

TECHNICAL BULLETIN
Bell Helicopter

A Textron Company

No. 205-08-122

Date Jan 16, 2008

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DATE
REV

MODEL AFFECTED: 205A/205A-1

SUBJECT: TAILBOOM ASSEMBLIES P/N 205-032-802-003 THROUGH -051 & 212-030-100-081 THROUGH -107, MODIFICATION FOR USE ON ALL MODEL 205A/A-1 HELICOPTERS

HELICOPTERS AFFECTED: All model 205A/A-1 helicopters

COMPLIANCE: At customer's option

DESCRIPTION:

Operators of multiple 205A/205A-1 fleets desire to have interchangeable tailbooms and common spares. The tailboom aerodynamic shape and structural arrangement has not changed, however, product improvements have been incorporated over the years to facilitate produceability and reliability. A new tailboom assembly dash number was assigned with most product improvements. Service Letters, Alert Service Bulletins and Technical Bulletins have been issued for all changes practical for field incorporation.

This technical bulletin provides the instructions necessary to modify all existing tailbooms by incorporating applicable bulletins so that tailbooms so modified may be used on other model 205A and 205A-1 helicopters.

APPROVAL:

The engineering design aspects of this bulletin are FAA/DER approved.

MANPOWER:

The actual number of man-hours required to complete this bulletin will vary based on the level of upgrade required.

WARRANTY:

There is no warranty credit applicable for parts or labor associated with this bulletin.

MATERIAL:

Required Material:

See applicable bulletins.

The following material is required for the modifications described in paragraphs 2, 3 and 4 of this bulletin (See Table 1 for applicability). They may be obtained through your Bell Helicopter Textron Supply Center.

<u>Part Number</u>	<u>Nomenclature</u>	<u>Quantity</u>	<u>Required for Parag.:</u>
60-008-3	Grommet	3	2
MS27039-1-10	Screw	6	2
205-032-821-023	Bulkhead	1	3
205-032-820-031	Bulkhead	1	3
205-032-827-013	Bulkhead	1	3
212-030-132-149	Longeron	1	3
212-030-132-150	Longeron	1	3
212-030-132-151	Longeron	1	3
212-030-132-153	Longeron	1	3
212-030-132-155	Splice	1	3
212-030-132-156	Splice	1	3
212-030-132-157	Splice	1	3
212-030-132-159	Splice	1	3
205-030-814-019	Door	1	3
205-030-814-021 ¹	Cover	1	3
MS27039-08-07	Screw	12	3
MS21042L08	Nut	12	3
212-030-283-009	Door assy	1	3
205-030-804-015	Bracket	1	3
205-030-804-016	Bracket	1	3
205-030-804-017	Bracket	1	3
MS21070L06	Nutplate	3	3
110-028DD3-3-4-3	Rivet	2	3
140-001-9	Washer	2	3
205-032-850-076 ²	Strip	1	3
212-030-127-027	Rib	1	3
212-030-127-015	Rib	1	3

¹ May be locally fabricated from a 6.1 in. x 6.8 in. sheet of 2024T3, 0.040 in. thick aluminum per spec. QQ-A-250/5.

² May be locally fabricated from a 20-inch piece of 299-947-110 TY3 CL1 Tape

<u>Part Number</u>	<u>Nomenclature</u>	<u>Quantity</u>	<u>Required for Parag.:</u>
212-030-127-017	Rib	1	3
212-030-443-005	Doubler	1	3
212-030-443-007	Filler	1	3
205-032-805-041 ³	Support	1	4

Consumable Material:

This material is considered consumable (bench stock) material and may not require ordering depending on the operator's consumable material stock levels. This material may be obtained through your Bell Helicopter Textron Supply Center.

<u>Part Number</u>	<u>Nomenclature</u>	<u>Reference</u>	<u>Required for Step:</u>
AMS-S-8802 PT ⁴	Sealant	C-308	2, 3 & 4
299-947-100TY2CL2PT ⁵	Adhesive	C-317	4

SPECIAL TOOLS:

See applicable bulletins.

WEIGHT AND BALANCE:

See applicable bulletins.

ELECTRICAL LOAD DATA:

See applicable bulletins.

REFERENCES:

BHT-205-MM Maintenance Manual.

BHT-205-IPB Illustrated Parts Breakdown.

BHT-MED-SRM-1 Structural Repair Manual.

Service Letter 205A-90 Application of pro-seal 890 to tailboom skin line at junction of baggage compartment and tail boom aft section. Inspection of

³ Support P/N 212-030-124-037 may be used as an alternate

⁴ MIL-S-8802 Class B2 (C308) Sealant or MIL-S-81733, Type II (C392) Sealant may be used as alternate material.

⁵ Magnobond 6398 may be used as an alternate

tailboom interior for corrosion and/or possible cracks and repair instructions.

TB 205-01-73-1 Modification of tailboom, P/N 205-032-802 (All dash numbers)

TB 205-50-73-3 Installation of improved tail rotor kit P/N 205-704-040-1 on model 205A-1 helicopters prior to S/N 30020

TB 205-76-8 Installation and rework of "J" stringers aft of tailboom baggage compartment

ASB 205-77-4 Limit service life of the upper left hand tailboom longeron assembly to 3000 flight hours. Inspection, repair and replacement of tailboom attachment fittings and longerons

ASB 205-77-11 Inspection of tail rotor driveshafts and removal of anti-chafing tape from the tail rotor driveshaft cover and the fin cover door assemblies

ASB 205-78-5 Mandatory installation of tail rotor push-pull control system

TB 205-78-15 Tail rotor driveshaft P/N 204-040-620-3 and -7, Replacement with new tail rotor drive shaft P/N 204-040-620-11

TB 205-79-19 Rework of the baggage compartment forward bulkhead P/N 205-032-804

TB 205-82-47 Replacement of upper honeycomb panel, tailboom baggage compartment, with sheetmetal skin

ASB 205-84-21 Elevators, P/N 205-030-856-091, and -093 and prior dash numbers to horn assembly, P/N 205-001-914-027, attachment, Modification of

ASB 205-90-39 Tailboom upper longeron splice inspection provisions

ASB 205-93-56 Tailboom doubler P/N 212-030-099-089/-129

ASB 205-95-62 Powertrain modification on model 205A/205A-1

ASB 205-98-73 Fin spar 205-030-899-101, 205-030-846-087/-089, 205-032-851-003/-007/-009 replacement

TB 205-00-111 Fin spar cap 212-030-447-001/-101, Replacement of.

TB 205-05-119 Tailboom bulkhead reinforcement

TB 205-06-120 Improved baggage compartment door seal

TB 205-06-121 Vertical fin cover hinge pin improved installation

Service Instruction 205-38 Improved tail rotor

Service Instruction 205-46 Push/Pull Anti-torque retrofit kit

PUBLICATIONS AFFECTED:

See applicable bulletins.

ACCOMPLISHMENT INSTRUCTIONS:

-Note-

Table 1 shows the Service Letters (SLs), Alert Service Bulletins (ASBs), Technical Bulletins (TBs) or tasks for which the accomplishment is required to achieve a later tailboom

configuration. ASBs are listed in Table 1 as a reminder since all ASBs are required to maintain configuration and should have previously been accomplished.

1. On a separate piece of paper, make a list of all the bulletins/tasks marked with a (✓) beside the *original* configuration (dash number) in Table 1. If the *original* configuration has split effectivity, pick the earliest. From that list, remove the bulletins/tasks marked with a (✓) beside the *desired* configuration. If the *desired* configuration has split effectivity, pick the latest. The remaining bulletins/tasks on the list are the ones required to perform the upgrade. Verify and/or comply with all applicable ASBs, TBs and tasks on the list. See example below.

Example:

For example, if a 205-032-802-011 tailboom is to be upgraded to a -051 configuration to be installed on A/C 30209, Service Letter 205A-90, TB 205-01-73-1 and TB 205-76-8 have to be accomplished or confirmed accomplished.

2. This paragraph describes a modification to upgrade Bulkhead (BS. 59.50) by increasing the size of one hole for the elevator control tube and replacing (qty 3) fairleads, as follows (refer to Figure 1 & 2):

-Note-

It is recommended to accomplish paragraph 4 of this bulletin concurrently with this paragraph (even if not required per Table 1) due to access opportunities.

- a. Remove elevator control tube P/N 205-001-038-001 or -101.
- b. Remove lower panel P/N 205-032-814-003 recording type, size and location of fasteners.
- c. Remove three fairleads at BS 37.65, 59.50 & 80.56.
- d. On frame P/N 205-032-817-017 at BS 59.50, mark and enlarge hole to 1.43-inch diameter, as shown on Figure 2.
- e. Deburr and apply primer to any bare metal area.
- f. Install three new grommets P/N 60-008-3 using six MS27039-1-10 screws and existing washers and nuts.
- g. Apply sealant (C-308) to faying surfaces and re-install lower panel. Apply a bead of sealant around periphery of panel.

- h. Re-install elevator control tube.
- 3. This paragraph describes a modification to upgrade the Center Tailboom Section as well as some modifications to the vertical fin. Refer to Figure 1, 3, 4 & 5. Deburr all holes prior to final installation.
 - a. Install tailboom in an approved fixture.
 - b. Remove side skins and lower skin between BS 101.38 and 194.30 recording type, size and location of fasteners.
 - c. Remove all four longerons between BS 101.38 and 175.00 and splices at BS 175.00 recording type, size and location of fasteners.
 - d. Remove bulkheads at BS 122.23, 143.28 and 164.23 recording type, size and location of fasteners.
 - e. Using top skin rivet holes as locators, position and install new bulkheads as follows using original type and size fasteners:

205-032-821-023	BS 122.33
205-032-820-031	BS 143.28
205-032-827-013	BS 164.23

- f. Prepare longerons and splices for installation between BS 101.38 and 175.00 as per Structural Repair Manual, chapter 3. Install longerons and splices as follows using original type and size fasteners:

212-030-132-149	Longeron (Upper LH)
212-030-132-150	Longeron (Upper RH)
212-030-132-151	Longeron (Lower LH)
212-030-132-153	Longeron (Lower RH)
212-030-132-155	Splice (Upper LH)
212-030-132-156	Splice (Upper RH)
212-030-132-157	Splice (Lower LH)
212-030-132-159	Splice (Lower RH)

- g. Re-install side and lower skins using original type and size fasteners and apply a bead of sealant (C-308) on periphery of skins.
- h. Remove tailboom from fixture.

- i. Remove lower access doors at BS 130 and 175 and replace with new doors as follows:

205-030-814-019	Door	BS 130
205-030-814-021	Cover	BS 130
MS27039-08-07	Screw (qty 12)	BS 130
MS21042L08	Nut (qty 12)	BS 130
212-030-283-009	Door assy	BS 175

- j. Build-up and install flux valve support bracket at BS 164.23 as shown on Figure 3.

- k. Add drain holes aft of baggage compartment as per Figure 4.

- l. Remove aft LH skin on vertical fin and aft ribs at Fin Sta (FS) 46.95, FS 34.56 and FS 22.37 recording type, size and location of fasteners. Install new aft ribs as follows using original type and size fasteners:

212-030-127-027	Rib (Fin Sta 46.95)
212-030-127-015	Rib (Fin Sta 34.56)
212-030-127-017	Rib (Fin Sta 22.37)

- m. Remove original strip 205-032-850-076 from RH side of fin. Remove rivets at base of vertical fin (RH-side, forward skin) enough for the installation of doubler and filler, as shown on Figure 5, recording type, size and location of fasteners.

- n. Mark and drill doubler and filler 212-030-443-005 and -007 and deburr.

- o. Clean all cavities of fin from rivet stems and other foreign objects and install doubler and filler using original type and size fasteners as shown on Figure 5.

- p. Re-install LH aft skin using original type and size fasteners. Apply a bead of sealant (C-308) around periphery of skins.

- q. Install new strip 205-032-850-076.

4. This paragraph describes a modification to upgrade Bulkhead (FS 101.38) by replacing an angle (P/N 205-032-805-027) made of aluminum with a stronger one (P/N 205-032-805-041) made of steel. Paragraph 2 should be accomplished concurrently with this paragraph (if required). Refer to Figure 1 & 6.

- a. Remove Bellcrank Support from aft face of Baggage Compartment Aft Bulkhead.

- b. Remove Drain Tube from lower surface of Baggage Compartment Floor recording type, size and location of fasteners.
 - c. Remove rivets holding Nutplates, Radius Blocks and Support.
 - d. Transfer rivet holes on new Support P/N 205-032-805-041. Temporarily secure with Cleco fasteners. Deburr holes.
 - e. Install Support, Radius Blocks and Nutplates using original type and size fasteners.
 - f. Reinstall Drain Tube using sealant (C-308) on upper flange and using existing type and size of fasteners. Apply Sealant (C-308) around tube at Panel assy, as shown on Figure 6.
 - g. Reinstall Bellcrank Support on aft face of Baggage Compartment Aft Bulkhead.
5. Using a vibrating stylus, mark tailboom mod plate with the new configuration part number with the suffix FM (e.g. 205-032-802-051FM), this technical bulletin number and the date of compliance.

-Note-

This Technical Bulletin only upgrades the tailboom assembly (structure only). All other components (i.e. Elevator Installation, Flight Control Installation, Drive System Installation, etc.) applicable to the serial number on which the upgraded tailboom assembly is to be installed are required.

-Note-

The upgraded tailboom assemblies may be installed on serial numbers corresponding to the upgraded configuration or on serial numbers corresponding to earlier configurations.

-Note-

Compliance with all future ASBs applicable to both the original and the upgraded configurations is required.

5. Make an entry in helicopter historical records indicating compliance with this technical bulletin.

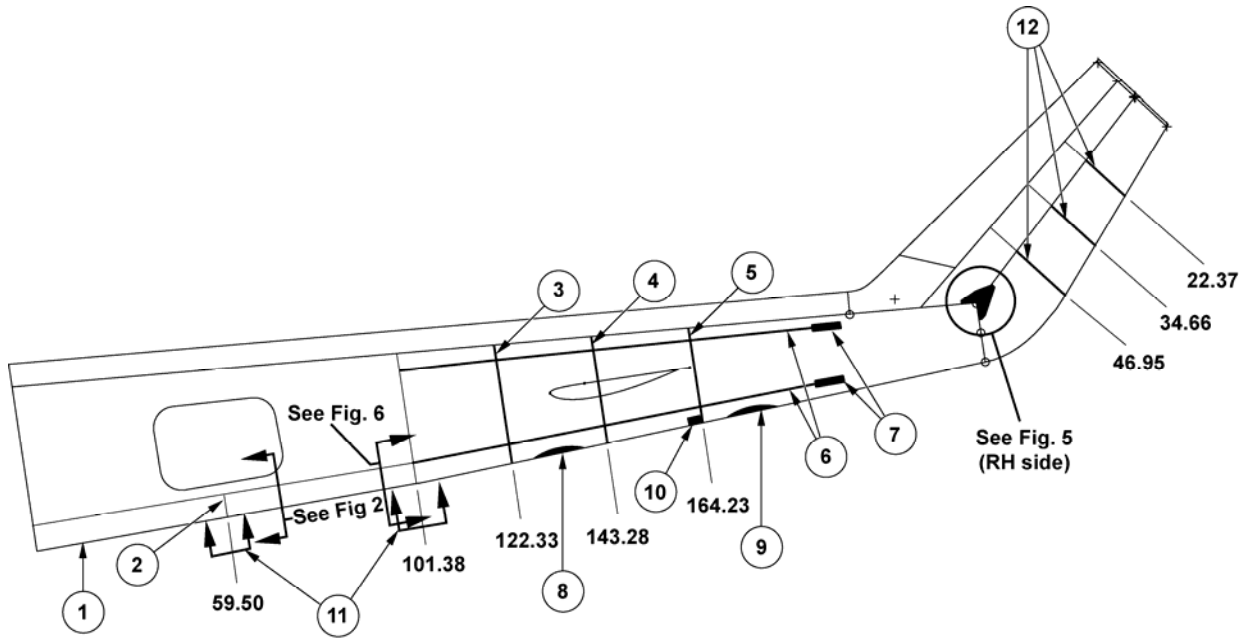
Tailboom P/N	Certified for helicopters S/N	Service Letter 205A-90	TB 205-01-73-1	TB 205-50-73-2	Bulkhead (BS 59.50) upgrade (See note 2)	TB 205-76-8	ASB 205-77-4	ASB 205-77-11	ASB 205-78-5	Center section & fin upgrade (See note 3)	Bulkhead (BS 101.38) upgrade (See note 4)	TB 205-78-15	TB 205-79-19	TB 205-82-47	ASB 205-84-21(5)	ASB 205-90-39	ASB 205-93-56	ASB 205-95-62 Section F	ASB 205-98-73	TB 205-00-111	TB 205-05-119	TB 205-06-120	TB 205-06-121
205-032-802	-003 (See note 1) 30003 thru 30010 30017 thru 30019	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	n/a	✓	✓	✓
	-005 30011 thru 30016	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	n/a	✓	✓	✓
	-009 30020 thru 30052	✓	✓	n/a	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	n/a	✓	✓	✓
	-011 30053 thru 30102	✓	✓	n/a	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	n/a	✓	✓	✓
	-011 30103 thru 30116	✓	✓	n/a	n/a	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	n/a	✓	✓	✓
	-011 30117 thru 30142	n/a	✓	n/a	n/a	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	n/a	✓	✓	✓
	-011 30143 thru 30152	n/a	n/a	n/a	n/a	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	n/a	✓	✓	✓
	-013 30153 thru 30177	n/a	n/a	n/a	n/a	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	n/a	✓	✓	✓
	-051 30178 thru 30206	n/a	n/a	n/a	n/a	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	n/a	✓	✓	✓
212-030-100	-051 30207 thru 30228	n/a	n/a	n/a	n/a	n/a	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	n/a	✓	✓	✓
	-081 30229 thru 30256	n/a	n/a	n/a	n/a	n/a	✓	✓	n/a	n/a	✓	✓	✓	✓	✓	✓	✓	n/a	n/a	✓	✓	✓	✓
	-081 30257 thru 30259	n/a	n/a	n/a	n/a	n/a	✓	n/a	n/a	n/a	✓	✓	✓	✓	✓	✓	✓	n/a	n/a	✓	✓	✓	✓
	-081 30260	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	✓	✓	✓	✓	✓	✓	✓	n/a	n/a	✓	✓	✓	✓
	-085 30261 thru 30284	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	✓	✓	✓	✓	✓	✓	n/a	n/a	✓	✓	✓	✓
	-085 30285 thru 30308	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	✓	n/a	✓	✓	✓	n/a	n/a	✓	✓	✓	✓
	-107 30309 thru 30332	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	✓	✓	✓	n/a	n/a	✓	✓	✓	✓
-163 Spares	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	(6)	✓	n/a	✓	n/a	n/a	(6)	(6)	(6)	(6)

Table 1
Tailboom Configurations

See legend in text

Notes:

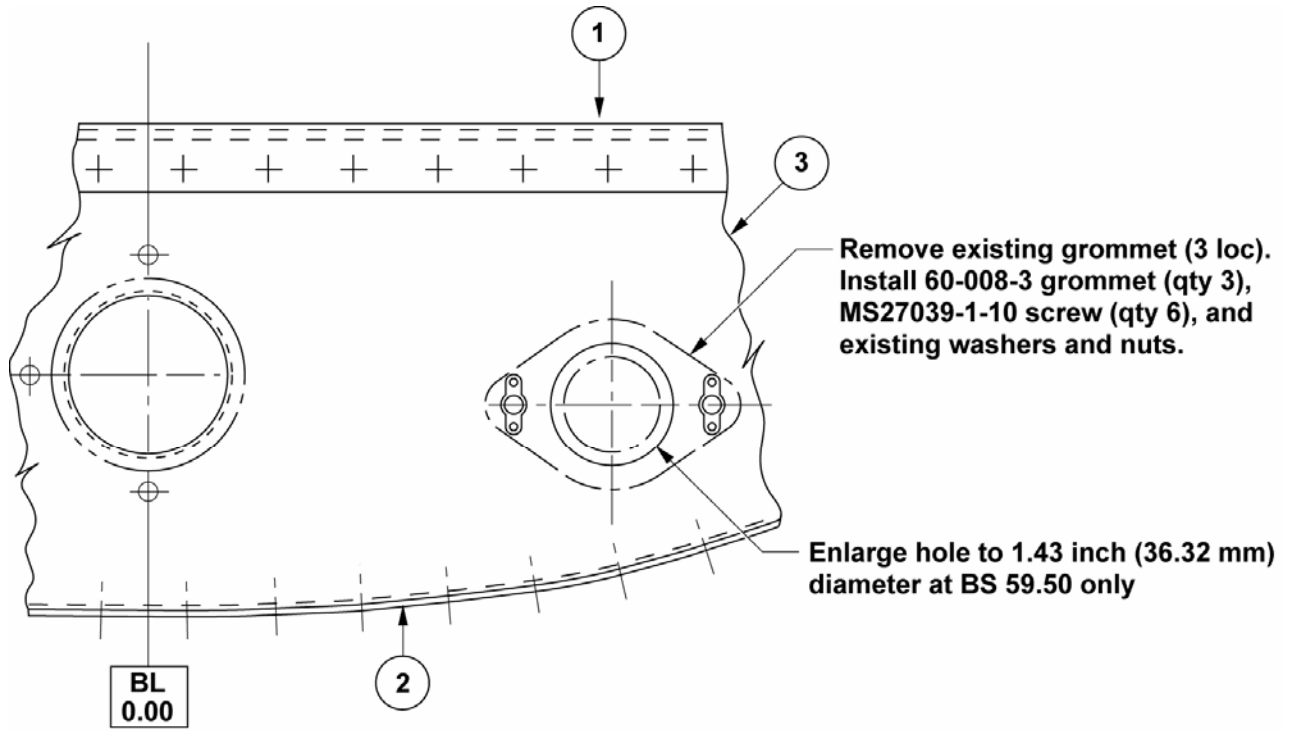
- (1) Sometimes identified as 205-961-130-003. This tailboom is eligible for upgrade only if the vertical fin is of a later configuration. Configuration may be assessed by determining the offset of the fin on the tailboom at the tail skid and behind the intermediate gearbox. Fins that are not acceptable for upgrade (originally installed on tailboom P/N 205-032-802-003 or 205-961-130-003) are offset to the right of the tailboom by 0.4 inch. Fins that are acceptable for upgrade are offset to the left by 0.4 inch. If the fin is found to be acceptable for upgrade but its P/N cannot be determined accurately, it must be considered to be P/N 205-032-850-001 (applicable to 205-032-802-005 tailboom). Contact Product Support Engineering, if needed.
- (2) Upgrade Bulkhead (BS 59.50) as described in paragraph 2 of this bulletin.
- (3) Upgrade Center Tailboom Section as described in paragraph 3 of this bulletin.
- (4) Upgrade Bulkhead (FS 101.38) as described in paragraph 4 of this bulletin
- (5) This bulletin does not apply to the tailboom assembly. It is mentioned only as a reminder.
- (6) Not necessary (although recommended) when upgrading to 212-030-100-163 configuration.



- | | |
|------------------------------|--|
| 1. 205-032-814 panel ref. | 7. 212-030-132 splice ref. |
| 2. 205-032-817 frame ref. | 8. 205-030-814 door ref. |
| 3. 205-032-821 bulkhead ref. | 9. 212-030-283 door assy. ref. |
| 4. 205-032-820 bulkhead ref. | 10. Flux valve bracket ref. (see Figure 3) |
| 5. 205-032-827 bulkhead ref. | 11. Drain holes (see Figure 4) |
| 6. 212-030-132 longeron ref. | 12. 212-030-127 rib ref. |

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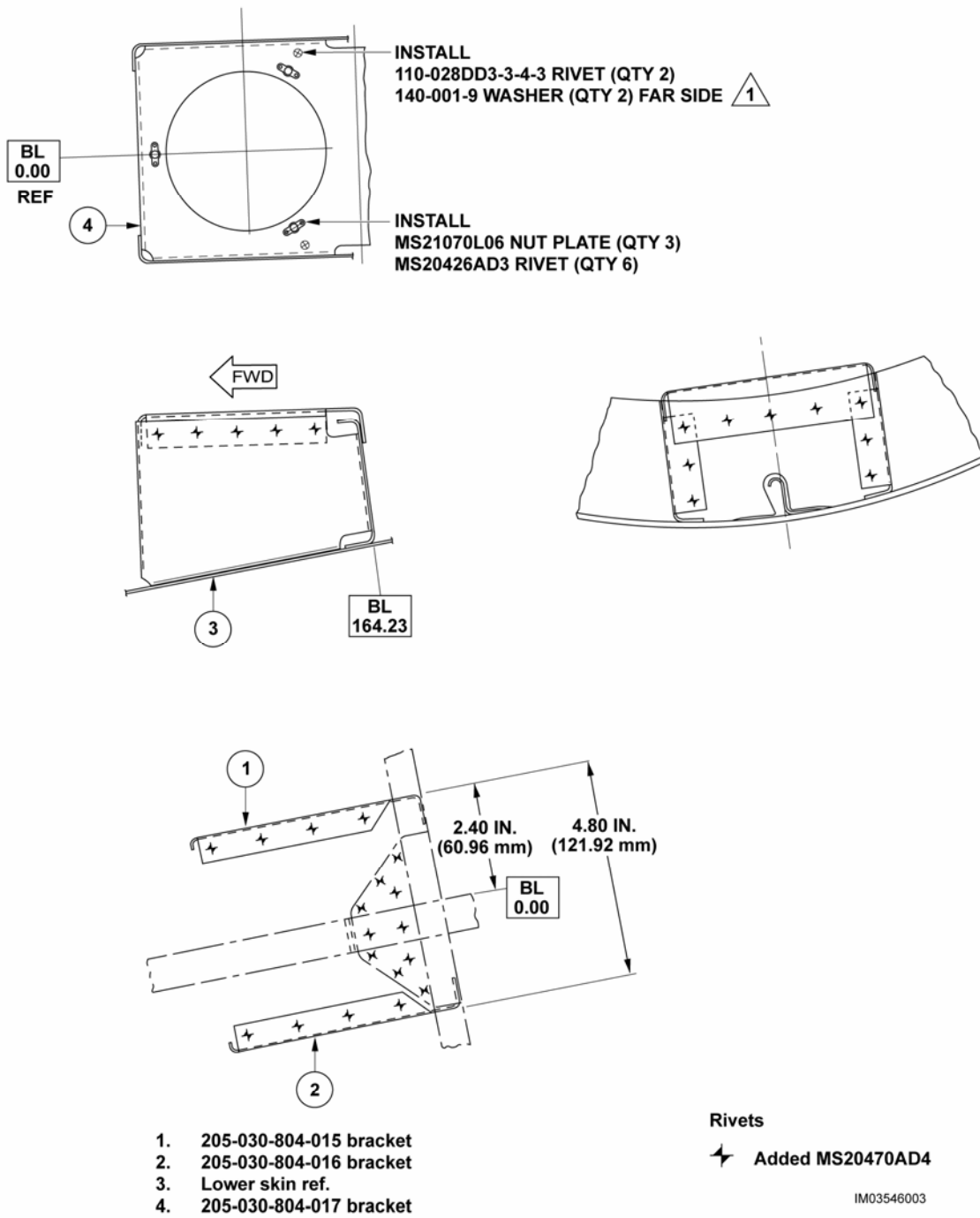
Figure 1
General View



1. Baggage compartment floor ref.
2. 205-032-814 panel ref.
3. 205-032-817 bulkhead ref.

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Figure 2
Bulkhead (BS 59.50) Upgrade
(View Looking forward)

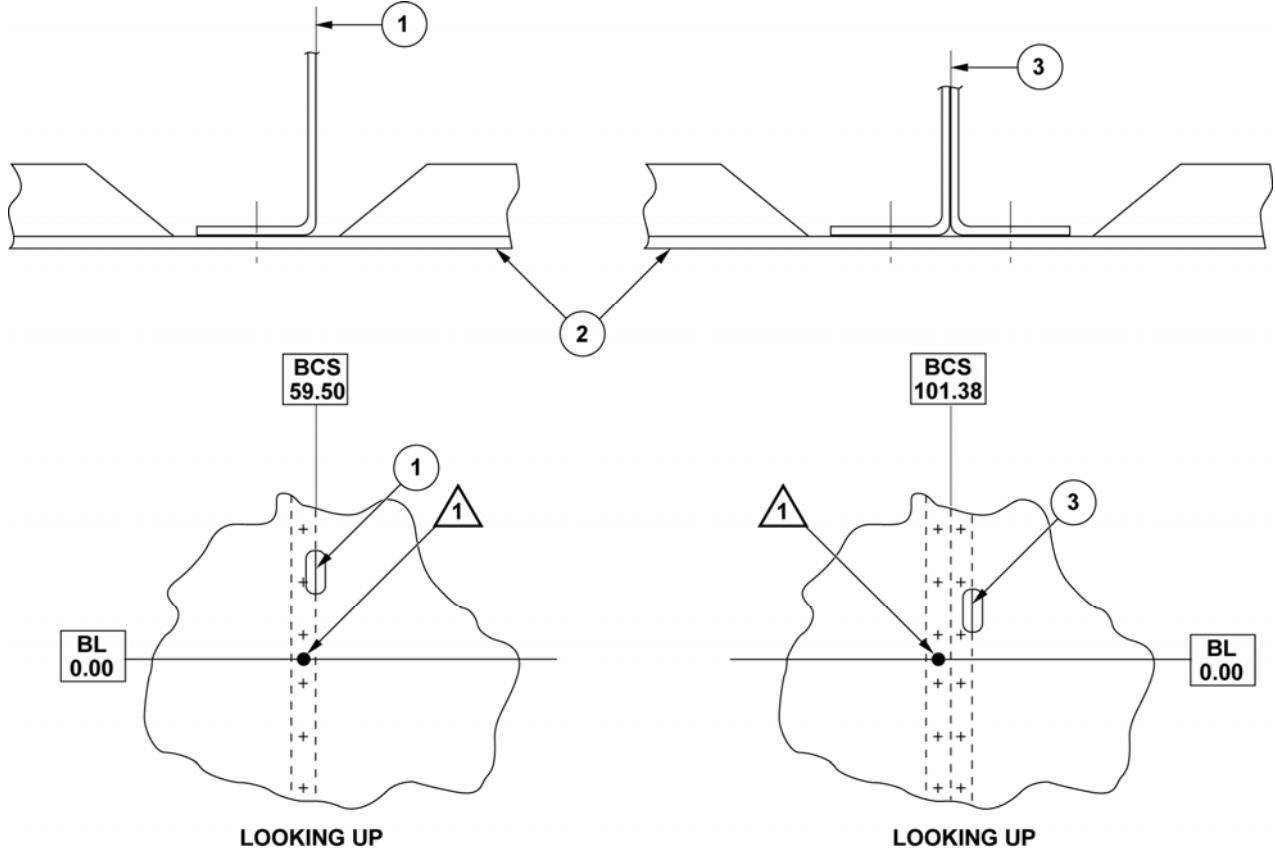


1. 205-030-804-015 bracket
2. 205-030-804-016 bracket
3. Lower skin ref.
4. 205-030-804-017 bracket

NOTE


$\triangle 1$ It is permissible to trim 0.06 inch (1.52 mm) maximum to cover bracket radius.

Figure 3
Flux Valve Bracket Installation



- 1. 205-032-817 bulkhead ref.
- 2. 205-032-814 panel ref.
- 3. 205-032-805 bulkhead ref.

NOTE

 Drill 0.186 to 0.190 inch (4.72 to 4.83 mm) diameter drain hole through panel and bulkhead, in line with rivet row.

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Figure 4
 Drain Holes

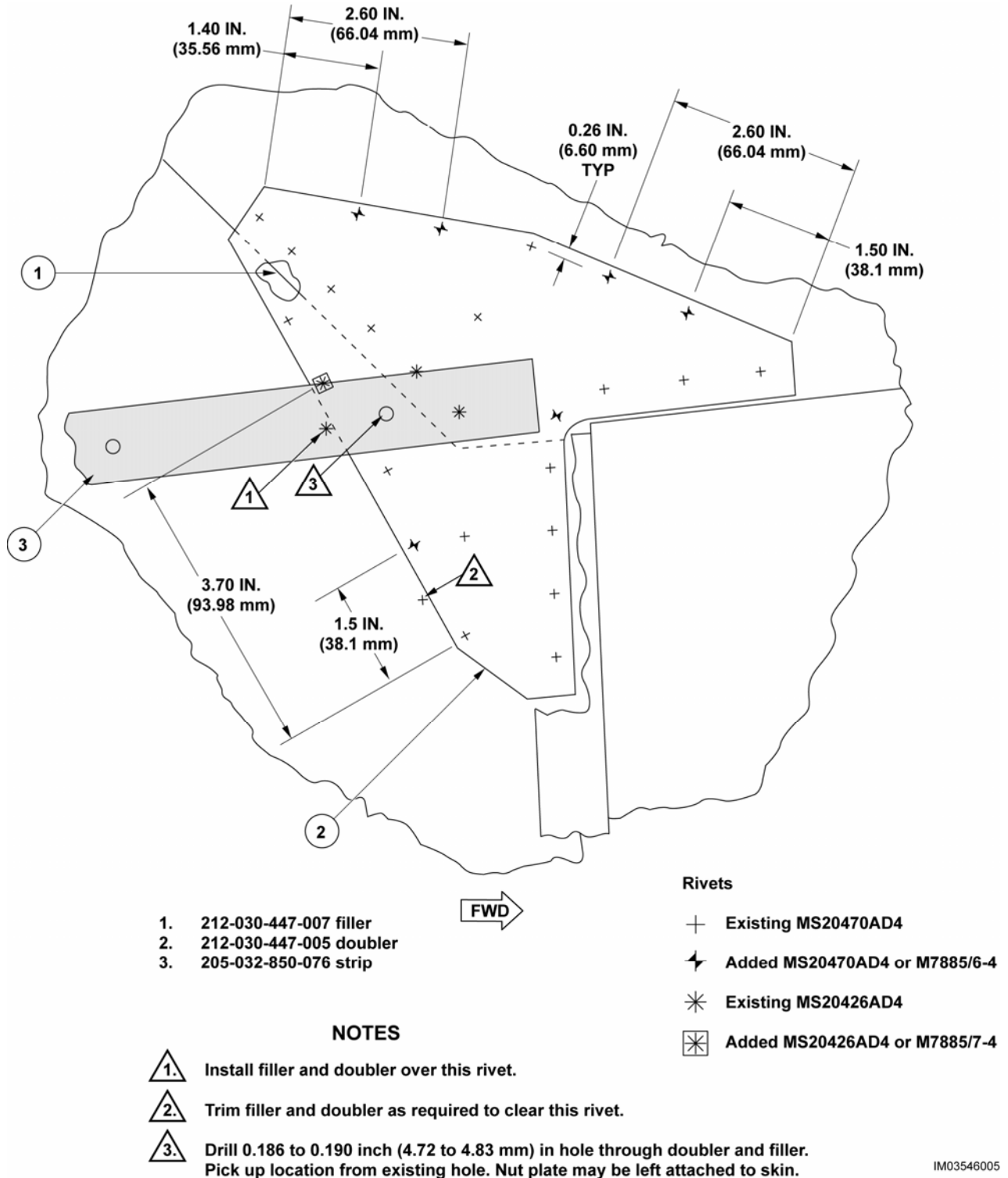
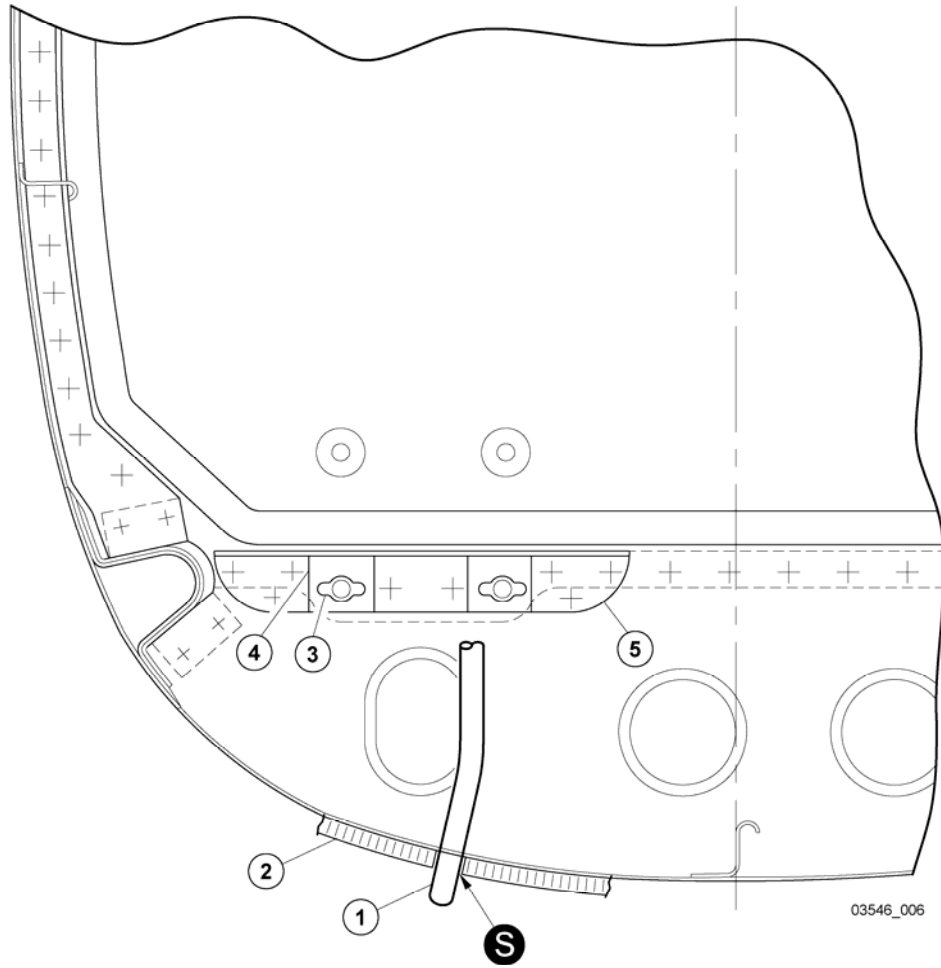


Figure 5
Doubler Installation



- 1. Drain tube (Ref)
- 2. Panel assembly (Ref)
- 3. Nutplate (Ref)
- 4. Radius block (Ref)
- 5. Angle

S SEALANT (C-308)

Figure 6
Bulkhead (BS 101.38) Upgrade
(View Looking Aft)
Portion of drain tube removed for clarity