CHAPTER

55

STABILIZERS

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A = Added, R = Revised, O = Overflow, D = Deleted

55-EFFECTIVE PAGES

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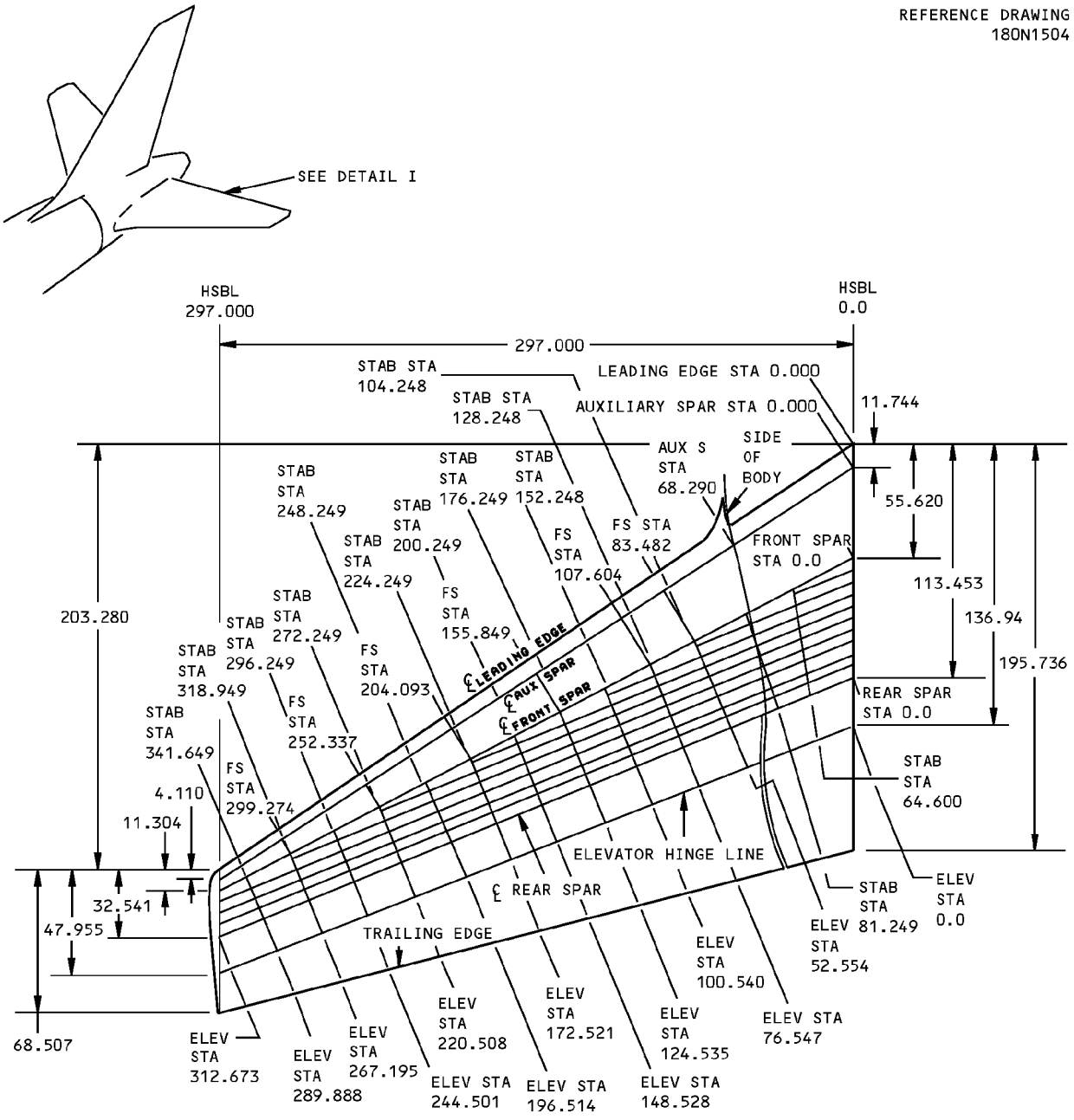
CHAPTER 55
STABILIZERS

GENERAL - HORIZONTAL STABILIZERS

REFERENCE DRAWING
180N1504



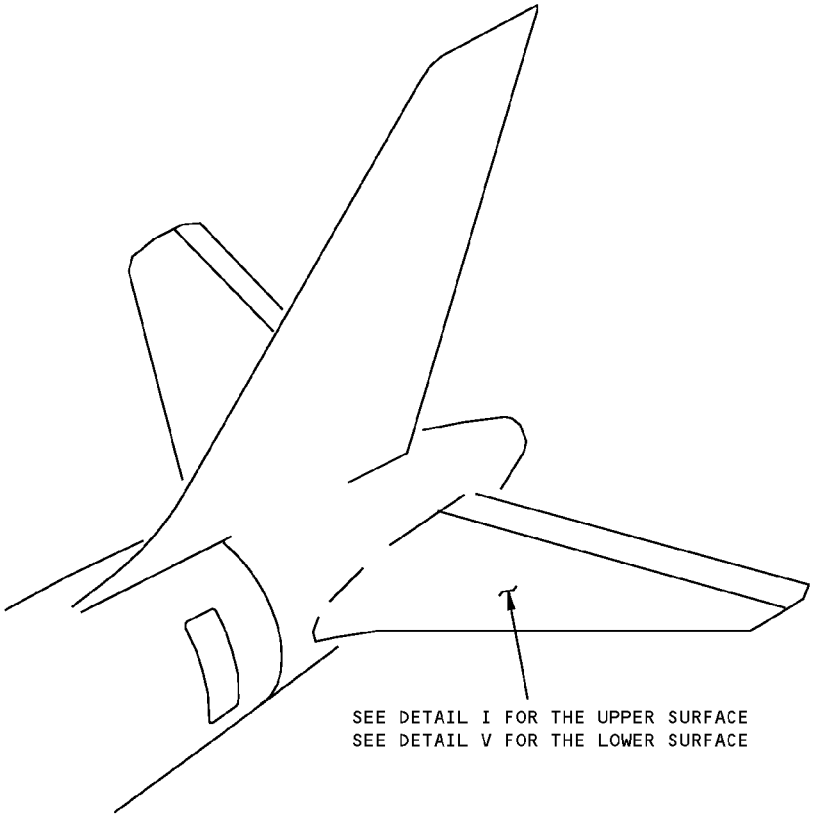
DETAIL I

NOTES

- ALL DIMENSIONS ARE MEASURED ALONG OR PARALLEL TO HORIZONTAL STABILIZER REFERENCE PLANE
- RIBS BETWEEN REAR SPAR AND ELEVATOR HINGE LINE ARE PERPENDICULAR TO HINGE LINE EXCEPT THE INBOARD CLOSURE RIB. RIBS BETWEEN FRONT AND REAR SPAR ARE PERPENDICULAR TO REAR SPAR, EXCEPT RIBS 1, 2, 3 AND 15.

Horizontal Stabilizer Station Diagram
Figure 1

IDENTIFICATION 1 - HORIZONTAL STABILIZER SKIN



NOTES

[A] PLY ORIENTATION CONVENTION, DEGREES INDICATED, IS PARALLEL TO THE FABRIC WARP DIRECTION

[B] ARAMID/EPOXY FABRIC PER BMS8-219, STYLE 285, 250°F (121°C) CURE

[C] GRAPHITE/EPOXY TAPE PER BMS8-168, CLASS 1, TYPE II, GRADE 145, 250°F (121°C) CURE

[D] BMS8-79, CLASS III, GRADE I, TYPE 1581, 250°F (121°C) CURE

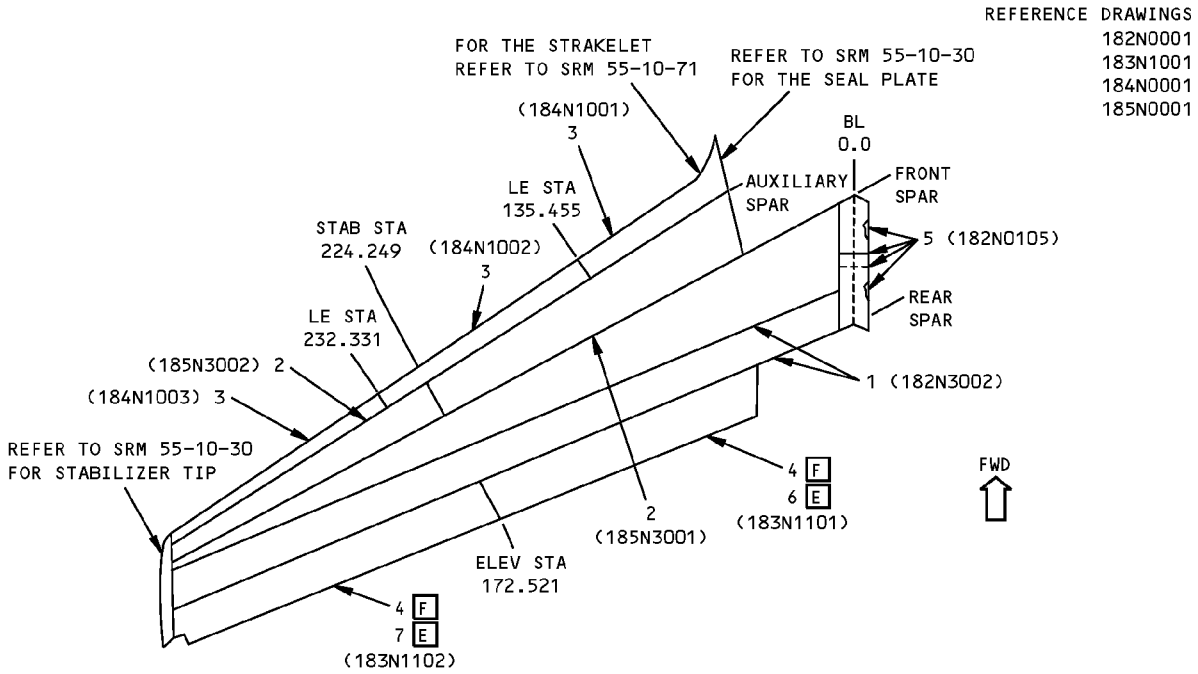
[E] FOR CUM LINE NUMBERS: 138, 141, 143 THRU 148, 150 AND ON

[F] FOR ALL AIRPLANES NOT IN [E]

[G] MATERIAL AND PLY ORIENTATION SHOWN FOR FIELD AREAS ONLY. SEE BOEING DRAWINGS FOR EDGE BANDS AND AREAS WITH DOUBLERS

[H] DIAGRAM OF PLY ORIENTATION. SEE TABLE FOR INDIVIDUAL PLY ORIENTATION AND MATERIAL

Horizontal Stabilizer Skin Identification
Figure 1 (Sheet 1 of 6)

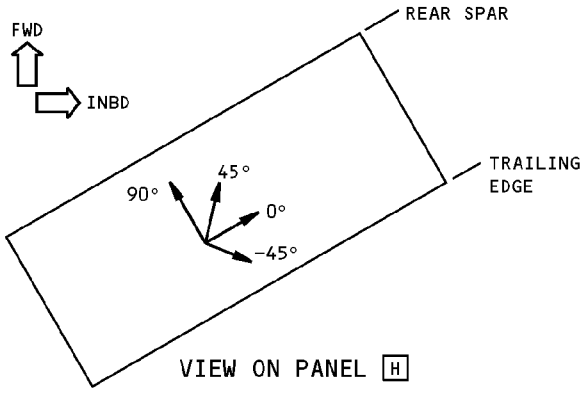


UPPER SURFACE
DETAIL I

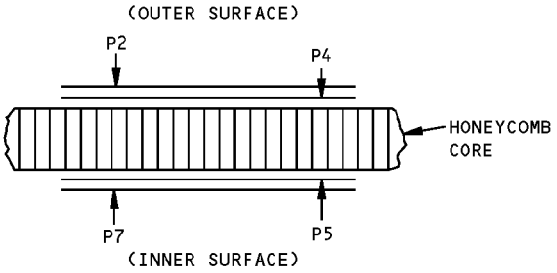
ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	SKIN-MACHINED	0.313	2024-T351	
2	PANEL		ALUMINUM HONEYCOMB SANDWICH	
	INNER SKIN	0.012	7075-T6	
	CORE		ALUMINUM HONEYCOMB PER BMS4-4, 3-10N	
	CORE EDGE		ALUMINUM HONEYCOMB PER BMS4-4, 4-25N	
	OUTER SKIN	0.100	CLAD 7075-T6, CHEM-MILLED	
3	LE PANEL		ALUMINUM HONEYCOMB SANDWICH	
	OUTER SKIN	0.100	CLAD 2024-T3 CHEM-MILLED	
	INNER SKIN	0.016	2024-T3	
	CORE		ALUMINUM HONEYCOMB 5052 FLEX CORE PER BMS4-6, CLASS II, TYPE 6.0-37 FORM B	
4	TE PANEL		ARAMID/GRAPHITE EPOXY HONEYCOMB SANDWICH	
	SKIN		SEE DETAIL II	
	CORE		NON-METALLIC HONEYCOMB PER BMS8-124, CLASS IV, TYPE V, GRADE 3.0	
5	CENTER SPICE PLATE	1.000	2024-T351	
6	TE PANEL		FIBERGLASS/GRAPHITE/EPOXY HONEYCOMB SANDWICH	
	SKIN		SEE DETAIL III	
	CORE		NON-METALLIC HONEYCOMB PER BMS8-124, CLASS IV, TYPE V, GRADE 3.0	
7	TE PANEL		FIBERGLASS/EPOXY HONEYCOMB SANDWICH	
	SKIN		SEE DETAIL IV	
	CORE		NON-METALLIC HONEYCOMB PER BMS8-124, CLASS IV, TYPE V, GRADE 3.0	

LIST OF MATERIALS FOR DETAIL I

Horizontal Stabilizer Skin Identification
Figure 1 (Sheet 2 of 6)



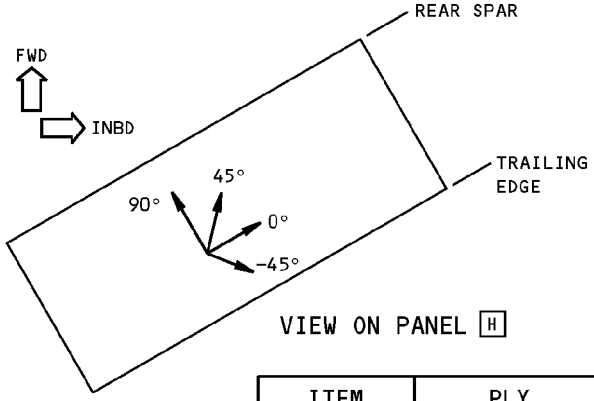
VIEW ON PANEL [H]



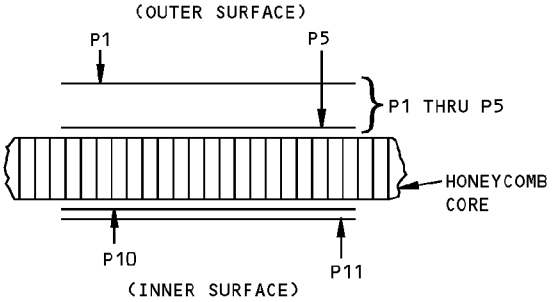
SECTION THRU PANEL

ITEM NO.	PLY NO.	MATERIAL	PLY [A] ORIENTATION
4	P2	[B]	±45°
	P4	[C]	90°
	P5	[C]	90°
	P7	[B]	±45°

PLY TABLE [G]
DETAIL II



VIEW ON PANEL [H]

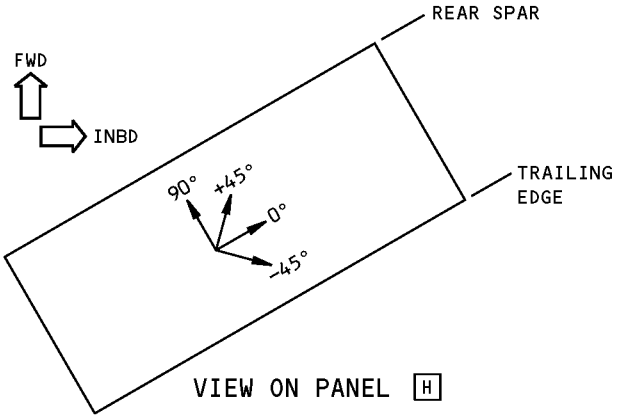


SECTION THRU PANEL

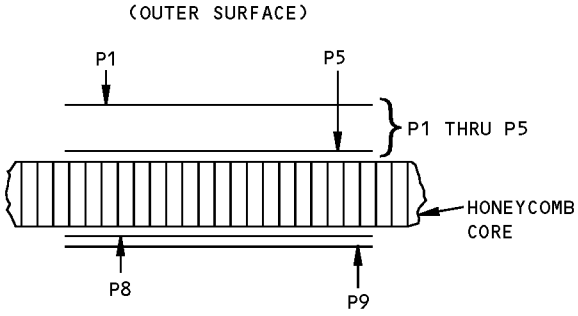
ITEM NO.	PLY NO.	MATERIAL	PLY [A] ORIENTATION
6	P1,P3,P5,P11	[D]	0° OR 90°
	P4,P10	[C]	90°
	P2	[D]	45°

PLY TABLE [G]
DETAIL III

Horizontal Stabilizer Skin Identification
Figure 1 (Sheet 3 of 6)



VIEW ON PANEL [H]



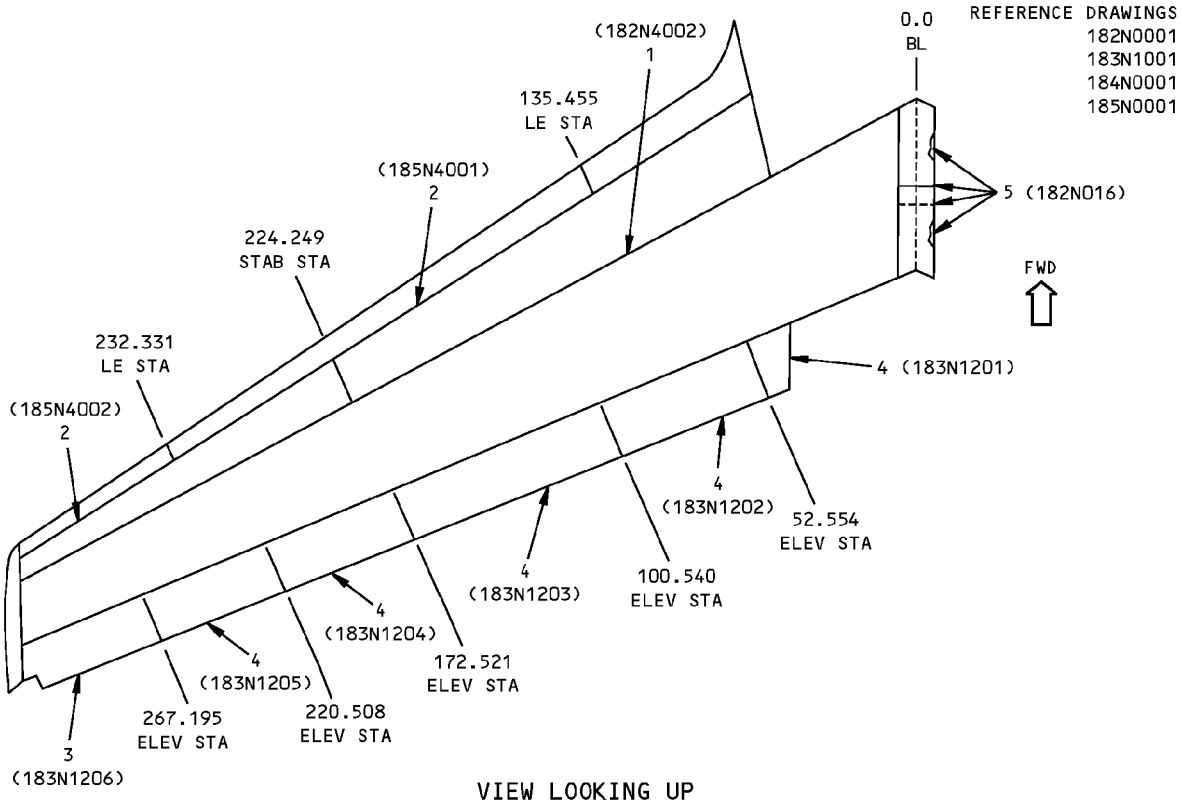
SECTION THRU PANEL

ITEM NO.	PLY NO.	MATERIAL	PLY [A] ORIENTATION
7	P1,P3,P4,P5, P8,P9	[D]	0° OR 90°
	P2	[D]	±45°

PLY TABLE [G]

DETAIL IV

Horizontal Stabilizer Skin Identification
Figure 1 (Sheet 4 of 6)

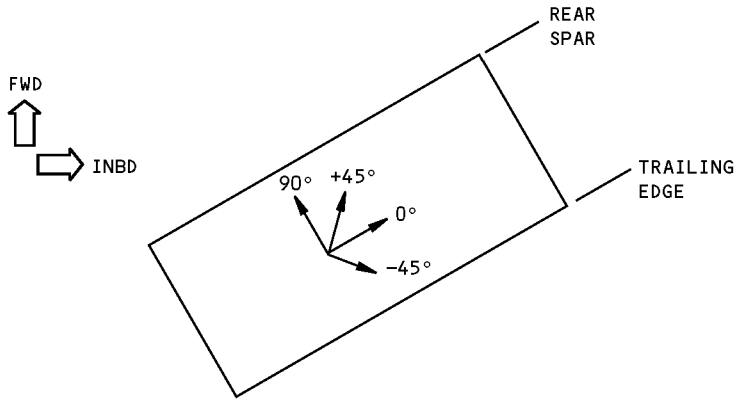


VIEW LOOKING UP
LOWER SURFACE
DETAIL V

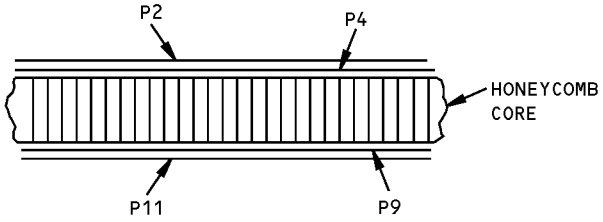
ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	SKIN-MACHINED	0.375	7075-T651	
2	PANEL		ALUMINUM HONEYCOMB SANDWICH	
	INNER SKIN	0.012	7075-T6	
	CORE		ALUMINUM HONEYCOMB PER BMS4-4, 3-10N	
	CORE EDGE		ALUMINUM HONEYCOMB PER BMS4-4, 4-25N	
	OUTER SKIN	0.100	CLAD 7075-T6, CHEM-MILLED	
3	TE PANEL		ARAMID/GRAPHITE EPOXY HYBRID HONEYCOMB SANDWICH	
	SKIN		SEE DETAIL VI	
	CORE		NON-METALLIC HONEYCOMB PER BMS8-125, CLASS IV, TYPE V, GRADE 3.0	
4	TE PANEL		ARAMID/GRAPHITE EPOXY HYBRID HONEYCOMB SANDWICH	
	SKIN		SEE DETAIL VI	
	CORE		NON-METALLIC HONEYCOMB PER BMS8-124, CLASS IV, TYPE V, GRADE 3.0	
5	CENTER SPLICE PLATE	1.500	7075-T651	

LIST OF MATERIALS FOR DETAIL V

Horizontal Stabilizer Skin Identification
Figure 1 (Sheet 5 of 6)



VIEW ON PANEL [H]



SECTION THRU HONEYCOMB PANEL

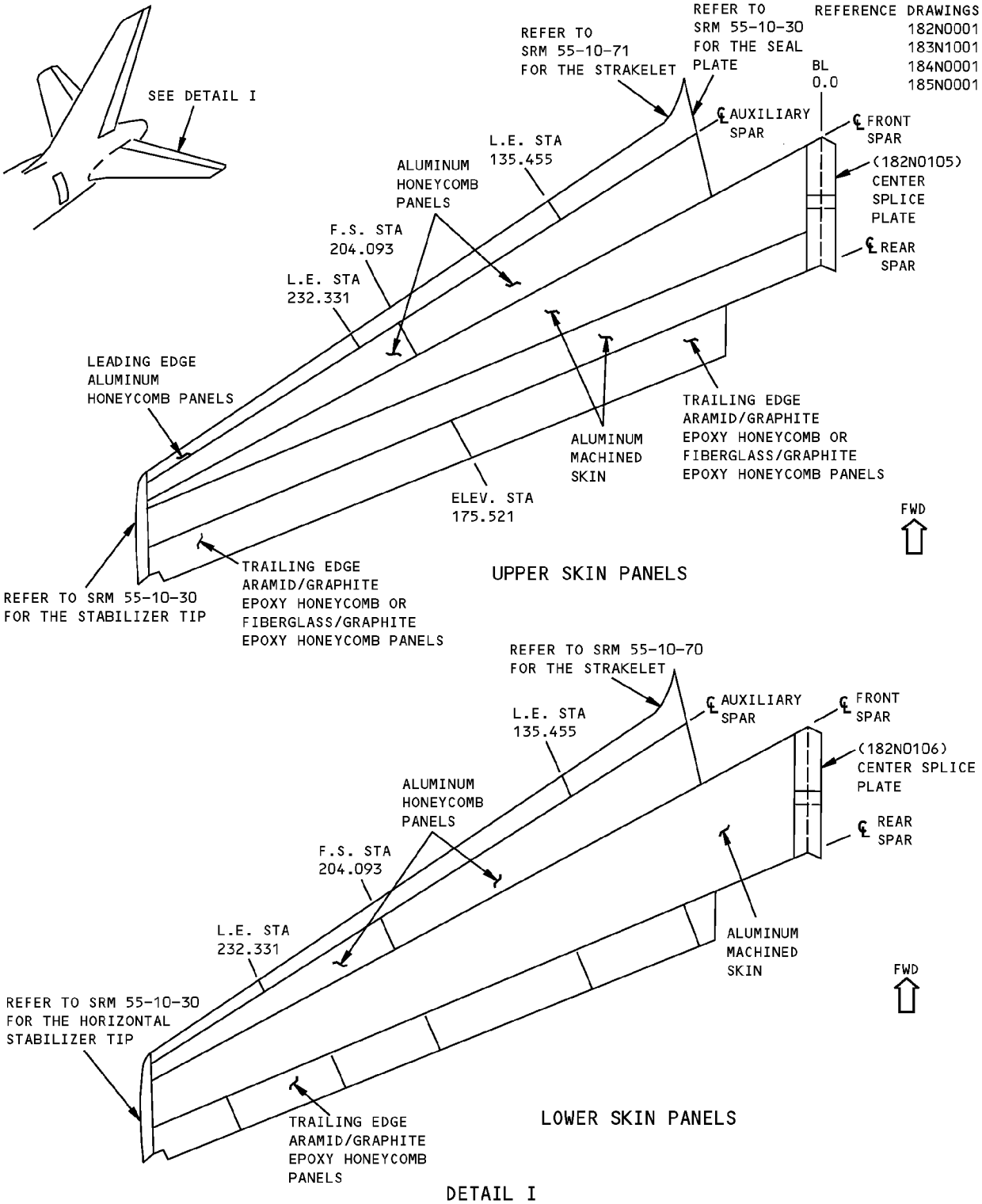
ITEM NO.	PLY NO.	MATERIAL	PLY [A] ORIENTATION
2,4	P2	[B]	+45° OR -45°
	P4	[C]	90°
	P9	[C]	90°
	P11	[B]	+45° OR -45°

PLY TABLE [G]

DETAIL VI

Horizontal Stabilizer Skin Identification
Figure 1 (Sheet 6 of 6)

ALLOWABLE DAMAGE 1 - HORIZONTAL STABILIZER SKIN



Allowable Damage - Horizontal Stabilizer Skin
Figure 101 (Sheet 1 of 5)

DESCRIPTION	CRACKS	NICKS, GOUGES AND CORROSION	DENTS	HOLES AND PUNCTURES	PANEL DELAMINATION	EDGE EROSION
LEADING EDGE SKIN	G	H	I	J	A	____
OUTER SKIN BETWEEN AUXILIARY SPAR AND FRONT SPAR	G	H	I	J	A	____
SKIN BETWEEN FRONT AND REAR SPARS K	G	H	I	F	____	____
TRAILING EDGE SKINS (ARAMID/GRAPHITE)	A	B	C	A	A	SEE DETAIL VII
CENTER SPLICE PLATE K	G	H	NOT PERMITTED	NOT PERMITTED	____	____
TRAILING EDGE SKINS (FIBERGLASS/GRAPHITE)	A	B	C	A	A	SEE DETAIL VII

TABLE I

NOTES

- D = MAXIMUM DAMAGE DIMENSION
- REFINISH REWORKED AREAS AS GIVEN IN AMM 51-20.
- REFER TO SRM 51-10-01 FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS. WHERE THE DAMAGE EXCEEDS THE LIMITS AS SHOWN IN SRM 51-10-01, CONSIDERATION SHOULD BE GIVEN TO THE LOSS OF PERFORMANCE INVOLVED.

A DAMAGE TO SKIN PANEL EDGES MAY BE A COMBINATION OF EDGE DELAMINATION AND/OR CRACKS, GOUGES, ETC. WHICH CAN RESULT IN FIBER DAMAGE AND A LOSS OF CROSS-SECTIONAL AREA. REMOVE EDGE DAMAGE AS SHOWN IN DETAILS II AND III. NO MORE THAN ONE FASTENER HOLE IN SIX MAY BE CRACKED OR DAMAGED. DAMAGE MUST NOT EXCEED 10% OF THE EDGEBAND LENGTH FOR EACH SIDE. 2.0 INCH MAXIMUM DIAMETER DAMAGE IS PERMITTED FOR SINGLE DAMAGE SITE IN HONEYCOMB AREA. MULTIPLE DAMAGE SITES MUST NOT BE CLOSER THAN A MINIMUM OF a/D = 3.0. SEE DETAIL VI FOR DAMAGE CRITERIA. DAMAGE IS PERMITTED TO ONE SURFACE AND HONEYCOMB CORE ONLY. PROTECT DAMAGE NOT REWORKED AS GIVEN IN E.

B DAMAGE IS PERMITTED ON SURFACE RESIN ONLY WITH NO FIBER DAMAGE. CLEAN UP EDGE DAMAGE AS GIVEN IN DETAILS II AND III. REFER TO A FOR FIBER DAMAGE IN OTHER AREAS.

C DENTS RESULT IN DELAMINATION AND FIBER DAMAGE AND MUST BE TREATED AS A HOLE OR PUNCTURE DAMAGE.

D THESE PERMITTED DAMAGE LIMITS HAVE FAA APPROVAL CONTINGENT ON ACCOMPLISHMENT OF THE INSPECTIONS CONTAINED HEREIN.

E REMOVE MOISTURE FROM DAMAGE AREA. USE OF VACUUM AND HEAT (MAX OF 125°F [52°C]) TO REMOVE MOISTURE FROM HONEYCOMB CELLS IS RECOMMENDED. PROTECT DAMAGE FROM ENTRANCE OF WATER, SUNLIGHT OR OTHER FOREIGN MATTER BY SEALING WITH ALUMINUM FOIL TAPE (SPEED TAPE). RECORD THE LOCATION AND INSPECT EVERY AIRPLANE "A" CHECK. REPLACE THE ALUMINUM FOIL TAPE IF ANY PEELING OR DETERIORATION IS EVIDENT. REPAIR NO LATER THAN THE NEXT AIRPLANE "C" CHECK. D

F CLEAN PUNCTURE OUT UP TO 0.25 MAX DIA HOLE AND NOT CLOSER THAN 1.0 INCH TO FASTENER HOLE, EDGE OF PART, OR OTHER DAMAGE. ONE HOLE FOR EACH 15.0 SQUARE INCHES OF PANEL IS PERMITTED. FILL HOLE WITH A 2117-T3 OR T4 ALUMINUM RIVET INSTALLED WET WITH BMS 5-95 SEALANT. ALL OTHER HOLES TO BE REPAIRED.

G CRACKS NOT PERMITTED EXCEPT FOR EDGE CRACKS WHICH MUST BE REMOVED AS SHOWN IN DETAILS II AND VIII.

H REMOVE DAMAGE AS SHOWN IN DETAILS II,III, AND V. A MAXIMUM OF ONE DAMAGE CLEANUP AS SHOWN IN DETAIL III IS PERMITTED IN EACH 15.0 SQUARE INCHES OF PANEL.

K33549 S0006805213_V2

Allowable Damage - Horizontal Stabilizer Skin
Figure 101 (Sheet 2 of 5)

NOTES (CONTINUED)

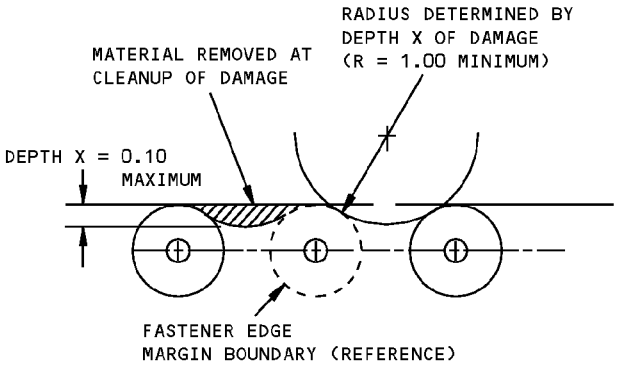
[I] NO DENT CAN HAVE AN AREA OF MORE THAN 1.50 SQUARE INCHES. IF THERE IS MORE THAN ONE DENT IN ONE SQUARE FOOT OF AREA, THE TOTAL DENTED AREA CANNOT BE MORE THAN 1.50 SQUARE INCHES. EACH DENT MUST BE A MINIMUM OF 4D FROM ALL OTHER DENTS AND DAMAGE CLEAN UP. YOU MUST REPAIR ALL DENTS THAT ARE LARGER THAN THE LIMITS SHOWN IN DETAIL IV. REFER TO SRM 51-50-10 FOR ALUMINUM HONEYCOMB SKIN PANELS.

[J] 0.25 MAXIMUM DIAMETER PERMITTED PROVIDED DAMAGE IS A MINIMUM OF 1.0 INCH FROM OTHER DAMAGE, NEAREST HOLE, OR MATERIAL EDGE. ONE HOLE FOR EACH 15.0 SQUARE INCHES OF PANEL IS PERMITTED. [E]

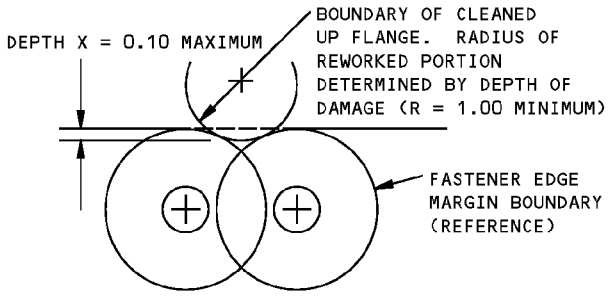
[K] SHOT PEEN ALL REWORKED AREAS AS GIVEN IN SRM 51-20-06.

1541343 S0000281381_V2

Allowable Damage - Horizontal Stabilizer Skin
Figure 101 (Sheet 3 of 5)

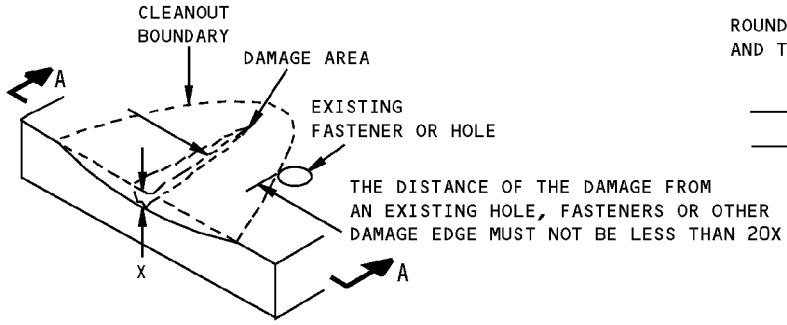


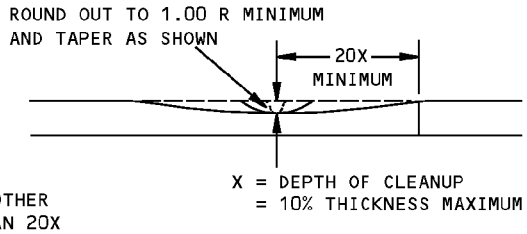
DAMAGE CLEANUP OF EDGES WHERE
FASTENER EDGE MARGINS DO NOT OVERLAP



DAMAGE CLEANUP OF EDGES WHERE
FASTENER EDGE MARGINS OVERLAP

DETAIL II

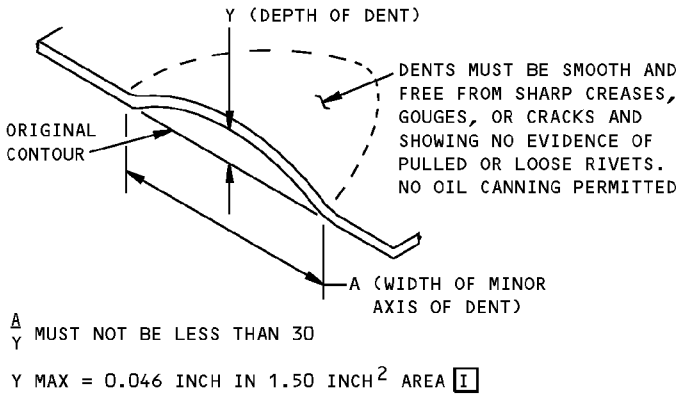




SECTION A–A

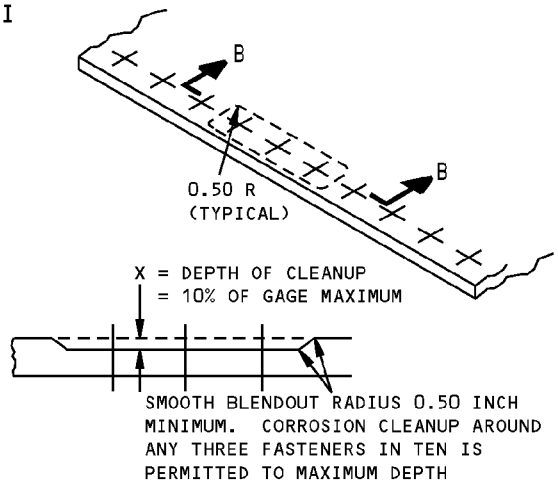
REMOVAL OF NICK, GOUGE AND SCRATCH DAMAGE ON A SURFACE

DETAIL III



ALLOWABLE DAMAGE FOR DENT

DETAIL IV

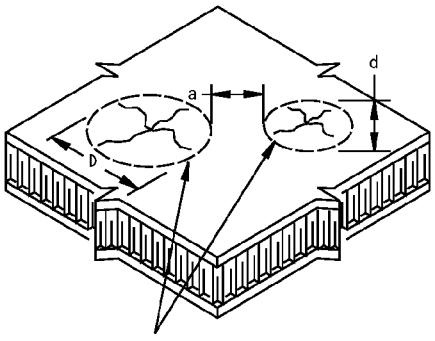


SECTION B–B

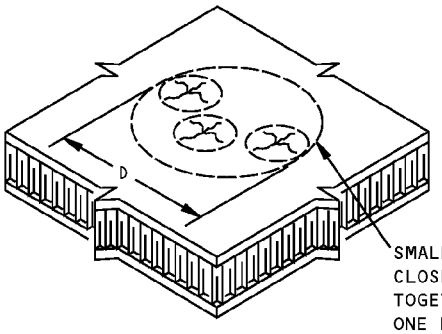
CORROSION CLEANUP

DETAIL V

Allowable Damage - Horizontal Stabilizer Skin
Figure 101 (Sheet 4 of 5)



ADJACENT DAMAGE SITES ON SURFACE OF COMPOSITE PANEL



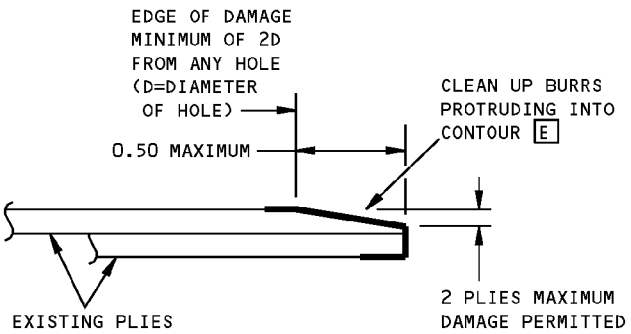
SMALL DAMAGE SITES THAT ARE CLOSELY SPACED MAY BE GROUPED TOGETHER AND CONSIDERED AS ONE DAMAGE SITE

NOTES

- DAMAGE TO COMPOSITE PANELS EXPOSED TO MULTIPLE IMPACTS, I.E., HAIL DAMAGE, CAN BE DETECTED BY USING INSTRUMENTED NON-DESTRUCTIVE INSPECTION METHODS OR BY TAPPING THE SUSPECTED DAMAGE AREA WITH A SMALL METALLIC DISK OBJECT. INSPECTION SHOULD COVER THE AREA WITHIN 3 DIAMETERS AROUND THE EDGE OF THE VISIBLE DAMAGE SITE. FOR TAP TEST, USE A SOLID METAL DISK AND TAP THE DAMAGE AREA LIGHTLY BUT FIRMLY. VOID AREAS SHOULD PRODUCE A DULL SOUND AS OPPOSED TO A SHARP RING ON A SOLID BONDED AREA
- DAMAGE SITE IS ANY SINGLE AREA OF A PANEL WHERE A DENT, CRACK, DELAMINATION, PUNCTURE OR ANY COMBINATION OF THESE EXIST. SMALL DAMAGE SITES THAT ARE CLOSELY SPACED MAY BE GROUPED TOGETHER AND CONSIDERED AS ONE DAMAGE SITE
- "D" IS DETERMINED BY MEASURING THE MAXIMUM DIMENSION OF A DENT, CRACK, OR OTHER DAMAGE, WHICHEVER IS GREATER
- "a" IS THE DISTANCE BETWEEN TWO ADJACENT DAMAGE SITES
- "d" IS THE MAXIMUM DIMENSION OF THE SMALLER OF TWO ADJACENT DAMAGE SITES
- CALCULATE a/D BY DIVIDING DISTANCE "a" BY DIAMETER "D"
- DAMAGE IS PERMITTED WHEN "D" IS EQUAL TO OR LESS THAN THE MAXIMUM ALLOWABLE "D" FROM TABLE I AND WHEN a/D IS EQUAL TO OR GREATER THAN THE MINIMUM a/D GIVEN IN TABLE I

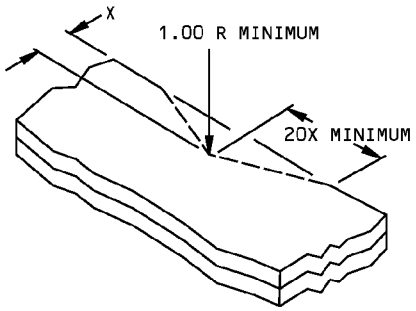
DAMAGE SIZING AND SPACING DATA
FOR COMPOSITE PANELS

DETAIL VI



DAMAGE CLEANUP AND SEALING
OF EDGE EROSION

DETAIL VII



X = DEPTH OF CLEANUP = 0.10 MAXIMUM

REMOVAL OF NICK OR CRACK
DAMAGE ON AN EDGE

DETAIL VIII

Allowable Damage - Horizontal Stabilizer Skin
Figure 101 (Sheet 5 of 5)

REPAIR GENERAL - HORIZONTAL STABILIZER SKIN - SERVICE BULLETIN LIST

SERVICE BULLETIN REPAIRS

The following Service Bulletins contain repairs which are available for use where specific damage has been encountered. Usually, the Service Bulletin also covers preventive modification data which operators are encouraged to use to eliminate the need for repair.

DAMAGED AREA	CUM LINE NUMBER EFFECTIVITY	SB NUMBER
OUTER SURFACE, UPPER TRAILING EDGE PANELS	1 THRU 36, 38 THRU 52	51-0003

Horizontal Stabilizer Skin
Figure 201

REPAIR 1 - HORIZONTAL STABILIZER INTERSPAR LOWER SKIN FLUSH REPAIR BETWEEN STRINGERS

REPAIR INSTRUCTIONS

1. Cut out damaged portion of skin to give a hole with the major axis parallel to the stringers.

   NOTE: Access to the inside of the stabilizer, outboard of rib No. 7, may be obtained through the access holes in the front and rear spars.

2. Make the repair parts.
3. Assemble the repair parts and drill the fastener holes.
4. Remove the repair parts.
5. Break sharp edges of original and repair parts 0.015R to 0.030R.
6. Remove all nicks, scratches, burrs, sharp edges and corners from original and repair parts.
7. Alodize repair part 1 and the cut edges of repair part 2 and original parts as given in SRM 51-20-01.
8. Apply one coat of BMS 10-11, type 1 primer to repair parts and the cut edges of the original parts in accordance with AMM 51-24.
9. Install the repair parts making a faying surface seal with BMS 5-95. Install fasteners wet with BMS 5-95.
10. Fill gap between parts with aerodynamic smoother (BMS 5-79 or BMS 5-95).
11. Restore original finish as given in AMM 51-21.

NOTES

- D = FASTENER DIAMETER
- WHEN USING THIS REPAIR REFER TO:
  - AMM 51-21 FOR INTERIOR AND EXTERIOR FINISHES
  - AMM 51-31 FOR SEALS AND SEALING
  - AMM 51-40 FOR FASTENER CODE, REMOVAL, INSTALLATION, HOLE SIZES AND EDGE MARGINS, EXCEPT AS NOTED
  - SRM 51-10-01 FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS
  - SRM 51-20-01 FOR PROTECTIVE TREATMENT OF METAL
  - SRM 51-20-05 FOR SEALING OF REPAIRS

[A] ONE GAGE HEAVIER THAN SKIN

[B] SAME THICKNESS AS SKIN

[C] SEE TABLE I FOR FASTENER TYPE AND SIZE

SYMBOLS

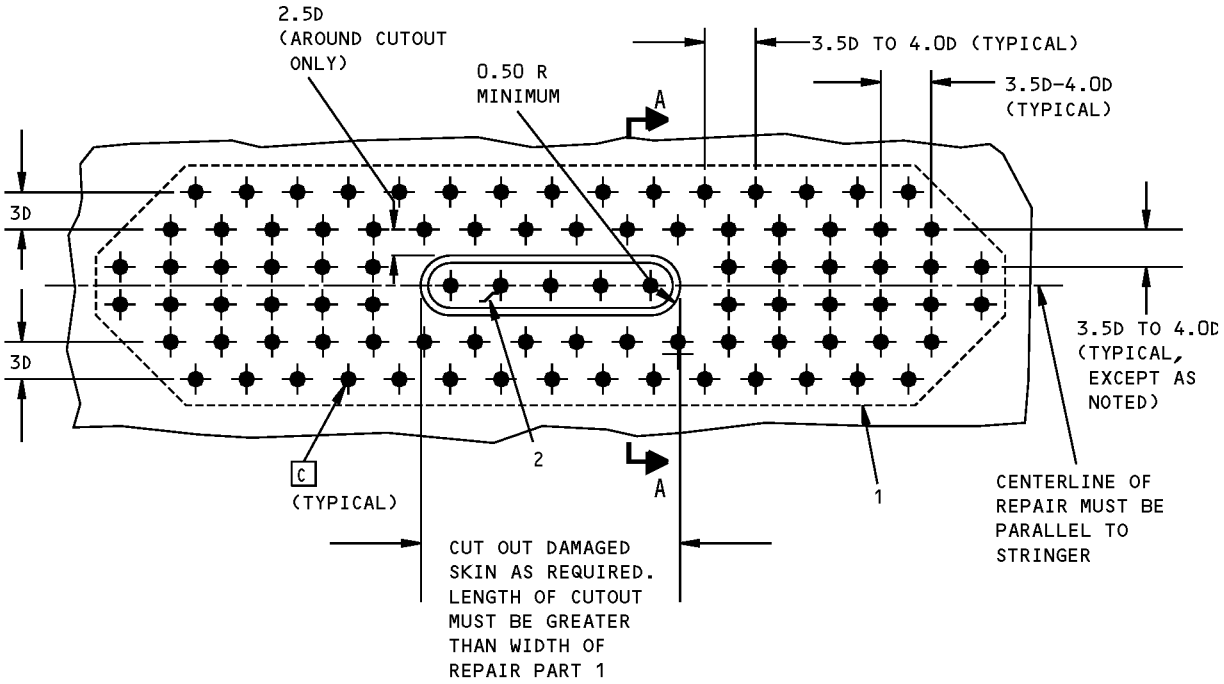
REPAIR FASTENER LOCATION

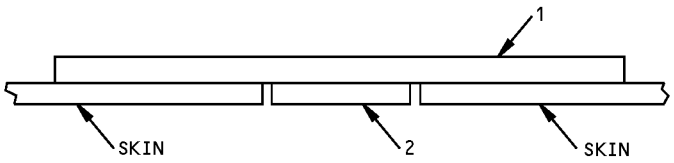
REPAIR MATERIAL			
PART		QTY	MATERIAL
1	PLATE	1	7075-T6 [A]
2	FILLER	1	7075-T6 [B]

SKIN THICKNESS	REPAIR FASTENER
0.050 THRU 0.063	BACB30NW5K
OVER 0.063 THRU 0.090	BACB30NW5K BACB30NW6K
OVER 0.090 THRU 0.140	BACB30NW6K

TABLE I

Horizontal Stabilizer Interspar Lower Skin Flush Repair Between Stringers
Figure 201 (Sheet 1 of 2)





SECTION A-A
ROTATED 90° CW

Horizontal Stabilizer Interspar Lower Skin Flush Repair Between Stringers
Figure 201 (Sheet 2 of 2)

REPAIR 2 - HORIZONTAL STABILIZER INTERSPAR LOWER SKIN FLUSH REPAIR AT A STRINGER

REPAIR INSTRUCTIONS

1. Cut out damaged portion of skin to give a rectangular hole with radiused corners. Do not cut into stringer. If stringer is damaged, see 55-10-03.

   NOTE: Access to the inside of the stabilizer may be obtained through the access holes in the front and rear spars.

2. Drill out existing fasteners in the skin to stringer attachment as required.

3. Make the repair parts.

4. Assemble the repair parts and drill the fastener holes.

5. Remove the repair parts.

6. Break sharp edges of original and repair parts 0.015R to 0.030R.

7. Remove all nicks, scratches, burrs, sharp edges and corners from original and repair parts.

8. Alodize repair parts and the cut edges of the original parts per 51-20-01.

9. Apply one coat of BMS 10-11, type 1 primer to repair parts and the cut edges of the original parts in accordance with 51-24 of the 757 Maintenance Manual.

10. Install the repair parts making a faying surface seal with BMS 5-95. Install fasteners wet with BMS 5-95.

11. Fill gap between parts with aerodynamic smoother (BMS 5-79 or BMS 5-95).

12. Restore original finish per 51-21 of the 757 Maintenance Manual.

NOTES

- DO NOT USE THIS REPAIR WITHIN 12.0 INCHES OF THE CENTERLINE OF RIB NO. 1 AND RIB NO. 3. CONTACT THE BOEING COMPANY FOR REPAIRS IN THESE AREAS
- IF SPACE LIMITATIONS EXIST WHICH PREVENT INSTALLATION OF THIS REPAIR, CONTACT THE BOEING COMPANY
- D = FASTENER DIAMETER
- REFER TO THE FOLLOWING WHEN USING THIS REPAIR:

  51-10-01 FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS

  51-20-01 FOR PROTECTIVE TREATMENT OF METAL

  51-20-05 FOR SEALING OF REPAIRS

  51-40 FOR FASTENER CODE, REMOVAL, INSTALLATION, HOLE SIZES AND EDGE MARGINS, EXCEPT AS NOTED

  51-21 OF THE 757 MAINTENANCE MANUAL FOR INTERIOR AND EXTERIOR FINISHES

  51-31 OF THE 757 MAINTENANCE MANUAL FOR SEALS AND SEALING

[A] ONE GAGE HEAVIER THAN SKIN

[B] SAME THICKNESS AS SKIN

[C] SEE TABLE I FOR FASTENER TYPE AND SIZE

[D] USE REPAIR PART 3 (STRAP) ONLY FOR REPAIRS INBOARD OF RIB NO. 9

[E] USE SAME SIZE AS ORIGINAL. IF STRINGER HOLE IS DAMAGED, USE 1/32 OVERSIZE

[F] SEE TABLE II FOR OPTIONAL FASTENER. WHEN INSTALLING THESE FASTENERS, THE ORIGINAL COUNTERSINK MUST BE CLEANED OUT TO 100° WITH A MICROSTOP COUNTERSINK PER 51-40-08. IF ORIGINAL FASTENER HOLE IS DAMAGED, USE OPTIONAL FASTENER OR NEXT SIZE BACR15FV RIVET. WHEN USING NEXT SIZE BACR15FV RIVET, ORIGINAL DEPTH OF COUNTERSINK MUST BE MAINTAINED. MICROSHAVE FLUSH PROTRUDING PORTION OF RIVET HEAD PER 51-10-01. DO NOT MICROSHAVE HI-LOKS

FASTENER SYMBOLS

ORIGINAL FASTENER LOCATION

REPAIR FASTENER LOCATION

ORIGINAL FASTENER LOCATION WITH A REPAIR FASTENER INSTALLED (SEE TABLE I)

Horizontal Stabilizer Interspar Lower Skin Flush Repair at a Stringer
Figure 201 (Sheet 1 of 3)

REPAIR MATERIAL			
PART		QTY	MATERIAL
1	PLATE	2	7075-T6 [A]
2	FILLER	1	7075-T6 [B]
3	STRAP [D]	1	7075-T6 [B]

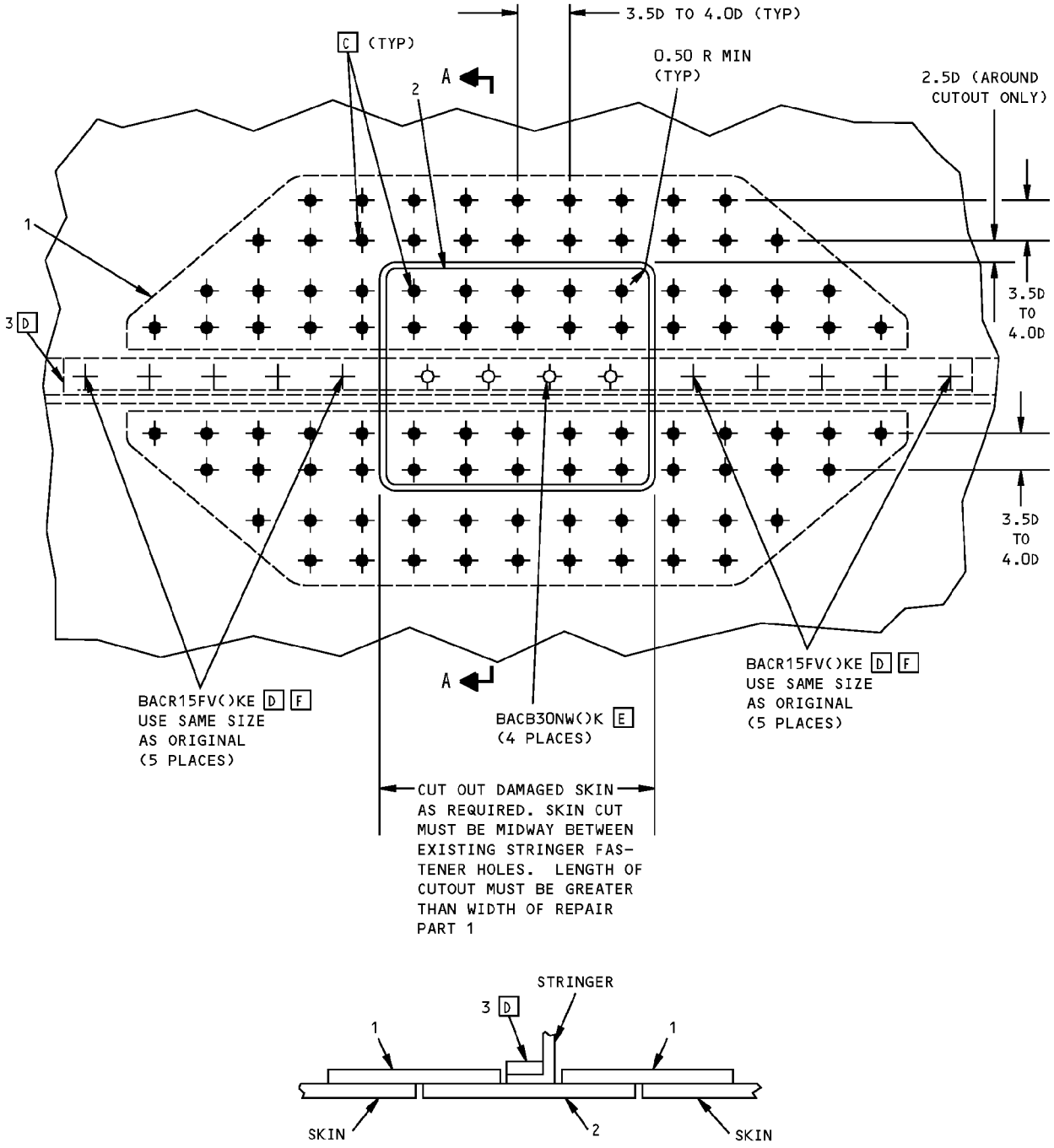
SKIN THICKNESS	REPAIR FASTENER
0.050 THRU 0.063	BACB30NW5K
OVER 0.063 THRU 0.090	BACB30NW5K BACB30NW6K
OVER 0.090 THRU 0.140	BACB30NW8K

TABLE I

ORIGINAL FASTENER	SKIN THICKNESS	OPTIONAL FASTENER
BACR15FV5KE	0.050 THRU 0.057	NONE
	OVER 0.057 THRU 0.076	BACB30NW6K
BACR15FV6KE	OVER 0.076 THRU 0.100	BACB30NW6K()Y BACB30NW8K
BACR15FV8KE	OVER 0.100 THRU 0.140	BACB30NW10K

TABLE II [D]

Horizontal Stabilizer Interspar Lower Skin Flush Repair at a Stringer
Figure 201 (Sheet 2 of 3)



Horizontal Stabilizer Interspar Lower Skin Flush Repair at a Stringer
Figure 201 (Sheet 3 of 3)

REPAIR 3 - HORIZONTAL STABILIZER INTERSPAR UPPER SKIN FLUSH REPAIR BETWEEN STRINGERS

REPAIR INSTRUCTIONS

1. Cut out damaged portion of skin to give a hole with the major axis parallel to the stringers.

   NOTE: Access to the inside of the stabilizer may be obtained through the access holes in the rear spar.

2. Make the repair parts.

3. Assemble the repair parts and drill the fastener holes.

4. Remove the repair parts.

5. Break sharp edges of original and repair parts 0.015R to 0.030R.

6. Remove all nicks, scratches, burrs, sharp edges and corners from original and repair parts.

7. Prepare and bond repair parts 1 and 2 in accordance with 51-70.

8. Alodize the cut edges of repair part 3 and the original parts per 51-20-01.

9. Apply one coat of BMS 10-11, type 1 primer to repair part 5, the bonded assembly (repair parts 1 and 2), and the cut edges of the original parts in accordance with 51-24 of the 757 Maintenance Manual.

10. Install the repair parts making a faying surface seal with BMS 5-95. Install the fasteners wet with BMS 5-95.

11. Fill gap between parts with aerodynamic smoother (BMS 5-79 or BMS 5-95).

12. Restore original finish per 51-21 of the 757 Maintenance Manual.

NOTES

- D = FASTENER DIAMETER
- REFER TO THE FOLLOWING WHEN USING THIS REPAIR:

  51-10-01 FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS

  51-20-01 FOR PROTECTIVE TREATMENT OF METAL

  51-20-05 FOR SEALING OF REPAIRS

  51-40 FOR FASTENER CODE, REMOVAL, INSTALLATION, HOLE SIZES AND EDGE MARGINS, EXCEPT AS NOTED

  51-21 OF THE 757 MAINTENANCE MANUAL FOR INTERIOR AND EXTERIOR FINISHES

  51-31 OF THE 757 MAINTENANCE MANUAL FOR SEALS AND SEALING

[A] FOR MATERIAL GAGES SEE TABLE I

[B] SAME THICKNESS AS SKIN

[C] SEE TABLE I FOR FASTENER TYPE AND SIZE

SYMBOLS

REPAIR FASTENER LOCATION

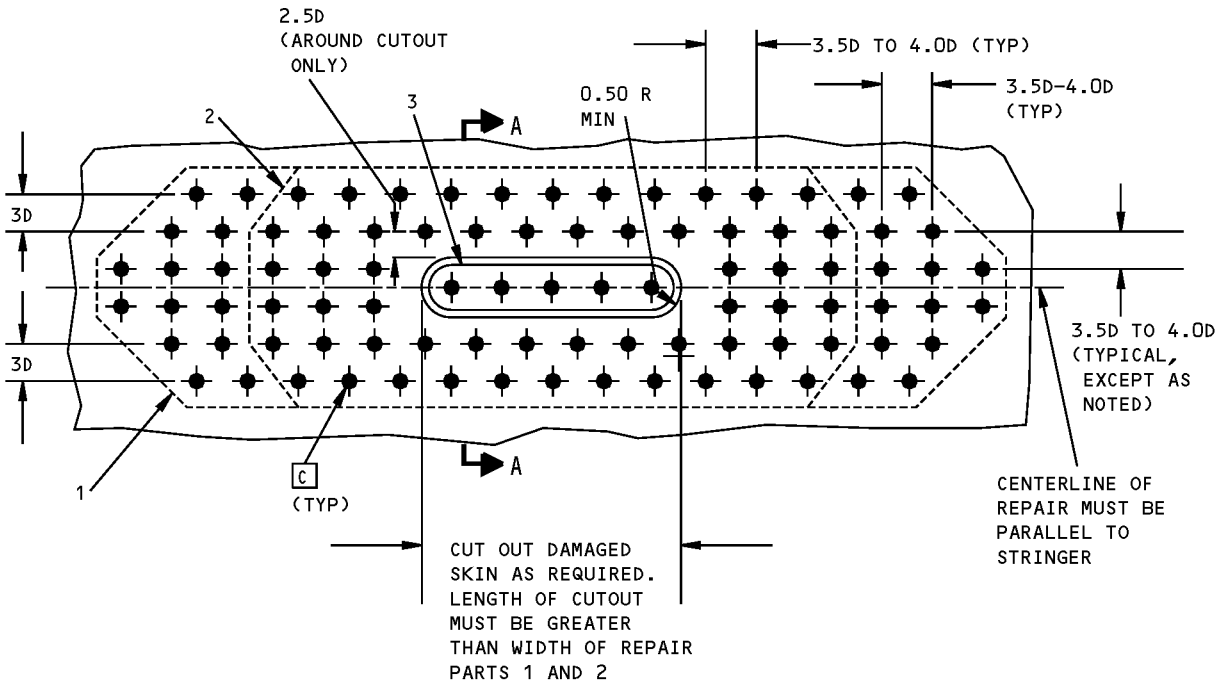
Horizontal Stabilizer Interspar Upper Skin Flush Repair Between Stringers
Figure 201 (Sheet 1 of 3)

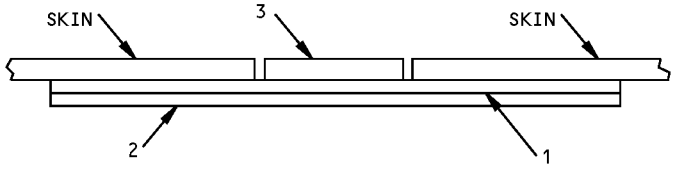
REPAIR MATERIAL			
PART		QTY	MATERIAL
1	PLATE	1	2024-T3 [A]
2	PLATE	1	2024-T3 [A]
3	FILLER	1	CLAD 2024-T3 [B]

SKIN THICKNESS	REPAIR PLATE GAGE		REPAIR FASTENER
	PLATE 1	PLATE 2	
0.050 THRU 0.063	0.040	0.040	BACB30NW5K
OVER 0.063 THRU 0.071	0.050	0.040	BACB30NW5K BACB30NW6K
OVER 0.071 THRU 0.090	0.050	0.072	BACB30NW5K BACB30NW6K
OVER 0.090 THRU 0.142	0.070	0.080	BACB30NW6K

TABLE I

Horizontal Stabilizer Interspar Upper Skin Flush Repair Between Stringers
Figure 201 (Sheet 2 of 3)





SECTION A-A
ROTATED 90° CW

Horizontal Stabilizer Interspar Upper Skin Flush Repair Between Stringers
Figure 201 (Sheet 3 of 3)

REPAIR 4 - HORIZONTAL STABILIZER INTERSPAR UPPER SKIN FLUSH REPAIR AT A STRINGER

REPAIR INSTRUCTIONS

1. Cut out damaged portion of skin to give a rectangular hole with radiused corners. Do not cut into stringer. If stringer is damaged, see 55-10-03.

   NOTE: Access to the inside of the stabilizer may be obtained through the access holes in the rear spar.

2. Drill out the existing fasteners in the skin to stringer attachment as required.

3. Make the repair parts.

4. Assemble the repair parts and drill the fastener holes.

5. Remove the repair parts.

6. Break sharp edges of original and repair parts 0.015R to 0.030R.

7. Remove all nicks, scratches, burrs, sharp edges and corners from original and repair parts.

8. Prepare and bond repair parts 1 and 2 in accordance with 51-70.

9. Alodize repair parts and the cut edges of the original parts per 51-20-01.

10. Apply one coat of BMS 10-11, type 1 primer to repair parts 3 and 4, the bonded assembly (repair parts 1 and 2), and the cut edges of the original parts in accordance with 51-24 of the 757 Maintenance Manual.

11. Install the repair parts making a faying surface seal with BMS 5-95. Install fasteners wet with BMS 5-95.

12. Fill gap between parts with aerodynamic smoother (BMS 5-79 or BMS 5-95).

13. Restore original finish per 51-21 of the 757 Maintenance Manual.

NOTES

- DO NOT USE THIS REPAIR WITHIN 12.0 INCHES OF THE CENTERLINE OF RIB NO. 1 AND RIB NO. 3. CONTACT THE BOEING COMPANY FOR REPAIRS IN THESE AREAS
- IF SPACE LIMITATIONS EXIST WHICH PREVENT INSTALLATION OF THIS REPAIR, CONTACT THE BOEING COMPANY
- D = FASTENER DIAMETER
- REFER TO THE FOLLOWING WHEN USING THIS REPAIR:

  51-10-01 FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS

  51-20-01 FOR PROTECTIVE TREATMENT OF METAL

  51-20-05 FOR SEALING OF REPAIRS

  51-40 FOR FASTENER CODE, REMOVAL, INSTALLATION, HOLE SIZES AND EDGE MARGINS, EXCEPT AS NOTED

  51-21 OF THE 757 MAINTENANCE MANUAL FOR INTERIOR AND EXTERIOR FINISHES

  51-31 OF THE 757 MAINTENANCE MANUAL FOR SEALS AND SEALING

[A] FOR MATERIAL GAGES SEE TABLE I

[B] SAME THICKNESS AS SKIN

[C] SEE TABLE I FOR FASTENER TYPE AND SIZE

[D] USE REPAIR PART 4 (STRAP) ONLY FOR REPAIRS INBOARD OF RIB NO. 9

[E] USE SAME SIZE AS ORIGINAL. IF STRINGER HOLE IS DAMAGED, USE 1/32 OVERSIZE

[F] SEE TABLE II FOR OPTIONAL FASTENER. WHEN INSTALLING THESE FASTENERS, THE ORIGINAL COUNTERSINK MUST BE CLEANED OUT TO 100° WITH A MICROSTOP COUNTERSINK PER 51-40-08. IF ORIGINAL FASTENER HOLE IS DAMAGED, USE OPTIONAL FASTENER OR NEXT SIZE BACR15FV RIVET. WHEN USING NEXT SIZE BACR15FV RIVET, ORIGINAL DEPTH OF COUNTERSINK MUST BE MAINTAINED. MICROSHAVE FLUSH PROTRUDING PORTION OF RIVET HEAD PER 51-10-01. DO NOT MICROSHAVE HI-LOKS

SYMBOLS

ORIGINAL FASTENER LOCATION

REPAIR FASTENER LOCATION

ORIGINAL FASTENER LOCATION WITH A REPAIR FASTENER INSTALLED (SEE TABLE I)

Horizontal Stabilizer Interspar Upper Skin Flush Repair at a Stringer
Figure 201 (Sheet 1 of 3)

REPAIR MATERIAL			
PART		QTY	MATERIAL
1	PLATE	2	2024-T3 [A]
2	PLATE	2	2024-T3 [A]
3	FILLER	1	2024-T3 [B]
4	STRAP [D]	1	2024-T3 [B]

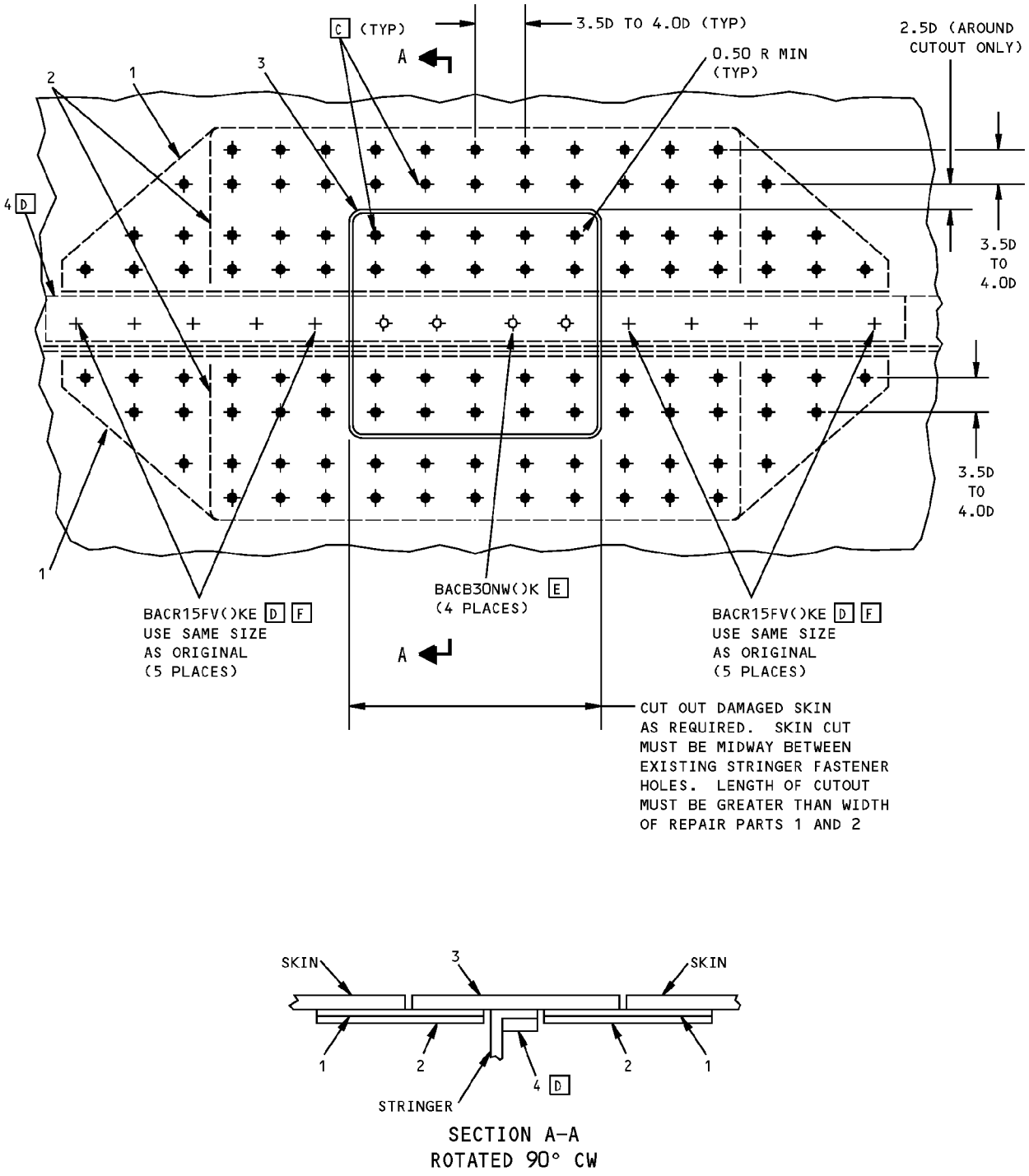
SKIN THICKNESS	REPAIR PLATE GAGE		REPAIR FASTENER
	PLATE 1	PLATE 2	
0.050 THRU 0.063	0.040	0.040	BACB30NW5K
OVER 0.063 THRU 0.071	0.050	0.040	BACB30NW5K BACB30NW6K
OVER 0.071 THRU 0.090	0.050	0.072	
OVER 0.090 THRU 0.142	0.070	0.080	BACB30NW6K BACB30NW8K

TABLE I

ORIGINAL FASTENER	SKIN THICKNESS	OPTIONAL FASTENER
BACR15FV5KE	0.050 THRU 0.057	NONE
	OVER 0.057 THRU 0.076	BACB30NW6K
BACR15FV6KE	OVER 0.076 THRU 0.100	BACB30NW6K()Y BACB30NW8K
BACR15FV8KE	OVER 0.100 THRU 0.125	BACB30NW10K

TABLE II [D]

Horizontal Stabilizer Interspar Upper Skin Flush Repair at a Stringer
Figure 201 (Sheet 2 of 3)



Horizontal Stabilizer Interspar Upper Skin Flush Repair at a Stringer
Figure 201 (Sheet 3 of 3)

REPAIR 5 - HORIZONTAL STABILIZER COMPOSITE SKIN

DAMAGE	INTERIM REPAIRS [B]	PERMANENT REPAIRS		
	WET LAYUP ROOM TEMP (SRM 51-70-03)	WET LAYUP 150°F CURE (SRM 51-70-03)	WET LAYUP 200°F CURE (SRM 51-70-17)	250°F CURE (SRM 51-70-05)
CRACKS	UP TO 4.0 INCHES (100 mm) LONG, REPAIR WITH PATCH AS GIVEN IN SRM 51-70-03, PAR. 5.N. [A]	CLEAN UP DAMAGE AND REPAIR AS A HOLE	CLEAN UP DAMAGE AND REPAIR AS A HOLE	CLEAN UP DAMAGE AND REPAIR AS A HOLE
HOLES	4.0 INCHES (100 mm) MAXIMUM DIA NOT TO EXCEED 30% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH GIVEN IN SRM 51-70-03, PAR. 5.N. [A]	8.0 INCHES (200 mm) MAXIMUM DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED [C]	12.0 INCHES (300 mm) MAXIMUM DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED [C]	NO SIZE LIMIT
DELAMI-NATION	CUT OUT AND REPAIR AS A HOLE			
NICKS AND GOUGES	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL NICKS OR GOUGES AS GIVEN IN SRM 51-70-03 IF YOU FIND FIBER DAMAGE OR DELAMINATION, THEN REPAIR AS A HOLE			
DENTS	UP TO 2.0 INCHES (50 mm) DIA WITH NO FIBER DAMAGE OR DELAMINATION, FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-03, PAR. 5.L. [C] OVER 2.0 INCHES (50 mm) DIA OR WITH FIBER DAMAGE OR DELAMINATION, REPAIR AS A HOLE			

REPAIR DATA FOR 250°F CURE HONEYCOMB PANELS (ARAMID/GRAPHITE) [D]
TABLE I

NOTES

- WHEN YOU USE THIS REPAIR, REFER TO:
  - AMM 51-21-01 FOR APPLICATION OF FINISHES
  - SRM 51-10-01, FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS. WHERE THE DAMAGE IS MORE THAN THE LIMITS GIVEN IN SRM 51-10-01, THOUGHT SHOULD BE GIVEN TO THE LOSS OF PERFORMANCE THAT MAY OCCUR
  - SRM 51-10-02 FOR INSPECTION AND REMOVAL OF DAMAGE.

[A] LIMITED TO REPAIR OF DAMAGE TO ONE FACESHEET SKIN AND HONEYCOMB CORE. ONE REPAIR FOR EACH SQUARE FOOT OF AREA AND MINIMUM OF 6.0 INCHES (150 mm) (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE, EDGE OF PANEL OR A MINIMUM OF 2.0 INCHES (50 mm) FROM TAPERED EDGE OF HONEYCOMB CORE

[B] INSPECT INTERIM REPAIR USING INSTRUMENTED NDT METHODS OR "TAP" TEST EVERY AIRPLANE AT "2A" CHECK. FOR "TAP" TEST, USE A SOLID METAL DISK AND TAP THE REPAIR AREA LIGHTLY BUT FIRMLY. VOID AREAS WILL GIVE A DULL SOUND INSTEAD OF A SHARP RING THAT YOU WILL HEAR ON A SOLID BONDED AREA. PERMANENT REPAIR IS REQUIRED IF ANY DETERIORATION IS FOUND. REFER TO SRM 51-70-03, PAR. 4.I. AND THE NONDESTRUCTIVE TEST MANUAL, D634N301 [D]

[C] ONE REPAIR FOR EACH SQUARE FOOT OF AREA AND A MINIMUM OF 6.0 INCHES (150 mm) (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE, EDGE OF PANEL, OR A MINIMUM OF 2.0 INCHES (50 mm) FROM TAPERED EDGE OF HONEYCOMB CORE

[D] FOR ADDED PROTECTION AGAINST MOISTURE INGESTION, INCORPORATION OF SB 757-51-0003 FOR AIRPLANES 1 THRU 36 AND 38 THRU 52 IS RECOMMENDED. FOR PANELS WITH EXISTING MOISTURE BARRIER COATING, REAPPLY BMS 5-95 SEALANT ON REWORKED AREAS PRIOR TO THE APPLICATION OF ENAMEL FINISH. REFER TO SRM 51-21-12.

[E] THESE REPAIRS HAVE FAA APPROVAL ONLY IF YOU DO THE INSPECTIONS GIVEN IN THIS REPAIR

Horizontal Stabilizer Composite Skin Repairs
Figure 201 (Sheet 1 of 4)

DAMAGE	INTERIM REPAIRS [B]	PERMANENT REPAIRS	
	ROOM TEMP (SRM 51-70-03)	WET LAYUP - 200°F CURE (SRM 51-70-17)	250°F CURE (SRM 51-70-05)
HOLES AND PUNCTURES	REPAIR DAMAGE TO FASTENER HOLES AS GIVEN IN SRM 51-70-03, PAR. 5.K. FOR ALL OTHER DAMAGE, USE A PERMANENT REPAIR PROCEDURE	REPAIR DAMAGE TO FASTENER HOLES AS GIVEN IN SRM 51-70-17, PAR. 4.K. FOR ALL OTHER DAMAGE, REPAIR AS GIVEN IN SRM 51-70-17, PAR. 4.G.	REPAIR DAMAGE TO FASTENER HOLES AS GIVEN IN SRM 51-70-05, PAR. 5.K. FOR ALL OTHER DAMAGE, REPAIR AS GIVEN IN SRM 51-70-05, PAR. 5.G.
DELAM-INATION	IF DELAMINATION FROM PANEL EDGE IS NO LESS THAN 2D FROM ANY FASTENER HOLE, REPAIR AS GIVEN IN SRM 51-70-03, PAR. 5.A.(2). ANY OTHER DELAMINATION MUST BE CUT OUT AND REPAIRED AS A HOLE	CUT OUT AND REPAIR AS A HOLE	CUT OUT AND REPAIR AS A HOLE
EDGE EROSION	———	FOR DAMAGE THAT IS NOT LARGER THAN 35% OF EDGEBAND THICKNESS, REPAIR AS GIVEN IN SRM 51-70-03, PAR. 5.O. FOR LARGER DAMAGE, REPAIR AS GIVEN IN: SRM 51-70-17, PAR. 4.G.	SRM 51-70-05, PAR. 5.G.
CRACKS	REPAIR AS A HOLE		
NICKS AND GOUGES	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL NICKS OR GOUGES AS GIVEN IN SRM 51-70-03 IF YOU FIND FIBER DAMAGE OR DELAMINATION, THEN REPAIR AS A HOLE OR DELAMINATION, WHICHEVER IS APPLICABLE		
DENTS	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL DENTS AS GIVEN IN SRM 51-70-03 IF YOU FIND FIBER DAMAGE OR DELAMINATION, THEN REPAIR AS A HOLE OR DELAMINATION, WHICHEVER IS APPLICABLE		

REPAIR DATA FOR EDGEBANDS OF 250°F CURE HONEYCOMB PANELS (ARAMID/GRAPHITE) [D]
TABLE II

Horizontal Stabilizer Composite Skin Repairs
Figure 201 (Sheet 2 of 4)

DAMAGE	INTERIM REPAIRS [B]	PERMANENT REPAIRS		
	WET LAYUP ROOM TEMP (SRM 51-70-06)	WET LAYUP 150°F CURE (SRM 51-70-06)	WET LAYUP 200°F CURE (SRM 51-70-17)	250°F CURE (SRM 51-70-07)
CRACKS	UP TO 4.0 INCHES (100 mm) LONG, REPAIR WITH PATCH AS GIVEN IN SRM 51-70-06, PAR. 5.N. [A]	CLEAN UP DAMAGE AND REPAIR AS A HOLE	CLEAN UP DAMAGE AND REPAIR AS A HOLE	CLEAN UP DAMAGE AND REPAIR AS A HOLE
HOLES	4.0 INCHES (100 mm) MAXIMUM DIA NOT TO EXCEED 30% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-06, PAR. 5.N. [A]	8.0 INCHES (200 mm) MAXIMUM DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED [C]	12.0 INCHES (300 mm) MAXIMUM DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED [C]	NO SIZE LIMIT
DELAMI-NATION	CUT OUT AND REPAIR AS A HOLE			
NICKS AND GOUGES	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL NICKS OR GOUGES AS GIVEN IN SRM 51-70-06 IF YOU FIND FIBER DAMAGE OR DELAMINATION, THEN REPAIR AS A HOLE			
DENTS	UP TO 2.0 INCHES (50 mm) DIA WITH NO FIBER DAMAGE OR DELAMINATION, FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-06, PAR. 5.L. [C] OVER 2.0 INCHES (50 mm) DIA OR WITH FIBER DAMAGE OR DELAMINATION, REPAIR AS A HOLE			

REPAIR DATA FOR 250°F CURE HONEYCOMB PANELS (FIBERGLASS) [D]
TABLE III

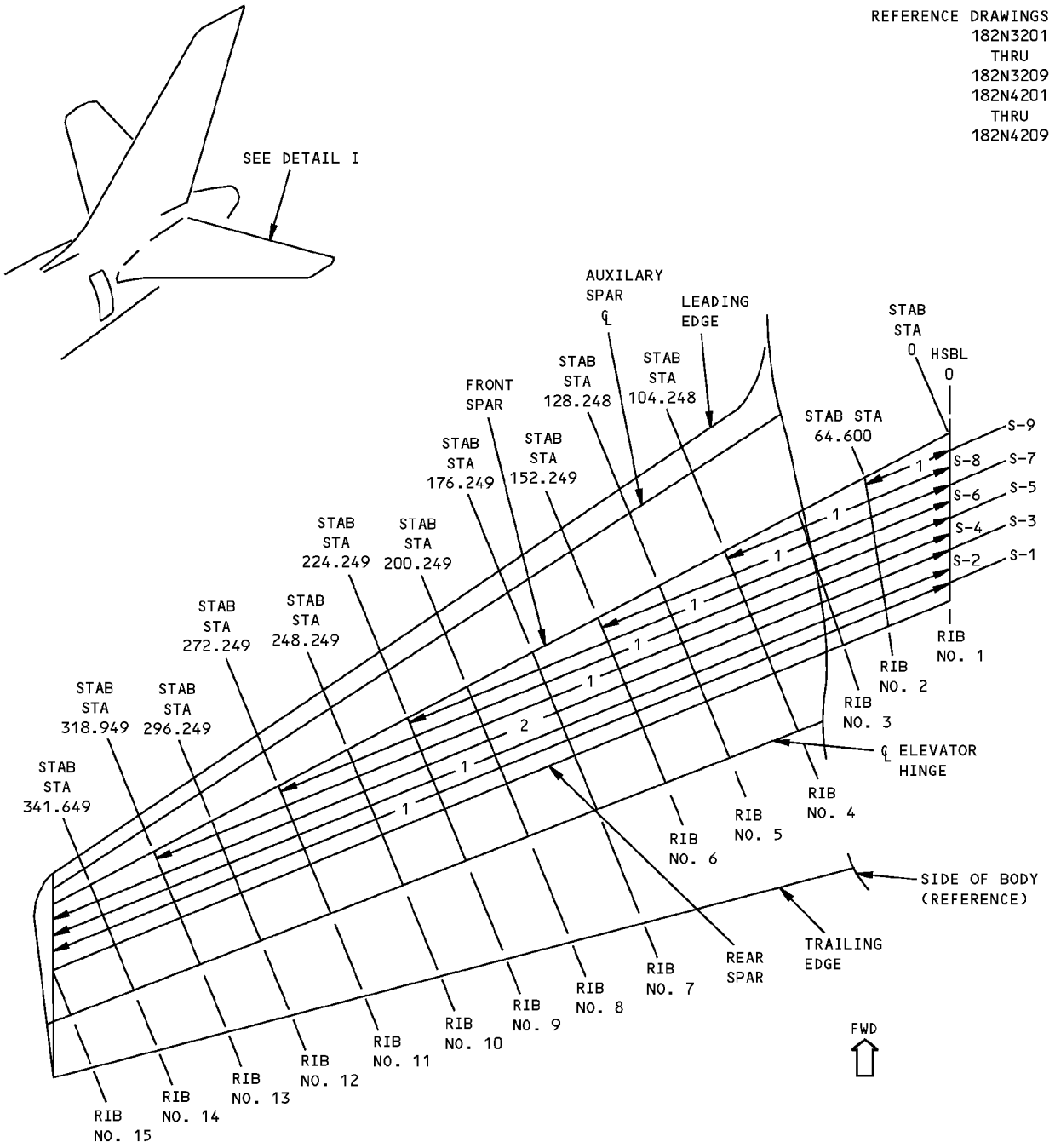
Horizontal Stabilizer Composite Skin Repairs
Figure 201 (Sheet 3 of 4)

DAMAGE	INTERIM REPAIRS [B]	PERMANENT REPAIRS	
	ROOM TEMP (SRM 51-70-06)	WET LAYUP - 200°F CURE (SRM 51-70-17)	250°F CURE (SRM 51-70-07)
HOLES AND PUNCTURES	REPAIR DAMAGE TO FASTENER HOLES AS GIVEN IN SRM 51-70-06, PAR. 5.K. FOR ALL OTHER DAMAGE, USE A PERMANENT REPAIR PROCEDURE	REPAIR DAMAGE TO FASTENER HOLES AS GIVEN IN SRM 51-70-17, PAR. 4.K. FOR ALL OTHER DAMAGE, REPAIR AS GIVEN IN SRM 51-70-17, PAR. 4.G.	REPAIR DAMAGE TO FASTENER HOLES AS GIVEN IN SRM 51-70-07, PAR. 5.K. FOR ALL OTHER DAMAGE, REPAIR AS GIVEN IN SRM 51-70-05, PAR. 5.G.
DELAM-INATION	IF DELAMINATION FROM PANEL EDGE IS NO LESS THAN 2D FROM ANY FASTENER HOLE, REPAIR AS GIVEN IN SRM 51-70-06, PAR. 5.A.(2). ANY OTHER DELAMINATION MUST BE CUT OUT AND REPAIRED AS A HOLE	CUT OUT AND REPAIR AS A HOLE	CUT OUT AND REPAIR AS A HOLE
EDGE EROSION	———	FOR DAMAGE THAT IS LARGER THAN 35% OF EDGEBAND THICKNESS, REPAIR AS GIVEN IN SRM 51-70-06, PAR. 5.O. FOR LARGER DAMAGE, REPAIR AS GIVEN IN: SRM 51-70-17, PAR. 4.G.	SRM 51-70-07, PAR. 5.G.
CRACKS	REPAIR AS A HOLE		
NICKS AND GOUGES	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL NICKS OR GOUGES AS GIVEN IN SRM 51-70-06 IF YOU FIND FIBER DAMAGE OR DELAMINATION, THEN REPAIR AS A HOLE OR DELAMINATION, WHICHEVER IS APPLICABLE		
DENTS	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL DENTS AS GIVEN IN SRM 51-70-06 IF YOU FIND FIBER DAMAGE OR DELAMINATION, THEN REPAIR AS A HOLE OR DELAMINATION, WHICHEVER IS APPLICABLE		

REPAIR DATA FOR EDGEBANDS OF 250°F CURE HONEYCOMB PANELS (FIBERGLASS) [D]
TABLE IV

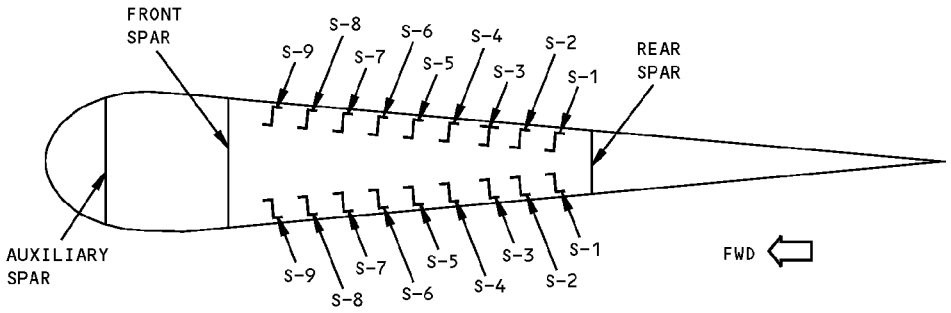
Horizontal Stabilizer Composite Skin Repairs
Figure 201 (Sheet 4 of 4)

IDENTIFICATION 1 - HORIZONTAL STABILIZER STRINGERS



LIST OF MATL

Horizontal Stabilizer Stringer Identification
Figure 1 (Sheet 1 of 2)



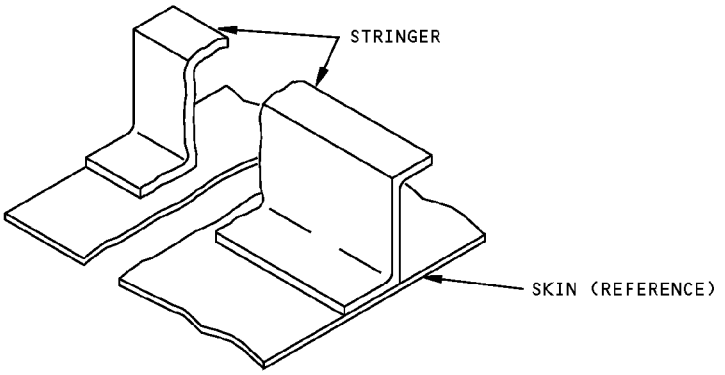
SECTION THROUGH UPPER AND LOWER SKIN PANEL

ITEM	DESCRIPTION	GAGE	MATERIAL	TYPE	EFFECTIVITY
1	STRINGER		BAC1518-807 7075-T6511	I	
2	STRINGER		BAC1518-841 7075-T6511	I	

LIST OF MATERIALS FOR DETAIL I

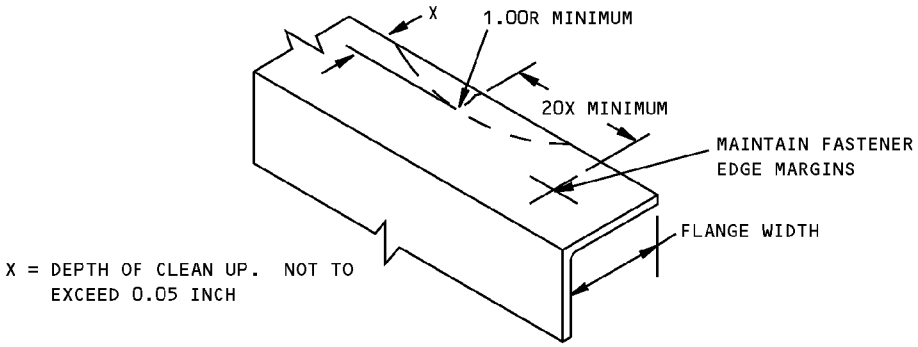
Horizontal Stabilizer Stringer Identification
Figure 1 (Sheet 2 of 2)

ALLOWABLE DAMAGE 1 - HORIZONTAL STABILIZER STRINGERS

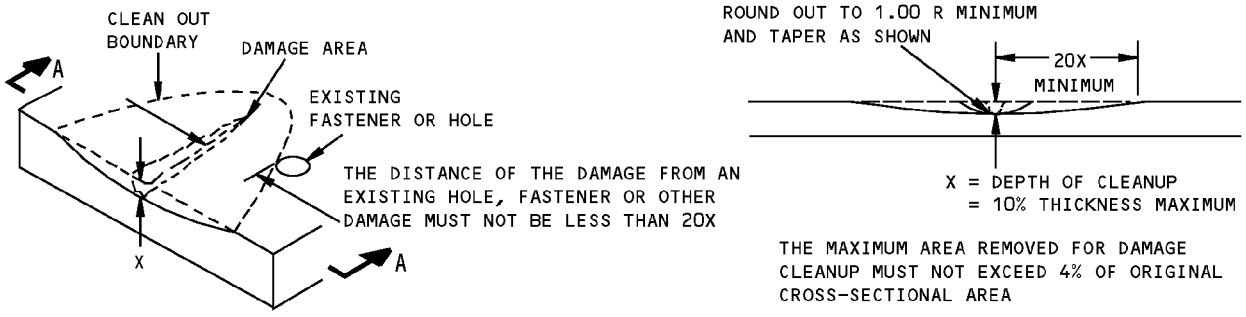


TYPICAL SKIN STRINGER

CRACKS	NICKS, GOUGES AND CORROSION	DENTS	HOLES
FOR EDGE CRACKS SEE DETAIL I. OTHER CRACKS NOT PERMITTED	REMOVE EDGE DAMAGE AS SHOWN IN DETAIL I. ELSEWHERE REMOVE DAMAGE AS SHOWN IN DETAIL II, PROVIDED DEPTH OF CLEAN UP DOES NOT EXCEED 10% OF GAGE.	NOT PERMITTED	NOT PERMITTED



DETAIL I



SECTION A-A

REMOVAL OF NICK, GOUGE AND SCRATCH DAMAGE ON A SURFACE

DETAIL II

Allowable Damage - Horizontal Stabilizer Stringers
Figure 101

REPAIR 1 - HORIZONTAL STABILIZER ZEE STRINGER

REPAIR INSTRUCTIONS

1. Cut and remove damaged portion of stringer. Stringer cut must be midway between the initial stringer fastener holes. If skin is damaged refer to SRM 55-10-01.

   NOTE: Access to the inside of the stabilizer may be obtained through the access holes in the rear spar.

2. Calculate the lengths and gages of the repair parts and make them accordingly. Refer to Sample Calculations.
3. Assemble the repair parts and drill and ream the holes in the initial and new locations.
4. Remove the repair parts.
5. Break sharp edges of initial and repair parts 0.015R to 0.030R.
6. Remove all nicks, scratches, burrs, sharp edges and corners from initial and repair parts.
7. Alodize the repair parts and the cut edges of the initial parts as shown in SRM 51-20-01.
8. Apply BMS 10-11, type I primer to the repair parts and the cut edges of the initial parts as shown in AMM 51-24.
9. Install the repair parts making a faying surface seal with BMS 5-95. Install fasteners wet with BMS 5-95.
10. Restore initial finish as shown in AMM 51-21.

NOTES

- THIS REPAIR IS APPLICABLE TO BOTH UPPER AND LOWER ZEE STRINGERS

  WHEN YOU USE THIS REPAIR REFER TO:

  - AMM 51-21 FOR INTERIOR AND EXTERIOR FINISHES
  - SRM 51-10-02 FOR INSPECTION AND REMOVAL OF DAMAGE
  - SRM 51-20-01 FOR PROTECTIVE TREATMENT OF METAL
  - SRM 51-10-01 FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS
  - SRM 51-20-05 FOR REPAIR SEALING
  - SRM 51-40 FOR FASTENER CODE, REMOVAL, INSTALLATION, HOLE SIZES AND EDGE MARGINS
- D = FASTENER DIAMETER
- MACHINE REPAIR PARTS TO 125 MICROINCHES AA

[A] TAPER THE REPAIR ANGLES OVER APPROXIMATELY 1/4 THEIR LENGTH. START THE TAPER MIDWAY BETWEEN FASTENERS. TAPER TO 1/2 THE REPAIR ANGLE THICKNESS OR 0.04 AT EXTREMITY, WHICHEVER IS GREATER. MAXIMUM ALLOWABLE SLOPE IS 20 TO 1, I.E. 5%

[B] THE CROSS SECTIONAL AREA OF THE REPAIR ANGLES MUST BE AT LEAST 1.25 TIMES THE CROSS SECTIONAL AREA OF THE ORIGINAL STRINGER

[C] USE 1/64 OVERSIZE FASTENER BACB30NW()K()X. THE ORIGINAL COUNTERSINK MUST BE CLEANED OUT TO 100° WITH A MICROSTOP COUNTERSINK AS SHOWN IN SRM 51-40-08. IN TAPERED REGIONS, USE BACC30MG COLLARS

[D] USE SAME SIZE FASTENER AS ORIGINAL SKIN FASTENER. IN TAPERED REGIONS, USE BACC30AG COLLARS

[E] USE DETAIL I WHEREVER POSSIBLE. WHERE REPAIR PARTS INTERFERE WITH RIB PADS USE DETIAL II

FASTENER SYMBOLS

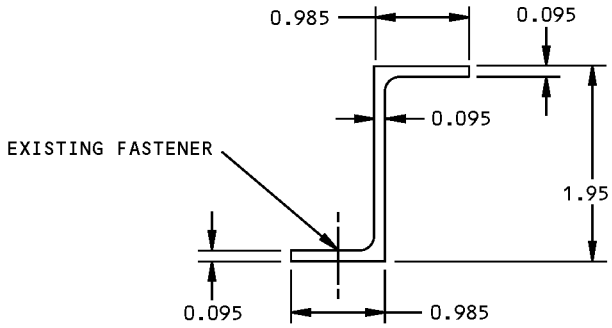
⊕ REPAIR FASTENER LOCATION

REPAIR MATERIAL			
PART		QTY	MATERIAL
1	ANGLE	1	7075-T6511 [B] OPT.: 7075-T6 OR T651
2	ANGLE	1	7075-T6511 [B] OPT.: 7075-T6 OR T651
3	FILLER	1	SAME AS INITIAL STRINGER

Horizontal Stabilizer Zee Stringer Repair
Figure 201 (Sheet 1 of 4)

SAMPLE CALCULATIONS

1. DETERMINE DIMENSIONS AND EXISTING FASTENER SPACING OF ORIGINAL STIFFENER.



2. DETERMINE AREAS OF EXISTING FLANGES.
   TOP AND BOTTOM FLANGES 0.985 X 0.095 = 0.0936
   WEB 1.95 X 0.095 = 0.1853

3. DETERMINE GAGES OF REPAIR PARTS TO GIVE AN AREA 1.25 TIMES GREATER THAN ORIGINAL.

   REPAIR AREA REQUIRED FOR TOP AND BOTTOM FLANGES
   1.25 X 0.0936 = 0.117 SQ IN.

   IF ANGLE THICKNESS IS 0.125, FLANGE REPAIR AREA IS
   0.125 X 0.985 = 0.123 SQ IN.

   THIS IS BETTER THAN THE REQUIRED AREA OF 0.117 SQ IN.

   WEB - THE REPAIR PLATES OBVIOUSLY PROVIDE MORE AREA THAN REQUIRED SO NO CALCULATIONS ARE NECESSARY

4. FASTENER REQUIREMENTS (SEE TABLE I)

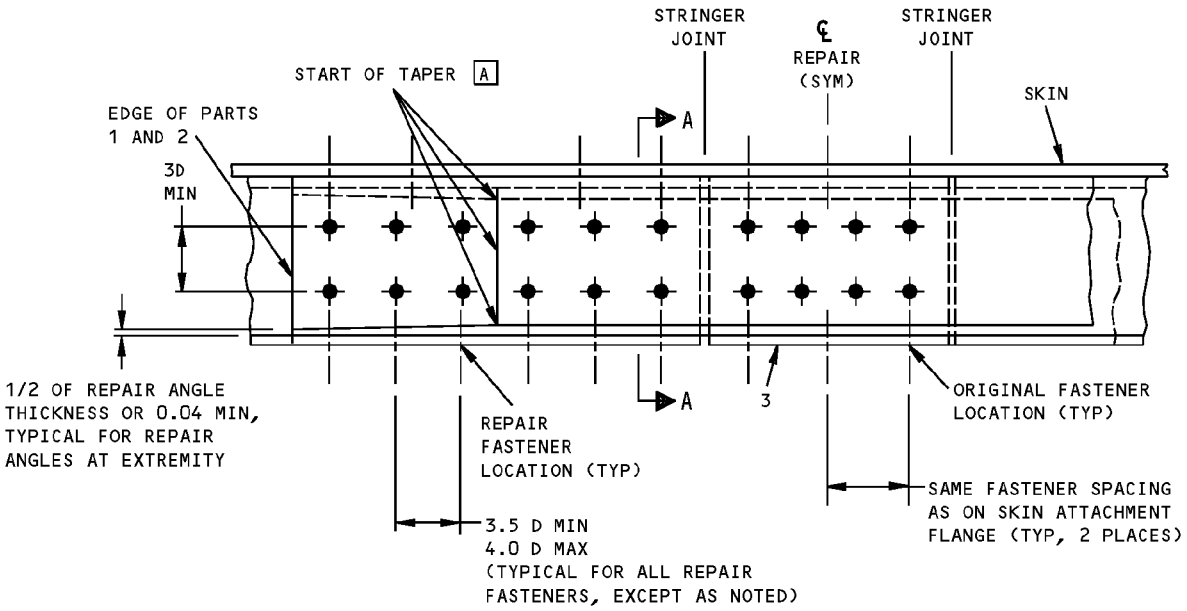
   MINIMUM NUMBER OF FASTENERS REQUIRED TO DEVELOP STRENGTH ASSUMING CONSTANT 0.125 THICKNESS AND 3/16 DIA FASTENERS
   3.8 X 0.985 = 3.74 USE 4 FASTENERS

   TO ALLOW FOR TAPERED THICKNESS OF REPAIR ANGLES, INCREASE THE NUMBER REQUIRED BY 50%. THEREFORE, USE 6 FASTENERS THROUGH THE REPAIR ANGLE FLANGE.

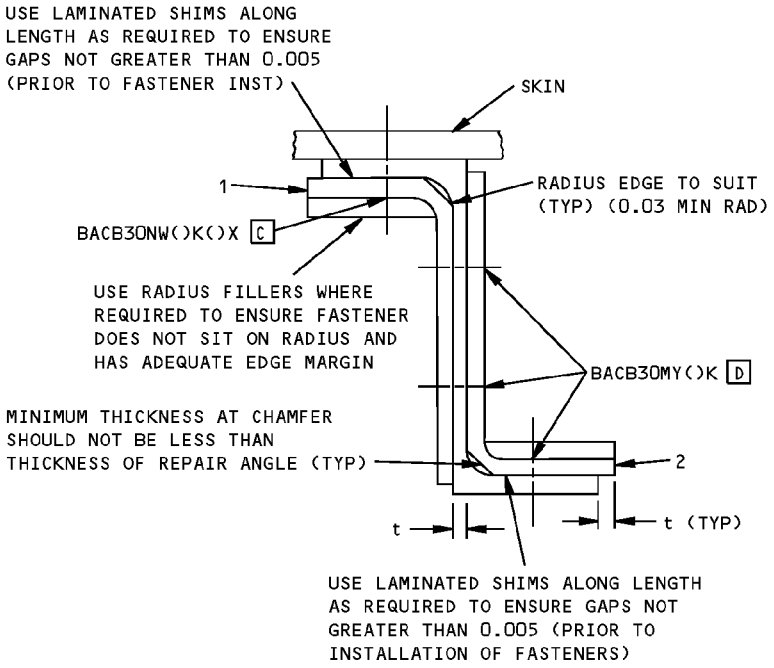
GAGE OF REPAIR PLATE	FASTENERS PER INCH WIDTH (MULTIPLY BY WIDTH OF REPAIR PART TO CALCULATE ACTUAL MINIMUM NUMBER OF FASTENERS REQUIRED)		
	3/16 DIA	1/4 DIA	5/16 DIA
0.040	3.5	2.6	2.1
0.045	3.6	2.6	2.1
0.050	3.6	2.6	2.1
0.056	3.2	2.4	1.9
0.063	3.2	2.4	1.9
0.071	3.2	2.4	1.9
0.080	3.2	2.4	1.9
0.090	3.2	2.4	1.9
0.100	3.2	2.4	1.9
0.112	3.4	2.4	1.9
0.125	3.8	2.4	1.9

TABLE I

Horizontal Stabilizer Zee Stringer Repair
Figure 201 (Sheet 2 of 4)

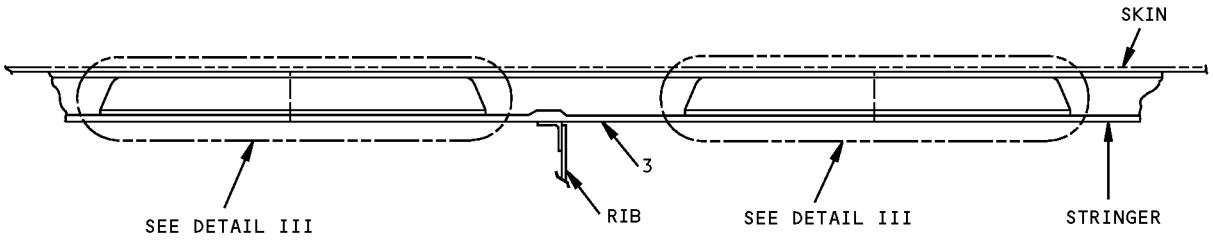


DETAIL I E



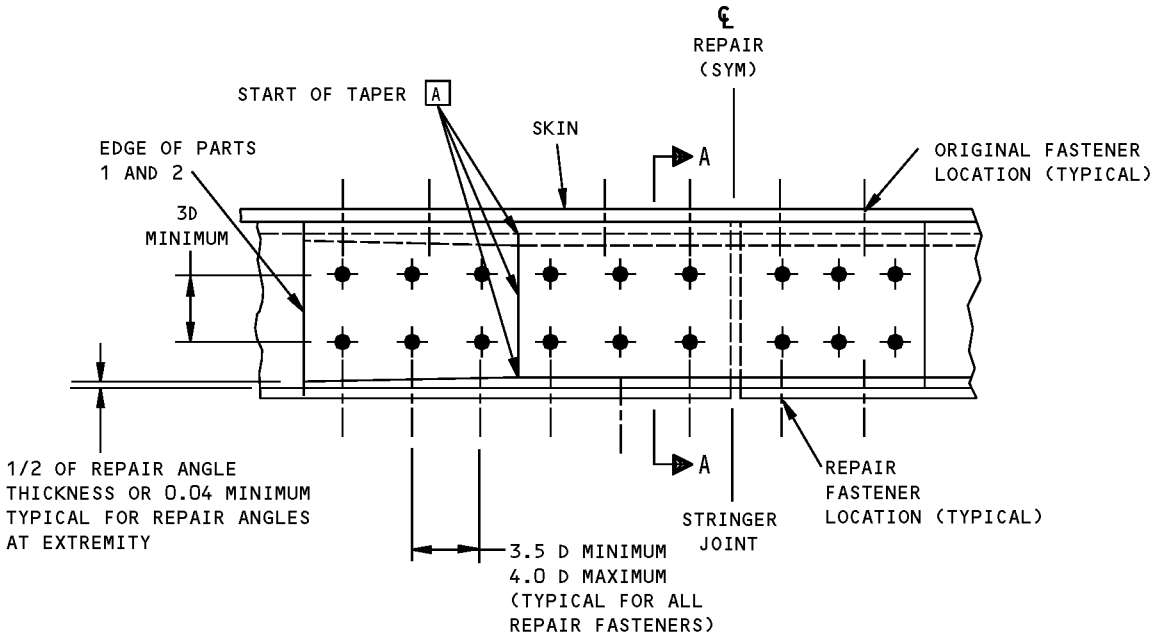
SECTION A-A

Horizontal Stabilizer Zee Stringer Repair
Figure 201 (Sheet 3 of 4)



ALTERNATE REPAIR INSTALLATION FOR DAMAGE NEAR RIBS

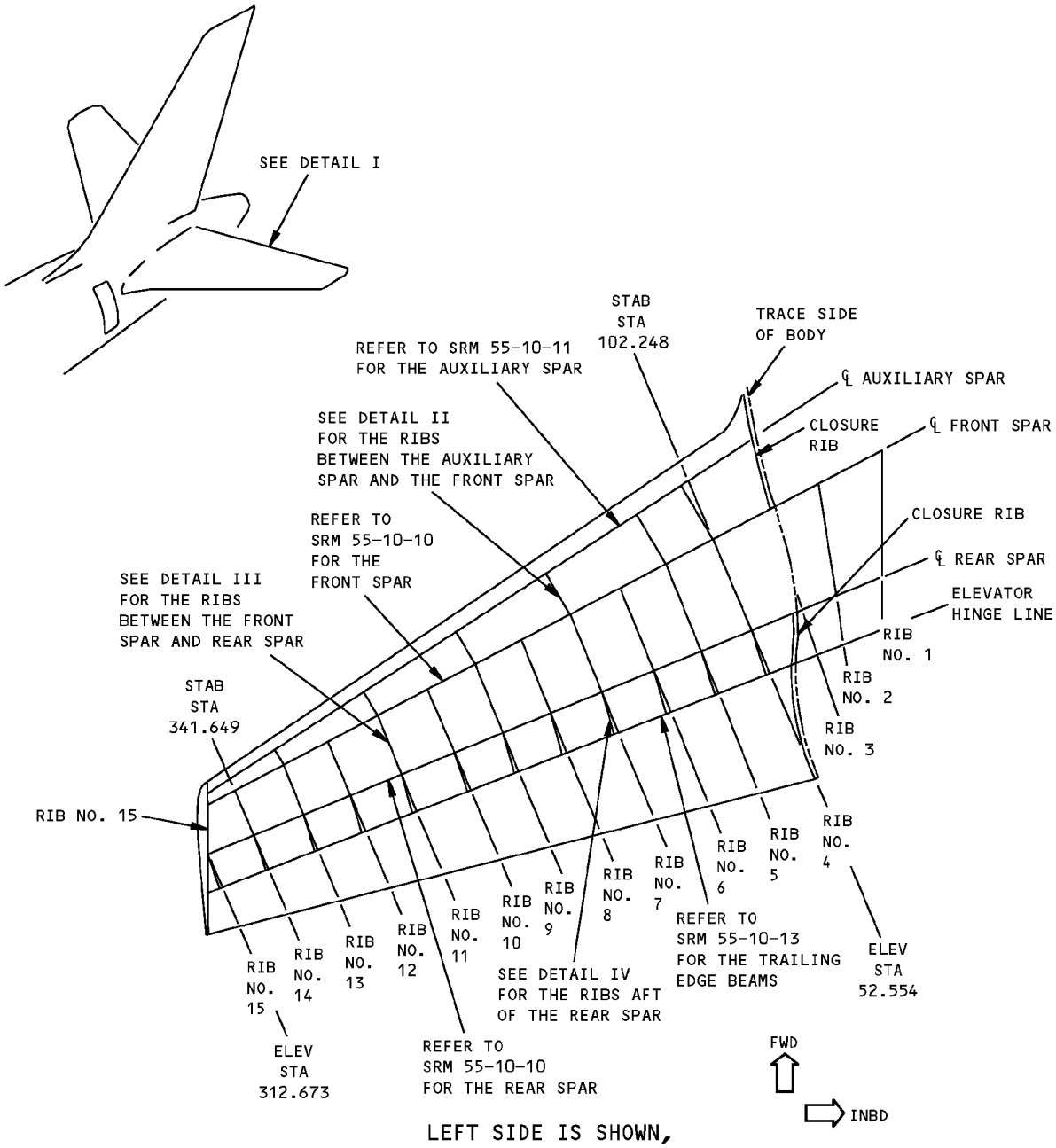
DETAIL II [E]



DETAIL III

Horizontal Stabilizer Zee Stringer Repair
Figure 201 (Sheet 4 of 4)

IDENTIFICATION 1 - HORIZONTAL STABILIZER RIBS



LEFT SIDE IS SHOWN,
RIGHT SIDE IS OPPOSITE

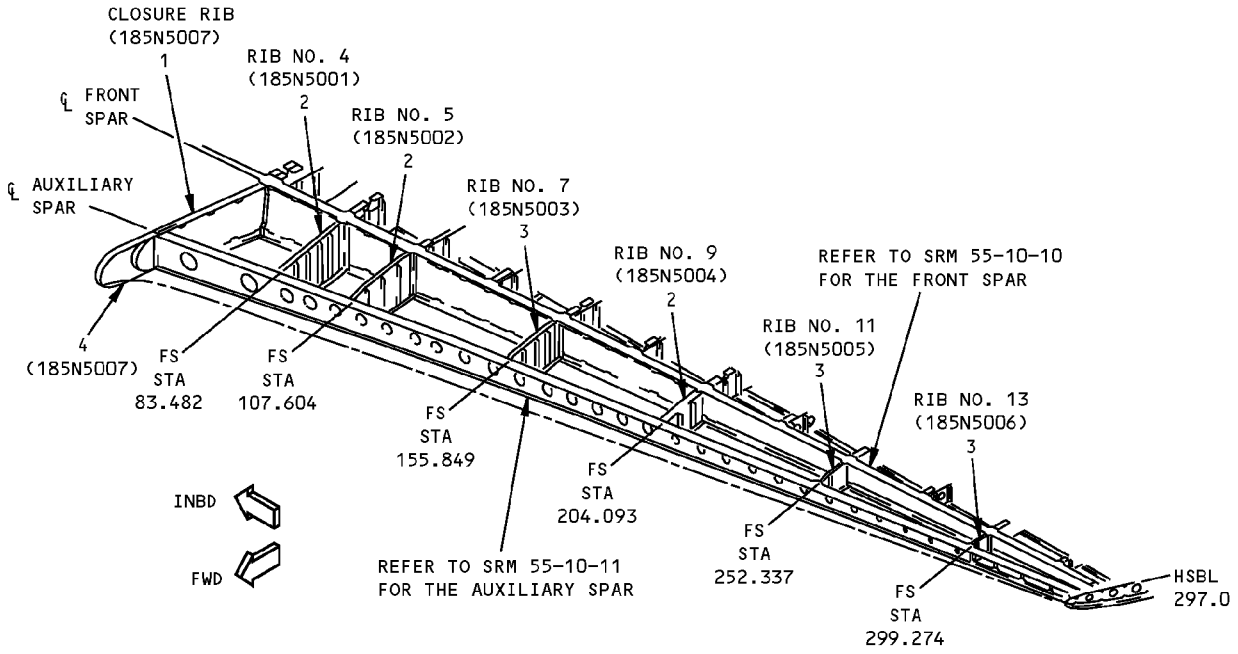
DETAIL I

NOTES

[A] FOR CUM LINE NUMBERS: 7 AND ON

[B] FOR CUM LINE NUMBERS: 1 THRU 6

Horizontal Stabilizer Rib Identification
Figure 1 (Sheet 1 of 6)

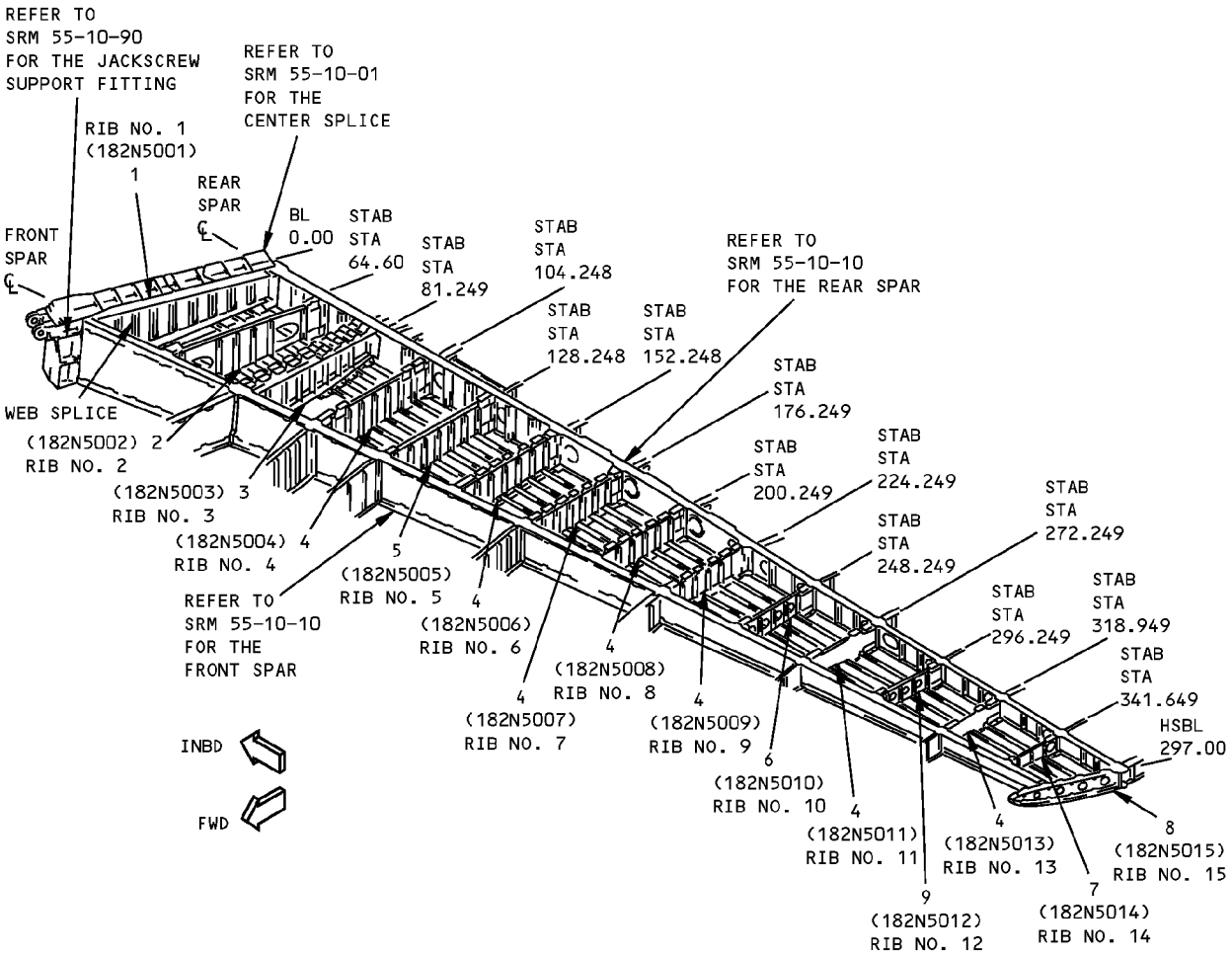


DETAIL II

ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	RIB			
	FORWARD CHORD	0.100	CLAD 2024-T42	
	UPPER CHORD		BAC1506-3366 7075-T6	
	WEB	0.016	2 PLIES CLAD 2024-T3	
	LOWER CHORD		BAC1506-3367 7075-T6511	
2	RIB			
	UPPER CHORD		BAC1505-100881 7075-T6	
	WEB	0.025	CLAD 2024-T3	
	LOWER CHORD		BAC1505-100881 7075-T6	
3	RIB			
	UPPER CHORD		BAC1503-100066 7075-T6	
	WEB	0.025	CLAD 2024-T3	
	LOWER CHORD		BAC1505-100066 7075-T6	
4	STRAKELET RIB			
	UPPER CHORD	0.080	CLAD 2024-T42	
	WEB	0.016	2 PLIES CLAD 2024-T3	
	LOWER CHORD	0.080	CLAD 2024-T42	

LIST OF MATERIALS FOR DETAIL II

Horizontal Stabilizer Rib Identification
Figure 1 (Sheet 2 of 6)



DETAIL III

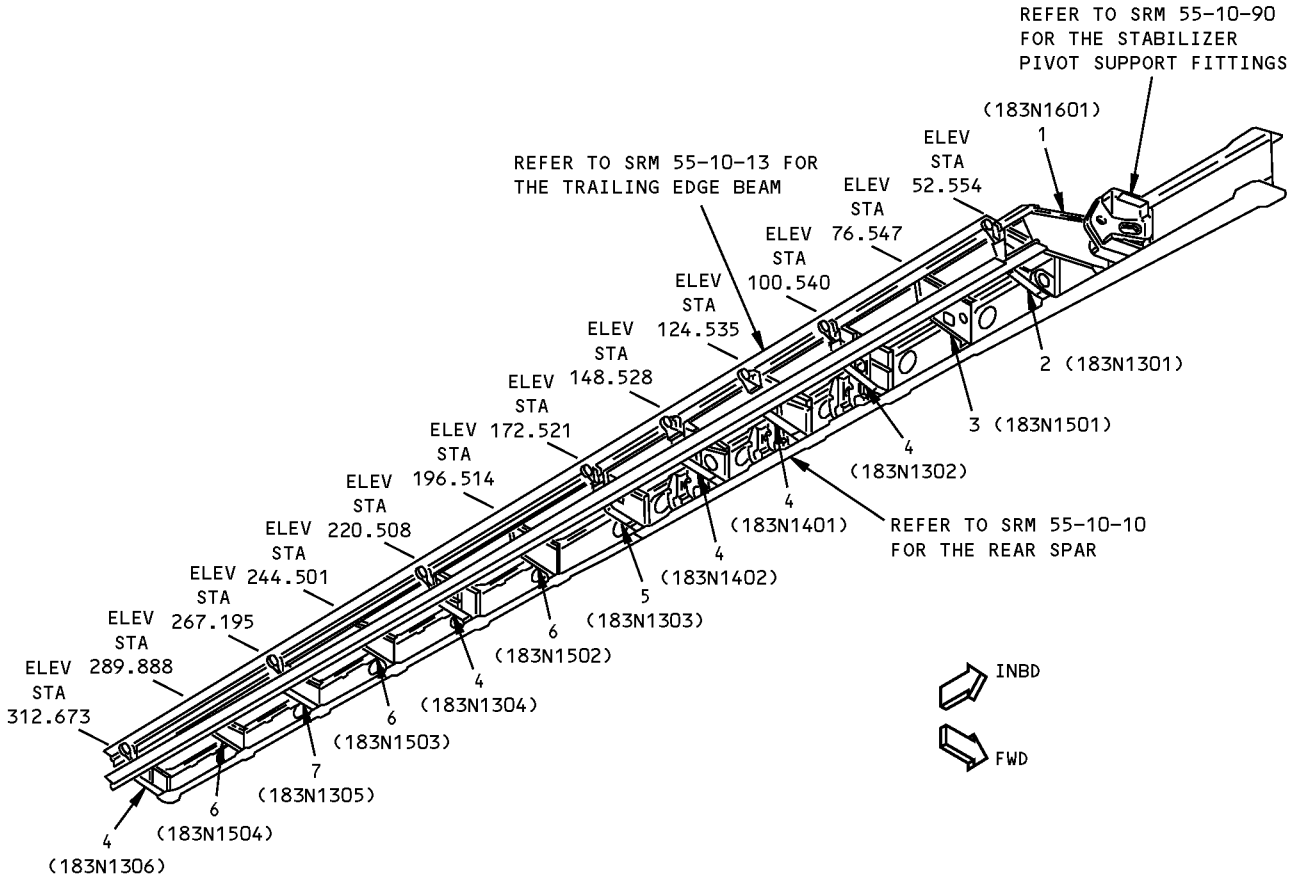
LIST OF MATL

Horizontal Stabilizer Rib Identification
Figure 1 (Sheet 3 of 6)

ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	RIB			
	UPPER CHORD		BAC1520-2258 7075-T73	
	FORWARD WEB	0.100	7075-T6 CHEM-MILLED	
	AFT WEB	0.100	7075-T6 CHEM-MILLED	
	LOWER CHORD		BAC1520-2257 7075-T73	
2	RIB			
	UPPER CHORD		BAC1506-3396 7075-T6511	
	FORWARD WEB	0.025	CLAD 2024-T3	
	CENTER WEB	0.050	2024-T3 CHEM-MILLED	
	AFT WEB	0.025	CLAD 2024-T3	
	LOWER CHORD		BAC1506-3396 7075-T6511	
3	RIB			
	UPPER CHORD		BAC1514-2650 7075-T6	
	FORWARD WEB	0.040	CLAD 7075-T6	
	CENTER WEB	0.190	7075-T6	
	AFT WEB	0.080	7075-T6	
	LOWER CHORD		BAC1514-2649 7075-T6	
4	RIB		FORGING 7075-T73	
5	RIB			
	UPPER CHORD		BAC1506-3395 7075-T6511	
	WEB	0.025	CLAD 2024-T3	
	LOWER CHORD		BAC1506-3395 7075-T6511	
6	RIB			
	UPPER CHORD		BAC1506-3394 7075-T6511	
	WEB	0.025	CLAD 2024-T3	
	LOWER CHORD		BAC1506-3394 7075-T6511	
7	RIB			
	UPPER CHORD		BAC1506-3392 7075-T6511	
	WEB	0.025	CLAD 2024-T3	
	LOWER CHORD		BAC1506-3392 7075-T6511	
8	RIB			
	UPPER CHORD		BAC1505-100881 7075-T6511	
	WEB	0.032	CLAD 7075-T6	
	LOWER CHORD		BAC1505-100881 7075-T6511	
9	RIB			
	UPPER CHORD		BAC1506-3393 7075-T6511	
	WEB	0.025	CLAD 2024-T3	
	LOWER CHORD		BAC1506-3393 7075-T6511	

LIST OF MATERIALS FOR DETAIL III

Horizontal Stabilizer Rib Identification
Figure 1 (Sheet 4 of 6)



DETAIL IV

LIST OF MATL

Horizontal Stabilizer Rib Identification
Figure 1 (Sheet 5 of 6)

ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	RIB			
	UPPER CHORD		BAC1505-100364 7075-T6511	
	WEB	0.125	2024-T3 CHEM-MILLED	
	LOWER CHORD		BAC1505-100364 7075-T6511	
2	RIB			
	UPPER CHORD		AND10136-2007 7075-T6511	
	WEB	0.160	2024-T3 CHEM-MILLED	A
	WEB	0.112	2024-T3 CHEM-MILLED	B
	LOWER CHORD		AND10136-2007 7075-T6	
3	RIB			
	UPPER CHORD		AND10136-1706 7075-T6511	
	WEB	0.050	CLAD 2024-T3	
	LOWER CHORD		AND10136-1706 7075-T6511	
4	RIB		FORGING 7075-T73	
5	RIB			
	UPPER CHORD		AND10136-2404 7075-T6511	
	WEB	0.032	CLAD 7075-T6	
	LOWER CHORD		AND10136-2404 7075-T6511	
6	RIB			
	UPPER CHORD		BAC1505-100442 7075-T6511	
	WEB	0.025	CLAD 2024-T3	
	LOWER CHORD		BAC1505-100442 7075-T6511	
7	RIB			
	UPPER CHORD		AND10136-2007 7075-T6511	
	WEB	0.025	CLAD 7075-T6	
	LOWER CHORD		AND10136-2007 7075-T6511	

LIST OF MATERIALS FOR DETAIL IV

Horizontal Stabilizer Rib Identification
Figure 1 (Sheet 6 of 6)

ALLOWABLE DAMAGE 1 - HORIZONTAL STABILIZER RIBS

DESCRIPTION	CRACKS	NICKS, GOUGES AND CORROSION	DENTS	HOLES AND PUNCTURES
WEBS	[A]	CLEAN UP AS SHOWN IN DETAILS II, III AND V	[D]	[H]
CHORDS	[B]	[C]	NOT PERMIITED	NOT PERMIITED
STIFFENERS	[B]	[C]	NOT PERMITTED	SEE DETAIL VI

NOTES

- REFINISH REWORKED AREAS AS GIVEN IN AMM 51-20.

[A] CLEAN UP EDGE CRACKS AS SHOWN IN DETAIL II. OTHER CRACKS IS NOT PERMITTED

[B] CLEAN UP EDGE CRACKS AS SHOWN IN DETAILS II AND DETAIL VIII. OTHER CRACKS IS NOT PERMITTED.

[C] NICK, GOUGE OR SCRATCH DAMAGE REMOVED AS SHOWN IN DETAILS II,III,V AND VIII IS PERMITTED PROVIDED THE MAXIMUM PERMISSIBLE DEPTH IS NOT EXCEEDED

[D] DENT DAMAGE IS PERMITTED PROVIDED DEPTH Y DOES NOT EXCEED 0.050, A/Y IS NOT LESS THAN 30, AND THERE IS NO EVIDENCE OF PULLED OR LOOSE RIVETS, SHARP CREASES, GOUGES, SCRATCHES OR CRACKING. SEE DETAIL IV.

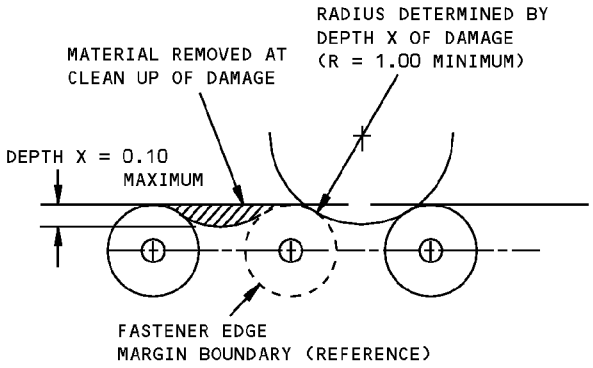
[E] SHOT PEEN REWORKED CHEM-MILLED AREAS AS GIVEN IN SRM 51-20-06. SEE DETAIL VII

[F] SHOT PEEN REWORKED AREAS IN CHORDS, STIFFENERS, AND WEBS AS GIVEN IN SRM 51-20-06.

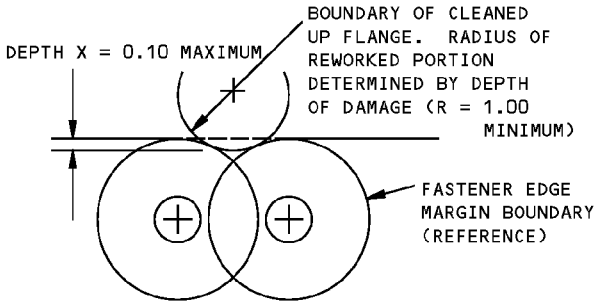
[G] SHOT PEEN ALL REWORKED AREAS ON INTERSPAR (F.S. TO R.S.) RIB CHORDS, SHEAR TIES, AND FITTINGS AS GIVEN IN SRM 51-20-06

[H] HOLES UP TO 0.25 DIAMETER ARE PERMITTED PROVIDED THEY ARE LOCATED 4.0D FROM ANY OTHER HOLE, FASTENER, PART EDGE, OR OTHER DAMAGE AND ARE FILLED WITH 2117-T4 OR 2017-T4 ALUMINUM RIVETS. ALUMINUM RIVETS TO BE INSTALLED WET WITH BMS 5-95 SEALANT. ONE HOLE IS PERMITTED FOR EACH WEB BAY

Allowable Damage - Horizontal Stabilizer Ribs
Figure 101 (Sheet 1 of 3)

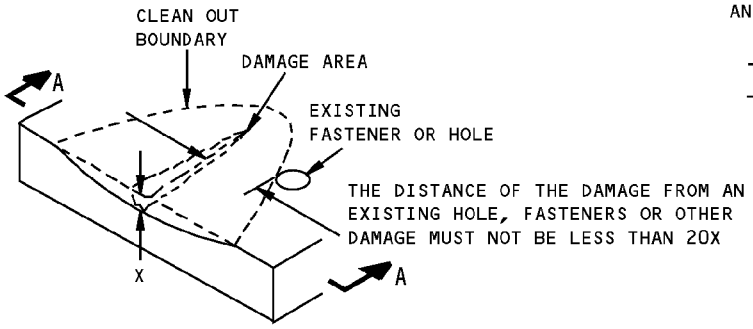


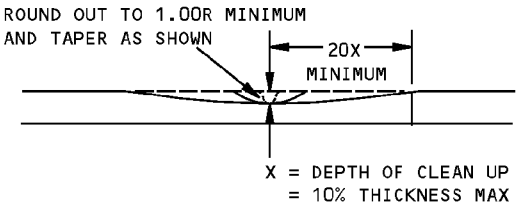
DAMAGE CLEAN UP OF EDGES WHERE
FASTENER EDGE MARGINS DO NOT OVERLAP



DAMAGE CLEAN UP OF EDGES WHERE
FASTENER EDGE MARGINS OVERLAP

DETAIL II



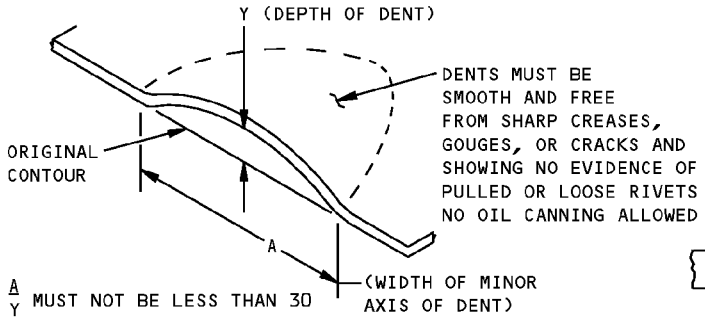


THE MAXIMUM AREA REMOVED FOR CLEANUP SHALL NOT EXCEED 4% OF THE ORIGINAL CROSS-SECTIONAL AREA

SECTION A-A

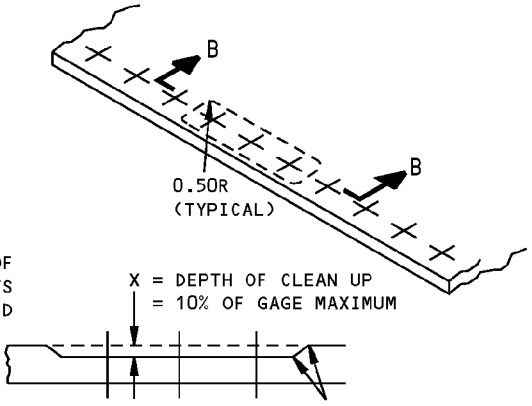
REMOVAL OF NICK, GOUGE AND SCRATCH DAMAGE ON A SURFACE

DETAIL III



ALLOWABLE DAMAGE FOR DENT

DETAIL IV



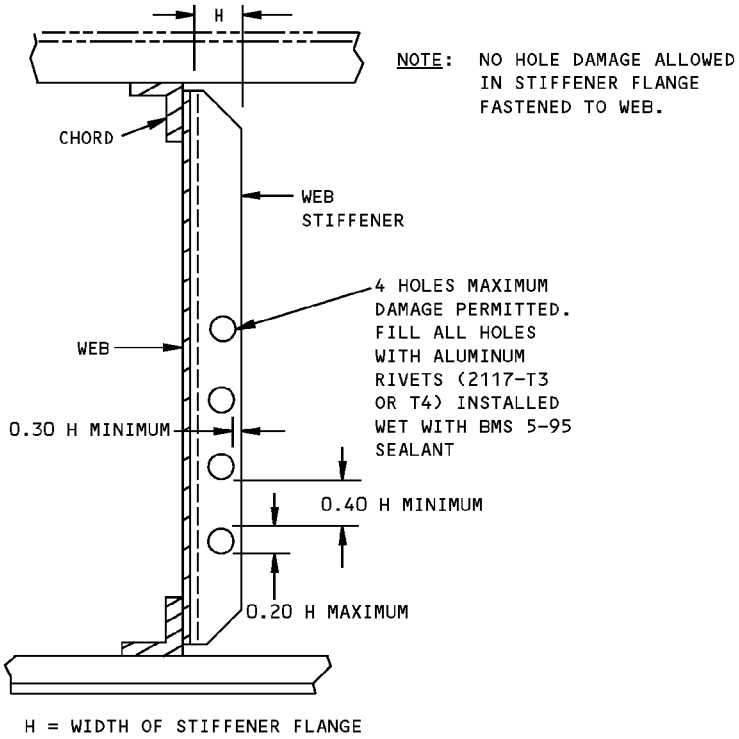
SMOOTH BLEND-OUT RADIUS 0.50 INCH MINIMUM. CORROSION CLEAN UP AROUND ANY THREE FASTENERS IN TEN IS PERMITTED TO MAXIMUM DEPTH

SECTION B-B

CORROSION CLEANUP

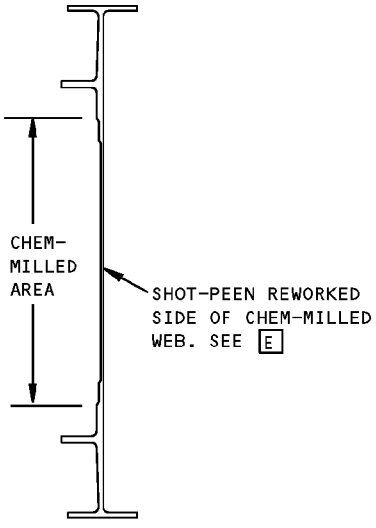
DETAIL V

Allowable Damage - Horizontal Stabilizer Ribs
Figure 101 (Sheet 2 of 3)



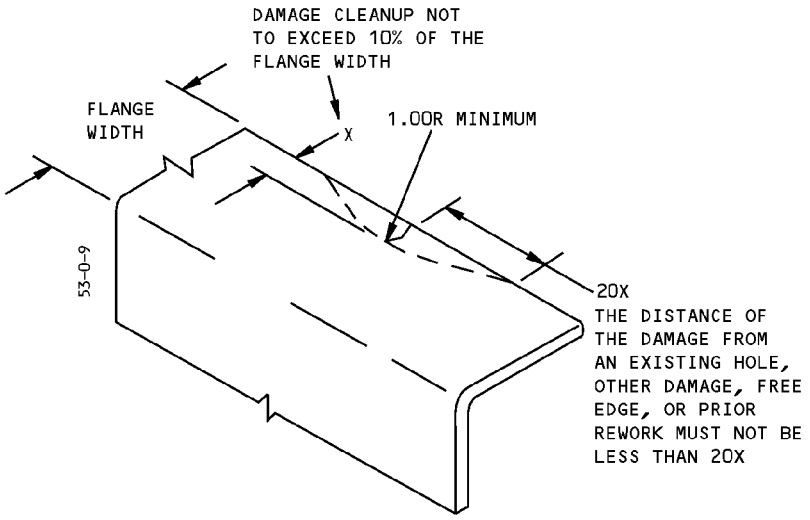
ALLOWABLE DAMAGE LIMITS FOR HOLES IN WEB STIFFENERS

DETAIL VI



SECTION THRU RIB

DETAIL VII

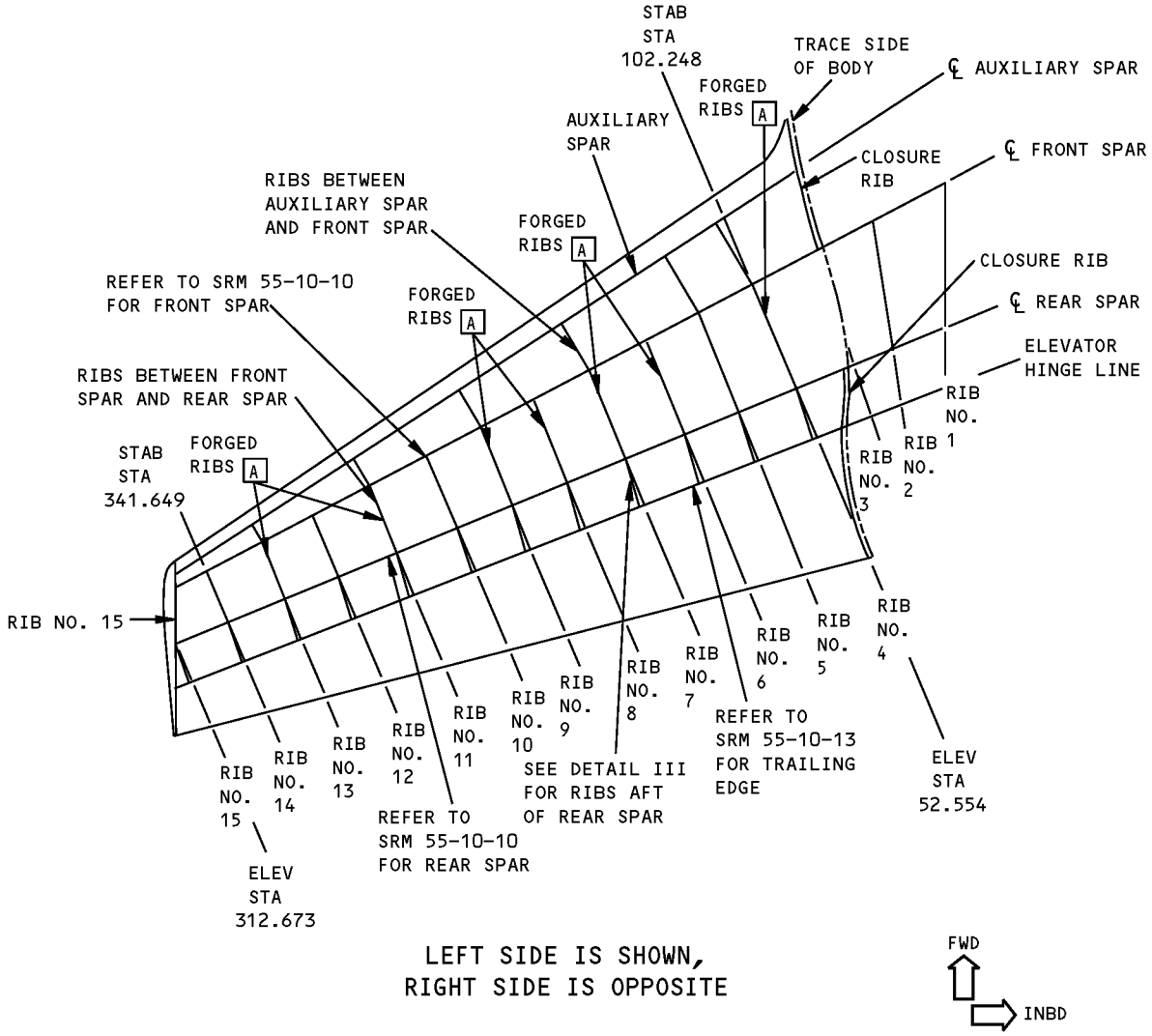


DAMAGE CLEANUP OF FREE FLANGE WITHOUT FASTENERS

DETAIL VIII

Allowable Damage - Horizontal Stabilizer Ribs
Figure 101 (Sheet 3 of 3)

REPAIR GENERAL - HORIZONTAL STABILIZER RIB



NOTES

- REFER TO REPAIR 1 AND REPAIR 2 FOR HORIZONTAL STABLIZER RIB WEB REPAIRS
- REFER TO REPAIR 3 FOR HORIZONTAL RIB CHORD REPAIR

[A] NO REPAIRS APPLICABLE. REPAIRS WILL BE PROVIDED BASED ON SERVICE EXPERIENCE

Horizontal Stabilizer Rib Repairs
Figure 201

REPAIR 1 - HORIZONTAL STABILIZER RIB WEB REPAIR AT A STIFFENER

APPLICABILITY
THIS REPAIR APPLIES TO BUILT UP SECTIONS WITHOUT CHEM-MILLED WEBS.

REPAIR INSTRUCTIONS

1. Remove any web stiffener which will interfere with the repair.
2. Cut and remove damaged portion of web.
3. Make repair parts.
4. Assemble repair parts in installed positions and drill fastener holes.
5. Remove repair parts and deburr holes.
6. Break sharp edges of initial and repair parts 0.015 to 0.030 inch (0.4 to 0.8 mm) radius.
7. Remove all nicks, scratches, sharp edges, and corners from repair parts and initial structure.
8. Alodize the repair parts and the reworked areas of the initial parts as given in SRM 51-20-01.
9. Apply one coat of BMS 10-11, type I primer to all surfaces of repair parts and the reworked areas of the initial parts.
10. Install repair parts and web stiffener, making a faying surface seal with BMS 5-95 sealant.
11. Install fasteners wet with BMS 5-95 sealant.
12. Remove loose debris from repair area.
13. Fillet seal repair parts.
14. Restore initial finish.

NOTES

- WHEN USING THIS REPAIR REFER TO:
- AMM 51-21 FOR RESTORATION OF FINISHES
- AMM 51-31 OF THE FOR SEALS AND SEALING
- SRM 51-10-02 FOR INSPECTION AND REMOVAL OF DAMAGE
- SRM 51-20-01 FOR PROTECTIVE TREATMENT OF METAL
- SRM 51-20-05 FOR SEALING OF REPAIRS
- SRM 51-40 FOR FASTENER CODE, REMOVAL, INSTALLATION, HOLE SIZES, EDGE MARGINS AND SUBSTITUTIONS
- SEE LEFT SIDE VIEW FOR LOCATION OF TORQUE BOXES

[A] FILLER EXTENDS TO END OF STIFFENER

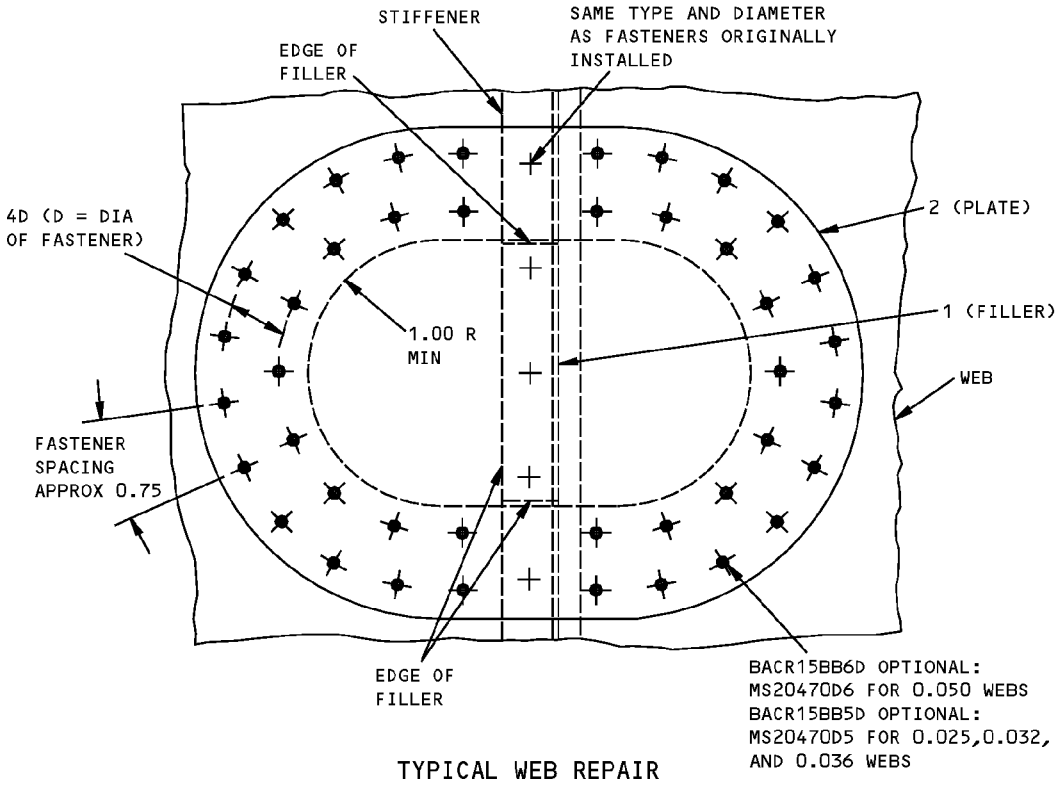
FASTENER SYMBOLS

INITIAL FASTENER LOCATIONS

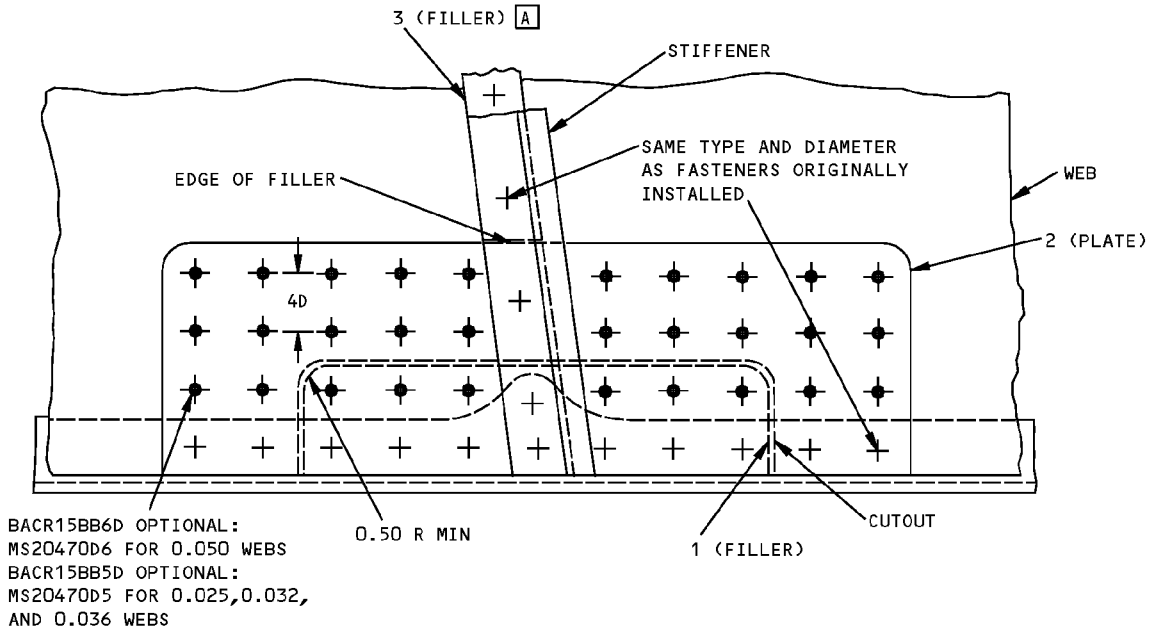
REPAIR FASTENER LOCATIONS

REPAIR MATERIAL			
PART		QTY	MATERIAL
1	FILLER	1	CLAD 7075-T6 SAME GAGE AS WEB
2	PLATE	1	CLAD 7075-T6 ONE GAGE HEAVIER THAN WEB
3	FILLER	1	CLAD 7075-T6 SAME GAGE AS 2 (PLATE)

Horizontal Stabilizer Rib Web Repair at a Stiffener
Figure 201 (Sheet 1 of 2)



TYPICAL WEB REPAIR



TYPICAL WEB REPAIR AT CHORD

Horizontal Stabilizer Rib Web Repair at a Stiffener
Figure 201 (Sheet 2 of 2)

REPAIR 2 - HORIZONTAL STABILIZER RIB WEB

APPLICABILITY
THIS REPAIR APPLIES TO BUILT UP SECTIONS WITHOUT CHEM-MILLED WEBS.

REPAIR INSTRUCTIONS

1. Remove leading edge skin, inspar skin access door or inspar skin panels as required.
2. Stop drill end of crack to a diameter of 0.25.
3. Make the repair parts.
4. Assemble the repair parts and drill the fastener holes.
5. Remove the repair parts.
6. Break all sharp edges of initial and repair parts 0.015 to 0.030 inch (0.4 to 0.8 mm).
7. Remove all nicks, scratches, burrs and sharp edges from initial and repair parts.
8. Apply a protective alodine coating to the repair parts and the bare surfaces of original parts as given in SRM 51-20-01.
9. Install the repair parts making faying surface seals with BMS 5-95 sealant. Install the fasteners wet with BMS 5-95 sealant.
10. Restore initial finish as shown in AMM 51-21.

NOTES

- WHEN USING THIS REPAIR REFER TO:
- AMM 51-21 OF THE 757 FOR INTERIOR AND EXTERIOR FINISHES
- SRM 51-10-02 FOR INSPECTION AND REMOVAL OF DAMAGE
- SRM 51-20-01 FOR PROTECTIVE TREATMENT OF METAL
- SRM 51-20-05 FOR REPAIR SEALING
- SRM 51-40 FOR FASTENER CODE, REMOVAL, INSTALLATION, HOLE SIZES AND EDGE MARGINS.

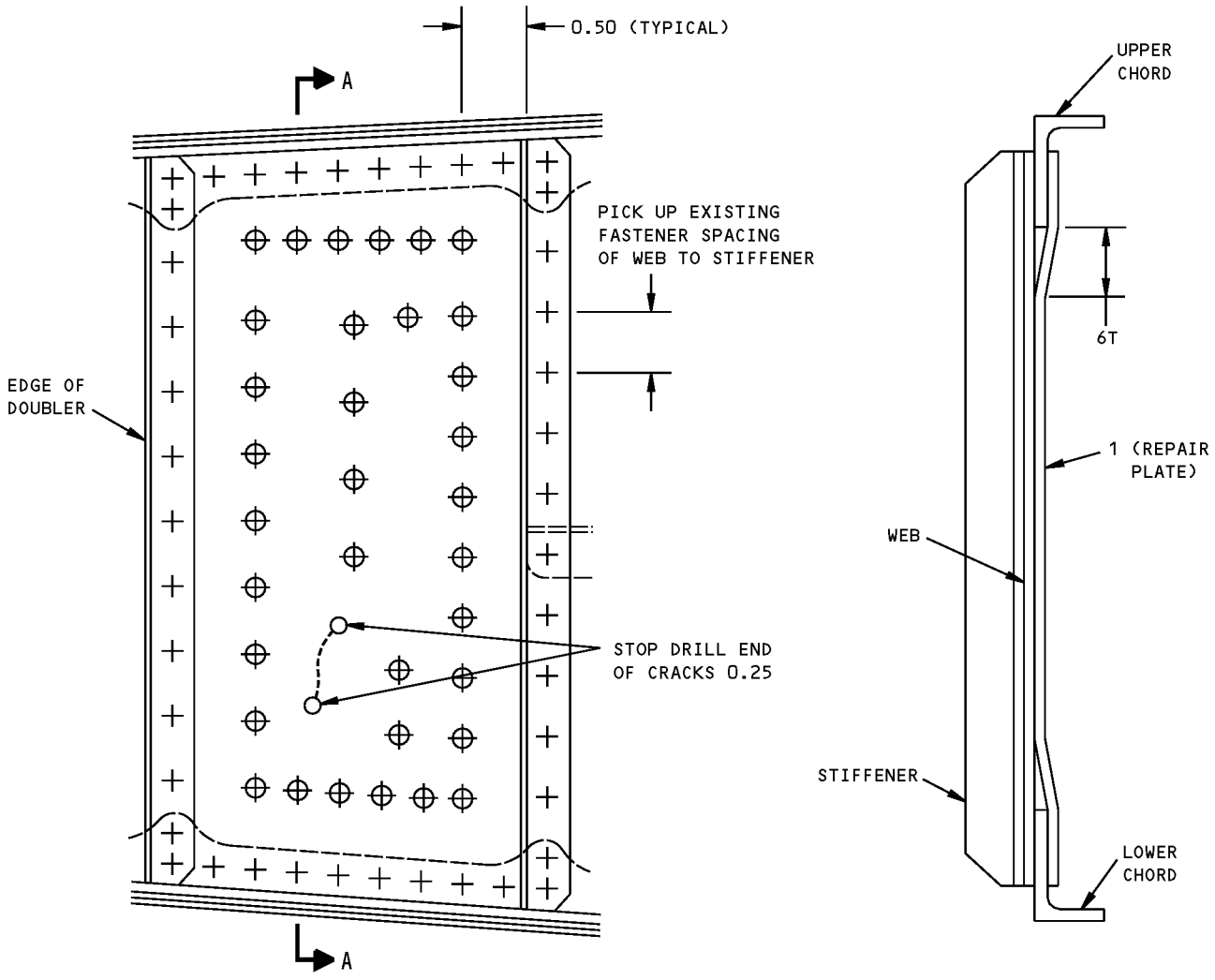
FASTENER SYMBOLS

┼ ORIGINAL FASTENER LOCATION. INSTALL 1/32 OVERSIZE FASTENERS

✦ REPAIR FASTENER LOCATION. INSTALL BACR15BB6AD RIVETS

REPAIR MATERIAL			
PART		QTY	MATERIAL
1	REPAIR PLATE	AS REQ'D	SAME MATERIAL AS INITIAL WEB ONE GAGE THICKER

Horizontal Stabilizer Rib Web Repair
Figure 201 (Sheet 1 of 2)



Horizontal Stabilizer Rib Web Repair
Figure 201 (Sheet 2 of 2)

REPAIR 3 - HORIZONTAL STABILIZER RIB CHORD

REPAIR INSTRUCTIONS

1. Cut out damaged portion of chord midway between initial chord to web fasteners taking care not to damage the web or skin.
2. Make the repair parts.
3. Assemble repair parts in installed positions and drill fastener holes.
4. Remove repair parts and deburr holes.
5. Break sharp edges of original and repair parts 0.015 to 0.030 inch (0.4 to 0.8 mm) radius.
6. Remove all nicks, scratches, sharp edges, and corners from repair parts and initial structure.
7. Alodize the repair parts and the reworked areas of the initial parts as shown in SRM 51-20-01.
8. Apply one coat of BMS 10-11, type I primer to all surfaces of repair parts and the reworked areas of the initial parts as shown in AMM 51-21-00.
9. Install repair parts, making a faying surface seal with BMS 5-95 sealant as described in SRM 51-20-05.
10. Install fasteners wet with BMS 5-95 sealant.
11. Remove loose debris from repair area.
12. Restore initial finish as shown in AMM 51-21-00.

NOTES

- WHEN YOU USE THIS REPAIR REFER TO:
  - AMM 51-21 FOR RESTORATION OF FINISHES
  - AMM 51-31 FOR SEALS AND SEALING
  - SRM 51-10-02 FOR INSPECTION AND REMOVAL OF DAMAGE
  - SRM 51-20-01 FOR PROTECTIVE TREATMENT OF METAL
  - SRM 51-20-05 FOR SEALING OF REPAIRS
  - SRM 51-40 FOR FASTENER CODE, REMOVAL, INSTALLATION, HOLE SIZES, EDGE MARGINS AND SUBSTITUTIONS

[A] REPAIR PARTS 3 AND 4 MAY BE USED AS AN ALTERNATIVE TO REPAIR PART 2. SEE TABLE I FOR MATERIAL GAGE. PARTS 3 AND 4 MAY HAVE TO BE FORMED IN THE 7075-O CONDITION TO OBTAIN THE REQUIRED BEND RADII TO NEST IN THE RIB CHORD RADIUS

[B] SEE TABLE I FOR MINIMUM FASTENER REQUIREMENTS ON EACH SIDE OF SPLICE

[C] USE SAME TYPE AND SIZE FASTENER AS ORIGINAL

[D] WHEN CALCULATING FASTENER REQUIREMENTS FRACTIONS OF A FASTENER SHOULD BE TAKEN TO THE NEXT HIGHER WHOLE NUMBER

[E] USE SAME THICKNESS AS ORIGINAL CHORD FLANGE THICKNESS

FASTENER SYMBOLS

⊕ INITIAL FASTENER LOCATION

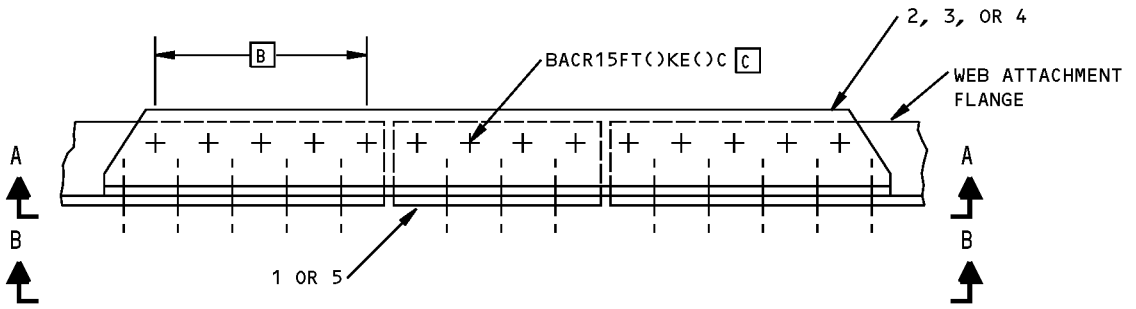
Horizontal Stabilizer Rib Chord Repair
Figure 201 (Sheet 1 of 4)

REPAIR MATERIAL			
PART		QTY	MATERIAL
1	FILLER ANGLE	1	MAKE FROM SAME EXTRUSION AS ORIGINAL CHORD 7075-T6511 (ANGLE SECTION)
2	ANGLE	1	MAKE FROM SAME EXTRUSION AS ORIGINAL CHORD 7075-T6511
3	ANGLE	1	7075-T6511 [A]
4	ANGLE	1	7075-T6511 [A]
5	FILLER TEE	1	MAKE FROM SAME EXTRUSION AS ORIGINAL CHORD 7075-T6511 (TEE SECTION)
6	PLATE	1	7075-T6511 [E]

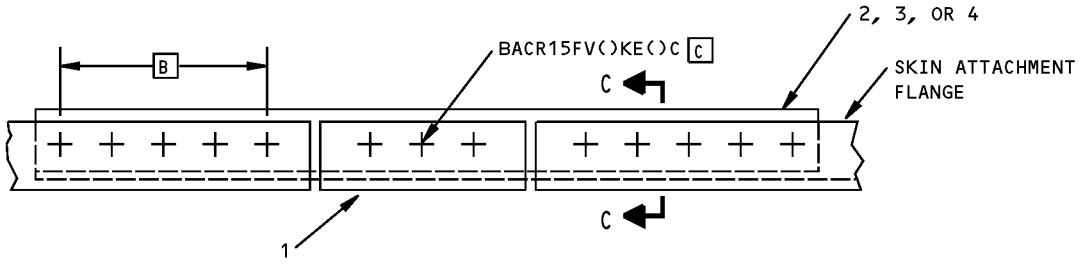
CHORD THICKNESS	GAGE OF REPAIR PARTS 3 AND 4	MINIMUM FASTENER REQUIREMENT PER INCH WIDTH OF FLANGE [D]	
		5/32 DIA	3/16 DIA
0.070	0.040	3.8	3.2
0.080	0.050	3.9	3.2
0.090	0.063	4.1	3.2
0.100	0.071	4.5	3.3
0.110	0.071	4.9	3.5
0.120	0.080	5.4	3.7
0.150	0.090	6.7	4.6

TABLE I

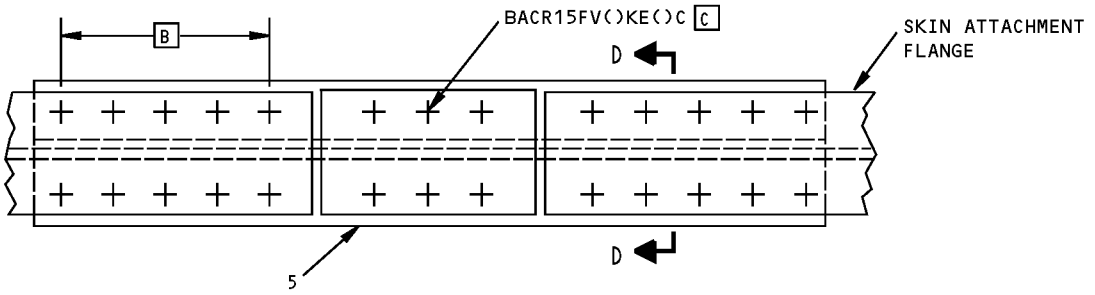
Horizontal Stabilizer Rib Chord Repair
Figure 201 (Sheet 2 of 4)



SIDE VIEW

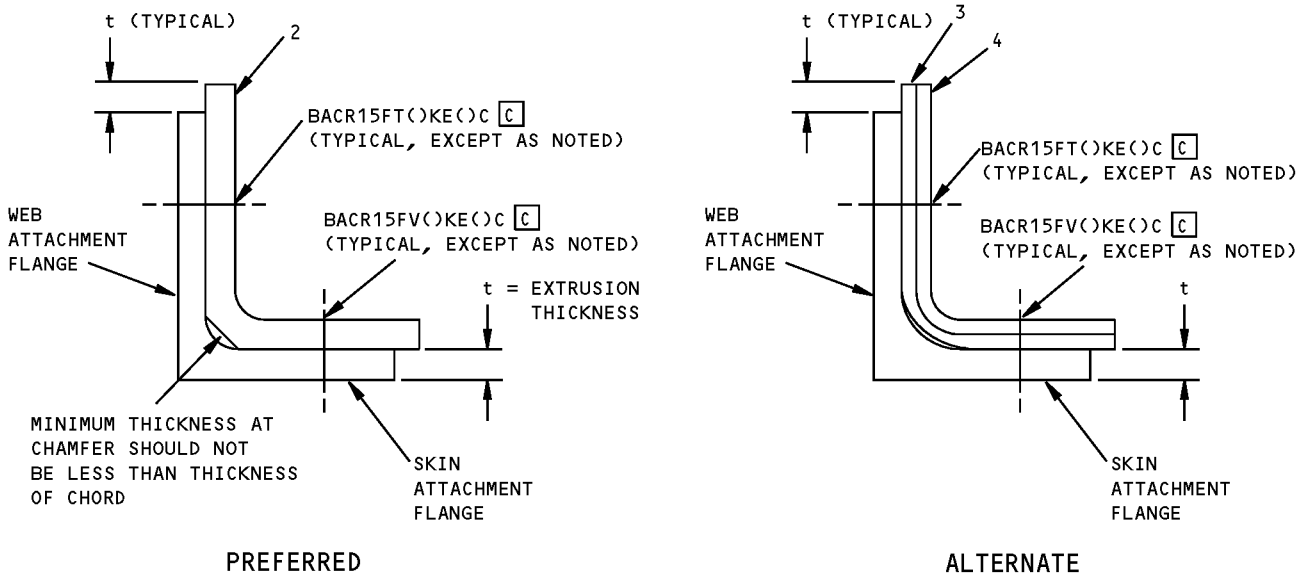


(ANGLE REPAIR)
SECTION A-A

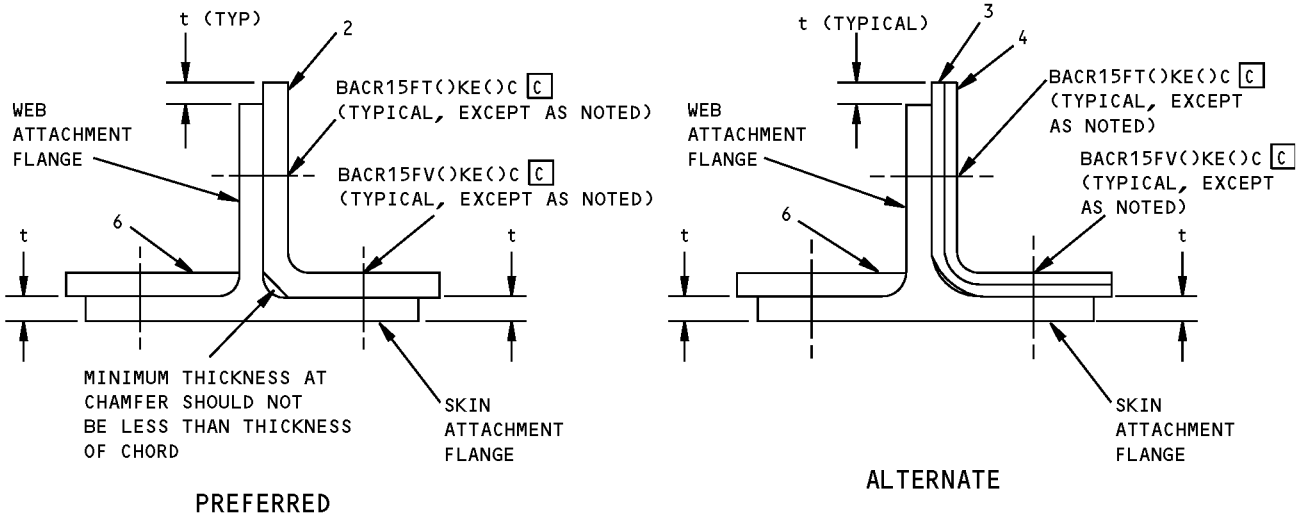


(TEE SECTION REPAIR)
SECTION B-B

Horizontal Stabilizer Rib Chord Repair
Figure 201 (Sheet 3 of 4)



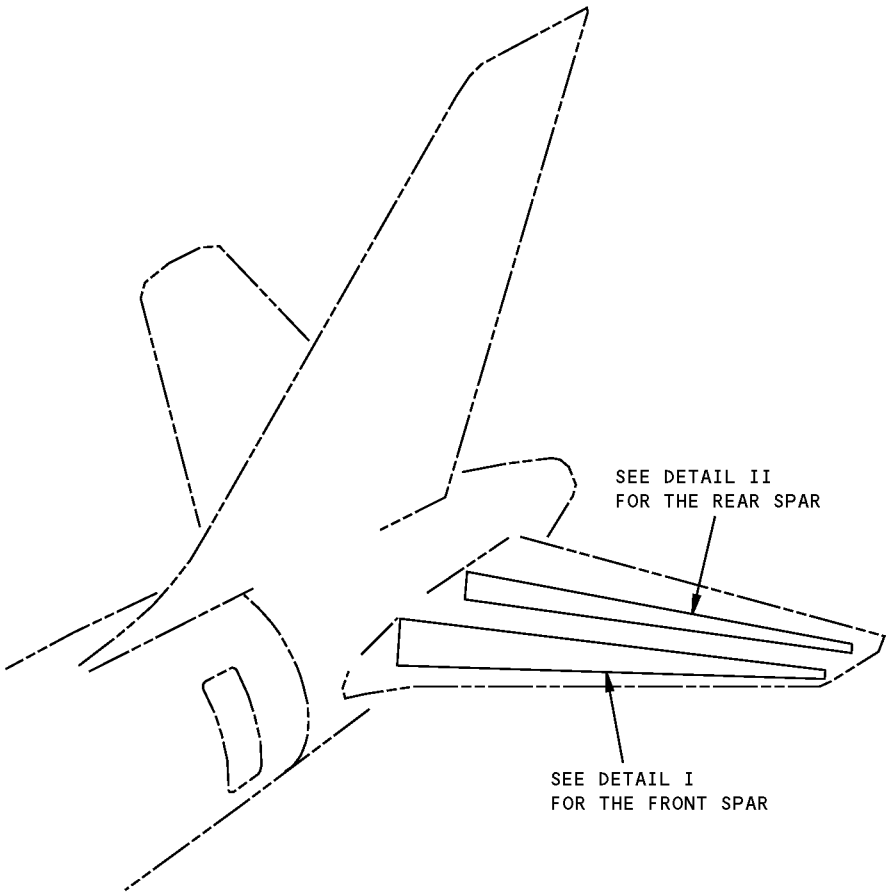
SECTION C–C



SECTION D–D

Horizontal Stabilizer Rib Chord Repair
Figure 201 (Sheet 4 of 4)

IDENTIFICATION 1 - HORIZONTAL STABILIZER SPAR

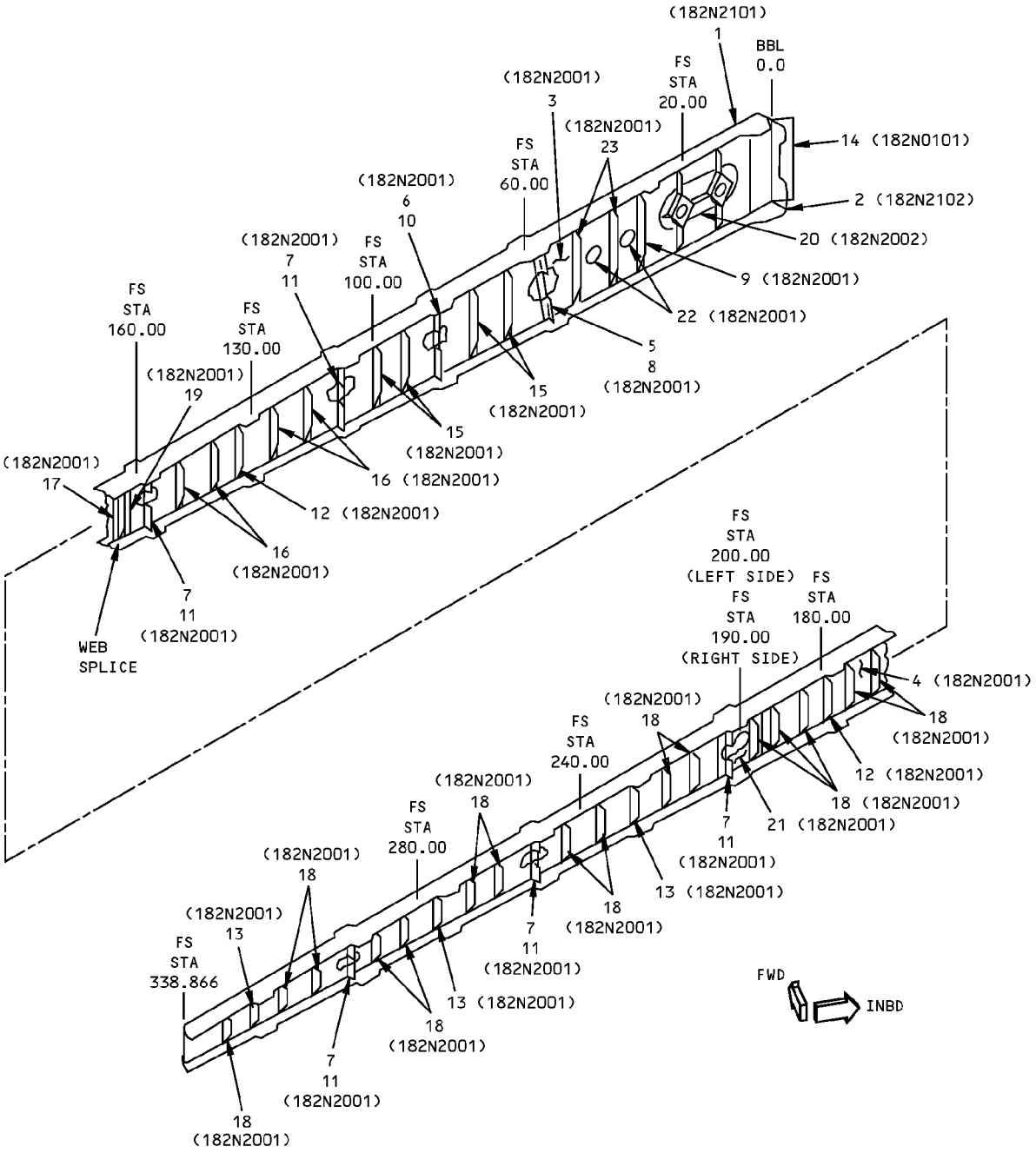


NOTES

- REFER TO SRM 55-10-11 FOR THE AUXILIARY SPAR IDENTIFICATION.

[A] FOR CUM LINE NUMBERS 805 AND ON

Horizontal Stabilizer Spar Identification
Figure 1 (Sheet 1 of 5)



REAR VIEW
FRONT SPAR
DETAIL I

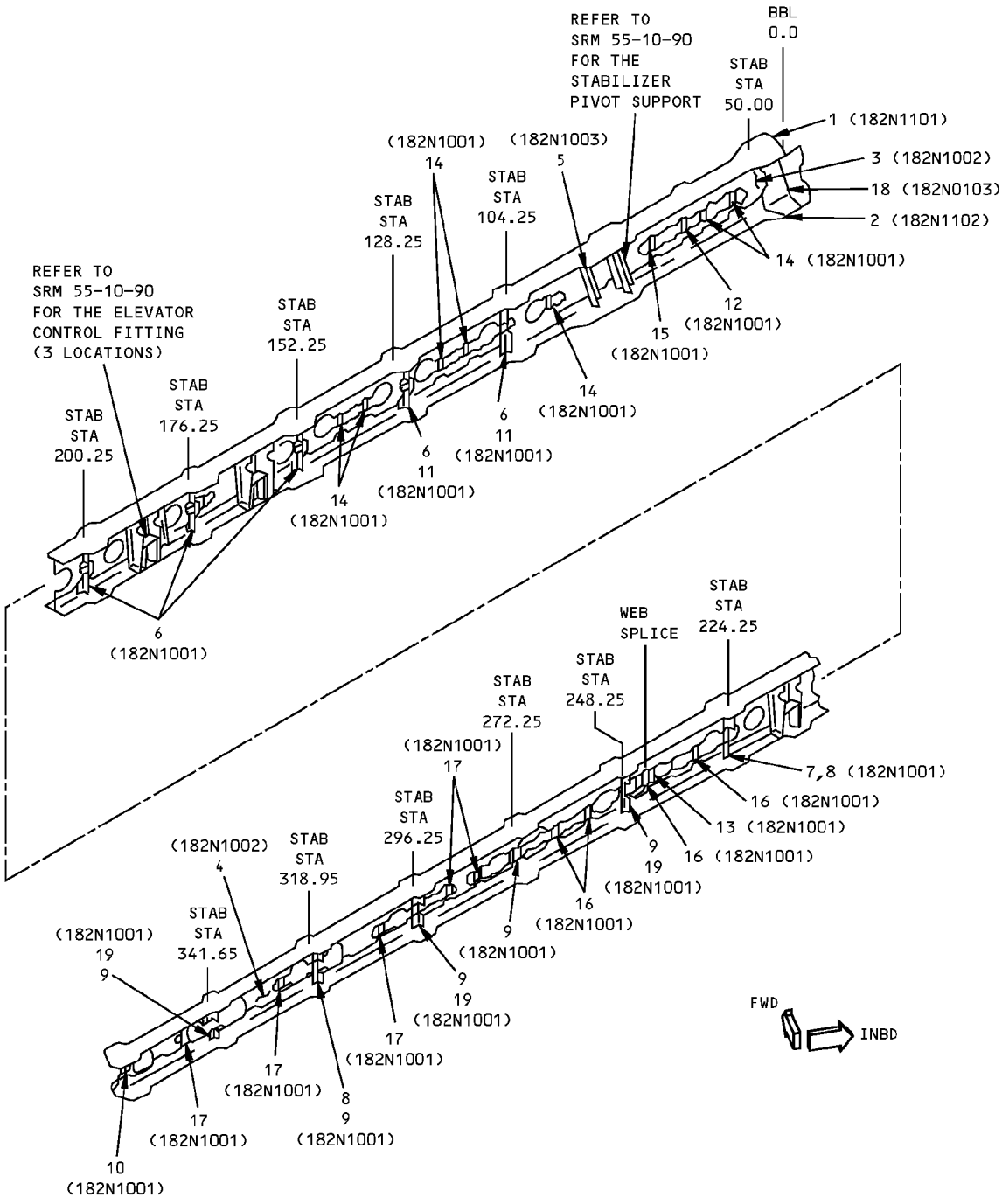
LIST OF MATL

Horizontal Stabilizer Spar Identification
Figure 1 (Sheet 2 of 5)

ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	UPPER CHORD		BAC1506-3320 7075-T73511	
2	LOWER CHORD		BAC1506-3321 7075-T73511	
3	WEB (INBOARD)	0.090	7075-T6 CHEM-MILLED	
4	WEB (OUTBOARD)	0.032	CLAD 2024-T3	
5	RIB POST FORWARD		BAC1514-2633 7075-T6511	
6	RIB POST FORWARD		BAC1503-100710 7075-T6511	
7	RIB POST FORWARD		BAC1503-100137 7075-T6511	
8	RIB POST AFT		BAC1514-2634 7075-T6511	
9	RIB POST AFT		BAC1514-2661 7075-T6511	
10	RIB POST AFT		BAC1514-2662 7075-T6511	
11	RIB POST AFT		BAC1514-2637 7075-T6511	
12	RIB POST AFT		BAC1514-2636 7075-T6511	
13	RIB POST AFT		BAC1514-2638 7075-T6511	
14	FRONT SPAR SPLICE FITTING		FORGING 7075-T73	
15	STIFFENER		BAC1503-100440 7075-T6511	
16	STIFFENER		BAC1503-100114 7075-T6511	
17	STIFFENER		BAC1503-100508 7075-T6511	
18	STIFFENER		BAC1503-100363 7075-T6511	
19	SPLICE PLATE	0.040 0.063	CLAD 2024-T3 CLAD 2024-T3 [A]	
20	ACCESS DOOR FITTING	1.50	7075-T7351 BARE PLATE	
21	DOUBLER	0.063	CLAD 2024-T3	
22	DOUBLER	0.125 0.140	CLAD 7075-T6 CLAD 7075-T6 [A]	
23	STIFFENER		BAC1503-100239 7075-T6511	

LIST OF MATERIALS FOR DETAIL I

Horizontal Stabilizer Spar Identification
Figure 1 (Sheet 3 of 5)



REAR VIEW
REAR SPAR
DETAIL II

LIST OF MATL

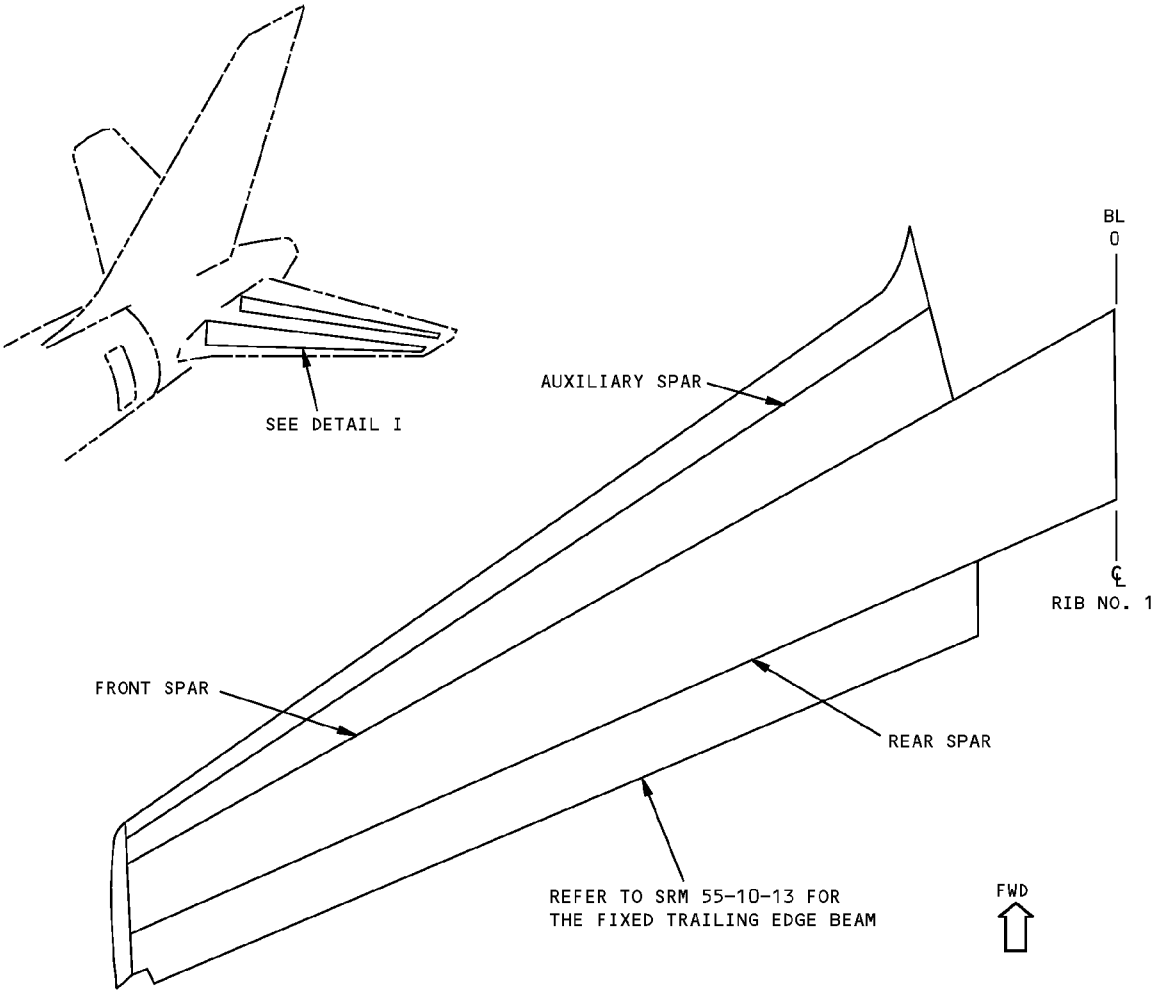
Horizontal Stabilizer Spar Identification
Figure 1 (Sheet 4 of 5)

ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	UPPER CHORD		BAC1506-3308 7075-T73511	
2	LOWER CHORD		BAC1506-3309 7075-T73511	
3	WEB (INBOARD)	0.375	7075-T651	
4	WEB (OUTBOARD)	0.125	7075-T6	
5	POST		BAC1514-2641 7075-T76511	
6	RIB POST FORWARD		AND10133-1202 7075-T6511	
7	RIB POST FORWARD		AND10134-1205 7075-T6511	
8	RIB POST AFT		BAC1514-2643 7075-T6511	
9	RIB POST FORWARD		BAC1503-100413 7075-T6511	
10	RIB POST FORWARD		BAC1514-2645 7075-T6511	
11	RIB POST AFT		BAC1514-2642 7075-T6511	
12	RIB POST FORWARD		BAC1514-2644 7075-T6511	
13	SPLICE PLATE	0.125	7075-T6	
14	STIFFENER		BAC1503-3373 7075-T6511	
15	STIFFENER		AND10133-1203 7075-T6511	
16	STIFFENER		AND10133-0602 7075-T6511	
17	STIFFENER		AND10133-0601 7075-T6511	
18	REAR SPAR SPLICE FITTING		FORGING 7075-T73	
19	RIB POST AFT		BAC1514-1732 7075-T6511	

LIST OF MATERIALS FOR DETAIL II

Horizontal Stabilizer Spar Identification
Figure 1 (Sheet 5 of 5)

ALLOWABLE DAMAGE 1 - HORIZONTAL STABILIZER SPARS



DETAIL I

DESCRIPTION	CRACKS	NICKS, GOUGES AND CORROSION	DENTS	HOLES AND PUNCTURES
SPAR CHORDS [C]	[D]	REMOVE AS SHOWN IN DETAILS II,III, AND V.	NOT PERMITTED	NOT PERMITTED
SPAR AND DOOR WEBS	[D]	REMOVE AS SHOWN IN DETAILS II,III, AND V.	SEE DETAIL IV	[B]
SPAR AND DOOR STIFFENERS	[A]	REMOVE AS SHOWN IN DETAILS II,III, AND VII.	NOT PERMITTED	SEE DETAIL VI
SPAR TO RIB NO. 1 [C] SPLICE FITTINGS	[A]	REMOVE AS SHOWN IN DETAILS II,III, AND VII.	NOT PERMITTED	NOT PERMITTED
RIB POSTS [C]	[D]	REMOVE AS SHOWN IN DETAILS II AND III.	NOT PERMITTED	NOT PERMITTED

Allowable Damage - Horizontal Stabilizer Spars
Figure 101 (Sheet 1 of 3)

NOTES

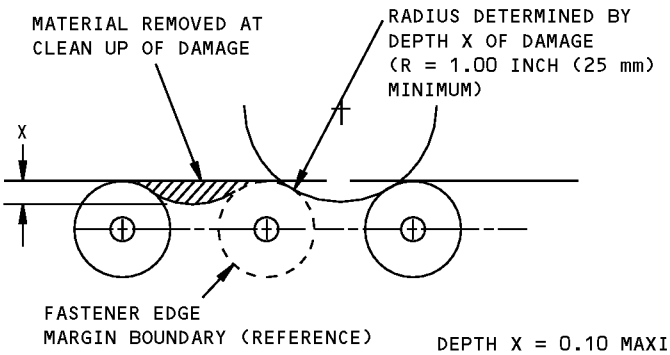
- REFER TO SRM 51-10-02 FOR INSPECTION AND REMOVAL OF DAMAGE.
- REFINISH REWORKED AREAS AS GIVEN IN AMM 51-20.

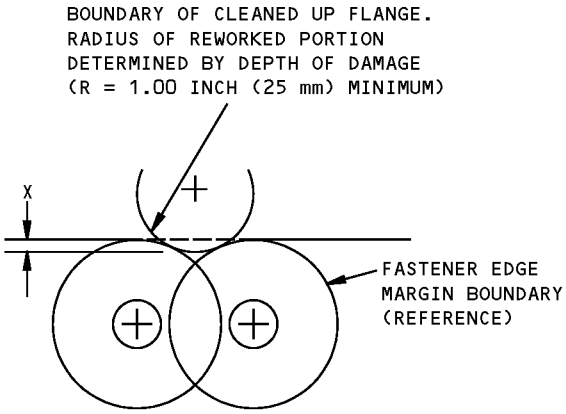
[A] CLEAN UP EDGE CRACKS AS SHOWN IN DETAILS II AND VII. OTHER CRACKS MUST BE REPAIRED.

[B] CLEAN OUT DAMAGE UP TO 0.25 INCH (6 mm) MAXIMUM DIAMETER. HOLE MUST BE A MINIMUM OF 4D FROM AN EXISTING HOLE, FASTENER OR OTHER DAMAGE AND 3D FROM ANY PART EDGE. FILL HOLE WITH A 2117-73 OR T4 ALUMINUM PROTRUDING HEAD RIVET INSTALLED WET WITH BMS 5-95 SEALANT. A MAXIMUM OF 2 HOLES PER BAY ALLOWED AND NO HOLES ARE PERMITTED IN WEB BAY WITH LARGE PENETRATION HOLES.

[C] SHOT PEEN REWORKED AREAS AS GIVEN IN SRM 51-20-06.

[D] CLEAN UP EDGE CRACKS AS SHOWN IN DETAIL II. OTHER CRACKS MUST BE REPAIRED.



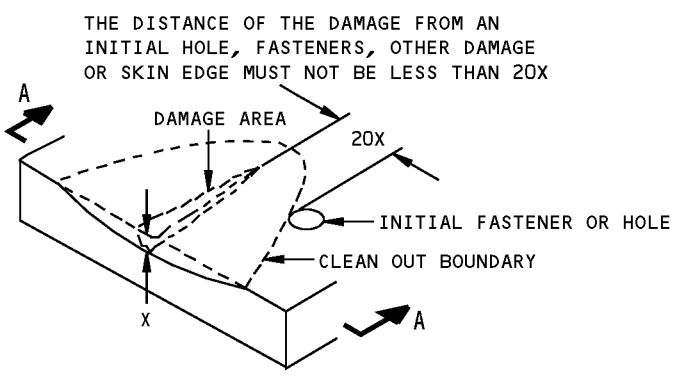


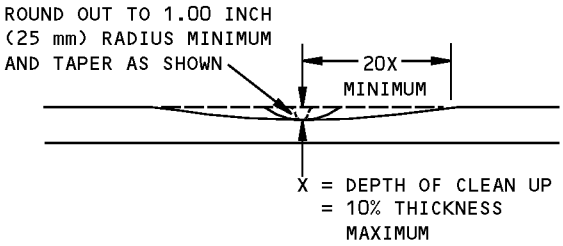
DEPTH X = 0.10 MAXIMUM FOR WEB AND STIFFENER
0.05 MAXIMUM FOR SPAR CHORDS, RIB POSTS AND SPLICE FITTINGS

DAMAGE CLEAN UP OF EDGES WHERE FASTENER EDGE MARGINS DO NOT OVERLAP

DAMAGE CLEAN UP OF EDGES WHERE FASTENER EDGE MARGINS OVERLAP

DETAIL II





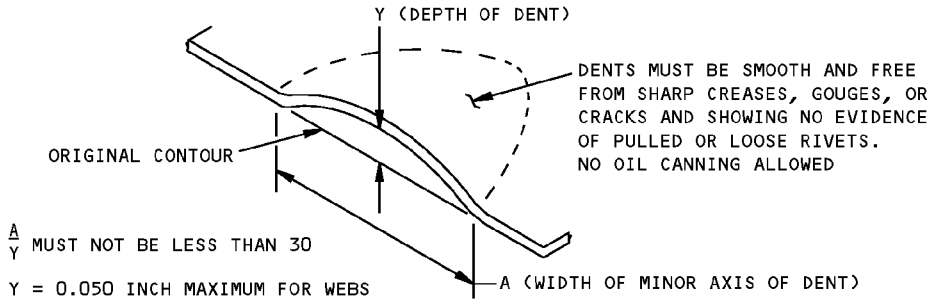
THE MAXIMUM AREA REMOVED FOR DAMAGE CLEANUP SHALL NOT EXCEED 4% OF THE INITIAL CROSS-SECTIONAL AREA

SECTION A-A

REMOVAL OF NICK, GOUGE AND SCRATCH DAMAGE ON A SURFACE

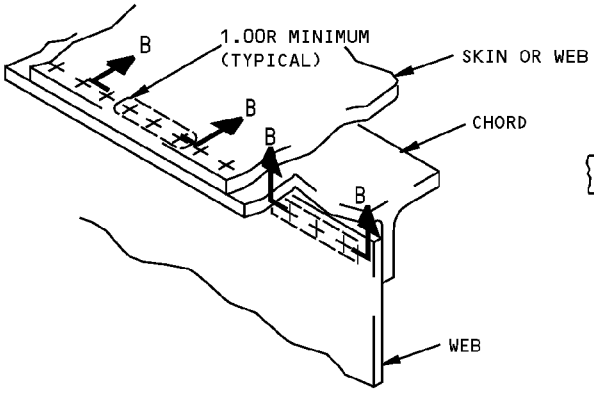
DETAIL III

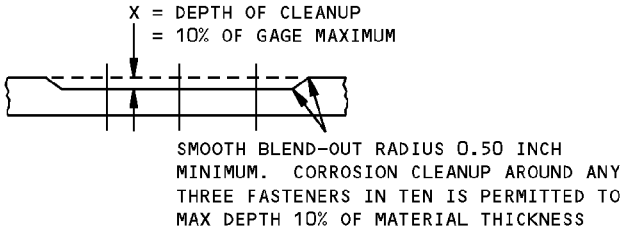
Allowable Damage - Horizontal Stabilizer Spars
Figure 101 (Sheet 2 of 3)



ALLOWABLE DAMAGE FOR DENT

DETAIL IV

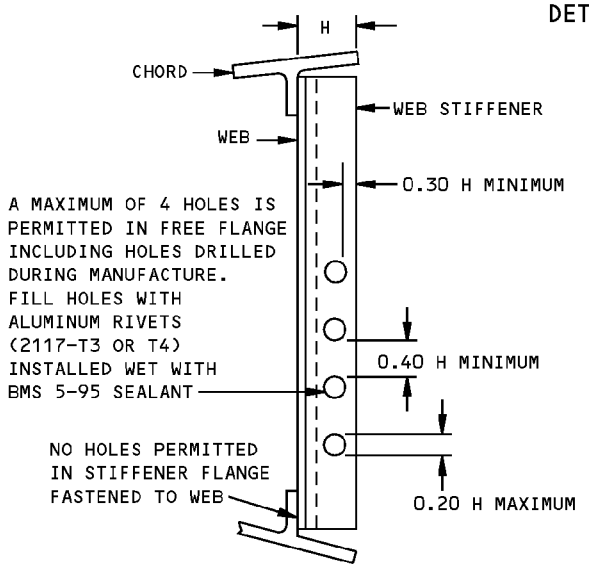




SECTION B-B

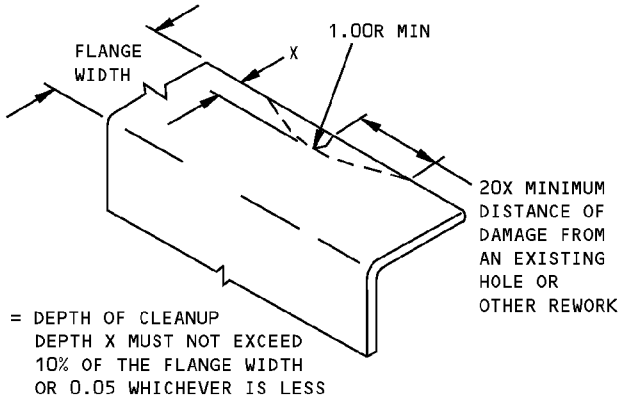
CORROSION CLEANUP

DETAIL V



TYPICAL FOR ALL WEB STIFENERS

DETAIL VI



DAMAGE CLEANUP OF FREE FLANGES WITHOUT FASTENERS

DETAIL VII

Allowable Damage - Horizontal Stabilizer Spars
Figure 101 (Sheet 3 of 3)

REPAIR GENERAL - HORIZONTAL STABILIZER SPAR - SERVICE BULLETIN LIST

SERVICE BULLETIN REPAIRS

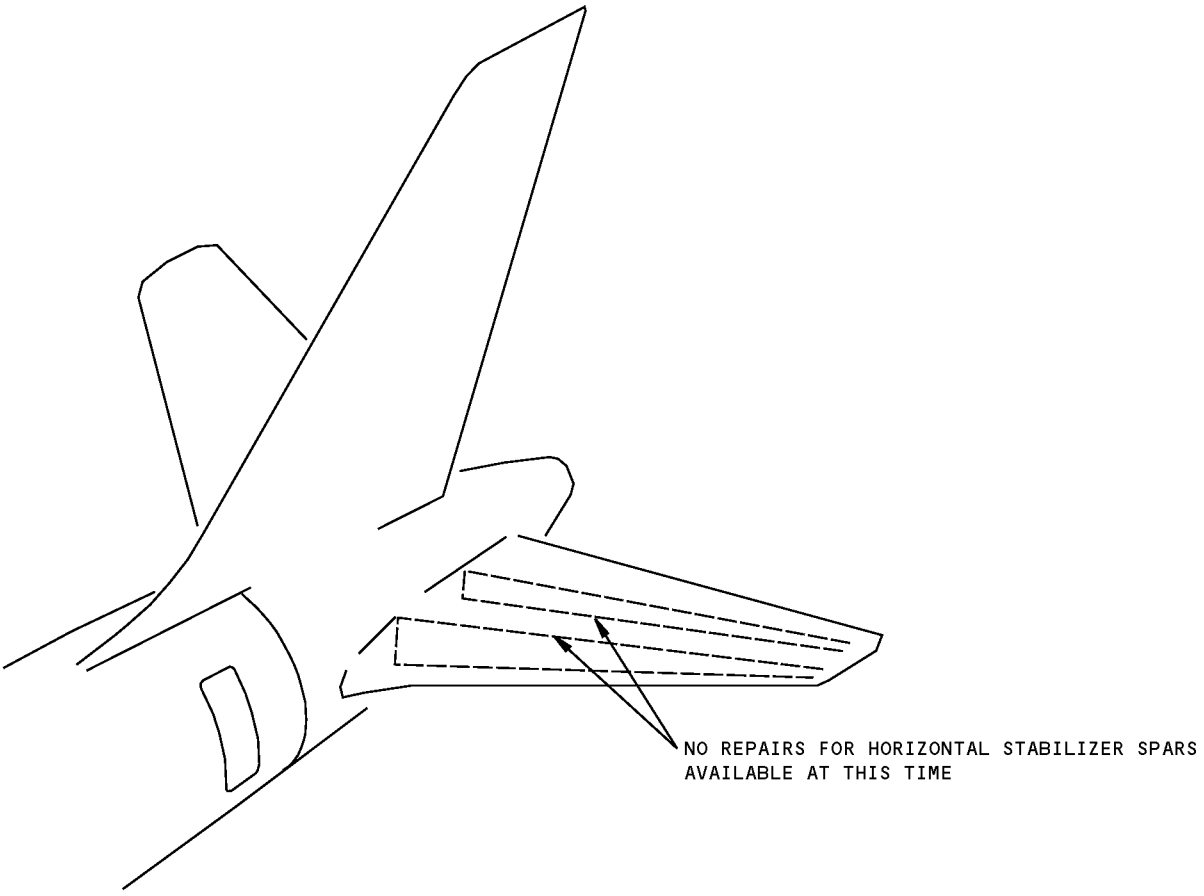
The following service bulletins contain horizontal stabilizer spar repairs which are available for use where specific damage has been encountered. Usually, the service bulletin also covers preventive modification data which operators are encouraged to use to eliminate the need for repair.

DAMAGED AREA	CUM LINE NUMBER EFFECTIVITY [A]	SB NUMBER
STABILIZERS - HORIZONTAL STABILIZER FORWARD TORQUE BOX - INBOARD CLOSURE RIB LOWER CHORD	1 THRU 223	757-55-0007

[A] FOR AIRPLANES ON WHICH PREVENTIVE MODIFICATION HAS NOT BEEN ACCOMPLISHED

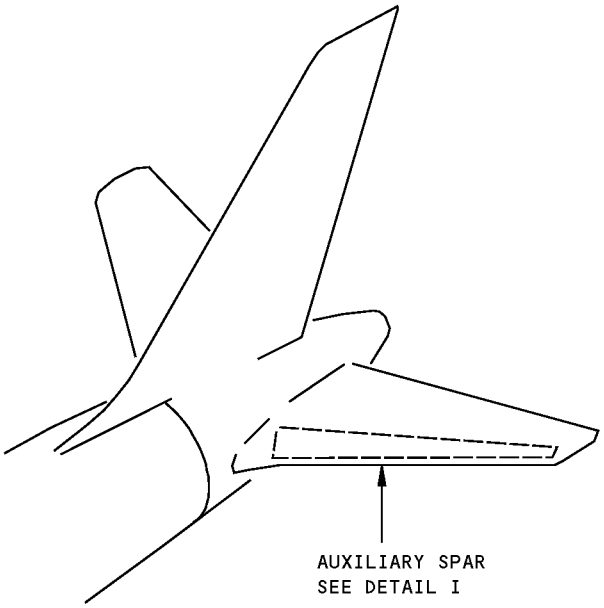
Horizontal Stabilizer Spar
Figure 201

REPAIR 1 - HORIZONTAL STABILIZER SPAR



Horizontal Stabilizer Spar Repair
Figure 201

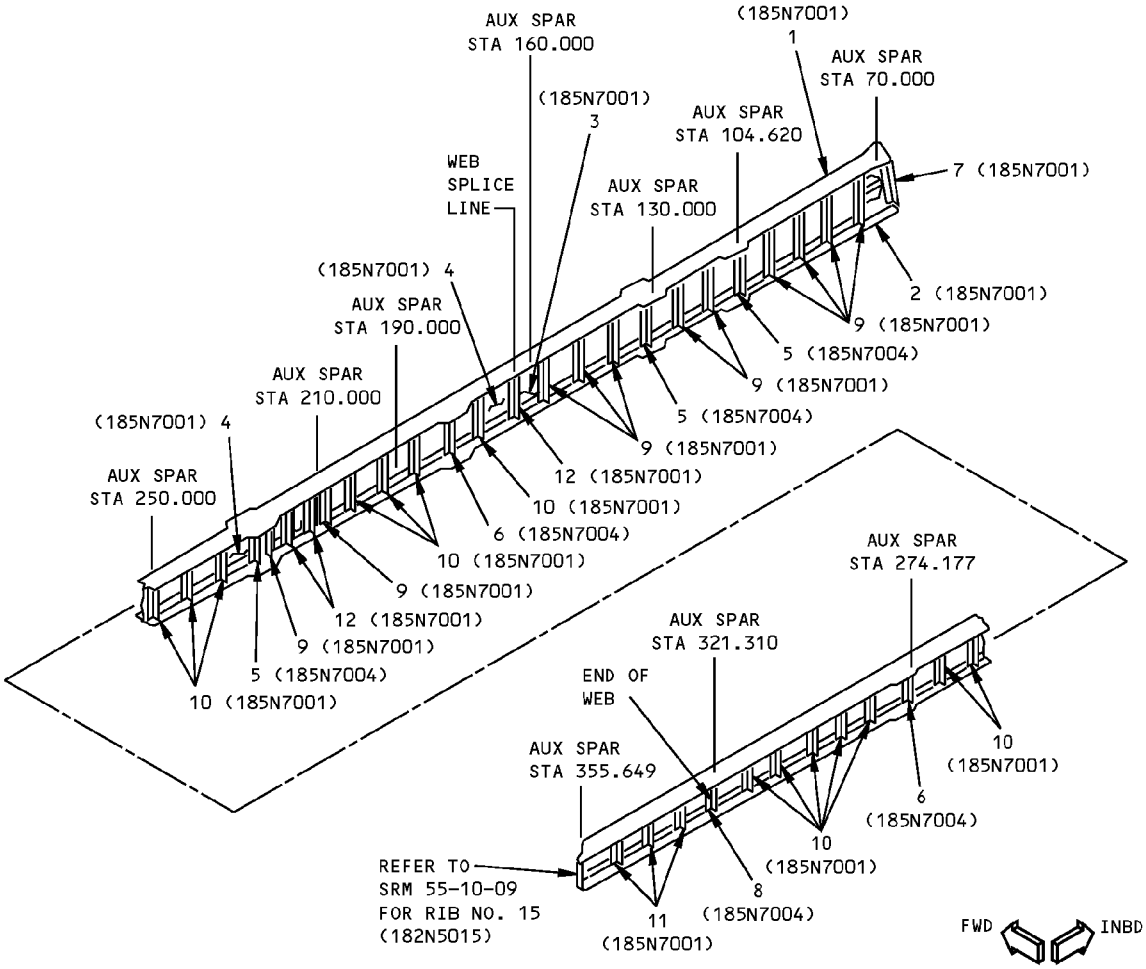
IDENTIFICATION 1 - HORIZONTAL STABILIZER AUXILIARY SPAR



NOTES

- FOR FRONT AND REAR SPAR IDENTIFICATION SEE 55-10-10

Horizontal Stabilizer Auxiliary Spar Identification
Figure 1 (Sheet 1 of 2)



REAR VIEW
DETAIL I

ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	UPPER CHORD		BAC1506-3328 7075-T6	
2	LOWER CHORD		BAC1506-3327 7075-T6	
3	WEB	0.040	CLAD 7075-T6	
4	WEB	0.032	CLAD 7075-T6	
5	RIB POST		BAC1514-1591 7075-T6	
6	RIB POST		BAC1514-749 7075-T6	
7	RIB POST		BAC1506-3407 7075-T6	
8	RIB POST		BAC1514-749 7075-T6511	
9	STIFFENER		AND10133-0702 7075-T6	
10	STIFFENER		AND10133-0601 7075-T6	
11	STIFFENER		AND10133-0601 7075-T6511	
12	SPLICE TEE		AND10136-1605 7075-T6	

LIST OF MATERIALS FOR DETAIL I

Horizontal Stabilizer Auxiliary Spar Identification
Figure 1 (Sheet 2 of 2)

REPAIR 1 - HORIZONTAL STABILIZER AUXILIARY SPAR WEB REPAIR

APPLICABILITY
THIS REPAIR IS APPLICABLE TO THE AUXILIARY SPAR WEB BETWEEN AUXILIARY SPAR STATIONS 75.5 AND 314.5

REPAIR INSTRUCTIONS

1. Remove the necessary fasteners and get access to the damaged auxiliary spar web.
2. Inspect the crack using the dye penetrant inspection procedure. If the crack does not end at a fastener hole, drill a 0.25 inch (25 mm) diameter hole at the end of the crack.
3. Remove the fasteners and web stiffeners as necessary to install the repair part.
4. Make the repair part. Refer to Table I and Detail I.
5. Assemble the repair. Drill holes in the repair part to align with the locations of the initial fastener holes in the spar web. Drill holes for the repair fasteners.
6. Disassemble the repair.
7. Remove all of the nicks, scratches, gouges, burrs and sharp edges from the repair part and the web, chords, and stiffeners.
8. Apply Alodine to the repair part and the bare edges of the web, chords, and stiffeners. Refer to SRM 51-20-01.
9. Apply one layer of BMS 10-11, type I primer to the repair part and to the bare edges of the web, chords, and stiffeners.
10. Install the repair parts with BMS 5-95 between the faying surfaces.
11. Apply the finish to the repair area. Refer to AMM 51-21.

NOTES

- WHEN YOU USE THIS REPAIR, REFER TO:
  - AMM 51-21 FOR INTERIOR AND EXTERIOR FINISHES
  - SOPM 20-20-02 FOR DYE PENETRANT INSPECTION PROCEDURES.
  - SRM 51-10-02 FOR INSPECTION AND REMOVAL OF DAMAGE
  - SRM 51-20-01 FOR PROTECTIVE TREATMENT OF METALLIC AND GRAPHITE MATERIALS
  - SRM 51-20-05 FOR REPAIR SEALING
  - SRM 51-40 FOR FASTENER CODE, INSTALLATION AND REMOVAL, HOLE SIZES, EDGE MARGINS, AND COUNTERSINKING

[A] FOR THE INBOARD WEB LOCATED INBOARD OF AUX SPAR STA 161.70.

[B] FOR THE OUTBOARD WEB LOCATED OUTBOARD OF AUX SPAR STA 161.70.

[C] MAKE THE CUTOUT IN THE PLATE (ITEM 1) AS CLOSE AS POSSIBLE TO THE RADIUS OF THE LIGHTENING HOLE.

FASTENER SYMBOLS

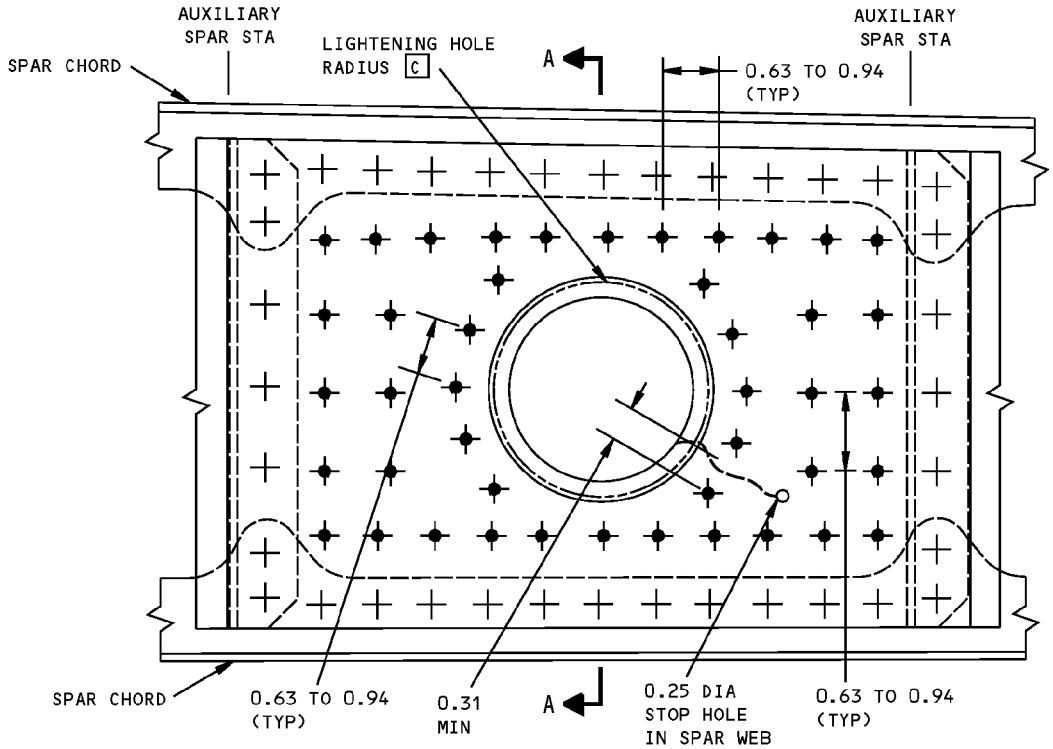
+ EXISTING FASTENER LOCATION. INSTALL THE SAME TYPE AND SIZE FASTENER AS THE INITIAL FASTENER.

⊕ REPAIR FASTENER LOCATION. INSTALL A BACR15FT5D() RIVET.

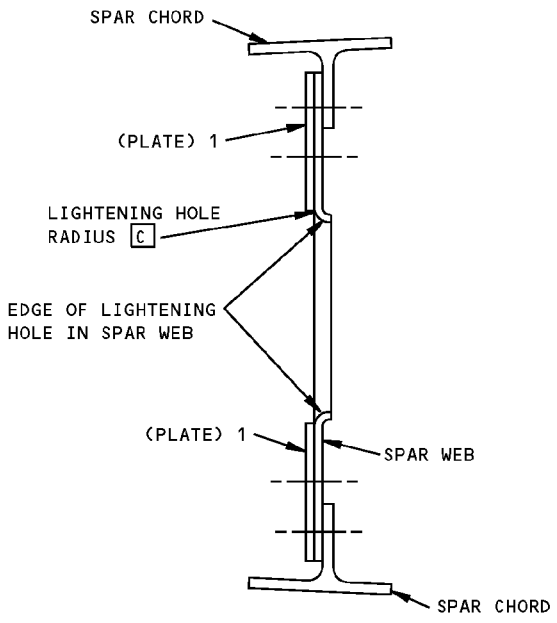
REPAIR MATERIAL			
PART		QTY	MATERIAL
1	PLATE	1	0.071 CLAD 7075-T6 [A] 0.050 CLAD 7075-T6 [B]

TABLE I

Horizontal Stabilizer Auxiliary Spar Web Repair
Figure 201 (Sheet 1 of 2)



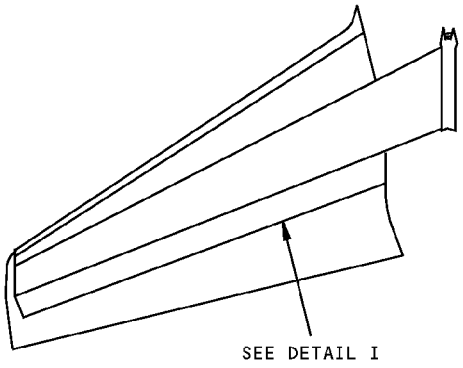
TYPICAL REPAIR
VIEW LOOKING AFT
DETAIL I

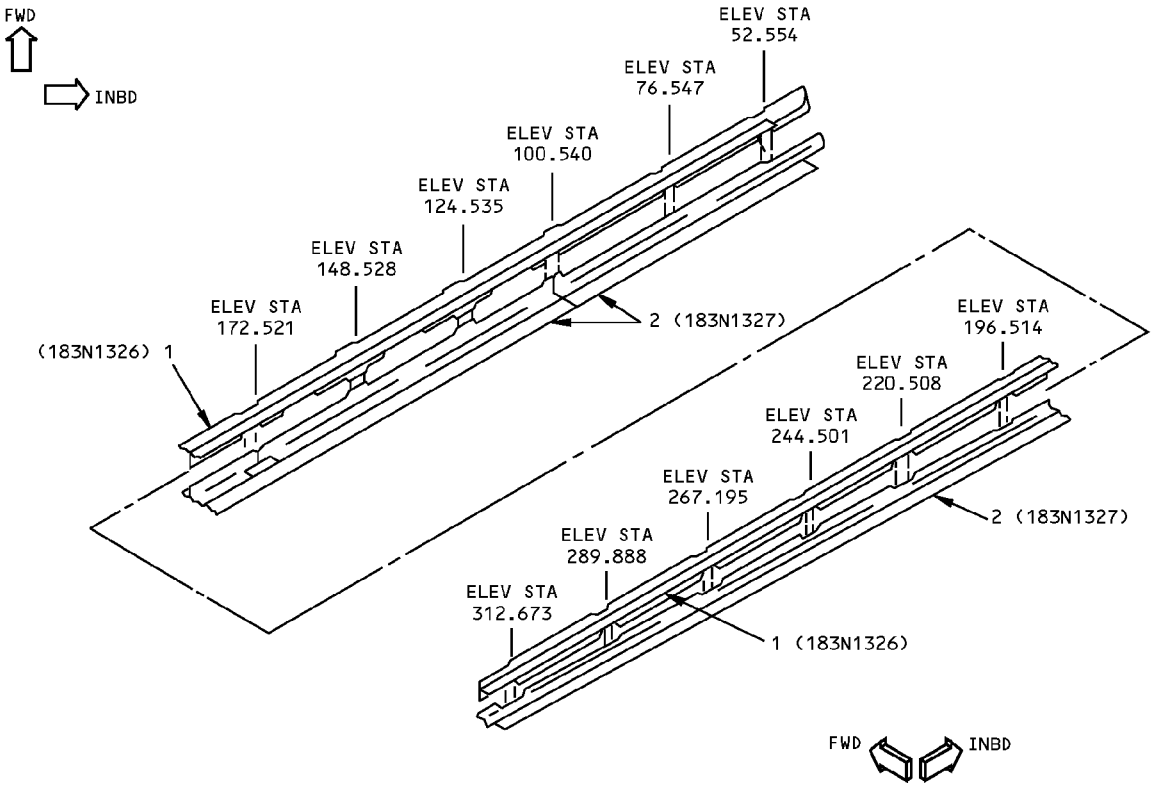


SECTION A-A

Horizontal Stabilizer Auxiliary Spar Web Repair
Figure 201 (Sheet 2 of 2)

IDENTIFICATION 1 - HORZONTAL STABILIZER FIXED TRAILING EDGE BEAM





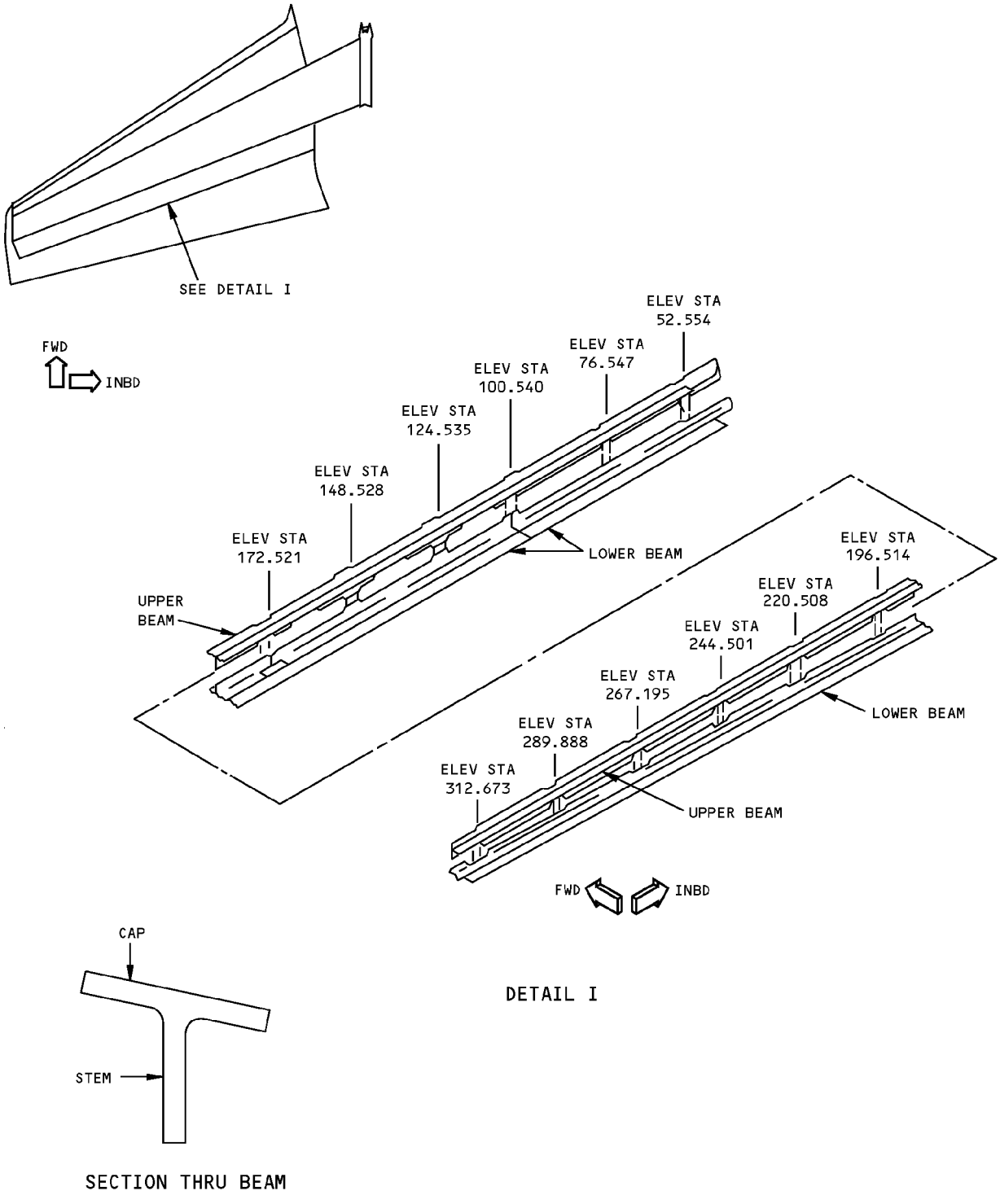
DETAIL I

ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	UPPER BEAM		BAC1506-3331 7075-T73511	
2	LOWER BEAM		BAC1506-3332 7075-T73511	

LIST OF MATERIALS FOR DETAIL I

Horizontal Stabilizer Fixed Trailing Edge Beam Identification
Figure 1

ALLOWABLE DAMAGE 1 - HORIZONTAL STABILIZER FIXED TRAILING EDGE BEAM



Allowable Damage - Horizontal Stabilizer Fixed Trailing Edge Beam
Figure 101 (Sheet 1 of 3)

LOCATION	CRACKS	NICKS, GOUGES AND CORROSION	DENTS	HOLES AND PUNCTURES
UPPER AND LOWER BEAMS				
STEM	[A]	[B]	NOT PERMITTED	[C]
CAP	[A]	[B]	NOT PERMITTED	NOT PERMITTED

NOTES

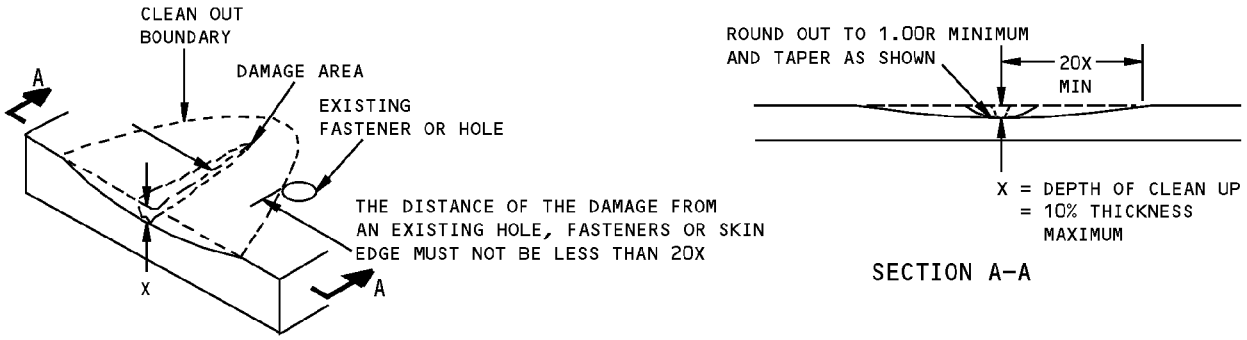
- REFINISH REWORKED AREAS AS GIVIN IN AMM 51-20.

[A] CRACKS IS NOT PERMITTED EXCEPT FOR EDGE CRACKS WHICH MUST BE REMOVED AS SHOWN IN DETAILS III AND IV.

[B] REMOVE DAMAGE AS SHOWN IN DETAILS II,III AND IV.

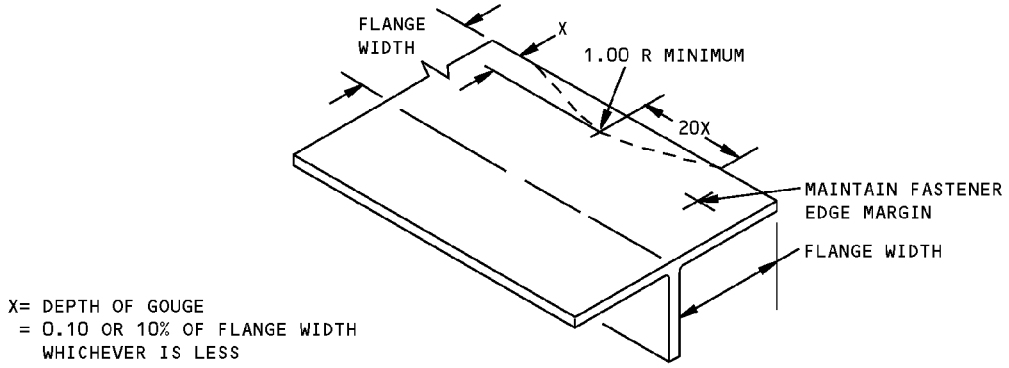
[C] CLEAN OUT DAMAGE UP TO 0.25 INCH MAXIMUM DIAMETER AND NOT CLOSER THAN 1.0 INCH TO A FASTENER HOLE OR OTHER DAMAGE. MAINTAIN 2.0D EDGE MARGIN ON PART EDGE. FILL HOLE WITH A 2117-T3 OR T4 ALUMINUM RIVET INSTALLED WET WITH BMS 5-95 SEALANT. ALL OTHER HOLES TO BE REPAIRED.

Allowable Damage - Horizontal Stabilizer Fixed Trailing Edge Beam
Figure 101 (Sheet 2 of 3)



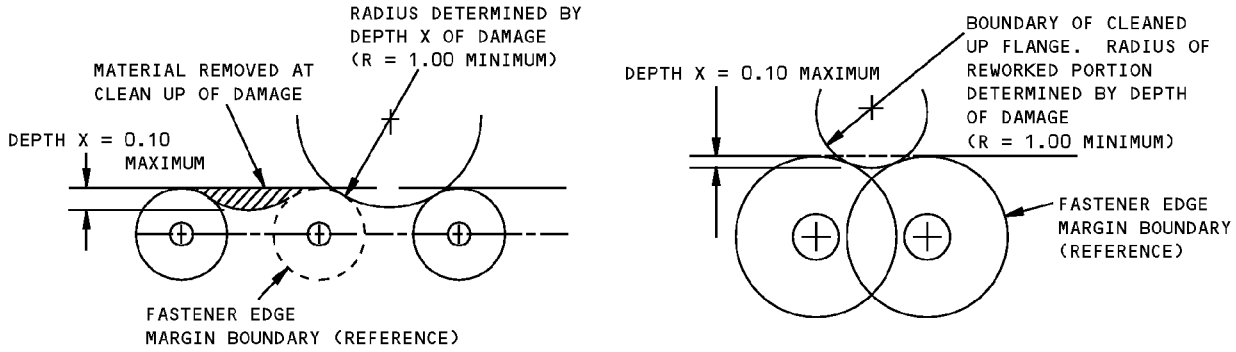
REMOVAL OF NICK, GOUGE AND SCRATCH DAMAGE ON A SURFACE

DETAIL II



REMOVAL OF NICK OR CRACK
DAMAGE ON AN EDGE

DETAIL III



DAMAGE CLEAN UP OF EDGES WHERE
FASTENER EDGE MARGINS DO NOT OVERLAP

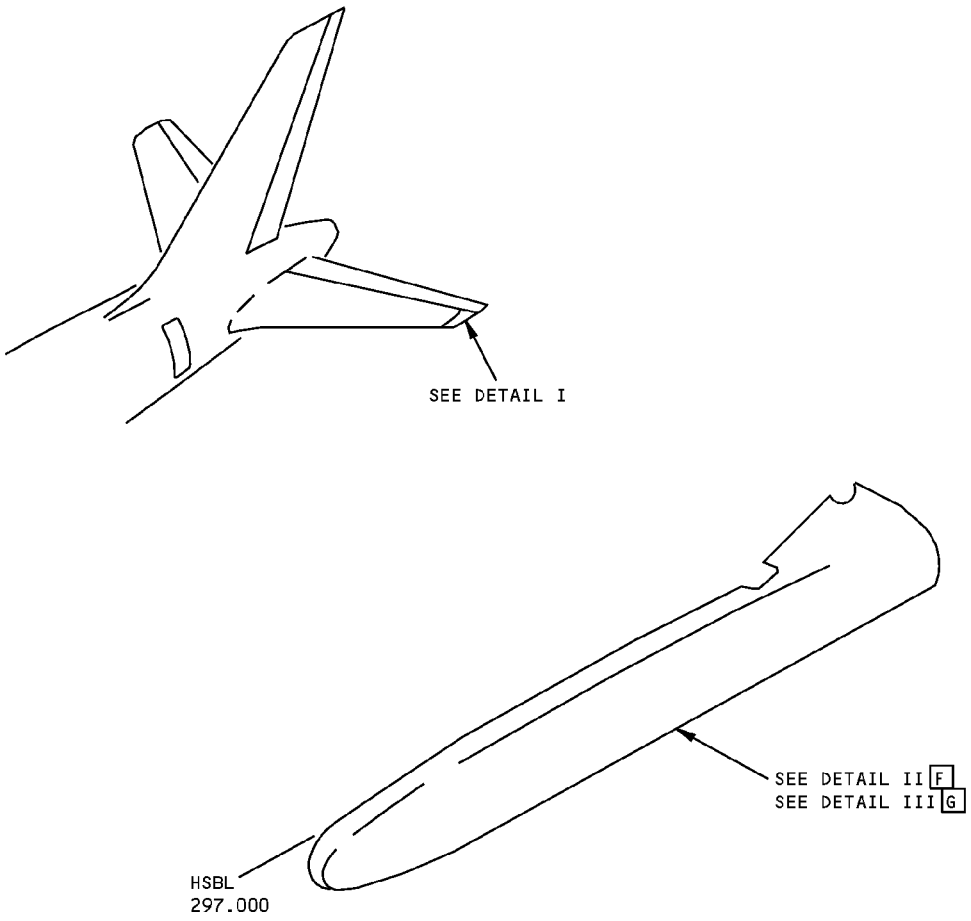
DAMAGE CLEAN UP OF EDGES WHERE
FASTENER EDGE MARGINS OVERLAP

DETAIL IV

Allowable Damage - Horizontal Stabilizer Fixed Trailing Edge Beam
Figure 101 (Sheet 3 of 3)

IDENTIFICATION 1 - HORIZONTAL STABILIZER TIP

REFERENCE DRAWING
189N0001



DETAIL I

NOTES

A PLY ORIENTATION CONVENTION, DEGREES INDICATED, IS PARALLEL TO THE FABRIC WARP DIRECTION

B ARAMID FABRIC PER BMS 8-219, TYPE 285, 250°F (121°C) CURE

C MATERIAL AND PLY ORIENTATION SHOWN FOR FIELD AREAS ONLY. SEE BOEING DRAWINGS FOR EDGE BANDS AND AREAS WITH DOUBLERS

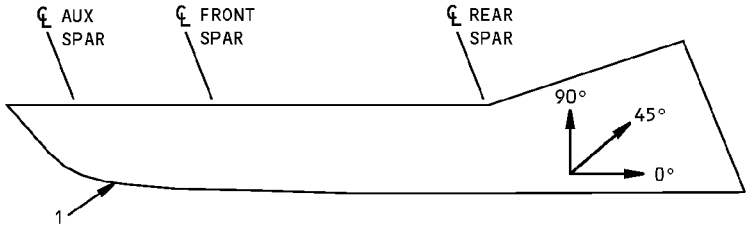
D FIBERGLASS/EPOXY PER BMS 8-139, TYPE 120, 250°F (121°C) CURE

E FIBERGLASS/EPOXY PER BMS 8-139, TYPE 1581, 250°F (121°C) CURE

F FOR CUM LINE NUMBERS: 1 THRU 140

G FOR CUM LINE NUMBERS: 141 AND ON

Horizontal Stabilizer Tip Identification
Figure 1 (Sheet 1 of 3)

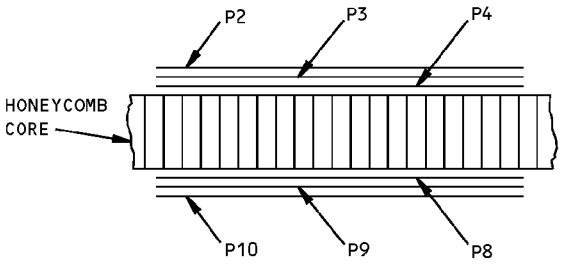


SEE PLY TABLE FOR INDIVIDUAL PLY ORIENTATION [A]

PLY ORIENTATION DIAGRAM

ITEM NO.	PLY NUMBER	MATERIAL	PLY ORIENTATION [A]
1	P2 P3 P4 P8 P9 P10	[B]	0° OR 90°

PLY TABLE [C]

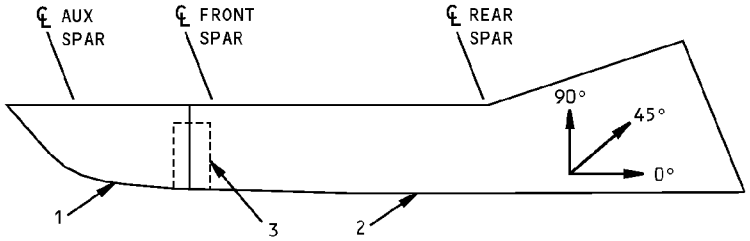


HORIZONTAL STABILIZER TIP [F]
DETAIL II

ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	TIP ASSEMBLY SKIN CORE	 0.30	ARAMID/EPOXY HONEYCOMB SANDWICH SEE DETAIL II NONMETALLIC HONEYCOMB PER BMS 8-124, CLASS IV, TYPE VI, GRADE 3.0	

LIST OF MATERIALS FOR DETAIL II

Horizontal Stabilizer Tip Identification
Figure 1 (Sheet 2 of 3)

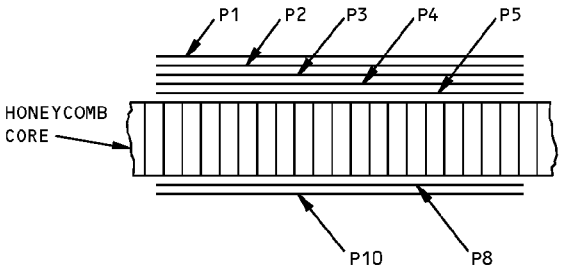


SEE PLY TABLE FOR INDIVIDUAL PLY ORIENTATION [A]

PLY ORIENTATION DIAGRAM

ITEM NO.	PLY NUMBER	MATERIAL	PLY ORIENTATION [A]
2	P1	[D]	45°
	P2	[E]	0° OR 90°
	P3,P4	[E]	45°
	P5,P8,P10	[E]	0° OR 90°

PLY TABLE [C]



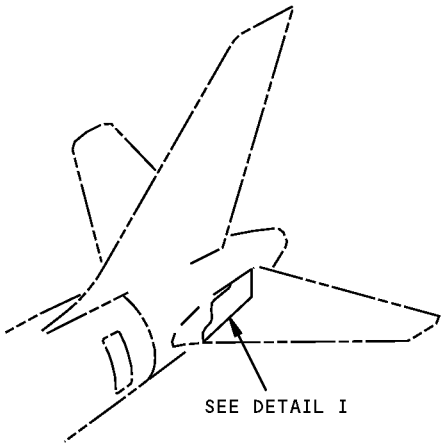
HORIZONTAL STABILIZER TIP [G]
DETAIL III

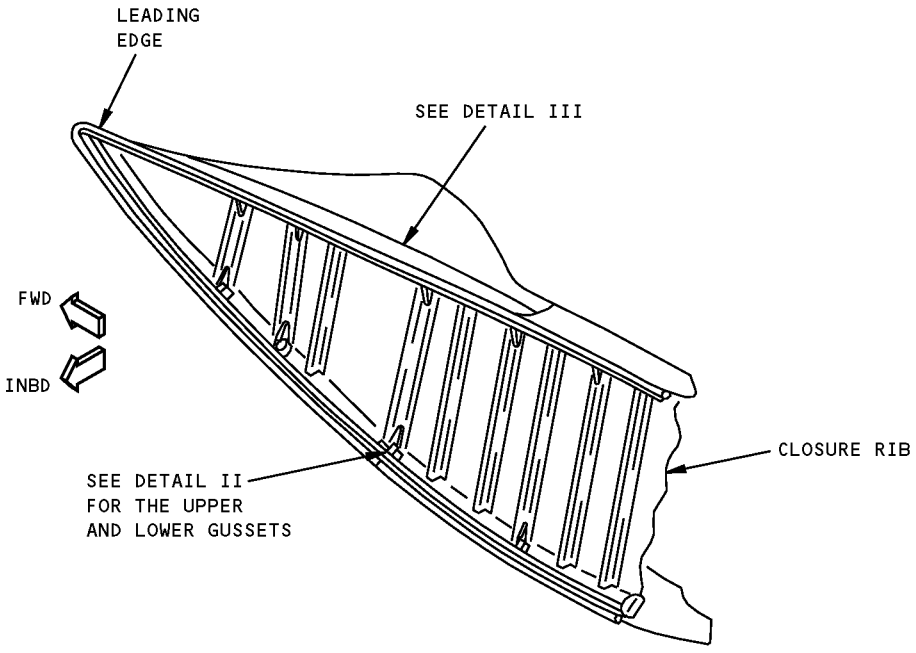
ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	SKIN	0.100	2024-T42	
2	BOND ASSEMBLY		FIBERGLASS/EPOXY HONEYCOMB SANDWICH	
	SKIN	0.30	SEE DETAIL III	
	CORE		NONMETALLIC HONEYCOMB PER BMS 8-124, CLASS IV, TYPE VI, GRADE 3.0	
3	SPLICE PLATE	0.08	2024-T42	

LIST OF MATERIALS FOR DETAIL III

Horizontal Stabilizer Tip Identification
Figure 1 (Sheet 3 of 3)

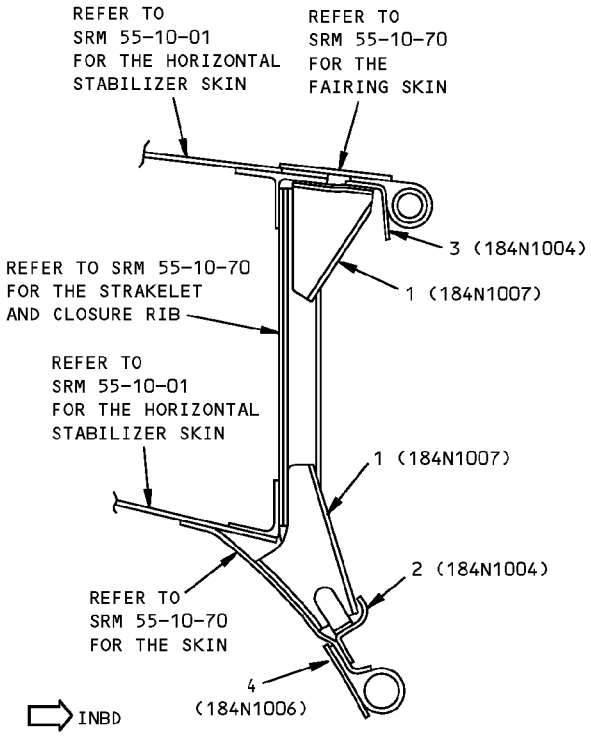
IDENTIFICATION 2 - HORIZONTAL STABILIZER SEAL SUPPORT



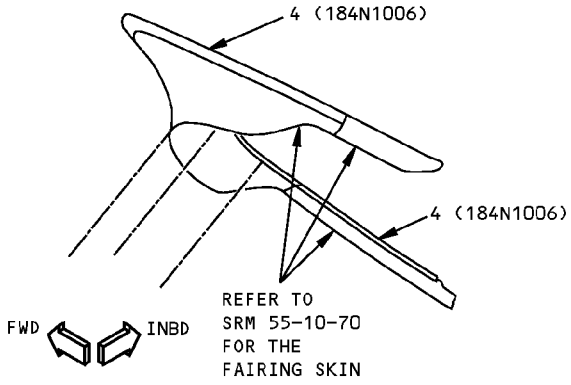


DETAIL I

Horizontal Stabilizer Seal Support Identification
Figure 1 (Sheet 1 of 2)



DETAIL II
(TYPICAL)



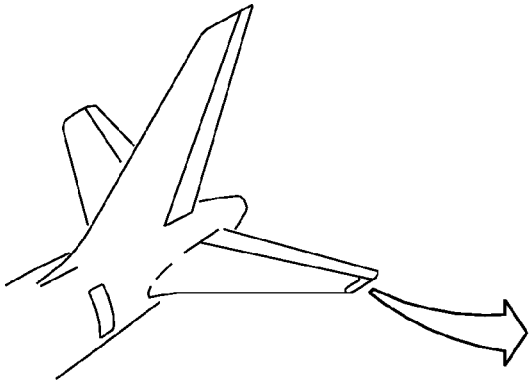
DETAIL III

ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	GUSSET	0.063	CLAD 2024-T42	
2	ZEE STIFFENER	0.063	CLAD 7075-T6	
3	ANGLE STIFFENER	0.050	CLAD 7075-T6	
4	SEAL RETAINER	0.090	CLAD 2024-T42	

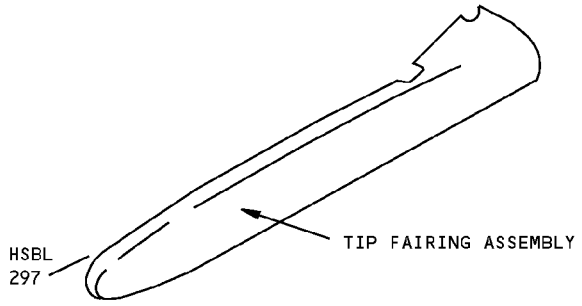
LIST OF MATERIALS FOR DETAILS II, III

Horizontal Stabilizer Seal Support Identification
Figure 1 (Sheet 2 of 2)

ALLOWABLE DAMAGE 1 - HORIZONTAL STABILIZER TIP



REF DWG
189N0001



DESCRIPTION	CRACKS	NICKS, GOUGES AND CORROSION	DENTS	HOLES AND PUNCTURES	DELAMINATION	EDGE EROSION
TIP FAIRING ASSY	[B]	[C]	[D]	[E]	[F]	SEE DETAIL II

NOTES

- REFINISH REWORKED AREAS PER 51-20 OF THE MAINTENANCE MANUAL
- REFER TO 51-10-01 FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS. WHERE THE DAMAGE EXCEEDS THE LIMITS SHOWN IN 51-10-01, CONSIDERATION SHOULD BE GIVEN TO THE LOSS OF PERFORMANCE INVOLVED
- TYPICAL DAMAGE TO A PANEL EDGEBAND MAY CONSIST OF EDGE CRUSHING, CRACKS OR DELAMINATION. DAMAGE AROUND HOLES MAY CONSIST OF OVALIZATION, FASTENER PULL-THROUGH OR CRACKS OUT OF HOLE. DAMAGE MAY REDUCE THE EFFECTIVE CROSS-SECTIONAL AREA OF AN EDGEBAND. DAMAGE TO EDGES SHOULD BE BLENDED OUT TO LIMITATIONS GIVEN FOR COMPONENT.

[A] PROTECT DAMAGE FROM ENTRANCE OF WATER, SUNLIGHT OR OTHER FOREIGN MATTER BY SEALING WITH ALUMINUM FOIL TAPE (SPEED TAPE) 3M-Y436 OR EQUIVALENT. RECORD LOCATION AND INSPECT AT AIRPLANE "A" CHECK. REPLACE ALUMINUM FOIL TAPE IF ANY PEELING OR DETERIORATION OF TAPE IS EVIDENT. REPAIR DAMAGE PER 51-70 NO LATER THAN THE NEXT "C" CHECK. [G]

[B] CLEAN UP EDGE CRACKS PER DETAIL I. NOT MORE THAN 1 FASTENER HOLE IN 6 MAY BE CRACKED OR DAMAGED. DAMAGE MUST NOT EXCEED 10% OF EDGE BAND LENGTH PER SIDE. 2.0 MAX DIMENSION (D) IN HONEYCOMB AREA IS ALLOWED PER SQUARE FOOT OF AREA AND A MINIMUM OF 6 D (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE OR PANEL EDGE. [A]

[C] DAMAGE ALLOWED ON SURFACE RESIN ONLY. DAMAGE TO FIBERS NOT ALLOWED. CLEAN UP EDGE DAMAGE PER DETAIL I. [A]

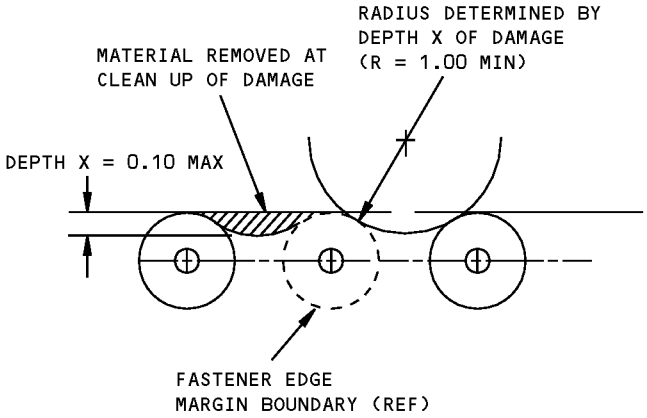
[D] DENTS GENERALLY RESULT IN FIBER DAMAGE OR DELAMINATION. HOWEVER, IF THERE IS NO FIBER DAMAGE OR DELAMINATION, DENTS UP TO 2.0 DIA MAX ARE ALLOWED. ONE DENT PER SQUARE FOOT OF AREA ALLOWED WHICH MUST BE A MINIMUM OF 6 INCHES FROM ANY OTHER DAMAGE, FASTENER HOLE, OR PANEL EDGE. SEE [E] OR [F] IF FIBER DAMAGE OR DELAMINATION IS PRESENT

[E] 2.0 MAX DIMENSION (D) IN HONEYCOMB AREA IS ALLOWED PER SQUARE FOOT OF AREA AND A MINIMUM OF 6 D (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE, OR PANEL EDGE. DO NOT CLEAN UP DAMAGE EXCEPT TO REMOVE RESIN BURRS EXTENDING INTO SURFACE CONTOUR. [A]

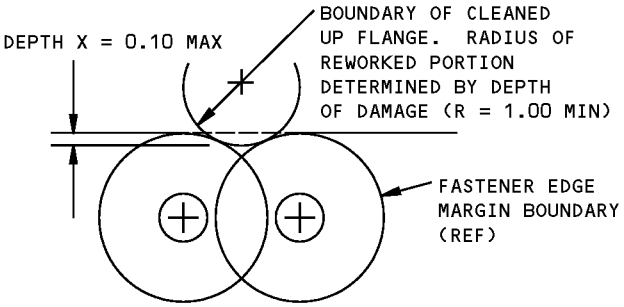
[F] 2.0 MAX DIMENSION (D) IN HONEYCOMB AREA IS ALLOWED PER SQUARE FOOT OF AREA AND A MINIMUM OF 6 D (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE, OR PANEL EDGE. A MAXIMUM OF 0.10 INCH DELAMINATION FROM EDGE IS ALLOWED [A]. REPAIR DELAMINATION PER 51-70 NO LATER THAN THE NEXT "C" CHECK

[G] THESE ALLOWABLE DAMAGE LIMITS HAVE FAA APPROVAL CONTINGENT ON ACCOMPLISHMENT OF THE INSPECTIONS CONTAINED HEREIN

Allowable Damage - Horizontal Stabilizer Tip
Figure 101 (Sheet 1 of 2)

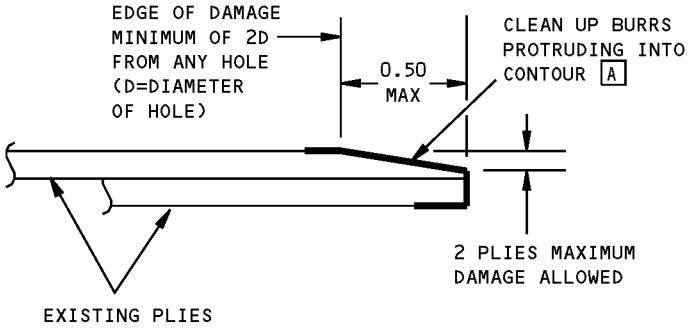


DAMAGE CLEANUP OF EDGES WHERE
FASTENER EDGE MARGINS DO NOT OVERLAP



DAMAGE CLEANUP OF EDGES WHERE
FASTENER EDGE MARGINS OVERLAP

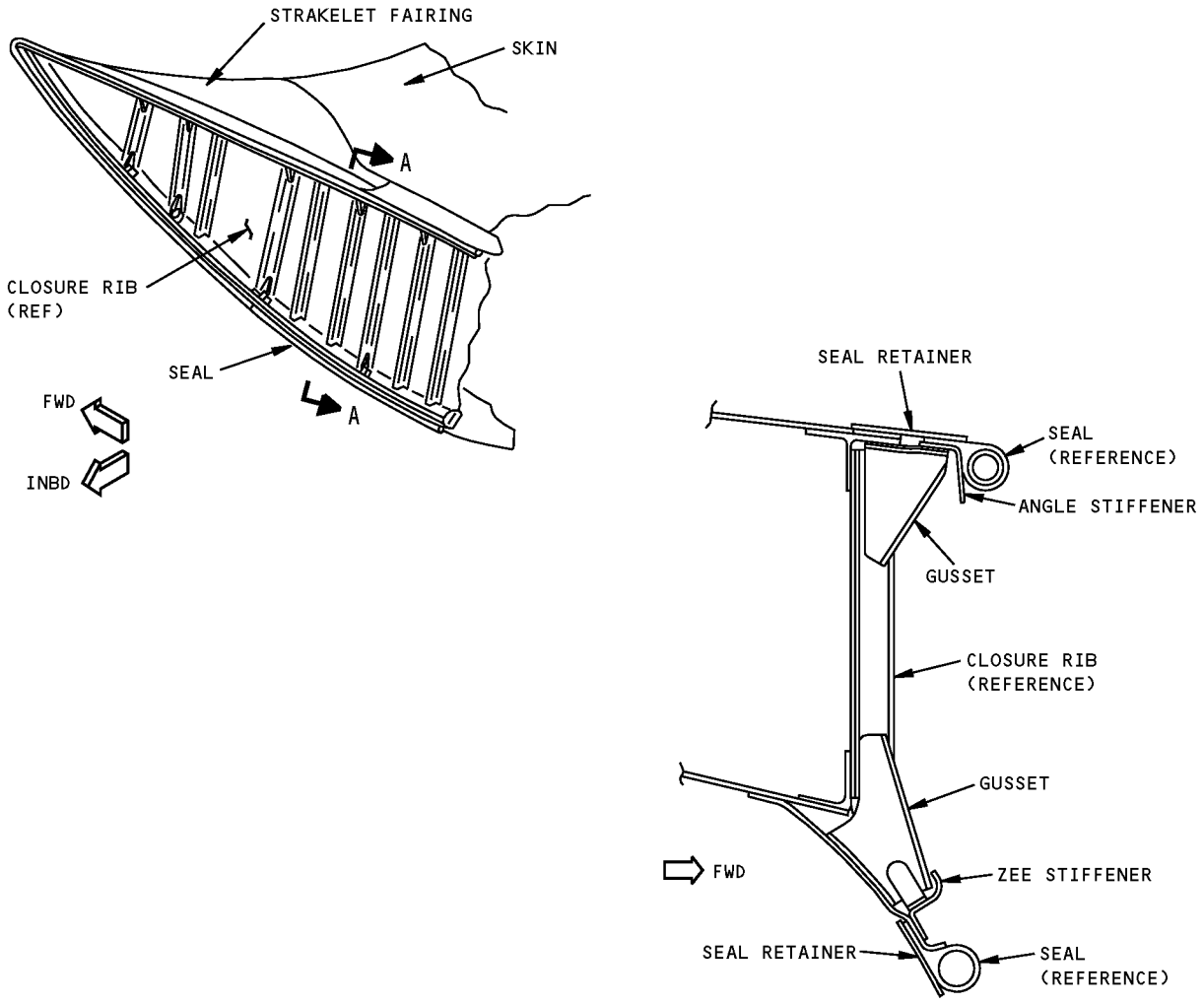
DETAIL I



DAMAGE CLEANUP AND SEALING
OF EDGE EROSION
DETAIL II

Allowable Damage - Horizontal Stabilizer Tip
Figure 101 (Sheet 2 of 2)

ALLOWABLE DAMAGE 2 - HORIZONTAL STABILIZER SEAL SUPPORT



DESCRIPTION	CRACKS	NICKS, GOUGES AND CORROSION	DENTS	HOLES AND PUNCTURES
SEAL RETAINER	A	B	NOT ALLOWED	C
ANGLE STIFFENER	A	B	NOT ALLOWED	C
ZEE STIFFENER	A	B	NOT ALLOWED	C
GUSSET	A	B	NOT ALLOWED IN FLANGES. SEE DETAIL III FOR WEB	C

Allowable Damage - Horizontal Stabilizer Seal Support
Figure 101 (Sheet 1 of 3)

NOTES

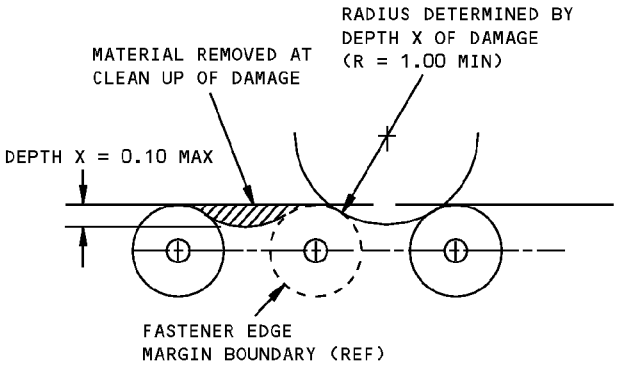
- REFINISH REWORKED AREAS PER 51-20 OF THE MAINTENANCE MANUAL

[A] CRACKS NOT ALLOWED EXCEPT FOR EDGE CRACKS, WHICH MUST BE REMOVED AS SHOWN IN DETAIL I

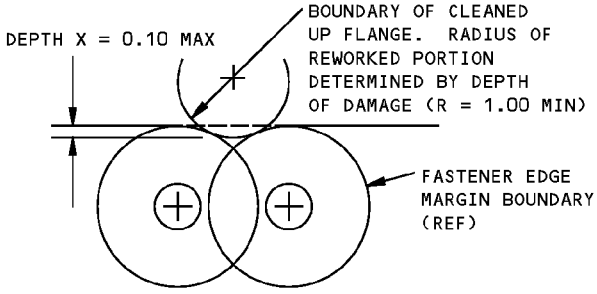
[B] REMOVE EDGE DAMAGE PER DETAIL I. ELSEWHERE, REMOVE DAMAGE PER DETAIL II

[C] CLEAN OUT DAMAGE UP TO 0.25 MAX DIA PROVIDED NOT CLOSER THAN 1 INCH TO EXISTING FASTENERS, OR OTHER DAMAGE, AND NOT LESS THAN 1.5 D FROM EDGE OF PART. FILL HOLE WITH A 2117-T3 OR T4 ALUMINUM RIVET INSTALLED WET WITH BMS 5-95 SEALANT. ALL OTHER HOLES NOT ALLOWED

Allowable Damage - Horizontal Stabilizer Seal Support
Figure 101 (Sheet 2 of 3)

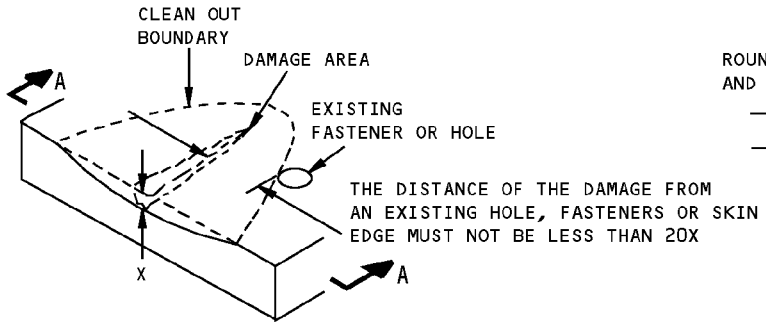


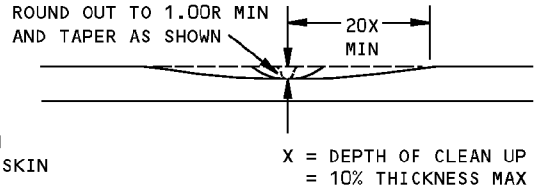
DAMAGE CLEAN UP OF EDGES WHERE FASTENER EDGE MARGINS DO NOT OVERLAP



DAMAGE CLEAN UP OF EDGES WHERE FASTENER EDGE MARGINS OVERLAP

DETAIL I

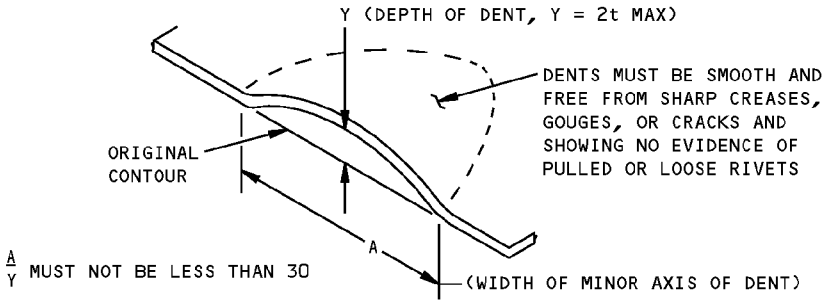




THE MINIMUM AREA REMOVED FOR DAMAGE CLEANUP SHALL NOT EXCEED 5% OF THE ORIGINAL CROSS SECTIONAL AREA

SECTION A-A

REMOVAL OF NICK, GOUGE AND SCRATCH DAMAGE ON A SURFACE
DETAIL II



t = MATERIAL THICKNESS

ALLOWABLE DAMAGE FOR DENT
DETAIL III

Allowable Damage - Horizontal Stabilizer Seal Support
Figure 101 (Sheet 3 of 3)

REPAIR GENERAL - HORIZONTAL STABILIZER TIP - SERVICE BULLETIN LIST

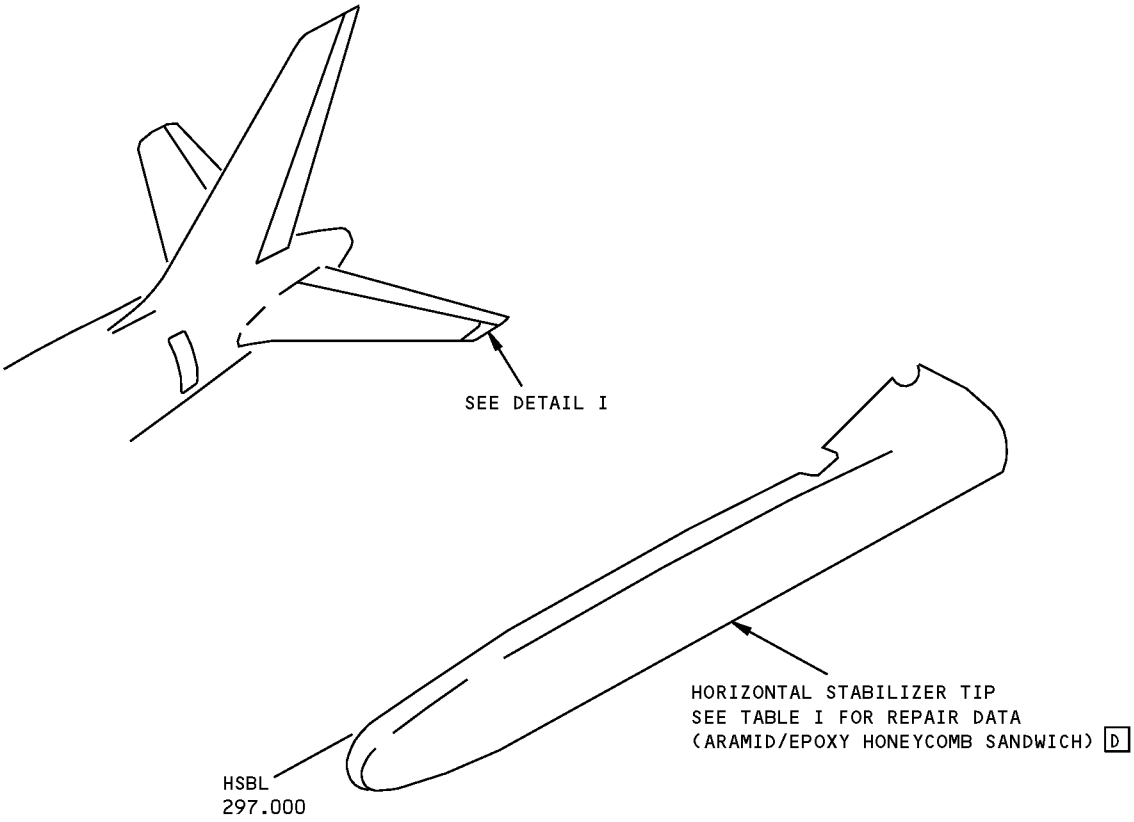
SERVICE BULLETIN REPAIRS

The following Service Bulletins contain repairs which are available for use where specific damage has been encountered. Usually, the Service Bulletin also covers preventive modification data which operators are encouraged to use to eliminate the need for repair.

DAMAGED AREA	CUM LINE NUMBER EFFECTIVITY	SB NUMBER
OUTER SURFACE, STABILIZER TIP	1 THRU 36, 38 THRU 52	51-0003

Horizontal Stabilizer Tip
Figure 201

REPAIR 1 - HORIZONTAL STABILIZER TIP



DETAIL I

NOTES

- REFINISH REWORKED AREAS AS GIVEN IN AMM 51-20
- REFER TO SRM 51-10-01 FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS. WHERE THE DAMAGE IS MORE THAN THE LIMITS AS GIVEN IN SRM 51-10-01, CONSIDERATION SHOULD BE GIVEN TO THE LOSS OF PERFORMANCE INVOLVED.

[A] LIMITED TO REPAIR OF DAMAGE TO ONE FACESHEET SKIN AND HONEYCOMB CORE. ONE REPAIR FOR EACH SQUARE FOOT OF AREA AND MINIMUM OF 6.0 INCHES (150 mm) (EDGE TO EDGE) FROM ANY OTHER DAMAGE FASTENER HOLE, OR EDGE OF PANEL.

[B] INSPECT INTERIM REPAIR USING INSTRUMENTED NDI METHODS OR "TAP" TEST EVERY AIRPLANE "2A" CHECK. FOR "TAP" TEST, USE A SOLID METAL DISK AND TAP THE REPAIR AREA LIGHTLY BUT FIRMLY. VOID AREAS WILL PRODUCE A DULL SOUND AS OPPOSED TO A SHARP RING ON A SOLID BONDED AREA. PERMANENT REPAIR IS REQUIRED IF ANY DETERIORATION IS EVIDENT. REFER TO SRM 51-70-03, PAR. 4.I. AND THE NONDESTRUCTIVE TEST MANUAL [E].

[C] ONE REPAIR FOR EACH SQUARE FOOT OF AREA AND A MINIMUM OF 6.0 INCHES (150 mm) (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE, OR EDGE OR PANEL

[D] FOR ADDED PROTECTION AGAINST MOISTURE INGESTION, INCORPORATION OF SERVICE BULLETIN 757-51-0003 FOR AIRPLANES 1 THRU 36 AND 38 THRU 52 IS RECOMMENDED. FOR PANELS WITH EXISTING MOISTURE BARRIER COATING, REAPPLY BMS 5-95 SEALANT ON REWORKED AREAS PRIOR TO THE APPLICATION OF ENAMEL FINISH. REFER TO 757 AMM 51-21-12.

[E] THIS REPAIR HAS FAA APPROVAL CONTINGENT ON ACCOMPLISHMENT OF THE INSPECTIONS CONTAINED HEREIN

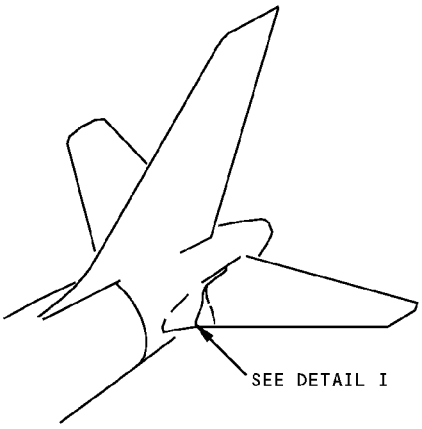
Horizontal Stabilizer Tip Repairs
Figure 201 (Sheet 1 of 2)

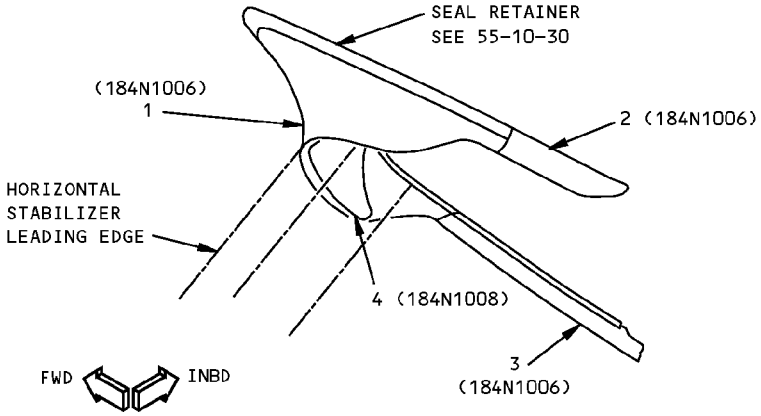
DAMAGE	INTERIM REPAIRS [B]	PERMANENT REPAIRS		
	WET LAYUP ROOM TEMP (SRM 51-70-03)	WET LAYUP 150°F CURE (SRM 51-70-03)	WET LAYUP 200°F CURE (SRM 51-70-17)	250°F CURE (SRM 51-70-05)
CRACKS	UP TO 4.0 INCHES (100 mm) LONG, REPAIR WITH PATCH AS GIVEN IN SRM 51-70-03, PAR. 5.N. [A]	CLEAN UP DAMAGE AND REPAIR AS A HOLE	CLEAN UP DAMAGE AND REPAIR AS A HOLE	CLEAN UP DAMAGE AND REPAIR AS A HOLE
HOLES	4.0 INCHES (100 mm) MAXIMUM DIA NOT TO EXCEED 30% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-03, PAR. 5.N. [A]	8.0 INCHES (200 mm) MAXIMUM DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED [C]	12.0 INCHES (300 mm) MAXIMUM DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED [C]	NO SIZE LIMIT
EDGE EROSION	_____	FOR DAMAGE NOT LARGER THAN 35% OF EDGEBAND THICKNESS, REPAIR AS GIVEN IN SRM 51-70-03, PAR. 5.O. FOR LARGER DAMAGE, REPAIR AS GIVEN IN: SRM 51-70-03, PAR. 5.G.	SRM 51-70-17, PAR. 4.G.	SRM 51-70-05, PAR. 5.G.
DELAMI-NATION	CUT OUT AND REPAIR AS A HOLE			
NICKS AND GOUGES	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL NICKS OR GOUGES AS GIVEN IN SRM 51-70-03 IF YOU FIND FIBER DAMAGE OR DELAMINATION, THEN REPAIR AS A HOLE			
DENTS	UP TO 2.0 INCHES (50 mm) DIA WITH NO FIBER DAMAGE OR DELAMINATION, FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-03, PAR. 5.L. [C] OVER 2.0 INCHES (50 mm) DIA OR WITH FIBER DAMAGE OR DELAMINATION, REPAIR AS A HOLE			

REPAIR DATA FOR 250°F CURE HONEYCOMB PANELS [D]
TABLE I

Horizontal Stabilizer Tip Repairs
Figure 201 (Sheet 2 of 2)

IDENTIFICATION 1 - HORIZONTAL STABILIZER STRAKELET AND FAIRING SKIN





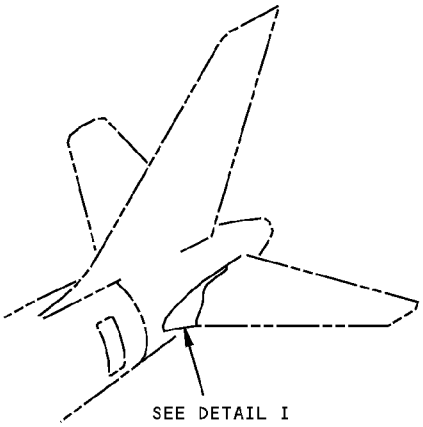
DETAIL I

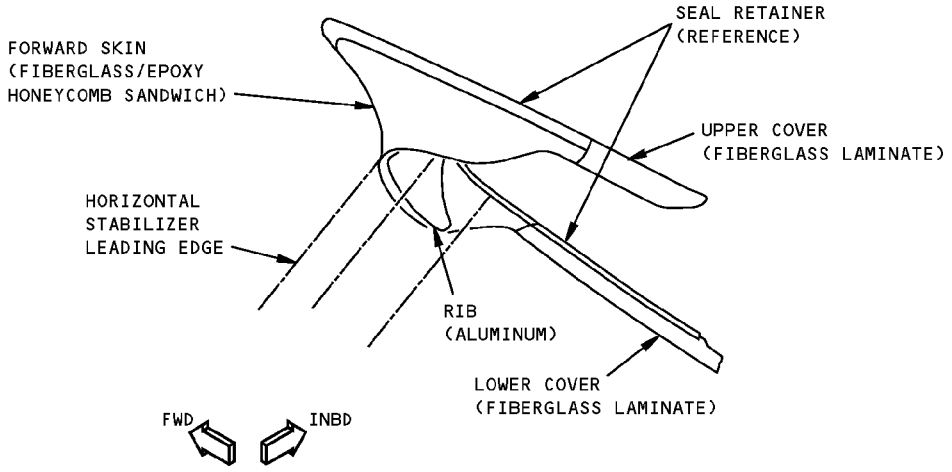
ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	FWD COVER ASSY SKIN		GLASS FABRIC REINFORCED EPOXY LAMINATE PER BMS 8-79, TYPE 1581, 250°F (121°C) CURE OPTIONAL: GLASS FABRIC REINFORCED EPOXY LAMINATE PER BMS 8-79, TYPE 7781, 250°F (121°C) CURE	
	CORE	0.320	NONMETALLIC HONEYCOMB PER BMS 58-124, CLASS IV, TYPE VI, GRADE 3.0	
2	UPR COVER		GLASS FABRIC REINFORCED EPOXY LAMINATE PER BMS 8-79, TYPE 1581, 250°F (121°C) CURE OPTIONAL: GLASS FABRIC REINFORCED EPOXY LAMINATE PER BMS 8-79, TYPE 7781, 250°F (121°C) CURE	
3	LWR COVER		GLASS FABRIC REINFORCED EPOXY LAMINATE PER BMS 8-79, TYPE 1581, 250°F (121°C) CURE OPTIONAL: GLASS FABRIC REINFORCED EPOXY LAMINATE PER BMS 8-79, TYPE 7781, 250°F (121°C) CURE	
4	RIB	0.040	CLAD 7075-T6	

LIST OF MATERIALS FOR DETAIL I

Horizontal Stabilizer Strakelet and Fairing Skin Identification
Figure 1

ALLOWABLE DAMAGE 1 - HORIZONTAL STABILIZER FAIRING





DETAIL I

DESCRIPTION	CRACKS	NICKS, GOUGES AND CORROSION	DENTS	HOLES AND PUNCTURES	DELAMINATION
FORWARD SKIN	B	E	G	H	J
UPPER AND LOWER COVERS	C	E	K	L	M
RIB	D	F	SEE DETAIL IV	I	——

Allowable Damage - Horizontal Stabilizer Fairing
Figure 101 (Sheet 1 of 3)

NOTES

- REFINISH REWORKED AREAS AS GIVEN IN AMM 51-20.
- REFER TO SRM 51-10-01 FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS. WHERE THE DAMAGE EXCEEDS THE LIMITS AS GIVEN IN SRM 51-10-01, CONSIDERATION SHOULD BE GIVEN TO THE LOSS OF PERFORMANCE INVOLVED.
- TYPICAL DAMAGE TO A PANEL EDGEBAND MAY CONSIST OF EDGE CRUSHING, CRACKS OR DELAMINATION. DAMAGE AROUND HOLES MAY CONSIST OF OVALIZATION, FASTENER PULL-THROUGH OR CRACKS OUT OF HOLE. DAMAGE MAY REDUCE THE EFFECTIVE CROSS-SECTIONAL AREA OF AN EDGEBAND. DAMAGE TO EDGES SHOULD BE BLENDED OUT TO LIMITATIONS GIVEN FOR COMPONENT.

[A] REMOVE MOISTURE FROM DAMAGE AREA. USE OF VACUUM AND HEAT (MAXIMUM OF 125°F [52°C]) TO REMOVE MOISTURE FROM HONEYCOMB CELLS IS RECOMMENDED. PROTECT DAMAGE FROM ENTRANCE OF WATER, SUNLIGHT OR OTHER FOREIGN MATTER BY SEALING WITH ALUMINUM FOIL TAPE (SPEED TAPE). RECORD THE LOCATION AND INSPECT EVERY AIRPLANE "A" CHECK. REPLACE THE ALUMINUM FOIL TAPE IF ANY PEELING OR DETERIORATION IS EVEIDENT. REPAIR NO LATER THAN NEXT AIRPLANE "C" CHECK. [N]

[B] CLEAN UP EDGE CRACKS AS SHOWN IN DETAIL II. NOT MORE THAN 1 FASTENER HOLE IN 6 MAY BE CRACKED OR DAMAGED. DAMAGE MUST NOT EXCEED 10% OF EDGE BAND LENGTH FOR EACH SIDE. 2.0 MAXIMUM DIMENSION (D) IN HONEYCOMB AREA IS PERMITTED FOR EACH SQUARE FOOT OF AREA AND A MINIMUM OF 6 D (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE OR PANEL EDGE. [A]

[C] CLEAN UP EDGE CRACKS AS SHONW IN DETAIL II. NOT MORE THAN 1 FASTENER HOLE IN 6 MAY BE CRACKED OR DAMAGED. EDGE DAMAGE MUST NOT EXCEED 10% OF EDGE LENGTH FOR EACH SIDE. 1.0 MAXIMUM DIMENSION (D) IS PERMITTED FOR EACH SQUARE FOOT OF AREA AND A MINIMUM OF 6 D (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE OR PANEL EDGE. [A]

[D] CRACKS NOT PERMITTED EXCEPT FOR EDGE CRACKS WHICH MUST BE REMOVED AS SHOWN IN DETAIL II.

[E] DAMAGE PERMITTED ON SURFACE RESIN ONLY. DAMAGE TO FIBERS NOT PERMITTED. CLEAN UP EDGE DAMAGE AS SHOWN IN DETAIL II. [A]

[F] REMOVE DAMAGE AS SHOWN IN DETAIL II.

[G] DENTS GENERALLY RESULT IN FIBER DAMAGE OR DELAMINATION. HOWEVER, IF THERE IS NO FIBER DAMAGE OR DELAMINATION, DENTS UP TO 2.0 DIAMETER MAXIMUM ARE PERMITTED. ONE DENT FOR EACH SQUARE FOOT OF AREA IS PERMITTED WHICH MUST BE A MINIMUM OF 6 INCHES FROM ANY OTHER DAMAGE, FASTENER HOLE, OR PANEL EDGE. SEE [H] OR [J] IF FIBER DAMAGE OR DELAMINATION IS PRESENT.

[H] 2.0 MAXIMUM DIMENSION (D) IN HONEYCOMB AREA IS PERMITTED FOR EACH SQUARE FOOT OF AREA AND A MINIMUM OF 6 D (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE OR PANEL EDGE. DO NOT CLEAN UP DAMAGE EXCEPT TO REMOVE RESIN BURRS EXTENDING INTO SURFACE CONTOUR. [A]

[I] CLEAN OUT DAMAGE UP TO 0.25 MAXIMUM DIAMETER AND NOT CLOSER THAN 2.0 INCH TO FASTENER HOLE, PANEL EDGE OR OTHER DAMAGE. FILL HOLE WITH A 2117-T3 OR T4 ALUMINUM RIVET INSTALLED WET WITH BMS 5-95 SEALANT. ALL OTHER HOLES TO BE REPAIRED.

[J] 2.0 MAXIMUM DIMENSION (D) IN HONEYCOMB AREA IS PERMITTED FOR EACH SQUARE FOOT OF AREA AND A MINIMUM OF 6 D (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE OR PANEL EDGE. A MAXIMUM OF 0.10 DELAMINATION FROM EDGE IS PERMITTED. PROTECT EDGE DAMAGE AS GIVEN IN [A]. REPAIR DELAMINATION IN HONEYCOMB AREA AS GIVEN IN SRM 51-70 NO LATER THAN THE NEXT "C" CHECK.

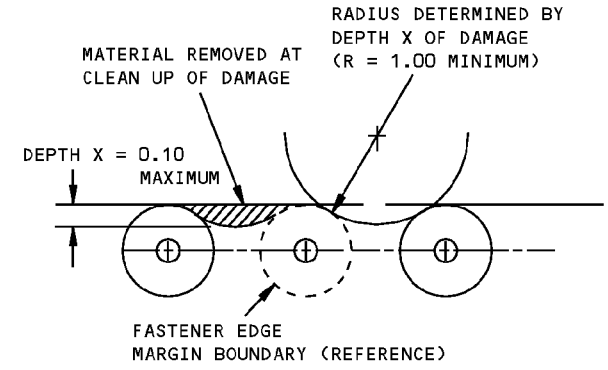
[K] 1.0 MAXIMUM DIMENSION (D) IS PERMITTED PROVIDED THERE IS NO DELAMINATION OR FIBER DAMAGE. ONE DENT FOR EACH SQUARE FOOT OF AREA PERMITTED AND A MINIMUM OF 6 D (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE OR PANEL EDGE. DENTS GENERALLY INDICATE FIBER DAMAGE OR DELAMINATION. SEE [L] OR [M] IF SUCH DAMAGE IS PRESENT.

[L] 1.0 MAXIMUM DIMENSION (D) IS PERMITTED FOR EACH SQUARE FOOT OF AREA AND A MINIMUM OF 6 D (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE OR PANEL EDGE. DO NOT CLEANUP DAMAGE EXCEPT TO REMOVE RESIN BURRS EXTENDING INTO SURFACE CONTOUR.

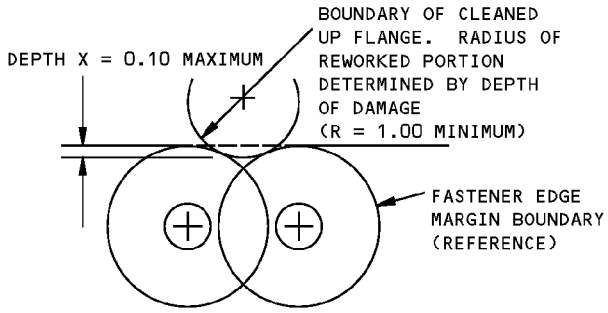
[M] 1.0 MAXIMUM DIMENSION (D) IS PERMITTED FOR EACH SQUARE FOOT OF AREA AND A MINIMUM OF 6 D (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE OR PANEL EDGE. A MAXIMUM OF 0.10 DELAMINATION FROM EDGE IS PERMITTED. PROTECT EDGE DAMAGE PER [A]. REPAIR DELAMINATION AS GIVEN IN SRM 51-70 NO LATER THAN NEXT "C" CHECK.

[N] THESE PERMITTED DAMAGE LIMITS HAVE FAA APPROVAL CONTINGENT ON ACCOMPLISHMENT OF THE INSPECTIONS CONTAINED HEREIN.

Allowable Damage - Horizontal Stabilizer Fairing
Figure 101 (Sheet 2 of 3)

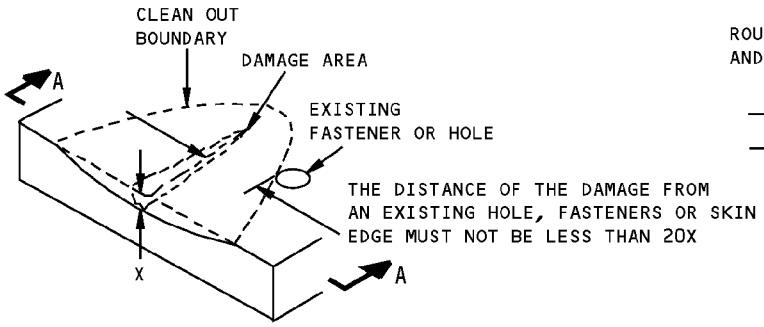


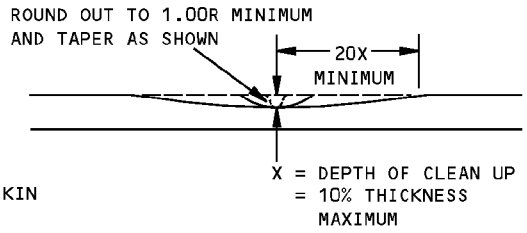
DAMAGE CLEAN UP OF EDGES WHERE FASTENER EDGE MARGINS DO NOT OVERLAP



DAMAGE CLEAN UP OF EDGES WHERE FASTENER EDGE MARGINS OVERLAP

DETAIL II

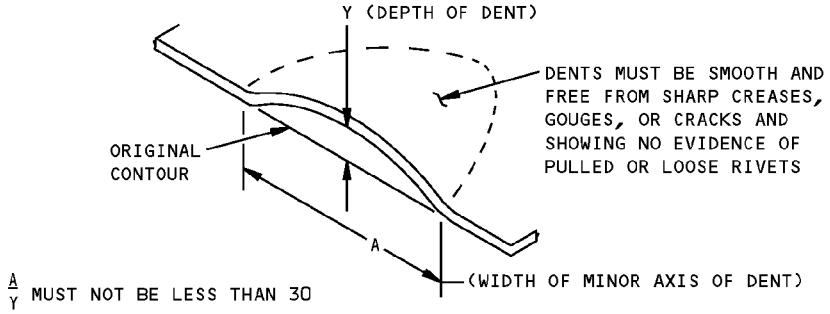




SECTION A–A

REMOVAL OF NICK, GOUGE AND SCRATCH DAMAGE ON A SURFACE

DETAIL III

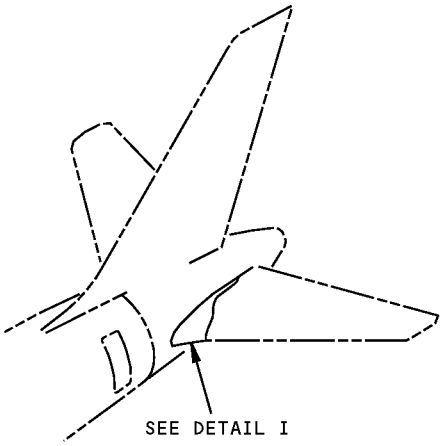


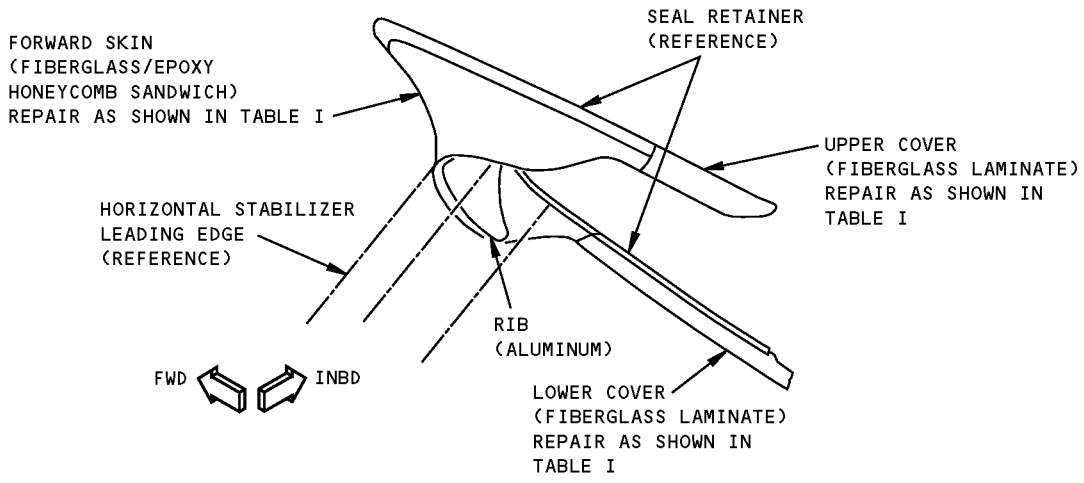
ALLOWABLE DAMAGE FOR DENT

DETAIL IV

Allowable Damage - Horizontal Stabilizer Fairing
Figure 101 (Sheet 3 of 3)

REPAIR 1 - HORIZONTAL STABILIZER FAIRING





DETAIL I

NOTES

- REFINISH REWORKED AREAS AS SHOWN IN AMM 51-20.
- REFER TO SRM 51-10-01 FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS. WHERE THE DAMAGE IS MORE THAN THE LIMITS AS SHOWN IN SRM 51-10-01, CONSIDERATION SHOULD BE GIVEN TO THE LOSS OF PERFORMANCE INVOLVED.
- REFER TO SRM 51-10-02 FOR INSPECTION AND REMOVAL OF DAMAGE.

[A] LIMITED TO REPAIR OF DAMAGE TO ONE FACESHEET SKIN AND HONEYCOMB CORE. ONE REPAIR FOR EACH SQUARE FOOT OF AREA AND MINIMUM OF 2.0 INCHES (50 mm) (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE, OR EDGE OF PANEL.

[B] ONE REPAIR FOR EACH SQUARE FOOT OF AREA AND A MINIMUM OF 2.0 INCHES (50 mm) (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE, OR EDGE OF PANEL.

[C] INSPECT INTERIM REPAIR USING INSTRUMENTED NDI METHODS OR "TAP" TEST EVERY AIRPLANE "2A" CHECK. FOR "TAP" TEST, USE A SOLID METAL DISK AND TAP THE REPAIR AREA LIGHTLY BUT FIRMLY. VOID AREAS WILL PRODUCE A DULL SOUND AS OPPOSED TO A SHARP RING ON A SOLID BONDED AREA. PERMANENT REPAIR IS REQUIRED IF ANY DETERIORATION IS EVIDENT. REFER TO SRM 51-70-06, PAR. 4.I. AND THE NON-DESTRUCTIVE TEST MANUAL, D634N301. [D]

[D] THIS REPAIR HAS FAA APPROVAL CONTINGENT ON ACCOMPLISHMENT OF THE INSPECTIONS CONTAINED HEREIN.

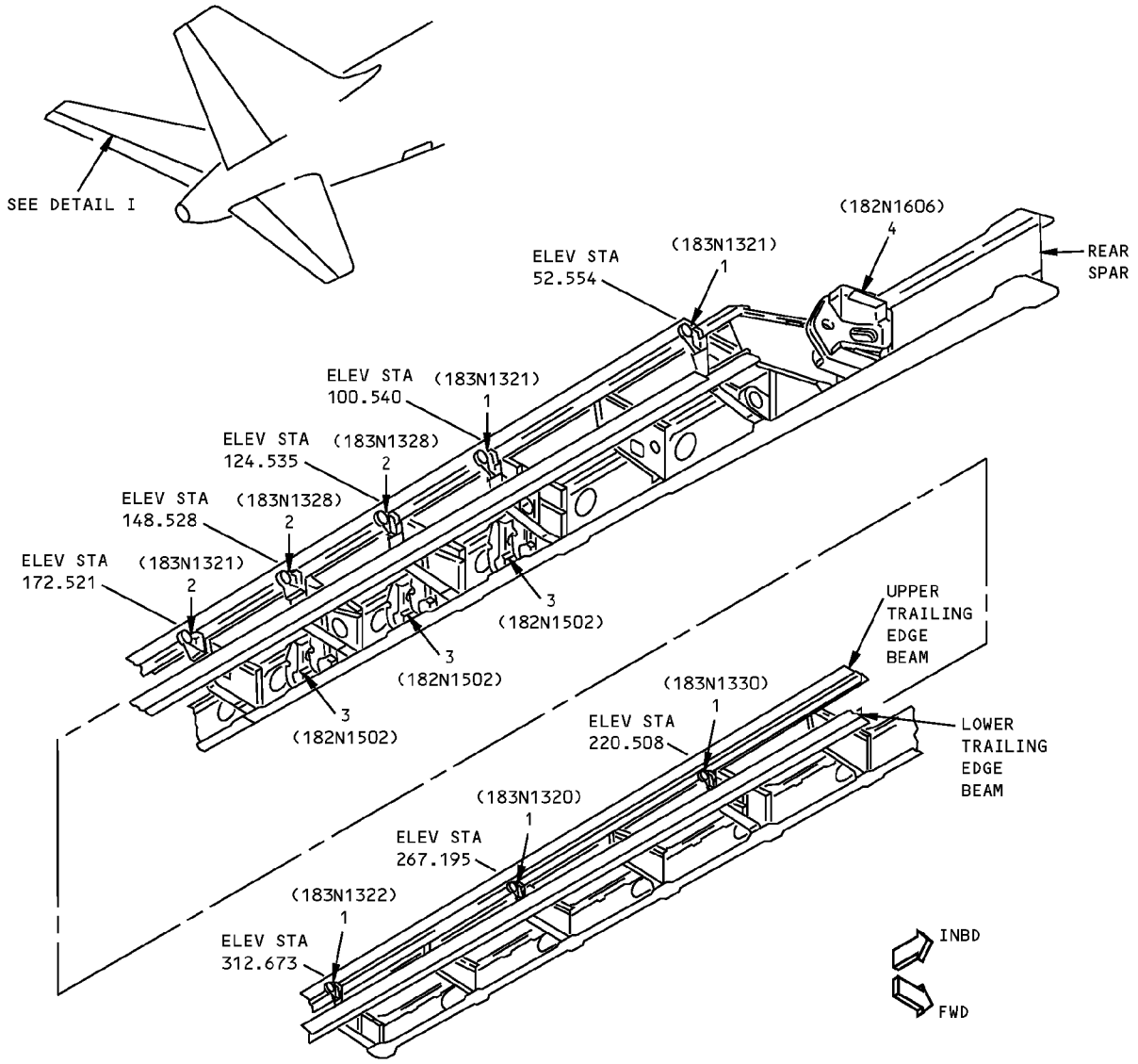
Horizontal Stabilizer Fairing Repairs
Figure 201 (Sheet 1 of 2)

DAMAGE	INTERIM REPAIRS [C]	PERMANENT REPAIRS		
	WET LAYUP ROOM TEMP (SRM 51-70-06)	WET LAYUP 150°F CURE (SRM 51-70-06)	WET LAYUP 200°F CURE (SRM 51-70-17)	250°F CURE (SRM 51-70-07)
CRACKS	UP TO 4.0 INCHES (100 mm) LONG, REPAIR WITH PATCH AS GIVEN IN SRM 51-70-06, PAR. 5.N. [A]	CLEAN UP DAMAGE AND REPAIR AS A HOLE	CLEAN UP DAMAGE AND REPAIR AS A HOLE	CLEAN UP DAMAGE AND REPAIR AS A HOLE
HOLES	3.0 INCHES (75 mm) MAXIMUM DIA NOT TO EXCEED 30% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-06, PAR. 5.N. [A]	4.0 INCHES (100 mm) MAXIMUM DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED [B]	4.0 INCHES (100 mm) MAXIMUM DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED [B]	NO SIZE LIMIT
EDGE EROSION	----------	FOR DAMAGE NOT LARGER THAN 35% OF EDGEBAND THICKNESS, REPAIR AS GIVEN IN SRM 51-70-03 PAR. 5.O. FOR LARGER DAMAGE, REPAIR AS GIVEN IN:		
		SRM 51-70-06 PAR. 5.G.	SRM 51-70-17 PAR. 4.G.	SRM 51-70-07 PAR. 5.G.
DELAMI-NATION	CUT OUT AND REPAIR AS A HOLE			
NICKS AND GOUGES	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL NICKS OR GOUGES AS GIVEN IN SRM 51-70-06 IF YOU FIND FIBER DAMAGE OR DELAMINATION, THEN REPAIR AS A HOLE			
DENTS	UP TO 2.0 INCHES (50 mm) DIA WITH NO FIBER DAMAGE OR DELAMINATION, FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-06, PAR. 5.L. [B] OVER 2.0 INCHES (50 mm) DIA OR WITH FIBER DAMAGE OR DELAMINATION, REPAIR AS A HOLE			

REPAIR DATA FOR 250°F CURE HONEYCOMB PANELS (FIBERGLASS)
TABLE I

Horizontal Stabilizer Fairing Repairs
Figure 201 (Sheet 2 of 2)

IDENTIFICATION 1 - HORIZONTAL STABILIZER ATTACHMENT FITTINGS



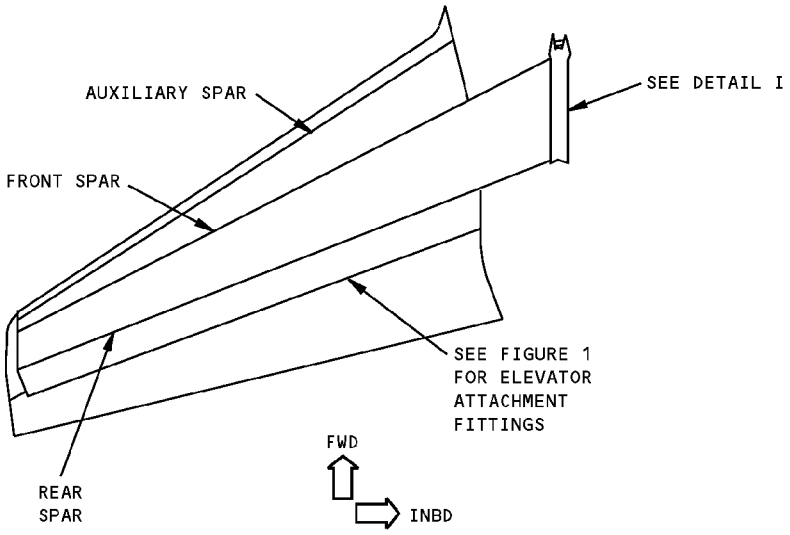
ELEVATOR ATTACHMENT FITTINGS
DETAIL I

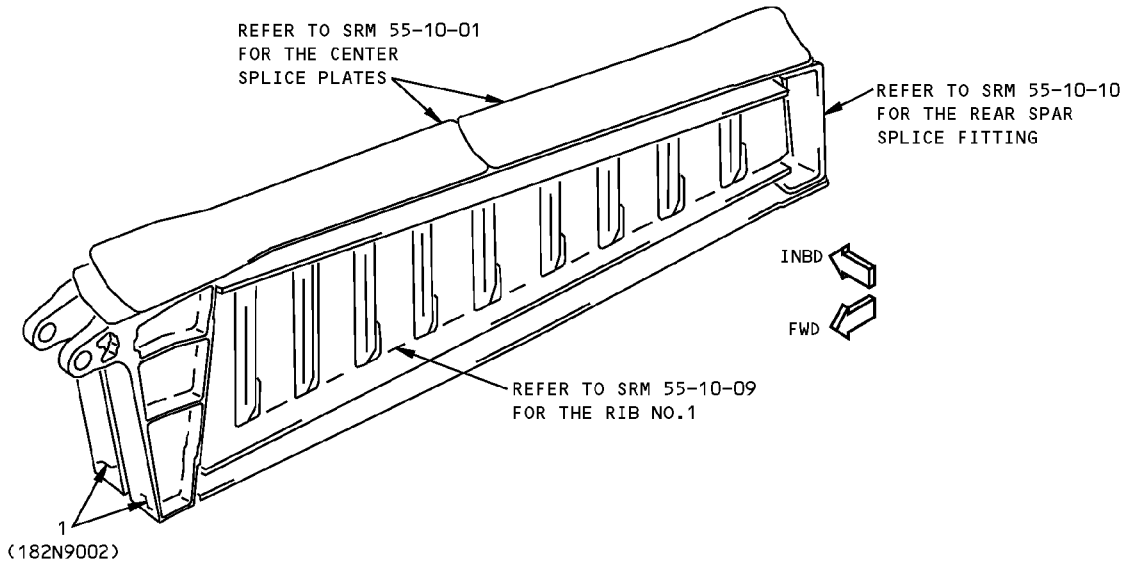
ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	HINGE FITTING	0.875	7075-T7351	
2	HINGE FITTING		FORGING 7075-T73	
3	ELEVATOR CONTROL FITTING		FORGING 7075-T73	
4	STABILIZER PIVOT SUPPORT		FORGING 7175-T736	

LIST OF MATERIALS FOR DETAIL I

Horizontal Stabilizer Attachment Fittings Identification
Figure 1

IDENTIFICATION 2 - HORIZONTAL STABILIZER JACKSCREW SUPPORT FITTING





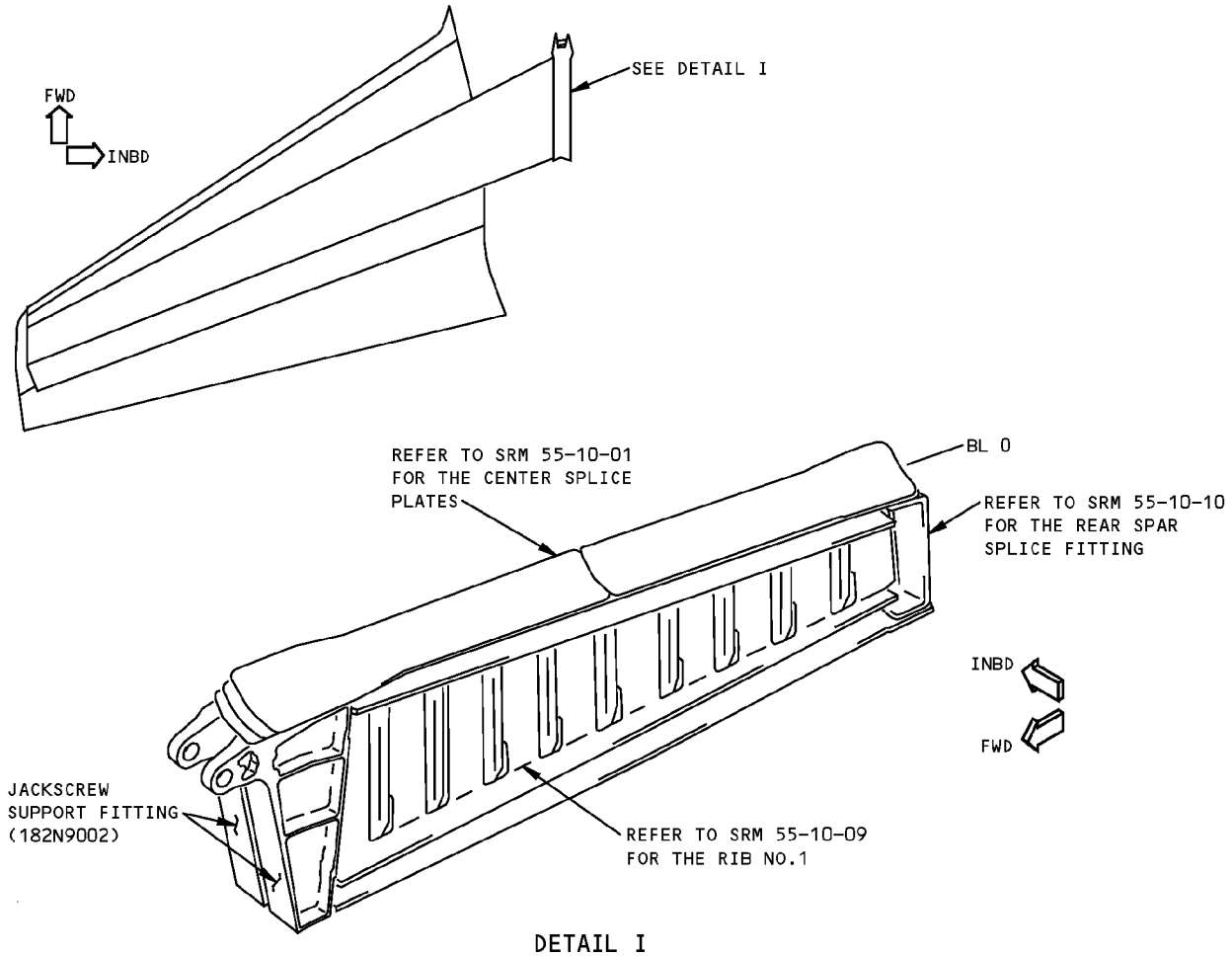
DETAIL I

ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	JACKSCREW SUPPORT FITTING	2.25	7175-T736 DIE FORGING (OPTIONAL: 7075-T7351)	

LIST OF MATERIALS

Horizontal Stabilizer Jackscrew Support Fitting Identification
Figure 1

ALLOWABLE DAMAGE 1 - HORIZONTAL STABILIZER JACKSCREW SUPPORT FITTING



DETAIL I

DESCRIPTION	CRACKS	NICKS, GOUGES, SCRATCHES AND CORROSION	DENTS	HOLES AND PUNCTURES
JACKSCREW SUPPORT FITTING	[A]	FOR EDGE DAMAGE SEE DETAIL II FOR OTHER DAMAGE SEE DETAIL III FOR LUG DAMAGE SEE DETAIL IV [B]	NOT ALLOWED	NOT ALLOWED

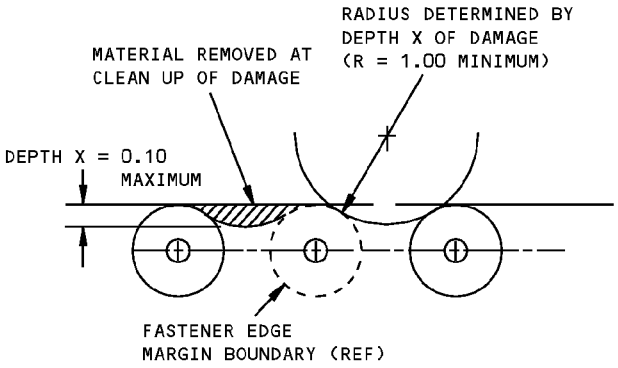
NOTES

- REFINISH REWORKED AREAS AS GIVEN IN AMM 51-20
- SHOT PEEN REWORKED AREAS AS GIVEN IN CMM 20-10-03. FOR LUG AREA USE SHOT NO. 230-250, INTENSITY 0.008A. ALL OTHER AREAS USE SHOT NO. 230-550, INTENSITY 0.006A

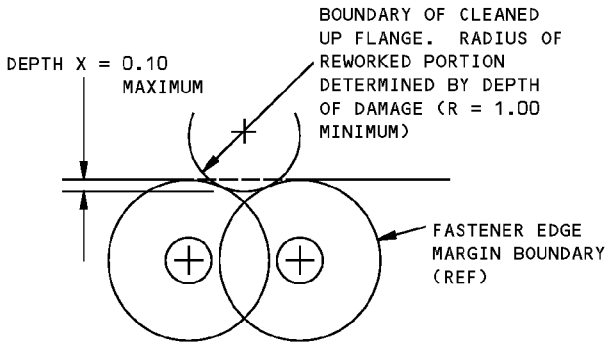
[A] CLEAN UP CRACKS AS GIVEN IN DETAILS II AND V. OTHER CRACKS NOT ALLOWED

[B] DAMAGE NOT ALLOWED IN VICINITY OF BUSHING

Allowable Damage - Horizontal Stabilizer Jackscrew Support Fitting
Figure 101 (Sheet 1 of 2)

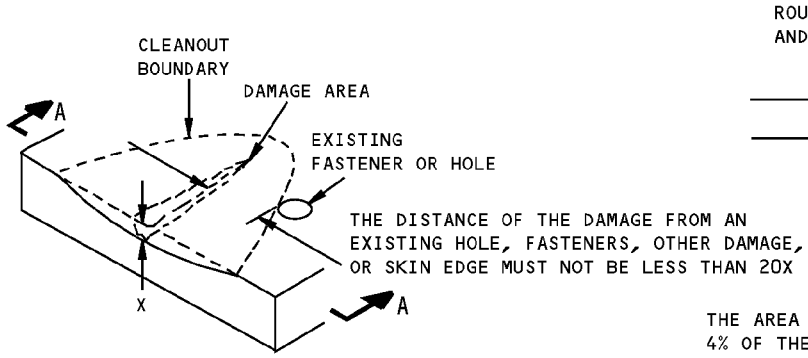


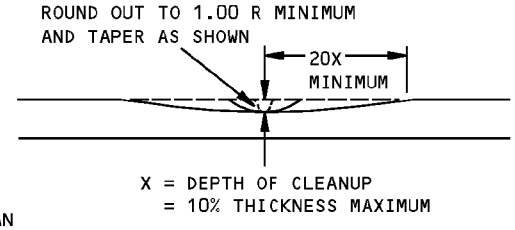
DAMAGE CLEANUP OF EDGES WITH FASTENERS
WHERE EDGE MARGINS DO NOT OVERLAP



DAMAGE CLEANUP OF EDGES WITH FASTENERS
WHERE EDGE MARGINS OVERLAP

DETAIL II



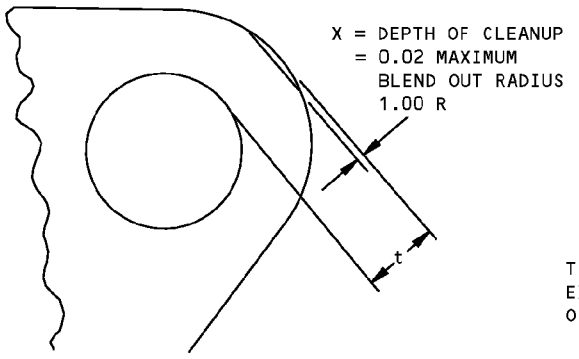


SECTION A–A

THE AREA REMOVED FOR CLEANUP MUST NOT EXCEED
4% OF THE ORIGINAL CROSS SECTIONAL AREA

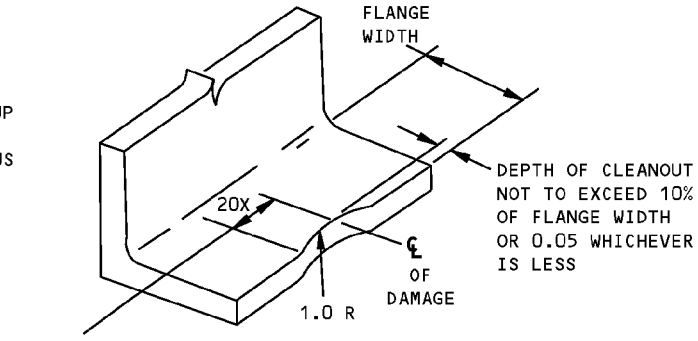
REMOVAL OF NICK, GOUGE AND SCRATCH DAMAGE ON A SURFACE

DETAIL III



DAMAGE CLEAN UP FOR EDGES OF LUG

DETAIL IV

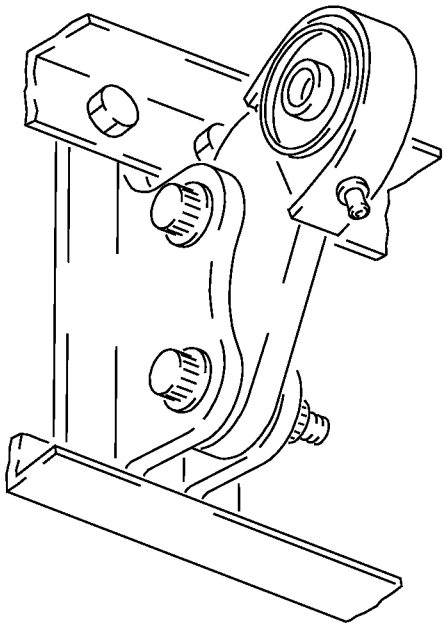


REMOVAL OF EDGE DAMAGE FROM
FREE FLANGE WITHOUT FASTENERS

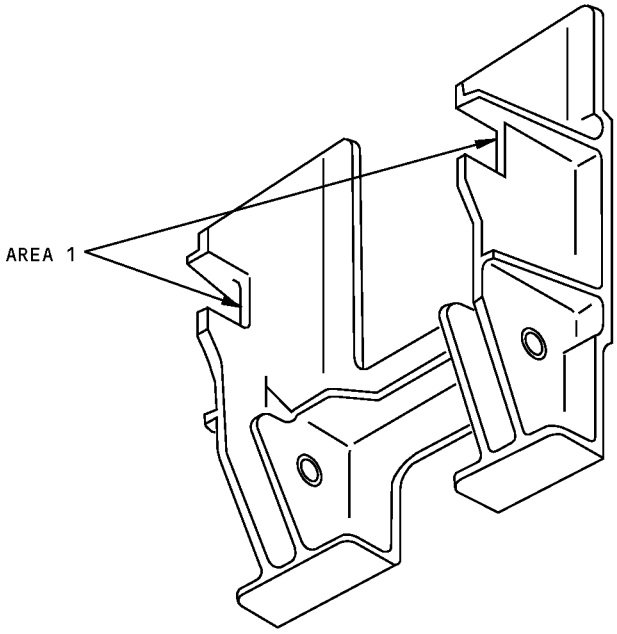
DETAIL V

Allowable Damage - Horizontal Stabilizer Jackscrew Support Fitting
Figure 101 (Sheet 2 of 2)

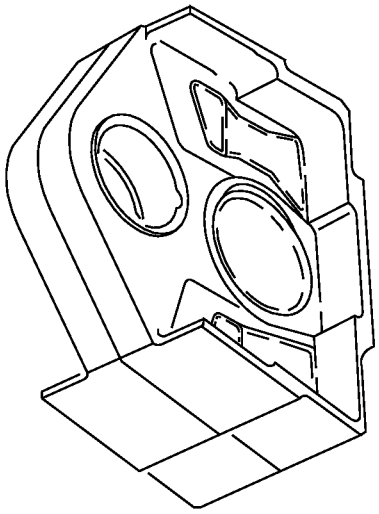
ALLOWABLE DAMAGE 2 - HORIZONTAL STABILIZER ATTACHMENT FITTINGS



HINGE FITTING
DETAIL II



ACTUATOR FITTING
DETAIL III



PIVOT SUPPORT
DETAIL IV

Allowable Damage - Horizontal Stabilizer Attachment Fittings
Figure 101 (Sheet 1 of 3)

DESCRIPTION	CRACKS	NICKS, GOUGES, SCRATCHES AND CORROSION	DENTS	HOLES AND PUNCTURES
HINGE FITTING	[A]	FOR EDGE DAMAGE SEE DETAILS V & VIII FOR OTHER DAMAGE SEE DETAIL VI FOR LUG DAMAGE SEE DETAIL VII [B]	NOT ALLOWED	NOT ALLOWED
ACTUATOR FITTING	[A] [C]	FOR EDGE DAMAGE SEE DETAILS V & VIII FOR OTHER DAMAGE SEE DETAIL VI [C] FOR LUG DAMAGE SEE DETAIL VII [B]	NOT ALLOWED	NOT ALLOWED
PIVOT SUPPORT	[A]	FOR EDGE DAMAGE SEE DETAILS V & VIII FOR OTHER DAMAGE SEE DETAIL VI FOR LUG DAMAGE SEE DETAIL VII [B]	NOT ALLOWED	NOT ALLOWED

NOTES

- REFINISH REWORKED AREAS AS GIVEN IN AMM 51-20

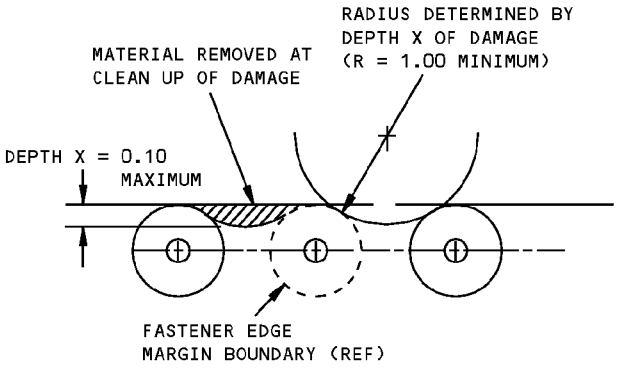
[A] EDGE CRACKS CLEANUP AS GIVEN IN DETAILS VI AND VIII

[B] 0.01 MAXIMUM DAMAGE CLEANUP IS ALLOWED IN VICINITY OF BUSHING

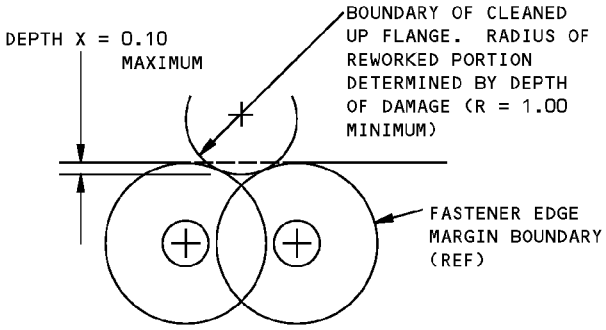
[C] DAMAGE NOT ALLOWED IN VICINITY OF AREA I AS GIVEN IN DETAIL III

[D] SHOT PEEN REWORKED AREAS OF FITTING AS GIVEN IN SRM 51-20-06

Allowable Damage - Horizontal Stabilizer Attachment Fittings
Figure 101 (Sheet 2 of 3)

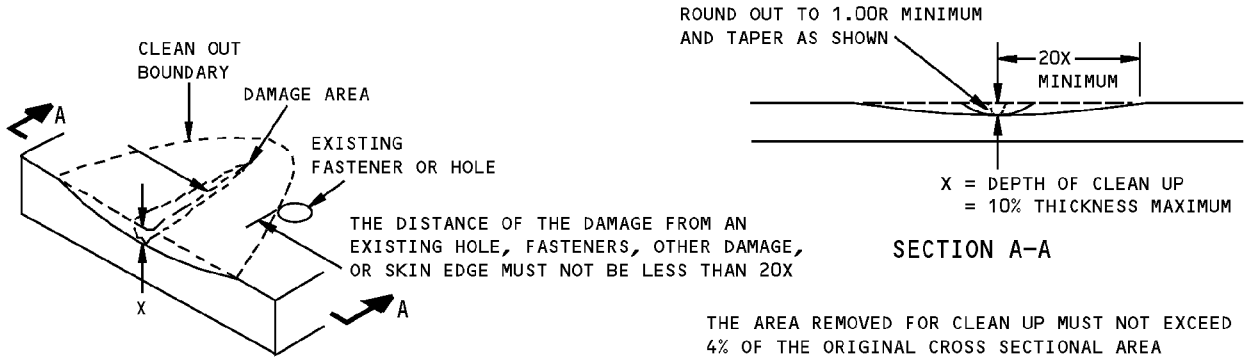


DAMAGE CLEAN UP OF EDGES WITH FASTENERS
WHERE EDGE MARGINS DO NOT OVERLAP

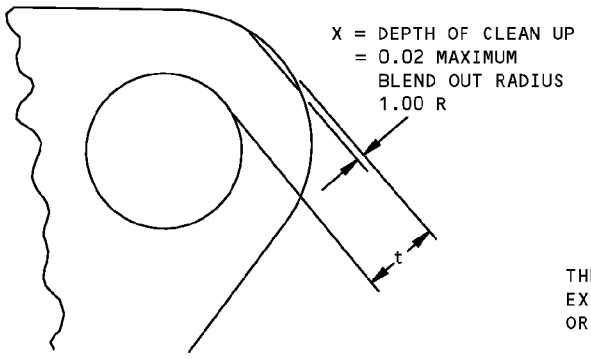


DAMAGE CLEAN UP OF EDGES WITH FASTENERS
WHERE EDGE MARGINS OVERLAP

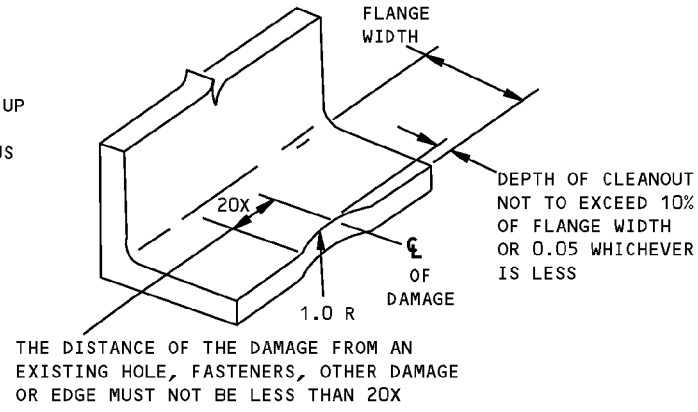
DETAIL V



REMOVAL OF NICK, GOUGE AND SCRATCH DAMAGE ON A SURFACE
DETAIL VI



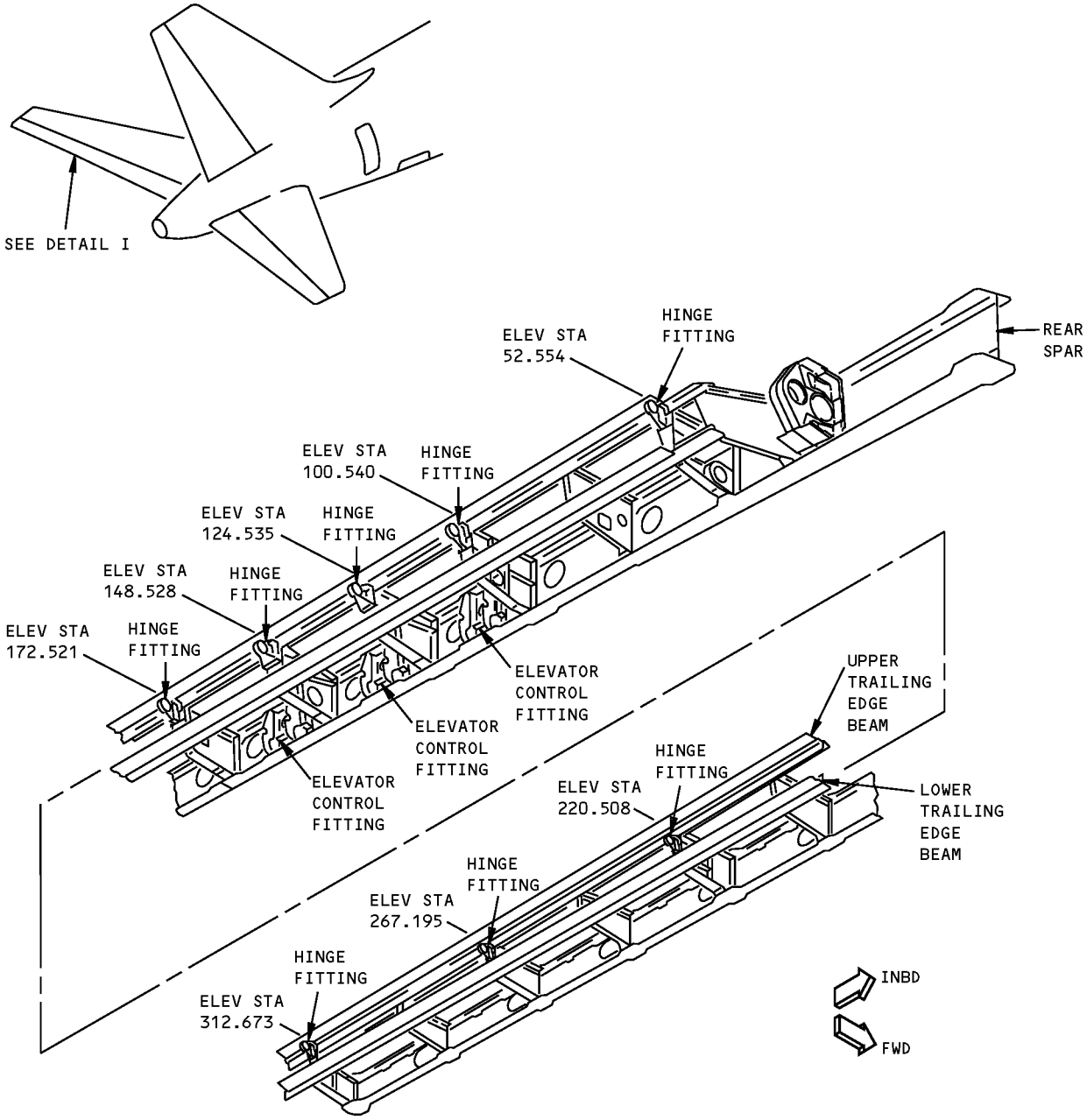
DAMAGE CLEAN UP FOR EDGES OF LUG
DETAIL VII



REMOVAL OF EDGE DAMAGE FROM
FREE FLANGE WITHOUT FASTENERS
DETAIL VIII

Allowable Damage - Horizontal Stabilizer Attachment Fittings
Figure 101 (Sheet 3 of 3)

REPAIR 1 - HORIZONTAL STABILIZER ATTACHMENT FITTINGS



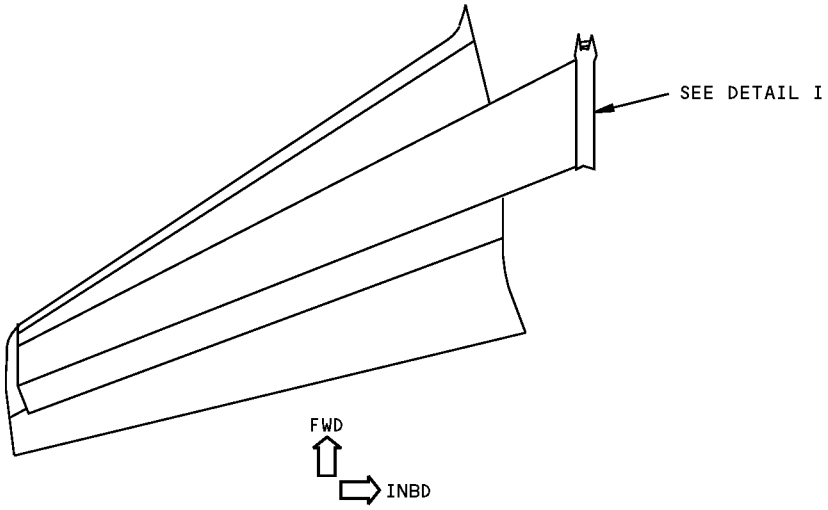
DETAIL I

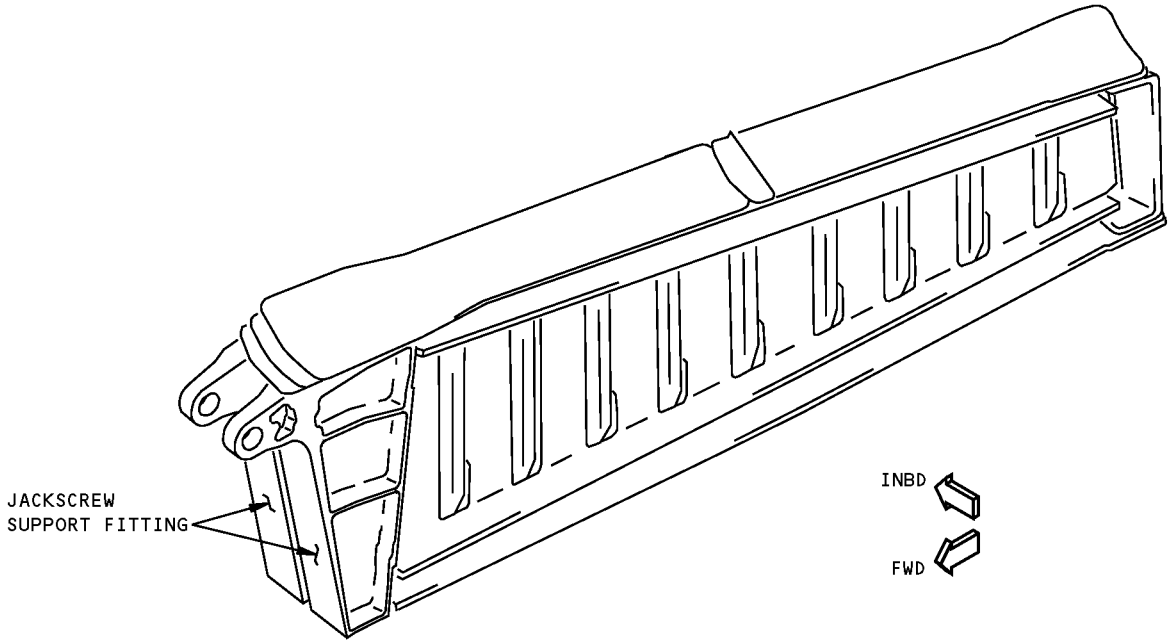
NOTES

- NO TYPICAL REPAIR TO FITTINGS APPLICABLE. SPECIFIC REPAIRS TO FITTINGS WILL BE PROVIDED BASED ON SERVICE EXPERIENCE

Horizontal Stabilizer Attachment Fitting Repair
Figure 201

REPAIR 2 - HORIZONTAL STABILIZER JACKSCREW SUPORT FITTING





DETAIL I

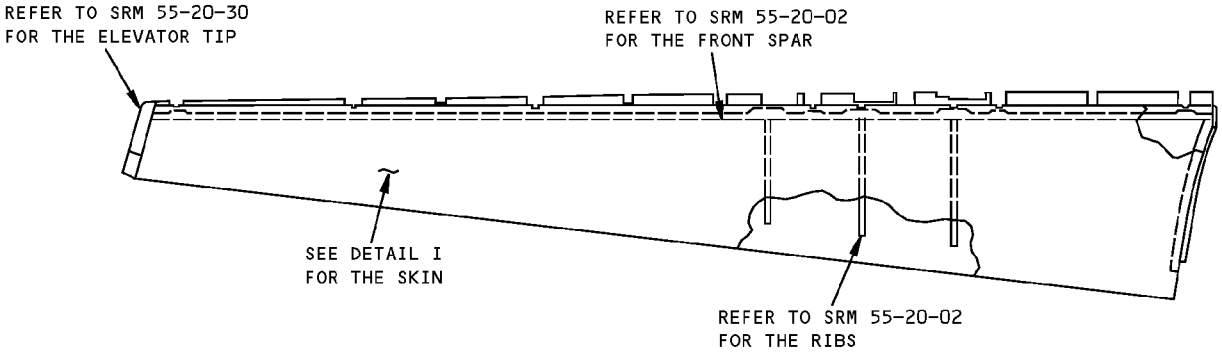
NOTES

- NO TYPICAL REPAIR TO FITTINGS APPLICABLE. SPECIFIC REPAIRS TO FITTINGS WILL BE PROVIDED BASED ON SERVICE EXPERIENCE

Horizontal Stabilizer Jackscrew Suport Fitting Repair
Figure 201

IDENTIFICATION 1 - ELEVATOR SKIN

REFERENCE DRAWING
183N2003



NOTES

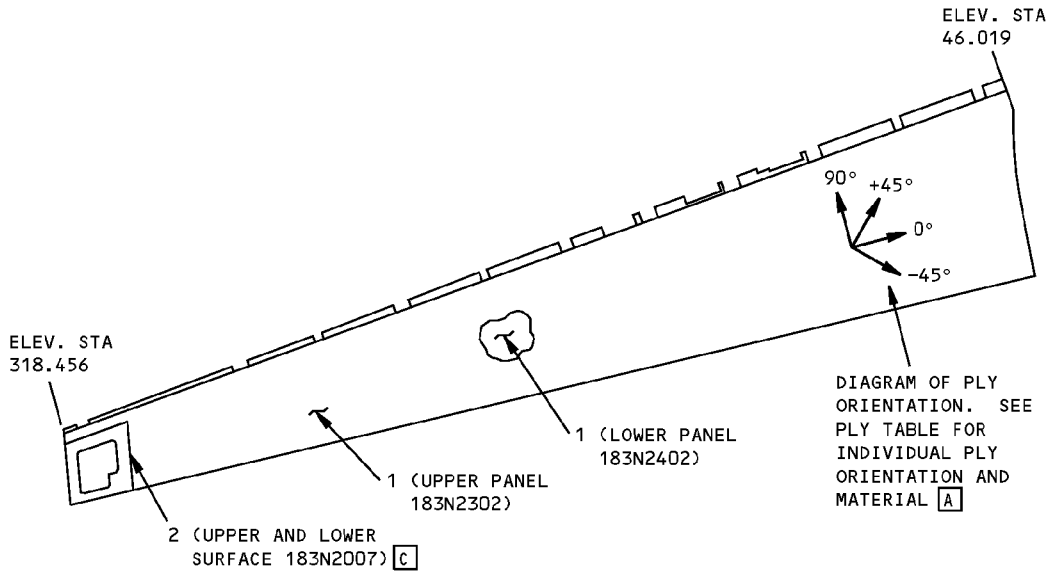
[A] PLY ORIENTATION CONVENTION, DEGREES INDICATED IS PARALLEL TO THE FABRIC DIRECTION

[B] GRAPHITE/EPOXY PREPREG FABRIC PER BMS 8-256, TYPE I (CUM LINE NUMBER 1 THRU 134), TYPE IV (LINE NUMBER 135 AND ON), CLASS 2, STYLE 3K-70-PW, 350°F (177°C) CURE

[C] FOR CUM LINE NUMBERS:
98 AND ON

[D] 6061-T6, 0.025 INCH GAGE OPTIONAL

Elevator Skin Identification
Figure 1 (Sheet 1 of 2)



DETAIL I

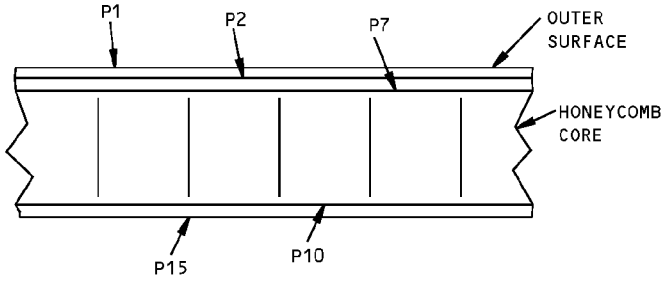
ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	ELEVATOR PANEL		GRAPHITE EPOXY HONEYCOMB SANDWICH	
	SKIN		SEE DETAIL II	
	CORE		NOMEX HONEYCOMB CORE PER BMS 8-124, CLASS IV, TYPE V, GRADE 3.0	
2	CONDUCTIVE FRAME	0.020	6061-T4 D	C

LIST OF MATERIALS

ITEM	PLY NO.	MATERIAL	PLY ORIENTATION A
1	P1	B	±45°
	P2	B	±45°
	P7	B	0° OR 90°
	P10	B	0° OR 90°
	P15	B	±45°

MATERIAL AND PLY ORIENTATION SHOWN FOR FIELD AREAS ONLY, SEE BOEING DRAWINGS FOR EDGE BANDS AND AREAS WITH DOUBLERS

PLY TABLE

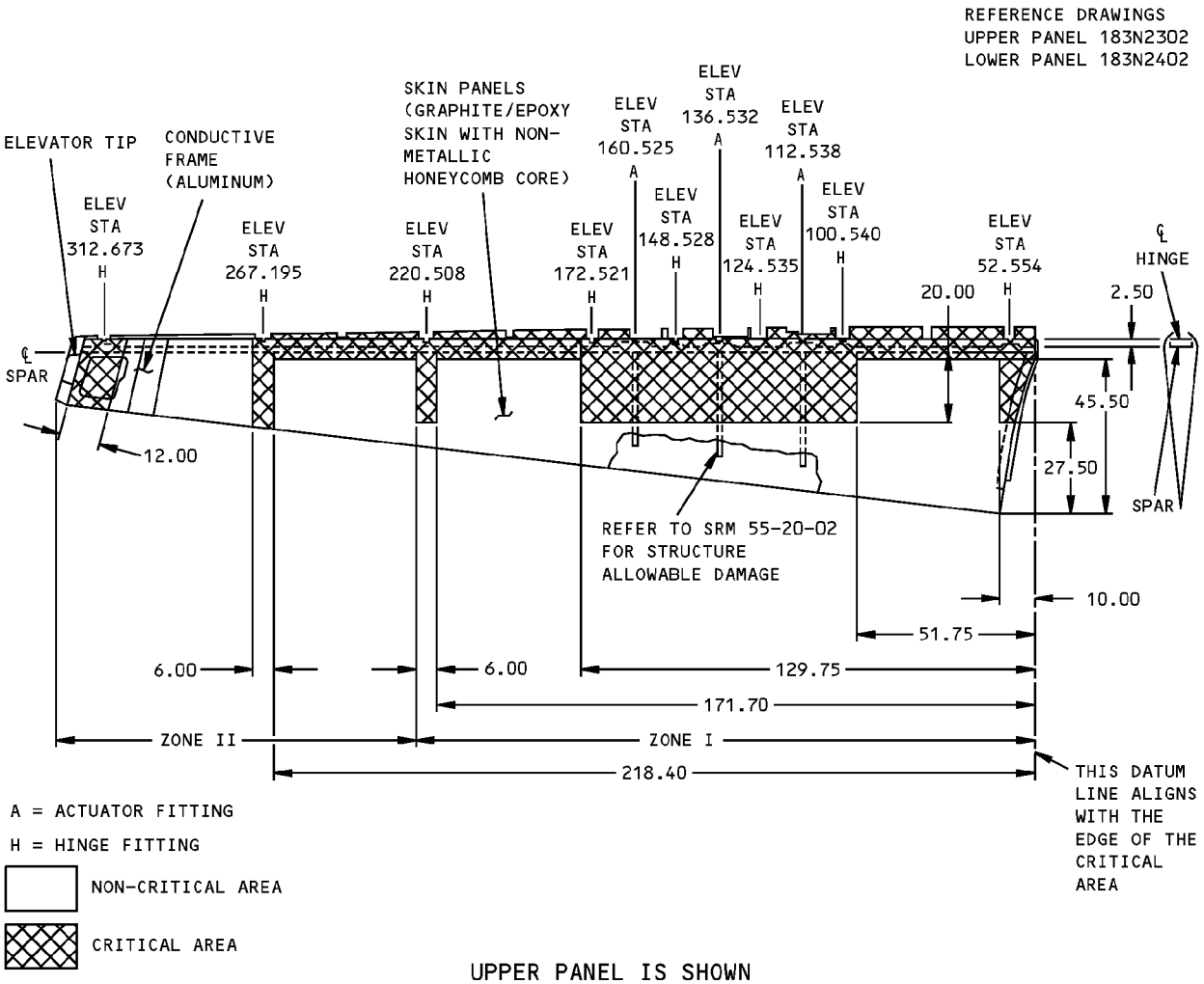


SECTION THRU HONEYCOMB PANEL

DETAIL II

Elevator Skin Identification
Figure 1 (Sheet 2 of 2)

ALLOWABLE DAMAGE 1 - ELEVATOR SKIN



UPPER PANEL IS SHOWN
(LOWER PANEL IS ALMOST THE SAME)

DESCRIPTION	CRACKS	NICKS, GOUGES AND CORROSION	DENTS	HOLES AND PUNCTURES	DELAMINATION	EDGE EROSION
SKIN PANEL NON-CRITICAL AREA ZONE I ZONE II CRITICAL AREA	 A E F	 B B F	 C C C F	 A E F	 A E F	SEE DETAIL III
ELEVATOR TIP	E	B	C	E	E	SEE DETAIL III
CONDUCTIVE FRAME	G	H	NOT PERMITTED	NOT PERMITTED	I	NOT APPLICABLE

TABLE I

Allowable Damage - Elevator Skin
Figure 101 (Sheet 1 of 5)

NOTES

- REFINISH REWORKED AREAS AS GIVEN IN AMM 51-20.
- REFER TO SRM 51-10-02 FOR INSPECTION AND REMOVAL OF DAMAGE. [E]
- REFER TO SRM 51-10-01 FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS. WHERE DAMAGE IS MORE THAN THE LIMITS SHOWN IN SRM 51-10-01, CONSIDERATION SHOULD BE GIVEN TO LOSS OF PERFORMANCE INVOLVED.

[A] DAMAGE TO THE EDGES OF THE SKIN PANEL CAN CAUSE FIBER DAMAGE AND A DECREASE IN CROSS-SECTIONAL AREA. REMOVE EDGE DAMAGE AS SHOWN IN DETAILS I AND II.

DAMAGE IS PERMITTED ONLY ON ONE SURFACE OF HONEYCOMB CORE TO A TOTAL MAXIMUM DIMENSION (D) OF 1.50 INCHES (38 mm) FOR EACH SQUARE FOOT OF AREA.

A DAMAGE SITE MUST BE:

- A MINIMUM OF 3D (EDGE TO EDGE) FROM ANOTHER DAMAGE SITE. SEE DETAIL IV FOR DAMAGE SITE SPECIFICATIONS
- A MINIMUM OF 3D (EDGE TO EDGE) FROM A HOLE OR THE EDGE OF THE MATERIAL.

DAMAGE IS NOT PERMITTED:

- FOR MORE THAN ONE FASTENER HOLE IN SIX
- ON MORE THAN ONE 10% OF THE LENGTH OF THE EDGEBAND ON A SIDE.

PROTECT DAMAGE THAT IS NOT REWORKED AS GIVEN IN NOTE [D].

[B] DAMAGE IS PERMITTED ON THE SURFACE RESIN ONLY WITH NO FIBER DAMAGE. CLEAN UP EDGE DAMAGE AS SHOWN IN DETAILS I AND II. FIBER DAMAGE MUST BE TREATED AS A HOLE OR PUNCTURE DAMAGE.

[C] DENTS RESULT IN DELAMINATION AND FIBER DAMAGE AND MUST BE TREATED AS A HOLE OR PUNCTURE DAMAGE.

[D] REMOVE MOISTURE FROM DAMAGE AREA. USE OF VACUUM AND HEAT (MAX OF 125°F (52°C)) TO REMOVE MOISTURE FROM HONEYCOMB CELLS IS RECOMMENDED. PROTECT DAMAGE FROM ENTRANCE OF WATER, SUNLIGHT OR OTHER FOREIGN MATTER BY SEALING WITH ALUMINUM FOIL TAPE (SPEED TAPE). RECORD THE LOCATION AND INSPECT EVERY AIRPLANE "A" CHECK. REPLACE THE ALUMINUM FOIL TAPE IF ANY PEELING OR DETERIORATION IS EVIDENT. REPAIR NO LATER THAN NEXT AIRPLANE "C" CHECK. [J]

[E] DAMAGE TO THE EDGES OF THE SKIN PANEL CAN CAUSE FIBER DAMAGE AND A DECREASE IN CROSS-SECTIONAL AREA. REMOVE EDGE DAMAGE AS SHOWN IN DETAILS I AND II.

DAMAGE IS PERMITTED ONLY ON ONE SURFACE OF HONEYCOMB CORE TO A TOTAL MAXIMUM DIMENSION (D) OF 2.0 INCHES (50 mm) FOR EACH SQUARE FOOT OF AREA.

A DAMAGE SITE MUST BE:

- A MINIMUM OF 3D (EDGE TO EDGE) FROM ANOTHER DAMAGE SITE. SEE DETAIL IV FOR DAMAGE SITE SPECIFICATIONS
- A MINIMUM OF 3D (EDGE TO EDGE) FROM A HOLE OR THE EDGE OF THE MATERIAL.

DAMAGE IS NOT PERMITTED:

- FOR MORE THAN ONE FASTENER HOLE IN SIX
- ON MORE THAN ONE 10% OF THE LENGTH OF THE EDGEBAND ON A SIDE.

PROTECT DAMAGE THAT IS NOT REWORKED AS GIVEN IN NOTE [D].

[F] DAMAGE TO THE EDGES OF THE SKIN PANEL CAN CAUSE FIBER DAMAGE AND A DECREASE IN CROSS-SECTIONAL AREA. REMOVE EDGE DAMAGE AS SHOWN IN DETAILS I AND II.

DAMAGE IS PERMITTED ONLY ON ONE SURFACE OF HONEYCOMB CORE TO A TOTAL MAXIMUM DIMENSION (D) OF 0.25 INCH (6 mm) FOR EACH SQUARE FOOT OF AREA.

A DAMAGE SITE MUST BE:

- A MINIMUM OF 3D (EDGE TO EDGE) FROM ANOTHER DAMAGE SITE. SEE DETAIL IV FOR DAMAGE SITE SPECIFICATIONS
- A MINIMUM OF 3D (EDGE TO EDGE) FROM A HOLE OR THE EDGE OF THE MATERIAL.

DAMAGE IS NOT PERMITTED:

- FOR MORE THAN ONE FASTENER HOLE IN TEN
- ON MORE THAN 5% OF THE LENGTH OF THE EDGEBAND ON A SIDE
- FOR MORE THAN ONE ATTACHMENT BOLT ON AN ACTUATOR OR A HINGE FITTING. THERE MUST BE NO DAMAGE TO ADJACENT FITTINGS.

REPAIR THE AREA BY 300 FLIGHT HOURS.

PROTECT DAMAGE THAT IS NOT REWORKED AS GIVEN IN NOTE [D].

Allowable Damage - Elevator Skin
Figure 101 (Sheet 2 of 5)

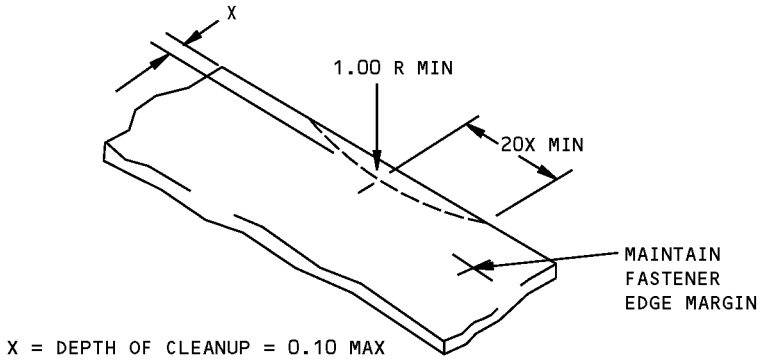
NOTES (CONT)

G CRACKS NOT ALLOWED EXCEPT FOR EDGE CRACKS WHICH MUST BE REMOVED PER DETAIL I.

H REMOVE DAMAGE PER DETAILS I AND IV.

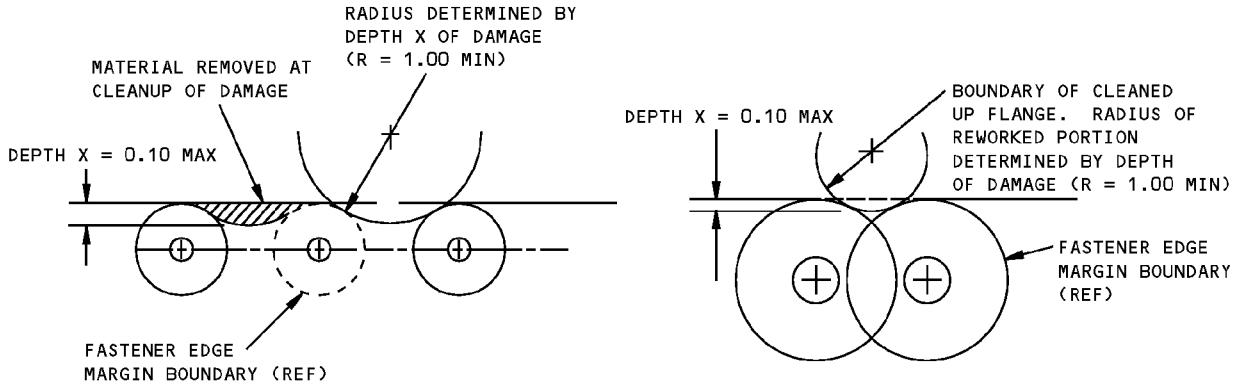
I EDGE DELAMINATION IS NOT ALLOWED. SEAL EDGE DELAMINATION WITH BMS 5-95 SEALANT AND /OR ALUMINUM FOIL SPEED TAPE. DELAMINATION UP TO 1.0 MAX DIMENSION IS ALLOWED PROVIDED THAT DELAMINATION IS NOT LESS THAN 1.0 MINIMUM FROM EDGE OF FRAME OR ANY OTHER DAMAGE. REPAIR DELAMINATION AT EARLIEST OPPORTUNITY.

J THESE ALLOWABLE DAMAGE LIMITS HAVE FAA APPROVAL CONTINGENT ON ACCOMPLISHMENT OF THE INSPECTIONS CONTAINED HEREIN.



DETAIL I

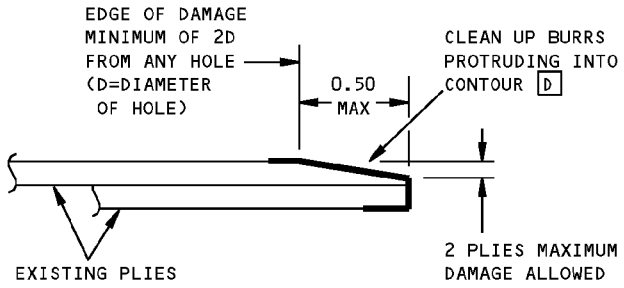
Allowable Damage - Elevator Skin
Figure 101 (Sheet 3 of 5)



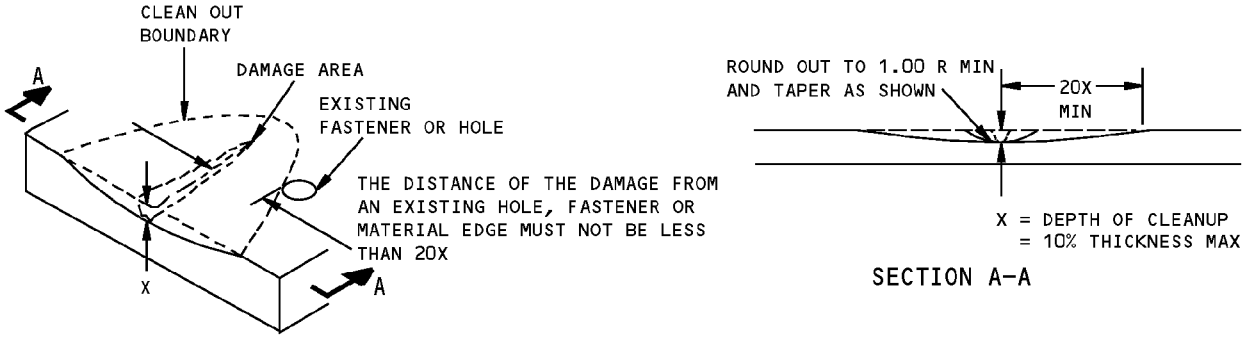
DAMAGE CLEANUP OF EDGES WHERE FASTENER EDGE MARGINS DO NOT OVERLAP

DAMAGE CLEANUP OF EDGES WHERE FASTENER EDGE MARGINS OVERLAP

DETAIL II



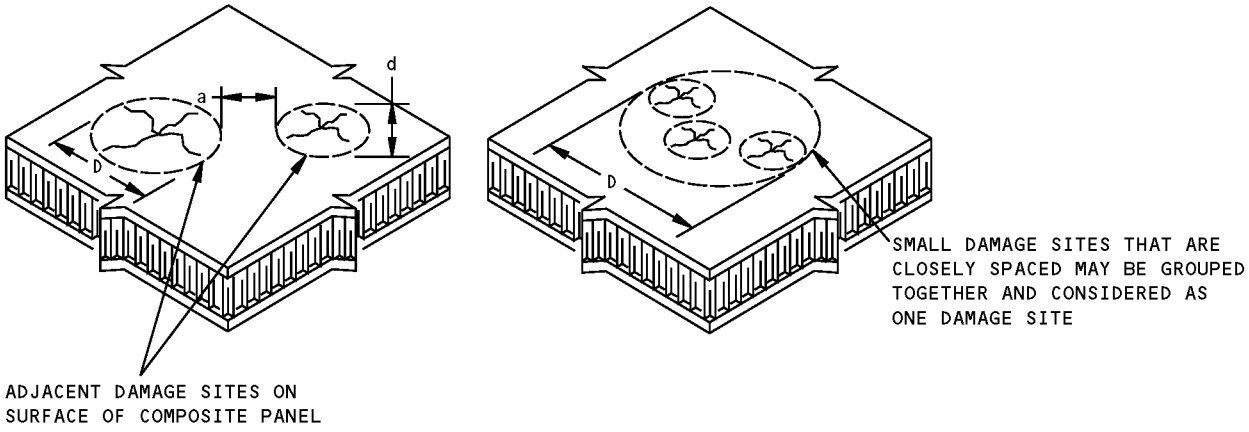
DAMAGE CLEANUP AND SEALING OF EDGE EROSION
DETAIL III



SECTION A-A

REMOVAL OF NICK, GOUGE AND SCRATCH DAMAGE ON A SURFACE
DETAIL IV

Allowable Damage - Elevator Skin
Figure 101 (Sheet 4 of 5)

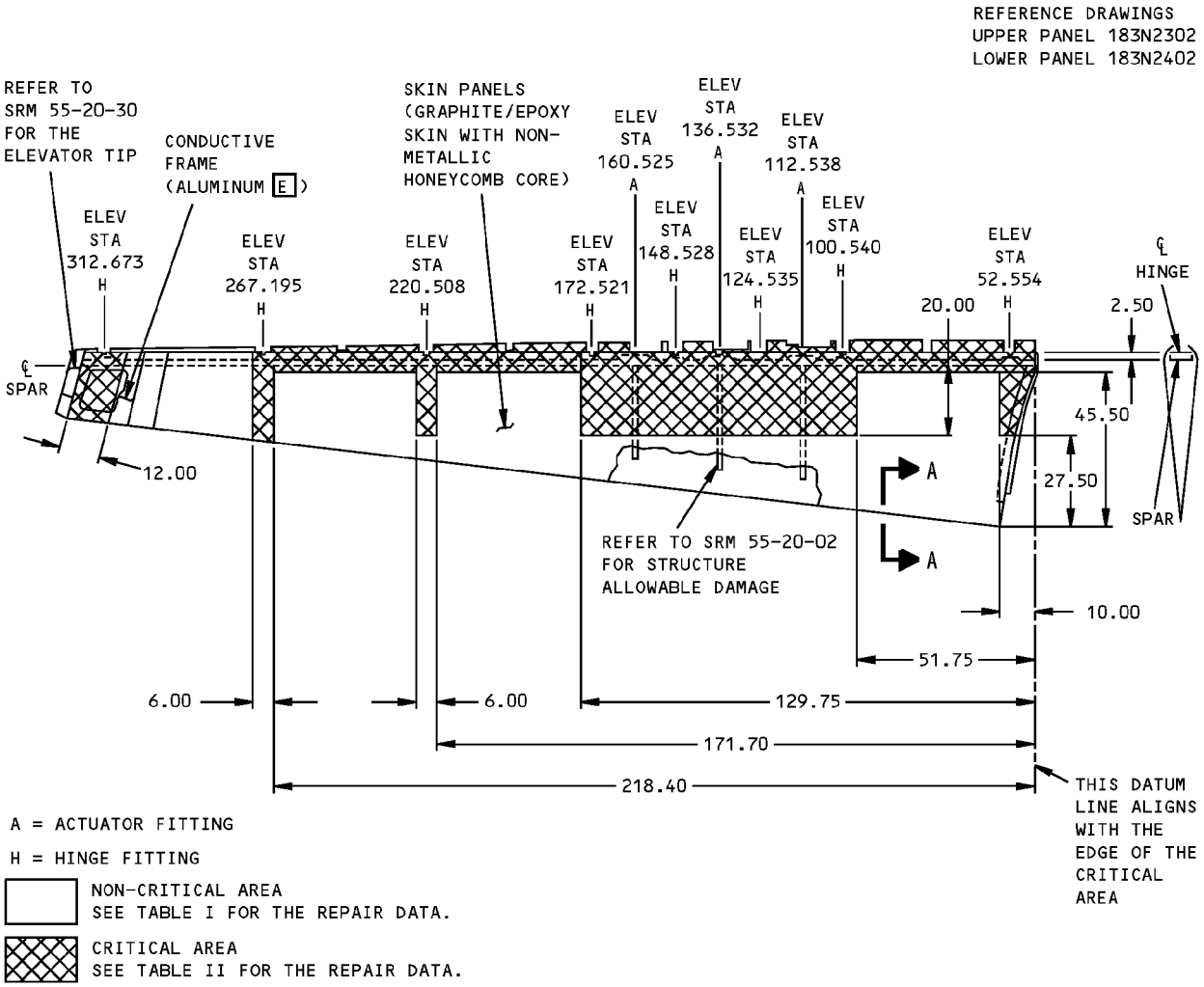


- DAMAGE TO COMPOSITE PANELS EXPOSED TO MULTIPLE IMPACTS, I.E., HAIL DAMAGE, CAN BE DETECTED BY USING INSTRUMENTED NON-DESTRUCTIVE INSPECTION METHODS OR BY TAPPING THE SUSPECTED DAMAGE AREA WITH A SMALL METALLIC DISK OBJECT. INSPECTION SHOULD COVER THE AREA WITHIN 3 DIAMETERS AROUND THE EDGE OF THE VISIBLE DAMAGE SITE. FOR TAP TEST, USE A SOLID METAL DISK AND TAP THE DAMAGE AREA LIGHTLY BUT FIRMLY. VOID AREAS SHOULD PRODUCE A DULL SOUND AS OPPOSED TO A SHARP RING ON A SOLID BONDED AREA.
- DAMAGE SITE IS ANY SINGLE AREA OF A PANEL WHERE A DENT, CRACK, DELAMINATION, PUNCTURE OR ANY COMBINATION OF THESE EXIST. SMALL DAMAGE SITES THAT ARE CLOSELY SPACED MAY BE GROUPED TOGETHER AND CONSIDERED AS ONE DAMAGE SITE.
- "D" IS DETERMINED BY MEASURING THE MAXIMUM DIMENSION OF A DENT, CRACK, OR OTHER DAMAGE, WHICHEVER IS GREATER.
- "a" IS THE DISTANCE BETWEEN TWO ADJACENT DAMAGE SITES.
- "d" IS THE DIAMETER OF THE SMALLER OF TWO ADJACENT DAMAGE SITES.
- CALCULATE a/D BY DIVIDING DISTANCE "a" BY DIAMETER "D".
- DAMAGE IS ALLOWED WHEN "D" IS EQUAL TO OR LESS THAN THE MAXIMUM ALLOWABLE "D" FROM TABLE I.

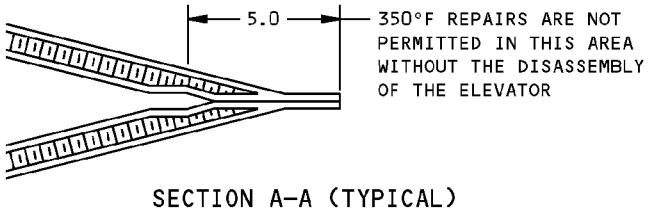
DAMAGE SIZING AND SPACING DATA
FOR COMPOSITE PANELS
DETAIL V

Allowable Damage - Elevator Skin
Figure 101 (Sheet 5 of 5)

REPAIR 1 - ELEVATOR SKIN



UPPER PANEL IS SHOWN
(LOWER PANEL IS ALMOST THE SAME)



SECTION A-A (TYPICAL)

Elevator Skin Repairs
Figure 201 (Sheet 1 of 3)

NOTES

- REFINISH REWORKED AREAS PER AMM 51-20.
- REFER TO SRM 51-10-01 FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS. WHERE THE DAMAGE IS MORE THAN THE LIMITS SHOWN IN SRM 51-10-01, CONSIDERATION SHOULD BE GIVEN TO THE LOSS OF PERFORMANCE INVOLVED.

[A] INSPECT INTERIM REPAIR USING INSTRUMENTED NDI METHODS OR "TAP" TEST EVERY AIRPLANE "2A" CHECK. FOR "TAP" TEST, USE A SOLID METAL DISK AND TAP THE REPAIR AREA LIGHTLY BUT FIRMLY. VOID AREAS WILL PRODUCE A DULL SOUND AS OPPOSED TO A SHARP RING ON A SOLID BONDED AREA. PERMANENT REPAIR IS REQUIRED IF ANY DETERIORATION IS EVIDENT. REFER TO SRM 51-70-03, PAR. 4.I. AND THE NONDESTRUCTIVE MANUAL. [D]

[B] LIMITED TO REPAIR OF DAMAGE TO ONE FACESHEET SKIN AND HONEYCOMB CORE. ONE REPAIR PER SQUARE FOOT OF AREA AND MINIMUM OF 6.0 INCHES (150 mm) (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE, OR EDGE OF PANEL.

[C] ONE REPAIR FOR EACH SQUARE FOOT OF AREA AND A MINIMUM OF 6.0 INCHES (150 mm) (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE, OR EDGE OR PANEL.

[D] THIS REPAIR HAS FAA APPROVAL CONTINGENT ON ACCOMPLISHMENT OF THE INSPECTIONS CONTAINED HEREIN.

[E] THE INITIAL 0.020 INCH (0.51 mm) THICK CONDUCTIVE FRAME CAN BE REPLACED WITH A 0.025 INCH (0.64 mm) THICK CONDUCTIVE FRAME.

DAMAGE	INTERIM REPAIRS [A]	PERMANENT REPAIRS		
	WET LAYUP 150°F (66°C) CURE (SRM 51-70-03)	WET LAYUP 200°F (93°C) CURE (SRM 51-70-17)	250°F (121°C) CURE (SRM 51-70-05)	350°F (177°C) CURE (SRM 51-70-04)
CRACKS	UP TO 2.0 INCHES (50 mm) LONG, REPAIR WITH PATCH AS GIVEN IN SRM 51-70-03, PAR. 5.N. [B]	CLEAN UP DAMAGE AND REPAIR AS A HOLE.	CLEAN UP DAMAGE AND REPAIR AS A HOLE.	CLEAN UP DAMAGE AND REPAIR AS A HOLE.
HOLES	2.0 INCHES (50 mm) MAX DIA NOT TO EXCEED 30% OF SMALLEST DIMENSION ACROSS THE HONEYCOMB PANEL AT THE DAMAGE LOCATION. FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-03, PAR. 5.N. [B]	10.0 INCHES (250 mm) MAX DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS THE HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED. [C]	5.0 INCHES (125 mm) MAX DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS THE HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED. [C]	NO SIZE LIMIT
EDGE EROSION	--	FOR DAMAGE NOT EXCEEDING 35% OF EDGEBAND THICKNESS, REPAIR AS GIVEN IN SRM 51-70-03, PAR. 5.0. FOR GREATER DAMAGE, REPAIR AS GIVEN IN:		
		SRM 51-70-17, PAR. 4.G.	SRM 51-70-05, PAR. 5.G.	SRM 51-70-04, PAR. 5.G.
DELAMI-NATION	CUT OUT AND REPAIR AS A HOLE.			
NICKS AND GOUGES	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL NICKS OR GOUGES AS GIVEN IN SRM 51-70-03. IF THERE IS FIBER DAMAGE OR DELAMINATION, REPAIR AS A HOLE.			
DENTS	UP TO 2.0 INCHES (50 mm) DIA WITH NO FIBER DAMAGE OR DELAMINATION IN THE HONEYCOMB PANEL AREAS, FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-03, PAR. 5.L. [C] OVER 2.0 INCHES (50 mm) DIA OR WITH FIBER DAMAGE OR DELAMINATION, REPAIR AS A HOLE.			

REPAIR DATA FOR 350°F (177°C) CURE GRAPHITE/EPOXY HONEYCOMB PANELS IN NON-CRITICAL AREAS
TABLE I

Elevator Skin Repairs
Figure 201 (Sheet 2 of 3)

DAMAGE	INTERIM REPAIRS [A]	PERMANENT REPAIRS		
	WET LAYUP 150°F CURE (SRM 51-70-03)	WET LAYUP 200°F CURE (SRM 51-70-17)	250°F CURE (SRM 51-70-05)	350°F CURE (SRM 51-70-04)
CRACKS	UP TO 0.25 INCH (6 mm) LONG, REPAIR WITH PATCH AS GIVEN IN SRM 51-70-03, PAR. 5.N. [B]	CLEAN UP DAMAGE AND REPAIR AS A HOLE.	CLEAN UP DAMAGE AND REPAIR AS A HOLE.	CLEAN UP DAMAGE AND REPAIR AS A HOLE.
HOLES	0.25 INCH MAXIMUM DIA. FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-03, PAR. 5.N. [B]	5.0 INCHES (125 mm) MAXIMUM DIA. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED. 0.5 INCH (12.7 mm) MAXIMUM DIA IN SOLID LAMINATE AREAS. [C]	2.0 INCHES (50 mm) MAXIMUM DIA. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED. [C] NOT PERMITTED IN SOLID LAMINATE AREAS.	NO SIZE LIMIT
EDGE EROSION	———	FOR DAMAGE NOT EXCEEDING 10% OF EDGEBAND THICKNESS, REPAIR AS GIVEN IN SRM 51-70-03, PAR. 5.O. FOR LARGER DAMAGE, REPAIR AS GIVEN IN:		
		SRM 51-70-17, PAR. 4.G.	SRM 51-70-05, PAR. 5.G.	SRM 51-70-04, PAR. 5.G.
DELAMI-NATION	CUT OUT AND REPAIR AS A HOLE.			
NICKS AND GOUGES	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL NICKS OR GOUGES AS GIVEN IN SRM 51-70-03. IF YOU FIND FIBER DAMAGE OR DELAMINATION, THEN REPAIR AS A HOLE.			
DENTS	UP TO 2.0 INCHES (50 mm) DIA WITH NO FIBER DAMAGE OR DELAMINATION IN THE HONEYCOMB PANEL AREAS, FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-03, PAR. 5.L. [C] OVER 2.0 INCHES (50 mm) DIA OR WITH FIBER DAMAGE OR DELAMINATION, REPAIR AS A HOLE.			

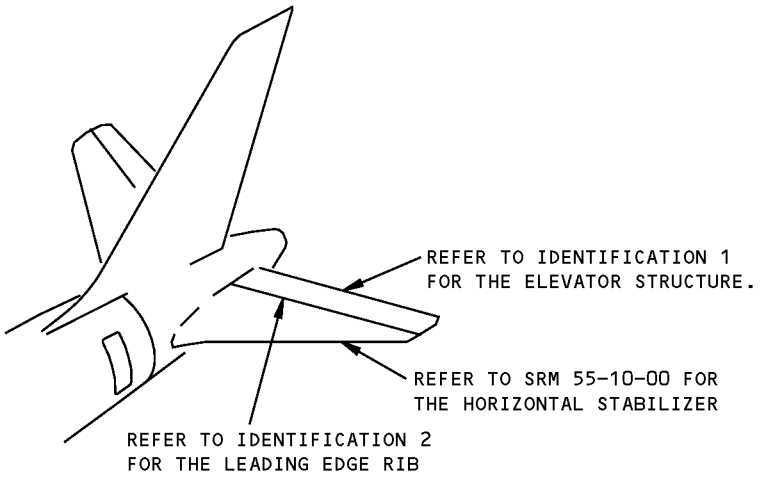
REPAIR DATA FOR 350°F CURE GRAPHITE/EPOXY HONEYCOMB PANELS IN CRITICAL AREAS

TABLE II

Elevator Skin Repairs
Figure 201 (Sheet 3 of 3)

IDENTIFICATION 1 - ELEVATOR STRUCTURE

REFERENCE DRAWING
183N2003



NOTES

[A] PLY ORIENTATION CONVENTION, DEGREES INDICATED, IS PARALLEL TO THE FABRIC WARP DIRECTION

[B] GRAPHITE/EPOXY PREPREG FABRIC PER BMS 8-256 TYPE I (CUM LINE NUMBER 1 THRU 134), TYPE IV (CUM LINE 135 AND ON), CLASS 2, STYLE 3K-70-PW, 350°F (177°C) CURE

[C] FIBERGLASS PREPREG PER BMS 8-139, TYPE 120, 350°F (177°C) CURE

[D] DIAGRAM OF PLY ORIENTATION. SEE APPLICABLE TABLE FOR INDIVIDUAL PLY ORIENTATION AND MATERIAL.

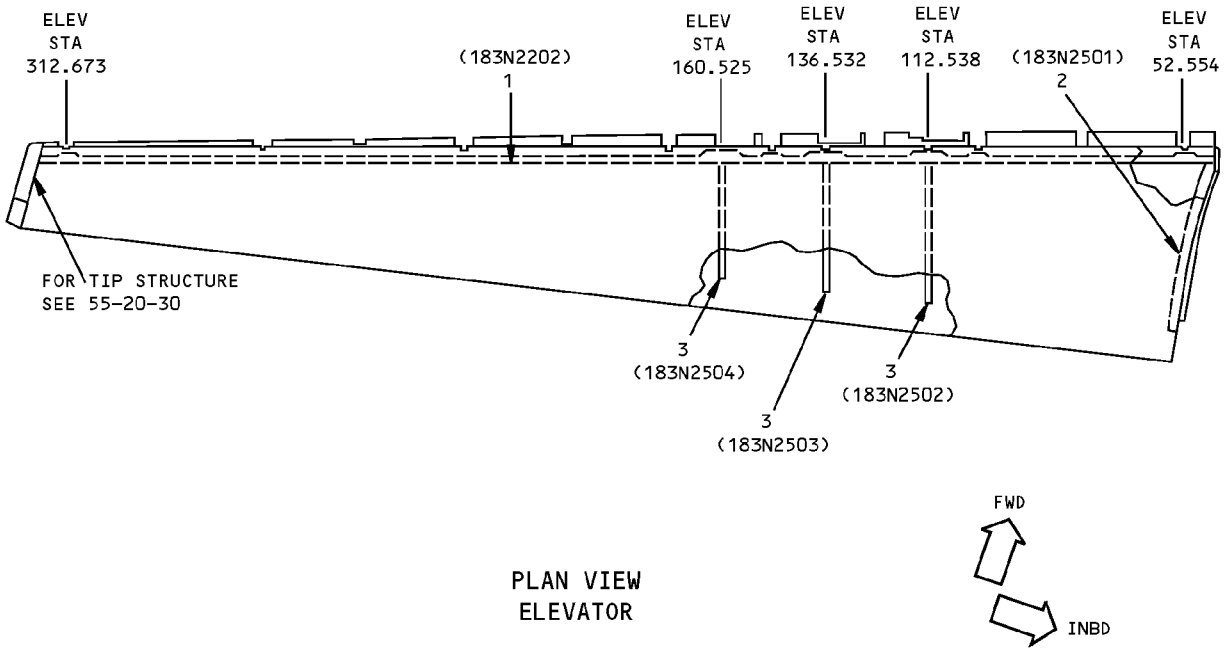
[E] MATERIAL AND PLY ORIENTATION SHOWN FOR FIELD AREAS ONLY. SEE BOEING DRAWINGS FOR EDGE BANDS AND AREAS WITH DOUBLERS.

[F] PLIES 2 AND 9 ARE CUT OUT OVER HONEYCOMB AREAS INBOARD OF ELEV STA 198. FOR PLY LAYUP OF AREAS ADJACENT TO THE INBOARD SIDE OF CLOSURE PLATES, SEE DETAIL I

[G] FOR CUM LINE NUMBER 1 THRU 696

[H] FOR CUM LINE NUMBER 697 AND ON

Elevator Structure Identification
Figure 1 (Sheet 1 of 4)

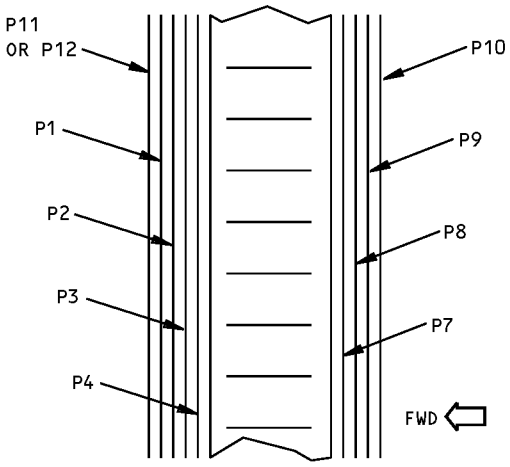


PLAN VIEW
ELEVATOR

ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	SPAR ASSY SKIN CORE		GRAPHITE/EPOXY HONEYCOMB SANDWICH SEE DETAILS I AND II NON-METALLIC HONEYCOMB PER BMS 8-124, CLASS IV, TYPE V, GRADE 3.0 (NOMEX)	
2	CLOSURE RIB ASSY SKIN CORE		GRAPHITE/EPOXY HONEYCOMB SANDWICH SEE DETAIL III NON-METALLIC HONEYCOMB PER BMS 8-124, CLASS IV, TYPE V, GRADE 3.0 (NOMEX)	
3	RIB ASSY SKIN CORE		GRAPHITE/EPOXY HONEYCOMB SANDWICH SEE DETAIL IV NON-METALLIC HONEYCOMB PER BMS 8-124, CLASS IV, TYPE V, GRADE 3.0 (NOMEX)	

LIST OF MATERIALS

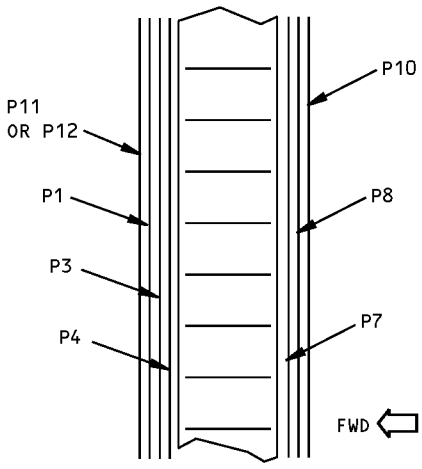
Elevator Structure Identification
Figure 1 (Sheet 2 of 4)



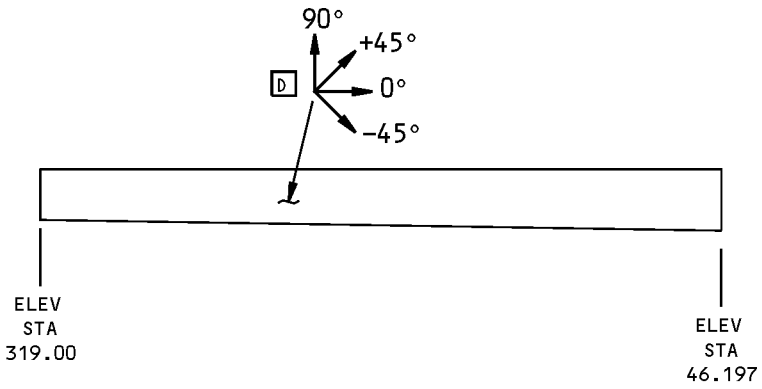
TYPICAL SECTION THROUGH FRONT SPAR
ELEV STA 198.00 TO ELEV STA 310 [G]
ENTIRE SPAR (ELEV STA 46.098 TO ELEV STA 319.00) [H]
DETAIL I

ITEM NO.	PLY NO.	MATERIAL	PLY ORIENTATION [A]
1	P1	[B]	±45°
	P2	[B]	0° OR 90°
	P3	[B]	±45°
	P4	[B]	0° OR 90°
	P7	[B]	0° OR 90°
	P8	[B]	±45°
	P9	[B]	0° OR 90°
	P10	[B]	±45°
	P11 OR P12	[C]	0° OR 90°

PLY TABLE FOR DETAILS I AND II [E]

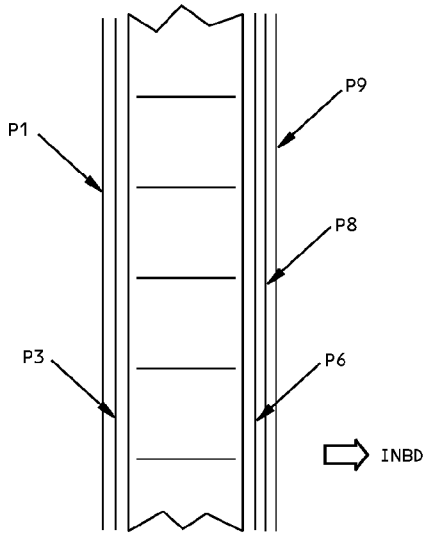


TYPICAL SECTION THROUGH FRONT SPAR
ELEV STA 53.00 TO ELEV STA 198.00 [F] [G]
DETAIL II



VIEW ON FRONT SPAR

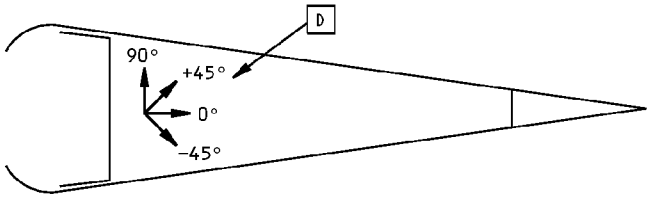
Elevator Structure Identification
Figure 1 (Sheet 3 of 4)



SECTION THRU RIB

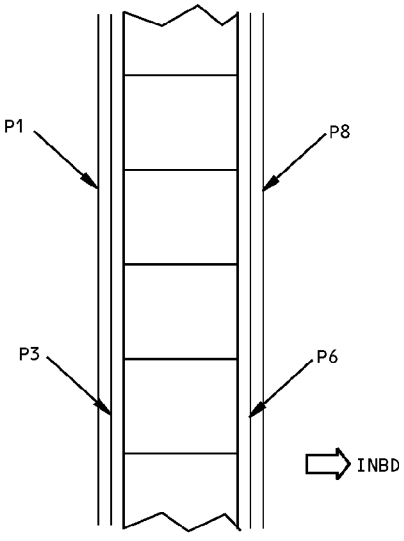
ITEM NO.	PLY NO.	MATERIAL	PLY ORIENTATION [A]
2	P1	[B]	±45°
	P3	[B]	0° OR 90°
	P6	[B]	0° OR 90°
	P8	[B]	±45°
	P9	[C]	0° OR 90°

TABLE III [E]



PLY TABLE FOR DETAIL III [E]

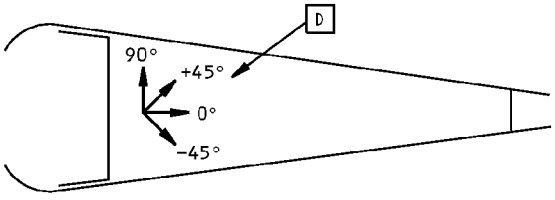
DETAIL III



SECTION THRU RIB

ITEM NO.	PLY NO.	MATERIAL	PLY ORIENTATION [A]
2	P1	[B]	±45°
	P3	[B]	0° OR 90°
	P6	[B]	0° OR 90°
	P8	[B]	±45°

PLY TABLE FOR DETAIL IV [E]

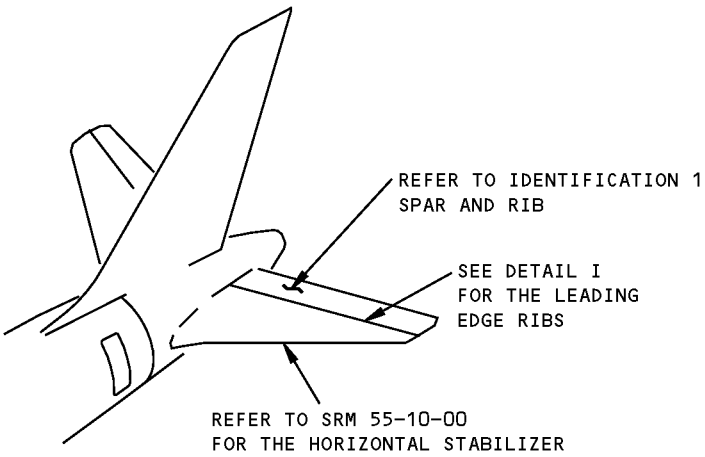


VIEW ON RIB

DETAIL IV

Elevator Structure Identification
Figure 1 (Sheet 4 of 4)

IDENTIFICATION 2 - ELEVATOR LEADING EDGE RIB



NOTES

[A] FOR CUM LINE NUMBERS:
1 THRU 28

[B] FOR CUM LINE NUMBERS:
29 AND ON

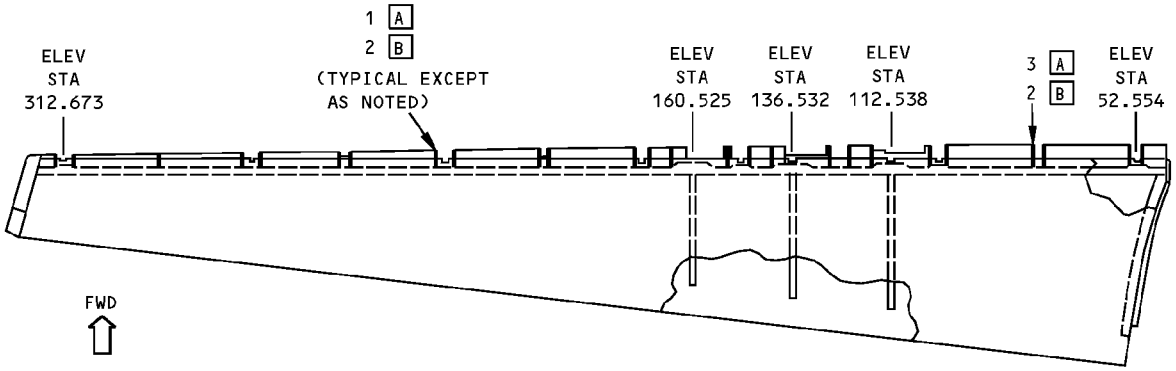
[C] PLY ORIENTATION CONVENTION, 0 DEGREES, IS PARALLEL TO THE FABRIC WARP DIRECTION

[D] GRAPHITE/EPOXY PREPREG FABRIC PER BMS 8-212, TYPE IV, CLASS 2, STYLE 3K-70-PW

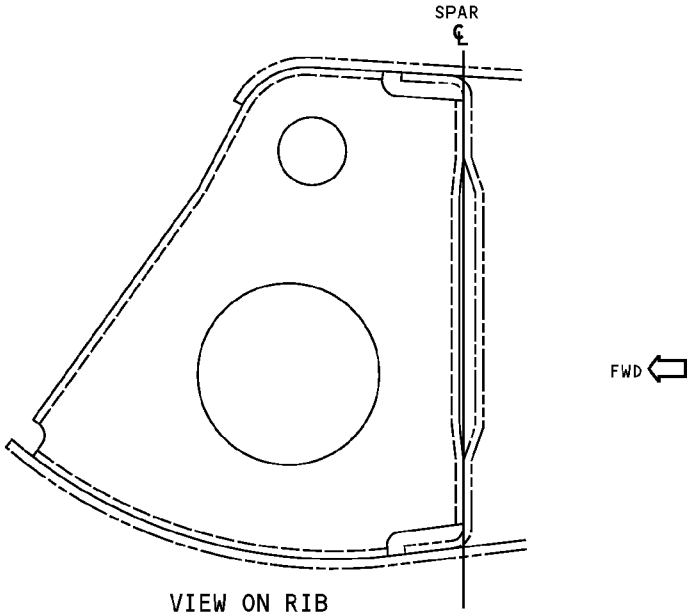
[E] FIBERGLASS PREPREG PER BMS 8-139, TYPE 120

[F] DIAGRAM OF PLY ORIENTATION. SEE APPLICABLE TABLE FOR INDIVIDUAL PLY ORIENTATION AND MATERIAL

Elevator Leading Edge Rib Identification
Figure 1 (Sheet 1 of 3)



DETAIL I

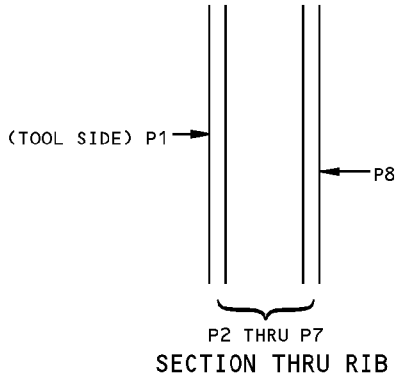


VIEW ON RIB
(ALL RIBS SIMILAR)

ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	RIB		GRAPHITE/EPOXY LAMINATE. SEE DETAIL II	A
2	RIB	0.063	CLAD 2024-T42	B
3	RIB		FIBERGLASS/GRAPHITE EPOXY LAMINATE. SEE DETAIL III	A

LIST OF MATERIALS

Elevator Leading Edge Rib Identification
Figure 1 (Sheet 2 of 3)

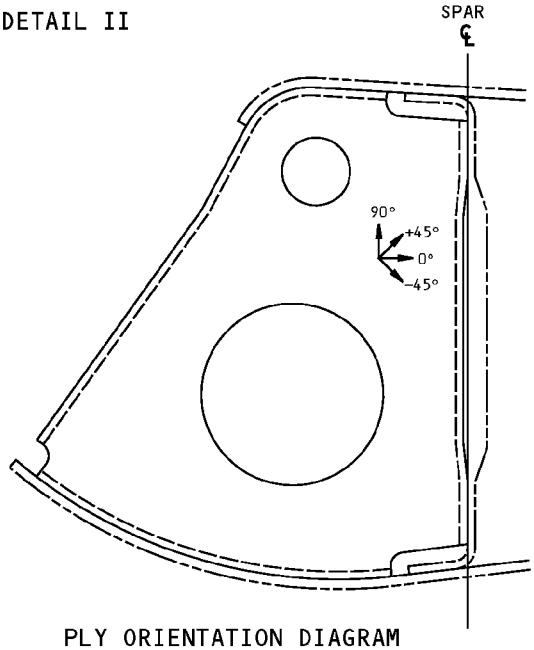


SECTION THRU RIB

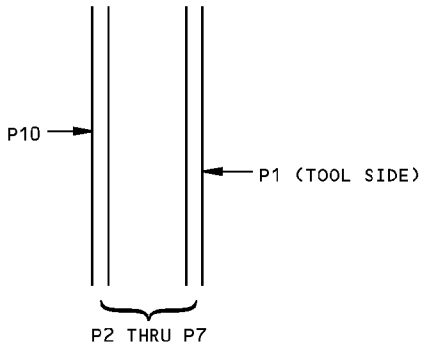
ITEM NO.	PLY NO.	MATERIAL	PLY ORIENTATION [C]
1	P1,P3 P6,P8	[D]	±45°
	P2,P4 P5,P7	[D]	0° OR 90°

PLY TABLE FOR DETAIL II

DETAIL II



PLY ORIENTATION DIAGRAM
FOR DETAILS II AND III [F]



SECTION THRU RIB

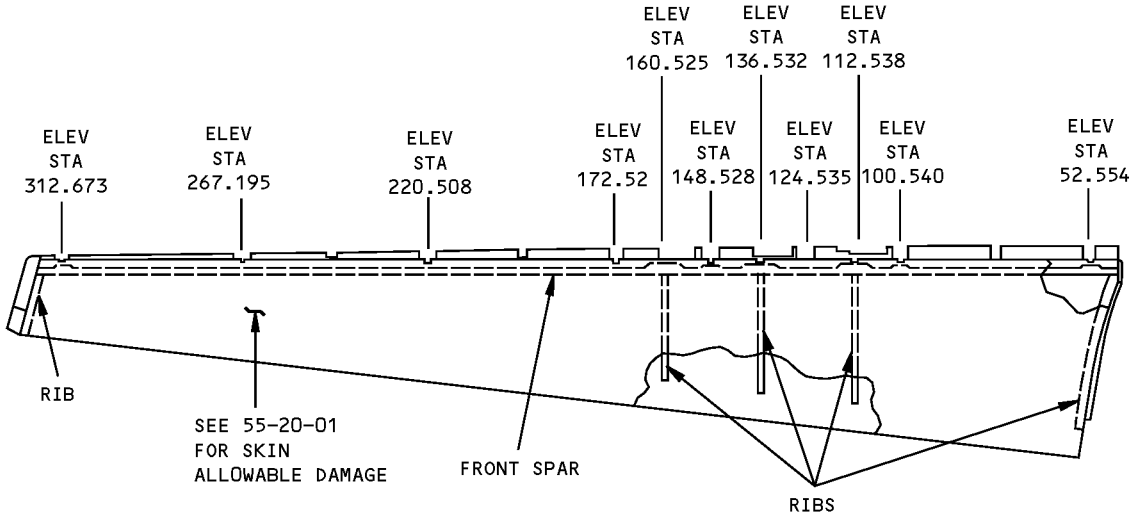
ITEM NO.	PLY NO.	MATERIAL	PLY ORIENTATION [C]
3	P1 P10	[E]	0° OR 90°
	P2,P4 P7,P9	[D]	±45°
	P3,P5 P6,P8	[D]	0° OR 90°

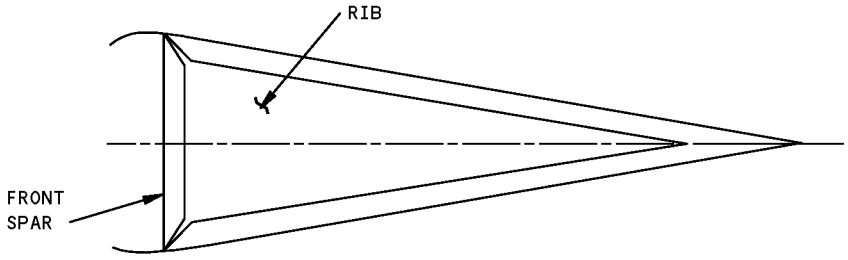
DETAIL III

PLY TABLE FOR DETAIL III

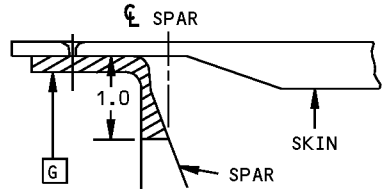
Elevator Leading Edge Rib Identification
Figure 1 (Sheet 3 of 3)

ALLOWABLE DAMAGE 1 - ELEVATOR STRUCTURE



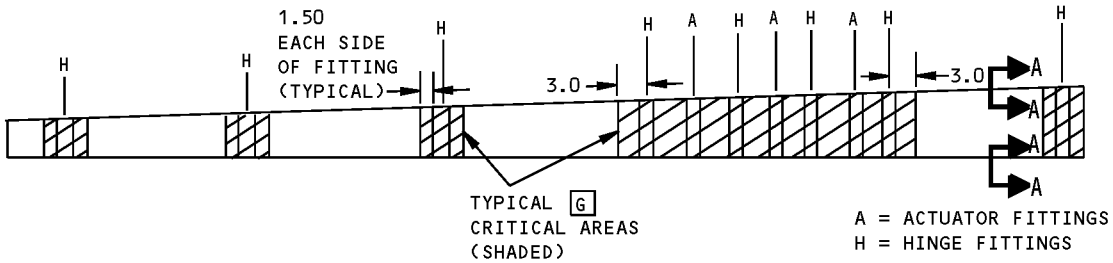


SECTION THRU ELEVATOR



SECTION THRU SPAR AND SKIN SPLICE

SECTION A-A



VIEW ON FRONT SPAR

MATERIAL: GRAPHITE/EPOXY HONEYCOMB SANDWICH

Allowable Damage - Elevator Structure
Figure 101 (Sheet 1 of 3)

DESCRIPTION	CRACKS	NICKS, GOUGES AND CORROSION	DENTS	HOLES AND PUNCTURES	DELAMINATION
RIBS	[B]	[C]	[D]	[E]	[F]
FRONT SPAR	[B]	[C]	[D]	[E]	[F]

NOTES

- REFINISH REWORKED AREAS PER 51-20 OF THE MAINTENANCE MANUAL
- REFER TO 51-10-01 FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS. WHERE THE DAMAGE EXCEEDS THE LIMITS SHOWN IN 51-10-01, CONSIDERATION SHOULD BE GIVEN TO THE LOSS OF PERFORMANCE INVOLVED
- TYPICAL DAMAGE TO A PANEL EDGEBAND MAY CONSIST OF EDGE CRUSHING, CRACKS OR DELAMINATION. DAMAGE AROUND HOLES MAY CONSIST OF OVALIZATION, FASTENER PULL-THROUGH OR CRACKS OUT OF HOLE. DAMAGE MAY REDUCE THE EFFECTIVE CROSS SECTIONAL AREA OF AN EDGEBAND. DAMAGE TO EDGES SHOULD BE BLENDED OUT TO LIMITATIONS GIVEN FOR COMPONENT.

[A] PROTECT DAMAGE FROM ENTRANCE OF WATER, SUNLIGHT OR OTHER FOREIGN MATTER BY SEALING WITH ALUMINUM FOIL TAPE (SPEED TAPE) 3M-Y436 OR EQUIVALENT. RECORD LOCATION AND REPAIR PER 51-70 BEFORE THE EXPIRATION OF 60 CALENDAR DAYS [H]

[B] EDGE CRACKS MUST BE AT LEAST 2.5 D FROM FASTENER HOLES AND MUST BE REMOVED PER DETAILS I AND II. 0.50 MAX LENGTH IN HONEYCOMB AREA IS ALLOWED PER SQUARE FOOT OF AREA. MINIMUM OF 6.0 INCHES FROM ANY OTHER DAMAGE [A]

[C] DAMAGE ALLOWED ON SURFACE RESIN ONLY. DAMAGE TO FIBERS NOT ALLOWED [A]

[D] DENTS GENERALLY RESULT IN FIBER DAMAGE OR DELAMINATION. HOWEVER, IF THERE IS NO FIBER DAMAGE OR DELAMINATION, DENTS UP TO 0.50 DIA MAX ARE ALLOWED. ONE DENT PER SQUARE FOOT OF AREA ALLOWED WHICH MUST BE A MINIMUM OF 6 INCHES FROM ANY OTHER DAMAGE, FASTENER HOLE, OR PANEL EDGE. SEE [E] OR [F] IF FIBER DAMAGE OR DELAMINATION IS PRESENT

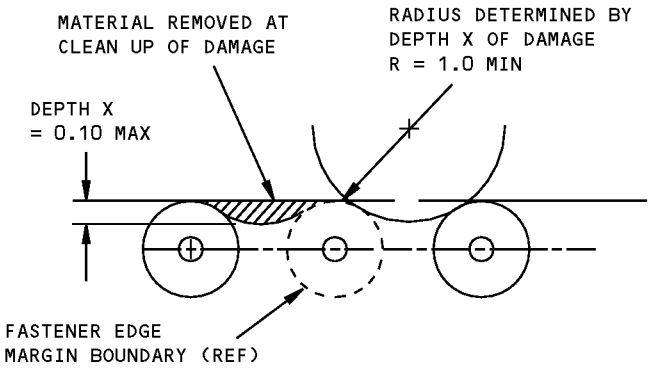
[E] 0.50 MAX DIA ALLOWED PROVIDED DAMAGE IS MIN OF 6.0 D FROM OTHER DAMAGE, NEAREST HOLE, OR MATERIAL EDGE. DO NOT CLEAN UP DAMAGE EXCEPT TO REMOVE RESIN BURRS EXTENDING INTO SURFACE CONTOUR [A]

[F] 0.50 MAX DIA IS ALLOWED PER SQUARE FOOT OF AREA AND A MINIMUM OF 6.0 INCHES FROM ANY OTHER DAMAGE AND 1.0 INCH MINIMUM FROM ANY HOLE OR EDGE. A MAXIMUM OF 0.03 INCH DELAMINATION FROM EDGE IS ALLOWED. REPAIR DELAMINATION IN HONEYCOMB AREA PER 51-70 BEFORE THE EXPIRATION OF 60 CALENDAR DAYS. PROTECT EDGE DAMAGE PER [A]

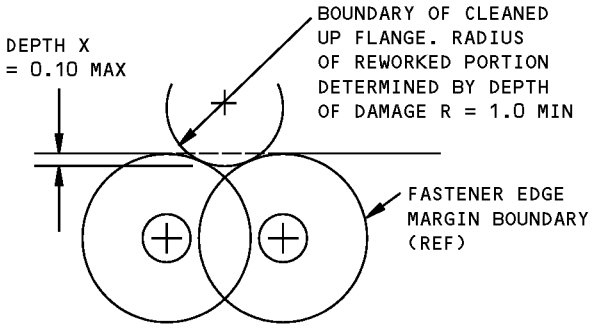
[G] DAMAGE NOT ALLOWED IN CRITICAL (SHADED) AREAS. CONTACT THE BOEING COMPANY FOR DAMAGE REWORK DATA

[H] THESE ALLOWABLE DAMAGE LIMITS HAVE APPROVAL CONTINGENT ON ACCOMPLISHMENT OF THE INSPECTIONS CONTAINED HEREIN

Allowable Damage - Elevator Structure
Figure 101 (Sheet 2 of 3)

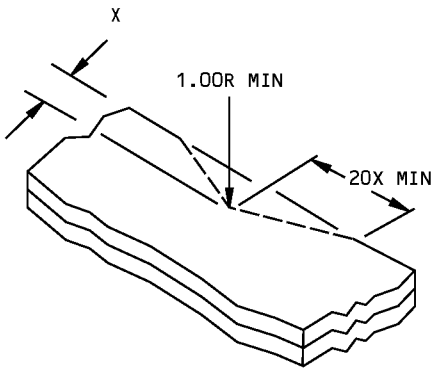


DAMAGE CLEAN UP OF EDGES WHERE FASTENER EDGE MARGINS DO NOT OVERLAP



DAMAGE CLEAN UP OF EDGES WHERE FASTENER EDGE MARGINS OVERLAP

DETAIL I

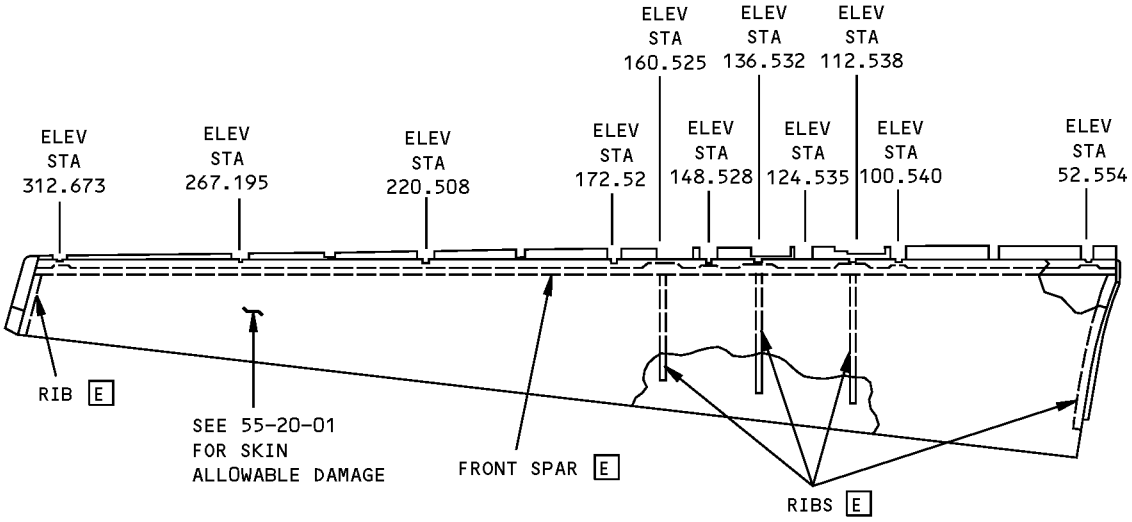


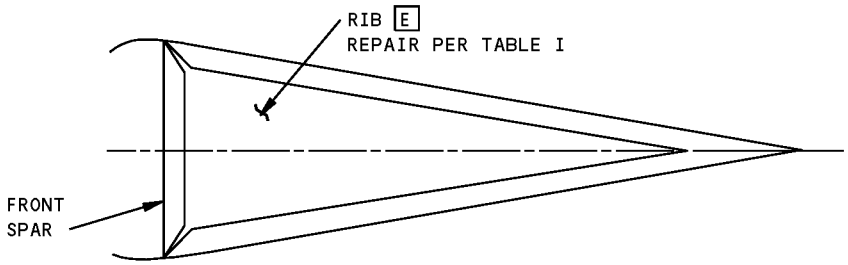
X = DEPTH OF CLEANUP = 0.10 MAX

DETAIL II

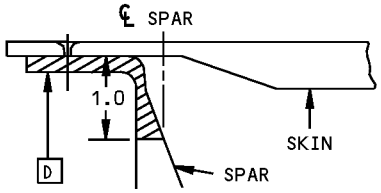
Allowable Damage - Elevator Structure
Figure 101 (Sheet 3 of 3)

REPAIR 1 - ELEVATOR SPAR AND RIB



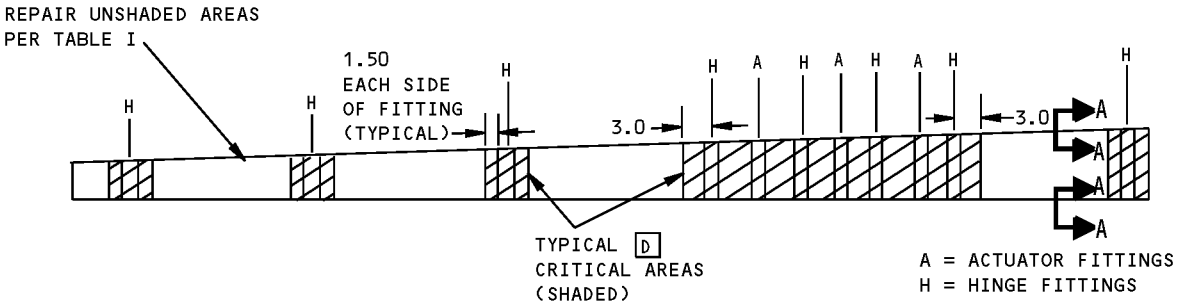


SECTION THRU ELEVATOR



SECTION THRU SPAR AND SKIN SPLICE

SECTION A-A



VIEW ON FRONT SPAR

MATERIAL: GRAPHITE/EPOXY HONEYCOMB SANDWICH

Elevator Spar and Rib Repairs
Figure 201 (Sheet 1 of 2)

DAMAGE	INTERIM REPAIRS [B]	PERMANENT REPAIRS		
	WET LAYUP 150°F CURE (SRM 51-70-03)	WET LAYUP 200°F CURE (SRM 51-70-17)	250°F CURE (SRM 51-70-05)	350°F CURE (SRM 51-70-04)
CRACKS	UP TO 2.0 INCHES (50 mm) LONG, REPAIR WITH PATCH AS SHOWN IN SRM 51-70-03, PAR. 5.N. [A]	CLEAN UP DAMAGE AND REPAIR AS HOLE.	CLEAN UP DAMAGE AND REPAIR AS HOLE.	CLEAN UP DAMAGE AND REPAIR AS HOLE.
HOLES AND PUNC-TURES	2.0 INCHES (50 mm) MAX DIA NOT TO EXCEED 30% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS SHOWN IN SRM 51-70-03, PAR. 5.N. [A]	5.0 INCHES (125 mm) MAX DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED. [C]	5.0 INCHES (125 mm) MAX DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED. [C]	NO SIZE LIMIT
DELAMI-NATION	CUT OUT AND REPAIR AS HOLE.			
NICKS AND GOUGES	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL NICKS OR GOUGES AS SHOWN IN 51-70-03. IF THERE IS FIBER DAMAGE OR DELAMINATION EXISTS, REPAIR AS A HOLE.			
DENTS	UP TO 2.0 INCHES (50 mm) DIA WITH NO FIBER DAMAGE OR DELAMINATION, FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS SHOWN IN SRM 51-70-03, PAR. 5.L. [C] OVER 2.0 INCHES (50 mm) DIA OR WITH FIBER DAMAGE OR DELAMINATION, REPAIR AS HOLE.			

TABLE I

NOTES

- REFINISH REWORKED AREAS AS SHOWN IN AMM 51-20.
- REFER TO SRM 51-10-01 FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS. WHERE DAMAGE IS MORE THAN THE LIMITS SHOWN IN SRM 51-10-01. CONSIDERATION SHOULD BE GIVEN TO LOSS OF PERFORMANCE INVOLVED.

[A] LIMITED TO REPAIR OF DAMAGE TO ONE FACESHEET SKIN AND HONEYCOMB CORE. ONE REPAIR FOR EACH 12.0 INCHES (300 mm) OF SPAR AND MINIMUM OF 3.0 INCHES (75 mm) (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE, OR EDGE OF PANEL.

[B] INSPECT INTERIM REPAIR USING INSTRUMENTED NDI METHODS OR "TAP" TEST EVERY AIRPLANE "2A" CHECK. FOR "TAP" TEST, USE A SOLID METAL DISK AND TAP THE REPAIR AREA LIGHTLY BUT FIRMLY. VOID AREAS WILL PRODUCE A DULL SOUND AS OPPOSED TO A SHARP RING ON A SOLID BONDED AREA. PERMANENT REPAIR IS REQUIRED IF ANY DETERIORATION IS EVIDENT. REFER TO SRM 51-70-03, PAR. 4.I. AND THE NONDESTRUCTIVE TEST MANUAL, D634N301. [F]

[C] ONE REPAIR PER 12.0 INCHES (300 mm) OF SPAN AND A MINIMUM OF 3.0 INCHES (75 mm) (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE, OR EDGE OF PANEL.

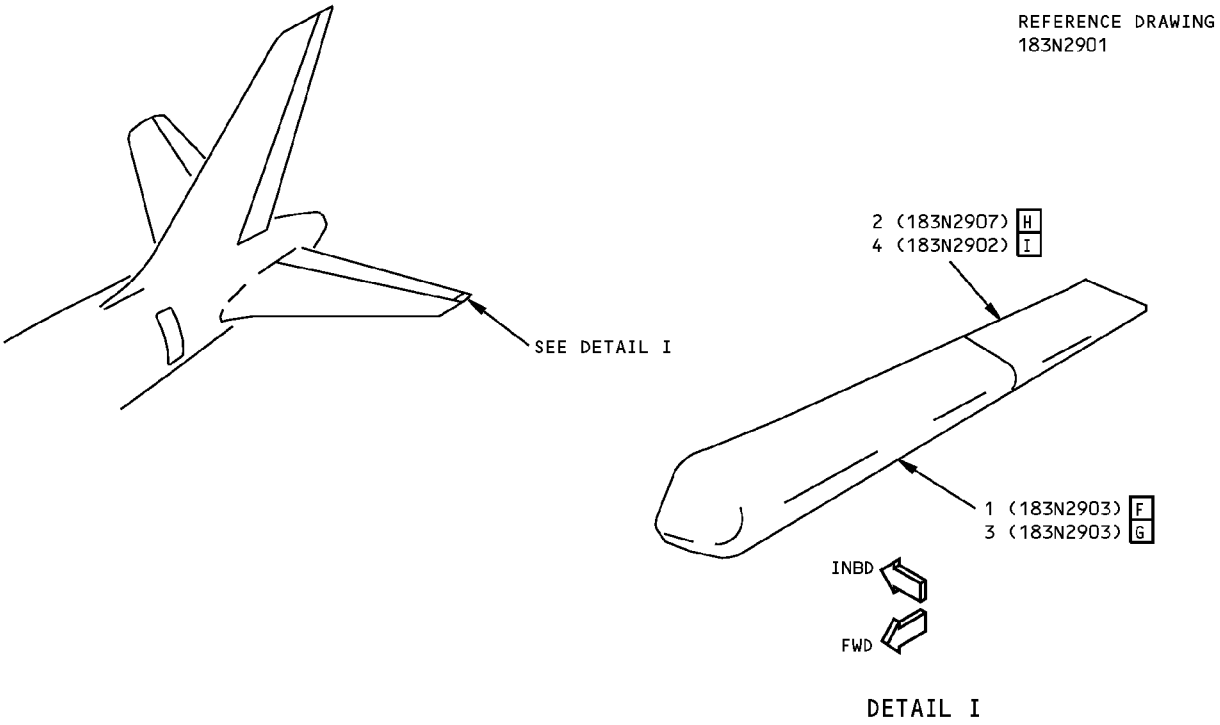
[D] CONTACT THE BOEING COMPANY FOR REPAIRS TO DAMAGE IN CRITICAL AREAS.

[E] GAIN ACCESS TO RIBS OR SPAR BY REMOVING SKIN PANELS AS REQUIRED. TREAT FASTENER HOLES AND LOOSE FASTENERS AS SHOWN IN SRM 51-40-02.

[F] THIS REPAIR HAS FAA APPROVAL CONTNGENT ON ACCOMPLISHMENT OF THE INSPECTIONS CONTAINED HEREIN.

Elevator Spar and Rib Repairs
Figure 201 (Sheet 2 of 2)

IDENTIFICATION 1 - ELEVATOR TIP STRUCTURE



DETAIL I

ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	ELEVATOR FAIRING TIP BOND ASSEMBLY		GLASS/ARAMID/EPOXY LAMINATE SEE DETAIL II	F
2	TIP FITTING	1.50	7075-T7351	H
3	ELEVATOR FAIRING TIP BOND ASSEMBLY		GLASS/EPOXY LAMINATE SEE DETAIL II	G
4	TIP FITTING		356-T51 CASTING	I

LIST OF MATERIALS FOR DETAIL I

NOTES

A PLY DIRECTION CONVENTION - THE DEGREES IS PARALLEL TO THE WARP DIRECTION OF THE FABRIC

B ARAMID/EPOXY PREPREG FABRIC AS GIVEN IN BMS 8-219, STYLE 285, 250°F (121°C) CURE

C GLASS/EPOXY PREPREG FABRIC AS GIVEN IN BMS 8-79, TYPE 120, 250°F (121°C) CURE

D DIAGRAM OF PLY DIRECTION. REFER TO THE APPLICABLE TABLE FOR THE DIRECTION AND MATERIAL OF EACH PLY

E GLASS/EPOXY PREPREG FABRIC AS GIVEN IN BMS 8-79, TYPE 1581, 250°(121°C) CURE

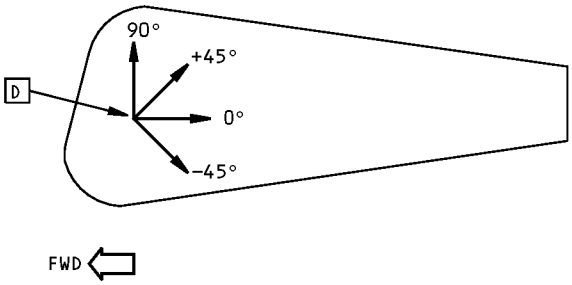
F FOR CUM LINE NUMBERS: 1 THRU 134
OPTIONAL FOR CUM LINE NUMBERS: 135 AND ON

G FOR CUM LINE NUMBERS: 135 AND ON

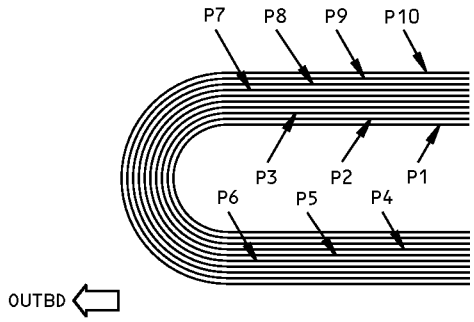
H FOR CUM LINE NUMBERS: 1 THRU 25

I FOR CUM LINE NUMBERS: 26 AND ON

Elevator Tip Structure Identification
Figure 1 (Sheet 1 of 2)



VIEW ON THE TIP ASSEMBLY



VIEW THRU THE TIP ASSEMBLY

DETAIL II

ITEM NO.	PLY NUMBER	MATERIAL	PLY DIRECTION [A]
1	2,4,7,9	[B]	0° OR 90°
	3,5,6,8	[B]	±45°
	1,10	[C]	0° OR 90°

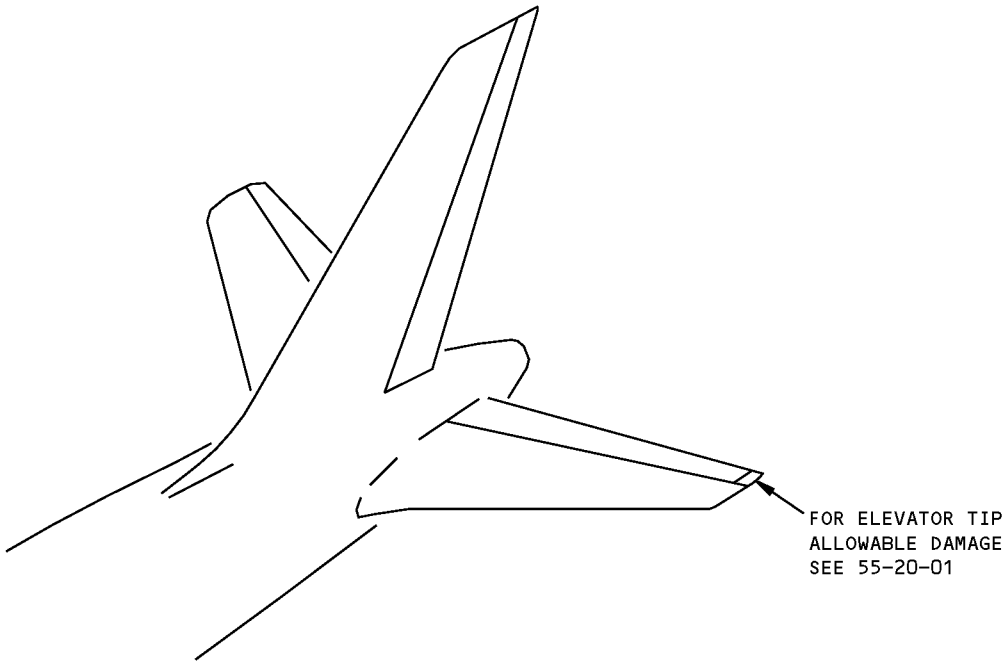
TABLE I

ITEM NO.	PLY NUMBER	MATERIAL	PLY DIRECTION [A]
3	10	[C]	0° OR 90°
	1,2,4,7,9	[E]	0° OR 90°
	3,5,6,8	[E]	±45°

TABLE II

Elevator Tip Structure Identification
Figure 1 (Sheet 2 of 2)

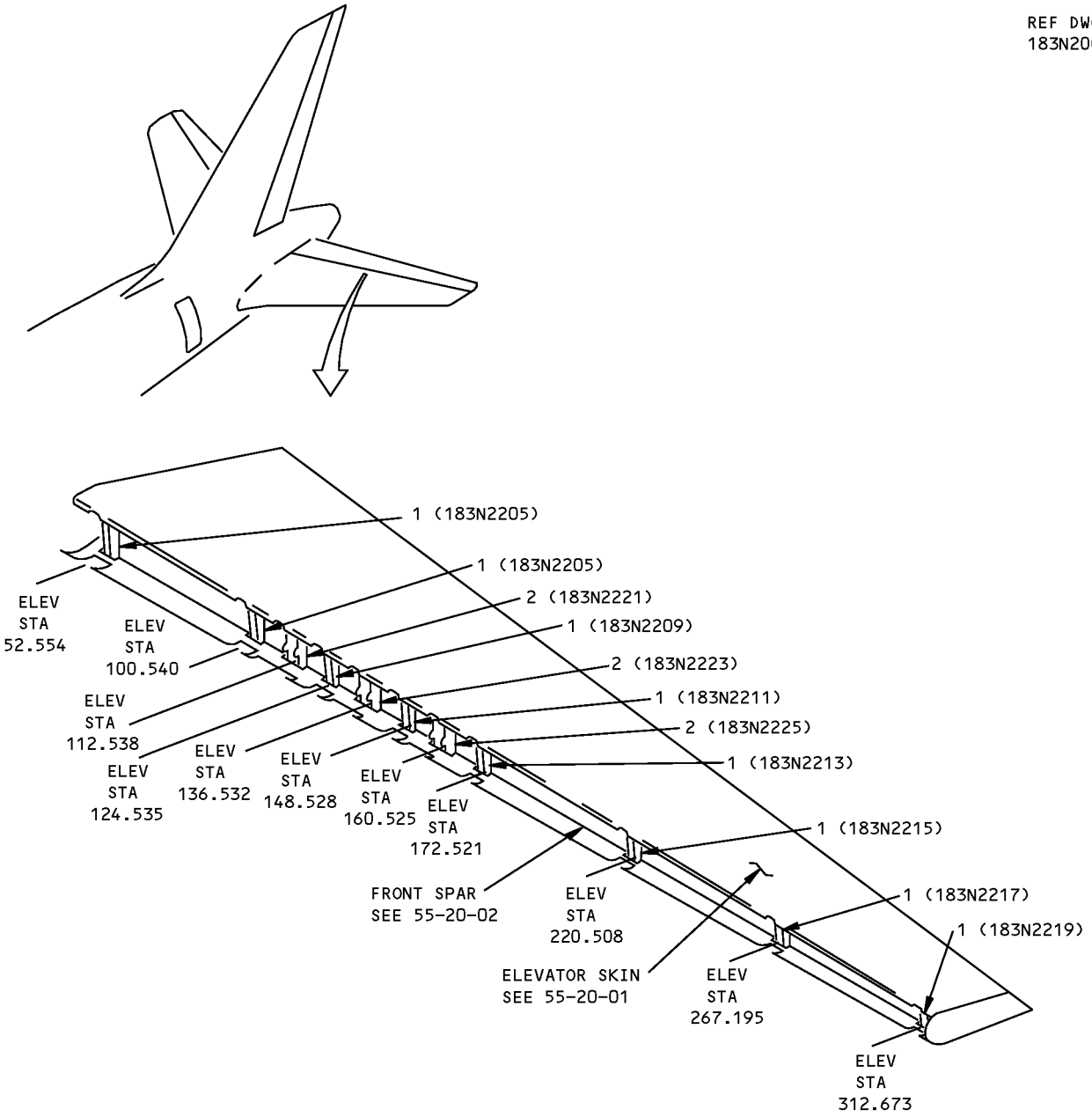
ALLOWABLE DAMAGE 1 - ELEVATOR TIP



Elevator Tip Allowable Damage
Figure 101

IDENTIFICATION 1 - ELEVATOR ATTACHMENT FITTING

REF DWG
183N2003

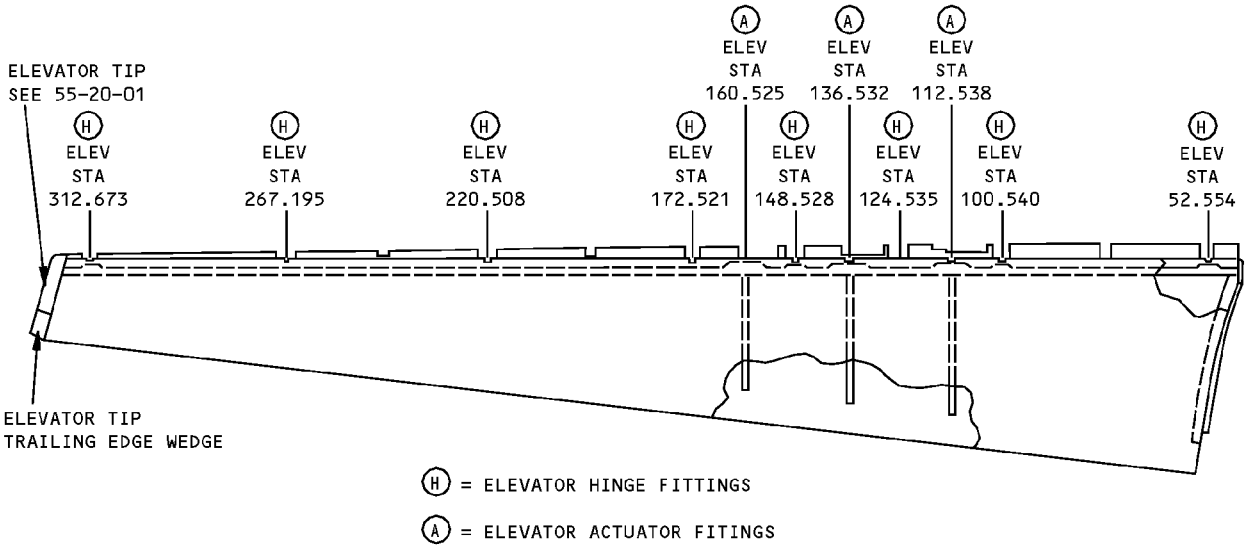


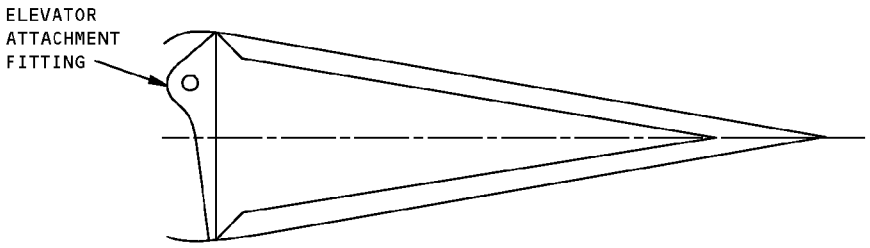
ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	HINGE FITTING		FORGING 7075-T73	
2	ACTUATOR FITTING		FORGING 7075-T73	

LIST OF MATERIALS

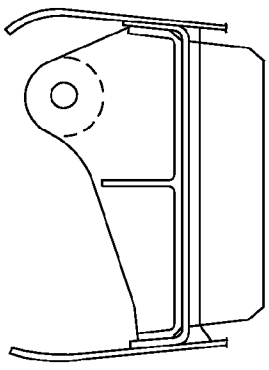
Elevator Attachment Fitting Identification
Figure 1

ALLOWABLE DAMAGE 1 - ELEVATOR ATTACHMENT FITTINGS

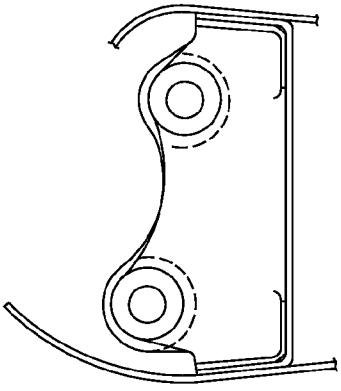




SECTION THROUGH ELEVATOR



HINGE FITTING



ACTUATOR FITTING

Allowable Damage - Elevator Attachment Fittings
Figure 101 (Sheet 1 of 3)

FITTING	CRACKS	NICKS, GOUGES, SCRATCHES AND CORROSION	DENTS	HOLES
HINGE FITTINGS	[A]	FOR EDGE DAMAGE, SEE DETAILS I & IV FOR OTHER DAMAGE, SEE DETAIL II FOR LUG DAMAGE, SEE DETAIL III [B]	NOT ALLOWED	NOT ALLOWED
ACTUATOR FITTINGS	[A]	FOR EDGE DAMAGE, SEE DETAIL I FOR OTHER DAMAGE, SEE DETAIL II FOR LUG DAMAGE, SEE DETAIL III [B]	NOT ALLOWED	NOT ALLOWED
ELEVATOR TIP TRAILING EDGE WEDGE	[A]	FOR EDGE DAMAGE, SEE DETAIL I FOR OTHER DAMAGE, SEE DETAIL II	SEE DETAIL V	[C]

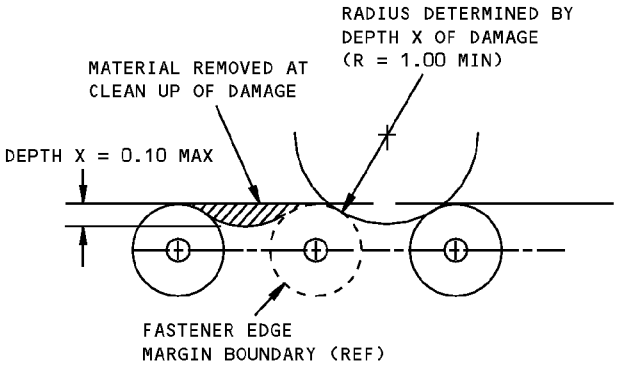
NOTES

- SHOT PEEN ALL REWORKED AREAS PER 51-20-06
- REFINISH REWORKED AREAS PER 51-20 OF THE MAINTENANCE MANUAL

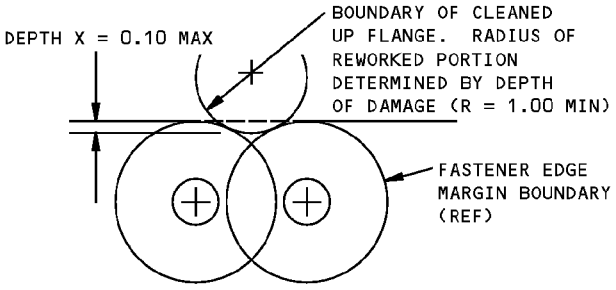
[A] CLEAN UP EDGE CRACKS PER DETAILS I AND IV. OTHER CRACKS NOT ALLOWED

[B] 0.01 MAXIMUM DAMAGE CLEANUP ALLOWED IN VICINITY OF BUSHINGS

[C] CLEAN OUT DAMAGE UP TO 0.25 MAX DIA AND NOT CLOSER THAN 1.0 INCH TO FASTENER HOLE, PART EDGE, OR OTHER DAMAGE. FILL HOLE WITH A 2117-T3 OR T4 ALUMINUM RIVET INSTALLED WET WITH BMS 5-95 SEALANT. ALL OTHER HOLES TO BE REPAIRED



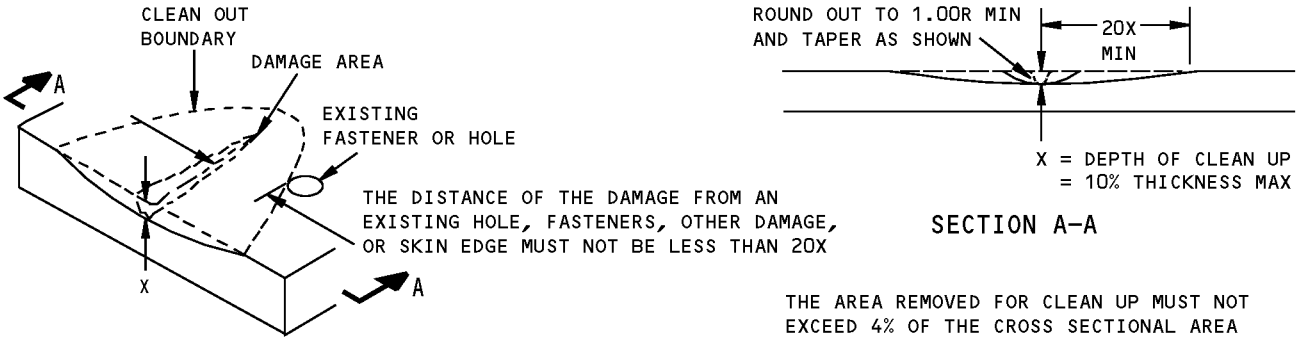
DAMAGE CLEAN UP OF EDGES WITH FASTENERS WHERE EDGE MARGINS DO NOT OVERLAP



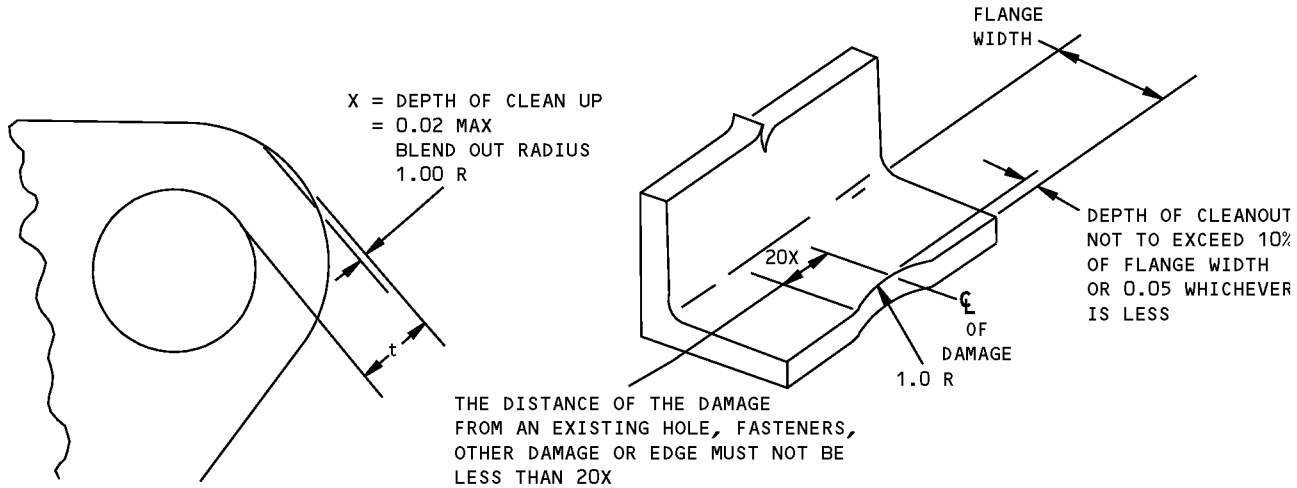
DAMAGE CLEAN UP OF EDGES WITH FASTENERS WHERE EDGE MARGINS OVERLAP

DETAIL I

Allowable Damage - Elevator Attachment Fittings
Figure 101 (Sheet 2 of 3)



REMOVAL OF NICK, GOUGE AND SCRATCH DAMAGE ON A SURFACE
DETAIL II



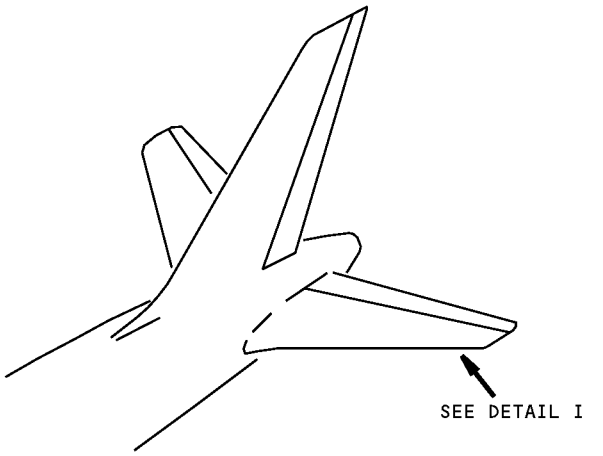
DAMAGE CLEAN UP FOR EDGES OF LUG
DETAIL III

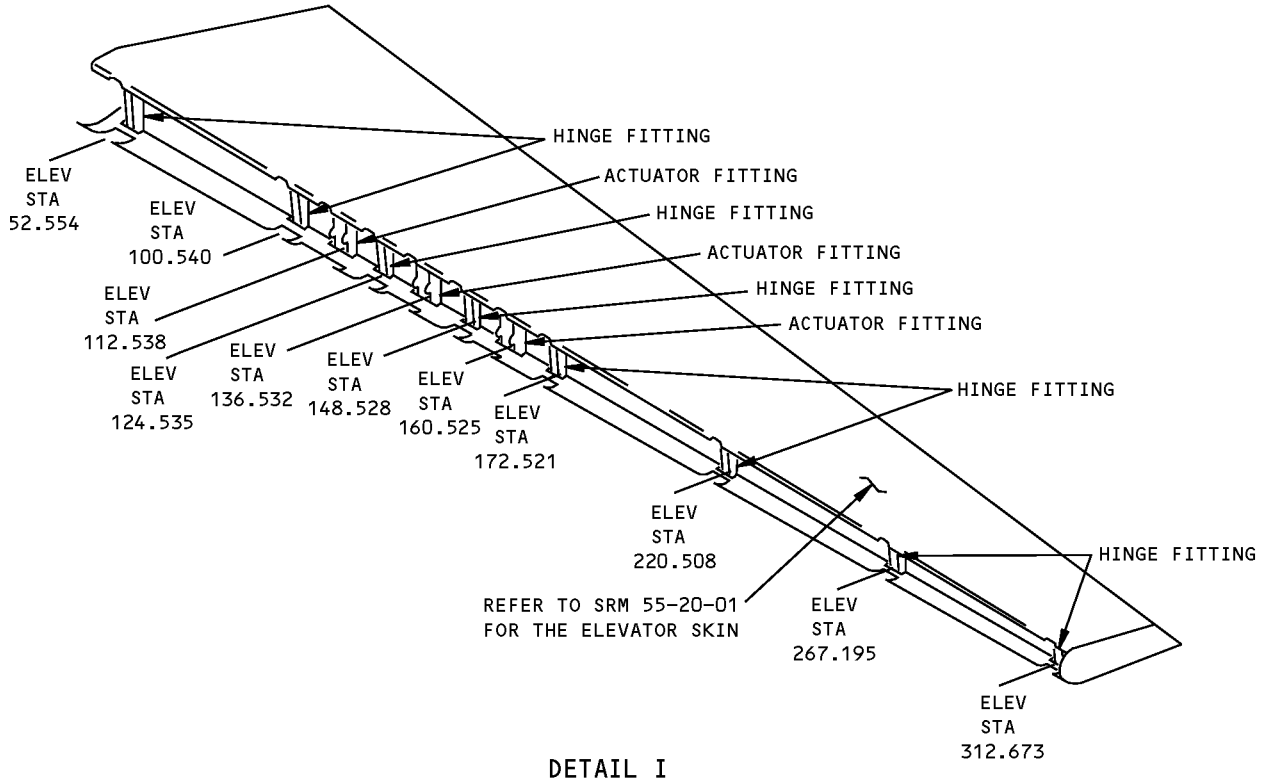
REMOVAL OF EDGE DAMAGE FROM
FREE FLANGE WITHOUT FASTENERS
DETAIL IV

Allowable Damage - Elevator Attachment Fittings
Figure 101 (Sheet 3 of 3)

REPAIR GENERAL - ELEVATOR ATTACHMENT FITTINGS

REFERENCE DRAWING
183N2003





DETAIL I

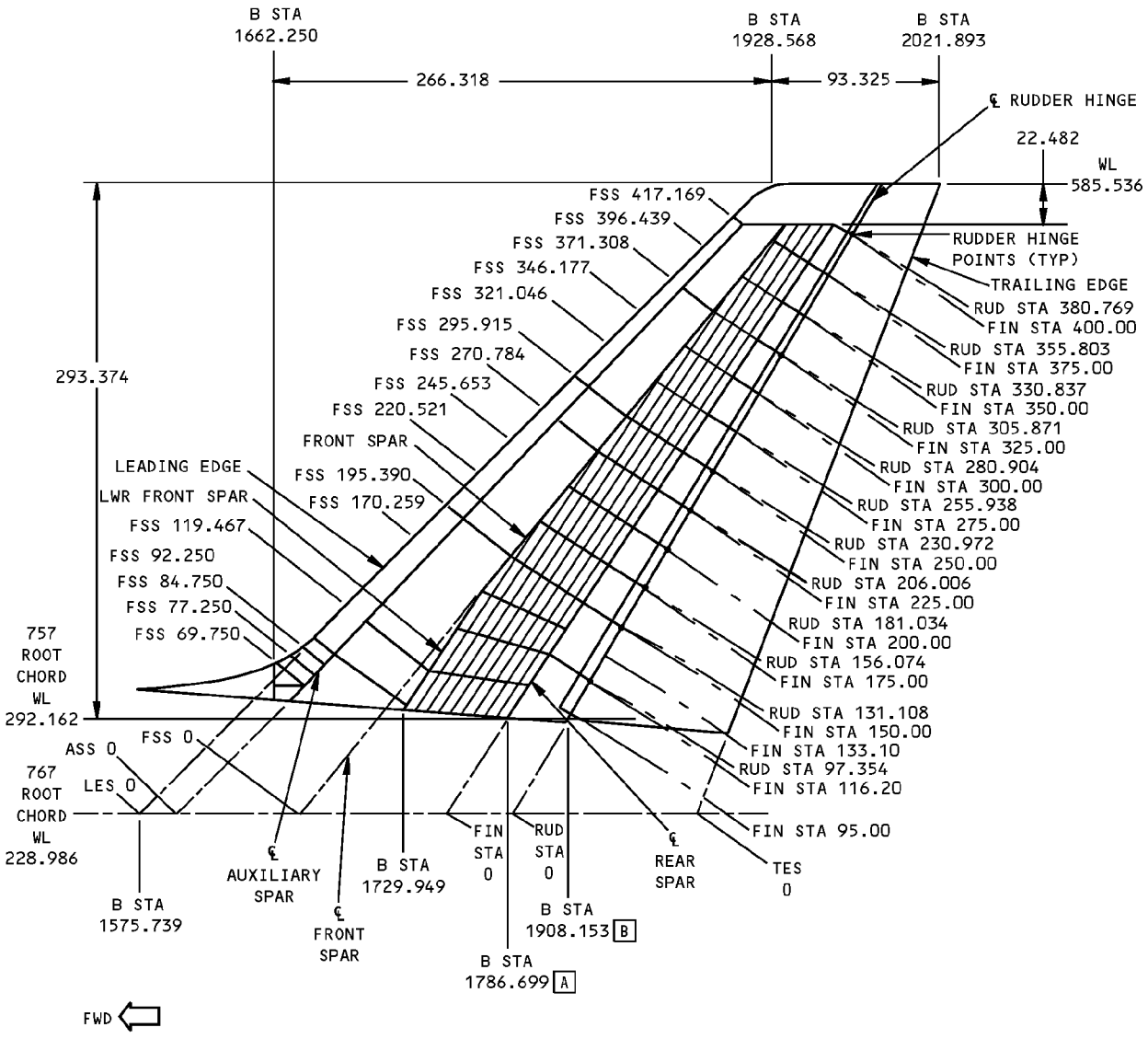
NOTES

- NO TYPICAL REPAIR TO FITTINGS APPLICABLE. SPECIFIC REPAIRS TO FITTINGS WILL BE PROVIDED BASED ON EXPERIENCE

Elevator Attachment Fitting Repair
Figure 201

GENERAL - VERTICAL STABILIZER

REF DWG
170N1501



LEFT SIDE VIEW

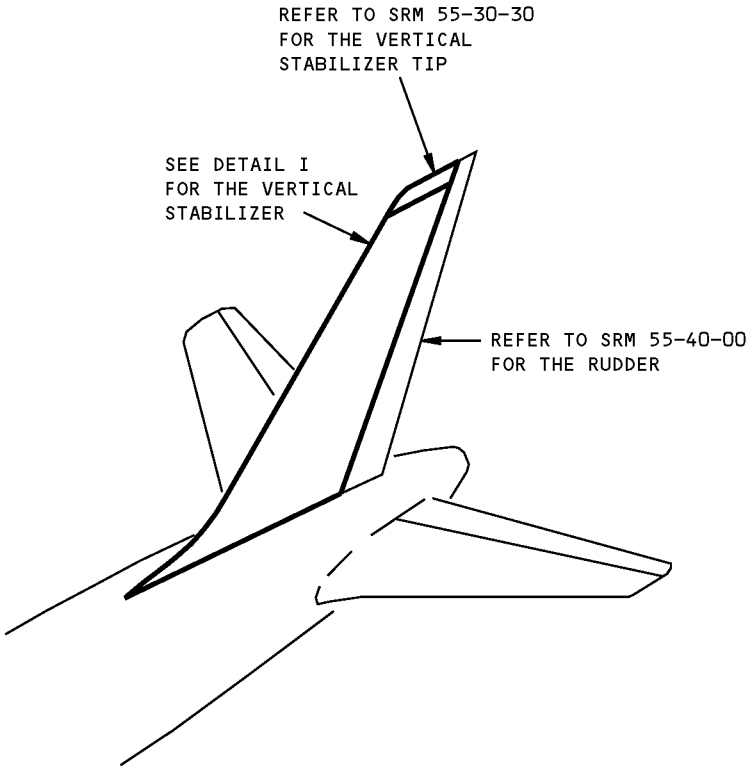
NOTES

A INTERSECTION OF ROOT CHORD AND REAR SPAR CENTERLINE

B INTERSECTION OF ROOT CHORD AND RUDDER HINGE LINE

Vertical Stabilizer Station Diagram
Figure 1

IDENTIFICATION 1 - VERTICAL STABILIZER SKIN



NOTES

[A] ARAMID/EPOXY PREIMPREGNATED FABRIC (REFER TO BMS 8-219, STYLE 285, 250°F [121°C] CURE)

[B] GRAPHITE/EPOXY (REFER TO BMS 8-168, TYPE II, CLASS I, GRADE 95, 250°F [121°C] CURE)

[C] PLY ORIENTATION CONVENTION, DEGREES INDICATED, IS PARALLEL TO THE FABRIC WARP DIRECTION

[D] FOR AIRPLANES WITH AN HF ANTENNA

[E] FOR AIRPLANES WITHOUT AN HF ANTENNA

[F] FIBERGLASS (REFER TO BMS 8-79, CLASS III, TYPE 1581, GRADE 1, 250°F [121°C] CURE)

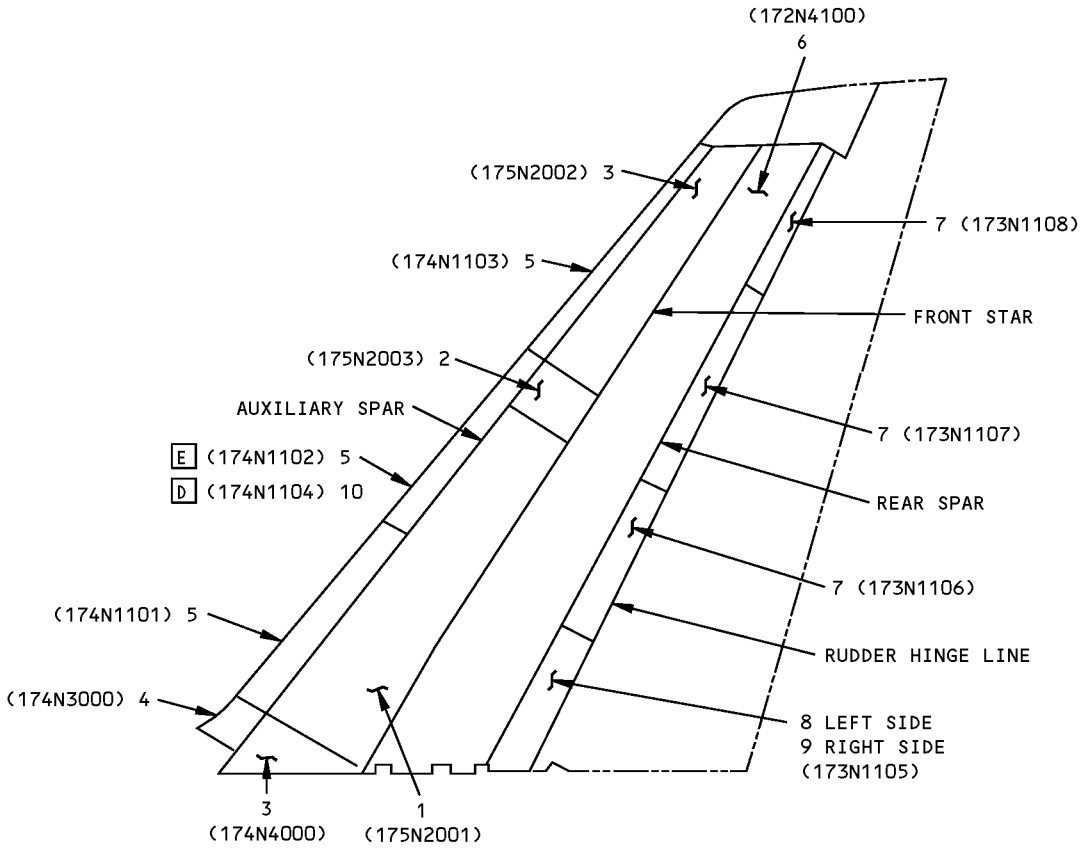
[G] FOR CUM LINE NUMBERS:

151 AND ON

[H] OPTIONAL FOR CUM LINE NUMBERS:

1 THRU 142

Vertical Stabilizer Skin Identification
Figure 1 (Sheet 1 of 6)



DETAIL I

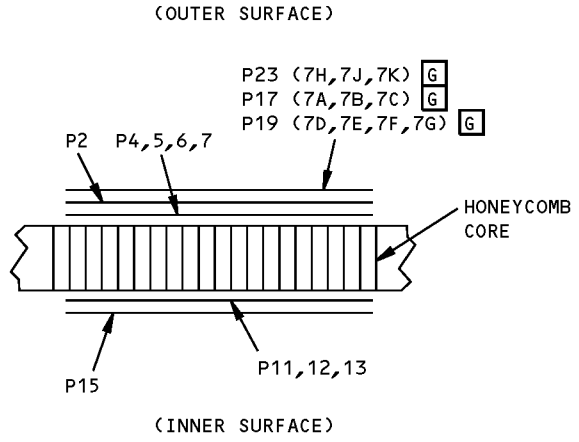
LIST OF MATL

Vertical Stabilizer Skin Identification
Figure 1 (Sheet 2 of 6)

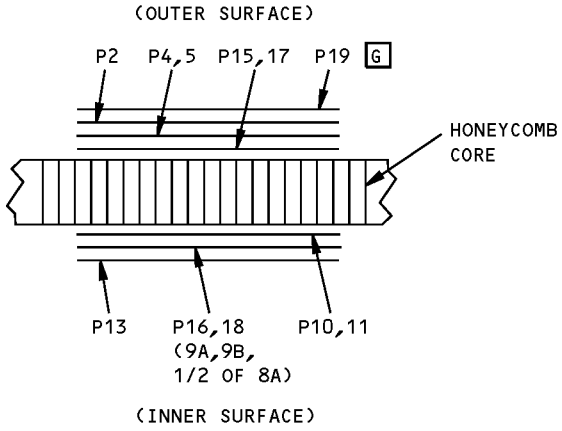
ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	PANEL ASSEMBLY			
	OUTER SKIN	0.100	CLAD 7075-T6, CHEM-MILLED	
	INNER SKIN	0.012	7075-T6	
	CORE-EDGE		HONEYCOMB (REFER TO MIL-C-7438, GRADE B, CLASS 2, CODE 4.4-3/16-15 [5056]T)	
	CORE-FIELD		HONEYCOMB (REFER TO MIL-C-7438, GRADE B, CLASS 2, CODE 3.1-3/16-10 [5056]T)	
2	PANEL			
	SKIN	0.050	CLAD 7075-T6, CHEM-MILLED	
	CORE		NOMEX HONEYCOMB (REFER TO BMS 8-124, CLASS IV, TYPE V, GRADE 3.0.	
	SKIN	0.012	7075-T6	H
	FIBERGLASS FRAME		GLASS FABRIC PREPREG EPOXY (REFER TO BMS 8-79, GLASS III, TYPE 1581)	H
3	PANEL ASSEMBLY			
	SKIN		GLASS FABRIC PREPREG EPOXY (REFER TO BMS 8-79, CLASS III, TYPE 1581)	
	CORE		NOMEX HONEYCOMB (REFER TO BMS 8-124, CLASS IV, TYPE V, GRADE 3.0)	
4	SKIN	0.090	CLAD 2024-T42, CHEM-MILLED	
5	PANEL ASSEMBLY			
	OUTER SKIN	0.100	CLAD 2024-T3, CHEM-MILLED	
	INNER SKIN	0.016	2024-T3	
	CORE		5052 ALUMINUM HONEYCOMB (REFER TO BMS 4-6, CLASS II, TYPE 6.0-37)	
6	SKIN	0.313	7075-T7651 MACHINED	
7	PANEL		ARAMID HYBRID EPOXY HONEYCOMB SANDWICH	
	SKIN		SEE DETAIL II	
	CORE		NOMEX HONEYCOMB (REFER TO BMS 8-124, CLASS IV, TYPE V, GRADE 3.0)	
8	PANEL - LEFT SIDE		ARAMID HYBRID EPOXY HONEYCOMB SANDWICH	
	SKIN		SEE DETAIL II	
	CORE		NOMEX HONEYCOMB (REFER TO BMS 8-124, CLASS IV, TYPE V, GRADE 3.0)	
9	PANEL - RIGHT SIDE		ARAMID HYBRID EPOXY HONEYCOMB SANDWICH	
	SKIN		SEE DETAIL II	
	CORE		NOMEX HONEYCOMB (REFER TO BMS 8-124, CLASS IV, TYPE V, GRADE 3.0)	
10	PANEL ASSEMBLY			
	PANEL	0.090	CLAD 2024-T3	
	WINDOW		GLASS FABRIC PREPREG EPOXY (REFER TO BMS 8-79, CLASS III, TYPE 1581, GRADE 1)	D
	COVER	0.090	CLAD 2024-T3	

LIST OF MATERIALS FOR DETAIL I

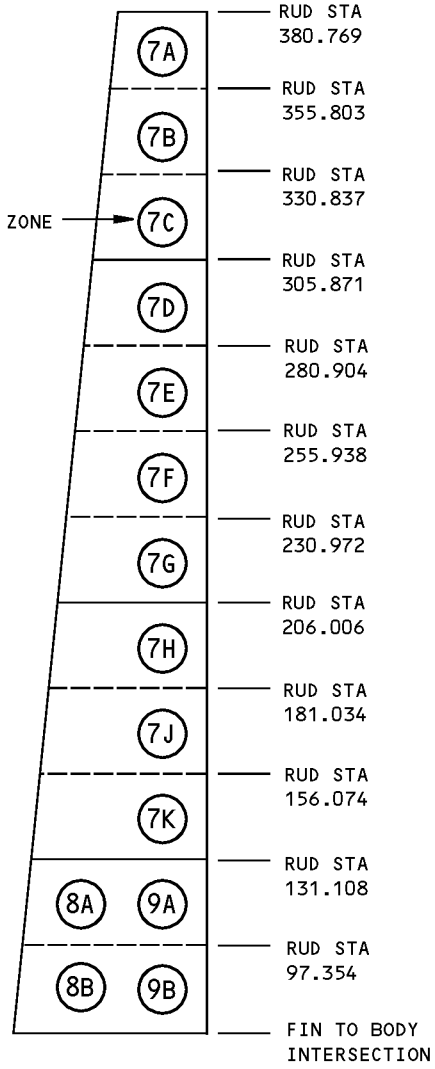
Vertical Stabilizer Skin Identification
Figure 1 (Sheet 3 of 6)

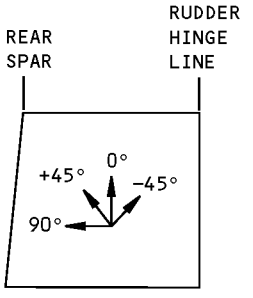


SECTION THRU PLIES
RUD STA 131.108 THRU RUD STA 380.769



SECTION THRU PLIES
FIN TO BODY INTERSECTION THRU RUD STA 131.108





TYPICAL PANEL
SEE PLY TABLE

DETAIL II

Vertical Stabilizer Skin Identification
Figure 1 (Sheet 4 of 6)

ITEM NO.	ZONE	PLY NO.	MATERIAL	PLY [C] ORIENTATION	EFFECTIVITY
7	7A	P2 P15	[A]	±45°	
		P6 P13	[B]	90°	
		P17	[F]	0° - 90°	[G]
	7H	P2 P15	[A]	±45°	
		P6 P13	[B]	90°	
		P23	[F]	0° - 90°	[G]
	7B	P2 P15	[A]	±45°	
		P5 P12	[B]	90°	
		P17	[F]	0° - 90°	[G]
	7J	P2 P15	[A]	±45°	
		P5 P12	[B]	90°	
		P23	[F]	0° - 90°	[G]
	7C	P2 P15	[A]	±45°	
		P4 P11	[B]	90°	
		P17	[F]	0° - 90°	[G]
	7K	P2 P15	[A]	±45°	
		P4 P11	[B]	90°	
		P23	[F]	0° - 90°	[G]
	7D	P2 P17	[A]	±45°	
		P7 P15	[B]	90°	
		P19	[F]	0° - 90°	[G]
	7E	P2 P17	[A]	±45°	
		P6 P14	[B]	90°	
		P19	[F]	0° - 90°	[G]
	7F	P2 P17	[A]	±45°	
		P5 P13	[B]	90°	
		P19	[F]	0° - 90°	[G]
	7G	P2 P17	[A]	±45°	
		P4 P12	[B]	90°	
		P19	[F]	0° - 90°	[G]

MATERIAL AND PLY ORIENTATION SHOWN FOR FIELD AREAS ONLY.
SEE BOEING DRAWINGS FOR EDGE BAND AND AREAS WITH DOUBLERS

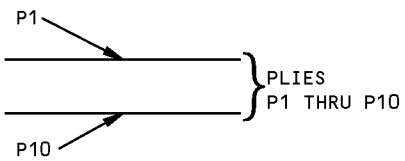
TABLE I

Vertical Stabilizer Skin Identification
Figure 1 (Sheet 5 of 6)

ITEM NO.	ZONE	PLY NO.	MATERIAL	PLY [C] ORIENTATION	EFFECTIVITY
8	8A	P2 P13	[A]	±45°	
		P4 P10 P15 P16	[B]	90°	
		P19	[F]	0° - 90°	[G]
	8B	P2 P13	[A]	±45°	
		P4 P10	[B]	90°	
		P19	[F]	0° - 90°	[G]
9	9A	P2 P13	[A]	±45°	
		P5 P11 P17 P18	[B]	90°	
		P19	[F]	0° - 90°	[G]
	9B	P2 P13	[A]	±45°	
		P4 P10 P15 P16	[B]	90°	
		P19	[F]	0° - 90°	[G]
10		P3 P4 P7 P8	[F]	±45°	
		P1 P2 P5 P6 P9 P10	[F]	0°	

MATERIAL AND PLY ORIENTATION SHOWN FOR FIELD AREAS ONLY.
SEE BOEING DRAWINGS FOR EDGE BAND AND AREAS WITH DOUBLERS

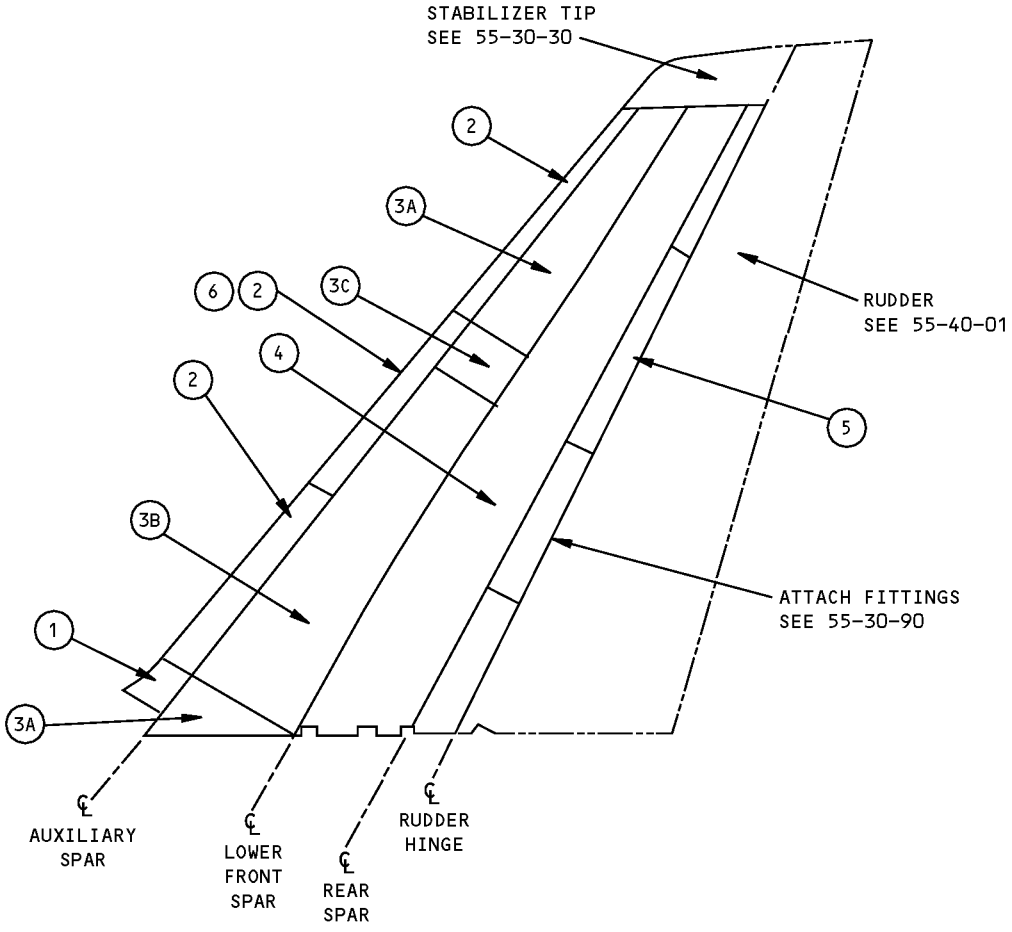
TABLE I



ITEM 10

Vertical Stabilizer Skin Identification
Figure 1 (Sheet 6 of 6)

ALLOWABLE DAMAGE 1 - VERTICAL STABILIZER SKIN



LEFT SIDE SHOWN
RIGHT SIDE SIMILAR

Allowable Damage - Vertical Stabilizer Skin
Figure 101 (Sheet 1 of 5)

DESCRIPTION	CRACKS	NICKS, GOUGES AND CORROSION	DENTS	HOLES AND PUNCTURES	PANEL DELAMINATION	EDGE EROSION	SURFACE EROSION
(1) LEADING EDGE SKIN (ALUMINUM)	F	G	H	NOT ALLOWED	—	—	—
(2) LEADING EDGE SKIN (ALUMINUM HONEYCOMB PANEL)	F	G	H	J	K	—	—
SKIN BETWEEN AUX SPAR AND FRONT SPAR							
(3A) FIBERGLASS PANEL HONEYCOMB CORE	A	B	C	A	A	SEE DETAIL VI	—
(3B) ALUMINUM HONEYCOMB PANEL	F	G	H	J	K	—	—
(3C) ALUMINUM SANDWICH PANEL NOMEX CORE	F	G	H	J	K	—	—
(4) SKIN BETWEEN FRONT AND REAR SPAR (ALUMINUM) L	F	G	H	I	—	—	—
(5) SKIN AFT OF REAR SPAR (ARAMID/ GRAPHITE PANEL WITH NOMEX CORE)	A	B	C	A	A	SEE DETAIL VI	—
(6) LEADING EDGE PANEL (FIBERGLASS)	F	M	N	E	0.50 DIA (MAX) PER SQ FT	SEE DETAIL VI	M

Allowable Damage - Vertical Stabilizer Skin
Figure 101 (Sheet 2 of 5)

NOTES

- D = MAXIMUM DAMAGE DIMENSION
- REFINISH REWORKED AREAS. REFER TO AMM 51-20.
- REFER TO SRM 51-10-02 FOR INSPECTION AND REMOVAL OF DAMAGE.
- REFER TO SRM 51-10-01 FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS. WHERE THE DAMAGE IS MORE THAN THE LIMITS SHOWN IN SRM 51-10-01, CONSIDERATION SHOULD BE GIVEN TO THE LOSS OF PERFORMANCE INVOLVED.

[A] DAMAGE TO SKIN PANEL EDGES MAY BE COMBINATION OF EDGE DELAMINATION AND/OR CRACKS, GOUGES, ETC. WHICH CAN RESULT IN FIBER DAMAGE AND A LOSS OF CROSS-SECTIONAL AREA. REMOVE EDGE DAMAGE AS SHOWN IN DETAILS I AND II. NOT MORE THAN ONE FASTENER HOLE IN SIX MAY BE CRACKED OR DAMAGED. DAMAGE MUST NOT BE MORE THAN 10% OF THE EDGEBAND LENGTH FOR EACH SIDE. 2.0 INCHES (50 mm) MAX DIA IS PERMITTED FOR SINGLE DAMAGE SITE IN HONEYCOMB AREA. MULTIPLE DAMAGE SITES MUST NOT BE CLOSER THAN A MINIMUM OF a/D = 3.0. REFER TO DETAIL V FOR DAMAGE CRITERIA. DAMAGE IS PERMITTED TO ONE SURFACE AND HONEYCOMB CORE ONLY. PROTECT DAMAGE NOT REWORKED AS SHOWN IN [D].

[B] DAMAGE IS PERMITTED ON SURFACE RESIN ONLY WITH NO FIBER DAMAGE. CLEAN UP EDGE DAMAGE AS SHOWN IN DETAILS I AND II. IF FIBER DAMAGE IS PRESENT, TREAT AS A HOLE OR PUNCTURE.

[C] DENTS RESULT IN DELAMINATION AND FIBER DAMAGE AND MUST BE TREATED AS A HOLE OR PUNCTURE DAMAGE.

[D] REMOVE MOISTURE FROM DAMAGE AREA. USE OF VACUUM AND HEAT (MAX OF 125°F [52°C]) TO REMOVE MOISTURE FROM HONEYCOMB CELLS IS RECOMMENDED. PROTECT DAMAGE FROM ENTRANCE OF WATER, SUNLIGHT OR OTHER FOREIGN MATTER BY SEALING WITH ALUMINUM FOIL TAPE (SPEED TAPE). RECORD THE LOCATION AND INSPECT EVERY AIRPLANE "A" CHECK. REPLACE THE ALUMINUM FOIL TAPE IF ANY PEELING OR DETERIORATION EVIDENT. REPAIR NO LATER THAN NEXT AIRPLANE "C" CHECK. [P]

[E] HOLES OR PUNCTURES, UP TO 0.25 INCH (6 mm) DIAMETER AND NOT CLOSER THAN 1.0 INCH (25 mm) TO ANY ADJACENT HOLE. CLEAN OUT PUNCTURES UP TO 0.25 INCH (6 mm) DIA MAX. [Q]

[F] CRACKS ARE NOT PERMITTED EXCEPT FOR EDGE CRACKS WHICH MUST BE REMOVED. REFER TO DETAIL I.

[G] REMOVE DAMAGE AS GIVEN IN DETAILS I, II, AND IV. A MAXIMUM OF ONE DAMAGE CLEANUP AS GIVEN IN DETAIL II IS PERMITTED IN EACH 15.0 SQUARE INCHES (970 SQUARE mm) OF PANEL.

[H] 1.50 SQUARE INCHES (970 SQUARE mm) OF DENT DAMAGE PERMITTED FOR EACH SQUARE FOOT OF PANEL AREA PROVIDING DENTS ARE 4D FROM OTHER DENTS OR DAMAGE CLEAN UP. REFER TO DETAIL III.

[I] CLEAN PUNCTURE OUT UP TO 0.25 INCH (6 mm) MAX DIA HOLE AND NOT CLOSER THAN 1.0 INCH (25 mm) TO FASTENER HOLE, EDGE OF PART, OR OTHER DAMAGE. ONE HOLE FOR EACH 15.0 SQUARE INCHES (970 SQUARE mm) OF PANEL PERMITTED. FILL HOLE WITH A 2117-T3 OR T4 ALUMINUM RIVET INSTALLED WET WITH BMS 5-95 SEALANT. ALL OTHER HOLES TO BE REPAIRED.

[J] 0.25 INCH (6 mm) MAX DIA PERMITTED PROVIDED DAMAGE IS MIN OF 1.0 INCH (6 mm) FROM OTHER DAMAGE, NEAREST HOLE, OR MATERIAL EDGE. ONE HOLE FOR EACH 15.0 SQUARE INCHES (970 SQUARE mm) OF PANEL PERMITTED. [D]

[K] 1.50 SQUARE INCHES (970 SQUARE mm) OF DELAMINATION IN HONEYCOMB AREA IS PERMITTED FOR EACH SQUARE FOOT OF PANEL WHEN DAMAGE IS 4D FROM ANY OTHER DAMAGE, HOLES, OR PANEL EDGE. REPAIR DELAMINATION NO LATER THAN NEXT "C" CHECK.

[L] SHOT PEEN ALL REWORKED AREAS. REFER TO SRM 51-20-06.

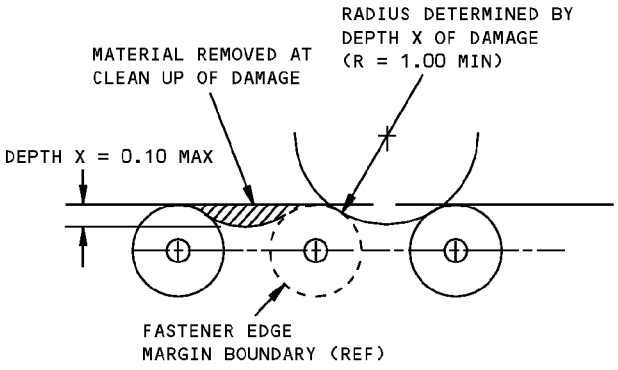
[M] DAMAGE IS PERMITTED ON THE SURFACE RESIN ONLY. DAMAGE TO THE FIBERS IS NOT PERMITTED. CLEAN UP EDGE DAMAGE AS GIVEN IN DETAIL I. CLEAN UP SURFACE DAMAGE AS GIVEN IN DETAIL II. IF FIBER DAMAGE IS PRESENT, THEN TREAT IT LIKE A HOLE OR PUNCTURE DAMAGE. [Q]

[N] DENTS GENERALLY RESULT IN FIBER DAMAGE OR DELAMINATION. HOWEVER, IF THERE IS NO FIBER DAMAGE OR DELAMINATION, DENTS UP TO 1.00 INCH (25 mm) DIA MAX ARE PERMITTED. ONE DENT FOR EACH SQUARE FOOT OF AREA PERMITTED WHICH MUST BE A MINIMUM OF 6 INCHES (150 mm) FROM ANY OTHER DAMAGE, FASTENER HOLE, OR PANEL EDGE. IF FIBER DAMAGE OR DELAMINATION IS PRESENT, REFER TO THE APPLICABLE DAMAGE DATA IN THE TABLE.

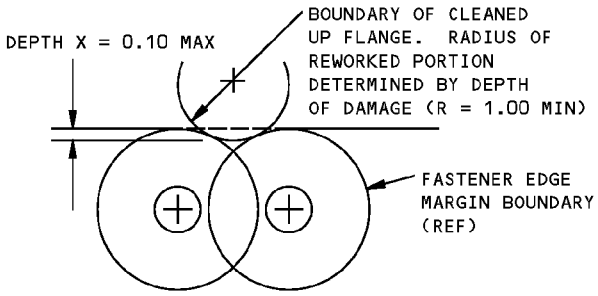
[P] THESE ALLOWABLE DAMAGE LIMITS HAVE FAA APPROVAL CONTINGENT ON ACCOMPLISHMENT OF THE INSPECTIONS CONTAINED HEREIN.

[Q] REMOVE MOISTURE FROM THE DAMAGED AREA. IT IS RECOMMENDED TO USE VACUUM AND A HEAT SOURCE (MAX LIMIT 125°F [52°C]) TO REMOVE MOISTURE FROM THE HONEYCOMB CELLS. PROTECT THE DAMAGED AREA FROM THE ENTRANCE OF WATER, SUNLIGHT OR ANY OTHER TYPE OF FOREIGN MATTER BY SEALING THE AREA WITH NON-METALLIC TAPE. SCOTCH 850 OR 853, OR PERMACEL P95 POLYESTER TAPE OR AN EQUIVALENT TAPE IS RECOMMENDED. RECORD THE LOCATION AND INSPECT AT THE NEXT AIRPLANE "A" CHECK. REPLACE THE TAPE, IF ANY PEELING OR DETERIORATION OF THE TAPE IS EVIDENT. REPAIR THE DAMAGED AREA, NO LATER THAN THE NEXT AIRPLANE "C" CHECK. [P]

Allowable Damage - Vertical Stabilizer Skin
Figure 101 (Sheet 3 of 5)

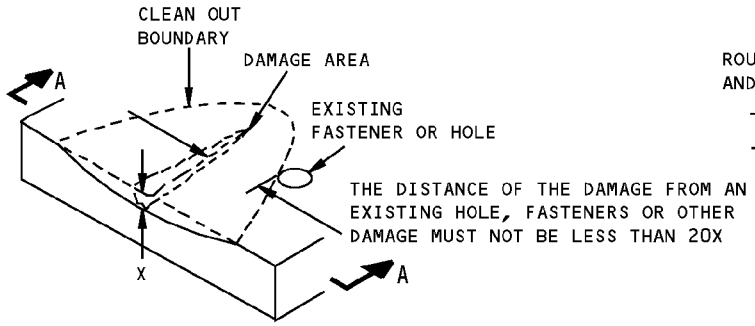


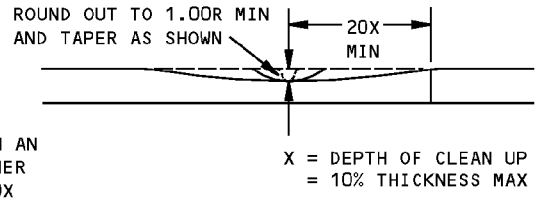
DAMAGE CLEANUP OF EDGES WHERE
FASTENER EDGE MARGINS DO NOT OVERLAP



DAMAGE CLEANUP OF EDGES WHERE
FASTENER EDGE MARGINS OVERLAP

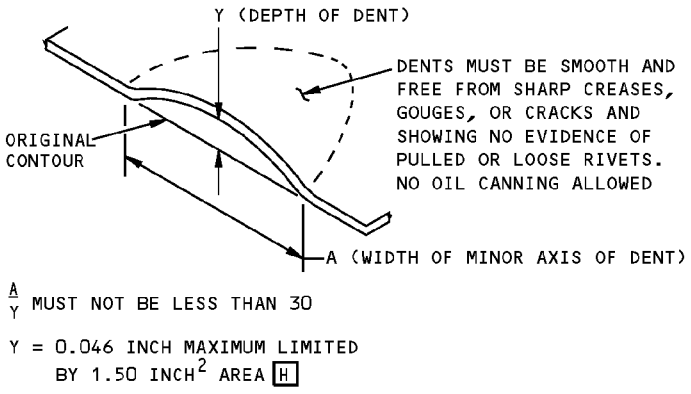
DETAIL I





SECTION A–A

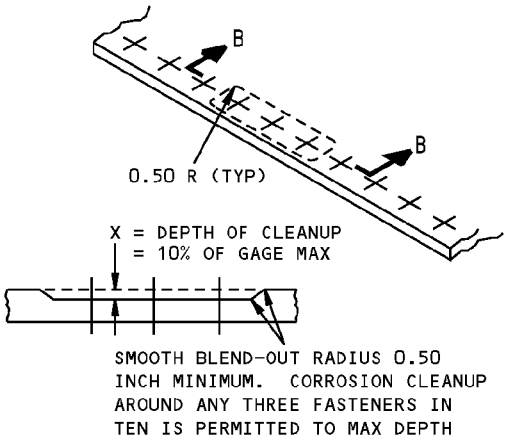
REMOVAL OF NICK, GOUGE AND SCRATCH DAMAGE ON A SURFACE
DETAIL II



$\frac{A}{Y}$ MUST NOT BE LESS THAN 30

Y = 0.046 INCH MAXIMUM LIMITED
BY 1.50 INCH^2 AREA [H]

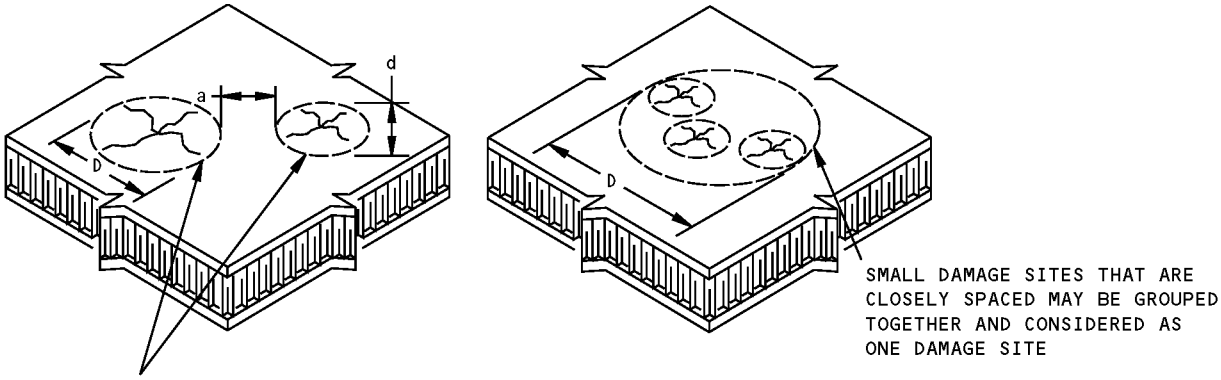
ALLOWABLE DAMAGE FOR DENT
DETAIL III



SECTION B–B

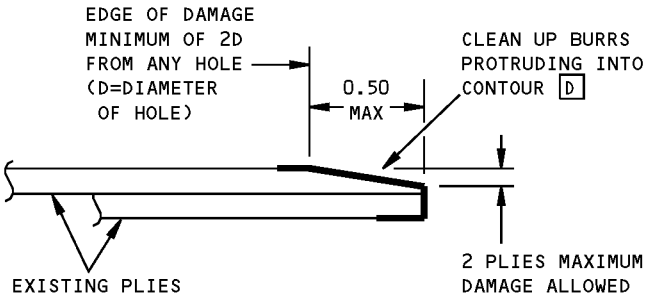
CORROSION CLEANUP
DETAIL IV

Allowable Damage - Vertical Stabilizer Skin
Figure 101 (Sheet 4 of 5)



- DAMAGE TO COMPOSITE PANELS EXPOSED TO MULTIPLE IMPACTS, I.E., HAIL DAMAGE, CAN BE DETECTED BY USING INSTRUMENTED NON-DESTRUCTIVE INSPECTION METHODS OR BY TAPPING THE SUSPECTED DAMAGE AREA WITH A SMALL METALLIC DISK OBJECT. INSPECTION SHOULD COVER THE AREA WITHIN 3 DIAMETERS AROUND THE EDGE OF THE VISIBLE DAMAGE SITE. FOR TAP TEST, USE A SOLID METAL DISK AND TAP THE DAMAGE AREA LIGHTLY BUT FIRMLY. VOID AREAS SHOULD PRODUCE A DULL SOUND AS OPPOSED TO A SHARP RING ON A SOLID BONDED AREA
- DAMAGE SITE IS ANY SINGLE AREA OF A PANEL WHERE A DENT, CRACK, DELAMINATION, PUNCTURE OR ANY COMBINATION OF THESE EXIST. SMALL DAMAGE SITES THAT ARE CLOSELY SPACED MAY BE GROUPED TOGETHER AND CONSIDERED AS ONE DAMAGE SITE
- "D" IS DETERMINED BY MEASURING THE MAX DIMENSION OF A DENT, CRACK, OR OTHER DAMAGE, WHICHEVER IS GREATER
- "a" IS THE DISTANCE BETWEEN TWO ADJACENT DAMAGE SITES
- "d" IS THE MAX DIMENSION OF THE SMALLER OF TWO ADJACENT DAMAGE SITES
- CALCULATE a/D BY DIVIDING DISTANCE "a" BY DIAMETER "D"
- DAMAGE IS ALLOWED WHEN "D" IS EQUAL TO OR LESS THAN THE MAXIMUM ALLOWABLE "D" FROM TABLE I AND WHEN a/D IS EQUAL TO OR GREATER THAN THE MINIMUM a/D GIVEN IN TABLE I

DAMAGE SIZING AND SPACING DATA
FOR COMPOSITE PANELS
DETAIL V



DAMAGE CLEANUP AND SEALING
OF EDGE EROSION
DETAIL VI

Allowable Damage - Vertical Stabilizer Skin
Figure 101 (Sheet 5 of 5)

REPAIR 1 - VERTICAL STABILIZER INTERSPAR SKIN FLUSH REPAIR BETWEEN STRINGERS

REPAIR INSTRUCTIONS

1. Cut out damaged portion of skin to give a hole with the major axis parallel to the stringers.

   NOTE: Access to the inside of the stabilizer, outboard of rib No. 7, may be obtained through the access holes in the front and rear spars.

2. Make the repair parts.

3. Assemble the repair parts and drill the fastener holes.

4. Remove the repair parts.

5. Break sharp edges of original and repair parts 0.015R to 0.030R.

6. Remove all nicks, scratches, burrs, sharp edges and corners from original and repair parts.

7. Alodize repair part 1 and the cut edges of repair part 2 and original parts per 51-20-01

8. Apply one coat of BMS 10-11, type 1 primer to repair parts and the cut edges of the original parts in accordance with 51-24 of the 757 Maintenance Manual.

9. Install the repair parts making a faying surface seal with BMS 5-95. Install fasteners wet with BMS 5-95.

10. Fill gap between parts with aerodynamic smoother (BMS 5-79 or BMS 5-95).

11. Restore original finish per 51-21 of the 757 Maintenance Manual.

NOTES

- D = FASTENER DIAMETER
- REFER TO THE FOLLOWING WHEN USING THIS REPAIR:

  51-10-01 FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS

  51-20-01 FOR PROTECTIVE TREATMENT OF METAL

  51-20-05 FOR SEALING OF REPAIRS

  51-40 FOR FASTENER CODE, REMOVAL, INSTALLATION, HOLE SIZES AND EDGE MARGINS, EXCEPT AS NOTED

  51-21 OF THE 757 MAINTENANCE MANUAL FOR INTERIOR AND EXTERIOR FINISHES

  51-31 OF THE 757 MAINTENANCE MANUAL FOR SEALS AND SEALING

[A] ONE GAGE HEAVIER THAN SKIN

[B] SAME THICKNESS AS SKIN

[C] SEE TABLE I FOR FASTENER TYPE AND SIZE

FASTENER SYMBOLS

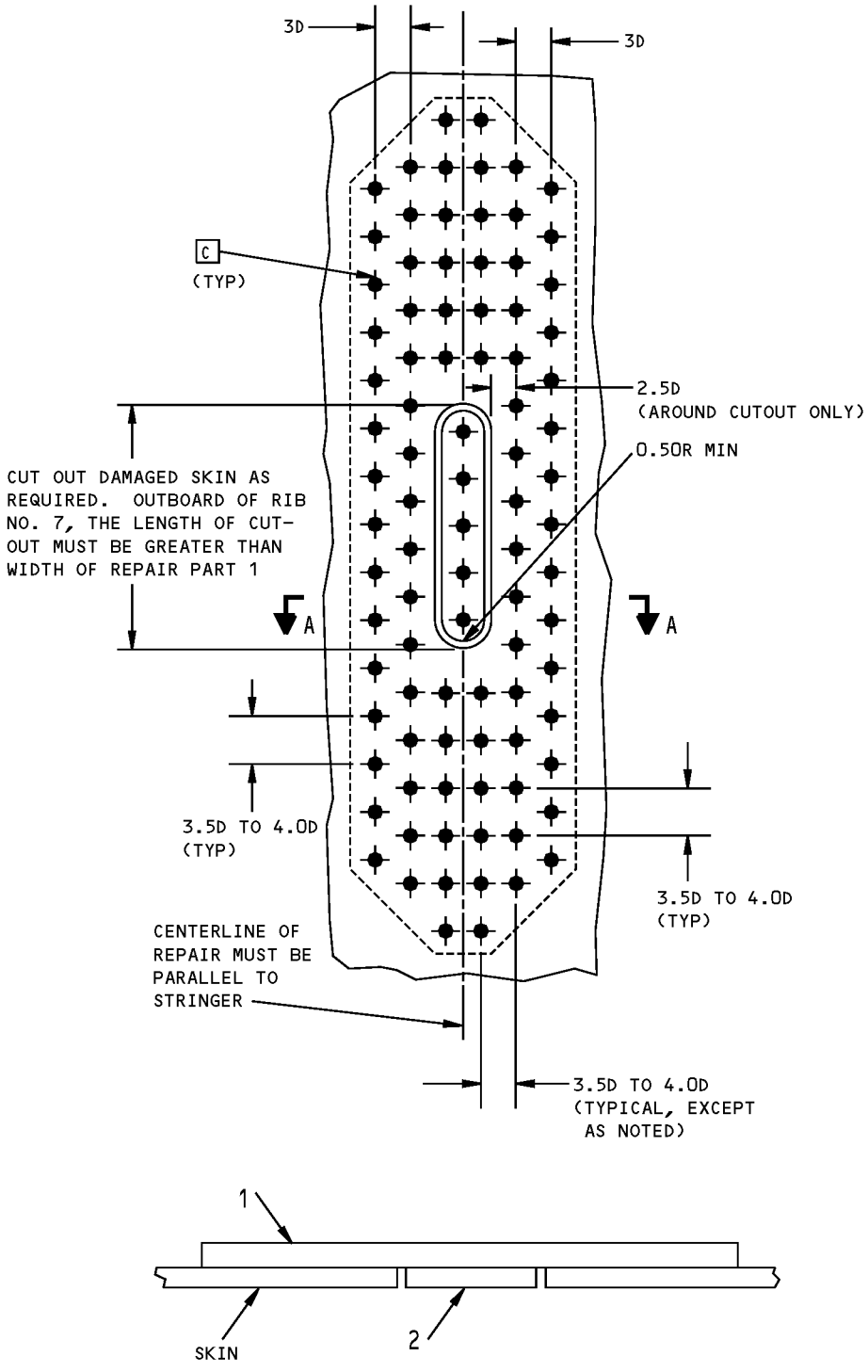
⌖ REPAIR FASTENER LOCATION

REPAIR MATERIAL			
PART		QTY	MATERIAL
1	PLATE	1	7075-T6 [A]
2	FILLER	1	7075-T6 [B]

SKIN THICKNESS	REPAIR FASTENER
0.050 THRU 0.063	BACB30NW5K
OVER 0.063 THRU 0.090	BACB30NW5K BACB30NW6K
OVER 0.090 THRU 0.110	BACB30NW6K

TABLE I

Vertical Stabilizer Interspar Skin Flush Repair Between Stringers
Figure 201 (Sheet 1 of 2)



Vertical Stabilizer Interspar Skin Flush Repair Between Stringers
Figure 201 (Sheet 2 of 2)

REPAIR 2 - VERTICAL STABILIZER INTERSPAR SKIN FLUSH REPAIR AT A STRINGER

REPAIR INSTRUCTIONS

1. Cut out damaged portion of skin to give a rectangular hole with radiused corners. Do not cut into stringer. If stringer is damaged, see 55-30-03.

   NOTE: Access to the inside of the stabilizer, outboard of rib No. 7, may be obtained through the access holes in the front and rear spars.

2. Drill out existing fasteners in the skin to stringer attachment as required.

3. Make the repair parts.

4. Assemble the repair parts and drill the fastener holes.

5. Remove the repair parts.

6. Break sharp edges of original and repair parts 0.015R to 0.030R.

7. Remove all nicks, scratches, burrs, sharp edges and corners from original and repair parts.

8. Alodize repair parts and the cut edges of the original parts per 51-20-01.

9. Apply one coat of BMS 10-11, type 1 primer to repair parts and the cut edges of the original parts in accordance with 51-24 of the 757 Maintenance Manual.

10. Install the repair parts making a faying surface seal with BMS 5-95. Install fasteners wet with BMS 5-95.

11. Fill gap between parts with aerodynamic smoother (BMS 5-79 or BMS 5-95).

12. Restore original finish per 51-21 of the 757 Maintenance Manual.

NOTES

- DO NOT USE THIS REPAIR BETWEEN RIB NO. 1 AND RIB NO. 2. CONTACT THE BOEING COMPANY FOR REPAIRS IN THIS AREA
- IF SPACE LIMITATIONS EXIST WHICH PREVENT INSTALLATION OF THIS REPAIR, CONTACT THE BOEING COMPANY
- D = FASTENER DIAMETER
- REFER TO THE FOLLOWING WHEN USING THIS REPAIR:

  51-10-01 FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS

  51-20-01 FOR PROTECTIVE TREATMENT OF METAL

  51-20-05 FOR SEALING OF REPAIRS

  51-40 FOR FASTENER CODE, REMOVAL, INSTALLATION, HOLE SIZES AND EDGE MARGINS, EXCEPT AS NOTED

  51-21 OF THE 757 MAINTENANCE MANUAL FOR INTERIOR AND EXTERIOR FINISHES

  51-31 OF THE 757 MAINTENANCE MANUAL FOR SEALS AND SEALING

[A] ONE GAGE HEAVIER THAN SKIN

[B] SAME THICKNESS AS SKIN

[C] SEE TABLE I FOR FASTENER TYPE AND SIZE

[D] USE REPAIR PART 3 (STRAP) ONLY FOR REPAIRS INBOARD OF RIB NO. 9

[E] USE SAME SIZE AS ORIGINAL. IF STRINGER HOLE IS DAMAGED, USE 1/32 OVERSIZE

[F] SEE TABLE II FOR OPTIONAL FASTENER. WHEN INSTALLING THESE FASTENERS, THE ORIGINAL COUNTERSINK MUST BE CLEANED OUT TO 100° WITH A MICROSTOP COUNTERSINK PER 51-40-08. IF ORIGINAL FASTENER HOLE IS DAMAGED, USE OPTIONAL FASTENER OR NEXT SIZE BACR15FV RIVET. WHEN USING NEXT SIZE BACR15FV RIVET, ORIGINAL DEPTH OF COUNTERSINK MUST BE MAINTAINED. MICROSHAVE FLUSH PROTRUDING PORTION OF RIVET HEAD PER 51-10-01. DO NOT MICROSHAVE HI-LOKS

FASTENER SYMBOLS

ORIGINAL FASTENER LOCATION

REPAIR FASTENER LOCATION

ORIGINAL FASTENER LOCATION WITH A REPAIR FASTENER INSTALLED (SEE TABLE I)

Vertical Stabilizer Interspar Skin Flush Repair at a Stringer
Figure 201 (Sheet 1 of 3)

REPAIR MATERIAL			
PART		QTY	MATERIAL
1	PLATE	2	7075-T6 [A]
2	FILLER	1	7075-T6 [B]
3	STRAP [D]	1	7075-T6 [B]

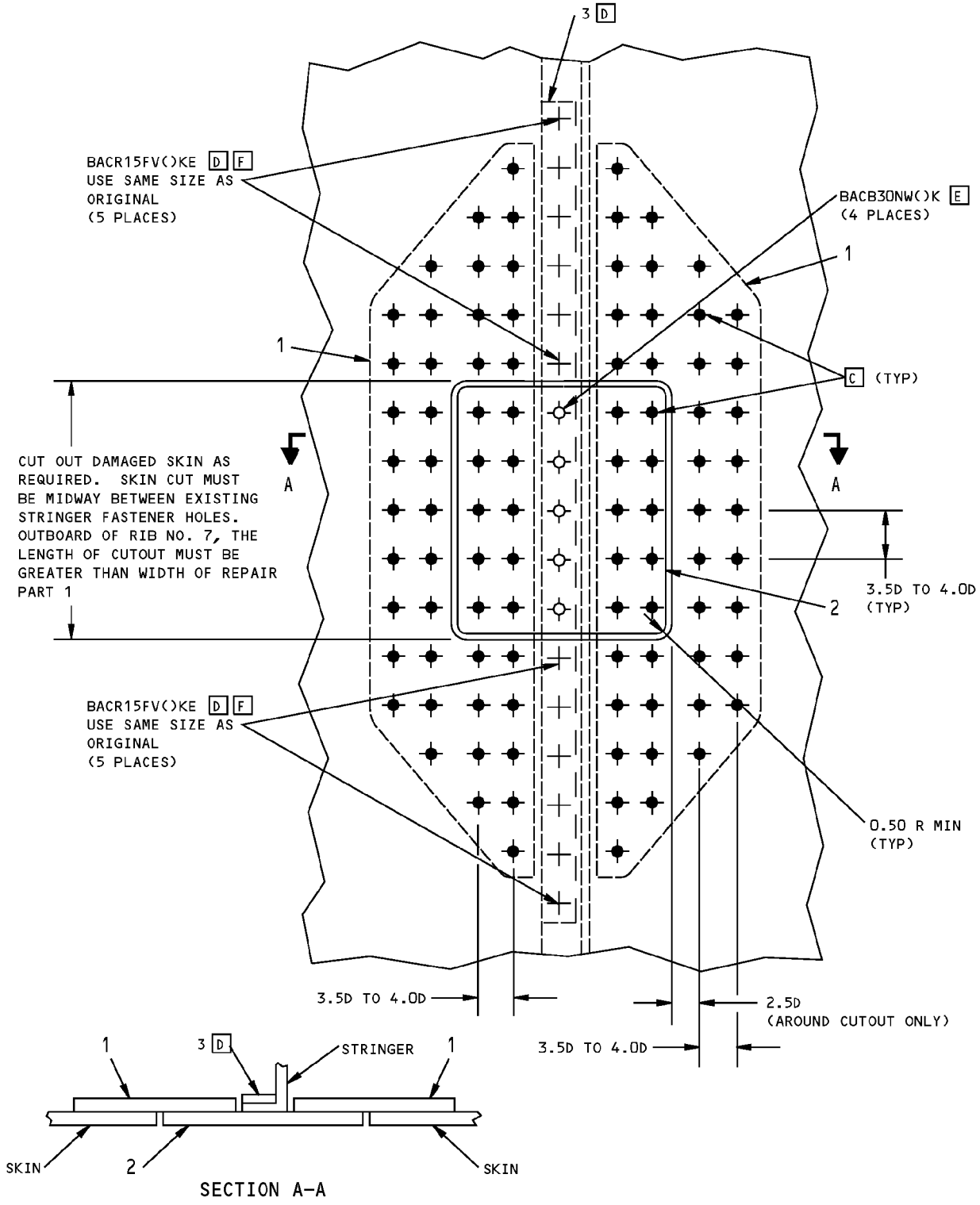
SKIN THICKNESS	REPAIR FASTENER
0.050 THRU 0.063	BACB30NW5K
OVER 0.063 THRU 0.090	BACB30NW5K BACB30NW6K
OVER 0.090 THRU 0.110	BACB30NW6K BACB30NW8K

TABLE I

ORIGINAL FASTENER	SKIN THICKNESS	OPTIONAL FASTENER
BACR15FV5KE	0.050 THRU 0.057	NONE
	OVER 0.057 THRU 0.065	BACB30NW6K
BACR15FV6KE	OVER 0.065 THRU 0.076	BACB30NW6K()Y
	OVER 0.076 THRU 0.095	BACB30NW6K()Y BACB30NW8K
BACR15FV8KE	OVER 0.095 THRU 0.110	BACB30NW10K

TABLE II [D]

Vertical Stabilizer Interspar Skin Flush Repair at a Stringer
Figure 201 (Sheet 2 of 3)



Vertical Stabilizer Interspar Skin Flush Repair at a Stringer
Figure 201 (Sheet 3 of 3)

REPAIR 3 - VERTICAL STABILIZER COMPOSITE SKIN

DAMAGE	INTERIM REPAIRS [B]	PERMANENT REPAIRS		
	WET LAYUP ROOM TEMP (SRM 51-70-03)	WET LAYUP 150°F CURE (SRM 51-70-03)	WET LAYUP 200°F CURE (SRM 51-70-17)	250°F CURE (SRM 51-70-05)
CRACKS	UP TO 4.0 INCHES (100 mm) LONG, REPAIR WITH PATCH AS GIVEN IN SRM 51-70-03, PAR. 5.N. [A]	CLEAN UP DAMAGE AND REPAIR AS A HOLE	CLEAN UP DAMAGE AND REPAIR AS A HOLE	CLEAN UP DAMAGE AND REPAIR AS A HOLE
HOLES	4.0 INCHES (100 mm) MAXIMUM DIA NOT TO EXCEED 30% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-03, PAR. 5.N. [A]	8.0 INCHES (200 mm) MAXIMUM DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED [C]	12.0 INCHES (300 mm) MAXIMUM DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED [C]	NO SIZE LIMIT
DELAMI-NATION	CUT OUT AND REPAIR AS A HOLE			
NICKS AND GOUGES	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL NICKS OR GOUGES AS GIVEN IN SRM 51-70-03 IF YOU FIND FIBER DAMAGE OR DELAMINATION, THEN REPAIR AS A HOLE			
DENTS	UP TO 2.0 INCHES (50 mm) DIA WITH NO FIBER DAMAGE OR DELAMINATION, FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-03, PAR. 5.L. [C] OVER 2.0 INCHES (50 mm) DIA OR WITH FIBER DAMAGE OR DELAMINATION, REPAIR AS A HOLE			

REPAIR DATA FOR 250°F CURE HONEYCOMB PANELS (ARAMID/GRAPHITE)
TABLE I

NOTES

- WHEN YOU USE THIS REPAIR, REFER TO:
  - AMM 51-21-01 FOR APPLICATION OF FINISHES
  - SRM 51-10-01, FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS. WHERE THE DAMAGE IS MORE THAN THE LIMITS GIVEN IN SRM 51-10-01, THOUGHT SHOULD BE GIVEN TO THE LOSS OF PERFORMANCE THAT MAY OCCUR
  - SRM 51-10-02 FOR INSPECTION AND REMOVAL OF DAMAGE.

[A] LIMITED TO REPAIR OF DAMAGE TO ONE FACESHEET SKIN AND HONEYCOMB CORE. ONE REPAIR FOR EACH SQUARE FOOT OF AREA AND MINIMUM OF 6.0 INCHES (150 mm) (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE, OR EDGE OF PANEL

[B] INSPECT INTERIM REPAIR USING INSTRUMENTED NDT METHODS OR "TAP" TEST EVERY AIRPLANE "2A" CHECK. FOR "TAP" TEST, USE A SOLID METAL DISK AND TAP THE REPAIR AREA LIGHTLY BUT FIRMLY. VOID AREAS WILL GIVE A DULL SOUND INSTEAD OF A SHARP RING THAT YOU WILL HEAR ON A SOLID BONDED AREA. PERMANENT REPAIR IS REQUIRED IF ANY DETERIORATION IS FOUND. REFER TO SRM 51-70-03, PAR. 4.I. AND THE NONDESTRUCTIVE TEST MANUAL, D634N301 [D]

[C] ONE REPAIR FOR EACH SQUARE FOOT OF AREA AND A MINIMUM OF 6.0 INCHES (150 mm) (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE, OR EDGE OR PANEL

[D] THESE REPAIRS HAVE FAA APPROVAL ONLY IF YOU DO THE INSPECTIONS GIVEN IN THIS REPAIR

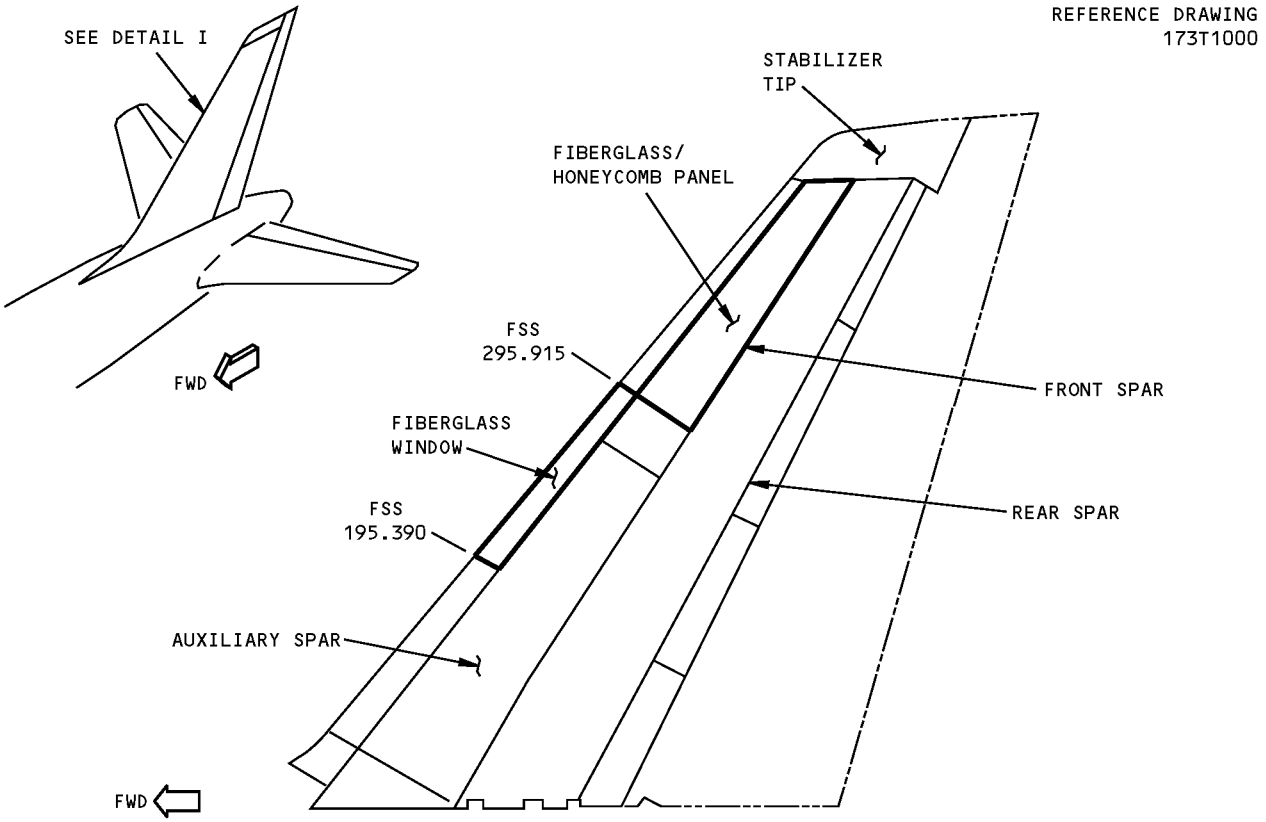
Vertical Stabilizer Composite Skin Repairs
Figure 201 (Sheet 1 of 2)

DAMAGE	INTERIM REPAIRS [B]	PERMANENT REPAIRS	
	ROOM TEMP (SRM 51-70-03)	WET LAYUP - 200°F CURE (SRM 51-70-17)	250°F CURE (SRM 51-70-05)
HOLES AND PUNCTURES	REPAIR DAMAGE TO FASTENER HOLES AS GIVEN IN SRM 51-70-03, PAR. 5.K. FOR ALL OTHER DAMAGE, USE A PERMANENT REPAIR PROCEDURE	REPAIR DAMAGE TO FASTENER HOLES AS GIVEN IN SRM 51-70-17, PAR. 4.K. FOR ALL OTHER DAMAGE, REPAIR AS GIVEN IN SRM 51-70-17, PAR. 4.G.	REPAIR DAMAGE TO FASTENER HOLES AS GIVEN IN SRM 51-70-05, PAR. 5.K. FOR ALL OTHER DAMAGE, REPAIR AS GIVEN IN SRM 51-70-05, PAR. 5.G.
DELAM-INATION	IF DELAMINATION FROM PANEL EDGE IS NO LESS THAN 2D FROM ANY FASTENER HOLE, REPAIR AS GIVEN IN SRM 51-70-03, PAR. 5.A.(2). ANY OTHER DELAMINATION MUST BE CUT OUT AND REPAIRED AS A HOLE	CUT OUT AND REPAIR AS A HOLE	CUT OUT AND REPAIR AS A HOLE
EDGE EROSION	———	FOR DAMAGE NOT EXCEEDING 35% OF EDGEBAND THICKNESS, REPAIR AS GIVEN IN SRM 51-70-03, PAR. 5.O. FOR LARGER DAMAGE, REPAIR AS GIVEN IN: SRM 51-70-17, PAR. 4.G.	SRM 51-70-05, PAR. 5.G.
CRACKS	REPAIR AS A HOLE		
NICKS AND GOUGES	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL NICKS OR GOUGES AS GIVEN IN SRM 51-70-03 IF YOU FIND FIBER DAMAGE OR DELAMINATION, THEN REPAIR AS A HOLE OR DELAMINATION, WHICHEVER IS APPLICABLE		
DENTS	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL DENTS AS GIVEN IN SRM 51-70-03 IF YOU FIND FIBER DAMAGE OR DELAMINATION, REPAIR AS A HOLE OR DELAMINATION, WHICHEVER IS APPLICABLE		

REPAIR DATA FOR EDGEBANDS OF 250°F CURE HONEYCOMB PANELS (ARAMID/GRAPHITE)
TABLE II

Vertical Stabilizer Composite Skin Repairs
Figure 201 (Sheet 2 of 2)

REPAIR 4 - VERTICAL STABILIZER LEADING EDGE FIBERGLASS PANEL



LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE
DETAIL I

NOTES

- REFER TO SRM 51-10-02 FOR INSPECTION AND REMOVAL OF DAMAGE.
- REFER TO SRM 51-10-01 FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS.
- REFINISH REWORKED AREAS AS GIVEN IN AMM 51-20
- RESTORE DAMAGED ALUMINUM FLAME SPRAY OR CONDUCTIVE COATING AS GIVEN IN SRM 51-70-14

[A] ONE REPAIR FOR EACH SQUARE FOOT OF AREA AND A MINIMUM SPACING (EDGE TO EDGE) OF 6 INCHES (150 mm) TO ANY OTHER DAMAGE OR REPAIRS.

[B] LIMITED TO REPAIR OF ONE FACESHEET SKIN AND HONEYCOMB CORE. INSPECT INTERIM REPAIR USING INSTRUMENTED NDI METHODS OR "TAP" TEST EVERY AIRPLANE "2A" CHECK. FOR "TAP" TEST, USE A SOLID METAL DISK AND TAP THE REPAIR AREA LIGHTLY BUT FIRMLY. VOID AREAS WILL PRODUCE A DULL SOUND AS OPPOSED TO A SHARP RING ON A SOLID BONDED AREA. PERMANENT REPAIR IS REQUIRED IF ANY DETERIORATION IS EVIDENT. REFER TO SRM 51-70-03, PAR. 4.I. AND THE NONDESTRUCTIVE TEST MANUAL, D634T301. THIS REPAIR HAS FAA APPROVAL CONTINGENT ON ACCOMPLISHMENT OF THE INSPECTIONS AT THE INTERVALS CONTAINED HEREIN.

[C] WHERE BMS 5-95 SEALANT IS APPLIED ON EXTERIOR SURFACE OF PANEL AT MANUFACTURE, REAPPLY BMS 5-95 SEALANT ON REWORKED AREAS PRIOR TO THE APPLICATION OF ENAMEL FINISH. REFER TO AMM 51-21-12.

Vertical Stabilizer Leading Edge Fiberglass Panel Repair
Figure 201 (Sheet 1 of 2)

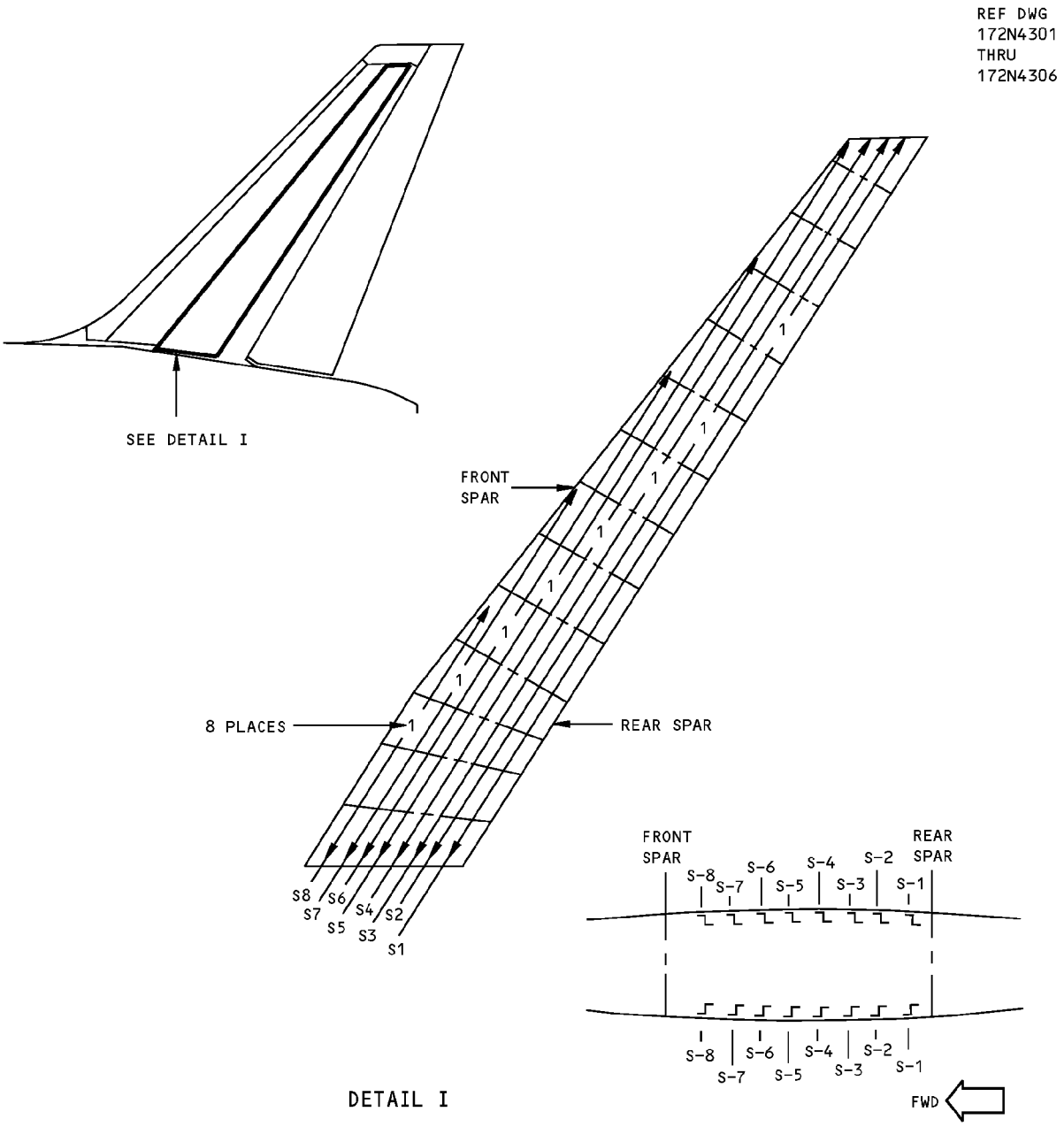
DAMAGE	INTERIM REPAIRS [B]	PERMANENT REPAIRS		
	WET LAYUP ROOM TEMP/150°F CURE (SRM 51-70-06)	WET LAYUP 150°F CURE (SRM 51-70-06) [A]	WET LAYUP 200°F CURE (SRM 51-70-17) [A]	250°F CURE (SRM 51-70-07)
CRACKS	UP TO 4.0 INCHES (100 mm) LONG, REPAIR WITH PATCH AS GIVEN IN SRM 51-70-06, PAR. 5.N. [A]	CLEAN UP DAMAGE AND REPAIR AS A HOLE	CLEAN UP DAMAGE AND REPAIR AS A HOLE	CLEAN UP DAMAGE AND REPAIR AS A HOLE
HOLES	4.0 INCHES (100 mm) MAXIMUM DIA NOT TO EXCEED 30% OF SMALLEST DIMENSION OF HONEYCOMB PANEL AT THE DAMAGE LOCATION. FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-06, PAR. 5.N. [A]	8.0 INCHES (200 mm) MAXIMUM DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION OF HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED	12.0 INCHES (300 mm) MAXIMUM DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION OF HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED	NO SIZE LIMIT
DELAMI-NATION	CUT OUT AND REPAIR AS A HOLE			
NICKS AND GOUGES	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL NICKS OR GOUGES AS GIVEN IN SRM 51-70-06 IF YOU FIND FIBER DAMAGE OR DELAMINATION, THEN REPAIR AS A HOLE			
DENTS	UP TO 2.0 INCHES (50 mm) DIA WITH NO FIBER DAMAGE OR DELAMINATION, FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-06, PAR. 5.L. OVER 2.0 INCHES (50 mm) DIA OR WITH FIBER DAMAGE OR DELAMINATION, REPAIR AS A HOLE			

REPAIR DATA FOR 250°F CURE FIBERGLASS HONEYCOMB
OR SOLID LAMINATE FIBERGLASS PANEL [C]

TABLE II

Vertical Stabilizer Leading Edge Fiberglass Panel Repair
Figure 201 (Sheet 2 of 2)

IDENTIFICATION 1 - VERTICAL STABILIZER STRINGER

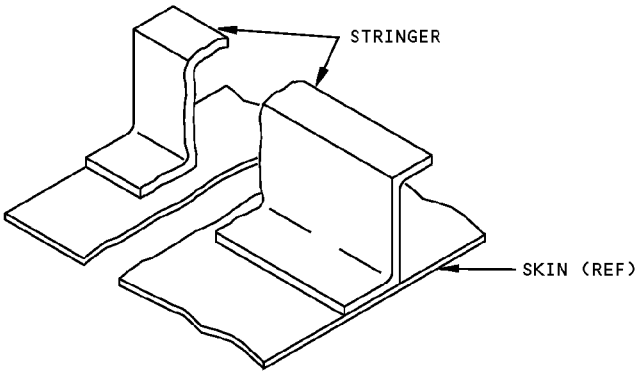


ITEM	DESCRIPTION	GAGE	MATERIAL	STRINGER TYPE	EFFECTIVITY
1	STRINGER		BAC1517-2219 7075-T6511	⌐	

LIST OF MATERIAL FOR DETAIL I

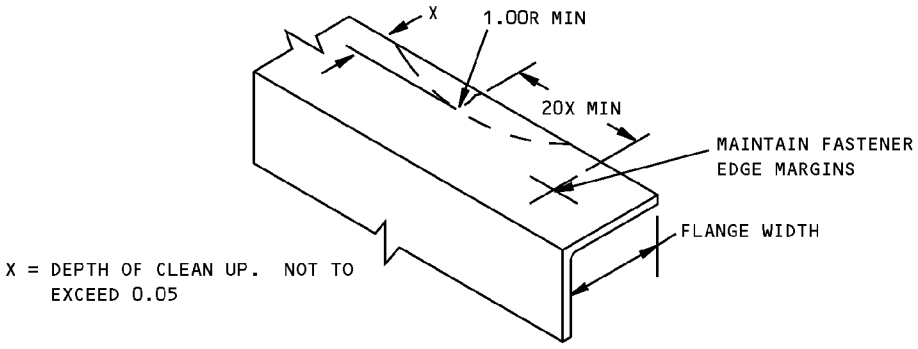
Vertical Stabilizer Stringer Identification
Figure 1

ALLOWABLE DAMAGE 1 - VERTICAL STABILIZER STRINGERS

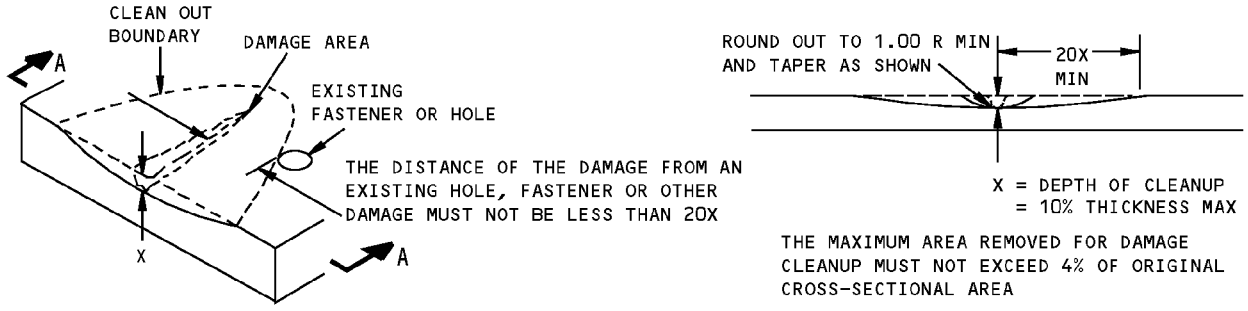


TYPICAL SKIN STRINGER

CRACKS	NICKS, GOUGES AND CORROSION	DENTS	HOLES
FOR EDGE CRACKS SEE DETAIL I. OTHER CRACKS NOT ALLOWED	REMOVE EDGE DAMAGE PER DETAIL I. ELSEWHERE REMOVE DAMAGE PER DETAIL II, PROVIDED DEPTH OF CLEAN UP DOES NOT EXCEED 10% OF GAGE.	NOT ALLOWED	NOT ALLOWED



DETAIL I



SECTION A-A

REMOVAL OF NICK, GOUGE AND SCRATCH DAMAGE ON A SURFACE
DETAIL II

Allowable Damage - Vertical Stabilizer Stringers
Figure 101

REPAIR 1 - VERTICAL STABILIZER ZEE STRINGER

REPAIR INSTRUCTIONS

1. Cut and remove damaged portion of stringer. Stringer cut must be midway between initial stringer fastener holes. If skin is damaged refer to SRM 55-30-01.

   NOTE: Access to the inside of the stabilizer, outboard of rib no. 7, may be obtained through the access holes in the front and rear spars.

2. Calculate the lengths and gages of the repair parts and make them accordingly. Refer to Sample Calculations.

3. Assemble the repair parts and drill and ream the holes in the initial and new locations.

4. Remove the repair parts.

5. Break sharp edges of original and repair parts 0.015 to 0.030 inch (0.38 to 0.76 mm)

6. Remove all nicks, scratches, burrs, sharp edges and corners from initial and repair parts.

7. Apply a chemical conversion coating to the repair parts and to the bare surfaces of the initial parts. Refer to SRM 51-20-01.

8. Apply BMS 10-11, type I primer to the repair parts and the cut edges of the initial parts. Refer to AMM 51-24.

9. Install the repair parts making a faying surface seal with BMS 5-95. Install fasteners wet with BMS 5-95.

10. Restore initial finish as shown in AMM 51-21.

NOTES

- THIS REPAIR IS APPLICABLE TO BOTH LEFT AND RIGHT ZEE STRINGERS

  REFER TO THE FOLLOWING WHEN USING THIS REPAIR:

  - AMM 51-21 FOR INTERIOR AND EXTERIOR FINISHES
  - SRM 51-10-01 FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS
  - SRM 51-10-02 FOR INSPECTION AND REMOVAL OF DAMAGE.
  - SRM 51-20-05 FOR SEALING OF REPAIRS
  - SRM 51-40 FOR FASTENER CODE, REMOVAL, INSTALLATION, HOLE SIZES AND EDGE MARGINS

- D = FASTENER DIAMETER

- MACHINE REPAIR PARTS TO 125 MICROINCHES AA

[A] TAPER THE REPAIR ANGLES OVER APPROXIMATELY 1/4 THEIR LENGTH. START THE TAPER MIDWAY BETWEEN FASTENERS. TAPER TO 1/2 THE REPAIR ANGLE THICKNESS OR 0.04 AT EXTREMITY, WHICHEVER IS GREATER. MAXIMUM ALLOWABLE SLOPE IS 20 TO 1, I.E. 5%

[B] THE CROSS SECTIONAL AREA OF THE REPAIR ANGLES MUST BE AT LEAST 1.25 TIMES THE CROSS SECTIONAL AREA OF THE INITIAL STRINGER

[C] USE 1/64 OVERSIZE FASTENER BACB30NW()K()X. THE ORIGINAL COUNTERSINK MUST BE CLEANED OUT TO 100° WITH A MICROSTOP COUNTERSINK AS SHOWN IN SRM 51-40-08. IN TAPERED REGIONS, USE BACC30MG COLLARS

[D] USE SAME SIZE FASTENER AS ORIGINAL SKIN FASTENER. IN TAPERED REGIONS, USE BACC30AG COLLARS

[E] USE DETAIL I WHEREVER POSSIBLE. WHERE REPAIR PARTS INTERFERE WITH RIB PADS USE DETIAL II

FASTENER SYMBOLS

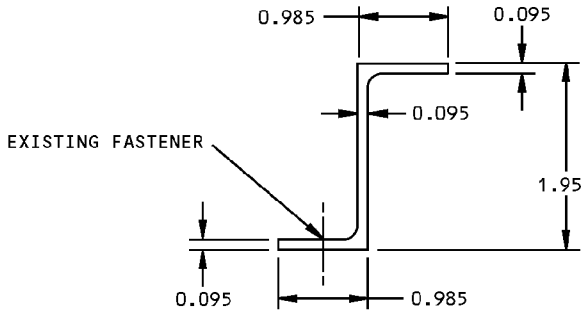
⌖ REPAIR FASTENER LOCATION

REPAIR MATERIAL			
PART		QTY	MATERIAL
1	ANGLE	1	7075-T6511 [B] OPT.: 7075-T6 OR T651
2	ANGLE	1	7075-T6511 [B] OPT.: 7075-T6 OR T651
3	FILLER	1	SAME AS INITIAL STRINGER

Vertical Stabilizer Zee Stringer Repair
Figure 201 (Sheet 1 of 4)

SAMPLE CALCULATIONS

1. DETERMINE DIMENSIONS AND EXISTING FASTENER SPACING OF ORIGINAL STIFFENER.



2. DETERMINE AREAS OF EXISTING FLANGES.
   TOP AND BOTTOM FLANGES 0.985 X 0.095 = 0.0936
   WEB 1.95 X 0.095 = 0.1853

3. DETERMINE GAGES OF REPAIR PARTS TO GIVE AN AREA 1.25 TIMES GREATER THAN ORIGINAL.

   REPAIR AREA REQUIRED FOR TOP AND BOTTOM FLANGES
   1.25 X 0.0936 = 0.117 SQ IN.

   IF ANGLE THICKNESS IS 0.125, FLANGE REPAIR AREA IS
   0.125 X 0.985 = 0.123 SQ IN.

   THIS IS BETTER THAN THE REQUIRED AREA OF 0.117 SQ IN.

   WEB - THE REPAIR PLATES OBVIOUSLY PROVIDE MORE AREA THAN REQUIRED SO NO CALCULATIONS ARE NECESSARY

4. FASTENER REQUIREMENTS (SEE TABLE I)

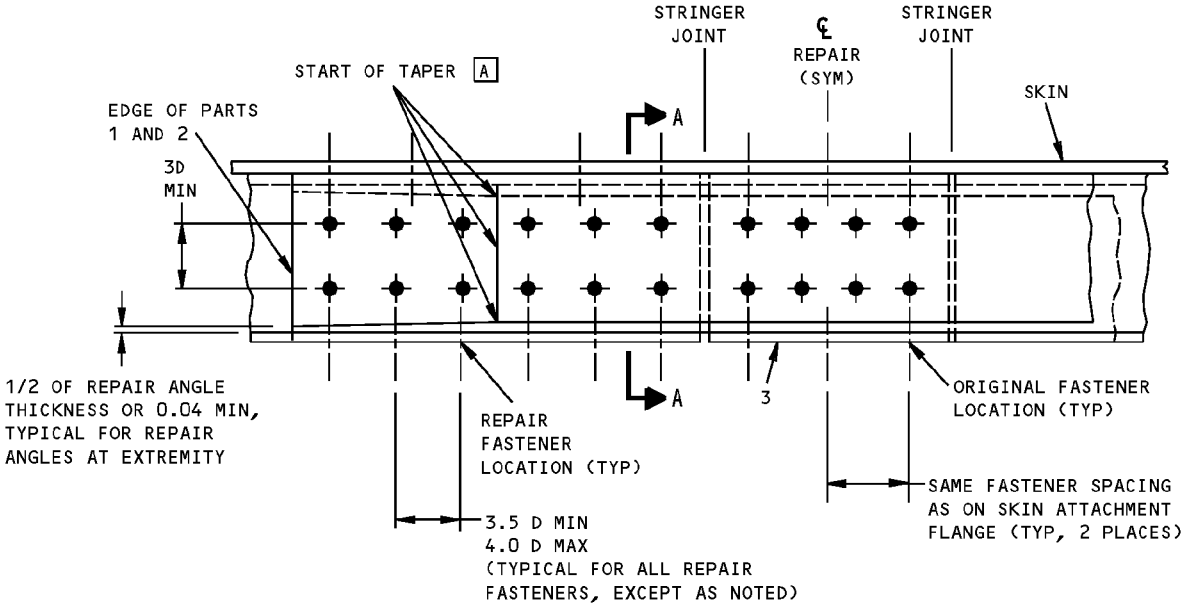
   MINIMUM NUMBER OF FASTENERS REQUIRED TO DEVELOP STRENGTH ASSUMING CONSTANT 0.125 THICKNESS AND 3/16 DIA FASTENERS
   3.8 X 0.985 = 3.74 USE 4 FASTENERS

   TO ALLOW FOR TAPERED THICKNESS OF REPAIR ANGLES, INCREASE THE NUMBER REQUIRED BY 50%. THEREFORE, USE 6 FASTENERS THROUGH THE REPAIR ANGLE FLANGE.

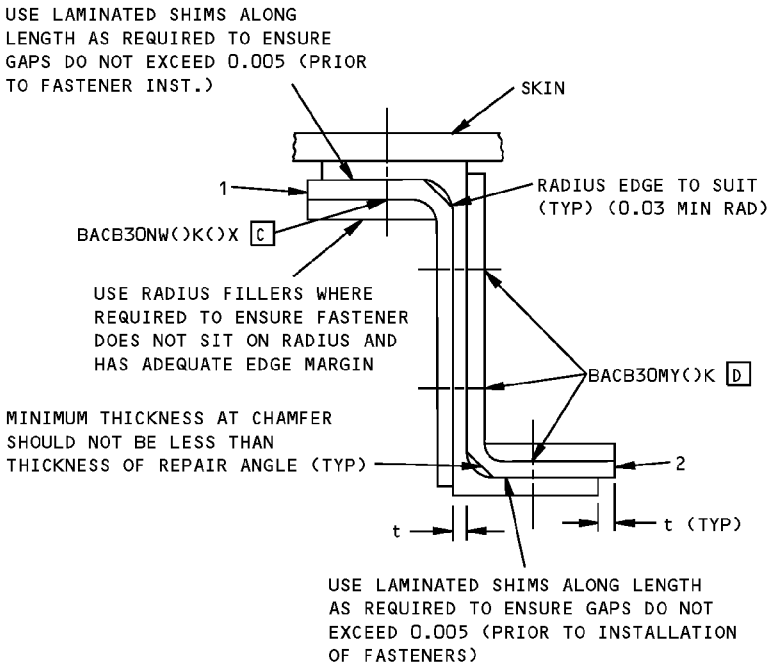
GAGE OF REPAIR PLATE	FASTENERS PER INCH WIDTH (MULTIPLY BY WIDTH OF REPAIR PART TO CALCULATE ACTUAL MINIMUM NUMBER OF FASTENERS REQUIRED)		
	3/16 DIA	1/4 DIA	5/16 DIA
0.040	3.5	2.6	2.1
0.045	3.6	2.6	2.1
0.050	3.6	2.6	2.1
0.056	3.2	2.4	1.9
0.063	3.2	2.4	1.9
0.071	3.2	2.4	1.9
0.080	3.2	2.4	1.9
0.090	3.2	2.4	1.9
0.100	3.2	2.4	1.9
0.112	3.4	2.4	1.9
0.125	3.8	2.4	1.9

TABLE I

Vertical Stabilizer Zee Stringer Repair
Figure 201 (Sheet 2 of 4)

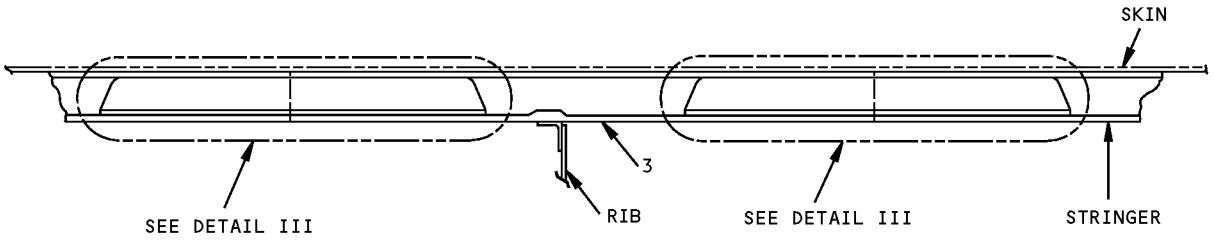


DETAIL I E

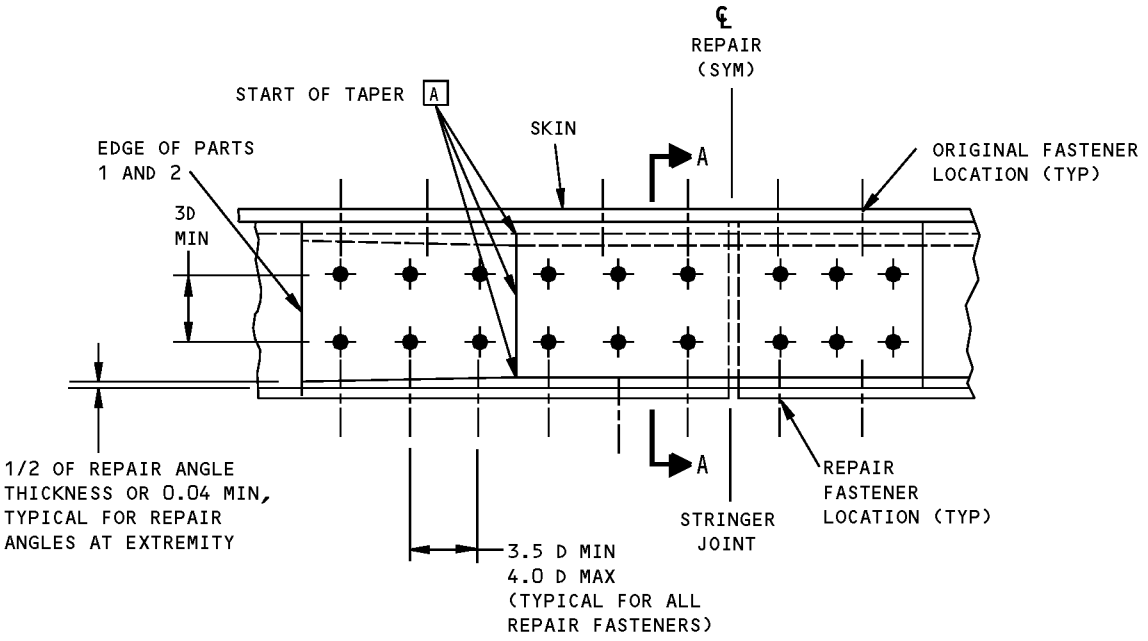


SECTION A-A

Vertical Stabilizer Zee Stringer Repair
Figure 201 (Sheet 3 of 4)



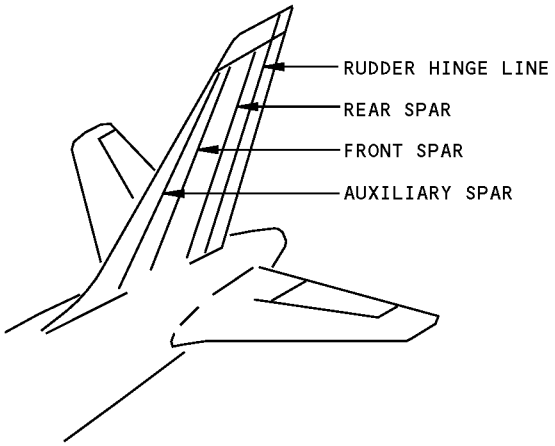
ALTERNATE REPAIR INSTALLATION FOR DAMAGE NEAR RIBS
DETAIL II [E]



DETAIL III

Vertical Stabilizer Zee Stringer Repair
Figure 201 (Sheet 4 of 4)

IDENTIFICATION 1 - VERTICAL STABILIZER RIB



NOTES

- FOR RIBS FORWARD OF FRONT SPAR SEE DETAIL I
- FOR RIBS BETWEEN FRONT SPAR AND REAR SPAR SEE DETAIL II
- FOR RIBS BETWEEN REAR SPAR AND RUDDER HINGE LINE SEE DETAIL III
- FIN STA MEASURED ALONG REAR SPAR LINE AND IS PERPENDICULAR TO THE REAR SPAR CENTERLINE
- RUD STA MEASURED ALONG RUDDER HINGE LINE

[A] FOR AIRPLANES WITHOUT HF ANTENNA

NOTE: THESE AIRPLANES DO NOT HAVE RIBS BETWEEN FSS 203 AND FSS 279

[B] FOR AIRPLANES WITH HF ANTENNA

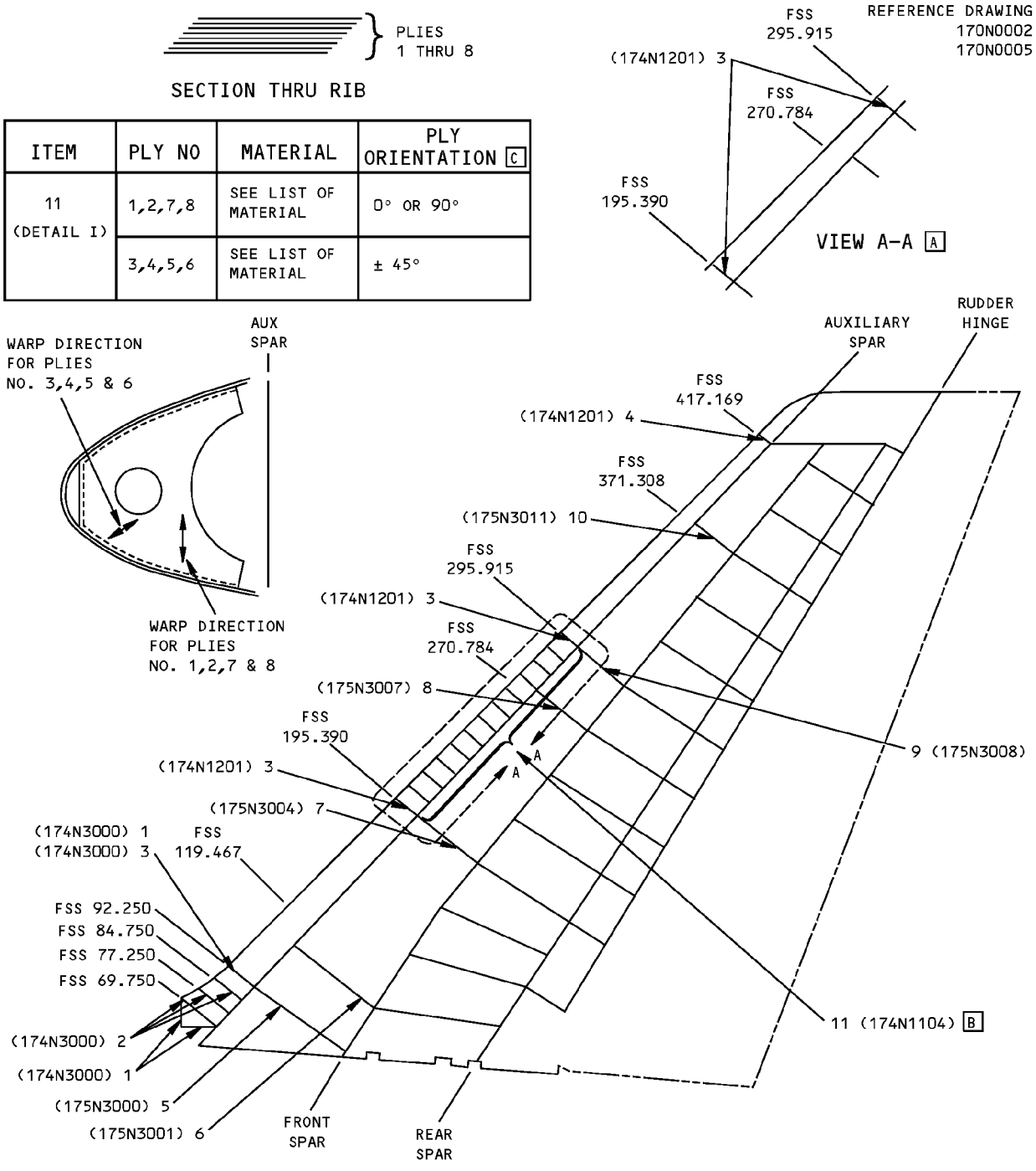
[C] PLY ORIENTATION CONVENTION, DEGREES INDICATED IS PARALLEL TO THE FABRIC WARP DIRECTION

[D] FOR AIRPLANES WITH FOUR DOORS AND CUM LINE NUMBERS: 610 AND ON

FOR AIRPLANES WITH OVERWING EMERGENCY EXITS AND CUM LINE NUMBERS: 701 AND ON

OPTIONAL FOR CUM LINE NUMBERS:
604 THRU 609
661 THRU 700

Vertical Stabilizer Rib Identification
Figure 1 (Sheet 1 of 6)



ITEM	PLY NO	MATERIAL	PLY ORIENTATION C
11 (DETAIL I)	1,2,7,8	SEE LIST OF MATERIAL	0° OR 90°
	3,4,5,6	SEE LIST OF MATERIAL	± 45°

DETAIL I

LIST OF MATL

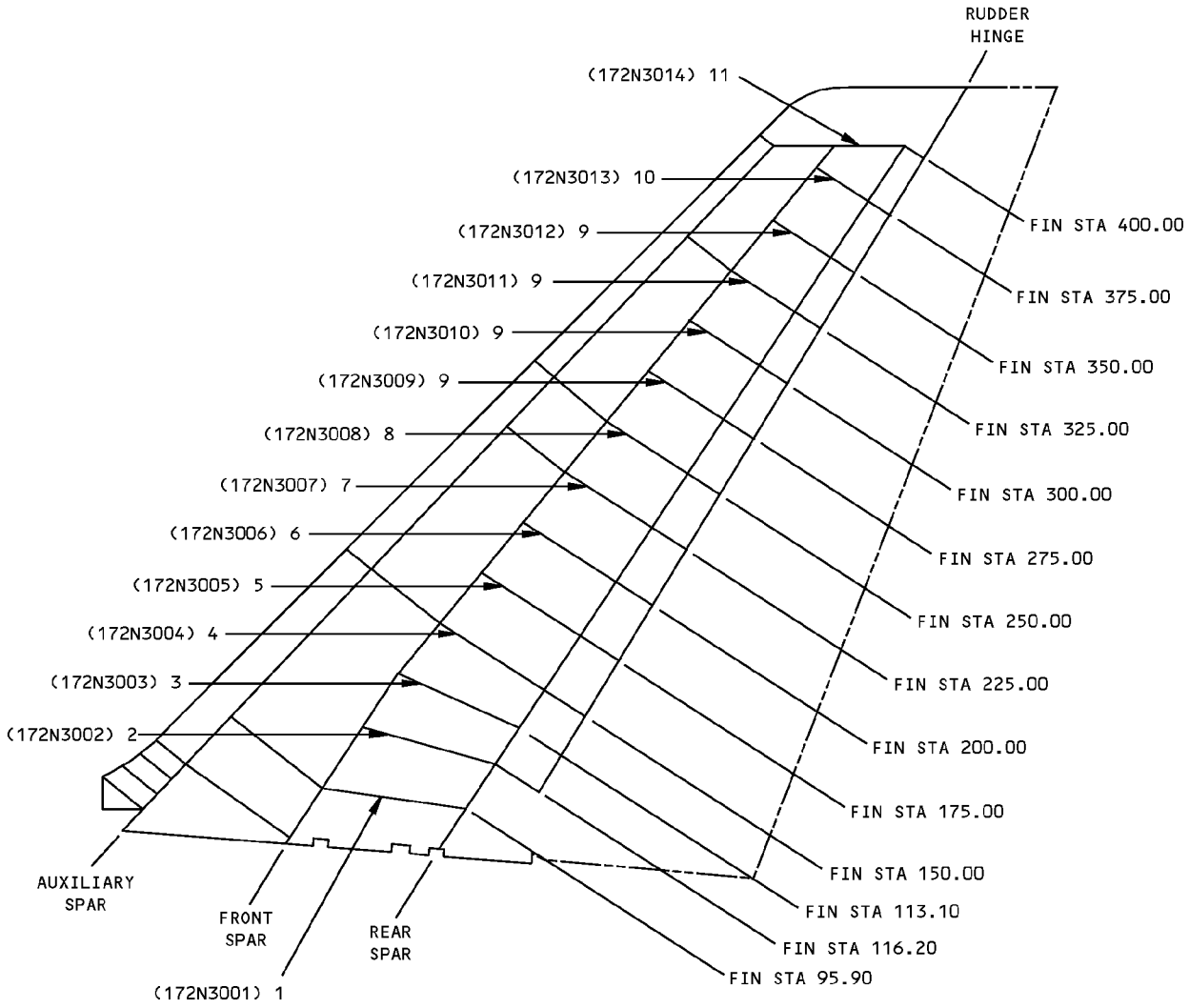
Vertical Stabilizer Rib Identification
Figure 1 (Sheet 2 of 6)

ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	RIB	0.050	CLAD 2024-T42	
2	RIB	0.040	CLAD 2024-T42	
3	SPLICE STRAP	0.125	CLAD 7075-T6	
4	SPLICE ASSY			
	RIB	0.032	CLAD 2024-T42	
	STRAP	0.063	CLAD 7075-T6	
5	RIB ASSY			
	CHORD		BAC1505-101088 7075-T6511	
	WEB	0.050	CLAD 2024-T3	
6	RIB ASSY			
	CHORD		BAC1505-101088 7075-T6511	
	WEB	0.025	CLAD 2024-T3	
7	RIB ASSY			
	CHORD		BAC1505-100999 7075-T6511 OPTIONAL: BAC1505-101211 7075-T6511	
	WEB	0.025	CLAD 7075-T6	
8	RIB ASSY			
	CHORD		BAC1505-101211 7075-T6511 OPTIONAL: BAC1505-100586 7075-T6511	
	WEB	0.025	CLAD 2024-T3	
9	RIB ASSY			
	CHORD		BAC1505-100586 7075-T6511 OPTIONAL: BAC1505-101211 7075-T6511	
	WEB	0.025	CLAD 2024-T3	
10	RIB ASSY			
	CHORD		BAC1505-101214 7075-T6511 OPTIONAL: BAC1505-100068 7075-T6511	
	WEB	0.025	CLAD 2024-T3	
11	RIB		GLASS FABRIC PREPREG EPOXY PER BMS 8-79, TYPE 1581, CLASS III GRADE I	B

LIST OF MATERIALS FOR DETAIL I

Vertical Stabilizer Rib Identification
Figure 1 (Sheet 3 of 6)

REF DWG
170N0002
170N0005



DETAIL II

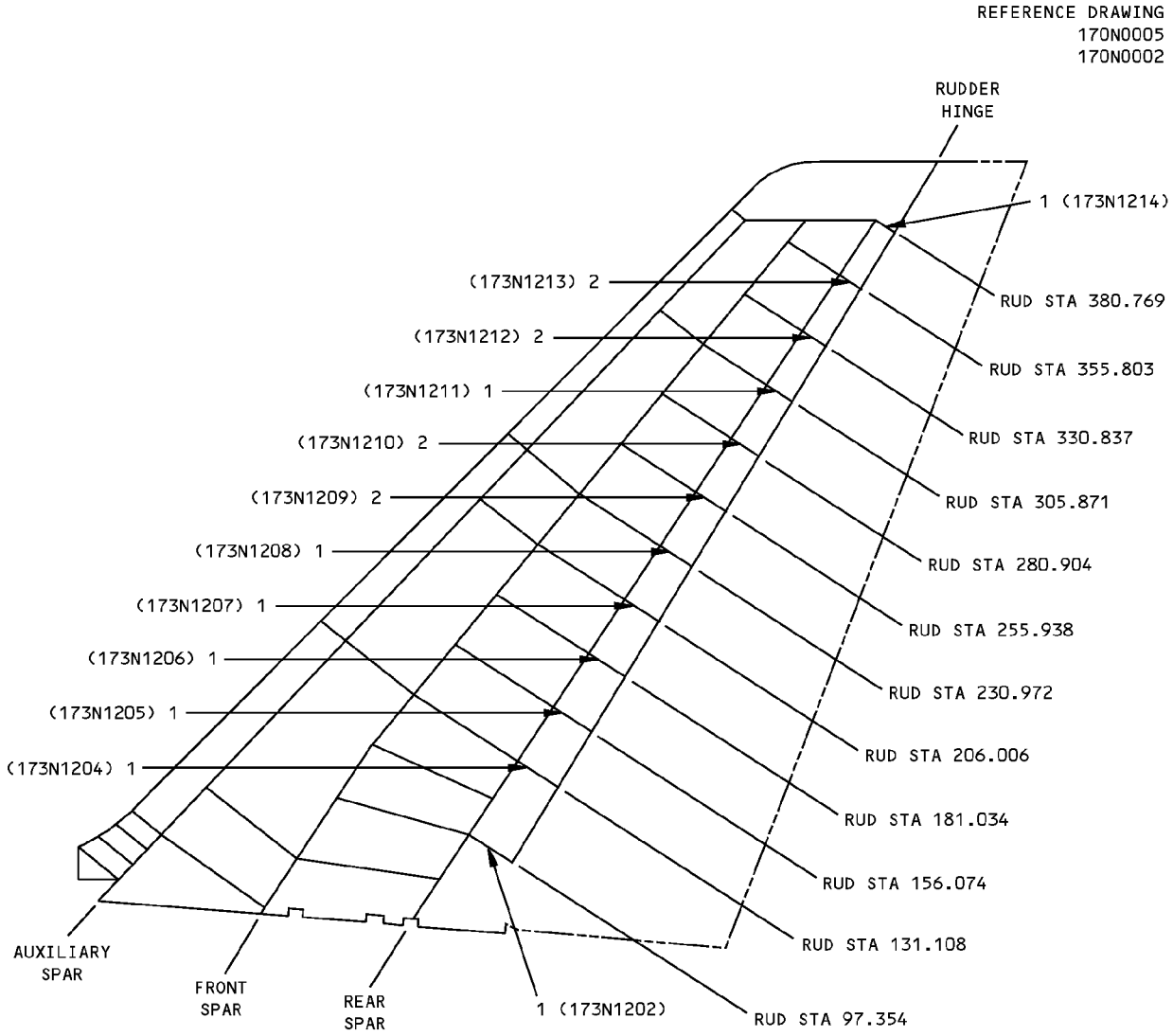
LIST OF MATL

Vertical Stabilizer Rib Identification
Figure 1 (Sheet 4 of 6)

ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	RIB ASSY			
	CHORD		BAC1520-2310 7075-T6511	
	FWD WEB	0.040	CLAD 7075-T6	
	AFT WEB	0.050	CLAD 7075-T6	
2	RIB ASSY			
	CHORD		BAC1520-2311 7075-T6511	
	FWD WEB	0.040	CLAD 7075-T6	
	AFT WEB	0.050	CLAD 7075-T6	
3	RIB ASSY			
	CHORD		BAC1520-2312 7075-T6511	
	WEB	0.040	CLAD 7075-T6	
4	RIB ASSY			
	CHORD		BAC1520-2313 7075-T6511	
	FWD WEB	0.025	CLAD 7075-T6	
	AFT WEB	0.040	CLAD 7075-T6	
5	RIB ASSY			
	CHORD		BAC1520-2314 7075-T6511	
	FWD WEB	0.025	CLAD 7075-T6	
	AFT WEB	0.040	CLAD 7075-T6	
6	RIB ASSY			
	CHORD		BAC1520-2315 7075-T6511	
	FWD WEB	0.025	CLAD 7075-T6	
	AFT WEB	0.040	CLAD 7075-T6	
7	RIB ASSY			
	CHORD		BAC1503-100145 7075-T6511	
	WEB	0.025	CLAD 7075-T6	
8	RIB ASSY			
	CHORD		BAC1503-100079 7075-T6511	
	WEB	0.025	CLAD 7075-T6	
9	RIB ASSY			
	CHORD		BAC1503-100079 7075-T6511	
	WEB	0.025	CLAD 2024-T3	
10	RIB ASSY			
	CHORD		BAC1503-100079 7075-T6	
	WEB	0.025	CLAD 2024-T3	
11	RIB ASSY			
	CHORD		BAC1506-2515 7075-T6511	
	WEB	0.040	CLAD 7075-T6	

LIST OF MATERIALS FOR DETAIL II

Vertical Stabilizer Rib Identification
Figure 1 (Sheet 5 of 6)



DETAIL III

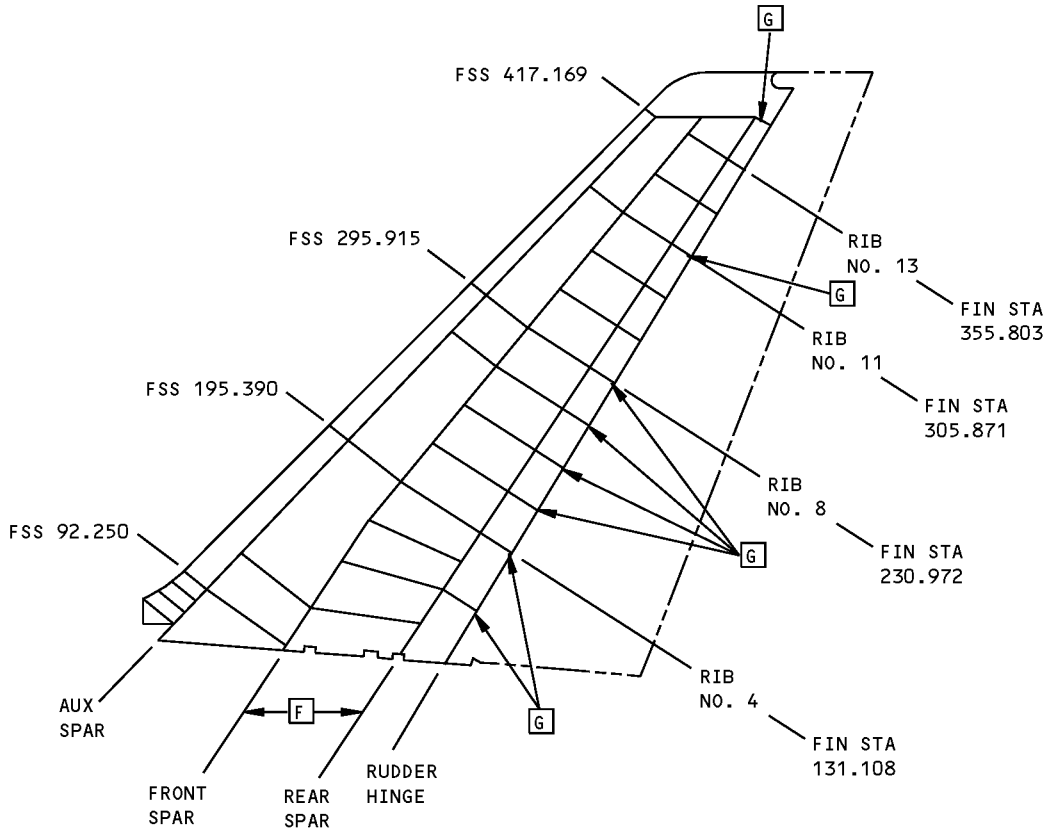
ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	RIB		FORGING 7075-T73 PLATE 7075-T7351	D
2	RIB ASSEMBLY CHORD WEB	 0.025	 BAC1503-100490 7075-T6511 CLAD 2024-T3	

LIST OF MATERIALS FOR DETAIL III

Vertical Stabilizer Rib Identification
Figure 1 (Sheet 6 of 6)

ALLOWABLE DAMAGE 1 - VERTICAL STABILIZER RIBS

REF DWG
170N1501



Allowable Damage - Vertical Stabilizer Ribs
Figure 101 (Sheet 1 of 4)

DESCRIPTION	CRACKS	NICKS, GOUGES AND CORROSION	DENTS	HOLES AND PUNCTURES
WEBS	[A]	CLEAN UP AS SHOWN IN DETAILS I, II AND IV	[D]	[E]
CHORDS	[B]	[C]	NOT PERMITTED	NOT PERMITTED
STIFFENERS	[B]	[C]	NOT PERMITTED	SEE DETAIL V

NOTES

- REFINISH REWORKED AREAS AS SHOWN IN AMM 51-20

[A] CLEAN UP EDGE CRACKS AS SHOWN IN DETAIL I. OTHER CRACKS ARE NOT PERMITTED

[B] CLEAN UP EDGE CRACKS AS SHOWN IN DETAILS I AND VI. OTHER CRACKS ARE NOT PERMITTED

[C] NICKS, GOUGES OR SCRATCH DAMAGE REMOVED ACCORDING TO DETAILS I, II, IV AND VI IS ALLOWED PROVIDED THE MAXIMUM PERMISSIBLE DEPTH IS NOT EXCEEDED

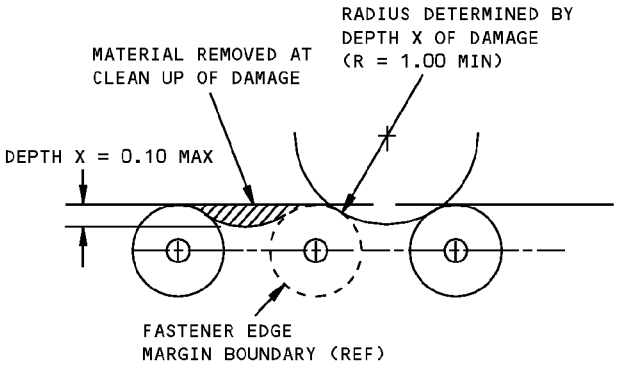
[D] DENT DAMAGE IS PERMITTED PROVIDED DEPTH Y IS NOT MORE THAN 0.050 INCH (1.27 mm), A/Y IS NOT LESS THAN 30, AND THERE IS NO EVIDENCE OF PULLED OR LOOSE RIVETS, SHARP CREASES, GOUGES, SCRATCHES OR CRACKING. SEE DETAIL III

[E] HOLES UP TO 0.25 INCH (6 mm) DIAMETER ARE PERMITTED PROVIDED THEY ARE LOCATED 4.0D FROM ANY OTHER HOLE, FASTENER, PART EDGE, OR OTHER DAMAGE AND ARE FILLED WITH 2117-T4 OR 2017-T4 ALUMINUM RIVETS. ALUMINUM RIVETS TO BE INSTALLED WET WITH BMS 5-95 SEALANT. ONE HOLE ALLOWED PER WEB BAY

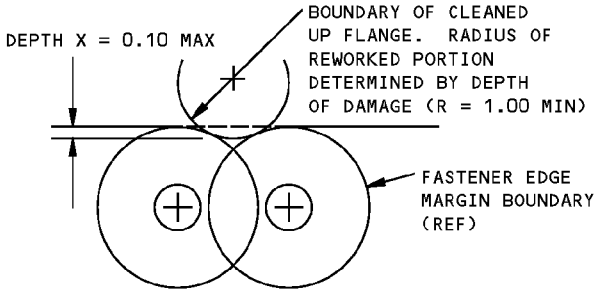
[F] SHOT PEEN ALL REWORKED AREAS ON INTERSPAR (F.S. TO R.S.) RIB CHORDS AND SHEAR TIES AS SHOWN IN SRM 51-20-06

[G] SHOT PEEN ALL REWORKED AREAS AS SHOWN IN SRM 51-20-06

Allowable Damage - Vertical Stabilizer Ribs
Figure 101 (Sheet 2 of 4)

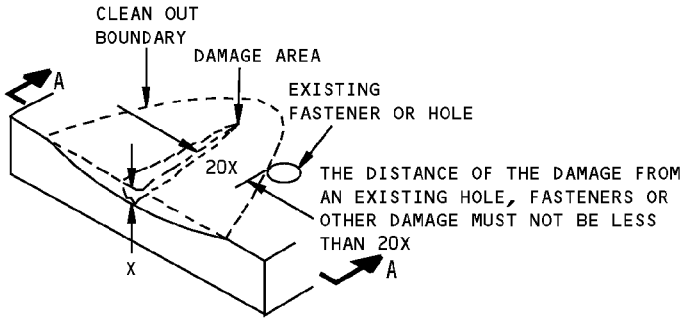


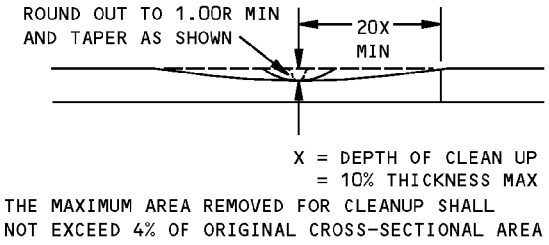
DAMAGE CLEAN UP OF EDGES WHERE
FASTENER EDGE MARGINS DO NOT OVERLAP



DAMAGE CLEAN UP OF EDGES WHERE
FASTENER EDGE MARGINS OVERLAP

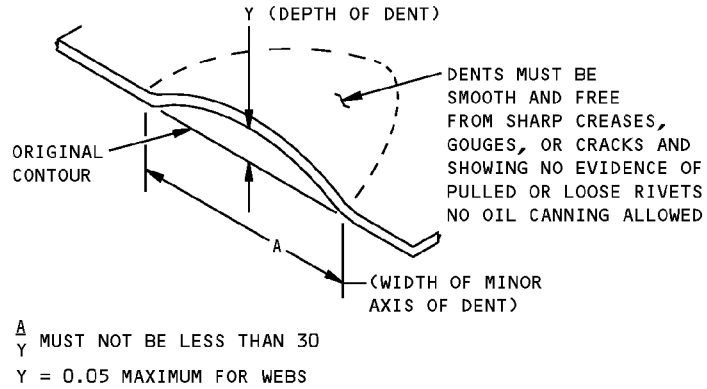
DETAIL I



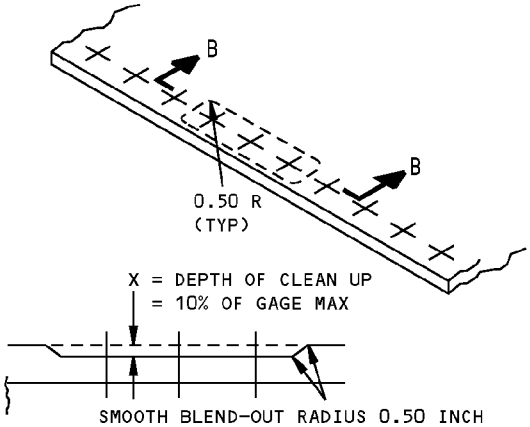


SECTION A-A

REMOVAL OF NICK, GOUGE AND SCRATCH DAMAGE ON A SURFACE
DETAIL II

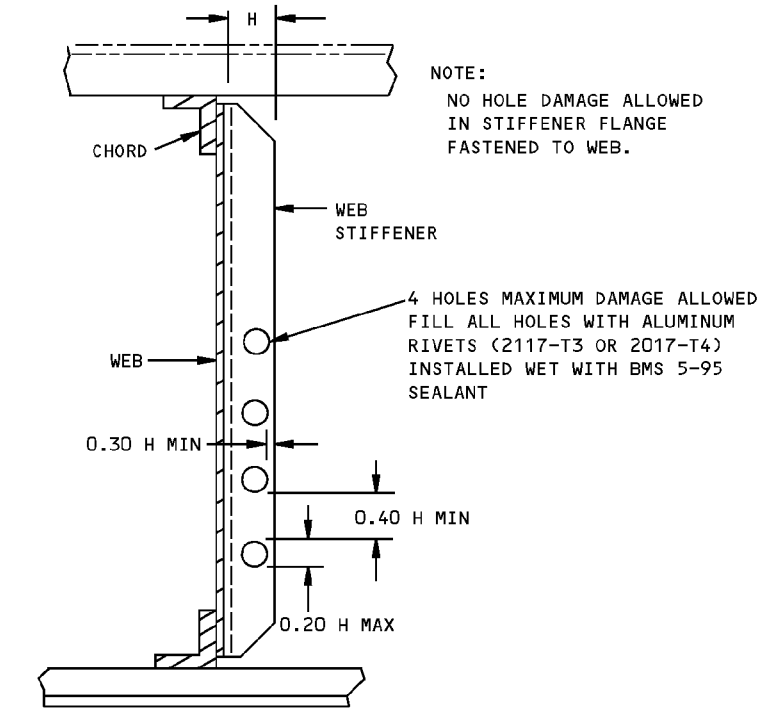


ALLOWABLE DAMAGE FOR DENT
DETAIL III



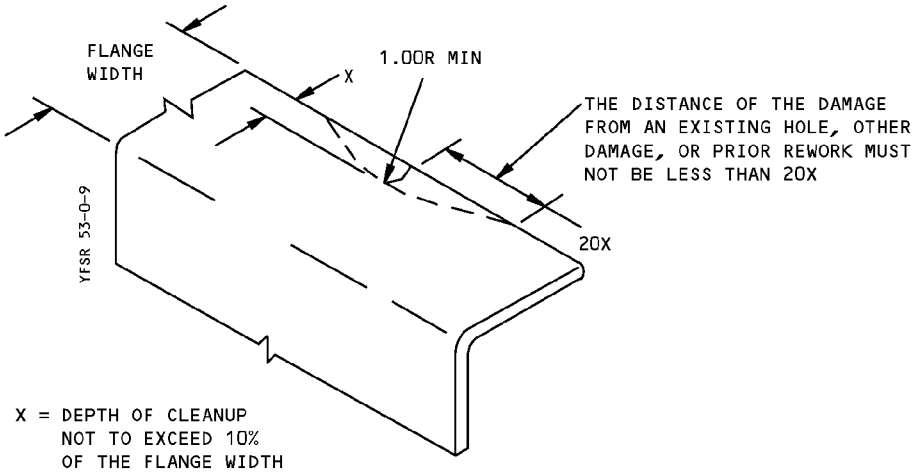
SECTION B-B
CORROSION CLEANUP
DETAIL IV

Allowable Damage - Vertical Stabilizer Ribs
Figure 101 (Sheet 3 of 4)



ALLOWABLE DAMAGE LIMITS FOR
HOLES IN WEB STIFFENERS

DETAIL V



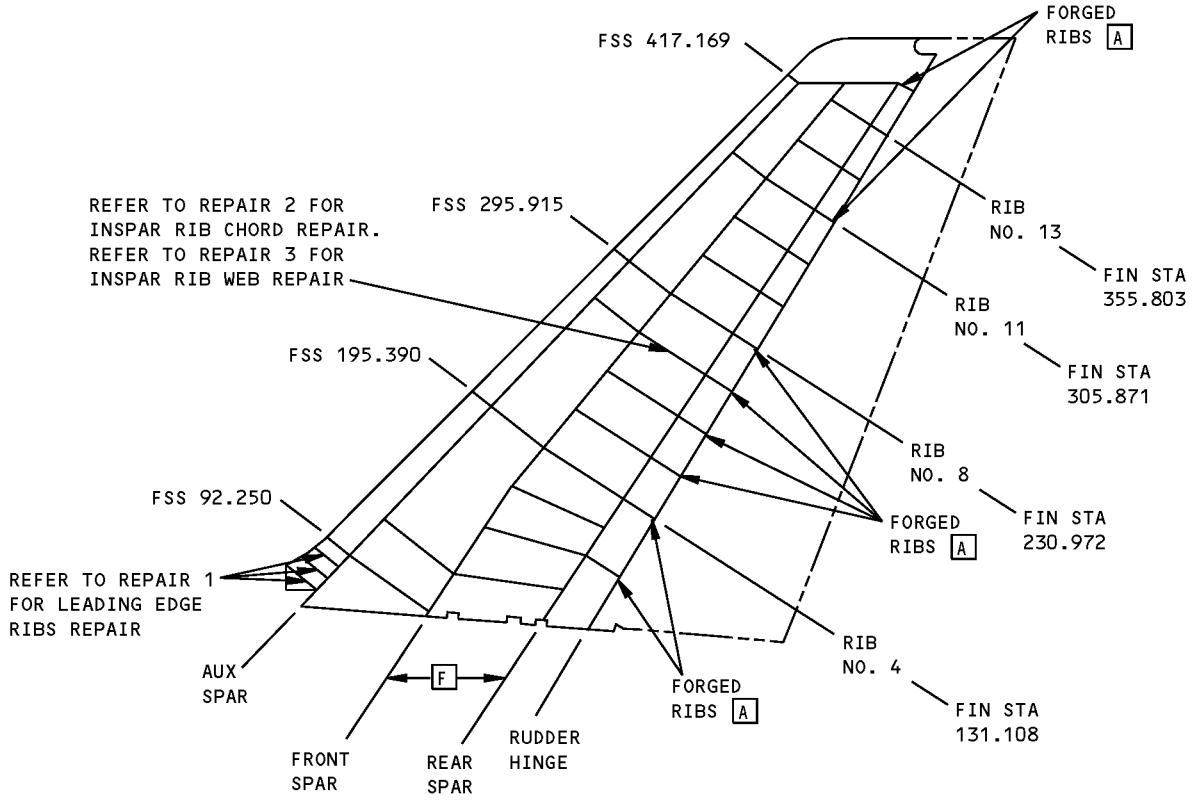
DAMAGE CLEANUP OF FREE
FLANGE WITHOUT FASTENERS

DETAIL VI

Allowable Damage - Vertical Stabilizer Ribs
Figure 101 (Sheet 4 of 4)

REPAIR GENERAL - VERTICAL STABILIZER RIB

REFERENCE DRAWING
170N1501



NOTES

A NO REPAIRS APPLICABLE.
REPAIRS WILL BE PROVIDED
BASED ON SERVICE EXPERIENCE

Vertical Stabilizer Rib Repair
Figure 201

REPAIR 1 - VERTICAL STABILIZER LEADING EDGE RIB REPAIR

REPAIR INSTRUCTIONS

1. Cut out and remove the damaged portion of rib.
2. Make the repair parts.
3. Assemble the repair parts in the installed position. Drill the fastener holes.
4. Remove the repair parts and deburr the holes.
5. Remove all the sharp edges of initial and repair parts 0.015 to 0.030 inch (0.38 to 0.76 mm) radius
6. Remove all nicks, scratches, and gouges from the repair parts and the original structure.
7. Apply a protective alodine coating to the repair parts and the bare surfaces of original parts. Refer to SRM 51-10-02 for instructions on how to apply an alodine coating.
8. Apply one coat of BMS 10-11, Type I primer to the repair parts and the bare surfaces of the original parts. Refer to AMM 51-21-00 for instructions on primer application.
9. Install repair parts, making a faying surface seal with BMS 5-95 sealant as described in SRM 51-20-05.
10. Install the fasteners wet with BMS 5-95 sealant.
11. Remove unwanted material from the leading edge.
12. Restore the initial finish. Refer to AMM 51-21-00.

NOTES

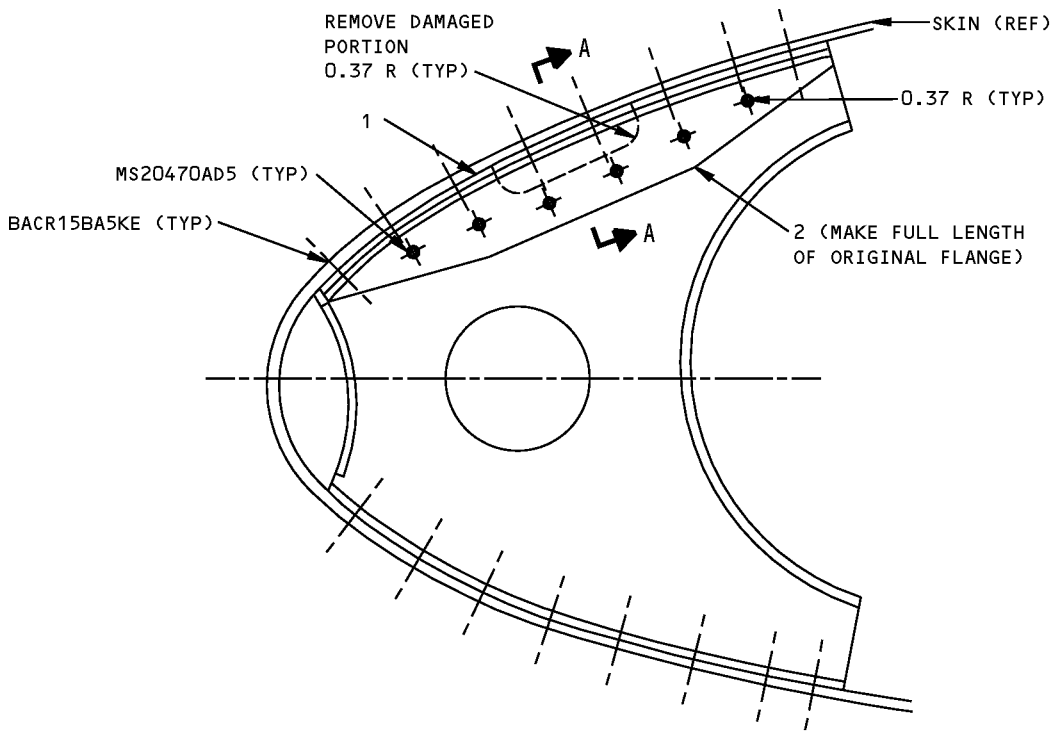
- WHEN YOU USE THIS REPAIR REFER TO:
  - AMM 51-21 FOR RESTORATION OF FINISHES
  - AMM 51-31 FOR SEALS AND SEALING
  - SRM 51-10-02 FOR INSPECTION AND REMOVAL OF DAMAGE.
  - SRM 51-20-01 FOR PROTECTIVE TREATMENT OF METAL
  - SRM 51-20-05 FOR SEALING OF REPAIRS
  - SRM 51-40 FOR FASTENER CODE, REMOVAL, INSTALLATION, HOLE SIZES, EDGE MARGINS AND SUBSTITUTIONS

FASTENER SYMBOLS

REPAIR FASTENER LOCATION

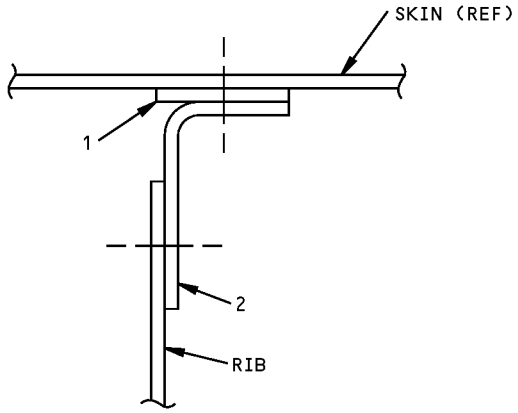
REPAIR MATERIAL			
PART		QTY	MATERIAL
1	FILLER	1	CLAD 2024-T4 SAME GAGE AS RIB
2	ANGLE	1	CLAD 2024-T4 ONE GAGE HEAVIER THAN RIB

Vertical Stabilizer Leading Edge Rib Repair
Figure 201 (Sheet 1 of 2)



VIEW ON UNDERSIDE OR RIB

TYPICAL FORMED RIB SHOWN
FIBERGLASS AND BUILT UP RIB SIMILAR



SECTION A-A

DETAIL I

Vertical Stabilizer Leading Edge Rib Repair
Figure 201 (Sheet 2 of 2)

REPAIR 2 - VERTICAL STABILIZER RIB CHORD

REPAIR INSTRUCTIONS

1. Cut out damaged portion of chord midway between initial chord to web fasteners taking care not to damage the web or skin.
2. Make the repair parts.
3. Assemble the repair parts in the installed position. Drill the fastener holes.
4. Remove the repair parts and deburr the holes.
5. Remove all sharp edges of initial and repair parts 0.015 to 0.030 inch (0.38 to 0.76 mm) radius.
6. Remove all nicks, scratches, and gouges from the repair parts and the initial structure.
7. Apply a protective alodine coating to the repair parts and the bare surfaces of initial parts. Refer to SRM 51-10-02 for instructions on how to apply an alodine coating.
8. Apply one coat of BMS 10-11, Type I primer to the repair parts and the bare surfaces of the initial parts. Refer to AMM 51-21-00 for instructions on primer application.
9. Install the repair parts, making a faying surface seal with BMS 5-95 sealant.
10. Install the fasteners wet with BMS 5-95 sealant.
11. Remove unwanted material from the leading edge.
12. Restore the initial finish. Refer to AMM 51-21-00.

NOTES

- WHEN YOU USE THIS REPAIR REFER TO:
  - AMM 51-21 FOR RESTORATION OF FINISHES
  - AMM 51-31 FOR SEALS AND SEALING
  - SRM 51-10-02 FOR INSPECTION AND REMOVAL OF DAMAGE
  - SRM 51-20-01 FOR PROTECTIVE TREATMENT OF METAL
  - SRM 51-20-05 FOR SEALING OF REPAIRS
  - SRM 51-40 FOR FASTENER CODE, REMOVAL, INSTALLATION, HOLE SIZES, EDGE MARGINS AND SUBSTITUTIONS

[A] REPAIR PARTS 3 AND 4 MAY BE USED AS AN ALTERNATIVE TO REPAIR PART 2. SEE TABLE I FOR MATERIAL GAGE

[B] SEE TABLE I FOR MINIMUM FASTENER REQUIREMENTS ON EACH SIDE OF SPLICE

[C] USE SAME TYPE AND SIZE FASTENER AS ORIGINAL

[D] WHEN CALCULATING FASTENER REQUIREMENTS FRACTIONS OF A FASTENER SHOULD BE TAKEN TO THE NEXT HIGHER WHOLE NUMBER

[E] USE SAME THICKNESS AS INITIAL CHORD FLANGE THICKNESS

FASTENER SYMBOLS

⊕ INITIAL FASTENER LOCATION

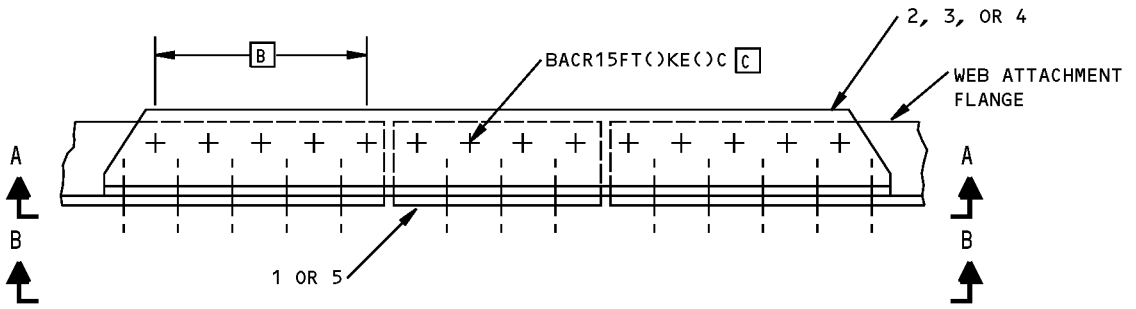
Vertical Stabilizer Rib Chord Repair
Figure 201 (Sheet 1 of 4)

REPAIR MATERIAL			
PART		QTY	MATERIAL
1	FILLER ANGLE	1	MAKE FROM SAME EXTRUSION AS ORIGINAL CHORD 7075-T6511 (ANGLE SECTION)
2	ANGLE	1	MAKE FROM SAME EXTRUSION AS ORIGINAL CHORD 7075-T6511
3	ANGLE	1	7075-T6511 [A]
4	ANGLE	1	7075-T6511 [A]
5	FILLER TEE	1	MAKE FROM SAME EXTRUSION AS ORIGINAL CHORD 7075-T6511 (TEE SECTION)
6	PLATE	1	7075-T6511 [E]

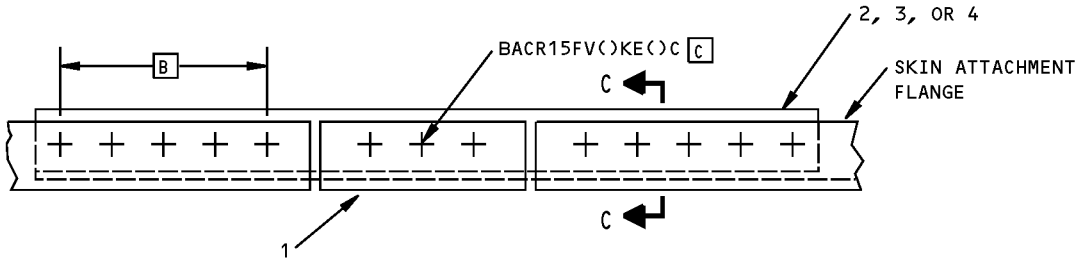
CHORD THICKNESS	GAGE OF REPAIR PARTS 3 AND 4	MINIMUM FASTENER REQUIREMENT PER INCH WIDTH OF FLANGE [D]	
		5/32 DIA	3/16 DIA
0.070	0.040	3.8	3.2
0.080	0.050	3.9	3.2
0.090	0.063	4.1	3.2
0.100	0.071	4.5	3.3
0.110	0.071	4.9	3.5
0.120	0.080	5.4	3.7
0.150	0.090	6.7	4.6

TABLE I

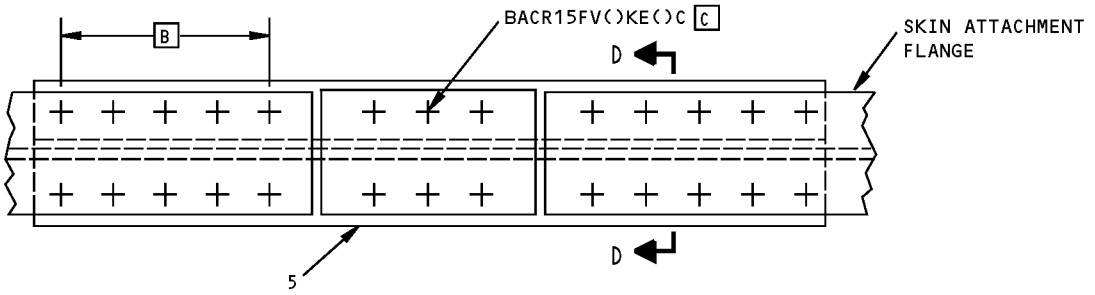
Vertical Stabilizer Rib Chord Repair
Figure 201 (Sheet 2 of 4)



SIDE VIEW

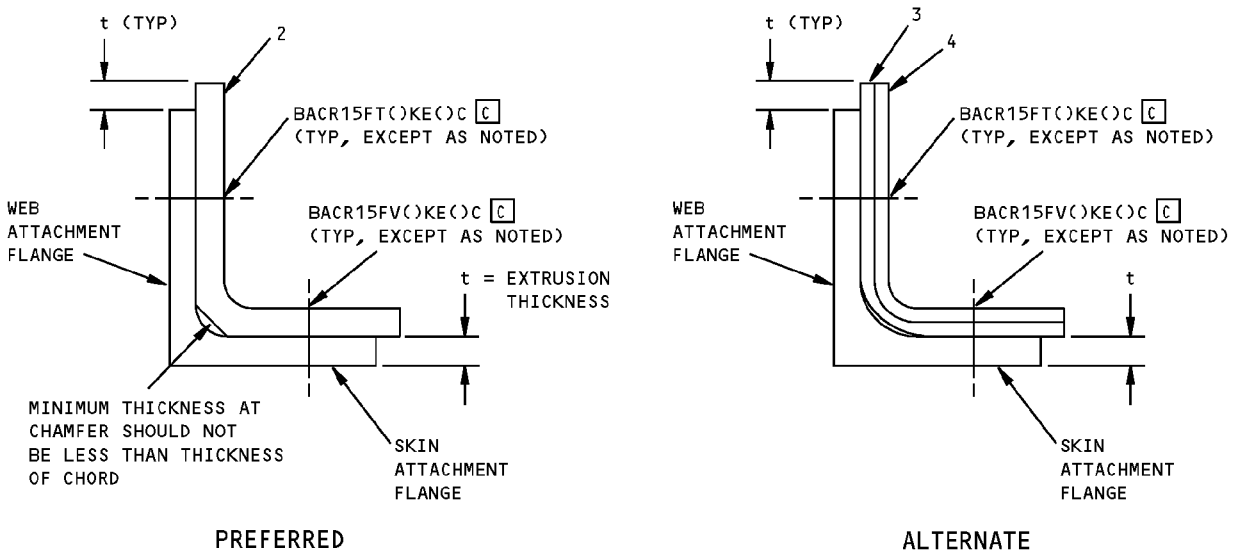


(ANGLE REPAIR)
SECTION A-A

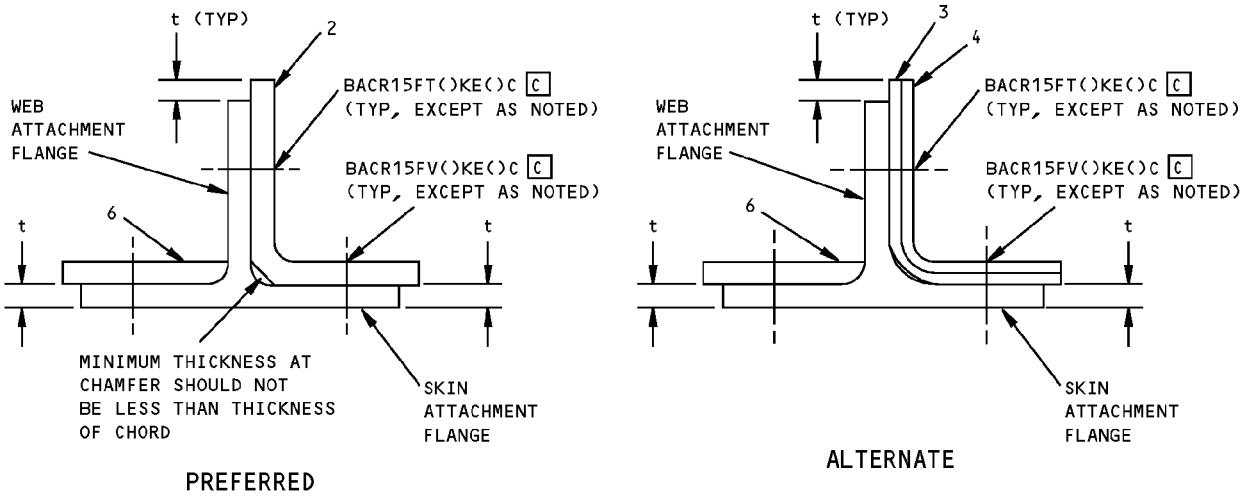


(TEE SECTION REPAIR)
SECTION B-B

Vertical Stabilizer Rib Chord Repair
Figure 201 (Sheet 3 of 4)



SECTION C–C



SECTION D–D

Vertical Stabilizer Rib Chord Repair
Figure 201 (Sheet 4 of 4)

REPAIR 3 - VERTICAL STABILIZER RIB WEB REPAIR AT A STIFFENER

REPAIR INSTRUCTIONS

1. Remove any web stiffener which will interfere in doing this repair.
2. Cut and remove the damaged portion of the web.
3. Make the repair parts.
4. Assemble the repair parts and drill the fastener holes.
5. Remove repair parts and deburr holes.
6. Break all sharp edges of initial parts and the parts for the repair to a radius of 0.015 to 0.030 inch (0.38 to 0.76 mm)
7. Remove all nicks, scratches, and gouges, sharp edges and corners from the repair parts and the initial structure.
8. Apply a protective alodine coating to the repair parts and the edges cut out of the initial structure. Refer to SRM 51-10-02.
9. Apply one coat of BMS 10-11, Type I primer to the repair parts and the bare surfaces of initial parts as shown in AMM 51-21-00.
10. Make a faying surface seal with BMS 5-95 sealant to install the repair.
11. Install fasteners wet with BMS 5-95 sealant.
12. Remove unwanted material from repair area.
13. Fillet seal the repair parts.
14. Restore the initial finish. Refer to AMM 51-21-00.

NOTES

- WHEN YOU USE THIS REPAIR REFER TO:
  - AMM 51-21 FOR RESTORATION OF FINISHES
  - AMM 51-31 FOR SEALS AND SEALING
  - SRM 51-10-02 FOR INSPECTION AND REMOVAL OF DAMAGE.
  - SRM 51-20-01 FOR PROTECTIVE TREATMENT OF METAL
  - SRM 51-20-05 FOR SEALING OF REPAIRS
  - SRM 51-40 FOR FASTENER CODE, REMOVAL, INSTALLATION, HOLE SIZES, EDGE MARGINS AND SUBSTITUTIONS
- SEE LEFT SIDE VIEW FOR LOCATION OF TORQUE BOXES

[A] FILLER EXTENDS TO END OF STIFFENER

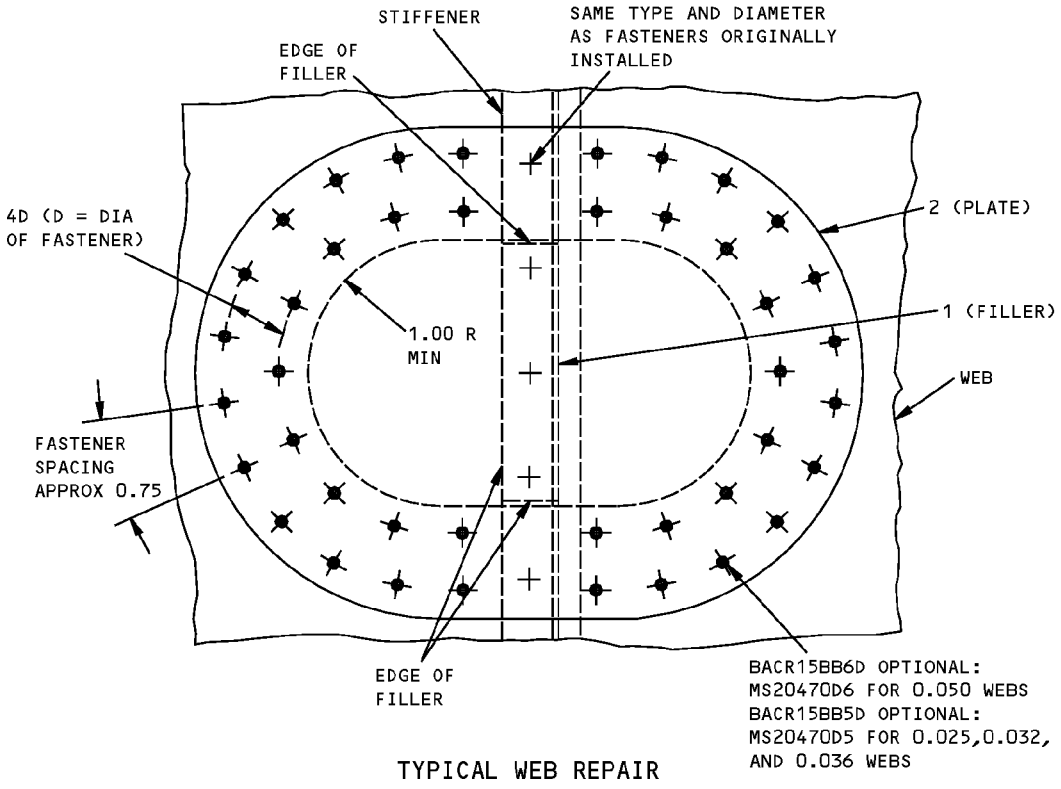
FASTENER SYMBOLS

INITIAL FASTENER LOCATIONS

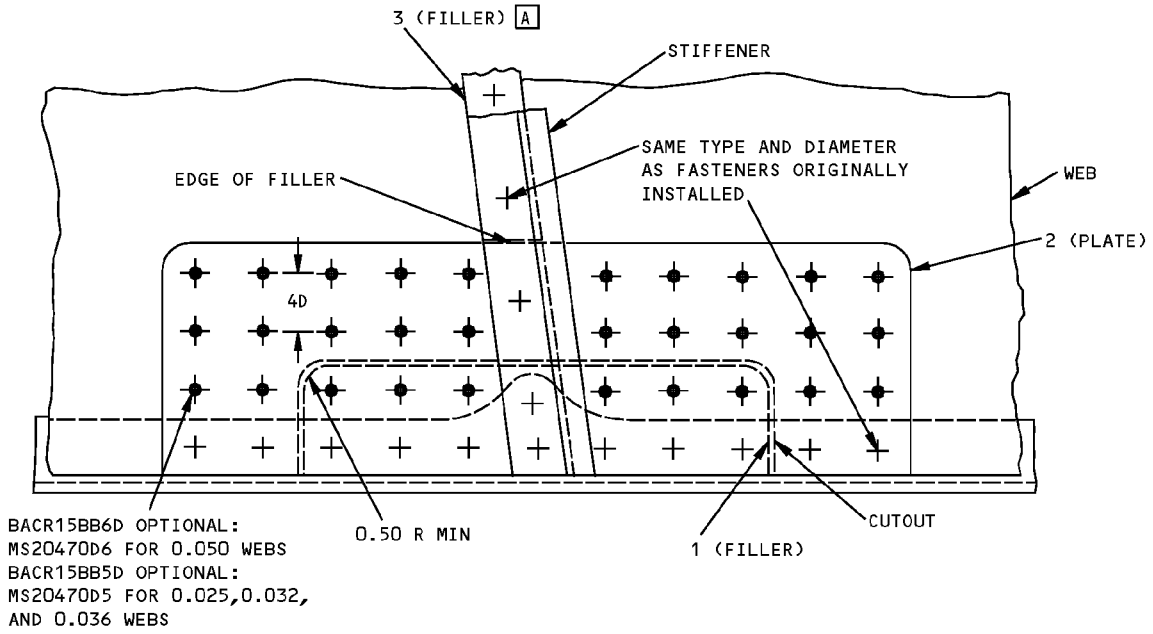
REPAIR FASTENER LOCATIONS

REPAIR MATERIAL			
PART		QTY	MATERIAL
1	FILLER	1	CLAD 7075-T6 SAME GAGE AS WEB
2	PLATE	1	CLAD 7075-T6 ONE GAGE HEAVIER THAN WEB
3	FILLER	1	CLAD 7075-T6 SAME GAGE AS 2 (PLATE)

Vertical Stabilizer Rib Web Repair at a Stiffener
Figure 201 (Sheet 1 of 2)



TYPICAL WEB REPAIR



TYPICAL WEB REPAIR AT CHORD

Vertical Stabilizer Rib Web Repair at a Stiffener
Figure 201 (Sheet 2 of 2)

REPAIR 4 - VERTICAL STABILIZER INSPAR RIB - TYPICAL WEB REPAIR BETWEEN STIFFENERS

APPLICABILITY
THIS REPAIR APPLIES TO THE INSPAR RIBS AT FIN STATIONS: 225.0 325.0 250.0 350.0 275.0 375.0 300.0

REPAIR INSTRUCTIONS

1. Remove the necessary fasteners and get access to the damaged web.
2. Inspect the crack using the dye penetrant inspection procedure. If the crack does not end at a fastener hole, drill a 0.25 inch (6 mm) diameter hole at the end of the crack.
3. Remove the fasteners and the web stiffeners as necessary to install the repair part.
4. Make the repair part. See Table I and Detail I.
5. Assemble the repair. Drill holes in the repair part to align with the locations of the initial fastener holes in the web. Drill the fastener holes.
6. Disassemble the repair.
7. Remove all the nicks, scratches, gouges, burrs and sharp edges from the web, the stiffeners, and the repair part.
8. Apply chemical conversion coating to the repair parts and to the bare surface of the web and stiffeners. Refer to SRM 51-20-01.
9. Apply one layer of BMS 10-11, Type 1 primer to the repair part and the bare edges of the web and stiffeners.
10. Install the repair parts with BMS 5-95 sealant between the faying surfaces. Install the fasteners wet with BMS 5-95 sealant.
11. Apply the finish to the repair area. Refer to AMM 51-21.

NOTES

- WHEN YOU USE THIS REPAIR REFER TO:
  - AMM 51-21 FOR INTERIOR AND EXTERIOR FINISHES
  - SOPM 20-20-02, D6-51702, FOR DYE PENETRANT INSPECTION PROCEDURES.
  - SRM 51-10-02 FOR INSPECTION AND REMOVAL OF DAMAGE
  - SRM 51-20-01 FOR PROTECTIVE TREATMENT OF METAL
  - SRM 51-20-05 FOR REPAIR SEALING
  - SRM 51-40 FOR FASTENER CODE, INSTALLATION AND REMOVAL, HOLE SIZES, AND EDGE MARGINS

[A] MAKE THE CUTOUT IN THE DOUBLER (ITEM 1) AS CLOSE AS POSSIBLE TO THE RADIUS OF THE LIGHTENING HOLE.

FASTENER SYMBOLS

REFERENCE FASTENER LOCATION.

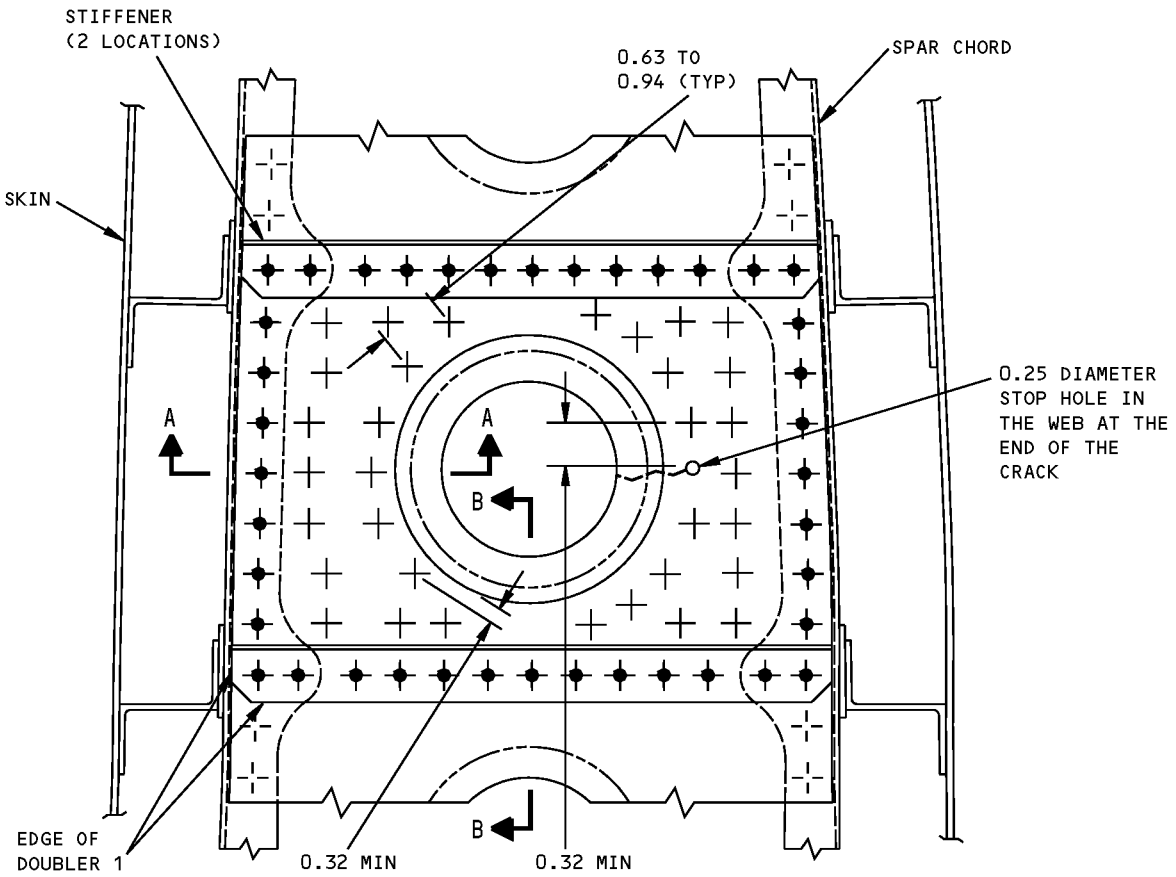
REPAIR FASTENER LOCATION. INSTALL A BACR15FT5D() RIVET.

INITIAL FASTENER LOCATION. INSTALL A BACB30MY6K() HEX DRIVE BOLT WITH A BACC30M COLLAR. MAINTAIN 1.7D EDGE MARGIN.

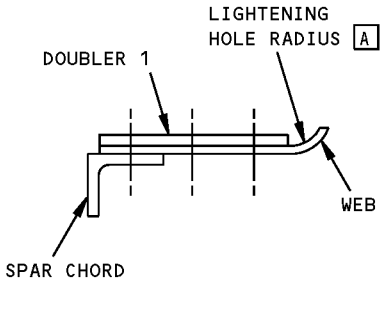
REPAIR MATERIAL			
PART		QTY	MATERIAL
1	DOUBLER	1	0.032 INCH CLAD 2024-T3

TABLE I

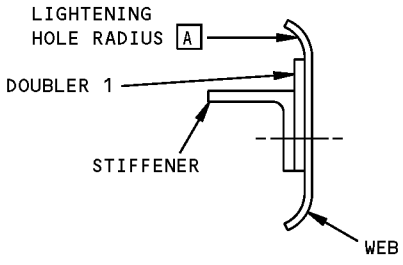
Vertical Stabilizer Inspar Rib - Typical Web Repair Between Stiffeners
Figure 201 (Sheet 1 of 2)



VIEW IN THE DOWN DIRECTION
DETAIL I



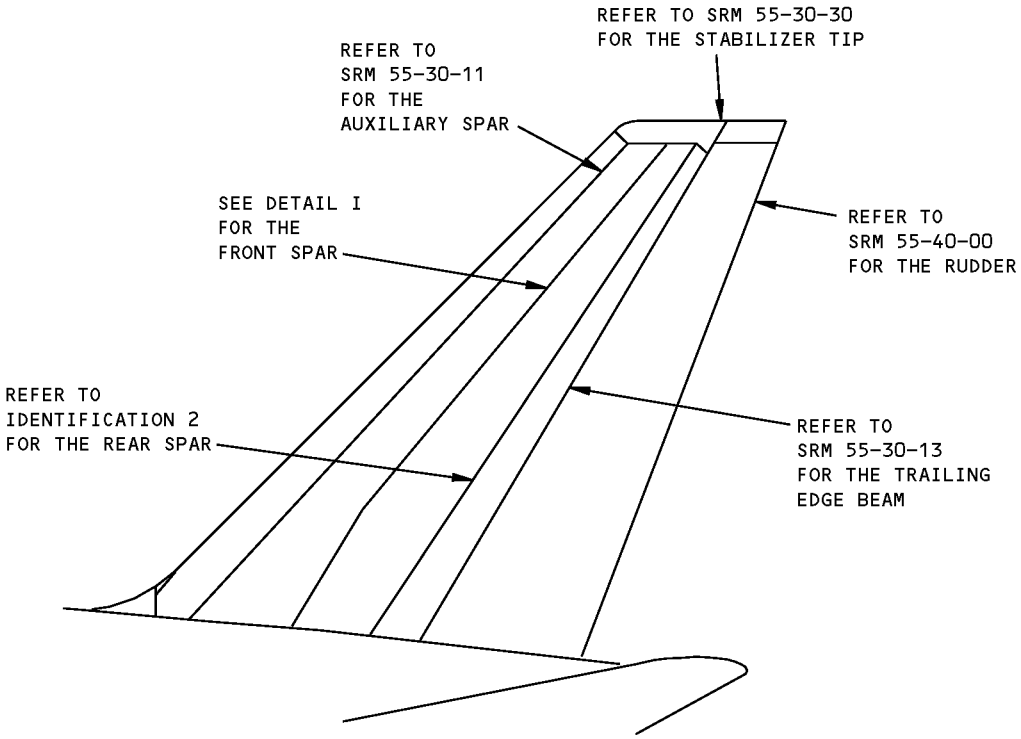
SECTION A–A



SECTION B–B

Vertical Stabilizer Inspar Rib - Typical Web Repair Between Stiffeners
Figure 201 (Sheet 2 of 2)

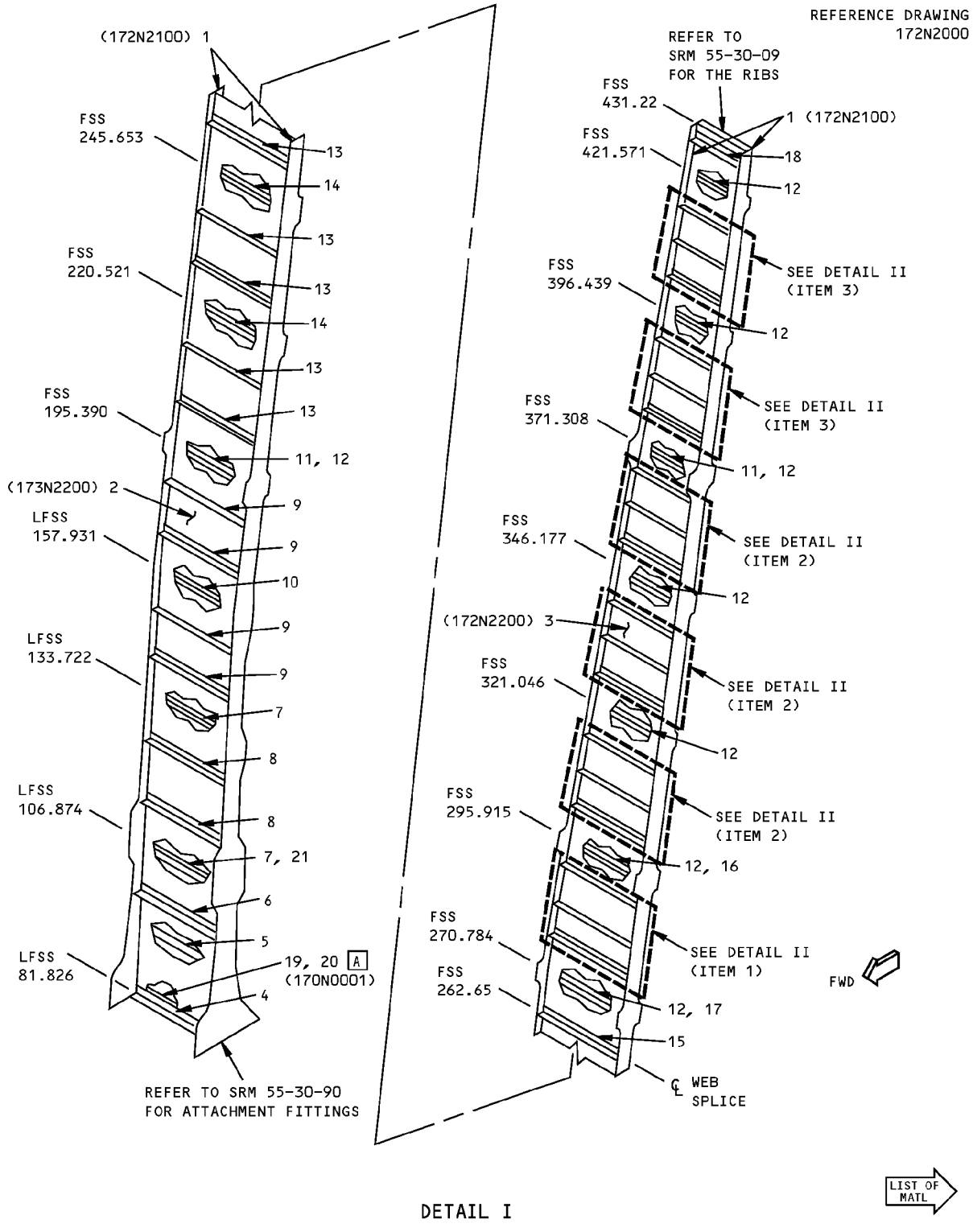
IDENTIFICATION 1 - VERTICAL STABILIZER FRONT SPAR



NOTES

[A] FOR AIRPLANES WITH CUM LINE NUMBERS:
203 AND ON

Vertical Stabilizer Front Spar Identification
Figure 1 (Sheet 1 of 4)



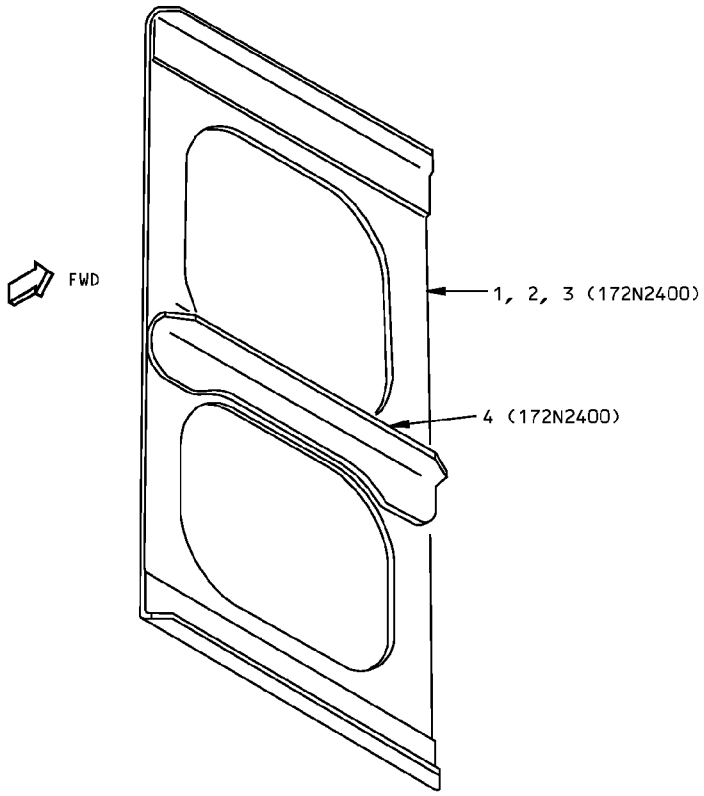
DETAIL I

Vertical Stabilizer Front Spar Identification
Figure 1 (Sheet 2 of 4)

ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	CHORD		BAC1506-3301 7075-T73511	
2	WEB - CHEM-MILLED	0.160	7075-T6	
3	WEB - CHEM-MILLED	0.070	7075-T6	
4	POST - FWD		BAC1503-4363 7075-T6511	
5	STIFFENER		AND10134-1206 7075-T6511	
6	STIFFENER		BAC1503-100014 7075-T6511	
7	POST - AFT		BAC1514-2046 7075-T6511	
8	STIFFENER		AND10134-1407 7075-T6511	
9	STIFFENER		BAC1503-100018 7075-T6511	
10	POST - AFT		BAC1514-1904 7075-T6511	
11	POST - FWD		AND10134-1204 7075-T6511	
12	POST - AFT		BAC1514-2549 7075-T6511	
13	STIFFENER		AND10134-1205 7075-T6511	
14	POST - AFT		BAC1514-2551 7075-T6511	
15	SPLICE		BAC1505-100736 7075-T6511	
16	POST - FWD		AND10134-1005 7075-T6511	
17	POST - FWD		AND10133-1201 7075-T6511	
18	STIFFENER		AND10134-0601 7075-T6511	
19	ATTACH ANGLE		BAC1514-2695 7075-T73511	
20	ATTACH ANGLE		FORGING 7075-T73 PER BMS 7-186	A
21	POST - FWD		BAC1514-2549 7075-76511	

LIST OF MATERIALS FOR DETAIL I

Vertical Stabilizer Front Spar Identification
Figure 1 (Sheet 3 of 4)



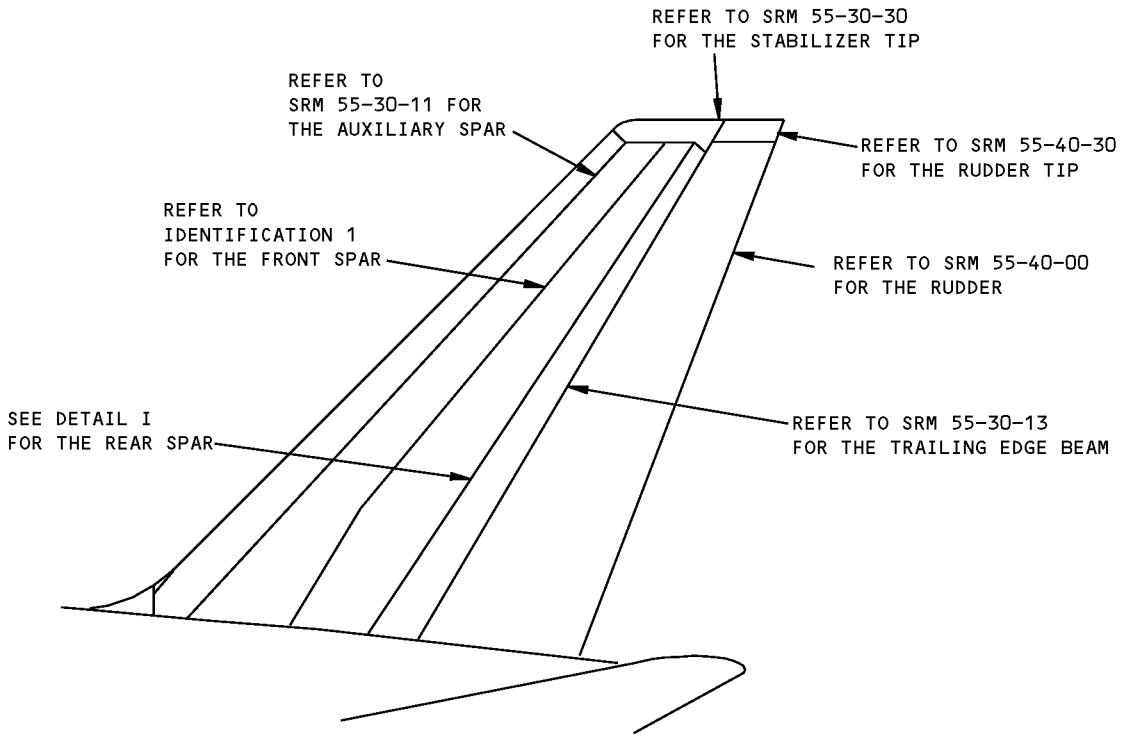
DETAIL II

ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	DOOR-CHEM MILLED	0.090	7075-T6	
2	DOOR-CHEM MILLED	0.080	7075-T6	
3	DOOR-CHEM MILLED	0.071	7075-T6	
4	STIFFENER		BAC1514-2553 7075-T6511	

LIST OF MATERIALS FOR DETAIL II

Vertical Stabilizer Front Spar Identification
Figure 1 (Sheet 4 of 4)

IDENTIFICATION 2 - VERTICAL STABILIZER REAR SPAR



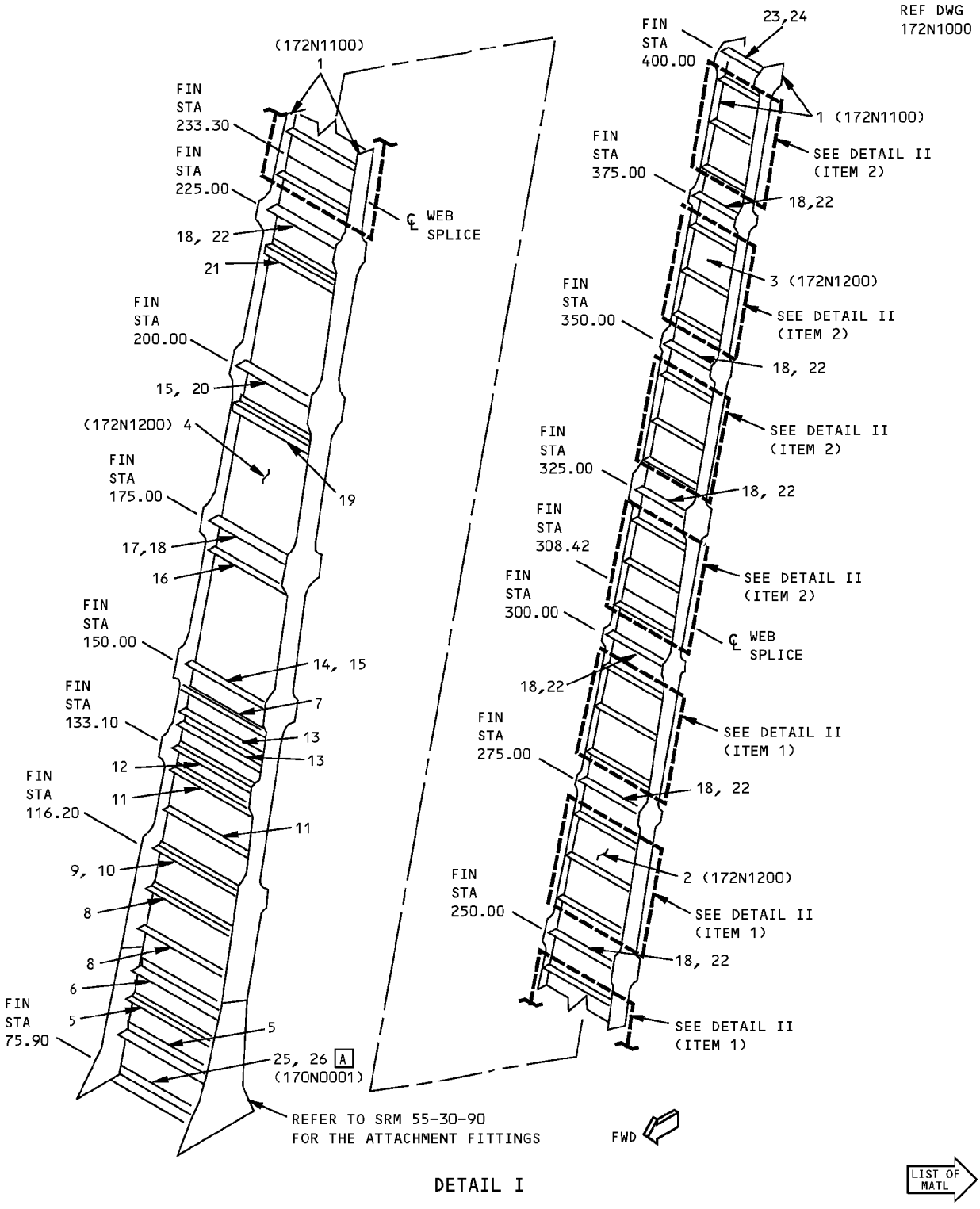
NOTES

[A] FOR AIRPLANES WITH CUM LINE NUMBERS:
203 AND ON

[B] FOR AIRPLANES WITH CUM LINE NUMBERS:
1 THRU 274, 278

[C] FOR AIRPLANES WITH CUM LINE NUMBERS:
275 THRU 277, 279 AND ON

Vertical Stabilizer Rear Spar Identification
Figure 1 (Sheet 1 of 4)



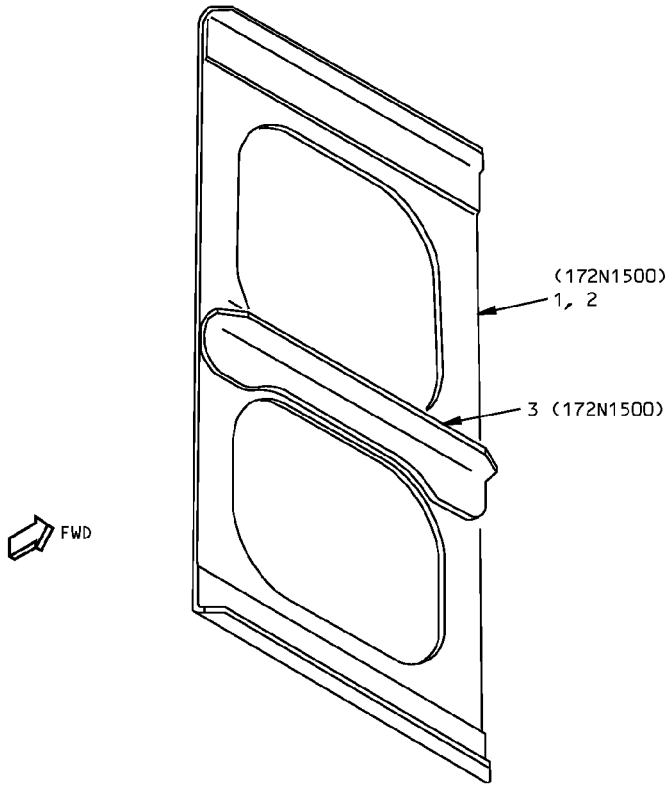
DETAIL I

Vertical Stabilizer Rear Spar Identification
Figure 1 (Sheet 2 of 4)

ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	CHORD		BAC1506-330 7075-T73511	
2	WEB - CHEM-MILLED	0.040	7075-T6	
3	WEB	0.032	CLAD 7075-T6	
4	WEB - CHEM-MILLED	0.200	7075-T6	
5	STIFFENER		AND10136-2402 7075-T6	
6	POST - FWD		BAC1514-1712 7075-T6	
7	STIFFENER		AND10139-1303 7075-T6511	
8	STIFFENER		AND10134-1408 7075-T6511	
9	POST - FWD		BAC1514-2205 7075-T6511	
10	POST - AFT		BAC1514-2383 7075-T6	
11	STIFFENER		AND10134-1404 7075-T6511	
12	POST - FWD		BAC1506-3363 7075-T6511	
13	STIFFENER		AND10134-1203 7075-T6511	
14	POST - FWD		AND10133-1202 7075-T6511	
15	POST-AFT		BAC1514-2515 7075-T6	
16	STIFFENER		AND10134-1006 7075-T6511	
17	POST - FWD		AND10134-1205 7075-T6511	
18	POST - AFT		AND10134-1204 7075-T6	
19	STIFFENER		AND10139-1107 7075-T6511	
20	POST - FWD		AND10136-2401 7075-T6511	
21	STIFFENER		AND10139-1004 7075-T6511	
22	POST - FWD		AND10134-1204 7075-T6511	
23	POST - FWD		BAC1506-717 7075-T6511	
24	POST - AFT		BAC1506-1892 7075-T6	
25	ATTACH ANGLE		BAC1514-2694 7075-T73511	
26	ATTACH ANGLE		FORGING 7075-T73 PER BMS 7-186	A

LIST OF MATERIALS FOR DETAIL I

Vertical Stabilizer Rear Spar Identification
Figure 1 (Sheet 3 of 4)



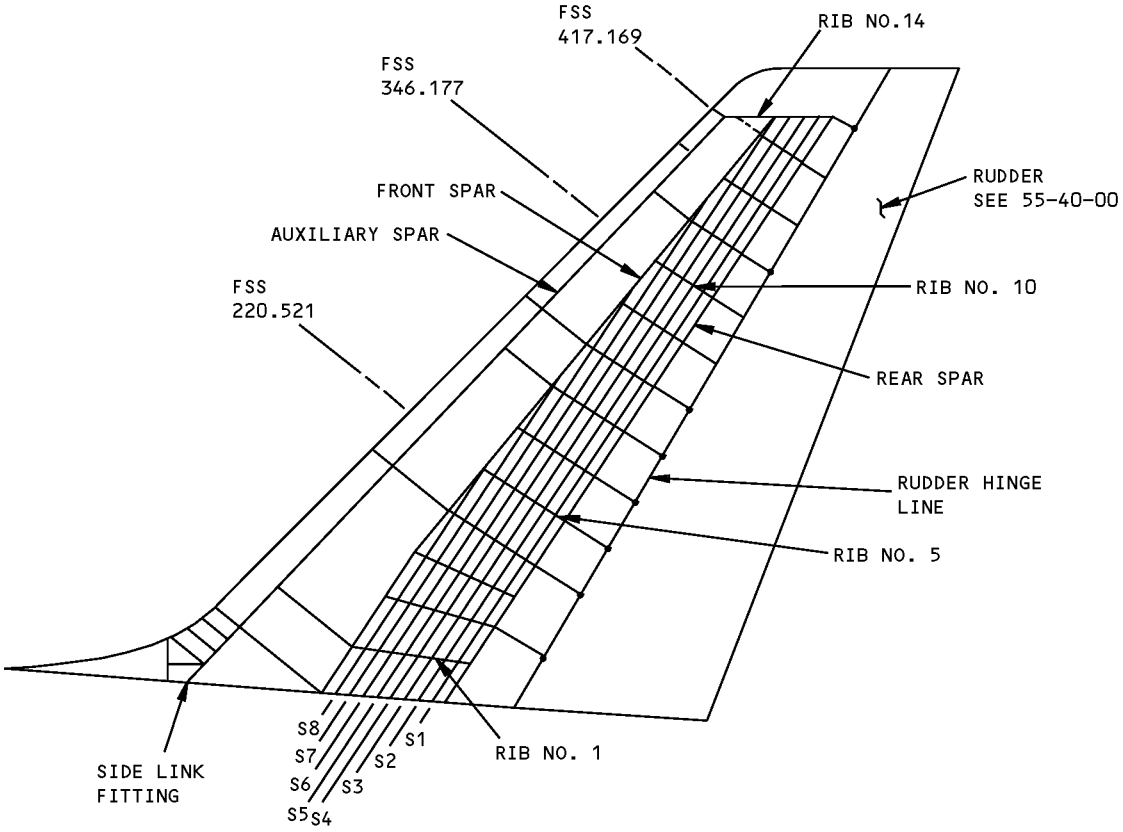
DETAIL II

ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	DOOR - CHEM-MILLED	0.071 0.063	7075-T6 CLAD 7075-T6	B C
2	DOOR - CHEM-MILLED	0.063 0.063	7075-T6 CLAD 7075-T6	B C
3	STIFFENER		BAC1514-2553 7075-T6511	

LIST OF MATERIALS FOR DETAIL II

Vertical Stabilizer Rear Spar Identification
Figure 1 (Sheet 4 of 4)

ALLOWABLE DAMAGE 1 - VERTICAL STABILIZER SPARS



Allowable Damage - Vertical Stabilizer Spars
Figure 101 (Sheet 1 of 4)

DESCRIPTION	CRACKS	NICKS, GOUGES AND CORROSION	DENTS	HOLES AND PUNCTURES
SPAR CHORDS [C]	[F]	REMOVE AS SHOWN IN DETAILS I, II AND IV	NOT PERMITTED	NOT PERMITTED
SPAR AND DOOR WEBS	[F]	REMOVE AS SHOWN IN DETAILS I, II AND IV	SEE DETAIL III	[B]
SPAR AND DOOR STIFFENERS	[A]	REMOVE AS SHOWN IN DETAILS I, II AND VI	NOT PERMITTED	SEE DETAIL V
LINK FITTING [D]	[A]	REMOVE AS SHOWN IN DETAILS I, II AND VI	NOT PERMITTED	NOT PERMITTED
RIB POSTS [C]	[F]	REMOVE AS SHOWN IN DETAILS I AND II	NOT PERMITTED	NOT PERMITTED

NOTES

- REFINISH REWORKED AREAS AS SHOWN IN AMM 51-20

[A] CLEAN UP EDGE CRACKS AS SHOWN IN DETAILS I AND VI. OTHER CRACKS MUST BE REPAIRED

[B] CLEAN OUT DAMAGE UP TO 0.25 INCH (6 mm) MAX DIAMETER. HOLE MUST BE A MINIMUM OF 4D FROM AN INITIAL HOLE, FASTENER OR OTHER DAMAGE AND 3D FROM ANY PART EDGE. FILL HOLE WITH A 2117-T3 OR T4 ALUMINUM PROTRUDING HEAD RIVET INSTALLED WET WITH BMS 5-95 SEALANT. A MAXIMUM OF 2 HOLES FOR EACH BAY PERMITTED AND NO HOLES ARE PERMITTED IN WEB BAY WITH LARGE PENETRATION HOLES

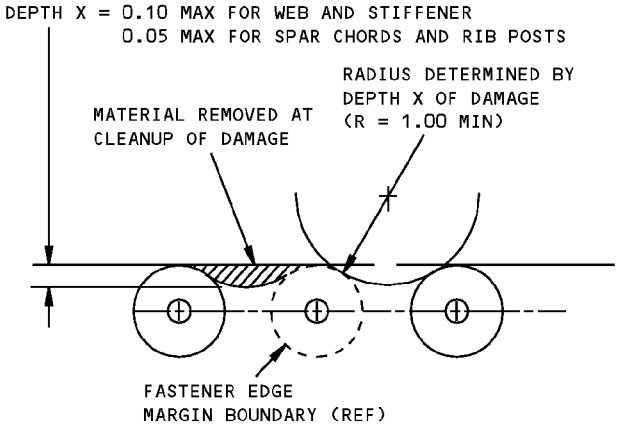
[C] SHOT PEEN REWORKED AREAS OF SPAR CHORDS AS SHOWN IN SRM 51-20-06

[D] SHOT PEEN REWORKED AREAS OF LINK FITTING AS SHOWN IN CMM 20-10-03 WITH SHOT NO. 230-550, INTENSITY 0.006A [E]

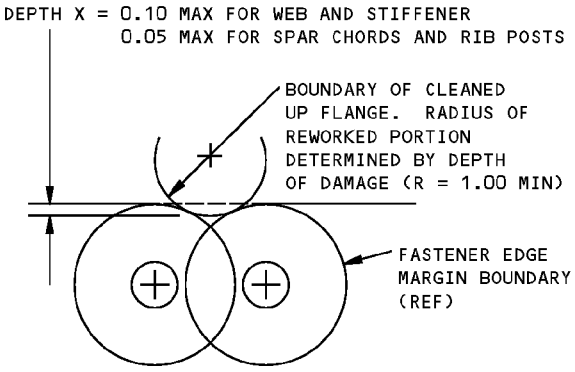
[E] SHOT PEEN INTENSITIES SHOWN FOR MANUFACTURED COMPONENTS. REFER TO SRM 51-20-06 FOR SHOT PEEN INTENSITIES REQUIRED DUE TO THICKNESS REDUCTION RESULTING FROM REWORK

[F] CLEAN UP EDGE CRACKS AS SHOWN IN DETAIL I. OTHER CRACKS MUST BE REPAIRED

Allowable Damage - Vertical Stabilizer Spars
Figure 101 (Sheet 2 of 4)

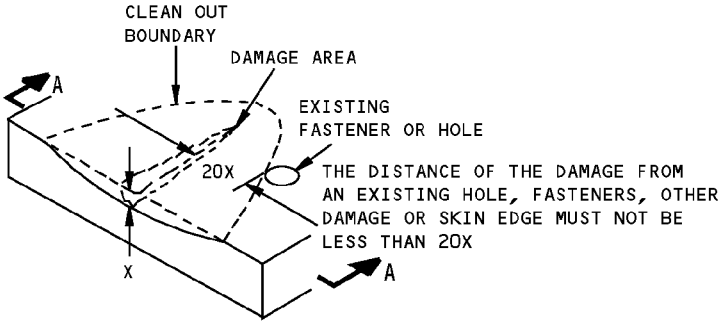


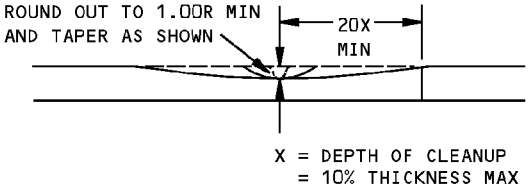
DAMAGE CLEANUP OF EDGES WHERE FASTENER EDGE MARGINS DO NOT OVERLAP



DAMAGE CLEANUP OF EDGES WHERE FASTENER EDGE MARGINS OVERLAP

DETAIL I

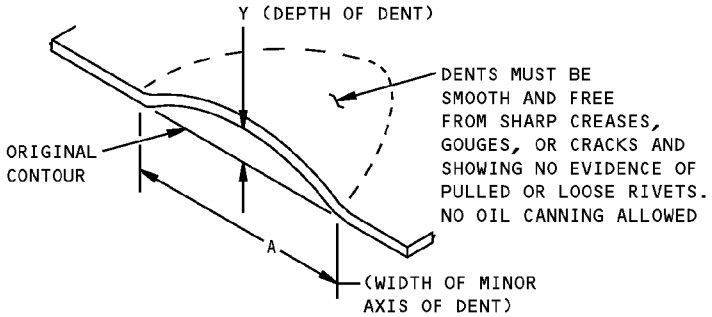




THE MAXIMUM AREA REMOVED FOR DAMAGE CLEANUP SHALL NOT EXCEED 4% OF THE ORIGINAL CROSS-SECTIONAL AREA

SECTION A-A

REMOVAL OF NICK, GOUGE AND SCRATCH DAMAGE ON A SURFACE
DETAIL II

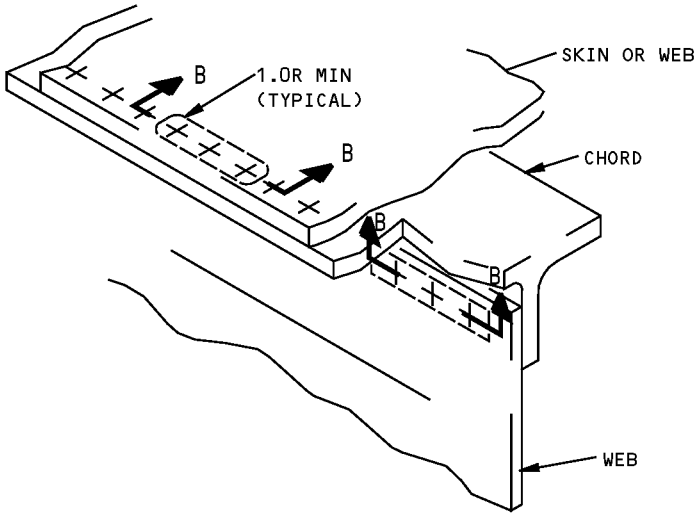


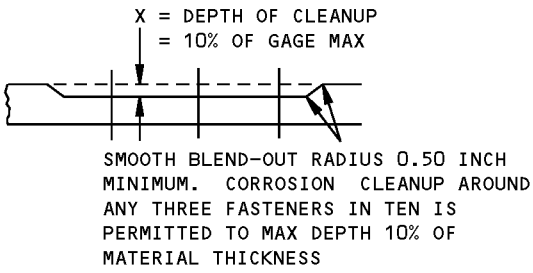
$\frac{A}{Y}$ MUST NOT BE LESS THAN 30

Y = 0.05 MAX FOR WEBS

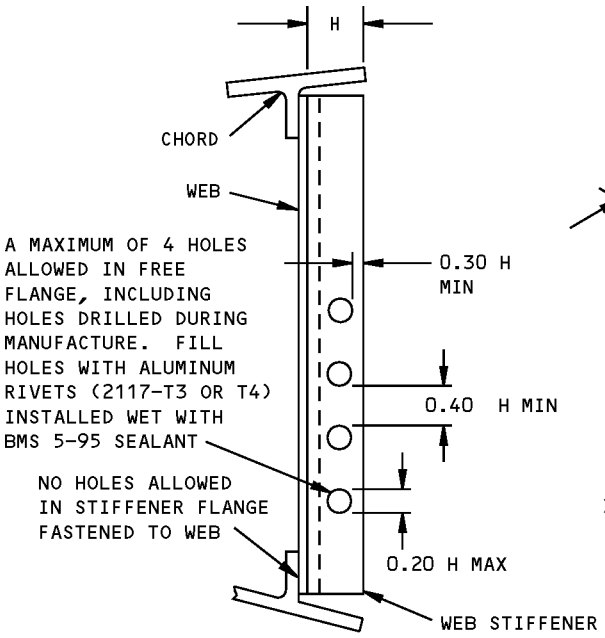
ALLOWABLE DAMAGE FOR DENT
DETAIL III

Allowable Damage - Vertical Stabilizer Spars
Figure 101 (Sheet 3 of 4)

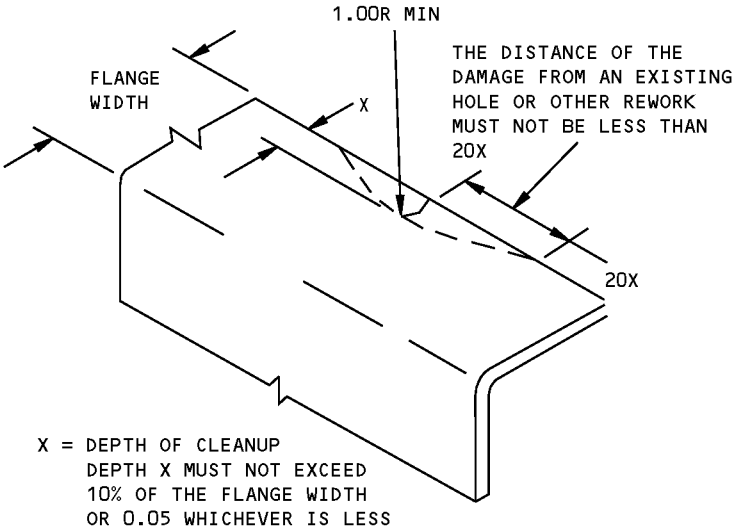




CORROSION CLEANUP
DETAIL IV



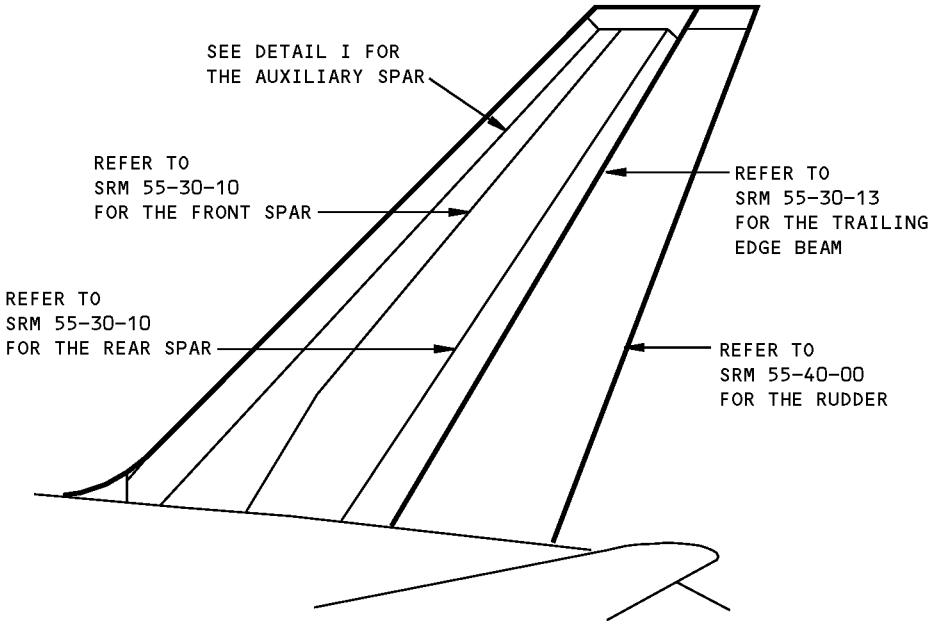
TYPICAL FOR ALL WEB STIFFENERS
DETAIL V



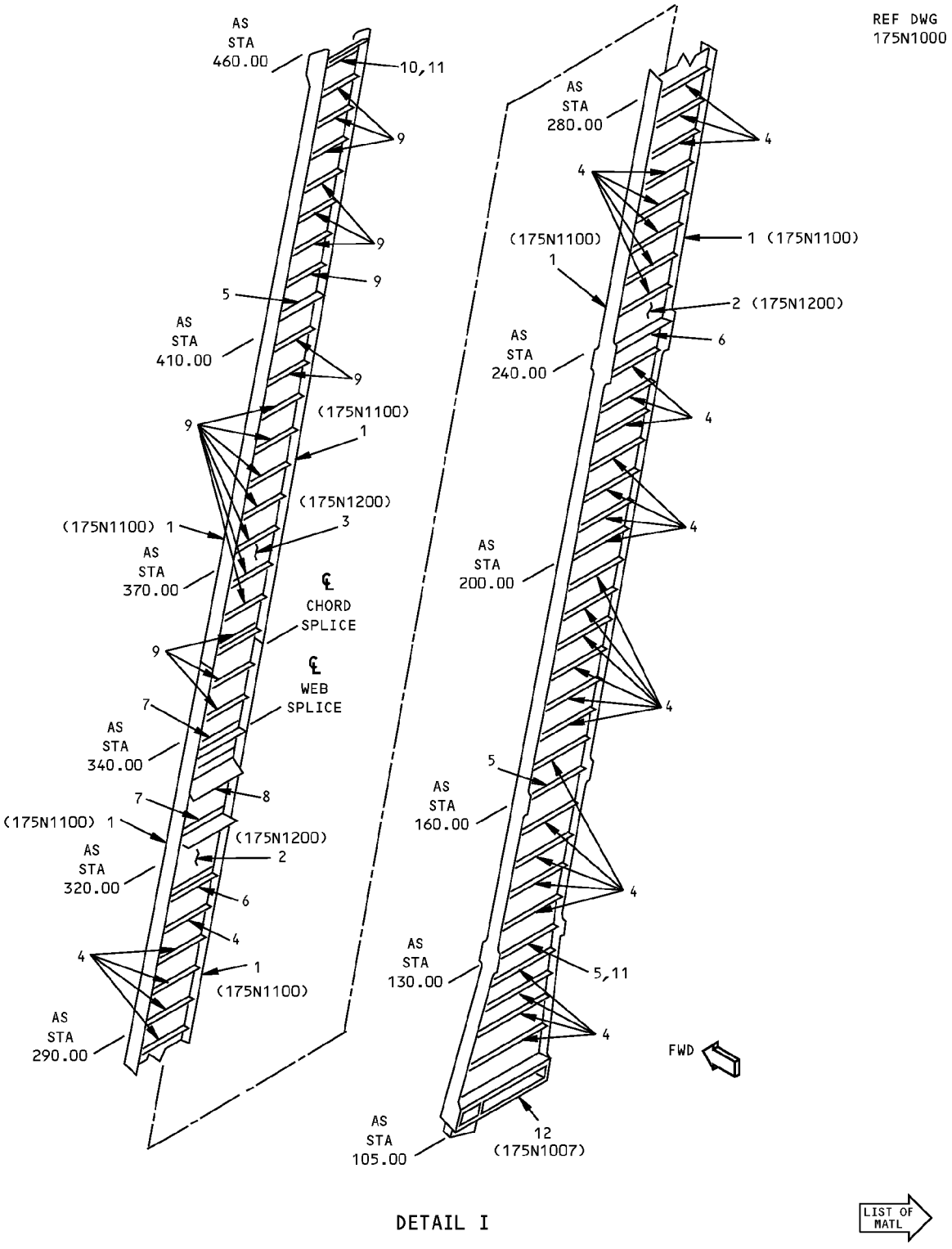
DAMAGE CLEANUP OF FREE FLANGES
WITHOUT FASTENERS
DETAIL VI

Allowable Damage - Vertical Stabilizer Spars
Figure 101 (Sheet 4 of 4)

IDENTIFICATION 1 - VERTICAL STABILIZER AUXILIARY SPAR



Vertical Stabilizer Auxiliary Spar Identification
Figure 1 (Sheet 1 of 3)



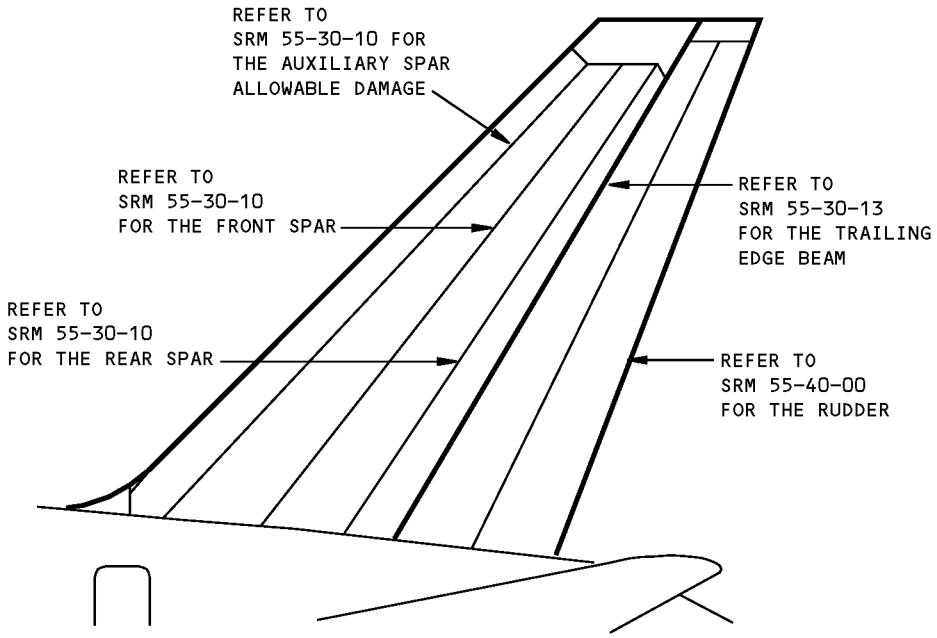
Vertical Stabilizer Auxiliary Spar Identification
Figure 1 (Sheet 2 of 3)

ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	CHORD		BAC1506-3363 7075-T73	
2	WEB - LOWER	0.050	7075-T6 CHEM-MILLED	
3	WEB - UPPER	0.025	CLAD 2024-T3	
4	STIFFENER		AND10133-0601 7075-T6511	
5	POST - AFT		BAC1514-1422 7075-T6	
6	POST - AFT		BAC1514-13 7075-T6	
7	STIFFENER		BAC1506-2108 7075-T6511	
8	STIFFENER		BAC1506-1909 7075-T6511	
9	STIFFENER		BAC1503-1430 7075-T6511	
10	POST - AFT	0.050	7075-T6	
11	POST - FWD		BAC1514-1422 7075-T6	
12	SIDE LINK FITTING		DIE FORGING 7075-T73	

LIST OF MATERIALS FOR DETAIL I

Vertical Stabilizer Auxiliary Spar Identification
Figure 1 (Sheet 3 of 3)

ALLOWABLE DAMAGE 1 - VERTICAL STABILIZER AUXILIARY SPAR



Allowable Damage - Vertical Stabilizer Auxiliary Spar
Figure 101

REPAIR GENERAL - VERTICAL STABILIZER AUXILIARY SPAR WEB

REPAIR INSTRUCTIONS

1. Remove the necessary fasteners and get access to the damaged auxiliary spar web.
2. Inspect the crack using the dye penetrant inspection procedure. If the crack does not end at a fastener hole, drill a 0.25 inch (6 mm) diameter hole at the end of the crack.
3. Remove the fasteners as necessary to install the repair part.
4. Make the repair part. See Table I and Detail I.
5. Assemble the repair. Drill holes in the repair part to align with the locations of the initial fastener holes in the spar web. Drill the fastener holes.
6. Disassemble the repair.
7. Remove all the nicks, scratches, gouges, burrs and sharp edges from the web, the stiffeners, and the repair part.
8. Apply a chemical conversion coating to the repair parts and to the bare surfaces of the web and stiffeners. Refer to SRM 51-20-01.
9. Apply one layer of BMS 10-11, Type 1 primer to the repair part and the bare edges of the web and stiffeners.
10. Install the repair parts with BMS 5-95 sealant between the faying surfaces. Install the fasteners wet with BMS 5-95 sealant.
11. Apply the finish to the repair area. Refer to AMM 51-21.

NOTES

- WHEN YOU USE THIS REPAIR, REFER TO:
  - AMM 51-21 FOR INTERIOR AND EXTERIOR FINISHES
  - SOPM 20-20-02, FOR DYE PENETRANT INSPECTION PROCEDURES.
  - SRM 51-10-02 FOR INSPECTION AND REMOVAL OF DAMAGE.
  - SRM 51-20-01 FOR PROTECTIVE TREATMENT OF METAL
  - SRM 51-20-05 FOR REPAIR SEALING
  - SRM 51-40 FOR FASTENER CODE, INSTALLATION AND REMOVAL, HOLE SIZES, AND EDGE MARGINS

[A] MAKE THE CUTOUT IN THE DOUBLER (ITEM 1) AS CLOSE AS POSSIBLE TO THE RADIUS OF THE LIGHTENING HOLE.

[B] DO NOT INSTALL ANY FASTENERS IN THE CHEM-MILLED AREAS. KEEP ALL FASTENERS IN THE 0.05 INCH (1.27 mm) THICK 'PADDED' AREA.

FASTENER SYMBOLS

REFERENCE FASTENER LOCATION.

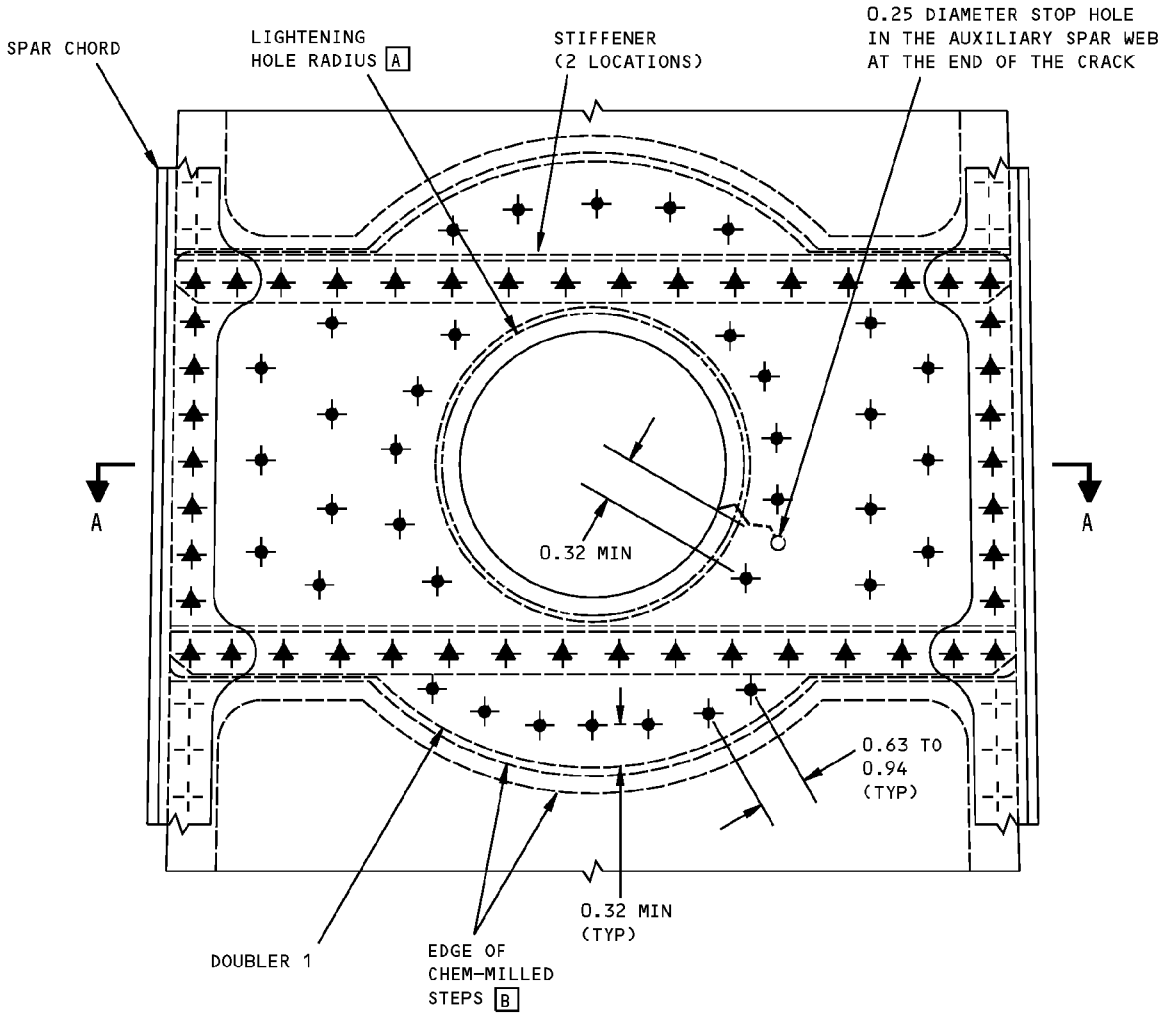
INITIAL FASTENER LOCATION. INSTALL A BACB30MY6K() HEX DRIVE BOLT WITH A BACC30M COLLAR. MAINTAIN A 1.7D EDGE MARGIN.

REPAIR FASTENER LOCATION. INSTALL A BACR15FT5D() RIVET.

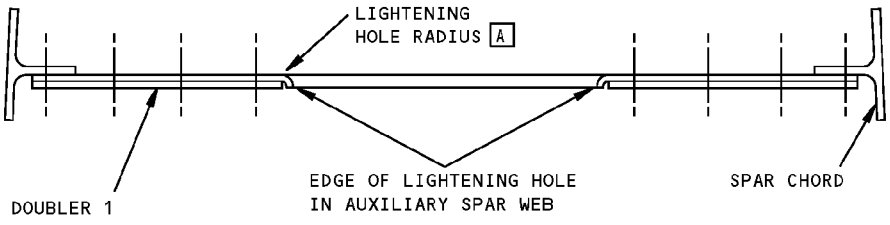
REPAIR MATERIAL			
PART		QTY	
1	DOUBLER	1	MATERIAL 0.063 INCH CLAD 7075-T6

TABLE I

Vertical Stabilizer Auxiliary Spar Web Repair
Figure 201 (Sheet 1 of 2)



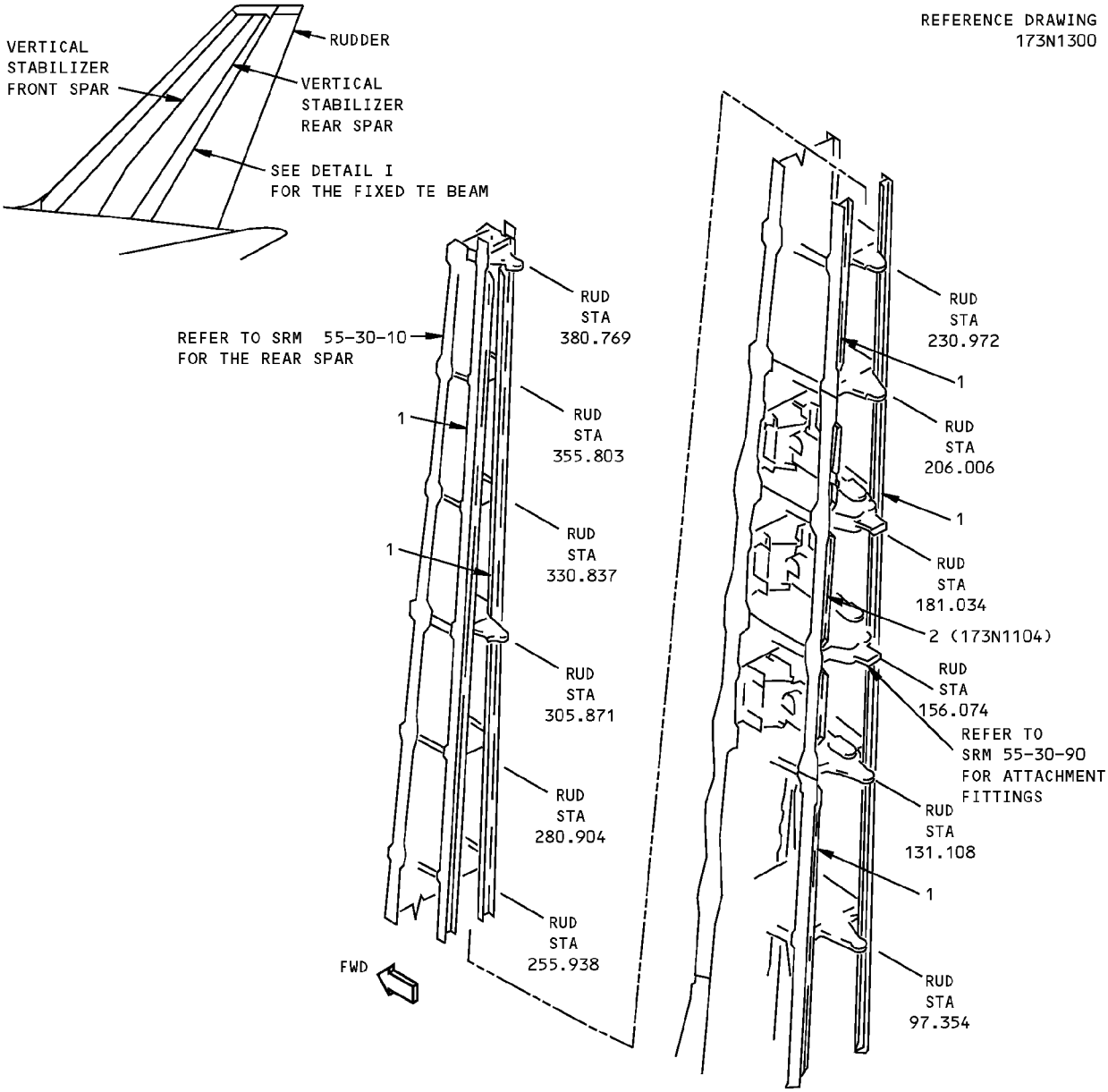
VIEW IN THE AFT DIRECTION
DETAIL I



SECTION A-A

Vertical Stabilizer Auxiliary Spar Web Repair
Figure 201 (Sheet 2 of 2)

IDENTIFICATION 1 - VERTICAL STABILIZER FIXED TRAILING EDGE BEAM



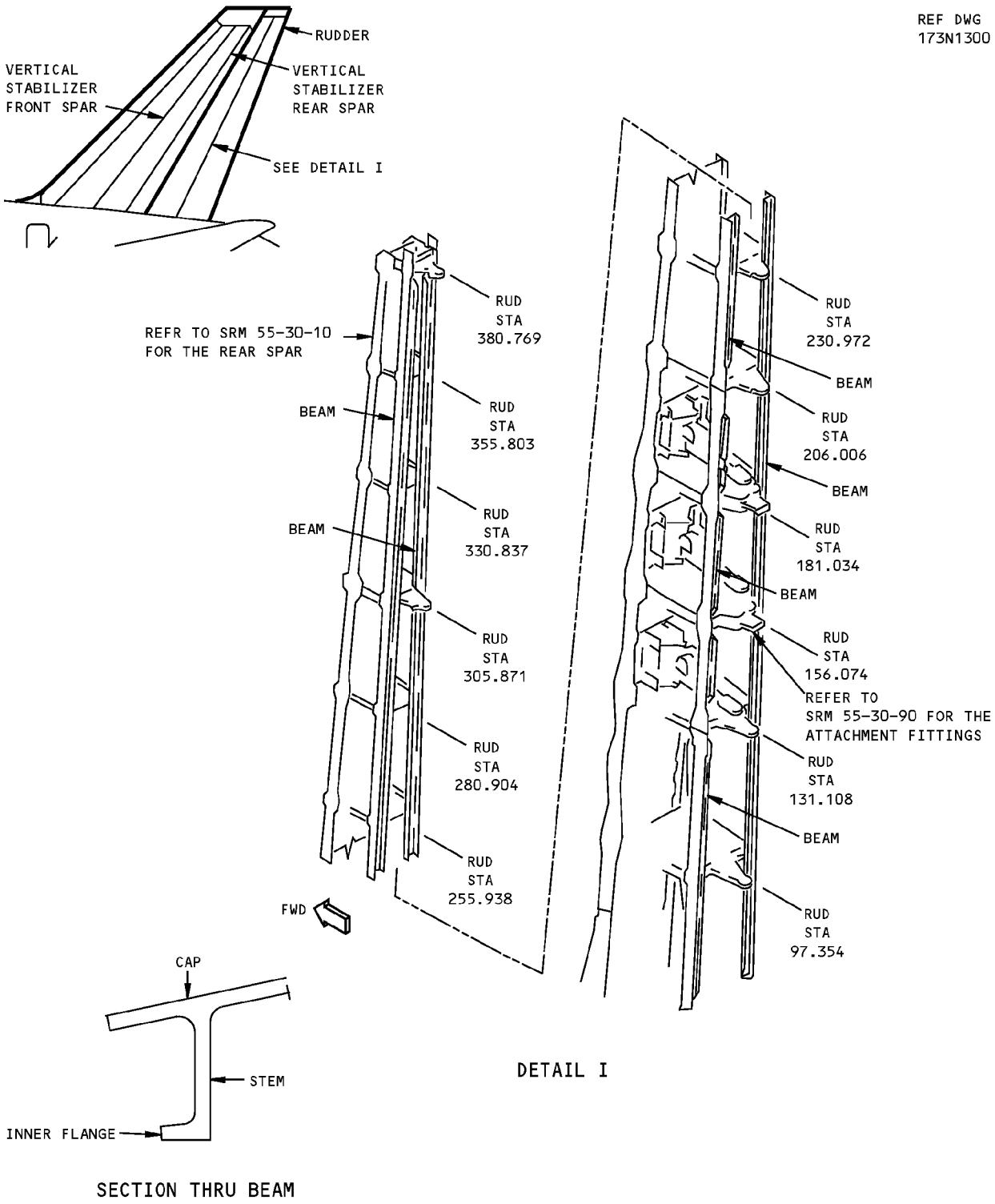
DETAIL I

ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	BEAM		BAC1506-3124 7075-T6511	
2	BEAM	1.5	7075-T7351 PLATE	

LIST OF MATERIALS FOR DETAIL I

Vertical Stabilizer Fixed Trailing Edge Beam Identification
Figure 1

ALLOWABLE DAMAGE 1 - VERTICAL STABILIZER FIXED TRAILING EDGE BEAM



Allowable Damage - Vertical Stabilizer Fixed Trailing Edge Beam
Figure 101 (Sheet 1 of 3)

DESCRIPTION		CRACKS	NICKS, GOUGES AND CORROSION	DENTS	HOLES AND PUNCTURES
BEAM	STEM	[B]	[D]	NOT PERMITTED	[F]
	CAP AND INNER FLANGE	[B]	[D]	NOT PERMITTED	NOT PERMITTED
FIBERGLASS SEAL ASSEMBLY		[C]	[E]	NOT PERMITTED	NOT PERMITTED

NOTES

- REFINISH REWORKED AREAS AS GIVEN IN AMM 51-20.
- TYPICAL DAMAGE TO A LAMINATE EDGE MAY CONSIST OF EDGE CRUSHING, CRACKS OR DELAMINATION. DAMAGE AROUND HOLES MAY CONSIST OF OVALIZATION, FASTENER PULL-THROUGH OR CRACKS OUT OF HOLE. DAMAGE TO ONE FASTENER HOLE IN TEN PERMITTED. DAMAGE MAY REDUCE THE EFFECTIVE CROSS-SECTIONAL AREA OF A LAMINATE EDGE. DAMAGE TO EDGES SHOULD BE BLENDED OUT TO LIMITATIONS GIVEN FOR COMPONENT.

[A] REMOVE MOISTURE FROM DAMAGE AREA. USE OF VACUUM AND HEAT (MAX OF 125°F [52°C]) TO REMOVE MOISTURE FROM HONEYCOMB CELLS IS RECOMMENDED. PROTECT DAMAGE FROM ENTRANCE OF WATER, SUNLIGHT OR OTHER FOREIGN MATTER BY SEALING WITH ALUMINUM FOIL TAPE (SPEED TAPE). RECORD THE LOCATION AND INSPECT EVERY AIRPLANE "A" CHECK. REPLACE THE ALUMINUM FOIL TAPE IF ANY PEELING OR DETERIORATION EVIDENT. REPAIR NO LATER THAN NEXT AIRPLANE "C" CHECK. [G]

[B] CRACKS NOT PERMITTED EXCEPT FOR EDGE CRACKS WHICH MUST BE REMOVED AS SHOWN IN DETAILS III AND IV.

[C] CRACKS NOT PERMITTED EXCEPT FOR EDGE CRACKS WHICH MUST BE REMOVED AS SHOWN IN DETAIL IV. [A]

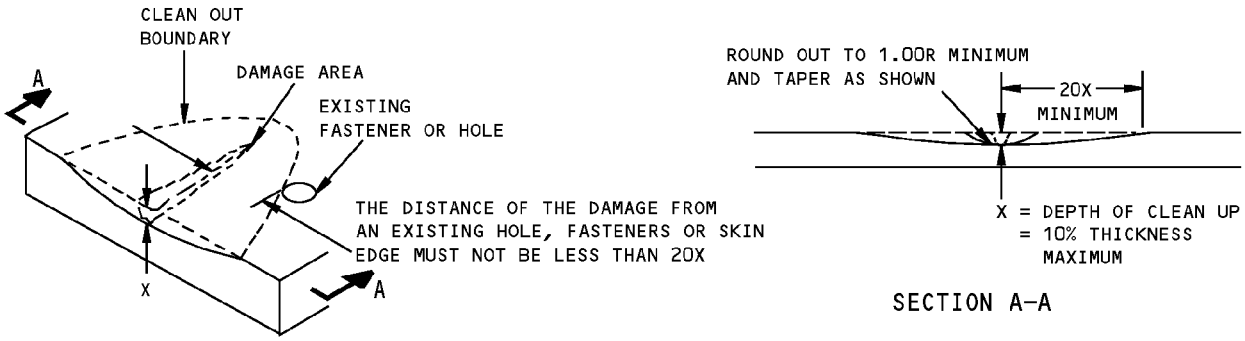
[D] REMOVE DAMAGE AS SHOWN IN DETAILS II AND IV.

[E] DAMAGE PERMITTED ON SURFACE RESIN ONLY. DAMAGE TO FIBERS NOT PERMITTED. CLEAN UP EDGE DAMAGE AS SHOWN IN DETAIL IV. [A]

[F] CLEAN OUT DAMAGE UP TO 0.25 MAXIMUM DIAMETER AND NOT CLOSER THAN 1.0 INCH TO FASTENER HOLE OR OTHER DAMAGE. MAINTAIN 2.0 D EDGE MARGIN ON PART EDGE. FILL HOLE WITH A 2117-T3 OR T4 ALUMINUM RIVET INSTALLED WET WITH BMS 5-95 SEALANT. ALL OTHER HOLES TO BE REPAIRED.

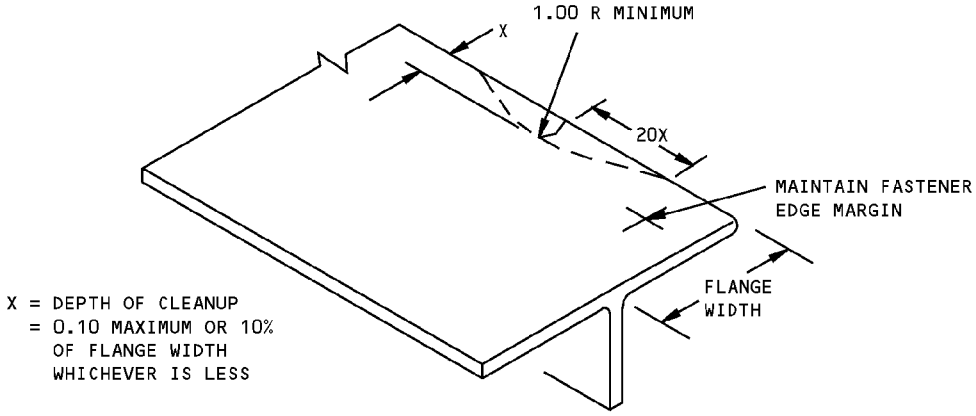
[G] THESE ALLOWABLE DAMAGE LIMITS HAVE FAA APPROVAL CONTINGENT ON ACCOMPLISHMENT OF THE INSPECTIONS CONTAINED HEREIN.

Allowable Damage - Vertical Stabilizer Fixed Trailing Edge Beam
Figure 101 (Sheet 2 of 3)



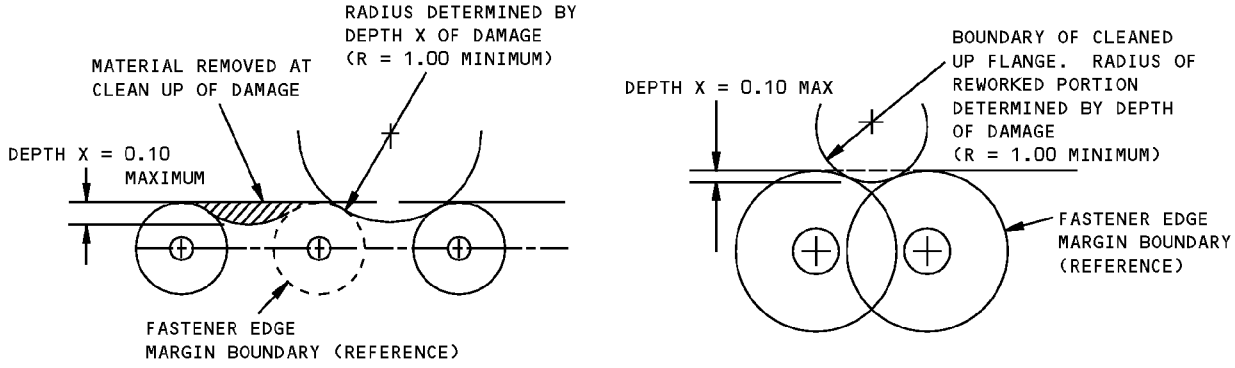
REMOVAL OF NICK, GOUGE AND SCRATCH DAMAGE ON A SURFACE

DETAIL II



REMOVAL OF NICK OR CRACK DAMAGE ON AN EDGE

DETAIL III



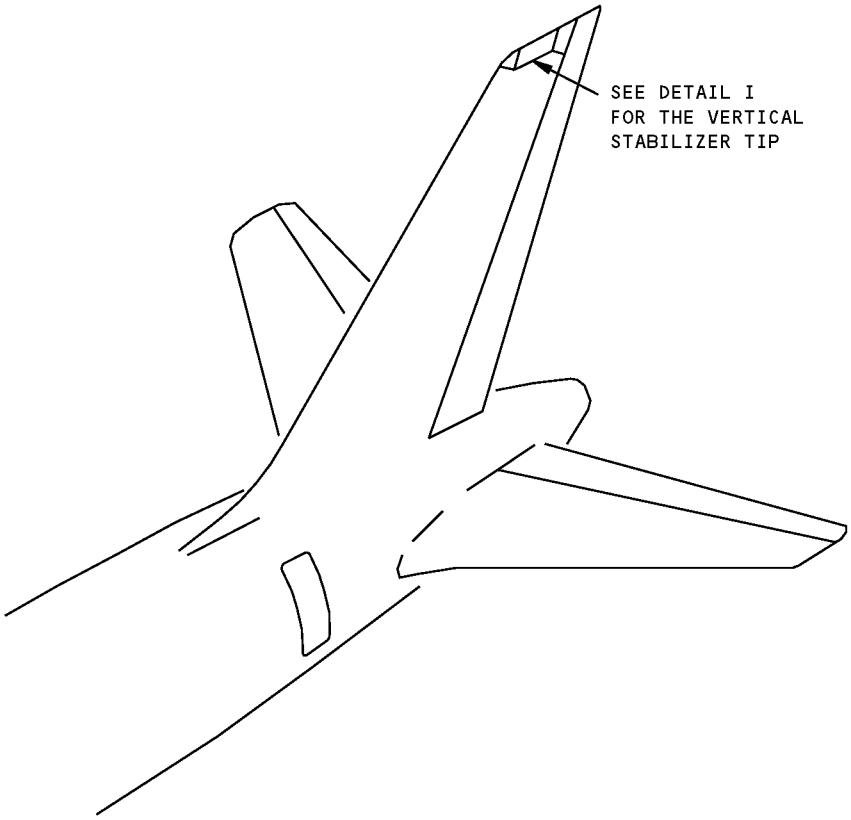
DAMAGE CLEAN UP OF EDGES WHERE FASTENER EDGE MARGINS DO NOT OVERLAP

DAMAGE CLEAN UP OF EDGES WHERE FASTENER EDGE MARGINS OVERLAP

DETAIL IV

Allowable Damage - Vertical Stabilizer Fixed Trailing Edge Beam
Figure 101 (Sheet 3 of 3)

IDENTIFICATION 1 - VERTICAL STABILIZER TIP



NOTES

[A] PLY ORIENTATION CONVENTION, DEGREES INDICATED, IS PARALLEL TO THE FABRIC WARP DIRECTION.

[B] ARAMID/EPOXY FABRIC (REFER TO BMS 8-219, STYLE 285, 250°F [121°C] CURE)

[C] MATERIAL AND PLY ORIENTATION SHOWN FOR FIELD AREAS ONLY. SEE BOEING DRAWING FOR EDGE BANDS AND AREAS WITH DOUBLERS

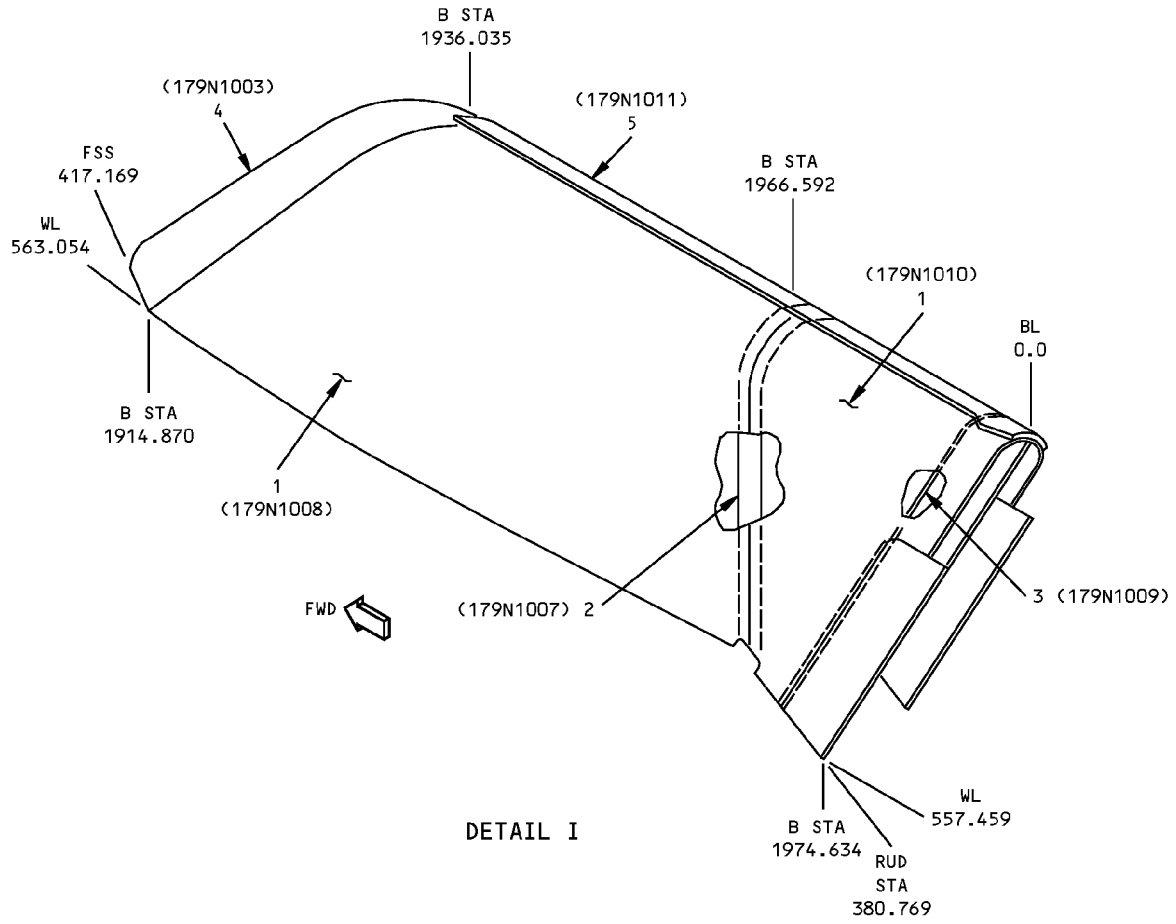
[D] DIAGRAM OF PLY ORIENTATION. SEE PLY TABLE FOR INDIVIDUAL PLY ORIENTATION AND MATERIAL

[E] FIBERGLASS/EPOXY PREPREG FABRIC (REFER TO BMS 8-79, TYPE 1581, CLASS III, GRADE 1.0 250°F [121°C] CURE)

[F] FOR CUM LINE NUMBERS: 142 AND ON

[G] FOR ALL AIRPLANES NOT IN [F].

Vertical Stabilizer Tip Identification
Figure 1 (Sheet 1 of 3)

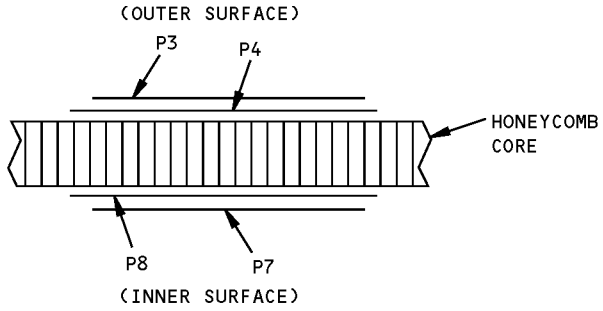


DETAIL I

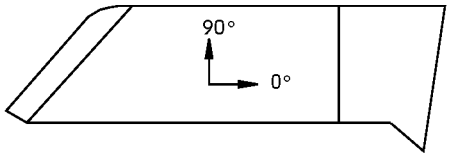
ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	PANEL ASSEMBLY		ARAMID/EPOXY HONEYCOMB SANDWICH OR FIBERGLASS/EPOXY HONEYCOMB SANDWICH	
	SKIN		SEE DETAIL II SEE DETAIL III	G F
	CORE		HONEYCOMB PER BMS 8-124, CLASS IV, TYPE V, GRADE 3.0	
2	RIB	0.032	CLAD 2024-T42	
3	RIB	0.050	CLAD 7075-T6	
4	LEADING EDGE	0.090	CLAD 7075-T6	
5	STRAP	0.040	6061-T6	

LIST OF MATERIALS FOR DETAIL I

Vertical Stabilizer Tip Identification
Figure 1 (Sheet 2 of 3)



SECTION THRU HONEYCOMB PANEL

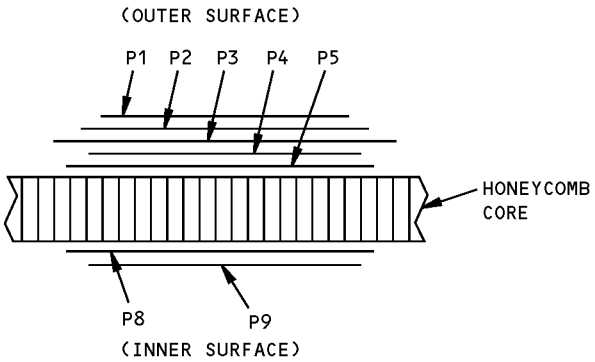


VIEW ON TIP ASSEMBLY [D]

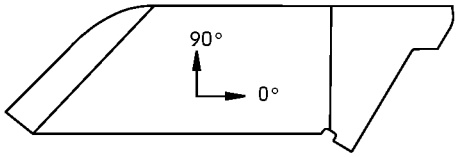
ITEM NO.	PLY NO.	MATERIAL	PLY [A] ORIENTATION
1 [G]	P3,P4,P7,P8	[B]	0 OR 90°

PLY TABLE [C]

DETAIL II



SECTION THRU PANEL



VIEW ON TIP ASSEMBLY [D]

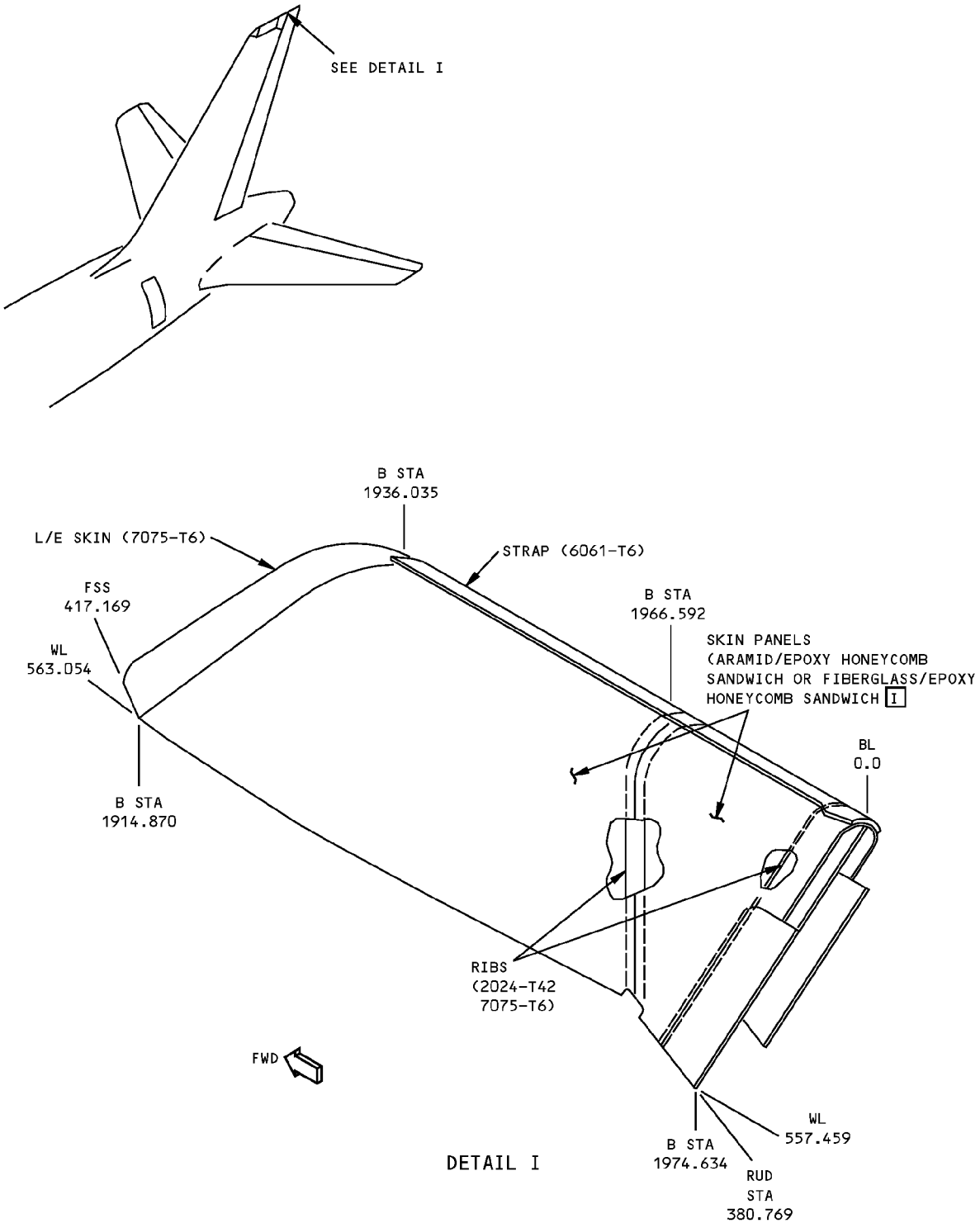
ITEM NO.	PLY NO.	MATERIAL	PLY [A] ORIENTATION
1 [F]	P1,P3,P4,P5,P8	[E]	0° OR 90°
	P2,P9	[E]	±45°

PLY TABLE [C]

DETAIL III

Vertical Stabilizer Tip Identification
Figure 1 (Sheet 3 of 3)

ALLOWABLE DAMAGE 1 - VERTICAL STABILIZER TIP



Allowable Damage - Vertical Stabilizer Tip
Figure 101 (Sheet 1 of 4)

LOCATION	CRACKS	NICKS AND GOUGES	DENTS	HOLES AND PUNCTURES	DELAMINATION	EDGE EROSION
LEADING EDGE SKIN	[E]	[F]	[G]	[H]	———	———
RIBS	[E]	[F]	[G]	[H]	———	———
SKIN PANELS	[A]	[B]	[C]	[A]	[A]	SEE DETAIL VII
STRAP	[E]	[F]	[G]	[H]	———	———

TABLE I

NOTES

- REFINISH REWORKED AREAS AS GIVEN IN AMM 51-20.
- REFER TO SRM 51-10-01 FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS. WHERE DAMAGE EXCEEDS THE LIMITS AS GIVEN IN SRM 51-10-01. CONSIDERATION SHOULD BE GIVEN TO LOSS OF PERFORMANCE INVOLVED.
- REFER TO SRM 51-10-02 FOR INSPECTION AND REMOVAL OF DAMAGE.

[A] DAMAGE TO SKIN PANEL EDGES MAY BE A COMBINATION OF EDGE DELAMINATION AND/OR CRACKS, GOUGES, ETC. WHICH CAN RESULT IN FIBER DAMAGE AND A LOSS OF CROSS-SECTIONAL AREA. REMOVE EDGE DAMAGE AS SHOWN IN DETAILS II AND III. NOT MORE THAN ONE FASTENER HOLE IN SIX MAY BE CRACKED OR DAMAGED. DAMAGE MUST NOT EXCEED 10% OF THE LENGTH FOR EACH SIDE. 2.00 INCHES (50 mm) MAXIMUM DIAMETER EDGEBAND PERMITTED FOR SINGLE DAMAGE SITE IN HONEYCOMB AREA. MULTIPLE DAMAGE SITES MUST NOT BE CLOSER THAN A MINIMUM OF a/D = 3.0. SEE DETAIL V FOR DAMAGE CRITERIA. DAMAGE PERMITTED TO ONE SURFACE AND HONEYCOMB CORE CORE ONLY. PROTECT DAMAGE NOT REWORKED AS GIVEN IN [D]

[B] DAMAGE PERMITTED ON SURFACE RESIN ONLY WITH NO FIBER DAMAGE. CLEAN UP EDGE DAMAGE AS SHOWN IN DETAILS II AND III. REFER TO [A] FOR FIBER DAMAGE IN OTHER AREAS.

[C] DENTS RESULT IN DELAMINATION AND FIBER DAMAGE AND MUST BE TREATED AS A HOLE OR PUNCTURE DAMAGE.

[D] REMOVE MOISTURE FROM DAMAGE AREA. USE OF VACUUM AND HEAT (MAXIMUM OF 125°F [52°C]) TO REMOVE MOISTURE FROM HONEYCOMB CELLS IS RECOMMENDED. PROTECT DAMAGE FROM ENTRANCE OF WATER, SUNLIGHT OR OTHER FOREIGN MATTER BY SEALING WITH ALUMINUM FOIL TAPE (SPEED TAPE). RECORD THE LOCATION AND INSPECT EVERY AIRPLANE "A" CHECK. REPLACE THE ALUMINUM FOIL TAPE IF ANY PEELING OR DETERIORATION EVIDENT. REPAIR NO LATER THAN NEXT AIRPLANE "C" CHECK AS GIVEN IN [J].

[E] CRACKS NOT PERMITTED EXCEPT FOR EDGE CRACKS WHICH MUST BE REMOVED AS SHOWN IN DETAILS II AND IV.

[F] REMOVE DAMAGE AS SHOWN IN DETAILS II AND III.

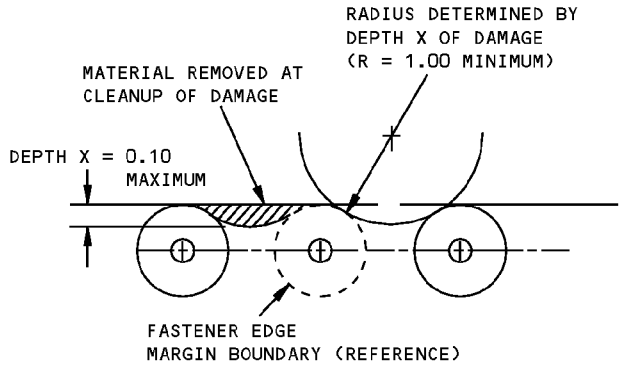
[G] SEE DETAIL V.

[H] CLEAN PUNCTURE OUT WITH 0.25 INCH (6 mm) MAXIMUM DIAMETER HOLE AND NOT CLOSER THAN 2.0 INCHES (50 mm) TO FASTENER HOLE OR OTHER DAMAGE. FILL HOLE WITH A 2117-T3 OR T4 ALUMINUM RIVET INSTALLED WET WITH BMS 5-95 SEALANT. ALL OTHER HOLES TO BE REPAIRED.

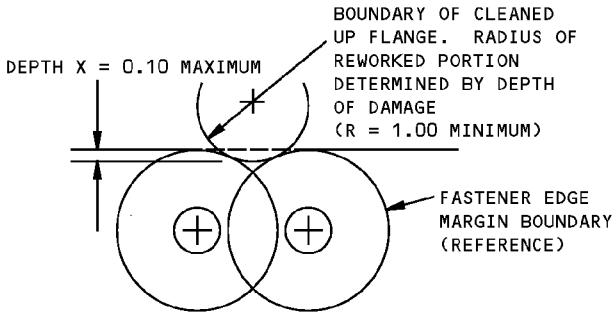
[I] REFER TO IDENTIFICATION 1 FOR MATERIAL EFFECTIVITY.

[J] THESE PERMITTED DAMAGE LIMITS HAVE FAA APPROVAL CONTNGENT ON ACCOMPLISHMENT OF THE INSPECTIONS CONTAINED HEREIN.

Allowable Damage - Vertical Stabilizer Tip
Figure 101 (Sheet 2 of 4)

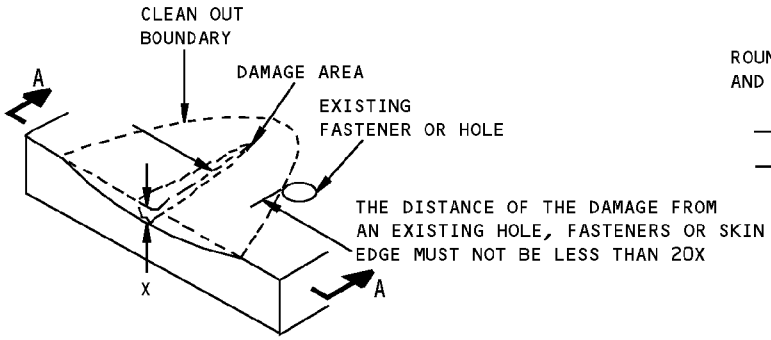


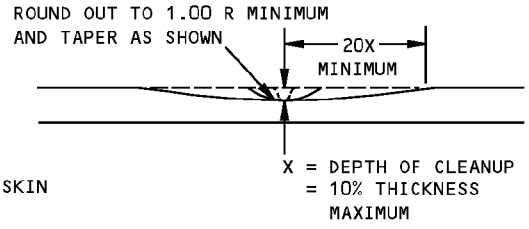
DAMAGE CLEANUP OF EDGES WHERE
FASTENER EDGE MARGINS DO NOT OVERLAP



DAMAGE CLEANUP OF EDGES WHERE
FASTENER EDGE MARGINS OVERLAP

DETAIL II

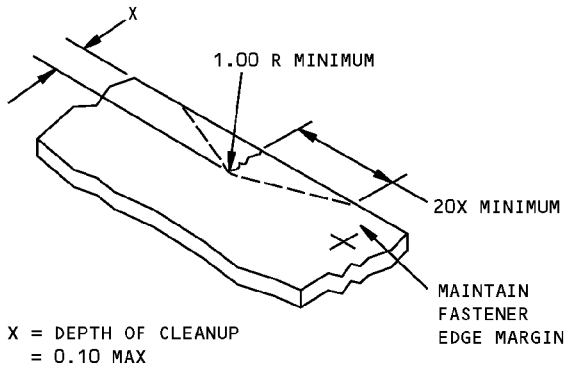




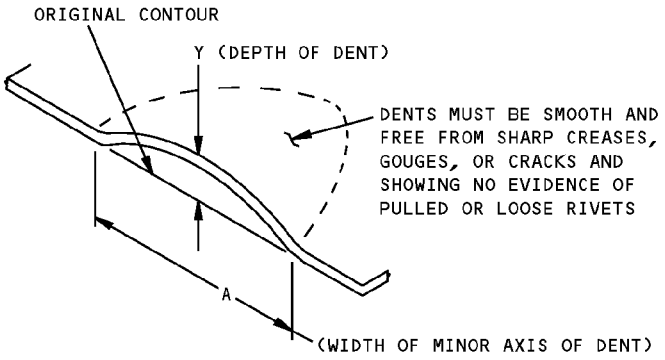
SECTION A–A

REMOVAL OF NICK, GOUGE AND SCRATCH DAMAGE ON A SURFACE

DETAIL III



DETAIL IV

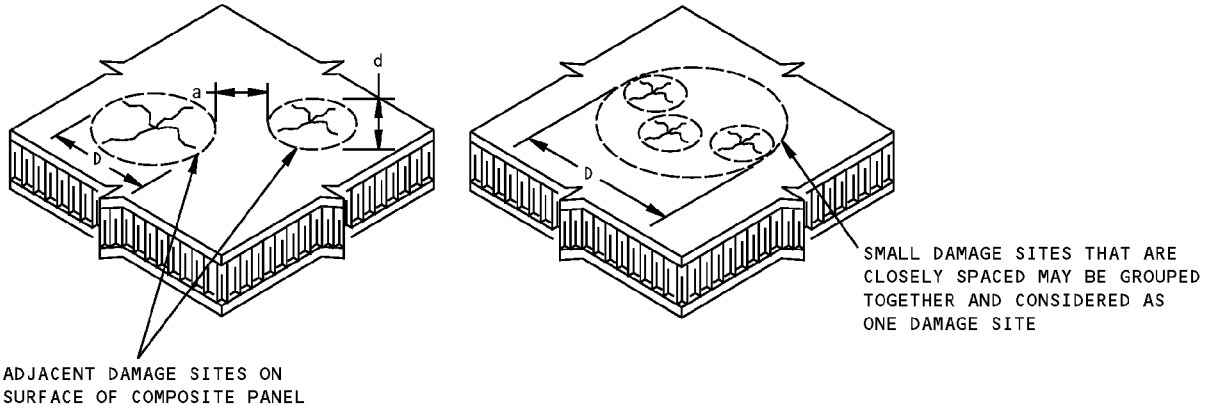


$\frac{A}{Y}$ MUST NOT BE LESS THAN 30

Y = 0.125 MAXIMUM

DETAIL V

Allowable Damage - Vertical Stabilizer Tip
Figure 101 (Sheet 3 of 4)

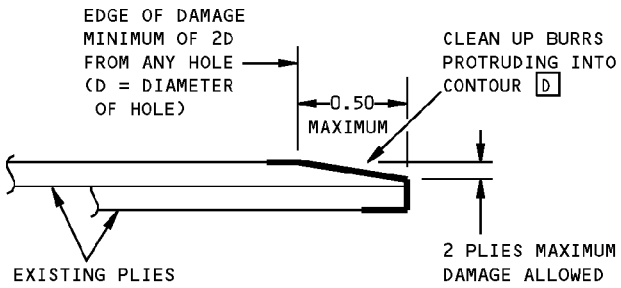


NOTES

- DAMAGE TO COMPOSITE PANELS EXPOSED TO MULTIPLE IMPACTS, I.E., HAIL DAMAGE, CAN BE DETECTED BY USING INSTRUMENTED NON-DESTRUCTIVE INSPECTION METHODS OR BY TAPPING THE SUSPECTED DAMAGE AREA WITH A SMALL METALLIC DISK OBJECT. INSPECTION SHOULD COVER THE AREA WITHIN 3 DIAMETERS AROUND THE EDGE OF THE VISIBLE DAMAGE SITE. FOR TAP TEST, USE A SOLID METAL DISK AND TAP THE DAMAGE AREA LIGHTLY BUT FIRMLY. VOID AREAS SHOULD PRODUCE A DULL SOUND AS OPPOSED TO A SHARP RING ON A SOLID BONDED AREA.
- DAMAGE SITE IS ANY SINGLE AREA OF A PANEL WHERE A DENT, CRACK, DELAMINATION, PUNCTURE OR ANY COMBINATION OF THESE EXIST. SMALL DAMAGE SITES THAT ARE CLOSELY SPACED MAY BE GROUPED TOGETHER AND CONSIDERED AS ONE DAMAGE SITE.
- "D" IS DETERMINED BY MEASURING THE MAXIMUM DIMENSION OF A DENT, CRACK, OR OTHER DAMAGE, WHICHEVER IS GREATER.
- "a" IS THE DISTANCE BETWEEN TWO ADJACENT DAMAGE SITES.
- "d" IS THE MAXIMUM DIMENSION OF THE SMALLER OF TWO ADJACENT DAMAGE SITES.
- CALCULATE a/D BY DIVIDING DISTANCE "a" BY DIAMETER "D".
- DAMAGE IS PERMITTED WHEN "D" IS EQUAL TO OR LESS THAN THE MAXIMUM PERMITTED "D" FROM TABLE I AND WHEN a/D IS EQUAL TO OR GREATER THAN THE MINIMUM a/D AS GIVEN IN TABLE I.

DAMAGE SIZING AND SPACING DATA
FOR COMPOSITE PANELS

DETAIL VI



DAMAGE CLEANUP AND SEALING
OF EDGE EROSION

DETAIL VII

Allowable Damage - Vertical Stabilizer Tip
Figure 101 (Sheet 4 of 4)

REPAIR GENERAL - VERTICAL STABILIZER TIP - SERVICE BULLETIN LIST

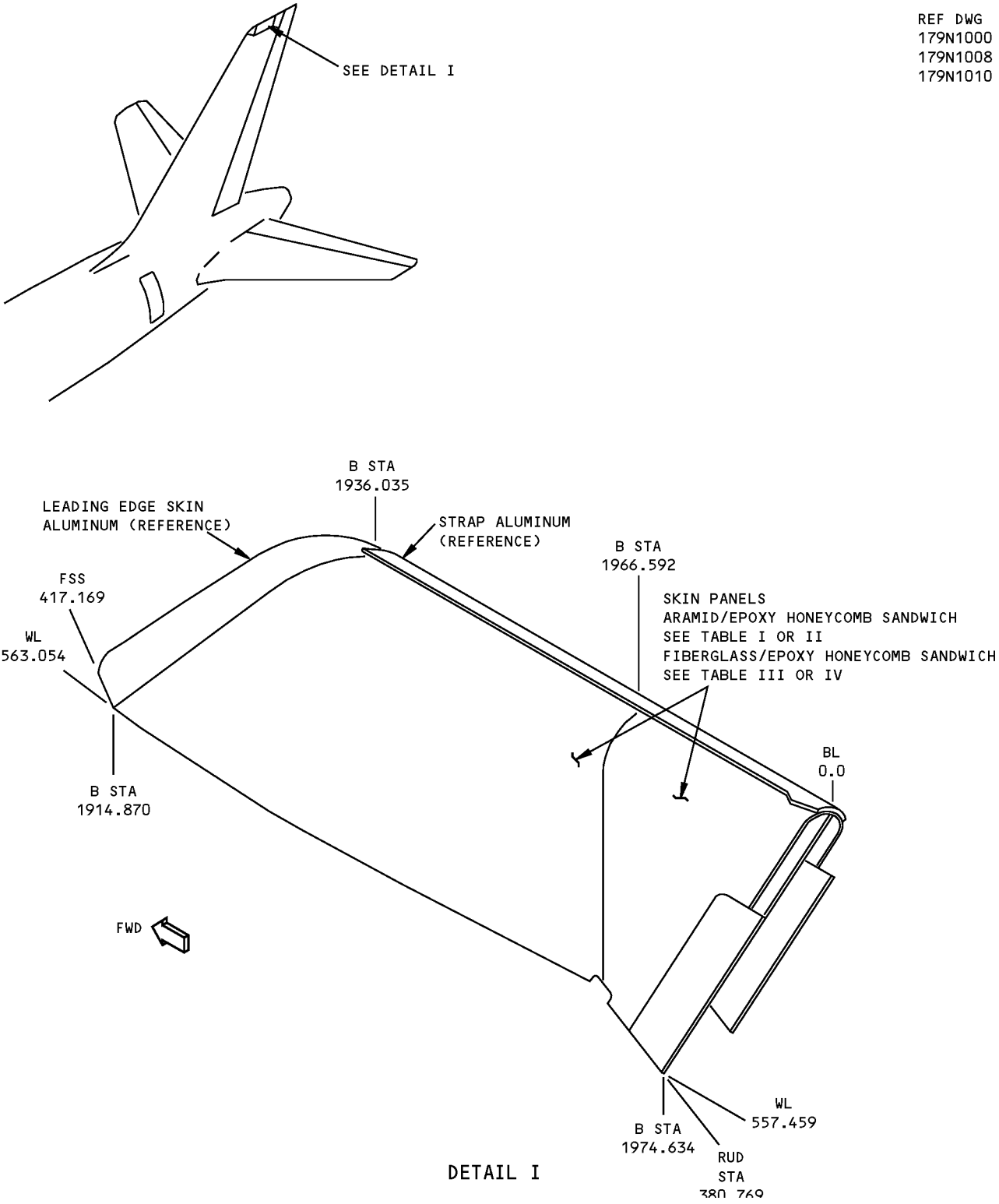
SERVICE BULLETIN REPAIRS

The following Service Bulletins contain repairs which are available for use where specific damage has been encountered. Usually, the Service Bulletin also covers preventive modification data which operators are encouraged to use to eliminate the need for repair.

DAMAGED AREA	CUM LINE NUMBER EFFECTIVITY	SB NUMBER
OUTER SURFACE, STABILIZER TIP	1 THRU 36, 38 THRU 52	51-0003

Vertical Stabilizer Tip
Figure 201

REPAIR 1 - VERTICAL STABILIZER TIP



Vertical Stabilizer Tip Repairs
Figure 201 (Sheet 1 of 5)

DAMAGE	INTERIM REPAIRS [B]	PERMANENT REPAIRS		
	WET LAYUP ROOM TEMP (SRM 51-70-03)	WET LAYUP 150°F CURE (SRM 51-70-03)	WET LAYUP 200°F CURE (SRM 51-70-17)	250°F CURE (SRM 51-70-05)
CRACKS	UP TO 4.0 INCHES (100 mm) LONG, REPAIR WITH PATCH AS GIVEN IN SRM 51-70-03, PAR. 5.N. [A]	CLEAN UP DAMAGE AND REPAIR AS A HOLE	CLEAN UP DAMAGE AND REPAIR AS A HOLE	CLEAN UP DAMAGE AND REPAIR AS A HOLE
HOLES	4.0 INCHES (100 mm) MAXIMUM DIA NOT TO EXCEED 30% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-03,PAR. 5.N. [A]	8.0 INCHES (200 mm) MAXIMUM DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED [C]	12.0 INCHES (300 mm) MAXIMUM DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED [C]	NO SIZE LIMIT
DELAMI-NATION	CUT OUT AND REPAIR AS A HOLE			
NICKS AND GOUGES	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL NICKS OR GOUGES AS GIVEN IN SRM 51-70-03 IF YOU FIND FIBER DAMAGE OR DELAMINATION THEN, REPAIR AS A HOLE			
DENTS	UP TO 2.0 INCHES (50 mm) DIA WITH NO FIBER DAMAGE OR DELAMINATION, FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-03, PAR. 5.L. [C] OVER 2.0 INCHES (50 mm) DIA OR WITH FIBER DAMAGE OR DELAMINATION, REPAIR AS A HOLE			

REPAIR DATA FOR 250°F CURE HONEYCOMB PANELS (ARAMID) [D]

TABLE I

NOTES

- WHEN YOU USE THIS REPAIR, REFER TO:
  - AMM 51-21-01 FOR APPLICATION OF FINISHES
  - SRM 51-10-01, FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS. WHERE THE DAMAGE IS MORE THAN THE LIMITS GIVEN IN SRM 51-10-01, THOUGHT SHOULD BE GIVEN TO THE LOSS OF PERFORMANCE THAT MAY OCCUR
  - SRM 51-10-02 FOR INSPECTION AND REMOVAL OF DAMAGE.

[A] LIMITED TO REPAIR OF DAMAGE TO ONE FACESHEET SKIN AND HONEYCOMB CORE. ONE REPAIR FOR EACH SQUARE FOOT OF AREA AND MINIMUM OF 6.0 INCHES (150 mm) (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE, OR EDGE OF PANEL

[B] INSPECT INTERIM REPAIR USING INSTRUMENTED NDT METHODS OR "TAP" TEST EVERY AIRPLANE "2A" CHECK. FOR "TAP" TEST, USE A SOLID METAL DISK AND TAP THE REPAIR AREA LIGHTLY BUT FIRMLY. VOID AREAS WILL GIVE A DULL SOUND INSTEAD OF A SHARP RING THAT YOU WILL HEAR ON A SOLID BONDED AREA. PERMANENT REPAIR IS REQUIRED IF ANY DETERIORATION IS FOUND. REFER TO SRM 51-70-03, PAR. 4.I. AND THE NONDESTRUCTIVE TEST MANUAL, D634N301

[C] ONE REPAIR FOR EACH SQUARE FOOT OF AREA AND A MINIMUM OF 6.0 INCHES (150 mm) (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE, OR EDGE OR PANEL

[D] FOR ADDED PROTECTION AGAINST MOISTURE INGESTION, INCORPORATION OF SB 757-51-0003 FOR AIRPLANES 1 THRU 36 AND 38 THRU 52 IS RECOMMENDED. FOR PANELS THAT HAVE MOISTURE BARRIER COATING, REAPPLY BMS 5-95 SEALANT ON REWORKED AREAS PRIOR TO THE APPLICATION OF ENAMEL FINISH. REFER TO SRM 51-21-12

[E] THESE REPAIRS HAVE FAA APPROVAL ONLY IF YOU DO THE INSPECTIONS GIVEN IN THIS REPAIR

Vertical Stabilizer Tip Repairs
Figure 201 (Sheet 2 of 5)

DAMAGE	INTERIM REPAIRS [B]	PERMANENT REPAIRS	
	ROOM TEMP (SRM 51-70-03)	WET LAYUP - 200°F CURE (SRM 51-70-17)	250°F CURE (SRM 51-70-05)
HOLES AND PUNCTURES	REPAIR DAMAGE TO FASTENER HOLES AS GIVEN IN SRM 51-70-03, PAR. 5.K. FOR ALL OTHER DAMAGE, USE A PERMANENT REPAIR PROCEDURE	REPAIR DAMAGE TO FASTENER HOLES AS GIVEN IN SRM 51-70-17, PAR. 4.K. FOR ALL OTHER DAMAGE, REPAIR AS GIVEN IN SRM 51-70-17, PAR. 4.G.	REPAIR DAMAGE TO FASTENER HOLES AS GIVEN IN SRM 51-70-05, PAR. 5.K. FOR ALL OTHER DAMAGE, REPAIR AS GIVEN IN SRM 51-70-05, PAR. 5.G.
DELAM-INATION	IF DELAMINATION FROM PANEL EDGE IS NO LESS THAN 2D FROM ANY FASTENER HOLE, REPAIR AS GIVEN IN SRM 51-70-03, PAR. 5.A.(2). ANY OTHER DELAMINATION MUST BE CUT OUT AND REPAIRED AS A HOLE	CUT OUT AND REPAIR AS A HOLE	CUT OUT AND REPAIR AS A HOLE
EDGE EROSION	———	FOR DAMAGE NOT LARGER THAN 35% OF EDGEBAND THICKNESS, REPAIR AS GIVEN IN SRM 51-70-03, PAR. 5.O. FOR LARGER DAMAGE, REPAIR AS GIVEN IN: SRM 51-70-17, PAR. 4.G.	SRM 51-70-05, PAR. 5.G.
CRACKS	REPAIR AS A HOLE		
NICKS AND GOUGES	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL NICKS OR GOUGES AS GIVEN IN SRM 51-70-03 IF YOU FIND FIBER DAMAGE OR DELAMINATION THEN REPAIR AS A HOLE		
DENTS	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL DENTS AS GIVEN IN SRM 51-70-03 IF YOU FIND FIBER DAMAGE OR DELAMINATION THEN, REPAIR AS A HOLE OR DELAMINATION, WHICHEVER IS APPLICABLE		

REPAIR DATA FOR EDGEBANDS OF 250°F CURE HONEYCOMB PANELS (ARAMID) [D]
TABLE II

Vertical Stabilizer Tip Repairs
Figure 201 (Sheet 3 of 5)

DAMAGE	INTERIM REPAIRS [B]	PERMANENT REPAIRS		
	WET LAYUP ROOM TEMP (SRM 51-70-06)	WET LAYUP 150°F CURE (SRM 51-70-06)	WET LAYUP 200°F CURE (SRM 51-70-17)	250°F CURE (SRM 51-70-07)
CRACKS	UP TO 4.0 INCHES (100 mm) LONG, REPAIR WITH PATCH AS GIVEN IN SRM 51-70-06, PAR. 5.N. [A]	CLEAN UP DAMAGE AND REPAIR AS A HOLE	CLEAN UP DAMAGE AND REPAIR AS A HOLE	CLEAN UP DAMAGE AND REPAIR AS A HOLE
HOLES	4.0 INCHES (100 mm) MAXIMUM DIA NOT TO EXCEED 30% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-06, PAR. 5.N. [A]	8.0 INCHES (200 mm) MAXIMUM DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED [C]	12.0 INCHES (300 mm) MAXIMUM DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED [C]	NO SIZE LIMIT
DELAMI-NATION	CUT OUT AND REPAIR AS HOLE			
NICKS AND GOUGES	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL NICKS OR GOUGES AS GIVEN IN SRM 51-70-06 IF YOU FIND FIBER DAMAGE OR DELAMINATION THEN REPAIR AS A HOLE			
DENTS	UP TO 2.0 INCHES (50 mm) DIA WITH NO FIBER DAMAGE OR DELAMINATION, FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-06, PAR. 5.L. [C] OVER 2.0 INCHES (50 mm) DIA OR WITH FIBER DAMAGE OR DELAMINATION, REPAIR AS A HOLE			

REPAIR DATA FOR 250°F CURE HONEYCOMB PANELS (FIBERGLASS)

TABLE III

Vertical Stabilizer Tip Repairs
Figure 201 (Sheet 4 of 5)

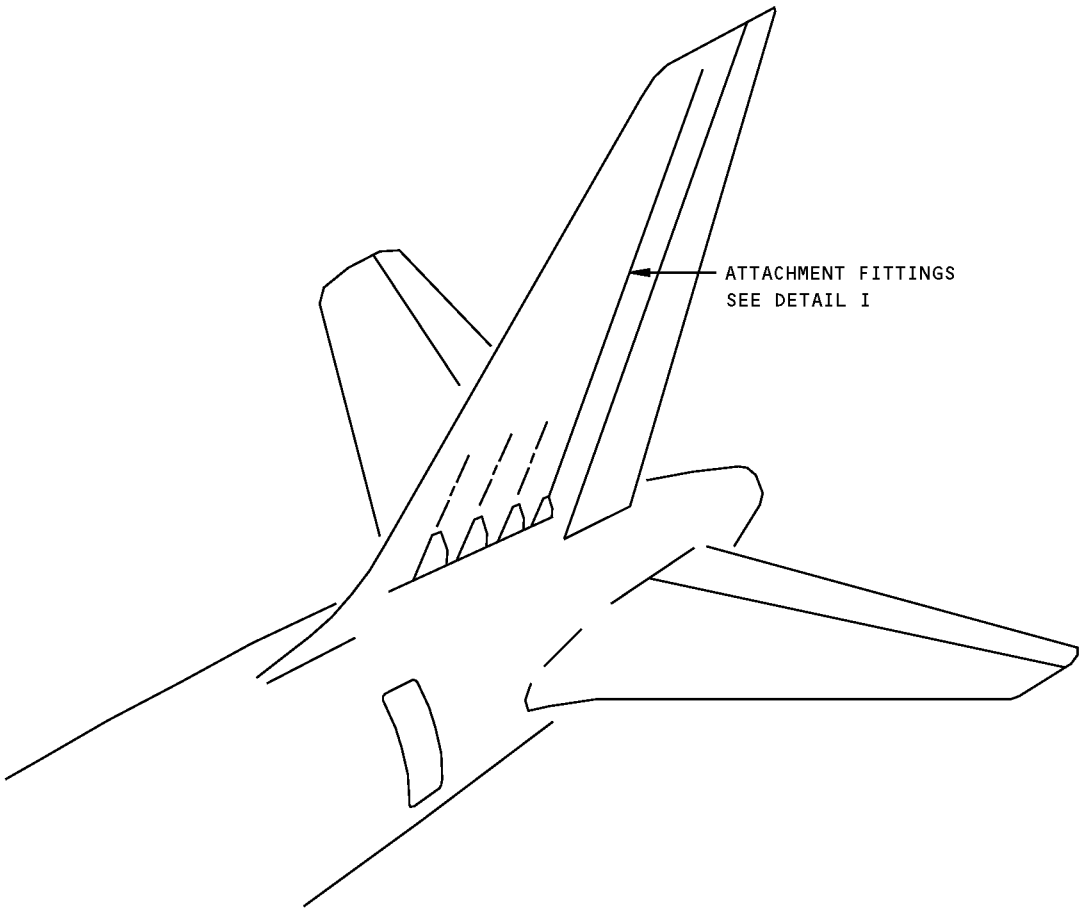
DAMAGE	INTERIM REPAIRS [B]	PERMANENT REPAIRS	
	ROOM TEMP (SRM 51-70-06)	WET LAYUP - 200°F CURE (SRM 51-70-17)	250°F CURE (SRM 51-70-07)
HOLES AND PUNCTURES	REPAIR DAMAGE TO FASTENER HOLES AS GIVEN IN SRM 51-70-06, PAR. 5.K. FOR ALL OTHER DAMAGE, USE A PERMANENT REPAIR PROCEDURE	REPAIR DAMAGE TO FASTENER HOLES SRM 51-70-17, PAR. 4.K. FOR ALL OTHER DAMAGE, REPAIR AS GIVEN IN SRM 51-70-17, PAR. 4.G.	REPAIR DAMAGE TO FASTENER HOLES AS GIVEN IN SRM 51-70-07, PAR. 5.K. FOR ALL OTHER DAMAGE, REPAIR AS GIVEN IN SRM 51-70-07, PAR. 5.G.
DELAM-INATION	IF DELAMINATION FROM PANEL EDGE IS NO LESS THAN 2D FROM ANY FASTENER HOLE, REPAIR AS GIVEN SRM 51-70-06, PAR. 5.A.(2). ANY OTHER DELAMINATION MUST BE CUT OUT AND REPAIRED AS A HOLE	CUT OUT AND REPAIR AS A HOLE	CUT OUT AND REPAIR AS A HOLE
EDGE EROSION	———	FOR DAMAGE NOT LARGER THAN 35% OF EDGEBAND THICKNESS, REPAIR AS GIVEN IN SRM 51-70-06, PAR. 5.O. FOR LARGER DAMAGE, REPAIR AS GIVEN IN: SRM 51-70-17, PAR. 4.G.	SRM 51-70-07, PAR. 5.G.
CRACKS	REPAIR AS A HOLE		
NICKS AND GOUGES	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL NICKS OR GOUGES AS GIVEN IN SRM 51-70-06 IF YOU FIND FIBER DAMAGE OR DELAMINATION, REPAIR AS A HOLE OR DELAMINATION, WHICHEVER IS APPLICABLE		
DENTS	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL DENTS AS GIVEN IN SRM 51-70-06 IF YOU FIND FIBER DAMAGE OR DELAMINATION , REPAIR AS A HOLE OR DELAMINATION, WHICHEVER IS APPLICABLE		

REPAIR DATA FOR EDGEBANDS OF 250°F CURE HONEYCOMB PANELS (FIBERGLASS)

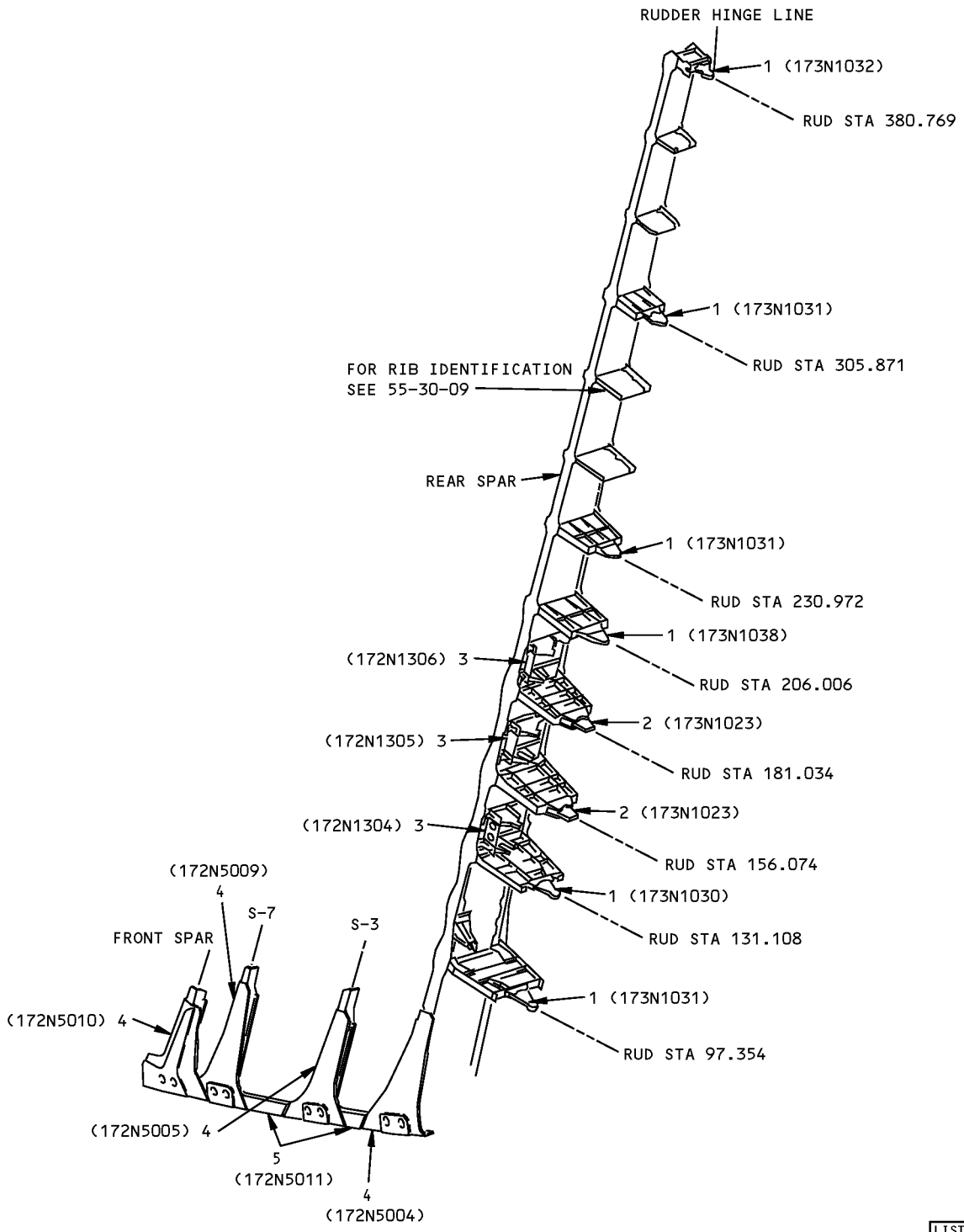
TABLE IV

Vertical Stabilizer Tip Repairs
Figure 201 (Sheet 5 of 5)

IDENTIFICATION 1 - VERTICAL STABILIZER ATTACHMENT FITTING



Vertical Stabilizer Attachment Fitting Identification
Figure 1 (Sheet 1 of 3)



DETAIL I

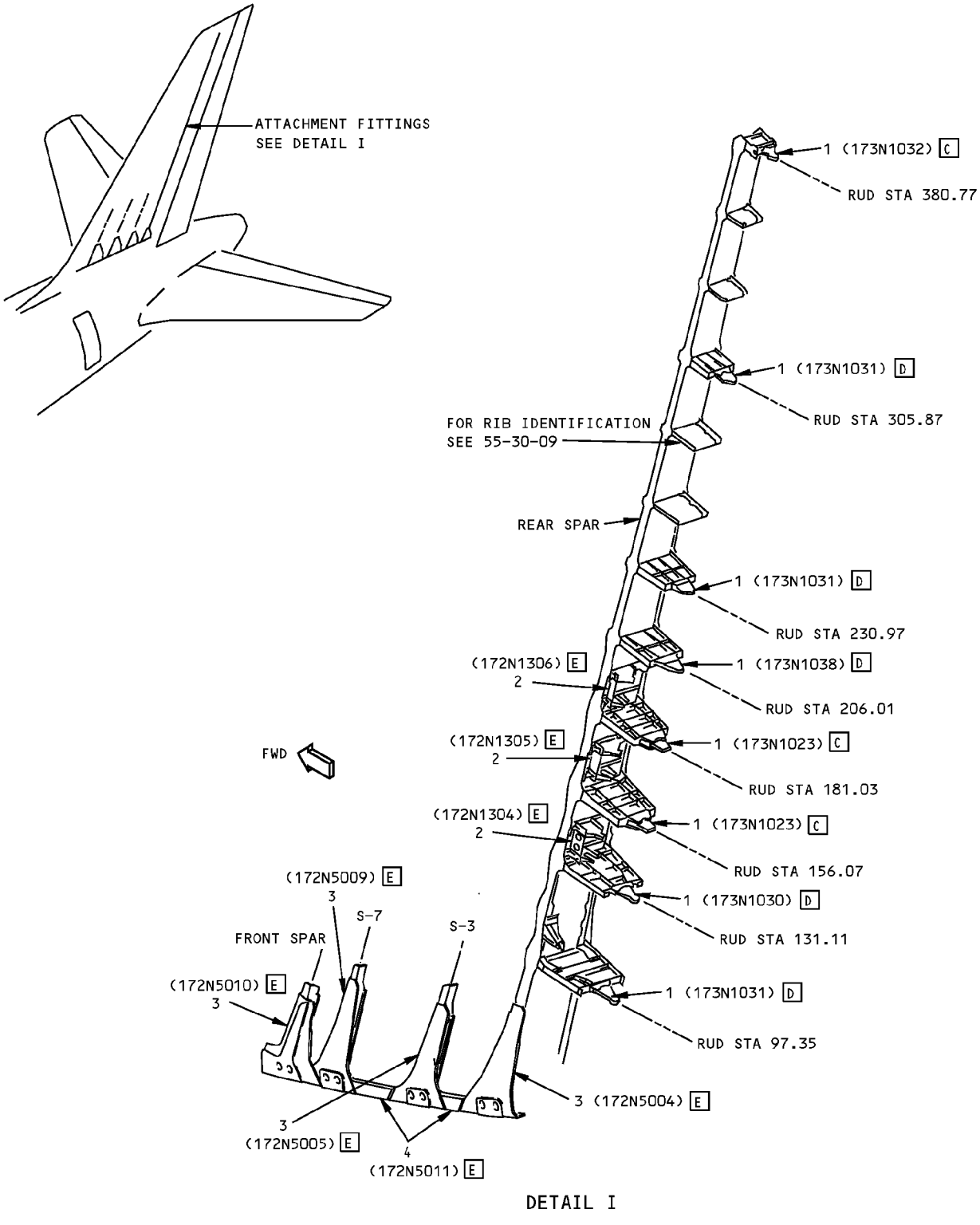
Vertical Stabilizer Attachment Fitting Identification
Figure 1 (Sheet 2 of 3)

ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	HINGE FITTING		FORGING 7075-T73	
2	HINGE FITTING		PLATE 7075-T7351	
3	ACTUATOR FITTING		DIE FORGING OR FORGED BLOCK 7075-T73	
4	FIN/BODY FITTING		FORGING 7075-T73	
5	FIN/BODY ANGLE		BAC1514-2675 7075-T73511	

LIST OF MATERIALS FOR DETAIL I

Vertical Stabilizer Attachment Fitting Identification
Figure 1 (Sheet 3 of 3)

ALLOWABLE DAMAGE 1 - VERTICAL STABILIZER ATTACHMENT FITTINGS



Allowable Damage - Vertical Stabilizer Attachment Fittings
Figure 101 (Sheet 1 of 3)

FITTING	CRACKS	NICKS, GOUGES, SCRATCHES AND CORROSION	DENTS	HOLES
1 RUDDER HINGE FITTING	[A]	FOR EDGE DAMAGE, SEE DETAILS II & V FOR OTHER DAMAGE, SEE DETAIL III FOR LUG DAMAGE, SEE DETAIL IV [B]	NOT PERMITTED	NOT PERMITTED
2 RUDDER ACTUATOR FITTING	[A]	FOR EDGE DAMAGE, SEE DETAILS II & V FOR OTHER DAMAGE, SEE DETAIL III FOR LUG DAMAGE, SEE DETAIL IV [B]	NOT PERMITTED	NOT PERMITTED
3 FIN/BODY FITTING	[A]	FOR EDGE DAMAGE, SEE DETAILS II & V FOR OTHER DAMAGE, SEE DETAIL III	NOT PERMITTED	NOT PERMITTED
4 FIN/BODY ANGLE	[A]	FOR EDGE DAMAGE, SEE DETAILS II & V FOR OTHER DAMAGE, SEE DETAIL III	NOT PERMITTED	NOT PERMITTED

NOTES

- REFINISH REWORKED AREAS AS SHOWN IN AMM 51-20.

[A] EDGE CRACKS CLEAN UP AS SHOWN IN DETAIL IV. OTHER CRACKS ARE NOT PERMITTED

[B] 0.01 INCH MAXIMUM DAMAGE CLEANUP PERMITTED IN VICINITY OF BUSHINGS

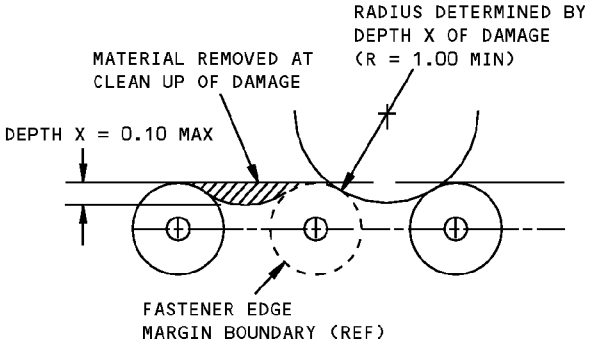
[C] SHOT PEEN REWORKED AREAS AS SHOWN IN AMM 20-10-03 WITH SHOT NO. 230-550, INTENSITY 0.014A [F]

[D] SHOT PEEN REWORKED AREAS AS SHOWN IN AMM 20-10-03 WITH SHOT NO. 230-550, INTENSITY 0.004A-0.007A [F]

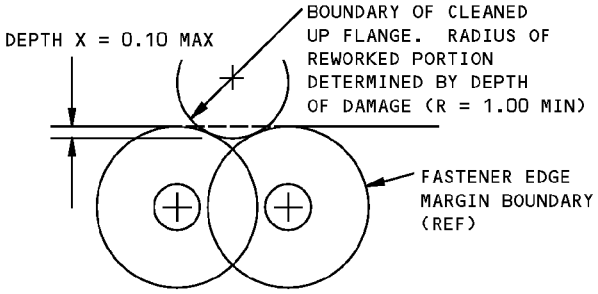
[E] SHOT PEEN REWORKED AREAS AS SHOWN IN CMM 20-10-03 WITH SHOT NO. 230-550, INTENSITY 0.010A [F]

[F] SHOT PEEN INTENSITIES SHOWN FOR MANUFACTURED COMPONENTS. REFER TO SRM 51-20-06 FOR SHOT PEEN INTENSITIES REQUIRED DUE TO THICKNESS REDUCTION RESULTING FROM REWORK

Allowable Damage - Vertical Stabilizer Attachment Fittings
Figure 101 (Sheet 2 of 3)

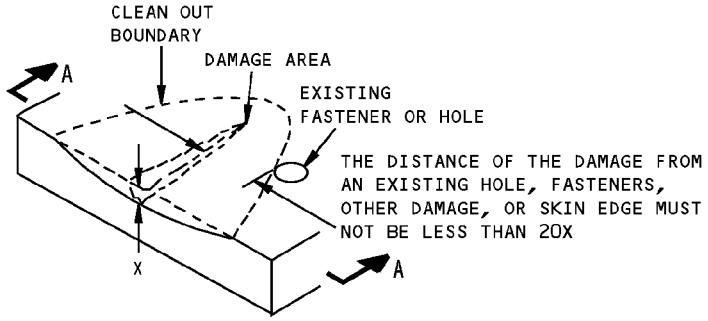


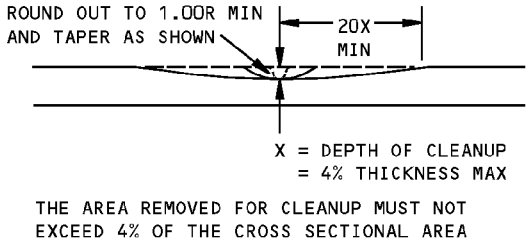
DAMAGE CLEAN UP OF EDGES WITH FASTENERS
WHERE EDGE MARGINS DO NOT OVERLAP



DAMAGE CLEAN UP OF EDGES WITH FASTENERS
WHERE EDGE MARGINS OVERLAP

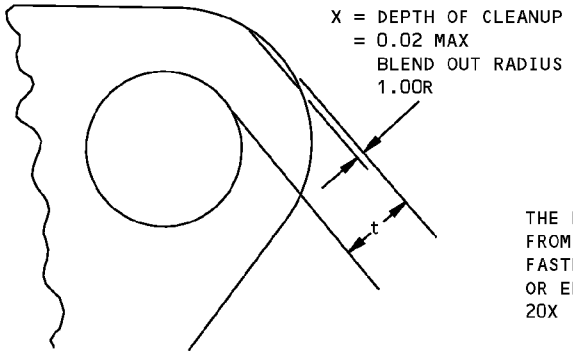
DETAIL II



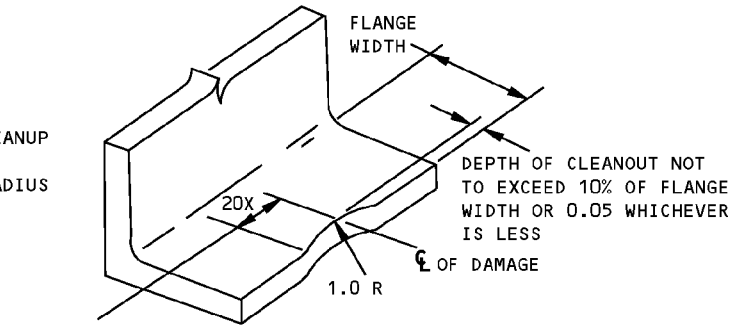


SECTION A-A

REMOVAL OF NICK, GOUGE AND SCRATCH DAMAGE ON A SURFACE
DETAIL III



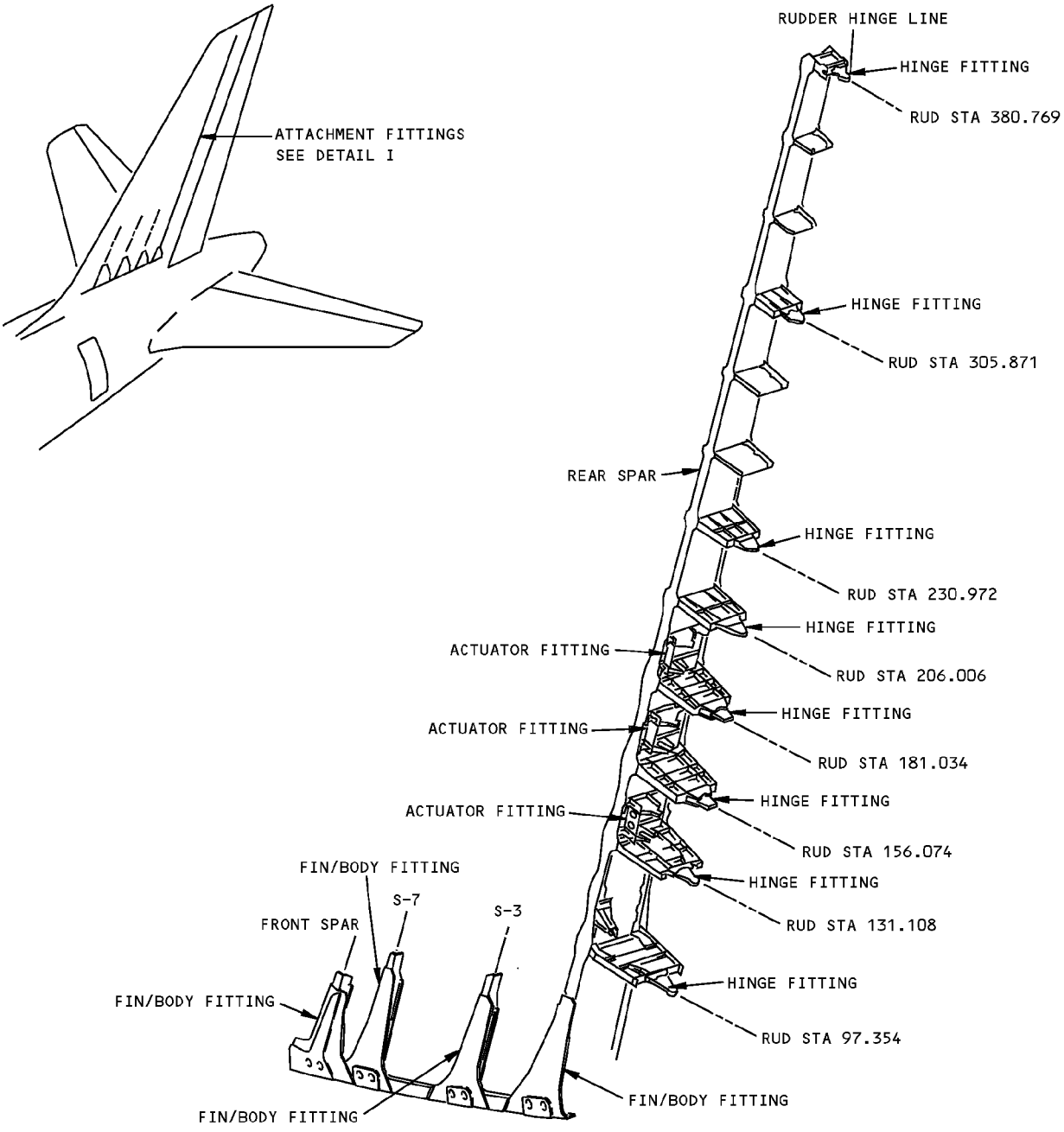
DAMAGE CLEANUP FOR EDGES OF LUG
DETAIL IV



REMOVAL OF EDGE DAMAGE FROM
FREE FLANGE WITHOUT FASTENERS
DETAIL V

Allowable Damage - Vertical Stabilizer Attachment Fittings
Figure 101 (Sheet 3 of 3)

REPAIR GENERAL - VERTICAL STABILIZER ATTACHMENT FITTINGS

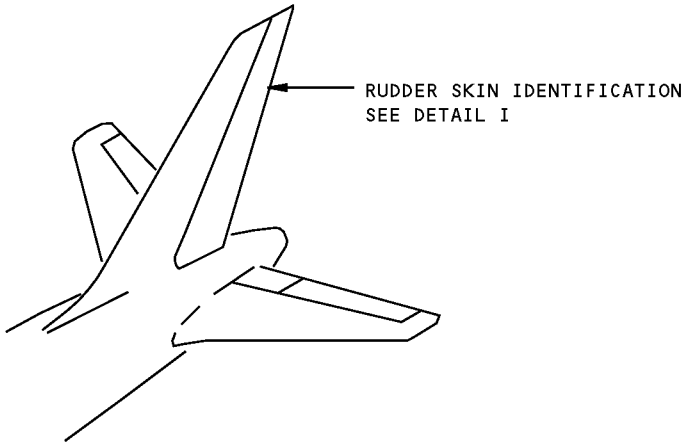


NOTES

- NO TYPICAL REPAIR TO FITTINGS APPLICABLE. SPECIFIC REPAIRS TO FITTINGS WILL BE PROVIDED BASED ON SERVICE EXPERIENCE

Vertical Stabilizer Attachment Fitting Repair
Figure 201

IDENTIFICATION 1 - RUDDER SKIN



NOTES

[A] PLY ORIENTATION CONVENTION - DEGREES INDICATED IS PARALLEL TO THE FABRIC WARP DIRECTION

[B] GRAPHITE/EPOXY FABRIC PER BMS 8-256, CLASS II, STYLE 3K-70-PW, 350°F (177°C) CURE

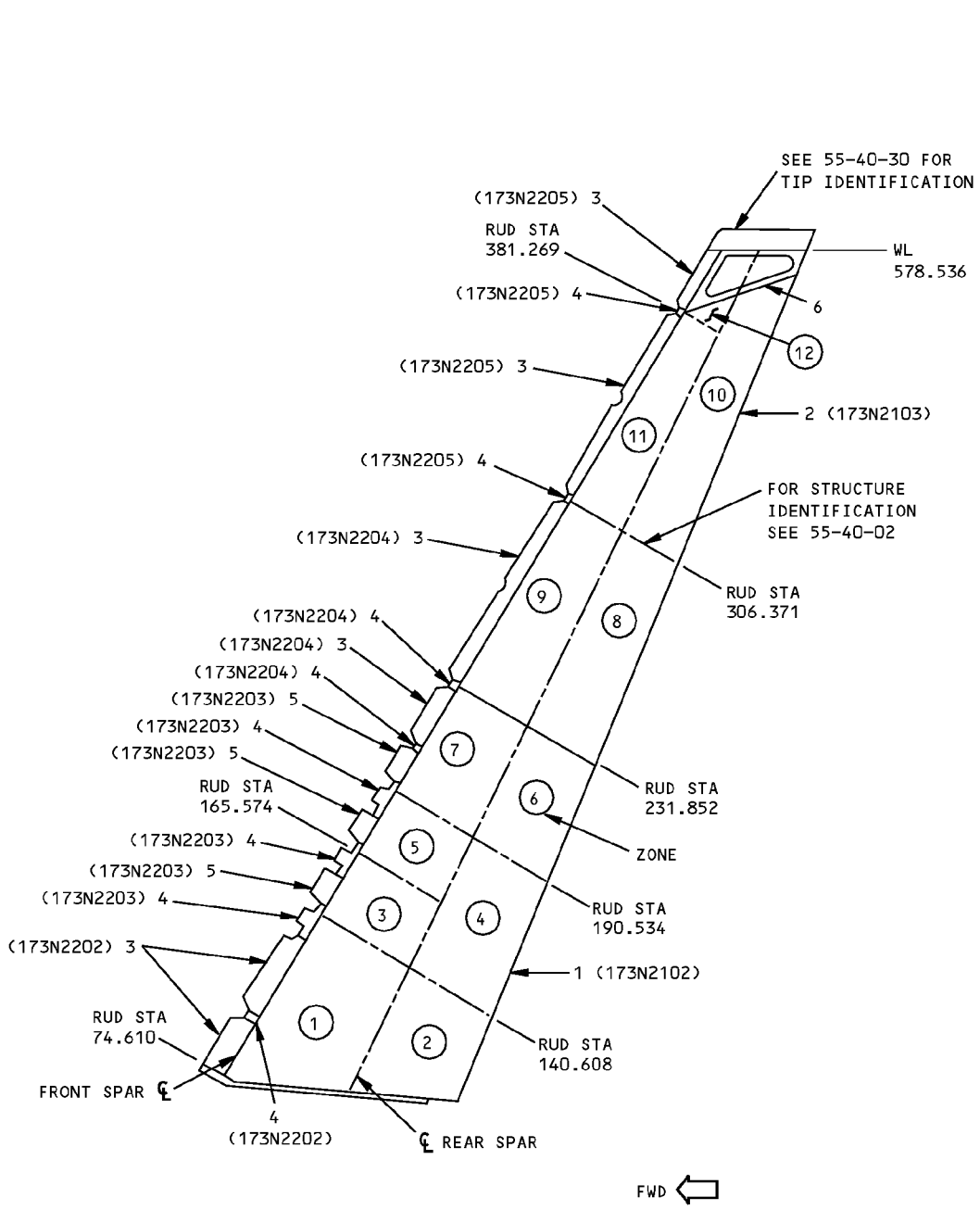
[C] MATERIAL AND PLY ORIENTATION SHOWN FOR FIELD AREAS ONLY. SEE BOEING DRAWINGS FOR EDGEBANDS AND AREAS WITH DOUBLERS

[D] FIBERGLASS/EPOXY FABRIC PER BMS 8-139, TYPE 120, 350°F (177°C) CURE

[E] GRAPHITE/EPOXY FABRIC PER BMS 8-212, TYPE IV, CLASS II, STYLE 3K-70-PW, 350°F (177°C) CURE

[F] FOR CUM LINE NUMBERS: 98 AND ON

Rudder Skin Identification
Figure 1 (Sheet 1 of 5)



DETAIL I

LIST OF MATL

Rudder Skin Identification
Figure 1 (Sheet 2 of 5)

ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	PANEL SKIN CORE		GRAPHITE/EPOXY HONEYCOMB SANDWICH SEE DETAIL II NON-METALLIC HONEYCOMB PER BMS 8-124, CLASS IV, TYPE V, GRADE 3	
2	PANEL SKIN CORE		GRAPHITE/EPOXY HONEYCOMB SANDWICH SEE DETAIL III NON-METALLIC HONEYCOMB PER BMS 8-124, CLASS IV, TYPE V, GRADE 3	
3	L/E PANEL SKIN CORE		GRAPHITE/EPOXY HONEYCOMB SANDWICH SEE DETAIL IV NON-METALLIC HONEYCOMB PER BMS 8-124, CLASS IV, TYPE V, GRADE 3	
4	L/E PANEL SKIN		GRAPHITE/EPOXY FABRIC SEE DETAIL VI	
5	L/E PANEL SKIN CORE		GRAPHITE/EPOXY HONEYCOMB SANDWICH SEE DETAIL V NON-METALLIC HONEYCOMB PER BMS 8-124, CLASS IV, TYPE V, GRADE 3	
6	CONDUCTIVE FRAME	0.020	6061-T4	F

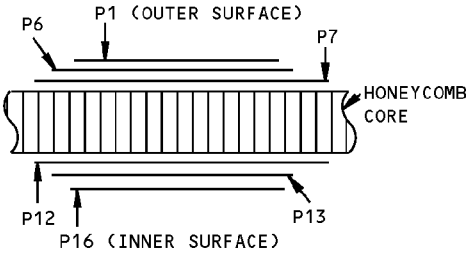
LIST OF MATERIALS FOR DETAIL I

Rudder Skin Identification
Figure 1 (Sheet 3 of 5)

ITEM NO.	ZONES	PLY NO.	MATERIAL	PLY ORIENTATION [A]
1	(1) (4) (6)	P1 P6 P16	[B]	±45°
		P7 P12		0° OR 90°
	(2)	P1 P16	[B]	±45°
		P7 P12		0° OR 90°
	(3) (5) (7)	P1 P6 P13 P16	[B]	±45°
		P7 P12		0° OR 90°

PLY TABLE FOR DETAIL II [C]

DETAIL II



SECTION THRU HONEYCOMB PANEL

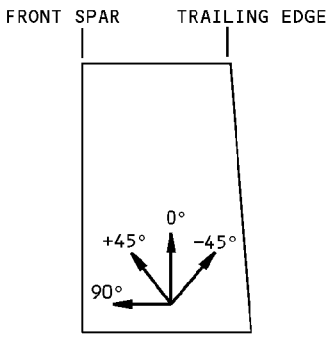
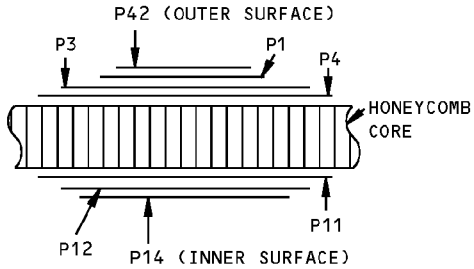


DIAGRAM OF PLY ORIENTATION

ITEM NO.	ZONES	PLY NO.	MATERIAL	PLY ORIENTATION [A]
2	(8) (10) (11)	P1 P14	[B]	±45°
		P4 P11		0° OR 90°
	(9)	P1 P14 P3	[B]	±45°
		P4 P11		0° OR 90°
	(12)	P1 P3 P12 P14	[B]	±45°
		P4 P11		0° OR 90°
		P42	[D]	

PLY TABLE FOR DETAIL III [C]

DETAIL III



SECTION THRU HONEYCOMB PANEL

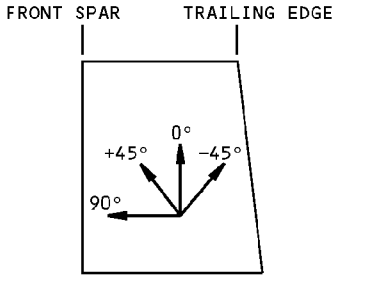
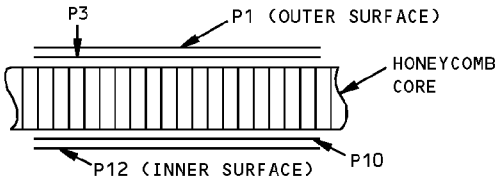


DIAGRAM OF PLY ORIENTATION

Rudder Skin Identification
Figure 1 (Sheet 4 of 5)



SECTION THRU HONEYCOMB PANEL

ITEM NO.	PLY NO.	MATERIAL	PLY ORIENTATION [A]
3	P1,P12	[B]	±45°
	P3,P10		0° OR 90°

PLY TABLE FOR DETAIL IV [C]

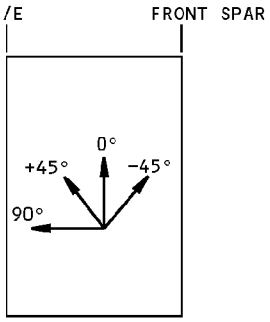
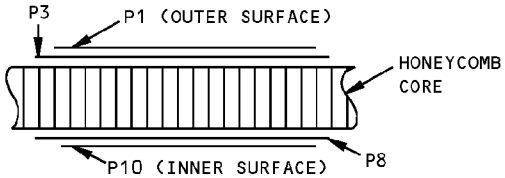


DIAGRAM OF PLY ORIENTATION

DETAIL IV



SECTION THRU HONEYCOMB PANEL

ITEM NO.	PLY NO.	MATERIAL	PLY ORIENTATION [A]
5	P1,P10	[B]	±45°
	P3,P8		0° OR 90°

PLY TABLE FOR DETAIL V [C]

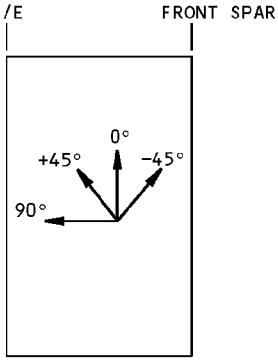
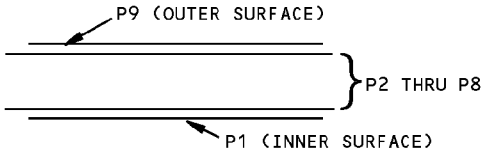


DIAGRAM OF PLY ORIENTATION

DETAIL V



SECTION THRU LAMINATES

ITEM NO.	PLY NO.	MATERIAL	PLY ORIENTATION [A]
4	P1 P3 P5 P7 P9	[E]	±45°
	P2 P4 P6 P8		0° OR 90°

PLY TABLE FOR DETAIL VI [C]

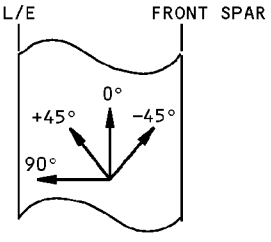
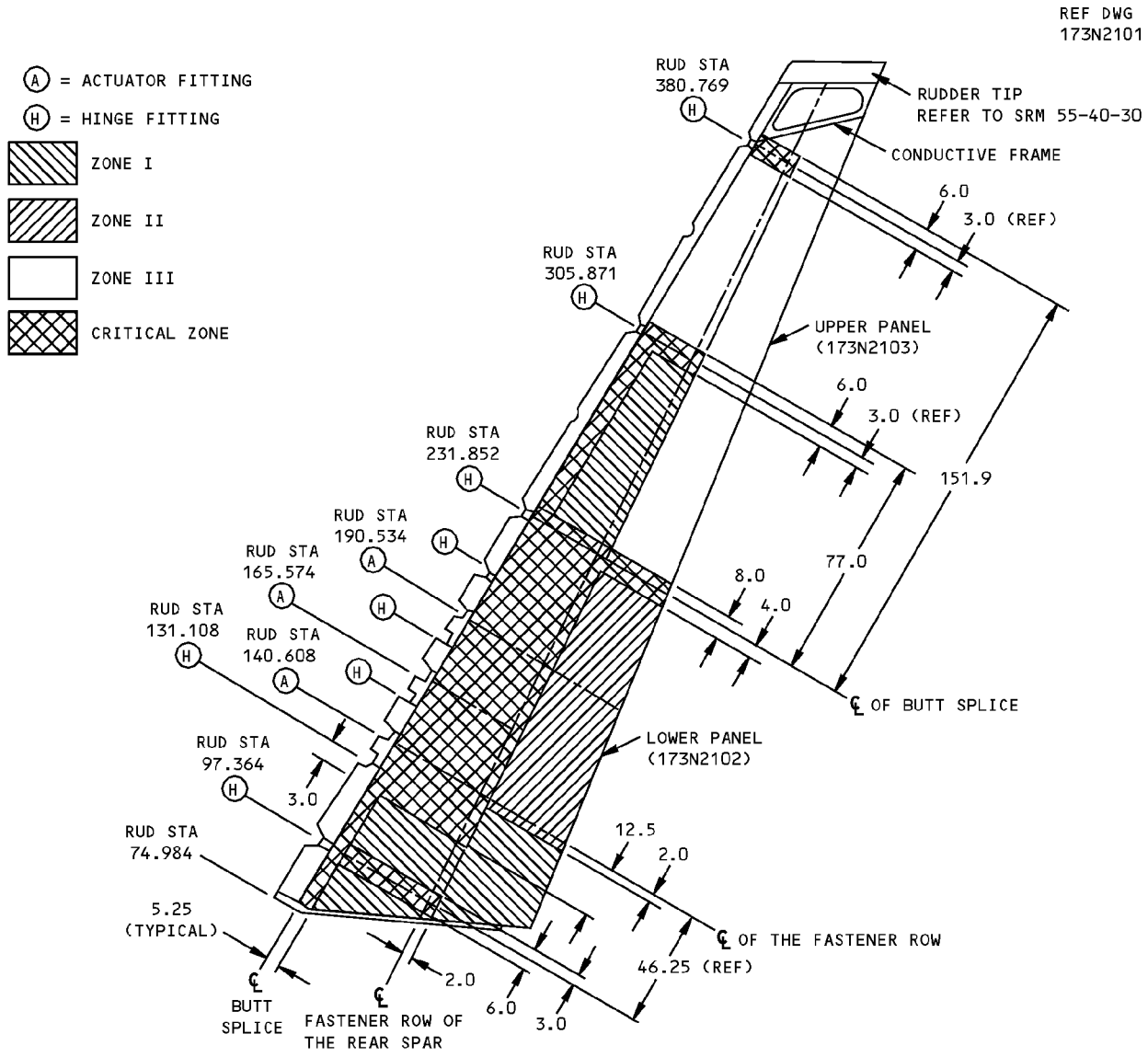


DIAGRAM OF PLY ORIENTATION

DETAIL VI

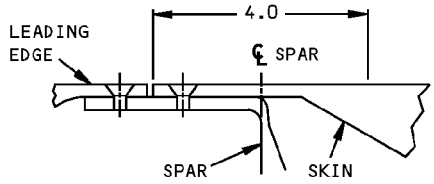
Rudder Skin Identification
Figure 1 (Sheet 5 of 5)

ALLOWABLE DAMAGE 1 - RUDDER SKIN



LEFT SIDE SHOWN
(RIGHT SIDE SIMILAR)

SKIN MATERIALS: GRAPHITE/EPOXY SKIN WITH
NOMEX HONEYCOMB CORE



CRITICAL AREA ALONG FRONT SPAR

Allowable Damage - Rudder Skin
Figure 101 (Sheet 1 of 5)

DESCRIPTION		CRACKS	NICKS, GOUGES AND CORROSION	DENTS	HOLES AND PUNCTURES	PANEL DELAMINATION	EDGE EROSION
SKIN PANEL	ZONE I	[A]	[B]	[A]	[A]	[A]	SEE DETAIL III
	ZONE II	[E]	[B]	[E]	[E]	[E]	SEE DETAIL III
	ZONE III	[F]	[B]	[F]	[F]	[F]	SEE DETAIL III
	CRITICAL ZONE	[K]	[B]	[C] [K]	[K]	[K]	SEE DETAIL III
CONDUCTIVE FRAME		[G]	[H]	NOT PERMITTED	NOT PERMITTED	[I]	------

TABLE I

NOTES

- REFINISH REWORKED AREAS AS GIVEN IN AMM 51-20.
- REFER TO SRM 51-10-01 FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS. WHERE DAMAGE IS MORE THAN THE LIMITS SHOWN IN SRM 51-10-01, CONSIDERATION SHOULD BE GIVEN TO LOSS OF PERFORMANCE INVOLVED.
- REFER TO SRM 51-10-02 FOR INSPECTION AND REMOVAL OF DAMAGE.

[A] DAMAGE TO THE EDGES OF THE SKIN PANEL CAN CAUSE FIBER DAMAGE AND A DECREASE IN CROSS-SECTIONAL AREA. REMOVE EDGE DAMAGE AS SHOWN IN DETAILS I AND II.

DAMAGE IS PERMITTED ONLY ON ONE SURFACE OF HONEYCOMB CORE TO A TOTAL MAXIMUM DIMENSION (D) OF 1.0 INCH (25 mm) FOR EACH SQUARE FOOT OF AREA.

A DAMAGE SITE MUST BE:

- A MINIMUM OF 3D (EDGE TO EDGE) FROM ANOTHER DAMAGE SITE. SEE DETAIL V FOR DAMAGE SITE SPECIFICATIONS
- A MINIMUM OF 3D (EDGE TO EDGE) FROM A HOLE OR THE EDGE OF THE MATERIAL.

DAMAGE IS NOT PERMITTED:

- FOR MORE THAN ONE FASTENER HOLE IN SIX
- ON MORE THAN ONE 10% OF THE LENGTH OF THE EDGEBAND ON A SIDE.

PROTECT DAMAGE THAT IS NOT REWORKED AS GIVEN IN NOTE [D].

[B] DAMAGE IS PERMITTED ON THE SURFACE RESIN ONLY WITH NO FIBER DAMAGE. CLEAN UP EDGE DAMAGE AS SHOWN IN DETAILS I AND II. FIBER DAMAGE MUST BE TREATED AS A HOLE OR PUNCTURE DAMAGE.

[C] DENTS RESULT IN DELAMINATION AND FIBER DAMAGE AND MUST BE TREATED AS A HOLE OR PUNCTURE DAMAGE.

[D] REMOVE MOISTURE FROM THE DAMAGE AREA. USE OF VACUUM AND HEAT (MAX OF 125°F (52°C)) TO REMOVE MOISTURE FROM HONEYCOMB CELLS IS RECOMMENDED. PROTECT DAMAGE FROM ENTRANCE OF WATER, SUNLIGHT OR OTHER FOREIGN MATTER BY SEALING WITH ALUMINUM FOIL TAPE (SPEED TAPE). RECORD THE LOCATION AND INSPECT EACH 50 FLIGHTS. REPLACE THE ALUMINUM FOIL TAPE IF ANY PEELING OR DETERIORATION IS EVIDENT. REPAIR NO LATER THAN 300 FLIGHTS AFTER DAMAGE. [J]

[E] DAMAGE TO THE EDGES OF THE SKIN PANEL CAN CAUSE FIBER DAMAGE AND A DECREASE IN CROSS-SECTIONAL AREA. REMOVE EDGE DAMAGE AS SHOWN IN DETAILS I AND II.

DAMAGE IS PERMITTED ONLY ON ONE SURFACE OF HONEYCOMB CORE TO A TOTAL MAXIMUM DIMENSION (D) OF 1.50 INCH (38 mm) FOR EACH SQUARE FOOT OF AREA.

A DAMAGE SITE MUST BE:

- A MINIMUM OF 3D (EDGE TO EDGE) FROM ANOTHER DAMAGE SITE. SEE DETAIL V FOR DAMAGE SITE SPECIFICATIONS
- A MINIMUM OF 3D (EDGE TO EDGE) FROM A HOLE OR THE EDGE OF THE MATERIAL.

DAMAGE IS NOT PERMITTED:

- FOR MORE THAN ONE FASTENER HOLE IN SIX
- ON MORE THAN ONE 10% OF THE LENGTH OF THE EDGEBAND ON A SIDE.

PROTECT DAMAGE THAT IS NOT REWORKED AS GIVEN IN NOTE [D].

Allowable Damage - Rudder Skin
Figure 101 (Sheet 2 of 5)

NOTES (CONT)

[F] DAMAGE TO THE EDGES OF THE SKIN PANEL CAN CAUSE FIBER DAMAGE AND A DECREASE IN CROSS-SECTIONAL AREA. REMOVE EDGE DAMAGE AS SHOWN IN DETAILS I AND II.

DAMAGE IS PERMITTED ONLY ON ONE SURFACE OF HONEYCOMB CORE TO A TOTAL MAXIMUM DIMENSION (D) OF 2.0 INCH FOR EACH SQUARE FOOT OF AREA.

A DAMAGE SITE MUST BE:

- A MINIMUM OF 3D (EDGE TO EDGE) FROM ANOTHER DAMAGE SITE. SEE DETAIL V FOR DAMAGE SITE SPECIFICATIONS
- A MINIMUM OF 3D (EDGE TO EDGE) FROM A HOLE OR THE EDGE OF THE MATERIAL.

DAMAGE IS NOT PERMITTED:

- FOR MORE THAN ONE FASTENER HOLE IN SIX
- ON MORE THAN ONE 10% OF THE LENGTH OF THE EDGEBAND ON A SIDE.

PROTECT DAMAGE THAT IS NOT REWORKED AS GIVEN IN NOTE [D].

[G] CRACKS ARE NOT ALLOWED EXCEPT FOR EDGE CRACKS WHICH MUST BE REMOVED AS SHOWN IN DETAILS II AND IV. SEAL EDGE CRACKS WITH BMS 5-95 SEALANT AND SPEED TAPE.

[H] REMOVE DAMAGE AS SHOWN IN DETAILS II AND IV.

[I] EDGE DELAMINATION IS NOT ALLOWED. SEAL EDGE DELAMINATION WITH BMS 5-95 SEALANT AND/OR SPEED TAPE. OTHER DELAMINATION IS ALLOWED PROVIDED THAT THE MAXIMUM DIMENSION DOES NOT EXCEED 1.0 AND DELAMINATION IS NOT LESS THAN 1.0 FROM AN EDGE OR OTHER DAMAGE. REPAIR DELAMINATION AT THE EARLIEST OPPORTUNITY.

[J] THESE ALLOWABLE DAMAGE LIMITS HAVE FAA APPROVAL CONTINGENT ON ACCOMPLISHMENT OF THE INSPECTIONS CONTAINED HEREIN.

[K] DAMAGE TO THE EDGES OF THE SKIN PANEL CAN CAUSE FIBER DAMAGE AND A DECREASE IN CROSS-SECTIONAL AREA. REMOVE EDGE DAMAGE AS SHOWN IN DETAILS I AND II.

DAMAGE IS PERMITTED ONLY ON ONE SURFACE OF HONEYCOMB CORE TO A TOTAL MAXIMUM DIMENSION (D) OF 0.25 INCH FOR EACH SQUARE FOOT OF AREA.

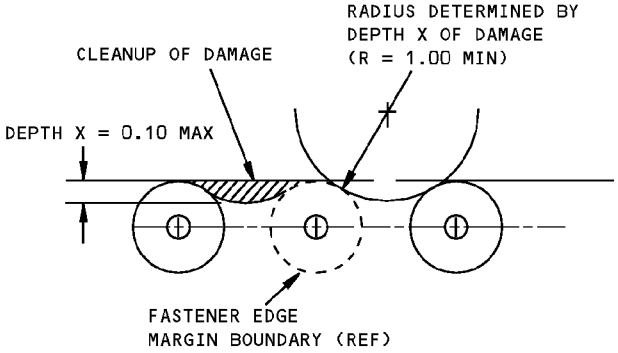
A DAMAGE SITE MUST BE:

- A MINIMUM OF 3D (EDGE TO EDGE) FROM ANOTHER DAMAGE SITE. SEE DETAIL V FOR DAMAGE SITE SPECIFICATIONS
- A MINIMUM OF 3D (EDGE TO EDGE) FROM A HOLE OR THE EDGE OF THE MATERIAL.

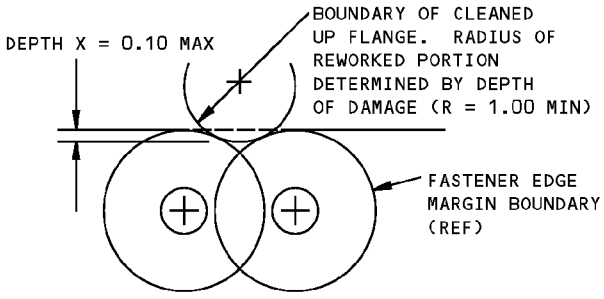
DAMAGE IS NOT PERMITTED:

- FOR MORE THAN ONE FASTENER HOLE IN TEN
- ON MORE THAN 5% OF THE LENGTH OF THE EDGEBAND ON A SIDE
- FOR MORE THAN ONE ATTACHMENT BOLT ON AN ACTUATOR OR A HINGE FITTING. THERE MUST BE NO DAMAGE TO ADJACENT FITTINGS.

PROTECT DAMAGE THAT IS NOT REWORKED AS GIVEN IN NOTE [D]. REPAIR THE DAMAGE BY 300 FLIGHT HOURS.



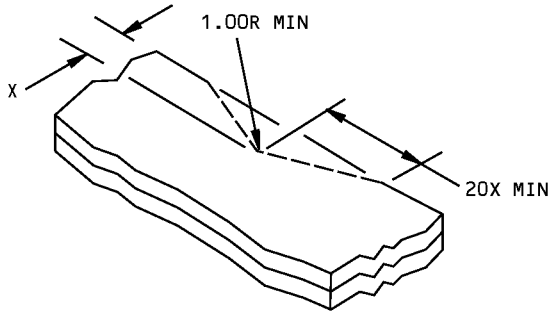
DAMAGE CLEANUP OF EDGES WHERE FASTENER EDGE MARGINS DO NOT OVERLAP



DAMAGE CLEANUP OF EDGES WHERE FASTENER EDGE MARGINS OVERLAP

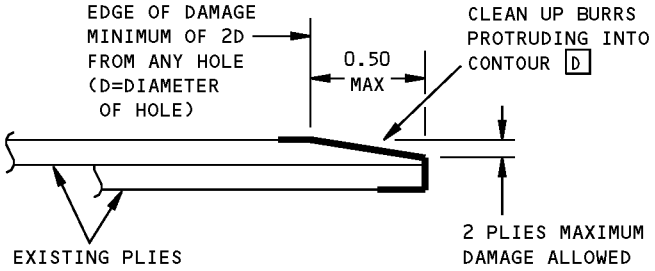
DETAIL I

Allowable Damage - Rudder Skin
Figure 101 (Sheet 3 of 5)



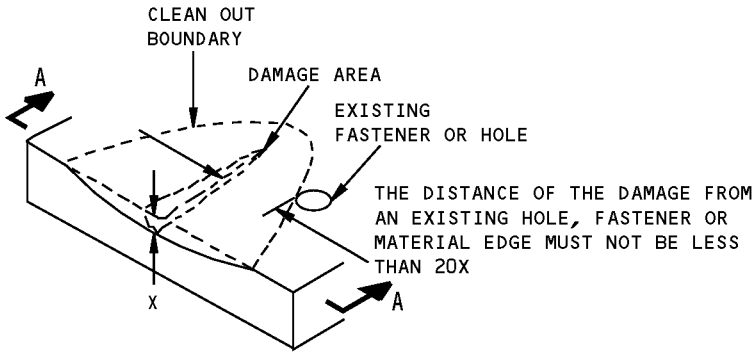
X = DEPTH OF CLEANUP 0.10 MAX

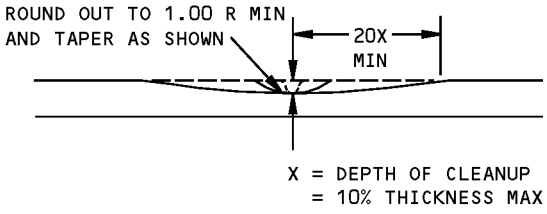
DETAIL II



DAMAGE CLEANUP AND SEALING OF EDGE EROSION

DETAIL III



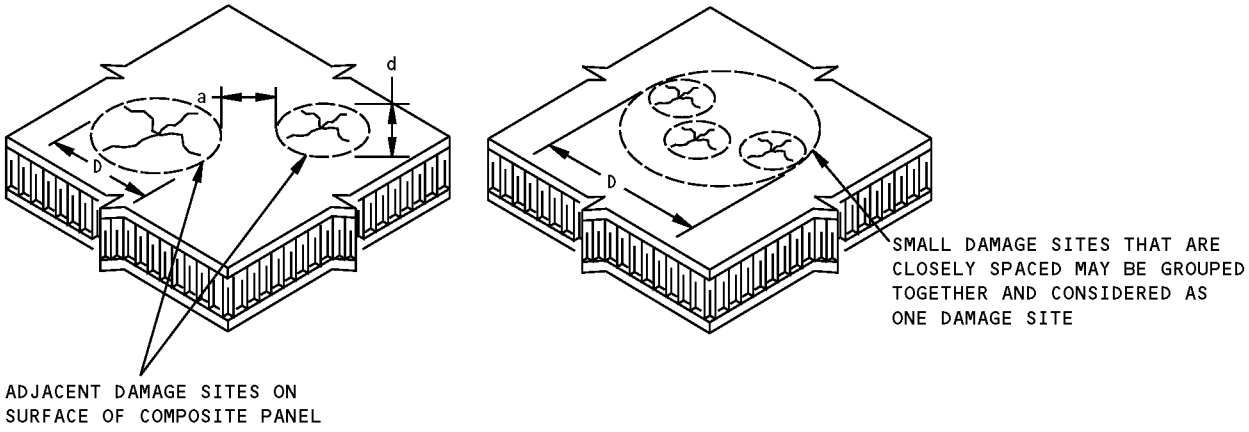


SECTION A-A

REMOVAL OF NICK, GOUGE AND SCRATCH DAMAGE ON A SURFACE

DETAIL IV

Allowable Damage - Rudder Skin
Figure 101 (Sheet 4 of 5)

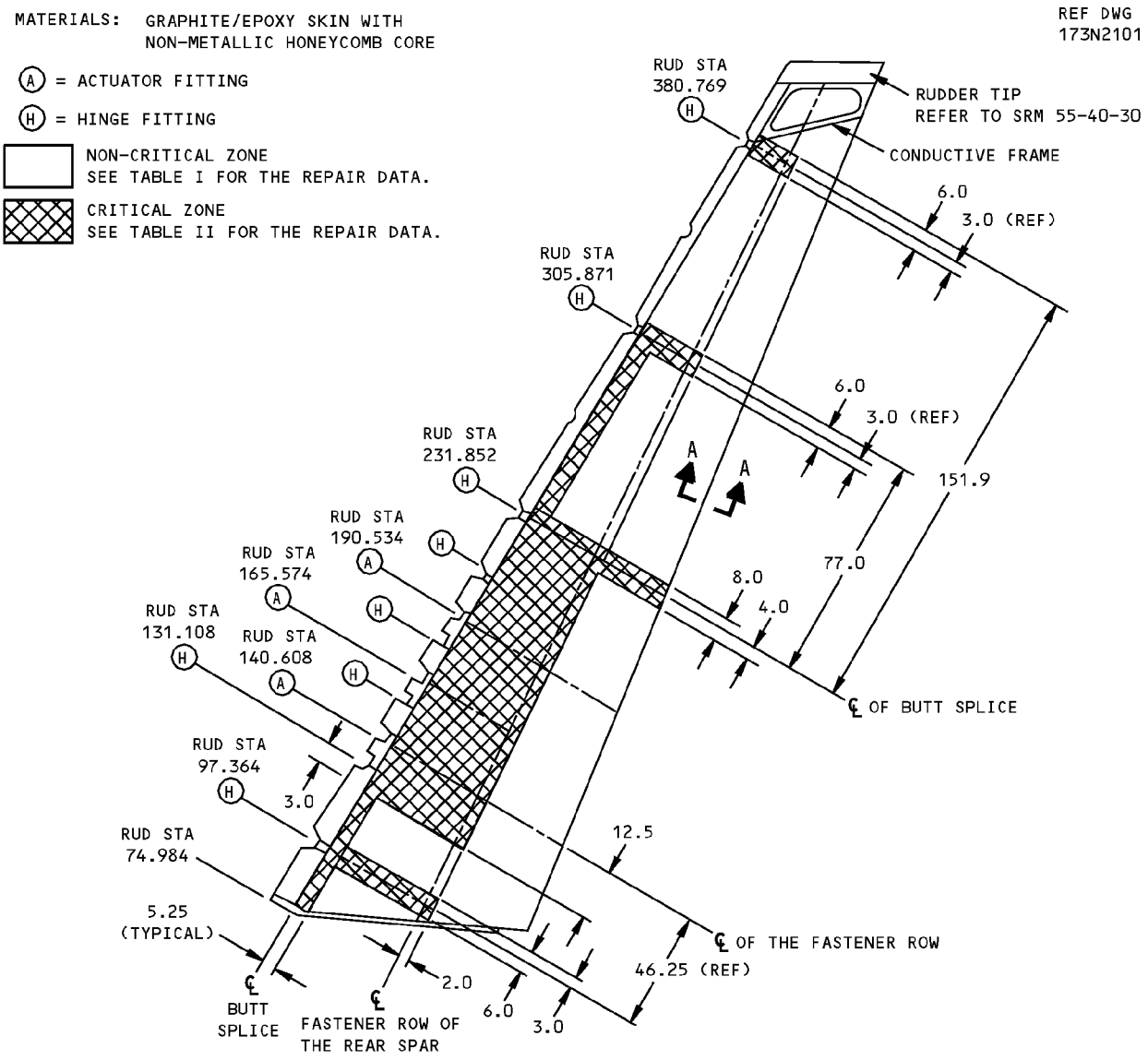


- DAMAGE TO COMPOSITE PANELS EXPOSED TO MULTIPLE IMPACTS, I.E., HAIL DAMAGE, CAN BE DETECTED BY USING INSTRUMENTED NON-DESTRUCTIVE INSPECTION METHODS OR BY TAPPING THE SUSPECTED DAMAGE AREA WITH A SMALL METALLIC DISK OBJECT. INSPECTION SHOULD COVER THE AREA WITHIN 3 DIAMETERS AROUND THE EDGE OF THE VISIBLE DAMAGE SITE. FOR TAP TEST, USE A SOLID METAL DISK AND TAP THE DAMAGE AREA LIGHTLY BUT FIRMLY. VOID AREAS SHOULD PRODUCE A DULL SOUND AS OPPOSED TO A SHARP RING ON A SOLID BONDED AREA.
- DAMAGE SITE IS ANY SINGLE AREA OF A PANEL WHERE A DENT, CRACK, DELAMINATION, PUNCTURE OR ANY COMBINATION OF THESE EXIST. SMALL DAMAGE SITES THAT ARE CLOSELY SPACED MAY BE GROUPED TOGETHER AND CONSIDERED AS ONE DAMAGE SITE.
- "D" IS DETERMINED BY MEASURING THE MAXIMUM DIMENSION OF A DENT, CRACK, OR OTHER DAMAGE, WHICHEVER IS GREATER.
- "a" IS THE DISTANCE BETWEEN TWO ADJACENT DAMAGE SITES.
- "d" IS THE DIAMETER OF THE SMALLER OF TWO ADJACENT DAMAGE SITES.
- CALCULATE a/D BY DIVIDING DISTANCE "a" BY DIAMETER "D".
- DAMAGE IS ALLOWED WHEN "D" IS EQUAL TO OR LESS THAN THE MAXIMUM ALLOWABLE "D" FROM TABLE I.

DAMAGE SIZING AND SPACING DATA
FOR COMPOSITE PANELS
DETAIL V

Allowable Damage - Rudder Skin
Figure 101 (Sheet 5 of 5)

REPAIR 1 - RUDDER SKIN



Rudder Skin Repairs
Figure 201 (Sheet 1 of 3)

NOTES

- WHEN YOU USE THIS REPAIR, REFER TO:
  - AMM 51-21-01 FOR APPLICATION OF FINISHES
  - SRM 51-10-01, FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS. WHERE THE DAMAGE IS MORE THAN THE LIMITS GIVEN IN SRM 51-10-01, THOUGHT SHOULD BE GIVEN TO THE LOSS OF PERFORMANCE THAT MAY OCCUR

[A] INSPECT INTERIM REPAIR USING INSTRUMENTED NDT METHODS OR "TAP" TEST EVERY AIRPLANE "2A" CHECK. FOR "TAP" TEST, USE A SOLID METAL DISK AND TAP THE REPAIR AREA LIGHTLY BUT FIRMLY. VOID AREAS WILL PRODUCE A DULL SOUND AS OPPOSED TO A SHARP RING ON A SOLID BONDED AREA. PERMANENT REPAIR IS REQUIRED IF ANY DETERIORATION IS EVIDENT. REFER TO SRM 51-70-03, PAR. 4.I. AND NDT D634N301 [D].

[B] LIMITED TO REPAIR OF DAMAGE TO ONE FACESHEET SKIN AND HONEYCOMB CORE. ONE REPAIR FOR EACH SQUARE FOOT OF AREA AND MINIMUM OF 6.0 INCHES (150 mm) (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE, OR EDGE OF PANEL.

[C] ONE REPAIR FOR EACH SQUARE FOOT OF AREA AND A MINIMUM OF 6.0 INCHES (150 mm) (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE, OR EDGE OR PANEL.

[D] THIS REPAIR HAS FAA APPROVAL CONTINGENT ON ACCOMPLISHMENT OF THE INSPECTIONS CONTAINED HEREIN.

DAMAGE	INTERIM REPAIRS [A]	PERMANENT REPAIRS		
	WET LAYUP 150°F CURE (SRM 51-70-03)	WET LAYUP 200°F CURE (SRM 51-70-17)	250°F CURE (SRM 51-70-05)	350°F CURE (SRM 51-70-04)
CRACKS	UP TO 2.0 INCHES (50 mm) LONG, REPAIR WITH PATCH AS GIVEN IN SRM 51-70-03, PAR. 5.N. [B]	CLEAN UP DAMAGE AND REPAIR AS A HOLE.	CLEAN UP DAMAGE AND REPAIR AS A HOLE.	CLEAN UP DAMAGE AND REPAIR AS A HOLE.
HOLES	2.0 INCHES (50 mm) MAX DIA NOT TO EXCEED 30% OF SMALLEST DIMENSION ACROSS THE HONEYCOMB PANEL AT THE DAMAGE LOCATION. FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-03, PAR. 5.N. [B]	10.0 INCHES (250 mm) MAXIMUM DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS THE HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED. [C]	5.0 INCHES (125 mm) MAXIMUM DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS THE HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED. [C]	NO SIZE LIMIT
EDGE EROSION	———	FOR DAMAGE NOT EXCEEDING 35% OF EDGEBAND THICKNESS, REPAIR AS GIVEN IN SRM 51-70-03, PAR. 5.0. FOR LARGER DAMAGE, REPAIR AS GIVEN IN: SRM 51-70-17, PAR. 4.G.	SRM 51-70-05, PAR. 5.G.	SRM 51-70-04, PAR. 5.G.
DELAMI-NATION	CUT OUT AND REPAIR AS A HOLE.			
NICKS AND GOUGES	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL NICKS OR GOUGES AS GIVEN IN SRM 51-70-03. IF YOU FIND FIBER DAMAGE OR DELAMINATION, THEN REPAIR AS A HOLE.			
DENTS	UP TO 2.0 INCHES (50 mm) DIA WITH NO FIBER DAMAGE OR DELAMINATION IN THE HONEYCOMB PANEL AREAS, FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-03, PAR. 5.L. [C] OVER 2.0 INCHES (50 mm) DIA OR WITH FIBER DAMAGE OR DELAMINATION, REPAIR AS A HOLE.			

REPAIR DATA FOR 350°F CURE GRAPHITE/EPOXY HONEYCOMB PANELS IN NON-CRITICAL AREAS
TABLE I

Rudder Skin Repairs
Figure 201 (Sheet 2 of 3)

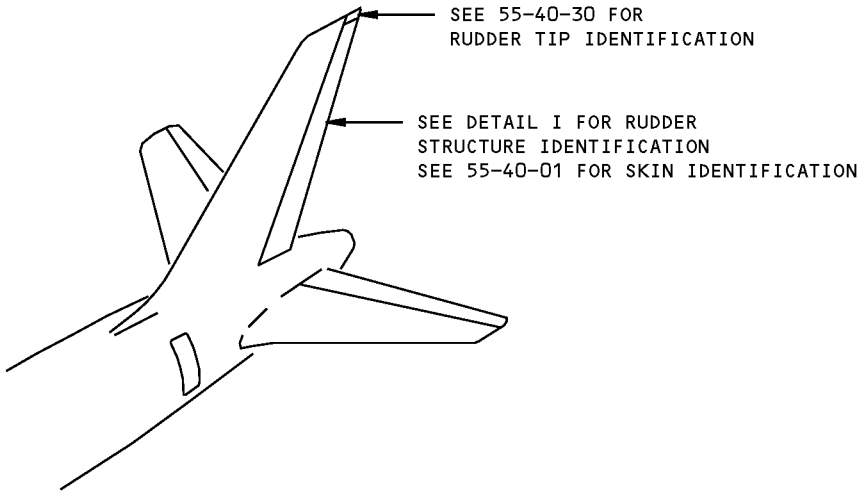
DAMAGE	INTERIM REPAIRS [A]	PERMANENT REPAIRS		
	WET LAYUP 150°F CURE (SRM 51-70-03)	WET LAYUP 200°F CURE (SRM 51-70-17)	250°F CURE (SRM 51-70-05)	350°F CURE (SRM 51-70-04)
CRACKS	UP TO 0.25 INCH (6 mm) LONG, REPAIR WITH PATCH AS GIVEN IN SRM 51-70-03, PAR. 5.N. [B]	CLEAN UP DAMAGE AND REPAIR AS A HOLE.	CLEAN UP DAMAGE AND REPAIR AS A HOLE.	CLEAN UP DAMAGE AND REPAIR AS A HOLE.
HOLES	0.25 INCH (6 mm) MAXIMUM DIA. FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-03, PAR. 5.N. [B]	5.0 INCHES (125 mm) MAXIMUM DIA IN THE HONEYCOMB PANEL AREAS. USE TWO EXTRA PLIES FOR EACH FACESHEET [C] REPAIRED. 0.5 INCH (12.7 mm) MAXIMUM DIA IN SOLID LAMINATE AREAS.	5.0 INCHES (125 mm) MAXIMUM DIA IN THE HONEYCOMB PANEL AREAS. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED. [C] 0.5 INCH (12.7 mm) MAXIMUM DIA IN SOLID LAMINATE AREAS.	NO SIZE LIMIT
EDGE EROSION		FOR DAMAGE NOT EXCEEDING 10% OF EDGEBAND THICKNESS, REPAIR AS GIVEN IN SRM 51-70-03, PAR. 5.O. FOR LARGER DAMAGE, REPAIR AS GIVEN IN:		
		SRM 51-70-17, PAR. 4.G.	SRM 51-70-05, PAR. 5.G.	SRM 51-70-04, PAR. 5.G.
DELAMI-NATION	CUT OUT AND REPAIR AS A HOLE.			
NICKS AND GOUGES	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL NICKS OR GOUGES AS GIVEN IN SRM 51-70-03. IF YOU FIND FIBER DAMAGE OR DELAMINATION, THEN REPAIR AS A HOLE.			
DENTS	UP TO 2.0 INCHES (50 mm) DIA WITH NO FIBER DAMAGE OR DELAMINATION IN THE HONEYCOMB PANEL AREAS, FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-03, PAR. 5.L. [C] OVER 2.0 INCHES (50 mm) DIA OR WITH FIBER DAMAGE OR DELAMINATION, REPAIR AS A HOLE.			

REPAIR DATA FOR 350°F CURE GRAPHITE/EPOXY HONEYCOMB PANELS IN CRITICAL AREAS

TABLE II

Rudder Skin Repairs
Figure 201 (Sheet 3 of 3)

IDENTIFICATION 1 - RUDDER STRUCTURE



NOTES

[A] PLY ORIENTATION CONVENTION, DEGREES INDICATED, IS PARALLEL TO THE FABRIC WARP DIRECTION

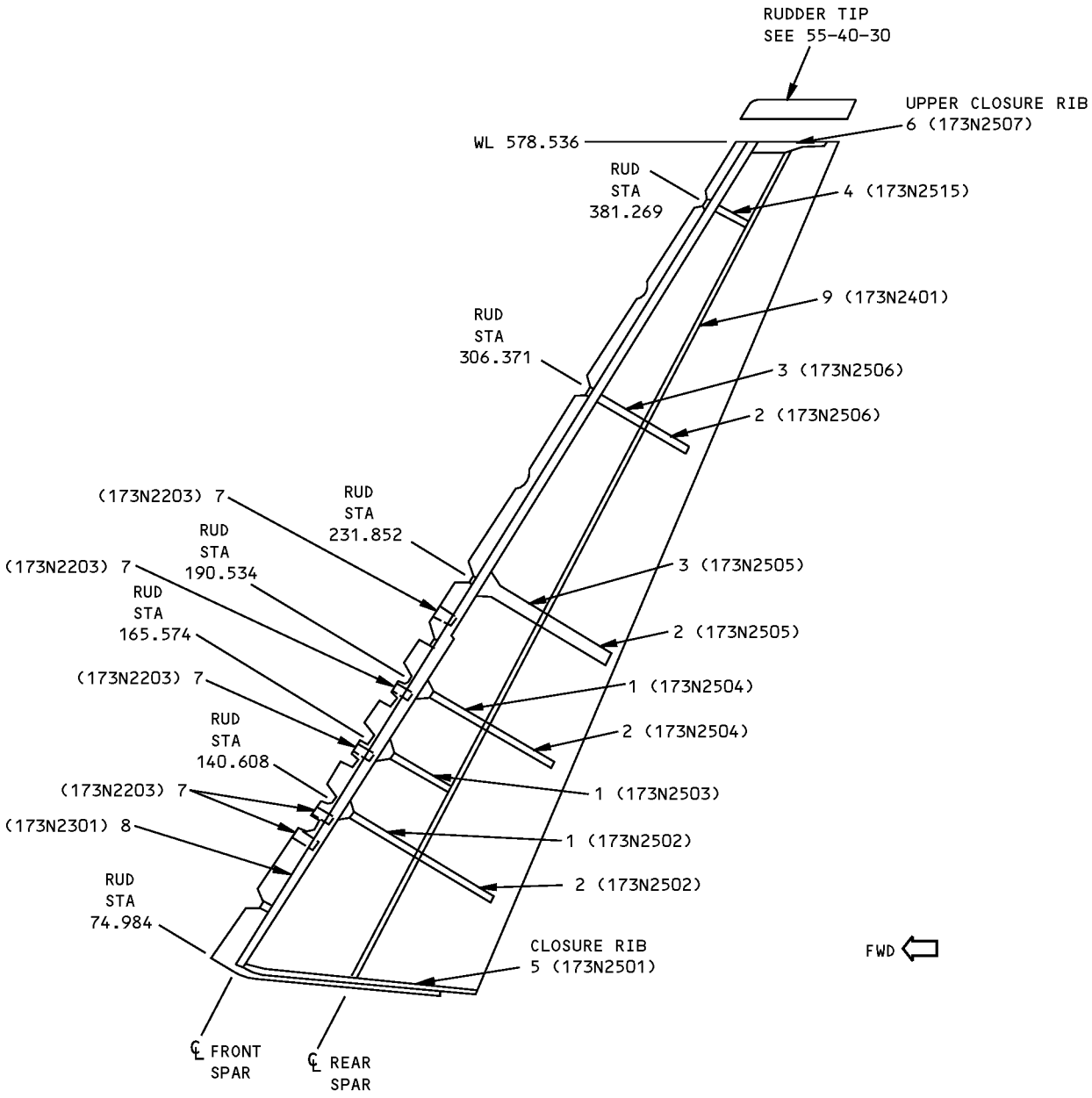
[B] MATERIAL AND PLY ORIENTATION SHOWN FOR FIELD AREAS ONLY. SEE BOEING DRAWINGS FOR EDGE BANDS AND AREAS WITH DOUBLERS

[C] GRAPHITE/EPOXY FABRIC PER BMS 8-256, CLASS 2, STYLE 3K-70-PW, 350°F (177°C) CURE

[D] GRAPHITE/EPOXY FABRIC PER BMS 8-212, TYPE IV, CLASS 2, STYLE 3K-70-PW, 350°F (177°C) CURE

[E] FIBERGLASS PREPREG FABRIC PER BMS 8-139 TYPE 120, 350°F (177°C) CURE

Rudder Structure Identification
Figure 1 (Sheet 1 of 9)



DETAIL I

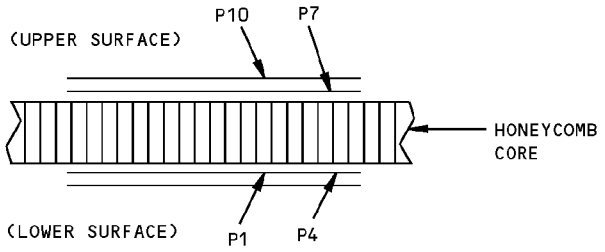
LIST OF MATL

Rudder Structure Identification
Figure 1 (Sheet 2 of 9)

ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	FWD RIB SKIN CORE		GRAPHITE/EPOXY HONEYCOMB SANDWICH SEE DETAIL II NON-METALLIC HONEYCOMB CORE PER BMS 8-124, NOMEX, CLASS IV, TYPE V, GRADE 3	
2	AFT RIB		GRAPHITE/EPOXY PREPREG FABRIC SEE DETAIL V	
3	FWD RIB SKIN CORE		GRAPHITE/EPOXY HONEYCOMB SANDWICH SEE DETAIL III NON-METALLIC HONEYCOMB PER BMS 8-124, NOMEX, CLASS IV, TYPE V, GRADE 3	
4	FWD RIB		GRAPHITE/EPOXY FABRIC LAMINATE SEE DETAIL VI	
5	RIB SKIN CORE		GRAPHITE/EPOXY HONEYCOMB SANDWICH SEE DETAIL IV NON-METALLIC HONEYCOMB PER BMS 8-124, NOMEX, CLASS IV, TYPE V, GRADE 3	
6	RIB		GRAPHITE/EPOXY FABRIC LAMINATE SEE DETAIL VII	
7	RIB		GRAPHITE/EPOXY FABRIC LAMINATE SEE DETAIL VIII	
8	SPAR SKIN CORE		GRAPHITE/EPOXY HONEYCOMB SANDWICH SEE DETAIL IX NON-METALLIC HONEYCOMB PER BMS 8-124, NOMEX, CLASS IV, TYPE V, GRADE 3	
9	SPAR SKIN CORE		GRAPHITE/EPOXY HONEYCOMB SANDWICH SEE DETAIL X NON-METALLIC HONEYCOMB PER BMS 8-124, NOMEX, CLASS IV, TYPE V, GRADE 3	

LIST OF MATERIALS FOR DETAIL I

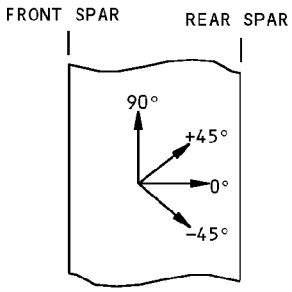
Rudder Structure Identification
Figure 1 (Sheet 3 of 9)



SECTION THRU PLIES

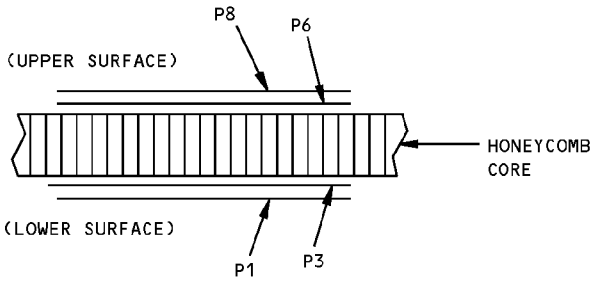
ITEM NO.	PLY NO.	MATERIAL	PLY ORIENTATION [A]
1	P1 P10	[C]	±45°
	P4 P7		0° OR 90°

PLY TABLE FOR DETAIL II [B]



PLY ORIENTATION

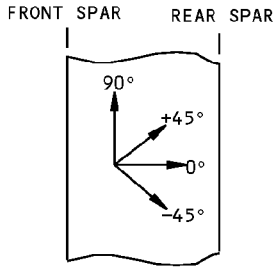
DETAIL II



SECTION THRU PLIES

ITEM NO.	PLY NO.	MATERIAL	PLY ORIENTATION [A]
3	P1 P8	[C]	±45°
	P3 P6		0° OR 90°

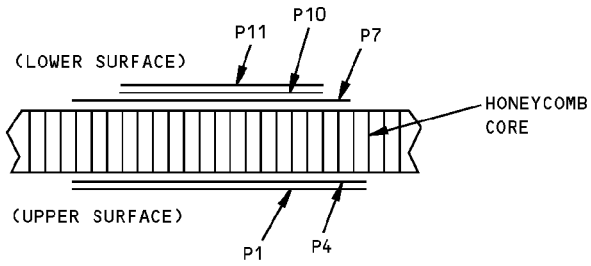
PLY TABLE FOR DETAIL III [B]



PLY ORIENTATION

DETAIL III

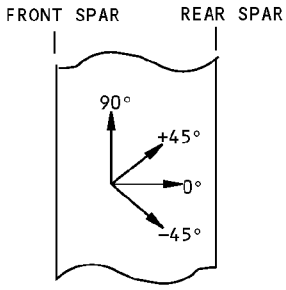
Rudder Structure Identification
Figure 1 (Sheet 4 of 9)



SECTION THRU PLIES

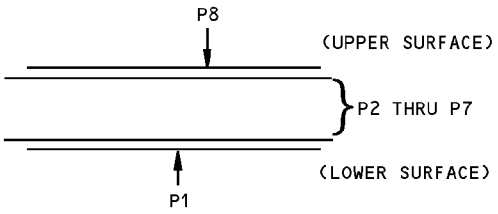
ITEM NO.	PLY NO.	MATERIAL	PLY ORIENTATION [A]
5	P1 P10	[C]	±45°
	P4 P7	[C]	0° OR 90°
	P11	[E]	

PLY TABLE FOR DETAIL IV [B]



PLY ORIENTATION

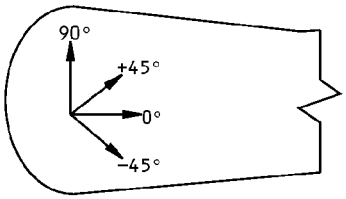
DETAIL IV



SECTION THRU PLIES

ITEM NO.	PLY NO.	MATERIAL	PLY ORIENTATION [A]
2	P1 P3 P6 P8	[D]	±45°
	P2 P4 P5 P7		0° OR 90°

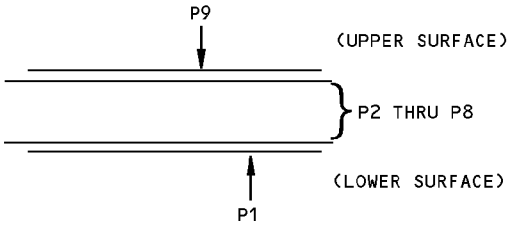
PLY TABLE FOR DETAIL V [B]



PLY ORIENTATION

DETAIL V

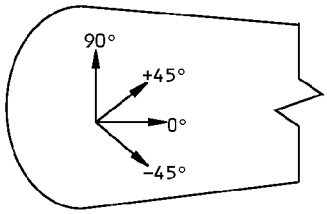
Rudder Structure Identification
Figure 1 (Sheet 5 of 9)



SECTION THRU PLIES

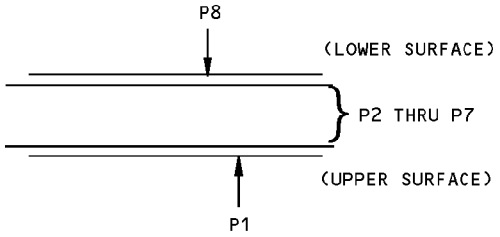
ITEM NO.	PLY NO.	MATERIAL	PLY ORIENTATION [A]
4	P1 P3 P5 P7 P9	[D]	±45°
	P2 P4 P6 P8		0° OR 90°

PLY TABLE FOR DETAIL VI [B]



PLY ORIENTATION

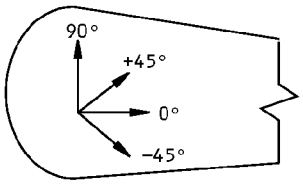
DETAIL VI



SECTION THRU PLIES

ITEM NO.	PLY NO.	MATERIAL	PLY ORIENTATION [A]
6	P2 P4 P5 P7	[D]	±45°
	P1 P3 P6 P8		0° OR 90°

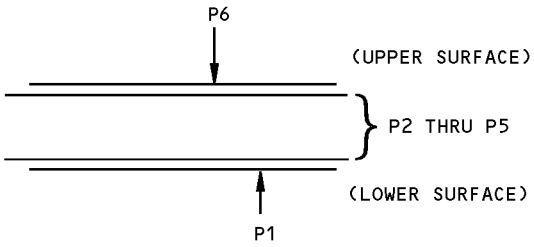
PLY TABLE FOR DETAIL VII [B]



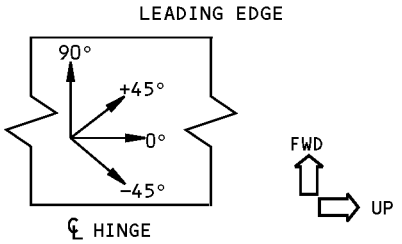
PLY ORIENTATION

DETAIL VII

Rudder Structure Identification
Figure 1 (Sheet 6 of 9)



SECTION THRU PLIES



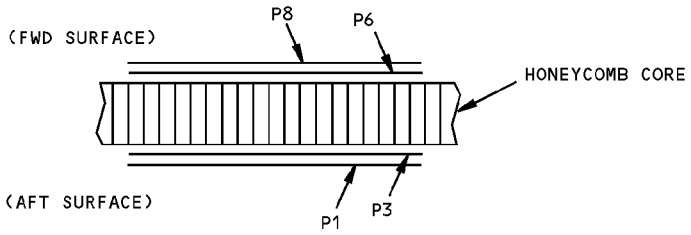
PLY ORIENTATION

ITEM NO.	PLY NO.	MATERIAL	PLY ORIENTATION [A]
7	P1 P3 P4 P6	[D]	±45°
	P2 P5		0° OR 90°

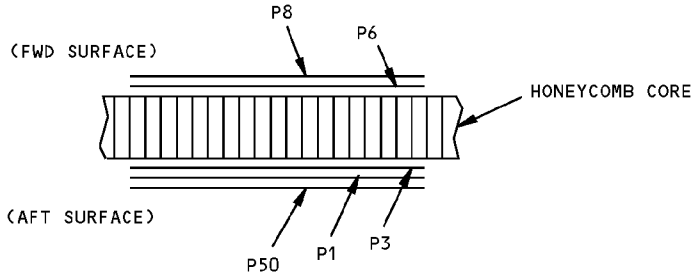
PLY TABLE FOR DETAIL VIII [B]

DETAIL VIII

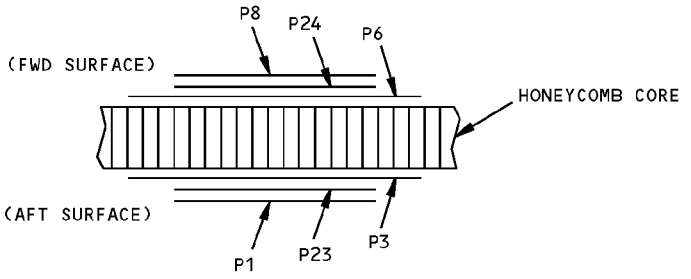
Rudder Structure Identification
Figure 1 (Sheet 7 of 9)



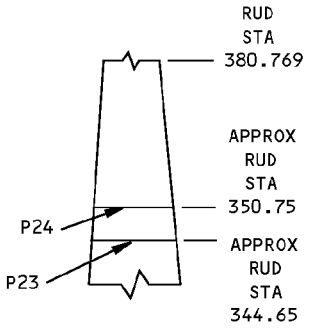
SECTION THRU PLIES
FOR RUD STA 75.50 THRU APPROX 112.85 AND
FOR RUD STA APPROX 214.50 THRU APPROX 344.65

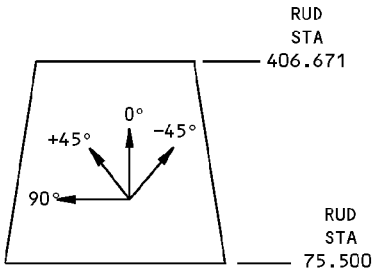


SECTION THRU PLIES
FOR RUD STA APPROX 112.85 THRU APPROX 214.50



SECTION THRU PLIES
FOR RUD STA APPROX 344.65 THRU STA 406.671





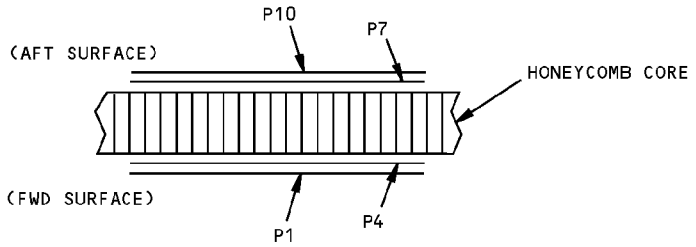
PLY ORIENTATION

ITEM NO.	PLY NO.	MATERIAL	PLY ORIENTATION [A]
8	P1 P8 P23 P24	[C]	±45°
	P3 P6		0° OR 90°
	P50	[E]	

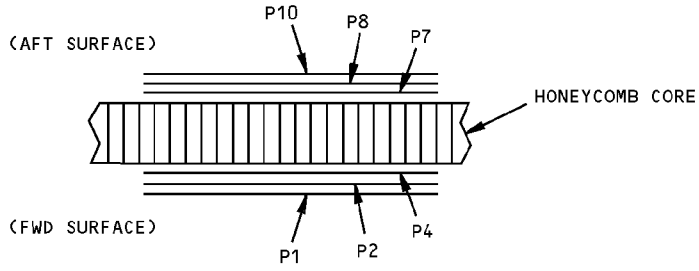
PLY TABLE FOR DETAIL IX [B]

DETAIL IX [B]

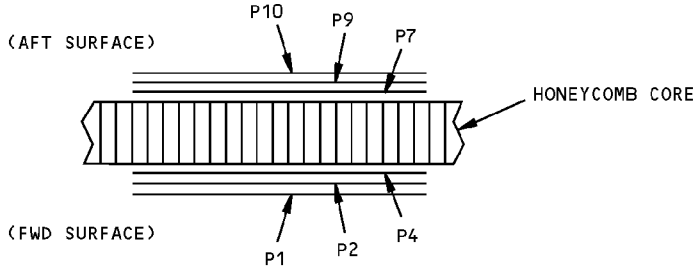
Rudder Structure Identification
Figure 1 (Sheet 8 of 9)



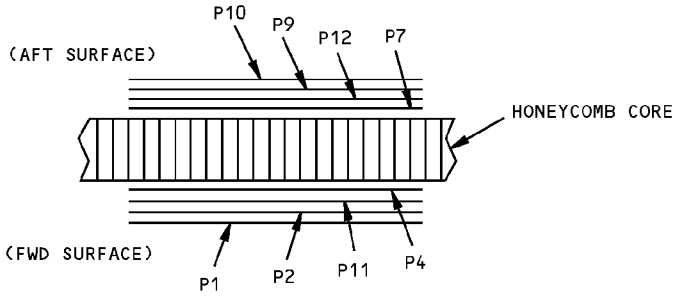
SECTION THRU PLIES
FOR RUD STA 75.50 THRU 140.608 AND
FOR RUD STA 190.534 THRU 306.371



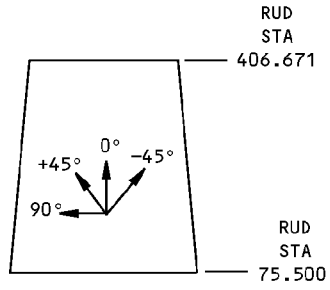
SECTION THRU PLIES
FOR RUD STA 140.608 THRU 190.534



SECTION THRU PLIES
FOR RUD STA 306.371 THRU 381.269



SECTION THRU PLIES
FOR RUD STA 381.269 THRU WL 578.536



PLY ORIENTATION

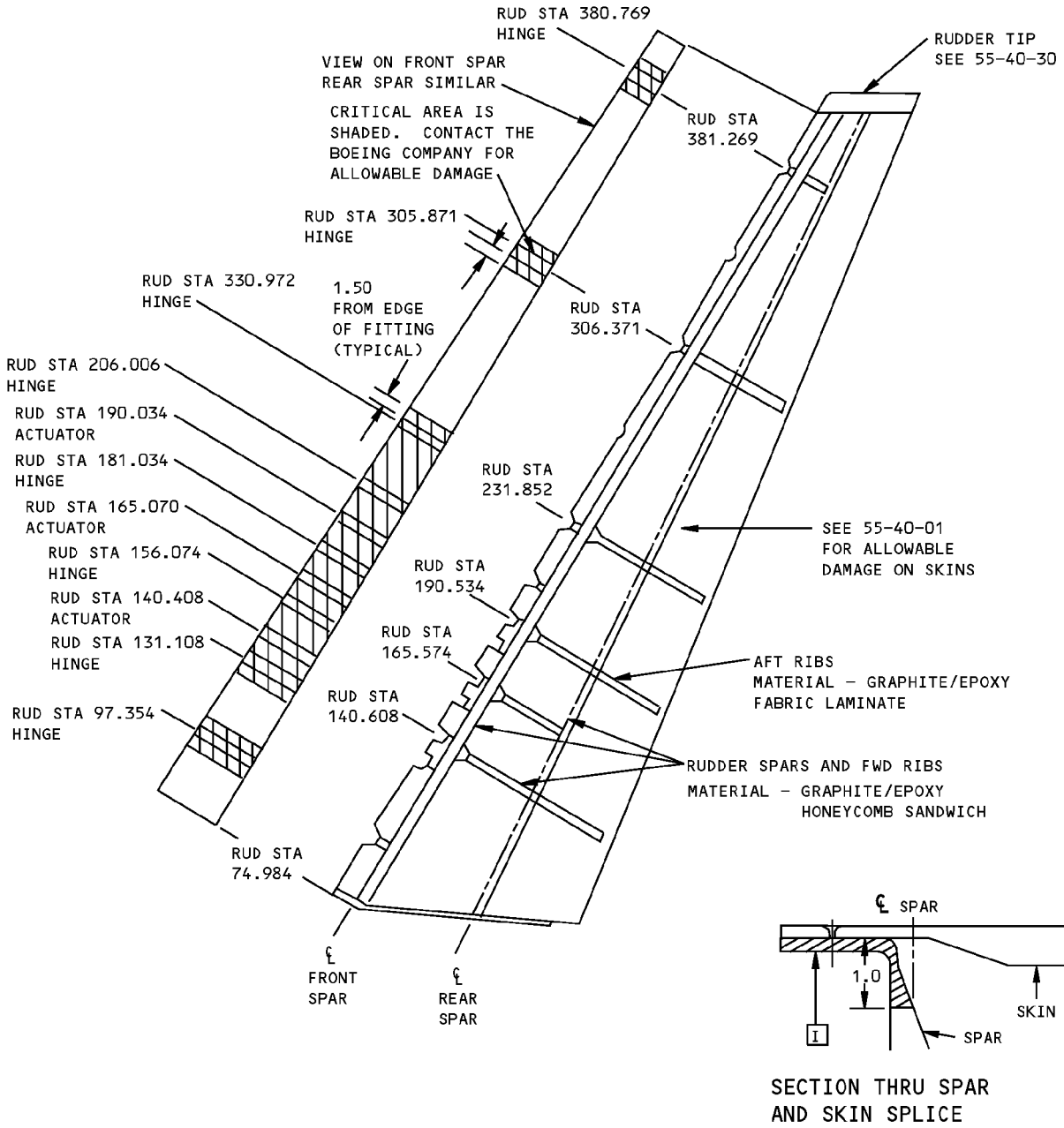
ITEM NO.	PLY NO.	MATERIAL	PLY ORIENTATION [A]
9	P1 P3 P8 P10 P11 P12	[C]	±45°
	P2 P4 P7 P9		0° OR 90°

PLY TABLE FOR DETAIL X [B]

DETAIL X

Rudder Structure Identification
Figure 1 (Sheet 9 of 9)

ALLOWABLE DAMAGE 1 - RUDDER STRUCTURE



LOCATION	CRACKS	NICKS AND GOUGES	DENTS	HOLES AND PUNCTURES	DELAMINATION
SPARS AND FWD RIBS	B	C	D	E	F
AFT RIBS SOLID LAMINATE	G	C	D	E	H

Allowable Damage - Rudder Structure
Figure 101 (Sheet 1 of 3)

NOTES

- REFINISH REWORKED AREAS PER 51-20 OF THE MAINTENANCE MANUAL
- TYPICAL DAMAGE TO A PANEL EDGEBAND MAY CONSIST OF EDGE CRUSHING, CRACKS OR DELAMINATION. DAMAGE AROUND HOLES MAY CONSIST OF OVALIZATION, FASTENER PULL-THROUGH OR CRACKS OUT OF HOLE. DAMAGE MAY REDUCE THE EFFECTIVE CROSS SECTIONAL AREA OF AN EDGEBAND. DAMAGE TO EDGES SHOULD BE BLENDED OUT TO LIMITATIONS GIVEN FOR COMPONENT

[A] REMOVE MOISTURE FROM DAMAGE AREA. USE OF VACUUM AND HEAT (MAX OF 125°F (52°C)) TO REMOVE MOISTURE FROM HONEYCOMB CELLS IS RECOMMENDED. PROTECT DAMAGE FROM ENTRANCE OF WATER, SUNLIGHT OR OTHER FOREIGN MATTER BY SEALING WITH ALUMINUM FOIL TAPE (SPEED TAPE). RECORD THE LOCATION AND REPAIR BEFORE THE EXPIRATION OF 60 CALENDAR DAYS

[B] EDGE CRACKS MUST BE REMOVED PER DETAILS I AND II. 0.50 MAX LENGTH IN HONEYCOMB AREA IS ALLOWED PER SQUARE FOOT OF AREA. MINIMUM OF 6 INCHES FROM ANY OTHER DAMAGE [A]

[C] DAMAGE ALLOWED ON SURFACE RESIN ONLY. DAMAGE TO FIBERS NOT ALLOWED [A]

[D] DENTS GENERALLY RESULT IN FIBER DAMAGE OR DELAMINATION. HOWEVER, IF THERE IS NO FIBER DAMAGE OR DELAMINATION, DENTS UP TO 0.50 DIA MAX ARE ALLOWED. ONE DENT PER SQUARE FOOT OF AREA ALLOWED WHICH MUST BE A MINIMUM OF 6 INCHES FROM ANY OTHER DAMAGE, FASTENER HOLE, OR PANEL EDGE. SEE [E] [F] OR [H] IF FIBER DAMAGE OR DELAMINATION IS PRESENT

[E] 0.50 MAX DIA ALLOWED PROVIDED DAMAGE IS MIN OF 6.0 D FROM OTHER DAMAGE, NEAREST HOLE, OR MATERIAL EDGE. DO NOT CLEAN UP DAMAGE EXCEPT TO REMOVE RESIN BURRS EXTENDING INTO SURFACE CONTOUR

[F] 0.50 INCH MAX DIA IS ALLOWED PER SQUARE FOOT OF AREA AND A MINIMUM OF 6.0 INCHES FROM ANY OTHER DAMAGE AND 1.0 INCH FROM ANY HOLE OR EDGE. A MAXIMUM OF 0.03 INCH DELAMINATION FROM EDGE IS ALLOWED. REPAIR DELAMINATION IN HONEYCOMB AREA PER 51-70 BEFORE THE EXPIRATION OF 60 CALENDAR DAYS. PROTECT EDGE DAMAGE PER [A]

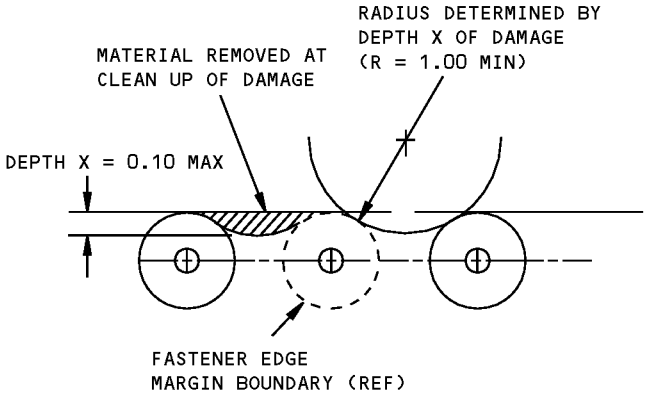
[G] EDGE CRACKS MUST BE REMOVED PER DETAILS I AND II. 0.50 MAX LENGTH IS ALLOWED PER SQUARE FOOT OF AREA. MINIMUM OF 6 INCHES FROM ANY OTHER DAMAGE [A]

[H] 1.0 SQUARE INCH ALLOWED IN EACH RIB WITHOUT REWORK

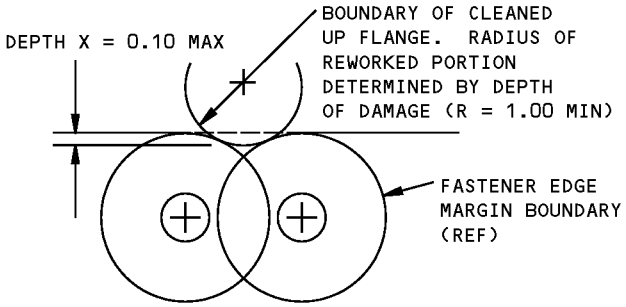
[I] THE FLANGES ON THE RUDDER SPARS ARE CRITICAL AREAS FOR THE ENTIRE LENGTH OF THE SPAR. CONTACT THE BOEING COMPANY FOR ALLOWABLE DAMAGE

[J] THESE ALLOWABLE DAMAGE LIMITS HAVE FAA APPROVAL CONTINGENT ON ACCOMPLISHMENT OF THE INSPECTIONS CONTAINED HEREIN

Allowable Damage - Rudder Structure
Figure 101 (Sheet 2 of 3)

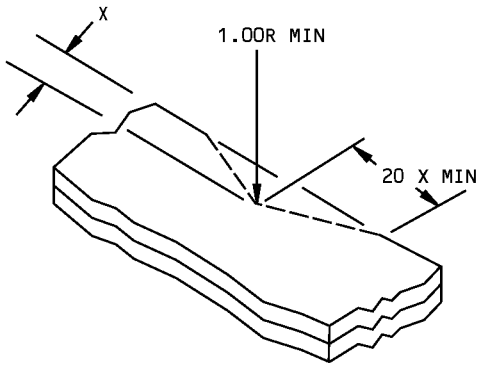


DAMAGE CLEAN UP OF EDGES WHERE
FASTENER EDGE MARGINS DO NOT OVERLAP



DAMAGE CLEAN UP OF EDGES WHERE
FASTENER EDGE MARGINS OVERLAP

DETAIL I

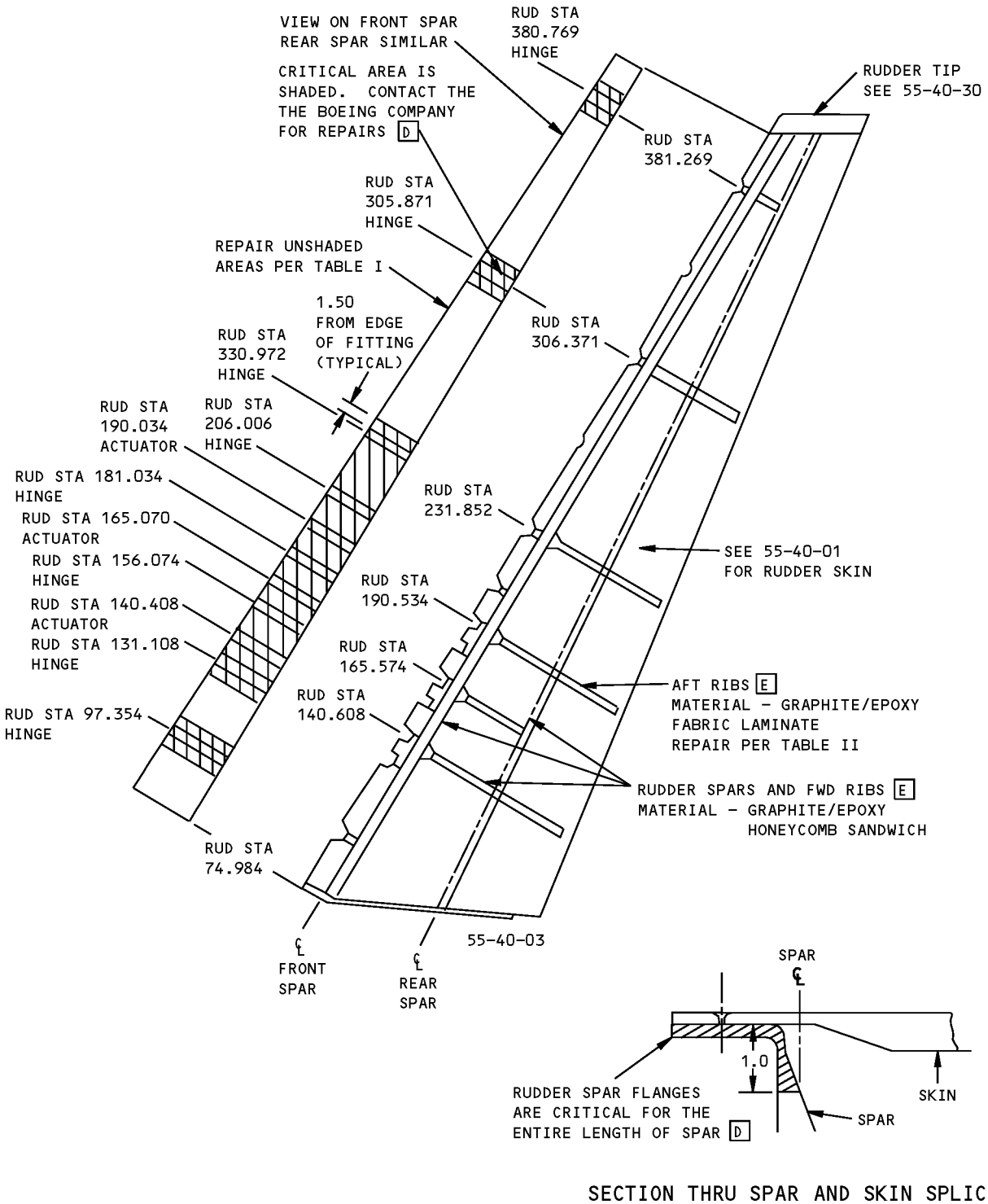


X = DEPTH OF CLEANUP = 0.10 MAX

DETAIL II

Allowable Damage - Rudder Structure
Figure 101 (Sheet 3 of 3)

REPAIR 1 - RUDDER SPAR AND RIB



Rudder Spar and Rib Repair
Figure 201 (Sheet 1 of 3)

DAMAGE	INTERIM REPAIRS [B]	PERMANENT REPAIRS		
	WET LAYUP 150°F CURE (SRM 51-70-03)	WET LAYUP 200°F CURE (SRM 51-70-17)	250°F CURE (SRM 51-70-05)	350°F CURE (SRM 51-70-04)
CRACKS	UP TO 2.0 INCHES (50 mm) LONG, REPAIR WITH PATCH AS SHOWN IN SRM 51-70-03, PAR. 5.N. [A]	CLEAN UP DAMAGE AND REPAIR AS HOLE.	CLEAN UP DAMAGE AND REPAIR AS HOLE.	CLEAN UP DAMAGE AND REPAIR AS HOLE.
HOLES	2.0 INCHES (50 mm) MAX DIA NOT TO EXCEED 30% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS SHOWN IN SRM 51-70-03, PAR. 5.N. [A]	5.0 INCHES (125 mm) MAX DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED. [C]	5.0 INCHES (125 mm) MAX DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED. [C]	NO SIZE LIMIT
DELAMI-NATION	CUT OUT AND REPAIR AS HOLE.			
NICKS AND GOUGES	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL NICKS OR GOUGES AS SHOWN IN SRM 51-70-03. IF THERE IS FIBER DAMAGE OR DELAMINATION, REPAIR AS A HOLE.			
DENTS	UP TO 2.0 INCHES (50 mm) DIA WITH NO FIBER DAMAGE OR DELAMINATION, FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS SHOWN IN SRM 51-70-03, PAR. 5.L. [C] OVER 2.0 INCHES (50 mm) DIA OR WITH FIBER DAMAGE OR DELAMINATION, REPAIR AS HOLE.			

TABLE I

NOTES

- REFINISH REWORKED AREAS AS SHOWN IN AMM 51-20
- REFER TO SRM 51-10-01 FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS. WHERE THE REPAIR IS MORE THAN THE LIMITS SHOWN IN SRM 51-10-01, CONSIDERATION SHOULD BE GIVEN TO THE LOSS OF PERFORMANCE.

[A] LIMITED TO REPAIR OF DAMAGE TO ONE FACE-SHEET SKIN AND HONEYCOMB CORE. ONE REPAIR FOR EACH 12.0 INCHES (300 mm) OF SPAN AND MINIMUM OF 3.0 INCHES (75 mm) (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE, OR EDGE OF PANEL.

[B] INSPECT INTERIM REPAIR USING INSTRUMENTED NDI METHODS OR "TAP" TEST EVERY AIRPLANE "2A" CHECK. FOR "TAP" TEST, USE A SOLID METAL DISK AND TAP THE REPAIR AREA LIGHTLY BUT FIRMLY. VOID AREAS WILL PRODUCE A DULL SOUND AS OPPOSED TO A SHARP RING ON A SOLID BONDED AREA. PERMANENT REPAIR IS REQUIRED IF ANY DETERIORATION IS EVIDENT. REFER TO SRM 51-70-03, PAR. 4.I. AND THE NON-DESTRUCTIVE TEST MANUAL, D634N301. [F]

[C] ONE REPAIR FOR EACH 12.0 INCHES (300 mm) OF SPAN AND A MINIMUM OF 3.0 INCHES (75 mm) (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE, OR EDGE OF PANEL.

[D] CONTACT THE BOEING COMPANY FOR REPAIRS TO DAMAGE IN CRITICAL AREAS.

[E] GAIN ACCESS TO RIBS OR SPAR BY REMOVING SKIN PANELS AS REQUIRED. TREAT FASTENER HOLES AND LOOSE FASTENERS AS SHOWN IN SRM 51-40-02.

[F] THIS REPAIR HAS FAA APPROVAL CONTINGENT ON ACCOMPLISHMENT OF THE INSPECTIONS CONTAINED HEREIN.

Rudder Spar and Rib Repair
Figure 201 (Sheet 2 of 3)

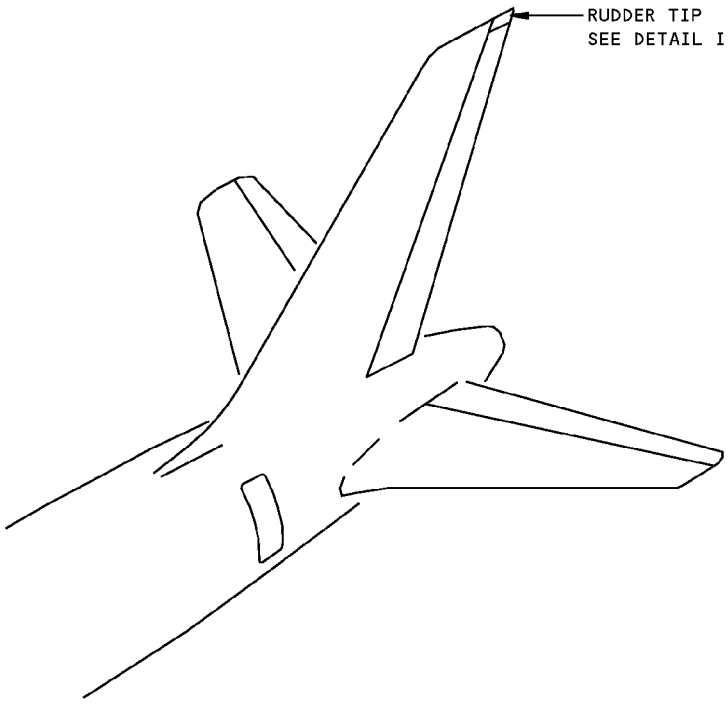
DAMAGE	INTERIM REPAIRS [B]	PERMANENT REPAIRS		
	WET LAYUP 150°F CURE (SRM 51-70-03)	WET LAYUP 200°F CURE (SRM 51-70-17)	250°F CURE (SRM 51-70-05)	350°F CURE (SRM 51-70-04)
CRACKS	UP TO 2.0 INCHES (50 mm) LONG, REPAIR WITH PATCH AS SHOWN IN SRM 51-70-03, PAR. 5.N. [C]	CLEAN UP DAMAGE AND REPAIR AS HOLE.	CLEAN UP DAMAGE AND REPAIR AS HOLE.	CLEAN UP DAMAGE AND REPAIR AS HOLE.
HOLES	2.0 INCHES (50 mm) MAX DIA NOT TO EXCEED 30% OF SMALLEST DIMENSION ACROSS LAMINATE PANEL AT THE DAMAGE LOCATION. FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS SHOWN IN SRM 51-70-03, PAR. 5.N. [C]	5.0 INCHES (125 mm) MAX DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS LAMINATE PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH FACESHEET EPAIRED. [C]	5.0 INCHES (125 mm) MAX DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS LAMINATE PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH FACESHEET REPAIRED. [C]	NO SIZE LIMIT
DELAMI-NATION	CUT OUT AND REPAIR AS HOLE.			
NICKS AND GOUGES	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL NICKS OR GOUGES AS SHOWN IN SRM 51-70-03. IF THERE IS FIBER DAMAGE OR DELAMINATION, REPAIR AS A HOLE.			
DENTS	UP TO 2.0 INCHES (50 mm) DIA WITH NO FIBER DAMAGE OR DELAMINATION, FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS SHOWN IN SRM 51-70-03, PAR. 5.L. [C] OVER 2.0 INCHES (50 mm) DIA OR WITH FIBER DAMAGE OR DELAMINATION, REPAIR AS HOLE.			

TABLE II

Rudder Spar and Rib Repair
Figure 201 (Sheet 3 of 3)

IDENTIFICATION 1 - RUDDER TIP

REF DWG
173N2601



NOTES

[A] PLY ORIENTATION CONVENTION – DEGREES INDICATED IS PARALLEL TO THE FABRIC WARP DIRECTION

[B] MATERIAL AND PLY ORIENTATION SHOWN FOR FIELD AREAS ONLY. SEE BOEING DRAWINGS FOR EDGE BANDS AND AREAS WITH DOUBLERS

[C] FIBERGLASS PREPREG FABRIC PER BMS 8-79, TYPE 120, 250°F (121°C) CURE

[D] ARAMID/EPOXY PREPREG FABRIC PER BMS 8-219, STYLE 285, 250°F (121°C) CURE

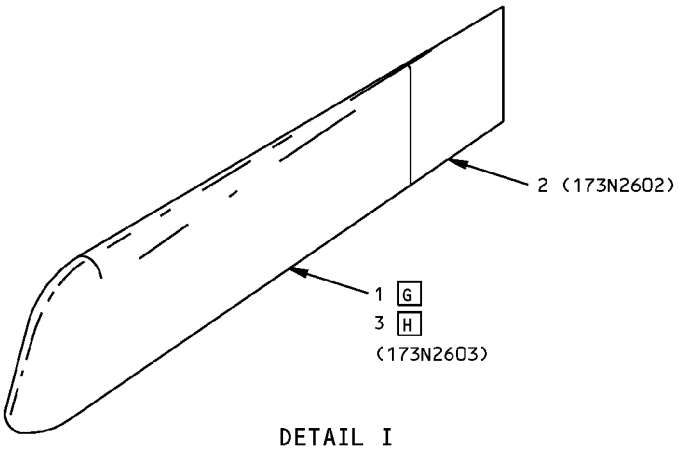
[E] FIBERGLASS PREPREG FABRIC PER BMS 8-79, TYPE 1581, 250°F (121°C) CURE

[F] PLY ORIENTATION OPTIONAL

[G] FOR CUM LINE NUMBERS: 1 THRU 61

[H] FOR CUM LINE NUMBERS: 62 AND ON

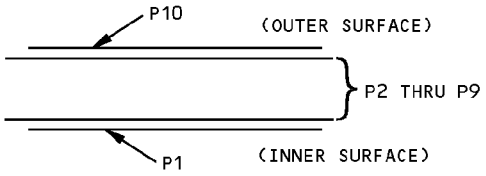
Rudder Tip Identification
Figure 1 (Sheet 1 of 2)



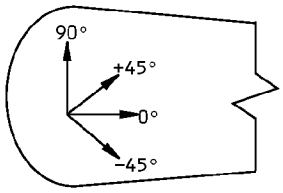
DETAIL I

ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	RUDDER TIP		ARAMID/FIBERGLASS/EPOXY PREPREG FABRIC LAMINATE SEE DETAIL II	G
2	TIP FITTING		CASTING 356-T51	
3	RUDDER TIP		FIBERGLASS/EPOXY PREPREG FABRIC LAMINATE SEE DETAIL II	H

LIST OF MATERIALS FOR DETAIL I



SECTION THRU PLIES



PLY ORIENTATION

ITEM NO.	PLY NO.	MATERIAL	PLY ORIENTATION A
1	P1 P10	C	±45°
	P3 P5 P6 P8	D	
	P2 P4 P7 P9		0° OR 90°

PLY TABLE FOR DETAIL II B G

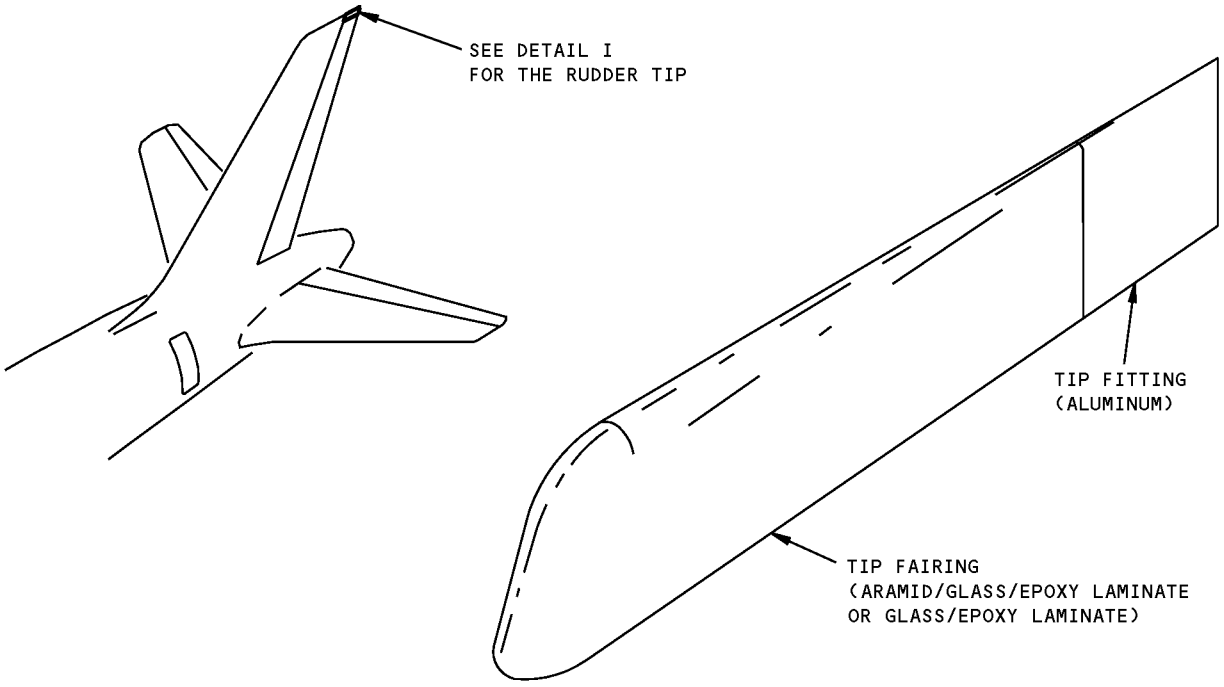
ITEM NO.	PLY NO.	MATERIAL	PLY ORIENTATION A
3	P1 P10	C	F
	P3 P5 P6 P8	E	
	P2 P4 P7 P9		

PLY TABLE FOR DETAIL II B H

DETAIL II

Rudder Tip Identification
Figure 1 (Sheet 2 of 2)

ALLOWABLE DAMAGE 1 - RUDDER TIP



DETAIL I

DESCRIPTION	CRACKS	NICKS, GOUGES AND CORROSION	DENTS	HOLES AND PUNCTURES	DELAMINATION	EDGE EROSION
TIP FAIRING	[A]	[B]	[C]	NOT PERMITTED	[D]	SEE DETAIL VII
TIP FITTING [J] [K]	[G]	[H]	SEE DETAIL IV	NOT PERMITTED	--	--

NOTES

- REFINISH REWORKED AREAS AS SHOWN IN AMM 51-20.
- REFER TO SRM 51-10-01 FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS. WHERE DAMAGE IS MORE THAN THE LIMITS SHOWN IN SRM 51-10-01. CONSIDERATION SHOULD BE GIVEN TO LOSS OF PERFORMANCE INVOLVED.
- REFER TO SRM 51-10-02 FOR INSPECTION AND REMOVAL OF DAMAGE.
- TYPICAL DAMAGE TO A PANEL EDGEBAND MAY CONSIST OF EDGE CRUSHING, CRACKS OR DELAMINATION. DAMAGE AROUND HOLES MAY CONSIST OF OVALIZATION, FASTENER PULL-THROUGH OR CRACKS OUT OF HOLE. DAMAGE MAY REDUCE THE EFFECTIVE CROSS-SECTIONAL AREA OF AN EDGEBAND. DAMAGE TO EDGES SHOULD BE BLENDED OUT TO LIMITATIONS GIVEN FOR COMPONENT.

[A] CRACKS ARE NOT PERMITTED EXCEPT FOR EDGE CRACKS WHICH MUST BE REMOVED AS SHOWN IN DETAILS II AND III. MAINTAIN EDGE MARGIN SHOWN. PROTECT DAMAGE AS SHOWN IN [E].

[B] DAMAGE IS PERMITTED ON SURFACE RESIN ONLY. DAMAGE TO FIBERS AR NOT PERMITTED. CLEAN UP EDGE DAMAGE AS SHOWN IN DETAILS II AND III. PROTECT DAMAGE AS SHOWN IN [F].

[C] DENTS GENERALLY RESULT IN FIBER DAMAGE OR DELAMINATION. HOWEVER, IF THERE IS NO FIBER DAMAGE OR DELAMINATION, DENTS UP TO 1.50 INCHES (38 mm) DIA MAX ARE PERMITTED. ONE DENT FOR EACH SQUARE FOOT OF AREA PERMITTED WHICH MUST BE A MINIMUM OF 6 INCHES (150 mm) FROM ANY OTHER DAMAGE, FASTENER HOLE, OR PANEL EDGE. SEE [D] IF ANY DELAMINATION IS PRESENT.

[D] 1.0 SQUARE INCH (645 SQUARE mm) PERMITTED WITHOUT REWORK. PROTECT EDGE DAMAGE AS SHOWN IN [E] .

Allowable Damage - Rudder Tip
Figure 101 (Sheet 1 of 4)

NOTES (CONT)

[E] PROTECT DAMAGE FROM ENTRANCE OF WATER, SUNLIGHT OR OTHER FOREIGN MATTER BY SEALING WITH ALUMINUM FOIL TAPE (SPEED TAPE) 3M-Y436, OR EQUIVALENT. RECORD LOCATION AND INSPECT AT AIRPLANE "A" CHECK. REPLACE ALUMINUM FOIL TAPE IF ANY PEELING OR DETERIORATION OF TAPE IS EVIDENT. REPAIR DAMAGE AS SHOWN IN SRM 51-70 NO LATER THAN THE NEXT "C" CHECK.

[F] PROTECT DAMAGE FROM ENTRANCE OF WATER, SUNLIGHT OR OTHER FOREIGN MATTER BY SEALING WITH ALUMINUM FOIL TAPE (SPEED TAPE) 3M-Y436, OR EQUIVALENT. RECORD LOCATION AND INSPECT AT AIRPLANE "2A" CHECKS. REPLACE ALUMINUM FOIL TAPE IF ANY PEELING OR DETERIORATION OF TAPE IS EVIDENT. REPAIR DAMAGE AS SHOWN IN SRM 51-70 NO LATER THAN THE NEXT "C" CHECK. [I]

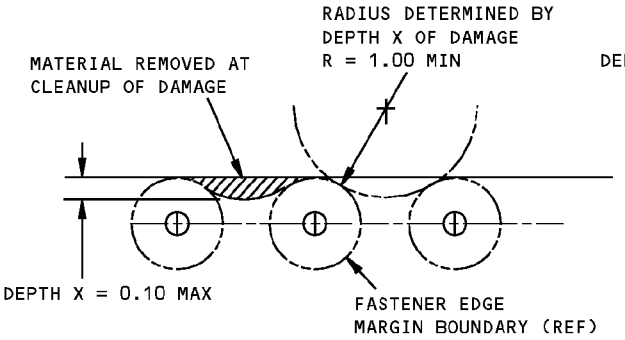
[G] CRACKS NOT ALLOWED EXCEPT FOR EDGE CRACKS WHICH MUST BE REMOVED PER DETAILS II AND III.

[H] FOR EDGE DAMAGE SEE DETAILS II AND III. FOR OTHER DAMAGE SEE DETAILS V AND VIII.

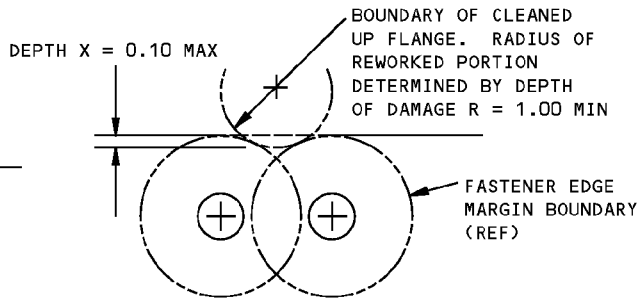
[I] THESE ALLOWABLE DAMAGE LIMITS HAVE FAA APPROVAL CONTINGENT ON ACCOMPLISHMENT OF THE INSPECTIONS CONTAINED HEREIN.

[J] REFER TO DETAIL VIII FOR DAMAGE CAUSED BY STATIC ELECTRICAL DISCHARGE. MAKE THE AREA OF THE BLENDOUT SMOOTH. APPLY A CHEMICAL CONVERSION COATING TO THE REWORKED AREA. REFER TO SRM 51-20-01. APPLY TWO LAYERS OF BMS 10-11, TYPE I PRIMER TO THE REWORKED AREA. REFER TO SOPM 20-41-02. APPLY ONE LAYER OF BMS 10-11, TYPE II ENAMEL TO THE REWORKED AREA. REFER TO SOPM 20-41-02. BMS 5-95 SEALANT CAN BE APPLIED AS AN AERODYNAMIC SMOOTHER.

[K] DAMAGE TO THE FASTENER HOLES CAN BE CLEANED UP TO 0.03 INCH OVERSIZE.

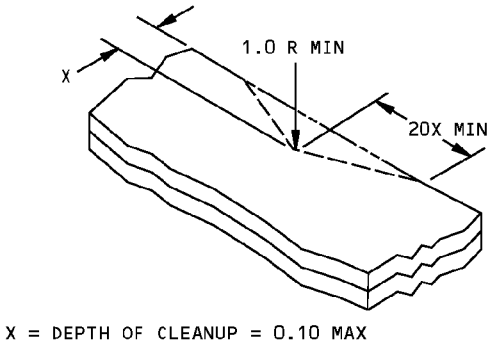


DAMAGE CLEANUP OF EDGES WHERE FASTENER EDGE MARGINS DO NOT OVERLAP

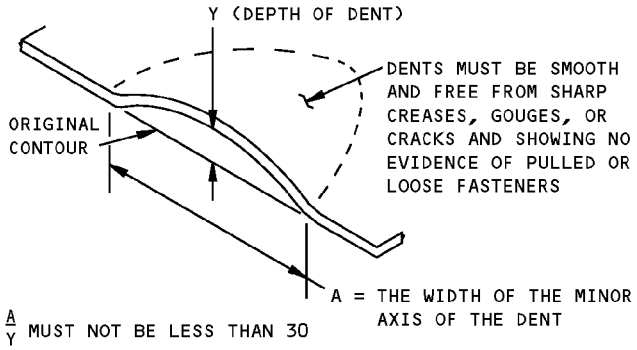


DAMAGE CLEANUP OF EDGES WHERE FASTENER EDGE MARGINS OVERLAP

DETAIL II

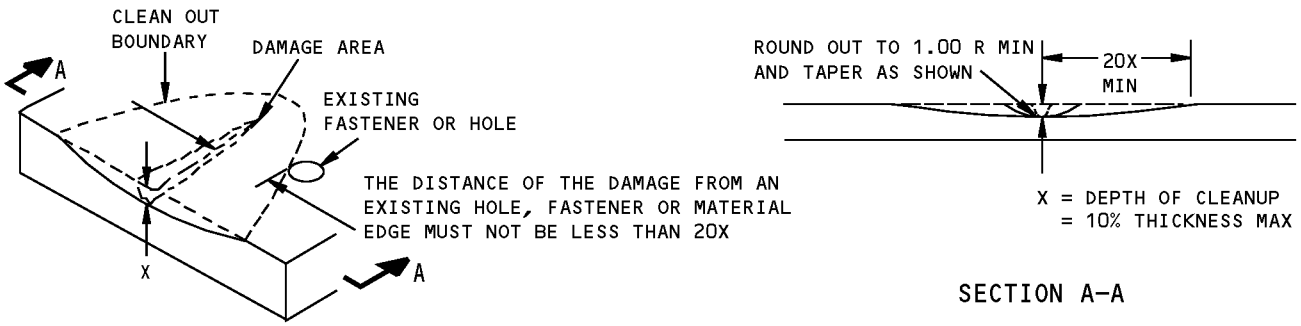


REMOVAL OF NICK OR CRACK DAMAGE ON AN EDGE
DETAIL III

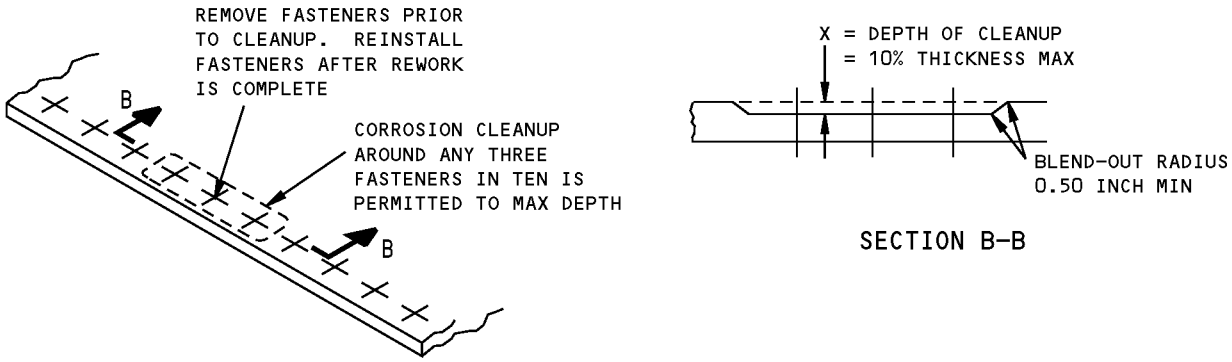


ALLOWABLE DAMAGE FOR DENT
DETAIL IV

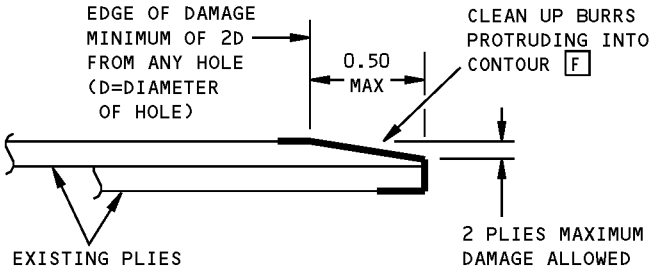
Allowable Damage - Rudder Tip
Figure 101 (Sheet 2 of 4)



REMOVAL OF NICK, GOUGE AND SCRATCH DAMAGE ON A SURFACE
DETAIL V

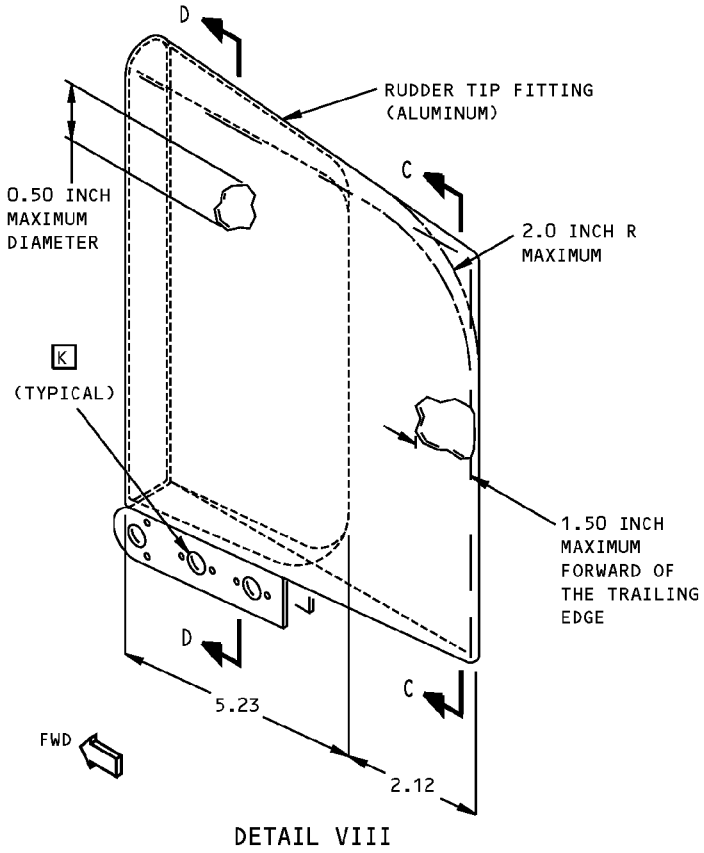


CORROSION CLEANUP
DETAIL VI

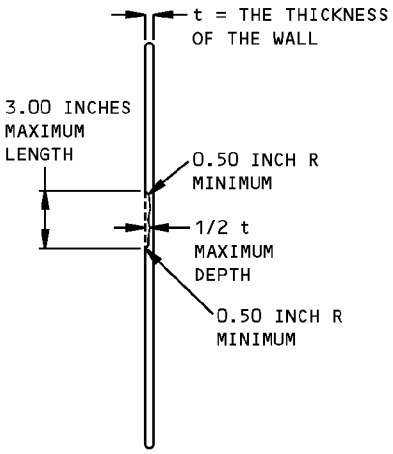


DAMAGE CLEANUP AND SEALING
OF EDGE EROSION
DETAIL VII

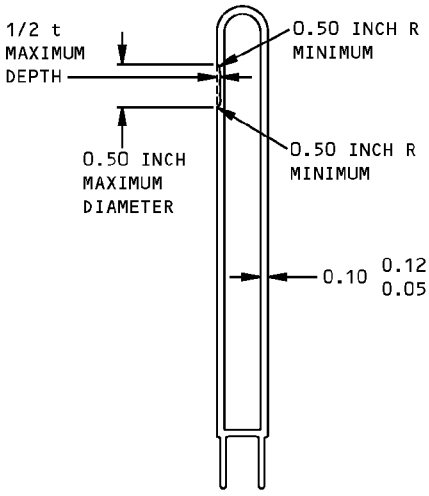
Allowable Damage - Rudder Tip
Figure 101 (Sheet 3 of 4)



DETAIL VIII



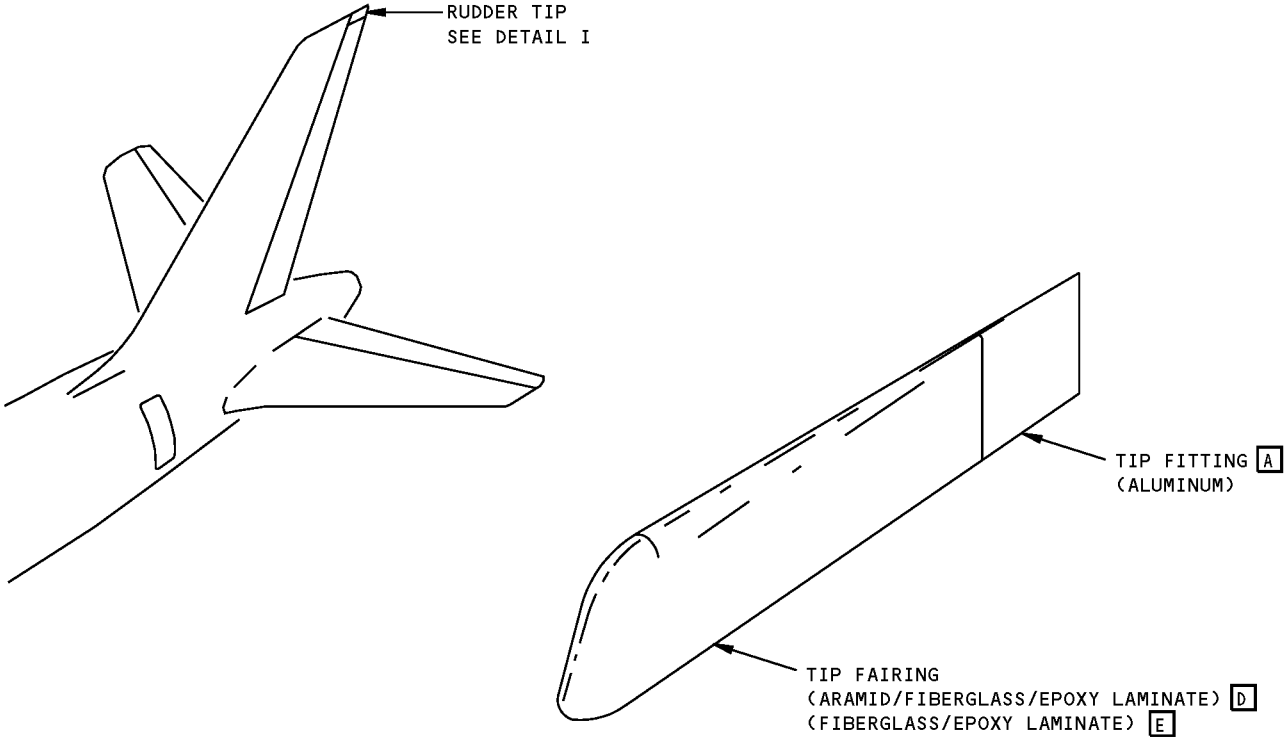
SECTION C–C



SECTION D–D

Allowable Damage - Rudder Tip
Figure 101 (Sheet 4 of 4)

REPAIR 1 - RUDDER TIP REPAIR



DETAIL I

NOTES

- REFINISH REWORKED AREAS AS SHOWN IN AMM 51-20
- REFER TO SRM 51-10-01 FOR AERODYNAMIC SMOOTHNESS REQUIREMENTS. WHERE DAMAGE IS MORE THAN THE LIMITS SHOWN IN SRM 51-10-01. CONSIDERATION SHOULD BE GIVEN TO LOSS OF PERFORMANCE INVOLVED
- REFER TO SRM 51-10-02 FOR INSPECTION AND REMOVAL OF DAMAGE.

[A] NO REPAIR TO RUDDER TIP FITTING. REPAIR MAY BE PROVIDED BASED ON SERVICE EXPERIENCE

[B] INSPECT INTERIM REPAIR USING INSTRUMENTED NDI METHODS OR "TAP" TEST EVERY AIRPLANE "2A" CHECK. FOR "TAP" TEST, USE A SOLID METAL DISK AND TAP THE REPAIR AREA LIGHTLY BUT FIRMLY. VOID AREAS WILL PRODUCE A DULL SOUND AS OPPOSED TO A SHARP RING ON A SOLID BONDED AREA. PERMANENT REPAIR IS REQUIRED IF ANY DETERIORATION IS EVIDENT. REFER TO SRM 51-70-03, PAR. 4.I. AND THE NONDESTRUCTIVE TEST MANUAL, D634N301 [G]

[C] ONE REPAIR FOR EACH SQUARE FOOT OF AREA AND A MINIMUM OF 3.0 INCHES (75 mm) (EDGE TO EDGE) FROM ANY OTHER DAMAGE, FASTENER HOLE, OR EDGE OF PANEL

[D] FOR CUM LINE NUMBERS:
1 THRU 61

[E] FOR CUM LINE NUMBERS:
62 AND ON

[F] MAXIMUM PROPERTIES IN SRM 51-70-03 MAY BE OBTAINED BY CURING AT 150° F

[G] THIS REPAIR HAS FAA APPROVAL CONTINGENT ON ACCOMPLISHMENT OF THE INSPECTIONS CONTAINED HEREIN

Rudder Tip Repair
Figure 201 (Sheet 1 of 3)

DAMAGE	INTERIM REPAIRS [B]	PERMANENT REPAIRS		
	WET LAYUP ROOM TEMP [F] (SRM 51-70-03)	WET LAYUP 150°F CURE (SRM 51-70-03)	WET LAYUP 200°F CURE (SRM 51-70-17)	250°F CURE (SRM 51-70-05)
CRACKS	UP TO 2.0 INCHES (50 mm) LONG, REPAIR WITH PATCH AS GIVEN IN SRM 51-70-03, PAR. 5.N. [C]	CLEAN UP DAMAGE AND REPAIR AS A HOLE	CLEAN UP DAMAGE AND REPAIR AS A HOLE	CLEAN UP DAMAGE AND REPAIR AS A HOLE
HOLES AND PUNC-TURES	1.0 INCH (25 mm) MAXIMUM DIA NOT TO EXCEED 30% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. FILL WITH BMS 5-28 TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-03, PAR. 5.N. [C]	2.0 INCHES (50 mm) MAXIMUM DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH SIDE [C]	3.0 INCHES (75 mm) MAXIMUM DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH SIDE [C]	NO SIZE LIMIT
EDGE EROSION	———	FOR DAMAGE NOT LARGER THAN 35% OF EDGEBAND THICKNESS, REPAIR AS GIVEN IN SRM 51-70-03, PAR. 5.O. FOR LARGER DAMAGE, REPAIR AS GIVEN IN:		
		SRM 51-70-03, PAR. 5.G.	SRM 51-70-17, PAR. 4.G.	SRM 51-70-05, PAR. 5.G.
DELAMI-NATION	CUT OUT AND REPAIR AS A HOLE			
NICKS AND GOUGES	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL NICKS OR GOUGES AS GIVEN IN SRM 51-70-03 IF YOU FIND FIBER DAMAGE OR DELAMINATION, THEN REPAIR AS A HOLE			
DENTS	UP TO 2.0 INCHES (50 mm) DIA WITH NO FIBER DAMAGE OR DELAMINATION, FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-03, PAR. 5.L. [C] OVER 2.0 INCHES (50 mm) DIA OR WITH FIBER DAMAGE OR DELAMINATION, REPAIR AS A HOLE			

REPAIR DATA FOR 250°F CURE LAMINATES (FIBERGLASS/ARAMID)
TABLE I

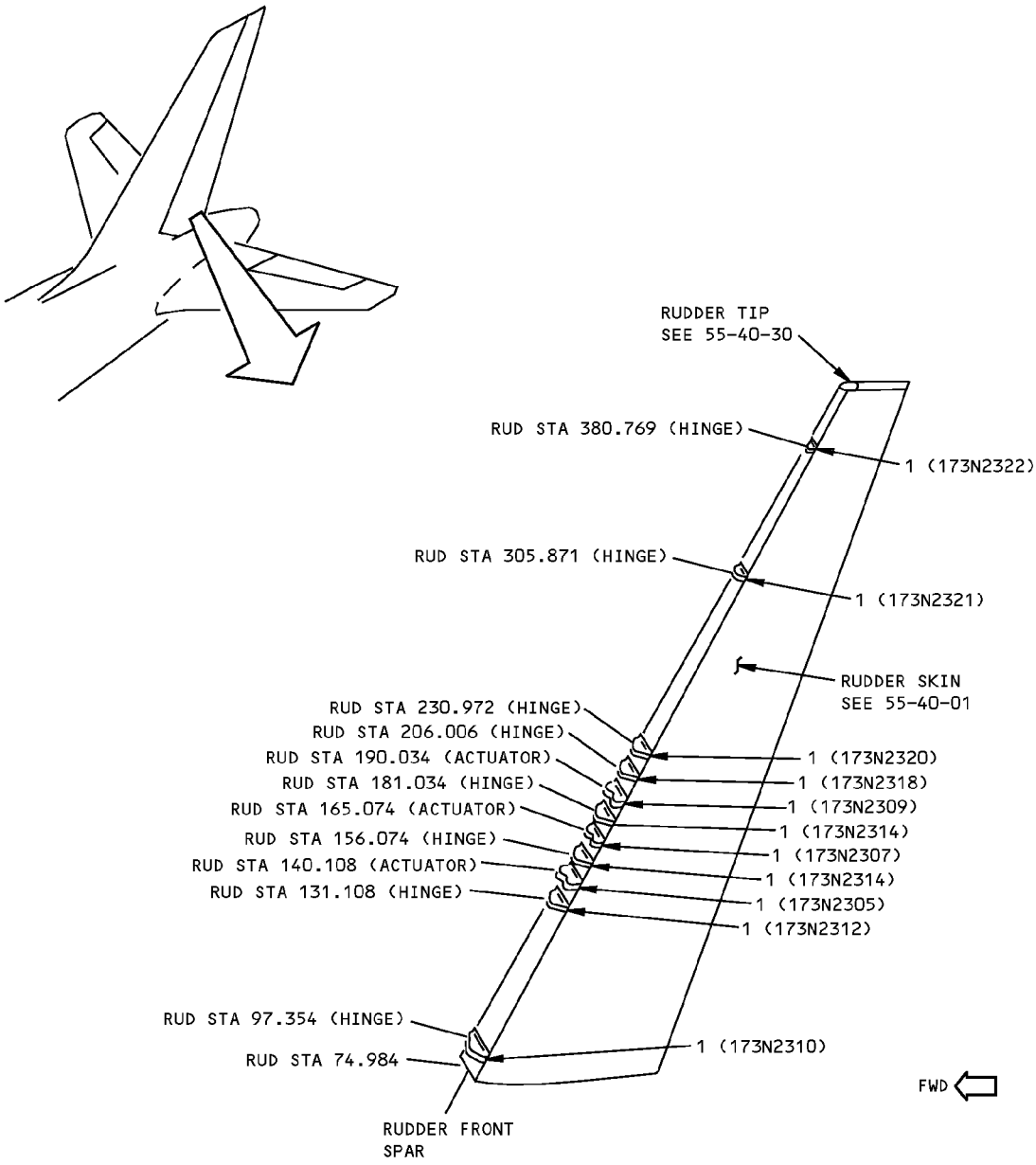
Rudder Tip Repair
Figure 201 (Sheet 2 of 3)

DAMAGE	INTERIM REPAIRS [B]	PERMANENT REPAIRS		
	WET LAYUP ROOM TEMP [F] (SRM 51-70-06)	WET LAYUP 150°F (66°C) CURE (SRM 51-70-06)	WET LAYUP 200°F (93°C) CURE (SRM 51-70-17)	250°F (121°C) CURE (SRM 51-70-07)
CRACKS	UP TO 2.0 INCHES LONG, REPAIR WITH PATCH AS GIVEN IN SRM 51-70-06, PAR. 5.N. [C]	CLEAN UP DAMAGE AND REPAIR AS A HOLE	CLEAN UP DAMAGE AND REPAIR AS A HOLE	CLEAN UP DAMAGE AND REPAIR AS A HOLE
HOLES AND PUNC-TURES	1.0 INCH (25 mm) MAXIMUM DIA NOT TO EXCEED 30% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-06, PAR. 5.N. [C]	2.0 INCHES (50 mm) MAXIMUM DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH SIDE [C]	3.0 INCHES (75 mm) MAXIMUM DIA NOT TO EXCEED 50% OF SMALLEST DIMENSION ACROSS HONEYCOMB PANEL AT THE DAMAGE LOCATION. USE TWO EXTRA PLIES FOR EACH SIDE [C]	NO SIZE LIMIT
EDGE EROSION	———	FOR DAMAGE NOT LARGER THAN 35% OF EDGEBAND THICKNESS, REPAIR AS GIVEN IN SRM 51-70-06, PAR. 5.O. FOR LARGER DAMAGE, REPAIR AS GIVEN IN:		
		SRM 51-70-06, PAR. 5.G.	SRM 51-70-17, PAR. 4.G.	SRM 51-70-07, PAR. 5.G.
DELAMI-NATION	CUT OUT AND REPAIR AS A HOLE			
NICKS AND GOUGES	IF THERE IS NO FIBER DAMAGE OR DELAMINATION, FILL NICKS OR GOUGES AS GIVEN IN SRM 51-70-06 IF YOU FIND FIBER DAMAGE OR DELAMINATION, THEN REPAIR AS A HOLE			
DENTS	UP TO 2.0 INCHES (50 mm) DIA WITH NO FIBER DAMAGE OR DELAMINATION, FILL WITH BMS 5-28, TYPE 7 POTTING COMPOUND AND PATCH AS GIVEN IN SRM 51-70-06, PAR. 5.L. [C] OVER 2.0 INCHES (50 mm) DIA OR WITH FIBER DAMAGE OR DELAMINATION, REPAIR AS A HOLE			

REPAIR DATA FOR 250°F (121°C) CURE LAMINATES (FIBERGLASS)
TABLE II

Rudder Tip Repair
Figure 201 (Sheet 3 of 3)

IDENTIFICATION 1 - RUDDER ATTACHMENT FITTINGS

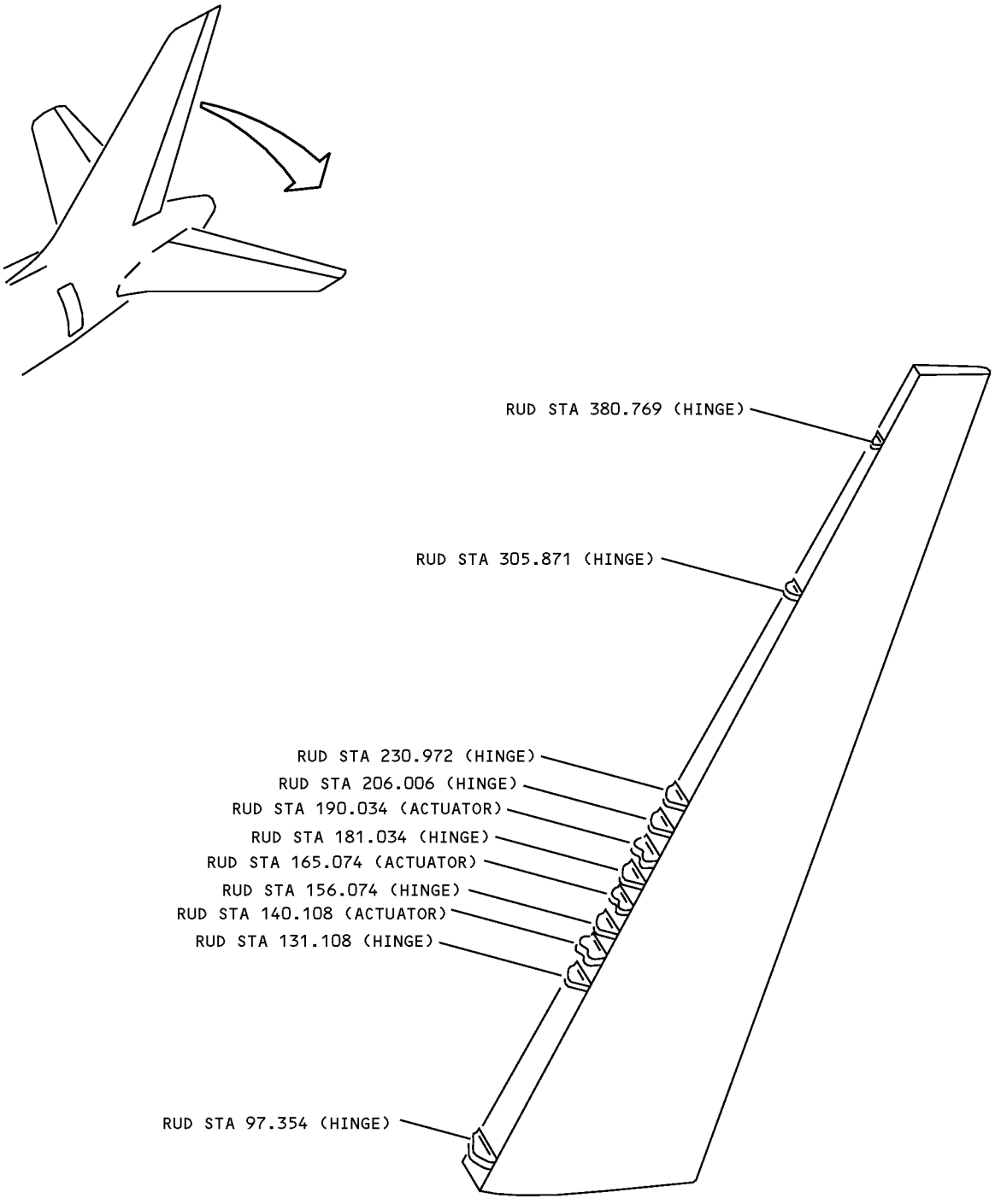


ITEM	DESCRIPTION	GAGE	MATERIAL	EFFECTIVITY
1	FITTING		FORGING 7075-T73	

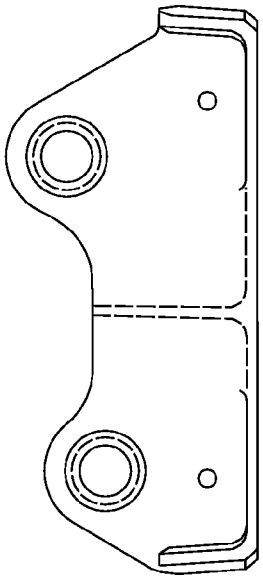
LIST OF MATERIALS

Rudder Attachment Fittings Identification
Figure 1

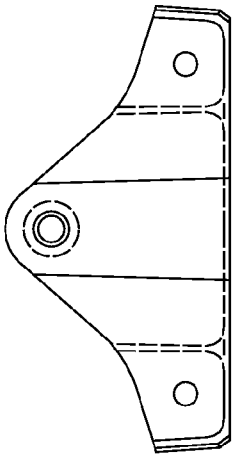
ALLOWABLE DAMAGE 1 - RUDDER ATTACHMENT FITTINGS



Allowable Damage - Rudder Attachment Fittings
Figure 101 (Sheet 1 of 3)



ACTUATOR FITTING



HINGE FITTING

FITTING	CRACKS	NICKS, GOUGES, SCRATCHES AND CORROSION	DENTS	HOLES
HINGE FITTINGS	[A]	FOR EDGE DAMAGE, SEE DETAILS I & IV FOR OTHER DAMAGE, SEE DETAIL II FOR LUG DAMAGE, SEE DETAIL III [B]	NOT ALLOWED	NOT ALLOWED
ACTUATOR FITTINGS				

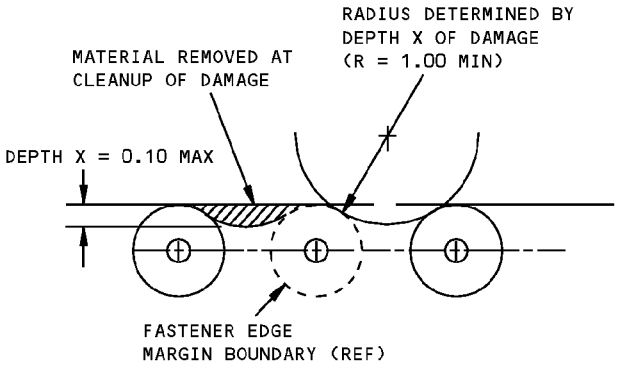
NOTES

- SHOT PEEN ALL REWORKED AREAS PER 51-20-06
- REFINISH REWORKED AREAS PER 51-20 OF THE MAINTENANCE MANUAL

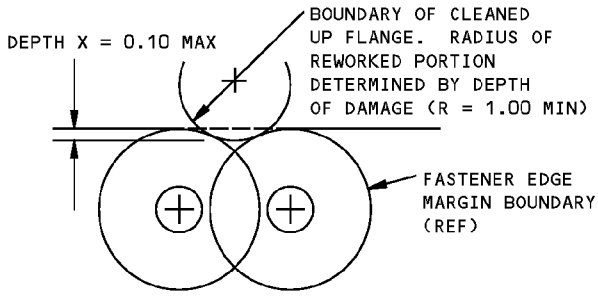
[A] CLEAN UP EDGE CRACKS DETAILS I AND IV. OTHER CRACKS NOT ALLOWED

[B] MAXIMUM CLEANUP OF 0.01 ALLOWED IN VICINITY OF BUSHINGS

Allowable Damage - Rudder Attachment Fittings
Figure 101 (Sheet 2 of 3)

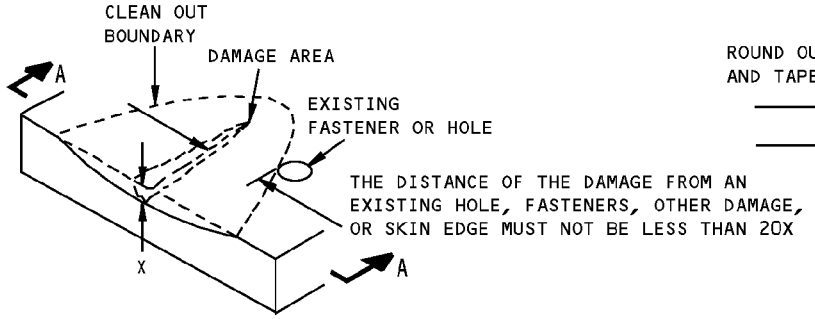


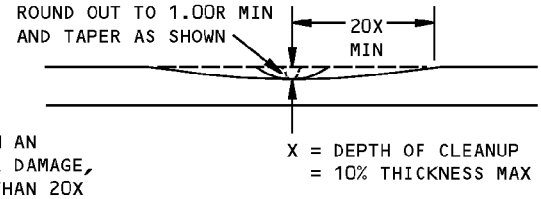
DAMAGE CLEANUP OF EDGES WITH FASTENERS
WHERE EDGE MARGINS DO NOT OVERLAP



DAMAGE CLEANUP OF EDGES WITH FASTENERS
WHERE EDGE MARGINS OVERLAP

DETAIL I

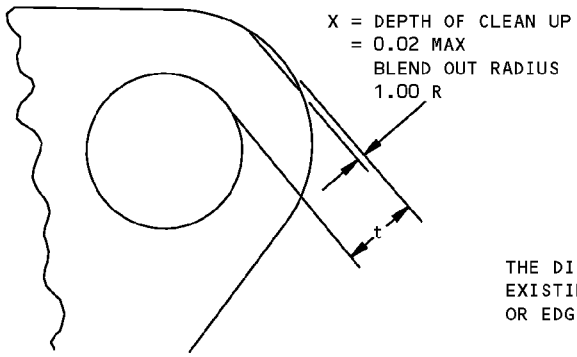




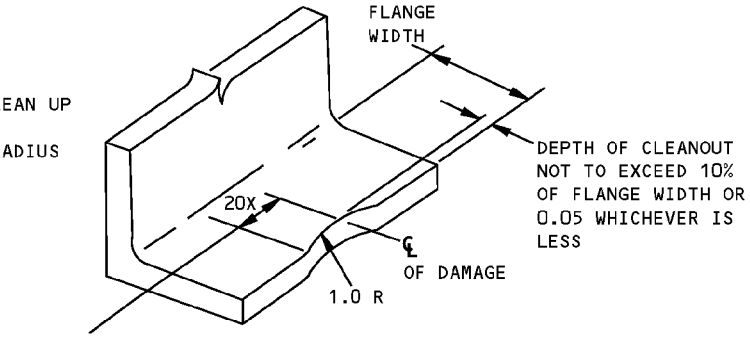
THE AREA REMOVED FOR CLEANUP
MUST NOT EXCEED 4% OF THE CROSS
SECTIONAL AREA

SECTION A-A

REMOVAL OF NICK, GOUGE AND SCRATCH DAMAGE ON A SURFACE
DETAIL II



DAMAGE CLEANUP FOR EDGES OF LUG
DETAIL III

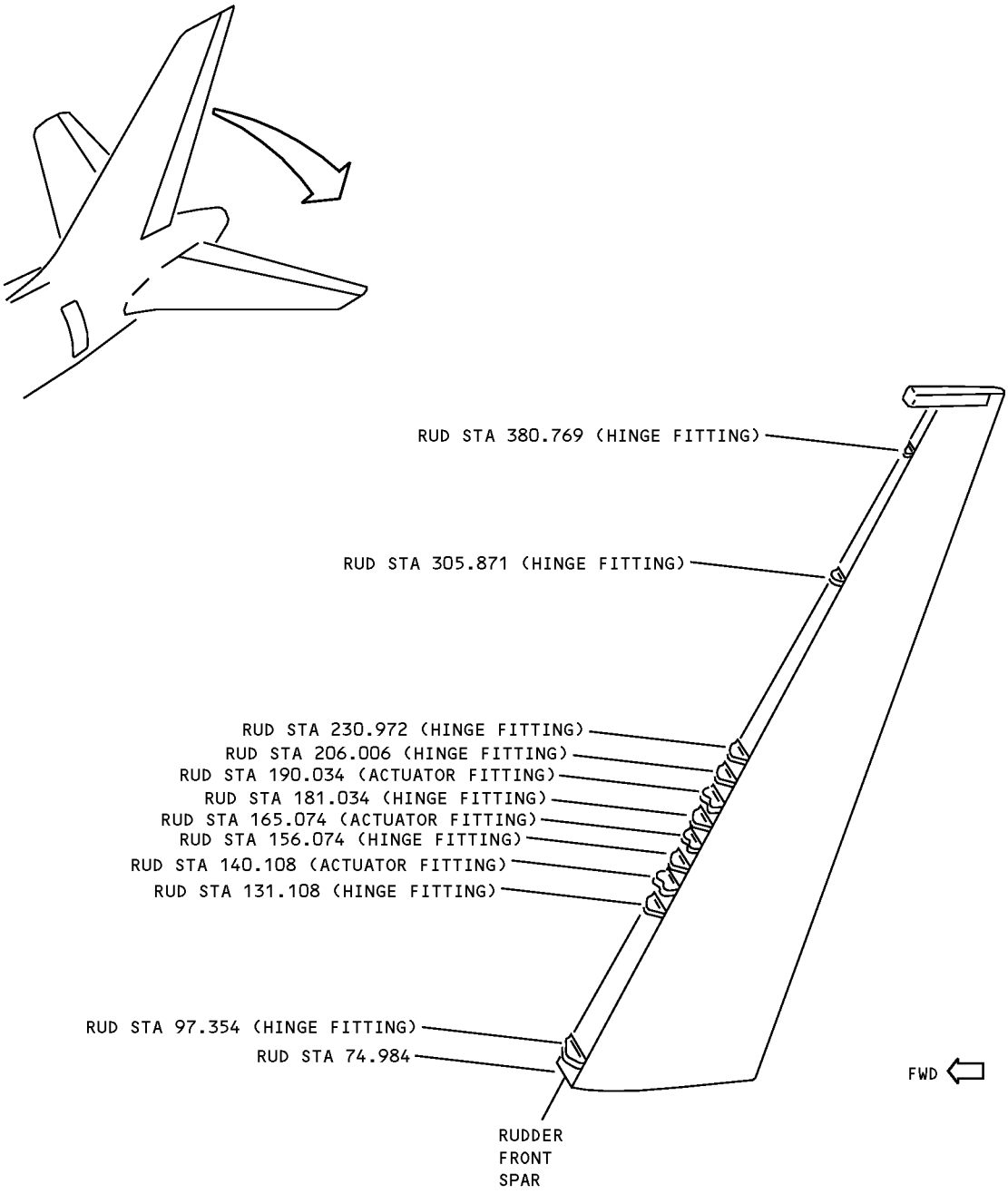


THE DISTANCE OF THE DAMAGE FROM AN
EXISTING HOLE, FASTENERS, OTHER DAMAGE
OR EDGE MUST NOT BE LESS THAN 20X

REMOVAL OF EDGE DAMAGE FROM
FREE FLANGE WITHOUT FASTENERS
DETAIL IV

Allowable Damage - Rudder Attachment Fittings
Figure 101 (Sheet 3 of 3)

REPAIR GENERAL - RUDDER ATTACHMENT FITTINGS



NOTES

- NO TYPICAL REPAIR TO FITTINGS APPLICABLE. SPECIFIC REPAIRS TO FITTINGS WILL BE PROVIDED BASED ON SERVICE EXPERIENCE

Rudder Attachment Fittings Repair
Figure 201