



## Notification of a Proposal to issue an Airworthiness Directive

**PAD No.:** 17-166

**Issued:** 12 December 2017

Note: This Proposed Airworthiness Directive (PAD) is issued by EASA, acting in accordance with Regulation (EC) 216/2008 on behalf of the European Union, its Member States and of the European third countries that participate in the activities of EASA under Article 66 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:

CEAPR

### Type/Model designation(s):

DR253, DR300 and DR400 aeroplanes

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

**TCDS Number(s):** EASA.A.552 and EASA.A.367

**Foreign AD:** Not Applicable

**Supersedure:** None

### ATA 32 – Landing Gear – Nose Landing Gear Oleo Outer Cylinder Support Plate – Inspection / Repair / Replacement

#### Manufacturer(s):

Centre Est Aéronautique, Avions Pierre Robin, Robin Aviation, Constructions Aéronautiques de Bourgogne, APEX Industries, Robin Aircraft.

#### Applicability:

DR 253, DR 253 B, DR 340, DR 315, DR 360, DR 380, DR 300/108, DR 300/180 R, DR 300/140, DR 300/125, DR 400/125, DR 400/140, DR 400/160, DR 400/180, DR 400/180 R, DR 400/2+2, DR 300/120, DR 400/120, DR 400/125i, DR 400/140 B, DR 400/120 A, DR 400/160 D, DR 400/120 D, DR 400/180 S, DR 400/100, DR 400 RP, DR 400 NGL, DR 400/200 R and DR 400/500 aeroplanes, all serial numbers.

#### Reason:

Occurrences were reported of finding cracks on the nose landing gear (NLG) lower plate and its welding to the oleo outer cylinder. Technical investigations initially determined the cause of these cracks to be overstress in the NLG due to hard landings. Later occurrences were determined to have been due to fatigue failure of welding of the upper or lower plate to the NLG oleo outer cylinder.



This condition, if not corrected, could lead to collapse of the NLG upon landing, possibly resulting in damage to the aeroplane and injury to occupants.

To initially address this issue, Avions Pierre Robin (later APEX) issued Service Bulletin (SB) 101 (revised several times) to provide inspection instructions and, consequently, DGAC France published AD 83-206 (later revised) to require repetitive inspections of the NLG upper and lower plates and the weldings to the oleo outer cylinder and, depending on findings, accomplishment of applicable corrective action(s). After DGAC France AD 83-206(A) R3 was issued, prompted by Safety Recommendation 2004-87 of the AAIB (the United Kingdom accident investigator), EASA issued AD 2007-0171, retaining the requirements of the AD 83-206(A) R3, which was superseded, requiring the use of APEX SB 101 at Revision 5, providing improved inspection instructions. At the same time, the Civil Aviation Authority of New Zealand (CAA-NZ) published AD DCA/R2000/15A applicable to the HR 200 and R 2000 series aeroplanes, the type approval for which had been transferred in 2006 to Alpha Aviation.

After EASA AD 2007-0171 was issued, prompted by several reports of finding cracks on “SAB” type NLG, similar to those reported on the “Avions Robin” NLG, EASA issued AD 2010-0231, retaining the requirements of AD 2007-0171, which was superseded, extending the Applicability to model DR 253 aeroplanes, as well as requiring action on all aeroplanes equipped with “SAB” NLG.

Since EASA AD 2010-0231 was issued, another occurrence of NLG collapse was reported. Technical investigations revealed the possibility of the formation of fatigue cracks in the weld that cannot be detected by the inspections as required by EASA AD 2010-0231. Consequently, CEAPR issued SB 160403 to replace the previous inspection instructions with improved instructions and to introduce the replacement of affected NLG oleo outer cylinder by a type 4 (as defined in CEAPR SB 160403) NLG oleo outer cylinder, Part Number (P/N) 42.26.01.100, which is not affected by fatigue cracking phenomenon.

For the reasons described above, this AD takes over the requirements for DR253, DR300 and DR400 aeroplanes from EASA AD 2010-0231, requires use of the new inspection instructions at different intervals, and implementation of a life limit for certain NLG oleo outer cylinder designs (types 1, 2 and 3, as defined in CEAPR SB 160403). This AD also requires a modification, replacing the affected NLG oleo outer cylinders having reached their life limit with the latest CEAPR design, and introducing the repetitive inspections into the approved aircraft maintenance programme.

It is expected that, once the Final AD for this PAD and the Final AD for PAD 17-165 are published, EASA AD 2010-0231 will be cancelled.

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

Required as indicated, unless accomplished previously:

Note 1: CEAPR SB 160403, hereafter referred to as ‘the SB’ in this AD, defines the distinct properties of the type 1, 2, 3 and 4 NLG oleo outer cylinders. Types 1, 2 and 3 are hereafter collectively referred to as ‘affected part’ in this AD.



**Repetitive Inspections:**

- (1) During the next scheduled 100 flight hours (FH)/annual inspection after the effective date of this AD, and, thereafter, during each scheduled 100 FH/annual inspection, visually inspect the NLG in accordance with the instructions of paragraph 10.1 of the SB.
- (2) During the next scheduled 2 000 FH/6 years inspection after the effective date of this AD, and, thereafter, during each 2 000 FH/6 years inspection, accomplish a dye penetrant inspection of the NLG in accordance with the instructions of 10.1 of the SB.
- (3) From the effective date of this AD, before next flight after a hard landing, visually inspect the NLG in accordance with the instructions of paragraph 10.1 of the SB.

**Corrective Action(s):**

- (4) If, during any inspection as required by paragraph (1), (2) or (3) of this AD, as applicable, any crack indication is detected, before next flight, replace the affected part with a serviceable part (see Note 2 of this AD) in accordance with the instructions of the SB.

Note 2: For the purpose of this AD, a serviceable part is an affected part (see Note 1 of this AD), or a repaired type 1 or type 2 (see Note 3 of this AD) NLG oleo outer cylinder that has not exceeded the applicable life limit as specified in Table 1 of this AD, or a type 4 NLG oleo outer cylinder.

Note 3: Repair (replacement of upper and lower support plates) of an NLG is acceptable only for type 1 and type 2 NLG oleo outer cylinders, and is only allowed once.

**Life Limit:**

- (5) Before exceeding the applicable life limit as defined in Table 1 of this AD, or during the next scheduled 500 FH/annual maintenance, whichever occurs later, repair (see Note 3 of this AD) the affected part, or replace the affected part with a serviceable part in accordance with the instructions of the SB.

Table 1 – NLG Oleo Outer Cylinder Life Limit (see Notes 1 and 4 of this AD)

Type	Compliance Time
1	4 000 FH
2	6 000 FH
3	10 000 FH

Note 4: The FH specified in Table 1 are those accumulated by the part since first installation on an aeroplane, or (for types 1 and 2 only) since last replacement of the upper and lower plates, as applicable. In case the total FH are unknown, the FH accumulated by the aeroplane must be used.

**Modification:**

- (6) Within 530 FH or 13 months, whichever occurs first after the affected part exceeds the applicable life limit as specified in table 1 of this AD, replace each affected part (see Note 1 of this AD) with a type 4 NLG oleo outer cylinder in accordance with the instructions of the SB.



**Terminating Action:**

(7) None.

**Parts Installation:**

(8) After modification of an aeroplane as required by paragraph (6) of this AD, do not install an affected part (see Note 1 of this AD) on that aeroplane.

**Aircraft Maintenance Programme (AMP) Revision:**

(9) Within 12 months after the effective date of this AD, revise the approved AMP, on the basis of which the operator or the owner ensures the continuing airworthiness of each operated aeroplane, by incorporating the maintenance inspections and associated intervals as specified in the SB, as applicable to aeroplane NLG configuration.

**Recording AD compliance:**

(10) When the AMP of an aeroplane has been revised as required by paragraph (9) of this AD, that action ensures (see Note 5 of this AD) continued accomplishment of the tasks as required by paragraphs (1), (2), (3) and (4) of this AD for that aeroplane. Consequently, after revising the AMP, as required by paragraph (9) of this AD, as applicable, it is not necessary that accomplishment of individual action is recorded for demonstration of AD compliance on a continued basis.

Note 5: For affected DR 253, DR 300 and DR 400 aeroplanes registered in Europe, complying with the approved AMP, as specified in paragraph (9) of this AD, is required by Commission Regulation (EU) [1321/2014](#), Part M.A.301, paragraph 3.

**Ref. Publications:**

CEAPR SB N°160403 original issue dated 15 September 2017.

The use of later approved revisions of this document is acceptable for compliance with the requirements of this AD.

**Remarks:**

1. This Proposed AD will be closed for consultation on 09 January 2018.
2. Enquiries regarding this PAD should be referred to the EASA Safety Information Section, Certification Directorate. E-mail: [ADs@easa.europa.eu](mailto:ADs@easa.europa.eu).
3. For any question concerning the technical content of the requirements in this PAD, please contact: CEAPR, Bureau de Navigabilité, 1 Route de Troyes – 21121 Darois, FRANCE  
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