



# SERVICE INSTRUCTION

## ROUTINE MODIFICATIONS

### OF THE BING CONSTANT DEPRESSION CARBURETOR

### FOR ROTAX® ENGINE TYPE 912 UND 914 (SERIES)

SI-912-012 R1  
SI-914-014 R1

#### Repeating symbols

Please, pay attention to the following symbols throughout this document emphasizing particular information.

- ▲ **WARNING:** Identifies an instruction, which if not followed, may cause serious injury or even death.
- **CAUTION:** Denotes an instruction which if not followed, may severely damage the engine or could lead to suspension of warranty.
- ◆ **NOTE:** Information useful for better handling.

#### 1) Planning information

##### 1.1) Engines affected

All versions of the engine type:

- 912 Series all
- 914 Series all
- 912 pre-production all
- 914 pre-production all

##### 1.2) Concurrent ASB/SB/SI and SL

In addition to this Service Instruction the following additional Service Instructions must be observed and complied with:

- SI-03-1998, "Coldstart" current issue.
- SI-914-013, "Introduction of a new airbox" current issue.
- SI-914-015, "Introduction of a new airbox" current issue.

##### 1.3) Reason

Due to our commitment to product improvement and partial standardization of several carburetor types a new carburetor generation "Model 2003" has been introduced.

##### 1.4) Subject

Routine modifications of the Bing constant depression carburetor on ROTAX® engine types 912 and 914 (Series).

##### 1.5) Compliance

NONE - For Information Only resp. at the next maintenance for chapter 3.2.6).

##### 1.6) Approval

The technical content of this document is approved under the authority of DOA Nr. MOT. JA-03.

##### 1.7) Manpower

None

##### 1.8) Mass data

Change of weight - - - none  
Moment of inertia - - - unaffected

##### 1.9) Electrical load data

No change

##### 1.10) Software accomplishment summary

No change

d03147

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SI-912-012 R1  
SI-914-014 R1  
page 1 of 8

**1.11) References**

In addition to this technical information refer to current issue of

- Illustrated Parts Catalog (IPC)
- Maintenance Manual (MM)

**1.12) Other publications affected**

None

**1.13) Interchangeability of parts**

At exchange take care of the following:

see corresponding point in section 3.

- Used parts and new parts may be intermixed with some reservations.

**2) Material Information**

**2.1) Material - cost and availability**

Price and availability will be supplied on request by ROTAX® Authorized Distributors or their Service Centers.

**2.2) Company support information**

- Shipping cost, down time, loss of income, telephone costs etc. or cost of conversion to other engine versions or additional work, as for instance simultaneous engine overhaul is not covered in this scope and will not be borne or reimbursed by ROTAX®.

**2.3) Material requirement per engine**

The new constant depression carburetors have been standardized as follows (see table 1).

| new carburator generation 2003  |           |               |                 |                |            |               |               |
|---|-----------|---------------|-----------------|----------------|------------|---------------|---------------|
| new carburator  |           |               |                 | old carburator |            |               |               |
| ROTAX p/n   | Bing p/n  | Cyl.position* | Engine type     | ROTAX p/n      | Bing p/n   | Cyl.position* | Engine type   |
| 888802  | 64/32/416 | 1/3           | 912 A/F/UL      | 887262         | 64/32/394F | 1/3           | 912 F         |
|   |           |               |                 | 887264         | 64/32/394  |               | 912 A/UL      |
| 888807  | 64/32/417 | 2/4           | 912 A/F/UL      | 887267         | 64/32/395F | 2/4           | 912 F         |
|   |           |               |                 | 887269         | 64/32/395  |               | 912 A/UL      |
| 888373  | 64/32/421 | 1/3           | 912 S/ULS/ULSFR | 888370         | 64/32/409F | 1/3           | 912 S         |
|   |           |               |                 | 888372         | 64/32/412  |               | 912 ULS/ULSFR |
| 888378  | 64/32/422 | 2/4           | 912 S/ULS/ULSFR | 888375         | 64/32/410F | 2/4           | 912 S         |
|   |           |               |                 | 888377         | 64/32/411  |               | 912 ULS/ULSFR |
| 887093  | 64/32/418 | 1/3           | 914 F/UL        | 887092         | 64/32/398F | 1/3           | 914 F/UL      |
| 887098  | 64/32/419 | 2/4           | 914 F/UL        | 887097         | 64/32/399F | 2/4           | 914 F/UL      |
| ◆ NOTE: See the instructions in accordance with the SI-914-013, "Introduction of a new airbox" current issue. |           |               |                 |                |            |               |               |

\*cylinder side

Table 1

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## 2.4) Material requirement per spare part

Parts requirement:

Following list shall provide an overview on changed spare part numbers of the new carburetor generation "Model 2003".

| Fig. no.       | New p/n | Qty/engine | Description                      | Old p/n        | Application                     |
|----------------|---------|------------|----------------------------------|----------------|---------------------------------|
| 1              | 950430  | 1          | O-Ring 2,5x1,5                   |                | jet needle                      |
| 2              | 961292  | 1          | fixation screw                   | 961290         | jet needle                      |
| 4              | 950030  | 1          | gasket                           | 950030         | choke valve                     |
| 14             |         | 1          | gasket                           |                | chamber top                     |
| 5              | 261706  | 1          | float needle valve               | 261705, 261707 | float chamber                   |
| 6              | 239463  | 1          | compression spring               | 239460         | idle mixture screw              |
| 7              | 831712  | 2          | O-Ring 3,2x1,8                   | 831710         | idle mixture screw,<br>idle jet |
| 8              | 963020  | 1          | throttle valve lever left assy.  | 848237         | for cylinder 2/4                |
| 8              | 963025  | 1          | throttle valve lever right assy. | 848239         | for cylinder 1/3                |
| 9              | 961262  | 1          | cable support assy.              | 961260         | for cylinder 1/3                |
| 9              | 961267  | 1          | cable support assy.              | 961265         | for cylinder 2/4                |
| 10             | 963010  | 1          | sleeve                           |                | cable support                   |
| 11             | 963015  | 1          | sleeve                           |                | throttle valve lever            |
| 13             | 963281  | 1          | attachment screw assy.           |                | Rotax® 914 F, 914 UL            |
| consisting of: |         |            |                                  |                |                                 |
|                |         | 1          | attachment screw                 | 963280         | float chamber                   |
| 12             | 631770  | 1          | O-Ring                           |                | float chamber                   |

## 2.5) Special tooling/lubricant-/adhesives-/sealing compound - Price and availability

Price and availability will be supplied on request by ROTAX® Authorized Distributors or their Service Centers.  
parts requirement:

| Fig no. | New p/n | Qty/engine | Description  | Old p/n | Application                            |
|---------|---------|------------|--------------|---------|--|
|         |         | NB         | LOCTITE® 221 | 899785  | fixation screw, fuel line<br>connector |

### 3) Accomplishment / Instructions

#### Accomplishment

All the measures must be taken and confirmed by the following persons or facilities:

- ROTAX® -Airworthiness representative
- ROTAX® -Distributors or their Service Centers
- Persons approved by the respective Aviation Authority

▲ **WARNING:** Proceed with this work only in a non-smoking area and not close to sparks or open flames. Switch off ignition and secure engine against unintentional operation. Secure aircraft against unauthorized operation. Disconnect negative terminal of aircraft battery.

▲ **WARNING:** Risk of scalds and burns! Allow engine to cool sufficiently and use appropriate safety gear while performing work.

▲ **WARNING:** Should removal of a locking device (namely lock tabs, self-locking fasteners) be required when undergoing disassembly/assembly, always replace with a new one.

◆ **NOTE:** All work has to be performed in accordance with the relevant Maintenance Manual.

#### 3.1) General

Compared to the previous model, the new constant depression carburetor generation does not look very much different outside. The carburetor housing can be identified by its grey, hard-eloxyed surface.

The modifications concern certain partial adjustment ranges and have been introduced from carburetor S/N 03.0001.

The new constant depression carburetors have been installed in all engines from the following numbers. The various modifications need to be considered during the next repair work/ major overhaul on the following engines.

- 912 A up to and incl. engine S/N 4,410.600
- 912 F up to and incl. engine S/N 4,412.854
- 912 S up to and incl. engine S/N 4,922.965
- 912 UL up to and incl. engine S/N 4,405.407
- 912 ULS up to and incl. engine S/N 4,429.091
- 912 ULSFR up to and incl. engine S/N 4,429.878
- 914 F up to and incl. engine S/N 4,420.395
- 914 UL up to and incl. engine S/N 4,418.523
- Carburetor up to and incl. S/N 03.0001

#### 3.2) Partial adjustment range modifications are the following

(see fig. 1 and fig. 2)

◆ **NOTE:** The colour identification of the parts is current at the time of the publication. Applicable is however the part number.

##### 3.2.1) Damping of the jet needle

Damping of the jet needle has been standardized through the additional O-ring (1) part no. 950430 and fixation screw (2) part no. 961292 as already known from the ROTAX® 912 S/ULS/ULSFR.

◆ **NOTE:** This O-ring can be used for older carburetors only in combination with fixation screw (2) part no. 961292 since a recess is required for the additional O-ring in the fixation screw. This also applies to spare parts.

Apply blue TufLok screw securing agent onto the new holding screw.

◆ **NOTE:** In case that dismantling is required take care to clean the screw thread prior to a new installation, secure the holding screw with LOCTITE® 221, and install according to the appropriate Maintenance Manual.

##### 3.2.2) Jet needle position

The jet needle position has been standardized to position 3 on the ROTAX® 912 Series.

In the case of the ROTAX® 914 Series, the standard jet needle position has been determined to be position 1 at carburetor 1/3 and position 2 at carburetor 2/4.

◆ **NOTE:** However, on account of various fluctuations in mixture distribution ROTAX® can supply other positions of the jet needle.

### 3.2.3) Fuel line connector (fuel supply)

Apply screw securing agent TufLok onto fuel line connector (3) part no. 941853 as has been done for the fixation screw. Depending on engine type, order the appropriate fuel line when procuring spare parts.

◆ NOTE: In case that dismantling is required take care to clean the screw thread prior to a new installation, secure the fuel line connector with LOCTITE<sup>®</sup> 221, and install according to the appropriate Maintenance Manual

### 3.2.4) Gasket for choke housing

The material of choke housing gasket (4) was changed with the part no. 950030 retained and is now black instead of red previously.

Gaskets has been introduced of:

|        |                           |           |                           |
|--------|---------------------------|-----------|---------------------------|
| 912 A  | from engine S/N 4,410.456 | 912 ULS   | from engine S/N 4,427.350 |
| 912 F  | from engine S/N 4,412.854 | 912 ULSFR | from engine S/N 4,429.675 |
| 912 S  | from engine S/N 4,922.730 | 914 F     | from engine S/N 4,420.307 |
| 912 UL | from engine S/N 4,404.420 | 914 UL    | from engine S/N 4,418.060 |

### 3.2.5) Gasket in the chambertop

A further change of material was introduced on the gasket under the chamber top (14) part no. 961250 blinding shim.

Gaskets has been introduced of:

|        |                           |           |                           |
|--------|---------------------------|-----------|---------------------------|
| 912 A  | from engine S/N 4,410.487 | 912 ULS   | from engine S/N 4,427.717 |
| 912 F  | from engine S/N 4,412.854 | 912 ULSFR | from engine S/N 4,429.743 |
| 912 S  | from engine S/N 4,922.820 | 914 F     | from engine S/N 4,420.313 |
| 912 UL | from engine S/N 4,404.784 | 914 UL    | from engine S/N 4,418.158 |

### 3.2.6) Markings on the rotary disc valve

■ CAUTION: The choke shaft has a marking point (15) (see fig. 2 and fig. 3). This marking needs to point towards the bowden-cable fitting (16) in order to function correctly.

However carburetors with the following serial number have their marking pointing towards the spring retainer (17). When performing maintenance work, remove this marking point and remark correctly.

Following carburetors S/N may, unless corrected by ROTAX<sup>®</sup>, have the incorrect markings.

|                        |          |                     |                     |             |
|------------------------|----------|---------------------|---------------------|-------------|
| <b>Type 912 A/UL</b>   | cyl. 1/3 | from S/N 99.2019 to | S/N 99.2068         |             |
|                        |          | from S/N 01.1289 to | S/N 01.1338         |             |
|                        |          | from S/N 01.1345 to | S/N 01.1394         |             |
|                        | cyl. 2/4 | from S/N 99.0860 to | S/N 99.0861         |             |
|                        |          | from S/N 01.0330 to | S/N 01.0351         |             |
|                        |          | from S/N 01.1674 to | S/N 01.1799         |             |
| <b>Type 912 A/F/UL</b> | cyl. 1/3 | from S/N 01.1824 to | S/N 01.1838         |             |
| <b>Type 912 S/ULS</b>  | cyl. 1/3 | from S/N 01.0437 to | S/N 01.0491         |             |
|                        | cyl. 2/4 | from S/N 01.1191 to | S/N 01.1241         |             |
| <b>Type 912 ULS</b>    | cyl. 1/3 | from S/N 01.0404 to | S/N 01.0436         |             |
|                        |          | from S/N 01.0673 to | S/N 01.0887         |             |
|                        |          | from S/N 01.1480 to | S/N 01.1631         |             |
|                        |          | from S/N 01.1654 to | S/N 01.1673         |             |
| <b>Type 912 ULS</b>    | cyl. 2/4 | from S/N 01.0996 to | S/N 01.1190         |             |
|                        |          | from S/N 01.1845 to | S/N 01.2105         |             |
| <b>Type 914 F/UL</b>   | cyl. 1/3 | from S/N 99.0777 to | S/N 99.0880         |             |
|                        |          | cyl. 2/4            | from S/N 01.0949 to | S/N 01.0995 |
|                        |          |                     | from S/N 01.1395 to | S/N 01.1453 |

### 3.2.7) Float needle valve

( see fig.1 and 5)

The float needle valve (5) has been standardized to part no. 261706 having medium spring power.

Distinguishing features: **Gold-colored pin** of the float needle.

It is difficult to identify the three different float needles by manually feeling the spring load, so the following can be used for identification.

**nickel-plate pin:** previously used float needle valve part no. 261705 having soft spring for the engine type 912 A/F/UL and 914 F/UL

**black-colored pin:** previously used float needle valve part no. 261707 having hard spring for the engine type 912 S/ULS/ULSFR

**gold-colored pin:** new float needle valve having medium spring power (approx. 1,4 N) (12.4 in.lb) for all engine type 912 and 914

**red-colored viton tip:** previously used viton tip

**black-colored viton tip:** viton tip with optimized rubber compound

### 3.2.8) Spring (Idle mixture screw)

The material for the spring (6) of the idle mixture screw was changed, and the part no. 239463 was introduced therefore.

### 3.2.9) O-Ring (Idle mixture screw, Idle jet 35)

The O-ring (7) material was changed, and the part no. 831712 was introduced therefore.

### 3.2.10) Throttle valve lever / Cable support

The spring retainer has been improved for throttle lever (8) and cable support (9). Sleeve (11) and (10) was introduced. The part no. of the new throttle valve lever assy. is 963020 for carb. 2/4 and 963025 for carb. 1/3. The part no. of the new cable support assy. is 961267 for carb. 2/4 and 961262 for carb. 1/3.

### 3.2.11) Attachment screw ( float chamber ROTAX® ) (914 F/UL)

Replacing the sealing ring, an O-ring (12) part no. 631770 including changed attachment screw (13) (attachment screw assy. part no. 963281) has been introduced.

### 3.2.12) Airbox with optimized idle mixture control (914 F/UL)

With introduction of a new airbox the main jets and the needle positions were changed.

The new constant depression carburetors have been standardized with new part no. from carburetor S/N 04.0001 (see table 2).

|        |            |     |          |
|--------|------------|-----|----------|
| 887094 | 64/32/418A | 1/3 | 914 F/UL |
| 887099 | 64/32/419A | 2/4 | 914 F/UL |

**Table 2**

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■ CAUTION: Depending on the installed airbox pay attention to their different settings of the jet needle position and size of the main jets.

See the instruction in accordance with the SI-914-015, "Introduction of a new airbox" current issue.

### 3.2.13) Markings on the rotary disc valve-inside

◆ NOTE: The rotary disc valve has L and R markings. The shaft marked with L is meant for the carburetor for cylinder 1/3, and the R marking is meant for the carburetor for cylinder 2/4. Fig. 4 represents the marking positions on the inside choke shaft.

■ CAUTION: The choke device will not function with the choke housing mixed up.

### 3.2.14) Modified rotary disc

Rotary disc with modified enrichment bores for improvement of the cold start condition. Additionally main jets with size 120, 130 and 140 with part no. 267857, 268763 and 268765 were introduced. For details see the Service Instruction SI-03-1998 current issue.

The modification was introduced beginning with the following engine S/N and carburetor S/N.

|        |                           |           |                           |
|--------|---------------------------|-----------|---------------------------|
| 912 A  | from engine S/N 4,410.629 | 912 ULS   | from engine S/N 5,643.465 |
| 912 F  | from engine S/N 4,412.868 | 912 ULSFR | from engine S/N 4,429.962 |
| 912 S  | from engine S/N 4,923.038 | 914 F     | from engine S/N 4,420.409 |
| 912 UL | from engine S/N 4,406.138 | 914 UL    | from engine S/N 4,418.634 |

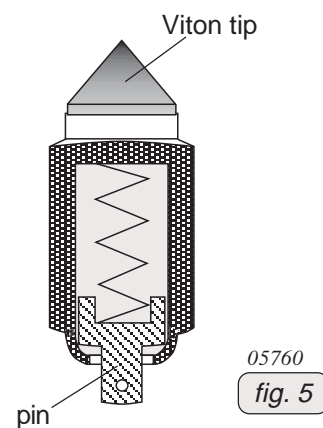
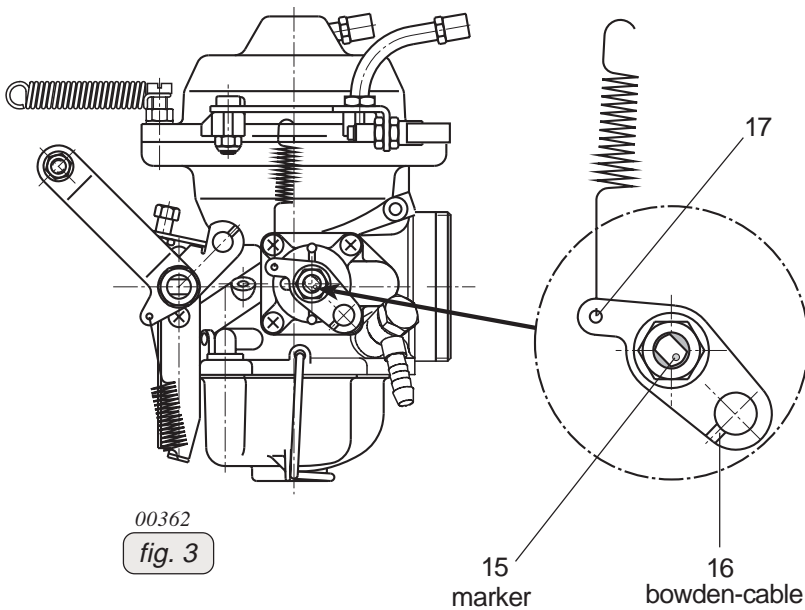
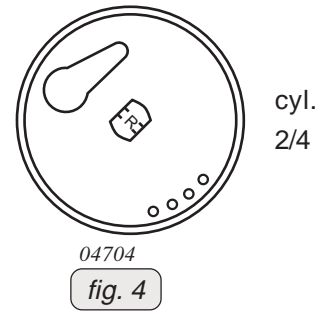
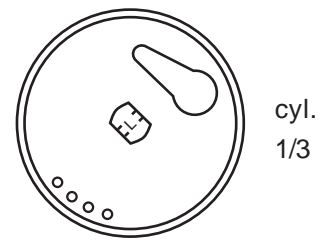
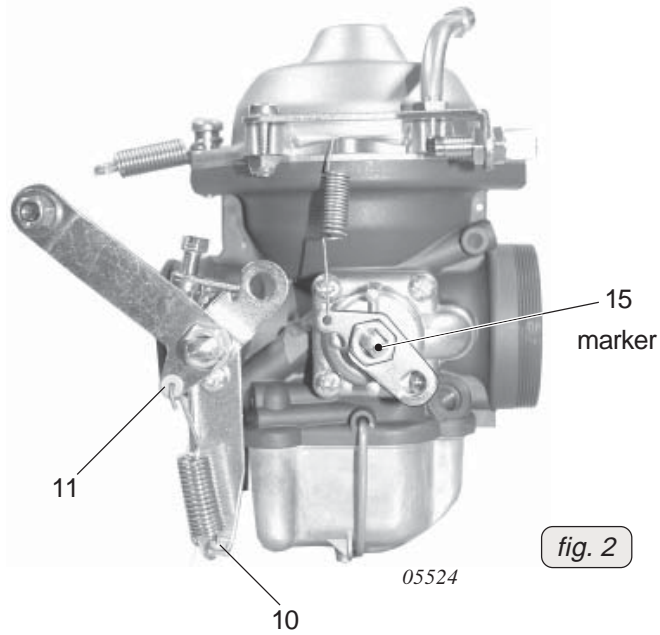
all versions of engine type 912 and 914 from carburetor S/N 04.0001

## 3.3) Summary

These instructions (section 3) have to be conducted in compliance with section 1.5.

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





◆ NOTE: The illustrations in this document show the typical construction. They may not represent full detail or the exact shape of the parts which have the same or similar function. Exploded views are **no technical** drawings and are for reference only. For specific detail, refer to the current documents of the respective engine type.