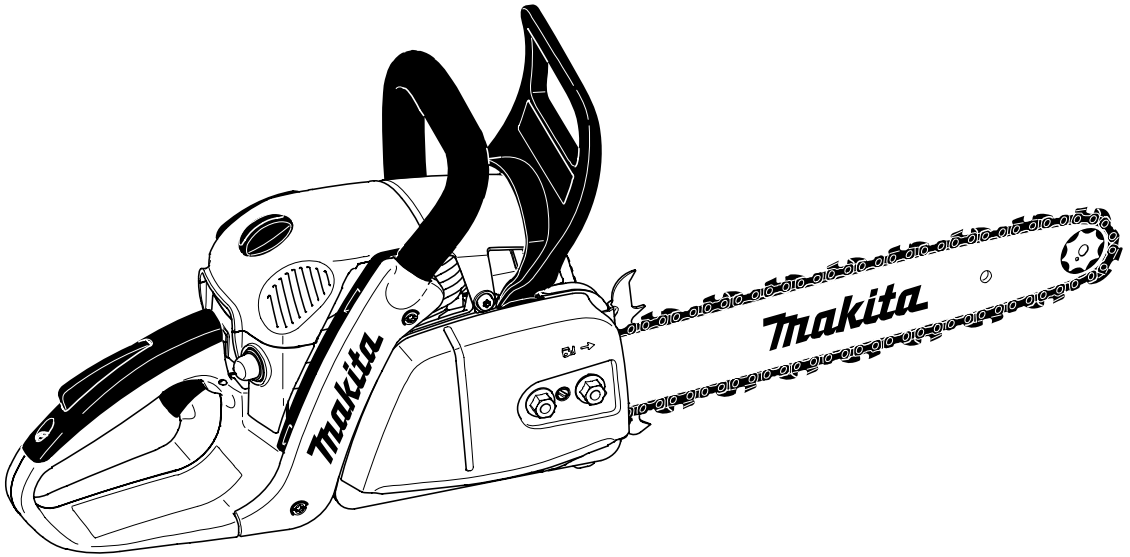
Repair Manual



DCS3500
DCS3501
DCS4300
DCS4301
EA3500F
EA3501F
EA4300F
EA4301F
MEA3500L
MEA3500M
MEA4300G
MEA4300L

Caution:

Before doing any maintenance or service work, the combination switch must be engaged in the service position, in order to prevent unintended starting by the easy start system!

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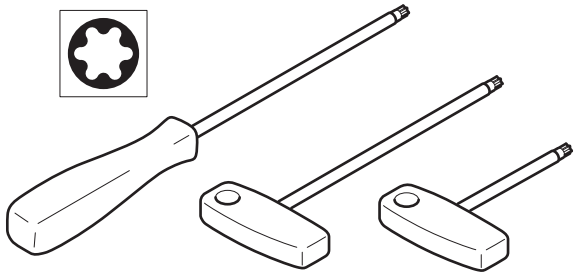
CONTENTS

		DCS3500 / DCS3501	EA3500F / EA3501F MEA3500M / MEA 3500L	DCS4300 / DCS4301	EA4300F / EA4301F MEA4300G / MEA4300L
Stroke volume	cm^3	34.7		42.4	
Bore	mm	38		42	
Stroke	mm	30.6		30.6	
Max. power at speed	kW / 1/min	1.5 / 9,500	1.7 / 9,500	2.0 / 9,500	2.2 / 9,500
Max. torque at speed	Nm / 1/min	1.9 / 6,500	2.1 / 6,500	2.4 / 6,500	2.6 / 6,500
Idling speed / max. engine speed with bar and chain	1/min	2,800 / 13,500		2,800 / 13,500	
Clutch engagement speed	1/min	5,100		5,100	
Sound pressure level at the workplace $L_{pA\ av}$ per ISO/CD 22868 [1)]	dB (A)	100.8		100.8	
Sound power level $L_{WA\ av}$ per ISO/CD 22868 [1)]	dB (A)	110		110	
Vibration acceleration $a_{h,w\ eq}$ per ISO 22867 [1)]					
- Tubular handle	m/s^2	4.3		3.6	
- Rear handle	m/s^2	3.6		3.2	
Carburetor (diaphragm, choke flap carburetor)	Typ	membrane carburetor		membrane carburetor	
Ignition system	Typ	electronic		electronic	
Spark plug	Typ	NGK BPMR 7A	NGK CMR7A-5	NGK BPMR 7A	NGK CMR7A-5
Electrode gap	mm	0.5		0.5	
or spark plug	Typ	BOSCH WSR 6F, CHAMPION RCJ 6Y	- -	BOSCH WSR 6F, CHAMPION RCJ 6Y	- -
Fuel consumption at max. load per ISO 7293	kg/h	0.79		0.96	
Specific consumption at max. load per ISO 7293	g/kWh	526		480	
Fuel tank capacity	l	0.48		0.48	
Chain oil tank capacity	l	0.28		0.28	
Mixture ratio (fuel/two-stroke oil)					
- when using DOLMAR oil		50 : 1 / 100: 1 (HP-100)		50 : 1 / 100: 1 (HP-100)	
- when using Aspen Alkalyt (two-stroke fuel)		50 : 1 (2%)		50 : 1 (2%)	
- when using other oils		50 : 1 (quality grade JASO FC or ISO EGD)		50 : 1 (Qualitätsstufe JASO FC oder ISO EGD)	
Chain brake		engages manually or in case of kickback		engages manually or in case of kickback	
Chain speed at max. power	m/s	18.1		18.3	
Sprocket pitch	inch	3/8		.325	
Number of teeth	Z	6		7	
Chain type		see the spare-parts list		see the spare-parts list	
Pitch / gauge	inch	3/8 / 0.050 (1.3)		.325 / 0.050 (1.3)	
Guide bar, length of a cut	cm	30, 35, 40		33, 38, 45	
Guide-bar type		see the spare-parts list		see the spare-parts list	
Weight (fuel tank empty, without chain, guide bar and accessories)	kg	4.7 / 4.8 [2)]	4.8 / 4.9 [2)]	4.7 / 4.8 [2)]	4.8 / 4.9 [2)]

1) Figures derived in equal part from idling, full-load and racing speed.
2) On models with catalytic converter.

Malfunction	System	Observation	Cause
Chain does not run	Chain brake	Engine runs	Chain brake actuated, Chain too tight
Engine does not start or only with difficulty	Ignition system	Ignition spark	Malfunction in fuel supply system, pressure system, mechanical malfunction.
		No ignition spark	STOP switch stuck in service position, fault or short-circuit in the wiring, plug cap or spark plug defective, gap between ignition module and flywheel uneven or too wide
	Fuel supply	Fuel tank is filled	Combination switch in Choke position, carburetor defective, suction head dirty, fuel line bent, leaky or interrupted.
	Compression	Inside system	Cylinder base packing ring defective, radial shaft packings defective, cylinder or piston rings defective
		Outside	Spark plug does not seal.
	Mechanical malfunction	Starter does not engage	Spring in starter broken, broken parts inside the engine.
Engine speed gets “stuck”	Multiple systems	Engine speed about 4,500 - 6,000 rpm	Carburetor too lean Bleed air at cylinder and/or rubber induction piece Fuel line bent, throttle link stuck
Warm engine won’t start	Carburetor	Fuel tank is filled Ignition spark	Wrong carburetor adjustment Flooded from choke use Piston ring worn (max. thrust play 0.5 mm)
Engine starts, but dies immediately	Fuel supply	Fuel tank is filled	Wrong idling adjustment, suction head or carburetor dirty, tank venting defective, fuel line interrupted, cable defective, Choke flap closed, decompression valve dirty
Insufficient power	Several systems may be involved simultaneously	Engine is idling	Air filter dirty, incorrect carburetor setting, muffler clogged, exhaust channel in cylinder clogged, spark arrester screen clogged.
No chain lubrication	Oil tank/pump	No oil on the chain	Oil tank empty Oil guide groove dirty, Oil suction head dirty Oil pump adjusting screw incorrectly adjusted Oil pump worm drive gear defective



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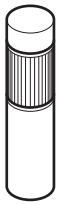

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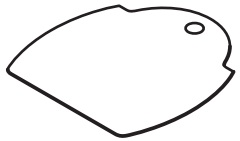

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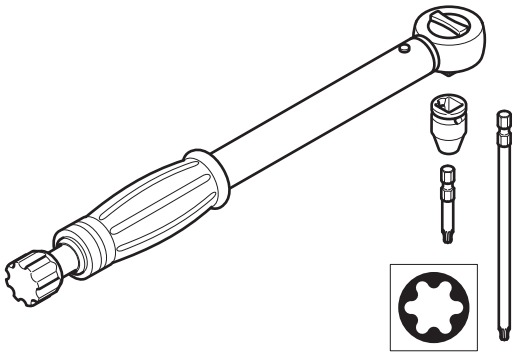

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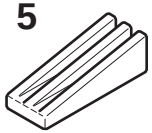

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1 Torx screwdriver

Grip	(944.500.860)
T-grip 200 mm	(944.500.862)
T-grip 100 mm	(944.500.861)

2 Mandrel

Disassembly mandrel for tapping out the flywheel without damage to the crankshaft thread (944.500.880)

3 Setting gauge

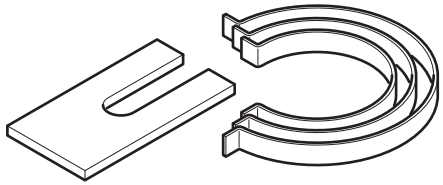
Gauge for measuring the gap between flywheel and armature (944.500.891)

4 Torque wrench

3/8” Drive socket	(944.500.864)
Bit 152 mm	(944.500.865)
Bit 49 mm	(944.500.866)
Torque wrench 3/8” Drive	(950.230.000)

5 Piston stop wedge

Wedge for blocking the engine through the exhaust port (944.602.001)



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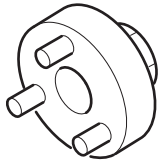

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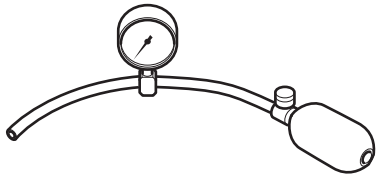

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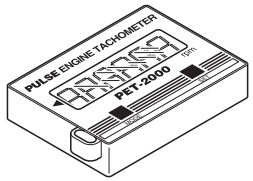

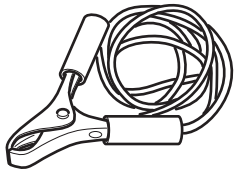

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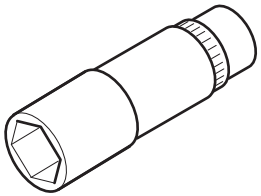

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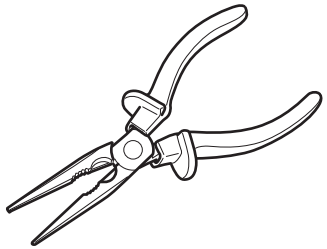

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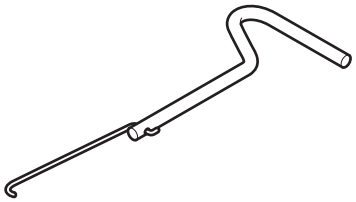

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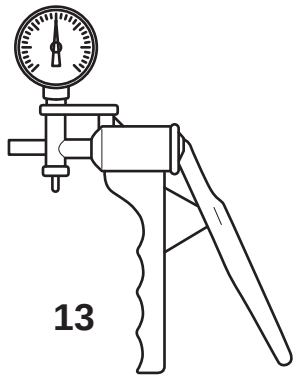

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6 Piston ring tensioner

Piston ring band and assembly tool for cylinders (944.600.001)

7 Assembly and disassembly wrench

Wrench for disassembling and assembling the centrifugal clutch (944.500.590)

8 Pressure gauge

Pressure guage for checking the carburetor fuel valve (956.004.000)

9 Tachometer

Electronic tachometer for measuring the engine speed of 2- and 4-stroke engines (950.233.220)

10 3/8” socket

Installation/removal of Spark plug, clutch (944.500.864)

11 Needle-nose pliers

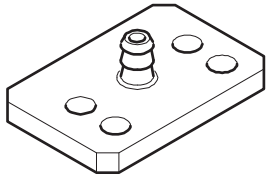
Various assembly/ Disassembly tasks (944.603.400)

12 Disassembly hook

Removal/installation Brake band spring (950.237.000)

13 Over/underpressure pump

For checking sealing of radial rings and gaskets (957.004.001)



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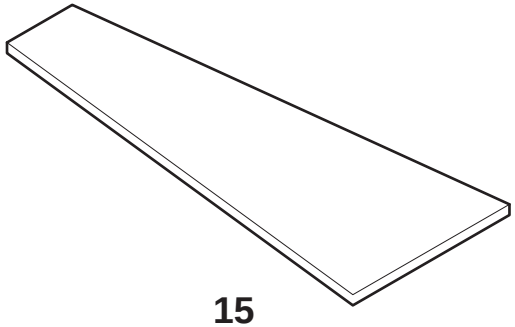

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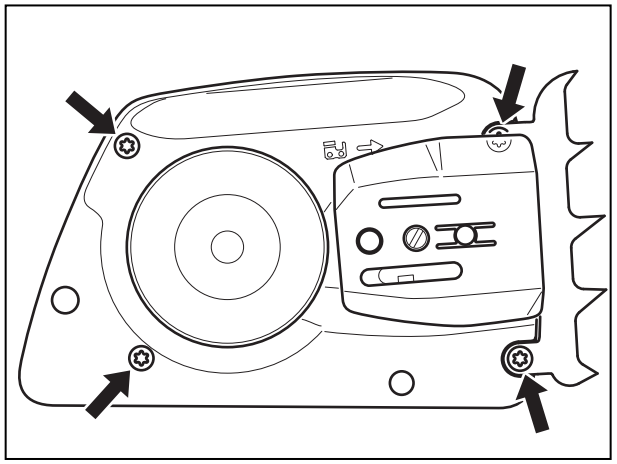
14 Sealing plate
For sealing intake side (944.603.020)

15 Sealing plate
For sealing exhaust side (944.603.170)



Remove the sprocket guard, bar, and chain.

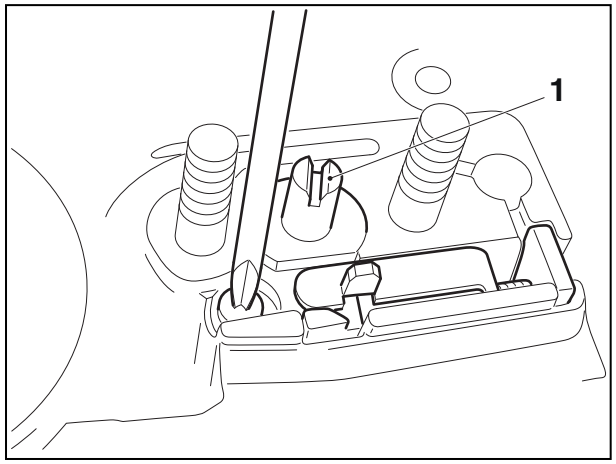
CAUTION: Do not work on the chain brake unless the spring is detensioned!

Chain tensioner

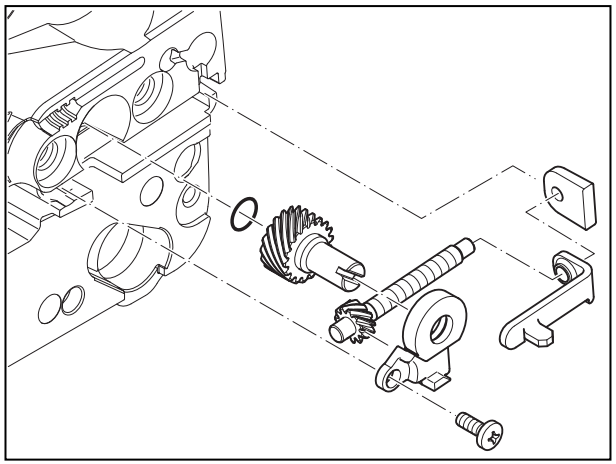
Carefully take the chain guide cover off the guide bar bolts.

Unscrew 4 screws, and remove the spike bar and the cover.

Chain tensioner function
An angled worm drive converts the turns of the adjustment screw **1** to forward or backward motion of the tensioning pin.

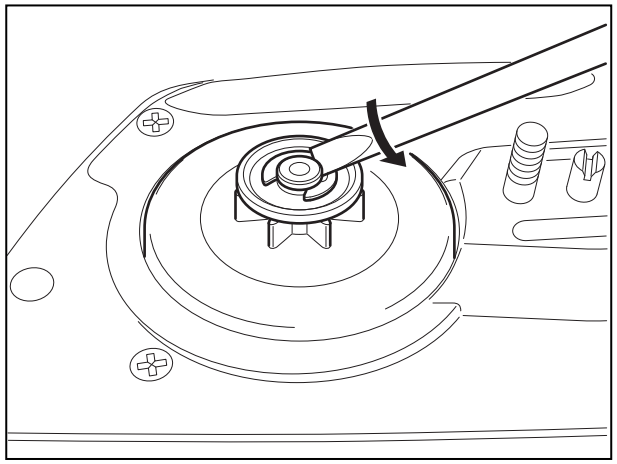


If necessary, turn adjusting screw **1** clockwise, until the fastening screw is accessible. Unscrew the fastening screw and pull the chain tensioner up and out.



Assembly

Grease spindle and worm gear with multi-purpose grease (944.360.000).

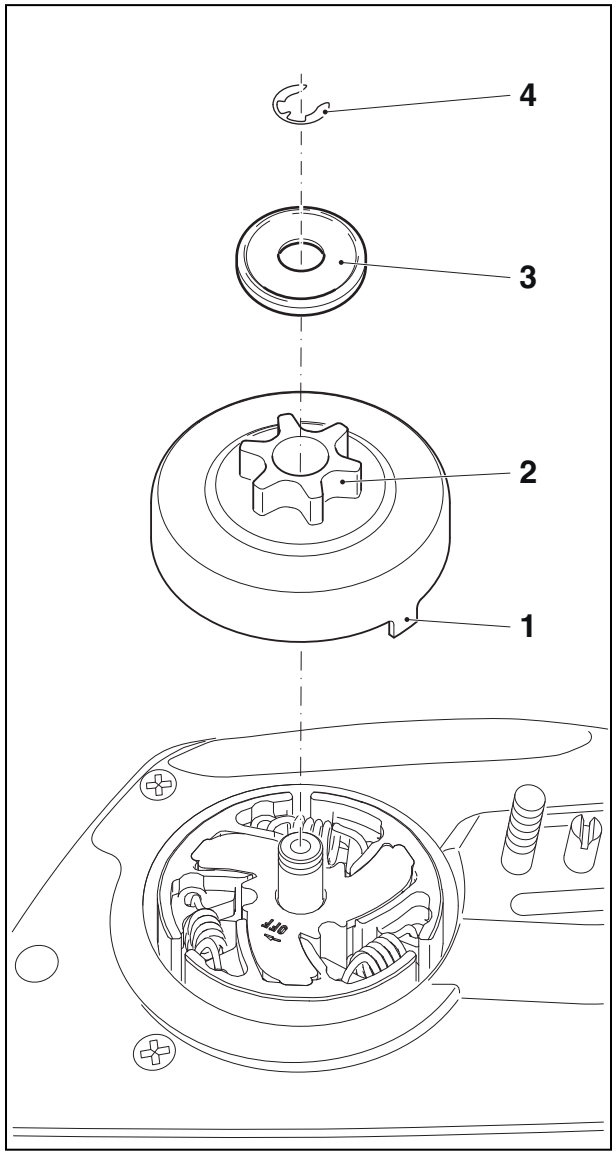


Remove the sprocket guard, bar, and chain.

Remove the circlip **4** with the universal wrench.

Remove cup washer **3**.

Pull the handguard towards the front grip only as far as necessary so the clutch drum can be removed.



Clutch drum with sprocket and needle bearing

Check the chain sprocket **2** for damage and wear.

Important customer information:

Before installing a new saw chain, always check the condition of the chain sprocket. A worn chain sprocket will damage a new saw chain, and must be replaced.

Check the clutch drum needle bearing for wear and damage.

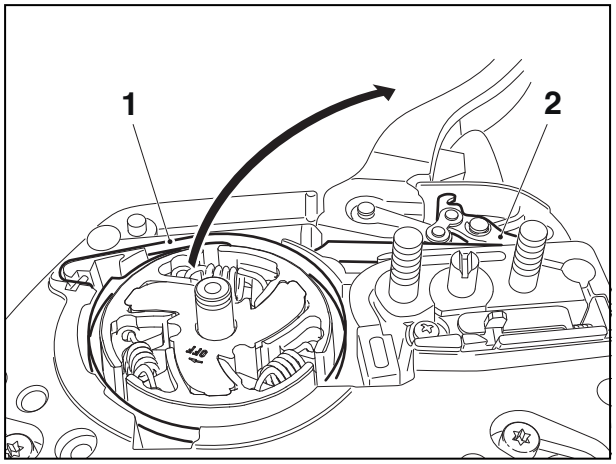
Assembly the bearing with multi-purpose high-performance grease (944.360.000).

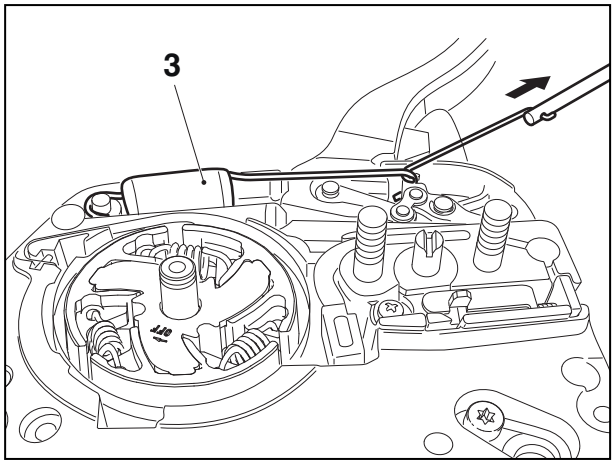
Check the inside of the clutch drum for damage and wear.

Replace the clutch drum if damaged or worn.

Note: Always use a new circlip 4 (927.408.000)**!**

When assembling the clutch drum, make sure that the lug of the oil pump drive 1 is not positioned on the oil pump drive. When inserting, turn the clutch drum slightly.





Removing the brake band

CAUTION: Wear protective gloves to prevent cuts!

Remove the sprocket guard, bar, and chain.

Remove the clutch drum, see Chapter 02.

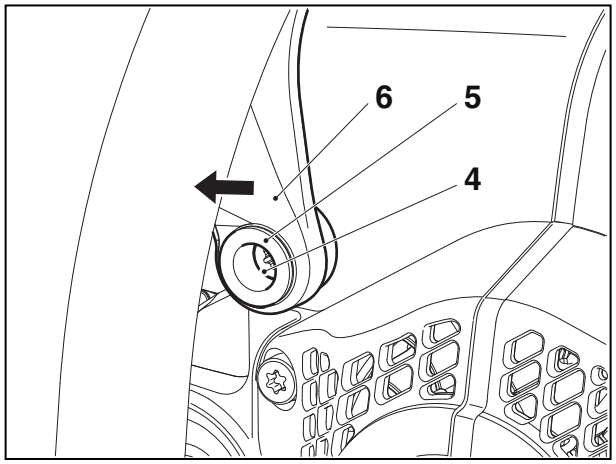
Push the hand guard forward to engage the chain brake. This tensions the brake band spring.

Remove the cover plate, see Chapter 01.

Fold the brake band **1** upward and turn it out of the disengagement mechanism **2**.

Secure the chain saw from slipping (vise).

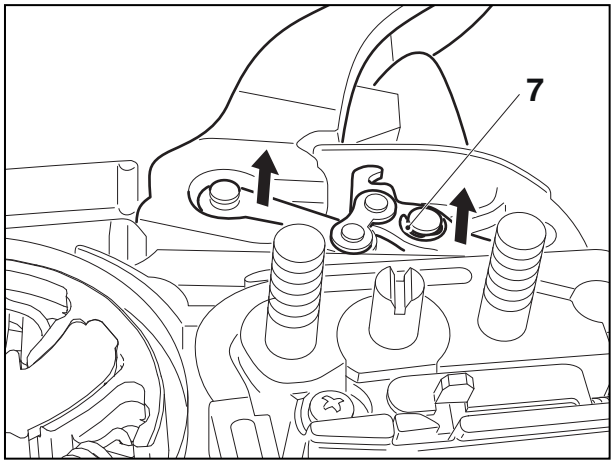
Using the disassembly hook (Chap. 00, Pos. 12), disengage the brake band spring **3**.



Remove the handguard and disengagement mechanism

Unscrew bolt **4** and pull out the sleeve **5**.

Push handguard arm **6** from its position over the hood towards the muffler.



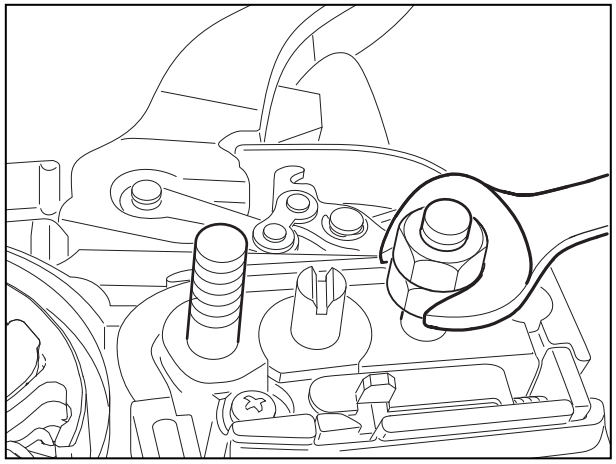
Remove the circlip **7**.

Pull the disengagement mechanism up in parallel with the axes.

Pull off the handguard with gentle back-and-forth motion.

When reassembling always use a new circlip 7 (927.304.000)**!**

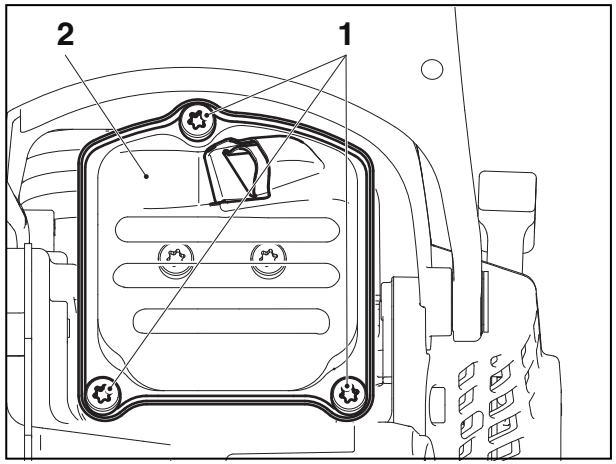
Assemble the handguard and disengagement mechanism, brake band and brake band spring in reverse order.



Replacing the guide bar bolt

Screw two nuts onto the bar bolt and counterlock them.

Unscrew the bar bolt.
Assembly: Apply Loctite 243 (980.009.000) to the guide bar bolts and turn them all the way in.



Disassembly

CAUTION: To prevent cuts, wear protective gloves!

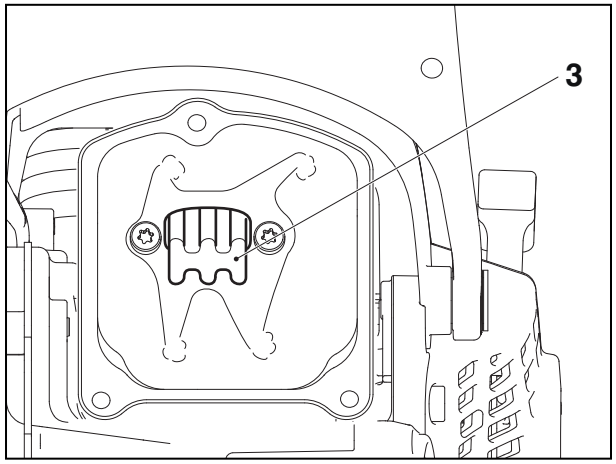
Remove the sprocket guard, bar and chain.

Pull the handguard towards the front handle to release the chain brake if necessary.

Remove the clutch drum, see Chapter 02.

Remove the muffler. To do this, unscrew the 3 screws **1** and remove the upper muffler half **2**.

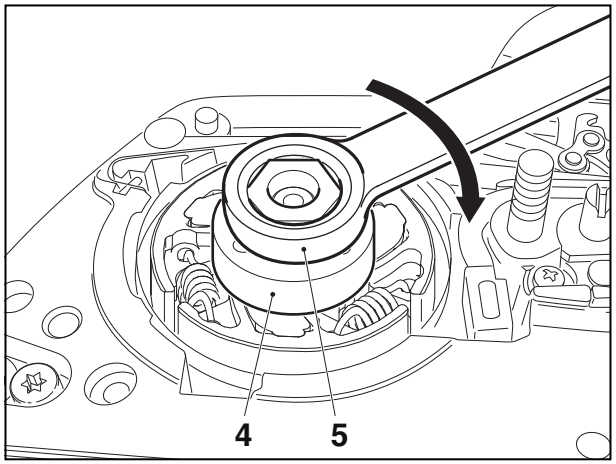
CAUTION: If a catalytic converter is being used, the muffler will be very hot after operation!



Move piston to bottom dead centre (visible through the exhaust opening).

Press the piston stop wedge **3** (cap. 00, pos. 5) into the exhaust opening.

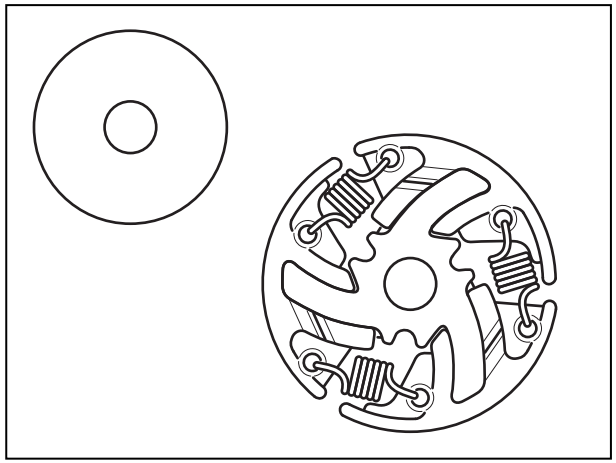
Note: Before the piston stop wedge is pressed into the exhaust opening, it is necessary to remove the carbon insert in the exhaust.



Insert wrench **4** (Chap. 00, Pos. 7) into the clutch and use a socket wrench **5** to turn in the direction of the arrow (left-hand thread) to loosen and remove the clutch.

Turn the clutch over and remove the disc.

The flyweights can now be pushed off the guide axially in one direction.



Inserting the flyweights

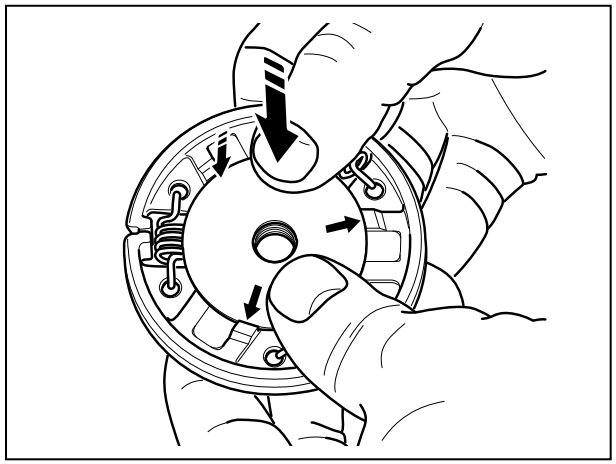
Hook the springs as shown in the illustration.

Then press the flyweights onto the guide. To do this, first push on two flyweights half-way, then put on the third flyweight by setting it on its edge.

Press the flyweights all the way onto the guide.

CAUTION: Note the position of the springs. Do not replace springs individually! If a spring breaks or is fatigued, all three springs must be replaced. The springs must not touch the cover.

The illustration shows the inside of the clutch.



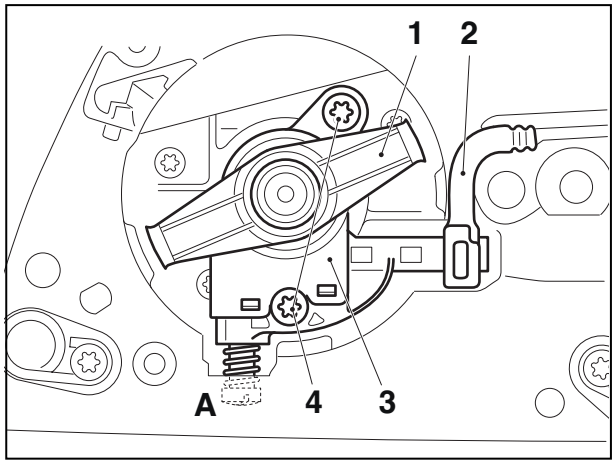
Installing the clutch

Press the disc onto the clutch. It must be flat and be engaged.

Installing the clutch

Install the clutch with the arrow marking point up.

CAUTION: Before installing the clutch, disassemble the starter in order to prevent damage to the starting ratchets



General

The oil pump is driven by the clutch drum. Lugs on the clutch drum transfer the power to the drive arms of the oil pump drive **1**.

The drive worm of the oil pump drive engages in the teeth of the oil pump **3**.

This means that oil is pumped only when the chain is running.

The oil flow rate can be adjusted with adjusting screw **A**:

- Turn right for more oil
- Turn left for less oil

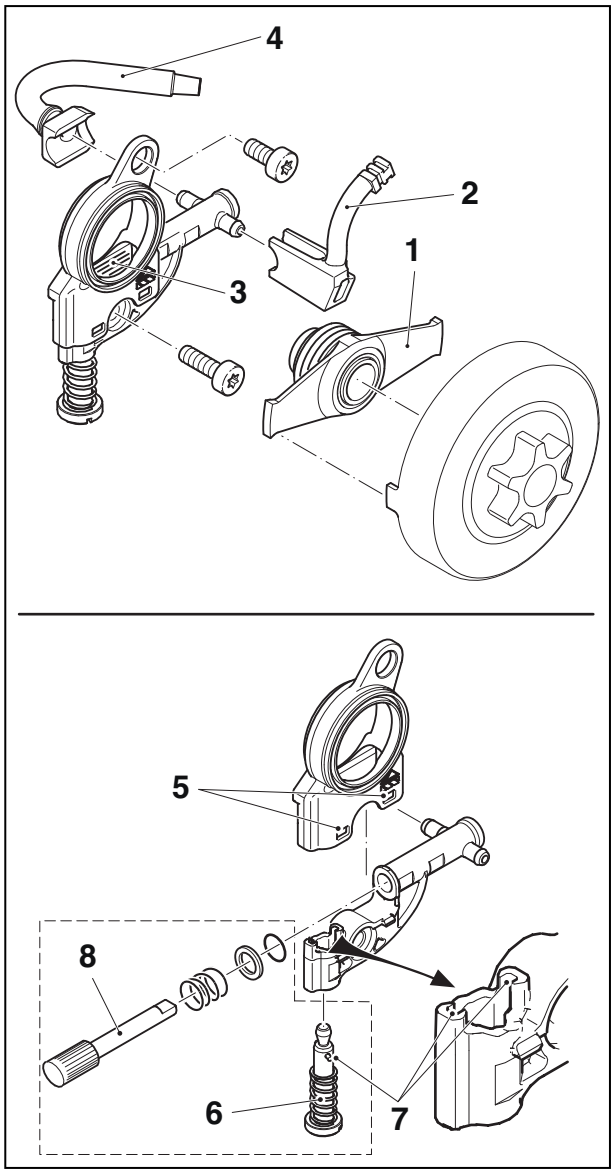
Disassembly

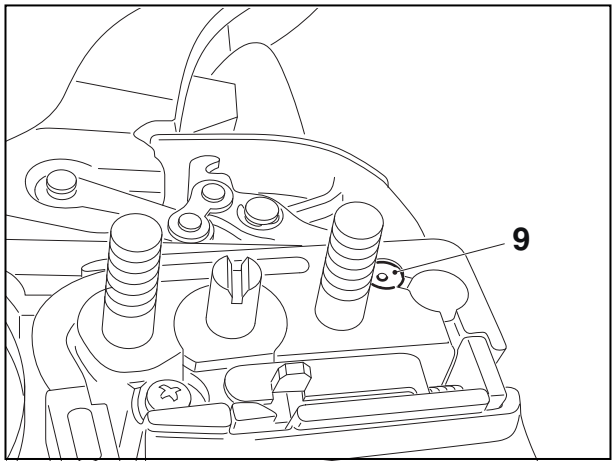
Remove the clutch drum and clutch, see chapter 04. Remove brake band, see chapter 03.

Turn the oil pump drive **1** counter-clockwise and pull it off the shaft.

Pull the oil pressure line **2** from the oil pump.

Unsrew 2 screws **4** and remove the oil pump.





The suction line **4** remains in the crankcase. It extends into the oil tank. To remove it, carefully pull on the connection to the oil pump.

Removing the oil pump

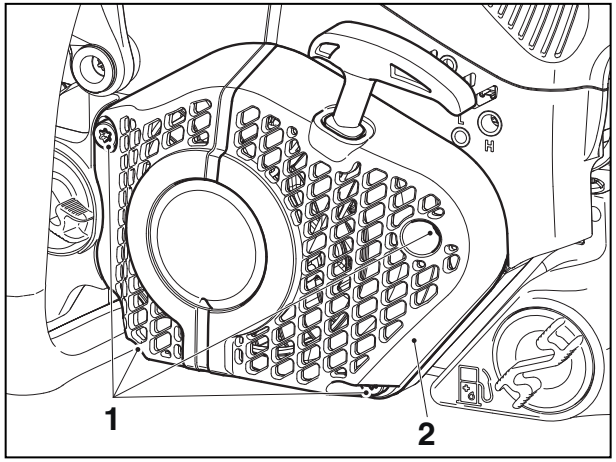
Pull the plastic housing off the oil pump by carefully spreading it apart in the area of the holes marked **5** in the illustration.

Push the adjusting screw **6** up against the spring pressure and turn it until the pin **7** goes into the assembly slit **7**. If necessary press the supply piston **8** in somewhat.

Note: For assembly put the adjusting screw in stop positions 2 or 3, not in one of the outer stops.

Removing the oil tank vent

Note: The ventilation valve must be pulled out. It cannot be knocked into the tank.



Disassembly

Unscrew four screws **1**.

Remove fan housing **2**.

Remove air guide **3** from fan housing.

Detension the return spring.

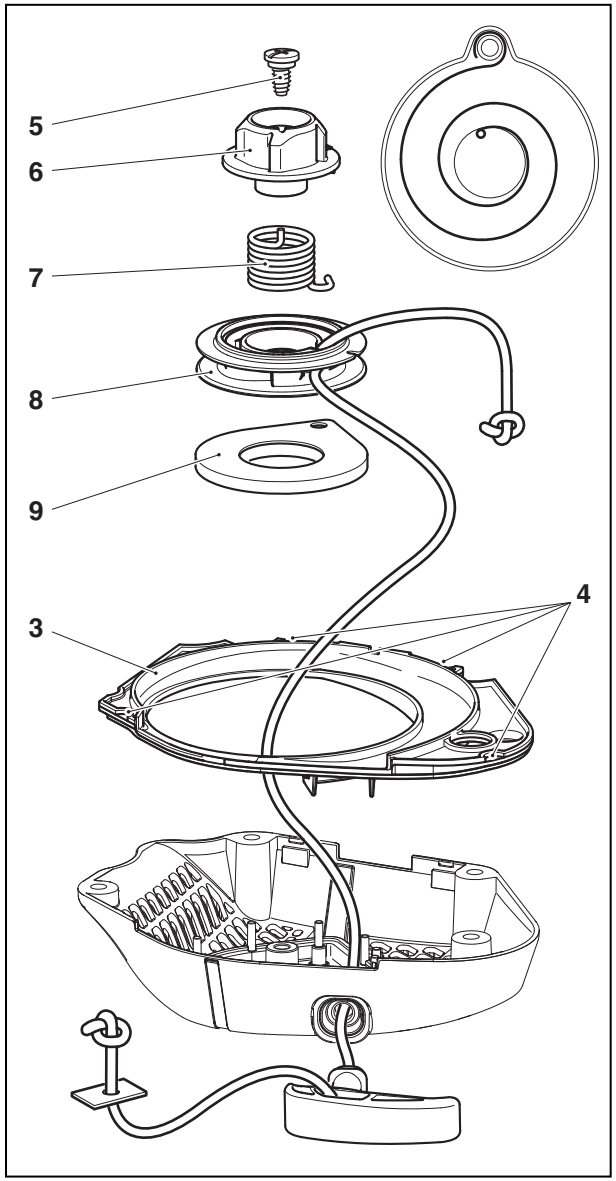
Injury hazard! Unscrew screw 5 only after detensioning the return spring!

Unscrew screw **5** and remove actuator **6** and spring **7**.

Pull off the cable drum **8**.

Knock the fan housing against a tabletop with the entire contact surface of the hollow side, so that the return spring cassette **9** pops out of the fan housing.

CAUTION! The return spring can jump out of the plastic cassette! Always wear protective goggles and gloves!



If the spring pops out, put it back into the plastic housing as shown in the schematic.

Assembly

Note: If installing a new return spring cassette, grease it on the spring side.

Carefully insert new return spring cassette **9** and push it in. Lightly grease the surface of the spring and spring cassette with multipurpose grease (944.360.000).

Thread in a new starter cable (dia 3.5 mm / 1/8“, length 980 mm / 38.5“) as shown in the illustration, tie a knot (as shown in the illustration) in both ends, and tighten both knots.

Put on the cable drum **8** and turn it slightly until the return spring engages.

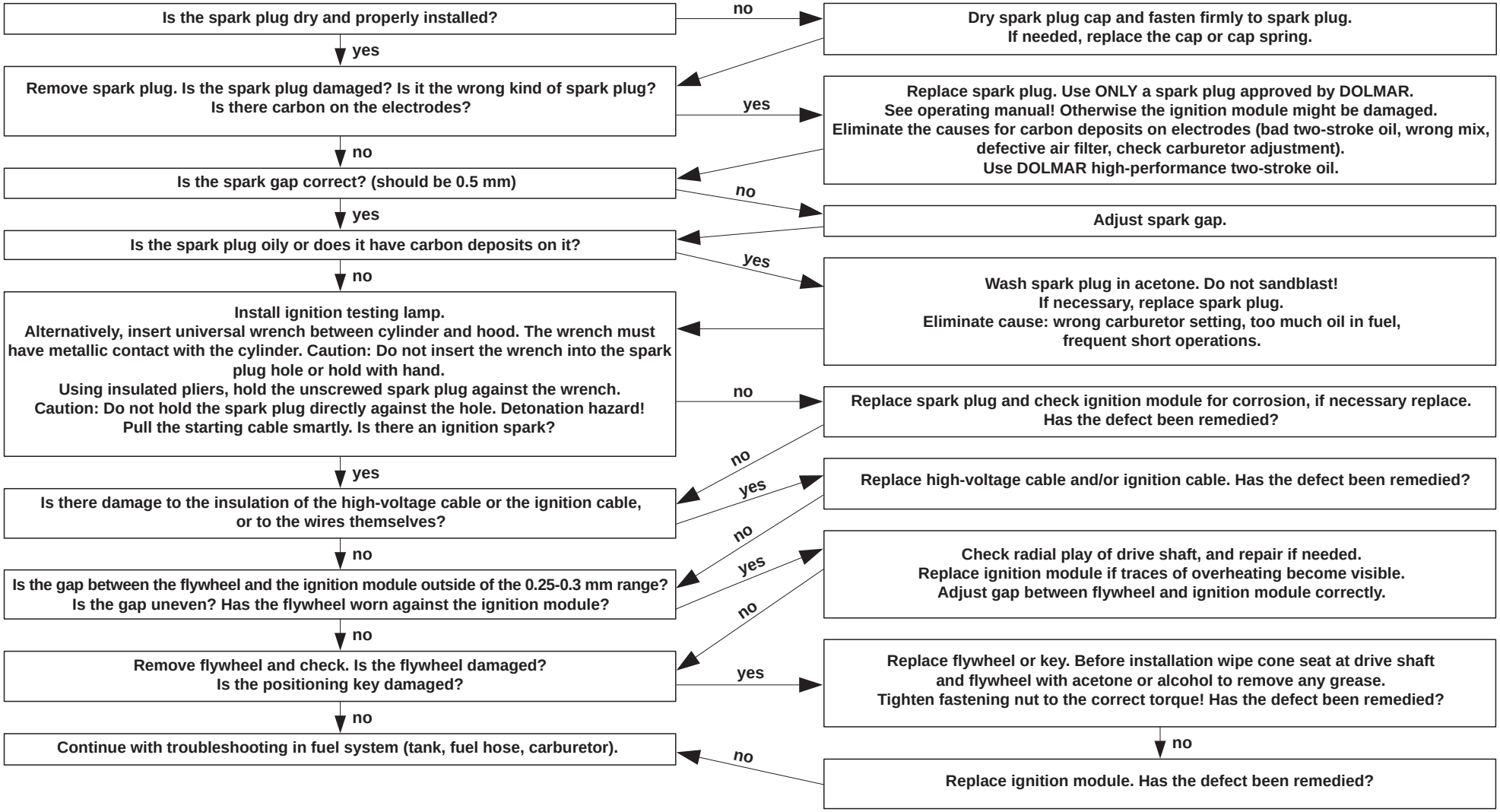
Insert spring **7** in actuator **6** and insert together into the cable drum **8** while turning slightly counter-clockwise. Insert and tighten screw **5**.

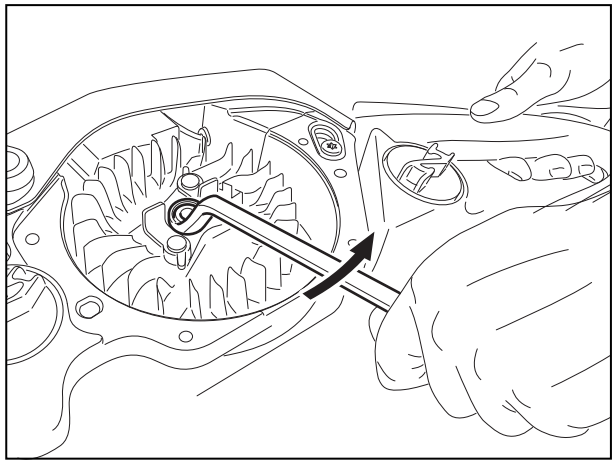
Tension the return spring clockwise. Turn the return spring about 6 turns with the aid of the cable, which should be pressed into the gap in the cable drum.

Place the air guide **3** in the fan housing and make sure the two recesses **4** engage.

Position the fan housing **2** correctly on the saw, press against it slightly, and pull the starter handle until the starter catches.

Tighten screws **1**.


Is the spark plug dry and properly installed?
no
Dry spark plug cap and fasten firmly to spark plug.
If needed, replace the cap or cap spring.
yes
Remove spark plug. Is the spark plug damaged? Is it the wrong kind of spark plug?
Is there carbon on the electrodes?
yes
Replace spark plug. Use ONLY a spark plug approved by DOLMAR.
See operating manual! Otherwise the ignition module might be damaged.
Eliminate the causes for carbon deposits on electrodes (bad two-stroke oil, wrong mix, defective air filter, check carburetor adjustment).
Use DOLMAR high-performance two-stroke oil.
no
Is the spark gap correct? (should be 0.5 mm)
no
Adjust spark gap.
yes
Is the spark plug oily or does it have carbon deposits on it?
yes
Wash spark plug in acetone. Do not sandblast!
If necessary, replace spark plug.
Eliminate cause: wrong carburetor setting, too much oil in fuel, frequent short operations.
no
Install ignition testing lamp.
Alternatively, insert universal wrench between cylinder and hood. The wrench must have metallic contact with the cylinder. Caution: Do not insert the wrench into the spark plug hole or hold with hand.
Using insulated pliers, hold the unscrewed spark plug against the wrench.
Caution: Do not hold the spark plug directly against the hole. Detonation hazard!
Pull the starting cable smartly. Is there an ignition spark?
no
Replace spark plug and check ignition module for corrosion, if necessary replace.
Has the defect been remedied?
yes
Is there damage to the insulation of the high-voltage cable or the ignition cable, or to the wires themselves?
no
yes
Replace high-voltage cable and/or ignition cable. Has the defect been remedied?
no
Is the gap between the flywheel and the ignition module outside of the 0.25-0.3 mm range?
Is the gap uneven? Has the flywheel worn against the ignition module?
no
yes
Check radial play of drive shaft, and repair if needed.
Replace ignition module if traces of overheating become visible.
Adjust gap between flywheel and ignition module correctly.
no
Remove flywheel and check. Is the flywheel damaged?
Is the positioning key damaged?
yes
Replace flywheel or key. Before installation wipe cone seat at drive shaft and flywheel with acetone or alcohol to remove any grease.
Tighten fastening nut to the correct torque! Has the defect been remedied?
no
Continue with troubleshooting in fuel system (tank, fuel hose, carburetor).
no
Replace ignition module. Has the defect been remedied?

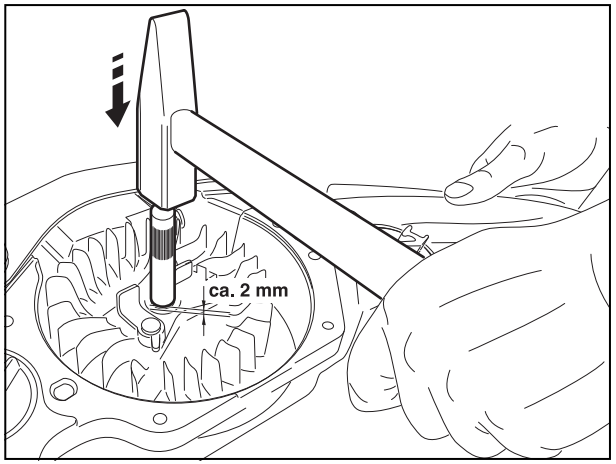


Removing the flywheel

Remove starter see chap. 06.

Block the piston, see chap. 04.

Loosen the nut in the direction of the arrow and remove it along with the washer.

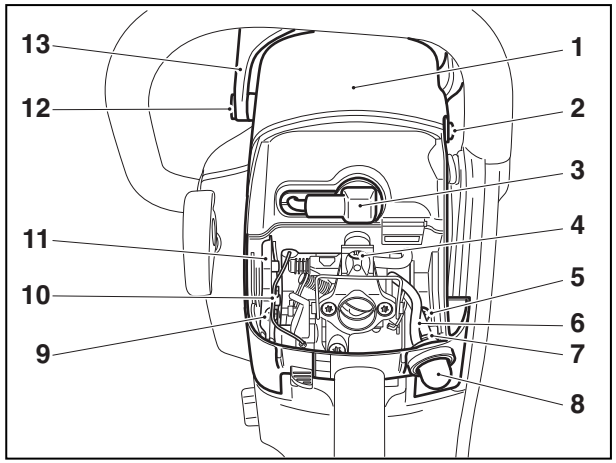


Screw the disassembly mandrel (chapter 00 pos. 2) onto the threaded end of the shaft.

Do not screw the mandrel all the way down. Leave about 2 mm between the mandrel and the flywheel.

Hold the machine in one hand or place on a soft surface, and knock the flywheel loose with a tap on the mandrel.

CAUTION: The cone of the crankshaft must always be degreased before assembly.



Removing the ignition armature

Remove cover and air filter.

Unsrew screws **2** and **12**.

Pull fuel lines **6** from the primer.

Push detent **7** on the primer **8** slightly and pull out the primer.

Disengage short-circuit wire **10** from the rocker **11** and pull the rocker up and out.

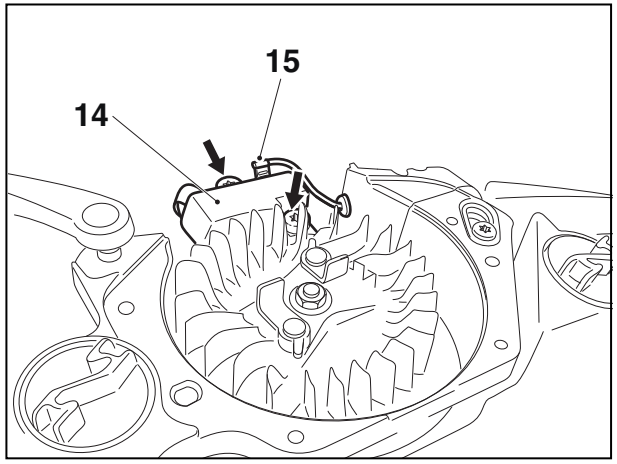
Unscrew screws **5** and **9**.

Unscrew screw **4**.

Pull off spark-plug cap **3** and unscrew spark plug.

Push the spark-plug cap wire grommet out towards the spark.plug hole.

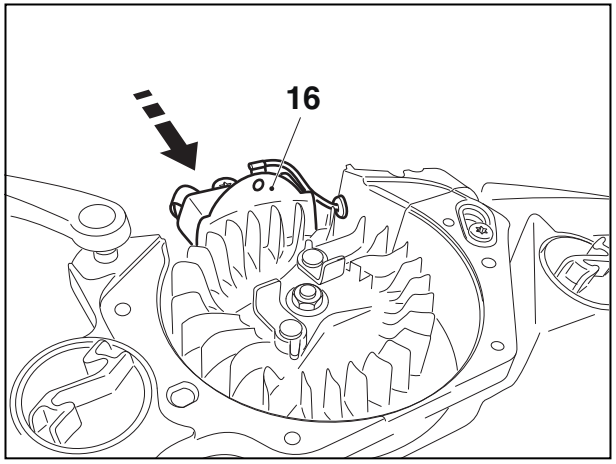
The cover **1** can now be taken up and off.



Pull short-circuit wire **15**.

Unscrew 2 screws on ignition armature **14**.

Remove ignition armature **and** wire.



Installing the ignition armature

Note: The high-voltage cable is moulded onto the ignition system and cannot be replaced separately.

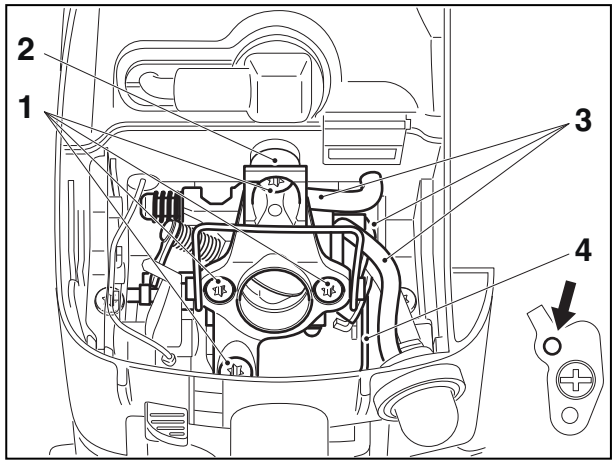
Insert the armature and turn the screws in almost all the way.

Insert the setting gauge **16** (Kapitel 00 Pos. 3) between the ignition armature and the fylwheel.

Position the flywheel so that the magnet is against the armature (gap 0.25 – 0.3 mm).

Press the armature against the gauge towards the flywheel and tighten the armature screws. Then check the gap again to make sure it is correct.

Attach the short-circuit wire **15** and press the rubber grommet into the carburetor base.



Removing the intake manifold and carburetor

CAUTION: Completely empty the fuel tank before disassembling the carburetor!

Remove cover and air filter.

Move combination switch to safety position.

Unscrew 4 screws **1**.

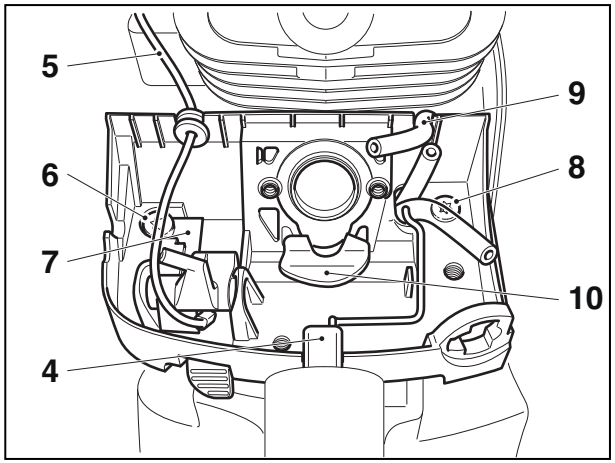
Remove intake manifold **2**.

Pull fuel lines and pulse line **3** from the carburetor.

CAUTION: There is fuel in the line. Catch escaping fuel with a cloth.

Disengage throttle link **4**.

Note: When reassembling, engage the linkage in the marked hole (arrow).



Removing the carburetor bottom

Remove throttle linkage **4**.

Remove cover (see chapter 07).

Pull short.circuit wire **5** from the ignition armature.

Unscrew screw **6** and remove along with the contact spring **7**.

Unscrew screw **8**.

Detach pulse line **9**.

The carburetor base can now be removed along with the combination switch.

Note: When assembling, make sure that the short-circuit switch is pulled through the rubber grommet as far towards the carburetor as possible, in order to prevent the wire from touching the cylinder.

Note: Do **not** twist the fuel line during assembly.

Note: If replacing the foam **10** in the carburetor base, make sure the position is correct. The opening should be towards the suction channel, as shown in the illustration.

Basic Setting (without Limiter Caps)

L= 1 1/2
H= 3

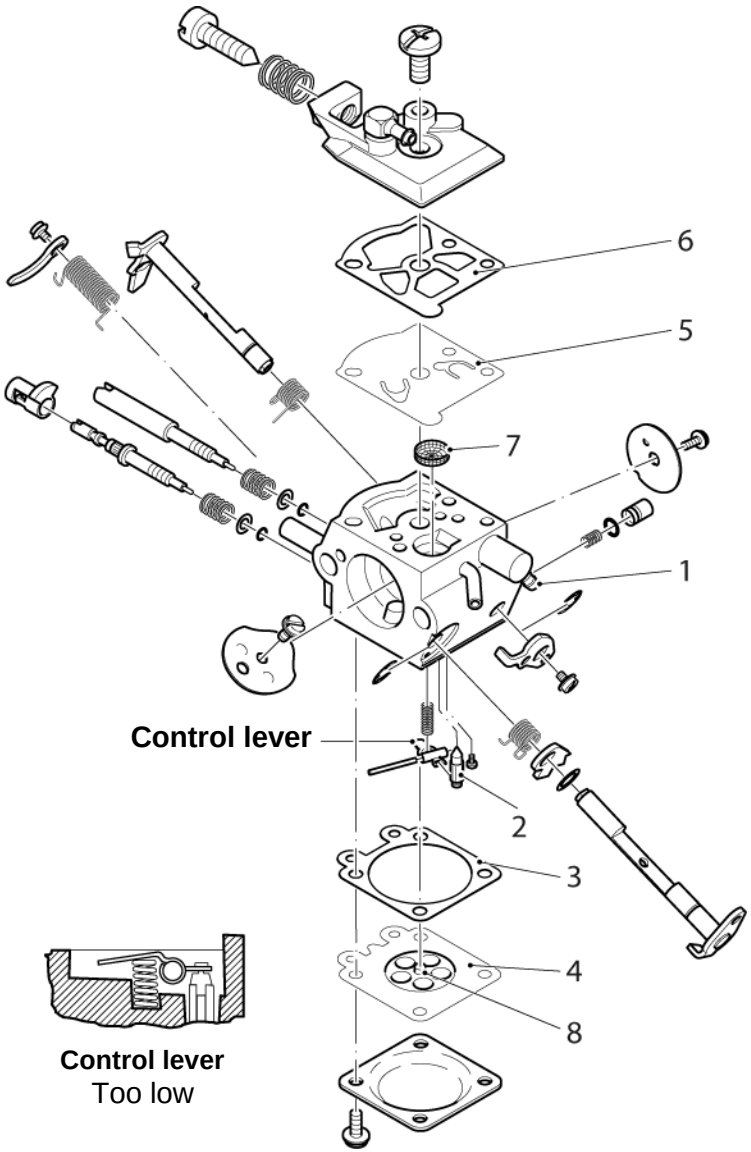
NOTE: Adjust the carburetor only using a tachometer.

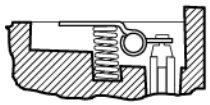
Pressure test

Connect the pressure gauge (chapter 00 item 8 oder 13) to the carburetor fuel connection **1**.

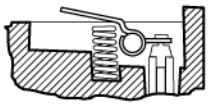
Set up a pressure of max. 0.5 bar. If the pressure falls, check the following parts:

- Correct assembly of Control assy (Control lever, Inlet needle, Lever spring, lever axle)
- Check seat of inlet needle for dirt/foreign parts, clean if necessary
- Replace control assy
- Replace gasket **6** and diaphragm **5** of the pump side





Control lever
Correctly installed



Control lever
Too high

Control lever
Too low

General check

- Screen **7** for contamination
- Pulse hole for contamination

Check control parts

(control lever/inlet needle):
Check the tip of the inlet needle for wear.

Check control lever for correct installation, see illustration to the left.

If the control lever is too low:

- Lack of fuel
- Poor acceleration
- No maximum power

If the control lever is too high:

- Carburetor flooding
- Starting problems
- Poor idling
- Poor transition

Check the pump diaphragm:

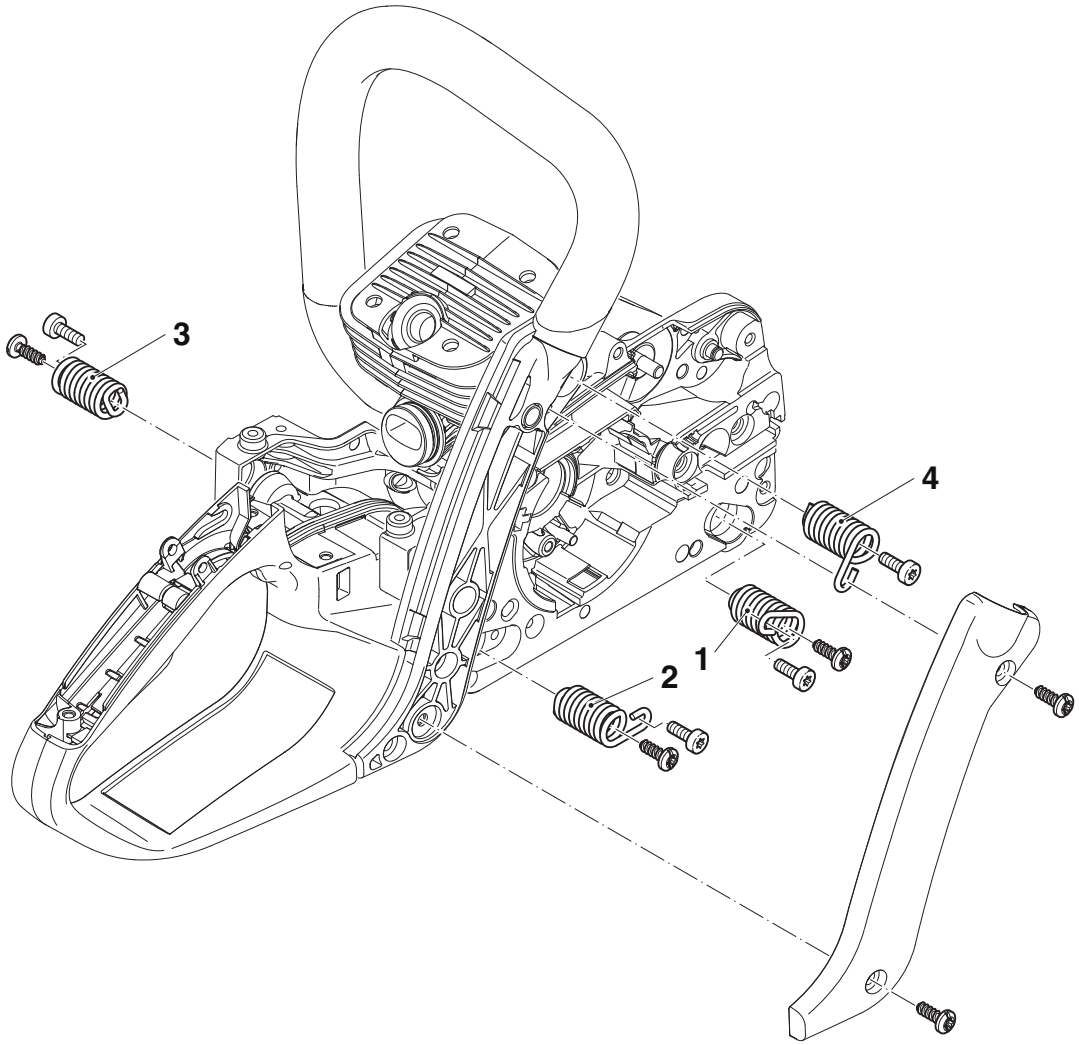
- If pump diaphragm is dented, torn, or creased,
- If valve flaps are bent,

replace the diaphragm and gasket

Check control diaphragm:

- If control diaphragm is bent or torn, or there is obvious wear at the button **8**.
- If it does not return to its original position when pulled out of it,

replace the diaphragm and gasket.



Disassembly

Springs 1 and 2

Remove the sprocket guard and chain brake cover, see chap. 01.

Loosen screws with Torx screwdriver (chap. 00 pos. 1) and remove.cushion spring.

Spring 3

Remove starter housing (see chap. 06) and hood (see chap. 07).

Loosen and remove screws with Torx screwdriver (chap. 00 pos. 1).

Pull out cushion spring.

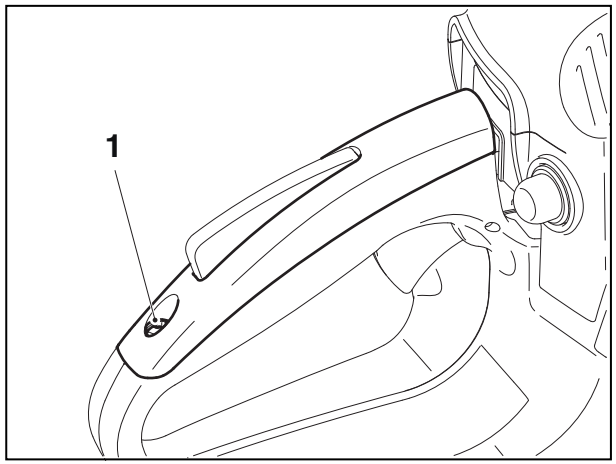
Spring 4

Remove the side brace cover.

Loosen and remove screw with Torx screwdriver (chap. 00 pos. 1)

Remove cushion spring. Remove spring retainer.

Note: During assembly, insert spring retainer between the cushion spring and the cylinder.



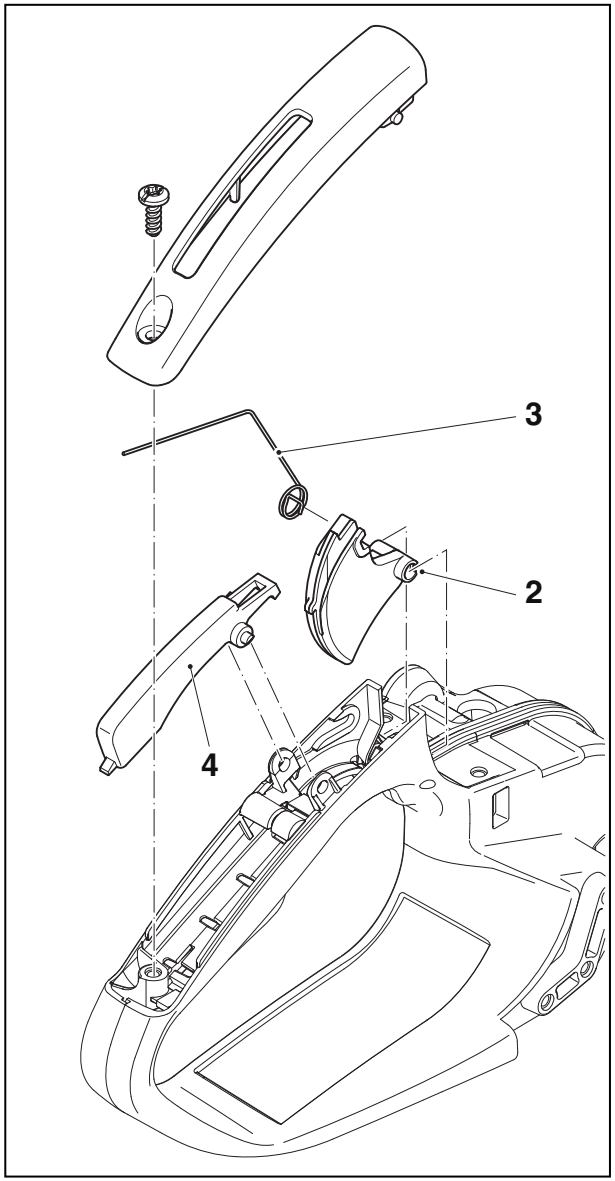
Grip mechanism

Unscrew screw **1** and pull off the top grip half near the screw seat.

Note: When removing the throttle the following must be done:

- Remove intake manifold and carburetor
- Remove hood and carburetor base

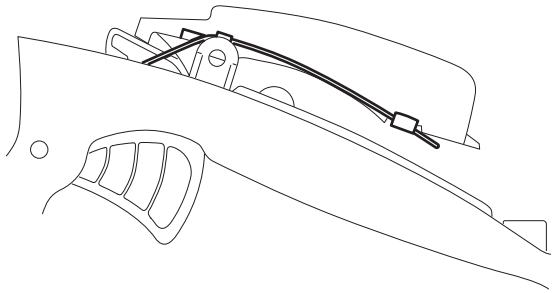
See chapters 07 and 08.



The throttle lever has a slot **2** at the hinge.

In assembly, first place the throttle lever spring **3** on the throttle lever, then push the lever onto the hinge iwth the slot. The throttle lever must be turned by 180° to do this.

The throttle lever block **4** can easily be pushed through the diagonals on the seat. The spring is engaged in the throttle lever as shown below.



Removal

To remove the tank, first remove the hood (see chap. 07), the starter housing (see chap. 06) and the vibration damper.

Before separating the engine unit and the tank, the lateral fastening screws on the front grip will have to be unscrewed.

Pressure test

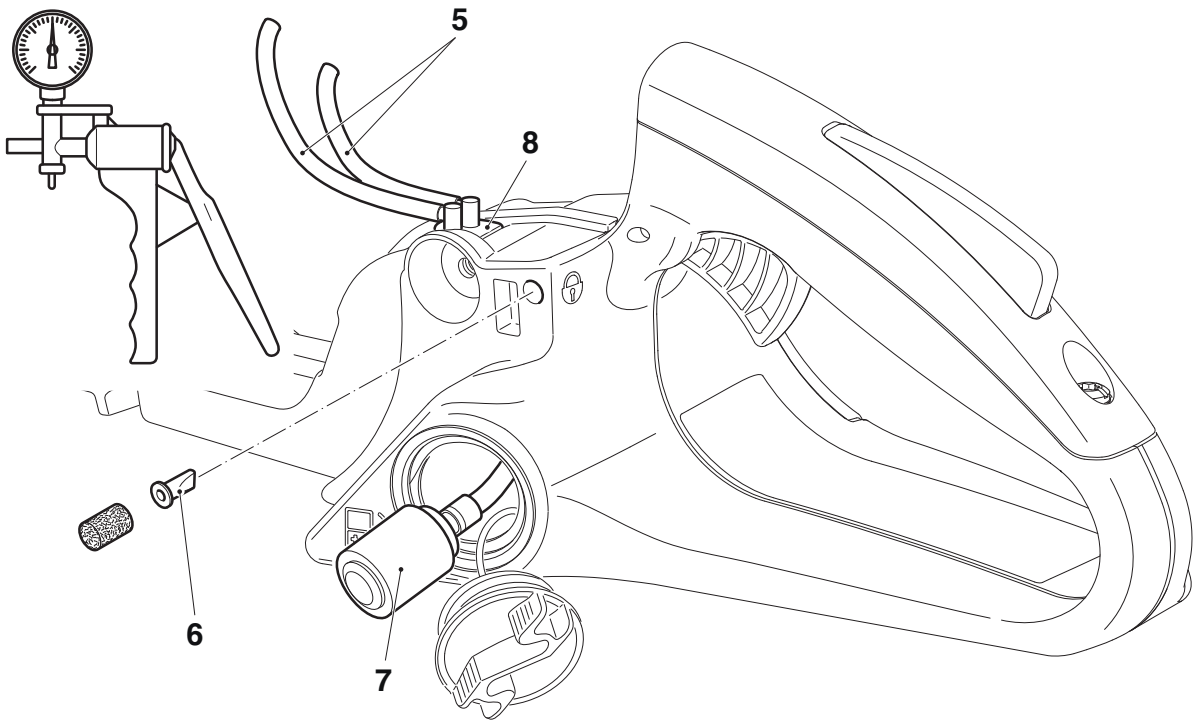
Attach the over/underpressure pump (chap. 00 pos. 13) to one of the two fuel lines **5** . Seal off the second line.

Set up a pressure of max. 0.3 bar.

If the pressure drops off, check the following:

- Air valve
- Bothe fuel lines
- Fuel nipple
- Tank cap seal
- Check tank for holes

Note: Detergent can be used to localise leaks.



Vacuum testing ventilation valve 6

Attach the over/underpressure pump as described.

Close off the installation opening of the air valve with your thumb (dampen it slightly).

Set up a negative pressure of max 0.5 bar.

This negative pressure must not change as long as the opening is sealed. When you take your thumb off the air valve, the negative pressure must quickly return to normal.

Parts

To remove the suction head **7** pull it through the tank opening with a hooked wire.

Note: Do not use pliers,as this may damage the line. Do not pull on the suction head or fuel line, as this can pull off the fuel nipple inside the tank.

Fuel lines **5** can be pulled off the fuel nipple.

Fuel line length:

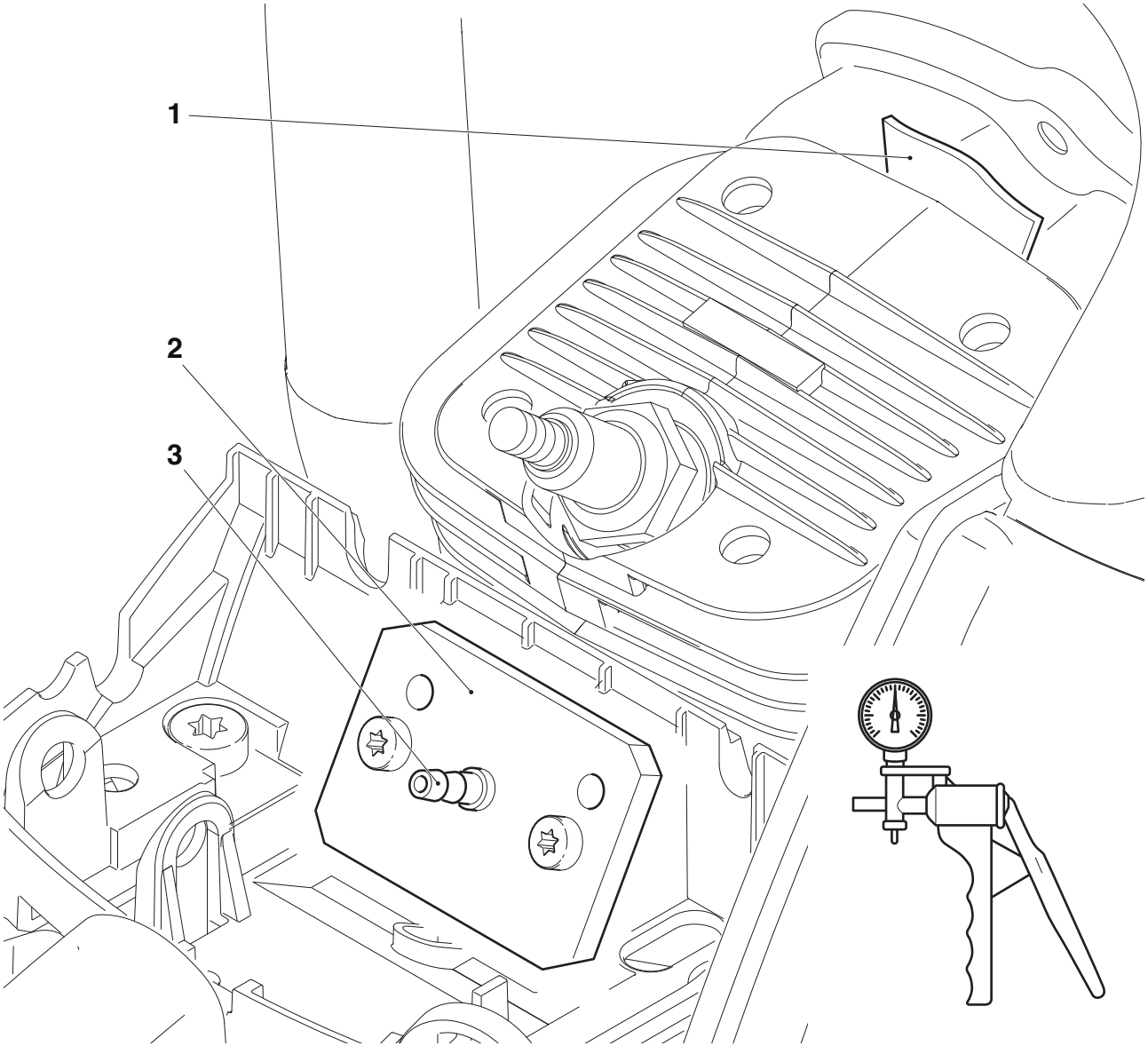
Return L = 118 mm (dia. 2.5/5.5)

Supply L = 93 mm (dia 5.5 / 3)

Carefully lever out fuel nipple **8** with a sharp flat-bladed screwdriver.

Note: Do not lever against the line connections, as this can break them off.

Lever off ventilation valve **6** with a small screwdriver.



Vacuum testing

If correct carburetor setting is not possible, it will be necessary to test the sealing of the engine.

Remove hood (see chap. 07).

Remove carburetor (see chap. 08).

To seal off the exhaust side, insert the sealing lip **1** (chap. 00 pos. 15) between the muffler and the cylinder. First remove the muffler and unscrew the fastening bolt from the cylinder.

To seal off the intake side, install the sealing plate **2** (chap. 00 pos. 14) in the place of the carburetor.

Connect the over/underpressure pump to the connection on the sealing plate **3**.

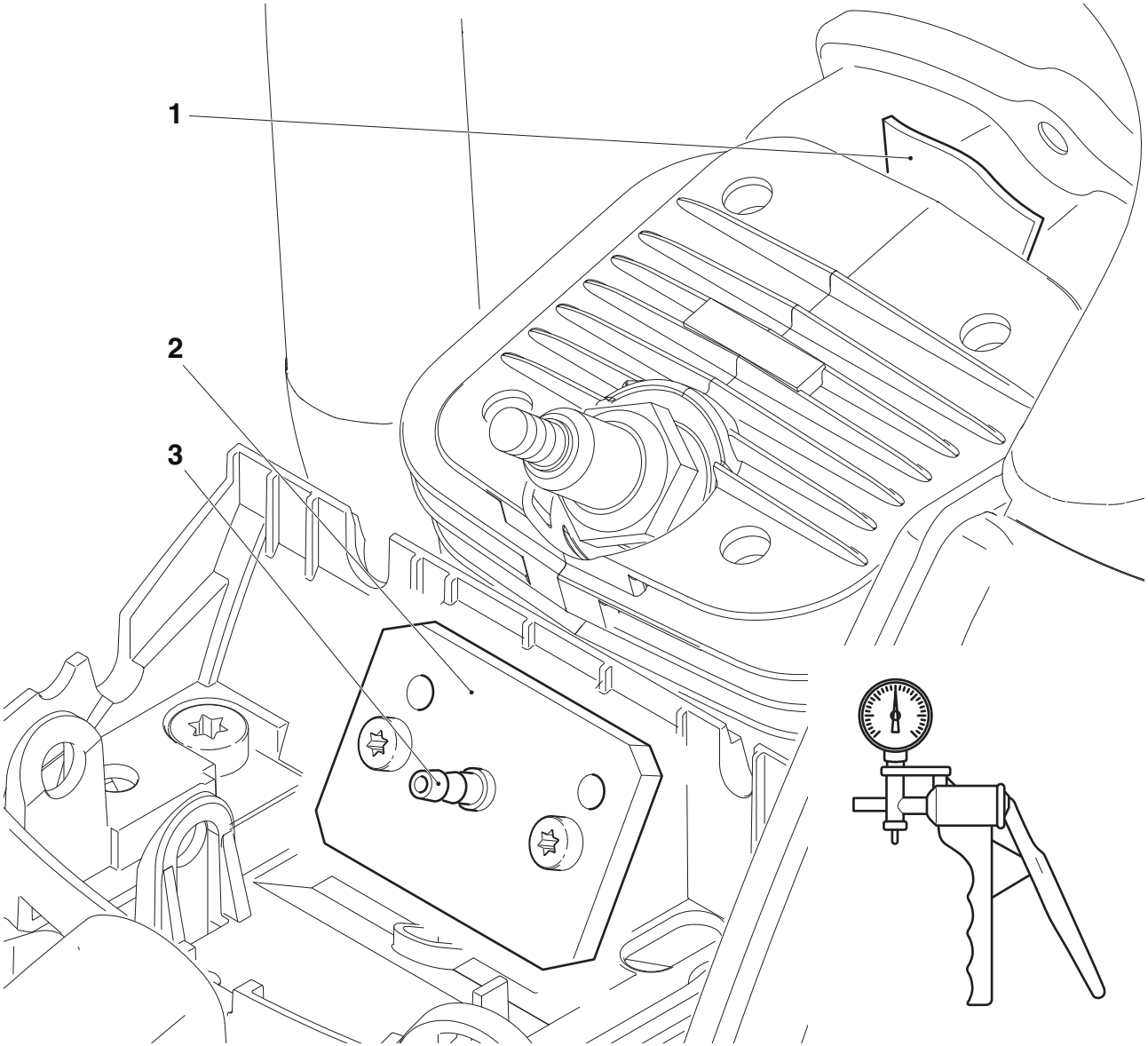
Seal off the pulse line and bring the cylinder to top dead center.

Set up a pressure of max. 0.3 bar.

If the pressure rises within 20 seconds, the following conditions may exist:

- Radial ring leaking
- Cylinder base gasket leaking
- Crankcase gasket leaking
- Crack in crankcase
- Crack in cylinder
- Spark plug leaking
- Rubber intake on cylinder leaking
- Defective pulse line

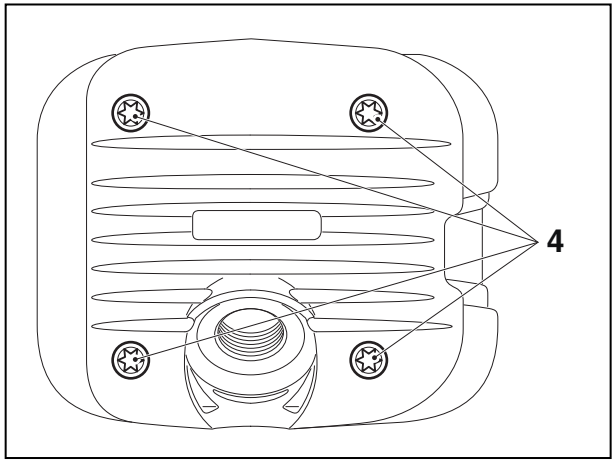
Note: Detergent can be used to localise leaks.



Note: If there is a leak into the oil tank, it will not be possible to fully identify the leak. If pressure remains steady in the crankcase after shutting off the oil line hole, for example with a rubber stopper (see chap. 05), it is an indication that there is a defect in the crankcase gasket to the oil tank.

Always perform sealing tests with underpressure!

If a leak is diagnosed, it can be found using overpressure and detergent or similar liquid.



Removing the cylinder and piston

Disconnect the intake and exhaust sides.

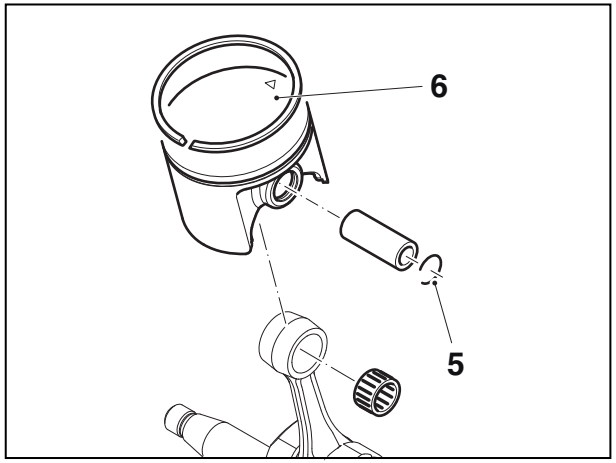
Unscrew the spark plug.

Remove the ignition armature.

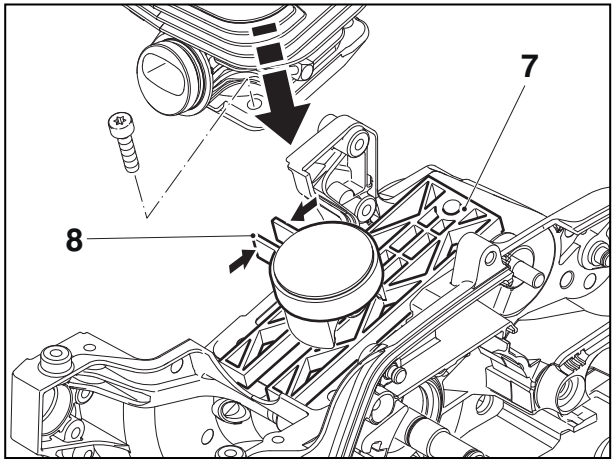
Disassemble the vibration damper between the cylinder and front grip.

Unscrew 4 screws **4** and pull the cylinder up and off.

Note: After pulling off the cylinder **6**, support the piston with the assembly tool (chap. 00 pos. 6).



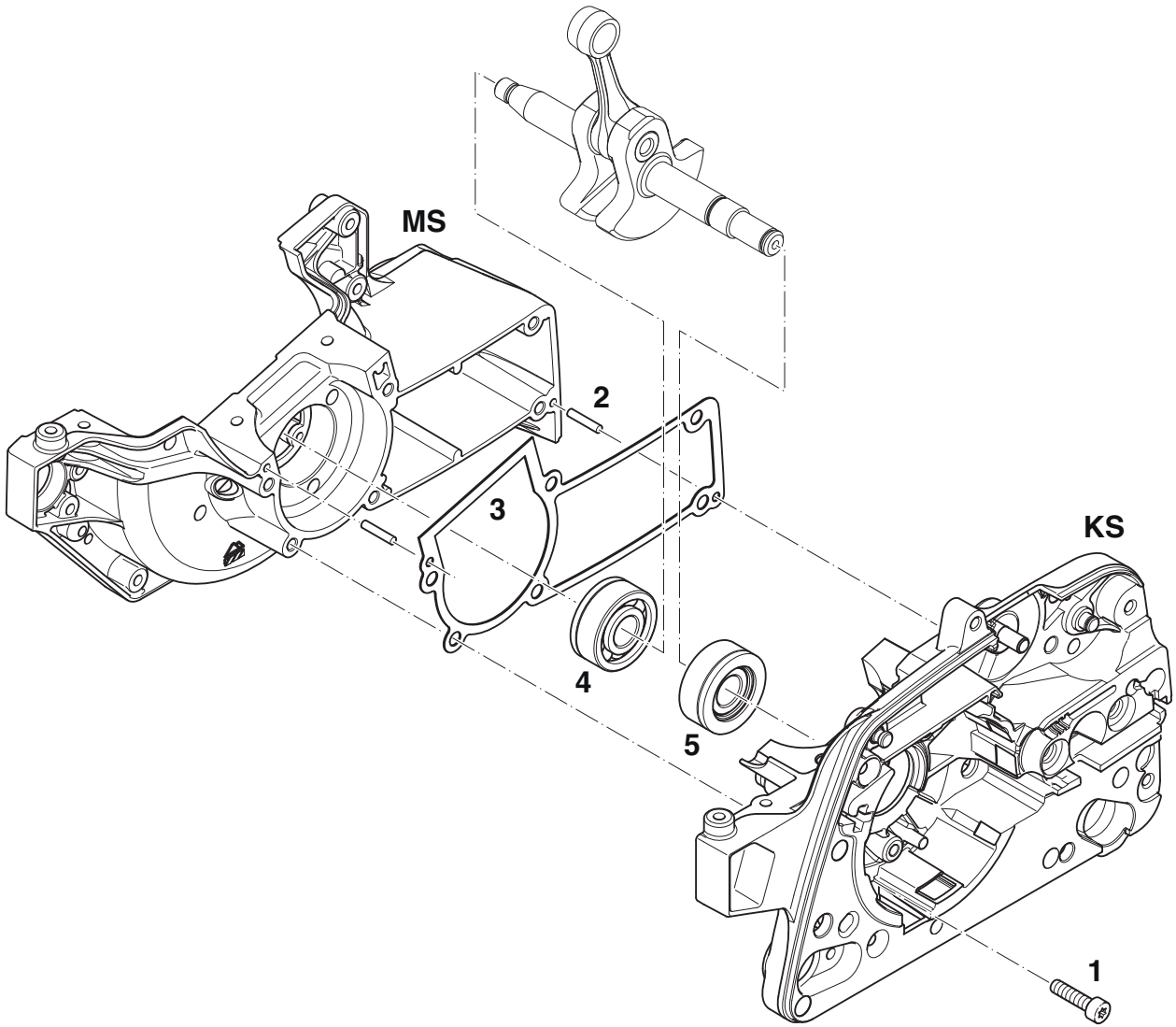
Remove spring ring **5** with needle-nose pliers.



Assembling the cylinder and piston

Use a new gasket!
Note: The protuberance on the gasket must point towards the induction side.
Before assembly, lightly oil the cylinder race and piston!

Push assembly tool **7** under the piston.
Turn the opening on the piston ring towards the piston ring lock.
Use the piston ring tensioner **8** to press the piston ring together.
Push the cylinder onto the piston. Let the piston ring tensioner slide down with it.
Remove the assembly tool and piston ring tensioner and press the cylinder all the way down.
Hand-tighten the screws **4** lightly crosswise, and then tighten to the correct torque, again crosswise.



Crankcase sides **MS** and **CS** are attached with six screws **1**.

Two pins **2** ensure proper fitting.

When assembling the ball bearings, note the following:

- Press one ball bearing onto the clutch side of the crankshaft. Press the bearing onto the shaft using an assembly sleeve, pressing only on the inner bearing ring. Place a wedge between the crank webs.
- Heat the **clutch side** of the crankcase to 150-160° C using a hot-air blower or in an oven. Evenly apply Loctite 620 to the outer ring of the bearing (on the crankshaft), and insert into the heated housing without further pressure.
  Note: Before applying the Loctite 620, degrease both bearings.
- Heat the **magneto side** of the crankcase to 150-160° C using a hot-air blower or in an oven. Evenly apply Loctite 620 to the bearings, and insert into the heated housing without further pressure.
- Reattach the crankcase sides. Place a wedge between the crank webs when pressing.

Always use a new gasket. After bolting the crankcase sides together, cut off the flash **3**. DOLMAR offers complete crankcases with preinstalled bearings as replacement parts.

13 TORQUES

Fastener	Part No.	Size	Qty.	Torque
Crankcase sides	908.405.205	M 5 x 20 Torx	6 x	10 +/-1
Cylinder on crankcase	908.405.205	M 5 x 20 Torx with lock teeth	4 x	12 +/-1
Carburetor bottom on crankcase	908.005.165	M 5 x 16 Torx	2 x	5 +/-0,5
Muffler on cylinder	908.005.165	M 5 x 16 Torx	2 x	8 +/-1
Front shell to muffler	908.005.165	M 5 x 16 Torx	2 x	8 +/-1
Front shell to cylinder	908.305.405	M 5 x 20 x 40 Torx	1 x	8 +/-1
Carburetor / intake manifold in carburetor flange	908.004.405	M 4 x 40 Torx	2 x	3 +/-1
Intake manifold on carburetor bottom	913.455.164	5,5 x 16 Torx	1 x	3 +/-1
Intake manifold to hood	913.455.164	5,5 x 16 Torx	1 x	5 +/-1
Oil pump to crankcase	908.005.165	M 5 x 16 Torx	1 x	5 +/-1
Oil pump cover to crankcase	908.005.165	M 5 x 16 Torx	1 x	5 +/-1
Clutch to crankshaft	---	M 12 x 1 L with assembly wrench for centrifugal clutch	1 x	35 +/-2,5
Transmission cover chain tensioner to crankcase	915.135.100	BZ 3,5 x 9,5	1 x	1,5 +/-0,2
Mounting bolt in bar flange	195.232.010	M 8 SK 6 / M8	2 x	15 +/-1
Mounting bolt in bar flange	195.232.020	M 8 SK 6 / M8 x 1	1 x	15 +/-1
Sprocket guard mounting	923.208.004	M 8, SW 13, 6KT-nut with flange	2 x	1 +/-0,5
Chain brake cover	908.105.126	M 5 x 12 Torx	2 x	5 +/-0,5
Ignition mounting in crankcase	908.805.205	M 5 x 20 Torx	2 x	5 +/-0,5
Flywheel nut fastening	920.308.024	M 8 x 1 / SW 13	1 x	25 +/-1
Starter housing to crankcase	908.005.165	M 5 x 16 Torx	4 x	5 +/-0,5
Hood	908.005.165	M 5 x 16 Torx	3 x	5 +/-0,5
Handguard bearing to magneto side	908.005.165	M 5 x 16 Torx	1 x	5 +/-0,5
Grip/rear handle to tank	913.455.164	5,5 x 16 Torx	1 x	3 +/-1
Front handle on tank, side	913.455.164	5,5 x 16 Torx	2 x	5 +/-1
Front handle on tank, bottom	913.455.164	5,5 x 16 Torx	2 x	5 +/-1
Front handle side cover on tank	913.455.164	5,5 x 16 Torx	2 x	3 +/-1
Damping spring fastening on cylinder	908.005.165	M 5 x 16 Torx	1 x	5 +/-0,5
Damping spring / tank, mag. side rear	913.455.164	5,5 x 16 Torx	1 x	5 +/-1
Damping spring / tank, cyl. side front	913.455.164	5,5 x 16 Torx	1 x	5 +/-0,5
Damping spring cylinder / handle side cover	913.455.164	5,5 x 16 Torx	1 x	5 +/-0,5
Damping spring / crankcase, mag. side	908.005.165	M 5 x 16 Torx	1 x	5 +/-0,5
Damping spring / crankcase, cyl. side	908.005.165	M 5 x 16 Torx	2 x	5 +/-0,5
Damping spring / crankcase, cyl. side	908.005.165	M 5 x 16 Torx	2 x	5 +/-0,5
Spark plug	965.603.021	M 14 x 1,25 / SW 19	1 x	15 +/-5
Pawls to magnet wheel	170.166.041	--	2 x	8 +/-1
Mounting bolt TLC	195.232.040	--	1 x	10 +/-1