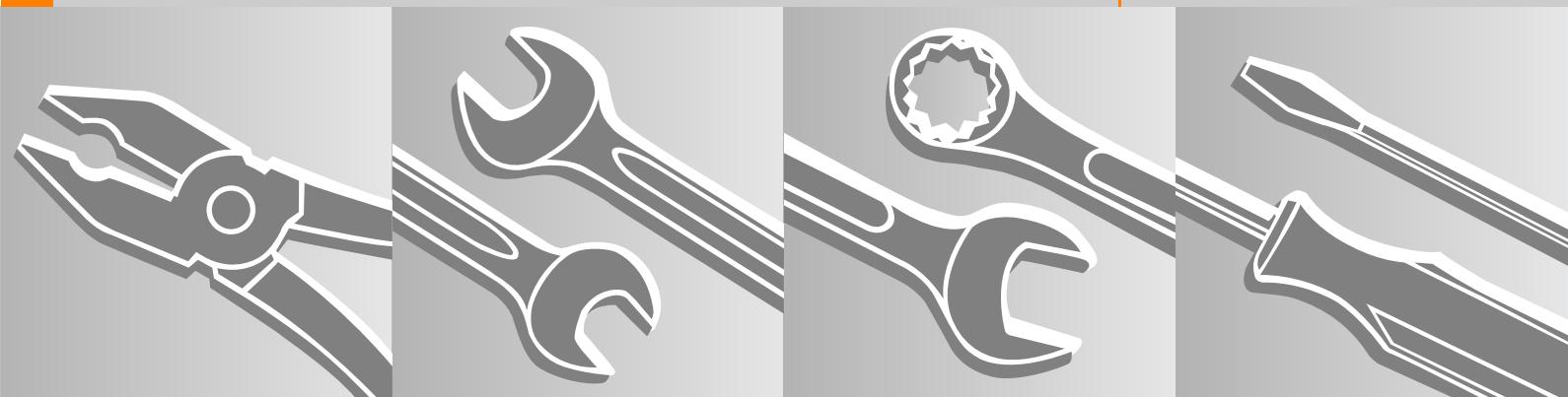


**STIHL**<sup>®</sup>

## **STIHL MS 201, MS 201 T**

2011-04



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## 1. Introduction and Safety Precautions

### 1.1 Introduction

This service manual contains detailed descriptions of all the repair and servicing procedures specific to this power tool.

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.

A fault on the machine may have several causes. To help locate the fault, consult the chapter on "Troubleshooting" and the "STIHL Service Training System" for all assemblies.

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 tools mentioned in the descriptions are listed in the chapter on "Special Servicing Tools" in 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:

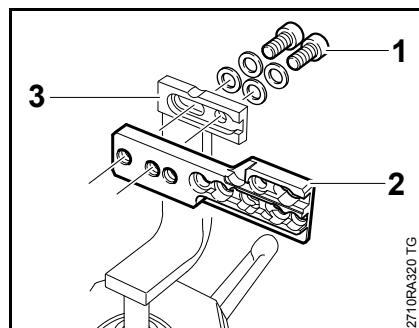
- Action to be taken as shown in the illustration above the text
- Action to be taken that is not shown in the illustration above the text

In the illustrations:

- Pointer  
→ Direction of movement

4.2 =Reference to another chapter, i.e. chapter 4.2 in this example.

Service manuals and all technical information bulletins are intended exclusively for the use of properly equipped repair shops. They must not be passed to third parties.



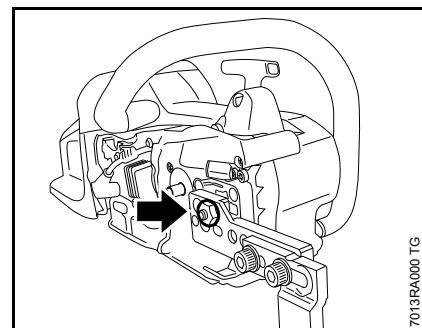
Servicing and repairs are made considerably easier if the machine is mounted to assembly stand (3) 5910 890 3101. To do this, secure the mounting plate (2) 5910 850 1650 to the assembly stand with two screws (1) and washers.

The screws must not project since they, depending on the machine, may damage housings when the machine is clamped in position.

### Preparations for servicing

Remove the chain sprocket cover, saw chain, guide bar and clutch drum before carrying out repairs – the chain brake must be disengaged.

Mount the machine to the assembly stand for servicing and repair work.



Engage the bar mounting stud in the outer bore in the mounting plate and secure the machine in position with the M 8 nut (arrow).

The machine is held in position on the mounting plate by the screw head on the crankcase.

Always use original STIHL replacement parts. They can be identified by the STIHL part number, the **STIHL** logo and the STIHL parts symbol . This symbol may appear alone on small parts.

### Storing and disposing of oils and fuels

Collect fuel or lubricating oil in a clean container and dispose of it properly in accordance with local environmental regulations.

## 1.2 Safety Precautions

If the machine 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 instruction manual.

Fuel is extremely flammable and can be explosive in certain conditions.

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.

Always perform leakage test after working on the fuel system and the engine.

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.

Always wear suitable protective gloves for operations in which components are heated for assembly or disassembly.

Improper handling may result in burns or other serious injuries.

Always replace damaged parts. Check disassembled parts for wear or damage before re-installing – replace as necessary.

Run the machine only with the fan housing mounted in position – there is otherwise a risk of injury from the flywheel and a risk of engine damage due to overheating.

The chapter on tightening torques lists all machine components that have to be tightened to a specific torque or coated with threadlocking adhesive. The specifications must be maintained when tightening down screws, nuts and other fasteners in all the procedures described in this service manual.

### Fuel system – hose barb connectors

Pull off or push on fuel hoses in line with the connector, preferably by hand, to ensure the tightness of the fuel system.

Avoid damaging the hose barb – do not use sharp-edged pliers, screwdrivers, etc.

Do not cut open fuel hoses with a knife or similar tool.

Do not re-use fuel hoses after removal. Always install new hoses – fuel hoses can be overstretched during removal.

Install new fuel hoses either dry or with the aid of STIHL press fluid – coat the ends of hoses and the connectors,  14.

Other press fluids are not approved and may result in damage to the fuel hoses.

## **2. Specifications**

### **2.1 Engine**

	MS 201	MS 201 T
Displacement:	35.2 cm <sup>3</sup>	35.2 cm <sup>3</sup>
Bore:	40.0 mm	40.0 mm
Stroke:	28.0 mm	28.0 mm
Engine power to ISO 7293:	1.8 kW (2.4 bhp) at 9,500 rpm	1.8 kW (2.4 bhp) at 9,500 rpm
Cut-off speed with bar and chain:	14000 rpm	14000 rpm
Idle speed:	3,000 rpm	3,000 rpm
Clutch:	Centrifugal clutch without linings	Centrifugal clutch without linings
Clutch engages at:	3,700 rpm	3,700 rpm
Crankcase leakage test at gauge pressure:	0.5 bar	
under vacuum:	0.5 bar	

---

### **2.2 Fuel System**

Carburetor leakage test at gauge pressure:	0.8 bar	0.8 bar
Operation of tank vent at gauge pressure:	0.5 bar	0.5 bar
Fuel:	as specified in instruction manual	as specified in instruction manual

---

### **2.3 Ignition System**

Air gap between the ignition module and flywheel:	0.30 (+ 0.05/- 0.10) mm	0.30 (+ 0.05/- 0.10) mm
Spark plug (resistor type):	NGK CMR 6 H	NGK CMR 6 H
Electrode gap:	0.5 mm	0.5 mm

---

### **2.4 Chain Lubrication**

Speed-controlled oil pump with reciprocating piston and manual flow control or Ematic

Settings for oil delivery rate:

min.:	3.5 (+/1.0) cm <sup>3</sup> /min at 7,000 rpm	3.5 (+/1.0) cm <sup>3</sup> /min at 7,000 rpm
max.:	9.5 (+/2.0) cm <sup>3</sup> /min at 10,000 rpm	9.5 (+/2.0) cm <sup>3</sup> /min at 10,000 rpm
Ematic:	6.5 (+/1.5) cm <sup>3</sup> /min at 10,000 rpm	6.5 (+/1.5) cm <sup>3</sup> /min at 10,000 rpm

## 2.5 Tightening Torques

DG and P (Plastoform) screws are used in polymer and light metal 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	Remarks
			Nm	
Screw	M 4x12	Chain tensioner cover / crankcase	1.8	2) 4)
Screw	M 4x16	Antivibration element on oil tank / crankcase	4.0	3)
Collar stud	M 8	Collar stud for bar	22.0	1)
Screw	P 4x14	Cover / chain sprocket cover	1.5	
Screw	M 4x12	Cover, oil pump / crankcase	2.0	2) 4)
Screw	M 4x9.6	Spark arresting screen / muffler	2.0	
Screw	P 6x19	Handle housing / front handle (MS 201)	6.0	
Screw	P 6x19	Handle housing / front handle (MS 201 T)	3.5	
Screw	M 4x16	Handlebar / crankcase	4.0	3)
Screw	P 4x14	Handle molding / handle housing	1.5	
Screw	P 6x19	Retainer, ring / tank housing	6.0	
Screw	P 4x10	Clamp, wiring harness / handle housing (MS 201)	1.8	
Screw	P 4x10	Clamp, ignition lead	1.8	
Screw	M 5x16	Chain catcher / spiked bumper / crankcase	10.0	2) 4)
Screw	M 5x16	Spiked bumper / crankcase	10.0	2) 4)
Screw	M 4x12	Manifold / cylinder	3.0	2) 4)
Screw	M 4x16	Crankcase, sprocket side/fan side	4.5	2) 4)
Screw	P 5x16	Bearing plug / handle housing	3.0	
Screw	M 4x16	Fan housing / crankcase	4.0	2) 4)
Screw	P 5x16	Fan housing / tank housing	4.0	
Carrier	M 8x1 L	Carrier / crankshaft	25.0	
Screw	M 4x12	Oil pump / crankcase	3.5	2)
Screw	P 5x29.5	Annular buffer / handle housing	3.0	
Screw	P 4x14	Annular buffer / tank housing	1.5	
Screw	P 4x10	Rewind spring retainer	1.5	
Screw	M 5x16	Muffler / cylinder, stage 1 (tightening first screw)	2.5	2) 3)
Screw	M 5x16	Muffler / cylinder, stage 2 (tightening second screw)	10.0	2) 3)
Screw	M 5x16	Muffler / cylinder, stage 3 (tightening first screw)	10.0	2) 3)
Collar stud	M 5x18	Bar mounting / crankcase	7.0	2) 3)
Nut	M 8x1	Flywheel / crankshaft	23.0	6)
Screw	P 4x10	Insulating plate (MS 201)	1.5	

Fastener	Thread size	For component	Torque Nm	Remarks
Screw	M 4x16	Tank housing / crankcase	4.5	2) 4)
Screw	M 5x43	Carburetor / handle housing, stage 1	0.8	5)
Screw	M 5x43	Carburetor / handle housing, stage 2	3.0	5)
	M 10x1	Spark plug / cylinder	12.0	
Screw	M 4x20	Ignition module / crankcase	4.0	3)
Screw	M 5x20	Cylinder / crankcase	10.0	2) 4)

Remarks:

- 1) Loctite 272, high strength up to 250 °C (482 °F)
- 2) Screws with binding head
- 3) Micro-encapsulated screws
- 4) Waxed screws
- 5) Bright and waxed screws
- 6) Degrease crankshaft/flywheel and mount oil-free

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.

Before reinstalling a micro-encapsulated screw, clean both threads (screw tap into female thread by hand and then blow out with compressed air, clean male thread with brush), coat clean screw with medium strength Loctite 242 or 243.

Power screwdriver setting for polymer: DG and P screws max. 500 rpm  
Do not use an impact wrench for releasing or tightening screws.

Do not mix up screws with and without binding heads.

### 3. Troubleshooting

#### 3.1 Clutch

Condition	Cause	Remedy
Saw chain stops under full load	Clutch shoes badly worn	Install new clutch
	Clutch drum badly worn	Install new clutch drum
Saw chain rotates at idle speed	Engine idle speed too high	Readjust idle speed screw <b>LA</b>
	Clutch springs stretched	Replace the clutch springs or install new clutch
	Clutch springs broken	Replace the clutch springs
Loud noises	Clutch springs stretched	Replace all clutch springs
	Clutch shoe retainer broken	Install new retainer or clutch
	Clutch shoes and carrier worn	Install new clutch
	Needle cage damaged	Fit new needle cage

### 3.2 Chain Drive, Chain Brake, Chain Tensioner

Condition	Cause	Remedy
Chain sprocket wears rapidly	Chain not properly tensioned	Tension chain as specified
	Wrong chain pitch	Fit chain of correct pitch
	Insufficient chain lubrication	Check chain lubrication
Saw chain stops under full load	Clutch shoes badly worn	Install new clutch
	Clutch drum badly worn	Install new clutch drum
	Brake band blocked	Check freedom of movement and operation of brake band
Saw chain rotates at idle speed	Engine idle speed too high	Readjust idle speed screw <b>L A</b>
	Clutch springs stretched	Replace the clutch springs or install new clutch
	Clutch springs broken	Replace the clutch springs
Saw chain does not stop immediately when brake is activated	Brake spring stretched or broken	Fit new brake spring
	Brake band stretched or worn	Fit new brake band
	Clutch drum worn	Install new clutch drum

### 3.3 Chain Lubrication

In the event of trouble with the chain lubrication system, check and rectify other sources of faults before disassembling the oil pump.

Condition	Cause	Remedy
Chain receives no oil	Oil inlet hole in guide bar is blocked	Clean oil inlet hole
	Intake hose or pickup body clogged or intake hose ruptured	Fit new intake hose and pickup body
	Connector blocked	Clean the connector or replace if necessary.
	Valve in oil tank blocked	Clean or replace valve
	Worm flanks or driver worn	Install new worm
	Oil pump damaged or worn	Install new oil pump
Machine losing chain oil	Oil pump damaged or worn	Install new oil pump
	Oil suction hose connection damaged	Install new oil suction hose
	Crankcase cracked	Install new crankcase
Oil pump delivers insufficient oil	Oil pump damaged or worn	Install new oil pump
	Worm driver is loose	Install new worm

Condition	Cause	Remedy
Starter rope broken	Rope pulled out too vigorously as far as stop or over edge, i.e. not vertically	Install new starter rope
	Normal wear	Install new starter rope
Starter rope does not rewind	Rewind spring very dirty or corroded	Clean or replace rewind spring
	Insufficient spring tension	Check rewind spring and increase tension
	Rewind spring broken	Install new rewind spring
Starter rope cannot be pulled out far enough	Spring overtensioned	Check rewind spring and reduce tension
Starter rope can be pulled out almost without resistance (crankshaft does not turn)	Spring fatigued	Install new spring
	Spring not installed properly	Install spring properly
<b>Models without ErgoStart</b>		
Guide peg on pawl or pawl itself is worn		Replace pawl
<b>Models with ErgoStart</b>		
Guide pegs on pawls or pawls themselves are worn		Replace pawls
Spring loop not attached to carrier		Attach spring loop to carrier
Spring (ErgoStart) broken		Replace spring, check carrier and rope rotor, replace if necessary

Condition	Cause	Remedy
Starter rope is difficult to pull or rewinds very slowly	<p>Starter mechanism is very dirty</p> <p>At very low outside temperatures: Lubricating oil on rewind spring becomes viscous (spring windings stick together) or moisture has got onto the rewind spring (spring windings frozen together)</p>	<p>Thoroughly clean complete starter mechanism</p> <p>Coat rewind spring with a small amount of standard solvent-based degreasant (containing no chlorinated or halogenated hydrocarbons), then pull rope carefully several times until normal action is restored</p>

### 3.5 Ignition System

Condition	Cause	Remedy
Engine runs roughly, misfires, temporary loss of power	Spark plug boot is loose	Press boot firmly onto spark plug and fit new spring if necessary
	Spark plug sooted, smeared with oil	Clean spark plug, replace if necessary. If sooting continues, check air filter
	Fuel/oil mixture – too much oil	Use correct mixture of fuel and oil
	Incorrect air gap between ignition module and flywheel	Set air gap correctly
	Flywheel cracked or damaged or pole shoes have turned blue	Install new flywheel
	Ignition timing wrong, flywheel out of adjustment – key in flywheel has sheared off	Install new flywheel
	Weak magnetization in flywheel	Install new flywheel
	Irregular spark	Check operation of switch shaft / contact spring(s) and ignition module. Check ignition lead and short circuit wire for damaged insulation or break. Check ignition lead / module, replace ignition module if necessary. Check operation of spark plug, clean or replace spark plug if necessary.
Crankcase damaged (cracks)		Install new crankcase

Condition	Cause	Remedy
Carburetor floods; engine stalls	Inlet needle not sealing – foreign matter in valve seat or cone	Remove and clean the inlet needle, clean the carburetor
	Inlet needle worn	Fit new inlet needle
	Inlet control lever sticking on spindle	Check the inlet control lever and replace if necessary
	Helical spring not located on nipple of inlet control lever	Remove the inlet control lever and refit it correctly
	Perforated disc on diaphragm is deformed and presses constantly against the inlet control lever	Fit new metering diaphragm
	Metering diaphragm warped, hardened or swollen	Fit new metering diaphragm
Poor acceleration	Setting of low speed screw ( <b>L</b> ) too lean	Check basic setting, correct if necessary
	Setting of high speed screw ( <b>H</b> ) too lean	Check basic setting, correct if necessary
	Inlet needle sticking to valve seat	Remove and clean inlet needle
	Diaphragm gasket leaking	Fit new diaphragm gasket
	Metering diaphragm damaged, hardened or swollen	Fit new metering diaphragm
	Tank vent faulty	Fit new tank vent
	Leak in fuel hose from tank to carburetor	Seal connections or install new fuel hose

Condition	Cause	Remedy
Engine will not idle, idle speed too high	Throttle shutter opened too wide by idle speed screw ( <b>LA</b> )	Reset idle speed screw ( <b>LA</b> ) correctly
	Oil seals/crankcase leaking	Seal oil seals / crankcase, replace if necessary
	Throttle shutter does not close	Install new carburetor
Engine stops while idling	Idle jet bores or ports blocked	Clean the carburetor
	Setting of low speed screw ( <b>L</b> ) too rich or too lean	Reset low speed screw ( <b>L</b> ) correctly
	Setting of idle speed screw <b>LA</b> incorrect – throttle shutter completely closed	Reset idle speed screw ( <b>LA</b> ) correctly
	Tank vent faulty	Fit new tank vent
	Leak in fuel hose from tank to carburetor	Seal connections or install new fuel hose
Saw chain rotates at idle speed	Engine idle speed too high	Readjust with idle speed screw <b>LA</b> (counterclockwise)
	Clutch springs stretched or fatigued	Replace the clutch springs or install new clutch
	Clutch spring hooks broken	Replace the clutch springs
Power tool smells of fuel or loses fuel	Fuel hoses leaking or damaged	Check fuel hoses, push fully onto connectors or replace if necessary
	Fuel tank damaged	Install new fuel tank
	Pump diaphragm, metering diaphragm or diaphragm gasket faulty	Replace pump diaphragm, metering diaphragm or diaphragm gasket

Condition	Cause	Remedy
Engine speed drops quickly under load – low power	Air filter dirty	Clean air filter or replace if necessary
	Throttle shutter not opened fully	Check throttle rod
	Tank vent faulty	Fit new tank vent
	Fuel pickup body dirty	Fit new pickup body
	Fuel strainer dirty	Clean fuel strainer in carburetor, replace if necessary
	Leak in fuel hose from tank to carburetor	Seal connections or install new fuel hose
	Setting of high speed screw ( <b>H</b> ) too rich	Check basic setting, correct if necessary
	Main jet bores or ports blocked	Clean the carburetor
	Pump diaphragm damaged or fatigued	Fit new pump diaphragm
	Ignition timing wrong, flywheel out of adjustment – key in flywheel has sheared off	Install new flywheel
Engine running extremely rich, has no power and a very low maximum speed	Choke shutter does not open	Check carburetor and choke shaft, service or replace if necessary

### 3.7 Engine

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

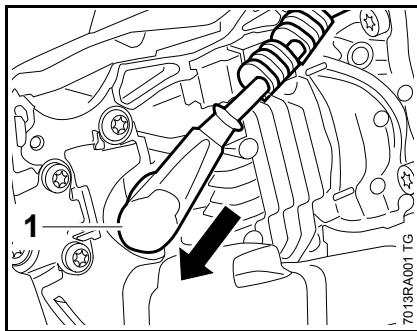
- Air filter
- Fuel system
- Carburetor
- Ignition system

Condition	Cause	Remedy
Engine does not start easily, stalls at idle speed, but operates normally at full throttle	Oil seals in engine damaged	Replace the oil seals
	Crankcase leaking or damaged (cracks)	Inspect crankcase, re-seal or replace if necessary.
	Intake manifold damaged / bore blocked	Clean bore or install new manifold
Engine does not deliver full power or runs erratically	Piston rings worn or broken	Install new piston rings
	Muffler / spark arresting screen carbonized	Clean the muffler (inlet and exhaust), replace spark arresting screen, replace muffler if necessary
	Air filter dirty	Clean or replace air filter
	Fuel hose kinked or cracked	Fit new hose or position it free from kinks
	Intake manifold damaged / bore blocked	Clean bore or install new manifold
Engine overheating	Insufficient cylinder cooling. Air inlets in fan housing blocked or cooling fins on cylinder very dirty	Thoroughly clean all cooling air openings and the cylinder fins
	Air inlet in fan housing dirty	Clean air inlet on fan housing

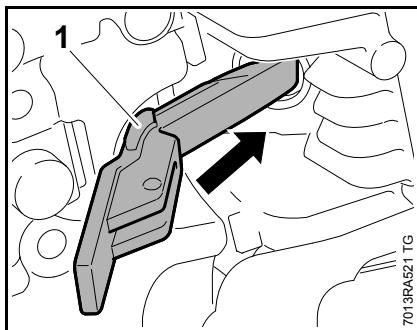
## 4. Clutch

### 4.1 Clutch

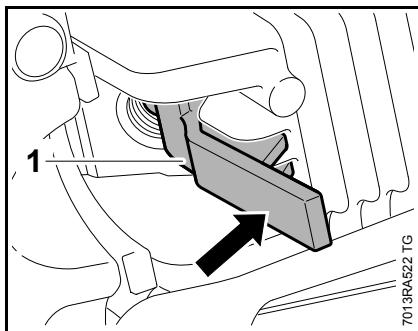
- Troubleshooting, **3.1**
- Disengage the chain brake and remove the chain sprocket cover, bar and chain.



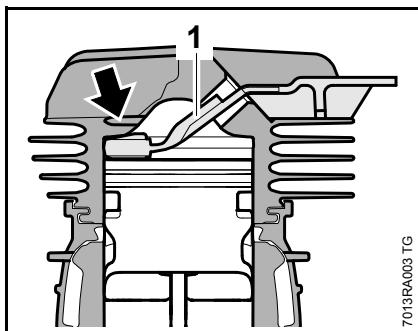
- Pull boot (1) off the spark plug.
- Unscrew the spark plug.



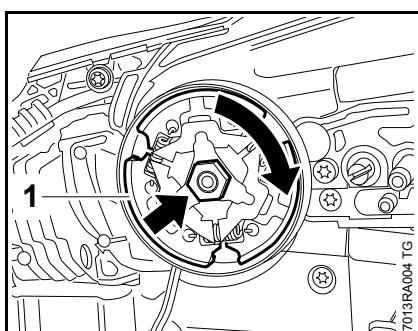
- Push the locking strip (1) 1145 893 5900 into the cylinder as far as stop.



- Secure the locking strip (1) 1145 893 5900 to cylinder fin (arrow).
- Turn the clutch clockwise until the piston butts against the locking strip.

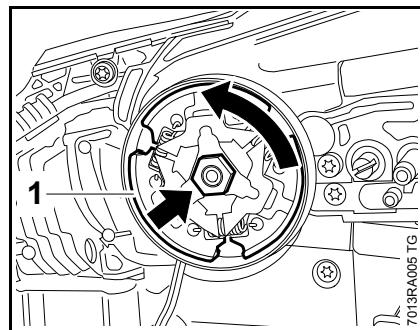


The locking strip (1) 1145 893 5900 must butt against the cylinder wall (arrow) and the flat side of its metal top must rest on the piston crown – as shown in the illustration.



- Apply wrench to hexagon (arrow) and unscrew the clutch (1) – left-hand thread.

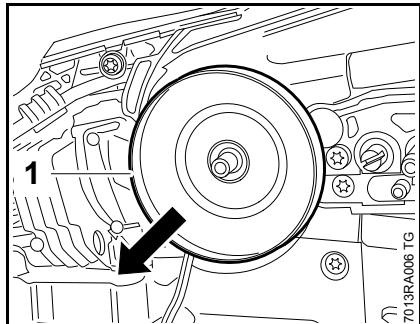
### Installing



- Position the clutch (1) on the crankshaft stub so that the raised hexagon (arrow) faces outwards.
- Fit the clutch (1) and tighten it down firmly – left-hand thread.
- Remove the locking strip from the cylinder.
- Reassemble all other parts in the reverse sequence.

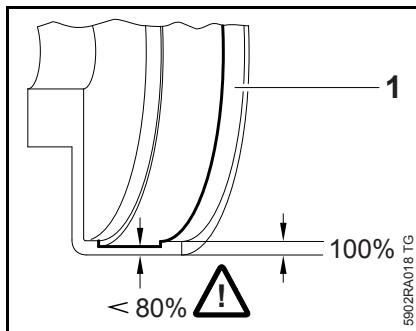
## 4.2 Clutch Drum

- Disengage the chain brake and remove the chain sprocket cover, bar and chain.
- Remove the clutch, **4.1**



- Pull off the clutch drum (1).

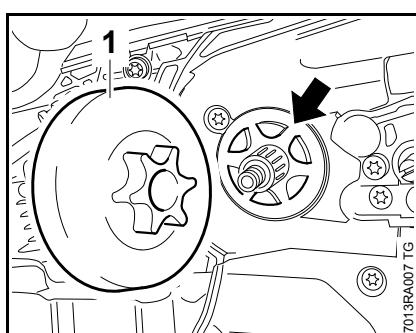
- Remove the needle cage.
- Clean the needle cage and crankshaft stub, **14**
- Lubricate needle cage and crankshaft stub with STIHL multipurpose grease, **14**



- Inspect the clutch drum (1) for signs of wear.

If there are signs of serious wear on the inside diameter of the clutch drum (1), check the remaining wall thickness. If it is less than about 80% of the original thickness, install a new clutch drum.

### Installing



- Push the needle cage on to the crankshaft stub.
- Fit the clutch drum (1) so that it engages the worm gear (arrow).
- Install the clutch, **4.1**
- Reassemble all other parts in the reverse sequence.

## 5. Chain Brake

### 5.1 Checking Operation

The chain brake is one of the most important safety devices on the chain saw. Its efficiency is measured in terms of the chain braking time, i.e. the time that elapses between activating the brake and the saw chain coming to a complete standstill.

Contamination (with chain oil, chips, fine particles of abrasion, etc.) and smoothing of the friction surfaces of the brake band and clutch drum impair the coefficient of friction, which prolongs the braking time. A fatigued or stretched brake spring has the same negative effect.

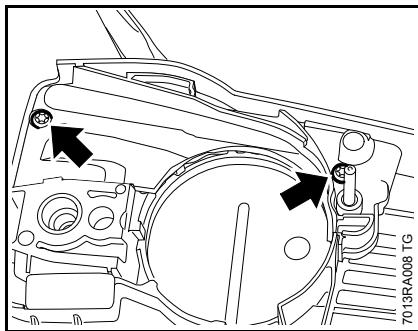
- Starting the Engine
- With the chain brake activated (locked), open the throttle wide for a brief period (max. 3 seconds) – the chain must not rotate.
- With the chain brake released, open the throttle wide and activate the brake manually – the chain must come to an abrupt stop.

The braking time is in order if deceleration of the saw chain (less than a second) is imperceptible to the eye.

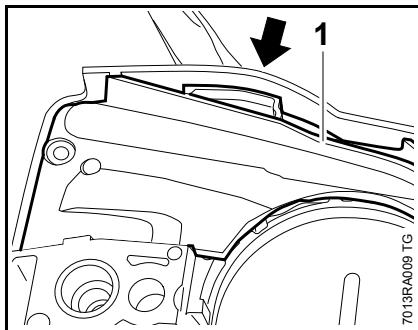
If the chain brake does not operate properly, refer to troubleshooting, **3.2**.

### 5.2 Brake Band

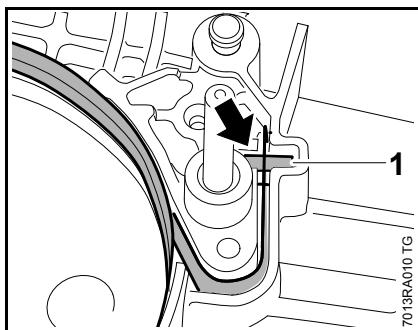
- Troubleshooting, **3.2**
- Disengage the chain brake and remove the chain sprocket cover, bar and chain.



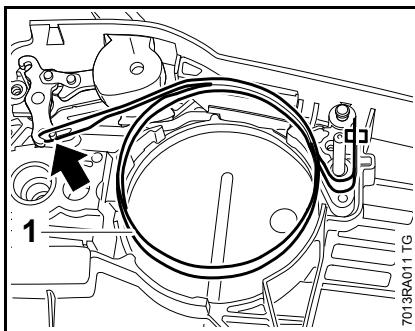
- Take out the screws (arrows).



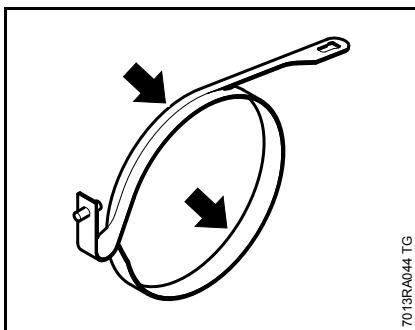
- Ease the cover (1) out of its seat (arrow) and lift it away.



- Pry the brake band (1) out of its seat (arrow).

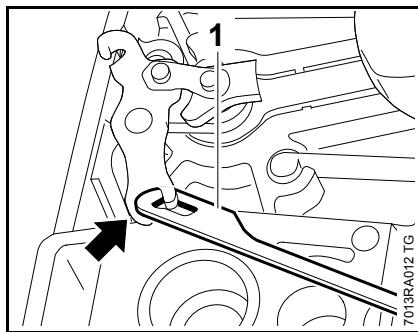


- Swing the brake band (1) outwards and disconnect it from the brake lever (arrow).
- Do not over-stretch the brake band.

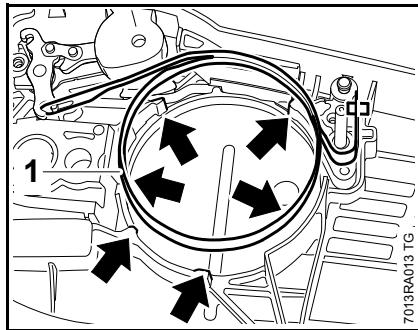


Install a new brake band if there are noticeable signs of wear (large areas on inside diameter and/or parts of outside diameter – arrows) and its remaining thickness is less than 0.6 mm.

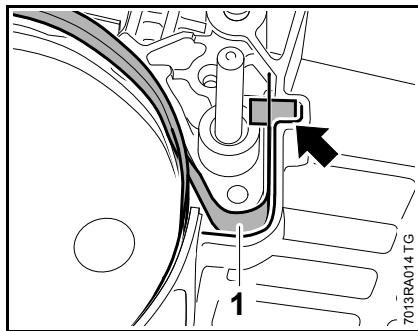
## Installing



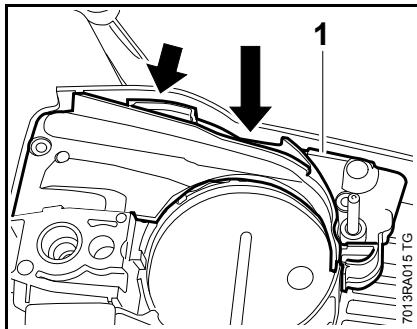
- Attach the brake band (1) to the brake lever (arrow).



- Push the brake band (1) into its guides (arrows).



- Push the brake band (1) into its seat (arrow) as far as stop.

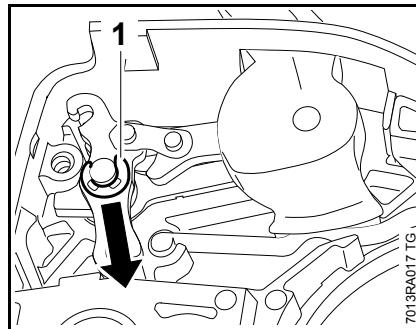


- Push cover (1) into its seat until it snaps into position (arrow).

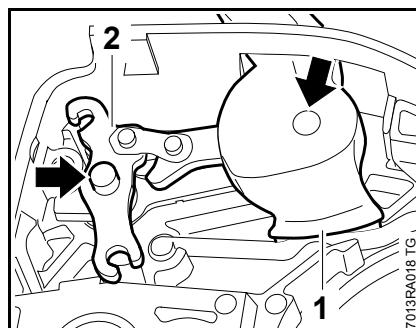
- Insert the screws and tighten them down firmly.
- Reassemble all other parts in the reverse sequence.
- Check operation

### 5.3 Brake Lever

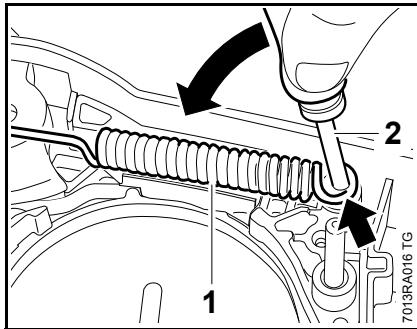
- Troubleshooting, 3.2
- Remove the brake band, 5.2



- Remove the retaining ring (1).



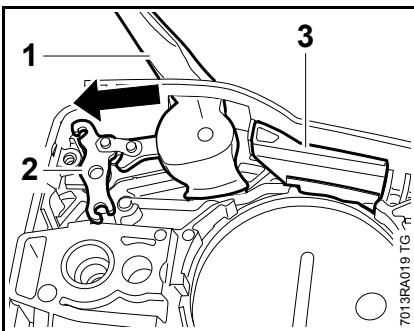
- Pull the hand guard (1) and brake lever (2) off the pivot pins (arrows) together.



- Engage the chain brake.

The brake spring is now relaxed.

- Use the assembly tool 1117 890 0900 to disconnect the brake spring (1) from the anchor pin (arrow).
- Remove the brake spring from the brake lever.

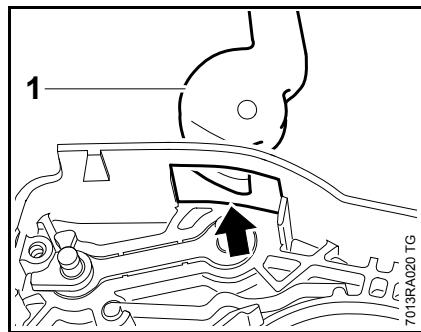


- Pull the brake lever (2) out of the hand guard (1).
- Pull the hand guard out of the opening.
- Check the stop (3) and replace if necessary
- Inspect the brake lever and hand guard and replace if necessary.

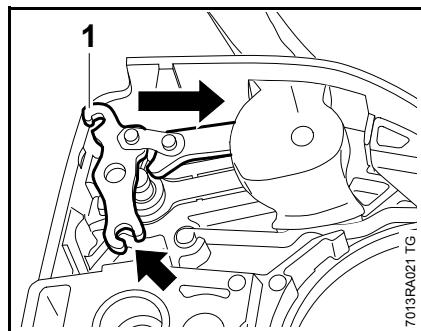
When installing the stop, make sure it is properly positioned in the sprocket cover guide and lies flat.

- Check the pivot pin, replace if necessary, **5.5**
- Inspect the flat spring and replace if necessary, **5.4**
- Clean all disassembled parts, **14**

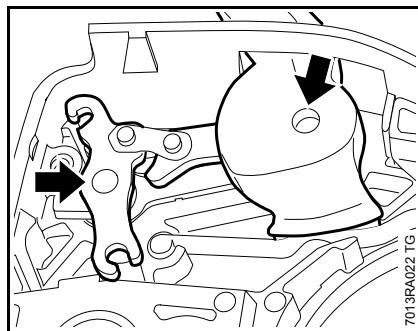
## Installing



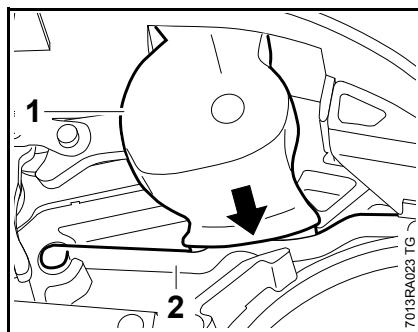
- Lubricate the pivot pins with STIHL lubricant, **14**
- Push the hand guard (1) through the opening (arrow).



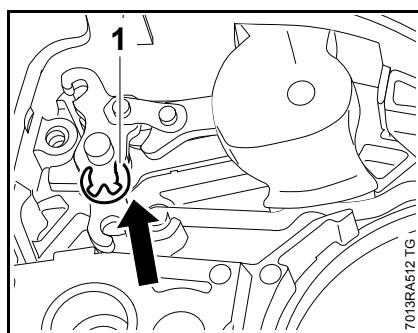
- Line up the brake lever – the forked opening (arrow) must face the brake band.
- Push the brake lever (1) into the hand guard and line up the holes.



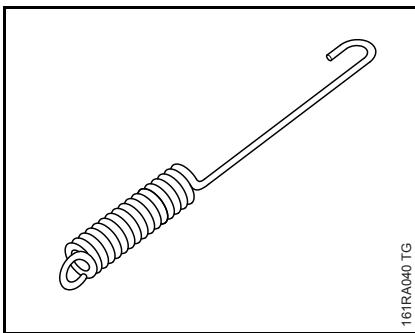
- Lift the bearing boss of the hand guard and the brake lever a little and position them over the pivot pins (arrows).



- Ease the cam (arrow) of the hand guard (1) past the flat spring (2).
- Push the hand guard and brake lever onto the pivot pins, moving the hand guard to and fro at the same time.



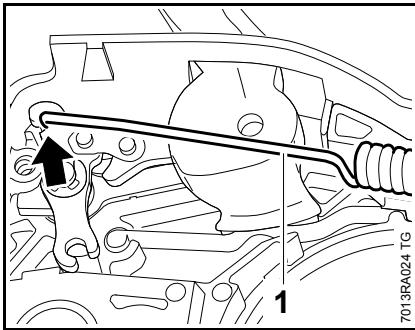
- Fit the retaining ring (1).



161RA040 TG

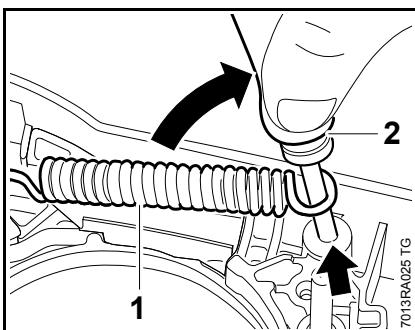
- The turns of the brake spring must be tightly against one another in the relaxed condition. If this is not the case, replace the brake spring.

If the groove in the spring's anchor pin is worn, install a new pin, **5.5**



7013RA024 TG

- The stop must be installed.
- Attach the brake spring (1) to the brake lever (arrow).



7013RA025 TG

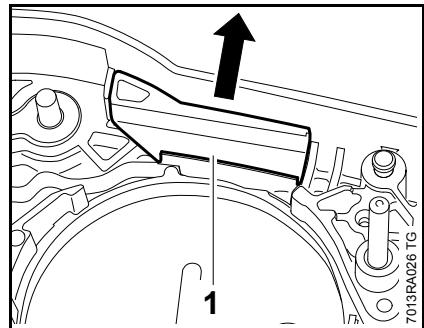
- Use the assembly tool (2) 1117 890 0900 to attach the brake spring (1) to the anchor pin (arrow).

- Lubricate the brake lever with STIHL lubricant, **14**
- Reassemble all other parts in the reverse sequence.

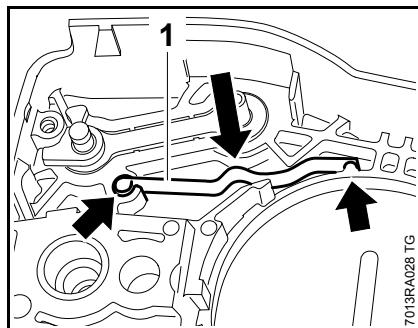
#### 5.4 Flat Spring

The flat spring and hand guard cam hold the hand guard in position.

- Remove the brake lever, **5.3**



#### Installing



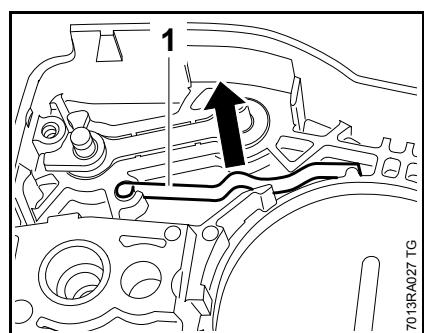
7013RA028 TG

- Push the flat spring (1) into the guides (arrows).
- Lubricate the flat spring with STIHL lubricant, **14**
- Install the stop.
- Reassemble all other parts in the reverse sequence.

#### 5.5 Pins

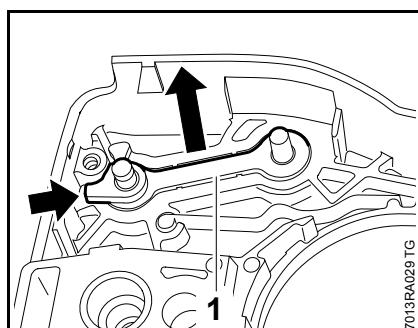
The pins secure the springs. Worn pins must be replaced – the brake spring may pop out during this operation.

For greater clarity, all parts have been removed from the pins in the following illustrations.



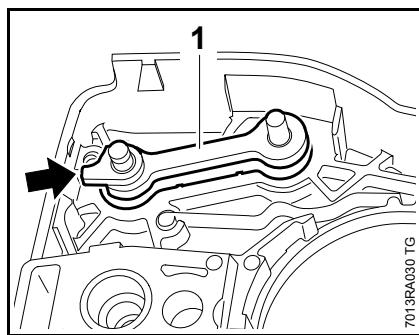
7013RA027 TG

- Pull out the flat spring (1), check it and replace if necessary.

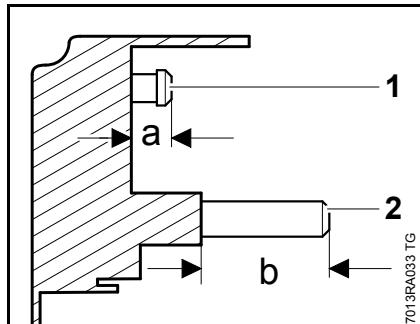


7013RA029 TG

- Apply suitable tool to tab (arrow) to pry the link (1) out of its seat. Check and replace if necessary.



Turn pin back and forth as necessary.

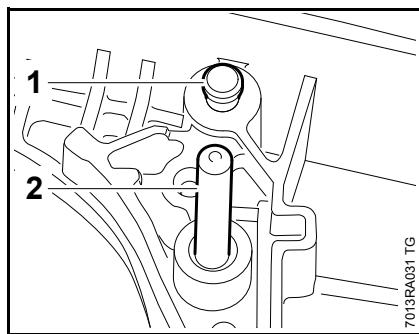


View from air filter side.

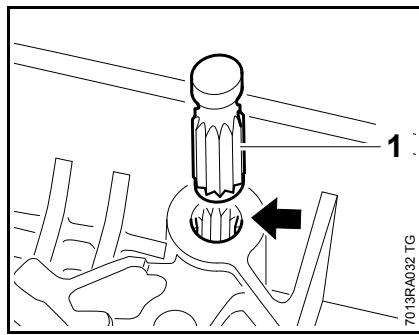
- Carefully tap home the anchor pin (1) and notched pin (2) to obtain the following dimensions:  
Anchor pin (1) a = 4.8 mm  
Notched pin (2) b = 25.5 mm

The pins must be driven home squarely.

- Lubricate the brake lever and flat spring with STIHL lubricant, **14**
- Reassemble all other parts in the reverse sequence.



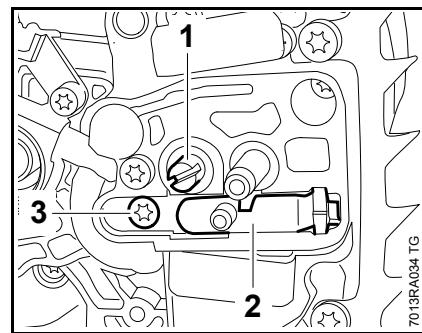
- Use suitable tool to pull the anchor pin (1) and notched pin (2) out of the cover.



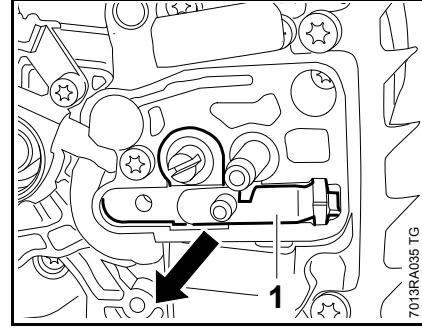
- Before installing the new pin (1), coat its knurled shank with Loctite, **14**
- Position the new pin (1) in the bore (arrow) so that the knurling on the pin meshes with the existing knurling in the bore.

## 5.6 Chain Tensioner

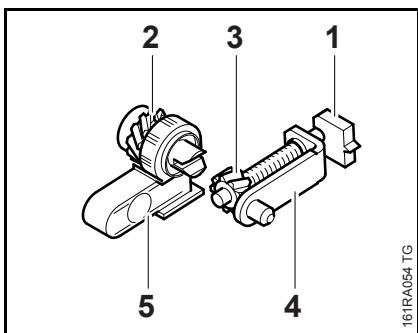
- Disengage the chain brake and remove the chain sprocket cover, bar and chain.
- Troubleshooting, **3.2**



- Turn the spur gear (1) clockwise until the tensioner slide (2) butts against the right-hand end.
- Take out the screw (3).



- Pull out the complete chain tensioner (1).



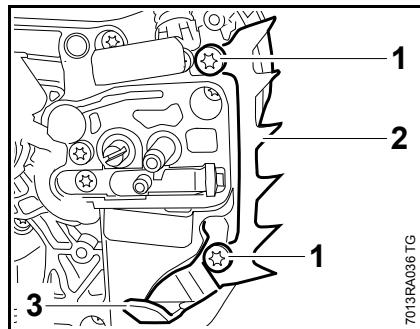
- Inspect the thrust pad (1), spur gear (2), adjusting screw (3), tensioner slide (4) and cover (5) and replace if necessary.
- Clean all disassembled parts with a little standard commercial solvent-based degreasant containing no chlorinated or halogenated hydrocarbons. Replace any damaged or worn parts, **□ 14**.

Always replace the adjusting screw and spur gear as a matching pair.

- Check operation
- Lubricate the chain tensioner with STIHL multipurpose grease, **□ 14**
- Reassemble in the reverse sequence.

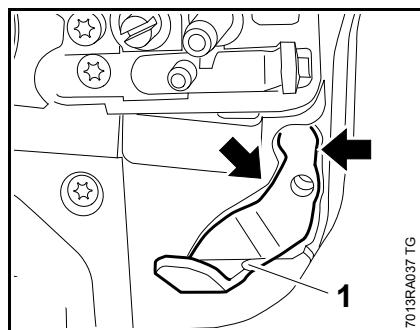
### 5.6.1 Chain Catcher

- Disengage the chain brake and remove the chain sprocket cover, bar and chain.



- Take out the screws (1).
- Remove the spiked bumper (2) and chain catcher (3).

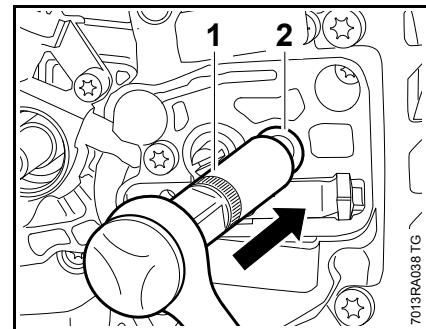
#### Installing



- Position the chain catcher (1) so that it lines up with the contour of the recess (arrows).
- Fit the spiked bumper.
- Insert the screws and tighten them down firmly.
- Reassemble all other parts in the reverse sequence.

### 5.7 Bar Mounting Stud

- Disengage the chain brake and remove the chain sprocket cover, bar and chain.



- Push stud puller 5910 893 0501 (1) over the collar stud (2) as far as it will go and unscrew the stud counterclockwise.

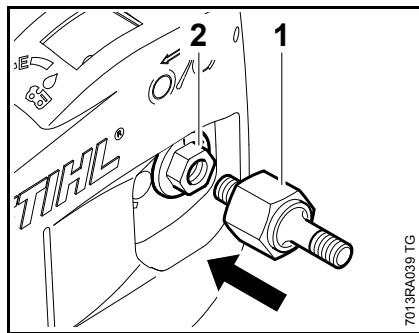
- Coat the collar stud with Loctite, fit and tighten down firmly, **□ 14**
- Reassemble all other parts in the reverse sequence.

### 5.8 Collar Nut for Sprocket Cover

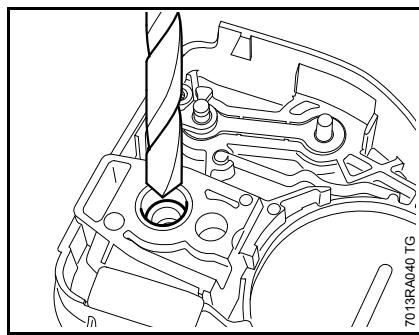
This sprocket cover can only be used on the MS 201 and MS 201 T. Retrofitting other models is not possible.  
The length and shape of the collar stud must be matched to the sprocket cover with captive nut.

Special tool 5910 893 9600 is available for replacing the nut.

- Disengage the chain brake and remove the sprocket cover.

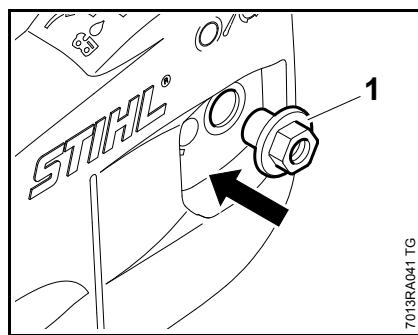


- Screw the short stud of special tool (1) 5910 893 9600 into the collar nut (2) as far as stop.

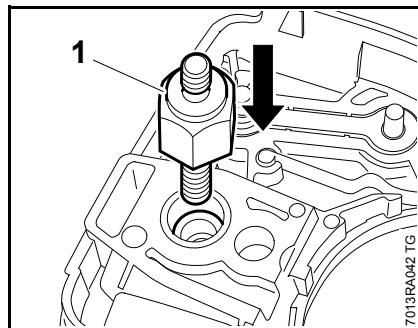


- Turn the sprocket cover over and clamp the hexagon of the special tool in a vise.
- Use an 11mm drill to drill away the flange of the captive nut – the shoulder in the sprocket cover must not be drilled out.
- Remove the collar nut.
- Unscrew the special tool from the collar nut.

## Installing

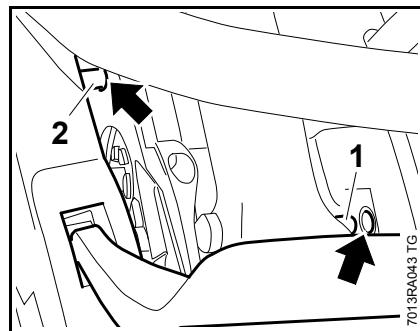


- Push the new collar nut (1) into position.



- Hold hexagon of collar nut steady.
- Screw the long stud of special tool (1) 5910 893 9600 into the collar nut from the other side as far as stop.

This flares the end of the new collar nut and secures it in the sprocket cover.



- Mount the sprocket cover and make sure the lug (1) and the notched pin (2) engage the holes (arrows).

- Reassemble all other parts in the reverse sequence.

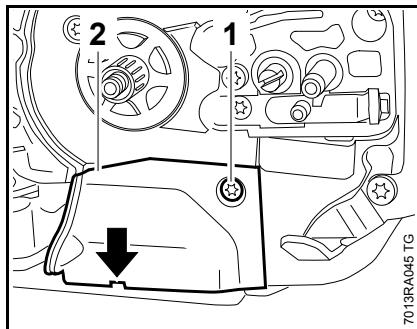
## 6. Engine

### 6.1 Muffler

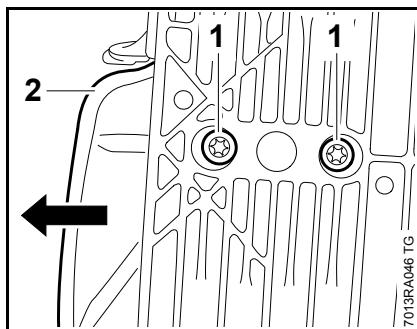
Always check and, if necessary, repair the fuel system, carburetor, air filter and ignition system before looking for faults on the engine.

- Troubleshooting, **3.7**
- Remove the clutch drum, **4.2**

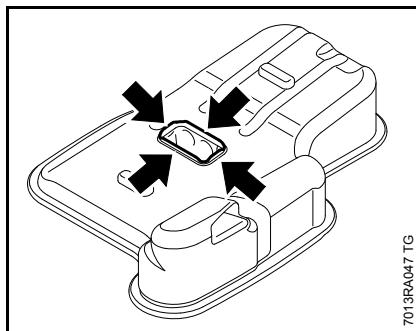
Before removing the muffler, set the piston to top dead center to ensure that no dirt falls into the cylinder.



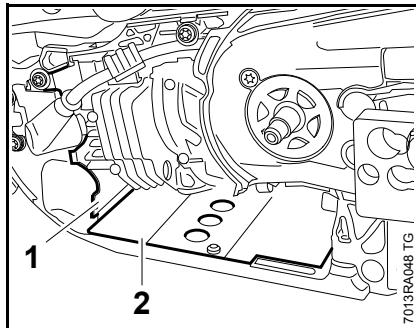
- Take out the screw (1).
- Press in the retaining tab (arrow) slightly, pry out the cover (2) and lift it away.



- Take out the screws (1).
- Pull out the muffler (2), check it and replace if necessary.

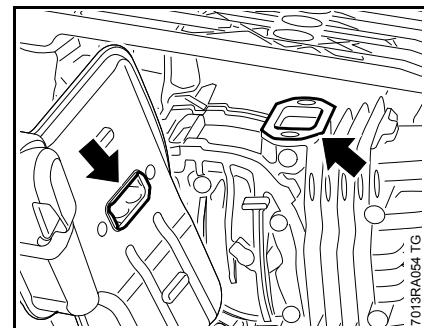


- Examine raised edge (arrows) around opening. If damaged, replace the muffler.
- Remove and install the spark arresting screen, if fitted – see instruction manual.



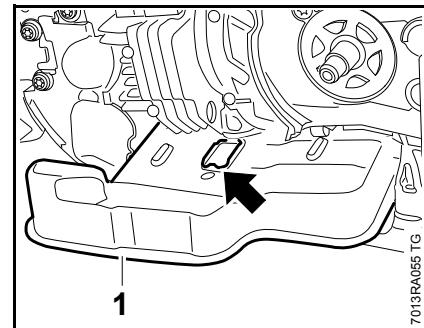
- Check the insulating plate (1) and replace if necessary, **6.1.1**
- Check the heat shield (2), replace tank housing if necessary, **12.11**

### Installing



- Inspect and clean the sealing faces (arrows), **14**

Always replace components with damaged sealing faces.



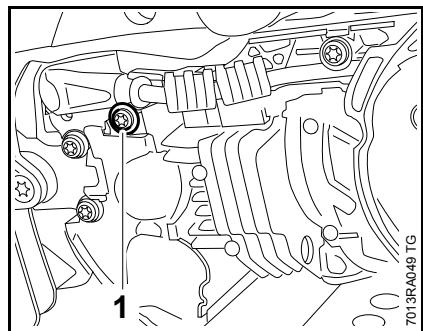
- Carefully push the muffler (1) into position.

Make sure the raised edge (arrow) engages the exhaust port.

- Fit the screws and check correct position of muffler again.
- Insert the screws and tighten them down firmly.
- Reassemble all other parts in the reverse sequence.

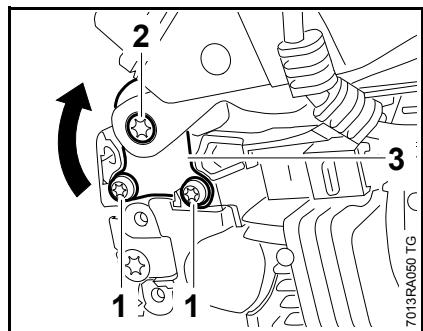
### 6.1.1 Insulating Plate

- Remove the muffler, **6.1**
- Pull off the boot and unscrew the spark plug.



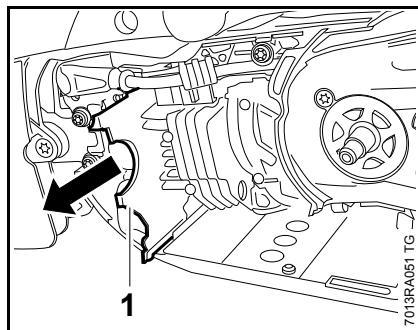
- Take out the screw (1).

### MS 201 T



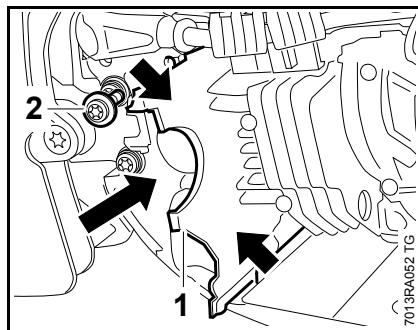
- Take out the screws (1) and loosen screw (2).
- Swing annular buffer (3) clockwise out of the way.

### All models



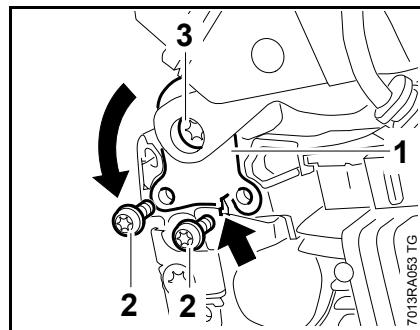
- Pull out the insulating plate (1).

### Installing



- Line up the insulating plate so that the cutout for the spark plug matches the recess in the tank housing.
- Position the insulating plate (1) in the guides (arrows) and push it home as far as stop.
- Insert and tighten down the screw (2) firmly.

### MS 201 T



- Swing the annular buffer (1) counterclockwise and position it so that the lug (arrow) engages the notch.
- Insert and tighten down the screws (2) firmly.
- Tighten down the screw (3) firmly.
- Reassemble all other parts in the reverse sequence.

## 6.2 Leakage Test

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 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.

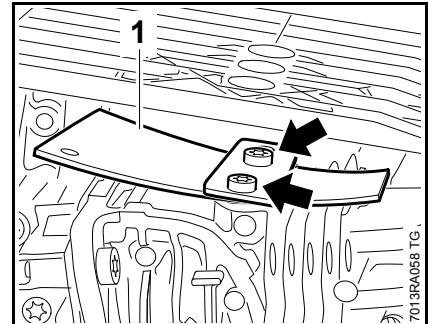
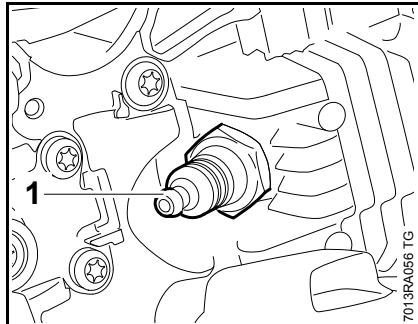
Always perform the vacuum test first and then the pressure test.

The engine can be checked thoroughly for leaks with the pump 0000 850 1300.

### 6.2.1 Preparations

- Disengage the chain brake and remove the chain sprocket cover, bar and chain.

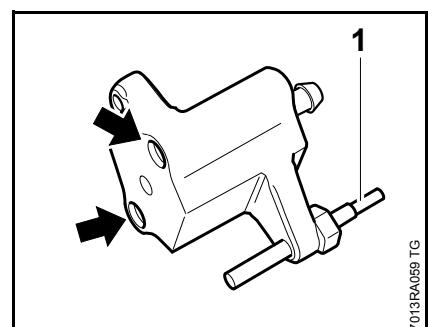
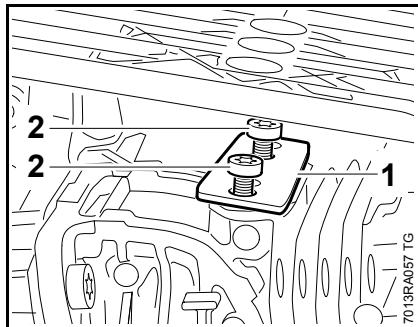
The preparations are the same for the MS 201 and MS 201 T even though their handle housings and the position of the carburetor are different.



- Slide the sealing plate (1) 0000 855 8106 between the cylinder exhaust port and flange and tighten down the screws (arrows) moderately.

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

- Remove the carburetor, MS 201 12.4, MS 201 T 12.5

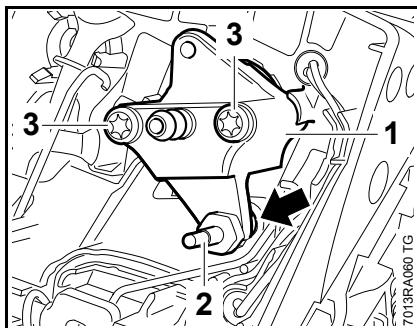


- Fit the test flange (1) 5910 855 4201.
- Fit the screws (2).

The recesses (arrows) must fit over the bushings.

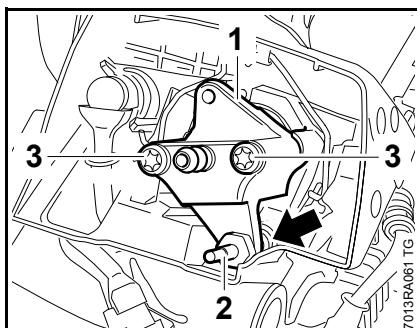
Screw (1) must be in place – it seals the impulse hose.

## MS 201



- Position the flange (1) 5910 850 4203 so that the recesses fit over the bushings and the screw (2) seals the impulse hose (arrow).
- Fit the flange (1) 5910 850 4203, insert and tighten down the screws (3) firmly.

## MS 201 T

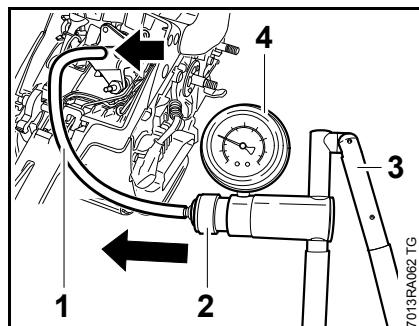


- Position the flange (1) 5910 850 4203 so that the recesses fit over the bushings and the screw (2) seals the impulse hose (arrow).
- Fit the flange (1) 5910 850 4203, insert and tighten down the screws (3) firmly.

### 6.2.2 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.

A test can be carried out with pump 0000 850 1300 to detect this kind of fault.



- Connect hose (1) of pump 0000 850 1300 to the nipple (arrow).
- Push ring (2) to the left – vacuum test.
- Operate the lever (3) until the pressure gauge (4) indicates a vacuum of 0.5 bar.

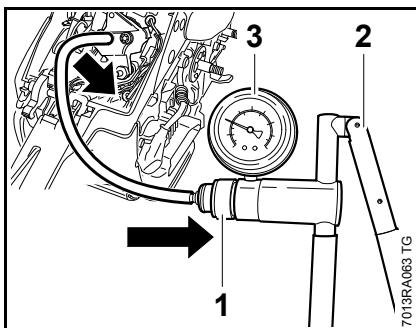
If the vacuum reading remains constant, or rises to no more than 0.3 bar within 20 seconds, it can be assumed that the oil seals are in good condition.

If the pressure continues to rise (reduced vacuum in engine), the oil seals must be replaced, **6.3**.

- After finishing the test, push the ring to the right to vent the pump.
- Continue with pressure test, **6.2.3**

### 6.2.3 Pressure Test

Carry out the same preparations as for the vacuum test, **6.2.2**



- Push ring (1) to the right
  - pressure test.
- Operate the lever (2) until the pressure gauge (3) indicates a pressure of 0.5 bar. If this pressure remains constant for at least 20 seconds, the engine is airtight.
  - If the pressure drops, the leak must be located and the faulty part replaced.

To find the leak, coat the suspect area with soapy water and pressurize the engine again. Bubbles will appear if a leak exists.

- After finishing the test, push the ring to the left to vent the pump – disconnect the hose.
- Remove the flange 5910 850 4203 from the intake manifold.
- Install the carburetor, MS 201 **12.4**, MS 201 T **12.5**

- Remove the flange 5910 855 4201 and sealing plate 0000 855 8106.
- Install the muffler, **6.1**
- Reassemble all other parts in the reverse sequence.

### 6.3 Oil Seals

It is not necessary to disassemble the engine to replace the oil seals.

Use puller 5910 890 4400 with No. 3.1 jaws 0000 893 3706 to remove the oil seals.

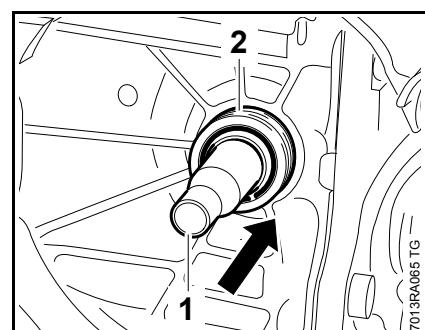
#### 6.3.1 Ignition Side

- Remove the fan housing, **8.2**
- Remove the flywheel, **7.5**

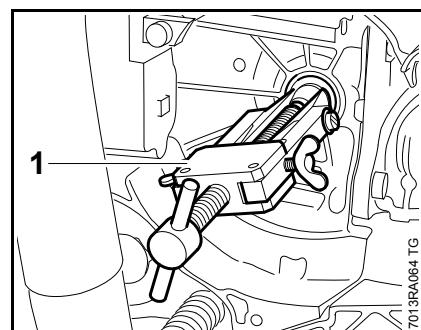
- Clamp the puller arms.
- Pull out the oil seal.

#### Installing

- Clean the sealing face, **14**
- Lubricate sealing lips of new oil seal with STIHL lubricant, **14**

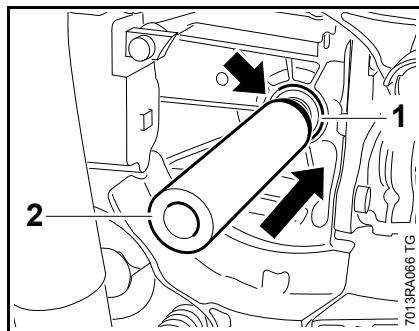


- Fit the installing sleeve (1) 1145 893 4600.
- Slip the oil seal (2), open side facing the crankcase, over the installing sleeve.
- Remove the installing sleeve (1).



Take care not to damage the crankshaft stub.

- Free off the oil seal in its seat by tapping it with a suitable tube or a punch.
- Apply puller (1) 5910 890 4400.



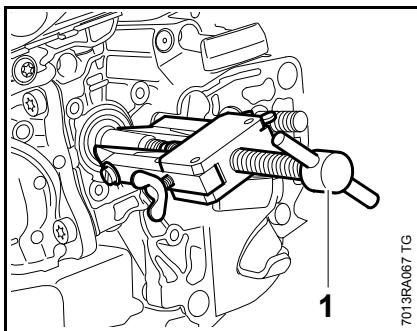
- Line up the press sleeve (2) 1120 893 2400 with the collar (arrow) facing the engine.
- Press home the oil seal (1) with press sleeve (2).

The seating face must be flat and free from burrs.

- Degrease the crankshaft taper, **14**
- Reassemble all other parts in the reverse sequence.

### 6.3.2 Clutch Side

- Disengage the chain brake and remove the chain sprocket cover, bar and chain.
- Remove the clutch, **4.1**
- Remove the clutch drum, **4.2**
- Remove the oil pump, **11.4**



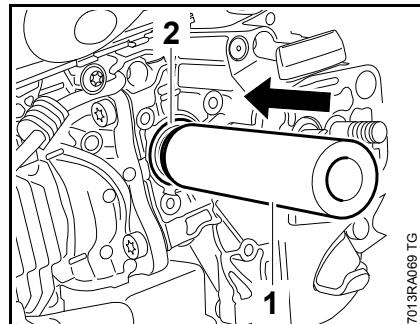
Take care not to damage the crankshaft stub.

- Free off the oil seal in its seat by tapping it with a suitable tube or a punch.
- Apply puller (1) 5910 890 4400.
- Clamp the puller arms.
- Pull out the oil seal.

### Installing

- Clean the sealing face, **14**
- Lubricate sealing lips of new oil seal with STIHL lubricant, **14**

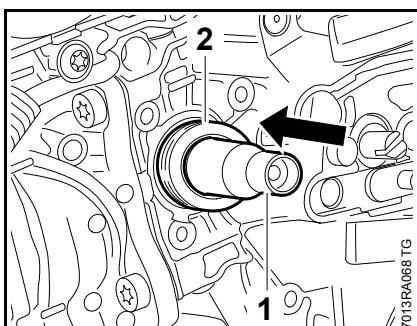
- Slip the oil seal (2), open side facing the crankcase, over the installing sleeve.
- Remove the installing sleeve (1).



- Line up the press sleeve (1) 1120 893 2400 with the collar (arrow) facing the engine.
- Press home the oil seal (2) with press sleeve (1).

The seating face must be flat and free from burrs.

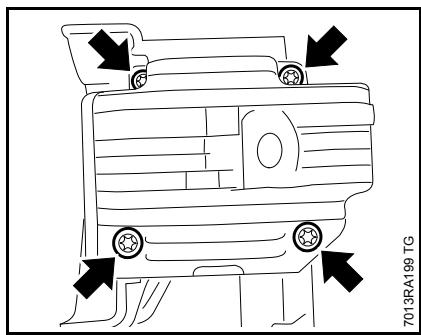
- Reassemble all other parts in the reverse sequence.



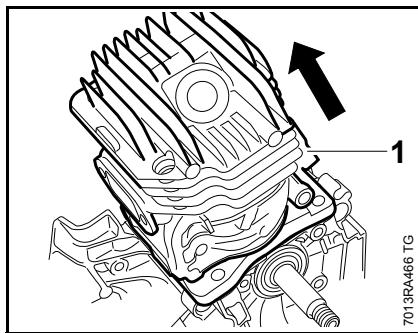
- Fit the installing sleeve (1) 1145 893 4600.

## 6.4 Cylinder

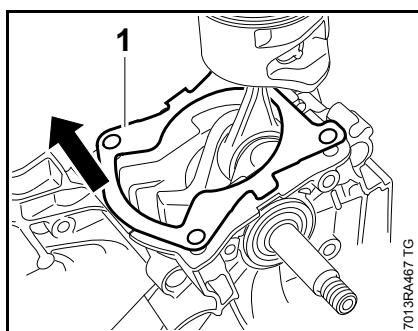
- Disengage the chain brake and remove the chain sprocket cover, bar and chain.
- Drain the fuel and oil tanks, **1**
- Pull off the boot and unscrew the spark plug,
- Remove the muffler, **6.1**
- Remove the fan housing, **8.2**
- Remove the carburetor, MS 201 **12.4**  
MS 201 T **12.5**
- Remove the handle housing, MS 201, **10.4**  
MS 201 T, **10.5**
- Remove the ignition module, **7.2**
- Remove the impulse hose, **12.8.1**
- Remove the manifold, **12.8**
- Remove the tank housing, **12.11**



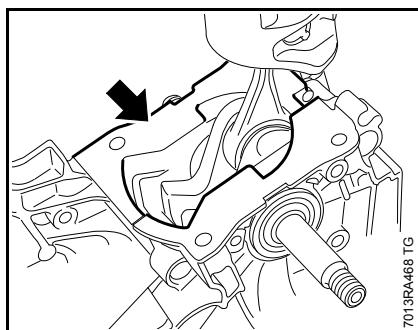
- Take out the screws (arrows).



- Carefully lift the cylinder (1) away.



- Remove the cylinder gasket (1).



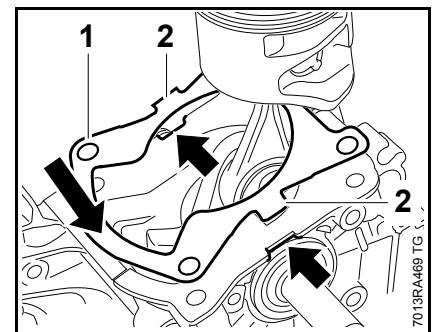
- Inspect and clean the sealing face (arrow), **14**

The sealing faces on the cylinder and crankcase must be in perfect condition – no signs of damage; also check the sealing faces on the exhaust and inlet ports.

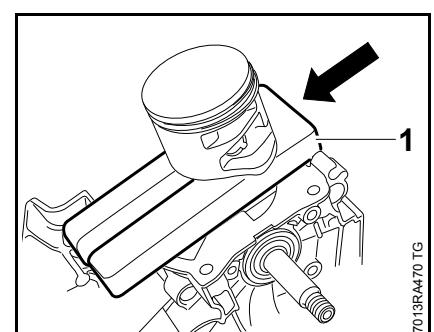
Always replace parts with damaged sealing faces – even very minor damage can result in engine running problems, **3.7**.

Always use a new cylinder gasket when re-installing the cylinder.

## Installing

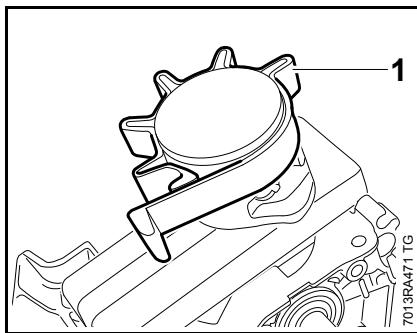


- Position the new cylinder gasket (1) so that the contours match and the tabs (2) engage the recesses (arrows).
- Place the cylinder gasket (1) in position.



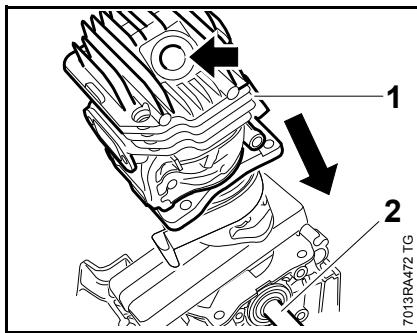
- Slide the wooden assembly block (1) 1108 893 4800 between the piston and crankcase.

Take care not to displace or damage the cylinder gasket.



- Lubricate the piston, piston rings and cylinder wall with oil, **14**
- Use the clamping strap (1) 0000 893 2600 to compress the rings around the piston.
- Check correct installed position of rings, **6.7**

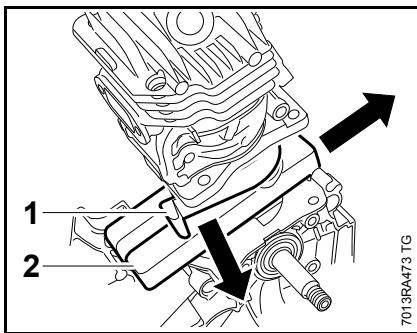
Apply the clamping strap (1) so that the piston rings do not project beyond the cylinder wall.



- Line up the cylinder (1) so that the spark plug hole (arrow) faces the crankshaft stub (2) at the clutch side.

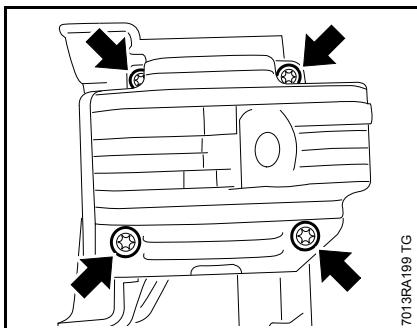
While sliding the cylinder over the piston, hold the clamping strap tightly around the piston so that the rings do not project – they might otherwise break.

- Slide the cylinder (1) over the piston, the clamping strap moves downwards at the same time.



- Remove the clamping strap (1) and wooden assembly block (2).

Make sure the cylinder gasket is properly seated.



- Push the cylinder fully home.
- Insert the screws (arrows) to hold the cylinder and gasket in position..
- Tighten down the screws (arrows) in an alternate pattern.
- Reassemble all other parts in the reverse sequence.

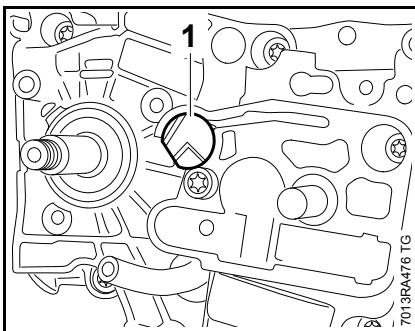
## 6.5 Crankshaft / Crankcase

The crankshaft bearings are not press-fitted. The two halves of the crankcase can therefore be separated without a puller.

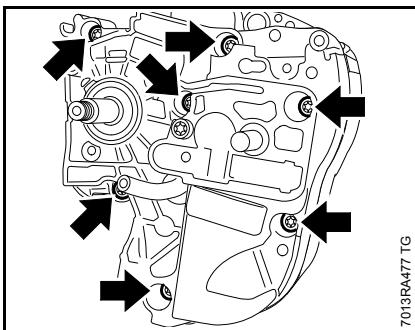
If the two halves of the crankcase are stuck, use service tool 5910 007 2205 to ease them apart.

- Disengage the chain brake and remove the chain sprocket cover, bar and chain.
- Remove the clutch drum, **4.1**
- Remove the flywheel, **7.5**
- Remove the ignition module, **7.2**
- Remove the handle housing, MS 201 **10.4**, MS 201 T **10.5**
- Remove the tank housing, **12.11**
- Remove the oil pump, **11.4**
- Remove the cylinder, **6.4**
- Remove the piston, **6.6**
- Remove the spiked bumper and chain catcher.
- Remove the chain tensioner, **5.6**

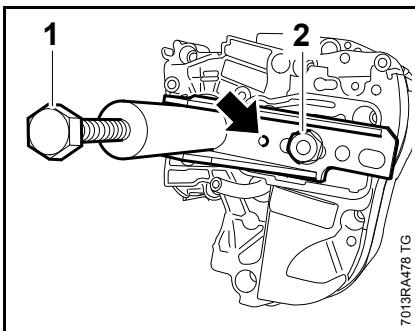
Always install new bearings and oil seals after removing the crankshaft, **6.5.1**, **6.3**.



- Push out the connector (1).



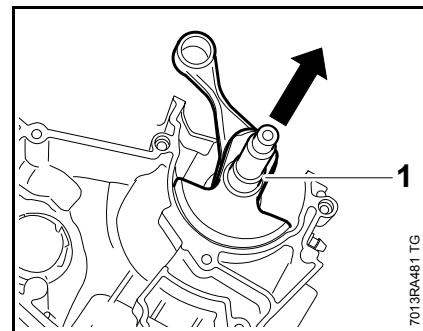
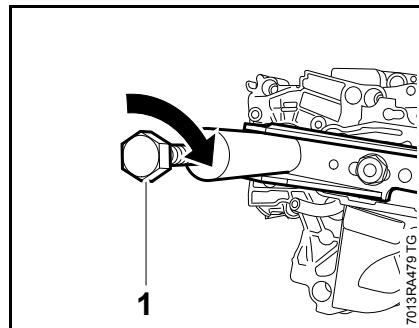
- Take out the screws (arrows).



- Back off the spindle (1) in service tool until it is clear of the crankshaft stub.

The service tool has to be secured in place to ensure the spindle is centered on the crankshaft stub – the collar screw on the crankcase must engage the hole (arrow).

- Push the service tool 5910 890 2205 on to the collar screw, fit the nut (2) and tighten it down firmly.



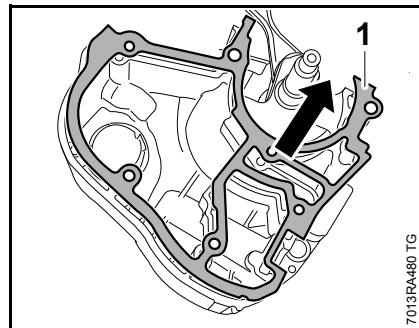
- Pull out the crankshaft (1).

The crankshaft, connecting rod and needle bearing form an inseparable unit.

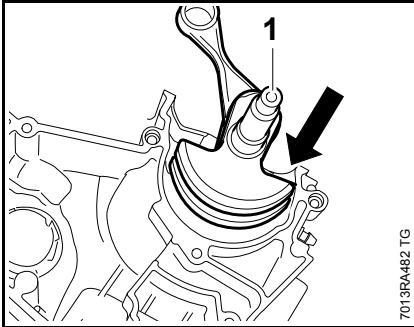
- Inspect the two halves of the crankcase and replace if necessary, **6.5**
- Install new bearings, **6.5.1**
- Clean the crankshaft, **14**

Take care not to damage the crankshaft stubs.

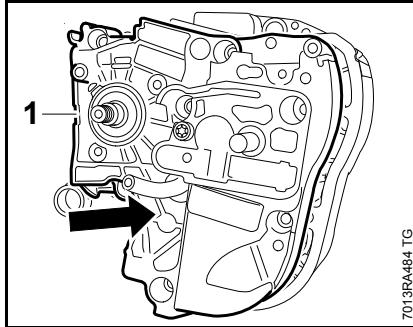
Inspect and clean the sealing faces on both halves of the crankcase (including the cylinder sealing face) – the sealing faces must not be damaged in any way, **14**.



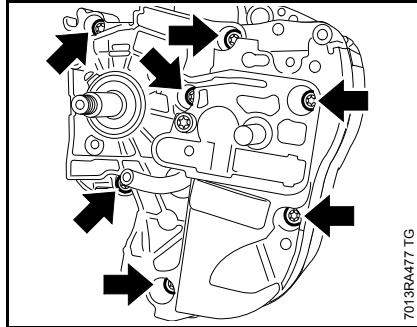
- Remove the gasket (1).



- Coat tapered stub of crankshaft with oil.
- Line up the tapered stub of the crankshaft (1) with the roller bearing at the ignition side.
- Push the crankshaft (1) into the roller bearing as far as stop.

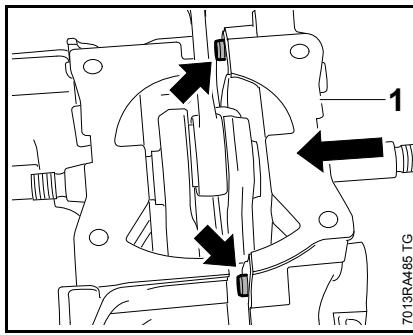


- Position the clutch side of the crankcase (1) on the straight stub of the crankshaft.



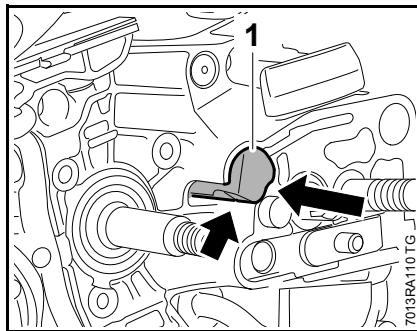
- Insert the screws (arrows) and tighten them down firmly in a crosswise pattern.

Turn the crankcase, making sure the pickup body falls freely in the oil tank.



Make sure the sleeves (arrows) engage the holes and the gasket is not pinched or twisted.

- Position the oil pickup body so that it is in lower part of the crankcase and not pinched – the freedom of movement of the pickup body must not be restricted in any way.
- Place the new gasket (1) on the clutch side of the crankcase and over the guide sleeves (arrows) – the gasket is now held in position.
- Coat the straight stub of the crankshaft with oil.



- Push the connector (1) into its seat so that the bore (arrow) faces the oil pump.
- Check and install the piston, [6.6](#)
- Check and install the cylinder, [6.4](#)
- Reassemble all other parts in the reverse sequence.

## 6.5.1 Roller Bearings / Crankcase

Each half of the crankcase can be replaced separately if it is damaged.

New crankcase halves are supplied with the main parts preassembled – see the parts list.

Parts not supplied with the new crankcase must be transferred from the original crankcase – check the parts and replace if necessary.

If a new crankcase is installed, the machine's serial number must be stamped on it with 2.5 mm figure stamps.

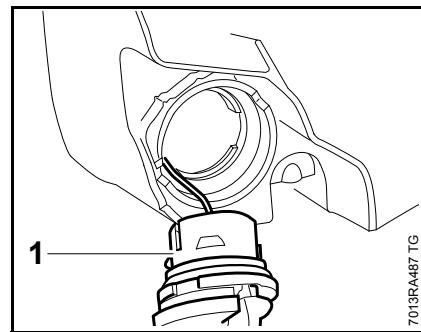
If the original crankcase is used again, replace the oil seals and roller bearings, remove any gasket residue and clean the sealing surfaces thoroughly. The sealing faces must be clean to guarantee a perfect seal.

Inspect both halves of the crankcase for cracks and all sealing faces for signs of damage.

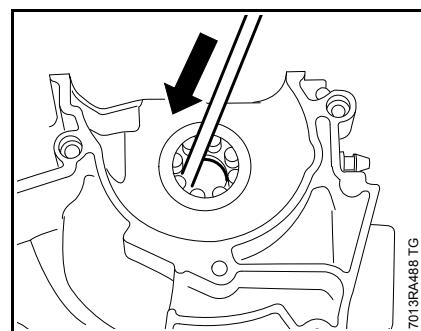
- See also Troubleshooting, **3.7**
- Separate the two halves of the crankcase, **6.5**.
- Wear protective gloves to reduce risk of burn injury.

As the crankcase halves have to be heated to remove and install the roller bearings, all heat-sensitive parts have to be removed.

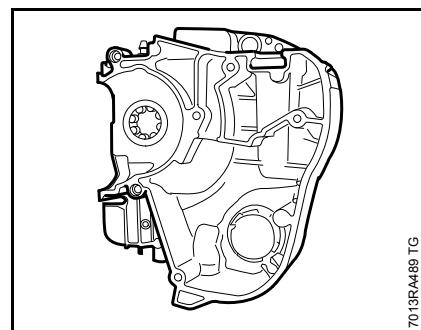
### Ignition side of crankcase



- Open the oil tank cap (1), disconnect it and put it to one side.

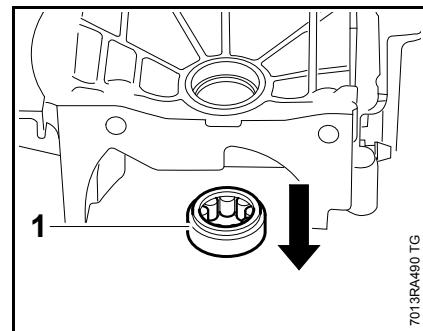


- Use a suitable punch to carefully drive out the oil seal.



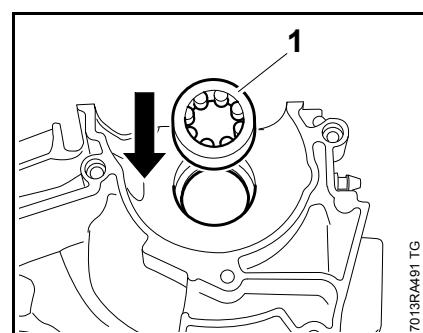
- Check and clean the crankcase or replace if necessary, **14**

If this half of the crankcase is in order, install a new roller bearing.



- Heat area of bearing seat to approx. 160 °C (320 °F).

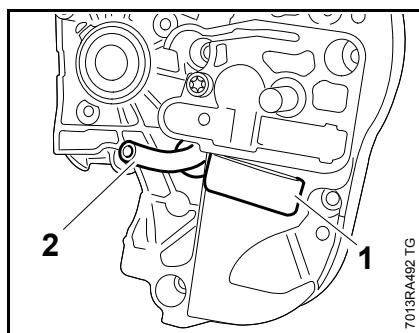
The roller bearing (1) drops out as soon as this temperature is reached.



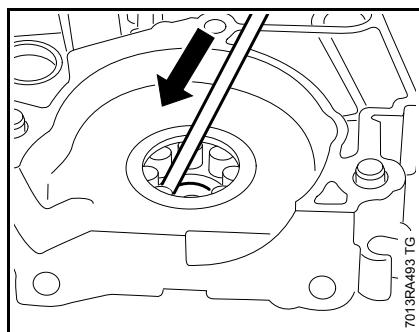
- Heat area of bearing seat to approx. 160 °C (320 °F).
- Position the roller bearing so that the nylon ring faces outwards.
- Press the roller bearing (1) fully home.

This operation must be carried out quickly because the bearing absorbs heat and begins to expand.

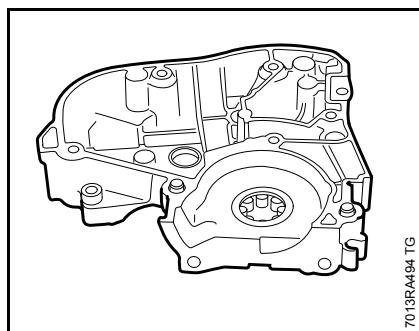
## Clutch side of crankcase



- Pry out the bumper strip (1).
- Pull out the oil suction hose (2).

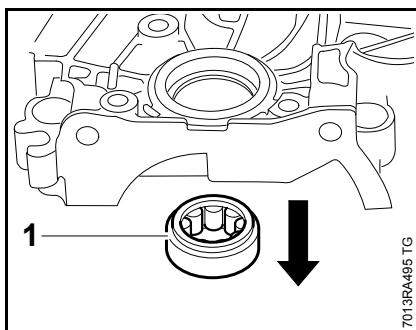


- Use a suitable punch to carefully drive out the oil seal.



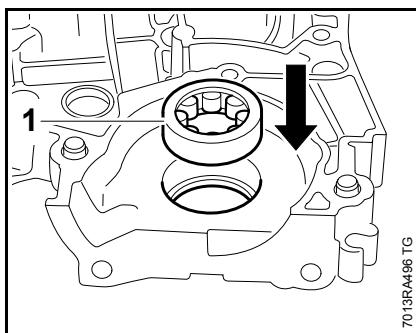
- Check and clean the crankcase or replace if necessary, **6.14**

If this half of the crankcase is in order, install a new roller bearing.



- Heat area of bearing seat to approx. 160 °C (320 °F).

The roller bearing (1) drops out as soon as this temperature is reached.



- Heat area of bearing seat to approx. 160 °C (320 °F).
- Position the roller bearing so that the nylon ring faces outwards.
- Press the roller bearing (1) fully home.

This operation must be carried out quickly because the bearing absorbs heat and begins to expand.

- Install the crankshaft and assemble the two halves of the crankcase, **6.5**

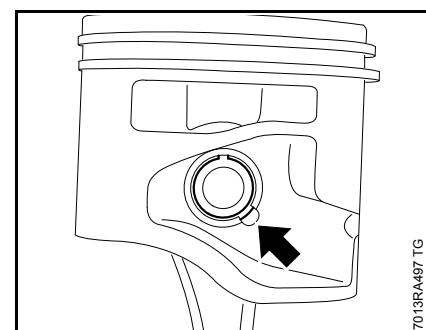
- Install the oil seals, **6.3**

- Reassemble all other parts in the reverse sequence.

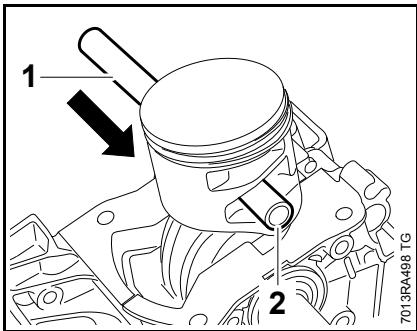
## 6.6 Piston

- Remove the cylinder, **6.4**

The piston has only one snap ring. It is fitted at the side facing the straight crankshaft stub.



- Use a suitable tool to grip the snap ring at the recess (arrow) and ease it out.



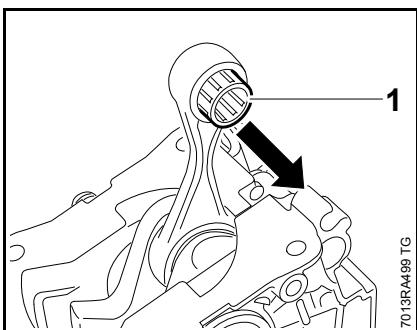
- Use the assembly drift (1) 1114 893 4700 to push the piston pin (2) out of the piston.

If the piston pin is stuck, release it by tapping the end of the drift lightly with a hammer.

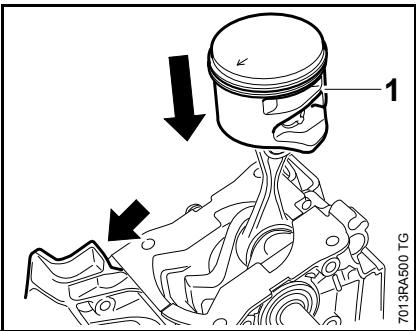
Hold the piston steady during this process to ensure that no jolts are transmitted to the connecting rod.

- Inspect the piston and replace it if necessary.
- Inspect the piston rings and replace if necessary, [6.7](#)

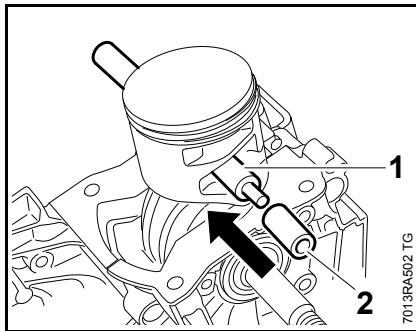
## Installing



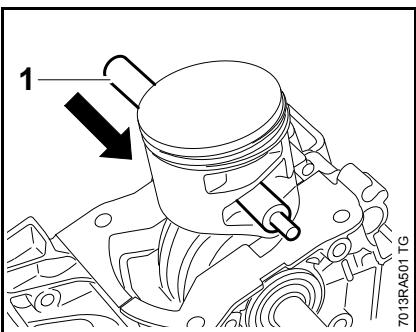
- Pull out the needle cage (1), check it and replace if necessary, [14](#)
- Lubricate the needle cage with oil and push it into the connecting rod.



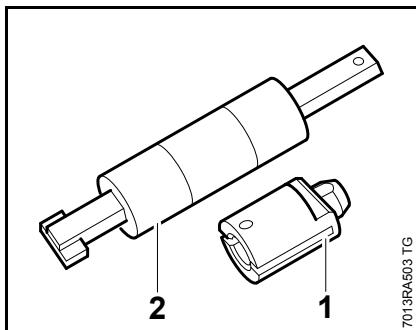
- Line up the piston (1) so that the arrow on the piston crown points towards the hump (arrow).
- Place the piston (1) on the connecting rod.



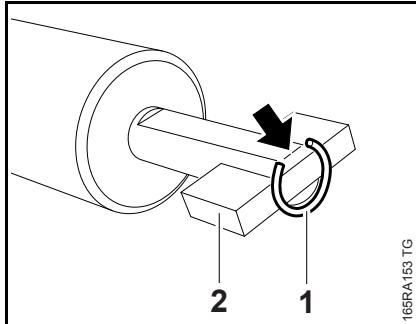
- Lubricate the piston pin with oil.
- Fit the piston pin (2) on the assembly drift (1) 1114 893 4700 and slide it into the piston.



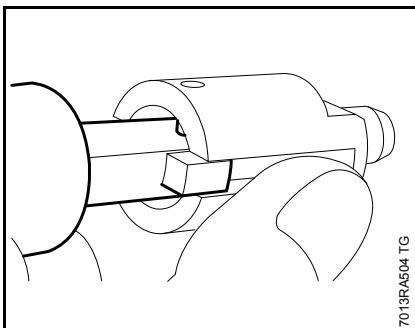
- Fit assembly drift (1) 1114 893 4700 at side facing the tapered crankshaft stub.
- Push the assembly drift (1) 1114 893 4700, small diameter first, through the piston and small end (needle cage) and line up the piston.



- Remove the sleeve (1) from the installing tool (2) 5910 890 2209.

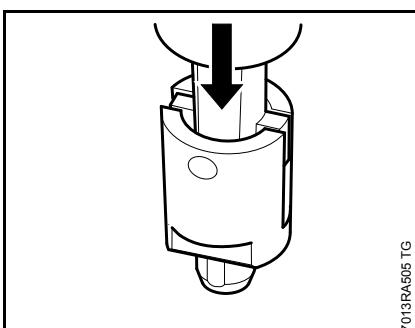


- Attach the snap ring (1) to the magnet (2) so that the snap ring gap is on the flat side of the tool's shank (arrow).



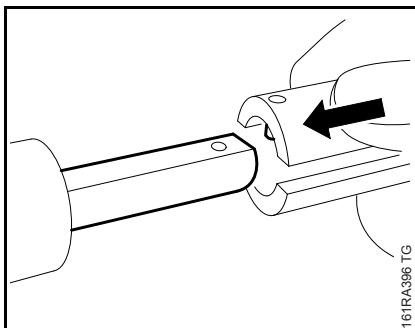
- Push the large slotted diameter of the sleeve over the magnet and snap ring.

The inner pin must point towards the flat face of the tool's shank.

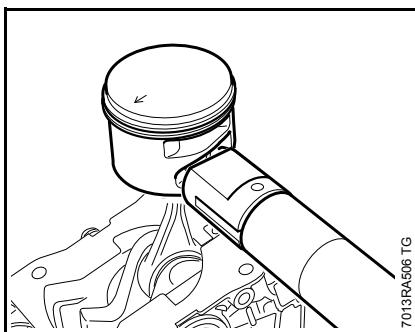


- Press the installing tool downwards into the sleeve until the magnet butts against the end of the guide slot.

Use a suitable base.

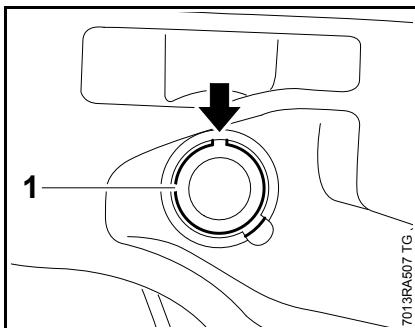


- Remove the sleeve and slip it onto the other end of the shank – the inner pin must point towards the flat face.

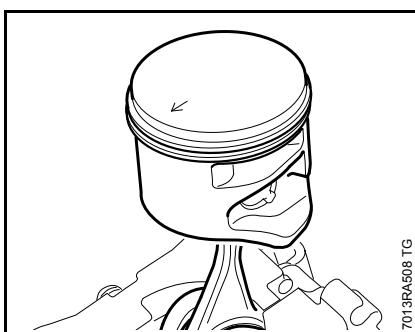


- Apply the installing tool 5910 890 2209 with the sleeve's taper against the piston boss, hold the piston steady, center the tool shank exactly and press home until the snap ring slips into the groove.

Make sure the tool is held square on the piston pin axis.



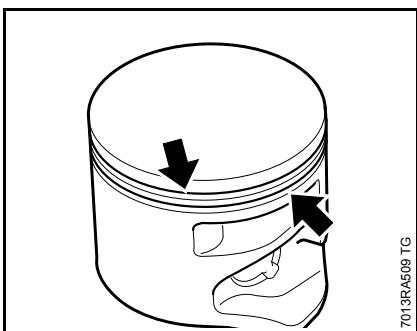
- Fit the snap ring (1) so that its gap (arrow) points up.



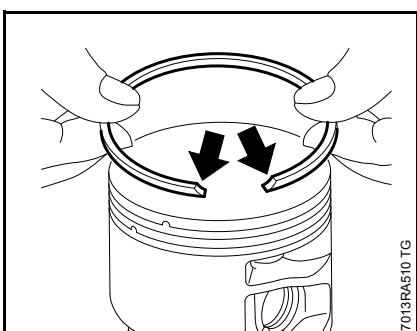
- Inspect the piston rings and replace if necessary, **6.7**
- Install the cylinder, **6.4**
- Reassemble all other parts in the reverse sequence.

## 6.7 Piston Rings

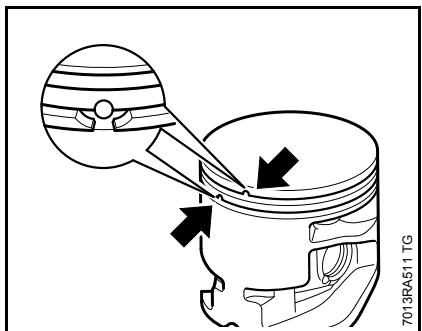
- Remove the piston, **6.6**
- Remove the piston rings from the piston.



- Use a piece of old piston ring to scrape the grooves (arrows) clean.



- Install the new piston rings in the grooves so that the radii face upward (arrows).



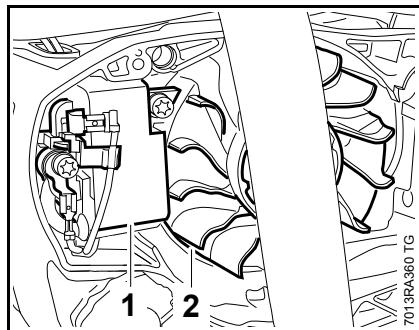
- Position the piston rings so that the radii at the ring gap meet at the fixing pin in the piston groove (arrows).
  - Check correct installed position of the piston rings (arrows).
- Install the piston, **6.6**
  - Reassemble all other parts in the reverse sequence.

## 7. Ignition System

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

Troubleshooting on the ignition system should always begin at the spark plug, **3.5**

- Remove the fan housing, **8.2**



The electronic (breakerless) ignition system basically consists of an ignition module (1) and flywheel (2).

The ignition module accommodates all the components required to control ignition timing. There are two electrical connections on the coil body:

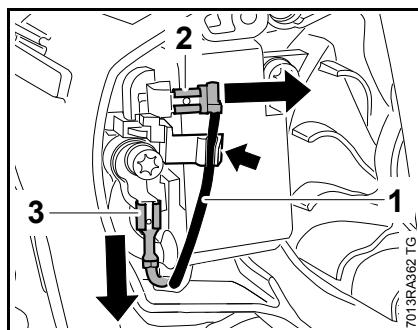
1. High voltage output with fixed ignition lead.
2. Connector tag for the short circuit wire.

Testing in the workshop is limited to a spark test. A new ignition module must be installed if no ignition spark is obtained (after checking that the wiring and switch shaft are in good condition).

### 7.1 Ignition Timing

Ignition timing is fixed and cannot be adjusted during repair work.

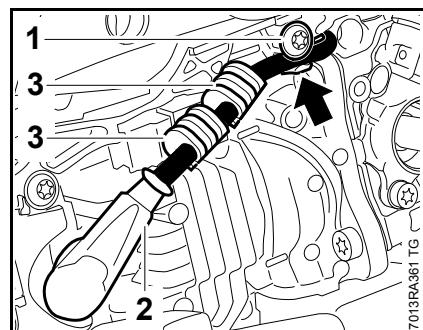
Since there is no mechanical wear in these systems, ignition timing cannot get out of adjustment during operation.



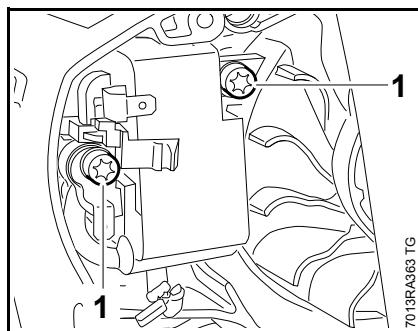
- Pull the short circuit wire (1) out of the guide (arrow).
- Disconnect terminals (2) and (3).

### 7.2 Ignition Module

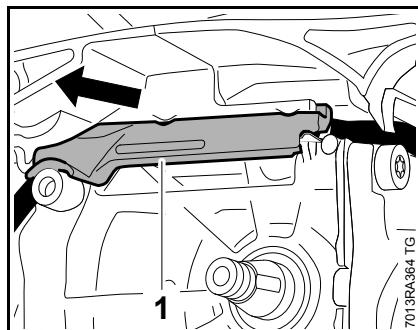
- Remove the fan housing, **8.2**
- Remove the clutch drum, **4.2**
- Remove the oil pump cover, **11.4**



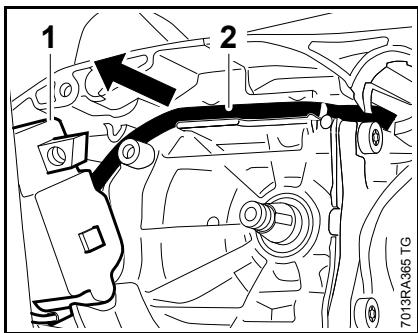
- Take out the screw (1) and pull the ignition lead out of the guide (arrow).
- Remove the spark plug boot (2) and retainers (3), **7.4**
- Remove the flywheel, **7.5**



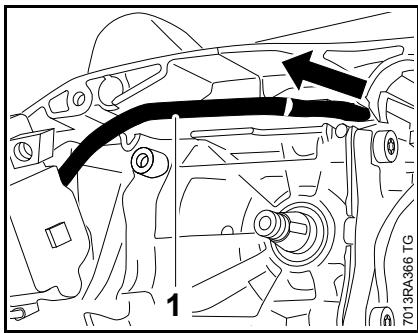
- Take out the screw (1) with washers.



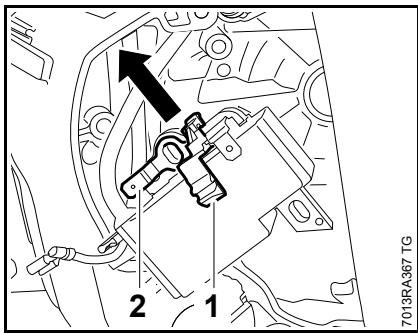
- Remove the cover (1).



- Lift the ignition module (1) a little and pull the ignition lead (2) out of the guide.

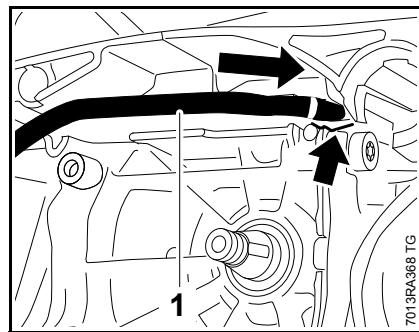


- Pull the ignition lead (1) from between the tank housing and engine.



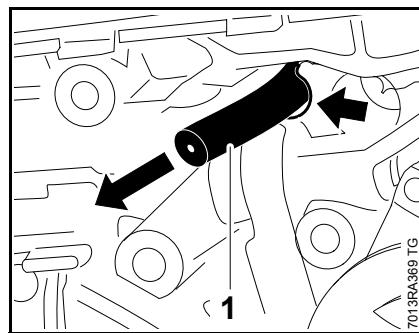
- Remove the cable retainer (1) and connector tag (2).
  - Check ignition lead, replace ignition module if necessary.
  - Check the spark plug boot and replace if necessary, **7.4**
  - Troubleshooting, **3.5**

## Installing

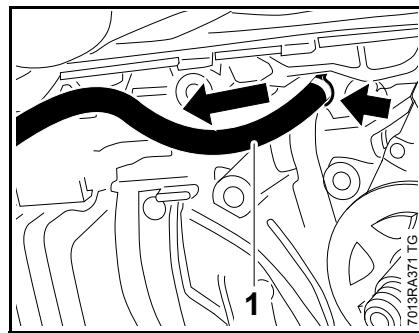


- Coat end of the ignition lead with STIHL press fluid, **14**

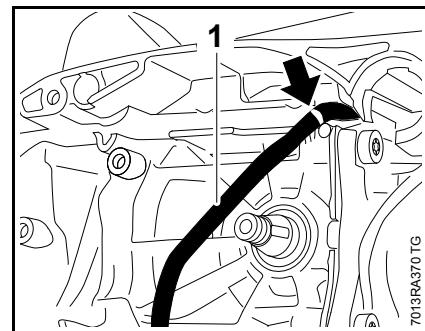
- Push the ignition lead (1) through the guide (arrow) at the ignition side.



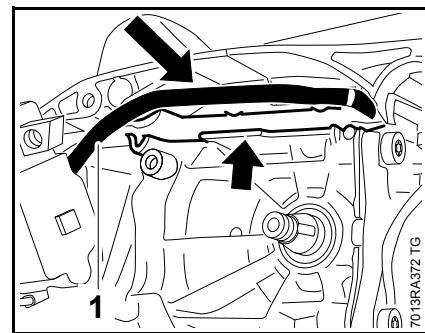
- Push the ignition lead (1) through the guide (arrow) at the clutch side.



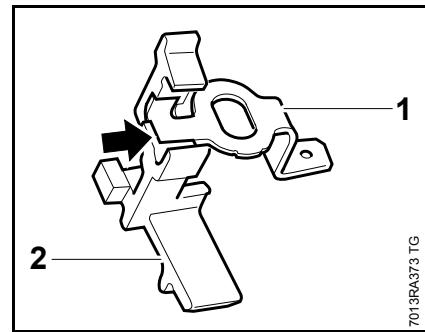
- Pull the ignition lead (1) into the clutch side until the first mark (arrow) is visible at the guide.



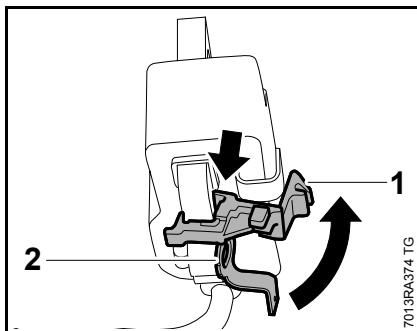
The second mark (arrow) on the ignition lead (1) must be located at the start of the guide on the ignition side.



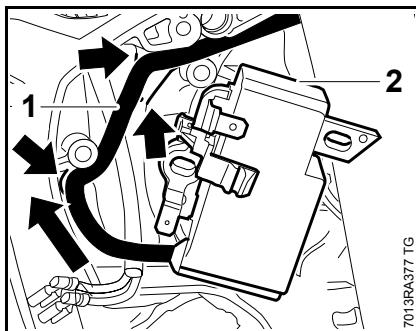
- Push the ignition lead (1) into the guide (arrow) as far as stop.



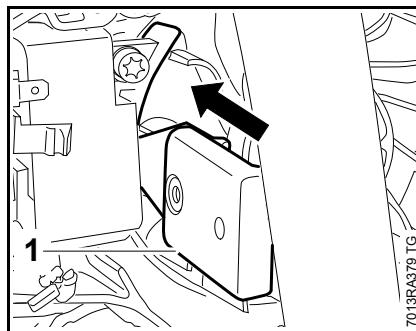
- Place the connector tag (1) in its seat (arrow) in the cable retainer (2) and press it down until it snaps into position.



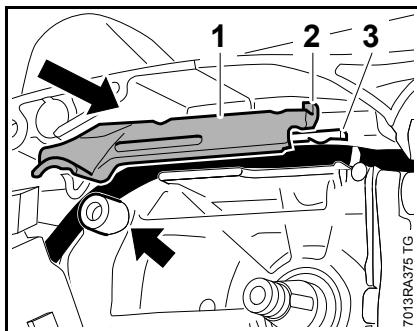
- Push the cable retainer (1) with connector tag (2) onto the ignition model until the tab (arrow) snaps into position – retainer and connector tag are now secured to the ignition module.



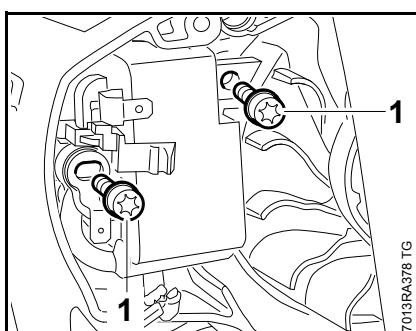
- Fit the ignition lead (1) behind the ignition module (2) so that it locates in the guides (arrows) in the crankcase – the ignition lead (1) must form a loop at the high voltage output and must not be kinked.
- Fit the ignition module (2) – do not pinch the wiring harness.



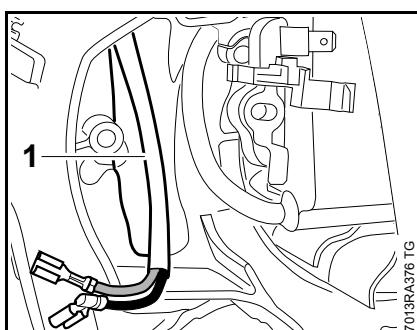
- Push the ignition module back and slide the setting gauge (1) 1111 890 6400 between the arms of the ignition module and the flywheel magnet poles.



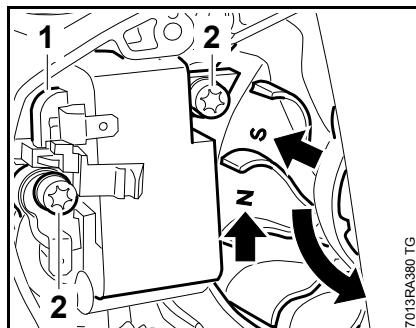
- Position the cover (1) so that the peg (2) engages behind the crankcase rib (3) and locates against the boss (arrow).



- Fit the screws (1) with washers – do not tighten down yet.
- Install the flywheel, [7.5](#)

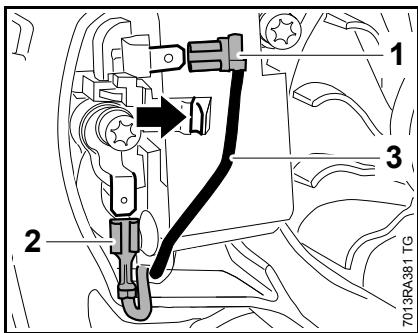


- The wiring harness (1) must be positioned in the crankcase recess.



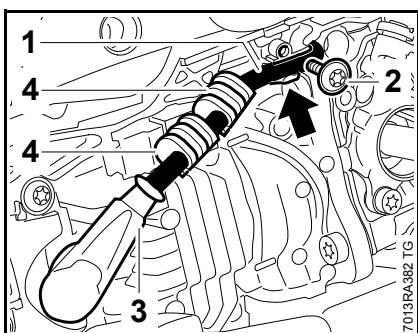
The setting gauge is not shown in the illustration.

- The flywheel must turn freely.
- Rotate the flywheel until the magnet poles (arrows) are next to the ignition module (1).
  - the setting gauge is in position.
- Press the ignition module (1) against the setting gauge and tighten down the screws (2) firmly.
  - Remove the setting gauge.
  - Check operation
    - Rotate the flywheel and make sure it does not touch the ignition module.



Crimped sides of terminals (1) and (2) must be visible.

- Connect terminal (1) of short circuit wire and terminal (2) of ground wire, making sure they are pushed fully home.
- Press the short circuit wire (3) into the guide (arrow).



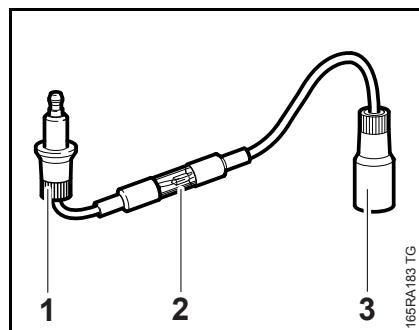
- Push the ignition lead (1) into the guide (arrow) at the clutch side.
- Insert and tighten down the screw (2) firmly.
- Fit the spark plug boot (3) and retainers (4), **7.4**
- Reassemble all other parts in the reverse sequence.

## 7.3 Testing the Ignition Module

To test the ignition module, use either the ZAT 4 ignition system tester 5910 850 4503 or the ZAT 3 ignition system tester 5910 850 4520.

The ignition test refers only to a spark test, not to ignition timing.

### Using ZAT 4 ignition system 5910 850 4503



- Before starting the test, install a new spark plug in the cylinder and tighten it down firmly.
- Connect spark plug boot to the input terminal (1). Push the tester's output terminal (3) on to the spark plug.

High voltage – risk of electric shock.

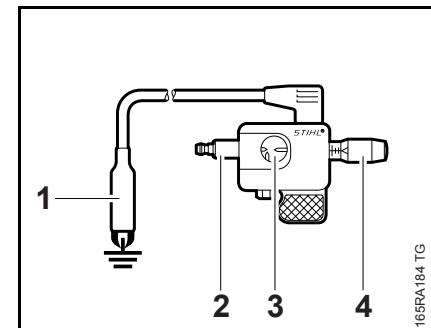
- Crank the engine quickly with the rewind starter and check spark in the tester's window (2).

The engine may start and accelerate during the test.

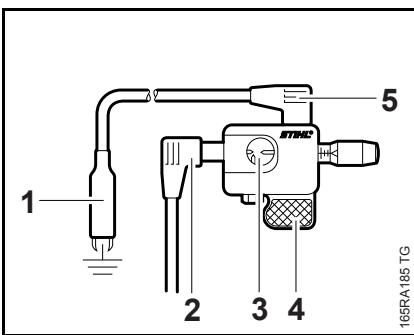
If a spark is visible, the ignition system is in order.

- If no spark is visible in the window (2), check the ignition system with the aid of the troubleshooting chart, **7.7**.

### Using the ZAT 3 ignition tester 5910 850 4520



- Before starting the test, install a new spark plug in the cylinder and tighten it down firmly.
- Connect spark plug boot to the terminal (2).
- Attach the ground terminal (1) to the spark plug.
- Use adjusting knob (4) to set the spark gap to about 2 mm, see window (3).



While using the ZAT 3, hold it only by the handle (4) or position it in a safe place. Keep fingers or other parts of your body at least 1 cm away from the spark window (3), high voltage connection (2), ground connection (5) and the ground terminal (1).

High voltage – risk of electric shock.

- Crank the engine quickly with the rewind starter and check spark in the tester's window (3).

The engine may start and accelerate during the test.

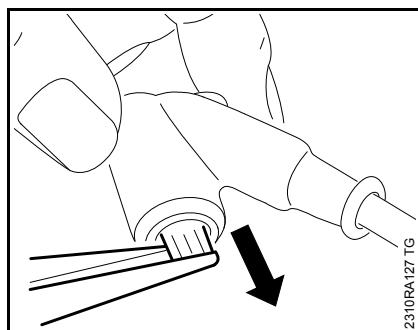
If a spark is visible in the window (3), the ignition system is in order.

- If no spark is visible in the window (3), check the ignition system with the aid of the troubleshooting chart, **8.2**

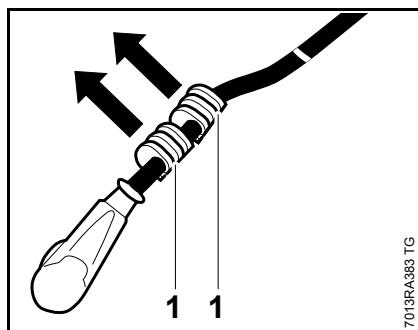
## 7.4 Spark Plug Boot / Ignition Lead

The ignition module (1) and ignition lead (2) form a unit. A new ignition module must be installed if the ignition lead is damaged.

- Remove the fan housing, **8.2**
- Pull the boot off the spark plug.

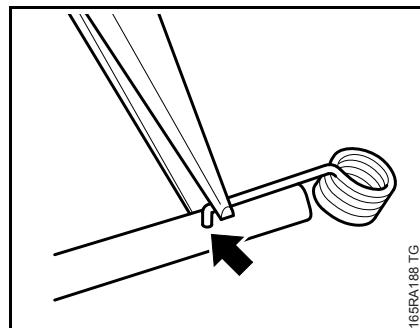


- Use suitable pliers to pull the leg spring out of the spark plug boot.
- Unhook the leg spring from the ignition lead.
- Pull the boot off the ignition lead.

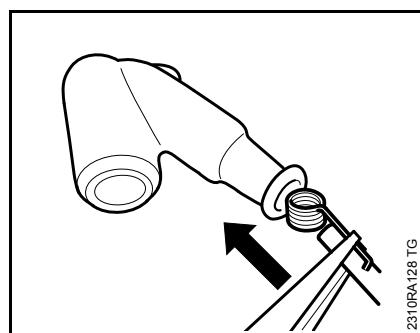


- Pull the two retainers (1) off the ignition lead.
- Check ignition lead, replace ignition module if necessary, **7.2**

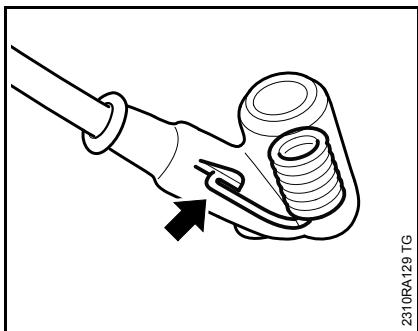
## Installing



- If the ignition module is new, use a pointed tool to pierce the center of the ignition lead's insulation, about 15 mm from the end of the lead.
- Pinch the hook of the leg spring into the pierced hole in the center of the lead (arrow).

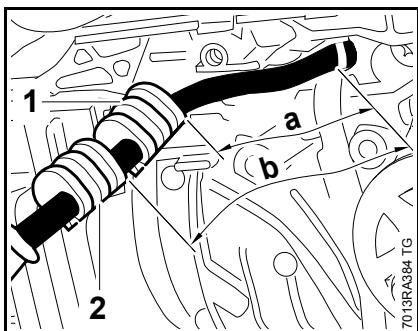


- Coat the inside of the spark plug boot with STIHL press fluid, **14**
- Hold the ignition lead and leg spring together and push them into the spark plug boot.



2310RA129 TG

- Make sure the leg spring (arrow) locates properly inside the spark plug boot.

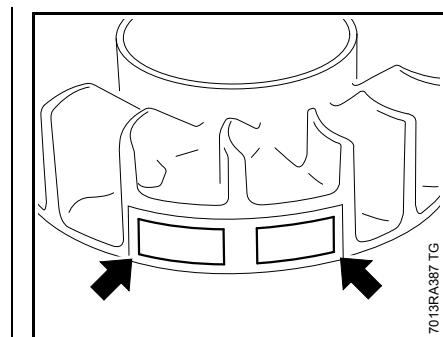
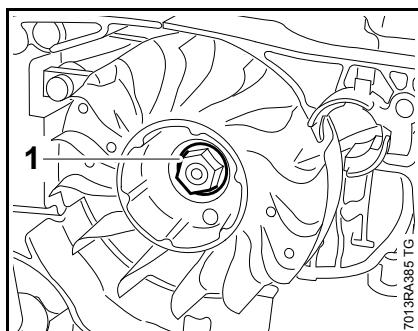


7013RA384 TG

- Push first retainer (1) onto the ignition lead at distance  $a = 47$  mm from the mark (arrow) and the second retainer (2) at distance  $b = 66$  mm.
- Push the boot onto the spark plug.
- Reassemble all other parts in the reverse sequence.

## 7.5 Flywheel

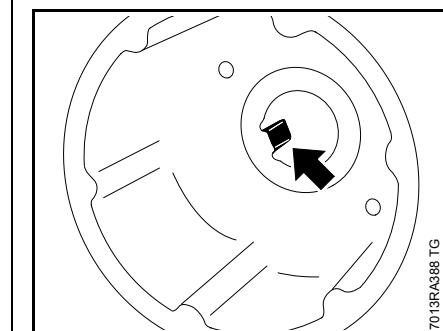
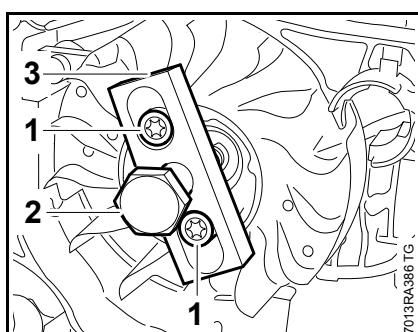
- Remove the fan housing, **8.2**
- Use locking strip to block the crankshaft, **4.1**



7013RA387 TG

The flywheel and magnet poles (arrows) must not be damaged or have turned blue. Replace flywheel if necessary.

- Unscrew the flywheel nut (1).



7013RA388 TG

- Fit the puller (3) 5910 890 4504 on the flywheel and tighten the screws (1) as far as stop.
  - Tighten the screws uniformly.
- Screw home the thrust bolt (2) clockwise until the flywheel is released from the crankshaft.
- Remove the puller (3) 5910 890 4504 from the flywheel.

Make sure the key (arrow) engages the slot in the crankshaft.

- Push the flywheel into position, fit the nut and tighten it down firmly.
- Set the air gap between the ignition module and flywheel, **7.2**
- Reassemble all other parts in the reverse sequence.

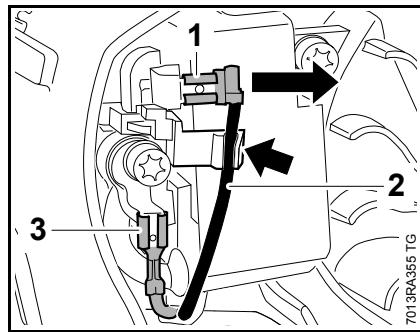
## 7.6 Short Circuit Wire

The ground and short circuit wires are combined in a wiring harness.

If the spark plug, ignition lead and spark plug boot are in order, check the short circuit wire.

### 7.6.1 Testing

- Remove the fan housing, **8.2**



- Pull the short circuit wire (2) out of the guide (arrow) and disconnect the terminal (1).
- Connect the ohmmeter to ground (3) and the short circuit wire's terminal (1).
- Set the Master Control lever to "STOP" or "0".

The resistance measured must be about  $0 \Omega$ . If it is much higher, the reason is a break and the wiring harness has to be replaced.

MS 201 **7.6.2**,  
MS 201 T **7.6.3**.

- Set the Master Control lever to "I".

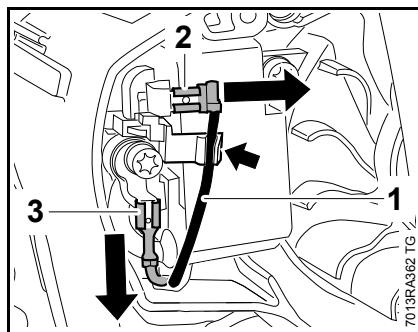
The resistance measured must be infinitely high. If not, replace the wiring harness,  
MS 201 **7.6.2**,  
MS 201 T **7.6.3**.

Also perform a contact and continuity test on the ground wire between the connector sleeve and the contact spring and between the terminals and contact springs.

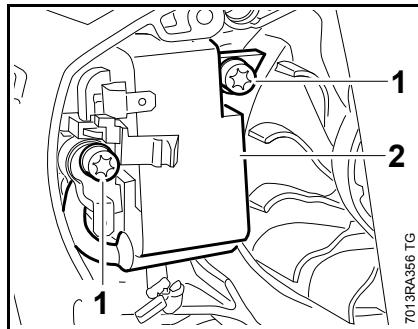
- If no fault can be found, check the ignition system with the aid of the troubleshooting chart, **7.7**
- Reassemble in the reverse sequence.

### 7.6.2 Removing and Installing (MS 201)

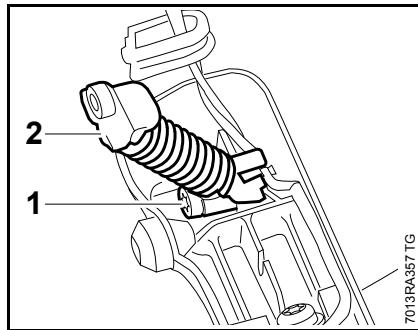
- Pull the boot off the spark plug.
- Remove the fan housing, **8.2**



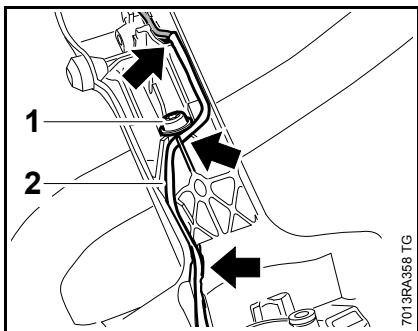
- Pull the short circuit wire (1) out of the guide (arrow).
- Disconnect terminals (2) and (3).



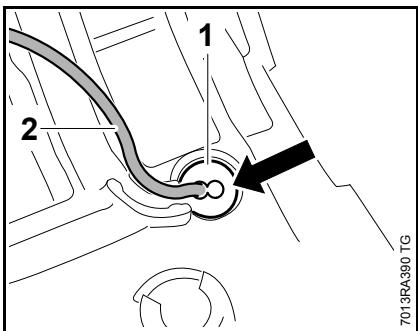
- Take out the screw (1) with washers.
- Put the ignition module (2) to one side.
- Remove the handle housing, **10.4**
- Remove the lockout lever and throttle trigger, **10.2**
- Remove the choke and throttle rods, **10.3.1**
- Remove the switch shaft, **10.1.1**
- Remove the contact spring, **7.6.5**



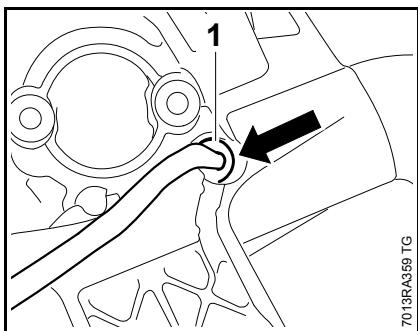
- Take out the screw (1) and remove the AV spring (2).



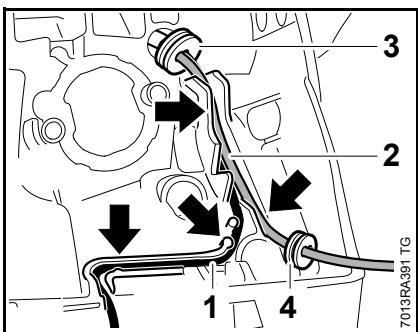
- Take out the screw (1) and pull the wiring harness (2) out of the guides (arrows).



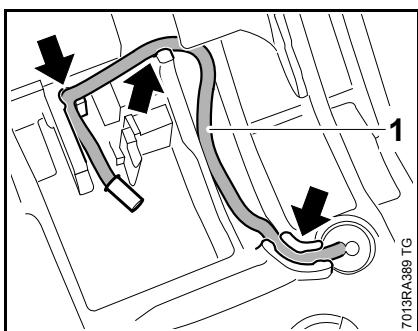
- Press out grommet (1) in direction of carburetor box and pull out ground wire (2) in the same direction.



- Press out the grommet (1) in direction of carburetor box.

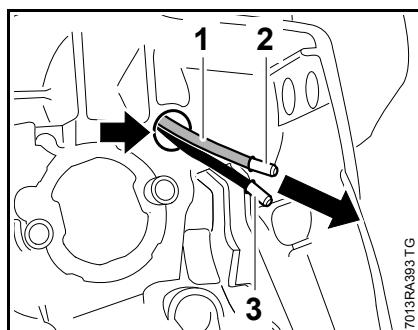


- Pull the short circuit wire (1) and ground wire (2) out of the guides (arrows).
- Pull the grommets (3) and (4) off the wiring harness.

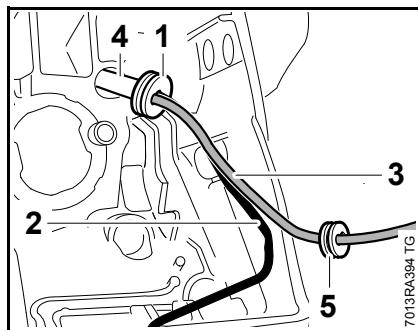


- Pull the ground wire (1) out of the guides (arrows).

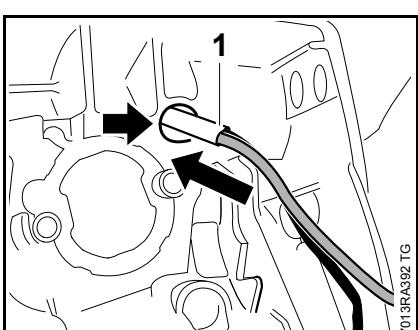
## Installing



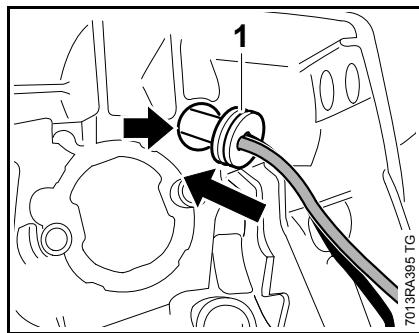
- Thread the wiring harness (1), connector sleeves (2) and (3) first, through the hole (arrow) in the handle housing.



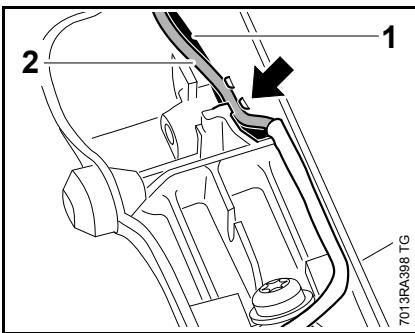
- Push the grommet (1) onto the short circuit wire (2) and ground wire (3) until it locates against the protective tube (4).
- Push the grommet (5) onto the ground wire (3).



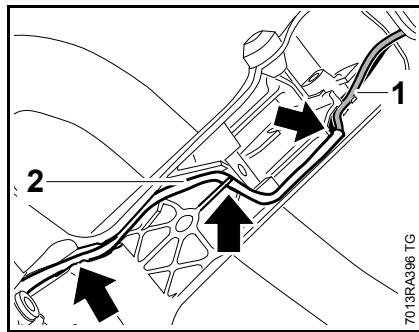
- Pull the wiring harness (1) out through the hole (arrow).
- Check the wiring harness and replace if necessary.



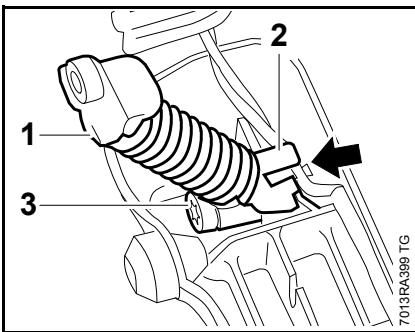
- Coat grommet with STIHL press fluid, **14**
- Fit the grommet (1) in the hole (arrow) and make sure it is properly seated.



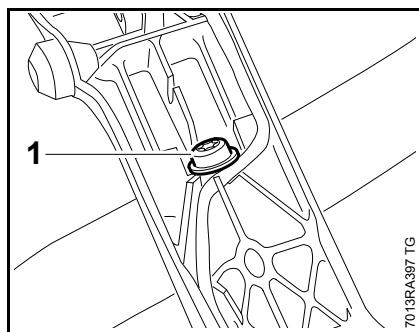
- Press the short circuit wire (1) and ground wire (2) into the guide (arrow) – the short circuit wire must be under the ground wire.



- If necessary, push the wiring harness in direction of grommet until protective tube locates properly.
- Press the wiring harness (1) with insulating tube (2) into the guides (arrows).



- Position the AV spring (1) so that the lug (2) engages above the guide (arrow).
- Insert and tighten down the screw (3) firmly – check that wires are not pinched.

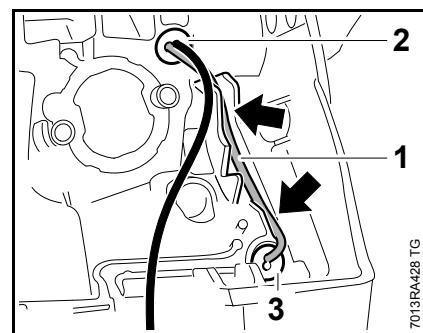


- Insert and tighten down the screw (1) firmly – the wiring harness is held in position.

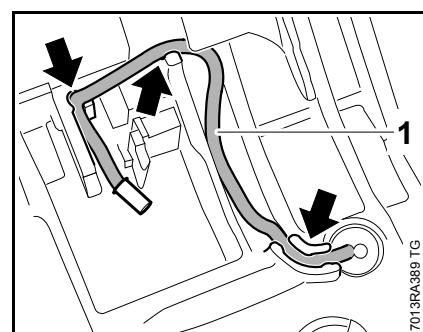
– Coat grommet with STIHL press fluid, **14**

- Fit the grommet (2) in the hole (arrow) and make sure it is properly seated.

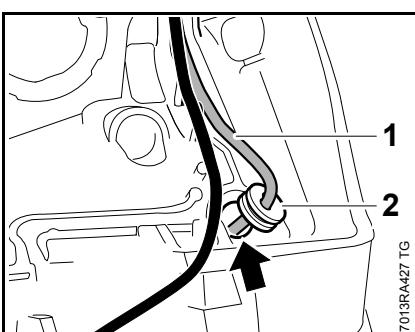
Use punch-down tool  
5910 890 4000 to press the wires into the guides.



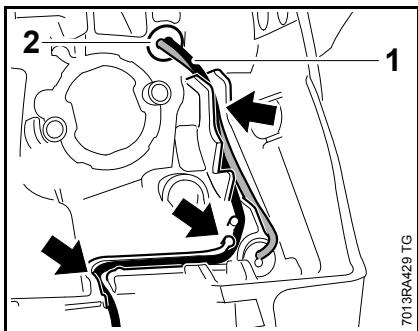
- Starting at the upper grommet (2), press the ground wire (1) into the guide (arrows) and thread it through grommet (3) until it lies flat.



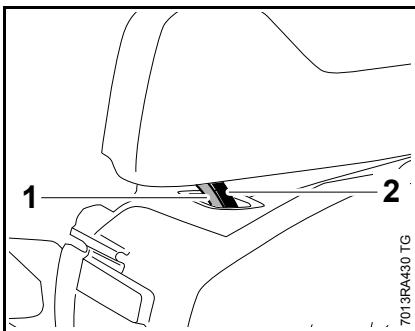
– Turn the handle housing over.



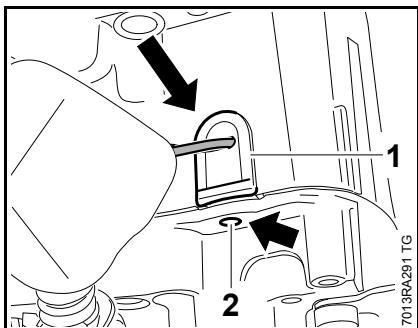
- Push the ground wire (1) through the hole (arrow).



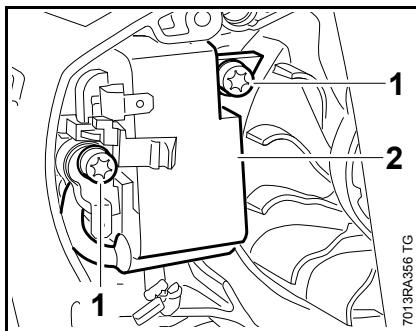
- Starting at the upper grommet (2), press the short circuit wire (1) into the guides (arrows).
- Fit the contact spring, **7.6.5**
- Fit the handle housing, **10.4**



- There must be no loops in the ground wire (1) and short circuit wire (2) between the crankcase and handle housing and they must not make contact with housing components – risk of chafing.
- Reassemble all other parts in the reverse sequence.
- Check operation of switch shaft, choke and throttle rods as well as throttle trigger and lockout lever.



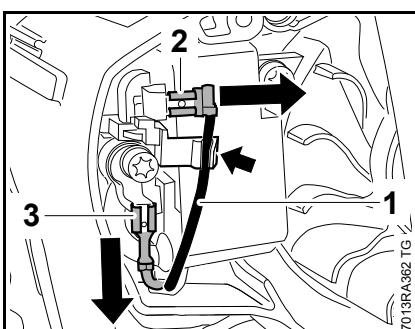
- Coat grommet with STIHL press fluid, **14**
- Push the grommet (1) into the opening so that the peg (2) engages the bore (arrow) – the grommet must be properly seated in the opening.
- Install the ignition module, **7.2**



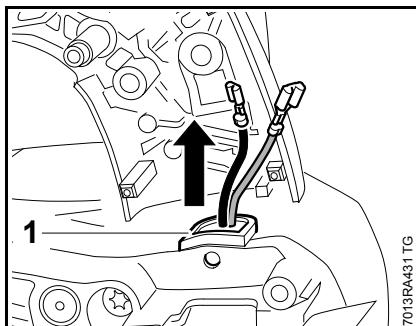
- Take out the screw (1) with washers.
- Put the ignition module (2) to one side.
- Remove the choke and throttle rods, **10.3.2**
- Remove the lockout lever and throttle trigger, **10.3**
- Remove the switch shaft, **10.1.2**
- Remove AV spring from the oil tank, **9.2**
- Remove the contact springs, **7.6.6**

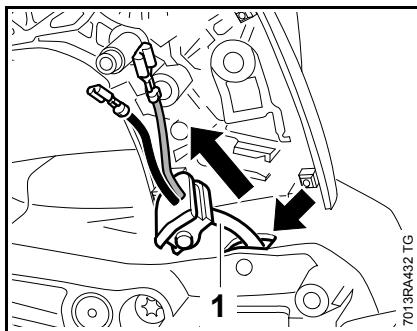
### 7.6.3 Removing and Installing (MS 201 T)

- Pull the boot off the spark plug.
- Remove the fan housing, **8.2**



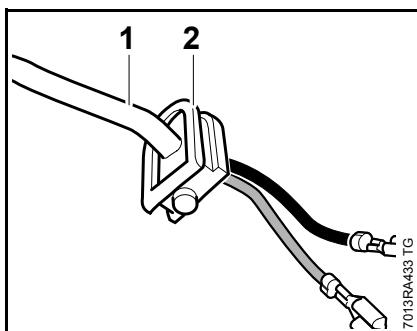
- Pry out the grommet (1).
- Pull the short circuit wire (1) out of the guide (arrow).
- Disconnect terminals (2) and (3).





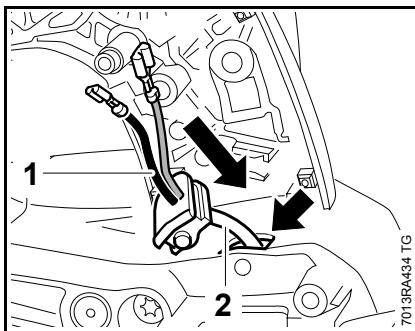
- Thread the wiring harness (1) through the opening (arrow).
- Check the wiring harness and replace if necessary.

## Installing

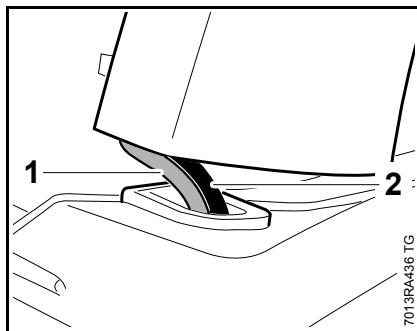


The protective tube (1) must locate against the grommet (2).

- If necessary, push the wiring harness in direction of grommet (2) until protective tube (1) locates properly.

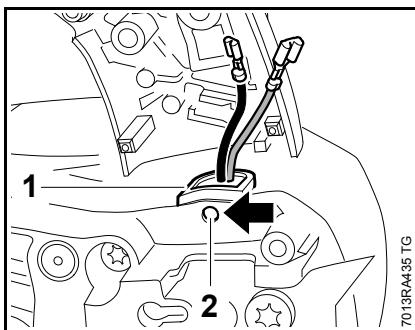


- Position the wiring harness (1) so that the protective tube (2) points towards the ignition module.
- Thread the wiring harness (1) through the opening (arrow).



There must be no loops in the ground wire (1) and short circuit wire (2) between the crankcase and handle housing and they must not make contact with housing components – risk of chafing.

- Reassemble all other parts in the reverse sequence.
- Check operation of switch shaft, choke and throttle rods as well as throttle trigger and lockout lever.



- Coat grommet with STIHL press fluid, **14**
- Push the grommet (1) into the opening so that the peg (2) engages the bore (arrow) – the grommet must be properly seated in the opening.
- Install the ignition module, **7.2**
- Fit the contact springs, **7.6.6**
- Fit AV spring in the oil tank, **9.2**
- Install the switch lever, **10.1.2**
- Install the lockout lever and throttle trigger, **10.3**

### 7.6.4 Ground Wire

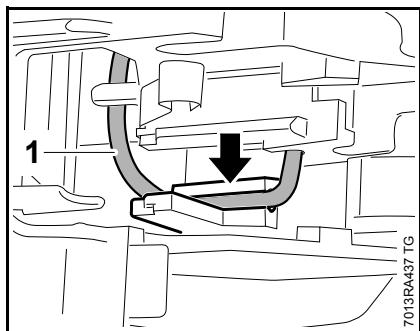
Ground and short circuit wires are combined in a wiring harness. Testing and installation procedures are identical and described in the chapter on short circuit wire.

- Perform contact and continuity test and replace wiring harness if necessary,  
MS 201 **7.6.2**,  
MS 201 T **7.6.3**

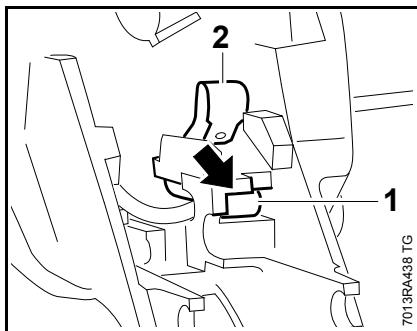
### 7.6.5 Contact Spring (MS 201)

The ground wire must be firmly seated in the contact spring's loop, perform contact and continuity test if necessary, [7.6.1](#).

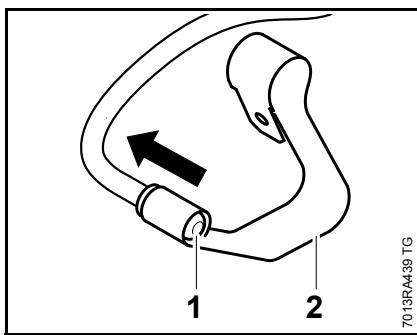
- Remove the lockout lever and throttle trigger, [10.2](#)
- Remove carburetor with fuel suction hose still attached and put it to one side, [12.4](#)
- Remove the choke and throttle rods, [10.3.1](#)
- Remove switch shaft with short circuit wire attached and put it to one side, [10.1.1](#)



- Pull the short circuit wire (1) out of the guide (arrow).

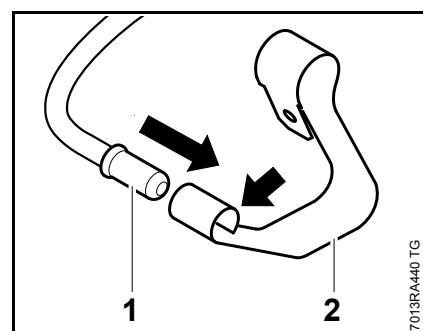


- Ease the contact spring (1) out at the opening (arrow) while pressing it down slightly on the contact loop (2) and lifting it over the lateral guide – no more than 2 mm.

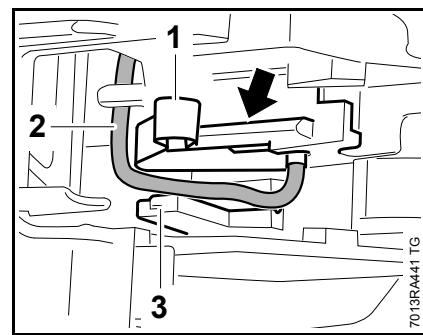


- Push the sleeve (1) out of the contact spring (2).
- Inspect the contact spring and replace if necessary,

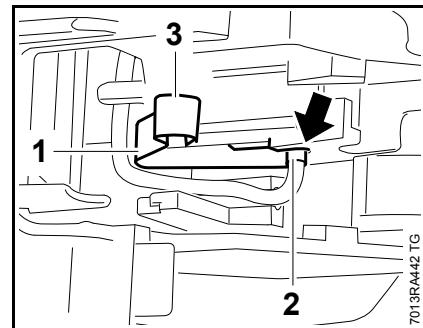
### Installing



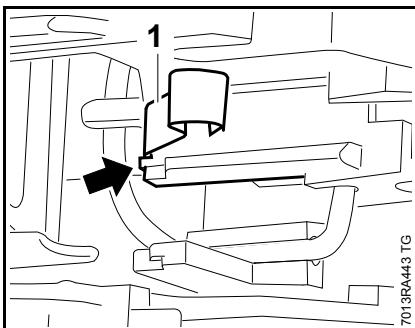
- Push the sleeve (1) into the loop (arrow) on the contact spring (2) so that its end is flush with the spring – it must not project.



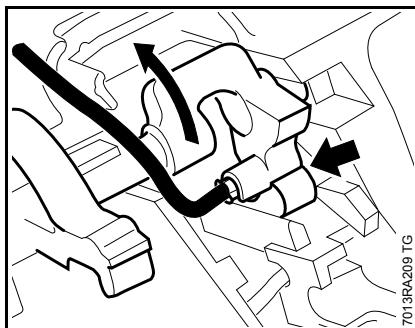
- Position the contact spring (1) so that the ground wire (2) is between the rib (3) and the guide (arrow).



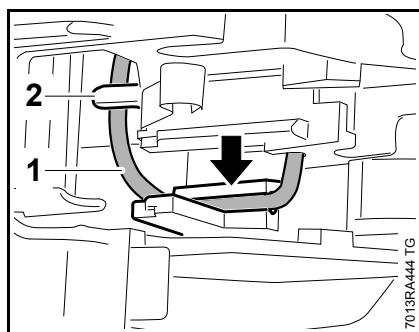
- Use the loop (2) to push the contact spring (1) into the guide (arrow) while pressing it down slightly on the contact loop (3) and lifting it over the lateral guide – no more than 2 mm.



The contact spring (1) must be completely behind the lateral guide (arrow).

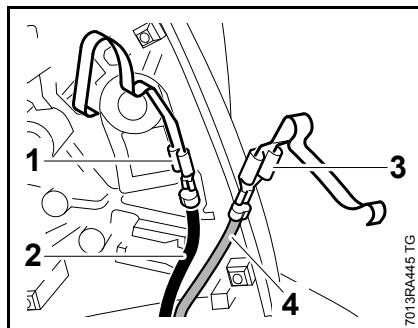


- Check operation
  - short circuit wire's connector sleeve must touch the contact spring (arrow) in position "0".
  - Reassemble all other parts in the reverse sequence.



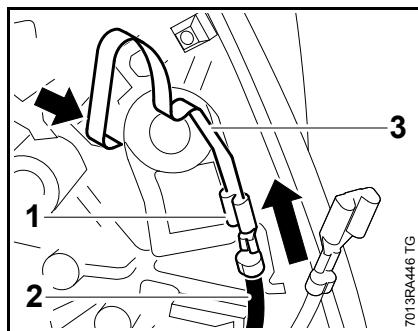
Fit ground wire (1) in the guide (2).

- Use punch-down tool 5910 890 4000 to press the ground wire (1) fully into the guide (arrow).
- Install switch shaft with short circuit wire attached, 10.1.1

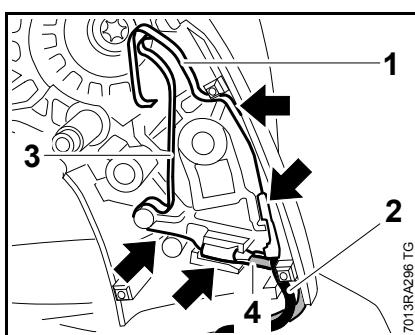


- Disconnect terminal (1) of short circuit wire (2) and terminal (3) of ground wire (4).
  - Inspect the contact springs and replace if necessary,

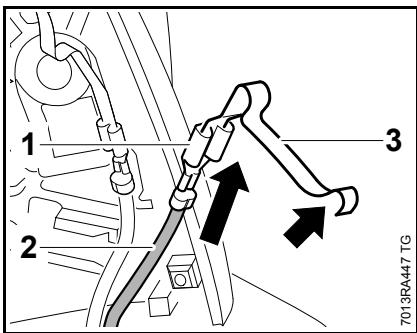
## Installing



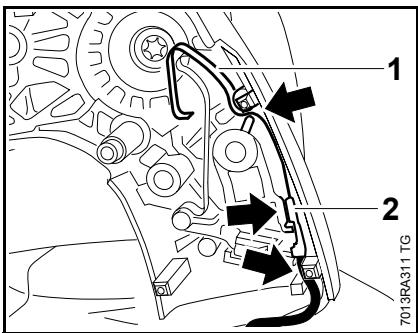
- Push the terminal (1) of short circuit wire (2) onto the contact spring (3) so that the crimped side faces the spring loop (arrow)
  - narrow terminal on narrow contact spring.



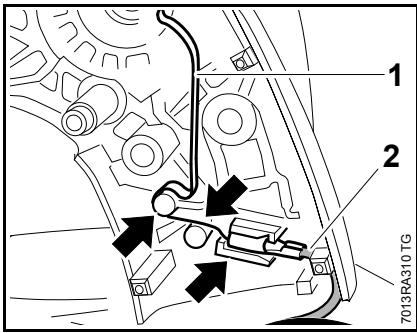
- Pull contact spring (1) of short circuit wire (2) and contact spring (3) of ground wire (4) out of guides (arrows).



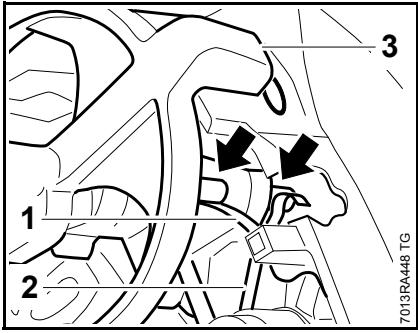
- Push the terminal (1) of ground wire (2) onto the contact spring (3) so that the crimped side faces the spring loop (arrow)
  - wide terminal on wide contact spring.



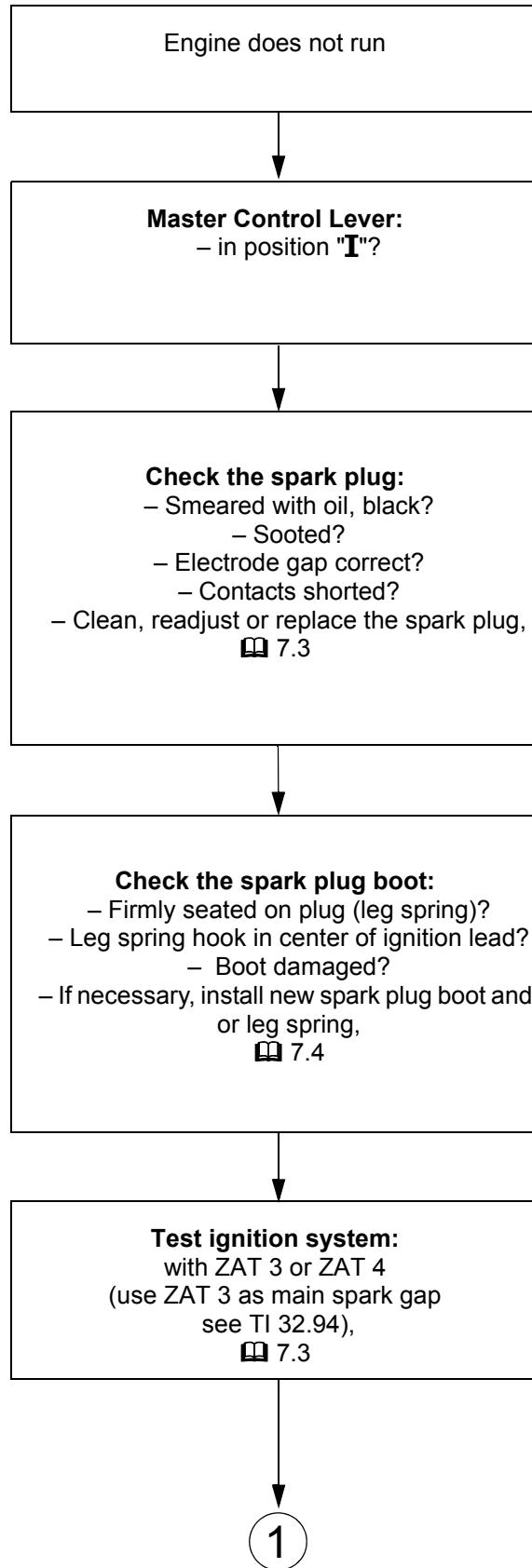
- Push the contact spring (1) of short circuit wire (2) into the guides (arrows).
  - Install the AV spring, [9.2.1](#)
  - Install the switch lever, [10.1.2](#)

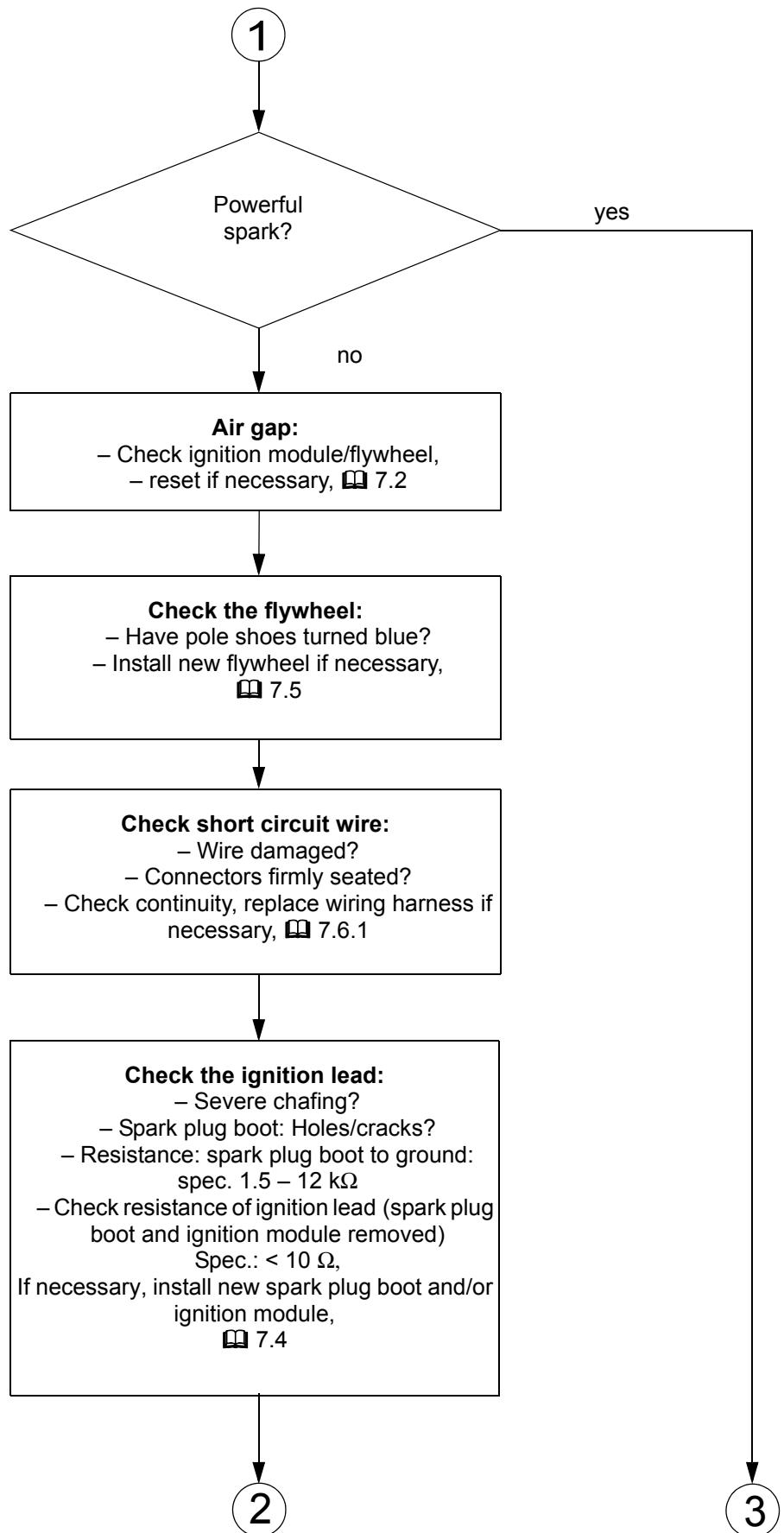


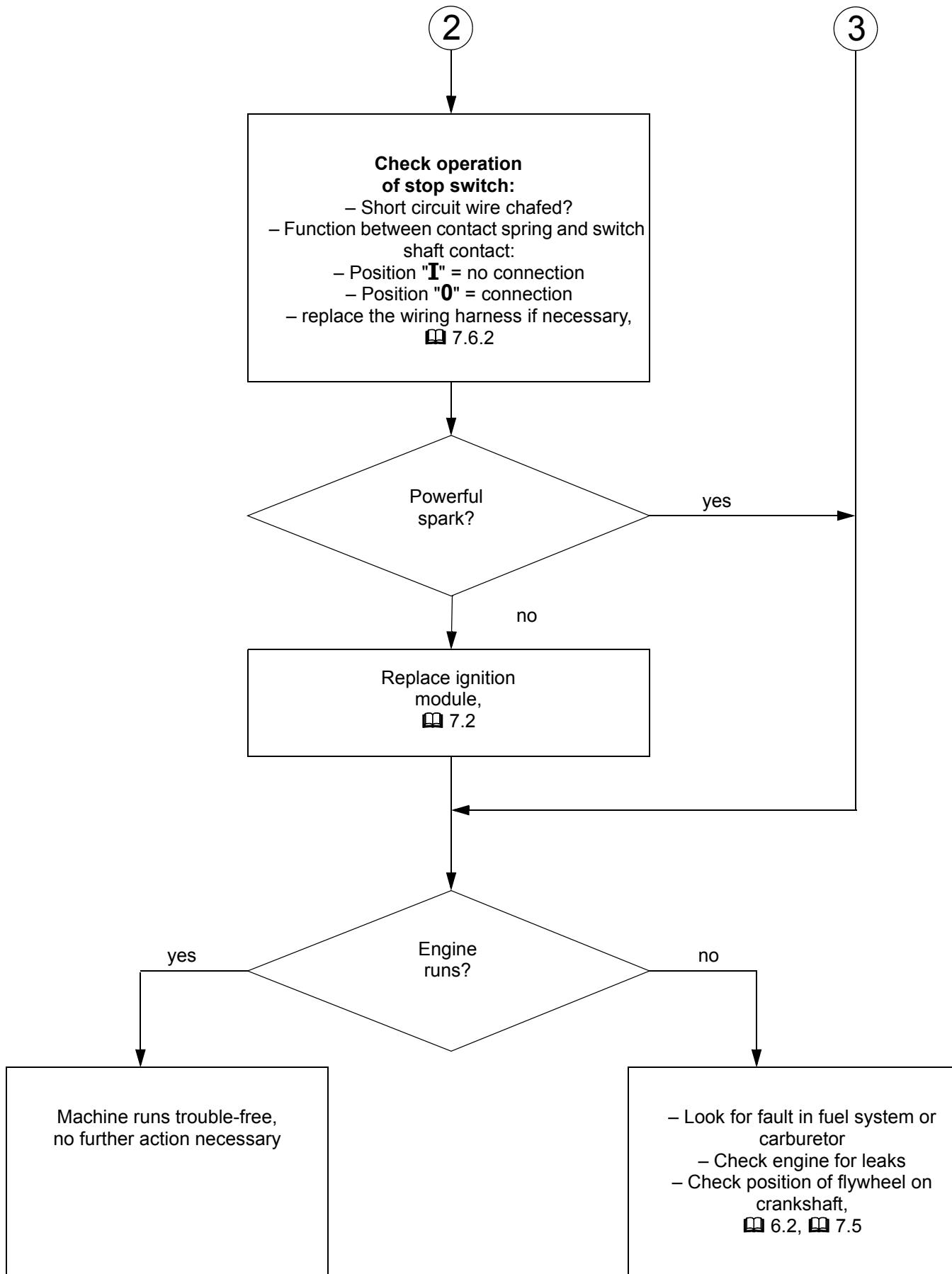
- Push the contact spring (1) of ground wire (2) into the guides (arrows).



- Check operation
  - contact springs of short circuit wire (1) and ground wire (2) must touch the metal pin (arrow) on the switch shaft (3) in position "0".
- Install the lockout lever and throttle trigger, [10.3](#)
- Reassemble all other parts in the reverse sequence.







## 8. Rewind Starter

### 8.1 General

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 a standard solvent-based degreasant (containing no chlorinated or halogenated hydrocarbons) to the rewind spring.

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

Before installing, lubricate the rewind spring and starter post with STIHL special lubricant, **14.**

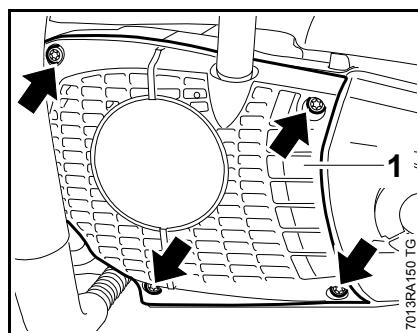
If clogged with dirt or pitch, the entire starter mechanism, including the rewind spring, must be removed and disassembled. Take particular care when removing the rewind spring.

- Clean all components.
- Relieve tension of rewind spring, **8.4.**

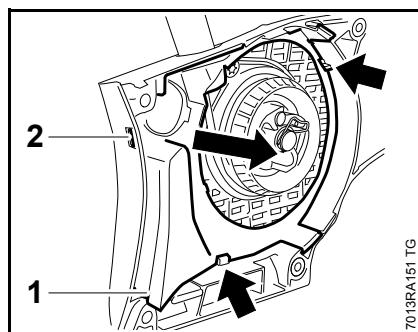
### Models with ErgoStart

- Relieve tension of rewind spring, **8.4.1**

### 8.2 Fan Housing

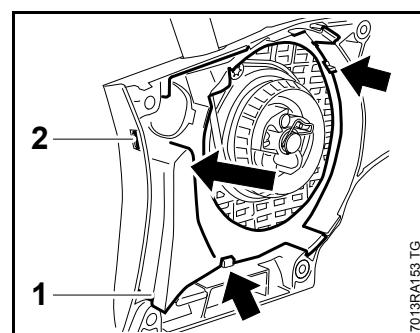


- Take out the screws (arrows).
- Remove the fan housing (1).

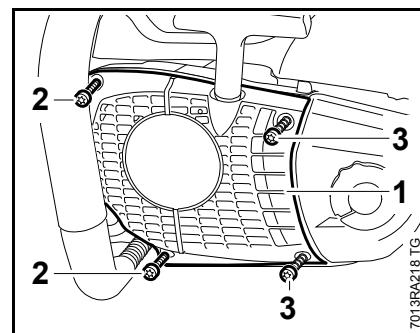


- Pry the segment (1) out at the lug (2), pull it off the tabs (arrows) and lift it away.
- Examine the fan housing and segment and replace if necessary.

### Installing



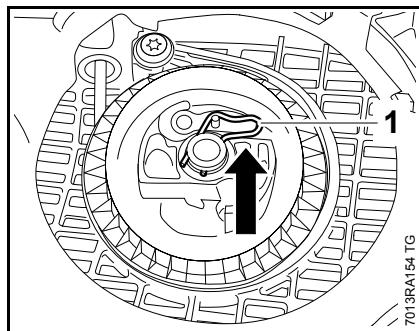
- Push the segment (1) under the tabs (arrows) and into the fan housing until the lug (2) snaps into place.



- Place the fan housing (1) in position.
- Insert the screws (2) and Plastoform screws (3) and tighten them down firmly.
- Reassemble all other parts in the reverse sequence.

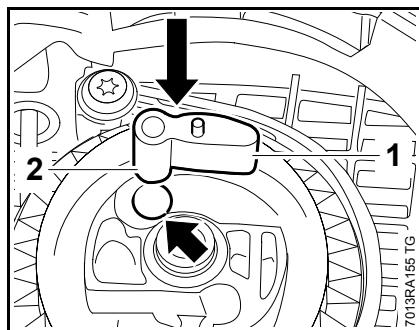
### 8.3 Pawls

- Remove the fan housing, **8.2**
- Relieve tension of rewind spring, **8.4**

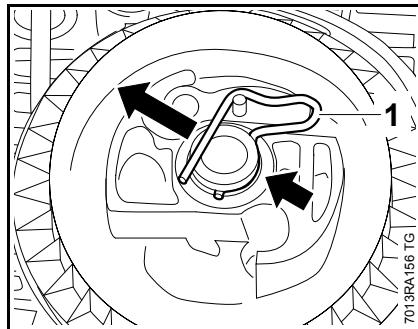


- Carefully ease the spring clip (1) off the starter post.
- Pull the pawl out of the rotor.

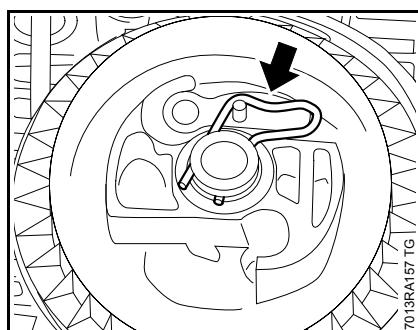
### Installing



- Lubricate seat (short arrow) with STIHL multipurpose grease, **14**
- Push the bearing pin (2) of pawl (1) into its seat (arrow).



- Position the spring clip (1) so that its loop engages the peg on the pawl. The rounded part of the spring clip (short arrow) must engage the starter post's groove.
- Push the straight part of the spring clip over the starter post until it snaps into the groove.



The spring clip's guide loop must be in line with the pawl (arrow).

### Check operation

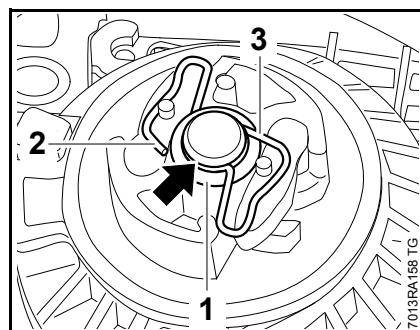
- Pull the starter rope, the rotor turns and the peg on the pawl moves in the direction of the spring loop – the pawl moves outwards.
- Reassemble all other parts in the reverse sequence.

### Models with ErgoStart

Two pawls are installed in models with ErgoStart. The removal procedure is the same as for the standard version.

- Lubricate seats of new pawls with STIHL multipurpose grease, **14**
- Lubricate pegs of new pawls with STIHL multipurpose grease, **14**

### Installing



Make sure the washer (1) is in place.

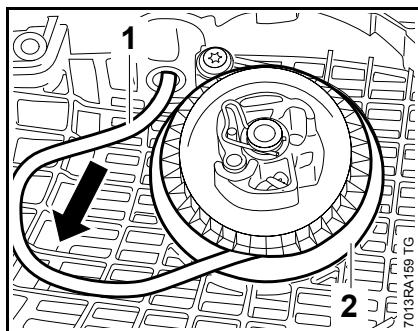
- Position the spring clip (2) so that its loops engage the pegs on the pawls. The rounded part of the spring clip (arrow) must engage the starter post's groove.
- Push the straight part (3) of the spring clip over the starter post until it snaps into the groove.
- Reassemble all other parts in the reverse sequence.

## 8.4 Rope Rotor

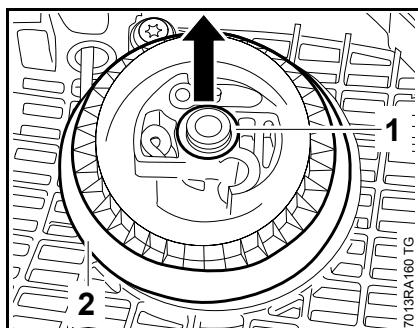
### Relieving tension of rewind spring

The system will not be under tension if either the starter rope or rewind spring is broken.

- Remove the fan housing and the segment, **8.2**



- Pull out the starter rope (1) about 5 cm and hold the rope rotor (2) steady.
- Take three full turns of the rope off the rope rotor.
- Pull out the rope with the starter grip and slowly release the rope rotor.
- Remove the spring clip and pawl, **8.3**



- Remove the washer (1).

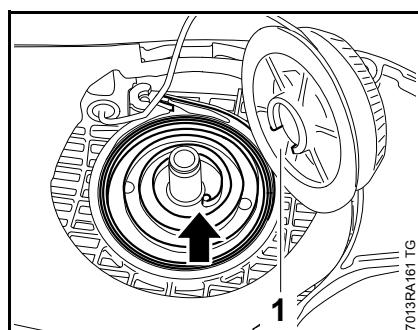
Rewind spring must be relaxed.

- Carefully remove the rope rotor (2). The rewind spring may pop out and unwind.

- Remove the starter rope from the rotor and check it, replace if necessary, **8.5**
- Check the rope rotor and replace if necessary.
- Coat bore in rope rotor with STIHL special lubricant, **14**

### Installing

- Fit the starter rope on the rotor, **8.5**



- Fit the rope rotor on the starter post so that the inner spring loop (arrow) engages the recess (1).

The recess in the hub of the rope rotor is the anchor point for the spring.

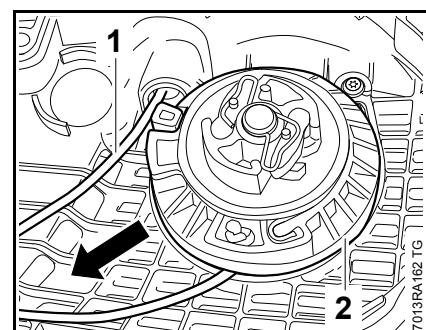
- Fit the cover washer.
- Lubricate seat and peg on pawl with STIHL multipurpose grease, **14**
- Install the pawl and spring clip, **8.3**
- Tension the rewind spring, **8.6**
- Reassemble all other parts in the reverse sequence.

## 8.4.1 Rope Rotor with ErgoStart

### Relieving tension of rewind spring

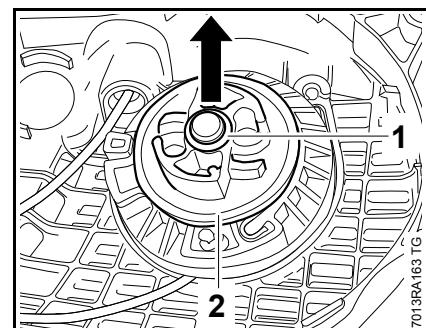
The system will not be under tension if either the starter rope or rewind spring is broken.

- Remove the fan housing and the segment, **8.2**

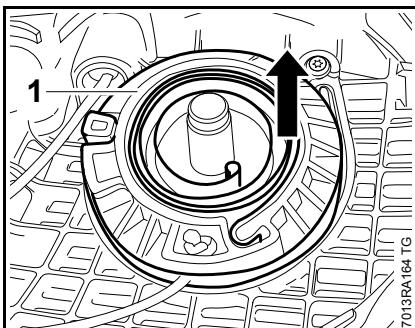


- Pull out the starter rope (1) about 5 cm and hold the rope rotor (2) steady.

- Take three full turns of the rope off the rope rotor.
- Pull out the rope with the starter grip and slowly release the rope rotor.
- Remove the spring clip and pawls, **8.3**



- Remove the washer (1) and carrier (2).

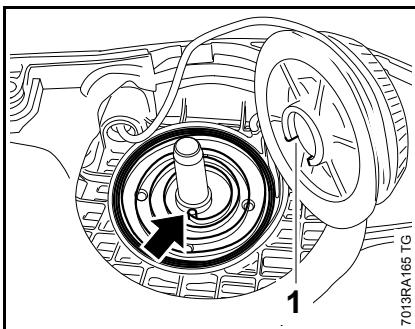


Rewind spring must be relaxed.

- Carefully remove the rope rotor (1).
  - The rewind spring may pop out and unwind.
  - Remove the starter rope from the rotor and check it, replace if necessary, **8.5**
  - Check the rope rotor and replace if necessary.
  - Coat bore in rope rotor with STIHL special lubricant, **14**

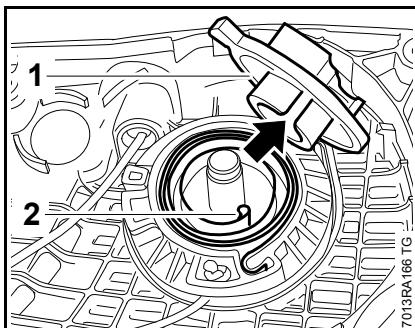
#### Installing

- Fit the starter rope on the rotor, **8.5**



- Fit the rope rotor on the starter post so that the inner spring loop (arrow) engages the recess (1).

The recess in the hub of the rope rotor is the anchor point for the spring.



- Push the carrier (1) into the spring housing so that its lug (arrow) engages the loop (2) of the spring.
  - Fit the washer.
  - Lubricate seats and pegs on pawls with STIHL multipurpose grease, **14**
  - Install the pawls and spring clip, **8.3**
  - Tension the rewind spring, **8.6**
  - Reassemble all other parts in the reverse sequence.

#### 8.5 Starter Rope / Grip

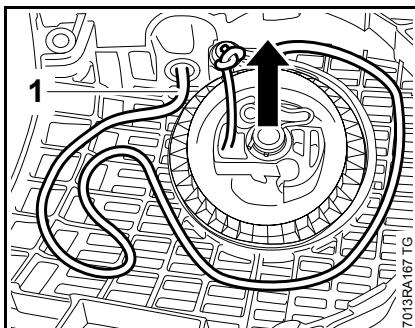
- Remove the fan housing and the segment, **8.2**
- Relieve tension of rewind spring, **8.4**

On models with ErgoStart the recess for the starter rope is at the edge of the rope rotor. The removal and installation procedures are the same.

The system will not be under tension if the starter rope is broken.

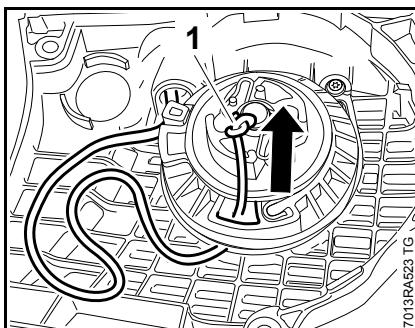
- Remove any remaining rope from the rope rotor.

Do not shorten the starter rope.



- Push the end of the starter rope (1) out a little and undo the knot.
  - Pull the rope out of the rope rotor, fan housing and starter grip.

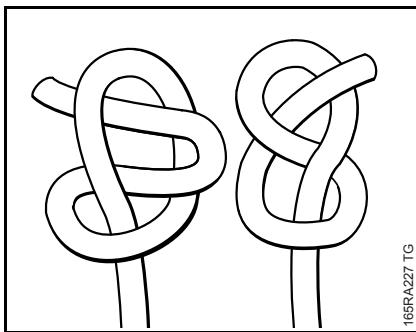
#### Machines with ErgoStart grip



- Push the end of the starter rope (1) out a little and undo the knot.

Pull the rope out of the rope rotor, fan housing and starter grip.

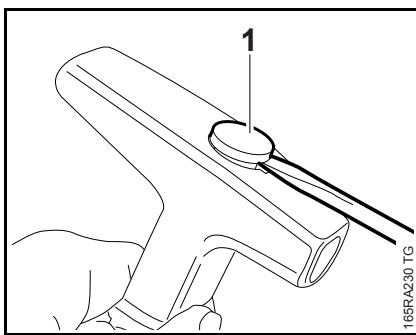
## Installing



165RA227 TG

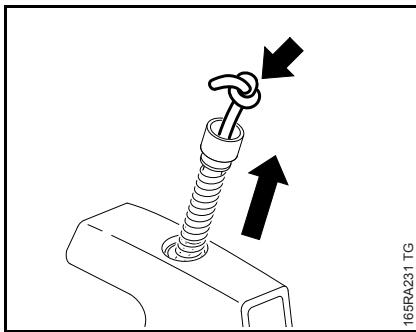
- Tie special knot shown in end of rope.

### Machines with ElastoStart grip



165RA230 TG

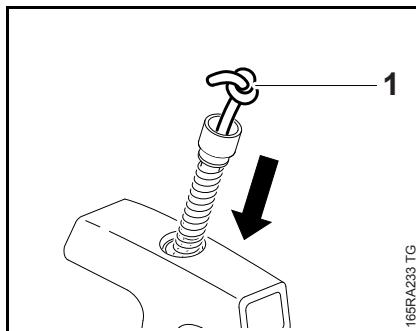
- Use a suitable tool to pry the cap (1) out of the starter grip.



165RA231 TG

- Pull the sleeve, washers, spring and remaining rope (arrow) out of the grip.
- Check individual parts, replace if necessary

Do not shorten the starter rope.



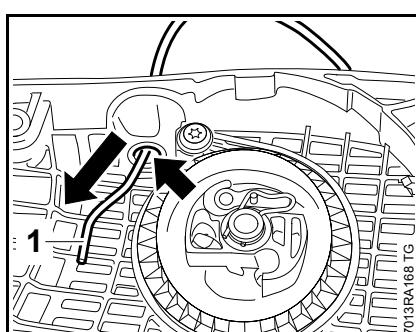
165RA233 TG

- Thread the new starter rope through the sleeve.
- Tie a simple overhand knot in the end of the new rope.
- Fit the washers and spring.

- Pull the starter rope with sleeve, spring and washers into the starter grip (1).

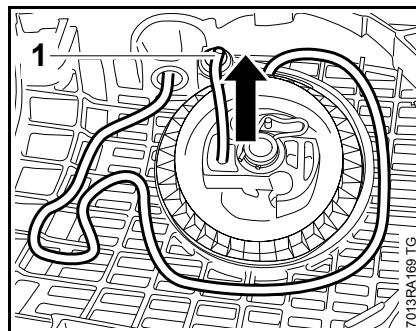
Make sure the washers and spring remain on the sleeve while the rope is being pulled into the grip.

- Position cap so that its lug engages the slot in the starter grip.
- Press the cap into the starter grip.



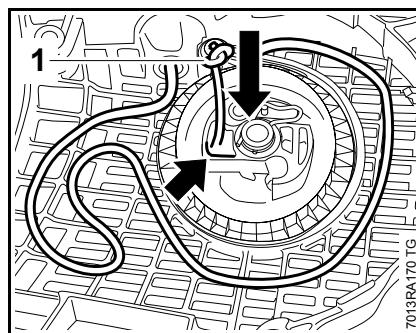
7013RA168 TG

- Thread the starter rope (1) through the guide bushing (small arrow).



7013RA169 TG

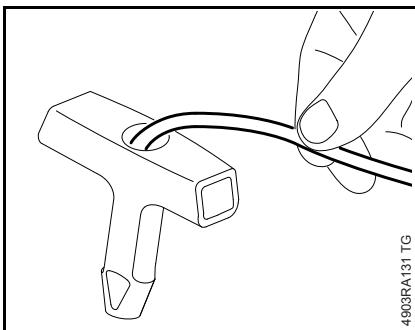
- Thread the starter rope (1) through the side of the rope rotor.



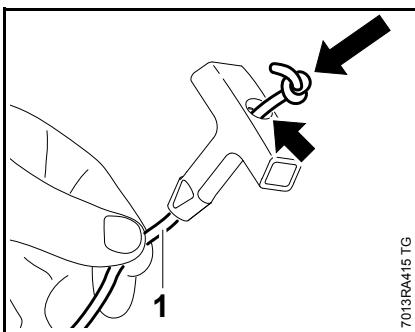
7013RA170 TG

- Secure end of starter rope (1) with a simple overhand knot and pull it into the rotor until the knot is seated in the recess (arrow).
- Tension the rewind spring, **8.6**
- Reassemble all other parts in the reverse sequence.

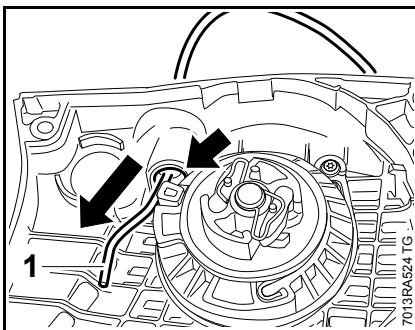
## Machines with ErgoStart grip



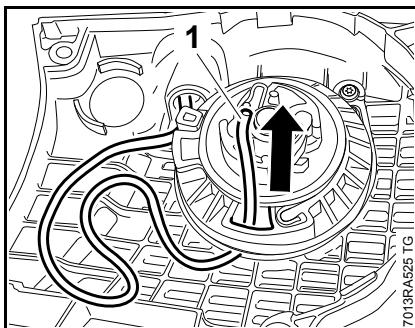
- Thread the rope through the top of the starter grip.



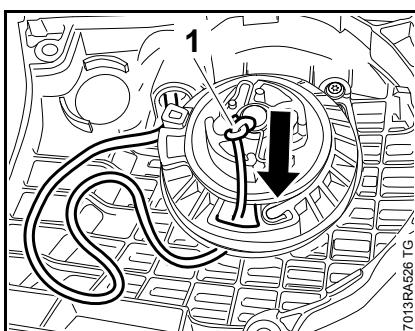
- Pull the rope (1) into the starter grip until the knot is properly seated in the grip (small arrow).



- Thread the starter rope (1) through the guide bushing (small arrow).



- Thread the starter rope (1) through the side of the rope rotor.



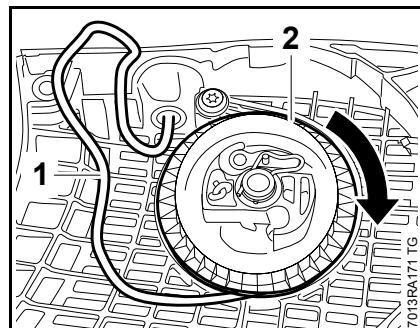
- Secure end of starter rope (1) with a simple overhand knot and pull it into the rotor until the knot is seated in the recess (arrow).

- Tension the rewind spring, **8.6**
- Reassemble all other parts in the reverse sequence.

### 8.6 Tensioning the Rewind Spring

- Remove the fan housing and the segment, **8.2**

The pawl(s) and spring clip must be installed.

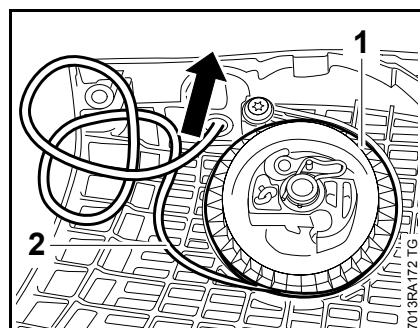


- Pull out a short length of starter rope (1).

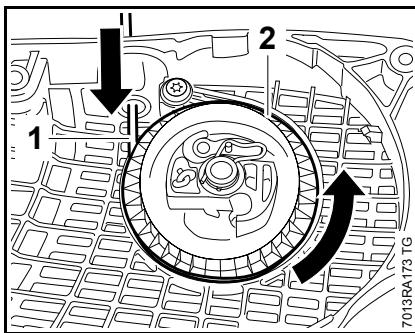
- Use the starter rope (1) to rotate the rope rotor (2) six turns clockwise.

The rewind spring is now tensioned.

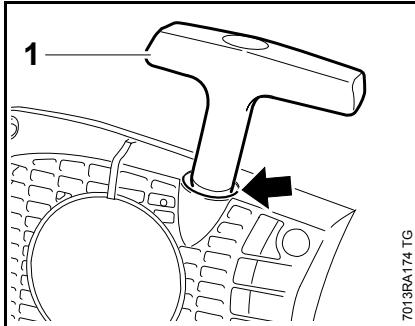
Hold the rope rotor steady since it will otherwise spin back and may damage the rewind spring.



- Hold the rope rotor (1) steady.
- Pull out the twisted rope (2) with the starter grip and straighten it out.



- Hold the starter grip (1) firmly to keep the rope tensioned.
- Let go of the rope rotor (2) and slowly release the starter rope so that it can rewind properly.



The starter grip (1) must sit firmly in the rope guide bushing (arrow) 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 another full turn before maximum spring tension is reached. If this is not the case, reduce spring tension since there is otherwise a risk of breakage.

#### To reduce spring tension:

Pull the rope out, hold the rope rotor steady and take off one turn of the rope.

- Reassemble all other parts in the reverse sequence.

## 8.7 Replacing the Rewind Spring

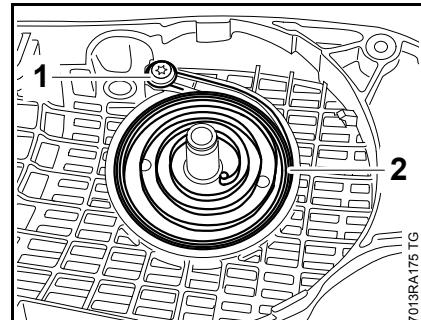
- Troubleshooting, 3.3

The replacement spring, in a frame, comes ready for installation.

- Wear a face shield and work gloves to protect your hands from injury.
- Remove the fan housing and the segment, 8.2
- If necessary, relieve tension of rewind spring and remove the rope rotor, 8.4, or rope rotor with ErgoStart, 8.4.1
- Remove any remaining pieces of the old rewind spring.

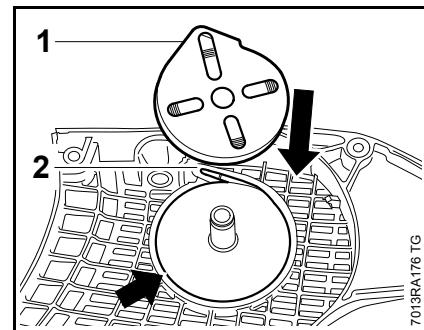
If the rewind spring can no longer be properly tensioned, install a new spring.

Even a worn rewind spring is still pre-loaded in the installed condition.

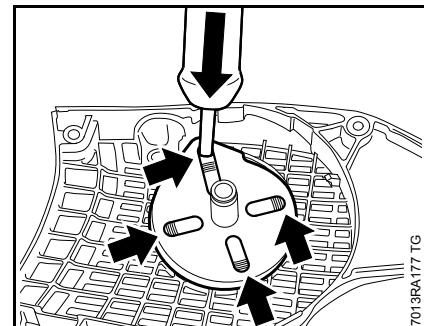


- Take out the screw (1).
- Place a blanket over the work area and pull the rewind spring (2) out of the fan housing.

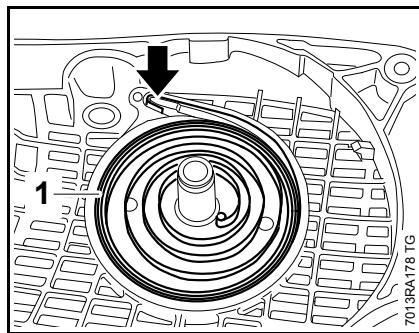
## Installing new rewind spring



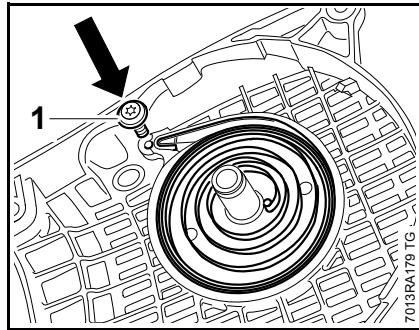
- Lubricate the replacement spring with frame with a few drops of STIHL special lubricant before installing, 14
- Position the replacement spring with frame in the fan housing so that the anchor loop (1) is above the lug (2) and engages the seat (arrow).



- Starting at the anchor loop, apply suitable tool to the recesses (arrows) and push the rewind spring into its seat in the fan housing – the frame slips off during this process.



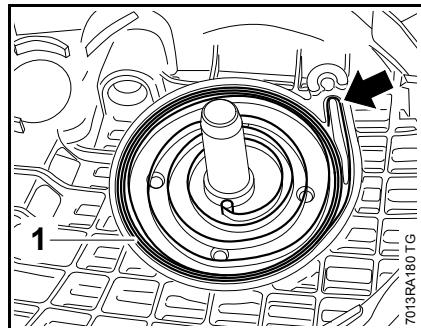
Make sure that the new rewind spring (1) is properly seated and the outer anchor loop is engaged on the lug (arrow). If necessary, use suitable tools to push the rewind spring fully into its seat in the fan housing.



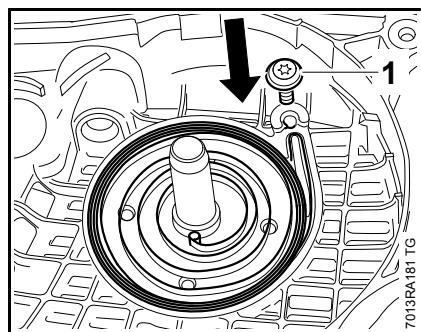
- Insert and tighten down the screw (1) firmly.
  - Remove the rope rotor, **8.4**
  - Install the pawl, **8.3**
  - Tension the rewind spring, **8.6**
  - Reassemble all other parts in the reverse sequence.

## Models with ErgoStart

Removal and installation procedures for machines with ErgoStart are the same, but the anchor loop lug is in a different position.



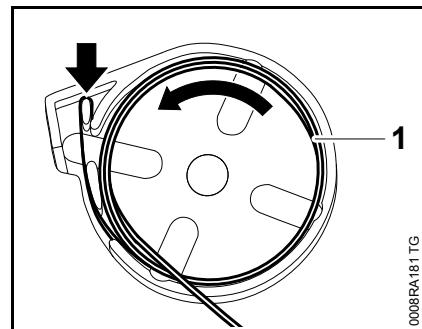
Make sure that the new rewind spring (1) is properly seated and the outer anchor loop is engaged on the lug (arrow). If necessary, use suitable tools to push the rewind spring fully into its seat in the fan housing.



- Insert and tighten down the screw (1) firmly.
  - Install the rope rotor, **8.4.1**
  - Install the pawls, **8.3**
  - Tension the rewind spring, **8.6**
  - Reassemble all other parts in the reverse sequence.

## Installing unwound rewind spring

If the rewind spring has popped out, refit it in the frame as follows:



- Fit the anchor loop in its seat (arrow) in the frame.
- Fit the rewind spring (1) counterclockwise in the frame, holding the windings steady in the process.

The procedure is otherwise the same as that for installing a new rewind spring.

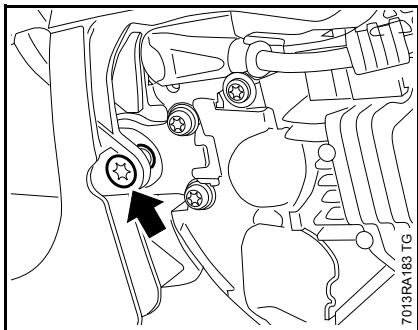
## 9. AV Elements

Vibration-damping springs, annular buffers and stop buffers are used for the connection between the handlebar, tank housing and crankcase.

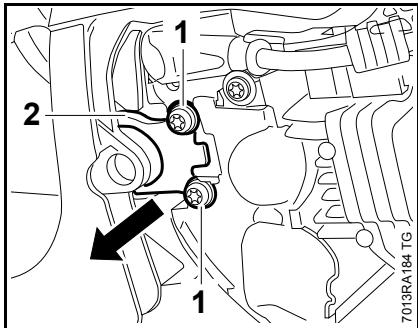
Damaged springs, annular buffers and stop buffers must always be replaced.

### 9.1 Annular Buffer on Fuel Tank (MS 201)

- Disengage the chain brake and remove the chain sprocket cover, bar and chain.

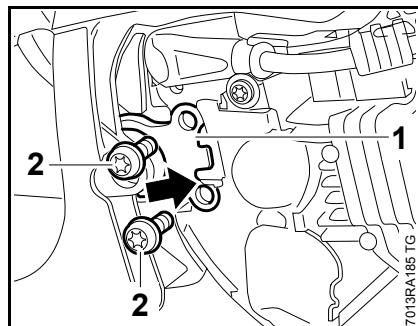


- Take out the screw (arrow).

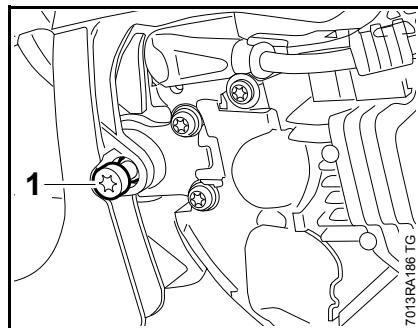


- Take out the screws (1).
- Pull the annular buffer (2) out of the recess, inspect it and replace if necessary.

### Installing



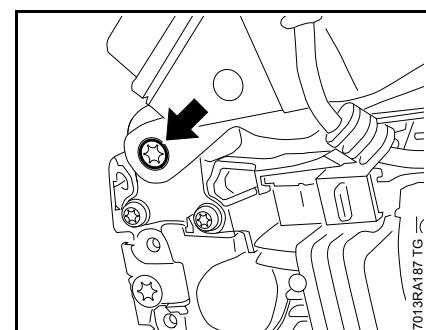
- Line up the rubber buffer (1) so that it faces the handle housing – the notch (arrow) must engage the lug on the tank housing.
- Push the buffer (1) into position between the handle housing and crankcase.
- Insert and tighten down the screws (2) firmly.



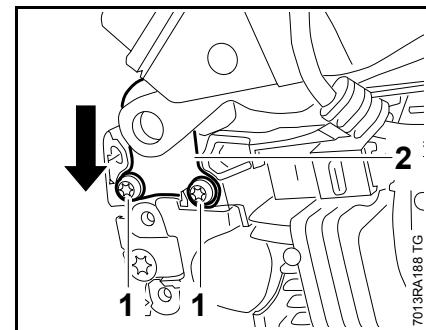
- Insert screw (1) through lug on handle housing and into the annular buffer.
- Insert and tighten down the screw (1) firmly.
- Reassemble all other parts in the reverse sequence.

### 9.1.1 Annular Buffer on Fuel Tank (MS 201 T)

- Disengage the chain brake and remove the chain sprocket cover, bar and chain.

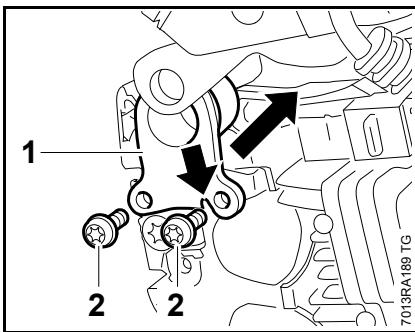


- Take out the screw (arrow).

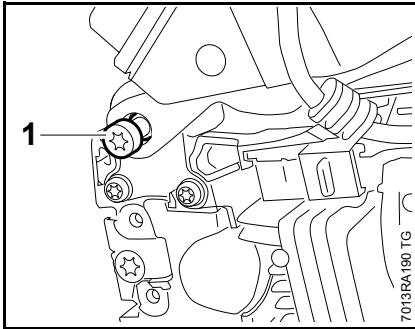


- Take out the screws (1).
- Pull the annular buffer (2) downwards and out, check it and replace if necessary.

## Installing



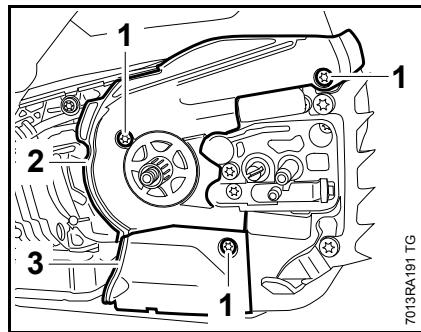
- Line up the rubber buffer (1) so that it faces the handle housing – the notch (arrow) must engage the lug on the tank housing.
- Push the buffer (1) into position between the handle housing and crankcase.
- Insert and tighten down the screws (2) firmly.



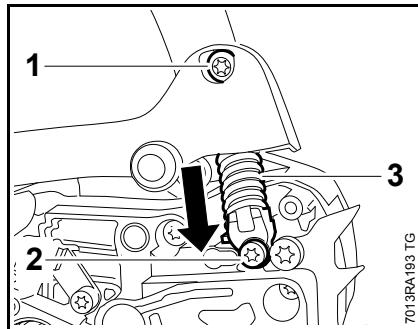
- Insert screw (1) through lug on handle housing and into the annular buffer.
- Insert and tighten down the screw (1) firmly.
- Reassemble all other parts in the reverse sequence.

## 9.2 AV Spring on Oil Tank (MS 201)

- Disengage the chain brake and remove the chain sprocket cover, bar and chain.
- Remove the clutch drum, [4.2](#)

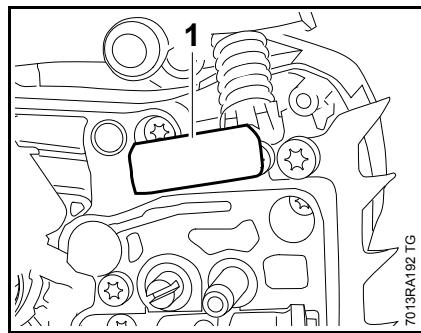


- Take out the screws (1).
- Remove covers (2) and (3).

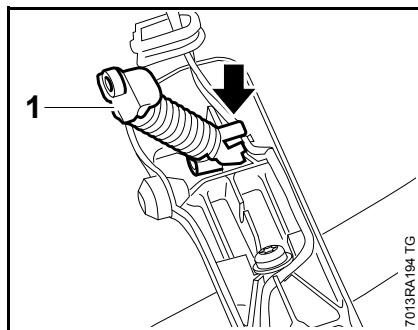


- Take out screws (1) and (2) – screw (2) is secured with Loctite; it may be necessary preheat it with a hot air blower.
- Pull the AV spring (3) out of the handle housing, inspect it and replace if necessary.

## Installing

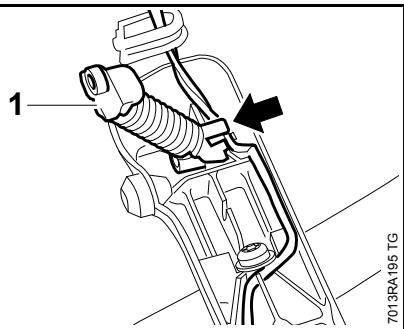


- Pry out the bumper strip (1).



- Position the AV spring (1) so that the lug (arrow) points in the direction of the handle housing.

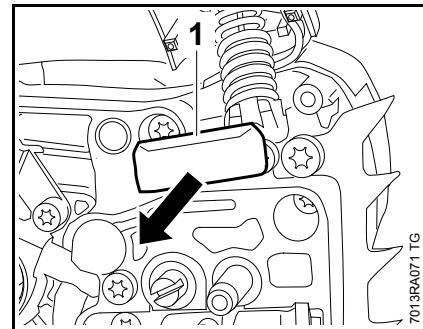
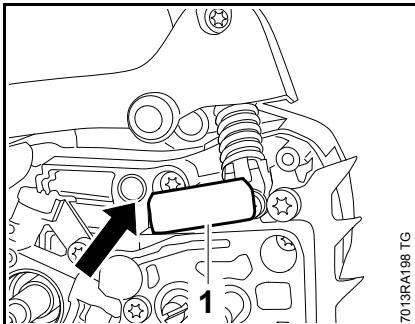
The lug (arrow) holds the short circuit and ground wires in the handle housing's guide.



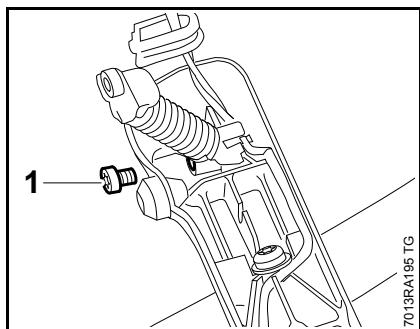
Short circuit and ground wires must be properly seated in the handle housing's guide.

- Push the AV spring (1) into the handle housing and position it so that the lug holds the wires in the guide
  - do not pinch the wires.

- Coat the screw (2) with Loctite, fit it and tighten it down firmly, [14](#)



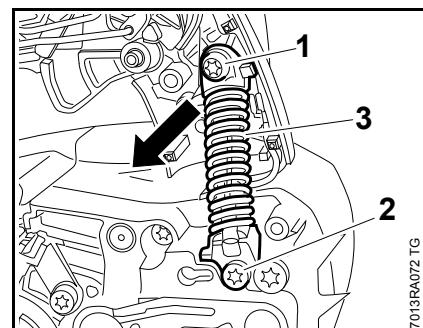
- Pry out the bumper strip (1).



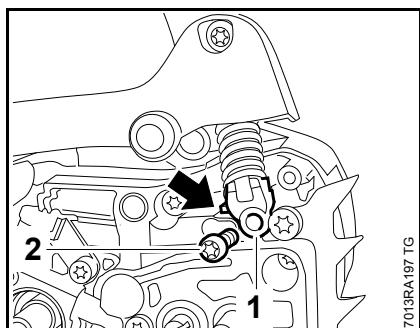
- Insert and tighten down the screw (1) firmly.

#### **9.2.1 AV Spring on Oil Tank (MS 201 T)**

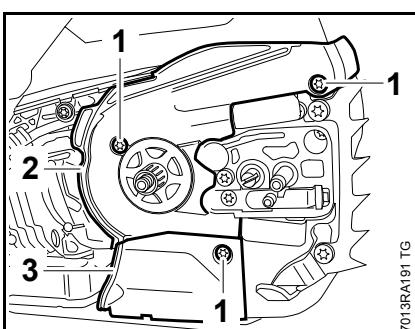
- Disengage the chain brake and remove the chain sprocket cover, bar and chain.
- Remove the handle molding, [10.3](#)
- Remove the clutch drum, [4.2](#)



- Take out screws (1) and (2) – screw (2) is secured with Loctite; it may be necessary preheat it with a hot air blower.
- Remove the AV spring (3), check it and replace if necessary.

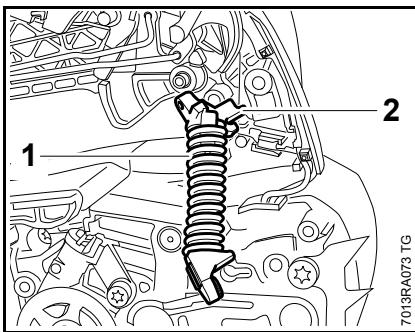


- Push bearing plug (1) with lug into recess (arrow) in crankcase as far as stop.



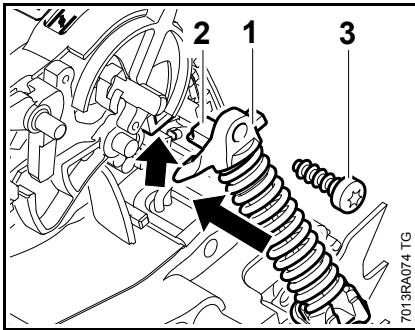
- Take out the screws (1).
- Remove covers (2) and (3).

## Installing

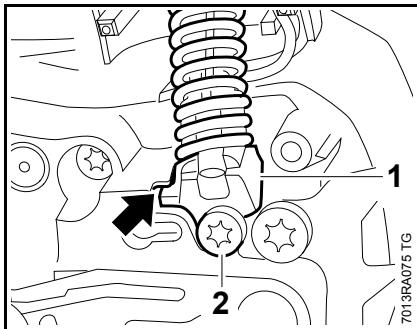


- Position the AV spring (1) so that the lug (2) points in the direction of the handle housing.

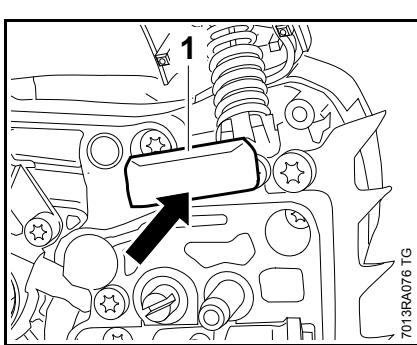
The bearing plug is held in the handle housing by the lug (2).



- Push the AV spring (1) with lug (2) into its seat (arrow) and line it up.
- Insert and tighten down the screw (3) firmly.

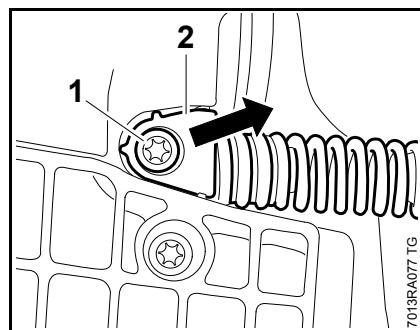


- Push bearing plug (1) with lug into recess (arrow) in crankcase as far as stop.
- Coat the screw (2) with Loctite, fit it and tighten it down firmly, **14**
- Fit the handle molding, **10.3**

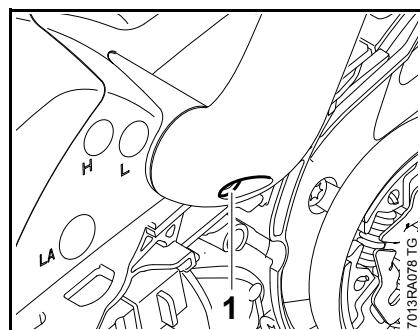


- Push the bumper strip (1) into its seat as far as stop.
- Reassemble all other parts in the reverse sequence.

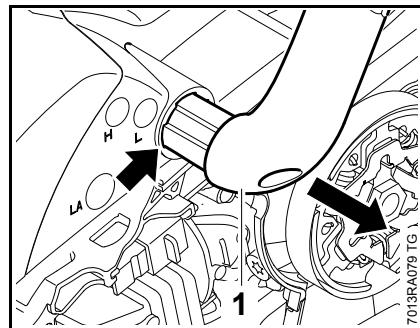
## 9.3 Front Handle / AV Spring (MS 201)



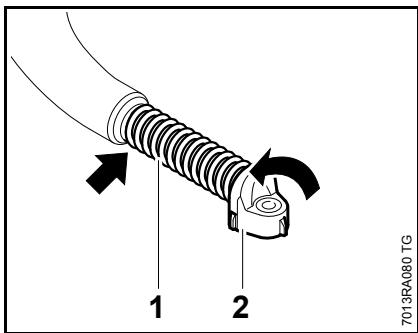
- Remove the screw (1) from the underside of the machine.
  - Screw (1) is secured with Loctite. Preheat with a hot air blower if necessary.
- Pull the bearing plug (2) out of its seat.



- Take out the screw (1).



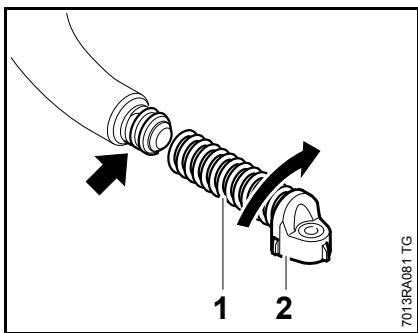
- Pull the handlebar (1) out of its seat (arrow) and lift it away.



7013RA080 TG

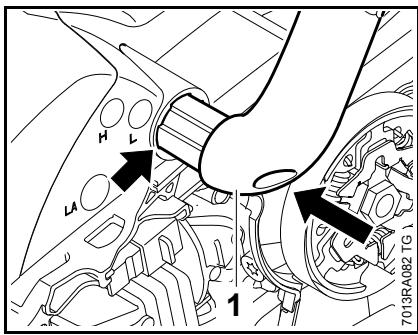
- Unscrew the AV spring (1) with bearing plug (2) from the handlebar (arrow).
- Check individual parts, replace if necessary

### Installing



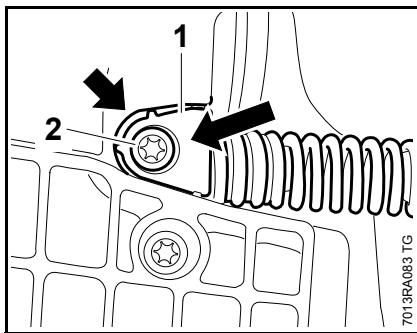
7013RA081 TG

- Screw the AV spring (2) with bearing plug (1) onto the handlebar (arrow) as far as stop.



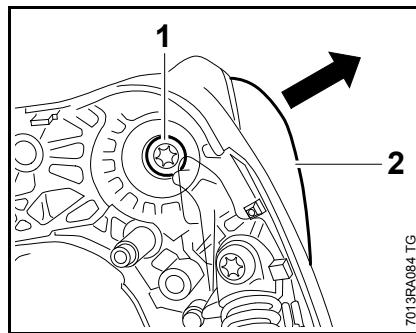
7013RA082 TG

- Push the handlebar (1) into its seat (arrow).
- Insert screw and tighten it down firmly.



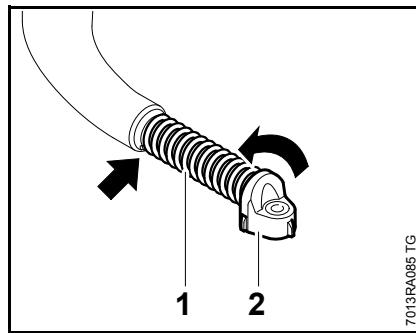
7013RA083 TG

- Push the bearing plug (1) into its seat (arrow) on the underside of the machine.
- Coat the screw (2) with Loctite, fit it and tighten it down firmly, **14**



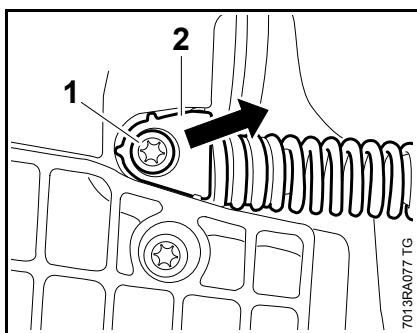
7013RA084 TG

- Take out the screw (1).
- Pull the handlebar (2) out of the handle housing and lift it away.



7013RA077 TG

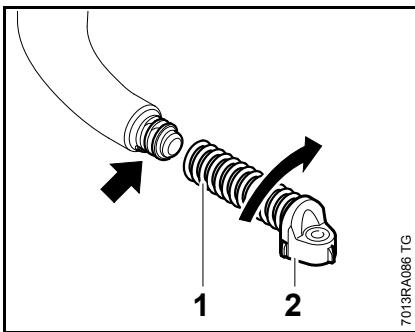
### 9.3.1 Front Handle / AV Spring (MS 201 T)



7013RA077 TG

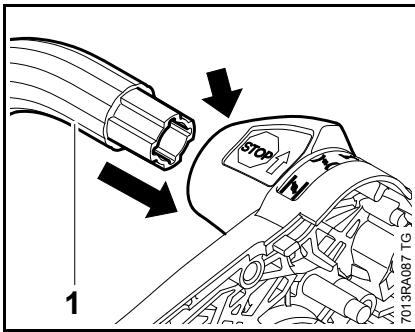
- Unscrew the AV spring (1) with bearing plug (2) from the handlebar (arrow).
- Check individual parts, replace if necessary
- Remove the screw (1) from the underside of the machine.
  - Screw (1) is secured with Loctite. Preheat with a hot air blower if necessary.
- Pull the bearing plug (2) out of its seat.
- Remove the handle molding and switch shaft, **10.3**

## Installing



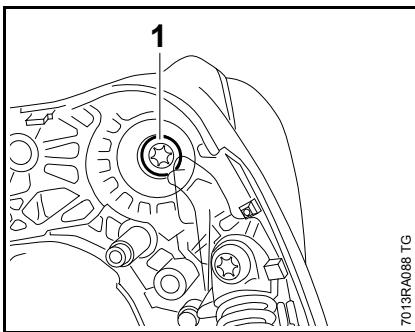
7013RA086 TG

- Screw the AV spring (2) with bearing plug (1) onto the handlebar (arrow) as far as stop.



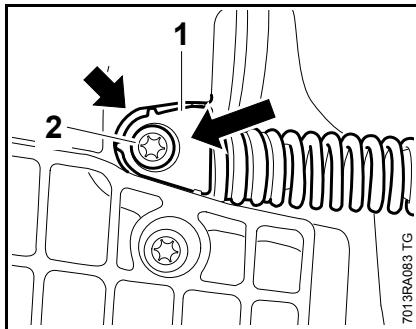
7013RA087 TG

- Push the handlebar (1) into its seat (arrow).



7013RA088 TG

- Insert and tighten down the screw (1) firmly.

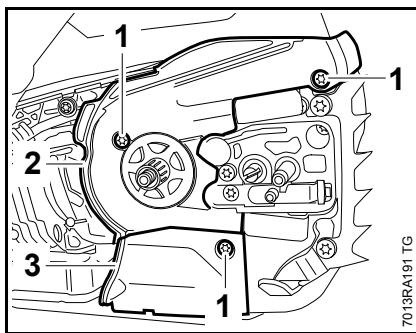


7013RA083 TG

- Push the bearing plug (1) into its seat (arrow) on the underside of the machine.
- Coat the screw (2) with Loctite, fit it and tighten it down firmly, **14**
- Install the switch shaft and handle molding, **10.3**

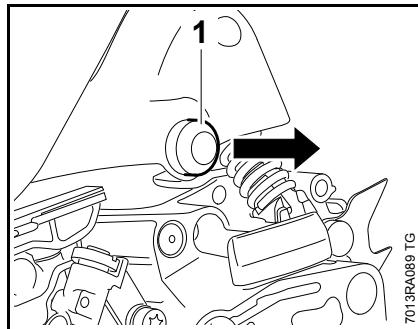
### 9.4 Stop Buffer on Handle Housing (MS 201)

- Disengage the chain brake and remove the chain sprocket cover, bar and chain.
- Remove the clutch drum, **4.2**



7013RA191 TG

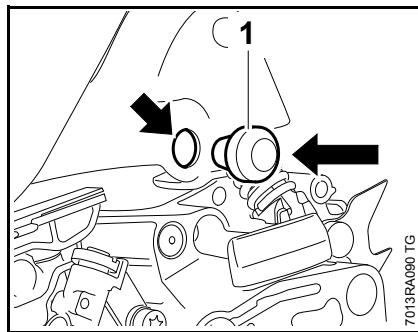
- Take out the screws (1).
- Remove covers (2) and (3).



7013RA089 TG

- Pry out and replace the stop buffer (1).

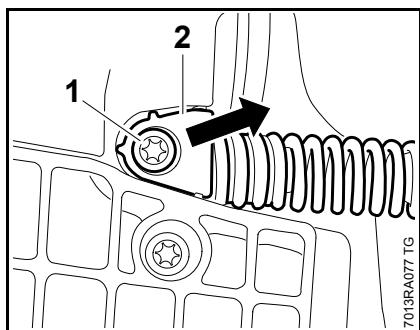
## Installing



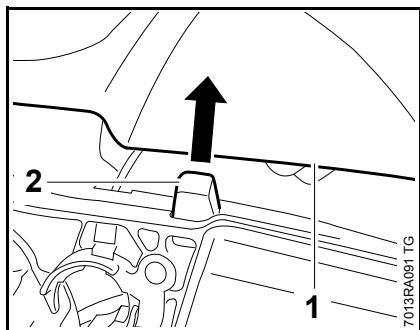
7013RA090 TG

- Coat taper of stop buffer with STIHL press fluid, **14**
- Position the stop buffer (1) so that its taper points in the direction of the handle housing.
- Press the stop buffer (1) in the hole (arrow) and make sure it is properly seated.
- Reassemble all other parts in the reverse sequence.

## 9.5 Stop Buffer on Tank Housing (MS 201)

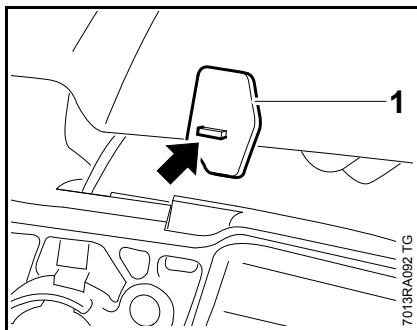


- Remove the screw (1) from the underside of the machine.  
– Screw (1) is secured with Loctite. Preheat with a hot air blower if necessary.
- Pull the bearing plug (2) out of its seat.

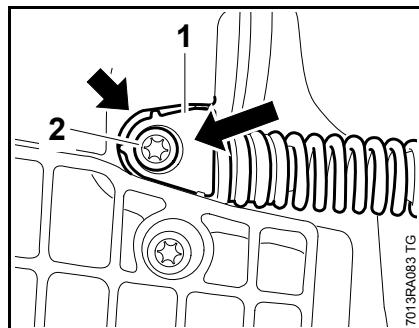


- Lift the handle housing (1) slightly.
- Pry out and replace the stop buffer (2).

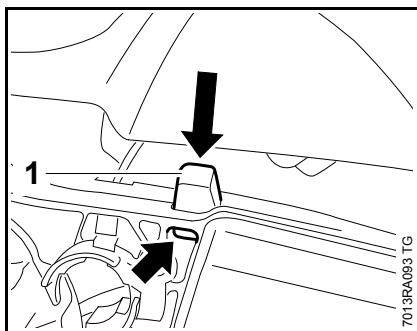
## Installing



- Coat taper and lug of stop buffer with STIHL press fluid, **14**
- Position the stop buffer (1) so that the lug (arrow) points in the direction of the fan housing.



- Push the bearing plug (1) into its seat (arrow) on the underside of the machine.
- Coat the screw (2) with Loctite, fit it and tighten it down firmly, **14**

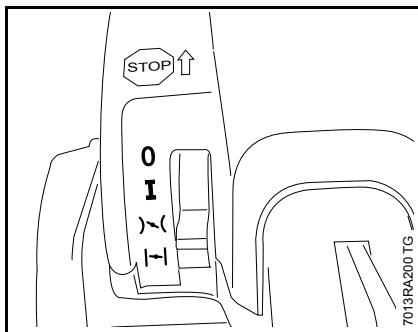


- Push the stop buffer (1) into its seat until the lug is firmly seated in the opening (arrow).

## 10. Control Levers

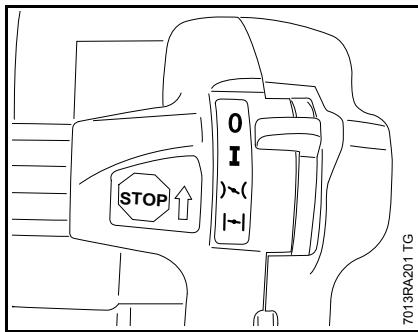
### 10.1 Master Control Lever

#### MS 201



The positions of the Master Control lever are described in the instruction manual.

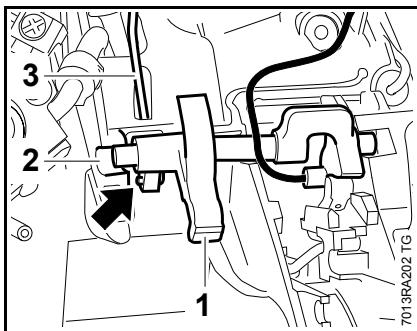
#### MS 201 T



The positions of the Master Control lever are described in the instruction manual.

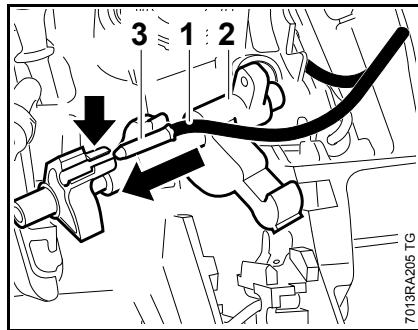
#### 10.1.1 Switch Shaft (MS 201)

- Remove the air filter, [12.1](#)
- Remove the handle molding, [10.2](#)
- Remove the choke and throttle rods, [10.3.1](#)
- Remove the lockout lever and throttle trigger, [10.2](#)

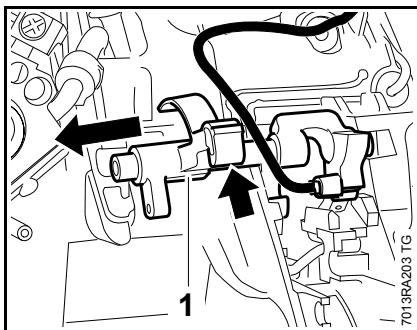


- Pry the switch shaft (1) out of its mount (2).
- Pull the choke rod (3) out of the hole (arrow).

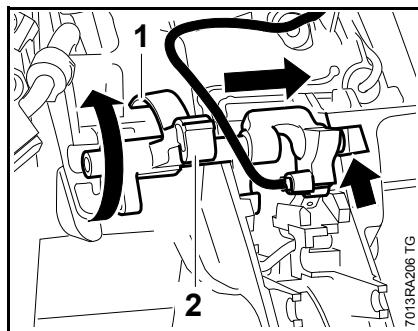
#### Installing



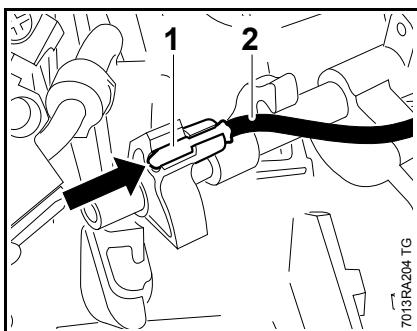
- Fit the short circuit wire (1) over the switch shaft (2).
- Push the connector sleeve (3) into its seat (arrow) as far as stop.



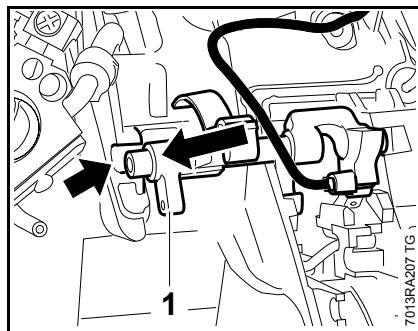
- Lift the switch shaft (1) a little and rotate it towards the intake manifold until the lever (arrow) is above the handle housing.
- Pull out the switch shaft (1) in direction of ignition side.



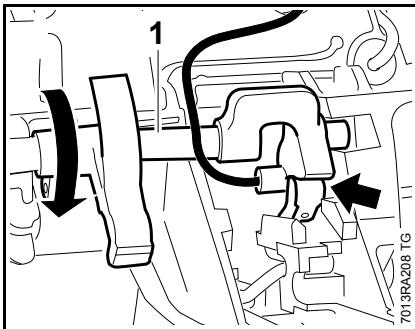
- Push the switch shaft (1) into the pivot mount (arrow) and rotate it so that the lever (2) is above the handle housing.



- Disconnect terminal (1) of short circuit wire (2).
- Inspect the switch shaft and replace if necessary.

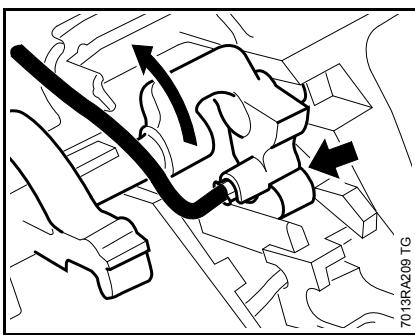


- Lift the switch shaft (1) a little and push it into the pivot mount (arrow) until it snaps into position.



- Turn the switch shaft (1) in the direction of cold start until the cam (arrow) engages the contact spring's loop.

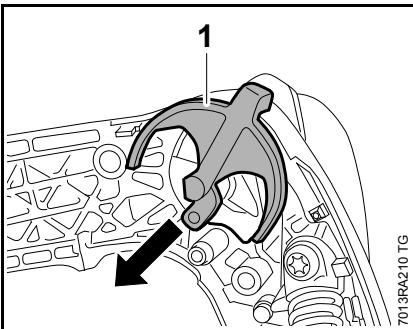
#### Checking operation



- Move the switch shaft to "STOP" – contact between the short circuit wire and contact spring (arrow) must be made.
- Reassemble all other parts in the reverse sequence.

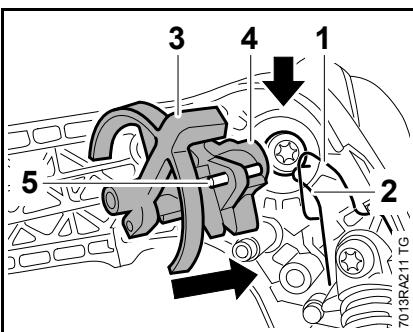
#### 10.1.2 Switch Shaft (MS 201 T)

- Disengage the chain brake and remove the chain sprocket cover, bar and chain.
- Remove the handle molding, throttle trigger and lockout lever, [10.3](#)

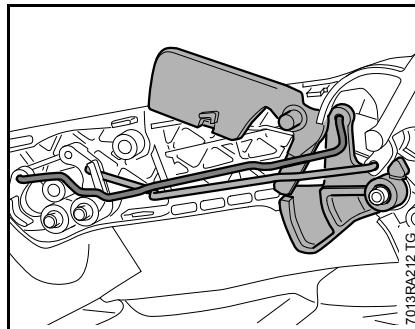


- Ease the switch shaft (1) past the contact springs and pull it out – take care not to bend the contact springs.
- Inspect the switch shaft and replace if necessary.

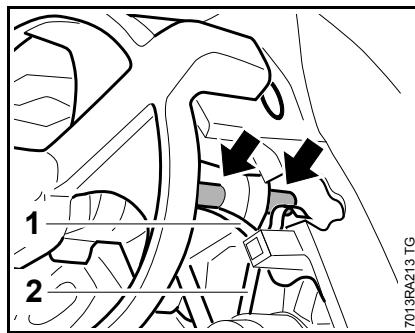
#### Installing



- Ease contact springs (1) and (2) to one side.
- Coat cylindrical peg with STIHL multipurpose grease – make sure there is no grease on the contact pin and contact springs, [14](#)
- Push the switch shaft (3), cylindrical peg (4) first, into the pivot mount (arrow) – the integral contact pin (5) must face the handlebar.



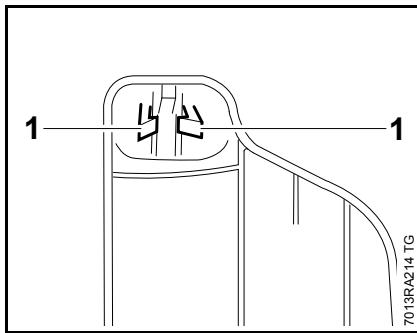
- Install the throttle trigger and lockout lever, [10.3](#)
- Install the choke and throttle rods, [10.3.2](#)



- Check operation
  - Set switch shaft to "0" – the contact springs (1) and (2) must locate against the contact pin (arrow) – contact is made.
- The throttle trigger and lockout lever may pop out.
- Reassemble all other parts in the reverse sequence.

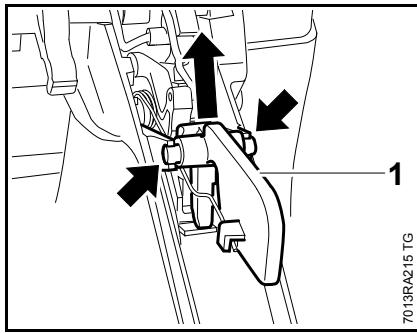
## 10.2 Throttle Trigger / Lockout Lever (MS 201)

- Remove the throttle rod,  
    10.3.1

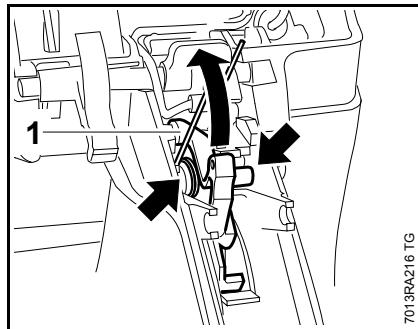


- To remove the handle molding, press the tabs (1) on the underside apart and push them through the rear handle.

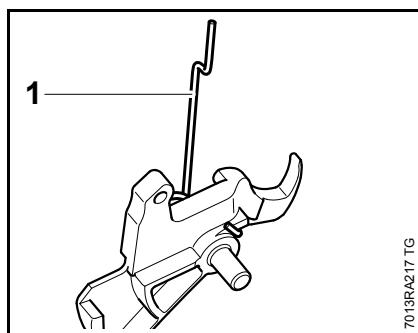
- Remove the handle molding.



- Pull the lockout lever (1) out of its mounts (arrows).



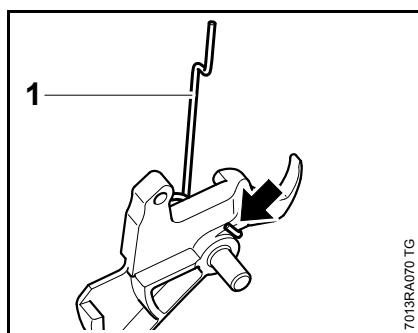
- Rotate throttle trigger (1) in direction of cylinder and pull it out of the mounts (arrows).



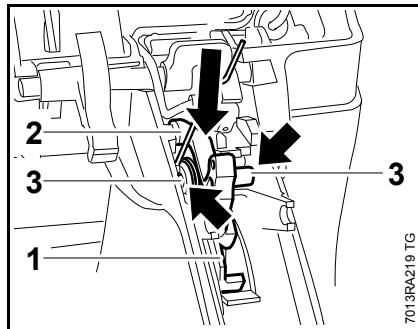
- Disconnect and remove the torsion spring (1) from the throttle trigger.

- Check individual parts, replace if necessary

### Installing

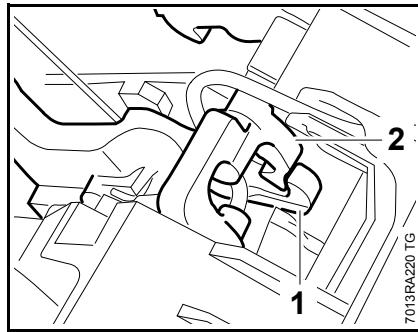


- Fit and connect torsion spring (1)  
– note installed position (arrow).



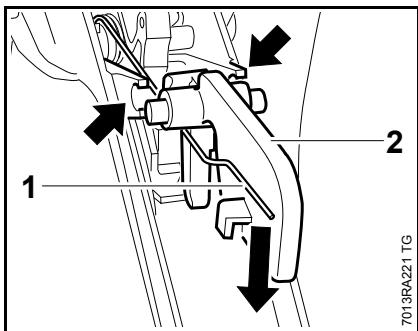
- Position the throttle trigger (1) with the hook (2) facing the switch shaft.

- Push pivot pins (3) of throttle trigger (1) into their mounts (arrows).

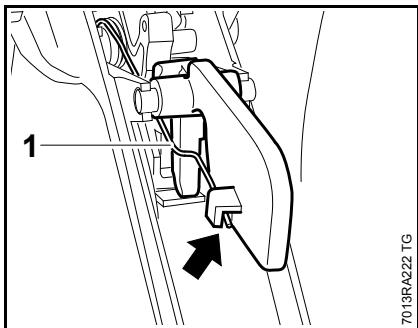


Hook (1) must engage lever (2) on switch shaft.

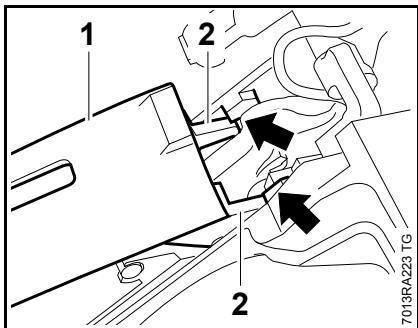
- Remove the throttle rod,  
    10.3.1



- Push leg (1) of torsion spring in direction of rear handle.
- Press the lockout lever (2) into the mounts until it snaps into place.



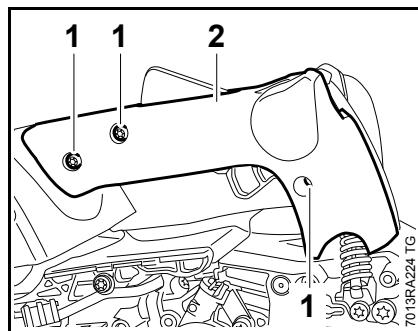
- Attach the torsion spring (1) to the lockout lever (arrow).



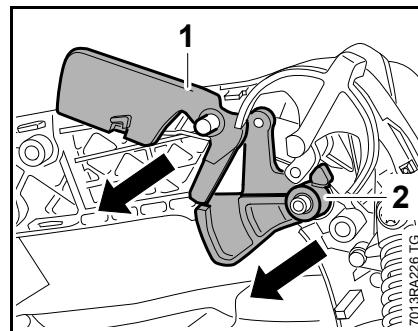
- Push the lugs (1) of the handle molding (2) under the projections (arrows).
- Push down the handle molding until it snaps into position.

- Check operation
  - Throttle trigger must be blocked when the lockout lever is not operated and the switch lever must be blocked in the direction of cold start when the throttle trigger is not operated.
- Reassemble all other parts in the reverse sequence.

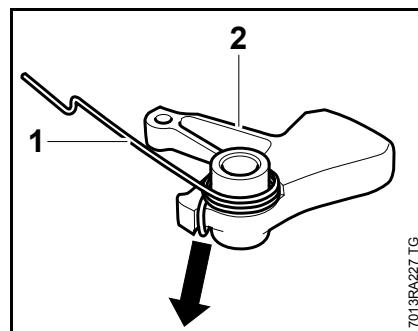
### 10.3 Throttle Trigger / Lockout Lever (MS 201 T)



- Take out the screws (1).
- Carefully remove the handle molding (2) – rods and levers may fall out.

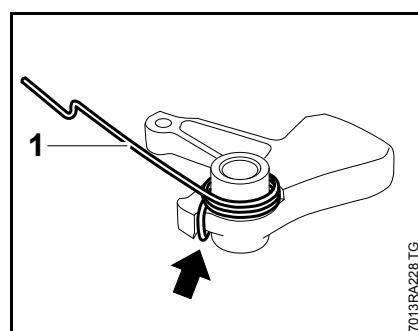


- Remove the lockout lever (1) and throttle trigger (2).

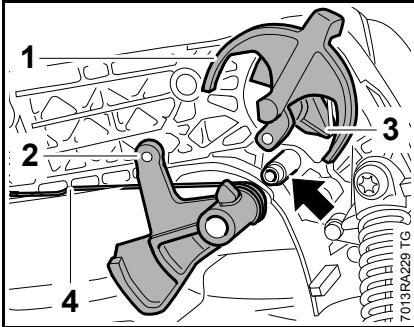


- Disconnect the torsion spring (1) from the throttle trigger (2).
- Check individual parts, replace if necessary

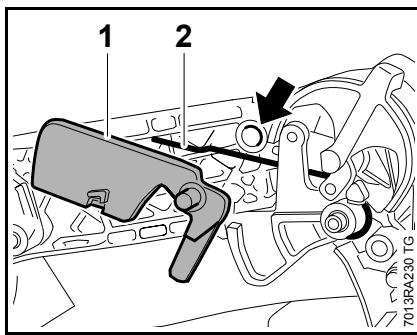
### Installing



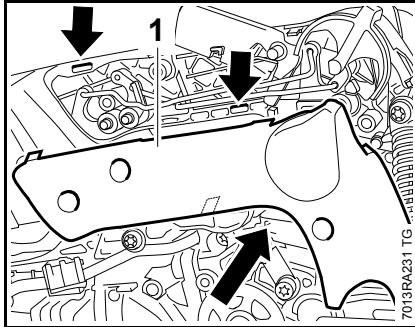
- Fit and connect torsion spring (1)
  - note installed position (arrow).



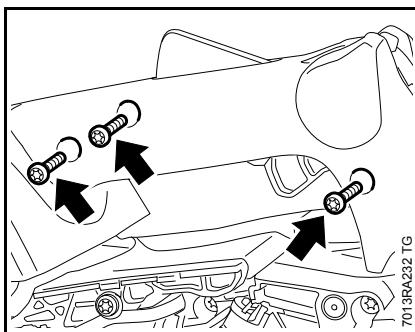
- Turn the switch shaft (1) so that the throttle trigger (2) can be maneuvered past the cam (3).
- Push the throttle trigger (2) onto the pivot pin (arrow) so that the leg (4) of the torsion spring is behind the trigger (2).



- Attach the lockout lever (1) to the torsion spring (2).
- Push the lockout lever (1) with torsion spring into the bore (arrow).



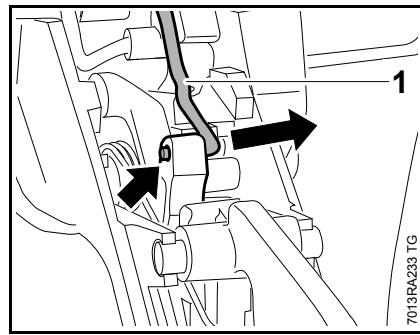
- Install the throttle and choke rods, **10.3.2**
- Position the handle molding (1) so that the lugs engage the seats (arrows).
- Carefully push the handle molding (1) into place – the throttle trigger and lockout lever may pop out.



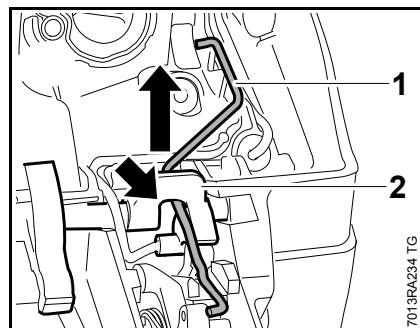
- Insert the screws (arrows) and tighten them down firmly.
- Check operation
  - Throttle trigger must be blocked when the lockout lever is not operated and the switch lever must be blocked in the direction of cold start when the throttle trigger is not operated.
- Reassemble all other parts in the reverse sequence.

### 10.3.1 Choke and Throttle Rods (MS 201)

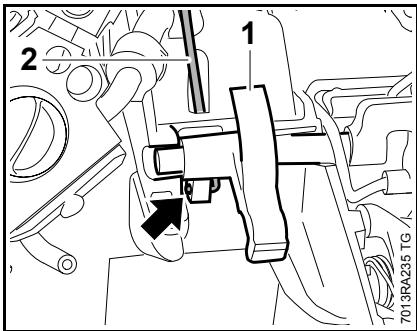
- Remove the handle molding, **10.2**
- Remove the carburetor and put it to one side, **12.4**



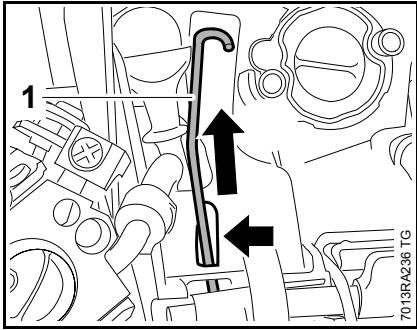
- Disconnect throttle rod (1) from hole (arrow) in throttle trigger.



- Pull throttle rod (1) out through the switch shaft (1) (arrow) and lift it away.

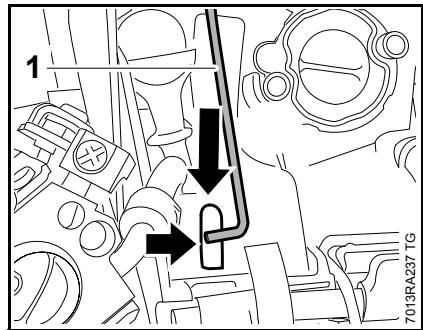


- Pry the switch shaft (1) out of its mount.
  - Do not remove the switch shaft.
- Pull the choke rod (2) out of the hole (arrow).

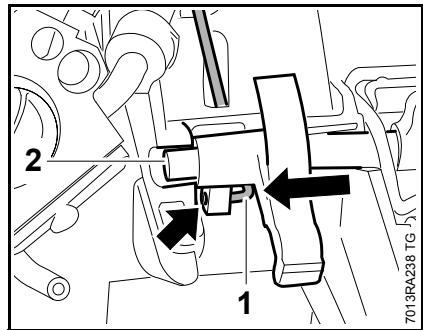


- Pull the choke rod (1) out of the opening (arrow).
- Check the choke and throttle rods and replace if necessary – always replace a twisted throttle rod.

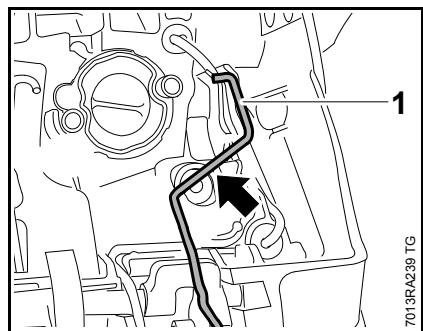
## Installing



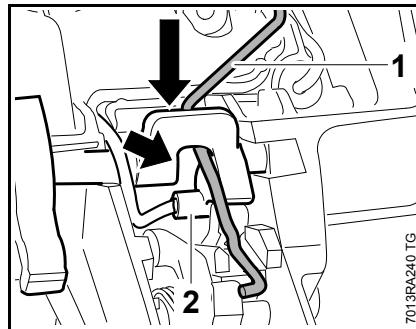
- Push the right angled end of the choke rod (1) through the opening (arrow).



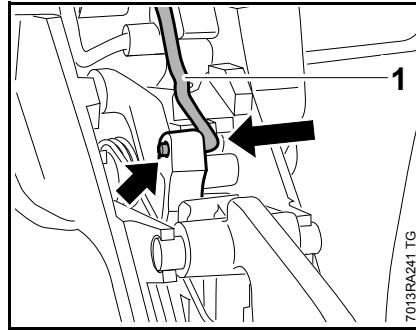
- Push the choke rod (1) into the hole (arrow).
- Push the switch shaft (2) into its mount until it snaps into position.



- Hold the choke rod (1) so that its angled portion (arrow) is in the carburetor box.



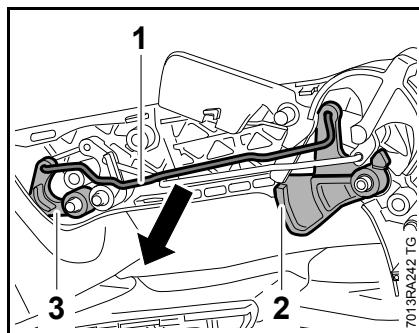
- Pass the throttle rod (1) through the arch (arrow) in the switch shaft – throttle rod must be above the connector sleeve (2).



- Push throttle rod (1) into the hole (arrow) in the throttle trigger.
  - Install the carburetor, [12.4](#)
- Check operation
  - Depress trigger to full throttle position. The throttle shutter must be completely open. Set the switch shaft to cold start. The choke shutter must be closed.
- Reassemble all other parts in the reverse sequence.

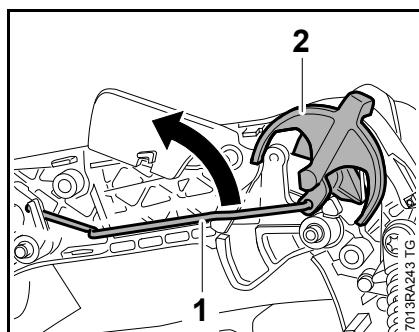
### 10.3.2 Choke and Throttle Rods (MS 201 T)

- Remove the handle molding, [10.1.2](#)



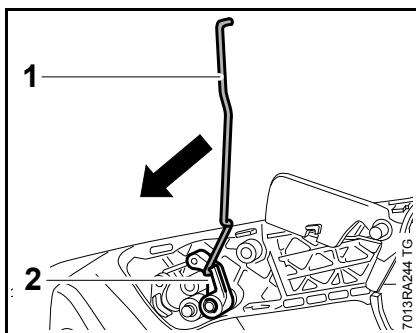
- Pull throttle rod (1) out of the trigger (2) and lever (3).

The throttle trigger and lockout lever may pop out.

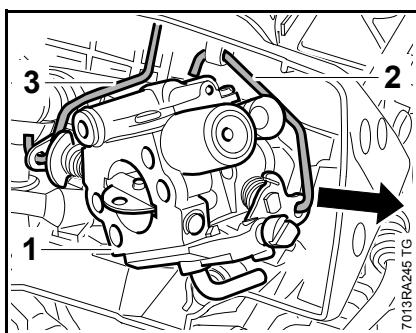


- Pull the choke rod (1) out of the switch shaft (2) and turn it in the direction of the carburetor until it is vertical.

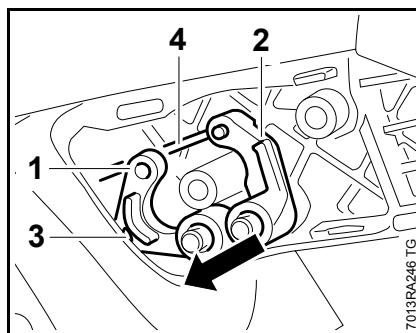
The throttle trigger and lockout lever may pop out.



- Remove the choke rod (1) from the lever (2).
- Remove the filter base, [12.3.1](#)

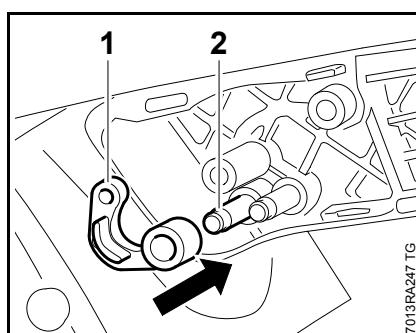


- Pull out the carburetor (1) a little and disconnect the throttle rod (2).
- Turn the carburetor (1) in the direction of the ignition side and disconnect it from the choke rod (3).
- Put the carburetor with the fuel suction hose still attached to one side – there is no need to remove the fuel suction hose.

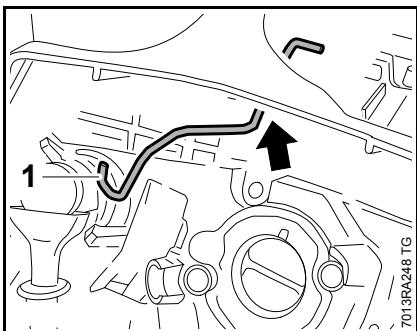


- Disconnect the throttle rod (3) and pull out the double lever (1).
- Pull out double lever (2) and disconnect the choke rod (4) at the same time.
- Check individual parts, replace if necessary

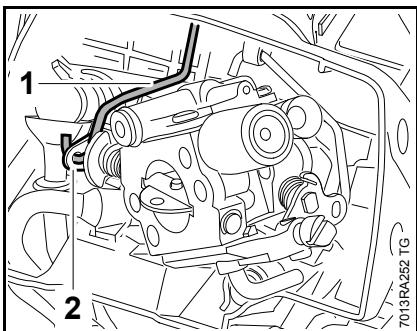
#### Installing



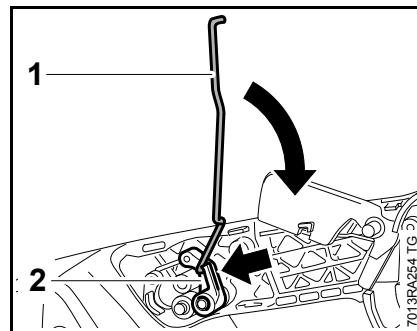
- Position the double lever (1) so that its outer curvature is facing the carburetor.
- Push the double lever (1) onto the pin (2) as far as stop.



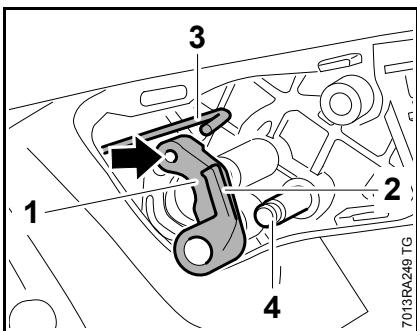
- Push the right angled end of the choke rod (1) through the opening (arrow) and hold it there.



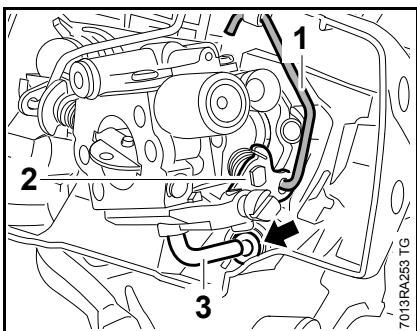
- Place carburetor in position and attach the choke rod (1) to the lever (2).



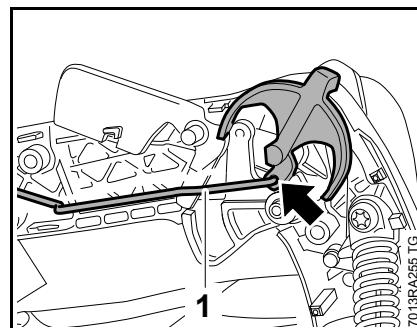
- Hold the choke rod (1) vertically.
  - Hold the double lever (2) steady, attach the choke rod (1) and turn it clockwise until it is behind the lug (arrow).



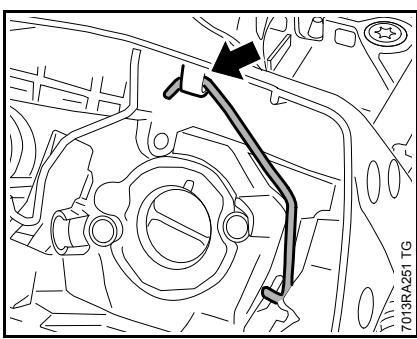
- Position the double lever (1) so that the lug (2) points towards the switch shaft.
- Attach the choke rod (3) to the hole (arrow) and push the double lever (1) onto the pivot pin (4) as far as stop.



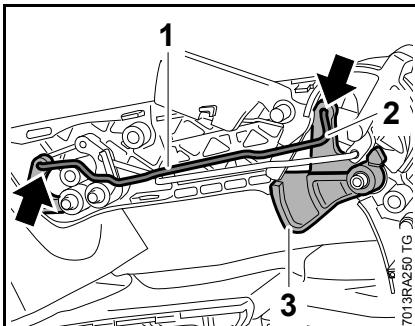
- Attach throttle rod (1) to lever (2) and position connector (3) on impulse hose (arrow).
- Hold throttle rod (1) on lever (2) and push the carburetor into position as far as stop.
- Install the filter base, **12.3.1**



- Push the choke rod (1) into the switch shaft (arrow).



- Attach the throttle rod (arrow) to the double lever.



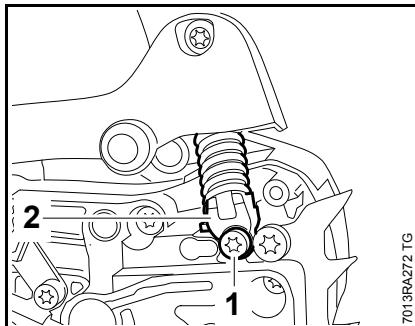
- Line up the throttle rod (1) – the bend (2) must be next to the throttle trigger (3).
- Carefully push the throttle rod (1) into the double lever and throttle trigger (arrows).

The double throttle lever may fall out or the lockout lever and throttle trigger may pop out.

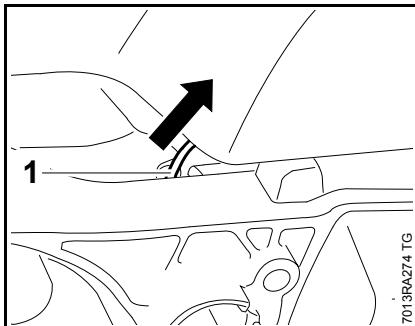
- Fit the handle molding and check operation, **10.1.2**

#### 10.4 Handle Housing (MS 201)

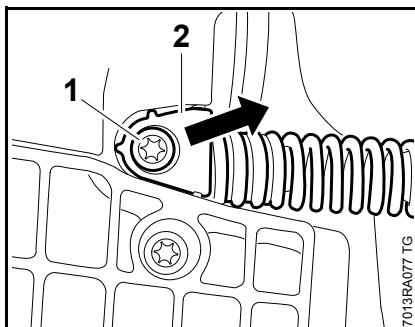
- Remove the ignition module and put it to one side, **7.2**
- Remove cover from oil pump and pry out the bumper strip, **9.2**
- Remove the carburetor, **12.4**
- Remove the tank vent, **12.9**
- Remove annular buffer from the fuel tank, **9.1**



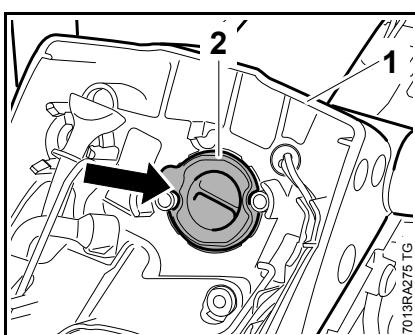
- Take out the screw (1). – Screw (1) is secured with Loctite. Preheat with a hot air blower if necessary.
- Pull the bearing plug (2) out of its seat.



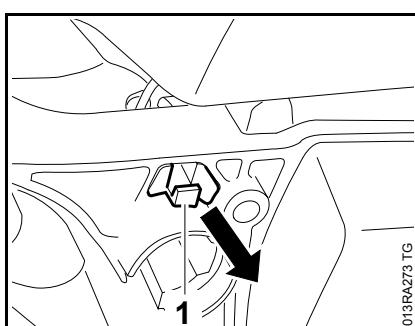
- Push out the retainer (1) in the direction of the manifold.



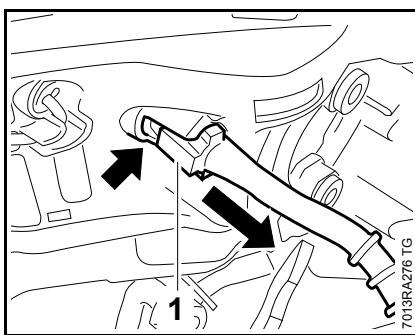
- Remove the screw (1) from the underside of the machine. – Screw (1) is secured with Loctite. Preheat with a hot air blower if necessary.
- Pull the bearing plug (2) out of its seat.



- Lift the handle housing (1) a little and push out the manifold (2) in direction of cylinder.

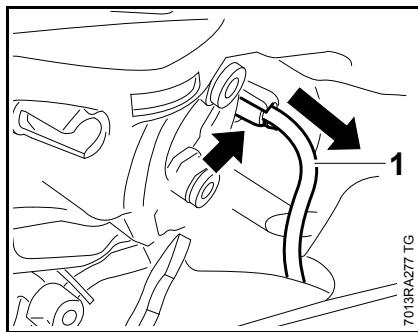


- Pull out the clamping block (1).



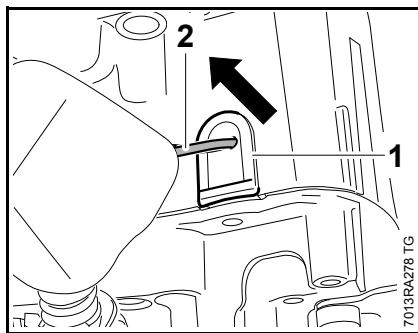
- Pull the impulse tube (1) out of its seat (arrow) in the handle housing.

## Models with manual fuel pump

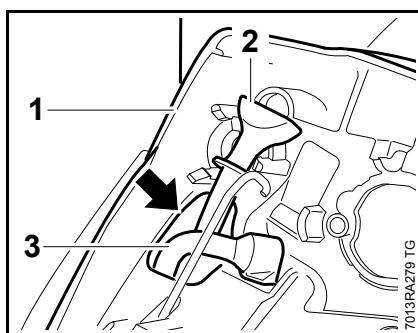


- Pull the fuel suction hose (1) out of its seat (arrow) in the handle housing.

## All models



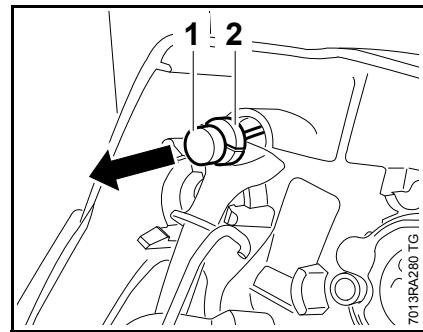
- Pry out the grommet (1) and pull out the wiring harness (2).



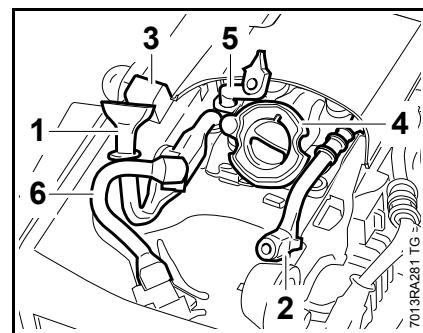
- Lift the handle housing (1) a little and pull the tank vent hose (2) and fuel suction hose (3) through the opening (arrow).

- Remove and inspect the handle housing and replace it if necessary.

If handle housing is new, check components of old housing and transfer them to the new handle housing where possible.



- Push out the retainer (1) and pull off the stop buffer (2).
- Inspect AV spring and transfer if serviceable, **9.2.1**
- Inspect handlebar and transfer if serviceable, **9.3**
- Check the wiring harness and contact spring and transfer if serviceable, **7.6.2**, **7.6.5**
- Check the lockout lever and throttle trigger and transfer if serviceable, **10.2**
- Check the choke and throttle rods and transfer if serviceable, **10.3.1**
- Check switch shaft and transfer if serviceable, **10.1.1**

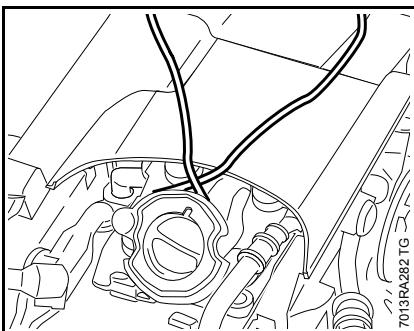


- Check the tank vent hose (1) and replace if necessary, **12.9**
- Check the impulse hose (2) and replace if necessary, **12.8.1**
- Check the stop buffer (3) and replace if necessary, **9.5**
- Check the intake manifold (4), replace if necessary, **12.8**
- On versions with a manual fuel pump, check the fuel hose (5) and replace if necessary, **12.10.3**
- Install a new fuel suction hose (6), **12.10.2**

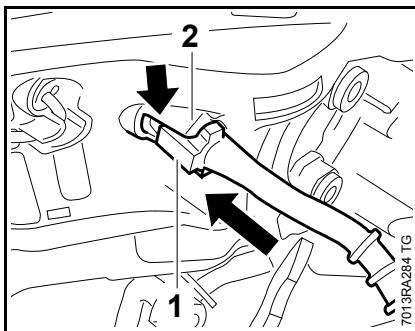
## Installing

Contact spring, wiring harness, stop buffer, throttle and lockout levers, switch shaft, choke and throttle rods are installed.

Place handle housing, without AV spring and handlebar, in position. This simplifies installation of the fuel hose (where applicable) and impulse hose.



- Coat manifold flange with STIHL press fluid, **14**
- Wind a piece of string around the manifold flange.



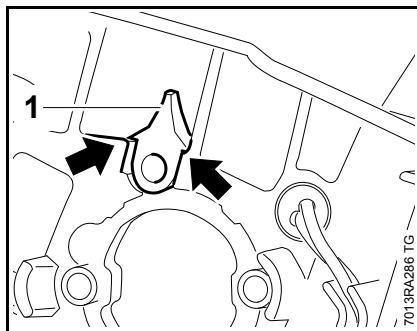
- Coat impulse hose with STIHL press fluid, **14**
- Push the impulse hose (1) into its seat (2) as far as stop so that the web engages the groove in the hose and the straight face is against the opening (arrow).

When assembling remaining parts, make sure the impulse hose stays in its seat.

#### Models with manual fuel pump

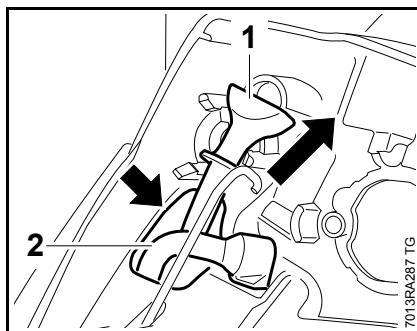


- Coat the fuel suction hose with STIHL press fluid, **14**
- Push the fuel suction hose (1), tab first, into its seat (arrow) in the handle housing.

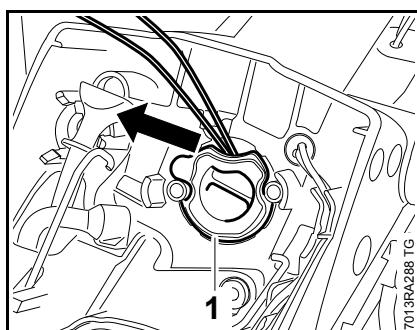


Shoulders of fuel suction hose's tab (1) must engage on the edges (arrows).

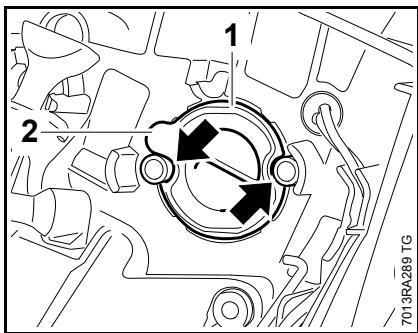
#### All models



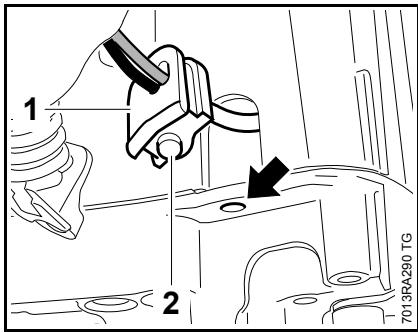
- Thread the tank vent hose (1) and fuel suction hose (2) through the opening (arrow).
- Pass the ends of the string through the hole in the handle housing and position the handle housing against the manifold.



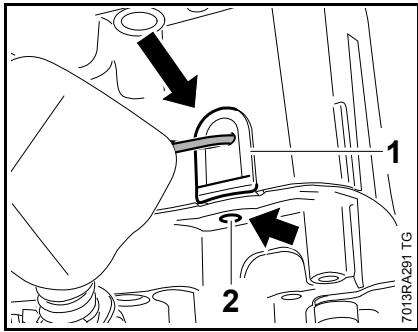
- Pull the manifold (1) into position and remove the string.



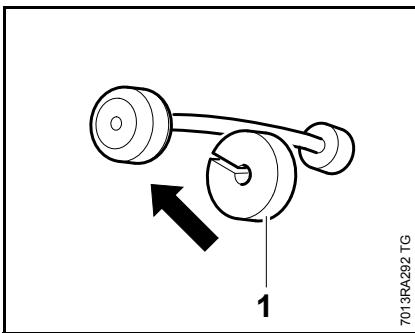
- Position the manifold flange (1) so that the recesses (arrows) locate against the screw sleeves and the tab (2) is seated in the recess.



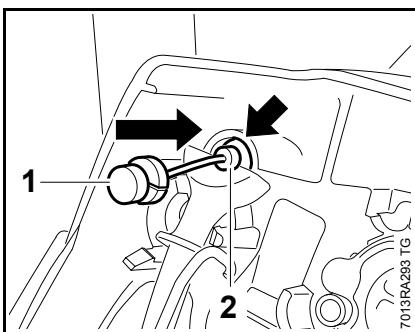
- Position the grommet (1) so that the peg (2) faces the hole (arrow).



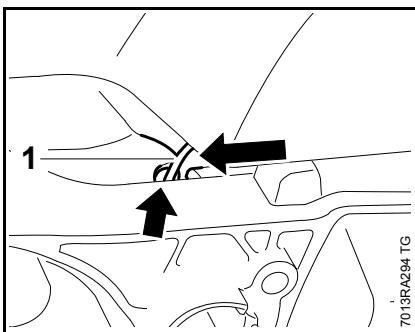
- Coat grommet with STIHL press fluid, **14**
- Push the grommet (1) into the opening (arrow) until it is properly seated and the peg (2) is firmly located in the hole.



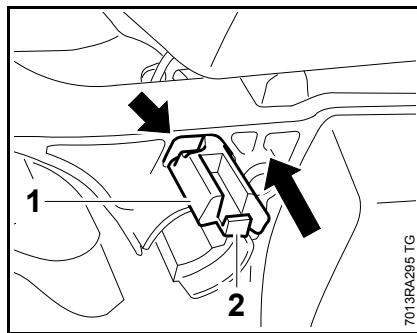
- Fit the stop buffer (1).



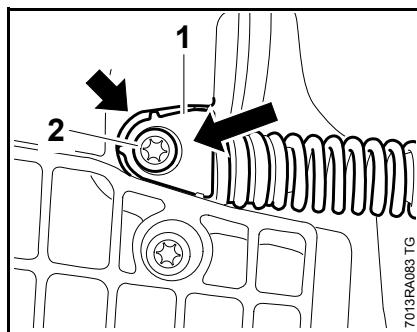
- Push the retainer (1), small nipple (2) first, through the hole (arrow).



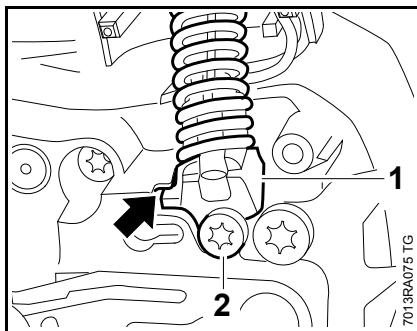
- Attach the retainer (1) to the slot (arrow) and push it in direction of chain as far as stop.
- Hold the retainer (1) in that position.



- Position the clamping block (1) with the lug (2) facing outwards, then push it into the seat (arrow) as far as stop.



- Push the bearing plug (1) into its seat (arrow) on the underside of the machine.
- Coat the screw (2) with Loctite, fit it and tighten it down firmly, **14**

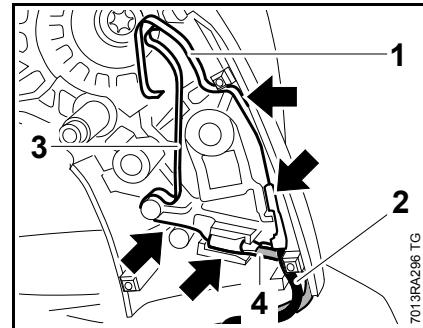


- Remove the choke and throttle rods with double lever, 10.3.2
- Remove the lockout lever and throttle trigger, 10.3
- Remove the switch shaft, 10.1.2
- Remove the handlebar, 9.3.1

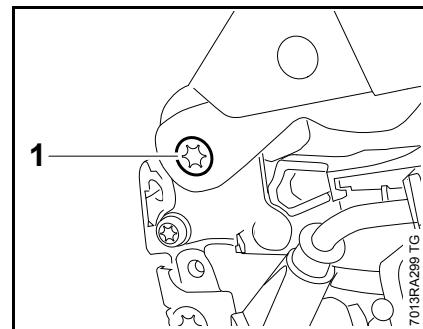
- Push bearing plug (1) with lug into recess (arrow) in crankcase as far as stop.
- Coat the screw (2) with Loctite, fit it and tighten it down firmly, 14
- Install annular buffer on the fuel tank, 9.1
- Install the ignition module, 7.2
- Fit cover on oil pump and push bumper strip into its seat, 9.2
- Install the tank vent, 12.9.2
- Install the carburetor, 12.4
- Reassemble all other parts in the reverse sequence.

## 10.5 Handle Housing (MS 201 T)

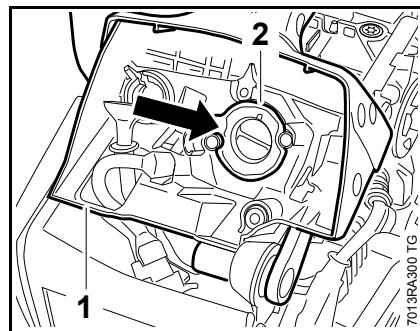
- Remove cover from oil pump and pry out the bumper strip, 9.2
- Remove the AV spring, 9.2.1
- Remove the carburetor, 12.5
- Remove the tank vent, 12.9



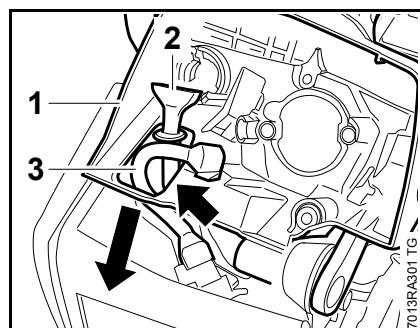
- Pull contact spring (1) of short circuit wire (2) and contact spring (3) of ground wire (4) out of guides (arrows).



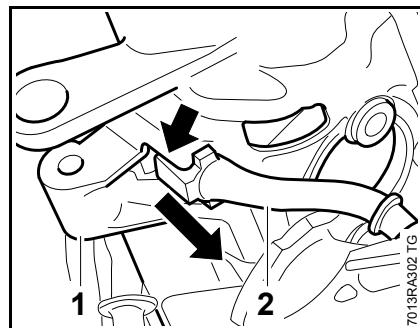
- Take out the screw (1).



- Lift the handle housing (1) a little and push out the manifold (2) in direction of cylinder.

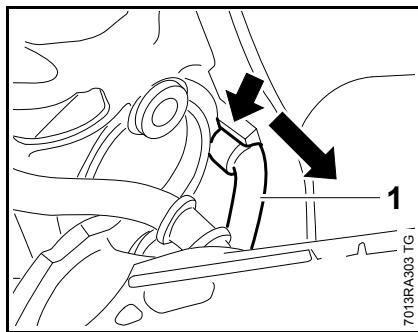


- Lift the handle housing (1) a little and pull the tank vent hose (2) and fuel suction hose (3) through the opening (arrow).



- Turn the handle housing (1) over and pull the impulse tube (2) out of its seat (arrow) in the handle housing.

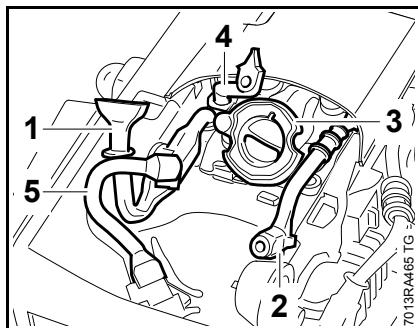
## Models with manual fuel pump



- Pull the fuel suction hose (1) out of its seat (arrow) in the handle housing.
- Remove and inspect the handle housing and replace it if necessary.

If handle housing is new, check components of old housing and transfer them to the new handle housing where possible.

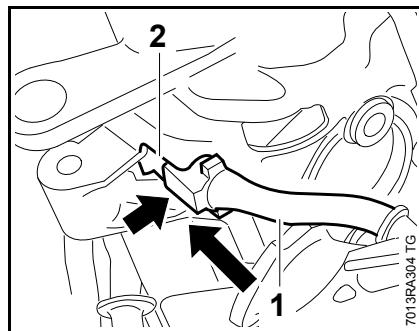
- Check the AV spring and handlebar and replace if necessary, **9.3**



- Check the tank vent hose (1) and replace if necessary, **12.9**
- Check the impulse hose (2) and replace if necessary, **12.8.1**
- Check the intake manifold (3), **12.8**, replace if necessary.

- On versions with a manual fuel pump, check the fuel hose (4) and replace if necessary, **12.10.3**

- Install a new fuel suction hose (5), **12.10.2**
- Check contact springs of short circuit and ground wires, replace if necessary, **7.6.6**

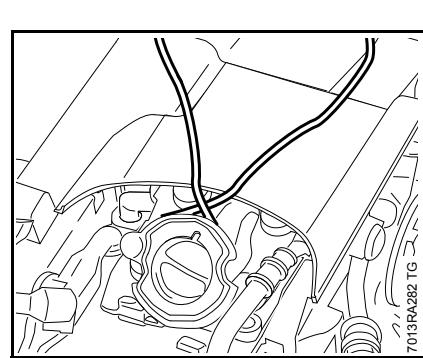


- Coat impulse hose with STIHL press fluid, **14**

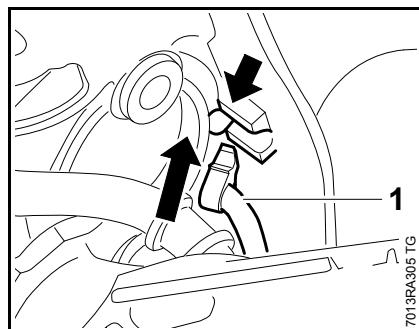
- Push the impulse hose (1) into its seat (2) as far as stop so that the web engages the groove in the hose and the flat face is against the opening (arrow).

When assembling remaining parts, make sure the impulse hose stays in its seat.

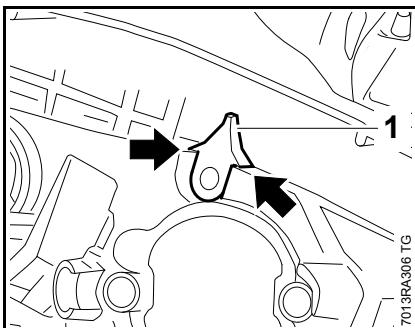
## Models with manual fuel pump



- Coat manifold flange with STIHL press fluid, **14**
- Wind a piece of string around the manifold flange.

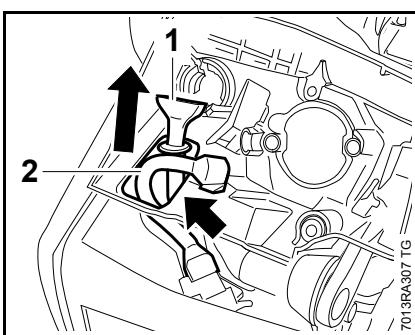


- Coat the fuel suction hose with STIHL press fluid, **14**
- Push the fuel suction hose (1), tab first, into its seat (arrow) in the handle housing.

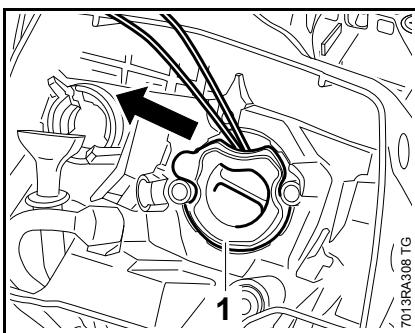


Shoulders of fuel suction hose's tab (1) must engage on the edges (arrows).

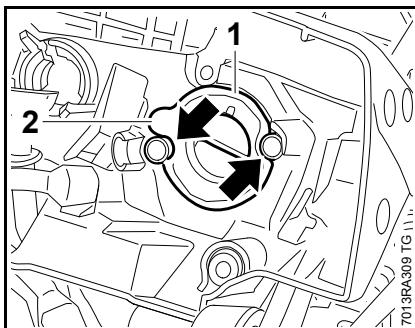
#### All models



- Thread the tank vent hose (1) and fuel suction hose (2) through the opening (arrow).
- Pass the ends of the string through the hole in the handle housing and position the handle housing against the manifold.

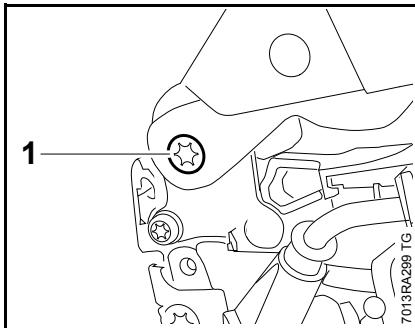


- Pull the manifold (1) into position and remove the string.

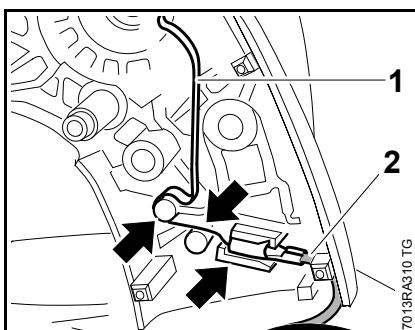


- Position the manifold flange (1) so that the recesses (arrows) locate against the screw sleeves and the tab (2) is seated in the recess.

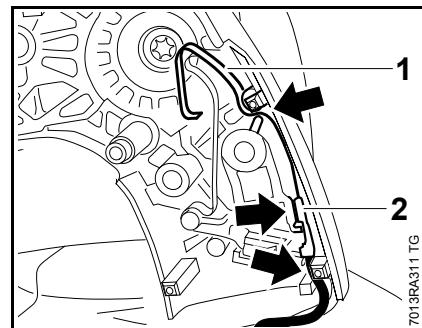
- Install the handlebar, [9.3.1](#)



- Insert and tighten down the screw (1) firmly.



- Push the contact spring (1) of ground wire (2) into the guides (arrows).



- Push the contact spring (1) of short circuit wire (2) into the guides (arrows).

- Install the AV spring, [9.2.1](#)

- Install the tank vent, [12.9](#)

- Install the switch lever, [10.1.2](#)

- Install the lockout lever and throttle trigger, [10.3](#)

- Remove the choke and throttle rods with double lever, [10.3.2](#)

- Install the carburetor, [12.5](#)

- Reassemble all other parts in the reverse sequence.

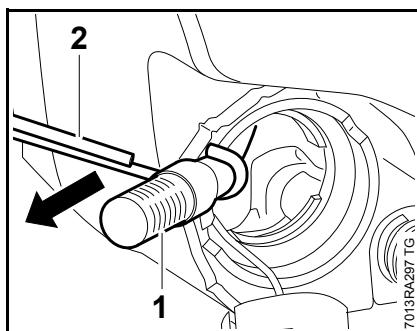
- Check operation

## 11. Chain Lubrication

### 11.1 Pickup Body

Impurities gradually clog the fine pores of the filter with minute particles of dirt. This prevents the oil pump from supplying sufficient oil. In the event of problems with the oil supply system, first check the oil tank and the pickup body.

- Troubleshooting, **3.3**
- Open the oil tank cap and drain the oil tank.
- Collect the oil in a clean container, **1**
- Clean the oil tank if necessary, **1**



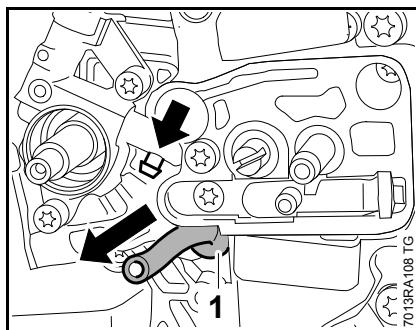
- Use hook (2) 5910 893 8800 to remove the pickup body (1) from the oil tank.

Do not overstretches the suction hose.

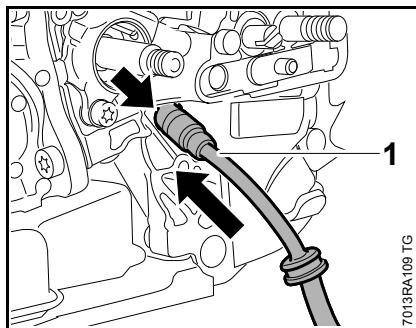
- Pull off the pickup body (1), check it and replace if necessary.
- Reassemble in the reverse sequence.

### 11.2 Oil Suction Hose

- Open the oil tank cap and drain the oil tank.
- Collect chain oil in a clean container, **1**
- Remove the cover and pull off the worm, **11.4**

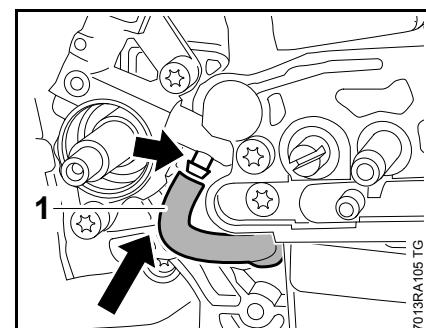


- Disconnect the oil suction hose (1) from the oil pump (arrow) and pull it out of the crankcase.
- Check the oil suction hose and pickup body and replace if necessary.



- Push the oil suction hose (1), pickup body first, through the housing bore (arrow).

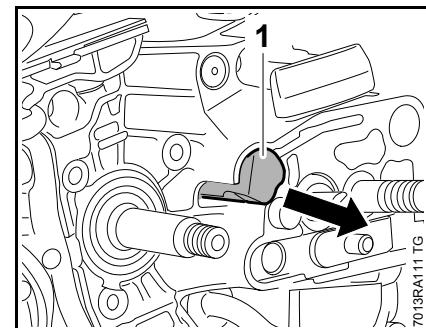
- Press home the oil suction hose (1) until the groove locates properly in the bore.



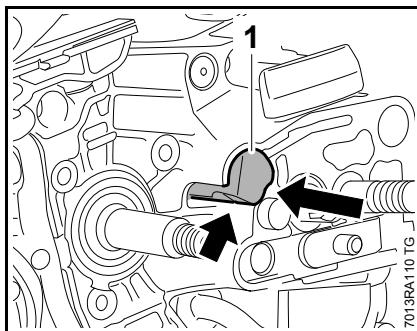
- Push the oil suction hose (1) onto the oil pump's stub (arrow).
- Check position of the pickup body in the oil tank and, if necessary, use the hook 5910 893 8800 to re-position it.
- Reassemble all other parts in the reverse sequence.

### 11.3 Connector / Oil Pressure

- Remove the oil pump, **11.4**



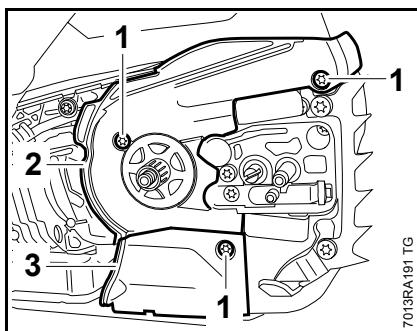
- Use a suitable tool to pry out the connector (1).
- Check the connector and replace if necessary.



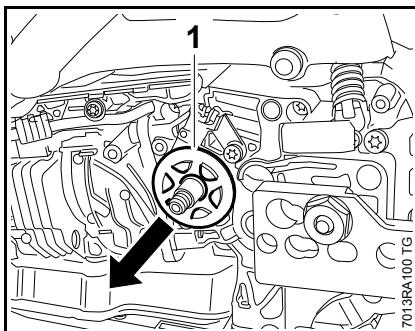
- Line up the connector (1) so that the shoulder (arrow) is visible and points towards the oil pump's stub.
- Push the connector (1) into its seat as far as stop.
  - Install the oil pump and push the worm into position, **11.4**
  - Reassemble all other parts in the reverse sequence.

#### 11.4 Oil Pump

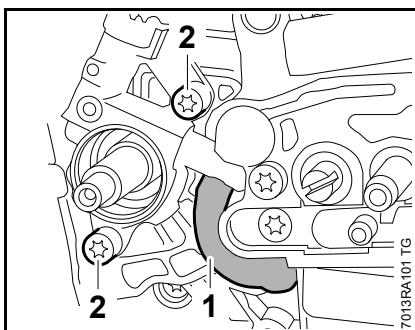
- Troubleshooting, **3.3**
- Remove the clutch drum, **4.2**



- Take out the screws (1).
- Remove covers (2) and (3).

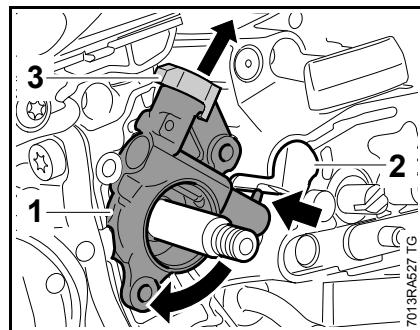


- Pull the worm (1) out of the oil pump.
  - Inspect the worm, replace if necessary



- Pull off the oil suction hose (1).
- Take out the screws (2).

#### MS 201 T

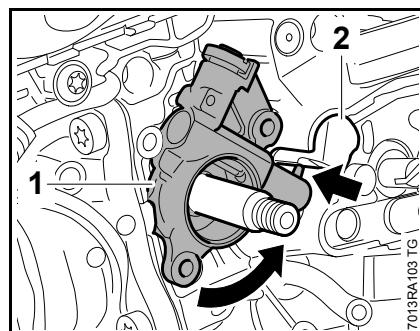


- Turn the oil pump (1) clockwise until the stub (arrow) slips out of the connector (2).
- Remove the oil pump (1) and pull off the grommet (3).
  - Check the oil pump and grommet, replace if necessary.

#### All models

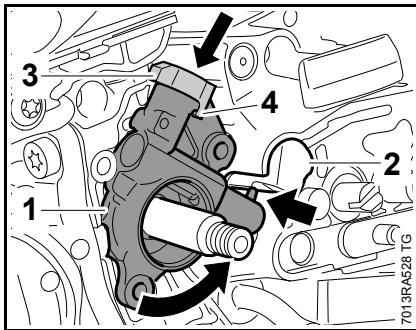
- Inspect the oil suction hose, replace if necessary, **11.2**
- Check the connector and replace if necessary, **11.3**

#### Installing



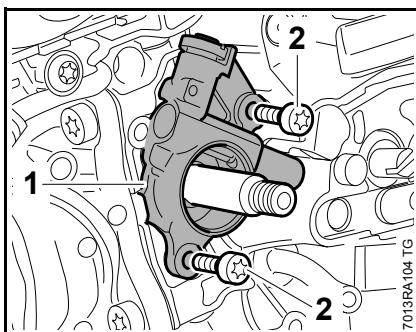
- Place the oil pump (1) in position and turn it counterclockwise until the stub (arrow) is properly seated in the connector's bore (2).

## MS 201 T

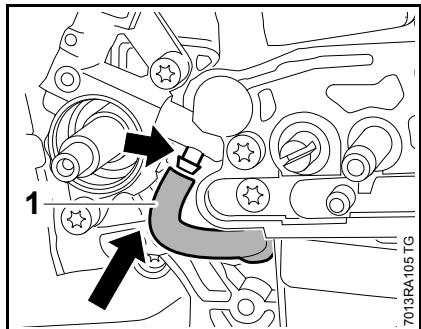


- Push on the grommet (3) as far as stop and fit tab (4) under the oil pump's shoulder.
- Place the oil pump (1) in position and turn it counterclockwise until the stub (arrow) is properly seated in the connector's bore (2).

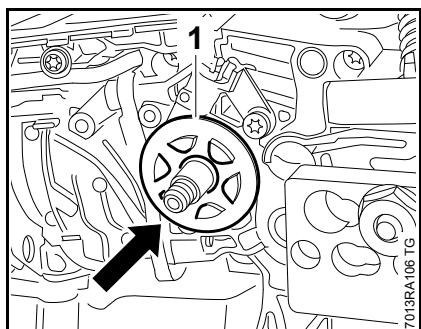
## All models



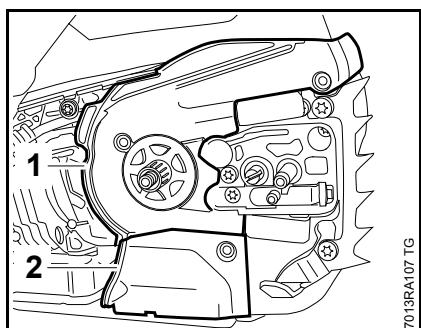
- Line up the oil pump (1) with the holes.
- Insert and tighten down the screws (2) firmly.



- Push the oil suction hose (1) onto the oil pump's stub (arrow).



- Push the worm (1) into the oil pump.



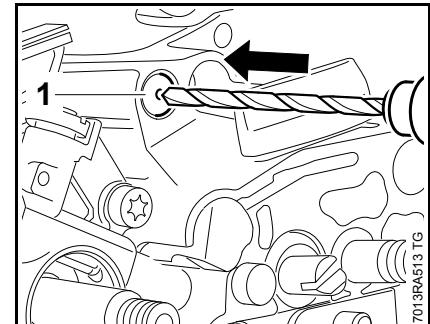
- Place the cover (1) in position.
- Slide cover (2) into cover (1) first, then press the underside into the crankcase until it snaps into place.
  - Insert the screws and tighten them down firmly.
  - Reassemble all other parts in the reverse sequence.

## 11.5 Valve

A valve is installed in the housing wall to keep internal tank pressure equal to atmospheric pressure. The valve must be replaced if it is faulty.

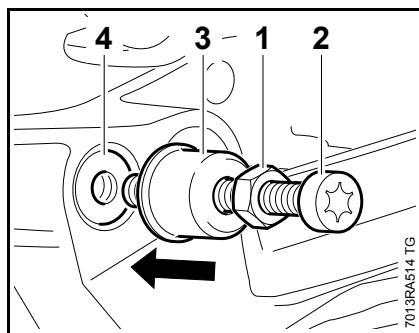
- Open the oil tank cap and drain the oil tank.
- Collect chain oil in a clean container, **1**
- Disengage the chain brake and remove the chain sprocket cover, bar and chain.
- Remove the clutch drum, **4.2**
- Remove the cover, **11.4**

The valve has to be pulled out, e.g. with sleeve 1127 791 7200, M 4 x 25 mm screw and M 4 nut.

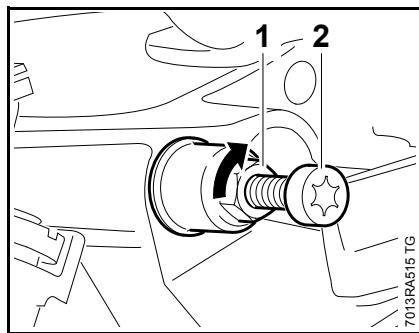


Drill to a depth of no more than 5 mm – no deeper, otherwise the ball, spring and washer will fall into the oil tank.

- Drill valve (1) to 3.3 mm diameter and cut an M 4 thread.
- Clean away drillings. Remove ball, spring and washer from inside oil tank if necessary.

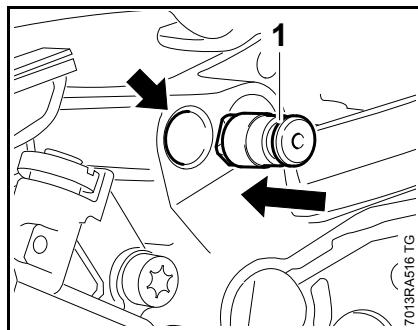


- Fit M 4 hex nut (1) on M 4 x 25 mm screw (2).
- Fit the sleeve (3) 1127 791 7200 and screw the screw (2) into the valve (4) to a depth of about 5 mm.



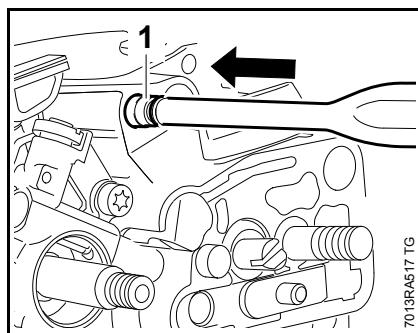
- Hold the M 4 x 25 mm screw (2) steady and rotate the M 4 hex nut (1) clockwise to pull out the valve.
- Inspect the bore and clean it if necessary.

### Installing

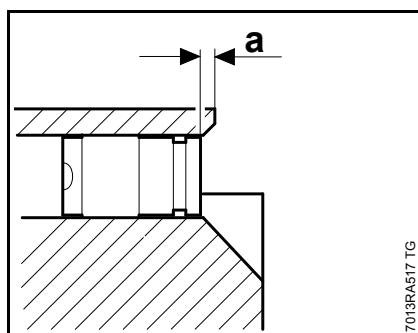


Check correct installed position.

- Place new valve (1) in the crankcase bore (arrow).



- Use a 6 mm drift to carefully drive in the new valve (1) from outside – note installed depth.



- Installed depth of new valve:  
a = about 1.5 mm
- Reassemble all other parts in the reverse sequence.

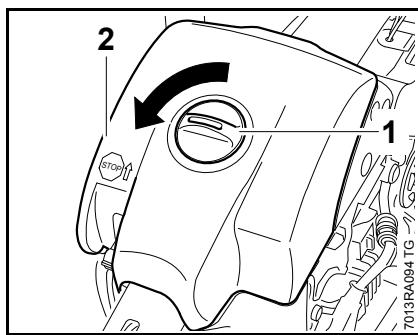
## 12. Fuel System

### 12.1 Air Filter

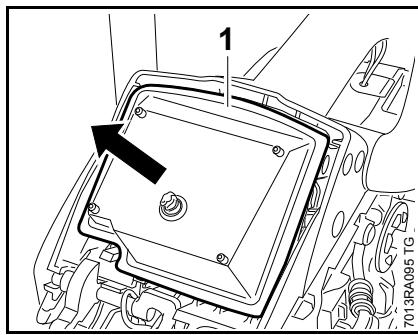
Dirty air filters reduce engine power, increase fuel consumption and make starting more difficult. The air filter should be checked when there is a noticeable loss of engine power.

- See also Troubleshooting, **3.6**, **3.7**

#### MS 201

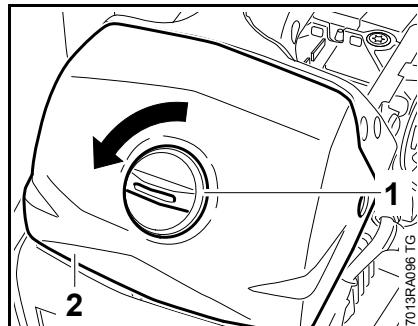


- Turn twist lock (1) counterclockwise.
- Remove the carburetor box cover (2).

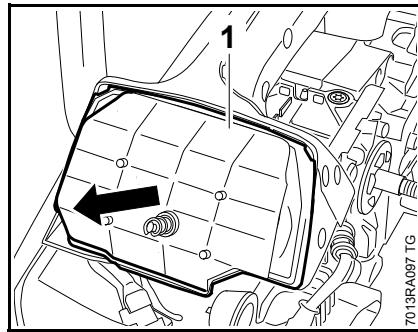


- Remove the air filter (1).
- Check air filter and clean or replace as necessary – see MS 201 instruction manual.
- Reassemble in the reverse sequence.

### MS 201 T



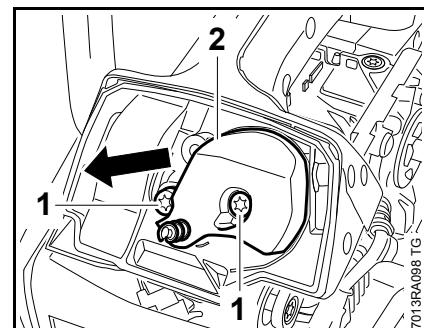
- Turn twist lock (1) counterclockwise.
- Remove the carburetor box cover (2).



- Remove the air filter (1).
- Check air filter and clean or replace as necessary – see MS 201 T instruction manual.
- Reassemble in the reverse sequence.

### 12.2 Baffle

- Remove the air filter, **12.1**



- Take out the screws (1).
- Remove the baffle (2).
- Check the baffle and replace if necessary.

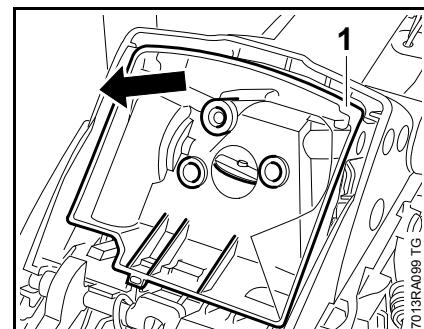
### Installing

Tighten the screws (1) to the specified torque, **2.5**.

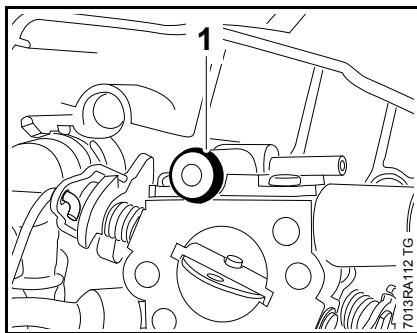
- Reassemble in the reverse sequence.

### 12.3 Filter Base (MS 201)

- Remove the air filter, **12.1**
- Remove the baffle, **12.2**

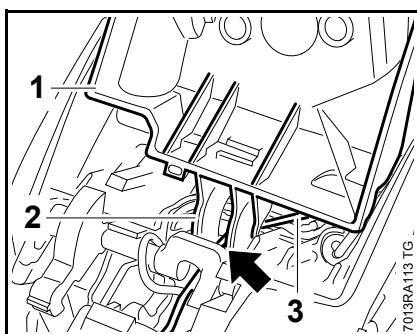


- Remove the filter base (1).



- Inspect the O-ring (1) and replace if necessary.

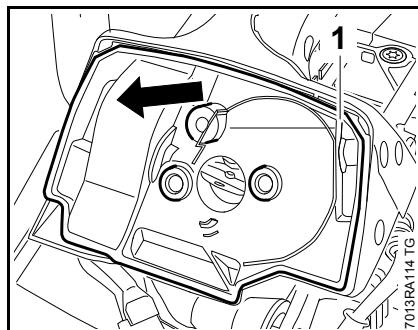
#### Installing



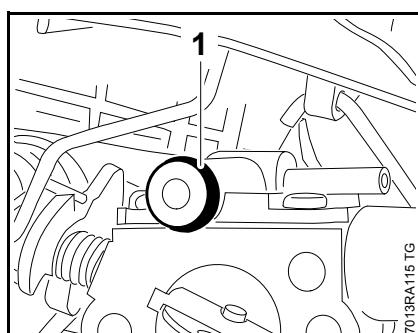
- Coat O-ring with STIHL press fluid, **14**
- Place the filter base (1) in the opening (arrow) so that the throttle rod (3) is between the fins (2).
- Install the baffle, **12.2**
- Reassemble all other parts in the reverse sequence.

#### 12.3.1 Filter Base (MS 201 T)

- Remove the air filter, **12.1**
- Remove the baffle, **12.2**

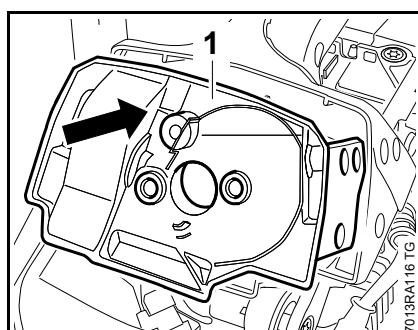


- Remove the filter base (1).



- Inspect the O-ring (1) and replace if necessary.

#### Installing



- Coat O-ring with STIHL press fluid, **14**
- Push the filter base (1) into position.

- Install the baffle, **12.2**

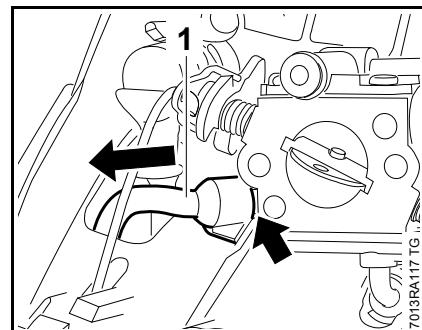
- Reassemble all other parts in the reverse sequence.

#### 12.4 Carburetor (MS 201)

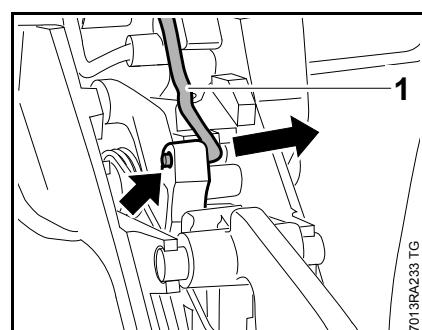
- Open the fuel tank cap and drain the fuel tank.
- Collect the fuel in a clean container, **1**

Disconnect the fuel suction hose only when the tank cap is open.

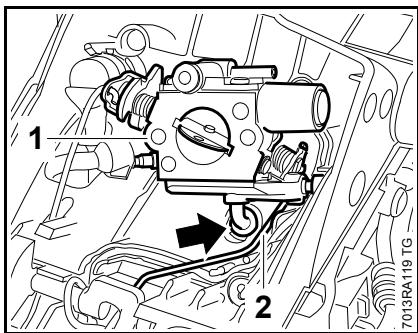
- Remove the filter base, **12.3**
- Remove the handle molding, **10.2**



- Pull the fuel suction hose (1) off the nipple (arrow).

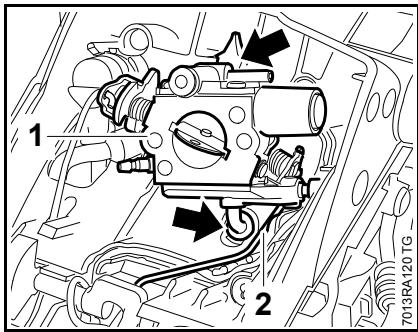


- Disconnect the throttle rod (1) from the trigger (arrow).



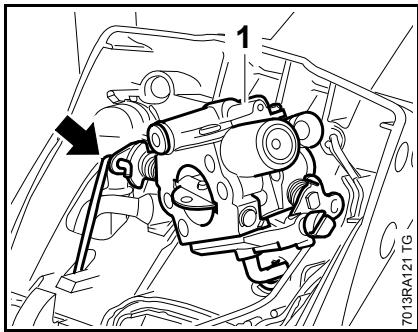
- Pull carburetor (1) off impulse hose (arrow) and disconnect the throttle rod (2) at the same time.

#### Models with manual fuel pump



- Pull carburetor (1) off impulse hose (arrow) and fuel suction hose (arrow), and disconnect the throttle rod (2) at the same time.

#### All models

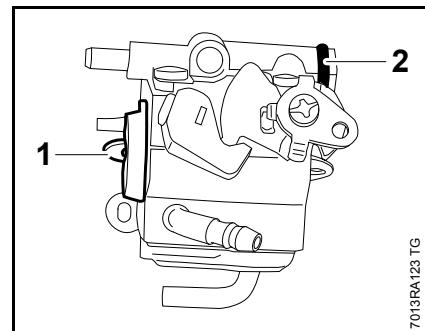


- Turn the carburetor (1) slightly and disconnect the choke rod (arrow).

- Check the carburetor and service or replace if necessary, **12.6**
- Install a new fuel suction hose, **12.10.2**

#### Installing

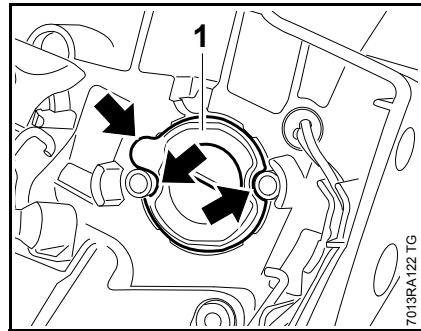
- To ensure the manifold is properly seated and not under tension, loosen the annular buffer on the fuel tank, **9.1**



Make sure the ring (1) is in place.

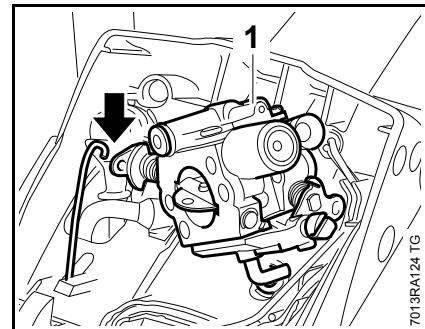
Make sure the O-ring (2) is in place.

- Check the individual parts and replace if necessary.

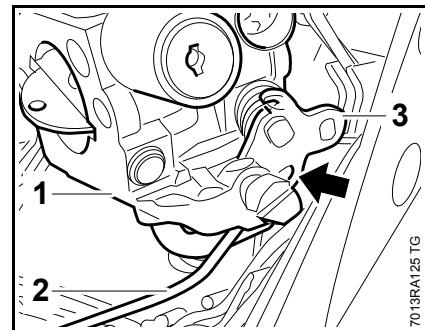


- Coat the inside of the manifold with STIHL press fluid to ensure that the carburetor ring is fully seated in the manifold, **14**

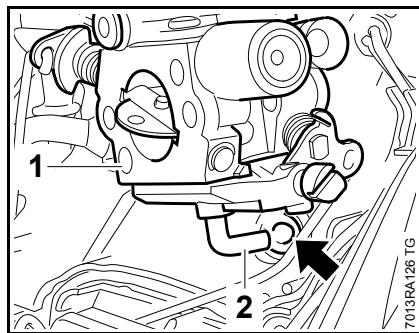
The flange (1) must be properly seated (arrows) and not project.



- Attach the choke rod (arrow) to the carburetor (1).



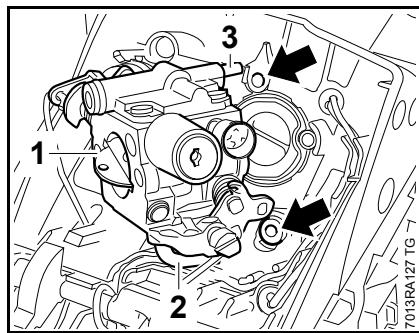
- Turn the carburetor (1) slightly and attach the throttle rod (2) to the lower opening (arrow) in the lever (3).



Secure throttle rod to stop it falling out during carburetor installation.

- Position the carburetor (1) so that the stub (2) points towards the impulse hose (arrow).
- Push carburetor into position until it locates against the manifold.

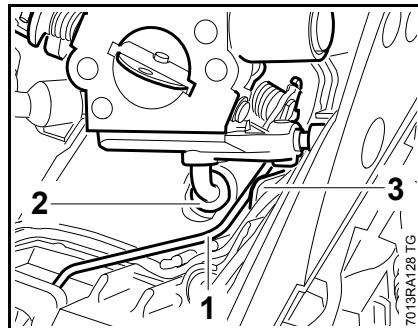
#### Models with manual fuel pump



Secure throttle rod to stop it falling out during carburetor installation.

- Position the carburetor (1) so that stub (2) points towards the impulse hose (arrow) and stub (3) towards the fuel hose (arrow).
- Push carburetor into position until it locates against the manifold.

#### All models



The throttle rod (1) must be between the impulse hose (2) and the rib (3)  
– throttle rod is secured to prevent it falling out.

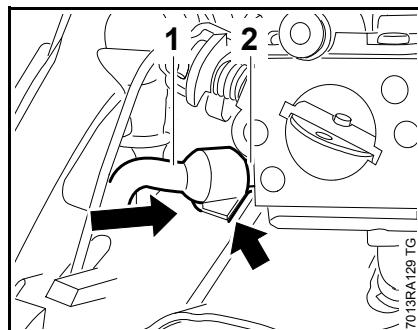
- Check operation  
– Set throttle trigger to full throttle position, the throttle shutter must be fully open.
- Tighten down the annular buffer's screw on the fuel tank firmly, **9.1**
- Install the filter base, **12.3**
- Reassemble all other parts in the reverse sequence.

#### 12.5 Carburetor (MS 201 T)

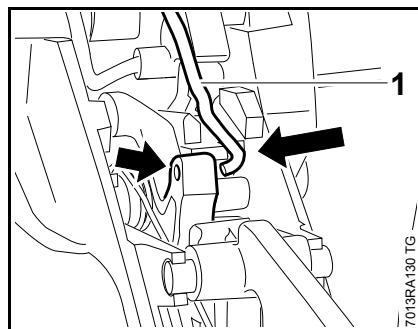
- Open the fuel tank cap and drain the fuel tank.
- Collect the fuel in a clean container, **1**

Disconnect the fuel suction hose only when the tank cap is open.

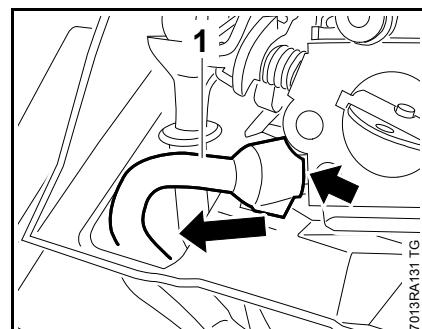
- Remove the filter base, **12.3.1**



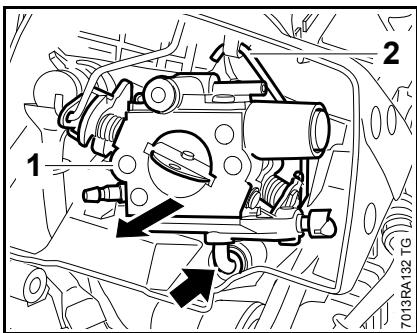
- Push the new fuel hose (1) onto the stub (2) so that the lug (arrow) locates against the handle housing rib.



- Connect the throttle rod (1) to the trigger (arrow).
- Fit the handle molding, **10.2**



- Pull the fuel suction hose (1) off the nipple (arrow).

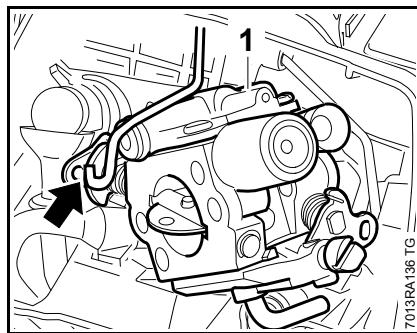


- Pull carburetor (1) off impulse hose (arrow) and disconnect the throttle rod (2) at the same time.

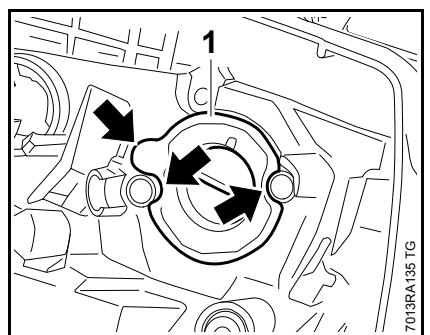
- Check the carburetor and service or replace if necessary, **12.6**
- Install a new fuel suction hose, **12.10.2**

### Installing

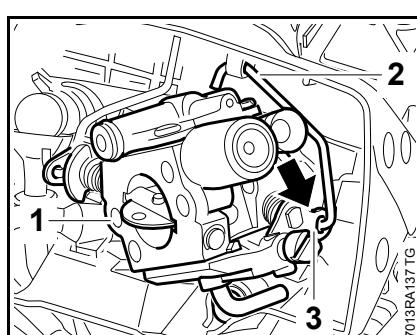
- To ensure the manifold is properly seated and not under tension, loosen the annular buffer on the fuel tank, **9.1.1**



- Attach the choke rod (arrow) to the carburetor (1).

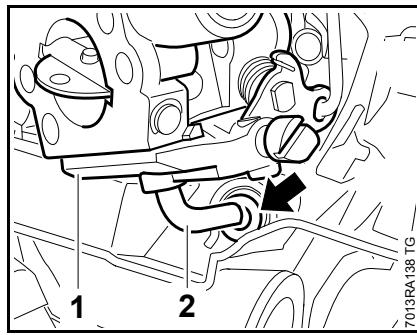
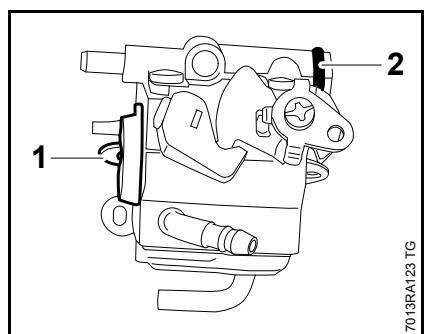


- Coat the inside of the manifold with STIHL press fluid to ensure that the carburetor ring is fully seated in the manifold, **14**



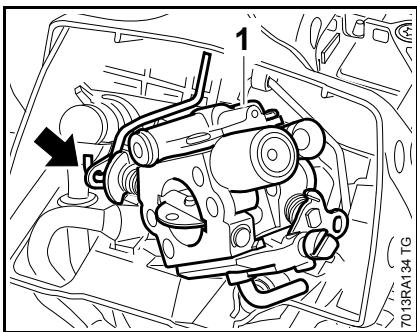
- Turn the carburetor (1) slightly and attach the throttle rod (2) to the upper opening (arrow) in the lever (3).

The flange (1) must be properly seated (arrows) and not project.



Secure throttle rod to stop it falling out during carburetor installation.

### All models

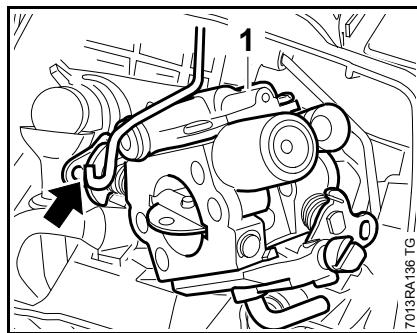


- Turn the carburetor (1) slightly and disconnect the choke rod (arrow).

Make sure the ring (1) is in place.

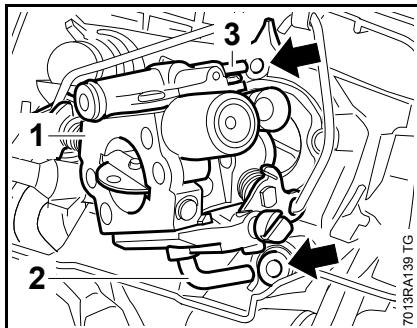
Make sure the O-ring (2) is in place.

- Check the individual parts and replace if necessary.



- Position the carburetor (1) so that the stub (2) points towards the impulse hose (arrow).
- Push carburetor into position until it locates against the manifold.

## Models with manual fuel pump

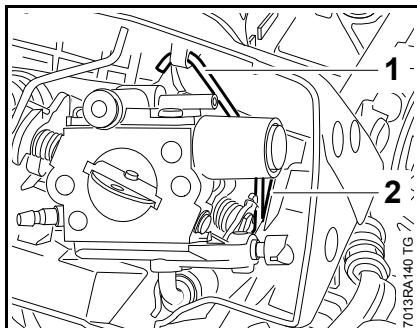


Secure throttle rod to stop it falling out during carburetor installation.

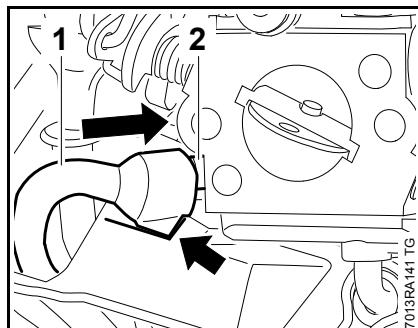
- Position the carburetor (1) so that stub (2) points towards the impulse hose (arrow) and stub (3) towards the fuel hose (arrow).

Push carburetor into position until it locates against the manifold.

## All models



Throttle rod (1) is prevented from falling out by rib (2).



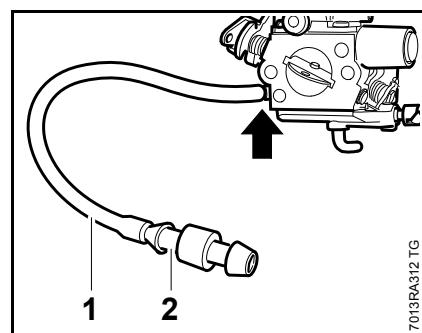
- Push the new fuel suction hose (1) onto the stub (2) so that the lug fits the contour of the handle housing.
- Check operation
  - Set throttle trigger to full throttle position, the throttle shutter must be fully open.
- Tighten down the annular buffer's screw on the fuel tank firmly, **9.1.1**
- Install the filter base, **12.3.1**
- Reassemble all other parts in the reverse sequence.

### 12.5.1 Leakage test

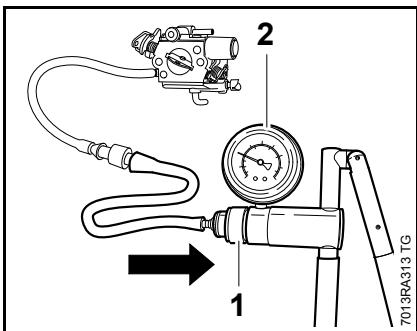
In the case of problems with the carburetor or fuel supply system, also check and clean or replace the tank vent, **12.9**.

The carburetor can be tested for leaks with the pump 0000 850 1300.

- Remove the carburetor, **MS 201** **12.4**, **MS 201 T** **12.5**



- Push the fuel hose (1) 1110 141 8600 onto the nipple (2) 0000 855 9200.
- Push the fuel hose with nipple onto the stub (arrow).



## 12.6 Servicing the Carburetor

### 12.6.1 Metering Diaphragm

- Troubleshooting, **3.6**
- Remove the carburetor, MS 201 **12.4**, MS 201 T **12.5**

– Push the pressure hose of pump 0000 850 1300 onto the nipple.

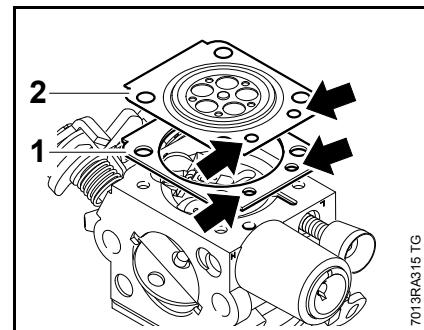
- Push the ring (1) to the right and pump air into the carburetor until the pressure gauge (2) indicates a pressure of about 0.8 bar (80 kPa).

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

1. The inlet needle is not sealing (foreign matter in valve seat, sealing cone of inlet needle is damaged or inlet control lever is sticking), remove to clean, **12.6.2**
  2. Metering diaphragm or gasket damaged, replace as necessary, **12.6.1**
  3. Pump diaphragm or gasket damaged, replace as necessary, **12.6.3**
- After completing the test, push the ring (1) to the left to vent the system and then pull the fuel hose off the carburetor's stub.
  - Install the filter base, MS 201 **12.3**, MS 201 T **12.3.1**
  - Reassemble all other parts in the reverse sequence.

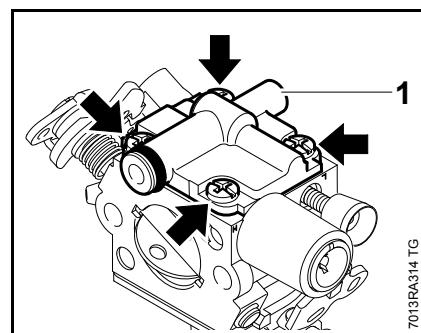
- Check the metering diaphragm for signs of damage and wear. Install a new gasket.

### Installing



7013RA313 TG

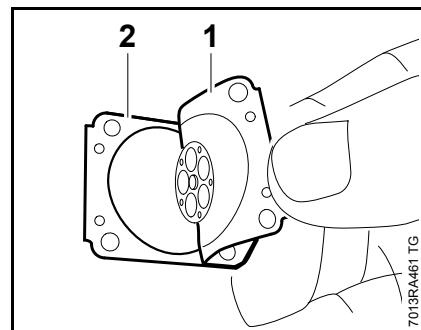
- Note installed positions of metering diaphragm (2) and gasket (1).
- Position the gasket (1) and metering diaphragm (2) so that the small holes (arrows) line up with the recess and the small hole in the carburetor.



7013RA314 TG

- Take out the screws (arrows).
- Remove the end cover (1).

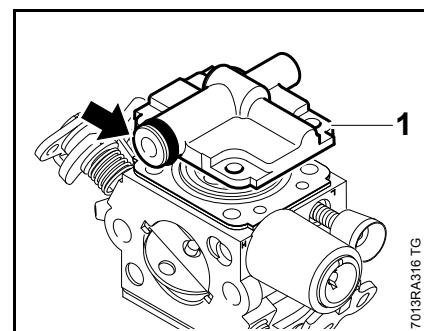
If the gasket and diaphragm are stuck to the carburetor, remove them very carefully.



7013RA461 TG

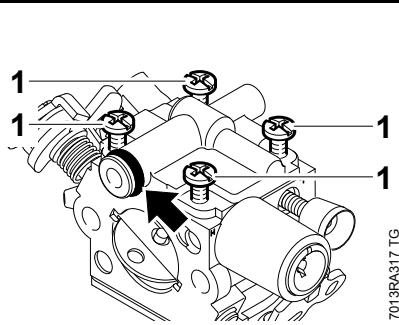
- Carefully separate the metering diaphragm (1) and gasket (2).

The diaphragm material is subjected to continuous alternating stresses and eventually shows signs of fatigue, i.e. the diaphragm distorts and swells and has to be replaced.



7013RA316 TG

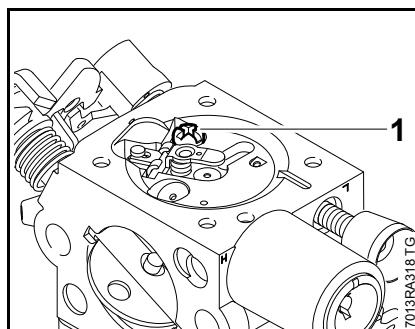
- Position the end cover (1) so that the stub (arrow) points in the direction of the choke shutter.
- Fit the end cover (1) so that its fixing pin engages the gasket, metering diaphragm and the bore in the carburetor.



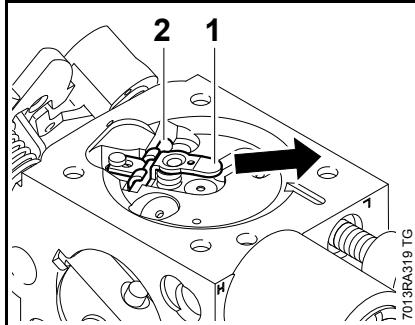
- Fit the screws (1).
  - Check position of metering diaphragm and gasket, then tighten down the screws firmly in a crosswise pattern.
- Check the O-ring (arrow) and replace it if necessary
- Reassemble all other parts in the reverse sequence.

#### 12.6.2 Inlet Needle

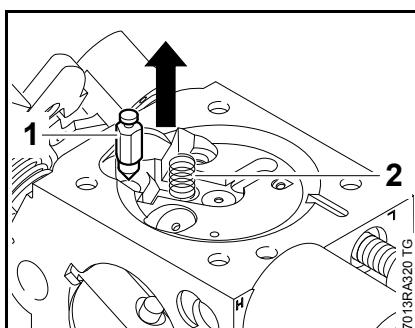
- Remove the metering diaphragm, [12.6.1](#)



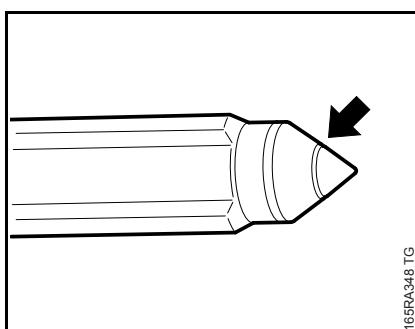
- Take out the screw (1).



- Pull the inlet control lever (1) with spindle (2) out of the inlet needle's groove.
- The small spring under the inlet control lever may pop out.

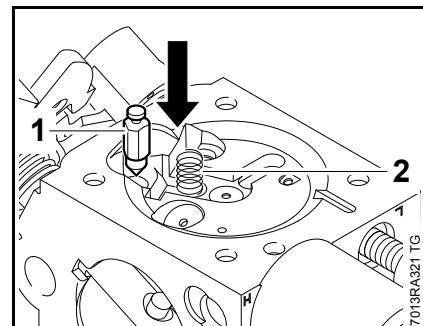


- Remove the inlet needle (1).
- Remove the spring (2). Inspect and replace if necessary.

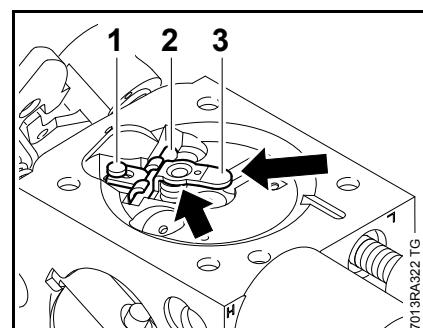


- If there is an annular indentation (arrow) on the sealing cone of the inlet needle, fit a new inlet needle.

#### Installing



- Fit the inlet needle (1).
- Fit the spring (2) in the bore.



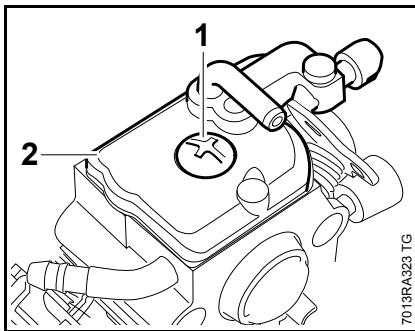
- Position the inlet control lever (3) with spindle (2) on the spring (arrow) first, then slide the inlet control lever's clevis into the groove in the inlet needle (1).

Make sure the spring locates on the control lever's nipple.

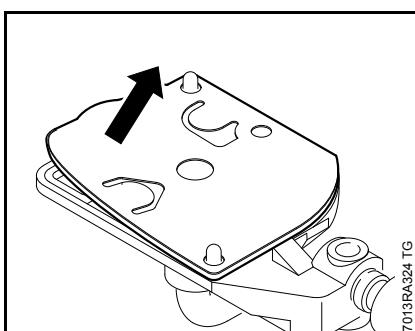
- Press the inlet control lever down and secure it with the screw.
- Check that the inlet control lever moves freely.
- Install the metering diaphragm, [12.6.1](#)

### 12.6.3 Pump Diaphragm

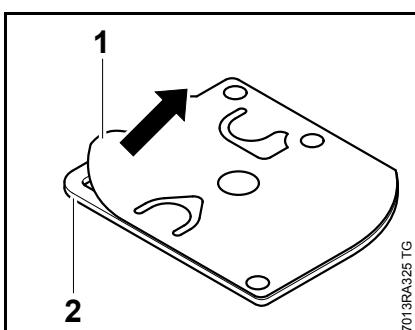
- Troubleshooting, **3.6**
- Remove the carburetor, MS 201 **12.4**, MS 201 T **12.5**



- Take out the screw (1).
- Remove the end cover (2).



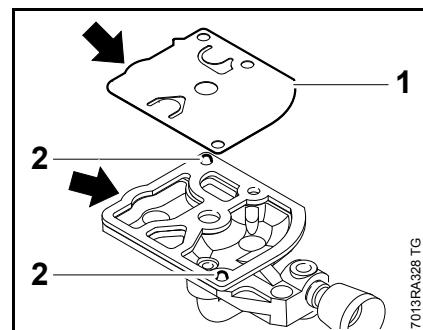
- Carefully remove the pump diaphragm with gasket.



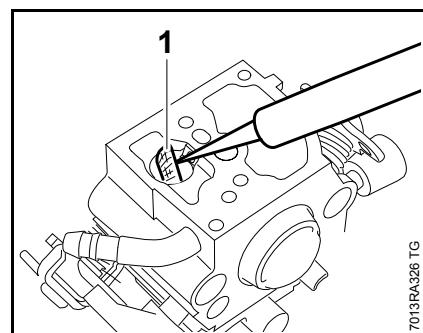
- Carefully separate the pump diaphragm (1) and gasket (2).

The diaphragm material is subjected to continuous alternating stresses and eventually shows signs of fatigue, i.e. the diaphragm distorts and swells and has to be replaced.

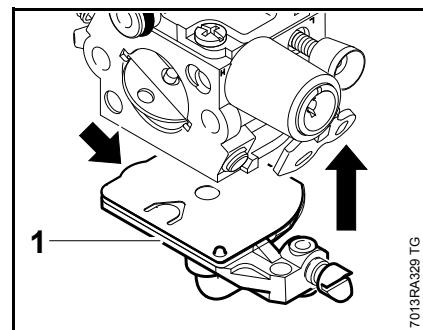
- Check the pump diaphragm for signs of damage and wear. Install a new gasket.
- Check fuel strainer for contamination and damage. Clean or replace if necessary.



- Fit the pump diaphragm (1) on the gasket so that the contours (arrows) match and it is held in position by the pegs (2).

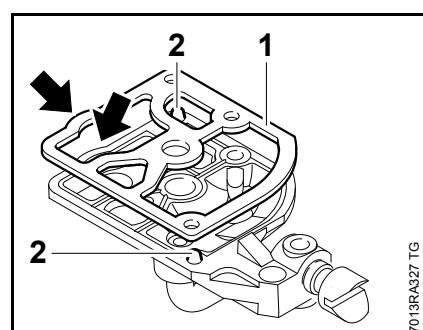


- Use a needle to remove the fuel strainer (1) from the carburetor body. Clean or replace the fuel strainer.
- Reassemble in the reverse sequence.

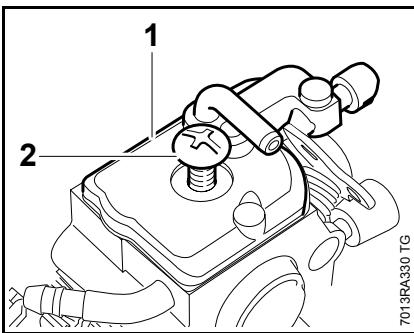


- Fit the end cover (1) from below so that the pump diaphragms and gasket are still held in position.
- Position the end cover (1) so that the contour (arrow) points in the direction of the throttle and choke shaft levers.

#### Installing



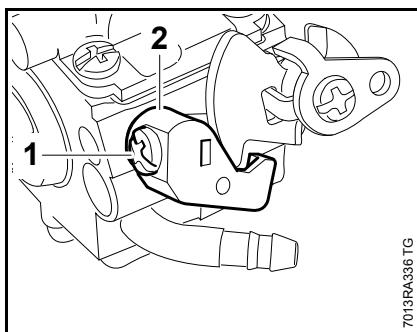
- Fit the new gasket (1) so that the contours (arrows) match and it is held in position by the pegs (2).



- Move the end cover (1) back and forth until its pegs engage the holes in the carburetor body.
- Check that the pump diaphragm and gasket are properly seated.
- Insert and tighten down the screw (2) firmly.
- Reassemble all other parts in the reverse sequence.

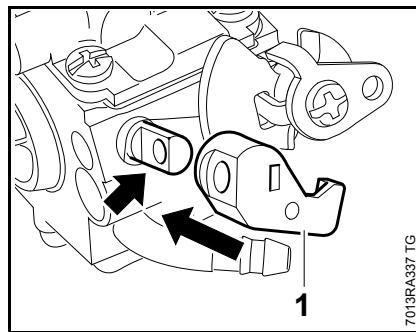
#### 12.6.4 Lever on Throttle Shaft

- Troubleshooting, **3.6**
- Remove the carburetor, MS 201 **12.4**, MS 201 T **12.5**

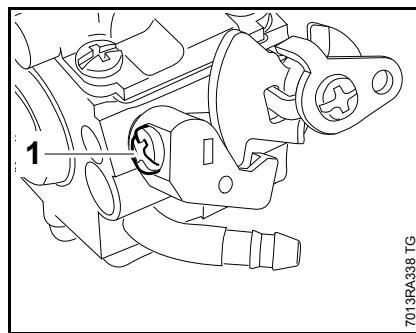


- Take out the screw (1) and pull off the lever (2).
- Inspect the lever and replace if necessary.

#### Installing



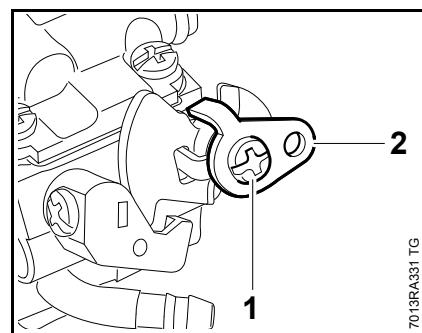
- Position the lever (1) so that the flat side (arrow) lines up with that in the lever (1).
- Push home the lever (1) as far as stop.



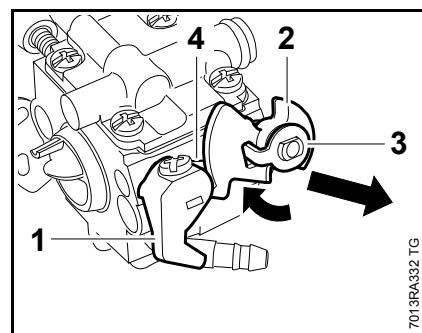
- Insert and tighten down the screw (1) firmly.
- Check operation, **12.6.5**
- Reassemble all other parts in the reverse sequence.

#### 12.6.5 Levers on Choke Shaft

- Troubleshooting, **3.6**
- Remove the carburetor, MS 201 **12.4**, MS 201 T **12.5**

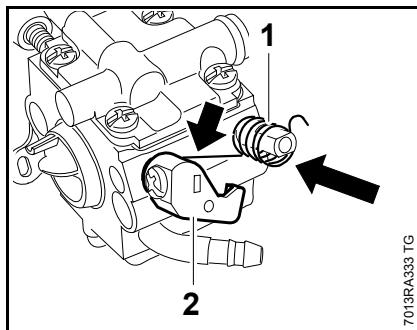


- Take out the screw (1).
- Pull off the lever (2).

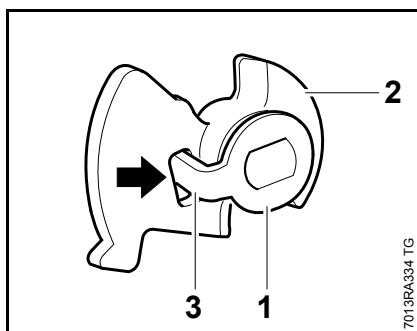


- Set the throttle shaft lever (1) to full throttle and hold it there.
- Pull out lever (2) with detent lever (3) a little, rotate it clockwise to relax the torsion spring and then remove it.
- Remove the torsion spring (4).
- Check individual parts, replace if necessary

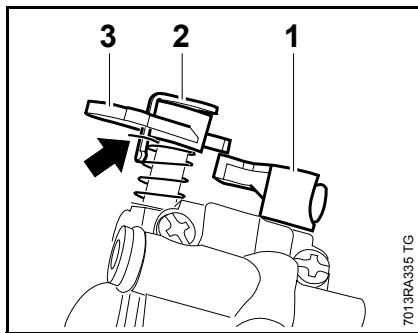
## Installing



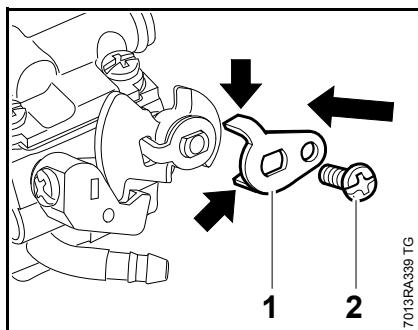
- Fit the torsion spring (1) so that its leg (arrow) is against the throttle shaft (2).



- Place lever (1) on higher hub of detent lever (2) and engage the driver (3) in the opening (arrow).

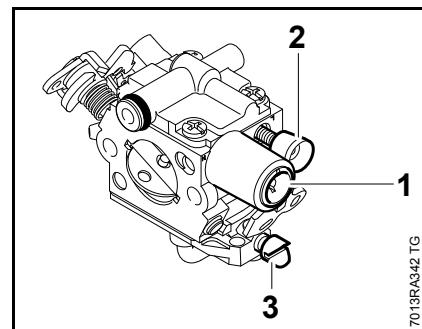


- Set the throttle shaft lever (1) to full throttle and hold it there.
- Push the lever (2) with detent lever (3) onto the choke shaft and attach driver to torsion spring (arrow), then turn it counterclockwise until the levers slip onto the flats.
- Hold the lever and detent lever steady and let go of throttle shaft lever.



- Position lever (1) so that it points in the direction of the choke shutter and the hooks (arrows) engage the recesses in the detent lever.
- Hold the lever (1) steady, insert and tighten down the screw (2) firmly.

## 12.6.6 Adjusting Screws



There are three adjusting screws on the carburetor:

**H** = high speed screw (1)  
**L** = low speed screw (2)  
**LA** = idle speed screw (3)

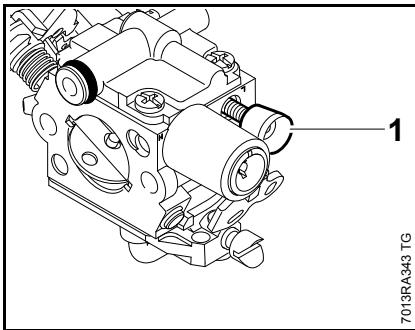
If the carburetor cannot be adjusted properly, the problem may be the adjusting screws.

- Troubleshooting, **3.6**

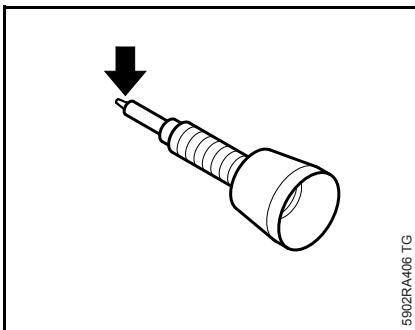
Always install a new limiter cap.

- Remove the carburetor,  
**MS 201** **12.4**,  
**MS 201 T** **12.5**

## Low speed screw



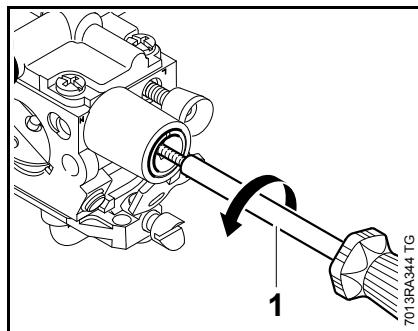
- Take out the low speed screw L (1).



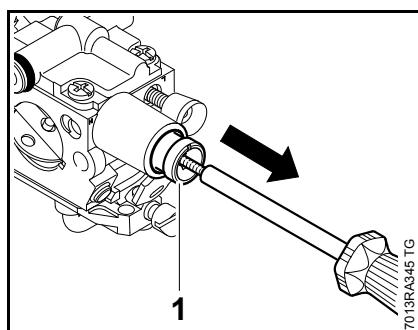
- Inspect the tip (arrow) for damage or wear and replace the low speed screw (L) if necessary.
- Screw down the low speed screw (L) as far as stop.

## High speed screw

The high speed screw H has a limiter cap, which has to be removed before the screw is removed.



- Screw the puller (1) 5910 890 4502 about 5 turns counterclockwise into the limiter cap – left-hand thread.
- Do not turn the puller (1) any further – the high speed screw (H) may otherwise be damaged.

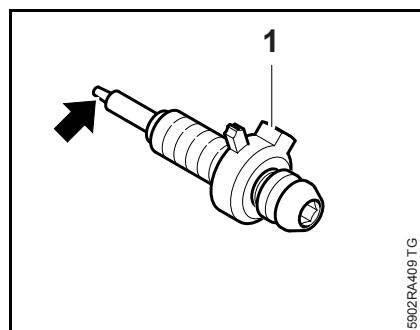


- Pull out the limiter cap (1).

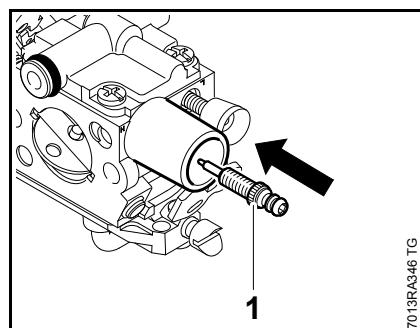
The polymer segment is left on the high speed screw (H) after the limiter cap has been pulled off. It is necessary to unscrew the high speed screw (H) to remove the old polymer segment.

- Take out the high speed screw (H).

Always install a new limiter cap.

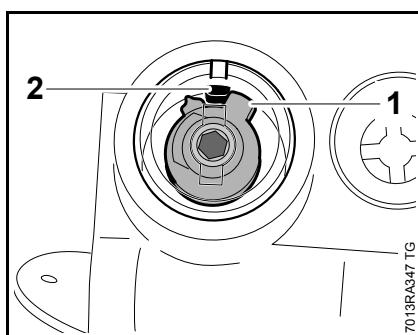


- Inspect the tip (arrow) for damage or wear and replace the screw (H) if necessary.
- If the high speed screw (H) is in order, remove the old polymer segment (1) – take care not to damage the high speed screw (H).

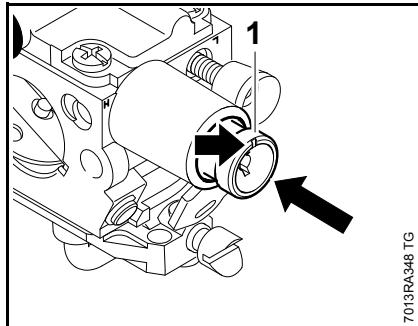


- Screw down the high speed screw H (1) as far as stop.

## Pre-installing limiter cap



When pushing the limiter cap into position, check that the stop (1) on the limiter cap butts against the right-hand side of the carburetor's stop (2).



Make sure the stop on the limiter cap is clear of the stop on the carburetor body.

- Line up the new limiter cap (1) so that the notch (arrow) points vertically upwards.
- Push the new limiter cap (1) onto the high speed screw (H) as far as the first detent (arrow)
  - do not push fully home.

The basic setting is performed through the pre-installed limiter cap with screwdriver 5910 890 2306.

- Reassemble in the reverse sequence.

- Carry out the basic setting, [12.7.1](#)

## 12.7 Adjusting the Carburetor

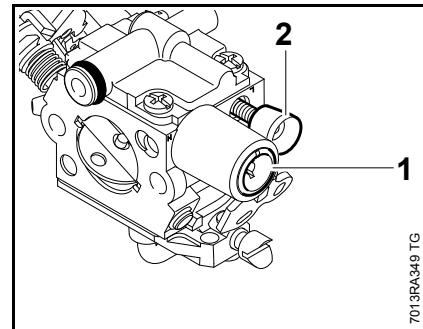
### 12.7.1 Basic Setting

The basic setting is necessary only if the high speed screw (H) or low speed screw (L) has to be replaced or after cleaning and adjusting the carburetor from scratch.

It is necessary to carry out the basic setting after removing the limiter cap.

The carburetor and air filter are installed, the adjusting screws fitted and the new limiter cap pre-installed.

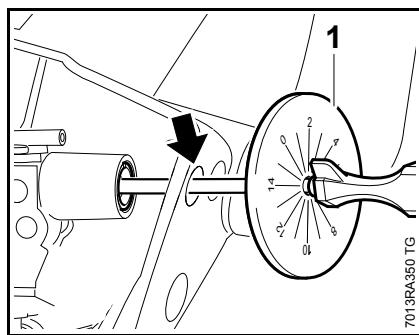
- Check chain tension and adjust if necessary.
- Inspect the spark arresting screen (if fitted) and clean or replace if necessary, [3.7](#) or [6.1](#)
- Check the air filter and clean or replace if necessary, [12.1](#)



For the sake of clarity the adjusting screws are shown on the exposed carburetor.

- Starting with the high speed screw H (1) against its seat, open it **2 full turns** counterclockwise
  - this is the basic setting.
- Starting with the low speed screw L (2) against its seat, open it **1 full turn** counterclockwise
  - this is the basic setting.
- Warm up the engine.

The setting disc 5910 893 6600 may be fitted on the screwdriver 5910 890 2306 to aid adjustment.



- Insert screwdriver (1) 5910 890 2306 through the opening (arrow) and into the low speed screw **L** and high speed screw **H**  
– push the screwdriver through the pre-installed limiter cap on the high speed screw **H**.

Warm up the engine before making adjustments. Then run engine for 20 seconds at idle speed.  
**Do not make any adjustments during this period** – the ignition system maps the idle speed data.

Adjust idle speed with a tachometer. Adjust specified engine speeds within a tolerance of  $\pm 200$  rpm.

1. Adjust engine speed with idle speed screw (**LA**) to 2800 rpm.
2. Turn the low speed screw (**L**) counterclockwise or clockwise to obtain maximum engine speed.

If this speed is higher than 3,300 rpm, abort the procedure and start again with step 1.

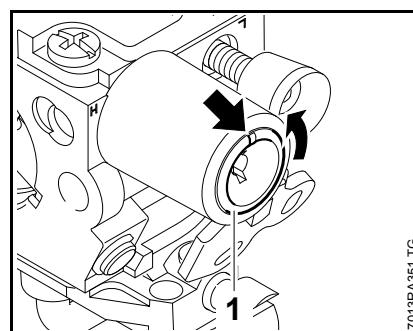
3. Use the idle speed screw (**LA**) to set the engine speed again to 3,300 rpm.

4. Turn the low speed screw (**L**) counterclockwise to set engine speed to 2,800 rpm
5. Use the idle speed screw (**LA**) to set engine speed to 3,000 rpm.
6. Use the high speed screw (**H**) to set engine speed to 14,000 rpm – starting from the basic setting.

Do not make any leaner after maximum engine speed is reached  
– the ignition module limits maximum engine speed to about 14,000 rpm.

The maximum permissible engine speed cannot be increased by making the mixture any leaner – an overlean mixture increases the risk of engine damage.

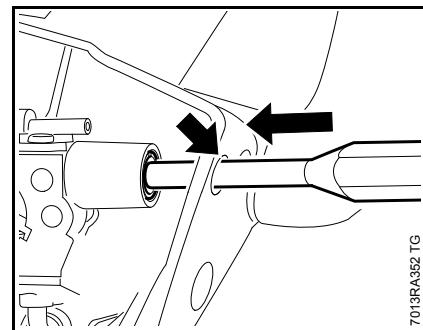
#### Checking position of limiter cap



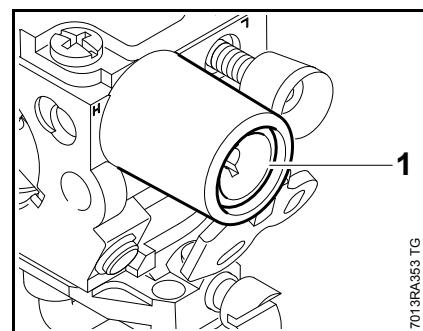
Notch (arrow) in limiter cap (1) must point vertically upwards.

- If necessary, use a suitable screwdriver to rotate the limiter cap (1) counterclockwise as far as stop  
– the notch (arrow) is at the top.

#### Securing the limiter cap



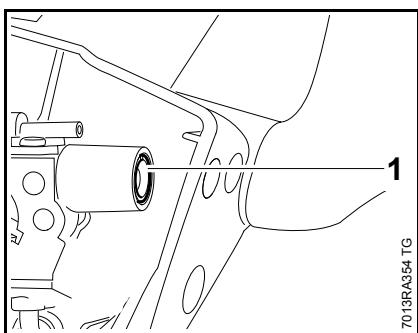
- Insert a drift through the opening (arrow) and then push home the limiter cap until it engages.



This completes the basic setting of the high speed screw **H** and the low speed screw **L**.

The setting of the high speed screw (**H**) is fixed when the limiter cap (1) is recessed about 2 mm in the carburetor body.

## 12.7.2 Standard Setting



The limiter cap (1) must not be removed for the standard setting.

Always perform the following steps before carrying out any adjustments:

- Troubleshooting, **3.6**
- Check chain tension and adjust if necessary.
- Inspect the spark arresting screen (if fitted) and clean or replace if necessary, **3.7** or **6.1**
- Check the air filter and clean or replace if necessary, **12.1**

### Standard Setting

- Shut off the engine
- Turn the high speed screw ( H ) slowly counterclockwise as far as stop, but not more than **3/4 of a turn**.
- Turn the low speed screw ( L ) slowly clockwise as far as stop, then turn it back **1 full turn**.

Check running behavior:  
The engine must idle and accelerate smoothly.

### Adjusting engine idle speed

- Carry out standard setting.
- Warm up the engine.

### Engine stops while idling

- Turn the idle speed screw **LA** clockwise until the chain starts running, then turn it back **1 full turn**.

### Saw chain runs while engine is idling

- Turn the idle speed screw **LA** counter-clockwise until the chain stops running, then turn it back **1 full turn**.

### Erratic idling behavior, poor acceleration (although standard setting is correct)

Idle setting too lean.

- Warm up the engine.
- Turn the low speed screw (L) counterclockwise until the engine runs and accelerates smoothly.

It is usually necessary to change the setting of the idle speed screw (**LA**) after every correction to the low speed screw (L).

### Adjustment for operation at high altitude

A minor correction may be necessary if engine power is not satisfactory when operating at high altitude.

- Check standard setting.
- Warm up the engine.
- Turn the high speed screw (H) clockwise (leaner) – no further than stop.

Turn the adjusting screws only very slightly. Even minor adjustments can noticeably affect engine running behavior.

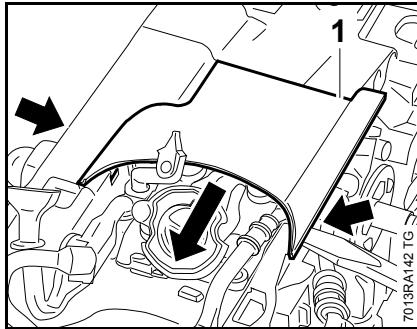
If the setting is made too lean there is a risk of engine damage as a result of lack of lubrication and overheating.

## 12.8 Intake Manifold

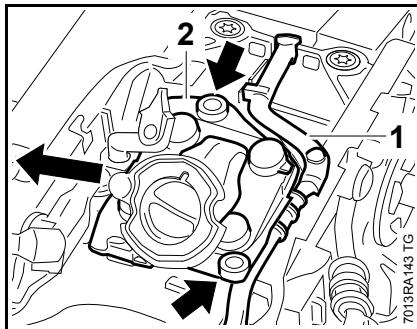
A damaged intake manifold can result in engine running problems.

- Troubleshooting, **3.6** or **3.7**
- Removing the carburetor MS 201, **12.4**  
MS 201 T, **12.5**
- Remove the handle housing, MS 201, **10.4**  
MS 201 T, **10.5**

The manifold removal and installation procedures are the same on the MS 201 T and MS 201.

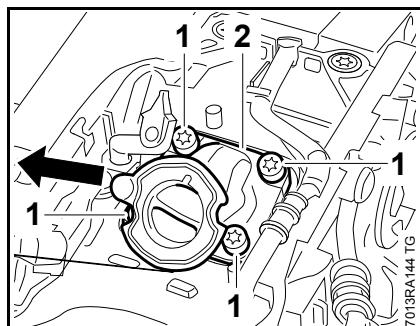


- Pry out the cover (1) at the tabs (arrows) and pull it out in the direction of the manifold.

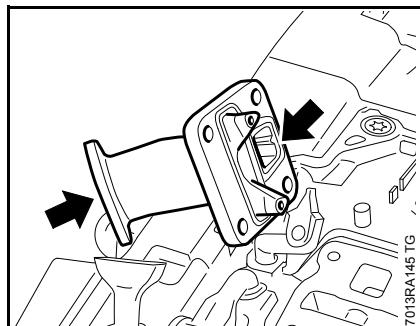


- Push the impulse hose (1) to one side.

- Pry out the cover (2) at the tabs (arrows) and pull it out in the direction of the manifold.



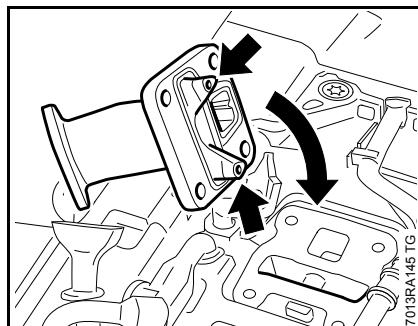
- Take out the screws (1), remove the manifold (2), check it and replace if necessary – even very minor damage can result in engine running problems, **3.7**
- Rotate the flywheel until the piston closes the intake port.



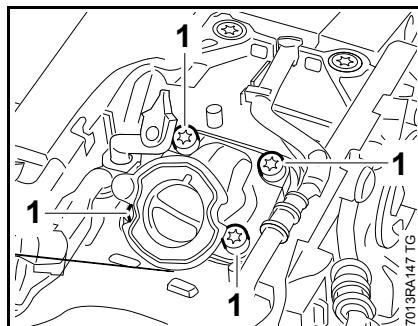
- Inspect and clean the sealing faces (arrows), **14**

The sealing faces must be in perfect condition. Always replace components with damaged sealing faces.

## Installing

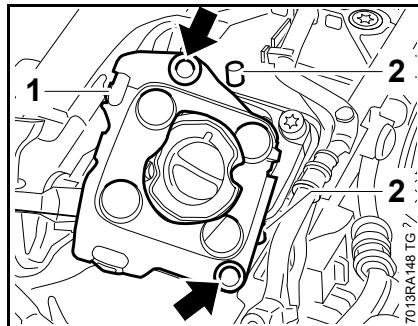


- Push lugs (arrows) of manifold into the rectangular intake port and line up the manifold.

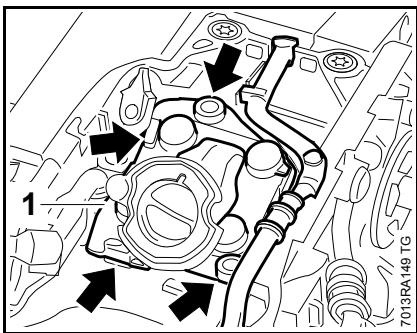


Make sure that the fuel hoses and the impulse hose are not pinched.

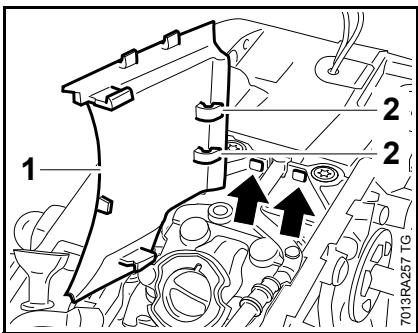
- Insert the screws (1) and tighten them down firmly in a crosswise pattern.



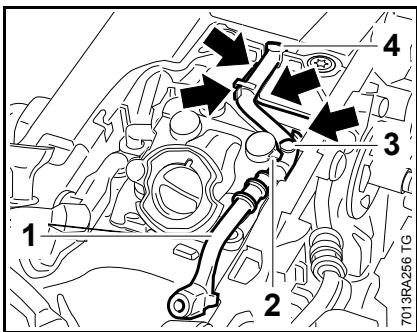
- Position the cover (1) so that the holes (arrows) are in line with the pegs (2) and fit it over the manifold.



- Push the cover (1) into the tank housing as far as stop – the round and elongated pegs (arrows) must be properly seated.



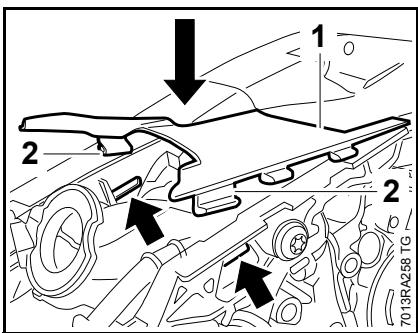
- Push the tabs (2) of the cover (1) into their seats (arrows) until they snap into place.



- Position the impulse hose (1) in the guides (arrows) and push it home until the lug (2) is on top of the hose (1).

The lug (2) must locate against the knob (3).

Make sure the elbow connector (4) is pushed fully home.



Make sure that the fuel hoses and the impulse hose are not pinched.

- Push the tabs (2) of the cover (1) into their seats (arrows) in the tank housing until they snap into place.

- Fit the handle housing  
MS 201, 10.4  
MS 201 T, 10.5

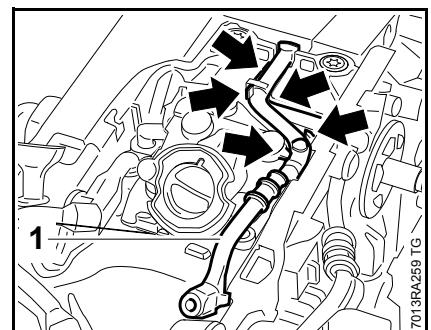
- Install the carburetor.  
MS 201, 12.4  
MS 201 T, 12.5

- Reassemble all other parts in the reverse sequence.

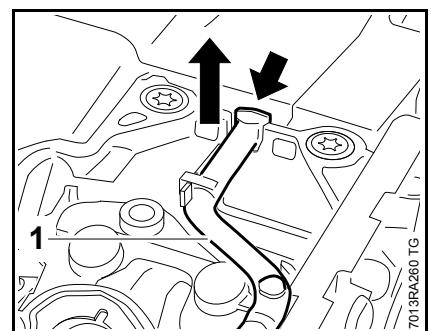
## 12.8.1 Impulse Hose

A damaged impulse hose can result in engine running problems.

- Troubleshooting, 3.6 or 3.7
- Removing the carburetor  
MS 201, 12.4  
MS 201 T, 12.5
- Remove the handle housing,  
MS 201, 10.4  
MS 201 T, 10.5
- Remove the cover, 12.8

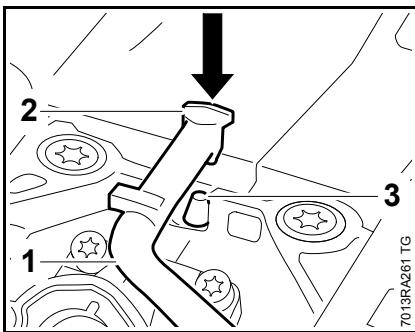


- Pull the impulse hose (1) out of the guides (arrows).

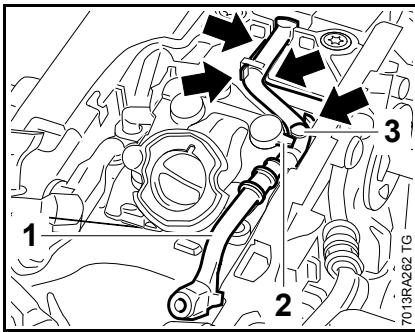


- Pull the impulse hose (1) off the nipple (arrow).
- Check the impulse hose and replace if necessary.

## Installing



- Push impulse hose (1) with elbow connector (2) fully onto the nipple (3).



- Position the impulse hose (1) in the guides (arrows) and push it home until the lug (2) is on top of the hose (1).

The lug (2) must locate against the knob (3).

- Fit the handle housing  
MS 201, **10.4**  
MS 201 T, **10.5**
- Install the carburetor.  
MS 201 **12.4**,  
MS 201 T **12.5**
- Reassemble all other parts in the reverse sequence.

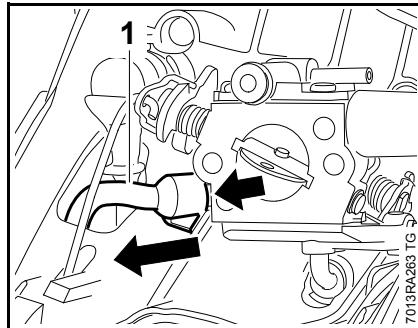
## 12.9 Tank Vent

### 12.9.1 Testing

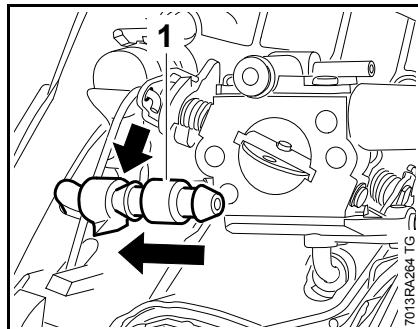
If problems occur on the carburetor or the fuel supply system, also check and clean the tank vent and replace it if necessary. Check function by performing pressure and vacuum tests on the tank via the fuel suction hose.

The following preparations describe the MS 201, but also apply to the MS 201 T.

- Open the fuel tank cap and drain the fuel tank.
- Collect the fuel in a clean container, **1**
- Close the tank cap.
- Remove the air filter, **12.1**



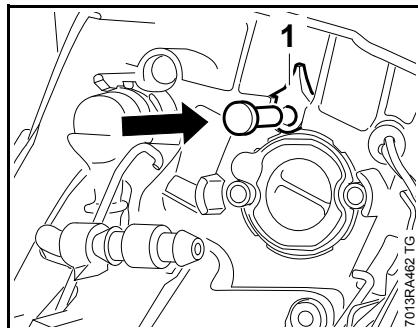
- Pull the fuel suction hose (1) off the stub (arrow).



- Push the nipple (1)  
0000 855 9200 into the fuel suction hose (arrow).

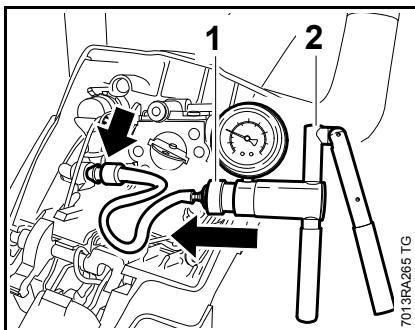
### Models with manual fuel pump

- Remove the carburetor,  
MS 201 **12.4**,  
MS 201 T **12.5**



- Use a suitable plug to seal the fuel hose (1).

## Vacuum test

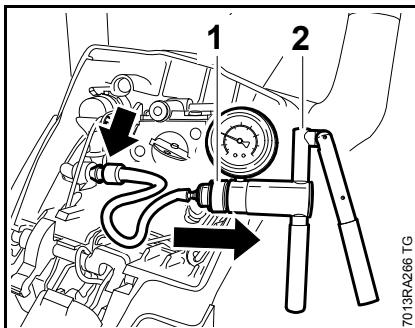


- Push the ring (1) to the left and connect the pump (2) 0000 850 1300 to the nipple (arrow)  
– subject the fuel tank to a vacuum.

Equalization of pressure takes place via the tank vent. There must be no buildup of vacuum in the tank.

- Clean the area around the tank vent.
- Install new tank vent if necessary  
MS 201 12.9.2,  
MS 201 T 12.9.3

## Pressure test



- Push the ring (1) to the right and connect the pump (2) 0000 850 1300 to the nipple (arrow)  
– pressurize the fuel tank.

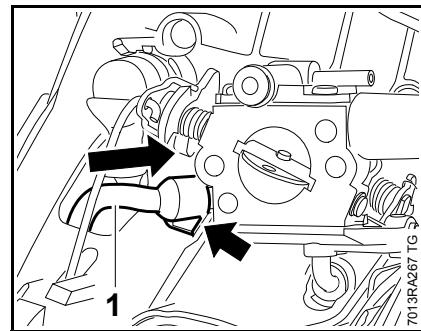
- Operate the pump until the pressure gauge indicates a pressure of 0.5 bar. If this pressure remains constant for at least 20 seconds, the tank, including the tank vent, is airtight. If the pressure drops, the leak must be located and the faulty part replaced.

## All models

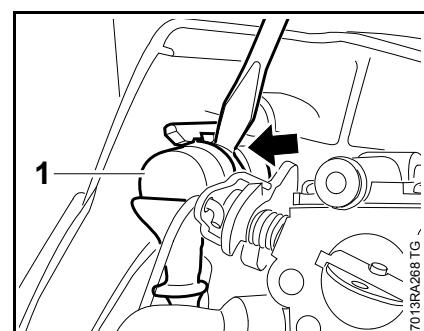
- Reassemble all other parts in the reverse sequence.

### 12.9.2 Tank Vent (MS 201)

- Remove the filter base, 12.3



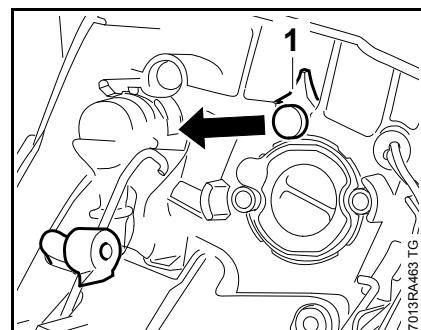
- Pull the nipple out of the fuel suction hose.
- Push the fuel suction hose (1) onto the nipple so that the tab matches the contour (arrow) of the handle housing.



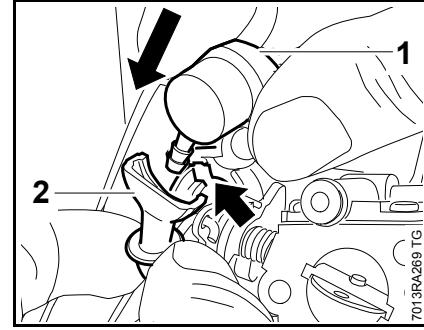
- Use a screwdriver to pry out the tank vent (1) at the recess (arrow).
- Pull the tank vent (1) out of the hose.

Always install a new tank vent.

## Models with manual fuel pump



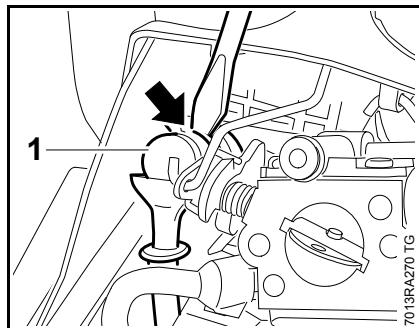
- Pull plug out of fuel suction hose (1).
- Install the carburetor,  
MS 201 12.4,  
MS 201 T 12.5



- Position the new tank vent (1) so that it points toward the seat.
- Push the tank vent (1) into the vent hose (2) and into its seat (arrow) as far as stop.
- Reassemble all other parts in the reverse sequence.

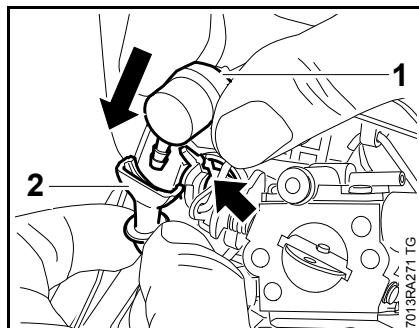
### 12.9.3 Tank Vent (MS 201 T)

- Remove the filter base, [12.3.1](#)



- Use a screwdriver to pry out the tank vent (1) at the recess (arrow).
- Pull the tank vent (1) out of the hose.

Always install a new tank vent.



- Position the new tank vent (1) so that it points toward the seat.
- Push the tank vent (1) into the vent hose (2) and into its seat (arrow) as far as stop.
- Reassemble all other parts in the reverse sequence.

### 12.10 Fuel Intake

#### 12.10.1 Pickup Body

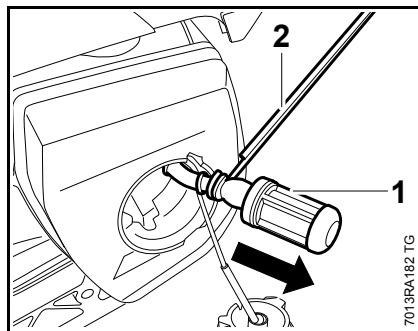
Any impurities mixed with the fuel are retained by the pickup body (filter). The fine pores of the filter eventually become clogged with minute particles of dirt. This restricts the passage of fuel and results in fuel starvation.

In the event of problems with the fuel supply system, always check the fuel tank and the pickup body first.

- Troubleshooting, [3.6](#) or [3.7](#)

Clean the fuel tank if necessary.

- Open the tank cap and drain the tank.
- Pour a small amount of clean fuel into the tank. Close the tank and shake the saw vigorously.
- Open the tank again and drain it.
- Dispose of fuel properly in accordance with environmental requirements, [1](#)



- Open the tank cap.

- Use hook (2) 5910 893 8800 to remove the pickup body (1) from the fuel tank.

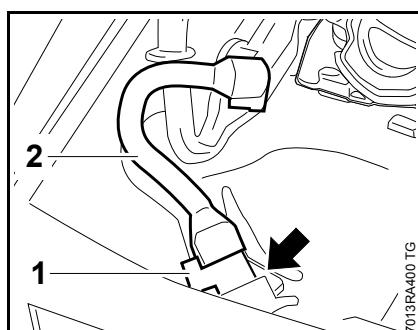
Do not overstretch the fuel suction hose.

- Check the pickup body (1) and replace if necessary
- Reassemble in the reverse sequence.

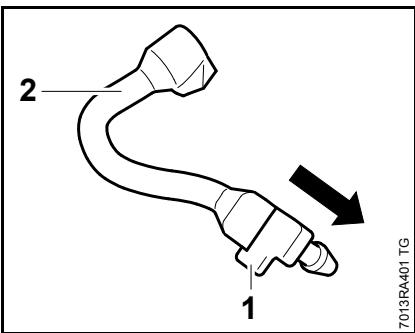
#### 12.10.2 Fuel Suction Hose

The removal and installation procedure is the same on the MS 201 and MS 201 T.

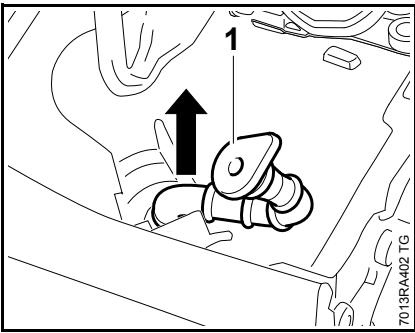
- Remove the pickup body, [12.10.1](#)
- Remove the handle housing, MS 201 [10.4](#), MS 201 T [10.5](#)



- Pry out elbow connector (1) with fuel suction hose (2) at the lug (arrow).

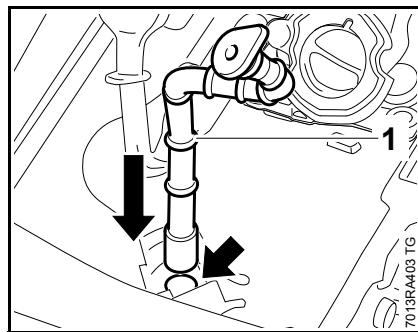


- Pull the elbow connector (1) off the fuel suction hose (2).
- Check the elbow connector and replace if necessary.
- Install a new fuel suction hose.

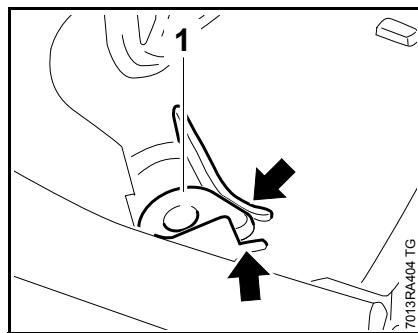


- Pull the fuel suction hose (1) out of the fuel tank.
- Check the fuel suction hose and replace if necessary.

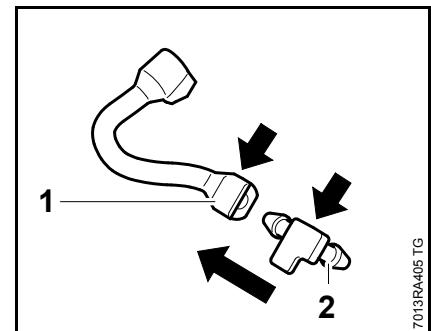
## Installing



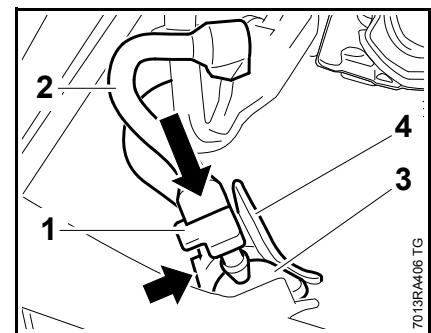
- Coat the fuel suction hose with STIHL press fluid, **14**
- Push the fuel suction hose (1) through the bore (arrow) in the fuel tank.



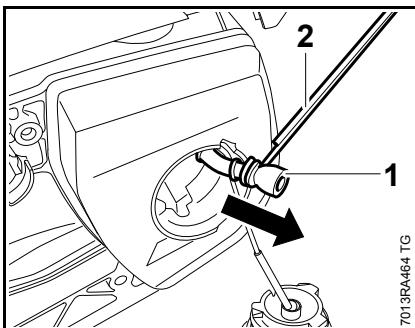
- Position the fuel suction hose (1) so that the flange fits between the ribs (arrows), then push it into the housing bore as far as stop.



- Coat inside of fuel suction hose with STIHL press fluid, **14**
- Position fuel suction hose (1) and elbow connector (2) so that the flat face (arrow) is parallel to the lug (arrow).
- Push the elbow connector (2) into the fuel suction hose (1) as far as stop
  - the lug must locate flat against the elbow connector.



- Coat inside of fuel suction hose with STIHL press fluid, **14**
- Position elbow connector (1) so that the lug engages the seat (arrow) and the fuel suction hose (2) the guide.
- Push the elbow connector (1) with fuel suction hose (2) into fuel suction hose (3) as far as stop.



- Use hook (2) 5910 893 8800 to remove the pickup body (1) from the fuel tank.

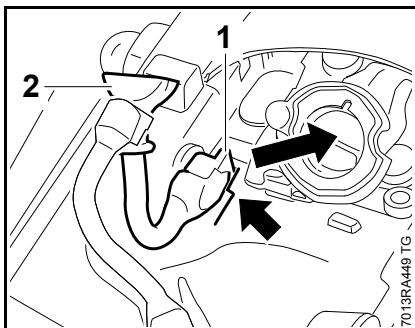
Do not overstretch the fuel suction hose (1).

- Fit the pickup body, **12.10.1**
- Close the tank cap.
- Install the handle housing, MS 201 **10.4**, MS 201 T **10.4**
- Reassemble all other parts in the reverse sequence.

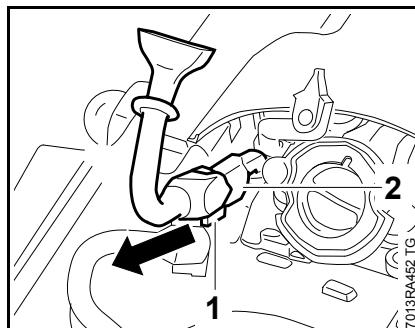
### 12.10.3 Tank Vent Hose

The removal and installation procedure is the same on the MS 201 and MS 201 T.

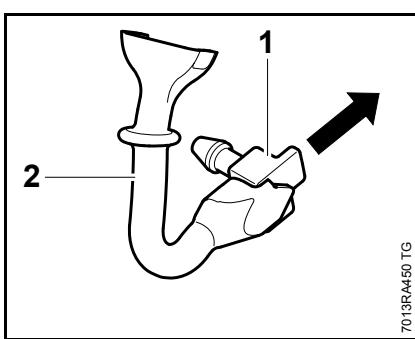
- Remove the handle housing, MS 201 **10.4**, MS 201 T **10.5**



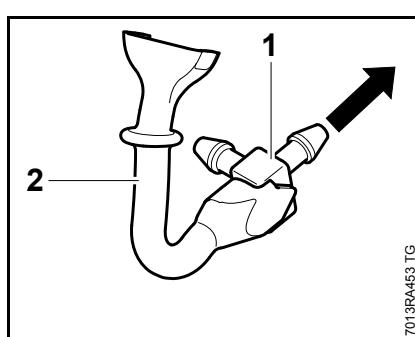
- Lift elbow connector (1) with tank vent hose (2) clear of its seat (arrow) and pry it out.



- Pull the elbow connector (1) out of the fuel return hose (2).

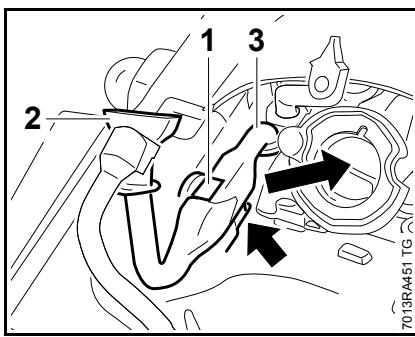


- Pull the elbow connector (1) off the tank vent hose (2).

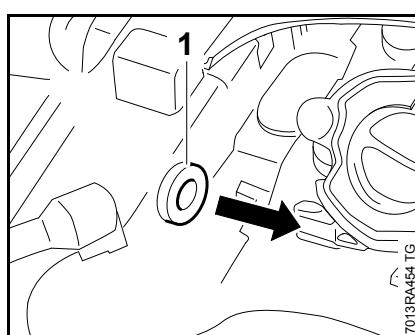


- Pull the elbow connector (1) off the tank vent hose (2).

#### Models with manual fuel pump

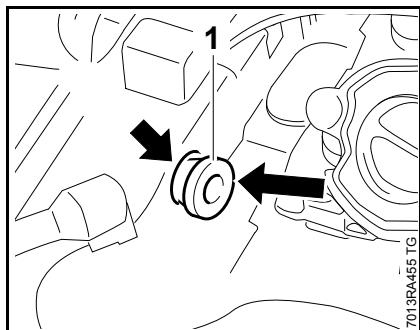


- Lift elbow connector (1) with tank vent hose (2) and fuel return hose (3) clear of its seat (arrow) and pry it out.

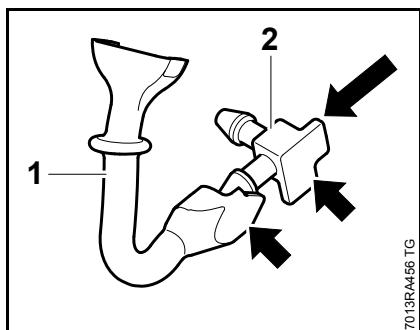


- Pry out the grommet (1), check it and replace if necessary.

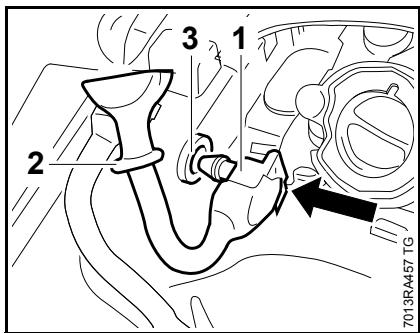
## Installing



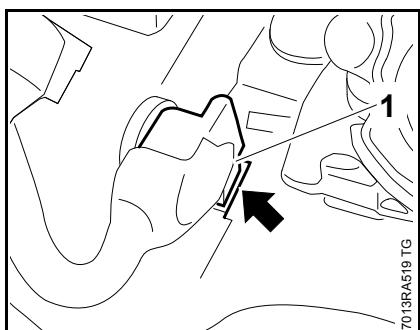
- Coat grommet with STIHL press fluid, **14**
- Push the grommet (1) into the bore (arrow) in the tank housing and make sure it is properly seated.



- Coat inside of tank vent hose with STIHL press fluid, **14**
- Position tank vent hose (1) and elbow connector (2) so that the flat face (arrow) is parallel to the lug (arrow).
- Push the elbow connector (2) into the tank vent hose (1) as far as stop – the lug must locate flat against the elbow connector.

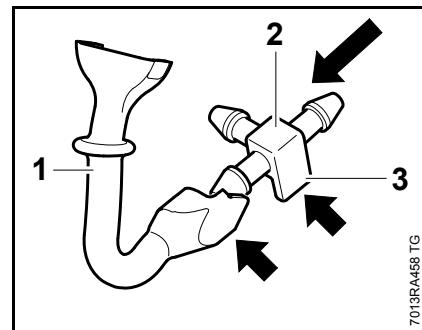


- Push elbow connector (1) with tank vent hose (2) into grommet (3) as far as stop.

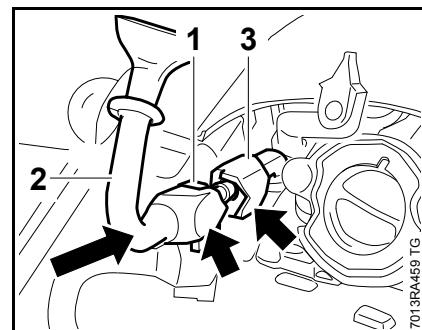


The lug (1) must engage the seat (arrow).

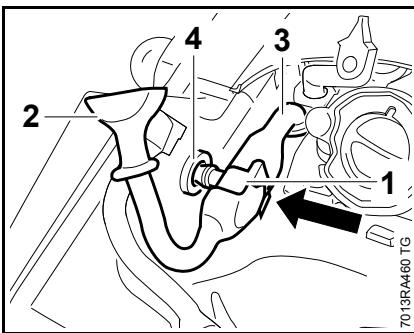
## Models with manual fuel pump



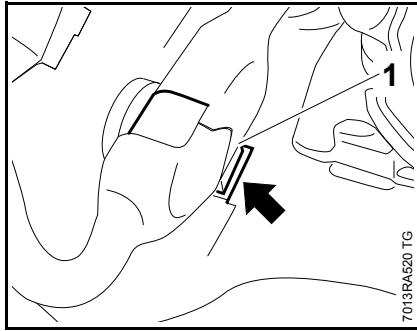
- Coat inside of tank vent hose with STIHL press fluid, **14**
- Position tank vent hose (1) and elbow connector (2) so that the flat face (arrow) is parallel to the lug (arrow) – the lug (3) must point downwards.
- Push the elbow connector (2) into the tank vent hose (1) as far as stop – the lug must locate flat against the elbow connector.



- Coat inside of fuel return hose with STIHL press fluid, **14**
- Push the elbow connector (1) with tank vent hose (2) into the fuel return hose (3) – the two lugs (arrows) must locate flat against the elbow connector and mesh with each other.



- Push elbow connector (1) with tank vent hose (2) and fuel return hose (3) into grommet (4) as far as stop.



The lug (1) must engage the seat (arrow).

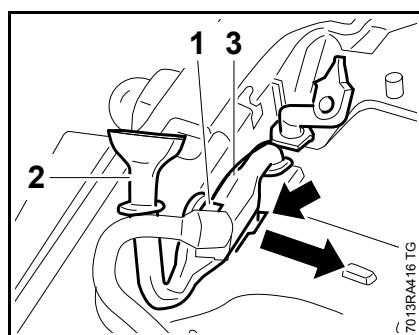
#### All models

- Fit the handle housing,  
MS 201 10.4,  
MS 201 T 10.5
- Reassemble all other parts in the reverse sequence.

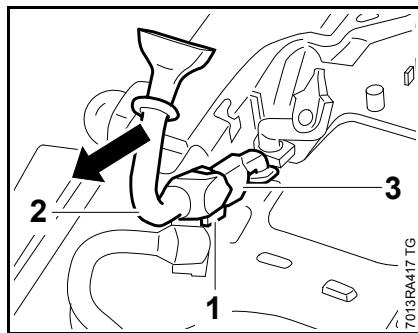
#### 12.10.4 Manual Fuel Pump with Fuel Hoses

The removal and installation procedure is the same on the MS 201 and MS 201 T.

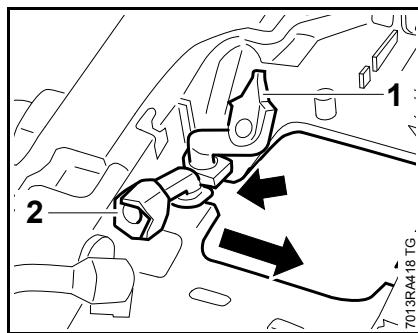
- Remove the carburetor,  
MS 201 12.4,  
MS 201 T 12.5
- Remove the tank vent,  
MS 201 12.9.2,  
MS 201 T 12.9.3
- Loosen AV elements, remove handle housing,  
MS 201 10.4,  
MS 201 T 10.5
- Remove the cover, 12.8
- Remove the impulse hose, 12.8.1
- Remove cover from manifold, 12.8
- Remove the manifold, 12.8
- Remove the tank housing, 12.11



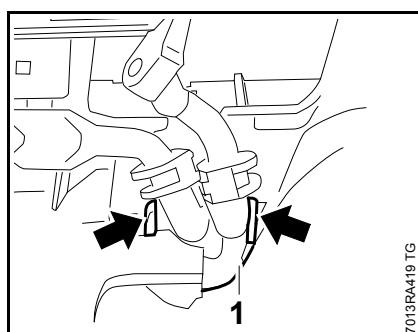
- Lift elbow connector (1) with tank vent hose (2) and fuel return hose (3) clear of its seat (arrow) and pry it out.



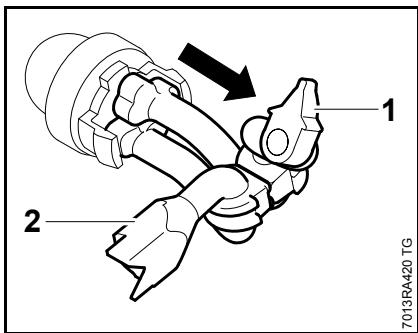
- Pull the elbow connector (1) with tank vent hose (2) out of the fuel return hose (3).



- Pull the fuel hose (1) and fuel return hose (2) out of the seat (arrow).

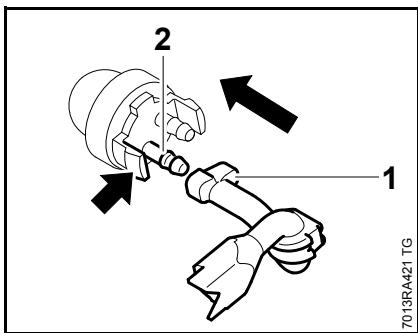


- Viewed from inside the tank housing, squeeze the tabs (arrows) together and push out the fuel pump (1) with fuel hoses.

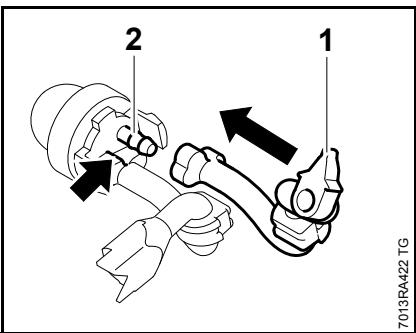


- Pull off the fuel hose (1) and fuel return hose (2).
  - Check the fuel pump and replace if necessary.
  - Replace the fuel hose and fuel return hose.

### Installing

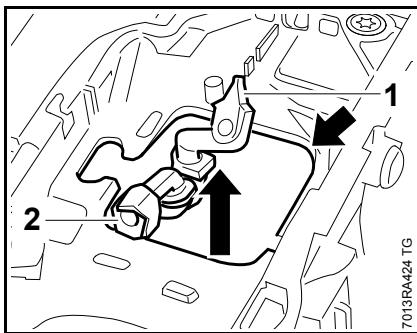


- Push the new fuel return hose (1) onto the long nipple (2) so that the flange locates against the tab (arrow).

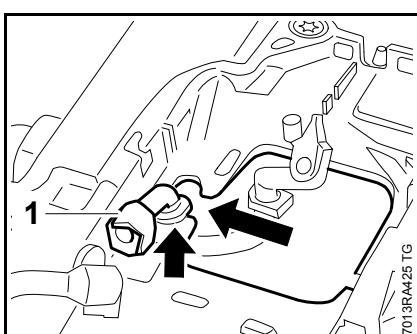


- Push the new fuel hose (1) onto the short nipple (2) so that the flange locates against the fuel return hose (arrow).

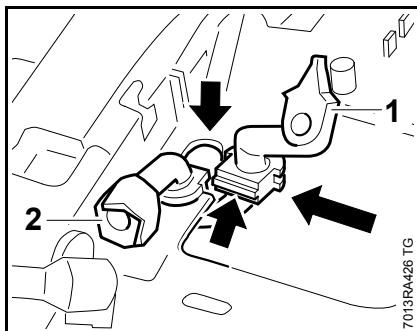
The fuel hoses must be pushed fully home.



- Thread the fuel return hose (1) and fuel hose (2) through the opening (arrow).



- Fit the fuel return hose (1) so that its groove is properly seated in the opening (arrow).

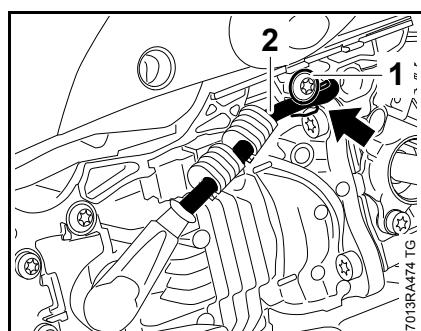


- Fit the fuel hose (1) so that its groove is properly seated in the opening (arrow) and its shoulder (arrow) engages the fuel return hose (2).
- Install the tank housing, 12.11
- Install the manifold, 12.8
- Fit cover on the manifold, 12.8
- Fit the cover, 12.8
- Fit the handle housing, MS 201 10.4, MS 201 T 10.5
- Install the tank vent, MS 201 12.9.2, MS 201 T 12.9.3
- Install the carburetor, MS 201 12.4, MS 201 T 12.5
- Reassemble all other parts in the reverse sequence.

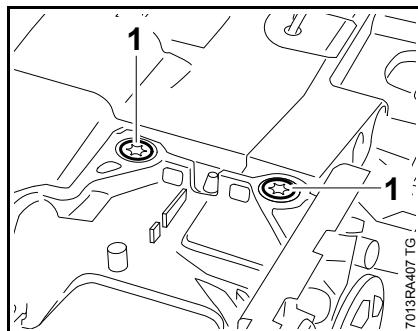
## 12.11 Tank Housing Removing and Installing

If a mounting thread for plastic tapping screws is damaged, the tank housing can be repaired by fitting a thread insert.

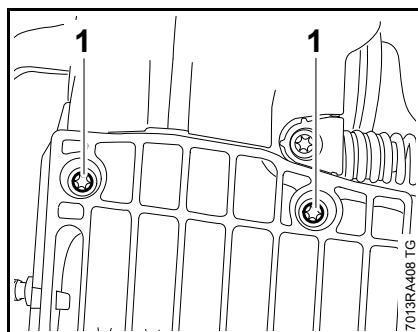
- Drain the fuel tank, 1
- Remove the carburetor, MS 201 12.4, MS 201 T 12.5
- Remove the tank vent, MS 201 12.9.2, MS 201 T 12.9.3
- Loosen AV elements, remove handle housing, MS 201 10.4, MS 201 T 10.5
- Remove the cover, 12.8
- Remove the impulse hose, 12.8.1
- Remove cover from manifold, 12.8
- Remove the manifold, 12.8



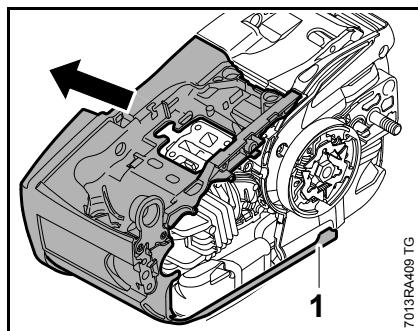
- Take out the screw (1) and pull the ignition lead (2) out of the guide (arrow).



- Take out the screws (1).



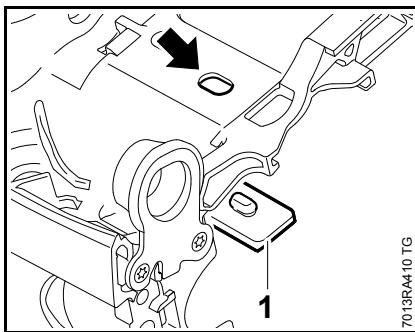
- Turn the machine over.
- Take out the screws (1).



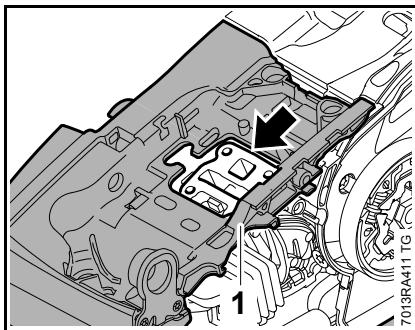
- Lift the tank housing (1) a little and take it out.
- Inspect the tank housing and replace if necessary.

Only transfer those parts from the old tank housing that are not included with the replacement – see parts list.

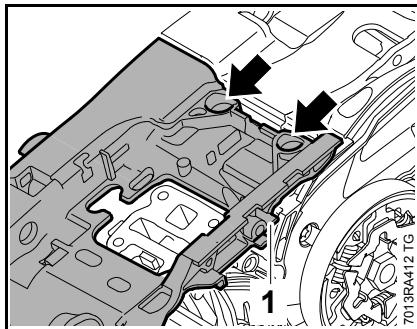
## Installing



- Push the clamping block (1) out of its seat (arrow), inspect it and replace if necessary.
- Coat the clamping block with STIHL press fluid, 14
- Reassemble in the reverse sequence.

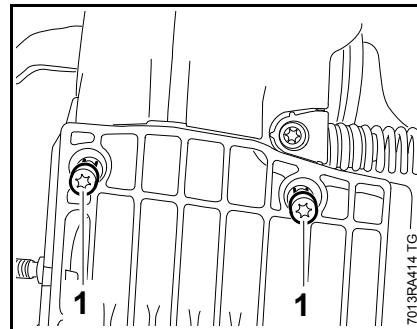


- Line up the tank housing (1) so that opening (arrow) is above the intake port.

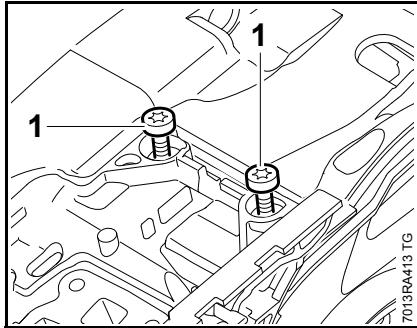


- Push the tank housing (1) into position until it snaps into place on both sides of the crankcase and is in alignment at the bores (arrows).

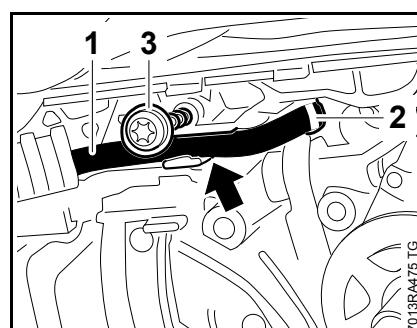
Make sure the clamping block is not pushed out during this process.



- Turn the machine over.
- Fit the screws (1).
- Check that tank housing is properly seated, line it up if necessary and then tighten down the screws (top and underside) firmly.



- Fit the screws (1).



- Push the ignition lead (1) into the guide (arrow) so that the mark (2) is against the crankcase.
- Insert and tighten down the screw (3) firmly.
- Reassemble all other parts in the reverse sequence.

## 13. Special Servicing Tools

### New Special Tools

No.	Part Name	Part No.	Application	Rem.
1	Installing sleeve	1145 893 4600	Protecting the oil seal (clutch side/ignition side)	
2	Flange – intake side	5910 850 4203	Leakage test	

### Existing Special Tools

No.	Part Name	Part No.	Application	Rem.
1	Carburetor and engine tester - Nipple - Hose for leakage test	0000 850 1300 0000 855 9200 1110 141 8600	Testing engine and carburetor for leaks Testing carburetor for leaks Testing carburetor for leaks	
2	Sealing plate	0000 855 8106	Testing engine for leaks	
3	Installing tool	0000 890 2201	Installing rope guide bushing	
4	Combination wrench	0000 890 3402	Spark Plug	1)
5	Clamping strap	0000 893 2600	Compressing the piston rings	
6	Screwdriver bit, T 20 x 125	0812 542 2041	Removing and installing spline socket screws with electric or pneumatic screwdrivers; tightening down screws with torque wrench	
7	Screwdriver bit, T 27 x 125	0812 542 2104	Removing and installing spline socket screws with electric or pneumatic screwdrivers; tightening down screws with torque wrench	
8	Wooden assembly block	1108 893 4800	Supporting the piston	
9	Setting gauge	1111 890 6400	Adjusting air gap between the ignition module and flywheel	
10	Assembly drift	1114 893 4700	Removing and installing piston pin	
11	Assembly tube	1117 890 0900	Attaching springs	
12	Press sleeve	1120 893 2400	Installing oil seal (clutch side / ignition side)	
13	Locking strip	1145 893 5900	Blocking the crankshaft	
14	Service tool AS (set)	5910 007 2205	Separating two halves of crankcase	
15	Clamping strap for assembly stand	5910 850 1650	Clamping machine to assembly stand	
16	Ignition system tester, ZAT 4	5910 850 4503	Testing ignition system	
17	Ignition system tester, ZAT 3	5910 850 4520	Testing ignition system	

No.	Part Name	Part No.	Application	Rem.
18	Flange	5910 855 4201	Sealing exhaust port for leakage test	
19	Torque wrench	5910 890 0302	0.5 to 18 Nm	
20	Torque wrench	5910 890 0312	6 to 80 Nm	
21	Installing tool 9	5910 890 2209	Installing hookless snap ring in piston	
22	Screwdriver bit, T 20 x 100	5910 890 2301	IS screws	1)
23	Screwdriver bit, T 27 x 150	5910 890 2302	IS screws	1)
24	Screwdriver	5910 890 2306	Adjusting the carburetor	
25	Screwdriver bit, T 27 x 150	5910 890 2400	IS-P screws	1)
26	Hook	5910 890 2800	Detaching springs on clutch shoes	
27	Assembly stand	5910 890 3101	Holding saw for repairs	
28	Punch-down tool	5910 890 4000	Fitting electrical wires in guides	
29	Puller	5910 890 4400	Removing oil seals	
	- Jaws (No. 3.1)	0000 893 3706	Removing oil seals	
30	Puller	5910 890 4502	Pull off the limiter cap.	
31	Puller	5910 890 4504	Removing flywheel	
32	Stud puller M8	5910 893 0501	Removing bar mounting stud	
33	Socket, 13 mm	5910 893 5608	Removing flywheel nut	
34	Setting disk	5910 893 6600	Add-on for screwdriver (adjusting carburetor)	
35	Hook	5910 893 8800	Removing pickup body	
36	Installing tool	5910 893 9600	Removing and installing collar nut in sprocket cover	

**Remarks:**

- 1) Use for releasing only.

## 14. Servicing Aids

No.	Part Name	Part No.	Application
1	STIHL multipurpose grease	0781 120 1109	
2	Lubricating grease (225 g tube)	0781 120 1111	Oil seals, sliding and bearing points
3	STIHL special lubricant	0781 417 1315	Bearing bore in rope rotor, rewind spring in fan housing
4	STIHL press fluid OH 723	0781 957 9000	Rubber components, AV buffers
5	Loctite 272 high-strength threadlocking adhesive up to 250 °C (482 °F) (50 ml bottle)	0786 111 1110	
6	Standard commercial solvent-based degreasant containing no chlorinated or halogenated hydrocarbons		Cleaning sealing faces and carburetor, crankshaft stubs and flywheel taper





**englisch / english**

0455 577 0123. M2,65. F11. FST. Printed in Germany