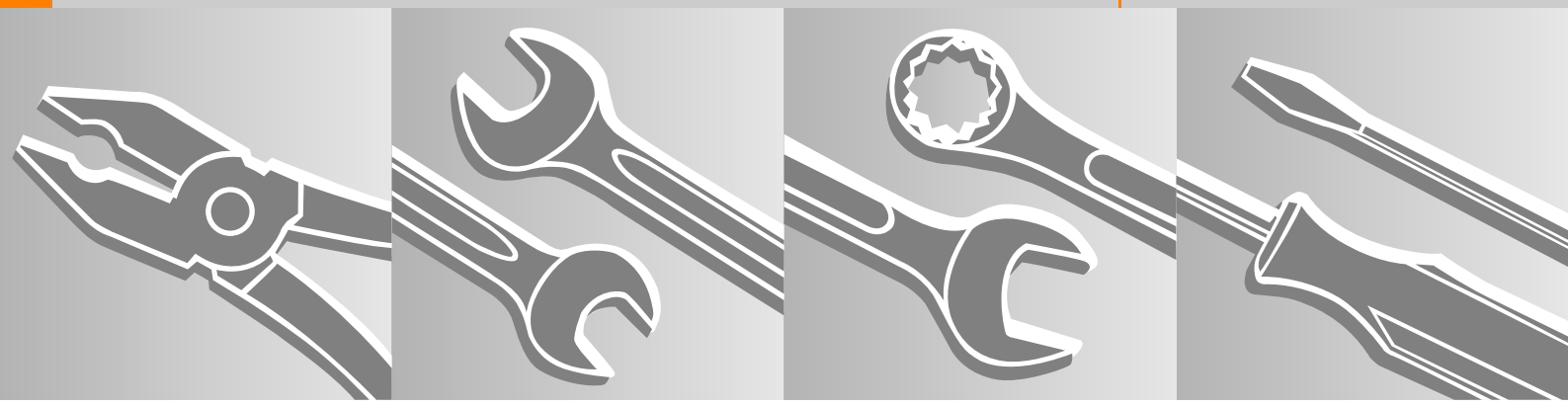
STIHL TS 700, 800

2006-01



Contents

STIHL®

This service manual contains detailed descriptions of all the typical repair and servicing procedures for this cut-off machine series.
Service procedures on standardized parts and assemblies which are used in several STIHL power tool series are summarized in separate service manuals. Reference is made to these at the appropriate points in this manual.

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 parts list to check the part numbers of any replacement 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 function 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 parts list and service manual until an updated edition is issued.

The special tools mentioned in the descriptions are listed in the chapter "Special tools" of this manual. Use the part numbers to identify the tools in the STIHL Special Tools manual.
It lists all the special servicing tools currently available from STIHL.

To help you use this manual and understand it more clearly, the text and illustrations are marked by graphic symbols as follows:

In the text:

● = Action to be taken as shown in the illustration above the text

– = Action to be taken but not shown in the illustration above the text

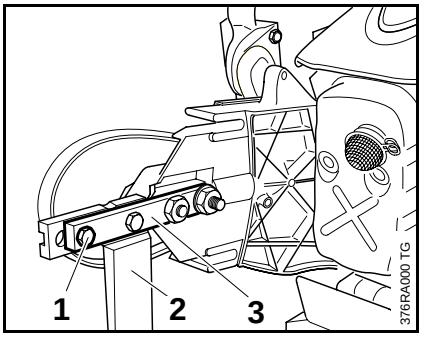
In the illustrations:

➨ Item pointer (short)

➡ Direction of movement (long arrow)

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

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 clamp (3) 5910 890 2000 is used to mount the machine on assembly stand (2) 5910 890 3100 so that one clamp screw engages the inner 10 mm hole (1) in the assembly stand.

To service the underside of the machine (e.g. remove the front handle), turn the machine upside down and mount it so that one clamp screw engages the outer 10 mm hole (1) in the assembly stand.

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

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.

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

Improper handling may result in burns and other serious injuries.

Important!
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.

3. Specifications

3.1 Power unit

	TS 700, TS 800
Displacement:	98.5 cm^3
Bore:	56 mm
Stroke:	40 mm
Engine power to ISO 7293:	5.0 kW (6.8 HP) at 9300 rpm
Nominal spindle speed	4620 rpm
Idle speed:	2200 rpm
Clutch:	Centrifugal clutch without linings
Clutch engages at:	3200 rpm
Crankcase leakage test	
at excess pressure:	$p_ü$ = 0.5 bar
under vacuum:	p_u = 0.5 bar

3.2 Fuel system

Carburetor leakage test at excess pressure:	$p_ü$ = 0.8 bar
Operation of tank vent at excess pressure:	$p_ü$ = 0.3 bar
Fuel:	as specified in instruction manual

3.3 Ignition system

Air gap between ignition module and fanwheel:	0.15...0.3 mm
Spark plug (interference suppressed):	Bosch WSR 6F NGK BPMR 7 A
Electrode gap:	0.5 mm

3.4 Abrasive wheels

TS 700		
Composite and diamond abrasive wheels	Diameter	350 mm
	Cutting depth	approx. 123.5 mm
TS 800		
Composite and diamond abrasive wheels	Diameter	400 mm
	Cutting depth	approx. 143 mm

3.5 Special accessories

Cart FW 20
Cutting direction indicator
Water container kit
Pressurized water container kit

3.6 Tightening torques

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)	Remarks
Screw	IS-M 5x20	Starter cover / crankcase	6.0	
Screw	IS-M 5x58x22	Clamp / handlebar holder	5.0	
Screw	IS-P 4x14	Bearing, switch shaft / tank housing	2.5	
Screw	IS-M 5x21	Filter cover and spark plug cover	3.5	
Screw	IS-M 5x20	Crankcase	9.0	
Nut	M5	Filter base / carburetor	3.5	
Screw	IS-M 5x16	Cover, tensioner / cast arm	4.0	
Screw	IS-P 6x19	Handlebar / tank housing	6.0	
Screw	IS-M 5x20	Air guide shroud / crankcase	4.0	
Screw	IS-M 5x20	Muffler / crankcase	10.0	1)
Screw	IS-M 5x20	Muffler / cylinder	10.0	
Screw	IS-M 4x8	Short-circuit lead / crankcase	3.0	
Screw	IS-P 6x19	Filter base / tank housing	5.0	
Screw	IS-M 5x35x12	Filter housing / filter base	3.0	
Screw	IS-P 5x19	Shroud / tank housing	6.0	
Screw	M 10x1 L	Belt pulley / shaft	40.0	
Screw	IS-M 5x20	Fan cover / crankcase	6.0	
Screw	IS-M 5x20	Starter cover / crankcase	6.0	
Screw	IS-M 6x35	Cylinder / crankcase	12.0	1)
Screw	IS-M 4x10	Cylinder / support plate diaphragm	3.0	1)
Screw	IS-M 5x20	Ignition module / crankcase	8.0	2)
Screw	IS-P 6x32.5	Support / handlebar / tank housing	6.0	
Screw	IS-M 6x16	Holder for shutoff valve / water connection	4.0	
Screw	IS-M 6x35	AV element rubber buffer / front handle	6.0	
Screw	IS-P 6x19	AV element rubber buffer / ignition side	6.0	
Screw	IS-P 6x19	AV element rubber buffer / clutch side	6.0	
Screw	IS-M 5x20	Bearing plug / spring	6.0	
Screw	IS-P 3x6	Rewind spring / starter cover	0.5	
Screw	IS-M 3x20	Hose clip / manifold	0.8	
Screw	IS-D 5x16	Rubber buffer / support	6.0	
Nut	M 10x1	Flywheel	40.0	
Nut	M 10x1	Starter wheel	45.0	
Carrier	M 14x1 L	Clutch	50.0	
	M 14x1.25	Spark plug	28.0	
Nut	M 10x1 L	Belt pulley / bearing	40.0	
Screw	IS-M 6x28	Bearing flange / guard	8.0	
Screw	M 10x18	Thrust washer / abrasive wheel	20.0	
Nut	M 10x18	Abrasive wheel	30.0	
	M 10x1	Decompression valve	14.0	

Remarks:

1) Secure screw with Loctite 270.

2) Place a washer under the screw head.

Note:

Screwdriver speed when used in plastic material: Plastoform screws max. 600 rpm.

4. Troubleshooting
4.1 Clutch

Problem	Cause	Remedy
Abrasive wheel stops under load at full throttle	Clutch shoes badly worn	Install new clutch
	Clutch drum badly worn	Install new clutch drum
Abrasive wheel rotates at idle speed	Idle speed too high	Readjust with idle speed screw **LA** (anticlockwise)
	Clutch springs stretched or fatigued	Replace clutch springs or install new clutch
	Clutch spring hooks broken	Replace clutch springs
Loud noises	Clutch springs stretched or fatigued	Replace all clutch springs
	Deep groove ball bearing on belt pulley damaged	Replace deep groove ball bearing
	Clutch shoe retainer broken	Fit new retainer
	Clutch shoes and carrier worn	Install new clutch

4.3 Ignition system

Important:
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.

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
	Incorrect air gap between ignition module and flywheel	Set air gap correctly
	Flywheel cracked or has other damage or pole shoes have turned blue	Install new flywheel
	Ignition timing wrong, flywheel out of adjustment, key in flywheel has sheared off	Install new flywheel
	Weak magnetization in flywheel - pole shoes have turned "blue"	Install new flywheel
	Irregular spark	Check operation of master control lever and ignition module Faulty insulation on ignition lead or short circuit wire. Use ohmmeter to check ignition lead for break. If break is detected or high resistance measured, fit a new ignition lead Check operation of spark plug Clean the spark plug or replace if necessary
	Crankcase damaged (cracks)	Replace crankcase

Problem	Cause	Remedy
Carburetor floods; engine stalls	Inlet needle not sealing - impurities in valve seat or cone damaged	Remove and clean or replace the inlet needle, clean the fuel tank, pick-up body and fuel line if necessary
	Inlet control lever sticking on spindle	Restore easy movement of inlet control lever
	Helical spring not located on nipple of inlet control lever	Remove the inlet control lever and refit it correctly
	Perforated disc on diaphragm is deformed and presses constantly against the inlet control lever	Fit a new metering diaphragm
	Inlet control lever too high (relative to correct installed position)	Set inlet control lever flush with top edge of housing
Poor acceleration	Idle jet too lean	Turn low speed screw **L** anticlockwise (richer), no further than stop
	Main jet too lean	Turn high speed screw **H** anticlockwise (richer), no further than stop
	Inlet control lever too low (relative to correct installed position)	Set inlet control lever flush with top edge of housing
	Inlet needle sticking to valve seat	Remove inlet needle, clean and refit
	Diaphragm gasket leaking	Fit new diaphragm gasket
	Metering diaphragm damaged or shrunk	Fit new metering diaphragm
	Impulse hose damaged or kinked	Fit new impulse hose

Problem	Cause	Remedy
Engine will not idle, idle speed too high	Throttle shutter opened too wide by idle speed screw **LA**	Reset idle speed screw **LA** correctly
	Oil seals / crankcase leaking	Seal or replace oil seals / crankcase
Engine stops when idling	Idle jet bores or ports blocked	Clean the carburetor
	Idle jet too rich or too lean	Set low speed screw **L** correctly
	Setting of idle speed screw incorrect - throttle shutter completely closed	Reset idle speed screw **LA** correctly
	Small plastic plate in valve jet does not close	Clean or renew valve jet

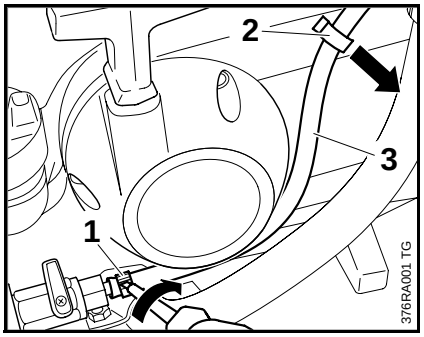
Problem	Cause	Remedy
Engine speed drops quickly under load - low power	Air filter dirty	Clean the air filter
	Throttle shutter not opened fully	Check linkage
	Tank vent faulty	Clean tank vent or replace if necessary
	Fuel pick-up body dirty	Clean the pick-up body, fit a new filter
	Fuel strainers dirty	Replace the fuel strainers
	Leak in fuel line between tank and fuel pump	Seal connections or install a new fuel line
	Setting of high speed screw **H** too rich	Turn the high speed adjusting screw **H** clockwise (leaner) – max. up to the stop.
	Main jet bores or ports blocked	Clean the carburetor
	Pump diaphragm damaged or fatigued	Fit new pump diaphragm
	Impulse hose damaged or kinked	Fit new impulse hose

4.5 Power unit

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

– Air filter
– Fuel system
– Carburetor
– Ignition system

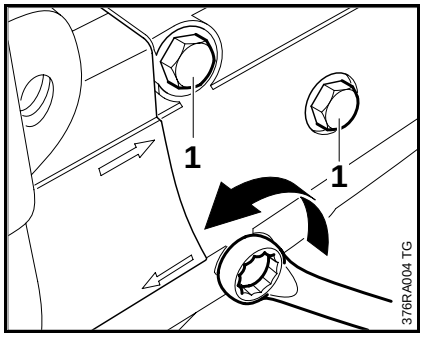
Problem	Cause	Remedy
Engine does not start easily, stalls at idle speed but operates normally at full throttle	Oil seals in crankgear damaged	Replace the oil seals
	Crankcase leaking or damaged (cracks)	Seal or replace the crankcase
Engine does not deliver full power or runs erratically	Piston rings worn or broken	Replace piston rings
	Muffler / spark arresting screen carbonized	Clean the muffler (inlet and exhaust), replace spark arresting screen, replace muffler if necessary
	Air filter dirty	Replace air filter
	Fuel / impulse hose severely kinked or damaged	Fit new hoses and route them without kinks
	Decompression valve sticking	Replace the decompression valve
Engine overheating	Insufficient cylinder cooling. Air inlets in fan housing blocked or cooling fins on cylinder very dirty	Thoroughly clean all cooling air openings and the cylinder fins



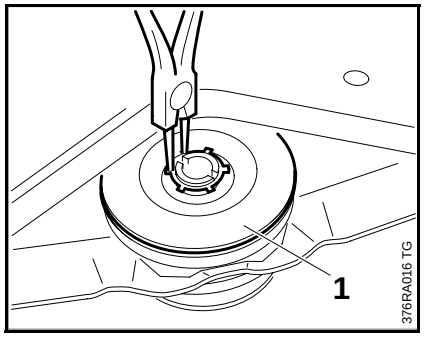
– Test radial and axial truth of running, 🕮 5.2

● Release hose clip (1), remove hose retainer (2) and disconnect hose (3).

During installation, ensure that the hose clip (1) does not touch the handlebar.

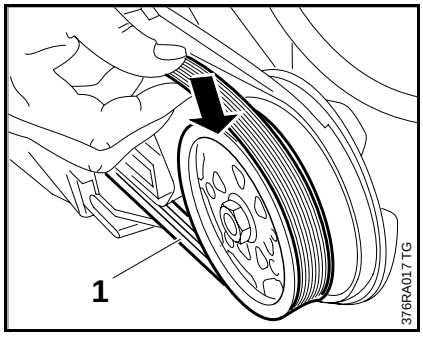


● Remove screws (1) from bearing and remove guard.

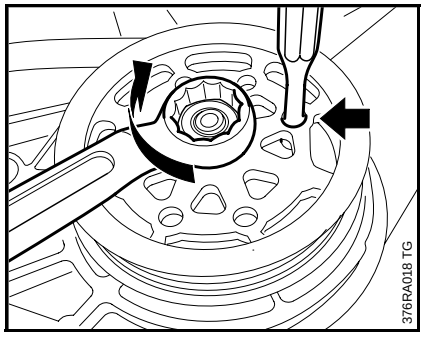


● Remove axial clamping ring from the shaft.

● Remove thrust washer (1).

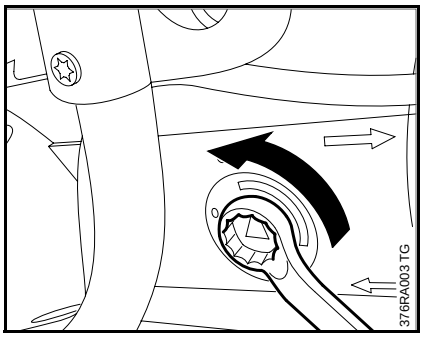


● Unhook the ribbed V-belt (1) from the belt pulley and remove the bearing with guard.

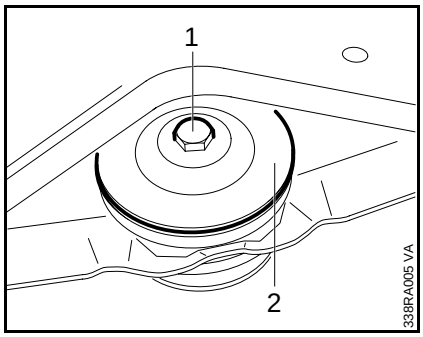


● Block the belt pulley (arrow).

● Unscrew the nut (left-hand thread) and remove the belt pulley.

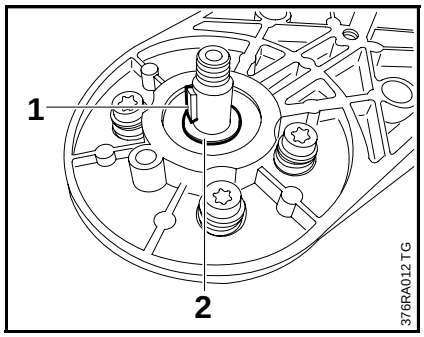


● Relax the ribbed V-belt by turning the hexagon of the tensioner anticlockwise until the arrow points to the left (to "0").



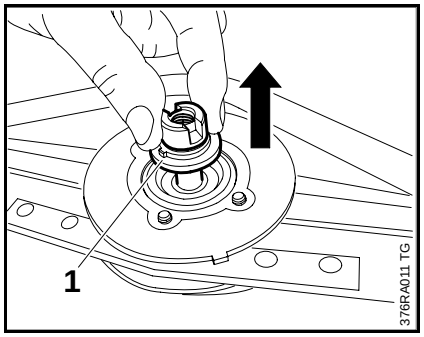
● Remove screw (1) from the thrust washer (2).

– Remove the thrust washer.

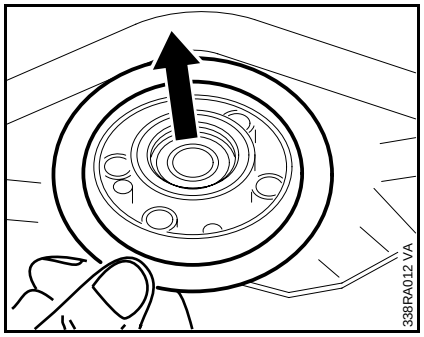


● Remove the key (1) from the groove in the shaft.

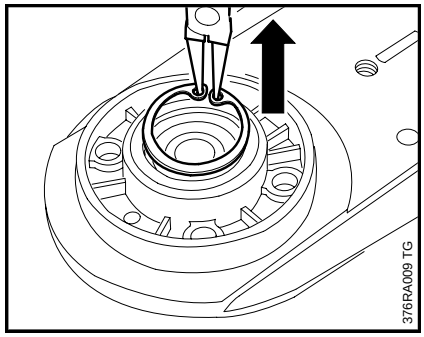
● Remove the washer (2) from the shaft.



● Draw the shaft (1) out of the deep groove ball bearings.

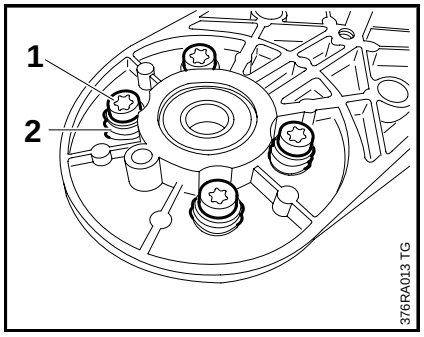


● Remove the washer with rubber ring.

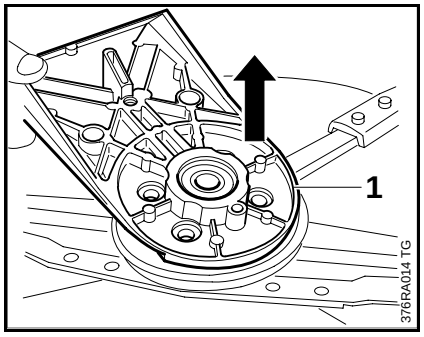


● Remove the circlips in front of the deep groove ball bearings from the grooves on both sides.

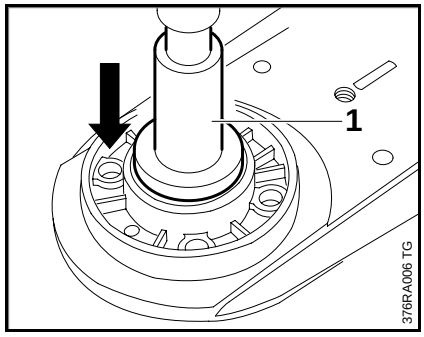
Note:
Use pliers with short rounded tips.



● Unscrew the four screws (1) and remove them with the compression springs (2) and sleeves.

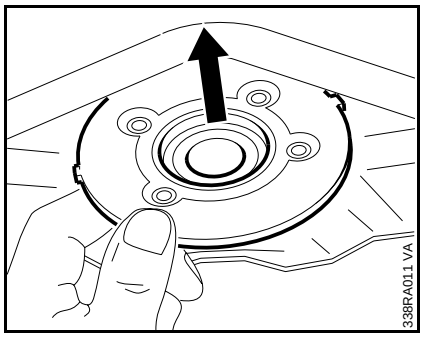


● Pull the bearing (1) out of the rubber ring.

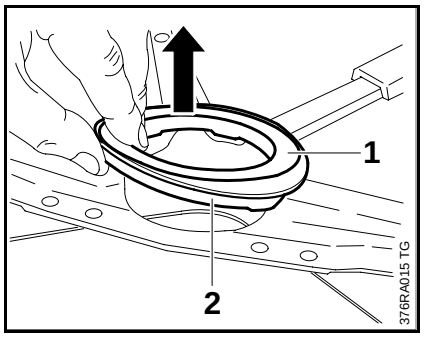


● Press both deep groove ball bearings and the ring out of the bearing with a drift pin (1) 4224 893 7200.

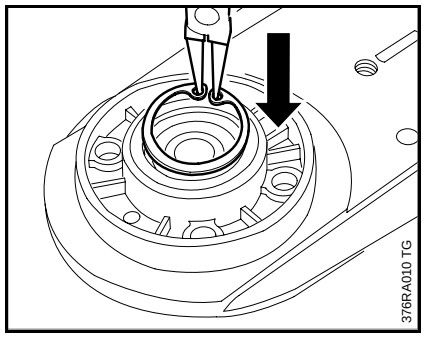
– Reassemble the parts in reverse order.



● Remove the flange.

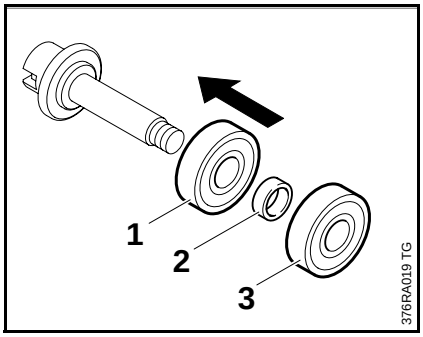


● Remove the washer (1) and rubber ring (2).



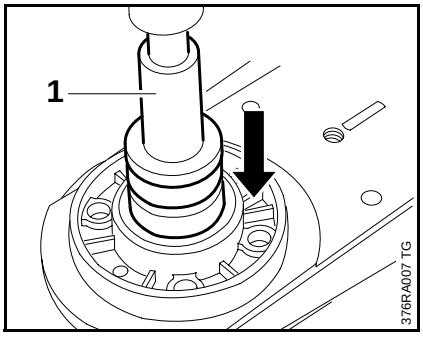
Note:
Particular attention must be paid to the following steps.

● Fit a circlip in a groove in the bearing.



– Align the deep groove ball bearings with the closed sides facing outwards.

● Slide the first deep groove ball bearing (1), the ring (2) and the second deep groove ball bearing (3) onto the shaft.

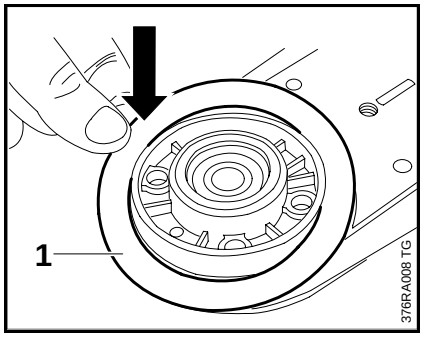


● Position the deep groove ball bearings and press them home with the drift pin (1) 4224 893 7200 until they make contact with the circlip.

– Draw the assembly pin out of the deep groove ball bearings.

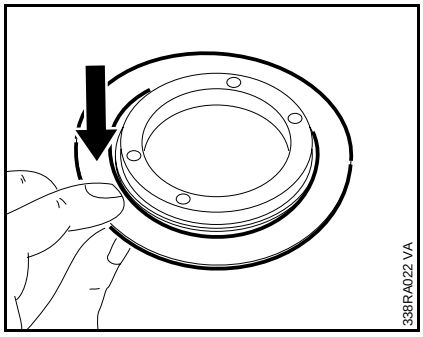
– Fit the second circlip in the groove in the bearing.

Note:
The seal on the deep groove ball bearing must not be damaged.



● Lay the washer (1) over the bearing.

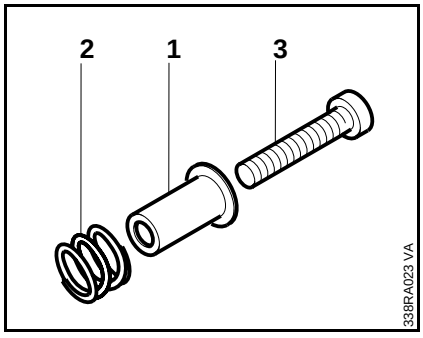
– Insert the bearing in the rubber bearing from the outside.



● Lay a washer over the flange.

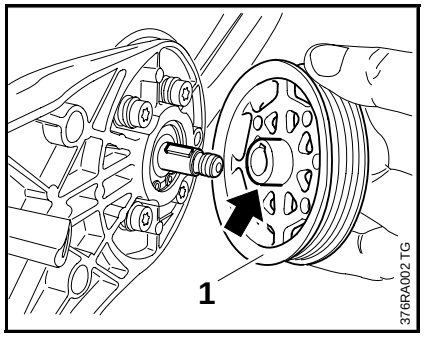
– Insert the flange from the inside.

Note:
The rubber rings must also be aligned with the contours of the guard.



● Slide the sleeve (1) and spring (2) onto the screw (3).

– Insert and tighten down the screws.

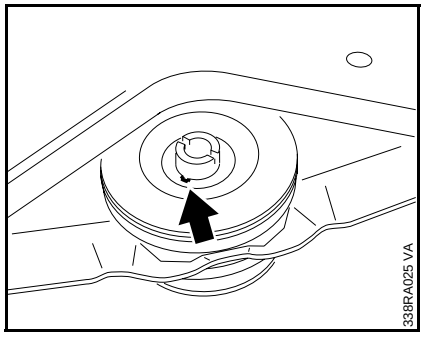


– Slide the washer onto the shaft and fit the key.

● Slide the belt pulley (1) onto the shaft with the longer collar (arrow) first.

– Fit the washer and nut, screw the nut down tightly.

– Tightening torques, 🕮 3.6



● Fit the thrust washer so that the groove (arrow) is aligned with the lug.

– Fit the axial clamping ring.