

07.1–135 Checking injection nozzles

Job no. of flat rates or standard texts and flat rates data 07–6712.

Test values injection nozzles

Bosch designation	Injection pressure in bar positive ¹⁾	
	for new injection nozzles	for used injection nozzles, min.
DNO SD 2400 DNO SD 240 ²⁾ DNO SD 240 ³⁾	135–143	120

¹⁾ The difference between any two injection nozzles within one engine must not exceed 5 bar positive.

²⁾ Starting production code no. 928 or 041.

³⁾ Starting November 1981 with center bore 0.20 mm dia. (formerly 0.15 mm dia.)

Tightening torques

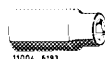
Nm

Injection nozzles, upper and lower parts

70–80

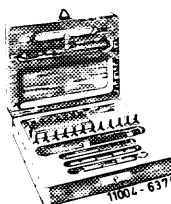
Special tools

Socket 27 mm, 1/2" drive



001 589 65 09 00

Cleaner



000 589 00 68 00

Conventional tools

Torque wrench 1/2" drive, 40–130 Nm

Tester EFEP 60 H

e.g. Bosch, D–7000 Stuttgart
Order No. 0 681 200 502

Cleaning needles 0.13 mm dia.

e.g. Bosch, D–7000 Stuttgart
Order No. KDEP 2900/3

Cleaning needles 0.18 mm dia.

e.g. Bosch, D–7000 Stuttgart
Order No. KDEP 2900/5

Note

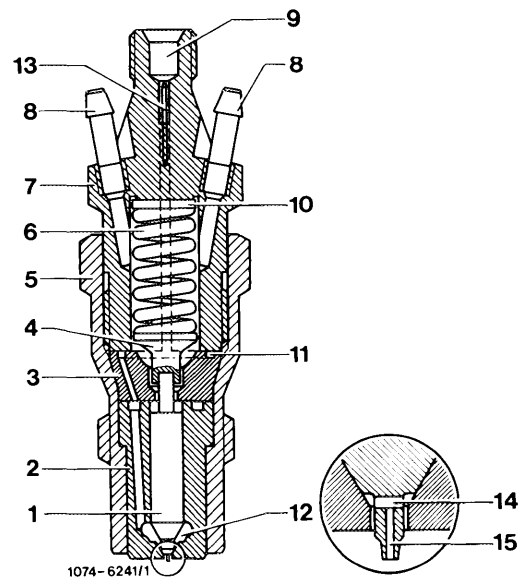
For testing always use clean testing oil or filtered diesel fuel. **Be sure never to hold your hand in the jet from an injection nozzle.** For the jet would penetrate your skin, destroy the tissue beneath, enter your bloodstream and possibly give you blood poisoning.

Attention:

Be sure to close the pressure gage tap for checking jet and rattling noise because pressure gage may otherwise be damaged by excessive increase in pressure.

The engine is equipped with a center hole pintle nozzle which is distinguished from the standard pintle by a cross hole and a center hole (14 and 15) in the thrust pin. Moreover, a maintenance-free edge filter (13) is pressed into upper part (7) of the injection nozzle holder.

- 1 Needle valve
- 2 Nozzle body
- 3 Nozzle holder insert
- 4 Thrust pin
- 5 Injection nozzle holder, lower part
- 6 Compression spring
- 7 Injection nozzle holder, upper part
- 8 Leak-off connection
- 9 Fuel inlet
- 10 Steel shim
- 11 Annular groove and inlet ports
- 12 Pressure chamber in nozzle body
- 13 Edge filter
- 14 Cross hole
- 15 Center hole

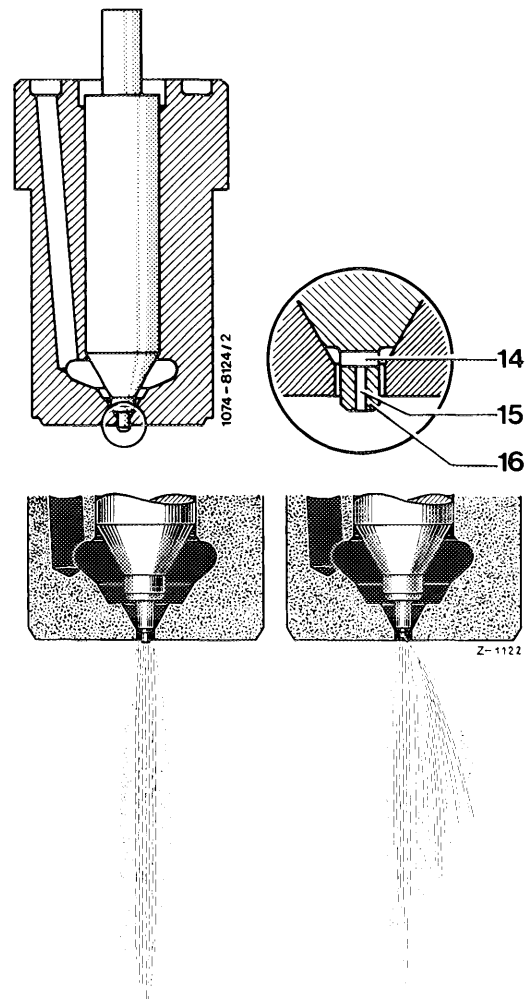


Checking

1 Prior to checking: Check center hole (47) with cleaning needle of 0.18 mm dia. for passage. On nozzles with 0.15 mm ID, check pintle with cleaning needle 0.13 mm dia. for passage.

2 Thoroughly pump injection nozzle 5 times on tester. Then check **buzzing**, actuating hand lever slowly for this purpose (at least 1 stroke per second).

3 **Check jet:** At short, fast partial strokes (at least 2 strokes per second) the jet must be rather closed and break well.

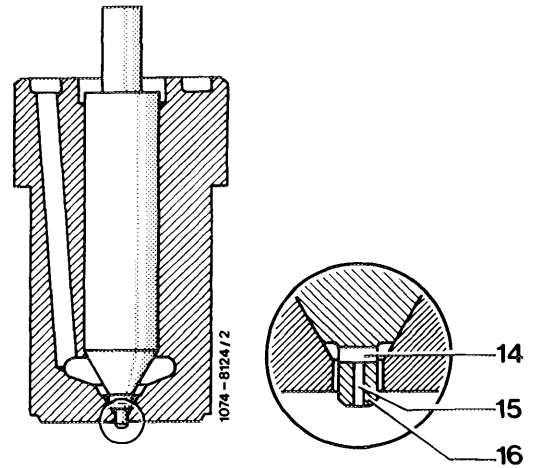


- A Jet pattern closed and well atomized
- B Jet pattern torn up, too wide and spreading

4 Establish **initial jet** by moving hand lever slowly down (4–6 s/stroke).

A vertical cord-like jet must come out of center hole (15).

Note: On new nozzles, the initial jet is very difficult to produce, for this reason check center hole with cleaning needle 0.18 mm dia. for passage.



5 Checking ejection pressure:

Nominal value: 135–143 bar with new nozzle, at least 120 bar with used nozzle.

At slow downward movement of hand lever (approx. 1 stroke per second) read ejection pressure on pressure gauge.

Shutoff valve must be open for checking.

