

TECHNICAL BULLETIN

Bell Helicopter **TEXTRON**

A Division of Textron Canada Ltd.

NO. 407-96-2

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DATE	03-11-97
REV.	A

12, 800 Rue de l'Avenir, Mirabel, Quebec J7J 1R4

MODELS AFFECTED: 407

SUBJECT: **MODIFICATION FOR INCREASE IN V_{NE} ,
INTRODUCTION OF.**

HELICOPTERS AFFECTED: 407, Serial Numbers 53000 through 53074.

[Helicopters in the field that are modified in accordance with the drawing number 407-799-013 meet the intent of Part I.]

[407 Serial Numbers 53057 and subsequent will have Part I of this bulletin installed on delivery.]

[407 Serial Numbers 53075 and subsequent will have Part I and Part II of this bulletin installed on delivery.]

[All future spare stabilizer assemblies and vertical fin assemblies will have Part I incorporated. Installation of one of the two flight surfaces as a spare replacement will necessitate the modification of the other with this bulletin.]

COMPLIANCE: PART I: At customer's option.

PART II: At customer's option.

- CAUTION -

**BOTH PART I AND II MUST BE ACCOMPLISHED TO
INCREASE THE V_{NE} TO 140 KNOTS.**

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DESCRIPTION:

The Model 407 helicopters are limited to a V_{NE} of 130 knots. This bulletin describes the modifications that will increase the V_{NE} to 140 knots.

Part I gives the instructions to modify the vertical fin and the horizontal stabilizer. Part II gives the instructions to modify the helicopter instrument system and to install the applicable V_{NE} limitation decal.

The modification of the stabilizer assemblies P/N 407-023-801-103 and the vertical fin assemblies P/N 206-020-113-221, by this bulletin, supplies the operator with configurations equivalent to the new production assemblies P/N 407-023-801-109 and 206-020-113-229.

APPROVAL:

The engineering design aspects of this Technical Bulletin are Transport Canada approved.

MANPOWER:

Approximately 8 man-hours are necessary to do Part I of this Bulletin.

Approximately 4 man-hours are necessary to do Part II of this Bulletin.

The man hours are based on hands-on time and can change due to the personnel and facilities available.

WARRANTY:

Owners/operators who comply with the instructions outlined in this bulletin are eligible for a special 100% warranty credit toward the purchase of the replacement parts.

To receive this credit:

- Customers must order the replacement parts from an approved BHTI spares supply source.

- Comply with the instructions outlined in this bulletin by installing the listed parts no later than 30 June 1998.
- Return the removed Torque Indicator, Airspeed Indicator, and Torque Pressure Transmitter to Bell Helicopter along with a completed Malfunction Report within 30 days after accomplishing the instructions in this bulletin. A copy of the BHTI invoice referencing the parts purchased to accomplish this bulletin must be attached to the Malfunction Report.

- NOTE -

Customers who comply with the instructions of this bulletin after the 30 June 1998 are not eligible for the special warranty credit provisions listed above.

MATERIAL:

Required Material:

The material that follows is necessary to complete this Bulletin and can be procured through your Bell Helicopter Textron Supply Center. Assets for Part II of this bulletin will be in limited supply until March 1997. Orders will be filled on a first-come, first-serve basis. The torque indicator and airspeed indicator may be supplied as reconditioned parts.

Part I

<u>PART NUMBER</u>	<u>NOMENCLATURE</u>	<u>QUANTITY</u>
407-023-802-117A	FLAP	1
407-023-802-119	FLAP	2
MS20426AD4-5	RIVET	12
MS20426AD4-6	RIVET	20
31-053-18CFHP	DECAL (NO STEP)	2

Part II

<u>PART NUMBER</u>	<u>NOMENCLATURE</u>	<u>QUANTITY</u>
407-070-201-103	DECAL	1(see note 1)
407-375-003-107	INDICATOR, TORQUE	1
206-075-725-103	INDICATOR, AIRSPEED	1(see note 2)
222-375-077-119	TRANSMITTER, TORQ. PRESS.	1

Note 1: For the helicopters that have the Dual Control Kit P/N 407-706-702 installed, two -103 decals are necessary. The decal is adhesive-backed.

Note 2: Order for helicopters S/N 53016 through 53074 only. Helicopters S/N 53000 through 53015 were supplied with a modified 206-075-725-103 airspeed indicator installed. These modified indicators do not have to be replaced and can be reconfigured with the instructions given in Part II of this bulletin.

Consumable Material:

The following material is necessary to complete the Bulletin. However, this material is consumable (bench stock) material and does not require ordering depending on the operators consumable material stock levels. This material can be obtained through your Bell Helicopter Textron Supply Center.

Part I

<u>PART NUMBER</u>	<u>NOMENCLATURE</u>	<u>REFERENCE NO.</u>
MILS81733TY II-2 PT	SEALANT	C-392
MIL-P-23377 or MIL-P-85582, TY1, CL2	PRIMER	C-204
METHYL ETHYL KETONE	SOLVENT (*)	C-309
TT-N-95, TYPE II, 1GAL	ALIPHATIC NAPHTHA	C-305
3950 SCOTCHCAL	EDGE SEALER	C-349

(*) Where the use of MEK is not permitted, use RHO SOLV 756.

Part II

<u>PART NUMBER</u>	<u>NOMENCLATURE</u>	<u>REFERENCE NO.</u>
METHYL ETHYL KETONE	SOLVENT (*)	C-309
3950 SCOTCHCAL	EDGE SEALER	C-349
TT-N-95,TYPEII 1GAL	ALIPHATIC NAPHTHA	C-305

(*) Where use of MEK is not permitted, use RHO SOLV 756.

- NOTE -

The "C" REFERENCE NO. above is a cross reference to the consumable list found in the Standard Practices Manual.

SPECIAL TOOLS:

None required.

WEIGHT AND BALANCE:

Installation of Part I will have the effects that follow on Weight and Balance:

<u>Longitudinal Weight change</u>	<u>Arm</u>	<u>Moment</u>
+ 0.9 Lbs. (+ 4.00 N)	+ 350.4 In. (+ 8900 mm)	+ 315.4 In-Lbs. (+ 35.6 N.m.)

<u>Lateral Weight change</u>	<u>Arm</u>	<u>Moment</u>
+ 0.4 Lbs. (+ 1.78 N)	+ 9.0 In. (+ 229 mm)	+ 3.6 In-Lbs. (+ 0.41 N.m.)

Installation of Part II has no effect on Weight and Balance.

ELECTRICAL LOAD DATA:

Not affected.

REFERENCES:

BHT-206-SRM-1, rev.1- 4 April 1995, Process sheets:

Removal of paint and primers (Paragraph 3-2-3).
Rivet replacement, general (Paragraph 3-3-1).

BHT-SPM-ALL, reissue- 3 February 1995:

Chapter 4, Application of paint and primers.

BHT-407-MM-2, rev. 2- 1 June 1996:

Chapter 11, Application of decals.

BHT-407-MM-10, rev.2- 1 June 1996:

Chapter 95, Instruments

BHT-407-IPB, rev. 2- 1 June 1996:

Chapter 11, Placards.
Chapter 53, Fuselage.
Chapter 95, Instruments.

PUBLICATIONS AFFECTED:

BHT-407-FM

BHT-407-MM, Chapters 11, 53, and 95.

BHT-407-IPB, Chapters 11, 53, 71, and 95.

Installation Instruction II-407-9, Dual Control Kit.

ACCOMPLISHMENT INSTRUCTIONS:

PART I - Installation of flaps

Find the location of the flaps P/N 407-023-802-119 (qty.2). Refer to Figure 1. One flap is installed on the upper surface of each horizontal stabilizer along the trailing edge. The short leg of the flaps "L" extrusion points down. Remove and discard the rubber corner caps P/N 204-031-072-003 from the ends of the trailing edge.

Find the location of the flap P/N 407-023-802-117. Refer to Figure 2. The flap is installed on the right side along the upper trailing edge of the vertical fin. The long leg of the flap "T" extrusion points outboard.

Install the flaps with the procedure that follows:

- NOTE -

The instructions to install the flaps are the same for the horizontal stabilizer and the vertical fin except for the steps 3a, 6a and 13a. These three steps apply only to the installation of the flaps on the horizontal stabilizer.

1. Use a fine tip felt marker to mark the outline of the flap on the mounting surface. Mask off the adjacent area.

- NOTE -

The "NO STEP" decals are installed on the top aft corners of the horizontal stabilizer. The flap installation can cover part of the decals. If this occurs, remove the decals. Remove the edge sealer with paint thinner, MEK, or the equivalent.

- CAUTION -

TO PREVENT BOND LINE CONTAMINATION, REMOVE THE TRAILING EDGE RIVETS ONLY AFTER THE STRIPPING OPERATION IS COMPLETED. IF THE PAINT IS REMOVED BY SANDING, THE RIVETS CAN BE REMOVED NOW (SEE STEP 3a).

2. Strip the paint off the footprint of the flap location. Give sufficient protection to the adjacent surfaces. As an alternate method, you can sand down the paint finish with 400 grit abrasive paper. You do not have to remove the coat of primer.

3. Remove the masking material and flush the stripped surfaces with water. Make sure that no signs of the stripping agent remain on the part.
 - 3a. On the horizontal stabilizer trailing edge only, remove the 18 rivets P/N MS20470AD3. Remove the rivets only after the stripping operation is completed to avoid bond line contamination. The same rivet holes are to be used.
4. Wipe the cleaned surfaces with MEK or equivalent.
5. Replace the primer coat on the stripped surfaces as necessary. Use primer MIL-P-23377 or MIL-P-85582, Type 1. Permit the primer to dry.
6. Mark the rivet holes on each flap, refer to the applicable Figure. Measure and include the specified edge distances.
 - 6a. Put the flaps P/N 407-023-802-119 in position on the horizontal stabilizer. With the use of the horizontal stabilizer rivet holes backdrill the flaps. One more rivet hole is necessary on the inboard edge of the flap, refer to Figure 1.
7. Put the flap in position and clamp it to the mounting surface.
8. Drill the holes in the flaps and the mounting surface of trailing edge with a #30 drill bit. Countersink the holes on the flap only. Deburr the holes. Paint the holes with primer MIL-P-23377. Let the primer dry before you do step 9.
9. Apply a coat of sealant (MILS81733) to the faying surfaces of the flap and the mounting surface.
10. While the sealant is still wet, secure the flap to the mounting surface with rivets MS20426AD4-5 or -6, refer to the applicable Figure. Install the rivets wet with sealant.
11. Remove unwanted sealant before it becomes dry. Make a fillet seal around the edges of the flap. Let the sealant dry before you do step 12.

12. Paint the bare metal and sealant surfaces with primer.

13. Refinish as necessary.

13a. Install two (2) decals (NO STEP) P/N 31-053-18CFHP, one on each top corner of the stabilizer trailing edge, approximately one (1) inch forward of the flap. Apply edge sealer (3950 Scotchcal) to the edges of the decals.

PART II - Replacement of the Torque indicator, Torque pressure transducer, Airspeed indicator, and Airspeed limitation decal.

1. Replace the components as shown in the table below. Refer to the removal/installation instructions in BHT-407-MM-10, Chapter 95.

<u>NOMENCLATURE</u>	<u>REMOVE P/N</u>	<u>INSTALL P/N</u>
INDICATOR, TORQUE	407-375-003-105	407-375-003-107
TRANSMITTER, TORQUE PRESSURE	222-375-077-117	222-375-077-119
INDICATOR, Airspeed (see step 2)	206-075-725-107	206-075-725-103

- CAUTION -

VAPORS OF MEK CAN BE HARMFUL TO HEALTH AND CAN CAUSE THE INTERIOR CABIN TRIM TO DEFORM. SUPPLY PROPER VENTILATION AT ALL TIMES.

- CAUTION -

DO NOT USE PAINT THINNER OR MEK ON INTERIOR TRIM PANELS.

- NOTE -

Remove the decal adhesive that remains with aliphatic naphta. Carefully remove the edge sealer with a clean cloth moist with paint thinner or MEK. The instrument panel gray epoxy finish will

not be changed by MEK. Do a test of the solvent on an inconspicuous area of the panel first.

2. Helicopters S/N 53000 through 53015 were supplied with a modified indicator P/N 206-075-725-103, the V_{NE} was re-marked at 130 knots. A V_{NE} limit decal was attached to the face of the instrument panel, adjacent to the airspeed indicator. To reestablish the 140 knots V_{NE} limit, do the procedures that follow:
 - a. Remove the red pressure sensitive tape bars attached to the rim and glass of the -103 airspeed indicator. Refer to the above note.
 - b. Remove the " V_{NE} 130 knots" limit decal from the face of the panel. Use a sharp pointed knife to lift one corner of the decal and then remove it. Refer to the above note.
3. Remove the airspeed limitation decal P/N 407-070-201-107 on the overhead trim panel near the windshield as follows:
 - a. First lift one corner of the decal with a sharp knife and remove it. Refer to the above note.
4. In the location of the removed decal, install the adhesive-backed decal P/N 407-070-201-103. Apply edge sealer (3950 Scotchcal) to the edges of the decal.

- NOTE -

On helicopters supplied with the Dual Control kit P/N 407-706-702-101, one more decal P/N 407-070-201-107 is installed on the co-pilot side of the overhead trim panel. Replace this decal with decal P/N 407-070-201-103. Refer to steps 3 and 4.

Make an entry in the helicopter historical record to show that this Technical Bulletin is completed.

Make an entry in the Record of Technical Bulletins in the Maintenance Manual and Illustrated Parts Breakdown.

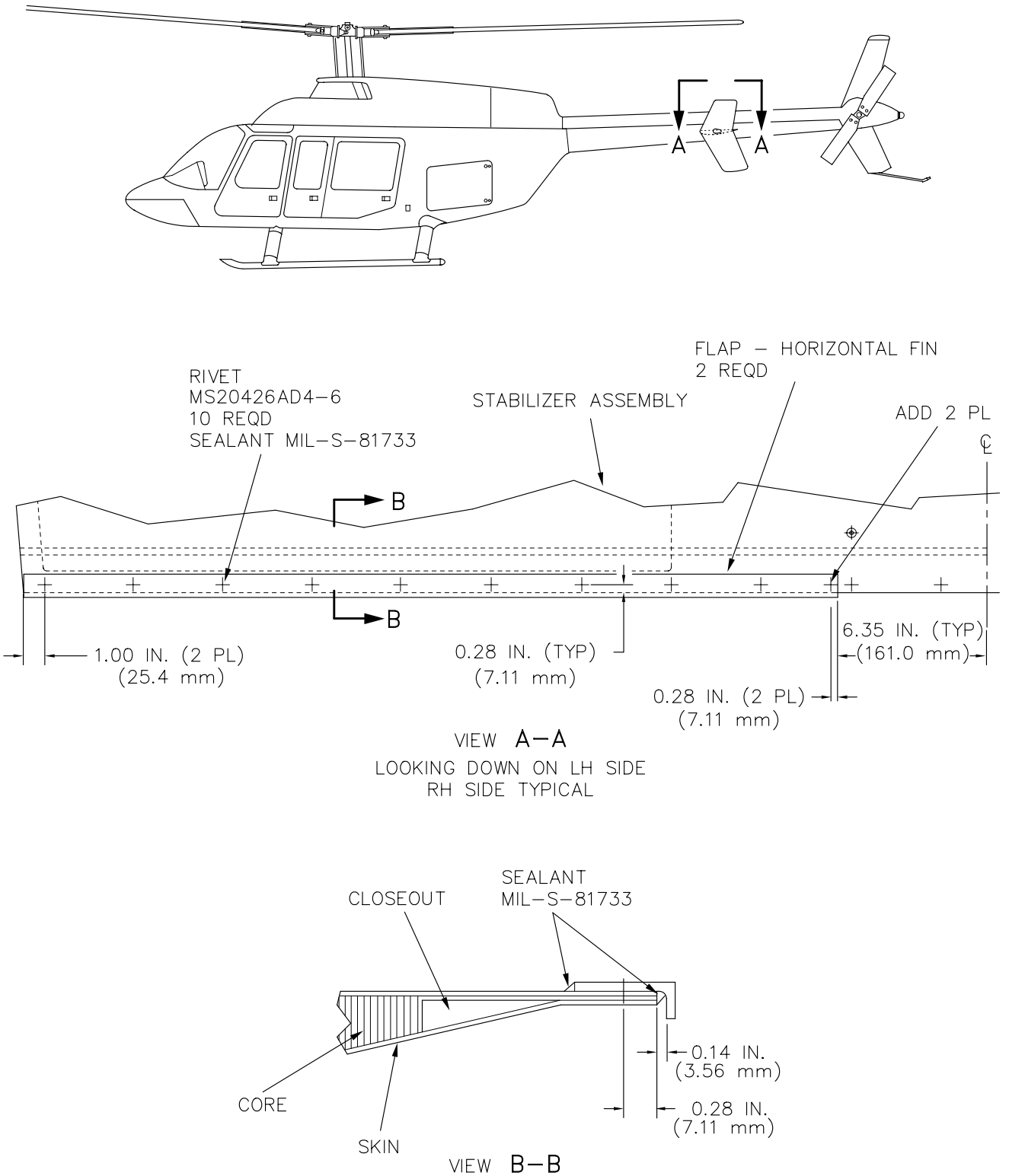


Figure 1. Stabilizer modification

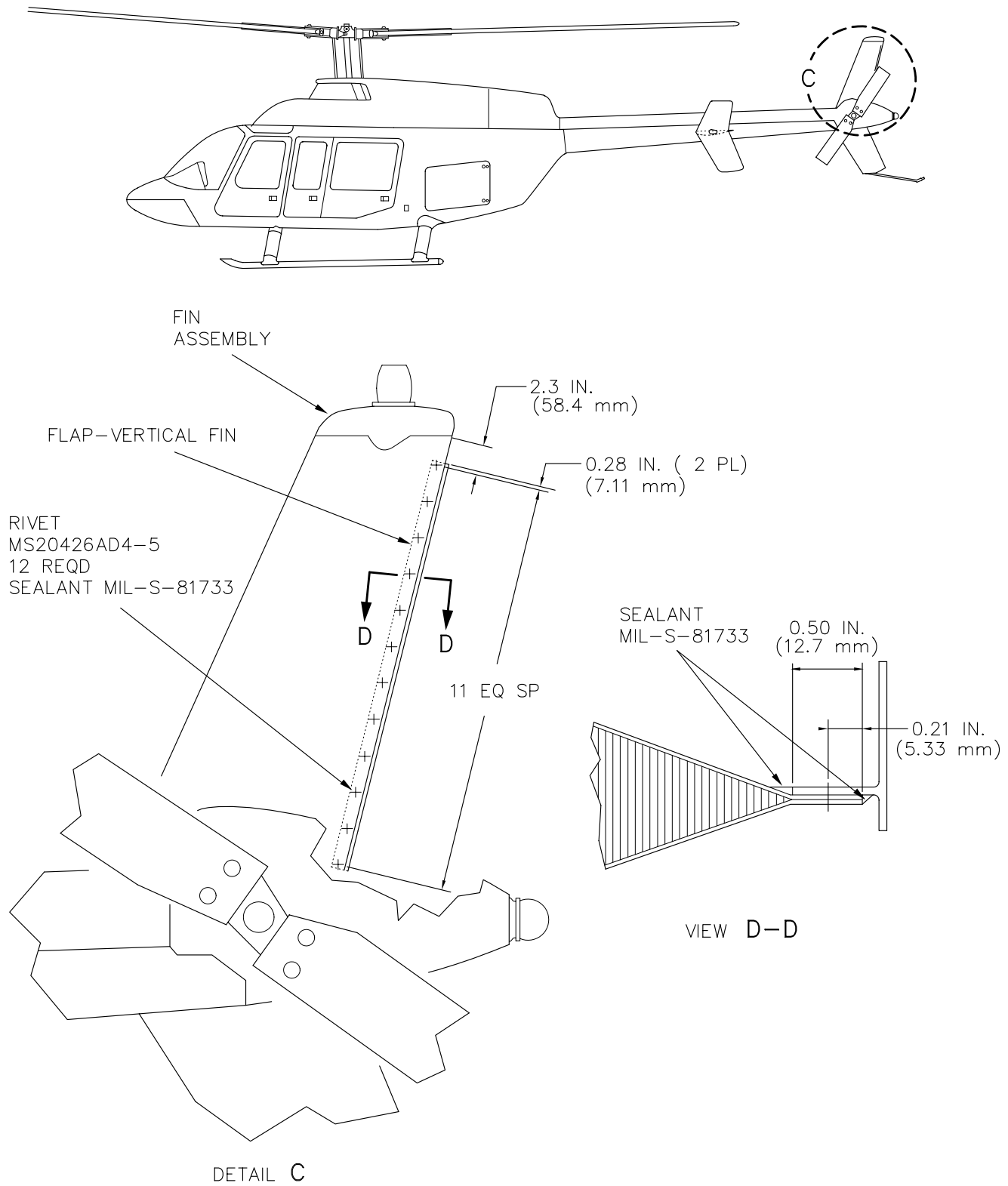


Figure 2. Vertical fin modification