SERVICE INFORMATION

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IMPORTANT INFORMATION

OIL SYSTEM FOR ALL ROTAX 912

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(A) INTRODUCTION

THIS INFORMATION IS INTENDED TO ASSIST THE AIRCRAFT DESIGNER, MANUFACTURER AND BUILDER TO ACHIEVE CORRECT OPERATING CONDITIONS AND ASSEMBLY FOR THE ENGINE AND CONSEQUENTLY OPTIMUM PERFORMANCE AND RELIABILITY.

(B) TECHNICAL DATA AND GENERAL INFORMATION

IN ADDITION TO THESE INSTALLATION INSTRUCTIONS PLEASE REFER TO:

- *OPERATORS MANUAL*
- *ENGINE DATA SHEET*
- *POWER, TORQUE AND FUEL CONSUMPTION CURVES*
- *SPARE PARTS LIST*
- *ENGINE INSTALLATION CHECK LIST*

All manufacturers and builders, owners and users of aircraft using the Rotax 912 must follow all guidelines for the installation of these engines, with special attention to the guidelines for the lubrication circuit. The failure to properly install and maintain the lubrication circuit may cause engine failures. Examples of installation and operating conditions which may cause such failures are listed below:

Engine failures may be caused by:

1. Use of unapproved or inadequate lubricants as noted in Operator's Manual 912, item 9, table of lubricants.

2. Incorrect installation of the oil ***supply*** line (oil ***suction*** line from oil tank to the engine oil pump) or return oil line (from the engine back to the oil tank), by installation of

   - oil lines with too small inner diameter
   - too long oil lines
   - too short bends in the installation of the oil lines, which can cause the flow to be restricted
   - incorrect material of oil lines (soft material)
   - by use of incorrect and inadequate fittings with too high flow restrictions

3. Use of inadequate oil cooler (not designed and delivered by Rotax)and/or inadequate installation of oil cooler. Oil cooler, Rotax part no. 886 025, has to be used.

4. Use of inadequate oil tanks (not designed and delivered by Rotax).

5. Installation of

   - oil tank, part no. 956 137, for Rotax 912 UL, and
   - oil tank, part no. 956 139, for Rotax 912 A (certified according to JAR-22) ***and/or 912 UL,*** in other position than specified in installation instructions, item 4.

6. Not following the installation guidelines as well as the operation limits as specified in operator's manual.

Please note:

Any of the conditions listed above can cause an unsafe lack of engine lubrication. This may also cause shock loading on drive pin 929 910 up to engine serial no. 4,152.200 or drive pin 929 990 above this serial no. due to pulsating oil supply, which could cause the drive pin to fracture and lead to loss of oil pressure.

In any of the above circumstances, it is possible that a lack of engine lubrication has occurred. The engine must be thoroughly checked by an authorized Rotax service centre for damage to the camshaft bearings, connecting rod bearings and crankshaft bearings.

Therefore, Rotax recommends to all manufacturers, builders, owners and users of aircraft using a ROTAX 912 engine to check the engine installation, and especially the oil cooling system and drive pin in regard to the above-mentioned failures (see item 1-6).

In addition to the information of the current operator's manual and installation instructions we suggest the following:

1. Minimum requirements for diameter of oil lines:
   Length
   up to 1 m (40") inner diameter min. 11 mm (7/16")
   up to 2 m (80") inner diameter min. 12 mm (1/2")
   up to 3 mm (120") inner diameter min. 13 mm (1/2")

   Length of oil line longer than 3 m (120") is not recommended.

2. Maximum rigidity (flexibility) of oil lines
line to same index of flexibility as per Rotax part no ***956 531 (inner diam. 11 mm [7/16"]) and/or no. 860 800 (inner diam. 13 mm [1/2"])***

Use or Rotax oil line is strongly recommended to assure comparable standard.

3. Oil cooler and fittings:

If the installation of the ROTAX 912 in an aircraft requires an oil cooler, the Rotax oil cooler part no. 886 025 must be used.

For this oil cooler, standard Rotax fittings, part no. 924 218 angular tube or 840 445 hose nipples are available which allow the installation of the Rotax standard oil line with an inner diameter of 11 mm (7/16"), Rotax part no. 956 531, when appropriate as described below.

Optional oil lines with an inner diameter of 13 mm (1/2"), Rotax part no. 860 800 and adequate fittings, Rotax part no. 924 212 angular tube or 840 447 hose nipples are available.

Safe operation of the engine requires that the oil cooler, Rotax part no. 886 025, must be installed in the oil supply line (from oil tank to the engine ***oil pump***) as shown in installation instructions for engine ROTAX 912.

4. Pressure check control:

a) to control the proper function of the lubrication system a pressure check in the oil supply line (from oil tank to the engine oil pump) in a distance of max. 100 mm from the connection to the engine oil pump must be carried out.

At take-off performance the indicated depression must be less than 0,3 bar (4,35 psi) ***compared to the actual ambient pressure.***

b) In addition the inner pressure of the crankcase must be checked at take-off performance for proper function of the oil system

A pressure gauge can be installed in the same place where the crankshaft fixation screw can be installed. Therefore the allen screw M8 x 20, Rotax part no. 240 071, has to be removed to allow the installation of a pressure gauge in this same location.

Please note: The thread must be standard size M 8 (metric).

The inner pressure of the crankcase at take-off performance should not exceed the actual ambient pressure plus 0,3 bar (4,35 psi).

If both findings are within these specified pressure limits, the oil system should be functioning sufficiently to permit safe operation of the engine.

If your findings exceed these pressure limits then the engine as installed has too much flow restriction in the lubrication system. This condition is unsafe and must be corrected immediately to avoid severe engine damage.

The above procedures to check for correct lubrication must be done before any flights.

5. Safety recommendations

a) All users of ROTAX 912 up to engine serial no. 3,792.944 which use a lubrication system which doesn't comply with Rotax requirements as described above, must check immediately, and before any further flights, the lubrication system as described above and replace the oil pump shaft assy.

Rotax currently offers to all user's a special kit, part no. ***887 390***, consisting of oil pump shaft no. ***837 126*** and oil pump O-rings ***(1 x 950 410, 2 x 250 460)*** at a special price o ATS 120.

b) All users of ROTAX 912 up to engine serial no. 4,152.200 using a lubrication system which doesn't comply with Rotax requirements as described above must check immediately, and before any further flights, the lubrication system as described above and replace the oil pump shaft assy.

Rotax currently offers to all users a special kit consisting of oil pump shaft no. ***837 129*** and oil pump ***O-rings (1 x 950 410, 2 x 250 460)*** at a special price of ATS 120.

c) All users of ROTAX 912 with a higher engine serial no. than 4,152.200 using a lubrication system which doesn't comply with Rotax requirements as described above are also requested immediately, and before any further flights, to check the lubrication system for compliance as described above.

In addition, the oil pump shaft assy must be checked for damage.

d) For detailed instructions for oil pump shaft assy check, repair, etc. see repair manual 912, part no. ***899 072***. This manual and additional information is available from your nearest authorized Rotax aircraft engine distributor and/or service-centre as listed in the operator's manual.

e) Warning:

If you don't understand a section of this information or if you are not otherwise able to carry out the requested checks or repair, please contact your nearest authorized Rotax aircraft engine distributor.

DANGER!

FAILURE TO COMPLY WITH THIS RECOMMENDATION COULD RESULT IN ENGINE DAMAGE AND PERSONAL INJURY!