

ALERT SERVICE BULLETIN

205B-08-51

19 December 2008

Revision C, 11 January 2017

MODEL AFFECTED: 205B

SUBJECT: MAIN ROTOR BLADE 212-015-501-005, -111, -113, -115, -117, -119 AND -121, INSPECTION OF.

HELICOPTERS AFFECTED: Serial numbers 30188, 30166, 30066, and 30297.

COMPLIANCE: Within the next 25 flight hours after the date of issuance of Rev C as indicated in this bulletin and every 25 hours thereafter.

DESCRIPTION:

The initial release of this Alert Service Bulletin introduced a recurring 100-hour main rotor blade inspection for debonding of doublers and cracks in the root end area. The bulletin was released following the report of a main rotor blade found cracked through the blade retention bolt hole at blade station 28.0 and through the lower grip plate at blade station 36.0. The cracked main rotor blade 212-015-501-115 had approximately 1,000 hours total time in service. The main rotor blade contained a fatigue fractured grip plate, fatigue fractured doublers, and a fatigue cracked spar on the bottom of the blade as a result of inadequate bond between the doublers and the grip plate.

Revision A of this bulletin was released for an editorial change in the DESCRIPTION paragraph.

Revision B was released to change the inspection procedure and the interval was reduced from 100 to 25 hours. These changes were required after two more blades with similar conditions were found.

Revision C is released to change the inspection procedure. The investigation, conducted on another main rotor blade, found a crack through the blade retention bolt hole. The Operation Safety Notice (OSN) 212-16-52/205B-16-19 was released to inform owners and operators of this occurrence. The change in this inspection procedure now mandates a visual inspection with a 10X power magnifying glass for the possible presence of cracks emanating from the blade bolt bushing bore. The inspection interval of 25 flight hours remains unchanged.

Applicability of this bulletin to any spare part shall be determined prior to its installation on an affected helicopter.

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:

Bell Helicopter Product Support Engineering - Medium Helicopters
Tel: 450-437-6201 / 1-800-363-8028 / psemedium@bh.com

MANPOWER:

Approximately 1.0 man-hour is 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:

None required.

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 (Note)</u>	<u>Reference *</u>
2100-00006-00	Cleaning Compound	1 liter	C-318
5300-61653-01	Preservative Oil	12 OZ	C-125
2100-06673-00	Isopropyl Alcohol	1 GAL	C-385
5060-60154-00	180-Grit Cloth	1	C-406

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

SPECIAL TOOLS:

None required.

WEIGHT AND BALANCE:

Not affected.

ELECTRICAL LOAD DATA:

Not affected.

REFERENCES:

Operation Safety Notice OSN 205B-16-19
BHT-212-CR&O, Component Repair and Overhaul Manual

PUBLICATIONS AFFECTED:

BHT-205B-MM, Maintenance Manual

ACCOMPLISHMENT INSTRUCTIONS:

1. Wash the upper and lower main rotor blade surface with a solution of cleaning compound (C-318) and water. Rinse thoroughly and wipe dry.

-NOTE-

Accomplishment of this inspection does not require removal of blades from the main rotor hub.

CAUTION

Inspection of the lower side of the blade will require supporting (lifting) the tip to remove any bow. Failure to support the blade adequately may render chordwise cracks difficult to detect.

2. Inspect the main rotor blade upper and lower grip plates and doublers for their entire length and chord width. Inspect for signs of cracks, corrosion, and edge voids, paying particular attention to the bond lines between the doublers, grip plates, and skin. Hair line cracks in the paint finish should be suspect for possible cracks/voids.

3. Wipe the area to be inspected with an alcohol-soaked cloth (C-385) and wipe dry with a clean cloth.

-NOTE-

Carry out step 4 of this ASB immediately after carrying out the above alcohol wipe. Any potential cracks in the bond lines between the doublers or grip plates will be indicated by the presence of excess alcohol bleeding out of an edge void. This excess alcohol in the void will appear as a dark line between the bond lines of the doublers

-NOTE-

A strong light source applied at an oblique angle and perpendicular to the crack orientation is required when inspecting the blade. To detect potential chordwise cracks, the light source should be applied in a spanwise direction.

CAUTION

Pay particular attention not to remove any parent material from the skin/doublers during the sanding operation.

4. Carry out a detailed visual inspection of the top and bottom inspection areas of the blade with a 3X power magnifying glass and a strong light source. Refer to Figure 1. Check for evidence of a dark line between the doublers, grip plates, and skin with excess alcohol bleeding out of possible edge voids. Any cracks in the finish must be investigated further by removing paint in the affected areas. Sand the affected area in a spanwise direction with an abrasive cloth or paper (C-406) 180 to 220 grit to determine if the grip plate/doublers are cracked or voided. Any crack in the paint finish, which follows the grip plate/doublers outline, may indicate a possible edge void.
5. Carry out a detailed visual inspection of the top and bottom inspection areas in the blade bolt area with a 10X power magnifying glass and a strong light source (Figure 4). Inspect the leading edge and trailing edge sides of the blade at the blade bolt span station for evidence of cracks or dark lines in the grip plates going across the doublers (Figure 3). Any cracks in the finish must be investigated further by removing paint in the affected areas. Sand the affected area in a spanwise direction with an abrasive cloth or paper (C-406) 180 to 220 grit to determine if the grip plate/doublers are cracked or voided.

6. If cracks in the grip plate/doublers are found, the affected blade must be immediately removed from service. If no cracks are detected, continue with step 7.
7. If edge voids between the grip plate/doublers/skin are found, determine the depth and length with a 0.0015 inch (0.038 mm) feeler gauge. If edge voids are suspected near the outboard tip of the grip plate/doublers, carry out a tap test of the affected area. Refer to the BHT-212-CR&O, 62-8 through 62-10 for void repair limits and inspection/repair instructions. If no voids are detected, continue with step 8.
8. Refinish the sanded area as per the BHT-212-CR&O, Chapter 62.
9. Following the inspection, apply a light coat of preservative oil (C-125) to all surfaces of blade.
10. Make an entry in the helicopter logbook and historical service records indicating findings and compliance with this Alert Service Bulletin.



Figure 1 - Area to be inspected with 3X Power Magnifying Glass (Upper and Lower Surfaces)



Figure 2 - Crack indications



Figure 3 - Crack indication

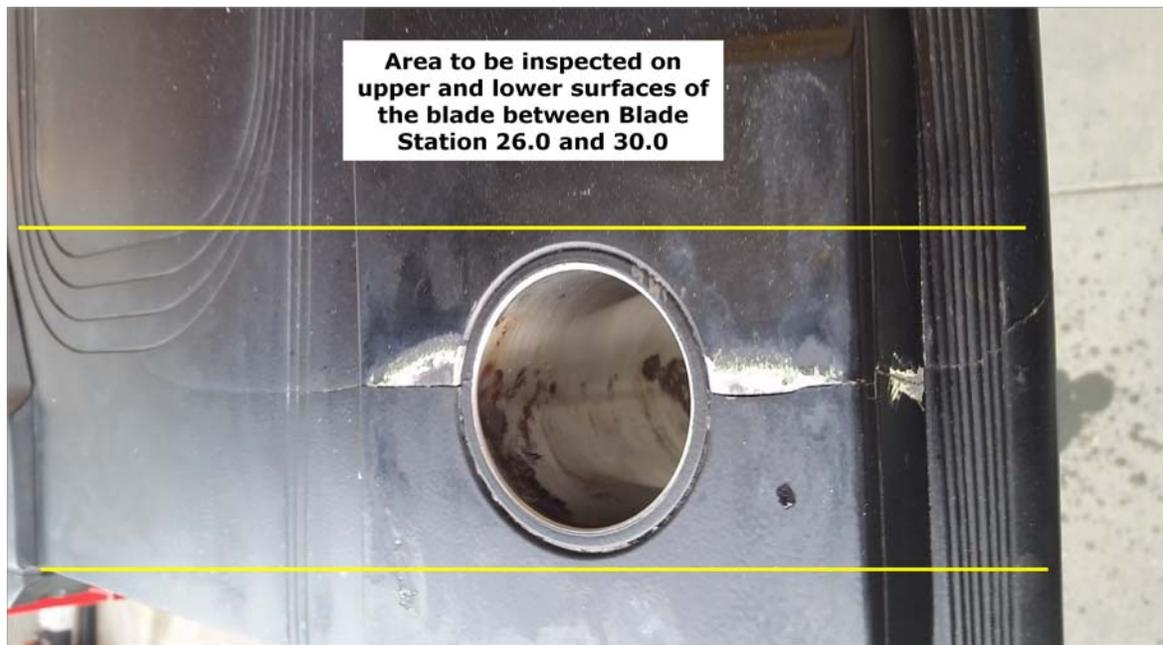


Figure 4 - Area to be inspected with a 10X Power Magnifying Glass (Upper and Lower Surfaces)

Note: It is not required to remove the blade for inspection. The areas under the grip tangs will not be visible.