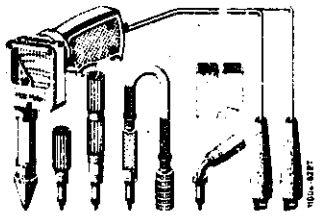
Test values with engine at operating temperature in bar gauge pressure (atü)

Engine	Compression pressure normal	Minimum compression pressure	Permissible difference between individual cylinders
Normal compression	10–12	approx. 8.5	max. 1.5
Low compression and (AUS) (USA)	9–10	approx. 7.5	

Special tool

Compression manograph with accessories and contact handle		001 589 46 21 00

Note

Check compression pressure at operating temperature (approx. 80 °C).

If pressure is below minimum compression pressure, check cylinders for leaks (01–015).

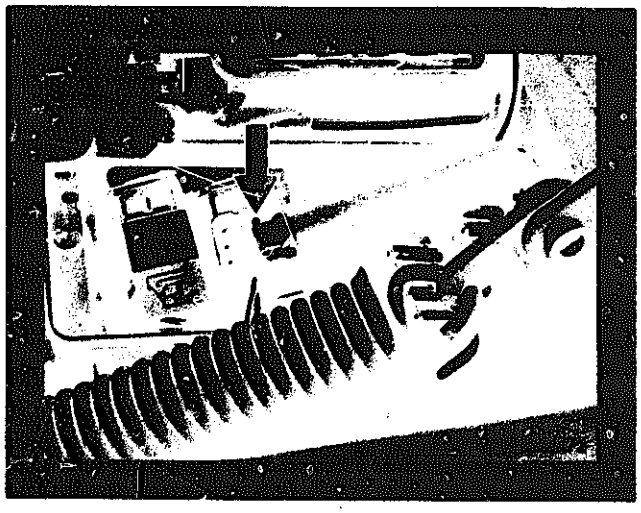
Unscrew all spark plugs for checking.

Checking

1 Connect contact handle to battery + into coupling for relay 21 in fuse box (arrow). Disconnect cable on ignition coil terminal 1.

2 Rotate engine several times with ignition switched off and at selector lever position "P" to throw out residue and soot.

3 To check, rotate engine for 8 turns while opening throttle valve.



Data

Total pressure loss	max. 25 %
On valves and cylinder head gasket	max. 10 %
On pistons and piston rings	max. 20 %

Special tool

Cylinder leak tester	e.g. made by Bosch, EFAW 210 A made by SUN, CLT 228–1
Adaptor 1/2" square socket to 3/4" square head	e.g. made by Stahlwille, D-5600 Wuppertal order No. 514
Socket 60 mm, 3/4" square for rotating engine	e.g. made by Stahlwille, D-5600 Wuppertal order No. 55

Checking

1 Run engine to operating temperature.

2 Remove air filter.

3 Set throttle valve to full opening.

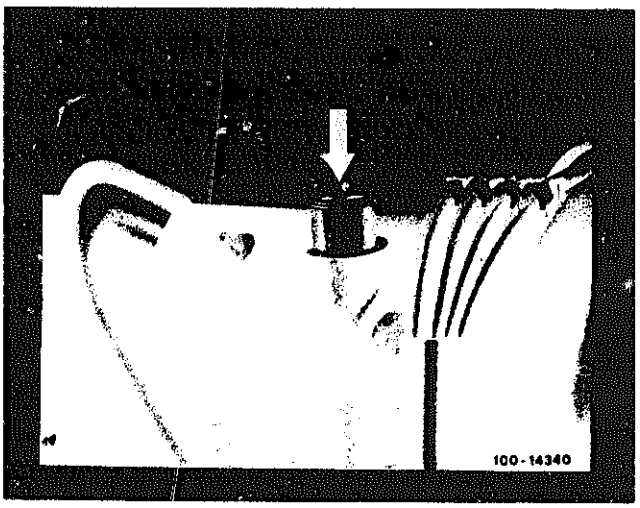
4 Unscrew spark plugs.

5 Pull venting hose on lefthand valve cover (arrow).

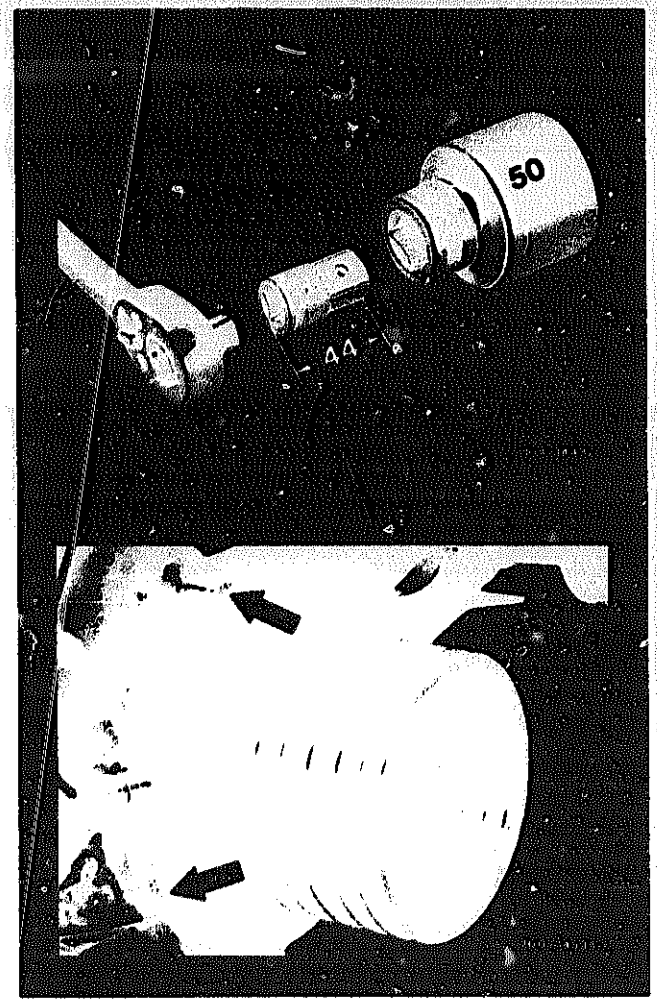
6 Open coolant expanding tank and add required coolant.

7 Connect cylinder leak tester with hose to a compressed air system.

Calibrate tester.



8 Set cylinder to be checked to ignition TDC. For this purpose, rotate crankshaft with tool combination.



Attention!
The marking numbers 0, 90, 180 and 270 are punched into vibration damper.

At the following positions of markings opposite pointer, the following pistons are at TDC:

Marking No.	Piston at TDC
0	1 and 6
90	5 and 3
180	4 and 7
270	8 and 2

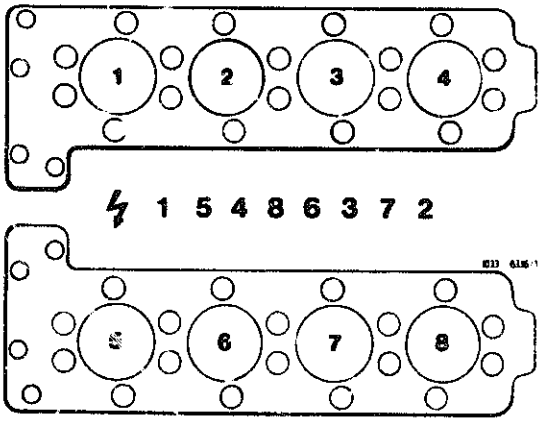
9 Screw connecting hose into spark plug bore to be tested and connect to connecting hose of tester.

Crankshaft should not rotate.

10 Read pressure loss on tester.

11 Check by listening whether pressure escapes through intake pipe, exhaust, engine breather, spark plug bore of adjacent cylinder or coolant filler hole.

12 Check all cylinders in firing sequence.



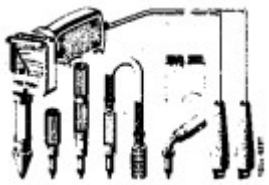
01 Engine removal and installation, cylinder crankcase, cylinder head, engine breather

01-010 Checking compression pressure

Test values with engine at operating temperature in bar gauge pressure (atü)

Engine	Compression pressure normal	Minimum compression pressure	Permissible difference between individual cylinders
Normal compression	10-12	approx. 8.5	max. 1.5
Low compression and (AUS) (USA)	9-10	approx. 7.5	

Special tool

Compression manograph with accessories and contact handle		001 589 46 21 00

Note

Check compression pressure at operating temperature (approx. 80°C).

If pressure is below minimum compression pressure, check cylinders for leaks (01-015).

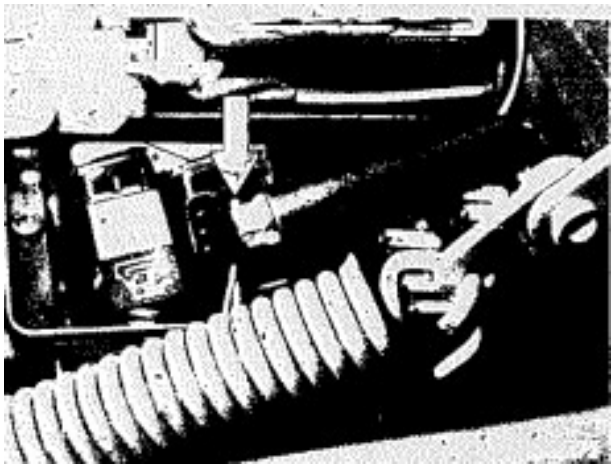
Unscrew all spark plugs for checking.

Checking

1 Connect contact handle to battery + into coupling for relay 21 in fuse box (arrow). Disconnect cable on ignition coil terminal 1.

2 Rotate engine several times with ignition switched off and at selector lever position “P” to throw out residue and soot.

3 To check, rotate engine for 8 turns while opening throttle valve.



01-015 Checking cylinders for leaks

Data

Total pressure loss	max. 25 %
On valves and cylinder head gasket	max. 10 %
On pistons and piston rings	max. 20 %

Special tool

Cylinder leak tester	e.g.made by Bosch, EFAW 210 A made by SUN, CLT 228-1
Adaptor 1/2” square socket to 3/4” square head	e.g. made by Stahlwille, D-5600 Wuppertal order No. 514
Socket 50mm, 3/4” square for rotating engine	e.g. made by Stahlwille, D-5600 Wuppertal order No. 55

Checking

1 Run engine to operating temperature.

2 Remove air filter.

3 Set throttle valve to full opening.

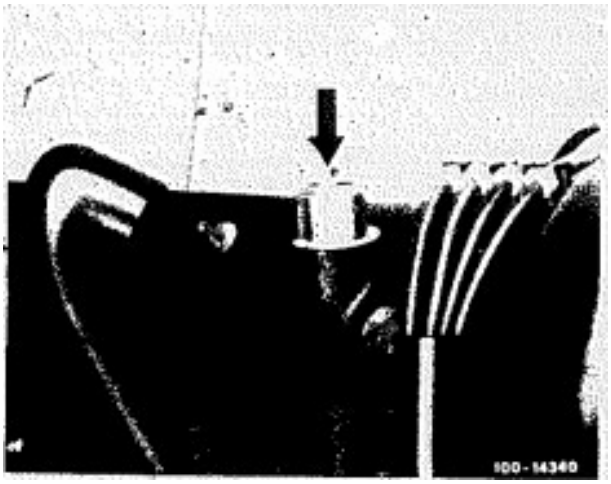
4 Unscrew spark plugs.

5 Pull venting hose on lefthand valve cover (arrow).

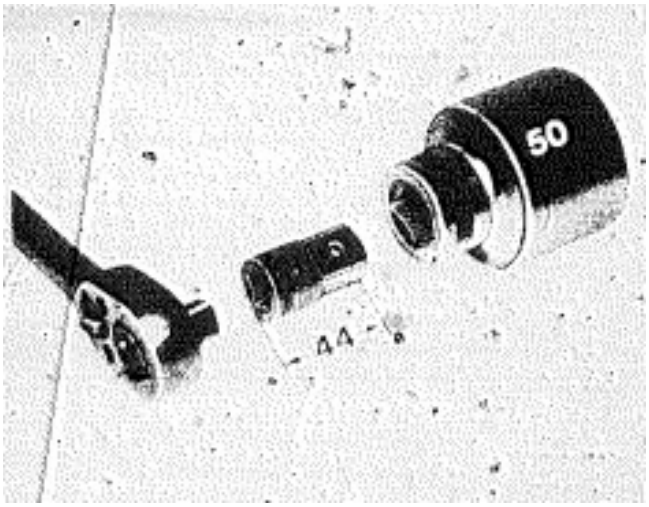
6 Open coolant expanding tank and add required coolant.

7 Connect cylinder leak tester with hose to a compressed air system.

Calibrate tester.

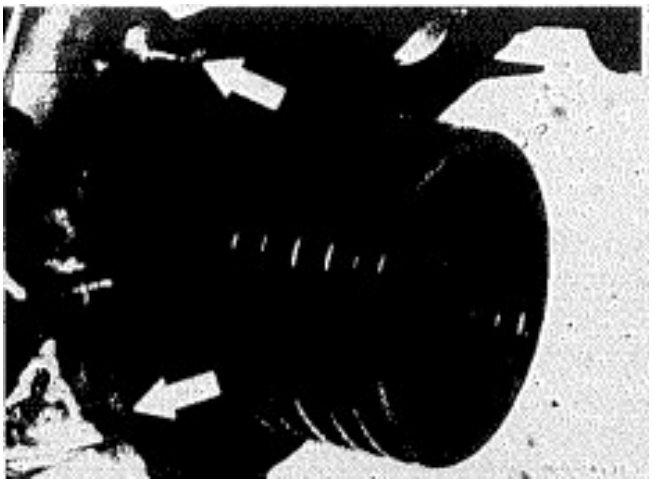


8 Set cylinder to be checked to ignition TDC. For this purpose, rotate crankshaft with tool combination.



Attention!
The marking numbers 0, 90, 180, and 270 are punched into vibration damper.

At the following positions of the markings opposite pointer, the following pistons are at TDC:



Marking No.	Piston at TDC
0	1 and 6
90	5 and 3
180	4 and 7
270	8 and 2

9 Screw connecting hose into spark plug bore to be tested and connect to connecting hose of tester.

Crankshaft should not rotate

10 Read pressure loss on tester.

11 Check by listening whether pressure escapes through intake pipe, exhaust, engine breather, spark plug bore of adjacent cylinder or coolant filler hole.

12 Check all cylinders in firing sequence.