

CHAPTER 53 — FUSELAGE

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FUSELAGE

53-1. FUSELAGE

The fuselage consists of three main sections: the forward section (1, [Figure 53-1](#)) which extends from cabin nose to bulkhead aft of passenger compartment, intermediate section (2) which extends from the bulkhead aft of passenger compartment to tailboom attach and tailboom section (3).

53-2. FUSELAGE — STRUCTURAL REPAIR

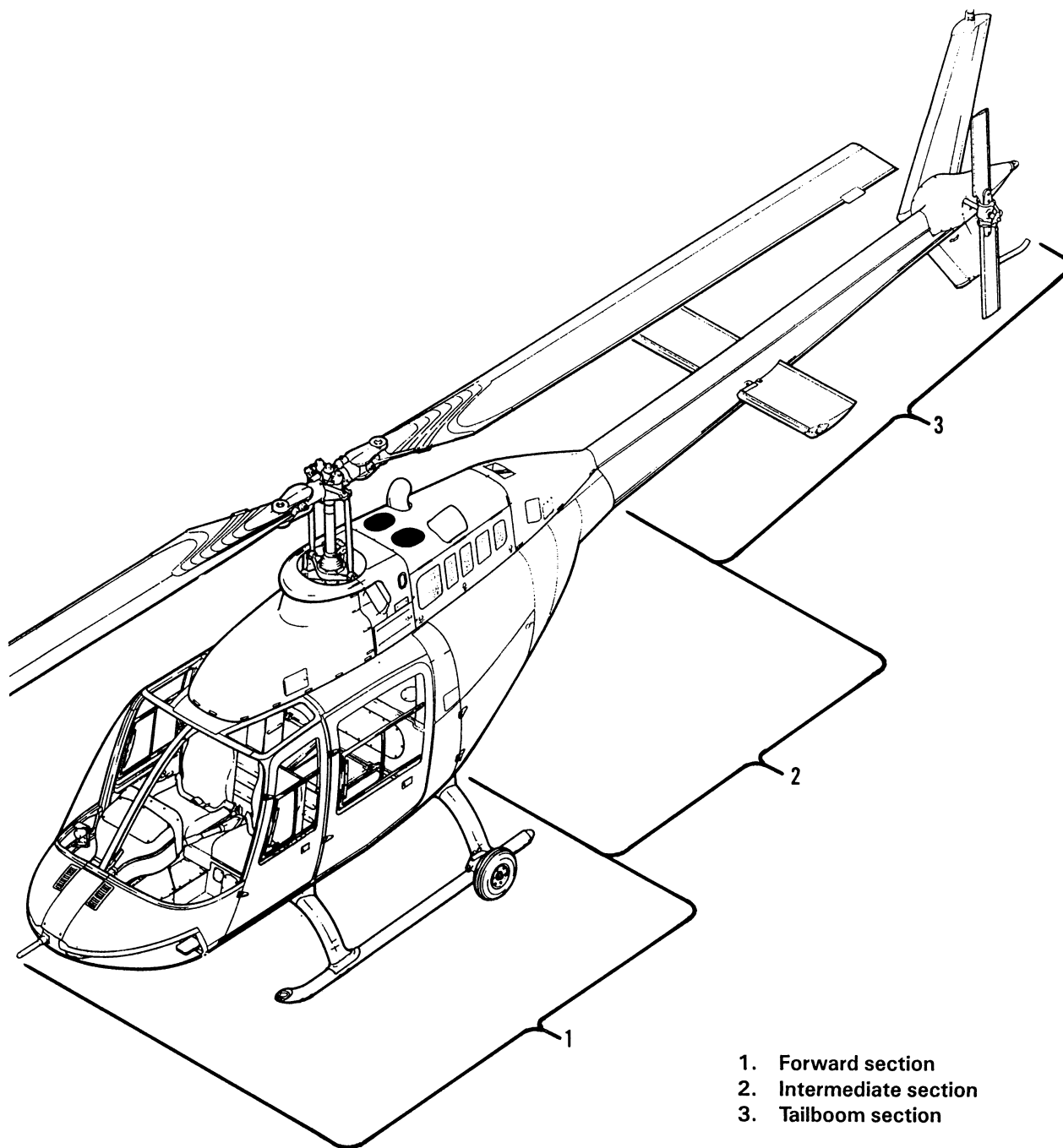
For acceptable methods, techniques and practices for structural repair, refer to [BHT-206-SRM-1](#).

53-3. FUSELAGE — FORWARD SECTION

The forward section utilizes aluminum honeycomb structure and provides the major load-bearing elements of the forward cabin. The forward section provides for pilot and passenger seating, fuel cell enclosure and pylon support.

53-4. FUSELAGE — INTERMEDIATE SECTION

The intermediate section utilizes an aluminum semimonocoque construction and provides a deck for engine installation, a baggage compartment and a compartment under the engine deck for heater and electrical equipment.



206A/BS-M-53-1

Figure 53-1. Fuselage Assembly

TAILBOOM

53-5. TAILBOOM

The tailboom is a full monocoque structure except for the forward 10 inch (254.0 mm), where the loads are redistributed by means of four intercostal load-carrying members. The tailboom supports the tail rotor driveshaft, tail rotor, gearbox, vertical fin and horizontal stabilizer. Tail rotor driveshaft bearing supports are mounted to the top of the tailboom. The supports located underneath the bearing support and inside the tailboom support tail rotor control guide tubes. Covers are provided to protect and provide a fairing for the tail rotor driveshaft and gearbox.

53-6. TAILBOOM — MODIFICATION

Modification, including installation of antenna, lights or equipment that changes the mass or mass distribution of the helicopter is not permitted without BHT approving the modification.

53-7. TAILBOOM — STRUCTURAL REPAIR

1. For tailboom structure material identification, refer to [BHT-206-SRM-1](#).
2. For acceptable methods, techniques and practices for structural repair, refer to [BHT-206-SRM-1](#).

53-8. TAILBOOM — REMOVAL

NOTE

Removal of tailboom may be accomplished with horizontal stabilizer, vertical fin, tail rotor and tail rotor gearbox installed.

1. Remove access door from right side of fuselage just forward of bulkhead (8, [Figure 53-2](#)).
2. Disconnect studs (3) from clips (4) on both sides of tail rotor driveshaft cover (1). Remove cover from tailboom (9).
3. Remove aft engine fairing ([Chapter 71](#)).
4. Position left tail rotor control pedal full forward and disconnect tail rotor control tube just forward of bulkhead (8) in aft fuselage ([Chapter 67](#)).

5. Disconnect electrical connectors, as required, at bulkhead (8).

6. Disconnect the first tail rotor driveshaft segment at coupling just forward of bulkhead (8) [Chapter 65](#)).

7. Support tailboom (9) and remove nuts (15) and steel washers (14) from four attaching bolts (12) ([Figure 53-2](#), Section A-A). Remove four bolts (12) and four chamfered washers (13) from aft fuselage and tailboom (9).

53-9. TAILBOOM — INSPECTION AND REPAIR

MATERIALS REQUIRED

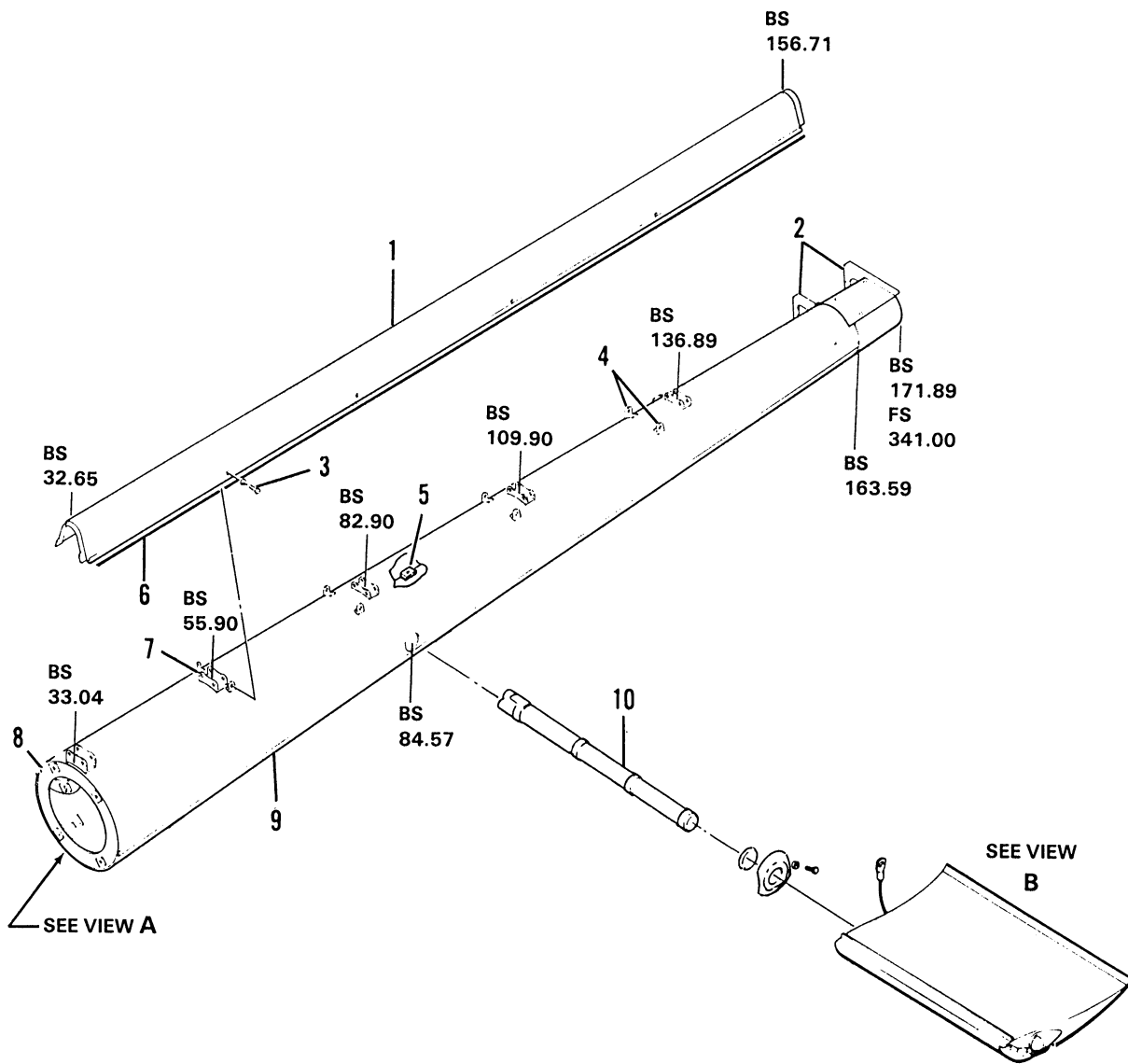
Refer to [BHT-ALL-SPM](#) for specifications.

NUMBER	NOMENCLATURE
C-100	Chemical Film Material
C-246	Waterborne Primer
C-309	MEK
C-319	Chlorothene
C-419	Polyurethane Tape
C-422	Aluminum Wool
C-423	Abrasive Cloth or Paper

NOTE

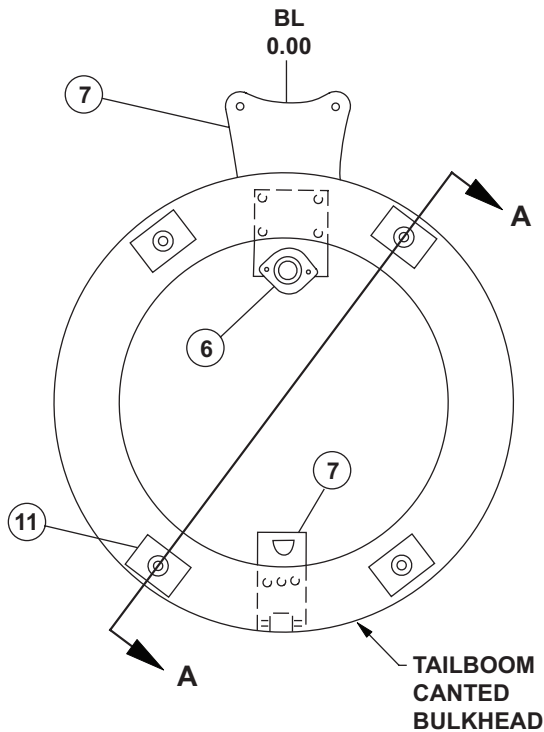
For information on consumable materials, refer to [BHT-ALL-SPM](#).

1. Inspect tailboom (9, [Figure 53-2](#)) at attached points on canted bulkhead and fuselage frame for cracks, damage and corrosion.
2. Inspect four tailboom-to-fuselage attaching bolt holes in tailboom and fuselage fitting for elongation. Maximum diameter is 0.391 inch (9.931 mm). Ensure four shims (11) are bonded in place.



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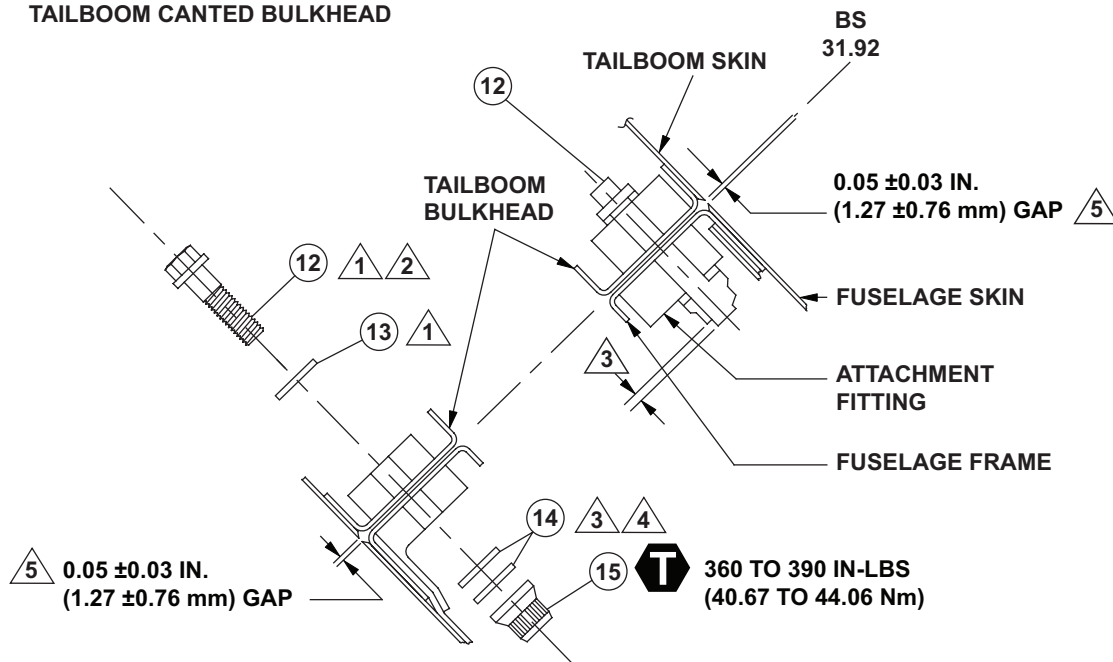
Figure 53-2. Tailboom and Horizontal Stabilizer (Sheet 1 of 3)



VIEW A
VIEW LOOKING AFT
TAILBOOM CANTED BULKHEAD

NOTES

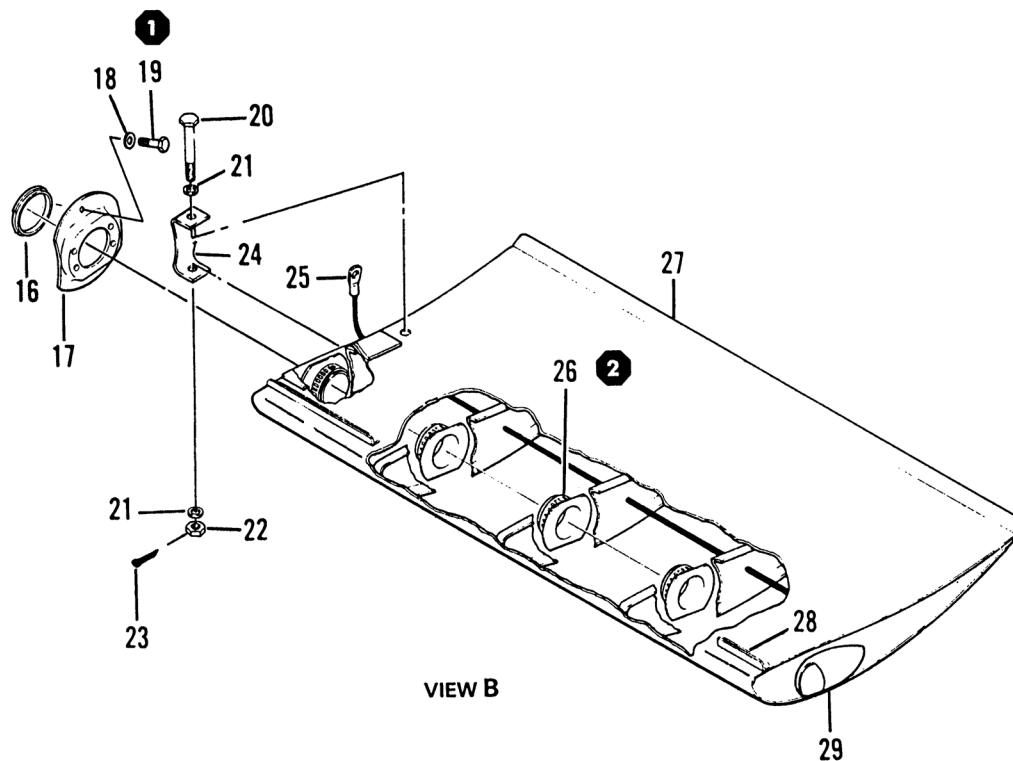
- 1 External wrenching bolts (12) and countersunk washers (13) are to be installed through tailboom and fuselage. Bolt heads are to be on tailboom side with washer countersink next to bolt heads.
- 2 Apply a coating of corrosion preventive compound (C-104) to all bolt shanks prior to installation. Do not apply corrosion preventive compound to bolt threads.
- 3 Steel washers (14) are to be installed as required under the nut (15) to provide not less than one complete thread and not more than three complete threads exposed on the end of the bolts (12).
- 4 A minimum of one steel washer (14) is required under the nut (15).
- 5 A gap between the tailboom canted bulkhead and the fuselage results from four shims bonded to the forward face of the tailboom canted bulkhead.



SECTION A-A
BOLT INSTALLATION

206AB_MM_53_0012

Figure 53-2. Tailboom and Horizontal Stabilizer (Sheet 2 of 3)



NOTES

1 50 to 70 IN-LBS (5.64 to 7.90 Nm)

2 35 IN-LBS (3.95 Nm)

- | | |
|--------------------------------|---------------------------|
| 1. Tail rotor driveshaft cover | 16. Bushing |
| 2. Vertical fin support | 17. Fitting assembly |
| 3. Stud | 18. Aluminum washer |
| 4. Clip | 19. Bolt |
| 5. Terminal block | 20. Bolt |
| 6. Tape | 21. Washer |
| 7. Hanger bearing support | 22. Nut |
| 8. Bulkhead | 23. Cotter pin |
| 9. Tailboom | 24. Stop |
| 10. Spar assembly | 25. Position light wiring |
| 11. Shim | 26. Clamp |
| 12. Bolt | 27. Horizontal stabilizer |
| 13. Countersunk washer | 28. Spoiler |
| 14. Steel washer | 29. Position light |
| 15. Nut | |

206A/BS-M-53-2-3

Figure 53-2. Tailboom and Horizontal Stabilizer (Sheet 3 of 3)

3. Inspect bolts (12) and nuts (15) for damaged threads or any indication of damage. Replace as necessary.

4. Inspect hanger bearing supports (7) and replace if cracked, damaged or corroded (BHT-206-SRM-1).

5. Inspect tailboom skins for negligible scratches and creases by fluorescent penetrant inspection method (BHT-ALL-SPM). Limitations on repairable skin damage are as follows:

a. Ensure no crack exists in damaged area.

b. Scratches not in excess of 10% of skin thickness in depth, after cleanup, and one sixth circumference of local tailboom station in length, if angle exceed 45° from longitudinal axis of tailboom, may be blended out provided they are not accompanied by creasing.

c. Scratches less than 45° to longitudinal axis may be blended out. No limit on length or number of longitudinal scratches provided damage is not clustered. Cumulative scratch cleanup is limited total skin thickness reduction of 10%.

d. Tailboom waviness and creases aft of stabilizer (27) are negligible provided limits Table 53-1 are not exceeded.

Table 53-1. Tailboom Waviness Limits

TOTAL MAXIMUM WAVINESS	BETWEEN STATION
±0.06 inch (1.52 mm)	42.6 and 80.8
±0.09 inch (2.28 mm)	88.4 and 163.6

6. Inspect tailboom skin for negligible dents as follows:

a. Smooth contour dents, free of cracks, nicks or scratches.

b. A maximum of one dent per boom station (BS) plane and a minimum of 2.0 inches (50.80 mm) (edge to edge) distance between dents.

c. Maximum diameter of negligible dents is 1.25 inches (31.75 mm). Maximum depth and location of dents acceptable without repair are listed in Table 53-2.

Table 53-2. Tailboom Negligible Dent Limits

BOOM STATION (BS)	TAILBOOM QUADRANT		
	LOWER RH	LOWER LH	TOP TWO
31.92 to 42.59	0.005 inch (0.13 mm)	0.005 inch (0.13 mm)	0.005 inch (0.13 mm)
42.59 to 55.00	0.005 inch (0.13 mm) \triangle_1	0.005 inch (0.13 mm) \triangle_1	0.005 inch (0.13 mm)
55.00 to 80.00	0.005 inch (0.13 mm) \triangle_1	0.005 inch (0.13 mm) \triangle_1	0.010 inch (0.25 mm)
80.0 to 136.0	0.010 inch (0.25 mm)	0.020 inch (0.51 mm)	0.020 inch (0.51 mm)
136.0 to 163.0	0.020 inch (0.51 mm)	0.030 inch (0.76 mm)	0.030 inch (0.76 mm)

NOTE:

\triangle_1 Negligible dents are permitted in these specific areas provided all of the following criteria are met:

- Maximum depth 0.005 inch (0.127 mm)
- Maximum diameter 1.250 inches (31.75 mm)
- Dents must be smooth
- Dents must be a minimum of 24.0 inches (609.6 mm) apart
- Dents must have a slope of no more than 0.010 inch (.254 mm) per 1.0 inch (25.4 mm)

d. If dents exceed limits specified in Table 53-2, repair tailboom in accordance with BHT-206-SRM-1.

7. Inspect tailboom (9) skin for negligible corrosion damage as follows:

a. Corrosion is limited to 10% of tailboom skin thickness after cleanup for 10% of tailboom circumference and a maximum of 4.0 inches (101.60 mm) in longitudinal length.

b. A maximum of two corrosion damaged areas may be permitted per cross section of tailboom. A line drawn or string placed around circumference of tailboom must not touch more than two corrosion damaged areas.

c. Corrosion damaged areas must be a minimum of 8.0 inches (203.20 mm) apart.

8. Total damage to tailboom (9) must not exceed 5% of tailboom area, approximately 160.0 square inches (1032.0 cm²).

9. Creasing of tailboom (9) is not permissible.

10. Inspect tailboom (9) for loose, missing or working rivet. Any loose rivets should be replaced immediately.

NOTE

Out of balance and/or improperly installed tail rotor gearbox may be contributing factors to loose or working rivets and cracks in tailboom skin at BS 131.89 (FS 300.00) to BS 171.89 (FS 341.00).

11. Inspect both sides of tailboom (9) between BS 131.89 (FS 300.00) to BS 171.89 (FS 341.00) for loose or working rivets and cracks in skin. Any loose rivets should be replaced immediately. Refer to [BHT-206-SRM-1](#) for rivet installation.

12. Inspect tail rotor driveshaft cover (1) for cracks, corrosion, loose studs and clips, and deterioration of tape (6). Refer to [step 14](#) for repairs.

13. Inspect vertical fin supports (2) for cracks, corrosion or other damage. Inspect for cracks using fluorescent penetrant inspection ([BHT-ALL-SPM](#)). If a crack is found, replace the attachment support. Two-piece attachment supports shall be replaced with one-piece casting support. Refer to [BHT-206-SRM-1](#).

14. Repairable and replacement damage limits are as follows:

a. Damage in the area between BS 44.0 and BS 163.0 which does not exceed 10% of tailboom circumference in height and 30% of tailboom circumference in length may be repaired by patching (circumference to be measured at aft end of damage).

b. A maximum of two damaged areas per cross section of the tailboom is permitted. A line drawn

around the circumference of the tailboom must not touch more than two damaged areas.

c. Damage areas must be a minimum of 8.0 inches (203.20 mm) apart.

d. Total damage to the tailboom is not to exceed 5% of the tailboom area (approximately 160 square inches or 1032.0 cm²).

e. If damage is located between tailboom station 80.0 and 89.0 determine if bulkheads (8), hanger bearing supports (7), fitting assemblies (17) etc., have sustained damage. Damage to these parts is cause for tailboom replacement.

f. Any damage forward of BS 44.00 or aft of BS 163.00 exceeding negligible limits requires BHTI Engineering approval for repair.

g. Buckling or distortion of upper or lower skin surface resulting from a hard landing is cause for replacement of tailboom.

15. Replace deteriorated or loose polyurethane tape ([C-419](#)) (6) as follows:

a. Clean surfaces to be taped with chlorothene ([C-319](#)) and wipe dry.

b. Apply polyurethane tape ([C-419](#)) (6) along edge (lengthwise) of tail rotor driveshaft cover (1) and to mating surface on tailboom. Width of tape strips should be 0.5 inch (12.70 mm), length 125.0 inches (3175.00 mm).

16. Repair nicks and scratches as follows:

a. Remove paint finish in damaged area using fine aluminum wool ([C-422](#)) and/or MEK ([C-309](#)).

b. Ensure no crack exists in damaged area.

c. Blend out damaged area using 400 grit abrasive cloth or paper ([C-423](#)). Remove sanding residue with a clean cloth dampened with MEK ([C-309](#)).

d. Treat damaged area with chemical film material ([C-100](#)).



DO NOT APPLY PAINT FINISH COATING TO VERTICAL FIN ATTACHMENT SUPPORTS. ONLY TWO COATS OF EPOXY POLYAMIDE PRIMER (C-204) OR WATERBORNE PRIMER (C-246) ARE AUTHORIZED. REFER TO FIGURE 53-7.

e. Refinish repaired area, as required, to match original paint finish.

17. Repair corrosion damage per BHT-206-SRM-1.

53-10. TAILBOOM — INSTALLATION

MATERIALS REQUIRED

Refer to BHT-ALL-SPM for specifications.

NUMBER	NOMENCLATURE
C-104	Corrosion Preventative Compound

1. Position tailboom (9, Figure 53-2) against aft fuselage and place suitable supports at each end of the tailboom.

2. Align tailboom canted bulkhead (8) and fuselage frame attachment holes (Figure 53-2, View A, Section A-A).

3. Apply a coating of corrosion preventive compound (C-104) to the shanks of bolt (12) prior to installation. Do not apply corrosion preventive compound to the threads of the bolts.

4. Install four external wrenching bolts (12) with one countersunk washer (13) under each bolt head from tailboom side into intercostals and fuselage fittings. Ensure countersink on washer (13) is next to bolt head.

5. Install steel washers (14) as required to provide for not less than one complete thread and not more than three complete threads exposed on end of bolt (12). Torque nuts (15) to 360 to 390 inch-pounds (40.67 to 44.06 Nm).

6. Position left tail rotor control pedal full forward. Connect tail rotor control tube in aft end of fuselage just forward of bulkhead (8) (Chapter 67).

7. Connect electrical connectors, as required, at bulkhead (8).

8. Connect tail rotor driveshaft segment at coupling just forward of bulkhead (8) (Chapter 65).

9. Install access door on right side of aft fuselage just forward of bulkhead (8).

10. Position tail rotor driveshaft cover (1) on tailboom (9) and align studs (3) with clips (4). Engage studs and secure cover.

11. Install aft engine fairing (Chapter 71).

12. Remove supports from beneath tailboom (9).

13. Perform operational check of anticollision light, position lights, taillight and antitorque controls.

14. Do a torque check of tailboom attaching nuts (15, Figure 53-2, Section A-A) 100 flight hours after each installation (Chapter 5).

VERTICAL FIN

53-11. VERTICAL FIN

The vertical fin (1, [Figure 53-3](#)) is an aerodynamic surface that gives stability to the helicopter while it is in flight. The vertical fin (1) is installed with the leading edge positioned outboard (with reference to the aircraft longitudinal axis). This helps to unload the tail rotor while the helicopter is in forward flight. The vertical fin (1) is made up of an aluminum honeycomb core with aluminum outer skins. The leading and trailing edge caps (2 and 3) are made of formed aluminum alloy. The anticollision light (4) is installed on the upper fairing (6) of the vertical fin. The rubber bumper and the tail skid (8) are bonded into the base of fin. The tail skid (8) absorbs shock in the event of a tail low landing ([Chapter 32](#)).

As various combinations of vertical fins (1) and attachment supports (11 and 12) are authorized for installation, please refer to [paragraph 53-12](#) and [paragraph 53-13](#) to identify the specific configuration used on your helicopter. Identification of the vertical fin (1) and attachment support combination (11 and 12) will ensure that the proper inspection and installation procedures are used.

Refer to [BHT-206-SRM-1](#) for information on the vertical fin structure material identification and for

acceptable methods, techniques and practices for structural repair.

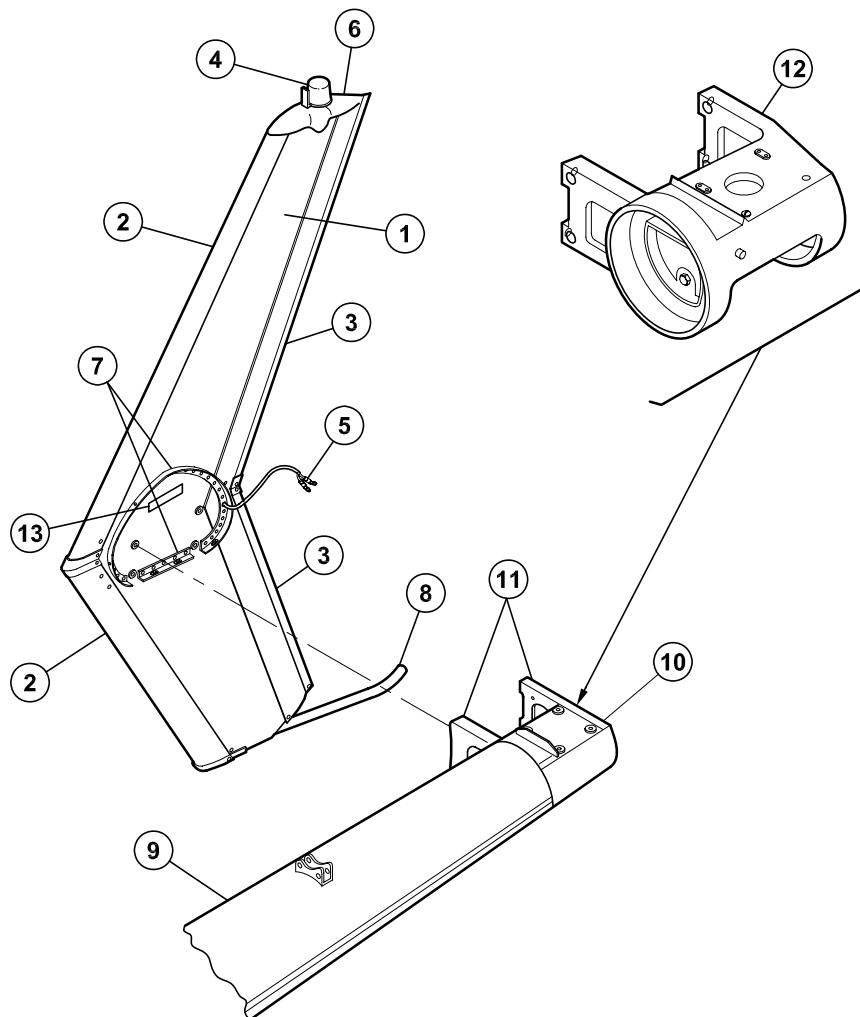
53-12. VERTICAL FIN — IDENTIFICATION

Vertical fins (1, [Figure 53-3](#)) have been produced or field modified with various configurations of external skins and doublers. These vertical fins (1) can also be attached to the helicopter with two types of attachment supports (11 and 12) ([paragraph 53-13](#)). As the various combinations of vertical fins (1) and attachment supports (11 and 12) require differing inspection and installation procedures. The following information will ensure that you can identify the vertical fin (1) used on your helicopter.

To ease identification of the 206A/B vertical fins (1), they have been categorized into three types. Please refer to [Table 53-3](#) and the associated notes as well as [Figure 53-4](#) to identify the vertical fins (1, [Figure 53-1](#)).

NOTE

The vertical fin identification tag (13) can be found on the inboard skin in the area above the four inserts that mate with the attachment supports (11 and 12).



1. Vertical fin (typical)
2. Leading edge caps
3. Trailing edge caps
4. Anticollision light
5. Anticollision light wiring
6. Upper fairing
7. Fairing formers
8. Tail skid
9. Tailboom
10. Sheet metal tailrotor gearbox support
11. Two-piece attachment supports
12. One-piece tail rotor gearbox support casting
13. Identification tag

Figure 53-3. Vertical Fin Assembly

206AB_MM_53_0001

Table 53-3. Vertical Fin Identification

VERTICAL FIN TYPE	VERTICAL FIN PART NUMBER	HELICOPTER PRODUCTION SERIAL NUMBER	NOTES
1	206-020-113-005	4 – 413	△ ₁
1	206-020-113-007	414 – 583	△ ₁
1	206-020-113-009	584 – 873	△ ₁
2	206-020-113-005-107	4 – 413	△ ₂
2	206-020-113-007-107	414 – 583	△ ₂
2	206-020-113-009-107	584 – 873	△ ₂
2	206-020-113-107	874 – 1163	△ ₃
3	206-020-113-103	1164 – 1251	△ ₄
3	206-020-113-011	1252 – 3216	△ ₄
3	206-020-113-131	3217 – 4004	△ ₄
3	206-020-113-163	4005 – 4523	△ ₄
3	206-020-113-231 and subsequent	4524 – subsequent	△ ₄

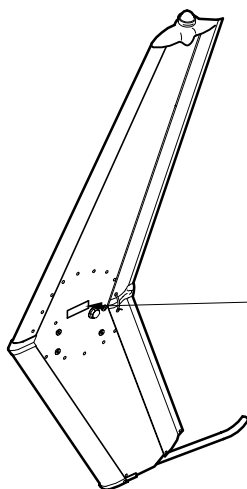
NOTES:

- △₁ Type 1 vertical fins have a 0.040 inch (1.016 mm) thick inboard skin. (Pre [Service Letter SL 206-203](#)).
- △₂ Type 2 vertical fins have a 0.040 inch (1.016 mm) thick inboard skin and a 0.020 inch (0.508 mm) thick external doubler installed on the inboard skin (Post [Service Letter SL 206-203](#)). [Service Letter 206-203](#) also re-identified vertical fins 206-020-113-005/-007 and -009 to a 206-020-113-107.
- △₃ Type 2 vertical fins identified with a 206-020-113-107 part number (non re-identified) have a 0.040 inch (1.016 mm) thick inboard skin and a 0.020 inch (0.508 mm) thick factory installed external doubler on the inboard skin.
- △₄ Type 3 vertical fins have a 0.063 inch (1.600 mm) thick inboard skin. These fins do not have an external doubler installed on the inboard skin.

53-13. VERTICAL FIN — ATTACHMENT SUPPORTS

The vertical fins identified in [paragraph 53-12](#) may be attached to the tailboom with two different types of attachment supports. The two types of attachment supports include a two-piece attachment support (11, [Figure 53-3](#)) used in conjunction with a sheet

metal tail rotor gearbox support (10), or a one-piece tail rotor gearbox support casting (12). As the various combinations of vertical fins and attachment supports require differing inspection and installation procedures, the following information will ensure that you can identify the attachment support installation used on your helicopter.



TYPE 1 VERTICAL FIN

Type 1 vertical fins have a 0.040 inch (1.02 mm) thick inboard skin.
(Pre Service Letter SL 206-203).

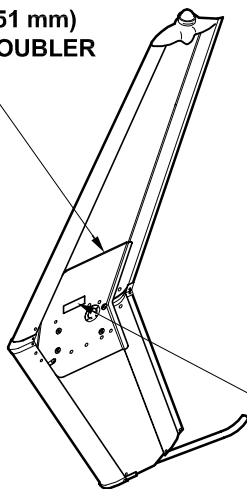
These fins do not have an external doubler installed on the inboard skin.

P/N 206-020-113-005

P/N 206-020-113-007

P/N 206-020-113-009

0.020 inch (0.51 mm)
EXTERNAL DOUBLER



TYPE 2 VERTICAL FIN

Type 2 vertical fins have a 0.040 inch (1.02 mm) thick inboard skin and a 0.020 inch (0.51 mm) thick external doubler installed on the inboard skin (Post Service Letter SL 206-203).

Service Letter 206-203 also re-identified vertical fins 206-020-113-005 / -007 and -009 to a 206-020-113-107.

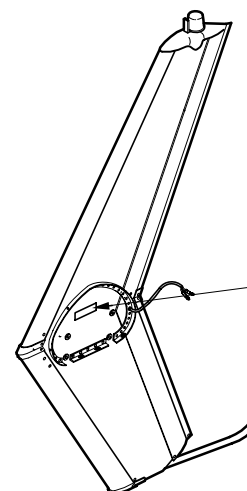
Type 2 vertical fins identified with a 206-020-113-107 part number (non re-identified) have a 0.040 inch (1.02 mm) thick inboard skin and a 0.020 inch (0.51 mm) thick factory installed external doubler on the inboard skin.

P/N 206-020-113-~~005~~ 107

P/N 206-020-113-~~007~~ 107

P/N 206-020-113-~~009~~ 107

P/N 206-020-113-107



TYPE 3 VERTICAL FIN

Type 3 vertical fins have a 0.063 inch (1.60 mm) thick inboard skin.

These fins do not have an external doubler installed on the inboard skin.

P/N 206-020-113-103

P/N 206-020-113-131

P/N 206-020-113-163

P/N 206-020-113-231 and subsequent

Figure 53-4. Vertical Fin Identification

206AB_MM_53_0002

The two-piece supports (11) are used in conjunction with the sheet metal type gearbox support (10). These two-piece supports (11) were factory installed on 206A/B helicopters up to S/N 3906. Attachment hardware comprised of bolts, washers, radius washers and nuts (Post [ASB 206-91-60](#)) are used to attach the vertical fin to the tailboom.

The one-piece support casting (12) has been factory installed on 206B helicopters S/N 3907 and subsequent. In addition, the one-piece casting support (12) may also be installed on earlier serial number helicopters in accordance with the instructions given in [BHT-206-SRM-1](#). Attachment hardware is comprised of bolts, washers and barrel nuts installed into the lugs of the supports to attach the vertical fin to the tailboom.

53-14. VERTICAL FIN — REMOVAL

1. Disconnect the battery or external power from the helicopter.
2. Remove tail rotor driveshaft cover ([paragraph 53-8](#)).
3. Remove tail rotor gearbox fairings ([paragraph 53-18](#)).

NOTE

Refer to [paragraph 53-12](#) and [paragraph 53-13](#) to identify the vertical fin type and attachment support configuration used on your helicopter. Utilize applicable [step 4](#) or [step 5](#) for the instructions to remove the applicable vertical fin configuration.

4. Remove vertical fins (1, [Figure 53-5](#)) installed on two-piece attachment supports (2) as follows:
 - a. Disconnect the anticollision light wiring (7). Insulate and stow wires to prevent damage.
 - b. Hold the vertical fin (1).
 - c. Remove nuts (6) and radius washer(s) (5).
 - d. Remove the bolts (3) and washers (4).



WHEN REMOVING A TYPE 2 VERTICAL FIN ([PARAGRAPH 53-12](#)) FROM THE SUPPORTS, CONFIRM THAT THE SPACER WASHERS (2, [FIGURE 53-8](#)) ARE BONDED TO THE INSERTS. IF SPACER WASHERS HAVE BECOME DEBONDED, THEY WILL REQUIRE BONDING PRIOR TO RE-INSTALLATION OF THE VERTICAL FIN. REFER TO [PARAGRAPH 53-15 \(STEP 8g\)](#).

- e. Remove vertical fin (1, [Figure 53-5](#)) from supports (2).
 - f. Put the vertical fin (1) on a soft surface to prevent damage.
5. Remove vertical fins (1, [Figure 53-6](#)) installed on one-piece support casting (2) as follows:
- a. Disconnect the anticollision light wiring (7). Insulate and stow wires to prevent damage.
 - b. Hold the vertical fin (1).
 - c. Remove bolts (3) and washer(s) (4).



WHEN REMOVING A TYPE 2 VERTICAL FIN ([PARAGRAPH 53-12](#)) FROM THE SUPPORTS (2), CONFIRM THAT THE SPACER WASHERS (2, [FIGURE 53-8](#)) ARE BONDED TO THE INSERTS. IF SPACER WASHERS HAVE BECOME DEBONDED, THEY WILL REQUIRE BONDING PRIOR TO RE-INSTALLATION OF THE VERTICAL FIN. REFER TO [PARAGRAPH 53-15 \(STEP 8g\)](#).

- d. Remove vertical fin (1, [Figure 53-6](#)) from one-piece casting support (2).
- e. Put the vertical fin on a soft surface to prevent damage.


6. If required, refer to [Chapter 32](#) for the removal and installation of the of tail skid (8, [Figure 53-3](#)).

1. Vertical fin
2. Two-piece attachment supports
3. Bolts (NAS1304-26/ alt: NAS6604-26)
4. Washers (AN960PD416L / alt: NAS1149D0416J)
5. Radius washers (140-019-1)
6. Nuts (MS21042L4)
7. Anticollision light wiring

G CORROSION PREVENTIVE COMPOUND (C-104)

T 75 TO 95 IN-LBS
(8.47 TO 10.75 Nm)

NOTES

1.  Surfaces to have primer coating only. There shall be no paint coating.
2. When installing Type 2 vertical fins only, bolts NAS6604-27 may be used as an alternate to NAS1304-26 /NAS6604-26 to permit proper grip and thread engagement.
3. Apply a coating of corrosion preventive coating (C-104) to shank of bolts prior to installation. Do not apply corrosion preventive coating to threads of bolts.
4. When installing Type 2 fins only, ensure spacer washers are bonded to fin (4 places) prior to installation of fin. refer to Figure 53-8.
5. A quantity of two washers (3) are required for each location.
6. To permit proper thread engagement, install a minimum of 1 / maximum of 2 radius washers (5) between supports (2) and nuts (6) (4 locations).

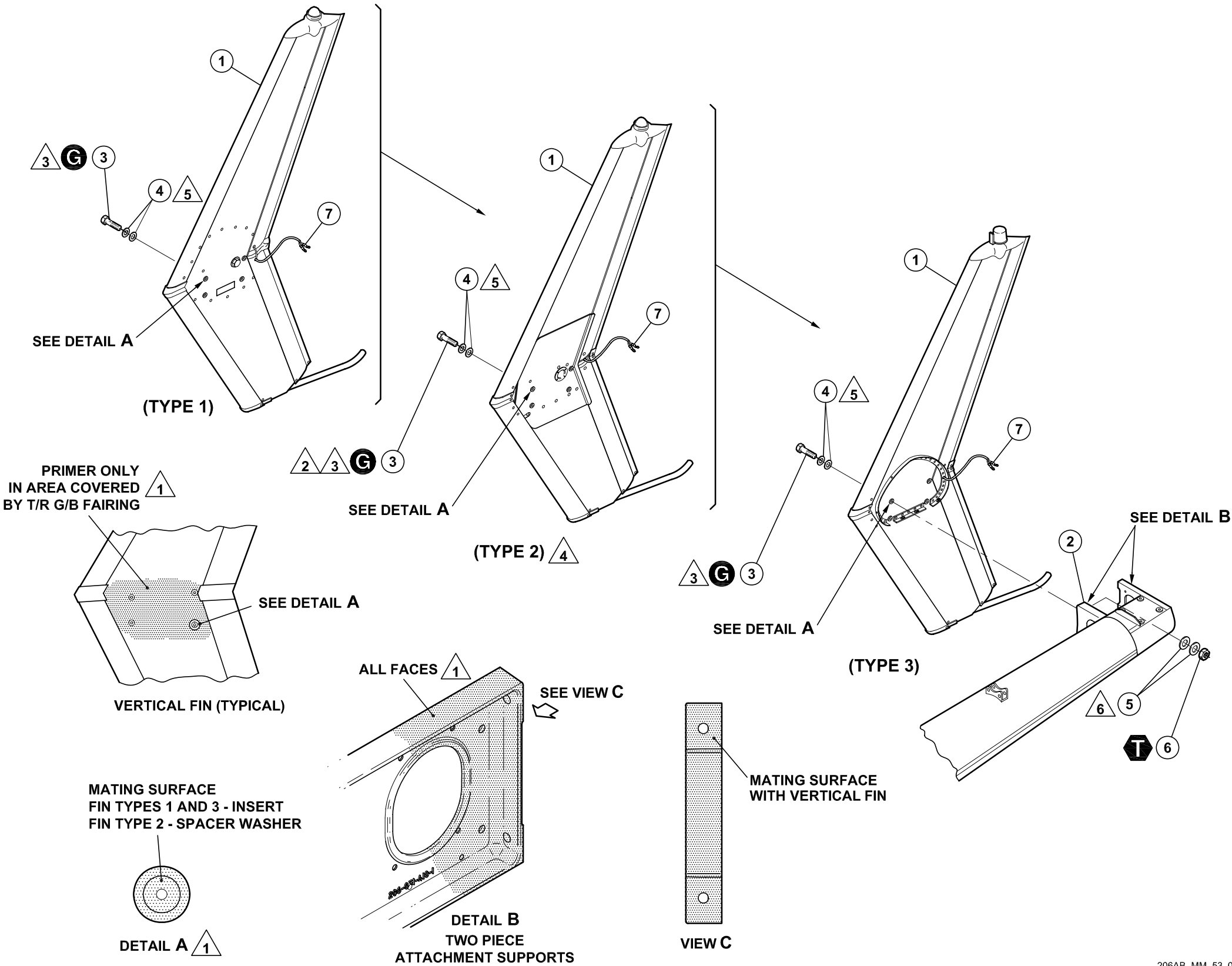


Figure 53-5. Vertical Fin Attachment to Two-Piece Supports

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- 1. Vertical fin
- 2. One-piece casting support
- 3. Bolts (NAS6604-28)
- 4. Washer (AN960PD416 / alt: NAS1149D0463J)
- 5. Barrel nut (NAS577B4-A)
- 6. Retainer (NAS578-4A)
- 7. Anticollision light wiring

- G** CORROSION PREVENTIVE COMPOUND (C-104)
- T** 75 TO 95 IN-LBS
(8.47 TO 10.75 Nm)

NOTES

- 1** Surfaces to have primer coating only.
There shall be no paint coating.
- 2** Apply a coating of corrosion preventive coating (C-104) to shank of bolts prior to installation. Do not apply corrosion preventive coatings to threads of bolts.
- 3** As applicable to Type 2 fins only, ensure spacer washers are bonded to fin (4 places) prior to installation of fin. Refer to Figure 53-8.
- 4** To maintain 0.050 inch (1.27 mm) minimum gap between end of bolt (3) and surface of hole (view D), it is permissible to install 2 washers (4) (maximum) under head of bolt (3).

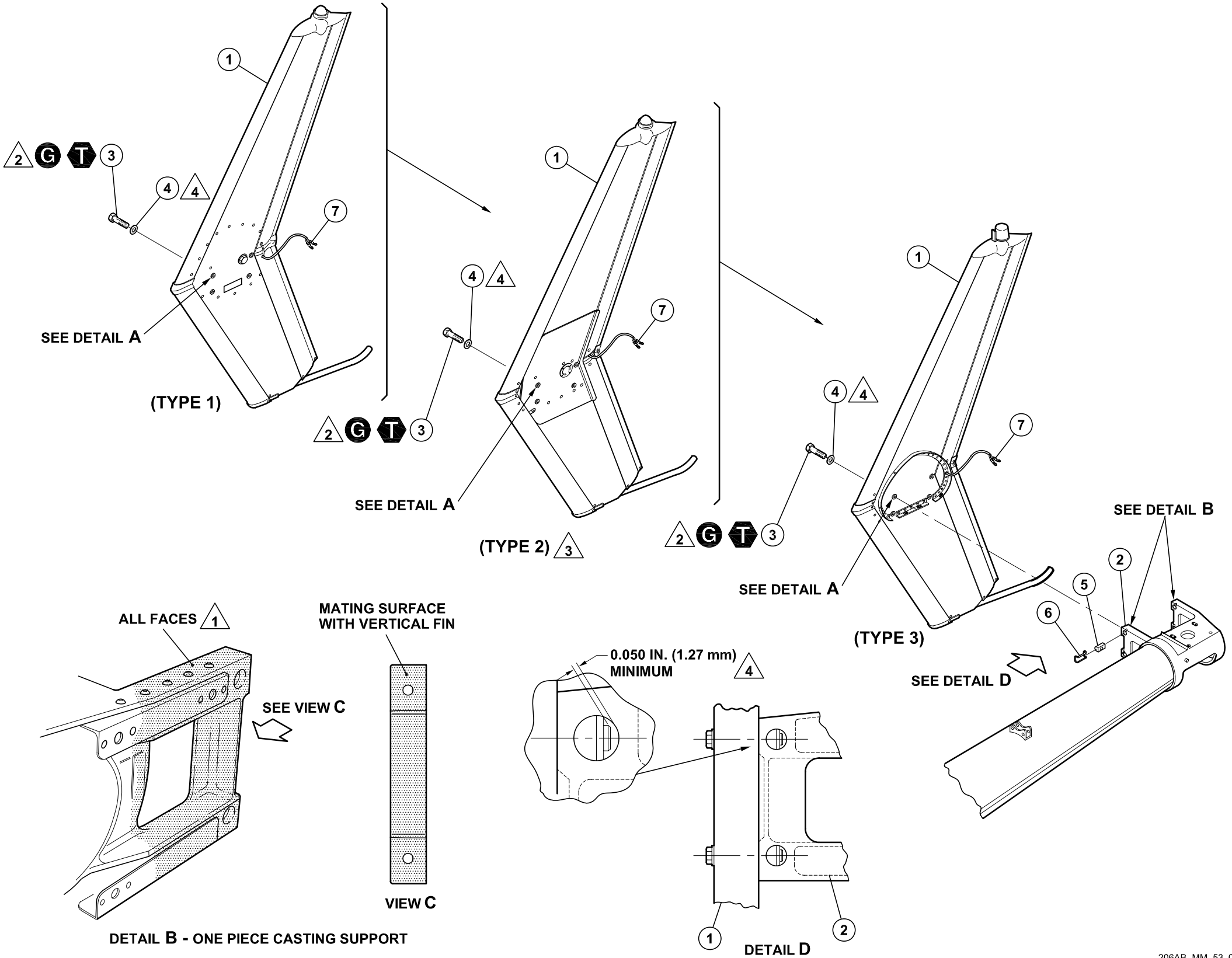
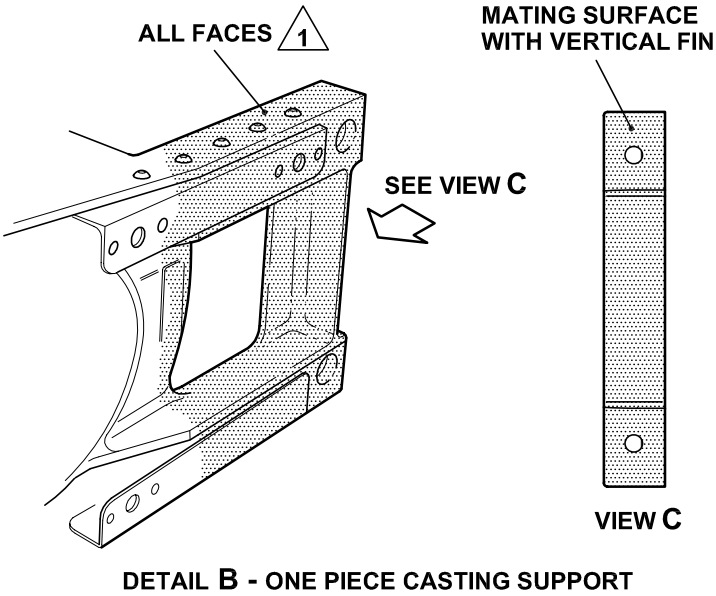
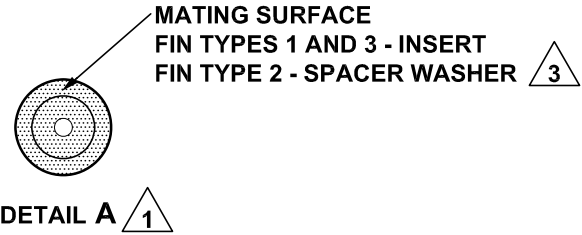
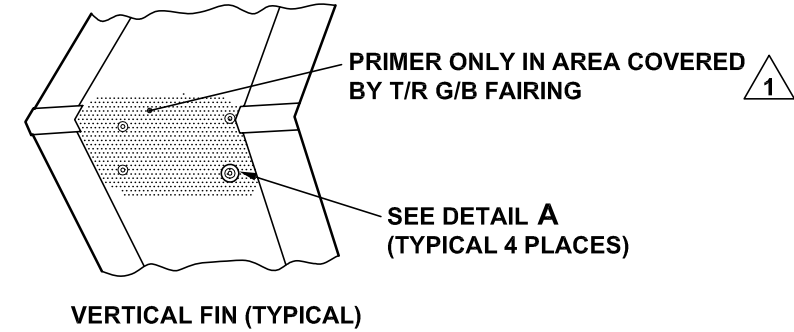
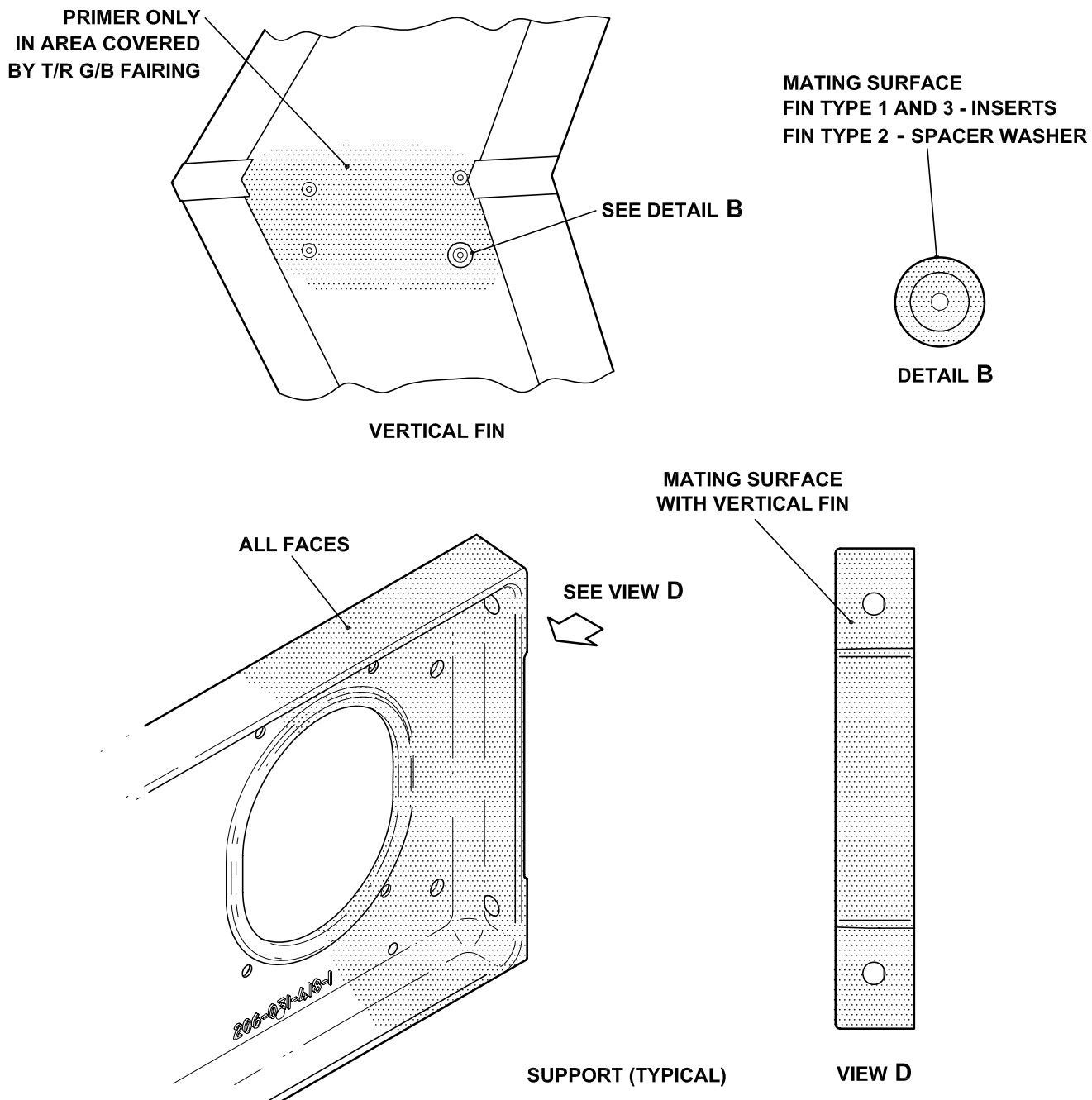



Figure 53-6. Vertical Fin Attachment to One-Piece Casting Support

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 Surfaces to have primer coating only. If required, remove existing coatings and apply 2 coats of polyamide epoxy primer (C-204) or waterborne primer (C-246) in accordance with the BHT-ALL-SPM. There shall be no paint finish coating.

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Figure 53-7. Vertical Fin to Support Mating Areas — Surface Finish

53-15. VERTICAL FIN — INSPECTION AND REPAIR

MATERIALS REQUIRED

Refer to [BHT-ALL-SPM](#) for specifications.

NUMBER	NOMENCLATURE
C-204	Epoxy Polyamide Primer
C-246	Waterborne Primer
C-317	Adhesive

NOTE

For information on damage and repair procedures not contained in this chapter, please contact Product Support Engineering for assistance.

1. If the vertical fin (1, [Figure 53-3](#)) is installed, remove the tail rotor driveshaft cover ([paragraph 53-8](#)) and the tail rotor gearbox fairings ([paragraph 53-18](#)).

2. Examine the vertical fin (1) for general condition and security. Examine for scratches, cracks, dents, corrosion and other damage. Refer to [Figure 53-9](#) for negligible damage and repair limits. Damage that is considered negligible can be repaired using the information provided. Damage exceeding negligible damage limits, or damage to the vertical fin attachment area or tail skid attachment fitting are classified as major structural damage. Please contact Product Support Engineering for assistance.

CAUTION

THE VERTICAL FIN AND ASSOCIATED SUPPORT MATING SURFACES (4 LOCATIONS) ([FIGURE 53-7](#)) SHALL HAVE THE PRIMER COATING ONLY. APPLICATION OF PAINT FINISH COATING TO THE MATING SURFACES CAN MAKE THE VISUAL INSPECTION DIFFICULT AND CAN CAUSE LOSS OF

TORQUE OF THE VERTICAL FIN ATTACHING HARDWARE. [ASB 206-06-107](#), REQUIRED THE REMOVAL OF ALL PAINT IN THE VERTICAL FIN TO SUPPORT MATING SURFACE AREAS (4 LOCATIONS) AND APPLICATION OF A PRIMER COATING ONLY. APPLICATION OF A PAINT FINISH COATING ON THE VERTICAL FIN/ATTACHMENT SUPPORT MATING SURFACES IS NOT PERMITTED.

3. Inspect the vertical fin (1, [Figure 53-3](#)) attachment supports (11 or 12) for cracks, corrosion or mechanical damage. Pay particular attention in the area of the attaching hardware and in the radius areas of the supports. If a crack is suspected, remove the vertical fin ([paragraph 53-12](#)) and complete [step 8](#).

4. Examine the anticollision light (4) for damage, security and operation. Inspect visible electrical wiring for serviceability and security.

5. Inspect the fairing formers (7) (if applicable) for general condition. Make sure the drain holes are free from obstruction.

6. Inspect the tail skid (8) for damage and looseness ([Chapter 32](#)).

NOTE

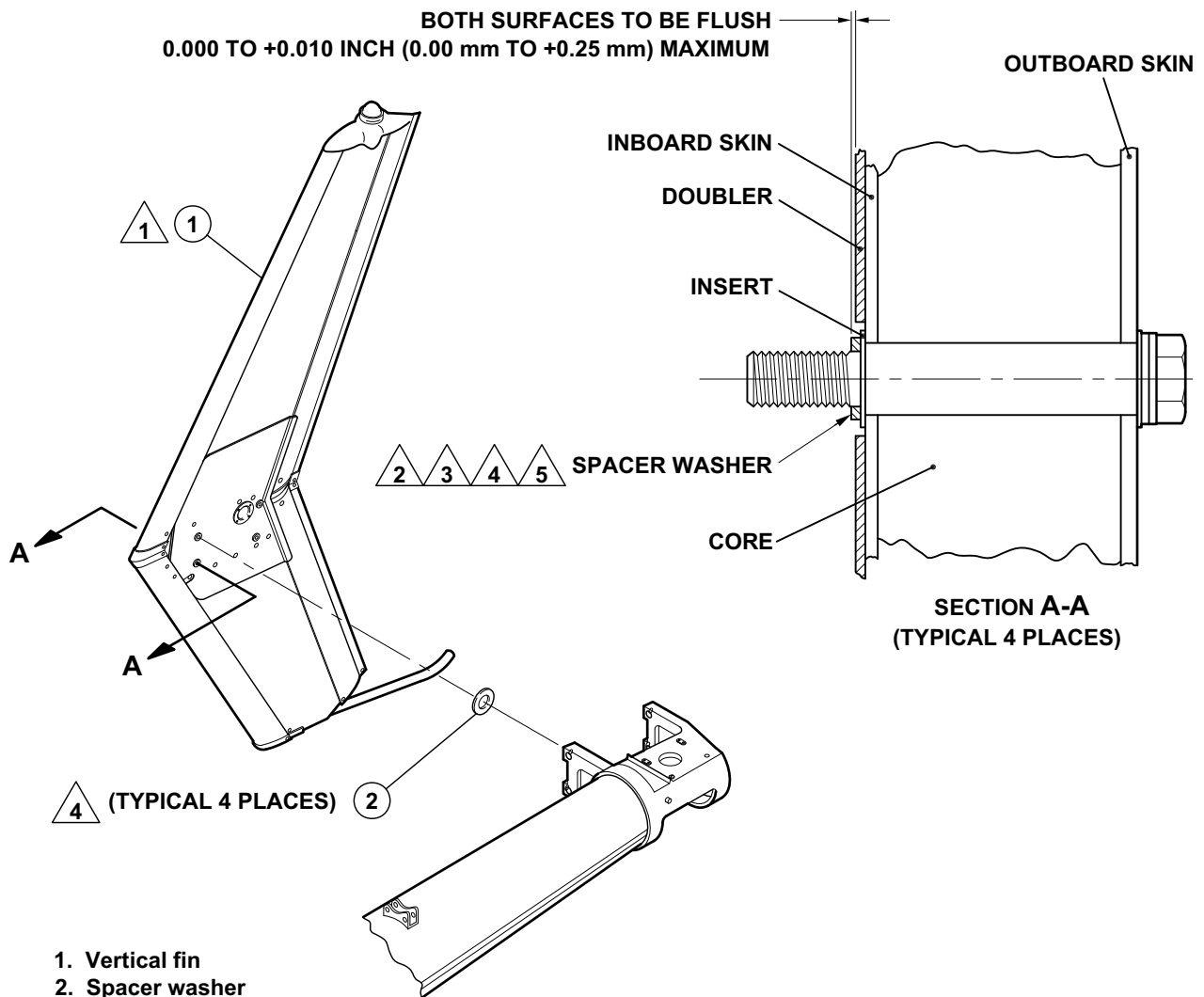
Refer to [paragraph 53-12](#) and [paragraph 53-13](#) to identify the vertical fin type and attachment support configuration used on your helicopter. Utilize 7, [step a](#) or [step b](#) for the applicable torque check instructions.

NOTE

Refer to the [BHT-ALL-SPM](#) for information on torque check procedures.

7. If the vertical fin (1) is installed, do a torque check of the vertical fin (1) attachment hardware as follows:

a. For vertical fins (1, [Figure 53-5](#)) installed on two-piece attachment supports (2), ensure nuts (6) have a minimum torque check value of 75 inch-pounds (8.47 Nm).



NOTES

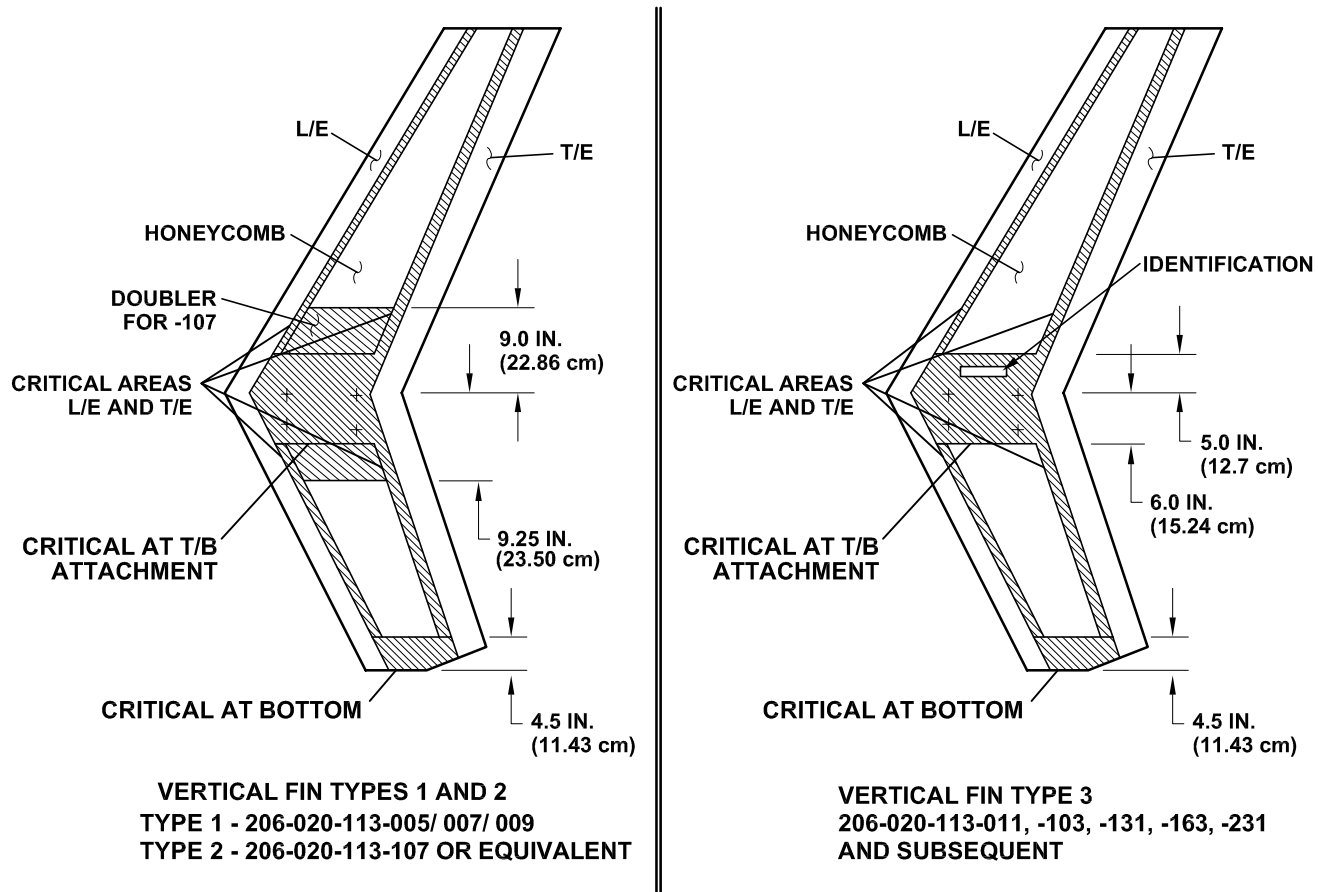
- 1 Refer to [Table 53-3](#) and [Figure 53-4](#) for identification of type 2 vertical fin.
- 2 Verify spacer washer (2) (4 places) is bonded in place and that dimensional requirement shown in [3](#) section A-A is met.
- 3 If any spacer washer (2) (4 places) has become partially or fully debonded, remove and reapply using 299-947-100 TYPE 2, Class 2 adhesive ([C-317](#)), in accordance with [BHT-ALL-SPM, chapter 7](#) (bonding). Ensure dimensional requirement shown in section A-A is met.
- 4 Utilize any combination of washers AN960JD416 (alt: NAS1149D0463J) or AN960JD416L (alt: NAS1149D0416J).
- 5 Following installation and cure of adhesive ([C-317](#)), apply two coats of polyamide epoxy primer ([C-204](#)) or waterborne primer ([C-246](#)). Refer to [BHT-ALL-SPM](#). Do not apply paint finish coating to this area.

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Figure 53-8. Type 2 Vertical Fin — Verification and Installation of Spacer Washers

The Figure described below indicates repairable and restricted areas of the vertical fin. The restricted areas can be defined as follows:

- The area where the four attachment inserts are located (inboard and outboard).
- The area where the tail skid is attached to the fin.
- The areas where the leading edge and trailing edge caps are bonded to the honeycomb panel; total width 1 inch (25.4 mm) along honeycomb panel forward and aft edges.



NEGLIGIBLE DAMAGE:

NOTE

The following limits apply to the restricted areas shown  unless indicated otherwise. For damage beyond the negligible conditions described, please contact Product Support Engineering with details (Ref. Info Letter GEN-04-96).

HONEYCOMB PANEL:

NOTES

1. The nominal thickness of the outboard skin for all vertical fins is 0.040 inch (1.02 mm).
2. The nominal thickness of the inboard skin on type 1 vertical fins is 0.040 inch (1.02 mm).
3. The nominal thickness of the inboard skin on type 2 vertical fins is 0.040 inch (1.02 mm) with a 0.020 inch (0.51 mm) doubler installed.
4. The nominal thickness of the inboard skin on type 3 vertical fins is 0.063 inch (1.60 mm).
5. Ultrasonic inspection method may be required to determine the panel nominal and residual thickness.

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Figure 53-9. Vertical Fin — Negligible Damage and Repair (Sheet 1 of 3)

HONEYCOMB PANEL NEGLIGIBLE DAMAGE (CONT):

- Nicks and scratches: Nicks and scratches are limited to the greater of the two: less than 10% of the material thickness or 0.003 IN. (0.076 mm). Nicks and scratches must be less than 3 IN. (76.2 mm) long after clean up.
- Corrosion to skins. Depth not exceeding 10% of material thickness and 25% of the surface area after clean up.
- Dents (Doubler areas): Smooth dents less than 3 IN. (76.2 mm) in diameter with a depth equivalent or smaller than 0.010 times the actual dent diameter. The following conditions apply also:
 - No dents are allowed in the restricted areas.
 - No delamination between skin and core in an area of the smooth dent is allowed.
 - Spacing between edges of two dents should be more than 4 IN. (101.6 mm).
- Voids: Voids between core and skin must not exceed 0.5 IN². (3.23 cm²), maximum dimensions within 1/2 IN. by 1 IN. (12.7 mm X 25.4 mm). No more than two voids are permitted within an area of 6 IN. (15.24 cm) in diameter for which, the center is common to the center of one void. No voided areas are allowed at any edge of the panel.
- Core damage: None allowed.

LEADING AND TRAILING EDGE CAPS:

NOTE

The nominal thickness of upper and lower leading edge is 0.012 inch (0.30 mm). The nominal thickness of upper trailing edge is 0.012 inch (0.30 mm), and lower trailing edge is 0.016 inch (0.41 mm).

- Nicks, scratches and corrosion: Nicks, scratches and corrosion can be repaired provided the residual thickness is 0.014 IN. (0.36 mm) or greater for the lower trailing edge caps or 0.010 IN. (0.254 mm) for both leading edge caps and for the trailing edge upper caps. Length of nicks or scratches is limited to 2.0 IN. (50.8 mm) long. Corrosion is limited to 25% of the individual cap surface.
- Dents: Less than 2.0 IN. (50.8 mm) in diameter while the depth is smaller than 0.010 times the actual dent diameter. No other damage within 4 IN. (101.6 mm) of dent.

Glass fiber parts:

- Nicks and scratches: Less than 0.003 IN. (0.076 mm) deep after clean up.

REPAIR OF NEGLIGIBLE DAMAGE:

NOTE

Fill and fair of negligible damage is allowed using adhesive (C-317).

NOTE

Non destructive inspection for cracks in negligible smooth dents is required (FPI or Eddy Current inspection).

Repair of nicks, scratches or corrosion (metal parts):

NOTE

Corrosion repair shall be twice the depth of corrosion detected to ensure that all corroded material is removed (not to exceed the limit given above).

- Remove the paint and primer finish in the damaged area using abrasive paper 240 grit or finer (C-423).
- Remove and/or blend damage smooth with abrasive paper 400 grit or finer (C423).
- Wipe reworked area with a cloth moistened with MEK (C-309) or with Acetone (C-316).

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Figure 53-9. Vertical Fin — Negligible Damage and Repair (Sheet 2 of 3)

REPAIR OF NEGLIGIBLE DAMAGE (CONT):

- Refinish bare metal surfaces in accordance with the Standard Practices Manual (BHT-ALL-SPM).
- Apply primer (C-204) to reworked area (BHT-ALL-SPM).
- Restore paint finish as required (BHT-ALL-SPM). Do not apply paint finish to area of vertical fin which is covered by the tail rotor gearbox fairing.

Fiberglass parts:

- Remove paint in damaged area using abrasive paper (C-423) 240 grit or finer.
- Sand damaged area smooth using abrasive paper (C-423) 400 grit or finer.
- Wipe reworked area with a cloth moistened with Ethyl Alcohol (C-339) or Isopropyl Alcohol (C-385) until all evidence of residue is removed. Let solvent dry.
- Apply sanding surfacer (C-228) or adhesive (C-317) over reworked area and allow to dry.
- Sand reworked area flush with existing contour, using abrasive paper (C-423) 400 grit or finer.
- Apply primer (C-204) to reworked area (BHT-ALL-SPM).
- Restore paint finish as required (BHT-ALL-SPM).

REPAIR TO HONEYCOMB PANEL:

- For damage beyond negligible status, contact Product Support Engineering.

REPAIR TO LEADING OR TRAILING EDGE CAPS:

- For instructions to replace leading or trailing edge caps, refer to BHT-206-SRM-1.

Figure 53-9. Vertical Fin — Negligible Damage and Repair (Sheet 3 of 3)

206AB_MM_53_0011

b. For vertical fins (1, [Figure 53-6](#)) installed on a one-piece casting support (2), ensure bolts (3) have a minimum torque check value of 75 inch-pounds (8.47 Nm).

c. If the torque check on all fasteners specified in [step a](#) or [step b](#) is in accordance within the minimum required value, do a visual inspection of the supports (2, [Figure 53-5](#) or [Figure 53-6](#)) in the area of the vertical fin attaching hardware and in the radius areas of the supports. Inspect for cracks, looseness, corrosion and other damage. If an attachment support crack is suspected, remove the vertical fin ([paragraph 53-14](#)) and complete [step 8](#).

d. If the torque check on any fastener specified in [step a](#) or [step b](#) is below the required value, remove the vertical fin ([paragraph 53-14](#)) and complete [step 8](#).

NOTE

Complete the inspection requirements of [step 8](#) anytime the vertical fin has been removed.

8. Inspect the vertical fin (1, [Figure 53-3](#)) and the supports (11 or 12) with the vertical fin removed as follows:



THE VERTICAL FIN AND ASSOCIATED SUPPORT MATING SURFACES (4 LOCATIONS) ([FIGURE 53-7](#)) SHALL HAVE THE PRIMER COATING ONLY. APPLICATION OF PAINT FINISH COATING TO THE MATING SURFACES CAN MAKE THE VISUAL INSPECTION DIFFICULT AND CAN CAUSE LOSS OF TORQUE OF THE VERTICAL FIN ATTACHING HARDWARE. [ASB 206-06-107](#) REQUIRED THE REMOVAL OF ALL PAINT IN THE VERTICAL FIN TO SUPPORT MATING SURFACE AREAS (4 LOCATIONS) AND APPLICATION OF A PRIMER COATING ONLY. APPLICATION OF PAINT FINISH COATING ON THE VERTICAL FIN/ATTACHMENT SUPPORT

MATING SURFACES IS NOT PERMITTED.

a. Inspect the vertical fin area, which is covered by the tail rotor gearbox fairings, as well as the insert or spacer washer mating surfaces and the associated attachment supports for the required surface finish ([Figure 53-7](#)). Two coats of epoxy polyamide primer ([C-204](#)) or waterborne primer ([C-246](#)) are allowed. There shall be no paint finish coating applied to these areas. If paint finish coating is evident, complete the requirements of [ASB 206-06-107](#).

b. Do a visual inspection with a 10 X power magnifying glass of the primed surfaces of the attachment supports ([Figure 53-7](#)). Pay particular attention in the bolt hole areas ([Figure 53-10](#)) and radius areas of the attachment supports. Inspect for cracks, corrosion, hole elongation and other damage. If damage exceeds negligible damage limits provided in [Figure 53-10](#), the support must be replaced. Refer to [BHT-206-SRM-1](#).

c. If an attachment support crack is suspected per [step b](#), do a fluorescent penetrant inspection ([BHT-ALL-SPM](#)).

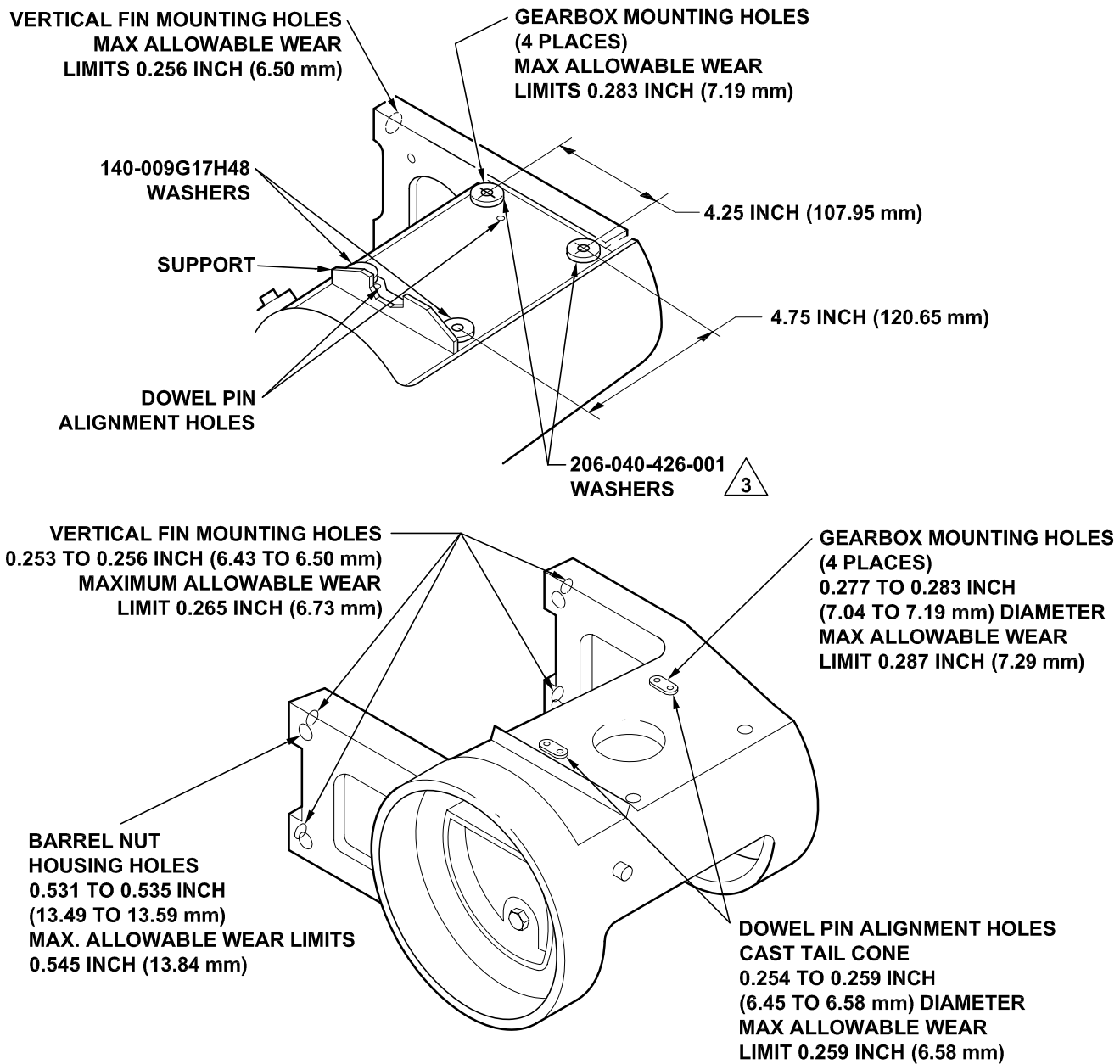
d. If a crack is found, replace the attachment support. Two-piece attachment supports shall be replaced with one-piece casting support 206-033-426-003 (or subsequent). Refer to the [BHT-206-SRM-1](#).

e. If primer was removed for the inspection, apply two coats of epoxy polyamide primer ([C-204](#)) or waterborne primer ([C-246](#)) on bare metal surfaces ([Figure 53-7](#))([BHT-ALL-SPM](#)).

NOTE

Spacer washers are not authorized to fill gaps when using Type 1 or 3 vertical fins.

f. If the vertical fin is Type 1 or 3 ([paragraph 53-12](#)) perform, a thorough inspection of the inserts (4 locations) and surrounding area for any damage. Temporarily place the vertical fin in position against the mating surface of the attachment supports and ensure that no gaps exist (4 locations). If gaps exist, contact Product Support Engineering for assistance.



NOTES

1. Clean machined surfaces with chlorothene (C-319).
 2. Apply one thickness of barrier tape (C-430) to machined surfaces in contact with gearbox.
- 3 Top surfaces of two 206-040-426-001 washers and two 140-009G17H48 washers to be in same plane with 0.002 inch (0.05 mm) and parallel with 0.001 inch (0.03 mm) across their diameters.
Helicopter tailboom assemblies with one piece, cast 206-033-426-003 (or subsequent) aft support fitting installed do not require four washers bonded in place where tail rotor gearbox mounts on tailboom.

206AB_MM_53_0008

Figure 53-10. Vertical Fin/Tail Rotor Gearbox Support (Sheet 1 of 2)

NEGLIGIBLE DAMAGE: - ONE-PIECE SUPPORT CASTING 206-033-426

NOTE

The support casting must be replaced if negligible damage or dimensional limits are exceeded.

- Nicks, scratches and corrosion: Nicks, scratches and corrosion less than 10% of the material thickness and less than 2.0 IN. (50.8 mm) long after clean up. Corrosion is limited to 25% of the affected surface. No corrosion is allowed on faying surfaces of vertical fin mounting and gearbox mounting surfaces.
- Dents: No dents allowed.
- Vertical fin attachment holes: Maximum diameter of the fin attachment holes (4 places) is 0.265 IN. (6.73 mm) after rework.
- Vertical fin barrel nuts housing holes: Maximum diameter of fin barrel nuts housing holes (4 places) is 0.545 IN. (13.84 mm) after rework.
- Gearbox attachment holes: Maximum diameter of gearbox attachment holes (4 places) is 0.287 IN. (7.29 mm) after rework. Maximum diameter of the dowel pin hole (2 places) is 0.259 IN. (6.58 mm) after rework.

REPAIR OF NEGLIGIBLE DAMAGE: - ONE-PIECE SUPPORT CASTING 206-033-426

- Repair of barrel nut housing holes:
 - Remove the existing damage by reaming the affected hole. Increase the diameter by small increments to remove the damage but, do not exceed the maximum reamed diameter of 0.545 inch (13.84 mm).
 - Apply primer (C-204) to bare metal surfaces. Allow to dry.
 - Install a new barrel nut and retainer assembly.

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Figure 53-10. Vertical Fin/Tail Rotor Gearbox Support (Sheet 2 of 2)

g. If the vertical fin is Type 2 ([paragraph 53-12](#)), make sure the spacer washers (2, [Figure 53-8](#)) are securely bonded and that the dimensional requirement shown in [Figure 53-8](#), Section A-A is met (4 locations). If the spacer washers (2) were not installed, perform a thorough inspection of the inserts and surrounding area for any damage. Temporarily place the vertical fin in position against the mating surface of the attachment supports to determine the required spacer washer (2) thickness (4 locations). If gaps exist or spacer washers have debonded from the vertical fin, eliminate the gaps with spacer washers (2) as follows:

(1) Gaps of 0.010 inch (0.254 mm) maximum at any mounting location may be shimmed using spacer washers (2). Use a combination of spacer washers (2) to completely eliminate any gaps. The resulting stack of spacer washers (2) is to be flush, 0.0 to + 0.010 inch (0.0 to +0.25 mm) with surface of external doubler ([Figure 53-8](#), Section A-A).

(2) Bond spacer washers (2) to surfaces of inserts using adhesive (C-317) (BHT-ALL-SPM). Allow adhesive (C-317) to cure using a minimum of 5 pounds of pressure at each location. Verify that dimensional requirements of [Figure 53-8](#), Section A-A are within limits. Apply two coats of epoxy polyamide primer (C-204) or waterborne primer (C-246).

h. On vertical fin installations using the two-piece supports, inspect the bolts (3, [Figure 53-5](#)), washers (3), radius washers (5) and nuts (6) for condition. Replace as necessary.

i. On vertical fin installations using the one-piece casting support, inspect the bolts (3, [Figure 53-6](#)), washers (4), barrel nuts (5) and retainers (6) for condition. Replace as necessary.

53-16. VERTICAL FIN — INSTALLATION

MATERIALS REQUIRED

Refer to [BHT-ALL-SPM](#) for specifications.

NUMBER	NOMENCLATURE
C-104	Corrosion Preventative Compound

1. If applicable, install tail skid ([Chapter 32](#)).

NOTE

Refer to [paragraph 53-12](#) and [paragraph 53-13](#) to identify the vertical fin type and attachment support configuration used on your helicopter. Utilize applicable [step 2](#) or [step 3](#) for the instructions to install the applicable vertical fin configuration.

2. Install the vertical fin (1, [Figure 53-5](#)) on two-piece attachment supports (2) as follows:



PRIOR TO INSTALLING A TYPE 2 VERTICAL FIN ([PARAGRAPH 53-12](#)) CONFIRM THAT SPACER WASHERS (2, [FIGURE 53-8](#)) ARE BONDED TO THE INSERTS. IF SPACER WASHERS (2) HAVE BECOME DEBONDED, THEY WILL REQUIRE BONDING PRIOR TO RE-INSTALLATION OF THE VERTICAL FIN. REFER TO [PARAGRAPH 53-12](#).

a. Temporarily position vertical fin (1, [Figure 53-5](#)) on two-piece attachment supports (2) and ensure that no gaps exist at mating surfaces (4 locations). If gaps exist on Type 1 or 3 vertical fins, contact Product Support Engineering. Gaps may be eliminated on Type 2 vertical fins using bonded spacer washers ([paragraph 53-15](#)).

NOTE


When installing a Type 2 vertical fin ([paragraph 53-12](#)) only, bolts (3, [Figure 53-5](#)) NAS6604-27 may be used as alternates to NAS1304-26 or NAS6604-26 to permit proper grip and thread engagement.

b. Apply a coating of corrosion preventative coating to shanks of bolts (3). Do not apply corrosion preventive compound to the threads of the bolts.

c. Install bolts (3) with two thin washers (4) under head of bolt through vertical fin (1) and two-piece attachment supports (2).

d. Install radius washer(s) (5) between vertical fin support (2) and nut (6). A minimum of one radius

washer (5) and a maximum of 2 radius washers shall be used to ensure correct nut engagement.

- e. Install nut (6) and torque .

3. Install the vertical fin (1, [Figure 53-6](#)) on one-piece casting support (2) as follows:



PRIOR TO INSTALLING A TYPE 2 VERTICAL FIN ([PARAGRAPH 53-12](#)) CONFIRM THAT SPACER WASHERS (2, [FIGURE 53-8](#)) ARE BONDED TO THE INSERTS. IF SPACER WASHERS (2) HAVE BECOME DEBONDED, THEY WILL REQUIRE BONDING PRIOR TO INSTALLATION OF THE VERTICAL FIN ([PARAGRAPH 53-15](#)).

a. Temporarily position vertical fin (1, [Figure 53-6](#)) on one-piece casting support (2) and ensure that no gaps exist at mating surfaces (4 locations). If gaps exist on Type 1 or 3 vertical fins, contact Product Support Engineering. Gaps may be eliminated on Type 2 vertical fins using bonded spacer washers ([paragraph 53-15](#)).


b. Apply a coating of corrosion preventative coating to shanks of bolts (3). Do not apply corrosion preventive compound to the threads of the bolts.


c. Place barrel nuts (5) and retainers (6) into applicable one-piece casting support (2) holes (4 locations).

NOTE

To maintain 0.050 inch (1.27 mm) minimum gap between end of bolts (3) and inboard surface of holes in one-piece casting support (2, [Figure 53-6](#) Detail D), it is permissible to install a maximum of 2 washers (4) under head of bolt (3).

d. Install bolts (3) with washer(s) (4) through vertical fin (1) and into barrel nuts (5) of one-piece casting support (2).

- e. Torque bolts (3) .

f. Verify 0.050 inch (1.27 mm) minimum gap exists between end of bolts (3) and inboard surface of holes in one-piece casting support (2, [Figure 53-6](#), Detail D). If minimum gap is not met, remove one bolt (3) at a time, add washer (4), re-install bolt (3) . Verify gap.

4. Connect anticollision light wiring (7, [Figure 53-5](#) or [Figure 53-6](#)).

5. Perform a operational check of the anti-collision light (4, [Figure 53-3](#))

6. Install tail rotor gearbox fairings ([paragraph 53-20](#)).

7. Install tail rotor driveshaft cover ([paragraph 53-10](#)).

TAIL ROTOR GEARBOX FAIRING

53-17. TAIL ROTOR GEARBOX FAIRING

The tail rotor gearbox fairing encloses the tail rotor gearbox and is attached to tailboom and vertical fin. The fairing incorporates a white position light and two screens/doors. Screens/doors are used for tail rotor gearbox oil level inspection and cooling of tail rotor gearbox.

53-18. TAIL ROTOR GEARBOX FAIRING — REMOVAL

1. Ensure POS LT and ANTI-COLL LT switches are in the OFF position.
2. Remove tail rotor driveshaft cover ([paragraph 53-8](#)).
3. On helicopters S/N 4 through 1251, perform the following:
 - a. Remove screws (4, [Figure 53-11](#)) from upper tail rotor gearbox fairing (2). Remove tail rotor gearbox fairing.
 - b. Hold aft tail rotor gearbox fairing (5) and disconnect taillight wiring (7).
 - c. Remove screws (4) from aft and lower tail rotor gearbox fairings (5 and 8). Remove fairings.
4. On helicopters S/N 1252 and subsequent, perform the following:
 - a. Hold lower fairing (8, [Figure 53-12](#)) and remove bolts (5) and washers (4) that secure top fairing (2) to lower fairing (8) and vertical fin former. Unlock fastener on aft end of tail rotor driveshaft cover at doubler (1) and slide top fairing (2) free.



DO NOT SUSPEND LOWER FAIRING BY
TAILLIGHT WIRING OR DAMAGE TO
WIRING OR TAILLIGHT MAY OCCUR.

- b. Disconnect taillight wiring (9) and remove lower fairing (8).

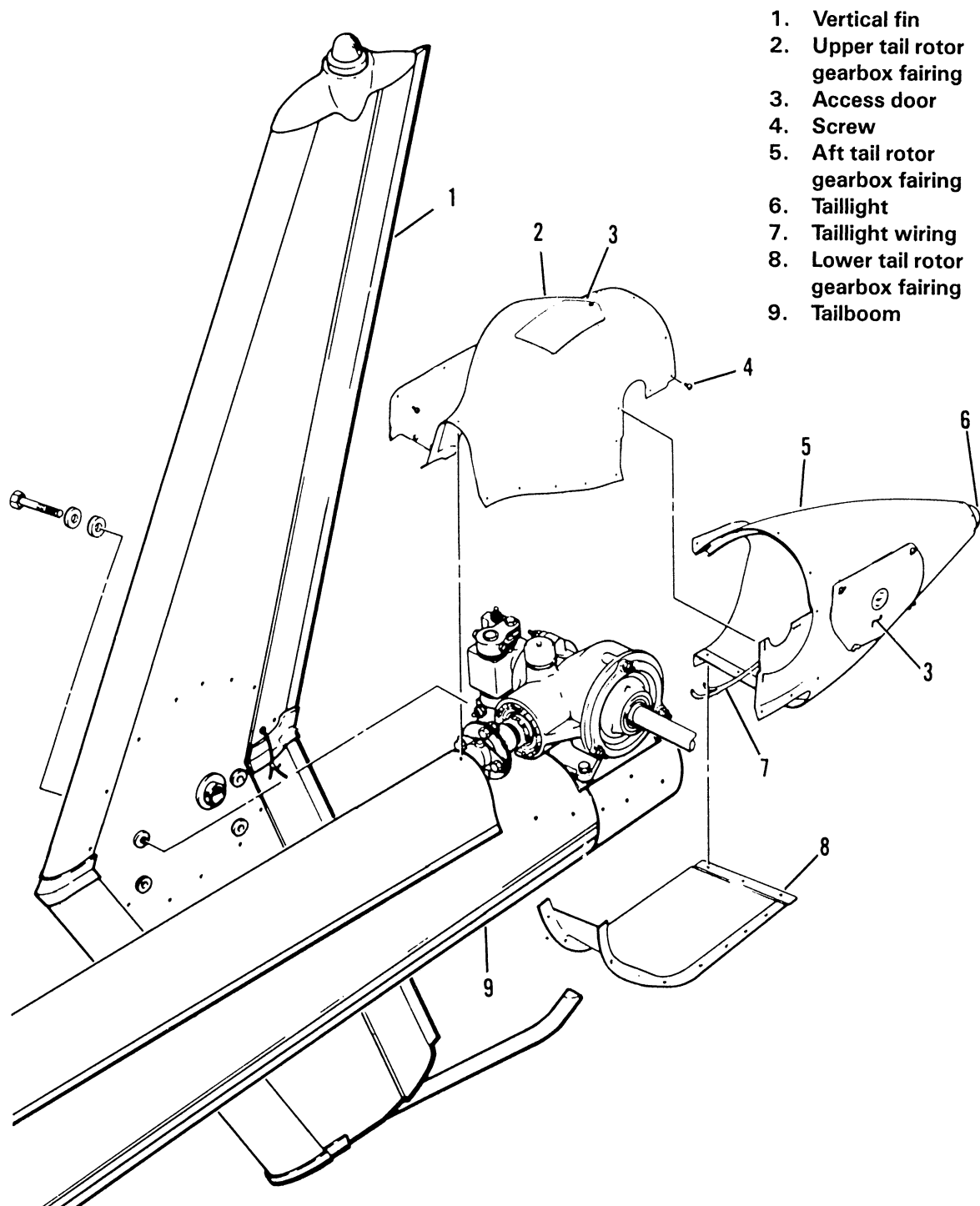
53-19. TAIL ROTOR GEARBOX FAIRING — INSPECTION AND REPAIR

MATERIALS REQUIRED

Refer to [BHT-ALL-SPM](#) for specifications.

NUMBER	NOMENCLATURE
C-325	Adhesive
C-454	Tape

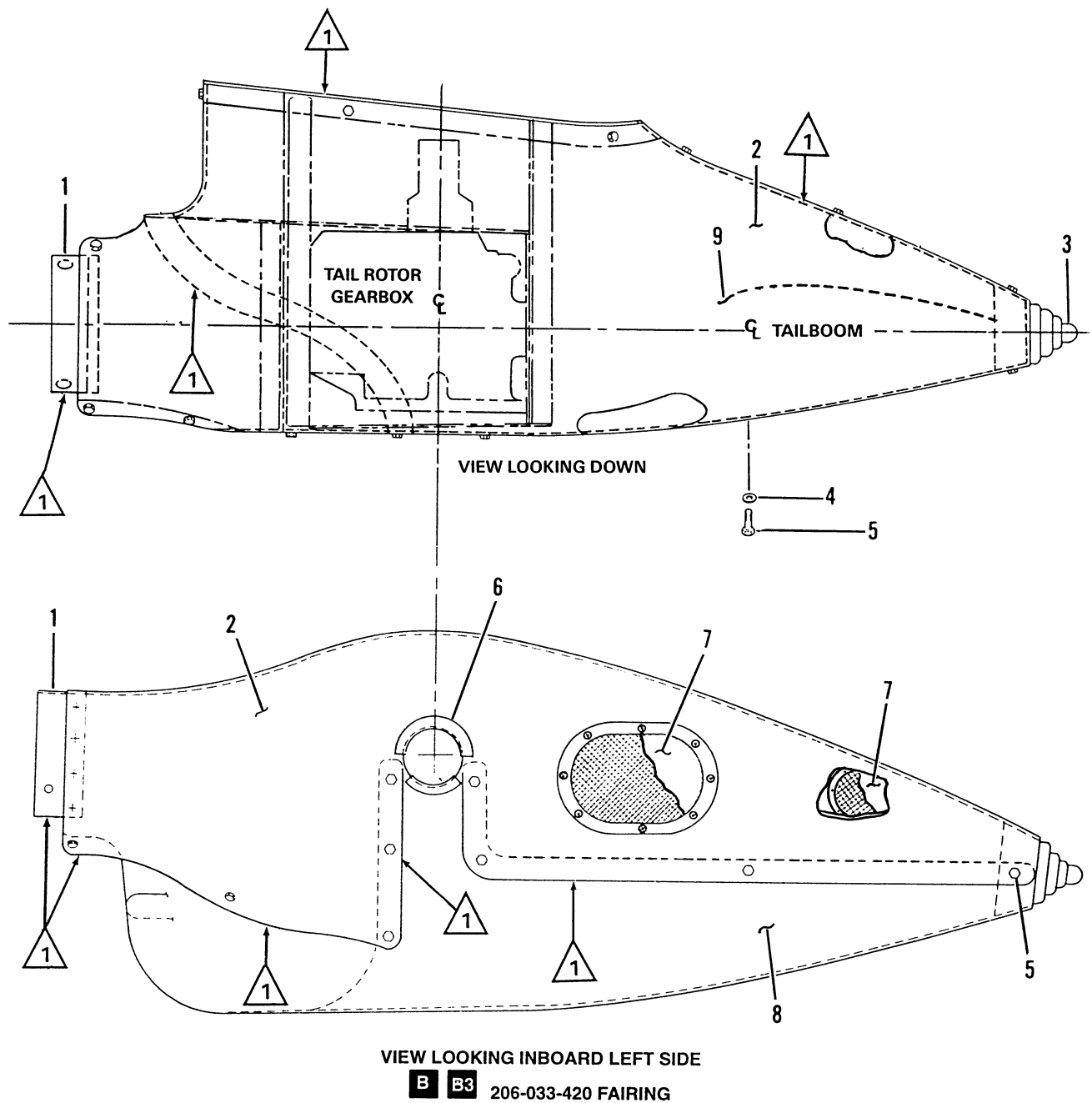
1. Inspect tail rotor gearbox fairings (2, 5, and 8, [Figure 53-11](#), and 2 and 8, [Figure 53-12](#)) and access doors (3, [Figure 53-11](#)) for cracks, dents, distortion, and loose rivets. Inspect nutplates for looseness and damaged threads. Accomplish repairs in accordance with [BHT-206-SRM-1](#).
2. Inspect rubber edge cover (6, [Figure 53-12](#)) for deterioration and security to fairings. If edge cover is loose or requires replacement, bond to fairings using adhesive ([C-325](#)).
3. Inspect windows (7) for cracks, distortion and discoloration or crazing. Replace if necessary ([BHT-ALL-SPM](#)).
4. Inspect cooling screen areas of window (7) for usability and security. Ensure cooling screens are free of clogs and in good condition. Clean or replace if necessary.
5. Inspect chafing tape ([C-454](#)) on all mating surfaces of the top fairing (2) and lower fairing (8) for serviceability and adhesion. Replace loose or damaged tape with 1.0 inch (25.4 mm) chafing tape ([C-454](#)).
6. Inspect taillight (6, [Figure 53-11](#) and 3, [Figure 53-12](#)) for damage and security.



HELICOPTERS 4 THROUGH 1251

206A/BS-M-53-5

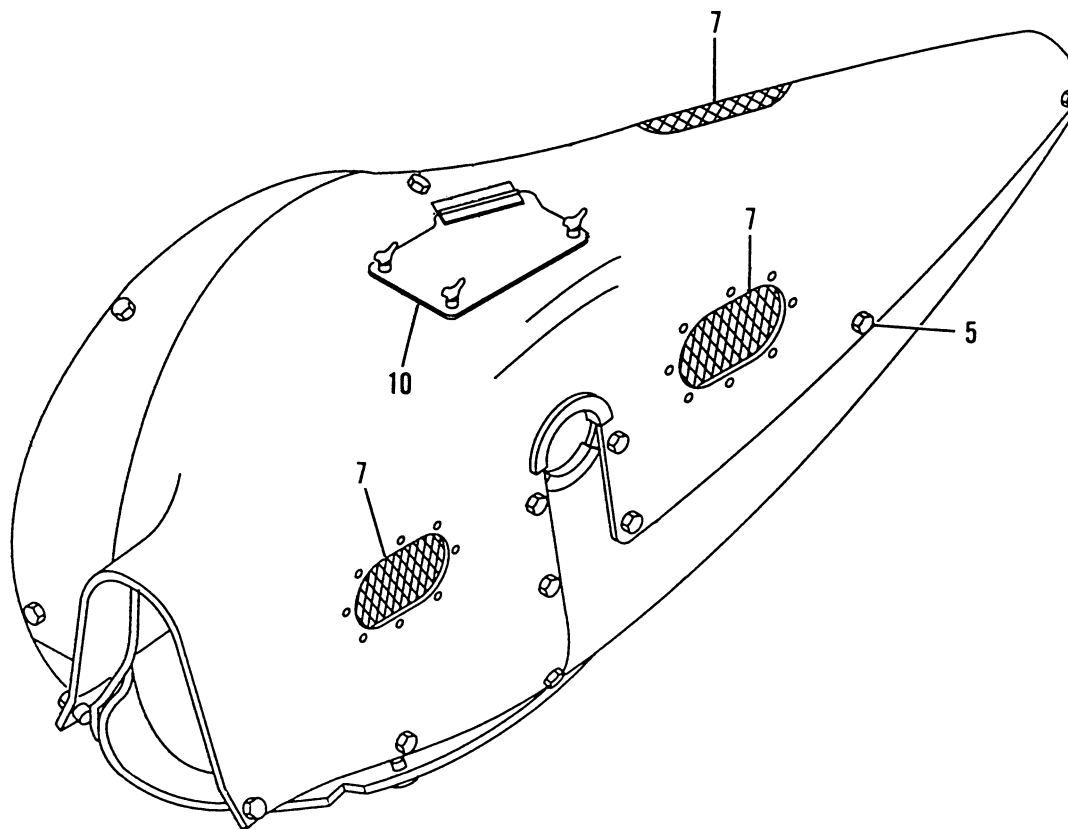
Figure 53-11. Tail Rotor Gearbox Fairing (S/N 4 through 1251)



HELICOPTERS 1252 AND SUBSEQUENT

206A/BS-M-53-6-1

Figure 53-12. Tail Rotor Gearbox Fairing (S/N 1252 and Subsequent) (Sheet 1 of 2)



VIEW LOOKING INBOARD LEFT SIDE

B 206-033-673 FAIRING

- | | |
|----------------|---------------------|
| 1. Doubler | 6. Edge cover |
| 2. Top fairing | 7. Window/screen |
| 3. Taillight | 8. Lower fairing |
| 4. Washer | 9. Taillight wiring |
| 5. Bolt | 10. Door |

NOTE

- 1** Apply chafing tape (C-454) to all mating surfaces.

206A/BS-M-53-6-2

Figure 53-12. Tail Rotor Gearbox Fairing (S/N 1252 and Subsequent) (Sheet 2 of 2)

**53-20. TAIL ROTOR GEARBOX FAIRING —
INSTALLATION**

1. On helicopters S/N 4 through 1251, perform the following:

a. Position aft tail rotor gearbox fairing (5, [Figure 53-11](#)) to end of tailboom (9) and connect taillight wiring (7). Loosely install screws (4) to forward end of fairing.

b. Install upper and lower tail rotor gearbox fairings (2 and 8) and loosely install all remaining screws (4) into fairings, vertical fin (1) and tailboom (9). Tighten screws to secure fairings.

2. On helicopters S/N 1252 and subsequent, perform the following:

a. Position lower fairing (8, [Figure 53-12](#)) to end of tailboom and connect taillight wiring (9). Loosely install bolts (5) and washers (4) to lower fairing (8), tailboom and vertical fin former.

b. Position top fairing (2) over lower fairing (8) and loosely install all remaining bolts (5) and washers (4). Tighten all bolts to secure fairings.

3. Install tail rotor driveshaft cover ([paragraph 53-10](#)).

4. Perform a operational check of taillight (3).

HORIZONTAL STABILIZER

53-21. HORIZONTAL STABILIZER

The horizontal stabilizer is constructed of aluminum and is attached to a spar with clamps. The inboard rib of the horizontal stabilizer contains a fitting which secures stabilizer to tailboom with bolts.

53-22. HORIZONTAL STABILIZER — STRUCTURAL REPAIR

1. For tailboom structure material identification refer to [BHT-206-SRM-1](#).
2. For acceptable methods, techniques and practices for structural repair, refer to [BHT-206-SRM-1](#).

53-23. HORIZONTAL STABILIZER — REMOVAL

1. Remove cotter pin (23, [Figure 53-2](#)), nut (22), washers (21) and bolt (20) from stop (24).
2. Remove two bolts (19) and washers (18) from fitting assembly (17).
3. On helicopters S/N 914 and subsequent, loosen four clamps (26) from lower surface of horizontal stabilizer (27) through holes provided in skin. Carefully pull horizontal stabilizer (27) off spar assembly (10) working position light wiring (25) out of tailboom (9).
4. Position POS LT switch OFF and disconnect position light wiring (25).
5. Remove opposite horizontal stabilizer in the same manner. Slide spar assembly (10) out of tailboom (9).

53-24. HORIZONTAL STABILIZER — INSPECTION AND REPAIR

1. Visually inspect horizontal stabilizers (27, [Figure 53-2](#)) for cracks in inboard rib, giving particular attention to the area where fitting assembly (17) is riveted to inboard rib.
2. Inspect stop (24) for security.
3. Inspect skin surfaces of horizontal stabilizer (27) for cracks, dents and corrosion. Also check spoiler (28) for damage and security.

4. Inspect parts for excessive wear and nonconformance with service limits as follows:

- a. Clearance on the inboard land of spar assembly (10) and bushing (16) shall not exceed a maximum gap of 0.012 inch (0.30 mm).

- b. Wear limit on the inboard land of the spar assembly (10) is 1.828 inches (46.43 mm) minimum outside diameter.

- c. The limits of [step a](#) and [step b](#) above will allow a maximum cumulative clearance on the diameter of 0.024 inch (0.61 mm).

- d. Wear limit on the outboard land of spar assembly (10) is 1.712 inches (43.48 mm), minimum outside diameter.

- e. The outboard retainer bushings cannot be measured; consequently, no dimensional limits are provided.

- f. Play between spar assembly (10) and bushing (16) is not cause for replacement. Bushing (16) will come to bear on the spar assembly when the stabilizer is loaded in flight.

5. Inspect position light wiring (25) and position lights (29) for damage, security and serviceability ([Chapter 96](#)).

6. Inspect horizontal stabilizer for negligible damage limits as follows:

NOTE

Smooth dents that do not gouge the surface are acceptable.

- a. Smooth dents less than 3.0 inches (76.20 mm) in diameter and 0.040 inch (1.02 mm) deep are acceptable.

- b. Dents closer than 1.0 inch (25.40 mm) edge to edge shall be considered as one dent.

7. The following damage is classified as negligible and does not require repair other than blending area smooth, corrosion removal and treatment, and refinishing repaired area.

a. Nicks and scratches less than 10% of skin thickness and less than 2.0 inches (50.80 mm) long should be blended out, provided they are not accompanied by creasing. Cumulative cleanup is limited to total skin thickness reduction of 10%. Use abrasive cloth or No. 240 grit sandpaper.

b. Corrosion less than 10% of material thickness after cleanup is acceptable. Cumulative cleanup is limited to total thickness reduction of 10% (10% of bay area for skin or 10% of adjoining member).

8. Repair horizontal stabilizer damage as follows:

a. Repair horizontal stabilizer per [BHT-206-SRM-1](#).

b. Inboard ribs and spar assembly (10), except for outboard 6.0 inches (152.40 mm) of spar, are not repairable and must be replaced if negligible limits are exceeded.

NOTE

Replacement stop (24) may be locally manufactured using 2024 aluminum alloy T3 specification QQ-A-250/5. Dimensions of stop are 2.7 inches (68.58 mm) in length, 1.5 inches (38.10 mm) in width and 0.0630 inch (1.60 mm) thickness.

c. Repair stop per [BHT-206-SRM-1](#) or replace if necessary.

53-25. HORIZONTAL STABILIZER — INSTALLATION

MATERIALS REQUIRED

Refer to [BHT-ALL-SPM](#) for specifications.


NUMBER	NOMENCLATURE
C-308	Sealant
C-317	Adhesive

1. Insert spar assembly (10, [Figure 53-2](#)) through supports in tailboom (9).


2. Route position light wiring (25) through horizontal stabilizers (27) and install position lights (29) if required.

3. Bond bushings (16) in fitting assemblies (17) using adhesive ([C-317](#)).

4. Slide one horizontal stabilizer (27) onto spar assembly (10). Work horizontal stabilizer onto spar loosening clamps (26) through holes in lower skin. Work horizontal stabilizer close to surface of tailboom (9) and route position light wiring (25) to terminal block (5).

5. Position horizontal stabilizer (27) between flanges of stop (24). Align bolt holes in fitting assembly (17) with holes in tailboom (9) and install two bolts (19)  with aluminum washers (18).

6. Install bolts (20), washers (21) and nut (22) through stop (24) and horizontal stabilizer (27). Tighten nut (22) fingertight and secure with cotter pin (23).

7. On helicopters S/N 914 and subsequent, tighten four clamps (26)  through holes in lower skin surface of horizontal stabilizer (27).

8. Repeat [step 3 through step 7](#) for other horizontal stabilizer.

9. Ensure that POS LT switch is OFF and connect position light wiring (25) to terminal block (5). Perform an operational check of position lights (29).

10. Apply a bead of sealant ([C-308](#)) to fillet between fitting assemblies (17) and skin on tailboom (9). Also apply a bead of adhesive to fillet area between fitting assemblies (17) and horizontal stabilizers (27), if required.