



A Textron Company

TECHNICAL BULLETIN

206-94-146

14 January 1994

Revision A, 21 May 2014

MODEL AFFECTED: 206A

SUBJECT: ANTI-TORQUE CONTROL SYSTEM HYDRAULIC BOOST, REMOVAL OF.

HELICOPTERS AFFECTED: Serial numbers 4 through 497.

[Serial number 498 and subsequent had the intent of this bulletin accomplished prior to delivery.]

COMPLIANCE: At customer's option.

DESCRIPTION:

Bell Helicopter has received several requests from operators for authority and procedures to remove the hydraulic boost from the anti-torque control system of early Model 206A helicopters.

This bulletin provides the instructions to modify the anti-torque control system to a configuration similar to later helicopter serial numbers. Revision A regroups the parts required for the accomplishment of this bulletin into a single list. It provides the current material and consumable part numbers stocked by BHT and adds the tailboom assembly 206-031-004-011 as a candidate for compliance with this bulletin under specific restrictions. It also clarifies the instructions in Section II.

Compliance with this bulletin will allow the operator to incorporate Bell Helicopter Service Instruction 206-112, C20B Engine Retrofit.

APPROVAL:

The engineering design aspects of this bulletin are Transport Canada Civil Aviation (TCCA) approved.

CONTACT INFO:

For any questions regarding this bulletin, please contact:

Bell Helicopter Product Support Engineering - Light Helicopters
Tel: 450-437-2862 / 1-800-363-8023 / pselight@bh.com

MANPOWER:

Approximately 8.0 man-hours are required to complete Section I of this bulletin.
Approximately 3.0 man-hours are required to complete Section II of this bulletin.
Approximately 8.0 man-hours are required to complete Section III of this bulletin.
Approximately 10.0 man-hours are required to complete Section IV of this bulletin.
These estimates are based on hands-on time, and may vary with personnel and facilities available.

WARRANTY:

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

MATERIAL:

Required Material:

The following material is required for the accomplishment of this bulletin and may be obtained through your Bell Helicopter Textron Supply Center. Refer to the NOTES for the material applicable to each Section of this bulletin

<u>Part Number</u>	<u>Nomenclature</u>	<u>Qty</u>	<u>Note</u>
206-031-309-071S	Stiffener	2	1
206-031-331-053	Stiffener	1	1
206-031-331-055S	Stiffener	1	1
MS20470AD4-4	Rivet	A/R	1, 3
206-001-022-073	Tube assembly	1	2
MS24665-155	Pin, Cotter	2	2
206-001-032-001	Tube assembly	1	3
206-001-096-013	Tube assembly	1	3
206-001-746-009	Idler assembly	1	3
206-031-309-086S	Stiffener	1	3
206-031-331-057	Gusset	1	3
206-031-331-058	Gusset	1	3
206-031-331-061	Radius block	2	3
20-006B16-16-16	Bushing	2	3
100-046S28A1 (Alt: NAS-451-10)	Plug button	2	3

<u>Part Number</u>	<u>Nomenclature</u>	<u>Qty</u>	<u>Note</u>
100-046S32A1 (Alt: NAS-451-43)	Plug button	2	3
120-034E32-8	Shim	2	3
AN174-13	Bolt	2	3
AN174-44	Bolt	1	3
AN814-6DL (Alt: AN814-6WL) (Alt: AS5169W06L)	Plug	4	3
AN960JD416 (Alt: NAS1149D0463J)	Washer	6	3
MS14144L4	Nut	3	3
MS24665-155	Pin, Cotter	5	3
MS28778-6	Packing	4	3
206-031-004-011 (Alt: 206-031-004-071) (Alt: 206-031-004-097) (Alt: 206-031-004-121S)	Tailboom assembly	1	4,5
206-001-059-001 (Alt: 206-001-059-101)	Tube and sleeve assembly	1	4
206-001-756-009	Bellcrank assembly	1	4
206-011-725-001	Rod assembly	1	4
206-011-726-005	Bushing	1	4
206-011-723-001	Idler assembly	1	4
206-011-722-001	Lever assembly	2	4
206-011-729-001	Cap assembly	1	4
204-011-769-001	Bearing	1	4
206-011-728-001	Trunnion assembly	1	4
206-011-736-001	Boot	1	4
206-011-721-009	Housing assembly	1	4
206-011-724-001	Tube assembly	1	4
2-38N141-7 (Alt: AS3209-038)	Packing	1	4
20-057-4-16D	Bolt	1	4
20-057-4-22D	Bolt	1	4
20-057-4-31D	Bolt	1	4
20-057-4-33D	Bolt	1	4
50Z12-9-2	Spacer	1	4
MS14144L4	Nut	6	4
MS14145L6	Nut	1	4
MS21042L4	Nut	3	4
MS24665-155	Pin, Cotter	7	4
AN174-12	Bolt	1	4
AN174-15	Bolt	1	4
AN960-416 (Alt: NAS1149F0463P)	Washer	7	4

<u>Part Number</u>	<u>Nomenclature</u>	<u>Qty</u>	<u>Note</u>
AN960JD416 (Alt: NAS1149D0463J)	Washer	3	4
AN960-616L (Alt: NAS1149F0632P)	Washer	1	4
AN970-4	Washer	1	4
NAS1197-416	Washer	3	4

NOTES: 1- Required for Section I of this bulletin.
2- Required for Section II of this bulletin.
3- Required for Section III of this bulletin.
4. Required for Section IV of this bulletin.
5. Tailboom assembly 206-031-004-011 shall comply with
ASB 206-01-73-4, ASB 206-01-74-1 and PART IV of ASB 206-12-129.

Consumable Material:

The following material is required to accomplish this bulletin, but 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>Qty</u>	<u>Reference *</u>
MIL-PRF-23377	Polyamide Epoxy Primer	1	C-204
2100-00345-00	Chem Film, Alodine, 1 Quart	1	C-100
2100-00031-00	MIL-C-16173, Gr 2, 6Oz.	1	C-104
2100-00044-00	MIL-C-16173, Gr 1, Pt.	1	C-101
AS100028	Cres-Safety wire - AS100028	1	C-405
2010-00165-00	Firewall sealant (DAPCO 2100)	1	C-353

* C-XXX numbers refer to the consumables list in BHT-ALL-SPM Standard Practices Manual

SPECIAL TOOLS:

None required.

WEIGHT AND BALANCE:

The weight and balance of the helicopter will be affected by this bulletin. Due to the nature and extent of the rework required to accomplish this bulletin, it is recommended that the helicopter be re-weighed and a new weight and balance report be issued for the helicopter.

ELECTRICAL LOAD DATA:

Not affected.

REFERENCES:

BHT-206A/B-SERIES-IPB Illustrated Parts Breakdown
BHT-206-SERIES-MM Maintenance Manual
BHT-206B3-CR&O Component Repair and Overhaul Manual
BHT-ALL-SPM Standard Practices Manual
ASB 206-01-73-4
ASB 206-01-74-1
ASB 206-12-159

PUBLICATIONS AFFECTED:

None affected.

ACCOMPLISHMENT INSTRUCTIONS:

This bulletin is divided into four sections detailing required modifications to the anti-torque control system installation according to helicopter serial number. Helicopter serial numbers 4 through 253 will require accomplishment of Section I, II, III, and IV. Helicopter serial numbers 254 through 303 will require the accomplishment of Section II, III, and IV. Helicopter serial numbers 304 through 497 will require accomplishment of Section III and IV.

Once the required modifications are completed, the anti-torque control system will be in a configuration similar to helicopter serial numbers 498 and subsequent. The anti-torque control system may then be rigged per the instructions in the Maintenance Manual for helicopter serial numbers 498 and subsequent.

SECTION I

REINFORCEMENT OF ANTI-TORQUE WALKING BEAM SUPPORT, AFT FUSELAGE STATION 179.92

-NOTE-

Helicopters prior to serial number 254 with reinforcement kit 206-704-008-001 installed in accordance with Bell Helicopter Co. Service Letter 206A-125, dated 28 July 1969, have the intent of this section incorporated.

1. Gain access to the anti-torque walking beam support area by removing the aft fuselage access door 206-031-328-003 (right side), baggage compartment roof cover 206-031-342, and baggage compartment aft bulkhead cover 206-031-340.
2. Remove the aft oil cooler fairing and the aft tail rotor short drive shaft. Drain and remove the engine oil tank.
3. Install reinforcing stiffeners in accordance with Figures 1, 2, and 3.
4. Chem film treat the bare metal with Alodine (C-100) and prime the rework areas with primer (C-204).
5. Reinstall the aft tail rotor short drive shaft and engine oil tank. Make sure the engine oil tank is serviced prior to first run-up.

SECTION II

REPLACEMENT OF FORWARD ANTI-TORQUE CONTROL TUBE 206-001-020-041

1. Refer to the Maintenance Manual and remove the fixed length control tube 206-001-020-041. On helicopter serial numbers 54 through 497, remove and discontinue the use of the tail rotor pedal centering spring 206-001-721-001, eyebolt 206-001-745-001, and attaching hardware.
2. Install the adjustable control tube 206-001-022-073 with the existing hardware, if serviceable. Coat the shank of the bolts with corrosion preventative compound (C-104) and make sure that no CPC is applied to the bolt threads.

SECTION III

REMOVAL OF ANTI-TORQUE HYDRAULIC BOOST ACTUATOR

-NOTE-

Prior to primer application, chem film treat the bare metal with Alodine (C-100).

1. Refer to the Maintenance Manual and remove the anti-torque servo actuator and support assembly. Also remove the control tubes attached to the servo actuator input lever and the servo actuator piston.
2. Remove all anti-torque servo actuator hydraulic flex lines. Remove tube assemblies 206-076-284-001, 206-076-285-001, 206-076-286-001, and 206-076-287-001, and the fittings and associated hardware from the hydraulic solenoid valve aft to the anti-torque servo actuator.

3. Remove one each of the AN919-6D and -7D reducers, the AN815-6D union, the 204-076-437-003 check valve, and the tube 206-076-283-001 or 206-076-389-001 from the horizontal arms of the AN937D6 cross fittings on the hydraulic solenoid valve.
4. Install new MS28778-6 packing on each of the four AN814-6DL plugs and install plugs in place of the reducers, union, and check valve removed in step 3.
5. Insert plug buttons 100-046S28A1 and 100-046S32A1 into the holes in the forward engine firewall and the engine pan where the hydraulic bulkhead fittings were removed. Seal the plug buttons with firewall sealant (C-353).
6. Locate the gussets 206-031-331-057 and -058, and the radius blocks 206-031-331-061 on channels 206-031-331-047 and -048 as shown in Figure 4. Drill with a No. 30 drill and cleco in place. Note; the rivets at the inboard end of the gussets must have at least 1.5D edge distance. If this cannot be achieved, the gussets must be modified per Figure 4, Sheet 3.
7. Locate stiffener 206-031-309-086 on the roof of the baggage compartment in line with the gussets, as shown. Drill with a No. 30 drill and cleco in place.
8. Locate the pilot holes for the bushings 20-006B16-16-16. Pilot drill 2 holes in line, with a No. 40 drill, through the radius blocks, gussets, and channels. Remove the radius blocks, gussets, and stiffener. Deburr the rivet holes and prime the bare metal with primer (C-204).
9. Enlarge the No. 40 pilot holes in the channels to 0.56" (14.2 mm) diameter. Deburr the holes and prime the bare metal with primer (C-204).
10. Install the gussets, radius blocks, and stiffener and rivet in place with MS20470AD4 rivets.
11. Enlarge the No. 40 pilot holes in the radius blocks and the gussets and line ream to 0.3745 to 0.3755" (9.512 to 9.538 mm) diameter. Deburr the holes and prime the bare metal with primer (C-204). Install the bushings as shown in Figure 4.
12. Refer to the Maintenance Manual and install idler assembly 206-001-746-009, control tubes 206-001-032-001, and 206-001-096-013. Coat the shank of the bolts with corrosion preventative compound (C-104). Make sure that no CPC is applied to the bolt threads. Utilize procedures described for helicopter serial numbers 498 and subsequent.

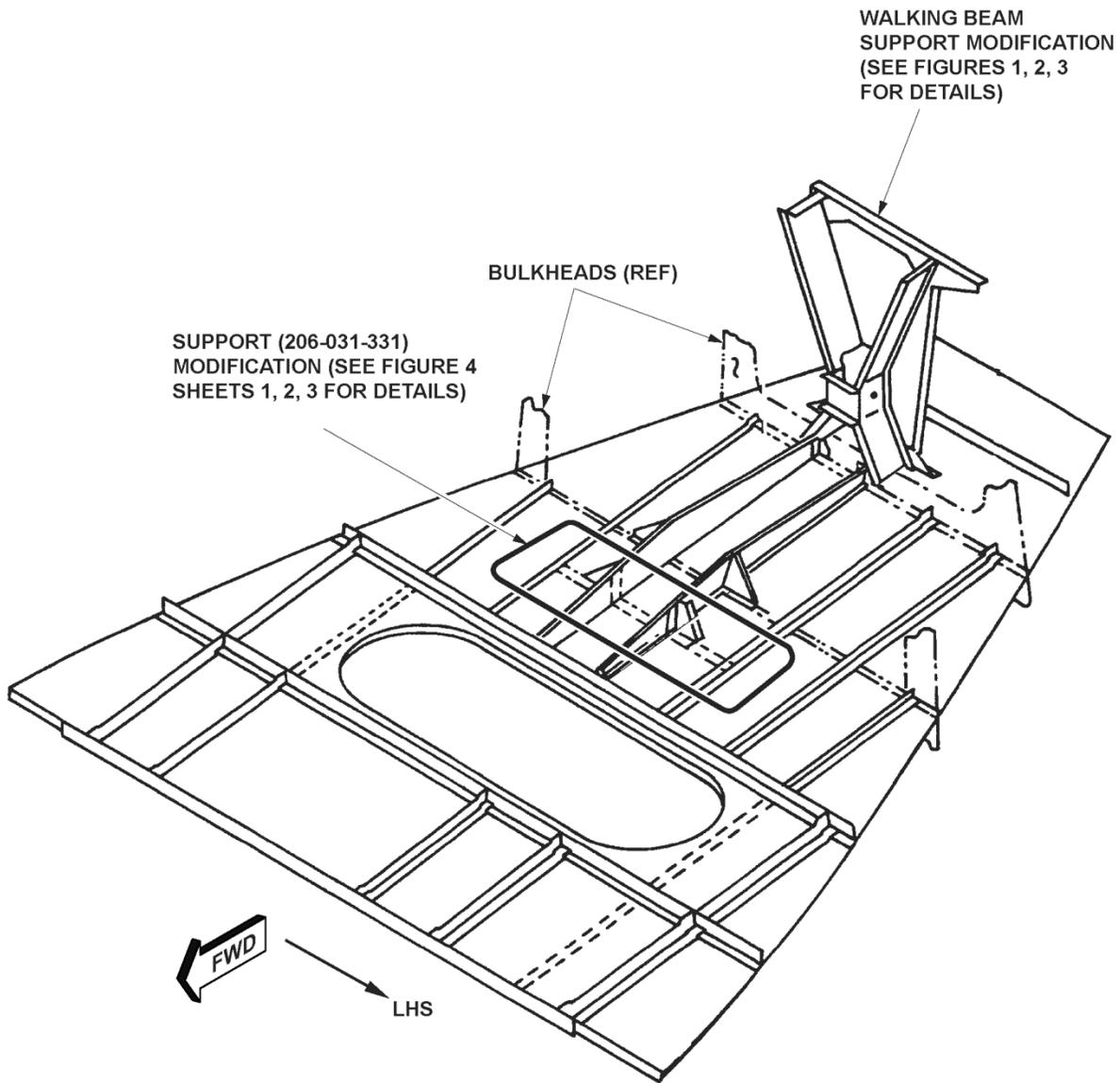
PART IV

REPLACEMENT OF TAILBOOM

-NOTE-

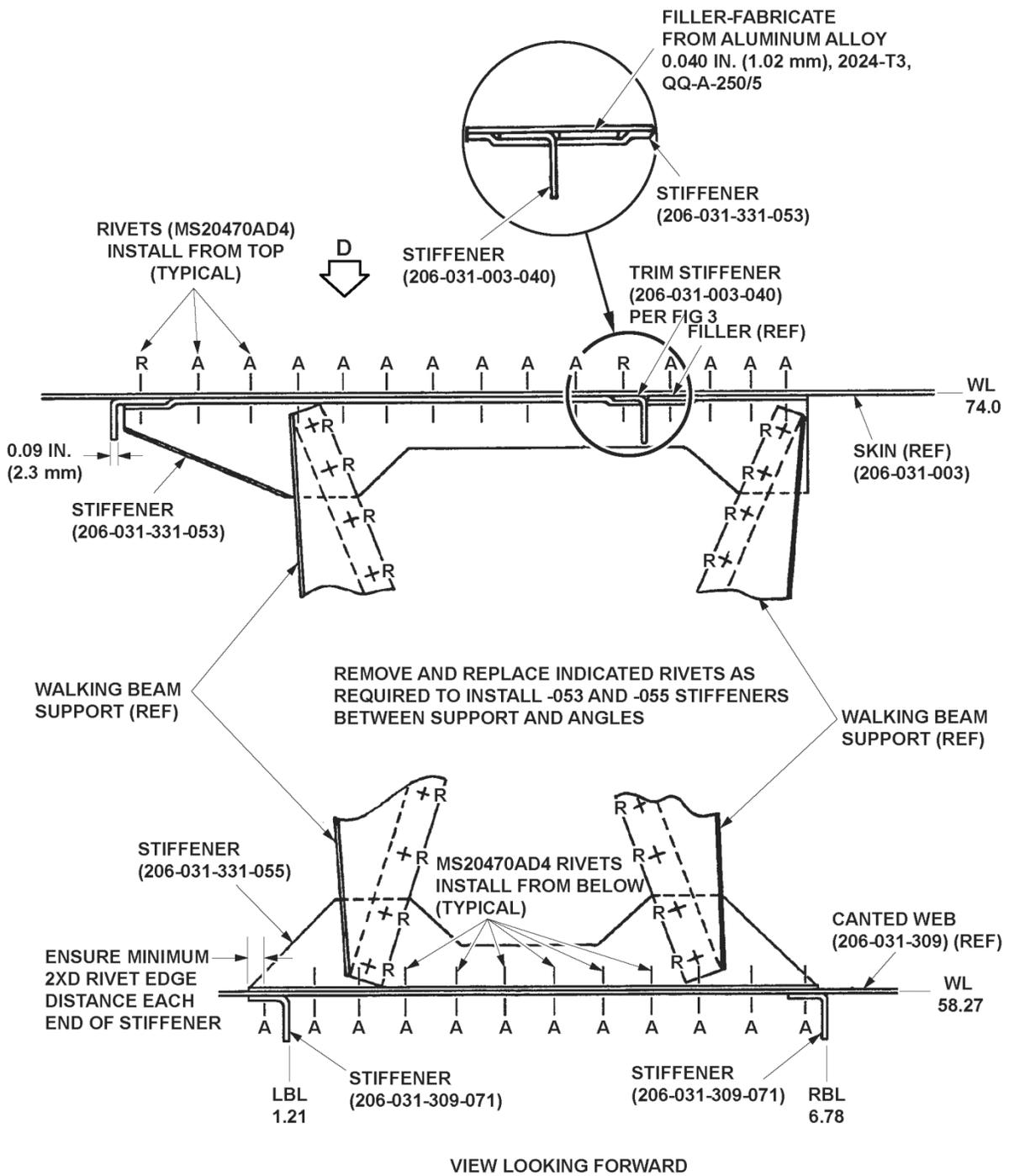
The tailboom assembly 206-031-004-011 can be used if it complies with ASB 206-01-73-4, ASB 206-01-74-1, and Part IV of ASB 206-12-129. If the tailboom assembly 206-031-004-011 is used, go to paragraph 3.

1. Refer to the Maintenance Manual and remove tailboom 206-031-004-1/-3/-9. Remove tailboom 206-031-004-011 if not in compliance with the above note.
2. Transfer components from the early configuration tailboom to the newer configuration tailboom. Refer to the Maintenance Manual for component removal and installation instructions.
3. Prior to transferring the tail rotor gearbox, accomplish the following: Remove the tail rotor pitch change mechanism from the tail rotor gearbox. Refer to the overhaul instructions and illustrated parts catalog for build-up of the new pitch change mechanism. Install the new built-up unit in the tailrotor gearbox. Coat the shank of the bolts with corrosion preventative compound (C-104) and make sure that no CPC is applied to the bolt threads.
4. Install control tube 206-001-059-001, bellcrank assembly 206-001-756-009, and rod 206-011-725-001 in the tailboom. Install the tailboom assembly per the Maintenance Manual instructions.
5. Refer to the Maintenance Manual and rig the tail rotor flight control system as per the procedures for helicopter serial numbers 498 and subsequent.
6. Once the rigging has been completed, make sure that all the safety devices are in place and coat all the exposed bolt heads, washers, and nuts with corrosion preventative compound (C-101).
7. Make an entry in the helicopter logbook and historical service records indicating compliance with this Technical Bulletin.



TAIL ROTOR CONTROL MODIFICATION
 HYDRAULIC BOOST REMOVAL
 206A MODEL S/N 4 TO 497

14510_001

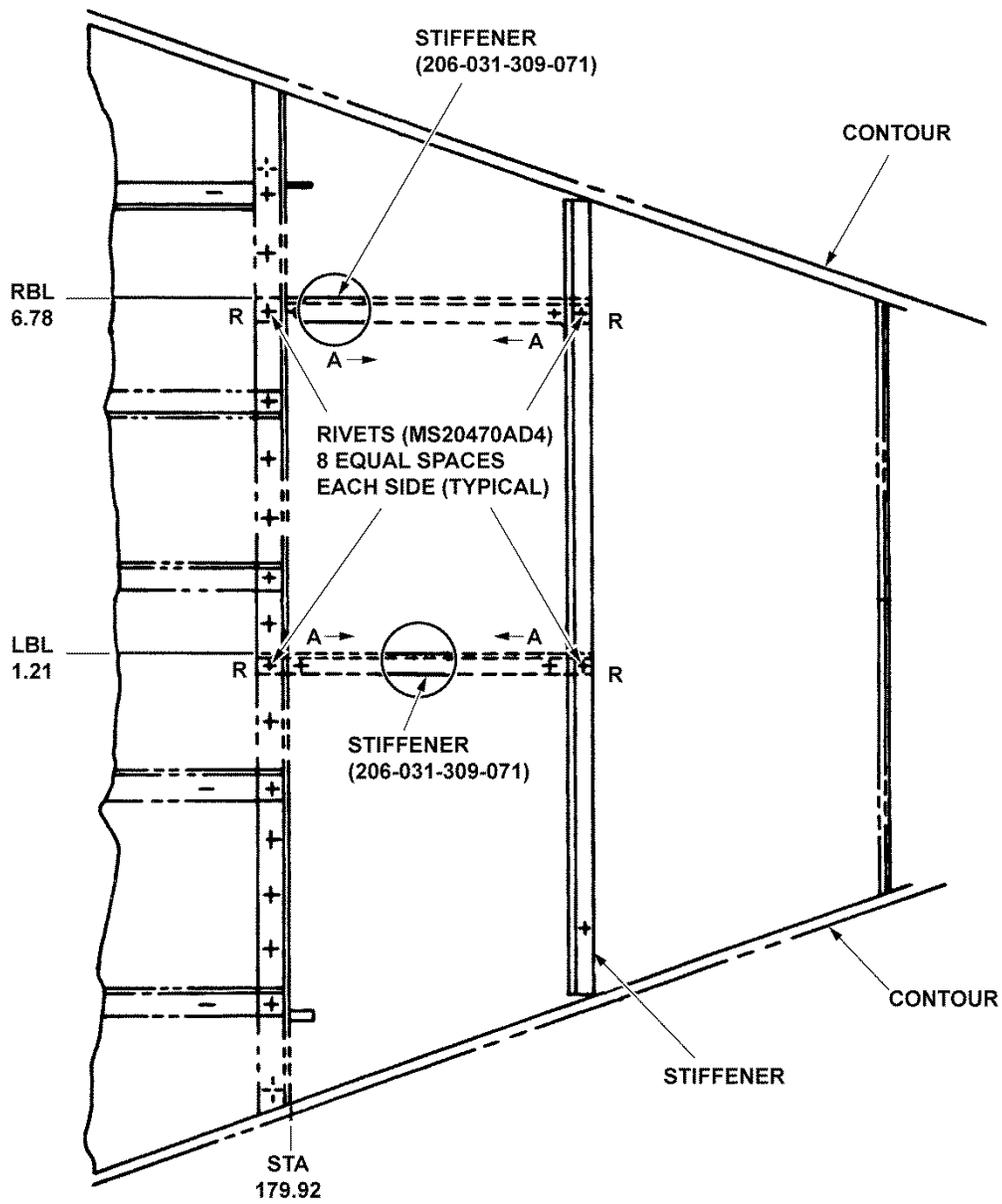


RIVET CODE: MS20470AD4 RIVETS
 R = REMOVE EXISTING AND INSTALL NEW RIVET
 A = ADD NEW RIVET FOR STIFFENER

14510_002

VIEW LOOKING FORWARD

Figure 1

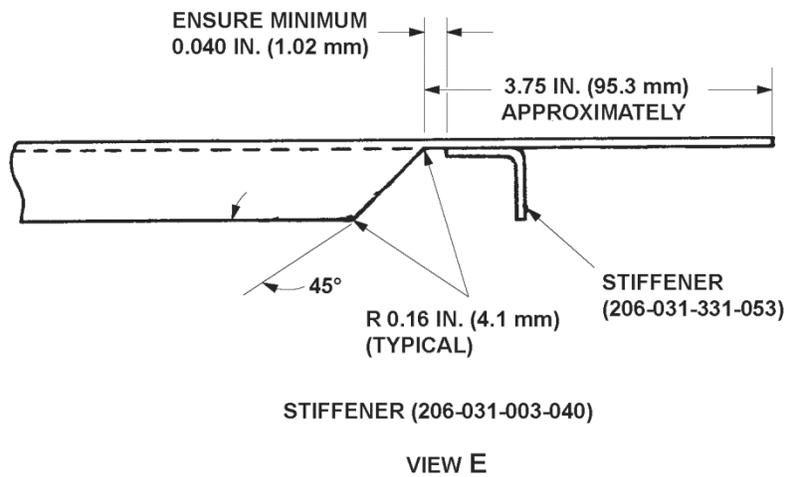
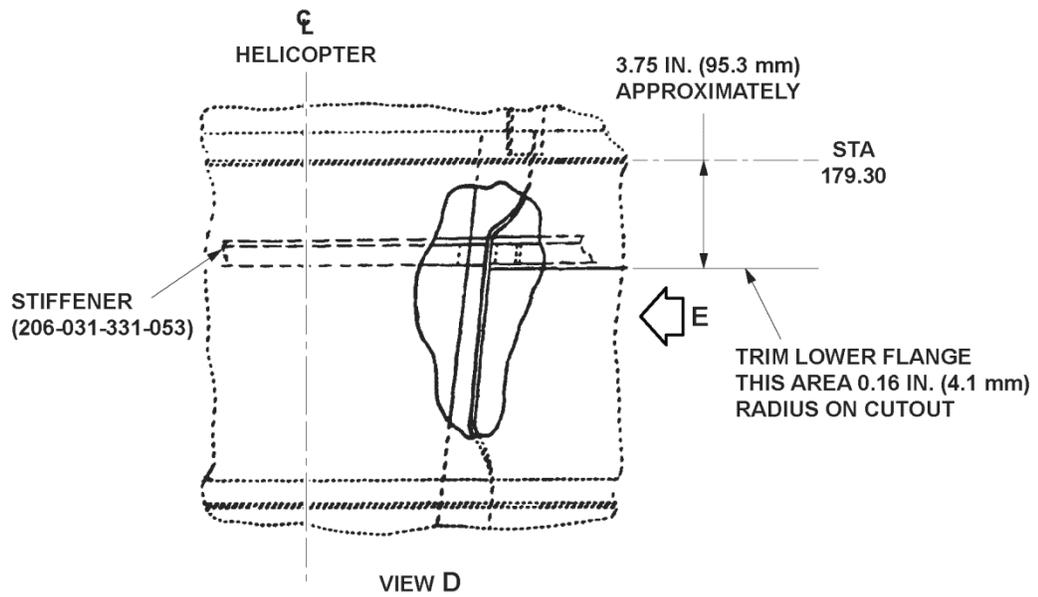


RIVET CODE: MS20470AD4 RIVETS
 R = REMOVE EXISTING AND INSTALL NEW RIVET
 A = ADD NEW RIVET FOR STIFFENER

VIEW LOOKING DOWN
 CANTED WEB (206-031-309)

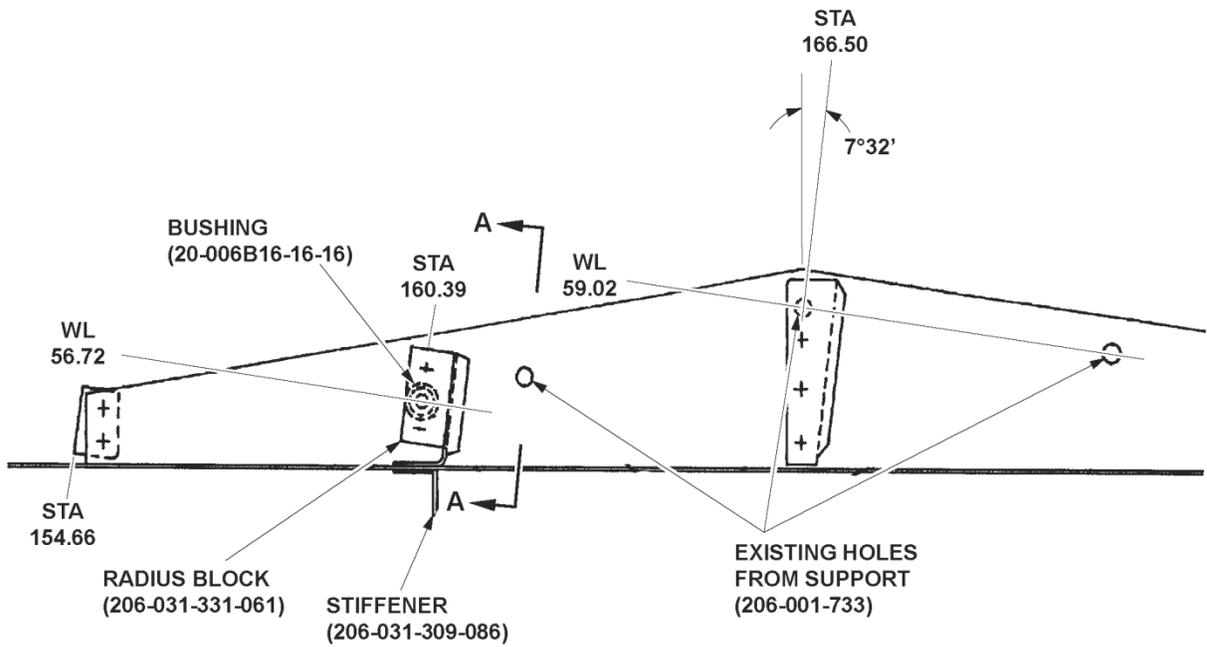
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Figure 2



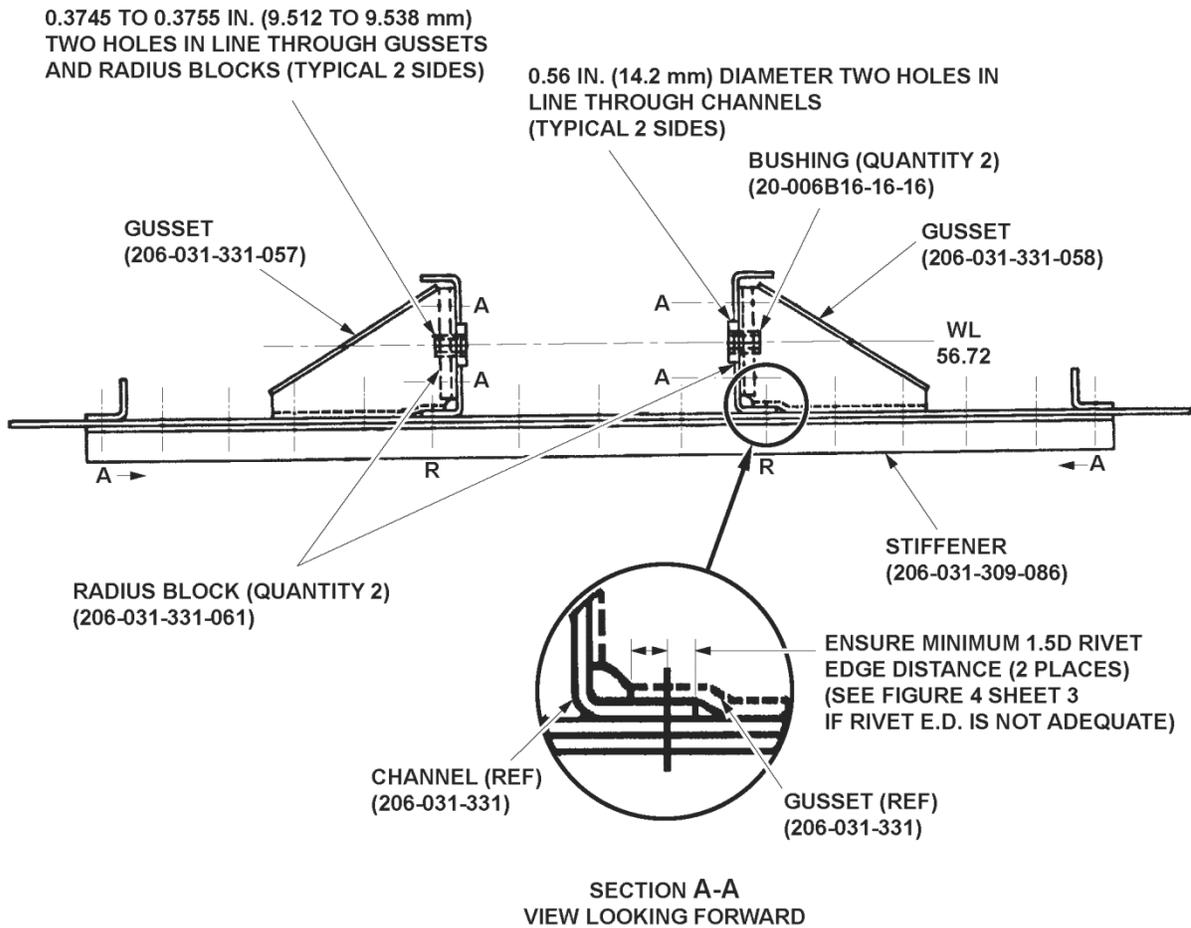
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Figure 3



14510_005a

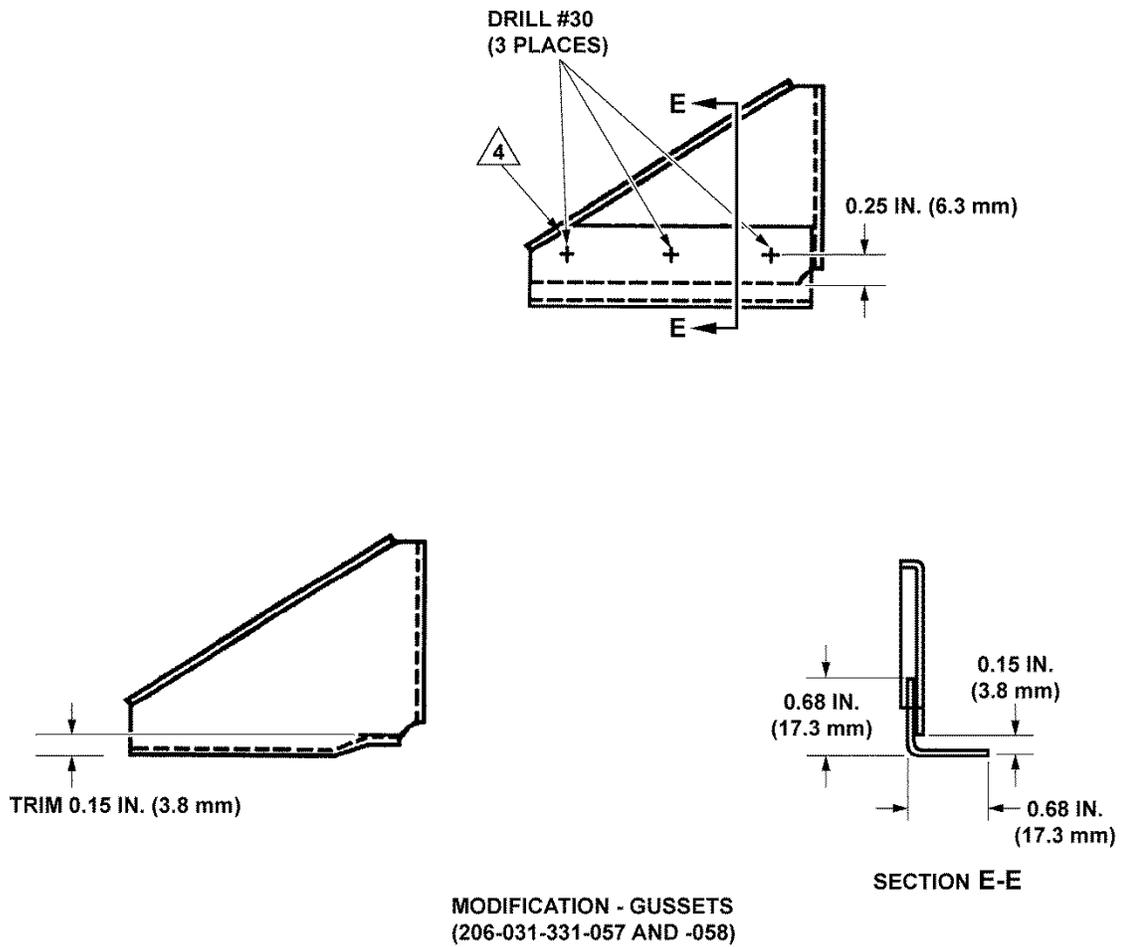
Figure 4 - (Sheet 1 of 3)



RIVET CODE: MS20470AD4 RIVETS
R = REMOVE EXISTING AND INSTALL NEW RIVET
A = ADD NEW RIVET FOR STIFFENER

14510_005b

Figure 4 - (Sheet 2 of 3)



NOTES

1. Trim gussets as indicated.
2. Fabricate angles from 0.025 inch (0.63 mm), 2024T-3, QQ-A-250/5 aluminum alloy. Bend radius 0.12 inch (3.1 mm) length to match gusset.
3. Rivet angle to gusset as shown. Use MS20470AD4 rivets, quantity 3, equal spaced with minimum 2D edge distance.

4 Make sure the angle does not interfere with bend radius of gusset.

14510_005c_c01

Figure 4 - (Sheet 3 of 3)