WARNING

Before starting the engine, read the Operator's Manual. Failure to do so may result in personal injuries including death. Consult the original equipment manufacturer’s handbook for additional instructions!

The manual must remain with the engine / original equipment in case of sale.

Edition: 0 of 1998 12 01

These technical data and the information contained therein are property of ROTAX® GmbH and must not be reproduced, neither in entirety nor partially, and passed on to third parties without previous consent in writing by ROTAX® GmbH. This text must be written on every complete or partial reproduction.

Copyright - ROTAX® GmbH

Approval of translation to best knowledge and judgement - in any case the original text in German language and the metric units (SI-system) are authoritative.

ROTAX® part no.:899 641
1) Table of contents ........................................................................... 1 - 2
2) Index .............................................................................................. 2 - 1
3) Introduction .................................................................................. 3 - 1
   3.1) Remarks ........................................................................................... 3 - 1
   3.2) Engine serial number ................................................................. 3 - 1
4) Safety ............................................................................................. 4 - 1
   4.1) Repeating symbols ......................................................................... 4 - 1
   4.2) Safety information ........................................................................... 4 - 2
   4.3) Technical documentation .......................................................... 4 - 5
5) Index of pages .............................................................................. 5 - 1
6) List of amendments ........................................................................ 6 - 1
7) Description of design .................................................................... 7 - 1
   7.1) Type description ............................................................................... 7 - 2
   7.2) Denomination of cylinders: ............................................................. 7 - 3
8) Technical data ............................................................................... 8 - 1
   8.1) Dimensions ...................................................................................... 8 - 1
   8.2) Weights ............................................................................................. 8 - 1
   8.3) Fuel consumption ............................................................................ 8 - 2
   8.4) Direction of rotation ........................................................................ 8 - 2
9) Description of systems ................................................................... 9 - 1
   9.1) Cooling system ................................................................................ 9 - 1
   9.2) Fuel system ..................................................................................... 9 - 2
   9.3) Lubrication system .......................................................................... 9 - 3
   9.4) Electric system ................................................................................ 9 - 4
   9.5) Turbo charge and control system .................................................. 9 - 5
   9.6) Propeller gearbox ............................................................................ 9 - 9
      9.5.1) Hydr. governor for const. speed propeller, vacuum pump:9 - 10
10) Operating instructions .................................................................. 10 - 1
    10.1) General limits of operation .......................................................... 10 - 1
       10.1.1) Operating speeds and limits .................................................. 10 - 1
       10.1.1.1) Performance graphs for standard conditions ISA
      (International Standard Atmosphere) ............................................ 10 - 2
       10.1.1.2) Performance graph for non-standard conditions10 - 5
    10.2) Operating media ........................................................................ 10 - 7
       10.2.1) Coolant ............................................................................ 10 - 7
       10.2.2) Fuel .................................................................................. 10 - 8
       10.2.3) Lubricants ........................................................................ 10 - 9

Effectivity: 914 Serie
OM initial issue

ROTX.
AIRCRAFT ENGINES

Dec. 01/98
10.3) Standard operation ................................................................. 10 - 12
  10.3.1) Daily checks ................................................................. 10 - 12
  10.3.2) Before engine start ......................................................... 10 - 14
  10.3.3) Pre-flight checks .......................................................... 10 - 14
  10.3.4) Engine start ................................................................. 10 - 15
  10.3.5) Prior to take-off ............................................................ 10 - 17
  10.3.6) Take-off ..................................................................... 10 - 18
    10.3.6.1) Take-off (standard - with active TCU) .................... 10 - 18
    10.3.6.2) Take-off (as per RTCA DO 178 B - with inactive TCU) .. 10 - 18
  10.3.7) Cruising ................................................................. 10 - 19
  10.3.8) Engine shut-off ............................................................ 10 - 19
  10.3.9) Cold weather operation ................................................. 10 - 20

10.4) Abnormal operation ................................................................. 10 - 22
  10.4.1) Sudden drop of boost pressure and speed .................. 10 - 22
  10.4.2) Sudden rise of boost pressure and speed .................... 10 - 22
  10.4.3) Periodical rise and drop of boost pressure and speed (boost pressure control is surging) ................. 10 - 23
  10.4.4) Red boost lamp of TCU permanently illuminating .......... 10 - 23
  10.4.5) Red boost lamp of TCU blinking ..................................... 10 - 23
  10.4.6) Orange caution lamp of TCU blinking ......................... 10 - 24
  10.4.7) Failure of the voltage supply to the TCU ....................... 10 - 24
  10.4.8) Engine stop - Start during flight .................................. 10 - 24
  10.4.9) Exceeding of max. admissible engine speed ................ 10 - 24
  10.4.10) Exceeding of max. admissible cyl. head temperature .. 10 - 24
  10.4.11) Exceeding of max. admissible oil temperature ............ 10 - 25
  10.4.12) Oil pressure below minimum - during flight ............... 10 - 25
  10.4.13) Oil pressure below minimum - on ground .................... 10 - 25
  10.4.14) Engine on fire of fire in the engine compartment ......... 10 - 25

11) Checks ...................................................................................... 11 - 1
  11.1) Engine preservation ...................................................... 11 - 1

12) Trouble shooting ................................................................. 12 - 1
  12.1) Reporting ....................................................................... 12 - 3

13) ROTAX® authorized Distributors ........................................... 13 - 1

14) Warranty ................................................................................. 14 - 1
  14.1) Warranty Conditions / Warranty Card (914 F) ................ 14 - 1
  14.2) Warranty Conditions / Warranty Card (914 UL) .......... 14 - 5
2) Index

A
Abnormal operation 10 - 22
Antifreeze 10 - 7
AVGAS 100 LL 10 - 8

B
Boost lamp 9 - 6

C
Carburetor 10 - 13
Caution lamp 9 - 6
Check of hydraulic propeller governor 10 - 17
Checks 11 - 1
Cold start 10 - 20
Cold weather operation 10 - 20
Consumer assistance 15 - 2
Coolant 10 - 7, 10 - 20
Cooling system 9 - 1
Cruising 10 - 19

D
Daily checks 10 - 12
Denomination of cylinders 7 - 3
Description of design 7 - 1
Description of systems 9 - 1
Dimensions 8 - 1
Direction of rotation 8 - 2
Documentation (technical) 4 - 5

E
Electric system 9 - 4
Engine preservation 11 - 1
Engine serial number 3 - 1
Engine shut-off 10 - 19
Engine start 10 - 15
Engine view 7 - 2
Equipment 8 - 1
Exceeding of max. admissible cyl. head temperature 10 - 24
Exceeding of max. admissible engine speed 10 - 24
Exceeding of max. admissible oil temperature 10 - 25
Exhaust system 10 - 13
External alternator 7 - 1

F
Fire 10 - 25
Flying altitude 10 - 1
Fuel 10 - 8
Fuel acc. DOT 13 - 1
Fuel acc. FAA 13 - 2
Fuel consumption 8 - 2
Fuel pressure 10 - 2
Fuel system 9 - 2

G
"g" conditions 10 - 1
Gear ratio 9 - 10
Gearbox 9 - 9
General limits of operation 10 - 1

H
Hydr. governor for const. speed propeller 9 - 10

I
Ignition check 10 - 17
Ignition unit 9 - 4
Index of pages 5 - 4
Introduction 3 - 1

L
List of amendments 6 - 1
Lubricant 10 - 20
Lubricants 10 - 9
Lubrication system 9 - 3

N
Note of approval 6 - 1

O
Oil capacity 10 - 10
Oil consumption 10 - 10
Oil pressure 10 - 2
Oil pressure below minimum - during flight 10 - 25
Oil pressure below minimum - on ground 10 - 25
Oil specification 10 - 9
Oil temperature 10 - 2
Oil viscosity 10 - 10
Operating instructions 10 - 1
Operating media 10 - 7, 10 - 14
Operating speeds and limits 10 - 1
Overload clutch 9 - 9

P
Performance (ISA) 10 - 1
Performance graphs for stand.
conditions (ISA) 10 - 3
Pre-flight checks 10 - 14
Propeller gearbox 9 - 9, 10 - 12
Propeller governor 9 - 10

R
Remarks 3 - 1
Repeating symbols 4 - 1
Reporting 12 - 3
ROTAX® authorized Distributors 14 - 1

S
Safety 4 - 1
Safety information 4 - 2
Speed 10 - 1
Standard operation 10 - 12
Symbols 4 - 1

T
Table of lubricants 10 - 10
Take-off 10 - 18
Technical data 8 - 1
Technical documentation 4 - 5
Throttle response 10 - 17
Trouble shooting 12 - 1
Turbo charger 9 - 5
Type description 7 - 2

V
Vacuum pump 9 - 10

W
Warming up period 10 - 17
Warranty 15 - 1
Wastegate 9 - 5
Weights 8 - 1
Work performance 15 - 1
3) Introduction

Congratulations on your decision to purchase a ROTAX® aircraft engine.

Before operating the engine, carefully read this Operator’s Manual. The Manual provides you with basic information on the safe operation of the engine.

If any passages of the Manual are not clearly understood or in case of any questions, please, contact an authorized Distribution- or Service Center for ROTAX® aircraft engines.

We wish you much pleasure and satisfaction flying your aircraft with this ROTAX® engine.

3.1) Remarks

The purpose of this Operator’s Manual is provided to familiarize the owner/user of this aircraft engine with basic operating instructions and safety information.

For more detailed maintenance, safety and flight information, consult the documentation provided by the aircraft manufacturer and dealer.

For further information on maintenance and spare parts service, contact the nearest ROTAX® distribution Center (see Chapter 14).

3.2) Engine serial number

On all enquiries or parts orders, always indicate the engine serial number, as the manufacturer makes modifications to the engine for product improvement. The engine serial number should always be used when ordering parts to ensure correct part selection prior to shipment.

The engine serial number is located on the top of the crankcase, magneto side. See ill. 6.
4) Safety

Although the mere reading of these instructions will not eliminate a hazard, the understanding and application of the information herein will promote the proper use of the engine.

The information and components-/system descriptions contained in this Operator's Manual are correct at the time of publication. ROTAX® however, maintains a policy of continuous improvement of its products without imposing upon itself any obligation to install them on its products previously manufactured.

ROTAX® reserves the right at any time to discontinue or change specifications, designs, features, models or equipment without incurring obligation.

The illustrations in this Manual show the typical construction. They may not represent in full detail or the exact shape of the parts which have the same or similar function.

Specifications are given in the SI metric system with the USA equivalent in parenthesis. Where precise accuracy is not required, some conversions are rounded off for easier use.

This document has been translated from the German language and the original German text shall be deemed authoritative.

4.1) Repeating symbols

This Manual uses the following symbols to emphasize particular information:

▲ WARNING: Identifies an instruction which, if not followed, may cause serious injury including the possibility of death.

■ ATTENTION: Denotes an instruction which, if not followed, may severely damage the engine or other component.

◆ NOTE: Indicates supplementary information which may be needed to fully complete or understand an instruction.
4.2) Safety information

▲ WARNING: Never fly the aircraft equipped with this engine at locations, airspeeds, altitudes, or other circumstances from which a successful no-power landing cannot be made, after sudden engine stoppage.

Unless correctly equipped to provide enough electrical power for night VFR (according latest requirement as ASTM), the ROTAX® 914 UL is restricted to DAY VFR only.

— This engine is not suitable for acrobatics (inverted flight, etc.).

— This engine shall not be used on rotor wing aircraft (helicopters) or any similar aircraft.

— It should be clearly understood that the choice, selection and use of this particular engine on any aircraft is at the sole discretion and responsibility of the aircraft manufacturer, assembler and owner/user.

— Due to the varying designs, equipment and types of aircraft, ROTAX® grants no warranty or representation on the suitability of its engine’s use on any particular aircraft. Further, ROTAX® grants no warranty or representation of this engine’s suitability with any other part, component or system which may be selected by the aircraft manufacturer, assembler or user for aircraft application.

— Whether you are a qualified pilot or a novice, complete knowledge of the aircraft, its controls and operation is mandatory before venturing solo. Flying any type of aircraft involves a certain amount of risk. Be informed and prepared for any situation or hazard associated with flying.

A recognized training program and continued education for piloting an aircraft is absolutely necessary for all aircraft pilots. Make sure you also obtain as much information as possible about your aircraft, its maintenance and operation from your dealer.

— You should be aware that any engine may seize or stall at any time. This could lead to a crash landing and possible severe injury or death. For this reason, we recommend strict compliance with the maintenance and operation and any additional information which may be given to you by your dealer.

— Respect all government or local rules pertaining to flight operation in your flying area. Fly only when and where conditions, topography, and airspeeds are safest.

— Select and use proper aircraft instrumentation. This instrumentation is not included with the ROTAX® engine package. Only approved instrumentation may be installed.
— Before flight, ensure that all engine controls are operative. Make sure all controls can be easily reached in case of an emergency.

— Unless in a run up area, never run the engine with the propeller turning while on the ground. Do not operate engine if bystanders are close.

— In the interest of safety, the aircraft must not be left unattended while the engine is running.

— Keep an engine log and respect engine and aircraft maintenance schedules. Keep the engine in top operating condition at all times. Do not operate any aircraft which is not properly maintained or has engine operating irregularities which have not been corrected.

Since special tools and equipment may be required, engine servicing should only be performed by an authorized ROTAX® engine dealer or a qualified trained mechanic approved by the local airworthiness authority.

— To eliminate possible injury or damage, ensure any loose equipment or tools are properly secured before starting the engine.

— When in storage protect the engine and fuel system from contamination and exposure.

— Certain areas, altitudes and conditions present greater risk than others. The engine may require carburetor recalibration or humidity or dust/sand preventative equipment, or additional maintenance may be required.

Consult your aircraft dealer or manufacturer and obtain the necessary information, especially before flying in new areas.

— Never operate the engine and gearbox without sufficient quantities of lubricating oil.

— Periodically verify level of coolant.

— Never exceed maximum rated r.p.m. Allow the engine to cool at idle for several minutes before turning off the engine.

— This engine may be equipped with an Airborne vacuum pump. The safety warning accompanying the vacuum pump must be given to the owner/operator of the aircraft into which the vacuum pump is installed.
4.3) Technical documentation

These documents form the instructions for continued airworthiness of ROTAX® aircraft engines:

- Installation Manual 914 F / UL
- Operators Manual 914 Series
- Maintenance Manual 914 F / UL
- Overhaul Manual 914 Series
- Illustrated Parts Catalog 914 F / UL
- Alert Service Bulletins
- Service Bulletins
- Service Instructions
- Service Letters

Any reference to a document refers to the latest edition issued by ROTAX®, if not stated otherwise.

The information given in the are based on data and experience that are considered applicable for professionals under normal conditions.

The fast technical progress and variations of installation might render present laws and regulations inapplicable or inadequate.

The illustrations in this Manual are mere sketches and show a typical arrangement. They may not represent the actual part in all its details but depict parts of the same or similar function. Therefore deduction of dimensions or other details from illustrations is not permitted.

All necessary documentation is available from the ROTAX Distribution-and Service Centers (see Chapter 14).

◆ NOTE: The Illustrations in this Operator’s Manual are stored in a graphic data file and are provided with a consecutive irrelevant number.

This number (e.g. 00277) is of no significance for the content.
### 5) Index of pages

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
<th>Date</th>
<th>Chapter</th>
<th>Page</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>cover page</td>
<td>1 - 1</td>
<td>98 12 01</td>
<td>10</td>
<td>ACG-approv. 10 - 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 - 2</td>
<td>98 12 01</td>
<td></td>
<td>ACG-approv. 10 - 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 - 3</td>
<td>2006 05 01</td>
<td></td>
<td>ACG-approv. 10 - 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 - 4</td>
<td>98 12 01</td>
<td></td>
<td>ACG-approv. 10 - 4</td>
</tr>
<tr>
<td>2</td>
<td>2 - 1</td>
<td>98 12 01</td>
<td>2 - 2</td>
<td>2002 11 01</td>
<td>blank</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACG-approv. 10 - 5</td>
<td>98 12 01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3 - 1</td>
<td>98 12 01</td>
<td>3 - 2</td>
<td>98 12 01</td>
<td>ACG-approv. 10 - 9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACG-approv. 10 - 8</td>
<td>98 12 01</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 - 1</td>
<td>98 12 01</td>
<td>4 - 2</td>
<td>2006 05 01</td>
<td>blank</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACG-approv. 10 - 12</td>
<td>2006 05 01</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 - 3</td>
<td>98 12 01</td>
<td>4 - 4</td>
<td>98 12 01</td>
<td>ACG-approv. 10 - 13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACG-approv. 10 - 14</td>
<td>2006 05 01</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 - 5</td>
<td>2006 05 01</td>
<td>4 - 6</td>
<td>98 12 01</td>
<td>ACG-approv. 10 - 15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACG-approv. 10 - 16</td>
<td>98 12 01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>5 - 1</td>
<td>2006 05 01</td>
<td>5 - 2</td>
<td>2006 05 01</td>
<td>ACG-approv. 10 - 18</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACG-approv. 10 - 19</td>
<td>98 12 01</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6 - 1</td>
<td>2006 05 01</td>
<td>6 - 2</td>
<td>2006 05 01</td>
<td>ACG-approv. 10 - 20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACG-approv. 10 - 21</td>
<td>98 12 01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>7 - 1</td>
<td>2006 05 01</td>
<td>7 - 2</td>
<td>98 12 01</td>
<td>ACG-approv. 10 - 22</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACG-approv. 10 - 23</td>
<td>98 12 01</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7 - 3</td>
<td>98 12 01</td>
<td>7 - 4</td>
<td>98 12 01</td>
<td>ACG-approv. 10 - 24</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACG-approv. 10 - 25</td>
<td>98 12 01</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8 - 1</td>
<td>2006 05 01</td>
<td>8 - 2</td>
<td>2006 05 01</td>
<td>ACG-approv. 10 - 26</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACG-approv. 10 - 27</td>
<td>98 12 01</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9 - 1</td>
<td>2006 05 01</td>
<td>9 - 2</td>
<td>2006 05 01</td>
<td>ACG-approv. 10 - 28</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11 - 1</td>
<td>98 12 01</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>11 - 2</td>
<td>98 12 01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>12 - 1</td>
<td>12 - 2</td>
<td>2006 05 01</td>
<td>12 - 3</td>
<td>2002 11 01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12 - 4</td>
<td>2002 11 01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>13 - 1</td>
<td>2006 05 01</td>
<td>13 - 2</td>
<td>2006 05 01</td>
<td>13 - 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13 - 4</td>
<td>2006 05 01</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Effectivity: 914 Serie
OM Rev. 4
May 01/2006
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>14 - 1</td>
<td>2006 05 01</td>
</tr>
<tr>
<td></td>
<td>14 - 3</td>
<td>2006 05 01</td>
</tr>
<tr>
<td></td>
<td>14 - 4</td>
<td>2006 05 01</td>
</tr>
<tr>
<td></td>
<td>14 - 5</td>
<td>2006 05 01</td>
</tr>
<tr>
<td></td>
<td>14 - 6</td>
<td>2006 05 01</td>
</tr>
<tr>
<td></td>
<td>14 - 7</td>
<td>2006 05 01</td>
</tr>
<tr>
<td></td>
<td>14 - 8</td>
<td>2006 05 01</td>
</tr>
<tr>
<td></td>
<td>14 - 9</td>
<td>2006 05 01</td>
</tr>
</tbody>
</table>
6) List of amendments

**Approval**
The technical content is approved under the authority of DOA Nr. EASA.21J.048.

<table>
<thead>
<tr>
<th>Current no.</th>
<th>Chapter</th>
<th>Pages</th>
<th>Date of modification</th>
<th>Note of approval</th>
<th>Date of approval by authority</th>
<th>Date of insertion</th>
<th>Marks / Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1÷5</td>
<td>all</td>
<td>98 12 01</td>
<td>not required</td>
<td>98 12 01</td>
<td></td>
<td>AA/HeC</td>
</tr>
<tr>
<td></td>
<td>7÷9</td>
<td>all</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11÷15</td>
<td>all</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>6,10</td>
<td>all*</td>
<td>98 12 01</td>
<td>not required</td>
<td>98 12 01</td>
<td></td>
<td>AA/HeC</td>
</tr>
<tr>
<td>1</td>
<td>1, 2</td>
<td>1 - 3</td>
<td>2002 11 01</td>
<td>english version</td>
<td></td>
<td>2002 11 01</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 - 2</td>
<td></td>
<td>not required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5, 6</td>
<td>5 - 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 - 1</td>
<td></td>
<td>english version</td>
<td>2002 11 01</td>
<td>2002 11 01</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8 - 2</td>
<td></td>
<td>not required</td>
<td>2002 11 01</td>
<td>2002 11 01</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8, 10</td>
<td>10 - 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 - 12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 - 14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>12 - 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>12 - 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>6 - 1</td>
<td>2003 03 01</td>
<td>english version</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 - 10</td>
<td></td>
<td>not required</td>
<td>2003 03 01</td>
<td>2003 03 01</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 - 12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 - 14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>5 - 1</td>
<td>2003 03 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>14 - 1</td>
<td></td>
<td>not required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>14 - 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>14 - 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current number</td>
<td>Chapter</td>
<td>Pages</td>
<td>Date of modification</td>
<td>Note of approval</td>
<td>Date of approval by authority</td>
<td>Date of insertion</td>
<td>Marks / Signature</td>
</tr>
<tr>
<td>---------------</td>
<td>---------</td>
<td>---------</td>
<td>----------------------</td>
<td>------------------</td>
<td>-------------------------------</td>
<td>-------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>6-1</td>
<td>2004 07 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>10-1</td>
<td>2004 07 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10-7</td>
<td>2004 07 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10-9</td>
<td>2004 07 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10-12</td>
<td>2004 07 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10-13</td>
<td>2004 07 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10-14</td>
<td>2004 07 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10-15</td>
<td>2004 07 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>5-1</td>
<td>2004 07 01</td>
<td></td>
<td></td>
<td></td>
<td>not required</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>1-3</td>
<td>2006 05 01</td>
<td>DOA**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>4-2</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4-5</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>5-1</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5-2</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>6-1</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6-2</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>7-1</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>8-1</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8-2</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>9-1</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>9-2</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>10-1</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10-2</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10-9</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10-10</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10-11</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10-12</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10-14</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10-18</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>12-2</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>13-1</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>13-2</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>13-3</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>13-4</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>14-1</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>14-2</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>14-3</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>14-4</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>14-5</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>14-6</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>14-7</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>14-8</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>14-9</td>
<td>2006 05 01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*The note of approval of the Aviation Authority refers only to the certified engines of the Type 914 F (TW10 - ACG).
7) **Description of design**

4-stroke, 4 cylinder horizontally opposed, spark ignition engine, with turbo charger and electronic control of boost pressure (TCU = turbocharge control unit), one central camshaft - push-rods - OHV

Liquid cooled cylinder heads

Ram air cooled cylinders

Dry sump forced lubrication

Dual breakerless capacitor discharge ignition

2 constant depression carburetors

2 electric fuel pumps (12V DC)

Prop drive via reduction gear with integrated shock absorber and overload clutch

*NOTE:* The overload clutch is installed on all **serial production** aircraft engines which are certified and on non-certified aircraft engines of the configuration 3.

Stainless steel exhaust system

Engine suspension frame

Electric starter (12V 0,6 kW)

Electric starter (12V 0,9 kW), **optional**

Integrated AC generator with ext. rectifier-regulator (12V 20A DC)

External alternator (12V 40A DC), **optional**

Vacuum pump: (only for configuration 2 and configuration 4 possible), **optional**

Hydraulic constant speed propeller governor: (for configuration 3 only), **optional**
7.1) Type description
e.g. ROTAX 914  F 2

◆ NOTE: The type designation is of the following composition.

Type: 914........ 4-cyl. horizontal opposed, normal aspirated engine

Certification: F, S........ certified to FAR 33/ JAR-E (TW10 - ACG)

UL ............. non-certified aircraft engines

Configuration: 2 ............. Prop shaft with flange for fixed pitch prop, P.C.D. 75 mm, P.C.D. 80 mm and 4” P.C.D.

3 ............. Prop shaft with flange for constant speed propeller P.C.D. 75 mm, P.C.D. 80 mm, P.C.D. 4” and drive for hydraulic governor for constant speed propeller.

4 ............. Prop flange for fixed pitch propeller P.C.D. 75 mm, P.C.D. 80 mm, P.C.D. 4” and prepared for retrofit of a hydraulic governor for constant speed propeller.
7.2) Denomination of cylinders:

Lateral view

Top view
(1) engine serial number
(2) CD carburetor
(3) propeller gearbox
(4) electric starter
(5) intake air distributor
   "Airbox"
(6) fuel pressure control
   "Airbox"
(7) expansion tank with excess pressure valve
(8) turbocharger
(9) exhaust system
(10) vacuum pump or hydraulic governor for constant speed propeller
(11) external generator
8) Technical data

8.1) Dimensions

<table>
<thead>
<tr>
<th>Description</th>
<th>914 UL / F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bore</td>
<td>79,5 mm (3,13 in.)</td>
</tr>
<tr>
<td>Stroke</td>
<td>61 mm (2,40 in.)</td>
</tr>
<tr>
<td>Displacement</td>
<td>1211 cm³ (73,9 in³)</td>
</tr>
<tr>
<td>Compression ratio</td>
<td>9,0 : 1</td>
</tr>
</tbody>
</table>

8.2) Weights

◆ NOTE: The stated weights are dry weights (without operating fluids)

with: carburetors, generator, ignition unit and oil container, electric starter, stainless steel muffler, engine suspension frame, turbo charger and TCU (turbocharge control unit)

without: radiator and fuel pump

<table>
<thead>
<tr>
<th>Weight in kg (lb)</th>
<th>914 UL</th>
<th>914 F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuration 2/4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>71,7 (158) with overload clutch</td>
<td></td>
<td>71,7 (158)</td>
</tr>
<tr>
<td>70,0 (154) without clutch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Configuration 3</td>
<td>74,4 (164)</td>
<td></td>
</tr>
</tbody>
</table>

Equipment (optional):

External alternator: ............... 3,0 kg (6,6 lb)
Vacuum pump: ..................... 0,8 kg (1,8 lb)
Overload clutch: ................... 1,7 kg (3,7 lb)

◆ NOTE: The overload clutch is installed on all certified aircraft engines and on non-certified aircraft engines of the configuration 3.
8.3) Fuel consumption

<table>
<thead>
<tr>
<th>Fuel consumption in l/h (USgal/h)</th>
<th>914 UL / F</th>
</tr>
</thead>
<tbody>
<tr>
<td>at take-off performance</td>
<td>33,0 (8,7)</td>
</tr>
<tr>
<td>at max. continuous performance</td>
<td>27,2 (7,2)</td>
</tr>
<tr>
<td>at 75 % continuous performance</td>
<td>20,4 (5,4)</td>
</tr>
<tr>
<td>specific fuel consumption at max.</td>
<td>276 g/kWh</td>
</tr>
<tr>
<td>continuous performance</td>
<td>(0,458 lb/hp)</td>
</tr>
</tbody>
</table>

8.4) Direction of rotation

Direction of rotation on propeller shaft: ....... counter-clockwise, looking at p.t.o. side of engine.

◆ NOTE: Propeller shouldn't be turned reverse the normal direction of engine rotation.

*normal direction of propeller rotation (engine)*
9) Description of systems

9.1) Cooling system

See fig. 4.

The cooling system of the ROTAX 914 is designed for liquid cooling of the cylinder heads and ram-air cooling of the cylinders. The cooling system of the cylinder heads is a closed circuit with an expansion tank.

The coolant flow is forced by a water pump, driven from the camshaft, from the radiator to the cylinder heads. From the top of the cylinder heads the coolant passes on to the expansion tank (1). Since the standard location of the radiator (2) is below engine level, the expansion tank located on top of the engine allows for coolant expansion.

The expansion tank is closed by a pressure cap (3) (with excess pressure valve and return valve). At temperature rise of the coolant the excess pressure valve opens and the coolant will flow via a hose at atmospheric pressure to the transparent overflow bottle (4). When cooling down, the coolant will be sucked back into the cooling circuit.

◆ NOTE: Coolant temperatures are measured by means of temperature probes installed in cylinder heads 2 and 3. Readings are taken on measuring point of the hottest cylinder head, depending on engine installation.

Coolant, see Chapter 10.2.1).
9.2) **Fuel system**

See fig. 5.

The fuel flows from the tank (1) via a coarse filter/water trap (2) to the two electric fuel pumps (3) connected in series. From the pumps fuel passes on via the fuel pressure control (4) to the two carburetors (5).

◆ **NOTE:** Parallel to each fuel pump a separate check valve (6) is installed.

Via the return line (7) surplus fuel flows back to the fuel tank.

■ **ATTENTION:** The return line must not present flow resistance. Pay attention to possible constriction of diameter or obstruction, to avoid overflowing of carburetors.

◆ **NOTE:** The fuel pressure control ensures that the fuel pressure is always maintained approx. 0.25 bar (3.63 psi) above the variable boost pressure in the "airbox" and thus ensures proper operation of the carburetors.

Fuel, see Chapter 10.2.2), 13.1) and 13.2).
9.3) Lubrication system

See fig. 6.

The ROTAX 914 engine is provided with a dry sump forced lubrication system with a main oil pump with integrated pressure regulator and an additional suction pump.

◆ NOTE: The oil pumps are driven by the camshaft.

The main oil pump sucks the motor oil from the oil tank (1) via the oil cooler (2) and forces it through the oil filter to the points of lubrication (lubricates also the plain bearings of the turbo charger and the propeller governor).

The surplus oil emerging from the points of lubrication accumulates on the bottom of crankcase and is forced back to the oil tank by the blow-by gases.

The turbo charger is lubricated via a separate oil line (from the main oil pump.

The oil emerging from the lower placed turbo charger collects in the oil sump by a separate pump and is pumped back to the oil tank via the oil line (3).

◆ NOTE: The oil circuit is vented via bore (5) in the oil tank.

◆ NOTE: There is an oil temperature sensor in the oil pump flange, for reading of the oil temperature.

Lubricants, see Chapter 10.2.3).

![Diagram of lubrication system](image)
9.4) Electric system

See fig. 7.

The ROTAX 914 engine is equipped with a dual ignition unit of a breakerless, capacitor discharge design, with an integrated generator.

The ignition unit is completely free of maintenance and needs no external power supply.

Two independent charging coils (1) located on the generator stator supply one ignition circuit each. The energy is stored in capacitors of the electronic modules (2). At the moment of ignition 2 each of the 4 external trigger coils (3) actuate the discharge of the capacitors via the primary circuit of the dual ignition coils (4).

Firing order: 1-4-2-3.

◆ NOTE: The 5th trigger coil (5) is planned for rev. counter signal.
9.5) **Turbo charge and control system**

See fig. 8 and 9.

The ROTAX 914 engine is equipped with an exhaust gas turbo charger, making use of the energy in the exhaust gas for precompression of the intake air (boost pressure).

The boost pressure in the airbox is controlled by means of an electronically controlled flap (wastegate) in the exhaust gas turbine.

◆ **NOTE:** The wastegate regulates the speed of the turbo charger and consequently the boost pressure in the airbox.

The required nominal boost pressure in the airbox is determined by the throttle position sensor mounted on the carburetor 2/4. The sensor’s transmitted position is linear from 0 to 115% corresponding to a throttle position from idle to full power. See fig. 8.

For correlation between throttle position and nominal boost pressure in the airbox, refer to the diagram (fig. 9).

![fig. 8](image1)

![fig. 9](image2)

The most important points for engine operation:

<table>
<thead>
<tr>
<th>engine performance</th>
<th>throttle position</th>
<th>nominal airbox pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>idling of engine</td>
<td>~ 0 %</td>
<td>1500 hPa (44,3 in. HG)</td>
</tr>
<tr>
<td>max. continuous performance</td>
<td>100 ÷ 108 %</td>
<td>1220 hPa (36,0 in. HG)</td>
</tr>
<tr>
<td>take-off performance</td>
<td>110 ÷ 115 %</td>
<td>1370 hPa (40,5 in.HG)</td>
</tr>
</tbody>
</table>

◆ **NOTE:** In the course of model refinement some parameters have been slightly changed. Diagram and table show the current state of software.

■ **ATTENTION:** As shown in the diagram, the throttle position at 108 ÷ 110 % results in a rapid rise of nominal boost pressure. To avoid unstable boost, the throttle should be moved smoothly through this area either to full power (115 %) or, on a power reduction, to max. continuous power.
In this range (108 - 110 % throttle position) small changes in throttle position have a big effect on engine performance and speed, but are virtually not apparent for the pilot from the throttle lever position.

■ ATTENTION: The exact setting for a specific performance is virtually impossible in this range and has to be prevented, as it might cause control fluctuations (surging).

Besides the throttle position, overspeeding of the engine and too high intake air temperature have an effect on the nominal boost pressure.
If one of the stated factors exceeds the specified limits, the boost pressure is automatically reduced, thus protecting the engine against overload.

The TCU (Turbo Control Unit) is furnished additionally with output connections for an external "red" boost lamp and an "orange" caution lamp for indication of function of the TCU.

When switching on the voltage supply, the two lamps are automatically subject to a function test. Both lamps illuminate for 1 - 2 seconds, then they extinguish. If they do not, a check as per Maintenance Manual is necessary.

▲ WARNING: The engine must not be taken into operation before having corrected the cause of deficiency.

Orange caution lamp:
The non-illuminated orange caution lamp signals that TCU is ready for operation.
If the lamp is blinking, this indicates a malfunction of the TCU or its periphery.
See Chapter 10.4.6.

Red boost lamp:
— Exceeding of the admissible boost pressure will activate the red boost lamp, being continuously illuminated (see Chapter 10.4.4).
— The TCU registers the time of full throttle operation (boost pressure). Full throttle operation for longer than 5 minutes will make the red boost lamp blinking. See Chapter 10.4.5).

■ ATTENTION: The red boost lamp helps the pilot to avoid full power operation for longer than 5 minutes as otherwise the engine would be thermally and mechanically overstressed.
9.6) Propeller gearbox

See fig. 10.

For the engine type 914 two reduction ratios are available.

<table>
<thead>
<tr>
<th>reduction ratio</th>
<th>914 UL/F</th>
</tr>
</thead>
<tbody>
<tr>
<td>crankshaft : propeller shaft</td>
<td>2.43 : 1</td>
</tr>
</tbody>
</table>

Depending on engine type, certification and configuration the propeller gearbox is supplied with or without an overload clutch.

◆ NOTE: The overload clutch is installed on serial production on all certified aircraft engines and on the non-certified aircraft engines of configuration 3.

Fig. 10 shows a propeller gearbox of configuration 2 with the integrated overload clutch.

The design incorporates a torsional shock absorber. The shock absorbing is based on progressive torsional cushioning due to axial spring load acting on a dog hub.

On the gearbox version with overload clutch the design incorporates a friction damped free play at the dogs to warrant proper engine idling. Due to this backlash at the dogs a distinct torsional impact arises at start, stop and at sudden load changes, but due to the built-in overload clutch it will remain harmless.

◆ NOTE: This overload clutch will also prevent any undue load to the crankshaft in case of ground contact of the propeller.

Alternatively either a vacuum pump or a hydraulic governor for constant speed propeller can be used. The drive is in each case via the propeller reduction gear.
9.6.1) **Hydr. governor for const. speed propeller, vacuum pump:**

Alternatively **either** a vacuum pump or a hydraulic governor for constant speed propeller can be used. The drive is in each case via the propeller reduction gear.

**Gear ratio:**

<table>
<thead>
<tr>
<th>Gear Ratio</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crankshaft : Propeller shaft</td>
<td>2.43 : 1</td>
</tr>
<tr>
<td>Propeller shaft : Hydraulic governor/vacuum pump</td>
<td>0.758 : 1</td>
</tr>
<tr>
<td>Crankshaft : Hydraulic governor/vacuum pump</td>
<td>1.842 : 1</td>
</tr>
</tbody>
</table>

◆ **NOTE:** Transmission ratio between crankshaft and hydraulic governor or vacuum pump is 1.842 i.e. the speed of the hydraulic governor or vacuum pump is 0.54 of engine speed.
10) Operating instructions
The data of the certified engines are based on type certificate of type 914 F (TW10 - ACG).

10.1) General limits of operation

10.1.1) Operating speeds and limits

1. Speed:
   - Take-off speed ........................................ 5800 rpm (5 min.)
   - Max. continuous speed .................. 5500 rpm
   - Idle speed ........................................ approx. 1400 rpm

2. Manifold pressure:
   - Take-off performance .................. max. 1350 hPa (39,9 in.HG)
   - Max. continuous performance ... max. 1200 hPa (35,4 in.HG)
   - ATTENTION: Due to the control behaviour an overshooting of the manifold pressure is possible. But within 2 seconds this pressure has to stabilize within the allowance.

3. Acceleration:
   - Limit of engine operation at zero gravity and in negative "g" conditions
     - max. ........................................ 5 seconds at max. -0,5 g

4. Critical flying altitude:
   - Take-off performance .................. up to max. 2450 m (8000 ft) above sea level
   - Continuous performance ........... up to max. 4500 m (16000 ft) above sea level
   - ATTENTION: Up to the stated critical flight altitude the respective manifold pressure is available.

5. Oil pressure:
   - max. ........................................ 7 bar (102 psi)
   - min. ........................................ 0,8 bar (12 psi) (below 3500 rpm)
   - *1,5 bar (22 psi)
   - normal ........................................ 2,0 ÷ 5,0 bar (29 ÷ 73 psi) (above 3500 rpm)
   - *1,5 ÷ *5,0 bar (22 ÷ 73 psi)
   - *914 UL starting with S/N 4,417.665
   - *914 F starting with S/N 4,420.085

6. Oil temperature:
   - max. ........................................ 130 °C .......... (255 °F)
   - min. ........................................ 50 °C .......... (120 °F)
   - normal operating temperature ... approx. 90 ÷ 110 °C(190÷230 °F)
7. **Coolant**
   See Operating media Chapter 10.2.1

   - In use of conventional coolant:
     
     **Coolant temperature:** (coolant exit temperature)
     
     max. ..................................................... 120 °C (248 °F)

     **Cylinder head temperature:**
     
     max. ..................................................... 135 °C (266 °F)

     Permanent monitoring of coolant temperature and cylinder head temperature is necessary.

   - In use of waterless coolant:
     
     **Cylinder head temperature:**
     
     max. ..................................................... 135 °C (266 °F)

     Permanent monitoring of cylinder head temperature is necessary.

8. **Airbox temperature:**

   * intervention temperature ............. 72°C (160°F)
   * intervention temperature ............. 88°C (190°F)

   * 914 UL commencing with S/N 4,417.598 (TCU part no. 966 471)
   * 914 F commencing with S/N 4,420.200 (TCU part no. 966 741)

9. **Fuel pressure:**

   max. ............................................ Airbox pressure + 0,35 bar (5,08 psi)
   min. ............................................ Airbox pressure + 0,15 bar (2,18 psi)
   normal ............................................ Airbox pressure + 0,25 bar (3,63 psi)

   ◆ NOTE: Exceeding the max. admissible fuel pressure will override the float valve of the carburetor.

10. **Power consumption of the hydraulic propeller governor:**

    max. ............................................ 600 W

11. **Power consumption of the vacuum pump:**

    max. ............................................ 300 W

12. **Power consumption of the external alternator:**

    max. ............................................ 1200 W

13. **Deviation from bank angle**

    max. ............................................ 40°

    ◆ NOTE: Up to this value the dry sump lubrication system warrants lubrication in every flight situation.
10.1.1.1) Performance graphs for standard conditions ISA (International Standard Atmosphere)

Take-off performance .................. 84,5 kW at 5800 rpm
   1300 hPa (38,4 in.HG)
   *1320 hPa (39,0 in.HG)
Max. continuous performance ..... 73,5 kW at 5500 1/min
   1150 hPa (34,0 in.HG)
   *1180 hPa (34,9 in.HG)

◆ NOTE: The stated pressure in the suction tube is always lower by the pressure loss in the carburetors than the TCU controlled airbox pressure and may be therefore subject to bigger deviations.

* 914 UL starting with engine no. 4,417.598 (TCU part no. 966 471)
* 914 F starting with engine no. 4,420.200 (TCU part no. 966 741)
A: Engine curve (take-off performance)
B: Engine curve (continuous full throttle performance)
C: Propeller curve (power requirement of propeller)
Performance data for variable pitch propeller:

Engine operation is permitted without restriction between full throttle performance and power requirement of propeller, providing engine speed over 5500 r.p.m. is restricted to 5 minutes.

However, for economic reasons it is recommended to run the engine in accordance with the following table:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Take-off power</td>
<td>5800</td>
<td>84,5</td>
<td>139</td>
<td>102</td>
<td>39</td>
</tr>
<tr>
<td>max. continuous power</td>
<td>5500</td>
<td>73,5</td>
<td>128</td>
<td>93</td>
<td>35</td>
</tr>
<tr>
<td>75%</td>
<td>5000</td>
<td>55,1</td>
<td>105</td>
<td>77</td>
<td>31</td>
</tr>
<tr>
<td>65%</td>
<td>4800</td>
<td>47,8</td>
<td>95</td>
<td>69</td>
<td>29</td>
</tr>
<tr>
<td>55%</td>
<td>4300</td>
<td>40,4</td>
<td>90</td>
<td>65</td>
<td>28</td>
</tr>
</tbody>
</table>
### Take-off performance (kW)

<table>
<thead>
<tr>
<th>Altitude (ft)</th>
<th>Temperature ISA (°C)</th>
<th>Temperature difference to ISA (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-2000</td>
<td>19 292</td>
<td>101 99 97 95 94 92 90 89 87 86 84 83 81 80 79 78 76</td>
</tr>
<tr>
<td>0</td>
<td>15 288</td>
<td>100 98 96 94 93 91 89 88 86 85 83 82 80 79 78 77 76</td>
</tr>
<tr>
<td>2000</td>
<td>11 284</td>
<td>99 97 95 93 92 90 88 87 85 84 82 81 79 78 77 76 75 74 72 71 70 69 68 67 66</td>
</tr>
<tr>
<td>4000</td>
<td>7 280</td>
<td>98 96 94 92 91 89 87 86 84 83 81 80 78 77 76 75 74 73 72 71 70 69 68 67 66 65 64</td>
</tr>
<tr>
<td>6000</td>
<td>3 276</td>
<td>97 95 93 91 90 88 86 85 83 81 80 79 77 76 75 74 73 72 71 70 69 68 67 66 65 64 63</td>
</tr>
<tr>
<td>8000</td>
<td>-1 272</td>
<td>96 94 92 90 88 87 85 83 82 80 79 78 76 75 74 73 72 71 70 69 68 67 66 65 64 63 62</td>
</tr>
</tbody>
</table>

### Max. Continuous power (kW)

<table>
<thead>
<tr>
<th>Altitude (ft)</th>
<th>Temperature ISA (°C)</th>
<th>Temperature difference to ISA (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-2000</td>
<td>19 292</td>
<td>88 86 85 83 81 80 78 77 76 74 72 71 70 69 68 67 66</td>
</tr>
<tr>
<td>0</td>
<td>15 288</td>
<td>87 85 84 82 80 79 78 77 76 75 74 73 72 71 70 69 68 67 66</td>
</tr>
<tr>
<td>2000</td>
<td>11 284</td>
<td>87 85 83 81 80 78 77 76 75 74 73 72 71 70 69 68 67 66 65 64 63</td>
</tr>
<tr>
<td>4000</td>
<td>7 280</td>
<td>86 84 82 81 79 78 77 76 75 74 73 72 71 70 69 68 67 66 65 64</td>
</tr>
<tr>
<td>6000</td>
<td>3 276</td>
<td>85 83 82 80 78 77 75 74 73 72 71 70 69 68 67 66 65 64 63</td>
</tr>
<tr>
<td>8000</td>
<td>-1 272</td>
<td>84 82 81 79 77 76 74 73 72 70 69 68 67 66 65 64 63</td>
</tr>
<tr>
<td>10000</td>
<td>-5 268</td>
<td>83 82 80 78 77 75 74 72 71 69 68 67 66 65 64</td>
</tr>
<tr>
<td>12000</td>
<td>-9 264</td>
<td>82 81 79 77 76 74 72 71 70 68 67 66 65 64</td>
</tr>
<tr>
<td>14000</td>
<td>-13 260</td>
<td>81 79 77 76 74 73 71 70 68 67 66 65 64</td>
</tr>
<tr>
<td>16000</td>
<td>-17 256</td>
<td>80 78 76 75 73 72 70 69 67 66 65 64</td>
</tr>
</tbody>
</table>

**Example:**

**Max. continuous power at 10 000 ft?**

Temperature ISA at 10 000 ft .............................................. -5 °C
Ambient temperature at 10 000 ft .............................................. -15 °C
Temperature difference to ISA .............................................. -10 °C

Max. continuous power as per diagram ................................ 72 kW
10.2) Operating media

10.2.1) Coolant

In principle, 2 different types of coolant are permitted.
- Conventional coolant based on ethylene glycol
- Waterless coolant based on propylene glycol

CAUTION: Obey the manufacturer's instructions about the coolant.

Conventional coolant mixed with water has the advantage of a higher specific thermal capacity than water-less coolant.

NOTE: The important advantage of water-less coolant is its higher boiling point than a conventional mixture.

When correctly applied, there is sufficient protection against vapor bubble formation, freezing or thickening of the coolant within the operating limits.

Use the coolant specified in the manufacturer's documentation.

CAUTION: Obey the latest edition of Service Instruction SI-914-019 for the selection of the correct coolant.

<table>
<thead>
<tr>
<th>designation</th>
<th>mixture ratio %</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>conventional e.g. BASF Glysantine anticorrosion</td>
<td>concentrate</td>
<td>water</td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>waterless e.g. EVANS NPG+</td>
<td>100</td>
<td>0</td>
</tr>
</tbody>
</table>

07032
10.2.2) Fuel

The following fuels* can be used.

<table>
<thead>
<tr>
<th>Fuel Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>914 UL / F</td>
</tr>
<tr>
<td>min. ROZ 95</td>
</tr>
<tr>
<td>EN 228 Super</td>
</tr>
<tr>
<td>EN 228 Super plus</td>
</tr>
<tr>
<td>AVGAS 100 LL</td>
</tr>
</tbody>
</table>

Due to the higher lead content in AVGAS, the wear of the valve seats, the deposits in combustion chamber and lead sediments in the lubrication system will increase. Therefore, use AVGAS only if you encounter problems with vapour lock or if the other fuel types are not available.

■ ATTENTION: Use only fuel suitable for the respective climatic zone.

◆ NOTE: Risk of vapour formation if using winter fuel for summer operation.

■ CAUTION: Obey the latest edition of Service Instruction SI-914-019 for the selection of the correct fuel.
10.2.3) Lubricants

Oil: Motorcycle oil of a registered brand with gear additives. If using aircraft engine oil; than only blended one.

■ CAUTION: At the selection of suitable lubricants refer to the additional information in the Service Information SI-914-019, current issue.

Oil specification

— Use only oil with API classification "SG" or higher!

— Due to the high stresses in the reduction gears, oils with gear additives such as high performance motor cycle oils are required.

— Because of the incorporated friction clutch, oils with friction modifier additives are unsuitable as this could result in a slipping clutch during normal operation.

— Heavy dury 4-stroke motor cycle oils meet all the requirements. These oils are normally no mineral oils but semi- or full synthetic oils.

— Oils primary for Diesel engines are due to insufficient high temperature properties and additives which favour clutch slipping, generally unsuitable.

■ CAUTION: If the engine is mainly run on AVGAS more frequent oil changes will be required. See Service Information SI-914-019, current issue.
Oil consumption: ........... max 0,06 l/h (0.13 liq pt/h)

Oil viscosity:
Use of multi-grade oils is recommended.

◆ NOTE: Multi-viscosity grade oils are less sensitive to temperature variations than single grade oils. They are suitable for use throughout the seasons, ensure rapid lubrication of all engine components at cold start and get less fluid at higher temperatures.

Table of lubricants (See fig. 15)
Since the temperature range of neighbouring SAE grades overlap, there is no need for change of oil viscosity at short duration of ambient temperature fluctuations.
10.3) Standard operation

To warrant reliability and efficiency of the engine, meet and carefully observe all the operating and maintenance instructions.

10.3.1) Daily checks

▲ WARNING: Risk of burnings and scalds!
Conduct checks on the cold engine only!

▲ WARNING: Ignition "OFF". Before cranking the propeller switch off both ignition circuits and anchor the aircraft. Have the cockpit occupied by a competent person.

■ CAUTION: If established abnormalities (e.g. excessive resistance of the engine, noises etc.) inspection in accordance with the relevant Maintenance Manual is necessary. Do not release the engine into service before rectification.

Coolant level:

■ CAUTION: The coolant specifications of the section 10.2 Operating media are to be observed.

— Verify coolant level in the expansion tank, replenish as required up to top.
   The coolant level must be at least 2/3 of the expansion tank.

— Verify coolant level in the overflow bottle, replenish as required.
   The coolant level must be between max. and min. mark or at least 0.2 litre (0.4 liq pt).

Check of mechanical components:

Turn propeller by hand in direction of engine rotation several times and observe engine for odd noises or excessive resistance and normal compression.
Gear box:

— **Version without overload clutch:**

  No further checks are necessary.

— **Version with overload clutch:**

  Turn the propeller by hand to and fro, feeling the free rotation of 15 ° or 30 ° before the crankshaft starts to rotate.

  If the propeller can be turned between the dogs with practically **no friction** at all (less than 25 Nm / 222 in.lb) further investigation is necessary.

Carburetor:

— Verify free movement of throttle cable and starting carburetor over the complete range. Check from the cockpit.

**Exhaust system and turbocharger:**

— Inspect for cracks, damages, leakage and general condition.
10.3.2) Before engine start

Carry out pre-flight checks.

10.3.3) Pre-flight checks

▲ WARNING: Ignition "OFF" Before cranking the propeller switch off both ignition circuits and anchor the aircraft. Have the cockpit occupied by a competent person.

Operating media:

▲ WARNING: Carry out pre-flight checks on the cold or luke warm engine only! Risk of burning and scalds.

Check for any oil-, coolant- and fuel leaks.

If leaks are evident, rectify before flight.

■ CAUTION: The coolant specifications of the section 10.2 Operating media are to be observed.

— Verify coolant level in the overflow bottle, replenish as required.

The coolant level must be between min. and max. mark or at least 0.2 litre (0.4 liq pt).

■ CAUTION: The oil specifications of the section 10.2 Operating media are to be observed.

— Check oil level and replenish as required.

◆ NOTE: Propeller shouldn’t be turned reverse the normal direction of engine rotation.

— Prior to oil check, turn the propeller by hand in direction of engine rotation several times to pump oil from the engine into the oil tank, or let the engine idle for 1 minute.

This process is finished when air is returning back to the oil tank and can be noticed by a murmur from the open oil tank.

◆ NOTE: Oil level should be between max. and min. mark of the oil level gauge but must never be below min. mark. Before longer periods of operation ensure that oil level is at least up to mid-position.

Difference between max.- and min.- mark = 0,45 litre (0,95 liq pt)
10.3.4) Engine start

▲ WARNING! Do not take the engine into operation if any person is near the aircraft.

Fuel cock ........................ open
Starting carb ........................ activated

◆ NOTE: If the engine is already in operating temperature, start the engine without choke.

Throttle lever ........................ set to idle position
Master switch ........................ on

Function test of TCU:

◆ NOTE: When switching on the voltage supply, both lamps are automatically subject to a function test.

For approx. 1 - 2 seconds both lamps illuminate and then extinguish. If not, a check as per Maintenance Manual is necessary.

▲ WARNING: Do not take the engine into operation before having rectified the cause of deficiency.

electric fuel pump ........................ on
Ignition ........................ both circuits switched on
Starter button ........................ actuate

■ ATTENTION: Activate starter for max. 10 sec. only (without interruption), followed by a cooling period of 2 minutes!

As soon as engine runs, adjust throttle to achieve smooth running at approx. 2500 r.p.m.

Check if oil pressure has risen within 10 seconds and monitor oil pressure. Increase of engine speed is only permitted at steady oil pressure readings above 2 bar (30 psi).

At an engine start with low oil temperature, continue to observe the oil pressure as it could drop again due to the increased flow resistance in the suction line. The number of revolutions may be only so far increased that the oil pressure remains steady.

De-activate starting carb.

■ ATTENTION: Since the engine comprises a reduction gear with shock absorber, take special care of the following:
For the same reason, wait for around 3 sec. after throttling back to partial load to reach constant speed before re-acceleration.

For checking the two ignition circuits, only one circuit may be switched off and on at times.

■ ATTENTION: Do not actuate starter button (switch) as long as the engine is running. Wait until complete stop of engine!
10.3.5) Prior to take-off

**Warming up period:**

Start warming up period at 2000 r.p.m. for approx. 2 minutes, continue at 2500 r.p.m., duration depending on ambient temperature, until oil temperature reaches 50° C (120° F).

— Check temperatures and pressures.

**Throttle response:**

— Short full throttle ground test (consult Aircraft Operator's Manual since engine speed depends on the propeller used).

■ **ATTENTION:** After a full-load ground test allow a short cooling run to prevent vapour formation in the cylinder head.

**Ignition check:**

Check the two ignition circuits at 4000 r.p.m. (approx. 1700 r.p.m. propeller).

— Speed drop with only one ignition circuit must not exceed 300 r.p.m. (approx. 130 r.p.m. propeller).

— 120 r.p.m. (approx. 50 r.p.m. propeller) max. difference of speed by use of either circuit, A or B.

◆ **NOTE:** The propeller speed depends on the actual reduction ratio.

**Check of hydraulic propeller governor:**

Check control of the hydraulic propeller governor to specifications of the manufacturer.
10.3.6) Take-off

■ ATTENTION: If the national Aviation Authority demands the software classification "D" according to RTCA DO 178 B for the TCU software a special starting procedure is laid down which renders any influence of the TCU ineffective during the take-off, see section 10.3.6.2).

Climbing with engine running at take-off performance is permissible (max. 5 minutes). See Chapter 10.1), 10.1.1) and 10.1.2).

▲ WARNING: Monitor oil temperature, cylinder head temperature and oil pressure. Limits must not be exceeded! See Chapter 10.1) Operating Limits.

■ ATTENTION: Respect "cold weather operation" recommendations, see Chapter 10.3.9).

10.3.6.1) Take-off (standard - with active TCU)

— Switch on the auxiliary fuel pump at take-off.
— Switch throttle lever to 115 % (take-off performance).
— The auxiliary fuel should be switched off after the take-off.

10.3.6.2) Take-off (as per RTCA DO 178 B - with inactive TCU)

— Take-off performance until the boost pressure stabilizes within the limits of operation.
— TCU-switch in "OFF" position.
— Switch on the auxiliary fuel pump at take-off.
— Shift throttle lever to 115 % (take-off performance).
— After reaching the critical altitude switch on the TCU.

■ ATTENTION: Any improper use of the TCU-switch will be recorded by the TCU. At exceeding of the limits of operation will render any claims on Rotax null and void.

— The auxiliary fuel pump may be switched off after the take-off.
10.3.7) Cruising

Set performance as per performance specifications and respect operating limits as per Chapter 10.1), 10.1.1) and 10.1.2).

Avoid operation below normal operation oil temperature (90 °C / 194 °F), as possible formation of condensation water in the lubrication system badly influences the oil quality.

To evaporate possibly accumulated condensation water, at least once a day 100 °C (212 °F) oil temperature must be reached.

10.3.8) Engine shut-off

Normally the cooling down of the engine during descending and taxiing will be sufficient to allow the engine to be shut off as soon as the aircraft is stopped.

At increased operating temperatures to make an engine cooling run of at minimum 2 minutes.
10.3.9) Cold weather operation

Generally, an engine service should be carried out before the start of the cold season.

Coolant:

For selection of coolant and mixing ratio, see "Coolant", Chapter 10.2.1).

Lubricant:

For selection of oil, see Table of Lubricants (Chapter 10.2.3).

Cold start:

— With throttle closed and choke activated (open throttle renders starting carb ineffective).

— Be aware, no spark below crankshaft speed of 220 rpm. (propeller speed of 90 rpm.).

— As performance of electric starter is greatly reduced when hot, limit starting to periods not much longer than 10 sec. With a well charged battery, adding a second battery will not improve cold starts.

Remedy:

— Use of multigrade oil with the low end viscosity code of 5 or 10.

— Gap electrode on spark plug to the minimum or fit new spark plugs.

— Preheat engine using hot air.
Beyond that observe following advices for operation at extremely low temperatures:

◆ NOTE: Distinguish between two kinds of carb icing:
  1) Icing due to water in fuel
  2) Icing because of high air humidity

Addendum to note 1)

Water in fuel will accumulate at the lower parts of the fuel system and leads to freezing of fuel lines, filters or jets.

Remedy:
— Use non-contaminated fuel (filtered through suède)
— Generously sized water separators
— Fuel lines routing inclined
— Prevent condensation of humidity, i.e. avoid temperature differences between aircraft and fuel.

▲ WARNING: Fuels containing alcohol always carry a small amount of water in solution. In case of temperature changes or increase of alcohol content, water or a mixture of alcohol and water may settle and could cause troubles.

Addendum to note 2)

Carburetor icing due to humidity may occur on the venturi and on the throttle valve due to fuel evaporation and leads to performance loss and change in mixture. Intake air pre-heating is the only effective remedy.
10.4) Abnormal operation

▲ WARNING: At unusual engine behaviour conduct checks as per Chapter 10.4.1) through 10.4.13) below, and as per Maintenance Manual before the next flight.

◆ NOTE: Further checks - see Maintenance Manual.

10.4.1) Sudden drop of boost pressure and speed

— Loud noise or bang:
  A fracture of the turbo is likely.
  Look for landing possibility. Flight with reduced performance may be possible. **Monitor oil pressure.**

— The orange caution lamp of TCU (turbo control unit) is blinking.
  Limited flying operation as possibly wastegate does not close any more.

■ NOTE: A minimum performance of approx. 66 kW remains available.

Any exceeding of the max. admissible operating limits and/or blinking of orange caution lamp must be recorded by the pilot in the logbook, stating the duration, exact time and extent of exceeding.

10.4.2) Sudden rise of boost pressure and speed

— Orange caution lamp of TCU is blinking:
  Immediately reduce engine speed until boost pressure and speed are within operating limits.
  Limited flying operation as wastegate may be fully closed and control of the boost pressure is only possible via throttle lever.

— Bowden cable(s) for actuation of throttle valve(s) broken:
  Due to spring pressure the throttle valve(s) will be fully open - full throttle!
  Limited flying operation as wastegate may be fully closed and control of the boost pressure is only possible via throttle lever.

Any exceeding of the max. admissible engine speed or boost pressure has to be recorded by the pilot in the logbook, stating the duration, exact time and extent of exceeding.
10.4.3) **Periodical rise and drop of boost pressure and speed (boost pressure control is surging)**

Orange caution lamp of TCU is not blinking.

**Switch off** servo motor **for a moment** (max. 5 sec.). After a short regulating time operation should stabilize.

■ **ATTENTION:** If this action does not stabilize operation, **switch off** servo motor **completely**. If need be, reduce engine speed until boost pressure and speed are within the operating limits again.

Limited flying operation, as boost pressure control is no more possible.

Switching off the servo motor momentarily or permanently, has to be recorded by the pilot in the logbook, stating the duration, exact time and duration of switching off.

10.4.4) **Red boost lamp of TCU permanently illuminating**

The maximum admissible boost pressure was exceeded.

Reduce speed and boost pressure manually to be within the operating limits.

Limited flying operation, as boost pressure control is no more or insufficiently possible.

■ **ATTENTION:** The boost pressure will not be reduced automatically.

In case of exceeding the max. admissible boost pressure, this has to be recorded by the pilot in the logbook, stating the duration and exact time of exceeding of limits.

10.4.5) **Red boost lamp of TCU blinking**

The maximum "take-off" time limitation was exceeded.

Reduce speed and boost pressure at least to maximum continuous speed.

■ **ATTENTION:** The boost pressure will not be reduced automatically.

In case of exceeding the "take-off" time limits, this has to be recorded by the pilot in the logbook, stating the duration and exact time of exceeding of limits.
10.4.6) **Orange caution lamp of TCU blinking**

Indicates a failure of a sensor, sensor wiring, TCU, or leakage in the airbox.

Reduce speed and boost pressure manually to be within the operating limits.

Limited flying operation, as this may indicate that boost pressure control is no more or insufficiently possible and may affect engine performance.

In case of blinking of the orange caution lamp of TCU, this has to be recorded by the pilot in the logbook, stating the duration, exact time and extent of exceeding limits.

10.4.7) **Failure of the voltage supply to the TCU**

At a failure of voltage supply the servo motor will remain in its momentary position.

Limited flight operation as boost pressure control is not possible any more.

Any exceeding of the max. admissible operating limits must be recorded by the pilot in the logbook, stating the duration, exact time and extent of exceeding.

10.4.8) **Engine stop - Start during flight**

Starting procedure same as on ground, however, on a warm engine without choke.

10.4.9) **Exceeding of max. admissible engine speed**

Reduce engine speed. Any exceeding of the max. admissible engine speed has to be entered by the pilot into the logbook, stating duration and extent of overspeed.

10.4.10) **Exceeding of max. admissible cyl. head temperature**

▲ **WARNING:** Reduce engine power setting to the minimum necessary and carry out precautionary landing.

Any exceeding of the max. admissible cylinder head temperature has to be entered by the pilot into the logbook, stating duration and extent of over-temperature condition.
10.4.11) Exceeding of max. admissible oil temperature

▲ WARNING: Reduce engine power setting to the minimum necessary and carry out precautionary landing.

Any exceeding of the max. oil temperature must be entered by the pilot in the logbook, stating duration and extent of over-temperature condition.

10.4.12) Oil pressure below minimum - during flight

▲ WARNING: Reduce engine power setting to the minimum necessary and carry out precautionary landing.

Check oil system.

10.4.13) Oil pressure below minimum - on ground

Immediately stop the engine and check for reason. Check oil system.

— Check oil quantity in oil tank.
— Check oil quality (see section 10.2.3).

10.4.14) Engine on fire or fire in the engine compartment

In the event of fire or signs, e.g. heavy smoke both electric fuel pumps and the main switch must be switched off and the fuel tap has to be closed.

If the fire should extinguish it may be tried again to actuate the main fuel pumps and to start the engine (see section 10.3.4).

If the fire starts anew the fuel system has to be interrupted again at once.

Any shut-off of the fuel system for short periods or permanent has to be entered by the pilot into the logbook starting date and duration of shut-off.
11) Checks

All checks to be carried out as specified in the current Maintenance Manual (last revision).

▲ WARNING: Only qualified staff (authorized by the Aviation Authorities) trained on this particular engine, is allowed to carry out maintenance and repair work.

■ ATTENTION: Carry out all directives of Technical Bulletins, according to their priority.

11.1) Engine preservation

Due to the special material of the cylinder wall, there is no need for extra protection against corrosion. At extreme climatic conditions and for long out of service periods we recommend the following to protect the valve guides against corrosion:

- Let engine run until warm, then change oil.
- Remove the air intake filters and insert approx. 30 cm³ (1 fl oz) of corrosion inhibiting oil into the carburetor throat with the engine running at increased idle speed. Shut off engine.
- Drain carburetor float chamber.
- Apply oil to all joints on carburetors.
- Close all openings on the cold engine, such as exhaust end pipe, venting tube, air filter etc. against entry of dirt and humidity.
- Spray all steel external engine parts with corrosion inhibiting oil.

Engine back to operation

- Remove all plugs and fasteners.
- Clean spark plugs with plastic brush and solvent.
- If preservation including oil change took place within a year of storage, oil renewal will not be necessary. For longer storage periods repeat preservation annually.
12) Trouble shooting

⚠️ WARNING: Only qualified staff (authorized by the Aviation Authorities) trained on this particular engine, is allowed to carry out maintenance and repair work.

If the following hints regarding remedy do not solve the problem, contact an authorized workshop. The engine must not be operated until the problem is rectified.

---

**Engine does not start**

POSSIBLE CAUSE:
- a - ignition off
- b - closed fuel tap or clogged filter
- c - no fuel in tank
- d - starting speed too low, faulty or discharged battery
- e - starting speed too low, start problems on cold engine
- f - carb to rich

REMEDY:
- switch on.
- open tap, clean or renew filter, check fuel system for leaks.
- refuel.
- fit fully charged battery.
- use top quality, low friction oil; allow for sufficient cooling period to counter for performance drop on hot starter; pre-heat engine.
- start without pumps

---

**Engine idles rough after warm-up period, smoky exhaust emission**

POSSIBLE CAUSE:
- a - starting carb activated

REMEDY:
- close starting carb.

---

**Low oil pressure**

POSSIBLE CAUSE:
- a - not enough oil in oil tank

REMEDY:
- check oil return line for free passage, renew oil seal.
Engine keeps running with ignition off

POSSIBLE CAUSE:

a - overheating of engine

REMEDIY:

let engine cool down at idling at approx. 2000 r.p.m.

Oil level is increasing

POSSIBLE CAUSE:

a - oil too cold during engine operation

REMEDIY:

cover oil cooler surface, maintain the oil temperature prescribed.

Knocking under load

POSSIBLE CAUSE:

a - Octane rating of fuel too low

REMEDIY:

use fuel with higher octane rating.

Engine hard to start at low temperature

POSSIBLE CAUSE:

a - starting speed too low
b - low charge battery
c - high oil pressure
d - oil pressure too low after cold start

REMEDIY:

preheat engine.
fit fully charged battery.
at cold start a pressure reading of up to around 7 bar (102 psi) does not indicate a malfunction.
too much resistance in the oil suction tube at low temperatures. Stop engine and preheat oil.

At oil pressure reading too low than 1 bar oils with lower viscosity are to be used.

See SI-914-019, current issue.

◆ NOTE:

Oil pressure must in the idle operation with an oil temperature of min. 50 °C (120°F) to be measured.
12.1) **Reporting**

According to the regulation of JAR / FAR 21.3 the manufacturer shall evaluate field information and report to the authority. In case of any relevant occurrences that may involve malfunction of the engine, the form on the next page should be filled out and sent to the responsible authorized ROTAX™ distributor.

◆ **NOTE:** The form is also available from the official ROTAX™ AIRCRAFT ENGINES Homepage

www.rotax-aircraft-engines.com

in electronic version.
## CUSTOMER SERVICE INFORMATION REPORT

**MANUFACTURER**

**MODEL/SERIES**

**SERIAL NUMBER**

### Enter pertinent data

1. **A/C Reg. No.**

<table>
<thead>
<tr>
<th>OPER. Control No.</th>
<th>ATA Code</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### AIRCRAFT

<table>
<thead>
<tr>
<th>Part Name</th>
<th>MFG. Model or Part No.</th>
<th>Serial No.</th>
<th>Part/Defect Location</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### POWERPLANT

<table>
<thead>
<tr>
<th>Part Name</th>
<th>MFG. Model or Part No.</th>
<th>Serial No.</th>
<th>Part/Defect Location</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### PROPELLER

<table>
<thead>
<tr>
<th>Part Name</th>
<th>MFG. Model or Part No.</th>
<th>Serial No.</th>
<th>Part/Defect Location</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### ENGINE COMPONENT (Assembly that includes part)

<table>
<thead>
<tr>
<th>Engine Comp. Name</th>
<th>Manufacturer</th>
<th>Model or Part No.</th>
<th>Serial Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Engine TSN</th>
<th>Engine TSO</th>
<th>Engine Condition</th>
<th>Date Sub.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Comments (Describe the malfunction or defect and the circumstances under which it occurred. State probable cause and recommendations to prevent recurrence.)

Optional Information:

Check a box below if this report is related to an aircraft

- [ ] Accident; Date ____________
- [ ] Incident; Date ____________
13) Authorized Distributors for ROTAX® Aircraft Engines
www.rotax-aircraft-engines.com

Issue 2005 11 01

1)  EU R O P E

AUSTRIA:
➤HB - FLUGTECHNIK GMBH
Dr. Adolf Schärf Str. 42
A-4053 Haid
Tel.: +43 (0) 7229 / 79104, Fax: +43 (0) 7229 / 79104 15
E-mail: info@hb-flugtechnik.at
Website: www.hb-flugtechnik.at
Contact person: Ing. Georg Passenbrunner

BULGARIA:
➤GERGANOV - AIRCRAFT ENGINES LTD.
25B-Post 20, 23 pех. Shlp. polk Blvd.
BG-6100 Kazanlak
Tel.: +359 (0) 431 / 27 247, Fax: +359 (0) 431 / 23 777
E-mail: gaerotax@kz.orbitel.bg
Contact person: Radosslav D. Gerganov

CROATIA / former YUGOSLAVIA
(except SLOVENIA):
➤SHAFT D.O.O.
B.L. Mandica 161 a
HR-54000 Osijek
Tel.: +385 (0) 31 / 280-046, Fax:+385 (0) 31 / 281602
E-mail: shaft@os.tel.hr
Contact person: Ing. Ivan Vdovjak

CZECHIA:
➤TEVESO S.R.O.
Skroupova 441
CS-50002 Hradec Kralove
Tel.: +42 (0) 49 / 5217 127, Fax: +42 (0) 49 / 5217 226
E-mail: motory@teveso.cz
Website: www.teveso.cz
Contact persons: Ing. Jiri Samal

SWEDEN / FINLAND / NORWAY / ESTONIA / LATVIA / LITHUANIA / DENMARK
➤LYCON ENGINEERING AB
Härkeberga, SE-74596 Enköping
Tel.: +46 (0) 171 / 414039, Fax: +46 (0) 171 / 414116
E-mail: info@lycon.se
Website: www.lycon.se

FRANCE / BELGIUM / MONACO / LUXEMBURG:
➤MOTEUR AERO DISTRIBUTION
11 Blvd. Albert 1
98000 Monaco
Tel.: +377 (0) 93 30 17 40, Fax: +377 (0) 93 30 17 60
E-mail: mad@monaco377.com
Website: www.moteuraerodistribution.com
Contact person: Philippe Thys

GERMANY / THE NETHERLANDS:
➤FLUGMOTOREN FRANZ GMBH
Am Weidengrund 1a, 83135 Schechen, Germany
Tel.: +49 (0) 8039 / 90350, Fax: +49 (0) 8039 / 9035-35
E-mail: info@franz-aircraft.de
Website: www.franz-aircraft.de
Contact person: Eduard Franz

GREAT BRITAIN / IRELAND /
ICELAND:
➤SKYDRIVE LTD.
Burnside, Deppers Bridge
SOUTHAM, WARWICKSHIRE CV47 SU
Tel.: +44 (0) 1926 / 612 188, Fax: +44 (0) 1926 / 613 781
E-mail: sales@skydrive.co.uk
Website: www.skydrive.co.uk
Contact person: Nigel Beale

HUNGARY:
➤HALLEY
Baktai út 45, P.O. Box 425
H-3300 Eger
Tel.: +36 (0) 36 / 313-830, Fax: +36 (0) 36 / 320-208
E-mail: apollo@mail.datanet.hu
Contact person: Zoltán Molnár

ITALY:
➤LUCIANO SORLINI S.P.A.
Piazza Roma, 1
Carzago di Calvagiese Riviera (Brescia), Italy
Tel.: +39 030 / 601 033, Fax: +39 030 / 601 463
E-mail: avio@sorlini.com
Website: www.sorlini.com
Contact person: Alberto Comincioli

POLAND:
➤FASTON LTD.
ul. Zwirki i Wigury 47
PL-21-040 SWIDNIK
Tel.: +48 (0) 81 / 751-2882; Fax: +48 (0) 81 / 751-5740
E-mail: faston@go2.pl
Contact person: Mariusz Oltarzewski

ROMANIA:
➤S.C. BERIMPEX S.R.L.
Str. Dr. Taranu Grigore No. 8, Ap. 2, Sector 5
R-76241 BUCHAREST
Tel.: +40 (0) 21 / 410 90 03; Fax: +40 (0) 21 / 410 9020
E-mail: c_berar@sunu.rnc.ro
Contact person: Dr. Christian Berar
SLOVAKIA:
➤TEVESO S.R.O.
Skroupova 441
CS-50002 HRADEC KRALOVE
Tel.: +42 (0) 49 / 5217 127, Fax: +42 (0) 49 / 5217 226
E-mail: motory@teveso.cz
Website: www.teveso.cz
Contact persons: Ing. Jiri Samal

SLOVENIA:
➤PIPISTREL d.o.o.
Goriska Cesta 50A
5270 AIDOVSCINA
Tel.: +386 (0) 5 / 3663 873, Fax: +386 (0) 5 / 3661 263
E-mail: pipistrel@siol.net
Contact person: Ivo Boscarol

SPAIN / PORTUGAL:
➤AVIASPORT S.A.
Almazara 11
E-28760 TRES CANTOS (MADRID)
Tel.: +34 (0) 91 / 803 77 11, Fax: +34 (0) 91 / 803 55 22
E-mail: aviasport@aviasport.com
Website: www.aviasport.com
Contact person: Roberto Jimenez

SWITZERLAND / LIECHTENSTEIN:
➤FRANZ AIRCRAFT ENGINES VERTRIEB GMBH
Am Weidengrund 1a, 83135 Schechen, Germany
Tel.: +49 (0) 8039 / 90350, Fax: +49 (0) 8039 / 9035-35
E-mail: info@franz-aircraft.de
Website: www.franz-aircraft.de
Contact person: Eduard Franz

TURKEY:
➤KLASIK HALI A.S.
Klasik Hali is Merkezi, Bozkurt Caddesi No. 25/A
35230 Kapilar/IZMIR TURKEY
Tel.: +90 (0) 232 / 441 4911; Fax: +90 (0) 232 / 445 1285
E-mail: tto@klasikhali.com
Contact person: Tahir Önder, President

2) AMERICA

CANADA:
➤ROTECH RESEARCH CANADA, LTD.
6235 Okanagan Landing Rd.
VERNON, B.C., V1H 1M5, Canada
Tel.: +1 250 / 260-6299, Fax: +1 250 / 260-6269
E-mail: inquiries@rotec.com
Website: www.rotec.com

NORTH / MIDDLE / SOUTH AMERICA:
➤KODIAK RESEARCH LTD.
P.O. Box N 658
Bay Street
NASSAU, BAHAMAS
Tel.: +1 242 / 356 5377, Fax: +1 242 356 2409
E-mail: custsupport@kodiakbs.com
Website: www.kodiakbs.com

3) AUSTRALIA / NEW ZEALAND / PAPUA NEW GUINEA

➤BERT FLOOD IMPORTS PTY. LTD.
P.O. Box 61, 127 Beresford Road
LILYDALE, VICTORIA 3140
Tel.: +61 (0) 3 / 9735 5655, Fax: +61 (0) 3 / 9735 5699
E-mail: wal@bertfloodimports.com.au
Website: www.bertfloodimports.com.au
Contact person: Bert Flood

4) AFRICA

EGYPT:
➤AL MOALLA
P.O. Box 7787, ABU DHABI
Tel.: +971 (0) 2/ 641 0580, Fax: +971 (0) 2/641 5020
E-mail: almoalla@emirates.net.ae
Contact person: Hussain Al Moalla

ANGOLA / BOTSWANA / LESOTHO / MADAGASCAR / MALAWI / MOZAMBIQUE / NAMIBIA / SOUTH AFRICA / SWAZILAND / ZAMBIA / ZIMBABWE:
➤AVIATION ENGINES AND ACCESSORIES (PTY) LTD
Private Bag X10021, Edenvale 1610, South Africa
Tel.: +27 (0) 11 / 455 4203, Fax: +27 (0) 11 / 455 4499
E-mail: niren@aviation-engines.co.za
Website: www.aviation-engines.co.za
Contact person: Niren Chotoki

GHANA / BENIN / BURKINA FASO / CAMEROON / CENTRAL AFRICAN REPUBLIC / CONGO / GABON / GUINEA / IVORY COAST / MALI / MAURITANIA / NIGER / NIGERIA / SENEGAL / TOGO:
➤WAASPS LTD
PMB KA49, Kotoka International Airport, Accra, Ghana
Tel.: +233 (0) 244 791 218, Fax: +233 (0) 217 717 92
E-mail: info@waasps.com
Website: www.waasps.com
Contact person: Jonathan Porter
E-mail: niren@aviation-engines.co.za
Website: www.aviation-engines.co.za
Contact person: Niren Chotoki
5) A S I A

CHINA / HONG KONG / MACAO:

➤peiport industries limited
Rm. 1302, 13/F., Westlands Centre
20 Westlands Road, TaiKoo Place, Quarry Bay
HONG KONG
Tel.: +852 (0) 2885 / 9525, Fax: +852 (0) 2886
/ 3241
E-mail: admin@peiport.com.hk
Website: www.peiport.com
Contact person: Larry Yeung

CIS:

➤aviagamma jsc
P.O. Box 51, 125 057 MOSCOW
Tel.: +7 095 / 158 31 23, Fax: +7 095 / 158
6222
E-mail: aviagamma@mtu-net.ru
Website: www.aviagamma.ru
Contact person: Vladimir Andriytschuk
General Director

INDIA:

➤dee greaves limited
22-A, Janpath
NEW DELHI-110001
Tel.: +91 (0) 11 / 23 38 6726, Fax: +91 (0) 11 /
23 78 25 53
E-mail: jrb@greavesmail.com
Contact person: Group Capt. J.R. Bubber
Divisional Manager

INDONESIA / MALAYSIA / PHILIPPINES / SINGAPORE / THAILAND / TAIWAN:

➤tpa pte ltd.
27 Loyang Way
Singapore 508728
Tel.: +65 (0) 6289 / 8022, Fax: +65 (0) 6289 /
1011
E-mail: aviation@tpa.com.sg
Website: www.tpa.com.sg
Contact person: Chan Nyuk Lin

IRAN:

➤aseman pishraneh co.
Auth. Rotax A/C Engine Distributor & Service
Center
P.O. Box 16535-433, Tehran, Iran
Tel.: +98 (0) 21 731 4107, Fax: +98 (0) 21 731
4130
E-mail: asmpish@asmpish.com
Contact person: Ali Habibi Najafi

ISRAEL:

➤condor-aviation industries ltd.
P.O. Box 1903, 14 Topaz st.
Cesaria 38900
Tel.: +972 (0) 4 / 6265080, Fax: +972 (0) 4 /
62650 95
E-mail: condor@netvision.net.il
Contact person: David Wiernik

JAPAN :

➤jua, ltd.
1793 Fukazawa, Gotemba City
SHIZUOKA PREF 412
Tel.: +81 (0) 550 / 83 8860, Fax: +81 (0) 550 /
83 8224
E-mail: jua@shizuokanet.ne.jp
Contact person: Yoshihiko Tajika, President

KOREA:

➤korber ind. co. ltd.
#504, Lgtwin House, Kumi-Dong, Bundang-Ku
Sung Nam City, Kyungki-Do, South Korea
Tel.: +82 (0) 31 / 719 - 3250 or 3260
Fax: +82 (0) 31 / 719 - 3019
E-mail: korberco@unitel.co.kr
Contact person: John Lee, President

UNITED ARAB. EMIRATES:

➤al moalla
P.O. Box 7787
ABUDHABI
Tel.: +971 (0) 2 / 6410580, Fax: +971 (0) 2 /
641 5020
E-mail: almoalla@emirates.net.ae
Contact person: Hussain Al Moalla
## 14) Warranty

### 14.1) Warranty Conditions / Warranty Card (914 F)

#### 1) Period

ROTAX® as manufacturer, warrants through their authorized ROTAX® distributors **FROM THE DATE OF SALE TO THE FIRST CONSUMER**, every ROTAX® certified aircraft engine, sold as **NEW AND UNUSED**, and delivered by an authorized ROTAX® distributor for a period of the earliest of:

- 12 consecutive months for private use owners
- or 18 consecutive months from date of shipment of the manufacturer
- or the first 200 operation hours.

#### 2) What an authorized ROTAX® distributor will do

The authorized ROTAX® distributor will, at its option, repair and/or replace components defective in material and/or workmanship under normal use and service, with a genuine ROTAX® component without charge for parts or labour, during said warranty period. All parts replaced under warranty become the property of ROTAX®.

#### 3) Condition to have warranty work performed

You must present to an authorized ROTAX® service-center, the hard copy of the ROTAX® warranty registration card and/or proof of purchase delivered to the customer from the selling dealer at time of purchase.

#### 4) Exclusions - are not warranted

- Normal wear on all items
- Replacement parts and/or accessories which are not genuine ROTAX® parts and/or accessories.
- Damage resulting from the installation of parts other than genuine ROTAX® parts.
- Damage caused by failure to provide proper maintenance as detailed in the Operator's Manual. The labour, parts and lubricants costs of all maintenance services, including tune-ups and adjustments will be charged to the owner.
- Aircraft engines designed and/or used for racing or commercial purposes.
- All optional accessories installed on the aircraft engine (The normal warranty policy for parts and accessories, if any, applies).
- Damage resulting from running the aircraft engine without propeller.
- Damage resulting from modification to the aircraft engine not approved in writing by ROTAX®.
- Damage caused by electrolysis.
- Cold seizure and piston scuffing.
- Use of a gear reduction not designed by ROTAX®.
- Use of propellers which exceed the inertia and balance limits as specified by ROTAX®.
- If engine instruments recommended by ROTAX® have not been installed.
- Losses incurred by the aircraft engine owner other than the parts and labour, such as, but not limited to, mounting and dismounting of the engine from the aircraft, loss of use, transportation, towing, telephone calls, taxis, or any other incidental or consequential damage.
- Damage resulting from accident, fire or other casualty, misuse, abuse or neglect.
- Damage/rust/corrosion premature wear to the engine caused by water ingestion.
- Damage resulting from sand/stones infiltration.
- Damage resulting from any foreign material ingestion.
- Damage resulting from service by an unqualified mechanic.
5) Expressed or implied warranties

This warranty gives you specific rights, and you may also have other legal rights which may vary from state to state, or province to province. Where applicable this warranty is expressly in lieu of all other expressed or implied warranties of ROTAX®, its distributors and the selling distributor, including any warranty of merchantability or fitness for any particular purpose; otherwise the implied warranty is limited to the duration of this warranty. However, some states or provinces do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply.

Neither the distributor, nor any other person has been authorized to make any affirmation, representation or warranty other than those contained in this warranty, and if made, such affirmation, representation or warranty shall not be enforceable against ROTAX® or any other person.

ROTAX® reserves the right to modify its warranty policy at any time, being understood that such modification will not alter the warranty conditions applicable to aircraft engines sold while the above warranty is in effect.

6) Consumer assistance procedure

If a servicing problem or other difficulty occurs, please contact:

✍ authorized ROTAX® service-center or
✍ authorized ROTAX® distributor.

7) Validity:

Warranty will only be valid if the end user completes this registration card as soon as the aircraft engine goes into service, and returns it to the national authorized ROTAX® distributor (marked with “➤” in section Distributors) of the area in which the aircraft engine is firstly operated.

This warranty will be effective for all certified aircraft engines delivered by ROTAX® as of June 1st, 1992.

8) ▲ Warning!

Never fly the aircraft equipped with this engine at locations, airspeeds, altitudes, or other circumstances from which a successful no-power landing cannot be made, after sudden engine stoppage.

9) ◆ Note:

All airworthiness requirements like JAR, FAR in their last applicable version have to be respected.

Maintenance- and repair works are only allowed to be carried out by persons and companies approved by the competent authorities.
WARRANTY REGISTRATION CARD

1. To be eligible for warranty, this registration card must be returned completed and signed by the end user to the authorized ROTAX distribution partner (see section 14) of the area of the permanent residence of the end user and / or in which the aircraft engine is firstly operated, within 30 days as of date of purchase.

2. No other warranties and / or guarantees than defined in the actual warranty conditions are made.

3. Engine type: 914 Registration/Version: _______

   Engine no.: ...................................................................
   Gearbox: ....................... Reduction  i =.........................
   Inv. no.: ......................... date of purchase: ..................
   Warranty expires: ..........................................................
   Buyer: ...........................................................................
   Seller: ...........................................................................
I have read and understood the Operator's Manual in its entirety and carefully followed the described break-in procedure.

   Date: __________   Signature: ____________________
WARNING!

Never fly the aircraft equipped with this engine at locations, airspeeds, altitudes, or other circumstances from which a successful no-power landing cannot be made, after sudden engine stoppage. Aircraft equipped with this engine should only fly in VFR conditions.

All airworthiness requirements like JAR, FAR in their last applicable version have to be respected.
1) Period

ROTAX®, as manufacturer, warrants through their authorized ROTAX® distributors FROM THE DATE OF SALE TO THE FIRST CONSUMER, every ROTAX® non-certified aircraft engine, sold as NEW AND UNUSED, and delivered by an authorized ROTAX® distributor for a period of the earliest of:

- 6 consecutive months for private use owners
- 12 consecutive months from date of shipment of the manufacturer
- the first 100 operation hours.

2) What an authorized ROTAX® distributor will do

The authorized ROTAX® distributor will, at its option, repair and/or replace components defective in material and/or workmanship under normal use and service, with a genuine ROTAX® component without charge for parts or labour, during said warranty period. All parts replaced under warranty become the property of ROTAX®.

3) Condition to have warranty work performed

You must present to an authorized ROTAX® service-center, the hard copy of the ROTAX® warranty registration card and/or proof of purchase delivered to the customer from the selling dealer at time of purchase.

4) Exclusions - are not warranted

- Normal wear on all items
- Replacement parts and/or accessories which are not genuine ROTAX® parts and/or accessories.
- Damage resulting from the installation of parts other than genuine ROTAX® parts.
- Damage caused by failure to provide proper maintenance as detailed in the Operator’s Manual. The labour, parts and lubricants costs of all maintenance services, including tune-ups and adjustments will be charged to the owner.
- Aircraft engines designed and/or used for racing or commercial purposes.
- All optional accessories installed on the aircraft engine (The normal warranty policy for parts and accessories, if any, applies).
- Damage resulting from running the aircraft engine without propeller.
- Damage resulting from modification to the aircraft engine not approved in writing by ROTAX®.
- Damage caused by electrolysis.
- Cold seizure and piston scuffing.
- Use of a gear reduction not designed by ROTAX®.
- Use of propellers which exceed the inertia and balance limits as specified by ROTAX®.
- If engine instruments recommended by ROTAX® have not been installed.
- Losses incurred by the aircraft engine owner other than the parts and labour, such as, but not limited to, mounting and dismounting of the engine from the aircraft, loss of use, transportation, towing, telephone calls, taxis, or any other incidental or consequential damage.
- Damage resulting from accident, fire or other casualty, misuse, abuse or neglect.
- Damage/rust/corrosion premature wear to the engine caused by water ingestion.
- Damage resulting from sand/stones infiltration.
- Damage resulting from any foreign material ingestion.
- Damage resulting from service by an unqualified mechanic.
5) Expressed or implied warranties

This warranty gives you specific rights, and you may also have other legal rights which may vary from state to state, or province to province. Where applicable this warranty is expressly in lieu of all other expressed or implied warranties of ROTAX®, its distributors and the selling distributor, including any warranty of merchantability or fitness for any particular purpose; otherwise the implied warranty is limited to the duration of this warranty. However, some states or provinces do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply.

Neither the distributor, nor any other person has been authorized to make any affirmation, representation or warranty other than those contained in this warranty, and if made, such affirmation, representation or warranty shall not be enforceable against ROTAX® or any other person.

ROTAX® reserves the right to modify its warranty policy at any time, being understood that such modification will not alter the warranty conditions applicable to aircraft engines sold while the above warranty is in effect.

6) Consumer assistance procedure

If a servicing problem or other difficulty occurs, please contact:

✍ authorized ROTAX® service-center or
✍ authorized ROTAX® distributor.

7) Validity:

Warranty will only be valid if the end user completes this registration card as soon as the aircraft engine goes into service, and returns it to the national authorized ROTAX® distributor (marked with “➤” in section Distributors) of the area in which the aircraft engine is firstly operated.

This warranty will be effective for all non-certified aircraft engines delivered by BOMBARDIER- ROTAX as of June 1st, 1992.

8) Danger!

This engine, by its design, is subject to sudden stoppage! Engine stoppage can result in crash landings. Such crash landings can lead to serious bodily injury or death.

Never fly the aircraft equipped with this engine at locations, airspeeds, altitudes, or other circumstances from which a successful no-power landing cannot be made, after sudden engine stoppage.

▲ WARNING!

This is not a certificated aircraft engine. It has not received any safety or durability testing, and conforms to no aircraft standards. It is for use in experimental, uncertificated aircraft and vehicles only in which an engine failure will not compromise safety.

User assumes all risk of use, and acknowledges by his use that he knows this engine is subject to sudden stoppage.
WARRANTY REGISTRATION CARD

1. To be eligible for warranty, this registration card must be returned completed and signed by the end user to the authorized ROTAX distribution partner (see section 14) of the area of the permanent residence of the end user and / or in which the aircraft engine is firstly operated, within 30 days as of date of purchase.

2. No other warranties and / or guarantees than defined in the actual warranty conditions are made.

3. Engine type: **914** Registration/Version: _______

   Engine no.: ...................................................................

   Gearbox: ....................... Reduction  i =......................

   Inv. no.: ......................... date of purchase: ..................

   Warranty expires: .........................................................

   Buyer:...........................................................................

   Seller: ...........................................................................

   I have read and understood the Operator's Manual in its entirety and carefully followed the described break-in procedure.

   Date: ___________ Signature: ____________________
**DANGER!**

This engine, by its design, is subject to sudden stoppage! Engine stoppage can result in crash landings. Such crash landings can lead to serious bodily injury or death.

Never fly the aircraft equipped with this engine at locations, airspeeds, altitudes, or other circumstances from which a successful no-power landing cannot be made, after sudden engine stoppage.

Aircraft equipped with this engine should only fly in DAYLIGHT VFR conditions.

**WARNING!**

This is not a certificated aircraft engine. It has not received any safety or durability testing, and conforms to no aircraft standards. It is for use in experimental, uncertificated aircraft and vehicles only in which an engine failure will not compromise safety.

User assumes all risk of use, and acknowledges by his use that he knows this engine is subject to sudden stoppage.
WARRANTY REGISTRATION CARD

1. To be eligible for warranty, this registration card must be returned completed and signed by the end user to the authorized ROTAX distribution partner (see section 14) of the area of the permanent residence of the end user and / or in which the aircraft engine is firstly operated, within 30 days as of date of purchase.

2. No other warranties and / or guarantees than defined in the actual warranty conditions are made.

3. Engine type: 914 Registration/Version: ________

   Engine no.: .........................................................

   Gearbox: ................. Reduction i = ......................

   Inv. no.: ....................... date of purchase: .............

Warranty expires: .....................................................

Buyer: ....................................................................

Seller: ....................................................................

I have read and understood the Operator's Manual in its entirety and carefully followed the described break-in procedure.

Date: __________ Signature: ______________________