



Civil Aviation Authority

# EMERGENCY MANDATORY PERMIT DIRECTIVE



**Number: 2023-002-E**

Issue date: 11 August 2023

In accordance with 41(1) of Air Navigation Order 2016 as amended the following action required by this Mandatory Permit Directive (MPD) is mandatory for applicable aircraft registered in the United Kingdom operating on a UK CAA Permit to Fly.

**Design Approval Holder's Name:**

BRP-ROTAX GmbH & Co KG

**Type/Model Designation(s):**

Rotax 912 UL, 912 ULS, 914 UL and 912 iS Sport engines

Effective Date:	14 August 2023
TADS / AAN (as applicable):	N/A
Supersedure:	N/A

## ATA 72 – Engine – Propeller Gearbox Magnetic Plug – Inspection / Propeller Shaft Replacement

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### Manufacturer(s):

BRP-Rotax GmbH & Co KG, formerly BRP-Powertrain GmbH & Co. KG, Bombardier-Rotax GmbH & Co. KG, Bombardier-Rotax GmbH

### Applicability:

All Rotax engines of Series 912 UL, 912 ULS, 914 UL and 912 iS Sport are affected, if at least one of following criteria applies:

Criterion A) Engine Serial Number: See Appendix 1 table 1 below.

These engines have been originally delivered from the factory with the affected propeller shaft part no (P/N) 937047.

Criterion B) Spare parts: See Appendix 1 table 2 below.

These propeller shafts have been delivered as a spare part or as a part of a gearbox assy and are affected.

**Definitions:**

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

**The SB:** BRP-Rotax Service Bulletin (SB) SB-912-078UL / SB-914-059UL / SB-912 i-014iS (published as a single document), which include reference to the BRP-Rotax Installation Manual, Maintenance Manual Line and Maintenance Manual Heavy for detailed accomplishment instructions.

**Affected part:** Propeller shafts, having P/N 937047, which are known to have been installed initially (on delivery) on engines having a s/n as listed in Table 1 of Appendix 1 of this MPD, and those shafts which are known to have been delivered as a 'spare part', having a shaft s/n as listed in Table 2 of Appendix 1 of this MPD.

**Serviceable part:** Any propeller shaft, eligible for installation, which is not an affected part.

**Groups:** Group 1 engines are those that have an affected part installed. Group 2 engines are those that do not have an affected part installed.

**Reason:**

An occurrence was reported from the production line where it was found that certain propeller shafts showed abnormalities on the surface. Further investigation revealed that this non-conformity was caused by a deviation in the machining process of a certain production batch of shafts. It was determined that this discrepancy could lead to increased wear of the propeller shaft bearings, possibly resulting in engine problems. It was also determined on which delivered (new) engines the affected parts from the identified non-conforming batch had been (initially) installed, and also that several non-conforming shafts had been delivered as spare part.

This condition, if not detected and corrected, could lead to engine in-flight shut down and (for a single engine aeroplane) consequent emergency landing of the aeroplane, possibly resulting in damage to the aeroplane and injury to occupants.

To address this potential unsafe condition, BRP-Rotax issued the SB to provide instructions for inspection and replacement of the affected part.

For the reason described above, this MPD requires inspection of the magnetic plug to check the condition of the propeller gearbox and, thereafter, depending on findings, repetitive checks of the magnetic plug. This MPD also requires replacement of all affected parts and prohibits (re)installation of affected parts.

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

Required as indicated, unless accomplished previously:

**Inspection(s):**

- (1) For Group 1 engines: Before next flight after the effective date of this MPD, and, thereafter, depending on findings as defined in the SB, at intervals not to exceed 10 FH, inspect the magnetic plug to check the condition of the gearbox in accordance with the instructions of the SB.

**Corrective Action(s):**

- (2) If, during any inspection as required by paragraph (1) of this MPD, discrepancies are detected, before next flight, replace the affected part with a serviceable part in accordance with the instructions of the SB.

**Replacement:**

- (3) As an alternative to the action(s) required by paragraph (1) of this MPD, before next flight after the effective date of this MPD, or after any inspection as required by paragraph (1) of this MPD (no deficiencies detected), replace the affected part with a serviceable part in accordance with the instructions of the SB.
- (4) For Group 1 engines: Before exceeding 50 FH since engine first operation or since first installation of the affected part on an engine, as applicable, or within 10 days after the effective date of this MPD whichever occurs later, replace the affected part with a serviceable part, as defined in this MPD, in accordance with the instructions of the SB.

**Part(s) Installation:**

- (5) For Group 1 and Group 2 engines: From the effective date of this MPD, do not install an affected part on any engine.

**Terminating Action:**

- (6) Replacement of the affected part on an engine as required by paragraph (2) or (4) of this MPD, or as specified in paragraph (3) of this AD, constitutes terminating action for the repetitive inspections as required by paragraph (1) of this MPD for that engine.

**Reference Publications:**

BRP-Rotax SB-912-078UL / SB-914-059UL / SB-912 i-014iS (published as a single document) original issue dated 25 July 2023.

The use of later approved revisions of the above-mentioned document/s are acceptable for compliance with the requirements of this MPD.

**Remarks:**

1. The safety assessment has warranted immediate publication and notification without implementing the full consultation process.
2. If requested and appropriately substantiated, CAA can approve Alternative Methods of Compliance for this MPD.
3. Information about any failures, malfunctions, defects or other occurrences, which may be similar to the unsafe condition addressed by this MPD, and which may occur, or have occurred on a product, part or appliance not affected by this MPD, can be reported to the CAA aviation safety reporting system. This may include reporting on the same or similar components, other than those covered by the design to which this MPD applies, if the same unsafe condition can exist or may develop on an aircraft with those components installed.
4. Enquiries regarding this MPD should be referred to: [ga@caa.co.uk](mailto:ga@caa.co.uk)
5. For any questions concerning the technical content of the requirements in this MPD, please contact: BRP-Rotax GmbH & Co KG, Telephone: +43 7246 601 0, Fax: +43 7246 601 9130, E-mail: [airworthiness@brp.com](mailto:airworthiness@brp.com), Website [www.flyrotax.com](http://www.flyrotax.com)

## Appendix 1

Table 1 – Affected Engines which are known to have been delivered (from the factory) with an affected part installed

Engine type	Serial number
912 UL	from S/N 10000999 up to S/N 10001007 inclusive
912 ULS	from S/N 10000421 up to S/N 10000445 inclusive from S/N 10000833 up to S/N 10000867 inclusive from S/N 10000898 up to S/N 10000914 inclusive from S/N 10000931 up to S/N 10000978 inclusive from S/N 10001008 up to S/N 10001021 inclusive from S/N 10001037 up to S/N 10001065 inclusive
914 UL	S/N 10000401 / S/N 10000402 from S/N 10001095 up to S/N 10001098 inclusive S/N 10001100 / S/N 10001101 from S/N 10001103 up to S/N 10001105 inclusive
912 iS Sport	from S/N 10000486 up to S/N 10000489 inclusive S/N 10000505 / S/N 10000506 / S/N 10000549 from S/N 10000749 up to S/N 10000766 inclusive from S/N 10001066 up to S/N 10001073 inclusive from S/N 10001078 up to S/N 10001085 inclusive

Table 2 – Affected Propeller shafts (having P/N 937047) known to have been delivered as a 'spare part' (of a gearbox assembly)

Propeller shaft part no.	Serial number
937047	S/N 222444 / S/N 222459 / S/N 222465 / S/N 222472 S/N 222480 / S/N 222485 / S/N 222492 / S/N 222496 S/N 222517 / S/N 222548 / S/N 222588 / S/N 222596 S/N 222615 / S/N 222622 / S/N 222626 / S/N 222632 S/N 222641 / S/N 222644 / S/N 222665 / S/N 222700 S/N 222715

NOTE: Propeller shaft with serial number (S/N) lower or higher than the range listed above are not affected.