#### 07.1-135 Checking injection nozzles

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

## Test values injection nozzles

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

The difference between any two injection nozzles within one engine must not exceed 5 bar positive.
Starting production code no. 928 or 041.
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	1000 6193	001 589 65 09 00
Cleaner	Jamanus.	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

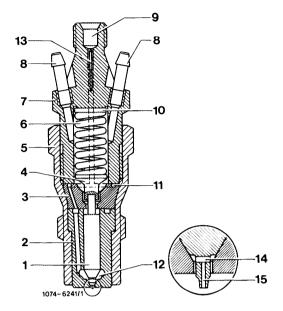
For testing always use clean testing oil or filtered diesel fuel. Be sure never to hold your hand in the jet from an injection nozzle. For the jet would penetrate your skin, destroy the tissue beneath, enter your bloodstream and possibly give you blood poisoning.

#### 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.

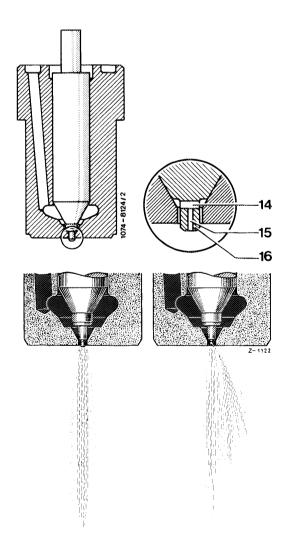
The engine is equipped with a center hole pintle nozzle which is distinguished from the standard pintle by a cross hole and a center hole (14 and 15) in the thrust pin. Moreover, a maintenance-free edge filter (13) is pressed into upper part (7) of the injection nozzle holder.

- Needle valve
- Nozzle body
- Nozzle holder insert
- Thrust pin
- Injection nozzle holder, lower part
- Compression spring Injection nozzle holder, upper part
- Leak-off connection
- Fuel inlet
- Steel shim
- Annular groove and inlet ports
- Pressure chamber in nozzle body
- Edge filter
- 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.



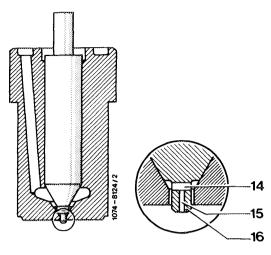
- Jet pattern closed and well atomized
- Jet pattern torn up, too wide and spreading

F 3

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.

