



TECHNICAL BULLETIN

412-05-203

10 October 2005

Revision B, 12 December 2016

MODEL AFFECTED: 412/412EP

SUBJECT: TAILBOOM BULKHEAD REINFORCEMENT

HELICOPTERS AFFECTED: Serial numbers 33001 through 33213, 34001 through 34036, and 36001 through 36356.

[Serial number 36357 and subsequent will have the intent of this bulletin accomplished prior to delivery]

COMPLIANCE: At customer's option.

DESCRIPTION:

This bulletin provides the procedure to install local doublers to reinforce the five tailboom bulkheads. It is a preventative measure to reduce the risk of cracking. Each bulkhead (eight locations) may be reinforced individually, as convenient, but all 40 locations must be reinforced for this bulletin to be considered accomplished. Locations already repaired, in accordance with Repair 5-6-2 of the Medium Structural Repair Manual (SRM), do not qualify as being reinforced in accordance with this bulletin. Only serviceable bulkheads can be reinforced. Revision A was released December 14 2007 to introduce doubler kits for ease of ordering. Revision B is issued to introduce new larger doublers in order to minimize low edge distance issues frequently encountered with the original doublers.

APPROVAL:

The engineering design aspects of this bulletin are FAA approved for FAA certified helicopters as listed in the applicable Type Certificate Data Sheet. For non FAA certified helicopters, the engineering design aspects of this bulletin are Bell Helicopter Engineering approved.

CONTACT INFO:

For any questions regarding this bulletin, please contact:

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MANPOWER:

Approximately 14.0 man-hours are required to complete this bulletin. This estimate is 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.

<u>Part Number</u>	<u>Nomenclature</u>	<u>Qty</u>
CT-412-05-203-12 consisting of:	Doubler Kit (All)	1
CT-412-05-203-7 consisting of:	Doubler Kit (BS 122.33)	1
205-032-821-135	Doubler	1
205-032-821-136	Doubler	1
205-032-821-137	Doubler	1
205-032-821-138	Doubler	1
205-032-821-139	Doubler	1
205-032-821-141	Doubler	1
205-032-821-143	Doubler	1
205-032-821-145	Doubler	1
CT-412-05-203-8 consisting of:	Doubler Kit (BS 143.28)	1
205-032-820-135	Doubler	1
205-032-820-136	Doubler	1
205-032-820-137	Doubler	1
205-032-820-138	Doubler	1
205-032-820-139	Doubler	1
205-032-820-141	Doubler	1
205-032-820-143	Doubler	1
205-032-820-145	Doubler	1

CT-412-05-203-9 consisting of:	Doubler Kit (BS 164.23)	1
205-032-827-135	Doubler	1
205-032-827-136	Doubler	1
205-032-827-137	Doubler	1
205-032-827-138	Doubler	1
205-032-827-139	Doubler	1
205-032-827-141	Doubler	1
205-032-827-143	Doubler	1
205-032-827-145	Doubler	1

CT-412-05-203-10 consisting of:	Doubler Kit (BS 185.18)	1
205-032-828-135	Doubler	1
205-032-828-137	Doubler	1
205-032-828-139	Doubler	1
205-032-828-141	Doubler	1
205-032-828-143	Doubler	1
205-032-828-145	Doubler	1
205-032-828-147	Doubler	1
205-032-828-149	Doubler	1

CT-412-05-203-11 consisting of:	Doubler Kit (BS 194.30)	1
205-032-824-135	Doubler	1
205-032-824-137	Doubler	1
205-032-824-139	Doubler	1
205-032-824-141	Doubler	1
205-032-824-143	Doubler	1
205-032-824-145	Doubler	1
205-032-824-147	Doubler	1
205-032-824-149	Doubler	1

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>
299-947-100 TY2 CL2	Adhesive (1 pint)	A/R	C-317
MS20470AD4 (grip length to suit)	Rivet	A/R	
MIL-PRF-81733 2.5 OZ	Sealant	A/R	C-392
MIL-PRF-23377, Ty I	Epoxy Polyamide Primer	A/R	C-204

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

SPECIAL TOOLS:

None required.

WEIGHT AND BALANCE:

	<u>Weight</u>	<u>Longitudinal</u>		<u>Lateral*</u>	
		<u>Arm</u>	<u>Moment</u>	<u>Arm</u>	<u>Moment</u>
STA 122.33	+0.1 Lbs +0.04 kg	345.0 in. 8763 mm	+35 in-Lbs +3.5 kg x mm/100	0.0 in. 0mm	0.0 in-Lbs 0 kg x mm/100
STA 143.28	+0.1 Lbs +0.04 kg	365.8 in. 9291 mm	+37 in-Lbs +3.7 kg x mm/100	0.0 in. 0mm	0.0 in-Lbs 0 kg x mm/100
STA 164.23	+0.1 Lbs +0.04 kg	387.0 in. 9830 mm	+39 in-Lbs +3.9 kg x mm/100	0.0 in. mm	0.0 in-Lbs 0 kg x mm/100
STA 185.18	+0.1 Lbs +0.04 kg	407.0 in. 10338 mm	+41 in-Lbs +4.1 kg x mm/100	0.0 in. 0mm	0.0 in-Lbs 0 kg x mm/100
STA 194.30	+0.1 Lbs +0.04 kg	416.0 in. 10566 mm	+42 in-Lbs +4.2 kg x mm/100	0.0 in. 0mm	0.0 in-Lbs 0 kg x mm/100
Total	+0.5 Lbs +0.2 kg	383.7 in. 9746 mm	+192 in-Lbs +19.5 kg x mm/100	0.0 in. 0mm	0.0 in-Lbs 0 kg x mm/100

* In lateral calculations, - is left and + is right.

ELECTRICAL LOAD DATA:

Not affected.

REFERENCES:

BHT-412-MM, Maintenance Manual
BHT-ALL-SRM, Structural Repair Manual

PUBLICATIONS AFFECTED:

None affected.

ACCOMPLISHMENT INSTRUCTIONS:

1. Prepare the helicopter for maintenance.
2. Remove the access panels at the tailboom lower surface to gain access to the bulkheads at STA 122.33, 143.28, 164.23, 185.18, and 194.30.
3. Select the proper doubler for the location ([Figure 1](#)) and remove the existing rivets common to the outside skin in the area covered by the doubler. Note rivet size, type, and location for reinstallation.

-NOTE-

Locations already repaired, in accordance with Repair 5-6-2 of the Structural Repair Manual (SRM), do not qualify as being reinforced in accordance with this bulletin. All 40 locations shown in this bulletin must be reinforced for this bulletin to be considered accomplished.

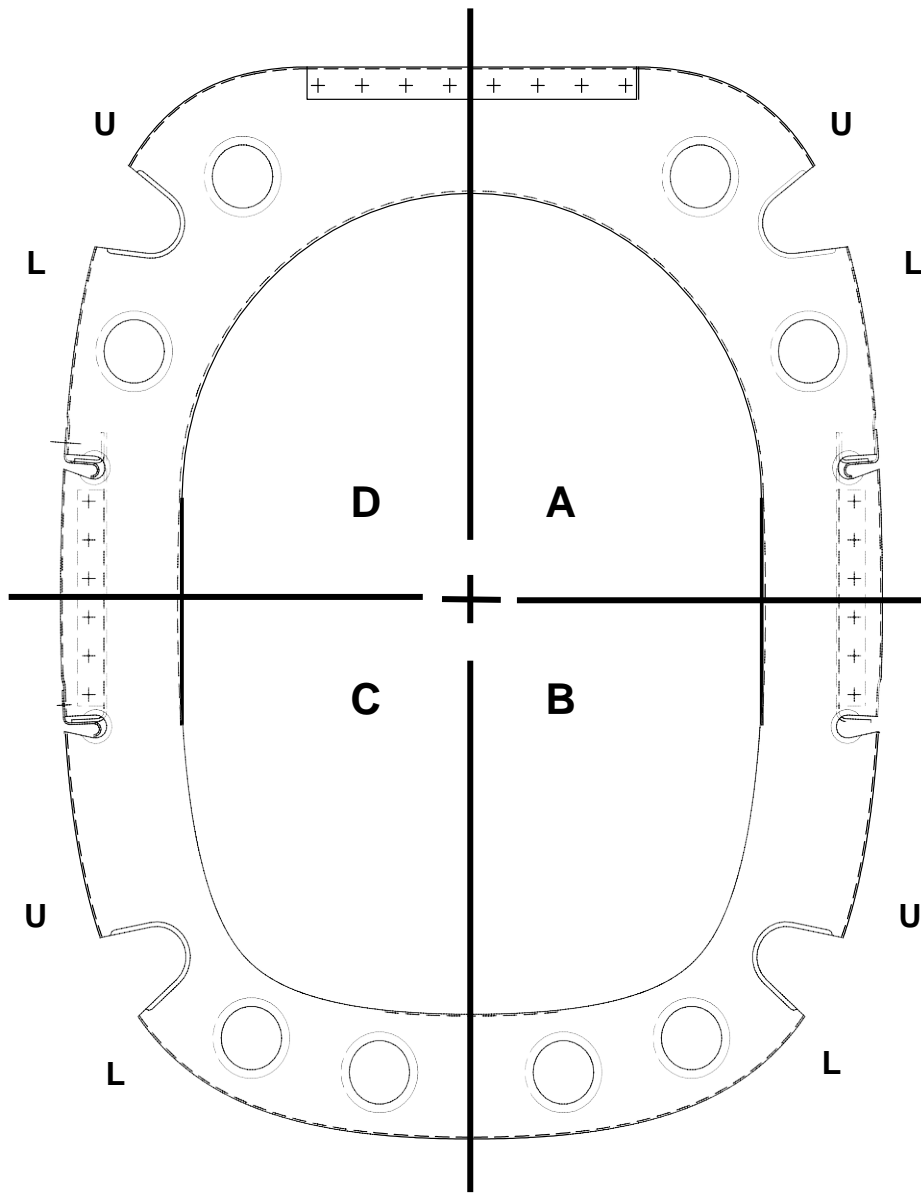
4. Inspect the bulkhead for cracks and repair as required. If a crack is found in the area covered by the intended doubler(s), replace the bulkhead.

-NOTE-

All the doublers are installed on the forward face of the existing bulkhead. Doublers may need slight reshaping to properly nest in the radius without inducing stress to the bulkhead.

5. Position the doubler selected in step 3 and transfer the existing rivet holes. Attach with Clecos. Mark for two or three additional rivet holes, depending on the location, through the doubler and the existing bulkhead, as shown in [Figure 2](#). Remove the doubler and deburr all the parts.

6. Lightly sand the faying surfaces and apply adhesive (C-317). Attach the doubler with existing-type rivets of appropriate length. All new rivets are MS20470AD4 rivets. Remove excess adhesive squeeze out and allow to dry
7. Seal the doubler edges with sealant (C-392) and apply a coat of primer (C-204).
8. Repeat step 3 through step 7 for all other applicable locations.
9. Reinstall the access panels at the lower surface of the tailboom.
10. Prepare the helicopter for flight.
11. Make an entry in the helicopter logbook and historical service records indicating compliance with this Technical Bulletin.

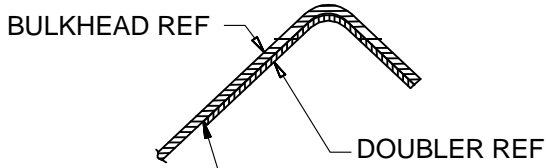


TYPICAL BULKHEAD
LOOKING FORWARD

Sta.	Bulkhead	A		B		C		D	
		UPPER	LOWER	UPPER	LOWER	UPPER	LOWER	UPPER	LOWER
122.33	205-032-821	-136	-138	-141	-145	-139	-143	-135	-137
143.28	205-032-820	-136	-138	-141	-145	-139	-143	-135	-137
164.23	205-032-827	-136	-138	-141	-145	-139	-143	-135	-137
185.18	205-032-828	-137	-141	-145	-149	-143	-147	-135	-139
194.30	205-032-824	-137	-141	-145	-149	-143	-147	-135	-139

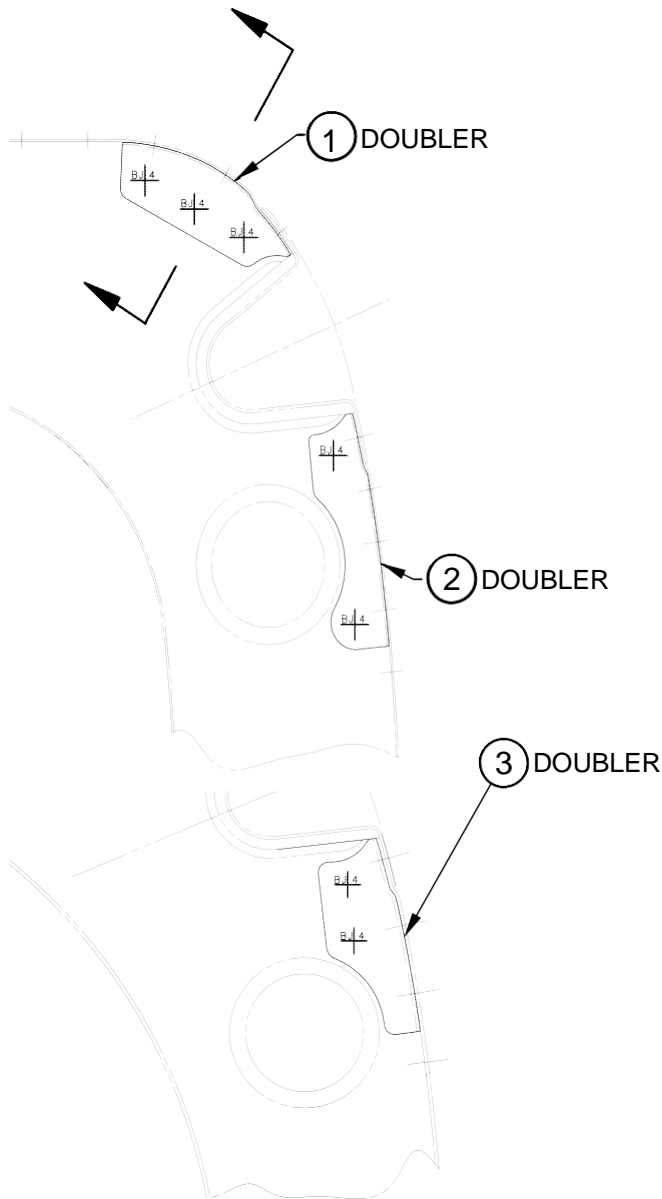
Figure 1

Doubler Selection



299-947-199 TY II, CL 2
ADHESIVE

Typical Cross-section



Parts List

1. 205-032-820-135
205-032-820-136
205-032-820-139
205-032-820-141
205-032-820-143
205-032-820-145
205-032-821-135
205-032-821-136
205-032-821-137
205-032-821-138
205-032-821-139
205-032-821-141
205-032-821-143
205-032-821-145
205-032-824-135
205-032-824-137
205-032-824-143
205-032-824-145
205-032-824-147
205-032-824-149
205-032-827-135
205-032-827-136
205-032-827-143
205-032-827-145
205-032-828-135
205-032-828-137
205-032-828-147
205-032-828-149
2. 205-032-824-139
205-032-824-141
205-032-827-137
205-032-827-138
205-032-827-139
205-032-827-141
205-032-828-139
205-032-828-141
205-032-828-143
205-032-828-145
3. 205-032-820-137
205-032-820-138

Note: Shape and size of doublers may vary. Maintain 2D edge distance on end fasteners. Fastener pattern typical

Figure 2

Typical installation
Old VS New doublers part numbers

STA 122.33:	
Original P/N	New P/N
205-032-821-115	205-032-821-135
205-032-821-116	205-032-821-136
205-032-821-117	205-032-821-137
205-032-821-118	205-032-821-138
205-032-821-119	205-032-821-139
205-032-821-121	205-032-821-141
205-032-821-123	205-032-821-143
205-032-821-125	205-032-821-145

STA 143.28:	
Original P/N	New P/N
205-032-820-115	205-032-820-135
205-032-820-116	205-032-820-136
205-032-820-117	205-032-820-137
205-032-820-118	205-032-820-138
205-032-820-119	205-032-820-139
205-032-820-121	205-032-820-141
205-032-820-123	205-032-820-143
205-032-820-125	205-032-820-145

STA 164.23:	
Original P/N	New P/N
205-032-827-115	205-032-827-135
205-032-827-116	205-032-827-136
205-032-827-117	205-032-827-137
205-032-827-118	205-032-827-138
205-032-827-119	205-032-827-139
205-032-827-121	205-032-827-141
205-032-827-123	205-032-827-143
205-032-827-125	205-032-827-145

STA 185.18:	
Original P/N	New P/N
205-032-828-115	205-032-828-135
205-032-828-117	205-032-828-137
205-032-828-119	205-032-828-139
205-032-828-121	205-032-828-141
205-032-828-123	205-032-828-143
205-032-828-125	205-032-828-145
205-032-828-127	205-032-828-147
205-032-828-129	205-032-828-149

STA 194.30:	
Original P/N	New P/N
205-032-824-115	205-032-824-135
205-032-824-117	205-032-824-137
205-032-824-119	205-032-824-139
205-032-824-121	205-032-824-141
205-032-824-123	205-032-824-143
205-032-824-125	205-032-824-145
205-032-824-127	205-032-824-147
205-032-824-129	205-032-824-149