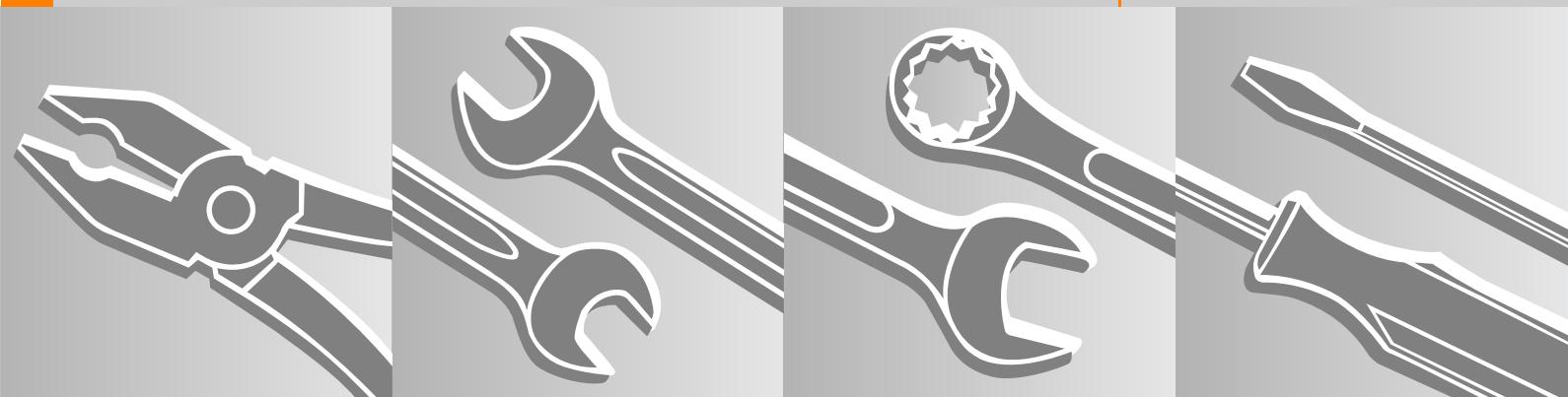


STIHL®

STIHL MS 241 C

2010-11



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1. Introduction and safety precautions

1.1 Introduction

This Service Manual contains detailed descriptions of all the typical repair and servicing procedures for this machine.

Refer to the illustrated spare parts lists during all repair work. These lists show the installation position and order in which the individual parts and modules should be assembled.

Refer to the latest edition of the relevant spare parts list to check the part numbers of any spare parts required.

A fault on the machine may be due to several causes. To help locate the fault, consult the chapter on "Troubleshooting" and the "STIHL Service Training System" for all functional groups.

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 spare parts list and Service Manual until an updated edition is issued.

The special tools mentioned in the descriptions are listed in the chapter "Special Servicing Tools" of this manual. The tools can be identified according to part number in the "STIHL Special Tools" manual. The manual lists all tools supplied by STIHL.

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

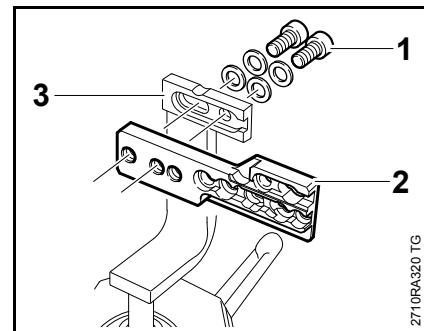
In the text:

- 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:

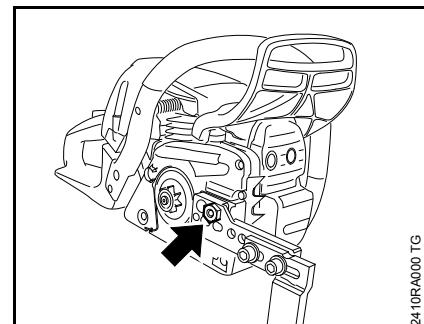
- Item pointer (short)
- Direction of movement (long arrow)
- ॥ 4.2 Reference to another chapter, in this case to Chapter 4.2

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



Servicing and repairs are made considerably easier if the machine is mounted on assembly stand (3) 5910 890 3101. For this purpose, secure the clamp (2) 5910 850 1650 to the assembly stand with two screws (1).

The screws must not protrude, as they may damage the housings when clamping the machine, depending on the machine.



The machine is guided with the collar screw through the upper hole of the clamping rail and fastened using nut M 8 (arrow).

The machine is fastened to the mount on the clamping rail by the screw head on the crankcase.

Preparing to make repairs

Before repair tasks or clamping on the assembly stand, always remove the chain sprocket cover, saw chain and guide bar.

Always use original STIHL replacement parts.

They can be identified by the STIHL part number

the logo **STIHL**

and the

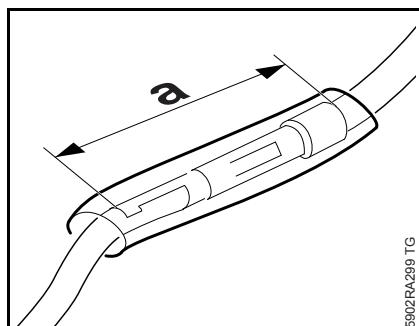
STIHL parts symbol .

The symbol may appear alone on small parts.

Storage or disposal of oil and fuel

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

Plug connections on electrical leads



The insulating tube must be oriented so that it is centered over the plug connection and completely enclose the plug connection – danger of short-circuiting.

The plug connection is completely plugged together when it has a total length of $a = \text{max. } 30 \text{ mm}$.

1.2 Safety precautions

Specific national safety regulations and the safety instructions in the instruction manual must be observed if the machine has to be started up during maintenance or repair work.

Gasoline is highly inflammable and can also be explosive under certain conditions.

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

Test for leakage after all work on the fuel system and 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.

Suitable gloves must be worn without fail if parts are heated for assembly/disassembly purposes.

Improper handling may result in burns and other serious injuries.

Always replace damaged parts. Check dismantled parts for wear and damage before installation, replace if necessary.

Only use the machine with the shroud mounted – otherwise the rotating fan wheel poses a risk of injury and there is a risk of engine damage due to overheating.

The chapter "Tightening Torques" lists all components of this machine that must be tightened with the specified tightening torques or coated with thread-locking adhesive. These specifications must be observed throughout the Service Manual when tightening screws and nuts as well as other fasteners.

Fuel system – barbed connectors

Pull or push the fuel hoses, by hand whenever possible, in the direction of the connector in order to ensure leakproofness of the fuel system.

Avoid damaging the barbed connectors

– sharp-edged pliers, screwdrivers, etc., may not be used.

Also, do not cut open fuel hoses with a knife or similar aids.

Do not reuse fuel hoses after disassembly, but instead always replace them with new hoses
– fuel hoses can be overstretched when being detached.

Mount new fuel hoses dry or using STIHL press fluid,  16.

Other press fluids are not permitted and may lead to fuel hose damage.

When using STIHL press fluid, apply press fluid to the ends of the hose and the connectors and press the new hoses onto the barbed connectors,  16.

2. Specifications

2.1 Engine

	MS 241 C
Displacement:	42.6 cm ³
Bore:	42.5 mm
Stroke:	30.0 mm
Engine power to ISO 7293:	2.2 kW (3.0 HP) at 10000 rpm
Max. permissible engine speed (with bar and chain):	14000 rpm
Idle speed:	2800 rpm
Clutch:	Centrifugal clutch without linings
Clutch engages at:	3500 rpm
Crankcase leakage test at gauge pressure: under vacuum	$p_{\text{ü}} = 0.5 \text{ bar}$ $p_u = 0.5 \text{ bar}$

2.2 Fuel system

Carburetor leakage test at gauge pressure:	$p_{\text{ü}} = 0.8 \text{ bar}$
Operation of tank vent at gauge pressure:	$p_{\text{ü}} = 0.5 \text{ bar}$
Fuel:	as specified in instruction manual

2.3 Ignition system

Air gap between control unit and fanwheel:	0.30 (+ 0.05/- 0.10) mm
Spark plug (suppressed):	NGK CMR 6 H
Electrode gap:	0.5 mm

2.4 Chain lubrication

Speed-controlled oil pump with reciprocating piston and manual oil flow control	
Oil flow settings:	
min:	4.0 (+/- 2.0) cm ³ /min at 7000 rpm
max:	8.0 (+/- 3.0) cm ³ /min at 7000 rpm

2.5 Tightening torques

DG and P screws are fitted in plastic and light alloy metal parts. These screws form a permanent thread when they are installed for the first time. The material is permanently deformed. Screws can be removed and installed as often as necessary without impairing the strength of the screwed assembly, provided that the specified tightening torque is observed.

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

Fastener	Thread size	For component	Tightening torque Nm	Comment
Screw	P 4x12	Cover plate / fan housing	2.0	
Screw	P 4x10	Cover / tank housing	1.0	
Screw	D 4x12	Cover / chain tensioner / crankcase	2.5	2), 4)
Screw	M 5x16	Antivibration element / crankcase	8.0	2), 4)
Screw	P 5x34	Antivibration element / tank housing	4.0	
Screw	D 4x12	Brake band / crankcase	3.0	2), 4)
Screw	P 4x10	Brake cable support / tank housing	1.0	Q
Stud	M 5x18	Stud	7.0	2), 3)
Stud	M 8	Bar mounting stud	23.0	1)
Stud	M 8	Bar mounting stud	23.0	1), B
Stud	D 8x18	Bar mounting stud (repair solution)	16.0	
Screw	D 4x12	Cover, chain brake / crankcase	3.0	2), 4)
	M 10x1	Decompression valve	14.0	
Nut	M 5	Filter base / baffle / carburetor	3.5	
Screw	M 4x12	Generator / crankcase	3.0	3), VW
Screw	P 6x25	Handlebar / locking screw	8.0	VW
Screw	P 6x26.5	Handlebar / tank housing right	6.0	
Screw	P 6x30	Handlebar / tank housing right	6.0	2), 4), VW
Screw	M 5x16	Handlebar / tank housing bottom	5.0	2), 3)
Screw	M 5x12	Handlebar / tank housing bottom	8.0	3), VW
Screw	M 5x16	Handlebar / plugs antivibration springs	10.0	2), 3), VW
Screw	M 5x20	Hand guard / fan housing / crankcase	6.0	3)
Screw	P 6x30	Chain catcher / crankcase / bearing plugs	6.0	
Nut	M 5	Spiked bumper / crankcase / upper lock nut	8.0	
Screw	M 5x10	Spiked bumper / top of crankcase	8.0	2), 3)
Screw	M 5x16	Spiked bumper / bottom of crankcase	8.0	2), 3)
Screw	D 4x12	Manifold / cylinder	4.0	2), 4)
Screw	M 5x20	Crankcase drive side / fan side	10.0	2), 4)
Screw	M 5x16	Bearing plugs / cylinder	10.0	2), 3)
Screw	M 5x16	Fan housing / crankcase	6.0	2), 4)
Screw	D 4x12	Air guide shroud / crankcase	4.0	2), 4)

Fastener	Thread size	For component	Tightening torque Nm	Comment
Carrier	M 12x1 L	Crankshaft carrier	50.0	
Screw	D 4x12	Oil pump / crankcase	4.0	2), 4)
Screw	M 5x16	Muffler / crankcase	10.0	2), 3)
Screw	M 5x16	Muffler / cylinder	10.0	2), 3)
Nut	M 8x1	Flywheel / crankshaft	28.0	5)
Nut	M 12x0.75	Switch	2.0	
Screw	P 4x10	Support	1.0	
Screw	D 4x12	Pre-separator / crankcase	4.0	2), 4)
	M 10x1	Spark plug / cylinder	12.0	
Screw	D 4x20	Control unit / cylinder	4.5	2), 4)
Screw	M 5x20	Cylinder / crankcase 1st stage	4.0	2), 4)
Screw	M 5x20	Cylinder / crankcase 2nd stage	10.0	2), 4)

Remarks:

- 1) Loctite 242 or 243 medium strength
- 2) Screws with locking serration
- 3) Microencapsulated screws
- 4) Screws with easy-slide coating
- 5) Connection between crankshaft and flywheel must be degreased and oil-free
- Q) QuickStop Super
- B) Quick chain tensioner
- VW) Heating

When inserting DG and P screws into an existing screw thread:

Insert the DG or P screw in the hole and turn counterclockwise until it gently drops into the hole in axial direction. 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.

Coat micro-encapsulated screws with Loctite 242 or 243 medium strength before refitting them.

Screwdriver speed when used in plastic material: max. 500 rpm for DG and P-type screws.
Do not use an impact wrench to release or tighten screw connections.

Screws with and without locking serration must not be confused.

3. Troubleshooting

3.1 Clutch

Problem	Cause	Remedy
Saw chain becomes stuck under full load	Clutch shoes badly worn	Install new clutch
	Clutch drum badly worn	Install new clutch drum
Saw chain rotates at idle speed	Idle speed too high	Check M-Tronic
	Tension springs of the clutch shoes are stretched	Replace tension springs, replace clutch if necessary
	Tension springs of the clutch shoes are broken	Replace tension springs
Loud noises	Tension springs stretched	Replace all tension springs
	Needle cage damaged	Replace needle cage
	Clutch shoe retainer broken	Examine retainer, replace if necessary
	Clutch shoes and carrier worn	Install new clutch

3.2 Chain Drive, Chain Brake, Chain Tensioner

Problem	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 becomes stuck under full load	Clutch shoes badly worn	Install new clutch
	Clutch drum badly worn	Install new clutch drum
	Brake band stuck	Check freedom of movement and function of brake band
Saw chain rotates at idle speed	Idle speed too high	Check M-Tronic
	Tension springs of the clutch shoes are stretched	Replace tension springs, replace clutch if necessary
	Tension springs of the clutch shoes are broken	Replace tension springs
Saw chain does not stop immediately when brake is activated	Brake spring stretched or broken	Fit new brake spring
	Brake band stretched, worn or broken	Fit new brake band
	Clutch drum worn	Install new clutch drum

Problem	Cause	Remedy
QuickStop Super Coasting brake is not released although trigger interlock is pressed	Brake cable stretched Brake cable unhooked or broken	Adjust brake cable Reattach or replace brake cable
QuickStop Super Brake band is not released although trigger interlock is pressed	Excessive play on trigger interlock	Adjust brake cable
QuickStop Super Coasting brake does not brake properly – trigger interlock not pressed	Brake cable overstretched Sleeve of the brake cable not seated completely in adjusting screw	Adjust brake cable Push the sleeve into the adjusting screw as far as it will go and adjust brake cable

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.

Problem	Cause	Remedy
Chain receives no oil	Oil inlet hole in guide bar is blocked Intake hose or pick-up body clogged or intake hose ruptured Valve in oil tank blocked Worm worn Oil pump damaged or worn	Clean oil inlet hole Fit new intake hose and pick-up body Clean or replace valve Replace worm Install new oil pump
Machine looses chain oil	Oil pump damaged or worn Oil intake hose connection damaged Crankcase cracked	Install new oil pump Fit new oil intake hose Check crankcase halves and replace damaged crankcase halves
Oil pump delivers insufficient oil	Oil pump damaged or worn Worm carrier is loose	Install new oil pump Replace worm

Problem	Cause	Remedy
Starter rope broken	Rope pulled out too vigorously as far as stop or over edge, i.e. not vertically	Replace starter rope
	Normal wear	Replace starter rope
Starter rope does not rewind	Heavy fouling or rust on rewind spring	Clean or replace rewind spring
	Spring insufficiently tensioned	Check rewind spring and increase tension
	Rewind spring broken	Replace rewind spring
Starter rope cannot be pulled out far enough	Rewind spring overtensioned	Check rewind spring and reduce tension
Starter rope can be pulled out almost without resistance (crankshaft does not turn)	Guide peg on pawls or pawls themselves are worn	Replace pawls
	Spring clip fatigued	Replace spring clip
	Spring clip improperly installed	Install spring clip properly
...Versions with ErgoStart	Guide peg on pawls or pawls themselves are worn	Replace pawls
	Torsion spring on flywheel are fatigued, pawls are worn or sticking	Clean mounts on the pawls, replace pawls and torsion springs if necessary
	Lugs on carrier are worn	Replace carrier
Starter rope is difficult to pull – versions with ErgoStart	Anchor loop in spring housing not hooked onto carrier	Hook anchor loop to carrier
	Spring in spring housing is fatigued	Replace spring housing

Problem	Cause	Remedy
Starter rope is difficult to pull or rewinds very slowly	Starter mechanism is very dirty	Thoroughly clean complete starter mechanism
	At very low outside temperatures: Lubricant oil on the rewind spring becomes viscous (spring winding stick together) or moisture has penetrated the rewind spring (spring windings are frozen)	Coat rewind spring with a little standard solvent-based degreasant (containing no chlorinated or halogenated hydrocarbons), then pull rope carefully several times until normal action is restored

Problem	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 the spark plug or replace if necessary In the event of repeated sooting, check air filter
	Fuel/oil mixture – contains too much oil	Use a fuel mixture with the correct mixing ratio
	Wrong air gap between control unit and flywheel	Set the correct air gap
	Flywheel is cracked or has other damage or pole shoes have turned blue	Install new flywheel
	Incorrect ignition timing, 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 and control unit Damaged insulation or interruption in ignition lead or short circuit wire. Check ignition lead/control unit, replace control unit if necessary. Check operation of spark plug, clean spark plug and replace if necessary. Check M-Tronic

3.6 Carburetor

Problem	Cause	Remedy
Carburetor floods; engine stalls	Inlet needle not sealing – Foreign matter in valve seat or cone	Remove and clean inlet needle or clean carburetor
	Inlet needle worn	Replace inlet needle
	Inlet control lever sticking on spindle	Examine control lever, 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	Replace metering diaphragm
	Metering diaphragm is deformed	Replace metering diaphragm
Poor acceleration	Carburetor setting too lean	Check M-Tronic
	Carburetor setting too rich	Check M-Tronic
	Inlet needle sticking to valve seat	Remove inlet needle, clean and refit
	Diaphragm gasket leaking	Replace diaphragm gasket
	Metering diaphragm damaged or shrunk	Replace metering diaphragm
	Tank vent faulty	Replace tank vent
	Leak in fuel line between tank and carburetor	Seal connections or replace line

Problem	Cause	Remedy
Engine will not idle, idle speed too high	Throttle shutter is not closed properly when the throttle trigger is not pressed	Examine carburetor and throttle rod, replace if necessary
	Oil seals or crankcase leaking	Seal oil seals or crankcase, replace if necessary
	Throttle shutter does not close	Replace carburetor
Engine stops when idling	Idle jet bores or ports blocked	Clean the carburetor
	Idle jet too rich or too lean	Check M-Tronic
	Tank vent faulty	Replace tank vent
	Leak in fuel line between tank and carburetor	Seal connections or replace line
Saw chain rotates at idle speed	Idle speed too high	Check M-Tronic
	Clutch springs stretched or fatigued	Replace tension springs, replace clutch if necessary
	Anchor loops of the clutch spring hooks are broken	Replace tension springs

Problem	Cause	Remedy
Engine speed drops quickly under load – low power	Air filter dirty	Clean air filter, replace if necessary
	Throttle shutter not opened fully	Check throttle rod
	Tank vent faulty	Replace tank vent
	Fuel pick-up body dirty	Replace pickup body
	Fuel strainer dirty	Clean fuel strainer in carburetor, replace if necessary
	Leak in fuel line between tank and carburetor	Seal connections or replace line
	Carburetor setting too lean	Check M-Tronic
	Main jet bores or ports blocked	Clean the carburetor
	Pump diaphragm damaged or fatigued	Replace pump diaphragm
	Incorrect ignition timing, flywheel out of adjustment – Key in flywheel has sheared off	Install new flywheel
Engine runs extremely rich, lacks power and has very low final speed	Choke shutter does not open	Examine the carburetor and starter shaft and repair or replace if necessary
	Carburetor setting too rich	Check M-Tronic

3.7 Engine

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

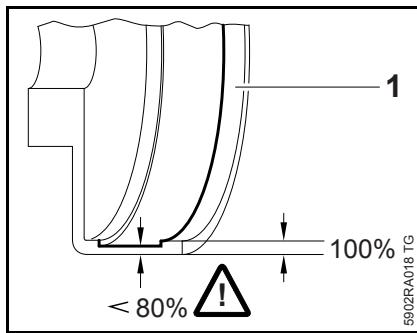
- Air filter,
- Fuel system,
- Carburetor,
- Ignition system

Problem	Cause	Remedy
Engine does not start easily, stalls at idle speed but operates normally at full throttle	Oil seals in engine defective	Replace oil seals
	Crankcase leaking or damaged (cracks)	Replace damaged crankcase halves
	Intake manifold damaged/ hole is plugged	Clean hole or replace intake manifold
Engine does not deliver full power or runs erratically	Piston rings worn or broken	Replace piston rings
	Muffler / spark arresting screen carbonized	Clean muffler (inlet and outlet openings), replace spark arresting screen, replace muffler if necessary
	Air filter dirty	Clean or replace air filter
	Fuel line kinked or cracked	Replace fuel line and ensure that is installed without kinking
	Intake manifold damaged / hole is plugged	Clean hole or replace intake manifold
Engine is overheated	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 intake in fan housing is fouled	Clean air intake on fan housing

4. Clutch

4.1 Clutch drum

- Clutch drum removal and installation, see Instruction Manual
- Remove needle cage
- Clean needle cage and crankshaft stub, **16**
- Grease needle cage and crankshaft stub, **16**



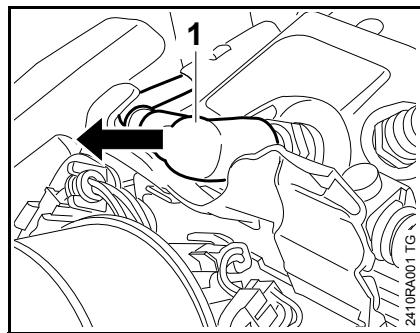
- Examine the clutch drum (1) for signs of wear

The remaining thickness must be measured if there are distinct signs of wear on the inside diameter of the clutch drum (1). The clutch drum must be replaced if the remaining thickness is less than approx. 80 % of the original thickness.

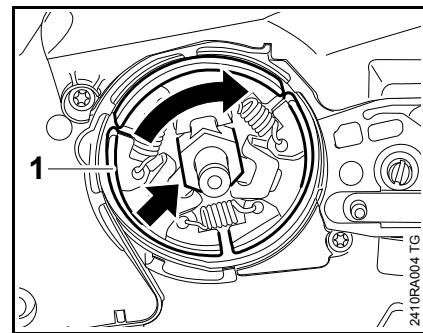
- Install the clutch drum

4.2 Clutch

- Troubleshooting, **3.1**
- Removing the clutch drum, **4.1**
- Remove shroud, **6.4**

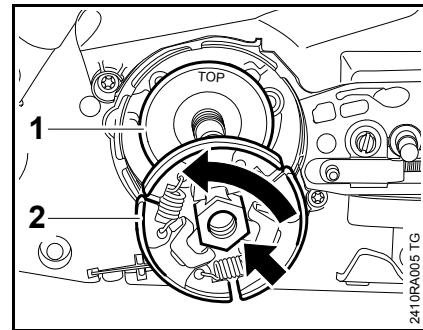


- Remove the spark plug boot (1)
- Unscrew spark plug



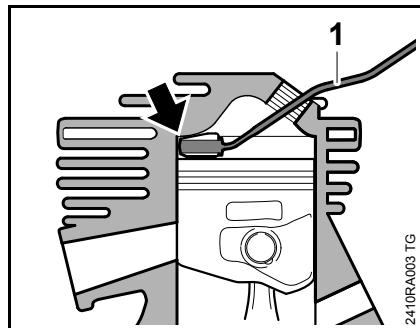
- Unscrew the clutch (1) with hexagon (arrow) – left-hand thread

Installation



Slide washer (1) into place so that the word "TOP" is visible.

- Orient the locking strip (1) 0000 893 5904 so that the flat side of the metallic attachment faces the piston and insert it in the cylinder



- Locking strip (1) 0000 893 5904 must rest against the cylinder wall (arrow) and the flat side of the metal attachment must rest against the piston head
- Position as shown

- Fit the clutch (2) on the crankshaft stub so that the raised hexagon (arrow) can be seen
- Screw on and tighten the clutch (2) – left-handed thread
- Pull the locking strip out of the cylinder
- Reassemble remaining parts in reverse order

5. Chain brake

5.1 Checking operation of chain brake

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.

Fouling (particularly 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. This in turn extends 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

Versions with QuickStop Super

When the trigger interlock is pressed, the clutch drum must rotate freely.

With the coasting brake released, open the throttle wide and release the trigger interlock in the rear handle – the saw chain must come to an abrupt stop

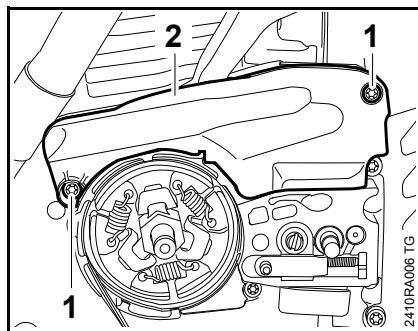
All versions

The braking time is in order if deceleration of the saw chain is imperceptible to the eye (less than 1 second).

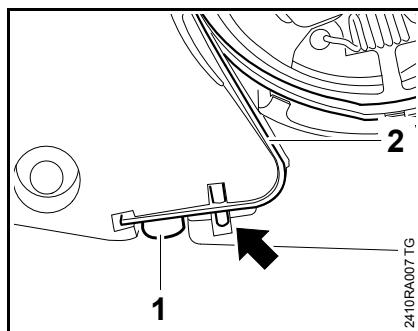
If the chain brake does not operate properly, refer to the troubleshooting chart, **3.2**.

5.2 Brake band

- Remove the clutch drum, **4.1**
- Troubleshooting, **3.2**



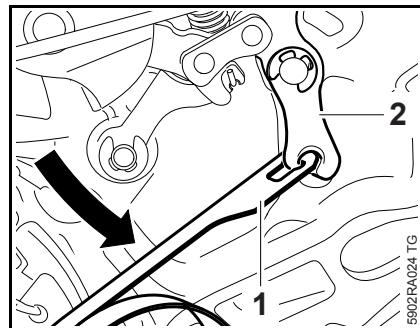
- Remove screws (1)
- Remove the cover (2)
- Block chain brake



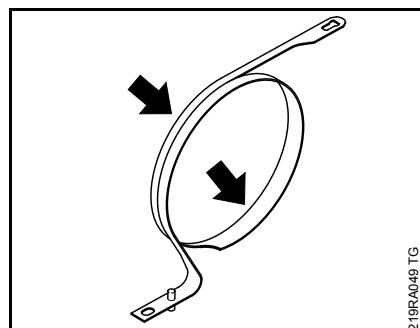
- Unscrew screw (1) on the bottom of the machine

- Ease brake band (2) out of guide (arrow)

- Remove brake band, taking care not to overextend it
- Release the chain brake

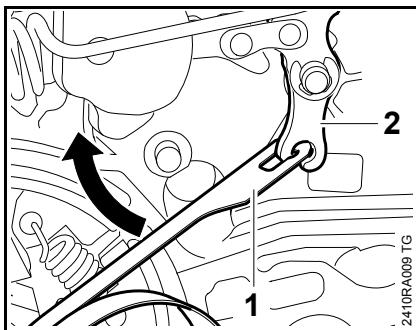


- Turn brake band (1) slightly aside and disconnect it from the brake lever (2)

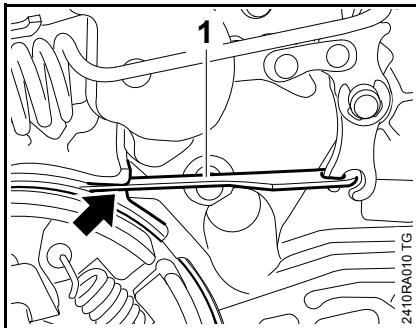


Install a new brake band if there are noticeable signs of wear on large areas on the inside diameter and/or parts of the outside (arrows) and its remaining thickness is less than < 0.6 mm.

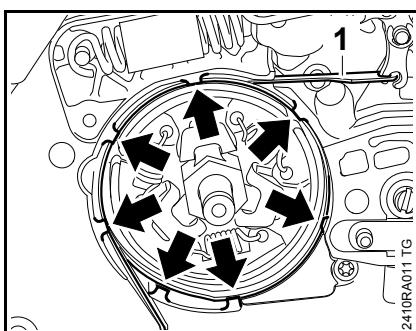
Installation



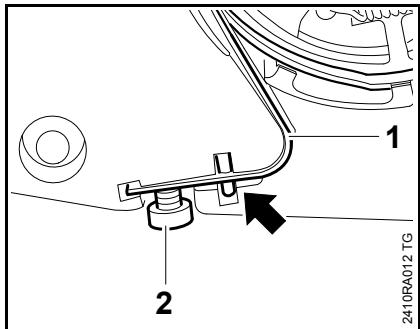
- Release the chain brake
- Attach brake band (1) to brake lever (2) sideways and turn it towards its mount



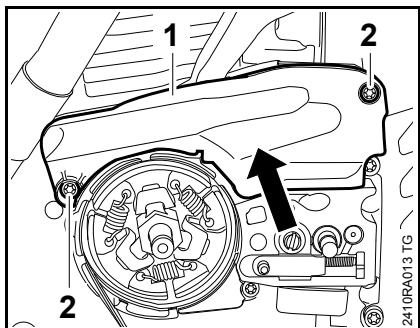
- Insert brake cable (1) in guide (arrow)
- Block chain brake



- Guide brake band (1) over studs (arrows) and press it into the mount



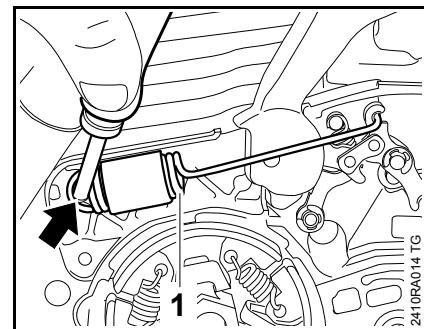
- Push brake band (1) fully home in the mount (arrow)
- Screw in and tighten screw (2) on the bottom of the machine



- Insert cover (1)
- Insert and tighten down the screws (2)
- Install the clutch drum, **4.1**

5.3 Brake lever

- Troubleshooting, **3.2**
- Remove shroud, **6.4**
- Remove fan housing, **9.2**
- Remove brake band, **5.2**



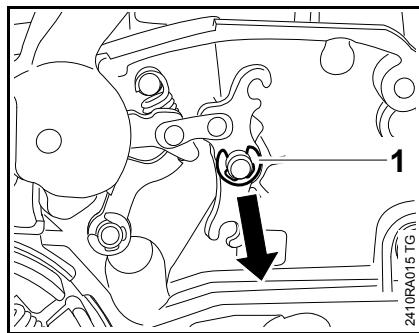
- Block chain brake

The brake spring is now relaxed.

- Use the assembly tool 1117 890 0900 to unhook the brake spring (1) at the anchor pin (arrow)
- Unhook and remove the brake spring at the brake lever

When the chain brake is released, the clutch drum must rotate freely.

- Carry out additional function tests, **5.1**
- Reassemble remaining parts in reverse order

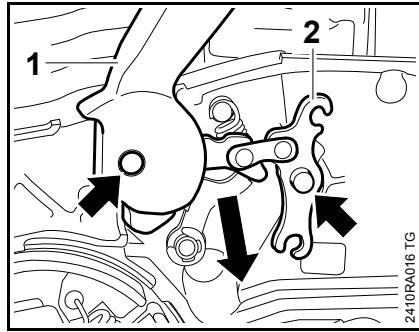


- Push out circlip (1)

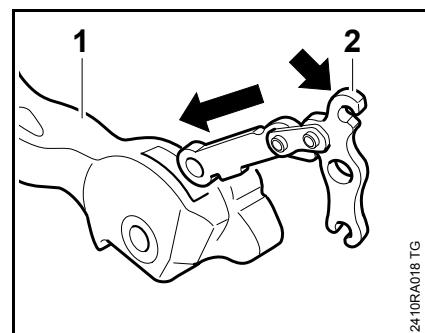
- Examine pins and replace if necessary, **5.6**
- Check cam on hand guard, replace hand guard if necessary

Installation

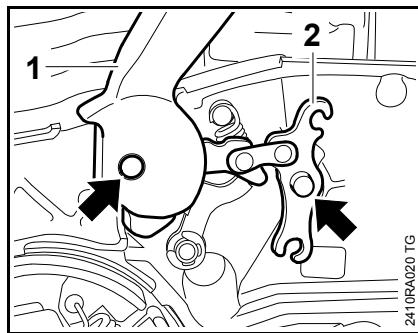
- Clean pins and disassembled parts, **16**
- Grease pins, **16**



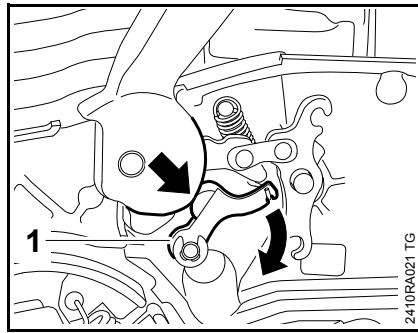
- Draw hand guard (1) and brake lever (2) off the anchor pins (arrows) simultaneously
- Take out hand guard and brake lever
- Examine cam lever and replace if necessary, **5.5**



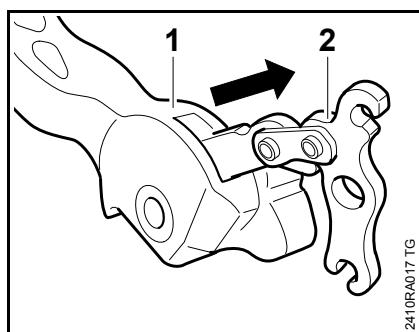
- Position brake lever (2) so that mount for brake spring (arrow) is at the top
- Slide brake lever (2) into recess in hand guard (1) until the holes are lined up



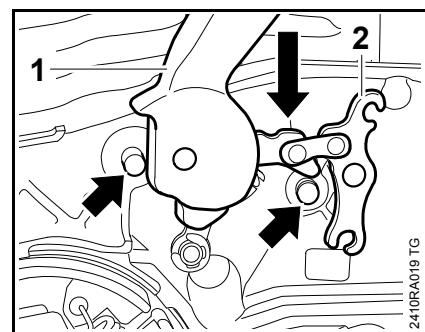
- Slightly lift up bearing eye of the hand guard (1) and brake lever (2) and guide the parts over the anchor pins (arrows)



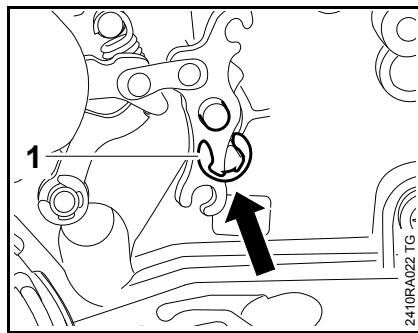
- Turn cam lever (1) slightly aside until cam of hand guard (arrow) slides past
- Press bearing eye of hand guard and brake lever onto the anchor pins



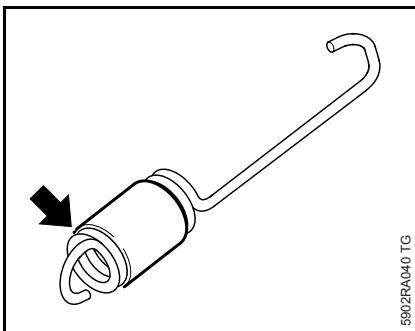
- Pull brake lever (2) out of hand guard (1)



- Slide hand guard (1) with brake lever (2) across the machine until it rests against the anchor pins (arrows)

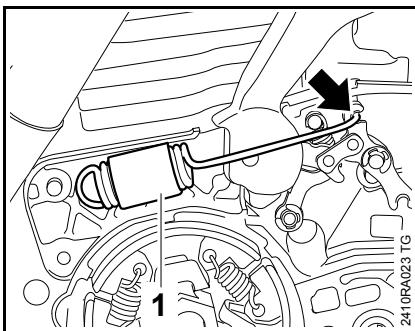


- Push circlip (1) into place

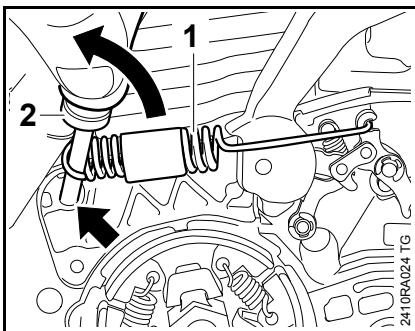


The turns of the brake spring must be tightly spaced when not installed; use a new brake spring if necessary.

- Position the protective tube so that it starts after the second turn (arrow)
- The pin for the brake spring must be replaced if it shows signs of wear at the groove, **5.6**

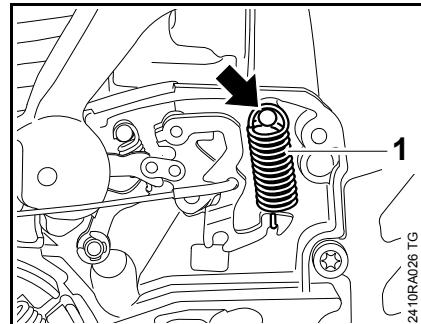


- Hook brake spring (1) into brake lever (arrow)

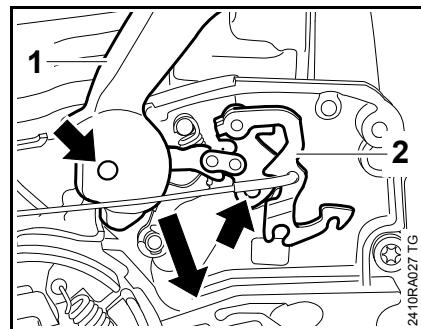


- Use the assembly tool (2) 1117 890 0900 to attach the brake spring (1) to the anchor pin (arrow)
- Grease brake lever, cam lever and hand guard motion link, **16**
- Reassemble remaining parts in reverse order

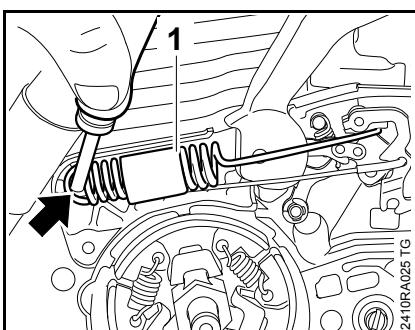
- Unhook and remove the brake spring at the brake lever



- Unhook brake spring (1) from anchor pin (arrow)
- Unhook and remove the brake spring (1) at the brake lever



- Draw hand guard (1) and brake lever (2) off the anchor pins (arrows) simultaneously
- Take out hand guard and brake lever



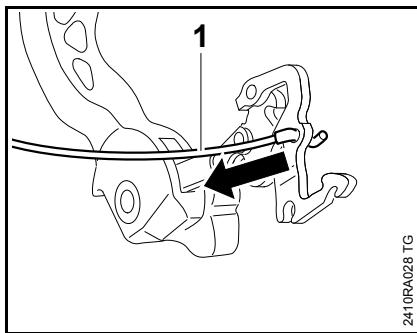
- Block chain brake

The brake spring is now relaxed.

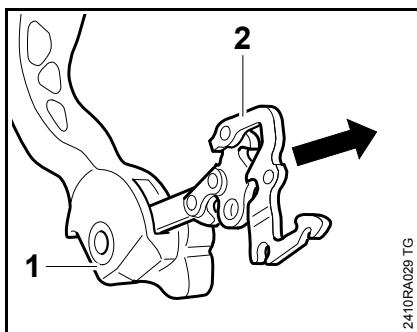
- Use the assembly tool 1117 890 0900 to unhook the brake spring (1) at the anchor pin (arrow)

Installation

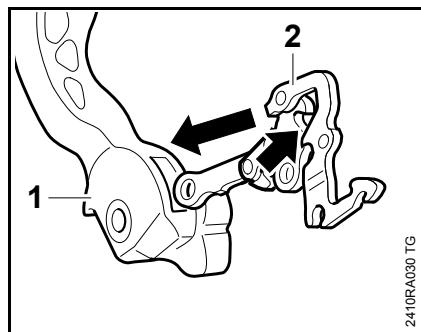
- Clean pins and disassembled parts, **16**
- Grease pins, **16**



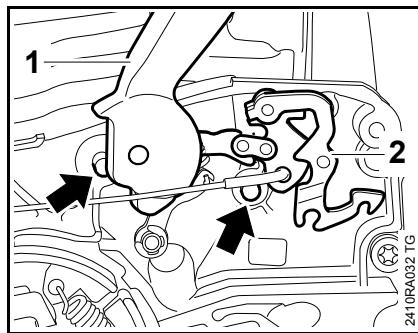
- Disconnect brake cable (1)



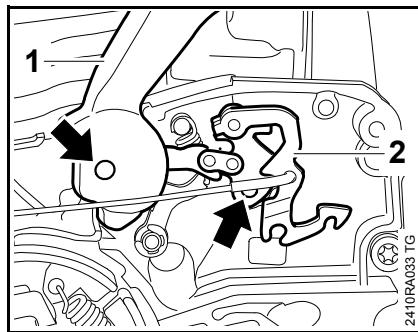
- Pull brake lever (2) out of hand guard (1)
- Examine cam lever and replace if necessary, **5.5**
- Examine pins and replace if necessary, **5.6**
- Check cam on hand guard, replace hand guard if necessary



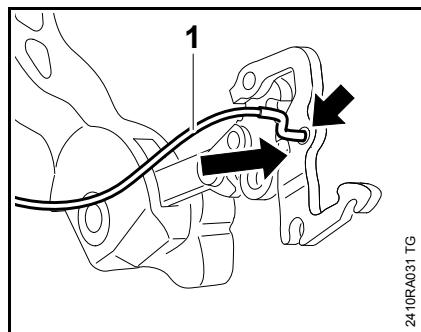
- Position brake lever (2) so that mount for brake spring (arrow) is at the top
- Slide brake lever (2) into recess in hand guard (1) until the holes are lined up



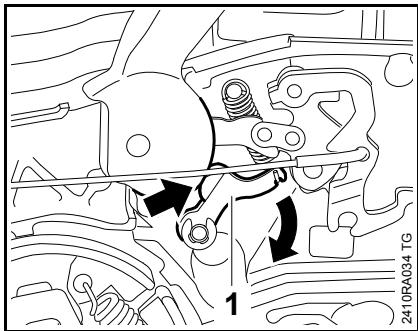
- Slide hand guard (1) with brake lever (2) across the machine until it rests against the anchor pins (arrows)



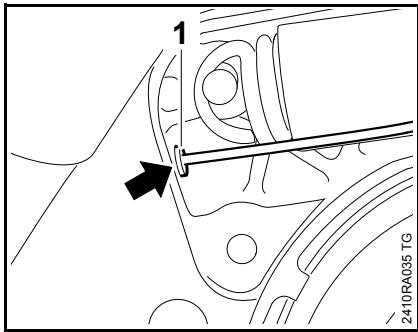
- Slightly lift up bearing eye of the hand guard (1) and brake lever (2) and guide the parts over the anchor pins (arrows)



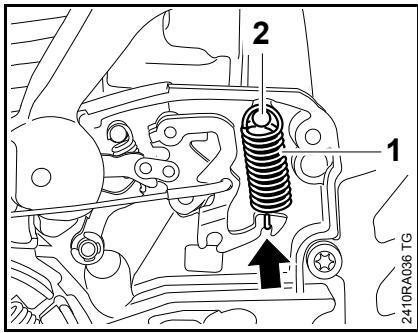
- Attach brake cable (1) to hole (arrow) in brake lever



- Turn cam lever (1) aside until cam of hand guard (arrow) slides past
- Press bearing eye of hand guard and brake lever onto the anchor pins

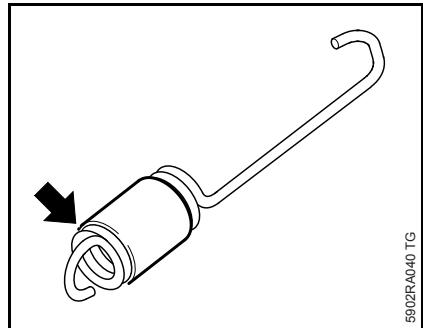


- Check seat of the sleeve (1) at the brake cable, push completely into the hole in the housing (arrow) if necessary



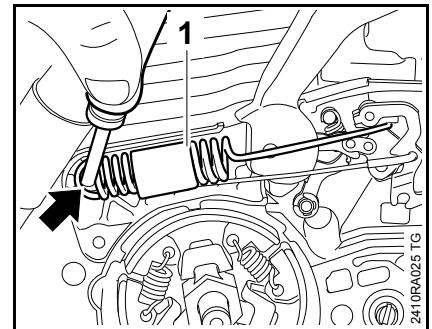
- Hook brake spring (1) into the brake lever so that the opening of the anchor loop (arrow) is visible

- Attach brake spring (1) to anchor pin (2)



The turns of the brake spring must be tightly spaced when not installed; use a new brake spring if necessary.

- Position the protective tube so that it starts after the second turn (arrow)
- The pin for the brake spring must be replaced if it shows signs of wear at the groove, **5.6**



- Use the assembly tool 1117 890 0900 to hook the brake spring (1) onto the anchor pin (arrow)

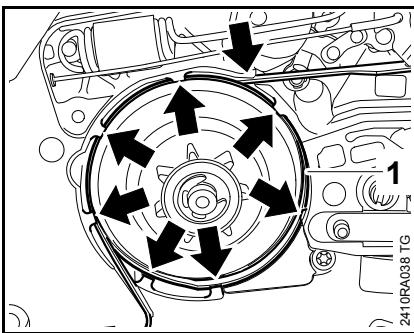
- Grease brake lever, cam lever and hand guard motion link, **16**
- Adjust brake cable, **5.4.1**
- Reassemble remaining parts in reverse order

5.4.1 Adjusting brake cable

If the coasting brake does not operate properly although the brake band is intact, it may be necessary to adjust the brake cable.

- Troubleshooting, **3.2**
- Check condition and play
- Remove chain brake cover, **5.2**

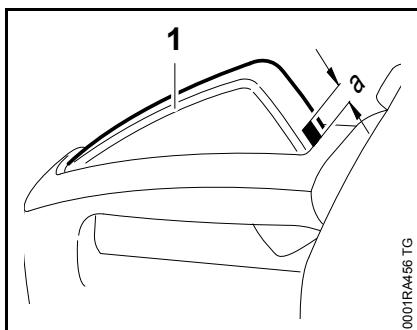
When the trigger interlock is not pressed, the brake cable must be without tension.



- Press and hold the trigger interlock down completely

Brake band (1) must rest against the crankcase (arrows) without play and the clutch drum must rotate freely.

- Release trigger interlock



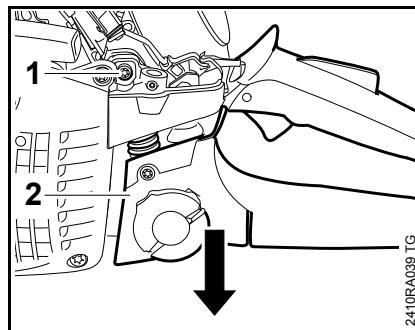
- Press trigger interlock (1) gently to check the play
 - The play must not exceed the mark (a)

Play: is equal to the distance traveled by the trigger interlock (1) without causing the brake lever to move at the same time.

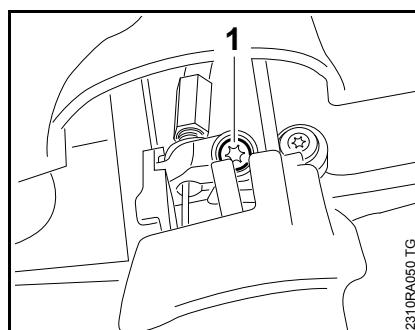
Play is necessary to ensure trouble free functioning of the coasting brake.

- Troubleshooting, 3.2

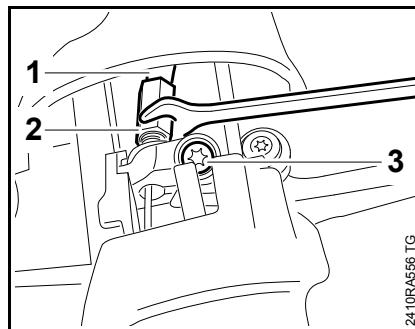
Adjust brake cable



- Remove screw (1)
- Lower tank housing (2)



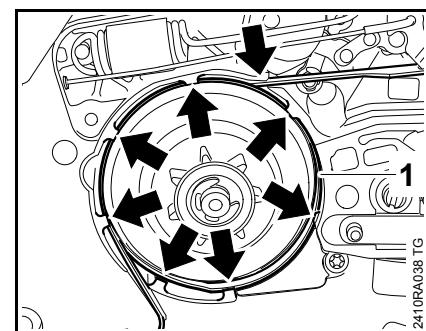
- Loosen clamping screw (1) on the support for the brake cable



The sleeve (1) must be seated on the adjusting screw (2) as far as it will go.

- Position open-end wrench SW 6 on the adjusting screw (2) and adjust play

- Screw in adjusting screw (2)
 - Play increases
- Unscrew adjusting screw (2)
 - Play decreases
- Once play is adjusted correctly, tighten clamping screw (3)



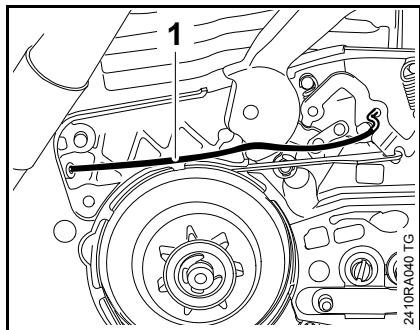
- Press and hold the trigger interlock down completely

Brake band (1) must rest against the crankcase (arrows) without play and the clutch drum must rotate freely.

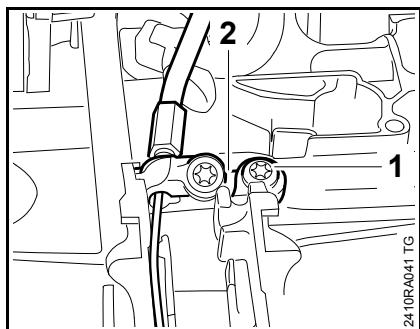
- Reassemble remaining parts in reverse order

5.4.2 Brake cable Removal and installation

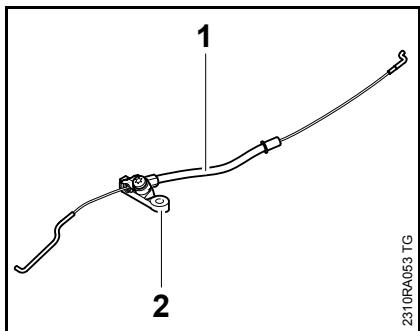
- Unhook brake spring, [5.4](#)
- Remove QuickStop Super throttle trigger, [11.3](#)
- Remove QuickStop Super trigger switch, [11.3.1](#)



- Pull brake cable (1) out slightly and disconnect it
- Loosen tank housing and lower it, [13.11.2](#)
- Do not overextend fuel hose

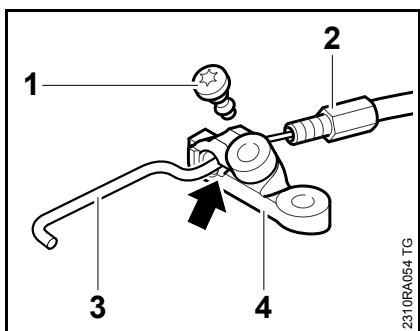


- Remove screw (1)
- Remove support (2) with brake cable



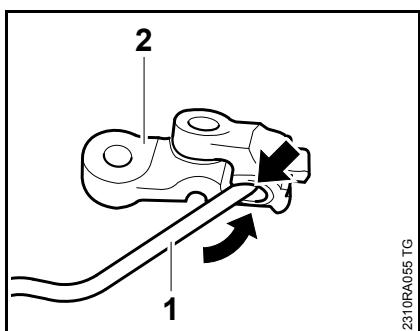
- Examine brake cable (1) and support (2), replace if necessary

Dismantle brake cable and support



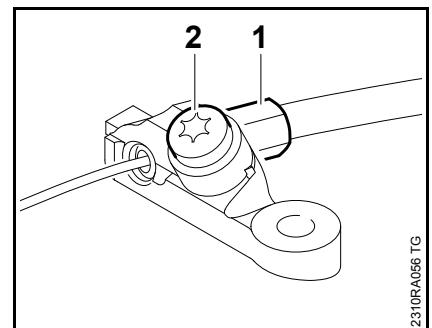
- Unscrew clamping screw (1) and adjusting screw (2)
- Turn hook (3) so that the angled part is at the opening (arrow) and twist it out of the support (4)

Installation

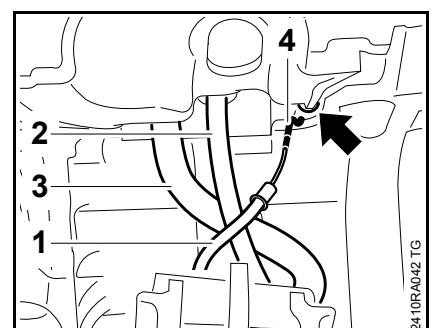


- Turn hook (1) so that it runs along the support (2) and push it into the hole (arrow)

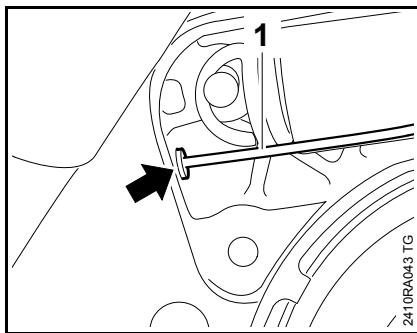
- Push hook (1) through the support (2) with a gentle twisting motion



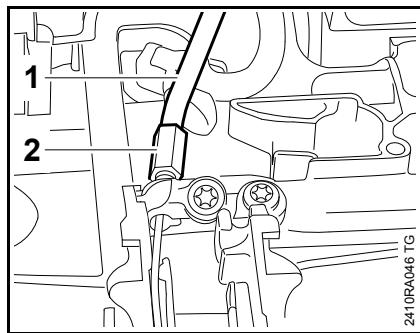
- Turn adjusting screw (1) until the distance between the hexagon of the adjusting screw and the holder is 2 mm
- Screw in the clamping screw (2) and tighten



- Guide the brake cable (1) over fuel hose (3) or, in versions with manual fuel pump, over the fuel hose (3) and fuel return line (2)
- Push brake cable (1) with short hook (4) in front through the hole (arrow) in the crankcase

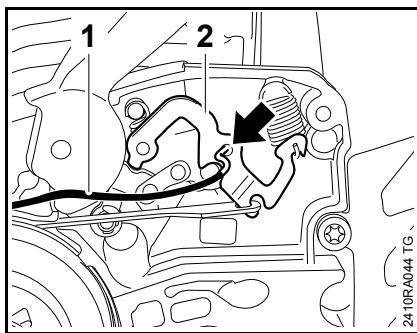


- Push brake cable (1) with sleeve into the hole in the housing (arrow) as far as it will go

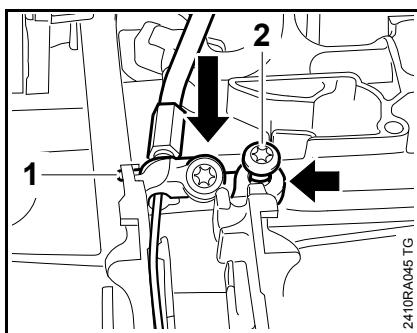


When raising the tank housing, make certain that the sleeve (1) is pushed completely into the adjusting screw (2) – incomplete insertion of the sleeve changes the setting of the brake cable.

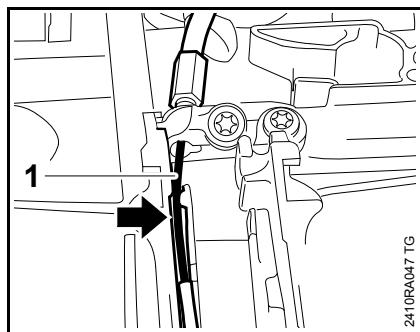
- Check position of the fuel hose and correct it if necessary, **13.11.2**
- Check position of the fuel return line and correct it if necessary, **13.11.3**
- Raise and fasten the tank housing, **13.11.2**



- Hook brake cable (1) into hole (arrow) in brake lever (2)



- Press brake cable holder with the pin (1) through the opening and into the mount (arrow)
- Screw in the screw (2) and tighten it



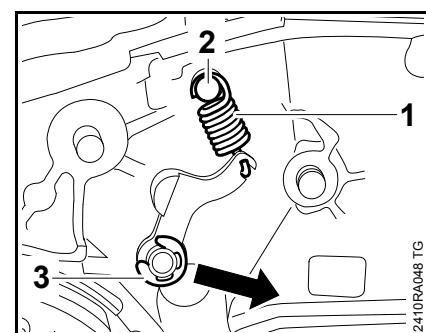
- Insert brake cable (1) in guide (arrow)
- Install QuickStop Super trigger switch, **11.3.1**
- Install QuickStop Super throttle trigger, **11.3**

- Reassemble remaining parts in reverse order
- Adjust brake cable and check operation, **5.4.1**

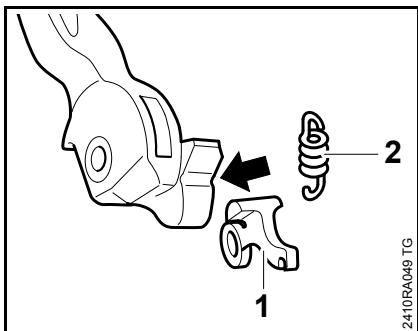
5.5 Cam lever

The cam lever defines the engaged position of the hand guard.

- Remove brake lever, **5.3**, QuickStop Super, **5.4**



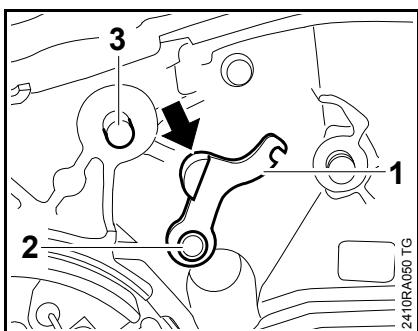
- Unhook the brake spring (1) from the anchor pin (2)
- Unhook and remove the brake spring (1) at the cam lever
- Push out circlip (3)
- Remove cam lever



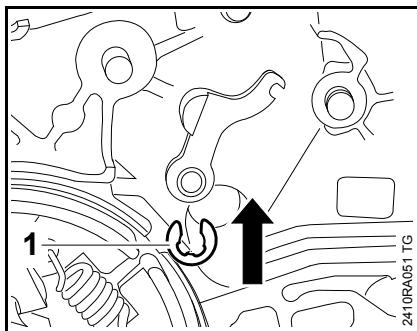
- Examine cam lever (1) and brake spring (2) and replace if necessary
- Check condition of cam guide (arrow) and replace hand guard if necessary
- Examine all pins and replace if necessary,
 5.6

Installation

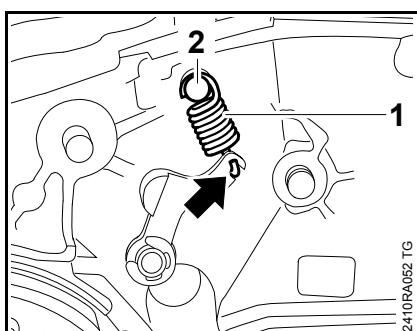
- Clean pins and disassembled parts,
 16
- Grease pins,
 16



- Orient cam lever (1) so that the cam (arrow) faces the pin (3)
- Slide cam lever (1) onto anchor pin (2)



- Push circlip (1) into place



- Hook brake spring (1) into the brake lever so that the opening of the anchor loop (arrow) is visible
- Hook brake spring (1) onto pin (2)
- Grease cam lever,
 16

The cam lever is not yet tensioned – the spring may become detached again.

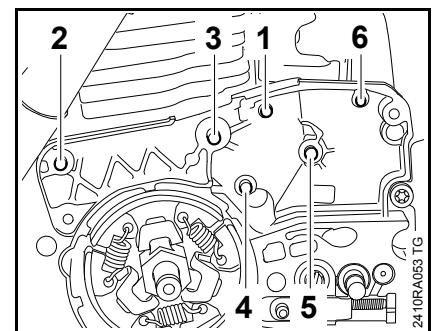
- Reassemble remaining parts in reverse order

5.6 Pins

The pins ensure that the springs are securely mounted. They must therefore be replaced when worn, otherwise the springs may pop out.

The pins must be driven in square.

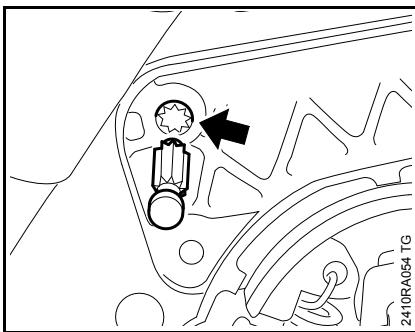
For reasons of simplicity, the parts connected to the pins have already been removed in the following illustrations.



- Remove pins (1) through (6)

Item 6 is present only in the version with QuickStop Super.

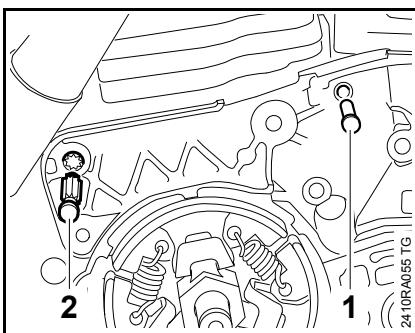
Installation



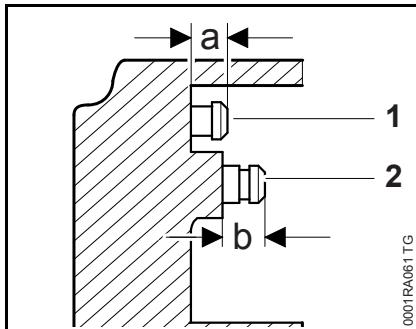
- Coat the knurled area of the new pin with Loctite before fitting the pin, **16**
- The pin must be inserted in the hole (arrow) so that the knurling on the pin engages the knurled profile

Turn the pin back and forth slightly until it fits.

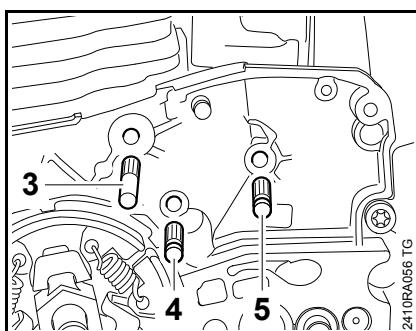
The pins must be driven in square.



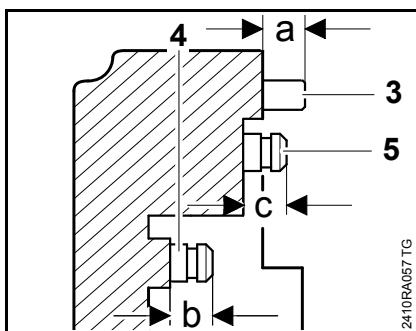
- Drive in pins (1) and (2) in accordance with the following information



- Pin (1) a = approx. 2.9...3.3 mm
Pin (2) b = approx. 4.3...4.7 mm

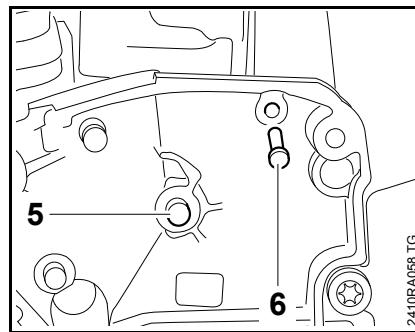


- Drive in anchor pins (3), (4) and (5) in accordance with the following information

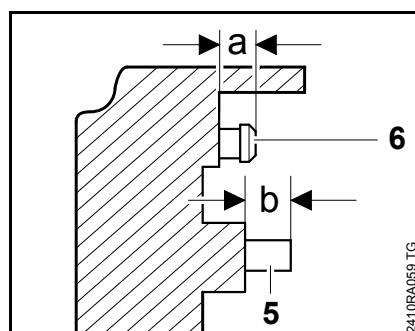


- Pin (3) a = approx. 8.9...9.1 mm
Pin (4) b = approx. 4.6...4.8 mm
Pin (5) c = approx. 5.1...5.3 mm

Machines with QuickStop Super



- Drive in anchor pins (5) and (6) in accordance with the following information

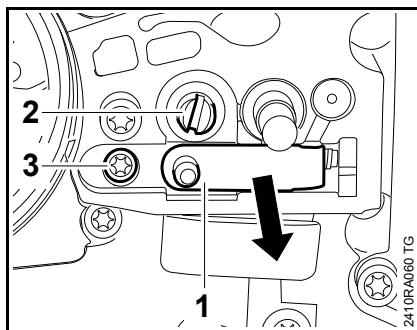


- Pin (5) b = approx. 5.1...5.3 mm
Pin (6) a = approx. 2.9...3.3 mm

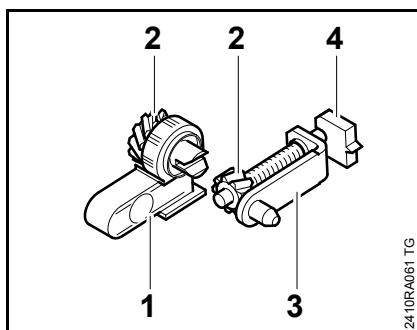
- Reassemble remaining parts in reverse order
- Grease brake and cam levers, **16**

5.7 Chain tensioner

- Troubleshooting, **3.2**



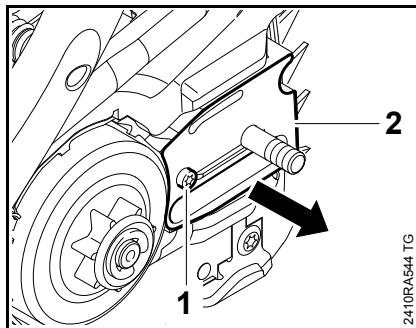
- Turn the spur gear (2) clockwise until the tensioner slide (1) makes contact on the right and the screw (3) is revealed
- Remove screw (3)
- Remove spur gear (2) and tensioner slide (1)



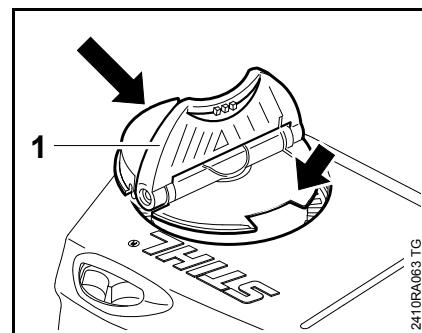
- Examine the cover (1), spur gear kit (2), tensioner slide (3) and thrust pad (4) and replace if necessary
- Clean all disassembled parts, **16**
- Coat the threads and gear wheels with STIHL multi-purpose grease, **16**
- Reassemble parts in reverse order

5.7.1 Quick chain tensioner

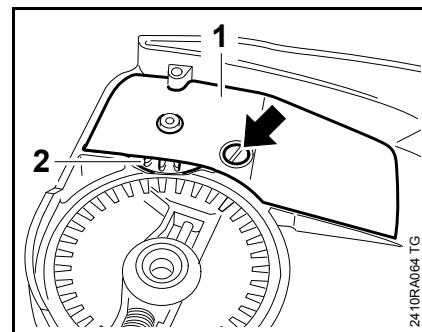
The quick chain tensioner is built into the chain sprocket cover.



- Unscrew screw (1) and remove side plate (2), remove Loctite residue if necessary
 - Examine side plate, replace if necessary
 - Coat screw with Loctite before insertion, **16**
 - Install parts in reverse order

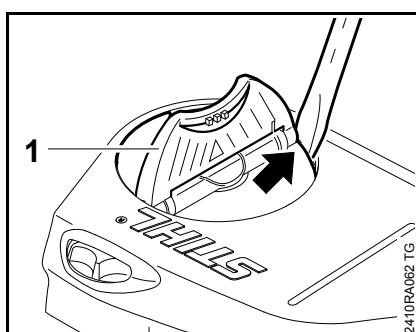


- Fold out wing nut (1)
- Push wing nut (1) into the opening thin side (arrow) first, then press it in until it snaps into place



- Remove the screw (arrow)
- Remove cover plate (1) and adjusting wheel (2)

When installing the adjusting wheel, make certain that the teeth face the cover plate

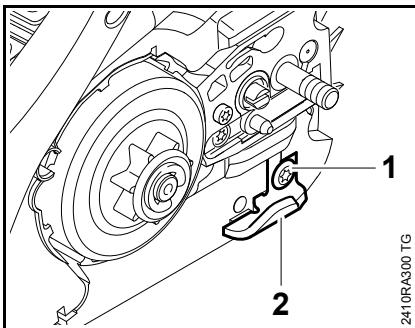


- Carefully pry out wing nut (1) at the side (arrow)
- Check wing nut (1) and replace if necessary

- Reassemble the parts in reverse order

5.7.2 Chain catcher

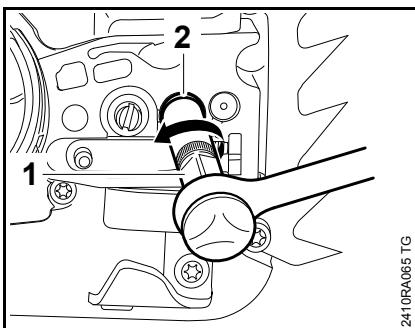
- Remove the chain sprocket cover



- Remove screw (1) and pull out chain catcher (2) under the bumper strip
- Reassemble parts in reverse order

5.8 Bar mounting stud

- Remove the chain sprocket cover



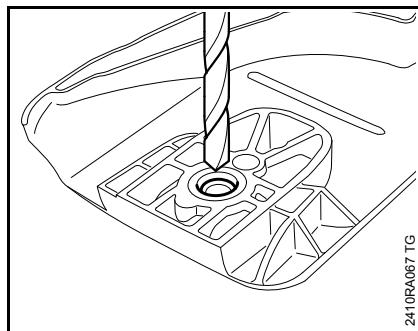
- Push stud driver (1) 5910 893 0501 onto the stud (2) as far as it will go and unscrew counterclockwise
- Coat stud with Loctite, screw in and tighten, 16

- Reassemble remaining parts in reverse order

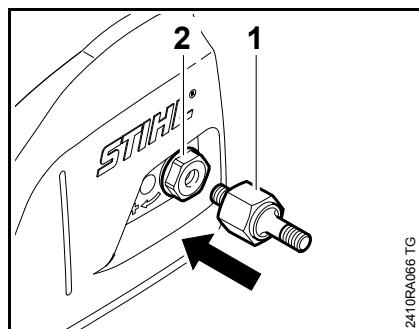
5.9 Collar nut for chain sprocket cover

This chain sprocket cover can only be used on the MS 241. It cannot be retrofitted to other models. The length and shape of the stud must be appropriate for the chain sprocket cover with captive nut.

The special tool stud 5910 893 9600 is available for replacing the nut.

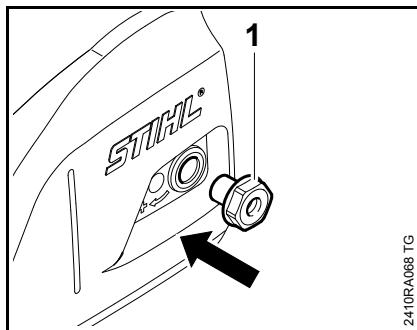


- Flip over the chain sprocket cover and clamp the assembly tool into a vise by the hexagon
- Drill out the collar nut with an 11 mm diameter drill bit – the base in the chain sprocket cover must not be drilled out
- Pull out the collar nut
- Unscrew the assembly tool from the collar nut



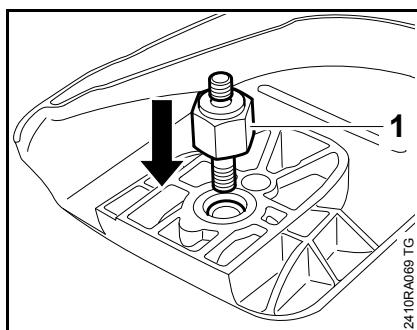
- Remove the chain sprocket cover
- Screw the assembly tool (1) 5910 893 9600 with the short stud into the collar nut (2) as far as it will go

Installation



2410RA068 TG

- Push in new collar nut (1)



2410RA069 TG

- Hold the hexagon of the collar nut in place
- Screw the assembly tool (1) 5910 893 9600 with the long stud into the opposite side of the collar nut as far as it will go

Now the new collar nut has been flanged and secured in the chain sprocket cover.

- Reassemble remaining parts in reverse order

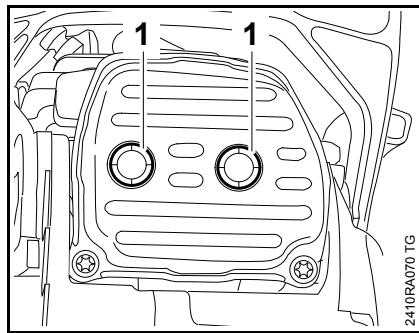
6. Engine

6.1 Muffler

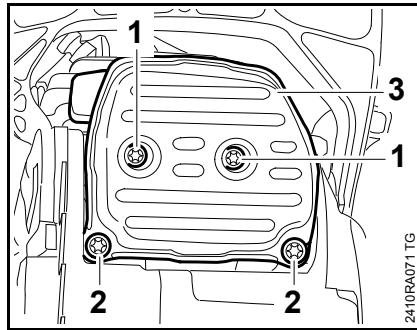
Check and if necessary repair the fuel supply, carburetor, air filter and ignition system before looking for faults on the engine.

- Troubleshooting, **3.7**
- Remove shroud, **6.4**

To keep dirt particles from entering the cylinder, move piston to top dead center before removing the muffler.



- Pry out the stoppers (1) around the circumference at the markings
– Do not reuse dismantled stoppers

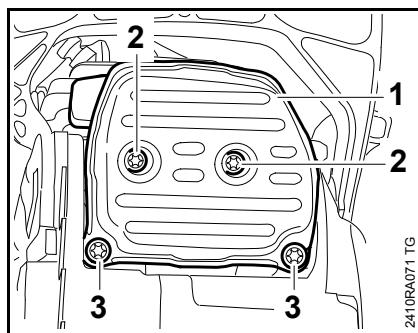


- Remove screws (1) and (2)
- Take out and examine the muffler (3), replace if necessary
- Remove exhaust gasket
– always use a new exhaust gasket

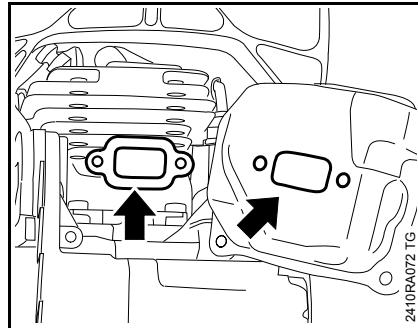
- Remove and install spark arresting screen, if present, see Instruction Manual

Installation

- Cover exhaust bore and remove any fouling on the cylinder and exhaust bore

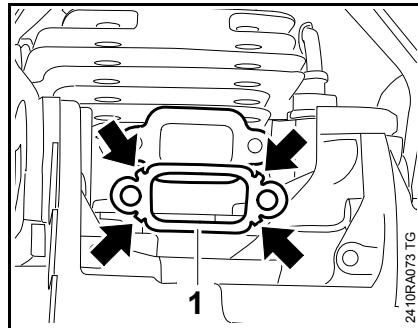


- Carefully fit the muffler (1)
- Fit screws (2) and check that gasket is correctly positioned
- Insert screws (3) – do not tighten
- First tighten screws (2), then tighten screws (3)
- Press in new stoppers evenly and straight around the circumference with a blunt tool – do not insert them on a slant or damage them



- Examine and clean the mating surfaces (arrows), remove any gasket residues if necessary – there must not be any gasket residues or dirt particles in the exhaust bore

Parts with damaged mating surfaces must be replaced.



- Orient the exhaust gasket (1) so that the tabs (arrows) face towards the cylinder
- Fit the exhaust gasket (1) and orient it with the tabs (arrows) on the connector of the cylinder

6.2 Leak testing

Defective oil seals and gaskets or cracks in housing 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.

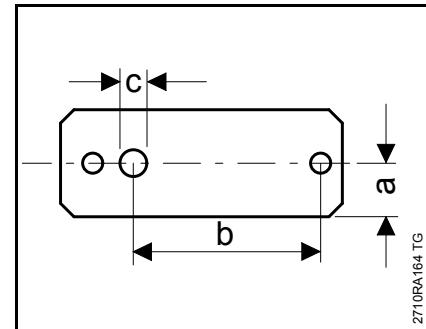
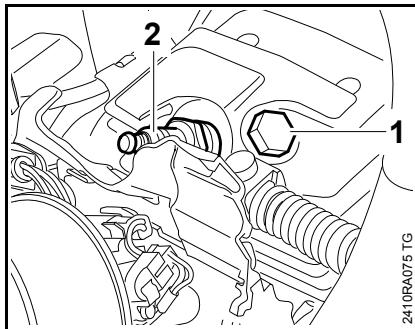
Moreover, the transition from idle speed to part or full throttle is not smooth.

Always start with the vacuum test and then continue with the pressure test.

The engine can be thoroughly checked for leaks under vacuum and at gauge pressure using the pump 0000 850 1300.

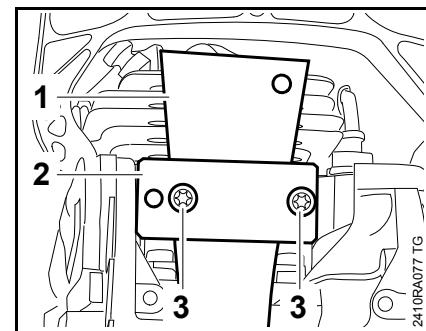
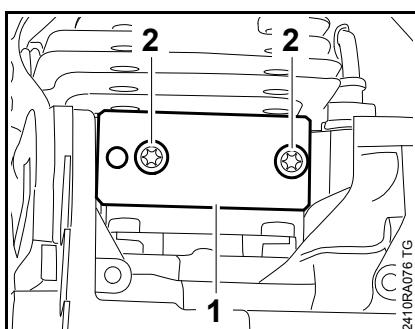
6.2.1 Preparations

- Remove shroud, [6.4](#)
- Take off the spark plug boot and remove the spark plug
- Set the piston to the top dead center (this can be checked through the spark plug hole)
- Remove the decompression valve, [6.9](#)



The flange (1) 4224 893 2501 can be reworked as shown.

$a = 13 \text{ mm}$
 $b = 39.25 \text{ mm}$
 $c = 6 \text{ mm}$

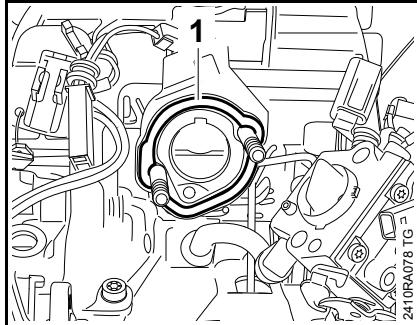


- Position flange (1) 5910 855 4201 on cylinder exhaust port
- Screw in screws (2)
– do not tighten

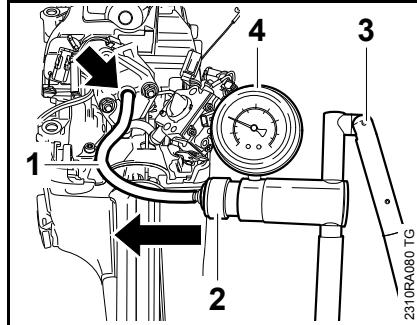
- Tighten screws (3) lightly

The sealing plate must fill the full width between the screws.

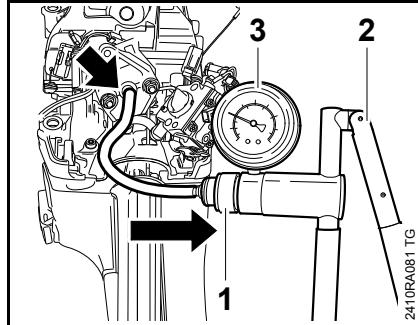
- Carefully pull out the carburetor over the studs and lay it aside
– Do not overextend fuel hose, [8.4](#)



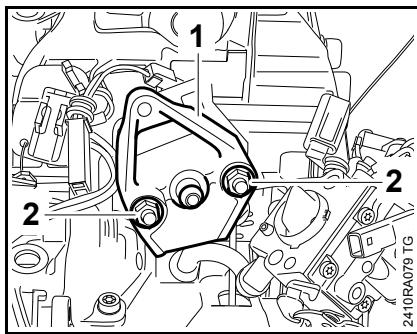
- Washer (1) must be fitted



- Push the hose (1) of pump 0000 850 1300 onto the connector (arrow)



- Slide 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 crankcase is airtight
 - If the pressure drops, the leak must be located and the defective part replaced



- Orient flange (1) 1118 850 4200 and push it onto the studs
- Fit flange (1) 1118 850 4200
- Tightly screw on nuts (2)

6.2.2 Vacuum test

Oil seals tend to fail when subjected to a vacuum. In other words, the sealing lip lifts away from the crankshaft during the piston's induction stroke because there is no internal counterpressure.

This kind of fault can be detected by testing with pump 0000 850 1300.

If the vacuum reading remains constant, or does not decrease by more than 0.3 bar within 20 seconds, it may be assumed that the oil seals are in good condition. If the vacuum in the crankcase is reduced further, the oil seals must be replaced, **6.3.**

- After testing, slide the ring on the pump back to the right to vent the pump.
- Continue with pressure test, **6.2.3.**

6.2.3 Pressure test

The same preparatory steps are required as for the vacuum test, **6.2.2.**

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

- After testing, slide the ring on the pump to the left to vent the pump
– disconnect the hose
- Remove flange 1118 850 4200 on intake elbow
- Refit carburetor, **8.4**
- Remove flange 5910 855 4201 and sealing plate 0000 855 8106
- Refit the muffler, **6.1**
- Press in new stoppers straight with a blunt tool
– Do not damage stoppers
- Reassemble remaining parts in reverse order

6.3 Oil seals

It is not necessary to dismantle the complete engine if only the oil seals need to be replaced.

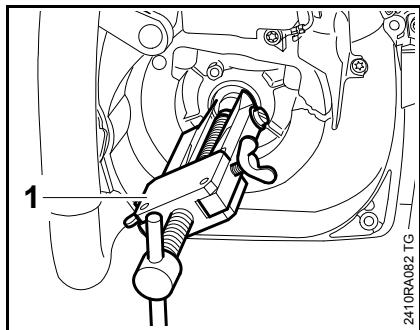
Pull out oil seals using puller 5910 890 4400 and jaws (profile no. 6) 0000 893 3711.

6.3.1 Ignition side

- Remove fan housing, **9.2**
- Remove the flywheel, **7.6**

Versions with heating

- Unscrew screws, remove generator and set it aside, **14.7**

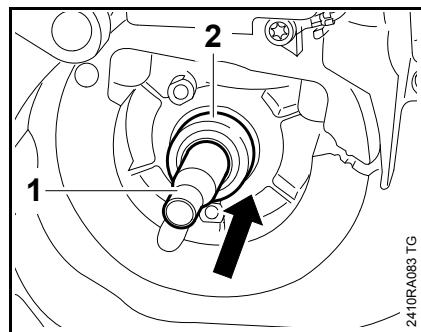


Avoid damage to the crankshaft stub.

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

Installation

- Clean the mating surface, **16**
- Grease the sealing lips of the new oil seal, **16**

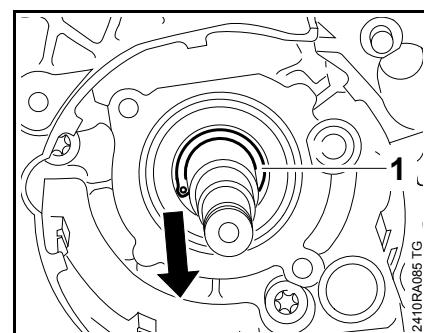


- Fit the installing sleeve (1) 1141 893 4600
- Slide the oil seal (2) over the installing sleeve with the sealing lip facing the crankcase
- Remove the installing sleeve (1)

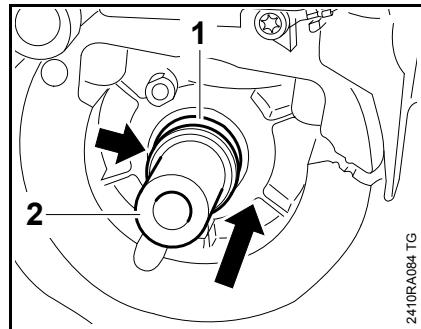
- Clean the cone of the crankshaft to ensure it is completely grease-free, **16**
- Reassemble remaining parts in reverse order

6.3.2 Clutch side

- Remove the clutch, **4.2**
- Remove oil pump, **12.3**

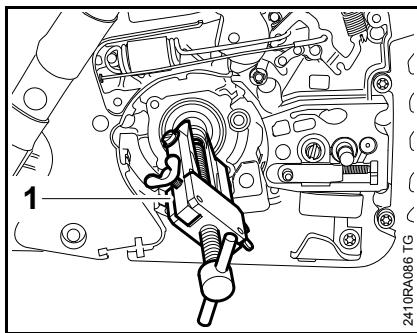


- Remove the circlip (1)



- Orient press sleeve (2) 1143 893 2400 with the collar (arrow) facing the engine
- Use the press sleeve (2) 1143 893 2400 to install the oil seal (1)

The seating face must be flat and free from burrs.

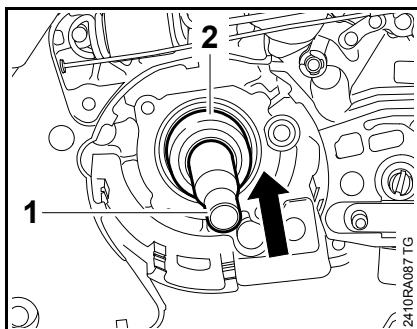


Avoid damage to the crankshaft stub.

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

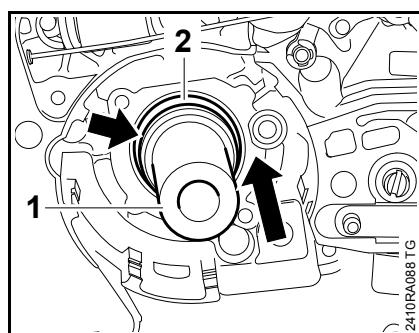
Installation

- Clean the mating surface, 16
- Grease the sealing lips of the new oil seal, 16



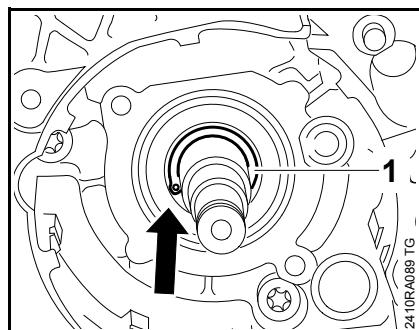
- Fit the installing sleeve (1) 1141 893 4600
- Slide the oil seal (2) over the installing sleeve with the sealing lip facing the crankcase

- Remove the installing sleeve (1)



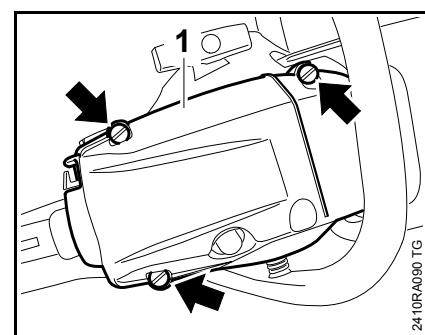
- Orient press sleeve (1) 1118 893 2401 with the collar (arrow) facing the engine
- Use the press sleeve (1) 1118 893 2401 to install the oil seal (2)

The seating face must be flat and free from burrs.

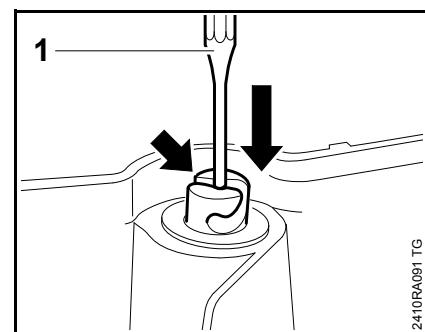


- Fit the circlip (1)
- Reassemble remaining parts in reverse order

6.4 Shroud

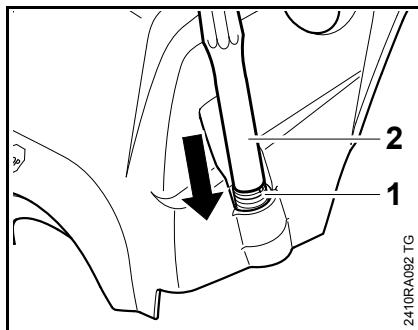


- Release quick release locks (arrows)
 - Using the combination wrench, turn 1/4 turn counterclockwise
- Remove the shroud (1)



- Push out cap (arrow) with drift (1)

Installation



- Push in cap (1) with drift (2)
- Reassemble remaining parts in reverse order

6.5 Cylinder

Before removing the cylinder, decide whether or not the crankshaft is to be removed.

With cylinder installed

The crankshaft must be prevented from twisting by blocking the piston through the spark plug hole in order to remove the flywheel and clutch.

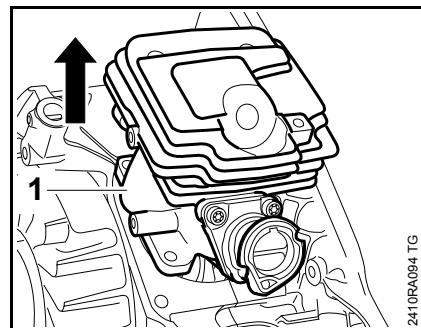
With cylinder removed

The crankshaft is blocked by placing the piston on the wooden assembly block in order to remove the flywheel and clutch.

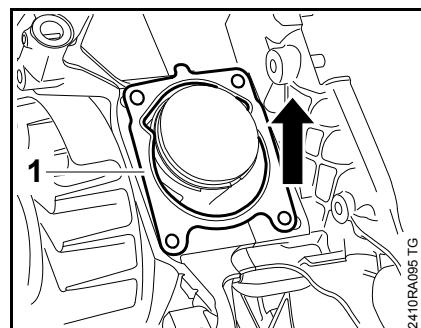
- Remove shroud, 6.4
- Take off the spark plug boot and remove the spark plug, 4
- Remove fan housing, 9.2
- Remove short circuit wire, 7.7.2
- Remove the control unit, 7.3
- Remove filter base, 13.3

– Remove the carburetor, 13.5

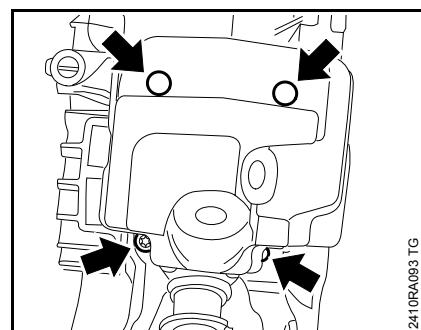
- Remove carburetor support, 13.8
- Remove air guide shroud, 13.4, versions with manual fuel pump 13.4.1, versions with heating 13.4.2
- Remove the muffler, 6.1
- Remove the decompression valve, 6.9
 - not for version with ErgoStart
- Remove the front handle, 10.4
 - not for version with heating
- Remove antivibration spring on front handle, 10.3.1
 - not for version with heating



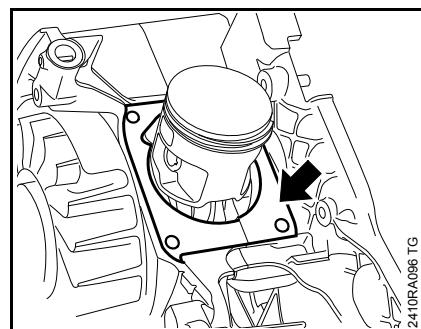
- Carefully pull off the cylinder (1)



- Remove the cylinder gasket (1)

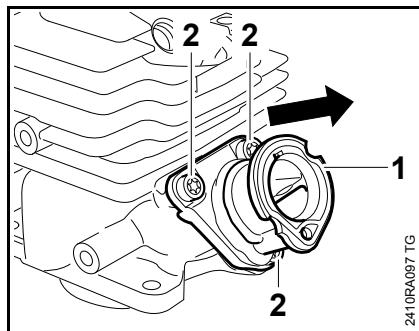


- Take out the screws (arrows)

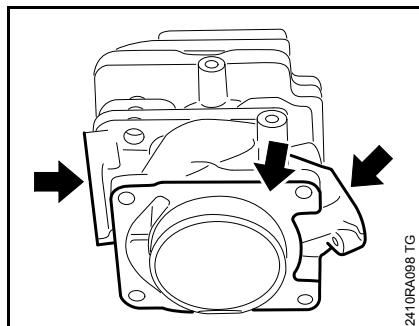


- Examine and clean the mating surface (arrow), 16

The mating surface must be in perfect condition and without any damage whatsoever. Parts with damaged mating surfaces must be replaced, 3.7.



- Examine the intake elbow (1), replace if necessary. Engine operation may be impaired even by the slightest damage, **3.7**
- Remove screws (2)
- Remove intake elbow (1)

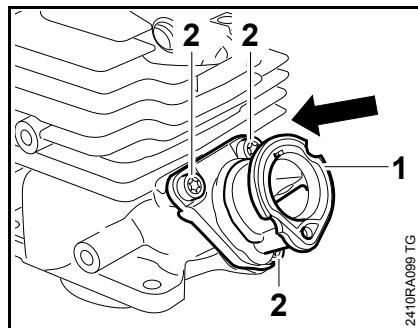


- Examine and clean the mating surfaces (arrows), and remove any gasket residues, **16**
 - Clean mating surface on intake elbow, **16**

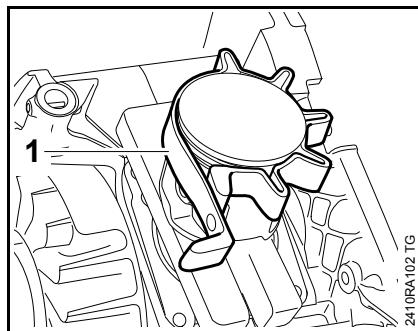
The mating surfaces must be in perfect condition and without any damage whatsoever. A new cylinder must be used if the mating surfaces are damaged.

Always use a new cylinder gasket after removing the cylinder.

Installation

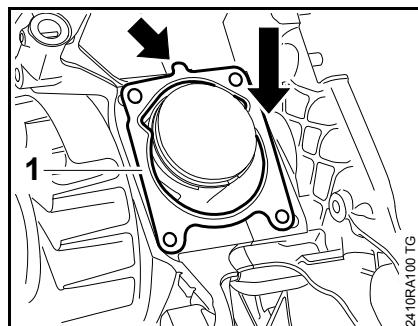


- Position intake elbow (1)
- Insert and tighten down the screws (2)

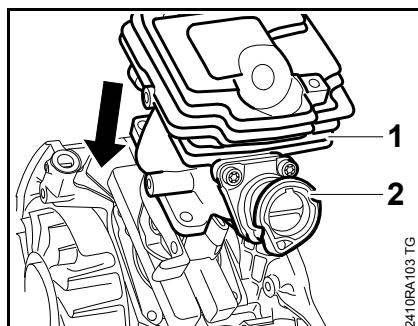


- Coat piston, piston rings and inside of cylinder with oil, **16**
- Fit clamping strap (1) 0000 893 2600 around piston and piston rings
- Ensure that piston rings are correctly positioned, **6.8**

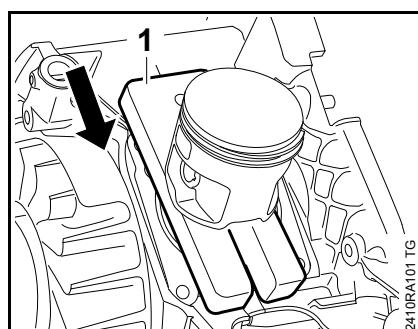
The clamping strap (1) must be fitted in such a way that the piston rings do not protrude beyond the piston sides.



- Guide new cylinder gasket (1) over the piston so that the tab (arrow) faces the spiked bumper



- Orient cylinder (1) so that the intake elbow (2) faces the control handle

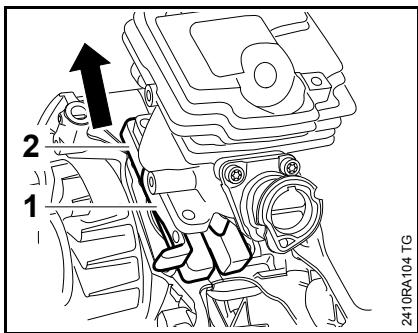


- Place wooden assembly block (1) 1108 893 4800 between piston and crankcase

Avoid damage to the cylinder gasket.

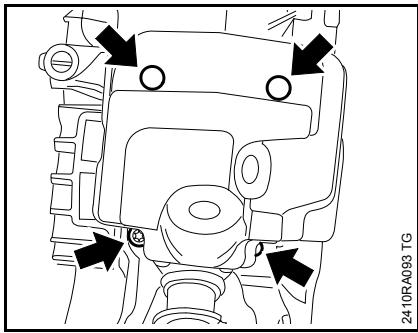
When fitting the cylinder over the piston, ensure that the clamping strap securely encloses the piston and that none of the piston rings protrudes
– danger of breakage.

- Slide cylinder over piston; the clamping strap is removed at the same time



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

Make certain that the cylinder gasket is oriented according to the holes.



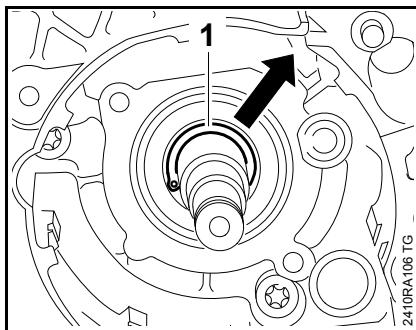
- Push cylinder home as far as possible
- Fit screws (arrows) and secure cylinder with gasket
- Tighten down the screws through the holes (arrows) crosswise
- Reassemble remaining parts in reverse order

6.6 Crankshaft

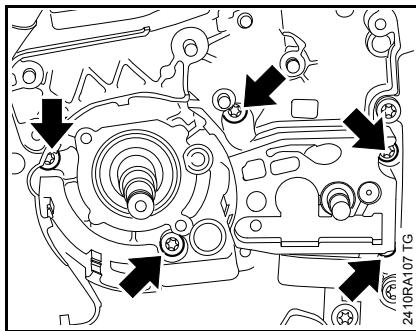
- Drain fuel tank and oil tank, **1.1**
- Remove brake band, **5.2**
- Remove oil pump, **12.3**
- Remove oil suction hose, **12.2**
- Remove brake lever, **5.3**
QuickStop Super, **5.4**
- Remove the front handle, **10.4**
Version with heating, **10.4.1**
- Remove the tank housing, **13.11.5**
- Remove the flywheel, **7.6**
- Version with handle heating
Remove generator, **14.7**
- Remove the cylinder, **6.5**
- Remove piston, **6.7**
- Remove spiked bumper

Always fit new ball bearings and oil seals when removing the crankshaft, **6.6.1** and **6.3**.

Clutch side half of crankcase

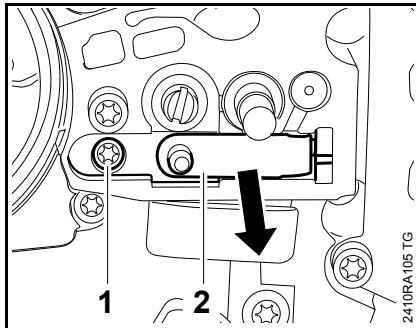


- Remove the circlip (1)

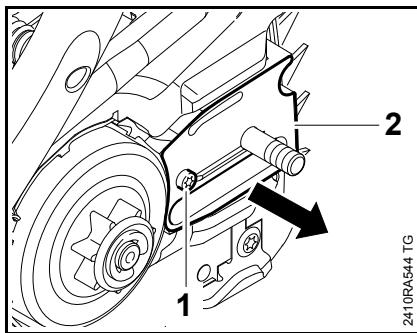


The tools from the assembly tool kit 5910 007 2205 are used for removal and installation.

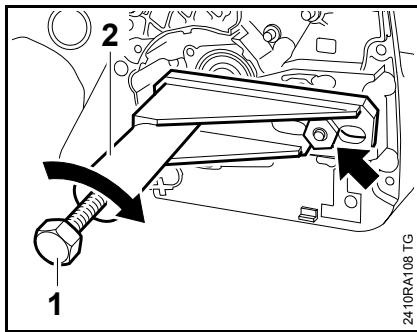
- Take out the screws (arrows)



- Remove screws (1) and pull out chain tensioner (2)



- Unscrew screw (1), remove Loctite residue from the threaded hole if necessary
- On versions with quick chain tensioner, remove side plate (2)

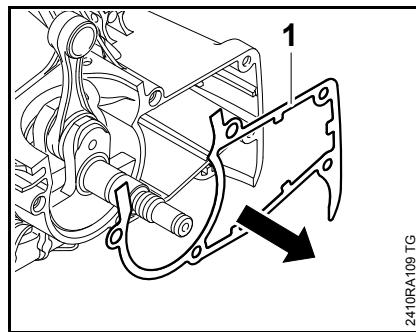


- Unscrew spindle (1) until it no longer rests on the crankshaft stub
- Push assembly tool (2) from kit 5910 007 2205 onto the stud (arrow), twist on and tighten the nut
- Turn spindle (1) clockwise until the crankshaft stub has been forced out of the ball bearing

The clutch-side half of the crankcase is pulled off in this way and the two halves of the crankcase separated.

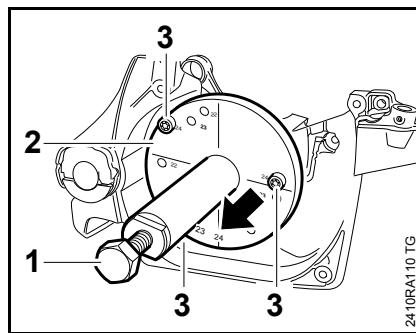
- Replace ball bearings and oil seals, [6.6.1](#) and [6.3](#)

Ignition side half of crankcase



- Align the assembly tool (1) with the disk (2) 5910 893 2103 against the ignition-side half of the crankcase so that the edge number "24" (arrow) is at the bottom
- Insert three M5 x 72 screws (3) through the holes marked "24" and screw them as far as possible into the crankcase half

- Remove the gasket (1)



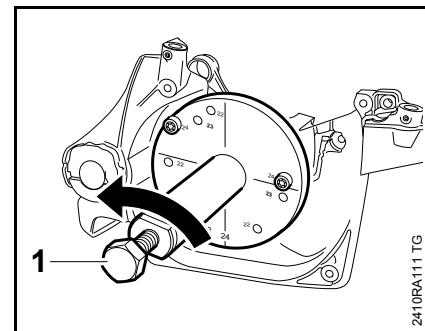
The tools from the assembly tool kit 5910 007 2201 are used for removal and installation.

- Use disk 5910 893 2103

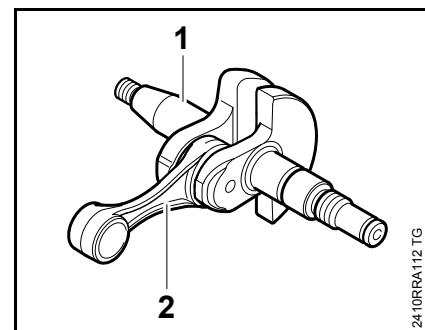
The assembly tool kit 5910 007 2201 can be expanded with the disk 5910 893 2103.

The new assembly tool kit 5910 007 2201 contains all three disks.

- Adjust the spindle (1) of the assembly tool so that the disk (2) rests against the half of the crankcase
- Left-hand thread



- Turn the spindle (1) counter-clockwise until the crankshaft has been forced out of the ignition-side half of the crankcase



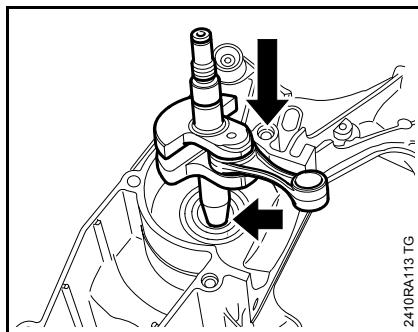
- Check the two halves of the crankcase and the grooved ball bearing, replace if necessary, [6.6.1](#)
- Before installation, clean the crankshaft, [16](#)

Installation

Ignition side half of crankcase

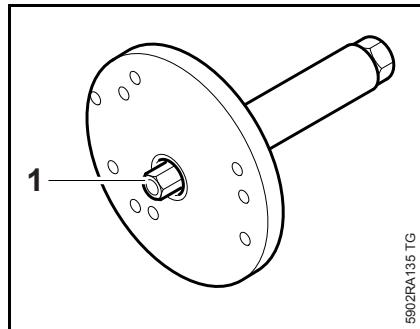
Avoid damage to the crankshaft stub.

Examine and clean the mating surfaces of the ignition-side half of the crankcase (including the cylinder sealing surface) – the sealing face must not display any signs of damage,  16.



- Orient the crankshaft with the conical crankshaft stub (arrow) facing the ignition-side ball bearing
 - Wear protective gloves
– risk of burns
 - Heat only the inner race of the ball bearing to approx. 150 °C (300 °F)
- Press crankshaft stub fully home

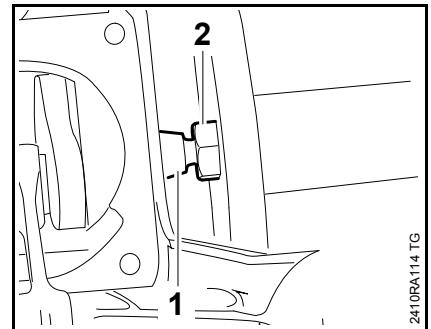
The crankshaft must be fitted rapidly, as the heat is transmitted to the crankshaft stub and the inner bearing race contracts.



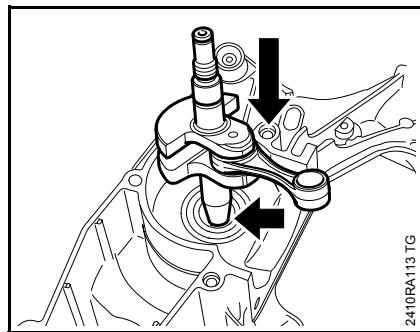
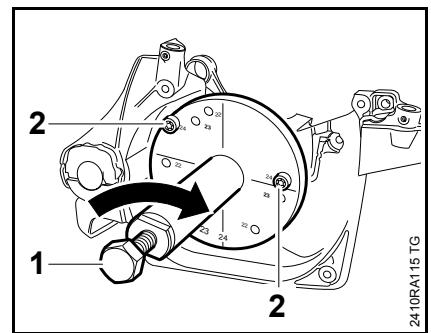
If the inner race cannot be heated, the crankshaft can be drawn into the crankcase with the assembly tool 5910 007 2201.

– Use disk 5910 893 2103.

- Screw the threaded sleeve (1) 5910 893 2420 onto the completely screwed in spindle as far as it will go
- Coat the tapered crankshaft stub with oil.

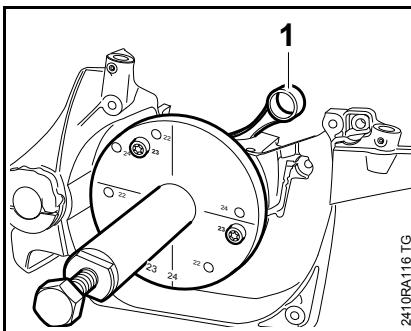


- Fit the screw sleeve (2) over the thread of the conical crankshaft stub (1) and screw it on



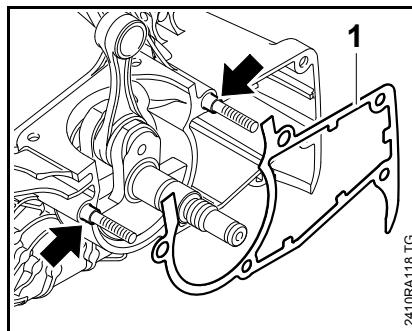
- Align the crankshaft with the conical crankshaft stub (arrow) facing the ignition-side ball bearing and push it home

- By turning the spindle screw (1), position disk 5910 893 2103 against the ignition-side half of the crankcase and orient it so that the edge number "24" is at the bottom
- Insert M5x72 screws (2) through the holes marked "24"
 - anti-twist device
- Turn the spindle screw (1) clockwise
- Draw the ignition-side half of the crankcase in as far as possible



The crankshaft also turns when it is drawn in with the installing tool. For this reason, ensure that the rod eye (1) always faces upwards towards the cylinder.

- Remove the installing tool

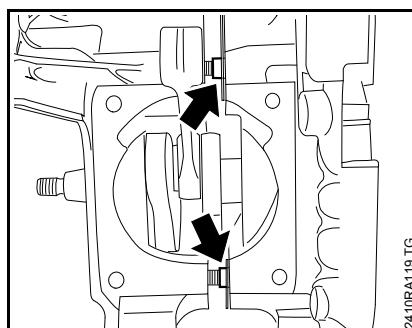


- Fit a new gasket (1) and secure it at the guide sleeves (arrows)
- Coat the cylindrical crankshaft stub with oil

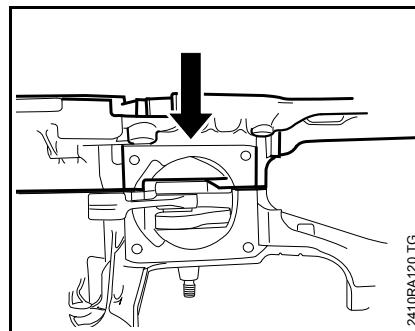
Clutch side half of crankcase

Avoid damage to the crankshaft stub.

Examine and clean the mating surfaces of the clutch-side half of the crankcase (including the cylinder sealing surface) – the sealing face must not display any signs of damage, 16.



Ensure that the guide sleeves (arrows) line up with the holes and that the housing gasket is not jammed or buckled.



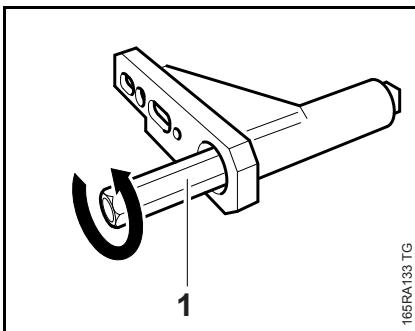
- Wear protective gloves
– risk of burns
- Heat only the inner race of the ball bearing to approx. 150 °C (300 °F)
- Align the crankcase half with the cylindrical crankshaft stub and the two screws and position it
- Push the crankcase home until it makes contact

The crankcase must be fitted rapidly, as the heat is transmitted to the crankshaft stub and the inner bearing race contracts

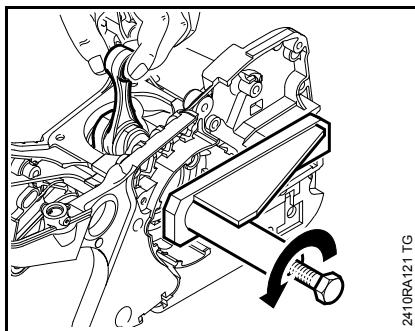
- Screw two screws (arrows) M5x72 into the holes on the ignition side
 - for guidance and to prevent twisting

If it is not possible to heat the inner race, the crankcase half is drawn in with the assembly tool from kit 5910 007 2205.

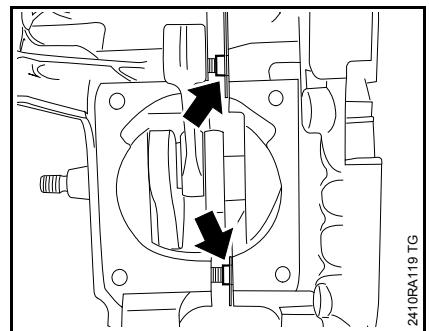
- Coat the cylindrical crankshaft stub with oil
- Align the crankcase half with the cylindrical crankshaft stub and the two screws and position it



- By turning it, screw the spindle completely into the assembly tool
- Screw the threaded sleeve (1) 5910 893 2409 onto the spindle as far as it will go
 - Left-hand thread

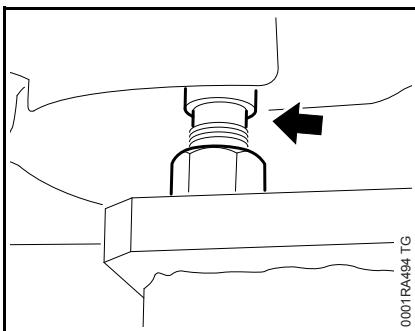


- Hold crankshaft steady and screw threaded sleeve onto thread of crankshaft stub by turning the spindle counterclockwise
 - Release crankshaft and hold assembly tool steady and continue turning the spindle until the assembly tool rests against the crankcase half.
 - Screw nut onto the stud and tighten it by hand

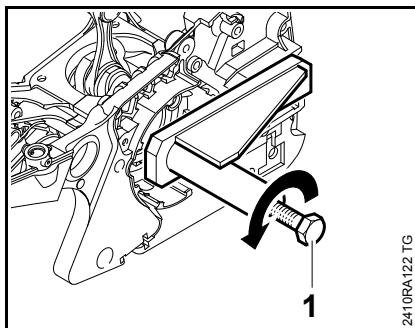


Ensure that the guide sleeves (arrows) line up with the holes and that the housing gasket is not jammed or buckled.

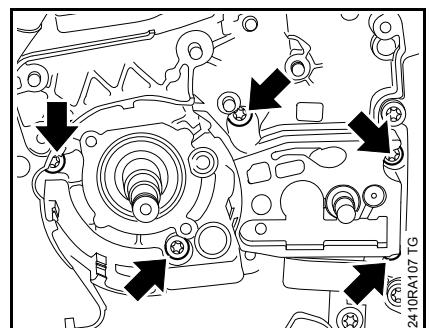
- Continue turning the spindle of the assembly tool until the gap between the halves of the crankcase is closed
- Unscrew nuts
- Turn the spindle clockwise to remove the assembly tool
- Remove the two M5x72 screws which were fitted to prevent twisting



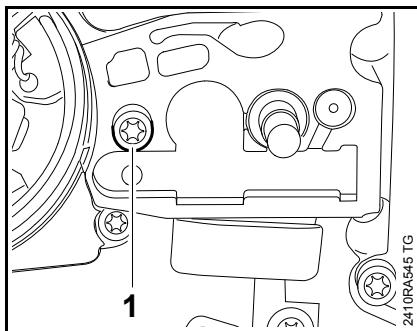
- Fit threaded sleeve on crankshaft stub (arrow) and push assembly tool over the studs



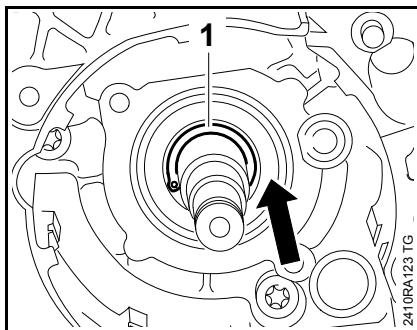
- Turn spindle (1) counterclockwise until the crankcase half rests against the guide sleeves



- Insert the screws (arrows) and tighten them down crosswise



- For versions with quick chain tensioner, fit side plate
- Coat screw (1) with Loctite, screw in and tighten, **16**



- Fit the circlip (1)
- Examine and install the piston, **6.7**
- Examine and install the cylinder, **6.5**
- Install chain tensioner, **5.7**
- Reassemble remaining parts in reverse order

6.6.1 Ball bearing / crankcase

The two halves of the crankcase can be replaced individually if they are defective.

New crankcases are delivered with the relevant components pre-assembled
– see spare parts list

Those parts which are not supplied with the new crankcase must be removed from the old crankcase, examined and replaced if necessary.

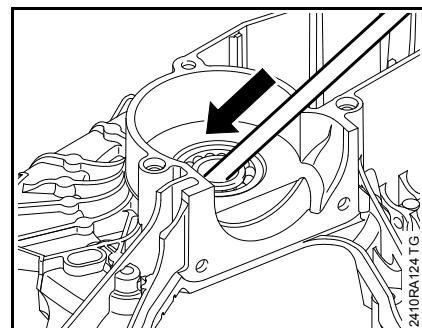
When fitting a new crankcase, the machine's serial number must be stamped on the crankcase with 2.5 mm figure stamps.

If the original crankcase is reused, the oil seals and grooved ball bearings must be replaced, all gasket residues removed and the mating surfaces cleaned thoroughly. The mating surfaces must be absolutely flawless and clean to guarantee a perfect seal, **16**.

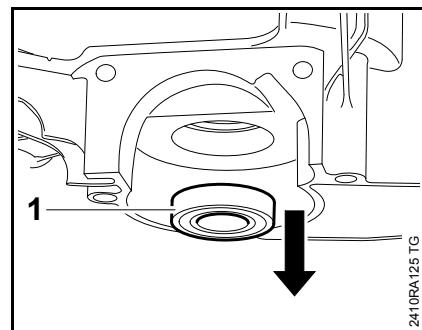
Examine both halves of the crankcase for cracks and check all mating surfaces for signs of damage.

- Refer also to troubleshooting, **3.7**
- Remove crankshaft, **6.6**
- Wear protective gloves
– risk of burns

Ignition-side half of the crankcase



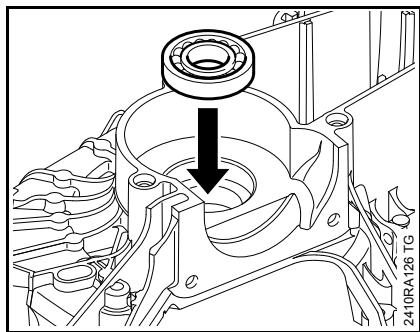
- Carefully drive the oil seal out with a punch
- Examine and clean the crankcase, replace if necessary.
- Replace ball bearings if the crankcase is in good condition



- Heat the bearing seat of the ball bearing to approx. 150 °C (300 °F)

The bearing (1) drops out of its own accord when this temperature is reached.

Installation

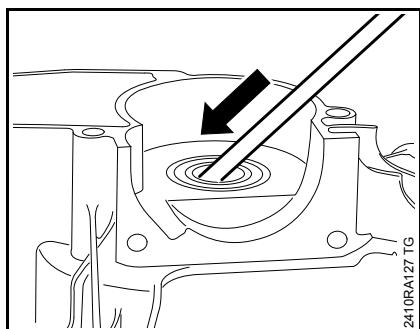


- Heat the bearing seat of the ball bearing to approx. 150 °C (300 °F)
- Position ball bearing so that the open side (balls visible) faces the inside of the crankcase
- Press the grooved ball bearing home as far as possible

The ball bearing must be fitted rapidly, as it absorbs heat and expands.

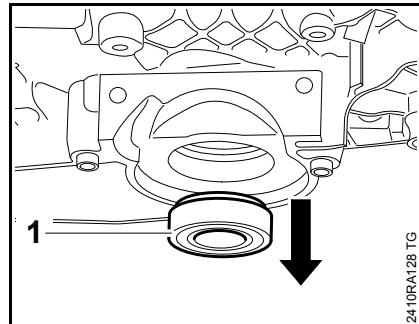
- Check seat of ball bearing, if necessary, use press arbor 1118 893 7200 to press the ball bearing fully home in the ball bearing seat

Clutch-side half of the crankcase



- Carefully drive the oil seal out with a punch
- Examine and clean the crankcase, replace if necessary.

- Replace ball bearings if the crankcase is in good condition



- Heat the bearing seat of the ball bearing to approx. 150 °C (300 °F)

The bearing (1) drops out of its own accord when this temperature is reached.

Installation

- Because the clutch side half of the crankcase does not have a fixed bearing seat, the oil pump must be removed beforehand
- The oil pump serves as a reference

- Install oil pump, [12.3](#)

The ball bearing must be fitted rapidly, as it absorbs heat and expands.

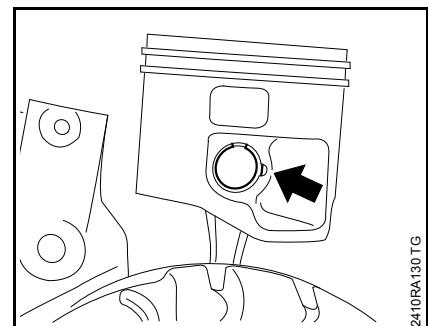
- Check seat of ball bearing, if necessary, use press arbor 1118 893 7200 to carefully press the ball bearing fully home until it rests against the oil pump
- Remove oil pump, [12.3](#)
- Install crankshaft, [6.6](#)
- Install the oil seals, [6.3](#)
- Reassemble remaining parts in reverse order

6.7 Piston

Before removing the cylinder, decide whether the crankshaft is to be removed, [6.6](#)

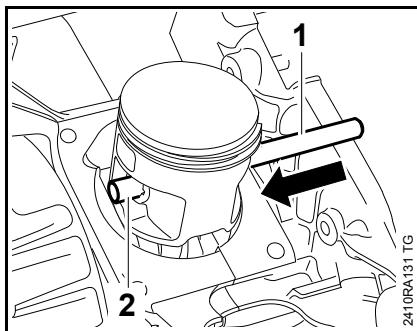
- Remove the cylinder, [6.5](#)

The clutch side snap ring is not removed.



- Pry the hookless snap ring out of the recess (arrow) on the ignition side with a suitable tool

- Heat the bearing seat of the ball bearing to approx. 150 °C (300 °F)
- Position ball bearing so that the centering ring (arrow) points towards the oil pump
- Press ball bearing fully home (oil pump)



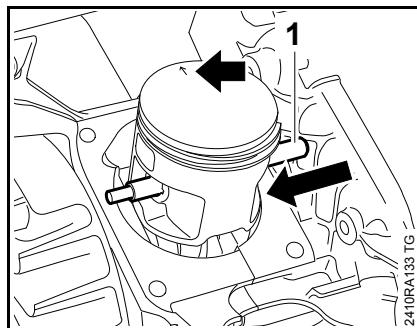
- Push assembly drift (1) 1110 893 4700 through the installed snap ring
- Push the piston pin (2) out of the piston with the assembly drift (1) 1110 893 4700

If the piston pin is stuck, tap the end of the drift gently with a hammer to loosen it.

The piston must be held steady during this process to ensure that jolts are not transmitted to the connecting rod.

- Remove the piston
- Examine the piston rings and replace if necessary, [6.8](#)

Installation

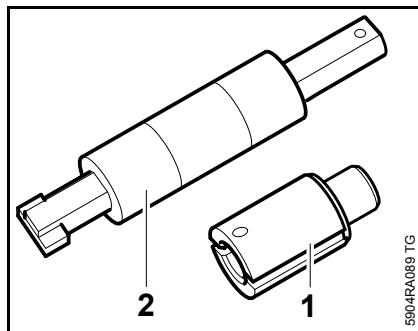


- Coat needle bearing with oil and slide it into the rod eye

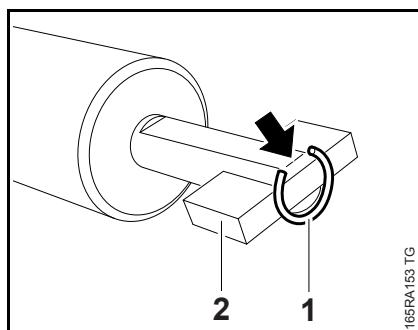
Line up the piston so that the arrow (arrow) in the piston base points towards the spiked bumper (exhaust port)

The assembly drift can be inserted through the fitted snap ring.

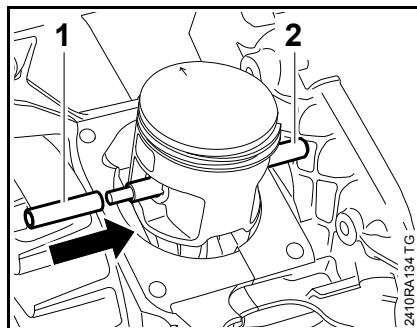
- Position the piston on the rod eye
- Push assembly drift (1) 1110 893 4700 with the stub end first through piston hole and rod eye (needle cage) and secure the piston



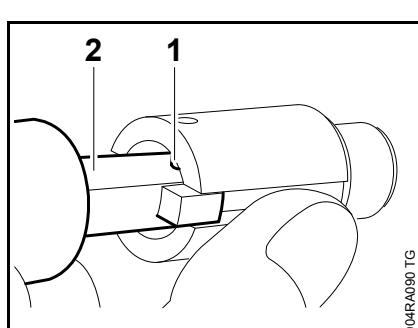
- Remove the sleeve (1) 5910 893 1707 from the installing tool (2) 5910 890 2210



- Attach the snap ring (1) to the magnet (2) and align it so that the snap ring gap is on the flat side (arrow)

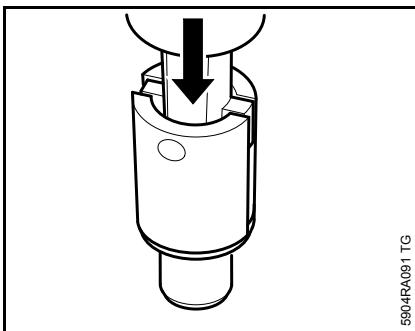


- Coat the piston pin (1) with oil
- Fit the piston pin (1) on the stub of the assembly drift (2) and slide it into the piston

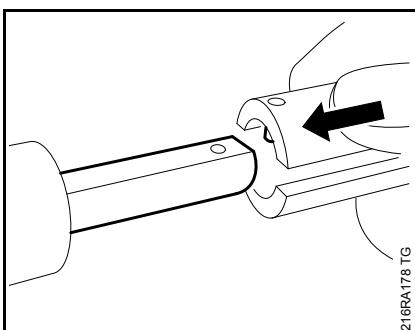


- Push the slotted opening of the sleeve over the magnet and snap ring

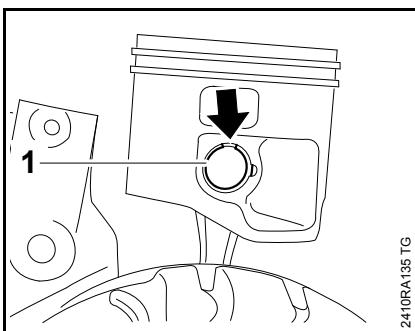
The inner pin (1) must point towards the flat face of the tool's shank (2).



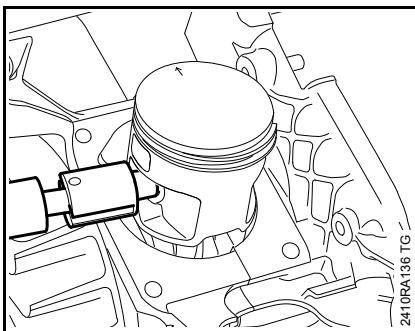
Press the assembly tool down in the sleeve until the magnet is at the end of the guide slits.



- Remove sleeve and fit it over the opposite shaft end of the assembly tool, with the internal pin pointing towards the flat surface.

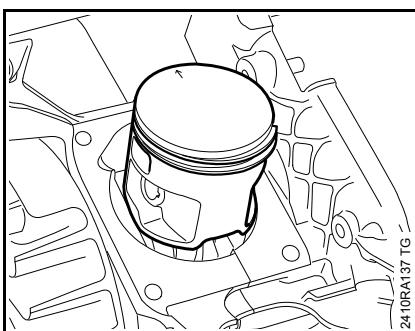


The snap ring (1) must be fitted so that the gap in the ring (arrow) points upwards in axial direction of the piston.



- Position the installing tool 5910 890 2210 with the taper sleeve on the piston boss, hold the piston steady and press the tool shank home until the snap ring slips into the groove

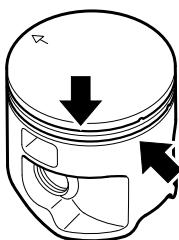
The tool must be precisely aligned in axial direction of the piston pin.



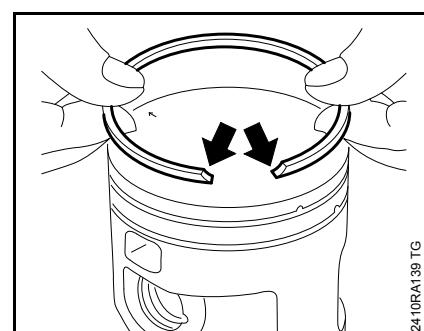
- Examine the piston rings and replace if necessary, **6.8**
- Install the cylinder, **6.5**
- Reassemble remaining parts in reverse order

6.8 Piston rings

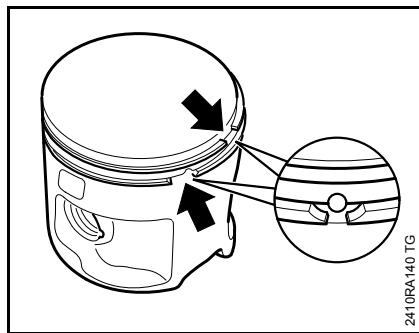
- Remove piston, **6.7**
- Remove piston rings from piston



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

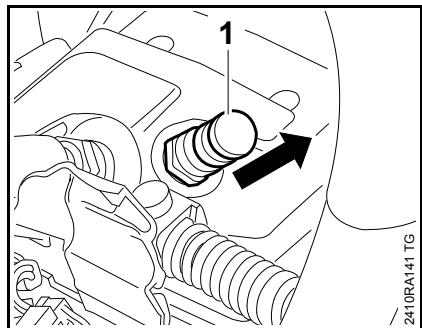


- Align the new piston rings so that the radii at the ends of the ring (arrows) face upwards

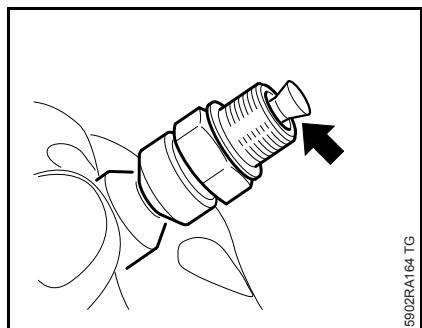


6.9 Decompression valve

- Remove shroud, **6.4**



- Carefully slide the piston rings over the piston
 - danger of breakage
- Position the piston rings so that the radii at the ring gaps encircle the fixing pins in the piston grooves (arrows)
- Check the correct installed position of the piston rings again (arrows)
- Install the piston, **6.7**
- Reassemble remaining parts in reverse order



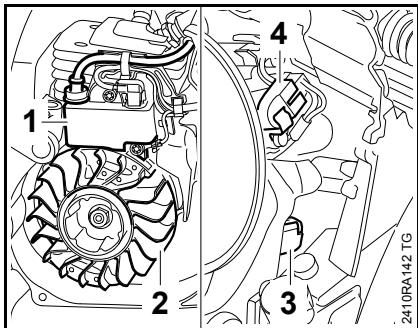
- Unscrew decompression valve (1)
- Examine the sealing cone (arrow) on the decompression valve for signs of damage
- Use a new decompression valve if the sealing cone on the decompression valve does not seal tightly or is damaged
- Fit the decompression valve by hand and screw it in
- Screw the decompression valve tight
- Reassemble remaining parts in reverse order

7. Ignition system

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.

Troubleshooting on the ignition system should always start with the spark plug, **3.5**

- Remove fan housing, **9.2**



The contactless electronic ignition system basically consists of a control unit (1), flywheel (2), switchgear (3) and solenoid valve (4).

The ignition module accommodates all the components required to control the ignition timing and fuel flow. There are only three electrical connections leaving the control unit:

1. High voltage output for the ignition lead.
2. Connector tab for black lead – short circuit wire.
3. Connector tab for red lead – M-Tronic.

Testing of the ignition module is not limited to only a spark test. If no ignition spark is obtained or other functions do not work, a diagnosis must be carried out according to the troubleshooting chart; replace control unit or M-Tronic wiring harness if necessary.

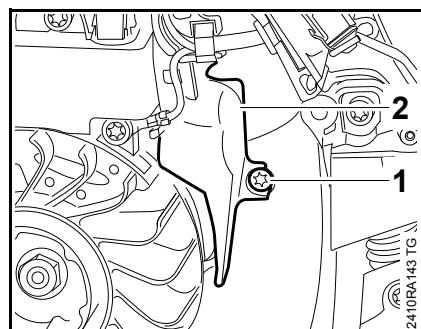
7.1 Ignition timing

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.

7.2 Pre-separator

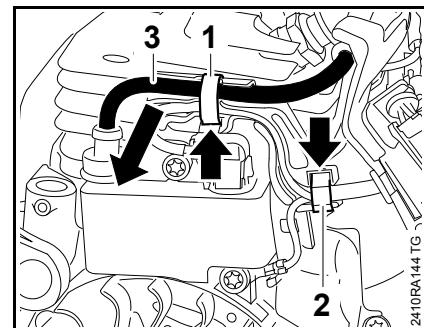
- Remove fan housing, **9.2**



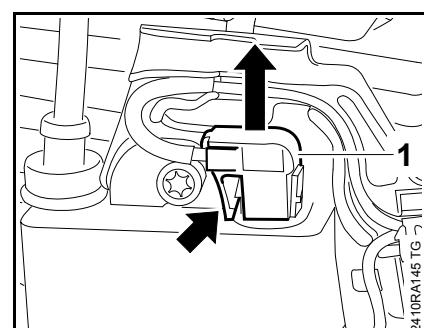
- Remove screw (1)
- Remove pre-separator (2), check and replace if necessary
- Reassemble parts in reverse order

7.3 Control unit

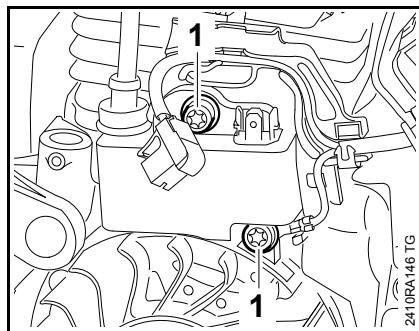
- Remove fan housing, **9.2**
- Unplug the spark plug boot



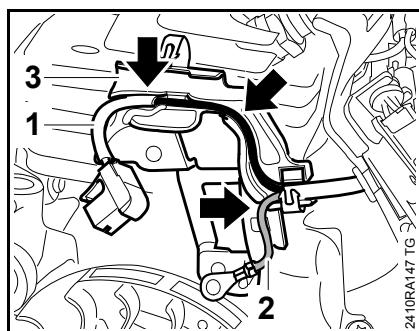
- Remove holders (1) and (2) carefully from the slits (arrows) and open
- Pull the ignition lead (3) out of the guide



- Lift retaining tab (arrow) and remove angled plug (1)
- Examine insulating sleeve of the angled plug, clean or replace if necessary, **7.7.2**

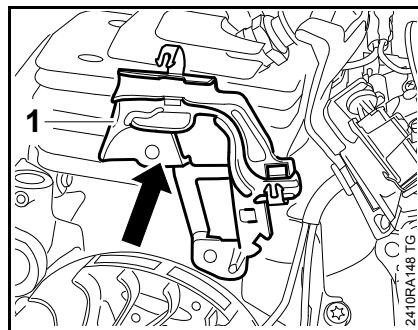


- Remove screws (1) with washers
 - Remove control unit

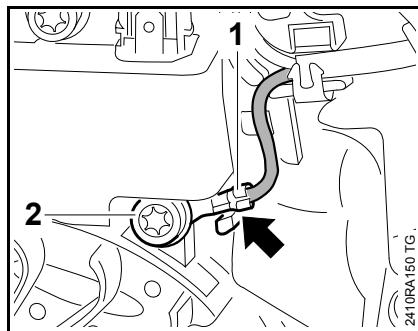


- Remove wiring harness (1) and ground wire (2) from the guides (arrows) and remove cable holder (3)
 - Check ignition lead, replace if necessary
 - Examine the spark plug boot, replace if necessary, 7.5
 - Troubleshooting, 3.5

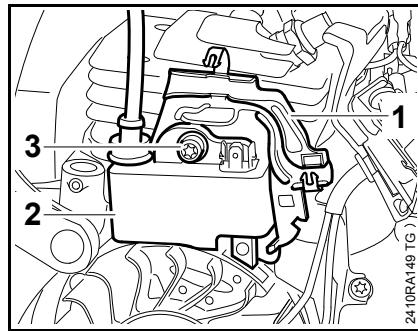
Installation



- Position cable holder (1) on the cylinder and secure it with the pins on the cylindrical raised parts

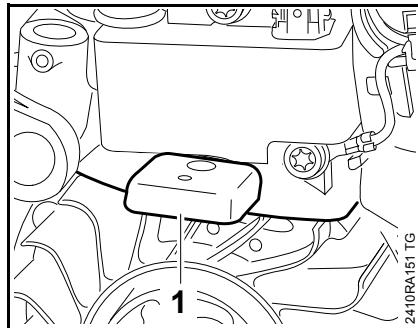


- Position ground wire (1) so that the cable lug is pressed fully home (arrow) and the crimped side faces the screw head
- Insert screw (2) with washer – do not tighten

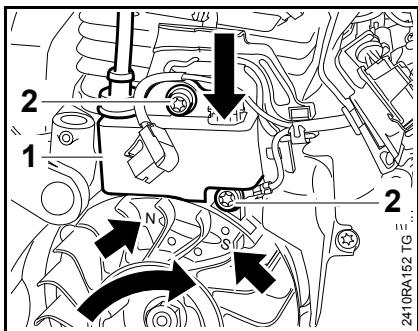


- Hold cable holder (1) against cylinder and position control unit (2)
- Insert screw (3) with washer – do not tighten

On the cable lug of the ground wire, the crimped side must face the screw head.

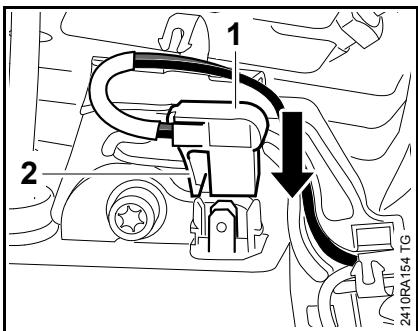


- Push back ignition module and slide setting gauge (1) 1111 890 6400 between the legs of the ignition module and the magnetic poles of the flywheel

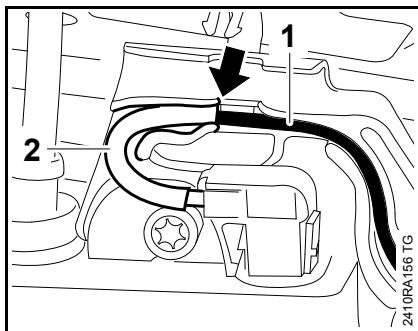


Shown without setting gauge for a better view.

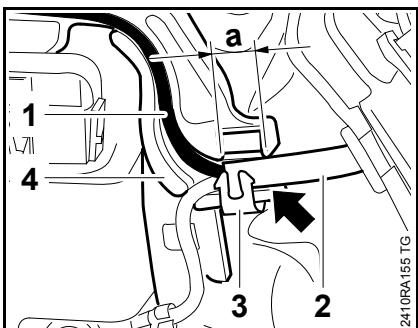
- Flywheel must turn freely
- Turn the flywheel until the magnet poles "N/S" (arrows) are at the control unit (1)
- Press control unit (1) against the setting gauge and tighten screws (2) – the cable lug of the ground wire must be fully seated
- Remove the setting gauge
- Checking correct functioning
 - Turn the flywheel: it must not touch the control unit



- Orient angled plug (1) so that the retaining tab (2) faces the muffler
- Press the angled plug (1) straight onto the connector tags until the retaining tab (2) snaps into place
 - Do not insert the angled plug on a slant or tilt it

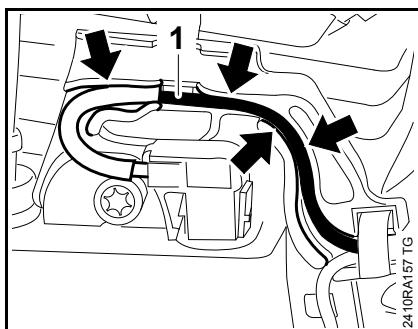


- Orient wiring harness (1) so that the protective tube (2) lines up with the leading edge (arrow) and the red M-Tronic lead is underneath the short-circuit wire (black)

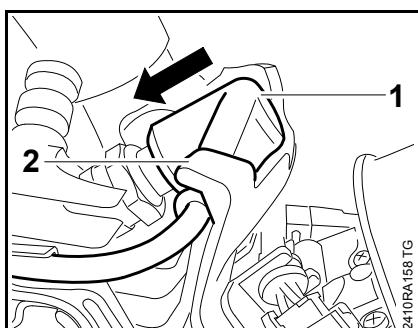


Protective tube (2) must be positioned snug against the grommet in the air guide shroud.

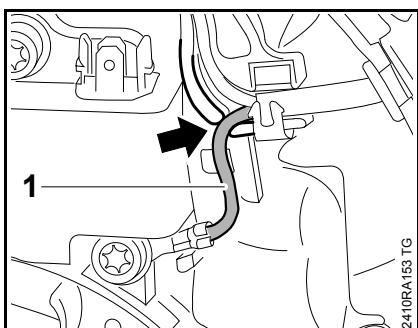
- Press the wiring harness (1) into the guide so that the protective tube (2) a = ca. 8 mm is seated in the guide (arrow)
 - Ground wire is routed underneath the wiring harness
- Push the holder (3) into the slit of the cable holder (4) until it clicks into place



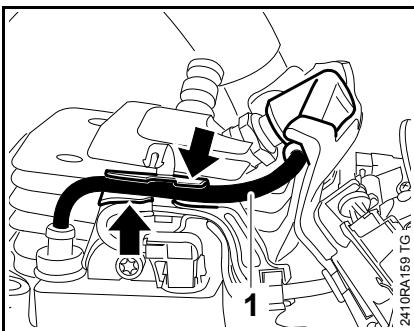
- Press wiring harness (1) completely into the guides (arrows)



- Push the holder (3) into the slit of the cable holder (4) until it clicks into place
- Plug the spark plug boot (1) onto the spark plug so that it runs parallel to the air guide shroud underneath the tab (2)

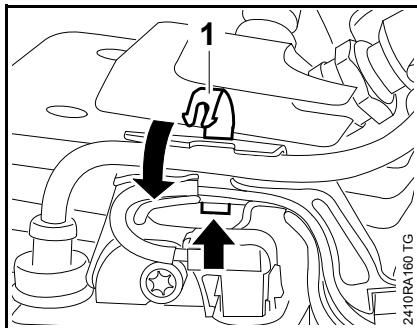


- Press ground wire (1) completely into the guide (arrow)
 - Ground wire is routed underneath the wiring harness



- Press ignition lead (1) completely into the guide (arrow)
 - Note routing of the ignition lead, see illustration

Ignition lead and spark plug boot must not touch the air guide shroud.



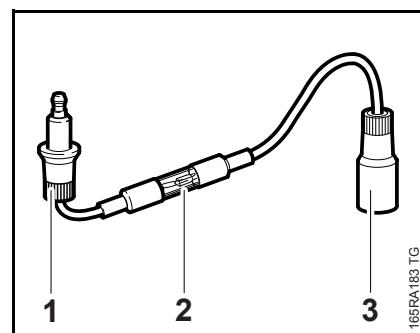
- Press the holder (1) into the slit (arrow) until it clicks into place
 - Reassemble remaining parts in reverse order

7.4 Spark test check control unit

The ignition test refers only to a spark test, not the general functions of the control unit; these are described in the M-Tronic chapter, **8.2**, **8.5**.

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

Using the ZAT 4 ignition system tester 5910 850 4503



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

Danger! High voltage – risk of electrocution.

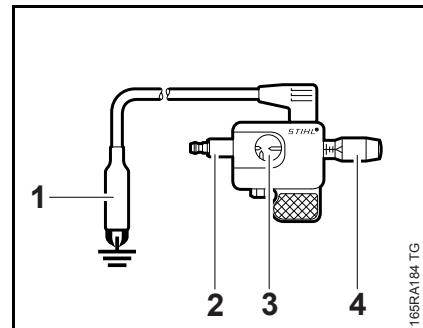
- Crank the engine quickly with the rewind starter and check sparkover in the window (2) of the ignition system tester

The engine may start and accelerate during the test.

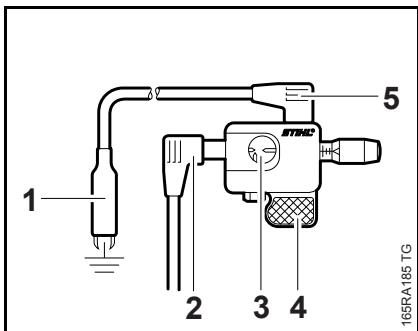
If a spark is visible, the ignition system is in order.

- If no spark is visible in the window (2), check the ignition system with the aid of the troubleshooting chart, **7.8**, **8.5**

Using the ZAT 3 ignition system tester 5910 850 4520



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

Danger! High voltage – risk of electrocution.

- Crank the engine quickly with the rewind starter and check sparkover in the window (3) of the ignition system tester

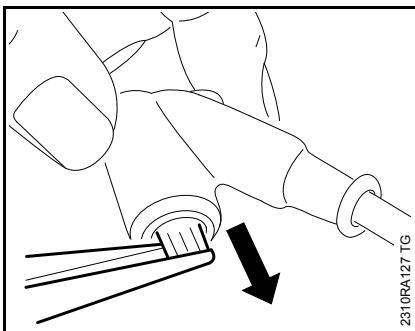
The engine may start and accelerate during the test.

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, **7.8**

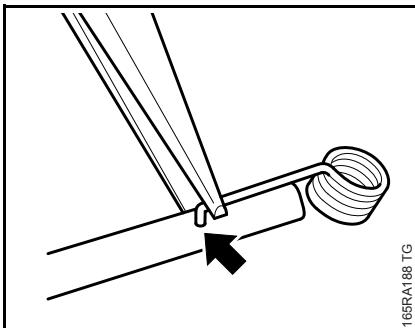
7.5 Spark plug boot

- Remove shroud, **6.4**
- Unplug spark plug boot and pull ignition lead out of the guides, **7.3**

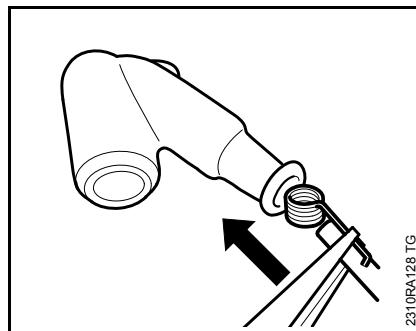


- Use suitable pliers to pull the torsion spring out of the spark plug boot
- Unhook the torsion spring from the ignition lead
- Pull the boot off the ignition lead
- Check ignition lead, replace if necessary, **7.5.1**

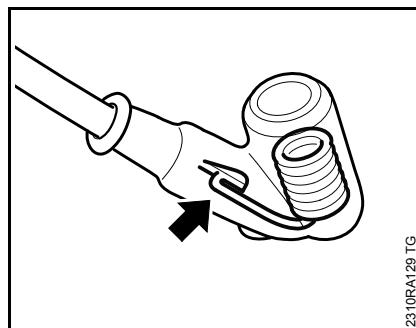
Installation



- With a new ignition module, use a pointed tool to pierce the center of the new lead's insulation approx. 13 mm from the end of the ignition lead
- Pinch the hook of the torsion spring into the center of the ignition lead (arrow) where it has been pierced



- Apply STIHL press fluid to the inside of the spark plug boot, **16**
- Push the ignition lead and torsion spring into the spark plug boot



- Ensure that the torsion spring (arrow) is located in the recess
- Plug spark plug boot onto spark plug and press ignition lead completely into the guide, **7.3**

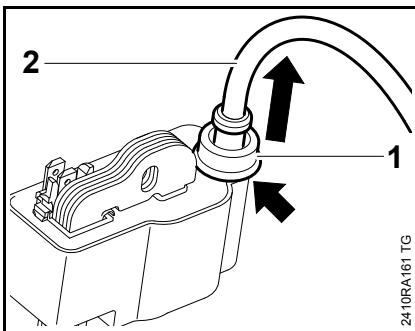
Ignition lead and spark plug boot must not touch the air guide shroud.

- Reassemble remaining parts in reverse order

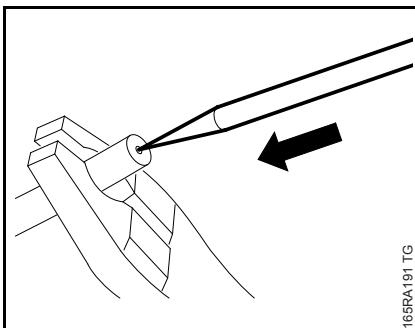
7.5.1 Ignition lead

The ignition lead is built into the high voltage output of the control unit. If the ignition lead is damaged, the control unit must be replaced.

- Remove spark plug boot, **7.5**
- Remove the control unit, **7.3**



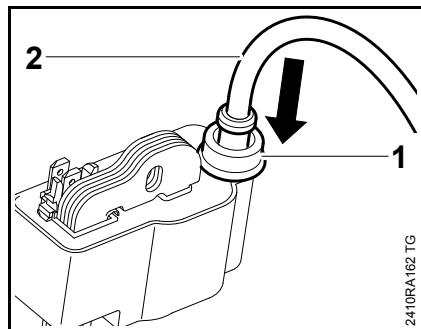
- Pull grommet (1) off of high-voltage output (arrow)
- Twist ignition lead (2) out of control unit
- Pull the grommet off the ignition lead



- Use a pointed tool to pierce the center of the end of the new ignition lead, which is to be twisted into the control unit.

- Before twisting in the ignition lead, fill the coil tower with STIHL multi-purpose grease, **16**

Do not use either graphite grease or silicone insulating paste.



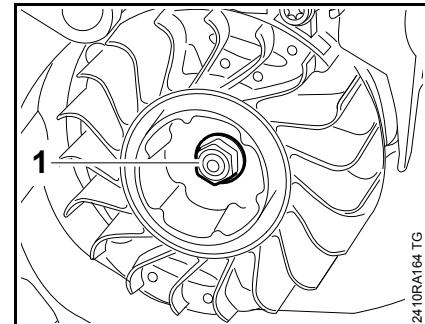
- Push grommet onto ignition lead
- Twist ignition lead (2) into control unit
- Push on the grommet (1)
- Install control unit and adjust air gap control unit/ flywheel, **7.3**
- Reassemble remaining parts in reverse order

7.6 Flywheel

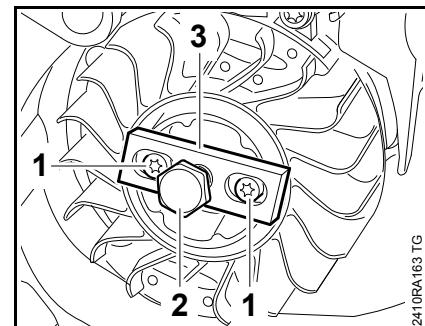
For versions with ErgoStart, the new puller 5910 890 4504 with extended clamping bridge must be used. The previous puller 1135 890 4500 is being replaced by the new puller, but can still be used for the standard versions.

- Remove shroud, **6.4**
- Remove fan housing, **9.2**

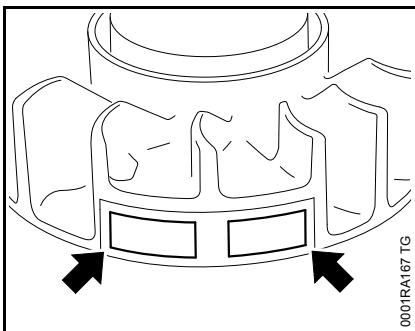
- Block the piston with the locking strip, **4**



- Unscrew the flywheel nut (1)



- Screw the screws (1) of the puller (3) 5910 890 4504 into the flywheel as far as they will go
 - Ensure that the screws are screwed in uniformly
- For versions with heating, only M 5 x 25 screws can be used to fasten the puller
 - Generator can be damaged
- For versions with ErgoStart, do not damage the pawls
- Turn screw (2) clockwise until the flywheel comes off the crankshaft stub
- Unscrew puller (3) 5910 890 4504 from flywheel

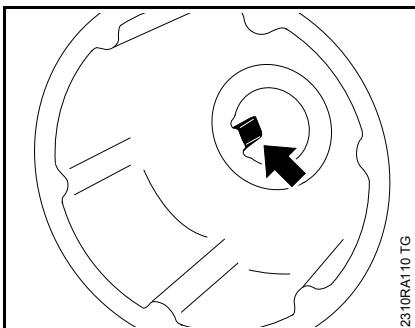


The flywheel and magnet poles (arrows) must not display any signs of damage or blue discoloration; replace flywheel if necessary.

- The magnet ring must also be examined for signs of damage in versions with handle heating, **7.6**
- With versions with ErgoStart pawls, check for damage and smoothness of motion, **9.4**.

Installation

Flywheel and crankshaft stub must be free from grease for installation.



Ensure that the machined key (arrow) engages the slot in the crankshaft.

- Set the air gap between control unit and flywheel, **7.3**

- Reassemble remaining parts in reverse order

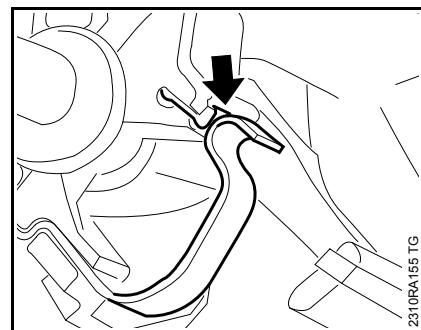
7.7 Short circuit wire

Ground wire, short-circuit wire and M-Tronic lead are all combined into one wiring harness.

Make a contact test of the short circuit wire if the spark plug and ignition lead with spark plug boot are in order.

7.7.1 Contact test

- Remove fan housing, **9.2**
- Move the Master Control lever to "0"



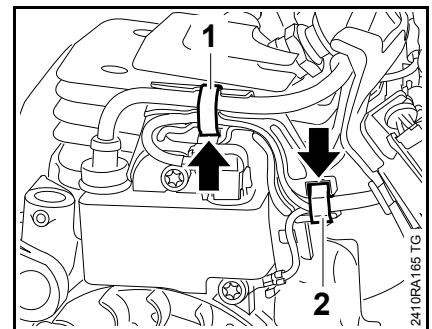
- Blade receptacle of the short-circuit wire must touch the contact spring (arrow) in position "0"

Also carry out a contact and continuity test of the ground wire between cable lug and contact spring, replace wiring harness if necessary.

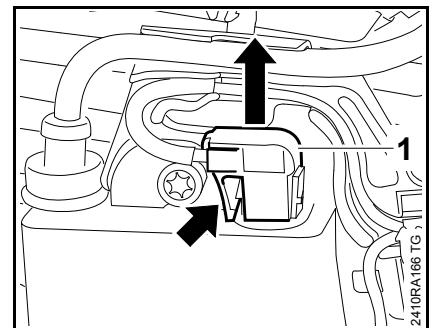
- If no fault can be found, test the M-Tronic in accordance with flow chart, **7.8**
- Reassemble parts in reverse order

7.7.2 Removal and installation

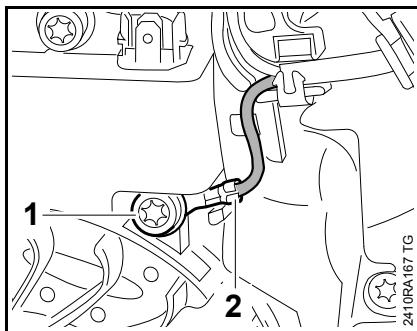
- Remove shroud, **6.4**
- Unplug the spark plug boot
- Remove fan housing, **9.2**
- Remove choke rod, **11.4**



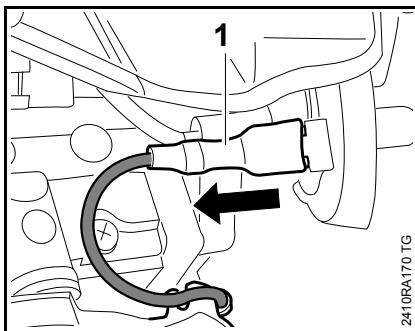
- Remove holders (1) and (2) carefully from the slits (arrows) and open



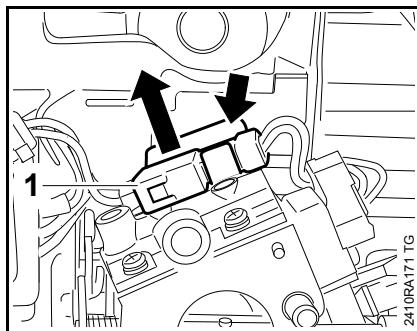
- Lift retaining tab (arrow) and remove angled plug (1)



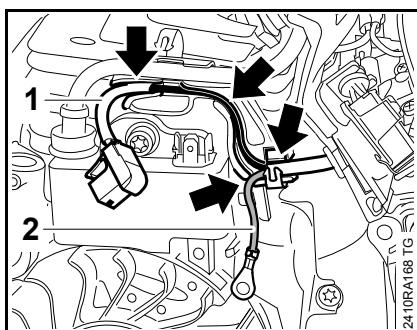
- Remove screw (1) with washer and remove ground wire cable lug (2)



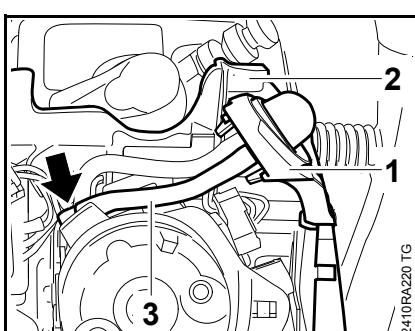
- Remove blade receptacle (1) of the carburetor heating lead



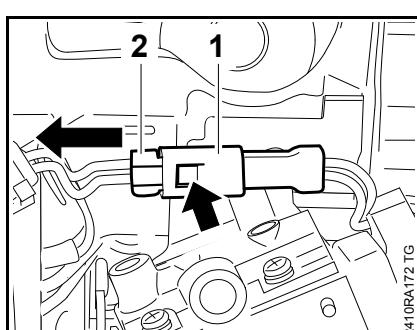
- Pull plug connector (1) out of the carburetor support mount (arrow)



- Remove wiring harness (1) and ground wire (2) from the guides (arrows)

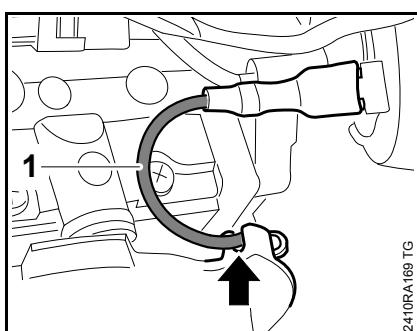


- Push out the holder (1) with the fuel pump at the air guide shroud (2), remove fuel hose (3) at the carburetor (arrow) and lay it on top of the air guide shroud



- Hold the jack (1), press the tab (arrow) and pull out the plug (2) – do not tug on the leads
 - Turn the carburetor a little in the direction of the control handle
 - Do not overextend fuel hose

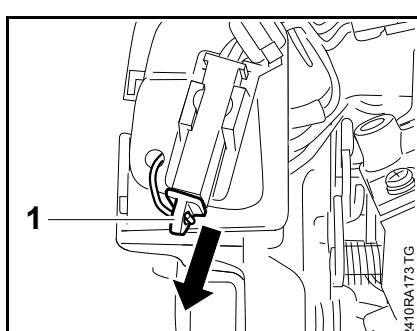
Versions with heating



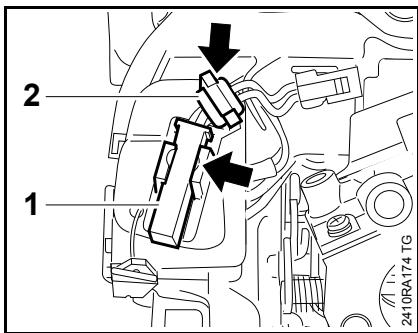
- Pull out carburetor heating lead (1) at the guide (arrow)

All versions

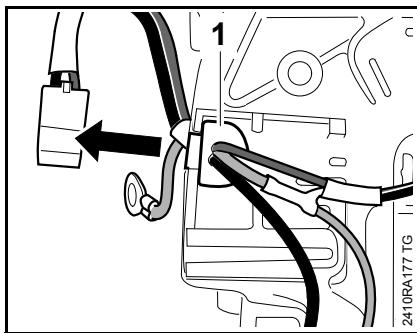
- Remove filter base, [13.3](#)
- Remove contact spring, [7.7.4](#)
- Remove switch shaft on filter base, [11.1](#)



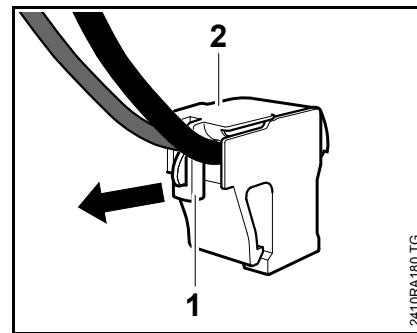
- Remove the plug (1)



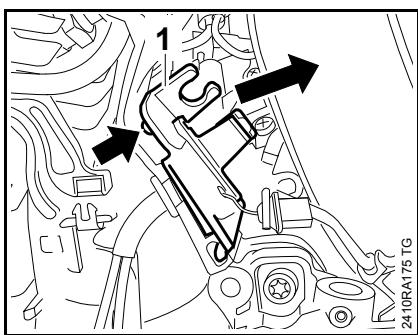
- Remove diagnostic jack (1) with connector housing (2) from the guides (arrows)



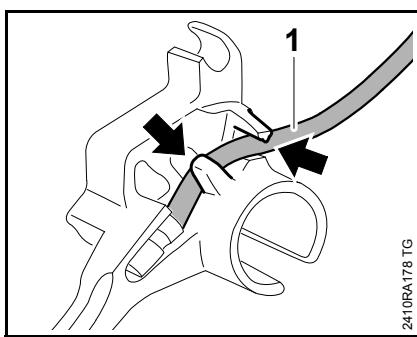
- Pull out grommet (1) with wiring harness



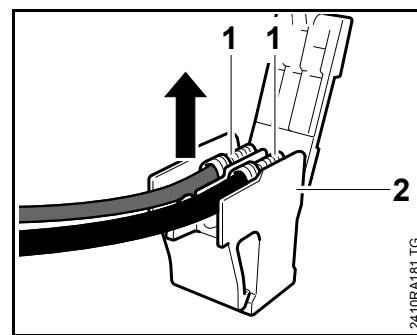
- Pull the retaining tab (1) in the direction of the leads and open the cover (2)



- Pry out and remove the cable holder (1) at the pin (arrow)



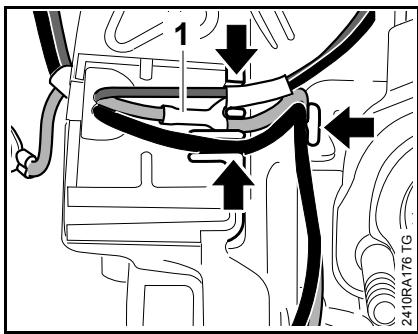
- Remove ground wire (1) from the guides (arrows)



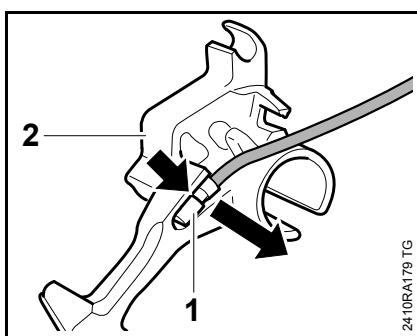
- Pull blade receptacles (1) out of the insulating sleeve (2)

- Check blade receptacles and insulating sleeves, clean or replace insulating sleeves if necessary

With a new wiring harness, the grommets and the plugs as well as the insulating sleeve are pre-assembled.

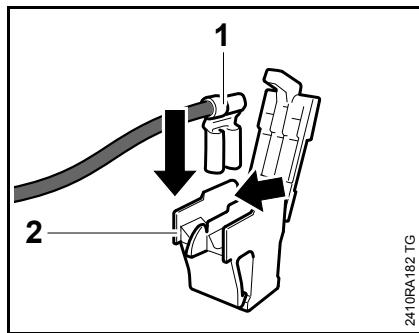


- Remove wiring harness (1) from the guides (arrows) of the air guide shroud



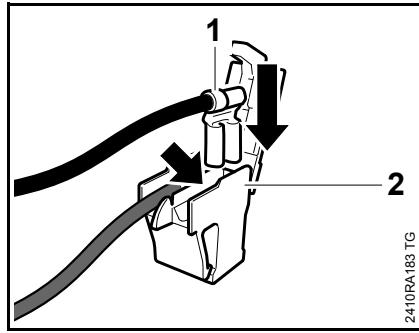
- Remove ground wire (1) from the guide (arrow)
- Remove the switch shaft (2)

Installation



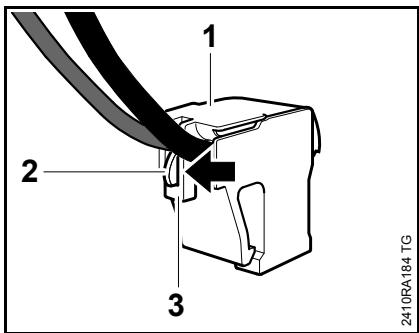
- Push the blade receptacle (1) of the red lead (M-Tronic) into the rear receptacle (arrow) of the insulating sleeve (2)
- Crimped side faces forward

The leads must not be reversed.



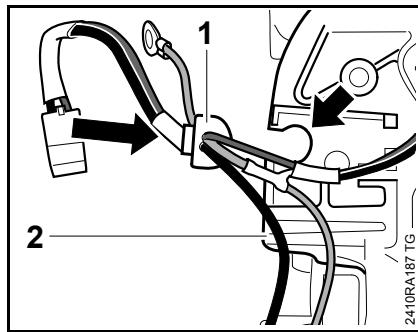
- Push the blade receptacle (1) of the black lead (short-circuit wire) into the front receptacle (arrow) of the insulating sleeve (2)
- Crimped side faces forward

The leads must not be reversed.

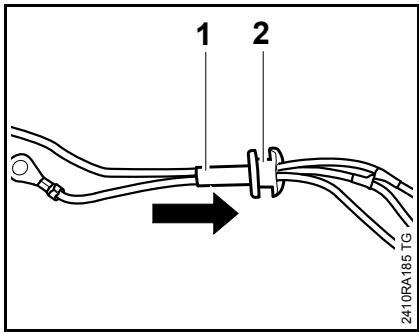


- Close and lock the cover (1) so that the tab (2) engages the slit (arrow) of the retaining tab (3)
- the retaining tab must fit snugly against the insulating sleeve

The ground wire (4) must be routed behind the protective tube (2) – facing the cylinder.

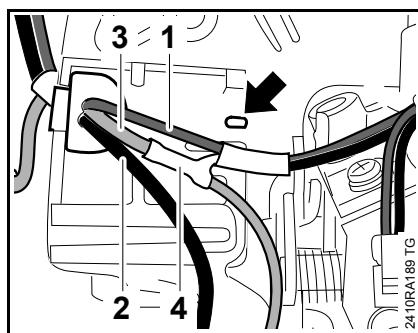


- Push the grommet (1) into the opening (arrow) in the air guide shroud (2) until it is flush with the edge of the air guide shroud

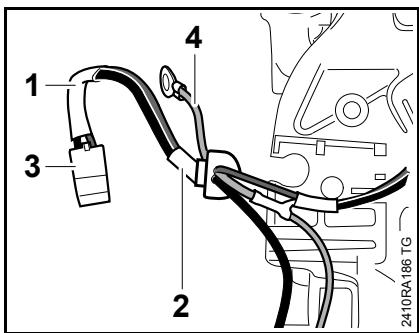


The protective tube (1) must rest against the grommet (2).

- If necessary, push the wiring harness towards the grommet (2) until the protective tube (1) rests against the grommet (2)



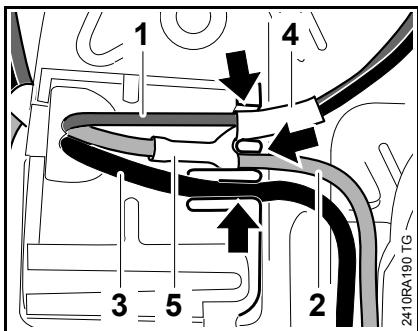
- Orient wiring harness so that the red lead (1) is above and the black lead (2) is underneath the ground wire (3)



- Orient the wiring harness (1) so that the protective tube (2) and angled plug (3) face the control unit

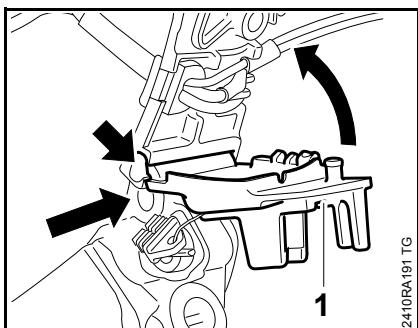
Starting at the protective tube (4), the ground wire branches out into a thin black lead (M-Tronic) and a thick blue lead (short-circuit wire).

When inserting the ground wire, the small guide rib (arrow) must be between these two leads

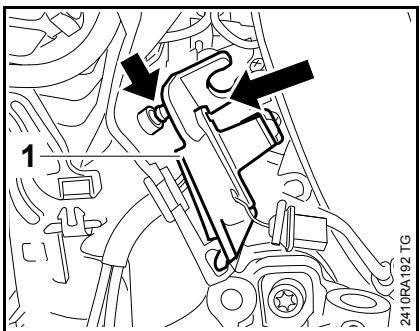


- Press the red M-Tronic lead (1), ground wire (2) and black lead (3) of the short-circuit wire all the way into the guides (arrows)

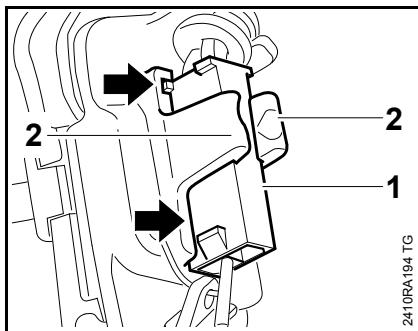
The protective tube (4) must start at the beginning of the rib and protective tube (5) must rest against the beginning of the rib.



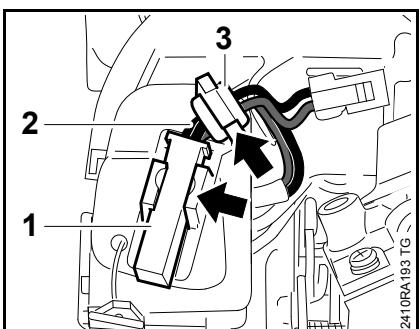
- Slide cable holder (1) with the hinge into the slot (arrow) of the air guide shroud
- Turn the cable holder (1) towards the cylinder and position it



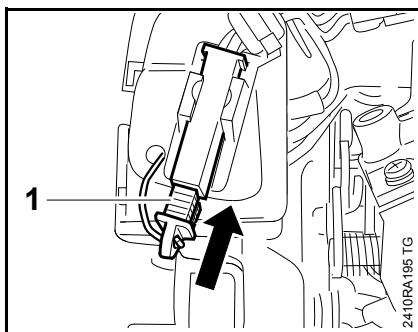
- Check that the leads are properly seated in the guides and press the cable holder (1) with the pin (arrow) into the mount until it snaps into place



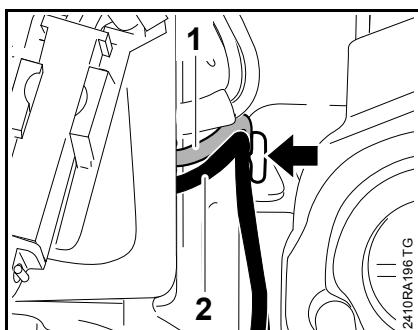
- Press the diagnostic jack (1) into the mount so that it is seated completely in the recess (arrows) and the tabs (2) snap into place



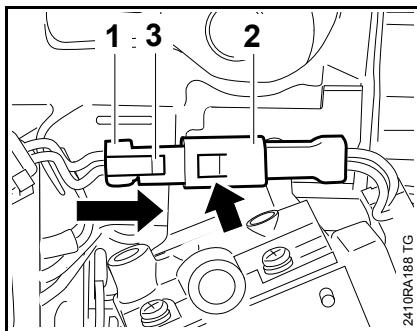
- Orient diagnostic jack (1) so that the black leads (2) face the control handle
- Press diagnostic jack (1) and connector housing (3) into the guides (arrows)



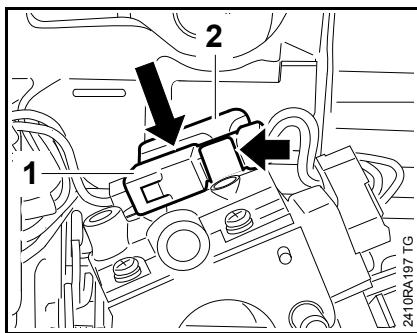
- Press plug (1) into the mount as far as it will go



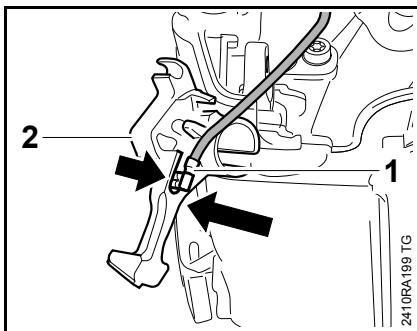
- Using wiring tool 5910 890 4000, press the blue ground wire (1) and black short-circuit wire (2) into the guide (arrow) so that the wires are snug against the air guide shroud



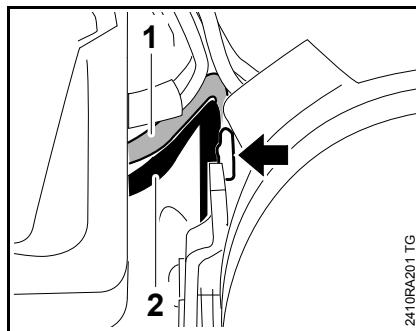
- Orient plug (1) and jack (2) that the tab (3) lines up with the mount (arrow) – do not twist the leads
- Plug connector (1) into jack (2) until the tab (3) clicks into place in the mount (arrow)



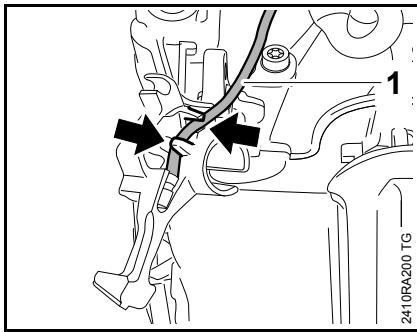
- Press the plug connection (1) into the mount (2) of the carburetor support so that the tab (arrow) engages in the recess of the plug connection
- Push on the carburetor and observe cable routing as well as installation position of the M-Tronic and, if present, the heating system, **8.4**



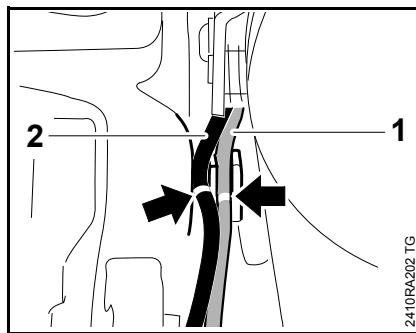
- Slide the blade receptacle (1) of the blue ground wire, with the crimped side facing the cam (2), into the guide (arrow) as far as it will go



- Check the routing of the blue ground wire (1) and black short-circuit wire (2), if necessary, press them completely into the guide (arrow) using wiring tool 5910 890 4000 – wires must rest snug against the air guide shroud

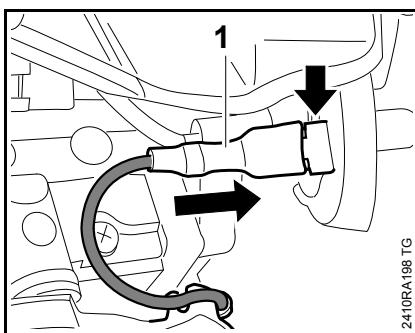


- Hook ground wire (1) into the guides (arrows)
- Push switch shaft onto filter base, **11.1**
- Install contact spring, **7.7.4**
- Install filter base, **13.3**



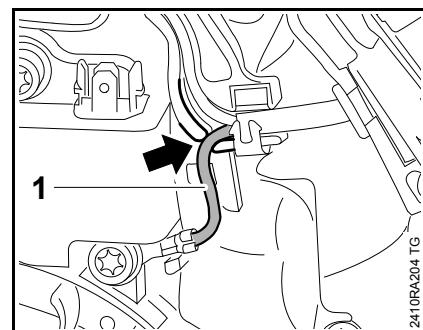
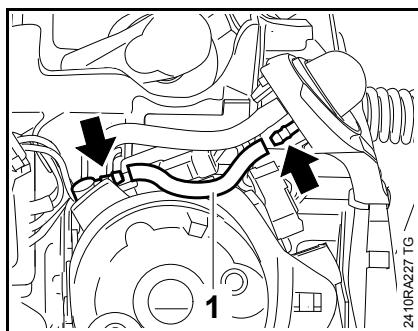
- Using wiring tool 5910 890 4000, press the blue ground wire (1) and black short-circuit wire (2) into the guides so that the markings (arrows) are located at the guide ribs
- Conduct a function test of the switch shaft, **11.1**

Versions with heating



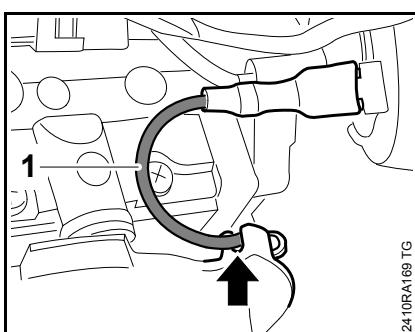
- Orient blade receptacle (1) so that the crimped side faces the carburetor
- Press blade receptacle (1) onto the connector tab (arrow) of the heating switch as far as it will go

- Press fuel return line (3) completely into the guide (arrow)

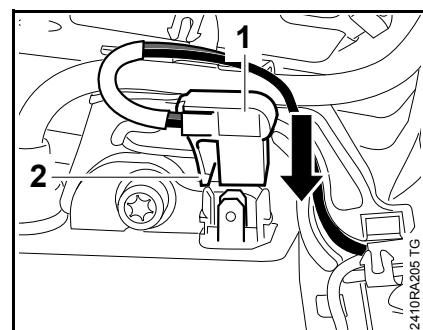
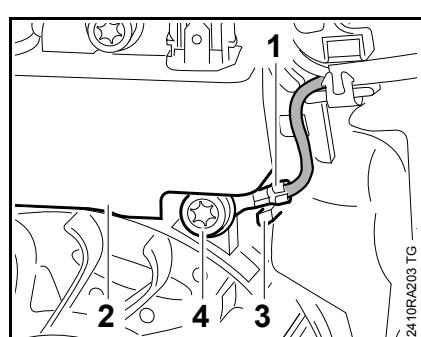


- Press ground wire (1) completely into the guide (arrow)
 - Ground wire is routed underneath the wiring harness

Push the new fuel suction hose (1) completely onto the connectors (arrows)

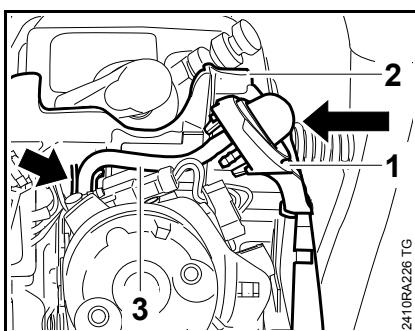


- Press carburetor heating lead (1) completely into the guide (arrow)

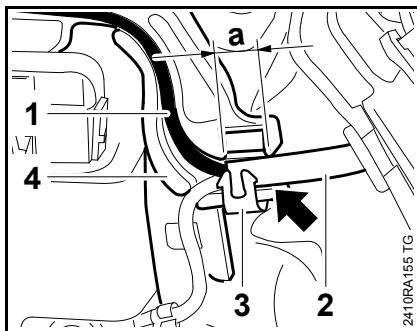


- Orient angled plug (1) so that the retaining tab (2) faces the muffler
- Press the angled plug (1) straight onto the connector tags until the retaining tab (2) snaps into place
 - Do not insert the angled plug on a slant or tilt it

Versions with manual fuel pump

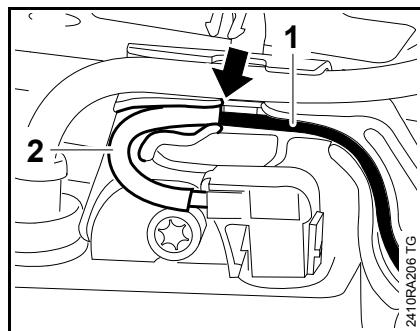


- Push the holder (1) with the fuel pump into the recess in the air guide shroud (2) as far as it will go

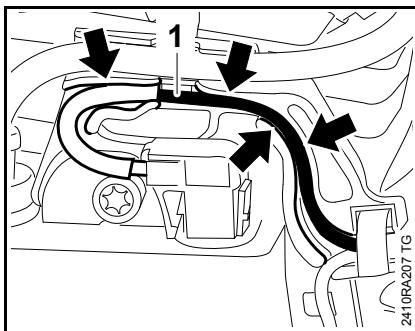


Protective tube (2) must be positioned snug against the grommet in the air guide shroud.

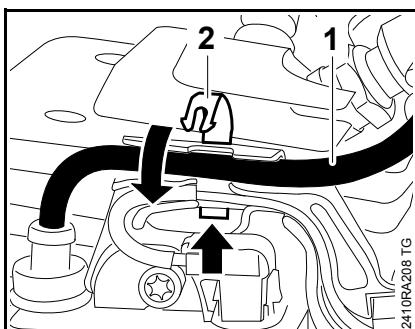
- Press the wiring harness (1) into the guide so that the protective tube (2) a = approx. 8 mm is seated in the guide (arrow)
 - Ground wire is routed underneath the wiring harness
- Push the holder (3) into the slit of the cable holder (4) until it clicks into place



- Orient wiring harness (1) so that the protective tube (2) lines up with the leading edge (arrow) and the red M-Tronic lead is underneath the short-circuit wire (black)



- Press wiring harness (1) completely into the guides (arrows)
- Check the air gap between control unit and flywheel, adjust if necessary, **7.3**



Ignition lead (1) must be seated completely in the guide.

- Press the holder (2) carefully into the slit (arrow) until it clicks into place
- Conduct a function test of the switch shaft, **11.1**
- Reassemble remaining parts in reverse order

7.7.3 Ground wire

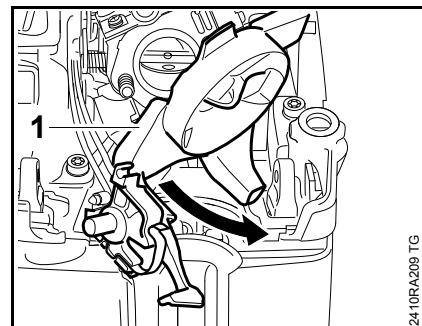
Testing and installation of ground wire is the same as for the short-circuit wire

- Check contacts and operation, **7.7**

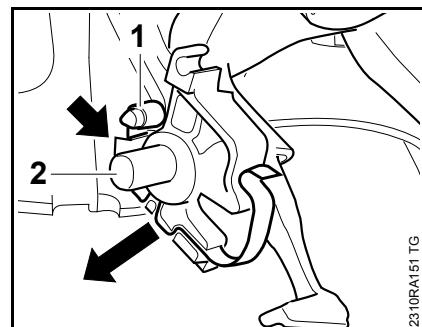
7.7.4 Contact spring

The short-circuit wire must be seated firmly in the eye of the contact spring, if necessary, carry out a contact and continuity test, **7.1.1**.

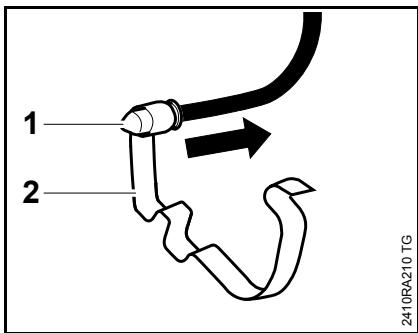
- Remove the filter base from the studs, **13.3**



- Turn filter base (1) to the side



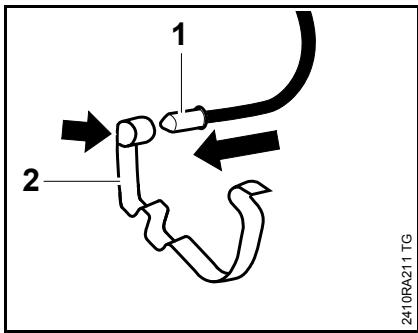
- Lift contact spring (1) slightly and guide it over the tab (arrow)
- Press contact spring (1) out of the guides in the filter base (2)



2410RA210 TG

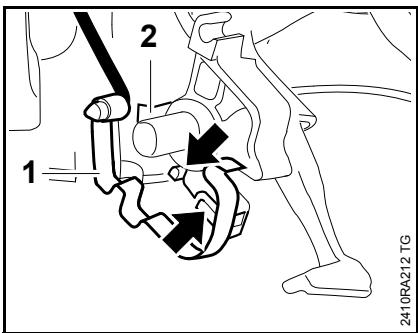
- Press contact sleeve (1) of the short-circuit wire out of the contact spring (2)
 - Examine contact spring, replace if necessary

Installation



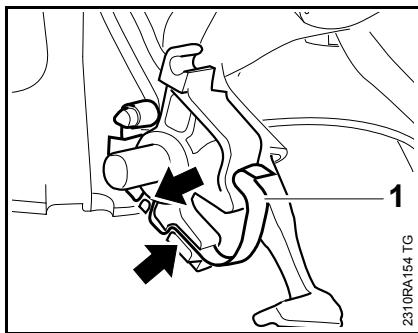
2410RA211 TG

- Push the contact sleeve (1) of the short-circuit wire into the eye (arrow) of the contact spring (2) as far as it will go



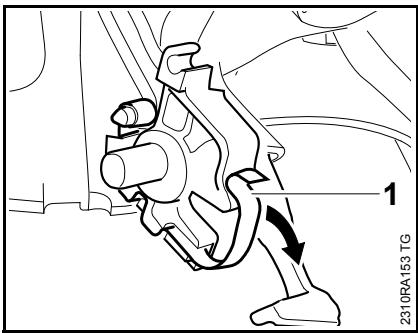
2410RA212 TG

- Position contact spring (1) against the guide (arrows)
- Lift contact spring (1) slightly at the connection of the short-circuit wire and guide it over the tab (2)
 - do not overextend the contact spring



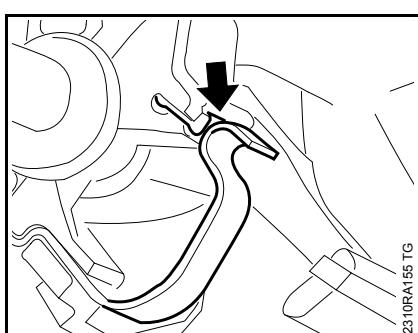
2310RA154 TG

- Push the contact spring (1) into the guide (arrows) as far it will go, until the tab surrounds the contact spring
 - Install filter base, **13.3**



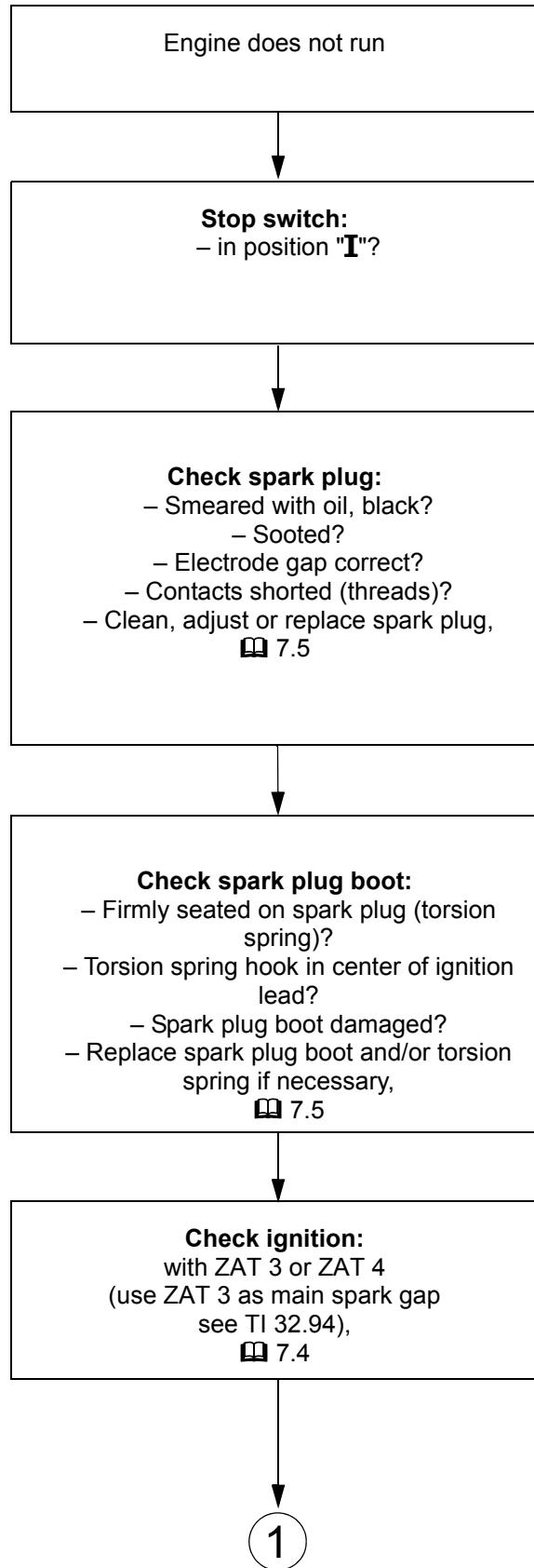
2310RA153 TG

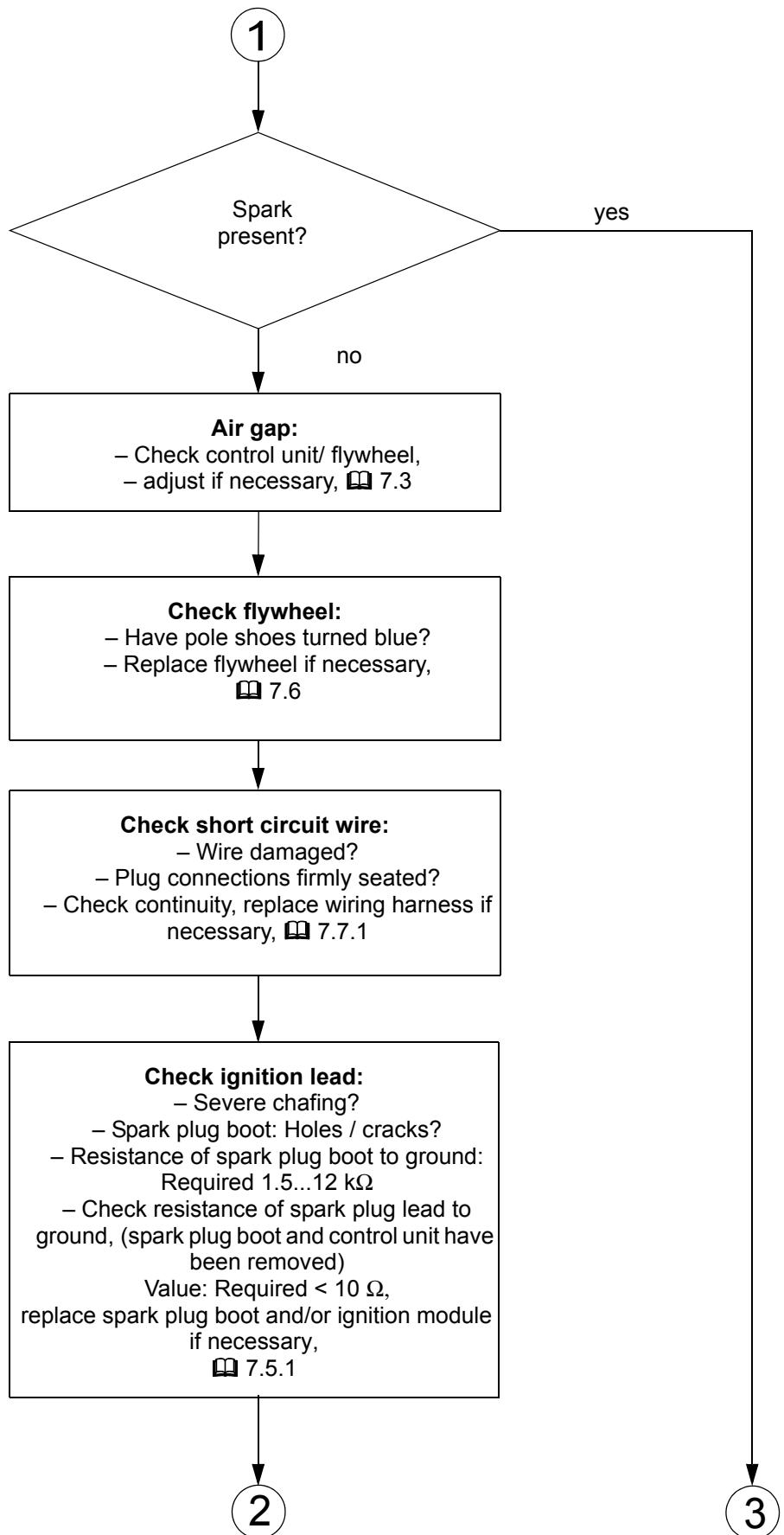
- Before pushing the contact spring (1) all the way in, lift it slightly and guide it over the switch shaft – 2 mm maximum.

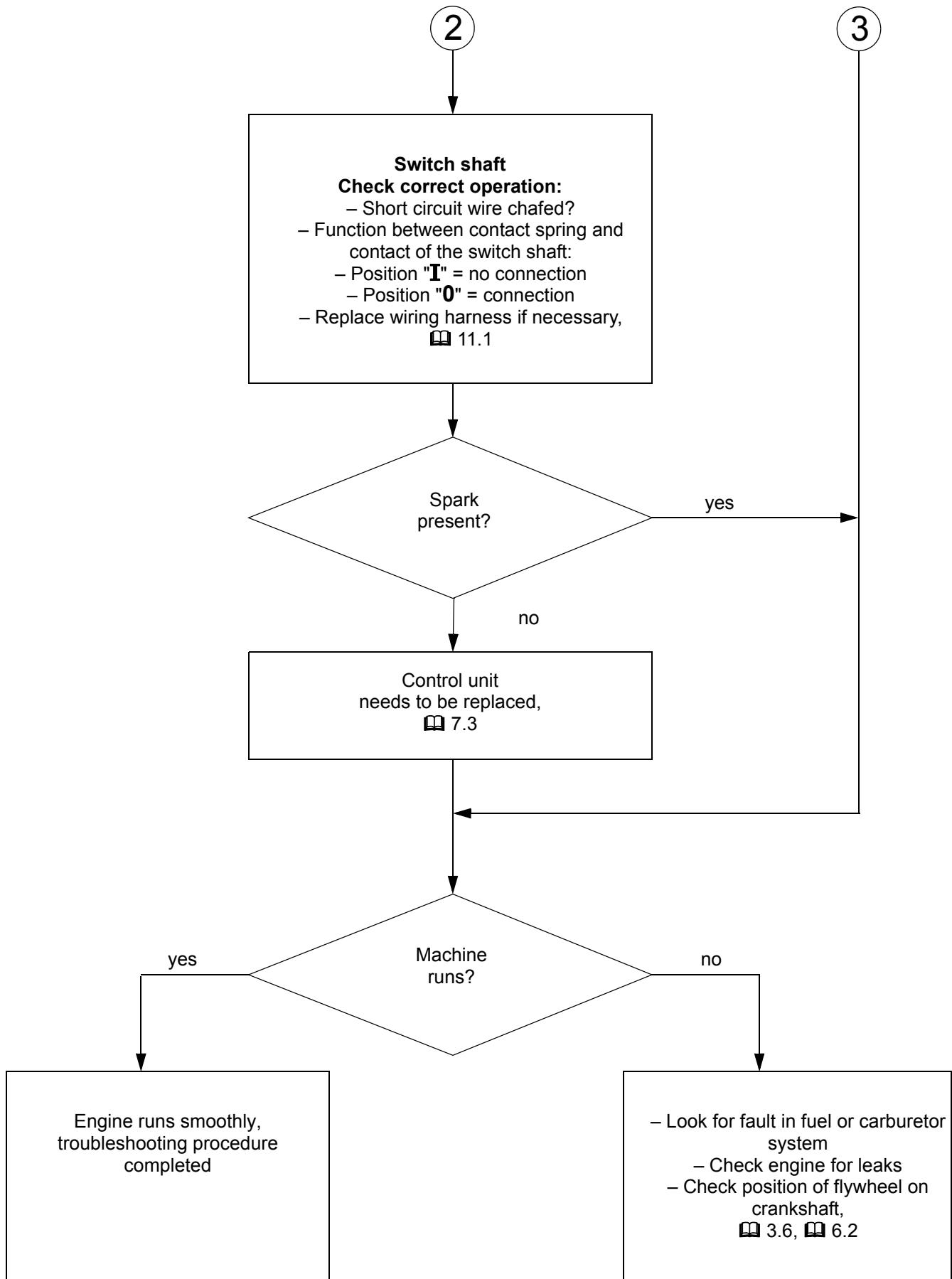


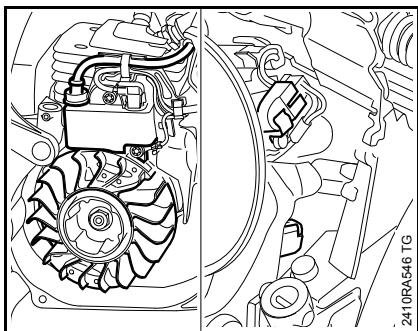
2310RA155 TG

- Checking correct functioning
 - Blade receptacle of the short-circuit wire must touch the contact spring (arrow) in position "0"
- Reassemble remaining parts in reverse order









The fully electronic M-Tronic engine management system controls the ignition timing and fuel flow, taking all external conditions into account.

A basic or standard setting of the carburetor is no longer required. The M-Tronic electronically adjusts the fuel-air mixture in the carburetor.

The M-Tronic controls all operating states such as start, idle, part throttle and full throttle while accounting for the external conditions, e.g., use at varying attitudes, as well as changing temperatures or fuel quality – the carburetor does not have any adjusting screws.

Troubleshooting and test procedures are described in the following chapters, Testing, 8.2, Troubleshooting, 8.5.

8.1 Calibrating the control unit

If the outstanding running behavior and usual performance or maximum speed of the engine can no longer be attained, the usual engine performance can be attained again by calibrating the control unit.

A regulating cycle only starts if the machine is operated for approximately 2 seconds under constant conditions.

If the maximum speed is not reached...

- Examine air filter, clean or replace if necessary, 13.1
- Examine the spark arresting screen (if installed); clean or replace it if necessary, 6.1
- Check chain tension, adjust if necessary
- Check chain lubrication
- Set Master Control lever to Start ▲
- Start engine and let it warm up
- Carry out five uniform cuts to length
 - speed between 8000 rpm and 11200 rpm, log diameter approx. 30 cm
- If the outstanding running behavior and the usual performance are not attained, continue troubleshooting and test procedures as described under Testing, 8.2, Troubleshooting, 8.5

If the control unit or carburetor is replaced during servicing...

- Remove the saw chain and guide bar
- Reinstall the chain sprocket cover
- Set Master Control lever to Start ▲
- Start machine – do **not** blip the throttle trigger

After completion of the following procedure, the Master Control lever must be moved from Start ▲ to **STOP 0** without pressing the throttle trigger.

- Let the machine warm up for at least 60 seconds in the Start ▲ position and then move the Master Control lever to **STOP 0**
- Calibration is completed

The control unit is adjusted to the carburetor while the engine runs in the position Start ▲.

The machine must be switched off immediately for the information to be stored in the control unit.

8.2 Testing

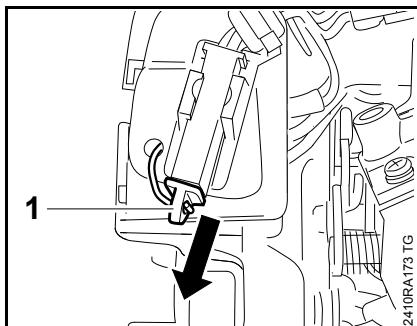
8.2.1 Test preparations

The following steps must be carried out before testing.

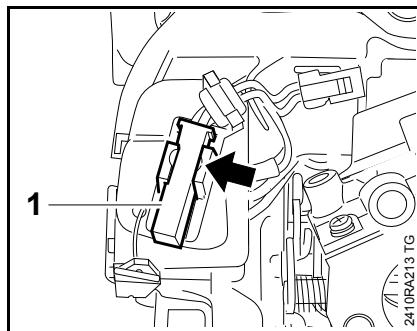
- Carry out troubleshooting according to troubleshooting chart, **8.5**
- Remove shroud, **6.4**
- Remove the air filter, **13.1**
- Remove coarse dirt from around the screwed connections, control unit, switchgear, solenoid valve and diagnostic jack

8.2.2 Connect the test lead

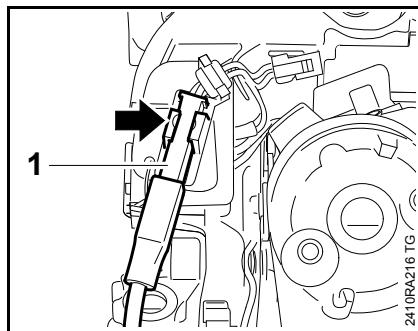
- Remove shroud, **6.4**
- Remove the air filter, **13.1**



- Remove the plug (1)

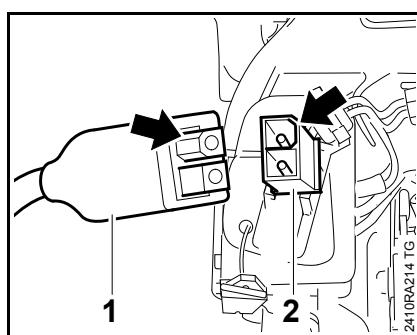


- Remove diagnostic jack (1) from the guide (arrow)

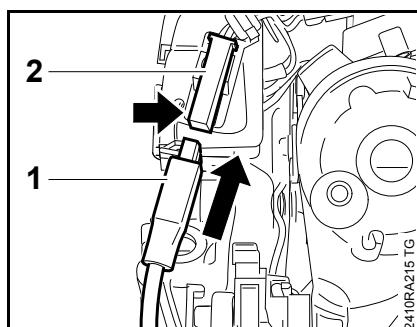


- Press the diagnostic jack (1) into the mount (arrow) until it is fully home

- Reassemble remaining parts in reverse order



- Orient the plug (1) of the M-Tronic test lead 5910 840 0903 so that the angled shapes (arrows) match between diagnostic jack (2) and plug (1)



- Push the plug (1) of the M-Tronic test lead 5910 840 0903 into the diagnostic jack (2) as far as it will go

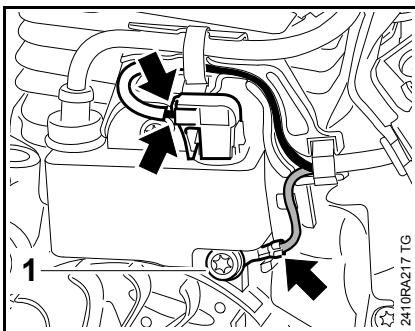
- After completion of the test procedure, unplug the test lead from the diagnostic jack

8.2.3 Check screwed and plug connections as well as switch

- Carry out test preparations, **8.2.1**

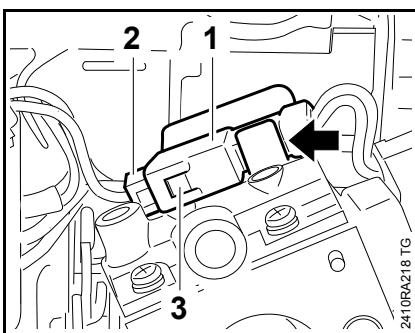
There must be a reliable connection for communication between control unit, switching device and solenoid valve. If communication between control unit and solenoid valve is interrupted or faulty, the control unit does not initiate an ignition spark.

- In the event of a malfunction or if there is no ignition spark, first check the plug connections and wiring harness between control device and solenoid valve



Screw (1) must be tight.

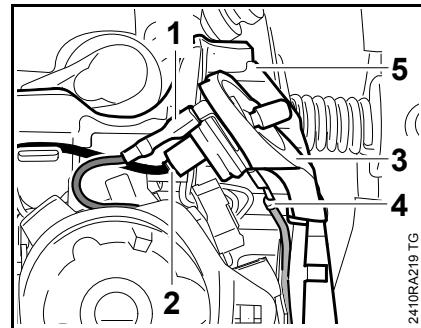
Leads (arrows) must be seated completely and firmly in the blade receptacles and the cable lug.



Plug connection (1) must be pressed together completely – locking lug (3) must engage the recess.

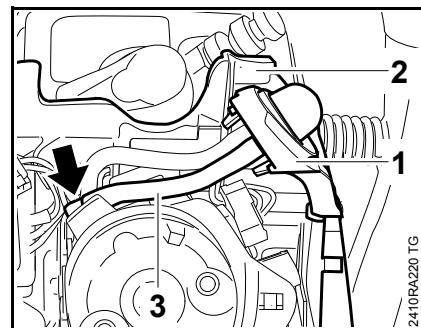
- If necessary, remove the plug connection (1) from the mount (arrow), remove the plug (2) and check the contacts, 8.2.3

Versions with heating



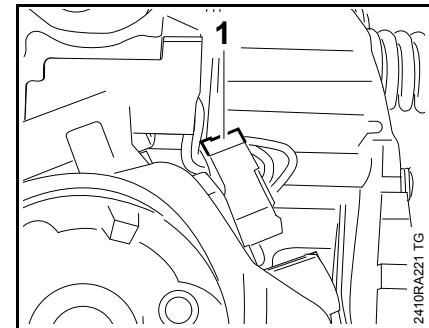
- Remove blade receptacle (1) and contact sleeve (2)
- Push out the holder (3) with ground wire (4) at the air guide shroud (5) and lay it aside

Versions with manual fuel pump



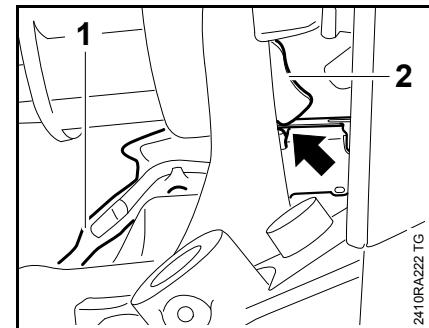
- Push out the holder (1) with the fuel pump at the air guide shroud (2), remove fuel hose (3) at the carburetor (arrow) and lay it on top of the air guide shroud

All versions



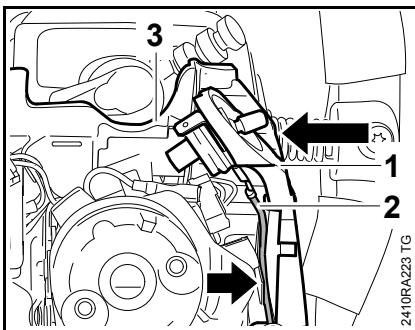
Plug (1) must be seated completely and firmly in the recess of the solenoid.

- If necessary, remove plug (1) and check contacts

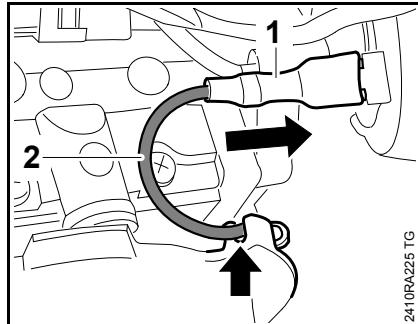


- Set Master Control lever (1) to position ▲; the cam on the lever (2) must actuate the microswitch (arrow) – clicking sound
 - If the microswitch is not actuated by the lever at the carburetor, replace lever if necessary, 13.6.6
 - If the microswitch does not function although it was actuated, then the switchgear must be replaced, 8.4

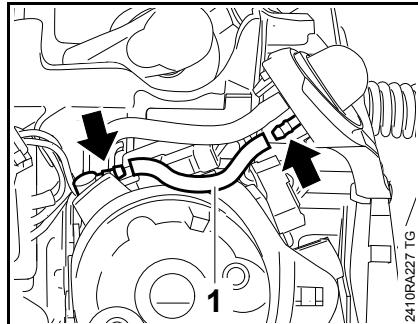
Versions with heating



- Push the holder (1) with the ground wire (2) into the recess in the air guide shroud (3) as far as it will go
- Push ground wire (2) into the guide (arrow)

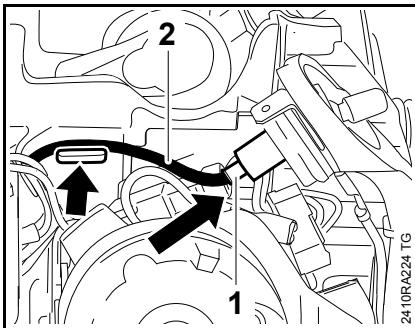


- Push blade receptacle (1) onto the connector tab
 - Push on blade receptacle all the way
- Press lead (2) completely into the guide (arrow) of the filter base

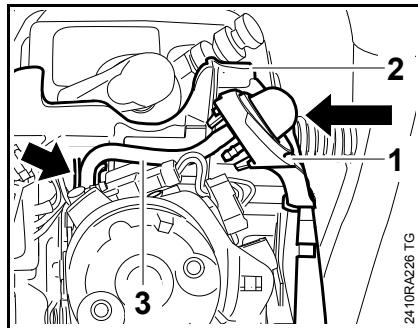


- Push the new fuel suction hose (1) completely onto the connectors (arrows)
- Reassemble remaining parts in reverse order

Versions with manual fuel pump



- Push contact sleeve (1) into heating switch
 - Push in contact sleeve completely
- Press lead (2) completely into the guide (arrow)

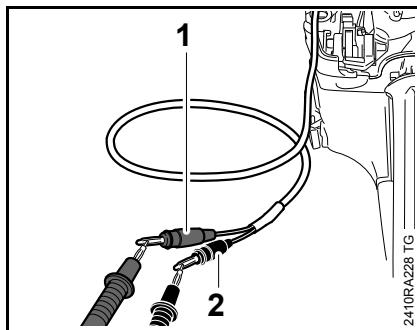


- Push the holder (1) with the fuel pump into the recess in the air guide shroud (2) as far as it will go
- Press fuel return line (3) completely into the guide (arrow)

8.2.4 Checking the solenoid valve

- Carry out test preparations, **8.2.1**
- Check screwed and plug connections, **8.2.3**
- Check contacts and operation, **8.2.5**
- Move the Master Control lever to position "T"
- Connect the test lead, **8.2.2**

Measuring resistance



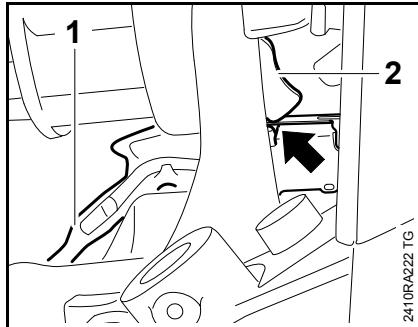
- Measure resistance between plugs (1) and (2) of the M-Tronic test lead

Target value: between 28 and 42 ohms

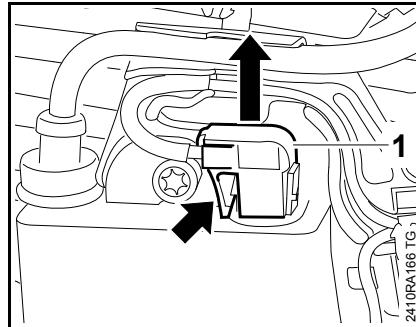
- If the target value is not attained, check electrical leads for interruption, e. g., due to cable breakage between solenoid valve and diagnostic jack, or contact due to damaged insulation

8.2.5 Checking the start detection function

- Carry out test preparations, [8.2.1](#)
- Check screwed and plug connections, [8.2.3](#)



- Set Master Control lever (1) to position ▲; the cam on the lever (2) must actuate the microswitch (arrow) – clicking sound



- Lift retaining tab (arrow) and remove angled plug (1)
- Check angled plug, dismantle and clean if necessary, [7.7.2](#)
- Set Master Control lever to position ▲
- Connect the test lead, [8.2.2](#)

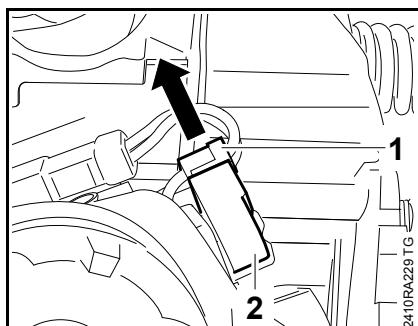
Versions with manual fuel pump

- Push out the holder with the fuel pump and set it aside, [8.2.3](#)

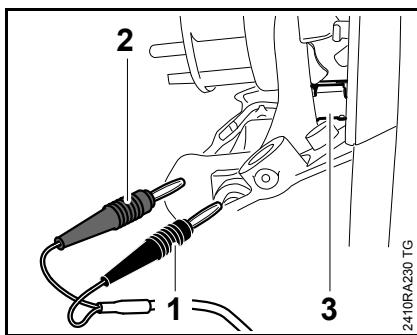
Versions with heating

- Disconnect leads, push out the holder with the heating switch and set it aside, [8.2.3](#)

All versions



- Disconnect the plug (1) from the solenoid valve (2) – the solenoid valve must not be twisted; if necessary, hold the solenoid valve in place when disconnecting the plug



Versions with manual fuel pump

- Install holder with fuel pump, push new fuel hose onto connector and press fuel return line into the guide, **8.2.3**

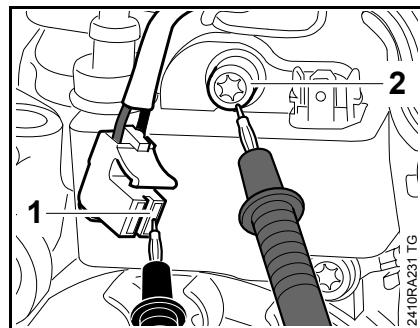
Versions with heating

- Connect M-Tronic test lead to multimeter
- Insert black plug (1) in the "com" / "ground" jack and the red plug (2) in the "volt" / "ohm" jack
- Set multimeter to "diode test"
- Test diode on switchgear (3) (microswitch) in accordance with multimeter instruction manual

If the switchgear (microswitch) is intact and the Master Control lever is set to the **▲** position, the following target values will be attained:

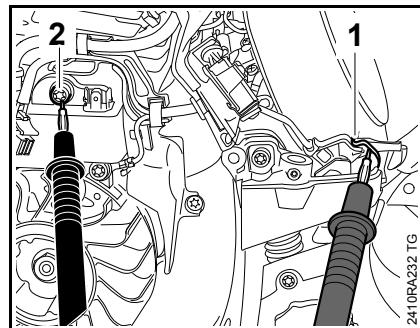
- Measurement in direction of flow, target value: 0.3 volts to 0.7 volts
- Move the Master Control lever to position **I**
- Measurement in direction of flow, required: 1.2 volts to infinity
 - Observe display, e.g., (O.L.) or (1.)
- If the required values are not attained, replace switchgear and repeat test procedure, **8.4**
- If the required values are not attained again, replace wiring harness; it may be possible to reuse the previous switchgear, **7.7.2**

Checking the ground connection



- Measure the resistance between blade receptacle (1) with black lead and screw (2) at the control unit

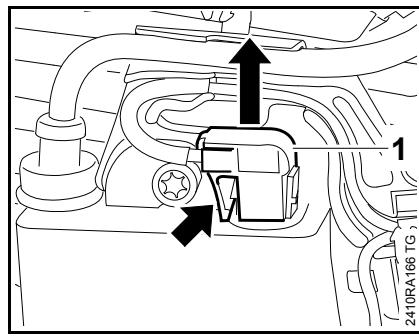
Target value: < 10 ohms.



- Measure the resistance between contact spring (1) and screw (2) at the control unit

Target value: < 10 ohms.

If the target values are not attained

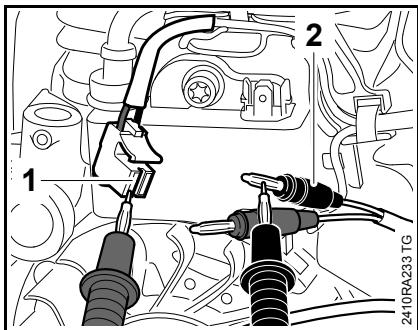


- Lift retaining tab (arrow) and remove angled plug (1)
- Check angled plug, dismantle and clean if necessary, **7.7.2**

- Check electrical leads for interruption, e. g., cable breakage – if necessary, replace wiring harness, **8.2.6**

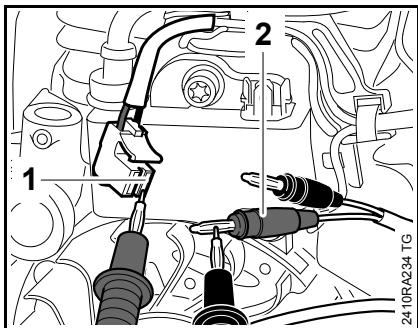
Check leads between control unit and diagnostic jack

- Connect the test lead,  16



- Measure the resistance between blade receptacle (1) with red lead and black plug (2) of the diagnostic cable

Target value: < 10 ohms.



- Measure the resistance between blade receptacle (1) with black lead and red plug (2) of the diagnostic cable

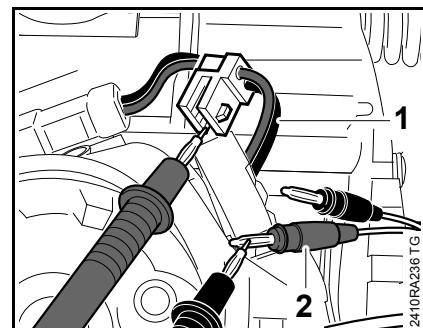
Target value: < 10 ohms.

If the target values are not attained

- Check contact between blade receptacle of the switch shaft and contact spring

- Check continuity between leads and blade receptacles
 - Blade receptacles must be firmly connected to the leads; in the event of contact problems, the wiring harness must be replaced,  8.2.3,  8.2.6

Target value: < 10 ohms

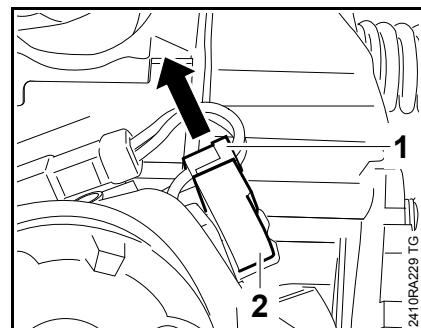


- Measure the resistance between black lead (1) at the plug of the solenoid and red plug (2) of the diagnostic cable

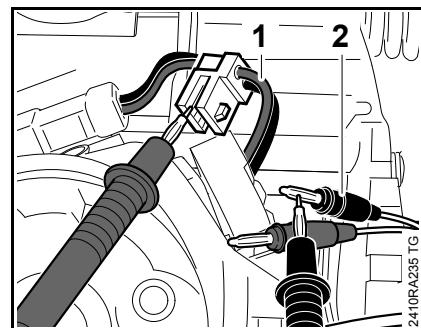
Target value: < 10 ohms

If the target values are not attained

- Check contact surfaces on plug of the plug connection, as well as checking electrical leads for interruption, e. g., cable breakage
- If the contact surfaces on the plug are damaged in the plug connection between wiring harness and switchgear, the wiring harness must be replaced,  7.7.2, if the contacts in the jack are damaged, the switchgear must be replaced,  8.4
- Reassemble remaining parts in reverse order



- Disconnect the plug (1) from the solenoid valve (2) – the solenoid valve must not be twisted; if necessary, hold the solenoid valve in place when disconnecting the plug



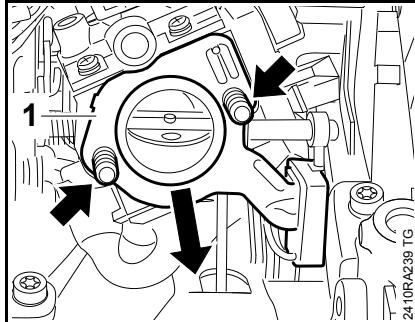
- Measure the resistance between red lead (1) at the plug of the solenoid and black plug (2) of the diagnostic cable

8.3 Wiring harness

- The M-Tronic leads and the ground wire are all combined into one wiring harness; removal and installation are described in the chapter "Short-circuit wire", [7.7.2](#)

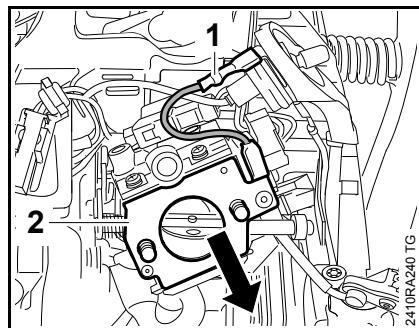
8.4 Switchgear

- Remove shroud, [6.4](#)
- Remove the air filter, [13.1](#)
- Check switchgear, [8.2.5](#)
- Remove choke rod, [11.4](#)
- Remove baffle, [13.2](#)
- Remove filter base, [13.3](#)



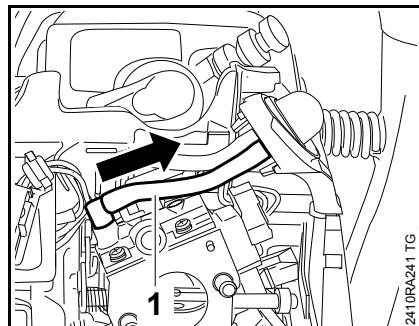
- Pull holder (1) of the switchgear over the studs (arrows) and lay it aside

Versions with heating

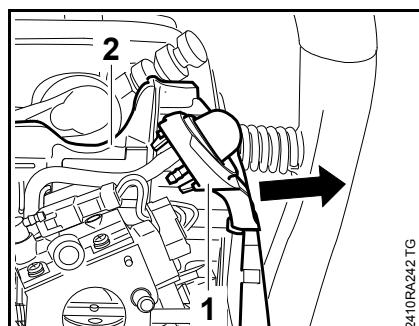


- Remove blade receptacle (1)
- Remove heating element (2) from the studs

Versions with manual fuel pump

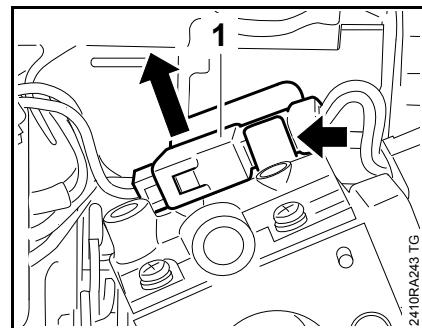


- Disconnect the fuel hose (1)

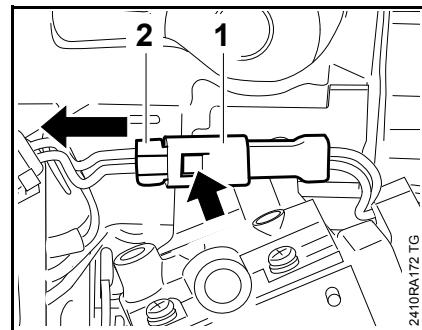


- Push out the holder (1) with the fuel pump on the air guide shroud (2) and lay it on top of the air guide shroud

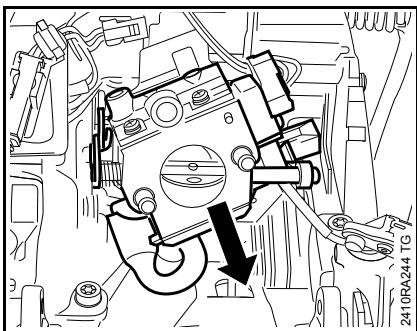
All versions



- Pull plug connector (1) out of the carburetor support mount (arrow)

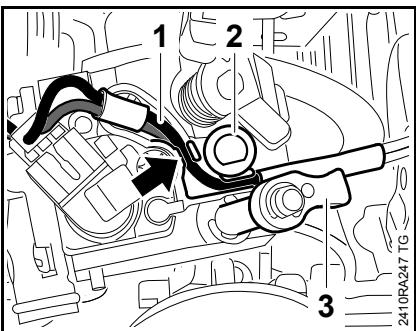


- Hold the jack (1), press the tab (arrow) and pull out the plug (2) – do not tug on the leads

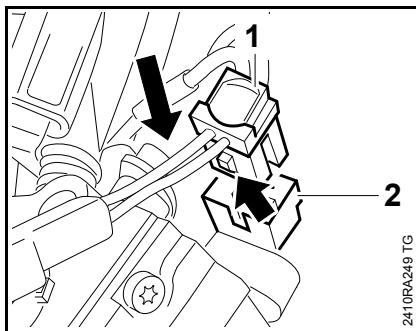


The fuel hose does not have to be removed from the carburetor support.

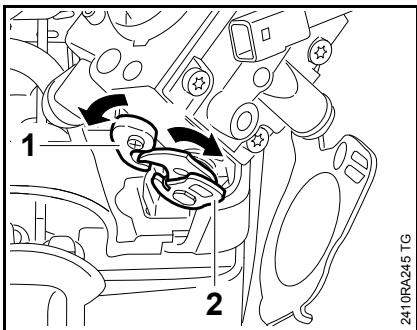
- Carefully pull out the carburetor with the fuel hose over the studs and lay it aside – do not overextend the fuel hose



- Pull the wiring harness (1) out of the guide (arrow) and pull it out between the special bolt (2) and the starter shaft (3)
- Check lever on the starter shaft (3), replace if necessary, [13.6.6](#)



- Orient plug (1) so that the guide pin (arrow) faces the carburetor
- Push the plug (1) into the jack of the solenoid (2) as far as it will go

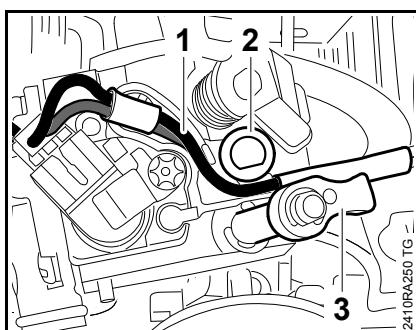


- Turn the throttle shaft lever (1) slightly in the direction of full-throttle, then turn the starter shaft (2) until the choke shutter is closed

Installation

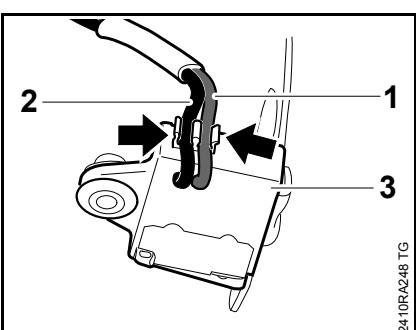
With a new switchgear, first the leads must be inserted in the guides of the switchgear.

Leads and plug connections must not be damaged.

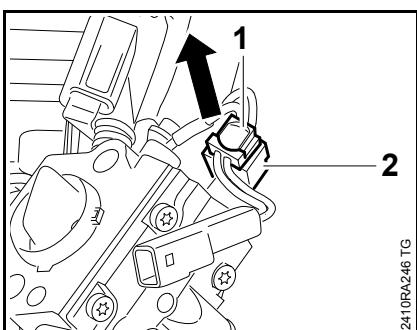


- Orient wiring harness (1) so that the red lead runs underneath the black lead

Choke shutter must be closed.

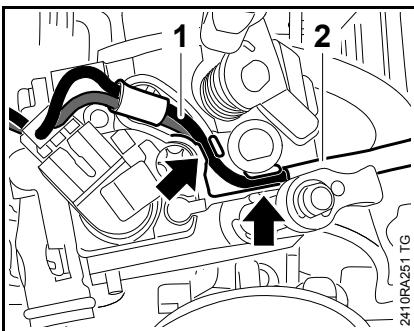


- Guide wiring harness (1) between the special bolt (2) and the starter shaft (3)



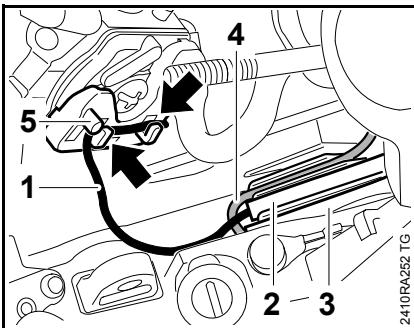
- Press red lead (1) and black lead (2) completely into the guides (arrows) of the switchgear (3)
– see illustration

- Disconnect the plug (1) from the solenoid valve (2) – the solenoid valve must not be twisted; if necessary, hold the solenoid valve in place when disconnecting the plug



- Position the wiring harness (1) so that the protective tube (2) rests against the beginning of the guide
- Press the red and black leads completely into the guides (arrows)

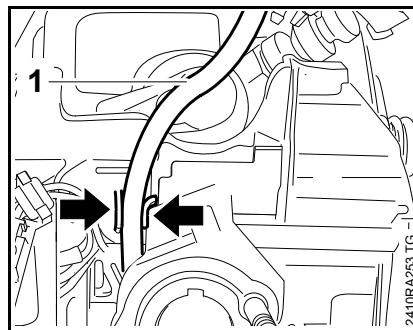
Versions with heating



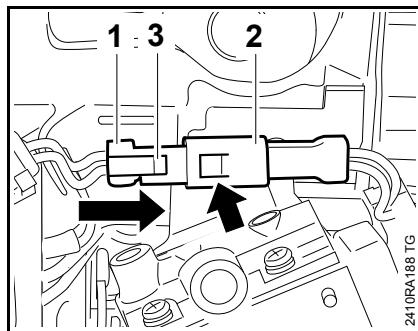
- Check the lead (1) of the thermostatic switch, if necessary, press it completely into the guides (arrows) on the base of the carburetor and route it behind the pin (5)

Plug connectors (2) and (3) and the generator lead (4) must be seated completely in the guides.

Versions with manual fuel pump

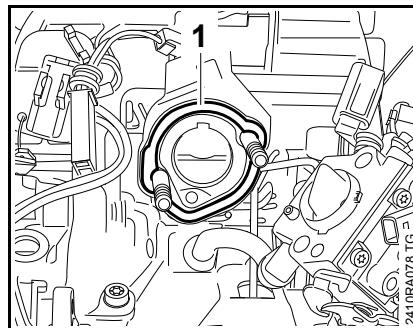


- Check seat of the fuel return line (1), if necessary, press it completely into the guides (arrows)

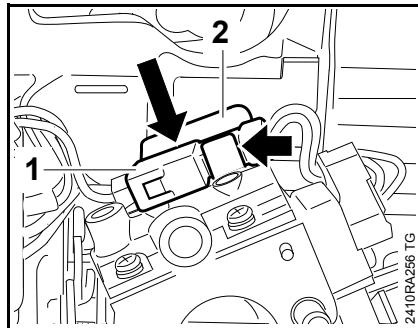


- Orient plug (1) and jack (2) so the tab (3) lines up with the opening (arrow) – do not twist the leads
- Plug connector (1) into jack (2) until the tab (3) clicks into place

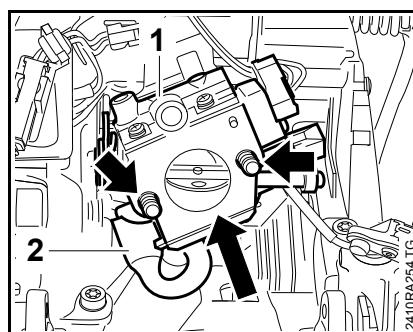
All versions



Washer (1) must be fitted.



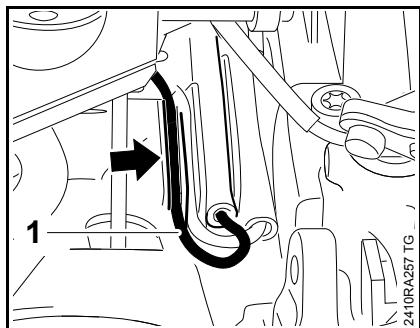
- Press the plug connection (1) into the mount (2) of the carburetor support so that the tab (arrow) engages and snaps into place in the recess of the plug connection
 - Plug connection (1) must be seated firmly in the mount (2)
- Push on the carburetor as far as it will go – pay attention to cable routing and make sure not to pinch any leads



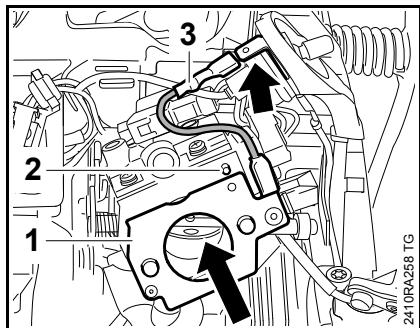
Do not remove the fuel hose from the carburetor support.

- Carefully push the carburetor (1) with the fuel hose (2) over the studs (arrows) – do not overextend the fuel hose

Versions with heating

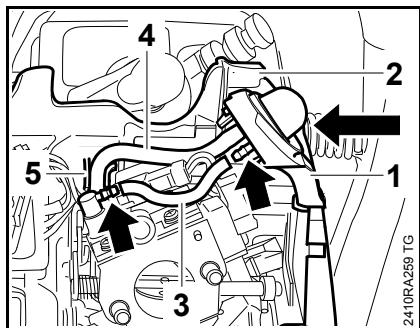


- Press thermostatic switch lead (1) completely into the guide (arrow) of the air guide shroud
 - Lead (1) must form a loop at the plug connection



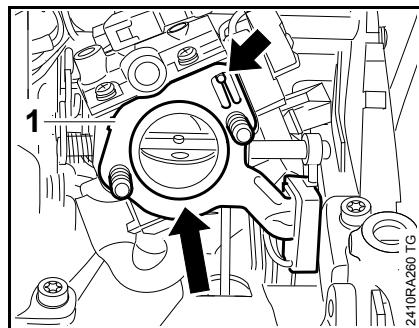
- Slide the heating element (1) over the studs so that the hole engages the pin (2)
- Orient the crimped side of the blade receptacle (3) so that it faces the carburetor
- Push the blade receptacle (3) completely onto the connector tab (arrow)

Versions with manual fuel pump



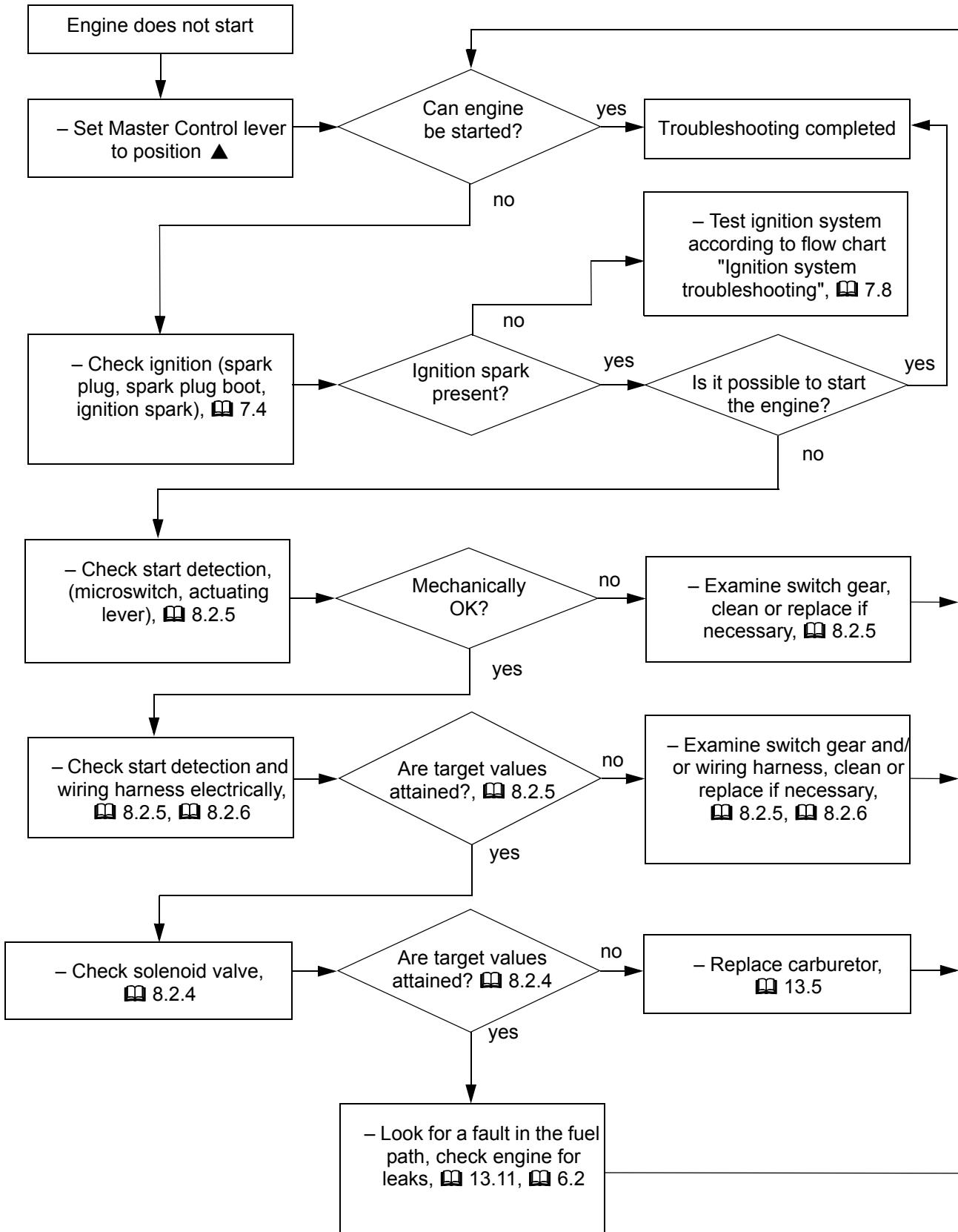
- Push the holder (1) with the fuel pump into the mount of the air guide shroud (2) as far as it will go; push new fuel hose (3) onto the connectors (arrows)
- Fuel return line (4) must be seated completely in the guide (5); if necessary, press the fuel return line (4) into the guide (5) again

All versions

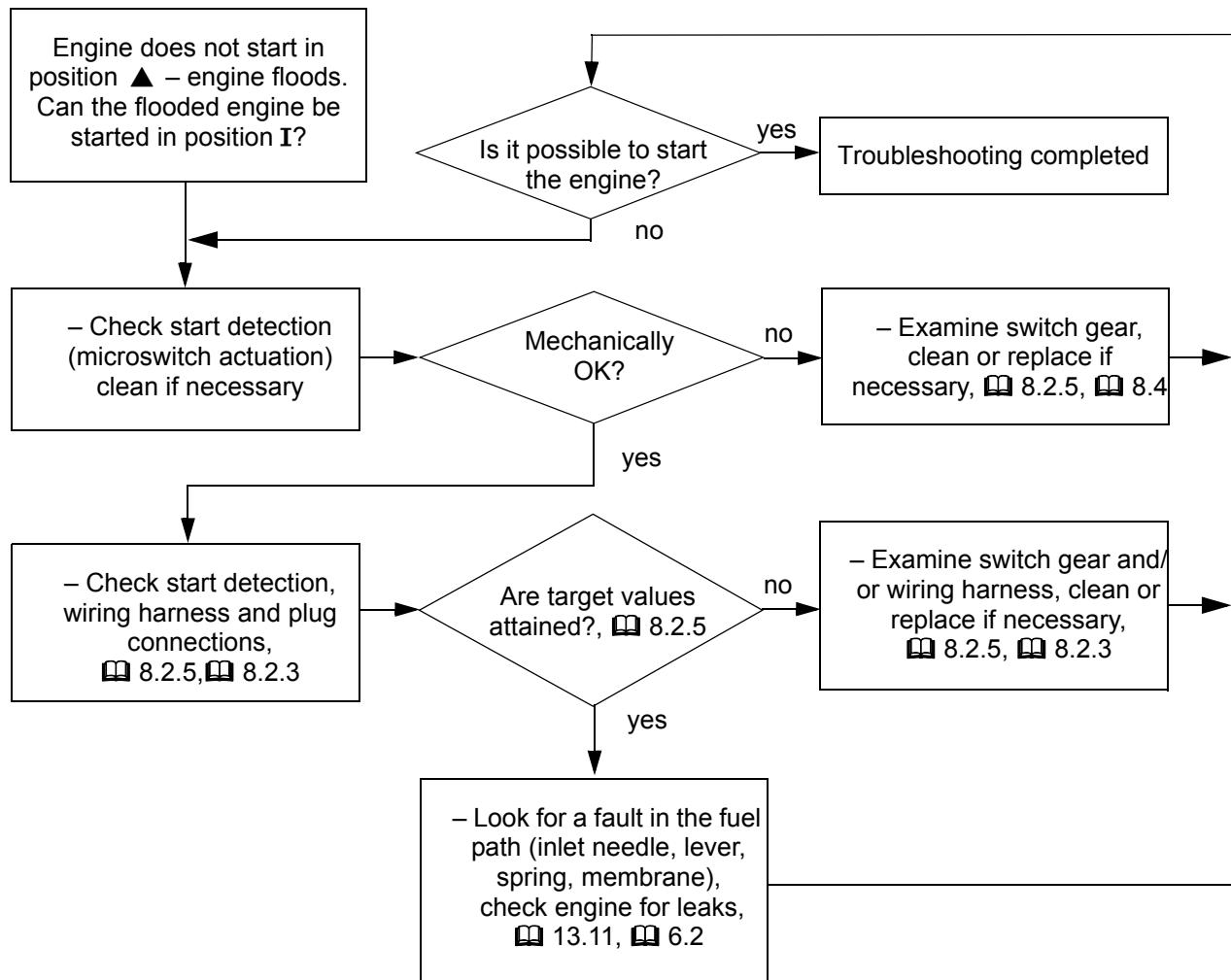


- Push the holder (1) of the switchgear over the studs so that the tab rests against the pin (arrow)
 - Install filter base, [13.3](#)
 - Reassemble remaining parts in reverse order

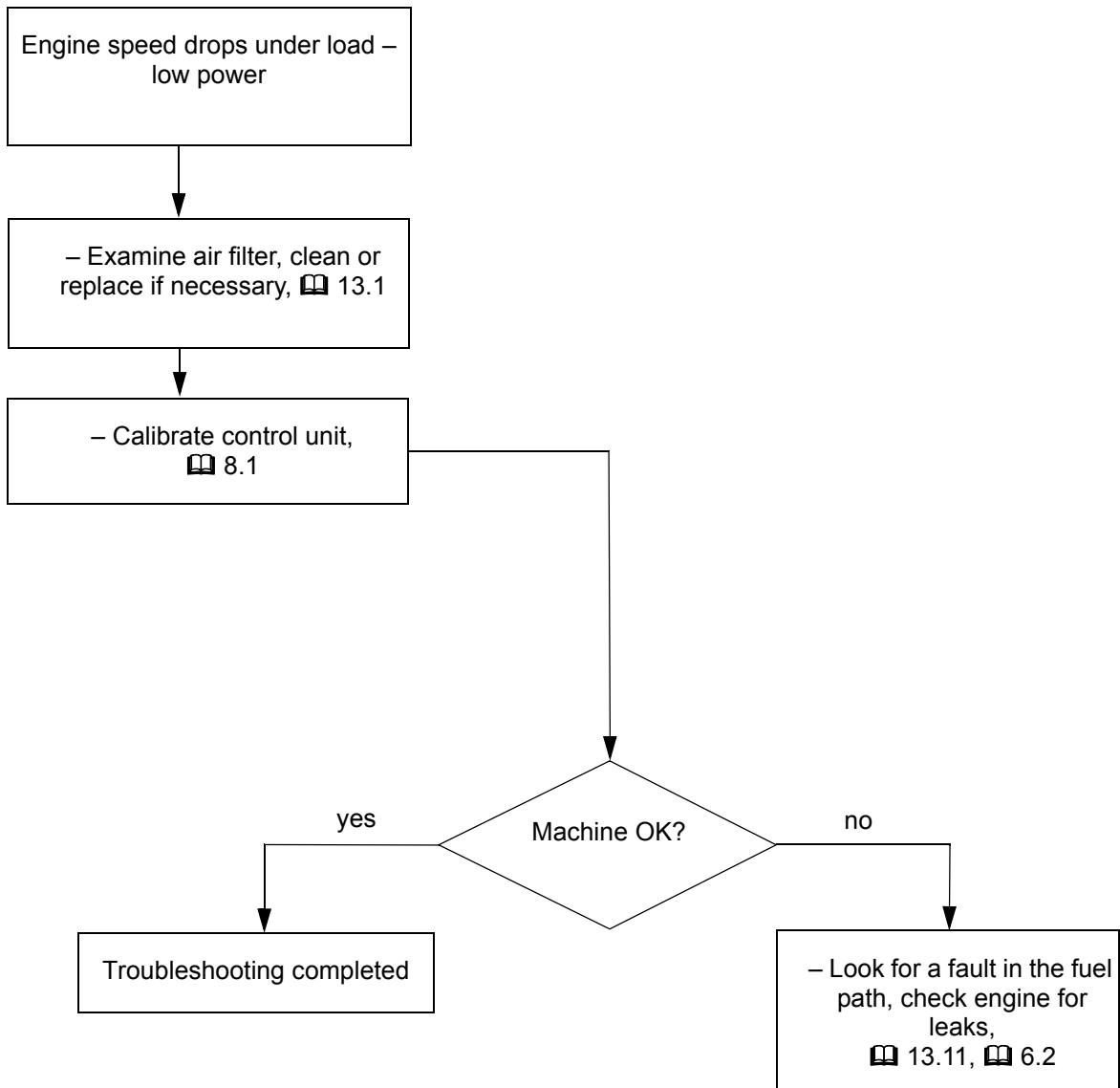
8.5.1 Engine does not start



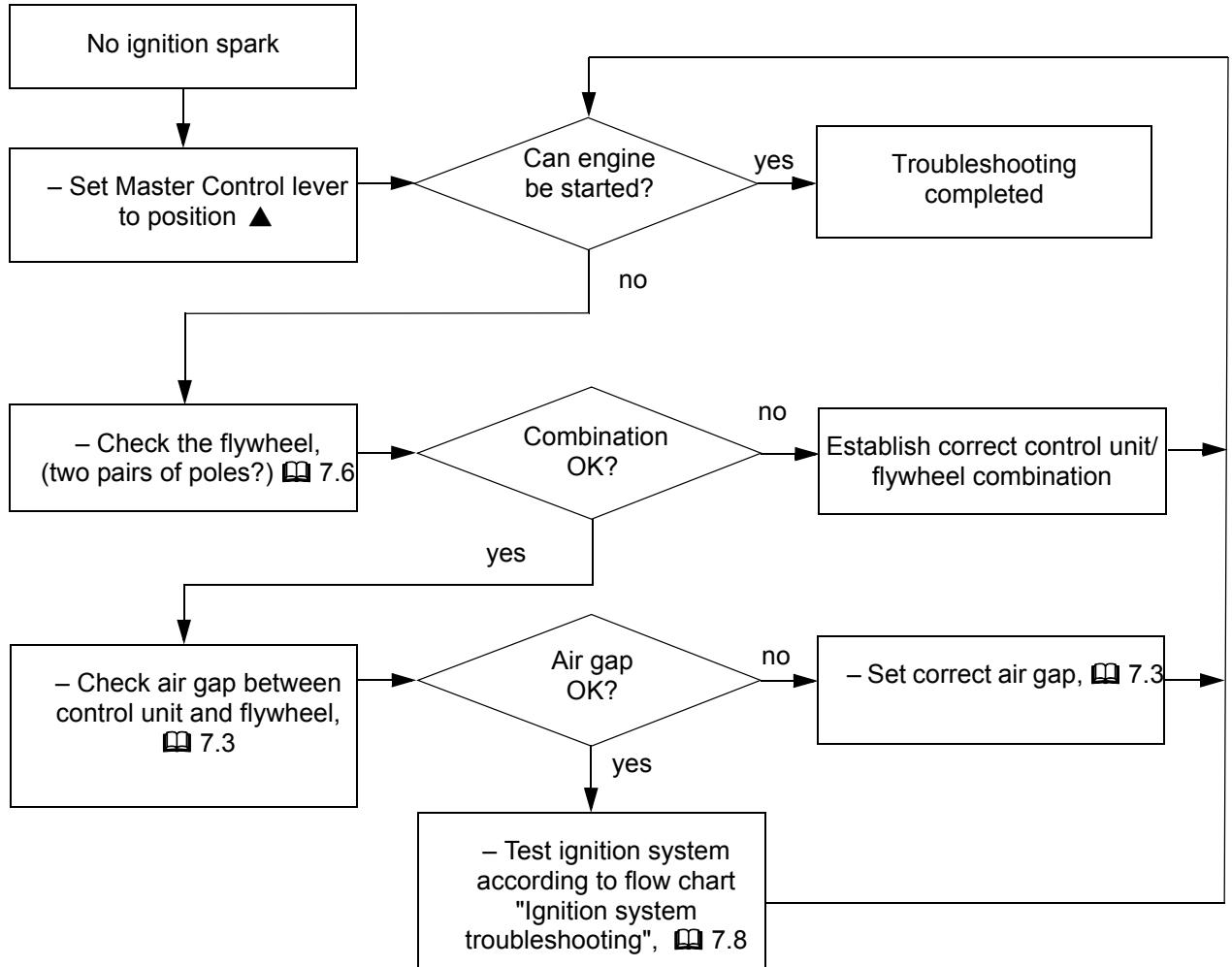
8.5.2 Engine does not start in position ▲



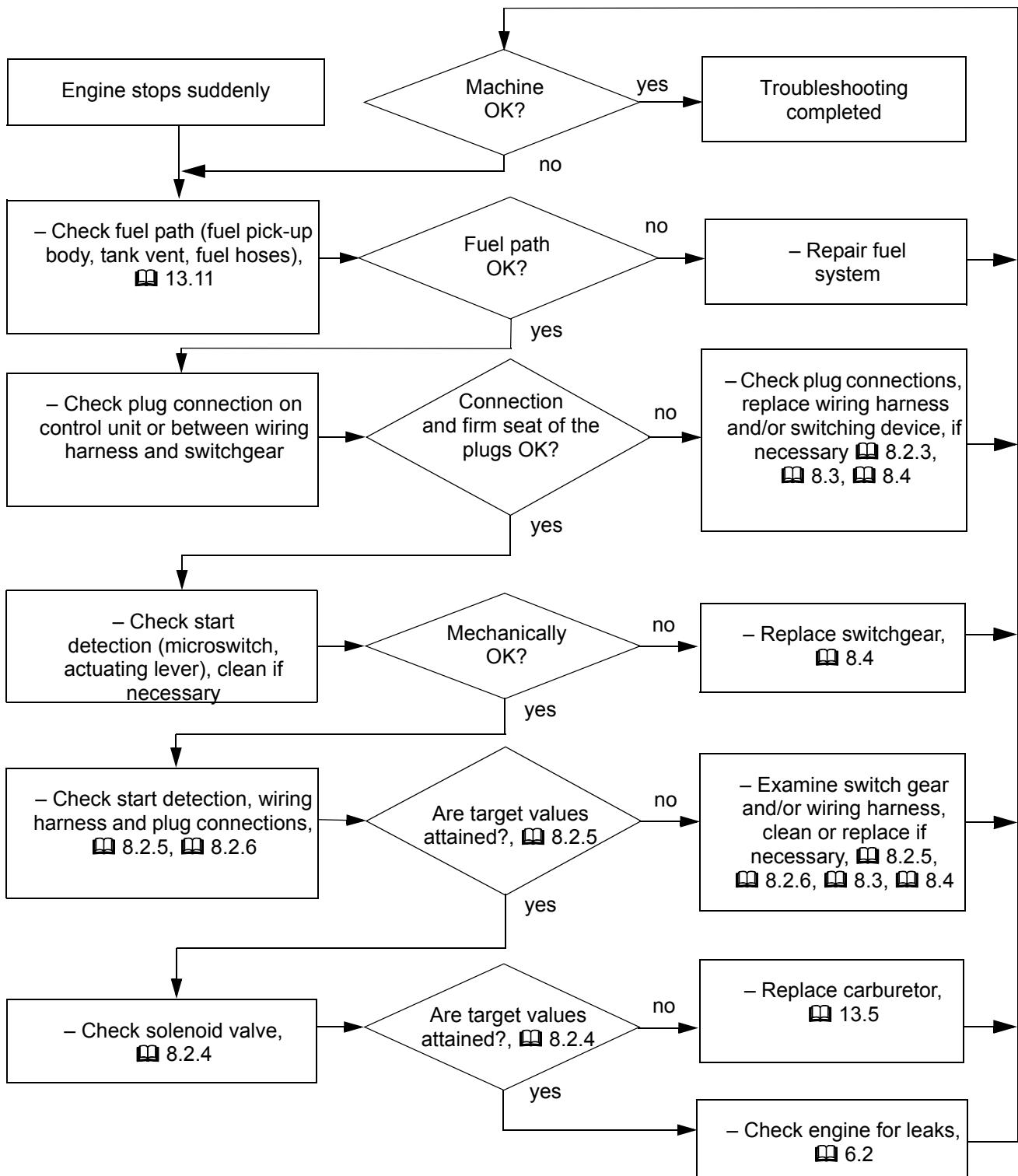
8.5.3 Engine speed drops under load – low power



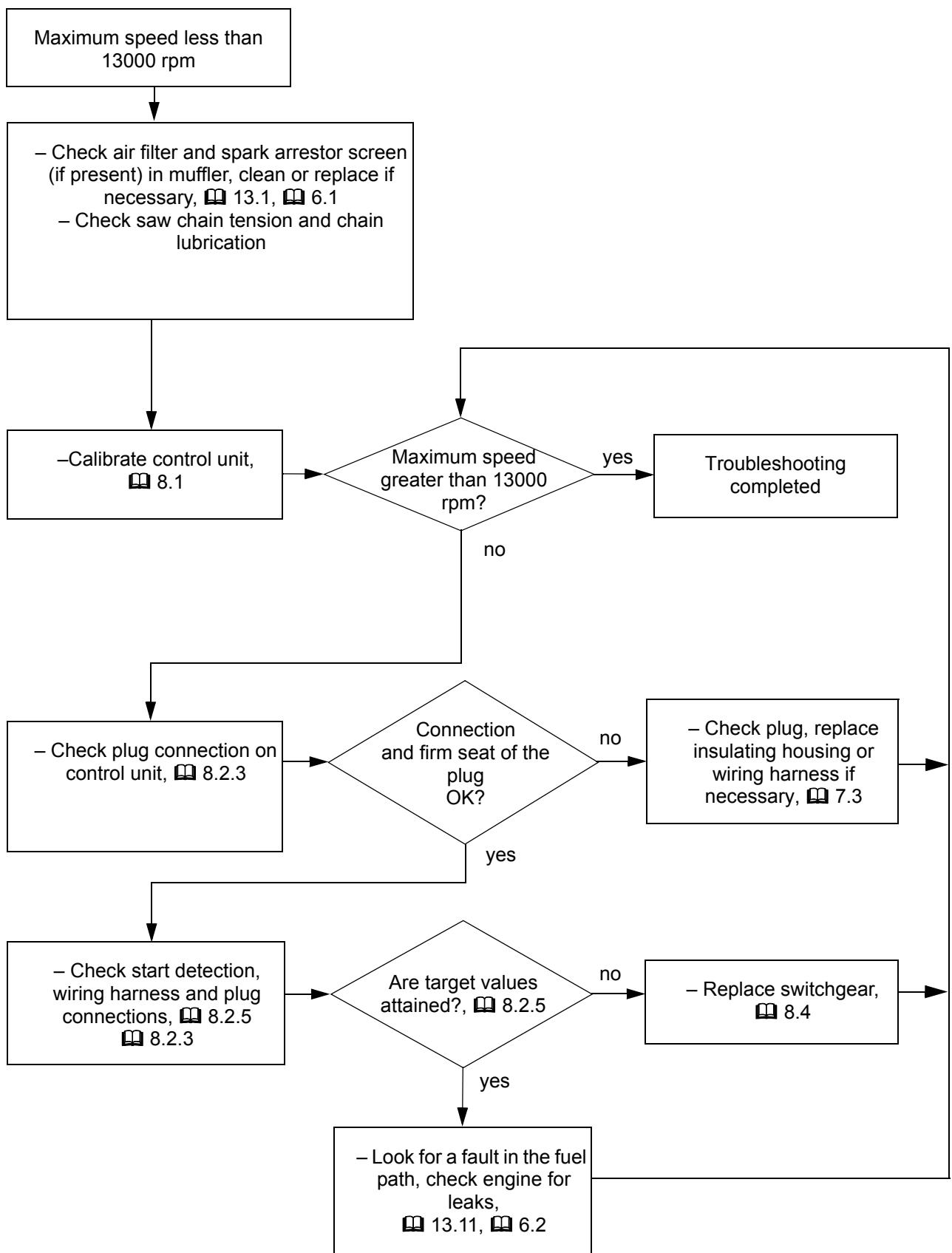
8.5.4 Ignition – no ignition spark



8.5.5 Engine stops suddenly



8.5.6 Cut-off speed not reached



9. Rewind starter

9.1 General

If the action of the starter rope becomes very stiff and the rope rewinds very slowly or not completely, it may 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.

To clean the rewind spring, it is sufficient to apply a few drops of a standard solvent-based degreasant not containing any 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, **9.16**.

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.

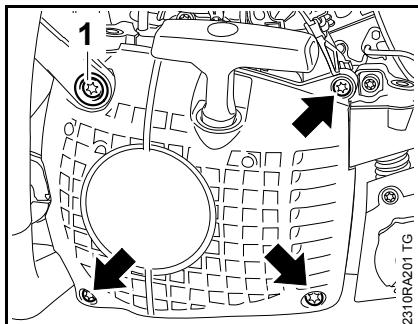
- Clean all components

Versions with ErgoStart

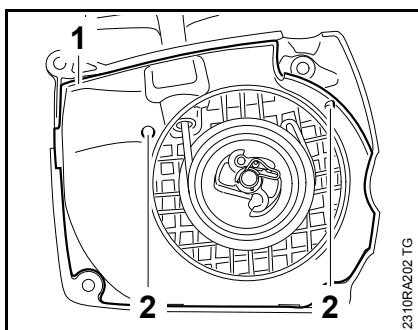
- Relieve the tension of the rewind spring, **9.4**

9.2 Fan housing

- Remove shroud, **6.4**

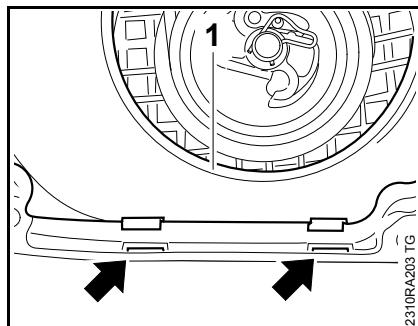


- Remove screw (1) with sleeve and screws (arrows)
- Lift hand guard slightly and remove fan housing

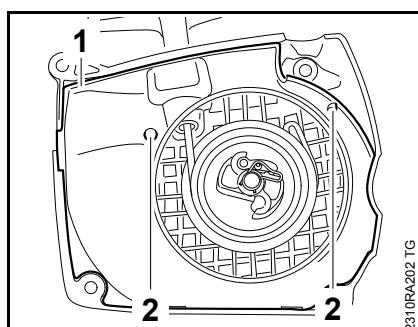


- Push out segment (1) on the pegs (2) on the opposite side through the holes with drift
- Examine fan housing and segment, replace if necessary.

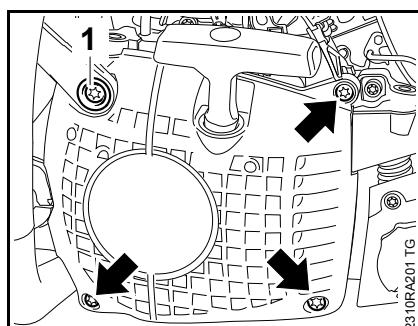
Installation



- First insert and position segment (1) in the slit (arrow) on the fan housing



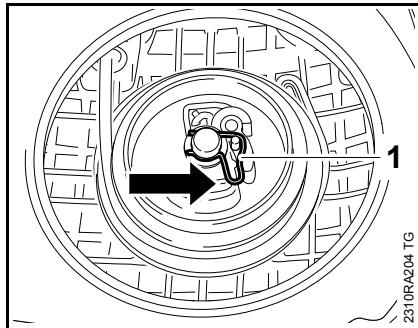
- Press segment (1) as far as it will go into the pegs (2)



- Lift hand guard slightly and position fan housing
- Insert and tighten screw (1) with sleeve and screws (arrows)
- Reassemble remaining parts in reverse order

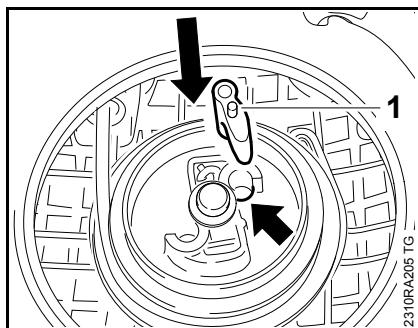
9.3 Pawls

- Remove fan housing, **9.2**
- Relieve the tension of the rewind spring, **9.5**

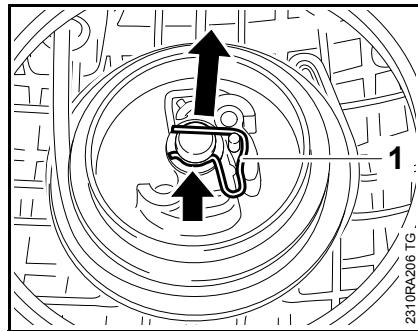


- Carefully ease the spring (1) off the starter post
- Remove pawl

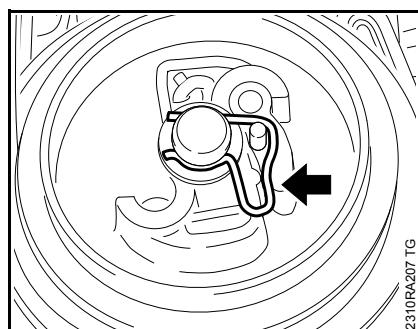
Installation



- Press new pawl into hole (arrow) and grease the peg (1), **16**



- Position the spring (1) so that the loop of the spring encloses the peg of the pawl and the curved part of the spring (arrow) is located in the groove in the starter post
- Then slide the straight part of the spring over the starter post until it engages in the groove



The guide loop of the spring must run along the pawl (arrow).

Checking correct functioning

- Pull starter rope, the rope rotor turns, and the peg at the pawl moves in the direction of the anchor loop – the pawl moves outward
- Reassemble remaining parts in reverse order

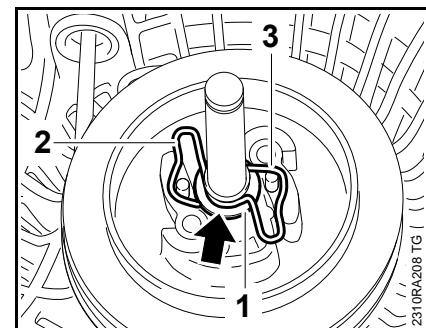
Versions with ErgoStart

- Remove ErgoStart, **9.4**

Two pawls are installed in the version with ErgoStart. Removal is the same as with the standard version.

- Grease the mounts of the new pawls, **16**
- Insert the new pawls and oil the pegs of the pawls with resin-free lubricating oil, **16**

Installation



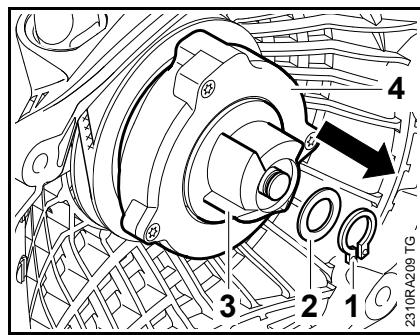
Washer (1) must be fitted.

- Position spring (2) so that its anchor loops engage the pegs of the pawls and the curved part of the spring (arrow) is located in the groove of the rope rotor post
- Then slide the straight part (3) of the spring over the starter post until it engages in the groove
- Reassemble remaining parts in reverse order

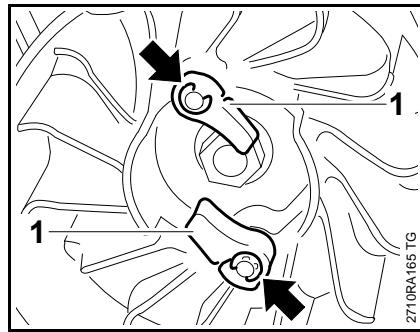
9.4 ErgoStart

The spring may still have spring tension stored in it, thus release the spring tension before any assembly procedure:

- Pull out the starter until the engine turns – the preloaded spring is relaxed
- Remove fan housing and, if necessary, segment, **9.2**

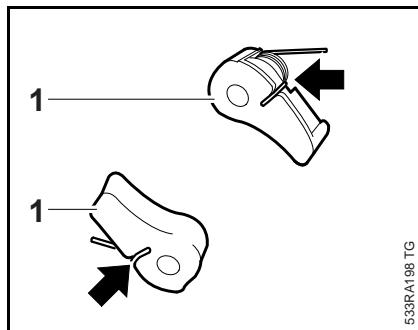


- Remove the circlip (1)
- Remove washer (2) and carrier (3)
- Remove spring housing (4)

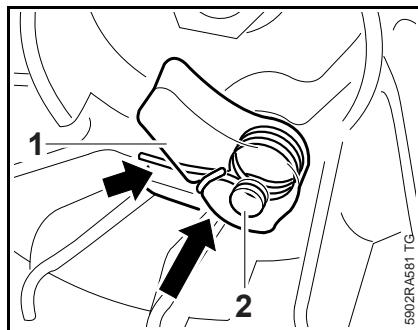


- Push out circlips (arrows)
- Pull out pawls (1) and remove torsion springs
- Clean the mounts of the pawls (1), **16**

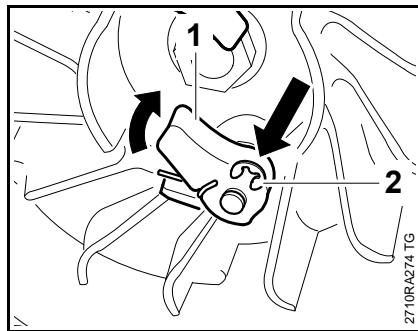
Installation



- Install torsion springs in pawls (1)
– observe installation position (arrows)



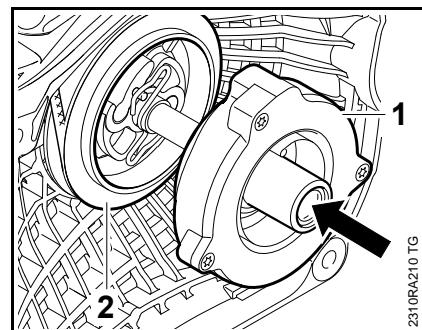
- Push pawls (1) onto the posts (2) on the flywheel, in the process pretensioning the torsion springs and positioning them on the support ribs (arrow)



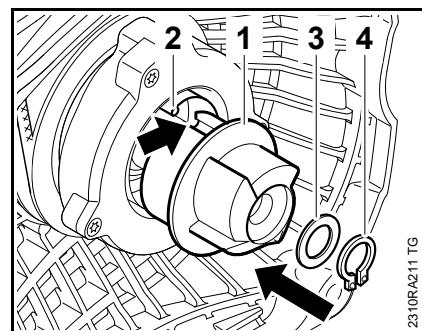
- Insert the carrier (1) in the spring housing so that the recess (arrow) engages the anchor loop (2) of the rewind spring
- Fit washer (3)
- Fit the circlip (4)
– Do not overextend circlip
- Reassemble remaining parts in reverse order

Checking correct functioning

The pawls must move freely and rest against the stop due to the spring force.



- Push spring housing (1) over the rope rotor post into the pawls of the rope rotor (2) – the pawls must engage in the spring housing



- Reassemble remaining parts in reverse order

9.5 Rope rotor

Relieve tension of rewind spring

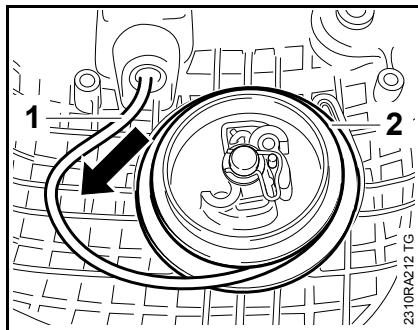
The system will not be under tension if the starter rope or rewind spring is broken.

- Remove fan housing and segment, **9.2**

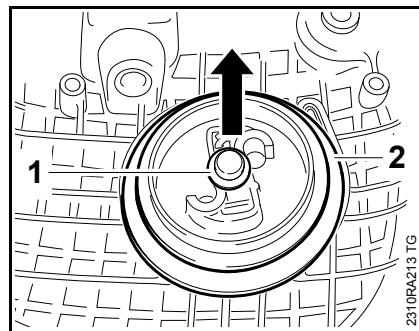
Versions with ErgoStart

- Remove ErgoStart, **9.4**

All versions



- Pull out the starter rope (1) about 5 cm, then hold the rope rotor (2) steady
- Still holding the rope rotor steady, take three full turns off the rope rotor
- Pull out the rope with the starter grip and carefully release the rope rotor
- Remove the starter rope; remove any remaining scraps of rope, **9.6**
- Remove spring and pawl or pawls, **9.3**

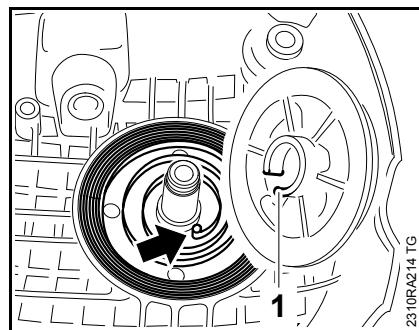


- Remove the washer (1)

The rewind spring must be relieved.

- Carefully pull off the rope rotor (2)
– The rewind spring may pop out
- Examine the rope rotor, replace if necessary.
- Coat the hole in the rope rotor with STIHL special lubricant, **16**

Installation



- Fit the rotor on the starter post so that the inner loop of the spring (arrow) enters the recess (1)

The recess in the hub of the rope rotor acts as carrier for the anchor loop.

- Fit the washer.

- Install pawl or pawls and spring, **9.3**
- Install starter rope, **9.6**
- Tension the rewind spring, **9.7**
- Grease the pegs of the pawl or pawls, **16**
- Reassemble remaining parts in reverse order

9.6 Starter rope / starter grip

- Remove fan housing and segment, **9.2**

Versions with ErgoStart

- Remove ErgoStart, **9.4**

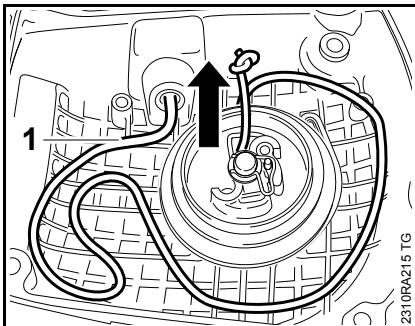
All versions

- Relieve the tension of the rewind spring, **9.5**

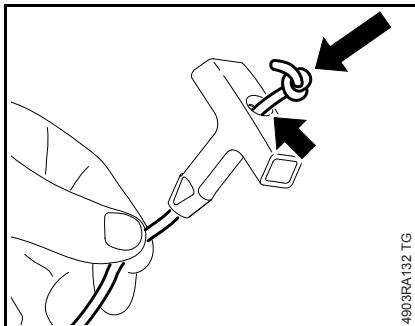
The rewind spring will not be under tension if the starter rope is broken.

- Remove any remaining rope from the rope rotor if necessary

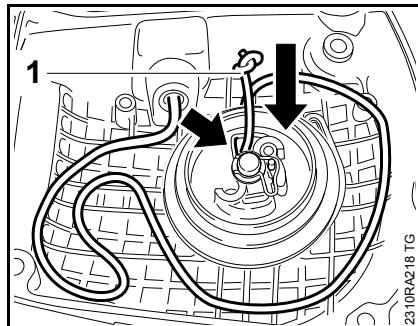
The starter rope must not be shortened.



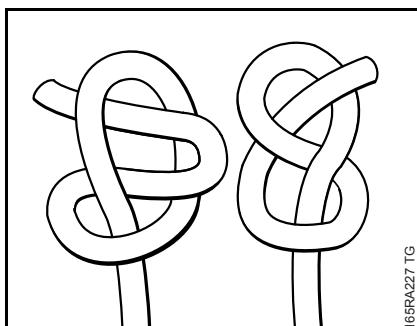
- Push starter rope (1) out a short distance and undo the knot
 - Pull starter rope out of rope rotor and fan housing.



Pull the rope through the grip until the knot at the end of the rope is in the recess (arrow)

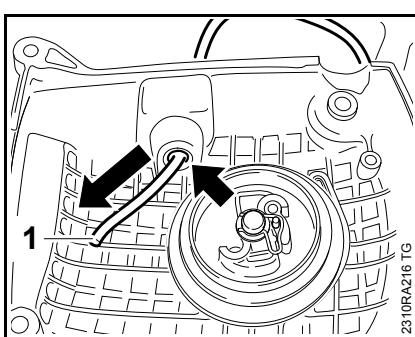


- Pull starter rope (1) into rotor until the knot rests in the recess (arrow) of the rope rotor
 - Tension the rewind spring, **9.7**



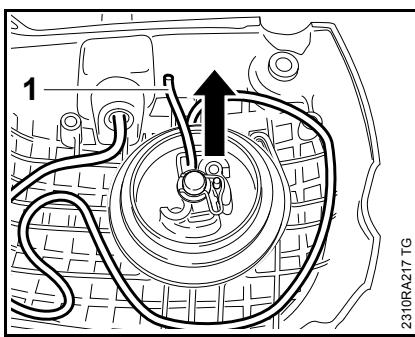
165RA227 TG

- Tie one of the two special knots shown above at the end of the rope in the starter grip.



2310RA216 TG

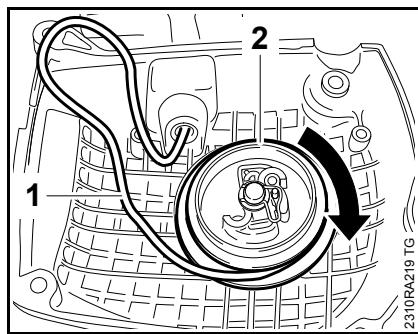
- Then thread the rope (1) through the opening (arrow)



2310RA217 TG

- Thread the new starter rope into the starter grip from above

- Thread starter rope (1) into rope rotor
 - Secure the rope (1) with a simple overhand knot

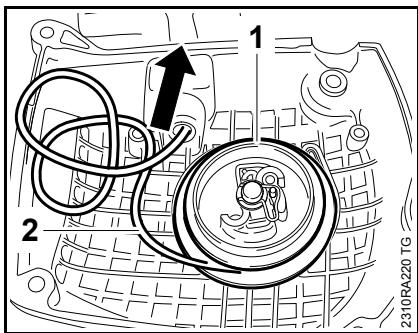


2310RA219 TG

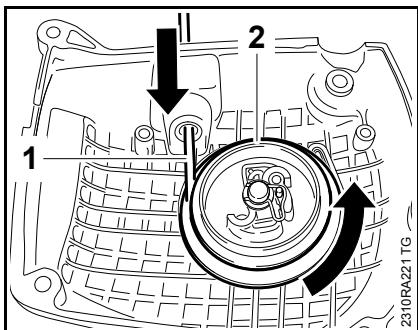
- Pull out part of the starter rope (1)
 - Turn starter rope (1) with rope rotor (2) six times clockwise

The rewind spring is now tensioned.

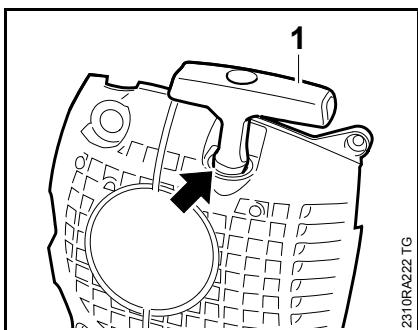
Hold the tensioned rope rotor firmly, as the rewind spring will be damaged if it jumps back suddenly.



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



- Hold the starter grip firmly to keep the rope (1) tensioned
- Let go of the rope rotor (2) and let the starter rope rewind slowly



The rewind spring is correctly tensioned when the starter grip (1) sits firmly in the rope guide bushing (arrow) without drooping to one side. If this is not the case, the rewind spring must be tensioned by one additional turn.

When the starter rope is fully extended, it must still be possible to rotate the rope rotor at least another turn before the maximum spring tension is reached. If not, the spring tension must be reduced, otherwise it will break.

Reduce spring tension

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

- Reassemble remaining parts in reverse order

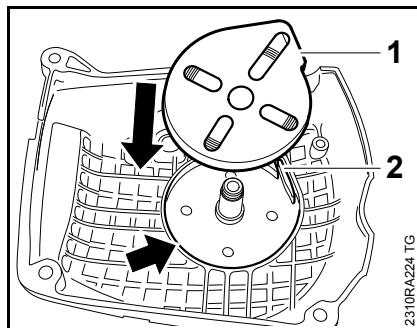
9.8 Replacing the rewind Spring

- Troubleshooting, **3.4**

The replacement spring is supplied ready for installation and secured in a spring housing.

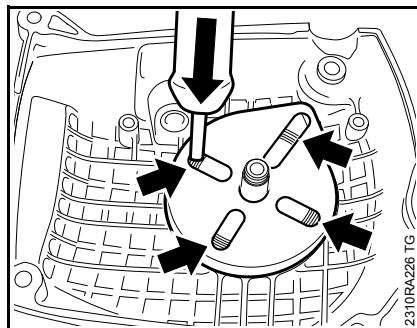
- Wear face shield and protective gloves
– risk of injury
- Remove fan housing and segment, **9.2**
- Relieve the rewind spring if necessary and remove the rope rotor, **9.5**
- Remove any fragments of the old spring
- If the rewind spring no longer produces sufficient tension, it must be replaced.
- A worn rewind spring may still be under tension while installed.
- Lay a blanket over the assembly area and remove the rewind spring from the fan housing

Install new rewind spring

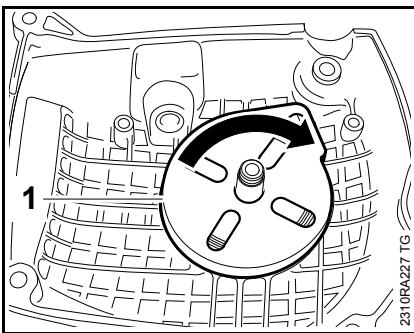


- Lubricate replacement spring with frame with a few drops of STIHL special lubricant before installing it, **16**

- Position replacement spring with frame in the fan housing so that the outer anchor loop (1) is positioned over the mount for the loop (2) and aligns with the mount (arrow)

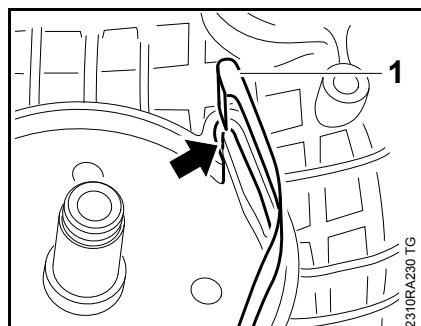


- Starting at the outer anchor loop, push the new rewind spring through the openings (arrows) into the mount of the fan housing – in the process, the frame is removed



Reinstalling a rewind spring that has popped out

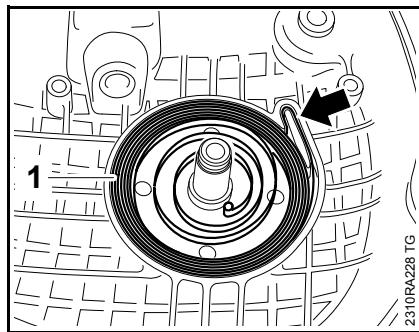
If the rewind spring pops out during installation, fit it in the fan housing as follows:



- Press the frame (1) against the rewind spring and turn it slightly clockwise until the rewind spring is completely seated

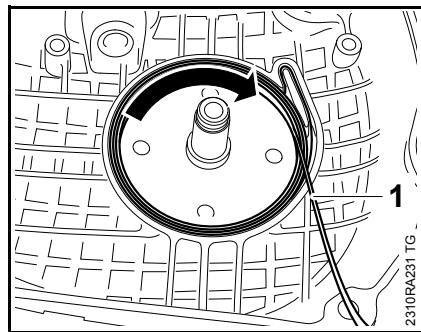
The rewind spring may pop out.

- Carefully remove the frame and keep it
 - The frame is reused as an installation tool for installing rewind springs that have popped out
- Arrange the rewind spring (1) as shown in the illustration
- Insert outer anchor loop in the recess (arrow) of the fan housing



Make certain that the rewind spring (1) is inserted completely and the outer anchor loop is seated in the anchor loop mount (arrow), if necessary, press the rewind spring completely into the mount in the fan housing.

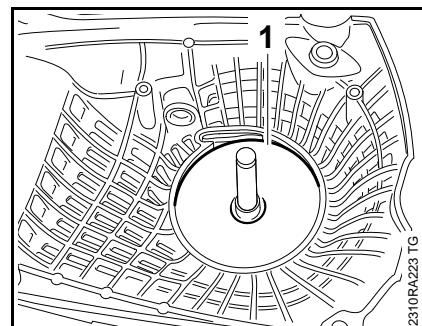
- Secure the rewind spring so that it cannot pop out
- Install the rope rotor, **9.5**
- Reassemble remaining parts in reverse order



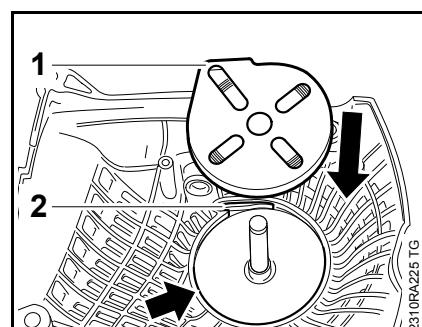
- Fit the rewind spring (1) in the spring housing in a circular fashion, working in clockwise direction while holding the inserted turns of the spring in place

The further course of action is the same as for "Installing a new rewind spring".

Versions with ErgoStart Install new rewind spring



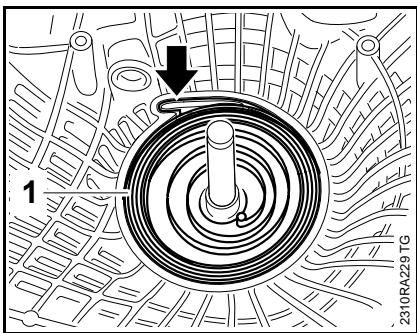
- Check washer (1) and replace if necessary



- Lubricate replacement spring with frame with a few drops of STIHL special lubricant before installing it, **16**

Position replacement spring with frame in the fan housing so that the outer anchor loop (1) is positioned over the mount for the loop (2) and aligns with the mount (arrow)

The further course of action is the same as for "Installing a new rewind spring" in versions without ErgoStart.



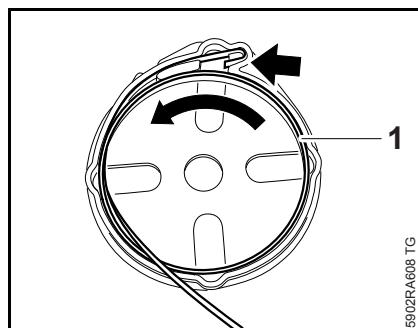
Make certain that the rewind spring (1) is inserted completely and the outer anchor loop is seated in the anchor loop mount (arrow), if necessary, press the rewind spring completely into the mount in the fan housing.

- Secure the rewind spring so that it cannot pop out
- Install the rope rotor, 9.5
- Reassemble remaining parts in reverse order

Reinserting a popped out rewind spring into the frame

In versions with ErgoStart, the rewind spring mount sits lower, thus the rewind spring can only be inserted directly into the fan housing premounted in a frame.

If the rewind spring pops out during installation, fit it in the frame as follows:



- Insert anchor loop in the recess (arrow) of the frame
- Fit the rewind spring (1) in the frame in a circular fashion, working in counterclockwise direction while holding the inserted turns of the spring in place

The further course of action is the same as for "Installing a new rewind spring" in versions with ErgoStart.

10. Maintaining the antivibration elements

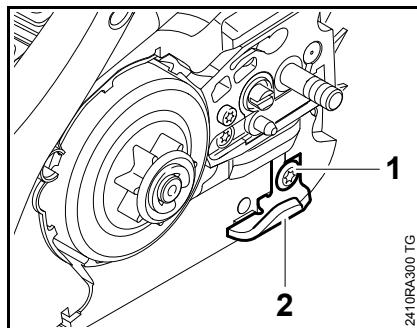
The front handle / tank housing and crankcase are connected by vibration-damping springs, rubber buffers and stop buffers.

Damaged springs rubber buffers and stop buffers must always be replaced.

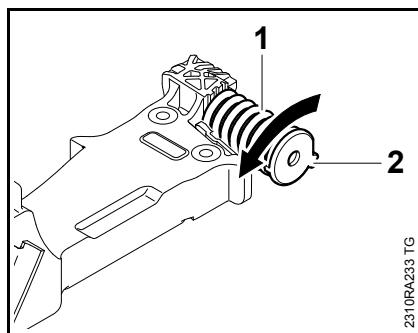
10.1 Antivibration element on oil tank

The antivibration elements are located in the area of the oil tank and are fastened to the bottom of the machine.

- Remove the front handle,
 10.4, versions with heating,
 10.4.1

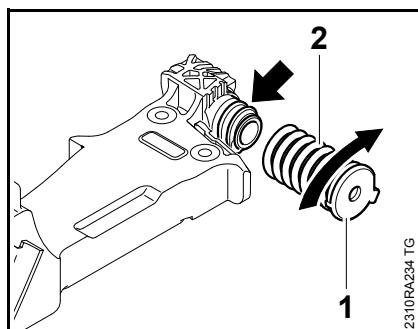


- Remove screw (1)
- Remove the chain catcher (2)
- Remove the tank housing,
13.11.5



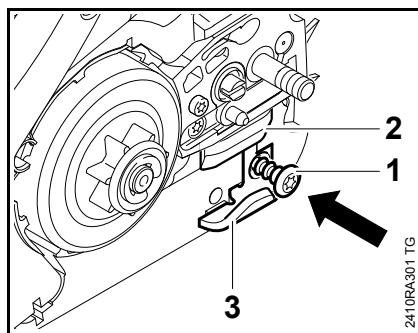
- Twist out spring (1) with bearing plug (2)
- Inspect spring with plug, replace if necessary

Installation



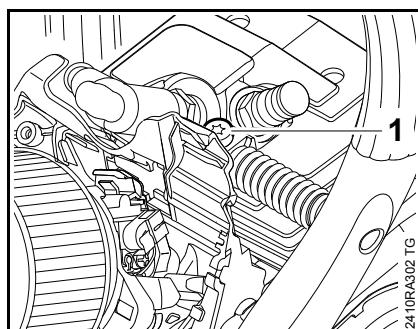
Bearing plug (1) must be twisted into the spring (2) as far as it will go.

- Twist spring (2) with bearing plug (1) into the mount (arrow) as far as it will go
- Install the tank housing,
13.11.5



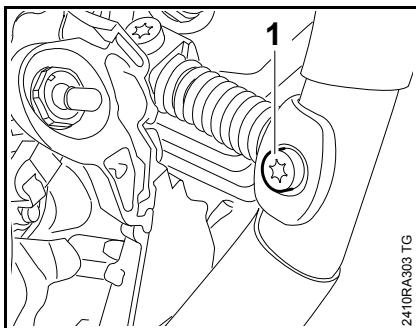
- Push the chain catcher (3) into the mount so that it engages under the bumper strip (2)
- Screw in the screw (1) and tighten it
- Reassemble remaining parts in reverse order

10.2 Antivibration element on fuel tank



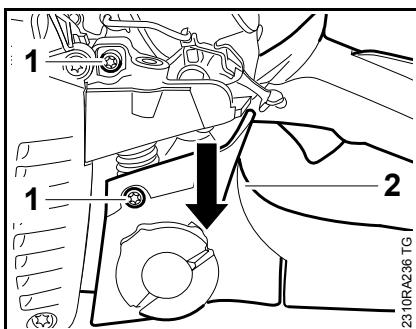
- Remove screw (1)

Versions with heating

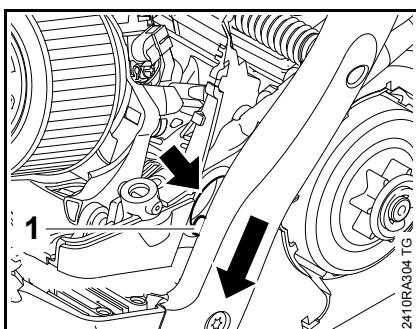


- Remove screw (1) on front handle

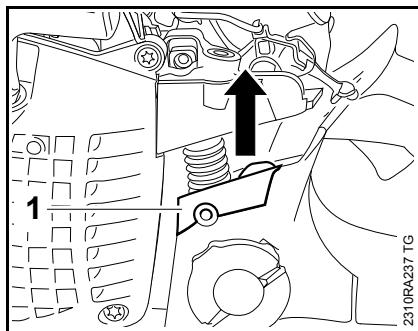
All versions



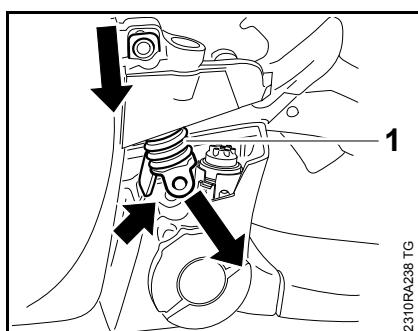
- Remove screws (1)
- Push tank housing (2) down slightly and hold it there



- Push front handle out of the mount (arrow) on the peg (1)
 - Do not remove screws on front handle

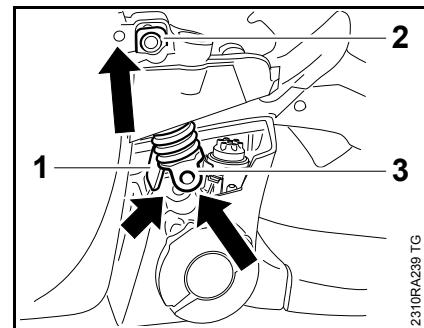


- Remove cover (1)

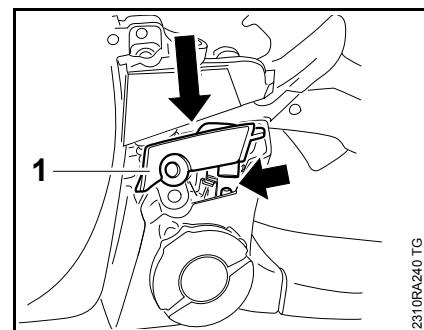


- Push the antivibration element (1) slightly upward and lift it out of the guide (arrow)
- Remove antivibration element (1) between crankcase and tank housing
- Inspect spring and plug, replace if necessary

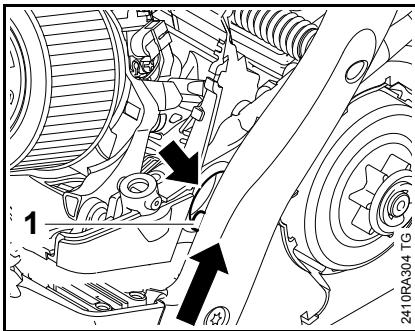
Installation



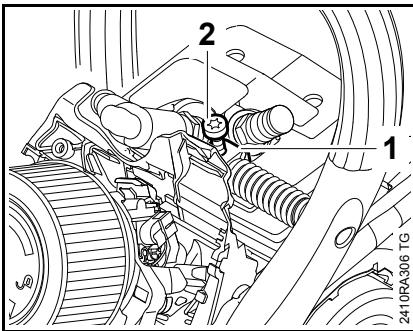
- Push tank housing down slightly and hold it there
- Orient antivibration element so that the tab (1) faces the crankcase and push it bearing plug (2) first between crankcase and tank housing
- Push bearing plug (2) through the opening
- Push the bearing plug (3) into the mount (arrow)



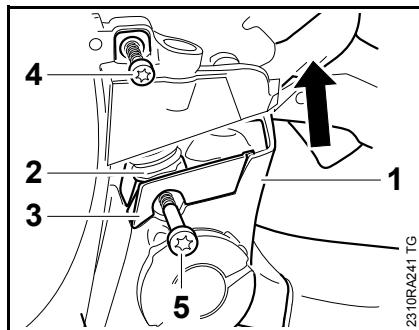
- Position cover (1) so that it engages the peg (arrow)



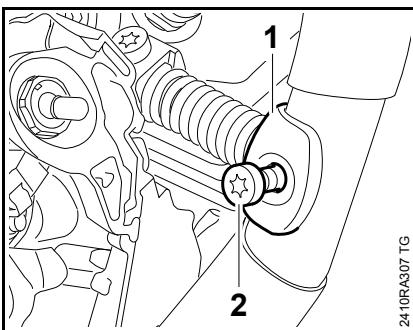
- Push tank housing upward until the peg (1) of the front handle engages in the mount (arrow)



- Position bearing stopper (1)
- Coat screw (2) with Loctite, screw in and tighten, **6.4**



- Raise tank housing (1)
- Orient bearing plugs (2) and cover (3) so that the holes align with the hole on the tank housing
- Screw in and tighten screws (5) and (4)

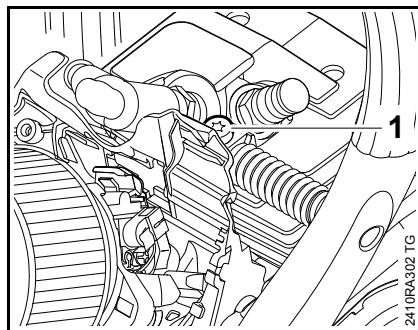


- Position bearing plug (1) and insert and tighten screw (2)
- Reassemble remaining parts in reverse order

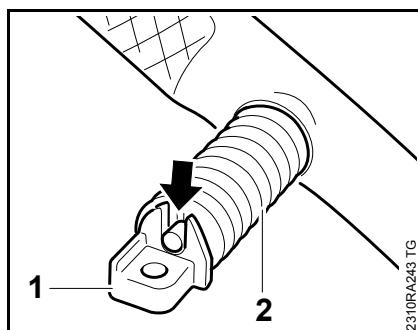
10.3 Antivibration element on front handle

The antivibration element is between front handle and cylinder.

- Remove shroud, **6.4**
- Remove the air filter, **13.1**

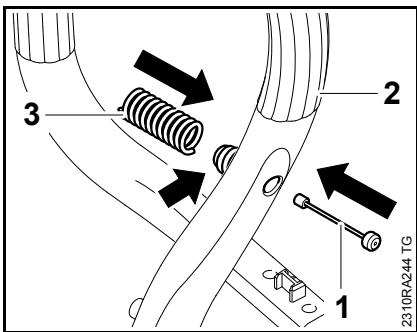


- Remove screw (1)
- Remove the front handle, **10.4**

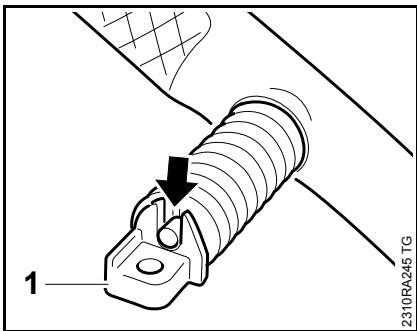


- Twist out bearing plug (1) and unhook retainer (arrow)
- Twist out spring (2) and push retainer (arrow) out of front handle
- Inspect spring and bearing plug and retain, replace if necessary

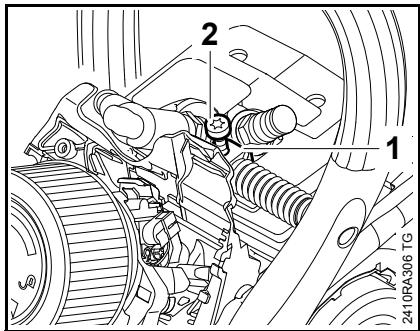
Installation



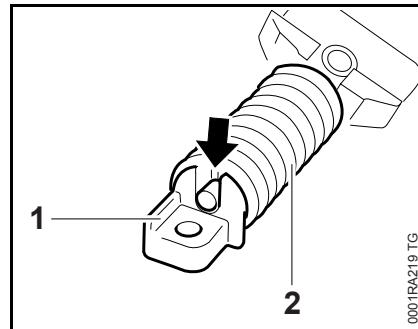
- Push retainer (1) with the small nipple into the hole in the front handle (2)
- Twist spring (3) onto the peg (arrow) as far as it will go



- Hook retainer (arrow) onto bearing plug (1)
- Push bearing plug (1) into the spring as far as it will go
- Install the front handle, **10.4**

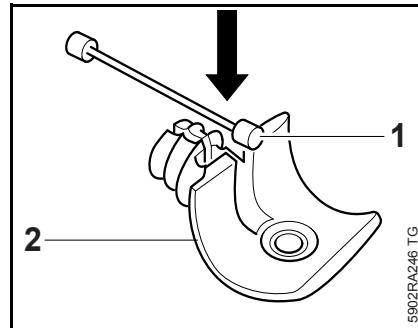


- Position bearing plug (1) against cylinder
- Coat screw (2) with Loctite, screw in and tighten, **16**
- Reassemble remaining parts in reverse order

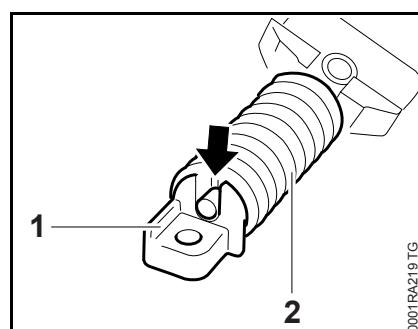


- Twist out bearing plug (1) and unhook retainer (arrow)
- Twist out spring (2) and pull out retainer (arrow)

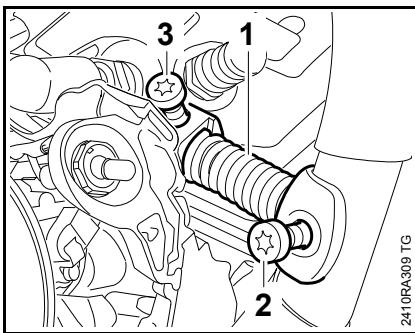
Installation



- Insert retainer (1) with the nipple in the holder (2)
- Remove screws (1) and (2)
- Remove the antivibration element (3) completely



- Twist spring (2) onto the peg
- Hook retainer (arrow) onto bearing plug (1)
- Twist bearing plug (1) into the spring (2) as far as it will go

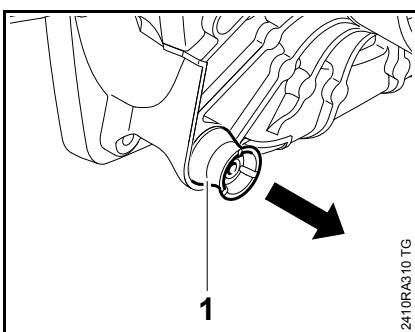


- Position antivibration element (1) against front handle and cylinder
- Screw in the screw (2) and tighten it
- Coat screw (3) with Loctite, screw in and tighten, **16**
- Reassemble remaining parts in reverse order

10.3.2 Stop buffer

The stop buffers are installed between crankcase and tank housing on the ignition and clutch side.

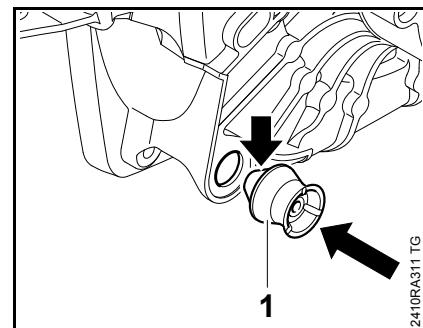
- Remove the tank housing, **13.11.5**



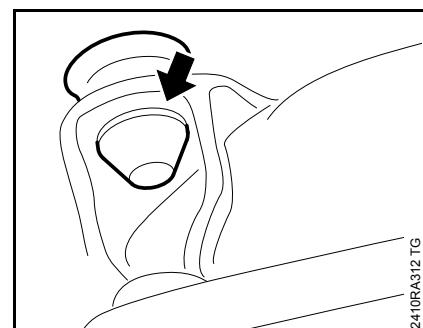
- Pry out stop buffers (1) on the ignition and clutch sides

- Replace stop buffer

Installation



- Orient the stop buffer (1) on both sides – the conical pegs (arrow) facing the crankcase
- To simplify installation, coat the conical pegs with STIHL press fluid, **16**
- Press the stop buffers (1) with the pegs on the inside of the crankcase completely into holes – to simplify assembly, twist the stop buffers while pressing them in

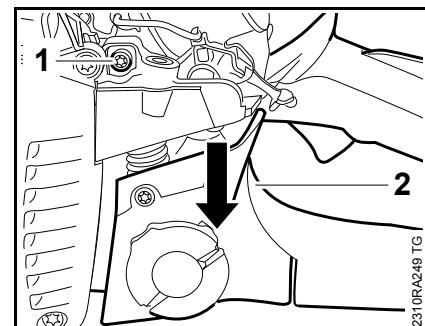


The conical pegs must enclose the holes completely.

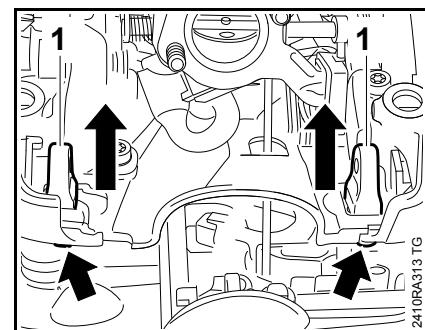
- Reassemble remaining parts in reverse order

10.3.3 Filter base buffers

- Remove filter base, **13.3**

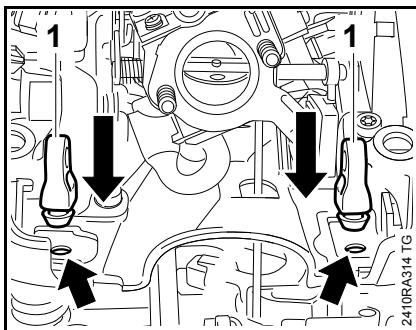


- Remove screw (1)
- Push tank housing (2) down slightly and hold it there

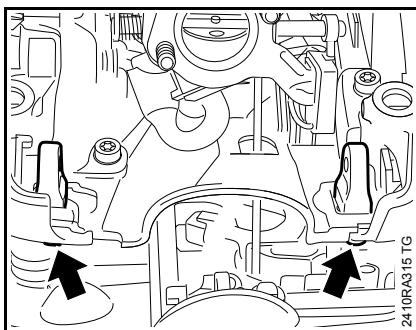


- Press out the buffers (1) on the underside (arrows)
- Check buffers (1) and replace if necessary

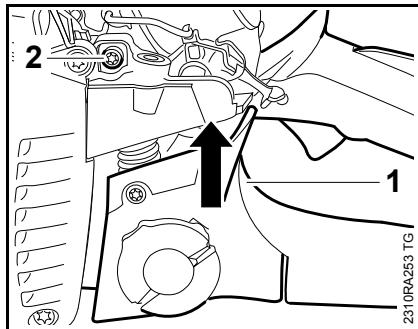
Installation



- Orient buffers (1)
 - conical pegs facing the holes (arrows)
 - To simplify installation, coat the conical pegs with STIHL press fluid, **16**
- Press the buffers (1) with the conical pegs completely into the holes (arrows) –to simplify assembly, twist the buffers while pressing them in

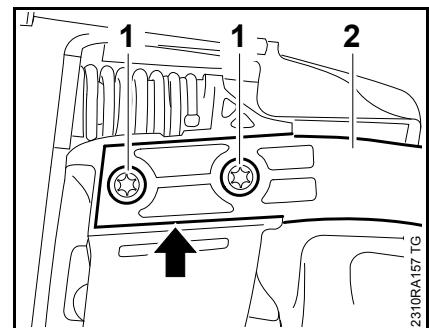


The conical pegs (arrows) must enclose the holes completely on the reverse.



- Push tank housing (1) upward and hold it there
- Screw in the screw (2) and tighten it
- Reassemble remaining parts in reverse order

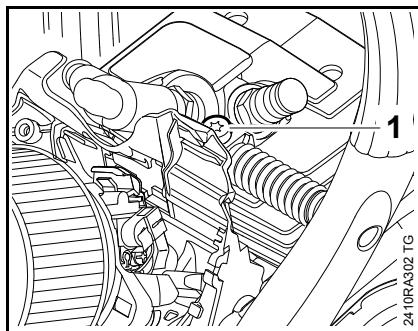
- Lift front handle (1) slightly at the side and remove it from the guide (arrow).



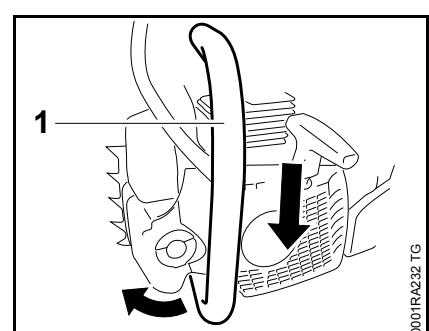
- Remove screws (1) on the underside of the machine and lift front handle (2) out of the mount (arrow)

10.4 Front handle

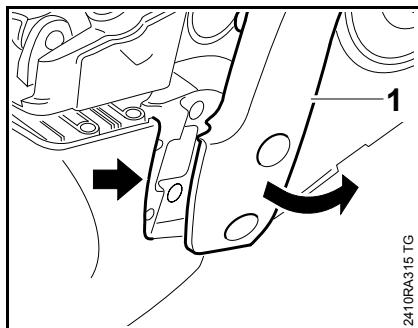
- Remove shroud, **6.4**



- Remove screw (1)



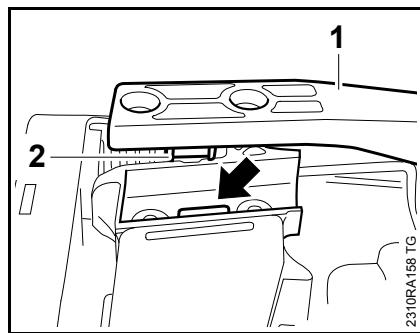
- Remove front handle (1) from the lower guide
- Remove and examine front handle (1), replace if necessary
- Examine the antivibration spring and replace if necessary, **10.3**



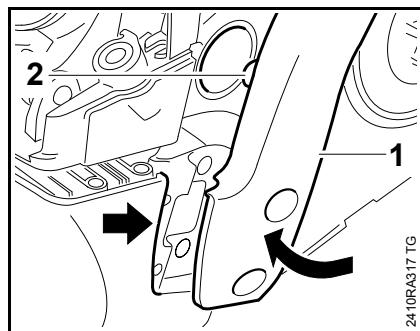
- Take out screws

Installation

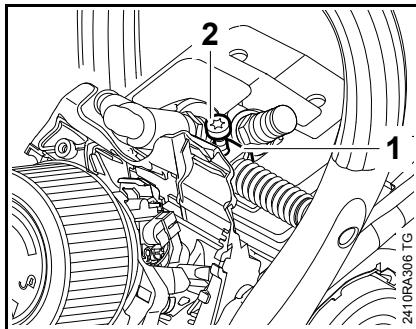
- Position front handle



- Lift front handle (1) with the peg (2) facing forward into the recess (arrow) until it is seated in the mount of the tank housing
- Insert and tighten down the screws



- Lift the front handle (1) somewhat at the side and place it in the guide (arrow) so that the peg (2) engages in the mount of the crankcase
- Insert and tighten down the screws

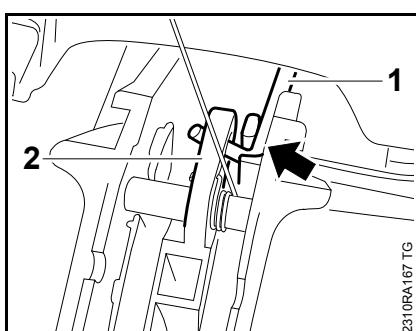


- Position bearing plug (1) of the antivibration spring against cylinder
- Coat screw (2) with Loctite, screw in and tighten, **16**
- Reassemble remaining parts in reverse order

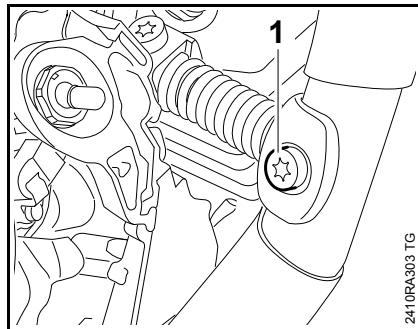
10.4.1 Handlebar with heating

As the front handle is heated in these machines, the wiring must also be disconnected for installation.

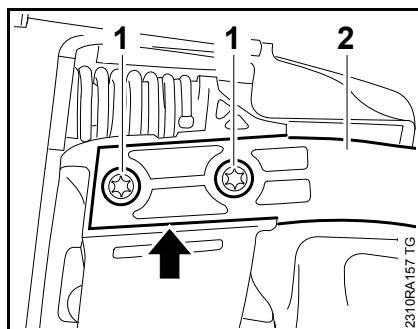
- Troubleshooting, **14.7.1**
- Remove shroud, **6.4**
- Remove handle molding, trigger interlock and throttle trigger, **11.2**



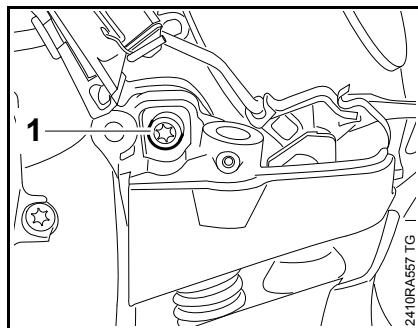
- Pull throttle rod (1) out of the mount (arrow) and unhook it from the throttle trigger (2)



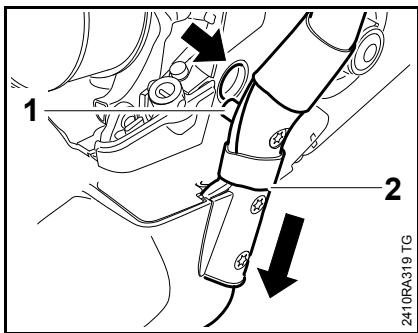
- Remove screw (1) on front handle



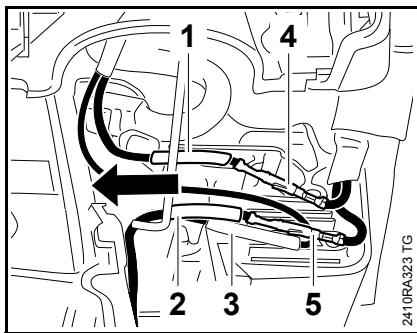
- Remove screws (1) on front handle (2) on the underside of the machine



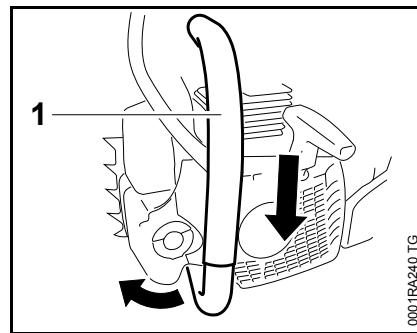
- Remove screw (1)



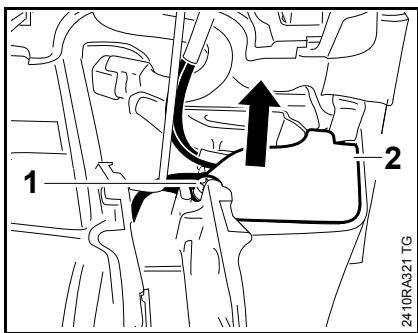
- Press pegs (1) out of the mount (arrow) and lower front handle (2) with tank housing



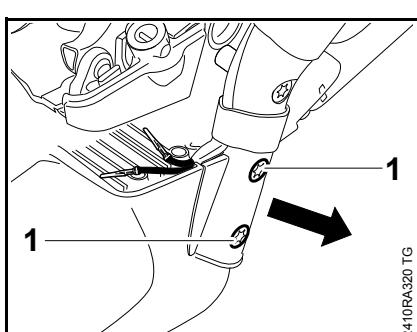
- Push insulating tube (1) toward the wiring harness and push insulating tube (2) toward the front handle heating element



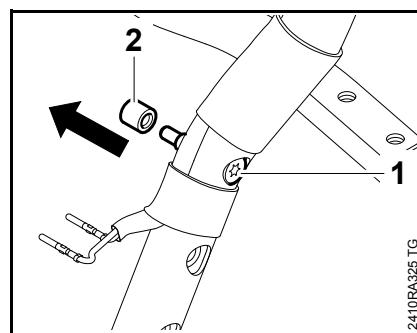
- Remove front handle (1) from the lower guide
 - Remove front handle



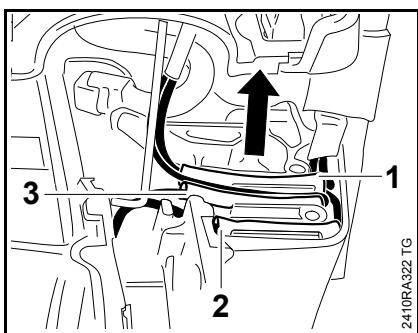
- Unscrew screw (1) and remove cover (2)



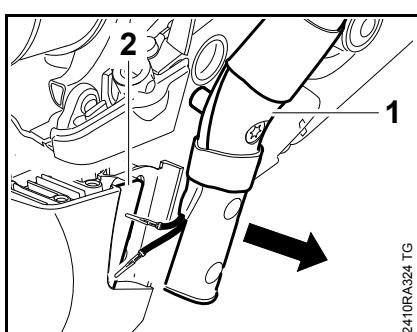
- Remove screws (1)



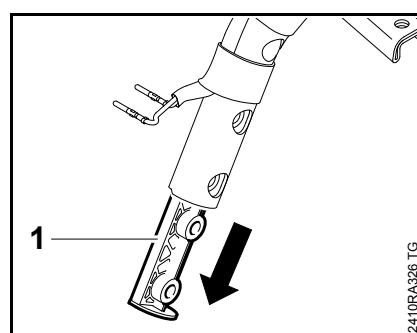
- Unscrew screw (1) while pushing down the plastic sleeve (2)
 - Remove plastic sleeve



- Pull plug connections (1), (2) and (3) with insulating tubes out of the guides



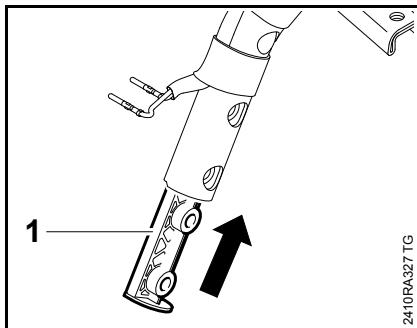
- Lift front handle (1) at the side and remove the cover (2) from the mount



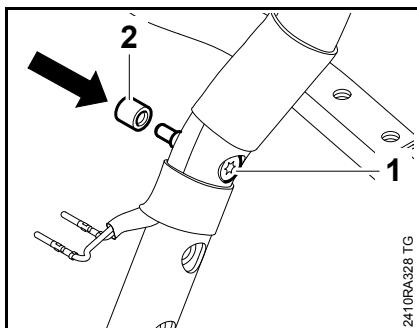
- Remove the handle insert (1)
 - Examine the front handle heating, replace front handle if necessary
📖 14.6

Installation

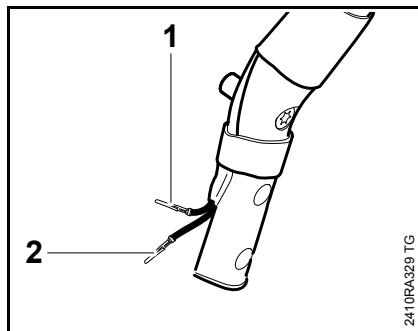
- Press the plug connection together completely,  1



- Press in the handle insert (1) as far as it will go

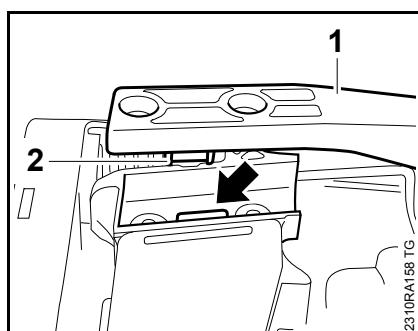


- Screw in the screw (1) and tighten it
- Push on plastic sleeve (2) until it snaps into place

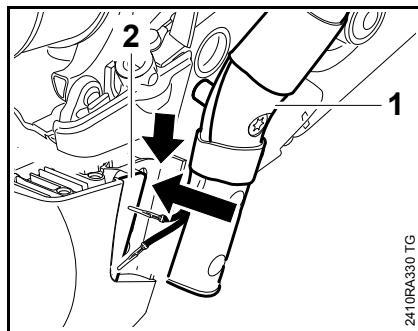


The leads on the front handle are of different lengths; during assembly, take care that the short lead (1) is connected to the lead to the heating switch and the long lead (2) is connected to the lead to the handle heating element.

- Position front handle

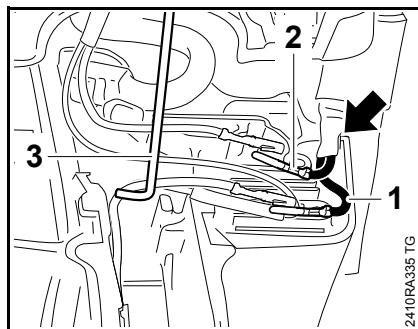


- Lift front handle (1) with the peg (2) facing forward into the recess (arrow) until it is seated in the mount of the tank housing
- Insert screws – do not tighten



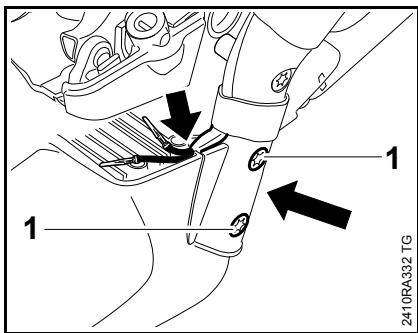
Do not pinch the leads and plugs.

- Lift front handle (1) slightly and push the cover (2) into the mount
- Push the front handle (1) into the mount (arrow)

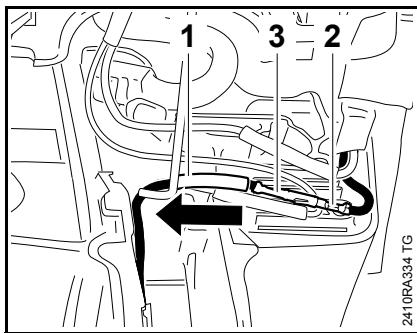


- Orient the leads of the front handle in the guide (arrow) so that the long lead (1) runs underneath the short lead (2)

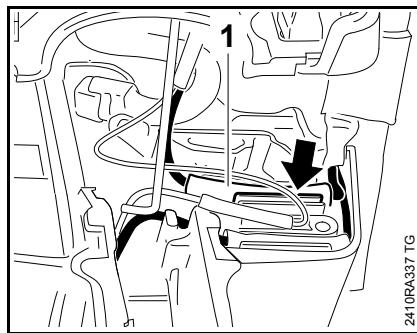
The wiring harness and the connecting leads must be located underneath the throttle rod (3).



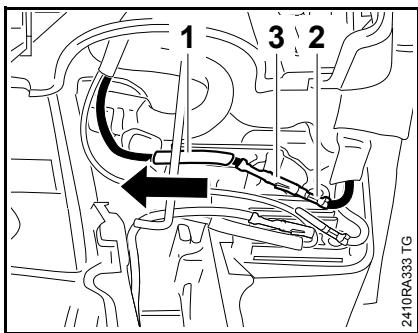
- Insert and tighten screws (1) – lines must be seated in the guide (arrow)
- Tighten screws of the front handle on the underside of the machine



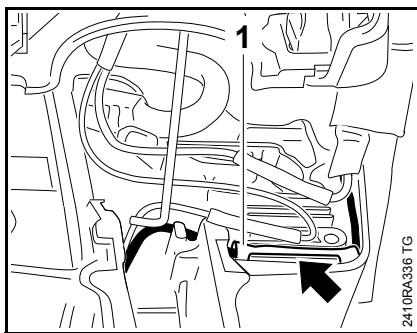
- Push insulating tube (1) onto thick lead of the handle heating
- Push connector (2) with long lead completely into the terminal socket (3)
- Push insulating tube entirely over the plug connection
- Lift tank housing slightly



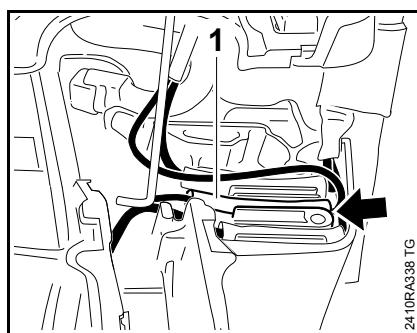
- Plug connection with shorter lead of the front handle.
- Press insulating tube (1) with plug connection as far as it will go into the guide (arrow)



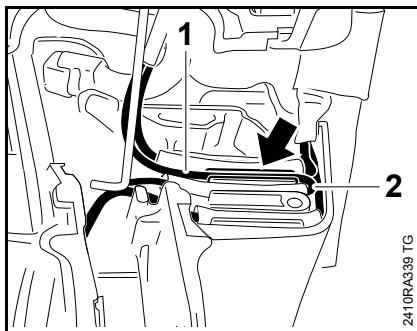
- Push insulating tube (1) onto lead of the heating switch
- Push connector (2) with short lead completely into the terminal socket (3)
- Push insulating tube entirely over the plug connection



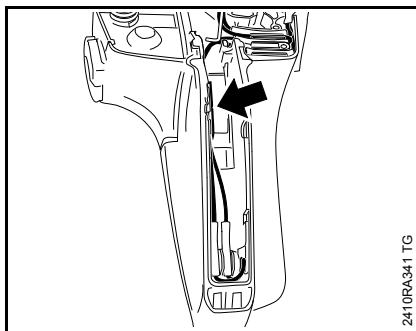
- Plug connection with longer lead of the front handle.
- Position insulating tube (1) with plug connection at the edge of the tank housing and push it into the guide (arrow) as far as it will go



- Lift the tank housing again and hold it there
- Press insulating tube (1) with plug connection as far as it will go into the guide (arrow)

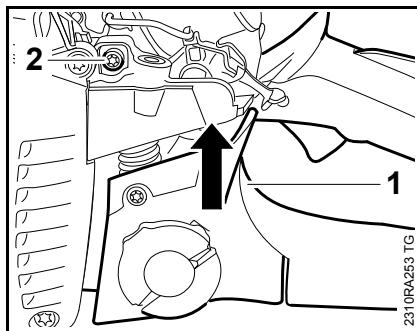


- Run the thin lead (1) with a loop (2) around the rib and press it into the guide (arrow) as far as it will go

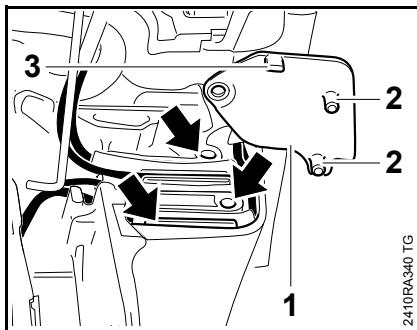


The leads of the handle heating element must be seated completely in the guide (arrow).

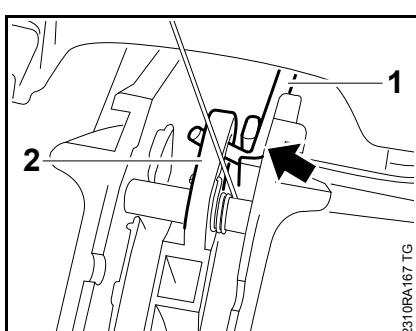
- Install throttle trigger, [11.2](#)



- Push tank housing (1) upward and hold it there
- Screw in the screw (2) and tighten it
- Reassemble remaining parts in reverse order



- Orient cover (1) so that the pegs (2) engage the holes and the tab (3) engages the fin (arrows)
- Replace cover, insert and tighten screw
 - Ensure that wires are not pinched



- Hook throttle rod (1) onto throttle trigger (2) and press it into the guide (arrow)
- Install trigger interlock and handle molding, [11.2](#)

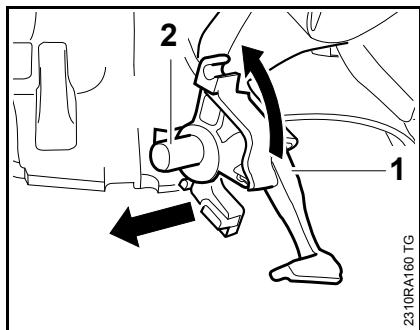
11. Actuating levers

11.1 Master Control lever

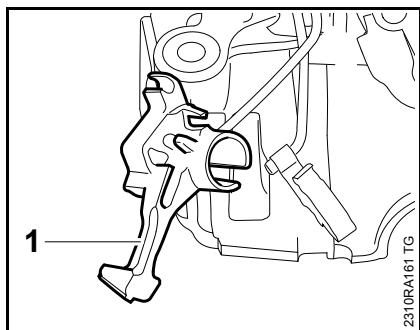
The positions of the Master Control lever are described in the Instruction Manual.

11.1.1 Removal and installation

- Remove the air filter, [13.1](#)
- Remove choke rod, [11.4](#)
- Remove the filter base from the studs, [13.1](#)
- Remove contact spring, [7.7.4](#)



- Turn the switch shaft (1) counterclockwise as far as it will go and pull it off the shaft (2) of the filter base

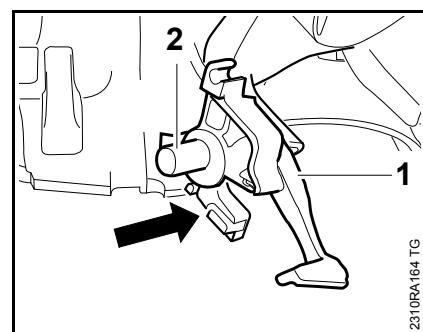
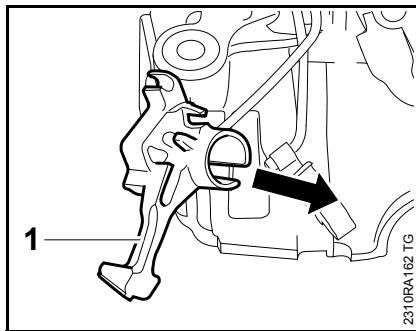


- Disconnect ground wire at the switch shaft, [7.7](#)
- Take out and examine the switch shaft (1), replace if necessary

- Examine the filter base, replace if necessary

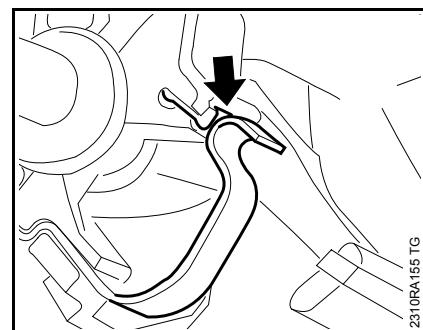
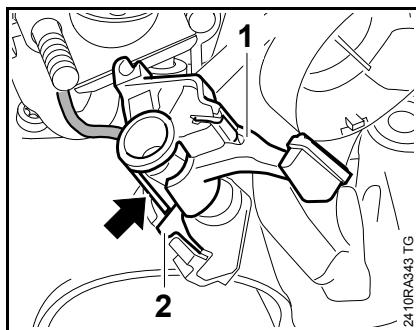
Installation

- Position filter base in the carburetor space



- Press the switch shaft (1) onto the post (2) of the filter base as far as it will go
- Install contact spring, [7.7.4](#)

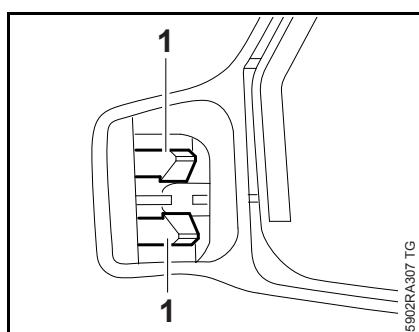
- Position switch shaft (1) in carburetor space
- Install ground wire on the switch shaft, [7.7](#)



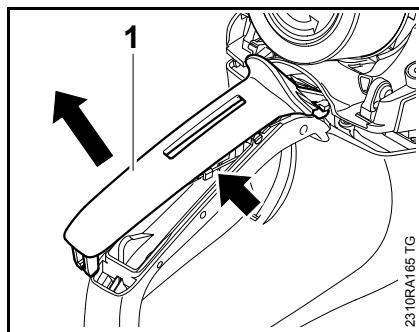
- Check correct functioning
 - Blade receptacle of the ground wire must touch the contact spring (arrow) in position "0"
- Reassemble remaining parts in reverse order

- Orient the switch shaft (1) so that the inserted ground wire faces the filter base and the opening (arrow) lines up with the rib (2)

11.2 Throttle trigger / throttle trigger interlock

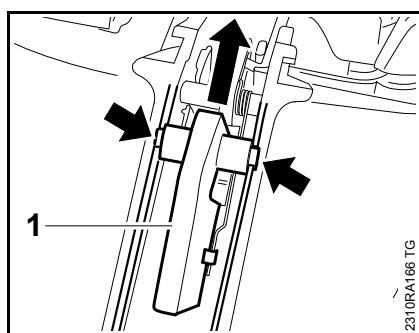


- To disassemble the handle molding, press the pegs (1) on the underside apart and through the rear hand guard

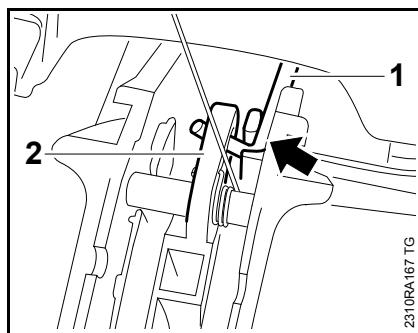


- Remove handle molding (1)

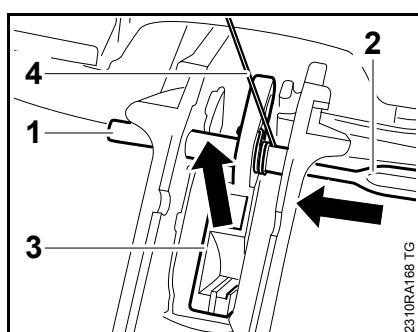
The trigger interlock (arrow) may pop out.



- Pull the trigger interlock (1) out of the bearing points (arrows)

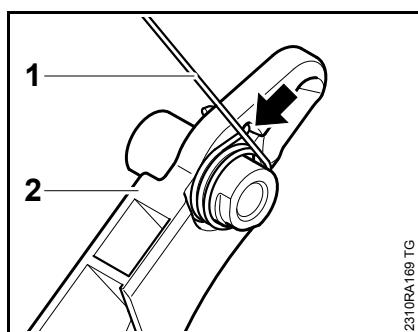


- Pull throttle rod (1) out of the mount (arrow) and unhook it from the throttle trigger (2)

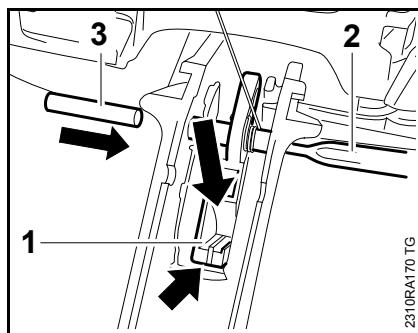


- Insert throttle trigger (1) into the handle so that the tab (arrow) is inside the handle and the holes on the throttle trigger and handle align
- Center the throttle trigger (1) with punch (2)
- In version with heating, the connecting leads must be routed entirely in the guide and must not protrude
– Risk of leads becoming pinched, **14.9.**
- Drive in the pin (3) until it is equidistant on both sides

Installation



- Hook the throttle rod (1) onto the throttle trigger (2) and hook it into the guide (arrow)
- Hook the torsion spring (1) into the throttle trigger (2)
– Note the installed position (arrow)

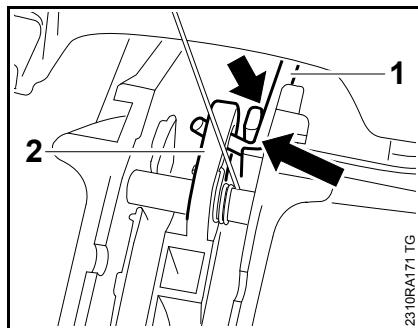


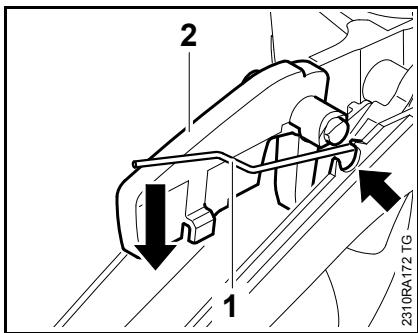
- Hook the throttle rod (1) onto the throttle trigger (2) and hook it into the guide (arrow)

In version with heating, the connecting leads must be routed entirely in the guide and must not protrude

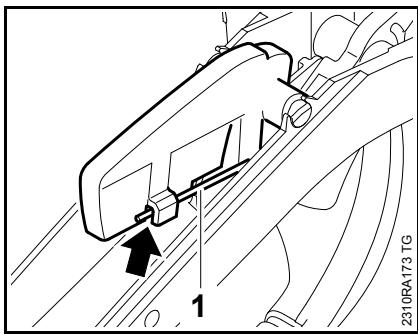
– Risk of leads becoming pinched, **14.9.**

- Make certain that the torsion spring is hooked entirely into the throttle trigger.



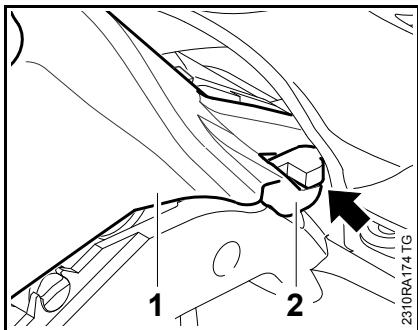


- Press end (1) of the torsion spring toward the handle
- Press the trigger interlock (2) into the bearing points (arrow)



- Hook the torsion spring (1) onto the trigger interlock (arrow)

The trigger interlock may pop out.

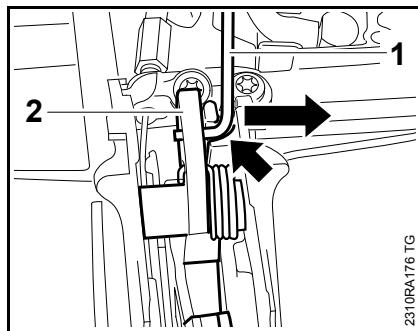


- Hook handle molding (1) with the tabs (2) into the openings (arrow)
- Fit handle molding (1) until it snaps into place

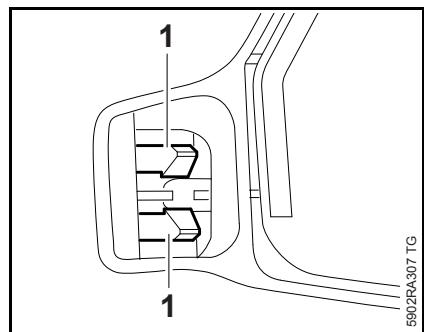
- Check correct functioning
- Reassemble remaining parts in reverse order

11.3 Throttle trigger / throttle trigger interlock / QuickStop Super

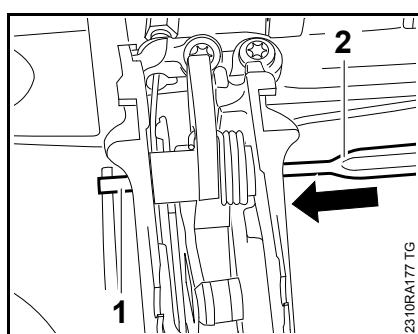
After each removal, coat sliding and bearing points with grease.



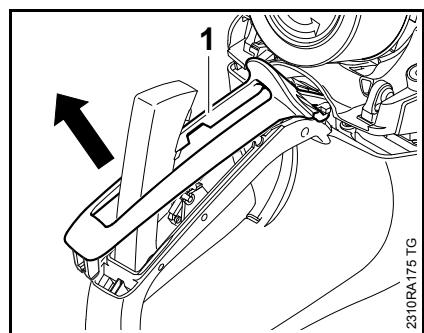
- Pull throttle rod (1) out of the mount (arrow) and unhook it from the throttle trigger (2)



- To disassemble the handle molding, press the pegs (1) on the underside apart and through the rear hand guard



- Push out pin (1) with drift (2)

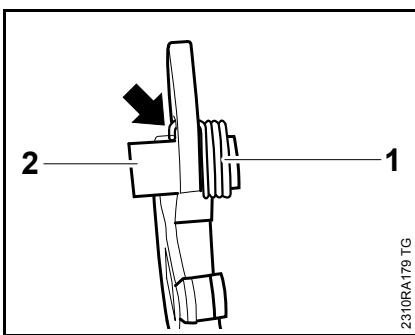


- Remove handle molding (1)

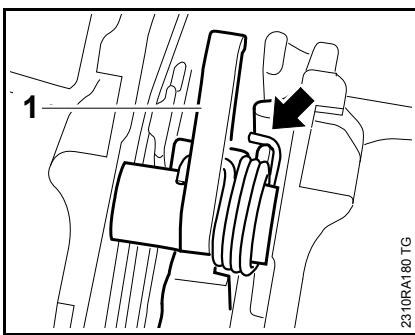


- Remove throttle trigger (1) with torsion spring (2)
 - Check rotor on throttle trigger to ensure that it can be rotated, replace throttle trigger if necessary
 - Examine the torsion spring and replace it if necessary

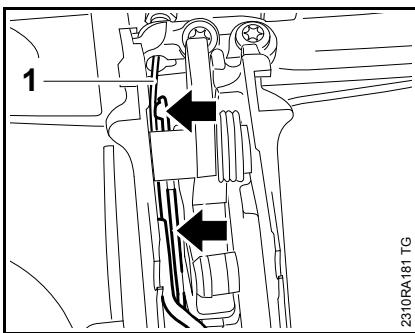
Installation



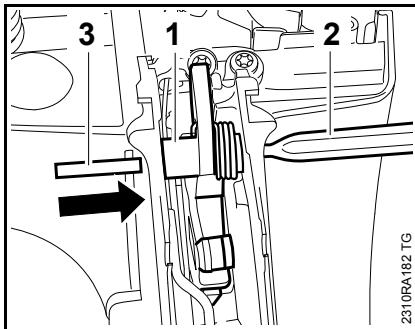
- Hook the torsion spring (1) into the throttle trigger (2)
 - Note the installed position (arrow)



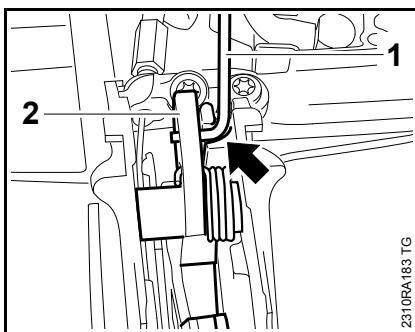
- Insert throttle trigger (1) in the handle so that the angled end of the torsion spring engages in the mount (arrow) and the holes on the throttle trigger and handle align



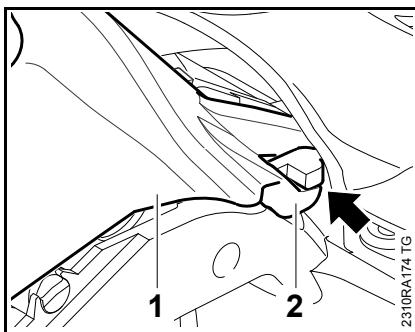
The brake cable (1) must lie completely in the guide (arrows) and be underneath the drift – do not damage the brake cable.



- Center the throttle trigger (1) with punch (2)
- Drive in the pin (3) until it is equidistant on both sides



- Hook the throttle rod (1) onto the throttle trigger (2) and hook it into the guide (arrow)
- Grease rotor on throttle trigger, **16**



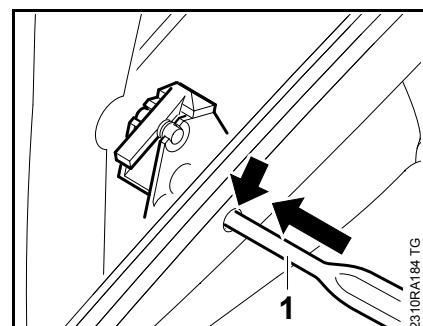
- Hook handle molding (1) with the tabs (2) into the openings (arrow)
 - Press trigger interlock downwards

- Carefully fit handle molding (1) until it snaps into place
- Check correct functioning
- Reassemble remaining parts in reverse order

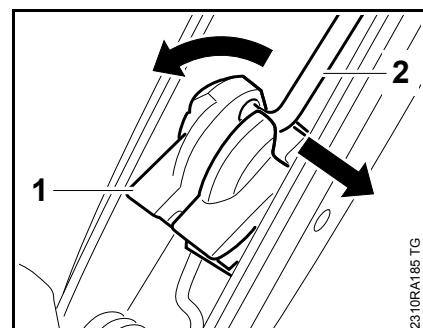
11.3.1 Trigger switch QuickStop Super

After each removal, coat sliding and bearing points with grease.

- Remove handle molding, **11.3**

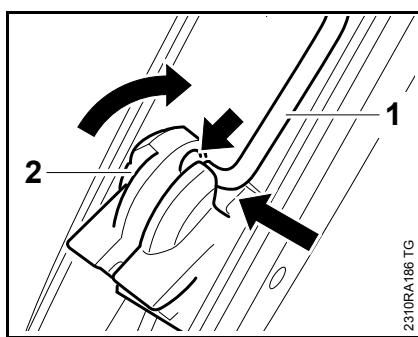


- Push out pin (arrow) with drift (1)

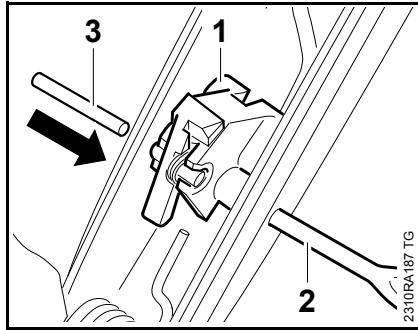


- Partly remove switch lever (1) and turn by approx. 90°, then pull off brake cable (2)
- Examine switch lever, replace if necessary

Installation



- Hook brake cable (1) into hole (arrow) in switch lever
- Turn switch lever (2) until it faces upwards

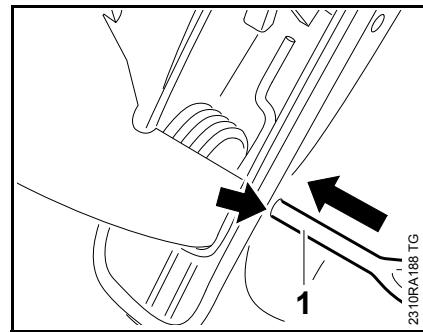


- Center the throttle trigger (1) with punch (2)
- Drive in the pin (3) until it is equidistant on both sides
 - Reassemble remaining parts in reverse order
 - Check function of the switch lever by actuating the trigger interlock

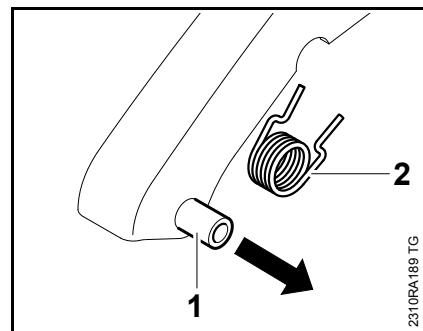
11.3.2 Trigger interlock QuickStop Super

After each removal, coat sliding and bearing points with grease.

- Remove handle molding, [11.3](#)

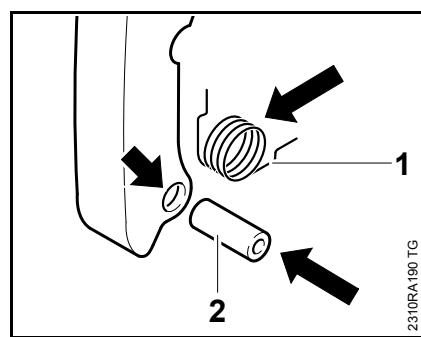


- Push out pin (arrow) with drift (1)
 - Remove trigger interlock

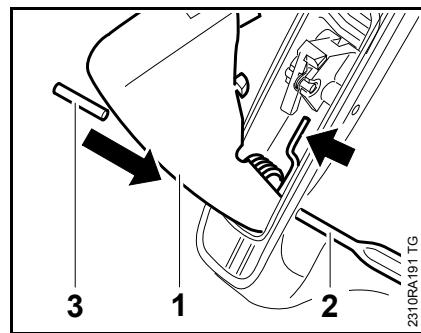


- Drive out bushing (1)
- Remove torsion spring (2)
 - Examine trigger interlock, throttle trigger and bushing, replace if necessary

Installation



- Align torsion spring (1) and insert in trigger interlock
- Slide bushing (2) into hole (arrow) – torsion spring is secured

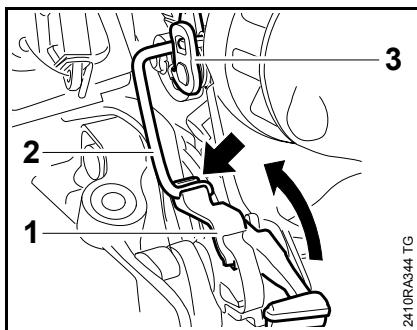


Torsion spring (arrow) must rest against the tank housing.

- Center trigger interlock (1) with drift (2)
- Drive in the pin (3) until it is equidistant on both sides
 - Reassemble remaining parts in reverse order
 - Check correct functioning

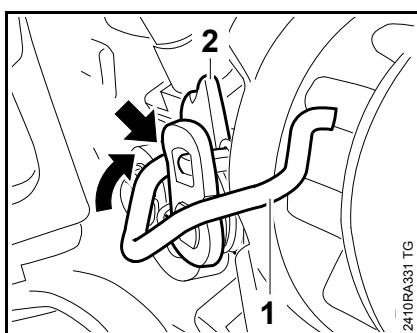
11.4 Choke rod

- Remove the air filter, **13.1**

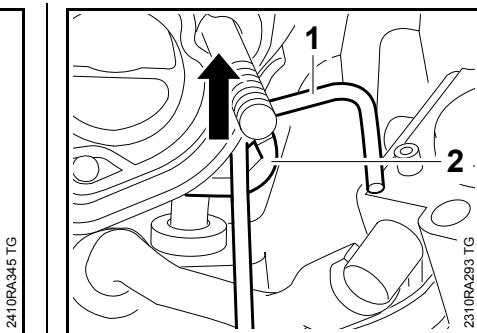
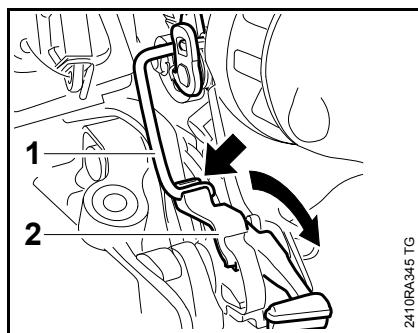


- Move switch shaft (1) to position "I" and pry out choke rod (2) at the mount (arrow)
- Unhook the choke rod (2) from the lever (3)
- Examine choke rod and replace it if necessary

Installation



- Hook choke rod (1) into hole (arrow) in the starter shaft (2)



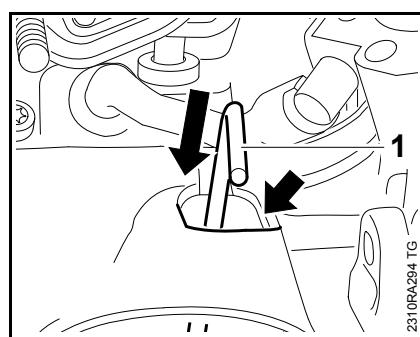
- Insert choke rod (1) in guide (arrow)
- Move switch shaft (2) to position "I" and hold it there, then press choke rod (1) completely into the mount (arrow)
 - Check correct functioning

The choke rod must be completely snapped into place.

- Reassemble remaining parts in reverse order

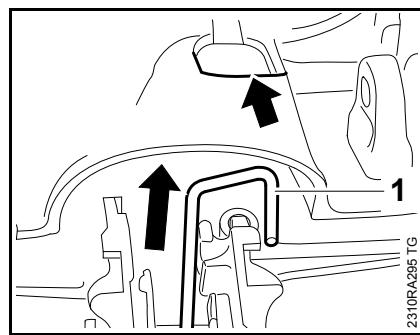
11.5 Throttle rod

- Remove handle molding and trigger interlock, **11.2**, QuickStop Super, **11.3**
- Remove choke rod, **11.4**
- Remove baffle, **13.2**
- Remove filter base and set it aside, **13.3**
- Carefully pull out the carburetor over the studs and lay it aside
 - Do not overextend fuel hose, **8.4**

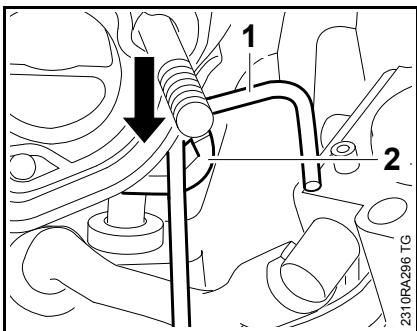


- Guide throttle rod (1) through the opening (arrow) in the direction of the control handle and remove it
 - Examine the throttle rod and replace it if necessary

Installation



- Guide throttle rod (1) between tank housing and crankcase through the opening (arrow) in the direction of the carburetor support



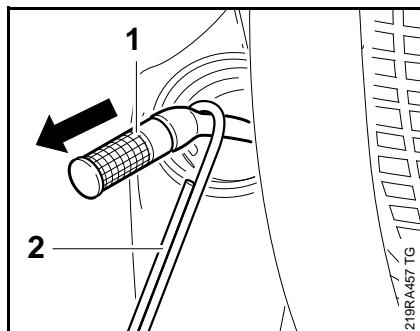
- Press the throttle rod (1) into the guide (2) on the carburetor support until it snaps into place
 - Install handle molding and trigger interlock, **11.2**, QuickStop Super, **11.3**
 - Push carburetor with attached fuel hose onto the studs, **8.4**
 - Install filter base, **13.3**
 - Check correct functioning
 - when the throttle trigger is actuated, the throttle trigger must move upwards at the carburetor
 - Reassemble remaining parts in reverse order

12. Chain lubrication

12.1 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 to the bar and chain. Always check the oil tank and pick-up body first if problems develop in the oil supply.

- Troubleshooting, **3.3**
- Unscrew oil tank cap and drain oil tank
- Collect oil in a clean container, **1**
- Clean the oil tank if necessary, **16**



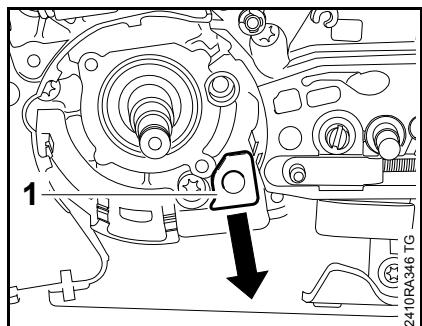
- Pull pickup body (1) out of oil tank with assembly hook (2) 5910 893 8800

Take care not to overextend the suction hose.

- Pull off pickup body (1) and examine it, replace if necessary
- Reassemble parts in reverse order

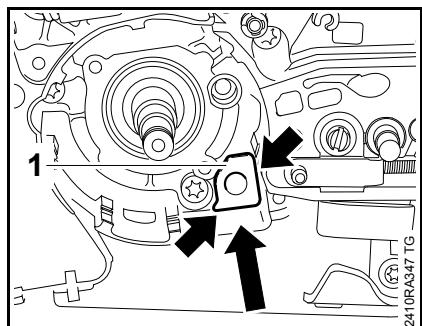
12.2 Oil suction hose

- Unscrew oil tank cap and drain oil tank, **1**
- Remove the clutch, **4.2**
- Remove brake band, **5.2**
- Remove oil pump, **12.3**



- Pry out oil suction hose (1) and pull it out with pickup body
- Examine oil suction hose and pickup body, replace if necessary
- Fit the pickup body, **12.1**

Installation



- Coat groove of oil suction hose with STIHL press fluid, **16**
- Push oil suction hose (1) through opening in housing with the pickup body first

- Orient oil suction hose (1) so that the straight sides (arrows) rest against the crankcase

- Push in oil suction hose (1) until the groove is completely flush with the hole in the crankcase

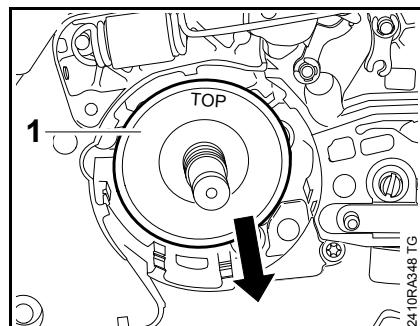
- Check position of pick-up body, clear it with the aid of assembly hook 5910 893 8800 if necessary

- Install oil pump, **12.3**

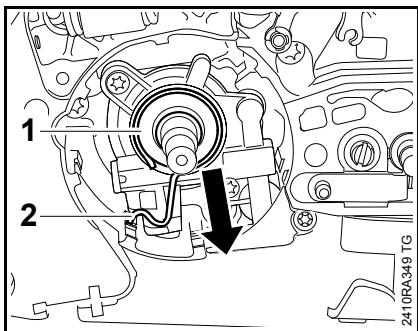
- Reassemble remaining parts in reverse order

12.3 Oil pump

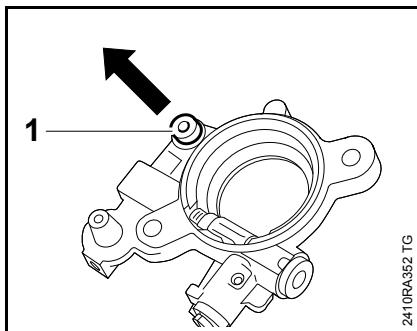
- Troubleshooting, **3.3**
- Remove the clutch, **4.2**
- Remove brake band, **5.2**



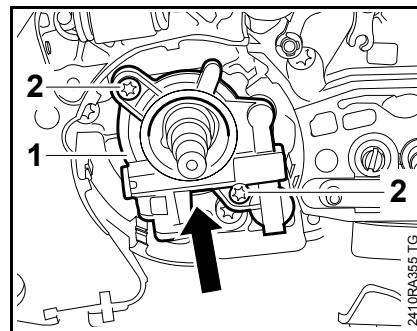
- Remove the washer (1)



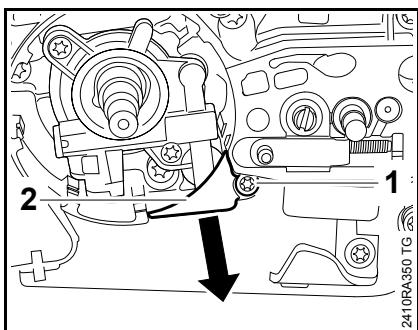
- Pull worm (1) with spring (2) out of oil pump
 - Inspect spring and worm, replace if necessary



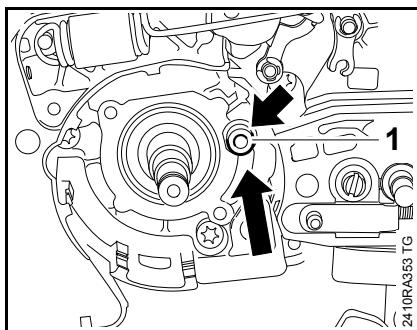
- Remove sealing ring (1)
 - Examine oil pump, replace if necessary



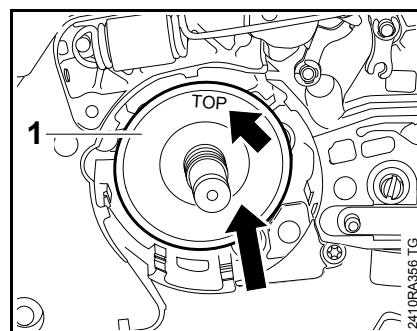
- Push in oil pump (1) as far as it will go
- Screw in screws (2) and tighten them
 - Push the worm home until it makes contact



- Unscrew screw (1) and remove cover (2)



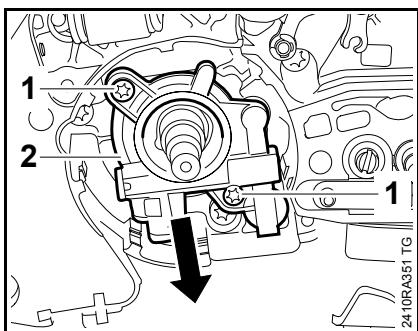
- Push new sealing ring (1) into the opening (arrow)



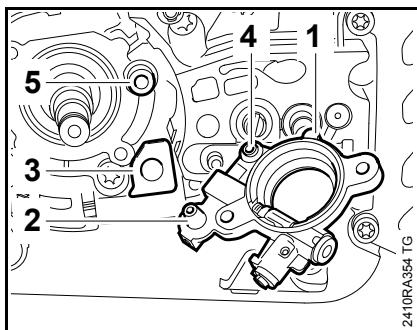
- Slide on the washer (1)

It has been fitted correctly when the word "TOP" (arrow) is visible.

- Reassemble remaining parts in reverse order



- Remove screws (1)
- Pull oil pump (2) out of the oil suction hose and remove it

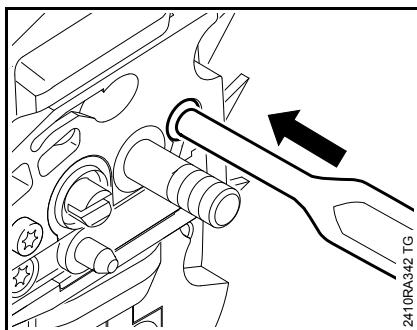


- Orient oil pump (1) so that the connector (2) engages in the oil suction hose (3) and the connector (4) slides into the sealing ring (5)
 - Coat connectors and sealing ring with STIHL press fluid, **16**

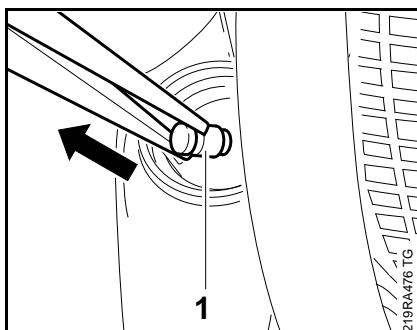
12.4 Valve

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

- Unscrew oil tank cap and drain oil tank,  1

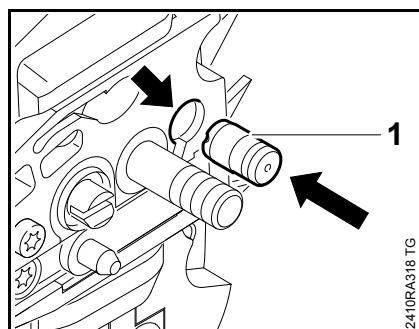


- From the outside, carefully drive the valve out of the case in the direction of the inside of the tank with a Ø 6 mm drift



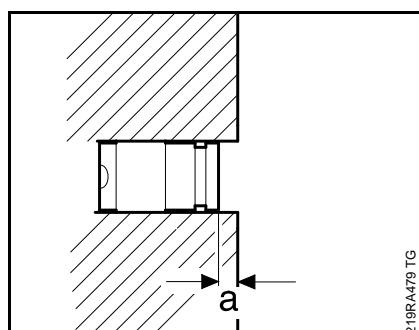
- Remove old valve (1) from oil tank

Installation



Ensure that the parts are installed correctly.

- Insert valve (1) into hole (arrow) in crankcase
- Carefully drive valve into hole in engine housing from the outside with a Ø 6 mm drift – observe the insertion depth



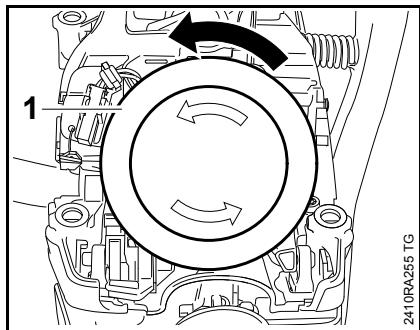
- Drive new valve into the hole
 $a = 1 \text{ mm } +/- 0.1$
- Reassemble remaining parts in reverse order

13. Fuel system

13.1 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.

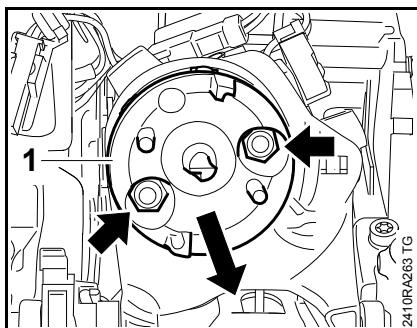
- Refer also to troubleshooting, **3.6**, **3.7**
- Remove shroud, **6.4**



- Turn the air filter (1) counterclockwise and remove it
- Examine air filter, clean or replace if necessary
 - see Instruction Manual
- Reassemble parts in reverse order

13.2 Baffle

- Remove the air filter, **13.1**

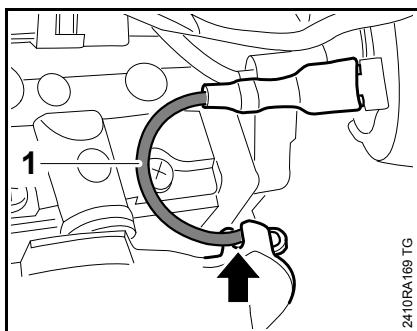


- Unscrew the nuts (arrows)
- Remove baffle (1)
- Examine baffle, replace if necessary.
- Reassemble parts in reverse order

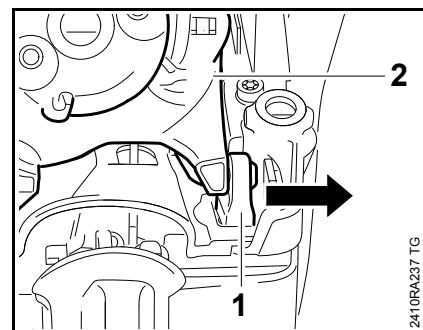
13.3 Filter base

- Remove the air filter, **13.1**
- Remove choke rod, **11.4**
- Remove baffle, **13.2**

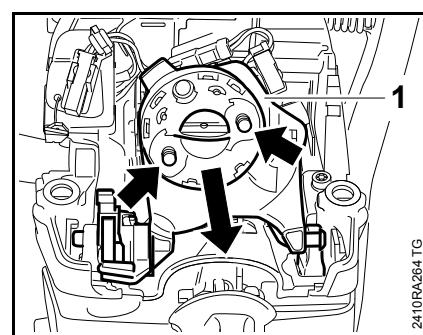
Versions with heating



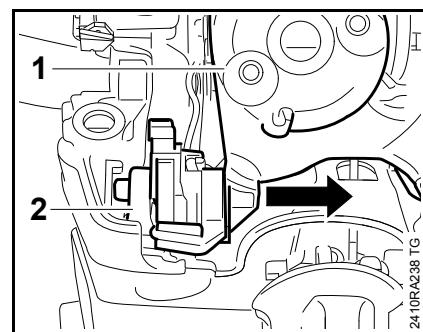
- Remove lead (1) from cable guide (arrow)



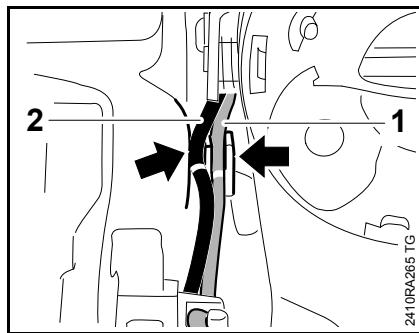
- Push buffer (1) out from under the pin of the filter base (2)



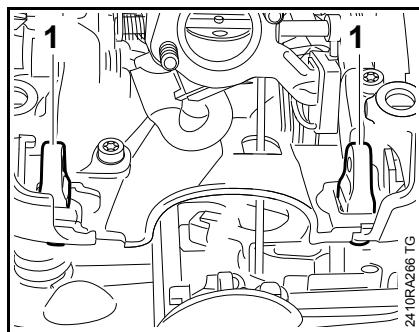
- Remove filter base (1) from the studs (arrows)



- Pull the filter base (1) out of the buffer (2)



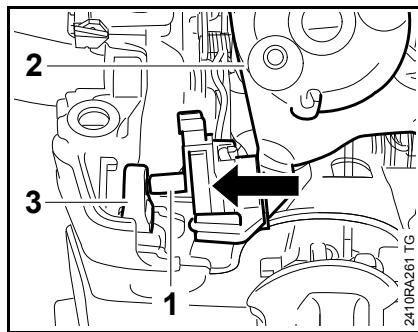
- Remove short circuit wire (1) and contact spring (2) from the guides (arrows)
- Remove contact spring, **7.7.4**
- Remove switch shaft, **11.1**
- Remove filter base



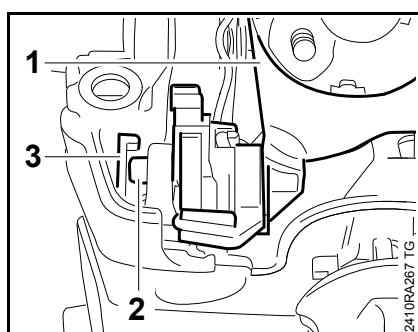
- Check buffer (1), replace if necessary, **10.3.3**

Installation

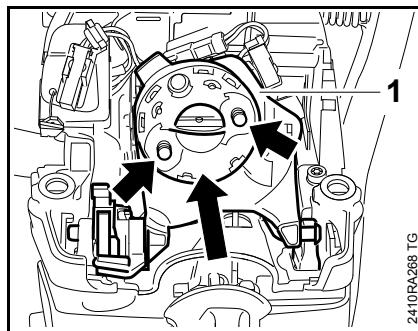
- Position filter base in the carburetor space
- Install switch shaft, **11.1**
- Install contact spring, **7.7.4**



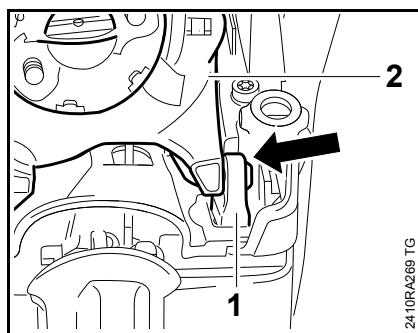
- Use STIHL press fluid to improve assembly, **16**
- Push the pin (1) of the filter base (2) into the hole in the ignition side buffer (3) as far as it will go



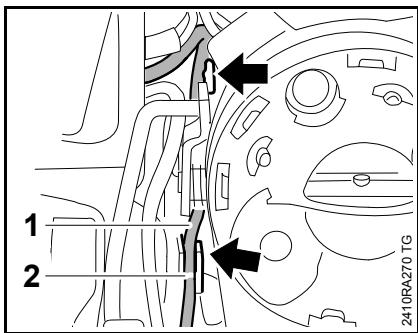
- Orient the filter base (1) so that the pin (2) is below the tab (3)



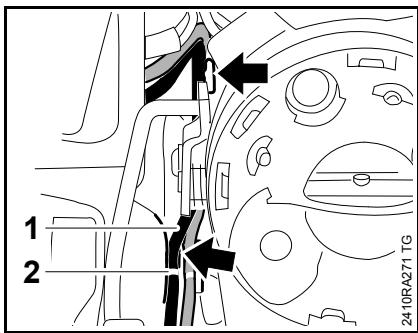
- Press filter base (1) over the studs (arrows) onto the carburetor



- Use STIHL press fluid to improve assembly, **16**
- Push the buffer (1) completely over the pins of the filter base (2)
 - the shoulder of the pin must protrude completely from the opposite side of the buffer
- Install the choke rod, **11.4**

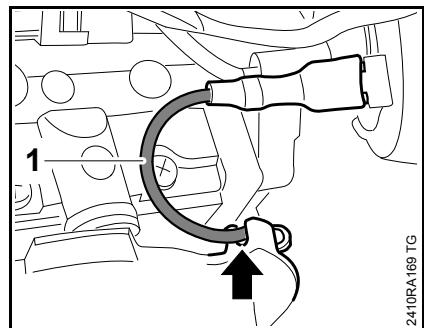


- Use wiring tool 5910 890 4000 to press the ground wire (1) into the guides (arrows) so that it lies snug against the air guide shroud and the marking (2) is at the edge of the guide



- Use wiring tool 5910 890 4000 to press the short-circuit wire (1) into the guides (arrows) so that it lies snug against the air guide shroud and the marking (2) is at the edge of the guide
- Check the switching functions of the switch shaft

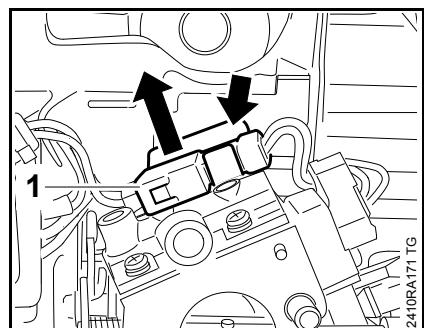
Versions with heating



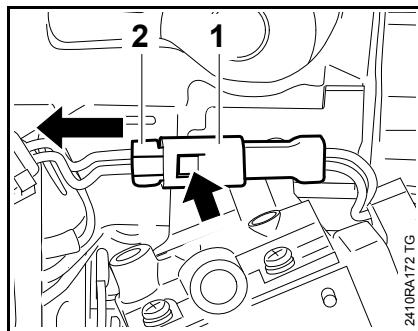
- Insert lead (1) completely in cable guide (arrow)
- Reassemble remaining parts in reverse order

13.4 Air guide shroud

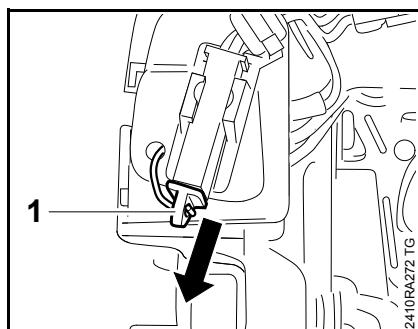
- Remove shroud, **6.4**
- Remove fan housing, **9.2**
- Remove filter base
 - Do not remove contact spring and switch shaft, **8.4**
- Unplug the spark plug boot



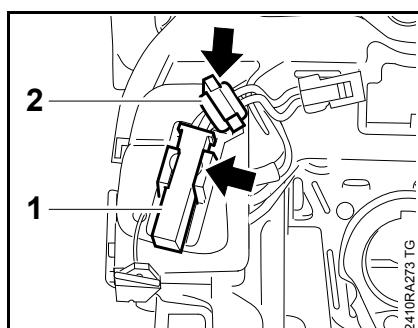
- Pull plug connector (1) out of the carburetor support mount (arrow)



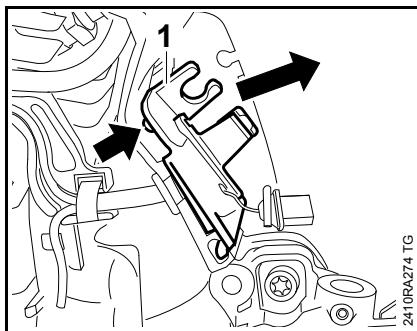
- Hold the jack (1), press the tab (arrow) and pull out the plug (2) – do not tug on the leads
- Remove the carburetor, **13.5**
- Remove the throttle rod, **11.5**
- Remove carburetor support, **13.8**



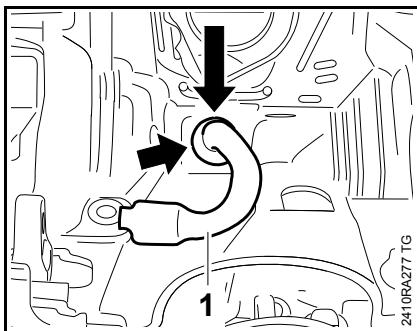
- Remove the plug (1)



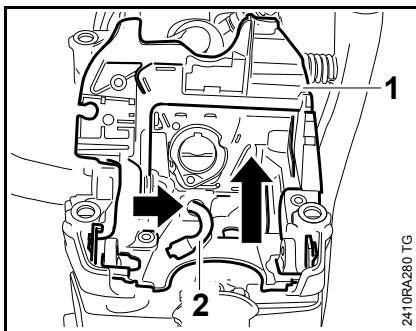
- Remove diagnostic jack (1) with bushing (2) from the guides (arrows)



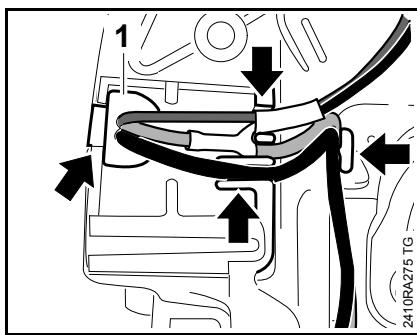
- Pry out and remove the cable holder (1) at the pin (arrow)



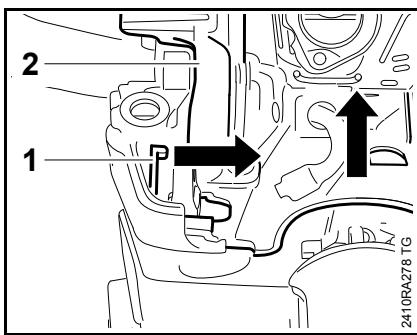
- Press the grommet (arrow) of the fuel hose (1) downward and out



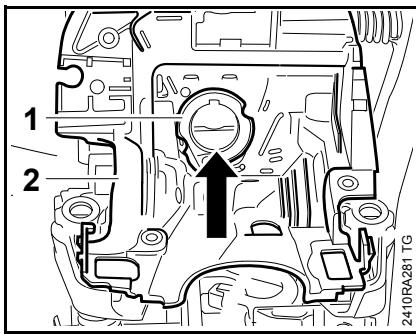
- Pull the air guide shroud (1) over the buffers and out of the mounts, in the process, pushing the fuel hose (2) through the hole (arrow)



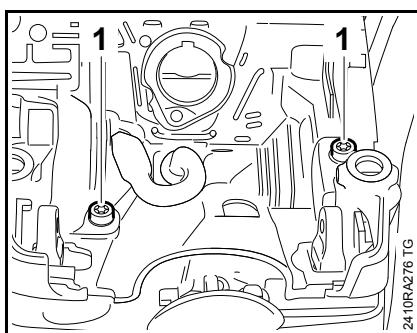
- Remove grommet (1) and wiring harness from the guides (arrows)
 - Lay aside the wiring harness with the filter base



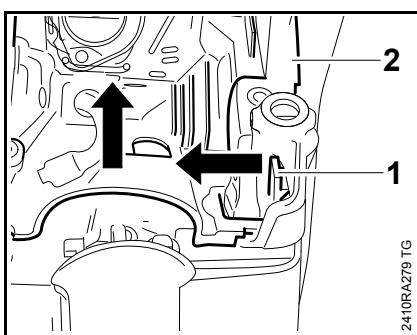
- Press tab (1) in the direction of the clutch side and pry the air guide shroud (2) out of the mount



- Press the manifold flange (1) out of the air guide shroud (2) by hand in the direction of the cylinder while pulling of the air guide shroud
 - Pull the fuel hose out of the air guide shroud
 - Remove the air guide shroud
 - Replace fuel hose, [13.11.2](#)

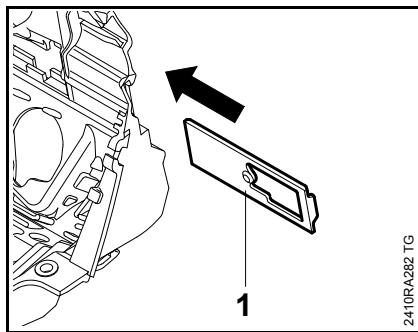


- Remove screws (1)



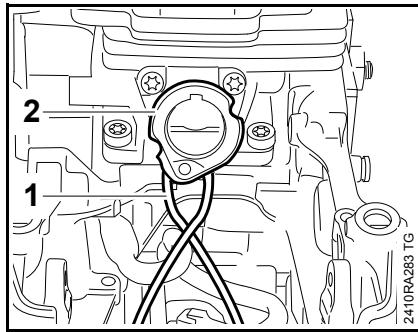
- Press tab (1) in the direction of the ignition side and pry the air guide shroud (2) out of the mount

Installation



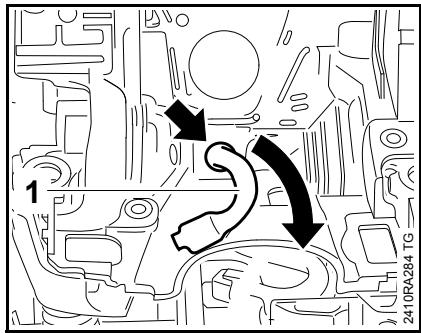
2410RA282 TG

- Pull out the shutter and inspect it, replace if necessary
- Slide the shutter (1) into the guide until it snaps into place

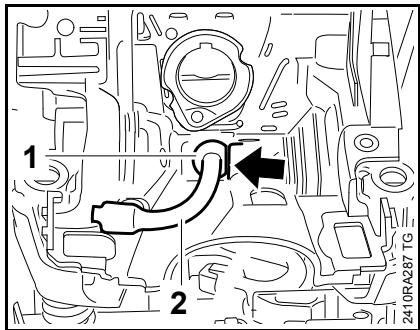


2410RA283 TG

- To pull the manifold flange (2) into the hole of the air guide shroud, place a string (1) that is approx. 15 cm long around the manifold flange
- To simplify assembly, coat the manifold flange with STIHL press fluid, **16**

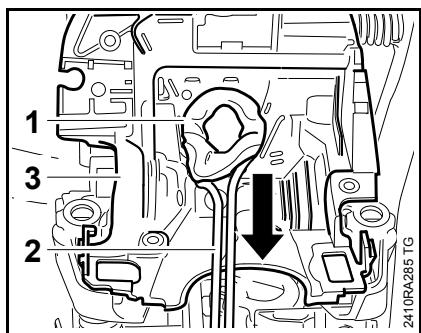


- Pull the grommet of the fuel hose (2) into the hole (arrow) in the air guide shroud (1) until the grommet entirely encloses the hole



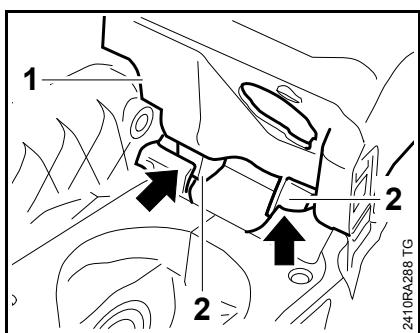
2410RA287 TG

- Orient the grommet (1) of the fuel hose (2) so the the straight side (arrow) rests against the edge of the air guide shroud



2410RA285 TG

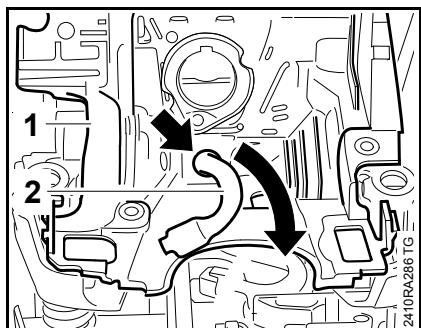
- Pull the manifold flange (1) through the opening by the ends of the string (2), at the same time pressing the air guide shroud (3) against the manifold flange
- Remove the string



2410RA288 TG

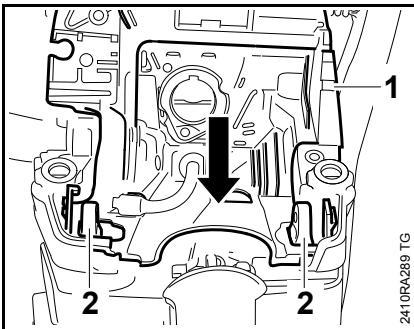
Shown without piston and cylinder for a better view.

The lugs (2) of the air guide shroud (1) must engage the mounts (arrows) of the crankcase.

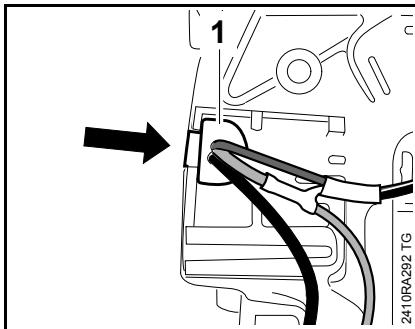


2410RA286 TG

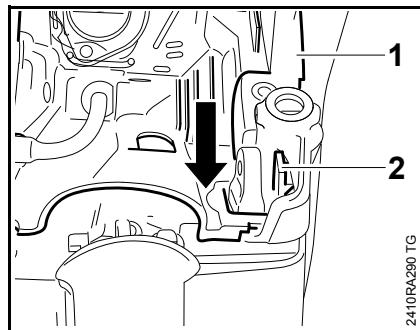
- To simplify installation, coat the grommet with STIHL press fluid, **16**



- Guide the air guide shroud (1) over the buffers (2) and push the lugs into the mounts of the crankcase



- Push the grommet (1) into the mount until it is flush with the edge of the air guide shroud
- Install wiring harness in the air guide shroud, **7.7.2**

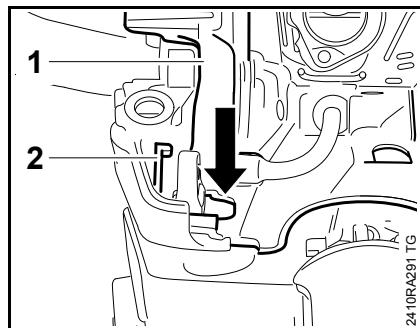


- Press the air guide shroud (1) into the mount until the tab (2) snaps into place

- Install the carburetor, **13.5**
- Install the filter base with the attached wiring harness, **8.4**
- Reassemble remaining parts in reverse order

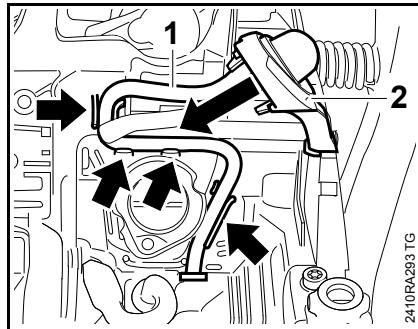
13.4.1 Air guide shroud, versions with manual fuel pump

- Remove shroud, **6.4**
- Remove fan housing, **9.2**
- Remove filter base
 - Do not remove contact spring and switch shaft, **8.4**
- Unplug the spark plug boot
- Remove wiring harness from the air guide shroud and lay it aside with the filter base, **7.7.2**
- Remove the carburetor, **13.5**

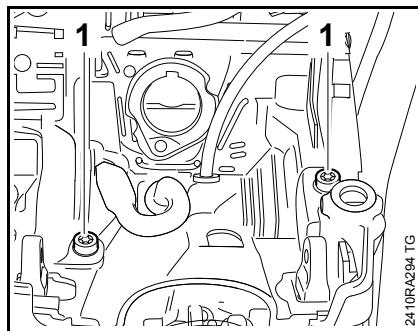


- Press the air guide shroud (1) into the mount until the tab (2) snaps into place
- Install the carburetor support, **13.8**
- Install the throttle rod, **11.5**

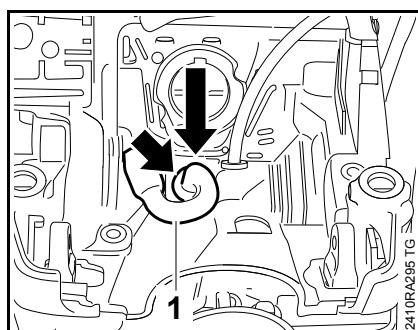
- Remove the throttle rod, **11.5**
- Remove carburetor support, **13.8**



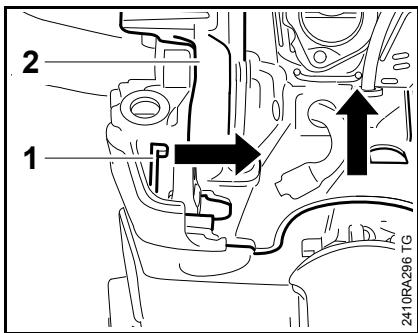
- Remove fuel return line (1) at the fuel pump (2) and pull it out of the guides (arrows)



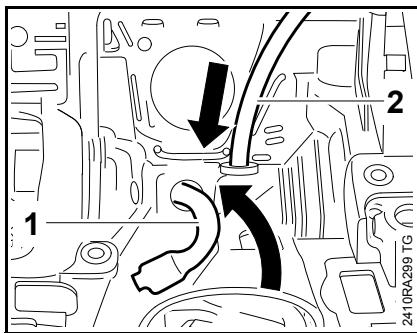
- Remove screws (1)



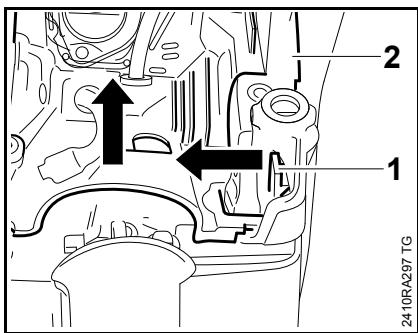
- Press the grommet (arrow) of the fuel hose (1) downward and out



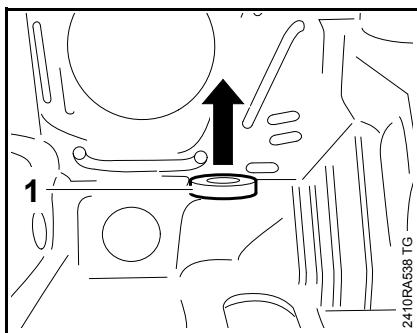
- Press tab (1) in the direction of the clutch side and pry the air guide shroud (2) out of the mount



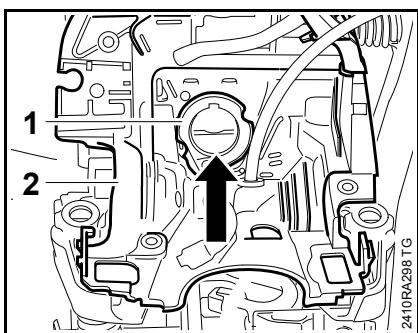
- Pull fuel hose (1) and fuel return line (2) out of the air guide shroud
 - Remove the air guide shroud



- Press tab (1) in the direction of the ignition side and pry the air guide shroud (2) out of the mount

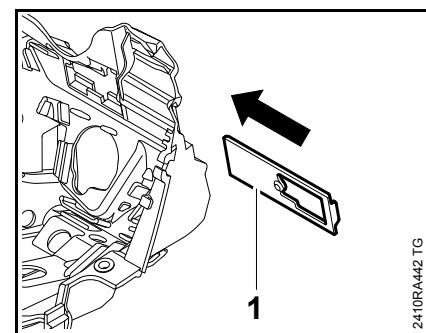


- Ease out grommet (1) and examine it, replace if necessary

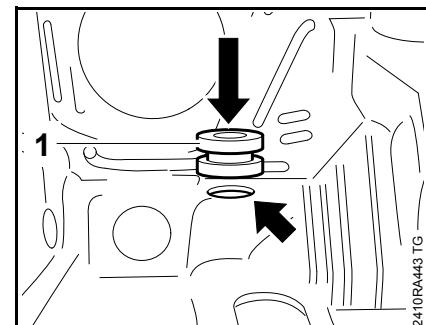


- Press the manifold flange (1) out of the air guide shroud (2) by hand in the direction of the cylinder while pulling the air guide shroud out of the mounts

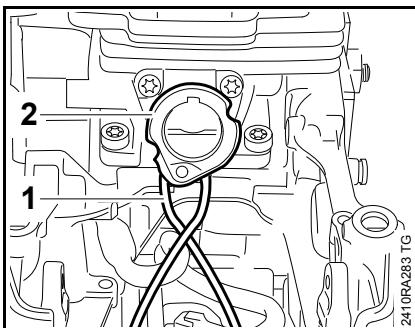
Installation



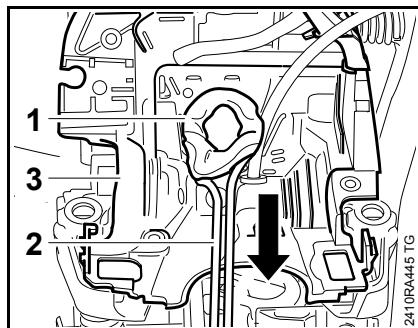
- Pull out the shutter and inspect it, replace if necessary
- Slide the shutter (1) into the guide until it snaps into place



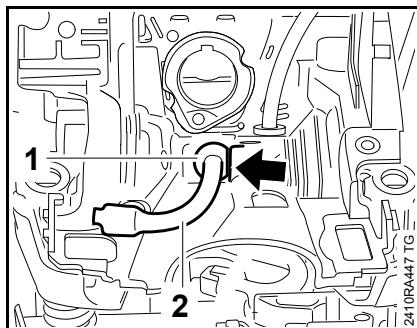
- To simplify installation, coat the outside of the grommet with STIHL press fluid, [13.11.2](#)
- Press grommet (1) into hole (arrow) until it encloses the hole completely



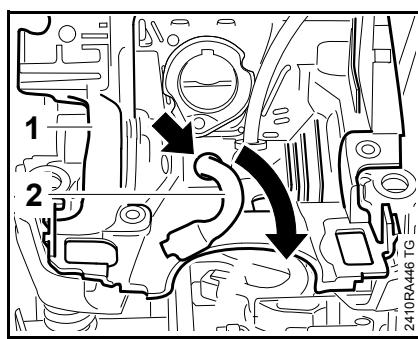
- To pull the manifold flange (2) into the hole of the air guide shroud, place a string (1) that is approx. 15 cm long around the manifold flange
- To simplify assembly, coat the manifold flange with STIHL press fluid, **16**



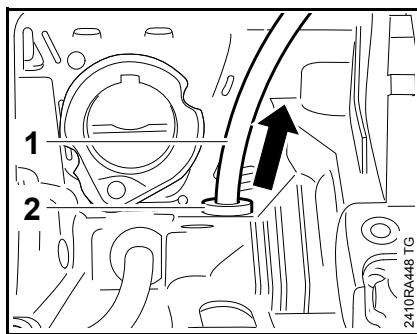
- Pull the manifold flange (1) through the opening by the ends of the string (2), at the same time pressing the air guide shroud (3) against the manifold flange
- Remove the string



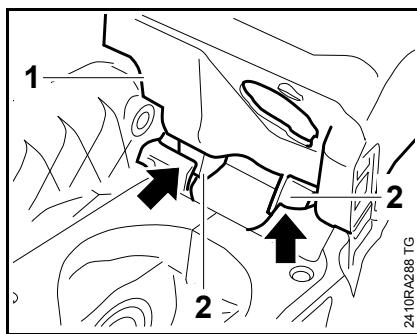
- Orient the grommet (1) of the fuel hose (2) so the straight side (arrow) rests against the edge of the air guide shroud



- Fit the air guide shroud (1)
- Push new fuel hose (2) through the opening (arrow)
- Use STIHL press fluid to simplify assembly, **16**
- Push the new fuel return line (3) completely through the grommet (4)

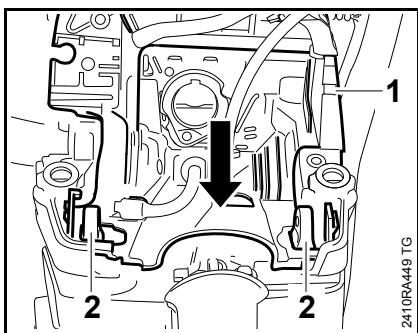


- Pull in the new fuel return line (1) completely through the grommet (2)

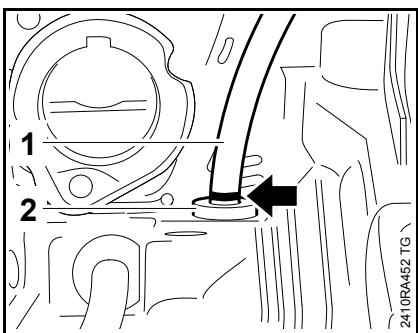


Shown without piston and cylinder for a better view.

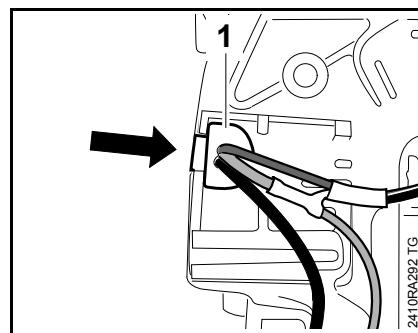
The lugs (2) of the air guide shroud (1) must engage the mounts (arrows) of the crankcase.



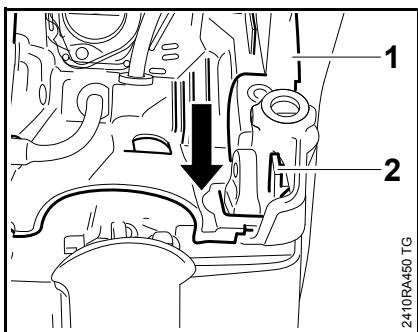
- Guide the air guide shroud (1) over the buffers (2) and push the lugs into the mounts of the crankcase



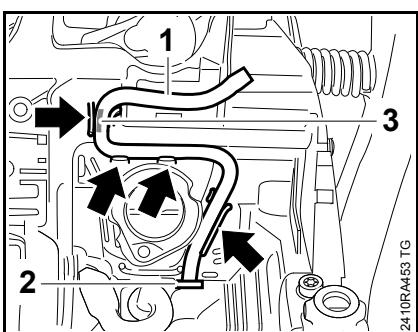
- Orient the fuel return line (1) so that the marking (arrow) is located at the grommet (2)



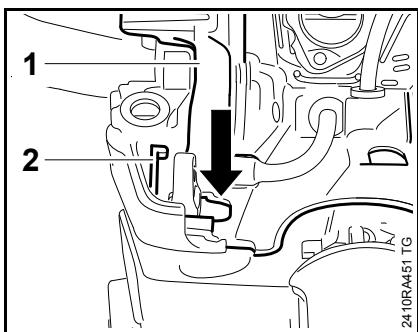
- Push the grommet (1) into the mount until it is flush with the edge of the air guide shroud



- Press the air guide shroud (1) into the mount until the tab (2) snaps into place



- Starting at the grommet (2), press the fuel return line (1) into the guides (arrows) – the marking (3) must be located at the upper guide rib
- Route the fuel return line so that it is snug – the fuel return line must not form a loop between the air guide shroud and the grommet
- Install the carburetor support, **13.8**
- Install the throttle rod, **11.5**
- Install the manual fuel pump, **13.11.4**
- The fuel return line must not be kinked or pinched.
- Install the carburetor, **13.5**

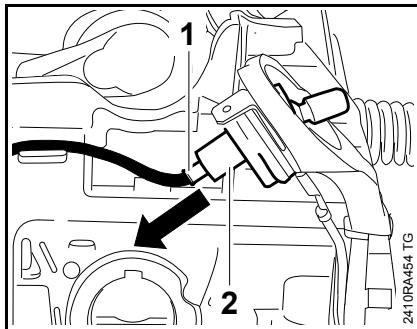


- Press the air guide shroud (1) into the mount until the tab (2) snaps into place

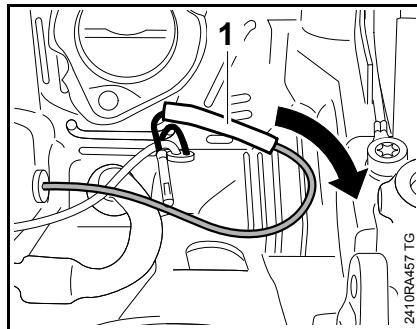
- Install wiring harness in the air guide shroud, **7.7.2**
- Install the filter base with the attached wiring harness, **8.4**
- Reassemble remaining parts in reverse order

13.4.2 Air guide shroud version with heating

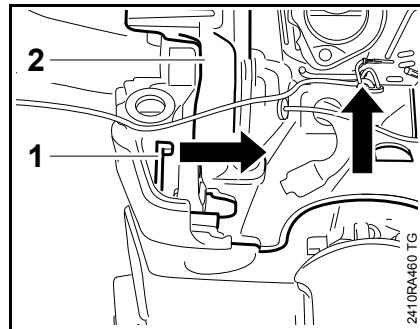
- Remove shroud, **6.4**
- Remove fan housing, **9.2**
- Remove filter base
 - Do not remove contact spring and switch shaft, **8.4**
- Unplug the spark plug boot
- Remove wiring harness from the air guide shroud and lay it aside with the filter base, **7.7.2**
- Remove the carburetor, **13.5**
- Remove carburetor support, **13.8**



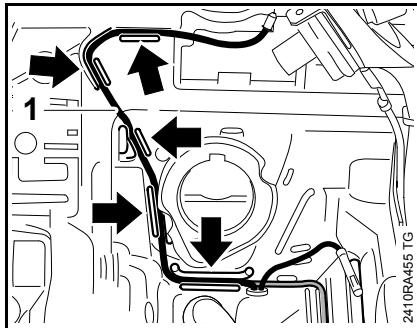
- Pull contact sleeve (1) out of heating switch (2)



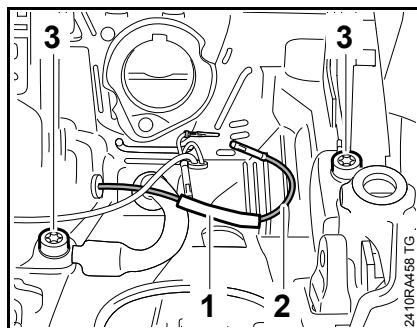
- Slide insulating tube (1) towards generator and disconnect plug connection



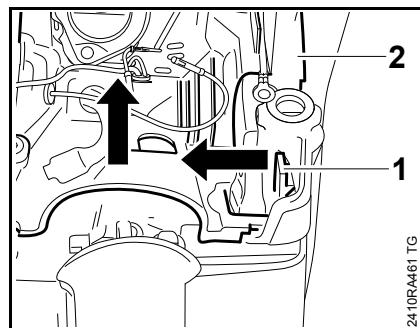
- Press tab (1) in the direction of the clutch side and pry the air guide shroud (2) out of the mount



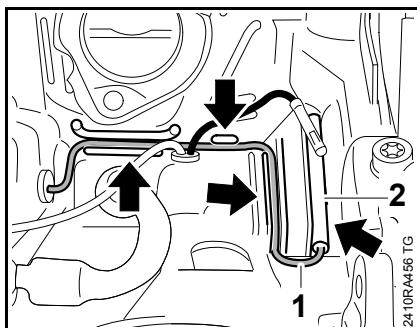
- Remove lead (1) from the guides (arrows)



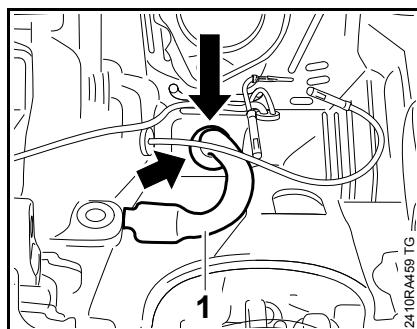
- Pull insulating tube (1) off of the generator lead (2)
- Remove screws (3)



- Press tab (1) in the direction of the ignition side and pry the air guide shroud (2) out of the mount



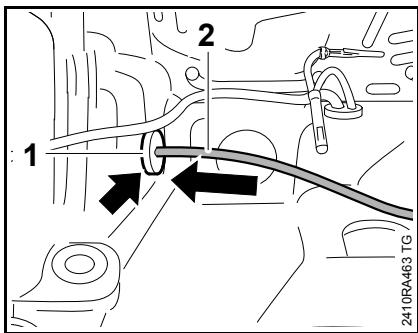
- Remove plug connection with insulating tube (2) and generator lead (1) from the guides (arrows)



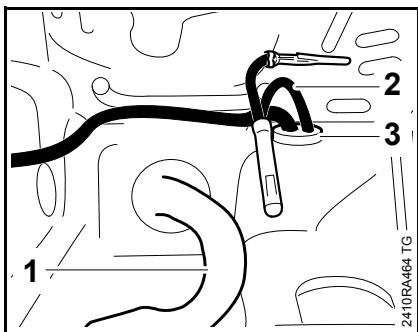
- Press the grommet (arrow) of the fuel hose (1) downward and out



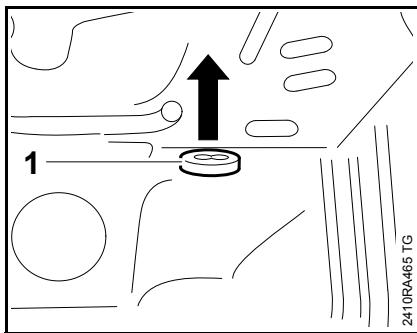
- Press the manifold flange (1) out of the air guide shroud (2) by hand in the direction of the cylinder while pulling the air guide shroud out of the mounts



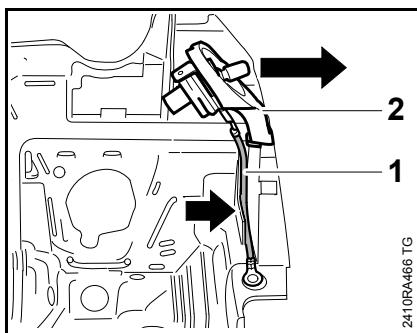
- Press out the grommet (1) of the generator lead (2) in the direction of the generator and pull the generator lead (2) out of the hole (arrow)
- Pull the grommet off of the generator lead – to make it easier, twist the grommet while pulling it off



- Pull the fuel hose (1) out of the air guide shroud
- Pull the wiring harness (2) out of the air guide shroud through the grommet (3)
- Remove air guide shroud with heating switch and ground wire

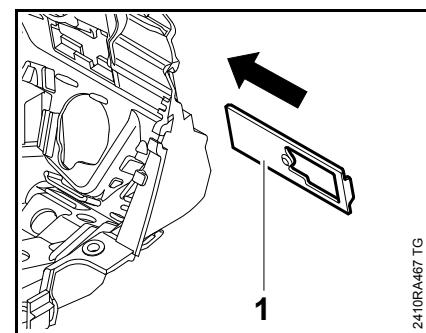


- Ease out grommet (1) and examine it, replace if necessary

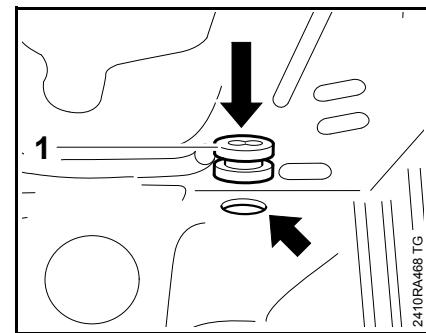


- Remove ground wire (1) from the guide (arrow)
- Push the holder (2) with the heating switch out of the mount
- Examine heating switch and replace if necessary, **14.4**
- Examine ground wire and replace if necessary, **14.4**
- Replace fuel hose, **13.11.2**

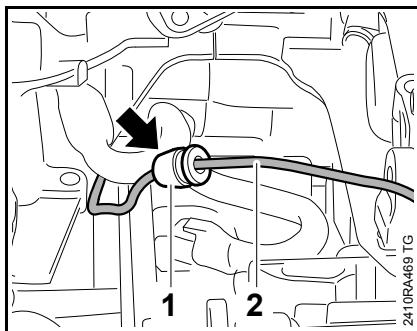
Installation



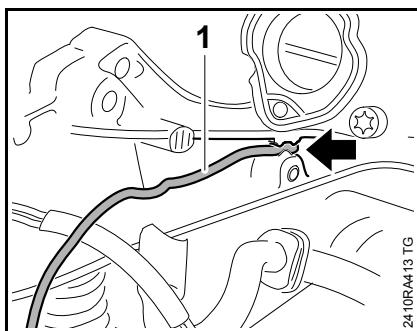
- Pull out the shutter and inspect it, replace if necessary
- Slide the shutter (1) into the guide until it snaps into place



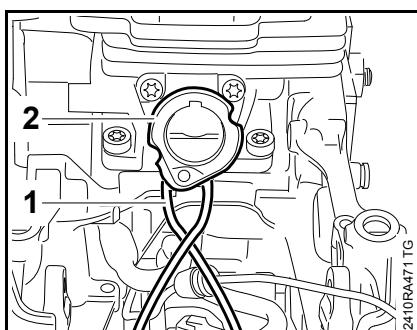
- To simplify installation, coat the outside of the grommet with STIHL press fluid, **16**
- Press grommet (1) into hole (arrow) until it encloses the hole completely



- Push grommet (1) onto the generator lead (2) so that the conical area (arrow) faces the generator – to make it easier, twist the grommet while pushing it on

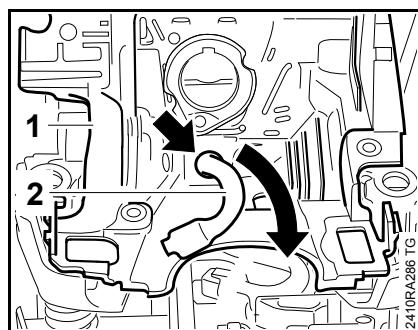


The generator lead (1) must be seated completely in the guide (arrow).

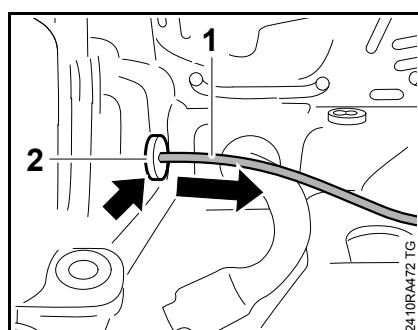


- To pull the manifold flange (2) into the hole of the air guide shroud, place a string (1) that is approx. 15 cm long around the manifold flange

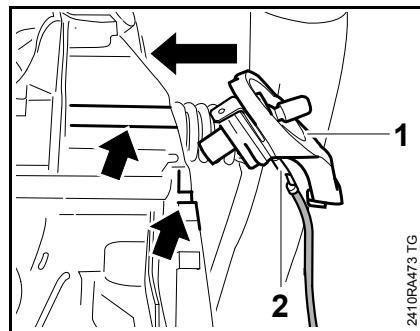
- To simplify assembly, coat the manifold flange with STIHL press fluid, **16**



- Fit the air guide shroud (1)
- Push new fuel hose (2) through the opening (arrow)

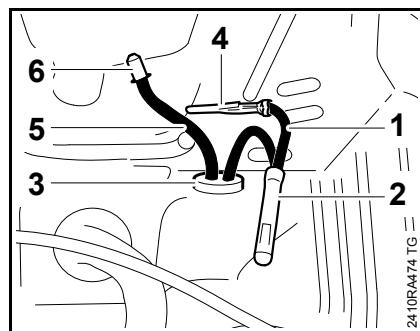


- To simplify installation of the grommet, coat the outside of the grommet with STIHL press fluid, **16**
- Push the generator lead (1) through the hole on the side (arrow) and press the grommet (2) into the hole until it completely encloses the hole

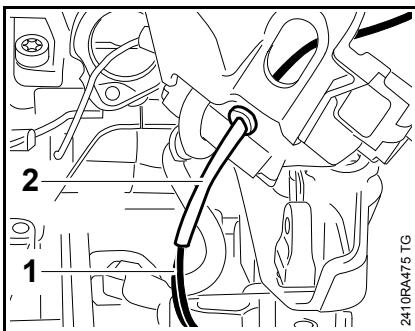


The crimped side of the ground wire (2) must face the intake elbow.

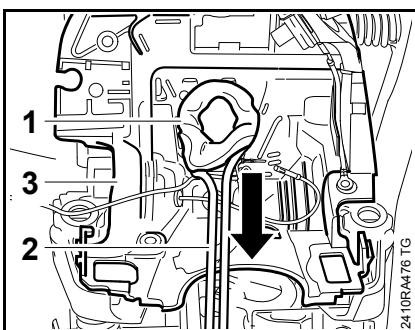
- Press holder (1) with heating switch as far as it will go into the guides (arrows)



- Push lead (1) with terminal socket (2) through the right hole (see illustration) of the grommet (3) and pull it in until the connector (4) has been pulled through the grommet (3)
- Push lead (5) with terminal socket (6) through the left hole (see illustration) of the grommet (3)

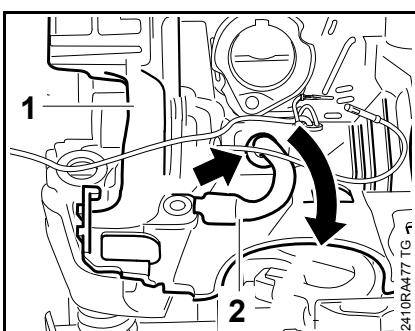


- Pull in wiring harness (1) until the protective tube (2) rests against the grommet



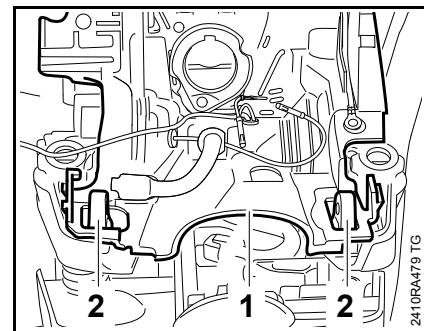
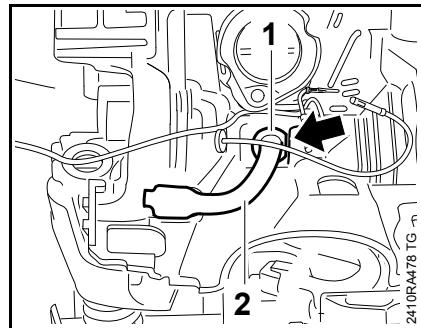
- Pull the manifold flange (1) through the opening by the ends of the string (2), at the same time pressing the air guide shroud (3) against the manifold flange

– Remove the string



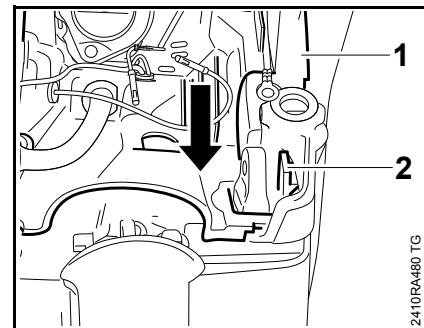
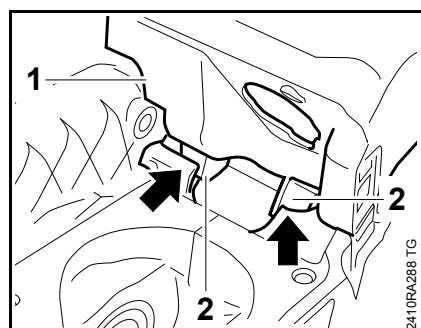
- To simplify installation, coat the grommet with STIHL press fluid,
 16

- Position the air guide shroud (1) and pull the grommet of the fuel hose (2) into the hole (arrow) until the grommet completely encloses the hole



- Guide the air guide shroud (1) over the buffers (2) and push the lugs into the mounts of the crankcase

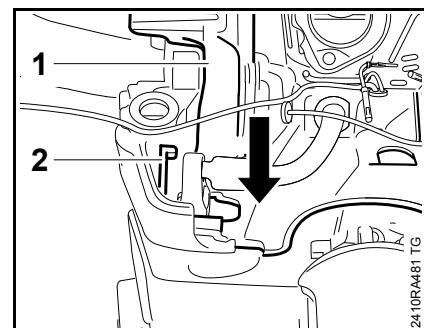
- Orient the grommet (1) of the fuel hose (2) so the straight side (arrow) rests against the edge of the air guide shroud



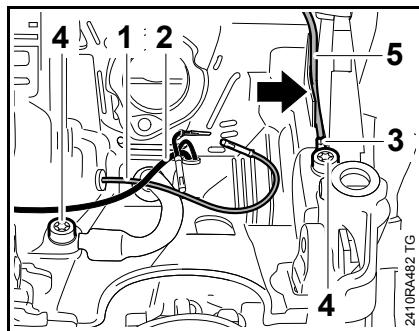
- Press the air guide shroud (1) into the mount until the tab (2) snaps into place

Shown without piston and cylinder for a better view.

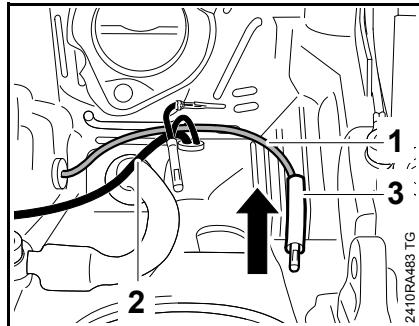
The lugs (2) of the air guide shroud (1) must engage the mounts (arrows) of the crankcase.



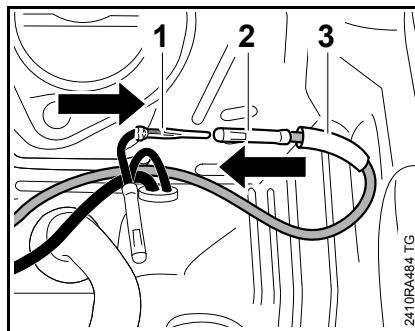
- Press the air guide shroud (1) into the mount until the tab (2) snaps into place



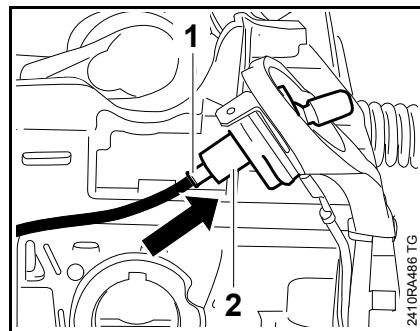
- Pull in generator lead (1) and wiring harness (2)
- Position cable lug (3) so that the crimped side faces upward and insert screws (4)
- Push ground wire (5) into the guide (arrow) and tighten screws (4)
- Press the plug connections together completely, 1



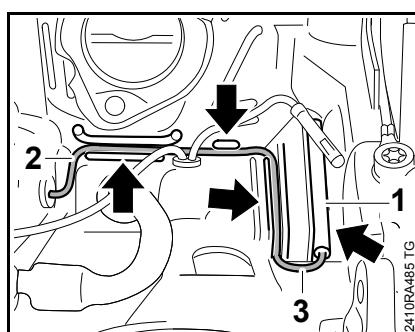
- Route generator lead (1) behind the wiring harness (2)
- Slide insulating tube (3) over the generator lead (1)



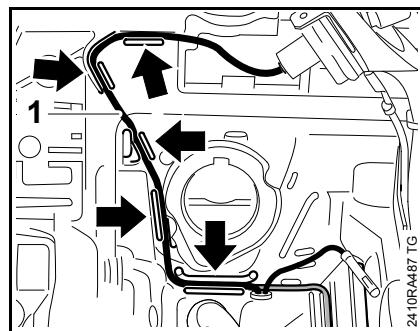
- Push together the connector (1) and the terminal socket (2)
- Slide insulating tube (3) over the plug connection



- Push the contact sleeve (1) into the heating switch (2) as far as it will go



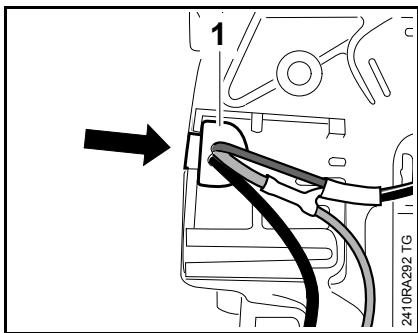
- Press the plug connection with insulating tube (1) into the center of the guide
- Route the generator lead (2) in the guides (arrows) so that it lies snug against the air guide shroud and forms a loop (3) at the insulating tube (1)



- Press the lead (1) completely into the guides (arrows) so that it rests snug against the air guide shroud

The generator lead must be routed along the lower guide below the lead of the heating switch.

- Install the carburetor support, 13.8
- Install the throttle rod, 11.5
- Install the carburetor, 13.5



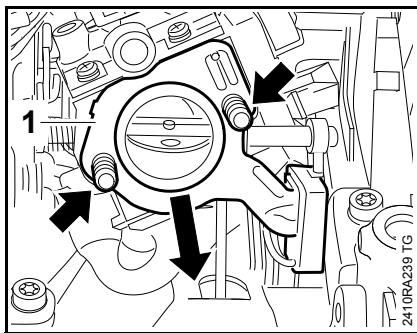
- Push the grommet (1) into the mount until it is flush with the edge of the air guide shroud
- Install wiring harness in the air guide shroud, **7.7.2**

- Install the filter base with the attached wiring harness, **8.4**
- Reassemble remaining parts in reverse order

13.5 Carburetor

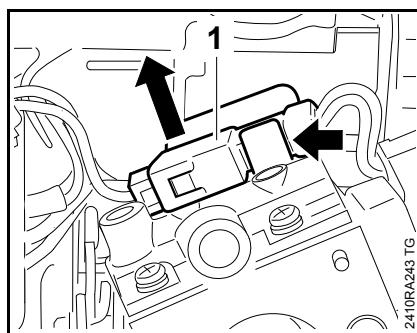
- Pull off the filter base over the studs and lay it aside with the attached wiring harness, **8.4**
- Open filler cap and drain fuel tank
- Collect fuel in a clean container, **1**

The fuel hose may only be removed when the tank filler cap is open.



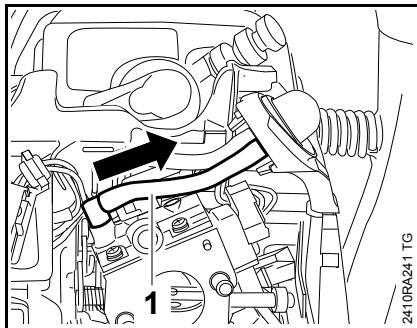
- Pull holder (1) of the switchgear over the studs (arrows) and lay it aside

All versions

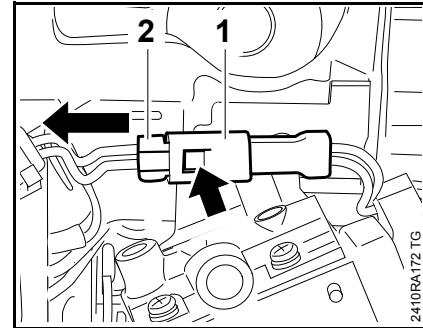


- Pull plug connector (1) out of the carburetor support mount (arrow)

Versions with manual fuel pump

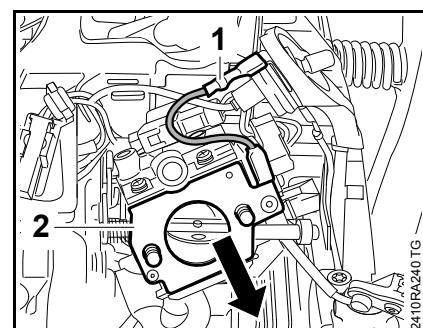


- Disconnect the fuel hose (1)

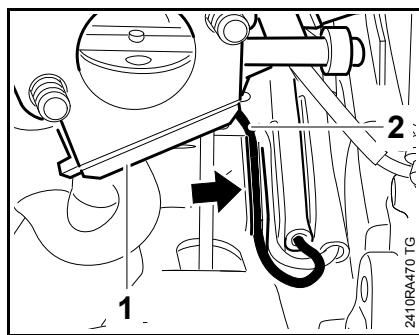


- Hold the jack (1), press the tab (arrow) and pull out the plug (2) – do not tug on the leads

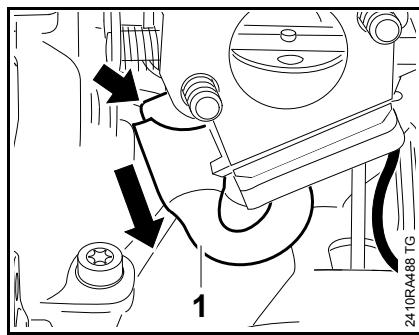
Version with heating



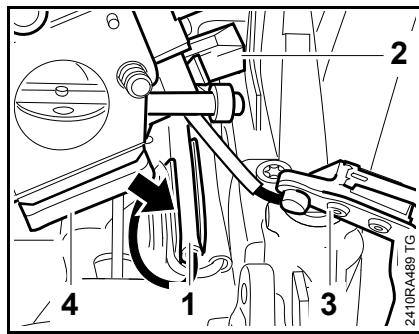
- Remove blade receptacle (1)
- Remove heating element (2) from the studs



- Pull off carburetor (1) slightly and pull lead (2) out of the guide (arrow)

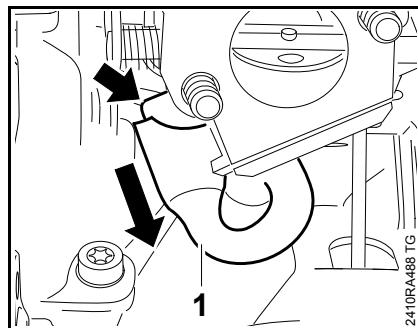


- Disconnect the fuel hose (1) from the connector (arrow).

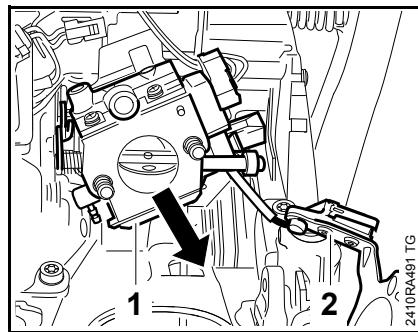


- Pull insulating tube (1) with plug connection out of the guide (arrow), slide insulating tube (1) in direction of the thermostatic switch and disconnect plug connection
- Pull off carburetor (2) with switchgear (3) and thermostatic switch (4)

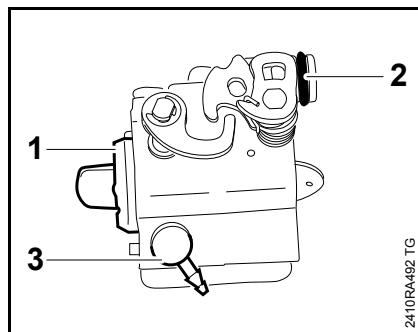
All versions



- Disconnect the fuel hose (1) from the connector (arrow).



- Pull off carburetor (1) with switchgear (2)
- Remove switchgear at the carburetor, **8.4**



- Check ring (1) and sealing ring (2) and replace if necessary
- Check connector (3) – in case of a damaged connector (3), the carburetor must be replaced

- Examine the carburetor and repair or replace it if necessary, **13.5**, **13.6**

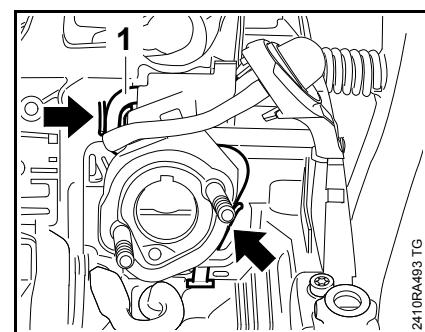
- Replace fuel hose, **13.11.2**

Versions with manual fuel pump

- Replace fuel suction hose, **13.11.3**

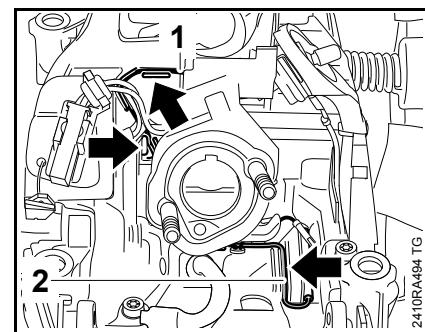
Installation

Versions with manual fuel pump



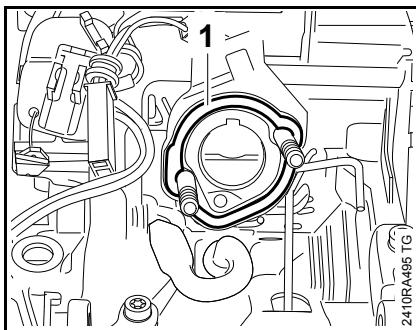
- Check seat of the fuel return line (1), if necessary. press it completely into the guides (arrows)

Versions with heating

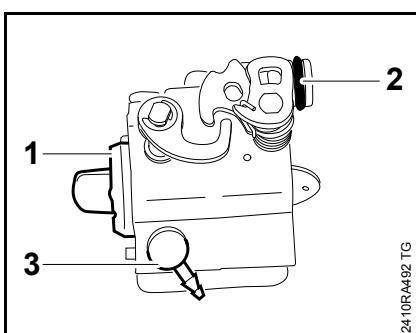


- Check seat of the heating switch lead (1) and generator lead (2), if necessary. press completely into the guides (arrows)

All versions



Washer (1) must be fitted.

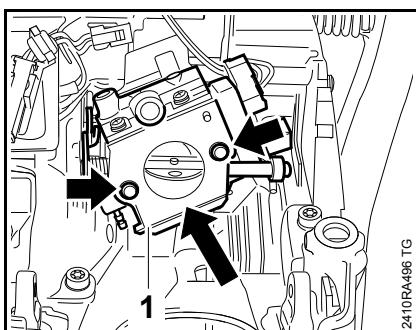


Ring (1) must be in place.

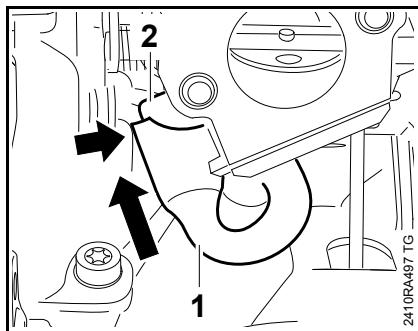
Sealing ring (2) must be in place.

Connector (3) must engage in the hole of the manifold flange.

- Install the switchgear wiring harness on the carburetor, [8.4](#)



- Slide on the carburetor (1) over the studs (arrows) until it is flush with the studs

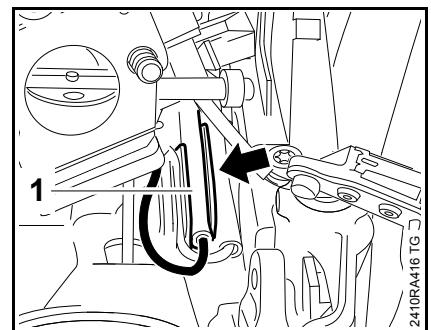


- Push new fuel hose (1) onto the connector (2) so that the tab (arrow) faces the throttle shaft lever and fits against the connector evenly

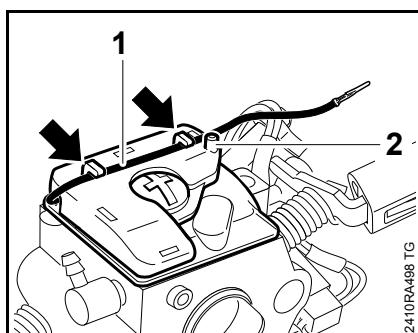
Version with heating

- Press the plug connection together completely, [1](#)

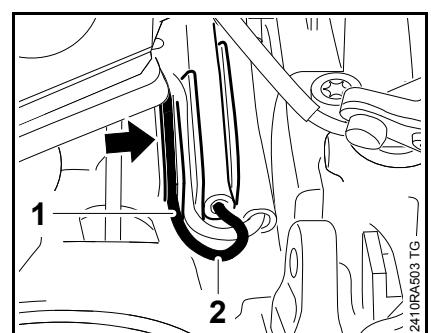
- Push together the connector (3) and the terminal socket (4)
- Slide the insulating tube (1) over the plug connection, if necessary, with gentle twisting motions



- Press the plug connection with insulating tube (1) into the center of the guide (arrow)

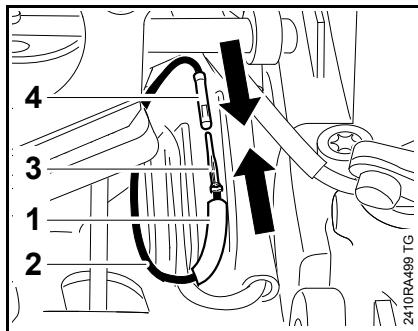


- The lead (1) of the thermostatic switch must be seated in the guides (arrows) and run behind the stud (2)



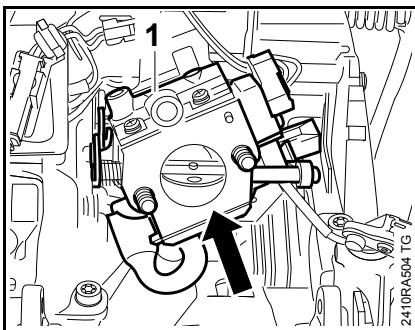
- The lead (1) of the thermostatic switch must run along the loop (2) above the generator lead.

- Press lead (1) completely into the guide (arrow)

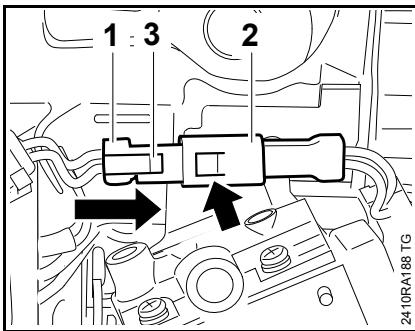


- Push insulating tube (1) onto lead (2) of the thermostatic switch

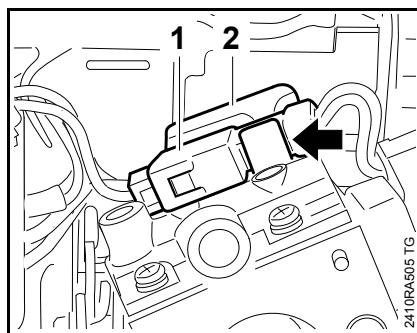
All versions



- Push on the carburetor (1) further

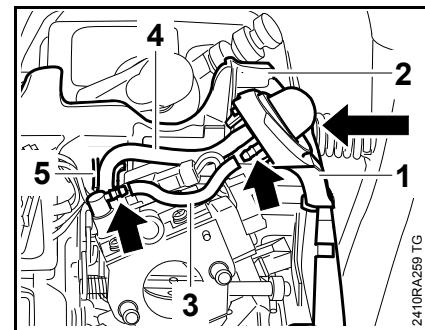


- Orient plug (1) and jack (2) so that the tab (3) lines up with the opening (arrow) – do not twist the leads
- Plug connector (1) into jack (2) until the tab (3) clicks into place



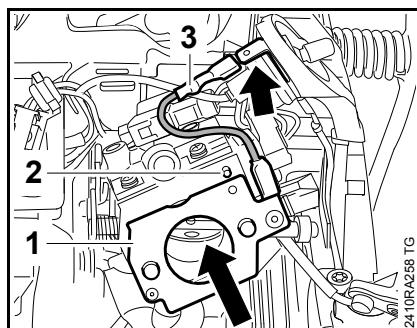
- Press the plug connection (1) into the mount (2) of the carburetor support so that the tab (arrow) engages and snaps into place in the recess of the plug connection
 - Plug connection (1) must be seated firmly in the mount (2)
- Push on the carburetor as far as it will go – pay attention to cable routing and make sure not to pinch any leads

Versions with manual fuel pump



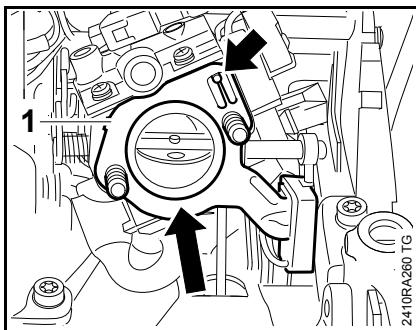
- Push the holder (1) with the fuel pump into the mount of the air guide shroud (2) as far as it will go; push new fuel hose (3) onto the connectors (arrows)
- Fuel return line (4) must be seated completely in the guide (5); if necessary, press the fuel return line (4) into the guide (5) again

Versions with heating



- Slide the heating element (1) over the studs so that the hole engages the pin (2)
- Orient the crimped side of the blade receptacle (3) so that it faces the carburetor
- Push the blade receptacle (3) completely onto the connector tab (arrow)

All versions



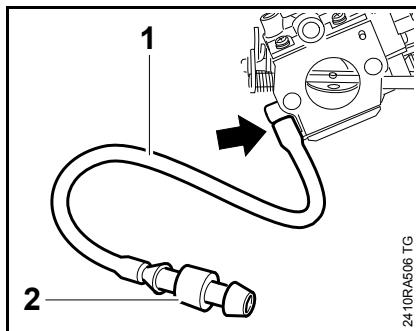
- Push the holder (1) of the switchgear over the studs so that the tab rests against the pin (arrow)
- Install the filter base with the attached wiring harness, **8.4**
- Install the choke rod, **11.4**
- Install air filter, **13.1**
- Check correct functioning
 - Set throttle trigger to full throttle; the throttle shutter on the carburetor must be open all the way
- Reassemble remaining parts in reverse order

13.5.1 Leakage test

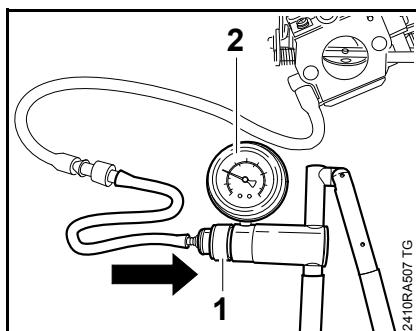
The tank vent must also be checked and replaced if problems develop with the carburetor or fuel supply, **13.10**

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

- Remove filter base with attached wiring harness and lay it aside, **8.4**
- Remove the carburetor, **13.5**



- Push the fuel line (1) 1110 141 8600 onto the double connector (2) 0000 855 9200
- Push the fuel line with double connector onto the fuel port (arrow)



- Push the delivery hose of the pump 0000 850 1300 onto the double connector
- Push ring (1) to the right and pump air into the carburetor until the pressure gauge (2) shows a pressure of approx. 0.8 bar (80 kPa)

If this pressure remains constant, the carburetor is airtight. However, if the pressure drops, this may have the following causes:

1. Metering diaphragm or gasket is damaged, replace if necessary, **13.6.1**

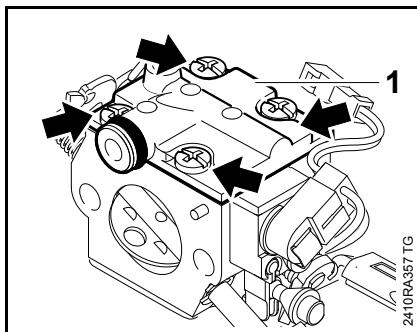
2. The inlet valve is not sealing (foreign objects in the valve seat, sealing cone of the inlet needle is damaged or inlet control lever is sticking), remove to clean, **13.1**
3. Pump diaphragm or gasket damaged, replace if necessary, **13.6.3**
 - Check tank vent if necessary, **13.10.1**
 - After completing the test, slide ring (1) to the left and vent the system, then disconnect fuel line from elbow connector of carburetor
 - Install the carburetor, **13.5**
 - Install the filter base with the attached wiring harness, **8.4**
 - Reassemble remaining parts in reverse order

13.6 Repairing the carburetor

All versions are controlled by the M-Tronic system, thus no adjusting screws are required or present on the carburetor. Solenoid and special bolt for idle stop may not be modified or removed; if they are damaged, the carburetor must be replaced.

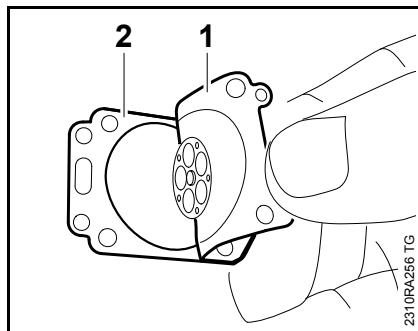
13.6.1 Metering diaphragm

- Troubleshooting, **3.6**
- Remove the carburetor, **13.5**



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

If the gasket and diaphragm are stuck to the carburetor, they must be removed very carefully.

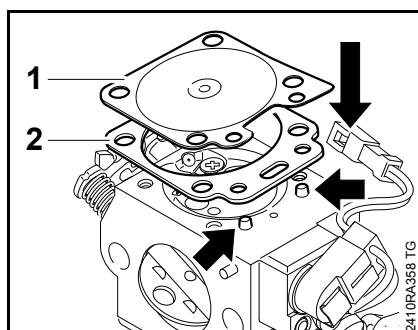


- Carefully separate the metering diaphragm (1) and gasket (2)

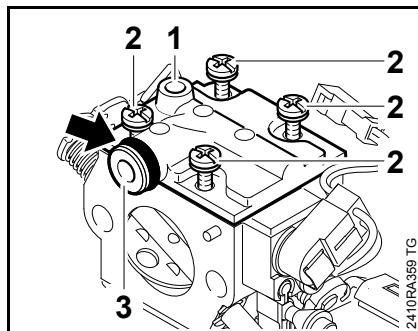
The diaphragm material is subjected to continuous alternating stresses and eventually shows signs of fatigue. In other words, the diaphragm distorts and swells and must be replaced.

- Examine the metering diaphragm for signs of damage and wear, fit a new gasket

Installation



- Note the order in which the metering diaphragm (1) and gasket (2) are installed
- Align the gasket (2) and metering diaphragm (1) so that the small holes on the tabs engage the pins (arrows)



- Orient the end cover (1) so that the connector (3) faces the choke shutter and the holes align
- Fit and screw in the screws (2) – do not tighten them

- Check that the metering diaphragm and gasket are correctly seated, then tighten down the screws crosswise

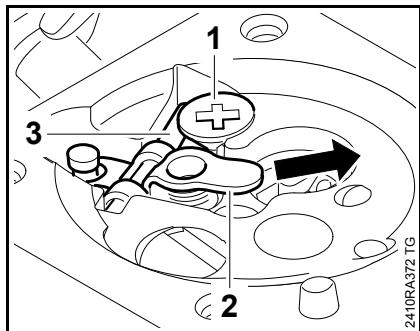
The sealing ring (arrow) must not be damaged.

- Reassemble remaining parts in reverse order

- Check sealing ring (1) and replace if necessary
- For versions with manual fuel pump, check connector (2), replace end cover if necessary

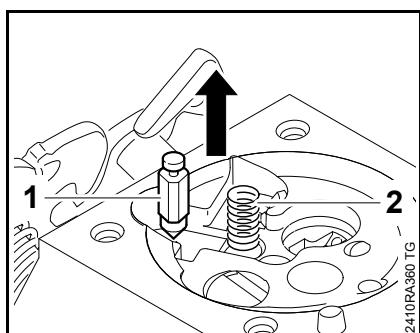
13.6.2 Inlet needle

- Remove the metering diaphragm, [13.6.1](#)

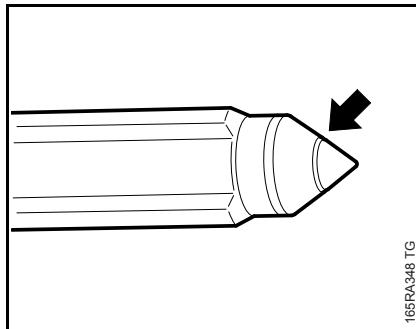


- Remove screw (1)
- Pull the inlet control lever (2) with spindle (3) out of the groove in the inlet needle

The spring under the inlet control lever may pop out.

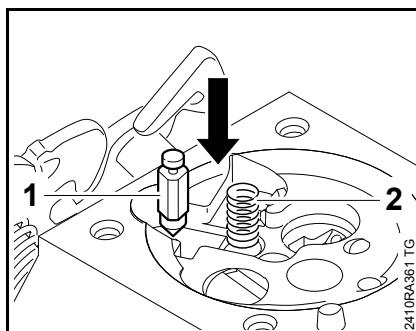


- Pull out the inlet needle (1)
- Take out and examine the spring (2), replace if necessary

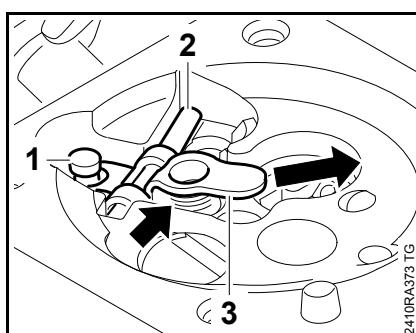


- The inlet needle must be replaced if a circular indentation (arrow) is visible on the tip of its sealing cone

Installation



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



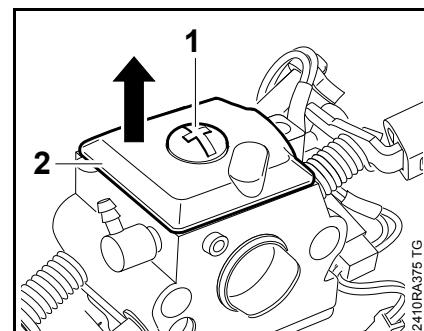
- First fit the spindle (2) of the inlet control lever (3) at the conical seat (arrow) of the spring, then slide the clevis on the inlet control lever into the groove on the inlet needle (1)

Ensure that the spring locates on the nipple of the inlet control lever.

- Press the inlet control lever down and secure it with the screw.
- Check that the inlet control lever moves easily
- Install the metering diaphragm, [13.6.1](#)

13.6.3 Pump diaphragm

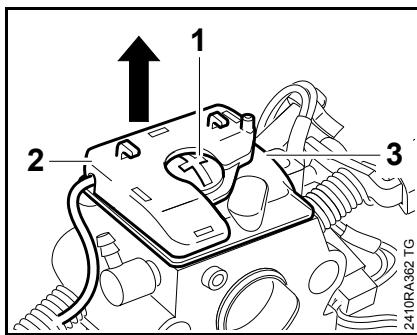
- Troubleshooting, [3.6](#)
- Remove the carburetor, [13.5](#)



- Remove screw (1)
- Remove the end cover (2)

If the gasket and pump diaphragm are stuck to the carburetor, they must be removed very carefully.

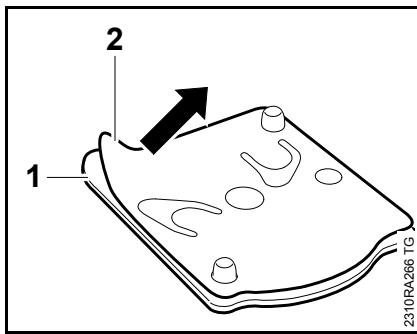
Version with handle and carburetor heating



- Remove screw (1)
- Remove thermostatic switch (2)
- Remove the end cover (3)

If the gasket and pump diaphragm are stuck to the carburetor, they must be removed very carefully.

All versions

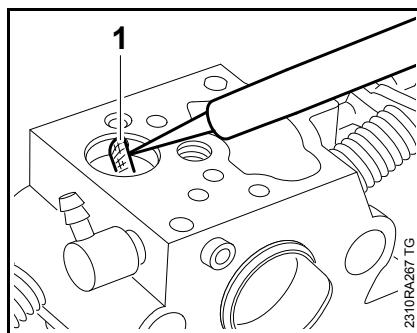


- Carefully remove the pump diaphragm with gasket from the end cover
- Carefully separate the pump diaphragm (2) and gasket (1)
– always use a new gasket

The diaphragm material is subjected to continuous alternating stresses and eventually shows signs of fatigue. In other words, the diaphragm distorts and swells and must be replaced.

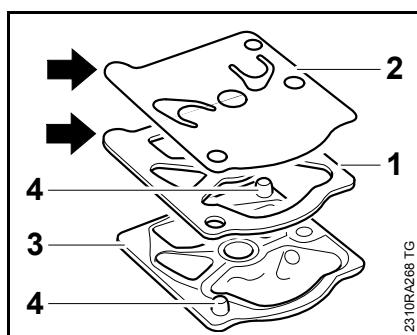
- Examine the pump diaphragm for signs of damage and wear, fit a new gasket

- Examine fuel strainer for contamination and damage, clean or replace if necessary

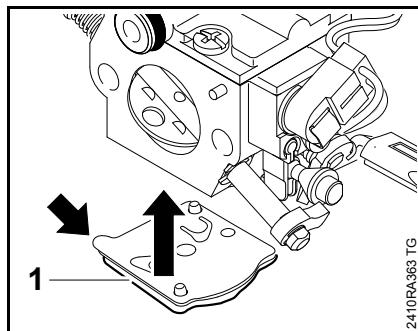


- Pull fuel strainer (1) with needle out of the carburetor housing and clean or replace it
- Reassemble parts in reverse order

Installation

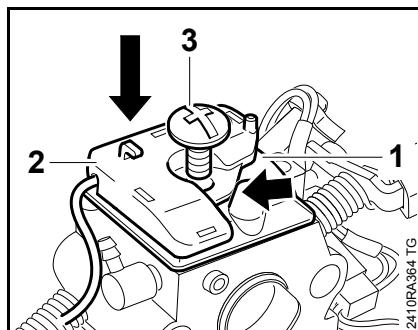


- Position gasket (1) and pump diaphragm (2) on the end cover (3) so that the protrusions (arrows) match and are secured in the pins (4)

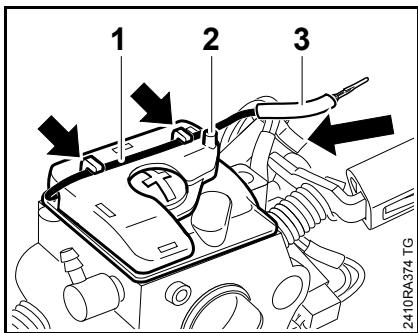


- Position the end cover (1) on the carburetor housing from below so that the gasket and pump diaphragm remain secured to the end cover
- Orient the end cover (1) so that the protrusion (arrow) faces the lever of the throttle and choke shaft

Version with heating

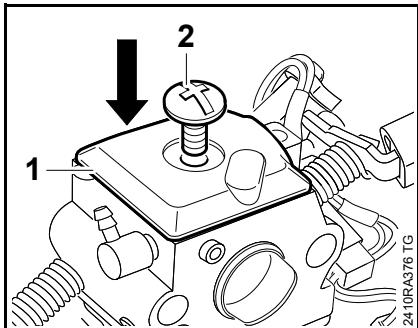


- Move the end cover (1) back and forth slightly until the pegs on the end cover engage in the holes in the carburetor housing
- Position the thermostatic switch (2) so that it rests against the raised part (arrow)
- Check that the pump diaphragm and gasket are correctly seated
- Screw in the screw (3) and tighten it



- Press lead (1) into the guides (arrows) so that it is behind the peg (2)
- Slide on the insulating tube (3)

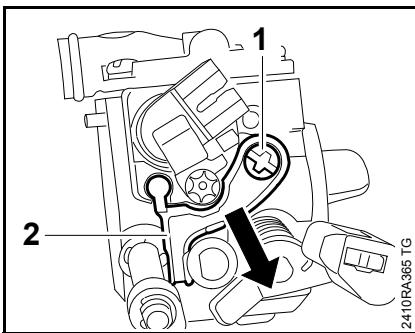
All versions



- Move the end cover (1) back and forth slightly until the pegs on the end cover engage in the holes in the carburetor housing
- Check that the pump diaphragm and gasket are correctly seated
- Screw in the screw (2) and tighten it
- Reassemble remaining parts in reverse order

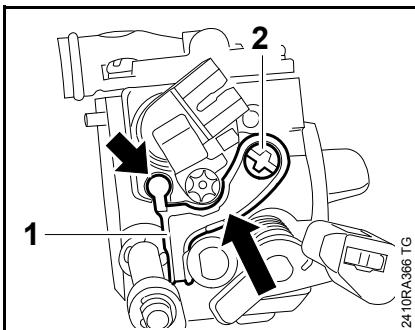
13.6.4 Lead retainer

- Remove the carburetor, **13.5**
- Remove the wiring harness with switchgear, **8.4**



- Remove screw (1) and pull out cable holder (2)

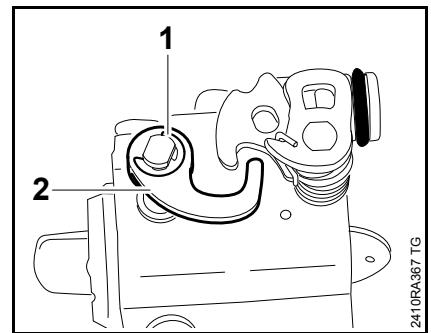
Installation



- Orient the cable holder (1) so that the closed side faces the carburetor and the pin lines up with the mount (arrow)
- Press in the cable (1) as far as it will go
- Screw in the screw (2) and tighten it
- Install the wiring harness with switchgear, **8.4**
- Reassemble remaining parts in reverse order

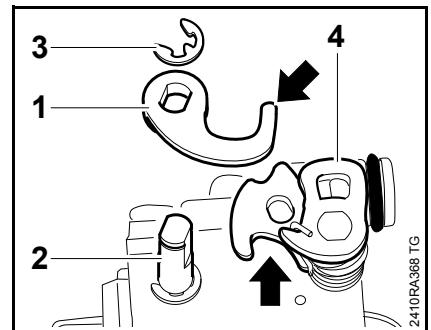
13.6.5 Lever of the throttle shaft

- Remove the carburetor, **13.5**
- Troubleshoot carburetor, **3.6**



- Press out the circlip (1) and remove the lever (2)

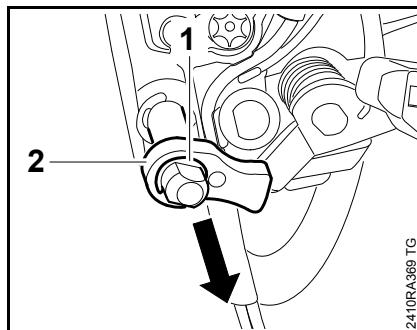
Installation



- Orient lever (1) so that the hook engages the lever of the choke shaft (arrows)
- Slide the lever (1) onto the throttle shutter shaft (2) so that it aligns with the flat faces
- Push circlip (3) into place
- Check correct functioning
 - Lever (1) must engage in lever (4) (arrows)
- Reassemble remaining parts in reverse order

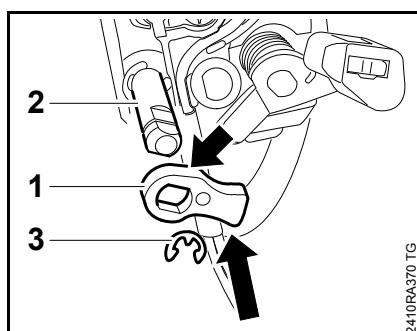
13.6.6 Lever of the choke shaft

- Remove the carburetor, **13.5**
- Troubleshoot carburetor, **3.6**



- Push out circlip (1)
- Remove lever (2)

Installation

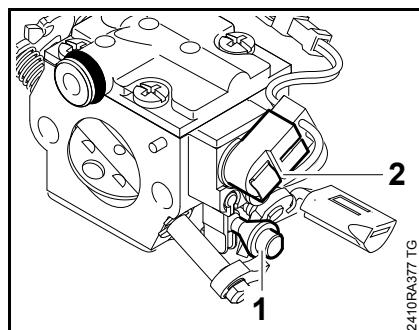


- Orient lever (1) so that it faces the throttle shaft and the flat face (arrow) faces the solenoid valve
- Slide the lever (1) onto the choke shaft (2) so that it aligns with the flat faces of the choke shaft
- Push circlip (3) into place

- Install carburetor, check correct functioning
 - Lever (1) must actuate the microswitch, **13.5**, **8.2.5**
- Reassemble remaining parts in reverse order

13.7 Carburetor adjustment

The carburetor is adjusted by the M-Tronic, thus no manual adjustments to the carburetor are necessary or possible.



- Position of the special bolt (1) must not be changed
 - changing the factory default setting leads to impaired engine performance.

Solenoid valve (2) must not be dismantled.

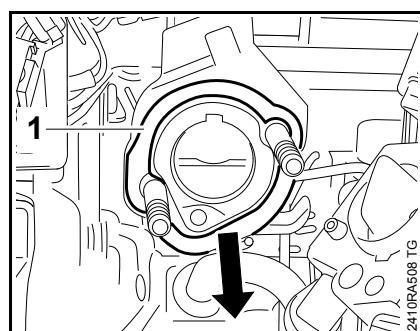
The solenoid valve must not be twisted when disconnecting the plug; if necessary, hold the solenoid valve in place during disconnection of the plug.

If the solenoid valve is twisted, twist it back clockwise as far as it will go.

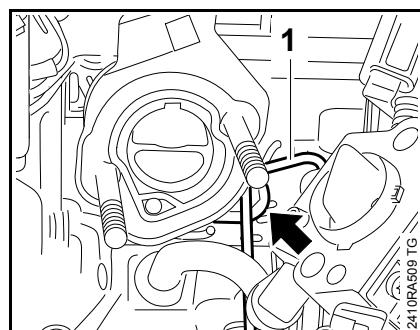
- In case of malfunctions, check M-Tronic, **8.2**

13.8 Carburetor bracket

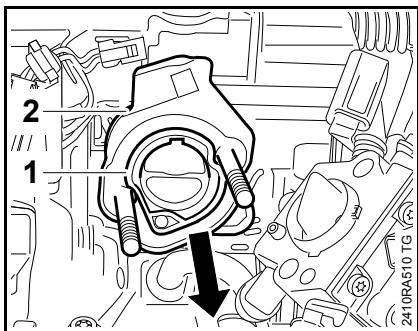
- Remove filter base with attached wiring harness and lay it aside, **8.4**
- Remove switchgear and carburetor and lay them aside, **8.4**



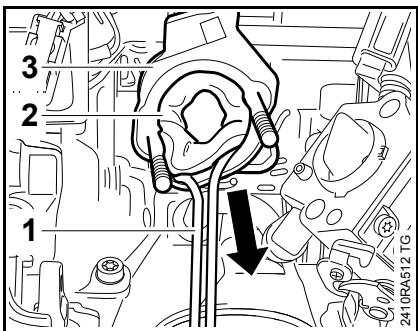
- Remove the washer (1)



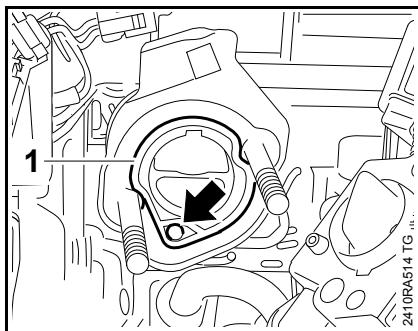
- Pull throttle rod (1) out of the guide (arrow) and set it aside



- Press the manifold flange (1) out of the carburetor support (2) by hand in the direction of the cylinder while pulling off the carburetor support
- Remove carburetor support, check it and replace if necessary
- Examine intake elbow, replace if necessary, **13.9**

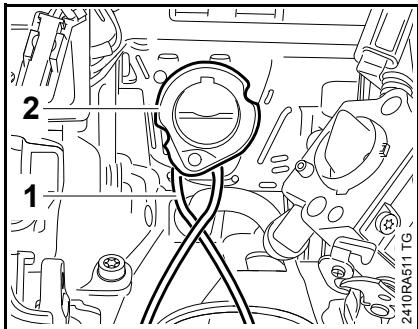


- Coat manifold flange with STIHL press fluid, **16**
- Pull the manifold flange (2) through the opening by the ends of the string (1), at the same time pressing the carburetor support (3) against the manifold flange
- Remove the string

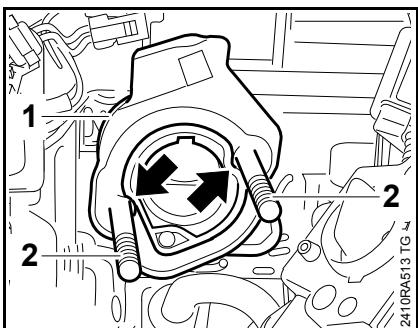


The hole (arrow) of the intake elbow (1) must be unobstructed; clean if necessary – a fouled hole can lead to impaired engine performance, **3.7**.

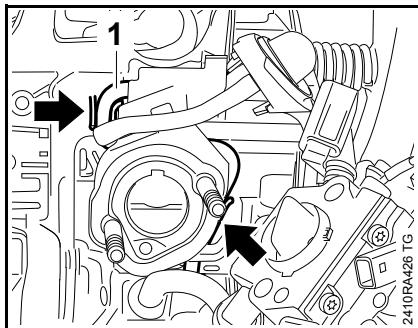
Installation



- To pull the manifold flange (2) into the hole of the carburetor support, place a string (1) that is approx. 15 cm long around the manifold flange

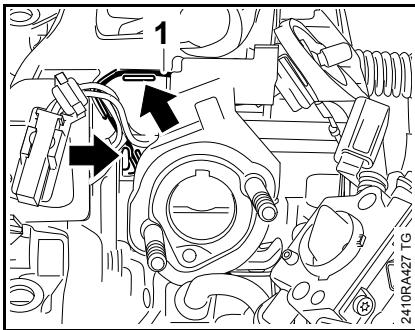


- Orient the carburetor support (1) so that the openings (arrows) rest against the studs (2)

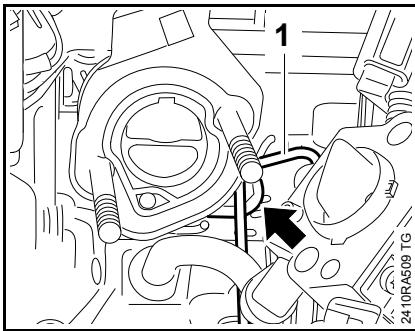


- Check seat of the fuel return line (1), if necessary, press it completely into the guides (arrows)

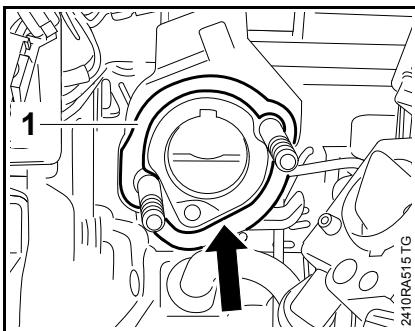
Versions with heating



- Check seat of the lead (1) to the heating switch; if necessary, press it completely into the guides (arrows)



- Press the throttle rod (1) into the guide (arrow) until it clicks into place.

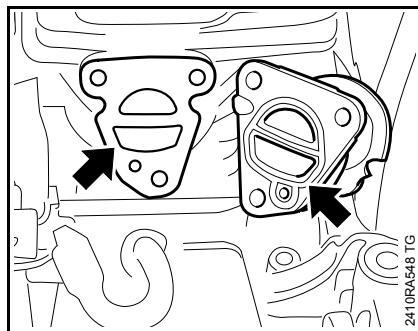


- Slide on the washer (1)
- Reassemble remaining parts in reverse order

13.9 Intake elbow

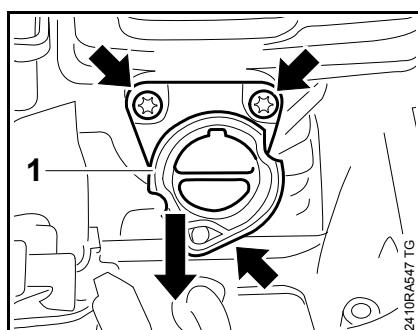
A damaged intake elbow may lead to impaired engine performance.

- Troubleshooting, **3.7**
- Remove shroud, **6.4**
- Remove the carburetor, **13.5**
- Remove carburetor support, **13.8**
- Remove the air guide shroud, **13.4**
Versions with manual fuel pump, **13.4.1**,
Versions with heating, **13.4.2**

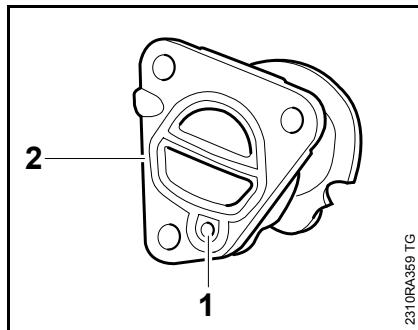


- Examine and clean the mating surfaces (arrows), **16**

The mating surfaces must be in perfect condition and without any damage whatsoever. Parts with damaged mating surfaces must be replaced.

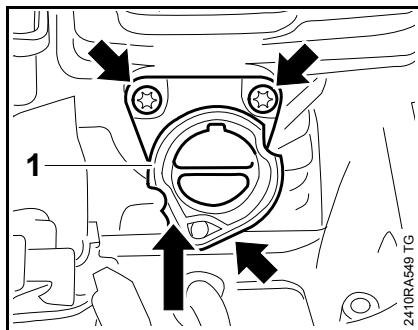


- Take out the screws (arrows)
- Remove intake elbow (1)
- Examine intake elbow and replace if necessary. The slightest damage may lead to impaired engine performance, **13.9**



- The hole (1) of the intake elbow (2) must be unobstructed; clean if necessary – a fouled hole can lead to impaired engine performance

Installation



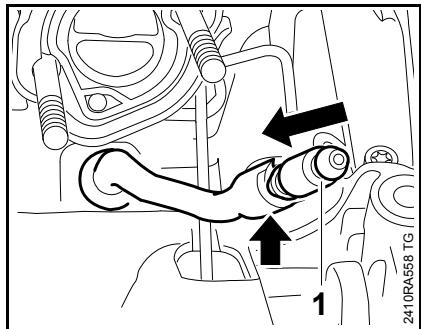
- Position intake elbow (1) against cylinder
- Insert and tighten down the screws (arrows)
- Install air guide shroud, **13.4**
Versions with manual fuel pump,
13.4.1,
Versions with heating, **13.4.2**
- Install the carburetor support,
13.8
- Reassemble remaining parts in reverse order

13.10 Tank vent

13.10.1 Testing

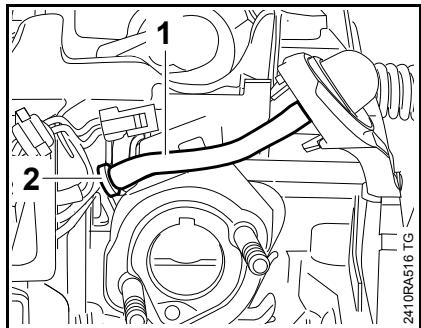
If problems develop in the carburetor or fuel supply, the tank vent must always also be tested and replaced if necessary. Correct functioning is determined by testing the fuel tank under vacuum or at gauge pressure via the fuel hose.

- Open filler cap and drain fuel tank, **1**
- Close the filler cap
- Remove the carburetor, **13.5**



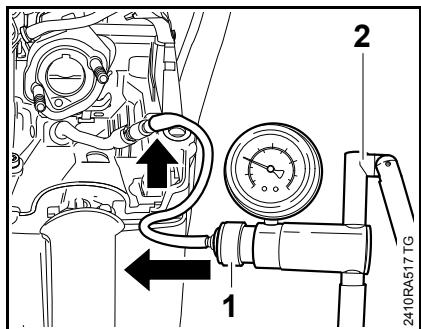
- Push the connector (1) 0000 855 9200 into the fuel hose (arrow)

Versions with manual fuel pump



- Close fuel suction hose (1) with a suitable stopper (2)

Testing with negative pressure

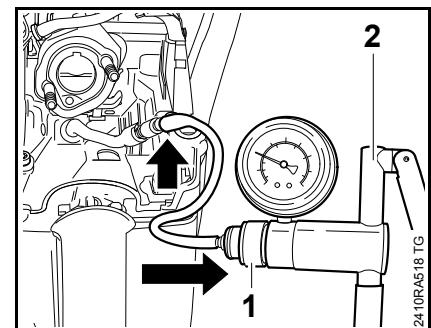


- Slide ring (1) to the left and connect the pump (2) 0000 850 1300 to the double nipple (arrow)
- Create vacuum in fuel tank

Pressure is equalized via the tank vent. A negative pressure must not build up inside the fuel tank.

- Clean the area around the tank vent
- Replace the tank vent or tank housing if necessary, **13.10** or **13.11.5**

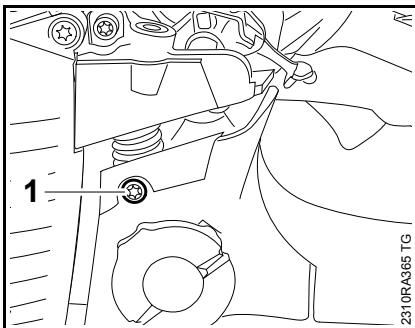
Testing with gauge pressure



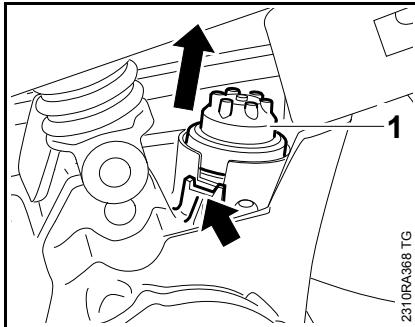
- Slide ring (1) to the right and connect the pump (2) 0000 850 1300 to the double nipple (arrow)
- Create excess pressure in fuel tank
- Actuate the pump until the pressure gauge shows a pressure of 0.5 bar. If this pressure remains constant for at least 20 seconds, the tank and tank vent are airtight. If the pressure drops, the leak must be located and the defective part replaced.
- Reassemble parts in reverse order

13.10.2 Removal and installation

- Remove shroud, [6.4](#)



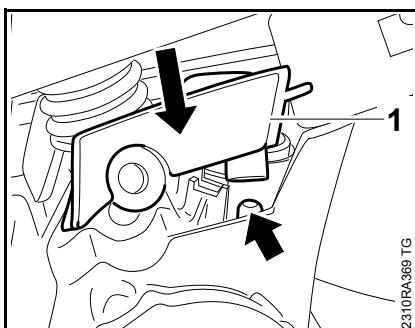
- Remove screw (1)



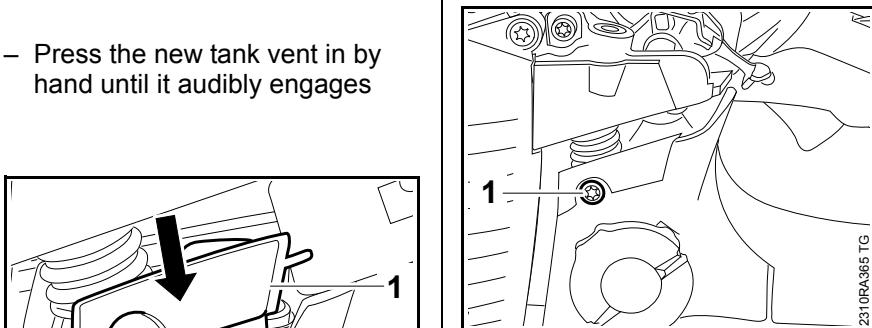
- Pry out the tank vent (1) via the mounting rib (arrow)

Always fit a new tank vent.

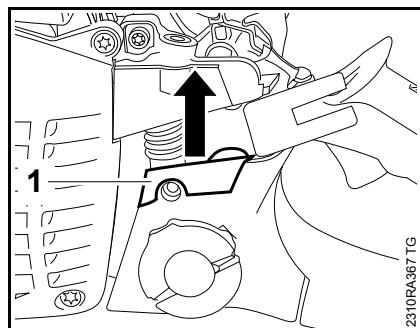
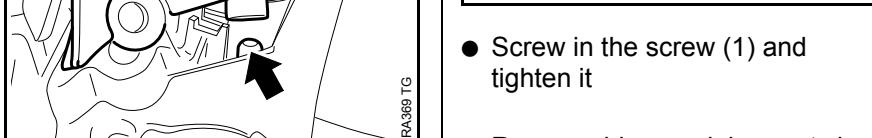
- Wet O-ring of new tank vent with STIHL press fluid, [16](#)
- Press the new tank vent in by hand until it audibly engages



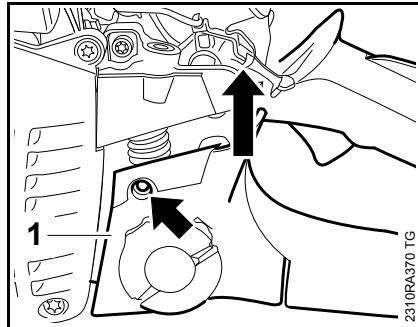
- Position cover (1) so that it engages the peg (arrow)



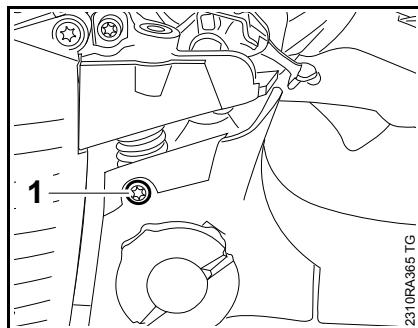
- Press tank housing (1) downward and maintain spacing by inserting wooden assembly block (2) 1108 893 4800



- Remove cover (1)



- Remove wooden assembly block and raise tank housing (1) until the holes (arrow) in tank housing, cover and antivibration spring align



- Screw in the screw (1) and tighten it
- Reassemble remaining parts in reverse order

13.11 Fuel intake

13.11.1 Pickup body

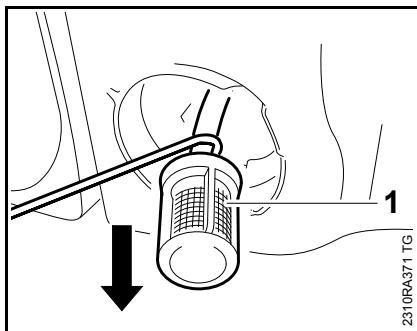
Impurities which are entrained into the fuel tank with the fuel are trapped by the pick-up body. With time, the fine pores in the pick-up body become clogged with very fine dirt particles. This reduces the intake diameter and fuel can no longer be delivered in sufficient quantities.

Always check the fuel tank and pick-up body first if problems develop in the fuel supply.

- Troubleshooting, **3.6** or **3.7**

Clean the fuel tank if necessary.

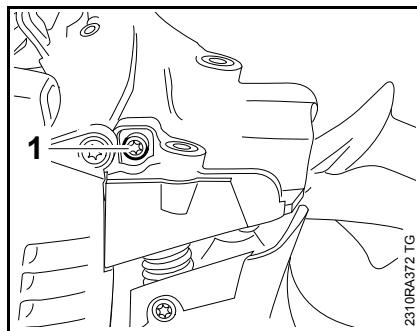
- Open the filler cap and drain the tank.
- Fill a little clean gasoline into the tank, close the tank and shake it thoroughly.
- Reopen the tank and empty it
- Ensure that the fuel is disposed of correctly and without harming the environment, **1**
- Open the filler cap



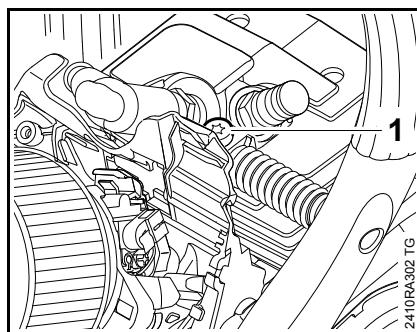
- Use hook 5910 893 8800 to pull the pickup body (1) out of the fuel tank

Take care not to overextend the fuel hose.

- Pull off pickup body (1) and examine it, replace if necessary
- Reassemble parts in reverse order

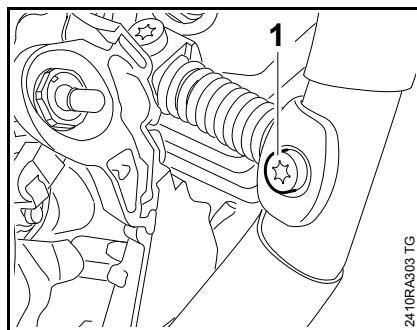


- Remove screw (1)



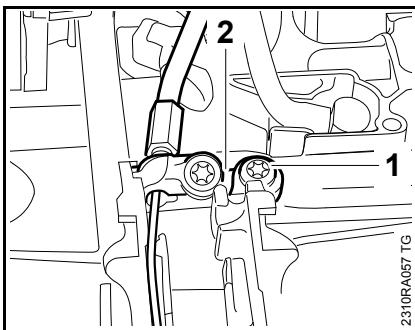
- Remove screw (1)

Versions with heating



- Remove screw (1) on front handle

Versions with QuickStop Super



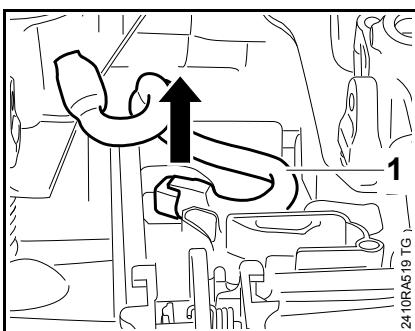
Before lowering the tank housing, loosen the brake cable holder, because the sleeve of the brake cable can be pulled out of the adjusting screw when the tank housing is lowered

– Brake cable adjustment can be negatively affected.

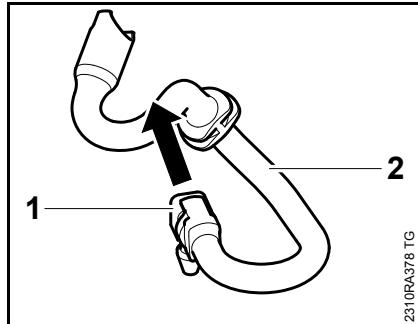
- Unscrew screw (1) pull support (2) out of the mount

All versions

- Lower the tank housing

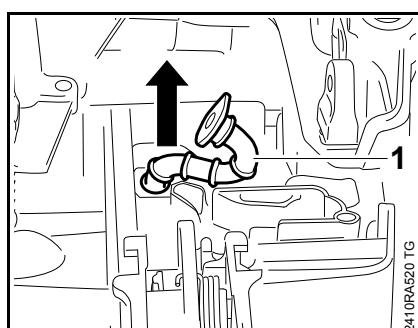


- Pull out fuel hose (1) with connector



- Remove connector (1) from fuel hose (2)

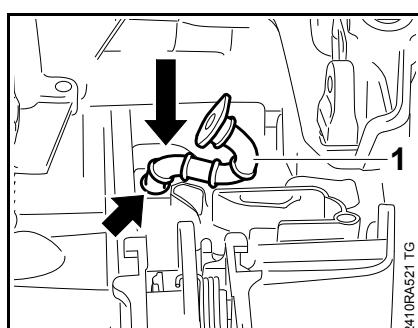
- Remove the pickup body, [13.11.1](#)



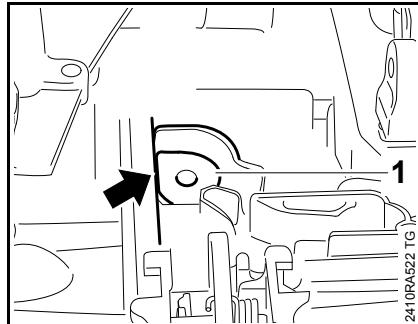
- Pull the fuel suction hose (1) out of the inside of the tank

- Replace fuel hose and fuel suction hose; check connector, replace if necessary

Installation

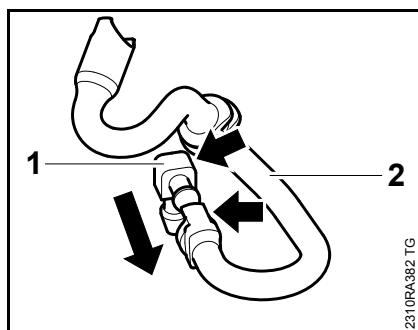


- Push fuel suction hose (1) into hole (arrow) in fuel tank



- Use STIHL press fluid to simplify assembly, [16](#)

- Orient the fuel suction hose (1) and press it into the hole in the housing as far as it will go – the flange must be flush with the guide (arrow)

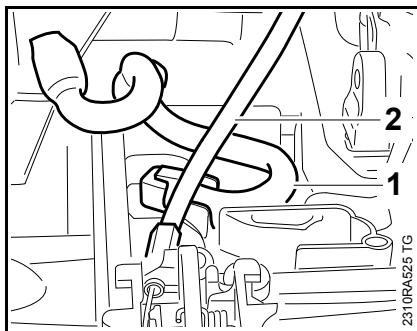


- Orient the flat surface of the connector (1) so that it faces the tab of the fuel hose (2) (arrows) – tab must rest evenly against the connector

- Push the connector (1) into the fuel hose (2) as far as it will go

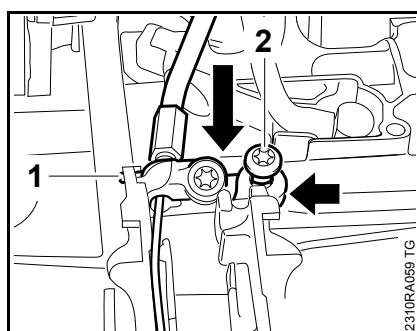


- Push fuel hose (1) with the connector (2) in front into the fuel suction hose so that it is between the ribs (arrows)



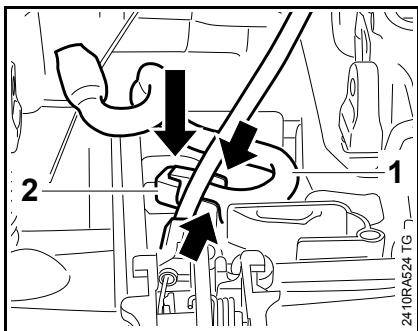
- Orient the fuel hose (1) so that it is underneath the brake cable (2) in accordance with the illustration and runs toward the ignition side

Versions with QuickStop Super

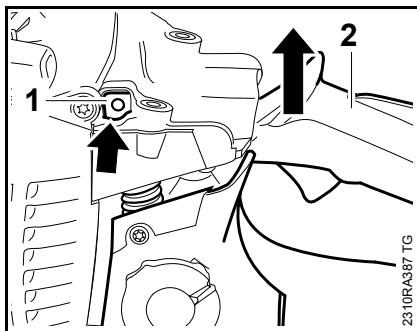


- Press brake cable holder with the pin (1) through the opening and into the mount (arrow)
- Screw in the screw (2) and tighten it

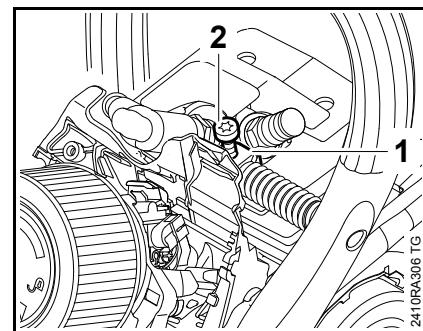
Versions with QuickStop Super



- Push fuel hose (1) with the connector (2) in front under the brake cable and into the fuel suction hose so that it is between the ribs (arrows)

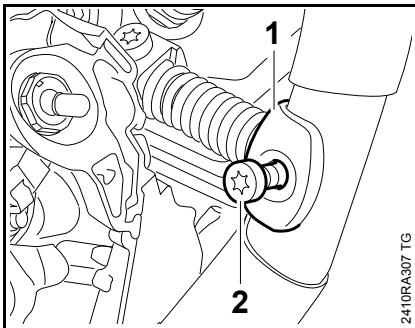


- Insert antivibration spring (1) through the opening (arrow)
- Raise tank housing (2)
- Insert and tighten down the screw

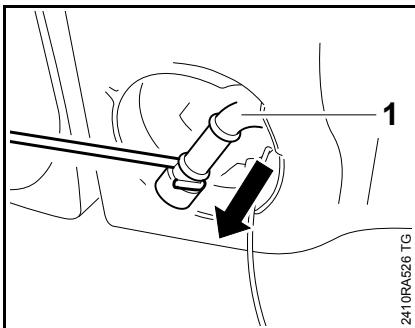


- Fit the plug (1) of the antivibration spring
- Screw in the screw (2) and tighten it

Versions with heating



- Fit the plug (1) of the antivibration spring on the front handle
- Screw in the screw (2) and tighten it
- Check position of the fuel hose and correct it if necessary, **13.11.2**



- Use hook 5910 893 8800 to pull the fuel suction hose (1) out of the fuel tank

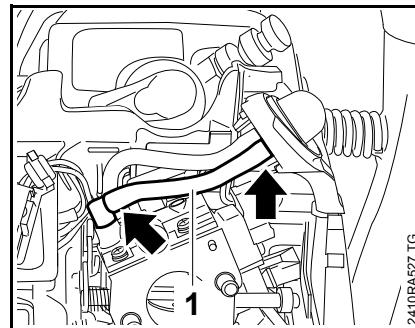
Take care not to overextend the fuel suction hose.

- Fit the pickup body, **16**
- Install air guide shroud, **13.4**
Versions with heating, **13.4.2**

- Install the carburetor support, **13.8**
- Install the carburetor, **13.5**
- Close the filler cap
- Reassemble remaining parts in reverse order

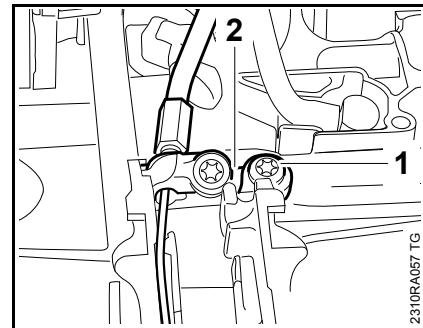
13.11.3 Fuel hoses manual fuel pump

- Open the filler cap
- Remove the pickup body, **13.11.1**
- Remove filter base, **13.3**



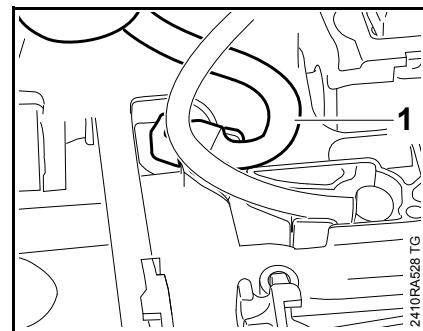
- Disconnect the fuel suction hose (1) from the connectors (arrows)
- Remove the carburetor, **13.5**
- Remove carburetor support, **13.8**
- Remove the air guide shroud, **13.4.1**
- Lower the tank housing, **13.11.2**

Versions with QuickStop Super

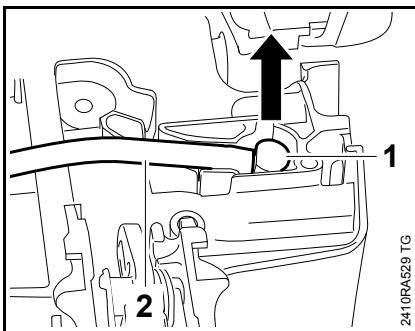


Before lowering the tank housing, loosen the brake cable holder, because the sleeve of the brake cable can be pulled out of the adjusting screw when the tank housing is lowered
– Brake cable adjustment can be negatively affected.

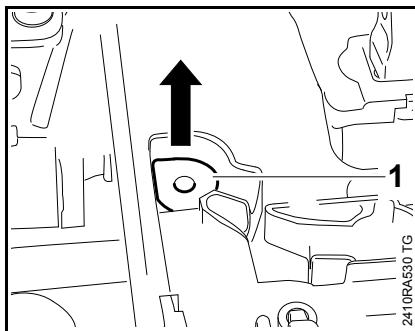
- Unscrew screw (1) pull support (2) out of the mount



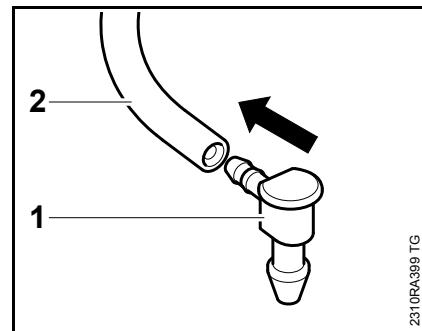
- Remove fuel hose (1), **13.11.2**



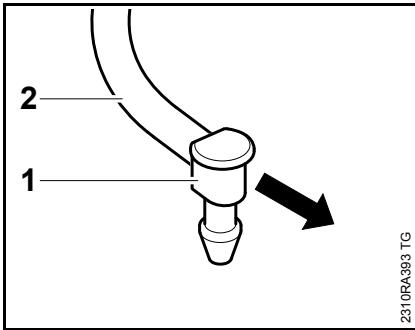
- Pull out connector (1) with fuel return line (2)



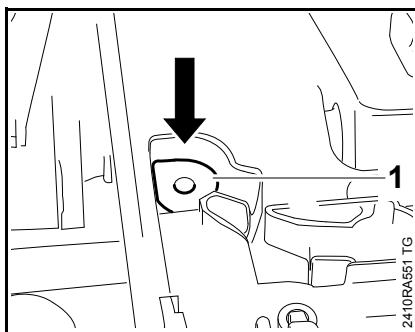
- Remove fuel suction hose (1),
■ 13.11.2



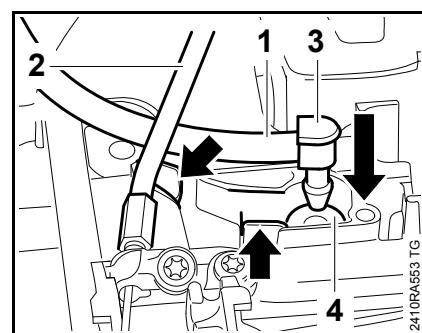
- Push the connector (1) into the fuel return line (2) as far as it will go



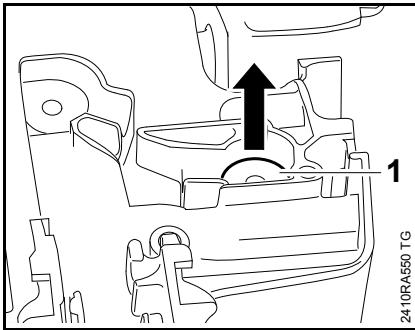
- Remove connector (1) from fuel return line (2)



- Install fuel suction hose (1),
■ 13.11.2

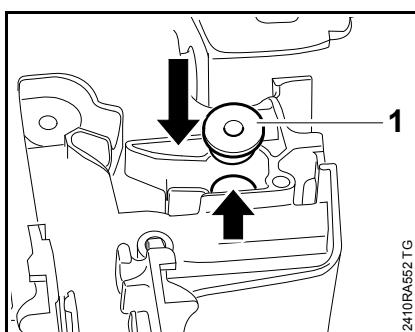


- Guide the fuel return line (1) connector-first under the brake cable (2)
- Guide the connector (3) with the fuel return line (1) between the ribs (arrows) and push it into grommet (4)

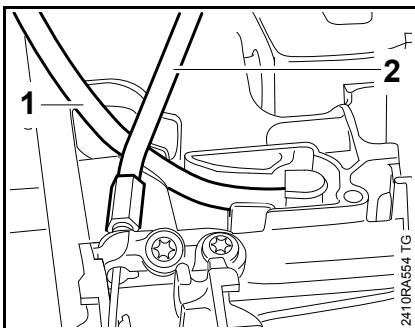


- Pry out grommet (1)

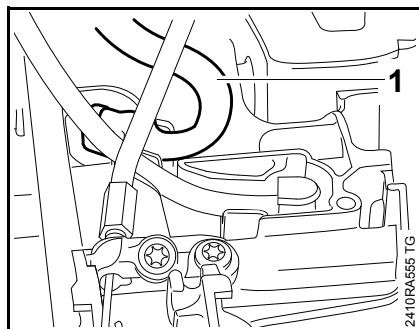
- Replace fuel return line, check connectors and grommet and replace if necessary



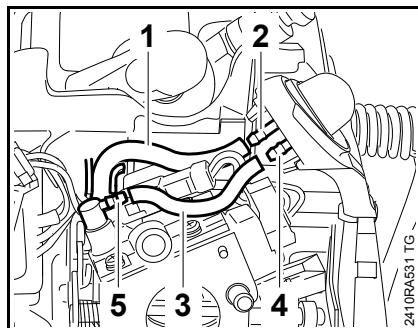
- Use STIHL press fluid to simplify assembly, ■ 16
- Press grommet (1) into hole (arrow) of the fuel tank until it encloses the hole completely



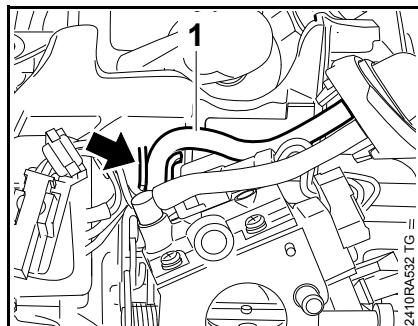
Fuel return line (1) must be underneath the brake cable (2) and run around the brake cable in accordance with the illustration.



- Install fuel hose (1), [13.11.2](#)
- Install air guide shroud, [13.4.1](#)
- Install the carburetor support, [13.8](#)
- Install the carburetor, [13.5](#)



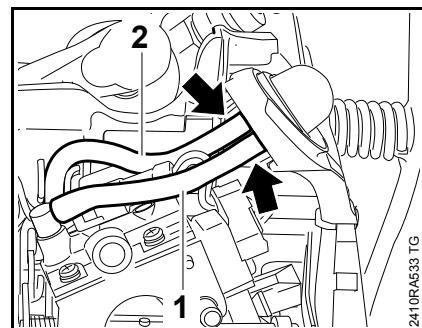
- Push the new fuel return line (1) into the long connector (2) as far as it will go
- Push the new fuel suction hose (3) onto the short connector (4) and the connector (5) on the carburetor as far as it will go
- Check correct functioning
– Fuel must be drawn in when the fuel pump is actuated



- Press fuel return line (1) completely into the guide (arrow)
- Check proper functioning with manual fuel pump, [13.11.4](#)
- Reassemble remaining parts in reverse order

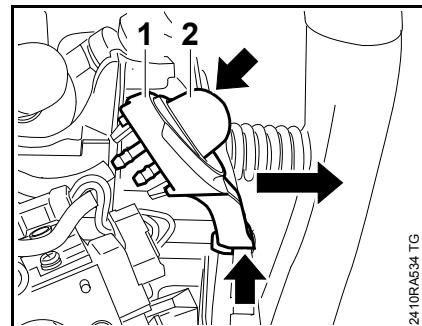
13.11.4 Manual fuel pump

- Remove shroud, [6.4](#)

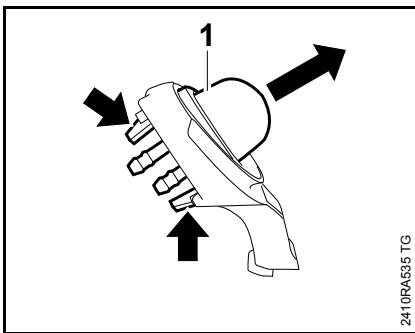


- Disconnect the fuel suction hose (1) and fuel return line (2) from the connectors (arrows)

- Replace fuel hoses, [13.11.3](#)



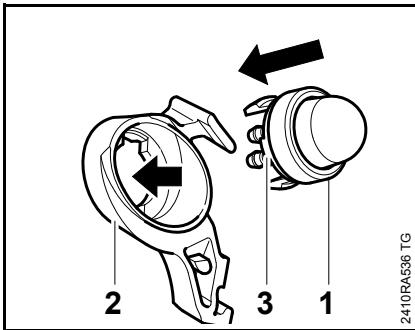
- Push holder (1) with fuel pump (2) out of the guides (arrows) of the air guide shroud



2410RA635 TG

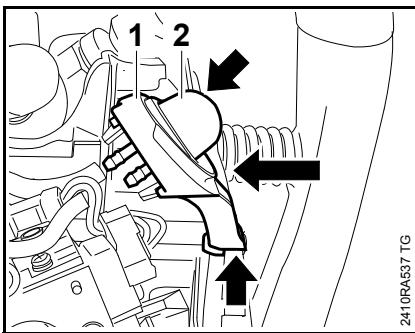
- Press the lugs (arrows) together and push out the fuel pump (1)
- Examine fuel pump and replace if necessary

Installation



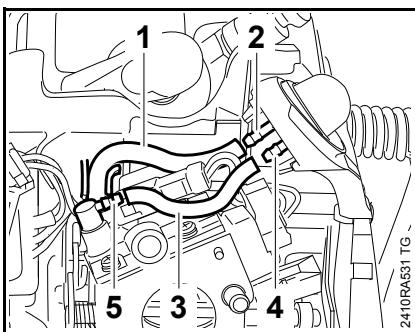
2410RA636 TG

- Orient fuel pump (1) so that the tab (3) faces the recess (arrow)
- Press fuel pump (1) into holder (2) until the lugs engage



2410RA637 TG

- Push holder (1) with fuel pump (2) as far as it will go into the guides (arrows) of the air guide shroud

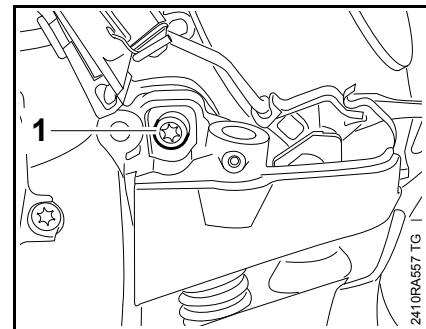


2410RA631 TG

- Push the fuel return hose (1) onto the long connector (2) as far as it will go
- Push the fuel suction hose (3) onto the short connector (4) and the connector (5) on the carburetor as far as it will go
- Check correct functioning
 - Fuel must be drawn in when the fuel pump is actuated
- Reassemble remaining parts in reverse order

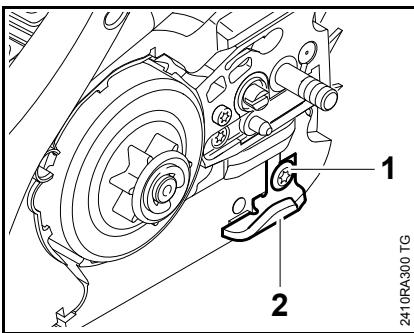
13.11.5 Tank housing

- Empty the fuel tank, **1**
- Remove the front handle, **10.4**
Versions with heating, **10.4.1**
- Remove the carburetor, **13.5**
- Remove carburetor support, **13.8**
- Remove the air guide shroud, **13.4**
Versions with manual fuel pump, **13.4.1**,
Versions with heating, **13.4.2**
- Versions with QuickStop Super, unhook brake cable at brake lever, **5.4**
- Remove actuating lever, **11**

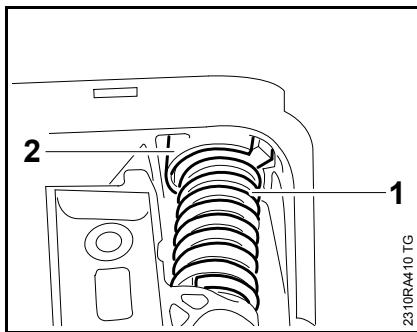


2410RA657 TG

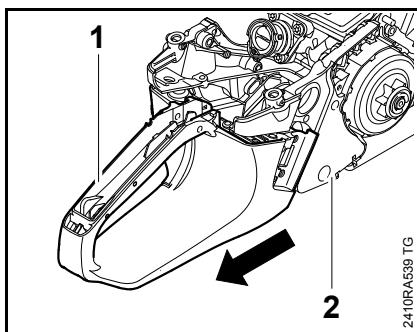
- Remove screw (1)



- Remove screw (1)
- Remove the chain catcher (2)



- Pry antivibration spring (1) out of the bearing seat (2)



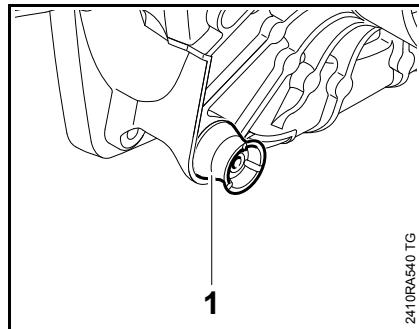
- Pull tank housing (1) out of the crankcase (2)

All versions

- Examine the tank housing and replace it if necessary.

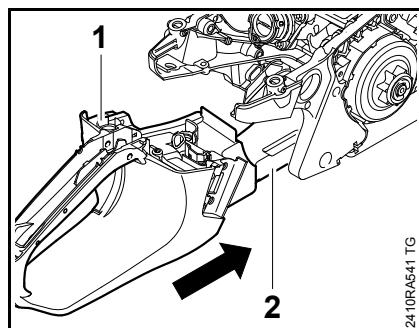
Those parts of the old tank housing which are not supplied with the new tank housing must be reused – see spare parts list.

- Replace fuel hoses



- Check stop buffers (1) on the ignition and clutch sides, replace if necessary, [10.3.2](#)

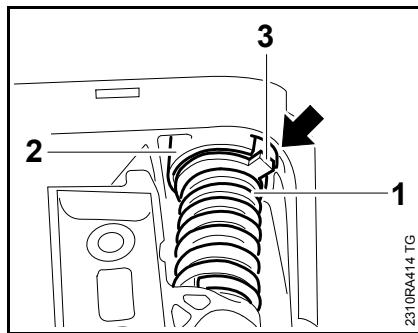
Installation



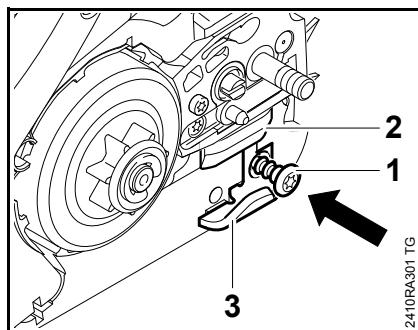
- Guide tank housing (1) with the narrow part (2) in front into the mount in the crankcase

Versions with QuickStop Super

- Pull out the tank housing, at the same time pulling the brake cable out of the crankcase



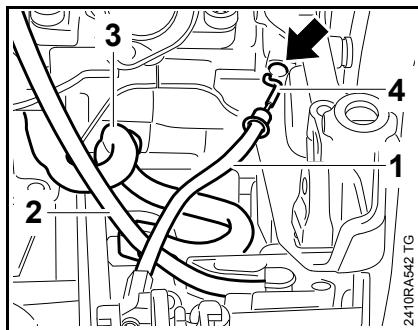
- Press antivibration spring (1) into the bearing seat (2) so that the tab (3) engages in the opening (arrow)



- Push the chain catcher (3) into the mount so that it engages under the bumper strip (3)

- Screw in the screw (1) and tighten it

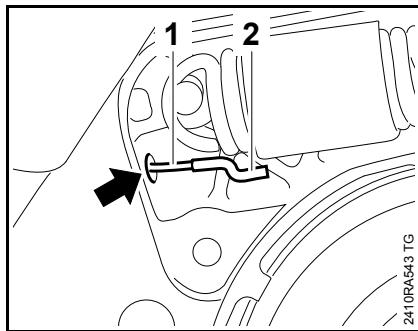
Versions with QuickStop Super



- Push the brake cable (1) with the short hook (4) in front past the right side of the fuel hose (3) and through the opening (arrow)

Versions with manual fuel pump

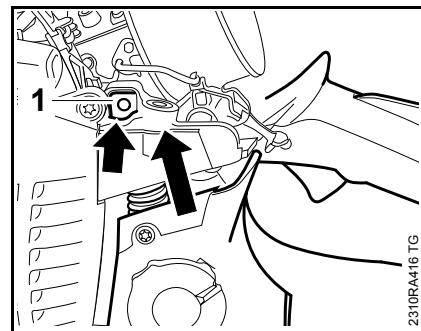
- Push the brake cable (1) with the short hook (4) in front past the right side of the fuel hose (3) and the fuel return line (2) and through the opening (arrow)



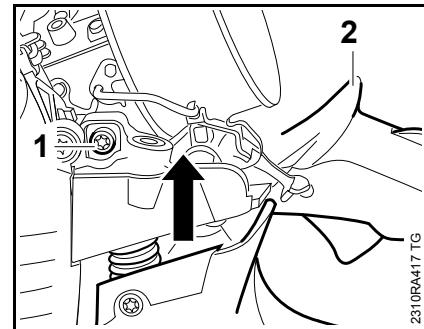
- Push brake cable (1) with short hook (2) in front through the hole (arrow) in the crankcase

All versions

- Install air guide shroud, [13.4](#)
Versions with manual fuel pump, [13.4.1](#),
Versions with heating, [13.4.2](#)



- Insert antivibration spring (1) through the opening (arrow) in the crankcase



- Raise tank housing (2)
- Screw in the screw (1) and tighten it
- Install the front handle, [10.4](#)
Versions with heating, [10.4.1](#)
- Versions with QuickStop Super, hook on brake cable at brake lever, [5.4](#)
- Install the carburetor support, [13.8](#)
- Install the carburetor, [13.5](#)
- Install actuating lever, [11](#)
- Reassemble remaining parts in reverse order

14.1 Carburetor heating

The heating element is installed between the switchgear halter and the carburetor. Power is provided to the heating element via leads.

The heating element is regulated by the thermostatic switch on the underside of the carburetor.

The heating element and the thermostatic switch must also be checked if running problems occur when the cold engine is idling or running at part load, particularly at sub-zero temperatures.

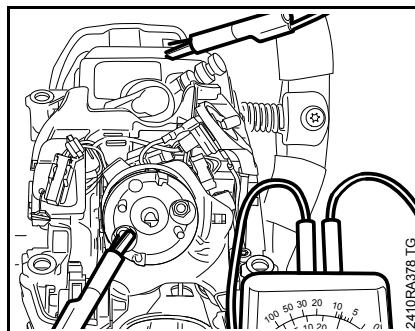
Idling problems with a hot engine may also indicate a fault in the heating element of the thermostatic switch.

14.1.1 Check overall system

In the function check of the overall system, the generator and heating elements are checked. Precondition is an ambient temperature of at least + 20 °C (68 °F).

If the temperature is below + 13 °C (55 °F), the thermostatic switch may be closed and produce false readings.

- Check the carburetor heating in accordance with the troubleshooting chart carburetor heating, **14.2**
- Remove the air filter, **13.1**
- Set ohmmeter to measuring range "Ω"



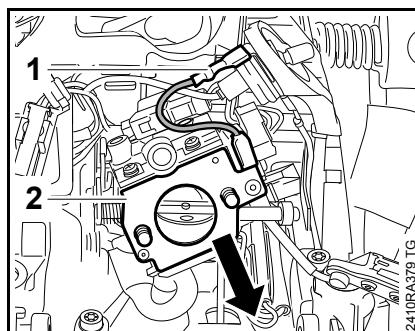
- Clip one of the two test leads onto a nut of the baffle and the other onto a cylinder fin

If the system is OK, the ohmmeter will show a reading of approx. 10 Ω in the measuring range "Ω".

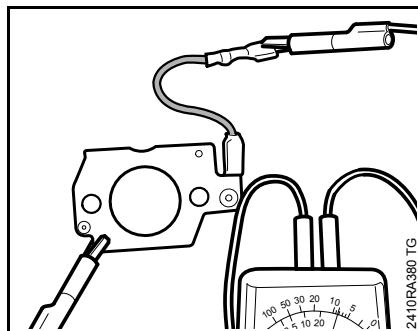
If the reading obtained is outside this tolerance, each component must be tested separately.

14.1.2 Check heating element

- Remove filter base, **13.1**
- Pull off switchgear and set it aside, pull out the carburetor somewhat in the direction of the handle, **13.5**



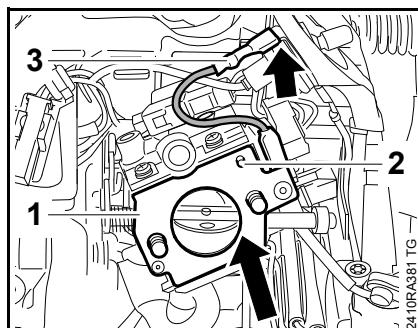
- Remove blade receptacle (1)
- Remove heating element (2) from the studs



- Clip one test lead to the heating element, the second test lead to the blade receptacle

If the heating element is OK, the ohmmeter will show a reading of approx. 12 Ω in the measuring range "Ω".

Installation

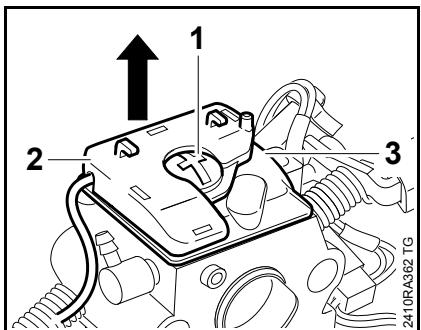


- Slide the heating element (1) over the studs so that the hole engages the pin (2)
- Orient the crimped side of the blade receptacle (3) so that it faces the carburetor
- Push the blade receptacle (3) completely onto the connector tab (arrow)
- Reassemble remaining parts in reverse order

14.1.3 Thermostatic switch

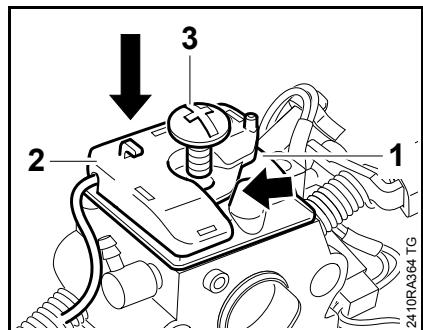
The thermostatic switch is an electronic component that cannot be tested directly. The functionality of the thermostatic switch can be determined using the troubleshooting chart, [14.2](#)

- Remove the carburetor, [13.5](#)

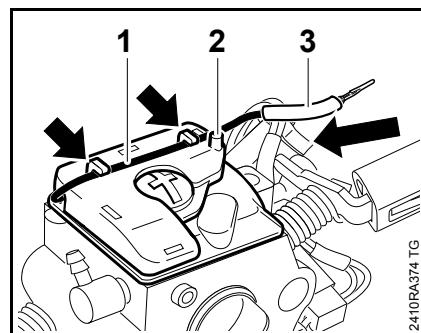


- Remove screw (1)
- Remove thermostatic switch (2)
- Hold end cover (3) so that the pump membrane and gasket remain secured

Installation

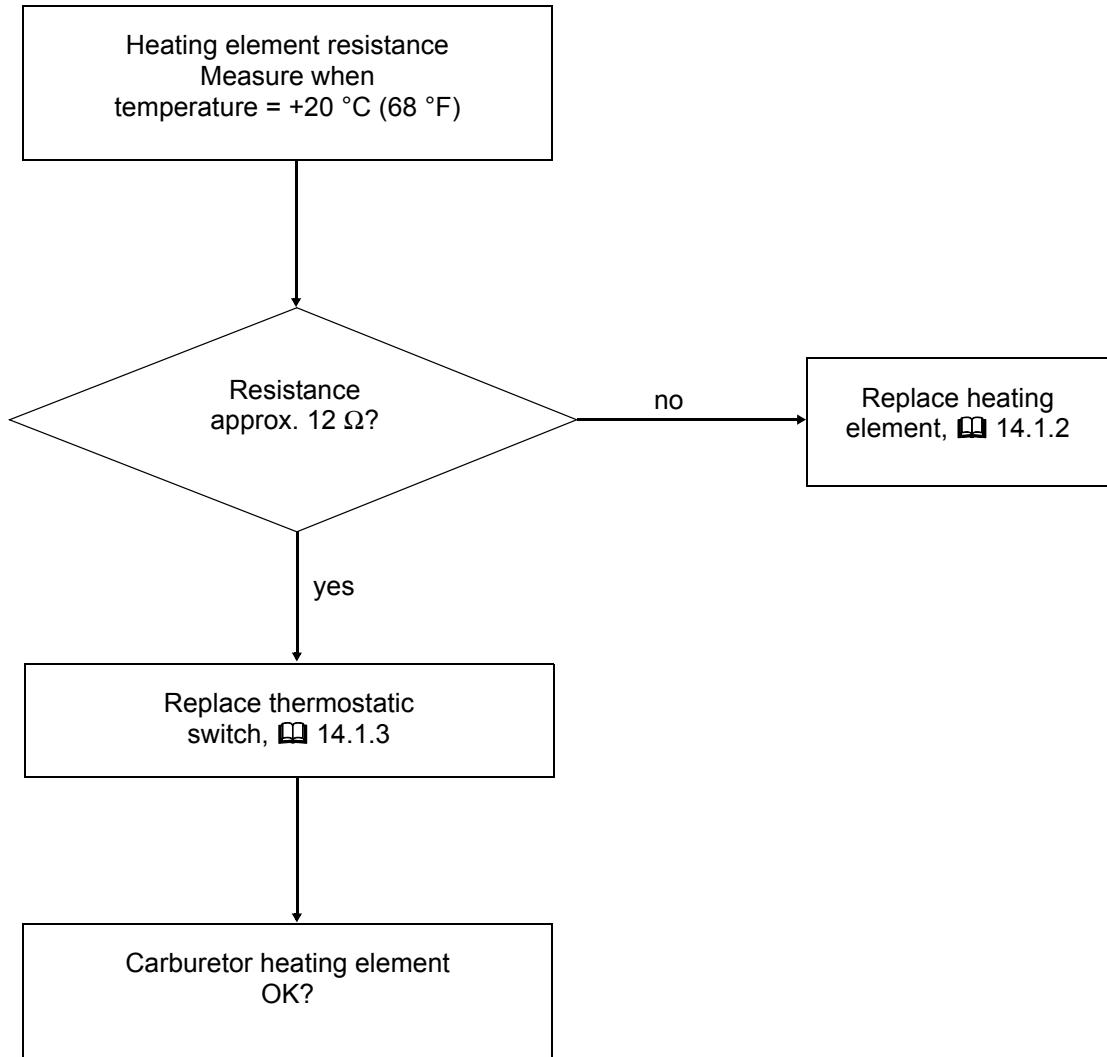


- Check that the pump diaphragm and gasket are correctly seated
- Hold end cover (1) so that the pump membrane and gasket remain secured
- Position the thermostatic switch (2) so that it rests against the raised part (arrow)
- Screw in the screw (3) and tighten it

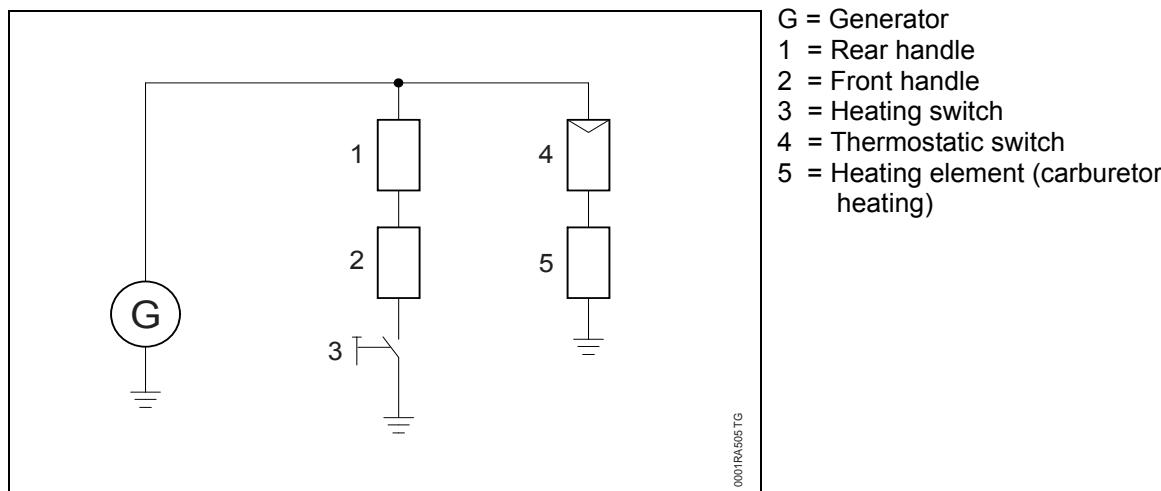


- Press lead (1) into the guides (arrows) so that it is behind the peg (2)
- Slide on the insulating tube (3)
- Install the carburetor, [13.5](#)
- Reassemble remaining parts in reverse order
- Check correct functioning

14.2 Troubleshooting, carburetor heating



Circuit diagram



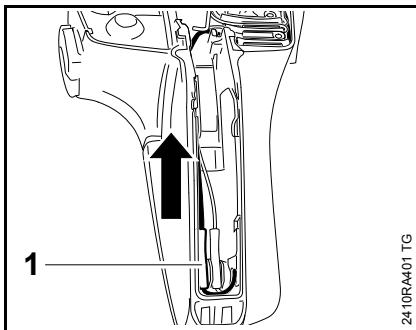
14.3 Handle heating systems

14.3.1 Troubleshooting

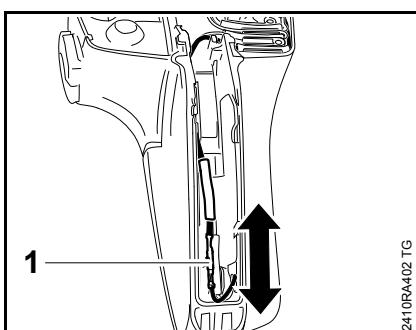
The entire handle heating system is maintenance-free and not subject to electrical wear. Faults in the generator, heating elements and leads are generally caused by mechanical damage.

Failures in the heating system may be due to two reasons:

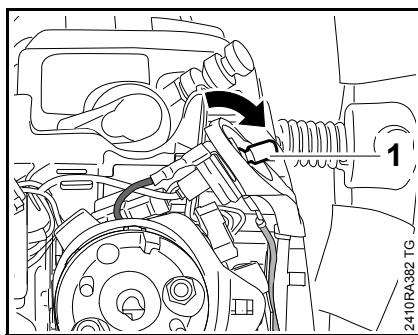
1. Interruption in the electrical circuit due to damage to leads or components.
 2. Short circuit in electrical circuit due to insulation damage.
- Remove handle molding, **11.2**



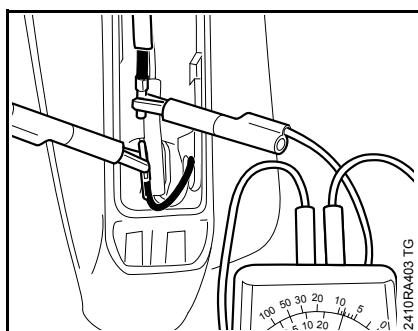
- Pull one of the plug connections out of the guide and slide insulating tube (1) towards wiring harness



- Disconnect plug connection (1)



- Set heating switch (1) to position "T"
- Set ohmmeter to " Ω " position



- Move the Master Control lever to position "0"
- Clip test leads onto the lead from the wiring harness and the lead from the heating element

Carburetor heating

- Disconnect plug connection to thermostatic switch, then reinstall carburetor, filter base and baffle, **13.5**

All electrical components of the handle heating system are connected in series with the ohmmeter.

If the system is OK, the ohmmeter will show a reading of approx. 10Ω in the measuring range " Ω ".

If the pointer does not move, there is a break in the circuit.

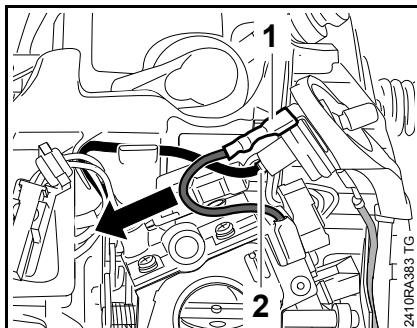
If the ohmmeter shows a very low value, there is a short circuit in one of the components.

In both cases, each component must be checked individually. In the process, the generator connector remains disconnected from the thermostatic switch connector.

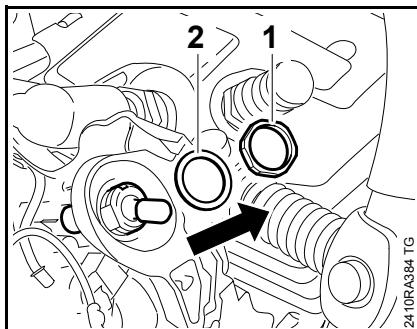
- Test according to the troubleshooting chart, handle heating and generator, **14.7.1**
- Measure resistance in front handle, **14.6**
- Measure resistance in rear handle, **14.5**
- Press the plug connection together completely, **1**
- After testing, reconnect the leads and slide the protective tube back over the plug connection.
- Reassemble remaining parts in reverse order

14.4 Heating switch

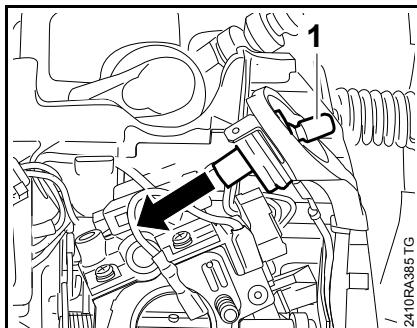
- Remove filter base, 13.3



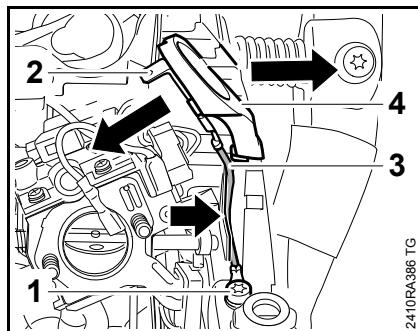
- Remove blade receptacle (1)
- Remove contact sleeve (2)



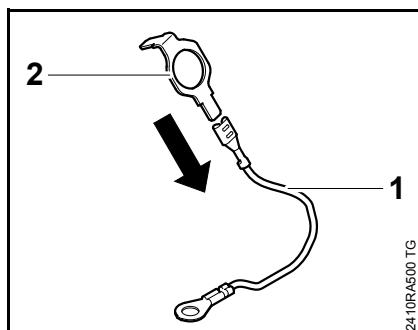
- Unscrew nut (1)
- Remove washer (2)



- Pull heating switch (1) off to the inside and examine, replace if necessary

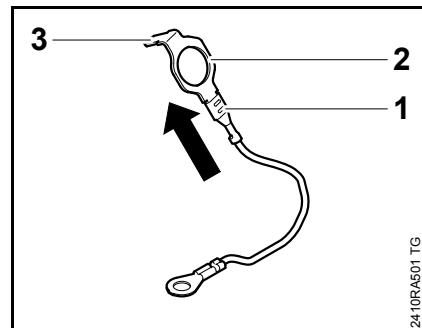


- Remove screw (1)
- Remove socket terminal (2) at the holder (4) and remove ground wire (3) from the guide (arrow)
- Check holder (4), if necessary, remove from the air guide shroud and replace

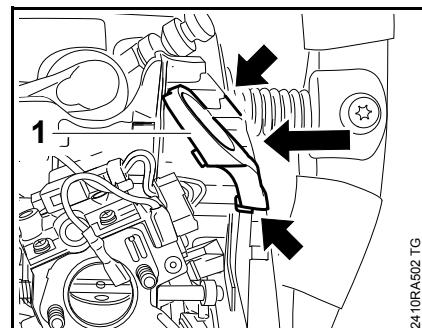


- Disconnect the ground wire (1) from the socket terminal (2)
- Check the individual parts and replace if necessary

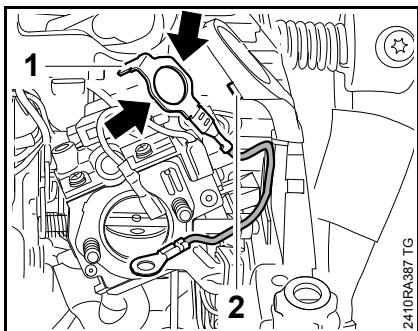
Installation



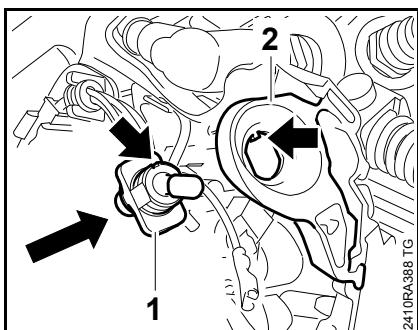
- Push blade receptacle (1) onto the straight connector tag of the socket terminal (2) so that the crimped side faces the angled connector tag (3)



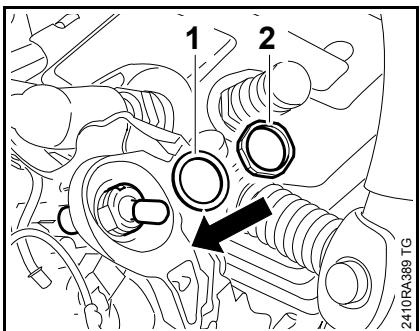
- Press holder (1) as far as it will go into the guides (arrows) of the air guide shroud



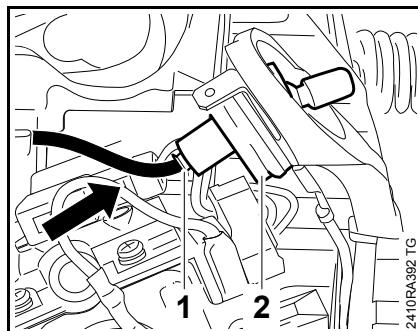
- Orient socket terminal of the ground wire so that the connector tab (1) points toward the carburetor and the flat faces (arrows) engage between the fins (2) of the holder
 - Position socket terminal at the holder



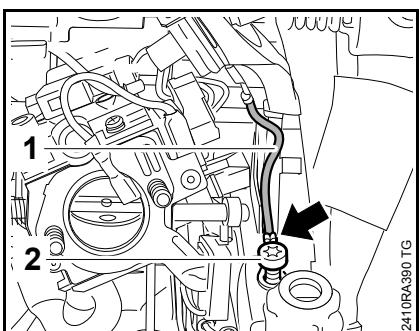
- To ensure correct switch position, orient the heating switch (1) so that the groove faces the pin (arrow)
- Push the heating switch (1) through the contact ring of the ground wire into the hole of the holder (2)



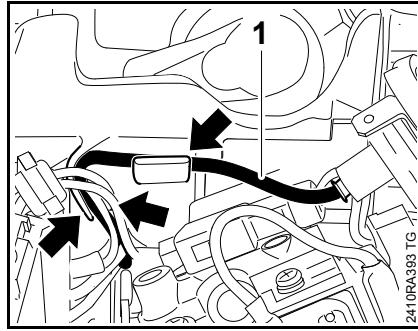
- Fit washer (1)
- Tightly screw on nuts (2)



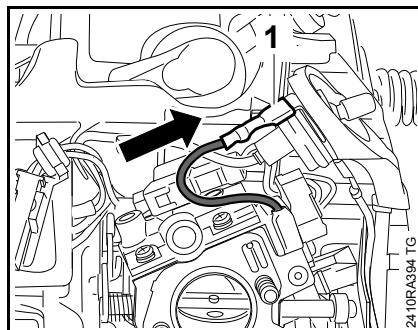
- Push the contact sleeve (1) into the heating switch (2) as far as it will go



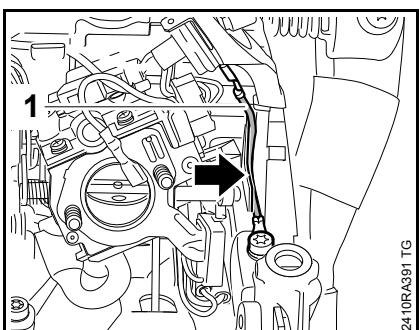
- Position ground wire (1) so that the crimped side (arrow) of the cable lug faces upward
- Screw in the screw (2) and tighten it
 - Checking correct functioning



- Press lead (1) into the guides (arrows)



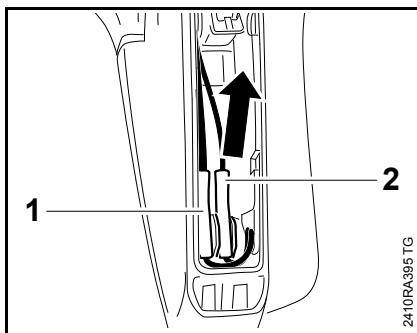
- Push on blade receptacle (1) so that the crimped side faces the carburetor
- Reassemble remaining parts in reverse order



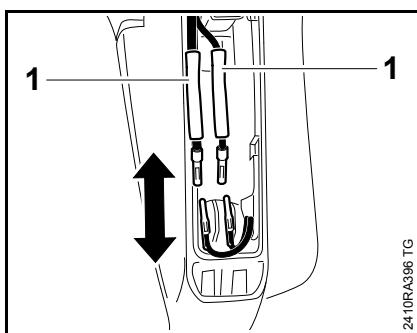
- Press ground wire (1) as far as it will go into the guide (arrow)

14.5 Heating element in handle

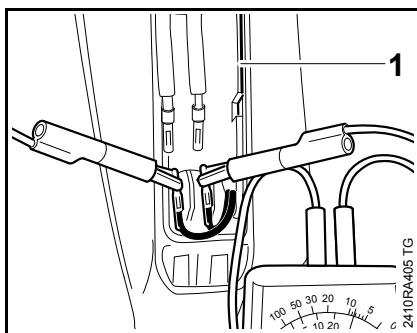
- Remove the handle molding and trigger interlock, **11.2**



- Pull insulating tubes (1) and (2) with plug connections out of the guides



- Slide insulating tubes (1) towards connecting leads and disconnect plug connections



- Check heating element (1) and replace if necessary

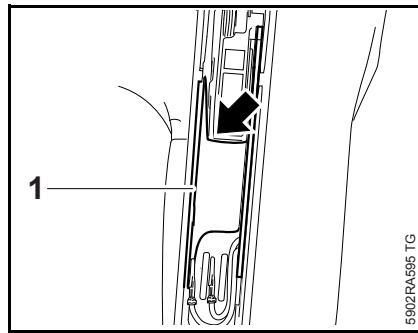
If the heating element is intact, the ohmmeter will indicate a value of approx. 1.6Ω (reading $1.5\ldots2.0 \Omega$) in the measuring range " Ω ".

The heating element must be replaced if the value is outside this range.

Is the heating element inoperable despite a successful resistance measurement?

- Test generator and heating switch, **14.3**, **14.7**
- Remove and examine connecting leads, replace if necessary, **14.9**

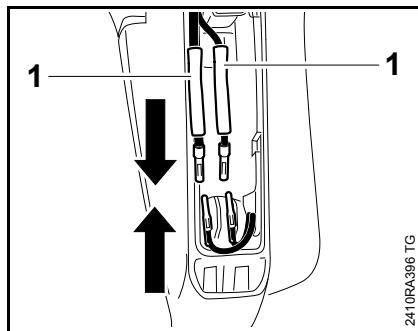
Installation



- Position new heating element (1) so that it rests against the edge (arrow) of the handle – make certain that the heating element is inserted completely

An incompletely inserted heating element cannot transfer the heat completely to the handle – danger of overheating of the heating element.

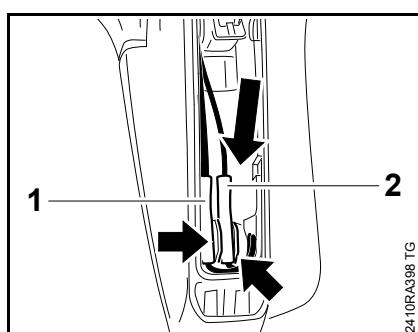
- Press the plug connections together completely, **1**



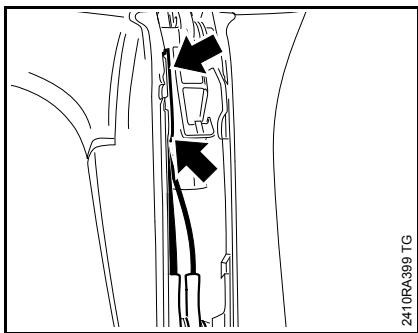
The connecting leads must be routed so that the thin lead runs underneath the thick lead.

The heating element leads must not cross one another.

- Push connectors and socket terminals together
- Slide insulating tubes (1) over the plug connections



- Press insulating tubes (1) and (2) with plug connections into the guides (arrows)



The black lead of the handle heating must be routed underneath the gray lead of the wiring harness.

- Press the leads of the handle heating and the wiring harness into the guide (arrows)
- Reassemble remaining parts in reverse order

14.6 Heating element in front handle

The heating element in the front handle cannot be replaced. In case of damage, the complete front handle must be replaced.

Check heating element

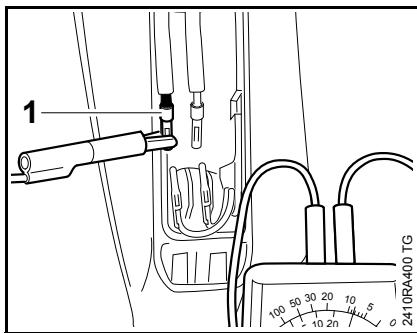
- Remove the handle molding, **11.2**

The functioning of the heating element in the front handle can be checked simply using the following test procedure.

- Disconnect the plug connections of the heating element at the handle

Carry out measurement between the two socket terminals and the contact sleeve.

- Set heating switch to **I**

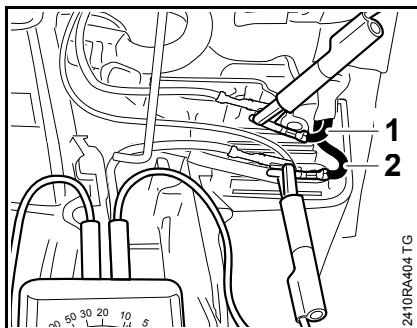


- Clip one test lead to the terminal socket (1) of the thick connecting lead and the second to the contact sleeve of the heating switch

If the heating element is intact, the ohmmeter will indicate a value of approx. 6.4Ω (reading $6.0\ldots8.0 \Omega$) in the measuring range " Ω ".

If the reading obtained is outside this tolerance, then the front handle (front handle heating element) must be checked directly at the connecting leads.

- Disconnect plug connections at the front handle, **10.4.1**



- Clip test leads to the connectors of the leads (1) and (2)

If the heating element is intact, the ohmmeter will indicate a value of approx. 6.4Ω (reading $6.0\ldots8.0 \Omega$) in the measuring range " Ω ".

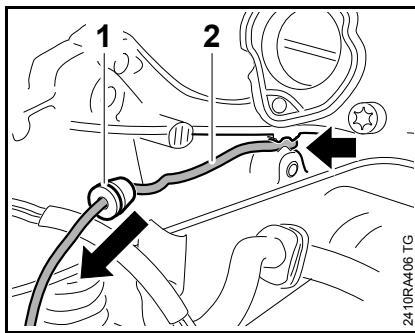
If the reading obtained is outside this tolerance, then the front handle (front handle heating element) must be replaced, **10.4.1**.

Is the heating element inoperable despite a successful resistance measurement?

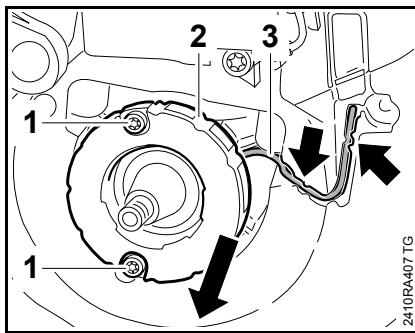
- Remove and examine connecting lead to front handle heating element, replace if necessary, **14.9**
- Examine wiring harness, replace if necessary, **14.3**, **14.8**
- Test generator and heating switch, replace if necessary, **14.7**, **14.4**
- Reassemble parts in reverse order

14.7 Generator

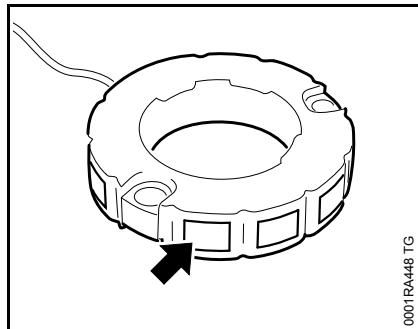
- Remove the control unit, **7.3**
- Remove the flywheel, **7.6**
- Remove the pre-separator, **7.2**
- Remove the carburetor, **13.5**
- Remove carburetor support, **13.8**
- Remove the air guide shroud, **13.4.2**



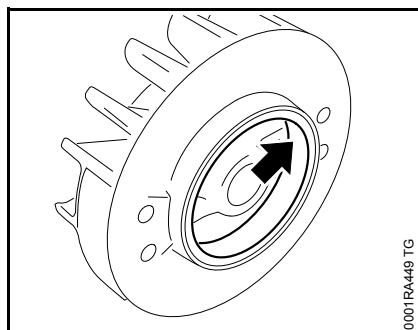
- Remove grommet (1) and generator lead (2) from the guide (arrow)



- Remove screws (1)
- Remove generator (2) and pull the lead (3) out of the guides (arrows)
- Pull lead (3) out of the opening of the crankcase



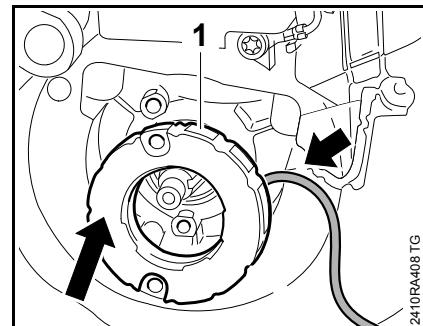
- Check generator and poles (arrow) for cracks or other damage. Replace generator if necessary.



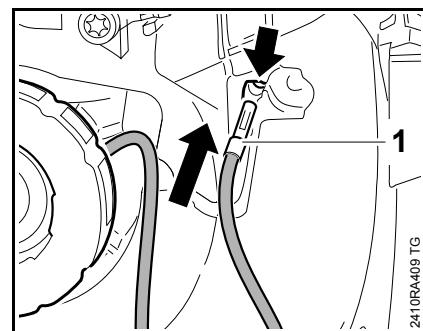
- Check magnet ring (arrow) in flywheel for cracks or other damage. Replace flywheel if necessary.

Installation

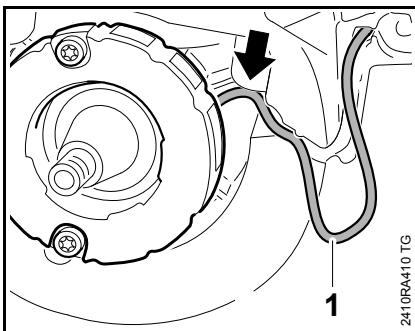
- Press the plug connection together completely, **1**



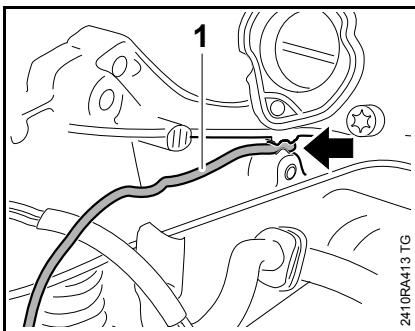
- Fit generator (1) with connecting lead (arrow) facing the housing
- Check that the generator is seated correctly
- Insert and tighten down the screws



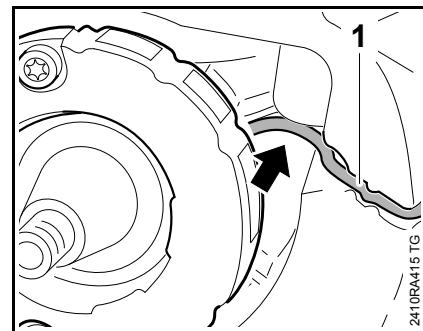
- Push terminal socket (1) of the generator lead through the opening (arrow)



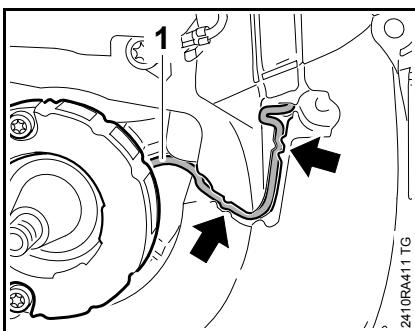
- Lay generator lead (1) in bottom of recess (arrow)



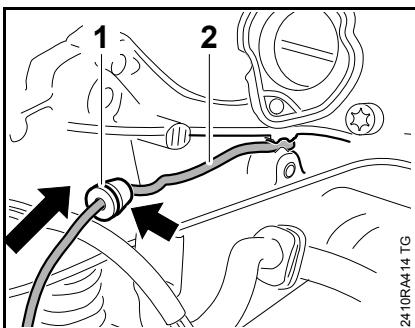
- Press generator lead (1) on the inside of the crankcase into the guide (arrow) so that it lies snug



The lead (1) must be seated completely in the recess (arrow).

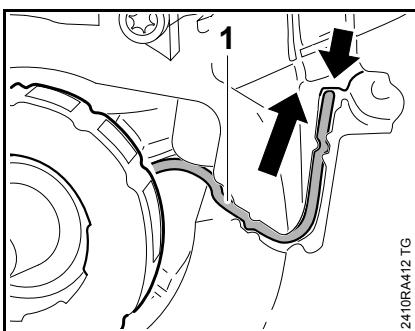


- Press generator lead (1) into the guides (arrows) so that it runs snug against the crankcase



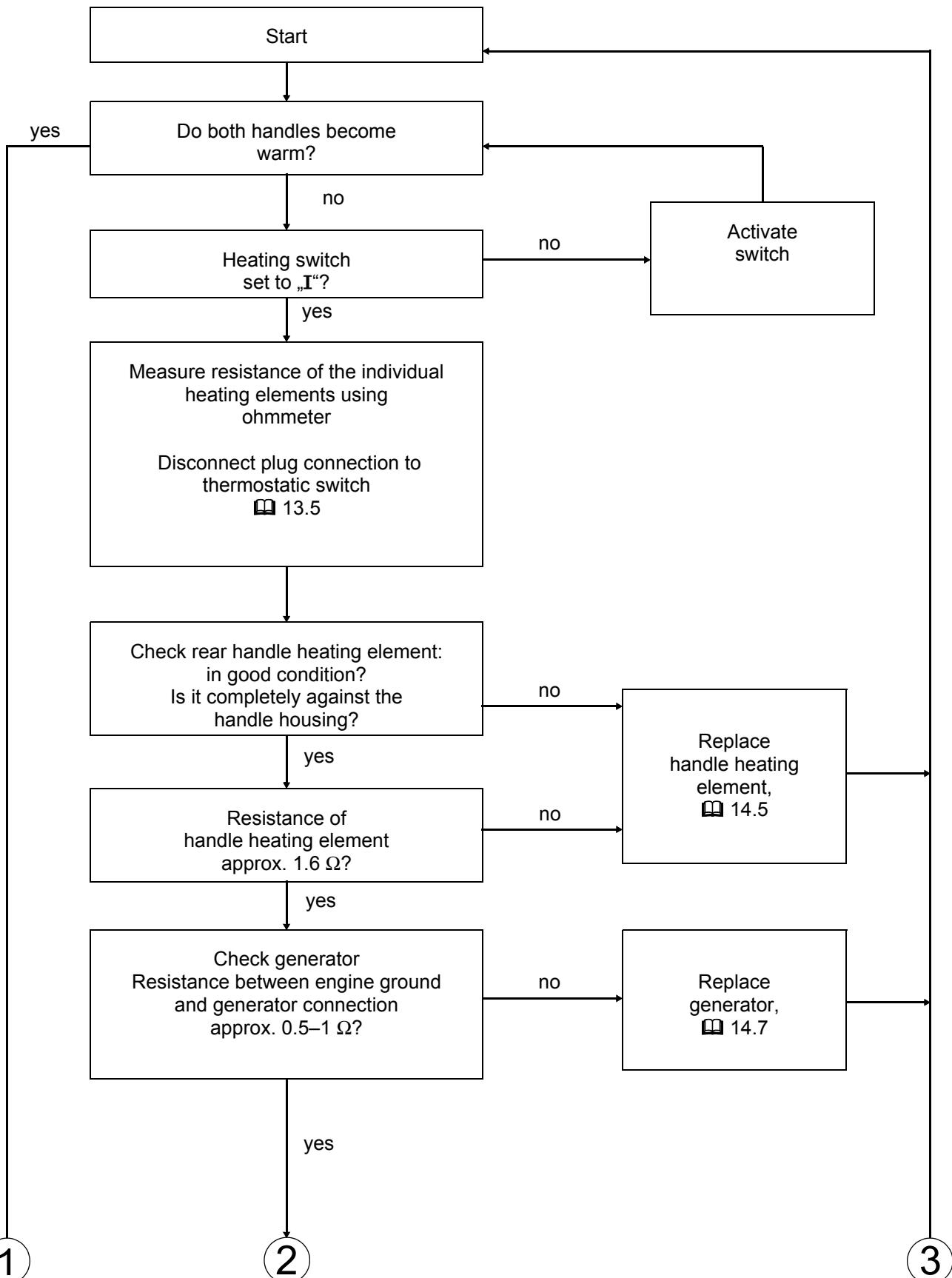
- Push grommet (1) onto the generator lead (2) so that the cone (arrow) faces the generator

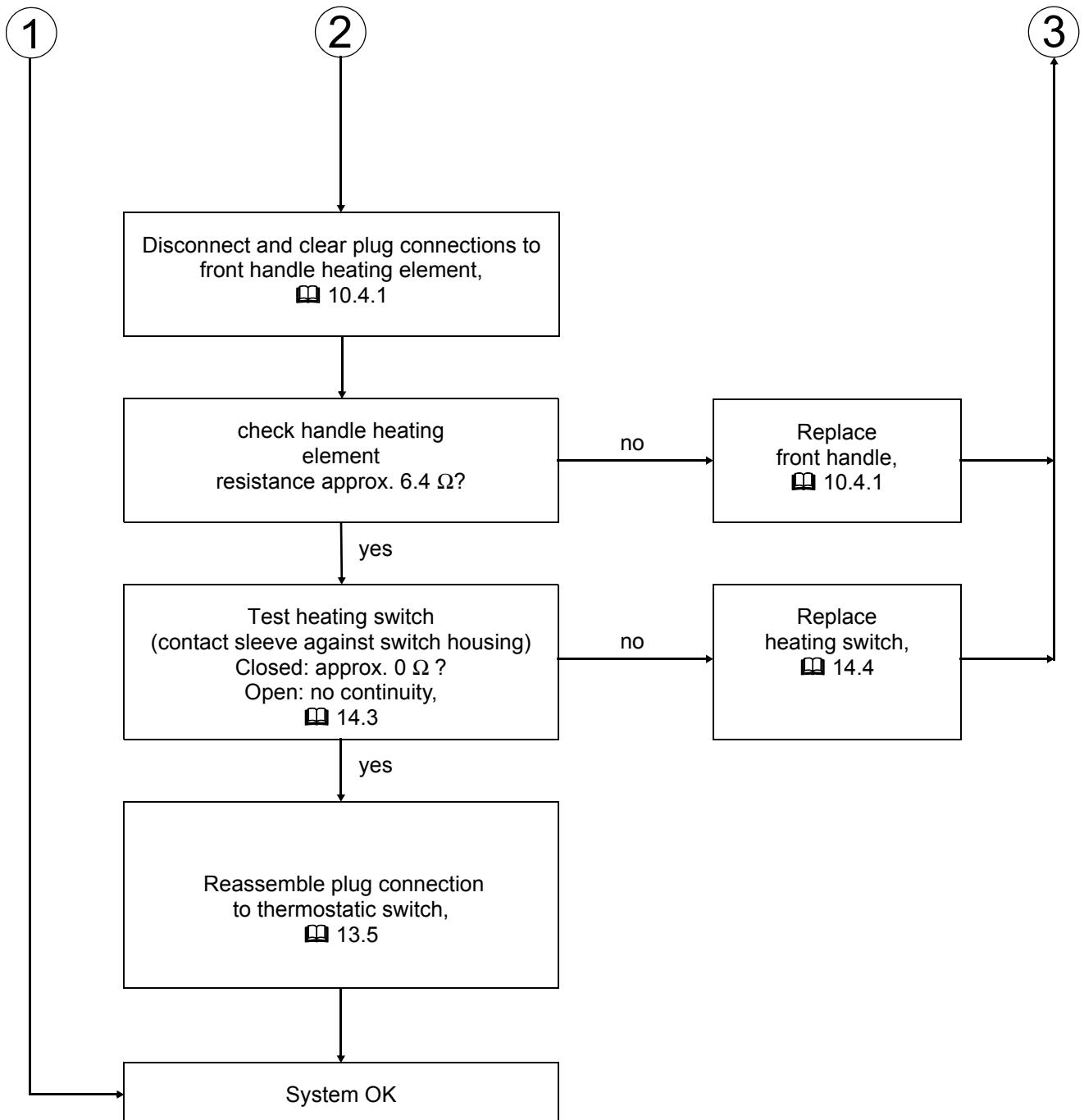
- Install air guide shroud, 13.4.2



- Pull the generator lead (1) through the opening (arrow) until it lies snug against the crankcase

14.7.1 Troubleshooting chart, handle heating systems and generator





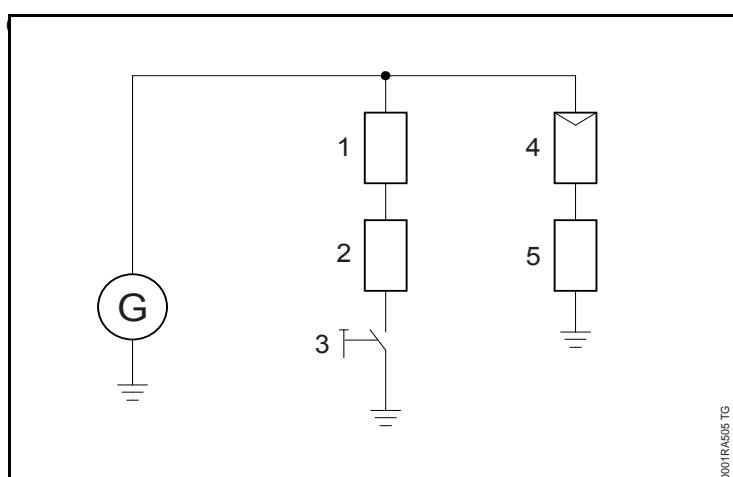
14.7.2 Summary of test connections and test values

- The wires in the handle must be unplugged to test the individual components separately

Component	Ohmmeter connection (either test lead can be used)		Resistance Ω		If faulty	
	Lead 1	Lead 2	Re-required	Actual	Cause	Remedy
Switch	Switch connection 1) ¹⁾	Switch housing	< 0.5	-	Switch faulty	Replace switch
Heating element in handle	Connector to lead from heating element	Connector to lead from heating element	1.6	1.5 - 2.0	Heating element OK	
				-	Break in wire, heating element damaged	Replace heating element and/or repair insulation
				0	Short circuit due to damaged insulation	
Heating element in front handle	Connector to lead from front handle heating element	Connector to lead from front handle heating element	6.4	6.0...8.0	Heating element OK	
				-	Break in wire, heating element damaged	Replace front handle
				0	Short circuit due to damaged insulation	

¹⁾ Pull wire out for this purpose

Component	Ohmmeter connection (either test lead can be used)		Resistance Ω		If faulty	
	Lead 1	Lead 2	Re-required	Actual	Cause	Remedy
Generator	Connector to generator lead	Weight	0.6	0.5 - 1	Generator OK	
			-		Break in wire, generator damaged	Replace generator
			0		Short circuit due to damaged insulation	Repair insulation

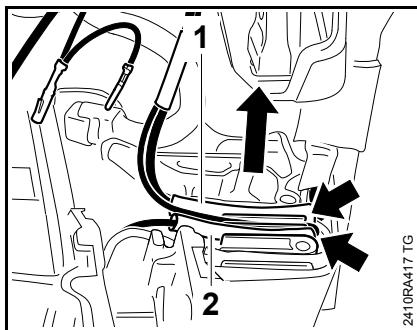


G = Generator
 1 = Rear handle
 2 = Front handle
 3 = Heating switch
 4 = Thermostatic switch
 5 = Heating element (carburetor heating)

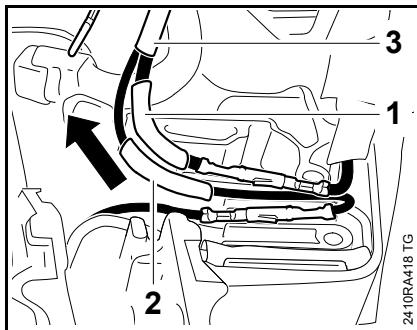
14.8 Wiring harness

If the wiring harness if faulty, it must be replaced.

- Remove shroud, **6.4**
- Remove the handle molding and trigger interlock, **11.2**
- Remove the carburetor, **13.5**
- Remove carburetor support, **13.8**
- Remove the air guide shroud, **13.4.2**
- Lower the tank housing and remove the cover of the plug connections, **10.4.1**



- Pull plug connections (1) and (2) with insulating tubes out of the guides (arrows)

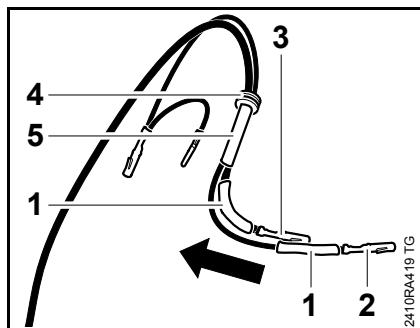


- Push insulating tube (1) and (2) toward the wiring harness

- Disconnect plug connections and remove wiring harness (3)

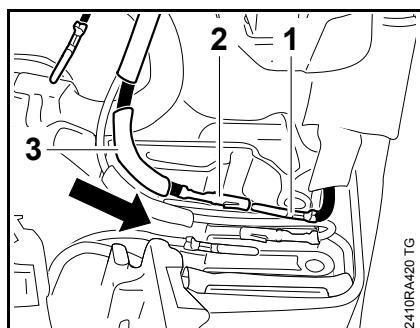
Installation

- Press the plug connections together completely, **1**



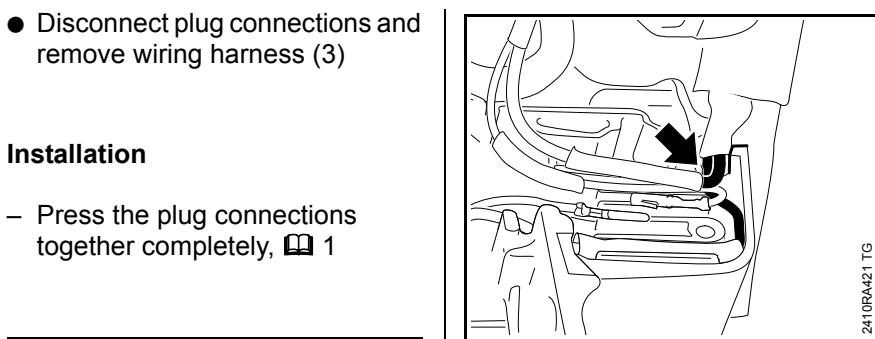
- Push insulating tubes (1) onto the wires with the socket terminal (2) and (3)

Grommet (4) must rest against the protective tube (5).

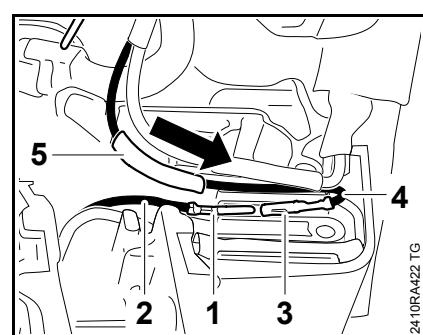


- Press plug (1) of handle into the terminal socket (2) of thick wire as far as it will go

- Slide on the insulating tube (3)

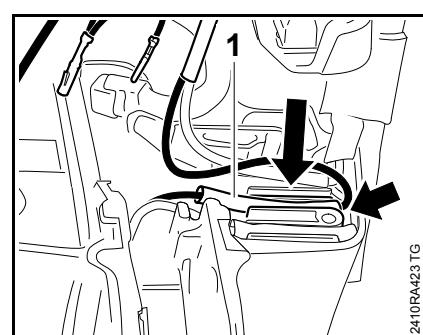


The wires of the handle must be seated completely in the guide (arrow).

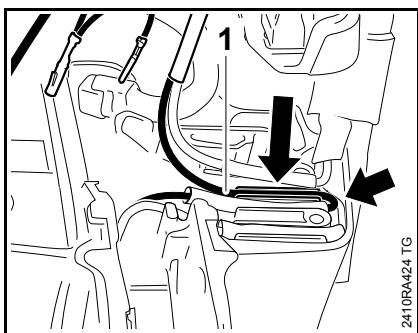


- Press the plug (1) of the thin connecting wire (2) into the terminal socket (3) of the wiring harness (4) as far as it will go

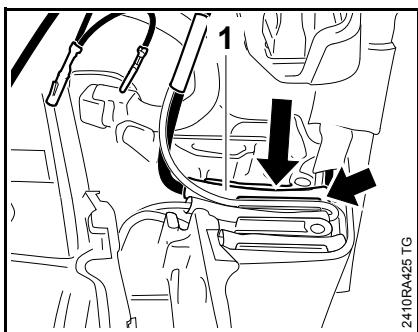
- Slide on the insulating tube (5)



- Position insulating tube (1) with plug connection at the edge of the tank housing and push it into the guide (arrow) as far as it will go



- Run the thin wire (1) with a loop (arrow) around the fin and press it into the guide as far as it will go

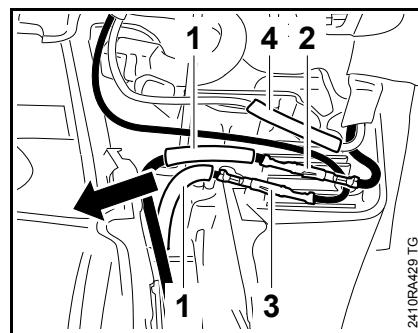


- Position insulating tube (1) with plug connection at the edge of the tank housing and push it into the guide (arrow) as far as it will go
- Install cover over the plug connections, lift and fasten tank housing, **10.4.1**
- Install air guide shroud, **13.4.2**
- Reassemble remaining parts in reverse order

14.9 Connecting leads heating elements

In the absence of a fault in the wiring harness, heating elements, generator or heating switch, then the problem may also be due to damaged connecting leads between the front and rear handle heating elements.

- Remove shroud, **6.4**
- Remove handle molding, trigger interlock and throttle trigger, **11.2**
- Lower the tank housing and remove the cover of the plug connections, **10.4.1**

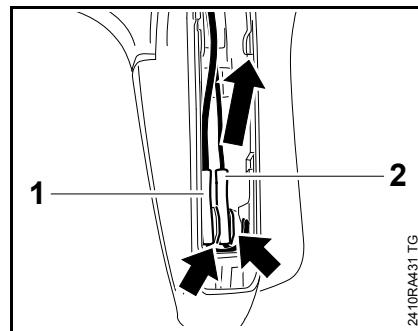


- Push insulating tubes (1) toward connecting leads and disconnect plug connections (2) and (3)

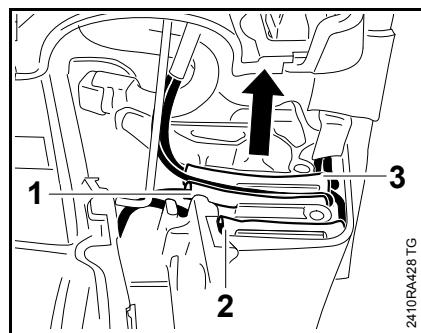
Do not disconnect plug connection (4) with insulating tube.



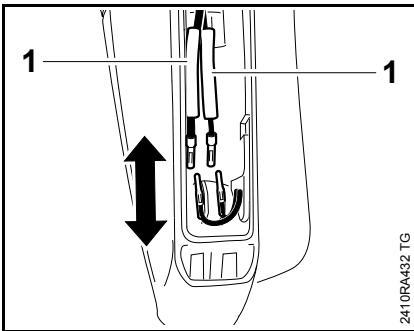
- Pull connecting lines (1) and (2) out of the guide (arrows)



- Pull plug connections (1) and (2) with insulating tubes out of the guides (arrows)



- Pull plug connections (1), (2) and (3) with insulating tubes out of the guides

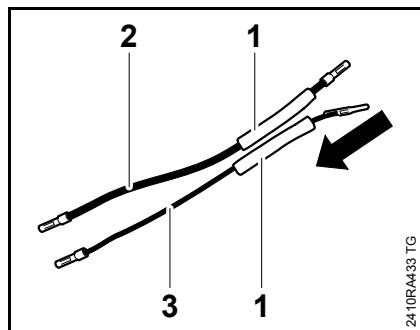


- Slide insulating tubes (1) towards connecting leads and disconnect plug connections
 - Remove and examine connecting leads, replace if necessary

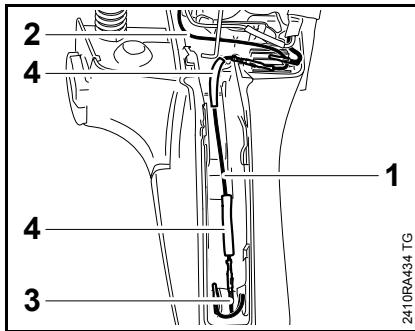
Installation

- Press the plug connection together completely, 1

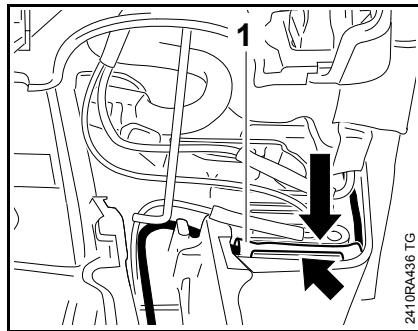
Run all leads under the throttle rod.



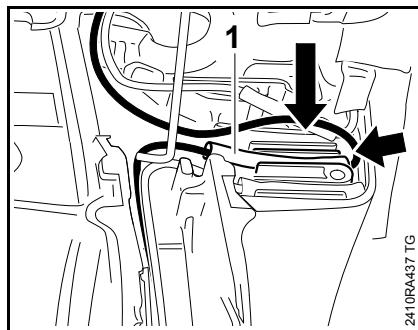
- Push insulating tubes (1) onto both ends of the connecting leads (2) and (3)



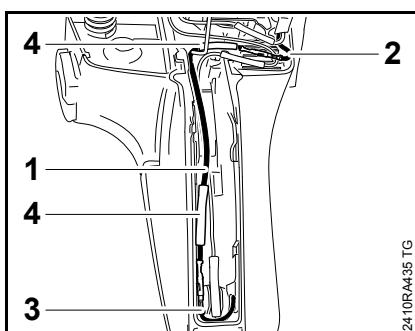
- Connect the thin connecting lead (1) with the thin lead (2) of the wiring harness and the lower lead (3) of the handle heating element
 - Push connectors and socket terminals together as far as possible
- Slide insulating tubes (4) over the plug connections



- Position insulating tube (1) with plug connection at the edge of the tank housing and push it into the guide (arrow) as far as it will go

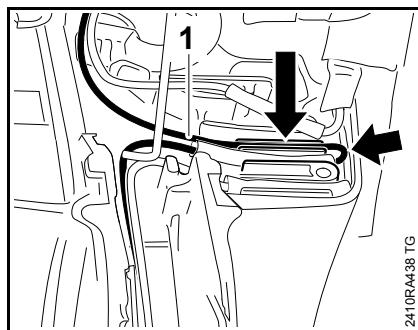


- Position insulating tube (1) with plug connection at the edge of the tank housing and push it into the guide (arrow) as far as it will go

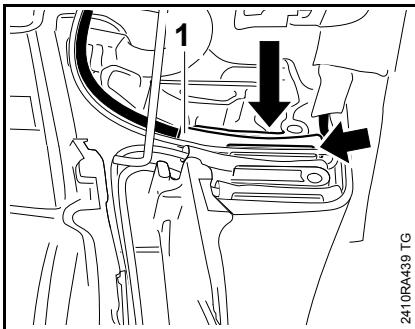


- Connect the thick connecting lead (1) with the long lead (2) of the handlebar and the upper lead (3) of the handle heating element
 - Push connectors and socket terminals together as far as possible
- Slide insulating tubes (4) over the plug connections

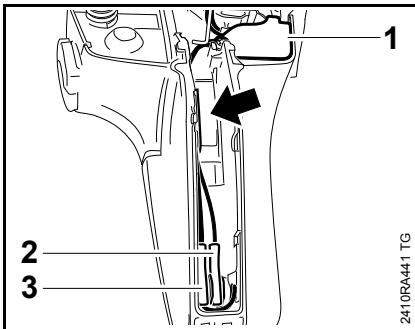
At the handlebar, the long lead must be run under the shorter lead.



- Run the thin wire (1) with a loop (arrow) around the fin and press it into the guide as far as it will go

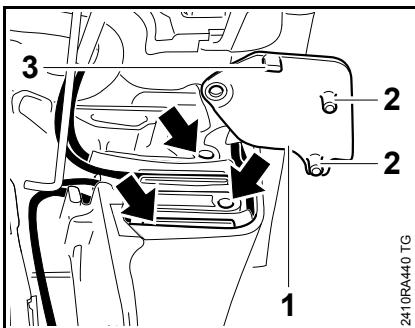


- Position insulating tube (1) with plug connection at the edge of the tank housing and push it into the guide (arrow) as far as it will go



The thin connecting lead must be run underneath the thick connecting lead.

- Starting at the cover (1) of the plug connections, route the leads and press them into the guide (arrow)



- Orient cover (1) so that the pegs (2) engage the holes and the tab (3) engages the fin (arrows)
 - Replace cover, insert and tighten screw
 - Ensure that wires are not pinched

15. Special tools

New special tools

No.	Designation	Part No.	Use	Re-marks
1	Press sleeve	1143 893 2400	Pressing in oil seal (Ignition side)	
2	Wiring tool	5910 890 4000	Inserting wires in the guides	

Existing special tools

No.	Designation	Part No.	Use	Re-marks
1	Carburetor and crankcase tester	0000 850 1300	Testing crankshaft in engine and carburetor for leakage	
	- Connector	0000 855 9200	Testing carburetor for leaks	
	- Hose for leakage test	1110 141 8600	Testing carburetor for leaks	
	- Plug for leakage testing	1122 025 2200	Testing decompression valve for leaks	
2	Sealing plate	0000 855 8106	Testing crankshaft in engine and carburetor for leakage	
3	Installing tool	0000 890 2201	Installation of starter rope guide bushing	
4	Clamping strap	0000 893 2600	Tension the piston rings	
5	Locking strip	0000 893 5904	Blocking crankshaft	
6	Bit T 27 x 125	0812 542 2104	Removing and installing spline socket head screws with electric or pneumatic screwdrivers; tightening down screws with torque wrench	
7	Wooden assembly block	1108 893 4800	Positioning piston/lowering tank housing maintaining spacing	
8	Assembly drift	1110 893 4700	Removing and installing piston pins	
9	Setting gauge	1111 890 6400	Setting air gap between control unit and flywheel	
10	Installing tool	1116 893 4800	Installing rewind spring	
11	Assembly tube	1117 890 0900	Hook in clutch spring	
12	Flange	1118 850 4200	Leakage test	
13	Press sleeve	1118 893 2401	Pressing in oil seal (Clutch side)	
14	Combination wrench	1129 890 3401	Spark plug	1)
15	Installing sleeve	1141 893 4600	Protection of the oil seal (Ignition side/clutch side)	

No.	Designation	Part No.	Use	Re-marks
16	Service tool ZS including Washer 5910 893 2103 – Washer in supplementation to service tool kit ZS 5910 007 2200 - Screw sleeve	5910 007 2201 5910 893 2103 5910 893 2420	Removal and installation of crankshaft (clutch side) Pulling together the crankcase Installing crankshaft	
17	Service tool kit AS - Screw sleeve	5910 007 2205 5910 893 2409	Removal and installation of crankshaft (clutch side) Pulling together the crankcase	
18	Test lead	5910 840 0903	M-Tronic diagnostic and testing tasks	
19	Clamping strip for assembly stand	5910 850 1650	Clamp machine to assembly stand	
20	ZAT 4 ignition tester	5910 850 4503	Test ignition system	
21	ZAT 3 ignition tester	5910 850 4520	Test ignition system	
22	Flange	5910 855 4201	Sealing the cylinder exhaust port for leakage test	
23	Torque wrench	5910 890 0302	Screw connections (0.5 to 18 Nm)	
24	Torque wrench	5910 890 0312	Screw connections (6 to 80 Nm)	
25	Installing tool 10 - Sleeve	5910 890 2210 5910 893 1707	Fit hookless snap rings in piston Sleeve for installing tool 10	
26	Bit T 27 x 150	5910 890 2400	IS-P screws	
27	Assembly hook	5910 890 2800	Detach springs from clutch shoes	
28	Assembly stand	5910 890 3101	Holding chain saw for servicing / repairs	
29	Puller - Jaws (with profile no. 6)	5910 890 4400 0000 893 3711	Extracting the oil seal Extracting the oil seal	
30	Puller	5910 890 4504	Removing flywheel	
31	Stud puller, M8	5910 893 0501	Removing rail mounting studs	
32	Assembly hook	5910 893 8800	Remove pick-up body	
33	Installing tool	5910 893 9600	Removing and installing collar nuts on chain sprocket cover	

Remarks:

- 1) Use only for releasing.

16. Service accessories

No.	Designation	Part No.	Use
1	STIHL multi-purpose grease	0781 120 1109	
2	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 elements antivibration elements
5	Medium-strength thread-locking adhesive (Loctite 242)	0786 111 2101	
6	Standard solvent-based degreasant not containing any chlorinated or halogenated hydrocarbons		Cleaning mating surfaces and the carburetor, cleaning the crankshaft stub and tapers in flywheel

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