

# SERVICE INFORMATION

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KODIAK RESEARCH LTD. NASSAU, BAHAMAS

## COOLANT (ANTIFREEZE) MIXTURES - ROTAX 912 / 914 SERIES ENGINES

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### (A) INTRODUCTION

*THIS INFORMATION IS INTENDED TO ASSIST THE AIRCRAFT DESIGNER, MANUFACTURER AND BUILDER/OPERATOR 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 THIS INFORMATION PLEASE REFER TO:*

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

## IMPORTANT INFORMATION

### SUBJECT

Selection of antifreeze and mixture of coolant solution for Rotax 912 and Rotax 914 series engines.

### REASON

Field experience has shown the need for additional clarification of antifreeze selection and mixing procedures for the Rotax 912 and 914 series engines.

### COMPLIANCE

All owners and operators of Rotax 912 and Rotax 914 series engines.

### RECOMMENDATION

The Maintenance Manual for ROTAX Engine Type 912 F, section 12.3.10 - Check of the coolant system states:

*Check coolant with tensiometer or glycol tester. If necessary, replenish with coolant of same composition. Remarkably discoloured or thickened anti-freeze has to be renewed.*

**NOTE** - 80 % antifreeze concentrate with anti-corrosion additives and 20 % water is recommended. Sufficiently satisfactory results were achieved with 'BASF Glysantin Anticorrosion'. This or equivalent coolant has to be used.

**As long as there is no boiling problem after engine stop, water may be added up to approx. 50 %.**

Many antifreeze brands commonly available in North America may not recommend mixing ratios of 80% antifreeze and 20% water. It is recommended that owners and operators of Rotax 912 and Rotax 914 series engines select a high quality brand name antifreeze with corrosion inhibiting additives. Selected antifreeze should be mixed with water as per the antifreeze manufacturer's recommendations. Coolant solutions (antifreeze / water mixture) should be prepared as necessary to provide adequate protection at temperatures above the maximum CHT limit of 150° C (300° F). The coolant solution should also provide protection against freezing and frost damage given local environmental conditions and the aircraft mission profile. Coolant solution should be checked with a tensiometer or glycol tester to verify protection level.

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In all cases, antifreeze to water ratios should not exceed the antifreeze manufacturer's recommendations. Exceeding the antifreeze manufacturers recommended ratios can lead to particulate formation in the coolant solution ("jelling"). Particulate formation or "jelling" may be harmful to cooling system components and may restrict the free exchange of fluid to and from the overflow bottle. As stated in the Maintenance Manual for ROTAX Engine Type 912 F, coolant mixtures of 50% antifreeze, 50% water may be used provided boil over after engine shut down is not present, and adequate protection against freezing and frost damage is achieved.

To insure proper cooling system operation, all other cooling system inspections and maintenance procedures set out in the engine operator manual and engine maintenance manuals must be observed.

### SUMMARY

- Use of a name brand high quality antifreeze with corrosion inhibiting additives is recommended for Rotax 912 and 914 series engines.
- Antifreeze used must be mixed with water as per the antifreeze manufacturer's recommendations to create a coolant solution suitable for the temperature requirements of the engine.
- Coolant solutions must be prepared to provide adequate protection against freezing. Coolant solution should be checked with a tensiometer or glycol tester to verify protection level.
- Antifreeze to water ratios down to 50 / 50 are acceptable in Rotax 912 and Rotax 914 series engines providing the resultant coolant solution can adequately protect the engine from both boil over and frost damage.
- All other cooling system inspections and maintenance procedures must be respected to provide optimal cooling system performance.

## **WARNING!**

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