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1. Introduction

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

As the design concept of models MS 341 and MS 361 is almost identical, the descriptions and servicing procedures in this manual generally apply to both models. Differences are described in detail.

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

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

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

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 which lists all the special servicing tools currently available from STIHL.

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

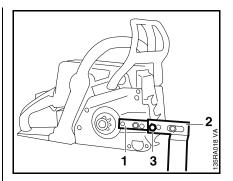
In the descriptions:

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

In the illustrations:

- ➡ Pointer
- Direction of movement
- 🛄 4.2
 - Reference to another chapter, i.e. chapter 4.2 in this example.

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



Servicing and repairs are made considerably easier if the 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 hole (3) in the assembly stand.

To service the underside of the machine (e.g. remove the front handle), turn it upside down and mount it so that one clamp screw engages the inner 10 mm hole 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 **S**. 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 countryspecific safety regulations as well as the safety precautions and warnings in the instruction 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 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 Engine

	MS 341	MS 361
Displacement:	59.0 cm ³	59.0 cm ³
Bore:	47 mm	47 mm
Stroke:	34 mm	34 mm
Engine power to ISO 7293:	3.1 kW (4.1 bhp) at 9,500 rpm	3.4 kW (4.6 bhp) at 9,500 rpm
Max. permissible engine speed		
with bar and chain:	13,500 rpm	14,000 rpm
Idle speed:	2,800 rpm	
Clutch:	Centrifugal clutch without lining	gs
Clutch engages at:	3,500 rpm	
Crankcase leakage test		
at gauge pressure:	0.5 bar	
under vacuum:	0.5 bar	

3.2 Fuel System

	arburetor leakage test t gauge pressure:	0.8 bar
	peration of tank vent at auge pressure:	0.3 bar
F	uel:	as specified in instruction manual

3.3 Ignition System

0.15 – 0.3 mm
Bosch WSR 6F NGK BPMR 7 A
0.5 mm

3.4 Chain Lubrication

Fully automatic, speed-controlled oil pump with rotary piston

Oil delivery rate:

5.5 – 15 cm³ at 10,000 rpm

DG screws are used in polymer and light metal components. These screws form a permanent thread when they are installed for the first time. They can be removed and installed as often as necessary without impairing the strength of the screwed assembly, providing the specified tightening torque is observed. For this reason it is **essential to use a torque wrench**.

Fastener	Thread size	For component	Torque	Remarks
			Nm	
Screw	IS-M4x8	Chain tensioner cover plate/crankcase	3.0	
Screw	IS-M4x12	Brake band/crankcase	3.0	1)
Screw	IS-P4x10	Brake cable retainer/tank housing	1.5	6)
Collar screw	IS-M8x21.5	Collar screw for guide bar	23.0	1)
Screw	IS-M4x12	Cover, chain brake/crankcase	3.0	
	IS-M10x1	Decompression valve	14.0	
Screw	IS-B4.2x9.5	Spark arresting screen/muffler	2.0	
Screw	IS-M4x12	Generator	3.0	1)5)
Screw	IS-P5x16	Front handle/plug, AV spring	4.0	
Screw	IS-P6x19	Front handle/plug, AV spring	7.0	5)
Screw	IS-P6x21.5	Front handle/tank housing, top right	8.0	3)
Screw	IS-P6x32.5	Front handle/tank housing, top right	6.0	4)
Screw	IS-P6x19	Front handle/tank housing, bottom	8.0	3)
Screw	IS-P6x21.5	Front handle/tank housing, bottom	6.0	4)
Screw	IS-M5x35	Handschutz/fan housing/crankcase	6.0	
Nut	M5	Shroud/stud, cylinder	3.0	
Screw	IS-P6x21.5	Chain catcher/crankcase/bearing plug	6.0	
Screw	IS-M5x16	Spiked bumper/crankcase	8.0	
Screw	IS-M5x12	Spiked bumper/crankcase/lock nut	8.0	
Screw	IS-M5x25	Crankcase, sprocket side/fan side	10.0	
Screw	IS-M5x16	Bearing plug/cylinder	10.0	2)
Screw	IS-M5x20	Fan housing/crankcase	6.0	-
Carrier	M12x1L	Carrier/crankshaft	50.0	

Remarks:

- 1) Loctite 243, medium strength
- 2) Loctite 270, high strength
- 3) aluminium
- 4) polymer
- 5) only version with handle heating
- 6) only version with QuickStop Super

Fastener	Thread size	For component	Torque	Remarks
			Nm	
Screw	IS-M4x16	Annular buffer/crankcase	3.5	1)
Collar screw	IS-P6x27	Annular buffer/tank housing	6.0	
Screw	IS-M5x16	Muffler/crankcase	9.0	2)
Screw	IS-M5x16	Muffler/cylinder	10.0	
Nut	M12x0.75	Switch/handle housing		5)
Nut	M8x1	Flywheel/crankshaft	28.0	
Screw	IS-M4x8	Side plate/crankcase	3.0	
Screw	IS-M5x8.5	Stud/cylinder	1.4	2)
Collar nut	M5	Carburetor/collar screw	3.5	
Screw	IS-M5x25	Cylinder/crankcase	10.0	
	M14x1.25	Spark plug	25.0	
Screw	IS-M5x20	Ignition module/crankcase	8.0	
Screw	IS-M4x12	Oil pump/crankcase	3.0	

Remarks:

1) Loctite 243, medium strength

2) Loctite 270, high strength

5) Version with handle heating only

Use the following procedure when refitting a DG screw in an existing thread:

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

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

Note:

Power screwdriver setting for polymer: DG screws max. 500 rpm

4. 4.1

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

Condition	Cause	Remedy
Saw chain stops under load at full throttle	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	Engine idle speed too high	Readjust with idle speed screw (LA) (counterclockwise)
	Clutch springs stretched or fatigued	Replace the clutch springs or install new clutch
	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
	Insufficient chain lubrication	Check chain lubrication
	Chain sprocket worn	Fit new chain sprocket

Condition	Cause	Remedy
Starter rope broken	Rope pulled out too vigorously as far as stop or over edge, i.e. not vertically	Fit new starter rope
	Normal wear	Fit new starter rope
Starter rope does not rewind	Rewind spring broken	Fit new rewind spring
	Spring overtensioned – no reserve when rope is fully extended	Fit new rewind spring
	Very dirty or corroded	Clean or replace rewind spring
Starter rope can be pulled out almost without resistance (crankshaft does not turn)	Guide peg on pawls or pawls themselves are worn	Fit new pawls
	Spring clip fatigued	Fit new spring clip
Starter rope is difficult to pull and rewinds very slowly	Starter mechanism is very dirty	Thoroughly clean complete starter mechanism
	Lubricating oil on rewind spring becomes viscous at very low outside temperatures (spring windings stick together)	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

4.3 Chain Lubrication

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

Condition	Cause	Remedy
Chain receives no oil	Oil tank empty	Fill up with oil
	Oil inlet hole in guide bar is blocked	Clean oil inlet hole
	Intake hose or pickup body clogged or intake hose ruptured	Fit new intake hose and pickup body
	Sealing ring between oil pump and crankcase faulty	Remove oil pump, fit new sealing ring and reinstall pump
	Valve in oil tank blocked	Clean or replace valve
	Teeth on pump piston and/or worm worn	Install new oil pump
Machine losing chain oil	Sealing ring between oil pump and crankcase faulty	Remove oil pump, fit new sealing ring and reinstall pump
	Oil pump damaged or worn	Install new oil pump
Oil pump delivers insufficient oil	Adjusting screw and/or control edge on pump piston worn	Fit new adjusting screw and/or oil pump
	Oil pump worn	Install new oil pump

Warning! 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!

Condition	Cause	Remedy
Engine runs roughly, misfires, temporary loss of power	Spark plug boot is loose	Press boot firmly onto spark plug and fit new spring if necessary
	Spark plug sooted, smeared with oil	Clean 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
	No spark	Check operation of Master Control lever and ignition module
	No spark	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. Inspect Master Control lever, ignition coil/lead for damage insulation and leakage current	Clean or replace spark plug, replace faulty parts of ignition system
	Crankcase damaged (cracks)	Replace crankcase

Condition	Cause	Remedy
Carburetor floods; engine stalls	Inlet needle not sealing. Foreign matter in valve seat or cone damaged	Remove and clean or replace the inlet needle, clean the fuel tank, pickup body and fuel line if necessary
	Inlet control lever sticking on spindle	Free off 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	Rotate low speed screw (L) counterclockwise (richer), no further than stop
	Main jet too lean	Rotate high speed screw (H) counterclockwise (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

Condition	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 stalls at idle speed	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 (LA) incorrect – throttle shutter completely closed	Set idle speed screw (LA) correctly
	Small plastic plate in valve jet does not close	Clean or renew valve jet

Condition	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 pickup body dirty	Clean the pickup 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	Rotate high speed screw (H) clockwise (leaner), no further than 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

Engine 4.6

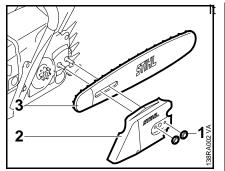
Always check and, if necessary, repair the following parts before looking for faults on the engine:

- Air filter
- Fuel systemCarburetor
- Ignition system

Condition	Cause	Remedy
Engine does not start easily, stalls at idle speed, but operates normally at full throttle	Oil seals in crankcase damaged	Replace the oil seals
	Crankcase leaking or damaged (cracks)	Seat 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 element dirty	Replace air filter element
	Fuel / impulse hose severely kinked or damaged	Fit new hoses or position them free from 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

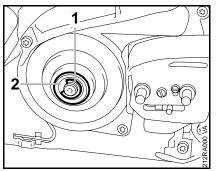
5. Clutch, Chain Drive, Chain Brake and Chain Tensioner

5.1 Clutch Drum / Chain Sprocket

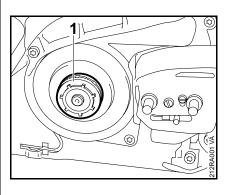


Wear work gloves to protect your hands from injury.

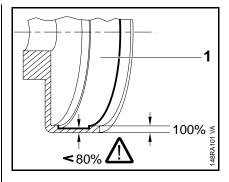
- Unscrew the hex nuts (1).
- Remove the chain sprocket cover (2).
- Remove the bar (3) and chain.



- Remove the E-clip (1).
- Remove the washer (2).



• Remove the rim sprocket (1).

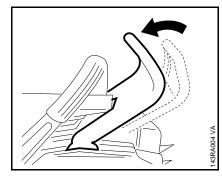


• Inspect the clutch drum (1).

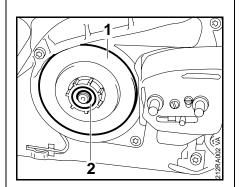
If there are signs of serious wear on the inside diameter of the clutch drum (1), check the remaining wall thickness. If it is less than about 80% of the original thickness, fit a new clutch drum.

If the clutch drum has to be replaced, also check the brake band - \square 5.5.1 or 5.5.2.

Reassemble in the reverse sequence.



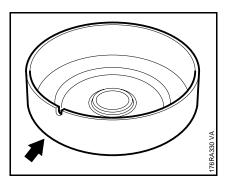
• Disengage the chain brake by pulling the hand guard towards the front handle.



- Remove the clutch drum (1) with needle cage (2).
- Examine the needle cage for signs of damage.

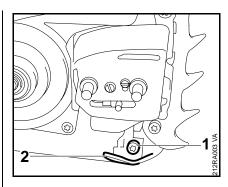
5.2 Replacing the Chain Catcher

5.3 Spiked Bumper



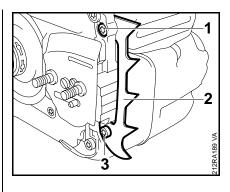
Clean stub of crankshaft. Wash needle cage, examine it for damage and replace if necessary. Lubricate needle cage with STIHL multipurpose grease – \square 16.

 Rotate clutch drum/chain sprocket and apply slight pressure at the same time until the oil pump drive spring engages the notch (see arrow).



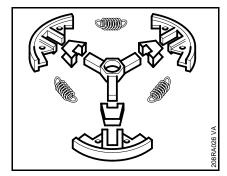
- Remove the chain sprocket cover
 1 5.1
- Take out the screw (1).
- Remove the chain catcher (2).

Reassemble in the reverse sequence.



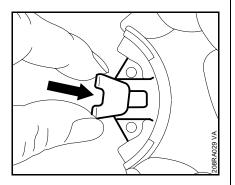
- Hold the self-locking nut steady and take out the screw (1).
- Take out the screw (3).
- Remove the spiked bumper (2).

Reassemble in the reverse sequence.

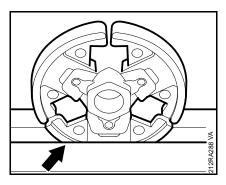


- Clean all parts 🛄 16.
- Replace any damaged parts.

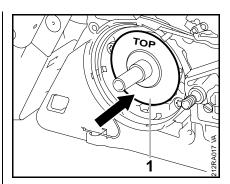
Assembling the clutch



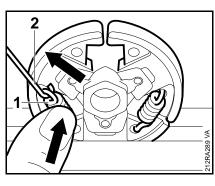
• Slip the retainers onto the clutch shoes.



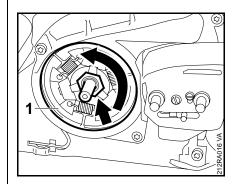
• Clamp the clutch in a vise.



• Fit the cover washer (1) on the crankshaft so that "TOP" faces outward.

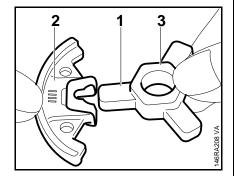


- Attach one end of each spring (1) to the clutch shoes.
- Use the hook (2) 5910 890 2800 to attach other end of the spring and press it firmly into the clutch shoe.



- Screw home the clutch (1), hexagon (arrow) facing outward, and tighten it down firmly – 1 3.5
- Remove locking strip from the cylinder.

Reassemble all other parts in the reverse sequence.



• Fit the clutch shoes over the arms (1) of the clutch carrier so that the series number (2) is on the same side as the longer hexagon (3).

5.5 Checking Operation of Chain Brake

The chain brake is one of the most important safety devices on the chainsaw. 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. The shorter the braking time, the better the efficiency and protection offered against being injured by the rotating chain.

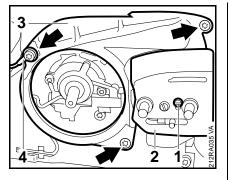
Contamination (with chain oil, chips, fine particles of abrasion, etc.) and smoothing of the friction surfaces of the brake band and clutch drum impair the coefficient of friction. This, in turn, reduces the frictional forces and thus prolongs the braking time. A fatigued or stretched brake spring has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

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

The braking time is in order if deceleration of the saw chain is imperceptible to the eye.

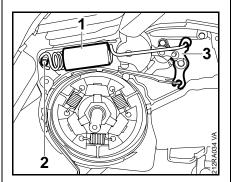
If the chain brake does not operate properly, see troubleshooting chart - \square 4.1.

5.5.1 Removing and Installing (without QuickStop Super)

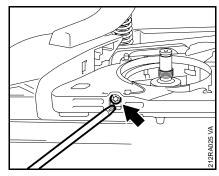


Removing

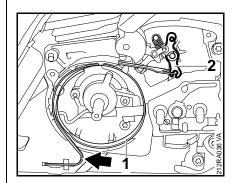
- Troubleshooting chart 🛄 4.1
- Remove the clutch drum –
 Image: 5.1
- Take out the screw (1).
- Remove the side plate (2).
- Take out the screws (arrows).
- On machines with carburetor or carburetor/handle heating, remove the ground wire (4).
- Remove the cover (3).
- Engage the chain brake by pushing the hand guard away from the front handle.



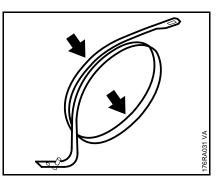
- Carefully ease the brake spring (1) off the anchor pin (2).
- Remove the brake spring (1) from the brake lever (3).



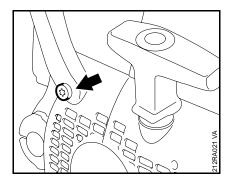
• Take out the screw (arrow).



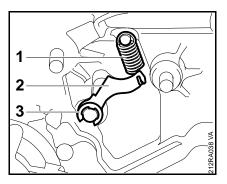
- Pry the brake band (1) out of the crankcase (arrow).
- Disconnect the brake band from the brake lever (2).



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



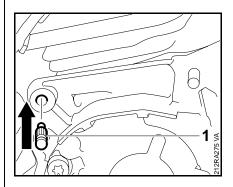
• Take out the screw (arrow).



- Disconnect the spring (1).
- Remove the E-clip (3).
- Remove the lever (2) with spring (1).

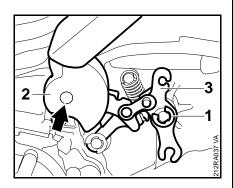
Clean all disassembled parts in standard solvent-based degreasant containing no chlorinated or halogenated hydrocarbons. Inspect parts and replace if damaged.

If the groove in the brake spring anchor pin is worn, follow the steps below to install a new pin: Do not drive out the pin in the other direction as this would damage the annular bead which was formed in the crankcase bore when the pin was originally installed. In such a case neither the new anchor pin nor the brake spring would locate properly. Furthermore, the crankcase could be damaged in this way and possibly impair correct operation of the chain brake.

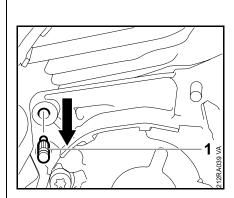


Installing

- Before installing the new pin, coat its knurled shank with Loctite –
 16.
- Position the new pin (1) in the bore so that the knurling on the pin meshes with the existing knurling in the bore. Turn pin back and forth as necessary.



- Remove the E-clip (1).
- Pry the hand guard (2) together with the brake lever (3) off the pivot pin (arrow).
- Pull the lever out of the hand guard.



- Remove the cylinder 🖽 6.5.1
- Use a suitable punch to drive the anchor pin (1) out of the crankcase, from the inside outwards.



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