



Notification of a Proposal to issue an Airworthiness Directive

PAD No.: 22-177

Issued: 19 December 2022

Note: This Proposed Airworthiness Directive (PAD) is issued by EASA, acting in accordance with Regulation (EU) 2018/1139 on behalf of the European Union, its Member States and of the European third countries that participate in the activities of EASA under Article 129 of that Regulation.

In accordance with the EASA Continuing Airworthiness Procedures, the Executive Director is proposing the issuance of an EASA Airworthiness Directive (AD), applicable to the aeronautical product(s) identified below.

All interested persons may send their comments, referencing the PAD Number above, to the e-mail address specified in the 'Remarks' section, prior to the consultation date indicated.

Design Approval Holder's Name: **Type/Model designation(s):**

DIAMOND AIRCRAFT INDUSTRIES GmbH DA 42 aeroplanes

Effective Date: [TBD - standard: 14 days after AD issue date]

TCDS Number(s): EASA.A.005 and EASA.A.513

Foreign AD: Not applicable

Supersedure: This AD supersedes EASA AD 2019-0302 dated 13 December 2019.

ATA 27 – Flight Controls – Rudder Steering Bracket – Inspections / Modification

Manufacturer(s):

Diamond Aircraft Industries GmbH (Austria), Diamond Aircraft Industries Inc. (Canada), CETC Wuhu Diamond Aircraft Manufacture Co. (China)

Applicability:

DA 42, DA 42 M, DA 42 NG and DA 42 M-NG aeroplanes (including those certified in the Restricted category), all manufacturer serial numbers (MSN).

Definitions:

For the purpose of this AD, the following definitions apply:

The inspection MSB: Diamond Aircraft Industries (DAI) Mandatory Service Bulletins (MSB) 42-143/1 and MSB 42NG-086/1 (published as a single document), which include Work Instructions WI-MSB 42-143 and WI-MSB 42NG-086.

The modification MSB: DAI Mandatory Service Bulletins (MSB) 42-146 and MSB 42NG-087 (published as a single document).



The AMM TR: DAI Aircraft Maintenance Manual (AMM) Temporary Revision (TR) AMM-TR-MÄM-42-1213.

Affected part: Rudder T-yoke axle, standard bolt LN 9037 with dimensions M6x90.

Serviceable part: Rudder T-yoke axle, Part Number (P/N) D60-5320-00-32.

Groups: Group 1 aeroplanes are those listed by MSN in the inspection MSB.

Group 2 aeroplanes are those listed by MSN in the modification MSB.

Group 3 aeroplanes are all other MSN.

Depending on MSN, a Group 1 aeroplane can also be Group 2.

Reason:

Occurrences were reported of finding a loose rudder T-yoke axle nut, excessive wear of the hole and insufficient hole edge margin at the rudder steering bracket for DA 42 aeroplanes. It has been determined that the root cause may be either a production deficiency or insufficient torque applied to the self-locking nut.

This condition, if not detected and corrected, could lead to blockage or loss of rudder control. To address this potential unsafe condition, DAI issued MSB 42-137 and MSB 42NG-079 (published as a single document), which includes Work Instruction WI-MSB 42-137 and WI-MSB 42NG-079, and EASA issued AD 2019-0302 to require repetitive inspections and, depending on findings, accomplishment of corrective action(s).

Since that AD was issued, DAI published the inspection MSB and modification MSB, as defined in this AD, to provide further inspection and modification instructions.

For the reasons described above, this AD supersedes EASA AD 2019-0302 and requires a one-time inspection of the rudder steering bracket for insufficient edge distance or wear, replacement of the affected part with a serviceable part and repetitive inspections of the serviceable part for correct installation. This AD also prohibits installation of affected parts.

Required Action(s) and Compliance Time(s):

Required as indicated, unless accomplished previously:

Inspections:

- (1) For Group 1 aeroplanes: Within 200 flight hours (FH) or 9 months after the effective date of this AD, whichever occurs first, measure the distance between the edge of the rudder steering bracket hole and rear edge of the rudder steering bracket in accordance with the instructions of the inspection MSB.
- (2) If, during the inspection as required by paragraph (1) of this AD, the measured distance is equal to or more than 11 mm, before next flight, examine the hole in the rudder steering bracket for wear and play in accordance with the instructions of the inspection MSB.



Corrective Actions:

- (3) If, during the inspection as required by paragraph (1) of this AD, the measured distance is less than 11 mm, before next flight, contact DAI for approved repair instructions and, within the compliance time specified therein, accomplish those instructions accordingly.
- (4) If, during the inspection as required by paragraph (2) of this AD, a worn or enlarged hole is found on the rudder steering bracket, or if the T-yoke bolt is found to have play, before next flight, contact DAI for approved repair instructions and, within the compliance time specified therein, accomplish those instructions accordingly.

Modification:

- (5) For Group 2 aeroplanes: Concurrently with the inspection as required by paragraph (1) of this AD, replace the affected part with a serviceable part and mark the head of the T-yoke bolt and the self-locking nut in accordance with the instructions of the modification MSB.

Repetitive Inspections:

- (6) For all aeroplanes: Within the compliance time as specified in Table 1 of this AD and, thereafter, at intervals not to exceed 200 FH (see Note 1 of this AD), examine the torque seal marks on the T-yoke bolt head and the self-locking nut at the rudder steering bracket for proper installation. This can be accomplished in accordance with the instructions of the AMM-TR, or of a later AMM revision which includes the AMM-TR.

Table 1 – Initial Inspection

Group	Compliance Time
Group 1 and 3	Within 200 FH after the effective date of this AD, or after first flight of the aeroplane, whichever occurs later
Group 2	Within 200 FH after modification as required by paragraph (5) of this AD

Note 1: A non-cumulative tolerance of 10 FH may be applied to the compliance times specified in paragraph (6) of this AD to allow synchronization of the required inspections with other maintenance tasks, for which a non-cumulative tolerance is already granted in the applicable Maintenance Manual.

Corrective Actions:

- (7) If, during any inspection as required by paragraph (6) of this AD, any discrepancy is found, before next flight, contact DAI for approved instructions and, within the compliance time specified therein, accomplish those instructions accordingly.

Credit:

- (8) Inspections accomplished on an aeroplane before the effective date of this AD in accordance with WI-MSB 42-143 or WI-MSB 42NG-086 at original issue, or Revision 1, or Revision 2 are acceptable to comply with the requirements of paragraphs (1) and (2) of this AD, as applicable, for that aeroplane.



- (9) Modification of an aeroplane accomplished before the effective date of this AD in accordance with the instructions of Recommended Service Bulletin (RSB) 42-139 or RSB 42NG-081 is acceptable to comply with the requirements of paragraph (5) of this AD for that aeroplane.

Terminating Action:

- (10) None.

Parts Installation:

- (11) Do not install on any aeroplane an affected part, as required by paragraph (11.1) or (11.2) of this AD, as applicable.

(11.1) For Group 2 aeroplanes: After modification of an aeroplane as specified in paragraph (5) of this AD.

(11.2) For all other aeroplanes: From the effective date of this AD.

Ref. Publications:

Diamond Aircraft Industries MSB 42-143 and MSB 42NG-086 (published as a single document), dated 23 December 2021, which includes WI-MSB 42-143 and WI-MSB 42NG-086 original issue dated 23 December 2021; or MSB 42-143/1 and MSB 42NG-086/1 (published as a single document), dated 25 January 2022, which includes WI-MSB 42-143 and WI-MSB 42NG-086 Revision 1 dated 25 January 2022, or Revision 2 dated 10 March 2022, or Revision 3 dated 15 November 2022.

Diamond Aircraft Industries MSB 42-146 and MSB 42NG-087 (published as a single document), original issue dated 15 November 2022.

Diamond Aircraft Industries Recommended Service Bulletin (RSB) 42-139 or RSB 42NG-081 (published as a single document), original issue dated 21 October 2019.

The use of later approved revisions of the above-mentioned documents is acceptable for compliance with the requirements of this AD.

Diamond Aircraft Industries AMM-TR-MÄM-42-1213 original issue dated 28 September 2021.

Remarks:

1. This Proposed AD will be closed for consultation on 16 January 2023.
2. Enquiries regarding this PAD should be referred to the EASA Safety Information Section, Certification Directorate. E-mail: ADs@easa.europa.eu.
3. Information about any failures, malfunctions, defects or other occurrences, which may be similar to the unsafe condition addressed by this PAD, and which may occur, or have occurred on a product, part or appliance not affected by this PAD, can be reported to the [EU aviation safety reporting system](#). This may include reporting on the same or similar components, other than those covered by the design to which this PAD applies, if the same unsafe condition can exist or may develop on an aircraft with those components installed. Such components may be



installed under an FAA Parts Manufacturer Approval (PMA), Supplemental Type Certificate (STC) or other modification.

4. For any question concerning the technical content of the requirements in this PAD, please contact: Diamond Aircraft Industries GmbH, Austria, Telephone: +43 2622 26700, E-mail: airworthiness-austria@diamondaircraft.com.

