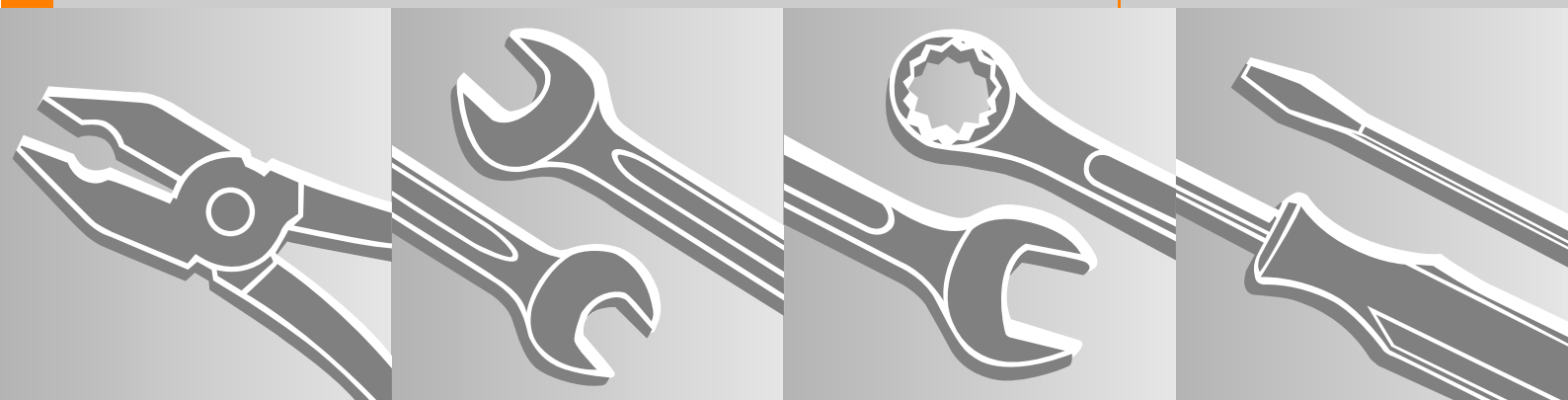


STIHL MS 270, 280

2005-10



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STIHL[®]

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

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

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

A fault on the machine may have several causes. To help locate the fault, consult the troubleshooting charts for all assemblies and systems in this manual and the "STIHL Service Training System".

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

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

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

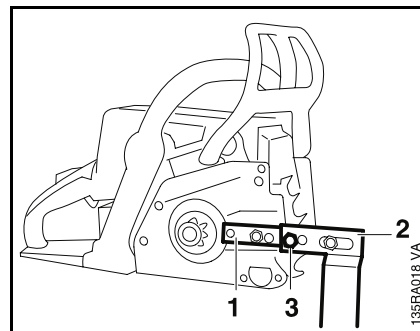
In the descriptions:

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

In the illustrations:

- ➔ Pointer
- ➡ Direction of movement

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



Servicing and repairs are made considerably easier if the clamp (1) 5910 890 2000 is used to mount the machine on assembly stand (2) 5910 890 3100 so that one clamp screw engages the outer 10 mm bore (3) in the assembly stand. The chainsaw can then be swivelled to the best position for the ongoing repair.

To service the underside of the machine, turn it upside down and mount it in the assembly stand.

Pull the hand guard back against the front handle for this purpose.

Always use original STIHL replacement parts.

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

2 Safety Precautions

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

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

Improper handling may result in burns or other serious injuries.

Warning!

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

3.1 Engine

	MS 270	MS 280
Displacement:	49.6 cm ³	54.2 cm ³
Bore:	44.0 mm	46.0 mm
Stroke:	32.6 mm	32.6 mm
Engine power to ISO 7293: at 9,500 rpm	2.6 kW (3.54 HP)	2.8 kW (3.81 HP)
Max. permissible engine speed (with bar and chain):	13,500 ± 150 rpm	13,500 ± 150 rpm
Idle speed:	2,800 rpm	2,800 rpm
Clutch:	Three-shoe centrifugal clutch without linings	Three-shoe centrifugal clutch without linings
Clutch engages at:	3,300 rpm	3,300 rpm
Crankcase leakage test – at gauge pressure:	60 kPa (0.6 bar)	60 kPa (0.6 bar)
– under vacuum:	40 kPa (0.4 bar)	40 kPa (0.4 bar)

3.2 Fuel System

Carburetor leakage test at gauge pressure:	80 kPa (0.8 bar)	80 kPa (0.8 bar)
Tank vent operates at gauge pressure:	30 kPa (0.3 bar)	30 kPa (0.3 bar)
Fuel:	see owner's manual	see owner's manual

3.3 Ignition System

Air gap between ignition module and fanwheel:	0.20 – 0.30 mm	0.20 – 0.30 mm
Spark plug (resistor type):	NGK BPMR 7A	NGK BPMR 7A
Electrode gap:	0.5 mm	0.5 mm

3.4 Chain Lubrication

Fully automatic speed-controlled oil pump with rotary piston		
Oil delivery rate:	10 cc/min at 10,000 rpm	10 cc/min at 10,000 rpm

3.5 Tightening Torques

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

For this reason **always use a torque wrench.**

Fastener	Thread size	For component	Torque Nm	Remarks
Spline screw	IS-M4x8	Cover plate, chain tensioner/crankcase	3.0	1)
Countersunk screw	IS-PT4x12	Cover plate/chain sprocket cover	2.5	2)
Spline screw	IS-B3.9x13	Cover plate/fan cover	1.5	
Spline screw	IS-M8x22	Brake band/crankcase	10.0	3)
Spline screw	IS-P4x10	Brake cable, support/tank housing	1.0	4)
Collar screw	IS-M10/M8	Guide bar/crankcase	30.0	2) 5) 6)
Collar screw	IS-M8x21.5	Guide bar/crankcase	23.0	7) 3) 8)
Spline screw	IS-DG4x16	Cover/crankcase	3.0	
Decompression valve	IS-M10x1	Decompression valvel	14.0	
Collar nut	M5	Filter base/baffle/carburetor	5.0	
Spline screw	IS-B4.2x9.5	Screen/muffler	2.0	9)
Spline screw	IS-DG5x24	Hand guard, sleeve/fan cover	4.0	
Spline screw	IS-DG5x24	Shroud/crankcase	4.5	
Spline screw	IS-DG5x24	Shroud/fan housing	4.5	
Spline screw	IS-DG5x18	Chain catcher/crankcase	9.0	
Spline screw	IS-DG5x18	Spiked bumper/crankcase	9.0	
Spline screw	IS-DG5x24	Fan cover/fan housing	4.0	

Remarks:

- 1) Special accessory
- 2) Only machines with quick chain adjuster
- 3) Secure screw with Loctite 243
- 4) Only machines with QuickStop Super
- 5) Secure screw with Loctite 270
- 6) With quick chain adjuster
- 7) Only machines without quick chain adjuster
- 8) Without quick chain adjuster
- 9) Only muffler with spark arresting screen

Fastener	Thread size	For component	Torque Nm	Remarks
Spline screw	IS-DG5x24	Fan housing/crankcase	9.0	
Spline screw	IS-DG5x24	Fan housing/bearing plug	4.0	
Clutch carrier	M12x1L	Carrier/crankshaft	50.0	
Spline screw	IS-DG5x18	Muffler/cylinder	9.0	
Nut	M8x1	Flywheel/crankshaft	28.0	
Pan head screw	M4x8	Inner side plate	3.0	1)
Collar screw	M8SK6	Dihedral sleeve/crankcase/bar guide	30.0	1) 6)
Spline screw	IS-M5x28	Cylinder/crankcase	9.0	
Spark plug	M14x1.25	Spark plug	25.0	
Spline screw	IS-DG4x20	Ignition module/cylinder	4.0	
Spline screw	IS-DG4x16	Oil pump/crankcase	3.0	

Remarks:

- 1) Only machines with quick chain adjuster
- 6) Secure screw with Loctite 270

Screws secured with adhesive are easier to loosen if the adhesive is heated first with a hot air blower.
Exercise caution on polymer components.

Use the following procedure to fit a P (Plastoform) screw in an existing thread:

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

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

Power screwdriver speed setting for polymer:

- P screws: max. 500 rpm

4 Troubleshooting Chart
4.1 Clutch, Chain Drive, Chain Brake, Chain Tensioner

Condition	Cause	Remedy
Saw chain stops under load at full throttle	Clutch shoes badly worn	Replace clutch shoes or install new clutch
	Clutch drum badly worn	Install new clutch drum
	Brake band stuck	Check freedom of movement and function of brake band. If necessary, adjust brake cable of QuickStop Super (option)
	QuickStop Super brake cable broken (option)	Replace the brake cable
Saw chain rotates at idle speed	Engine idle speed too high	Readjust with idle speed screw (counterclockwise)
	Clutch springs stretched or fatigued	Replace the clutch springs
	Clutch spring hooks broken	Replace the clutch springs
Loud noises	Clutch springs stretched or fatigued	Replace all clutch springs
	Needle cage damaged	Fit new needle cage
	Clutch shoe retainer broken	Fit new retainer
	Clutch shoes and carrier worn	Install new clutch
Chain sprocket wears rapidly	Chain not properly tensioned	Tension chain as specified
	Wrong chain pitch	Fit chain of correct pitch



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