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STIHL®

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This service manual contains detailed descriptions of all the repair and servicing procedures on model BR 340, 420 and SR 340, 420 blowers/sprayers.

As the design concept of models BR 340, 420 and SR 340, 420 is almost identical, the descriptions and servicing procedures in this manual generally apply to all models. Differences are described in detail.

Where applicable, reference is made to the relevant chapter in the "Carburetors" handbook for servicing the carburetor or its components.

You should make use of the illustrated parts lists while carrying out repair work. They show the installed positions of the individual components and assemblies.

Refer to the latest edition of the relevant parts list to check the part numbers of any replacement parts. Parts lists on microfiche and CD-ROM are always more up to date than printed lists.

A fault on the machine may have several causes. To help locate the fault, consult the troubleshooting charts - **see 4**.

Refer to the "Technical Information" bulletins for engineering changes which have been introduced since publication of this service manual. Technical information bulletins also supplement the parts list until a revised edition is issued.

The special servicing tools mentioned in the descriptions are listed in a chapter of this manual. Use the part numbers to identify the tools in the "STIHL Special Tools" manual.

The manual lists all special servicing tools currently available from STIHL.

Symbols are included in the text and pictures for greater clarity. The meanings are as follows:

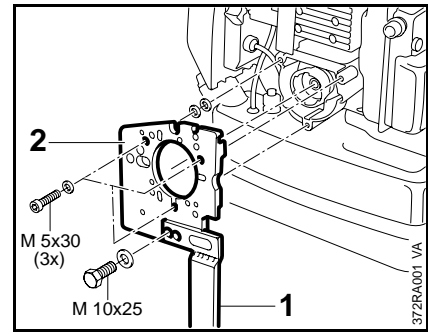
In the descriptions:

- = Action to be taken as shown in the illustration (above the text)
- = Action to be taken that is not shown in the illustration (above the text)
- ➡ = Situation applies from serial number
- ➡= = Situation applies up to serial number

In the illustrations:

- ➡ Pointer
- ➡ Direction of movement

Service manuals and all technical Information bulletins are intended exclusively for the use of STIHL servicing dealers. They must not be passed to third parties.



Servicing and repairs are made considerably easier if the blower/sprayer is mounted to assembly stand (2) 5910 890 3100 with the aid of clamping plate (1) 5910 890 2100.

To mount it, remove the rewind starter and shroud, **see 5.1**, and screw the clamping plate to the blower/sprayer. Pack the clamping plate with washers so that it does not touch the fuel tank.

When the blower/sprayer is mounted to the chainsaw assembly stand by way of the clamping plate, it can be swivelled to the best position for the ongoing repair. This leaves both hands free.

Always use original STIHL replacement parts.

They can be identified by the STIHL part number, the **STIHL** logo and the STIHL parts symbol **G**.

This symbol may appear alone on small parts.

If the engine is started up in the course of repairs or maintenance work, observe all local and country-specific safety regulations as well as the safety precautions and warnings in the owner's manual.

Gasoline is an extremely flammable fuel and can be explosive in certain conditions.

Improper handling may result in burns or other serious injuries.

Warning!

Do not smoke or bring any fire, flame or other source of heat near the fuel. All work with fuel must be performed outdoors only. Spilled fuel must be wiped away immediately.

3.1 Engine

STIHL single cylinder two-stroke engine with special impregnated cylinder bore

	BR 340, 340 L, SR 340	BR 420, 420 C, SR 420
Displacement:	44.9 cm ³	56.5 cm ³
Bore:	41 mm	46 mm
Stroke:	34 mm	34 mm
Engine power:	2.0 kW (2.7 bhp) - BR 340, SR 340 1.4 kW (1.9 bhp) - BR 340 L	2,5 kW (3.4 bhp) - BR 420, SR 420 2.4 kW (3,2 bhp) - BR 420 C
Idle speed:	3,100 rpm	3,100 rpm
Max. permissible engine speed:	Exact rpm cannot be given because power is constantly absorbed by the fanwheel	
Bearings:	Crankshaft supported in heavy-duty deep groove ball bearings, needle cages on small and big ends	
Piston pin diameter:	10 mm	10 mm
Rewind starter:	Pawl engagement with automatic starter rope rewind	Pawl engagement with automatic starter rope rewind
Pawls:	Single pawl system	Single pawl system
Reserve pull on rope rotor:	min. ½ turn	min. ½ turn
Starter rope:	3.5 mm dia., 960 mm	3.5 mm dia., 960 mm
Crankcase leakage test at gauge pressure:	0.5 bar	0.5 bar
under vacuum:	0.5 bar	0.5 bar

3.2 Fuel System

Carburetor:	All positon diaphragm carburetor with integral fuel pump and mixture control via compensator
Standard setting	
High speed screw H:	Open approx. 1 turn
Low speed screw L:	Open approx. 1 turn
Carburetor leakage test at gauge pressure:	0.8 bar
Fuel tank capacity:	1.5 L
Octane rating:	min. 90 RON
Fuel mixture:	Regular brand name gasoline and two-stroke engine oil
Mix ratio:	50:1 with STIHL two-stroke engine oil 25:1 with other brand name two-stroke, air-cooled engine oils
Air filter:	Paper element with prefilter

3.3 Ignition System

Type:	Electronic magneto ignition
Air gap:	0.2 – 0.3 mm
Spark plug (suppressed):	Bosch WSR 6 F or NGK BPMR 7 A
Electrode gap:	0.5 mm
Spark plug thread:	M14x1.25; 9.5 mm long

3.4 Spraying Attachment	BR 340	BR 340 L	BR 420, BR 420 C	SR 340	SR 420
Max. air flow rate:	1000 m³/h	870 m³/h	1060 m³/h	1000 m³/h	1060 m³/h
Air velocity:	72 m/s	65 m/s	80 m/s	92 m/s	101 m/s
Container capacity:				14 l	14 l
Size of filler strainer mesh:				1 mm	1 mm
Liquid discharge rate: (infinitely variable)				0.15–2.8 l/m	0.15–3.0 l/m
Quantity left in container: (design related)				0.1 l	0.1 l

3.5 Metering Unit	SR 340	SR 420
Discharge rate without pressure pump ¹⁾ in metering knob position:		
1	0.13 l/min	0.14 l/min
2	0.61 l/min	0.71 l/min
3	1.27 l/min	1.33 l/min
4	1.92 l/min	2.09 l/min
5	2.45 l/min	2.67 l/min
6	2.78 l/min	3.03 l/min
Discharge rate with pressure pump ¹⁾ using metering nozzle:		
1	0.53 l/min	0.57 l/min
2	1.42 l/min	1.54 l/min
3	2.44 l/min	2.62 l/min

¹⁾ Quantities quoted are average discharge rates for spray tube angles of 0° and 30° to the horizontal at full throttle

3.6	Weights	BR 340, BR 420	BR 340 L	BR 420 C	SR 340	SR 420
	Weight (fuel tank and container empty):	9.0 kg	9.1 kg	9.2 kg	11.0 kg	11.0 kg

3.7	Sound Pressure Level	BR 340	BR 340 L	BR 420, BR 420 C	SR 340	SR 420
	Sound pressure level according to ANSI B 175.2 :	72 dB(A)	69 dB(A)	74 dB(A)	74 dB(A)	75 dB(A)

3.8 Tightening Torques

DG and P (Plastoform) screws are used in polymer and lightmetal components. These screws form a permanent thread when they are installed for the first time. They can be removed and installed as often as necessary without impairing the strength of the screwed assembly, providing the specified tightening torque is observed.

For this reason it is **essential to use a torque wrench**.

Fastener	Thread size	For component	Torque (Nm)	Remarks
Spline screw	IS-M5x16	Heat shield to cylinder	8.0	
Spline screw	IS-P6x26.5	Shut off cock to handle	4.5	1)
Spline screw	P4x20	Handle molding (outer/inner)	1.5	
Spline screw	IS-P6x19	Control handle to pleated hose	4.5	
Spline screw	IS-P6x19	Spring (AV element) to fan housing	6.0	
Spline screw	IS-P6x21.5	Spring (AV element) to backplate	6.0	
Twist lock	M5x14	Filter cover to filter housing	6.0	
Spline screw	IS-M5x16	Filter housing to crankcase	8.0	
Spline screw	IS-M5x48	Filter housing to spacer flange	8.0	
Spline screw	IS-M5x25	Spacer flange to cylinder	4.5	
Spline screw	IS-M5x16	Throttle cable retainer to crankcase	4.0	
Spline screw	IS-P6x26.5	Fan housing (outer/inner)	6.0	
Spline screw	IS-M5x58	Fan housing/nut to elbow	1.5	
Spline screw	IS-M5x20	Fan housing to crankcase	8.0	
Spline screw	IS-M5x20	Fanwheel to flywheel	8.0	
Spline screw	IS-P6x19	Retainer (throttle cable/hose) to fan housing	4.0	
Spline screw	IS-P6x19	Cover to fan housing	4.0	
Spline screw	IS-P6x19	Retainer (support frame) to backplate	4.5	1)
Spline screw	P4x12	Contact spring to slide	1.5	2)
Spline screw	IS-M5x20	Crankcase	8.0	
Spline screw	IS-P6x19	Tank to backplate	6.0	
Spline screw	IS-M5x16	Muffler to crankcase	9.5	
Spline screw	IS-M5x16	Muffler to cylinder	12.0	3)
Spline screw	IS-P6x19	Hose clamp on pleated hose	3.5	
Hex nut	M8x1	Flywheel on crankshaft	25.0	
Spline screw	IS-M5x25	Starter cover to crankcase	8.0	
Hex nut	M8x1	Starter cup on crankshaft	14.0	
Spline screw	IS-P6x19	Support frame to backplate	4.5	1)
Spline screw	IS-M5x25	Cylinder to crankcase	10.0	
	M14x1,25	Spark plug	20.0	
Spline screw	IS-M5x20	Ignition module to crankcase	4.0	4)

- 1) SR 340, 420 only
- 2) except BR 420 C
- 3) Secured with medium strength adhesive (e.g. LOCTITE 243)
- 4) Micro-encapsulated

Use the following procedure when refitting a DG or P screw in an existing thread:

- Place the screw in the hole and rotate it counterclockwise until it drops down slightly.
- Tighten the screw clockwise to the specified torque.

This procedure ensures that the screw engages properly in the existing thread and does not form a new thread and weaken the assembly.

Note:

Power screwdriver settings for polymer:

- Plastoform screws max. 600 rpm
- DG screws max. 500 rpm

4 Troubleshooting

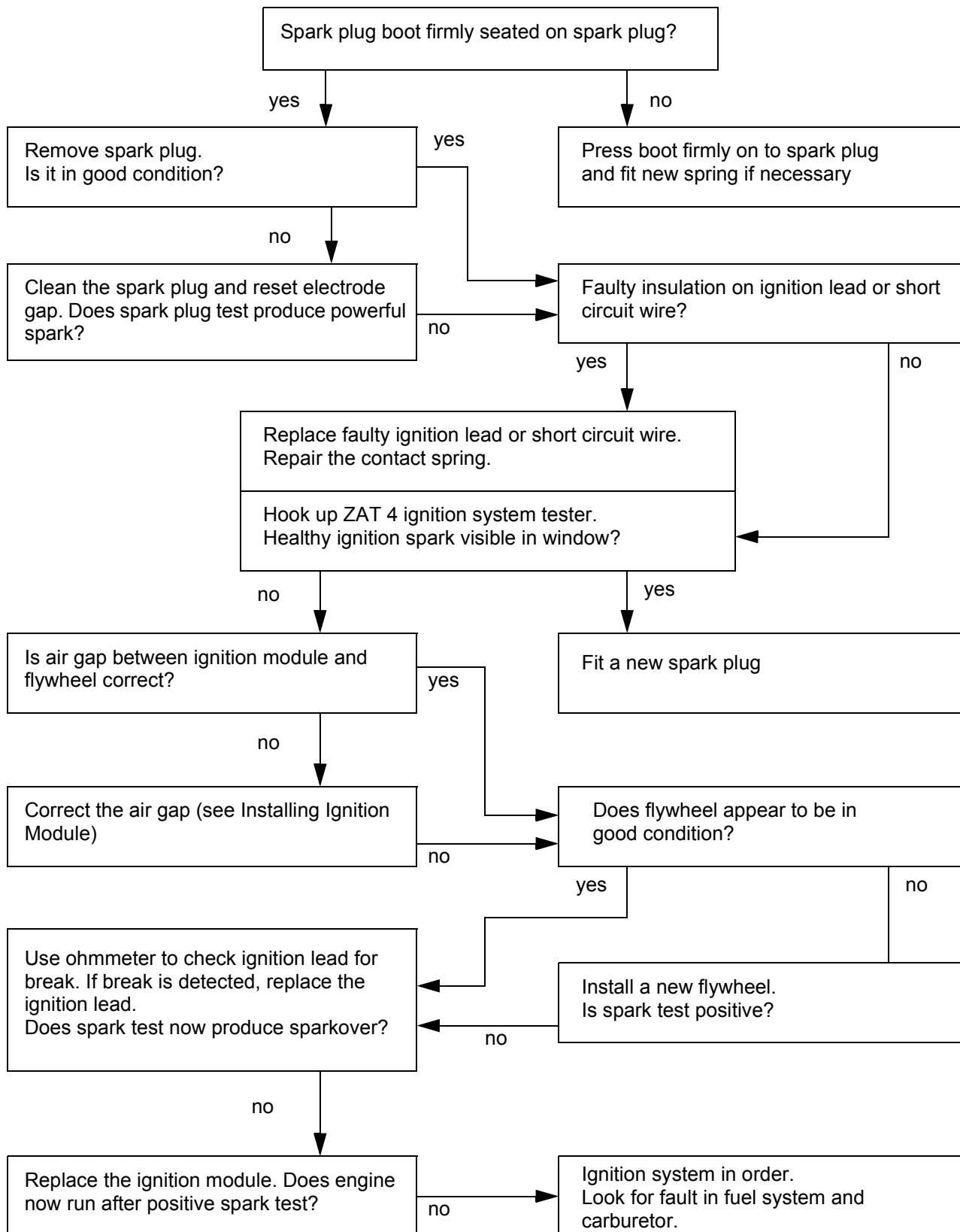
4.1 Engine

Always check and, if necessary, repair the following parts before looking for faults on the engine:

- Air filter
- Fuel system
- Carburetor
- Ignition system

Condition	Cause	Remedy
Engine is difficult to start, stalls at idle speed, but operates normally at full throttle	Oil seals in crankcase leaking	Replace oil seals
	Gaskets on spacer flange leaking	Replace gaskets
	Cylinder gasket leaking	Replace gasket
	Crankcase damaged (cracks)	Replace crankcase
Engine does not deliver full power or runs erratically	Secondary air seepage through poorly mounted or faulty spacer flange or gaskets	Mount spacer flange correctly or replace it if necessary, or replace gaskets
	Piston rings worn or broken	Install new piston rings
	Muffler carbonized	Clean muffler (inlet and exhaust)
	Spark arresting screen carbonized	Clean or replace spark arresting screen
Engine overheating	Insufficient cylinder cooling. Air inlets in fan housing blocked or cylinder cooling fins very dirty	Thoroughly clean all cooling air openings

Warning: Exercise extreme caution while carrying out maintenance and repair work on the ignition system. The high voltages which occur can cause serious or fatal accidents!



4.3 Rewind Starter

Condition	Cause	Remedy
Starter rope broken	Rope pulled out too vigorously as far as stop or over edge, i.e. not vertically	Fit new starter rope
	Normal wear	Fit new starter rope
Rewind spring broken	Spring overtensioned – no reserve when rope is fully extended	Fit new rewind spring
	Very dirty or corroded	Fit new rewind spring
Starter rope can be pulled out almost without resistance (crankshaft does not turn)	Guide peg on pawl or pawl itself is worn	Fit new pawl
	Spring clip fatigued	Fit new spring clip
Starter rope is difficult to pull and rewinds very slowly	Starter mechanism is very dirty (dusty conditions)	Thoroughly clean entire starter mechanism
	Lubricating oil on rewind spring becomes viscous at very low outside temperatures (spring windings stick together)	Apply a few drops of kerosine (paraffin) to spring, then pull rope carefully several times until normal action is restored

4.4 Fuel System

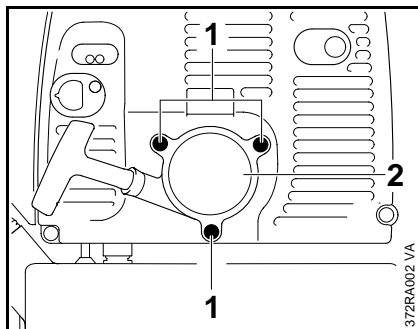
Condition	Cause	Remedy
Engine stalls at idle speed	Idle jet bores or ports blocked	Clean jet bores and ports and blow clear with compressed air
	Idle jet "too rich"	Screw in low speed screw slightly (see Adjusting the Carburetor)
	Setting of idle speed screw incorrect – throttle shutter completely closed	Set idle speed screw correctly
	Small plastic plate in valve jet does not close	Clean or renew valve jet
Engine speed drops quickly under load – low power	Air filter plugged	Clean air filter or replace if necessary
	Tank vent faulty	Clean tank vent or replace if necessary
	Leak in fuel line between tank and fuel pump	Seal or renew connections and fuel line
	Pump diaphragm damaged or fatigued	Fit new pump diaphragm
	Main jet bores or ports blocked	Clean bores and ports
	Fuel pickup body dirty	Fit new pickup body
	Fuel strainers dirty	Clean fuel strainers

Condition	Cause	Remedy
Poor acceleration	Idle jet "too lean"	Open low speed screw slightly (see Adjusting the Carburetor)
	Main jet "too lean"	Open high speed screw slightly (see Adjusting the Carburetor)
	Inlet control lever too low (relative to correct installed position)	Replace inlet control lever
	Inlet needle sticking to valve seat	Remove inlet needle, clean and refit
	Connecting bore to atmosphere blocked	Clean bore
	Diaphragm gasket leaking	Fit new diaphragm gasket
	Metering diaphragm damaged or shrunk	Fit new metering diaphragm
Engine will not idle, idle speed too high	Throttle shutter opened too far by idle speed screw	Reset idle speed screw correctly

Condition	Cause	Remedy
Carburetor floods; engine stalls	Inlet needle not sealing. Foreign matter in valve seat or sealing cone damaged	Remove and clean or replace the inlet needle. Clean fuel tank, pickup body and fuel line if necessary
	Inlet control lever sticking on spindle	Free off inlet control lever
	Helical spring not located on nipple of inlet control lever	Remove inlet control lever and refit correctly
	Perforated disc on diaphragm is deformed and presses constantly against inlet control lever	Fit new metering diaphragm
	Inlet control lever too high (relative to correct installed position)	Fit new inlet control lever

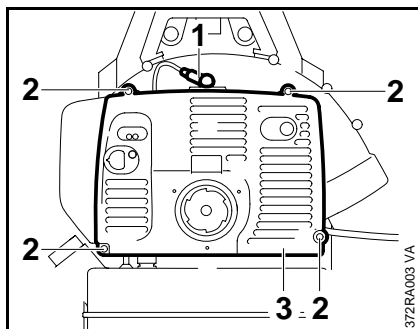
5 Engine

5.1 Removing and Installing the Muffler

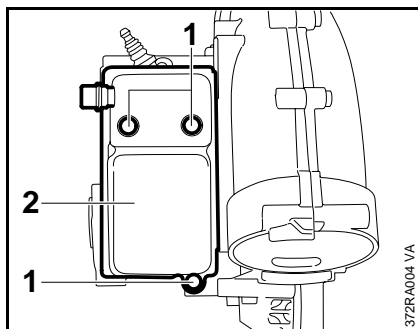


Troubleshooting chart – see 4.1.

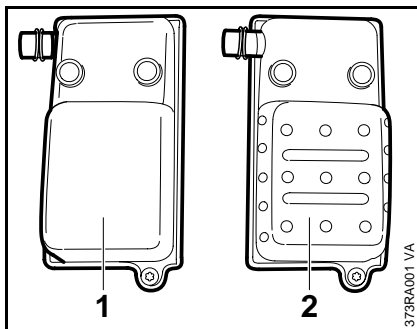
- Take out the screws (1) and lift away the rewind starter (2).



- Pull the boot (1) off the spark plug.
- Take out the screws (2) and remove the shroud (3).



- Take out the screws (1) and remove the muffler (2).



On model BR 420 C a muffler (2) with integral catalytic converter is installed in place of the standard muffler (1).

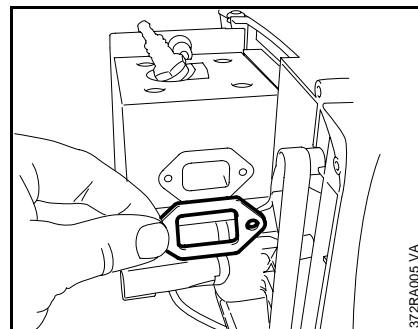
The muffler can be identified as follows:

The housing of the catalytic converter muffler is made of stainless steel to which a perforated heat sink is welded.

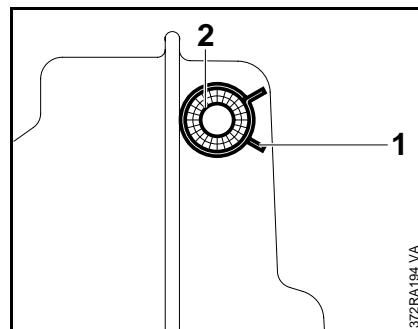
The catalyst integrated in the muffler is a component that reduces harmful emissions by catalysing a chemical reaction without being consumed itself.

The catalytic converter is maintenance-free, providing the usual use and care instructions are observed.

You should **never** attempt to repair a catalytic converter.



- Remove the exhaust gasket.



- Squeeze the ends of the clip (1) together and remove.
- Pull the screen (2) (spark arresting screen) out of the muffler.
- Clean the screen, or install a new one if it is damaged or heavily carbonized.

Reassemble in the reverse sequence. Fit a new exhaust gasket. Install screws with Loctite, see 13, and tighten down firmly (see "Tightening Torques")

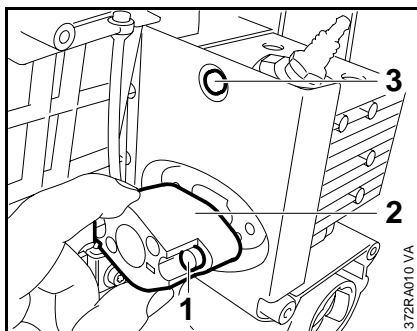
5.2 Exposing the Cylinder

Always check and, if necessary, repair the fuel system, carburetor, air filter and ignition system before looking for faults on the engine.

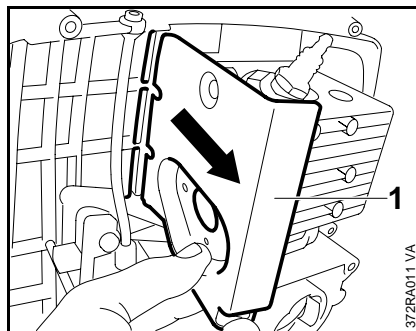
Troubleshooting chart – [see 4.1](#).

Models SR 340, 420: Remove blower housing with powerhead from the backplate – [see 8.1](#).

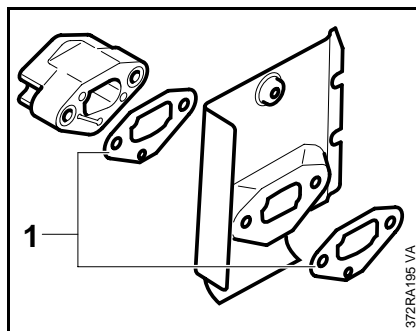
- Remove the rewind starter, shroud and muffler – [see 5.1](#).
- Remove the air filter – [see 10.1](#).
- Remove the carburetor – [see 10.3](#).
- Unscrew the spark plug.



- Take out screws (1) and remove the spacer flange (2).
- Take out the screw (3).



- Pull heat shield (1) out of the fan housing.

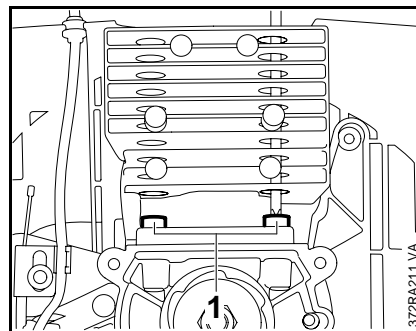


- Remove gaskets (1) from spacer flange or heat shield and cylinder.

Reassemble in the reverse sequence. Install new gaskets and observe tightening torques (see "Tightening Torques")

5.3 Cylinder and Piston

5.3.1 Removing

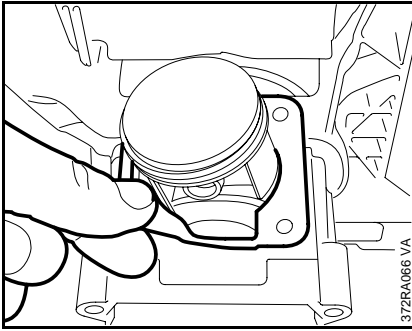


- Expose the cylinder – [see 5.2](#).
- Unscrew the cylinder base screws (1) through the holes in the cylinder fins.
- Pull the cylinder off the piston, inspect and replace if necessary.

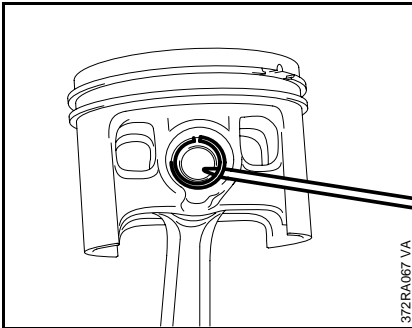
If a new cylinder has to be installed, always fit the matching piston. New cylinders are only supplied complete with piston for this reason.

- Before removing the piston, decide whether or not the crankshaft has to be removed as well. To remove the flywheel and starter cup, block the crankshaft by resting the piston on the wooden assembly block 1108 893 4800.

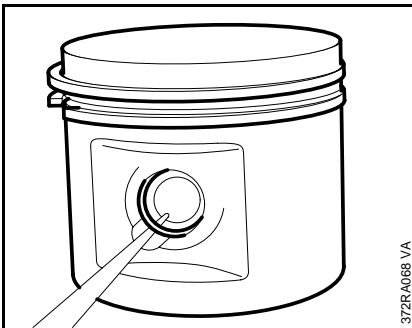
The following operations are exactly the same on all models. The illustrations may differ slightly from the actual components because the shape and size of the pistons vary. This does not affect the procedure in any way.



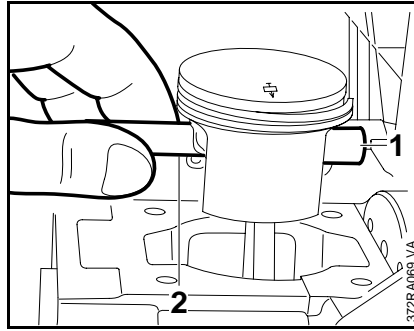
- Take the cylinder gasket off the crankcase.



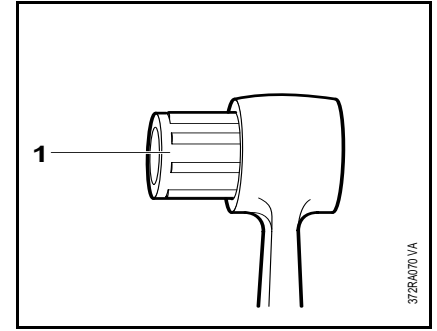
- On models BR/SR 420, ease the hookless snap rings out of the grooves in the piston bosses.



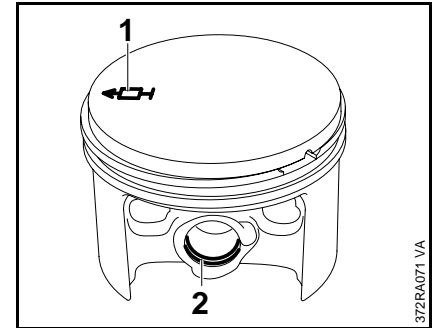
- On models BR/SR 340, ease the hookless snap rings out of the grooves in the piston bosses.



- Use the assembly drift (2) 1110 893 4700 to push the piston pin (1) out of the piston.
 - If the piston pin is stuck, release it by tapping the end of the drift **lightly** with a hammer. **Hold the piston steady during this process** to ensure that no jolts are transmitted to the connecting rod.
 - Remove the piston and take the needle cage out of the connecting rod.
 - Inspect piston rings and ring grooves, replace piston rings if necessary – **see 5.4.**

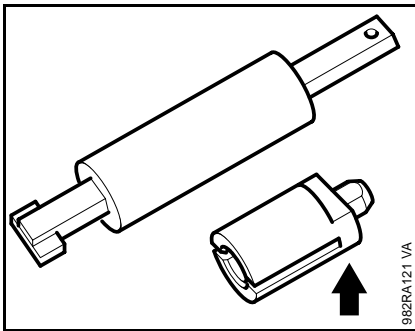


- Thoroughly clean the gasket seating surface on the cylinder.
- Lubricate the needle cage (1) with oil and fit it in the small end.

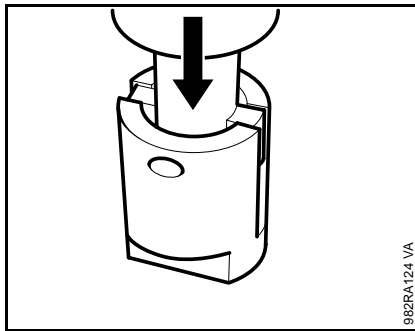


- Install a snap ring (2) in the front piston boss, i.e. the piston boss facing you when the arrow (1) on the piston head is pointing to the left.

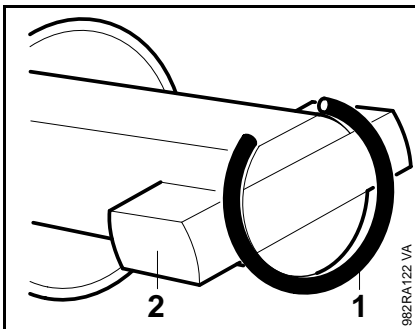
Use installing tool 5510 890 2210 to fit the snap ring. Use the installing tool as follows:



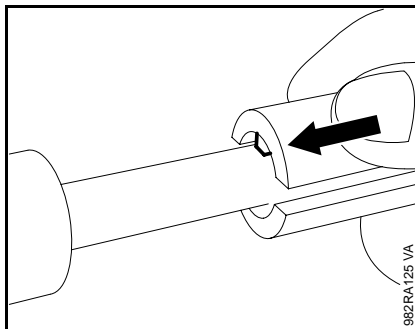
- Remove the sleeve (see arrow) from the installing tool.



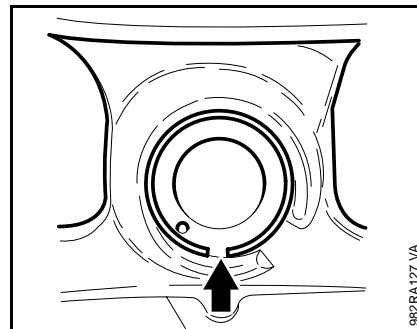
- Stand the installing tool, sleeve downward, on a flat surface and press vertically downwards until the sleeve butts against the tool's shoulder.



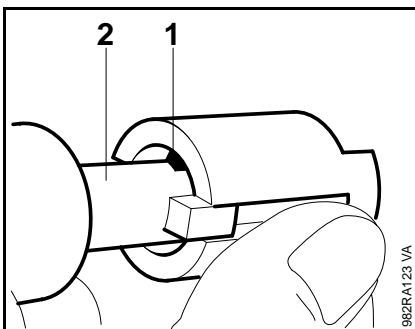
- Attach the hookless snap ring (1) to the magnet (2) so that the snap ring gap is on the flat side of the tool's shank (see illustration).



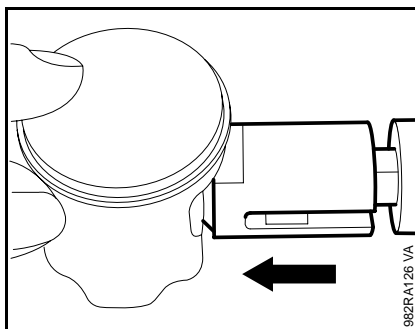
- Remove the sleeve and slip it onto the other end of the shank (the pin must again point toward flat face of tool shank).



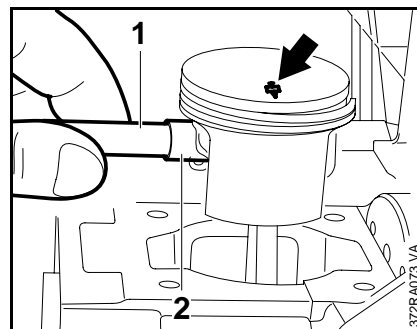
The snap rings must be fitted so that the ring gap (see arrow) is on the piston's vertical axis (it must point either up or down).



- Push the slotted diameter of the sleeve over the magnet and snap ring so that the inner pin (1) points toward the flat face (2) of the tool's shank.

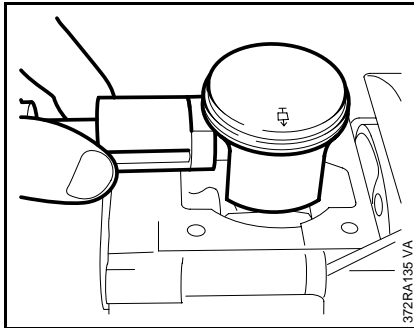


- Apply the installing tool to the piston boss, hold the piston steady, center the tool shank exactly and press home until the snap ring slips into the groove.

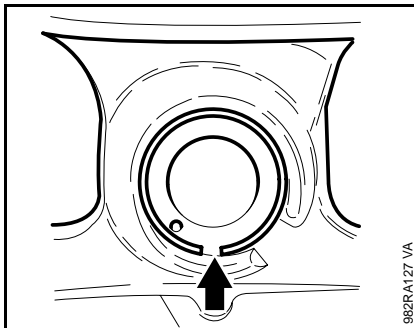


- Heat the piston on an electric heating plate to about 60°C and slip the piston over the connecting rod so that arrow on piston crown points to the muffler.

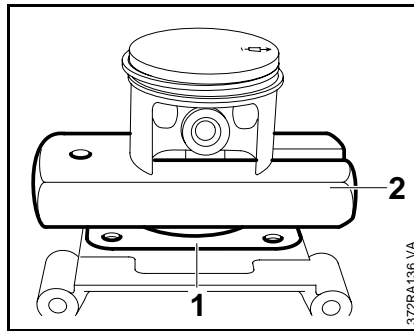
- Fit the piston pin (2) on the assembly drift (1) 1110 893 4700 and slide it into the piston and needle bearing (the piston pin slides home easily when the piston is hot).



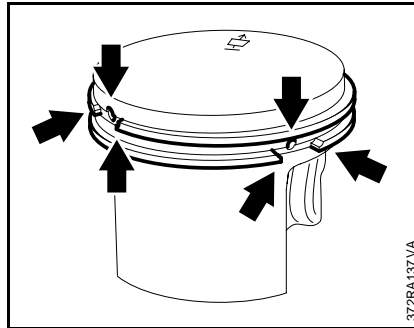
- Use installing tool 5910 890 2210 to fit the snap ring in the piston boss.



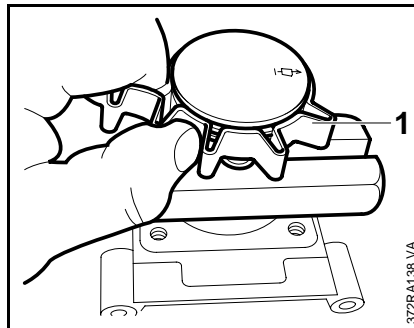
- Check that snap rings are properly seated (the ring gap (see arrow) must be on the piston's vertical axis and point either up or down).



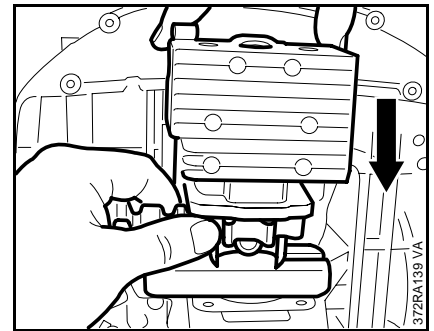
- Fit the cylinder gasket (1). Lubricate piston and piston rings with oil.
- Rest piston on wooden assembly block (2) 1108 893 4800.



- Position the piston rings so that the radii at the ring gap meet at the fixing pin in the piston groove when the rings are compressed.



- Use the clamping strap (1) 0000 893 2600 to compress the rings around the piston. Check correct installed position of rings once again.



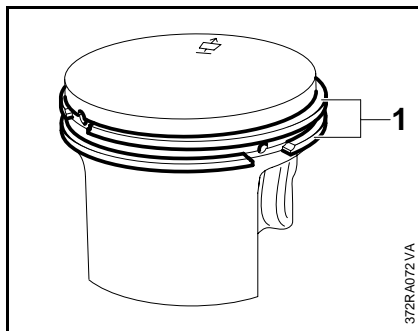
- Lubricate the inside of the cylinder with oil and line it up so that it is positioned as it will be in the installed condition.

There is a risk of piston ring breakage if the cylinder is rotated after it is fitted over the piston.

- Slide the cylinder over the piston. The clamping strap is pushed downward as the piston rings slip into the cylinder.
- Remove the wooden assembly block and clamping strap.
- Carefully line up the cylinder and gasket.
- Fit the cylinder base screws and torque them down firmly in a diagonal pattern (see "Tightening Torques").

Assemble all other parts in the reverse sequence of 5.2.

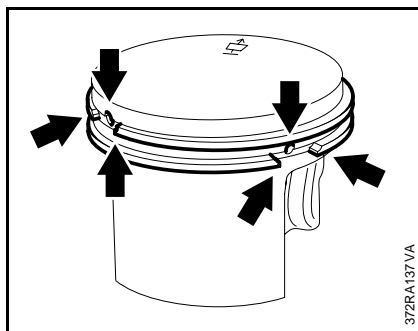
5.4 Piston Rings



- Remove the piston - [see 5.3](#).

The piston must be removed to make sure that no carbon residue can fall into the crankcase when installing the piston rings (1) or cleaning their grooves.

- Remove rings (1) from piston.
- Use a piece of old piston ring to scrape the grooves clean.

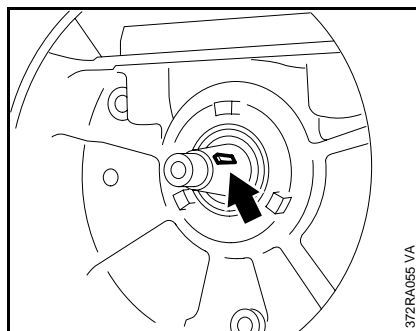


- Install the new piston rings in the grooves so that the radii at the ring gap face the fixing pins.
- Install the piston – [see 5.3](#).

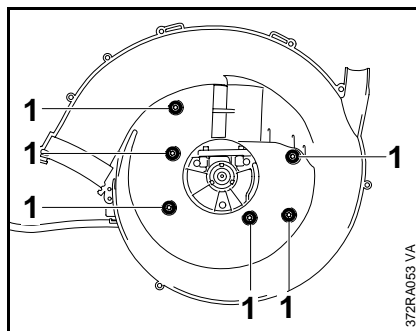
5.5 Crankcase

5.5.1 Removing the Crankshaft

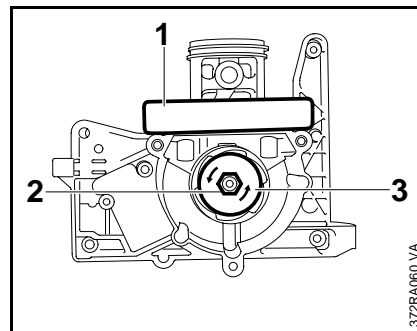
- Disconnect the throttle cable from the powerhead and fan housing – [see 9.1](#).
- Remove the ignition module – [see 6.4.2](#).
- Remove the powerhead with fan housing from the backplate – [see 8.1](#).
- Remove the fanwheel – [see 11.3](#).
- Remove the flywheel – [see 6.5](#).



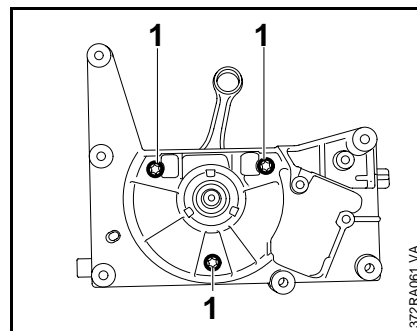
- Take the Woodruff key out of the crankshaft.



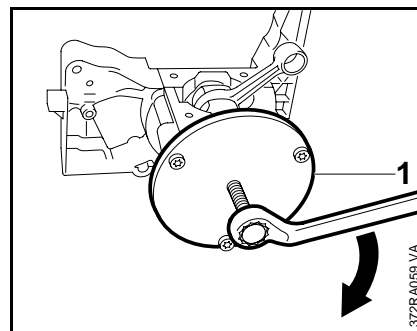
- Take out the screws (1) and lift the powerhead away from the fan housing.
- Remove the cylinder – [see 5.3](#).



- Lock the piston in position with wooden assembly block (1) 1108 893 4800. Unscrew the hexagon nut (2) and pull off the starter cup (3).



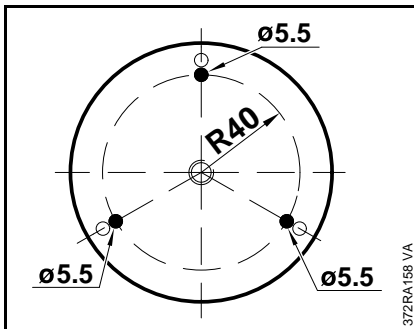
- Remove the piston – [see 5.3](#).
- Take out the screws (1).



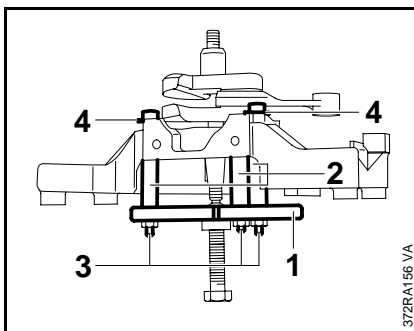
- Mount removing tool (1) 5910 890 4600 to starter side of crankcase with M5x25 screws (rewind starter).

- Rotate the spindle clockwise to press the crankshaft out of the starter side of the crankcase.

The two halves of the crankcase separate during this process.

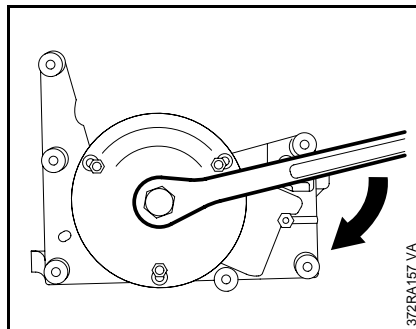


- Drill three additional 5.5 mm diameter holes in the removing tool 5910 890 4600 as shown in the illustration.

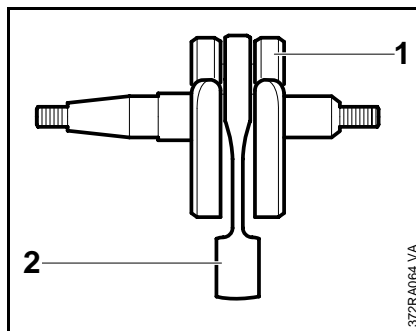


- Mount the modified removing tool (1) 5910 890 4600 to the ignition side of the crankcase with three 45 mm sleeves (2) 1123 851 8300, M5x72 screws (3) 9022 341 1190, washers (4) and nuts.

Fit washers (4) between the screw heads and crankcase to avoid any damage to the sealing face.



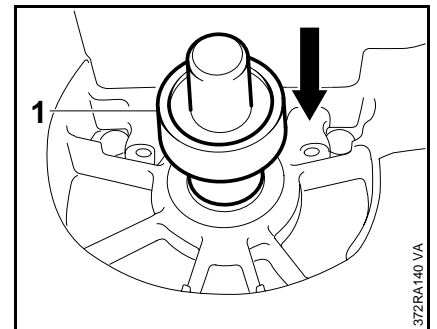
- Rotate the spindle clockwise until the crankshaft is pressed out of the crankcase.



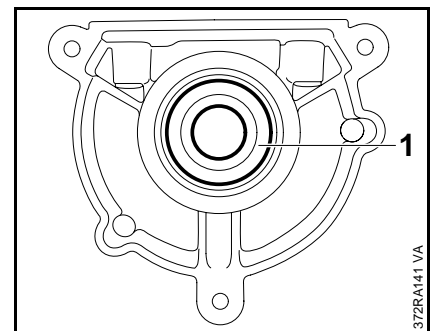
- The crankshaft (1), connecting rod (2) and needle bearing form an inseparable unit. This means that the crankshaft must always be replaced as a complete unit in the event of damage to any one of these parts.

- When fitting a replacement crankshaft, always install new oil seals and ball bearings.

- Remove the gasket from the crankcase sealing face.
- Pry the oil seal out of the ignition side of the crankcase.

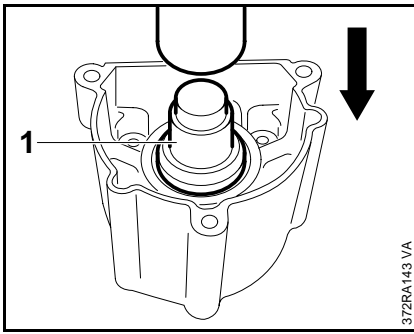


- Use press arbor (1) 1118 893 7200 to press the ball bearing out of its seat in the ignition side of the crankcase.

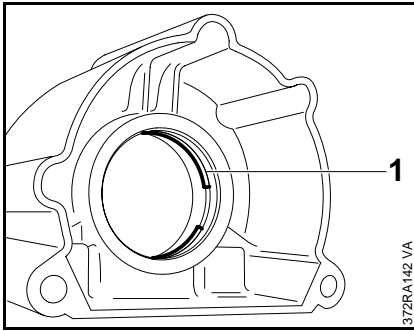


- Pry the oil seal (1) out of the ball bearing (starter side).

5.5.2 Installing the Crankshaft



- Use press arbor (1) 1118 893 7200 to press the ball bearing out of its seat in the starter side of the crankcase.



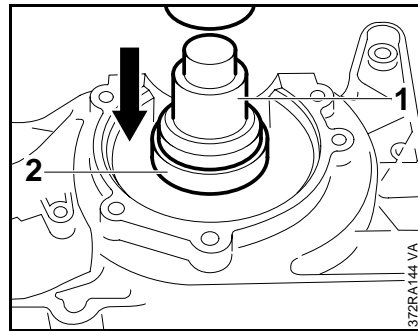
- If necessary, remove the snap ring (1) from the starter side of the crankcase.
- Inspect the crankcase for cracks and replace if necessary (note: a modified crankcase was installed from **I**→2 49 904 357 to take a new ignition module – see also **6.4**).

Always install new gaskets and ball bearings when replacing the crankcase. The crankcase must be replaced as a complete unit even if only one half is damaged.

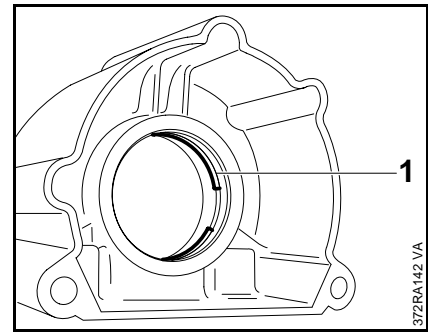
- If the original crankcase is used again, remove all the gasket residue and clean the mating surfaces.

Make sure the mating surfaces are thoroughly clean to ensure a perfect seal.

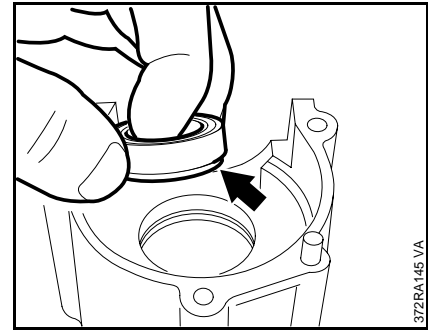
- If you install a new crankcase, stamp the machine's serial number on the crankcase with 2.5 mm figure stamps.
- Check that the two dowel pins are in position in one of the two crankcase halves. If necessary, drive dowel pins into new crankcase.
- Use hot air gun to moderately heat area of ball bearing seat in ignition side of the crankcase.



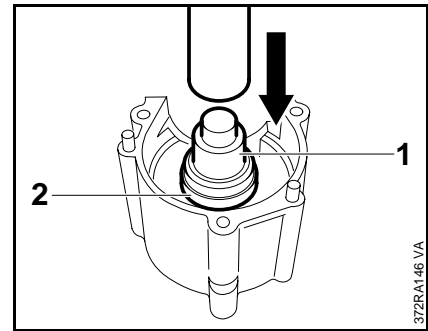
- Fit ball bearing (2) in the ignition side of the crankcase and press it home as far as stop with press arbor (1) 1118 893 7200.



- Install snap ring (1), if it was removed, in groove in the starter side of the crankcase.



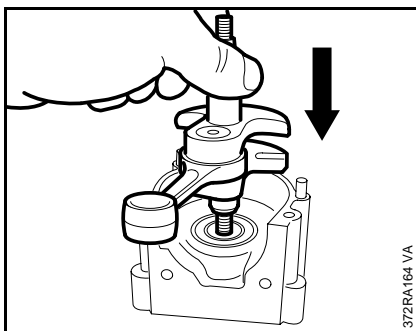
- Heat the starter side of the crankcase moderately and then place the ball bearing in position so that its shoulder (see arrow) faces the snap ring.



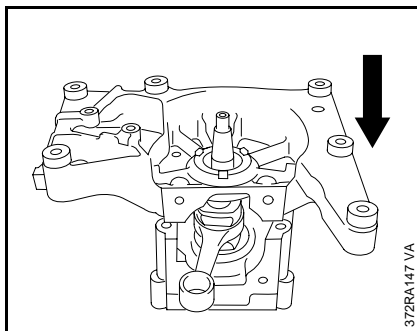
- Use the press arbor (1) 1118 893 7200 to press home the ball bearing (2) until it butts against the snap ring.

Before installing the crankshaft, use a soldering iron with a suitable copper attachment to heat the inner races of the ball bearings to approx. 150°C. This enables the crankshaft to be fitted in the bearings without special tools, even if tolerances are unfavorable.

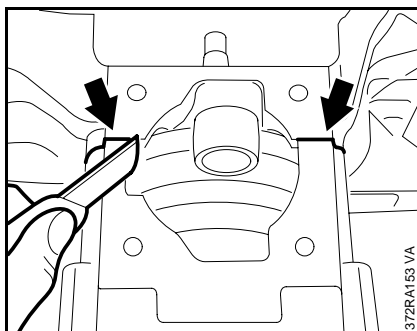
- Heat inner race of ball bearing at starter side to about 150°C.



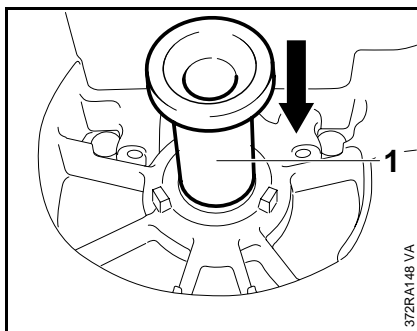
- Push the short stub of the crankshaft quickly into the ball bearing at the starter side.
- Fit new gasket (crankcase mating face).
- Heat inner race of ball bearing at ignition side to about 150°C.



- Quickly slip the ignition side of the crankcase over the crankshaft.
- Fit screws and tighten them down firmly (see "Tightening Torques").



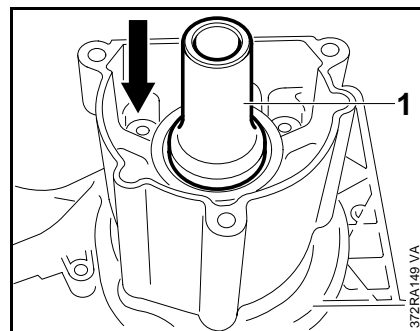
- Trim away any excess gasket material.
- Coat sealing lips or new oil seals with lubricating grease – see 13.



- Slip the oil seal over the crankshaft stub at the ignition side, open side must face crankcase.

- Use the press sleeve (1) 1113 893 4600 to press home the oil seal until it is flush with the crankcase.

- Carefully push the oil seal over the starter end of the crankshaft (open side of oil seal facing the crankcase).



- Use the press sleeve (1) 1113 893 4600 to press the oil seal flush into the ball bearing.

Assembly of the remaining parts is a reversal of the disassembly sequence. Observe tightening torques (see "Tightening Torques").

Defective oil seals and gaskets or cracks in castings are the usual causes of leaks. Such faults allow supplementary air to enter the engine and thus upset the fuel-air mixture.

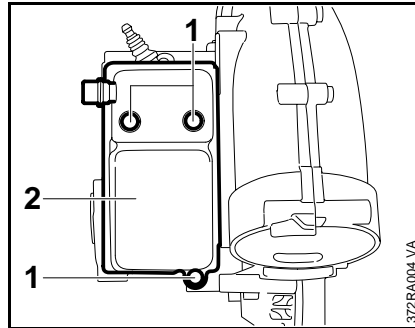
This makes adjustment of the prescribed idle speed difficult, if not impossible.

Moreover, the transition from idle speed to part or full throttle is not smooth.

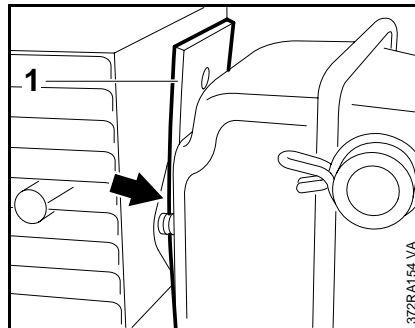
The crankcase can be checked thoroughly for leaks with the carburetor and crankcase tester 1106 850 2905 and the vacuum pump 0000 850 3501.

Preparations

- Remove the rewind starter and shroud – [see 5.1](#).
- Check that spark plug is properly tightened.



- Loosen mounting screws (1) on muffler (2) half way.



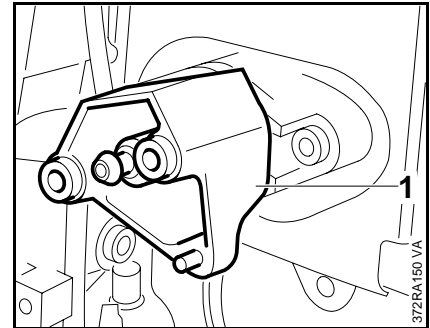
- Fit sealing plate 0000 855 8106, from above and narrow end first, between the muffler and cylinder exhaust port.

Note:

The sealing plate must completely fill the space between the screws.

Make sure the sealing plate is pushed right down.

- Retighten the mounting screws moderately.
- Remove the carburetor – [see 10.3](#).
- Set the piston to top dead center (T.D.C.). This can be checked through the inlet port.



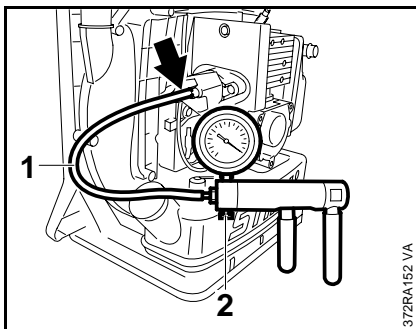
- Fit test flange (1) 1118 850 4200 in place of carburetor.

The gasket must be fitted between the test flange (1) and the spacer flange.

Vacuum Test

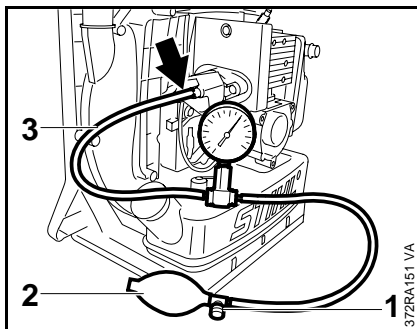
Oil seals tend to fail when subjected to a vacuum, i.e. the sealing lip lifts away from the crankshaft during the piston's induction stroke because there is no internal counterpressure. An additional test can be carried out with vacuum pump 0000 850 3501 to detect this kind of fault.

5.6.2 Pressure Test



- Connect suction hose (1) of vacuum pump 0000 850 3501 to nipple of test flange (see arrow).
- Close the vent screw (2) on the pump.
- Operate lever on pump until pressure gauge indicates a vacuum of 0.5 bar.

If the vacuum reading remains constant, or rises to no more than 0.3 bar within 20 seconds, it can be assumed that the oil seals are in good condition. However, if the pressure continues to rise (reduced vacuum in the crankcase), the oil seals must be replaced, even if no leaks were detected in the pressure test.



- Carry out the same preparations as for the vacuum test – [see 5.6.1](#).
- Connect pressure hose (3) of tester 1106 850 2905 to nipple on test flange (see arrow).
- Close vent screw (1) on rubber bulb (2).
- Pump air into the crankcase with rubber bulb until the gauge indicates a pressure of 0.5 bar. If this pressure remains constant for at least 20 seconds, the crankcase is airtight.
- However, if the pressure drops, the leak must be located and the faulty part replaced.
- Then repeat the pressure test.

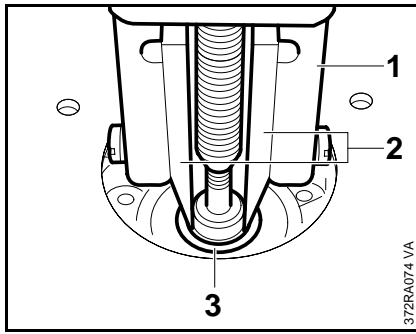
To find the leak, coat the suspect area with oil and pressurize the crankcase. Bubbles will appear if a leak exists.

- Open the vent screw and disconnect the hose.
- A pressure test must always be followed by a vacuum test – [see 5.6.1](#).
- If you have carried out repairs, repeat the pressure tests.
- Take out the muffler mounting screws and remove the sealing plate.

- Mount the muffler, [see 5.1](#), coat the mounting screws with Loctite, [see 13](#), and tighten down firmly (see "Tightening Torques").

- Remove the test flange.

Reassemble all other parts by reversing the disassembly sequence. Check tightening torques (see "Tightening Torques").



Oil Seal at Starter Side

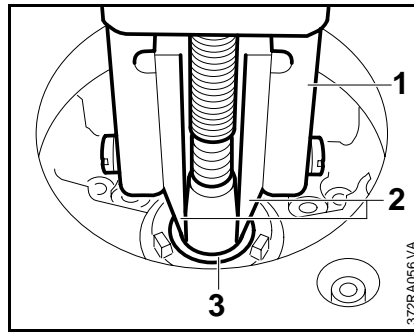
It is not necessary to disassemble the complete crankcase to replace the oil seal.

- Remove the rewind starter – see 5.1.
- Remove the starter cup – see 7.8.
- Apply universal oil seal puller (1) 5910 890 4400 with No. 3.1 jaws (2) 0000 893 3706 and pull out the oil seal (3).

When using the puller, make sure it does not damage the crankshaft, especially in the area of the oil seal.

- Install the oil seal as described under 5.5.2.

Reassemble all other parts by reversing the disassembly sequence. Check tightening torques (see "Tightening Torques").



Oil Seal at Ignition Side

It is not necessary to disassemble the complete crankcase to replace the oil seal.

- Remove the fanwheel – see 11.3.
- Remove the flywheel – see 6.5.
- Apply universal oil seal puller (1) 5910 890 4400 with No. 3.1 jaws (2) 0000 893 3706 and pull out the oil seal (3).

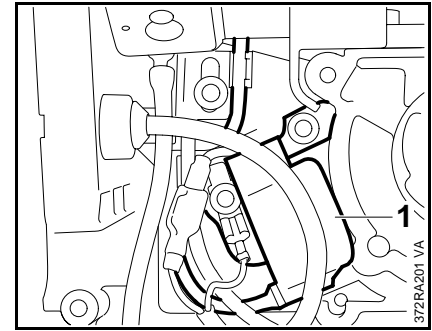
When using the puller, make sure it does not damage the crankshaft, especially in the area of the oil seal.

- Install the oil seal as described under 5.5.2.

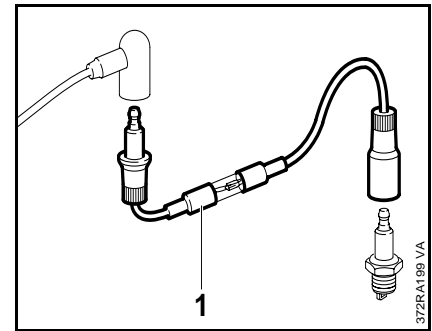
Reassemble all other parts by reversing the disassembly sequence. Check tightening torques (see "Tightening Torques").

Exercise extreme caution when carrying out maintenance and repair work on the ignition system. The high voltages which occur can cause serious or even fatal accidents.

Troubleshooting on the ignition system should always begin at the spark plug – see "Ignition System Troubleshooting Chart", 4.2.



The transistorized (breakerless) ignition system consists basically of an ignition module (1) and the flywheel.



Testing the Ignition System

- Install ZAT 4 ignition tester (1) 5910 850 4503 between spark plug and spark plug boot.

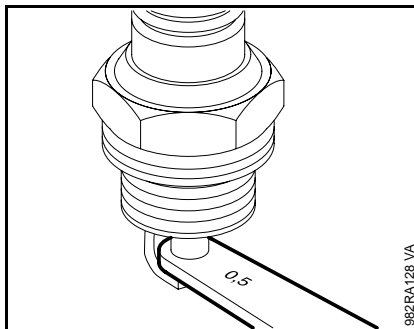
- Move slide control to normal run position.
- Pull the starter rope and observe the glow lamp.

If the glow lamp lights up while you are cranking the engine, the ignition system is supplying sufficient firing voltage.

Warning: The engine may start and accelerate.

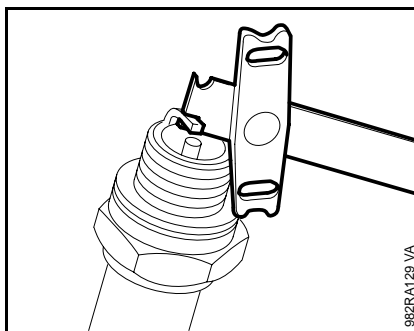
If the glow lamp does not light up when you crank the engine, it indicates a fault in either the ignition system or the wiring.

In the event of starting difficulties, low engine power or problems with idling, unscrew the spark plug and check that it is the approved type. Only the spark plugs listed in the specifications may be used. Other makes of spark plug are unsuitable because they have long-reach electrodes, different heat ranges and no screening.



Electrode Gap

- As the electrode gap widens as a result of normal erosion, check it with a feeler gauge at regular intervals. It should be 0.5 mm (0.02").



- Bend the ground electrode as necessary.

Always fit a new spark plug if the electrodes are badly eroded.

- To avoid possible sources of faults, fit a new spark plug if the

appearance of the insulator nose deviates from normal (i.e. grayish yellow to brown, dry) and rectify the cause of spark plug contamination.

Appearance of insulator nose and possible causes:

Normal:

Grayish yellow to brown, dry.
Cause: Engine in order; correct spark plug (heat range as specified).

Sooted:

Velvet-like, dull black coating of soot.

Cause: Mixture too rich, lack of air (dirty air filter, choke shutter partly closed);
Electrode gap too wide;
wrong spark plug (heat range too high).

Smeared with oil:

Coating of damp oil carbon and soot.

Cause: Too much oil in fuel mix.

Overheated:

Welding beads on insulator nose, pitted electrodes.

Cause: Mixture too lean, spark plug loose, wrong spark plug (heat range too low).

Checking the Spark Plug

Accurate checking of the spark plug is only possible with a special spark plug tester.

The firing voltage can be checked with the aid of the ZAT 4 ignition tester (1) 5910 850 4503 – [see 6](#).

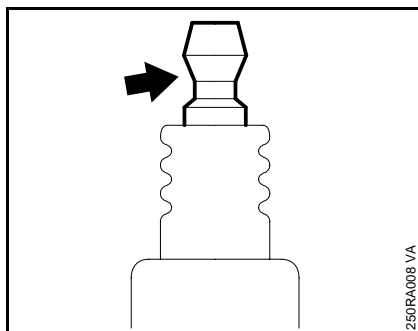
Do not touch any live parts during the test. Contact with high voltage can cause serious or even fatal accidents.

It is recommended that a new spark plug be fitted in all cases of doubt.

Chafed insulation on the ignition lead or short circuit wire will cause a short-circuit to ground. In such a

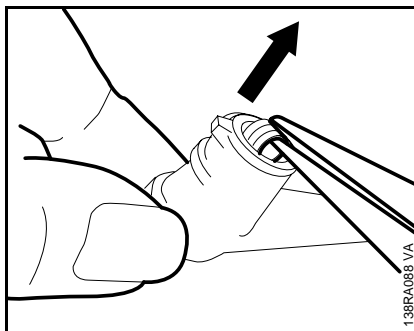
6.2 Spark Plug Boot

case the engine will either not start or only run erratically.

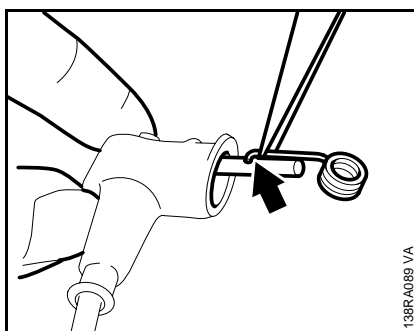


Installing the Spark Plug

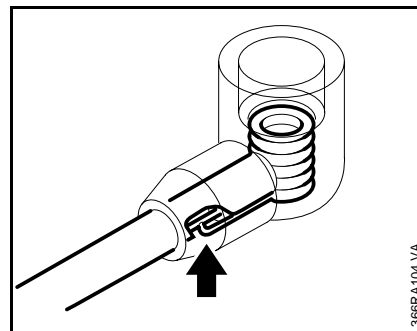
- If the spark plug comes with a separate terminal nut, always fit the nut on the thread and tighten it down firmly.
- Inspect the sealing ring on the spark plug to make sure it is in good condition. Install a new spark if the sealing ring is damaged.
- Fit the clean spark plug and tighten it down firmly (see "Tightening Torques").



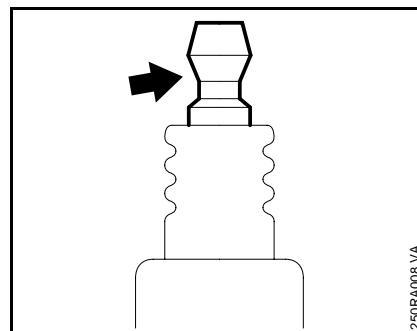
- Use a suitable pair of pliers to grip the leg spring and pull it out of the spark plug boot.
- Unhook the leg spring from the ignition lead.
- Slip the spark plug boot off the ignition lead.
- Coat the end of the ignition lead (about 20 mm) with oil.
- Fit spark plug boot over the lead.
- Use a suitable pair of pliers to grip the end of the ignition lead inside the spark plug boot and pull it out.



- Pinch the hook of the leg spring into the center of the lead, i.e. about 10 mm from the end of the lead.

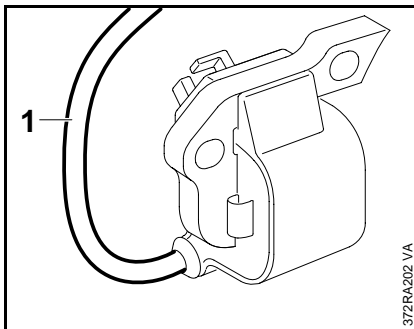


- Pull the lead back into the boot so that the leg spring locates properly inside it.

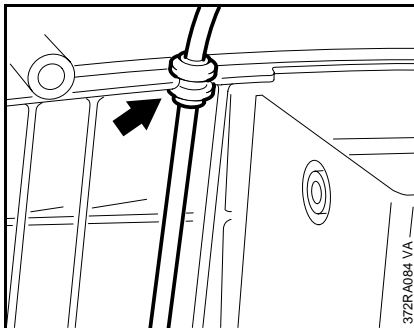


- If the spark plug comes with a separate terminal nut, always fit the nut on the thread and tighten it down firmly.
- Fit boot on the spark plug and press it down firmly.

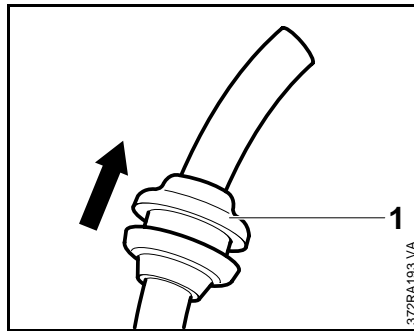
- Remove the ignition module – see 6.4.
- Remove the spark plug boot – see 6.2.



As the ignition lead (1) is permanently connected to the ignition module, a new module must be installed if there is a fault on the ignition lead.

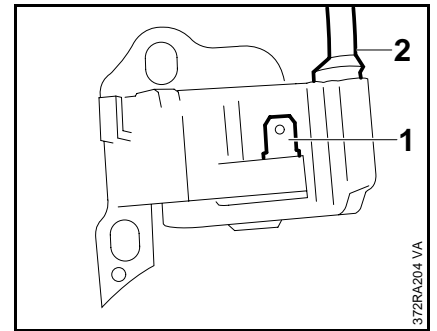


- Remove the ignition lead with rubber grommet from the retainer on the blower housing.



- Pull the rubber grommet (1) off the ignition lead.

Install in the reverse sequence.



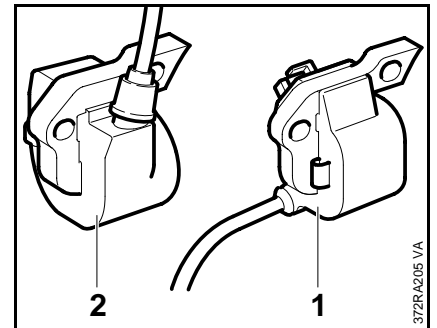
Electrical components/connections on ignition module:

1. High voltage output (2)
2. Connector tag (1) for short-circuit wire

The ignition module accommodates all the components required to control ignition timing.

Accurate testing of the ignition module is only possible with special test equipment. For this reason it is only necessary to carry out a spark test in the workshop.

A new ignition module must be installed if no ignition spark is obtained (after checking that wiring and stop switch are in good condition).



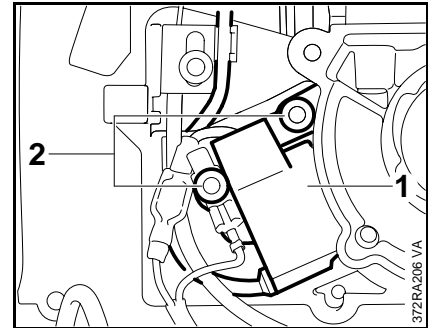
- New version of module (1) from machine serial number **➔ 2 49 904 357** can be installed only in modified crankcase.
- Previous version of module (2) can be installed only in crankcase 4203 020 2105.

- If the crankcase 4203 020 2105 has to be replaced, a new ignition module must be installed, too.

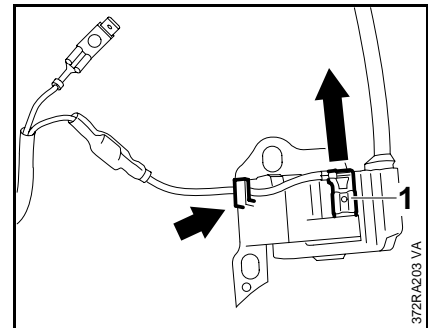
Ignition timing is **not adjustable**.

There is virtually no mechanical wear in these systems unless the Woodruff key is not properly seated (dirty flywheel slot). Ignition timing cannot get out of adjustment due to wear in normal operation. However, an internal fault in the circuit can alter the switching point in such a way that a spark test will still show the system to be in order although timing is outside the permissible tolerance. This will impair engine starting and running behavior.

- Remove the rewind starter and shroud – **see 5.1**.
- It is advisable to remove the air filter and carburetor, **see 10.3**, for better access to the ignition module.

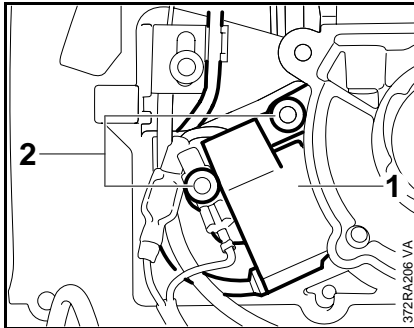


- Take out the screws (2) and pull the ignition module (1) out of the powerhead.

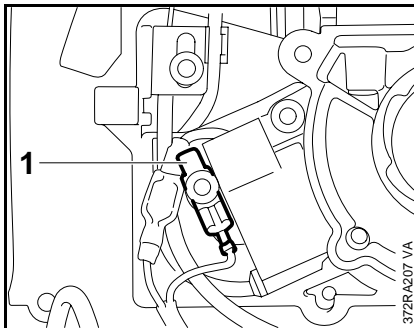


- Pull short circuit wire's flag connector (1) off the ignition module and remove wire from retainer (left arrow).
- Transfer spark plug boot and rubber grommet to new ignition module.

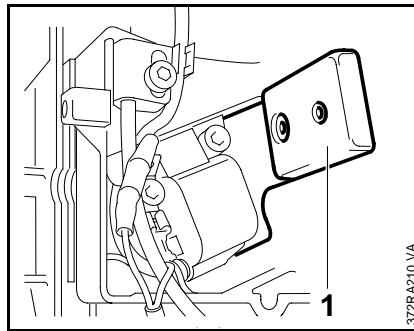
- To install ignition module, attach short circuit wire's flag connector to the tag on the ignition module.



- Place the ignition module (1) in position in the powerhead.
- Insert new micro-encapsulated mounting screws (2) but do not tighten them down yet.



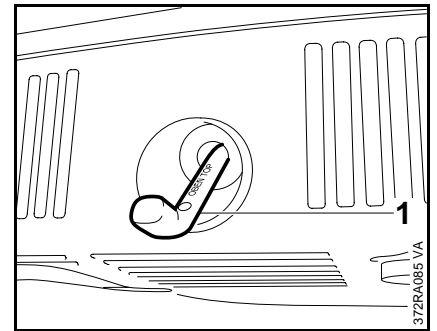
- Secure the ground wire connector (1) with the outer mounting screw.



- Turn the flywheel until the magnet poles are between the two arms of the ignition module.

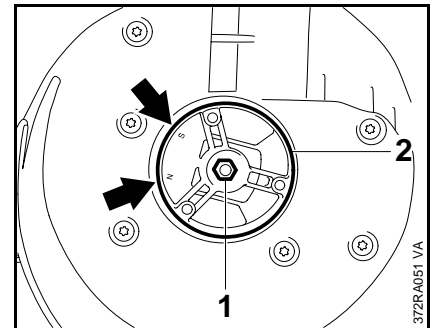
- Slide the setting gauge (1) 4118 890 6400 between the arms of the ignition module and the flywheel magnet poles.
- Press the ignition module against the setting gauge and tighten down the screws firmly (see "Tightening Torques").
- Remove the setting gauge.

Reassemble all other parts in the reverse sequence.

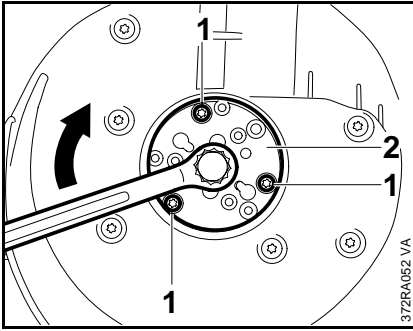


Removing

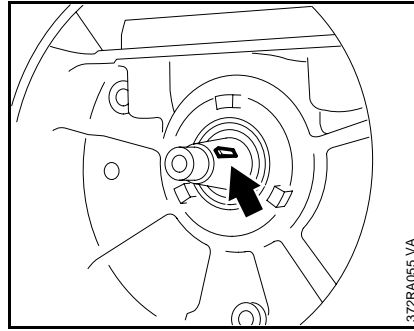
- Pull boot off the spark plug. Unscrew the spark plug.
 - To block the piston, push locking strip (1) 0000 893 5903 into the spark plug hole (words "OBEN-TOP" must face up).
- Use only the specified locking strip to avoid any risk of damaging the piston.
- Remove the fanwheel – see 11.3.



- Rotate the flywheel (2) until magnet poles are opposite the ignition module.
- Unscrew the hexagon nut (1) from the crankshaft.



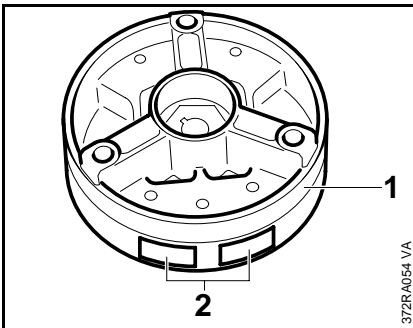
- Use the fanwheel mounting screws (1) to attach puller (2) 4119 890 4501 to the flywheel.
- Turn the spindle clockwise to pull the flywheel off the crankshaft.



Installing

- Check that Woodruff key is properly seated.
- Clean the stub of the crankshaft and the flywheel hub bore with a standard commercial, solvent-based degreasant that contains no chlorinated or halogenated hydrocarbons – [see 13](#).
- Fit the flywheel in position.
- Fit hexagon nut and tighten down firmly (see "Tightening Torques").

Reassemble all other parts by reversing the disassembly sequence. Check tightening torques (see "Tightening Torques").



Inspect the flywheel (1) and magnet poles (2) for any signs or cracks or other damage. If any damage is found, install a new flywheel.

Troubleshooting chart – [see 4.3](#).

If the action of the starter rope becomes very stiff and the rope rewinds very slowly or not completely, it can be assumed that the starter mechanism is in order but plugged with dirt. At very low outside temperatures the lubricating oil on the rewind spring may thicken and cause the spring windings to stick together. This has a detrimental effect on the function of the starter mechanism. In such a case it is sufficient to apply a few drops of paraffin (kerosine) to the rewind spring.

Then carefully pull out the starter rope several times and allow it to rewind until its normal smooth action is restored.

If clogged with dirt or pitch, the entire starter mechanism, including the rewind spring, must be removed and disassembled. Take special care when removing the spring.

Wash all parts in paraffin/kerosine or white spirit.

Lubricate the rewind spring and starter post with STIHL special lubricant, [see 13](#), before installing.

7.2 Removing and Installing the Rope Rotor

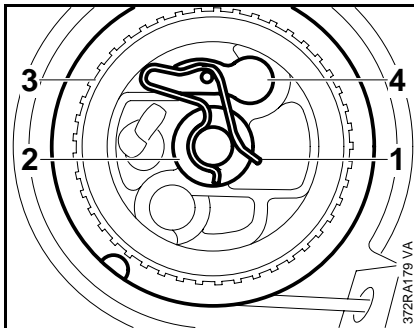
Troubleshooting chart – [see 4.3](#).

- Remove the rewind starter – [see 5.1](#).

Relieving tension on rewind spring

There will be no tension on the rewind spring if the starter rope is broken.

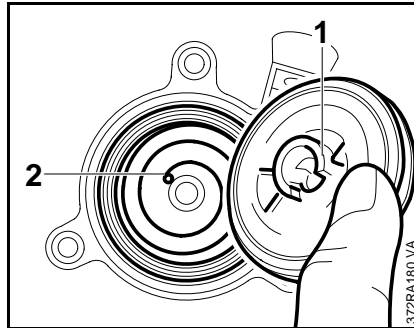
- Pull out the starter rope to a length of about 30 cm and hold the rope rotor steady.
- Engage the starter rope in the notch on the rope rotor and make a loop in the rope.
- Use the starter rope to turn the rotor clockwise until spring tension is relieved.



Removing

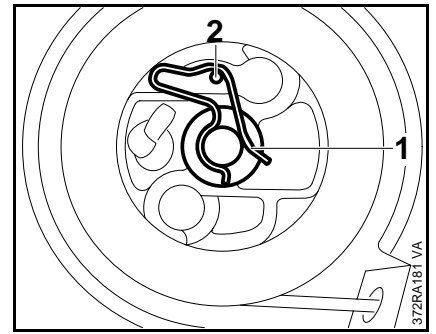
- Ease the spring clip (1) off the starter post.
- Remove the washer (2) and rope rotor (3) with pawl (4).

- Replace the broken or worn starter rope – [see 7.3](#).



Installing

- Coat bore in rope rotor with STIHL special lubricant.
- Fit the rope rotor on the starter post so that its hub (1) engages behind the inner spring loop (2).
- Check that spring loop has engaged by turning the rope rotor a little and letting it go – it must spring back.

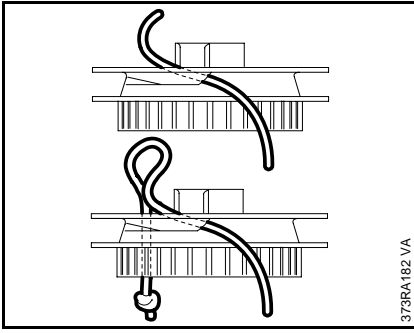


- Install pawl with graphite grease – [see 13](#).
- Fit the washer and press the spring clip (1) into the slot in the starter post.
- Make sure the spring clip (1) engages on the pawl guide peg (2) and points it in the counterclockwise direction.

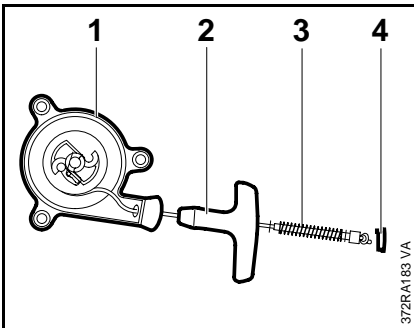
Handle the spring clip very carefully. If it is bent, the rewind starter may not operate properly.

- Tension the rewind spring – [see 7.5](#).

7.3 Replacing the Starter Rope



- Remove the rope rotor – **see 7.2.**
- Ease cap out of the ElastoStart grip. Remove the remaining rope from the ElastoStart grip and the rope rotor.
- Thread the new starter rope through the rope rotor and secure it with a simple overhand knot.
- Pull the rope back until the knot locates in the rotor.
- Install the rope rotor – **see 7.2.**

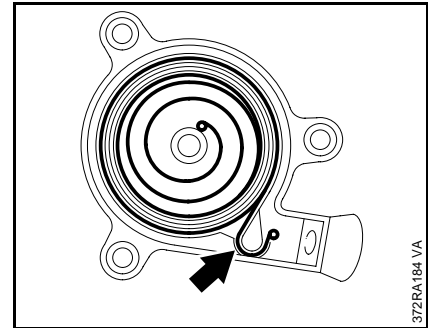


- Thread the other end of the rope through the guide bush from inside the starter cover (1), through the grip (2) and spring damper (3) and secure with a simple overhand knot.

7.4 Replacing the Rewind Spring

- Remove the rope rotor – **see 7.2.**
- Take the spring housing together with rewind spring out of the starter cover.
- Remove any remaining pieces of rewind spring from the starter cover.

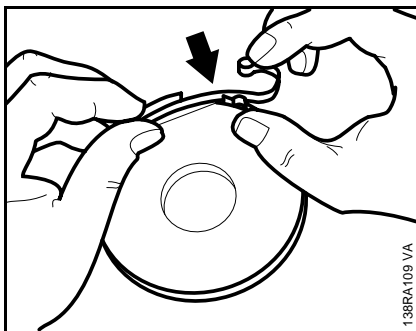
The replacement spring comes with spring housing ready for installation.



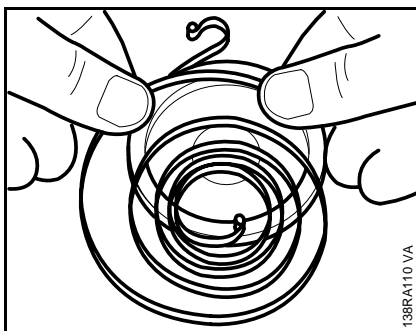
- Lubricate die rewind spring with STIHL special lubricant and place it together with the spring housing (bottom facing down) in the starter cover.
- Press the outer spring loop into the recess in the starter cover (see arrow).

The rewind spring may pop out and uncoil during installation. If it has popped out, refit it in the spring housing as follows:

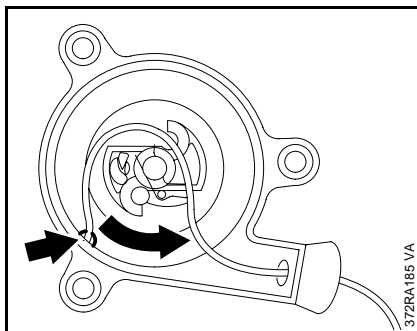
7.5 Tensioning the Rewind Spring



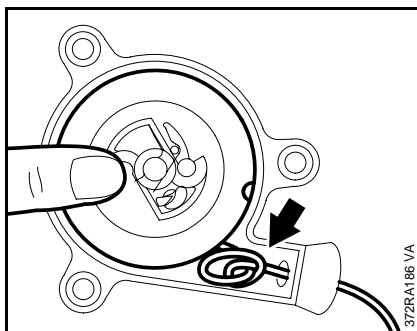
- Position the outer spring loop about 20 mm from the edge of the spring housing.



- Refit the rewind spring in the spring housing in the counterclockwise direction, starting from the outside and working inwards.
- Lubricate the rewind spring with STIHL special lubricant and place it together with the spring housing (bottom facing down) in the starter cover.
- Press the outer spring loop into the recess in the starter cover (see arrow).
- Install the rope rotor – [see 7.2](#).
- Tension the rewind spring – [see 7.5](#).



- Make a loop in the rope between the guide bush and rope rotor.
- Grip the rope close to the notch (arrow) and use it to turn the rotor about six turns counterclockwise.
- Hold the rope rotor steady.



- Pull out the rope with the starter grip and straighten it out.
- Hold the starter grip firmly to keep the rope tensioned.

- Let go of the rope rotor and slowly guide the starter grip back so the starter rope can rewind properly.

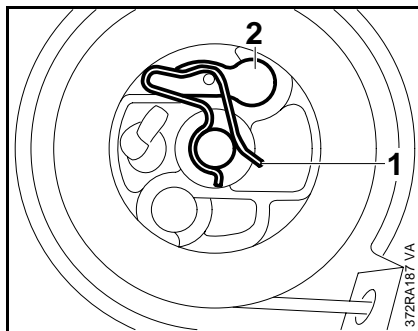
The rewind spring is correctly tensioned when the starter grip sits firmly in the rope guide bush without drooping to one side. If this is not the case, tension the spring by one additional turn.

When the starter rope is fully extended, it must still be possible to rotate the rope rotor at least another half turn before maximum spring tension is reached. If this is not the case, pull the rope out, hold the rope rotor steady and take off one turn of the rope.

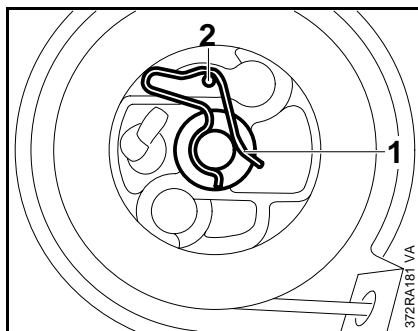
Do not overtension the rewind spring as this will cause it to break.

- Install the rewind starter – [see 5.1](#).

7.6 Replacing the Pawl



- Remove the rewind starter – [see 5.1](#).
- Ease the spring clip (1) off the starter post and pull the pawl (2) out of the rope rotor.



Do not take the rope rotor off the starter post.

- Install new pawl with graphite grease – [see 13](#).
- Press the spring clip (1) into the slot in the starter post.
- Make sure the spring clip (1) engages on the pawl guide peg (2) and points it in the counterclockwise direction.

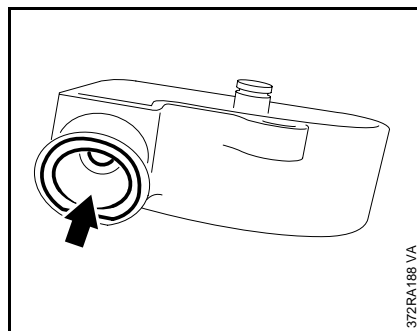
Handle the spring clip very carefully. If it is bent, the rewind starter may not operate properly.

- Install the rewind starter – [see 5.1](#).

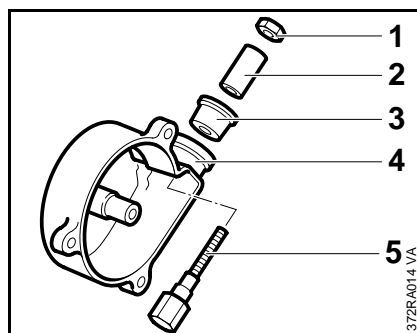
7.7 Replacing the Rope Guide Bush

The wear on the guide bush is accelerated by the starter rope being pulled sideways. The wall of the guide bush eventually wears through, becomes loose and has to be replaced.

- Remove the rope rotor – [see 7.2](#).
- Remove knot from rope rotor, undo it and pull rope out of rotor and guide bush.

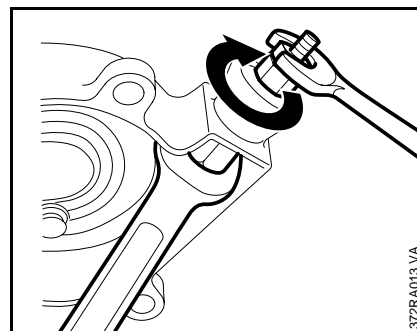


- Use a suitable tool to pry the damaged bush out of the starter cover and place the new bush in position.



- Insert the screw spindle (5) of the installing tool 0000 890 2201 through the bush (3) from inside the starter cover (4).

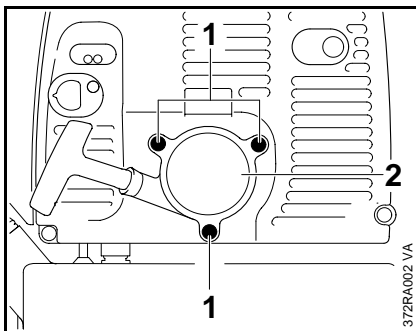
- Fit the thrust sleeve (2), tapered end first, and screw on the hexagon nut (1).



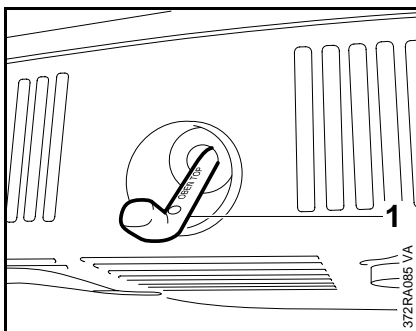
- Tighten down the hexagon nut until the bush is firmly seated.

The installing tool flares the lower end of the guide bush.

- Remove the installing tool.
- Thread the starter rope, from outside, through the bush and secure it to the rope rotor – [see 7.3](#).
- Install the rewind starter – [see 5.1](#).

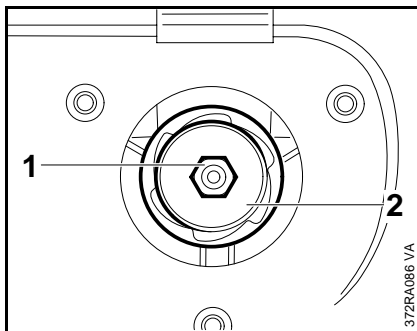


- Take out the screws (1).
- Remove the rewind starter (2).



- Pull the boot off the spark plug.
- Unscrew the spark plug.
- To block the piston, push locking strip (1) 0000 893 5903 into the spark plug hole (words "OBEN-TOP" must face up).

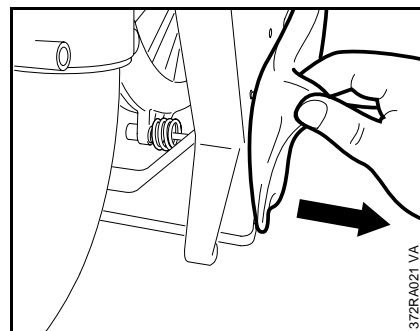
Use only the specified locking strip to avoid any risk of damaging the piston.



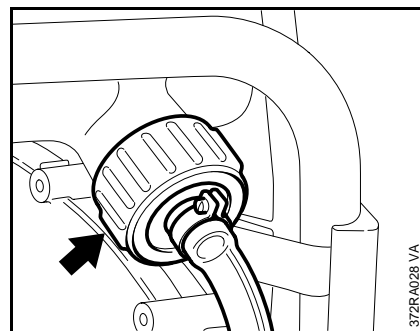
- Unscrew the hexagon nut (1).
- Pull off the starter cup (2).

Reassemble in the reverse sequence. Check the tightening torques (see "Tightening Torques").

Anti-vibration elements are installed between the fan housing/ powerhead and backplate to absorb vibrations. Damaged AV elements must always be replaced.



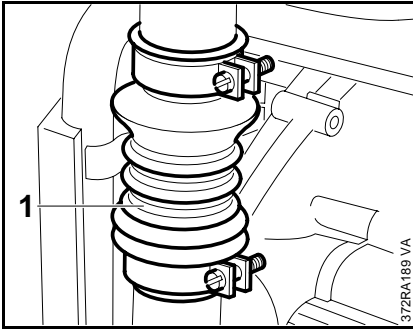
- Pull the press studs out of the backplate and remove the back padding.



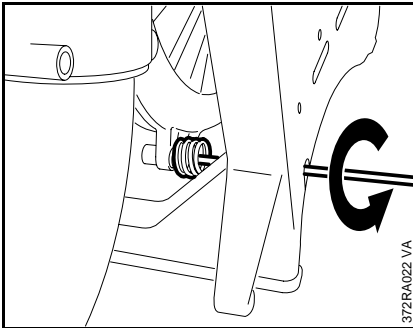
- On models SR 340/SR 420, completely empty the spray container. Unscrew the union nut and hose from the container.

9 Throttle Control

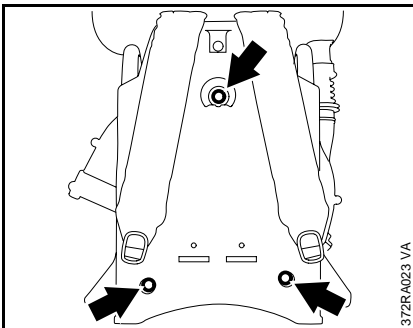
9.1 Replacing the Throttle Cable



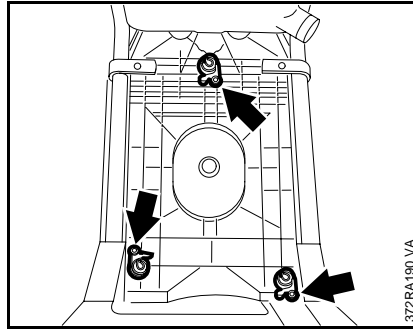
- On models SR 340/SR 420, unscrew the hose clamp and pull the bellows (1) off the container stub.



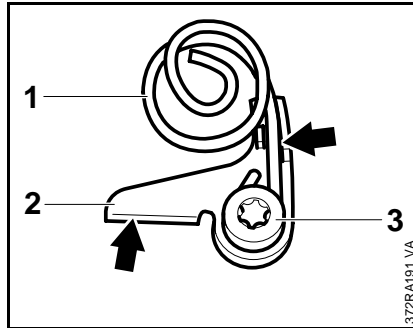
- Remove the fuel tank – [see 10.8](#).
- Remove fan housing mounting screws from the AV elements.



- Lift the fan housing with the powerhead out of the backplate after removing all three socket head screws (arrows).



- If one of the three AV elements is faulty, replace it as follows:



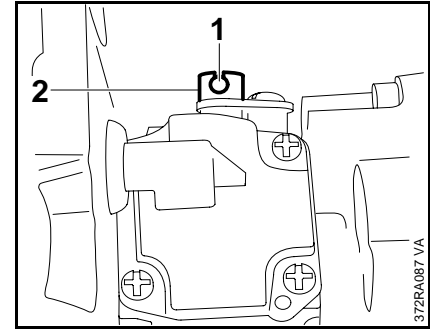
- Take out the screw (3), remove the spring (1) and retaining plate (2).

– Replace faulty parts.

Install in the reverse sequence.

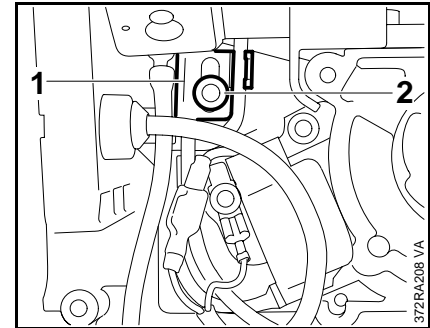
- When installing, check that the spring (1) is properly seated in the retaining plate (2) and the retaining plate locates in the backplate's recess.

Observe tightening torques (see "Tightening Torques").

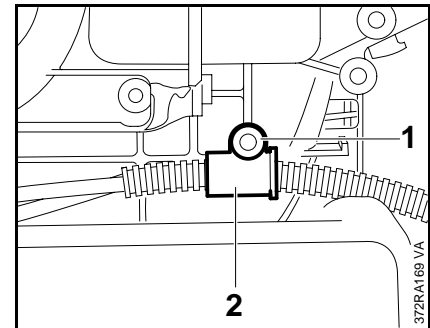


– Remove the cover – [see 5.1](#).

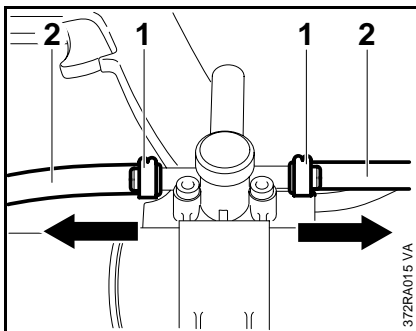
- Disconnect throttle cable (1) from slotted pin (2).



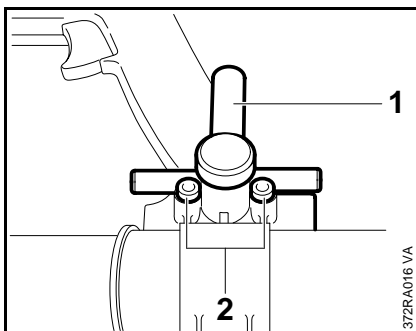
- Take screw (2) out of throttle cable retainer (1).
- Remove the throttle cable retainer (1).



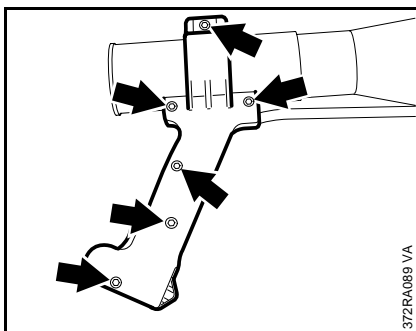
- Take screw (1) out of retainer (2).
- Remove the retainer (2).



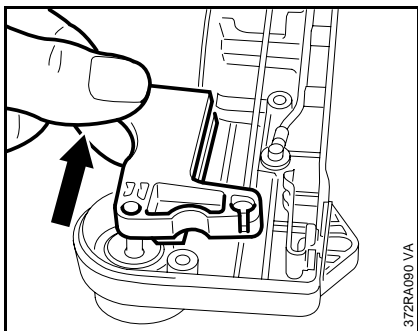
- On models SR 340, SR 420: Loosen the hose clamps (1) and pull them and the hoses (2) off the stubs on the shut-off cock.



- Take out the shut-off cock mounting screws (2).
- Remove the shut-off cock (1).

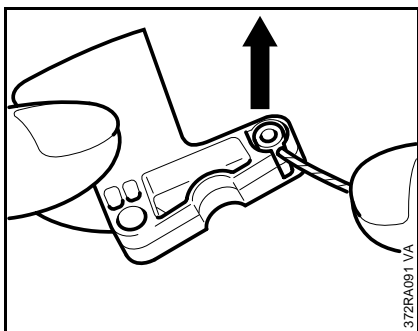


- On all models: Remove the handle molding fastening screws and take the outer handle molding off the inner handle molding.

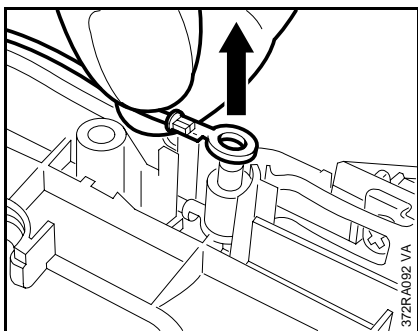


BR/SR 340, BR 340L, BR/SR 420

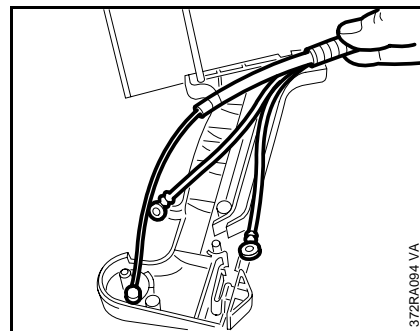
- Pull the throttle trigger off its pivot pin.



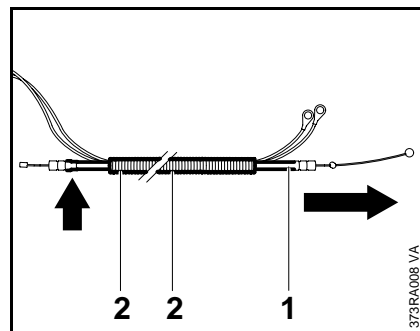
- Take the throttle cable nipple out of the trigger.



- Pull the ground wire, spacer bush and short circuit wire off the peg.

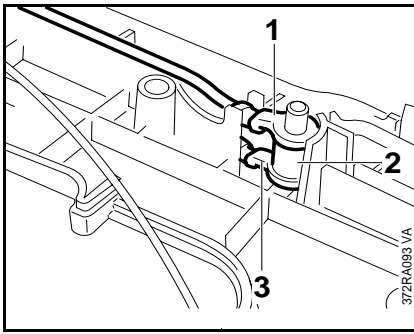


- Take the throttle cable, ground wire and short circuit wire out of the inner handle molding.

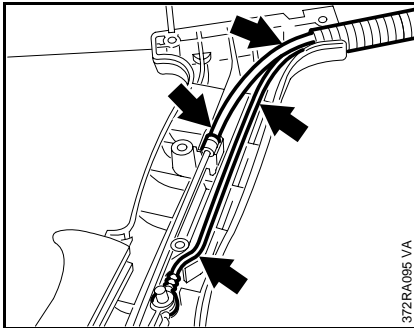


- Wrap insulating tape around the end of the throttle cable (1) (arrow) so that its end sleeve does not damage the electric wires when you pull it out of the hose (2).
- Pull the throttle cable (1) out of the hose (2).

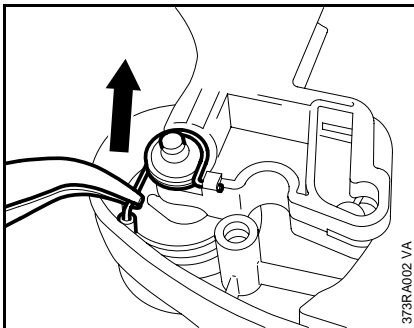
Install in the reverse sequence. Pay special attention to the following points:



- The plastic spacer bush (2) must be fitted between the short circuit wire (3) and ground wire (1).

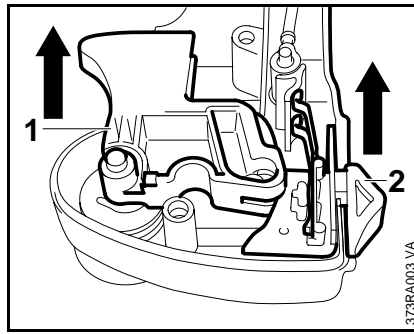


- Make sure the throttle cable, ground wire and short circuit wire are properly positioned in the inner handle molding.

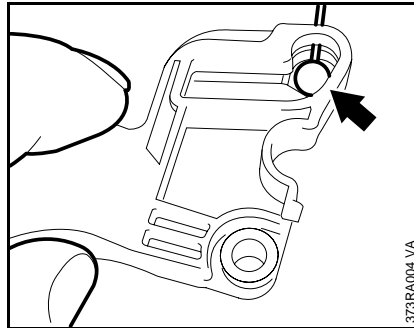


BR 420 C

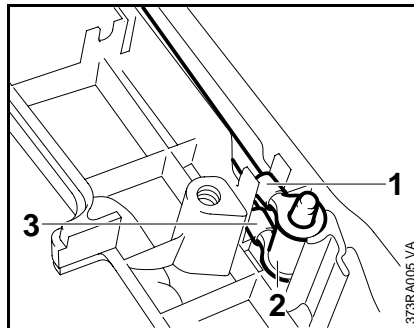
- Remove the torque spring.



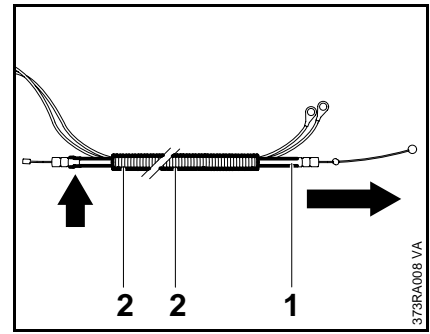
- Pull the throttle trigger (1) and slide control (2) upwards and out of the inner handle molding.



- Disconnect throttle cable nipple from the trigger.



- Pull the short circuit wire (1), spacer bush (2) and ground wire (3) off the peg.

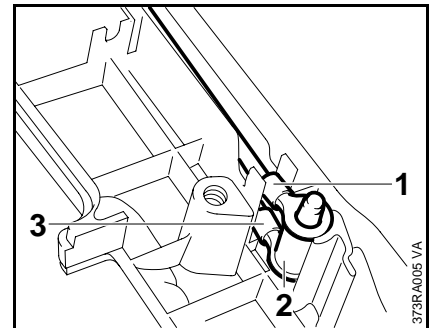


- Take the throttle cable, ground wire and short circuit wire out of the inner handle molding.

- Wrap insulating tape around the end of the throttle cable (1) (arrow) so that its end sleeve does not damage the electric wires when you pull it out of the hose (2).

- Pull the throttle cable (1) out of the hose (2).

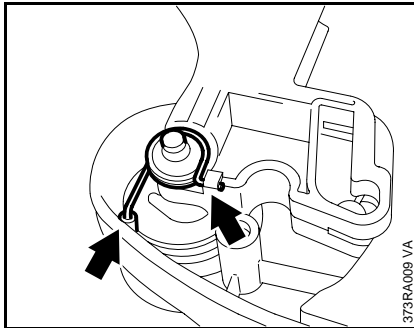
Install in the reverse sequence. Pay special attention to the following points:



- Make sure the throttle cable, ground wire and short circuit wire are properly positioned in the inner handle molding.

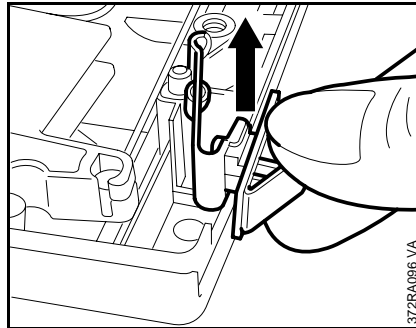
9.2 Contact Spring and Slide Control

- Check that plastic spacer bush (2) is fitted between the short circuit wire (1) and ground wire (3).
- Position slide control with contact spring and throttle trigger in the inner handle molding – **see 9.2.**



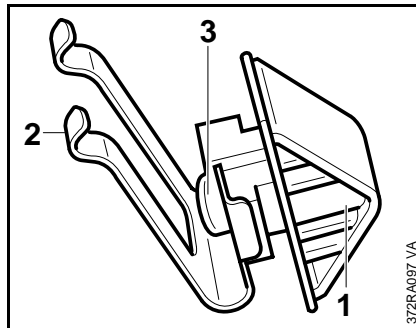
- Check correct position of torque spring.

- Remove the handle molding fastening screws and take the outer handle molding off the inner handle molding – **see 9.1.**



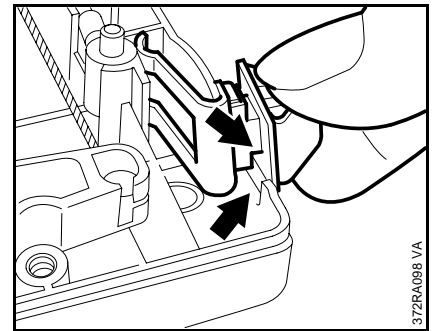
BR/SR 340, BR 340L, BR/SR 420

- Pull the slide control off the inner handle molding.



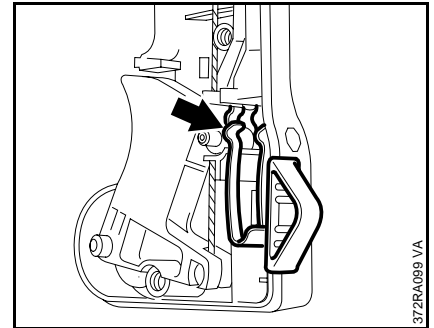
- Take out the screw (3) and remove contact spring (2) from the slide control (1).

Install in the reverse sequence.

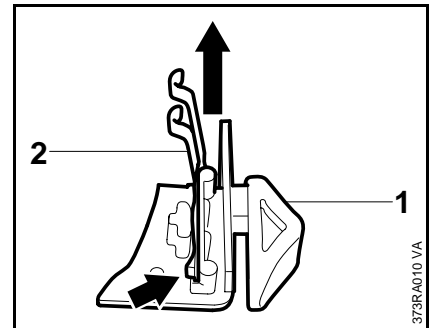


Pay special attention to the following points:

- The slot in the slide control must engage the outer edge of the handle molding.



The arms of the contact spring must touch the ground wire and short circuit wire when the slide control is pushed upwards.

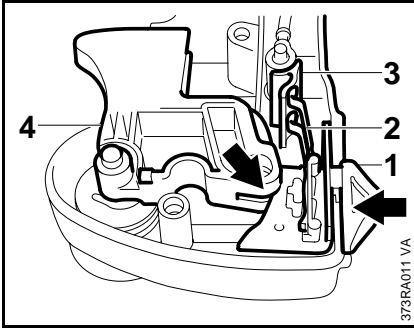


BR 420 C

- Remove the torque spring and pull the throttle trigger and slide control upwards and out – **see 9.1.**

- Lift tabs of contact spring over the lugs (arrow) on the slide control and then pull contact spring (2) out of slide control (1).

Install in the reverse sequence. Pay special attention to the following points:

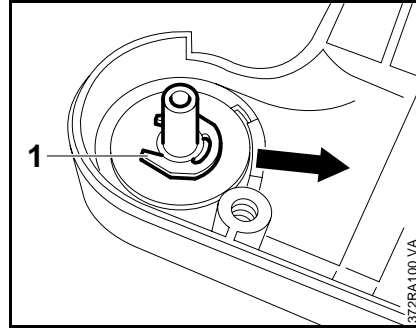


- Place the slide control (1) and throttle trigger (4) (both together) in the inner handle molding, making sure that the slide control (1) locates in the guide on the throttle trigger (4) and the guide in the handle molding.

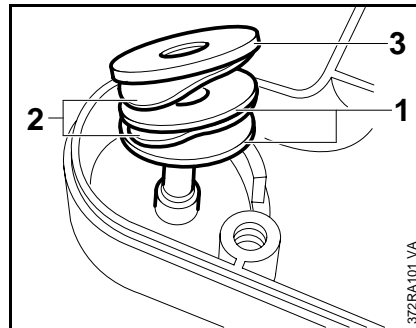
The contact spring (2) must locate in front of the guide (3).

Removing

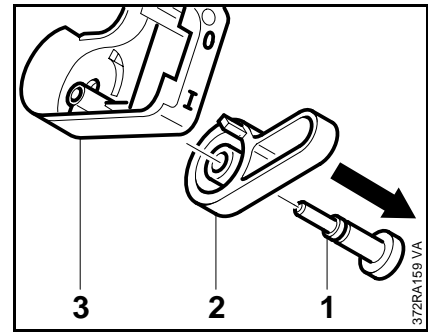
- Remove the outer handle molding – see 9.1.
- Remove the throttle trigger from its pivot pin – see 9.1.



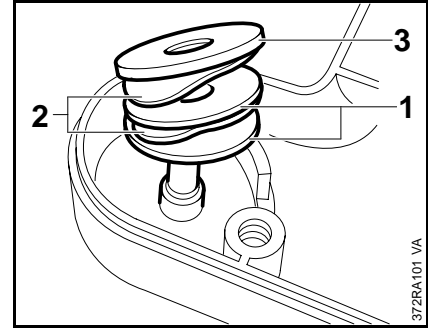
- Ease the E-clip (1) off the pivot pin.



- Remove the plain washers (1, 3) and spring washers (2) from the pivot pin.



- Pull the pin (1) out of the inner handle molding (3) and remove the setting lever (2).

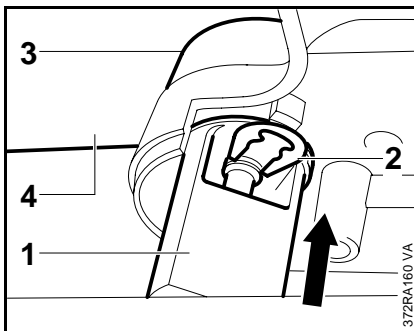


Installing

- Fit the setting lever with pin in the inner handle molding.
- Fit the washer pack, making sure the sequence is as follows:

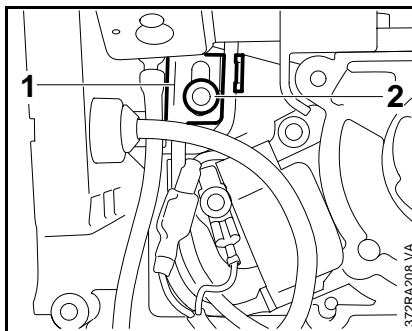
Washer (brass colored) (1)
Spring washer (2)
Washer (silver colored) (3)

9.4 Adjusting the Throttle Cable



- Push the assembly sleeve (1) 4203 893 4600 over the pin.
- Use a vise to compress the washer pack, but put a piece of wood (4) behind the setting lever (3) to avoid it being damaged by the vise jaw.
- Fit the E-clip (2) and take the handle molding with setting lever out of the vise.

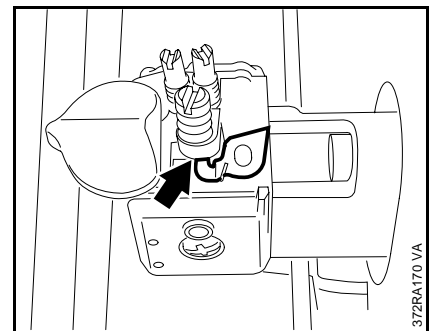
Reassemble all other parts by reversing the disassembly sequence.



- Remove the shroud – [see 5.1](#).

Adjustment is effected by moving the throttle cable retainer (1).

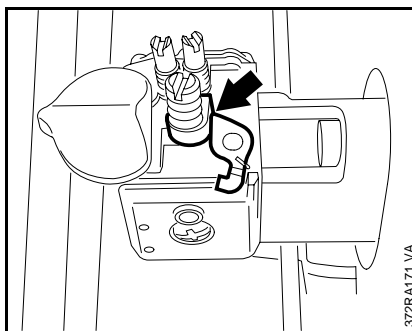
- Loosen the screw (2) on the throttle cable retainer (1) so that the retainer can just be moved.
- Move the throttle cable retainer to adjust the length of the throttle cable as follows.



- The throttle shaft lever must butt against the idle speed screw when the throttle trigger is in the idle position.

Note the adjustment range of the idle speed screw.

- Tighten down the screw on the throttle cable retainer after completing the adjustment.
- Check the adjustment again.
- Install the shroud – [see 5.1](#).



- The throttle shaft lever must butt against the carburetor body when the throttle trigger is squeezed all the way (throttle wide open).

10 Fuel System

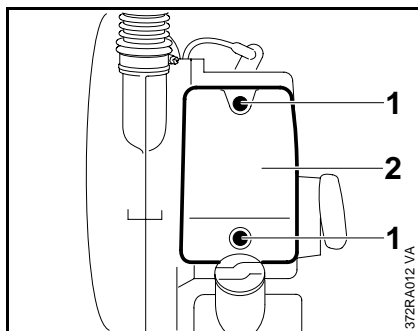
10.1 Air Filter

The air filter's function is to remove dust and dirt sucked in with the combustion air and help reduce wear on engine components. Dirty air filters reduce engine power, increase fuel consumption and make starting more difficult. The air filter must be cleaned or replaced when there is a noticeable loss of engine power.

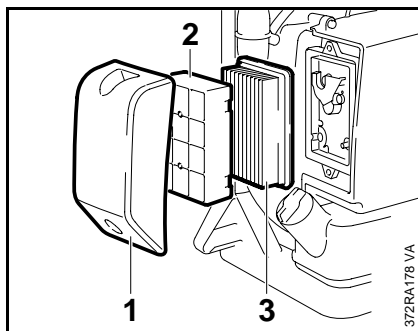
- Knock out the prefilter element on the palm of your hand.
- Knock out the main filter element on the palm of your hand.
- If the main filter is heavily contaminated, install a new one.

In case of doubt, always replace the main filter. Replace damaged parts immediately. Always replace the prefilter along with the main filter.

Reassemble in the reverse sequence.



- Take out the screws (1) and lift away the filter cover (2).



- Remove the main filter (3) and prefilter (2) from the filter cover (1).
- Clean loose dirt from the filter cover and the filter chamber.

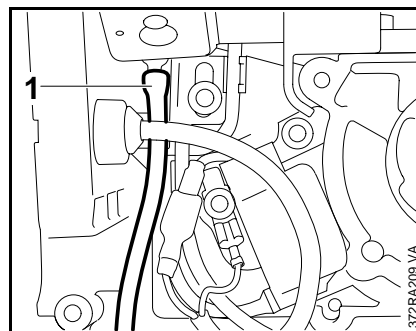
10.2 Leakage Testing the Carburetor

Troubleshooting chart – [see 4.4](#).

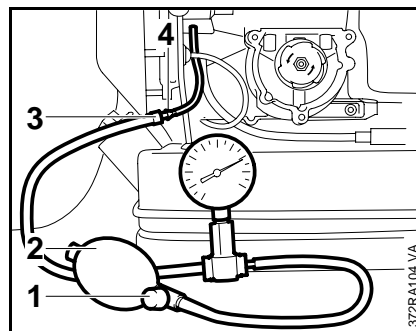
In the event of problems with the carburetor or fuel supply, also check and clean the tank vent – [see 10.6](#).

The carburetor can be tested for leaks with the carburetor and crankcase tester 1106 850 2905.

- Remove the shroud – [see 5.1](#).



- Pull fuel hose (1) off the carburetor's connector.



- Connect the test hose (4) 1110 141 8600 with nipple (3) 0000 855 9200 and tester to the carburetor's connector.
- Close the vent screw (1) on the rubber bulb (2).

10.3 Removing and Installing the Carburetor

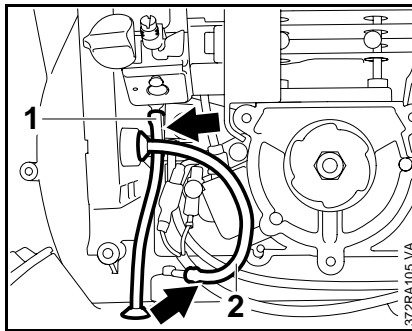
- Pump air into the carburetor until the pressure gauge shows a reading of 0.8 bar.

If this pressure remains constant, the carburetor is airtight. If it drops, there are several possible causes:

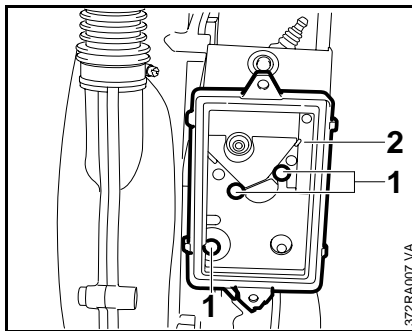
1. The inlet needle is not sealing (foreign matter in valve seat or sealing cone of inlet needle is damaged or inlet control lever sticking).
2. The metering diaphragm is damaged.
3. Seat is damaged – control lever bent.
4. Hole in pump diaphragm (to impulse chamber).

In all these cases the carburetor must be removed and serviced – **see 10.4.**

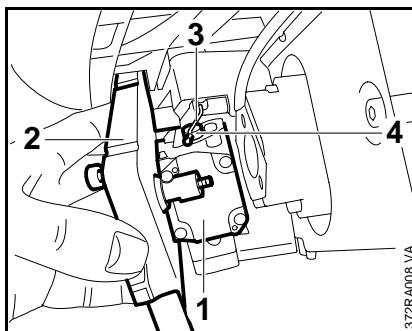
- After completing test, open the vent screw and disconnect the test hose from the carburetor.
- Repeat the leakage test after completing the repair work.
- Refit the hose on the carburetor's stub.



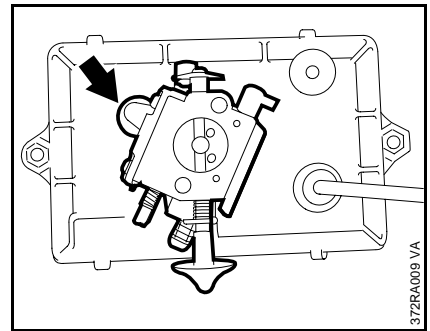
- Remove the shroud – **see 5.1.**
- Disconnect the hoses (1) and (2).



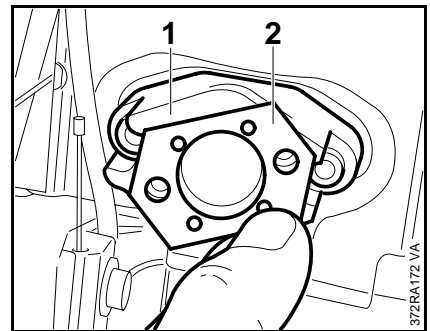
- Remove the air filter - **see 10.1.**
- Loosen the screws (1) on the filter housing (2).



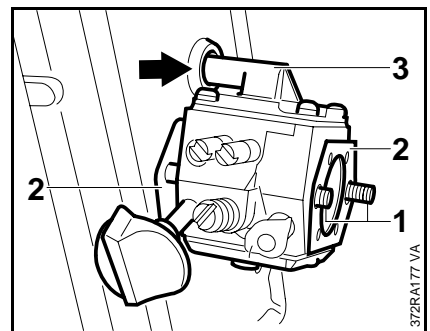
- Take the carburetor (1) with filter housing (2) off the spacer flange.
- Disconnect the throttle cable (3) from the slotted pin (4).



- Pull the carburetor out of the grommet in the filter housing.



- Take the gasket (2) off the spacer flange (1).
- Take the gasket off the filter housing or carburetor.



- When installing the carburetor, first fit the screws (1) in the filter housing to keep the gaskets (2) and carburetor (3) in alignment.

10.4 Servicing the Carburetor

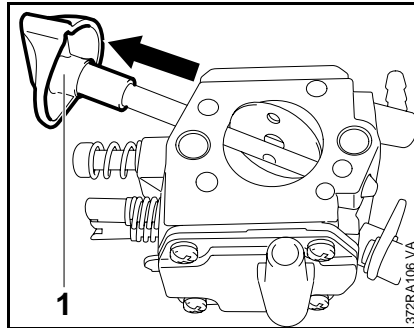
- Fit new gaskets (2) and carburetor (3) on the screws (1) in the correct order and engage the stub of the compensator in the grommet in the filter housing at the same time.
- Place the filter housing with gaskets, carburetor and springs against the spacer flange and tighten down firmly (see "Tightening Torques").

Reassemble all other parts in the reverse sequence.

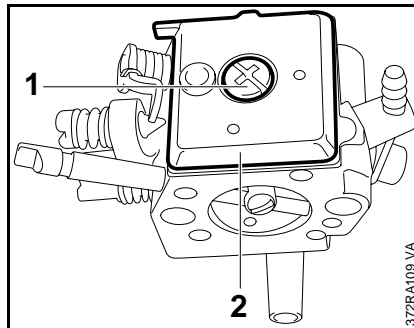
- Carry out leakage test – see 10.2.

It is advisable to check the serviceability of the fuel pump whenever the carburetor is removed for repair.

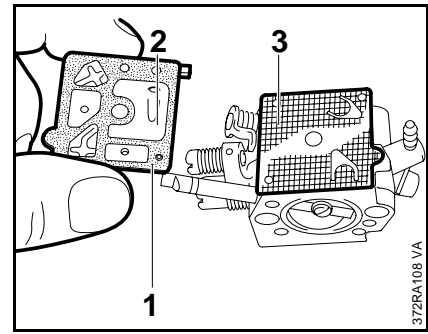
- Remove the carburetor - see 10.3.



- Pull the choke knob (1) off the shaft.

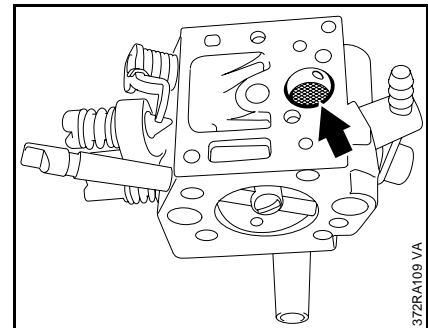


- Take out the screw (1) on the fuel pump end cover (2).



- Remove the end cover (2).
- Remove the gasket (1) and pump diaphragm (3) from the end cover or carburetor body.
- If the gasket and diaphragm are stuck, remove and separate them carefully.
- Inspect the diaphragm and gasket and replace if necessary.

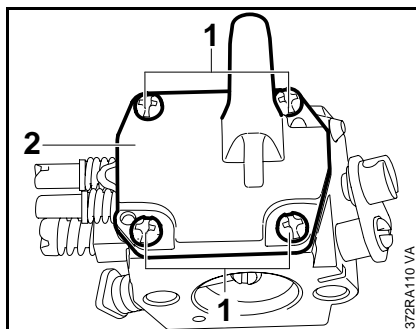
Alternating stresses eventually cause the diaphragm material and the inlet and outlet valves to show signs of fatigue. The diaphragms distort and swell and have to be replaced.



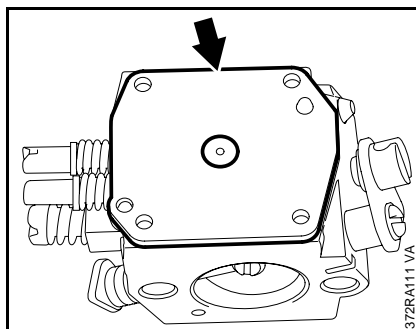
- If the fuel stainer (arrow) in the pump side of the carburetor body is dirty, use a scriber to remove it and then clean it.

If the fuel strainer is damaged, fit a new one.

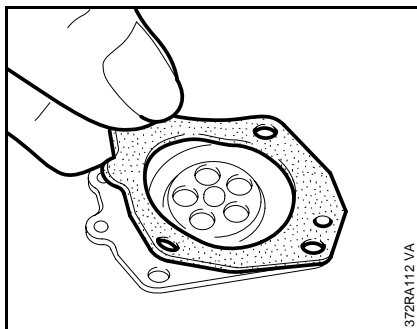
- In such a case the fuel pickup body should also be inspected and replaced if necessary – see 10.7.



- To disassemble the carburetor, take out the screws (1) of member chamber end cover (2) and remove the end cover.

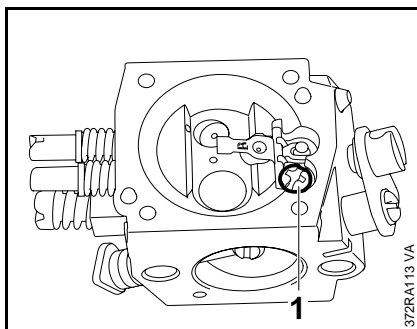


- Remove the metering diaphragm and gasket from the carburetor body and end cover.

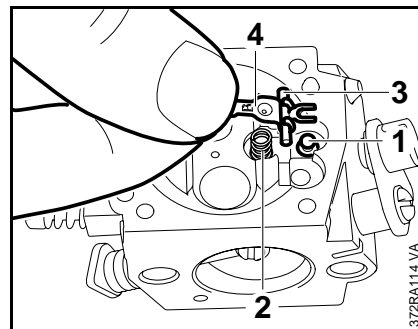


- Carefully separate the metering diaphragm and gasket.

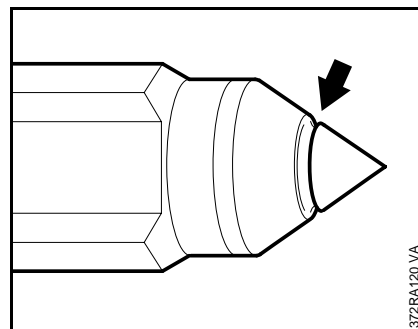
The diaphragms are the most delicate parts of the carburetor. They are subjected to continuous alternating stresses and the material eventually shows signs of fatigue. The diaphragms distort and swell and have to be replaced.



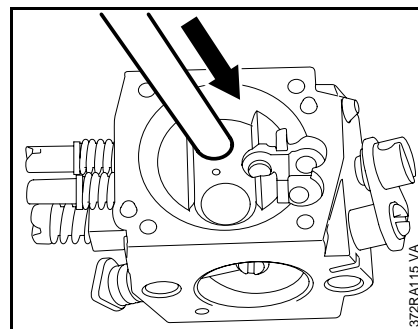
- The inlet needle valve is located in a recess in the metering diaphragm chamber. Remove the round head screw (1).



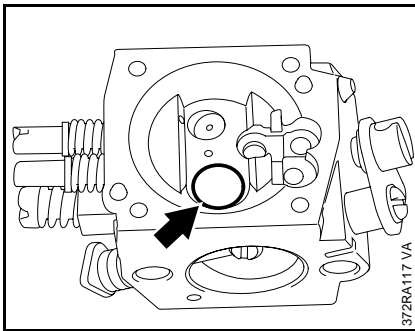
- Remove the inlet control lever (4) with spindle (3), helical spring (2) and inlet needle (1).



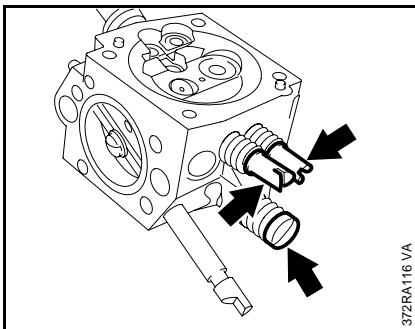
- Replace the inlet needle if an annular indentation is visible on its sealing cone (arrow) since it will not otherwise seal properly.



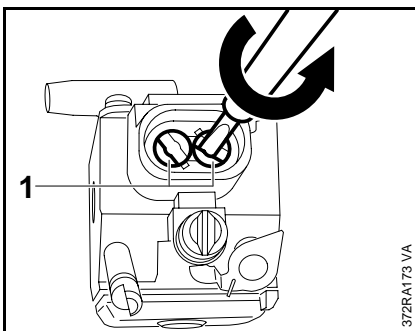
- Use a suitable drift to press the valve jet out of its seat in the direction of the venturi and wash it in white spirit.



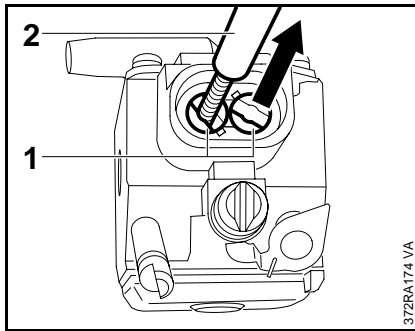
- Remove the sealing plate from the metering chamber only if a replacement is available (it is destroyed during removal).



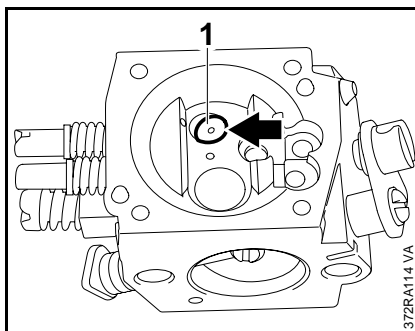
- On HD 29 carburetor: Take out the adjusting screws.



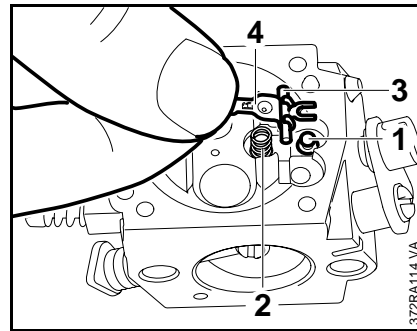
- HD 28 and WT 520 carburetors: Rotate the caps (1) a quarter turn counterclockwise.



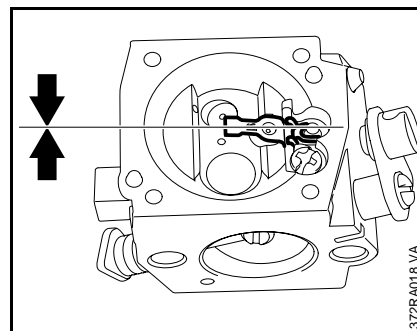
- HD 28 and WT 520 carburetors: Use puller (2) 5910 890 4500 to remove the caps (1) and take out the adjusting screws.
- Wash the carburetor body and all serviceable parts in fresh white spirit and blow clear with compressed air, paying special attention to the bores and ports.
- Place new sealing plate in the bore (convex side up) and use a suitable drift to press it flat.
- Seal the sealing plate with nail varnish.



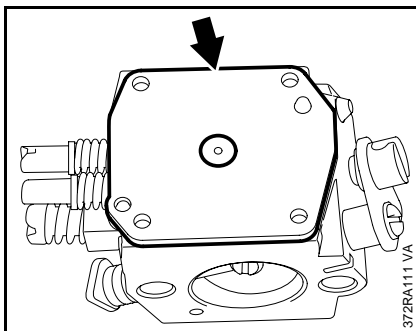
- Fit the valve jet (1) so that it is exactly vertical in the bore. Press it home until it is flush with the bottom of the metering chamber (arrow).



- Fit the inlet needle (1).
- Fit the helical spring (2) in the bore.
- Insert spindle (3) in inlet control lever (4).
- Engage clevis in annular groove on the head of the inlet needle.
- Hold the inlet control lever down and secure with round head screw.
- Make sure the helical spring locates on control lever's nipple.
- Check easy action of the inlet control lever.



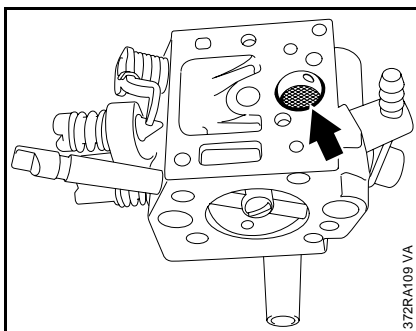
- The top of the inlet control lever must be level with the top the carburetor body. If this is not the case, install a new inlet control lever.



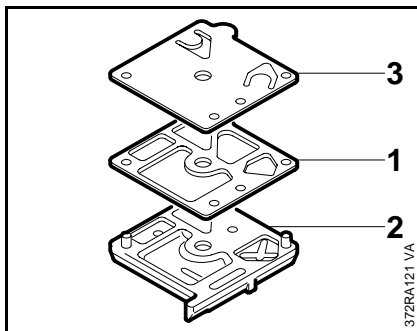
- Place the gasket on the carburetor body.
- Place the metering diaphragm, perforated metal plate facing inlet control lever, on the gasket.
- Fit the end cover.

The gasket, metering diaphragm and end cover are held in position by the integrally cast pegs on the carburetor body.

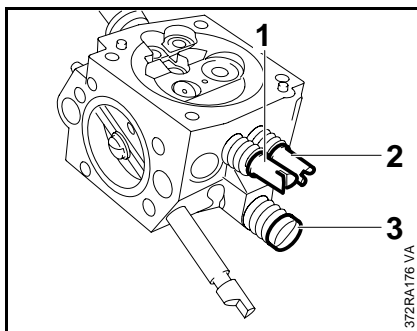
- Insert screws in end cover and tighten down firmly.



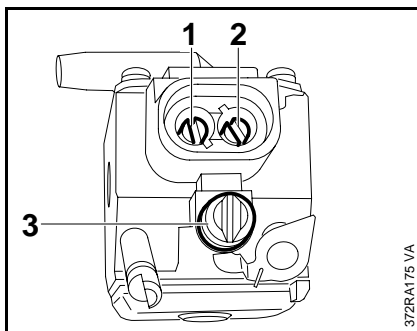
- Install fuel strainer at pump side.
- Fit the pump diaphragm, gasket and end cover and tighten down firmly.



- Pump diaphragm (3) and gasket (1) are held in position by the cast pegs on the end cover (2).

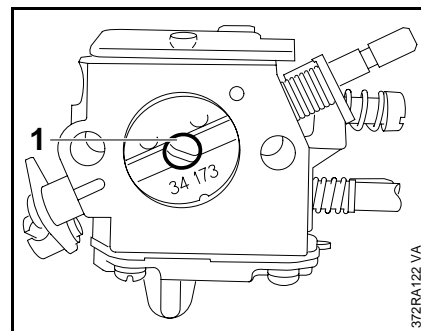


- HD 29 carburetor: Fit the high speed screw (1), low speed screw (2) and idle speed screw (3).



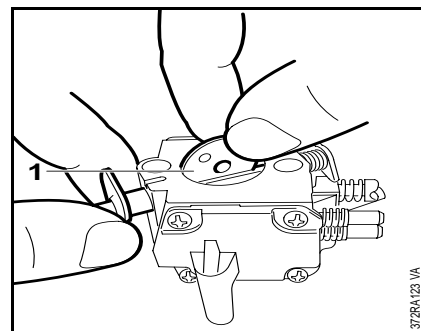
- HD 28 and WT-520 carburetors: Fit the high speed screw (1), low speed screw (2) and idle speed screw (3).

- HD 28 and WT 520 carburetors: Place new caps in position, lugs in slots, and press into bores as far as stop (caps flush with outer face) and then rotate a quarter turn clockwise.
- All models: Carry out leakage test after installing the carburetor.

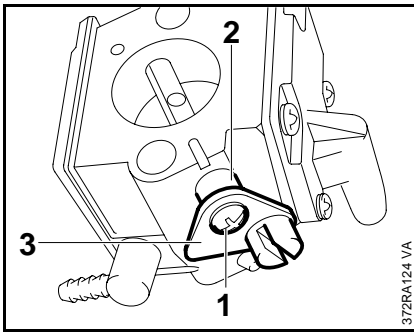


Removing the Throttle Shaft

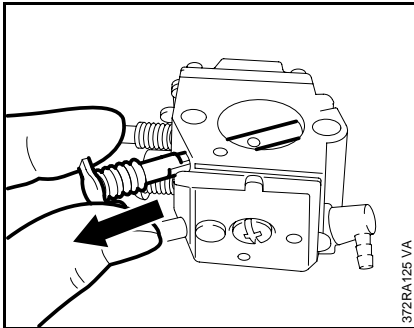
- Take out the round head screw (1).



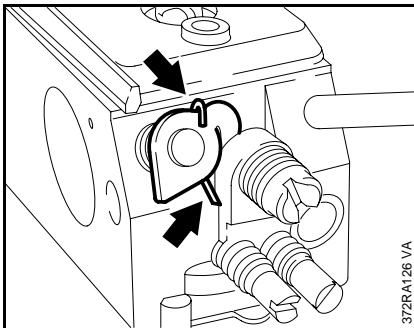
- Open the throttle shutter (1) slightly and pull it out of the throttle shaft.



- Take out the screw (1). Pull off the lever (3) and spacer sleeve (2).



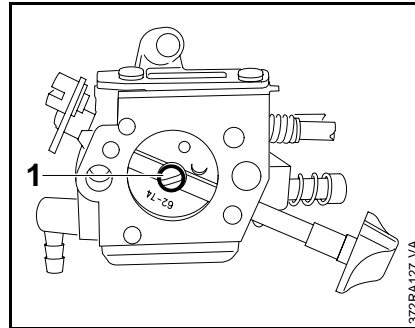
- Pull the throttle shaft out of the carburetor.
- Slip the torque spring of the throttle shaft.



Install the throttle shaft by reversing the removal sequence. Pay special attention to the following points:

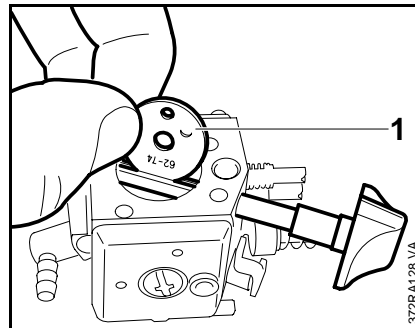
- Check correct position of the torque spring after fitting the throttle shaft.

- Fit the lever so that the slotted pin points towards the end cover with the compensator stub.
- Install throttle shutter fastening screw with Loctite.

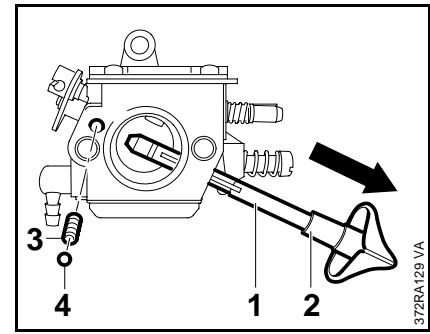


Removing the Choke Shaft

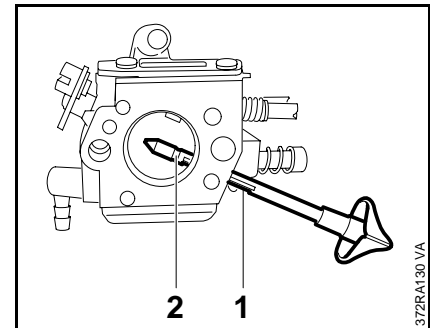
- Take out the screw (1).



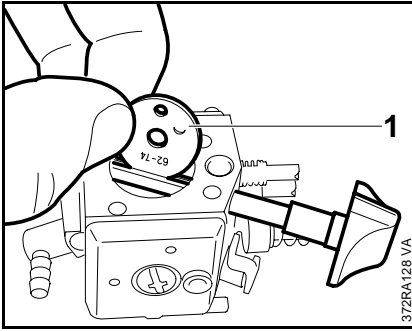
- Pull the choke shutter (1) out of the shaft.



- Carefully pull the choke shaft (1) out of the carburetor to ensure that the ball (4) does not pop out and be lost.
- Take the ball (4) and spring (3) out of the carburetor.
- If necessary, remove choke knob (2) from the shaft (1).
- To fit the choke shaft, first fit the spring and ball in the carburetor bore.



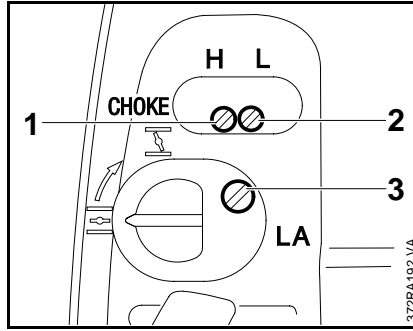
- Push the choke shaft home until the ball engages the notch (2).
- The flat (1) on the shaft points towards the pump diaphragm.



- Place shutter (1), stamped number first, in the slotted choke shaft.

When closed, the whole circumference of the choke shutter must locate against the venturi wall.

- Fit choke shutter fastening screw and tighten down firmly.
- Install the carburetor – [see 10.3](#).
- Carry out standard setting – [see 10.5](#).



- Low speed screw (1)
- High speed screw (2)
- Idle speed screw (3)

Always warm up the engine and clean the air filter before adjusting the carburetor.

- On machines with HD 28 and WT 520 carburetors, use puller 5910 890 4500 to remove limiter caps from adjusting screws (1+2), [see 10.4](#), before making adjustment. Install new limiter caps.

The carburetor comes from the factory with a **standard setting**.

This is the optimum setting for the barometric pressure and climatic conditions at the factory (300 m/ 1000 ft above sea level). It ensures maximum engine performance, fuel efficiency and reliability.

Standard Setting

- If the carburetor has to be adjusted from scratch, first carry out the standard setting. Carefully screw both adjusting screws clockwise until they are against their seats. Now make the following adjustment:

- H** = Open high speed screw (1) one full turn.
- L** = Open low speed screw (2) one full turn.

If you have no way of checking the maximum engine speed, do not turn the high speed screw beyond the standard setting to make the mixture leaner.

The setting of the high speed screw affects not only engine performance but also its maximum speed.

The maximum permissible engine speed will be exceeded if the setting is too lean (screw turned too far clockwise). There is then a **risk of engine damage**, particularly as a result of a lack of lubrication and overheating. Corrections to the high speed screw may be carried out only if an accurate tachometer is available. Using the tachometer, run the engine at full throttle and turn the high speed screw clockwise to obtain the engine's maximum speed. Then rotate the high speed screw 1/4 turn counter-clockwise from that position (richer).

It may be necessary to correct the setting for operation at high altitudes (mountains) or at sea level. Carry out the correction on the two adjusting screws:

- Turn clockwise for leaner mixture at higher altitudes
- Turn counterclockwise for richer mixture at sea level

Note that turning the screws very slightly has a noticeable effect on engine running behavior.

Adjusting Idle Speed

- It is usually necessary to change the setting of the idle speed screw after every correction to the low speed screw.

Engine stops while idling:

- Turn the idle speed screw clockwise until the engine runs smoothly.

Erratic idling behavior; poor acceleration

- Idle setting too lean. Turn the low speed screw counterclockwise until the engine runs and accelerates smoothly.

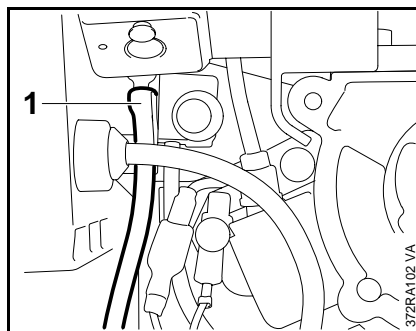
Exhaust smokes at idle speed:

- Idle setting too rich. Turn low speed screw clockwise until engine speed drops.
- Then turn it back about a quarter turn.
- Check that engine accelerates smoothly when you open the throttle.

Correct operation of the carburetor is only possible if no vacuum builds up inside the fuel tank. This is ensured by the tank vent.

In the event of trouble with the carburetor or the fuel supply system, always check the tank vent and replace it if necessary.

- Remove the shroud – **see 5.1.**
- Open the fuel tank cap carefully to allow any build-up of pressure inside the tank to release slowly.
- Drain the fuel tank.



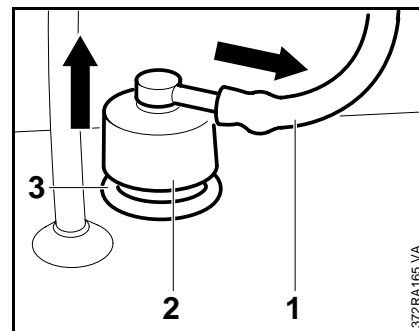
Testing Tank Vent

- Disconnect hose (1) from carburetor and connect it to the vacuum pump 0000 850 3501.

- Operate the pump quickly to produce a vacuum inside the fuel tank.

If this vacuum drops gradually, the tank vent is in order.

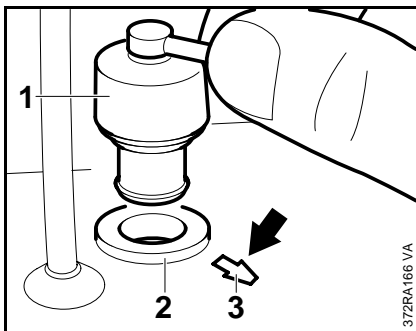
- If the vacuum remains unchanged, install a new tank vent.



Replacing the Tank Vent

- Pull the fuel hose (1) off the tank vent (2).
- Pull the tank vent (2) out of the fuel tank.
- Inspect grommet (3) for cracks, porosity or aging. Replace grommet if necessary.

10.7 Pickup Body

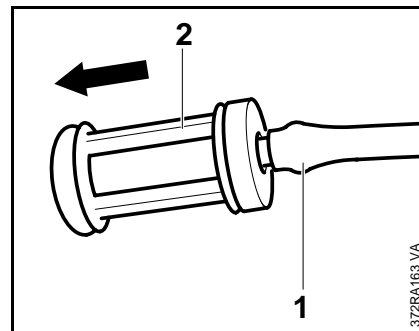


- Coat the grommet (2) with oil.
- Push the tank vent (1) into the grommet (2) in the fuel tank, making sure the connector on the tank vent points in the direction of the mark (3) on the fuel tank.
- Refit the fuel hose.

The diaphragm pump draws fuel out of the tank and into the carburetor via the fuel hose. Any impurities mixed with the fuel are retained by the pickup body (filter). The fine pores of the filter eventually become clogged with minute particles of dirt. This restricts the passage of fuel and results in fuel starvation.

In the event of trouble with the fuel supply system, always check the fuel tank and the pickup body first. Clean the fuel tank if necessary – **see 10.8.**

- Open the fuel tank cap carefully to allow any build-up of pressure inside the tank to release slowly.
- Drain the fuel tank.



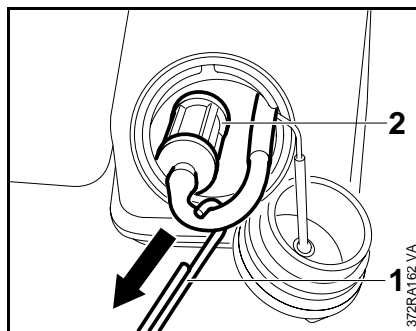
- Pull the pickup body (2) off the fuel hose (1).

It is not advisable to clean the pickup body (2). Always replace a dirty pickup body.

- Fit the new pickup body on the fuel hose.

Reassemble in the reverse sequence.

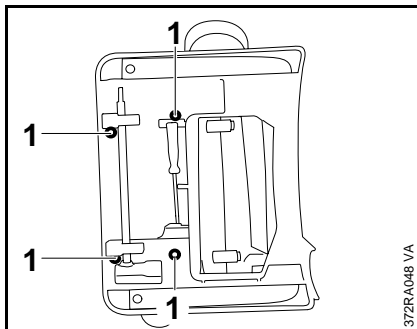
- Push the pickup body into the tank so that it lies at the bottom of the tank.



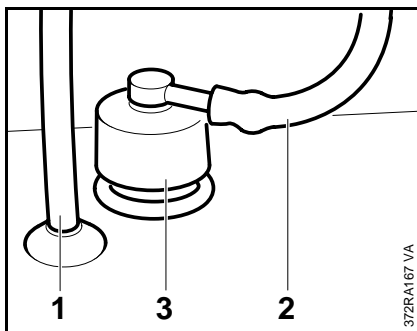
- Use the hook (1) 5910 893 8800 to pull the pickup body (2) out of the fuel tank.

10.8 Fuel Tank, Fuel Hose

- Open the fuel tank cap carefully to allow any build-up of pressure inside the tank to release slowly.
- Drain the fuel tank.



- Remove screws (1) from the underside.



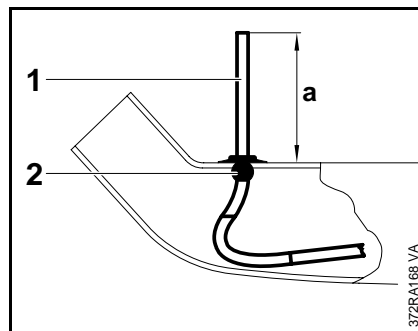
- Disconnect hose (1) from carburetor.
- Pull the fuel hose (2) off the tank vent (3).
- Remove the fuel tank.

- If necessary, remove the tank vent (3) – [see 10.6](#).
- If necessary, remove the hose (1).

Reassemble in the reverse sequence.

Cleaning the Fuel Tank

- Pour a small amount of clean gasoline into the empty tank.
- Close the tank and shake it vigorously.
- Open the tank again and drain it.
- Dispose of fuel properly (at an approved disposal location).



Hose

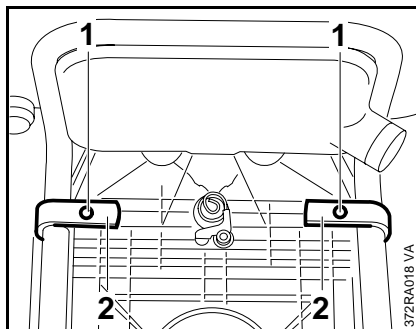
- Remove the pickup body – [see 10.7](#).
- Pull hose (1) with grommet (2) out of the fuel tank.

- Pull grommet (2) off the hose.
- Inspect grommet (2) for cracks, porosity or aging. Replace grommet if necessary.
- Push grommet (2) on to the new hose (1). Distance "a" should be 115 mm.
- Fit hose (1) and grommet (2) in the fuel tank.
- Check distance "a" (115 mm).

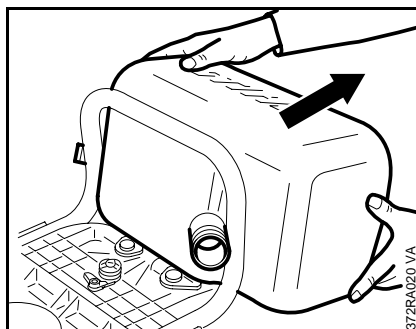
Coat the hose and grommet with a little oil to simplify installation. The flat side of the grommet must fit snugly and firmly against the fuel tank.

Assemble remaining parts by reversing the disassembly sequence. Check tightening torques (see "Tightening Torques").

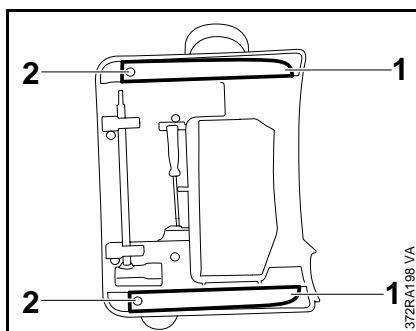
11 Spraying Attachment 11.1 Container



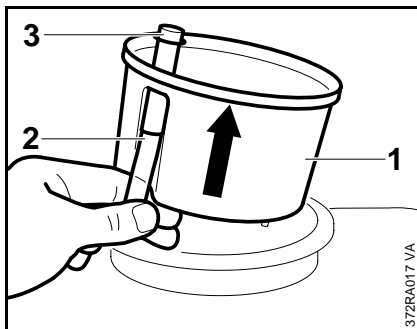
- Remove the powerhead from the backplate – [see 8.1](#).
- Take out the screws (1) and remove the retainers (2).



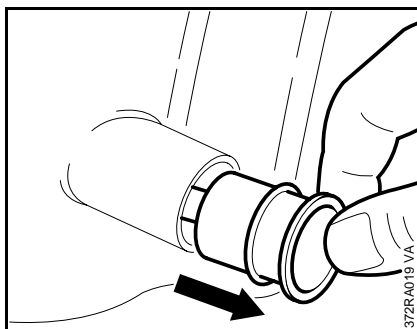
- Lift the support frame a little.
- Remove the container from the backplate.
- Unscrew cap from container.



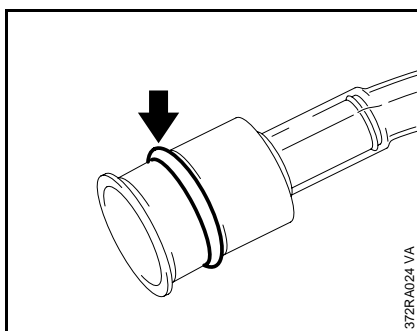
- If necessary, remove the screws (2) on the underside and take the support frame (1) out of the backplate.



- Take the strainer (1) out of the tank and pull the hose (2) off the stub on the strainer.
- If necessary, take the vent insert (3) out of the strainer.

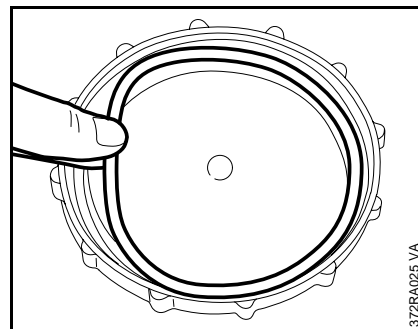


- Pull the reducer out of the container stub and take it away together with the hose.

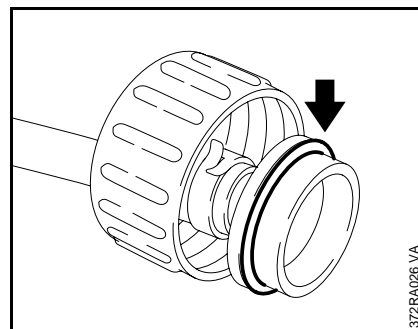


Install in the reverse sequence. Pay special attention to the following points:

- Inspect the O-ring and replace if necessary.



- Inspect the sealing ring in the container cap and replace it if necessary.



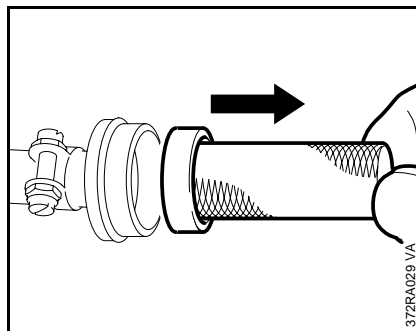
- Inspect sealing ring in the reducer on the union nut and replace it if necessary.

Observe tightening torques for retainer mounting screws on the support frame (see "Tightening Torques").

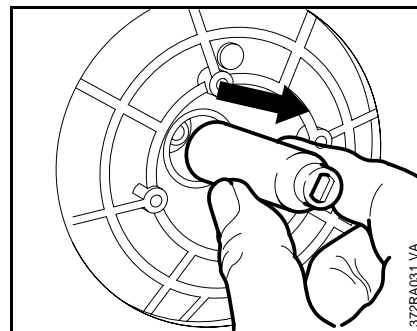
11.2 Pressure Pump (Special Accessory)

11.2.1 Removing and Installing

The pressure pump ensures a uniform spraying rate irrespective of the position in which the mistblower tube is held or the fluid level in the container. Furthermore, the spray mix is constantly agitated in the container to avoid any segregation.

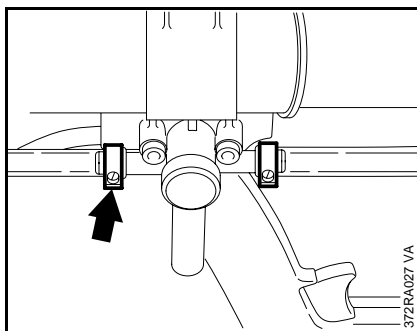


- Pull the strainer off the reducer.

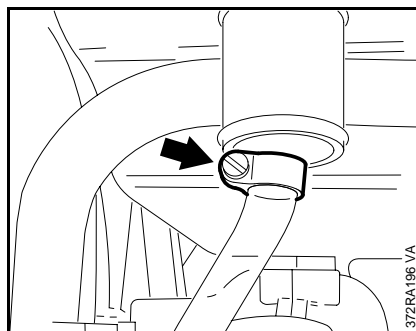


- Pull the coupling element off the flywheel mounting nut.

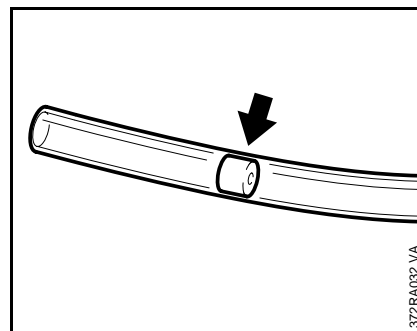
Install in the reverse sequence.



- Unscrew the hose clamp on the shut-off cock and pull the hose off the stub.

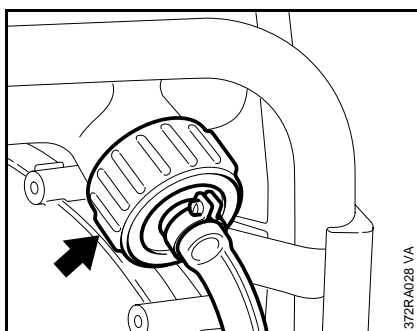


- Unscrew the hose clamp on the reducer in the container and pull the hose off the reducer.

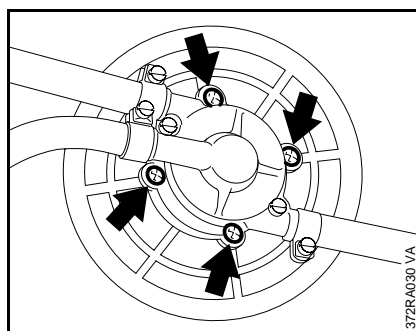


Pay special attention to the following points:

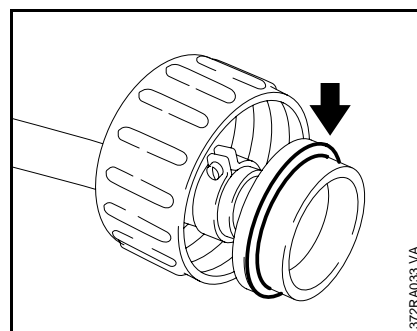
- Check that restrictor (arrow) is in position in return hose to container.



- Unscrew union nut on reducer from the container.

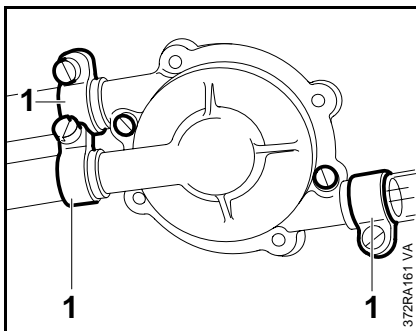


- Remove the powerhead from the backplate – [see 8.1](#).
- Take out the screws and remove the pressure pump.

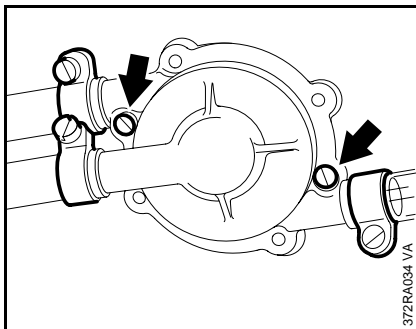


- Inspect the sealing ring in the reducer on the union nut and replace it if necessary.

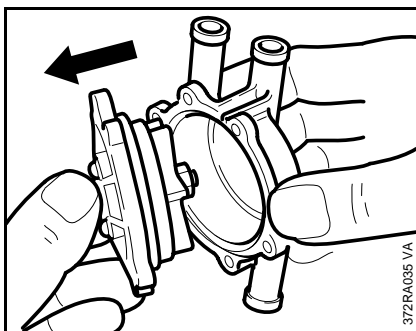
11.2.2 Disassembling and Reassembling



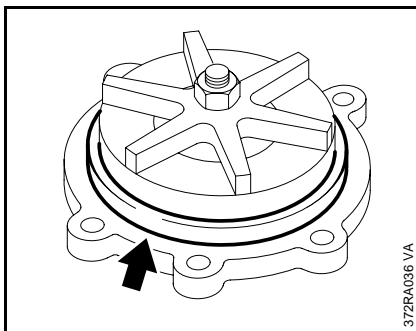
- Remove the pressure pump – see 11.2.1.
- Unscrew the hose clamps (1) and pull off the hoses.



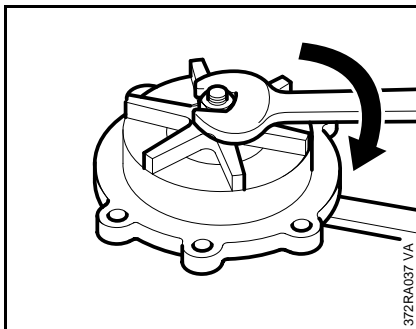
- Remove screws from pressure pump.



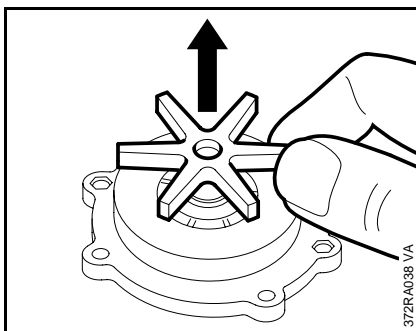
- Remove the top of the pump housing from the base.



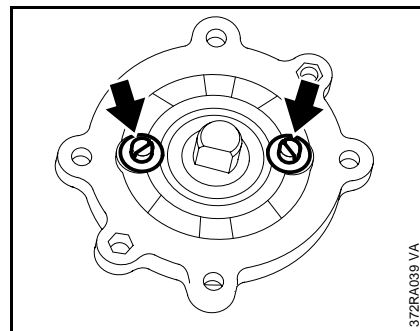
- Take the sealing ring off the base of the pump housing.



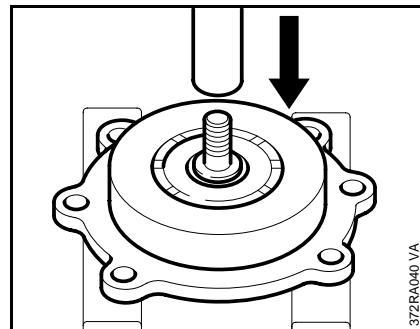
- Hold the shaft steady and unscrew the hexagon nut. (Caution: The nut may have a left-hand or right-hand thread.)



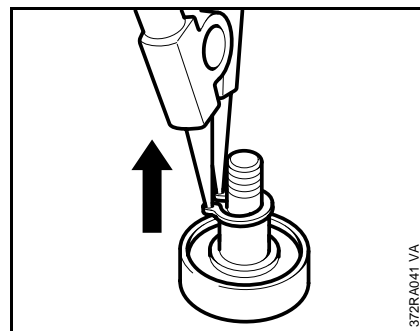
- Pull the impeller off the shaft.



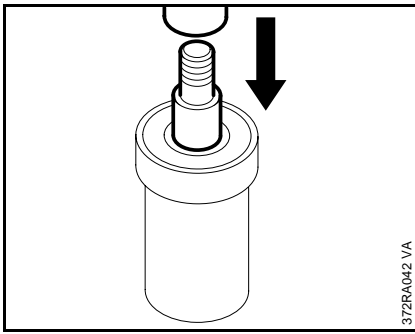
- Remove the self-tapping screws from the top of the pump housing.



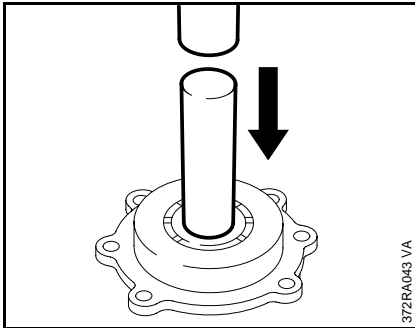
- Press the shaft out of the top of the pump housing.



- Remove the circlip from the shaft (in front of ball bearing).

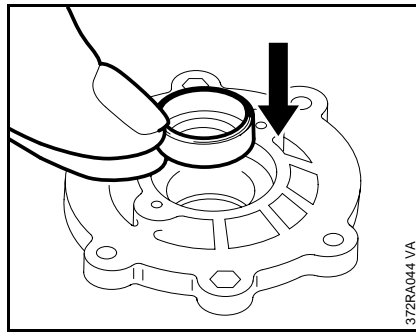


- Press the shaft out of the ball bearing.

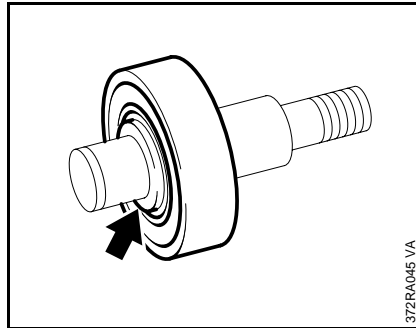


- Press the oil seal out of the top of the pump housing.
- Clean all parts, except the oil seal and ball bearing, and inspect them for serviceability.

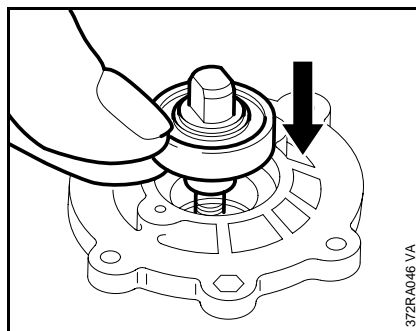
Reassemble in the reverse sequence, paying special attention to the following points:



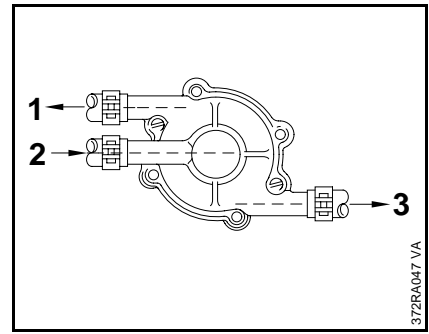
- Fit the new oil seal, small opening first, in the top of the pump housing and press it home as far as stop.



- Heat the new ball bearing to about 50°C and push it on to the shaft as far as stop.

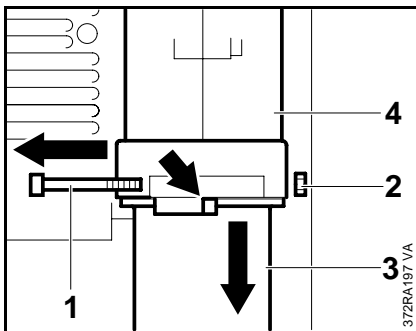


- Fit the shaft, threaded end first, in the top of the pump housing and press it home as far as stop.

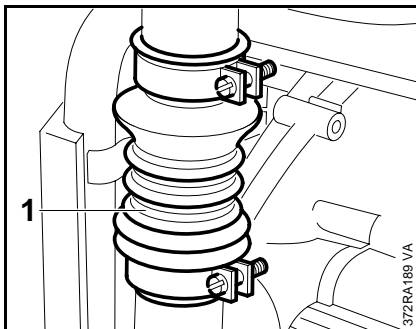


- Connect hoses to the stubs on the pump housing as follows:

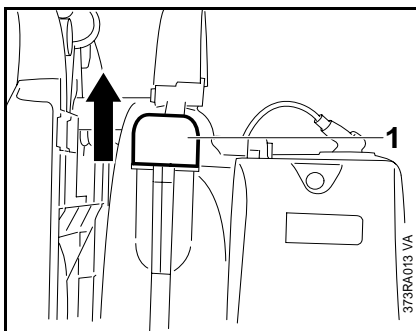
- 1 To shut-off cock
- 2 Feed from container
- 3 Return to container



- Take out the screws (1), remove the locknuts (2). Rotate elbow (3) as far as stop and pull it out of the stub (4).



- Models SR 340, 420: Loosen hose clamp on fan housing and pull bellows (1) off the stub.

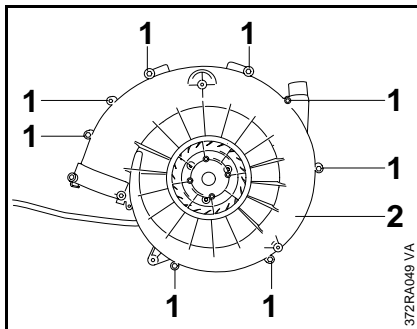


- Models BR 340, 420: Pull the cap (1) off the stub on the fan housing.

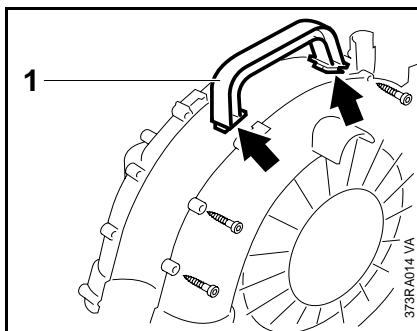
Heating the cap with a hair dryer simplifies removal.

- Remove the powerhead with fan housing from the backplate – **see 8.1.**
- Pull the boot off the spark plug. Unscrew the spark plug and block the piston with locking strip 0000 893 5903 – **see 7.8.**

Use only the specified locking strip to avoid any risk of damaging the piston.



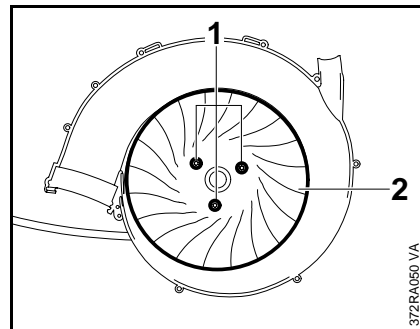
- Take out screws (1) and remove the outer fan housing (2).



- Models BR 340, 420: Remove the handle (1) from the fan housing.

The handle is installed with a little silicone to help reduce vibrations on blowers.

- Remove silicone residue from the handle and fan housing.
- Install the handle (1) with a little silicone in the two halves of the fan housing.

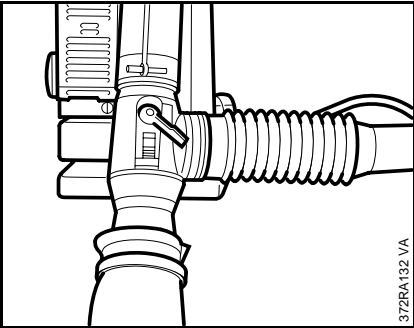


- Take out the mounting screws (1) and remove the fanwheel (2).

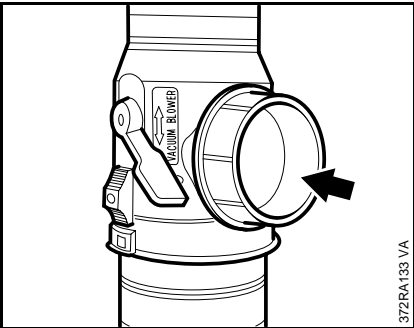
- Inspect all blades of the fanwheel for damage. Install a new fanwheel if necessary.

Install in the reverse sequence. Check tightening torques (see "Tightening Torques").

11.4 Vacuum Attachment
(Special Accessory)



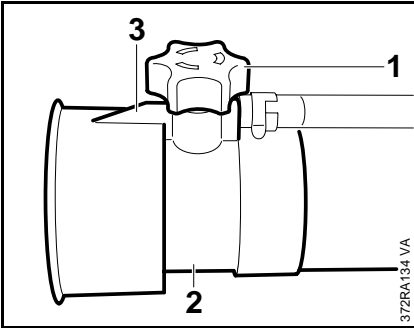
The vacuum attachment can be quickly installed in place of the elbow between the fan housing and pleated hose.



Function

The airstream from the fan is diverted via a nozzle into the air permeable catcher bag. The air flowing at high speed past the nozzle intake opening (arrow) creates a vacuum at that point which is used to pick up leaves and grass and cone them to the catcher bag. A changeover valve enables the airstream to be diverted so that the unit can be operated as a blower. The catcher bag is removed for blower operation. The valve lever on the vacuum attachment is used to select either the "VACUUM" or "BLOWER" position.

11.5 Metering Unit
(Mistblower)



The metering knob (1) on the standard nozzle (2) provides infinitely variable adjustment of the discharge rate. Metering knob position 1 is the minimum discharge rate and 6 is the maximum.

The required number on the metering knob (1) must be lined up with the molded fin (3).

The numbers on the metering knob represent the following discharge rates:

1. Discharge rate without pressure pump

Metering knob position	Discharge rate (l/min)	
	SR 340	SR 420
1	0.13	0.14
2	0.61	0.71
3	1.27	1.33
4	1.92	2.09
5	2.49	2.67
6	2.78	3.03

(The above table shows the average discharge rate with the spray tube at an angle of 0° and 30° to the horizontal at full throttle)

2. Discharge rate with pressure pump (metering knob position 6)

Metering knob position	Discharge rate (l/min)	
	SR 340	SR 420
1	0.53	0.57
2	1.42	1.54
3	2.44	2.62

(The above table shows the average discharge rate with the spray tube at an angle of 0° and 30° to the horizontal at full throttle)

Checking the metering unit (without pressure pump)

- Place the unit on the ground.
- Fill the container with water up to the 10-liter mark.
- Set metering knob to position 6.
- Start the unit (baffle screen removed).
- Hold the spray tube horizontally, run the engine at full throttle, spray the contents of the container down to the 5-liter mark and make a note of the time taken.

The time required to discharge 5 liters should be between 80 and 100 seconds.

- If the time required is longer, check the metering unit for contamination and clean if necessary.
- Also check carburetor setting and correct as necessary.

No.	Part Name	Part No.	Application	Rem.
1	Vacuum pump	0000 850 3501	Testing crankcase for leaks, testing tank vent	
2	Sealing plate	0000 855 8106	Sealing exhaust port for leakage test	
3	Nipple	0000 855 9200	Testing carburetor for leaks	
4	Installing tool	0000 890 2201	Flaring rope guide bush	
5	Clamping strap	0000 893 2600	Compressing piston rings	
6	Jaws (universal oil seal puller)	0000 893 3706	Removing oil seals	
7	Locking strip for piston	0000 893 5903	Blocking the crankshaft	
8	Pliers A10	0811 611 8200	Circlip on pressure pump shaft	1) 2)
9	Screwdriver bit T27x125	0812 542 2104	Tightening IS screws	
10	Carburetor and crankcase tester	1106 850 2905	Testing crankcase and carburetor for leaks	
11	Wooden assembly block	1108 893 4800	Supporting piston	
12	Hose for leakage test	1110 141 8600	Testing carburetor for leaks	
13	Assembly drift	1110 893 4700	Removing and installing piston pin	
14	Press sleeve	1113 893 4600	Installing oil seals	
15	Test flange	1118 850 4200	For leakage test	
16	Press arbor	1118 893 7200	Removing and installing ball bearings	
17	Sleeve, 45 mm	1123 851 8300	Removing crankshaft	
18	Test flange	1128 850 4200	For leakage test	
19	Setting gauge	4118 890 6400	Setting air gap between ignition module and flywheel	
20	Puller	4119 890 4501	Removing the flywheel	
21	Assembly sleeve	4203 893 4600	Compressing spring washer assembly in control handle	
22	Ignition tester, ZAT 4	5910 850 4503	Testing the ignition system	
23	Torque wrench	5910 890 0301	0.5 to 18 Nm	3)
		5910 890 0302		4)
24	Torque wrench	5910 890 0311	6 to 80 Nm	3)
		5910 890 0312		4)
25	Clamping plate	5910 890 2100	Mounting machine to chainsaw assembly stand	
26	Installing tool	5910 890 2210	Fitting snap rings in piston	

No.	Part Name	Part No.	Application	Rem.
27	T-handle screwdriver Q -T27x150	5910 890 2400	For all IS screws	5)
28	Chainsaw assembly stand	5910 890 3100	Securing machine to workshop bench	
29	Universal oil seal puller	5910 890 4400	Removing oil seals	6)
30	Removing tool	5910 890 4600	Pressing out crankshaft	
31	Crimping tool	5910 890 8210	Attaching connectors to electrical wires	
32	Socket, 13 mm	5910 893 5608	Crankshaft nut	
33	Screw	9022 341 1190	Pressing out crankshaft	

Remarks:

- 1) SR 340 with pressure pump (special accessory)
- 2) SR 420 with pressure pump (special accessory)
- 3) Always use torque wrench to tighten DG/P screws.
- 4) Wrench has optical/acoustic signal.
- 5) On DG/P screws, use for releasing only.
- 6) Equivalent to puller 0000 890 4400, but with longer spindle 5910 890 8400.

No.	Part Name	Part No.	Application
1	Lubricating grease (225 g tube)	0781 120 1111	Oil seals
2	Standard commercial solvent-based degreasant containing no chlorinated or halogenated hydrocarbons		Cleaning crankshaft stub and flywheel hub
3	STIHL special lubricant	0781 417 1315	Bearing bore in rope rotor, rewind spring in rope rotor
4	Ignition lead HTR (10 m)	0000 930 2251	
5	Dirko sealant (100 g tube)	0783 830 2120	Crankcase sealing face
6	Graphite grease		Pawl guide peg
7	Medium-strength threadlocking adhesive (Loctite 243)		Muffler to crankcase