

Technical Information

04.2013

New STIHL MS 261 C-M Chain Saw – Series 1141

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STIHL M-Tronic™

The STIHL MS 261 C-M is the latest professional chain saw to be equipped with the all-electronic STIHL M-Tronic™ engine management system. It adjusts ignition timing and meters the exact quantity of fuel electronically as a function of external conditions.

The MS 261 C-M is the first STIHL saw to feature a Master Control Lever™ with a stop switch function. When the Master Control Lever™ is released and the engine stops, the ignition is automatically switched on again and thus simplifies the next start.

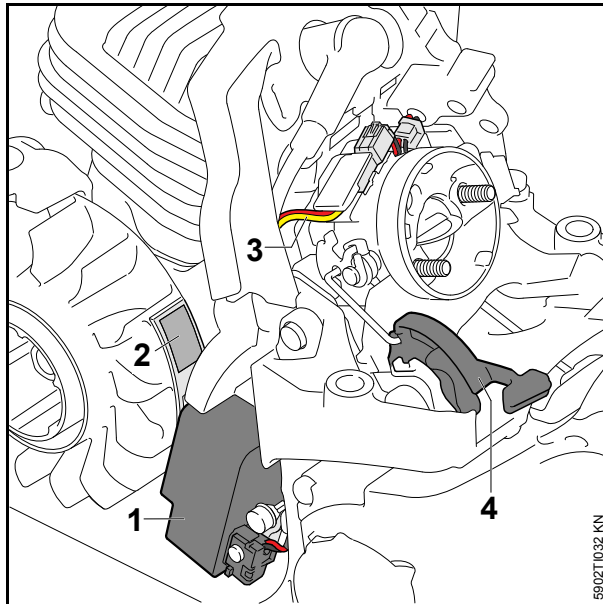
The new STIHL MS 261 C-M is also available in the following version:

- MS 261 C-MQ with STIHL Quickstop® Plus chain brake

Benefits

- Simplified starting
- Optimum engine performance at all times
- Very good acceleration
- Automatic carburetor adjustment
- Memory function
- Master Control Lever™ with stop switch function

1. Components



Control unit (1)

Control center for the optimum adjustment of fuel flow, the exact ignition timing and the memory function.

Second pair of poles (2)

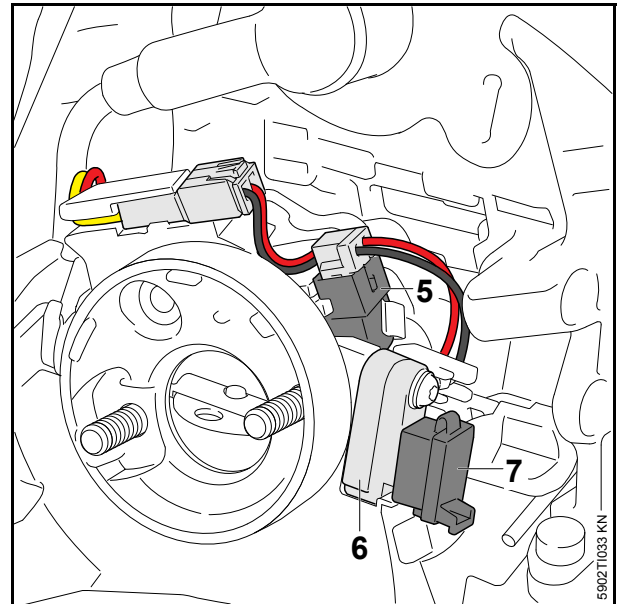
Supplies power to control unit and solenoid valve.

Wiring harness (3)

Connects control unit, solenoid valve, microswitch and diagnostic jack.

Master Control Lever™ with stop switch function (4)

Engine is shut down by operating the Master Control Lever™. When the engine stops, the Master Control Lever™ springs back to the normal run position **I**. Ignition is automatically switched on again in this position.



Solenoid valve (5)

Electronically controlled solenoid valve meters fuel in milliseconds – this allows a fuel flow rate between 0% and 100%.

Switch unit (6)

Identifies position of choke shutter – recognizes start status

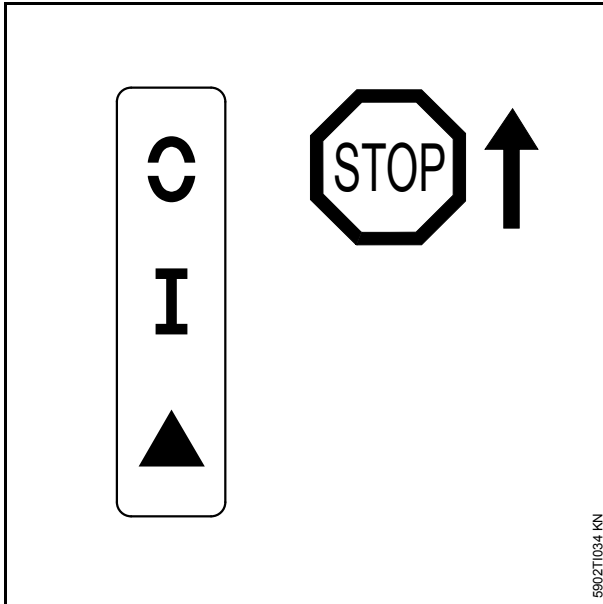
Diagnostic jack (7)

Connection for STIHL MDG 1 engine analyzer.

2. Starting / Stopping the Engine

Because of the new Master Control Lever™ with stop switch function, it is no longer necessary to check its position when restarting the engine.

2.1 Positions of Master Control Lever™



STOP or **C** – Master Control Lever™ must be pushed in direction of **STOP** or **C** to switch off ignition. The Master Control Lever™ springs back to the normal run position **I** when it is released.

The ignition is switched on again automatically after the engine stops. The engine can start at any time if the rewind starter is operated.

Run position I – engine runs or can start.

Start ▲ – the engine is started in this position.

2.2 Setting the Master Control Lever™

To move the Master Control Lever™ from the run position **I** to start **▲**, press down the trigger lockout and squeeze the throttle trigger at the same time and hold them in that position – move Master Control Lever™ to start **▲** and let go of the throttle trigger and trigger lockout.

When the trigger lockout is depressed and the throttle trigger pulled, the Master Control Lever™ automatically returns to the run position **I**.

To shut off the engine, move Master Control Lever™ in direction of **STOP** or **C** – when released, the Master Control Lever™ returns to the run position **I**.

3. Specifications

3.1 Engine

STIHL single cylinder two-stroke engine

Model	MS 261 C-M
Displacement:	3.06 cu.in (50.2 cm ³)
Bore:	1.76 in (44.7 mm)
Stroke:	1.26 in (32 mm)
Engine power to ISO 7293:	3.9 bhp (2.9 kW) at 10,000 rpm
Torque:	2.21 lbf.ft (3 Nm) at 7,000 rpm
Idle speed:	2,800 rpm
Cut-off speed:	14,000 rpm

3.2 Ignition System

Spark plug (resistor type):	Bosch WSR 6 F, NGK BPMR 7 A
Electrode gap:	0.020 in (0.5 mm)

3.3 Fuel System

All position diaphragm carburetor with integral fuel pump	
Fuel tank capacity:	16.9 fl.oz. (0.5 l)

3.4 Chain Lubrication

Fully automatic speed controlled oil pump – additional manual oil flow control.	
Oil tank capacity:	9.1 fl.oz (0.27 l)

3.5 Weight

Weight (dry, without bar and chain)	
– MS 261 C-M:	11.5 lbs (5.2 kg)
– MS 261 C-MQ with STIHL Quickstop® Plus	11.7 lbs (5.3 kg)

3.6 Cutting Attachment

3.6.1 ROLLOMATIC® Guide Bars

Reduced kickback STIHL guide bars (with green label)	
Bar lengths (pitch: 0.325"):	13, 15, 16, 18 in (32, 37, 40, 45 cm)
Groove width:	.063 in (1.6 mm)
Nose sprocket:	11-tooth

3.6.2 OILOMATIC® Saw Chain

Low kickback STIHL saw chain (with green label)	
RAPID™ Micro™ (26 RM3)	
Pitch:	.325" (8.25 mm)
Drive link gauge:	.063 in (1.6 mm)

RAPID™ Micro™ (26 RM)	
RAPID™ Super (26 RS)	
Pitch:	.325" (8.25 mm)
Drive link gauge:	.063 in (1.6 mm)

3.6.3 Chain Sprockets

7-tooth for 0.325" (spur/rim sprocket)
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4. Repairs

This Technical Information bulletin and the STIHL MS 261 service manual are available for servicing and repairs. Existing special servicing tools are listed in the service manual and can be used for this machine.

Note

Due to the stop switch function of the new Master Control Lever™, the ignition is always switched on.

- This means the engine can start at any time if the starter rope is pulled.
- **To reduce the risk of fire** caused by sparking outside the cylinder, do not crank the engine with the rewind starter when the spark plug boot is disconnected or when the spark plug has been unscrewed.

4.1 Troubleshooting

The STIHL MDG 1 engine analyzer can be used to test ignition module and control unit STIHL (M-Tronic™) and connected electrical components quickly and reliably. To do this, follow the steps in the diagnostics software after connecting the analyzer.

Apart from troubleshooting with the aid of the STIHL MDG 1, the charts in TI 45.2010 can also provide assistance in tracing a problem.

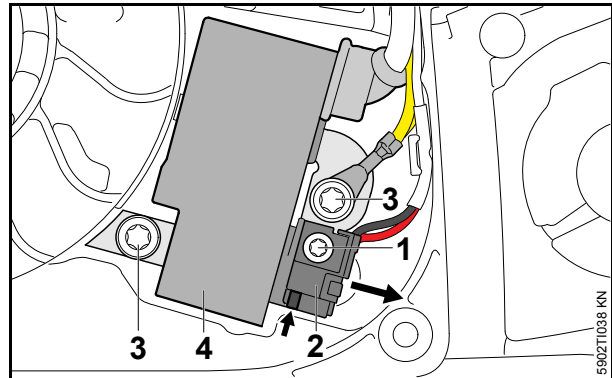
All other diagnostic and repair procedures remain unchanged.

4.2 Control Unit

4.2.1 Removing the Control Unit

- Remove the shroud, fan housing and pre-separator.
- Pull off the boot and unscrew the spark plug.
- Remove the air guide shroud.

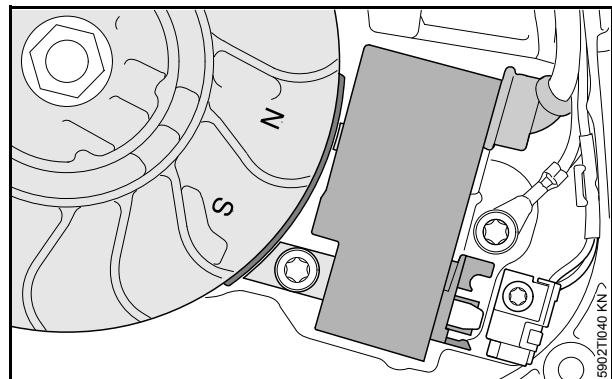
The wiring harness is secured to the control unit with a screw mounted connector housing.



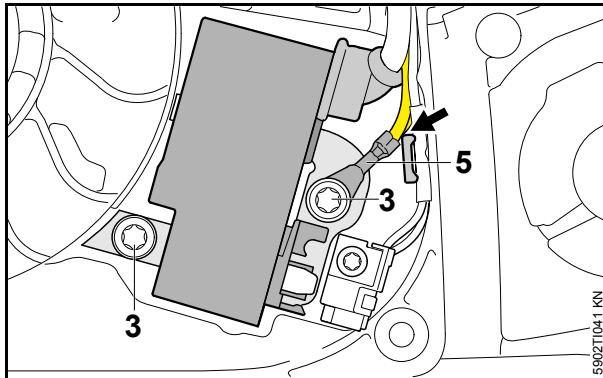
- Loosen screw (1) 1 – 2 turns.
- Apply a wide tipped screwdriver (e.g. STIHL combination wrench) to the tab (arrow) and pry the connector housing (2) off the control unit's contacts.
- Take out the screws (3) and remove the control unit (4).

4.2.2 Installing the Control Unit

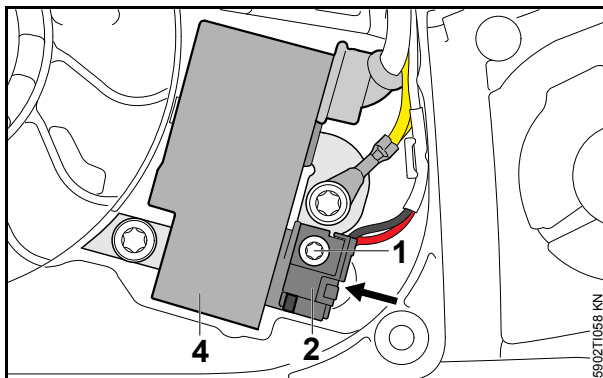
- Place the control unit in the crankcase.



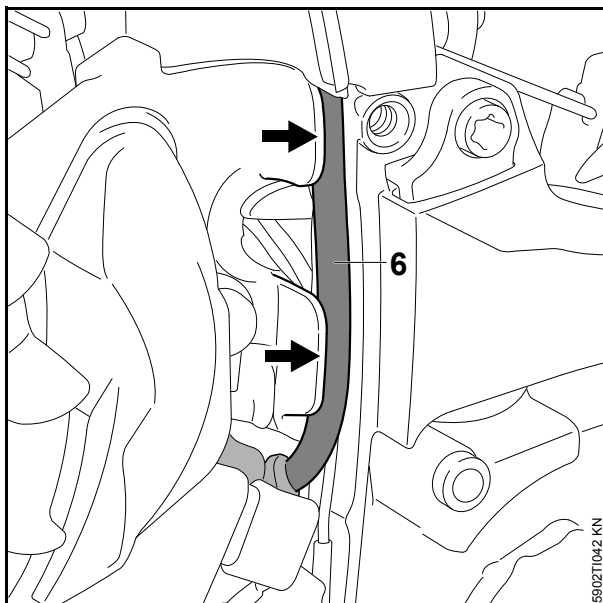
- Adjust the air gap between the arms of the control unit and the north/south pair of magnet poles marked "N" / "S" on the flywheel – use STIHL setting gauge 1111 890 6400.



- Fit the screws (3) and tighten to 35 lbf. in (4.0 Nm). Note position of cable lug (5) – crimped side must be visible and locate against the guide rib (arrow).



- Push the connector housing (2) onto control unit's contacts (4) until it snaps into position.
- Tighten screw (1) carefully to 4 lbf. in (0.5 Nm).



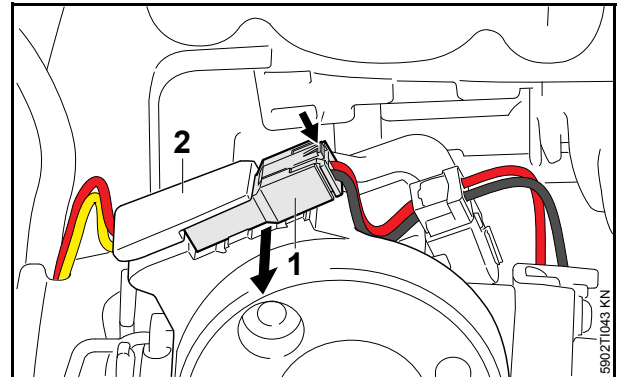
- Push the ignition lead (6) into the guides (arrows) on top of the wiring harness.

- Fit the spark plug boot.
- Assemble all other parts.

4.3 Wiring Harness

4.3.1 Removing the Wiring Harness

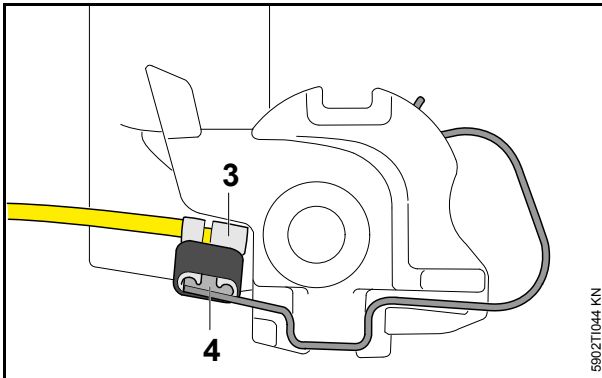
- Remove the air filter.



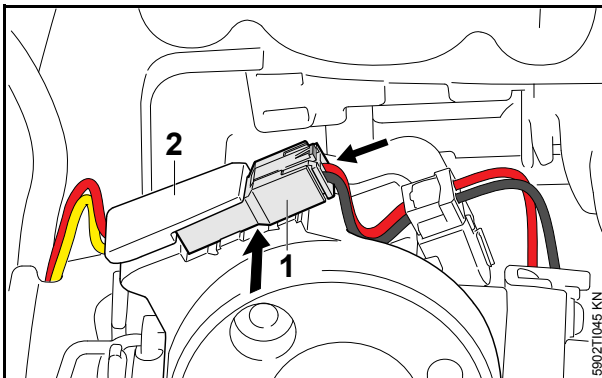
- Pull connector (1) out of connector housing (2) on filter base.
- Press down the locking tab (arrow) to separate the connector.
- Pry the choke rod off the switch shaft.
- Remove the switch shaft and then pull the black short circuit wire off the shaft.
- Remove the baffle and filter base.
- Pry the contact spring off the filter base and pull the yellow ground wire connector off the contact spring.
- Push the grommet with wiring harness in the direction of the fanwheel and out of the crankcase.
- Disconnect the wiring harness from the control unit – see 4.2.1

4.3.2 Installing the Wiring Harness

- Push the grommet with wiring harness through the crankcase – use STIHL press fluid if necessary.

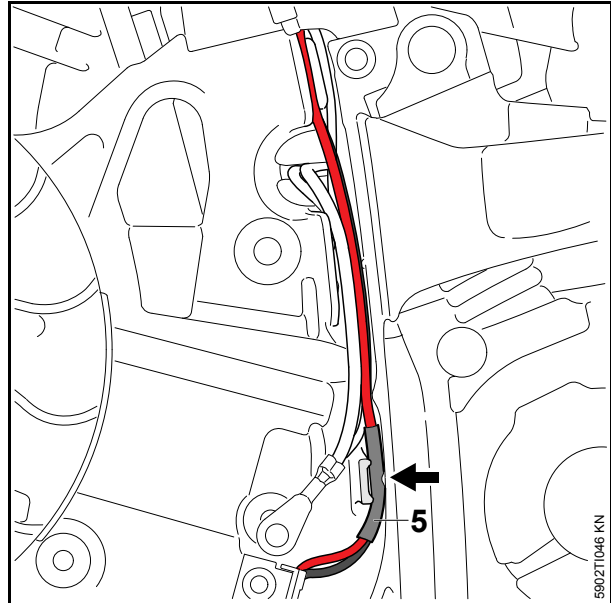


- Fit yellow ground wire connector (3) onto the contact spring terminal (4) and push them both onto the filter base.
- Install the carburetor and filter base.
- Position black short circuit wire connector in the switch shaft's guides and push it onto the boss – crimped side must face up.
- Fit the baffle.
- Fit the switch shaft on the filter base.
- Fit the choke rod.

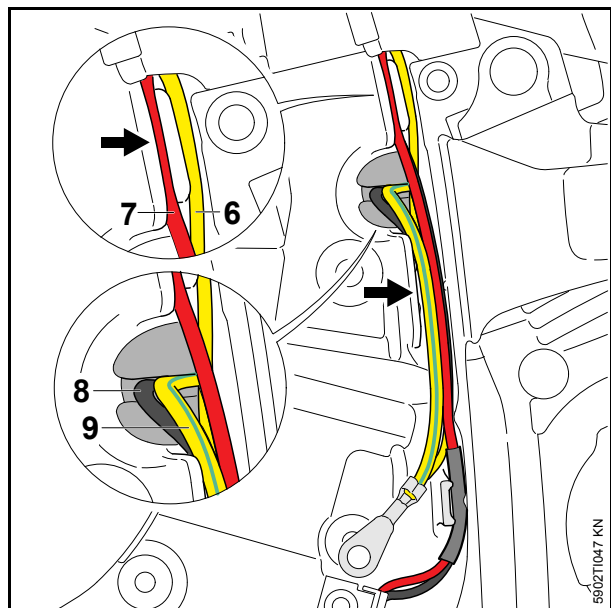



- Join the connector (1) and push it into the connector housing (2).

Installation at fanwheel side



- Position wires with shrink tube so that the lower end of the shrink tube (5) is aligned with the lower guides (arrow).

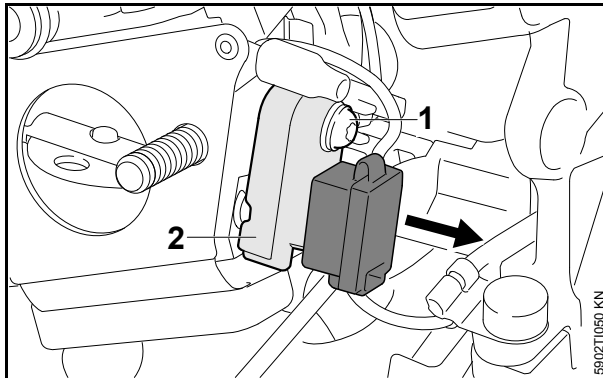


- Push the yellow (6) and red (7) solenoid valve wires into the guides on the crankcase.
- Push the black short circuit wire (8) and the green/yellow ground wire (9) into the guides (arrow).
- Install the control unit – see  4.2.2
- Assemble all other parts.

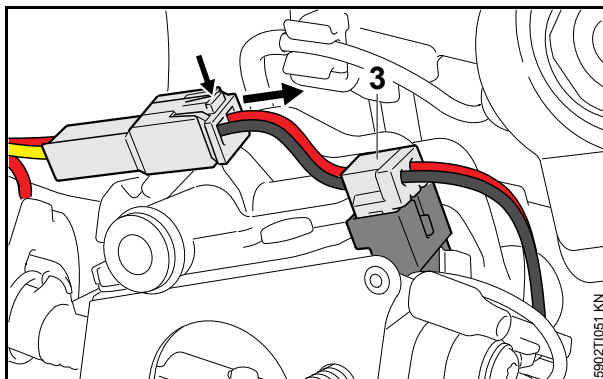
4.4 Switch Unit

4.4.1 Removing the Switch Unit

- Remove the shroud, air filter and baffle.
- Swing the filter base forward in direction of handle.

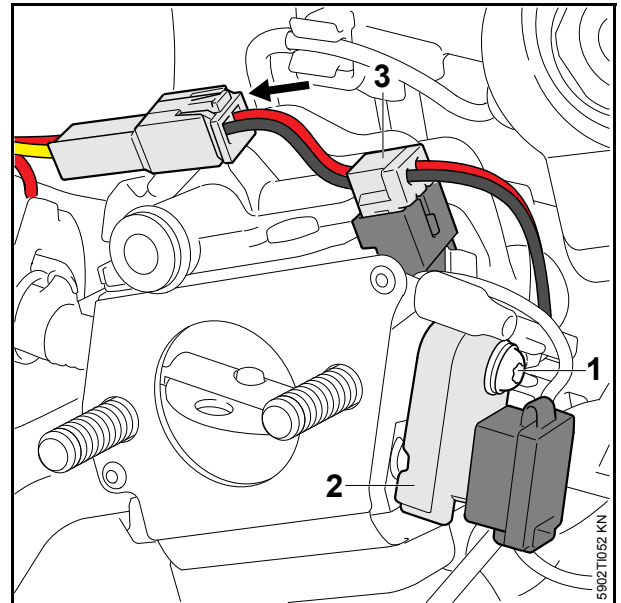


- Loosen the screw (1) and pull away the switch unit (2).



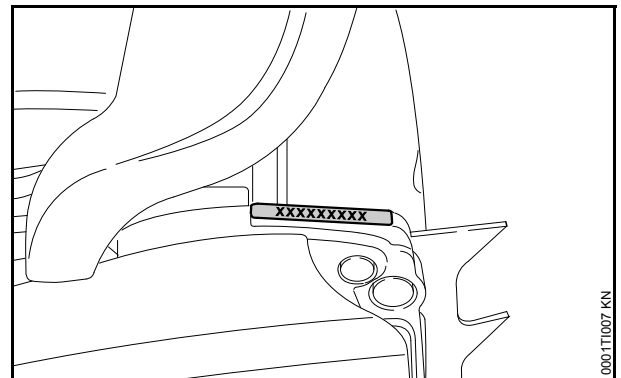
- Remove the connector (3) upwards.
- Press down the locking tab (arrow) and separate the connector.

4.4.2 Installing the Switch Unit



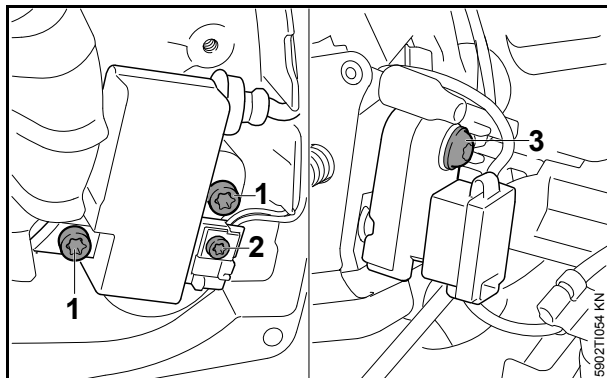
- Push the switch unit (2) onto the carburetor.
- Tighten screw (1) carefully to 9.0 lbf. in (1.0 Nm).
- Fit the connector (3) and the close the connector (arrow).
- Assemble all other parts.

4.5 Serial Number



The serial number is located on the side of the crankcase.

4.6 Tightening Torques



Item	Fastener	Thread size	Component(s)	Torque	Qty.	Remarks
1	Screw	M4x20	Control unit / crankcase	35 lbf in (4.0 Nm)	2	1)
2	Screw	M3x8	Wiring harness / control unit / clamp	4.0 lbf in (0.5 Nm)	1	
3	Screw	M2.5x16	Switch unit / carburetor	9.0 lbf in (1.0 Nm)	1	

Remark

1) Coat micro-encapsulated screws with medium strength Loctite 243 before reinstalling.

All other tightening torques remain as before and are listed in the STIHL MS 261 service manual.

4.7 Repair Times

The specified repair times assume that the work is performed by trained personnel in a properly equipped service workshop.

Repair times are quoted in minutes.

Code	Type of Repair	MS 261 C-M
1	Replace crankcase, crankcase gasket or re-seal crankcase. Includes air leak test.	120
2	Replace engine housing or cylinder shroud.	15
3	Replace crankshaft main bearing(s). Includes air leak test.	110
4	Replace crankshaft seal(s). Includes air leak test.	50
5	Replace tank filler cap.	6
6	Replace cylinder and/or piston. Includes air leak test and repair of components causing failure.	60
7	Replace ignition module or flywheel. Includes stop circuit test.	30
8	Replace fuel tank line, tank vent, or fuel pick-up body.	25
9	Replace intake manifold or intake flange, including leak test.	30
10	Repair or replace carburetor. Includes fuel system testing.	35
11	Replace fuel tank housing.	25
12	Replace oil pick-up/delivery line. Includes oil output test.	30
13	Replace oil pump and/or drive gear. Includes oil output test.	30
15	Repair or replace rewind starter.	20
16	Repair or replace clutch, clutch shoes or clutch springs.	20
17	Repair chain brake, including check for proper function.	35
18	Replace muffler.	15
19	Replace air filter or filter housing	15
22	Repair or replace stop switch. Includes circuit testing.	20
25	Replace front handle.	15
26	Replace solenoid valve or M-Tronic wiring. Includes diagnostic and function tests.	40
35	Engine diagnosis only to determine failures requiring unit replacement.	25
40	Miscellaneous repairs and other repairs not listed.	15
45	Handling allowance only-no labor.	5
50	No labor.	0