



**NDT inspection:** Non-Destructive Test (NDT) inspection, including a dye penetrant inspection of the affected part and eddy current inspection of the threads of the hub sockets.

**Affected aeroplane:** Any aeroplane having an affected part installed.

**Reason:**

Cracks have been reported at different positions on two affected parts, both installed on Slingsby T67 "Firefly" aeroplanes. One crack was found during scheduled inspection, the other crack during an unscheduled inspection after abnormal vibrations occurred. Subsequent investigation determined that improper tightening of blade nuts has caused or contributed to those events.

This condition, if not detected and corrected, could lead to in-flight propeller detachment, possibly resulting in damage to the aeroplane and/or injury to persons on the ground.

To address this potential unsafe condition, Hoffmann Propeller issued the SB, providing applicable instructions, and EASA issued Emergency AD 2020-0226-E (later revised) to require inspections of affected parts and, depending on findings, replacement. That AD also required, for certain aeroplanes, amendment of the applicable Aircraft Flight Manual (AFM).

Since that AD was issued, further investigation revealed that not all propeller blade nuts were tightened in accordance with the Hoffman Propeller blade nut tightening procedure B2.23 which requires a certain over-torquing and loosening of the blade nut to limit a preload reduction due to material settlement. Prompted by this development, Hoffmann Propeller issued SB057 (incorporating blade nut tightening procedure B2.23) providing torquing instructions, and SB58 providing instructions for setting correct counterweight angles. Additionally, Hoffmann Propeller issued the torque tightening SB (referencing SB57 and SB58) providing inspections and corrective action instructions.

For the reasons described above, this AD retains the requirements of EASA AD 2020-0226R1, which is superseded, and requires additional blade checks, inspections, and re-tightening of the propeller blade nuts.

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

Required as indicated, unless accomplished previously:

**AFM Amendment:**

- (1) For affected aeroplanes: Before next flight after 20 October 2020 [the effective date of EASA AD 2020-0226-E at original issue], amend the applicable AFM by inserting the AFM Amendment as specified in Appendix 1 of this AD (unless the applicable AFM already contains similar emergency procedures), inform all flight crew and, thereafter, operate the aeroplane accordingly.
- (2) Introducing a later approved AFM Revision, including the content of the AFM Amendment, as defined in this AD, into the applicable AFM is an acceptable method to comply with the requirements of paragraph (1) of this AD for that aeroplane.



**Inspections:**

- (3) Before next flight after 20 October 2020 [the effective date of EASA AD 2020-0226-E at original issue], and, thereafter, before next flight after any flight where abnormal vibrations have been reported, accomplish a visual inspection of the affected part for cracks in accordance with the instructions of the SB.
- (4) Within 20 flight hours (FH) after 20 October 2020 [the effective date of EASA AD 2020-0226-E at original issue], perform an NDT inspection, as defined in this AD, of the affected part in accordance with the instructions of the SB.

**Determination:**

- (5) For all propellers, except those which were released to service by Hoffmann Propeller: Within 30 days after the effective date of this AD, determine whether, during the last in-shop maintenance visit, the blade retention nuts were tightened using the procedure corresponding to Hoffmann Propeller SB057. This can be accomplished in accordance with the instructions of the torque tightening SB.
- (6) If, during the determination as required by paragraph (5) of this AD, it is determined that the blade retention nuts were not tightened or it cannot be confirmed that they were tightened using the procedure corresponding to Hoffmann Propeller SB057, accomplish the actions required by paragraphs (6.1), (6.2) and (6.3) of this AD in accordance with the instructions of the torque tightening SB.
  - (6.1) Before next flight after the determination as required by paragraph (5) of this AD and, thereafter, before each flight, check blades for shaking.
  - (6.2) Before next flight after any flight where abnormal vibrations have been reported, accomplish an inspection of the propeller.
  - (6.3) Within 90 FH after the effective date of this AD, re-tighten each propeller blade nut in accordance with the instructions of the torque tightening SB.

**Corrective Actions:**

- (7) If, during any inspection as required by paragraph (3) or (4) of this AD, as applicable, any crack is detected, before next flight, replace the affected part with a serviceable part. This can be accomplished in accordance with the instructions of the propeller maintenance manual.
- (8) If, during any inspection as required by paragraph (6.1) or (6.2) of this AD, any discrepancy is detected, as defined in the torque tightening SB, before next flight, accomplish all the applicable corrective actions in accordance with the instructions of the torque tightening SB.

**Terminating Action:**

- (9) Re-tightening of each propeller blade nut as required by paragraph (6.3) of this AD constitutes terminating action for the blade checks and inspections as required by paragraphs (6.1) and (6.2) of this AD for that propeller.



**In-shop Inspections (Overhaul):**

- (10) From 20 October 2020 [the effective date of EASA AD 2020-0226-E at original issue], during each overhaul of an affected part, accomplish an NDT inspection, as defined in this AD, in accordance with the instructions of the SB, and before release to service after overhaul, accomplish any applicable corrective action(s).

**Parts Installation:**

- (11) From 20 October 2020 [the effective date of EASA AD 2020-0226-E at original issue], it is allowed to install an affected part on an aeroplane provided it is a serviceable part, as defined in this AD, and the AFM has been amended as required by paragraph (1) of this AD, as applicable.
- (12) From the effective date of this AD, it is allowed to install a propeller on an aeroplane, provided each blade retention nut has been tightened in accordance with the instructions of Hoffmann Propeller SB057, or re-tightened in accordance with the instructions of the torque tightening SB.

**Ref. Publications:**

Hoffmann Propeller SB E53 Revision A dated 09 October 2020, or Revision B dated 14 October 2020, or Revision C dated 9 December 2020, or Revision D dated 18 February 2021.

Hoffmann Propeller SB057 Revision B dated 08 February 2022, or Revision C dated 22 February 2022.

Hoffmann Propeller SB058 Revision A dated 02 February 2022.

Hoffmann Propeller SB059 Revision A dated 11 February 2022, or Revision B dated 23 February 2022.

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

**Remarks:**

1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD.
2. Based on the required actions and the compliance time, EASA have decided to issue a Final AD with Request for Comments, postponing the public consultation process until after publication.
3. Enquiries regarding this AD should be referred to the EASA Safety Information Section, Certification Directorate. E-mail: [ADs@easa.europa.eu](mailto:ADs@easa.europa.eu).
4. Information about any failures, malfunctions, defects or other occurrences, which may be similar to the unsafe condition addressed by this AD, and which may occur, or have occurred on a product, part or appliance not affected by this AD, 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 AD applies, if the same unsafe condition can exist or



may develop on an aeroplane with those components installed. Such components may be installed under an FAA Parts Manufacturer Approval (PMA), Supplemental Type Certificate (STC) or other modification.

5. For any question concerning the technical content of the requirements in this AD, please contact: Hoffmann Propeller GmbH & Co. KG, Sales and Service, K pferlingstrasse 9, 83022 Rosenheim, Germany, Telephone: +49 (0) 8031 1878 0, Fax : +49 (0) 8031 1878 78 E-mail: [info@hoffmann-prop.com](mailto:info@hoffmann-prop.com).



## Appendix 1 – AFM Amendment

### Procedure

Abnormal propeller vibrations:

As applicable, reduce engine RPM

