



Service Bulletin AGAUS 02/2010

Rotor Blade Cracking

MANDATORY

Repeating Symbols

W	Warning	Identifies an instruction, which if not followed may cause serious injury or even death.
C	Caution	Denotes an instruction, which if not followed, may severely damage the gyroplane or lead to suspension of warranty.
N	Note	Information for better application of the service bulletin.

1. Planning Information

1.1	Effective Date	27 September 2010
1.1	Aircraft Affected	All MTO 3 and MTO Sport Models
1.2	Reason	<p><u>Problem description & cause of problem</u></p> <p>A problem has been found in service on an MTO series aircraft in the UK where, it is believed, high loads have been exerted on the rotor system as a result of manoeuvres considered to be outside handbook limits.</p> <p>These manoeuvres result in the rotor system having to sustain high G loadings whilst at a rotor rpm less than the design rpm for those conditions. This puts the root of the blade under bending stress, and repeated cycles may cause permanent deformation (i.e. bending) or subsequent cracking of the blade in the area of the outboard bolt hole.</p> <p>If present, any cracking can be visually seen by removing the blade from the hub bar, and by the pilot during pre flight checks when extending beyond the edge of the hub bar.</p> <p><u>Consideration</u></p> <p>AutoGyro Australia has no control over the actual usage of the aircraft, and endeavours to ensure safe flight is maintained. Whilst AutoGyro GmbH and AutoGyro Australia are confident that an MTO aircraft flown within handbook limits is completely safe, AutoGyro Australia require a fleet inspection to prove the safety case in order to allow continued flight operations.</p> <p>This bulletin requires immediate visual inspection of the rotor blade to hub bar attachment area, and periodic inspection of that area as part of normal 100hr servicing.</p> <p>It also serves to remind operators that slowing a rotor down deliberately, then quickly exerting high G-loadings (by manoeuvres such as tight turns), will induce significant bending loads on the rotor system, for which it is not designed. Such flight operation invalidates the warranty.</p>



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1.3	Subject	Rotor Blade Cracking
1.4	Compliance W - WARNING	Immediate Before next flight
1.5	Manpower	Estimated 2 hours
1.6	Mass Data	No Change
1.7	Electrical Load Data	No Change
1.8	Repetition	This inspection is required immediately, and at every 100hr service thereafter. Operators are reminded that the underside of each rotor-blade must be visually checked for cracks before flight, especially around the outboard bolt area.
1.8	Other Publications Affected	Flight Manual/Maintenance Manual/Service Shedule - to be added in the next issue of the Flight Manual, Maintenance Manual and to the service schedule
1.9	Interchangeability of parts	None

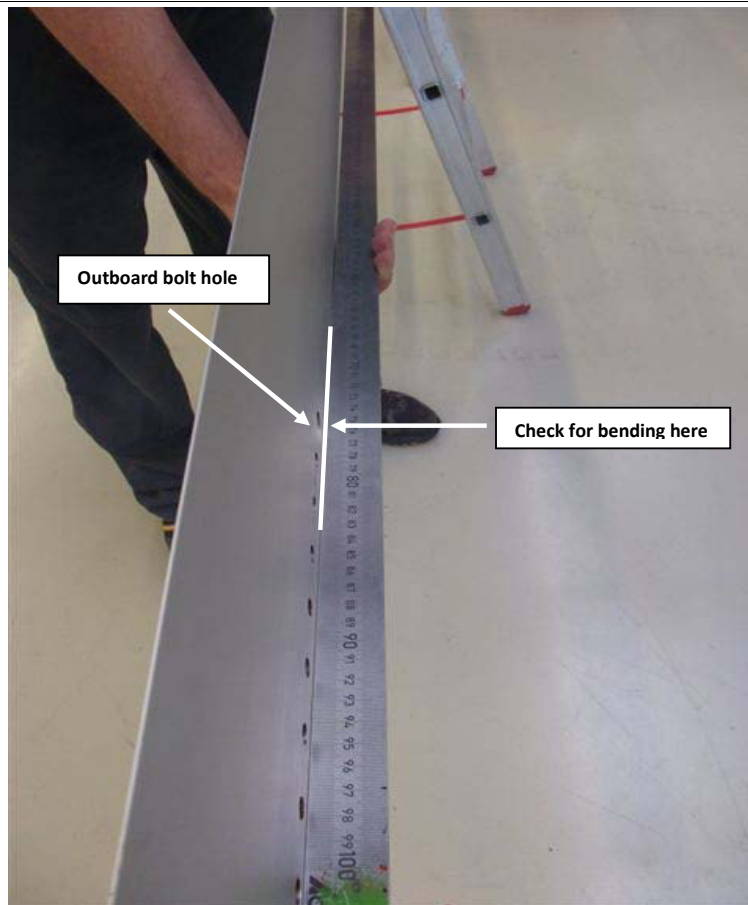
2. Material Information

2.1	Material Cost and Availability	None
2.2	Material Requirement per aircraft	If it is necessary to remove a component lock wire, nylock nut or split pin during assembly, it is obligatory to replace this part with a new one.
2.3	Material requirement per spare part	None
2.4	Rework of parts	None
2.5	Special Tooling	Torque wrench/spanners/1 metre steel rule or straight edge/magnifying glass

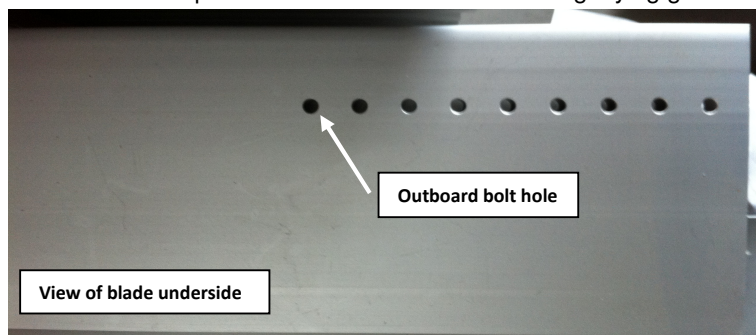
3. Accomplishment/Instructions

3.1	Accomplishment	All work is to be done and confirmed by the following persons or facilities; AutoGyro GmbH AutoGyro Australia AutoGyro Australia authorised persons ASRA appointed Technical Advisor
3.2	Instructions W – WARNING C - CAUTION	<ol style="list-style-type: none"> 1. Remove the rotor assembly from the aircraft and disassemble the rotor blades from the hub. Do not remove or adjust any other nuts/bolts on the hub bar assembly. 2. Ensure that the location of the side spacers in relation to the hub bar and the rotor head are marked for refitment, to maintain rotor balance. 3. Lay the blades with their bottom uppermost on trestles ensuring that no undue distortion is evident. 4. Clean carefully and degrease the inspection area. 5. Raise each blade on one edge without deforming the blade and lay the straight edge along the centreline of the bolt holes (see photo). Check for bend around the outboard hole. No bend is permitted.


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6. Carefully visually inspect the area of the outboard bolt hole on **both** the underside and top-side of the rotor blade with a magnifying glass.



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		<p>On AutoGyro blades (rounded outer end cap) any crack is likely to be across the bolt hole itself.</p>  <p>On Aircraft blades (flat outer end cap) any crack is likely to be approximately 10mm outboard of the hole, or at the hole.</p> <p>Obviously, no cracks are permitted in any area.</p> <p>C - CAUTION</p> <p>7. After inspection, and assuming no fault is found, reassemble the rotors.</p> <p>The rotor blades, spacer extrusion and hub are individually numbered to define the installation direction. By matching these numbers, fit the spacer extrusion to the blades and then fit the blades into the hub. Insert the 9 bolts through the hub and blade assembly from the top then fit the washer and new M8 nyloc nut to the bolt on the lower surface.</p> <p>DO NOT hammer the bolts home! Normally no tracking adjustment is required, simply tighten the rotor blade attach bolts to 20Nm.</p> <p>To check the tracking, use a taut string line between the rear outside corners of the blade ends. If required, tracking may be adjusted prior to tightening the nuts by tapping the blades by hand in the hub bar so that the string passes directly over the centre of the grease nipple in the centre block.</p> <p>When satisfactory, tighten all 18 nuts to 20Nm</p> <p>Re-fit the rotor assembly to the aircraft ensuring that the location of the side spacers in relation to the hub bar and the rotor head is correct. Use a new split pin in the teeter bolt nut. Ensure that the teeter bolt is only tightened finger-tight.</p> <p>N - NOTE</p> <p>8. AutoGyro Australia require that the actual inspection is carried out and noted in the aircraft log book by the authorised person/s only.</p> <p>9. If after inspection, the rotor is cracked or considered defective contact AutoGyro Australia immediately. No further flight permitted.</p>
3.3	Test Flight	Conduct test flight to ensure correct flight characteristics.
3.4	Summary	<p>These instructions (Section 3) have to be conducted in accordance with compliance in Section 1.4.</p> <p>Authorised Person to certify that the work is completed by writing 'SB-02/2010 Rotor blade inspection passed, rotor serial no XXXX/XXXX' in the aircraft logbook and return the completed Service Bulletin Implementation form within the required time.</p>



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3.5	Evidence of Accomplishment	Provide a copy of the Service Bulletin Implementation form and a copy of the aircraft log book page duly noting the aircraft registration and confirmation of compliance with this Service Bulletin to AutoGyro Australia within fourteen (14) days of notification of the Service Bulletin and before further flight.
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SERVICE BULLETIN IMPLEMENTATION ADVICE

Inspection Date: _____/_____/_____
Aircraft Registration Number: G - _____
Aircraft Model: _____
Aircraft Serial Number: _____
Aircraft Hobbs Meter Reading: _____ hours total
Primary use of the aircraft: _____ (eg. recreation, training)
Rotor Blade 1 Serial Number: _____
Rotor Blade 2 Serial Number: _____

Task	Finding	Initials
Check for cracks – underside blade 1		
Check for cracks – top surface blade 1		
Check for bending – underside blade 1		
Check for cracks – underside blade 2		
Check for cracks – top surface blade 2		
Check for bending – underside blade 2		

Declaration:

I certify that I have conducted the inspection in accordance with Service Bulletin AGAUS 02/2010 on the above date.

I further confirm that the aircraft log book has been duly annotated.

_____/_____/_____
Signature of person conducting the inspection Date:

Name of person conducting the inspection: _____

THIS FORM IS TO BE COMPLETED AT THE TIME OF INSPECTION AND RETURNED ALONG WITH A COPY OF THE LOG BOOK PAGE TO AUTOGYRO AUSTRALIA WITHIN FOURTEEN (14) DAYS OF NOTIFICATION OF THE SERVICE BULLETIN.