            |                   |
| 7    | BAC1505-100361<br>2024-T42          |                   | .040 CIAD<br>7075-T6  |                   | BAC1505-100361<br>2024-T42 | 51-14-4<br>FIG. 1 |
| 8    |                                     |                   | .050 CIAD<br>2024-T4  | 51-14-2<br>FIG. 1 | .050 CIAD<br>2024-T4       |                   |
| 9    |                                     |                   | .050 CIAD<br>7075-T6  | 51-14-3<br>FIG. 1 |                            |                   |
| 10   |                                     |                   | .040 CIAD<br>7075-T6  | 51-14-3<br>FIG. 1 |                            |                   |
| 11   | BAC1510-303<br>T8511 OPT<br>2024-T6 |                   |                       |                   |                            |                   |
| 12   |                                     |                   | .063 CIAD<br>2024-T3  |                   | BAC1505-100120<br>7075-T6  |                   |
| 13   |                                     |                   | .071 CIAD<br>7075-T6  | 51-14-3<br>FIG. 1 |                            |                   |
| 14   | AND10136-1303<br>7075-T6            |                   |                       |                   |                            |                   |
| 15   | BAC1490-2693<br>7075-T6             |                   |                       |                   |                            |                   |
| 16   |                                     |                   | .080<br>7075-T6       |                   |                            |                   |

Wing Tip Structure Identification - Turbofan  
Figure 6 (Sheet 1)

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



| ITEM | UPPER CHORD            |                 | WEB OR FORMED SECTION                                                                     |                           | LOWER CHORD            |                 |
|------|------------------------|-----------------|-------------------------------------------------------------------------------------------|---------------------------|------------------------|-----------------|
|      | MATERIAL               | REPAIR FIG. NO. | MATERIAL                                                                                  | REPAIR FIG. NO.           | MATERIAL               | REPAIR FIG. NO. |
| 17   |                        |                 | .025 + .032<br>CLAD 2024-T3                                                               |                           |                        |                 |
| 18   |                        |                 | .025 + .020<br>CLAD 2024-T3                                                               |                           |                        |                 |
| 19   |                        |                 | .040<br>2024-T3                                                                           |                           |                        |                 |
| 20   |                        |                 | .125 2024-T4<br>CHEM MILLED                                                               |                           |                        |                 |
| 21   |                        |                 | .080 2024-T4<br>CHEM MILLED                                                               |                           |                        |                 |
| 22   |                        |                 | .071<br>6061-T6                                                                           |                           |                        |                 |
| 23   |                        |                 | .071<br>2024-T3                                                                           |                           |                        |                 |
| 24   |                        |                 | .008 CLAD<br>2024-T3                                                                      | 51-10-1<br>FIG. 1<br>& 21 |                        |                 |
| 25   | BAC1514-952<br>7075-T6 |                 | .080 CLAD<br>2024-T3                                                                      |                           | BAC1514-952<br>7075-T6 |                 |
| 26   |                        |                 | PLASTIC GLASS<br>FABRIC                                                                   | 51-11-1<br>FIG. 1         |                        |                 |
| 27   |                        |                 |                                                                                           |                           |                        |                 |
| 28   |                        |                 | PLASTIC GLASS<br>FABRIC REIN-<br>FORCED EPOXY<br>LAMINATE BMS<br>8-79 CLASS 1<br>TYPE 181 |                           |                        |                 |
| 29   |                        |                 | 0.06 2024-T4                                                                              |                           |                        |                 |
| 30   |                        |                 | 0.040 2024-T3                                                                             |                           |                        |                 |
| 31   |                        |                 | 0.032 2024-T3                                                                             |                           |                        |                 |
| 32   |                        |                 | 0.05 CLAD<br>2024-T42                                                                     |                           | 0.05 CLAD<br>2024-T42  |                 |

Wing Tip Structure Identification - Turbofan  
Figure 6 (Sheet 2)

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



| ITEM | UPPER CHORD                 |                 | WEB OR FORMED SECTION                               |                 | LOWER CHORD                 |                 |
|------|-----------------------------|-----------------|-----------------------------------------------------|-----------------|-----------------------------|-----------------|
|      | MATERIAL                    | REPAIR FIG. NO. | MATERIAL                                            | REPAIR FIG. NO. | MATERIAL                    | REPAIR FIG. NO. |
| 33   | AND10136-2001<br>7075-T6    |                 |                                                     |                 |                             |                 |
| 34   |                             |                 | 0.025 2024-T3                                       |                 |                             |                 |
| 35   |                             |                 | ALUMINUM HONEY-<br>COMB 0.010 CLAD<br>2024-T3 SKINS |                 |                             |                 |
| 36   |                             |                 |                                                     |                 | DELETED                     |                 |
| 37   | AND10136-2404<br>7075-T6    |                 | 0.10 + 0.063<br>7075-T6                             |                 | AND10136-2404<br>7075-T6    |                 |
| 38   | BAC1505-100152<br>7075-T6   |                 | 0.100 7075-T6                                       |                 | BAC1505-100152<br>7075-T6   |                 |
| 39   | AND10136-2004<br>7075-T6511 |                 | 0.063 7075-T6                                       |                 | AND10136-2004<br>7075-T6511 |                 |
| 40   | FORGING<br>7075-T411        |                 |                                                     |                 |                             |                 |
| 41   | AND10136-3006<br>7075-T6511 |                 | 0.10 7075-T6511                                     |                 | AND10136-3006<br>7075-T6511 |                 |
| 42   | AND10136-3006<br>7075-T6511 |                 | 0.063 7075-T6                                       |                 | AND10136-3006<br>7075-T6511 |                 |
| 43   | FORGING<br>7075-T73         |                 |                                                     |                 |                             |                 |
| 44   |                             |                 | 0.071<br>6061-T4<br>WELDED ASSY                     |                 |                             |                 |
| 45   |                             |                 | 0.080 CLAD<br>7075-T6                               |                 |                             |                 |
| 46   |                             |                 | 0.10 7075-T6<br>or CLAD 7075-T6                     |                 |                             |                 |
| 47   |                             |                 | 0.032 CLAD<br>2024-T42                              |                 |                             |                 |

Wing Tip Structure Identification - Turbofan  
Figure 6 (Sheet 3)

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



| ITEM | UPPER CHORD                 |                 | WEB OR FORMED SECTION        |                 | LOWER CHORD |                 |
|------|-----------------------------|-----------------|------------------------------|-----------------|-------------|-----------------|
|      | MATERIAL                    | REPAIR FIG. NO. | MATERIAL                     | REPAIR FIG. NO. | MATERIAL    | REPAIR FIG. NO. |
| 48   |                             |                 | 0.10 CLAD<br>7075-T6         |                 |             |                 |
| 49   |                             |                 | 0.050 CLAD<br>2024-T3        |                 |             |                 |
| 50   |                             |                 | 0.071 CLAD<br>7075-T6        |                 |             |                 |
| 51   |                             |                 | 0.10 + 0.063<br>CLAD 7075-T6 |                 |             |                 |
| 52   |                             |                 | 0.063 CLAD<br>7075-T6        |                 |             |                 |
| 53   |                             |                 | 0.050 CLAD<br>7075-T6        |                 |             |                 |
| 54   |                             |                 | 0.250 CLAD<br>7075-T6        |                 |             |                 |
| 55   | AND10136-2005<br>7075-T6    |                 |                              |                 |             |                 |
| 56   | AND10134-1403<br>7075-T6    |                 |                              |                 |             |                 |
| 57   | DELETED                     |                 |                              |                 |             |                 |
| 58   | AND10133-1001<br>7075-T6    |                 |                              |                 |             |                 |
| 59   | AND10133-1002<br>7075-T6511 |                 |                              |                 |             |                 |
| 60   | AND10138-1304<br>7075-T6511 |                 |                              |                 |             |                 |
| 61   | BAC1490-2669<br>2024-T3     |                 |                              |                 |             |                 |
| 62   |                             |                 | 0.180 CLAD<br>7075-T6        |                 |             |                 |



INTERCONTINENTAL  
STRUCTURAL REPAIR

| ITEM | UPPER CHORD            |                 | WEB OR FORMED SECTION                           |                 | LOWER CHORD |                 |
|------|------------------------|-----------------|-------------------------------------------------|-----------------|-------------|-----------------|
|      | MATERIAL               | REPAIR FIG. NO. | MATERIAL                                        | REPAIR FIG. NO. | MATERIAL    | REPAIR FIG. NO. |
| 63   | FORGING<br>7075-T411   |                 |                                                 |                 |             |                 |
| 64   | STEEL BAR<br>4330 M    |                 |                                                 |                 |             |                 |
| 65   |                        |                 | 0.040 + 0.040<br>CLAD 2024-T3<br>+ CLAD 2024-T4 |                 |             |                 |
| 66   |                        |                 | 0.063<br>6061-T6                                |                 |             |                 |
| 67   | BAC1517-368<br>7075-T6 |                 |                                                 |                 |             |                 |

NOTES

☐ BONDED

☐ FOR CUM LINE NUMBERS:  
826, 829, 894, 910

☐ FOR ALL AIRPLANES WITH WINGTIP  
REFUELING EXCEPT THOSE LISTED  
IN ☐

☐ FOR CUM LINE NUMBERS: 522,  
532, 561 AND 897

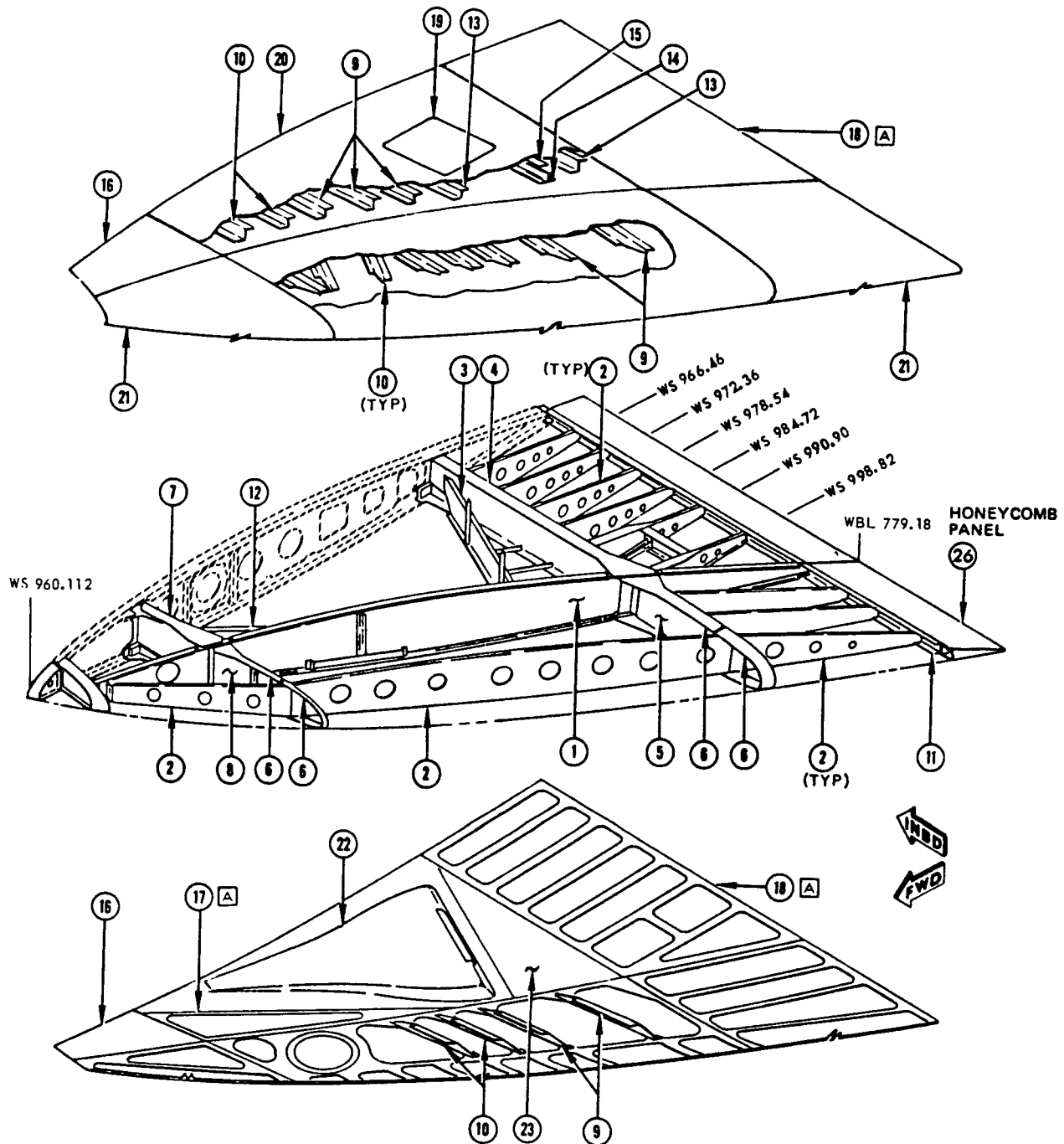
☐ FOR CUM LINE NUMBERS: 747,  
750, 756 AND 759

☐ FOR CUM LINE NUMBERS:  
689 AND 707 AFTER  
INCORPORATION OF  
SB 3392

Wingtip Structure Identification - Turbofan  
Figure 6 (Sheet 5)

BOEING  
*Intercontinental*  
**707**  
**STRUCTURAL REPAIR**

REF DWG  
 65-18282



Wing Tip Structure Identification - Turbofan  
 Figure 6 (Sheet 6)

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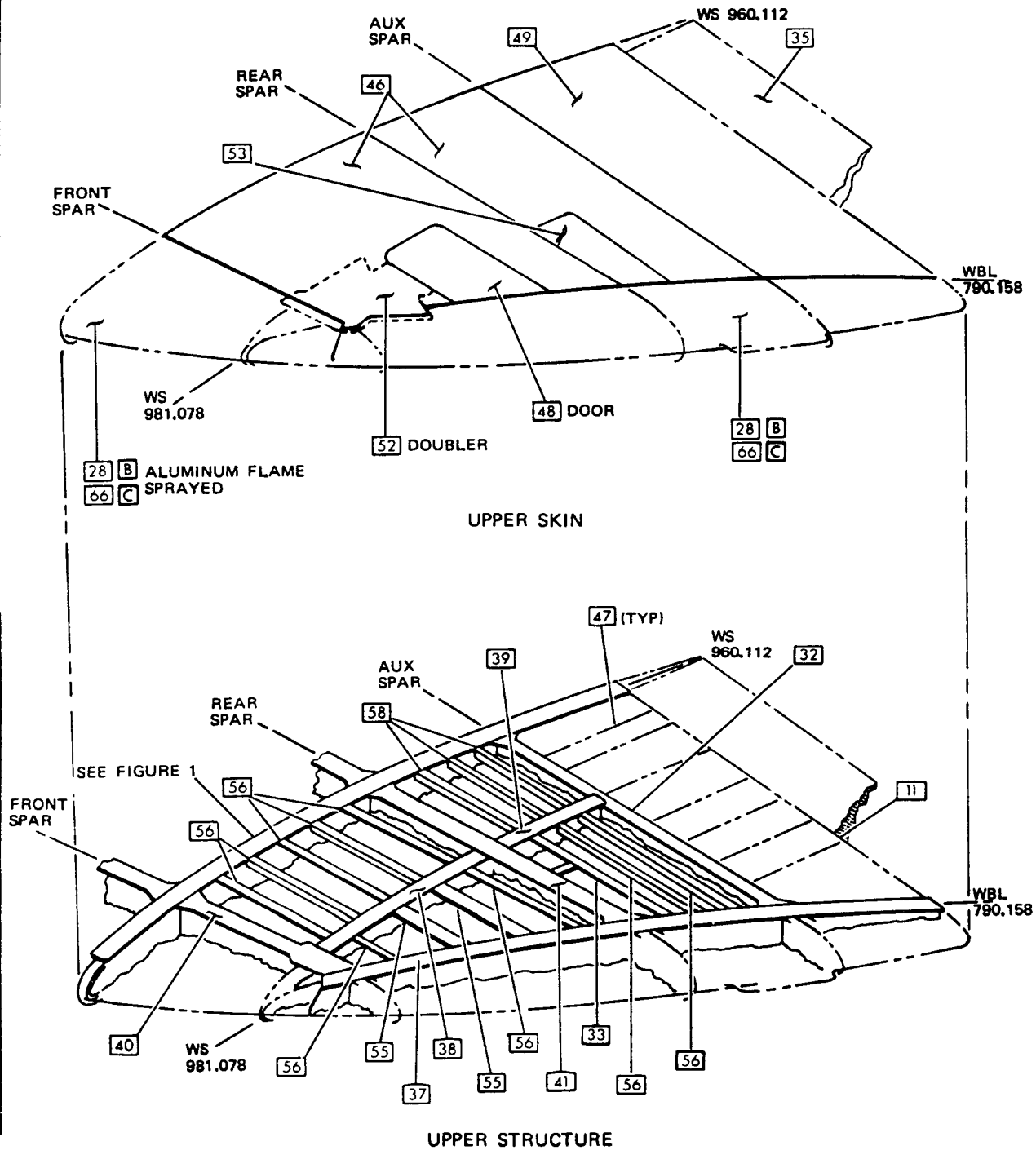
# EFFECTIVITY

AIRPLANES WITH  
WING TIP AIR REFUELING

**BOEING**  
**707**



INTERCONTINENTAL  
STRUCTURAL REPAIR



Wing Tip Structure Identification - Turbofan  
Figure 6 (Sheet 7)

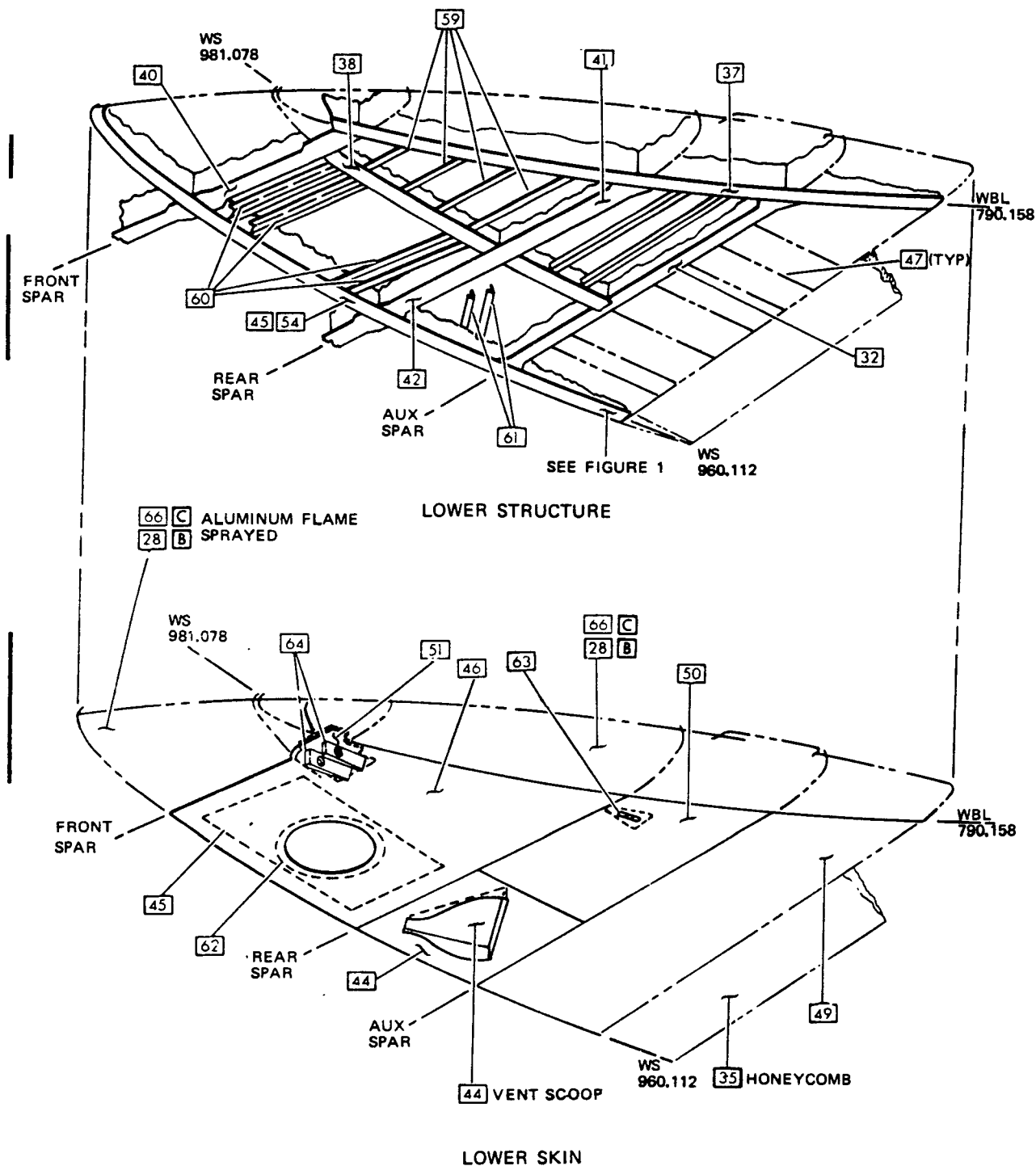
**BOEING**  
**707**



INTERCONTINENTAL  
STRUCTURAL REPAIR

**EFFECTIVITY**

AIRPLANES WITH  
WING TIP AIR REFUELING



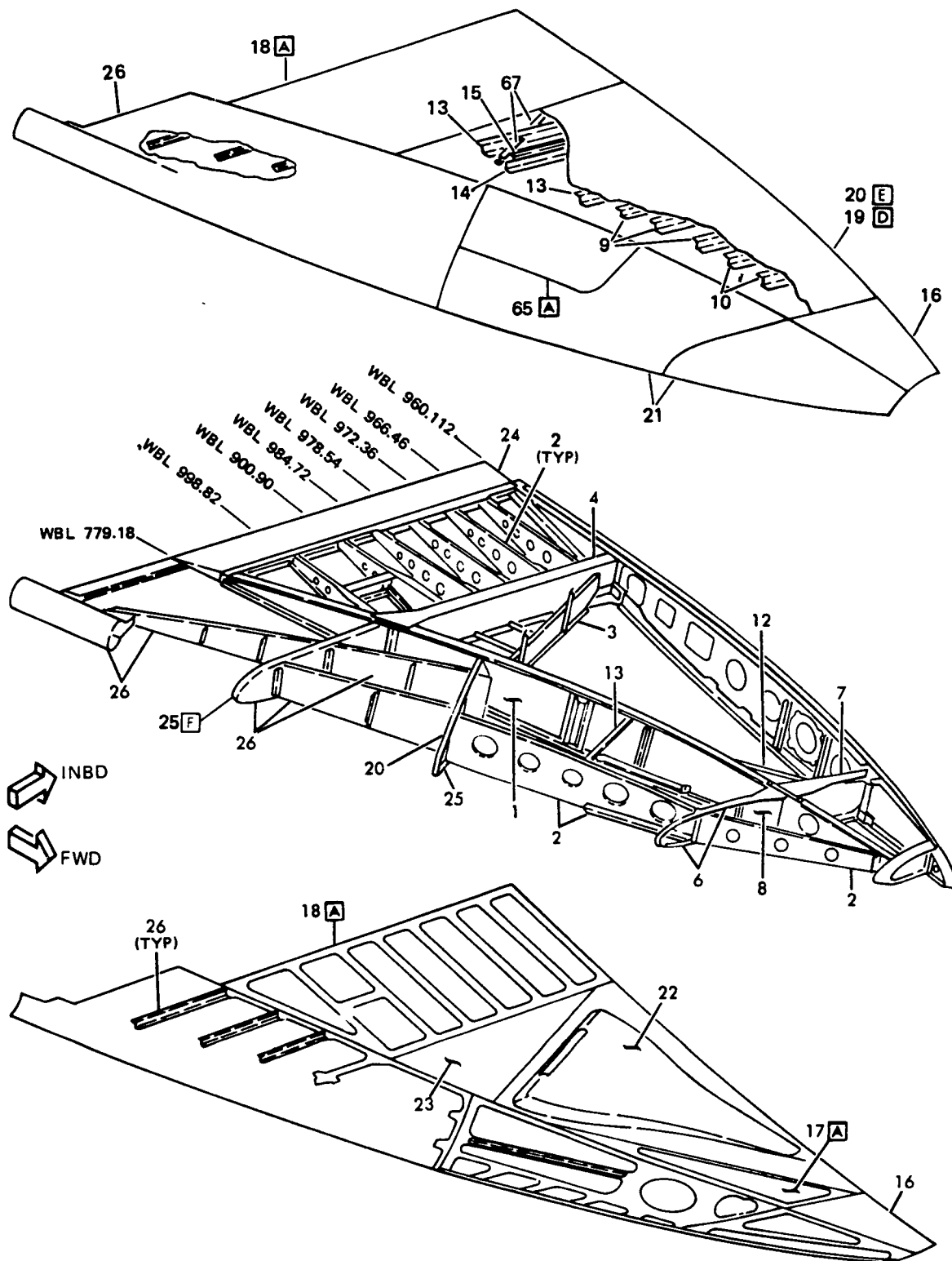
Wing Tip Structure Identification - Turbofan  
Figure 6 (Sheet 8)

| EFFECTIVITY                                |
|--------------------------------------------|
| AIRPLANES WITH<br>WING TIP H.F.<br>ANTENNA |

**BOEING**  
**707**



# INTERCONTINENTAL STRUCTURAL REPAIR



Wing Tip Structure Identification - Turbofan  
Figure 6 (Sheet 9)

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**BOEING**  
**707**  
 INTERCONTINENTAL  
 STRUCTURAL REPAIR



| WING CENTER SECTION |        |              |            |
|---------------------|--------|--------------|------------|
| STIF.<br>NO.        |        | STIF.<br>NO. |            |
| S-1C                | FIG. 2 | S-23C        | FIG. 5     |
| S-2C                | FIG. 2 | S-24C        | FIG. 2     |
| S-3C                | FIG. 2 | S-25C        | FIG. 4     |
| S-4C                | FIG. 2 | S-26C        | FIG. 4     |
| S-5C                | FIG. 2 | S-27C        | FIG. 4     |
| S-6C                | FIG. 2 | S-28C        | FIG. 5 & 6 |
| S-7C                | FIG. 5 | S-29C        | FIG. 4     |
| S-8C                | FIG. 2 | S-30C        | FIG. 4     |
| S-9C                | FIG. 2 | S-31C        | FIG. 4     |
| S-10C               | FIG. 2 | S-32C        | FIG. 5 & 6 |
| S-11C               | FIG. 2 | S-33C        | FIG. 4     |
| S-12C               | FIG. 6 | S-34C        | FIG. 4     |
| S-13C               | FIG. 2 | S-35C        | FIG. 4     |
| S-14C               | FIG. 2 |              |            |
| S-15C               | FIG. 2 |              |            |
| S-16C               | FIG. 2 |              |            |
| S-17C               | FIG. 2 |              |            |
| S-18C               | FIG. 5 |              |            |
| S-19C               | FIG. 2 |              |            |
| S-20C               | FIG. 2 |              |            |
| S-21C               | FIG. 2 |              |            |
| S-22C               | FIG. 2 |              |            |

**BOEING**  
**707**



**INTERCONTINENTAL  
STRUCTURAL REPAIR**

| INBOARD WING |                       |                        |                             | OUTBOARD WING               |                        |                        |
|--------------|-----------------------|------------------------|-----------------------------|-----------------------------|------------------------|------------------------|
| STIF.<br>NO. | WBL 6<br>TO<br>WBL 59 | WBL 59<br>TO<br>WS 360 | WS 360<br>TO<br>PROD. BREAK | PROD. BREAK<br>TO<br>WS 780 | WS 780<br>TO<br>WS 803 | WS 803<br>TO<br>WS 960 |
| S-1          | FIG. 2                | FIG. 2                 | FIG. 2                      |                             |                        |                        |
| S-2          | FIG. 2                | FIG. 2                 | FIG. 2                      |                             |                        |                        |
| S-3          | FIG. 2                | FIG. 2                 | FIG. 2                      |                             |                        |                        |
| S-4          | FIG. 2                | FIG. 2                 | FIG. 2                      | FIG. 2                      | FIG. 2                 |                        |
| S-5          | FIG. 2                | FIG. 2                 | FIG. 7                      | FIG. 7                      | FIG. 7                 | FIG. 7                 |
| S-6          | FIG. 2                | FIG. 2                 | FIG. 7                      | FIG. 7                      | FIG. 7                 | FIG. 7                 |
| S-7          | FIG. 2                | FIG. 2                 | FIG. 7                      | FIG. 7                      | FIG. 7                 | FIG. 7                 |
| S-8          | FIG. 2                | FIG. 2                 | FIG. 7                      | FIG. 7                      | FIG. 7                 | FIG. 7                 |
| S-9          | FIG. 2                | FIG. 2                 | FIG. 7                      | FIG. 7                      | FIG. 7                 | FIG. 7                 |
| S-10         | FIG. 2                | FIG. 2                 | FIG. 7                      | FIG. 7                      | FIG. 7                 | FIG. 7                 |
| S-11         | FIG. 2                | FIG. 3                 | FIG. 3                      | FIG. 2                      | FIG. 2                 | FIG. 2                 |
| S-12         | FIG. 3                | FIG. 3                 | FIG. 3                      | FIG. 2                      |                        |                        |
| S-13         | FIG. 2                | FIG. 2                 | FIG. 2                      |                             |                        |                        |
| S-14         | FIG. 2                | FIG. 2                 | FIG. 2                      |                             |                        |                        |
| S-15         | FIG. 2                | FIG. 7                 | FIG. 7                      |                             |                        |                        |
| S-16         | FIG. 2                | FIG. 7                 | FIG. 7                      |                             |                        |                        |
| S-17         | FIG. 2                | FIG. 3                 | FIG. 3                      |                             |                        |                        |
| S-18         | FIG. 2                | FIG. 7                 | FIG. 2                      |                             |                        |                        |
| S-19         | FIG. 2                | FIG. 7                 | FIG. 2                      |                             |                        |                        |
| S-20         | FIG. 2                | FIG. 2                 | FIG. 2                      |                             |                        |                        |
| S-21         | FIG. 2                | FIG. 2                 |                             |                             |                        |                        |
| S-22         | FIG. 2                | FIG. 2                 |                             |                             |                        |                        |
| S-23         | FIG. 2                | FIG. 2                 |                             |                             |                        |                        |
| S-24         | FIG. 2                | FIG. 2                 |                             |                             |                        |                        |
| S-25         | FIG. 3                | FIG. 3                 |                             |                             |                        |                        |
| S-26         | FIG. 2                | FIG. 2                 |                             |                             |                        |                        |
| S-27         | FIG. 2                | FIG. 2                 |                             |                             |                        |                        |
| S-28         | FIG. 2                | FIG. 2                 |                             |                             |                        |                        |
| S-29         | FIG. 2                | FIG. 2                 |                             |                             |                        |                        |
| S-30         | FIG. 2                | FIG. 2                 |                             |                             |                        |                        |
| S-31         | FIG. 3                | FIG. 3                 |                             |                             |                        |                        |
| S-32         | FIG. 2                |                        |                             |                             |                        |                        |
| S-33         | FIG. 2                |                        |                             |                             |                        |                        |
| S-34         | FIG. 2                |                        |                             |                             |                        |                        |

Upper Stiffener Repair Index  
Figure 1 (Sheet 2)

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



REPAIR INSTRUCTIONS

1. Remove original fasteners and sealant as required.
2. Cut the damaged stiffener midway between original fasteners as shown.
3. Eddy current inspect all holes from which fasteners are removed.
4. Fabricate repair parts.

A. In center section, radius repair part edges as indicated by note  and shown in Detail I.

5. Locate, drill and ream transition fit holes for repair fasteners. Prefit repair parts and check that the holes are in alignment.

6. Remove all burrs, nicks, sharp edges, and corners from the cut original parts and the repair parts. Chamfer or radius 0.015 to 0.030 on all cut edges.

7. Brush alodize repair parts, trimmed original parts and all fastener holes.

8. Apply 2 coats of BMS 10-20 Type 2 primer to repair parts and surfaces of repair area.

9. Install repair parts as follows:

A. Apply BMS 5-26 Type A faying surface sealant to repair parts for corrosion prevention.

B. Apply prepack seals in chamfered corners of repair.

C. Install fasteners wet with BMS 5-26 Type A sealant.

D. Apply injection sealant at gaps between original stiffener and insert (repair part  ).

E. Apply fillet seals to fasteners (on pressure side of seal plane) and along edges of repair parts.

F. Refer to 57-2-2 and Maintenance Manual 28-2-0 and 51-3-0 for sealing instructions.

10. Restore original finish according to the Maintenance Manual.

NOTES

- THIS REPAIR MAY BE USED TO PARTIALLY REPLACE A STIFFENER OR TO SPLICE A STIFFENER WITH A CHORDWISE CRACK INCLUDING A COMPLETE BREAK
- IF THIS REPAIR CANNOT BE INSTALLED BECAUSE OF POSSIBLE INTERFERENCE WITH ORIGINAL STRUCTURAL MEMBERS CONTACT THE BOEING COMPANY FOR A SPECIALLY DESIGNED REPAIR
- THE NUMBER OF STEEL FASTENERS NOTED IN THE MATERIAL LIST IS THE MINIMUM NUMBER OF FASTENERS REQUIRED IN EACH ROW AND ON EACH SIDE OF THE DAMAGE
- REPAIR IS SYMMETRICAL ON EACH SIDE OF JOINT IN STIFFENER

Upper Surface Zee Stiffener Repair  
Figure 2 (Sheet 1)

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



NOTES (CONTINUED)

- T = TYPICAL EXTRUDED THICKNESS
- REFER TO THE FOLLOWING WHEN MAKING THIS REPAIR:
  - 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS
  - 51-8-0 FOR PROTECTIVE TREATMENT OF METAL
  - 57-2-2 FOR INTEGRAL FUEL TANK SEALING
  - 28-2-0 OF MAINTENANCE MANUAL FOR INTEGRAL FUEL TANK SEALING
  - 51-2-0 OF MAINTENANCE MANUAL FOR FINISHES
  - 51-3-0 OF MAINTENANCE MANUAL FOR SEALS AND SEALANTS
  - PART 6 OF THE NONDESTRUCTIVE TEST MANUAL FOR EDDY CURRENT INSPECTION PROCEDURES
- Ⓐ 7075-T6 OPTIONAL
- Ⓑ REPLACE ORIGINAL FASTENERS COMMON TO THE REPAIR WITH 1/16 OVERSIZE DIAMETER FASTENERS AS FOLLOWS:
  1. REPLACE PROTRUDING HEAD FASTENER WITH BACB30GW OR BACB30FM.
  2. REPLACE 100° HEAD FASTENER WITH BACB30GY OR BACB30FN
  3. REPLACE 82° HEAD FASTENERS WITH BACB30FN COUNTERSINK 100° IN SKIN AS REQUIRED
- Ⓒ RADIUS EDGES, AS SHOWN IN DETAIL I TO PREVENT DAMAGE TO THE BLADDER TYPE FUEL CELLS
- Ⓓ INSTALL PREPACK SEAL
- Ⓔ SEE TABLE I FOR STIFFENER LOCATION
- Ⓕ ORIGINAL SKIN TO STIFFENER FASTENER SPACING
- Ⓖ FASTENER SPACING SAME AS Ⓕ
- Ⓗ USE SAME TYPE FASTENER AS USED IN ROW X AND Y
- Ⓙ LOCATE CUT EQUIDISTANT BETWEEN ORIGINAL FASTENERS
- Ⓚ REPAIRS IN WING CENTER SECTION APPLICABLE FOR AIRPLANES WITH ZEE STIFFENER. FOR AIRPLANES WITH J STIFFENER SEE FIGURE 4
- Ⓛ UPPER FLANGE THICKNESS IS 0.19 FOR THIS EXTRUSION
- Ⓜ AND10138-2404 OUTBOARD OF WS803

Upper Surface Zee Stiffener Repair  
Figure 2 (Sheet 2)


**INTERCONTINENTAL  
STRUCTURAL REPAIR**

| <b>REPAIR MATERIAL</b> |                                               |                                                                        |            |                                                                       |            |                                                                       |           |
|------------------------|-----------------------------------------------|------------------------------------------------------------------------|------------|-----------------------------------------------------------------------|------------|-----------------------------------------------------------------------|-----------|
|                        |                                               | <b>DETAIL II</b><br><b>T = 0.085</b><br><b>(FOR BAC1517-1148 [E] )</b> |            | <b>DETAIL II</b><br><b>T = 0.11</b><br><b>(FOR BAC1517-1334 [E] )</b> |            | <b>DETAIL II</b><br><b>T = 0.12</b><br><b>(FOR BAC1517-1149 [E] )</b> |           |
| <b>PART</b>            | <b>QTY</b>                                    | <b>MATERIAL</b>                                                        | <b>QTY</b> | <b>MATERIAL</b>                                                       | <b>QTY</b> | <b>MATERIAL</b>                                                       |           |
| [1] ZEE EXTRU          | 1                                             | BAC1517-1148<br>7178-T6                                                | 1          | BAC1517-1334<br>7178-T6                                               | 1          | BAC1517-1149<br>7178-T6                                               |           |
| [2] PLATE              | 1                                             | 0.040 [A]<br>7178-T6                                                   | 1          | 0.040 [A]<br>7178-T6                                                  | 1          | 0.040 [A]<br>7178-T6                                                  |           |
| [3] PLATE              | 1                                             | 0.050 [A]<br>7178-T6                                                   | 1          | 0.063 [A]<br>7178-T6                                                  | 1          | 0.063 [A]<br>7178-T6                                                  |           |
| [4] PLATE              | 1                                             | 0.050 [A]<br>7178-T6                                                   | 1          | 0.100 [A]<br>7178-T6                                                  | 1          | 0.100 [A]<br>7178-T6                                                  |           |
| [5] PLATE              | 1                                             | 0.040 [A]<br>7178-T6                                                   | 1          | 0.040 [A]<br>7178-T6                                                  | 1          | 0.040 [A]<br>7178-T6                                                  |           |
| [6] PLATE              | 1                                             | 0.050 [A]<br>7178-T6                                                   | 1          | 0.063 [A]<br>7178-T6                                                  | 1          | 0.063 [A]<br>7178-T6                                                  |           |
| [7] PLATE              | 1                                             | 0.050 [A]<br>7178-T6                                                   | 1          | 0.100 [A]<br>7178-T6                                                  | 1          | 0.100 [A]<br>7178-T6                                                  |           |
| [8] PLATE              | 2                                             | 0.040 [A]<br>7178-T6                                                   | 2          | 0.040 [A]<br>7178-T6                                                  | 2          | 0.040 [A]<br>7178-T6                                                  |           |
| [9] PLATE              | 2                                             | 0.063 [A]<br>7178-T6                                                   | 2          | 0.063 [A]<br>7178-T6                                                  | 2          | 0.063 [A]<br>7178-T6                                                  |           |
| <b>ROW</b>             | <b>FASTENERS REQUIRED EACH SIDE OF DAMAGE</b> |                                                                        |            |                                                                       |            |                                                                       |           |
| W                      | FASTENER                                      | 8                                                                      | [B]        | 8                                                                     | [B]        | 8                                                                     | [B]       |
| X                      | FASTENER                                      | 6                                                                      | BACB30FM8  | 6                                                                     | BACB30FM8  | 6                                                                     | BACB30FM8 |
| Y                      | FASTENER                                      | 6                                                                      | BACB30FM8  | 6                                                                     | BACB30FM8  | 6                                                                     | BACB30FM8 |
| Z                      | FASTENER                                      | 7                                                                      | BACB30FM8  | 7                                                                     | BACB30FM8  | 7                                                                     | BACB30FM8 |

Upper Surface Zee Stiffener Repair  
Figure 2 (Sheet 3)




**INTERCONTINENTAL  
STRUCTURAL REPAIR**

| REPAIR MATERIAL |                                        |                                                  |           |                                                      |           |                                                  |           |
|-----------------|----------------------------------------|--------------------------------------------------|-----------|------------------------------------------------------|-----------|--------------------------------------------------|-----------|
|                 |                                        | DETAIL II<br>T = 0.14<br>(FOR BAC1517-1150 [E] ) |           | DETAIL II<br>T = 0.14 [L]<br>(FOR BAC1517-1151 [E] ) |           | DETAIL II<br>T = 0.14<br>(FOR BAC1517-1064 [E] ) |           |
| PART            | QTY                                    | MATERIAL                                         | QTY       | MATERIAL                                             | QTY       | MATERIAL                                         |           |
| [1] ZEE EXTRU   | 1                                      | BAC1517-1150<br>7178-T6                          | 1         | BAC1517-1151<br>7178-T6                              | 1         | BAC1517-1064<br>7178-T6                          |           |
| [2] PLATE       | 1                                      | 0.040 [A]<br>7178-T6                             | 1         | 0.050 [A]<br>7178-T6                                 | 1         | 0.040 [A]<br>7178-T6                             |           |
| [3] PLATE       | 1                                      | 0.063 [A]<br>7178-T6                             | 1         | 0.071 [A]<br>7178-T6                                 | 1         | 0.063 [A]<br>7178-T6                             |           |
| [4] PLATE       | 1                                      | 0.100 [A]<br>7178-T6                             | 1         | 0.125 [A]<br>7178-T6                                 | 1         | 0.100 [A]<br>7178-T6                             |           |
| [5] PLATE       | 1                                      | 0.040 [A]<br>7178-T6                             | 1         | 0.050 [A]<br>7178-T6                                 | 1         | 0.040 [A]<br>7178-T6                             |           |
| [6] PLATE       | 1                                      | 0.063 [A]<br>7178-T6                             | 1         | 0.071 [A]<br>7178-T6                                 | 1         | 0.063 [A]<br>7178-T6                             |           |
| [7] PLATE       | 1                                      | 0.100 [A]<br>7178-T6                             | 1         | 0.125 [A]<br>7178-T6                                 | 1         | 0.100 [A]<br>7178-T6                             |           |
| [8] PLATE       | 2                                      | 0.040 [A]<br>7178-T6                             | 2         | 0.050 [A]<br>7178-T6                                 | 2         | 0.040 [A]<br>7178-T6                             |           |
| [9] PLATE       | 2                                      | 0.063 [A]<br>7178-T6                             | 2         | 0.071 [A]<br>7178-T6                                 | 2         | 0.063 [A]<br>7178-T6                             |           |
| ROW             | FASTENERS REQUIRED EACH SIDE OF DAMAGE |                                                  |           |                                                      |           |                                                  |           |
| W               | FASTENER                               | 8                                                | [B]       | 8                                                    | [B]       | 8                                                | [B]       |
| X               | FASTENER                               | 6                                                | BACB30FM8 | 6                                                    | BACB30FM8 | 6                                                | BACB30FM8 |
| Y               | FASTENER                               | 6                                                | BACB30FM8 | 6                                                    | BACB30FM8 | 6                                                | BACB30FM8 |
| Z               | FASTENER                               | 7                                                | BACB30FM8 | 7                                                    | BACB30FM8 | 7                                                | BACB30FM8 |

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INTERCONTINENTAL  
STRUCTURAL REPAIR

| REPAIR MATERIAL |                                        |                                                   |           |                                                   |           |                                                   |           |
|-----------------|----------------------------------------|---------------------------------------------------|-----------|---------------------------------------------------|-----------|---------------------------------------------------|-----------|
|                 |                                        | DETAIL II<br>T = 0.145<br>(FOR BAC1517-1146 [E] ) |           | DETAIL III<br>T = 0.11<br>(FOR BAC1517-1334 [E] ) |           | DETAIL III<br>T = 0.14<br>(FOR BAC1517-1150 [E] ) |           |
| PART            | QTY                                    | MATERIAL                                          | QTY       | MATERIAL                                          | QTY       | MATERIAL                                          |           |
| [1] ZEE EXTRU   | 1                                      | BAC1517-1146<br>7178-T6                           | 1         | BAC1517-1334<br>7178-T6                           | 1         | BAC1517-1150<br>7178-T6                           |           |
| [2] PLATE       | 1                                      | 0.040 [A]<br>7178-T6                              | 1         | 0.040 [A]<br>7178-T6                              | 1         | 0.040 [A]<br>7178-T6                              |           |
| [3] PLATE       | 1                                      | 0.071 [A]<br>7178-T6                              | 1         | 0.063 [A]<br>7178-T6                              | 1         | 0.063 [A]<br>7178-T6                              |           |
| [4] PLATE       | 1                                      | 0.112 [A]<br>7178-T6                              | 1         | 0.100 [A]<br>7178-T6                              | 1         | 0.100 [A]<br>7178-T6                              |           |
| [5] PLATE       | 1                                      | 0.040 [A]<br>7178-T6                              | 1         | 0.040 [A]<br>7178-T6                              | 1         | 0.040 [A]<br>7178-T6                              |           |
| [6] PLATE       | 1                                      | 0.071 [A]<br>7178-T6                              | 1         | 0.063 [A]<br>7178-T6                              | 1         | 0.063 [A]<br>7178-T6                              |           |
| [7] PLATE       | 1                                      | 0.112 [A]<br>7178-T6                              | 1         | 0.100 [A]<br>7178-T6                              | 1         | 0.100 [A]<br>7178-T6                              |           |
| [8] PLATE       | 2                                      | 0.040 [A]<br>7178-T6                              | 2         | 0.040 [A]<br>7178-T6                              | 2         | 0.040 [A]<br>7178-T6                              |           |
| [9] PLATE       | 2                                      | 0.071 [A]<br>7178-T6                              | 2         | 0.063 [A]<br>7178-T6                              | 2         | 0.063 [A]<br>7178-T6                              |           |
| ROW             | FASTENERS REQUIRED EACH SIDE OF DAMAGE |                                                   |           |                                                   |           |                                                   |           |
| W               | FASTENER                               | 8                                                 | [B]       | 8                                                 | [B]       | 8                                                 | [B]       |
| X               | FASTENER                               | 6                                                 | BACB30FM8 | 6                                                 | BACB30FM8 | 6                                                 | BACB30FM8 |
| Y               | FASTENER                               | 6                                                 | BACB30FM8 | 6                                                 | BACB30FM8 | 6                                                 | BACB30FM8 |
| Z               | FASTENER                               | 7                                                 | BACB30FM8 | 7                                                 | BACB30FM8 | 7                                                 | BACB30FM8 |



INTERCONTINENTAL  
STRUCTURAL REPAIR

| REPAIR MATERIAL |                                        |                                                   |                          |                                                   |                         |                                                   |                         |
|-----------------|----------------------------------------|---------------------------------------------------|--------------------------|---------------------------------------------------|-------------------------|---------------------------------------------------|-------------------------|
|                 |                                        | DETAIL III<br>T = 0.16<br>(FOR BAC1517-1050 [E] ) |                          | DETAIL III<br>T = 0.18<br>(FOR BAC1517-1054 [E] ) |                         | DETAIL IV<br>T = 0.125<br>(FOR BAC1517-1063 [E] ) |                         |
| PART            |                                        | QTY                                               | MATERIAL                 | QTY                                               | MATERIAL                | QTY                                               | MATERIAL                |
| [1]             | ZEE EXTRU                              | 1                                                 | BACB1517-1050<br>7178-T6 | 1                                                 | BAC1517-1054<br>7178-T6 | 1                                                 | BAC1517-1063<br>7178-T6 |
| [2]             | PLATE                                  | 1                                                 | 0.040 [A]<br>7178-T6     | 1                                                 | 0.050 [A]<br>7178-T6    | 1                                                 | 0.040 [A]<br>7178-T6    |
| [3]             | PLATE                                  | 1                                                 | 0.071 [A]<br>7178-T6     | 1                                                 | 0.080 [A]<br>7178-T6    | 1                                                 | 0.063 [A]<br>7178-T6    |
| [4]             | PLATE                                  | 1                                                 | 0.125 [A]<br>7178-T6     | 1                                                 | 0.125 [A]<br>7178-T6    | 1                                                 | 0.100 [A]<br>7178-T6    |
| [5]             | PLATE                                  | 1                                                 | 0.040 [A]<br>7178-T6     | 1                                                 | 0.050 [A]<br>7178-T6    | 1                                                 | 0.040 [A]<br>7178-T6    |
| [6]             | PLATE                                  | 1                                                 | 0.071 [A]<br>7178-T6     | 1                                                 | 0.080 [A]<br>7178-T6    | 1                                                 | 0.063 [A]<br>7178-T6    |
| [7]             | PLATE                                  | 1                                                 | 0.125 [A]<br>7178-T6     | 1                                                 | 0.125 [A]<br>7178-T6    | 1                                                 | 0.100 [A]<br>7178-T6    |
| [8]             | PLATE                                  | 2                                                 | 0.040 [A]<br>7178-T6     | 2                                                 | 0.050 [A]<br>7178-T6    | 2                                                 | 0.040 [A]<br>7178-T6    |
| [9]             | PLATE                                  | 2                                                 | 0.071 [A]<br>7178-T6     | 2                                                 | 0.080 [A]<br>7178-T6    | 2                                                 | 0.063 [A]<br>7178-T6    |
| ROW             | FASTENERS REQUIRED EACH SIDE OF DAMAGE |                                                   |                          |                                                   |                         |                                                   |                         |
| W               | FASTENER                               | 8                                                 | [B]                      | 8                                                 | [B]                     | 10                                                | [B]                     |
| X               | FASTENER                               | 8                                                 | BACB30FM8                | 8                                                 | BACB30FM8               | 8                                                 | BACB30FM8               |
| Y               | FASTENER                               | 8                                                 | BACB30FM8                | 8                                                 | BACB30FM8               | 8                                                 | BACB30FM8               |
| Z               | FASTENER                               | 8                                                 | BACB30FM8                | 8                                                 | BACB30FM8               | 9                                                 | BACB30FM8               |

| REPAIR MATERIAL |                                        |                                                  |           |                                                   |           |          |
|-----------------|----------------------------------------|--------------------------------------------------|-----------|---------------------------------------------------|-----------|----------|
|                 |                                        | DETAIL IV<br>T = 0.125<br>(FOR BAC1517-1049 [E]) |           | DETAIL IV<br>T = 0.094<br>(FOR AND10138-2404 [E]) |           |          |
| PART            | QTY                                    | MATERIAL                                         | QTY       | MATERIAL                                          | QTY       | MATERIAL |
| [1] ZEE EXTRU   | 1                                      | BAC1517-1049<br>7178-T6                          | 1         | AND10138-2404<br>7178-T6                          |           |          |
| [2] PLATE       | 1                                      | 0.040 [A]<br>7178-T6                             | 1         | 0.040 [A]<br>7178-0 HT-T6                         |           |          |
| [3] PLATE       | 1                                      | 0.063 [A]<br>7178-T6                             | 1         | 0.050 [A]<br>7178-0 HT-T6                         |           |          |
| [4] PLATE       | 1                                      | 0.100 [A]<br>7178-T6                             | 1         | 0.081 [A]<br>7178-0 HT-T6                         |           |          |
| [5] PLATE       | 1                                      | 0.040 [A]<br>7178-T6                             | 1         | 0.040 [A]<br>7178-0 HT-T6                         |           |          |
| [6] PLATE       | 1                                      | 0.063 [A]<br>7178-T6                             | 1         | 0.050 [A]<br>7178-0 HT-T6                         |           |          |
| [7] PLATE       | 1                                      | 0.100 [A]<br>7178-T6                             | 1         | 0.081 [A]<br>7178-T6                              |           |          |
| [8] PLATE       | 2                                      | 0.040 [A]<br>7178-T6                             | 2         | 0.040 [A]<br>7178-0 HT-T6                         |           |          |
| [9] PLATE       | 2                                      | 0.063 [A]<br>7178-T6                             | 2         | 0.050 [A]<br>7178-0 HT-T6                         |           |          |
| ROW             | FASTENERS REQUIRED EACH SIDE OF DAMAGE |                                                  |           |                                                   |           |          |
| W               | FASTENER                               | 10                                               | [B]       | 10                                                | [B]       |          |
| X               | FASTENER                               | 8                                                | BACB30FM8 | 8                                                 | BACB30FM8 |          |
| Y               | FASTENER                               | 8                                                | BACB30FM8 | 8                                                 | BACB30FM8 |          |
| Z               | FASTENER                               | 9                                                | BACB30FM8 | 9                                                 | BACB30FM8 |          |

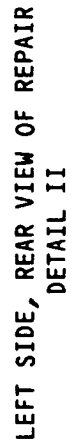


INTERCONTINENTAL  
STRUCTURAL REPAIR

| WING CENTER SECTION |               |          | INBOARD WING   |               |          |                   |                |                     |               |                |                     | OUTBOARD WING |                |                |                |
|---------------------|---------------|----------|----------------|---------------|----------|-------------------|----------------|---------------------|---------------|----------------|---------------------|---------------|----------------|----------------|----------------|
|                     |               |          | WBL-6 TO 59.24 |               |          | WBL59.24 TO WS360 |                | WS360 TO PROD BREAK |               |                | PROD BREAK TO WS910 |               |                |                |                |
| STIF NO.            | REPAIR DETAIL | BAC 1517 | STIF NO.       | REPAIR DETAIL | BAC 1517 | REPAIR DETAIL     | BAC 1517       | STIF NO.            | REPAIR DETAIL | BAC 1517       | STIF NO.            | REPAIR DETAIL | BAC 1517       |                |                |
| 1C                  | DET II        | -1146    | 1              | DET II        | -1151    | DET II            | -1151          | 1                   | DET III       | -1050 OR -1150 | 1                   |               |                |                |                |
| 2C                  |               |          | 2              |               |          |                   |                | 2                   |               |                | 2                   |               |                |                |                |
| 3C                  |               |          | 3              |               |          |                   |                | 3                   |               |                | 3                   |               |                |                |                |
| 4C                  |               |          | 4              |               |          | 4                 | 4              | DET IV              | -1049         |                |                     |               |                |                |                |
| 5C                  |               |          | 5              |               |          | 5                 | 5              | DET III             |               | -1054          | 5                   |               |                |                |                |
| 6C                  | 6             | 6        | 6              |               |          |                   |                |                     |               |                |                     |               |                |                |                |
| 7C                  | 7             | 7        | 7              |               |          |                   |                |                     |               |                |                     |               |                |                |                |
| 8C                  | 8             | 8        | 8              |               |          |                   |                |                     |               |                |                     |               |                |                |                |
| 9C                  | 9             | 9        | 9              |               |          |                   |                |                     |               |                |                     |               |                |                |                |
| 10C                 | DET II        | -1064    | 10             | DET II        | -1150    |                   |                | 10                  |               |                | 10                  |               |                |                |                |
| 11C                 | 11            | 11       | 11             | DET IV        | -1049    |                   |                |                     |               |                |                     |               |                |                |                |
| 12C                 |               |          | 12             |               |          |                   |                | 12                  |               |                | 12                  | DET IV        | -1049          |                |                |
| 13C                 | DET II        | -1064    | 13             | DET II        | -1150    |                   |                | DET III             |               |                | -1150 OR -1054      | 13            | DET III        | -1050 OR -1054 |                |
| 14C                 |               |          | 14             |               |          | 14                | 14             |                     |               |                |                     |               |                |                |                |
| 15C                 |               |          | 15             |               |          | 15                | 15             |                     |               |                |                     |               |                |                |                |
| 16C                 |               |          | 16             |               |          | 16                | 16             |                     |               |                |                     |               |                |                |                |
| 17C                 |               |          | 17             |               |          | 17                | 17             |                     |               |                |                     |               |                |                |                |
| 18C                 |               |          | 18             |               |          | 18                | DET III        | -1050 OR -1334      |               |                |                     |               |                |                |                |
| 19C                 | 19            | 19       | 19             |               |          |                   |                |                     |               |                |                     |               |                |                |                |
| 20C                 | DET II        | -1064    | 20             |               |          | DET III           | -1054          | 20                  |               |                |                     |               |                |                |                |
| 21C                 | 21            | 21       | 21             |               |          |                   |                |                     |               |                |                     |               |                |                |                |
| 22C                 | DET IV        | -1063    | 22             |               |          | DET II            | -1149 OR -1334 | DET III             |               |                | -1050 OR -1150      |               |                |                |                |
| 23C                 |               |          | 23             |               |          |                   |                |                     |               |                |                     |               |                |                |                |
| 24C                 | DET IV        | -1063    | 24             |               |          |                   |                |                     |               |                |                     |               |                |                |                |
| 25C                 |               |          | 25             |               |          |                   |                |                     |               |                |                     |               |                |                |                |
| 26C                 | DET IV        | -1063    | 26             |               |          |                   |                |                     |               |                |                     |               |                |                |                |
| 27C                 |               |          | 27             |               |          |                   |                |                     |               |                |                     |               |                |                |                |
| 28C                 |               |          | 28             |               |          |                   |                |                     |               |                |                     | DET II        | -1149 OR -1334 | DET II         | -1149 OR -1334 |
| 29C                 | 29            |          |                |               |          |                   |                |                     |               |                |                     |               |                |                |                |
| 30C                 | DET IV        | -1063    | 30             | 30            |          |                   |                |                     |               |                |                     |               |                |                |                |
| 31C                 |               |          | 31             |               |          |                   |                |                     |               |                |                     |               |                |                |                |
| 32C                 |               |          | 32             |               |          |                   |                |                     |               |                |                     |               |                |                |                |
| 33C                 | DET IV        | -1063    | 33             |               |          |                   |                |                     |               |                |                     | DET II        | -1148 OR -1149 |                |                |
| 34C                 |               |          | 34             |               |          |                   |                |                     |               |                |                     |               |                |                |                |
| 35C                 |               |          |                |               |          |                   |                |                     |               |                |                     |               |                |                | 35             |

TABLE I

Upper Surface Zee Stiffener Repair  
Figure 2 (Sheet 8)

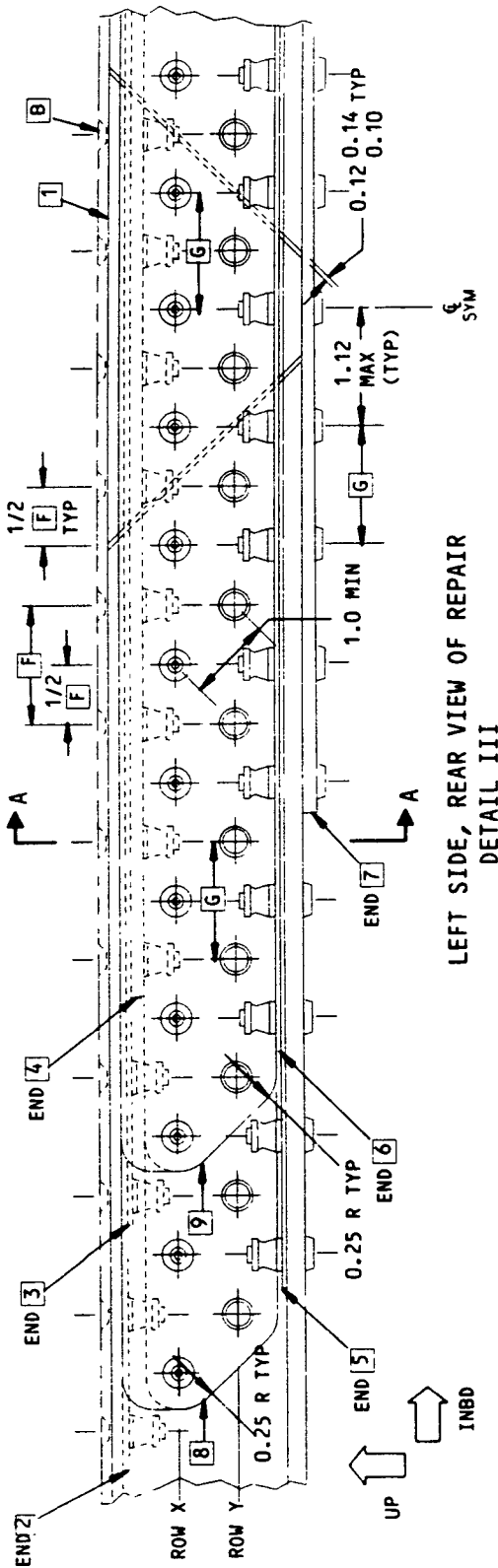


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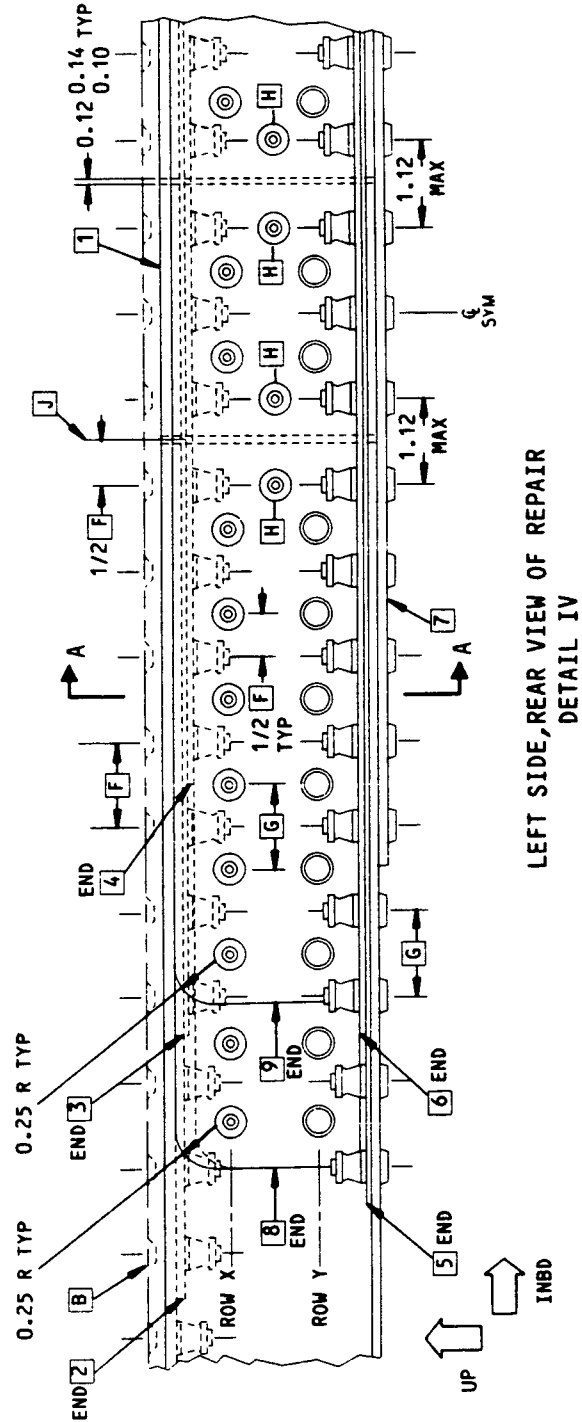
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INTERCONTINENTAL  
STRUCTURAL REPAIR



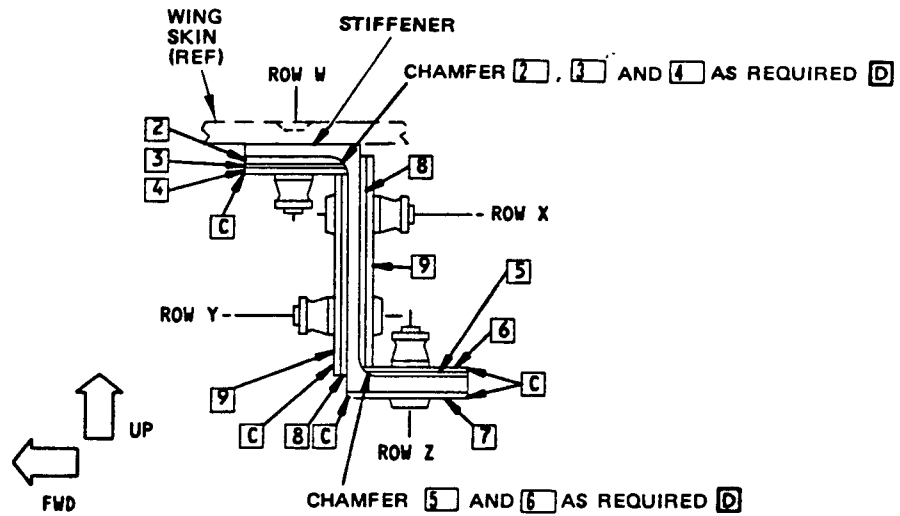
LEFT SIDE, REAR VIEW OF REPAIR  
DETAIL III



LEFT SIDE, REAR VIEW OF REPAIR  
DETAIL IV

Wing Upper Surface Zee Stiffener Repair  
Figure 2 (Sheet 2)

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR

SECTION A-A  
SHOWING ALL FASTENER ROWS

Upper Surface Zee Stiffener Repair  
Figure 2 (Sheet 11 )



## REPAIR INSTRUCTIONS

1. Remove original fasteners and sealant as required.
2. Cut the damaged stiffener midway between original fasteners as shown.
3. Eddy current inspect all holes from which fasteners are removed.
4. Fabricate repair parts.
5. Locate, drill and ream transition fit holes for repair fasteners. Prefit repair parts and check that the holes are in alignment.
6. Remove all burrs, nicks, sharp edges, and corners from the cut original parts and the repair parts. Chamfer or radius 0.015 to 0.030 on all cut edges.
7. Brush alodize repair parts, trimmed original parts and all fastener holes.
8. Apply 2 coats of BMS 10-20 Type 2 primer to repair parts and surfaces of repair area.
9. Install repair parts as follows:
  - A. Apply BMS 5-26 Type A faying surface sealant to repair parts for corrosion prevention.
  - B. Apply prepack seals in chamfered corners of repair.
  - C. Install fasteners wet with BMS 5-26 Type A sealant
  - D. Apply injection sealant at gaps between original stiffener and insert (repair part **1**).
  - E. Apply fillet seals to fasteners (on pressure side of seal plane) and along edges of repair parts.
  - F. Refer to 57-2-2 and Maintenance Manual 28-2-0 and 51-3-0 for sealing instructions.
10. Restore original finish according to the Maintenance Manual.

## NOTES

- THIS REPAIR MAY BE USED TO PARTIALLY REPLACE A STIFFENER OR TO SPLICE A STIFFENER WITH A CHORDWISE CRACK INCLUDING A COMPLETE BREAK
- IF THIS REPAIR CANNOT BE INSTALLED BECAUSE OF POSSIBLE INTERFERENCE WITH ORIGINAL STRUCTURAL MEMBERS CONTACT THE BOEING COMPANY FOR A SPECIALLY DESIGNED REPAIR
- THE NUMBER OF STEEL FASTENERS NOTED IN THE MATERIAL LIST IS THE MINIMUM NUMBER OF FASTENERS REQUIRED IN EACH ROW AND ON EACH SIDE OF THE DAMAGE
- REPAIR IS SYMMETRICAL ON EACH SIDE OF JOINT IN STIFFENER
- REFER TO THE FOLLOWING WHEN MAKING THIS REPAIR:  
  
51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS

Inboard Upper Surface J Stiffener Repair  
Figure 3 (Sheet 1)



## NOTES (CONTINUED)

51-8-0 FOR PROTECTIVE  
TREATMENT OF METAL

57-2-2 FOR INTEGRAL FUEL TANK  
SEALING

28-2-0 OF MAINTENANCE MANUAL  
FOR INTEGRAL FUEL TANK SEALING

51-2-0 OF MAINTENANCE MANUAL  
FOR FINISHES

51-3-0 OF MAINTENANCE MANUAL  
FOR SEALS AND SEALANTS

PART 6 OF THE NONDESTRUCTIVE  
TEST MANUAL FOR EDDY CURRENT  
INSPECTION PROCEDURES

**A** 7075-T6 OPTIONAL

**B** REPLACE ORIGINAL FASTENERS  
COMMON TO THE REPAIR WITH 1/16  
OVERSIZE DIAMETER FASTENERS  
AS FOLLOWS:

1. REPLACE 100° HEAD FASTENER  
WITH BACB30GY OR BACB30FN
2. REPLACE 82° HEAD FASTENERS  
WITH BACB30FN COUNTERSINK  
100° IN SKIN AS REQUIRED

**C** ORIGINAL SKIN TO STIFFENER  
FASTENER SPACING

**D** FASTENER SPACING SAME AS **C**

**E** USE SAME TYPE FASTENER AS USED  
IN ROW X AND Y

**F** LOCATE CUT EQUIDISTANT BETWEEN  
ORIGINAL FASTENERS

**G** INSTALL PREPACK SEAL

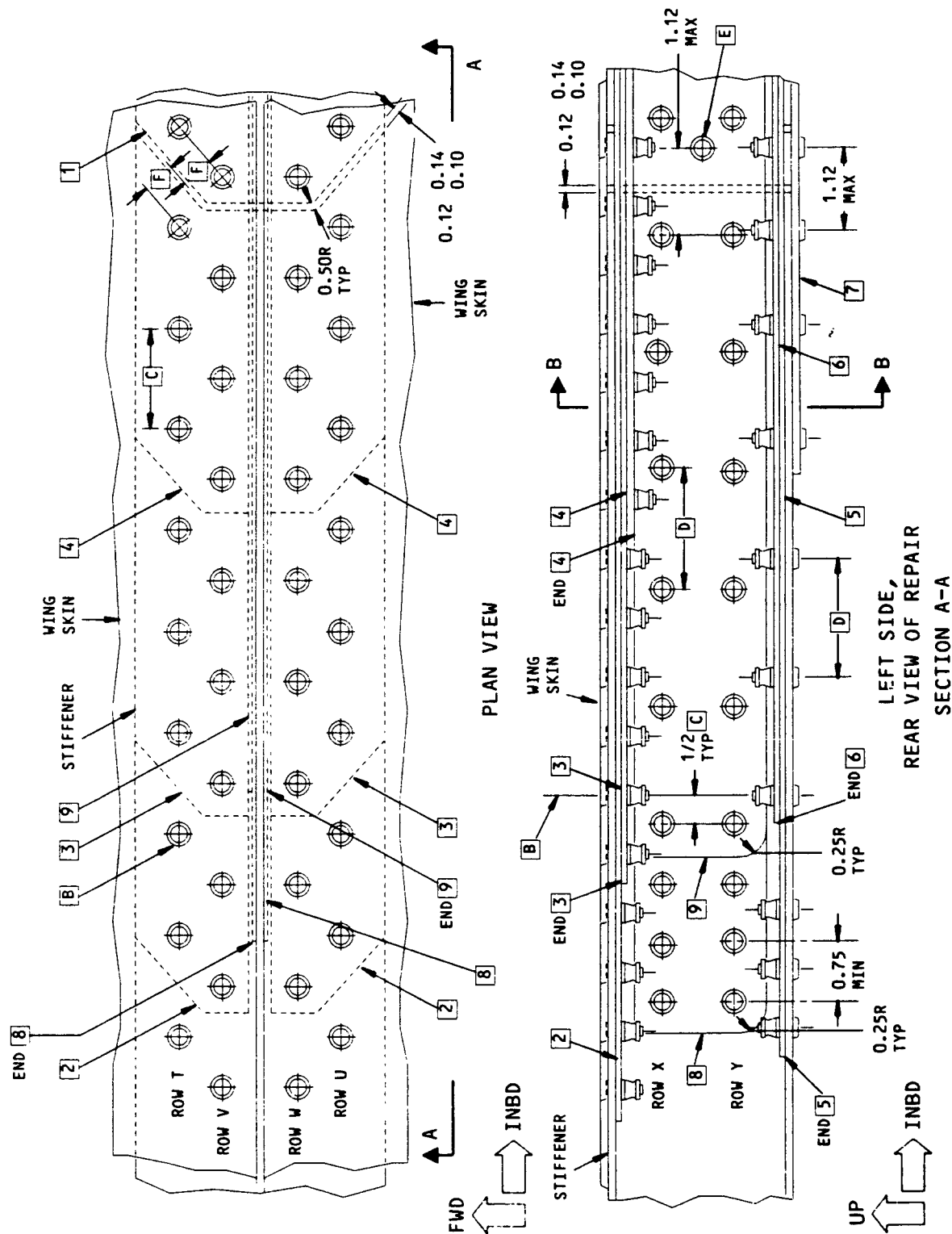
**H** SEE 57-3-3, FIGURE 4 FOR  
STIFFENER LOCATION


**INTERCONTINENTAL  
STRUCTURAL REPAIR**

| REPAIR MATERIAL |                                           |                                                |                        |
|-----------------|-------------------------------------------|------------------------------------------------|------------------------|
|                 |                                           | FOR STIFFENERS MADE<br>FROM BAC1506-857<br>[H] |                        |
| PART            |                                           | QTY                                            | MATERIAL               |
| [1]             | EXTRU                                     | 1                                              | BAC1506-857<br>7178-T6 |
| [2]             | PLATE                                     | 2                                              | 0.040 [A]<br>7178-T6   |
| [3]             | PLATE                                     | 2                                              | 0.071 [A]<br>7178-T6   |
| [4]             | PLATE                                     | 2                                              | 0.125 [A]<br>7178-T6   |
| [5]             | PLATE                                     | 1                                              | 0.040 [A]<br>7178-T6   |
| [6]             | PLATE                                     | 1                                              | 0.071 [A]<br>7178-T6   |
| [7]             | PLATE                                     | 1                                              | 0.125 [A]<br>7178-T6   |
| [8]             | PLATE                                     | 2                                              | 0.040 [A]<br>7178-T6   |
| [9]             | PLATE                                     | 2                                              | 0.071 [A]<br>7178-T6   |
| ROW             | FASTENERS REQUIRED<br>EACH SIDE OF DAMAGE |                                                |                        |
| T               | FAS-<br>TENER                             | 8                                              | [B]                    |
| U               | FAS-<br>TENER                             | 8                                              | [B]                    |
| V               | FAS-<br>TENER                             | 8                                              | [B]                    |
| W               | FAS-<br>TENER                             | 8                                              | [B]                    |
| X               | FAS-<br>TENER                             | 9                                              | BACB30FM8              |
| Y               | FAS-<br>TENER                             | 9                                              | BACB30FM8              |
| Z               | FAS-<br>TENER                             | 9                                              | BACB30FM6              |

| REPAIR MATERIAL |                                           |                                                |                        |
|-----------------|-------------------------------------------|------------------------------------------------|------------------------|
|                 |                                           | FOR STIFFENERS MADE<br>FROM BAC1506-856<br>[H] |                        |
| PART            |                                           | QTY                                            | MATERIAL               |
| [1]             | EXTRU                                     | 1                                              | BAC1506-856<br>7178-T6 |
| [2]             | PLATE                                     | 2                                              | 0.040 [A]<br>7178-T6   |
| [3]             | PLATE                                     | 2                                              | 0.063 [A]<br>7178-T6   |
| [4]             | PLATE                                     | 2                                              | 0.100 [A]<br>7178-T6   |
| [5]             | PLATE                                     | 1                                              | 0.040 [A]<br>7178-T6   |
| [6]             | PLATE                                     | 1                                              | 0.063 [A]<br>7178-T6   |
| [7]             | PLATE                                     | 1                                              | 0.100 [A]<br>7178-T6   |
| [8]             | PLATE                                     | 2                                              | 0.040 [A]<br>7178-T6   |
| [9]             | PLATE                                     | 2                                              | 0.063 [A]<br>7178-T6   |
| ROW             | FASTENERS REQUIRED<br>EACH SIDE OF DAMAGE |                                                |                        |
| T               | FAS-<br>TENER                             | 8                                              | [B]                    |
| U               | FAS-<br>TENER                             | 8                                              | [B]                    |
| V               | FAS-<br>TENER                             | 8                                              | [B]                    |
| W               | FAS-<br>TENER                             | 8                                              | [B]                    |
| X               | FAS-<br>TENER                             | 9                                              | BACB30FM8              |
| Y               | FAS-<br>TENER                             | 9                                              | BACB30FM8              |
| Z               | FAS-<br>TENER                             | 9                                              | BACB30FM6              |

Inboard Upper Surface J Stiffener Repair  
Figure 3 (Sheet 3)

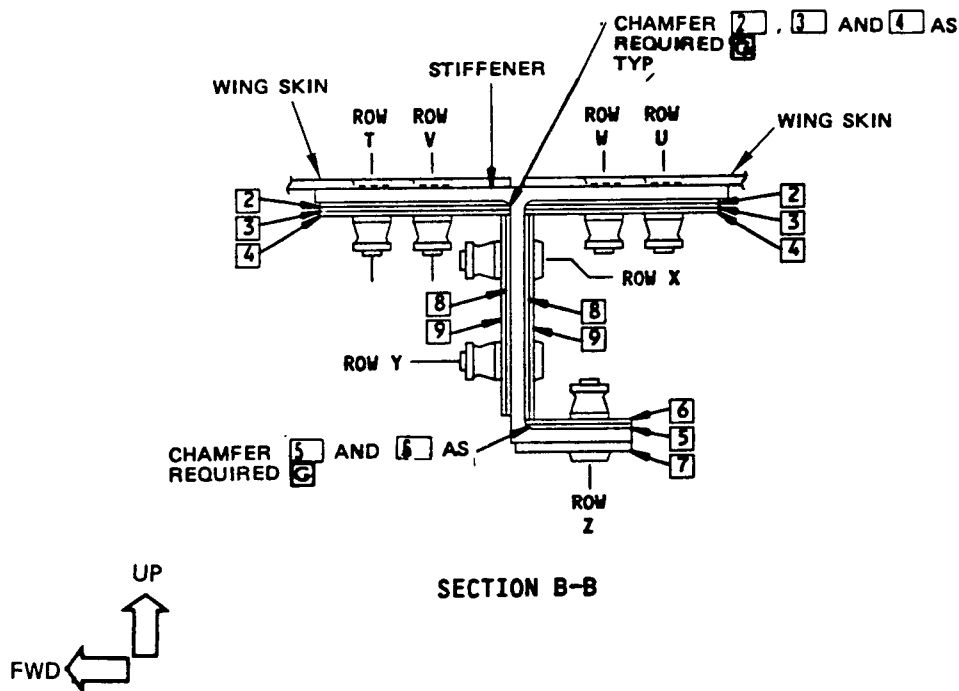


Inboard Upper Surface J Stiffener Repair  
Figure 3 (Sheet 4)

**BOEING**  
**707**



**INTERCONTINENTAL  
STRUCTURAL REPAIR**



**Inboard Upper Surface J Stiffener Repair  
Figure 3 (Sheet 5)**

**INTERCONTINENTAL  
STRUCTURAL REPAIR****REPAIR INSTRUCTIONS**

1. Remove original fasteners and sealant as required.
2. Cut the damaged stiffener midway between original fasteners as shown.
3. Eddy current inspect all holes from which fasteners are removed.
4. Fabricate repair parts and radius repair part edges as indicated by note [C] and shown in Detail I.

5. Locate, drill and ream transition fit holes for repair fasteners. Prefit repair parts and check that the holes are in alignment.

6. Remove all burrs, nicks, sharp edges, and corners from the cut original parts and the repair parts. Chamfer or radius 0.015 to 0.030 on all cut edges.

7. Brush alodize repair parts, trimmed original parts and all fastener holes.

8. Apply 2 coats of BMS 10-20 Type 2 primer to repair parts and surfaces of repair area.

9. Install repair parts as follows:

A. Apply BMS 5-26 Type A faying surface sealant to repair parts for corrosion prevention.

B. Apply prepack seals in chamfered corners of repair.

C. Install fasteners wet with BMS 5-26 Type A sealant

D. Apply injection sealant at gaps between original stiffener and insert (repair part [ ] ).

E. Apply fillet seals to fasteners (on pressure side of seal plane) and along edges of repair parts.

F. Refer to 57-2-2 and Maintenance Manual 28-2-0 and 51-3-0 for sealing instructions.

10. Restore original finish according to the Maintenance Manual.

**NOTES**

- THIS REPAIR MAY BE USED TO PARTIALLY REPLACE A STIFFENER OR TO SPLICE A STIFFENER WITH A CHORDWISE CRACK INCLUDING A COMPLETE BREAK
- IF THIS REPAIR CANNOT BE INSTALLED BECAUSE OF POSSIBLE INTERFERENCE WITH ORIGINAL STRUCTURAL MEMBERS CONTACT THE BOEING COMPANY FOR A SPECIALLY DESIGNED REPAIR
- THE NUMBER OF STEEL FASTENERS NOTED IN THE MATERIAL LIST IS THE MINIMUM NUMBER OF FASTENERS REQUIRED IN EACH ROW AND ON EACH SIDE OF THE DAMAGE

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



NOTES (CONTINUED)

- REPAIR IS SYMMETRICAL ON EACH SIDE OF JOINT IN STIFFENER

- REFER TO THE FOLLOWING WHEN MAKING THIS REPAIR:

51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS

51-8-0 FOR PROTECTIVE TREATMENT OF METAL

57-2-2 FOR INTEGRAL FUEL TANK SEALING

28-2-0 OF MAINTENANCE MANUAL FOR INTEGRAL FUEL TANK SEALING

51-2-0 OF MAINTENANCE MANUAL FOR FINISHES

51-3-0 OF MAINTENANCE MANUAL FOR SEALS AND SEALANTS

PART 6 OF THE NONDESTRUCTIVE TEST MANUAL FOR EDDY CURRENT INSPECTION PROCEDURES

**A** 7075-T6 OPTIONAL

**B** REPLACE ORIGINAL FASTENERS COMMON TO THE REPAIR WITH 1/16 OVERSIZE DIAMETER FASTENERS AS FOLLOWS:

1. REPLACE PROTRUDING HEAD FASTENER WITH BACB30GW OR BACB30FM

**C** RADIUS EDGES, AS SHOWN IN DETAIL I TO PREVENT DAMAGE TO THE BLADDER TYPE FUEL CELLS

**D** INSTALL PREPACK SEAL

**E** ORIGINAL SKIN TO STIFFENER FASTENER SPACING

**F** FASTENER SPACING SAME AS **E**

**G** USE SAME TYPE FASTENER AS USED IN ROW X AND Y

**H** LOCATE CUT EQUIDISTANT BETWEEN ORIGINAL FASTENERS

**J** SEE 57-3-3, FIGURE 4 FOR STIFFENER LOCATION

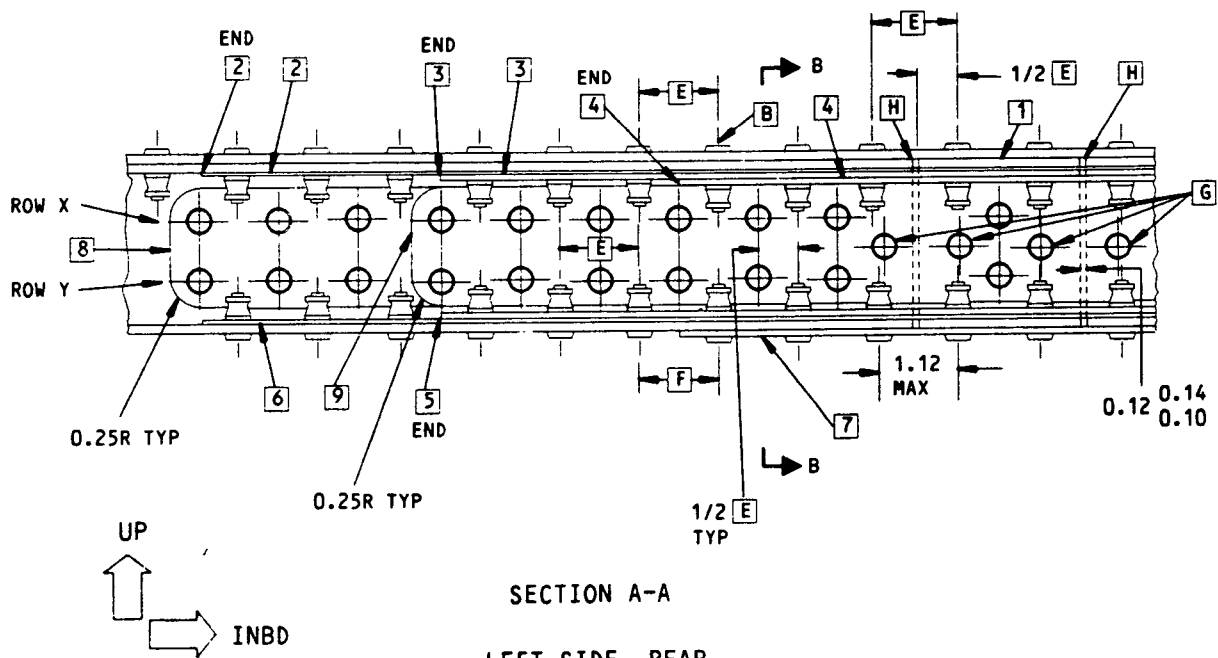
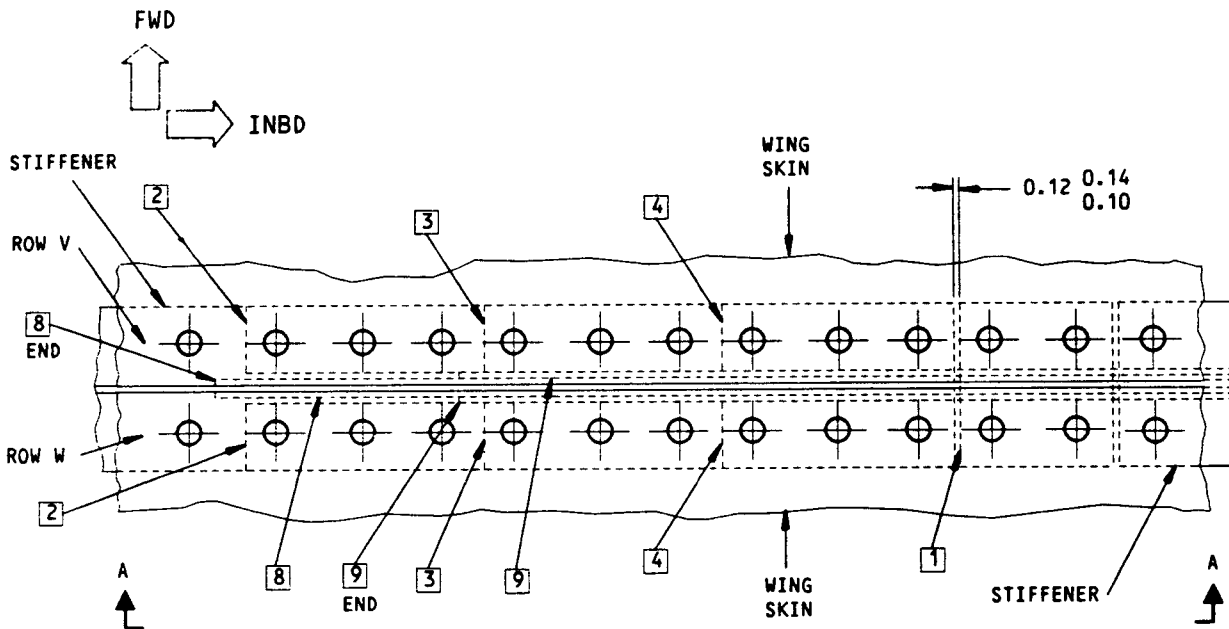


INTERCONTINENTAL  
STRUCTURAL REPAIR

| REPAIR MATERIAL                              |                                           |          |                        |
|----------------------------------------------|-------------------------------------------|----------|------------------------|
| FOR STIFFENERS MADE<br>FROM BAC1506-871<br>J |                                           |          |                        |
| PART                                         | QTY                                       | MATERIAL |                        |
| 1                                            | EXTRU                                     | 1        | BAC1506-871<br>7178-T6 |
| 2                                            | PLATE                                     | 2        | 0.040 A<br>7178-T6     |
| 3                                            | PLATE                                     | 2        | 0.063 A<br>7178-T6     |
| 4                                            | PLATE                                     | 2        | 0.100 A<br>7178-T6     |
| 5                                            | PLATE                                     | 1        | 0.063 A<br>7178-T6     |
| 6                                            | PLATE                                     | 1        | 0.040 A<br>7178-T6     |
| 7                                            | PLATE                                     | 1        | 0.100 A<br>7178-T6     |
| 8                                            | PLATE                                     | 2        | 0.040 A<br>7178-T6     |
| 9                                            | PLATE                                     | 2        | 0.063 A<br>7178-T6     |
| ROW                                          | FASTENERS REQUIRED<br>EACH SIDE OF DAMAGE |          |                        |
| V                                            | FAS-<br>TENER                             | 9        | B                      |
| W                                            | FAS-<br>TENER                             | 9        | B                      |
| X                                            | FAS-<br>TENER                             | 9        | BACB30FM8              |
| Y                                            | FAS-<br>TENER                             | 9        | BACB30FM8              |
| Z                                            | FAS-<br>TENER                             | 9        | BACB30FM6              |

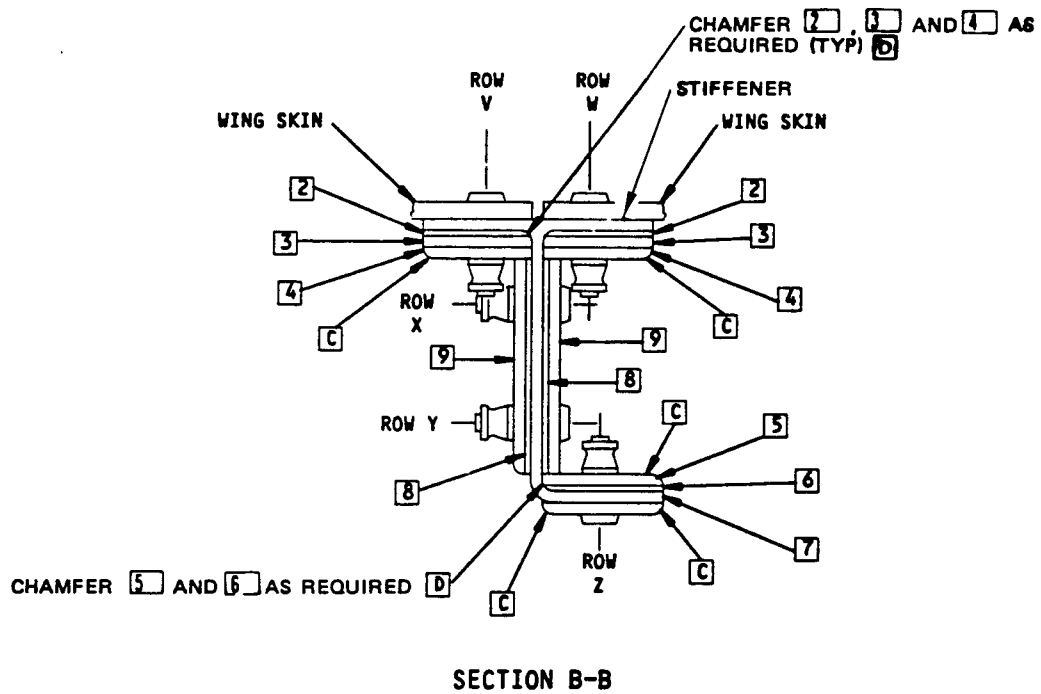


**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



Center Section Upper Surface J Stiffener Repair  
Figure 4 (Sheet 4)

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



Center Section Upper Surface J Stiffener Repair  
Figure 4 (Sheet 5)



**INTERCONTINENTAL  
STRUCTURAL REPAIR**

**REPAIR INSTRUCTIONS**

1. Remove original fasteners and sealant as required. Remove existing beam plate (if installed).
2. Cut the damaged stiffener midway between original fasteners as shown.
3. Eddy current inspect all holes from which fasteners are removed.
4. Fabricate repair parts and radius repair part edges as indicated by note [C] and shown in detail I.
5. Trim top edge of beam stiffener and existing beam plate (if installed) if necessary to clear repair plates. Check that sufficient edge margin on fastener holes is maintained.
6. Locate, drill and ream transition fit holes for repair fasteners. Prefit repair parts and check that the holes are in alignment.
7. Remove all burrs, nicks, sharp edges, and corners from the cut original parts and the repair parts. Chamfer or radius 0.015 to 0.030 on all cut edges.
8. Brush alodize repair parts, trimmed original parts and all fastener holes.
9. Apply 2 coats of BMS 10-20 Type 2 primer to repair parts and surfaces of repair area.
10. Install repair parts and existing beam plate (if installed) as follows:
  - A. Apply BMS 5-26 Type A faying surface sealant to repair parts for corrosion prevention.
  - B. Apply prepack seals in chamfered corners of repair.
  - C. Install fasteners wet with BMS 5-26 Type A sealant.
  - D. Apply injection sealant at gaps between original stiffener and insert (repair part [1]).
  - E. Apply fillet seals to fasteners (on pressure side of seal plane) and along edges of repair parts.
  - F. Refer to 57-2-2 and Maintenance Manual 28-2-0 and 51-3-0 for sealing instructions.
11. Restore original finish according to the Maintenance Manual.

**NOTES**

- THIS REPAIR MAY BE USED TO PARTIALLY REPLACE A STIFFENER OR TO SPLICE A STIFFENER WITH A CHORDWISE CRACK INCLUDING A COMPLETE BREAK
- IF THIS REPAIR CANNOT BE INSTALLED BECAUSE OF POSSIBLE INTERFERENCE WITH ORIGINAL STRUCTURAL MEMBERS CONTACT THE BOEING COMPANY FOR A SPECIALLY DESIGNED REPAIR

Center Section Spanwise Beam Upper Angle Chord Repair  
Figure 5 (Sheet 1)

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**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



NOTES (CONTINUED)

- THE NUMBER OF STEEL FASTENERS NOTED IN THE MATERIAL LIST IS THE MINIMUM NUMBER OF FASTENERS REQUIRED IN EACH ROW AND ON EACH SIDE OF THE DAMAGE

- REPAIR IS SYMMETRICAL ON EACH SIDE OF JOINT IN STIFFENER

- T = TYPICAL EXTRUSION THICKNESS

- REFER TO THE FOLLOWING WHEN MAKING THIS REPAIR:

51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS

51-8-0 FOR PROTECTIVE TREATMENT OF METAL

57-2-2 FOR INTEGRAL FUEL TANK SEALING

28-2-0 OF MAINTENANCE MANUAL FOR INTEGRAL FUEL TANK SEALING

51-2-0 OF MAINTENANCE MANUAL FOR FINISHES

51-3-0 OF MAINTENANCE MANUAL FOR SEALS AND SEALANTS

PART 6 OF THE NONDESTRUCTIVE TEST MANUAL FOR EDDY CURRENT INSPECTION PROCEDURES

**A** 7075-T6 OPTIONAL

**B** REPLACE ORIGINAL FASTENERS COMMON TO THE REPAIR WITH 1/16 OVERSIZE DIAMETER FASTENERS AS FOLLOWS:

1. REPLACE PROTRUDING HEAD FASTENERS THROUGH SKIN WITH BACB30GW OR BACB30FM

2. REPLACE PROTRUDING HEAD FASTENERS THROUGH BEAM WEB WITH BACB30FM

**C** RADUIS EDGES, AS SHOWN IN DETAIL I TO PREVENT DAMAGE TO THE BLADDER TYPE FUEL CELLS

**D** INSTALL PREPACK SEAL

**E** ORIGINAL SKIN TO STIFFENER FASTENER SPACING

**F** ORIGINAL SPANWISE BEAM CHORD TO WEB FASTENER SPACING

**G** LOCATE CUT EQUAL DISTANCE BETWEEN FASTENERS

**H** SEE 57-3-3, FIGURE 2 FOR CHORD LOCATION

**J** APPLICABLE TO SPANWISE BEAM NO. 1 AND NO. 3

**K** USE SAME TYPE FASTENER AS USED IN ROW Y

SYMBOLS

+ ORIGINAL FASTENER LOCATIONS

◆ REPAIR FASTENER LOCATIONS



INTERCONTINENTAL  
STRUCTURAL REPAIR

| REPAIR MATERIAL                        |                                        |                                                                                                     |                            |                                                                                                     |                            |                                             |                            |
|----------------------------------------|----------------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------|-----------------------------------------------------------------------------------------------------|----------------------------|---------------------------------------------|----------------------------|
|                                        |                                        | SPANWISE BEAM NO. 1 <input type="checkbox"/> H<br>FOR CHORDS MADE<br>FROM BAC1514-1346<br>T = 0.140 |                            | SPANWISE BEAM NO. 2 <input type="checkbox"/> H<br>FOR CHORDS MADE<br>FROM BAC1514-1311<br>T = 0.160 |                            | SPANWISE BEAM NO. 3<br>T = 0.188            |                            |
| PART                                   | QTY                                    | MATERIAL                                                                                            | QTY                        | MATERIAL                                                                                            | QTY                        | MATERIAL                                    |                            |
| <input type="checkbox"/> 1 ANGLE EXTRU | 1                                      | BAC1514-1346<br>7178-T6                                                                             | 1                          | BAC1514-1311<br>7178-T6                                                                             | 1                          | AND10134-2410<br>7178-T6                    |                            |
| <input type="checkbox"/> 2 PLATE       | 1                                      | 0.040<br>7178-T6 <input type="checkbox"/> A                                                         | 1                          | 0.040<br>7178-T6 <input type="checkbox"/> A                                                         | 1                          | 0.040<br>7178-T6 <input type="checkbox"/> A |                            |
| <input type="checkbox"/> 3 PLATE       | 1                                      | 0.063<br>7178-T6 <input type="checkbox"/> A                                                         | 1                          | 0.080<br>7178-T6 <input type="checkbox"/> A                                                         | 1                          | 0.080<br>7178-T6 <input type="checkbox"/> A |                            |
| <input type="checkbox"/> 4 PLATE       | 1                                      | 0.100<br>7178-T6 <input type="checkbox"/> A                                                         | 1                          | 0.125<br>7178-T6 <input type="checkbox"/> A                                                         | 1                          | 0.125<br>7178-T6 <input type="checkbox"/> A |                            |
| <input type="checkbox"/> 5 PLATE       | 1                                      | 0.040<br>7178-T6 <input type="checkbox"/> A                                                         | 1                          | 0.040<br>7178-T6 <input type="checkbox"/> A                                                         | 1                          | 0.040<br>7178-T6 <input type="checkbox"/> A |                            |
| <input type="checkbox"/> 6 PLATE       | 1                                      | 0.063<br>7178-T6 <input type="checkbox"/> A                                                         | 1                          | 0.080<br>7178-T6 <input type="checkbox"/> A                                                         | 1                          | 0.080<br>7178-T6 <input type="checkbox"/> A |                            |
| <input type="checkbox"/> 7 PLATE       | 1                                      | 0.100<br>7178-T6 <input type="checkbox"/> A                                                         | 1                          | 0.125<br>7178-T6 <input type="checkbox"/> A                                                         | 1                          | 0.125<br>7178-T6 <input type="checkbox"/> A |                            |
| ROW                                    | FASTENERS REQUIRED EACH SIDE OF DAMAGE |                                                                                                     |                            |                                                                                                     |                            |                                             |                            |
| X                                      | FAST-ENER                              | 12                                                                                                  | <input type="checkbox"/> B | 12                                                                                                  | <input type="checkbox"/> B | 12                                          | <input type="checkbox"/> B |
| Y                                      | FAST-ENER                              | 12                                                                                                  | <input type="checkbox"/> B | 12                                                                                                  | <input type="checkbox"/> B | 12                                          | <input type="checkbox"/> B |



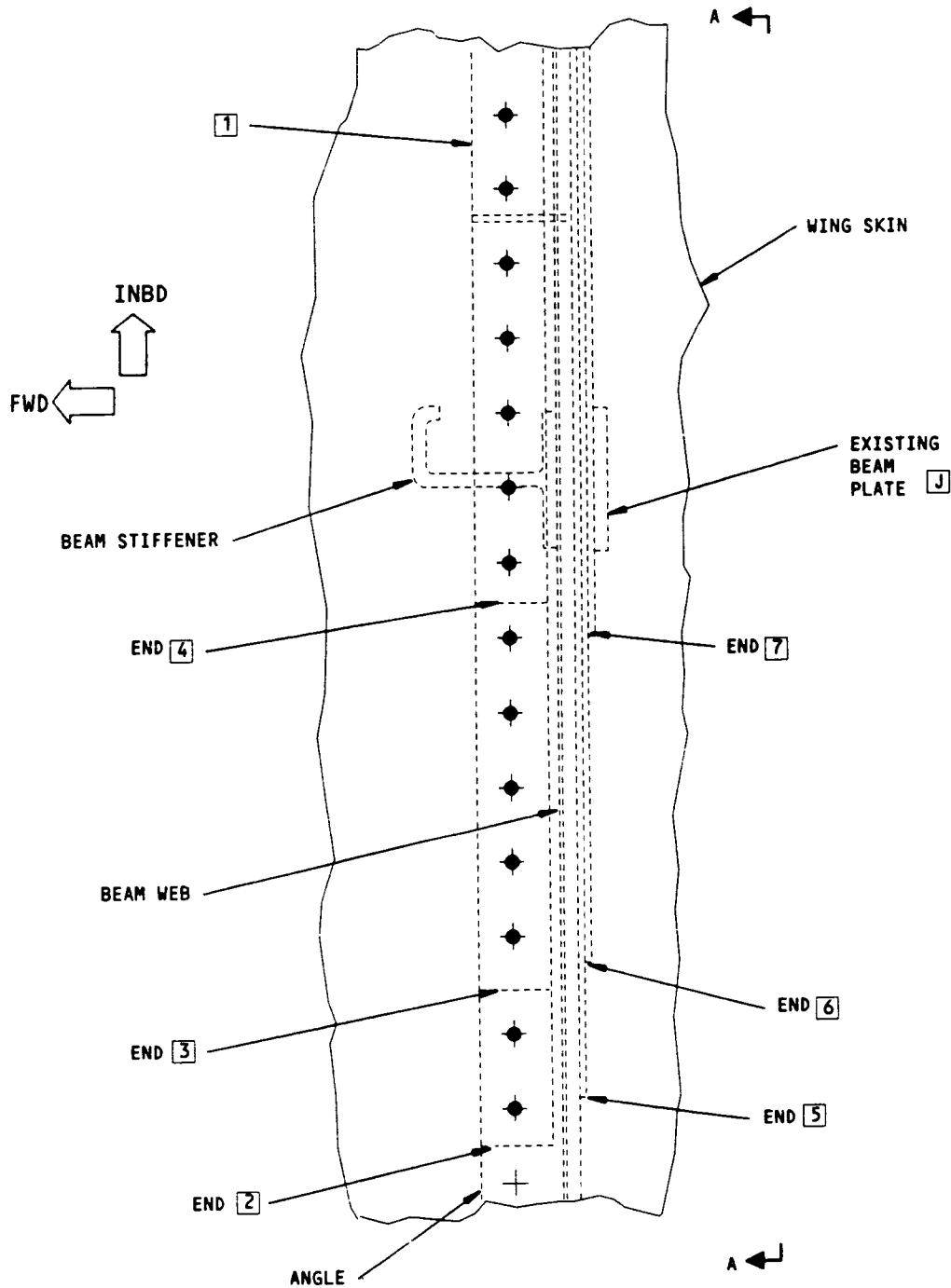
INTERCONTINENTAL  
STRUCTURAL REPAIR

| REPAIR MATERIAL |                                        |                                               |     |          |     |          |
|-----------------|----------------------------------------|-----------------------------------------------|-----|----------|-----|----------|
|                 |                                        | SPANWISE BEAM NO. 4<br>AND NO. 6<br>T = 0.220 |     |          |     |          |
| PART            | QTY                                    | MATERIAL                                      | QTY | MATERIAL | QTY | MATERIAL |
| 1 ANGLE EXTRU   | 1                                      | BAC1514-1313<br>7178-T6                       |     |          |     |          |
| 2 PLATE         | 1                                      | 0.063<br>7178-T6 A                            |     |          |     |          |
| 3 PLATE         | 1                                      | 0.125<br>7178-T6 A                            |     |          |     |          |
| 4 PLATE         | 1                                      | 0.160<br>7178-T6 A                            |     |          |     |          |
| 5 PLATE         | 1                                      | 0.060<br>7178-T6 A                            |     |          |     |          |
| 6 PLATE         | 1                                      | 0.125<br>7178-T6 A                            |     |          |     |          |
| 7 PLATE         | 1                                      | 0.160<br>7178-T6 A                            |     |          |     |          |
| ROW             | FASTENERS REQUIRED EACH SIDE OF DAMAGE |                                               |     |          |     |          |
| X               | FAST-ENER                              | 12                                            | B   |          |     |          |
| Y               | FAST-ENER                              | 12                                            | B   |          |     |          |

**BOEING**  
**707**



**INTERCONTINENTAL  
STRUCTURAL REPAIR**

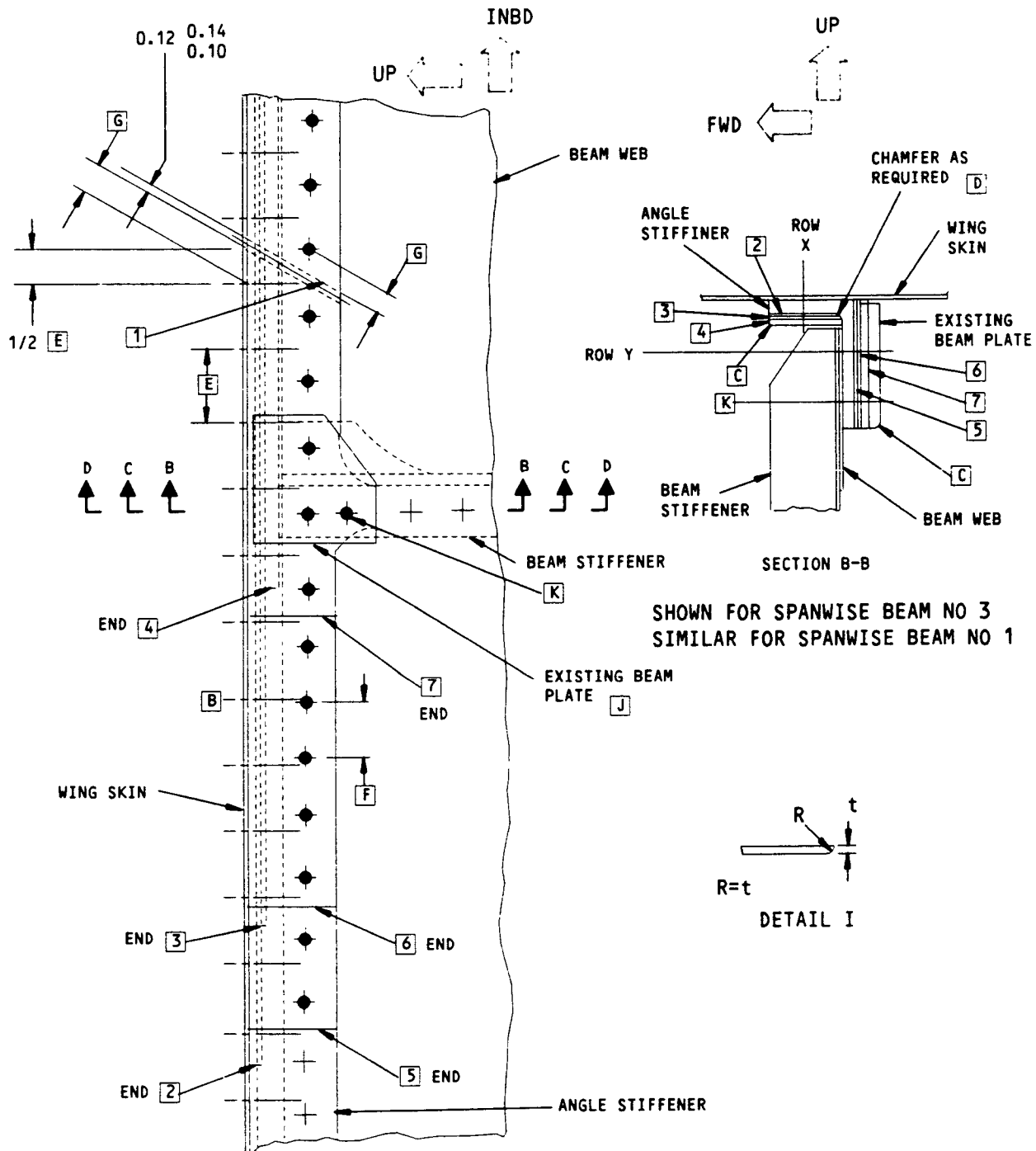


**PLAN VIEW**

SHOWN FOR SPANWISE BEAMS NO. 1 AND NO. 3  
SIMILAR FOR SPANWISE BEAMS NO. 2, NO. 4 AND NO. 6

Center Section Spanwise Beam Upper Angle Chord Repair  
Figure 5 (Sheet 5)

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR

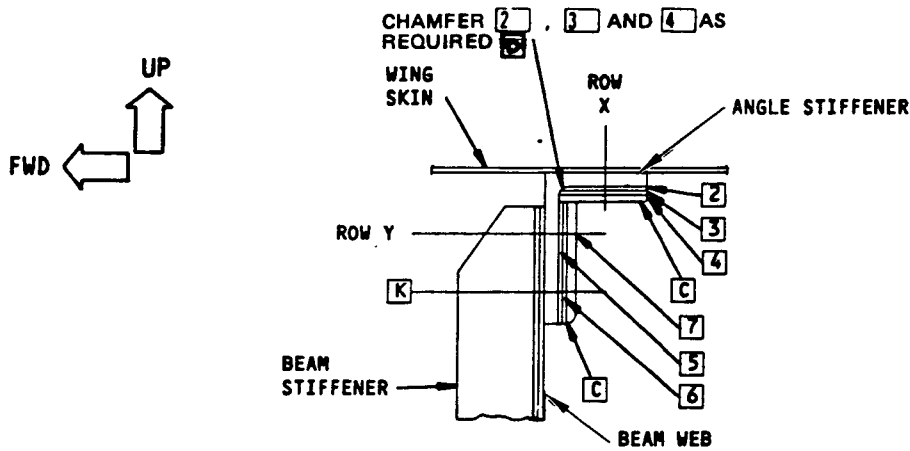


SECTION A-A  
SHOWN FOR SPANWISE BEAM NO. 3  
SIMILAR FOR SPANWISE BEAM NO. 1, NO. 2, NO. 4 AND NO. 6

Center Section Spanwise Beam Upper Angle Chord Repair  
Figure 5 (Sheet 6)

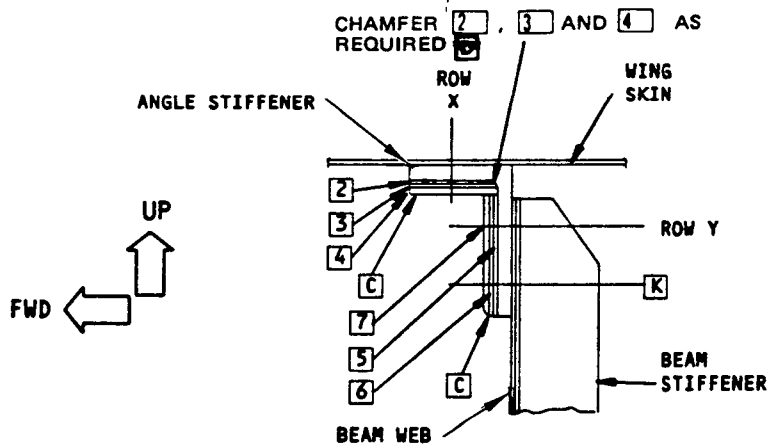


**BOEING**  
**707**  
 INTERCONTINENTAL  
 STRUCTURAL REPAIR



SECTION C-C

SHOWN FOR SPANWISE BEAMS NO. 4 AND NO. 6



SECTION D-D

SHOWN FOR SPANWISE BEAM NO. 2

Center Section Spanwise Beam Upper Angle Chord Repair  
 Figure 5 (Sheet 7)

#### REPAIR INSTRUCTIONS

1. Remove original fasteners and sealant as required. Remove existing beam plate (if installed).
2. Cut the damaged stiffener midway between original fasteners as shown.
3. Eddy current inspect all holes from which fasteners are removed.
4. Fabricate repair parts and radius repair part edges as indicated by note ☐ and shown in detail I.
5. Trim top edge of beam stiffener and existing beam plate (if installed) if necessary to clear repair plates. Check that sufficient edge margin on fastener holes is maintained.
6. Locate, drill and ream transition fit holes for repair fasteners. Prefit repair parts and check that the holes are in alignment.
7. Remove all burrs, nicks, sharp edges, and corners from the cut original parts and the repair parts. Chamfer or radius 0.015 to 0.030 on all cut edges.
8. Brush alodize repair parts, trimmed original parts and all fastener holes.
9. Apply 2 coats of BMS 10-20 Type 2 primer to repair parts and surfaces of repair area.
10. Install repair parts and existing beam plate (if installed) as follows:
  - A. Apply BMS 5-26 Type A faying surface sealant to repair parts for corrosion prevention.
  - B. Apply prepack seals in chamfered corners of repair.
  - C. Install fasteners wet with BMS 5-26 Type A sealant.
  - D. Apply injection sealant at gaps between original stiffener and insert (repair part ☐ ).
  - E. Apply fillet seals to fasteners (on pressure side of seal plane) and along edges of repair parts.
  - F. Refer to 57-2-2 and Maintenance Manual 28-2-0 and 51-3-0 for sealing instructions.
11. Restore original finish according to the Maintenance Manual.

#### NOTES

- THIS REPAIR MAY BE USED TO PARTIALLY REPLACE A STIFFENER OR TO SPLICE A STIFFENER WITH A CHORDWISE CRACK INCLUDING A COMPLETE BREAK
- IF THIS REPAIR CANNOT BE INSTALLED BECAUSE OF POSSIBLE INTERFERENCE WITH ORIGINAL STRUCTURAL MEMBERS CONTACT THE BOEING COMPANY FOR A SPECIALLY DESIGNED REPAIR



**INTERCONTINENTAL  
STRUCTURAL REPAIR**

**NOTES (CONTINUED)**

- THE NUMBER OF STEEL FASTENERS NOTED IN THE MATERIAL LIST IS THE MINIMUM NUMBER OF FASTENERS REQUIRED IN EACH ROW AND ON EACH SIDE OF THE DAMAGE

- REPAIR IS SYMMETRICAL ON EACH SIDE OF JOINT IN STIFFENER

- T = TYPICAL EXTRUSION THICKNESS

- REFER TO THE FOLLOWING WHEN MAKING THIS REPAIR:

51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS

51-8-0 FOR PROTECTIVE TREATMENT OF METAL

57-2-2 FOR INTEGRAL FUEL TANK SEALING

28-2-0 OF MAINTENANCE MANUAL FOR INTEGRAL FUEL TANK SEALING

51-2-0 OF MAINTENANCE MANUAL FOR FINISHES

51-3-0 OF MAINTENANCE MANUAL FOR SEALS AND SEALANTS

PART 6 OF THE NONDESTRUCTIVE TEST MANUAL FOR EDDY CURRENT INSPECTION PROCEDURES

**[A]** 7075-T6 OPTIONAL

**[B]** REPLACE ORIGINAL FASTENERS COMMON TO THE REPAIR WITH 1/16 OVERSIZE DIAMETER FASTENERS AS FOLLOWS:

1. REPLACE PROTRUDING HEAD FASTENERS THROUGH SKIN WITH BACB30GW OR BACB30FM

2. REPLACE PROTRUDING HEAD FASTENERS THROUGH BEAM WEB WITH BACB30FM

**[C]** RADUIS EDGES, AS SHOWN IN DETAIL I TO PREVENT DAMAGE TO THE BLADDER TYPE FUEL CELLS

**[D]** INSTALL PREPACK SEAL

**[E]** ORIGINAL SKIN TO STIFFENER FASTENER SPACING

**[F]** ORIGINAL SPANWISE BEAM CHORD TO WEB FASTENER SPACING

**[G]** LOCATE CUT EQUAL DISTANCE BETWEEN FASTENERS

**[H]** SEE 57-3-3, FIGURE 2 FOR CHORD LOCATION

**[J]** APPLICABLE TO SPANWISE BEAM NO. 1

**[K]** USE SAME TYPE FASTENER AS USED IN ROW Z

**SYMBOLS**

+ ORIGINAL FASTENER LOCATIONS

✦ REPAIR FASTENER LOCATIONS



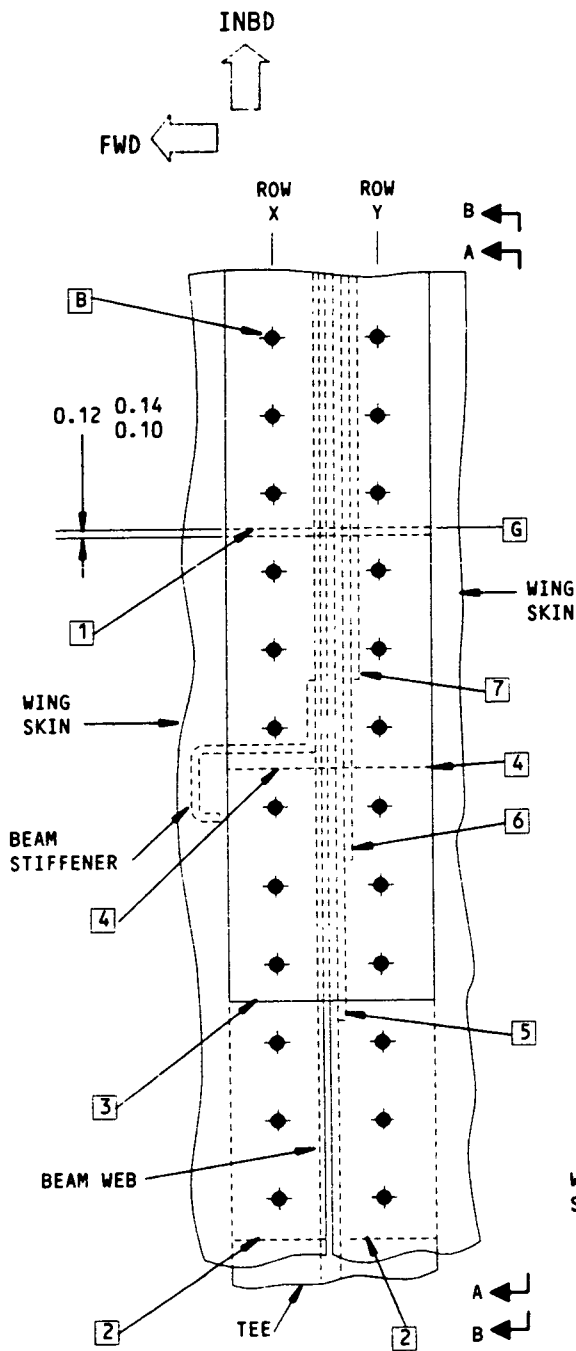
INTERCONTINENTAL  
STRUCTURAL REPAIR

| REPAIR MATERIAL |                                        |                                                                                                     |                                             |                                                                                                     |                                             |                                  |                                             |
|-----------------|----------------------------------------|-----------------------------------------------------------------------------------------------------|---------------------------------------------|-----------------------------------------------------------------------------------------------------|---------------------------------------------|----------------------------------|---------------------------------------------|
|                 |                                        | SPANWISE BEAM NO. 1 <input type="checkbox"/> H<br>FOR CHORDS MADE<br>FROM BAC1506-2381<br>T = 0.140 |                                             | SPANWISE BEAM NO. 2 <input type="checkbox"/> H<br>FOR CHORDS MADE<br>FROM BAC1506-2382<br>T = 0.160 |                                             | SPANWISE BEAM NO. 5<br>T = 0.200 |                                             |
| PART            |                                        | QTY                                                                                                 | MATERIAL                                    | QTY                                                                                                 | MATERIAL                                    | QTY                              | MATERIAL                                    |
| 1               | TEE<br>EXTRU                           | 1                                                                                                   | BAC1506-2381<br>7178-T6                     | 1                                                                                                   | BAC1506-2382<br>7178-T6                     | 1                                | BAC1505-100289<br>7178-T6                   |
| 2               | PLATE                                  | 2                                                                                                   | 0.040<br>7178-T6 <input type="checkbox"/> A | 2                                                                                                   | 0.040<br>7178-T6 <input type="checkbox"/> A | 2                                | 0.063<br>7178-T6 <input type="checkbox"/> A |
| 3               | PLATE                                  | 1                                                                                                   | 0.063<br>7178-T6 <input type="checkbox"/> A | 1                                                                                                   | 0.071<br>7178-T6 <input type="checkbox"/> A | 1                                | 0.090<br>7178-T6 <input type="checkbox"/> A |
| 4               | PLATE                                  | 2                                                                                                   | 0.100<br>7178-T6 <input type="checkbox"/> A | 2                                                                                                   | 0.100<br>7178-T6 <input type="checkbox"/> A | 2                                | 0.112<br>7178-T6 <input type="checkbox"/> A |
| 5               | PLATE                                  | 1                                                                                                   | 0.040<br>7178-T6 <input type="checkbox"/> A | 1                                                                                                   | 0.040<br>7178-T6 <input type="checkbox"/> A | 1                                | 0.063<br>7178-T6 <input type="checkbox"/> A |
| 6               | PLATE                                  | 1                                                                                                   | 0.063<br>7178-T6 <input type="checkbox"/> A | 1                                                                                                   | 0.071<br>7178-T6 <input type="checkbox"/> A | 1                                | 0.112<br>7178-T6 <input type="checkbox"/> A |
| 7               | PLATE                                  | 1                                                                                                   | 0.100<br>7178-T6 <input type="checkbox"/> A | 1                                                                                                   | 0.100<br>7178-T6 <input type="checkbox"/> A | 1                                | 0.125<br>7178-T6 <input type="checkbox"/> A |
| ROW             | FASTENERS REQUIRED EACH SIDE OF DAMAGE |                                                                                                     |                                             |                                                                                                     |                                             |                                  |                                             |
| X               | FASTENER                               | 9                                                                                                   | <input type="checkbox"/> B                  | 9                                                                                                   | <input type="checkbox"/> B                  | 9                                | <input type="checkbox"/> B                  |
| Y               | FASTENER                               | 9                                                                                                   | <input type="checkbox"/> B                  | 9                                                                                                   | <input type="checkbox"/> B                  | 9                                | <input type="checkbox"/> B                  |
| Z               | FASTENER                               | 9                                                                                                   | <input type="checkbox"/> B                  | 9                                                                                                   | <input type="checkbox"/> B                  | 9                                | <input type="checkbox"/> B                  |

**BOEING**  
**707**

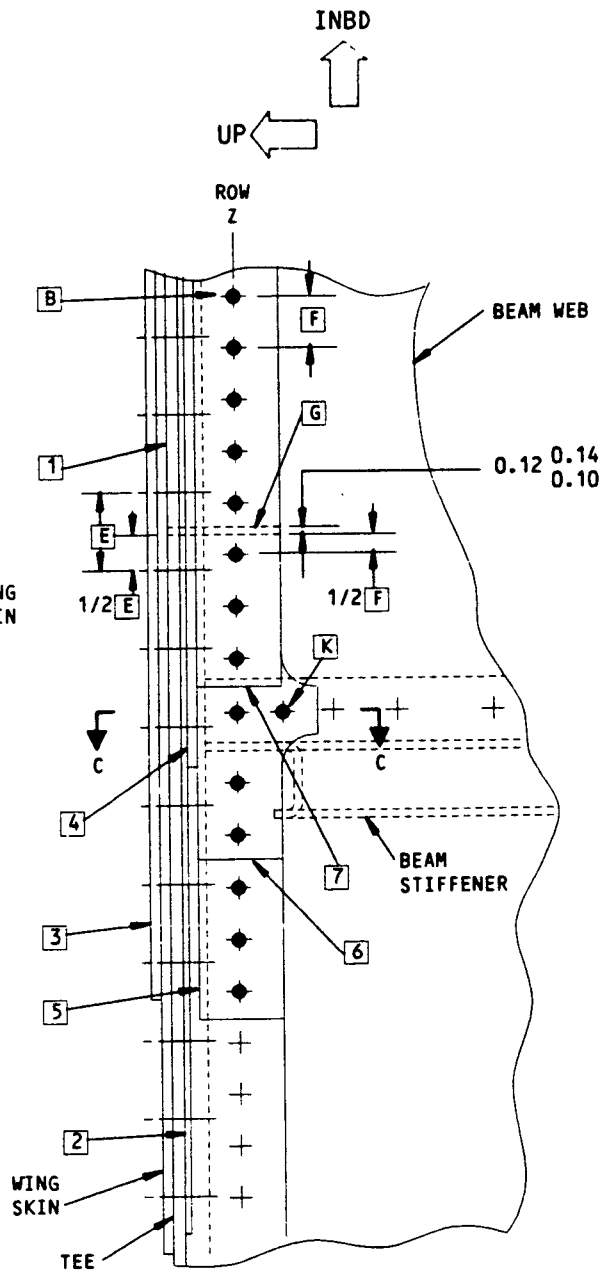


INTERCONTINENTAL  
STRUCTURAL REPAIR



PLAN VIEW

SHOWN FOR SPANWISE BEAMS NO. 1 AND NO. 5  
SIMILAR FOR SPANWISE BEAM NO. 2

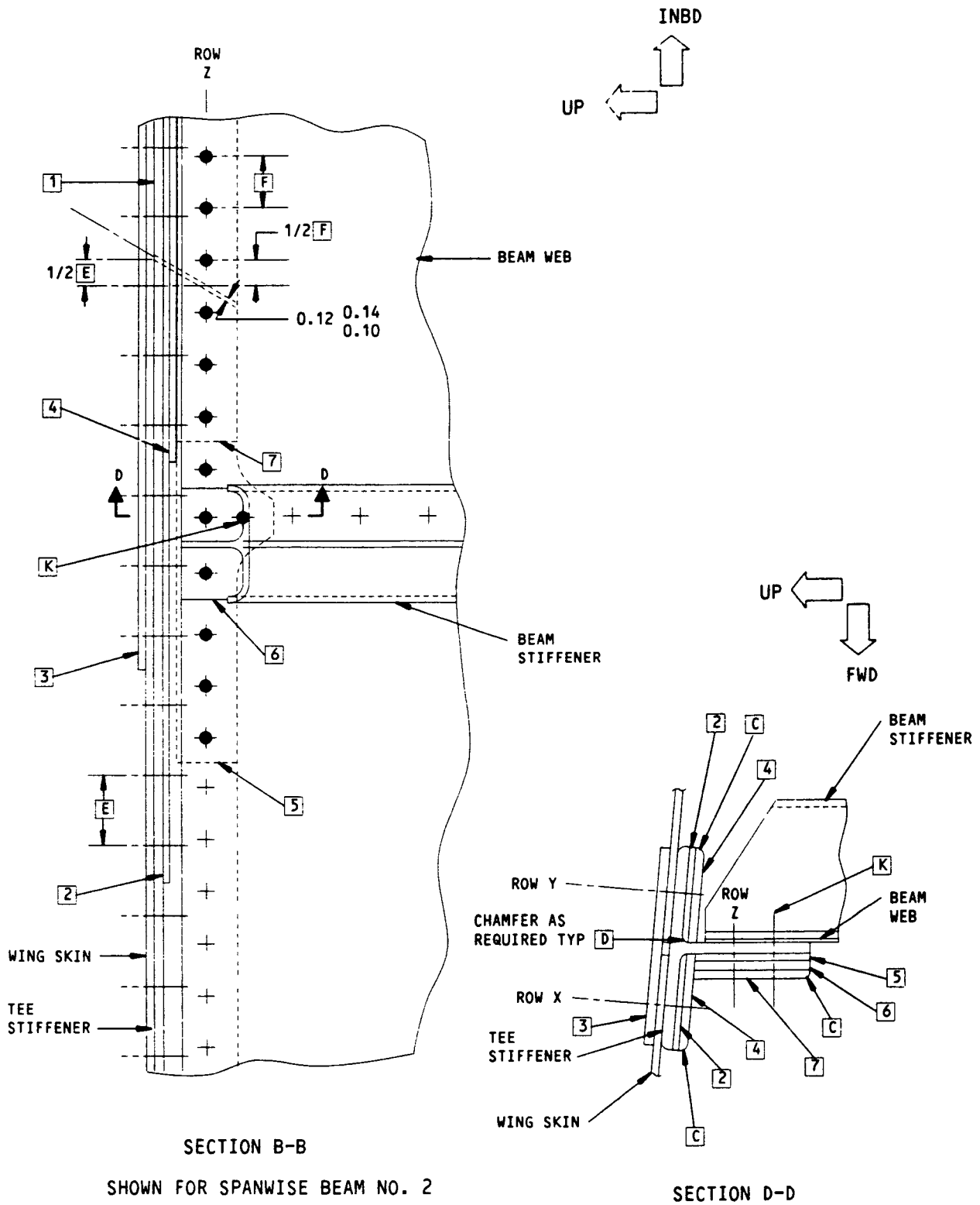


SECTION A-A

SHOWN FOR SPANWISE BEAM NO. 5  
SIMILAR FOR SPANWISE BEAM NO. 1

Center Section Spanwise Beam Upper Tee Chord Repair  
Figure 6 (Sheet 4)

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR

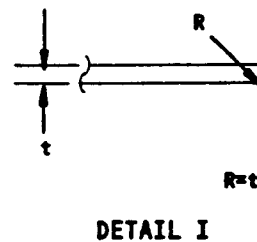
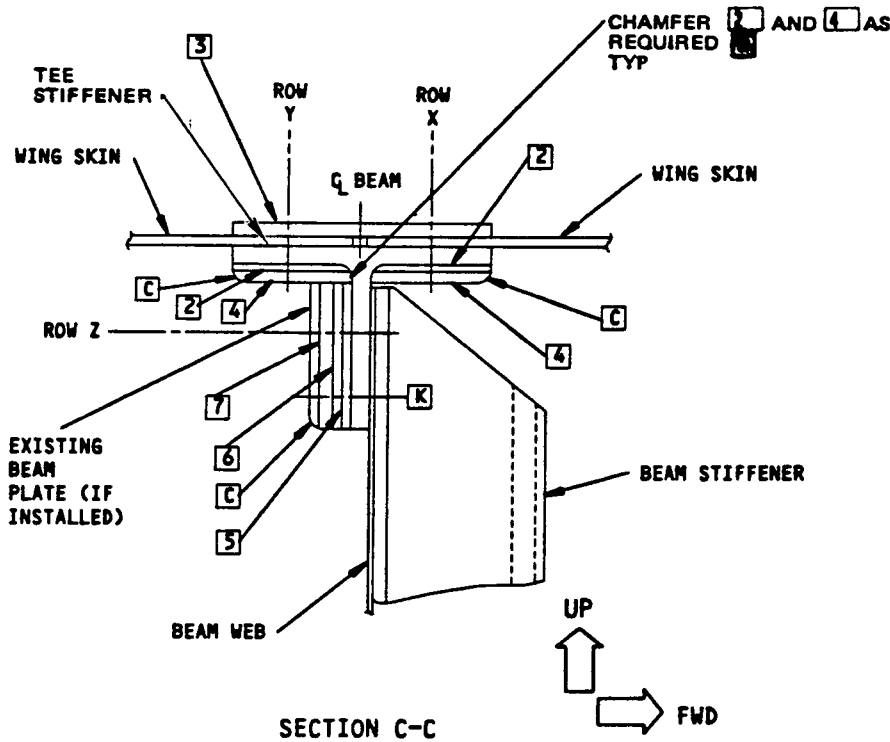


Center Section Spanwise Beam Upper Tee Chord Repair  
Figure 6 (Sheet 5)

**BOEING**  
**707**



**INTERCONTINENTAL  
STRUCTURAL REPAIR**



Center Section Spanwise Beam Upper Tee Chord Repair  
Figure 6 (Sheet 6)

**INTERCONTINENTAL  
STRUCTURAL REPAIR****REPAIR INSTRUCTIONS**

1. Remove original fasteners and sealant as required.
2. Cut the damaged vent midway between original fasteners as shown.
3. Eddy current inspect all holes from which fasteners are removed.
4. Fabricate repair parts.
5. Locate, drill and ream transition fit holes for repair fasteners. Prefit repair parts and check that the holes are in alignment.
6. Remove all burrs, nicks, sharp edges, and corners from the cut original parts and the repair parts. Chamfer or radius 0.015 to 0.030 on all cut edges.
7. Brush alodize repair parts, trimmed original parts and all fastener holes.
8. Apply 2 coats of BMS 10-20 Type 2 primer to repair parts and surfaces of repair area.
9. Install repair parts as follows:
  - A. Apply BMS 5-26 Type A faying surface sealant to repair parts for corrosion prevention.
  - B. Apply prepack seals in chamfered corners of repair.
  - C. Install fasteners wet with BMS 5-26 Type A sealant.
  - D. Apply injection sealant at gaps between original stiffener and insert (repair part ☐ ).
  - E. Apply fillet seals to fasteners (on pressure side of seal plane) and along edges of repair parts.
  - F. Refer to 57-2-2 and Maintenance Manual 28-2-0 and 51-3-0 for sealing instructions.
10. Restore original finish according to the Maintenance Manual.

**NOTES**

- THIS REPAIR MAY BE USED TO PARTIALLY REPLACE A VENT OR TO SPLICE A VENT WITH A CHORDWISE CRACK INCLUDING A COMPLETE BREAK
- IF THIS REPAIR CANNOT BE INSTALLED BECAUSE OF POSSIBLE INTERFERENCE WITH ORIGINAL STRUCTURAL MEMBERS CONTACT THE BOEING COMPANY FOR A SPECIALLY DESIGNED REPAIR
- THE NUMBER OF STEEL FASTENERS NOTED IN THE MATERIAL LIST IS THE MINIMUM NUMBER OF FASTENERS REQUIRED IN EACH ROW AND ON EACH SIDE OF THE DAMAGE
- REPAIR IS SYMMETRICAL ON EACH SIDE OF JOINT IN VENT



**BOEING**  
**707**



INTERCONTINENTAL  
STRUCTURAL REPAIR

NOTES (CONTINUED)

- REFER TO THE FOLLOWING WHEN MAKING THIS REPAIR:

51-2-0 FOR FASTENER CODE,  
REMOVAL AND INSTALLATION, HOLE  
SIZES AND EDGE MARGINS

51-8-0 FOR PROTECTIVE  
TREATMENT OF METAL

57-2-2 FOR INTEGRAL FUEL TANK  
SEALING

28-2-0 OF MAINTENANCE MANUAL  
FOR INTEGRAL FUEL TANK SEALING

51-2-0 OF MAINTENANCE MANUAL  
FOR FINISHES

51-3-0 OF MAINTENANCE MANUAL  
FOR SEALS AND SEALANTS

PART 6 OF THE NONDESTRUCTIVE  
TEST MANUAL FOR EDDY CURRENT  
INSPECTION PROCEDURES

[A] 7075-T6 OPTIONAL

[B] REPLACE ORIGINAL FASTENERS  
COMMON TO THE REPAIR WITH 1/16  
OVERSIZE DIAMETER FASTENERS  
AS FOLLOWS:

1. REPLACE 100° HEAD FASTENER  
WITH BACB30GY OR BACB30FN
2. REPLACE 82° HEAD FASTENERS  
WITH BACB30FN. COUNTERSINK  
100° IN SKIN AS REQUIRED

[C] LOCATE CUT EQUIDISTANT BETWEEN  
ORIGINAL FASTENERS.

[D] INSTALL PREPACK SEAL

[E] USE SAME TYPE FASTENER AS USED  
IN ROW X AND Y

[F] ORIGINAL SKIN TO STIFFENER  
FASTENER SPACING.

[G] FASTENER SPACING SAME AS [F]

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



| REPAIR MATERIAL |                                           |                                            |                        |
|-----------------|-------------------------------------------|--------------------------------------------|------------------------|
| LOCATION<br>→   |                                           | WS360 TO PROD BREAK                        |                        |
|                 |                                           | S-5 AND S-6<br>S-7 AND S-8<br>S-9 AND S-10 |                        |
| PART            |                                           | QTY                                        | MATERIAL               |
| 1               | CHANNEL                                   | 1                                          | BAC1510-267<br>7178-T6 |
| 2               | PLATE                                     | 2                                          | 0.050<br>7178-T6 [A]   |
| 3               | PLATE                                     | 2                                          | 0.080<br>7178-T6 [A]   |
| 4               | PLATE                                     | 2                                          | 0.125<br>7178-T6 [A]   |
| 5               | PLATE                                     | 1                                          | 0.050<br>7178-T6 [A]   |
| 6               | PLATE                                     | 1                                          | 0.080<br>7178-T6 [A]   |
| 7               | PLATE                                     | 1                                          | 0.125<br>7178-T6 [A]   |
| 8               | PLATE                                     | 2                                          | 0.050<br>7178-T6 [A]   |
| 9               | PLATE                                     | 2                                          | 0.080<br>7178-T6 [A]   |
| 10              | PLATE                                     | 2                                          | 0.125<br>7178-T6 [A]   |
| ROW             | FASTENERS REQUIRED<br>EACH SIDE OF DAMAGE |                                            |                        |
| T               | FASTENER                                  | 9                                          | [B]                    |
| U               | FASTENER                                  | 9                                          | [B]                    |
| V               | FASTENER                                  | 9                                          | BACB30AU-8             |
| W               | FASTENER                                  | 9                                          | BACB30AU-8             |
| X               | FASTENER                                  | 9                                          | BACB30AU-8             |
| Y               | FASTENER                                  | 9                                          | BACB30AU-8             |
| Z               | FASTENER                                  | 9                                          | BACB30AU-8             |

| REPAIR MATERIAL |                                           |                                               |                        |
|-----------------|-------------------------------------------|-----------------------------------------------|------------------------|
| LOCATION<br>→   |                                           | WBL59.24 TO PROD<br>BREAK AND 59.24 TO<br>360 |                        |
|                 |                                           | S-15 AND S-16, S-18 AND<br>S-19               |                        |
| PART            |                                           | QTY                                           | MATERIAL               |
| 1               | CHANNEL                                   | 1                                             | BAC1510-320<br>7178-T6 |
| 2               | PLATE                                     | 2                                             | 0.050<br>7178-T6 [A]   |
| 3               | PLATE                                     | 2                                             | 0.080<br>7178-T6 [A]   |
| 4               | PLATE                                     | 2                                             | 0.100<br>7178-T6 [A]   |
| 5               | PLATE                                     | 1                                             | 0.050<br>7178-T6 [A]   |
| 6               | PLATE                                     | 1                                             | 0.080<br>7178-T6 [A]   |
| 7               | PLATE                                     | 1                                             | 0.100<br>7178-T6 [A]   |
| 8               | PLATE                                     | 2                                             | 0.050<br>7178-T6 [A]   |
| 9               | PLATE                                     | 2                                             | 0.080<br>7178-T6 [A]   |
| 10              | PLATE                                     | 2                                             | 0.100<br>7178-T6 [A]   |
| ROW             | FASTENERS REQUIRED<br>EACH SIDE OF DAMAGE |                                               |                        |
| T               | FASTENER                                  | 9                                             | [B]                    |
| U               | FASTENER                                  | 9                                             | [B]                    |
| V               | FASTENER                                  | 9                                             | BACB30AU-8             |
| W               | FASTENER                                  | 9                                             | BACB30AU-8             |
| X               | FASTENER                                  | 9                                             | BACB30AU-8             |
| Y               | FASTENER                                  | 9                                             | BACB30AU-8             |
| Z               | FASTENER                                  | 9                                             | BACB30AU-8             |

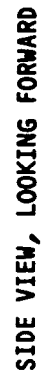
Upper Surface Structural Vent Repair  
Figure 7 (Sheet 3)



INTERCONTINENTAL  
STRUCTURAL REPAIR

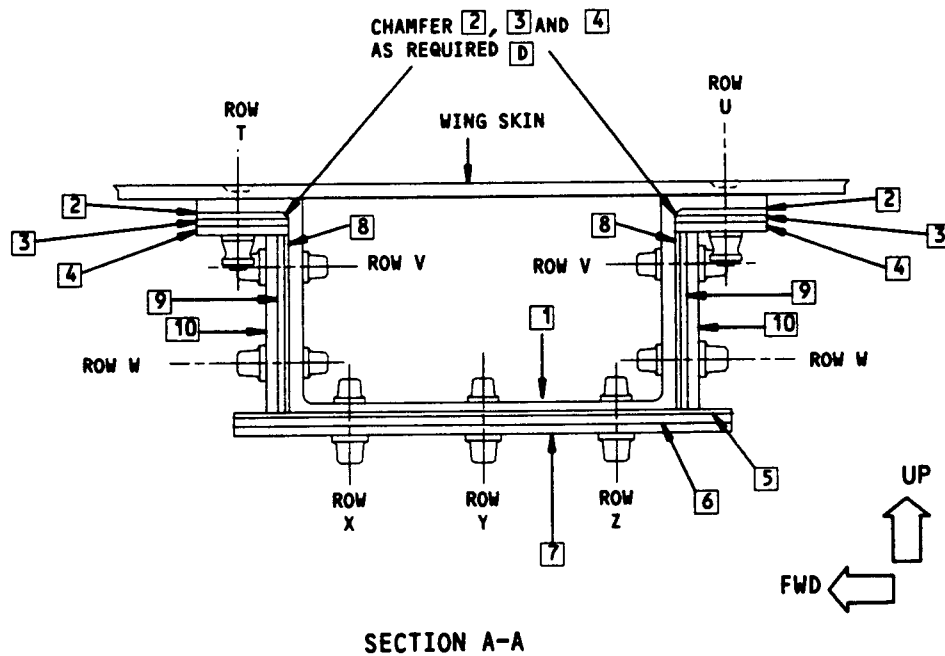
| REPAIR MATERIAL |                                           |                                            |            |
|-----------------|-------------------------------------------|--------------------------------------------|------------|
| LOCATION<br>→   |                                           | PROD BREAK TO<br>WS. 960.112               |            |
|                 |                                           | S-5 AND S-6<br>S-7 AND S-8<br>S-9 AND S-10 |            |
| PART            | QTY                                       | MATERIAL                                   |            |
| 1 CHANNEL       | 1                                         | BAC1510-268<br>7178-T6                     |            |
| 2 PLATE         | 2                                         | 0.040<br>7178-T6                           | [A]        |
| 3 PLATE         | 2                                         | 0.050<br>7178-T6                           | [A]        |
| 4 PLATE         | 2                                         | 0.090<br>7178-T6                           | [A]        |
| 5 PLATE         | 1                                         | 0.040<br>7178-T6                           | [A]        |
| 6 PLATE         | 1                                         | 0.050<br>7178-T6                           | [A]        |
| 7 PLATE         | 1                                         | 0.090<br>7178-T6                           | [A]        |
| 8 PLATE         | 2                                         | 0.040<br>7178-T6                           | [A]        |
| 9 PLATE         | 2                                         | 0.050<br>7178-T6                           | [A]        |
| 10 PLATE        | 2                                         | 0.090<br>7178-T6                           | [A]        |
| ROW             | FASTENERS REQUIRED<br>EACH SIDE OF DAMAGE |                                            |            |
| T               | FASTENER                                  | 9                                          | [B]        |
| U               | FASTENER                                  | 9                                          | [B]        |
| V               | FASTENER                                  | 9                                          | BACB30AU-8 |
| W               | FASTENER                                  | 9                                          | BACB30AU-8 |
| X               | FASTENER                                  | 9                                          | BACB30AU-8 |
| Y               | FASTENER                                  | 9                                          | BACB30AU-8 |
| Z               | FASTENER                                  | 9                                          | BACB30AU-8 |

Upper Surface Structural Vent Repair  
Figure 7 (Sheet 4)



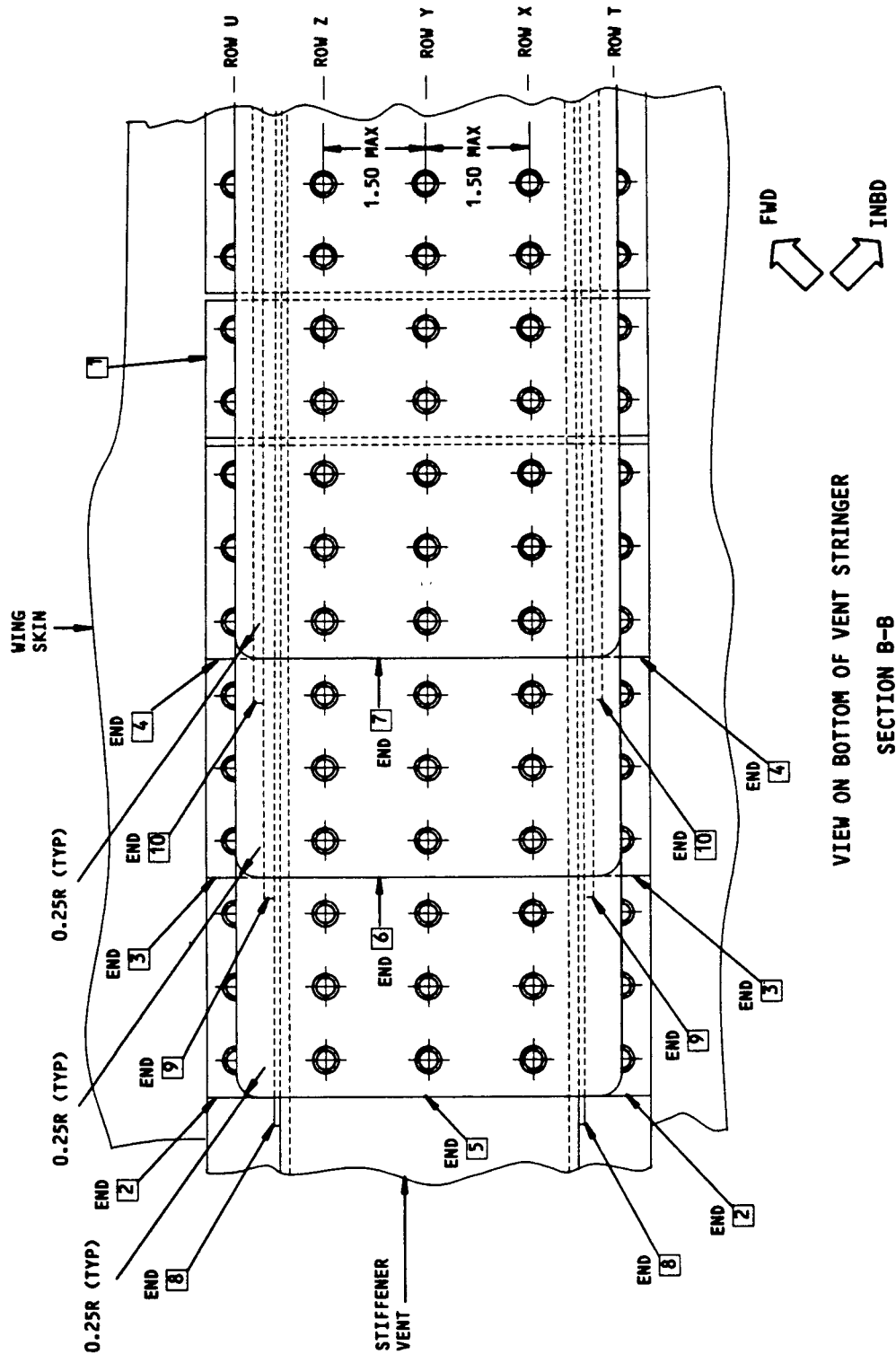
**LEFT WING SHOWN**

**Upper Surface Structural Vent Repair  
Figure 7 (Sheet 5)**



Upper Surface Structural Vent Repair  
Figure 7 (Sheet 6)

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



Upper Surface Structural Vent Repair  
Figure 7 (Sheet 7)



**INTERCONTINENTAL  
STRUCTURAL REPAIR**

**REPAIR INSTRUCTIONS**

1. Remove original fasteners and sealant as required.
2. Stop drill ends of the crack with 0.25 diameter hole. Determine that no extension of the crack exists beyond the stop drill hole, by dye checking.
3. Eddy current inspect all holes from which fasteners are removed.
4. Fabricate repair parts.
5. Locate, drill and ream transition fit holes for repair fasteners. Prefit repair parts and check that the holes are in alignment.
6. Remove all burrs, nicks, sharp edges, and corners from the repair parts. Chamfer or radius 0.015 to 0.030 on all cut edges.
7. Brush alodize repair parts and all fastener holes.
8. Apply 2 coats of BMS 10-20 Type 2 primer to repair parts and surfaces of repair area.
9. Install repair parts as follows:
  - A. Apply BMS 5-26 Type A faying surface sealant to repair parts for corrosion prevention.
  - B. Install fasteners wet with BMS 5-26 Type A sealant.

C. Apply fillet seals to fasteners (on pressure side of seal plane) and along edges of repair parts.

D. Refer to 57-2-2 and Maintenance Manual 28-2-0 and 51-3-0 for sealing instructions.

10. Restore original finish according to the Maintenance Manual.

**NOTES**

- THIS REPAIR MAY BE USED FOR CRACKS IN THE HEEL REGION OF ZEE STIFFENER WITHIN LIMITS SPECIFIED IN [E]
- AT LEAST 10 FASTENERS (TOTAL) ARE REQUIRED BEYOND THE POSSIBLE CRACK PROPAGATION AREA

- REFER TO THE FOLLOWING WHEN MAKING THIS REPAIR:

51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS

51-8-0 FOR PROTECTIVE TREATMENT OF METAL

57-2-2 FOR INTEGRAL FUEL TANK SEALING

28-2-0 OF MAINTENANCE MANUAL FOR INTEGRAL FUEL TANK SEALING

51-2-0 OF MAINTENANCE MANUAL FOR FINISHES

51-3-0 OF MAINTENANCE MANUAL FOR SEALS AND SEALANTS



**INTERCONTINENTAL  
STRUCTURAL REPAIR**

- [A] PROTRUDING HEAD FASTENERS BACB30GW10 OR BACB30FM10 FOR ZEE STIFFENERS S-1 THRU S-7 INCLUSIVE FROM WBL 59.24 TO CENTERLINE OF AIRPLANE. PROTRUDING HEAD FASTENERS BACB30GW8 OR BACB30FM8 FOR ZEE STIFFENERS S-8 THRU S-24 INCLUSIVE FROM WBL 59.24 TO CENTERLINE OF AIRPLANE AND FOR ALL STIFFENERS OUTBOARD OF WBL 59.24
- [B] REPLACE ORIGINAL FASTENERS COMMON TO THE REPAIR WITH 1/16 OVERSIZE DIAMETER FASTENERS AS FOLLOWS:
1. REPLACE PROTRUDING HEAD FASTENER WITH BACB30GW OR BACB30FM
  2. REPLACE 100° HEAD FASTENER WITH BACB30GY OR BACB30FN
  3. REPLACE 82° HEAD FASTENERS WITH BACB30FN. COUNTERSINK 100° IN SKIN AS REQUIRED
- [C] THICKNESS OF REPAIR PART IS TO BE THE SAME AS THE THICKER OF THE FLANGE OR WEB OF THE ORIGINAL DAMAGED ZEE STIFFENER.
- [D] USE BAC1512-380, LENGTH 0.90 2024-T4. OPTIONAL 0.125 X 0.90 X 0.90 2024-T4 (RADIUS ONE EDGE TO SUIT ANGLE FILLET RADUIS)
- [E] CRACK PROPAGATION IS ASSUMED TO EXTEND (WITHIN THE HEEL REGION OF THE ORIGINAL DAMAGED ZEE STIFFENER) TO A POINT OPPOSITE THE FIRST SKIN FASTENER BEYOND THE STOP HOLE. THIS REPAIR IS LIMITED TO SPANWISE CRACKS WITHIN THE HEEL

REGION OF A ZEE STIFFENER. IT DOES NOT APPLY IF A CRACK PROPAGATES OR EXTENDS INTO THE WEB OR FLANGE. THIS REPAIR DOES NOT APPLY IN THE IMMEDIATE VICINITY OR REGION OF ANY MAIN STRINGER SPLICE

- [F] LOCATE END OF TAPER EQUIDISTANCE BETWEEN REPAIR FASTENERS

- [G] TAPER BOTH ENDS OF ANGLE TO 1/2 THE THICKNESS OF THE ADJACENT FLANGE OR WEB AT SECOND FASTENER LOCATION FROM END

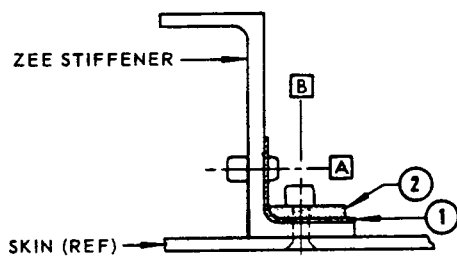
**SYMBOLS**

+ ORIGINAL FASTENER LOCATIONS

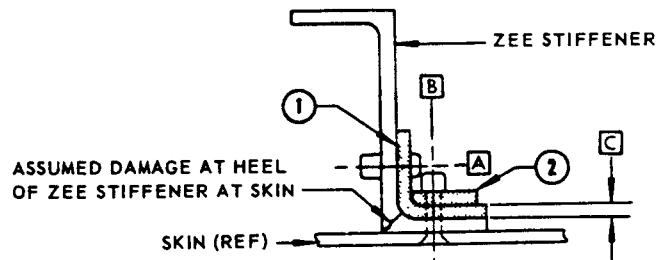
◆ REPAIR FASTENER LOCATIONS

| REPAIR MATERIAL |        |     |             |
|-----------------|--------|-----|-------------|
| PART            |        | QTY | MATERIAL    |
| ①               | ANGLE  | 1   | 2024-T4 [C] |
| ②               | FILLER | 14  | [D]         |

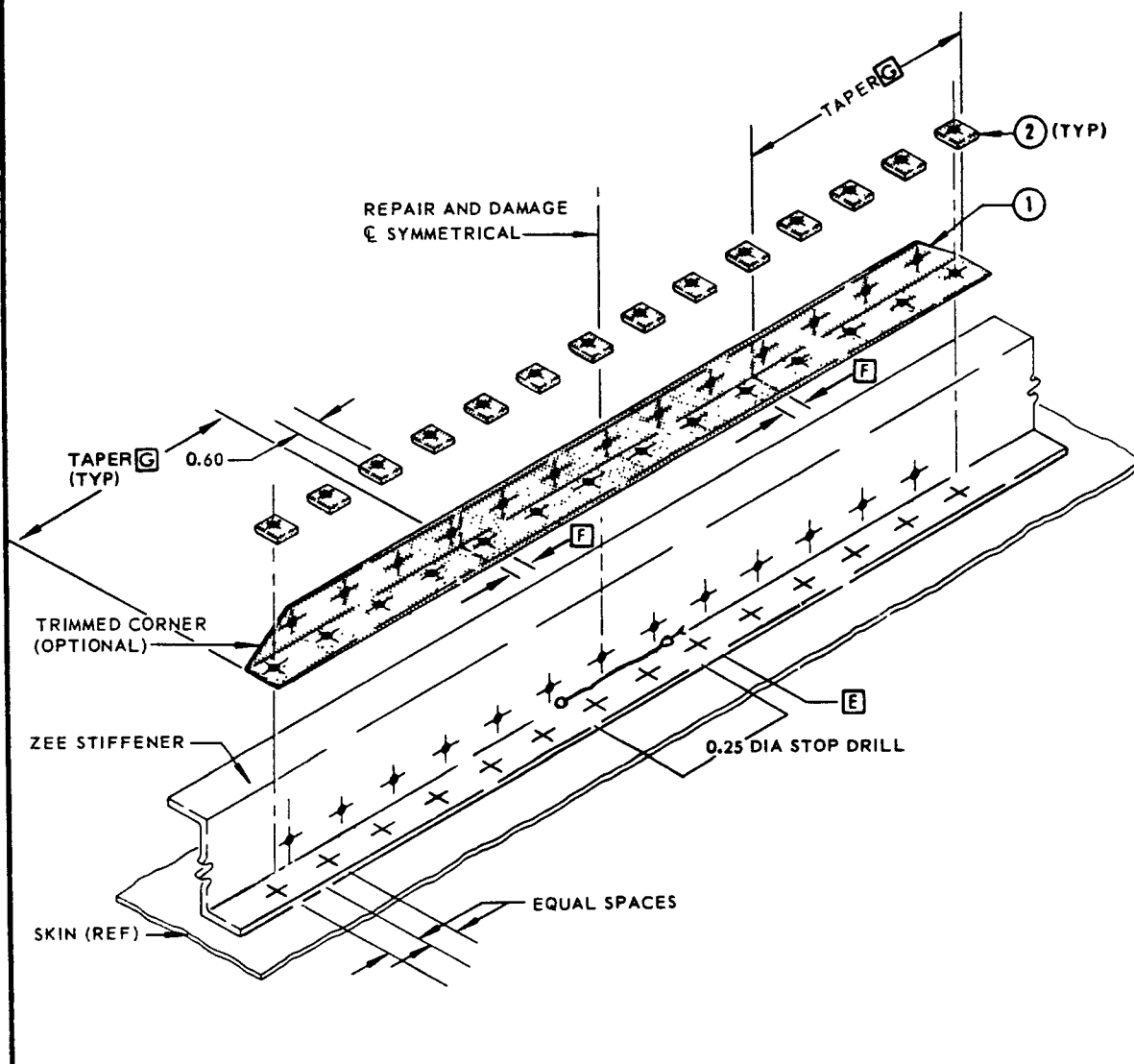




SECTION THROUGH TAPER



SECTION THROUGH DAMAGE



Lower Surface Zee Stiffener Repair - Heel Crack  
Figure 8 (Sheet 3)

## REPAIR INSTRUCTIONS

1. Remove fasteners and sealant over the area to be repaired.
2. If a section of stiffener is to be replaced, cut and remove the damaged portion.  
  
NOTE: Cut line must be situated far enough from padded areas on inner flange to permit installation of repair parts.
3. Eddy current inspect all holes from which fasteners are removed.
4. Calculate the gages of the repair parts, refer to sample calculation.
5. Calculate the number of fasteners required to develop the strength of the repair plates. Refer to sample calculation.
6. Make the repair parts.
7. Assemble the repair parts and drill and ream the fastener holes in existing and new locations.
8. Alodize the repair parts and the cut edges of existing parts.
9. Install the repair parts, making faying surface seals between all mating faces. Fasteners must be installed wet with sealant. Apply fillet seals to fasteners and exposed edges of repair parts after installation. Refer to 57-2-2 for details of sealing and sealants.
10. Restore finish after completion of repair.

## NOTES

- THIS REPAIR MAY BE USED TO PARTIALLY REPLACE A STIFFENER OR TO SPLICE A STIFFENER WITH A CHORDWISE CRACK INCLUDING A COMPLETE BREAK
- REPAIR IS SYMMETRICAL ON EACH SIDE OF JOINT IN STIFFENER
- WING SHOULD BE ADEQUATELY SUPPORTED DURING REPAIR

- REFER TO THE FOLLOWING WHEN MAKING THIS REPAIR

51-2-9 FOR FASTENER STRENGTH

51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS

57-2-2 FOR INTEGRAL FUEL TANK SEALING

51-8-0 FOR PROTECTIVE TREATMENT OF METAL

PART 6 OF THE NONDESTRUCTIVE TEST MANUAL FOR EDDY CURRENT INSPECTION PROCEDURES

- BREAK ALL SHARP EDGES 0.03

▲ GAGE =  $0.20 (+0.05/-0.00) \times$   
THICKNESS OF OUTER FLANGE.  
MINIMUM GAGE 0.040

■ GAGE =  $0.35 (\pm 0.05) \times$  THICKNESS  
OF OUTER FLANGE. MINIMUM GAGE  
0.040

■ GAGE =  $0.35 (\pm 0.05) \times$  THICKNESS  
OF WEB. MINIMUM GAGE 0.040



**INTERCONTINENTAL  
STRUCTURAL REPAIR**

NOTES (CONT)

- D** GAGE TO MAKE TOTAL CROSS-SECTIONAL AREA OF MATING FLANGES OF REPAIR PARTS  $1.25 (+0.10/-0.00)$  X CROSS-SECTIONAL AREA OF OUTER FLANGE. MINIMUM GAGE 0.040
- E** COMBINED THICKNESS OF PARTS **S** AND **Z** TO MAKE CROSS-SECTIONAL AREA OF REPAIR PARTS  $1.25 (+0.10/-0.00)$  X CROSS-SECTIONAL AREA OF WEB. MINIMUM GAGE 0.040
- F**  $GAGE = 0.35 (\pm 0.05) \times THICKNESS$  OF INNER FLANGE. MINIMUM GAGE 0.040
- G** GAGE TO MAKE TOTAL CROSS-SECTIONAL AREA OF MATING FLANGES OF REPAIR PARTS  $1.25 (+0.10/-0.00)$  X CROSS-SECTIONAL AREA OF INNER FLANGE. MINIMUM GAGE 0.040
- H** CALCULATE FASTENER REQUIREMENTS TO DEVELOP STRENGTH OF REPAIR PARTS. REFER TO SAMPLE CALCULATION

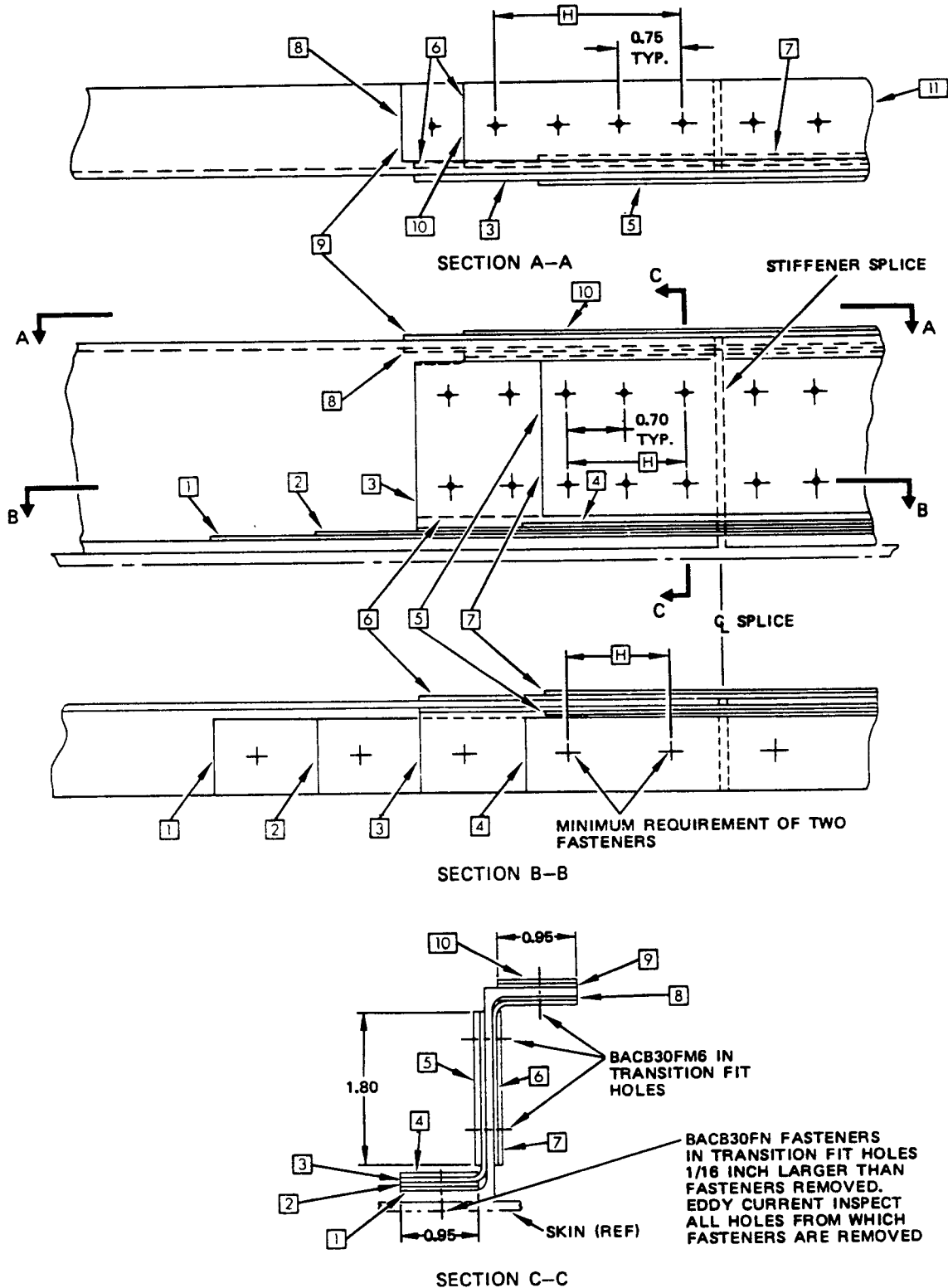
| REPAIR MATERIAL |                               |     |                                           |
|-----------------|-------------------------------|-----|-------------------------------------------|
|                 | PART                          | QTY | MATERIAL                                  |
| 1               | STRAP                         | 1   | 7075-T6 <b>A</b>                          |
| 2               | STRAP                         | 1   | 7075-T6 <b>B</b>                          |
| 3               | ANGLE                         | 1   | 7075-T6 <b>C</b>                          |
| 4               | STRAP                         | 1   | 7075-T6 <b>D</b>                          |
| 5               | STRAP                         | 1   | 7075-T6 <b>E</b>                          |
| 6               | ANGLE                         | 1   | 7075-T6 <b>C</b>                          |
| 7               | STRAP                         | 1   | 7075-T6 <b>E</b>                          |
| 8               | STRAP                         | 1   | 7075-T6 <b>F</b>                          |
| 9               | STRAP                         | 1   | 7075-T6 <b>F</b>                          |
| 10              | STRAP                         | 1   | 7075-T6 <b>G</b>                          |
| 11              | REPLACE-<br>MENT<br>STIFFENER | 1   | SAME MATERIAL<br>AS ORIGINAL<br>STIFFENER |

SYMBOLS

- + ORIGINAL FASTENER LOCATIONS
- ◆ REPAIR FASTENER LOCATIONS



**INTERCONTINENTAL  
STRUCTURAL REPAIR**



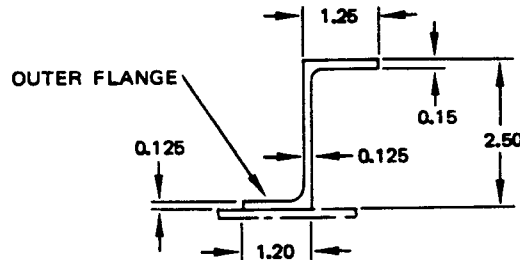
**Lower Surface Zee Stiffener Repair**  
**Figure 9 (Sheet 3)**

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



SAMPLE CALCULATION

THE FOLLOWING EXAMPLE SHOWS THE CALCULATIONS REQUIRED TO REPAIR A STIFFENER OF THE FOLLOWING DIMENSIONS:



REPAIR PART 1

$$\text{GAGE} = 0.20 \times 0.125 = 0.025 \text{ THEREFORE USE MINIMUM GAGE OF } 0.040$$

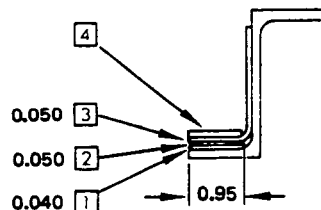
REPAIR PART 2

$$\text{GAGE} = 0.35 \times 0.125 = 0.044 \text{ THEREFORE USE } 0.050$$

REPAIR PARTS 3 AND 6

$$\text{GAGE} = 0.35 \times 0.125 = 0.044 \text{ THEREFORE USE } 0.050$$

REPAIR PART 4



CROSS-SECTIONAL AREA OF MATCHING FLANGES OF REPAIR PARTS =  $1.25 \times$  CROSS-SECTIONAL AREA OF ORIGINAL FLANGE (MIN)

$$1.25 \times 1.20 \times 0.125 = 0.1875 \text{ SQ IN.}$$

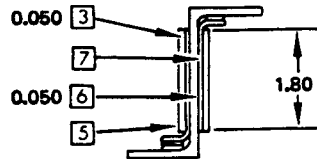
CROSS-SECTIONAL AREA OF REPAIR PARTS 1, 2, AND 3 IS  $0.95 \times (0.040 + 0.050 + 0.050) = 0.133 \text{ SQ IN.}$  THEREFORE CROSS-SECTIONAL AREA OF PART 4 HAS TO BE  $0.1875 - 0.133 = 0.055 \text{ SQ IN.}$  THEREFORE GAGE OF PART 4 IS:

$$\frac{0.055}{0.95} = 0.058 \text{ THEREFORE USE } 0.063$$

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



REPAIR PART [5] AND [7]



CROSS-SECTIONAL AREA OF MATCHING FLANGES OF REPAIR PARTS = 1.25 X CROSS-SECTIONAL AREA OF WEB (MIN)

$$1.25 \times 2.50 \times 0.125 = 0.39 \text{ SQ IN.}$$

CROSS-SECTIONAL AREA OF MATCHING FLANGES OF PARTS [3] AND [6] IS  $1.80 \times (0.050 + 0.050) = 0.18 \text{ SQ IN.}$  THEREFORE CROSS-SECTIONAL AREA OF PARTS [5] AND [7] IS  $0.39 - 0.18 = 0.21 \text{ SQ IN.}$

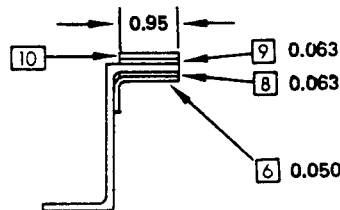
THEREFORE GAGE OF PARTS [5] AND [7] IS:

$$\frac{0.21}{1.80 \times 2} = 0.058 \text{ THEREFORE USE } 0.063$$

REPAIR PARTS [8] AND [9]

$$\text{GAGE} = 0.35 \times 0.15 = 0.053 \text{ THEREFORE USE } 0.063$$

REPAIR PART [10]



CROSS-SECTIONAL AREA OF MATCHING FLANGES OF REPAIR PARTS = 1.25 X CROSS-SECTIONAL AREA OF INNER FLANGE (MIN)

$$1.25 \times 1.25 \times 0.15 = 0.234 \text{ SQ IN.}$$

CROSS-SECTIONAL AREA OF MATCHING FLANGES OF PARTS [6], [8] AND [9] IS  $0.95 \times (0.050 + 0.063 + 0.063) = 0.167 \text{ SQ IN.}$  THEREFORE CROSS-SECTIONAL AREA OF PART [10] IS  $0.234 - 0.167 = 0.067 \text{ SQ IN.}$

THEREFORE GAGE OF PART [10] IS

$$\frac{0.067}{0.95} = 0.071 \text{ THEREFORE USE } 0.071$$

Lower Surface Zee Stiffener Repair  
Figure 9 (Sheet 5)

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



SAMPLE CALCULATION - FASTENER REQUIREMENTS

NOTE: FASTENER REQUIREMENTS ARE CALCULATED TO DEVELOP THE STRENGTH OF REPAIR PARTS. THIS SAMPLE CALCULATION IS TO DETERMINE THE NUMBER OF FASTENERS REQUIRED FOR THE REPAIR PARTS IDENTIFIED IN THE PREVIOUS SAMPLE CALCULATION. STRENGTHS OF FASTENERS ARE OBTAINED FROM 51-2-9

OUTER FLANGE

$$\begin{aligned} \text{REQUIRED CAPABILITY} &= \text{NET AREA LOAD CAPABILITY OF SPLICE PLATES} \\ &= [0.1875 - (3/16 + 1/16) (0.203)] \times 80,000 \end{aligned}$$

↑ FROM AREA CALCULATION FOR PART [4]
↑ ORIGINAL HOLE SIZE
↑ OVERSIZE
↑ TOTAL REPAIR MATERIAL THICKNESS
↑ ULTIMATE TENSILE STRENGTH OF 7075

$$= 10940 \text{ LB}$$

AVAILABLE CAPABILITY:

$$\begin{aligned} 1/4 \text{ DIA FASTENER THRU PART [1]} (0.040) &= 1210 \\ 1/4 \text{ DIA FASTENER THRU PARTS [1] AND [2]} (0.040 + 0.050) &= 2720 \\ 1/4 \text{ DIA FASTENER THRU PARTS [1], [2] AND [3]} &= 3500 \\ \text{(STRENGTH BASED ON 0.125 THICK 7075 EXTR)} & \\ \text{TOTAL} &= \underline{7430} \end{aligned}$$

$$\begin{aligned} \text{NUMBER OF FASTENERS REQUIRED THROUGH PARTS [1], [2], [3] AND [4]} &= \\ \frac{10940 - 7430}{3500} &= 1.0 \end{aligned}$$

THEREFORE USE MIN. REQUIREMENT OF TWO FASTENERS. THIS WILL GIVE A TOTAL OF 5 FASTENERS THROUGH THE OUTER FLANGE ON EACH SIDE OF THE SPLICE.

WEB

$$\begin{aligned} \text{REQUIRED CAPABILITY} &= \text{NET AREA LOAD CAPABILITY OF SPLICE PLATES} \\ &= [0.39 - (2 \times 0.19) (0.226)] \times 80,000 \end{aligned}$$

↑ FROM AREA CALCULATION FOR PARTS [5] AND [7]
↑ FASTENER HOLES
↑ TOTAL REPAIR MATERIAL THICKNESS
↑ ULTIMATE TENSILE STRENGTH OF 7075

$$= 24330 \text{ LB}$$



AVAILABLE CAPABILITY:

FOUR 3/16 DIA FASTENERS THRU PARTS [3] AND [6] (BOTH 0.050) IN DOUBLE SHEAR  
 $= 8 \times 1135 = 9080 \text{ LB.}$  NUMBER OF FASTENERS REQUIRED THRU PARTS [3], [5],  
 [6] AND [7]  $= \frac{24330 - 9080}{2640} = 5.8$

THEREFORE USE 6 FASTENERS

NOTE: FASTENER STRENGTH IS BASED ON 0.125 7075 EXTR.

THIS WILL GIVE A TOTAL OF 10 FASTENERS THROUGH THE WEB ON EACH SIDE OF THE SPLICE

INNER FLANGE

REQUIRED CAPABILITY = NET AREA LOAD CAPABILITY OF SPLICE PLATES

AVAILABLE CAPABILITY:  $= [0.234 - (0.19)(0.247)] \times 80,000$

|                                           |              |                                          |                                            |
|-------------------------------------------|--------------|------------------------------------------|--------------------------------------------|
| ↑                                         | ↑            | ↑                                        | ↑                                          |
| FROM AREA<br>CALCULATION<br>FOR PART [10] | HOLE<br>SIZE | TOTAL<br>REPAIR<br>MATERIAL<br>THICKNESS | ULTIMATE<br>TENSILE<br>STRENGTH<br>OF 7075 |

$= 14970 \text{ LB}$

3/16 DIA FASTENER THRU PARTS [8] AND [9] (BOTH 0.063) IN DOUBLE SHEAR =  
 $2 \times 1430 = 2860.$  NUMBER OF FASTENERS REQUIRED THRU PARTS [6], [8], [9] AND [10]  
 $= \frac{14970 - 2860}{3150} = 3.8$

THEREFORE USE 4 FASTENERS

NOTE: FASTENER STRENGTH IS BASED ON 0.15 7075 EXTR.

THIS WILL GIVE A TOTAL OF 5 FASTENERS THROUGH THE INNER FLANGE ON EACH SIDE OF THE SPLICE.



**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



REPAIR INSTRUCTIONS

1. Remove the fasteners and sealant over the area to be repaired.
2. If a section of stiffener is to be replaced, cut and remove the damaged portion.
3. Eddy current inspect all holes from which fasteners are removed.
4. Calculate the gages of the repair parts, refer to the sample calculation.
5. Make the repair parts.
6. Assemble the repair parts and drill and ream the fastener holes in existing and new locations.
7. Alodize the aluminum repair parts and the cut edges of existing parts. Cadmium plate any steel parts used in place of aluminum parts.
8. Install the repair parts, making faying surface seals between all mating faces. Fasteners must be installed wet with sealant. Apply fillet seals to fasteners and exposed edges of repair parts after installation. Refer to 57-2-2 for details of sealing and sealants.

NOTES

- THIS REPAIR MAY BE USED TO PARTIALLY REPLACE A STIFFENER OR TO SPLICE A STIFFENER WITH A CHORDWISE CRACK INCLUDING A COMPLETE BREAK
- WING SHOULD BE ADEQUATELY SUPPORTED DURING REPAIR
- REFER TO THE FOLLOWING WHEN MAKING THIS REPAIR:  
  
51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS  
  
57-2-2 FOR INTEGRAL FUEL TANK SEALING  
  
51-8-0 FOR PROTECTIVE TREATMENT OF METAL  
  
PART 6 OF THE NONDESTRUCTIVE TEST MANUAL FOR EDDY CURRENT INSPECTION PROCEDURES
- BREAK ALL SHARP EDGES 0.03
- Ⓐ GAGE =  $0.20 +0.05/-0.00$  X THICKNESS OF OUTER FLANGE OF ORIGINAL STIFFENER
- Ⓑ GAGE =  $0.35 \pm 0.05$  X THICKNESS OF OUTER FLANGE OF ORIGINAL STIFFENER
- Ⓒ GAGE =  $0.35 \pm 0.05$  X THICKNESS OF WEB OF ORIGINAL STIFFENER
- Ⓓ GAGE TO MAKE TOTAL CROSS SECTIONAL AREA OF MATING FLANGES OF REPAIR PARTS  $1.25 +0.10/-0.00$  X CROSS SECTIONAL AREA OF OUTER FLANGE (MIN). MINIMUM GAGE 0.040

Lower Surface J Stiffener Repair  
Figure 10 (Sheet 1)

SRM 320  
Jul 10/78

NOTES (CONTINUED)

[E] USE STEEL FOR PART [4] ONLY WHEN THICKNESS OF ALUMINUM PART WOULD PRECLUDE FASTENER INSTALLATION. STEEL PART TO BE A MINIMUM OF 1/3 OF THICKNESS OF ALUMINUM PART CALCULATED IN [D].

[F] GAGE =  $0.55 \pm 0.05$  X THICKNESS OF WEB OR INNER FLANGE OF ORIGINAL STIFFENER, WHICHEVER IS THINNEST

[G] GAGE =  $0.35 \pm 0.05$  X THICKNESS OF INNER FLANGE OF ORIGINAL STIFFENER

[H] GAGE TO MAKE TOTAL CROSS SECTIONAL AREA OF MATING FLANGES OF REPAIR PARTS  $1.25 + 0.10/-0.00$  X CROSS SECTIONAL AREA OF INNER FLANGE (MIN). MINIMUM GAGE 0.040

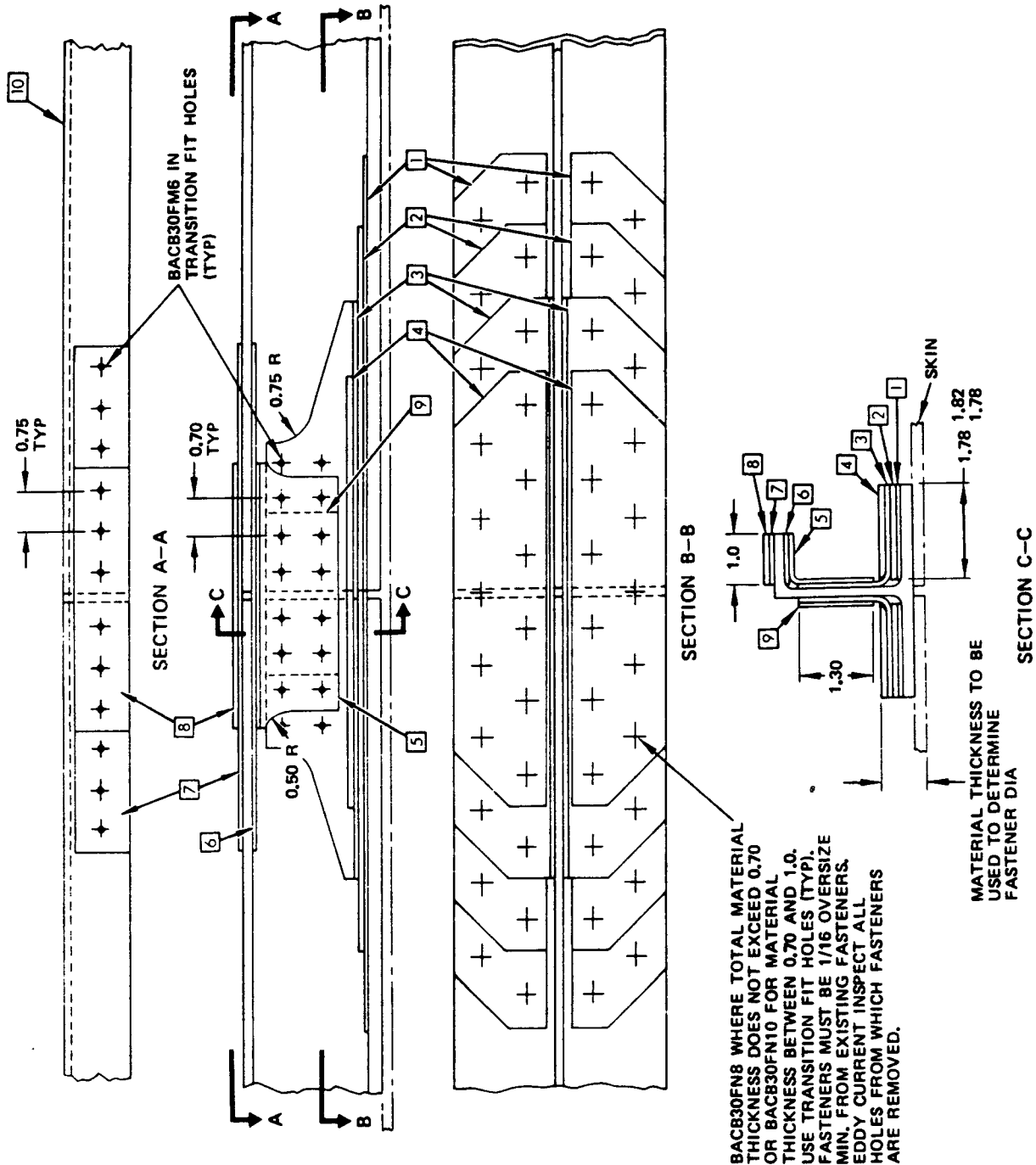
[I] GAGE TO MAKE TOTAL CROSS SECTIONAL AREA OF MATING FLANGES OF REPAIR PARTS  $1.25 + 0.10/-0.00$  X CROSS SECTIONAL AREA OF ORIGINAL WEB (MIN). MINIMUM GAGE 0.040

SYMBOLS

+ ORIGINAL FASTENER LOCATIONS

◆ REPAIR FASTENER LOCATIONS

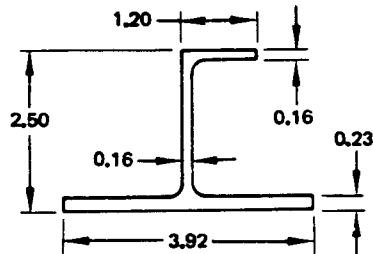
| REPAIR MATERIAL |                                    |     |                                                                          |
|-----------------|------------------------------------|-----|--------------------------------------------------------------------------|
| PART            |                                    | QTY | MATERIAL                                                                 |
| 1               | STRAP                              | 2   | 7075-T6 [A]                                                              |
| 2               | STRAP                              | 2   | 7075-T6 [B]                                                              |
| 3               | ANGLE                              | 2   | 7075-0 HT-T6 [C]                                                         |
| 4               | STRAP                              | 2   | 7075-T6 [D]<br>OR<br>15-5PH OR 17-4PH<br>STEEL, HT 180 TO<br>200 KSI [E] |
| 5               | ANGLE                              | 1   | 7075-0 HT-T6 [F]                                                         |
| 6               | STRAP                              | 1   | 7075-T6 [G]                                                              |
| 7               | STRAP                              | 1   | 7075-T6 [G]                                                              |
| 8               | STRAP                              | 1   | 7075-T6 [H]                                                              |
| 9               | STRAP                              | 1   | 7075-T6 [I]                                                              |
| 10              | REPLACE-<br>MENT<br>STIFFEN-<br>ER | 1   | SAME MATERIAL AS<br>ORIGINAL STIFFENER                                   |



Lower Surface J Stiffener Repair  
Figure 10 (Sheet 3)

SAMPLE CALCULATION

THE FOLLOWING EXAMPLE SHOWS THE CALCULATIONS REQUIRED TO REPAIR A STIFFENER OF THE FOLLOWING DIMENSIONS:



REPAIR PART 1

$$\text{GAGE} = 0.20 \times 0.23 = 0.046 \text{ THEREFORE USE } 0.050$$

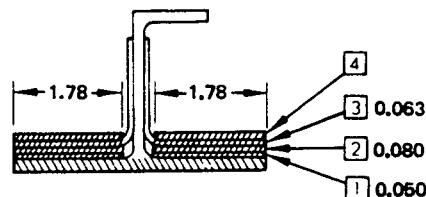
REPAIR PART 2

$$\text{GAGE} = 0.35 \times 0.23 = 0.080 \text{ THEREFORE USE } 0.080$$

REPAIR PART 3

$$\text{GAGE} = 0.35 \times 0.16 = 0.056 \text{ THEREFORE USE } 0.063$$

REPAIR PART 4



CROSS SECTIONAL AREA OF MATCHING FLANGES OF REPAIR PARTS = 1.25 X CROSS SECTIONAL AREA OF ORIGINAL FLANGE (MIN)

$$1.25 \times 3.92 \times 0.23 = 1.127 \text{ SQ IN.}$$

CROSS SECTIONAL AREA OF PARTS 1, 2 AND 3 IS  $2 \times 1.78 (0.050 + 0.080 + 0.063) = 0.687 \text{ SQ IN.}$  THEREFORE CROSS SECTIONAL AREA OF THE TWO PARTS 4 HAS TO BE  $1.127 - 0.687 = 0.440 \text{ SQ IN.}$  THEREFORE GAGE OF PART 4 IS:

$$\frac{0.440}{2 \times 1.78} = 0.124 \text{ THEREFORE USE } 0.140 \text{ GAGE}$$

(NOTE: WHERE THE THICKNESS OF PART 4 WOULD PRECLUDE FASTENER INSTALLATION THROUGH THE WEB, STEEL OF ONE-THIRD OF THE REQUIRED THICKNESS MAY BE USED.  $0.333 \times 0.124 = 0.041$ , THEREFORE USE 0.050 GAGE)

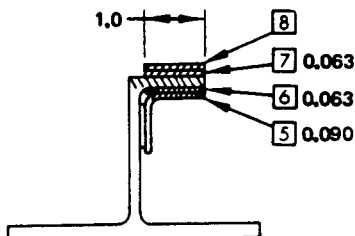
REPAIR PART [5]

GAGE =  $0.55 \times 0.16 = 0.088$  THEREFORE USE 0.090 GAGE

REPAIR PARTS [6] AND [7]

GAGE =  $0.35 \times 0.16 = 0.056$  THEREFORE USE 0.063 GAGE

REPAIR PART [8]



CROSS SECTIONAL AREA OF MATCHING FLANGES OF REPAIR PARTS = 1.25 X CROSS SECTIONAL AREA OF ORIGINAL FLANGE (MIN)

$$1.25 \times 1.20 \times 0.16 = 0.24 \text{ SQ IN.}$$

CROSS SECTIONAL AREA OF PARTS [5], [6] AND [7] IS:

$$1.0 \times (0.090 + 0.063 + 0.063) = 0.216 \text{ SQ IN.}$$

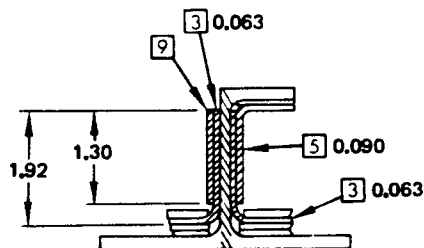
THEREFORE CROSS SECTIONAL AREA OF PART [8] HAS TO BE

$$0.24 - 0.216 = 0.024 \text{ SQ IN.}$$

THEREFORE GAGE OF PART [8] IS:

$$\frac{0.024}{1.0} = 0.024 \text{ THEREFORE USE THE MINIMUM permitted 0.040 GAGE}$$

REPAIR PART [9]



CROSS SECTIONAL AREA OF MATCHING FLANGES OF REPAIR PARTS = 1.25 X CROSS SECTIONAL AREA OF ORIGINAL WEB (MIN)

$$1.25 \times 2.50 \times 0.16 = 0.50 \text{ SQ IN.}$$

CROSS SECTIONAL AREA OF PARTS [3] FWD, [3] AFT AND [5] IS:

$$2 (1.92 \times 0.063) + (1.30 \times 0.090) = 0.359 \text{ SQ IN.}$$

THEREFORE CROSS SECTIONAL AREA OF PART [9] HAS TO BE

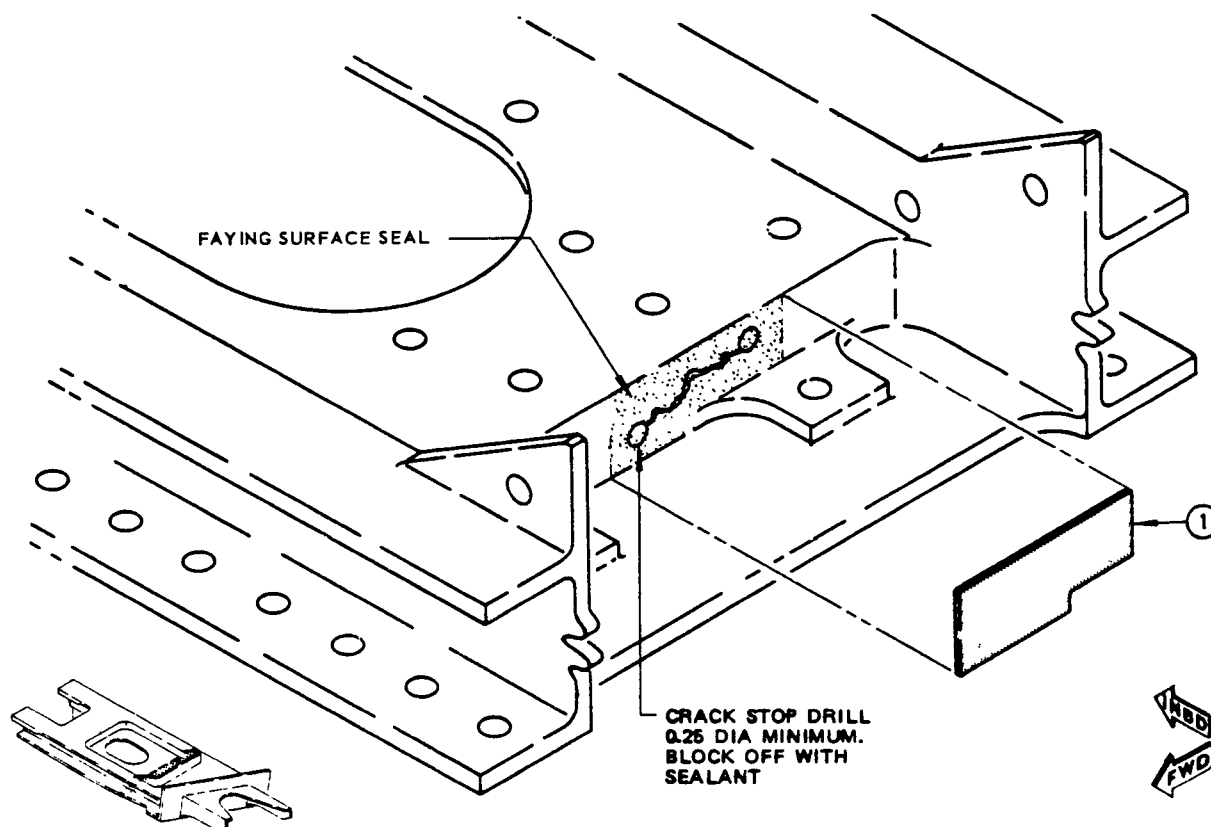
$$0.50 - 0.359 = 0.141 \text{ SQ IN.}$$

THEREFORE GAGE OF PART [9] IS:

$$\frac{0.141}{1.30} = 0.108 \text{ THEREFORE USE 0.112 GAGE}$$

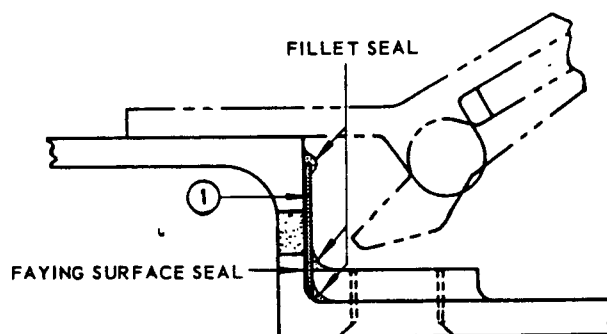


**INTERCONTINENTAL  
STRUCTURAL REPAIR**



**REPAIR INSTRUCTIONS:**

1. Remove fuel pump, flapper valve assembly and adjacent parts per 28-7 of Maintenance Manual.
2. Locate 0.25 minimum diameter holes at the ends of the cracks as illustrated.
3. If the crack(s) has progressed beyond the flat portion of the outboard chordwise vertical web, the boost pump support fitting should be replaced as described in figure 15.
4. Provided, the vertical web has not cracked beyond the flat portion, the web repair should proceed as follows:
5. Fabricate part (1) to cover cracked area as illustrated.
6. Make faying surface seal as per 57-2-2, pressing part (1) over the cracked area.
7. Make fillet seal around edge of part (1) as per 57-2-2.
8. Assemble fuel pump, flapper valve assembly and adjacent parts per 28-7 of Maintenance Manual.



**SECTION THROUGH DAMAGE**

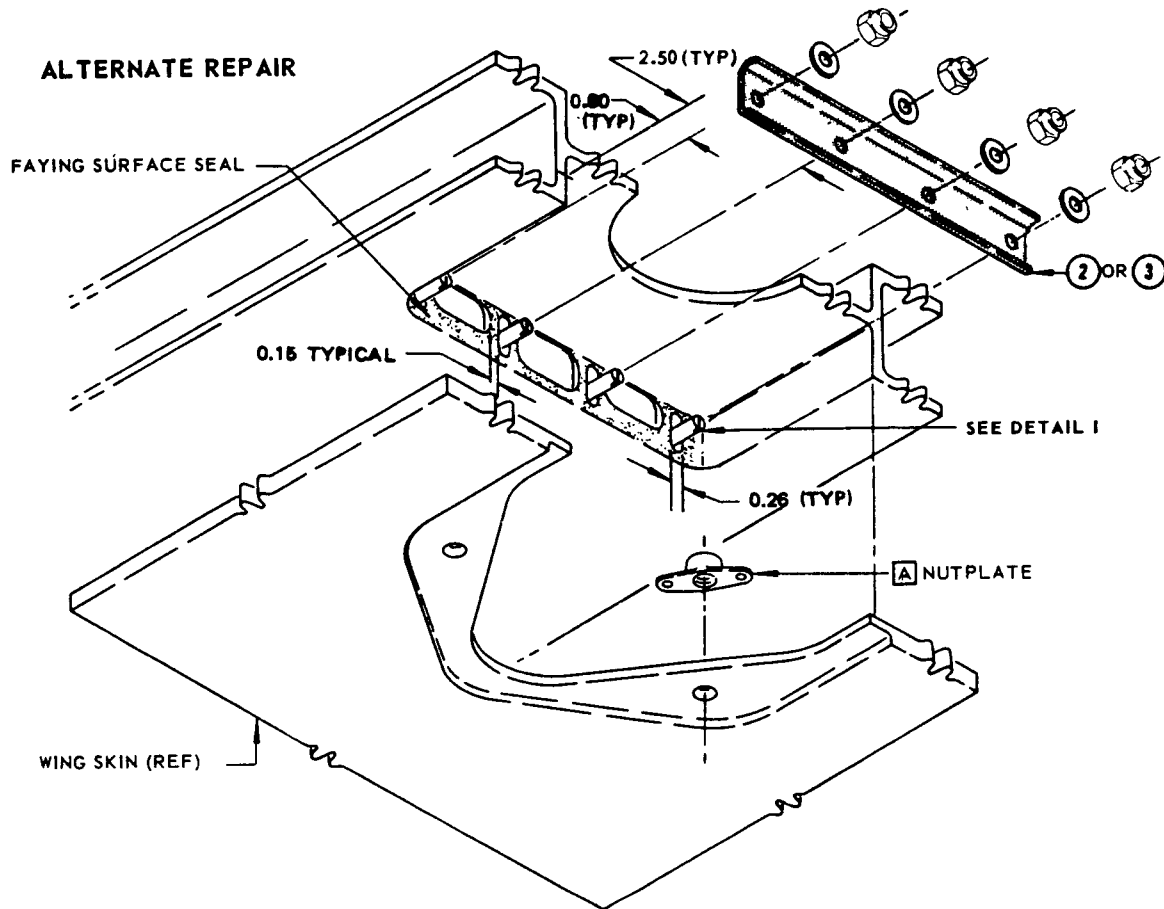
**REPAIR MATERIAL**

| PART      | QTY | MATERIAL             |
|-----------|-----|----------------------|
| (1) PLATE | 1   | 0.032 ALUMINUM ALLOY |

Boost Pump Support Fitting, Outboard Vertical Web - Repair  
Figure 11 (Sheet 1)



**INTERCONTINENTAL  
STRUCTURAL REPAIR**



**REPAIR INSTRUCTIONS**

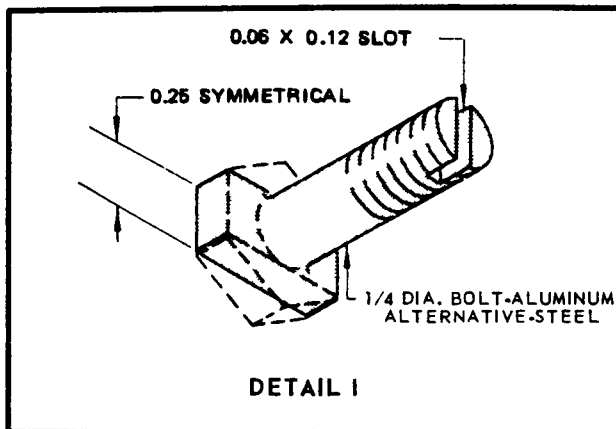
1. Defuel as per Maintenance Manual.
2. Cut slots as illustrated in vertical web adjacent to flapper valve. (FOUR 0.26 SLOTS MANDATORY)
3. Cut flats on the bolt heads to be used, as illustrated.
4. Fabricate sealing plate, either part (2) or part (3) as illustrated.
5. Assemble nut, bolt washer and the sealing plate so that the bolt head may be pushed through the slots in the web and clear of the inner surface of the web.
6. Remove all metal chips, fillings, etc. which have accumulated inside the fitting during the repair.
7. Apply faying surface sealant to the web and to the sealing plate.
8. Position sealing plate assembly so that the bolt heads protrude beyond the inner surface of the web.
9. By means of the slot in the end of the bolts, turn the bolt heads through 90° so that the bolt heads are oriented across the slots, as illustrated.
10. While holding the bolts in this position, tighten the nuts to give a good faying surface seal. Care should be taken not to over torque the nuts beyond the values given in 51-2-4.
11. If steel bolts are used the head and shank must be cadmium plated.

**NOTES**

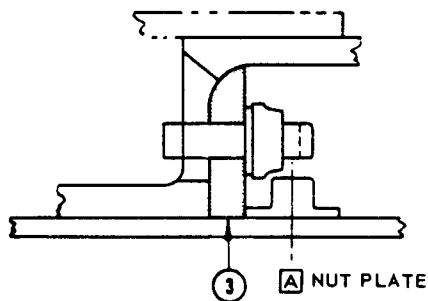
- (A) NUT PLATES (2 PLACES) SHOULD BE REMOVED TO MAKE ACCESS EASIER AND REPLACED AFTER COMPLETION OF THE REPAIR. BEFORE COMPLETION OF THE REPAIR CHECK FOR, AND REMOVE INTERFERENCE BETWEEN REPAIR PARTS AND NUT PLATES. WHERE INTERFERENCE IS EXCESSIVE DUE TO LARGER LOCKNUTS THE REPAIR PART CAN BE INSTALLED USING THE CENTER TWO BOLTS ONLY

Boost Pump Support Fitting, Outboard Vertical Web - Repair  
Figure 11 (Sheet 2)

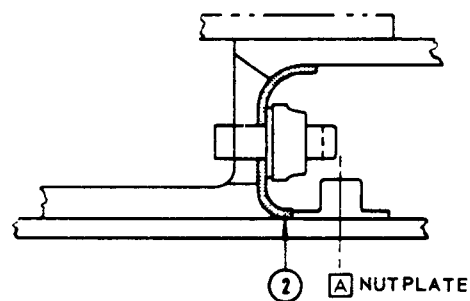
ALTERNATE REPAIR



| REPAIR MATERIAL |     |                     |  |
|-----------------|-----|---------------------|--|
| PART            | QTY | MATERIAL            |  |
| ② SEALING PLATE | 1   | 0.050 ALUMINUM      |  |
| ③ SEALING PLATE | 1   | 0.25 PLATE ALUMINUM |  |



SECTION THROUGH DAMAGE



SECTION THROUGH DAMAGE

Boost Pump Support Fitting, Outboard Vertical Web - Repair  
Figure 11 (Sheet 3)



# PROCEDURE FOR REPLACING CRACKED BOOST PUMP FITTING AT WING B.L. 37.5 (THIS PROCEDURE MAY BE ADAPTED FOR OTHER LOCATIONS)



## INTERCONTINENTAL STRUCTURAL REPAIR

### FUEL TANK SERVICING:

See Maintenance Manual, Chapter 28-0, on "Defueling, Purging, Ventilating and Tank Entry."

### REMOVAL OF DAMAGED FITTING:

1. Support wing by jacking outboard engine to 5000 lbs. or remove engine per Maintenance Manual chapter 71. Jack point #4 (or 5 for right hand wing) on wing to 3000 lbs. (See 51-7-0.)
2. Remove fitting (boost pump), cover, etc., see Maintenance Manual chapter 28-7-71 and 28-7-131.
3. Remove fasteners common to fitting and wing skin.
4. Remove fasteners common to fitting and WBL 59.24.
5. At WBL 37.5 remove fasteners which tie the lower rib chord to skin stiffeners 14 through 19.
6. Remove web by cutting it at rib stiffeners immediately above skin stiffeners S-14 and S-19 at the lower skin of the wing.

### INSTALLATION OF NEW FITTING:

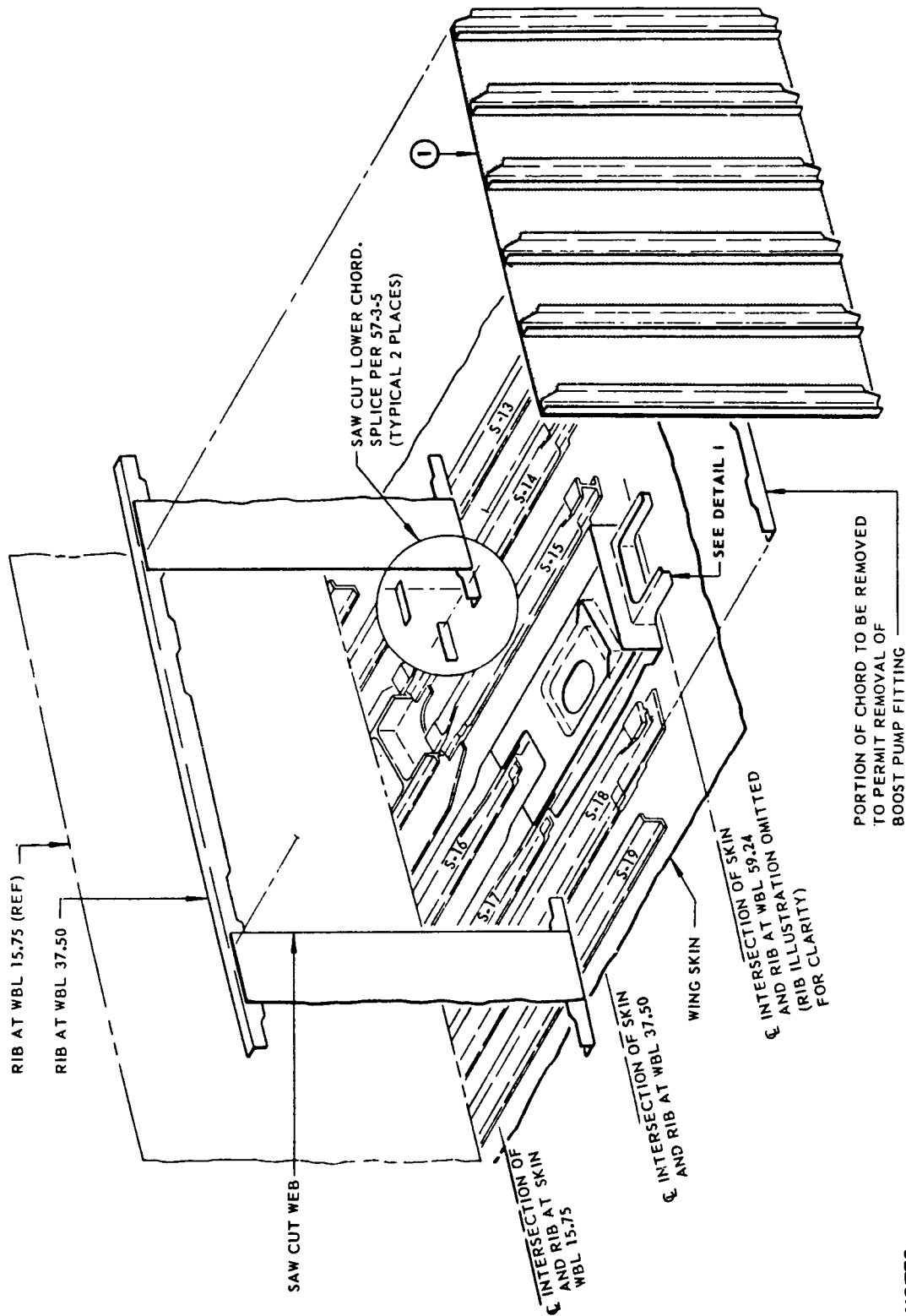
1. Apply faying surface sealant to the fitting, wing skin and rib as illustrated, per Maintenance Manual 28-2-0.
  2. Position fitting and install shim between fitting and WBL 59. rib if necessary.
  3. If either stiffener has been removed, reinstall after fitting has been located.
  4. Install oversized fasteners, if required, per 51-2-2 and 51-2-5.
  5. Apply sealant per 57-2-2.
  6. Apply BMS 5-26, sealant on area shown per 57-2-2.
  7. Apply top coat EC776SR per 57-2-2 to entire fitting.
- Note: Do not apply top coat before sealant.
8. Install web, part 1, and lower chord of rib at WBL 37.50
  9. Reinstall boost pump, cover etc. per Maintenance Manual 28-7-0.

| REPAIR MATERIAL |     |                    |
|-----------------|-----|--------------------|
| PART            | QTY | MATERIAL           |
| ① WEB           | 1   | 0.025 CLAD 7075-T6 |

Boost Pump Support Fitting - Replacement  
Figure 12 (Sheet 1)



**INTERCONTINENTAL  
STRUCTURAL REPAIR**



**NOTES**

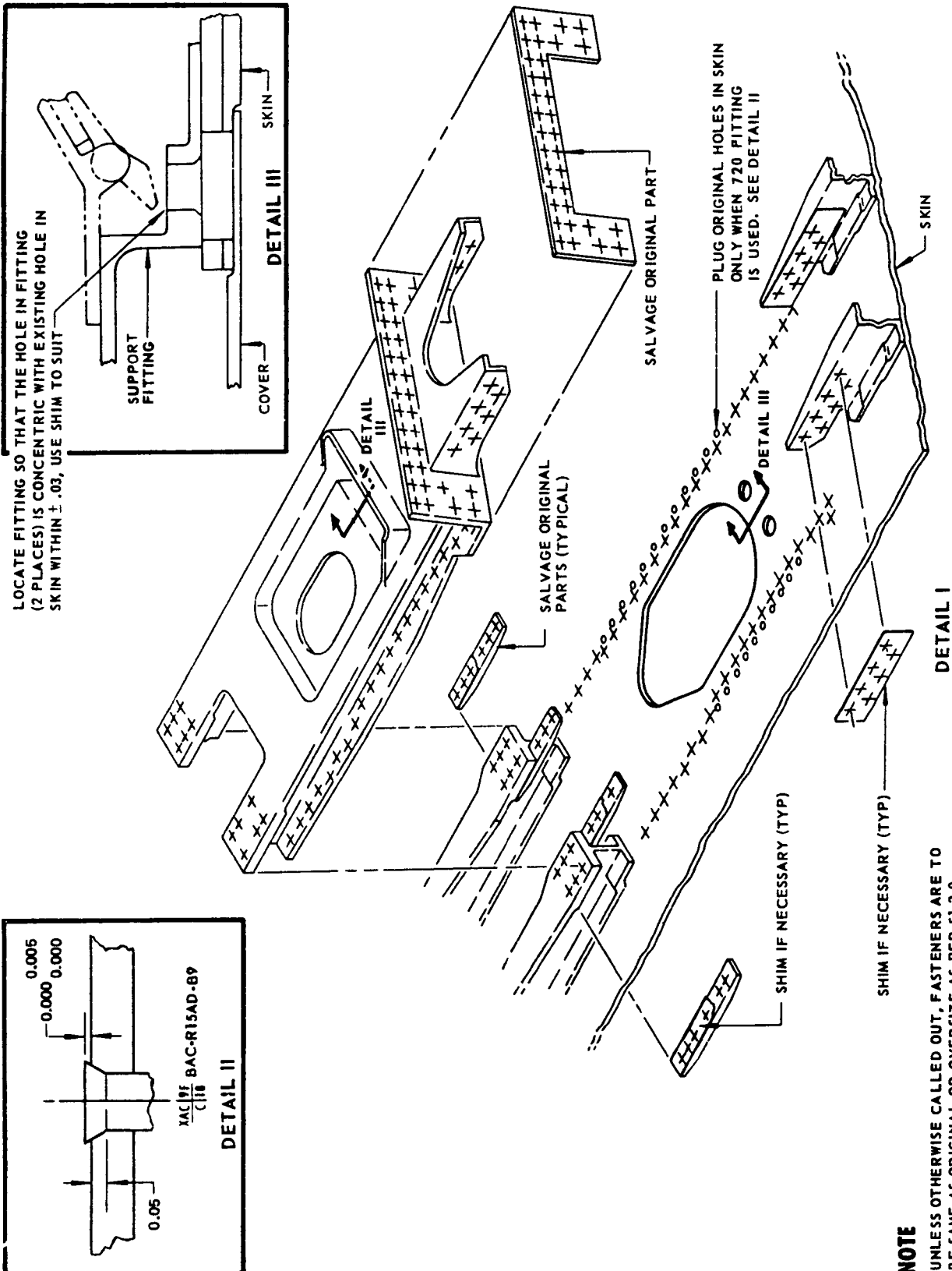
UNLESS OTHERWISE CALLED OUT, FASTENERS ARE TO BE SAME AS ORIGINAL OR OVERSIZE AS PER 51-2-0.

Boost Pump Support Fitting - Replacement  
Figure 12 (Sheet 2)

**BOEING**  
**707**



**INTERCONTINENTAL  
STRUCTURAL REPAIR**



Boost Pump Support Fitting - Replacement  
Figure 12 (Sheet 3)



## STRUCTURAL REPAIR

### REPAIR INSTRUCTIONS

1. Remove original fastener common to rib chord.
2. Stop drill ends of the crack per 51-2-10.
3. Eddy current inspect hole from which fastener was removed.
4. Fabricate all repair parts.
5. Assemble the repair parts and drill the fastener holes.
- 5A. Disassemble the parts.
6. Break sharp edges of original and repair parts 0.015 to 0.030.
7. Alodize repair parts according to 51-8-0.
8. Apply 2 coats of BMS 10-20, type 2 primer to repair parts and repair area surfaces.
9. Install repair parts with a faying surface seal of BMS 5-95 between all parts.
10. Install fasteners wet with BMS 5-95 sealant.
11. Remove loose debris from the area.
12. Restore original finish according to the Maintenance Manual.

### NOTES

- AT LEAST 10 FASTENERS (TOTAL) ARE REQUIRED BEYOND THE POSSIBLE CRACK PROPAGATION AREA
- REFER TO THE FOLLOWING WHEN MAKING THIS REPAIR:

51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS

51-8-0 FOR PROTECTIVE TREATMENT OF METAL

51-2-0 OF MAINTENANCE MANUAL . FOR FINISHES

51-3-0 OF MAINTENANCE MANUAL FOR SEALS AND SEALANTS

- [A] FOR 707 AIRPLANES PROTRUDING HEAD FASTENERS BACB30FM10 FOR LOWER SURFACE STRINGERS S-1 THRU S-9 INCLUSIVE FROM WBL 59.24 to BBL 70.5. FOR ALL OTHER ZEE STIFFENERS, PROTRUDING HEAD FASTENERS BACB30FM8 CAN BE USED FROM WBL 59.24 TO BBL 70.5 AND FOR ALL STIFFENERS OUTBOARD OF WBL 59.24. FOR 720 AIRPLANES BACB30FM8 FASTENERS CAN BE USED AT ALL LOCATIONS.
- [B] REPLACE ORIGINAL STRINGER-TO-RIB-FASTENER WITH 1/16-INCH OVERSIZE BACB30FM FASTENER
- [C] THICKNESS OF REPAIR PART IS TO BE THE SAME AS THE THICKER OF THE FLANGE OR WEB OF THE ORIGINAL DAMAGED STRINGER
- [D] USE BAC1512-380 LENGTH 0.90, 2024-T4 OPTIONAL:  
0.125x0.90x0.90, 2024-T4 (RADIUS ONE EDGE TO SUIT ANGLE FILLET RADIUS). RADIUS FILLERS ARE NOT REQUIRED IF WIDTH OF STRINGER HORIZONTAL FLANGE IS SUFFICIENT TO ALLOW A TWO DIAMETER EDGE MARGIN ON THE STRINGER FLANGE.

Stringer Repair - Upper and Lower Surface Rib to  
Stringer Attachment Area - Heel Crack  
Figure 13 (Sheet 1)

- ☐ LOCATE END OF TAPER  
EQUIDISTANT BETWEEN REPAIR  
FASTENERS
- ☐ TAPER BOTH ENDS OF ANGLES TO  
1/2 THE THICKNESS
- ☐ CHECK SHIMMING.    RESHIM IF  
NECESSARY

**SYMBOLS**

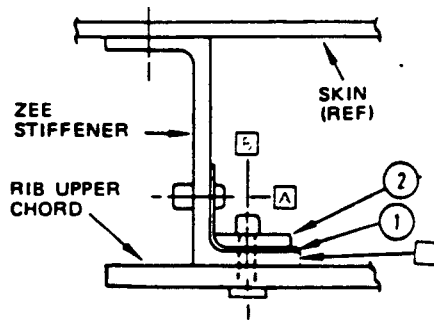
 REPAIR FASTENER LOCATIONS

| REPAIR MATERIAL |        |     |                                  |
|-----------------|--------|-----|----------------------------------|
| PART            |        | QTY | MATERIAL                         |
| ①               | ANGLE  |     | 7075-T6 <input type="checkbox"/> |
| ②               | FILLER |     | <input type="checkbox"/>         |

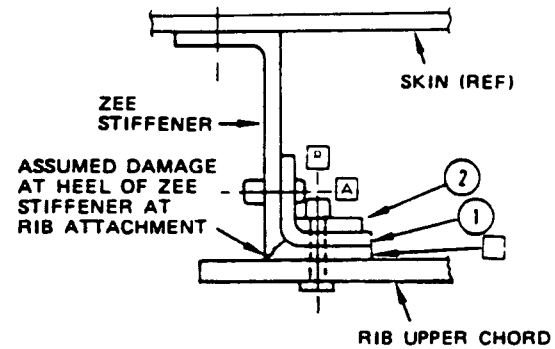
Stringer Repair - Upper and Lower Surface Rib to  
 Stringer Attachment Area - Heel Crack  
 Figure 13 (Sheet 2)

BOEING *707* Intercontinental

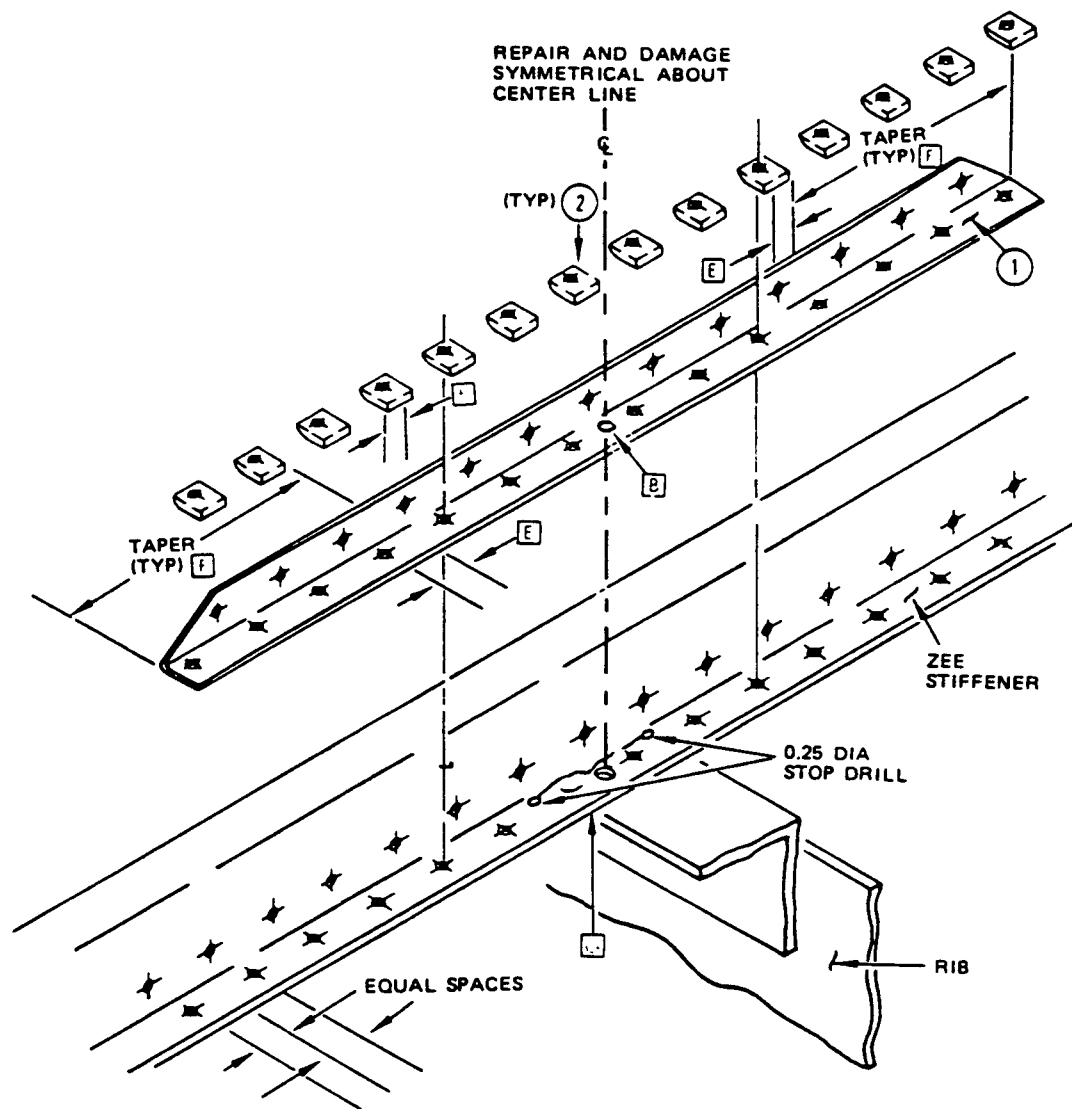
# STRUCTURAL REPAIR



SECTION THRU TAPER



SECTION THRU DAMAGE



UPPER STRINGER SHOWN (LOWER SIMILAR)

Stringer Repair - Upper and Lower Surface Rib  
to Stringer Attachment Area - Heel Crack  
Figure 13 (Sheet 3)

FAA Approved  
Repair



## STRUCTURAL REPAIR

| LOCATION |        | STA 615, STA 387 AND<br>STA 643 THRU STA 919 |                           | STA 415, STA 444, STA 472 AND<br>STA 501 THRU STA 586 |                           | STA 337 STA 315 STA 293 |                           |
|----------|--------|----------------------------------------------|---------------------------|-------------------------------------------------------|---------------------------|-------------------------|---------------------------|
| PART     |        | QTY                                          | MATERIAL                  | QTY                                                   | MATERIAL                  | QTY                     | MATERIAL                  |
| ①        | PLATE  | 1                                            | 7075-T6<br>.125           | 1                                                     | 7075-T6<br>.160           | 1                       | 7075-T6<br>.180           |
| ②        | PLATE  | 1                                            | 7075-T6<br>.125           | 1                                                     | 7075-T6<br>.160           | 1                       | 7075-T6<br>.180           |
| ③        | FILLER | 1                                            | 7075-T6<br>AND 10134-1403 | 1                                                     | 7075-T6<br>AND 10134-1404 | 1                       | 7075-T6<br>AND 10134-1405 |
| ④        | PLATE  | 1                                            | 7075-T6<br>.125           | 1                                                     | 7075-T6<br>.160           | 1                       | 7075-T6<br>.180           |

| LOCATION |        | STA 270   STA 248   STA 226 |                 | STA 204   WBL 37   WBL-6 |                           |     |          |
|----------|--------|-----------------------------|-----------------|--------------------------|---------------------------|-----|----------|
| PART     |        | QTY                         | MATERIAL        | QTY                      | MATERIAL                  | QTY | MATERIAL |
| ①        | PLATE  | 1                           | 7075-T6<br>.200 | 1                        | 7075-T6<br>.180           |     |          |
| ②        | PLATE  | 1                           | 7075-T6<br>.200 | 1                        | 7075-T6<br>.180           |     |          |
| ③        | FILLER | 1                           | BAC 1503-4245   | 1                        | 7075-T6<br>AND 10134-1408 |     |          |
| ④        | PLATE  | 1                           | 7075-T6<br>.125 | 1                        | 7075-T6<br>.180           |     |          |

### NOTE

✚ ORIGINAL FASTENER LOCATIONS

✦ REPAIR FASTENER LOCATIONS

SEE 51-8-0 FOR METAL PROTECTIVE TREATMENT

BREAK SHARP EDGES 0.03 ALL REPAIR  
PARTS AND TRIMMED ORIGINAL PARTS

SEE 51-2-0 FOR FASTENER CODE, REMOVAL AND  
INSTALLATION, HOLE SIZES AND EDGE MARGINS.

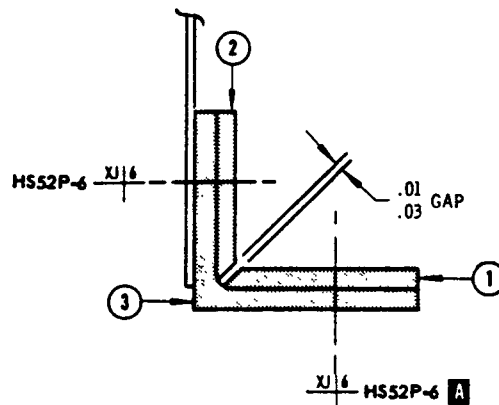
NUMBER OF FASTENERS REQUIRED ARE  
FOR EACH SIDE OF DAMAGE.

SEE 57-3-5 FIGURE 2 FOR AN ADDITIONAL REPAIR  
METHOD.

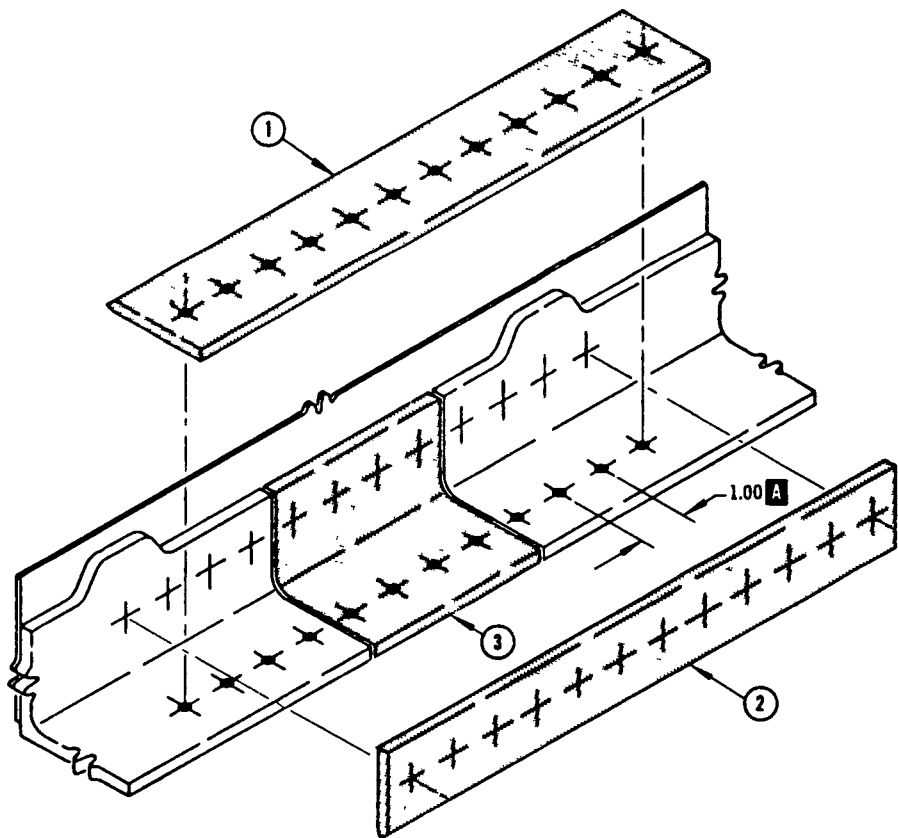
- A** WHERE REPAIR OVERLAPS A STRINGER AND CHORD  
INTERSECTION, SPACE REPAIR RIVETS WITHOUT  
DISTURBING EXISTING FASTENERS AT THE INTERSECTION.

### REPAIR INSTRUCTIONS

1. Cut out damaged chord so that edge margins are maintained at existing holes.
2. Clean and anodize original structure and repair parts prior to installation.



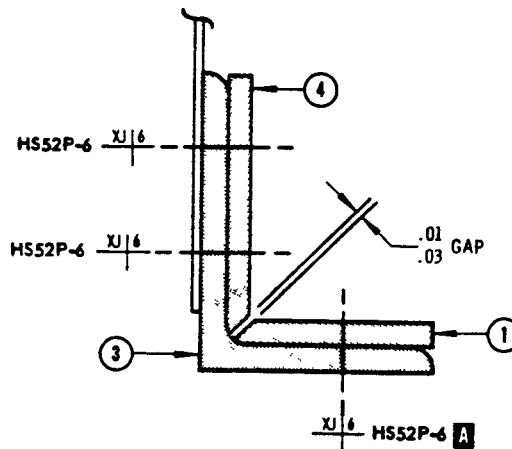
SECTION THROUGH REPAIR



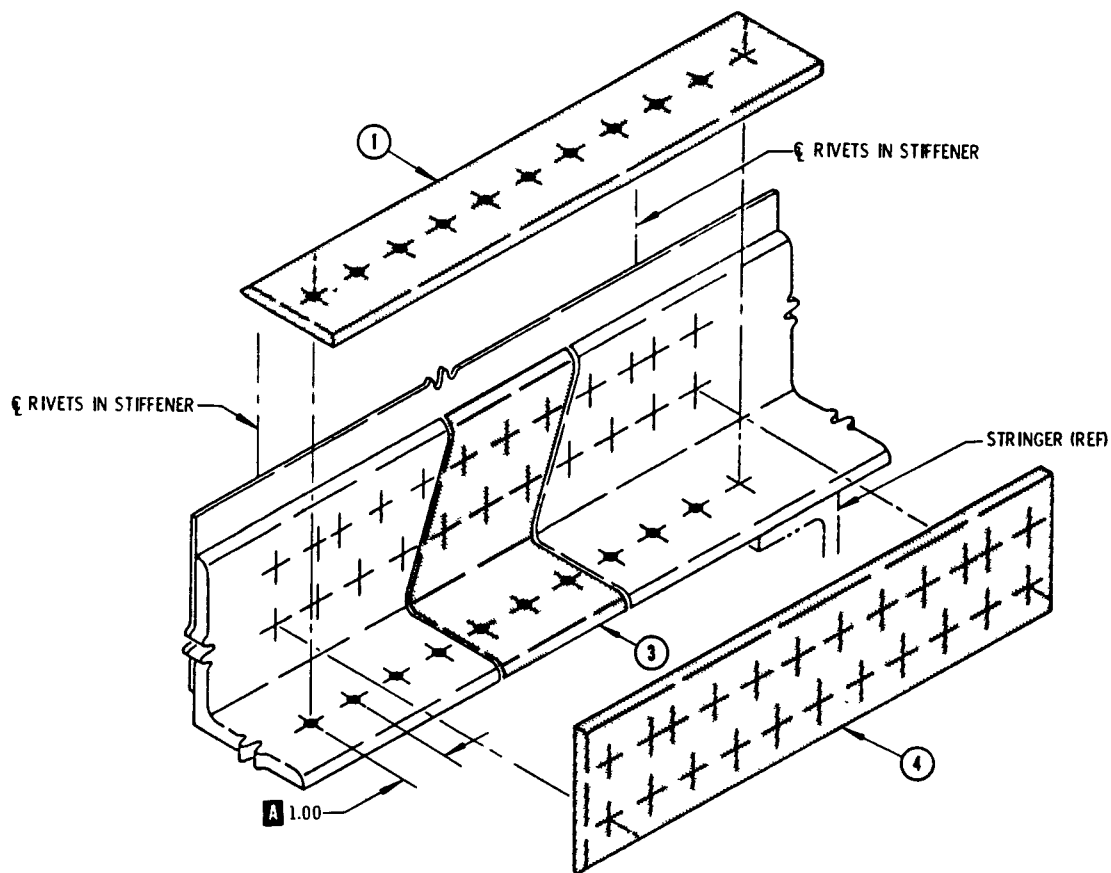
WING - INSPAR RIB CHORD (SINGLE ROW OF RIVETS) REPAIR

Wing Interspar Rib Repair Upper and Lower Chord  
Figure 1 (Sheet 2 of 3)





SECTION THROUGH REPAIR



WING - INSPAR RIB CHORD (DOUBLE ROW OF RIVETS) REPAIR

Wing Interspar Rib Repair Upper and Lower Chord  
Figure 1 (Sheet 3 of 3)

# STRUCTURAL REPAIR

## REPAIR INSTRUCTIONS

### NOTE

CHORD IS ASSUMED TO BE DAMAGED IN THE REGION OF A RIB STIFFENER.

THE STIFFENER IS ADJACENT TO A SKIN STRINGER.

SEE 51-8-0 FOR METAL PROTECTIVE TREATMENT.

SEE 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS.

BREAK ALL SHARP EDGES 0.03.

**A** MINIMUM NUMBER OF FASTENERS REQUIRED FOR EACH SIDE OF DAMAGE.

IN A SITUATION WHERE A REPAIR OVERLAPS A STRINGER AND CHORD INTERSECTION, SPACE REPAIR FASTENERS WITHOUT DISTURBING EXISTING FASTENERS AT THE INTERSECTION.

**B** HEAT TREAT 150,000 TO 170,000 PSI.

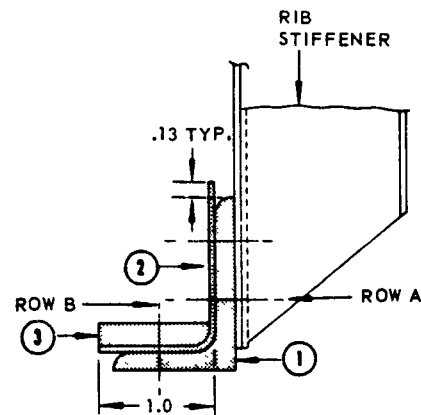
**C** MAKE FROM BAC1512-3348

— ORIGINAL FASTENER LOCATIONS (NUMBER REQUIRED FOR EACH SIDE OF DAMAGE AS SHOWN).

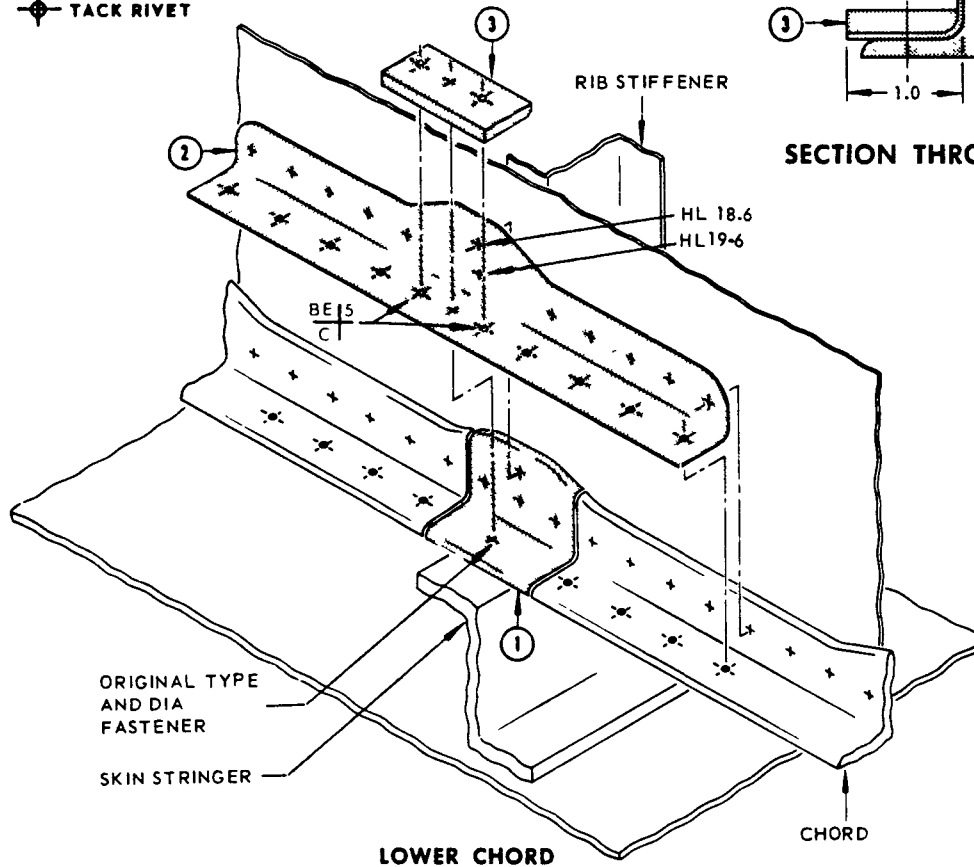
— REPAIR FASTENER LOCATIONS (NUMBER REQUIRED FOR EACH SIDE OF DAMAGE AS SHOWN).

— TACK RIVET

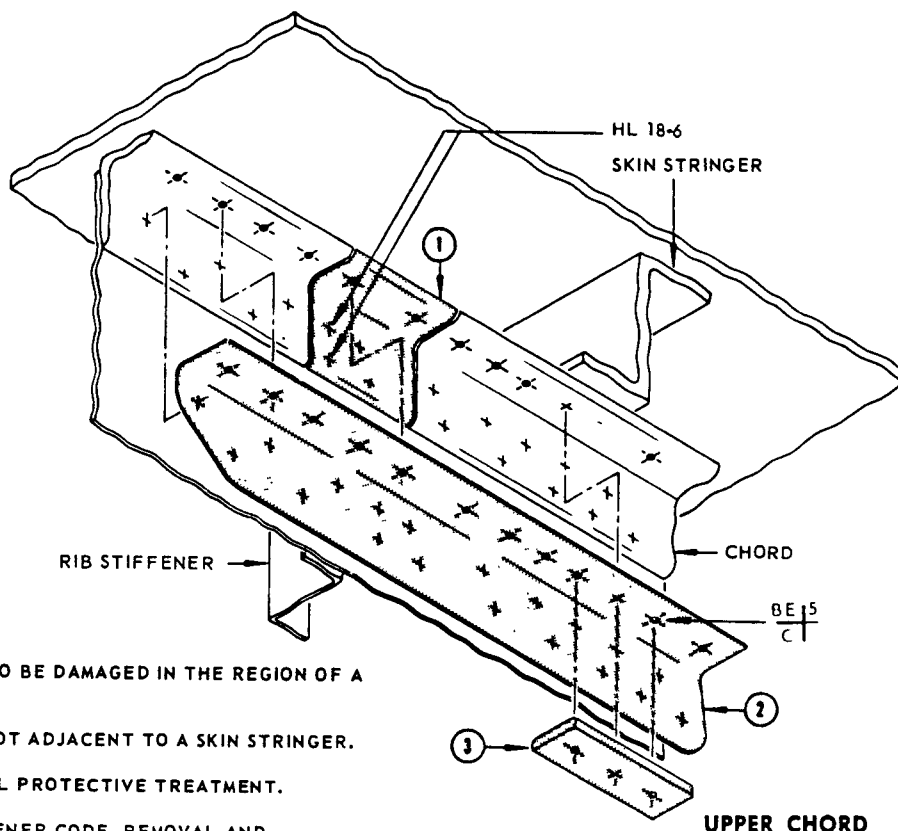
1. Cut out damaged section of chord so that edge margins are maintained at existing holes.
2. Fabricate parts 1 and 3.
3. Clean and alodize original structure and repair parts 1 and 3.
4. Fabricate repair part 2. Part 2 to nest in part 1 and the chord.
5. Cadmium plate steel parts. See 51-8-0.
6. Assemble parts 1, 2, and 3, dip all fasteners in BMS 5-26 Grade A sealant. At installation provide faying surface treatment per 51-8-0 paragraph 2.



SECTION THROUGH DAMAGE



Wing Interspar Rib Repair, Upper And Lower Chord  
Figure 2 (Sheet 1 of 3)



#### NOTE

CHORD IS ASSUMED TO BE DAMAGED IN THE REGION OF A RIB STIFFENER.

THE STIFFENER IS NOT ADJACENT TO A SKIN STRINGER.

SEE 51-8-0 FOR METAL PROTECTIVE TREATMENT.

SEE 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS.

BREAK ALL SHARP EDGES 0.03.

**A** MINIMUM NUMBER OF FASTENERS REQUIRED FOR EACH SIDE OF DAMAGE.

IN A SITUATION WHERE A REPAIR OVERLAPS A STRINGER AND CHORD INTERSECTION, SPACE REPAIR FASTENERS WITHOUT DISTURBING EXISTING FASTENERS AT THE INTERSECTION.

✚ ORIGINAL FASTENER LOCATIONS (NUMBER REQUIRED FOR EACH SIDE OF DAMAGE AS SHOWN).

✚ REPAIR FASTENER LOCATIONS (NUMBER REQUIRED FOR EACH SIDE OF DAMAGE AS SHOWN).

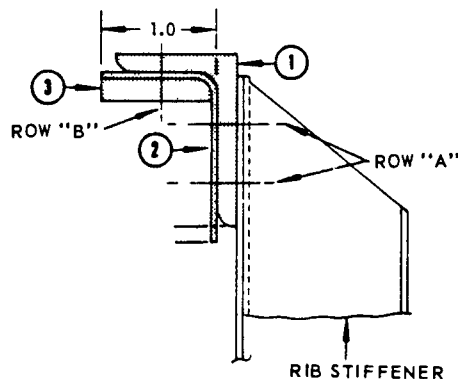
✚ TACK RIVET

**B** HEAT TREAT 150,000 TO 170,000 PSI

**C** MAKE FROM BAC1512-3348

#### REPAIR INSTRUCTIONS

1. Cut out damaged section of chord so that edge margins are maintained at existing holes.
2. Fabricate parts 1 and 3.



#### SECTION THROUGH DAMAGE

3. Clean and alodize original structure and repair parts 1 and 3.
4. Fabricate repair part 2. Part 2 to nest in part 1 and the chord.
5. Cadmium plate steel parts. See 51-8-0.
6. Assemble parts 1, 2, and 3. Dip all fasteners in BMS 5-26 Grade A sealant. At installation provide faying surface treatment per 51-8-0 paragraph 2.



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Repair

## STRUCTURAL REPAIR

| 707 INTERCONT'L  |                  | STA 615, STA 387 AND<br>STA 643 THRU STA 919 | STA 415, STA 444,<br>STA 472 & STA 501 THRU STA 586 | STA 337, STA 315, STA 293 | STA 270, STA 248, STA 226 | STA 204, WBL 37, WBL 6 |                           |
|------------------|------------------|----------------------------------------------|-----------------------------------------------------|---------------------------|---------------------------|------------------------|---------------------------|
| PART             |                  | QTY                                          | MATERIAL                                            | QTY                       | MATERIAL                  | QTY                    | MATERIAL                  |
| ①                | FILLER           | 1                                            | 7075-T6<br>AND 10134-1403                           | 1                         | 7076-T6<br>AND 10134-1405 | 1                      | 7075-T6<br>AND 10134-1408 |
| ②                | ANGLE            | 1                                            | .050 STEEL 4130 [B]                                 | 1                         | .063 STEEL 4130 [B]       | 1                      | .071 STEEL 4130 [B]       |
| ③                | RADIUS<br>FILLER | 1                                            | 2024-T4 OR<br>7075-T6 [C]                           | 1                         | 2024-T4 OR 7075-T6 [C]    | 1                      | 2024-T4 OR<br>7075-T6 [C] |
| FASTENER ROW "A" |                  | 4                                            | HL 18-6                                             | 5                         | HL 18-6                   | 5                      | HL 18-6                   |
| FASTENER ROW "B" |                  | 3                                            | HL 18-6                                             | 4                         | HL 18-6                   | 4                      | HL 18-6                   |

### UPPER CHORD

| 707 INTERCONT'L  |                  | STA 615, STA 387 AND<br>STA 643 THRU STA 919 |                           | STA 415, STA 444,<br>STA 472 & STA 501 THRU STA 586 |                           | STA 337, STA 315, STA 293 |                           | STA 270, STA 248, STA 226 |                                             | STA 204, WBL 37, WBL 6 |                           |
|------------------|------------------|----------------------------------------------|---------------------------|-----------------------------------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------------------------|------------------------|---------------------------|
| PART             |                  | QTY                                          | MATERIAL                  | QTY                                                 | MATERIAL                  | QTY                       | MATERIAL                  | QTY                       | MATERIAL                                    | QTY                    | MATERIAL                  |
| ①                | FILLER           | 1                                            | 7075-T6<br>AND 10134-1403 | 1                                                   | 7076-T6<br>AND 10134-1404 | 1                         | 7075-T6<br>AND 10134-1405 | 1                         | BAC1503-4245<br>7075-T6                     | 1                      | 7075-T6<br>AND 10134-1408 |
| ②                | ANGLE            | 1                                            | .050 STEEL 4130 [B]       | 1                                                   | .056 STEEL 4130 [B]       | 1                         | .063 STEEL 4130 [B]       | 1                         | .063 STEEL 4130 [B]                         | 1                      | .071 STEEL 4130 [B]       |
| ③                | RADIUS<br>FILLER | 1                                            | 2024-T4 OR<br>7075-T6 [C] | 1                                                   | 2024-T4 OR 7075-T6 [C]    | 1                         | 2024-T4 OR 7075-T6 [C]    | 1                         | MAKE FROM BAC1512-455<br>2024-T4 OR 7075-T6 | 1                      | 2024-T4 OR<br>7075-T6 [C] |
| FASTENER ROW "A" |                  | 4                                            | HL 18-6                   |                                                     | 5                         | HL 18-6                   |                           | 5                         | HL 18-6                                     | 5                      | HL 18-6                   |
| FASTENER ROW "B" |                  | 3                                            | HL 18-6                   |                                                     | 4                         | HL 18-6                   |                           | 4                         | HL 18-6                                     | 5                      | HL 18-6                   |

### LOWER CHORD

Wing Interspar Rib Repair, Upper And Lower Chord  
Figure 2 (Sheet 3 of 3)



## STRUCTURAL REPAIR

### REPAIR INSTRUCTIONS

1. Defuel wing and prepare for interior work, per section 28-0 of the Maintenance Manual.
2. Operate, or remove, L E flaps to provide access to the damaged area, per section 27-6-201 of the Maintenance Manual.
3. Remove tubes and electrical wiring bundles from the spar as necessary to facilitate the repair; observe instructions for dismantling of the particular system, in the appropriate section of the Maintenance Manual.
4. Damage is assumed as a crack in the spar web.
5. Stop drill crack 1.00 dia. or cut out damaged area as shown .257. Ensure that hole or cutout removes all cracked material.
6. Remove any original sealant in the repair area per 57-2-2.
7. Prefit repair plate 1 and predrill fastener holes.
8. Protective treat the repair plate and original structure, including fastener holes, as per section 51-8-0.
9. Install repair plate 1.
10. Make a filleted seal installation with BM55-26 Class B2 around the wet side of the repair plate 1 per 57-2-2. Seal all fastener heads on the wet side with BM55-26 Type B sealant.
11. Restore original surface finish per 51-2-0 of the Maintenance Manual.

| REAR SPAR         |              |
|-------------------|--------------|
| LOCATION          | REPAIR PART  |
| INBOARD WING      | ① MATERIAL   |
| WING STATION      |              |
| 264 TO 360        | .125 2024-T3 |
| 360 TO 725        | .112 2024-T3 |
| OUTBOARD WING [A] |              |
| REAR SPAR STA.    |              |
| 0 TO 46           | .080 2024-T3 |
| 46 TO 236         | .071 2024-T3 |

### NOTE

SEE 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS.

BREAK SHARP EDGES 0.03 ALL REPAIR PARTS AND TRIMMED ORIGINAL PARTS



REPAIR FASTENER LOCATIONS



ORIGINAL FASTENER, REMOVE AND REPLACE WITH SAME DIAMETER LOCK BOLT

VERTICAL ROW FASTENER SPACING AND DIAMETER SAME AS FOR VERTICAL STIFFENER. HORIZONTAL ROW SPACING AND DIAMETER SAME AS FOR CHORD-WEB FASTENERS

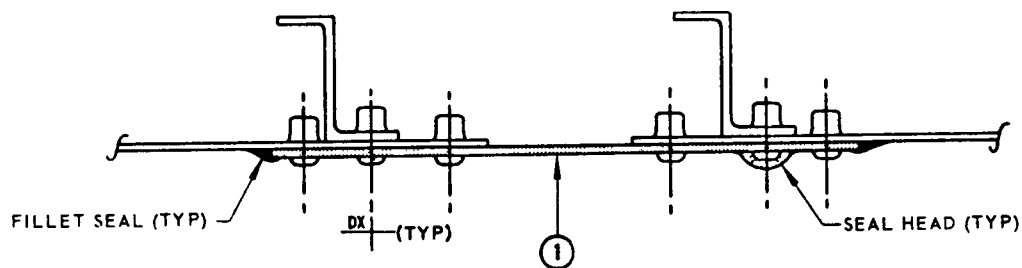
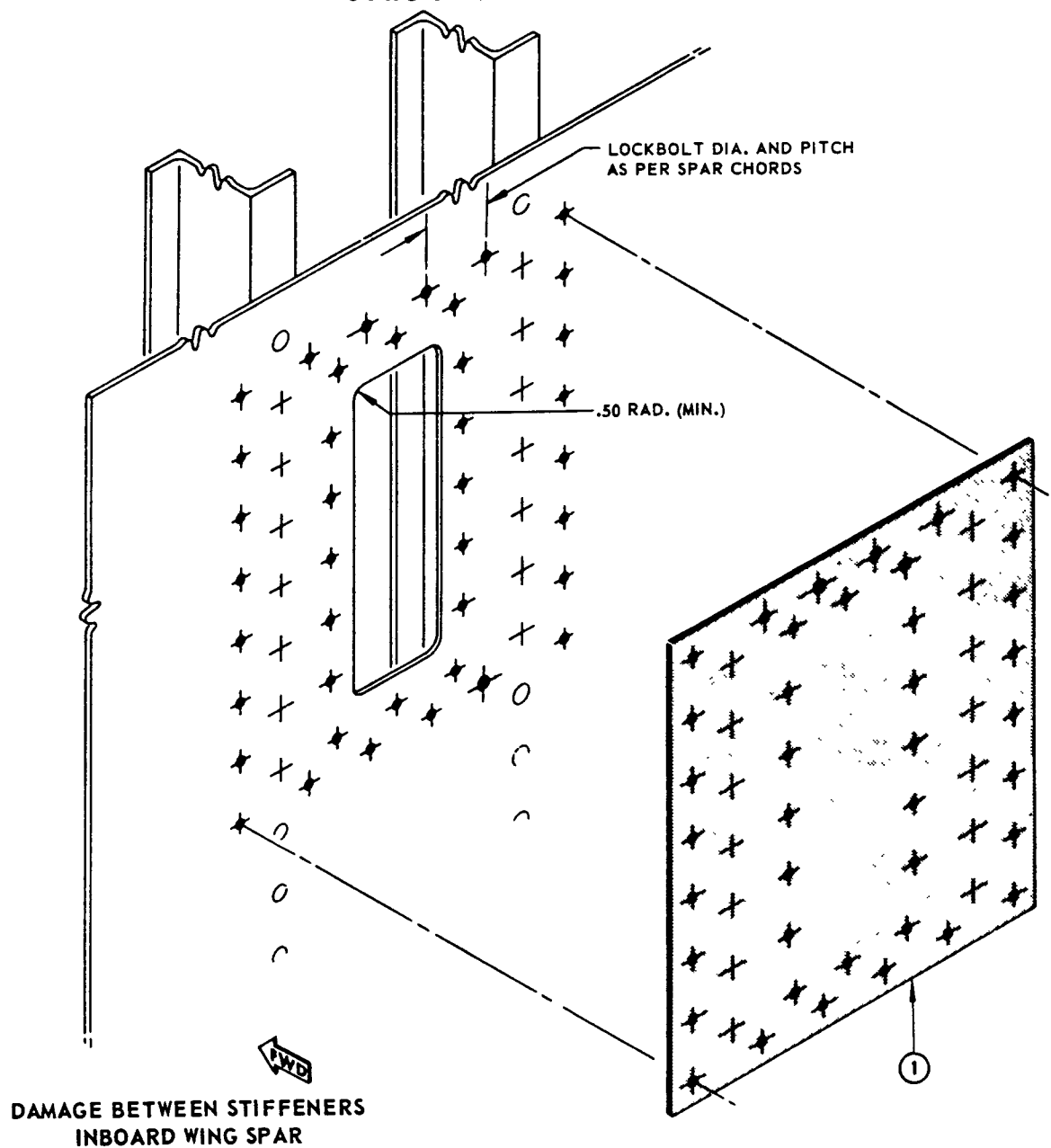
OPTIONAL FASTENERS USE NAS1103 OR NAS1104, NAS1303 OR NAS1304 (IN 3/16 OR 1/4 DIA LOCATIONS RESPECTIVELY) WITH AN363 OR NAS679 NUTS. TORQUE NUTS PER 51-2-4 FIG 1

THESE REPAIRS ARE NOT APPLICABLE TO THE SPAR WEBS IN THE VICINITY OF SPLICES, FITTINGS OR RIB JOINTS

[A] REAR SPAR STATIONS ON THE OUTBOARD WING ARE MEASURED FROM WING STATION 725.236. SEE BOEING DRAWING 65-1009.

| FRONT SPAR         |              |
|--------------------|--------------|
| LOCATION           | REPAIR PART  |
| FRONT SPAR STATION | ① MATERIAL   |
| 5 TO 310           | .112 2024-T3 |
| 310 TO 330         | .125 7075-T6 |
| 330 TO 370         | .140 7075-T6 |
| 370 TO 395         | .160 7075-T6 |
| 424 TO 616         | .100 2024-T3 |
| 616 TO 646         | .125 7075-T6 |
| 646 TO 653         | .140 7075-T6 |
| 718 TO 728         | .140 7075-T6 |
| 728 TO 745         | .125 7075-T6 |
| 745 TO 785         | .112 2024-T3 |
| 785 TO 815         | .100 2024-T3 |
| 815 TO 835         | .090 2024-T3 |
| 835 TO 976         | .080 2024-T3 |

## STRUCTURAL REPAIR

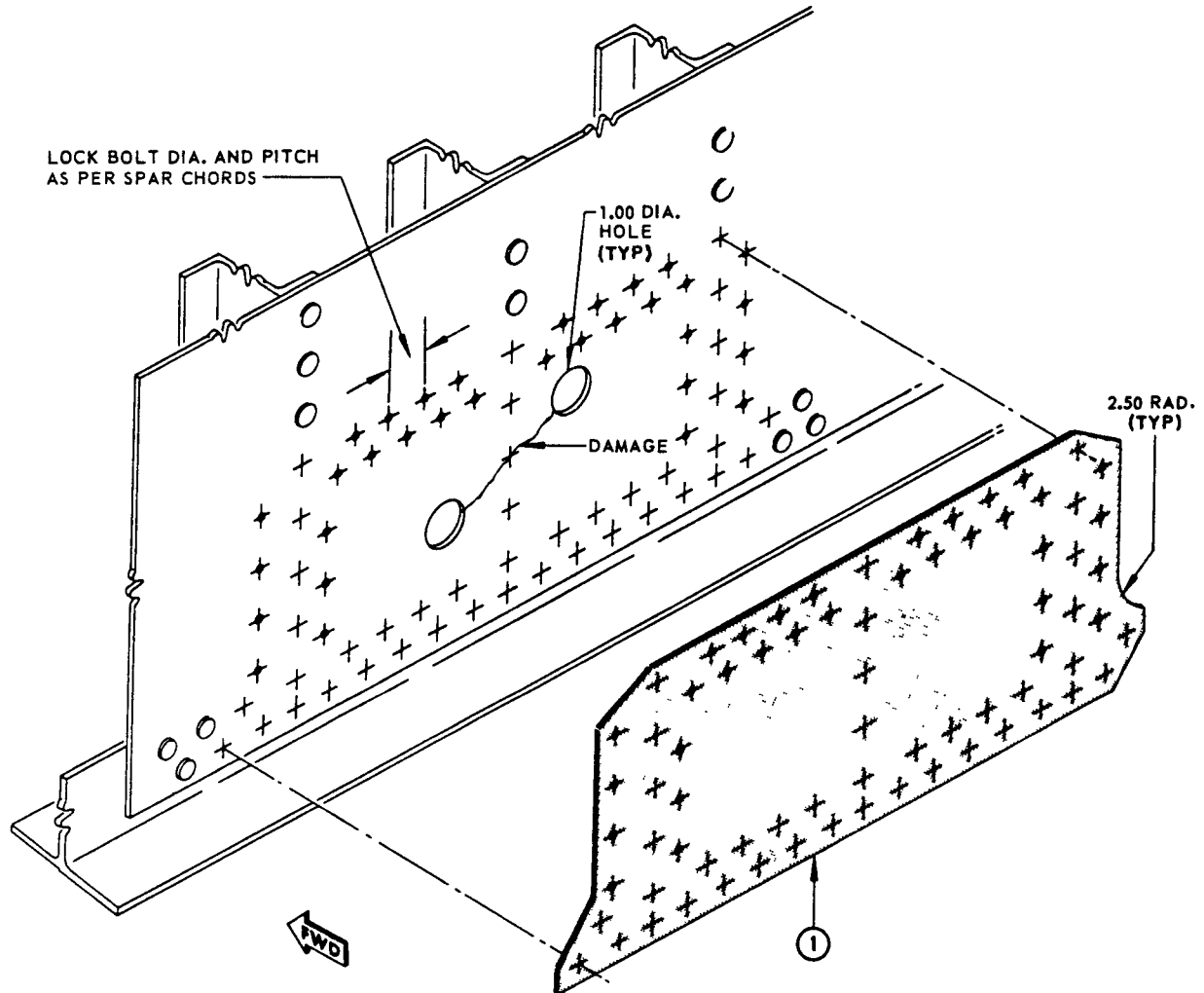


### SECTION THROUGH DAMAGE

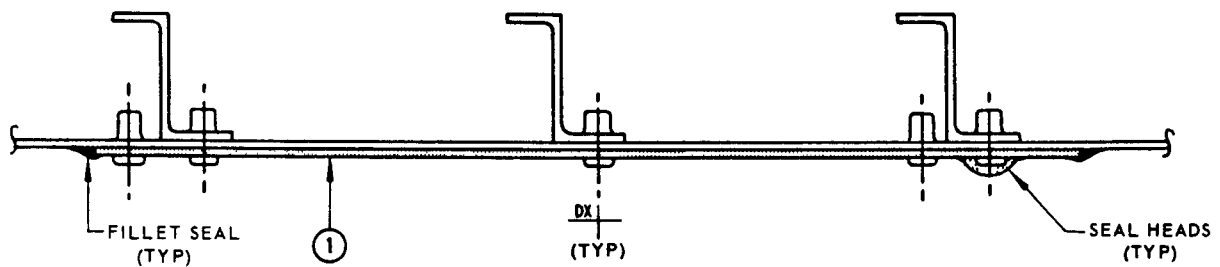
Front and Rear Spar Web Repair  
Figure 1 (Sheet 2 of 5)

Jul 1/60

**BOEING** *Intercontinental* **707**   
**STRUCTURAL REPAIR**



**DAMAGE AT STIFFENER  
INBOARD WING SPAR**

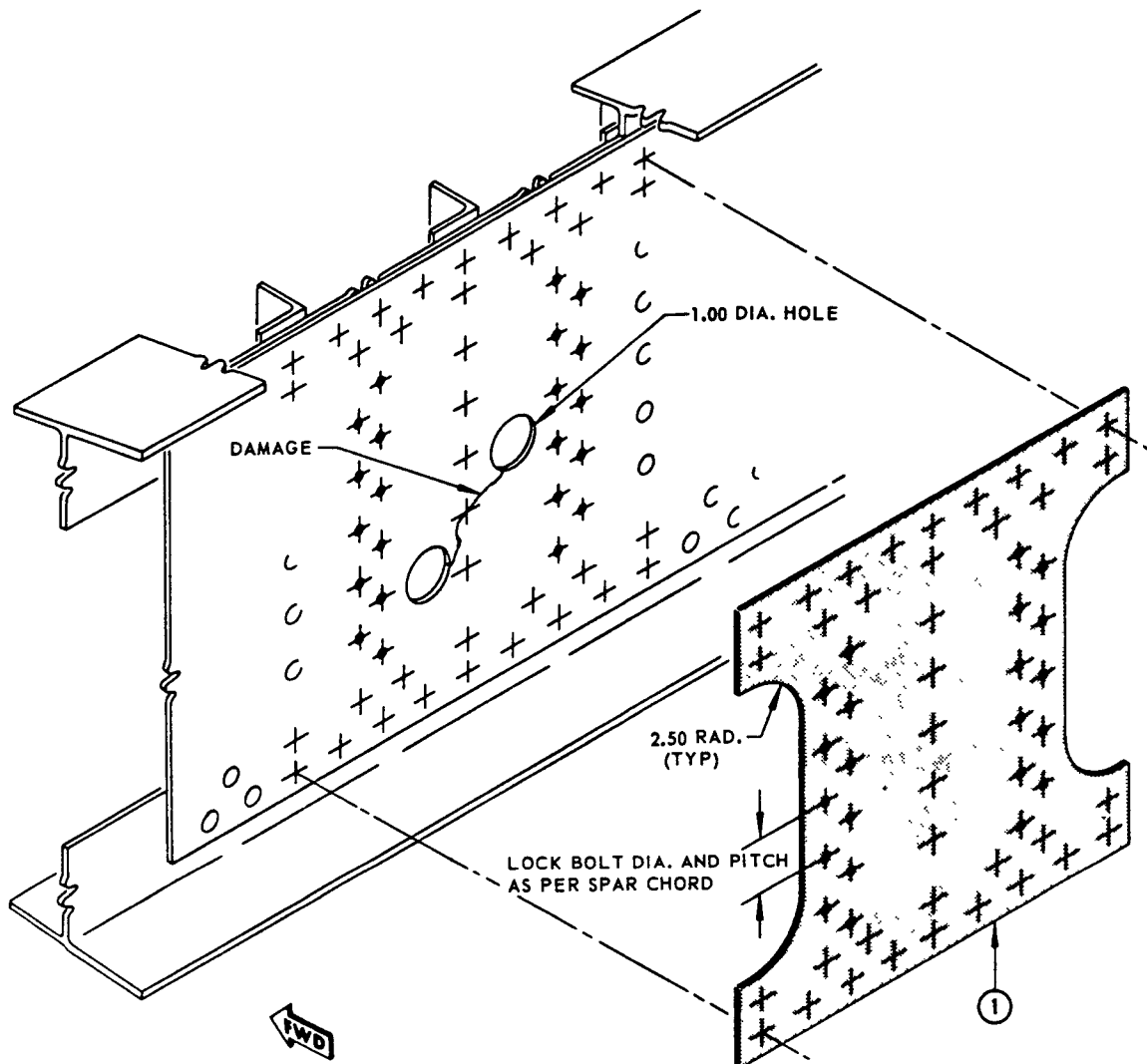


**SECTION THROUGH DAMAGE**

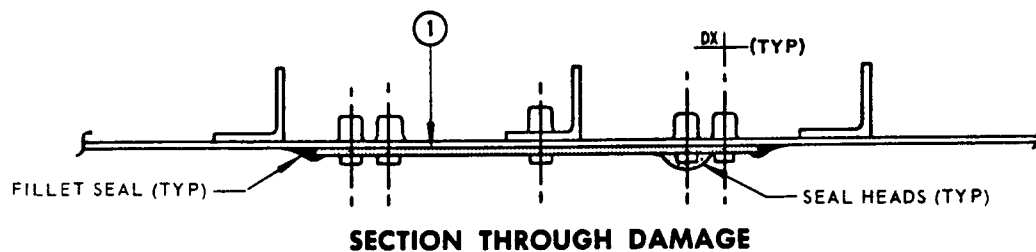
Jul 1/60  
Revised

Front and Rear Spar Web Repair  
Figure 1 (Sheet 3 of 5)

57-3-6  
Page 3



DAMAGE AT STIFFENER  
OUTBOARD WING SPAR

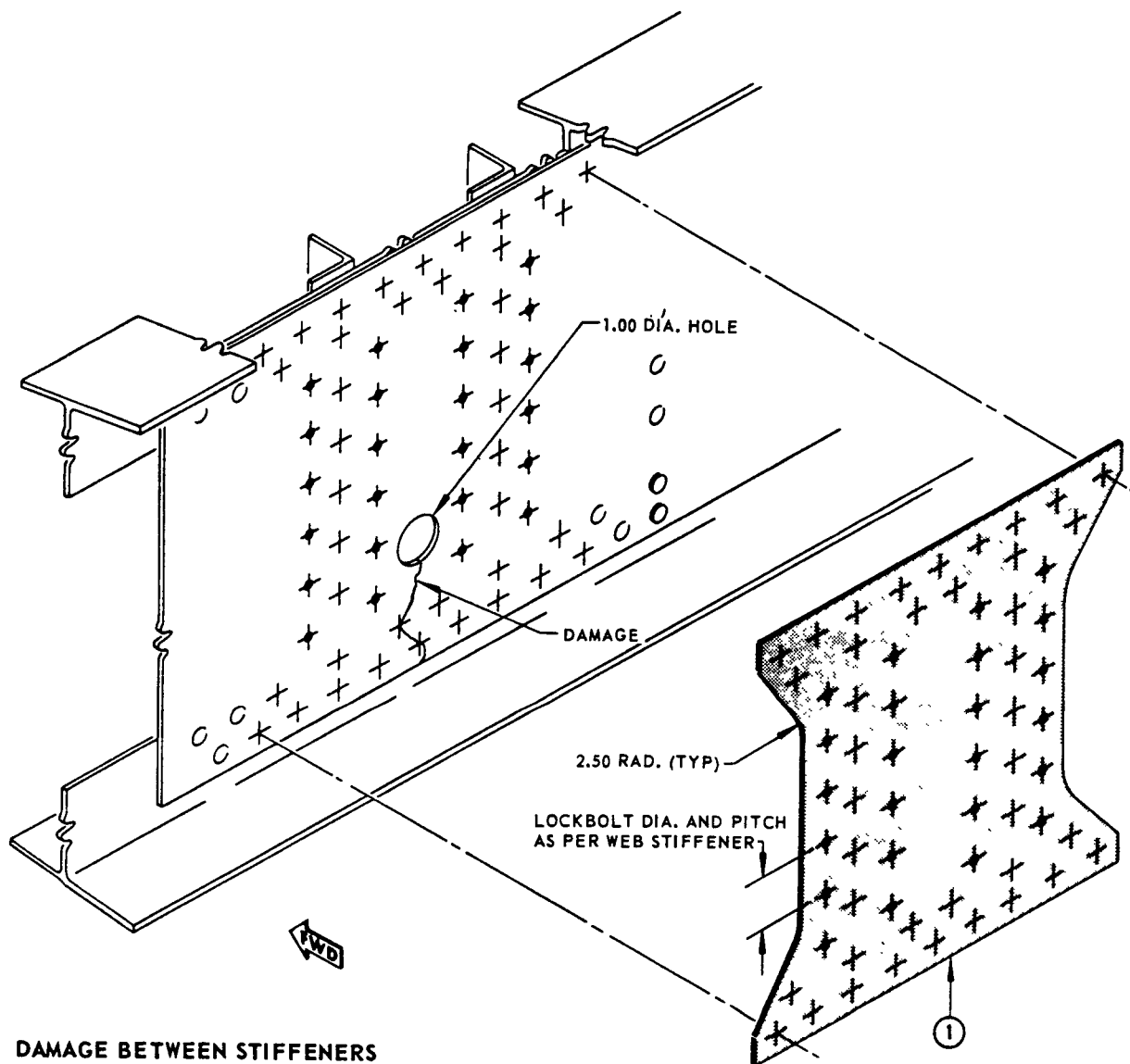


Front and Rear Spar Web Repair  
Figure 1 (Sheet 4 of 5)

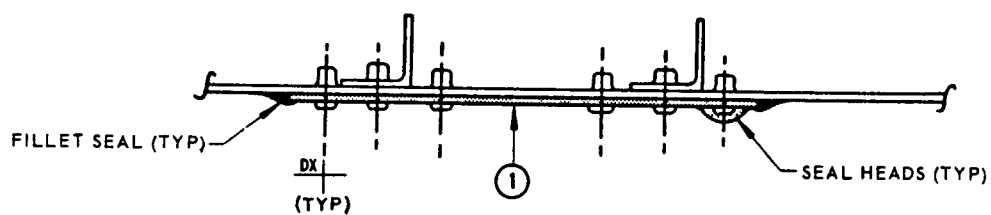


FAA Approved  
Repair

BOEING  
*Intercontinental*  
707  
STRUCTURAL REPAIR



DAMAGE BETWEEN STIFFENERS  
OUTBOARD WING SPAR



SECTION THROUGH DAMAGE

Jul 1/60

Front and Rear Spar Web Repair  
Figure 1 (Sheet 5 of 5)

57-3-6  
Page 5

REPAIR INSTRUCTIONS

1. This repair is suitable for damage in the forward flange of the upper front spar chord and leading edge skin and applies only to areas between LE ribs. If a damage to the forward flange extends to or past a leading edge rib attachment, consult Boeing Service Unit for special repair.
  2. Defuel wing and prepare for interior work as outlined in 28-0 of the Maintenance Manual.
  3. Operate or remove the LE flaps or remove access panels as required to provide access to the damaged area.
  4. Remove tubes and electrical wire bundles as necessary to provide access to repair. See applicable section of the Maintenance Manual for removal instructions.
  5. Cut out cracked and damaged area in LE skin.
  6. Cut out cracked and damaged portion of the forward chord flange or if only crack damage is evident then stop drill per 51-2-10 at ends of all longitudinal and transverse cracks that do not end in a fastener hole.
  7. Remove original fasteners as required.
  8. Fabricate and form repair parts. Drill holes in repair parts to match original fastener location on the spar chord flanges. Refer to note ☐ for inspection requirements.
  9. Anodize or brush alodize all repair parts per 51-8-0.
  10. Brush alodize all cut and trimmed edges on original parts per 51-8-0.
  11. Before installing repair parts remove existing sealant and clean the repair area as outlined in 57-2-2.
  12. Install repair parts and replace fasteners with equivalent fasteners in their original locations, except as indicated.
  13. Replace all fuel seals in accordance with 57-2-2 and Maintenance Manual chapter 28 with BMS 5-26.
  14. Restore the required surface finish per 51-2-0 of the Maintenance Manual.
- CAUTION: WHEN DRILLING A STOP HOLE IN THE FLANGE DO NOT DAMAGE ITS VERTICAL LEG.

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



NOTES

SEE 51-2-0 FOR FASTENER CODE,  
REMOVAL, AND INSTALLATION,  
HOLE SIZES AND EDGE MARGINS

SEE 51-4-1 FOR AERODYNAMIC  
SMOOTHNESS REQUIREMENTS

BREAK SHARP EDGES 0.03 ON ALL  
REPAIR AND TRIMMED ORIGINAL  
PARTS

[A] FABRICATE REPAIR PART LENGTH AS  
REQUIRED TO FIT BETWEEN FRONT  
SPAR STIFFENERS

[B] IF THE CRACK LENGTH IS MORE THAN  
2.00 INCHES INSTALL ANGLES  
BETWEEN WEB STIFFENERS AS  
REQUIRED TO EQUAL THE CRACK  
LENGTH. IF THE FLANGE CRACK  
ENDS NEAR A WEB STIFFENER,  
INSTALL AN ADDITIONAL ANGLE  
BETWEEN THE STIFFENERS IN THE  
ADJACENT SPACE PAST THE CRACK  
END. IF THE CRACK IS LESS  
THAN 2.00 INCHES NO ANGLES ARE  
NEEDED

[C] SAME GAGE AND MATERIAL AS  
ORIGINAL SKIN (OR 2024-T3)

[D] INSTALL FILLER AS REQUIRED TO  
ALLOW REPAIR ANGLE TO CLEAR  
FILLET RADII ON SPAR CHORD

[E] EXTEND REPAIR FILLERS AS  
REQUIRED TO PROVIDE FOR  
INSTALLATION OF LEADING EDGE  
REPAIR PARTS AND FASTENERS

[F] REPLACE EXISTING RIVETS WITH  
REPAIR FASTENERS BACB30GY IN  
THEIR ORIGINAL LOCATIONS

[G] TWO ROWS BACR15CE-5D AT 1.25  
SPACING

[H] CUT OUT SEGMENT OF ORIGINAL  
FILLER AND REPLACE WITH REPAIR  
FILLER (2)

[I] EXISTING FASTENER HOLES THRU SPAR  
CHORD SHOULD BE INSPECTED BY EDDY  
CURRENT AND OVERSIZED 1/16 INCH  
DIAMETER IF REPAIR IS FOR FATIGUE  
CRACKING OR IF AIRPLANE HAS IN  
EXCESS OF 20,000 FLIGHT HOURS

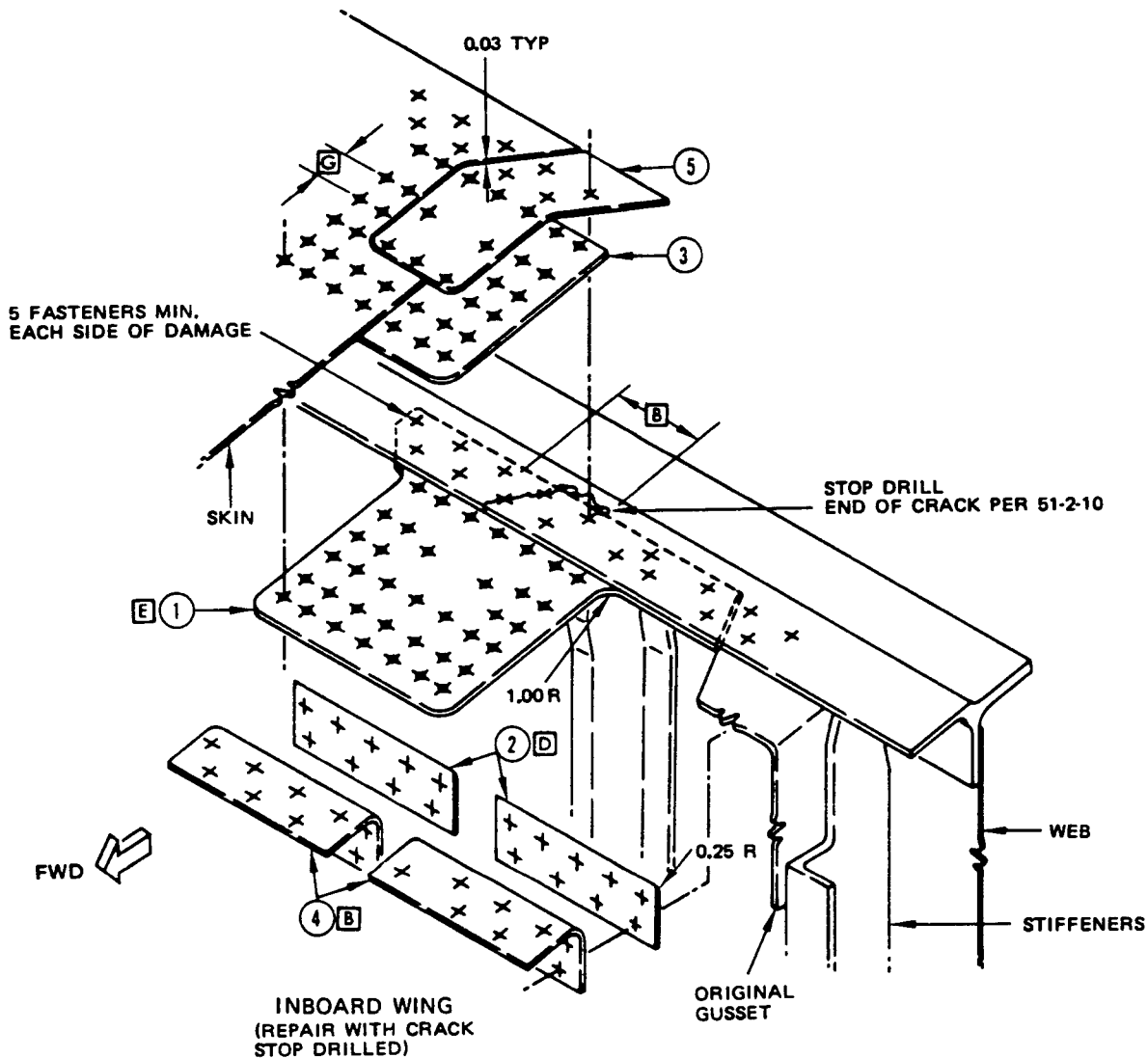
SYMBOLS

◆ REPAIR FASTENER LOCATIONS

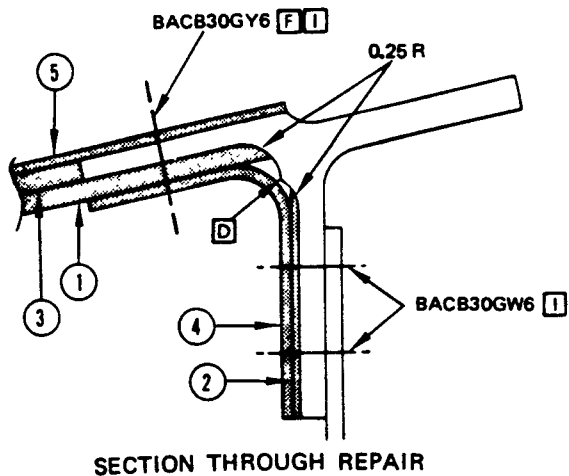
+ ORIGINAL FASTENER LOCATIONS



## INTERCONTINENTAL STRUCTURAL REPAIR



| REPAIR MATERIAL |        |          |                                                                                               |
|-----------------|--------|----------|-----------------------------------------------------------------------------------------------|
| PART            | QTY    | MATERIAL |                                                                                               |
| ①               | PLATE  | 1        | 0.125 7178-T6 OR 7075-T6                                                                      |
| ②               | FILLER | 2        | THICKNESS AS REQD. 7178-T6 OR 7075-T6                                                         |
| ③               | FILLER | 1        | 0.125 7178-T6                                                                                 |
| ④               | ANGLE  | 2        | 0.071 7178-0 HT-T6 OR 7075-T6 <span style="border: 1px solid black; padding: 0 2px;">A</span> |
| ⑤               | FILLER | 1        | <span style="border: 1px solid black; padding: 0 2px;">C</span>                               |
| ⑥               | FILLER | 1        | SAME THICKNESS AS CHORD FLANGE. 2024-T3, 7075-T6 OR 7178-T6                                   |



SECTION THROUGH REPAIR

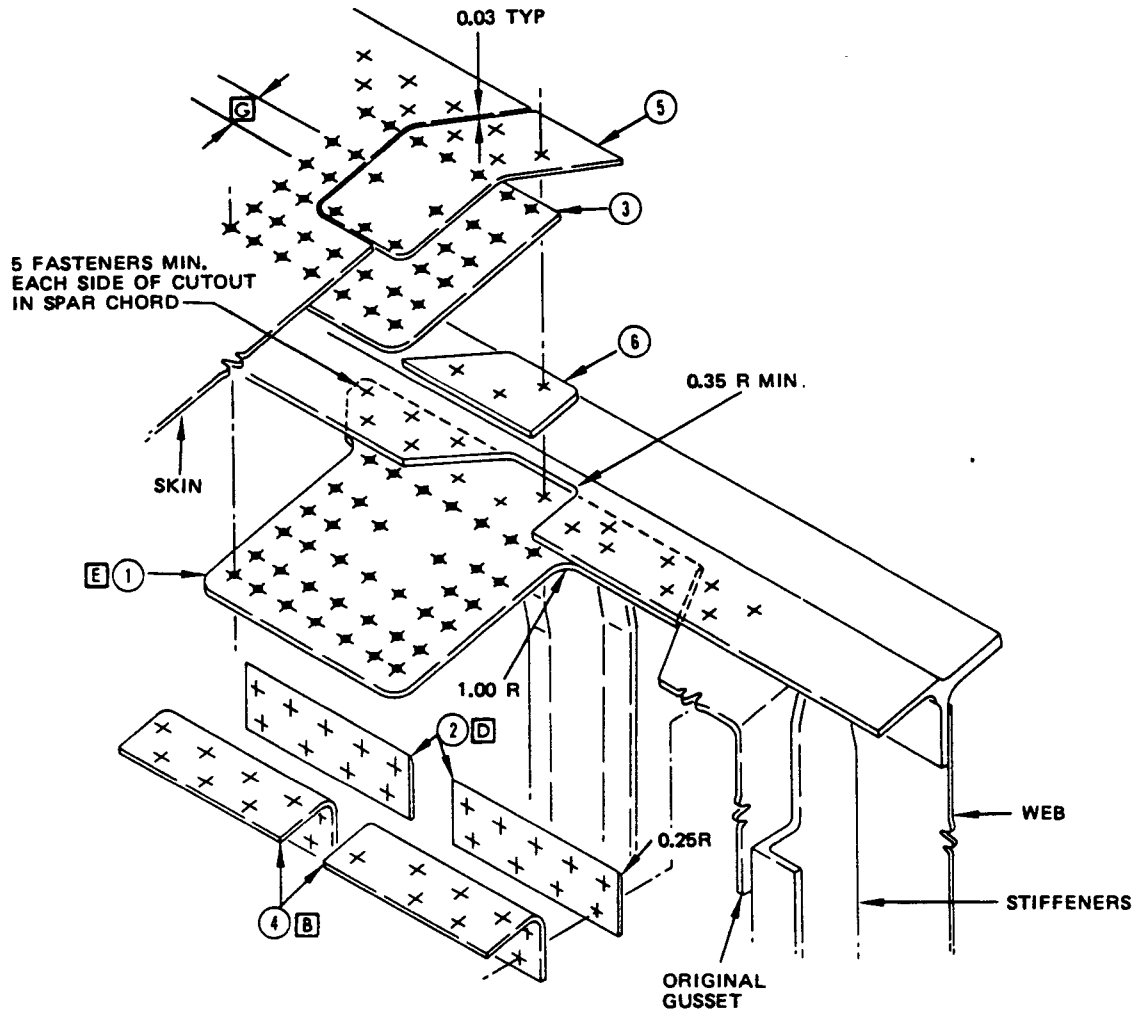
Front Spar Upper Chord Fwd Flange and L.E. Skin Repair  
Figure 2 (Sheet 3)

SRM 320  
Jul 10/78

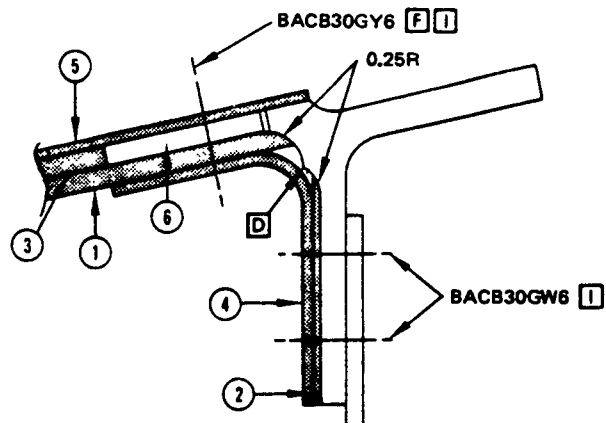
**BOEING**  
**707**



**INTERCONTINENTAL  
STRUCTURAL REPAIR**



**INBOARD WING**  
(REPAIR WITH PORTION OF  
CHORD FLANGE REMOVED)

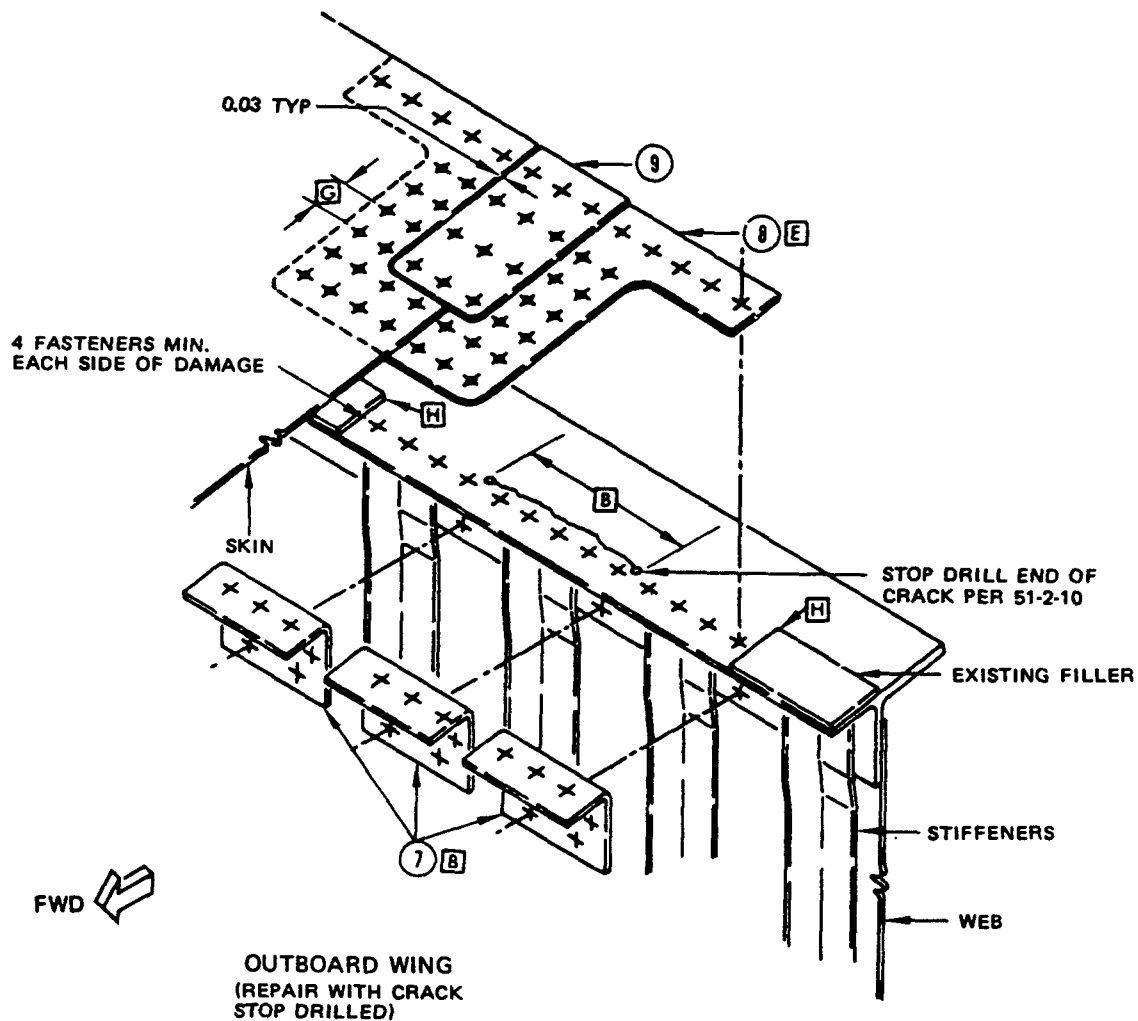


**SECTION THROUGH REPAIR**

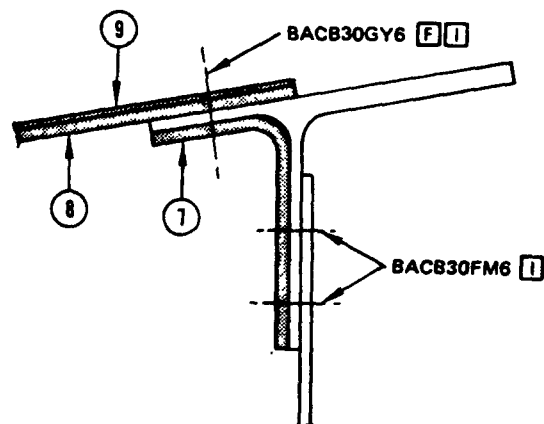
Front Spar Upper Chord Fwd Flange and L.E. Skin Repair  
Figure 2 (Sheet 4)



## INTERCONTINENTAL STRUCTURAL REPAIR



| REPAIR MATERIAL |        |          |                                      |
|-----------------|--------|----------|--------------------------------------|
| PART            | QTY    | MATERIAL |                                      |
| ⑦               | ANGLE  | 3        | 0.071 7178-0<br>HT-T6 OR 7075-T6 [A] |
| ⑧               | FILLER | 1        | SAME GAGE AS ORIG<br>OR 2024-T3      |
| ⑨               | FILLER | 1        | [C]                                  |



SECTION THROUGH REPAIR

Front Spar Upper Chord Fwd Flange and L.E. Skin Repair  
Figure 2 (Sheet 5)

**BOEING****707**

# INTERCONTINENTAL STRUCTURAL REPAIR

| ITEM | MATERIAL                          | REPAIR<br>FIG. NO. |
|------|-----------------------------------|--------------------|
| 1    | BAC1500-6136<br>.051 7075-T6      | 57-4-2<br>Fig 1,4  |
| 2    | BAC1500-6135<br>.051 7075-T6      |                    |
| 3    | BAC1500-6126<br>.072 7075-0       |                    |
| 4    | .040 BARE<br>2024-T4              |                    |
| 5    | BAC1500-6136 ☐<br>.051 7075-T6511 |                    |
| 6    | BAC1500-6135 ☐<br>.051 7075-T6511 |                    |

## NOTE

☐ A FOR BOAC AIRPLANES LEFT HAND  
ONLY

☐ B SPOTWELDED DOUBLER

☐ C FOR AIRPLANES

AA 19576

AF 19916

AI 19988

BA 19843

GR 19997

KU 20084

MS 19844

MX 19739

NW 19636

PA 20016

PK 19866

QF 19629

RD 20076

SN 19996

TP 19969

TW 20058

WA 19963

AND SUBSEQUENT AIRPLANES

☐ D FOR AIRPLANES

DC 20317 AND-20316

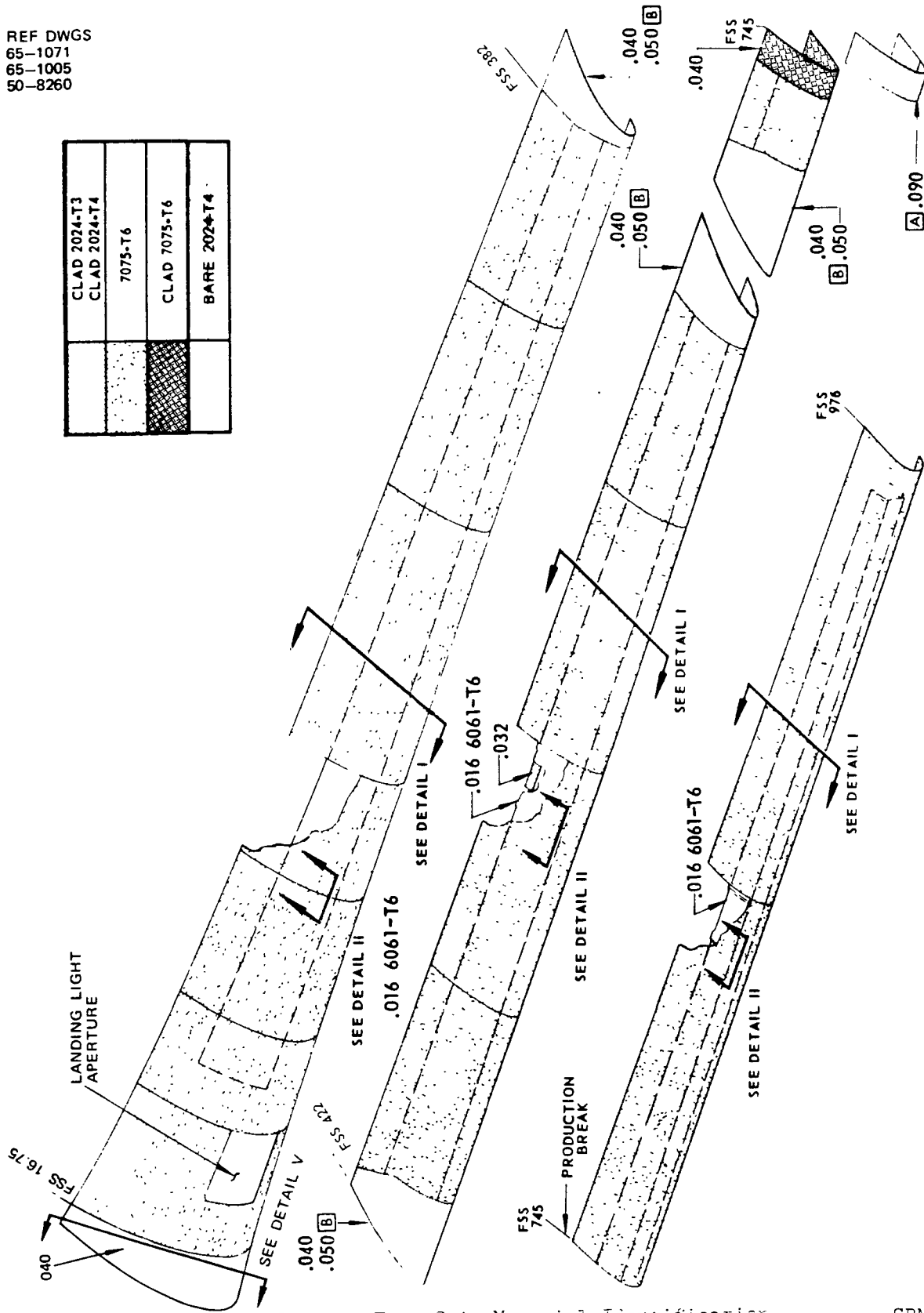
| SKIN REPAIR INDEX                       |                    |
|-----------------------------------------|--------------------|
| LOCATION OF<br>DAMAGE                   | REPAIR<br>FIG. NO. |
| L.E. NOSE<br>(PATCH REPAIR)             | 57-4-2<br>FIG. 1   |
| L.E. NOSE FSS 71-382<br>(FLUSH REPAIR)  | 57-4-2<br>FIG. 4   |
| L.E. NOSE FSS 415-976<br>(FLUSH REPAIR) | 57-4-2<br>FIG. 3   |
| L.E. UPPER<br>SURFACE                   | 57-4-2<br>FIG. 2   |
| L.E. "D" DUCT                           | 57-4-2<br>FIG. 5   |

Wing Leading Edge Skin Material Identification  
Figure 1 (Sheet 1)



REF DWGS  
65-1071  
65-1005  
50-8260

|              |  |
|--------------|--|
| CLAD 2024-T3 |  |
| CLAD 2024-T4 |  |
| 7075-T6      |  |
| CLAD 7075-T6 |  |
| BARE 2024-T4 |  |



Inter Leading Edge Skin Material Identification  
Figure 1 (Sheet 2)

SRM 320  
Jul 10/80



## ALL TURBOFAN AIRPLANES

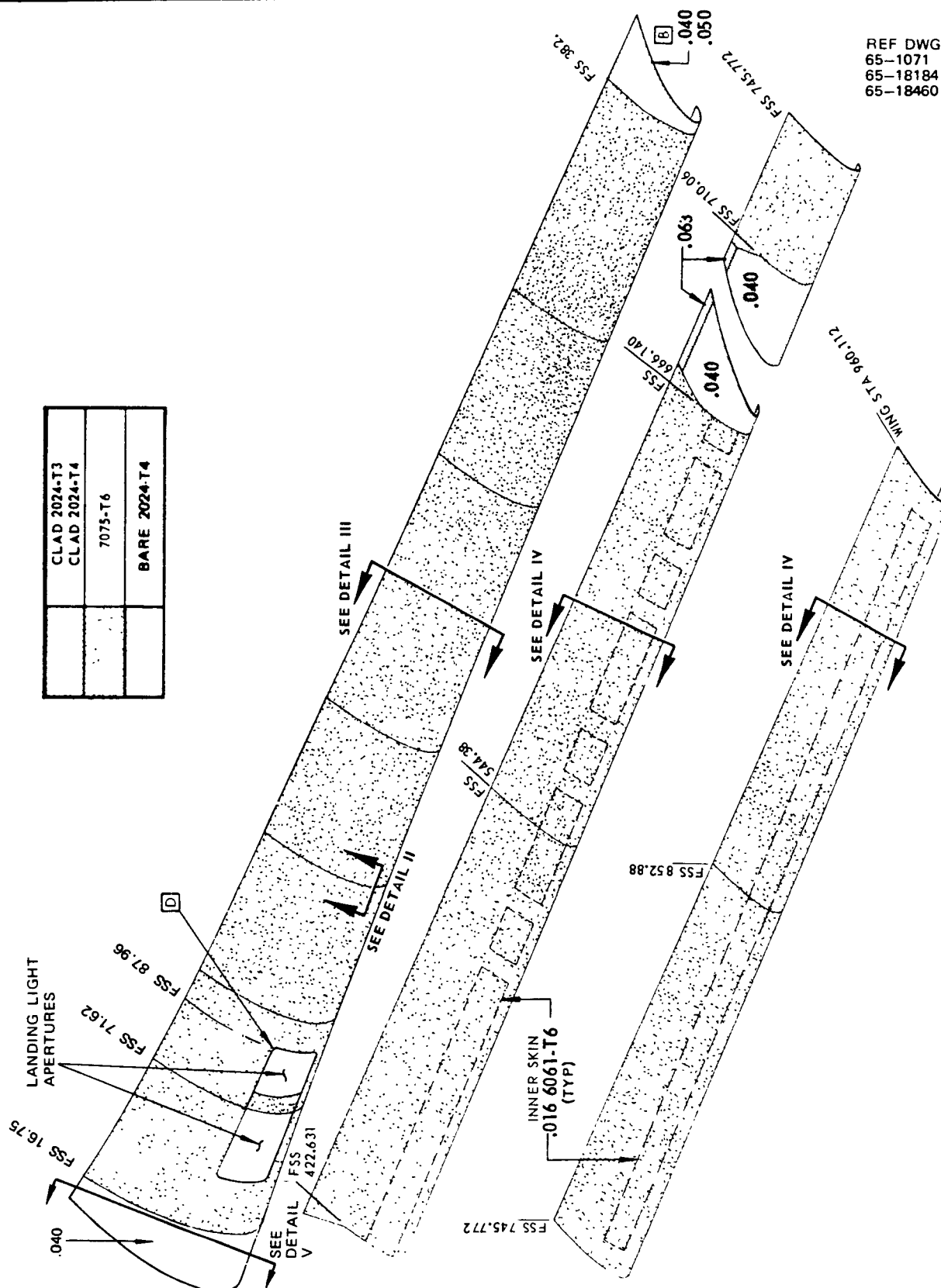
707



INTERCONTINENTAL  
STRUCTURAL REPAIR

REF DWGS  
65-1071  
65-18184  
65-18460

|  |                              |
|--|------------------------------|
|  | CLAD 2024.T3<br>CLAD 2024.T4 |
|  | 7075-T6                      |
|  | BARE 2024.T4                 |



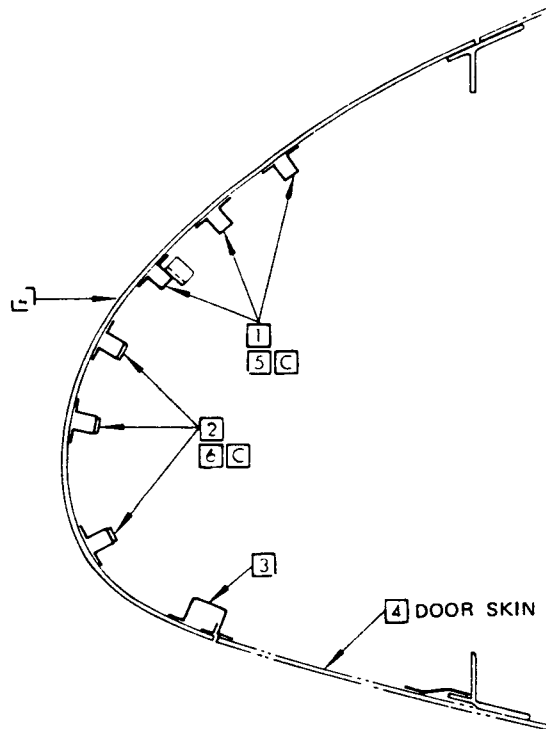
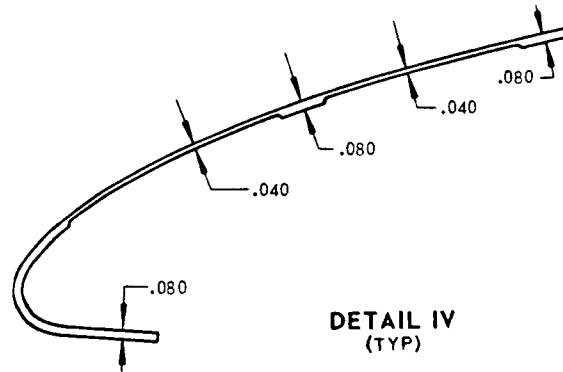
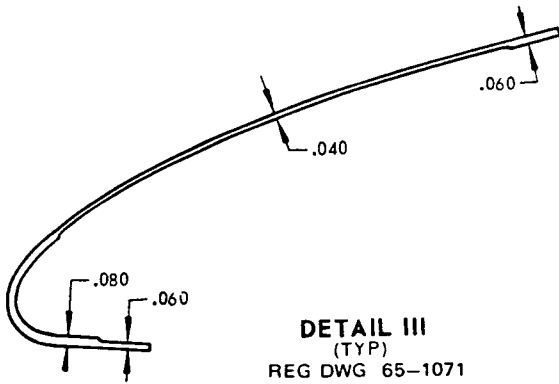
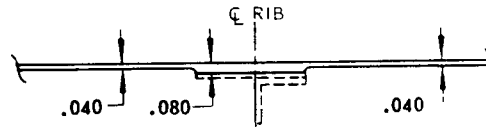
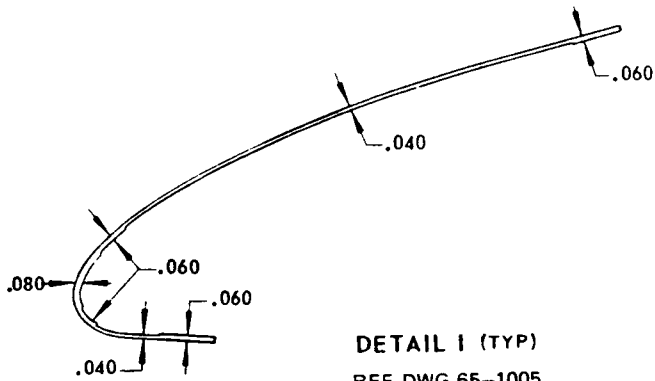
Wing Leading Edge Skin Material Identification  
Figure 1 (Sheet 3)

**BOEING**  
**707**



**INTERCONTINENTAL  
STRUCTURAL REPAIR**

REF DWGS  
65-1071  
65-1005  
50-8260



Wing Leading Edge Skin Material Identification  
Figure 1 (Sheet 4)

SRM 320  
Jul 10/80



## STRUCTURAL REPAIR

### REPAIR INSTRUCTIONS

### NOTE

1. Damage to the heated nose section, which exceeds that as defined by 51-14-1, 1.A.(4)(a), requires an external doubler at the damage area.
2. Stop drill 0.25 all cracks or make cutout as required with not less than 0.50 radii. Remove all scratches, burrs or nicks. Smooth all edges of cutout.
3. Make an external doubler large enough to allow for two rows of fasteners on each side of cutout. Make the doubler rectangular and bevel all edges 30 degrees.
4. Prior to installation alodize per 51-8-0, the skin where original finish may have been lost.
5. Make a seal of intermediate level by applying BMS 5-18 Type II; high temperature sealant to faying surface of doubler or skin per 57-2-3.
6. This repair may be replaced by Fig. 4.

| REPAIR MATERIAL |     |                    |  |
|-----------------|-----|--------------------|--|
| PART            | QTY | MATERIAL           |  |
| ① DOUBLER       | 1   | 0.080 CLAD 7075-T6 |  |

REPAIR APPLICABLE FROM FS STA. 71 TO FS STA. 222 AND ON EXTREME LEADING EDGE FROM FS STA. 422 TO WINGTIP FOR BA AIRPLANES

REPAIR APPLICABLE FROM FS STA. 71 TO WINGTIP FOR PA, AF, SN, LH, TW, AL, SA AND RG

CAUTION: NO EXTERNAL PATCHES SHOULD BE INSTALLED ON THE LOWER WING SURFACE WITHIN THE AREA DEFINED BY 12 INCHES ON EITHER SIDE OF THE WING BUTTOCK LINE PASSING THROUGH THE STICK SHAKER ACTUATOR VANE, FROM THE WING LEADING EDGE TO 6 INCHES AFT OF THE VANE

REFER TO 51-8-0 FOR METAL PROTECTIVE TREATMENT

REFER TO 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS

REFER TO 51-13-1 FOR DEFINITION OF AN EXTERNAL REPAIR

REFER TO 51-4-1 FOR PERFORMANCE CONSIDERATIONS IN REGIONS OF CRITICAL SMOOTHNESS

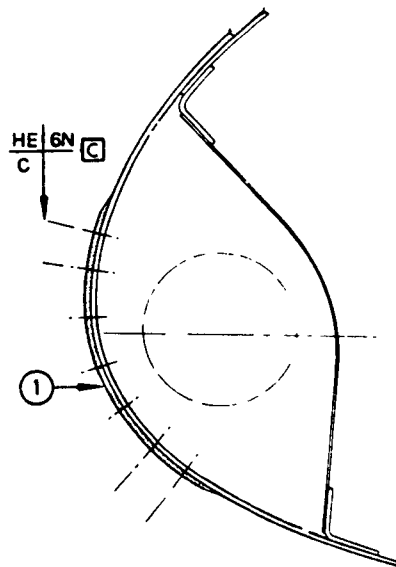
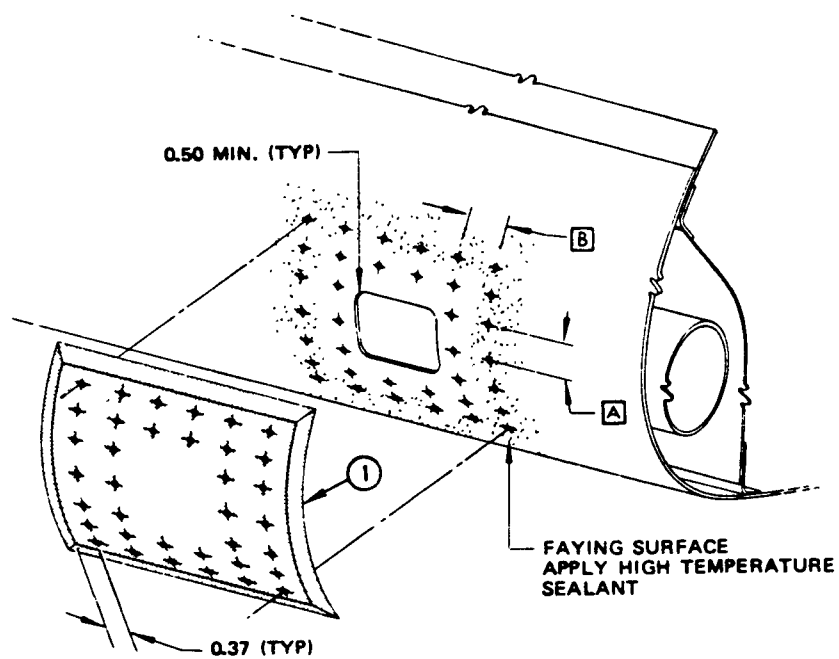
- A 1.06 FOR .080 7075-T6 SKIN  
1.25 FOR .060 7075-T6 SKIN
- B 2.40 FOR .080 7075-T6 SKIN  
2.12 FOR .060 7075-T6 SKIN
- C BB 351-6 OR EQUIVALENT  
OPTIONAL BB 352-6 OR EQUIVALENT

### SYMBOLS

◆ REPAIR FASTENER LOCATIONS

Wing Leading Edge Skin - External Repair  
Figure 1 (Sheet 1)

STRUCTURAL REPAIR



SECTION ADJACENT TO DAMAGE



## STRUCTURAL REPAIR

### REPAIR INSTRUCTIONS

1. Damage involving the .060 and .040 gage milled skin of the wing upper leading edge will probably result in damage to the inner skin.
2. Remove lower access doors in the leading edge and any equipment or wiring for access to the damage zone.
3. Determine the extent of damage and make a cutout in the inner skin large enough to provide access for installation of the repair doubler assembly. Remove all scratches, nicks or sharp edges of the cutout.
4. Trim the damaged outer skin in order to make a rectangular cutout two sides of which are parallel to leading edge ribs. Bring the outer skin back to contour by eliminating all indentations, projections or sharp edges.
5. Fabricate a doubler assembly of parts ①, ② and ⑤ to contour of the outer skin. If the cutout includes one or more dimpled spots, spacer similar to part ⑤ should be fastened to the doubler assembly to fill the dimpled spots. Use the doubler assembly as a locating hole template.
6. Refer to 51-8-0 for instructions on cleaning and alodizing.
7. Apply alodine coating to holes and countersinks of outer skin prior to installation of repair parts.
8. Make a seal of intermediate level between Part and the skin, centered on the outer rows of repair fasteners, per 57-2-3 prior to installation of the doubler assembly. Optional.
9. Install the assembly. Fill gap with BMS 5-13 per 51-3-0 of 707 Maintenance Manual.
10. Apply zinc chromate primer to inner surface of the repair per 51-2-0 of the 707 Maintenance Manual.
11. Fabricate a coverplate, part ③, and install in such a way that spacers, part ④, are used between inner and outer skins on the spanwise sides of the repair area. The coverplate may be used as a locating hole template. This repair involving .040 milled skin may be used with modifications, along the entire wing leading edge. Apply zinc chromate primer to surfaces of part ③ prior to installation.

### NOTE

REFER TO 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS

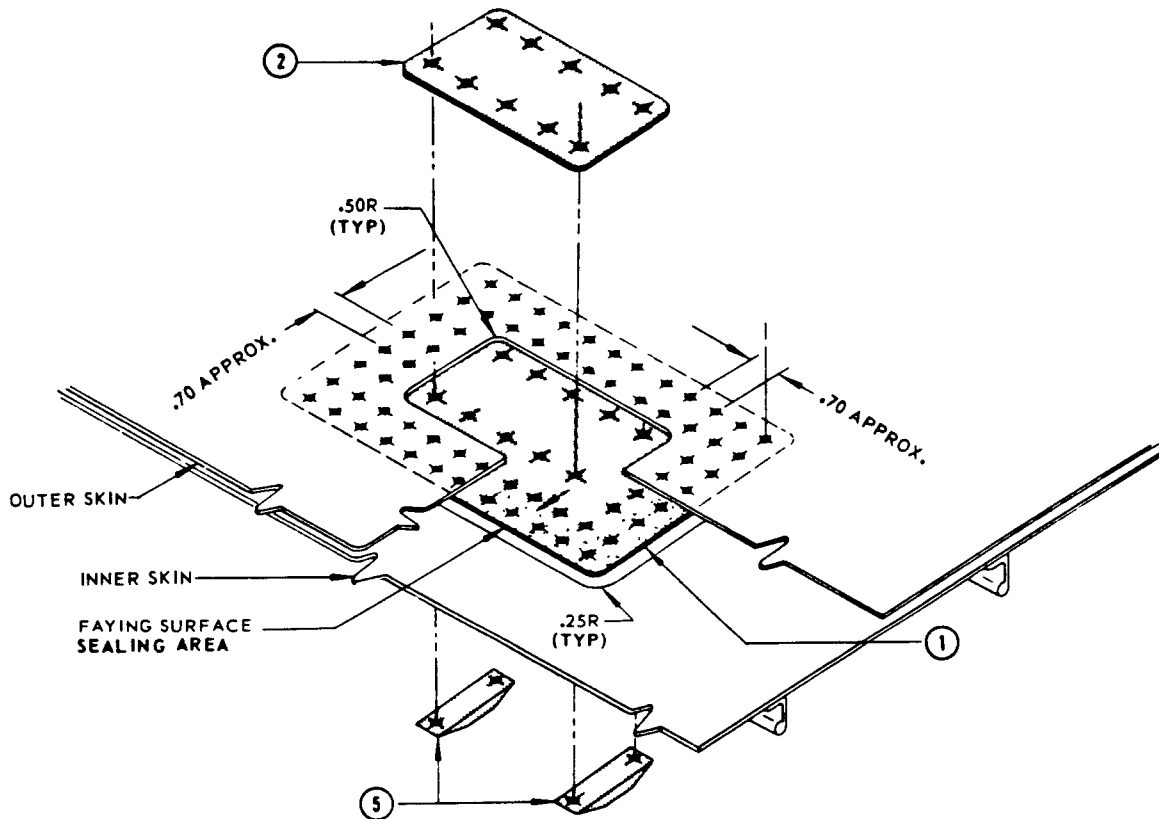
REFER TO 51-8-0 FOR METAL PROTECTIVE TREATMENT

REPAIR APPLICABLE FROM FS STA. 16 TO FS STA. 382 AND FROM FS STA. 745 TO FS STA. 960 FOR PA, AF, SN, LH, TW, AI, SA AND RG AIRPLANES

REPAIR APPLICABLE FROM FS STA. 745 TO FS STA. 960 FOR BA AIRPLANES

### SYMBOLS

◆ REPAIR FASTENER LOCATIONS

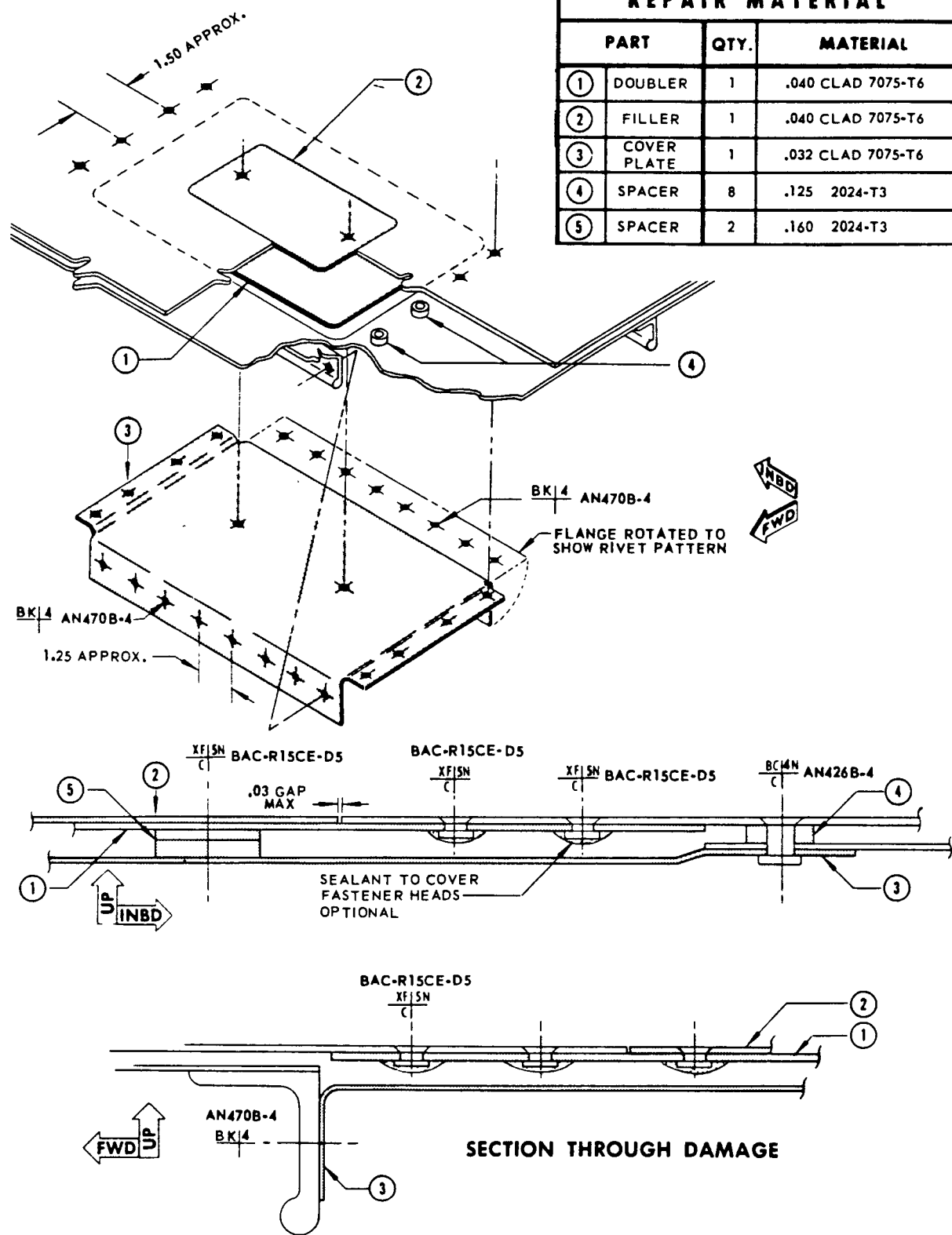


FAA Approved  
Repair



# STRUCTURAL REPAIR

| REPAIR MATERIAL |      |                   |
|-----------------|------|-------------------|
| PART            | QTY. | MATERIAL          |
| ① DOUBLER       | 1    | .040 CLAD 7075-T6 |
| ② FILLER        | 1    | .040 CLAD 7075-T6 |
| ③ COVER PLATE   | 1    | .032 CLAD 7075-T6 |
| ④ SPACER        | 8    | .125 2024-T3      |
| ⑤ SPACER        | 2    | .160 2024-T3      |



| REPAIR MATERIAL |      |                   |  |
|-----------------|------|-------------------|--|
| PART            | QTY. | MATERIAL          |  |
| ① PLATE         | 1    | .080 CLAD 7075-T6 |  |
| ② PLATE         | 1    | .080 CLAD 7075-T6 |  |
| ③ SHIM          | 2    | .020 CLAD 7075-T6 |  |
| ④ SHIM          | 1    | .040 CLAD 7075-T6 |  |
| ⑤ SHIM          | 1    | .040 CLAD 7075-T6 |  |
| ⑥ FILLER        | 2    | .020 CLAD 7075-T6 |  |
| ⑦ PLATE         | 1    | .080 CLAD 7075-T6 |  |
| ⑧ SHIM          | 1    | .020 CLAD 7075-T6 |  |

## NOTE

SEE 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS.

SEE 51-8-0 FOR METAL PROTECTIVE TREATMENT.



REPAIR FASTENER LOCATIONS.



TACK RIVET

REPAIR APPLICABLE FROM F.S. STA. 422 TO F.S. STA. 666 AND FROM F.S. STA. 745 TO F.S. STA. 976 FOR PAA, AF, SABENA, DLH, TWA, AII, VARIG AND SAA AIRPLANES.

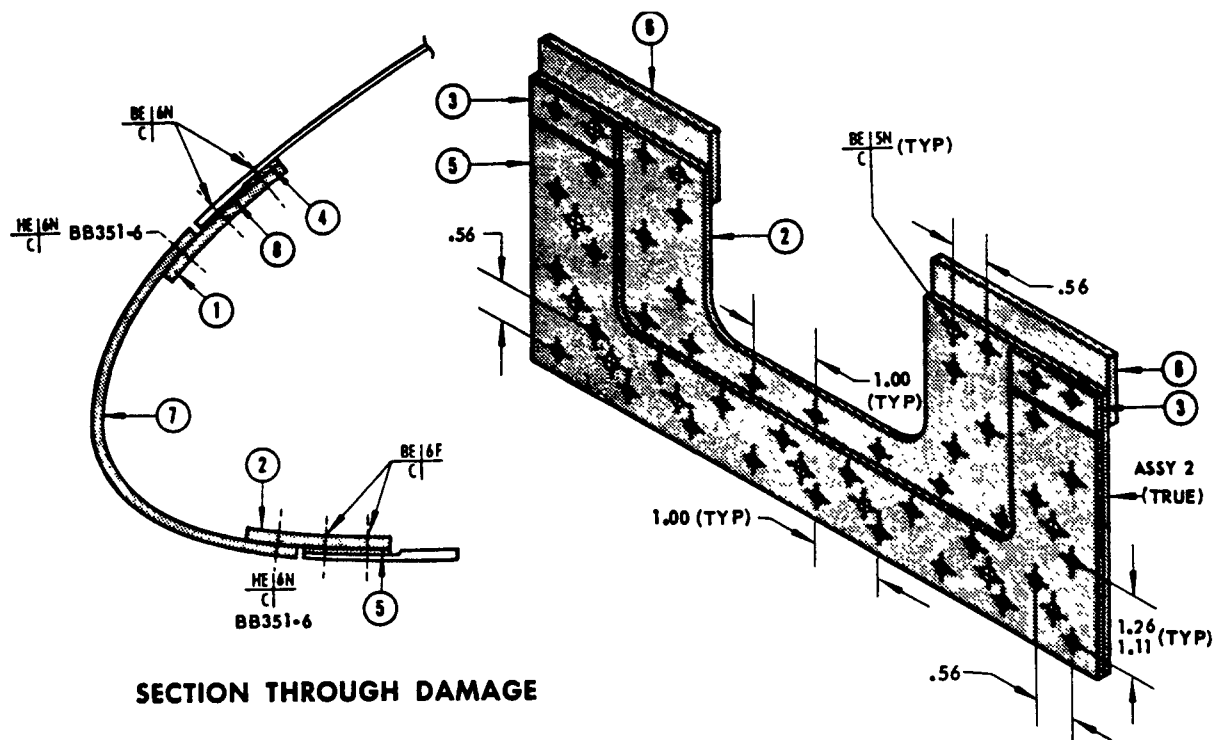
REPAIR APPLICABLE FROM F.S. STA. 422 TO F.S. STA. 666 FOR BOAC AIRPLANES.

## REPAIR INSTRUCTIONS

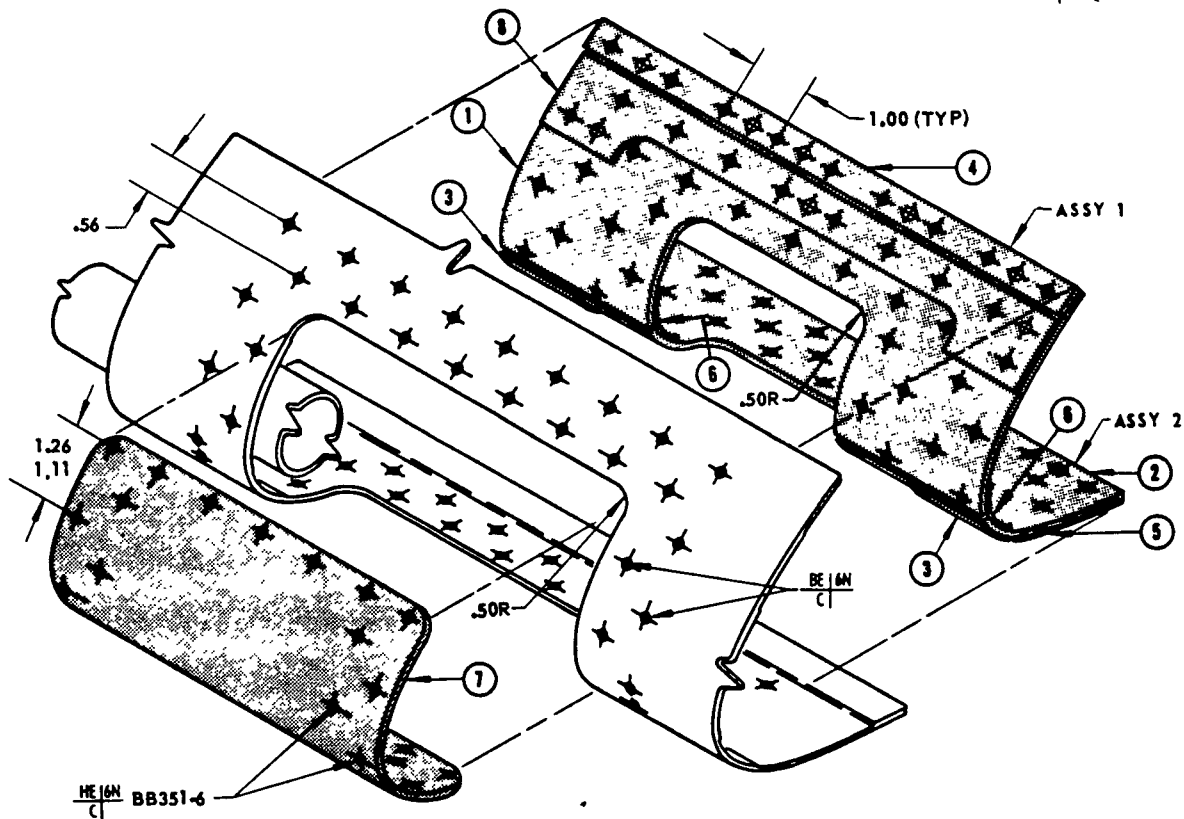
1. Cut out skin in order to obtain a net clear opening in skin of approximately 3.5 inches by 6 inches.
2. Remove all scratches, nicks or sharp edges of the cutout.
3. Make splice plate assemblies with .020 and .040 7075-T6 Clad shim material to accommodate milled areas of the original skin, as required.
4. Layout fastener patterns.
5. Brush alodize cut edges and counter-sink repair fastener holes in original skin and edges of repair assemblies.
6. Make faying surface sealant preparations for assemblies 1 and 2 prior to their installation per 57-2-3. Install one assembly at a time.
7. Make a faying surface sealant installation prior to installing part 7.
8. Add aerodynamic smoother BMS 5-13, Presstite 108, EC 1328 or Pro-Seal 715F to any existing gap per 51-3-0 of the 707 Maintenance Manual.
9. Restore the required surface finish per 51-2-0 of the 707 Maintenance Manual.



STRUCTURAL REPAIR

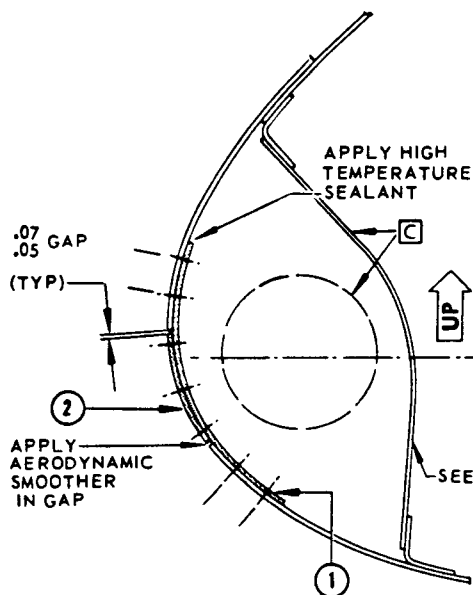


SECTION THROUGH DAMAGE

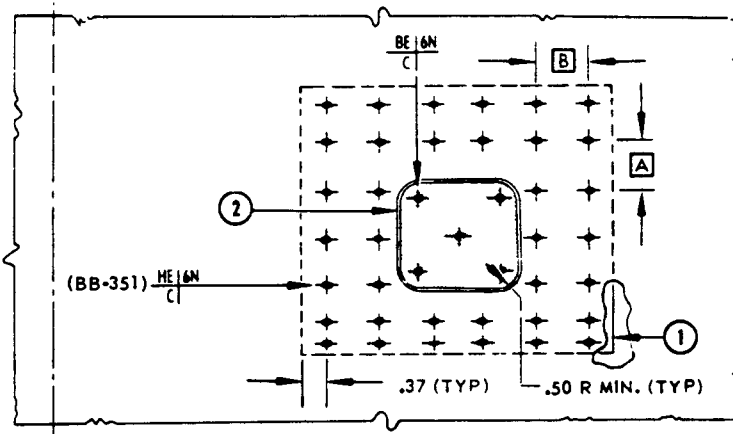


Wing Leading Edge Repair - WS 415.5 and Outboard  
Figure 3 (Sheet 2 of 2)

# STRUCTURAL REPAIR



SECTION THROUGH DAMAGE



## REPAIR INSTRUCTIONS:

1. Replacement of an external repair to the leading edge skin or skin replacement is required at the earliest possible opportunity. Extensive external projections on the leading edge may materially affect airplane performance.
2. Remove an existing external patch and faying surface sealant per Figure 1, if used. Make sealant removal with a cutting tool not harder than 2024-T3. Remove remainder with methyl-ethyl-ketone.
3. Where an external repair has not been used, make a cutout in the damaged area in a square or rectangular shape one edge of which is parallel to a leading edge rib. Remove all scratches, burrs or nicks and smooth all edges of cutout.
4. Alodize countersunk holes for fasteners in original skin per 51-8-0.
5. Remove access doors in the lower leading edge surface forward of the front spar. Any wire bundles may be temporarily removed in order to obtain sufficient clearance for installation. Access to leading edge skin is available by "D-duct" access doors, or by the method shown in figure 5.
6. Fabricate a doubler per tabulation to fit the inside skin contour and sufficiently large to allow for two rows of fasteners on each side of the cutout. Use same fastener locations per figure 1.
7. Install the doubler (or doubler-insert assembly) by sliding it under and forward of the fixed anti-ice tube.
8. Make a seal of intermediate level in such a manner that fillets are sealed per 51-2-0 of the 707 Maintenance Manual.
9. Apply aerodynamic smoother BMS 5-13B, Pro-Seal 715F, presstite 108 or EC 1328 per 51-3-0 of 707 Maintenance Manual.

## REPAIR MATERIAL

| PART      | QTY. | MATERIAL               |
|-----------|------|------------------------|
| ① DOUBLER | 1    | .080 CLAD 7075-0 HT-T6 |
| ② INSERT  | 1    | .080 CLAD 7075-0 HT-T6 |

## NOTE

SEE 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS.

REPAIR APPLICABLE FROM F.S. STA. 71 TO F.S. STA. 382 FOR PA, AF, SN, LH, TW, AI, RG AND SA AIRPLANES.

REPAIR APPLICABLE FROM F.S. STA. 71 TO F.S. STA. 222 FOR BA AIRPLANES ONLY.

## REPAIR FASTENER LOCATIONS

A 1.06 FOR .080 7075-T6 SKIN  
1.25 FOR .060 7075-T6 SKIN

B 2.40 FOR .080 7075-T6 SKIN  
2.12 FOR .060 7075-T6 SKIN

C EXISTING FOR PA, AF, SN, LH, TW, AI, RG AND SA AIRPLANES

SHIM AS REQUIRED OR MAKE DOUBLER ASSEMBLIES IN MILLED AREAS OF ORIGINAL SKIN.

**BOEING**  
*Intercontinental*  
**707**  
**STRUCTURAL REPAIR**

## REPAIR INSTRUCTIONS

When the "D" duct web is damaged or when access to its interior is required, proceed in the following manner:

1. Cut out web of duct to form a smooth rectangular opening.
2. Install parts 2 and 3, formed to web contour, with counter sunk fasteners.
3. Make a faying surface seal between the original duct material and part 1, similar to the procedure outlined in 57-2-3.
4. Install part 1 formed to web contour, with blind fasteners.
5. Restore the required surface finish per 51-2-0 of the 707 Maintenance Manual.

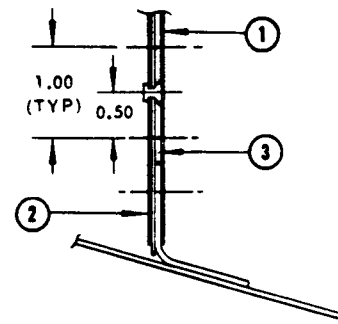
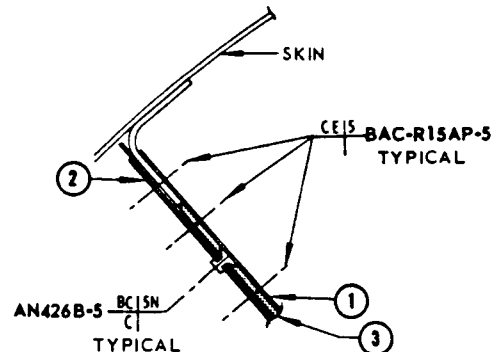
| REPAIR MATERIAL |        |          |                   |
|-----------------|--------|----------|-------------------|
| PART            | QTY.   | MATERIAL |                   |
| ①               | PLATE  | 1        | .016 CLAD 2024-T3 |
| ②               | STRAP  | 2        | .040 CLAD 2024-T3 |
| ③               | FILLER | 2        | .063 CLAD 2024-T3 |

### NOTE

SEE 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS

SEE 51-8-0 FOR METAL PROTECTIVE TREATMENT.

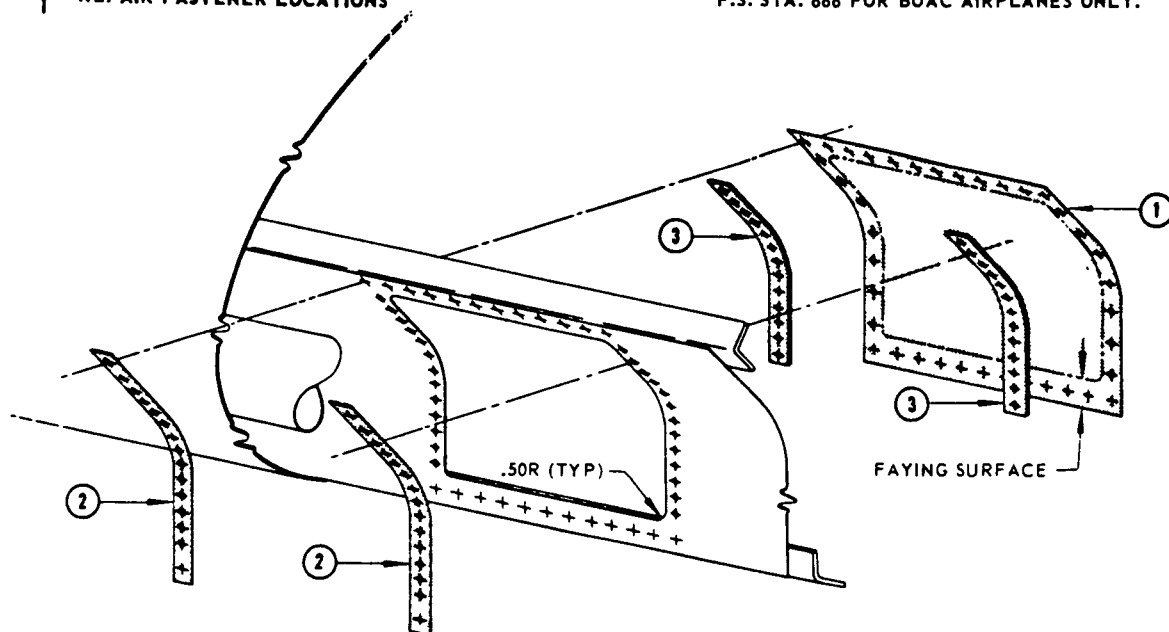
- ✚ ORIGINAL FASTENER LOCATIONS
- ✚ REPAIR FASTENER LOCATIONS



### SECTION ADJACENT TO DAMAGE

REPAIR APPLICABLE FOR PAA, AF, SABENA, DLH, TWA, AII, VARIG AND SAA AIRPLANES.

REPAIR APPLICABLE FROM F.S. STA. 422 TO F.S. STA. 666 FOR BOAC AIRPLANES ONLY.



## NOTE

SEE 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS.

SEE 51-8-0 FOR METAL PROTECTIVE TREATMENT

✚ EXISTING FASTENER LOCATION

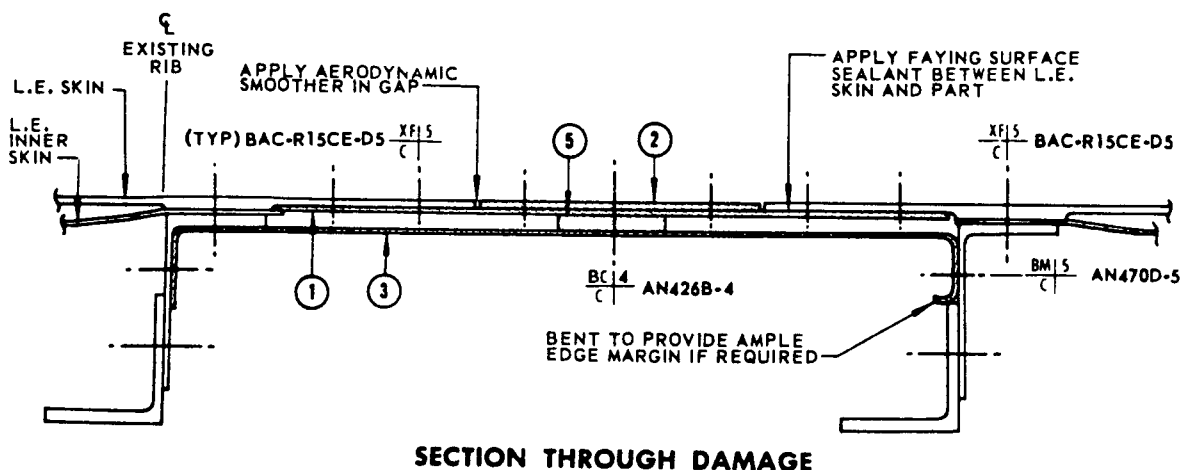
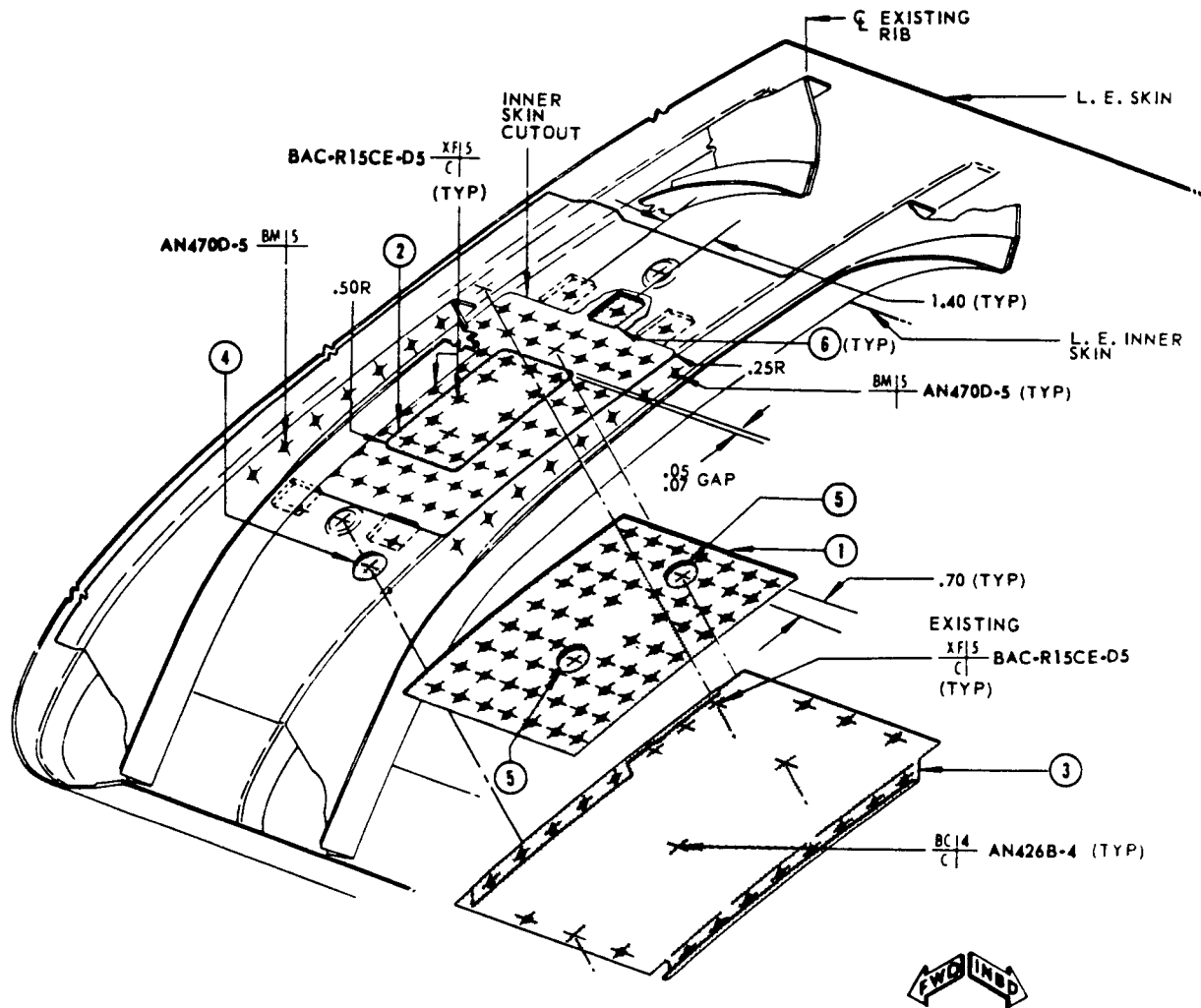
✚ REPAIR FASTENER LOCATION

REPAIR APPLICABLE TO SECTIONS BETWEEN INBD AND OUTBD NACELLES.

| REPAIR MATERIAL |     |                      |
|-----------------|-----|----------------------|
| PART            | QTY | MATERIAL             |
| ① DOUBLER       | 1   | .04 CLAD 7075-T6     |
| ② FILLER        | 1   | .04 CLAD 7075-T6     |
| ③ COVER PLATE   | 1   | .032 CLAD 7075-T6    |
| ④ SPACER        | 1   | 0.1 (APPROX) 2024-T3 |
| ⑤ SPACER        | 2   | 0.1 (APPROX) 2024-T3 |
| ⑥ SPACER        | 5   | 0.1 (APPROX) 2024-T3 |

## REPAIR INSTRUCTIONS:

1. Determine the extent of damage and make a cutout in the inner skin large enough to provide access for installation of the repair doubler assembly. Remove all scratches, nicks or sharp edges of the cutout.
2. Trim the damaged outer skin in order to make a rectangular cutout. Bring the outer skin back to counter by eliminating all indentations, projections or sharp edges.
3. Fabricate a doubler assembly of parts 1, 2 and 5 to contour of the outer skin. Use the assembly as a locating hole template.
4. See 51-8-0 for instructions on cleaning and alodizing.
5. Apply alodine coating to holes and counter sinks of outer skin prior to installation of repair parts.
6. Install the assembly. Fill gap with BM 5-13 per 51-3-0 of 707 Maintenance Manual.
7. Apply zinc chromate primer to inner surface of the repair per 51-2-0 of the 707 Maintenance Manual.
8. Fabricate a cover plate part 3, and install spacers part 4 and 5 as shown. The cover plate may be used as a locating hole template.



SECTION THROUGH DAMAGE

Wing Leading Edge Upper Surface Skin Repair  
Figure 6 (Sheet 2 of 2)

BOEING  
*Intercontinental*  
**STRUCTURAL REPAIR**

| ITEM | CHORDS                     |                   | WEB                  |                   |
|------|----------------------------|-------------------|----------------------|-------------------|
|      | MATERIAL                   | REPAIR FIG NO.    | MATERIAL             | REPAIR FIG NO.    |
| (19) |                            |                   | .016 6061-T6         | 57-4-2 FIG. 5     |
| (20) | AND 10136-1603<br>7075-T6  | 51-14-4<br>FIG. 1 | .063 CLAD<br>7075-T6 | 51-14-2<br>FIG. 1 |
| (21) |                            |                   | .090<br>7075-T6      |                   |
| (22) |                            |                   | .025 CLAD<br>2024-T4 |                   |
| (23) | .063 CLAD<br>7075-T6       | 51-14-3<br>FIG. 1 |                      |                   |
| (24) | BAC 1514-1289<br>7075-T6   | 51-14-4<br>FIG. 1 |                      |                   |
| (25) |                            |                   | .080<br>7075-T6      |                   |
| (26) | .040 CLAD<br>7075-T6       | 51-14-3<br>FIG. 1 | .032 CLAD<br>7075-T6 | 51-14-2<br>FIG. 1 |
| (27) | BAC 1490-2685<br>7075-T6   |                   |                      |                   |
| (28) | .050 CLAD<br>7075-T6       |                   |                      |                   |
| (29) | AND 10134-2006<br>7075-T6  |                   |                      |                   |
| (30) |                            |                   | .050 CLAD<br>7075-T6 | 51-14-2<br>FIG. 1 |
| (31) |                            |                   | .090 CLAD<br>7075-T6 |                   |
| (32) |                            |                   | .025 CLAD<br>7075-T6 | 51-14-2<br>FIG. 1 |
| (33) | BAC 1505-100114<br>7075-T6 |                   |                      |                   |
| (34) |                            |                   | .063 CLAD<br>7075-T6 |                   |
| (35) | BAC 1514-1422<br>7075-T6   | 51-14-4<br>FIG. 1 | .050 CLAD<br>7075-T6 | 51-14-3<br>FIG. 1 |
| (36) | BAC 1505-100285<br>7075-T6 | 51-14-4<br>FIG. 1 | .050 CLAD<br>7075-T6 | 51-14-3<br>FIG. 1 |

| ITEM | CHORDS                     |                   | WEB                  |                   |
|------|----------------------------|-------------------|----------------------|-------------------|
|      | MATERIAL                   | REPAIR FIG NO.    | MATERIAL             | REPAIR FIG NO.    |
| (1)  |                            |                   | .040 CLAD<br>2024-T4 | 51-14-3<br>FIG. 1 |
| (2)  | BAC 1517-1317<br>7075-T6   |                   |                      |                   |
| (3)  | AND 10136-1403<br>7075-T6  | 51-14-4<br>FIG. 1 | .050 CLAD<br>7075-T6 |                   |
| (4)  |                            |                   | .050 CLAD<br>2024-T4 |                   |
| (5)  |                            |                   | .040 CLAD<br>7075-T6 | 51-14-2<br>FIG. 1 |
| (6)  | X7079-T6<br>FORGING        |                   |                      |                   |
| (7)  | BAC 1503-100054<br>2024-T4 | 51-14-4<br>FIG. 1 |                      |                   |
| (8)  | AND 10135-1003<br>7075-T6  | 51-14-4<br>FIG. 1 |                      |                   |
| (9)  | BAC 1514-1391<br>7075-T6   | 51-14-4<br>FIG. 1 |                      |                   |
| (10) | BAC 1506-1155<br>7075-T6   | 51-14-4<br>FIG. 1 | .040 CLAD<br>2024-T3 | 51-14-2<br>FIG. 1 |
| (11) |                            |                   | .025 CLAD<br>2024-T3 |                   |
| (12) | BAC 1489-217<br>2024-T4    | 51-14-4<br>FIG. 1 |                      |                   |
| (13) | BAC 1509-100172<br>7075-T6 | 51-14-4<br>FIG. 1 |                      |                   |
| (14) | BAC 1517-1318<br>7075-T6   |                   |                      |                   |
| (15) | BAC 1506-403<br>7075-T6    | 51-14-4<br>FIG. 1 |                      |                   |
| (16) |                            |                   | .032 CLAD<br>2024-T4 | 57-4-2<br>FIG. 5  |
| (17) | BAC 1506-1338<br>7075-T6   |                   |                      |                   |
| (18) | BAC 1515-525<br>7075-T6    |                   |                      |                   |

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Wing Leading Edge Structure Identification  
Figure 1 (Sheet 1 of 14)

57-4-3  
Page 1



## STRUCTURAL REPAIR

| ITEM | CHORDS                      |                   | WEB                             |                   |
|------|-----------------------------|-------------------|---------------------------------|-------------------|
|      | MATERIAL                    | REPAIR FIG NO.    | MATERIAL                        | REPAIR FIG NO.    |
| (55) | AND 10136-1302<br>7075-T6   |                   | .071 CLAD<br>7075-T6            |                   |
| (56) | AND 10136-1303<br>7075-T6   | 51-14-4<br>FIG. 1 | .080 CLAD<br>7075-T6            | 51-14-2<br>FIG. 1 |
| (57) | AND 10136-1405<br>7075-T6   | 51-14-4<br>FIG. 1 | .080 CLAD<br>7075-T6            | 51-14-2<br>FIG. 1 |
| (58) |                             |                   | .080 CLAD<br>7075-T6            |                   |
| (59) |                             |                   | .100 CLAD<br>7075-T6            |                   |
| (60) | AND 10136-1404<br>7075-T6   | 51-14-4<br>FIG. 1 |                                 |                   |
| (61) | BAC 1505-100364<br>7075-T6  | 51-14-4<br>FIG. 1 |                                 |                   |
| (62) |                             |                   | .071 CLAD<br>7075-T6            |                   |
| (63) | AND 10136-1503<br>2024-T4   | 51-14-4<br>FIG. 1 |                                 |                   |
| (64) | BAC 1505-100081<br>7075-86  |                   |                                 |                   |
| (65) | BAC 1505-100285<br>7075-T6  |                   |                                 |                   |
| (66) | BAC 1514-139<br>7075-T6     |                   |                                 |                   |
| (67) |                             |                   | .040 CLAD<br>2024-T3            |                   |
| (68) | AND 10133-1002<br>7075-T6   |                   |                                 |                   |
| (69) |                             |                   | MAGNESIUM ALLOY<br>SAND CASTING | (B)               |
| (70) | .063<br>7075-T6             |                   |                                 |                   |
| (71) | .125<br>7075-T6             |                   |                                 |                   |
| (72) | BAC 1505-100372<br>2024-T42 |                   |                                 |                   |

| ITEM | CHORDS                           |                   | WEB                  |                   |
|------|----------------------------------|-------------------|----------------------|-------------------|
|      | MATERIAL                         | REPAIR FIG NO.    | MATERIAL             | REPAIR FIG NO.    |
| (37) | BAC 1514-79<br>7075-T6           | 51-14-4<br>FIG. 1 | .050 CLAD<br>7075-T6 | 51-14-3<br>FIG. 1 |
| (38) | BAC 1505-100032<br>7075-T6       | 51-14-4<br>FIG. 1 | .063 CLAD<br>7075-T6 | 51-14-3<br>FIG. 1 |
| (39) | AND 10134-1003<br>7075-T6        | 51-14-4<br>FIG. 1 | .050 CLAD<br>7075-T6 | 51-14-3<br>FIG. 1 |
| (40) | AND 10135-1401<br>7075-T6        |                   |                      |                   |
| (41) | 356-T6 ALUM.<br>COMP 3 (CASTING) |                   |                      |                   |
| (42) | .070 CLAD<br>7075-T6             |                   |                      |                   |
| (43) | BAC 1490-2715<br>7075-T6         |                   |                      |                   |
| (44) |                                  |                   | .032 CLAD<br>2024-0  |                   |
| (45) |                                  |                   | .080 CLAD<br>2024-T3 |                   |
| (46) | AND 10133-1001<br>7075-T6        | 51-14-4<br>FIG. 1 |                      |                   |
| (47) | BAC-1505-100125<br>7075-T6       |                   |                      |                   |
| (48) |                                  |                   | .090 CLAD<br>2024-T3 |                   |
| (49) | BAC-1510-386<br>2024-T4          |                   |                      |                   |
| (50) |                                  |                   | .063 CLAD<br>2024-T3 | 51-14-2<br>FIG. 1 |
| (51) |                                  |                   | .050 CLAD<br>2024-T3 |                   |
| (52) | AND 10136-1404<br>7075-T6        |                   | .080 CLAD<br>7075-T6 |                   |
| (53) | AND 10136-1404<br>7075-T6        |                   | .071 CLAD<br>7075-T6 |                   |
| (54) | AND 10136-1407<br>7075-T6        | 51-14-4<br>FIG. 1 | .080 CLAD<br>7075-T6 | 51-14-2<br>FIG. 1 |

  
**STRUCTURAL REPAIR**

| ITEM | CHORDS                            |                | WEB                    |                |
|------|-----------------------------------|----------------|------------------------|----------------|
|      | MATERIAL                          | REPAIR FIG NO. | MATERIAL               | REPAIR FIG NO. |
| (84) | .063 CLAD 7075-T6 UPPER (2)       |                | .040 CLAD 7075-T6      |                |
|      | AND 10136-2004 7075-T6 LOWER      |                |                        |                |
| (85) | AND 10136-2404 7075-T6 (UPPER)    | 51-14-4 FIG. 1 | .040 CLAD 7075-T6      | 51-14-2 FIG. 1 |
|      | AND 10134-1205 7075-T6 (LOWER)    | 51-14-4 FIG. 1 |                        |                |
| (86) | AND 10133-0701 7075-T6 (LOWER)    | 51-14-4 FIG. 1 | .040 CLAD 7075-T6      | 51-14-2 FIG. 1 |
| (87) | AND 10136-1404 7075-T6 (LOWER)    | 51-14-4 FIG. 1 | .040 CLAD 7075-T6      | 51-14-2 FIG. 1 |
|      | AND 10136-2404 7075-T6 (UPPER)    | 51-14-4 FIG. 1 |                        |                |
| (88) | AND 10134-1205 7075-T6 (LOWER)    | 51-14-4 FIG. 1 | .050 CLAD 7075-T6      | 51-14-2 FIG. 1 |
|      | .080 CLAD 2024-T4                 |                |                        |                |
| (90) | AND 10136-2404 7075-T6 (UPPER)    | 51-14-4 FIG. 1 | .050 CLAD 7075-T6      | 51-14-2 FIG. 1 |
|      | BAC 1503-1662 7075-T6 (LOWER)     | 51-14-4 FIG. 1 |                        |                |
| (91) | BAC 1514-1498 2024-T4             | 51-14-4 FIG. 1 |                        |                |
| (92) |                                   |                | BAC 1520-1141 7075-T6  |                |
| (93) |                                   |                | AND 10139-0703 7075-T6 |                |
| (94) | AND 10136-2001 2024-T4 CLAD (LWR) | 51-14-4 FIG. 1 | .040 CLAD 2024-T3      | 51-14-2 FIG. 1 |
|      | BAC 1490-2743 2024-T4 CL (UPR)    |                | .040 CLAD 2024-T3      | 51-14-2 FIG. 1 |
| (96) | BAC 1505-100310 7075-T6 (UPPER)   | 51-14-4 FIG. 1 | .050 CLAD 7075-T6      | 51-14-2 FIG. 1 |
|      | AND 10134-1205 7075-T6 (LOWER)    | 51-14-4 FIG. 1 |                        |                |

| ITEM | CHORDS                              |                | WEB               |                |
|------|-------------------------------------|----------------|-------------------|----------------|
|      | MATERIAL                            | REPAIR FIG NO. | MATERIAL          | REPAIR FIG NO. |
| (73) | .063 CLAD 2024-T4                   |                |                   |                |
| (74) | BAC 1520-1067 A231B COND. E         |                |                   |                |
| (75) | BAC 1520-1155 7075-T6               |                |                   |                |
| (76) | .080 CLAD 7075-T6 UPPER OUTBD       |                |                   |                |
|      | .080 CLAD 7075-T6 UPPER INBD        |                | .080 CLAD 7075-T6 | 51-14-2 FIG. 1 |
|      | .090 2024-T4 LOWER INBD             |                |                   |                |
|      | BAC 1503-100068 2024-T4 (LWR OUTBD) |                |                   |                |
| (77) | BAC 1505-100354 7075-T6             | 51-14-4 FIG. 1 | .063 CLAD 7075-T6 | 51-14-2 FIG. 1 |
| (78) | BAC 1503-100043 7075-T6             | 51-14-4 FIG. 1 | .050 CLAD 7075-T6 | 51-14-2 FIG. 1 |
| (79) | .080 CLAD 7075-T6 UPPER INBD        |                |                   |                |
|      | .080 CLAD 7075-T6 UPPER OUTBD       |                | .063 CLAD 7075-T6 | 51-14-2 FIG. 1 |
|      | BAC 1503-2771 7075-T6 (LWR INBD)    |                |                   |                |
|      | BAC 1505-100290 7075-T6 (LWR OUTBD) |                |                   |                |
| (80) | BAC 1499-59 7075-T6 CLAD            |                |                   |                |
| (81) | BAC 1500-6127 7075-T6 CLAD          |                |                   |                |
| (82) | BAC 1500-6128 7075-T6 CLAD          |                |                   |                |
| (83) | BAC 1500-6129 7075-T6 CLAD          |                |                   |                |

Wing Leading Edge Structure Identification  
Figure 1 (Sheet 3 of 14)




  
**STRUCTURAL REPAIR**

| ITEM  | CHORDS                                    |               | WEB                  |               |
|-------|-------------------------------------------|---------------|----------------------|---------------|
|       | MATERIAL                                  | REPAIR FIG NO | MATERIAL             | REPAIR FIG NO |
| (110) |                                           |               | .080<br>2024-T3      |               |
| (111) | BAC 1514-1497<br>7075-T6                  |               |                      |               |
| (112) | BAC 1490-2685<br>7075-T6 (UPPER, INBD)    |               | .050 CLAD<br>7075-T6 |               |
|       | .090 7075-T6<br>(UPPER, OUTBD)            |               |                      |               |
|       | .090 7075-T6<br>(FWD-INBD & OUTBD)        |               |                      |               |
| (113) | AND 10136-1702<br>7075-T6 (LOWER)         |               | .063 CLAD<br>7075-T6 |               |
| (114) | AND 10136-2006<br>7075-T6 (LOWER)         |               | .080 CLAD<br>7075-T6 |               |
| (115) | AND 10136-1407<br>7075-T6 (LOWER)         |               | .080 CLAD<br>7075-T6 |               |
| (116) | AND 10136-2006<br>7075-T6 (LOWER)         |               | .090 CLAD<br>7075-T6 |               |
| (117) | AND 10136-1302<br>7075-T6 (LOWER)         |               | .071 CLAD<br>7075-T6 |               |
| (118) | .063 CLAD 7075-T6<br>(LWR-INBD & OUTBD)   |               | .100 CLAD<br>2024-T3 |               |
|       | .050 CLAD 7075-T6<br>(UPPER-INBD & OUTBD) |               |                      |               |
| (119) | .080 CLAD 7075-T6<br>SPICE PLATE          |               |                      |               |
| (120) | BAC 1506-1656<br>7075-T6                  |               |                      |               |
| (121) | BAC 1517-1447<br>2024-T3                  |               |                      |               |
| (122) | AND 10134-1202<br>7075-T6                 |               |                      |               |
| (123) | BAC 1514-1616<br>2024-T4                  |               |                      |               |
| (124) | BAC 1503-100195<br>7075-T6                |               |                      |               |

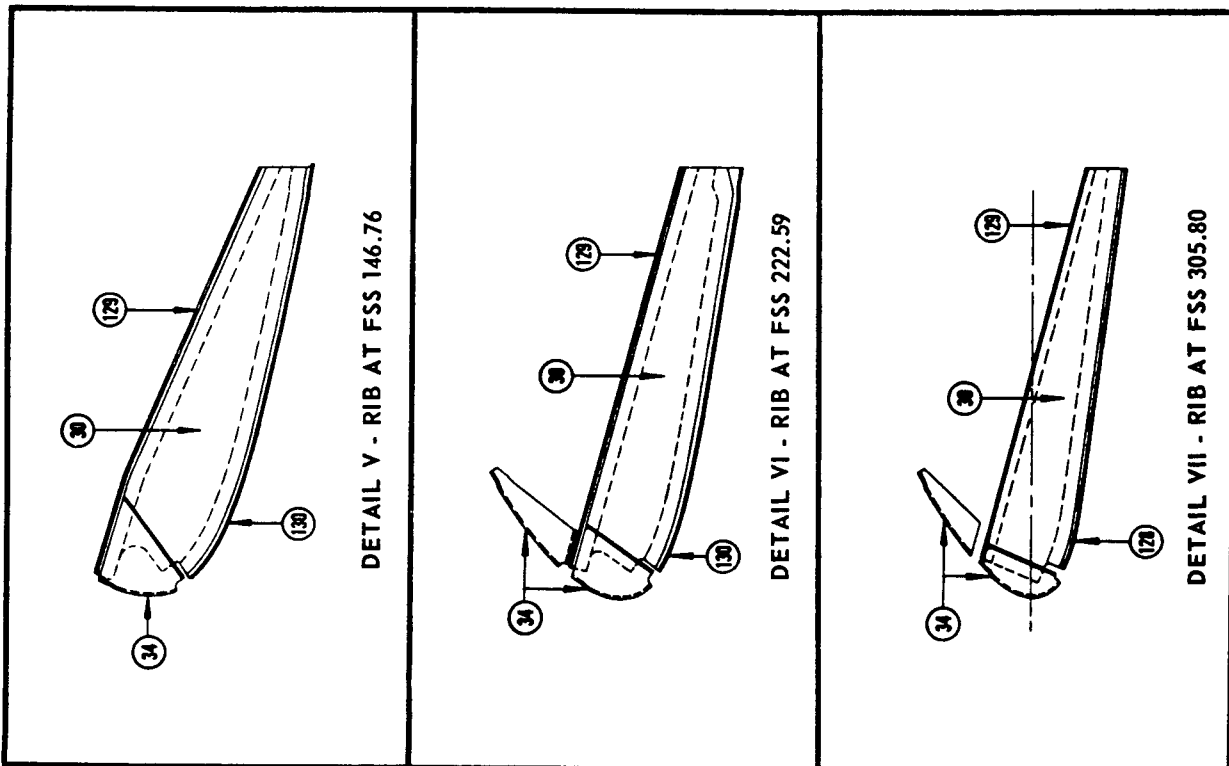
| ITEM  | CHORDS                             |                   | WEB                  |                   |
|-------|------------------------------------|-------------------|----------------------|-------------------|
|       | MATERIAL                           | REPAIR FIG NO     | MATERIAL             | REPAIR FIG NO     |
| (97)  | AND 10133-0701<br>7075-T6 (LWR)    | 51-14-4<br>FIG. 1 | .040 CLAD<br>7075-T6 | 51-14-2<br>FIG. 1 |
| (98)  | AND 10136-1404<br>7075-T6 (LWR)    | 51-14-4<br>FIG. 1 | .050 CLAD<br>7075-T6 | 51-14-2<br>FIG. 1 |
| (99)  | BAC 1505-100299<br>7075-T6 (UPPER) | 51-14-4<br>FIG. 1 | .050 CLAD<br>7075-T6 | 51-14-2<br>FIG. 1 |
|       | AND 10134-1205<br>7075-T6 (LOWER)  | 51-14-4<br>FIG. 1 |                      |                   |
| (100) | AND 10133-0701<br>7075-T6 (LWR)    | 51-14-4<br>FIG. 1 | .032 CLAD<br>7075-T6 | 51-14-2<br>FIG. 1 |
| (101) | AND 10133-0701<br>7075-T6 (LWR)    | 51-14-4<br>FIG. 1 | .050 CLAD<br>7075-T6 | 51-14-2<br>FIG. 1 |
| (102) | BAC 1505-100137<br>7075-T6 (UPPER) | 51-14-4<br>FIG. 1 | .063 CLAD<br>7075-T6 | 51-14-2<br>FIG. 1 |
|       | AND 10134-1205<br>7075-T6 (LOWER)  | 51-14-4<br>FIG. 1 |                      |                   |
| (103) | AND 10134-1205<br>7075-T6 (LWR)    | 51-14-4<br>FIG. 1 | .050 CLAD<br>7075-T6 | 51-14-2<br>FIG. 1 |
| (104) | BAC 1505-100137<br>7075-T6 (UPPER) | 51-14-4<br>FIG. 1 | .050 CLAD<br>7075-T6 | 51-14-2<br>FIG. 1 |
|       | AND 10134-1205<br>7075-T6 (LOWER)  | 51-14-4<br>FIG. 1 |                      |                   |
| (105) | AND 10136-2404<br>7075-T6 (UPPER)  | 51-14-4<br>FIG. 1 | .050 CLAD<br>7075-T6 | 51-14-2<br>FIG. 1 |
|       | BAC 1503-1662<br>7075-T6 (LOWER)   | 51-14-4<br>FIG. 1 |                      |                   |
| (106) | .125 CLAD<br>7075-T6 (UPPER)       |                   | .050 CLAD<br>7075-T6 | 51-14-2<br>FIG. 1 |
|       | AND 10133-1202<br>7075-T6 (LOWER)  | 51-14-4<br>FIG. 1 |                      |                   |
| (107) | BAC 1510-435<br>2024-T4 (LOWER)    | 51-14-4<br>FIG. 1 |                      |                   |
| (108) | AND 10136-2001<br>7075-T6 (LWR)    | 51-14-4<br>FIG. 1 |                      |                   |
| (109) | BAC 1514-1498<br>2024-T4           | 51-14-4<br>FIG. 1 |                      |                   |

  
**STRUCTURAL REPAIR**

| ITEM  | CHORDS                                         |                | WEB                            |                |
|-------|------------------------------------------------|----------------|--------------------------------|----------------|
|       | MATERIAL                                       | REPAIR FIG NO. | MATERIAL                       | REPAIR FIG NO. |
| (125) | BAC 1517-1446<br>7075-T6                       |                |                                |                |
| (126) | BAC 1505-100081<br>7075-T6                     |                |                                |                |
| (127) |                                                |                | 0.140 7075-T6<br>(CHEM-MILLED) |                |
| (128) | AND 10136-2002<br>7075-T6 (LOWER)              |                |                                |                |
| (129) | AND 10136-1403<br>7075-T6 (UPPER)              |                |                                |                |
| (130) | BAC 1505-100158<br>7075-T6 (LOWER)             |                |                                |                |
| (131) | BAC 1520-1142<br>7075-T6                       |                |                                |                |
| (132) | HINGE BAC1520-1511<br>2024-T3511               |                |                                |                |
| (133) | FITTING-LWR<br>SKIN SPLICE<br>FORGING 7079-T6  |                |                                |                |
| (134) | FITTING-LWR<br>SKIN SPLICE<br>FORGING 7075-T73 |                |                                |                |

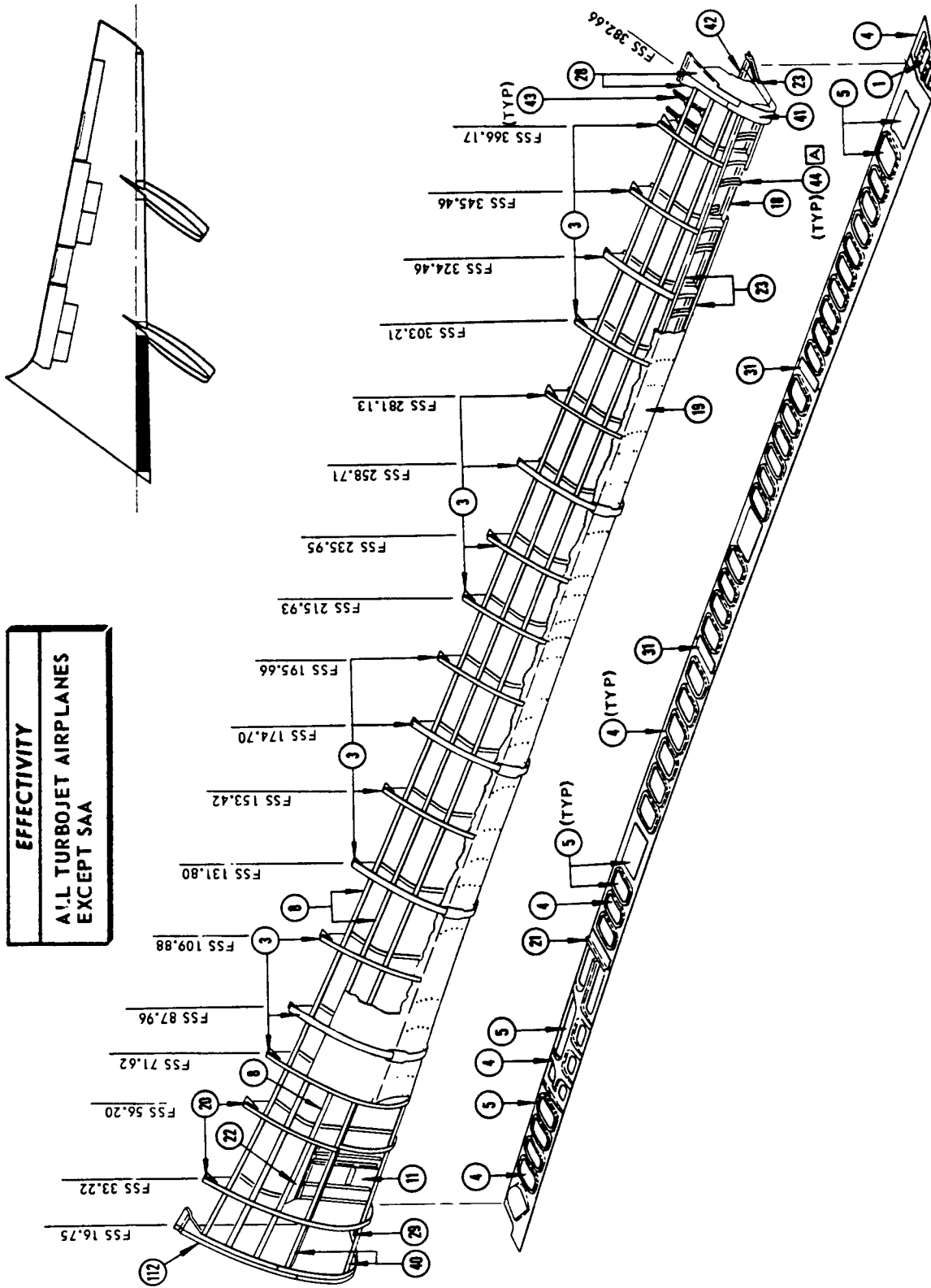
**NOTE**

- ☐ A USED ON SOME LATER AIRPLANES ONLY
- ☐ B FOR WELDING REPAIR OF THIS CASTING SEE 57-50-32 OF THE OVERHAUL MANUAL
- ☐ C ON ALL TURBOFAN AIRPLANES WITH S.B. 2490 INCORPORATED.
- ☐ D FORGINGS OF 7079-T6 MATERIAL HAVE BEEN REPLACED BY FORGINGS OF 7075-T73 IN PRODUCTION; 7075-T73 FORGINGS ARE RECOMMENDED WHEN EXISTING STOCKS OF 7079-T6 ARE EXHAUSTED.



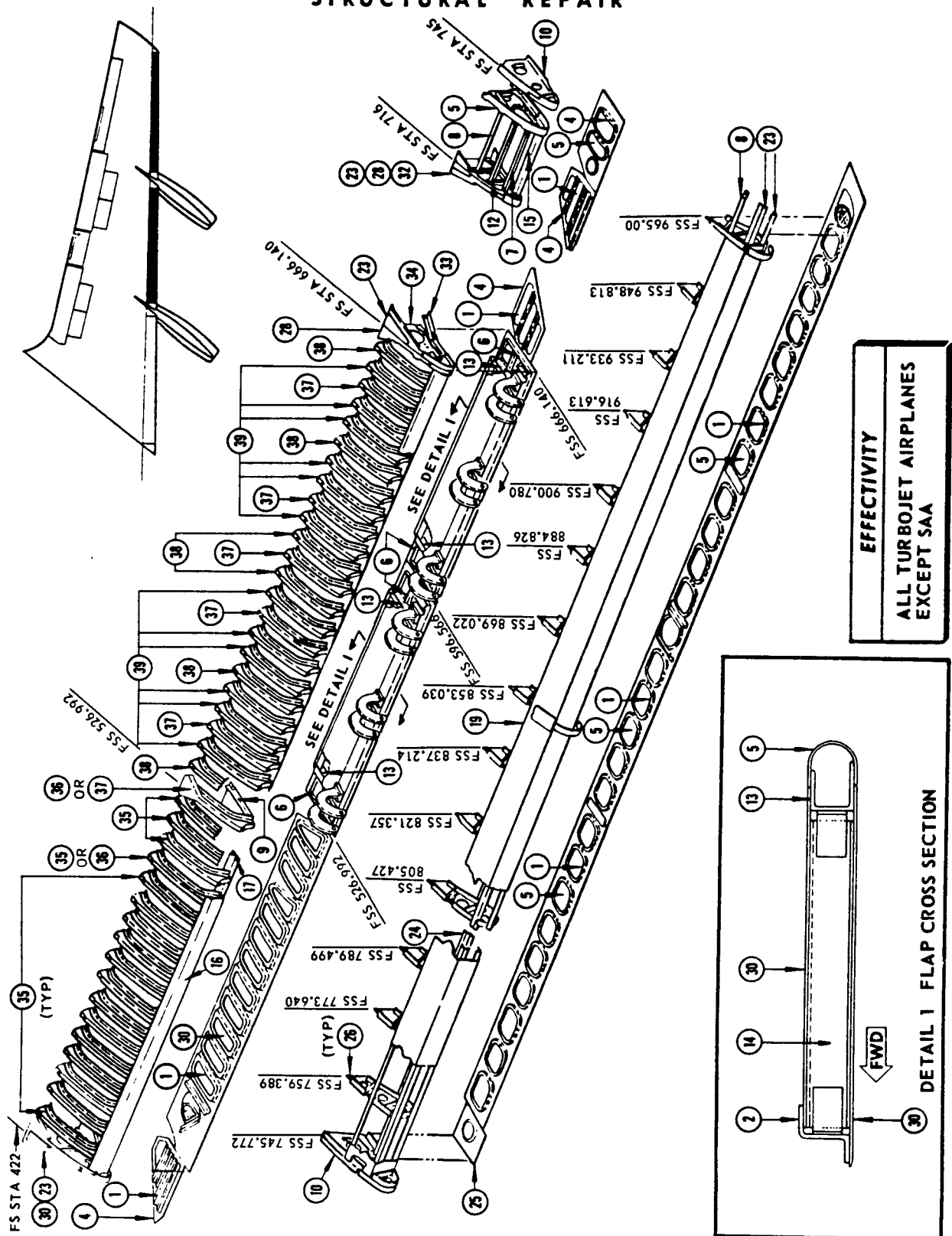
BOEING *707* Intercontinental

STRUCTURAL REPAIR

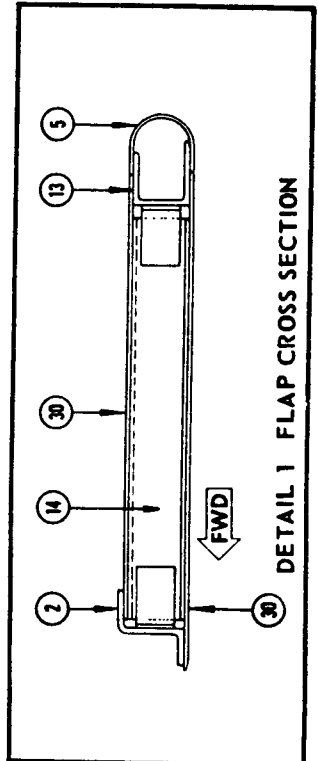


BOEING *Intercontinental* 707

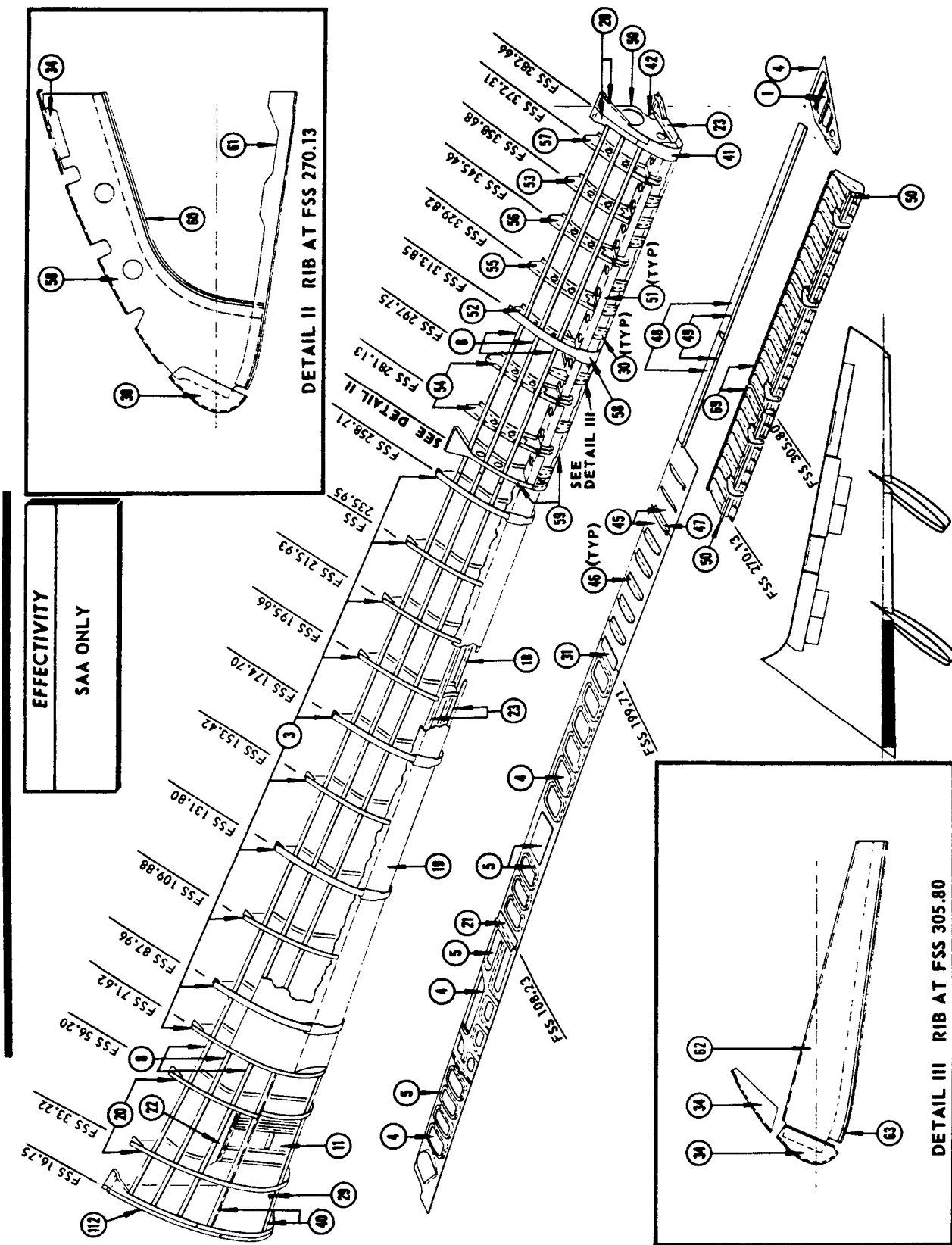
# STRUCTURAL REPAIR



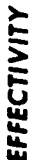
**EFFECTIVITY**  
ALL TURBOJET AIRPLANES  
EXCEPT SAA



## STRUCTURAL REPAIR



Wing Leading Edge Structure Identification  
Figure 1 (Sheet 8 of 14)

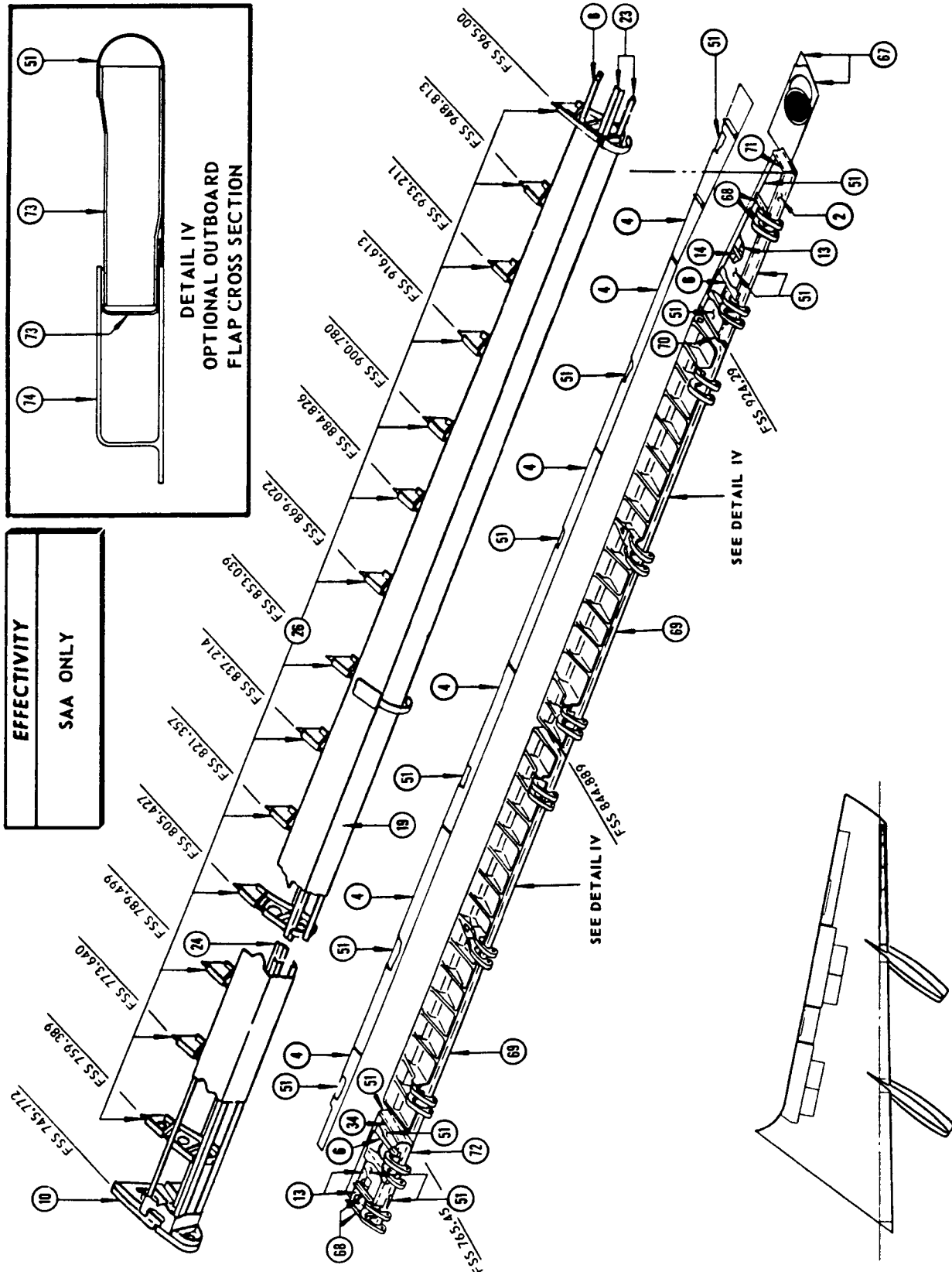


**SAA ONLY**

57-4-3  
Page 9

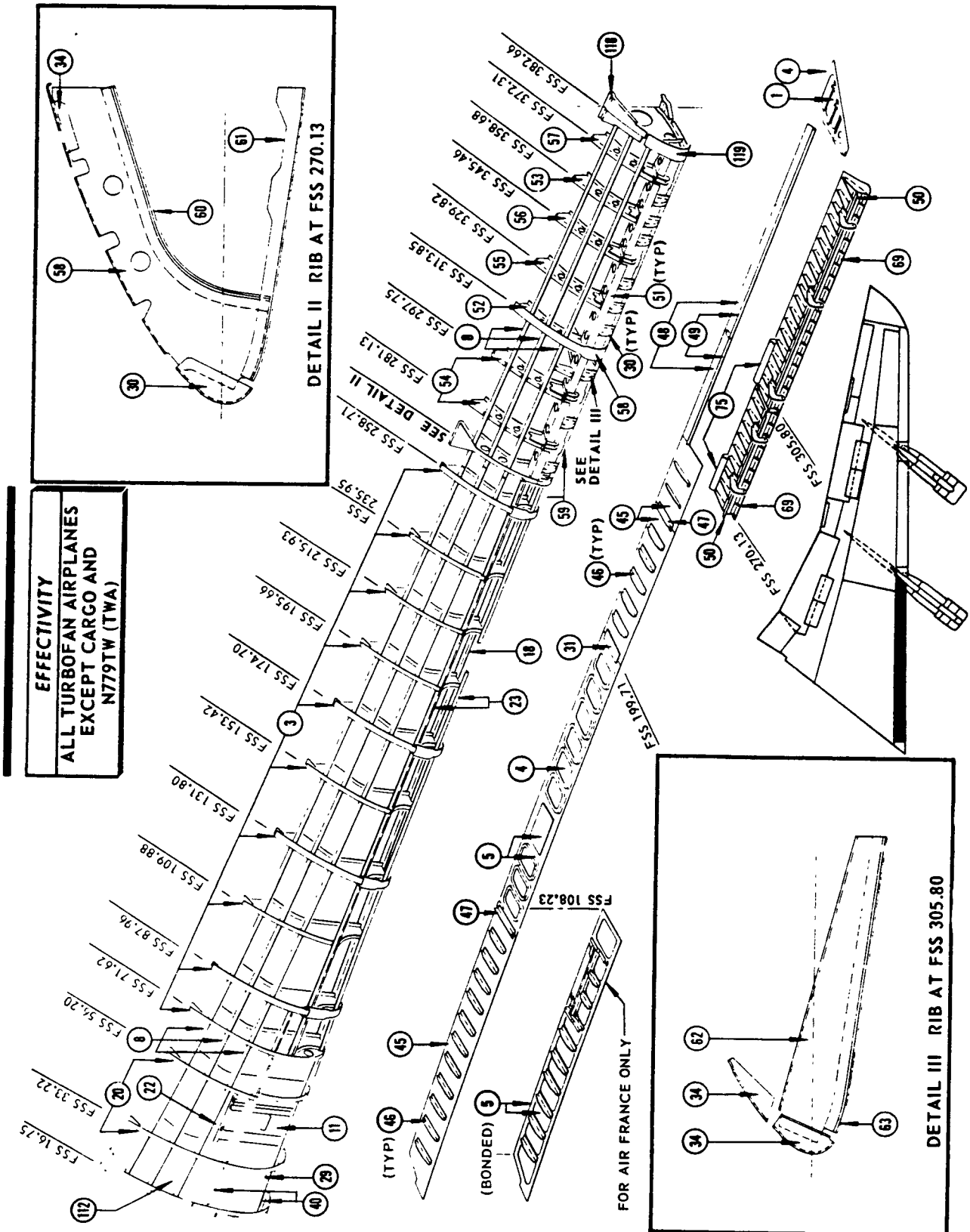
BOEING  
Intercontinental

STRUCTURAL REPAIR



Wing Leading Edge Structure Identification  
Figure 1 (Sheet 10 of 14)

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707  
STRUCTURAL REPAIR



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Revised

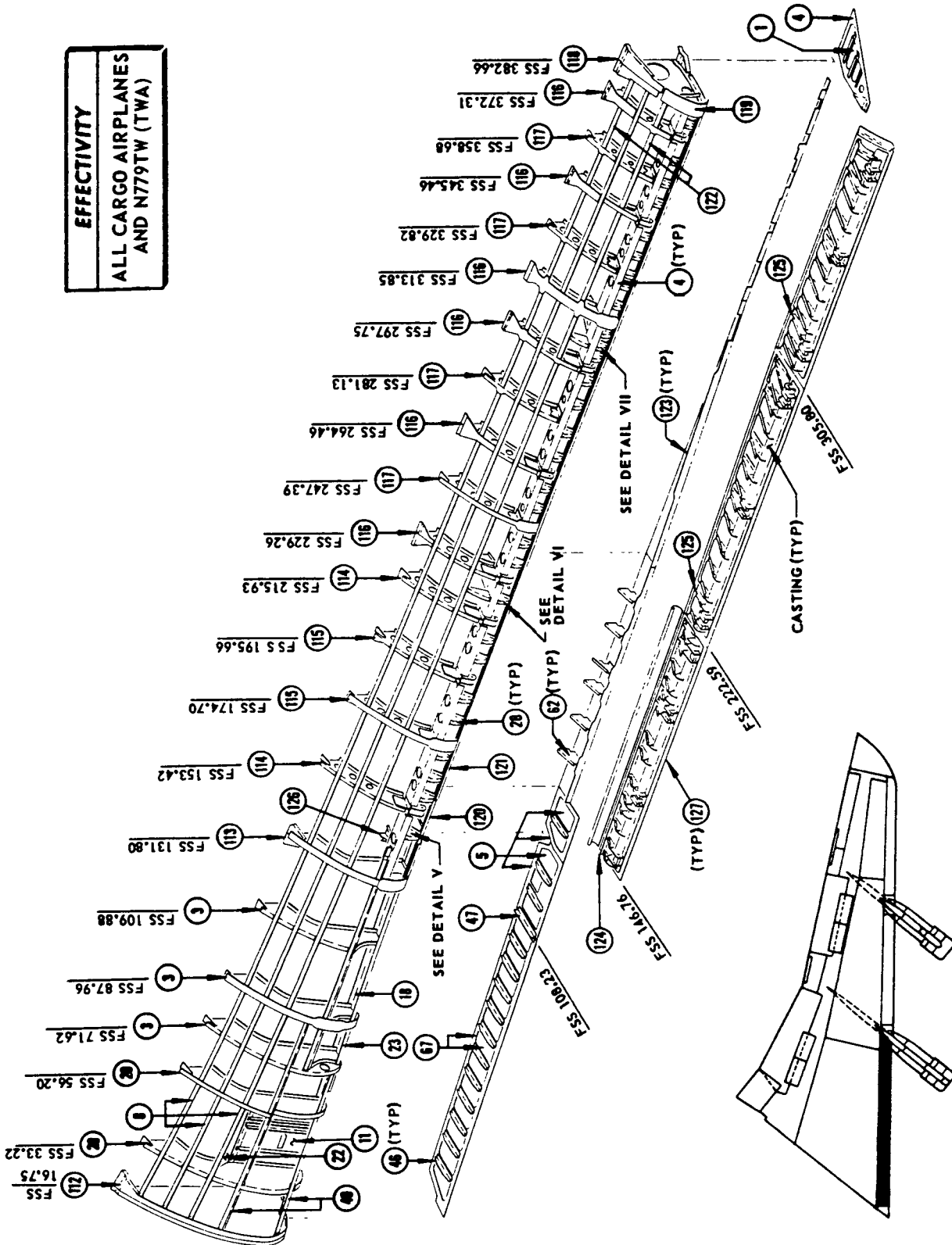
Wing Leading Edge Structure Identification  
Figure 1 (Sheet 11 of 14)

57-4-3  
Page 11

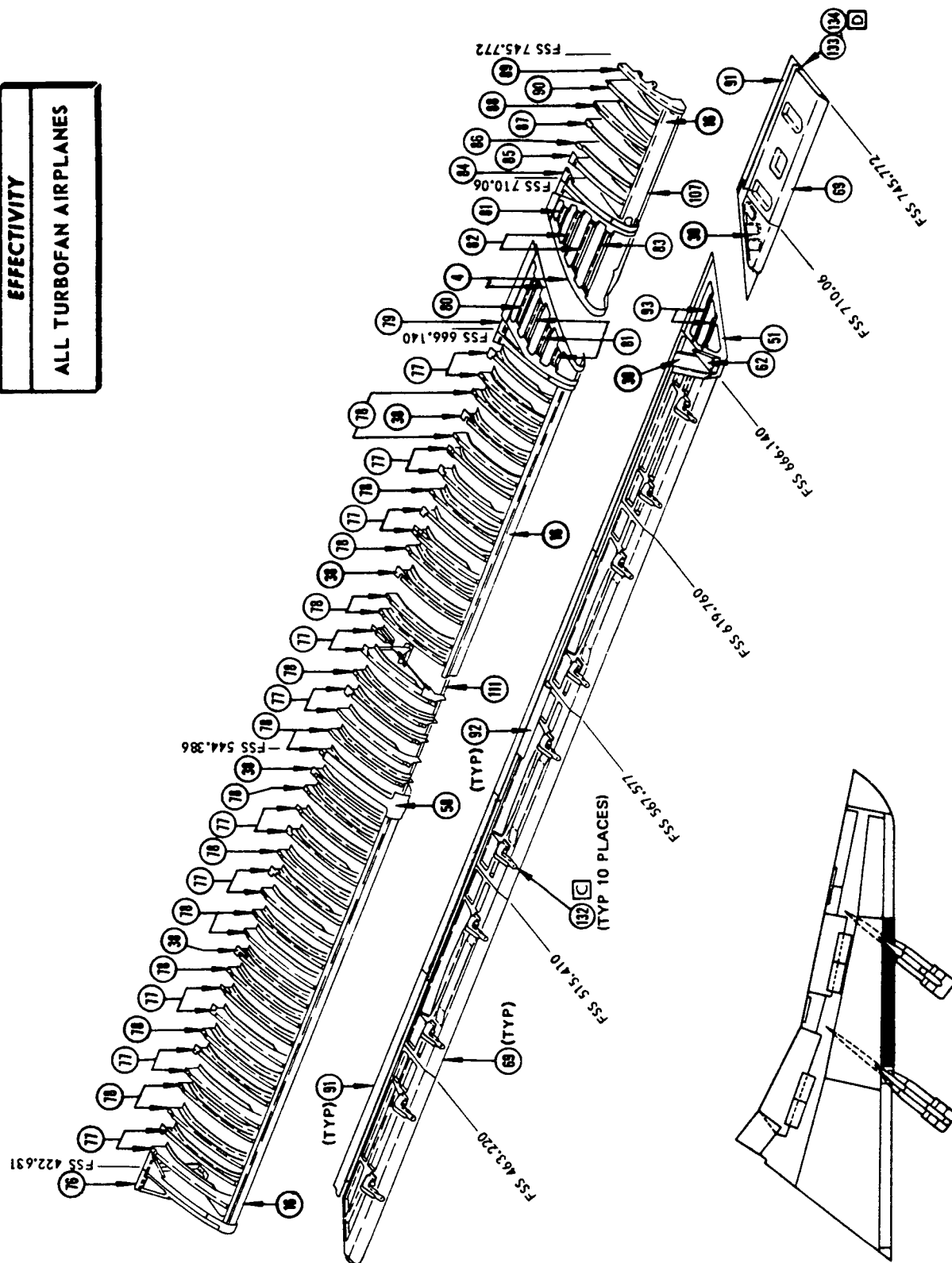


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*Intercontinental*  
**707**  
**STRUCTURAL REPAIR**

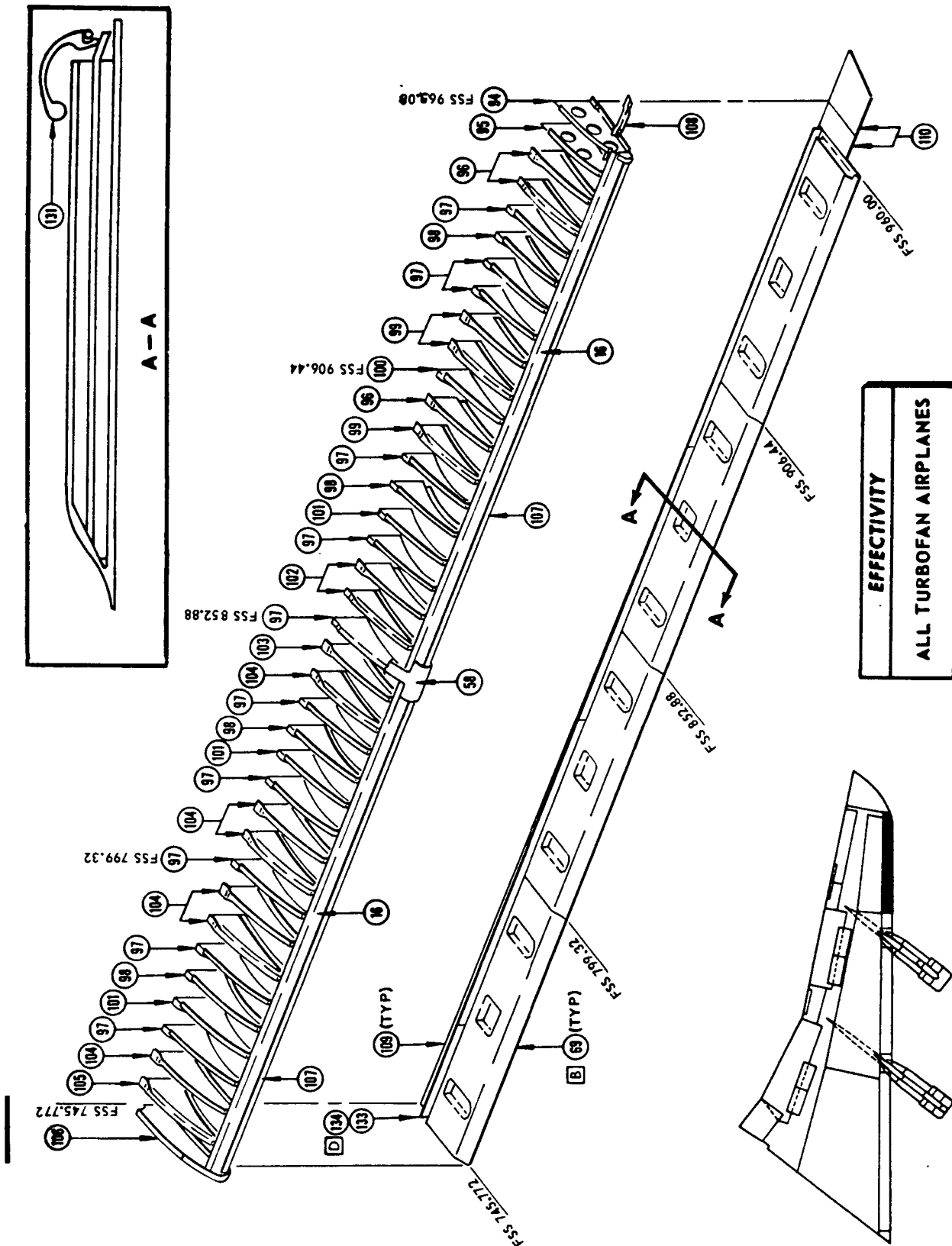
**EFFECTIVITY**  
**ALL CARGO AIRPLANES**  
**AND N779TW (TWA)**



Wing Leading Edge Structure Identification  
 Figure 1 (Sheet 12 of 14)



BOEING  
*Intercontinental*  
 STRUCTURAL REPAIR

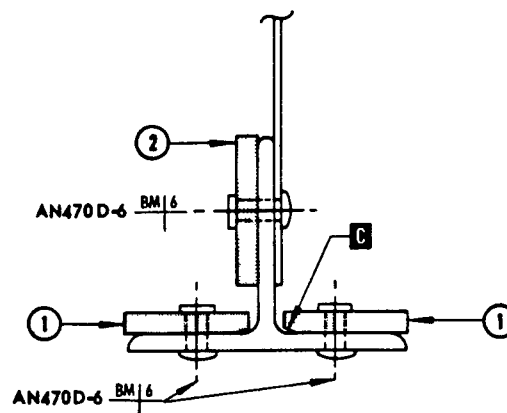


Wing Leading Edge Structure Identification  
 Figure 1 (Sheet 14 of 14)

# STRUCTURAL REPAIR

## REPAIR INSTRUCTIONS

1. See 51-2-0 for fastener code, removal and installation, hole sizes and edge margins.
2. Cut out damaged portion of the chord so that edge margins for original and repair fasteners are maintained.
3. Break all sharp edges and corners of damage area and repair parts.
4. Before installation alodize per 51-8-0 all holes and areas of original structure and repair parts.
5. Drill holes on Part 1 to match original locations.
6. Locate flange rivets midway between existing holes. Elsewhere, spacing same as original fastener locations through cord leg.
7. Before installation apply one coat of zinc chromate primer to original structure and repair parts per 51-2-0 of 707 Maintenance Manual.
8. Restore original surface finish per 51-2-0 of 707 Maintenance Manual.



SECTION ADJACENT TO DAMAGE

| REPAIR MATERIAL |      |                        |  |
|-----------------|------|------------------------|--|
| PART            | QTY. | MATERIAL               |  |
| ① PLATE A       | 2    | .10 × .65 CLAD 7075-T6 |  |
| ② PLATE A       | 1    | .10 × .70 CLAD 7075-T6 |  |
| ③ FILLER B      | 1    | AND 10136-1403 7075-T6 |  |

## NOTE

REPAIR APPLICABLE TO FRONT SPAR STA 71.62 THROUGH 366.179

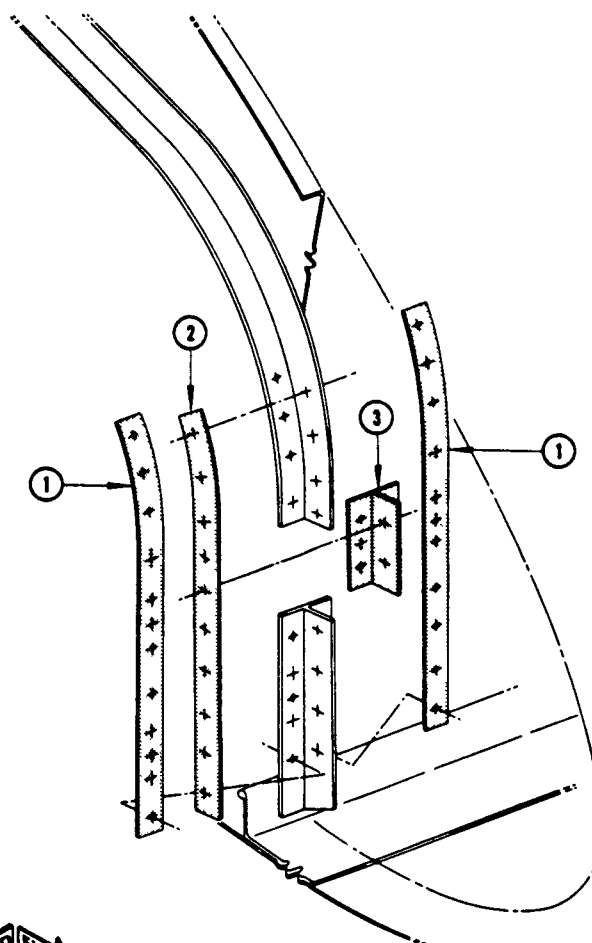
✚ ORIGINAL FASTENER LOCATIONS

✚ REPAIR FASTENER LOCATIONS

A OPTIONAL MATERIAL 7178-T6.

B FILLER SECTION AND MATERIAL .080 PLATE 7178-T6 OR 2024-T3. OPTIONAL IF CUT OUT SHORTER THAN 2.2 INCHES.

C CHAMFER 45° TO CLEAR FILLET RADIUS BY .03.





## STRUCTURAL REPAIR

### REPAIR INSTRUCTIONS

### Method I

**NOTE:** The following procedure is applicable only if damage is established as a crack radiating from the drain hole.

1. Remove the slat from the wing in accordance with Chapter 27-16 of the 707 Maintenance Manual.

2. Remove actuator fitting.

**NOTE:** The actuator fitting may be difficult to remove. A simple puller may be fabricated that picks up the actuator attach lugs and applies a light steady pull through two thumbscrews that react on the slat itself. With a steady pull exerted, apply moderate heat (200°F max) to fitting and slat.

3. Eddy current inspect the drain hole per D6-7170, Nondestructive Test Manual, to identify and locate cracks emanating from the drain hole.
4. Mark a 11/16-inch diameter circle around the drain hole and encompassing cracks.
5. If crack is not detected outside of the 11/16-inch diameter circle proceed to Method I repair. If crack extends beyond the 11/16-inch diameter circle proceed to Method II, III or IV repair. Refer to note for general description.

1. Oversize drain hole to a final diameter that will remove 1/32 inch of material beyond end of crack. If crack can be detected running out of only one side of drain hole, assume that a non-detectable crack progresses out of the other side, and remove 1/32 inch of material from that side of the hole, also. The maximum allowable hole diameter shall not exceed 3/4-inch diameter. This hole limit can be moved to encompass both the end of the crack and the drain hole plus 1/32 inch beyond the end of the crack and outer edge of drain hole.
2. Fabricate 2024-T3 aluminum alloy plug having 0.00015/0.00020-inch interference fit with the hole.
3. Install plug with wet zinc chromate primer.
4. Prime the surfaces of the part in the repair area with BMS 10-11.
5. After curing of the primer, coat the primed areas with polyurethane enamel, BMS 10-60.
6. Reapply potting compound, if required, and reinstall actuator fitting.
7. Restore original finish in accordance with 51-2-0 of the 707 Maintenance Manual.
8. Reinstall slat according to Chapter 27-16 of the 707 Maintenance Manual.

Leading Edge Slats - Repair at Drain Hole  
Figure 1 (Sheet 1)



## STRUCTURAL REPAIR

### REPAIR INSTRUCTIONS (CONT)

#### Method II, Method III and Method IV

NOTE: Damage repair may be accomplished by proceeding with either Method II, III or IV repair procedure.

Method II requires full penetration welding under stringent high temperature preheat with subsequent stress relieving and heat treating.

Method III requires full penetration welding under less stringent and lower temperature preheat with no stress relieving or heat-treating required. A doubler, however, is fastened over the damage area.

Method IV requires no welding but requires a doubler and a tripler fastened over the damage area.

#### Method II

1. Drill a 0.187 diameter stop hole at the extreme end of the crack.
2. Eddy current inspect the crack area per D6-7170, Nondestructive Test Manual, to ensure that cracking does not exist beyond the hole. If no cracking exists, enlarge stop hole to 0.25 diameter.
3. Remove fasteners from rib chords as required.

4. Prepare the slat for welding and weld the crack in accordance with 57-50-32 of the 707 Overhaul Manual. Also fill the drain hole with weld.
5. Prime the surfaces in the repair area with BMS 10-11.
6. Reinstall fasteners wet with BMS 10-11 primer.
7. After curing of the primer, coat the primed areas with polyurethane enamel, BMS 10-60.
8. Reapply potting compound, if required and reinstall actuator fitting.
9. Restore original finish in accordance with 51-2-0 of the 707 Maintenance Manual.
10. Reinstall slat according to Chapter 27-16 of the 707 Maintenance Manual.

#### Method III

1. Drill a 0.187 diameter stop hole at the extreme end of the crack.
2. Eddy current inspect the crack area per D6-7170, Nondestructive Test Manual, to ensure that cracking does not exist beyond the hole. If no cracking exists enlarge hole to 0.25 diameter.
3. Remove fasteners from rib chords as required.

Leading Edge Slats - Repair At Drain Hole  
Figure 1 (Sheet 2)



## STRUCTURAL REPAIR

### REPAIR INSTRUCTIONS (CONT) Method III (Cont)

4. Prepare the slat for welding and weld the crack in accordance with 57-50-32 of the 707 Overhaul Manual except as follows:

- a. Preheating and stress relieving shall be limited to 350°F maximum and shall be accomplished by furnace method only.
- b. Re-heat treat of the casting is not required.
- c. Radiographic inspect and penetrant inspect per MIL-C-6021F only the weld area and a 1.0-inch wide zone on both sides and both ends of the weld areas.

5. Fabricate part [1], lay out and drill fastener holes to match existing holes in the rib chords. See Repair I or II for part configuration.

6. Lay out and drill repair fastener holes in repair part and slat surface and countersink to suit fasteners.

NOTE: Drill completely through nose of casting for forward row of blind fasteners. Holes will be filled with resin after fastener installation.

7. Brush alodize the repair part and prime the surfaces of the repair part and the original with BMS 10-11.

8. After curing of the primer, coat the primed areas with polyurethane enamel BMS 10-60.
9. Install countersunk repair washers in rib chord fastener holes. Refer to 51-2-8, Fig. 4 of the Structural Repair Manual.
10. Apply corrosion preventive faying surface seal PR1413G or PR1436G between plate and slat surface.
11. Install fastener wet, with BMS 10-11 primer.
12. Reapply potting compound, if required and reinstall actuator fitting.
13. Restore original finish in accordance with 51-2-0 of the 707 Maintenance Manual.
14. Reinstall slat according to 27-16 of the 707 Maintenance Manual.

### Method IV

1. Drill a 0.187 diameter stop hole at the extreme end of the crack.
2. Eddy current inspect the crack area per D6-7170, Nondestructive Test Manual, to ensure that cracking does not exist beyond the hole. If no cracking exists enlarge hole to 0.25 diameter.
3. Remove fasteners from rib chords as required.
4. Fabricate parts [3] and [4], lay out and drill fastener holes to match existing holes in the rib chords.

Leading Edge Slats - Repair at Drain Hole  
Figure 1 (Sheet 3)



## STRUCTURAL REPAIR

### REPAIR INSTRUCTIONS (CONT)

#### Method IV (Cont)

5. Lay out and drill fastener repair fastener holes in repair parts and slat surface and countersink or dimple to suit fastener call-outs and on illustration.

NOTE: Drill completely through nose of casting for forward row of blind fasteners. Holes will be filled with resin after fastener installation.

6. Brush alodize the repair parts and prime the surfaces of the repair parts and the slat surface with BMS 10-11.
7. After curing of the primer, coat the primed areas with polyurethane enamel, BMS 10-60.
8. Apply corrosion preventive faying surface seal, PR1413G or PR1436G between repair plates and slot surface prior to installation.
9. Install fastener wet, with BMS 10-11 primer.
10. Reapply potting compound, if required and reinstall actuator fitting.
11. Fair heads of NAS1398B6 fasteners and 0.72 diameter holes through parts [3] and [4] with aerodynamic filler.
12. Restore original finish in accordance with 51-2-0 of the 707 Maintenance Manual.
13. Reinstall slat according to instructions in 27-16 of the Maintenance Manual.

Leading Edge Slats - Repair at Drain Hole  
Figure 1 (Sheet 4)





## STRUCTURAL REPAIR

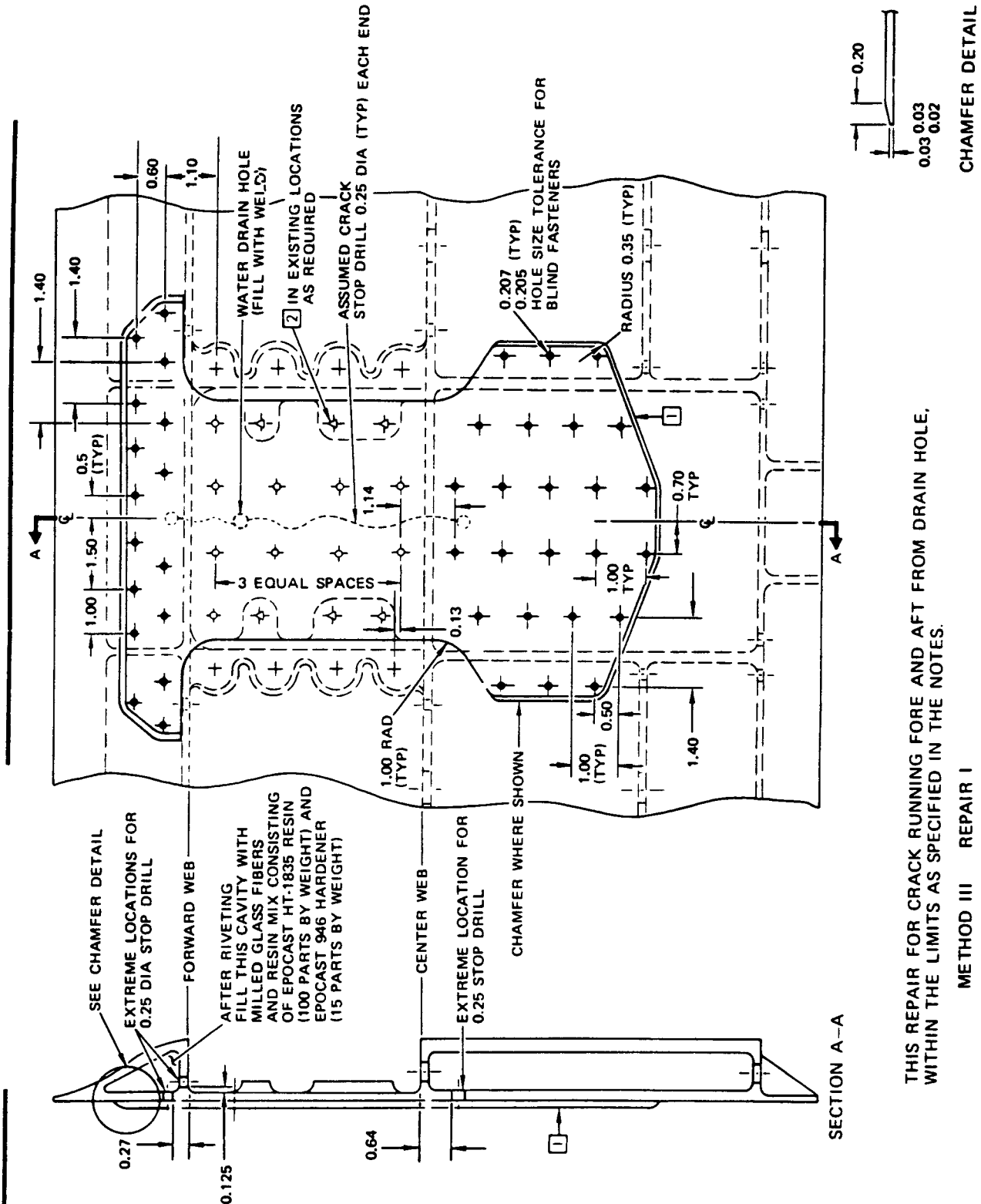
### NOTES

- VISUALLY INSPECT FOR PROPAGATION OF CRACK AT EACH "C" INSPECTION
- THIS REPAIR IS FOR USE ON OUT-BOARD LEADING EDGE SLATS WHERE A CRACK HAS OCCURRED IN THE VICINITY OF A WATER DRAIN HOLE
- FOR REPAIRS TO SLATS WITH CRACKS EXTENDING BEYOND THE LENGTHS SHOWN, CONTACT THE BOEING COMPANY, FIELD SERVICE DEPARTMENT
- USE WHICHEVER REPAIR IS APPLICABLE
- BREAK SHARP EDGES OF ORIGINAL AND REPAIR PARTS 0.015 TO 0.030
- REMOVE ALL NICKS, SCRATCHES, BURRS, SHARP EDGES AND CORNERS FROM ORIGINAL AND REPAIR PARTS
- REFER TO THE FOLLOWING WHEN USING EITHER OF THESE REPAIRS:
  - 51-8-0 FOR PROTECTIVE TREATMENT OF METAL
  - 51-2-0 FOR FASTENER CODE, REMOVAL, INSTALLATION, HOLE SIZES AND EDGE MARGINS
  - 51-9-1 FOR STRUCTURAL BONDING
  - 51-4-1 FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS
  - 51-2-8 FOR COUNTERSINK REPAIR WASHERS
  - 51-2-0 OF THE 707 MAINTENANCE MANUAL FOR INTERIOR AND EXTERIOR FINISHES

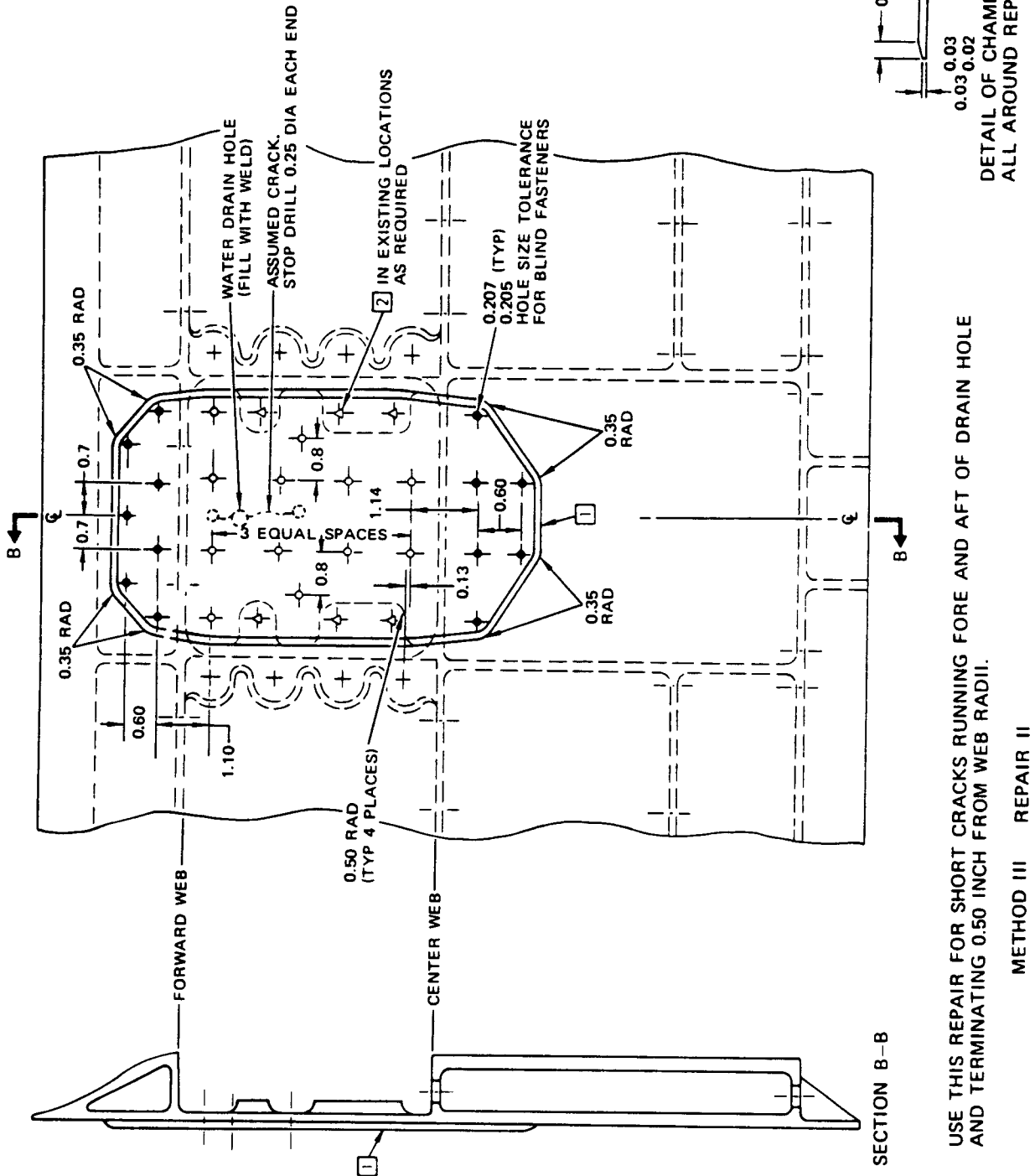
### SYMBOLS

- + } ORIGINAL FASTENER LOCATIONS
- ◆ } REPAIR FASTENER LOCATIONS
- } REPAIR FASTENER LOCATIONS
- ★ } REPAIR FASTENER LOCATIONS
- ⊕ } REPAIR FASTENER LOCATIONS

| REPAIR MATERIAL |                |         |                                                     |
|-----------------|----------------|---------|-----------------------------------------------------|
| PART            |                | QTY     | MATERIAL                                            |
| ①               | PLATE          | 1       | 0.08 2024-T3                                        |
| ②               | REPAIR WASHERS | AS REQD | 2017-T3<br>OPTIONAL 2024-T4                         |
| ③               | PLATE          | 1       | 0.050 2024-T3                                       |
| ④               | PLATE          | 1       | 0.040 2024-T3                                       |
| ★               | FASTENER       | 6       | BACB30EL4                                           |
| ◆               | FASTENER       | AS REQD | NAS1399B6                                           |
| ○               | FASTENER       | AS REQD | MS20426B6                                           |
| ★               | FASTENER       | 36      | NAS1398B6                                           |
| ⊕               | FASTENER       | 10      | MS20426B6 OR<br>BACR15CE6B, CSK<br>FLUSH BOTH SIDES |



Leading Edge Slats - Repair at Drain Hole  
Figure 1 (Sheet 6)

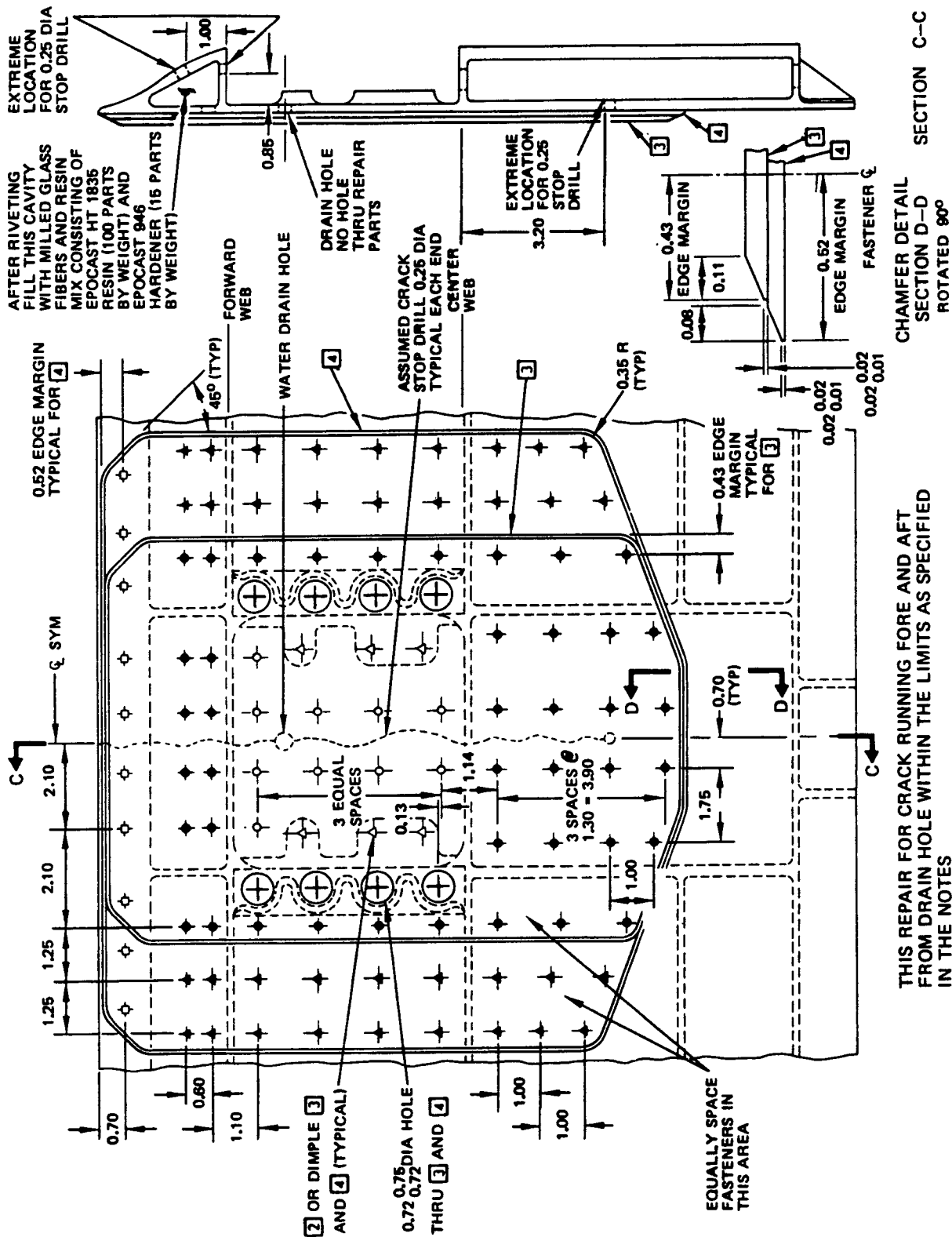


USE THIS REPAIR FOR SHORT CRACKS RUNNING FORE AND AFT OF DRAIN HOLE AND TERMINATING 0.50 INCH FROM WEB RADII.

## METHOD III REPAIR II



# INTERCONTINENTAL STRUCTURAL REPAIR



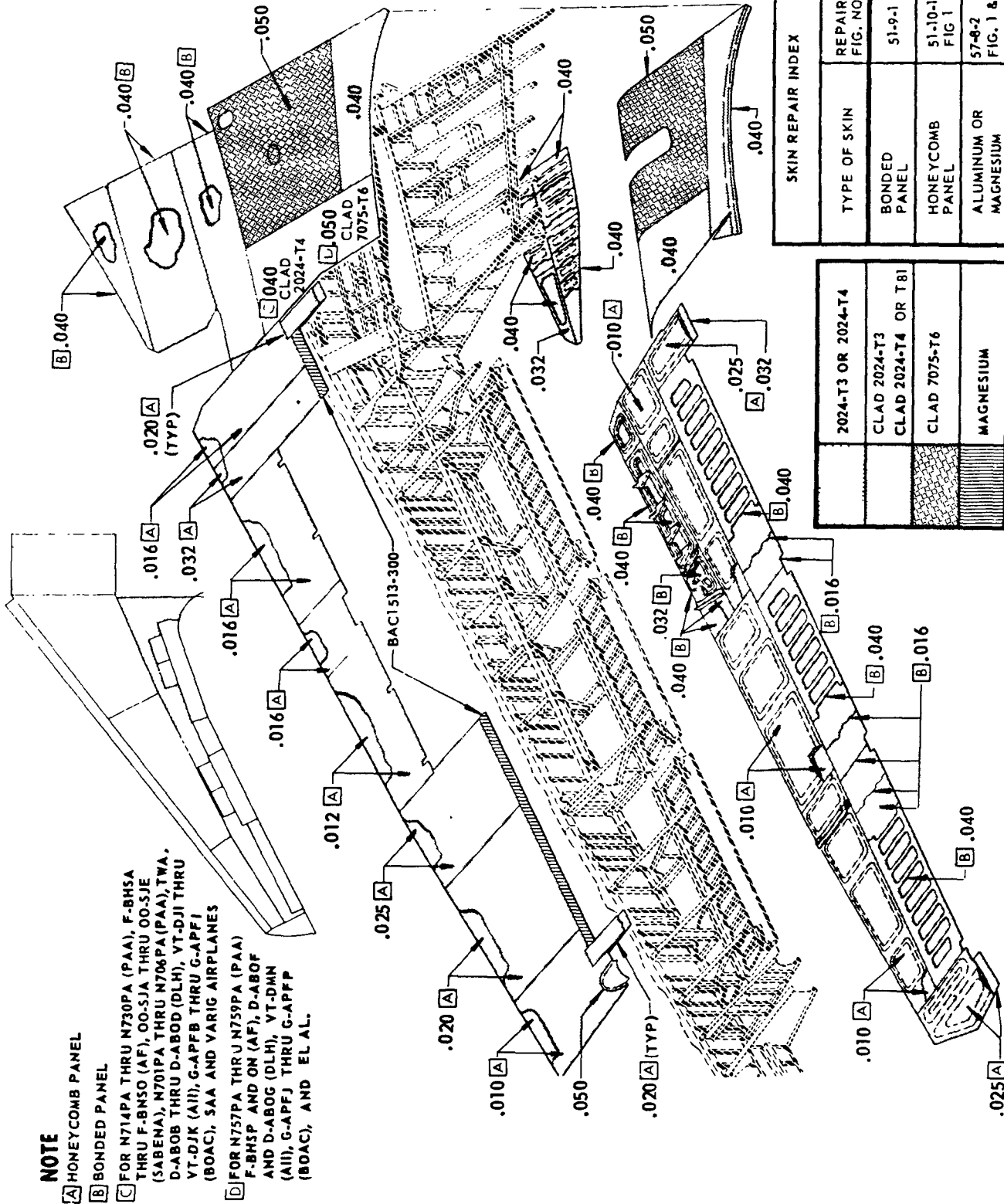
**THIS REPAIR FOR CRACK RUNNING FORE AND AFT  
FROM DRAIN HOLE WITHIN THE LIMITS AS SPECIFIED  
IN THE NOTES**

**CHAMFER DETAIL  
SECTION D-D  
ROTATED 90°**

**SECTION C-C**

## METHOD IV

Leading Edge Slats - Repair at Drain Hole  
Figure 1 (Sheet 8)



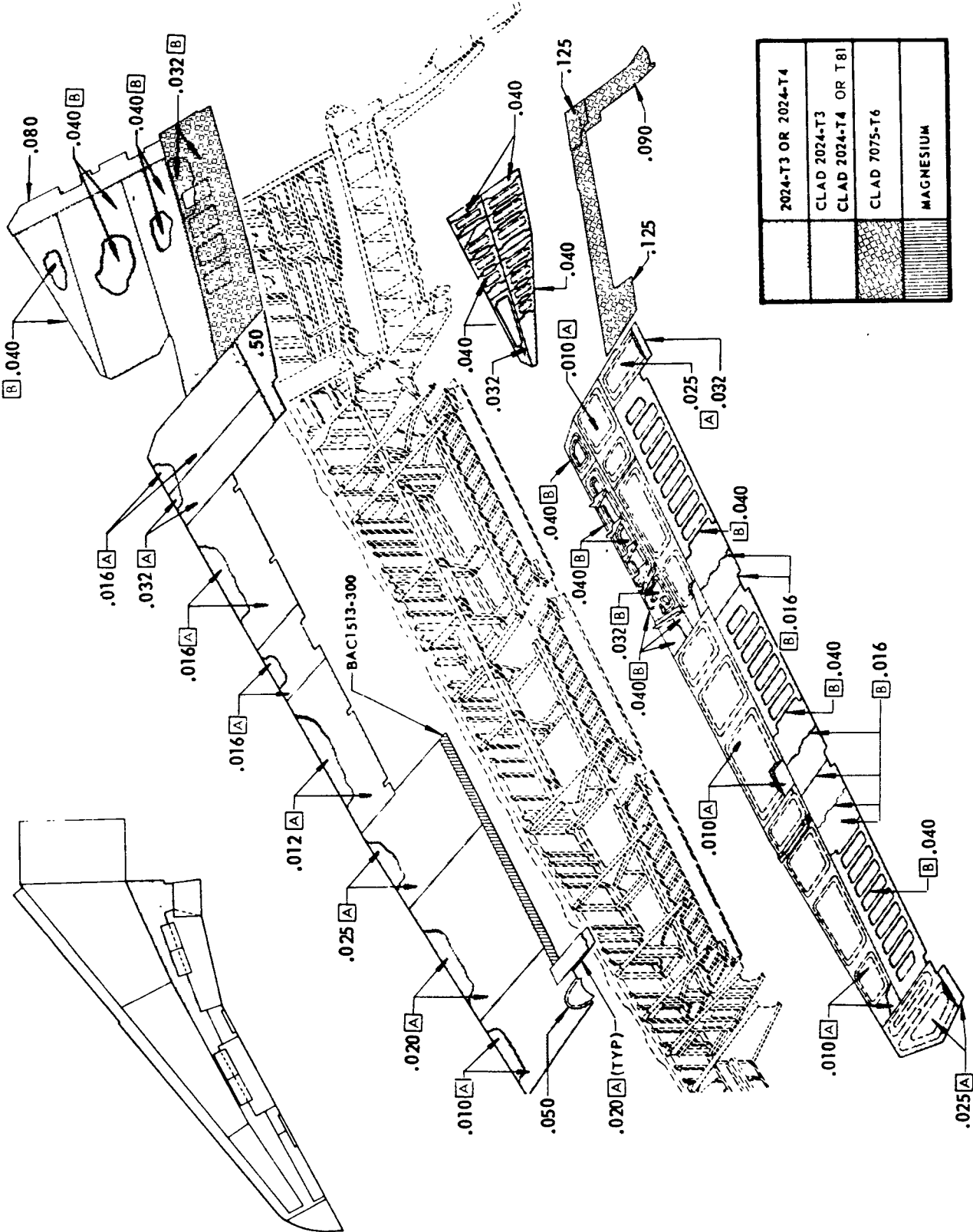
Wing Trailing Edge Skin Material Identification  
Figure 1 (Sheet 1)

EFFECTIVITY

ALL TURBOFAN AIRPLANES

REF DWGS

65-1100



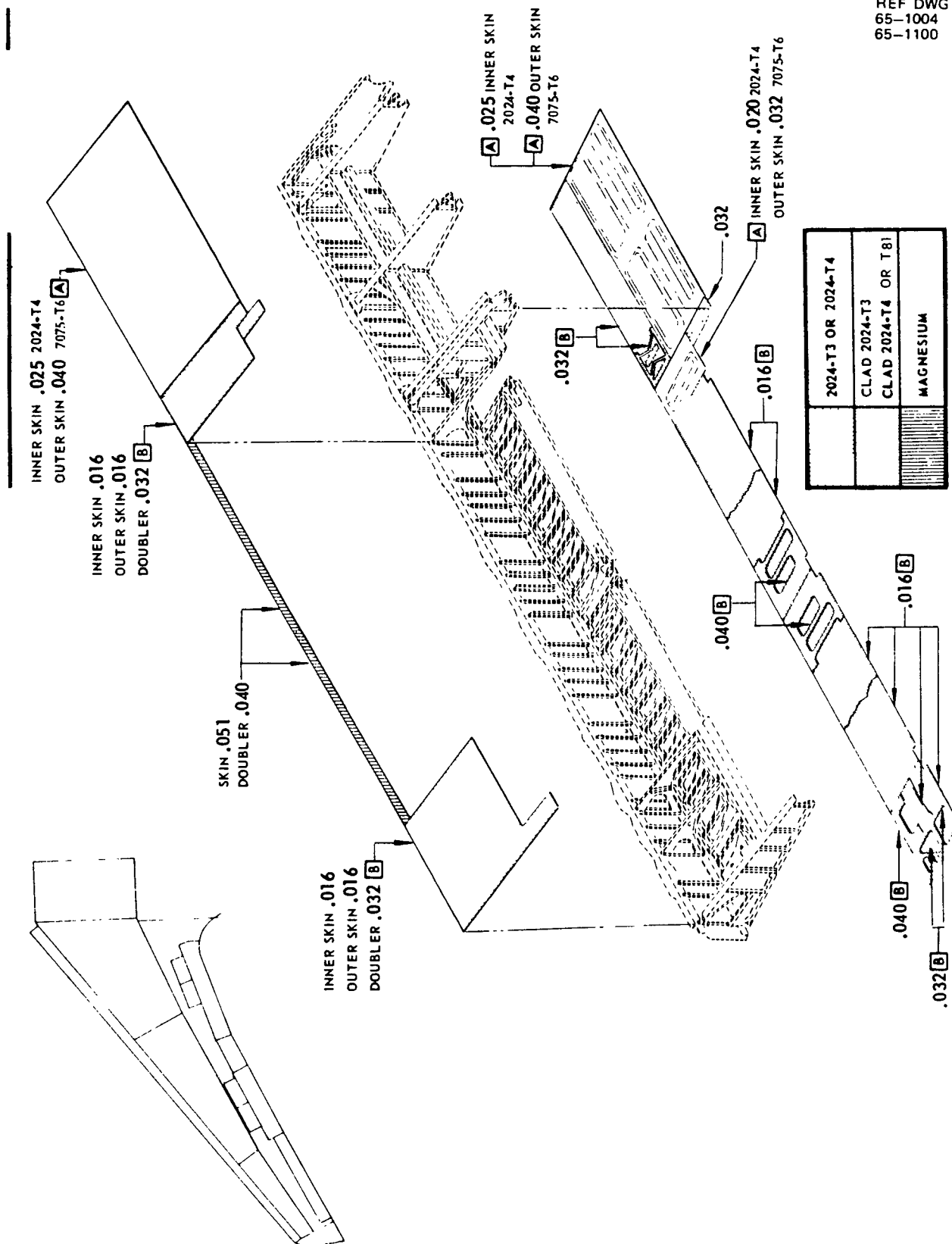
Wing Trailing Edge Skin Material Identification

Figure 1 (Sheet 2)



INTERCONTINENTAL  
STRUCTURAL REPAIR

REF DWG  
65-1004  
65-1100



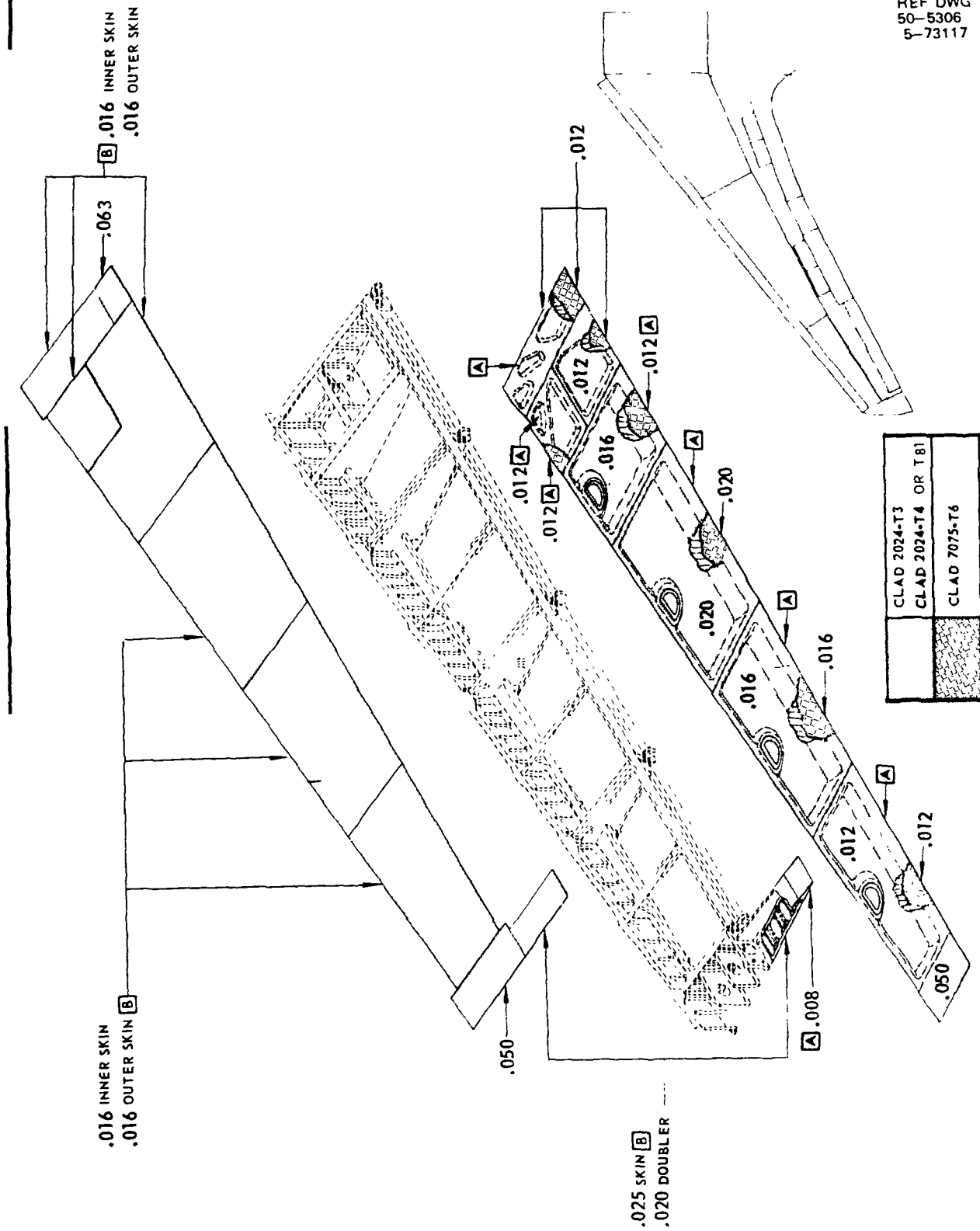
Wing Trailing Edge Skin Material Identification  
Figure 1 (Sheet 3)

**BOEING**  
**707**



INTERCONTINENTAL  
STRUCTURAL REPAIR

REF DWG  
50-5306  
5-73117



Wing Trailing Edge Skin Material Identification  
Figure 1 (Sheet 4)



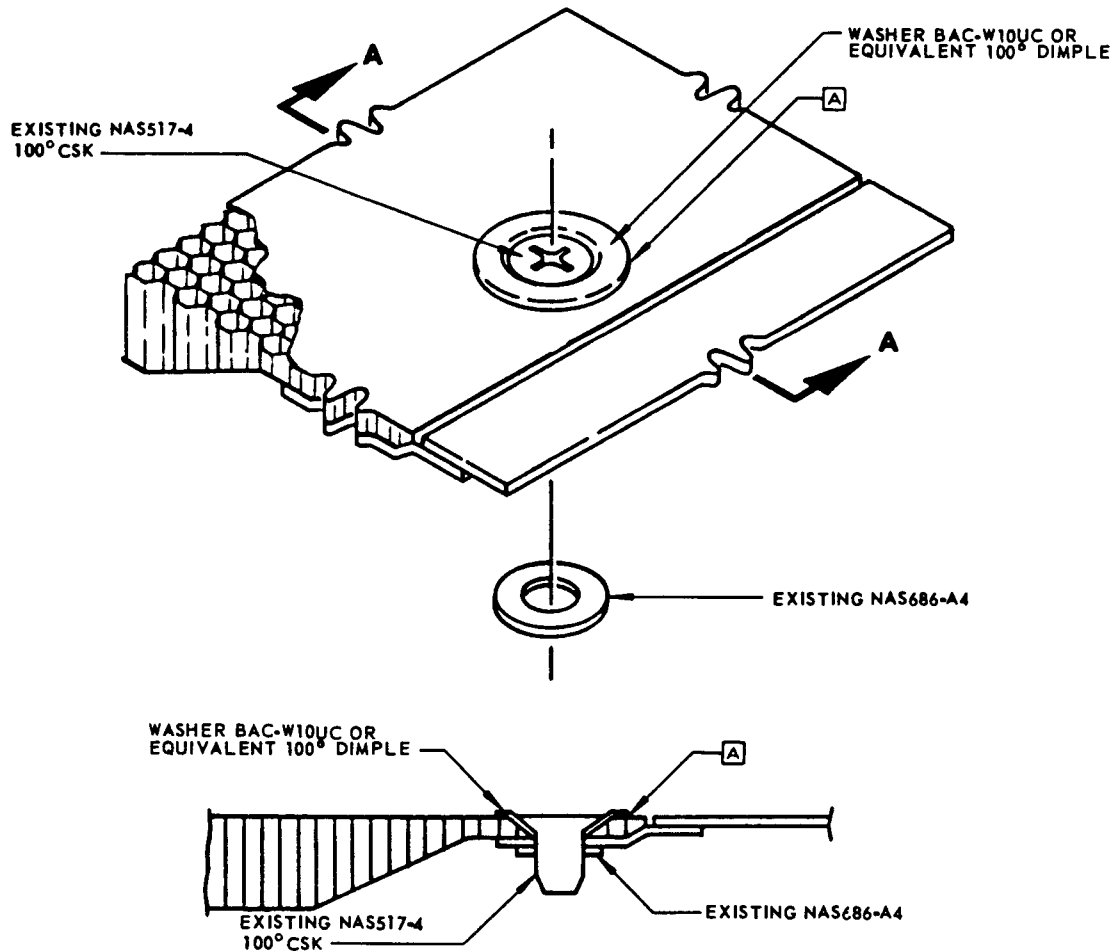
**BOEING**  
*Intercontinental*  
**707**

**STRUCTURAL REPAIR**

WING TRAILING EDGE SKIN REPAIRS

1. General

- A. Refer to 51-9-1 for adhesive bonding of wing trailing edge panel repairs.
- B. For repair of the honeycomb panels of the wing trailing edge, refer to 51-10-1.
- C. Avoid damage due to the possibility of fasteners pulling through edges of honeycomb panels by adding BACW10UC washers (Western Washer Co., 2111 East 51 St., Los Angeles, Calif.) or equivalent, as indicated in figure 1.



**NOTE**

[A] SEE 51-8-0 FOR FAYING SURFACE TREATMENT

Installation of Washer in Honeycomb Panel  
Figure 1

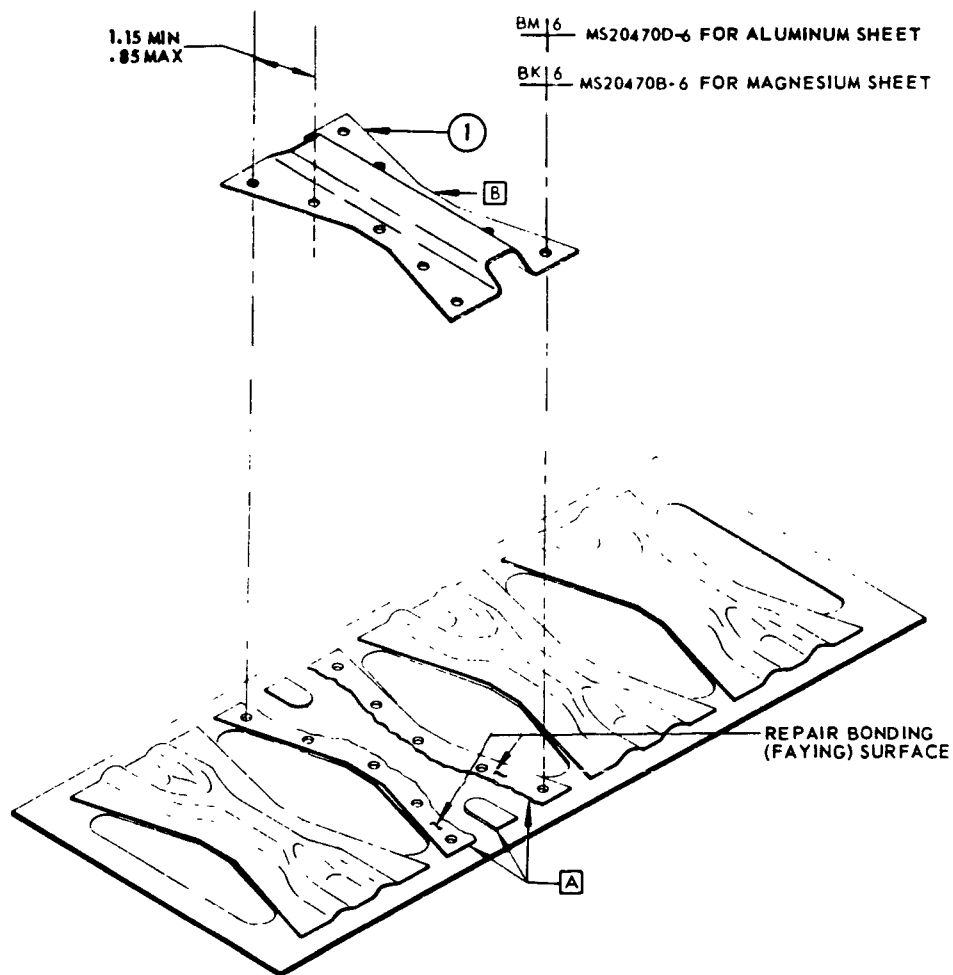
**REPAIR INSTRUCTIONS**

**NOTE**

1. Drill a 0.25 diameter hole at each end of crack according to 51-2-10.
2. Fabricate repair part.
3. Prepare the faying surfaces of the bonded panel and the repair part as described in 51-9-1.
4. Apply a primer coat as described in 51-9-1, and bond according to 51-9-1.
5. Install fasteners.
6. Seal the repair as described in 51-9-1.
7. Restore the finish according to 51-2-0 of the maintenance manual.
8. Refer to 51-15 for balance adjusting when repairing any control surface.
9. For required performance considerations in regions of critical smoothness refer to 51-4-1.

- ☐ A TRIM CAP SECTION OF ORIGINAL STIFFENER.
- ☐ B TRIM FLANGE TO ORIGINAL STIFFENER CONTOUR.
- ☐ C ONE GAGE HEAVIER THAN ORIGINAL MATERIAL.

| REPAIR MATERIAL |            |     |                                            |
|-----------------|------------|-----|--------------------------------------------|
| PART            |            | QTY | MATERIAL                                   |
| ①               | STIFF-ENER | 1   | CLAD 2024-0 HT-T4 <input type="checkbox"/> |



Skin Stiffener Repair - Wing Trailing Edge Bonded Panel  
Figure 2 (Sheet 2)

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## STRUCTURAL REPAIR

### REPAIR INSTRUCTIONS

### NOTE

1. Drill a 0.25 diameter hole at each end of crack according to 51-2-10.
2. Fabricate repair part.
3. Prepare the faying surfaces of the bonded panel and the repair part as described in 51-9-1.
4. Apply a primer coat as described in 51-9-1, and bond according to 51-9-1.
5. Install fasteners.
6. Seal the repair as described in 51-9-1.
7. Restore the finish according to 51-2-0 of the maintenance manual.
8. Refer to 51-15 for balance adjusting when repairing any control surface.
9. For required performance considerations in regions of critical smoothness refer to 51-4-1.

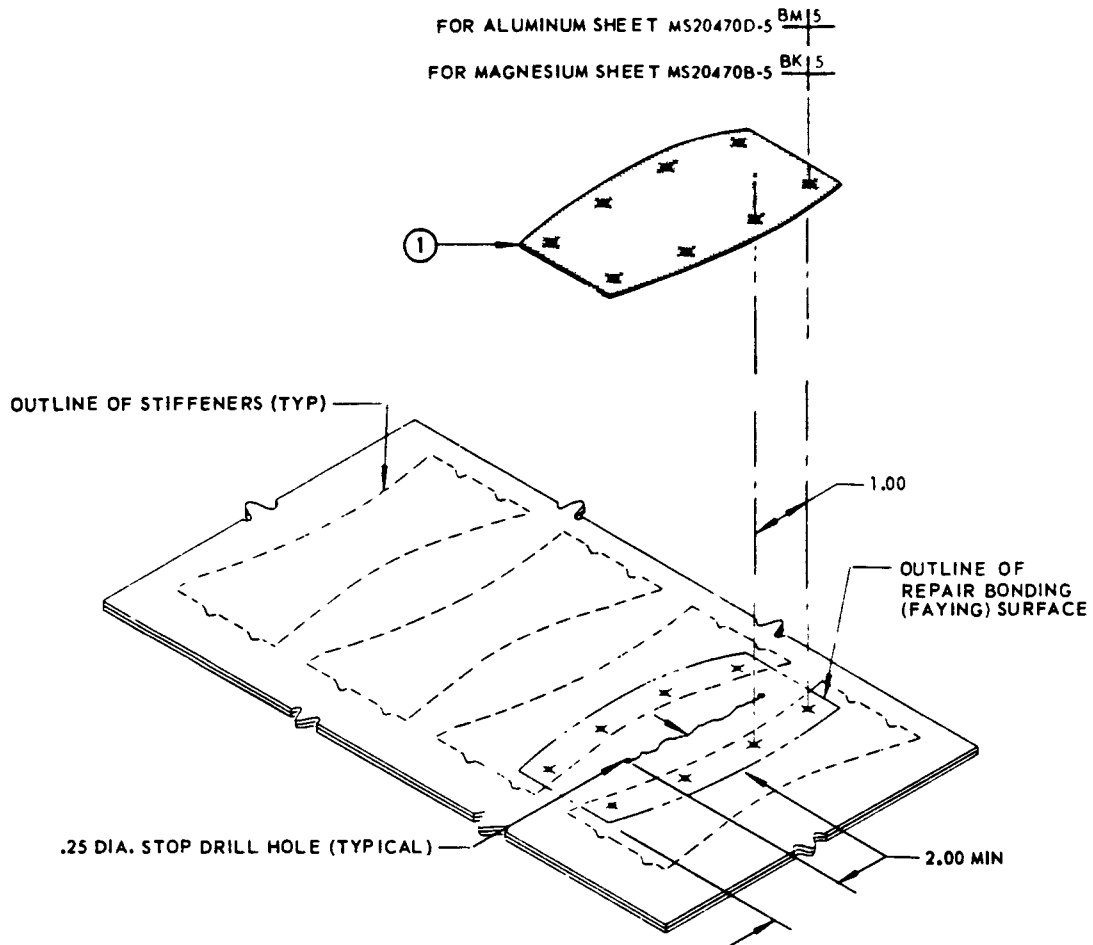
- REFER TO 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS.

✦ REPAIR FASTENER LOCATIONS.

☐ SAME GAGE AS ORIGINAL SKIN.

| REPAIR MATERIAL |     |                |  |
|-----------------|-----|----------------|--|
| PART            | QTY | MATERIAL       |  |
| ① PLATE         | 1   | CLAD 2024-T4 ☐ |  |
|                 |     |                |  |
|                 |     |                |  |
|                 |     |                |  |
|                 |     |                |  |
|                 |     |                |  |
|                 |     |                |  |
|                 |     |                |  |
|                 |     |                |  |

Skin Repair - Wing Trailing Edge Bonded Panel  
Figure 3 (Sheet 1)



Skin Repair - Wing Trailing Edge Bonded Panel  
Figure 3 (Sheet 2)



## STRUCTURAL REPAIR

FAA Approved  
Repair

### REPAIR INSTRUCTIONS

1. Drill a 0.25 diameter hole at each end of crack according to 51-2-10.
2. Fabricate repair part.
3. Prepare the faying surfaces of the bonded panel and the repair part as described in 51-9-1.
4. Apply a primer coat as described in 51-9-1, and bond according to 51-9-1.
5. Install fasteners.
6. Seal the repair as described in 51-9-1.
7. Restore the finish according to 51-2-0 of the maintenance manual.
8. Refer to 51-15 for balance adjusting when repairing any control surface.
9. For required performance considerations in regions of critical smoothness refer to 51-4-1.

### NOTE

- REFER TO 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS.
- ✦ REPAIR FASTENER LOCATIONS.
- Ⓐ TRIM CAP SECTION OF OLD STIFFENER AT FLANGE.
- Ⓑ TRIM OUT DAMAGED SKIN AREA BACK TO DOUBLER OF ADJACENT STIFFENER.
- Ⓒ TRIM EDGE OF REPAIR STIFFENER TO ORIGINAL CONTOUR.
- Ⓓ BEVEL EDGE OF SKIN PATCH.
- Ⓔ ONE GAGE HEAVIER THAN ORIGINAL MATERIAL.

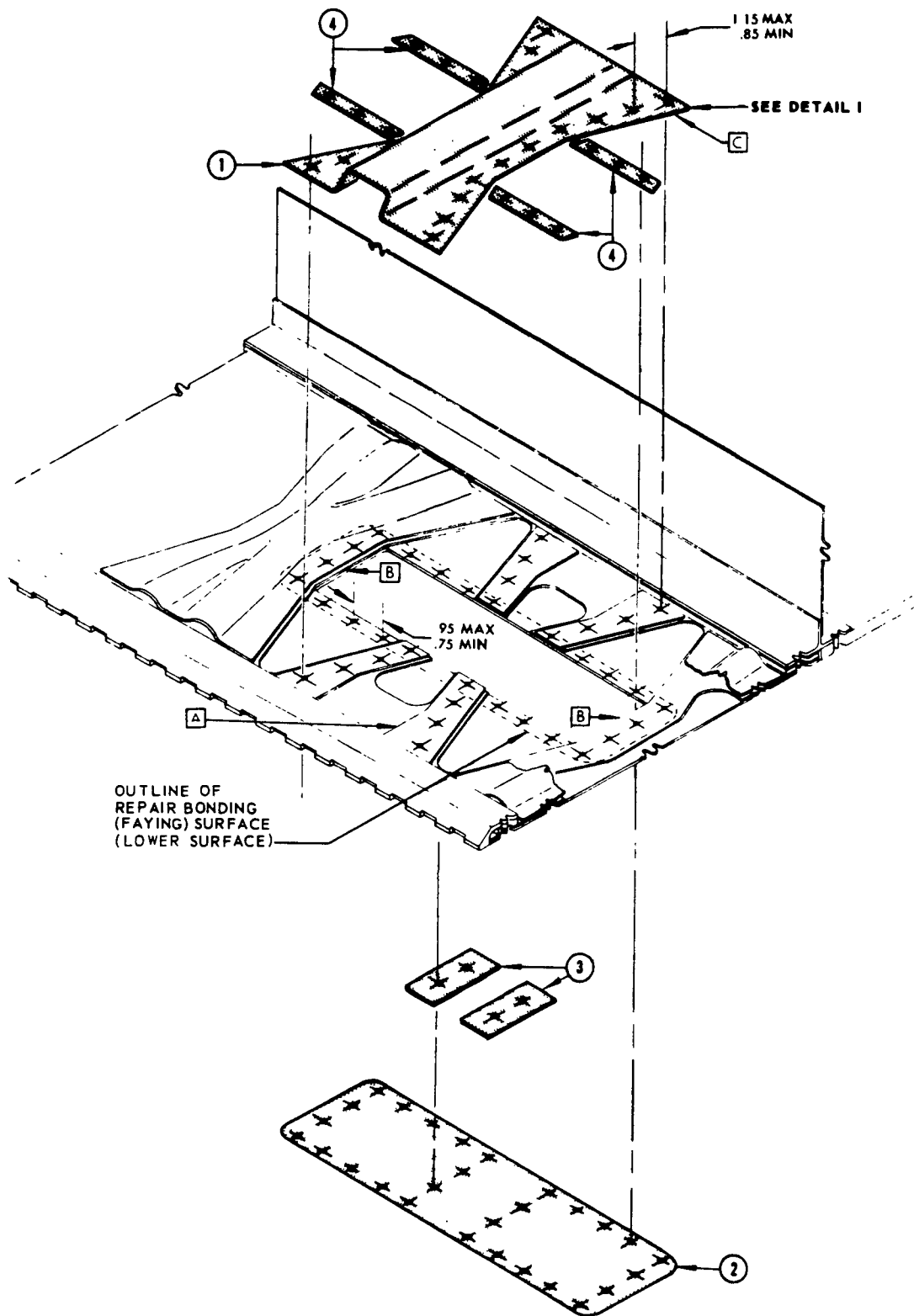
| REPAIR MATERIAL |           |     |                     |
|-----------------|-----------|-----|---------------------|
|                 | PART      | QTY | MATERIAL            |
| ①               | STIFFENER | 1   | CLAD 2024-0 HT-T4 Ⓔ |
| ②               | PATCH     | 1   | CLAD 2024-T3 Ⓔ      |
| ③               | FILLER    | 2   | CLAD 2024-T3        |
| ④               | STRIP     | 4   | 0.040 CLAD 2024-T3  |

Skin and Stiffener Repair - Wing Trailing Edge Bonded Panel  
Figure 4 (Sheet 1)

FAA Approved  
Repair

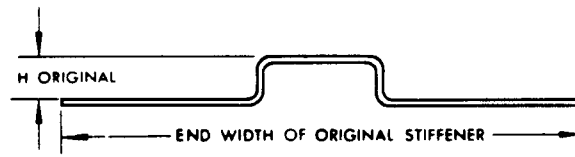
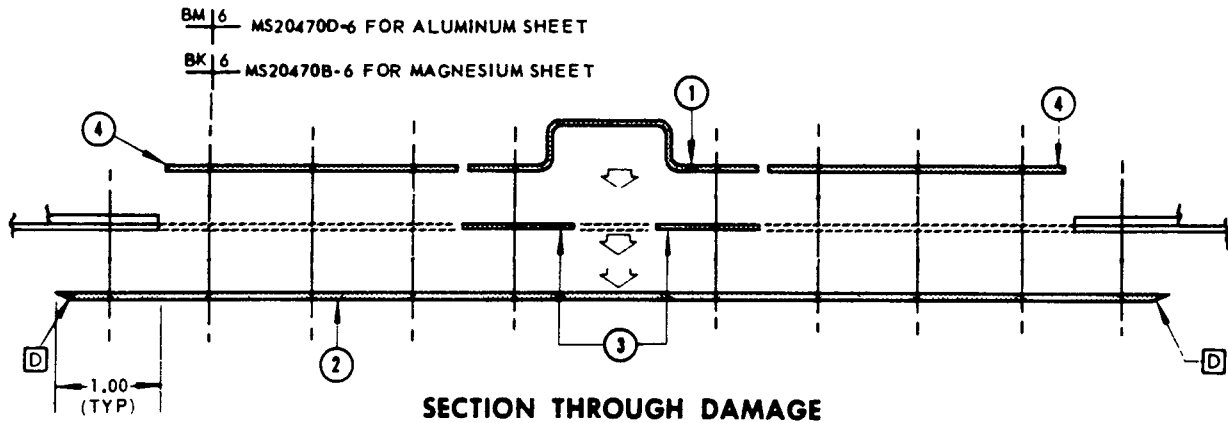


# STRUCTURAL REPAIR



Skin and Stiffener Repair - Wing Trailing Edge Bonded Panel  
Figure 4 (Sheet 2)

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DETAIL I

Skin and Stiffener Repair - Wing Trailing Edge Bonded Panel  
Figure 4 (Sheet 3)





# STRUCTURAL REPAIR

| ITEM | UPPER CHORD               |                   | WEB OR FORMED SECTION                 |                   | LOWER CHORD               |                   |
|------|---------------------------|-------------------|---------------------------------------|-------------------|---------------------------|-------------------|
|      | MATERIAL                  | REPAIR FIG. NO.   | MATERIAL                              | REPAIR FIG. NO.   | MATERIAL                  | REPAIR FIG. NO.   |
| 1    | 0.063 CLAD<br>2024-T4     | 51-14-3<br>Fig. 1 | 0.025 CLAD<br>2024-T3                 | 51-14-2<br>Fig. 1 | 0.063 CLAD<br>2024-T4     | 51-14-3<br>Fig. 1 |
| 2    | BAC1520-752<br>6061-T6    |                   |                                       |                   | BAC1520-753<br>2024-T4    |                   |
| 3    |                           |                   | DIE FORGING<br>7075-T6                |                   |                           |                   |
| 4    | BAC1505-39042<br>7075-T6  | 51-14-4<br>Fig. 1 | 0.040 CLAD<br>7075-T6                 | 51-14-3<br>Fig. 1 | BAC1505-39042<br>7075-T6  | 51-14-4<br>Fig. 1 |
| 5    | 0.050 CLAD<br>2024-T4     | 51-14-3<br>Fig. 1 | 0.016+0.016<br>BONDED<br>2024-T4 CLAD | 51-9-1            |                           |                   |
| 6    |                           |                   | 0.050 CLAD<br>2024-T4                 | 51-14-3<br>Fig. 1 |                           |                   |
| 7    | BAC1505-18660<br>7075-T6  | 51-14-4<br>Fig. 1 |                                       |                   | 0.040 CLAD<br>7075-T6     | 51-14-3<br>Fig. 1 |
| 8    | BAC1498-92<br>7075-T6     | 51-14-3<br>Fig. 1 | 0.032 CLAD<br>2024-T3                 | 51-14-2<br>Fig. 1 | BAC1498-92<br>7075-T6     | 51-14-3<br>Fig. 1 |
| 9    | BAC1505-18721<br>7075-T6  | 51-14-4<br>Fig. 1 |                                       |                   | 0.040 CLAD<br>7075-T6     | 51-14-3<br>Fig. 1 |
| 10   | BAC1503-100079<br>2024-T4 | 51-14-4<br>Fig. 1 |                                       |                   | BAC1503-100079<br>2024-T4 | 51-14-4<br>Fig. 1 |
| 11   |                           |                   | 0.012 CLAD<br>2024-T3 BONDED          | 51-9-1            |                           |                   |
| 12   |                           |                   | 0.016 CLAD<br>2024-T3 BONDED          | 51-9-1            |                           |                   |
| 13   |                           |                   | 0.025 CLAD<br>2024-T3 BONDED          | 51-9-1            |                           |                   |
| 14   | AND10136-1503<br>2024-T4  | 51-14-4<br>Fig. 1 | 0.025+0.025<br>BONDED<br>2024-T4      | 51-9-1            | BAC1503-100049<br>2024-T4 | 51-14-4<br>Fig. 1 |
| 15   |                           |                   | 0.012+0.012<br>BONDED<br>2024-T3 CLAD | 51-9-1            | BAC1514-1121<br>2024-T4   | 51-14-4<br>Fig. 1 |

Wing Trailing Edge Structure Identification  
Figure 1 (Sheet 1)

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57-5-3  
Page 1



# STRUCTURAL REPAIR

| ITEM | UPPER CHORD               |                   | WEB OR FORMED SECTION                 |                   | LOWER CHORD               |                   |
|------|---------------------------|-------------------|---------------------------------------|-------------------|---------------------------|-------------------|
|      | MATERIAL                  | REPAIR FIG. NO.   | MATERIAL                              | REPAIR FIG. NO.   | MATERIAL                  | REPAIR FIG. NO.   |
| 16   | BAC1505-100120<br>7075-T6 | 51-14-4<br>Fig. 1 | 0.025+0.025<br>BONDED<br>2024-T3 CLAD | 51-9-1            | BAC1505-45585<br>7075-T6  | 51-14-4<br>Fig. 1 |
| 17   | BAC1505-39042<br>7075-T6  | 51-14-4<br>Fig. 1 | 0.050 CLAD<br>2024-T3                 | 51-14-2<br>Fig. 1 | BAC1505-39042<br>7075-T6  | 51-14-4<br>Fig. 1 |
| 18   | BAC1505-100120<br>7075-T6 | 51-14-4<br>Fig. 1 | 0.032 CLAD<br>2024-T3                 | 51-14-3<br>Fig. 1 | BAC1505-100120<br>7075-T6 | 51-14-4<br>Fig. 1 |
| 19   | 0.063 CLAD<br>2024-T4     | 51-14-3<br>Fig. 1 | 0.025 CLAD<br>2024-T3                 | 51-14-2<br>Fig. 1 |                           |                   |
| 20   | BAC1505-100164<br>7075-T6 | 51-14-4<br>Fig. 1 | 0.012+0.012<br>BONDED<br>2024-T3 CLAD | 51-9-1            | BAC1505-100362<br>2024-T4 | 51-14-4<br>Fig. 1 |
| 21   | BAC1503-1021<br>2024-T4   | 51-14-4<br>Fig. 1 | 0.032 CLAD<br>7075-T6                 | 51-14-2<br>Fig. 1 | 0.040 CLAD<br>7075-T6     | 51-14-3<br>Fig. 1 |
| 22   | BAC1503-1021<br>2024-T4   | 51-14-4<br>Fig. 1 | 0.032 CLAD<br>2024-T4                 |                   | 0.050 CLAD<br>2024-T3     | 51-14-3<br>Fig. 1 |
| 23   |                           |                   | 0.063<br>7075-T6                      | 51-14-3<br>Fig. 1 |                           |                   |
| 24   |                           |                   |                                       |                   | HINGE ASSEMBLY<br>2024-T4 |                   |
| 25   | BAC1503-1491<br>2024-T4   | 51-14-4<br>Fig. 1 | 0.032 CLAD<br>2024-T4                 | 51-14-2<br>Fig. 1 | 0.050 CLAD<br>2024-T4     | 51-14-3<br>Fig. 1 |
| 26   | BAC1505-100052<br>7075-T6 | 51-14-4<br>Fig. 1 | 0.012+0.012<br>BONDED<br>2024-T3 CLAD | 51-9-1            | AND10136-2004<br>7075-T6  | 51-14-4<br>Fig. 1 |
| 27   | AND10136-2004<br>7075-T6  | 51-14-4<br>Fig. 1 | 0.012+0.012<br>BONDED<br>2024-T3 CLAD | 51-9-1            | AND10136-2004             | 51-14-4<br>Fig. 1 |
| 28   |                           |                   | AND10134-1003<br>2024-T4              | 51-14-4<br>Fig. 1 |                           |                   |
| 29   | BAC1514-1392<br>2024-T4   | 51-14-4<br>Fig. 1 | 0.012 CLAD<br>2024-T3                 | 51-14-3<br>Fig. 1 | BAC1505-100362<br>2024-T4 | 51-14-4<br>Fig. 1 |
| 30   | AND10134-1405<br>7075-T6  | 51-14-4<br>Fig. 1 | 0.051 CLAD<br>7075-T6                 | 51-14-2<br>Fig. 1 | AND10139-1405<br>7075-T6  | 51-14-4<br>Fig. 1 |

Wing Trailing Edge Structure Identification  
Figure 1 (Sheet 2)



# STRUCTURAL REPAIR

| ITEM | UPPER CHORD               |                   | WEB OR FORMED SECTION |                   | LOWER CHORD               |                   |
|------|---------------------------|-------------------|-----------------------|-------------------|---------------------------|-------------------|
|      | MATERIAL                  | REPAIR FIG. NO.   | MATERIAL              | REPAIR FIG. NO.   | MATERIAL                  | REPAIR FIG. NO.   |
| 31   | AND10136-2005<br>7075-T6  | 51-14-4<br>Fig. 1 | 0.032 CLAD<br>7075-T6 | 51-14-2<br>Fig. 1 | AND10136-2005<br>2024-T4  | 51-14-4<br>Fig. 1 |
| 32   |                           |                   | 0.040 CLAD<br>2024-T4 | 51-14-3<br>Fig. 1 |                           |                   |
| 33   |                           |                   | 0.063 CLAD<br>7075-T6 | 51-14-3<br>Fig. 1 |                           |                   |
| 34   |                           |                   |                       |                   | BAC1517-1306<br>2024-T4   | 51-14-4<br>Fig. 1 |
| 35   |                           |                   |                       |                   | BAC1517-1307<br>2024-T4   | 51-14-3<br>Fig. 1 |
| 36   | AND10136-2004<br>2024-T4  | 51-14-4<br>Fig. 1 | 0.063 CLAD<br>2024-T3 | 51-14-3<br>Fig. 1 | AND10136-2008<br>2024-T4  | 51-14-4<br>Fig. 1 |
| 37   |                           |                   | 0.063 CLAD<br>2024-T3 | 51-14-3<br>Fig. 1 | BAC1505-100158<br>2024-T4 | 51-14-4<br>Fig. 1 |
| 38   | BAC1505-100246<br>2024-T4 | 51-14-4<br>Fig. 1 |                       |                   |                           |                   |
| 39   |                           |                   |                       |                   | AND10136-2005<br>2024-T4  | 51-14-4<br>Fig. 1 |
| 40   |                           |                   | 0.063<br>2024-T4      | 51-14-2<br>Fig. 1 |                           |                   |
| 41   | 0.063 CLAD<br>7075-T6     | 51-14-3<br>Fig. 1 | 0.063 CLAD<br>2024-T3 | 51-14-3<br>Fig. 1 |                           |                   |
| 42   | BAC1506-1328<br>2024-T4   | 51-14-4<br>Fig. 1 | 0.032 CLAD<br>7075-T6 | 51-14-2<br>Fig. 1 | BAC1506-1328<br>2024-T4   | 51-14-4<br>Fig. 1 |
| 43   |                           |                   | 0.050 CLAD<br>2024-T4 | 51-14-3<br>Fig. 1 | 0.050 CLAD<br>2024-T4     | 51-14-3<br>Fig. 1 |
| 44   | 0.10<br>7075-T6           | 51-14-3<br>Fig. 1 | 0.040 CLAD<br>7075-T6 | 51-14-2<br>Fig. 1 | 0.125<br>7075-T6          | 51-14-3<br>Fig. 1 |
| 45   | 0.125<br>7075-T6          | 51-14-3<br>Fig. 1 | 0.032 CLAD<br>7075-T6 | 51-14-2<br>Fig. 1 | 0.125<br>7075-T6          | 51-14-3<br>Fig. 1 |
| 46   | AND10134-1206<br>7075-T6  | 51-14-4<br>Fig. 1 | 0.050 CLAD<br>7075-T6 | 51-14-2<br>Fig. 1 | 0.080<br>7075-T6          | 51-14-3<br>Fig. 1 |

Wing Trailing Edge Structure Identification  
Figure 1 (Sheet 3)

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# STRUCTURAL REPAIR

| ITEM | UPPER CHORD               |                   | WEB OR FORMED SECTION       |                   | LOWER CHORD               |                   |
|------|---------------------------|-------------------|-----------------------------|-------------------|---------------------------|-------------------|
|      | MATERIAL                  | REPAIR FIG. NO.   | MATERIAL                    | REPAIR FIG. NO.   | MATERIAL                  | REPAIR FIG. NO.   |
| 47   | BAC1506-1016<br>7075-T6   | 51-14-4<br>Fig. 1 | 0.040 CLAD<br>7075-T6       | 51-14-2<br>Fig. 1 | BAC1514-1233<br>7075-T6   |                   |
| 48   | AND10136-2001<br>7075-T6  | 51-14-4<br>Fig. 1 | 0.050 CLAD<br>7075-T6       | 51-14-2<br>Fig. 1 | 0.050 CLAD<br>7075-T6     | 51-14-3<br>Fig. 1 |
| 49   | 0.050 CLAD<br>7075-T6     | 51-14-3<br>Fig. 1 | 0.050 CLAD<br>7075-T6       | 51-14-2<br>Fig. 1 | 0.050 CLAD<br>7075-T6     | 51-14-3<br>Fig. 1 |
| 50   |                           |                   |                             |                   | BAC1506-1080<br>2024-T4   | 51-14-4<br>Fig. 1 |
| 51   |                           |                   | 0.071 CLAD<br>2024-T3       | 51-14-2<br>Fig. 1 |                           |                   |
| 52   |                           |                   | AND10133-0601<br>2024-T4    | 51-14-4<br>Fig. 1 |                           |                   |
| 53   | AND10136-2004<br>2024-T4  | 51-14-4<br>Fig. 1 |                             |                   | AND10136-2004<br>2024-T4  | 51-14-4<br>Fig. 1 |
| 54   |                           |                   | 0.016+0.016<br>CLAD 2024-T3 | 51-9-1            |                           |                   |
| 55   |                           |                   | 0.025 CLAD<br>2024-T3       | 51-14-2<br>Fig. 1 |                           |                   |
| 56   | BAC1505-100246<br>2024-T4 | 51-14-4<br>Fig. 1 |                             |                   | BAC1505-100246<br>2024-T4 | 51-14-4<br>Fig. 1 |
| 57   |                           |                   | AND10136-2004<br>2024-T3    | 51-14-4<br>Fig. 1 |                           |                   |
| 58   |                           |                   | 0.063 CLAD<br>2024-T3       | 51-14-2<br>Fig. 1 |                           |                   |
| 59   |                           |                   | AND10134-1006<br>2024-T4    | 51-14-4<br>Fig. 1 |                           |                   |
| 60   |                           |                   | AND10133-1001<br>2024-T4    | 51-14-4<br>Fig. 1 |                           |                   |
| 61   |                           |                   | AND10133-0701<br>2024-T4    | 51-14-4<br>Fig. 1 |                           |                   |
| 62   |                           |                   | AND10133-1203<br>2024-T4    | 51-14-4<br>Fig. 1 |                           |                   |

Wing Trailing Edge Structure Identification  
Figure 1 (Sheet 4)



# STRUCTURAL REPAIR

| ITEM | UPPER CHORD            |                   | WEB OR FORMED SECTION     |                   | LOWER CHORD |                 |
|------|------------------------|-------------------|---------------------------|-------------------|-------------|-----------------|
|      | MATERIAL               | REPAIR FIG. NO.   | MATERIAL                  | REPAIR FIG. NO.   | MATERIAL    | REPAIR FIG. NO. |
| 63   |                        |                   | AND10134-1001<br>2024-T4  | 51-14-4<br>Fig. 1 |             |                 |
| 64   |                        |                   | AND10134-1403<br>2024-T4  | 51-14-4<br>Fig. 1 |             |                 |
| 65   |                        |                   | AND10134-0702<br>2024-T4  | 51-14-4<br>Fig. 1 |             |                 |
| 66   |                        |                   | BAC1503-7672<br>2024-T4   | 51-14-4<br>Fig. 1 |             |                 |
| 67   |                        |                   | AND10133-1002<br>2024-T4  | 51-14-4<br>Fig. 1 |             |                 |
| 68   |                        |                   | BAC1514-518<br>2024-T4    | 51-14-4<br>Fig. 1 |             |                 |
| 69   |                        |                   | AND10134-1204<br>2024-T4  | 51-14-4<br>Fig. 1 |             |                 |
| 70   |                        |                   | AND10133-0602<br>2024-T4  | 51-14-4<br>Fig. 1 |             |                 |
| 71   |                        |                   | AND10134-1603<br>2024-T4  | 51-14-4<br>Fig. 1 |             |                 |
| 72   |                        |                   | AND10134-1404<br>2024-T4  | 51-14-4<br>Fig. 1 |             |                 |
| 73   |                        |                   | AND10133-1401<br>2024-T4  | 51-14-4<br>Fig. 1 |             |                 |
| 74   |                        |                   | BAC1518-212<br>2024-T4    | 51-14-4<br>Fig. 1 |             |                 |
| 75   |                        |                   | AND10133-1201<br>2024-T4  | 51-14-4<br>Fig. 1 |             |                 |
| 76   |                        |                   | AND10134-1005<br>2024-T4  | 51-14-4<br>Fig. 1 |             |                 |
| 77   |                        |                   | AND10136-2004<br>2024-T42 | 51-14-4<br>Fig. 1 |             |                 |
| 78   | BAC1506-994<br>7075-T6 | 51-14-4<br>Fig. 1 |                           |                   |             |                 |

Wing Trailing Edge Structure Identification  
Figure 1 (Sheet 5)

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57-5-3  
Page 5



# STRUCTURAL REPAIR

| ITEM | UPPER CHORD |                 | WEB OR FORMED SECTION        |                   | LOWER CHORD             |                   |
|------|-------------|-----------------|------------------------------|-------------------|-------------------------|-------------------|
|      | MATERIAL    | REPAIR FIG. NO. | MATERIAL                     | REPAIR FIG. NO.   | MATERIAL                | REPAIR FIG. NO.   |
| 79   |             |                 | 0.032 CLAD<br>2024-T3        | 51-14-2<br>Fig. 1 |                         |                   |
| 80   |             |                 | BAC1490-2722<br>2024-T4      | 51-14-3<br>Fig. 1 |                         |                   |
| 81   |             |                 | 0.040 CLAD<br>2024-T3        | 51-14-2<br>Fig. 1 |                         |                   |
| 82   |             |                 | BAC1490-2573<br>7075-T6 CLAD | 51-14-3<br>Fig. 1 |                         |                   |
| 83   |             |                 | BAC1490-61<br>7075-T6 CLAD   | 51-14-3<br>Fig. 1 |                         |                   |
| 84   |             |                 | BAC1489-144<br>7075-T6 CLAD  | 51-14-3<br>Fig. 1 |                         |                   |
| 85   |             |                 | AND10138-0709<br>7075-T6     | 51-14-4<br>Fig. 1 |                         |                   |
| 86   |             |                 |                              |                   | BAC1506-1037<br>7075-T6 | 51-14-4<br>Fig. 1 |
| 87   |             |                 | BAC1489-145<br>7075-T6 CLAD  | 51-14-3<br>Fig. 1 |                         |                   |
| 88   |             |                 | BAC1490-2711<br>7075-T6 CLAD | 51-14-3<br>Fig. 1 |                         |                   |
| 89   |             |                 | 0.050 CLAD<br>2024-T3        | 51-14-3<br>Fig. 1 |                         |                   |
| 90   |             |                 | 0.032 CLAD<br>7075-T6        | 51-14-3<br>Fig. 1 |                         |                   |
| 91   |             |                 | AND10139-0704<br>7075-T6     | 51-14-4<br>Fig. 1 |                         |                   |
| 92   |             |                 | BAC1503-1430<br>7075-T6      | 51-14-4<br>Fig. 1 |                         |                   |
| 93   |             |                 | BAC1490-2609<br>2024-T4      | 51-14-3<br>Fig. 1 |                         |                   |
| 94   |             |                 | BAC1517-117<br>7075-T6 CLAD  | 51-14-3<br>Fig. 1 |                         |                   |

Wing Trailing Edge Structure Identification  
Figure 1 (Sheet 6)



# STRUCTURAL REPAIR

| ITEM | UPPER CHORD                          |                   | WEB OR FORMED SECTION                 |                   | LOWER CHORD                          |                   |
|------|--------------------------------------|-------------------|---------------------------------------|-------------------|--------------------------------------|-------------------|
|      | MATERIAL                             | REPAIR FIG. NO.   | MATERIAL                              | REPAIR FIG. NO.   | MATERIAL                             | REPAIR FIG. NO.   |
| 95   | 0.10<br>7075-T6                      | 51-14-3<br>Fig. 1 | 0.032 CLAD<br>7075-T6                 | 51-14-2<br>Fig. 1 | 0.125<br>7075-T6                     | 51-14-3<br>Fig. 1 |
| 96   |                                      |                   | BAC1505-5251<br>2024-T4               | 51-14-4<br>Fig. 1 |                                      |                   |
| 97   |                                      |                   | BAC1509-100132<br>7075-T6             | 51-14-4<br>Fig. 1 |                                      |                   |
| 98   |                                      |                   | BAC1514-1096<br>7075-T6               | 51-14-4<br>Fig. 1 |                                      |                   |
| 99   |                                      |                   | 0.040 CLAD<br>7075-T6                 | 51-14-3<br>Fig. 1 |                                      |                   |
| 100  |                                      |                   | 0.071 CLAD<br>7075-T6                 | 51-14-3<br>Fig. 1 |                                      |                   |
| 101  | BAC1505-100166<br>7075-T6            | 51-14-4<br>Fig. 1 | 0.050 CLAD<br>7075-T6                 | 51-14-2<br>Fig. 1 | BAC1505-39042<br>7075-T6             | 51-14-4<br>Fig. 1 |
| 102  | BAC1505-39042<br>7075-T6             | 51-14-4<br>Fig. 1 | 0.032+0.032<br>BONDED<br>7075-T6 CLAD |                   | BAC1505-100366<br>7075-T6            | 51-14-4<br>Fig. 1 |
| 103  | 0.050 CLAD<br>7075-T6                | 51-14-3<br>Fig. 1 |                                       |                   | BAC1505-100203<br>7075-T6            | 51-14-4<br>Fig. 1 |
| 104  |                                      |                   |                                       |                   | 0.025 CLAD<br>7075-T6                | 51-14-2<br>Fig. 1 |
| 105  |                                      |                   | BAC1506-1161<br>7178 EXTR<br>MATL-T6  |                   |                                      |                   |
| 106  | BAC1506-1162<br>7178 EXTR<br>MATL-T6 |                   |                                       |                   | BAC1506-1162<br>7178 EXTR<br>MATL-T6 |                   |
| 107  | BAC1506-905<br>7178 EXTR<br>MATL-T6  | 51-14-4<br>Fig. 1 |                                       |                   |                                      |                   |
| 108  |                                      |                   | BAC1506-1300<br>2024-T4               | 51-14-4<br>Fig. 1 |                                      |                   |
| 109  | AND10133-2004<br>7075-T6             | 51-14-4<br>Fig. 1 |                                       |                   |                                      |                   |

Wing Trailing Edge Structure Identification  
Figure 1 (Sheet 7)

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57-5-3  
Page 7



# STRUCTURAL REPAIR

| ITEM | UPPER CHORD             |                   | WEB OR FORMED SECTION                          |                   | LOWER CHORD              |                 |
|------|-------------------------|-------------------|------------------------------------------------|-------------------|--------------------------|-----------------|
|      | MATERIAL                | REPAIR FIG. NO.   | MATERIAL                                       | REPAIR FIG. NO.   | MATERIAL                 | REPAIR FIG. NO. |
| 110  | BAC1514-1241<br>7075-T6 | 51-14-4<br>Fig. 1 |                                                |                   |                          |                 |
| 111  | 0.080<br>7075-T6        | 51-14-3<br>Fig. 1 |                                                |                   |                          |                 |
| 112  |                         |                   | BAC1494-121<br>2024-T3 CLAD                    | 51-14-3<br>Fig. 1 |                          |                 |
| 113  |                         |                   | AND10134-1204<br>7075-T6                       | 51-14-4<br>Fig. 1 |                          |                 |
| 114  |                         |                   | BAC1504-8181<br>7075-T6                        | 51-14-4<br>Fig. 1 |                          |                 |
| 115  |                         |                   | BAC1505-100246<br>7075-T6                      | 51-14-4<br>Fig. 1 |                          |                 |
| 116  |                         |                   | BAC1503-4245<br>7075-T6                        | 51-14-4<br>Fig. 1 |                          |                 |
| 117  |                         |                   | 0.224<br>7075-T6                               | 51-14-2<br>Fig. 1 |                          |                 |
| 118  |                         |                   | STEEL FORGING<br>4330 STEEL<br>AMS6427         |                   |                          |                 |
| 119  |                         |                   | BAC1490-2779<br>2024-T4                        | 51-14-3<br>Fig. 1 |                          |                 |
| 120  |                         |                   | 0.063<br>2024-T3                               | 51-14-2<br>Fig. 1 |                          |                 |
| 121  |                         |                   | BAC1514-750<br>2024-T4<br>BAC1514-518<br>(OPT) | 51-14-4<br>Fig. 1 |                          |                 |
| 122  |                         |                   | BAC1490-2793<br>2024-T4                        |                   |                          |                 |
| 123  |                         |                   |                                                |                   | AND10137-2005<br>2024-T4 |                 |
| 124  |                         |                   | FITTING<br>7079-T6                             |                   |                          |                 |

Wing Trailing Edge Structure Identification  
Figure 1 (Sheet 8)





# STRUCTURAL REPAIR

| ITEM | UPPER CHORD               |                 | WEB OR FORMED SECTION                                |                 | LOWER CHORD               |                 |
|------|---------------------------|-----------------|------------------------------------------------------|-----------------|---------------------------|-----------------|
|      | MATERIAL                  | REPAIR FIG. NO. | MATERIAL                                             | REPAIR FIG. NO. | MATERIAL                  | REPAIR FIG. NO. |
| 125  | BAC1506-1418<br>7075-T6   |                 | 0.050 CLAD<br>2024-T3                                |                 | BAC1596-1418<br>7075-T6   |                 |
| 126  | BAC1506-1214<br>7075-T6   |                 | 0.050 CLAD<br>2024-T3                                |                 | BAC1596-1418<br>7075-T6   |                 |
| 127  | BAC1506-1395<br>7075-T6   |                 | 0.050 CLAD<br>2024-T3                                |                 | BAC1506-1214<br>7075-T6   |                 |
| 128  | BAC1506-377<br>7075-T6    |                 | 0.050 CLAD<br>2024-T3                                |                 | BAC1506-1214<br>7075-T6   |                 |
| 129  | BAC1505-100263<br>7075-T6 |                 | 0.080 CLAD<br>7075-T6                                |                 | BAC1505-100197<br>7075-T6 |                 |
| 130  | BAC1506-1480<br>2024-T4   |                 | 0.040+0.050<br>BONDED<br>7075-T6 CLAD                |                 | BAC1506-1480<br>2024-T4   |                 |
| 131  | BAC1506-927<br>7075-T6    |                 | 0.032+0.025<br>BONDED<br>7075-T6                     |                 | BAC1514-672<br>7075-T6    |                 |
| 132  | BAC1514-1495<br>7075-T6   |                 | 0.032+0.032<br>BONDED<br>7075-T6 CLAD                |                 | BAC1506-1480<br>7075-T6   |                 |
| 133  | BAC1514-1495<br>7075-T6   |                 | 0.10 CLAD<br>7075-T6                                 |                 | BAC1506-1480<br>7075-T6   |                 |
| 134  |                           |                 | 0.050 CLAD<br>7075-T6                                |                 |                           |                 |
| 135  | BAC1506-1493<br>7075-T6   |                 | 0.125 CL (FWD)<br>7075-T6<br>0.080+0.071 CL<br>(AFT) |                 | BAC1506-1494<br>7075-T6   |                 |
| 136  | BAC1505-100283<br>7075-T6 |                 | 0.10 CL 7075-T6<br>(FWD)<br>0.09 CL 7075-T6<br>(AFT) |                 | BAC1506-1495<br>7075-T6   |                 |
| 137  | BAC1503-100131<br>7075-T6 |                 | 0.040 CLAD<br>7075-T6                                |                 | AND10133-1401<br>7075-T6  |                 |
| 138  | AND10133-1401<br>7075-T6  |                 | 0.040 CLAD<br>7075-T6                                |                 | AND10136-1401<br>7075-T6  |                 |

Wing Trailing Edge Structure Identification  
Figure 1 (Sheet 9)

Jul 15/73



# STRUCTURAL REPAIR

| ITEM | UPPER CHORD              |                 | WEB OR FORMED SECTION                                       |                 | LOWER CHORD              |                 |
|------|--------------------------|-----------------|-------------------------------------------------------------|-----------------|--------------------------|-----------------|
|      | MATERIAL                 | REPAIR FIG. NO. | MATERIAL                                                    | REPAIR FIG. NO. | MATERIAL                 | REPAIR FIG. NO. |
| 139  |                          |                 |                                                             |                 | AND10136-2006<br>7075-T6 |                 |
| 140  | BAC1503-5824<br>7075-T6  |                 |                                                             |                 |                          |                 |
| 141  | AND10134-1407<br>7075-T6 |                 |                                                             |                 |                          |                 |
| 142  |                          |                 | 0.063 CLAD<br>7075-T6                                       |                 |                          |                 |
| 143  |                          |                 | 0.040 CLAD<br>7075-T6                                       |                 |                          |                 |
| 144  |                          |                 | 0.071 + 0.071<br>2024-T42                                   |                 |                          |                 |
| 145  |                          |                 | FORGING 7075-<br>T73 OPT<br>BAC1519-128<br>7075-T73511      |                 |                          |                 |
| 146  |                          |                 | FILLET FLAP<br>OUTBD HINGE<br>FITTING FORGING<br>7079-T6    |                 |                          |                 |
| 147  |                          |                 | FILLET FLAP<br>OUTBD HINGE<br>FITTING FORGING<br>7075-T73   |                 |                          |                 |
| 148  |                          |                 | PANEL SUPPORT<br>CHANNEL TIE<br>FITTING-FORGING<br>7079-T6  |                 |                          |                 |
| 149  |                          |                 | PANEL SUPPORT<br>CHANNEL TIE<br>FITTING-FORGING<br>7075-T73 |                 |                          |                 |
| 150  |                          |                 | SUPPORT FITTING<br>FORGING<br>7075-T73                      |                 |                          |                 |

Wing Trailing Edge Structure Identification  
Figure 1 (Sheet 10)



# STRUCTURAL REPAIR

| ITEM | UPPER CHORD                       |                 | WEB OR FORMED SECTION                                                                                                                                 |                 | LOWER CHORD |                 |
|------|-----------------------------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------|-----------------|
|      | MATERIAL                          | REPAIR FIG. NO. | MATERIAL                                                                                                                                              | REPAIR FIG. NO. | MATERIAL    | REPAIR FIG. NO. |
| 151  |                                   |                 | MAIN LANDING<br>GEAR LOCK<br>SUPPORT FITTING<br>FORGING 7075-<br>T73                                                                                  |                 |             |                 |
| 152  |                                   |                 | MACHINED LUG<br>7075-T7351                                           |                 |             |                 |
| 153  | HINGE RIB<br>FORGING 7079-T6      |                 |                                                                                                                                                       |                 |             |                 |
| 154  | HINGE RIB<br>FORGING 7079-<br>T73 |                 |                                                                                                                                                       |                 |             |                 |
| 155  |                                   |                 | MAIN LANDING<br>GEAR LOCK<br>SUPPORT FITTING<br>FORGING 7075-<br>T6  |                 |             |                 |

Wing Trailing Edge Structure Identification  
Figure 1 (Sheet 10A)

SRM  
Jan 10/74

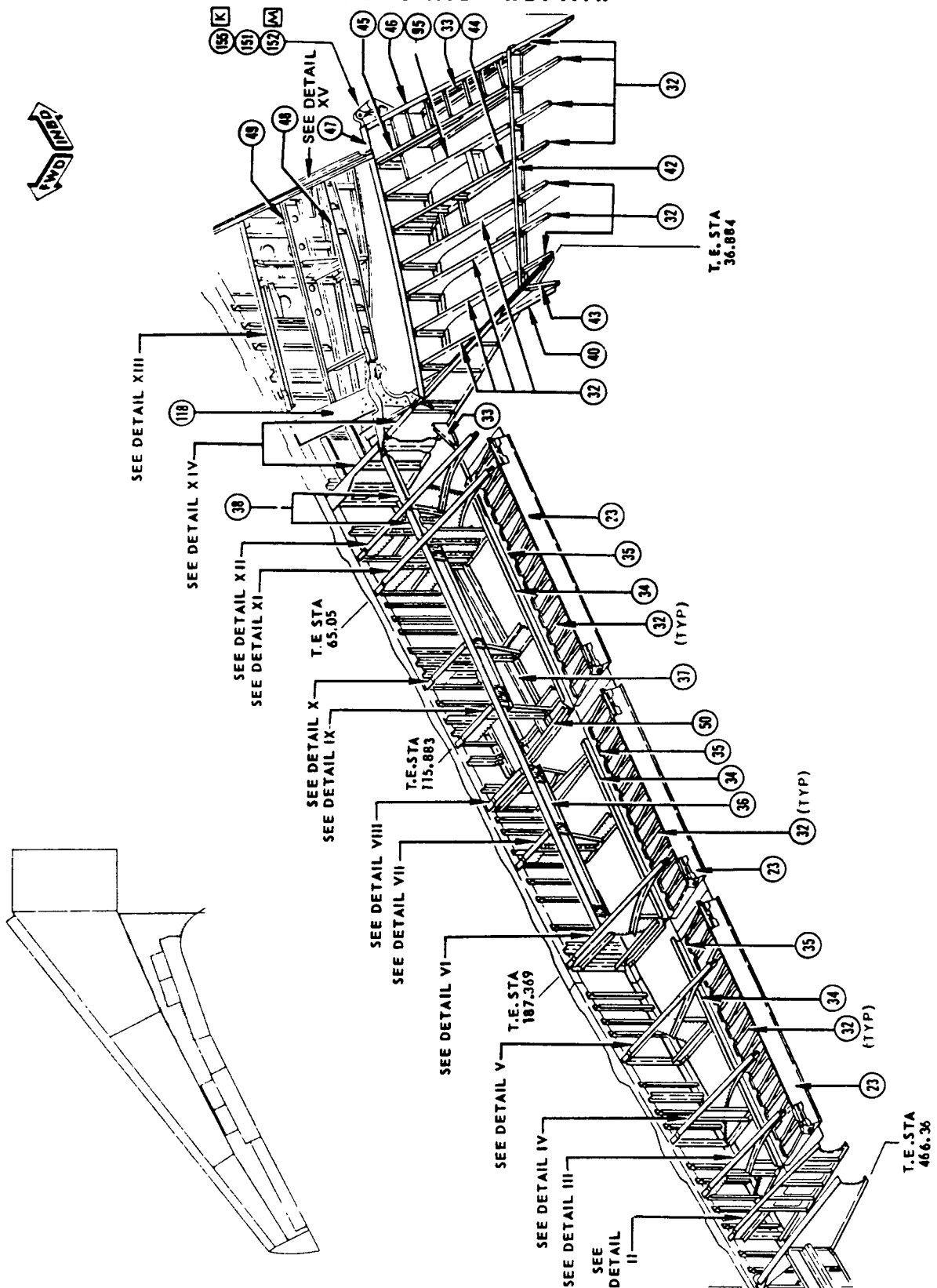
57-5-3  
Page 10A



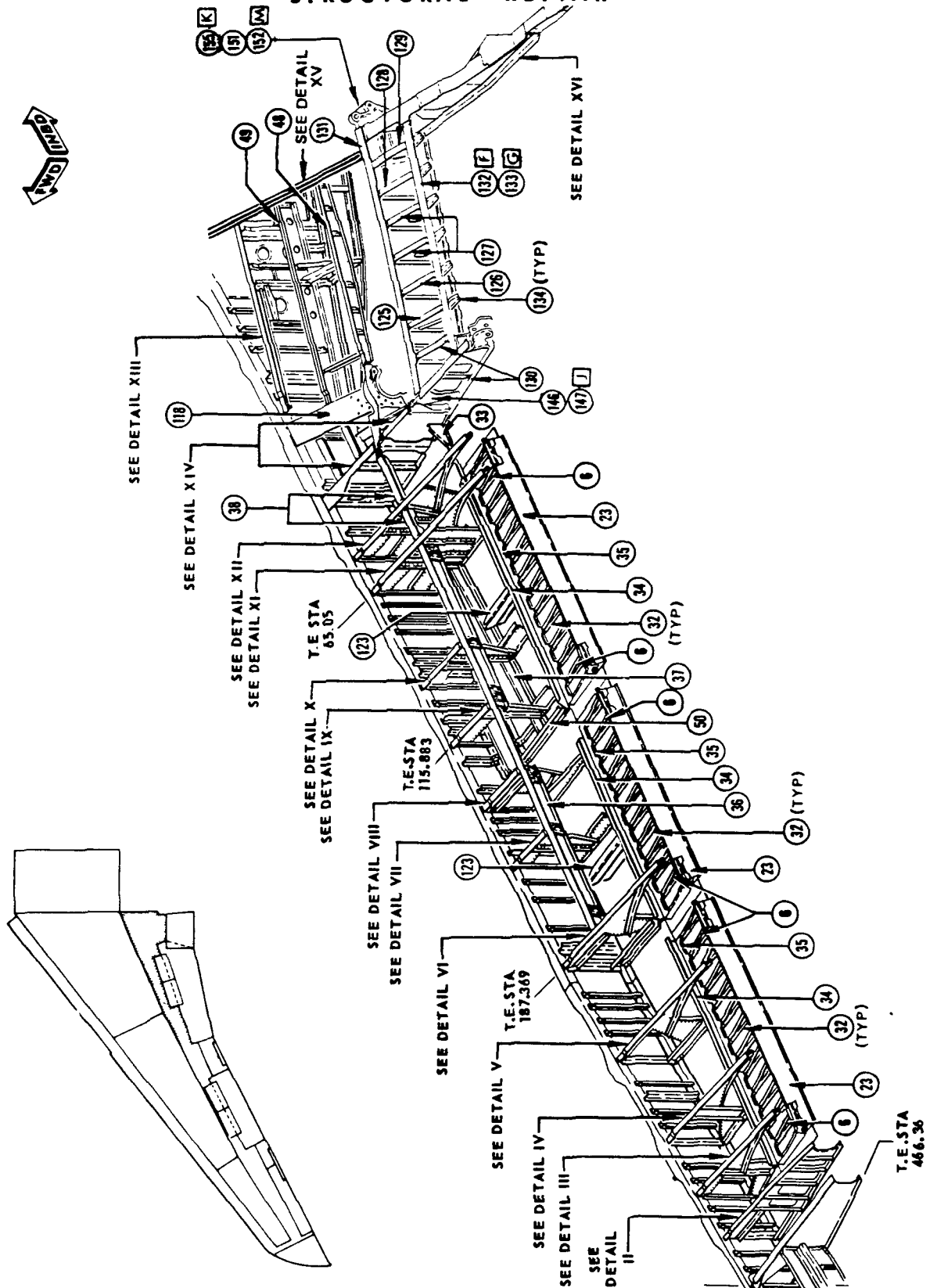
NOTE

- [A] PA 17592 ONLY
- [B] FOR ALL AIRPLANES EXCEPT PA 17592
- [C] FOR REPLACEMENT SEE BOEING DOCUMENT D6-5603
- [D] FOR TURBOJET AIRPLANES ONLY
- [E] FOR TURBOFAN AIRPLANES ONLY
- [F] FOR PA 18335 THRU PA 18338
- [G] FOR ALL TURBOFAN AIRPLANES NOT LISTED IN [F]
- [H] FOR AIRPLANES:
  - BA 20456, 20457
  - LH 20395
  - PK 20487, 20488
  - TW 20428
- [J] FORGINGS OF 7079-T6 MATERIAL HAVE BEEN SUPERSEDED BY 7075-T73 IN PRODUCTION; 7075-T73 MATERIAL IS RECOMMENDED WHEN EXISTING STOCKS OF 7079-T6 MATERIAL ARE EXHAUSTED.
- [K] FORGINGS OF 7075-T6 MATERIAL HAVE BEEN SUPERSEDED BY 7075-T73. IT IS RECOMMENDED THAT EXISTING STOCKS OF 7075-T6 MATERIAL BE RE-HEAT-TREATED TO 7075-T73.
- [M] FOR AIRPLANES INCORPORATING REPAIR IN ACCORDANCE WITH SB 2837.

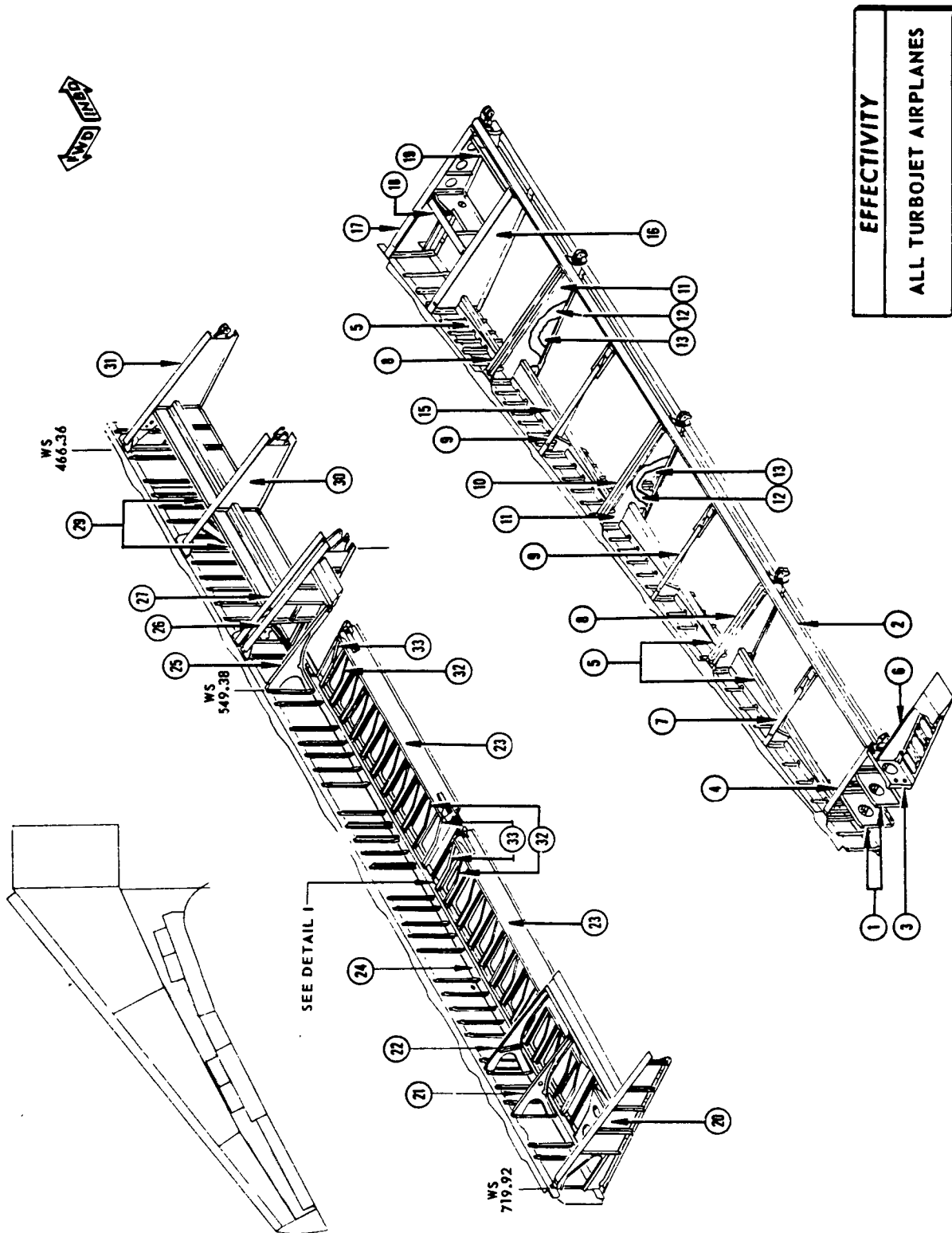
STRUCTURAL REPAIR



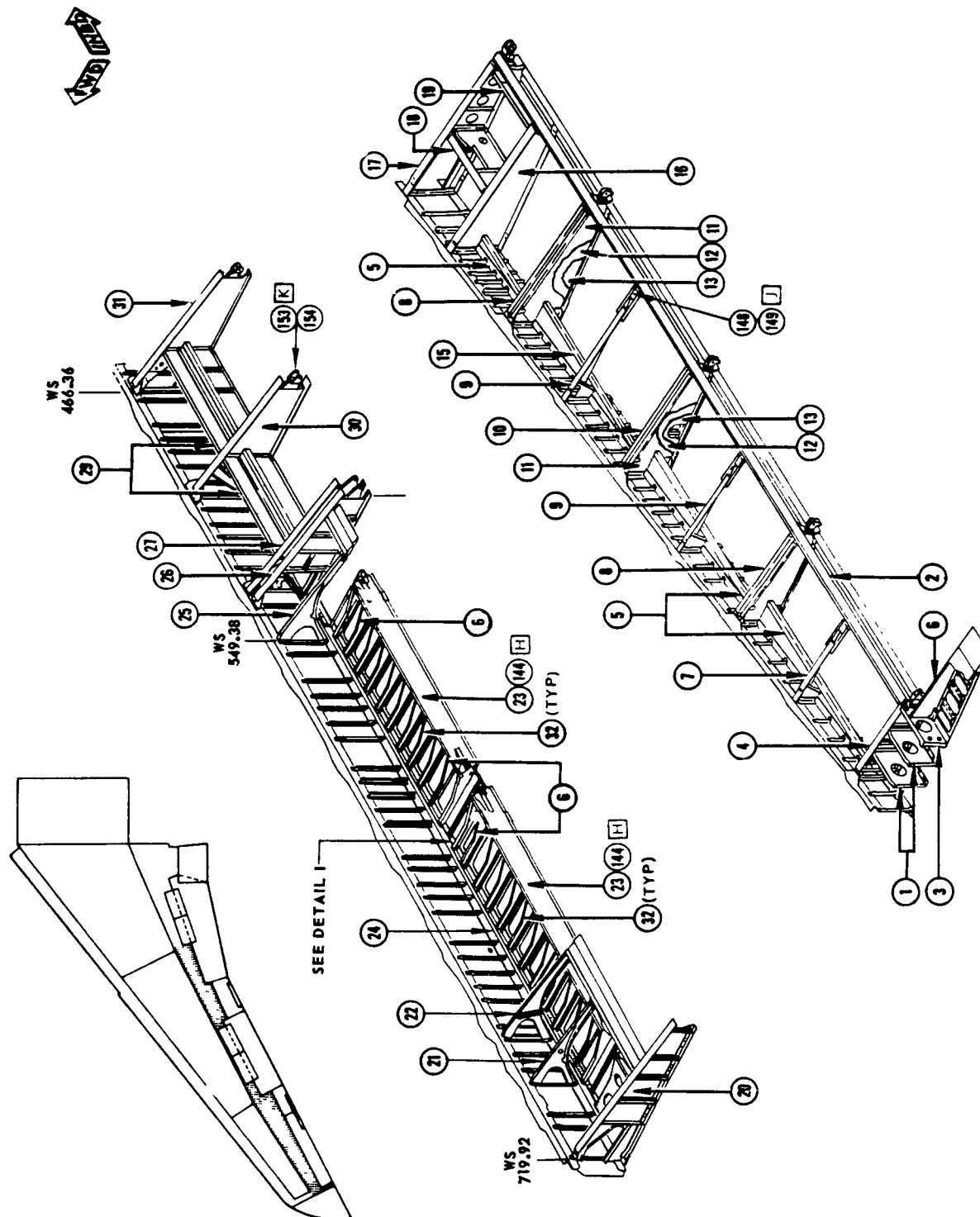
Wing Trailing Edge Structure Identification  
Figure 1 (Sheet 12)



Wing Trailing Edge Structure Identification  
Figure 1 (Sheet 13)

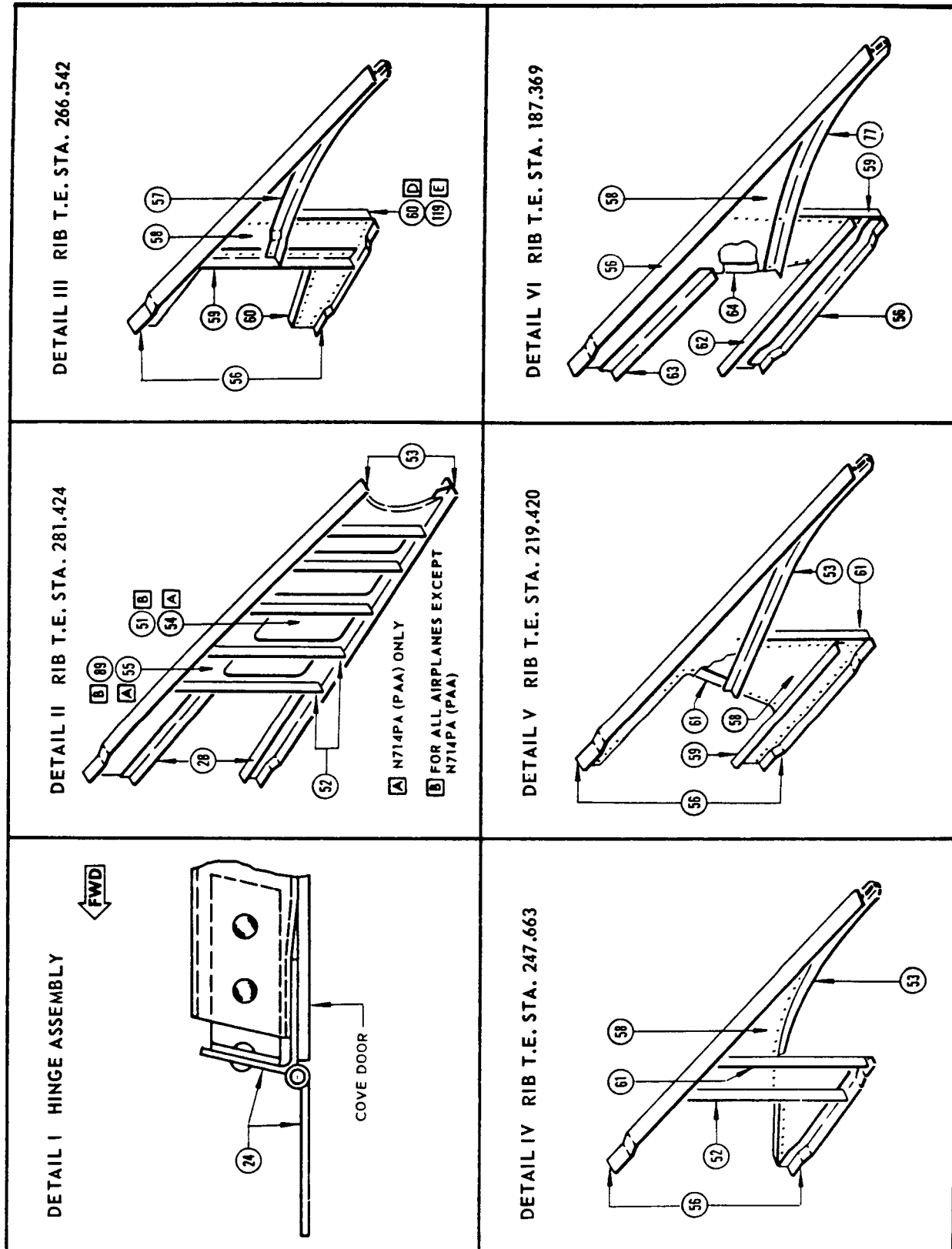


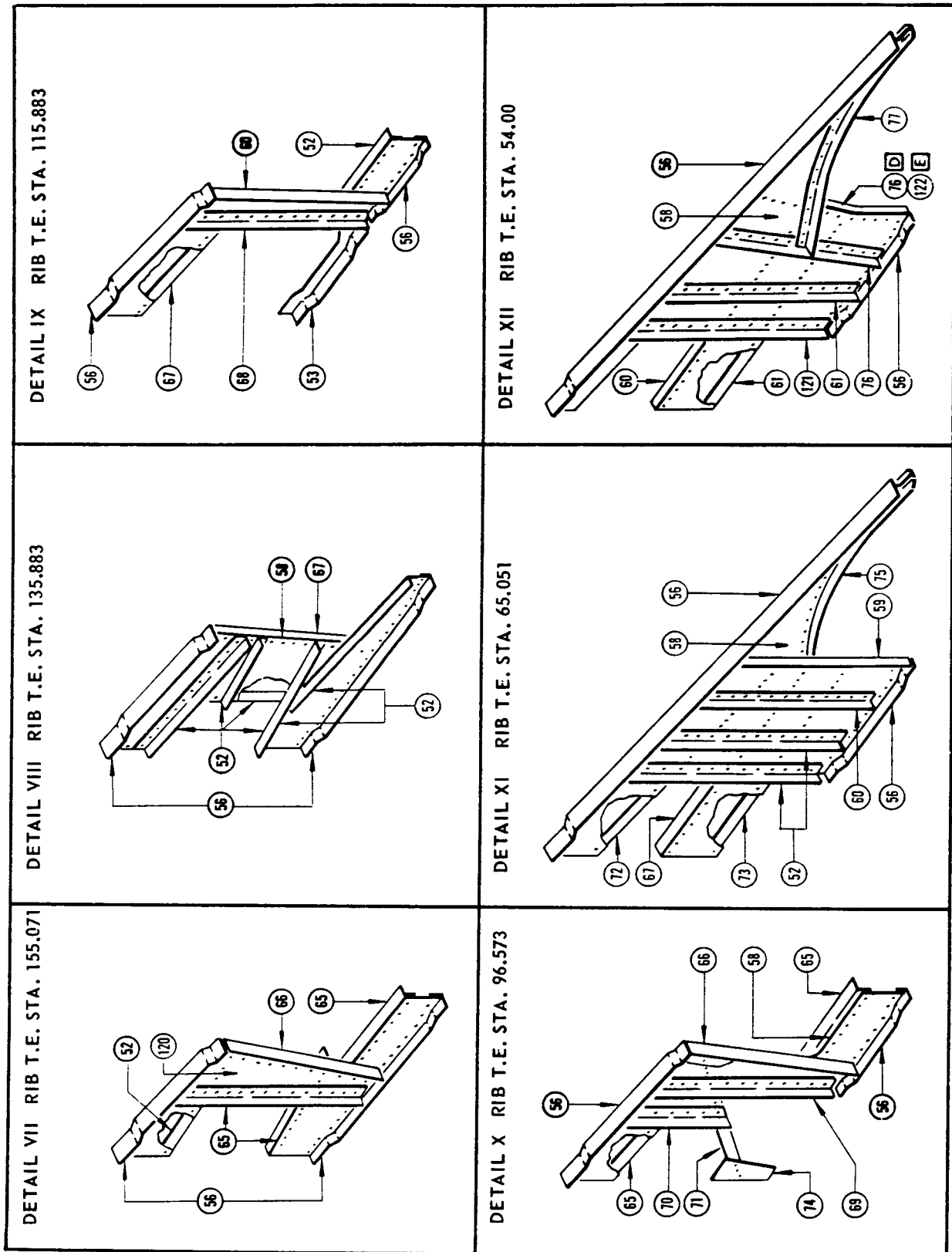
Wing Trailing Edge Structure Identification  
 Figure 1 (Sheet 14)



Wing Trailing Edge Structure Identification  
Figure 1 (Sheet 15)





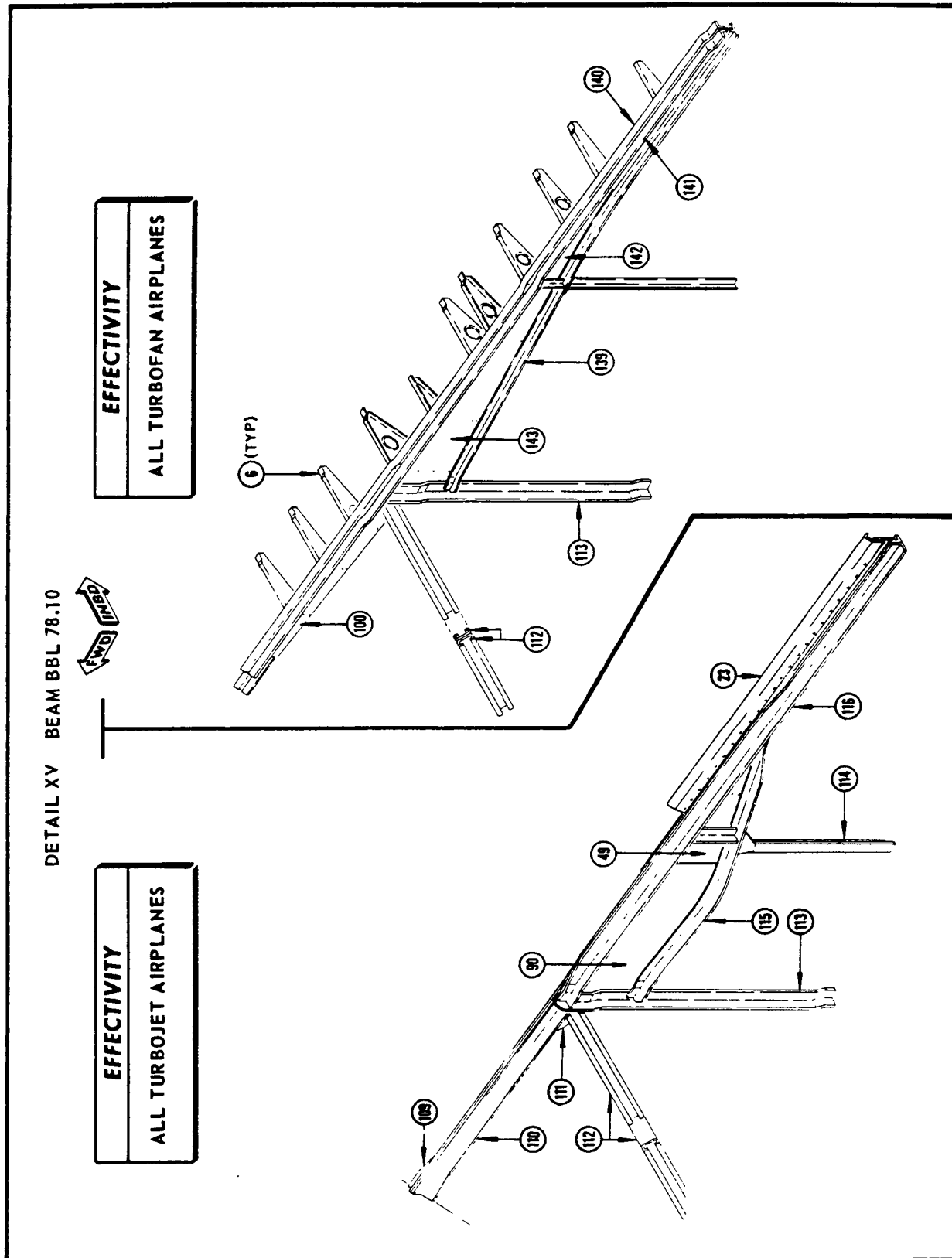


Wing Trailing Edge Structure Identification  
Figure 1 (Sheet 17)

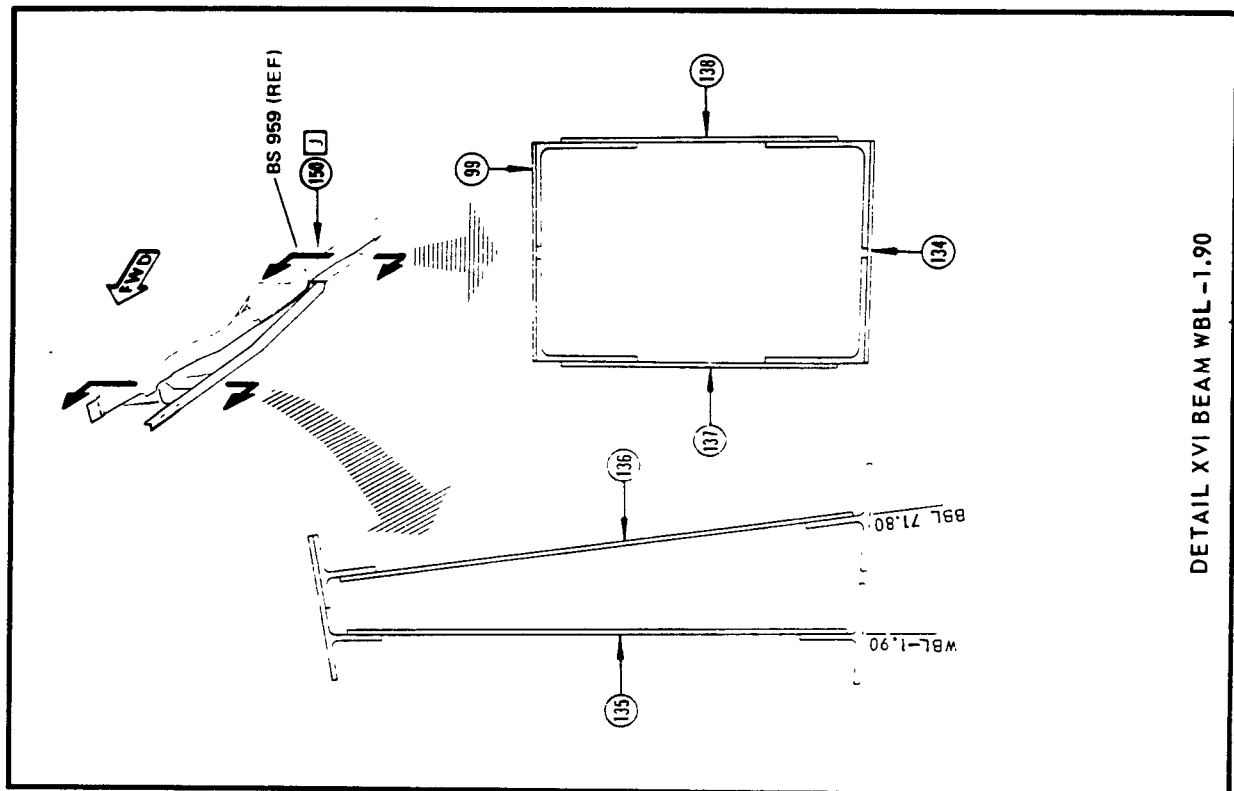




Wing Trailing Edge Structure Identification  
Figure 1 (Sheet 19)



Wing Trailing Edge Structure Identification  
Figure 1 (Sheet 20)



Wing Trailing Edge Structure Identification  
Figure 1 (Sheet 21)



## STRUCTURAL REPAIR

### WING TRAILING EDGE STRUCTURE REPAIRS

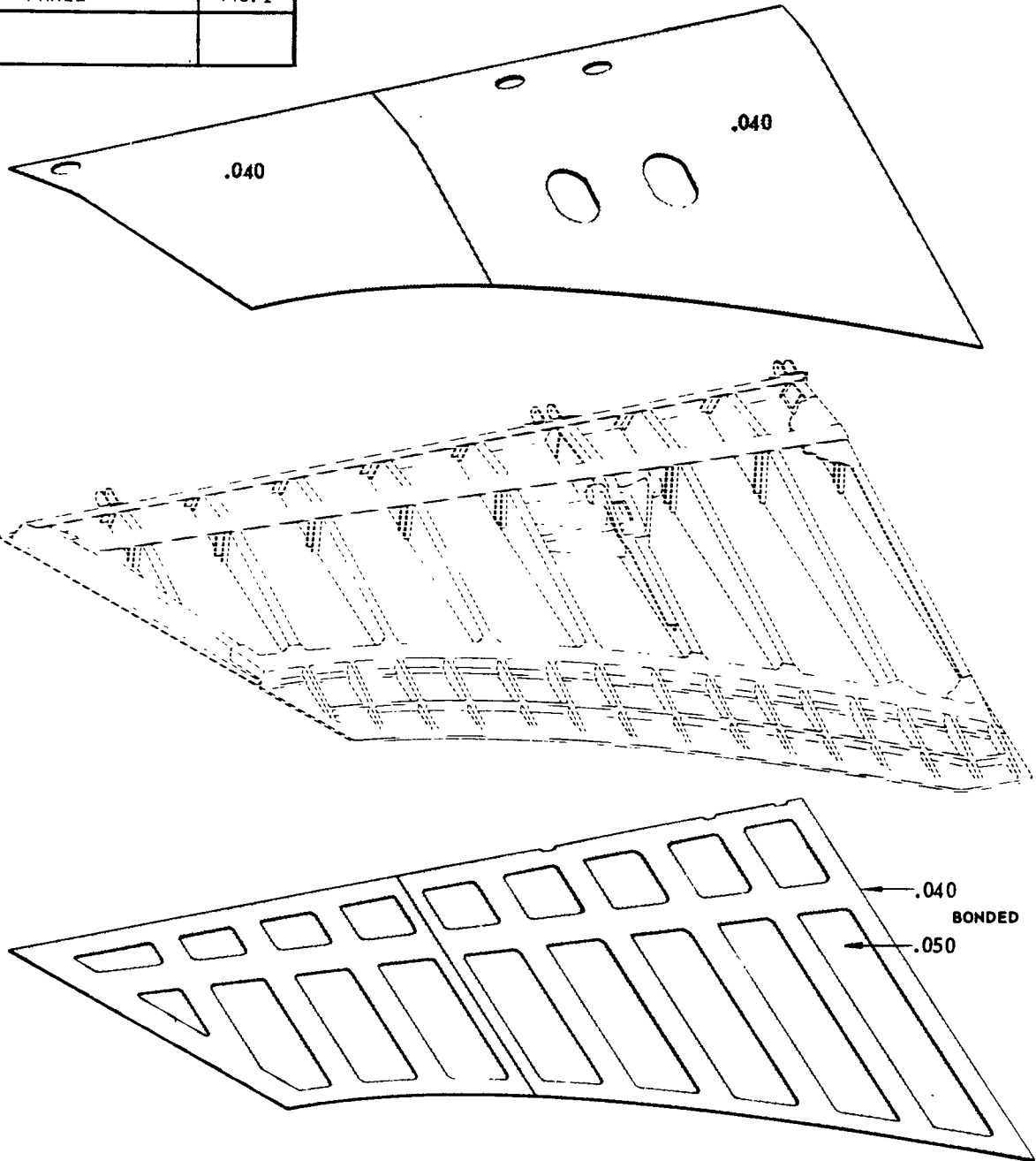
1. Repairs, as applicable, to components of these structures are indicated in the structural identification tabulations of 57-5-3.

| SKIN REPAIR INDEX |                 |
|-------------------|-----------------|
| TYPE OF SKIN      | REPAIR FIG. NO. |
| BONDED PANEL      | 51-9-1          |
| UPPER PANEL       | 57-6-2 FIG. 2   |
|                   |                 |

|              |
|--------------|
| CLAD 2024-T3 |
| CLAD 2024-T4 |

| EFFECTIVITY            |
|------------------------|
| ALL TURBOJET AIRPLANES |

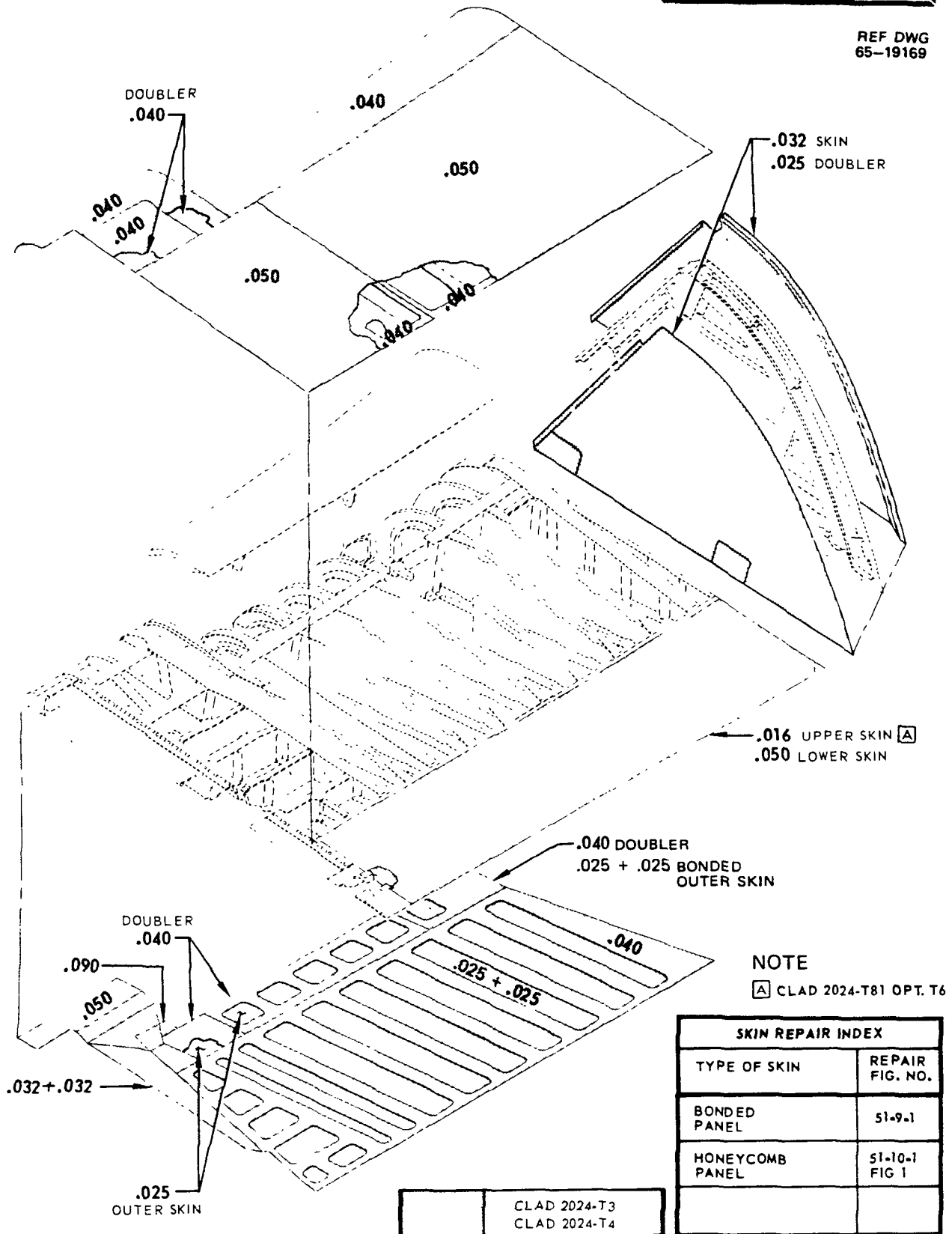
REF DWG  
65-1062



Fillet Flap Skin Material Identification  
Figure 1 (Sheet 1)



REF DWG  
65-19169



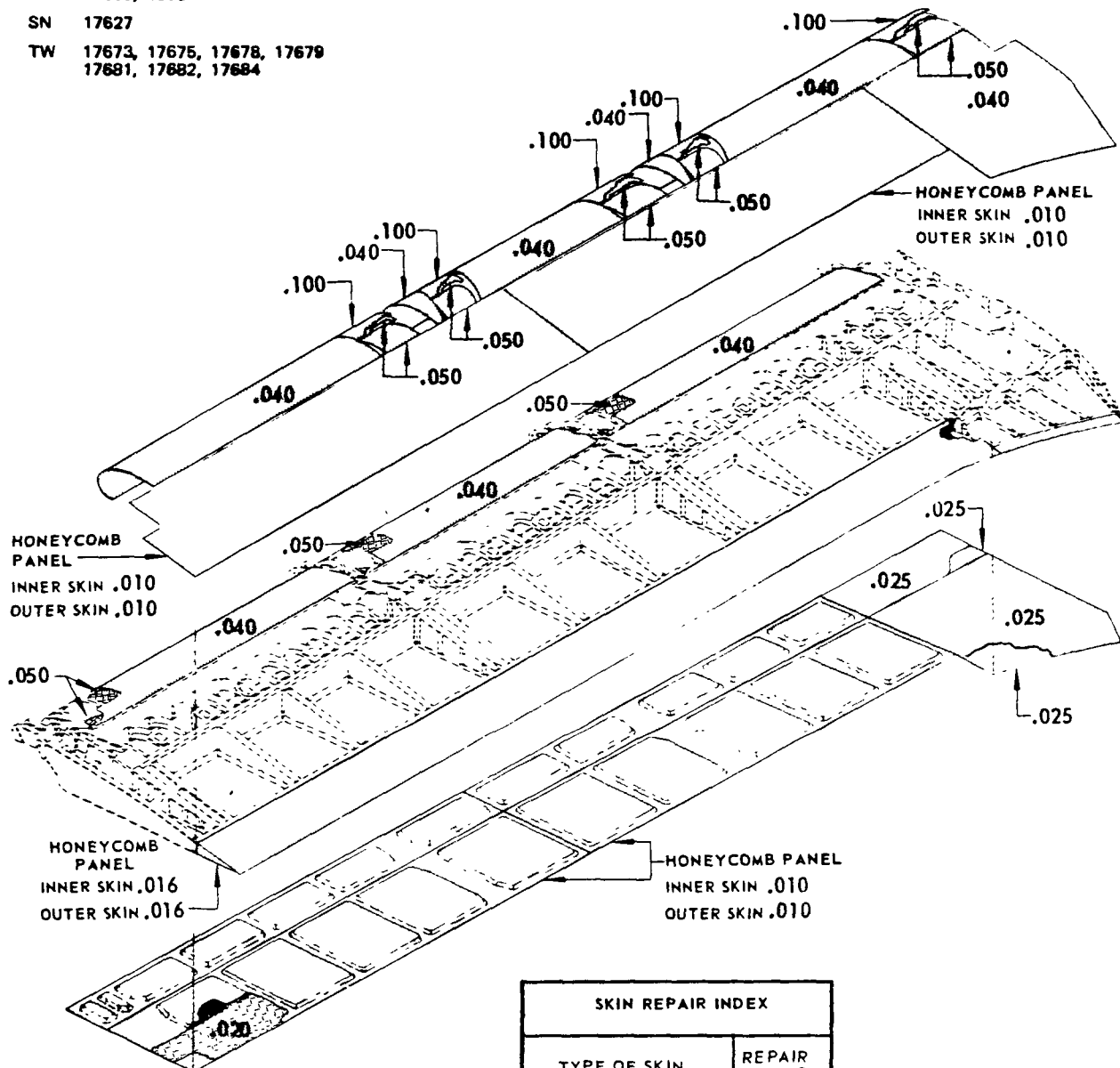
Fillet Flap Skin Material Identification  
Figure 1 (Sheet 2)



| EFFECTIVITY                             |                                                   |
|-----------------------------------------|---------------------------------------------------|
| FOR THE FOLLOWING<br>TURBOJET AIRPLANES |                                                   |
| AF                                      | 18245 THRU 18247, 18375                           |
| AI                                      | 18414, 18415                                      |
| BA                                      | 18411 THRU 18413, 18372,<br>18373                 |
| LH                                      | 17718 THRU 17720                                  |
| LY                                      | 18357                                             |
| RG                                      | 17905, 18694                                      |
| SN                                      | 17627                                             |
| TW                                      | 17673, 17675, 17678, 17679<br>17681, 17682, 17684 |

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR

REF DWG  
65-1061



|  |                              |
|--|------------------------------|
|  | CLAD 2024-T3<br>CLAD 2024-T4 |
|  | CLAD 7075-T6                 |

| SKIN REPAIR INDEX        |                      |
|--------------------------|----------------------|
| TYPE OF SKIN             | REPAIR<br>FIG. NO.   |
| ALUMINUM                 | 57-8-2<br>FIG. 1 & 2 |
| HONEYCOMB<br>PANEL       | 51-10-1<br>FIG 1     |
| ALUMINUM<br>LEADING EDGE | 57-6-2<br>FIG. 1     |

Inboard Flap Skin Material Identification  
Figure 2 (Sheet 2)

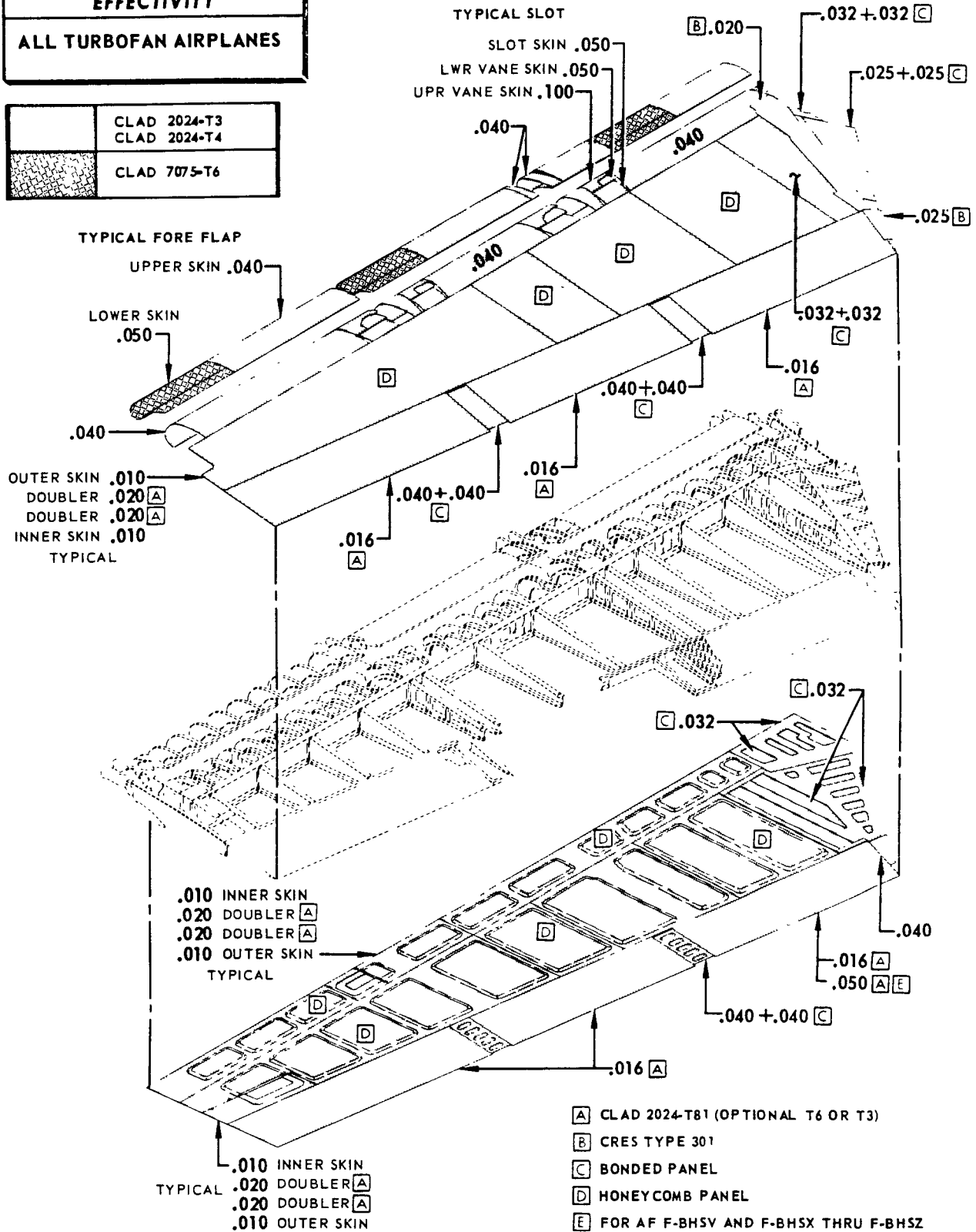


INTERCONTINENTAL  
STRUCTURAL REPAIR

REF DWG  
65-19635

**EFFECTIVITY**  
**ALL TURBOFAN AIRPLANES**

|  |              |
|--|--------------|
|  | CLAD 2024-T3 |
|  | CLAD 2024-T4 |
|  | CLAD 7075-T6 |

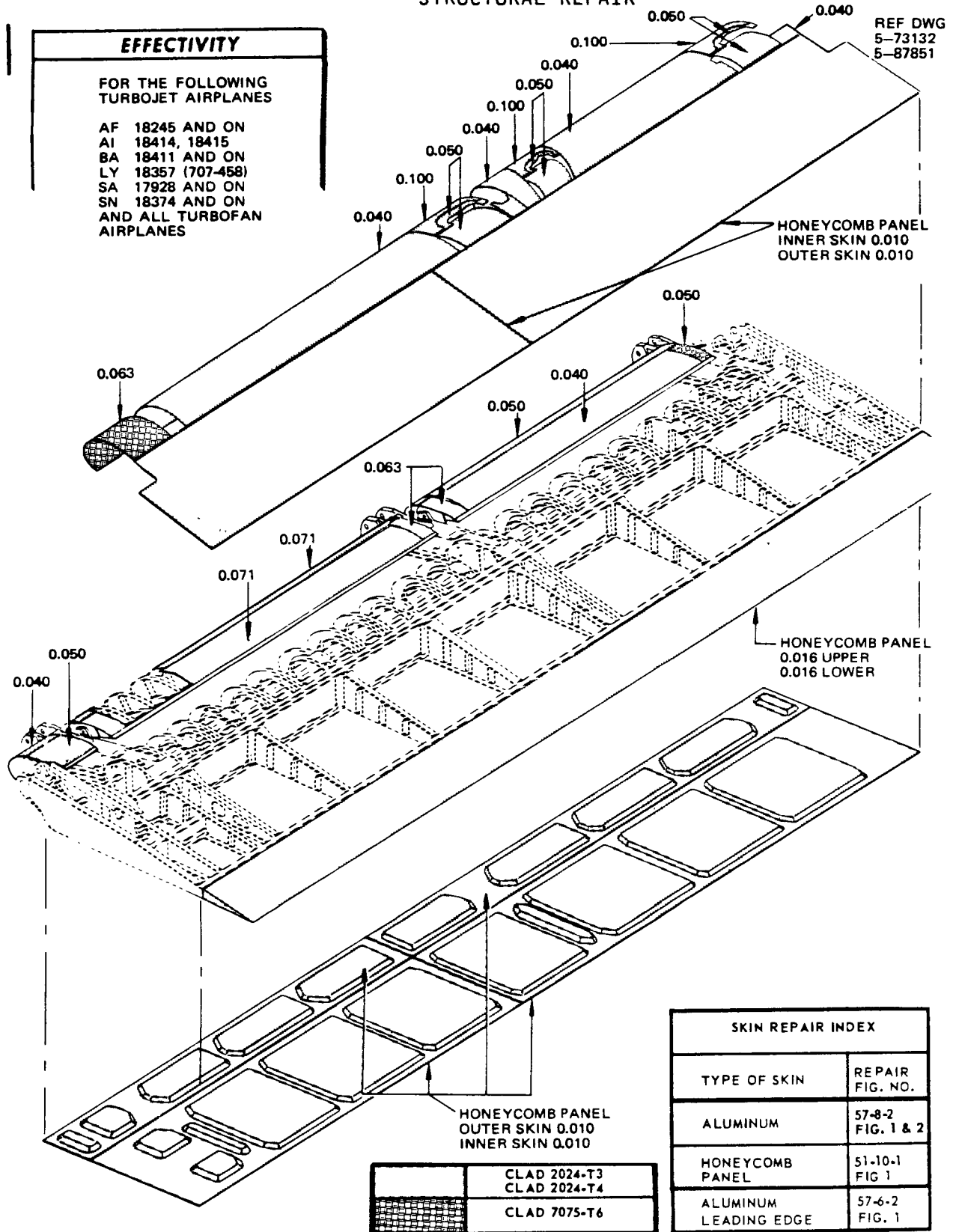


Inboard Flap Skin Material Identification  
Figure 2 (Sheet 3)

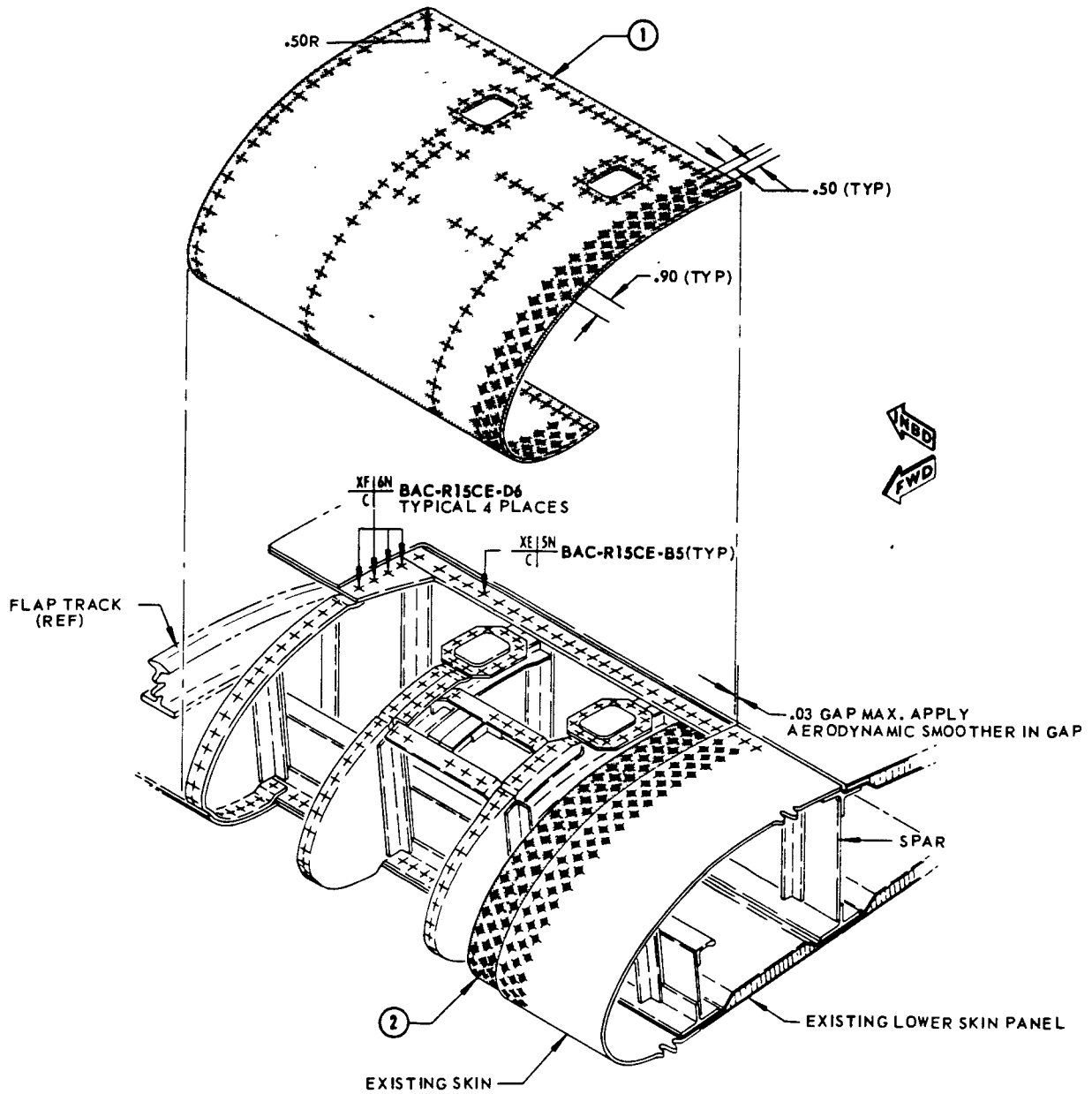


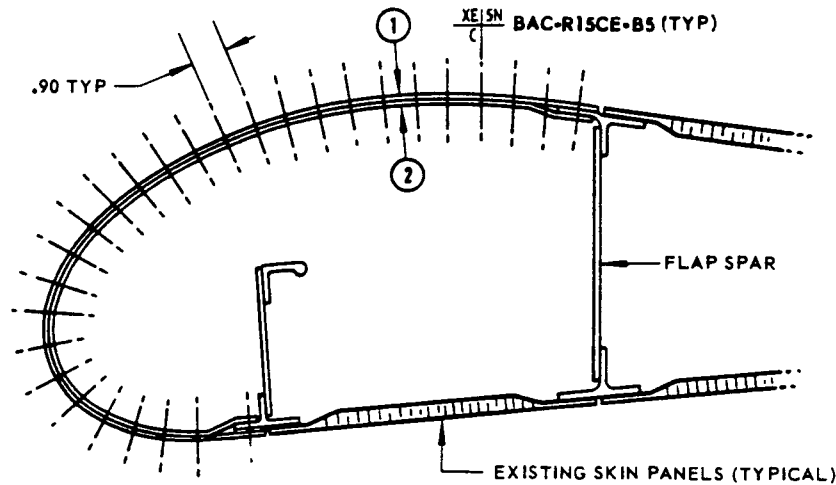


INTERCONTINENTAL  
STRUCTURAL REPAIR



Outboard Flap Skin Material Identification  
Figure 3 (Sheet 2)





SECTION THROUGH DAMAGE

**NOTE**

- ORIGINAL FASTENER LOCATIONS
- REPAIR FASTENER LOCATIONS

SEE 51-8-0 FOR METAL PROTECTIVE TREATMENT

SEE 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS.

| REPAIR MATERIAL |     |                   |  |
|-----------------|-----|-------------------|--|
| PART            | QTY | MATERIAL          |  |
| ① SKIN          | 1   | .040 CLAD 2024-T3 |  |
| ② DOUBLER       | 1   | .045 CLAD 2024-T3 |  |
|                 |     |                   |  |

**REPAIR INSTRUCTIONS:**

When the damage of flap leading edge skin is extensive, replace the damaged skin with part ① by the following steps:

1. Remove the damaged skin by making a rectangular cutout with sides parallel to the ribs and spar.
2. Smooth all sharp edges, burrs, and other surface irregularities.
3. Remove existing lower skin panel to obtain access in order to fabricate repair parts.
4. Fabricate part ① to original contour. Joggle both ends of part ② for attachment to existing chords.
5. Restore the appropriate surface finish. See 51-2-0 of 707 Maintenance Manual.



# STRUCTURAL REPAIR

## REPAIR INSTRUCTIONS:

1. Determine the required location of the access hole.
2. Mask off the skin area to a diameter of 4.5 inches. Mask off as required any skin faying area, such as at the magnesium trailing edge.
3. Remove existing paint and priming base coating by brushing on paint stripper (Delchem E-Z Strip-19A) in one direction within the area of the desired access hole. Do not brush back and forth. Apply the stripper to an area no larger than can be reasonably worked. Keep the surface moist.

**CAUTION: DO NOT ALLOW ANY STRIPPER TO CONTACT ANY FAYING SURFACE AREAS, SUCH AS THE TRAILING EDGE.**

4. Allow stripper to set undisturbed until the paint is completely loosened as shown by wrinkling.
5. Remove stripper with squeegee or rags.
6. Rinse with water under normal pressure.

7. Clean with a solution made up of one part Pennsalt 2079B and three parts water by volume.

**NOTE:** Do not allow solution to dry on the metal surface.

8. Rinse with water and wipe dry.
9. Make a 3-inch maximum diameter cutout centered on the unmasked area. Clean up burrs or sharp edges.
10. Mix 100 parts of Churchill 3C-90A with 58 parts Churchill 3C-90B adhesives.
11. Apply adhesive mixture to faying surfaces of skin and part 1.
12. Press parts firmly together. Hold in position with clamps if necessary.
13. Allow installation to cure for 48 hours at  $75^{\circ} \pm 5^{\circ}\text{F}$  or for 3 hours at  $160^{\circ} \pm 10^{\circ}\text{F}$ .
14. Remove uncured adhesive with methyl ethyl ketone.
15. Reprime any area of bare metal exposed, with zinc chromate prior to finish painting.

## NOTE

- A** NEW CUTOUT - 3" DIAMETER HOLE MAXIMUM ONE HOLE PER PANEL SEGMENT ONLY

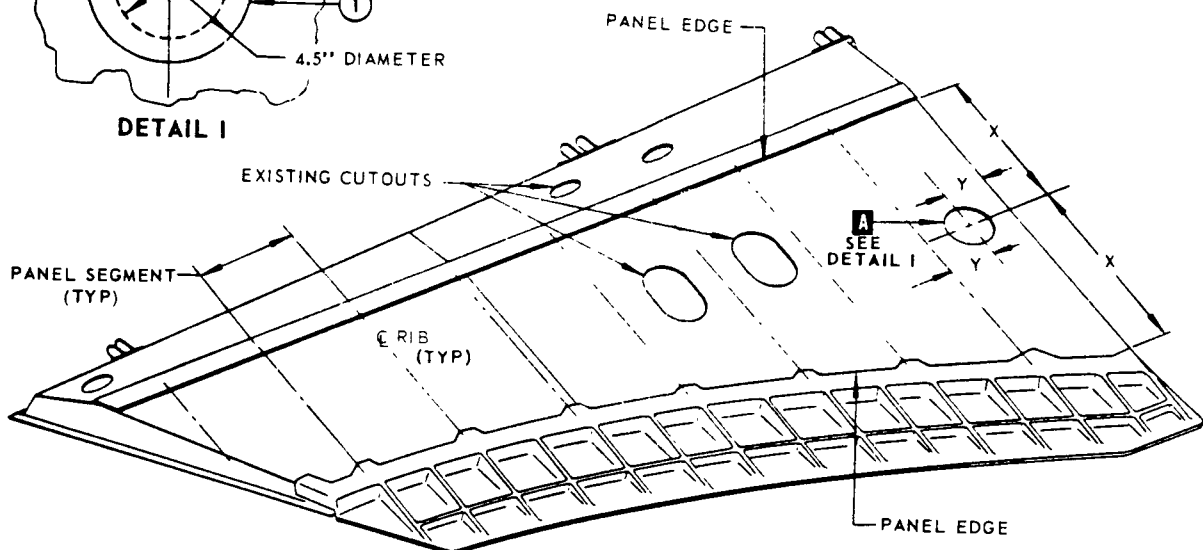
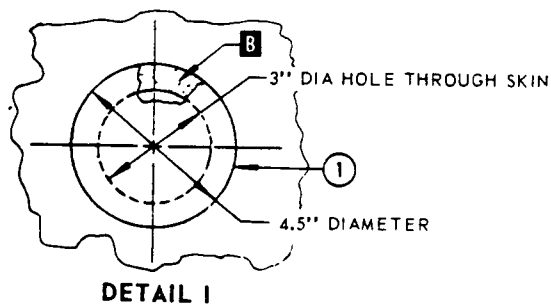
LOCATE CENTER OF CUTOUT SO THAT "X" DIMENSION IS NOT LESS THAN 6 INCHES FROM EITHER END OF A SKIN PANEL SEGMENT AND SO THAT "Y" DIMENSION IS CENTRALLY SPACED BETWEEN RIB CENTER LINES.

- B** PAINT STRIPPING SURFACE AND SUBSEQUENT FAYING SURFACE FOR ADHESIVE.

POT LIFE OF MIXED ADHESIVE IS 30 MINUTES AT  $75^{\circ}\text{F}$ .

FINISH PER 51-2-0 OF THE MAINTENANCE MANUAL.

| REPAIR MATERIAL |       |          |                            |
|-----------------|-------|----------|----------------------------|
| PART            | QTY   | MATERIAL |                            |
| 1               | PATCH | 1        | NYLON COATED<br>NYLON N/NI |

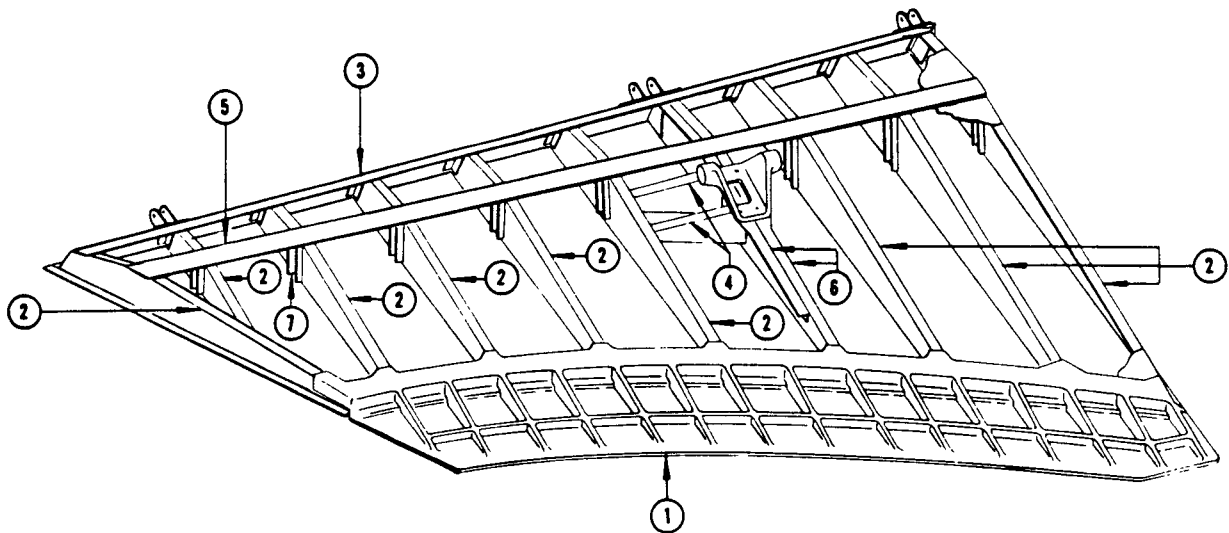


Fillet Flap - Access Openings Upper Surface  
Figure 2

STRUCTURAL REPAIR

| ITEM | MATERIAL               | REPAIR<br>FIG NO.       |
|------|------------------------|-------------------------|
| ①    | MAGNESIUM<br>COND. A   | 57-6-4<br>FIG. 2, 3 & 4 |
| ②    | .040<br>2024 - T4      | 51-14-3<br>FIG. 1       |
| ③    | .050<br>2024 - T4      | 51-14-3<br>FIG. 1       |
| ④    | .063 CLAD<br>7075 - T6 | 51-14-3<br>FIG. 1       |
| ⑤    | .080<br>2024 - T4      | 51-14-3<br>FIG. 1       |
| ⑥    | .090 CLAD<br>7075 - T6 | 51-14-3<br>FIG. 1       |
| ⑦    | .050 CLAD<br>2024 - T3 | 51-14-3<br>FIG. 1       |

| EFFECTIVITY            |
|------------------------|
| ALL TURBOJET AIRPLANES |



Fillet Flap Structure Identification  
Figure 1

|                               |
|-------------------------------|
| <b>EFFECTIVITY</b>            |
| <b>ALL TURBOFAN AIRPLANES</b> |



| ITEM | UPPER CHORD                       |                  | WEB OR FORMED SEC.          |                  | LOWER CHORD                       |                  |
|------|-----------------------------------|------------------|-----------------------------|------------------|-----------------------------------|------------------|
|      | MATERIAL                          | REPAIR FIG NO.   | MATERIAL                    | REPAIR FIG NO.   | MATERIAL                          | REPAIR FIG NO.   |
| ①    |                                   |                  | .050 CLAD<br>2024-T3        |                  |                                   |                  |
| ②    | BAC1505-100049<br>7075-T6         | 51-14-4<br>FIG 1 | .032 + .032<br>CLAD 2024-T3 |                  | BAC1505-100049<br>7075-T6         | 51-14-4<br>FIG 1 |
| ③    |                                   |                  | .050 CLAD<br>2024-T3        |                  |                                   |                  |
| ④    | AND10133-1401<br>2024-T4          | 51-14-4<br>FIG 1 | .050 CLAD<br>2024-T3        | 51-14-2<br>FIG 1 | AND10133-1401<br>2024-T4          | 51-14-4<br>FIG 1 |
| ⑤    | BAC1505-100270<br>2024-T4 OPT T42 | 51-14-4<br>FIG 1 | .032 + .032 CLAD<br>2024-T3 | 51-14-2<br>FIG 1 | BAC1505-100270<br>2024-T4 OPT T42 | 51-14-4<br>FIG 1 |
| ⑥    |                                   |                  | .050 CLAD<br>2024-T4        | 51-14-3<br>FIG 1 |                                   |                  |
| ⑦    |                                   |                  | .040 CLAD<br>2024-T4        | 51-14-3<br>FIG 1 |                                   |                  |
| ⑧    | BAC1505-100364<br>7075-T6         | 51-14-4<br>FIG 1 | .032 + .032 CLAD<br>2024-T3 | 51-14-2<br>FIG 1 | BAC1505-100270<br>2024-T4 OPT T42 | 51-14-4<br>FIG 1 |
| ⑨    | BAC1505-100361<br>2024-T4         | 51-14-4<br>FIG 1 | .032 + .032 CLAD<br>2024-T3 | 51-14-2<br>FIG 1 | BAC1505-100361<br>7075-T6         | 51-14-4<br>FIG 1 |
| ⑩    |                                   |                  | .090 CLAD<br>2024-T3        |                  |                                   |                  |
| ⑪    | .080 CLAD<br>7075-T6              | 51-14-3<br>FIG 1 | .032 + .032 CLAD<br>7075-T6 | 51-14-2<br>FIG 1 |                                   |                  |
| ⑫    | AND10136-2007<br>2024-T4          | 51-14-4<br>FIG 1 |                             |                  |                                   |                  |
| ⑬    | BAC1505-100081<br>2024-T4         | 51-14-4<br>FIG 1 | .025 + .040 CLAD<br>2024-T3 | 51-14-2<br>FIG 1 | BAC1505-100158<br>2024-T4         |                  |
| ⑭    |                                   |                  | .063 CLAD<br>2024-T4        | 51-14-3<br>FIG 1 |                                   |                  |
| ⑮    |                                   |                  |                             |                  | BAC1505-100049<br>7075-T6         |                  |
| ⑯    | .050 CLAD<br>2024-T4              |                  | .050 CLAD<br>2024-T3        |                  | .050 CLAD<br>2024-T4              |                  |
| ⑰    | AND10133-0701<br>2024-T4          |                  | .063 CLAD<br>2024-T3        | 51-14-2<br>FIG 1 | BAC1514-915<br>2024-T4            |                  |
| ⑱    | AND10133-1401<br>2024-T4          |                  |                             |                  |                                   |                  |
| ⑲    | AND10133-0701<br>2024-T4          |                  |                             |                  |                                   |                  |
| ⑳    | BAC1503-100096<br>2024-T4         |                  | .020 CLAD<br>2024-T3        | 51-14-2<br>FIG 1 | BAC1514-915<br>2024-T4            |                  |
| ㉑    | BAC1505-100270<br>2024-T4         |                  | .020 CLAD<br>2024-T3        | 51-14-2<br>FIG 1 | AND10133-0701<br>2024-T4          |                  |
| ㉒    | AND10133-0701<br>2024-T4          |                  | .020 CLAD<br>2024-T3        | 51-14-2<br>FIG 1 | AND10133-0701<br>2024-T4          |                  |
| ㉓    | BAC1505-100270<br>2024-T4         |                  | .020 CLAD<br>2024-T3        | 51-14-2<br>FIG 1 | BAC1505-100270<br>2024-T4         |                  |
| ㉔    | BAC1503-100096<br>2024-T4         |                  | .063 CLAD<br>2024-T3        | 51-14-2<br>FIG 1 | AND10133-0701<br>2024-T4          |                  |
| ㉕    | BAC1514-1488<br>2024-T4           |                  | .050 CLAD<br>2024-T3        | 51-14-2<br>FIG 1 | .090 CLAD<br>2024-T3              |                  |

Fillet Flap Structure Identification  
Figure 2 (Sheet 1)

Jan 5/72

57-6-3  
Page 2A



# STRUCTURAL REPAIR

## EFFECTIVITY

ALL TURBOFAN AIRPLANES

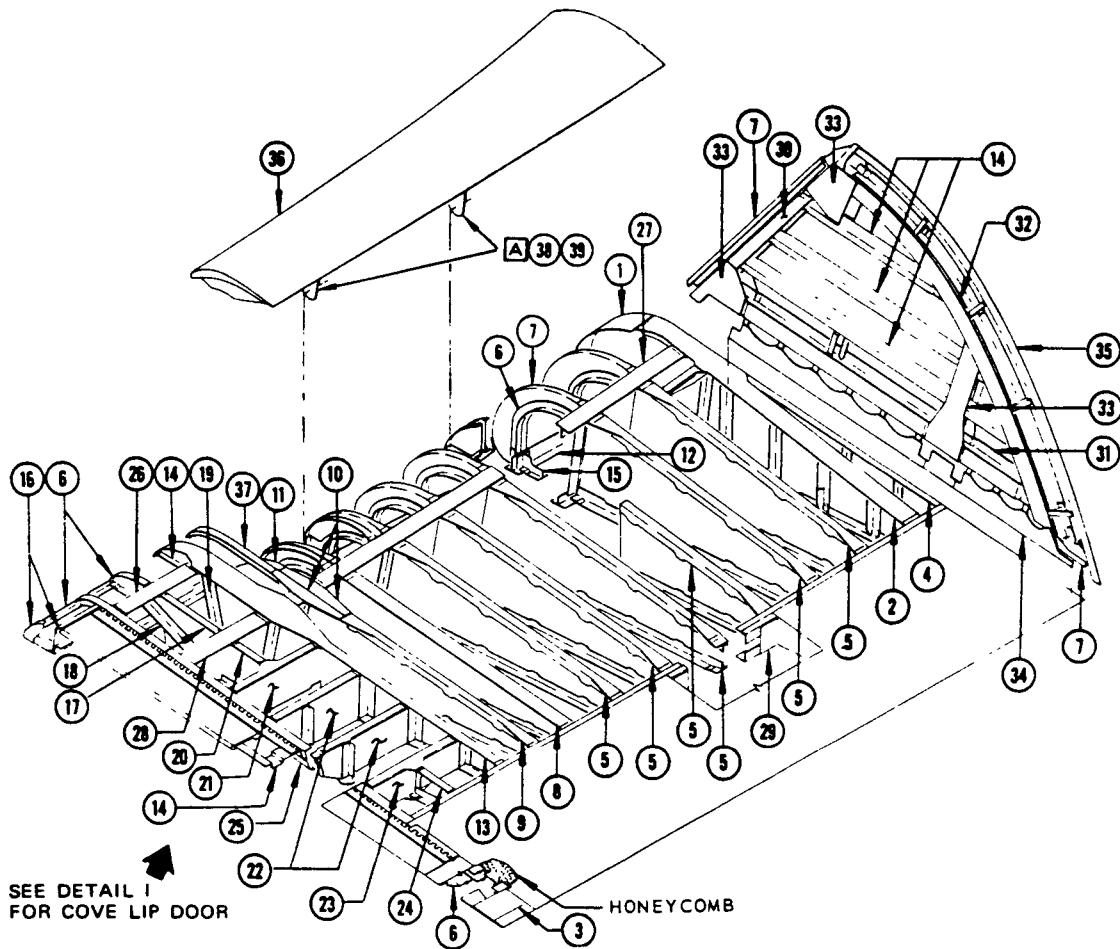
| ITEM | UPPER CHORD                                    |                  | WEB OR FORMED SEC.                       |                  | LOWER CHORD                      |                  |
|------|------------------------------------------------|------------------|------------------------------------------|------------------|----------------------------------|------------------|
|      | MATERIAL                                       | REPAIR FIG NO.   | MATERIAL                                 | REPAIR FIG NO.   | MATERIAL                         | REPAIR FIG NO.   |
| (26) |                                                |                  | 0.090 CLAD<br>2024-T4                    |                  |                                  |                  |
| (27) | BAC1505-100158<br>2024-T4                      | 51-14-4<br>FIG 1 | 0.025+0.025+0.032<br>CLAD 2024-T3        | 51-14-2<br>FIG 1 | BAC1506-1289<br>2024-T4          | 51-14-4<br>FIG 1 |
| (28) | BAC1505-100158<br>2024-T4                      | 51-14-4<br>FIG 1 | 0.032+0.032 CLAD<br>2024-T3              |                  | BAC1506-1289<br>2024-T4          |                  |
| (29) | BAC1514-1485<br>2024-T4                        | 51-14-4<br>FIG 1 | 0.050 CLAD<br>2024-T3                    | 51-14-2<br>FIG 1 | BAC1514-1486<br>2024-T4          | 51-14-4<br>FIG 1 |
| (30) | AND10133-1202<br>2024-T4 (OUTBD)               | 51-14-4<br>FIG 1 |                                          |                  | BAC1505-100168<br>7075-T6 (INBD) | 51-14-4<br>FIG 1 |
| (31) | BAC1505-100168<br>2024-T4 (OUTBD)              | 51-14-4<br>FIG 1 |                                          |                  | AND10136-2404<br>7075-T6 (INBD)  | 51-14-4<br>FIG 1 |
| (32) | BAC1505-100152<br>2024-T4 (OUTBD)              | 51-14-4<br>FIG 1 |                                          |                  | AND10136-2404<br>7075-T6 (INBD)  | 51-14-4<br>FIG 1 |
| (33) |                                                |                  | 0.025 CLAD<br>2024-T4                    |                  |                                  |                  |
| (34) |                                                |                  | 0.070 CLAD<br>2024-T4                    |                  |                                  |                  |
| (35) |                                                |                  | 0.080 CLAD<br>2024-T4                    |                  |                                  |                  |
| (36) | MAGNESIUM<br>AZ91C COND T6                     |                  |                                          |                  |                                  |                  |
| (37) | 0.080 CLAD<br>2024-T4                          | 51-14-3<br>FIG 1 |                                          |                  |                                  |                  |
| (38) | FORGING<br>7075-T6                             |                  |                                          |                  |                                  |                  |
| (39) | FORGING <input type="checkbox"/> A<br>7075-T73 |                  |                                          |                  |                                  |                  |
| (40) | FORGING<br>7079-T6                             |                  |                                          |                  |                                  |                  |
| (41) | PLATE<br>7075-T6                               |                  |                                          |                  |                                  |                  |
| (42) | FORGING<br>7079-T625                           |                  |                                          |                  |                                  |                  |
| (43) | FORGING<br>7075-T73                            |                  |                                          |                  |                                  |                  |
| (44) |                                                |                  | 0.070 CLAD<br>2024-T4                    |                  |                                  |                  |
| (45) |                                                |                  | BAC1506-484 EXTR<br>2024-T4              |                  |                                  |                  |
| (46) | FORGING<br>7079-T6                             |                  |                                          |                  |                                  |                  |
| (47) | FORGING<br>7079-T6                             |                  |                                          |                  |                                  |                  |
| (48) | FORGING<br>7075-T73                            |                  |                                          |                  |                                  |                  |
| (49) |                                                |                  | BAC1517-478 FORMED<br>0.040 CLAD 2024-T4 |                  |                                  |                  |

Fillet Flap Structure Identification  
Figure 2 (Sheet 2)

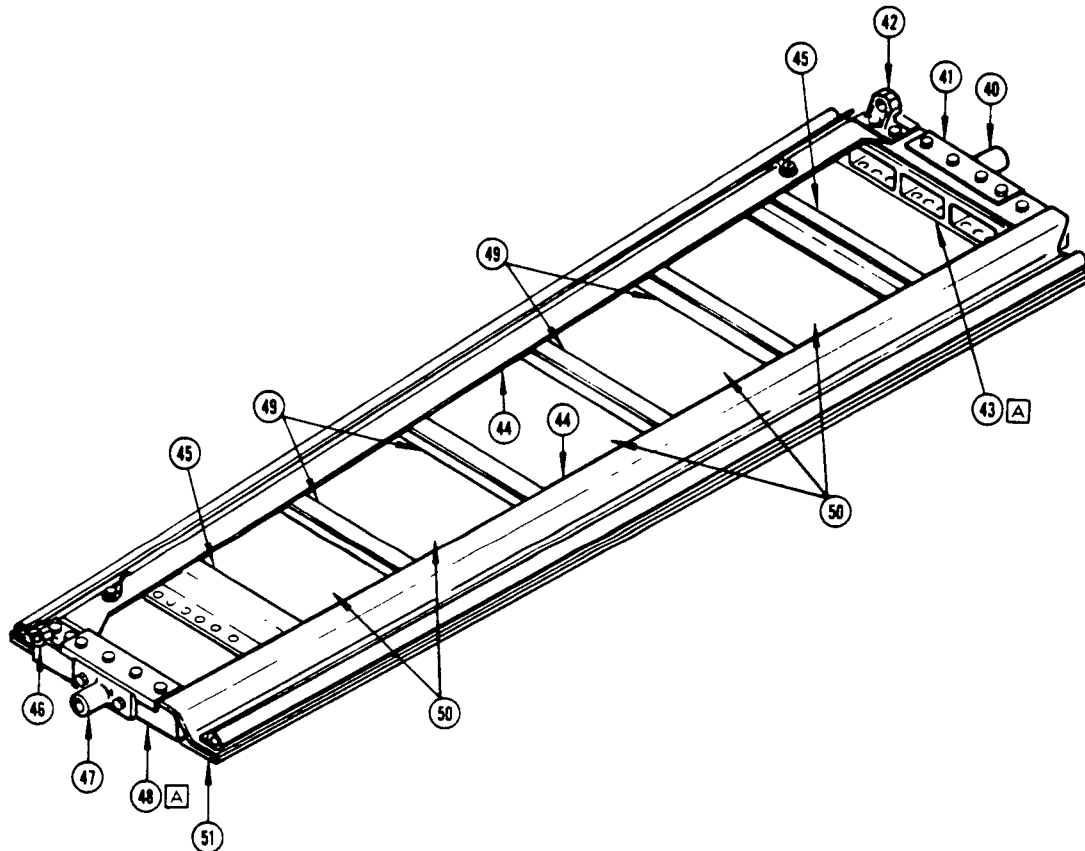


### NOTE

- 57-6-3  
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Fillet Flap Structure Identification  
 Figure 2 (Sheet 4)



COVE LIP DOOR MATERIAL IDENTIFICATION  
 DETAIL I

Fillet Flap Structure Identification  
 Figure 2 (Sheet 5)



## STRUCTURAL REPAIR

| ITEM | UPPER CHORD                     |                   | WEB OR FORMED SEC.          |                             | LOWER CHORD                |                   |
|------|---------------------------------|-------------------|-----------------------------|-----------------------------|----------------------------|-------------------|
|      | MATERIAL                        | REPAIR FIG NO.    | MATERIAL                    | REPAIR FIG NO.              | MATERIAL                   | REPAIR FIG NO.    |
| ①    | AND10137-1112<br>7075-T6        | 51-14-4<br>FIG. 1 | .032 CLAD<br>2024-T3        | 51-14-2<br>FIG. 1           | BAC 1514-1391<br>2024-T4   | 51-14-4<br>FIG. 1 |
| ②    | .080<br>7075-T6                 | 51-14-3<br>FIG. 1 |                             |                             |                            |                   |
| ③    |                                 |                   | .050 CLAD<br>7075-T6        | 51-14-3<br>FIG. 1           |                            |                   |
| ④    |                                 |                   | .050 CLAD<br>2024-T4        | 51-14-3<br>FIG. 1           |                            |                   |
| ⑤    |                                 |                   | .040 CLAD<br>2024-T3        | 51-14-3<br>FIG. 1           |                            |                   |
| ⑥    | BAC 1513-279<br>Magnesium Alloy |                   |                             |                             |                            |                   |
| ⑦    |                                 |                   | .080 CLAD<br>7075-T6        | 51-14-2<br>FIG. 1           |                            |                   |
| ⑧    |                                 |                   | .040 CLAD<br>2024-T4        | 51-14-3<br>FIG. 1           |                            |                   |
| ⑨    | .063 CLAD<br>2024-T4            | 51-14-3<br>FIG. 1 |                             |                             | BAC 1503-100136<br>2024-T4 | 51-14-4<br>FIG. 1 |
| ⑩    | AND10137-1112<br>7075-T6        | 51-14-4<br>FIG. 1 | .063 CLAD<br>2024-T3        | 51-14-3<br>FIG. 1           | BAC 1514-1391<br>2024-T4   | 51-14-4<br>FIG. 1 |
| ⑪    |                                 |                   | .032 + .032<br>CLAD 2024-T3 | 51-9-1                      |                            |                   |
| ⑫    | BAC 1503-100134<br>2024-T4      | 51-14-4<br>FIG. 1 |                             |                             |                            |                   |
| ⑬    | BAC 1505-100361<br>2024-T4      | 51-14-4<br>FIG. 1 | .032 + .032<br>CLAD 2024-T3 | 51-9-1                      | BAC 1505-100361<br>2024-T4 | 51-14-4<br>FIG. 1 |
| ⑭    | BAC 1506-1023<br>7075-T6        |                   |                             |                             | BAC 1506-1022<br>2024-T4   | 57-6-4<br>FIG. 1  |
| ⑮    |                                 |                   | .012 CLAD<br>2024-T3        | 51-9-1<br>51-14-2<br>FIG. 1 |                            |                   |
| ⑯    |                                 |                   | .016 CLAD<br>2024-T3        | 51-9-1                      |                            |                   |
| ⑰    |                                 |                   | .020 CLAD<br>2024-T3        | 51-9-1<br>51-14-2<br>FIG. 1 |                            |                   |
| ⑱    |                                 |                   |                             |                             | AND10136-2401<br>2024-T4   | 51-14-4<br>FIG. 1 |
| ⑲    | BAC 1514-1383<br>2024-T4        |                   |                             |                             |                            |                   |
| ⑳    | .102 CLAD<br>7075-T6            | 51-14-4<br>FIG. 1 |                             |                             |                            |                   |
| ㉑    | BAC 1505-100203<br>2024-T4      | 51-14-4<br>FIG. 1 | .063 CLAD<br>2024-T4        | 51-14-2<br>FIG. 1           | BAC 1505-100203<br>2024-T4 | 51-14-4<br>FIG. 1 |
| ㉒    | BAC 1505-100203<br>2024-T4      | 51-14-4<br>FIG. 1 | .063 CLAD<br>2024-T3        |                             | BAC 1506-1332<br>2024-T4   | 51-14-4<br>FIG. 1 |
| ㉓    | AND10134-1204<br>2024-T4        | 51-14-4<br>FIG. 1 |                             |                             | .063 CLAD<br>2024-T4       | 51-14-3<br>FIG. 1 |
| ㉔    | .02 CLAD<br>7075-T6             | 51-14-3<br>FIG. 1 |                             |                             |                            |                   |
| ㉕    | BAC 1505-100361<br>2024-T4      | 51-14-4<br>FIG. 1 |                             |                             |                            |                   |





## STRUCTURAL REPAIR

| ITEM | UPPER CHORD              |                | WEB OR FORMED SEC    |                   |
|------|--------------------------|----------------|----------------------|-------------------|
|      | MATERIAL                 | REPAIR FIG NO. | MATERIAL             | REPAIR FIG NO.    |
| (26) |                          |                | .063 CLAD<br>2024-T4 | 51-14-3<br>FIG. 1 |
| (27) | BAC 1514-1415<br>2024-T4 |                |                      |                   |
| (28) | .071 CLAD<br>2024-T3     |                |                      |                   |
| (29) |                          |                | HONEYCOMB PANEL      | 51-10-1           |

### NOTE

- ☐ A FOR THE FOLLOWING TURBOJET AIRPLANES

AF 17613 THRU 17622,  
17918 THRU 17924  
AI 17722 THRU 17724, 18055  
BA 17703 THRU 17717  
LH 17718 THRU 17721, 18056  
LY 18070 AND 18071 (707-458)  
PA ALL  
RG ALL  
SN 17623 THRU 17627  
TW ALL

- ☐ B FOR THE FOLLOWING TURBOJET AIRPLANES

AF 18245 AND ON  
AI 18414 AND 18415  
BA 18411 AND ON  
SA ALL  
SN 18374 AND ON  
LY 18357 (707-458)

- ☐ C PA 17592 THRU 17595 ONLY

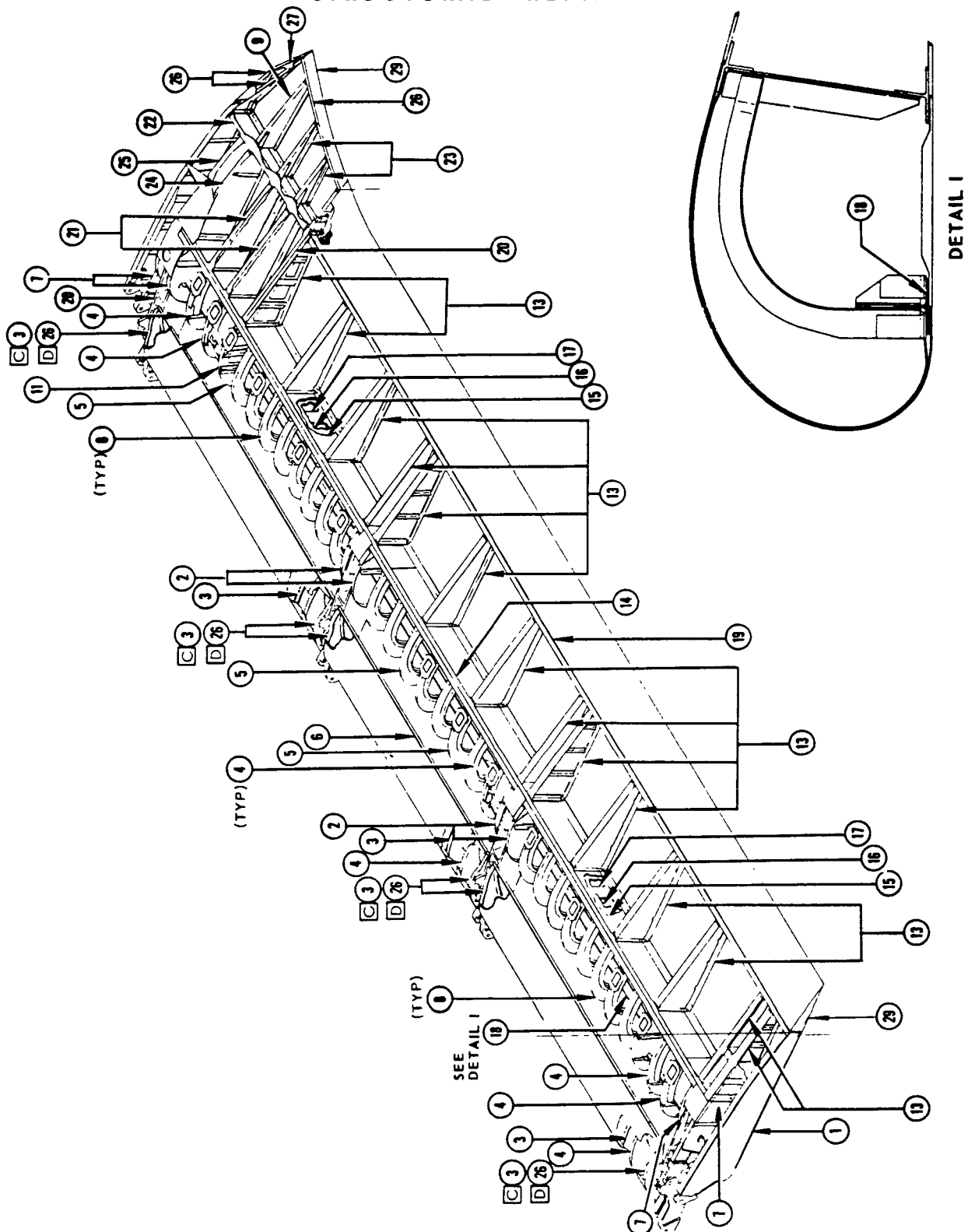
- ☐ D ALL OTHER TURBOJET AIRPLANES  
NOT NOTED IN ☐

Inboard Flap Structure Identification - Turbojet  
Figure 3 (Sheet 2 of 4)

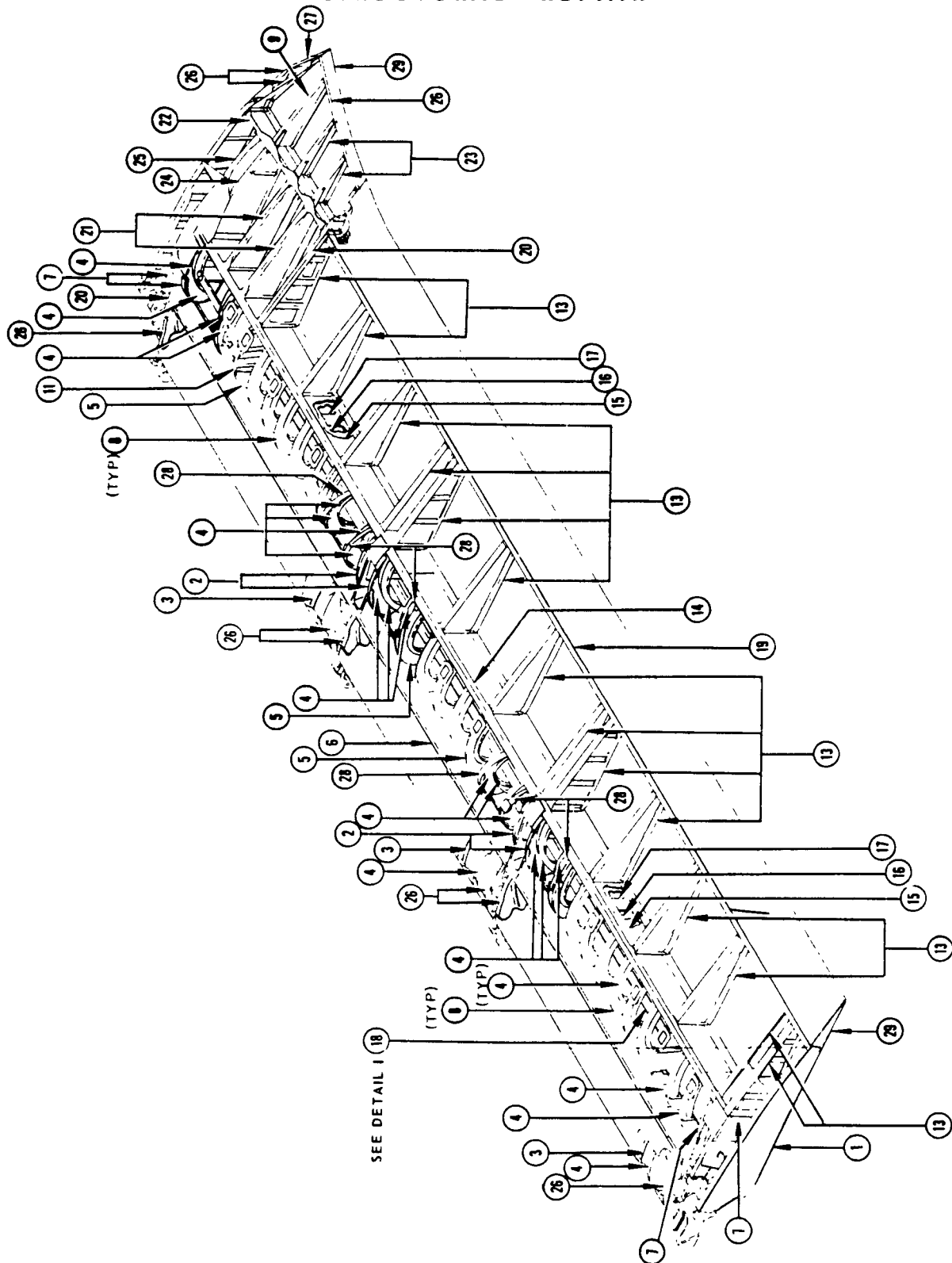
STRUCTURAL REPAIR

EFFECTIVITY

TURBOJET AIRPLANES  
SEE NOTES A, C, AND D



Inboard Flap Structure Identification - Turbojet  
Figure 3 (Sheet 3 of 4)



Inboard Flap Structure Identification - Turbojet  
Figure 3 (Sheet 4 of 4)



## STRUCTURAL REPAIR

| ITEM | UPPER CHORD               |                  | WEB OR FORMED SEC.            |                  | LOWER CHORD               |                  |
|------|---------------------------|------------------|-------------------------------|------------------|---------------------------|------------------|
|      | MATERIAL                  | REPAIR FIG NO.   | MATERIAL                      | REPAIR FIG NO.   | MATERIAL                  | REPAIR FIG NO.   |
| ①    | AND10137-1113<br>7075-T6  | 51-14-4<br>FIG 1 | .032 CLAD<br>2024-T3          | 51-14-2<br>FIG 1 | BAC1514-1391<br>2024-T4   | 51-14-4<br>FIG 1 |
| ②    |                           |                  | .090 CLAD<br>2024-T4          |                  |                           |                  |
| ③    | BAC1505-100393<br>7075-T6 | 51-14-4<br>FIG 1 | .032 CLAD<br>2024-T3          | 51-14-2<br>FIG 1 | BAC1505-100081<br>7075-T6 | 51-14-4<br>FIG 1 |
| ④    | BAC1505-100361<br>2024-T4 | 51-14-4<br>FIG 1 | .045 + .020 CLAD<br>2024-T3   | 51-9-1           | BAC1505-100361<br>2024-T4 | 51-14-4<br>FIG 1 |
| ⑤    |                           |                  | .056 CLAD<br>7075-T6          |                  |                           |                  |
| ⑥    |                           |                  | .080 CLAD<br>7075-T6          |                  |                           |                  |
| ⑦    | BAC1505-100361<br>2024-T4 | 51-14-4<br>FIG 1 | .032 + .032 CLAD<br>2024-T3   | 51-9-1           | BAC1505-100361<br>2024-T4 | 51-14-4<br>FIG 1 |
| ⑧    | BAC1505-100361<br>2024-T4 | 51-14-4<br>FIG 1 | .040 + .025 CLAD<br>2024-T3   | 51-9-1           | BAC1505-100361<br>2024-T4 | 51-14-4<br>FIG 1 |
| ⑨    |                           |                  | .040 CLAD<br>2024-T4          | 51-14-3<br>FIG 1 |                           |                  |
| ⑩    |                           |                  | .050 CLAD<br>2024-T4          | 51-14-3<br>FIG 1 |                           |                  |
| ⑪    | BAC1505-100081<br>7075-T6 | 51-14-4<br>FIG 1 | .032 + .032 CLAD<br>2024-T3   | 51-9-1           | AND10136-2404<br>7075-T6  | 51-14-4<br>FIG 1 |
| ⑫    | BAC1503-10874<br>7075-T6  | 51-14-4<br>FIG 1 | .063<br>2024-T4               | 51-14-3<br>FIG 1 |                           |                  |
| ⑬    | BAC1514-630<br>2024-T4    | 51-14-4<br>FIG 1 | .032 + .032 CLAD<br>2024-T3   | 51-9-1           | BAC1505-100164<br>2024-T4 | 51-14-4<br>FIG 1 |
| ⑭    |                           |                  | .063 CLAD<br>2024-T3          |                  |                           |                  |
| ⑮    | BAC1506-1456<br>2024-T4   |                  |                               |                  | BAC1506-1455<br>7075-T6   |                  |
| ⑯    |                           |                  | .012 CLAD<br>2024-T81 OPT. T6 | 51-9-1           |                           |                  |
| ⑰    |                           |                  | .016 CLAD<br>2024-T81 OPT. T6 | 51-9-1           |                           |                  |
| ⑱    |                           |                  | .020 CLAD<br>2024-T4 OPT. T6  | 51-9-1           |                           |                  |
| ⑲    | AND10136-2407<br>7075-T6  |                  | .063 CLAD<br>7075-T6          |                  | AND 10136-2407<br>7075-T6 |                  |
| ⑳    | BAC1514-90<br>7075-T6     |                  |                               |                  |                           |                  |
| ㉑    |                           |                  | .050 CLAD<br>2024-T3          |                  |                           |                  |
| ㉒    | BAC1514-534<br>2024-T4    | 51-14-4<br>FIG 1 | .032 + .032 CLAD<br>2024-T3   | 51-9-1           | BAC1505-100164<br>2024-T4 | 51-14-4<br>FIG 1 |
| ㉓    |                           |                  | .050 CLAD<br>2024-T3          | 51-14-3<br>FIG 1 |                           |                  |
| ㉔    |                           |                  | .040 CLAD<br>2024-T3          | 51-14-3<br>FIG 1 |                           |                  |
| ㉕    | BAR<br>2024-T4            |                  |                               |                  |                           |                  |

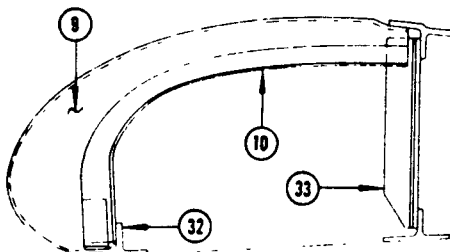
Inboard Flap Structure Identification - Turbofan  
Figure 4 (Sheet 1 of 3)

## STRUCTURAL REPAIR

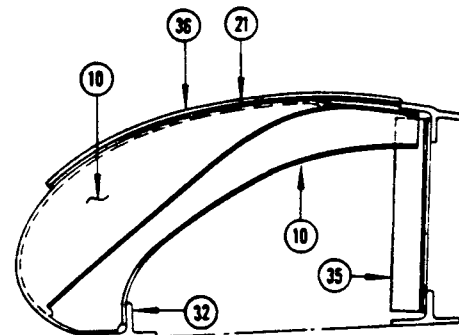
| ITEM | UPPER CHORD                        |                    | WEB OR FORMED SEC.        |                  | LOWER CHORD                        |                  |
|------|------------------------------------|--------------------|---------------------------|------------------|------------------------------------|------------------|
|      | MATERIAL                           | REPAIR FIG NO.     | MATERIAL                  | REPAIR FIG NO.   | MATERIAL                           | REPAIR FIG NO.   |
| (26) | BAC1514-1485<br>2024-T6 OPT. T8511 |                    | 0.090<br>2024-T81 OPT. T6 |                  | BAC1514-1486<br>2024-T6 OPT. T8511 |                  |
| (27) | AND10133-1402<br>7075-T6           |                    | 0.071 CLAD<br>7075-T6     |                  | BAC1505-100081<br>7075-T6          |                  |
| (28) | BAC1503-10874<br>7075-T6           |                    | 0.080 CLAD<br>7075-T6     |                  | BAC1503-10874<br>7075-T6           |                  |
| (29) |                                    |                    | 0.050 CLAD<br>7075-T6     | 51-14-3<br>FIG 1 |                                    |                  |
| (30) | BAC1513-279<br>MAG                 |                    |                           |                  |                                    |                  |
| (31) | 0.050 CLAD<br>2024-T4              | 51-14-3<br>FIG 1   | 0.040 CLAD<br>2024-T4     | 51-14-2<br>FIG 1 | BAC1505-100361<br>2024-T4          | 51-14-4<br>FIG 1 |
| (32) |                                    |                    |                           |                  | BAC 1505-100331<br>7075-T6         |                  |
| (33) |                                    |                    |                           |                  | BAC1503-100136<br>2024-T4          |                  |
| (34) | BAC1513-350<br>2024-T4             |                    |                           |                  |                                    |                  |
| (35) |                                    |                    |                           |                  | 0.063 CLAD<br>2024-T3              |                  |
| (36) |                                    |                    | 0.100 CLAD<br>2024-T3     |                  |                                    |                  |
| (37) |                                    |                    | 0.063 CLAD<br>2024-T3     |                  |                                    |                  |
| (38) | 7079-T6<br>FORGING                 | 57-06-04<br>FIG. 6 |                           |                  |                                    |                  |
| (39) | 7075-T73<br>FORGING                |                    |                           |                  |                                    |                  |

### NOTES

- A** FOR AIRPLANES UP TO CUM LINE NUMBER 844
- B** FOR CUM LINE NUMBERS 845 AND ON
- C** FOR AIRPLANES UP TO CUM LINE NUMBER 906
- D** FOR CUM LINE NUMBERS 907 AND ON

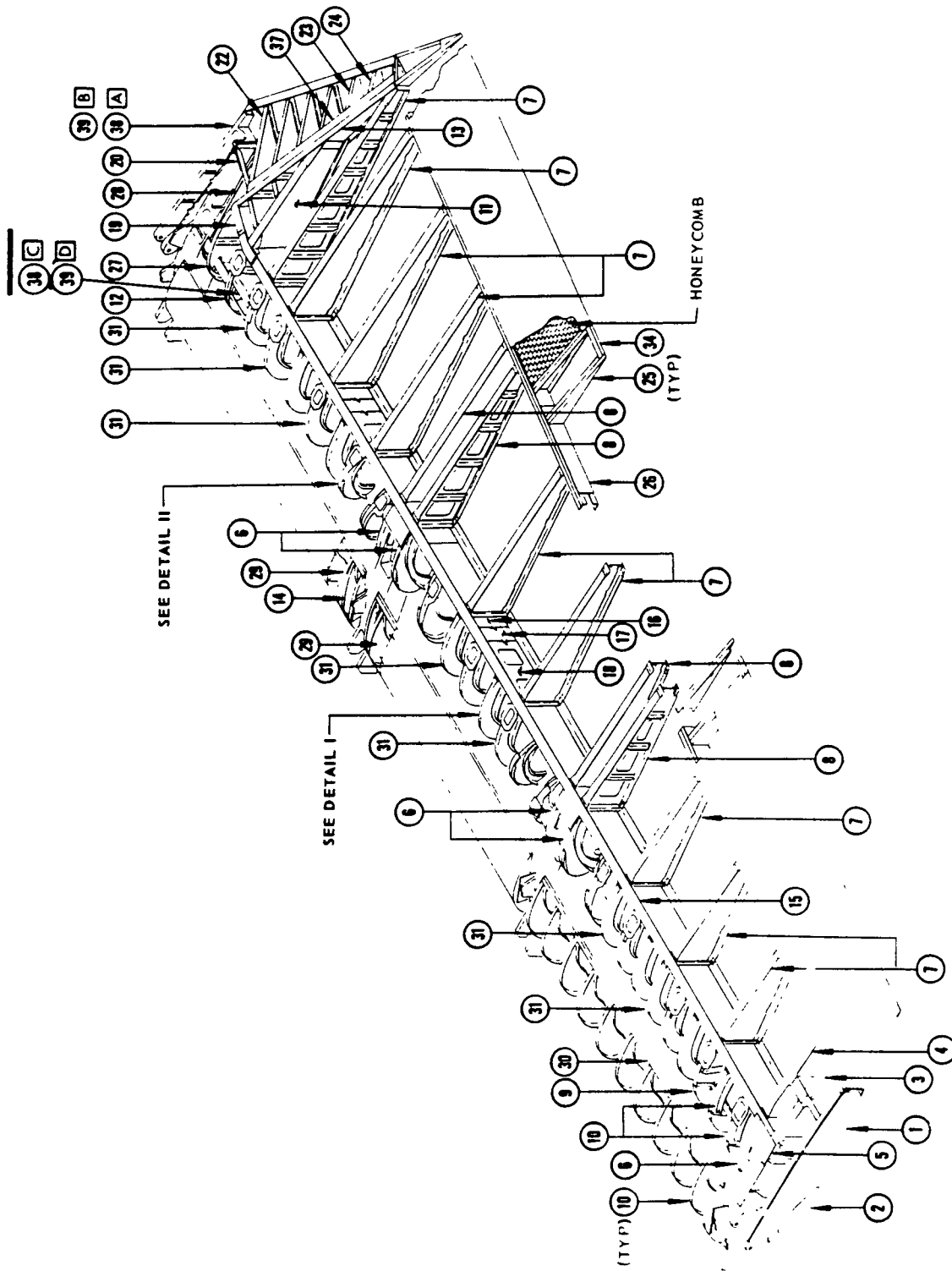


TYPICAL RIB  
DETAIL I



TYPICAL SLOT RIB  
DETAIL II

**BOEING**  
*Intercontinental*  
**STRUCTURAL REPAIR**



Inboard Flap Structure Identification - Turbofan  
Figure 4 (Sheet 3)

SR: 320  
Jan 10/76



# STRUCTURAL REPAIR

| ITEM | UPPER CHORD               |                   | WEB OR FORMED SECTION                                                                 |                   | LOWER CHORD               |                   |
|------|---------------------------|-------------------|---------------------------------------------------------------------------------------|-------------------|---------------------------|-------------------|
|      | MATERIAL                  | REPAIR FIG. NO.   | MATERIAL                                                                              | REPAIR FIG. NO.   | MATERIAL                  | REPAIR FIG. NO.   |
| ①    |                           |                   | 0.016 CLAD<br>2024-T3                                                                 | 51-9-1            |                           |                   |
| ②    |                           |                   | 0.032 CLAD<br>2024-T3                                                                 | 51-14-2<br>FIG. 1 |                           |                   |
| ③    | AND10137-1011<br>7075-T6  | 51-14-4<br>FIG. 1 | 0.016 CLAD<br>2024-T3                                                                 | 51-9-1            | BAC1514-1391<br>2024-T4   | 51-14-4<br>FIG. 1 |
| ④    | AND10137-1011<br>7075-T6  | 51-14-4<br>FIG. 1 | 0.063 CLAD<br>7075-T6                                                                 | 51-14-2<br>FIG. 1 | 0.063<br>2024-T4          | 51-14-3<br>FIG. 1 |
| ⑤    | BAC1514-1391<br>2024-T4   | 51-14-4<br>FIG. 1 | 0.032 CLAD<br>2024-T3 <span style="border: 1px solid black; padding: 0 2px;">A</span> | 51-9-1            | BAC1514-1391<br>2024-T4   | 51-14-4<br>FIG. 1 |
| ⑥    |                           |                   | 0.040 CLAD<br>2024-T4                                                                 | 51-14-3<br>FIG. 1 | 0.050 CLAD<br>2024-T4     | 51-14-3<br>FIG. 1 |
| ⑦    | BAC1505-100361<br>2024-T4 | 51-14-4<br>FIG. 1 | 0.032 CLAD<br>2024-T3 <span style="border: 1px solid black; padding: 0 2px;">A</span> | 51-9-1            | BAC1505-100361<br>2024-T4 | 51-14-4<br>FIG. 1 |
| ⑧    |                           |                   | AND10136-2004<br>2024-T4                                                              | 51-14-4<br>FIG. 1 |                           |                   |
| ⑨    | AND10137-1011<br>7075-T6  |                   | 0.032 CLAD<br>2024-T3                                                                 | 51-9-1            | BAC1514-1391<br>2024-T4   |                   |
| ⑩    |                           |                   | 0.090<br>7075-T6                                                                      |                   |                           |                   |
| ⑪    |                           |                   | 0.050 CLAD<br>2024-T4                                                                 | 51-14-3<br>FIG. 1 |                           |                   |
| ⑫    | BAC1506-1023<br>7075-T6   |                   | 0.012 CLAD<br>2024-T3                                                                 | 51-9-1            | BAC1506-1022<br>2024-T4   | 57-6-4            |
| ⑬    |                           |                   | 0.020 CLAD<br>2024-T3                                                                 | 51-9-1            |                           |                   |
| ⑭    |                           |                   | 0.050 CLAD<br>2024-T4                                                                 | 51-14-3<br>FIG. 1 |                           |                   |
| ⑮    |                           |                   | BAC1513-279 <span style="border: 1px solid black; padding: 0 2px;">B</span><br>MAG.   |                   |                           |                   |
| ⑯    |                           |                   | 0.050 CLAD<br>7075-T6                                                                 | 51-14-3<br>FIG. 1 |                           |                   |

Outboard Flap Structure Identification  
Figure 5 (Sheet 1)



# STRUCTURAL REPAIR

| ITEM | UPPER CHORD           |                   | WEB OR FORMED SECTION                                                                                                                                                                                                                            |                   | LOWER CHORD           |                   |
|------|-----------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-----------------------|-------------------|
|      | MATERIAL              | REPAIR FIG. NO.   | MATERIAL                                                                                                                                                                                                                                         | REPAIR FIG. NO.   | MATERIAL              | REPAIR FIG. NO.   |
| (17) | 0.063 CLAD<br>2024-T4 | 51-14-3<br>FIG. 1 | 0.050 CLAD<br>2024-T4                                                                                                                                                                                                                            | 51-14-3<br>FIG. 1 | 0.063 CLAD<br>2024-T4 | 51-14-3<br>FIG. 1 |
| (18) | 0.071 CLAD<br>2024-T3 |                   |                                                                                                                                                                                                                                                  |                   |                       |                   |
| (19) |                       |                   | SEAL ANGLE<br>BAC1490-2550<br>CLAD 2024-T4                                                                                                                                                                                                       |                   |                       |                   |
| (20) |                       |                   | RIB<br>0.040 CLAD<br>2024-T4                                                                                                                                                                                                                     |                   |                       |                   |
| (21) |                       |                   | RIB<br>0.050 CLAD<br>2024-T4                                                                                                                                                                                                                     |                   |                       |                   |
| (22) |                       |                   | ANGLE<br>AND10134-1204<br>2024-T4                                                                                                                                                                                                                |                   |                       |                   |
| (23) |                       |                   | BONDED SKIN<br>ASSY<br>OUTER SKIN:<br>0.016 CLAD<br>2024-T61<br>OPTIONAL:<br>CLAD 2024-T4<br>OR<br>CLAD 2024-T3<br>INNER SKIN:<br>0.016 CLAD<br>2024-T61<br>OPTIONAL:<br>CLAD 2024-T4<br>OR<br>CLAD 2024-T3<br>DOUBLER:<br>0.040 CLAD<br>2024-T3 |                   |                       |                   |
| (24) |                       |                   | SUPPORT<br>0.080 2024-T4                                                                                                                                                                                                                         |                   |                       |                   |
| (25) |                       |                   | SPAR<br>0.063 7075-T6                                                                                                                                                                                                                            |                   |                       |                   |

Outboard Flap Structure Identification  
Figure 5 (Sheet 2)





# STRUCTURAL REPAIR

| ITEM | UPPER CHORD |                 | WEB OR FORMED SECTION                          |                 | LOWER CHORD |                 |
|------|-------------|-----------------|------------------------------------------------|-----------------|-------------|-----------------|
|      | MATERIAL    | REPAIR FIG. NO. | MATERIAL                                       | REPAIR FIG. NO. | MATERIAL    | REPAIR FIG. NO. |
| 26   |             |                 | REINFORCING<br>ANGLE<br>0.071 CLAD<br>2024-T42 |                 |             |                 |

## NOTES

**A** TYPICAL FOR WEB AND DOUBLER - BONDED

**B** MAGNESIUM ALLOY EXTR. SPEC. QQ-M-31 COMP. ZK 60A T5 TEMPER.

**C** FOR PA 17592 THRU 19595 AIRPLANES ONLY

**D** FOR THE FOLLOWING TURBOJET AIRPLANES:

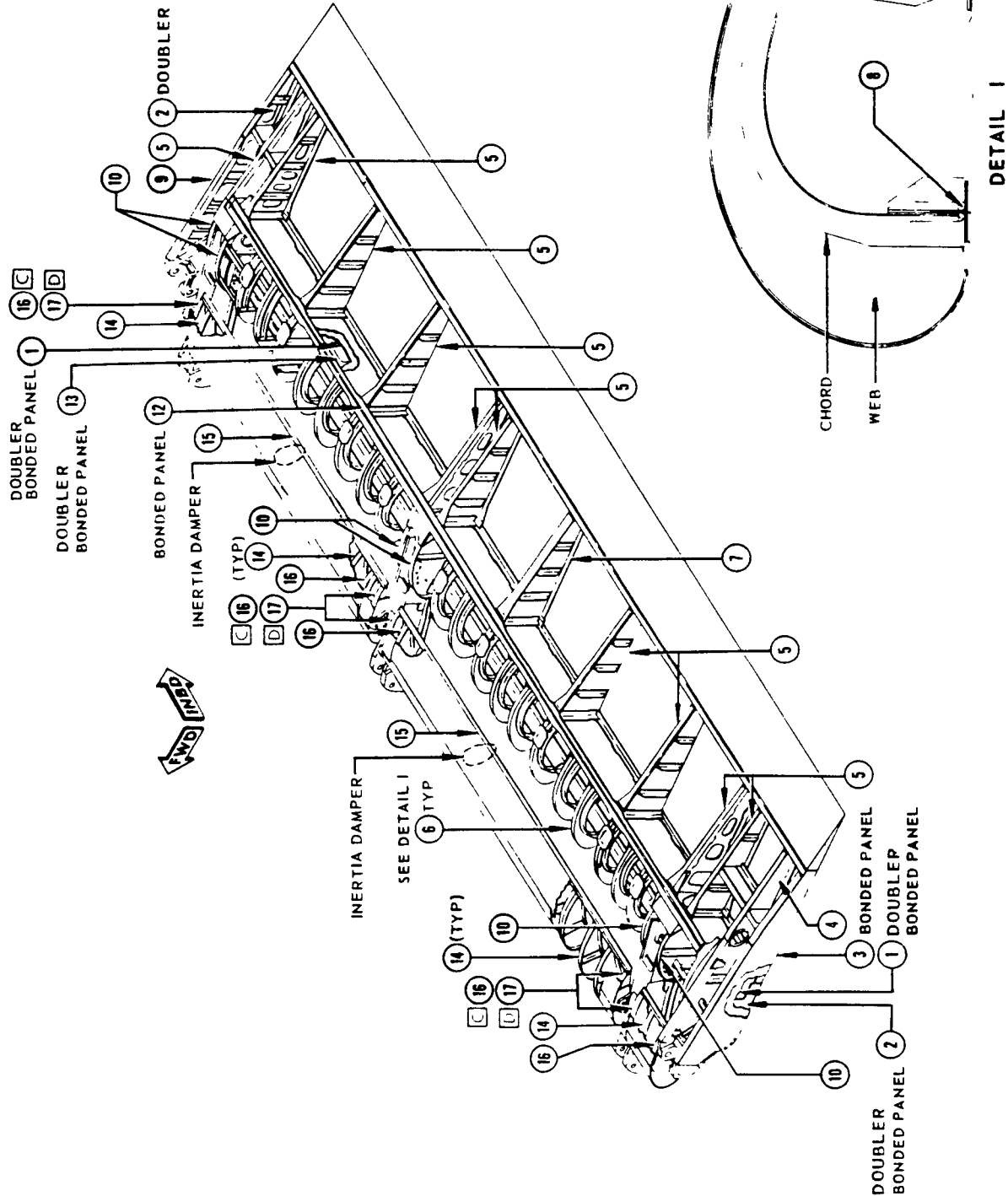
AF 17613 THRU 17622 AND 17918 THRU 17924  
 AI 17722 THRU 17724, 18055  
 BA 17703 THRU 17717  
 LH 17718 THRU 17721 AND 18056  
 LY 18070 AND 18071  
 PA 19596 THRU 19608, 17674, 17677, 17680, 17683, 17686, AND 17689, 18083 THRU 18085  
 RG 17905, 17906 AND 18694  
 SN 17623 THRU 17627  
 TW 17673, 17675, 17676, 17678, 17679, 17681, 17682, 17684, 17685, 17687, 17688 AND 17690

**E** ALL TURBOFAN AIRPLANES AND THE FOLLOWING TURBOJET AIRPLANES:

AF 18245 AND ON  
 AI 18414, 18415  
 BA 18411 AND ON  
 LY 18357 (707-458)  
 SA 17926 AND ON  
 SN 18374 AND ON

**F** FOR ALL TURBOFAN AIRPLANES CUM LINE NUMBERS 268 THRU 844

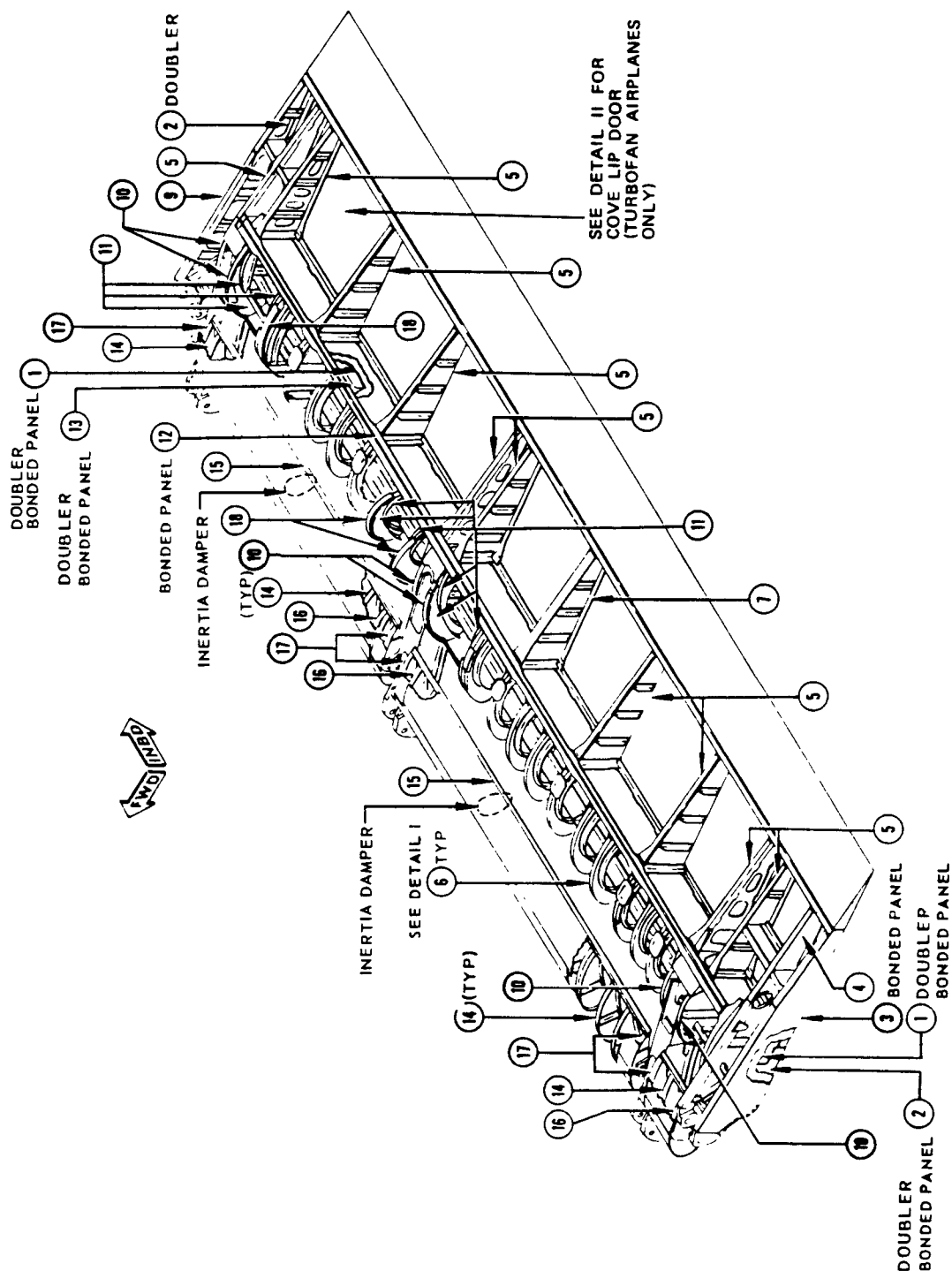
**G** FOR TURBOFAN AIRPLANES NOT SHOWN IN **F** AND THOSE AIRPLANES WITH SB 3169 INCORPORATED



Outboard Flap Structure Identification  
 Figure 5 (Sheet 4)

SRM 320  
 Jul 10/75

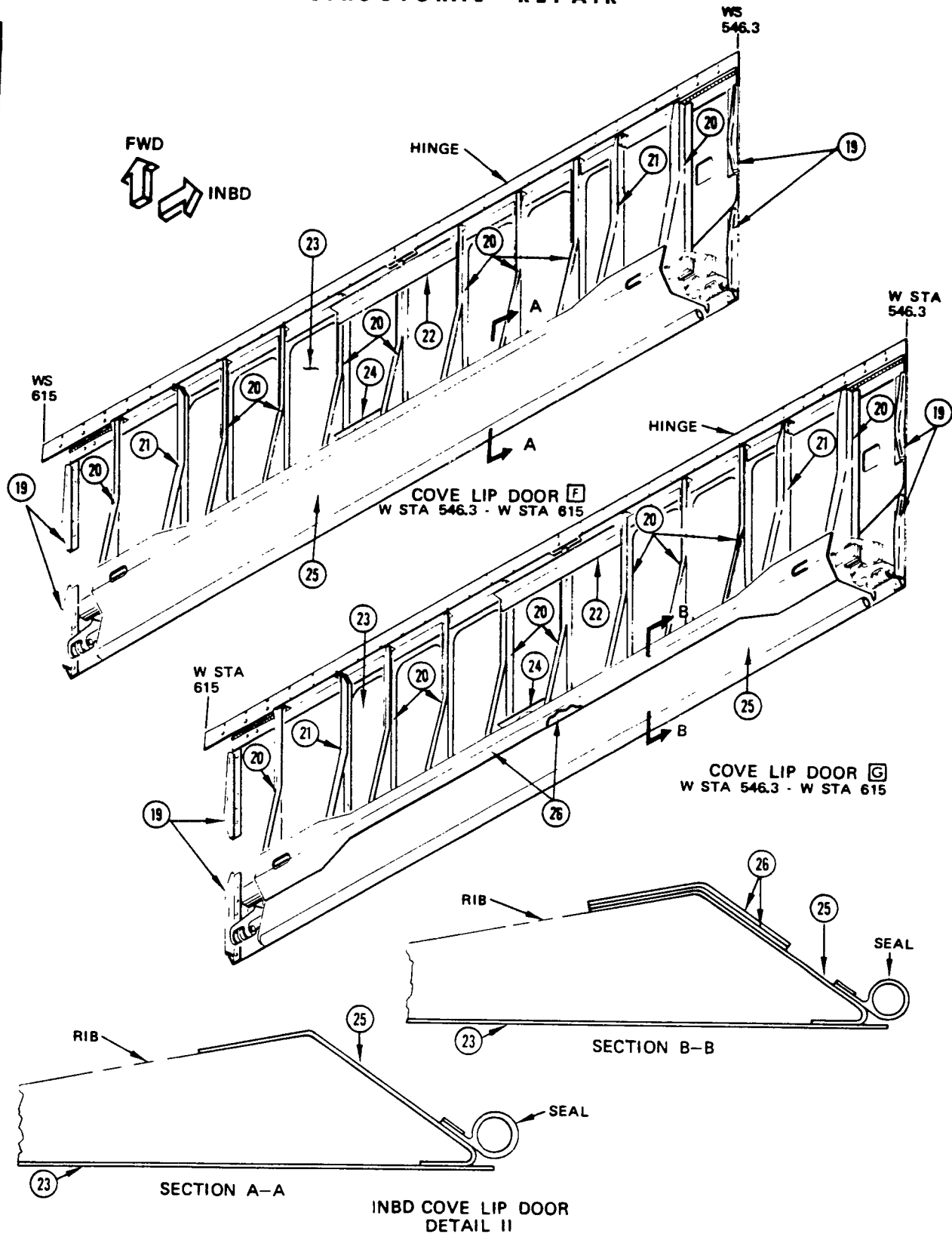
ALL TURBOFAN AIRPLANES  
AND TURBOJET AIRPLANES  
IN NOTE **E**



Outboard Flap Structure Identification  
Figure 5 (Sheet 5)

BOEING *707* Intercontinental

STRUCTURAL REPAIR



Outboard Flap Structure Identification  
Figure 5 (Sheet 6)

## REPAIR INSTRUCTIONS

1. Cut out damaged portion of chord in such a manner that adequate edge margins for fasteners is maintained. Remove all scratches, burrs, gouge or sharp edges.
2. Break all sharp corners of repair parts.
3. Clean and alodize repair parts and original structure from which finish has been removed during repair. See 51-8-0.
4. Trim stiffener a minimum amount to allow repair plate to be inserted.
5. Install nutplates on part 2 to match existing screw holes in spar chord.
6. Restore the required surface finish per 51-2-0 of the Maintenance Manual.

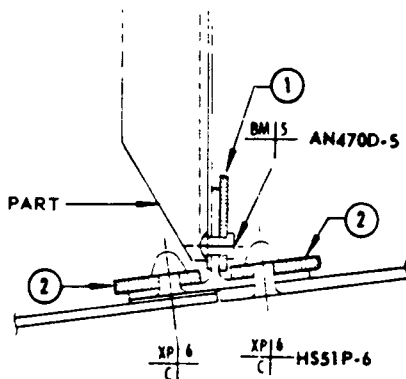
### NOTE

SEE 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS.

SEE 51-8-0 FOR METAL PROTECTIVE TREATMENT

| REPAIR MATERIAL |        |      |                      |
|-----------------|--------|------|----------------------|
| PART            |        | QTY. | MATERIAL             |
| ①               | PLATE  | 1    | .080 CLAD 2024-T3    |
| ②               | PLATE  | 2    | .200 CLAD 2024-T3    |
| ③               | FILLER | 1    | BAC1506-1022 2024-T4 |

TRIM STIFFENER  
TO CLEAR REPAIR PART

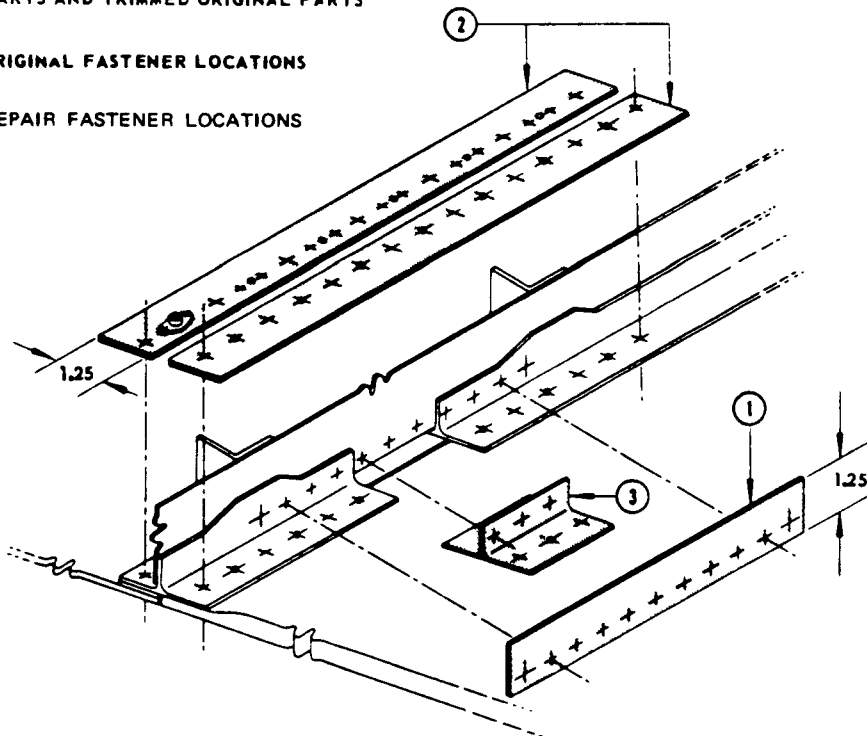


## SECTION ADJACENT TO DAMAGE

BREAK SHARP EDGES 0.03 ALL REPAIR PARTS AND TRIMMED ORIGINAL PARTS

✚ ORIGINAL FASTENER LOCATIONS

✦ REPAIR FASTENER LOCATIONS



Flap Spar Chord Repair  
Figure 1



## STRUCTURAL REPAIR

### REPAIR INSTRUCTIONS

1. Trim out the damaged web and rib portions of the casting.  
Round out all sharp corners and edges.
2. Brush alodize the trimmed casting surfaces.
3. Coat the faying surfaces of repair parts and casting per 51-8-0.
4. Install repair parts.
5. Replace original finish per 51-2-0 of the maintenance manual.

### NOTE

SEE 51-2-0 FOR FASTENER CODE, REMOVAL AND  
INSTALLATION HOLE SIZES AND EDGE MARGINS



ORIGINAL FASTENER LOCATIONS

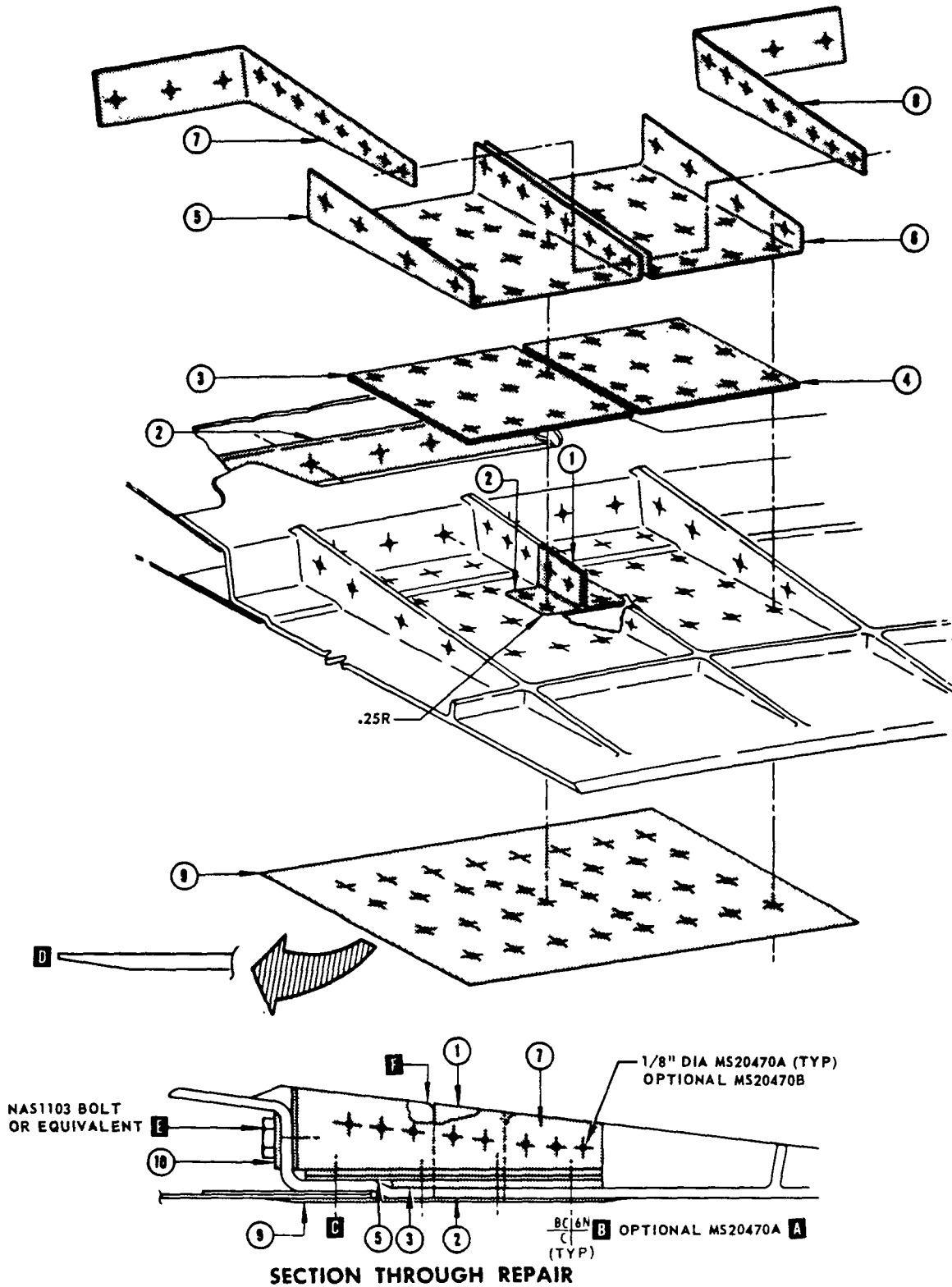


REPAIR FASTENER LOCATIONS

- A** INSTALL BY IMPACT DRIVING
- B** INSTALL BY SQUEEZE METHOD ONLY
- C** ADD REPAIR WASHERS PER 51-2-8 FIGURE 4
- D** TAPER TO .032 ALL AROUND
- E** INSTALL STEEL, ALUMINUM (OPTIONALLY) FASTENERS  
PER 51-8-0
- F** CLEAN UP CORNERS AND EDGES TO .13R APPROXIMATELY

DAMAGE TO THE WEB AT A CHORDWISE RIB IS ASSUMED

| REPAIR MATERIAL |         |      |                        |
|-----------------|---------|------|------------------------|
| PART            |         | QTY. | MATERIAL               |
| ①               | FILLER  | 1    | .125 CLAD 2024-T3      |
| ②               | FILLER  | 1    | .125 CLAD 2024-T3      |
| ③               | FILLER  | 1    | .090 CLAD 2024-T3      |
| ④               | FILLER  | 1    | .090 CLAD 2024-T3      |
| ⑤               | CHANNEL | 1    | .056 CLAD 2024-0 HT-T4 |
| ⑥               | CHANNEL | 1    | .056 CLAD 2024-0 HT-T4 |
| ⑦               | ANGLE   | 1    | .056 CLAD 2024-0 HT-T4 |
| ⑧               | ANGLE   | 1    | .056 CLAD 2024-0 HT-T4 |
| ⑨               | PLATE   | 1    | .056 CLAD 2024-T3      |
| ⑩               | PLATE   | 1    | .071 CLAD 2024-T3      |



Wing Fillet Flap Casting - Middle Section Rib Repair  
Figure 2 (Sheet 2 of 2)

## STRUCTURAL REPAIR REPAIR INSTRUCTIONS

1. Trim out the damaged web, rib and torque box section of the casting. Round out all sharp corners and edges.
2. Brush alodize the trimmed casting surfaces.
3. Coat the faying surfaces of repair parts and casting per 51-8-0.
4. Install repair parts.
5. Replace original finish per 51-2-0 of the Maintenance Manual.

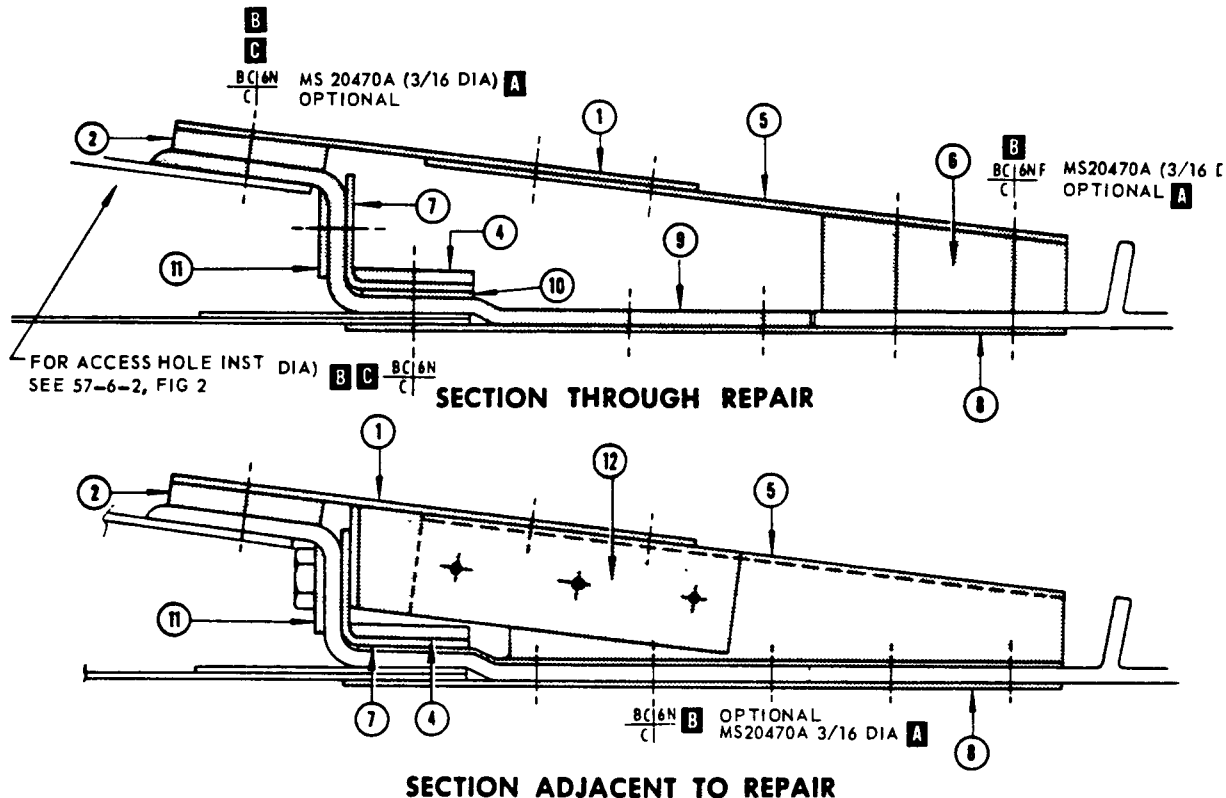
### NOTE

SEE 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION HOLE SIZES AND EDGE MARGINS.

- ✚ ORIGINAL FASTENER LOCATIONS.
- ✚ REPAIR FASTENER LOCATIONS.

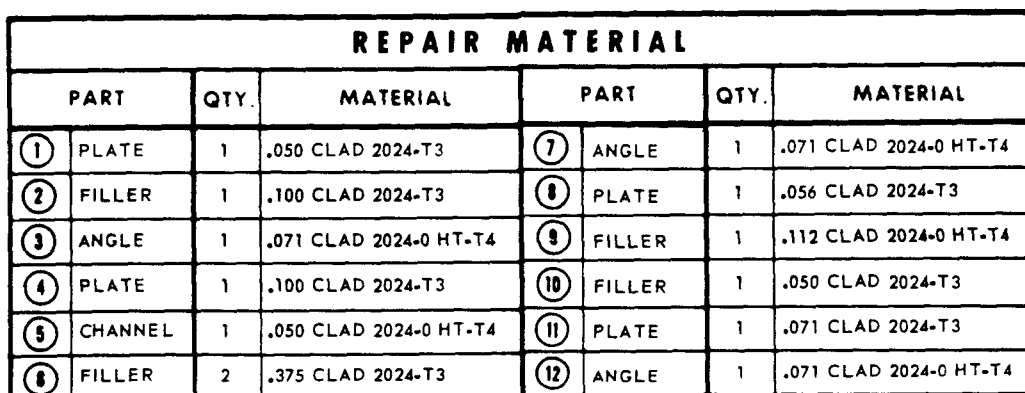
DAMAGE TO THE TORQUE BOX SECTION, WEB AND CHORDWISE RIB IS ASSUMED. USE A VARIATION OF THIS REPAIR FOR DAMAGE INVOLVING THE TORQUE BOX SECTION AND WEB.

- A** INSTALL BY IMPACT DRIVING.
- B** INSTALL BY SQUEEZE METHOD ONLY.
- C** ADD REPAIR WASHERS PER 51-2-8 FIGURE 4.
- D** INSTALL STEEL FASTENERS PER 51-8-0.



Wing Fillet Flap Casting - Forward Section Repair  
Figure 3 (Sheet 1 of 2)





57-6-4  
Page 5



## STRUCTURAL REPAIR REPAIR INSTRUCTIONS

1. Trim out the damaged web portion of the casting. Round out all sharp corners and edges.
2. Brush alodize the trimmed casting surface.
3. Coat the faying surfaces of repair parts and casting per 51-8-0.
4. Install repair parts.
5. Replace original finish per 51-2-0 of the Maintenance Manual.

### NOTE

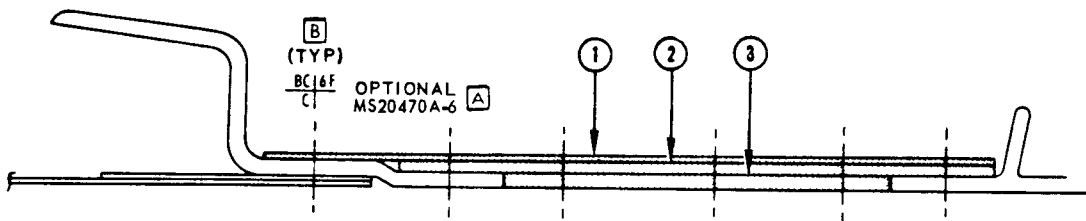
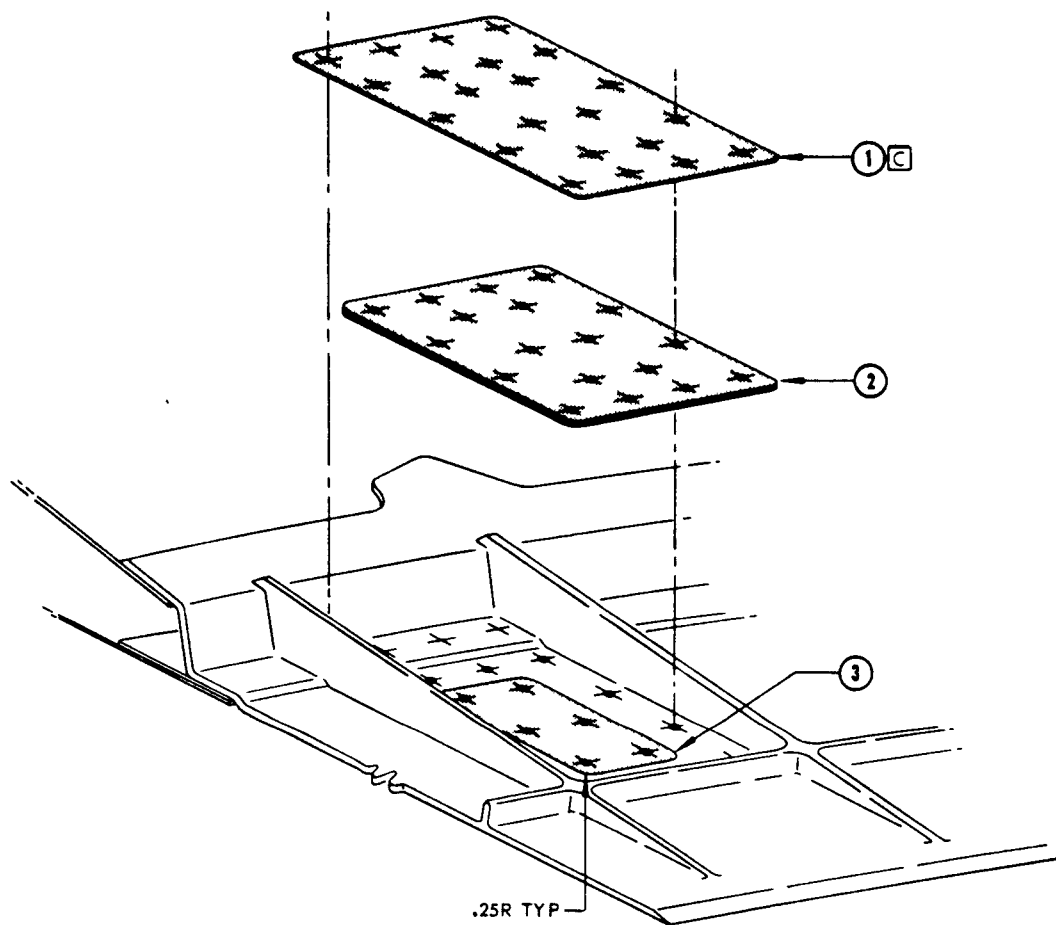
SEE 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS.

✚ ORIGINAL FASTENER LOCATIONS.

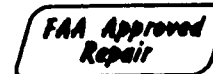
✚ REPAIR FASTENER LOCATIONS.

- A** INSTALL BY IMPACT DRIVING.
- B** INSTALL BY SQUEEZE METHOD ONLY.
- C** OPTIONAL, DEPENDING ON SIZE AND LOCATION OF DAMAGE.

| REPAIR MATERIAL |                |      |                   |
|-----------------|----------------|------|-------------------|
| PART            |                | QTY. | MATERIAL          |
| ①               | PLATE <b>C</b> | 1    | .056 CLAD 2024-T4 |
| ②               | PLATE-FILLER   | 1    | .10 CLAD 2024-T4  |
| ③               | FILLER         | 1    | .112 CLAD 2024-T4 |



SECTION THROUGH REPAIR



## STRUCTURAL REPAIR

### REPAIR INSTRUCTIONS

### NOTE

1. Trim the damaged skin to form a rectangular shape. Make the cutout parallel to a rib.
2. Return all indented or projecting skin to contour. Remove all burrs, nicks, scratches, sharp edges and corners from damaged area.
3. Remove skin fasteners from rib chords as required.
4. Fabricate part [1] and layout and drill fastener holes to match existing holes in rib chords. Countersink holes to suit fasteners.
5. Install countersink repair washers in rib chord fastener holes per 51-2-8, figure 4.
6. Brush alodize all raw edges and surfaces of repair part and trimmed original parts.
7. Layout and drill fastener holes through part [1] and original skin between ribs and countersink to suit fasteners.
8. Prepare the surface of part [1] and bond to skin per 51-9-1, paragraph 2.
9. Install fasteners.
10. Restore original finish per 51-2-0 of the Maintenance Manual.

• SEE 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION AND HOLE SIZES.

• SEE 51-8-0 FOR METAL PROTECTIVE TREATMENT.

✚ ORIGINAL FASTENER LOCATIONS.

✦ REPAIR FASTENER LOCATIONS.

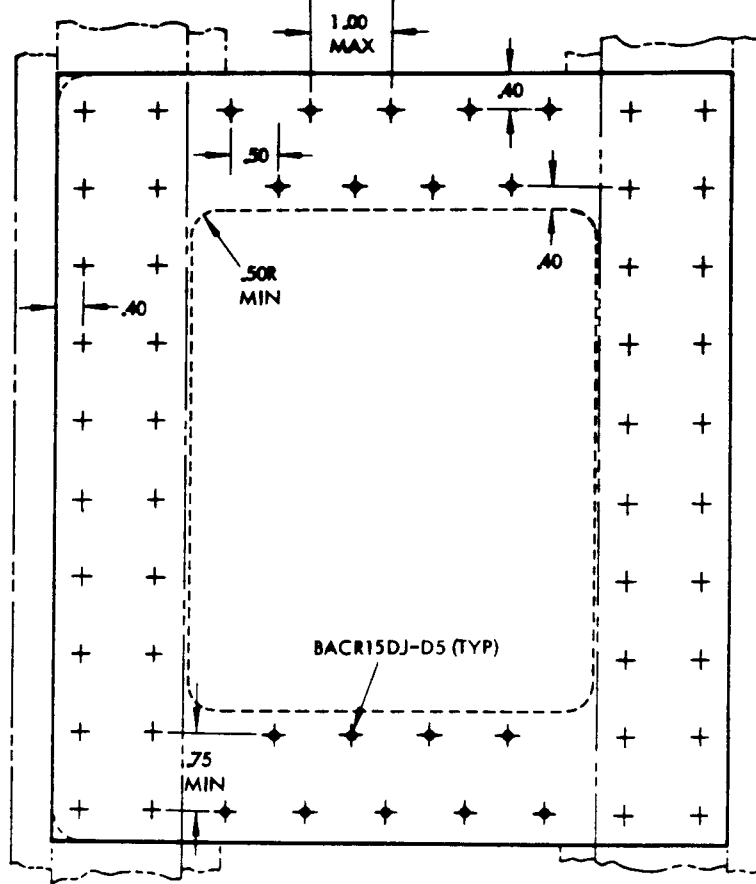
[A] THALCO GLASS CLOTH  
FIBER PRODUCTS  
LOS ANGELES, CALIFORNIA

[B] NOT REQUIRED WHEN BONDING OF 51-9-1 DATED MAY 5/70 IS EMPLOYED. BONDED REPAIRS WHICH UTILIZED SCRIM CLOTH ARE SATISFACTORY AND NEED NOT BE REWORKED.

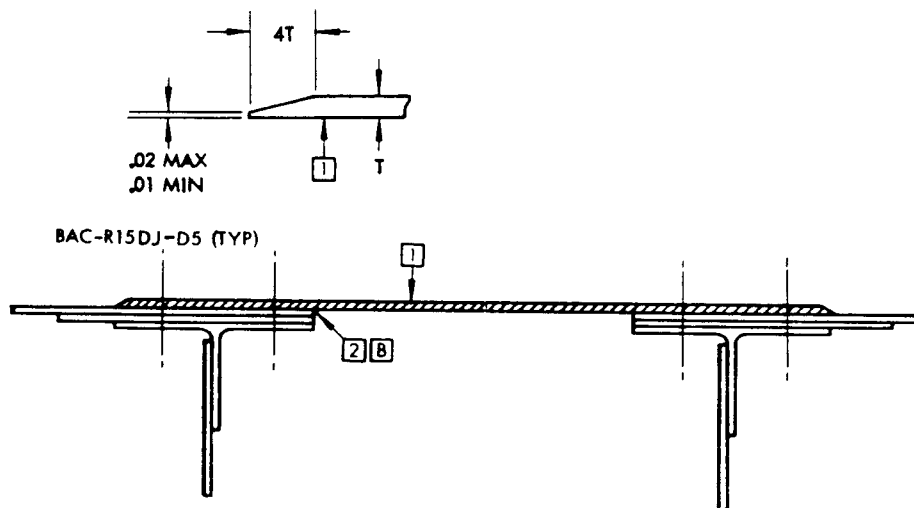
| REPAIR MATERIAL |     |                        |  |
|-----------------|-----|------------------------|--|
| PART            | QTY | MATERIAL               |  |
| [1] PLATE       | 1   | .040 x 2024-T3 CLAD    |  |
| [2] SCRIM CLOTH | 1   | THALCO NO. 196 [A] [B] |  |

| REPAIR FASTENER    |             |         |             |
|--------------------|-------------|---------|-------------|
| ORIGINAL SKIN GAGE | FASTENER    | SPACING | EDGE MARGIN |
| .025               | BACR15DJ-D5 | 1.00    | .40         |

STRUCTURAL REPAIR



VIEW LOOKING UP ON LOWER SURFACE



SECTION THROUGH REPAIR

May 5/70

Wing Fillet Flap - Lower Surface Skin External Repair  
Figure 5 (Sheet 2 of 2)

57-6-4  
Page 9



## STRUCTURAL REPAIR

### REPAIR INSTRUCTIONS

**NOTE:** The following is applicable (a) as a preventative procedure to prevent future service damage to the web of the flap nut support fitting and (b) as a repair procedure if damage is established as a crack in the web of the support fitting.

1. Extend flaps and visually inspect the horizontal web flap nut support fitting for cracks.
2. If crack is not detected the Preventative Procedure may be used if desired. If crack is found proceed with the Repair Procedure.

#### Preventative Procedure

1. Remove the flap from the wing in accordance with Chapter 27-16 of the 707 Maintenance Manual.
2. Remove 13 rivets from forward portion of skin as indicated by + on Fig. 6, View II.
3. Cut the skin between the fourth and fifth rivet locations and salvage the forward portion. This part is designated [1] in table of Repair Material.
4. Break all sharp edges made by the skin removal 0.015 to 0.030.
5. Brush Alodine 1200 per BAC5719 and prime the bare edges of the original and salvaged skin [1] with BMS 10-11.
6. Remove and salvage clip [2] from fitting.
7. Penetrant inspect web for cracks. If crack is detected proceed to Repair Procedure.

8. Eddy current inspect the four fastener holes in the web common to the clip [2] removed. If no cracks are found proceed to step 11. If cracks are found oversize the hole to a final diameter that will remove 1/32 inch of material beyond the end of crack. The maximum hole diameter shall not exceed 1/2-inch diameter. If crack exists after maximum oversize proceed to Repair Procedure.
9. Fabricate 2024-T4 aluminum alloy plugs with 0.0002/0.0005 interference fit.
10. Install plugs with wet zinc chromate primer.
11. Shot peen both surfaces of web in accordance with 20-10-03 of the Overhaul Manual, intensity .008A2, shot size 230-280. Mask off or baffle areas not to be peened. Remove shots from flap after peening.
12. Brush Alodine 1200 the reworked area per BAC5719 and prime with BMS 10-11.
13. After curing of the primer, coat the primed areas with epoxy enamel, BMS 10-11.
14. If no plugs were installed, oversize the holes 1/16 diameter through [2] and web and install fasteners as shown in View I. If plugs are used, install fasteners through the web and [2] to match existing holes in [2] as shown.
15. Fabricate splice, part [3], lay out and drill fastener holes as shown in View II.

Flap Nut Support Fitting - Rework and Repair  
Figure 6 (Sheet 1)



## STRUCTURAL REPAIR

16. Lay out and drill fastener holes in [1] and forward portion of existing skin remaining on the flap to match [3]. Countersink to suit fasteners.
  17. Install [3] and [1] as shown in View II.
  18. Reinstall flap in accordance with 27-16 of the 707 Maintenance Manual.
  19. Restore original finish in accordance with 51-2-0 of the 707 Maintenance Manual.
- Repair Procedure
1. Remove the flap from the wing in accordance with Chapter 27-16 of the 707 Maintenance Manual.
  2. Remove 13 rivets from the forward portion of the skin as indicated by + on Fig. 6, View II.
  3. Cut the skin between the fourth and fifth rivet locations and salvage the forward portion. This part is designated [1] in the table of repair materials.
  4. Break all sharp edges made by the skin removal 0.015 to 0.030.
  5. Brush Alodine 1200 per BAC5719 and prime the bare edges of the original and salvaged skin [1] with BMS 10-11.
  6. Remove clip [2] from fitting and discard.
  7. Penetrant inspect web to determine exact length of cracks.
  8. Trim web to remove crack as shown in View III. Eddy current inspect to ensure crack removed. After eddy current inspection of cut, if crack is completely removed, make additional insurance cut removing 1/16 inch of material around crack tip. Break edges of cutout.
  9. For cracks occurring at locations other than shown, follow same procedure for clean up. Crack limits and minimum dimensions after rework must be within limits shown. For cracks that cannot be cleaned up by this method, contact Boeing Company Service Unit for disposition.
  10. Shot peen both surfaces of the remaining web in accordance with 20-10-03 of the Overhaul Manual, intensity .008A2, shot size 230-280. Mask off or baffle remaining area. Remove shot from flap after peening.
  11. Brush Alodine 1200 the reworked area per BAC5719 and prime with BMS 10-11.
  12. After curing of the primer, coat the primed areas with BMS 10-11 epoxy enamel.
  13. Fabricate part [4], lay out and drill fastener holes as shown in Detail I.
  14. Brush Alodine 1200 part and prime with BMS 10-11.
  15. Install [4] on fitting as shown in View III.

Flap Nut Support Fitting - Rework and Repair  
Figure 6 (Sheet 2)

SRM  
Jan 10/74

57-6-4  
Page 11



## STRUCTURAL REPAIR

16. Fabricate part [3] , lay out and drill fastener holes as shown in View II.
17. Brush Alodine 1200 part and prime with BMS 10-11.
18. Lay out and drill fastener holes in [1] and forward portion of existing skin remaining of the flap to match [3] . Countersink to suit fasteners and install [3] .
19. Lay out and drill fastener holes in [4] to match [1] and install [1] as shown in View II.
20. Reinstall flap in accordance with Chapter 27-16 of the 707 Maintenance Manual.
21. Restore original finish in accordance with 51-2-0 of the 707 Maintenance Manual.

Flap Nut Support Fitting - Rework and Repair  
Figure 6 (Sheet 3)





## STRUCTURAL REPAIR

### NOTE

- THIS REPAIR AND REWORK IS FOR USE ON THE INBOARD FLAP NUT SUPPORT FITTING OF THE INBOARD TRAILING EDGE FLAP. REFERENCE DRAWING 65-77267.
- USE WHICHEVER PROCEDURE IS APPLICABLE.
- REFER TO THE FOLLOWING WHEN USING EITHER OF THESE PROCEDURES.

51-2-0 FOR FASTENER CODE, REMOVAL, INSTALLATION, HOLE SIZES AND EDGE MARGIN.

51-8-0 FOR PROTECTIVE TREATMENT OF METAL

51-4-1 FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS

51-2-0 OF THE 707 MAINTENANCE MANUAL FOR INTERIOR AND EXTERIOR FINISHES.

- [A] FASTENER TO BE INSTALLED WHEN WEB IS PLUGGED.
- [B] INSTALL BACB30FM8-4 WHEN HOLE IN WEB IS OVERSIZED.
- [C] USED FOR PREVENTATIVE PROCEDURE
- [D] USED FOR REPAIR PROCEDURE
- [E] FADE OUT SHOT-PEENING IN THIS AREA

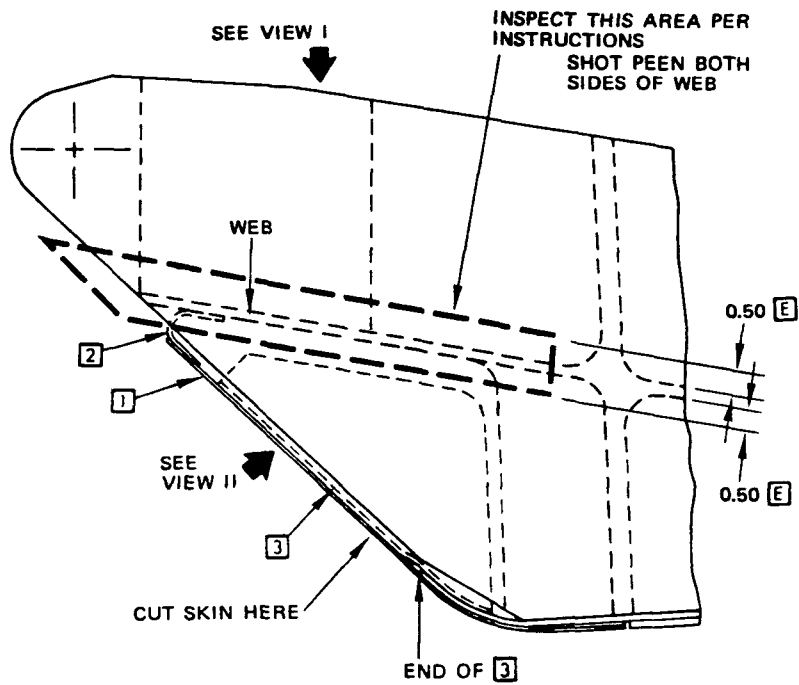
+ } ORIGINAL FASTENER LOCATIONS

◆ } REPAIR FASTENER LOCATIONS

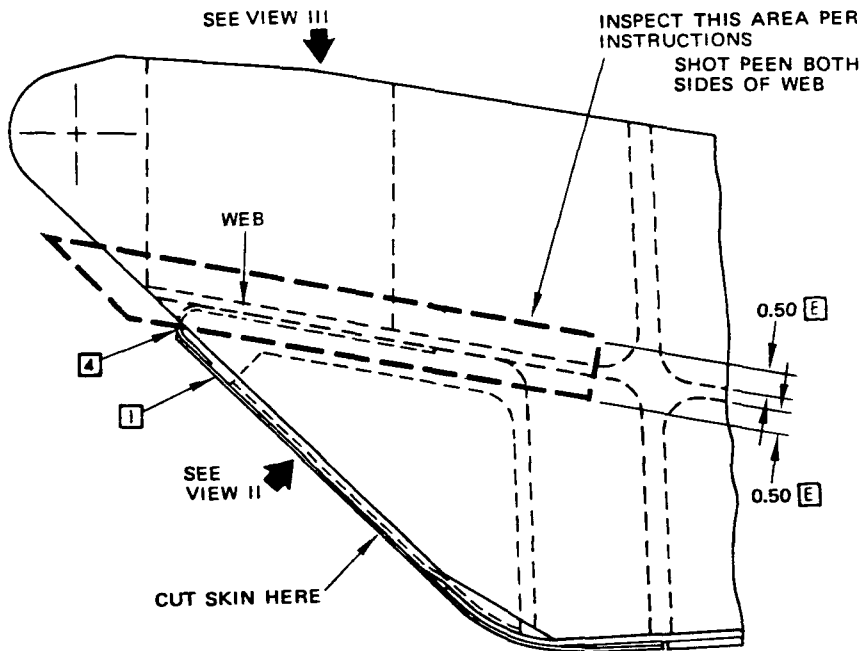
| REPAIR MATERIAL   |     |                     |  |
|-------------------|-----|---------------------|--|
| PART              | QTY | MATERIAL            |  |
| ① SKIN            | 1   | 0.040 CLAD 2024-T3  |  |
| ② CLIP [C]        | 1   | 0.063 CLAD 2024-T3  |  |
| ③ SPLICE          | 1   | 0.040 CLAD 2024-T3  |  |
| ④ CLIP [D]        | 1   | 0.063 CLAD 2024-T42 |  |
| ★ FASTENER [A][C] | 4   | BACB30FM6           |  |
| ★ FASTENER [B][C] | 4   | BACB30FM8           |  |
| ★ FASTENER [D]    | 5   | BACB30FM6           |  |
| + FASTENER        | 13  | NAS1399B6           |  |
| ◆ FASTENER        | 3   | NAS1399B6           |  |
| ⊙ FASTENER        | 3   | MS20470D6           |  |

Flap Nut Support Fitting - Rework and Repair  
Figure 6 (Sheet 4)

# STRUCTURAL REPAIR



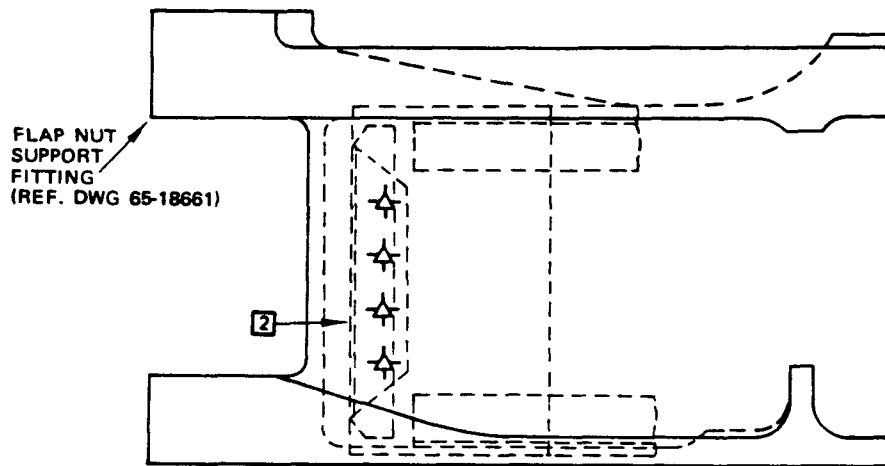
## PREVENTATIVE PROCEDURE



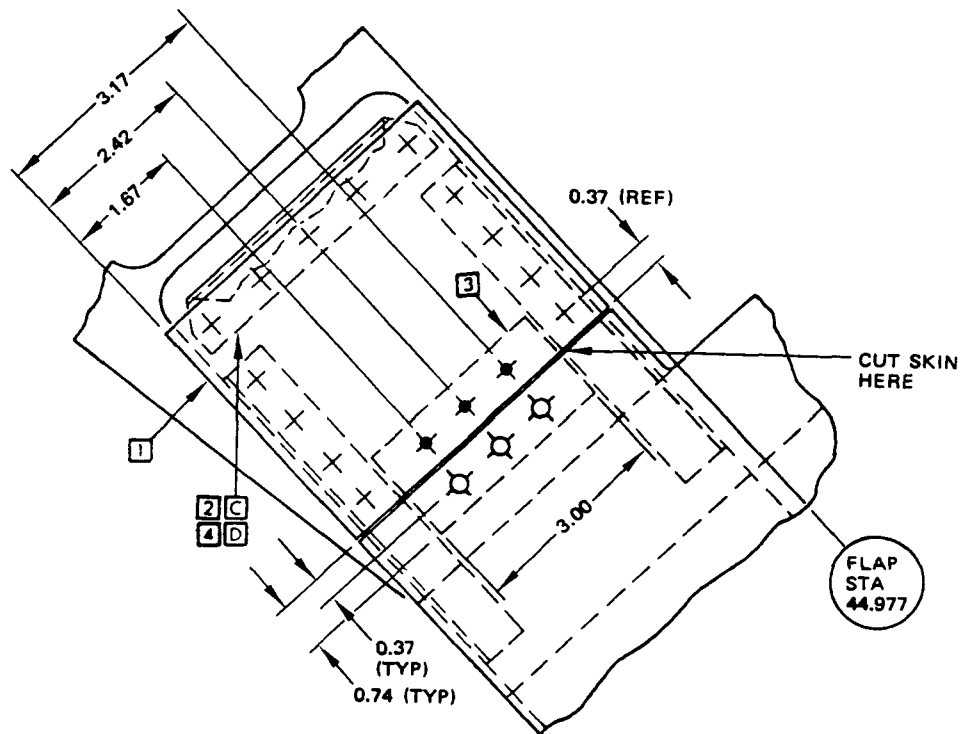
## REPAIR PROCEDURE

Flap Nut Support Fitting - Rework and Repair  
Figure 6 (Sheet 5)

BOEING *707* Intercontinental   
STRUCTURAL REPAIR



VIEW I

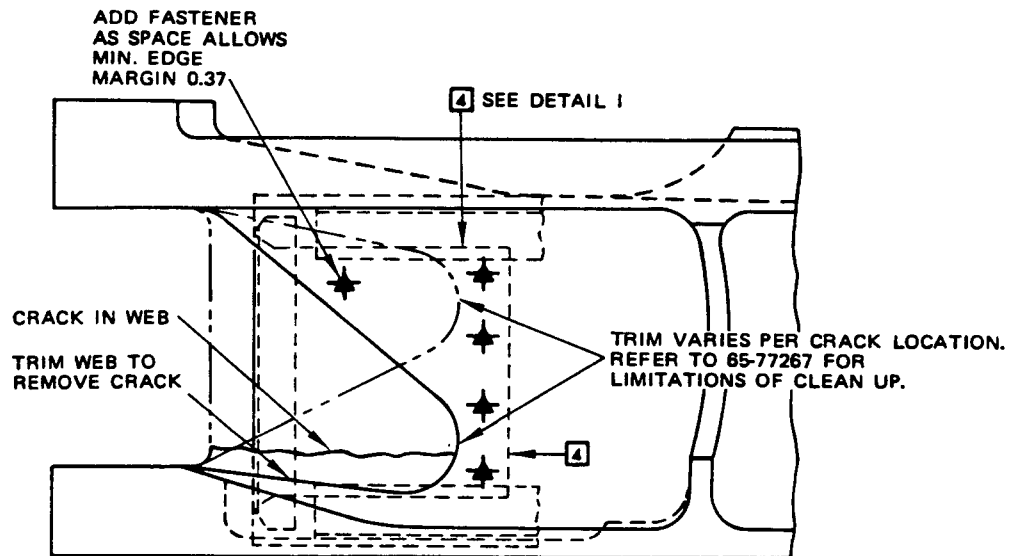


VIEW II

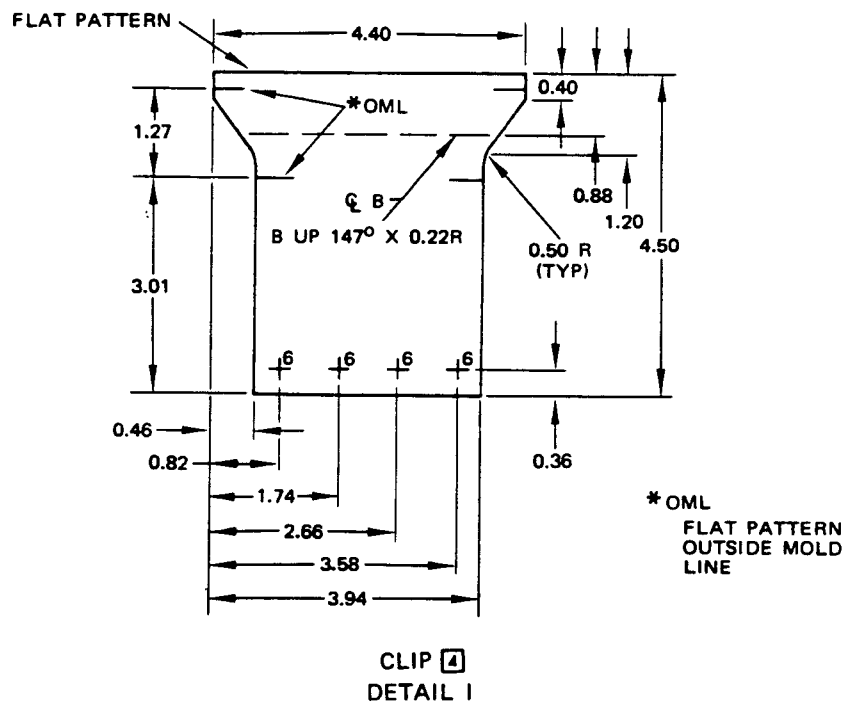
Flap Nut Support Fitting - Rework and Repair  
Figure 6 (Sheet 6)

BOEING *777* Intercontinental

STRUCTURAL REPAIR



VIEW III



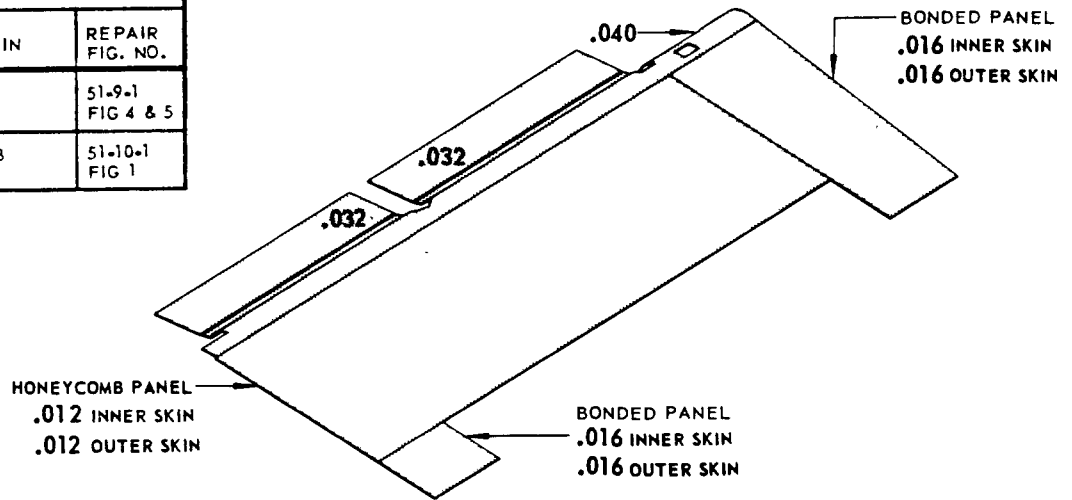
Flap Nut Support Fitting - Rework and Repair  
Figure 6 (Sheet 7)



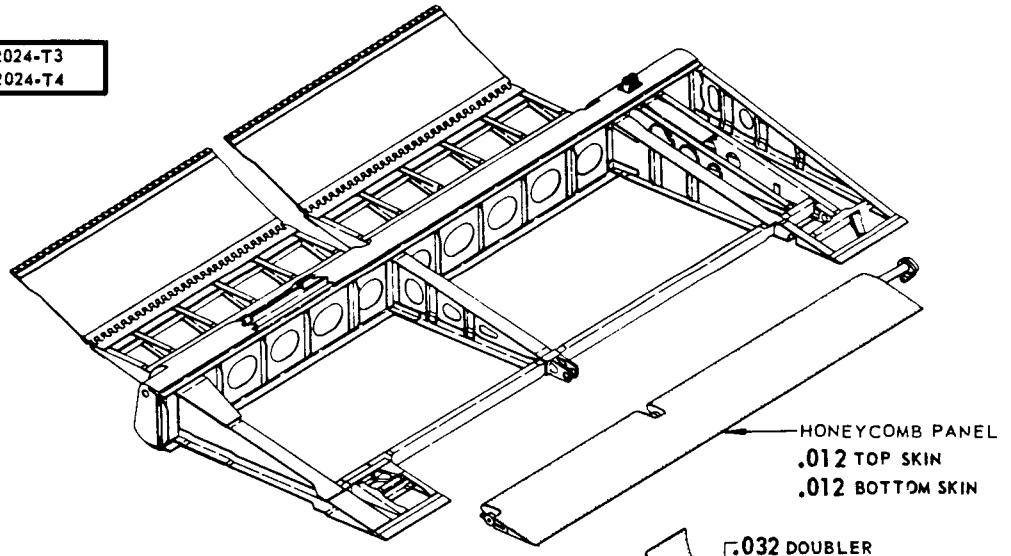
INTERCONTINENTAL  
STRUCTURAL REPAIR

REF DWG  
65-1096

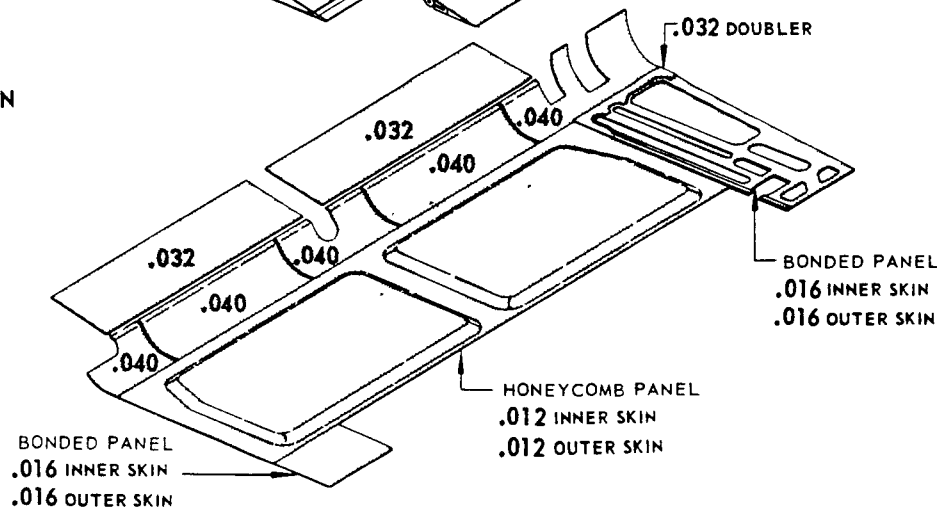
| SKIN REPAIR INDEX  |                     |
|--------------------|---------------------|
| TYPE OF SKIN       | REPAIR<br>FIG. NO.  |
| BONDED<br>PANEL    | 51-9-1<br>FIG 4 & 5 |
| HONEYCOMB<br>PANEL | 51-10-1<br>FIG 1    |



|  |              |
|--|--------------|
|  | CLAD 2024-T3 |
|  | CLAD 2024-T4 |



INBOARD AILERON



Inboard Aileron Skin Material Identification  
Figure 1

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



**NOTE**

**A** FOR ALL AIRPLANE SERIAL NUMBERS UP TO AND INCLUDING THE LAST SERIAL NUMBERS AS SHOWN.

|           |                                 |
|-----------|---------------------------------|
| AA        | - 19588 EXCEPT 19574 THRU 19580 |
| AF        | - 19724                         |
| AIRLIFT   | - 19416                         |
| ARG       | - 19241                         |
| AVI       | - 19741                         |
| BNF       | - 19531                         |
| BOAC      | - 19590                         |
| BOAC,     | - 18372 , 18413                 |
| BOE       | - 19000                         |
| CAL       | - 19353                         |
| CALEDONIA | - 19767                         |
| DLH       | - 19317                         |
| EJ        | - 19664                         |
| FTL       | - 19355                         |
| IIA       | - 19410                         |
| NWA       | - 19634                         |
| OA        | - 18950                         |
| PA        | - 20034 EXCEPT 17674 THRU 17689 |
| PAK       | - 19286                         |
| QEA       | - 19625                         |
| SAA       | - 19708                         |
| SAB       | - 19211                         |
| SDI       | - 19810                         |
| SEABOARD  | - 19841                         |
| TAP       | - 19740                         |
| WAI       | - 19716                         |
| WARD      | - 19789                         |

| SKIN REPAIR INDEX |                 |
|-------------------|-----------------|
| TYPE OF SKIN      | REPAIR FIG. NO. |
| HONEYCOMB PANEL   | 51-10-1 FIG 1   |

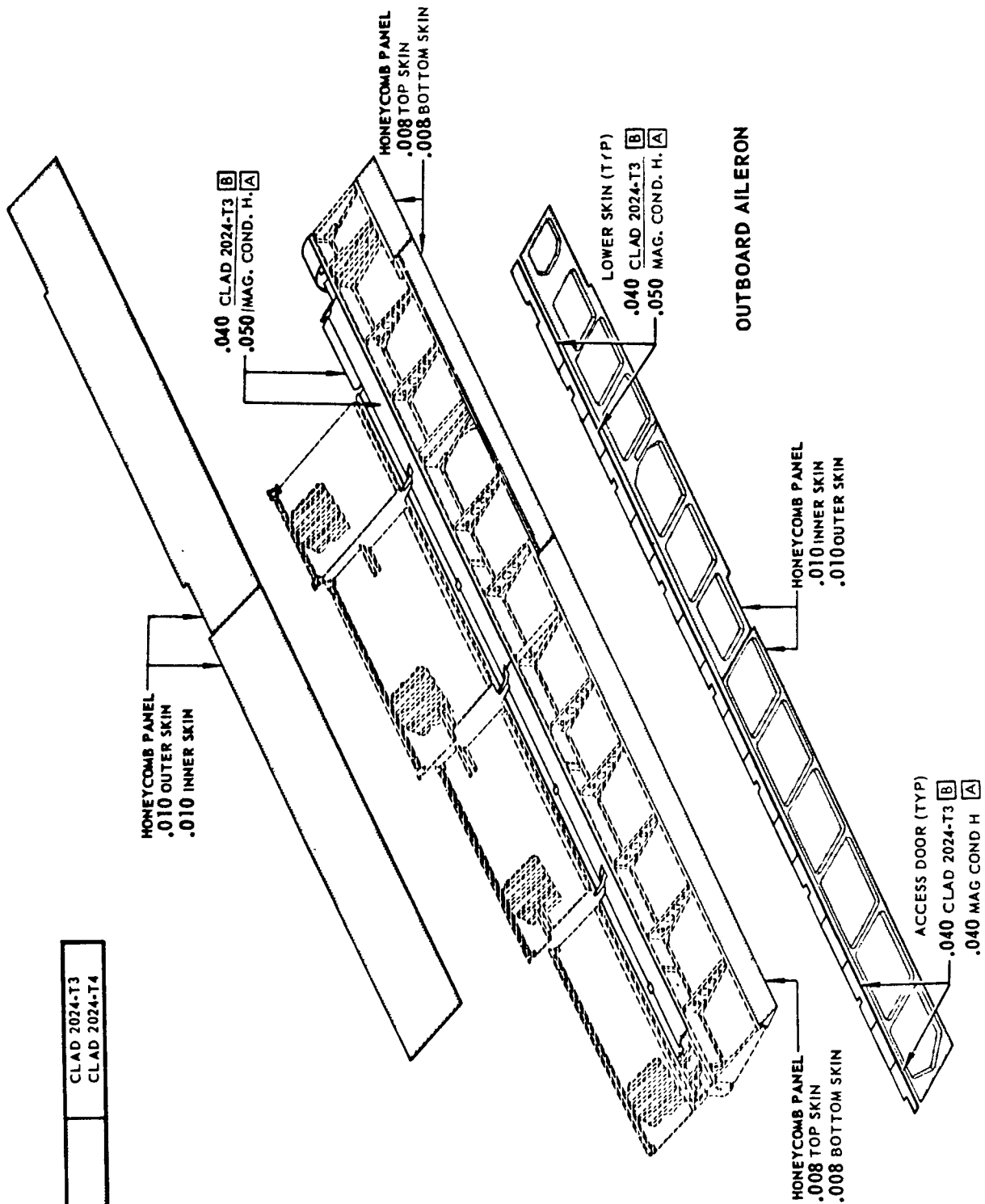
|  |                              |
|--|------------------------------|
|  | CLAD 2024-T3<br>CLAD 2024-T4 |
|--|------------------------------|

**B** FOR ALL AIRPLANES NOT LISTED IN **A** .



INTERCONTINENTAL  
STRUCTURAL REPAIR

REF DWG  
65-1034  
5-88190



Outboard Aileron Skin Material Identification  
Figure 2 (Sheet 2)



## AILERON SKIN REPAIRS

### 1. General

A. For repair of the honeycomb panels of the ailerons, see 51-10-1.



# STRUCTURAL REPAIR

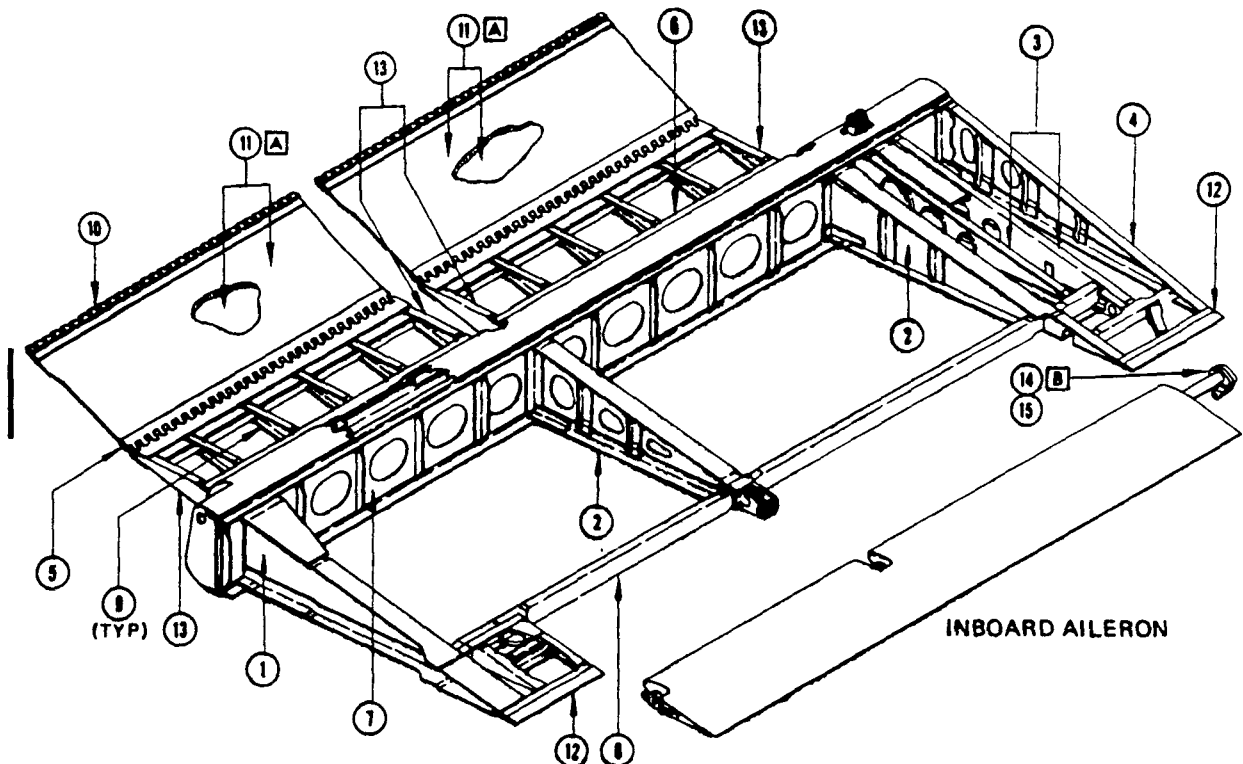
REF DWG  
5-87421

| ITEM | CHORDS                   |                   | WEB                                  |                   |
|------|--------------------------|-------------------|--------------------------------------|-------------------|
|      | MATERIAL                 | REPAIR FIG NO.    | MATERIAL                             | REPAIR FIG NO.    |
| ①    | AND10136-2004<br>2024-T4 | 51-14-4<br>FIG. 1 | 0.016 + 0.016 CLAD<br>2024-T4 BONDED | 51-9-1            |
| ②    | AND10136-2004<br>2024-T4 | 51-14-4<br>FIG. 1 | 0.020 CLAD<br>2024-T3                | 51-14-2<br>FIG. 1 |
| ③    |                          |                   | 0.063 CLAD<br>7075-T6                | 51-14-2<br>FIG. 1 |
| ④    | BA 1503-2729<br>2024-T4  | 51-14-4<br>FIG. 1 | 0.016 + 0.016 CLAD<br>2024-T4 BONDED | 51-9-1            |
| ⑤    |                          |                   | HINGE<br>ALUMINUM BRONZE             | 51-10-1<br>FIG. 1 |
| ⑥    | BAC1518-222<br>7075-T6   |                   |                                      |                   |
| ⑦    | BAC1506-1258<br>2024-T4  |                   | 0.020 CLAD<br>2024-T3                | 51-14-2<br>FIG. 1 |
| ⑧    |                          |                   | 0.071 CLAD<br>7075-T6                | 51-14-3<br>FIG. 1 |
| ⑨    |                          |                   | 0.050<br>2024-T3                     | 51-14-3<br>FIG. 1 |
| ⑩    |                          |                   | HINGE<br>2024-T4                     | 51-10-1<br>FIG. 1 |
| ⑪    |                          |                   | 0.012 CLAD<br>2024-T4                | 51-10-1<br>FIG. 1 |
| ⑫    |                          |                   | BAC1513-281<br>MAG-7K80A-T5          |                   |
| ⑬    | FORGING<br>7075-T6       |                   |                                      |                   |
| ⑭    | FORGING<br>7079-T6       |                   |                                      |                   |
| ⑮    | FORGING<br>7075-T73      |                   |                                      |                   |

## NOTE

Ⓐ HONEYCOMB PANEL

Ⓑ FORGINGS OF 7079-T6 MATERIAL HAVE BEEN SUPERSEDED BY FORGINGS OF 7075-T73 MATERIAL ON LATE PRODUCTION AIRPLANES. FORGINGS OF 7075-T73 MATERIAL ARE RECOMMENDED FOR REPLACEMENT.



Inboard Aileron Structure Identification

Figure 1

| ITEM | CHORDS                                                                             |                                       | WEB                  |                   |
|------|------------------------------------------------------------------------------------|---------------------------------------|----------------------|-------------------|
|      | MATERIAL                                                                           | REPAIR FIG NO.                        | MATERIAL             | REPAIR FIG NO.    |
| (10) | BAC 1503-100093<br>2024-T4 (UPPER)<br>AND 10134-1003<br>2024-T4 (LOWER)            | 57-7-4<br>FIG. 1<br>51-14-4<br>FIG. 1 | .020 CLAD<br>2024-T3 | 51-14-2<br>FIG. 1 |
| (11) | BAC 1510-367<br>2024-T4                                                            |                                       |                      |                   |
| (12) | .020 CLAD<br>2024-T4                                                               | 51-14-3<br>FIG. 1                     |                      |                   |
| (13) | FWD HINGE-HALF BAC 1510-365 2024-T4<br>AFT HINGE-HALF BAC 1510-372 2024-T4         |                                       |                      | 51-10-1<br>FIG. 1 |
| (14) | AFT HINGE-HALF BRONZE<br>FWD HINGE-HALF BAC 1520-793 2024-T4                       |                                       |                      | 51-10-1<br>FIG. 1 |
| (15) | FWD, AFT HINGE-HALF BAC 1520-793 2024-T4<br>CENTER HINGE-HALF BAC 1520-794 2024-T4 |                                       |                      | 51-10-1<br>FIG. 1 |
| (16) |                                                                                    |                                       | .016 CLAD<br>2024-T3 | 51-14-2<br>FIG. 1 |
| (17) | .002 CLAD<br>2024-T4                                                               | 51-14-3<br>FIG. 1                     |                      |                   |

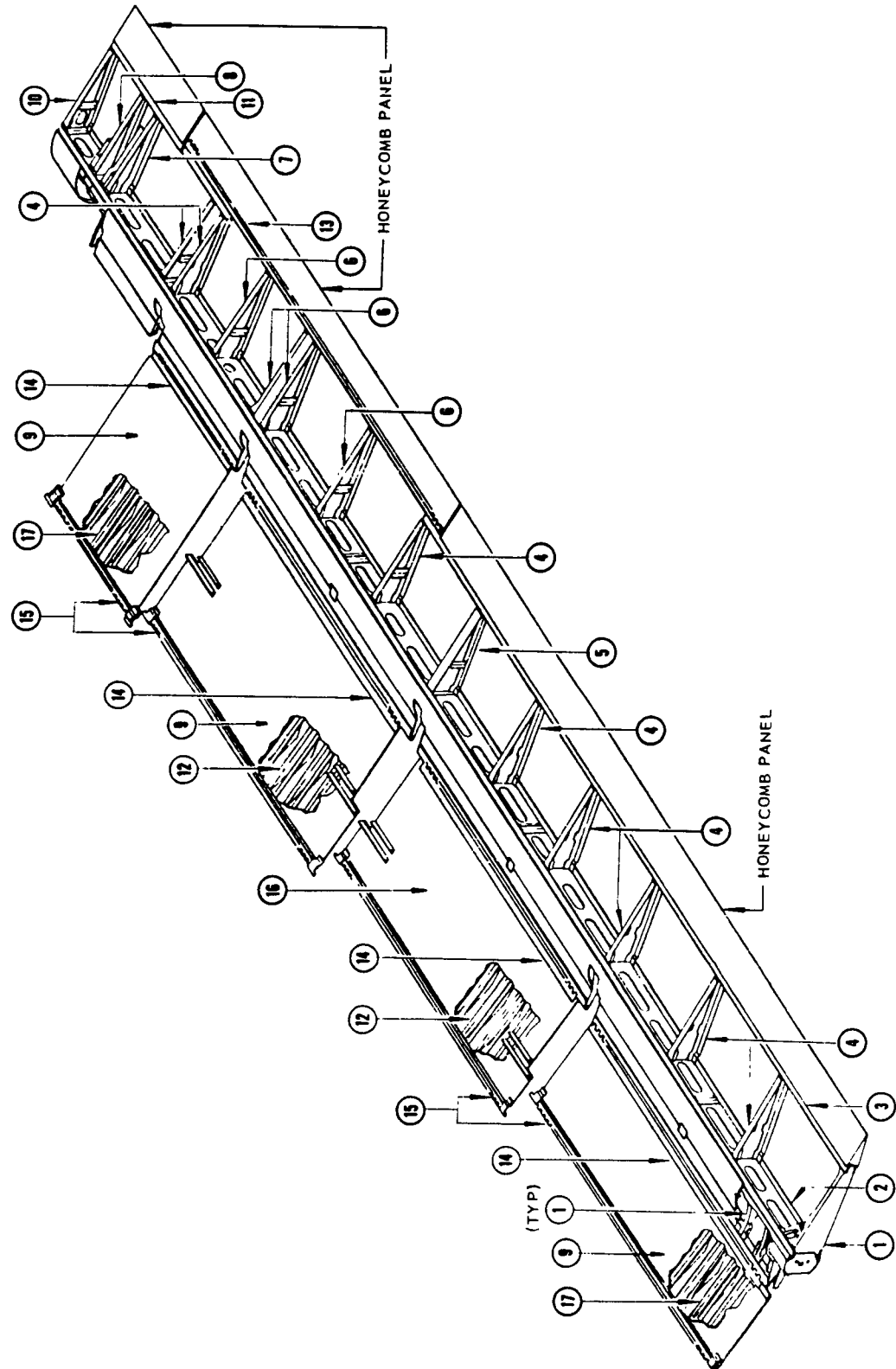
| ITEM | CHORDS                                                                 |                                       | WEB                  |                   |
|------|------------------------------------------------------------------------|---------------------------------------|----------------------|-------------------|
|      | MATERIAL                                                               | REPAIR FIG NO.                        | MATERIAL             | REPAIR FIG NO.    |
| (1)  |                                                                        |                                       | .040 CLAD<br>2024-T4 | 51-14-3<br>FIG. 1 |
| (2)  | BAC 1506-1157<br>2024-T4                                               |                                       | .032 CLAD<br>2024-T4 | 51-14-2<br>FIG. 1 |
| (3)  | BAC 1510-366<br>2024-T4                                                |                                       |                      |                   |
| (4)  | AND 10134-1204<br>2024-T4 (UPPER)<br>AND 10134-1003<br>2024-T4 (LOWER) | 57-7-4<br>FIG. 1<br>51-14-4<br>FIG. 1 | .016 CLAD<br>2024-T3 | 51-14-2<br>FIG. 1 |
| (5)  | BAC 1505-100022<br>2024-T4                                             | 51-14-4<br>FIG. 1                     | .016 CLAD<br>2024-T3 | 51-14-3<br>FIG. 1 |
| (6)  | AND 10134-1201<br>2024-T4                                              | 57-7-4<br>FIG. 1                      | .016 CLAD<br>2024-T3 | 51-14-2<br>FIG. 1 |
| (7)  | BAC 1503-100079<br>2024-T4                                             | 51-14-4<br>FIG. 1                     | .016 CLAD<br>2024-T3 | 51-14-2<br>FIG. 1 |
| (8)  | AND 10134-1204<br>7075-T6                                              | 51-14-4<br>FIG. 1                     | .016 CLAD<br>2024-T3 | 51-14-2<br>FIG. 1 |
| (9)  |                                                                        |                                       | .025 CLAD<br>2024-T3 | 51-14-2<br>FIG. 1 |

**NOTE**

**A** DOUBLER SAME GAGE AND MATERIAL  
AS WEB

Outboard Aileron Structure Identification  
Figure 2 (Sheet 1 of 2)

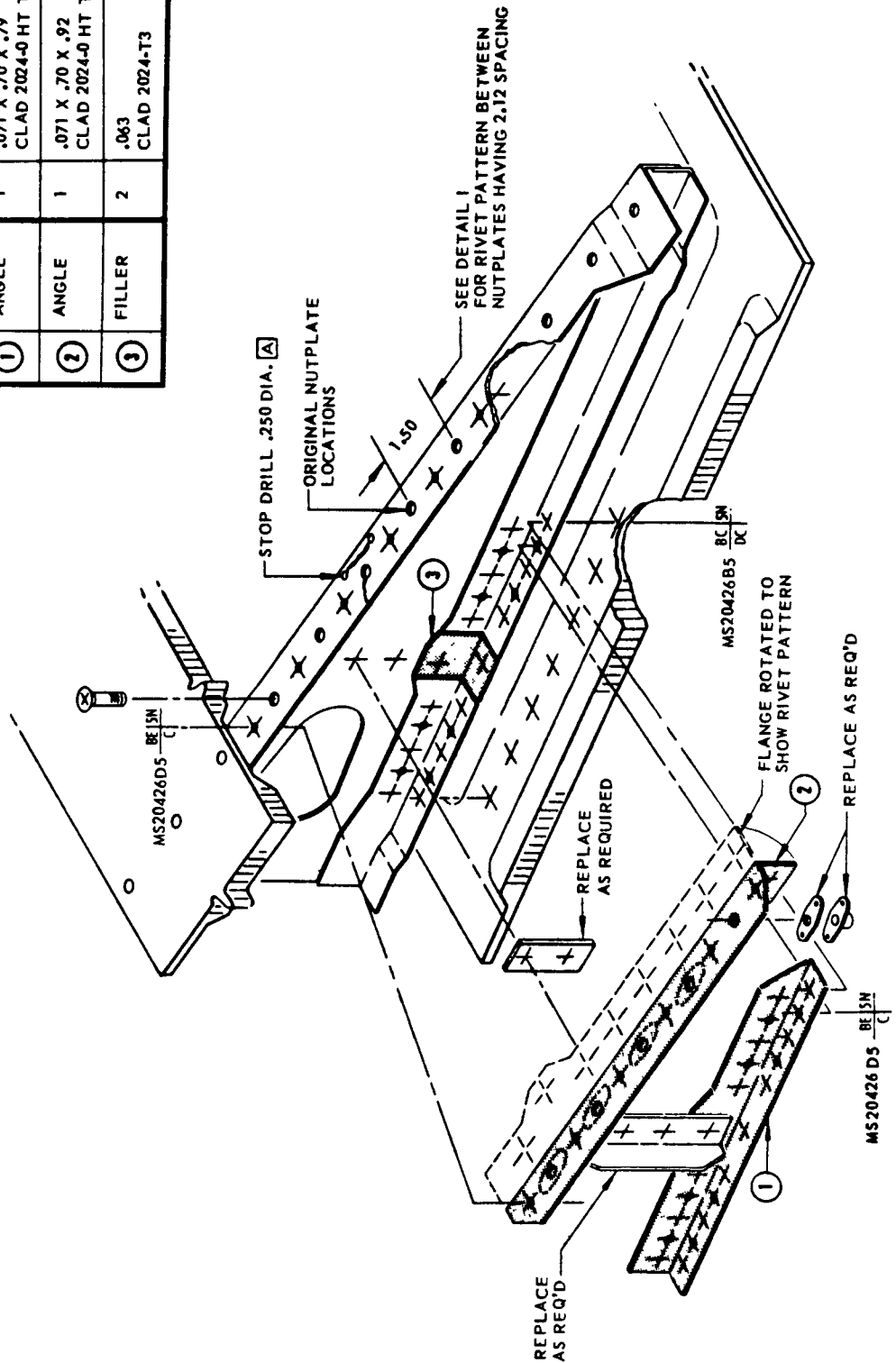
BOEING *707* Intercontinental   
STRUCTURAL REPAIR



Apr 1/60  
Revised

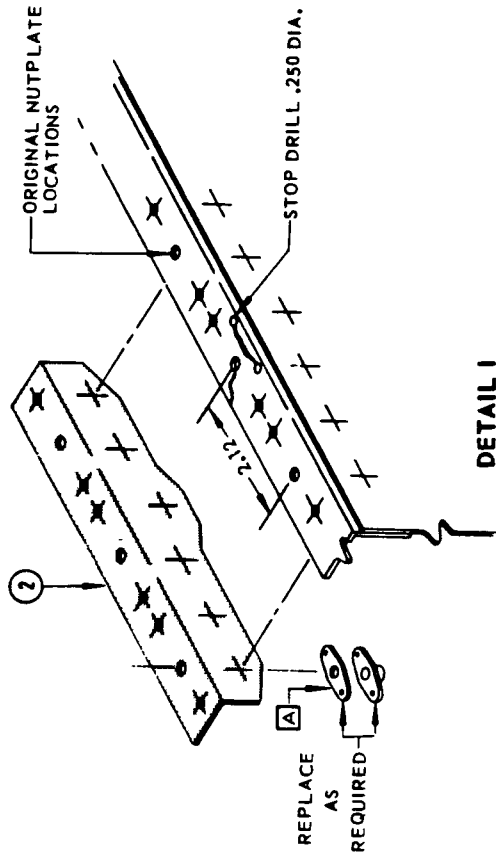
Outboard Aileron Structure Identification  
Figure 2 Sheet 2 of 2)

| REPAIR MATERIAL |     |                                          |
|-----------------|-----|------------------------------------------|
| PART            | QTY | MATERIAL                                 |
| ①               | 1   | .071 X .70 X .79<br>CLAD 2024-0 HT TR-T4 |
| ②               | 1   | .071 X .70 X .92<br>CLAD 2024-0 HT TR-T4 |
| ③               | 2   | .063<br>CLAD 2024-T3                     |

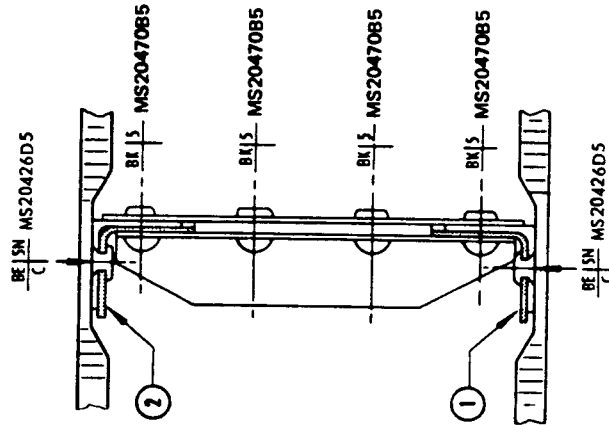


Jul 1/59

Outboard Aileron Rib Repair  
Figure 1 (Sheet 1 of 2)



DETAIL I



SECTION ADJACENT  
TO DAMAGE

### REPAIR INSTRUCTIONS:

1. See 51-20 for fastener code, removal and installation, hole sizes and edge margins.
2. Remove all sharp edges and corners from repair parts and reworked original structure.
3. Alodize all parts including reworked original structure per 51-8-0 prior to installation.
4. Restore original finish per Maintenance Manual 51-20.

**CAUTION:** Do not attempt to line drill holes in

Part ① or ② for NAS 517-3 screws.  
Install nutplates on Part ① or ② with  
.200 to .210 DIA. oversize holes in  
Part ① or ②

### NOTE

- SEE 51-154 WHEN THE REPAIR INVOLVES CONTROL SURFACES.

✚ ORIGINAL FASTENER LOCATIONS

✚ REPAIR FASTENER LOCATIONS

- ✚ [A] THIS REPAIR APPLIES TO LONGITUDINAL CHORD CRACKS NOT EXTENDING BEYOND FILLET RADIUS AND/OR TRANSVERSE CRACKS ORIGINATING AT FLANGE EDGE AND EXTENDING ONLY TO THE RIVET OR SCREW HOLE. STOP DRILL .250 DIA. BOTH ENDS OF LONGITUDINAL CRACK AND ONE END OF CRACK THROUGH ONE FLANGE AND DEBURR. USE PART 3 ONLY WHEN A SECTION OF CHORD IS TO BE REMOVED TO CLEAN UP DAMAGE AREA.

- [B] REPLACE ENTIRE UPPER CHORD HAVING NUTPLATE SPACING OF 1.50 IF TRANSVERSE CRACK EXTENDS THROUGH ONE OR BOTH FLANGES.

- [C] CHAMFER NAS 436W SPACERS TO CLEAR CHORD RADIUS.

**BOEING**  
**707**  
INTERCONTINENTAL  
STRUCTURAL REPAIR



**NOTE**

- A** FOR TURBOJET AIRPLANES - PAA (S/N 17592 THRU 17608,  
AND 18083 THRU 18085)

FOR TURBOFAN AIRPLANES SERIAL NUMBERS UP TO  
AND INCLUDING THE SERIAL NUMBERS AS SHOWN.

|               |                                 |
|---------------|---------------------------------|
| AA            | - 19586 EXCEPT 19574 THRU 19580 |
| AF            | - 19724                         |
| AIRLIFT       | - 19416                         |
| BNF           | - 19531                         |
| BOE           | - 19000                         |
| BOAC          | - 18924 THRU 19498 ONLY         |
| BRITISH EAGLE | - 19590                         |
| CALEDONIA     | - 19767                         |
| CAL           | - 19353                         |
| DLH           | - 19317                         |
| EJ            | - 19664                         |
| FTL           | - 19355                         |
| IIA           | - 19410                         |
| NWA           | - 19632                         |
| OA            | - 18950                         |
| PA            | - <del>20034</del>              |
| PAK           | - 19286                         |
| QEA           | - 19623                         |
| SAA           | - 19705                         |
| SAB           | - 19211                         |
| SDI           | - 19810                         |
| SEABOARD      | - 19840                         |
| TAP           | - 19740                         |
| TWA           | - 18709 AND 18738 ONLY          |
| VAR           | - 19322                         |
| WAI           | - 19716                         |

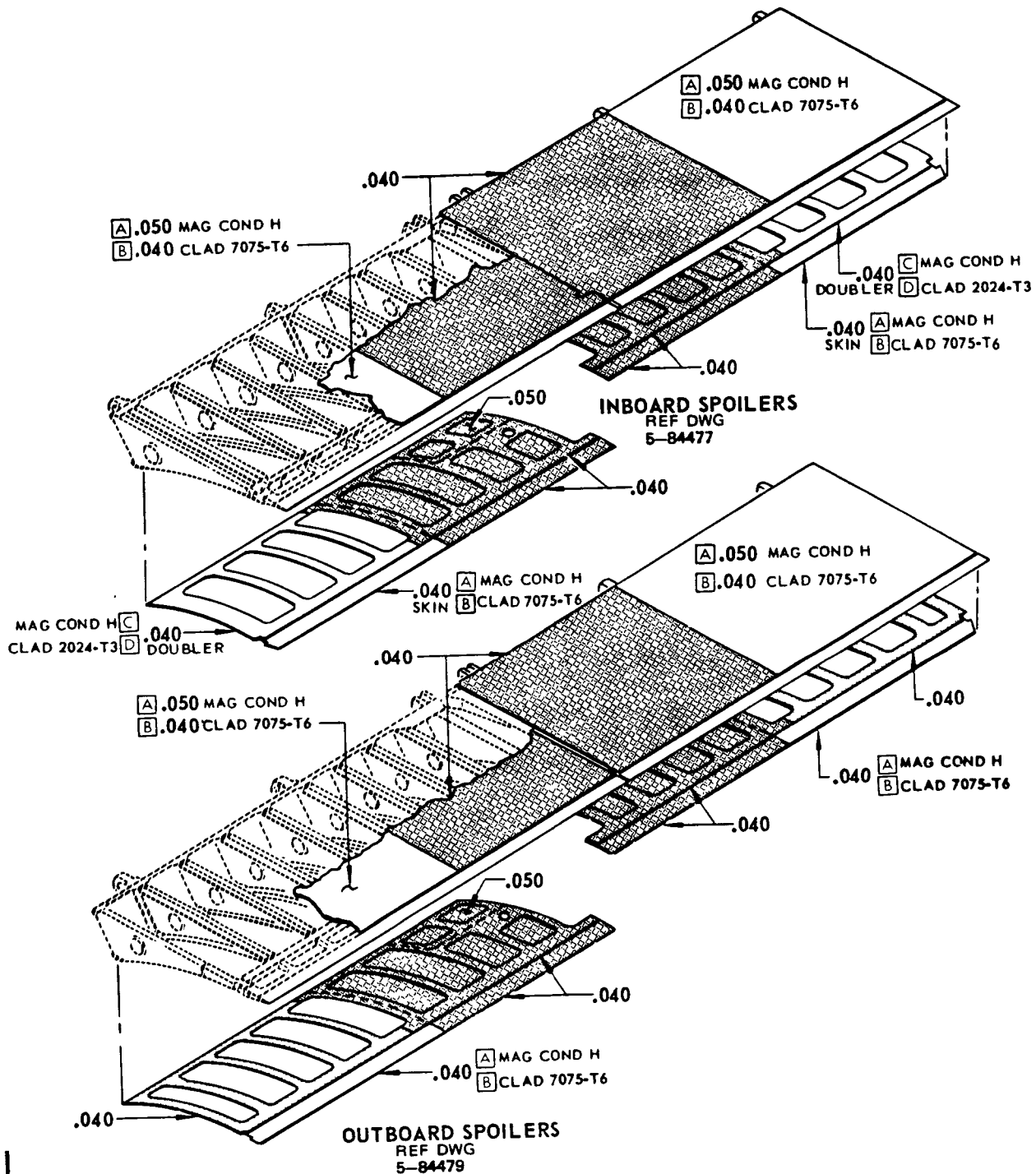
| SKIN REPAIR INDEX         |                      |
|---------------------------|----------------------|
| TYPE OF SKIN              | REPAIR<br>FIG. NO.   |
| ALUMINUM OR<br>MAGNESIUM  | 57-8-2<br>FIG. 1 & 2 |
| MAGNESIUM<br>(UPPER SKIN) | 57-8-2<br>FIG. 2     |

|                                                                                    |              |
|------------------------------------------------------------------------------------|--------------|
|  | CLAD 7075-T6 |
|  | CLAD 2024-T3 |

- B** FOR ALL AIRPLANES NOT LISTED IN **A**.
- C** FOR PAA (S/N 17592 ONLY)
- D** FOR ALL AIRPLANES NOT LISTED IN **C**.



INTERCONTINENTAL  
STRUCTURAL REPAIR



Spoiler Skin Materials Identification  
Figure 1 (Sheet 2)



REPAIR INSTRUCTIONS

1. Stop drill cracks with a 0.25 inch drill. If necessary, trim out the damaged skin to a smooth outline. Remove all sharp edges, burrs, nicks and other surface irregularities.
2. Fabricate the required skin patch as shown in the figure.
3. For repairs to magnesium skin, paint the faying surfaces with zinc chromate primer: three coats on magnesium and at least one coat on the aluminum surface.
4. Attach the patch to the skin with fasteners.
5. Restore the appropriate surface finish. See the 707 Maintenance Manual, Section 51-2-0.

| REPAIR MATERIAL |       |      |                   |
|-----------------|-------|------|-------------------|
| PART            |       | QTY. | MATERIAL          |
| ①               | PATCH | 1    | .050 CLAD 7075-T6 |

NOTE



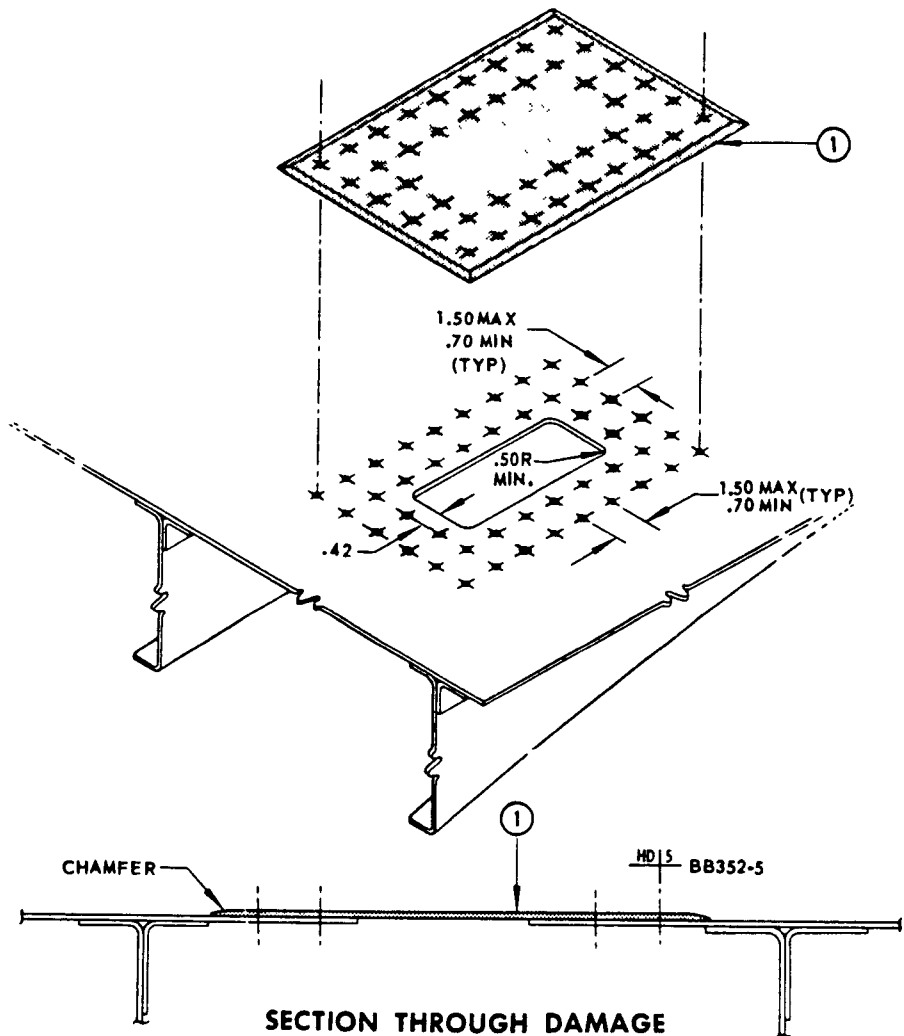
REPAIR FASTENER LOCATIONS

SEE 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS.

SEE 51-8-0 FOR METAL PROTECTIVE TREATMENT

SEE 51-13-1 FOR DEFINITION OF AN EXTERNAL REPAIR

SEE 51-4-1 FOR PERFORMANCE CONSIDERATIONS IN REGIONS OF CRITICAL SMOOTHNESS





## STRUCTURAL REPAIR

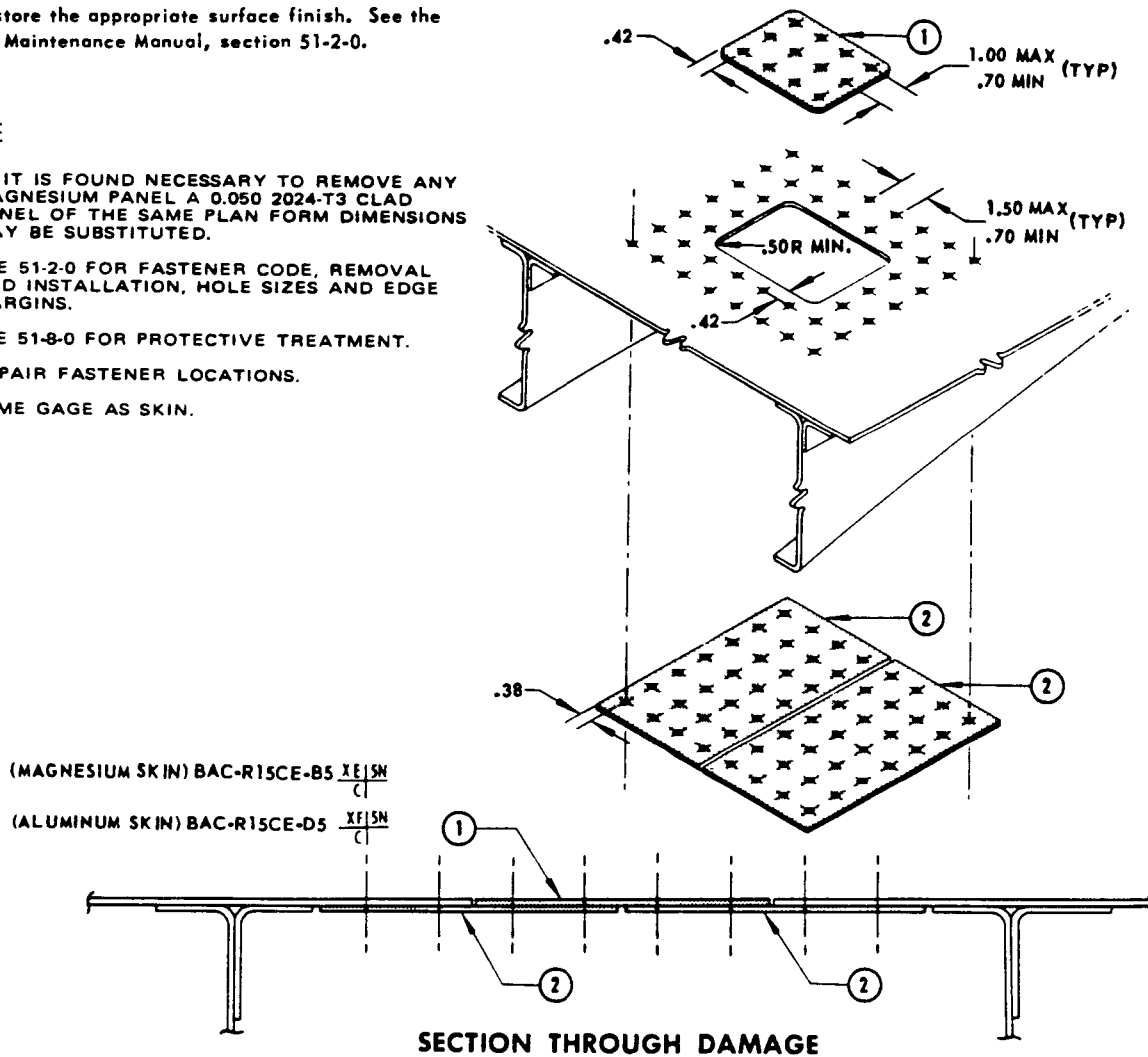
### REPAIR INSTRUCTIONS

1. Trim out the damaged skin by making a rectangular cutout with sides parallel to the ribs and the spar. Remove all sharp edges, burrs, nicks and other surface irregularities.
2. Fabricate a skin insert to fit within the cutout and a doubler that is split to permit its insertion. Split doubler in a direction parallel to the ribs.
3. For repairs to magnesium skin, paint the faying surfaces with zinc chromate primer: three coats on magnesium and at least one coat on the aluminum surface.
4. Assemble the repair parts and install rivets. If temporary patch was made per figure 1, use same fastener locations.
5. Restore the appropriate surface finish. See the 707 Maintenance Manual, section 51-2-0.

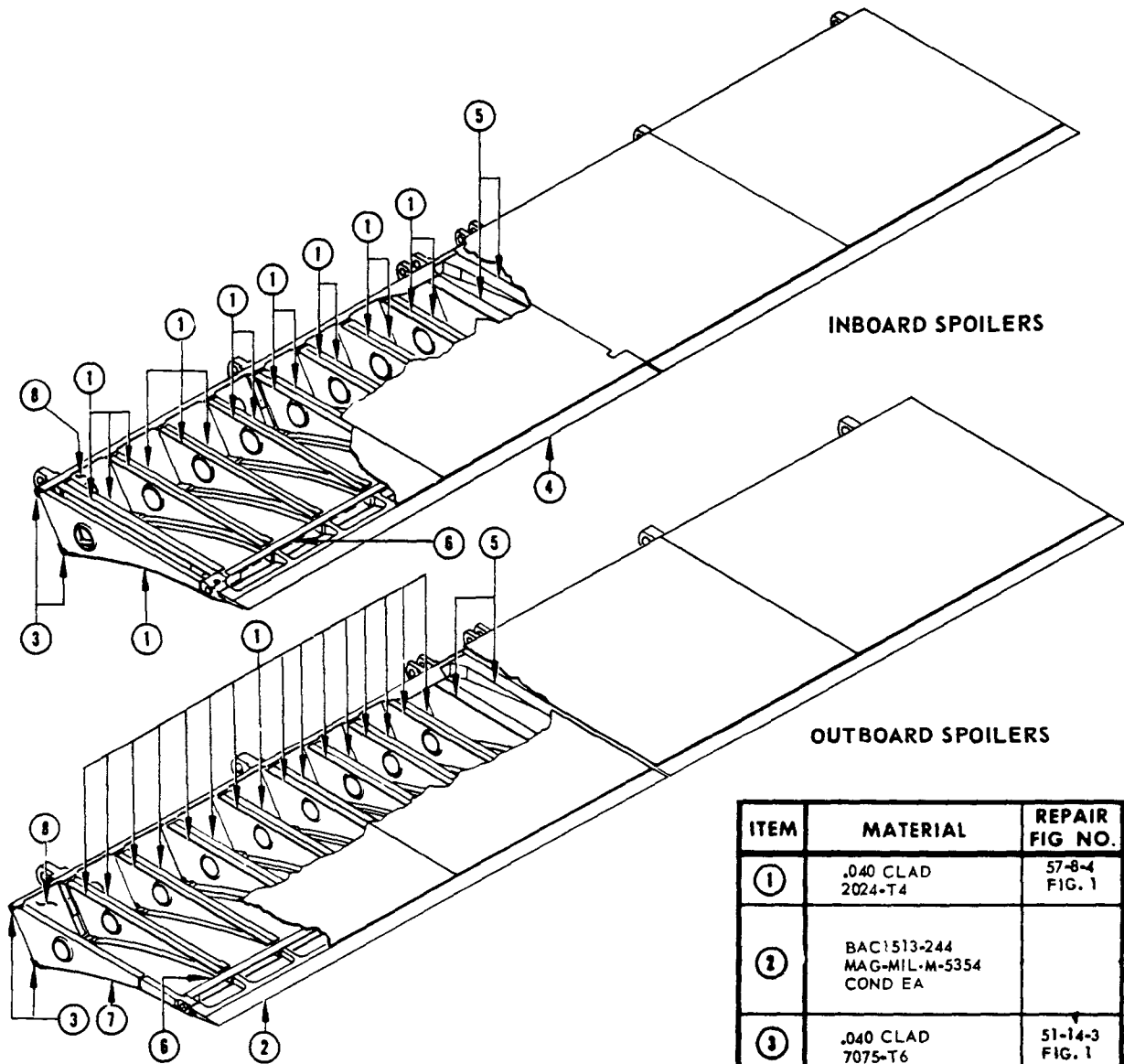
| REPAIR MATERIAL |      |          |              |
|-----------------|------|----------|--------------|
| PART            | QTY. | MATERIAL |              |
| ① INSERT        | 1    | A        | CLAD 7075-T6 |
| ② DOUBLER       | 2    | A        | CLAD 7075-T6 |

### NOTE

- IF IT IS FOUND NECESSARY TO REMOVE ANY MAGNESIUM PANEL A 0.050 2024-T3 CLAD PANEL OF THE SAME PLAN FORM DIMENSIONS MAY BE SUBSTITUTED.
- SEE 51-2-0 FOR FASTENER CODE, REMOVAL AND INSTALLATION, HOLE SIZES AND EDGE MARGINS.
- SEE 51-8-0 FOR PROTECTIVE TREATMENT.
- ◆ REPAIR FASTENER LOCATIONS.
- A SAME GAGE AS SKIN.



Spoiler Skin Flush Repair  
Figure 2



| ITEM | MATERIAL                                 | REPAIR FIG. NO.   |
|------|------------------------------------------|-------------------|
| ①    | .040 CLAD<br>2024-T4                     | 57-8-4<br>FIG. 1  |
| ②    | BAC1513-244<br>MAG-MIL-M-5354<br>COND EA |                   |
| ③    | .040 CLAD<br>7075-T6                     | 51-14-3<br>FIG. 1 |
| ④    | BAC1513-245<br>MAG-MIL-M-5354<br>COND EA |                   |
| ⑤    | DIE FORGING<br>7075-T6                   |                   |
| ⑥    | AND 10137-1011<br>7075-T6                | 51-14-4<br>FIG. 1 |
| ⑦    | .064 CLAD<br>2024 HT-T4                  | 51-14-3<br>FIG. 1 |
| ⑧    | .032 CLAD<br>7075-T6                     | 51-14-2<br>FIG. 1 |

# STRUCTURAL REPAIR

## REPAIR INSTRUCTIONS

1. Remove spoiler skin panel for access to the damaged part.
2. Stop-drill cracks .25" diameter. Remove all burrs, scratches and remove buckles or other irregularities in flange by straightening
3. Fabricate repair parts to nest within the original flange.
4. Replace original finish per 51-2-0 of the 707 Maintenance Manual.
5. Replace spoiler skin panel.

### NOTE

BREAK SHARP EDGES .03 ALL REPAIR PARTS AND TRIMMED ORIGINAL PARTS.

— ORIGINAL FASTENER LOCATIONS

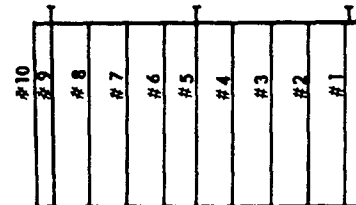
◆ REPAIR FASTENER LOCATIONS

THIS REPAIR IS APPLICABLE TO RIBS #2, #3, #4, #5, #6, #7 AND #8 OF BOTH INBD AND OUTBD SPOILERS.

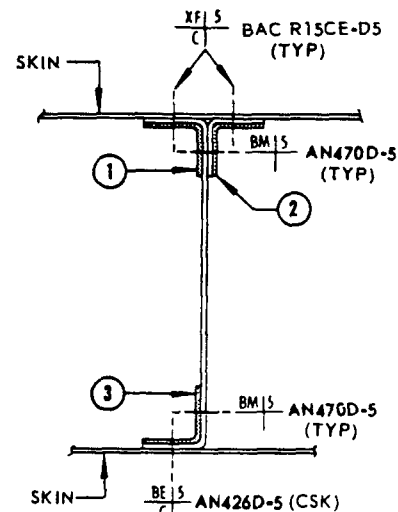
**A** THIS REPAIR PART IS APPLICABLE TO RIBS #4, #6, #7, #8 OF BOTH INBD AND OUTBD SPOILERS

SEE 51-2-0 FOR FASTENER CODE REMOVAL AND INSTALLATIONS, HOLE SIZES AND EDGE MARGINS.

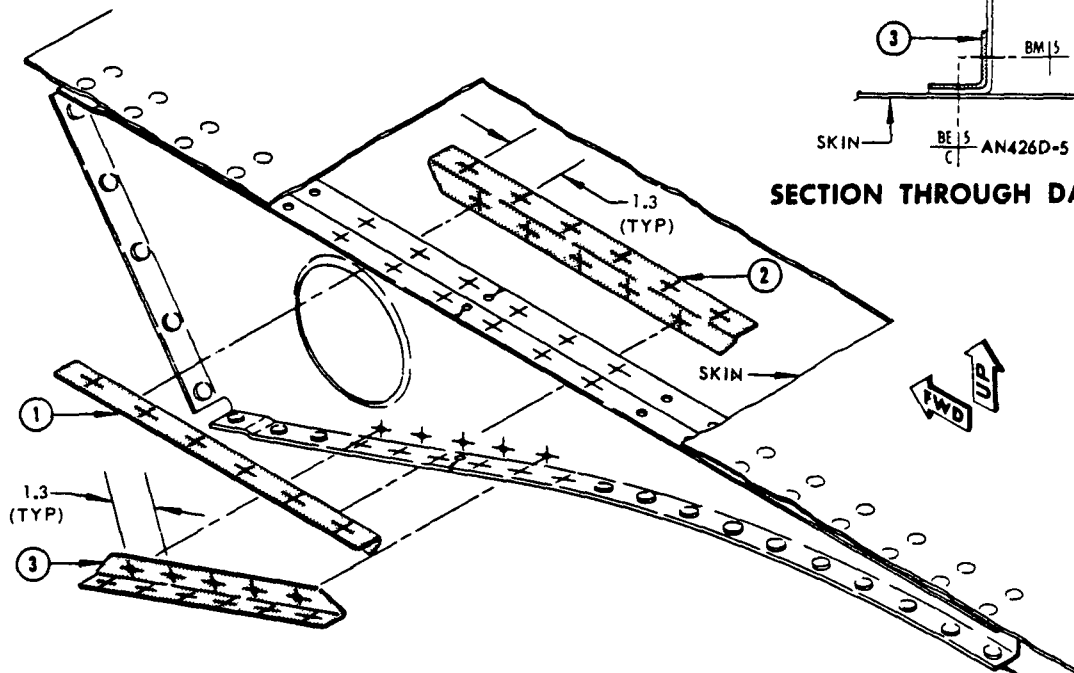
| REPAIR MATERIAL |                |          |                   |
|-----------------|----------------|----------|-------------------|
| PART            | QTY.           | MATERIAL |                   |
| ①               | ANGLE          | 1        | .045 CLAD 2024-T4 |
| ②               | ANGLE          | 1        | .045 CLAD 2024-T4 |
| ③               | ANGLE <b>A</b> | 1        | .045 CLAD 2024-T4 |



PLAN VIEW OF SPOILER



SECTION THROUGH DAMAGE



Spoiler Rib Repair  
Figure 1



FITTINGS, MATERIALS AND HEAT TREATMENT

1. Wing fittings are normally replacement items and are identified in 57-3-3, 57-4-3, 57-5-3, 57-6-3, 57-7-3 and 57-8-3.
2. Refer to production drawings for heat treatment information.