

Continuing Airworthiness Notice – 27-018

Diamond DA 42 Rudder Steering Bracket P/N D60-5710-20-00-NPC

10 November 2020



Issued by the Civil Aviation Authority of New Zealand in the interests of aviation safety. A Continuing Airworthiness Notice (CAN) is intended to alert, educate, and make recommendations to the aviation community. A CAN contains non-regulatory information and guidance that does not meet the criteria for an Airworthiness Directive (AD). The inspections and practices described in this CAN must still be carried out in accordance with the applicable NZCAR Parts 21, 43 and 91 - CAN numbering is by ATA Chapter followed by a sequential number for the next CAN in that ATA Chapter.

Applicability:

Diamond DA 42 series, all S/N.

Purpose:

This Continuing Airworthiness Notice (CAN) is issued to bring attention to a recent failure of a rudder steering bracket P/N D60-5710-20-00-NPC on a Diamond DA 42 aircraft, which resulted in detachment of the T-yoke assembly and a significant reduction of rudder control.

Background:

An engineering investigation determined that the rudder T-yoke had separated from the rudder steering bracket P/N D60-5710-20-00-NPC and the oblong washer had disbonded from the rudder steering bracket.

The aft side of the elongated hole in the rudder steering bracket was found sheared through the edge of the bracket, which resulted in detachment of the T-yoke axle. Refer to the photo of the rudder steering bracket included in this CAN.

The T-yoke axle, a plain washer, the self-locking nut and the disbonded oblong washer were found securely assembled to the detached T-yoke.

Recommendation:

The CAA strongly recommends a detailed visual inspection of the rudder steering bracket P/N D60-5710-20-00-NPC for the following:

1. Inspect the rudder T-yoke axle for correct installation per the instructions in DAI MSB 42-137/1 or MSB 42NG-079/1 dated 11 December 2019, or later approved revision.
2. Determine whether the hole in the rudder steering bracket P/N D60-5710-20-00-NPC has sufficient edge margin.
Note: The distance from the edge of the bracket to the hole centre must not be less than 18mm. Report the edge margin distance to the CAA by completing a CA005D form. If the distance from the edge of the bracket to the hole centre is less than 18mm, then accomplish corrective action before further flight.
3. If an oblong washer is found installed in accordance with MSB 42-087/1 or MSB 42NG-016/1 dated 15 November 2010, or later approved revision, then determine whether this washer is adequately bonded to the rudder steering bracket.
Note: Not all aircraft have an oblong washer installed. If the oblong washer is loose, then it will dislodge when you remove the T-yoke. To check for adequate bonding of the oblong washer, lightly tug the washer once the T-yoke is removed.

To accomplish inspections 2 and 3 above, the T-yoke axle should be removed from the T-yoke and the rudder steering bracket. The rudder cable turnbuckles should then be released to move the T-yoke forward to determine the location of the attachment hole in the bracket relative to the edge of the bracket, and to also check the condition of the bonding of the oblong washer, if installed.

All work (i.e. disassembly and re-assembly) to accomplish the inspections required by this CAN must be done in accordance with the applicable OEM maintenance manual.

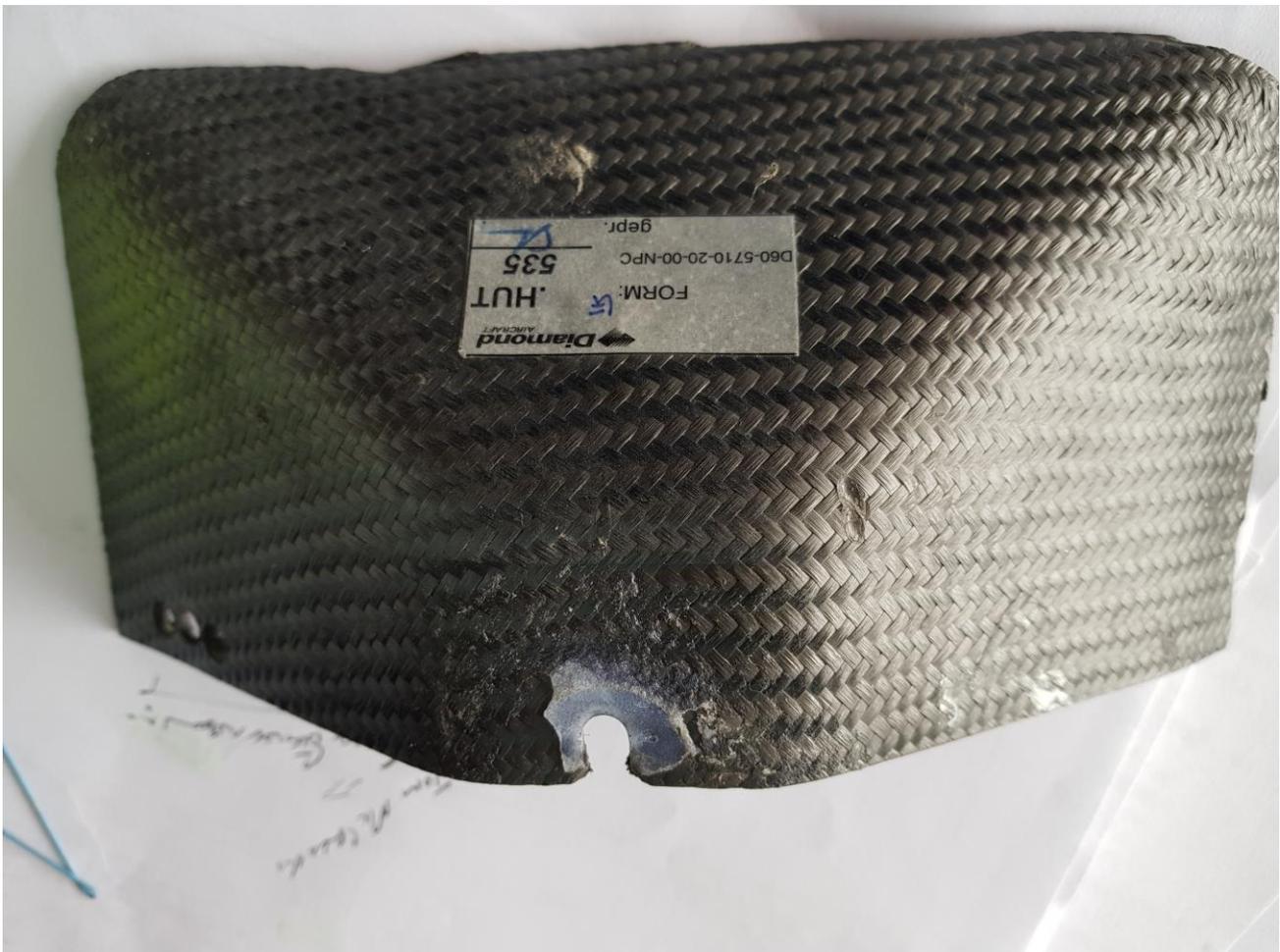
EASA AD 2019-0302 mandates a repetitive inspection of the rudder T-yoke axle nut for looseness in accordance with the instructions in MSB 42-137/1 or MSB 42NG-079/1 dated 11 December 2019, or later approved revision and the AD also introduces an optional terminating modification in accordance with MSB 42-139 or MSB 42NG-081 dated 21 October 2019, or later approved revision. The modification introduces an improved T-yoke axle P/N D60-5320-00-32.

Note:

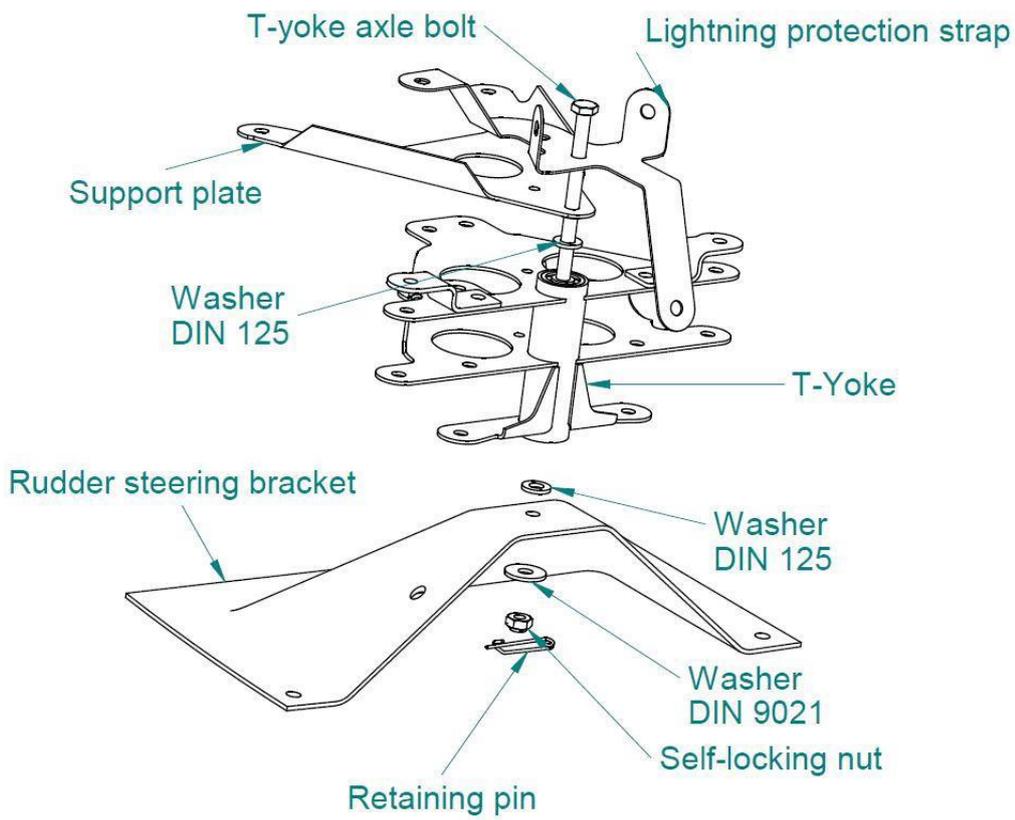
Report findings to the CAA by completing a CA005D Defect Report form and submit the completed form to the CAA at CA005@caa.govt.nz or report findings via the online reporting system available at <https://occurrences.caa.govt.nz/ProdUI/>

Please include details of all findings and any other relevant technical information. Please provide the edge margin measurement of the hole in the rudder steering bracket P/N D60-5710-20-00-NPC and advise if an improved T-yoke axle P/N D60-5320-00-32 is installed.

Defect report forms can be obtained from <https://www.aviation.govt.nz/about-us/forms/Filter/?SearchTerm=&Rule=8>



Rudder Steering Bracket P/N D60-5710-20-00-NPC: The aft side of the oblong hole in the rudder steering bracket was found sheared through the edge of the bracket, which resulted in detachment of the T-yoke axle.



Rudder steering assembly: T-yoke and rudder steering bracket.