DOLMAR 109
DOLMAR 110i
DOLMAR 111
DOLMAR 111i
DOLMAR 115i
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### Technical data

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Special tools

Mounting tool for clutch hub
944 500 680

Mounting tool for clutch hub
944 500 690

Puller for tension spring of chain brake
950 237 000

Sealing plate for leakage test of crankcase
944 603 020 / 944 603 030

Drift for piston pin
944 603 260

Special socket wrench for rubber buffer
944 500 621

Mounting for roller bearing crankcase
950 500 050

Puller for drive worm of oil pump
957 433 000

Snap ring pincer for external snap rings of starting system
946 101 010

Radial ring extractor
944 500 900

Mounting sleeve for radial rings
944 500 550

Setting gauge for ignition armature
944 500 890
01 Chain brake

01-02 Releasing the chain brake
Insert the clutch drum (1) and by levering down the brake gate, using a screwdriver (2), release the chain brake.

01-02 Relieving the tension spring
To remove the brake band it is necessary to remove the cover plate (3). For this purpose unscrew screws (4) and remove retaining rings (5). Relieve the tension spring (6) by levering it off the housing peg (7).

01-02 Replacing the brake band
A damaged or defective brake band (8) and a damaged or defective tension spring must be replaced without delay (6).
Caution: Safety components

01-02 Pretensioning the tension spring and the brake gate
Following the installation of the brake band, engage the tension spring in the brake gate (9) and using the pulling hook (10) no. 950.237.000 pass the spring over the peg (7).

01-04 Removing the hand guard
Remove the nut (11) and push the screw (12) in direction of the cylinder. Unscrew screw (13) on the starter side and remove the insert (14).

01-04 Fitting the hand guard
When fitting the hand guard, ensure that the compression spring (16) is installed correctly.
02 Clutch drum

02-01 Removing the clutch drum
For the removal of the clutch/clutch drum it is necessary to immobilize the cylinder unit. For this purpose unscrew the silencer and insert the piston stopper wedge (1) into the exhaust duct of the cylinder.

02-01 Unscrewing the clutch
Use spanner (2), no. 944 500 680 for clutch (3) and use spanner (4) no. 944 500 690 for clutch (5). Caution: Left-hand thread

02-01 Differing clutch designs
Clutch (5) for models 109, 110, 111. Clutch (3) for model 115. Clutch springs may be replaced as a complete set (6) or individually (7).

02-03 Checking the clutch drum /sprocket
Worn sprockets (arrows) or clutch drums must be replaced. Ring pinion system (8) is standard equipment only for models 110/115. As replacement also available for models 109/111.

02-03 Mounting the clutch drum and clutch
Prior to installation, lightly grease the clutch drum bearing and tighten the clutch using a torque of 35 Nm.

02-03 Checking the clutch drum /sprocket of models 109 / 111
Worn sprockets or clutch drums (arrows) must be replaced.
03 Oil pump

03-02 Adjusting the oil pump delivery
Turn the screw:
clockwise      for less chain oil
anti-clockwise for more chain oil.

03-02 Removing the oil pump
Unscrew screw (1) and remove the pump housing (2) from the crankcase. Separate the intake pipe from the angular nipple (3).

03-03 Checking the oil pump for wear
Unscrew the set screw (4) and check the condition (5). Unscrew the guide bush (6) and check the pump plunger (7) for damage. Replace defective parts and clean the housing prior to assembling.

03-03 Cleaning the intake pipe
Withdraw the oil filter (11) prior to cleaning the intake pipe (10). When installing the oil filter, pass the spring over the intake pipe against the stop (arrow).

03-04 Removing the intake pipe
Unscrew the chain guide plate (9) and withdraw the intake pipe (10) from the oil reservoir.

03-05 Withdrawing the worm
To remove the worm (8), screw the tool (12) onto the worm against the stop. Withdraw the worm from the crankshaft by tightening the screw.
Caution: Use the protective cap!
04 Ignition system

04-01 Checking the spark plug
Unscrew the spark plug (1) and connect it to the spark plug terminal (2). Hold the spark plug against cylinder ground and withdraw the starter rope (3). If no spark is generated, repeat using new spark plug.

04-02 Replacing the spark plug terminal
Remove the hood (07-01) for removing the spark plug terminal. Using a pair of pointed pliers hold the spring (7) of the plug connector and pass the rubber cap (5) towards the rear over the ignition cable (6).

04-03 Replacing the short-circuiting switch
To remove the short-circuiting switch (8) first remove the filter hood, carburettor and bottom part (07-06). Unscrew the nut (10) and withdraw the switch from the short-circuiting cable.

04-01 Checking the spark plug
Clean or renew contaminated or defective spark plugs.

04-02 Installing the spark plug terminal
First pass the rubber cap (5) over the ignition cable. Then engage the spring (7) in the existing hole of the ignition cable. In case of new ignition cables, press in the tip of the spring (refer to arrow).

04-03 Installing the short-circuiting switch
Push the short-circuiting cable (11) into the switch and install the rubber cap (12) in place. Install the switch in the crankcase ensuring that the flat side faces upwards. Screw on nut (10) with the toothed side facing the housing.
04 Ignition system

04-04 Removing the ignition armature and the flywheel
For the removal of the ignition armature unscrew the cover (07-01) and the starting assembly (1).

04-04 Installing the ignition armature
Install the ignition armature and secure in place using screws (3). For setting the air gap, fit gauge (5), no. 944 500 890, between flywheel and armature. Turn the N/S marking of the flywheel towards the ignition armature.

04-04 Removing the ignition armature/flywheel
Withdraw short-circuiting cable (2) from the armature and unscrew screws (3). When replacing, remove ignition cable from the ignition armature (4). Screw new ignition cable forcefully into the ignition armature.

04-04 Replacing the short-circuiting cable
For the removal of the short-circuiting cable (2) it is necessary to remove carburettor (7) and bottom part (8). When installing the cable, ensure that it is not caught when fitting the bottom part.

04-04 Withdrawing the flywheel
Unscrew nut (9). Screw the punch (10), 944 500 880, on the crankshaft and remove the flywheel by striking a jarring blow.

04-04 Installing the flywheel
Ensure that the cone on the flywheel and on the crankshaft is free from grease. Tighten the nut using a torque of 25 Nm (refer to table 995 709 180).
05 Starter assembly

05-02 Removing the starter assembly
Relieve the return spring before removing the starter assembly. For this purpose slightly withdraw the starter rope (1), while holding the rope drum (2). Remove the rope from the drum and allow the drum to rewind slowly.

05-02 Attachment of the starter rope in the rope drum
In case of this rope drum a knot prevents the starter rope from being withdrawn.

05-02 Pretensioning the return spring
After fitting the starting assembly, completely withdraw the starter rope and hold it in this position. It must now be possible to turn the rope drum by another 1/2 turn. Reduce the pretensioning force, when this is not possible.

05-03 Replacing the starter ratchets
Using a punch, remove the locating pin of the starter ratchet from the flywheel.

05-03 Replacing the starter ratchets
Starter ratchet (9) with spring (10) and pin (11) must be replaced as a complete assembly only. Push the pin into the flywheel until it is flush with the inner edge. Before installing the pin, apply locking agent 980 009 000.
06 Carburettor

06-01 Adjusting the carburettor
To perform the basic adjustment, carefully screw in screws L and H against the stop. Then back off:
- idling jet (L) = 1 turn (max. +1/4)
- compensation jet (H) = 1 turn (max. -1/4)

06-02 Removing the carburettor
Remove filter cover and hood. Separate the fuel pipe (1) from the connection nipple. Unscrew the screws (2). Remove the choke lever (3) and carburettor linkage (4) after removal of the carburettor.

06-03 Adjusting the control lever
The control lever (5) must be aligned so that its surface is in parallel with the carburettor body (refer to arrow).

06-03 Carburettor (Tillotson) control side
Remove cover (5), control diaphragm (6) and seal (7). Unscrew the screw (8). The control assembly (9) comprises the inlet needle, rocker arm, spring and shaft.

06-03 Carburettor (Walbro) control side
Remove cover (10) control diaphragm (11) and seal (12). Unscrew the screw (13). The control assembly (14) comprises the inlet needle, rocker arm and shaft.
06 Carburettor

06-04 Carburettor (Tillotson) pump side
Unscrew cover (6). Remove seal (7) and diaphragm (8). Carefully remove the fuel filter (9) for cleaning.

06-04 Carburettor (Walbro) pump side
Unscrew cover (5) with idling adjustment screw ("S"). Remove seal (6) and diaphragm (7). Carefully remove the fuel filter (8) for cleaning.

06-05 Removing the injection valve
Unscrew attachment screw (9) and remove the valve assembly (10) from the carburettor body. Use new valve, if the needle tip (11) is worn.

06-08 Removing the intermediate flange
The intermediate flange (12) can be taken out after the carburettor has been removed.
07 Cover system, air filter

07-01 Removing the air filter cover
For cleaning the air filter, remove cover (1). For cleaning the auxiliary filter, remove cover (4).

07-01 Removing the cover
In case of model 109 cover assembly (2) must be removed to clean the air filter. For this purpose remove lever attachment screw (12) and the three cover attachment screws (3).

07-03 Cleaning the air filter
Remove auxiliary filter (5) and unscrew the main filter (6).

07-03 Cleaning the air filter
To clean the main filter, separate the upper (7) and the lower part (8).

07-06 Removing the bottom part
Following the removal of the carburettor, the bottom (11) can be removed. Integrated into the bottom are: - plug (9) for the winter heating system - ventilation bore/seal (10) for the carburettor control side.
08 Vibration damping system, handle

08-01 Removing and fitting the handle
For the removal of the handle unscrew
(1) 2 x tank screws (lateral)
(2) 2 x tank screws (bottom)
(3) 1 x vibration damper
(4) catching band.

08-02 Replacing the vibration damper (KS)
Unscrew screws (5), (3) + (4). Always use special tool, no. 944 500 621 when removing or fitting vibration dampers (6).

08-02 Replacing the vibration damper (MS)
Remove screws (7) + (8), and using a Torx spanner unscrew the screws located underneath.
Note: screw(8) is located under the auxiliary filter.

08-03 Damper system design
The fourth vibration damper (6) with pot (10) and catching band (4) is located between the supporting web (11) and the crankcase.
09 Fuel tank

09-01 Removing and installing the fuel tank
For the removal of the fuel tank (1) it is necessary to remove the vibration damper (08-02). Separate the fuel pipe (2) from the carburettor (06-02). Install seal (7) between tank and bottom part.

09-02 Replacing the ventilation valve
Remove carburettor (06-02) and bottom (07-06). Using a pair of pointed pliers, remove the ventilation valve (3) from the tank. Seal (4) will prevent contamination of the ventilation valve.

09-03 Replacing the fuel pipe
For the removal of the fuel pipe (2) withdraw the intake head (5) and withdraw the fuel pipe from the tank. When installing the fuel pipe, ensure that the sealing face (6) rests close against the tank.

09-04 Replacing the intake head
Separate the intake head (5) from the fuel pipe.
Note: The felt (8) can be replaced as an individual part.

09-05 Removing the throttle lever and the starting throttle locking system
For this purpose push out the cylindrical pins (9) + (10). Remove the throttle lever and torsion spring (11).

09-05 Removing the throttle lever and the starting throttle locking system
Remove the half-throttle and compression spring (12) from the housing.
10 Cylinder and piston

10-01 Removing the cylinder
To remove the cylinder, unscrew the four cylinder attachment screws (1). Lift off the cylinder from the housing and piston.

10-01 Replacing the piston rings
Spread the piston rings (3) at the ring cap (4) and carefully remove the piston (5). Note: When assembling, ensure that the arrow points to the silencer.

10-01 Removing the cylinder
Remove the gudgeon pin retaining ring and press out the gudgeon pin (6). Remove the piston from piston rod (7) with bearing (8).

10-01 Different cylinder design
Die cast cylinder (9) for models 109/111 and piston with one piston ring. Henkel cylinder (10) for models 110/115 and two piston rings.

10-01 Cylinder and piston marking
In case of Henkel duct cylinders, piston and cylinder are precision-machined to form a single assembly. The identification A, B or C can be found on the top part.

10-01 Installing the cylinder
Place the fork (11), no. 944 600 001, on the crankcase, align the piston rings (3) and compress them using the tension band (12). Pass the cylinder over the piston while sliding the tension band downwards.
11 Crankcase, crankshaft

11-01 Replacing the radial sealing rings
Tightly screw tool (1), no. 944 500 900, into the sealing ring (2) and withdraw it from the crankcase by means of the spindle (3).

11-03 Dismantling the crankcase
For dismantling the crankcase and oil reservoir remove the seven attachment screws.

11-03 Removing the crankcase
After removing the attachment screws, separate the crankcase using a plastic hammer.

11-03 Crankcase is divided
into a magnet side -MS- (4) including the oil reservoir (4a) and tank closing mechanism.

11-03 Crankcase is divided
into a clutch side -KS- (5) including the oil reservoir and the intake pipe (5a).
Note: Housings supplied as spare parts are already fitted with needle bearings and radial sealing rings.

11-03 Assembling the crankcase halves
Start by inserting the crankshaft (6) into the -KS- half. Place the seal (7) and press both halves together.
12 Checking operations

12-02 Checking the ignition system
Use tester no. 956.010.300 for checking the ignition system / spark plug.

12-03 Checking the carburettor
For in-situ checking of the carburettor separate the fuel pipe from the connection nipple. Fit pressure tester no. 965.004.000 to the connection nipple.

12-03 Checking carburettor and crankcase
Pressure-testing of the carburettor or crankcase is to be performed at max. 0.5 bar.

12-04 Use a torque wrench for tightening screwed connections
Cylinder base screw, crankcase screws, silencer screws, the flywheel nut and the clutch hub, must be tightened using the prescribed torque.

12-05 Checking the crankcase with cylinder
For pressure-testing the crankcase blank off the exhaust duct using flange no. 944 603 030. Screw flange no. 944 603 020 to the inlet duct.
### Torques

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