07.3–135 Testing injection valves

Job No. of flat rates or standard texts and flat rates data 07–6500/6502.

Test values

Injection valves		Bosch No. 0 437 502 010
Opening pressure	with new injection valves	3.5–4.1 bar gauge pressure
	with used injection valves min.	3.0 bar gauge pressure

Tightening torques	Nm
Injection lines on fuel distributor (reference value)	10–12
Injection lines on injection valves (reference value)	10–15

Conventional testers and accessories

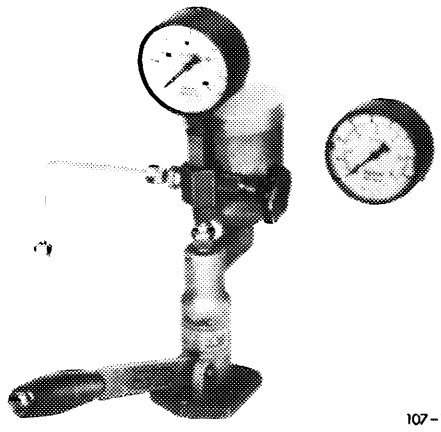
Testing injection valves Bosch KDJE 7452, or KDJE–P 400	Bosch order designation KDJE 7452, or KDJE–P 400
Nozzle tester EFEP 60 H[1])	Bosch No. 0 684 200 700
Pressure gauge 0–6 bar gauge pressure, housing dia. = 100 mm Quality class 1.0	Bosch No. 1 687 231 000
Pipe line	Bosch No. 1 680 750 001

[1]) Similar to nozzle testers used up to now. Testing of injection valves requires pressure gauge named above or pressure gauge of pressure measuring device 100 589 13 21 00.

Note

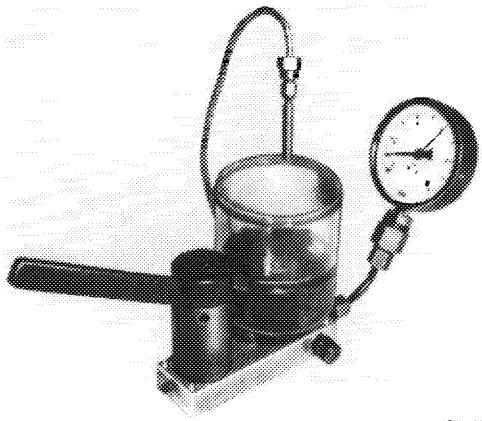
The nozzle or valve tester serves to test the opening pressure, buzzing, spray pattern, as well as testing injection valves for leaks.

Prior to testing injection valves, fill container of tester and vent testing device. For testing, use kerosene only.



107-10592

Renew injection valves which are exceeding the tolerance. Injection valves can be individually replaced within a set.



107-14212

Remove injection valves for test (07.3–215).

1 Coarse test for leaks:

a) Connect removed injection valves to tester. Vent pressure line with shutoff valve opened and coupling nut released. Then tighten coupling nut.

b) With shutoff valve opened, slowly actuate hand lever (4 s/stroke) and establish pressure up to max. 1.5 bar gauge pressure. If a leak shows up on injection valve, renew injection valve.

2 Checking opening pressure:

Close shutoff valve. Flush injection valve by means of several fast manual movements of hand lever.

Open shutoff valve and check opening pressure during slow movement of hand lever.

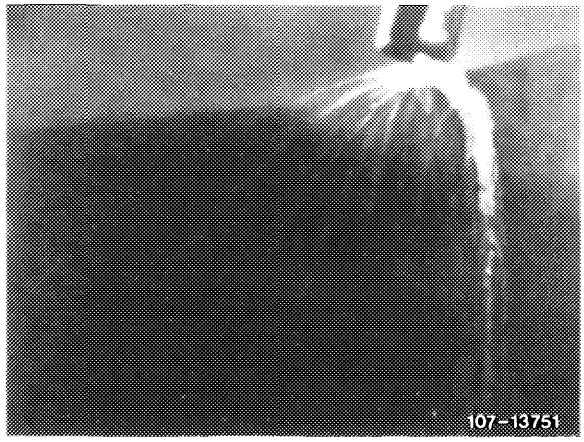
3 Precision test for leaks:

Close shutoff valve. Flush injection valve by a number of quick manual movements of hand lever, open shutoff valve and let pressure slowly increase up to 0.5 bar gauge pressure above the previously determined opening pressure and hold. No drop should be formed on injection valve within the next 15 seconds.

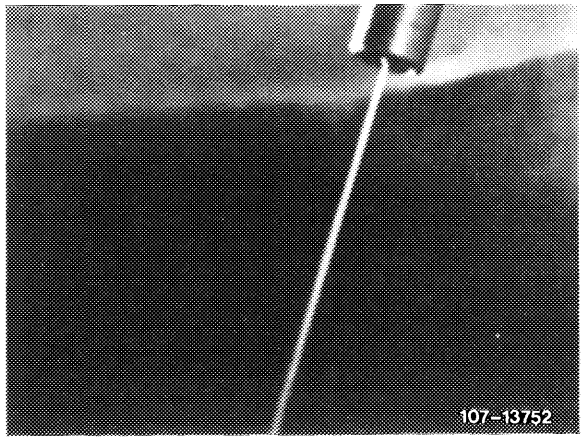
4 Buzzing test, evaluation of spray pattern:

Close shutoff valve and flush valve by moving lever several times (0.5 s/stroke). Then reduce lever speed to approx. 1 s/stroke. Valve should now buzz. No drop should be forming at mouth of valve. Jet should not be cord-like. One-sided, atomized formation of jet within a total spray angle of approx. 35^{o} is permitted.

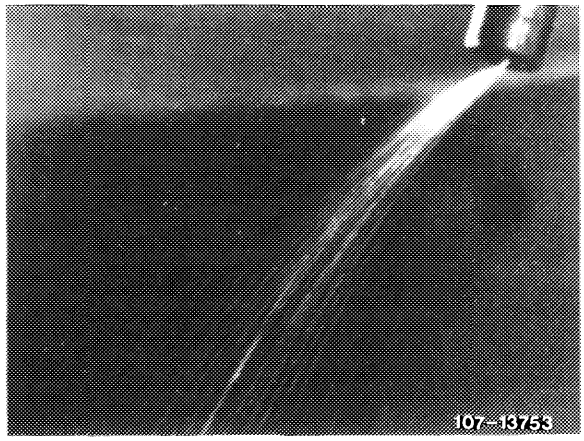
Damaged injection valves



Drop formation

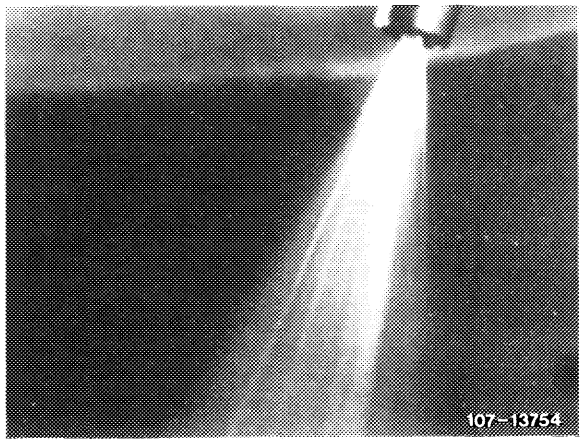


Cord-like jet

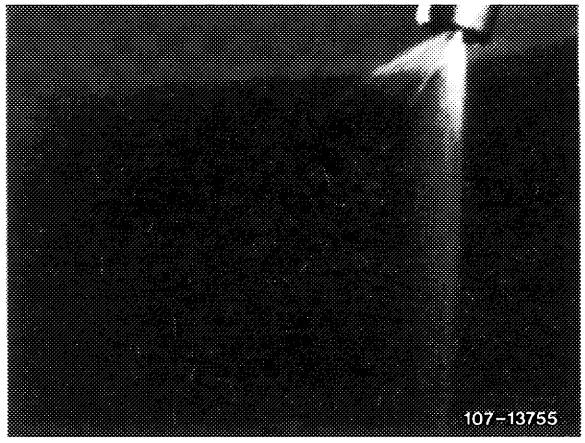


Spreading jet

Good injection valves



Good jet preparation



Slightly one-sided atmoization