STRINGERS AND SKIN STIFFENERS

1. General

This topic contains repair procedures for damage to stringers. For Section and FR designation refer to Chapter 53-00-00 Page Block 001. The repairs are listed in Table 201 and described in more detail in the following text.

NOTE: For Damage/Repair Data Recording refer to Chapter 51-11-15.

NOTE: For detailed definition of Repair Categories refer to Chapter 51-11-14.

2. Safety Precautions

WARNING: OBEY THE MANUFACTURERS INSTRUCTIONS WHEN YOU USE CLEANING AGENTS, BONDING AND ADHESIVE COMPOUNDS, SEALANTS, SPECIAL MATERIALS AND STRUCTURE PAINTS. THESE MATERIALS ARE DANGEROUS.

CAUTION: REFER TO EACH REPAIR TO DETERMINE THE REPAIR APPLICABILITY.

CAUTION: USE ONLY SPECIFIED CLEANING MATERIALS AND SOLUTIONS OR THEIR EQUIVALENTS. THE SURFACE PROTECTION COULD BE DAMAGED, IF UNSPECIFIED MATERIALS ARE USED. IT IS IMPORTANT THAT THE MANUFACTURER'S MIXING, APPLICATION AND TREATMENT INSTRUCTIONS ARE FOLLOWED.

CAUTION: TO PREVENT DAMAGE TO THE SURFACE PROTECTION, MECHANICAL AND ELECTRICAL SYSTEMS, THE AREA SURROUNDING THE REPAIR MUST BE COVERED WITH PLASTIC FOIL MASKING TAPE.

CAUTION: OBEY THE GIVEN INSPECTION INSTRUCTION REFERENCE WHICH LEADS TO THE APPLICABLE INSPECTION PROGRAM DEFINED IN CHAPTER STRUCTURAL REPAIR INSPECTIONS (SRI) OF THE SRM.

3. Repair Scheme

REPAIR PROCEDURE	PARAGRAPH	FIGURE	REPAIR CATEGORY	INSPECTION INSTRUCTION REFERENCE
Stringer Repair - Stringer made from DAN2, DAN50 and comparable	4.A.	201 <1>	B	53-00-13-2-001-00
Bonding Defects at Stringer	4.B.	202 <1>	-	-
Stringer Outer Flange Repair	4.C.		B	53-00-13-2-002-00
- Cutout		203 <1>		-
- Rework of Corrosion		204 <1>		-

Table 201

REPAIR PROCEDURE	PARAGRAPH	FIGURE	REPAIR CATEGORY	INSPECTION INSTRUCTION REFERENCE
Stringer Repair - Stringer made from DAN51B, DAN58B and comparable	4.D.	205 - 208 <1>	B	53-00-13-2-003-00
Floor Attachment Stringer Repair	4.E.	209 <2>	B	53-00-13-2-004-00
Definition of minimum distance between repair couplings or repair couplings to existing structure parts	4.F.	210 <1>	A	-

Table 201

<1> valid for:

Section 13 and 14

Section 15: FR53.3 - FR54, STGR31 (LH) - STGR31 (RH) (upper shell)

Section 16 - 19

<2> valid for:

Section 16 - 18

4. Stringer and Skin Stiffener - Repairs

CAUTION: THIS REPAIR MUST BE INSPECTED AT DEFINED INTERVALS. THE ACCORDING INSPECTION INSTRUCTION REFERENCE IS IIR 53-00-13-2-001-00 AND IS DESCRIBED IN CHAPTER STRUCTURAL REPAIR INSPECTIONS (SRI) OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

CAUTION: OBEY THE REPAIR EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN TABLE 202.

A. Stringer Repair - Stringer made from DAN2, DAN50 and comparable

The repair is applicable to formed and extruded stringers - made from DAN2, DAN50 and comparable - when a stringer is damaged or a skin repair requires a stringer splice.

NOTE: The repair is applicable only in the areas indicated on the relevant Figure. The repair effectivity of this repair is shown in Table 202.

AIRCRAFT	WEIGHT VARIANT
A340-2XX	000, 001, 002
A340-2XX	021
A340-3XX	000, 001, 002, 003, 004
A340-3XX	020, 021, 024, 026, 027, 028, 050, 051, 052

Repair Effectivity per Weight Variant and Aircraft Type

Table 202

NOTE: Refer to the Weight Variant Identification List given in the Introduction of the SRM. This Table shows all necessary information related to the weight variant and their maximum values and the modification associated to the aircraft type.

(1) Repair Materials

ITEM	NOMENCLATURE	QTY	MATERIAL/REMARKS
1-4	as shown in Illustration	-	Refer to Figure 201
-	Sealant	AR	Material No. 09-013 (Refer to Chapter 51-35-00)
-	Cleaning Agent	AR	Material No. 11-003 or 11-004 (Refer to Chapter 51-35-00)
-	Pretreatment for painting (Chemical conversion coating)	AR	Material No. 13-002 (Refer to Chapter 51-35-00)
-	Storage preservation (Corrosion preventive temporary protective compound)	AR	Material No. 15-005A (Refer to Chapter 51-35-00)
-	Storage preservation (Corrosion preventive temporary protective compound)	AR	Material No. 15-007 (Refer to Chapter 51-35-00)
-	Structure Paint (Polyurethane primer)	AR	Material No. 16-001 (Refer to Chapter 51-35-00)
-	Structure Paint (Polyurethane topcoat, grey)	AR	Material No. 16-002 (Refer to Chapter 51-35-00)
-	Structure Paint (Wash primer)	AR	Material No. 16-020 (Refer to Chapter 51-35-00)
-	Structure Paint (flexible polyurethane)	AR	Material No. 16-021 (Refer to Chapter 51-35-00)

(2) Repair Instructions, refer to Figure 201

(a) Remove all fasteners as necessary for the repair.

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CAUTION: IF THE COMPLETE DAMAGED STRINGER SECTION MUST BE CUT OUT, USE A PLASTIC WEDGE TO CAREFULLY REMOVE THE SECTION AWAY FROM THE SKIN. PLACE A METAL SHEET BETWEEN STRINGER AND SKIN TO AVOID DAMAGE TO THE STRUCTURE DURING THE CUT OUT ACTION.

CAUTION: IF YOU MUST HEAT THE REPAIR AREA TO HELP SEPARATE THE STRINGER CUTOUT FROM THE SKIN, DO NOT USE A TEMPERATURE MORE THAN 130 C° (266.0 F°)

(b) Cut out the damaged section of the stringer and deburr the edges.

NOTE: If possible, leave the stringer flange in position and use it as a filler piece.

(c) Prepare the repair parts to suit the damaged area and deburr edges, refer to Figure 201.

(d) Attach the repair parts in their correct position. Transfer drill existing fastener holes from the outer flange to the repair parts. Mark and drill additional holes.

NOTE: Use transition fit for Hi-Lok fastener installation (Refer to Chapter 51-44-11).

(e) Remove the repair parts and deburr all fastener holes.

WARNING: CLEANING AGENT (MATERIAL NO. 11-003) IS DANGEROUS.

WARNING: CLEANING AGENT (MATERIAL NO. 11-004) IS DANGEROUS.

(f) Clean the repair parts and the repair area with cleaning agent (Material No. 11-003 or 11-004).

WARNING: STRUCTURE PAINT (MATERIAL NO. 16-020) IS DANGEROUS.

(g) Apply wash primer (Material No. 16-020) to the repair area (Refer to Chapter Chapter 51-23-00).

WARNING: CHROMIC ACID ANODIZING (CAA) IS DANGEROUS.

WARNING: PRETREATMENT FOR PAINTING (MATERIAL NO. 13-002) IS POISONOUS.

(h) Pretreat the repair parts by Chromic Acid Anodizing (CAA) or use chemical conversion coating (Material No. 13-002).

NOTE: For protection by CAA and the application of chemical conversion coating refer to Chapter 51-21-11.

WARNING: STRUCTURE PAINT (MATERIAL NO. 16-001) IS DANGEROUS.

(i) Apply polyurethane primer (Material No. 16-001) to the repair parts.

WARNING: STRUCTURE PAINT (MATERIAL NO. 16-002) IS DANGEROUS.

(j) Apply polyurethane topcoat (Material No. 16-002) to the repair parts.

WARNING: SEALANT (MATERIAL NO. 09-013) IS DANGEROUS.

(k) Apply sealant (Material No. 09-013) to the mating surfaces of the repair parts (Refer to Chapter 51-76-11.

(l) Attach the repair parts in their correct position and install all fasteners wet with sealant (Material No. 09-013).

NOTE: Install the fasteners within the application life of the sealant. If this is not possible, install at least every third fastener within the application life of the sealant (Refer to Chapter 51-76-00).

(m) Apply a bead of sealant (Material No. 09-013) to the edges of the repair parts.

(n) If necessary, apply flexible polyurethane (Material No. 16-021) to the sealant beads.

NOTE: Refer to Chapter 51-23-12 for information about areas of application.

WARNING: STRUCTURE PAINT (MATERIAL NO. 16-001) IS DANGEROUS.

(o) Restore the paint finish around the repair area. Use polyurethane primer (Material No. 16-001) and after that polyurethane topcoat (Material No. 16-002).

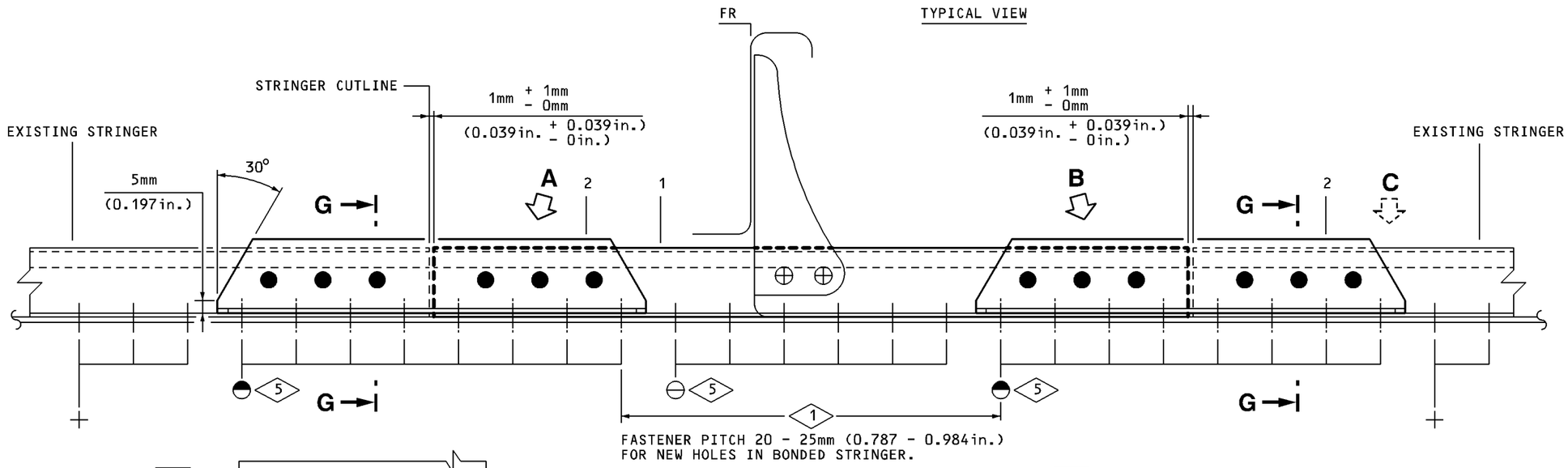
WARNING: DO NOT APPLY STORAGE PRESERVATION (MATERIAL NO. 15-005A) IN AREA OF OXYGEN EQUIPMENT AND OXYGEN PIPES.

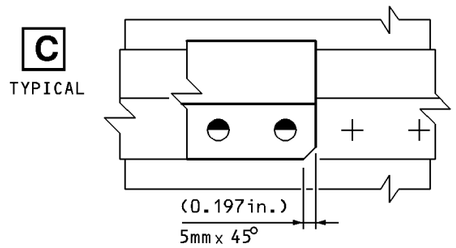
WARNING: STORAGE PRESERVATION (MATERIAL NO. 15-005A) IS DANGEROUS.

(p) If necessary, apply a corrosion preventive temporary protective compound to the repair area. First apply Material No. 15-005A and after that Material No. 15-007.

NOTE: Before application of Material No. 15-007 let Material No. 15-005A dry for approximately 1 hour.

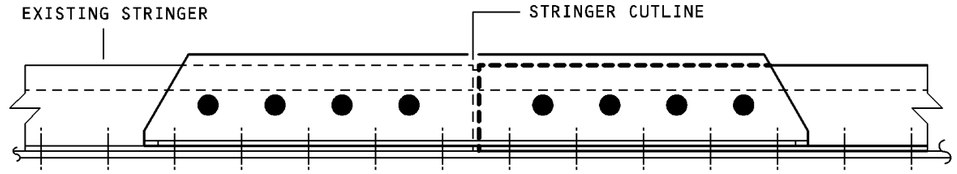
NOTE: This is a supplement and means to prevent corrosion in areas where special protection is required. Refer to Chapter 51-23-12 for information about these areas.





OPPOSITE A B

NOTE: DETAIL ONLY VALID FOR STRINGER DAN50(X)-04,-09,-12



REPAIR MATERIALS			
ITEM	NOMENCLATURE	QTY	MATERIAL/REMARKS
1	STRINGER	1	SAME AS EXISTING
2	COUPLING	2	REFER TO STRINGER/COUPLING TABLE (SHOWN ON SHEET 3)
3	SHIM (SEE SHEET 3)	1	3.1364T3 OR US EQUIVALENT CLAD 2024T3 THICKNESS ≤ 0.8mm (0.032in.) ◇2◇
FASTENER SYMBOLS			
+	REFERENCE ONLY		
●	MS20470DD5 FOR STRINGER THICKNESS < 1.6mm (0.063in.) MS20470DD6 FOR STRINGER THICKNESS ≥ 1.6mm (0.063in.)		
◓	HL11VF6-/HL70-6 ◇5◇		
⊖	USE SAME RIVET TYPE AS EXISTING OR OVERSIZE AS PER CHAPTER 51-43-00 ◇5◇ FOR BONDED STRINGER: NAS 1097DD5 FOR STRINGER THICKNESS < 1.6mm (0.063in.) NAS 1097DD6 FOR STRINGER THICKNESS ≥ 1.6mm (0.063in.)		
⊕	MS20470DD5		

CAUTION:

OBEY THE REPAIR EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN TABLE 202.

THIS REPAIR MUST BE INSPECTED AT DEFINED INTERVALS. THE ACCORDING INSPECTION INSTRUCTION REFERENCE IS 53-00-13-2-001-00 AND IS DESCRIBED IN CHAPTER STRUCTURAL REPAIR INSPECTIONS (SRI) OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

NOTE:

FOR SECTION G-G, THE VIEW OF ALL STRINGER PROFILES VALID FOR THIS REPAIR, SEE SHEET 3.

FOR ADDITIONAL NOTES, FURTHER INFORMATION AND STRINGER / COUPLING TABLE REFER TO SHEET 3.

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Stringer Repair - Stringer made from DAN2, DAN50 and comparable
Figure 201 (sheet 1)

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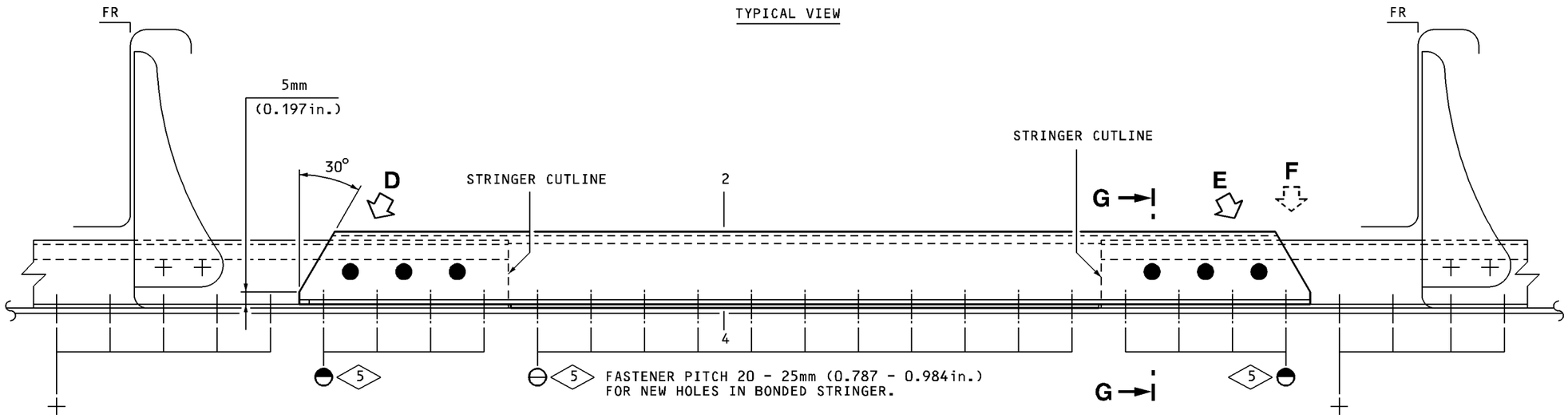


CAUTION:

OBEY THE REPAIR EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN TABLE 202.

THIS REPAIR MUST BE INSPECTED AT DEFINED INTERVALS. THE ACCORDING INSPECTION INSTRUCTION REFERENCE IS 53-00-13-2-001-00 AND IS DESCRIBED IN CHAPTER STRUCTURAL REPAIR INSPECTIONS (SRI) OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

NOTE:

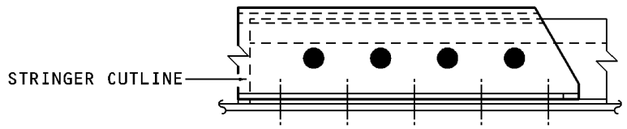
FOR SECTION G-G SEE SHEET 3.

FOR ADDITIONAL NOTES, FURTHER INFORMATION AND STRINGER / COUPLING TABLE REFER TO SHEET 3.

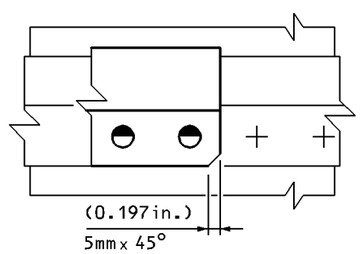
REPAIR MATERIALS			
ITEM	NOMENCLATURE	QTY	MATERIAL/REMARKS
2	COUPLING	1	REFER TO STRINGER/COUPLING TABLE (SHOWN ON SHEET 3)
4	FILLER	1	3.1364T3 OR US EQUIVALENT CLAD 2024T3 THICKNESS AS REQUIRED
FASTENER SYMBOLS			
+	REFERENCE ONLY		
●	MS20470DD5 FOR STRINGER THICKNESS < 1.6mm (0.063in.) MS20470DD6 FOR STRINGER THICKNESS ≥ 1.6mm (0.063in.)		
◓	HL11VF6-/HL70-6 ⟨5⟩		
⊖	USE SAME RIVET TYPE AS EXISTING OR OVERSIZE AS PER CHAPTER 51-43-00 ⟨5⟩ FOR BONDED STRINGER: NAS 1097DD5 FOR STRINGER THICKNESS < 1.6mm (0.063in.) NAS 1097DD6 FOR STRINGER THICKNESS ≥ 1.6mm (0.063in.)		

D
OPPOSITE E

NOTE: DETAIL ONLY VALID FOR STRINGER DAN50(X)-04,-09,-12



F
TYPICAL



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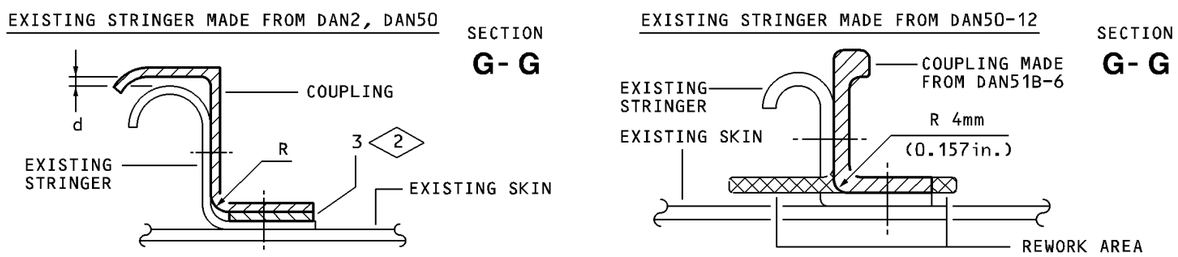
Stringer Repair - Stringer made from DAN2, DAN50 and comparable
Figure 201 (sheet 2)

STRINGER/DIMENSION ⟨4⟩	COUPLING PART NUMBER LENGHT = 1000mm (39.37in.)	MADE FROM (REFER TO CHAPTER 51-31-12 OR STANDARD MANUAL)	THICKNESS mm	THICKNESS (in.)	MISCEL-LANEOUS
ABS0245AK03 ⟨3⟩ 28x22x1.8mm (1.102x0.866x0.071in.)	R530-71112-206	A539-86212DAN2001T79511	2.0	0.079	
ABS0245AK05 ⟨3⟩ 28x24x2.5mm (1.102x0.945x0.098in.)	R530-71112-208	A539-86217DAN2001T79511	2.8	0.110	
A539-70022 28x22x2.0mm (1.102x0.866x0.079in.)	R530-71112-206	A539-86212DAN2001T79511	2.0	0.079	
A539-73229 28x22x1.8mm (1.102x0.866x0.071in.)	R530-71112-206	A539-86212DAN2001T79511	2.0	0.079	
A539-86213 30x22x1.6mm (1.181x0.866x0.063in.)	R530-71112-212	A539-86219DAN2001T79511	1.8	0.071	
D530-70016 28x22x2.2mm (1.102x0.866x0.087in.)	R530-71112-210	A539-86218DAN2001T79511	2.4	0.094	
DAN2(X) ⟨3⟩ ⟨6⟩ 30x24x2.0mm (1.181x0.945x0.079in.)	R530-71112-206	A539-86212DAN2001T79511	2.0	0.079	⟨7⟩
DAN2(X) ⟨3⟩ ⟨6⟩ 30x24x1.8mm (1.181x0.945x0.071in.)	R530-71112-206	A539-86212DAN2001T79511	2.0	0.079	⟨7⟩
DAN2(X) ⟨3⟩ ⟨6⟩ 30x24x1.6mm (1.181x0.945x0.063in.)	R530-71112-212	A539-86219DAN2001T79511	1.8	0.071	⟨7⟩
DAN2(X)/DAN21(X) ⟨3⟩ ⟨6⟩ 30x22x1.6mm (1.181x0.866x0.063in.)	R530-71112-212	A539-86219DAN2001T79511	1.8	0.071	
DAN2(X) ⟨3⟩ ⟨6⟩ 28x24x2.0mm (1.102x0.945x0.079in.)	R530-71112-206	A539-86212DAN2001T79511	2.0	0.079	⟨7⟩
DAN2(X) ⟨3⟩ ⟨6⟩ 28x24x1.8mm (1.102x0.945x0.071in.)	R530-71112-206	A539-86212DAN2001T79511	2.0	0.079	⟨7⟩
DAN2(X) ⟨3⟩ ⟨6⟩ 28x24x1.6mm (1.102x0.945x0.063in.)	R530-71112-212	A539-86219DAN2001T79511	1.8	0.071	⟨7⟩
DAN2(X) ⟨3⟩ ⟨6⟩ 28x22x1.8mm (1.102x0.866x0.071in.)	R530-71112-206	A539-86212DAN2001T79511	2.0	0.079	
DAN2(X)/DAN21(X) ⟨3⟩ ⟨6⟩ 28x22x1.6mm (1.102x0.866x0.063in.)	R530-71112-212	A539-86219DAN2001T79511	1.8	0.071	
DAN2(X)/DAN21(X) ⟨3⟩ ⟨6⟩ 28x22x1.4mm (1.102x0.866x0.055in.)	R530-71112-202	A539-85114XL3-1364T3	1.6	0.063	
DAN50(X)-01 ⟨6⟩ 28x24x2.4mm (1.102x0.945x0.094in.)	R530-71112-210	A539-86218DAN2001T79511	2.4	0.094	
DAN50(X)-02 ⟨6⟩ 28x24x2.0mm (1.102x0.945x0.079in.)	R530-71112-206	A539-86212DAN2001T79511	2.0	0.079	⟨7⟩
DAN50(X)-03 ⟨6⟩ 30x24x2.4mm (1.181x0.945x0.094in.)	R530-71112-210	A539-86218DAN2001T79511	2.4	0.094	
DAN50(X)-04 ⟨6⟩ 30x25x2.8mm (1.181x0.984x0.110in.)	R530-71112-208	A539-86217DAN2001T79511	2.8	0.110	
DAN50(X)-05 ⟨6⟩ 30x23x2.0mm (1.181x0.906x0.079in.)	R530-71112-206	A539-86212DAN2001T79511	2.0	0.079	
DAN50(X)-06 ⟨6⟩ 30x24x2.4mm (1.181x0.945x0.094in.)	R530-71112-210	A539-86218DAN2001T79511	2.4	0.094	
DAN50(X)-07 ⟨6⟩ 30x23x1.8mm (1.181x0.905x0.071in.)	R530-71112-206	A539-86212DAN2001T79511	2.0	0.079	
DAN50(X)-08 ⟨6⟩ 28x23x2.0mm (1.102x0.905x0.079in.)	R530-71112-206	A539-86212DAN2001T79511	2.0	0.079	
DAN50(X)-09 ⟨6⟩ 28x25x2.8mm (1.102x0.984x0.110in.)	R530-71112-208	A539-86217DAN2001T79511	2.8	0.110	
DAN50(X)-10 ⟨6⟩ 28x24x2.4mm (1.102x0.945x0.094in.)	R530-71112-210	A539-86218DAN2001T79511	2.4	0.094	
DAN50(X)-11 ⟨6⟩ 28x23x1.8mm (1.102x0.905x0.071in.)	R530-71112-206	A539-86212DAN2001T79511	2.0	0.079	
DAN50(X)-12 ⟨6⟩ 30x25x3.0mm (1.181x0.984x0.118in.)	R530-71112-306	DAN51-3.4364T73511-6	3.5	0.138	
DAN50(X)-13 ⟨6⟩ 28x22x1.6mm (1.102x0.866x0.063in.)	R530-71112-212	A539-86219DAN2001T79511	1.8	0.071	



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Stringer Repair - Stringer made from DAN2, DAN50 and comparable
Figure 201 (sheet 3)

CAUTION:

OBEY THE REPAIR EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN TABLE 202.

THIS REPAIR MUST BE INSPECTED AT DEFINED INTERVALS. THE ECCORDING INSPECTION INSTRUCTION REFERENCE IS 53-00-13-2-001-00 AND IS DESCRIBED IN CHAPTER STRUCTURAL REPAIR INSPECTIONS (SRI) OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

NOTE:

THIS REPAIR IS VALID IN THE FOLLOWING AREAS:
- SECTION 13 AND 14
- SECTION 15 : FR53.3 - FR54, STGR31LH - STGR31RH (UPPER SHELL)
- SECTION 16 AND 19

FOR STRINGER IDENTIFICATION REFER TO THE RELEVANT CHAPTER.

USE TRANSITION FIT FOR HI-LOK INSTALLATION (REFER TO CHAPTER 51-44-11).

RESTORE SURFACE PROTECTION (REFER TO CHAPTER 51-23-11).

ALL PARTS AND FASTENERS ARE TO BE INSTALLED WET WITH SEALANT. FILL ALL GAPS WITH SEALANT (MATERIAL NO. 09-013).

FOR FASTENER PITCH AND MARGIN DATA REFER TO CHAPTER 51-47-00.

⟨1⟩ FOR INFORMATION ABOUT THE DISTANCE TO ADJACENT STRUCTURE PARTS OR OTHER REPAIRS REFER TO FIGURE 210.

⟨2⟩ SHIM (ITEM 3) IS ALLOWED IF d < 0 AND / OR RADIUS DOES NOT MATCH WITH STRINGER RADIUS.

⟨3⟩ ALTERNATIVE:
A COUPLING CAN BE FORMED FROM 3.1364T3/T42 (CLAD2024T3/T42). IN THIS CASE USE THE NEXT HIGHER THICKNESS THEN THE EXISTING PROFILE THICKNESS WITH THE SAME DIMENSION OF GIVEN COUPLING SECTION (REFER TO 51-31-12 OR STANDARD MANUAL).

⟨4⟩ FOR IDENTIFICATION OF EXISTING STRINGER REFER TO RELEVANT IDENTIFICATION PAGE BLOCK.

⟨5⟩ EXISTING SKIN/STRINGER RIVETING DONE BY RIVETS OR FASTENERS WITH DIAMETER LESS OR EQUAL TO 5/32in. FOLLOW THE INSTRUCTIONS GIVEN ON SHEET 4.

⟨6⟩ THE (X) REPRESENTS THE DIFFERENT MATERIAL CODES (REFER TO STANDARD MANUAL).

THIS REPAIR IS VALID FOR FOLLOWING STRINGER MATERIALS:
-ABS0245A (3.1364T351/T42)
-DAN2A/DAN21A (3.1364T351/T42)
-DAN50A (3.1354T3511/T42)
-DAN50B (3.4364T73511/T62/T73)
-DAN50C (DAN2001T79511/T792)

⟨7⟩ SHIM BETWEEN VERTICAL FLANGES IS ACCEPTABLE IF NECESSARY (THICKNESS 0.8 - 1.0mm (0.031 - 0.039in.))

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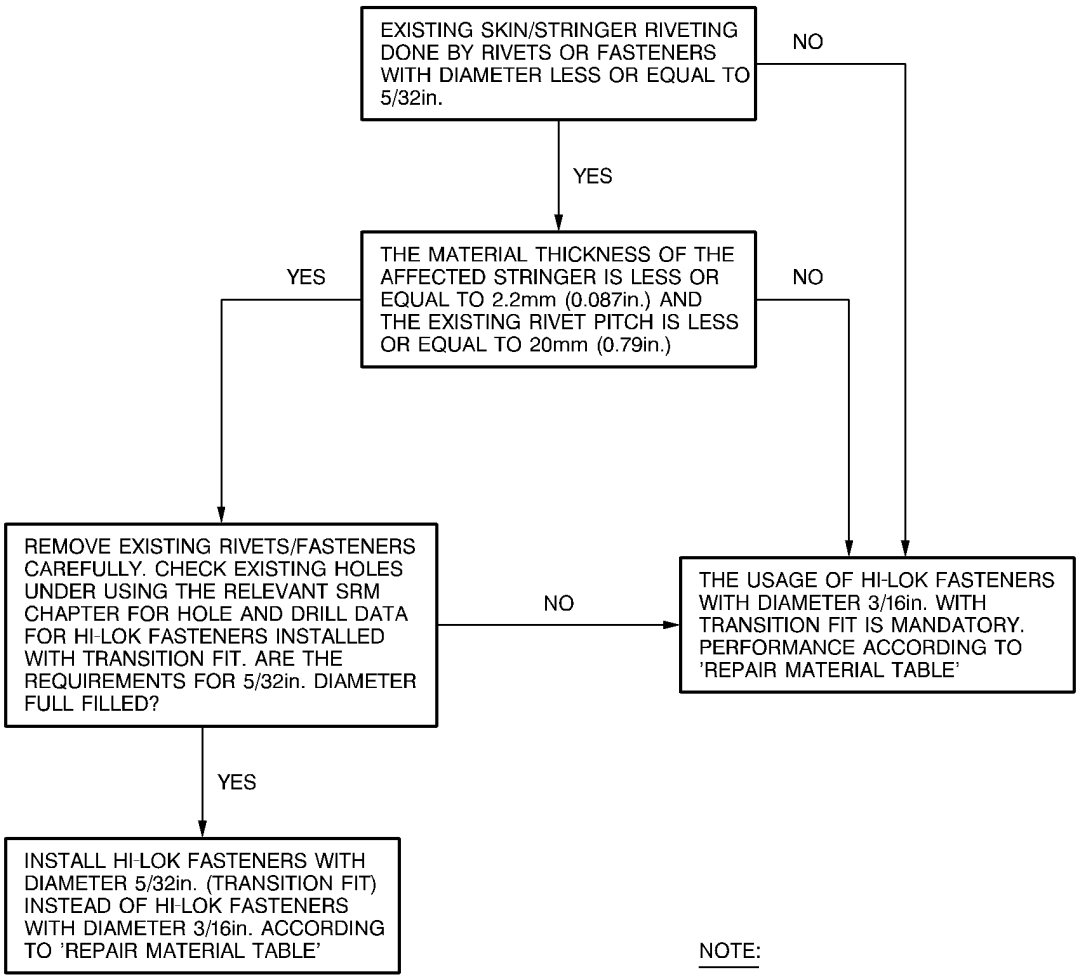

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Use of 5/32 in. Fastener instead of 3/16 in. Fastener
Figure 201 (sheet 4)

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CAUTION: THIS REPAIR INFORMATION IS APPLICABLE AS FOLLOWS:

- BEFORE MODIFICATION 48827D42881

FOR THE EFFECTIVITY OF THE GIVEN MODIFICATION REFER TO THE MODIFICATION/SERVICE BULLETIN LIST GIVEN IN Chapter 53-40-00 Page Block 001.

B. Bonding Defects at Stringer

NOTE: This repair is applicable to bonding defects at stringer.

(1) Repair Materials

ITEM	NOMENCLATURE	QTY	MATERIAL/REMARKS
-	Special Material	AR	Material No. 05-027, (Refer to Chapter 51-35-00)
-	Sealant	AR	Material No. 09-013, (Refer to Chapter 51-35-00)
-	Cleaning Agent	AR	Material No. 11-003, (Refer to Chapter 51-35-00)
-	Cleaning Agent	AR	Material No. 11-004, (Refer to Chapter 51-35-00)
-	Structure Paint	AR	Material No. 16-001, (Refer to Chapter 51-35-00)
-	Structure Paint	AR	Material No. 16-002, (Refer to Chapter 51-35-00)
-	Structure Paint	AR	Material No. 16-003, (Refer to Chapter 51-35-00)
-	Structure Paint	AR	Material No. 16-020, (Refer to Chapter 51-35-00)

(2) Repair Instructions, refer to Figure 202.

(a) Determine area of the defective bonding at the stringer using a bond tester.

WARNING: CLEANING AGENT (MATERIAL NO. 11-003) IS DANGEROUS.

WARNING: CLEANING AGENT (MATERIAL NO. 11-004) IS DANGEROUS.

(b) Remove the remaining sealant and clean the repair area with cleaning agent (Material No. 11-003) or cleaning agent (Material No. 11-004).

(c) Check the repair area for corrosion.

NOTE: If corrosion is found between the stringer and the skin, the stringer must be repaired, refer to Figure 201.

NOTE: For removal of corrosion refer to Chapter 51-74-00.

(d) Mark out the fastener spacing, refer to Figure 202.

NOTE: Select the fastener diameter and the fastener spacing, depending on the area in the aircraft and the skin thickness, refer to Figure 202. The higher values of fastener spacing within the given limits are preferred. Rivet the debonded stringer to the skin within entire frame bay and four fasteners beyond each frame.

(e) Deburr the fastener holes.

WARNING: CLEANING AGENT (MATERIAL NO. 11-003) IS DANGEROUS.

WARNING: CLEANING AGENT (MATERIAL NO. 11-004) IS DANGEROUS.

WARNING: STRUCTURE PAINT (MATERIAL NO. 16-020) IS DANGEROUS.

(f) Degrease the fastener holes with cleaning agent (Material No. 11-003) or cleaning agent (Material No. 11-004) and apply structure paint (Material No. 16-020).

WARNING: SEALANT (MATERIAL NO. 09-013) IS DANGEROUS.

(g) If the bonded joint between the stringer and the skin has separated completely, apply sealant (Material No. 09-013), refer to Chapter 51-76-00.

(h) Install the fasteners wet with sealant (Material No. 09-013), refer to Chapter 51-76-00.

NOTE: Ensure that the process of riveting is finished during the curing time of the sealant.

(i) Rivet the bonded stringer.

WARNING: STRUCTURE PAINT (MATERIAL NO. 16-003) IS DANGEROUS.

(j) Seal the edges of the stringer and the fastener heads with sealant (Material No. 09-013), refer to Chapter 51-76-00.

NOTE: Apply structure paint (Material No. 16-003) to the sealant bead in the lower shell, refer to Chapter 51-23-00.

WARNING: STRUCTURE PAINT (MATERIAL NO. 16-001) IS DANGEROUS.

(k) Apply structure paint (Material No. 16-001) to the surface of the internal repair area.

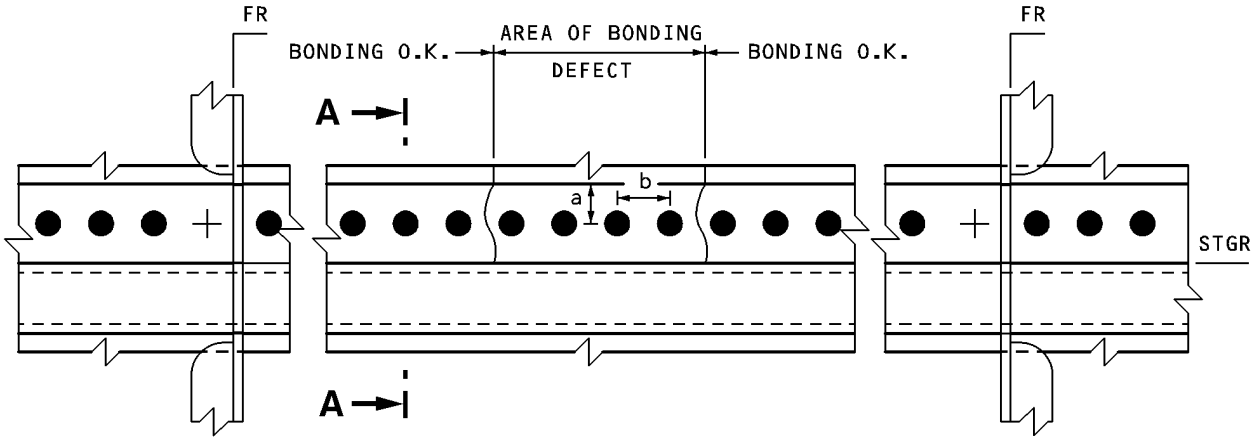
WARNING: STRUCTURE PAINT (MATERIAL NO. 16-002) IS DANGEROUS.

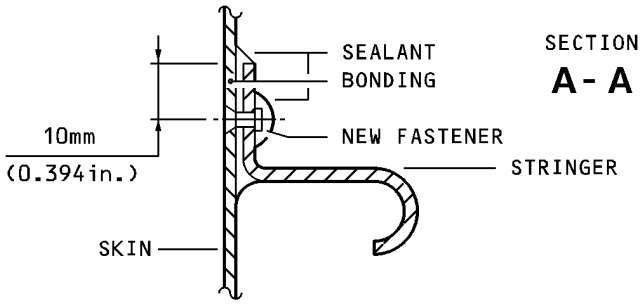
(l) Apply structure paint (Material No. 16-002) to the internal surface of the repair area.

WARNING: DO NOT APPLY SPECIAL MATERIAL (MATERIAL NO. 05-027) IN AREA ADJACENT TO OXYGEN EQUIPMENT OR OXYGEN PIPES.

WARNING: SPECIAL MATERIAL (MATERIAL NO. 05-027) IS DANGEROUS.

(m) Apply special material (Material No. 05-027) or equivalent to the repair area inside the lower shell, refer to Chapter 51-23-00.





FASTENER SYMBOL	REPAIR MATERIAL		
●	FASTENER	NAS1097DD5 <5> <1>	NAS1097DD6 <5> <2>
MARGIN (a)	10mm (0.394in.)		
FASTENER SPACING (b)	28/35mm <3> (1.102/1.378in.)	28/35mm (1.102/1.378in.)	
	25/30mm <4> (0.984/1.181in.)		

NOTE:

<1> USE FOR SKIN WITH A THICKNESS UP TO 1.8mm (0.071in.)

<2> USE FOR SKIN WITH A THICKNESS OF 2mm (0.079in.) OR MORE

<3> FASTENER SPACING FWD OF FRAME 40

<4> FASTENER SPACING AFT OF FRAME 54

<5> REFER TO CHAPTER 51-40-00

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Bonding Defects at Stringers
Figure 202

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CAUTION: THIS REPAIR MUST BE INSPECTED AT DEFINED INTERVALS. THE ACCORDING INSPECTION INSTRUCTION REFERENCE IS IIR 53-00-13-2-002-00 AND IS DESCRIBED IN CHAPTER STRUCTURAL REPAIR INSPECTIONS (SRI) OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

CAUTION: OBEY THE REPAIR EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN TABLE 203.

C. Stringer Outer Flange Repair

The repair is applicable to formed and extruded stringers as follows:

- if a stringer outer flange is damaged or a skin repair requires a stringer outer flange cut out (Figure 203)
- if the outer flange of the stringer is corroded (Figure 204).

NOTE: The repair is applicable only in the areas indicated on the relevant Figure. The repair effectivity of this repair is shown in Table

AIRCRAFT	WEIGHT VARIANT
A340-2XX	000, 001, 002,
A340-2XX	021
A340-3XX	000, 001, 002, 003, 004
A340-3XX	020, 021, 024, 026, 027

Repair Effectivity per Weight Variant and Aircraft Type

Table 203

NOTE: Refer to the Weight Variant Identification List given in the Introduction of the SRM. This Table shows all necessary information related to the weight variant and their maximum values and the modification associated to the aircraft type.

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(1) Repair Materials

ITEM	NOMENCLATURE	QTY	MATERIAL/REMARKS
1	Coupling	-	Refer to Figure 203 or 204
2	Filler or Shim	-	Refer to Figure 203 or 204
-	Sealant	AR	Material No. 09-013 (Refer to Chapter 51-35-00)
-	Cleaning Agent	AR	Material No. 11-003 or 11-004 (Refer to Chapter 51-35-00)
-	Pretreatment for painting (Chemical conversion coating)	AR	Material No. 13-002 (Refer to Chapter 51-35-00)
-	Storage preservation (Corrosion preventive temporary protective compound)	AR	Material No. 15-005A (Refer to Chapter 51-35-00)
-	Storage preservation (Corrosion preventive temporary protective compound)	AR	Material No. 15-007 (Refer to Chapter 51-35-00)
-	Structure Paint (Polyurethane primer)	AR	Material No. 16-001 (Refer to Chapter 51-35-00)
-	Structure Paint (Polyurethane topcoat, grey)	AR	Material No. 16-002 (Refer to Chapter 51-35-00)
-	Structure Paint (Wash primer)	AR	Material No. 16-020 (Refer to Chapter 51-35-00)
-	Structure Paint (flexible polyurethane)	AR	Material No. 16-021 (Refer to Chapter 51-35-00)

(2) Repair Instruction (Refer to Figure 203 and/or 204)

(a) Remove all fasteners as necessary for the repair.

(b) Rework the damaged part of stringer outer flange and deburr the edges.

NOTE: Make sure not to damage the adjacent structure.

(c) If there is corrosion (Refer to Figure 204):

1 Examine the repair area and remove all signs of corrosion (Refer to Chapter 51-74-00.

2 Check remaining thickness of the area from which the corrosion has been removed. If the thickness is less than 0.8 mm (0.03 in.) cutout the outer flange.

(d) Prepare the repair parts and deburr the edges (Refer to the relevant Figure).

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(e) Attach the repair parts in their correct position. Transfer drill existing fastener holes from the outer flange to the repair parts. Mark and drill additional holes.

NOTE: Use transition fit for Hi-Lok fastener installation (Refer to Chapter 51-44-11).

(f) Remove the repair parts and deburr all fastener holes.

WARNING: CLEANING AGENT (MATERIAL NO. 11-003) IS DANGEROUS.

WARNING: CLEANING AGENT (MATERIAL NO. 11-004) IS DANGEROUS.

(g) Clean the repair parts and the repair area with cleaning agent (Material No. 11-003 or 11-004).

WARNING: STRUCTURE PAINT (MATERIAL NO. 16-020) IS DANGEROUS.

(h) Apply wash primer (Material No. 16-020) to the repair area (Refer to Chapter 51-23-00).

WARNING: CHROMIC ACID ANODIZING (CAA) IS DANGEROUS.

WARNING: PRETREATMENT FOR PAINTING (MATERIAL NO. 13-002) IS POISONOUS.

(i) Pretreat the repair parts by Chromic Acid Anodizing (CAA) or use chemical conversion coating (Material No. 13-002).

NOTE: For protection by CAA and the application of chemical conversion coating refer to Chapter 51-21-11.

WARNING: STRUCTURE PAINT (MATERIAL NO. 16-001) IS DANGEROUS.

(j) Apply polyurethane primer (Material No. 16-001) to the repair parts.

WARNING: STRUCTURE PAINT (MATERIAL NO. 16-002) IS DANGEROUS.

(k) Apply polyurethane topcoat (Material No. 16-002) to the repair parts.

WARNING: SEALANT (MATERIAL NO. 09-013) IS DANGEROUS.

(l) Apply sealant (Material No. 09-013) to the mating surfaces of the repair parts (Refer to Chapter 51-76-11).

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WARNING: SEALANT (MATERIAL NO. 09-013) IS DANGEROUS.

(m) Attach the repair parts in their correct position and install all fasteners wet with sealant (Material No. 09-013).

NOTE: Install the fasteners within the application life of the sealant. If this is not possible, install at least every third fastener within the application life of the sealant (Refer to Chapter 51-76-00).

(n) Apply a bead of sealant (Material No. 09-013) to the edges of the repair parts.

(o) If necessary, apply flexible polyurethane (Material No. 16-021) to the sealant beads.

NOTE: Refer to Chapter 51-23-12 for information about areas of application.

WARNING: STRUCTURE PAINT (MATERIAL NO. 16-001) IS DANGEROUS.

WARNING: STRUCTURE PAINT (MATERIAL NO. 16-002) IS DANGEROUS.

(p) Restore the paint finish around the repair area. Use polyurethane primer (Material No. 16-001) and after that polyurethane topcoat (Material No. 16-002).

WARNING: DO NOT APPLY STORAGE PRESERVATION (MATERIAL NO. 15-005A) IN AREA OF OXYGEN EQUIPMENT AND OXYGEN PIPES.

WARNING: STORAGE PRESERVATION (MATERIAL NO. 15-005A) IS DANGEROUS.

(q) If necessary, apply a corrosion preventive temporary protective compound to the repair area. First apply Material No. 15-005A and after that Material No. 15-007.

NOTE: Before application of Material No. 15-007 let Material No. 15-005A dry for approximately 1 hour.

NOTE: This is a supplement and means to prevent corrosion in areas where special protection is required. Refer to Chapter 51-23-12 for information about these areas.

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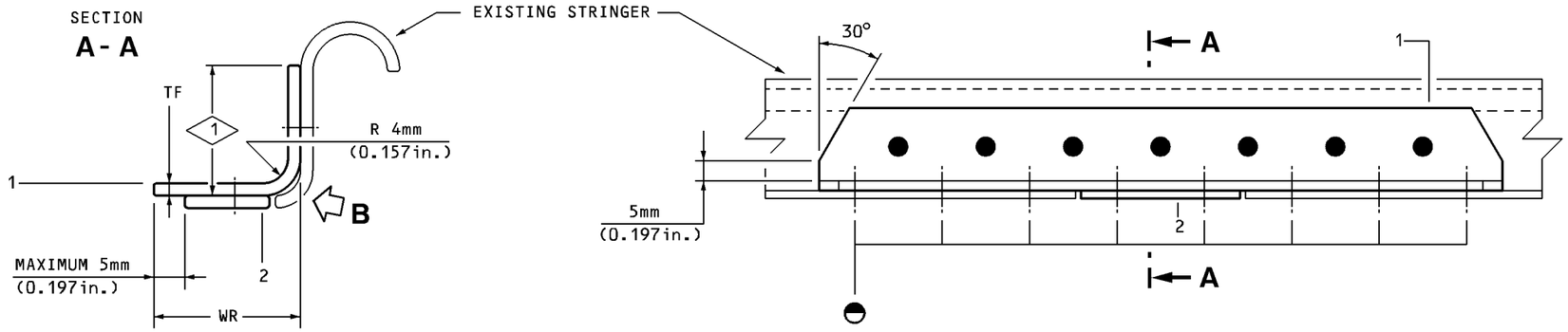
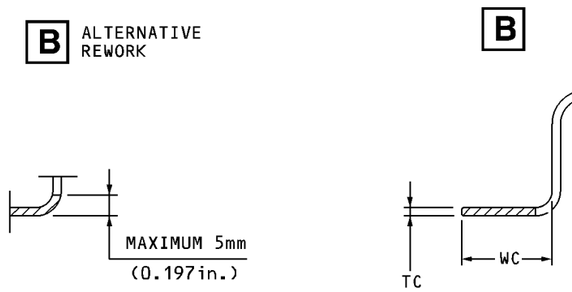




REWORK AREA

REPAIR MATERIALS			
ITEM	NOMENCLATURE	QTY	MATERIAL/REMARKS
1	COUPLING	1	CLAD2024T42
2	FILLER	1	CLAD2024T3 (THICKNESS AS REQUIRED)
FASTENER SYMBOLS			
●	MS20470DD6		
◒	HL11VF5 / HL70-5 ◇2◇		

NOTE: THIS REPAIR MUST BE INSPECTED AT DEFINED INTERVALS. THE ACCORDING INSPECTION INSTRUCTION REFERENCE IS 53-00-13-2-002-00 AND IS DESCRIBED IN CHAPTER STRUCTURAL REPAIR INSPECTIONS (SRI) OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

THIS REPAIR IS VALID IN THE FOLLOWING AREAS:

SECTION 13 - 14

SECTION 15: FR53.3 - FR54, STGR31LH - STGR31RH (UPPER SHELL)

SECTION 16 - 19

THIS REPAIR IS VALID FOR FORMED STRINGER MADE FROM DAN2 / DAN21 / ABS0245, ASNA2212, ASNA2214, MATERIAL 3.1364T351 OR 3.4377T761.

THE MAXIMUM CUTOUT LENGTH IS HALF A FRAME BAY.

FOR STRINGER IDENTIFICATION REFER TO THE RELEVANT CHAPTER.

USE TRANSITION FIT FOR HI-LOK INSTALLATION ◇2◇ (REFER TO CHAPTER 51-44-11).

RESTORE SURFACE PROTECTION (REFER TO CHAPTER 51-23-11).

ALL PARTS AND FASTENERS ARE TO BE INSTALLED WET WITH SEALANT. FILL ALL GAPS WITH SEALANT (MATERIAL NO. 09-013).

FOR FASTENER PITCH AND MARGIN DATA REFER TO CHAPTER 51-47-00.

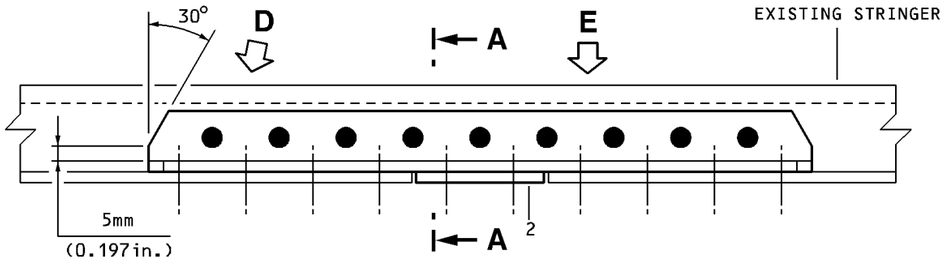
FOR INFORMATION ABOUT THE DISTANCE TO ADJACENT STRUCTURE PARTS OR OTHER REPAIRS REFER TO FIGURE 210.

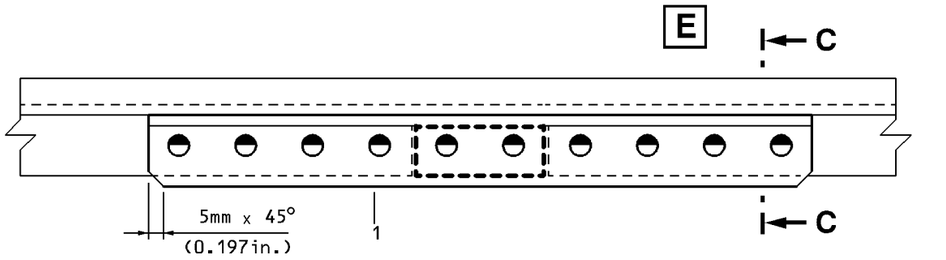
◇1◇ THE VERTICAL FLANGE HEIGHT DEPENDS ON EDGE MARGIN DATA TO ENSURE A PROPER INSTALLATION / RIVETING (REFER TO CHAPTER 51-47-00).

◇2◇ IN CASE TRANSITION FIT CANNOT BE ACHIEVED, USE NEXT OVERSIZE FASTENER (REFER TO CHAPTER 51-43-00).

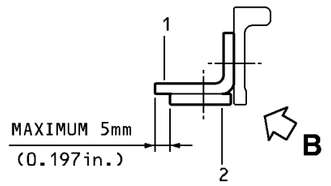
TC = THICKNESS OF CUT FLANGE.
TF = FLANGE THICKNESS OF REPAIR PART.
WC = CUTOUT WIDTH OF OUTER FLANGE (MAXIMUM 34mm (1.338in.)).
WR = OUTER FLANGE WIDTH OF REPAIR PART.
TF ≥ 1.3 x TC
WR ≥ WC

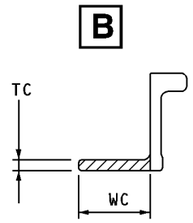
Stringer Outer Flange Repair - Cutout
Figure 203 (sheet 1)

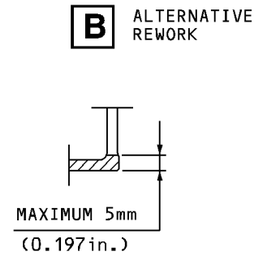




SECTION
A - A







SECTION
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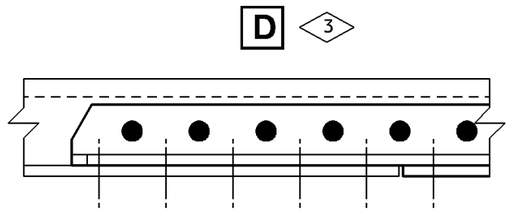

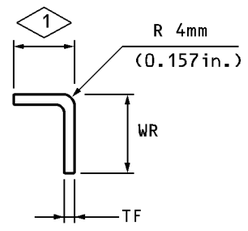

REWORK AREA

REPAIR MATERIALS			
ITEM	NOMENCLATURE	QTY	MATERIAL/REMARKS
1	COUPLING	1	7075T7351 OR 7075T73511
2	FILLER	1	CLAD2024T3 (THICKNESS AS REQUIRED)
FASTENER SYMBOLS			
●	HL10VF6 / HL70-6		
◒	FLANGE THICKNESS IS ≤ 2.2mm (0.087in.)	HL11VF5/HL70-5 <2>	
	FLANGE THICKNESS IS > 2.2mm (0.087in.)	HL11VF6/HL70-6 <2>	

NOTE: THIS REPAIR MUST BE INSPECTED AT DEFINED INTERVALS. THE ACCORDING INSPECTION INSTRUCTION REFERENCE IS 53-00-13-2-002-00 AND IS DESCRIBED IN CHAPTER STRUCTURAL REPAIR INSPECTIONS (SRI) OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

THIS REPAIR IS VALID IN THE FOLLOWING AREAS:

SECTION 13 - 14

SECTION 15: FR53.3 - FR54, STGR31LH - STGR31RH (UPPER SHELL)

SECTION 16 - 19

THIS REPAIR IS VALID FOR EXTRUDED / MILLED STRINGER MADE FROM MATERIAL 3.1354T351, 3.1354T3511, 3.4364T7351 OR 3.4364T73511.

THE MAXIMUM CUTOUT LENGTH IS HALF A FRAME BAY.

FOR STRINGER IDENTIFICATION REFER TO THE RELEVANT CHAPTER.

USE TRANSITION FIT FOR HI-LOK INSTALLATION <2> (REFER TO CHAPTER 51-44-11).

RESTORE SURFACE PROTECTION (REFER TO CHAPTER 51-23-11).

ALL PARTS AND FASTENERS ARE TO BE INSTALLED WET WITH SEALANT. FILL ALL GAPS WITH SEALANT (MATERIAL NO. 09-013).

FOR FASTENER PITCH AND MARGIN DATA REFER TO CHAPTER 51-47-00.

FOR INFORMATION ABOUT THE DISTANCE TO ADJACENT STRUCTURE PARTS OR OTHER REPAIRS REFER TO FIGURE 210.

<1> THE VERTICAL FLANGE HEIGHT DEPENDS ON EDGE MARGIN DATA TO ENSURE A PROPER INSTALLATION / RIVETING (REFER TO CHAPTER 51-47-00).

<2> IN CASE TRANSITION FIT CANNOT BE ACHIEVED, USE NEXT OVERSIZE FASTENER (REFER TO CHAPTER 51-43-00).

<3> USE ONE MORE FASTENER IF FLANGE THICKNESS (TC) IS ≥ 3.5mm (0.138in.).

TC = THICKNESS OF CUT FLANGE.
TF = FLANGE THICKNESS OF REPAIR PART.
WC = CUTOUT WIDTH OF OUTER FLANGE (MAXIMUM 34mm (1.338in.)).
WR = OUTER FLANGE WIDTH OF REPAIR PART.
TF ≥ 1.2 x TC
WR ≥ WC

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Stringer Outer Flange Repair - Cutout
Figure 203 (sheet 2)

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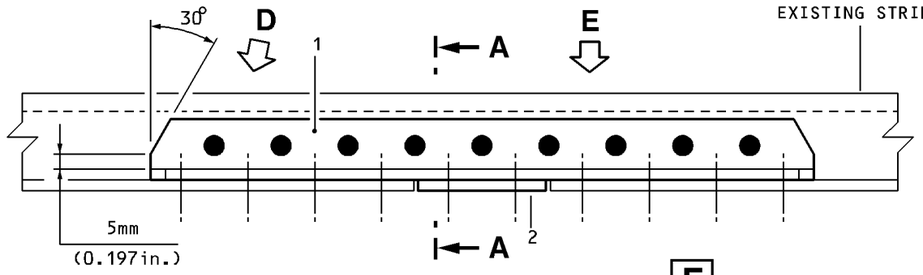
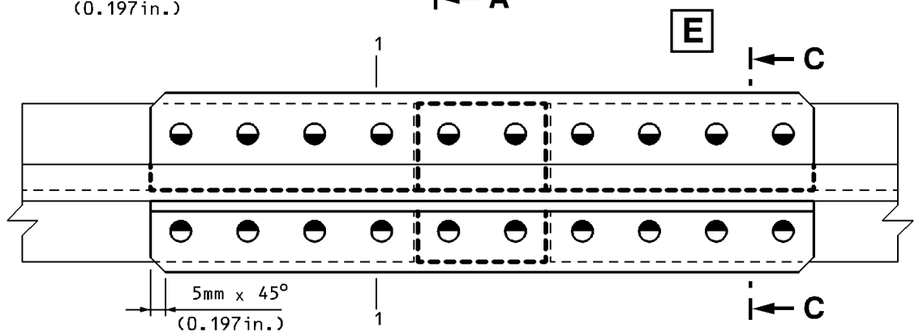
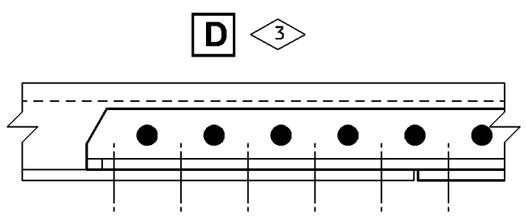


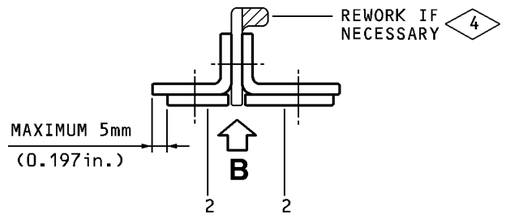


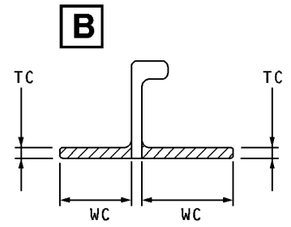


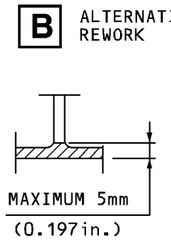
REWORK AREA

REPAIR MATERIALS			
ITEM	NOMENCLATURE	QTY	MATERIAL/REMARKS
1	COUPLING	2	7075T7351 OR 7075T73511
2	FILLER	2	CLAD2024T3 (THICKNESS AS REQUIRED)
FASTENER SYMBOLS			
●	HL10VF6 / HL70-6		
◒	FLANGE THICKNESS IS ≤ 2.2mm (0.087in.)		HL11VF5/HL70-5 ◇2◇
◒	FLANGE THICKNESS IS > 2.2mm (0.087in.)		HL11VF6/HL70-6 ◇2◇

SECTION
A - A







SECTION
C - C
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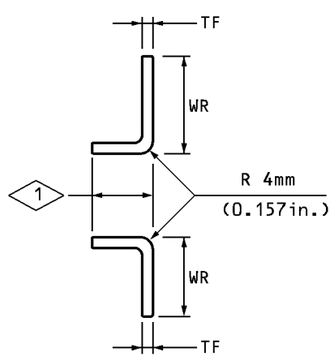


NOTE: THIS REPAIR MUST BE INSPECTED AT DEFINED INTERVALS. THE ACCORDING INSPECTION INSTRUCTION REFERENCE IS 53-00-13-2-002-00 AND IS DESCRIBED IN CHAPTER STRUCTURAL REPAIR INSPECTIONS (SRI) OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

THIS REPAIR IS VALID IN THE FOLLOWING AREAS:

SECTION 13 - 14

SECTION 15: FR53.3 - FR54, STGR31LH - STGR31RH (UPPER SHELL)

SECTION 16 - 19

THIS REPAIR IS VALID FOR EXTRUDED / MILLED STRINGER MADE FROM MATERIAL 3.1354T351, 3.1354T3511, 3.4364T7351 OR 3.4364T73511.

THE MAXIMUM CUTOUT LENGTH IS HALF A FRAME BAY.

FOR STRINGER IDENTIFICATION REFER TO THE RELEVANT CHAPTER.

USE TRANSITION FIT FOR HI-LOK INSTALLATION ◇2◇ (REFER TO CHAPTER 51-44-11).

RESTORE SURFACE PROTECTION (REFER TO CHAPTER 51-23-11).

ALL PARTS AND FASTENERS ARE TO BE INSTALLED WET WITH SEALANT. FILL ALL GAPS WITH SEALANT (MATERIAL NO. 09-013).

FOR FASTENER PITCH AND MARGIN DATA REFER TO CHAPTER 51-47-00.

FOR INFORMATION ABOUT THE DISTANCE TO ADJACENT STRUCTURE PARTS OR OTHER REPAIRS REFER TO FIGURE 210.

◇1◇ THE VERTICAL FLANGE HEIGHT DEPENDS ON EDGE MARGIN DATA TO ENSURE A PROPER INSTALLATION / RIVETING (REFER TO CHAPTER 51-47-00).

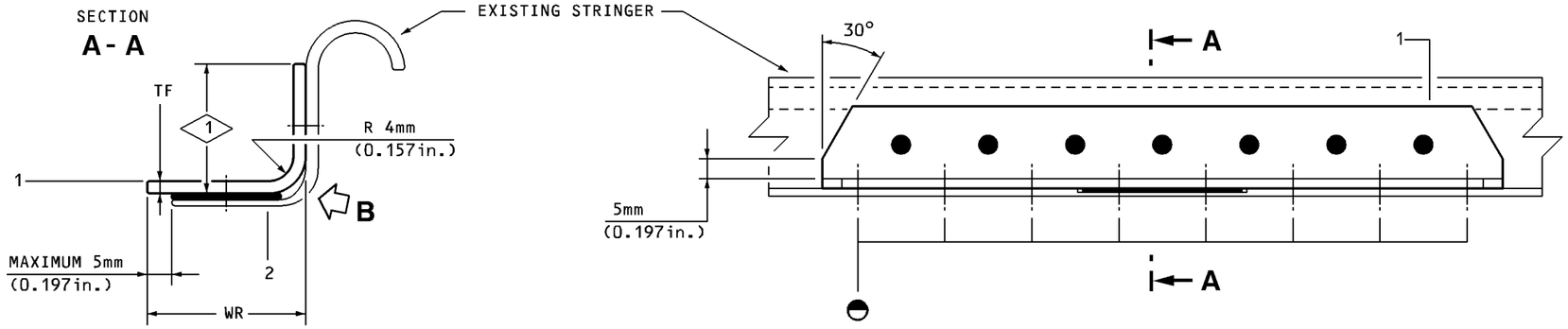
◇2◇ IN CASE TRANSITION FIT CANNOT BE ACHIEVED, USE NEXT OVERSIZE FASTENER (REFER TO CHAPTER 51-43-00).

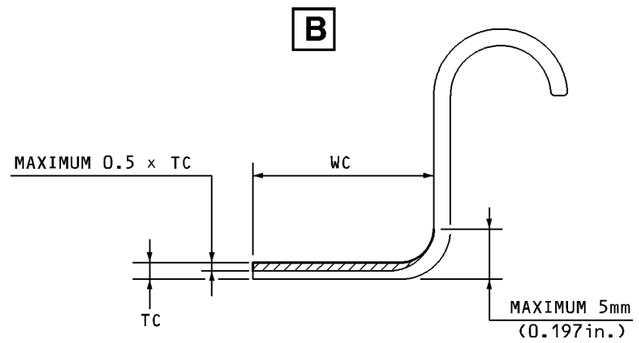
◇3◇ USE ONE MORE FASTENER IF FLANGE THICKNESS (TC) IS ≥ 3.5mm (0.138in.).

◇4◇ IN CASE OF REWORK ENLARGE THE COUPLING BY ONE FASTENER (REFER TO FIGURE 207 (SHEET 2)).

TC = THICKNESS OF CUT FLANGE.
TF = FLANGE THICKNESS OF REPAIR PART.
WC = CUTOUT WIDTH OF OUTER FLANGE (MAXIMUM 34mm (1.338in.)).
WR = OUTER FLANGE WIDTH OF REPAIR PART.
TF ≥ 1.2 x TC
WR ≥ WC

Stringer Outer Flange Repair - Cutout
Figure 203 (sheet 3)





REWORK AREA

REPAIR MATERIALS			
ITEM	NOMENCLATURE	QTY	MATERIAL/REMARKS
1	COUPLING	1	CLAD2024T42
2	SHIM	1	CLAD2024T3 (THICKNESS AS REQUIRED)
FASTENER SYMBOLS			
●	MS20470DD6		
◒	HL11VF5 / HL70-5 ◇2◇		

Stringer Outer Flange Repair - Rework of Corrosion
Figure 204 (sheet 1)

NOTE: THIS REPAIR MUST BE INSPECTED AT DEFINED INTERVALS. THE ACCORDING INSPECTION INSTRUCTION REFERENCE IS 53-00-13-2-002-00 AND IS DESCRIBED IN CHAPTER STRUCTURAL REPAIR INSPECTIONS (SRI) OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

THIS REPAIR IS VALID IN THE FOLLOWING AREAS:

SECTION 13 - 14

SECTION 15: FR53.3 - FR54, STGR31LH - STGR31RH (UPPER SHELL)

SECTION 16 - 19

THIS REPAIR IS VALID FOR FORMED STRINGER MADE FROM DAN2 / DAN21 / ABS0245, ASNA2212, ASNA2214, MATERIAL 3.1364T351 OR 3.4377T761.

THE MAXIMUM REWORK LENGTH IS ONE FRAME BAY.

THE MAXIMUM REWORK DEPTH IS HALF NOMINAL FLANGE THICKNESS.

FOR STRINGER IDENTIFICATION REFER TO THE RELEVANT CHAPTER.

USE TRANSITION FIT FOR HI-LOK INSTALLATION ◇2◇ (REFER TO CHAPTER 51-44-11).

RESTORE SURFACE PROTECTION (REFER TO CHAPTER 51-23-11).

ALL PARTS AND FASTENERS ARE TO BE INSTALLED WET WITH SEALANT. FILL ALL GAPS WITH SEALANT (MATERIAL NO. 09-013).

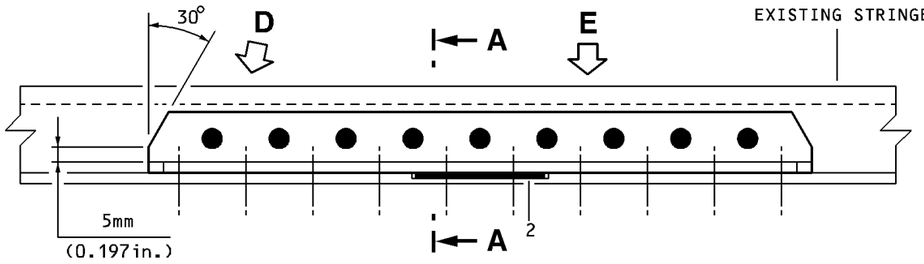
FOR FASTENER PITCH AND MARGIN DATA REFER TO CHAPTER 51-47-00.

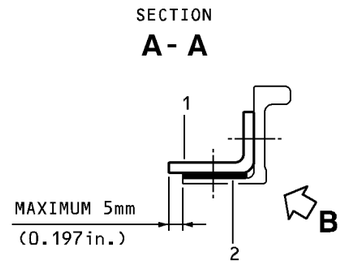
FOR INFORMATION ABOUT THE DISTANCE TO ADJACENT STRUCTURE PARTS OR OTHER REPAIRS REFER TO FIGURE 210.

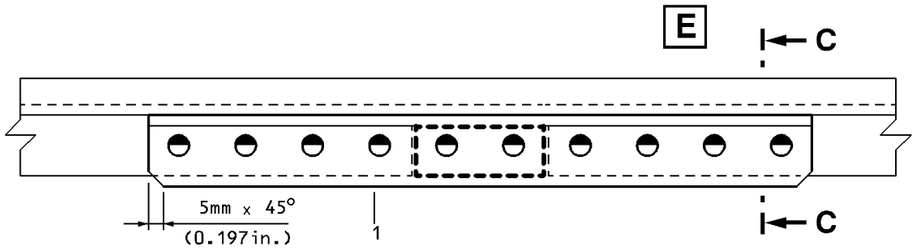
◇1◇ THE VERTICAL FLANGE HEIGHT DEPENDS ON EDGE MARGIN DATA TO ENSURE A PROPER INSTALLATION / RIVETING (REFER TO CHAPTER 51-47-00).

◇2◇ IN CASE TRANSITION FIT CANNOT BE ACHIEVED, USE NEXT OVERSIZE FASTENER (REFER TO CHAPTER 51-43-00).

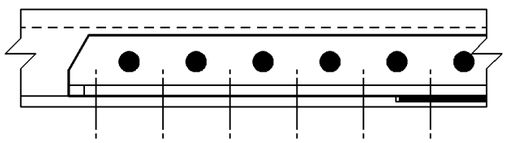
TC = NOMINAL THICKNESS OF REWORKED FLANGE.
TF = FLANGE THICKNESS OF REPAIR PART.
WC = REWORK WIDTH OF OUTER FLANGE (MAXIMUM 34mm (1.338in.)).
WR = OUTER FLANGE WIDTH OF REPAIR PART.
TF ≥ 0.75 x TC (MINIMUM 1mm (0.040in.)).
WR ≥ WC

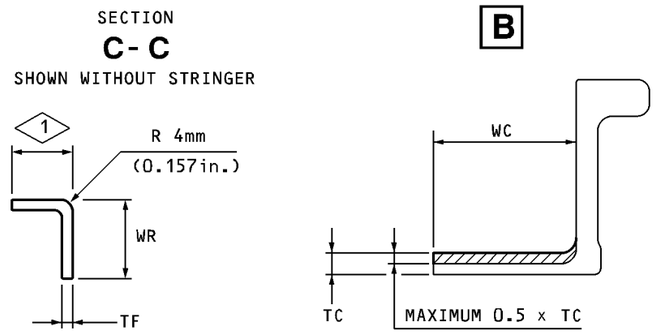






D ◇3





B

REWORK AREA

REPAIR MATERIALS			
ITEM	NOMENCLATURE	QTY	MATERIAL/REMARKS
1	COUPLING	1	7075T7351 OR 7075T73511
2	SHIM	1	CLAD2024T3 (THICKNESS AS REQUIRED)
FASTENER SYMBOLS			
●	HL10VF6 / HL70-6		
◒	FLANGE THICKNESS IS ≤ 2.2mm (0.087in.)		HL11VF5/HL70-5 ◇2
◒	FLANGE THICKNESS IS > 2.2mm (0.087in.)		HL11VF6/HL70-6 ◇2

Stringer Outer Flange Repair - Rework of Corrosion
Figure 204 (sheet 2)

NOTE: THIS REPAIR MUST BE INSPECTED AT DEFINED INTERVALS.
THE ACCORDING INSPECTION INSTRUCTION REFERENCE IS
53-00-13-2-002-00 AND IS DESCRIBED IN CHAPTER STRUCTURAL
REPAIR INSPECTIONS (SRI) OF THE SRM. INFORM YOUR PLANNING
DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

THIS REPAIR IS VALID IN THE FOLLOWING AREAS:

SECTION 13 - 14

SECTION 15: FR53.3 - FR54, STGR31LH - STGR31RH (UPPER SHELL)

SECTION 16 - 19

THIS REPAIR IS VALID FOR EXTRUDED / MILLED STRINGER MADE FROM
MATERIAL 3.1354T351, 3.1354T3511, 3.4364T7351 OR 3.4364T73511.

THE MAXIMUM REWORK LENGTH IS HALF A FRAME BAY.

THE MAXIMUM REWORK DEPTH IS HALF NOMINAL FLANGE THICKNESS.

FOR STRINGER IDENTIFICATION REFER TO THE RELEVANT CHAPTER.

USE TRANSITION FIT FOR HI-LOK INSTALLATION ◇2
(REFER TO CHAPTER 51-44-11).

RESTORE SURFACE PROTECTION (REFER TO CHAPTER 51-23-11).

ALL PARTS AND FASTENERS ARE TO BE INSTALLED WET WITH SEALANT.
FILL ALL GAPS WITH SEALANT (MATERIAL NO. 09-013).

FOR FASTENER PITCH AND MARGIN DATA REFER TO CHAPTER 51-47-00.

FOR INFORMATION ABOUT THE DISTANCE TO ADJACENT STRUCTURE PARTS
OR OTHER REPAIRS REFER TO FIGURE 210.

◇1 THE VERTICAL FLANGE HEIGHT DEPENDS ON EDGE MARGIN DATA TO ENSURE A PROPER INSTALLATION / RIVETING (REFER TO CHAPTER 51-47-00).

◇2 IN CASE TRANSITION FIT CANNOT BE ACHIEVED, USE NEXT OVERSIZE FASTENER (REFER TO CHAPTER 51-43-00).

◇3 USE ONE MORE FASTENER IF FLANGE THICKNESS (TC) IS ≥ 3.5mm (0.138in.).

TC = NOMINAL THICKNESS OF REWORKED FLANGE.
TF = FLANGE THICKNESS OF REPAIR PART.
WC = REWORK WIDTH OF OUTER FLANGE (MAXIMUM 34mm (1.338in.)).
WR = OUTER FLANGE WIDTH OF REPAIR PART.
TF ≥ 0.75 x TC (MINIMUM 1.6mm (0.063in.)).
WR ≥ WC

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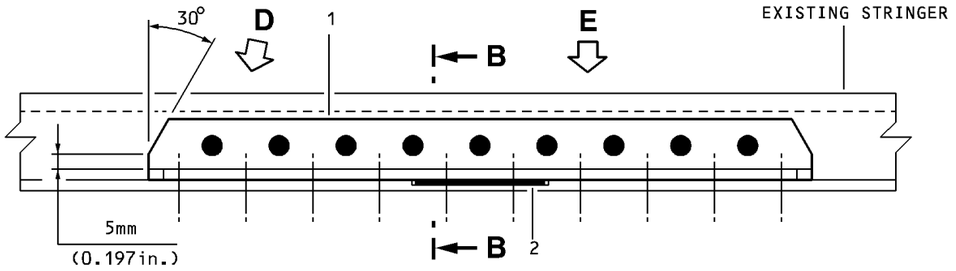

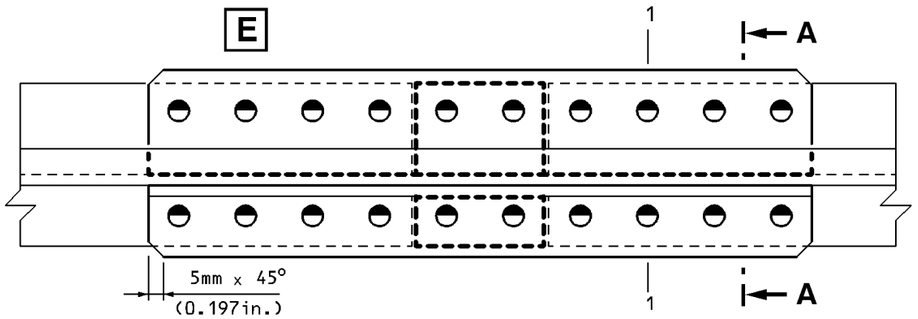

SECTION
A - A
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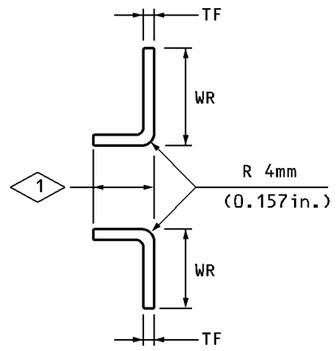
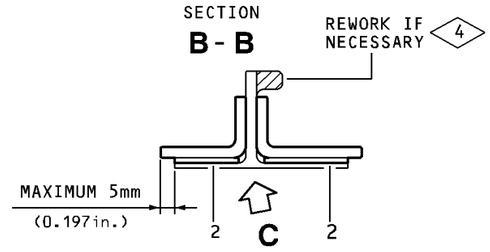
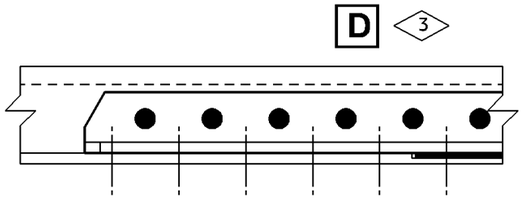
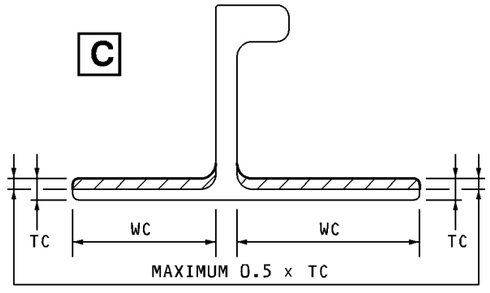


SECTION
B - B







REWORK AREA

REPAIR MATERIALS			
ITEM	NOMENCLATURE	QTY	MATERIAL/REMARKS
1	COUPLING	2	7075T7351 OR 7075T73511
2	SHIM	2	CLAD2024T3 (THICKNESS AS REQUIRED)
FASTENER SYMBOLS			
●	HL10VF6 / HL70-6		
◒	FLANGE THICKNESS IS ≤ 2.2mm (0.087in.)	HL11VF5/HL70-5 ◇2◇	
◒	FLANGE THICKNESS IS > 2.2mm (0.087in.)	HL11VF6/HL70-6 ◇2◇	

NOTE:

THIS REPAIR MUST BE INSPECTED AT DEFINED INTERVALS. THE ACCORDING INSPECTION INSTRUCTION REFERENCE IS 53-00-13-2-002-00 AND IS DESCRIBED IN CHAPTER STRUCTURAL REPAIR INSPECTIONS (SRI) OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

THIS REPAIR IS VALID IN THE FOLLOWING AREAS:

SECTION 13 - 14

SECTION 15: FR53.3 - FR54, STGR31LH - STGR31RH (UPPER SHELL)

SECTION 16 - 19

THIS REPAIR IS VALID FOR EXTRUDED / MILLED STRINGER MADE FROM MATERIAL 3.1354T351, 3.1354T3511, 3.4364T7351 OR 3.4364T73511.

THE MAXIMUM REWORK LENGTH IS HALF A FRAME BAY.

THE MAXIMUM REWORK DEPTH IS HALF NOMINAL FLANGE THICKNESS.

FOR STRINGER IDENTIFICATION REFER TO THE RELEVANT CHAPTER.

USE TRANSITION FIT FOR HI-LOK INSTALLATION ◇2◇ (REFER TO CHAPTER 51-44-11).

RESTORE SURFACE PROTECTION (REFER TO CHAPTER 51-23-11).

ALL PARTS AND FASTENERS ARE TO BE INSTALLED WET WITH SEALANT. FILL ALL GAPS WITH SEALANT (MATERIAL NO. 09-013).

FOR FASTENER PITCH AND MARGIN DATA REFER TO CHAPTER 51-47-00.

FOR INFORMATION ABOUT THE DISTANCE TO ADJACENT STRUCTURE PARTS OR OTHER REPAIRS REFER TO FIGURE 210.

◇1◇ THE VERTICAL FLANGE HEIGHT DEPENDS ON EDGE MARGIN DATA TO ENSURE A PROPER INSTALLATION / RIVETING (REFER TO CHAPTER 51-47-00).

◇2◇ IN CASE TRANSITION FIT CANNOT BE ACHIEVED, USE NEXT OVERSIZE FASTENER (REFER TO CHAPTER 51-43-00).

◇3◇ USE ONE MORE FASTENER IF FLANGE THICKNESS (TC) IS ≥ 3.5mm (0.138in.).

◇4◇ IN CASE OF REWORK ENLARGE THE COUPLING BY ONE FASTENER (REFER TO FIGURE 207 (SHEET 2)).

TC = THICKNESS OF CUT FLANGE.
TF = FLANGE THICKNESS OF REPAIR PART.
WC = CUTOUT WIDTH OF OUTER FLANGE (MAXIMUM 34mm (1.338in.)).
WR = OUTER FLANGE WIDTH OF REPAIR PART.
TF ≥ 0.75 x TC (MINIMUM 1.6mm (0.063in.))
WR ≥ WC

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Stringer Outer Flange Repair - Rework of Corrosion
Figure 204 (sheet 3)

CAUTION: THIS REPAIR MUST BE INSPECTED AT DEFINED INTERVALS. THE ACCORDING INSPECTION INSTRUCTION REFERENCE IS IIR 53-00-13-2-003-00 AND IS DESCRIBED IN CHAPTER STRUCTURAL REPAIR INSPECTIONS (SRI) OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

CAUTION: OBEY THE REPAIR EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN TABLE 204.

D. Stringer Repair - Stringer made from DAN51B, DAN58B and comparable

The repair is applicable to formed and extruded stringers - made from DAN51B, DAN58B, A539-70014, D530-70044 or F530-70060 - when a stringer is damaged or a skin repair requires a stringer splice.

NOTE: The repair is applicable only in the areas indicated on the relevant Figure. The repair effectivity of this repair is shown in Table 204.

AIRCRAFT	WEIGHT VARIANT
A340-2XX	000, 001, 002
A340-2XX	021
A340-3XX	000, 001, 002, 003, 004
A340-3XX	020, 021, 024, 026, 027, 028, 050, 051, 052

Repair Effectivity per Weight Variant and Aircraft Type

Table 204

NOTE: Refer to the Weight Variant Identification List given in the Introduction of the SRM. This Table shows all necessary information related to the weight variant and their maximum values and the modification associated to the aircraft type.

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(1) Repair Materials

ITEM	NOMENCLATURE	QTY	MATERIAL/REMARKS
1	Coupling	-	Refer to Figure 205 thru 208
2	Stringer	-	Refer to Figure 205
-	Sealant	AR	Material No. 09-013 (Refer to Chapter 51-35-00)
-	Cleaning Agent	AR	Material No. 11-003 or 11-004 (Refer to Chapter 51-35-00)
-	Pretreatment for painting (Chemical conversion coating)	AR	Material No. 13-002 (Refer to Chapter 51-35-00)
-	Storage preservation (Corrosion preventive temporary protective compound)	AR	Material No. 15-005A (Refer to Chapter 51-35-00)
-	Storage preservation (Corrosion preventive temporary protective compound)	AR	Material No. 15-007 (Refer to Chapter 51-35-00)
-	Structure Paint (Polyurethane primer)	AR	Material No. 16-001 (Refer to Chapter 51-35-00)
-	Structure Paint (Polyurethane topcoat, grey)	AR	Material No. 16-002 (Refer to Chapter 51-35-00)
-	Structure Paint (Wash primer)	AR	Material No. 16-020 (Refer to Chapter 51-35-00)
-	Structure Paint (flexible polyurethane)	AR	Material No. 16-021 (Refer to Chapter 51-35-00)

(2) Repair Instruction (Refer to Figure 205 thru 208)

(a) Remove all fastener as necessary for the repair.

CAUTION: IF THE COMPLETE DAMAGED STRINGER SECTION MUST BE CUT OUT, USE A PLASTIC WEDGE TO CAREFULLY REMOVE THE SECTION AWAY FROM THE SKIN. PLACE A METAL SHEET BETWEEN STRINGER AND SKIN TO AVOID DAMAGE TO THE STRUCTURE DURING THE CUT OUT ACTION.

CAUTION: IF YOU MUST HEAT THE REPAIR AREA TO HELP SEPARATE THE STRINGER CUTOUT FROM THE SKIN, DO NOT USE A TEMPERATURE MORE THAN 130 C° (266.0 F°)

(b) Cut out the damaged section of the stringer and deburr the edges.

(c) Prepare the repair parts to suit the damaged area and deburr, refer to the relevant Figure 201.

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(d) Attach the repair parts in their correct position. Transfer drill existing fastener holes from the outer flange to the repair parts. Mark and drill additional holes.

NOTE: Use transition fit for Hi-Lok fastener installation (Refer to Chapter 51-44-11).

(e) Remove the repair parts and deburr all fastener holes.

WARNING: CLEANING AGENT (MATERIAL NO. 11-003) IS DANGEROUS.

WARNING: CLEANING AGENT (MATERIAL NO. 11-004) IS DANGEROUS.

(f) Clean the repair parts and the repair area with cleaning agent (Material No. 11-003 or 11-004).

WARNING: STRUCTURE PAINT (MATERIAL NO. 16-020) IS DANGEROUS.

(g) Apply wash primer (Material No. 16-020) to the repair area (Refer to Chapter Chapter 51-23-00.

WARNING: CHROMIC ACID ANODIZING (CAA) IS DANGEROUS.

WARNING: PRETREATMENT FOR PAINTING (MATERIAL NO. 13-002) IS POISONOUS.

(h) Pretreat the repair parts by Chromic Acid Anodizing (CAA) or use chemical conversion coating (Material No. 13-002).

NOTE: For protection by CAA and the application of chemical conversion coating refer to Chapter 51-21-11.

WARNING: STRUCTURE PAINT (MATERIAL NO. 16-001) IS DANGEROUS.

(i) Apply polyurethane primer (Material No. 16-001) to the repair parts.

WARNING: STRUCTURE PAINT (MATERIAL NO. 16-002) IS DANGEROUS.

(j) Apply polyurethane topcoat (Material No. 16-002) to the repair parts.

WARNING: SEALANT (MATERIAL NO. 09-013) IS DANGEROUS.

(k) Apply sealant (Material No. 09-013) to the mating surfaces of the repair parts (Refer to Chapter 51-76-11.

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WARNING: STRUCTURE PAINT (MATERIAL NO. 16-003) IS DANGEROUS.

(l) Attach the repair parts in their correct position and install all fasteners wet with sealant (Material No. 16-003).

NOTE: Install the fasteners within the application life of the sealant. If this is not possible, install at least every third fastener within the application life of the sealant (Refer to Chapter 51-76-00.

WARNING: SEALANT (MATERIAL NO. 09-013) IS DANGEROUS.

(m) Apply a bead of sealant (Material No. 09-013) to the edges of the repair parts.

(n) If necessary, apply flexible polyurethane (Material No. 16-021) to the sealant beads.

NOTE: Refer to Chapter 51-23-12 for information about areas of application.

WARNING: STRUCTURE PAINT (MATERIAL NO. 16-001) IS DANGEROUS.

WARNING: STRUCTURE PAINT (MATERIAL NO. 16-002) IS DANGEROUS.

(o) Restore the paint finish around the repair area. Use polyurethane primer (Material No. 16-001) and after that polyurethane topcoat (Material No. 16-002).

WARNING: DO NOT APPLY STORAGE PRESERVATION (MATERIAL NO. 15-005A) IN AREA OF OXYGEN EQUIPMENT AND OXYGEN PIPES.

WARNING: STORAGE PRESERVATION (MATERIAL NO. 15-005A) IS DANGEROUS.

(p) If necessary, apply a corrosion preventive temporary protective compound to the repair area. First apply Material No. 15-005A and after that Material No. 15-007.

NOTE: Before application of Material No. 15-007 let Material No. 15-005A dry for approximately 1 hour.

NOTE: This is a supplement and means to prevent corrosion in areas where special protection is required. Refer to Chapter 51-23-12 for information about these areas.

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REPAIR MATERIAL			
ITEM	NOMENCLATURE	QTY	MATERIAL/REMARKS
1	COUPLING	2	7075T73511 (REFER TO VIEW B THRU D)
2	STRINGER	1	SAME AS EXISTING STRINGER
FASTENER SYMBOLS			
●	HL10VF6 / HL70-6		
◓	HL11VF6 / HL70-6 OR HL111VF6 / HL79-6		
⊖	SAME TYPE AS EXISTING		
⊕	MS20470DD5 OR NAS1242DD5		
+	REFERENCE ONLY		

CAUTION: OBEY THE REPAIR EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN TABLE 204.

THIS REPAIR MUST BE INSPECTED AT DEFINED INTERVALS. THE ACCORDING INSPECTION INSTRUCTION REFERENCE IS 53-00-13-2-003-00 AND IS DESCRIBED IN CHAPTER STRUCTURAL REPAIR INSPECTIONS (SRI) OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

NOTE: THIS REPAIR IS VALID IN THE FOLLOWING AREAS:

SECTION 13 - 14

SECTION 15: FR53.3 - FR54, STGR31LH - STGR31RH (UPPER SHELL)

SECTION 16 - 19

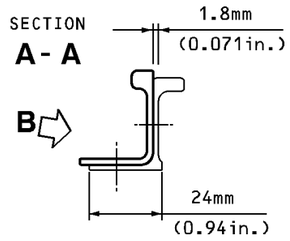
RESTORE SURFACE PROTECTION (REFER TO CHAPTER 51-23-11).

ALL PARTS AND FASTENERS ARE TO BE INSTALLED WET WITH SEALANT. FILL ALL GAPS WITH SEALANT (MATERIAL NO. 09-013).

FOR FASTENER PITCH AND MARGIN DATA REFER TO CHAPTER 51-47-00.

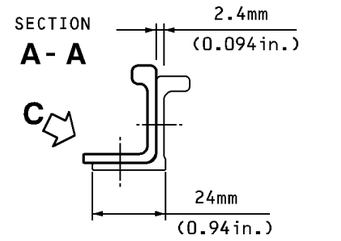
1 FOR INFORMATION ABOUT THE DISTANCE TO ADJACENT STRUCTURE PARTS OR OTHER REPAIRS REFER TO FIGURE 210.

REWORK AREA



B

COUPLING MADE FROM DAN51B-4



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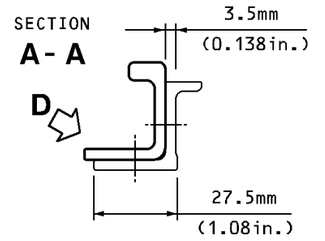
COUPLING MADE FROM DAN51B-4



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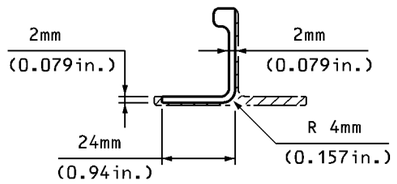
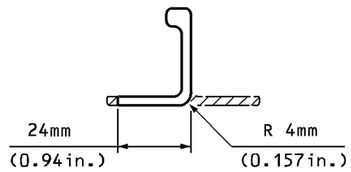
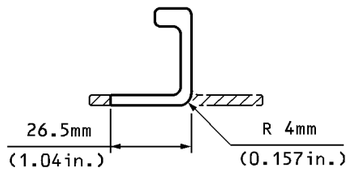
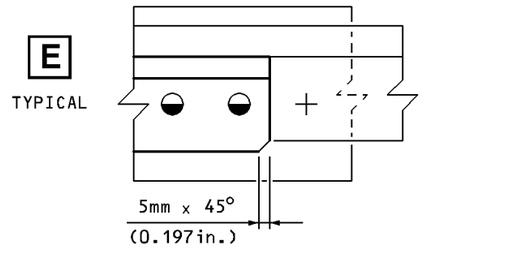
COUPLING MADE FROM DAN51B-9



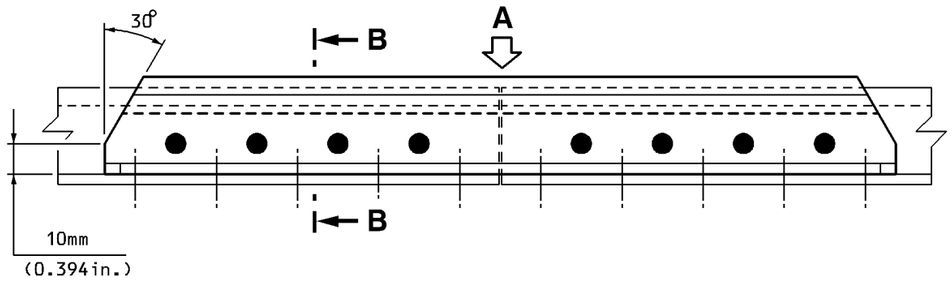


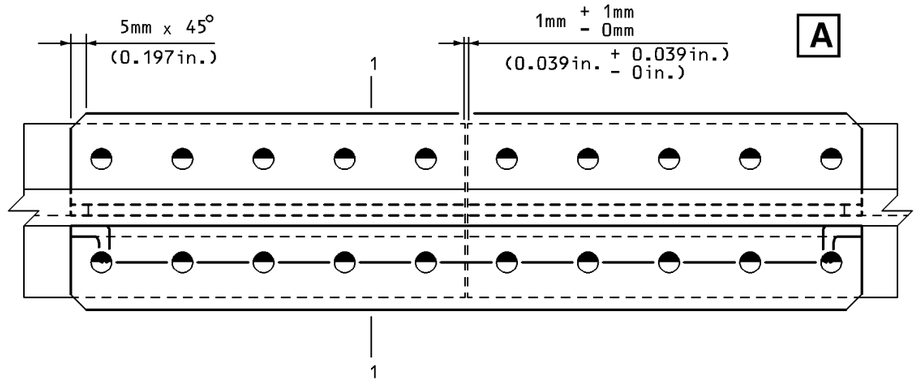




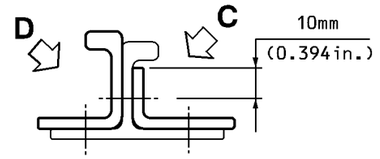
Stringer Repair - Stringer made from DAN51B or D530-70044
Figure 205 (sheet 1)

FS6 53 00 13 2 AJMA 01 0

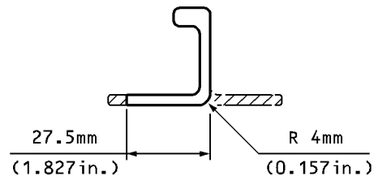




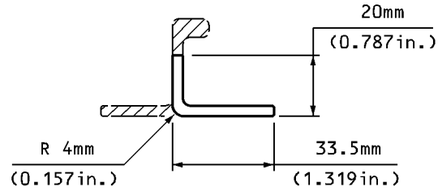
SECTION
B - B



D
COUPLING MADE FROM DAN51B-9



C
COUPLING MADE FROM DAN51B-9



CAUTION: OBEY THE REPAIR EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN TABLE 204.

THIS REPAIR MUST BE INSPECTED AT DEFINED INTERVALS. THE ACCORDING INSPECTION INSTRUCTION REFERENCE IS 53-00-13-2-003-00 AND IS DESCRIBED IN CHAPTER STRUCTURAL REPAIR INSPECTIONS (SRI) OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

NOTE: THIS REPAIR IS VALID IN THE FOLLOWING AREAS:

SECTION 13 - 14

SECTION 15: FR53.3 - FR54, STGR31LH - STGR31RH (UPPER SHELL)

SECTION 16 - 19

FOR FASTENER PITCH AND MARGIN DATA REFER TO CHAPTER 51-47-00.

USE TRANSITION FIT FOR HI-LOK INSTALLATION (REFER TO CHAPTER 51-44-11).

ALL PARTS AND FASTENERS ARE TO BE INSTALLED WET WITH SEALANT. FILL ALL GAPS WITH SEALANT (MATERIAL NO. 09-013).

RESTORE SURFACE PROTECTION (REFER TO CHAPTER 51-23-11).

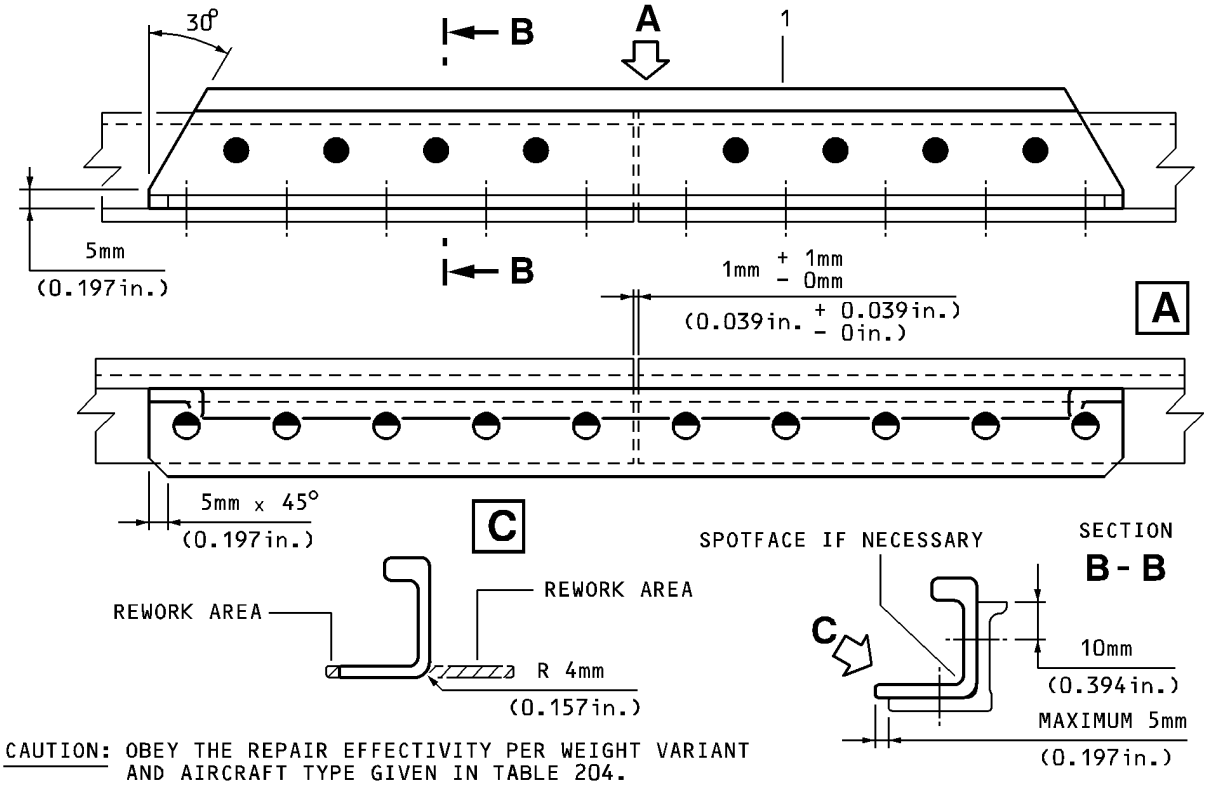
FOR INFORMATION ABOUT THE DISTANCE TO ADJACENT STRUCTURE PARTS OR OTHER REPAIRS REFER TO FIGURE 210.

REWORK AREA

REPAIR MATERIALS			
ITEM	NOMENCLATURE	QTY	MATERIAL/REMARKS
1	COUPLING	2	7075T73511
FASTENER SYMBOLS			
●	HL10VF6 / HL70-6		
◒	HL11VF6 / HL70-6 OR HL111VF6 / HL79-6		

Stringer Repair - Stringer made from DAN51B or D530-70044
Figure 205 (sheet 2)

FS6 53 00 13 2 AJMM 01



CAUTION: OBEY THE REPAIR EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN TABLE 204.

THIS REPAIR MUST BE INSPECTED AT DEFINED INTERVALS. THE ACCORDING INSPECTION INSTRUCTION REFERENCE IS 53-00-13-2-003-00 AND IS DESCRIBED IN CHAPTER STRUCTURAL REPAIR INSPECTIONS (SRI) OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

NOTE: THIS REPAIR IS VALID IN THE FOLLOWING AREAS:
SECTION 13 - 14
SECTION 15: FR53.3 - FR54, STGR31LH - STGR31RH (UPPER SHELL)
SECTION 16 - 19

FOR STRINGER IDENTIFICATION REFER TO THE RELEVANT CHAPTER.

THIS REPAIR IS VALID FOR STRINGER MADE FROM DAN51B-2 THRU DAN51B-8,-10,-12,-17, DAN26H-X OR A539-70014.

FOR STRINGER MADE FROM DAN51B-9 REFER TO FIGURE 205.

FOR FASTENER PITCH AND MARGIN DATA REFER TO CHAPTER 51-47-00.

USE TRANSITION FIT FOR HI-LOK INSTALLATION (REFER TO CHAPTER 51-44-11).

ALL PARTS AND FASTENERS ARE TO BE INSTALLED WET WITH SEALANT. FILL ALL GAPS WITH SEALANT (MATERIAL NO. 09-013).

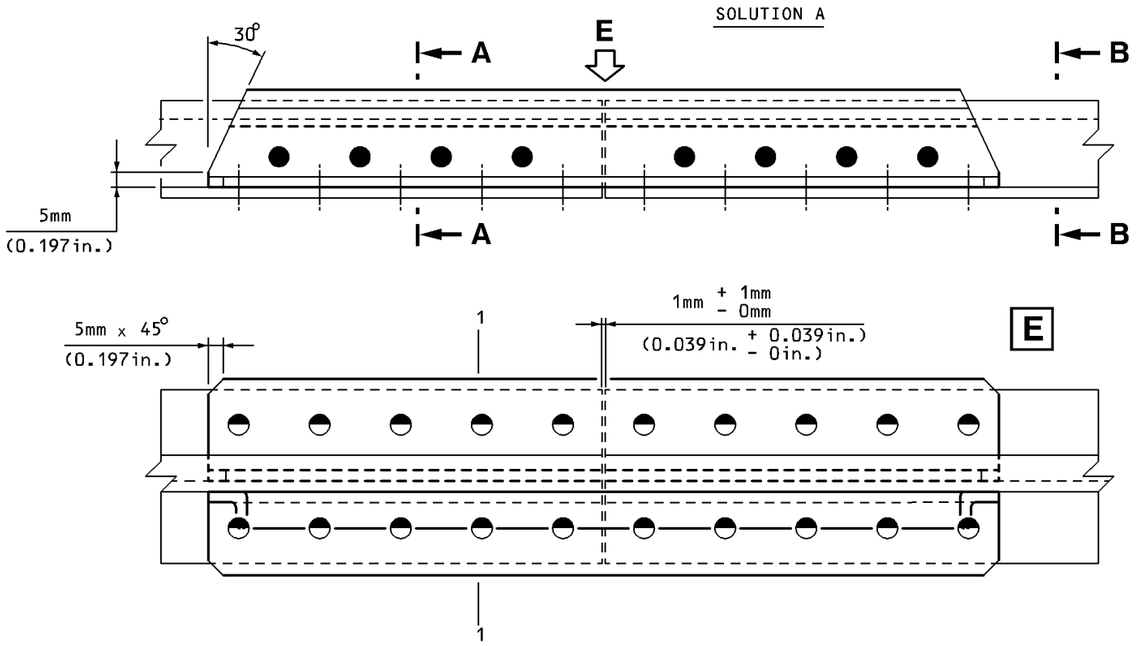
RESTORE SURFACE PROTECTION (REFER TO CHAPTER 51-23-11).

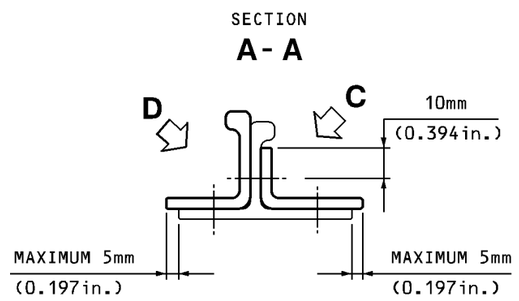
FOR INFORMATION ABOUT THE DISTANCE TO ADJACENT STRUCTURE PARTS OR OTHER REPAIRS REFER TO FIGURE 210.

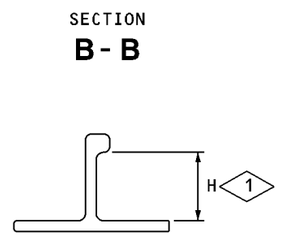
REPAIR MATERIAL			
ITEM	NOMENCLATURE	QTY	MATERIAL/REMARKS
1	COUPLING	1	COUPLING MADE FROM ORIGINAL STRINGER SECTION OR PROFILE WITH THE SAME CROSS SECTION (MATERIAL 7075T73511)
FASTENER SYMBOLS	●	HL10VF6 / HL70-6	
	◓	HL11VF6 / HL70-6 OR HL111VF6 / HL79-6	

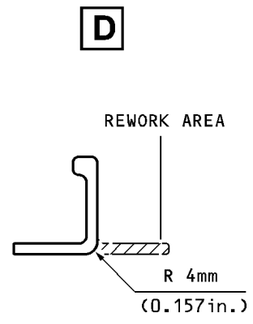
FS6 53 00 13 2 ALMO 01 0

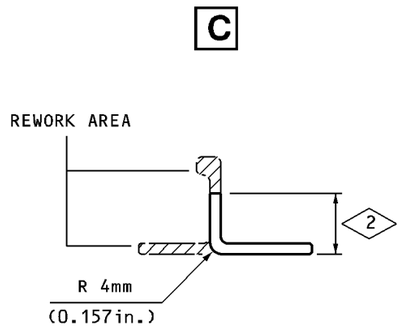
Stringer Repair - L-Stringer made from DAN51B, A539-70014 or DAN26H-X
Figure 206











CAUTION: OBEY THE REPAIR EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN TABLE 204.

THIS REPAIR MUST BE INSPECTED AT DEFINED INTERVALS. THE ACCORDING INSPECTION INSTRUCTION REFERENCE IS 53-00-13-2-003-00 AND IS DESCRIBED IN CHAPTER STRUCTURAL REPAIR INSPECTIONS (SRI) OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

NOTE: THIS REPAIR IS VALID IN THE FOLLOWING AREAS:

SECTION 13 - 14

SECTION 15: FR53.3 - FR54, STGR31LH - STGR31RH (UPPER SHELL)

SECTION 16 - 19

FOR STRINGER IDENTIFICATION REFER TO THE RELEVANT CHAPTER.

FOR FASTENER PITCH AND MARGIN DATA REFER TO CHAPTER 51-47-00.

USE TRANSITION FIT FOR HI-LOK INSTALLATION (REFER TO CHAPTER 51-44-11).

ALL PARTS AND FASTENERS ARE TO BE INSTALLED WET WITH SEALANT. FILL ALL GAPS WITH SEALANT (MATERIAL NO. 09-013).

RESTORE SURFACE PROTECTION (REFER TO CHAPTER 51-23-11).

FOR INFORMATION ABOUT THE DISTANCE TO ADJACENT STRUCTURE PARTS OR OTHER REPAIRS REFER TO FIGURE 210.

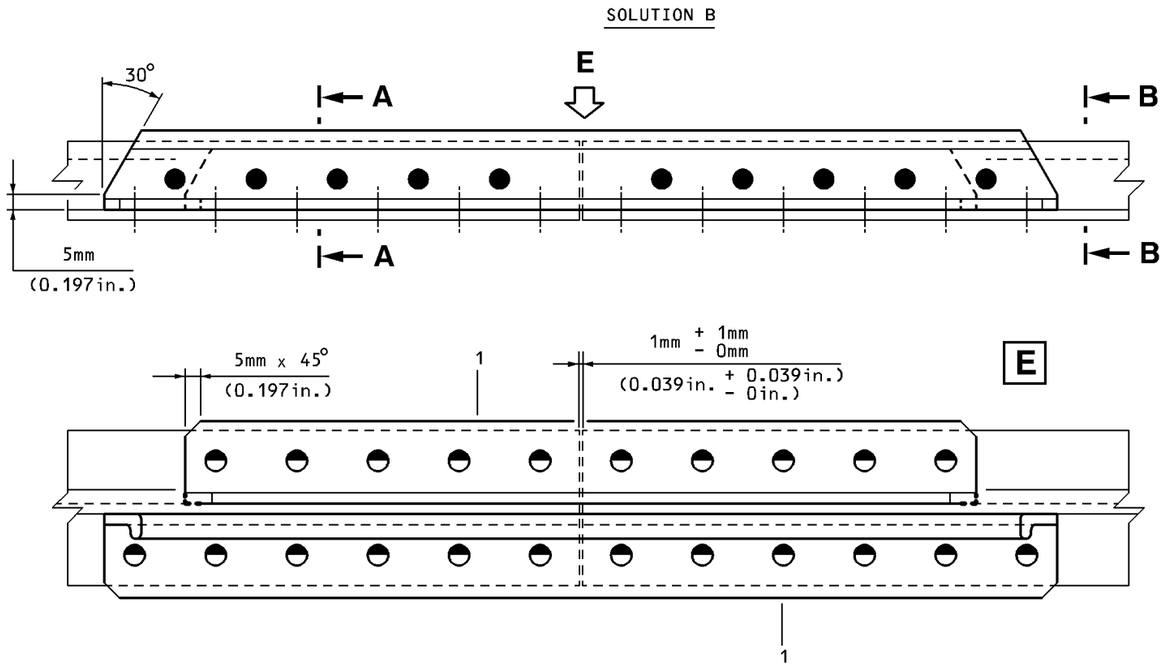
<1> THIS REPAIR SOLUTION IS ONLY VALID IF "H" IS ≥ 22.5mm (0.886in.).

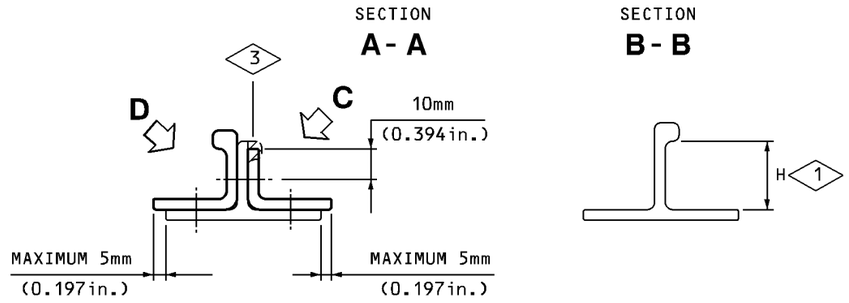
<2> THE VERTICAL FLANGE HEIGHT DEPENDS ON EDGE MARGIN DATA TO ENSURE A PROPER INSTALLATION / RIVETING (REFER TO CHAPTER 51-47-00).

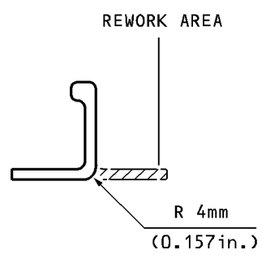
REPAIR MATERIAL			
ITEM	NOMENCLATURE	QTY	MATERIAL/REMARKS
1	COUPLING	2	COUPLING MADE FROM ORIGINAL STRINGER SECTION OR PROFILE WITH THE SAME CROSS SECTION (MATERIAL 7075T73511)
FASTENER SYMBOLS			
●	HL10VF6 / HL70-6		
◒	HL11VF6 / HL70-6 OR HL111VF6 / HL79-6		

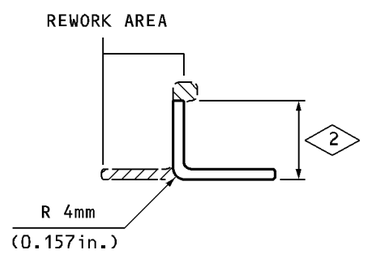
Stringer Repair - T-Stringer made from DAN51B or F530-70060
Figure 207 (sheet 1)

FS6 53 00 13 2 ANMA 01 0









NOTE: THIS REPAIR IS VALID IN THE FOLLOWING AREAS:

SECTION 13 - 14

SECTION 15: FR53.3 - FR54, STGR31LH - STGR31RH (UPPER SHELL)

SECTION 16 - 19

FOR STRINGER IDENTIFICATION REFER TO THE RELEVANT CHAPTER.

FOR FASTENER PITCH AND MARGIN DATA REFER TO CHAPTER 51-47-00.

USE TRANSITION FIT FOR HI-LOK INSTALLATION (REFER TO CHAPTER 51-44-11).

ALL PARTS AND FASTENERS ARE TO BE INSTALLED WET WITH SEALANT.
FILL ALL GAPS WITH SEALANT (MATERIAL NO. 09-013).

RESTORE SURFACE PROTECTION (REFER TO CHAPTER 51-23-11).

FOR INFORMATION ABOUT THE DISTANCE TO ADJACENT STRUCTURE PARTS
OR OTHER REPAIRS REFER TO FIGURE 210.

(1) THIS REPAIR SOLUTION IS ONLY VALID IF "H" IS < 22.5mm (0.886in.)

(2) THE VERTICAL FLANGE HEIGHT DEPENDS ON EDGE MARGIN DATA TO ENSURE A PROPER INSTALLATION / RIVETING (REFER TO CHAPTER 51-47-00).

(3) REWORK OF ORIGINAL STRINGER.

CAUTION:

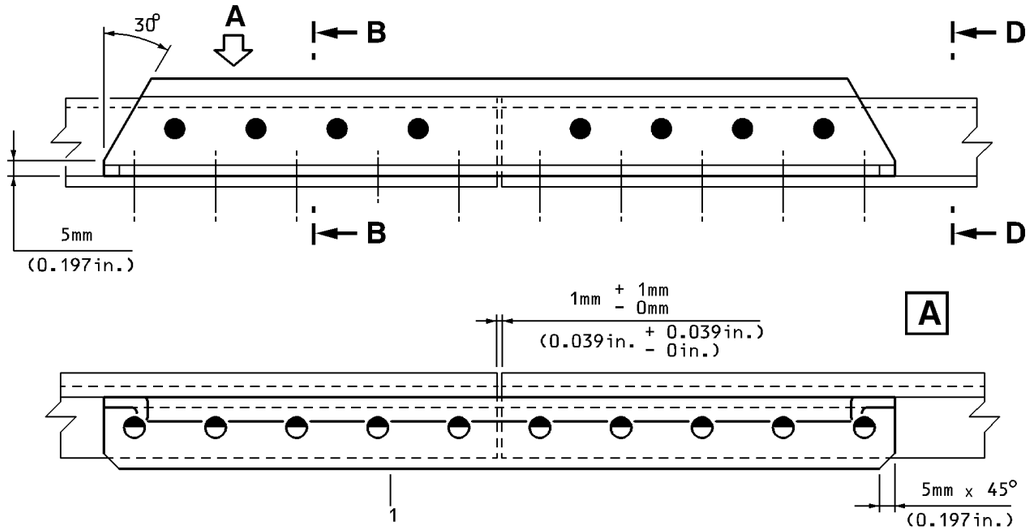
OBEY THE REPAIR EFFECTIVITY PER WEIGHT VARIANT
AND AIRCRAFT TYPE GIVEN IN TABLE 204.

THIS REPAIR MUST BE INSPECTED AT DEFINED INTERVALS.
THE ACCORDING INSPECTION INSTRUCTION REFERENCE IS
53-00-13-2-003-00 AND IS DESCRIBED IN CHAPTER STRUCTURAL
REPAIR INSPECTIONS (SRI) OF THE SRM. INFORM YOUR PLANNING
DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

REPAIR MATERIAL			
ITEM	NOMENCLATURE	QTY	MATERIAL/REMARKS
1	COUPLING	2	COUPLING MADE FROM ORIGINAL STRINGER SECTION OR PROFILE WITH THE SAME CROSS SECTION (MATERIAL 7075T73511)
FASTENER SYMBOLS			
●	HL10VF6 / HL70-6		
◒	HL11VF6 / HL70-6 OR HL111VF6 / HL79-6		

Stringer Repair - T-Stringer made from DAN51B or F530-70060
Figure 207 (sheet 2)

NS6 53 00 13 2 ANMM 01 0



REPAIR MATERIAL			
ITEM	NOMENCLATURE	QTY	MATERIAL/REMARKS
1	COUPLING	1	◇1◇ ◇2◇ ◇3◇
FASTENER SYMBOLS			
●	HL10VF6 / HL70-6		
◒	HL11VF6 / HL70-6 OR HL111VF6 / HL79-6		

CAUTION: OBEY THE REPAIR EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN TABLE 204.

THIS REPAIR MUST BE INSPECTED AT DEFINED INTERVALS. THE ACCORDING INSPECTION INSTRUCTION REFERENCE IS 53-00-13-2-003-00 AND IS DESCRIBED IN CHAPTER STRUCTURAL REPAIR INSPECTIONS (SRI) OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

NOTE: THIS REPAIR IS VALID IN THE FOLLOWING AREAS:

SECTION 13 - 14

SECTION 15: FR53.3 - FR54, STGR31LH - STGR31RH (UPPER SHELL)

SECTION 16 - 19

USE TRANSITION FIT FOR HI-LOK INSTALLATION (REFER TO CHAPTER 51-41-11).

FOR FASTENER PITCH AND MARGIN DATA REFER TO CHAPTER 51-47-00.

RESTORE SURFACE PROTECTION (REFER TO CHAPTER 51-23-11).

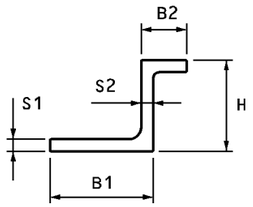
FOR INFORMATION ABOUT THE DISTANCE TO ADJUST STRUCTURE PARTS OR OTHER REPAIRS REFER TO FIGURE 210.

◇1◇ VALID FOR STRINGER MADE FROM DAN58B-02 THRU DAN58B-05.

◇2◇ VALID FOR STRINGER MADE FROM DAN58B-06.

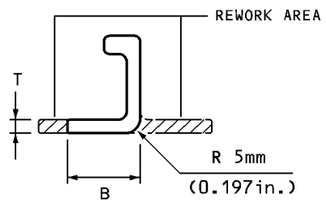
◇3◇ FOR IDENTIFICATION OF EXISTING STRINGER REFER TO RELEVANT IDENTIFICATION PAGE BLOCK.

SECTION D-D ◇3◇

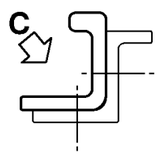


C

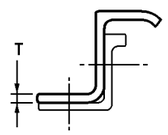
COUPLING MADE FROM DAN51B-X



SECTION B-B ◇1◇



SECTION B-B ◇2◇



STRINGER ◇4◇	DIMENSION mm (in.) H x B1 x B2 x S1 x S2	COUPLING (PART NUMBER) LENGTH =1000mm (39.370in.)	MADE FROM (REFER TO CHAPTER 51-31-12 OR STANDARD MANUAL)	THICKNESS (T)		MINIMUM FLANGE (B)	
				mm	(in.)	mm	(in.)
DAN58B-02	38x28x10x4.5x4.5mm (1.496x1.102x0.394x0.177x0.177in.)	R530-71112-302	DAN51B-2	4.0	0.157	28.0	1.102
DAN58B-03	30x34x15x4.0x4.0mm (1.181x1.339x0.591x0.157x0.157in.)	R530-71112-308	DAN51B-8	4.5	0.177	28.0	1.102
DAN58B-04	38x34x15x4.0x4.0mm (1.496x1.339x0.591x0.157x0.157in.)	R530-71112-302	DAN51B-2	4.0	0.157	27.5	1.083
DAN58B-05	28x28x15x4.0x4.0mm (1.102x1.102x0.591x0.157x0.157in.)	R530-71112-308	DAN51B-8	4.5	0.177	24.0	0.945
DAN58B-06	25x24x 7x2.5x2.5mm (0.984x0.945x0.276x0.098x0.098in.)	R530-71112-208	A539-86217 DAN2001T79511	2.8	0.110	-	-

Stringer Repair - Stringer made from DAN58B
Figure 208

CAUTION: THIS REPAIR MUST BE INSPECTED AT DEFINED INTERVALS. THE ACCORDING INSPECTION INSTRUCTION REFERENCE IS IIR 53-00-13-2-004-00 AND IS DESCRIBED IN CHAPTER STRUCTURAL REPAIR INSPECTIONS (SRI) OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

CAUTION: OBEY THE REPAIR EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN TABLE 205.

E. Floor Attachment Stringer Repair

The repair is applicable only to the floor attachment stringer (STGR 26) made from DAN330 or stringer made from L-Profile.

NOTE: The repair is applicable as indicated on Figure 209. The repair effectivity of this repair is shown in Table 205.

AIRCRAFT	WEIGHT VARIANT
A340-2XX	000, 001, 002
A340-2XX	021
A340-3XX	000, 001, 002, 003, 004
A340-3XX	020, 021, 024, 026, 027, 028, 050, 051, 052

Repair Effectivity per Weight Variant and Aircraft Type

Table 205

NOTE: Refer to the Weight Variant Identification List given in the Introduction of the SRM. This Table shows all necessary information related to the weight variant and their maximum values and the modification associated to the aircraft type.

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(1) Repair Materials

ITEM	NOMENCLATURE	QTY	MATERIAL/REMARKS
1 or 2	Coupling	-	Refer to Figure 209
-	Sealant	AR	Material No. 09-013 (Refer to Chapter 51-35-00)
-	Cleaning Agent	AR	Material No. 11-003 or 11-004 (Refer to Chapter 51-35-00)
-	Pretreatment for painting (Chemical conversion coating)	AR	Material No. 13-002 (Refer to Chapter 51-35-00)
-	Storage preservation (Corrosion preventive temporary protective compound)	AR	Material No. 15-005A (Refer to Chapter 51-35-00)
-	Storage preservation (Corrosion preventive temporary protective compound)	AR	Material No. 15-007 (Refer to Chapter 51-35-00)
-	Structure Paint (Polyurethane primer)	AR	Material No. 16-001 (Refer to Chapter 51-35-00)
-	Structure Paint (Polyurethane topcoat, grey)	AR	Material No. 16-002 (Refer to Chapter 51-35-00)
-	Structure Paint (Wash primer)	AR	Material No. 16-020 (Refer to Chapter 51-35-00)
-	Structure Paint (flexible polyurethane)	AR	Material No. 16-021 (Refer to Chapter 51-35-00)

(2) Repair Instruction (Refer to Figure 209)

(a) Remove all fastener as necessary for the repair.

CAUTION: IF THE COMPLETE DAMAGED STRINGER SECTION MUST BE CUT OUT, USE A PLASTIC WEDGE TO CAREFULLY REMOVE THE SECTION AWAY FROM THE SKIN. PLACE A METAL SHEET BETWEEN STRINGER AND SKIN TO AVOID DAMAGE TO THE STRUCTURE DURING THE CUT OUT ACTION.

CAUTION: IF YOU MUST HEAT THE REPAIR AREA TO HELP SEPARATE THE STRINGER CUTOUT FROM THE SKIN, DO NOT USE A TEMPERATURE MORE THAN 130 C° (266.0 F°)

(b) Cut out the damaged section of the stringer and deburr the edges.

(c) Prepare the repair parts to suit the damaged area and deburr, refer to Figure 209.

(d) Attach the repair parts in their correct position. Transfer drill existing fastener holes from the outer flange to the repair parts. Mark and drill additional holes.

NOTE: Use transition fit for Hi-Lok fastener installation (Refer to Chapter 51-44-11).

(e) Remove the repair parts and deburr all fastener holes.

WARNING: CLEANING AGENT (MATERIAL NO. 11-003) IS DANGEROUS.

WARNING: CLEANING AGENT (MATERIAL NO. 11-004) IS DANGEROUS.

(f) Clean the repair parts and the repair area with cleaning agent (Material No. 11-003 or 11-004).

WARNING: STRUCTURE PAINT (MATERIAL NO. 16-020) IS DANGEROUS.

(g) Apply wash primer (Material No. 16-020) to the repair area (Refer to Chapter Chapter 51-23-00.

WARNING: CHROMIC ACID ANODIZING (CAA) IS DANGEROUS.

WARNING: PRETREATMENT FOR PAINTING (MATERIAL NO. 13-002) IS POISONOUS.

(h) Pretreat the repair parts by Chromic Acid Anodizing (CAA) or use chemical conversion coating (Material No. 13-002).

NOTE: For protection by CAA and the application of chemical conversion coating refer to Chapter 51-21-11.

WARNING: STRUCTURE PAINT (MATERIAL NO. 16-001) IS DANGEROUS.

(i) Apply polyurethane primer (Material No. 16-001) to the repair parts.

WARNING: STRUCTURE PAINT (MATERIAL NO. 16-002) IS DANGEROUS.

(j) Apply polyurethane topcoat (Material No. 16-002) to the repair parts.

WARNING: SEALANT (MATERIAL NO. 09-013) IS DANGEROUS.

(k) Apply sealant (Material No. 09-013) to the mating surfaces of the repair parts (Refer to Chapter 51-76-11.

WARNING: STRUCTURE PAINT (MATERIAL NO. 16-003) IS DANGEROUS.

(l) Attach the repair parts in their correct position and install all fasteners wet with sealant (Material No. 16-003).

NOTE: Install the fasteners within the application life of the sealant. If this is not possible, install at least every third fastener within the application life of the sealant (Refer to Chapter 51-76-00.

(m) Apply a bead of sealant (Material No. 09-013) to the edges of the repair parts.

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(n) If necessary, apply flexible polyurethane (Material No. 16-021) to the sealant beads.

NOTE: Refer to Chapter 51-23-12 for information about areas of application.

WARNING: STRUCTURE PAINT (MATERIAL NO. 16-001) IS DANGEROUS.

WARNING: STRUCTURE PAINT (MATERIAL NO. 16-002) IS DANGEROUS.

(o) Restore the paint finish around the repair area. Use polyurethane primer (Material No. 16-001) and after that polyurethane topcoat (Material No. 16-002).

WARNING: DO NOT APPLY STORAGE PRESERVATION (MATERIAL NO. 15-005A) IN AREA OF OXYGEN EQUIPMENT AND OXYGEN PIPES.

WARNING: STORAGE PRESERVATION (MATERIAL NO. 15-005A) IS DANGEROUS.

(p) If necessary, apply a corrosion preventive temporary protective compound to the repair area. First apply Material No. 15-005A and after that Material No. 15-007.

NOTE: Before application of Material No. 15-007 let Material No. 15-005A dry for approximately 1 hour.

NOTE: This is a supplement and means to prevent corrosion in areas where special protection is required. Refer to Chapter 51-23-12 for information about these areas.

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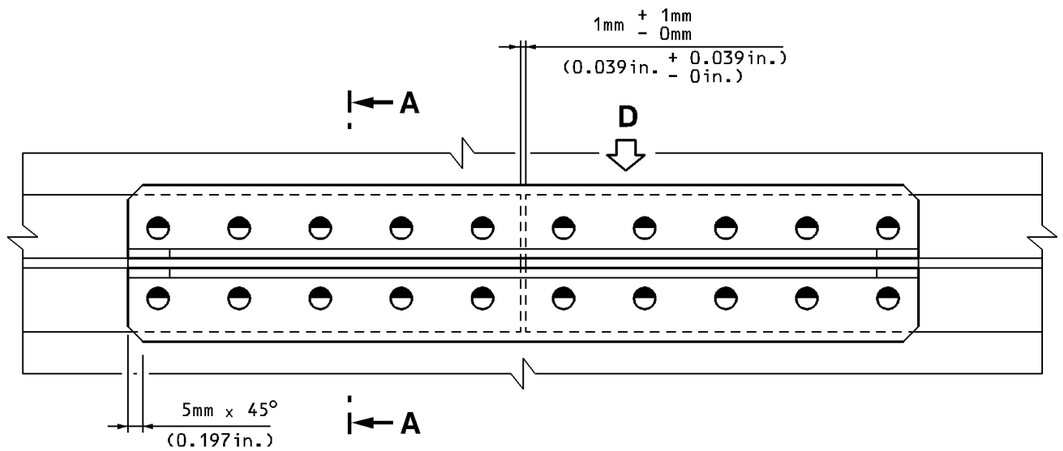

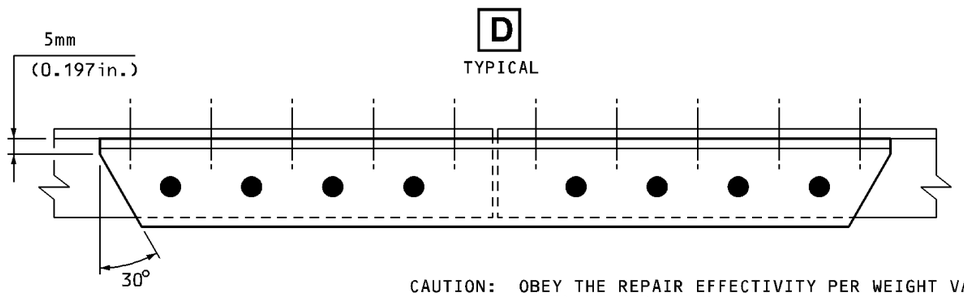

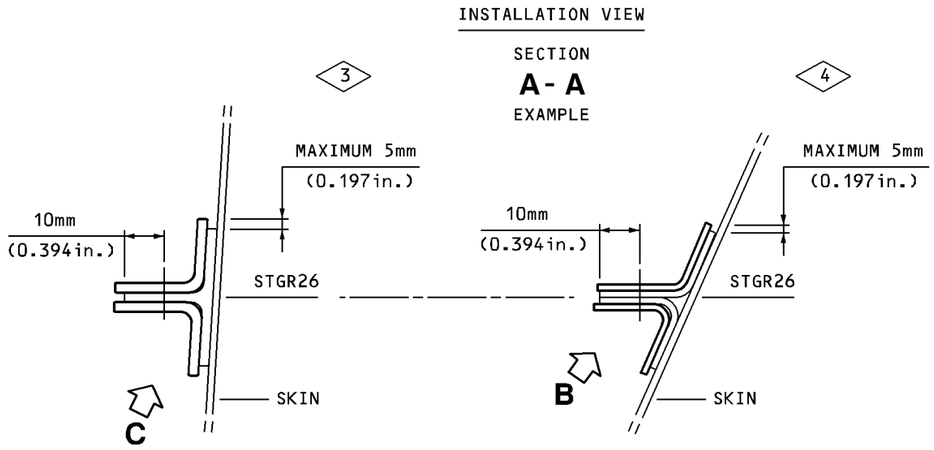

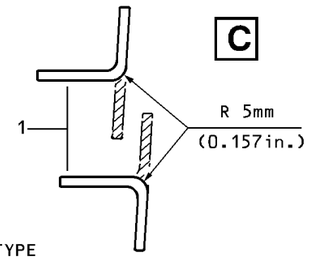

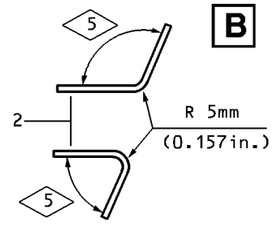

CAUTION: OBEY THE REPAIR EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN TABLE 205.

THIS REPAIR MUST BE INSPECTED AT DEFINED INTERVALS. THE ACCORDING INSPECTION INSTRUCTION REFERENCE IS 53-00-13-2-004-00 AND IS DESCRIBED IN CHAPTER STRUCTURAL REPAIR INSPECTIONS (SRI) OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

NOTE: THIS REPAIR IS VALID IN THE FOLLOWING AREAS:

SECTION 16 - 18

FOR STRINGER IDENTIFICATION REFER TO THE RELEVANT CHAPTER AND CHAPTER 51-31-12.

ALL PARTS AND FASTENERS ARE TO BE INSTALLED WET WITH SEALANT. FILL ALL GAPS WITH SEALANT (MATERIAL NO. 09-013).

FOR FASTENER PITCH AND MARGIN DATA REFER TO CHAPTER 51-47-00.

RESTORE SURFACE PROTECTION (REFER TO CHAPTER 51-23-11).

USE TRANSITION FIT FOR HI-LOK INSTALLATION (REFER TO CHAPTER 51-44-11).

FOR INFORMATION ABOUT THE DISTANCE TO ADJACENT STRUCTURE PARTS OR OTHER REPAIRS REFER TO FIGURE 210.

REWORK AREA

REPAIR MATERIALS			
ITEM	NOMENCLATURE	QTY	MATERIAL/REMARKS
1	COUPLING	2	1 3
2	COUPLING	2	2 4
FASTENER SYMBOLS			
●	HL10VF6 / HL70-6		
◓	HL11VF6/HL70-6 OR HL111VF6/HL79-6		

1 COUPLING MADE FROM ORIGINAL STRINGER SECTION OR PROFILE WITH SAME CROSS SECTION (MATERIAL 7075T73511).

2 COUPLING MADE FROM ORIGINAL STRINGER SECTION OR PROFILE WITH SAME CROSS SECTION (MATERIAL 7075T7351).

3 NOT VALID FOR STRINGER MADE FROM F530-70060. IN THIS CASE REFER TO FIGURE 207.

4 VALID FOR STRINGER MADE FROM ABS5044 A012.

5 ADAPTED ON ASSEMBLY.

FS6 53 00 13 2 ASMO 01 0

Floor Attachment Stringer Repair
Figure 209

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CAUTION: OBEY THE REPAIR EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN TABLE 206.

F. Definition of minimum distance between repair couplings or repair couplings to existing structure parts

This example shows in Figure 210 the closest distance between a coupling to the next structure part and/or an other stringer repair coupling. This is, as a general definition, to be used:

- if a stringer is damaged more than one time
  or

- if a skin repair needs more than one stringer splice.

NOTE: This example is applicable as indicated on Figure 210. The effectivity of this definition is shown in Table 206.

AIRCRAFT	WEIGHT VARIANT
A340-2XX	ALL
A340-3XX	ALL

Repair Effectivity per Weight Variant and Aircraft Type

Table 206

NOTE: Refer to the Weight Variant Identification List given in the Introduction of the SRM. This Table shows all necessary information related to the weight variant and their maximum values and the modification associated to the aircraft type.

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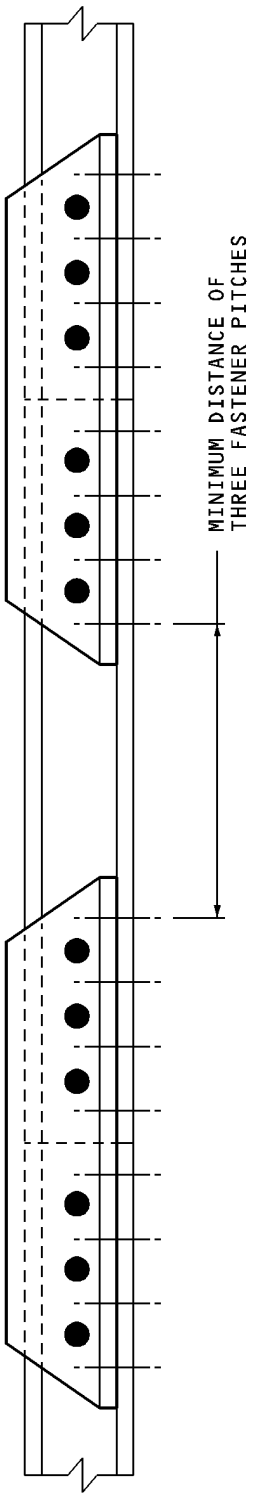

CAUTION: OBEY THE REPAIR EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN TABLE 206.

NOTE: THERE IS NO RESTRICTION FOR THE NUMBER OF REPAIRS PER STRINGER IN ONE FRAME BAY OR IN ONE FUSELAGE SECTION.

FOR STRINGER REPAIR PARTS A MINIMUM DISTANCE OF THREE FASTENER PITCHES MUST BE KEPT TO EXISTING STRUCTURE PARTS (PRODUCTION STRINGER SPLICES AND REINFORCEMENTS) AND/OR OTHER STRINGER REPAIRS.

THIS EXAMPLE IS VALID IN THE FOLLOWING AREAS:

SECTION 13 - 14

SECTION 15: FR53.3 - FR54, STGR31LH - STGR31RH (UPPER SHELL)

SECTION 16 - 19

FS6 53 00 13 2 AUMO 01 0

Definition of minimum distance between repair couplings or repair couplings to existing structure parts
Figure 210