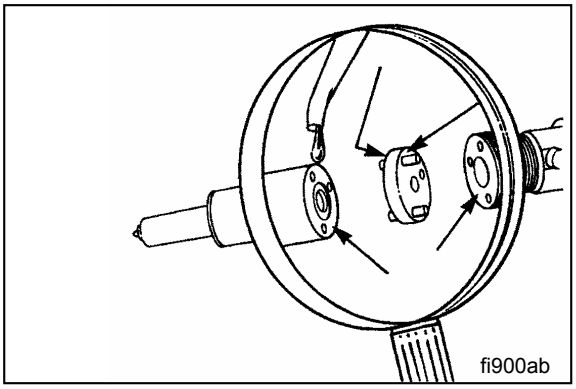
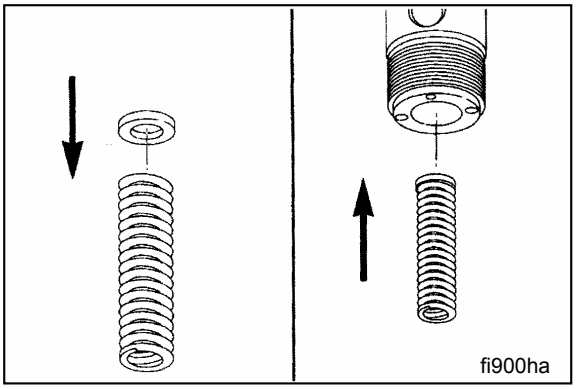


Assembly

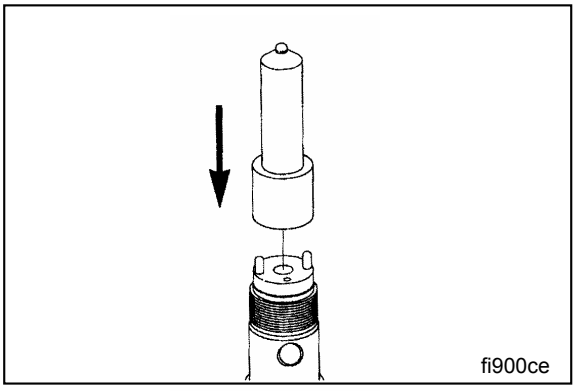
NOTE: Make sure all mating surfaces and pressure faces are clean and lubricated with fuel oil before assembly.



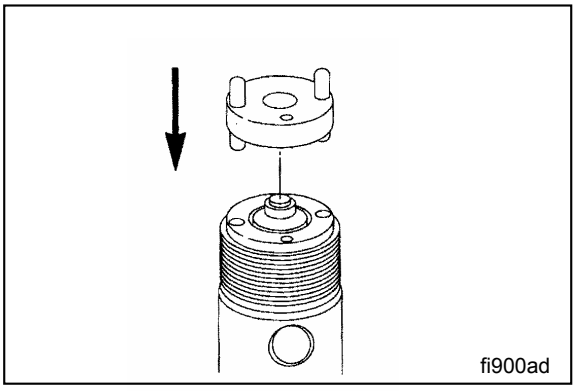
⚠ WARNING

Install the same thickness of shims that were removed in disassembly. Use the pressure spring to make sure the shims are installed flat.

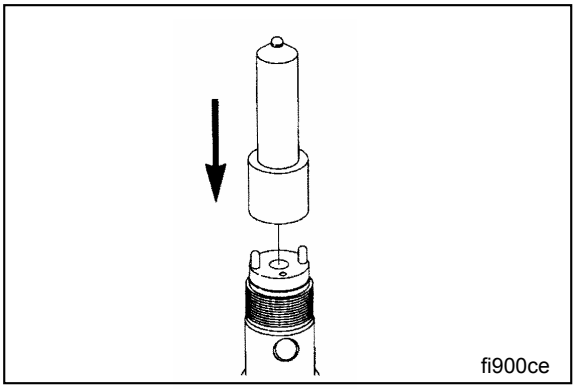
Install the shims.



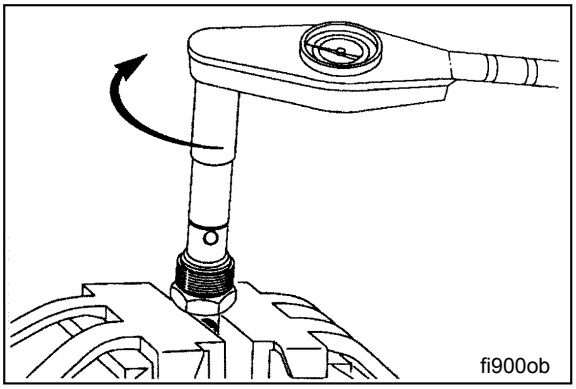
Clamp the nozzle holder in a soft jawed vise and install the spindle.



Install the intermediate plate.



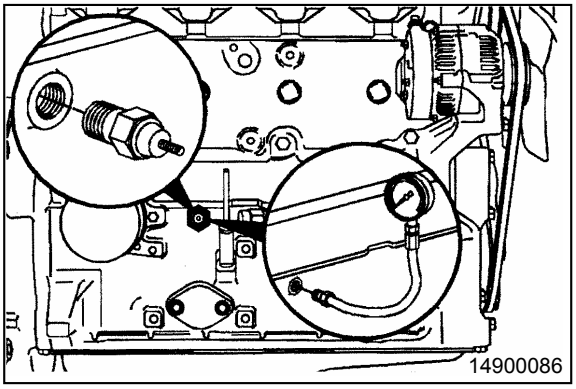
Install the needle valve and nozzle assembly.



Install the nozzle nut.

Lubricating System

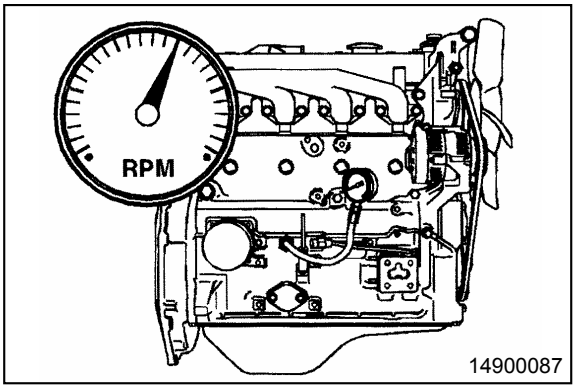
Measuring Oil Pressure



⚠ WARNING

When measuring the oil pressure, be careful not to get caught in rotating parts. always remove or install plug or oil pressure gauges with the engine stopped.

Remove the oil pressure sensor, and install the pressure gauge.



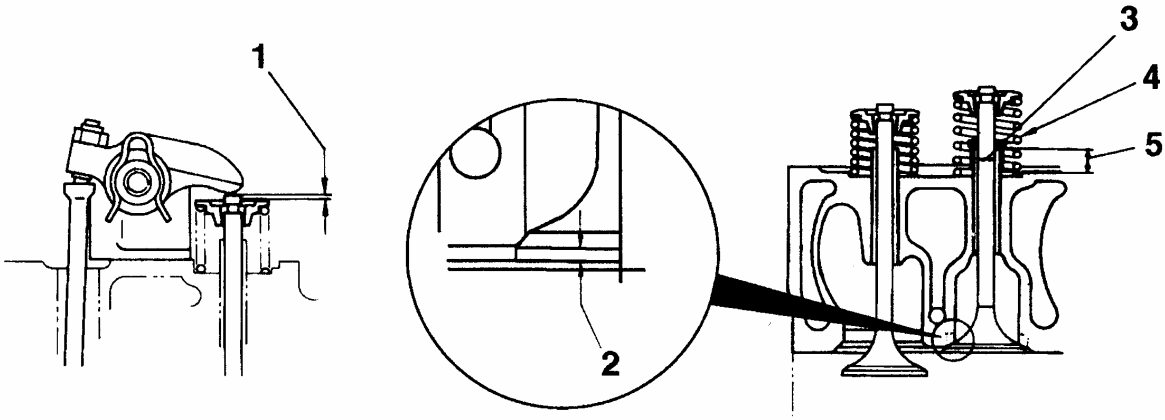
NOTE: Measure the oil pressure while the engine is warm (oil temperature minimum: 82° C [180° F]).

Start the engine, and measure the oil pressure.

Lubricating Oil Pressure		
kPa		**ft-lb**
210	MIN	30
700	MAX	102

Specifications

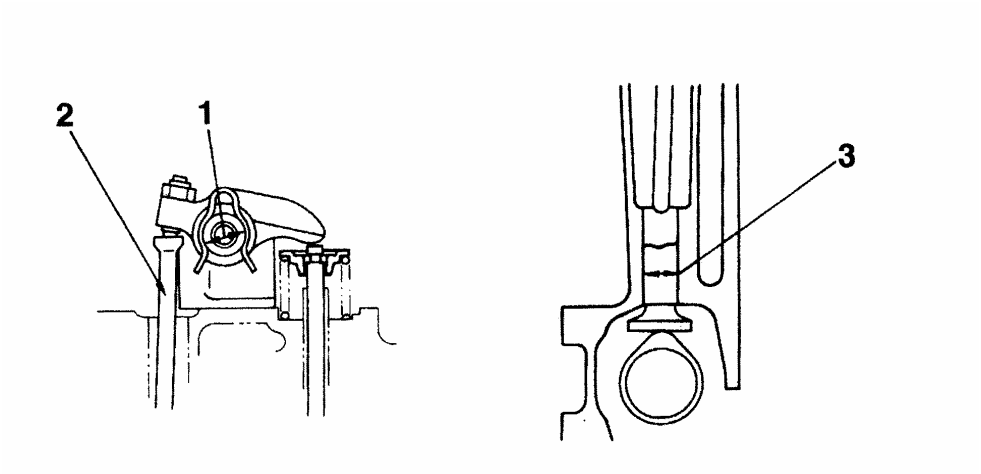
Valves, Valve Guides, and Springs



18900014

Ref	Inspection Item		Standard	Remarks
VALVES				
3	Stem Diameter	Intake	Nominal: 8 mm [0.3130 in]	Tolerance: -0.035 mm [-0.0014 in] -0.050 mm [-0.0020 in]
		Exhaust		Tolerance: -0.050 mm [-0.0020 in] -0.065 mm [-0.0026 in]
	Clearance Between Guide and Stem	Intake	0.035 to 0.065 mm [0.0014 to 0.0026 in]	Clearance Limit: 0.20 mm [0.0079 in]
		Exhaust	0.050 to 0.080 mm [0.0020 to 0.0031 in]	
2	Head Thickness	Intake	1.40 to 1.60 mm [0.0551 to 0.0630 in]	Repair Limit: 1.00 mm [0.039 in]
		Exhaust		
1	Valve Clearance (at Cold and Warm)	Intake	0.35 mm [0.0138 in]	Tolerance: ±0.02 mm [±0.0008 in]
		Exhaust	0.50 mm [0.0197 in]	
VALVE GUIDE				
5	Protrusion Above Cylinder Head Surface	Intake	14.5 mm [0.571 in]	Tolerance: ±0.2 mm [±0.0079 in]
		Exhaust		
VALVE SPRING				
4	Free-Length		49.2 mm [1.94 in]	Repair Limit: 48.5 mm [1.90 in]
	Installed Length		40.5 mm [1.59 in]	—
	Installed Load		18.5 ±0.9 kg [40.8±2.0 lb]	Repair Limit: 16.5 kg [36.4 lb]
	Squareness		—	Repair Limit: 1.85

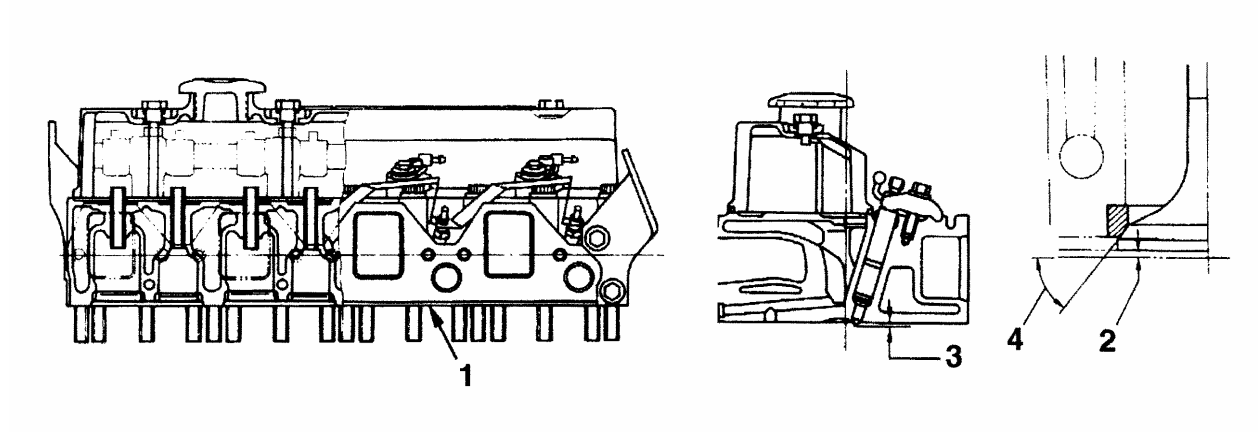
Rocker Arm Shaft, Push Rod and Tappets



18900016

Ref	Inspection Item	Standard	Remarks
	VALVE ROCKER ARM SHAFT		
1	Diameter of Shaft	19 mm [0.75 in]	Tolerance: -0.020 mm [-0.0008 in]
	Diameter of Rocker Arm Shaft Hole	Nominal: 19 mm [0.75 in]	Tolerance: 0.030 mm [0.0012 in] 0.010 mm [0.0004 in]
	Clearance Between Rocker Arm and Shaft	0.010 to 0.050 mm [0.0004 to 0.0020 in]	Clearance Limit: 0.12 mm [0.0047 in]
	Bend of Shaft	—	Repair Limit: 0.20 mm [0.0079 in]
	PUSH ROD		
2	Bend of Push Rod	—	Repair Limit: 0.30 mm [0.012 in]
	TAPPET		
3	Clearance Between Tappet and Tappet Hole	0.012 to 0.048 mm [0.0005 to 0.0020 in]	Clearance Limit: 0.12 mm [0.0047 in]

Cylinder Head



18900011

Ref	Inspection Item		Standard	Remarks	
CYLINDER HEAD					
1	Surface Flatness (Warpage Limit)		0.00 to 0.05 mm [0.00 to 0.002 in]	Repair Limit: 0.30 mm [0.012 in]	
2	Valve Seat	Intake	1.00 ±0.100 mm [0.039 ±0.004 in]	Repair Limit: 2.00 mm [0.079 in]	
		Exhaust	0.90 ±0.100 mm [0.035 ±0.004 in]	Repair Limit: 1.90 mm [0.075 in]	
3	Nozzle (Protrusion)		3.12 ±0.28 mm [0.123 ±0.011 in]	Tolerance: 2.700 to 3.500 mm [0.106 to 0.138 in]	
4	Valve Seat	Angle	45°	Tolerance: ±0°15'	Repair Limit: Judge condition of contact surface by vacuum test.