Australian Government
Civil Aviation Safety Authority

AIRWORTHINESS BULLETIN

Robinson R22 and R44 Main Rotor Blade Disbonds

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Introduction

This Airworthiness Bulletin is issued following the release of a Special Airworthiness Information Bulletin (SAIB) on the issue of R22 and R44 Main Rotor Blade disbonding. This SAIB is available at:

www.faa.gov/aircraft/safety/alerts/saib/media/SW-06-55.pdf

The content of this CASA Airworthiness Bulletin repeats the content of this FAA SAIB in its entirety, collates all known information into one document and emphasises the importance to operators and maintainers.

Background

The current Model R22 helicopter's main rotor blade, P/N A016-4, has been changed from an aluminium skin to a stainless steel skin similar in design to those on Model R44 helicopters. Several of the Model R22 P/N A016-4 blades have been found disbonded at the outboard tips of the inboard doubler (see Robinson service letters for location). Similar disbonds are also occurring on the Model R44 blades, P/N's C016-2 and C016-5. This disbond condition, when it is within the limits specified in the Service Letters, does not pose a hazard to safe flight.

Robinson recently issued two service letters which apply to Model R22 and R44 helicopters with main rotor blades, part number A016-4, C016-2 or C016-5. These service letters contain instructions for inspecting the main rotor blades for disbonding.

Recommendations

The Robinson Service letters should be followed to prevent any disbonds growing beyond acceptable limits. These limits are outlined in the Robinson Service Letters.

For the Model R22 helicopter, we recommend performing a tap inspection on the P/N A016-4 main rotor blade at the outboard tips of the P/N A934 doubler as described in R22 Robinson Service Letter SL-55. Repeat the inspection at each 100 hour inspection of the helicopter. If disbonding is found beyond limits, notify Robinson per the service letter.

For the Model R44 helicopter, we recommend performing a tap inspection on the P/N C016-2 or C016-5 main rotor blade at the outboard tips of the P/N C934 doubler as described in R44 Robinson Service Letter SL-31. Repeat the inspection at each 100 hour inspection of the helicopter. If disbonding is found beyond limits, notify Robinson per the service letter.

The service letters are available at:

For R44 - http://www.robinsonheli.com/srvclib/r44sl31.pdf

For R22 - http://www.robinsonheli.com/srvclib/r22sl55.pdf

Information previously released by CASA relating to this subject:

CASA letter to all operators dated 27 April 2006:

Enquiries

Enquiries with regard to the content of this Airworthiness Bulletin should be made via the direct link e-mail address: AirworthinessBulletin@casa.gov.au

Or in writing, to:

Manufacturing, Certification and
New Technologies Office,
GPO Box 2005, Canberra, ACT, 2601

Australian Government
Civil Aviation Safety Authority

To the Certificate of Registration Holder
Robinson R22 Helicopter

Subject: Robinson R22 Helicopter Main Rotor Blade Finger Doubler Disbonding

Dear Sir or Madam,

In the last few days CASA has received reports from several operators of disbonding of the upper and/or lower finger doublers on R22 Main Rotor blades.

CASA has advised the FAA, who have informed Robinson Helicopter Company of the problem. At this stage it is not known whether the disbonding is a design related issue or a manufacturing batch issue, although all reported disbonds have occurred within a 40 serial number range. There is also no evidence to suggest that this problem is only confined to Australian registered helicopters. Investigations by Robinson and the FAA are continuing. The manufacturer, Robinson, may release instructions on how to proceed shortly.

In the interim, until further advice from the manufacturer, CASA advises all R22 operators to perform a one-off inspection of the finger doublers on the upper and lower surface of each blade to determine if there is any indication of disbonding of the doubler. A photograph has been provided to show a typical location where the doubler is lifting.

Visually inspect the ends of the upper and lower finger doublers (See figure 1 for the typical location) for:

(i) Cracks in paint or filler material;

(ii) Evidence of the doubler lifting; or

(iii) Any other indication of doubler separation, such as opening up of the doubler-to-blade skin seam.

A suspected disbond may be confirmed by performing a standard tap test.

If you suspect that the doubler has disbonded, in the first instance contact your local Robinson representative for advice. Following this, advise CASA by submitting a Service Difficulty Report form (SDR).

It is important to note that the FAA has informed us that a small level of disbond or doubler lifting is NOT an immediate safety of flight issue. However, once disbonding is suspected, the blades should be removed from service, pending repair or other advice from the manufacturer.

If you have any questions regarding this letter, please contact Mr Richard Castles on e-mail richard.castles@casa.gov.au or telephone 02-6217-1568 or toll free on 131 757.

Yours faithfully,

Richard Castles
Acting Section Head – Airframes
Manufacturing, Certification and New Technologies Office

27 April 2006.

Figure 1: Main Rotor Blade showing typical location of disbond on finger doubler.