



COMMENT RESPONSE DOCUMENT

EASA PAD No. 18-037

[Published on 14 March 2018 and officially closed for comments on 11 April 2018]

Commenter 1: Airtask Group – Ian Viscogliosi – 16/03/2018

Comment # 1

Airtask Group (Directflight) operates 4 Britten-Norman BN2B Islander aircraft. I would formally like to lodge a strong objection to the proposed AD.

My reasons for this are as follows:

I do not believe that a detailed root cause analysis has been carried out. Occurrences have been reported of failures of the rudder final drive rod, P/N NB-45-0991. Cracks were found in the region of the taper pins. There is evidence that replacing the taper pins could be a significant factor contributing to the failure of this rod. I would like to see the evidence gathered by B-N substantiating the replacement of the taper pins as the root cause of the failure. How many operators have been canvassed for data regarding taper pin replacements? We haven't. Had the aircraft, that had the final drive rod fail in flight, (see report BFU 7x004-15) had its pins replaced? And was this the cause of the failure? If pin replacement is a factor in the failure, then the design of the rod and all the other control rods with taper pins should be brought into question.

This condition, if not detected and corrected, could lead to failure of the affected part, possibly resulting in reduced control of the aeroplane.

Detection of the condition is not covered in detail by the maintenance program, or any other inspection.

AMM REF	NO.	MAJOR AREA	SUB AREA	ITEM	ACCESS PANELS	NOT EXCEED PERIOD	ADDNL INSPECTION/WORK
2.6	9			RUDDER CONTROL IDLER LEVERS, CABLES AND DRIVE LEVERS	F15, 21, 22, T12	100 hr	

Above is the extract from the manufacturer maintenance schedule, with the only task that references the Rudder Control. AMM 2.6 only covers the Description and Operation of the system only. The Maintenance Charts in 2.6 also have no associated information with regards to inspection.

An amplified/objective inspection of the Rudder Final Drive Rod would be sufficient to detect and correct loose taper pins (which could be a result of cracking). But no such inspection exists.

As a result of another incident on the 1st December 2017, reported by a UK operator, alerting other operators, Airtask immediately issued an amplified inspection of the affected area (enclosed). Operators should have been alerted and advised to inspect final drive rods, soon after the first incident in



2015. Maintenance/Inspections of this aircraft solely relies on experienced personnel knowing where to look, how to rectify, all of which is based on knowledge gathered over the years.

For the reason described above, this AD requires a one-time inspection of the affected part and, depending on findings, replacement. This AD also prohibits replacement of taper pins on an affected part. BNA will amend the applicable Maintenance Manuals accordingly.

A one-time inspection will not correct the condition, as loose pins at a later time on a rod that has never been repaired may not be detected.

“BNA will amend the applicable Maintenance Manuals”

In December 2015, I wrote to EASA to complain about the lack of ICA’s and AD’s for the Britten-Norman Islander Aircraft. There are numerous SB’s and AD’s that have the above statement, yet this aircraft has a Maintenance Program last issued in 1993 and is being maintained using Service Bulletins & AD’s some of which are out of date. This aircraft solely relies on experienced personnel knowing where to look, how to rectify, all of which is based on knowledge gathered over the years. This is an unsatisfactory condition.

Regulation (EC) No 216/2008 Article 20 (1)(j), EASA shall *“ensure the continuing airworthiness functions associated with the products, parts and appliances which are under its oversight, including reacting without undue delay to a safety problem and issuing and disseminating the applicable mandatory information”*

In conclusion, this proposed AD will not eliminate future failures, and does not address adequately how to prevent future failures, namely ICA’s. It is my opinion that the root cause of the failure, is a rudder system design weakness, in that, it is vulnerable to wind gust damage. I personally suspect the rudder stops are in the wrong place, evidenced by the continual readjustment of the stops of aircraft in service, and the reported defects found by other operators of the rudder drive lever. What is required is a valid repeat inspection, a revised rudder final drive rod (solid) which is replaced at attrition, and gust damage prevention of the rudder to be reviewed.

EASA response:

Comments partially agreed. Analysis of the available information indicates that the most likely cause of failure was repair by replacement of taper pins. In addition, fatigue seems likely to be a factor. The applicable SBs have been revised to introduce repetitive inspections, and this PAD has been revised accordingly.

Commenter 2: Invercargill Aircraft Maintenance – Bill Moffatt – 22/03/2018 and 11/04/2018

Comment # 2

[22/3/2-18] How many occurrences have been reported for failure of the rudder final drive rod P/N NB-45-0991?



[11/4/2018] I have asked BN (three times) how many defective drive rods have been reported but they have failed to supply this information. This makes me think it is a very small amount compared to the number of aircraft in service. The failed drive rods are more likely to have been caused by maintenance staff not fitting the taper pins correctly or fitting incorrect size pins. I believe the replacement of pins should be permitted as long as it is done correctly using the proper tools. The new replacement drive rods have taper pins fitted so no product improvement been made.

EASA response:

Comments not agreed. Operator reports to the design approval holder, or to EASA, are not considered to be made publicly available. It is a practical impossibility for the design approval holder, or EASA, or any State of Registry authority, to ensure that, in each case, taper pin replacement is “done correctly using the proper tools”. The purpose of this AD is not to provide any “product improvement” but to ensure continued airworthiness, i.e. preventing in-flight failures. No changes have been made to the Final AD in response to this comment.

Commenter 3: Cormack Islander Aircraft – George Miller – 26/03/2018

Comment # 3

Occurrences have been reported of failures of the rudder final drive rod, P/N NB-45-0991. Cracks were found in the region of the taper pins. There is evidence that replacing the taper pins could be a significant factor contributing to the failure of this rod.

What root cause gathered by B-N substantiated that the replacement of the taper pins was the cause of the failure. How many operators have been canvassed regarding taper pin replacements? We haven't. Had the aircraft, that had the final drive rod fail in flight, had its pins replaced? If pin replacement is a factor in the failure, then the design of the rod and all the other control rods with taper pins should be brought into question.

This condition, if not detected and corrected, could lead to failure of the affected part, possibly resulting in reduced control of the aeroplane.

Detection of the condition is not covered by the maintenance program

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Above is the only task that references the Rudder Control. AMM 2.6 only covers the description and operation of the system only. The Maintenance Charts also have no associated information. An amplified inspection of the Rudder Final Drive Rod would be sufficient to detect and correct loose taper



pins (which could be a result of cracking). But no such inspection exists. Inspection of this aircraft solely relies on experienced personnel knowing where to look, how to rectify, all of which is based on knowledge gathered over the years.

For the reason described above, this AD requires a one-time inspection of the affected part and, depending on findings, replacement. This AD also prohibits replacement of taper pins on an affected part. BNA will amend the applicable Maintenance Manuals accordingly.

A one-time inspection will not correct the condition, as loose pins on a rod that has never been repaired could also lead to cracking if that is the case.

“BNA will amend the applicable Maintenance Manuals”. This aircraft has a Maintenance Program last issued in 1993.

In conclusion, it is my opinion that the rudder system design is flawed, in that, it is vulnerable to wind gusts. The stops are in the wrong place, evidenced by the continual readjustment of the stops on our fleet. And the reported defect found by other operators of the rudder drive lever. I firmly believe that an AD is not required. I suggest that a valid repeat inspection criteria, a revised rudder final drive rod which is replaced at attrition, and gust damage prevention of the rudder to be reviewed.

EASA response:

Comments noted, partially agreed. See EASA answer to Comment #1 above.

Service difficulties like “continual readjustment of the stops” are expected to be reported to the design approval holder, to allow investigation and analysis, for possible fleet-wide follow-up action(s).

Note that the Maintenance Manual is not the same as the Maintenance Program (BNA calls this the Maintenance Schedule, actually).

