

BRP-Rotax
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5) Table of amendments

***Approval**
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NOTES

10) Maintenance

The following sections describe maintenance procedure for engines of the 912/914 Series above and beyond the maintenance and special checks, see corresponding Maintenance Manual (Line Maintenance) for the respective engine type, 912 Series or 914 Series, and the systems descriptions given hitherto. The description is subdivided into subsections and descriptions of the function of the various systems.

Some overlapping maintenance instructions are treated as generally valid information at the beginning of this chapter.

10.1) Trouble shooting

In the Operator's Manual, possible problems as well as feasible remedies are listed. At the same time, brief reference is made to the necessary remedial action.

See the respective sections in the Operators Manual for the corresponding engine type in the 912/914 Series.

10.2) Tightening torques

In general, all screw connections on ROTAX engines must be tightened using a torque wrench.

If not specified otherwise for a component, tighten screw connections to the following torque:

M4	:	4 Nm (35 in.lb)
M5	:	6 Nm (55 in.lb)
M6	:	10 Nm (90 in.lb)
M8	:	24 Nm (17.7 ft.lb)
M10	:	35 Nm (25.8 ft.lb)

◆ **NOTE:** Adhere to the tightening torques specified see also indications in the Illustrated Parts Catalog.

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10.3) Consumable materials

▲ **WARNING:** Use only the specified or **technically equivalent** materials for all maintenance work.

The materials listed have undergone longterm testing and are suitable for all operating conditions indicated by the manufacturer.

▲ **WARNING:** When handling chemicals, comply with all the customary regulations and specifications of the producer, including the expiry date.

◆ **NOTE:** Consider the curing time of the sealing surface compound as stated by the manufacturers' instructions.

No.	part no.	description, application	Qty.
1	899785	LOCTITE 221 violet, light duty screw locking agent	10 ml
2	897651	LOCTITE 243 blue, medium duty screw locking agent	10 ml
3	898441	LOCTITE 2701, heavy-duty screw locking agent	5 ml
4	899789	LOCTITE 603 green, oil tolerant grouting product, heavy-duty	10 ml
5	897511	LOCTITE 380 black, grouting product, heavy-duty, fasthardening	20 ml
6	899784	LOCTITE 574 orange, surface sealing compound	50 ml
7	n.a	LOCTITE 518 red, can be used instead LOCTITE 574 orange	
8	297434	LOCTITE Anti-Seize 8151, for the prevention of fretting corrosion	50 g
9	297433	MOLYKOTE G-N, lubricant	100 g
10	897166	MOLYKOTE 44 medium, longterm lubricant for shaft seals	100 g
11	897330	Lithium-base grease, to avoid leakage current	250 g
12	897870	K&N Filter oil 99 - 11312, for optimum filter efficiency and moisture protection	14.8 ml
13	297368	SILASTIC 732 multipurpose onecomponent siliconbased sealing compound	310 ml

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- 14 899788 **LOCTITE 648 green,**
heavy-duty screw locking agent 5 ml
- 15 899791 **LOCTITE 5910**
flange sealant provides flexibility and adhesion 50 ml
- 16 n.a. **LOCTITE 7063**
for degreasing and cleaning surfaces.....as required
- 17 897186 **SILICONE HEAT CONDUCTION COMPOUND** 150 g
Application of the heat conduction compound will reduce heat transfer resistance. The greaselike, temperature-resistant silicon compound fills cavities between components and cooling elements (e.g: spark plug - cylinder head), which otherwise do not contribute to heat conduction.
- 18 297710 **PU-glue**
for shock absorption 310 ml
- 19 n.a. **Multipurpose grease LZ**
Generally usable, neutrally colored multipurpose grease, water resistant and highly adherent. Usable for temperatures from -35 °C to +120 °C (-31 °F to 248 °F) and can be subjected to high mechanical loads.
- 20 n.a. **Preservation oil MobilArma 524**
Preservation oil, insoluble in water, on a hydrocarbon basis with additives. The pour point is below -18 °C (-3 °F).
- 21 n.a. **Flexible web for surface finishing 3M Scotch-Brite Multi Flex - very fine or ultra fine**
Is sold by the meter and used for manual removal of smaller rust spots or oxidation, especially for optimum ground connections. It is particularly suitable for removing LOCTITE from surfaces or threads to make them metallic clean. Before re-applying LOCTITE, clean surfaces with nitrothinner or degreasing agent (CASTROL ZA 30 or OMV - SOFT SOL). When using solvents, observe the safety regulations for persons and the environment.

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22 898570 Screw securing paint
seals screws20 ml

23 n.a. Cleaning agent

▲ **WARNING:** Use only approved cleaning agents (e.g. varsol, etc.) for cleaning metal parts.

Do not use lyebased cold cleaners or degreasing agents. Do not clean coolant and oil hoses with aggressive solutions. Clean off residues of sealing compound with sealant remover.

Soak combustion chamber, piston and cylinder head with cleaning agent and remove combustion residues with a bronze brush. CASTROL "Clenvex 2000" has proved very effective. It is a solvent - cold cleaner, free of halogen, on the basis of selected fuel fractions and is biodegradable.

Never use caustic or corrosive cleaning agents.

24 n.a. Valve lapping paste

This paste, produced by various manufacturers, is a fine granulate lapping paste for manual lapping of valve seats and valves. The paste is usually available in 3 different granulate sizes. Use as per manufacturer's instructions.

25 n.a. MICRONORM abrasive

This abrasive is suitable for local and gradual very fine treatment of steel parts with rust film (propeller shaft). The MICRONORM abrasive contains no harmful substances, is approved by the competent authorities and guarantees optimum cleaning. The granulates used are of sizes 40 to 60 μ . The achievable surface roughness is between 0.5 and 1 μ , which corresponds to ultrafine machining of surfaces.

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3.8) Rev counter drive

See Figs. 72-17, 72-18 and 72-19.

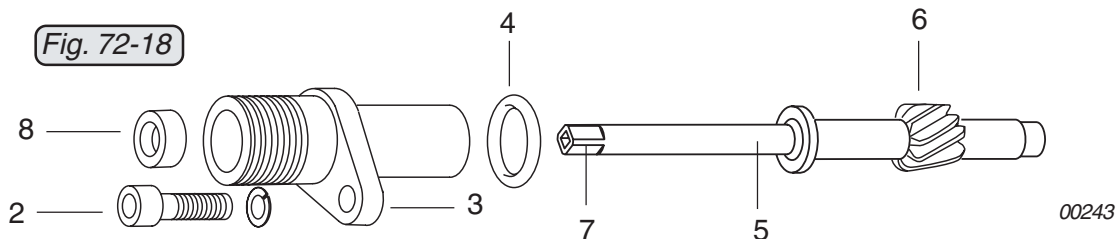
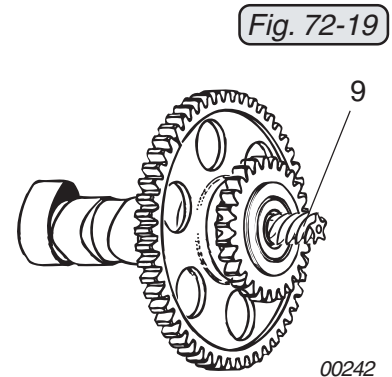
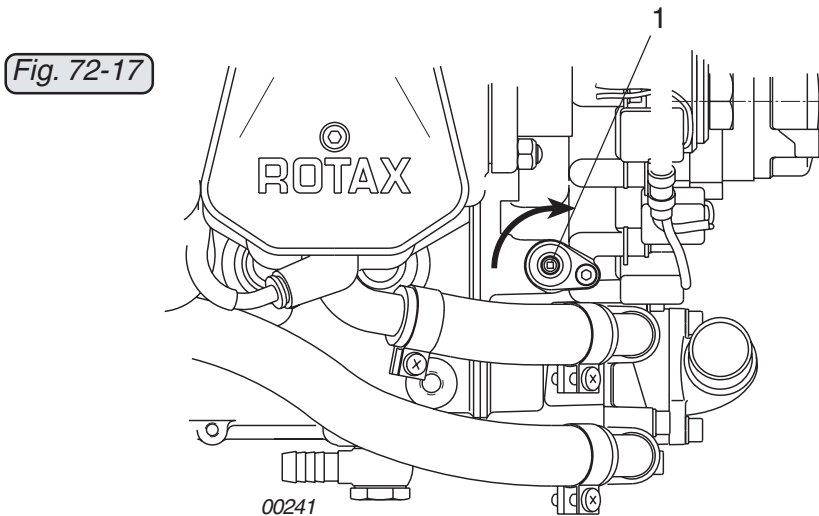
The optional mechanical rev counter (1) is driven via the worm gear pressed into the camshaft.

◆ NOTE: On older engine versions without a mechanical rev counter, a cover plate is fitted in place of the rev counter housing. The engine can be retrofitted with a rev counter drive by installation of the drive shaft. See Fig. 72-18.

◆ NOTE: On new engine versions, the ignition cover must also be replaced and the worm gear (9) pressed into the camshaft using special tool, part no. 877190.

Remove allen screw M5x16 (2) and the lock washer, and pull the rev counter housing (3) along with the O-ring (4) and the rev counter shaft (5) out of the ignition housing (see 72-00-00 sec. 3.4).

Gear-tooth system (6) and square end (7) of the rev counter shaft must be inspected for damage. If there is oil leakage, replace the shaft seal (8) 6x11x3 and O-ring (4). Press new shaft seal fully home in the rev counter housing (3) using punch, part no. 877680.



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3.9) Propeller gearbox

See Figs. 72-20, 72-20/1 and 72-21.

Before removing the gearbox, it is advisable to check the slipping torque. See the corresponding Maintenance Manual (Line Maintenance) for the respective engine type, 912 Series or 914 Series.

■ **CAUTION** : When removing the gearbox, take care not to damage the bearing seat and the oil seal running surface of the propeller shaft.

Lock crankshaft. See chapter 12-00-00 of the maintenance manual (line maintenance) of the corresponding engine type (912 Series or 914 Series).

Remove 8 allen screws (1) M6 and 2 allen screws (2) M8 together with the lock washers crosswise from the gear cover (3). The gear cover is kept in position by 2 dowel pins. Screw puller (4), part no. 877660, into the two M8 mounting lugs (5) of the gear cover (3). Now the complete gearbox can be pulled off with the slide hammer puller (6) without damaging the ball bearing and the propeller shaft.

◆ **NOTE**: Alternatively the optimized special tool part no. 877540 can be used to remove the propeller gearbox. See Fig. 72-20/1.

Insert dowel pin 8x20 (7) into the right (8) and left (8) bore of the gearbox housing. Screw hex. screw M6 x 40 into the release mechanism. Center the release mechanism (10) and tighten with hex. screw M10x20 (11). Turn left and right hex. screws (9) evenly to press the gearbox housing off the crankcase.

▲ **WARNING**: Heated up components - Risk of scalds and burns. Wear safety gloves!

Use a hot air gun to heat up hex. nut M30x1.5 to about 100-120 °C (212 - 248 °F).

Release hex. nut M30x1.5 (12) with wrench 41 a/f, part no. 877445 and remove the drive gear with friction washer (13) from the crankshaft. If required, lever drive gear gently off with 2 screwdrivers.

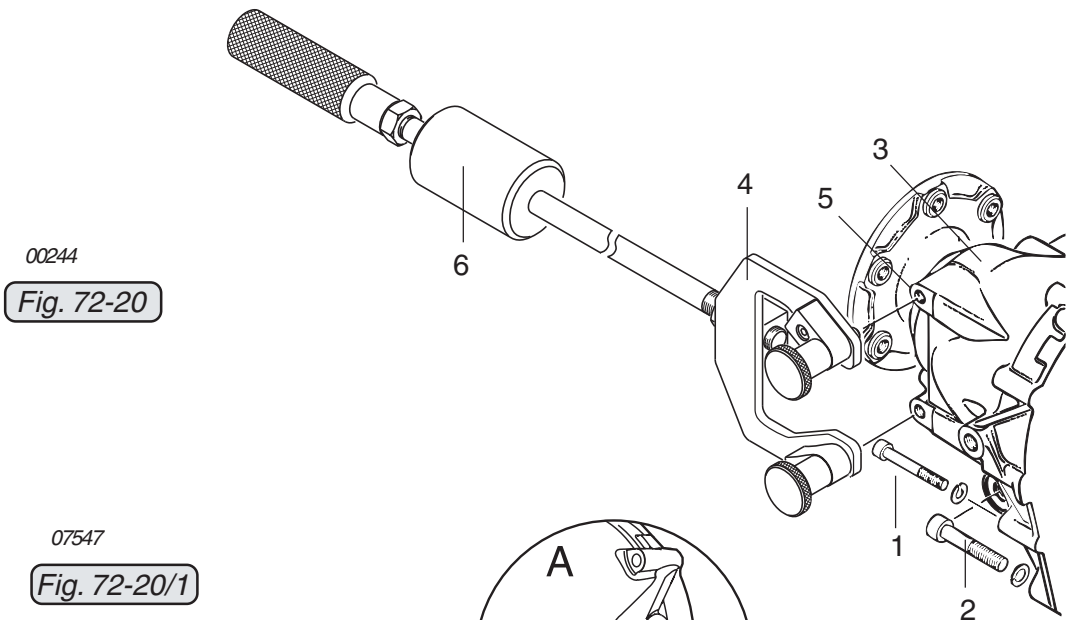
◆ **NOTE**: Hex. nut has lefthanded thread!

Make sure that both dowel sleeves remain in the crankcase and not in the gearbox housing.

■ **CAUTION** : The gear set has a continuous 6-digit serial number which is shown on the front side of the drive gear (14) and on the dog gear. The gears are paired as a set and must not be exchanged individually.

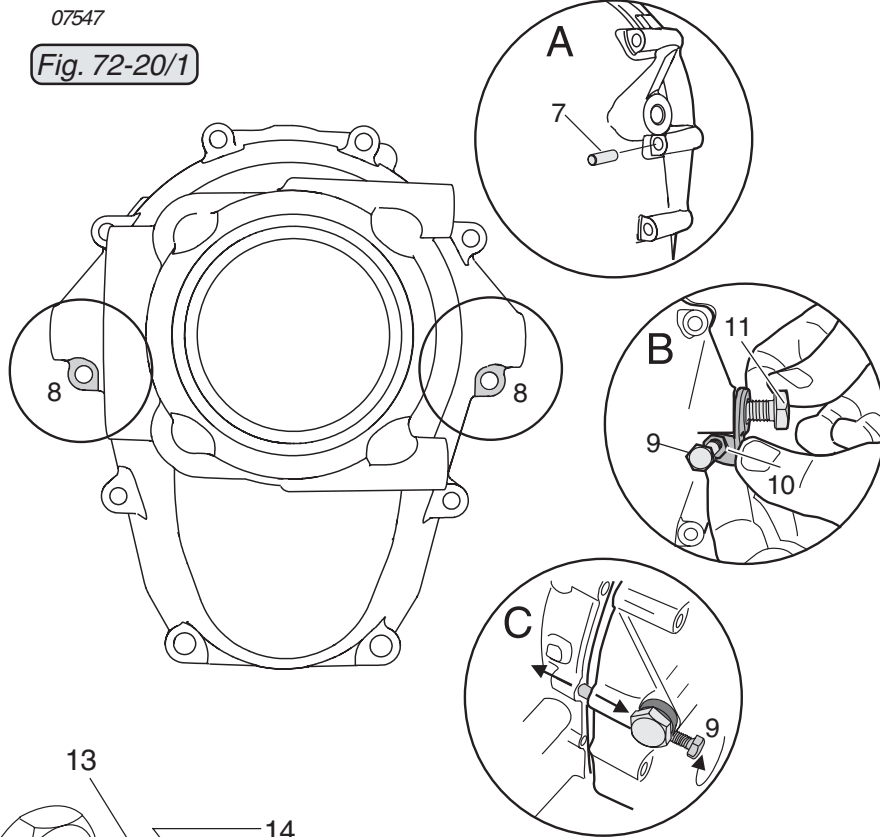
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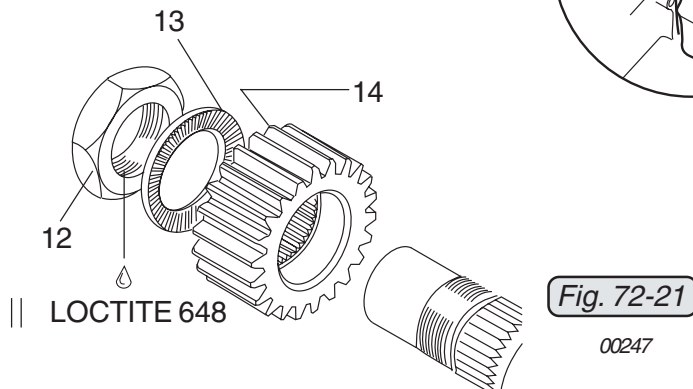
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Fig. 72-20



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Fig. 72-20/1



|| LOCTITE 648

Fig. 72-21

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3.9.1) Removal of roller bearing for - Series 2

See Fig. 72-22.

After the propeller gearbox is removed, the crankcase side propeller shaft bearing and oil seal can be replaced if necessary.

Remove the retaining ring (1) with the circlip pliers. Screw extractor (2) part no. 877615 with 8 allen screws M6x25 to the crankcase. Screw stud (3) M10x45/20, part no. 941180, into the pull-in spindle (4), part no. 877580 and fit hex. nut (5) M24x1.5 onto the pull-in spindle.

For better guidance, place the press-in insert (6), part no. 877592, into the roller bearing (7). Place the pull-in spindle (4) into the extractor (2) and through the crankcase.

On the rear side of the crankcase, push the pullout plate (8) , part no. 877560, onto the stud and attach with the hex. nut M10 (9), part no. 242091.

Keep pull-in spindle in position with the handle lever and turn the hex. nut clockwise until the roller bearing (7) with oil seal (10) is pulled out of the housing. Unscrew hex. nut, remove pullout plate with roller bearing and oil seal and withdraw spindle (11). Unscrew extractor from housing.

■ **CAUTION** : During this procedure, the oil seal (10) is destroyed and must be replaced.

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3.9.3) Removal of roller bearing for - Series 4

See Fig. 72-24.

After the propeller gearbox is removed, the crankcase side propeller shaft bearing can be replaced if necessary.

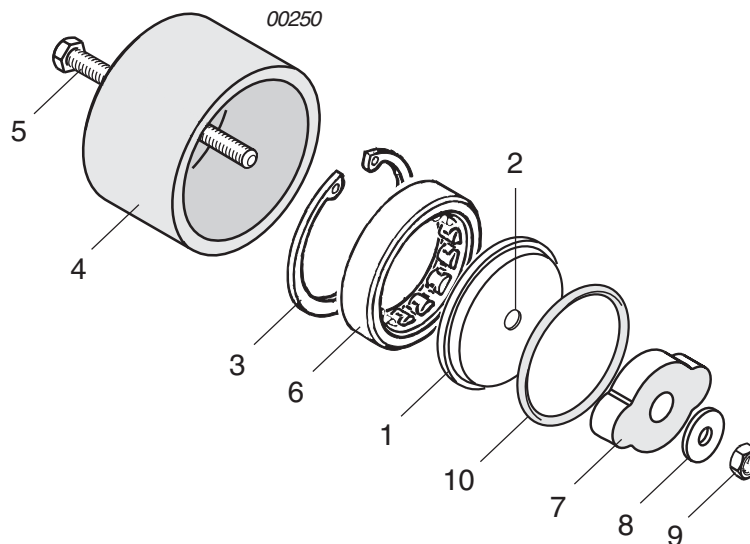
For the extracting procedure it is necessary to drill a bore (2) of at least 6.2 mm dia., (1/4") into the center of the oil inlet cover (1).

■ CAUTION : The oil inlet cover is thus rendered useless and must be replaced before installation!

■ CAUTION : Grease the grooves of the drill slightly to ensure that the majority of the metal chips adhere to the drill. Remove metal chips carefully after drilling.

The roller bearing is pulled out together with the oil inlet cover. Remove the retaining ring (3) with circlip pliers. On the gearbox side, fit puller cap (4), part no. 876489, and push hex. screw (5) through the cap, roller bearing (6) and the hole drilled in the oil inlet cover (1). Fit the pullout plate (7) with the nut (9) and washer (8) on the back end. By turning the hex. screw clockwise, the roller bearing is pulled out together with the oil inlet cover. Remove the O-ring (10).

Fig. 72-24



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3.9.4) Propeller gearbox disassembly

See Figs. 72-25, 72-26 and 72-27.

- **CAUTION** : Only push the dog gear down until it is possible to remove the two ring halves, otherwise the gearbox housing could be destroyed. The gear cover should be rotated back and forth during this step. Stop compressing gear if contact is noticed!

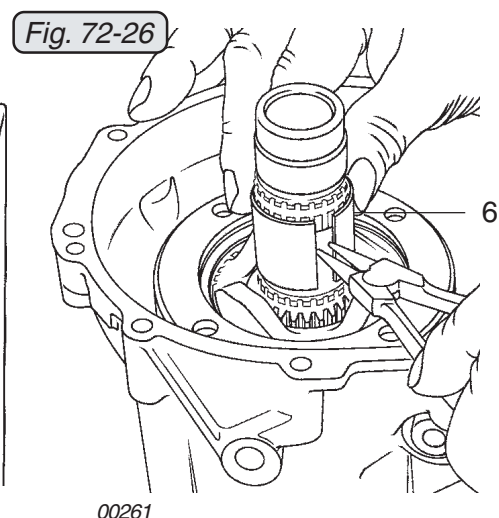
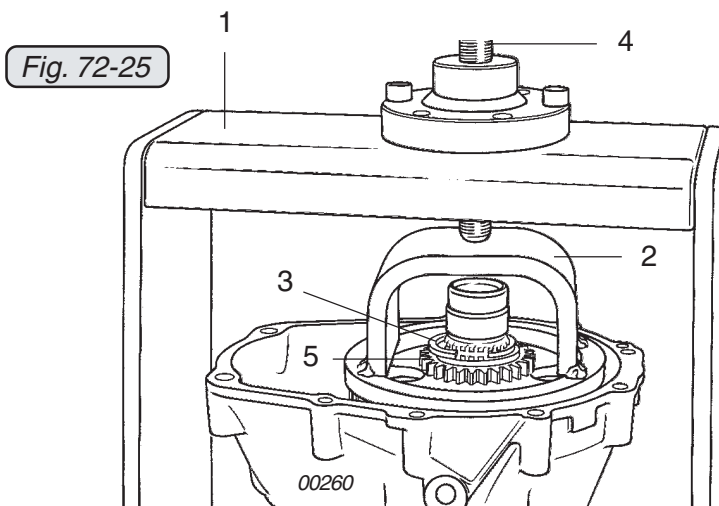
Place the complete gearbox in a suitable fixture (1) and press down the gear wheel with the mounting yoke (2), part no. 876885, until the ring halves (3) can be removed, see 00-00-00 chapter 10.4

- **CAUTION**: Do not overstress bearing bushing (6), as otherwise it will become unusable.

Now relieve the pressure on the gear by turning spindle (4) back and remove the mounting yoke and the gearbox from the fixture. Remove the drive gear (5), the thrust washer and the dog gear. Force bearing bushing (6) apart with circlip pliers and withdraw from the propeller shaft.

Remove the complete overload clutch (7) or dog hub (13), disc springs (8) 80x35x3, step collar (9), 6 mm (0.236 in.) distance sleeve (17), compensating shim (10), eccentric (11) (for fuel pump on the ROTAX 912 Series, of no significance on the 914 Series) and 8 mm (0.31in.) distance sleeve (12).

- **CAUTION**: The overload clutch is fitted **in serial production on all certified aircraft engines and on all noncertified aircraft engines of configuration 3**. All other engine versions are equipped with a dog hub, but available with an



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3.9.14) Disc spring pre-tension adjustment

See Figs. 72-53 and 72-25 (see Section 72-00-00 / 3.9.4).

When the propeller shaft assembly is uncompressed, the contact surface (24) for the ring halves must lie in the groove of the propeller shaft 1 mm (0.039 in.) over the upper edge (25). The difference must be compensated for by placing shims (26) between eccentric (14) and step collar (15).

◆ **NOTE:** To facilitate adjustment, they can first be pushed apart until the top edge (25) of the contact surface (24) for the ring halves slips into the groove in the propeller shaft and a 1 mm (0.039 in.) compensating shim (26) can be inserted between step collar (15) and eccentric (14).

After completing the adjustment of the disk spring travel, depress dog gear (2) with mounting yoke, part no. 876885, until both ring halves can be inserted. Insert ring halves and release pressure, see 72-00-00 sec. 3.9.4.

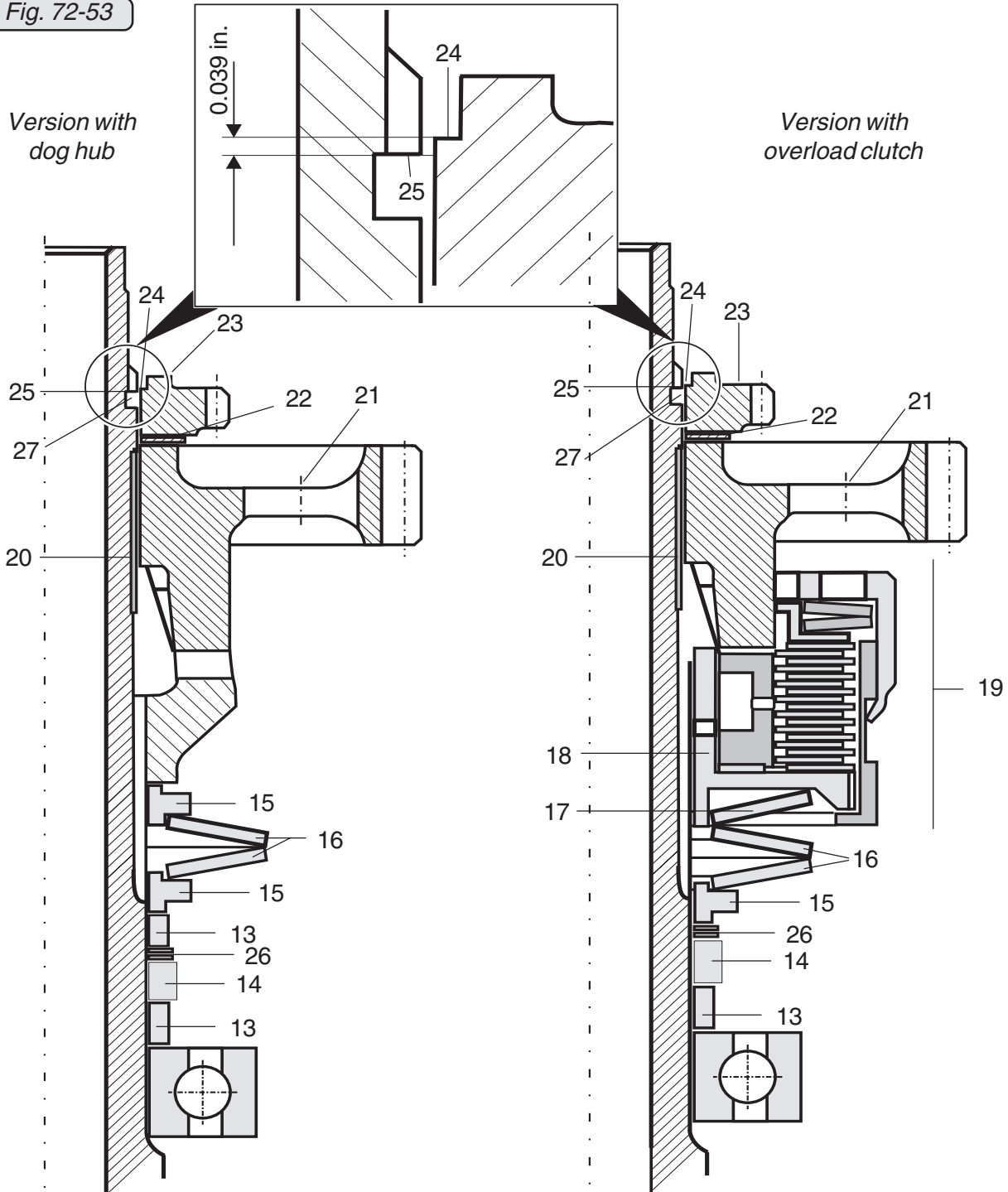
■ **CAUTION :** If the spacing is insufficient, never overpress the springs, as this will cause the dog gear to collide with the gear cover.

■ **CAUTION :** The ring halves must be completely inserted in the groove on propeller shaft!

Check that the ring halves are positioned correctly.

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Fig. 72-53



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3.9.15) Propeller gearbox — installation

See Figs. 72-54, 72-55 and 72-56.

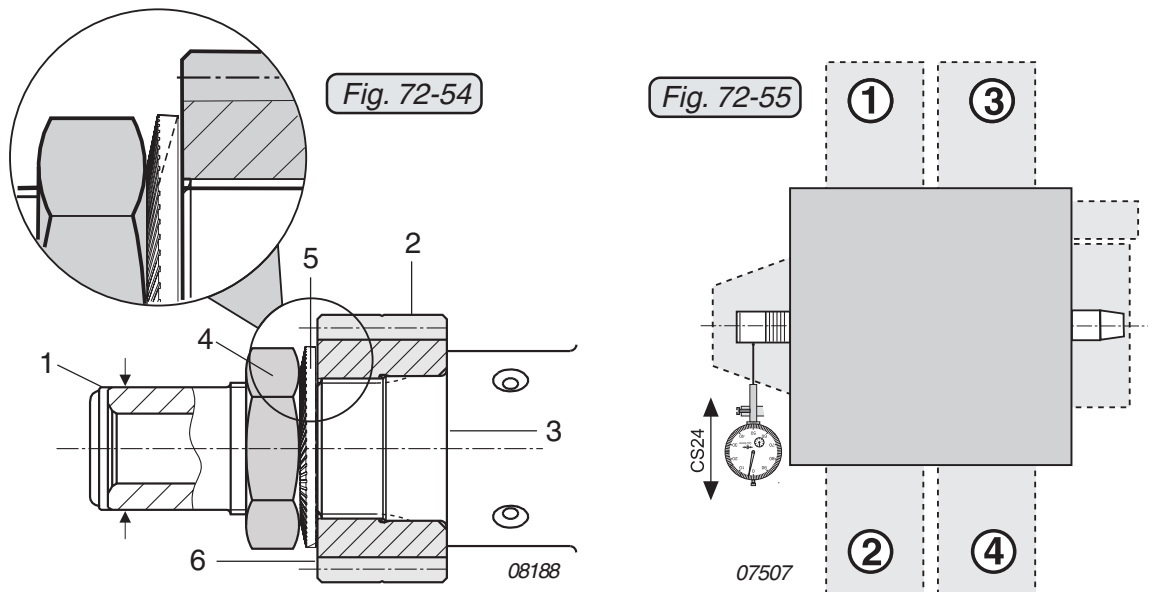
Carry out a visual inspection of the crankshaft (1) on the power take off side. Slide drive gear (2) onto the crankshaft (3).

■ **CAUTION :** Before installing, clean hex. screw (4) with LOCTITE 7063. Make sure to have an appropriate installation position of the friction washer (5).

Apply LOCTITE 648 to hex. nut (4) M30x1.5 and screw the nut onto the crankshaft together with the friction washer (5) VS30. Tightening torque 200 Nm (147.5 ft.lb). Then measure the run out (CS24). See 72-00-00 sec. 4.

◆ **NOTE:** If there is slight radial run out, reinstall nut (4) and measure again.

■ **CAUTION :** Dog gear and drive gear are paired and are marked with a consecutive serial number (6). Use only parts with the same serial number!



Clean sealing surface of gearbox housing and crankcase. Oil which drains onto the sealing surface will eventually create a leak. Insert both dowel pins 6x20 into crankcase. Grease oil seal for propeller shaft in crankcase. Lubricate bearing bore for propeller shaft.

◆ **NOTE:** Engines of the 912/914 Series configuration 3 and configuration 4 have no oil seal.

Keep the rollers of the roller bearing in position with grease to facilitate assembly of propeller shaft.

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Position gearbox housing with completely pre-assembled gear unit, previously coated with a thin layer of sealing compound LOCTITE 5910 or 574. Turn propeller shaft slightly to allow the dog gear to engage. By gently tapping on the gearbox housing (not on the propeller shaft) with a plastic mallet, the gearbox is fitted on the crankcase.

◆ **NOTE:** If there is resistance with a gap of approx. 10 mm (0.4 in.), the alignment of the rollers may need readjusting. Fix the rollers in position again with grease, press them outwards and / or turn the vacuum pump /governor gear slightly to allow engagement.

■ **CAUTION :** If excessive force is applied at assembly, the roller bearing or the vacuum pump drive can be damaged.

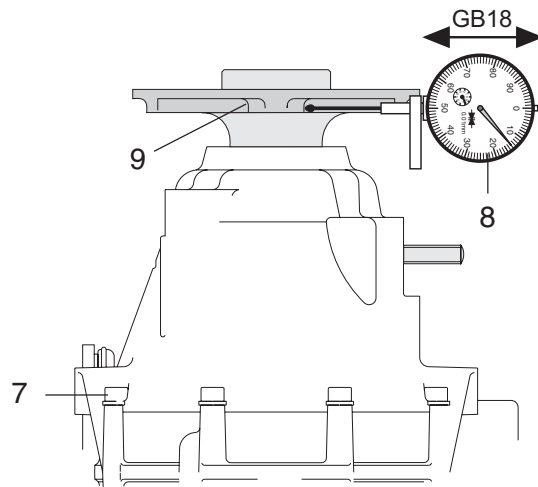
If the sealing surface becomes oily during the assembly process, clean it and reapply surface sealing compound LOCTITE 5910 or 574.

Tighten gearbox evenly with 2 allen screws M8x45 and 8 allen screws (7) M6x45 and lock washers in a crosswise pattern.

Check the radial gear backlash at the propeller flange (9) with the dial gauge (8), dimension (GB18). See 72-00-00 sec. 4.

Check the friction torque. See the relevant Manual (Line Maintenance) 12.00.00 chapter 7 of the corresponding engine type 912 Series and 914 Series.

Remove crankshaft locking screw and fit crankshaft plug screw M8 x 20 with new Cu sealing ring and tighten to 15 Nm (133 in.lb). For verification turn crankshaft with spanner 24 a/f on hex. screw on magneto side.



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Fig. 72-56

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Oil carbon residue on up to **max 20%** of the moving path is permissible. See Fig. 72-67.

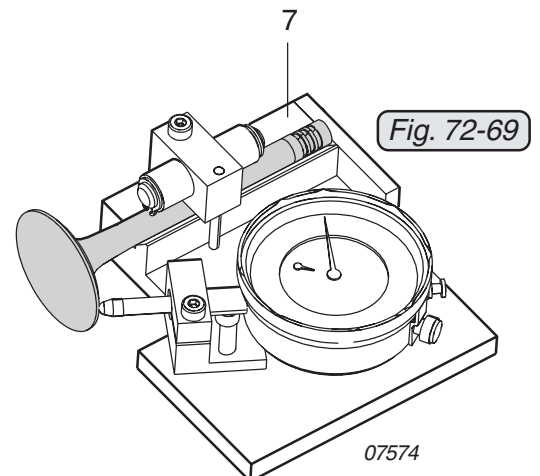
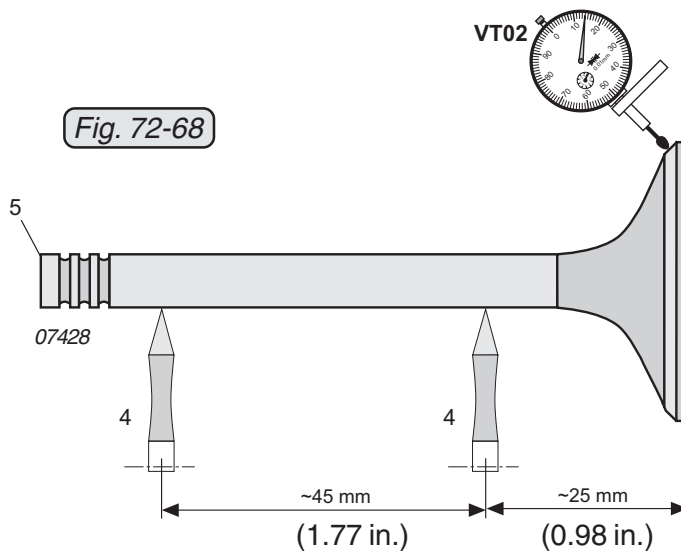
■ **CAUTION:** If there are heavier deposits, the valve may already have overheated and must be replaced. There is a danger of valve fracture at the weld.

Carry out a visual inspection of the 3 retaining grooves (3) on the valve stem for damage or wear. To check the wear, fit a new valve cotter. It must fit without perceptible clearance.

Place the valve on roller blocks (4), roll it and measure the max. permissible out of true value VT02 on the valve disk using a dial gauge. See Fig. 72-68.

◆ **NOTE:** The out of true value can also be measured with the dial gauge adapter assembly part no. 976140 (7). See Fig. 72-69.

See 72-00-00 sec. 4.



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Check the valve face for wear caused by pounding VT03.

Pounding may occur on the inside and the outside edge of the seat surface and must be measured as shown in Fig. 72-70.

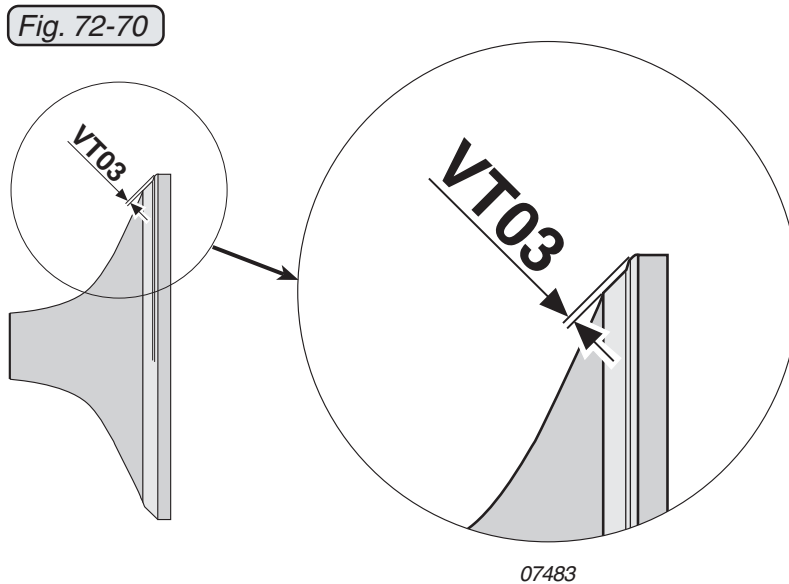
See 72-00-00 sec. 4.

■ CAUTION: The valve seat at the valve disk is surface hardened. For this reason, the valve disk must not be reworked. If necessary, the valve must be replaced.

However, lapping with valve lapping paste is possible.

Seal-lap both valves and check for leakage.

■ CAUTION: The end of the valve stem (5) must not be ground. See Fig. 72-68.



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SECTION 73

FUEL SYSTEM

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3) Maintenance

The following sections describe maintenance procedure for engines of the 912/914 Series above and beyond the maintenance and special checks, see corresponding Maintenance Manual (Line Maintenance) for the respective engine type, 912 Series or 914 Series, and the systems descriptions given hitherto. The description is divided into subsections and descriptions of the function of the various systems.

|| 3.1) **Disassembling fuel pump, carburetors, carburetor sockets, fuel lines and drip tray (on the 912 Series)**

See Fig. 73-9 and 73-9/1.

|| To remove the fuel pump (1) remove hex nuts (2), then remove the fuel pump together with the insulating flange(3).

The carburetors must be removed for inspection or maintenance.

◆ NOTE: Models produced from the year 2007 onwards have a flexible fuel line (5).

If the engine is equipped with a ROTAX Original Airbox, the screw hose clamps (4) must be released before the carburetors can be removed. Remove the fuel line (5) by unscrewing the collar nut (6). Remove the tension spring (7) for carburetor suspension with a suitable tool.

Losen the clamp (8) on the carburetor socket (9) and remove the carburetor with slight turning and swiveling motions. Close off the intake openings of the carburetor sockets with appropriate covers.

|| Remove the hex. screws (10) M8x25, M8x30 (11) and washers to disassemble the carburetor sockets (9). Then the carburetor socket (9) and the O-Ring (12) can be taken off.

◆ NOTE: See SB-912-030, "Cracks, wear and distortion on the carburetor flange", latest issue.

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Fig. 73-9

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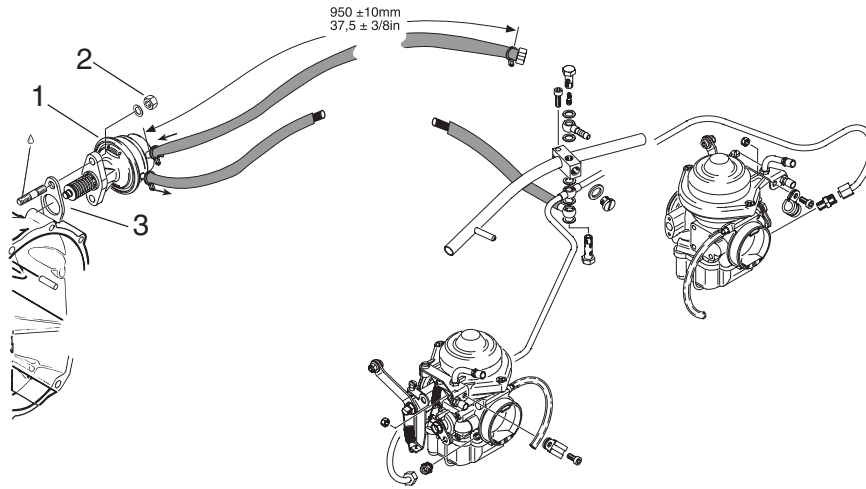
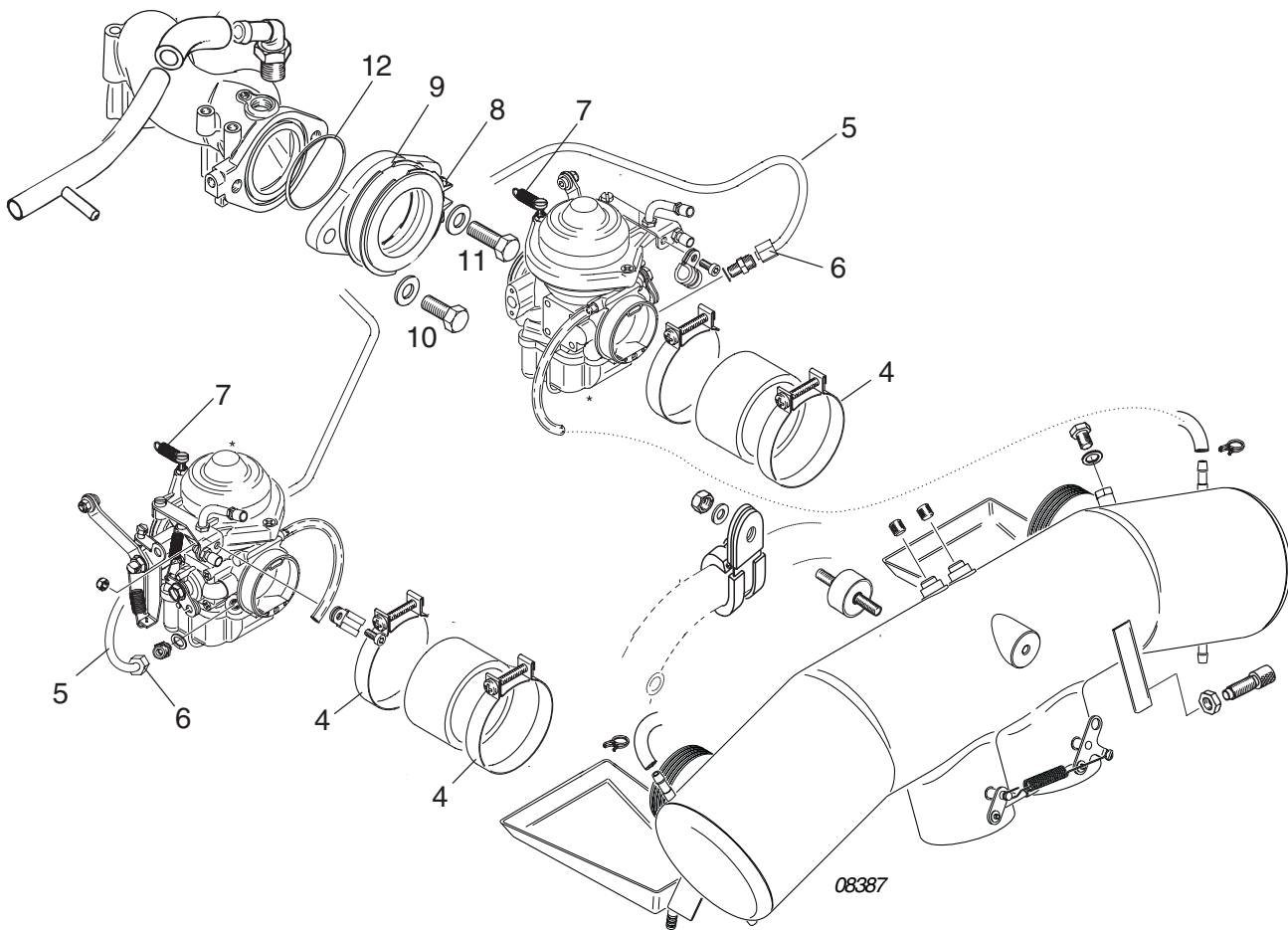


Fig. 73-9/1



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3.3.5) Diaphragm

See Figs. 73-15 and 73-16.

The plunger (carburetor piston) (8) is attached to the diaphragm (6). Depending on the pressure prevailing, the plunger is moved up or down. For inspection, remove the two counter sunk screws (1) M5x12, take off the chamber top (2) and remove the plunger spring (3). Check that the cover plate (4) on the chamber top is tightly seated. Wash chamber top with cleaning agent and blowclean the inside venting bore with compressed air. Then carry out a visual inspection.

Pull carburetor piston out of the carburetor housing and remove the 4 allen screws (5) M4x12. The diaphragm (6) is held by the retaining ring (7) on the carburetor piston (8). The position of the carburetor piston is controlled via the diaphragm. There are 2 indexing tabs on the diaphragm (5). Tab (9) fits exactly into the recess in the slider piston and nose (10) must engage in the recess in the carburetor housing.

Check diaphragm for cracks or brittleness, replace if necessary.

3.3.6) Needle

See Fig. 73-16.

The needle (12) controls the fuel consumption at part load. It can be regulated by selecting a needle position between 1 and 4. Modifications are allowed only after consultation with the engine manufacturer.

Unscrew the retaining screw (11), check needle (12) with shaft securing (13) and O-Ring (20) for signs of wear.

Pay especial attention to the grooves and the taper of the needle. If there is visible wear, the needle must be replaced and a new one refitted in the same position.

◆ NOTE: The needle must move freely when fitted.

Carry out a visual inspection of the outer diameter of the carburetor piston (8) and the two inside compensation bores.

◆ NOTE: The needle is damped by the O-ring (38).
See Figs. 73-13 and 73-14.

The set up of the needle position (fig. 73-15/1) and the determination of the main jet should to be carried out in accordance with the table of fig. 73-15/2. The settings have to be recorded in appendix chapter 8.2 "carburetor jetting and jet needle position".

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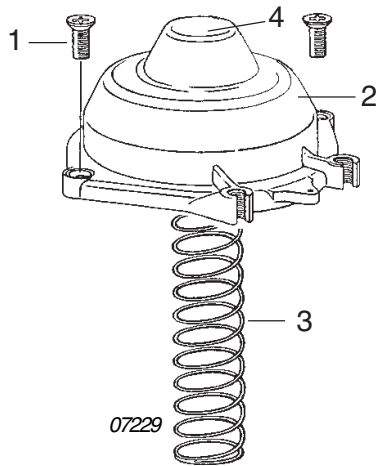


Fig. 73-15

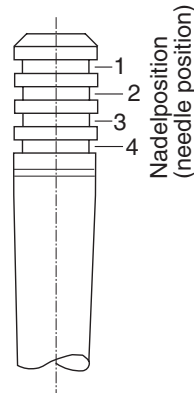


Fig. 73-15/1

Carburetor calibration		
912 A/F/UL	Target	
	Carburetor 1/3	Carburetor 2/4
Needle	2,72	2,72
Idle jet	35	35
Main jet ⁴⁾	155 or 158	155 or 158
Start jet ¹⁾	85	85
Needle position ³⁾	3	3
912 S/ULS/ULSFR	Target	
	Carburetor 1/3	Carburetor 2/4
Needle	2,70	2,70
Idle jet	35	35
Main jet	155	155
Start jet ¹⁾	85	85
Needle position ³⁾	3	3
914 F/UL	Target	
	Carburetor 1/3	Carburetor 2/4
Needle	2,72	2,72
Idle jet	35	35
Main jet ²⁾	156 or 160	158 or 164
Start jet ¹⁾	85	85
Needle position ³⁾	1 or 2	2

Fig. 73-15/2

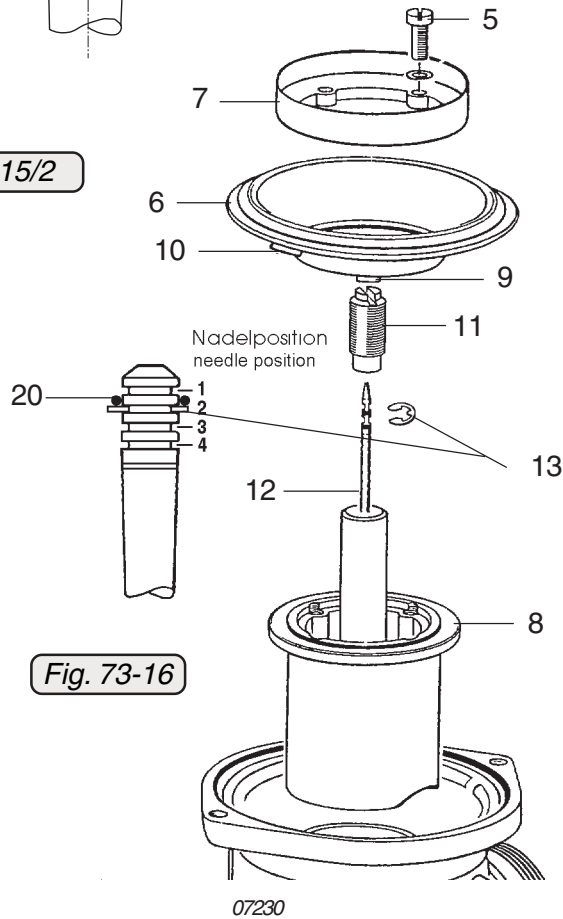


Fig. 73-16

- 1) See SI-03-1998, latest version.
- 2) Depending on the airbox version. See SI-914-013 and SI-914-015, latest version.
- 3) Depending on CO measurement value and specific fuel consumption. See SI-914-013 and SI-914-015, latest version.
- 4) On configuration with air filter. See SB-912-044, latest version.

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3.5) Assembly of carburetor sockets, carburetor and fuel lines

3.5.1) Fuel pump

See Fig. 73-44/1

■ CAUTION: It is necessary to use a new insulating flange. Do not reuse the old insulating flange.

◆ NOTE: Don't use sealing compound on the sealing surface of the gearbox housing or on the fuel pump flange.

Install fuel pump with new insulating flange (1). Secure and tighten hex. nuts M6 (2) together with washer and tighten evenly (Use LOCTITE 243). Tightening torque 15 Nm (11.1 ft.lb).

◆ NOTE: Always use LOCTITE 243 as a fastener when a fuel pump is (re-) mounted or when an insulating flange is affected.

Attach fuel lines again.

3.5.2) Carburetors and carburetor sockets

See Figs. 73-44, 73-45 and 76-46.

Attach carburetor socket (4) and new O-ring (5) with hex. screws (6) M8x25 and M8x30 (7) with washers.

◆ NOTE: On intake manifolds without an O-ring groove, a gasket (8) (see Illustrated Parts Catalog) must be fitted.

The screws are locked with LOCTITE 221. Tightening torque 15 Nm (133 in.lb).

Fit carburetor into carburetor socket, which should be **free of grease and oil**, align and fix with hose clamp (9). Tightening torque 2.5 Nm (22 in.lb).

Check distance of 5 to 6 mm (0.2 in. to 0.24 in.) on allen screw (10) as this is important to allow free movement of the tension spring (11).

Engage tension spring in the bracket (12) using a suitable tool.

■ CAUTION: To ensure efficient carburetor suspension, a distance of 40 mm (1.57 in.) between allen screw and engagement latch must be respected.

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Fig. 73-44

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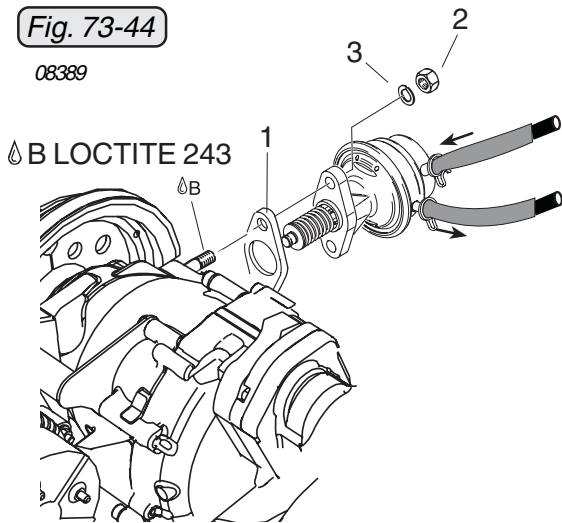


Fig. 73-45

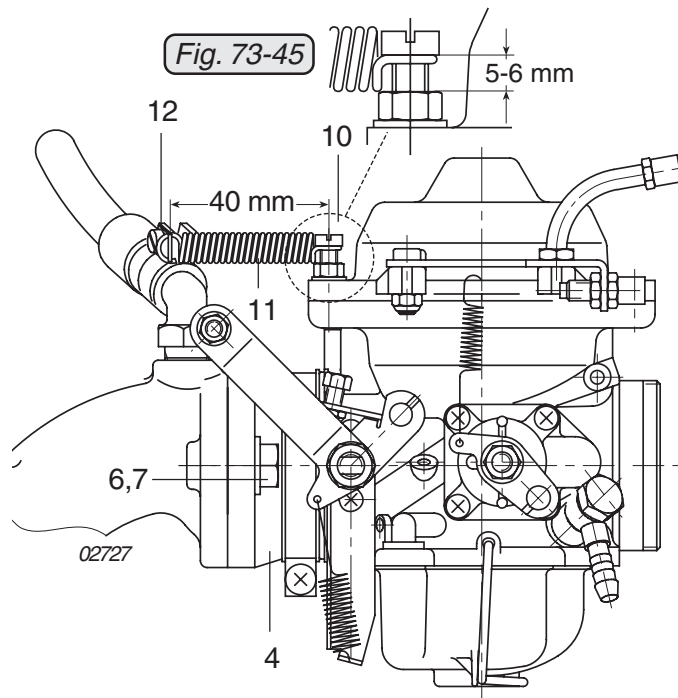


Fig. 73-44/1

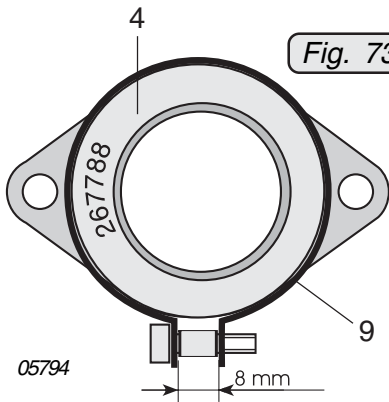
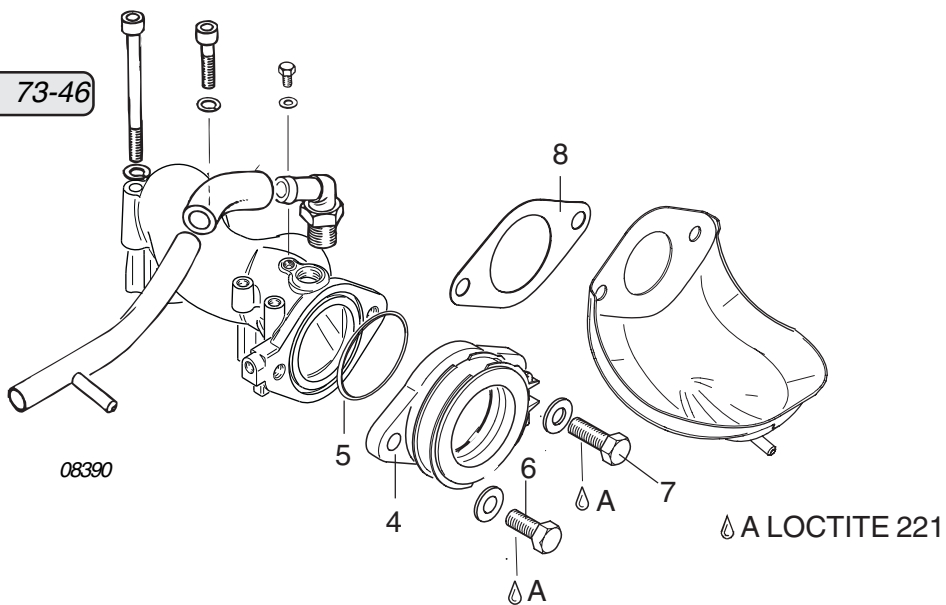


Fig. 73-46



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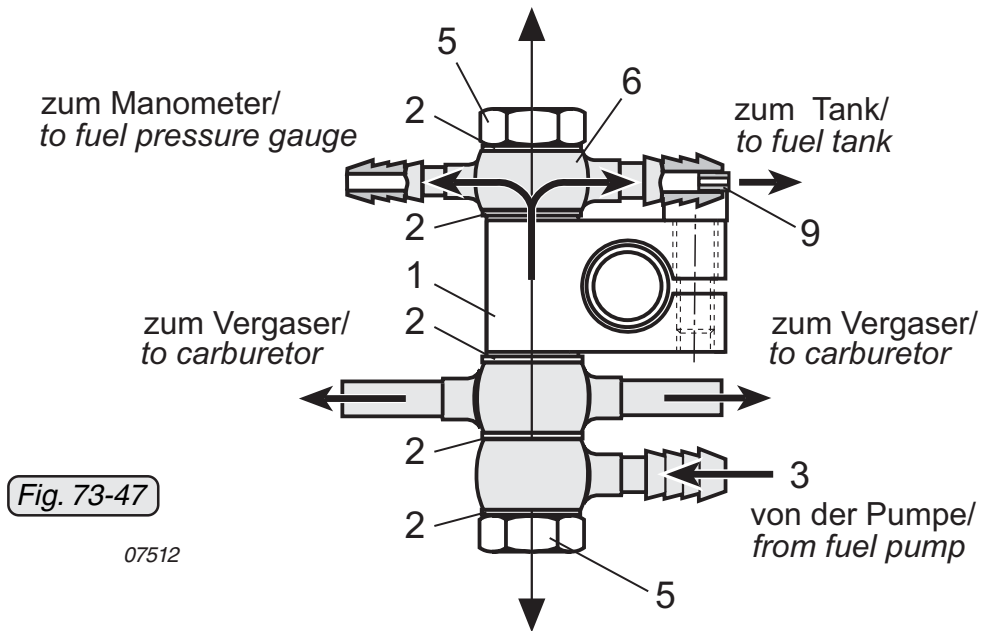
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3.5.3) Assembly of the fuel lines (on 912 Series)

See Figs. 73-47, 73-48, 73-49 and 73-50.

■ **CAUTION:** To prevent locked up stresses, all components should first be screwed on loosely and then tightened to the prescribed tightening torque.

If the clamp block (1) has been removed, it must now be reattached with an allen screw M5x16 and a tightening torque of 6 Nm (53 in.lb).



◆ **NOTE:** For easier assembly of the fuel line, observe the original position of the clamp block.

The lines from the fuel pump (3) and the lines to the carburetors are attached to the **bottom side** of the clamp block, each between a sealing ring (2) and the banjo bolt (5) (tightening torque 10 Nm (90 in.lb)).

The ring hose nipple (6) is attached to the **top side** of the clamp block between a sealing ring (2) and the banjo bolt (5) (tightening torque 10 Nm (90 in.lb)).

- connection for return line to the tank (\varnothing outside 7mm (0.28 in.))
slip-on length: max. 17 mm (0.67 in.)
- connection to the pressure gauge (\varnothing outside 6 mm (0.24 in.))
slip-on length: max. 17 mm (0.67 in.)

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- ◆ **NOTE:** The double hose nipple (6) contains an integrated restrictor (9) (0.35 mm (.0138 in.)) which plays a decisive role in ensuring correct functioning of the fuel system.
- ◆ **NOTE:** If no pressure gauge is connected, a single ring hose nipple is fitted. The restrictor (9) is then in the top banjo bolt (5)
- **CAUTION:** Do not get the connections mixed up.

Unscrew allen screw M10x1x8 (11) with the sealing ring (10). Tightening torque 15 Nm (133 in.lb) - screw secured with LOCTITE 221. See Fig. 73-49.

- ◆ **NOTE:** When converting to a double hose nipple for measurement of the fuel pressure, the jet must be removed from the banjo bolt (5).

Screw the fuel lines to the carburetors.

Rigid line

- ◆ **NOTE:** Do not tighten the clamp block until all lines have been connected.
- ▲ **WARNING:** The lines must be fitted without tension and with all the standard in serial supports to prevent breaks caused by vibration during operation.
- **CAUTION:** When assembling the fuel lines, ensure that they are adequately supported to prevent strain on the connections. See Fig. 73-48.
- ◆ **NOTE:** An optional double hose nipple (6) is available for measurement of the fuel pressure.

Assembly at the carburetor should be carried out analogously the disassembly. See sec. 3.4.4.

Flexible lines

See SI-25-1997, "Running modifications", latest issue.

From 2007 on, all new models will have a flexible line instead of the present rigid fuel line.

Assembly at the carburetor should be carried out analogously the disassembly. See sec. 3.4.4.

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Fig. 73-48

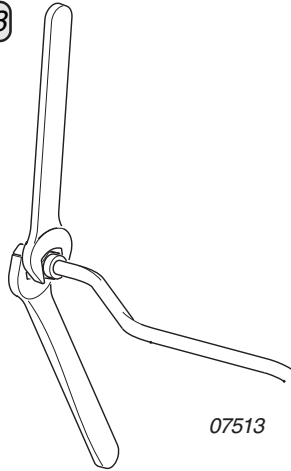


Fig. 73-49

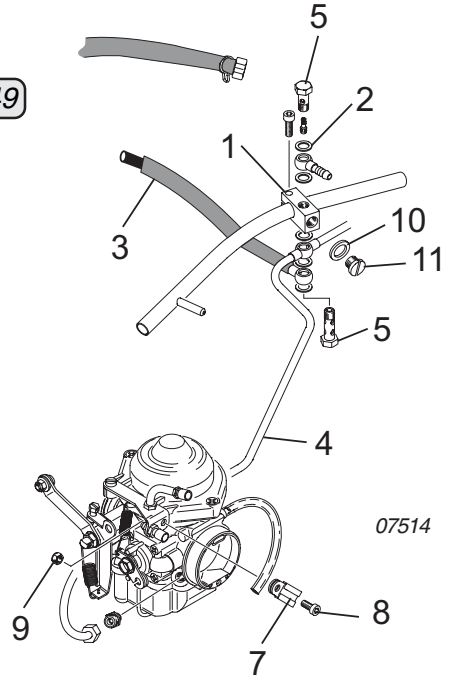
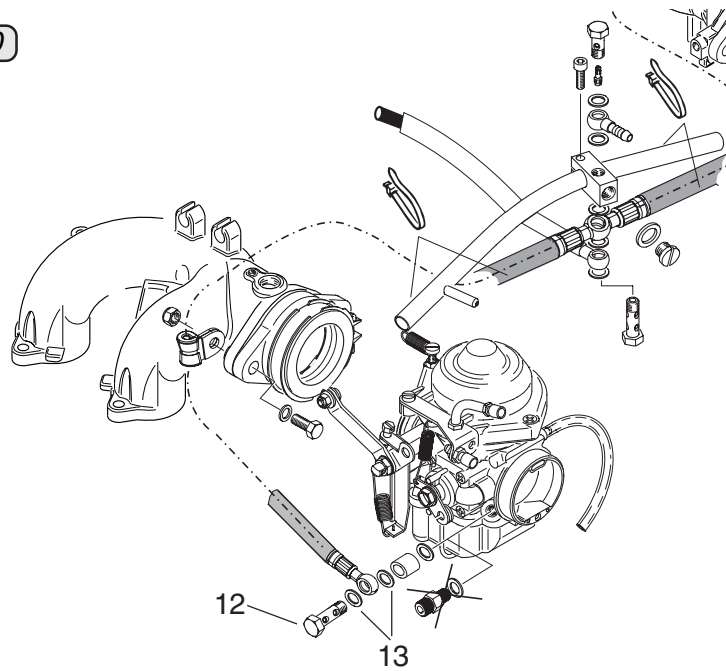


Fig. 73-50



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3.5.4) Assembly of the fuel lines (on 914 Series)

See Fig. 73-51.

Attach fuel line (10) to carburetor (fuel inlet) with collar nut (11). Support the line on the carburetor bracket with a cable clamp (12). The cable clamps are attached with allen screws (13) M5x12 and lock nuts (14). The tighten collar nut to 10 Nm (90 in.lb).

Now the airbox (15) can be refitted on the connections of the carburetors. Do not damage the previously fitted fuel lines and pressure connecting lines.

Ensure that all clamping locations are **free of grease**.

■ **CAUTION:** Use the complete slip-on length on the connection pieces.

Ensure that the airbox (15) is fitted horizontally and torsion-free. There must be no additional load on the carburetor fixations.

Now the screw hose clamps (16) can be tightened on the connecting hose (17) and, if necessary, on air intake hose (18).

Fit the pressure connecting lines (19) (float chamber venting) on both carburetors and fuel pressure regulator (21) with clamps (20) 8. See 73-00-00 sec. 3.4.10.

Attach the 2 fuel lines (10) to the fuel pressure regulator (21) with banjo bolts (22) M10 and sealing rings (23) 10x14 on both sides .

Tightening torque: 15 Nm (133 in.lb).

■ **CAUTION:** When fitting fuel lines, support them adequately to avoid strain or additional load.

Reconnect plug connection to temperature sensors and throttle potentiometer.

Check plug connections for security.

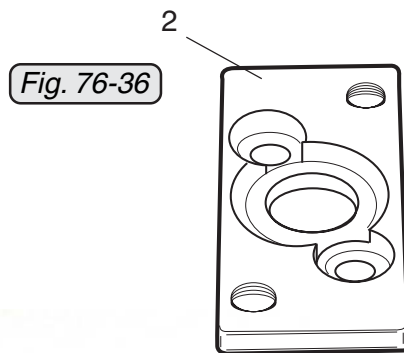
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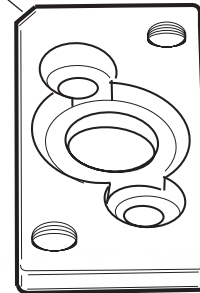
adapter flange

older model version part no. 861930

newer model version part no. 861931



cut off edge



05378

|| potentiometer

older model version part no. 966480

newer model version part no. 966481

Fig. 76-37



05379

distinguishing feature

◆ **NOTE:** Small installation tolerances can be compensated by turning the throttle potentiometer. For tolerances, see 76-00-00 sec. 3.1.1.6, otherwise, recalibration is necessary.

- Inspection for physical damage.
- Measurement of the nominal resistance:
Measure resistance between connections (5) and (7).
Nominal resistance: 3.2 to 4.8 k
- Measurement of resistance across turning range of fitted throttle.

To check the function of the throttle potentiometer over the operating range, take the following readings:

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Resistance between the connections (6) and (7):

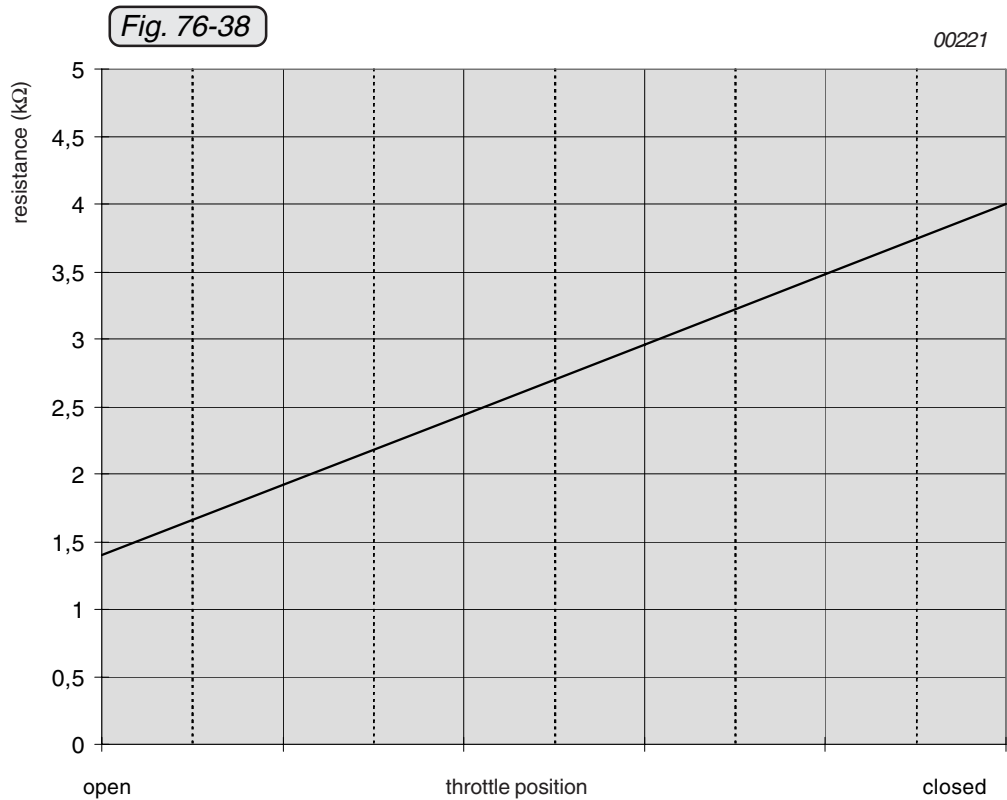
Throttle valve **closed**

(throttle lever pos. 0%): 3.4 to 4.6 k Ω

Throttle valve **open**

(throttle lever pos. 115%): 0.8 to 2.0 k Ω

◆ **NOTE:** Check complete operating range as shown in the following diagram (Fig. 76-38) for linear resistance progress.



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