

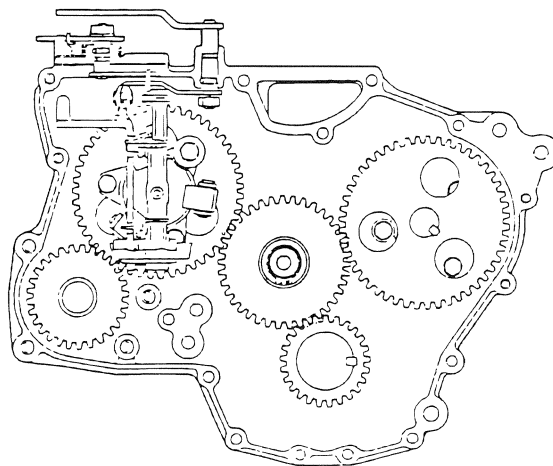
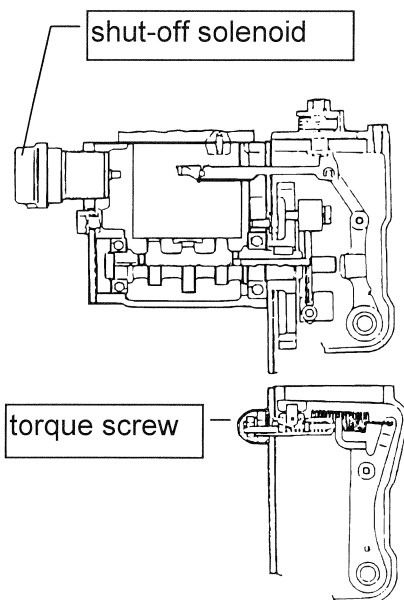
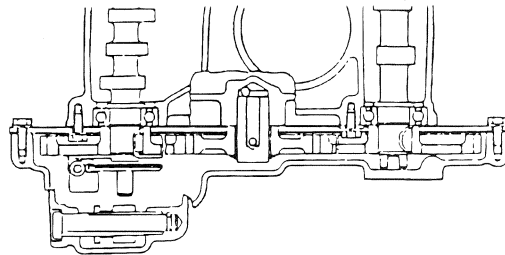


HR 2.0 **SERVICE-MANUAL**

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HR 12



Basic adjustment of the torque screw (power setting of the engine)

Slacken counter nut, turn out torque screw by 2 turns

Connect engine rpm gauge, start the engine, fully accelerate, 2,600 min⁻¹

Turn in screw until the engine decreases by 50 min⁻¹

Stop accelerating, engine must stop

Turn out torque screw by 2.8 turns again, so the correct engine power is set.

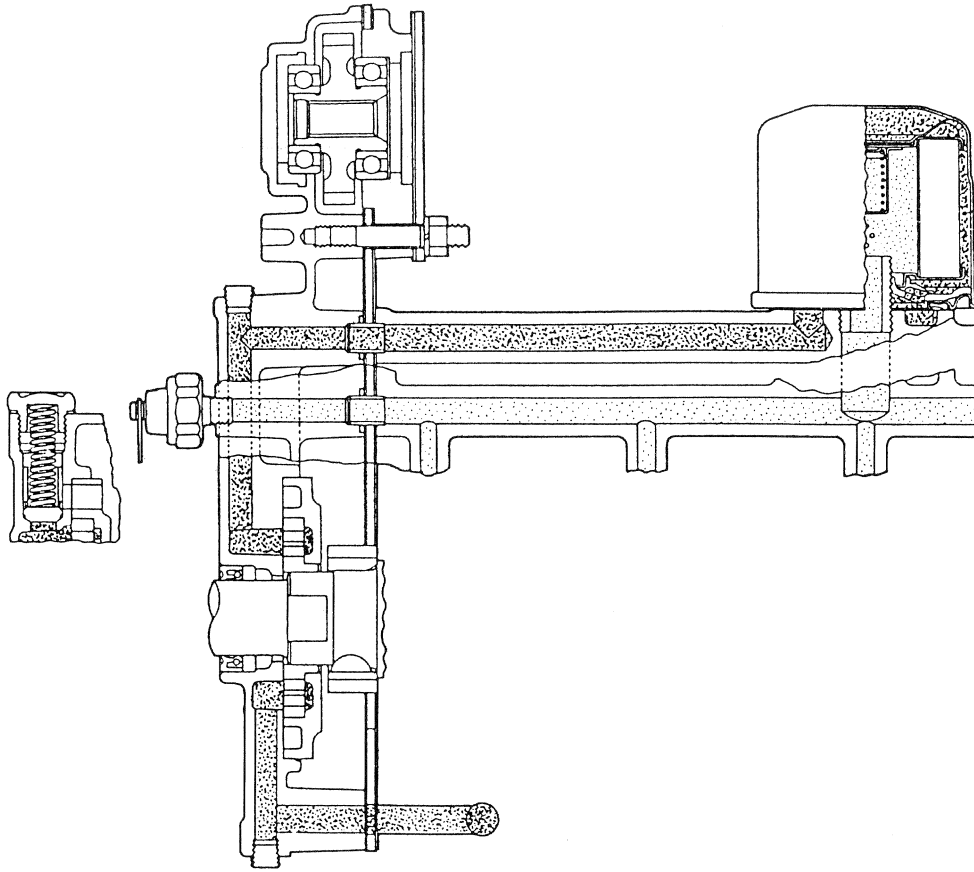
Cable colours, shut-off solenoid

Connector, wire harness:

brown	ground
red	50 a
blue/black	15/54

Connector, solenoid:

blue
pink
white



Oil circuit

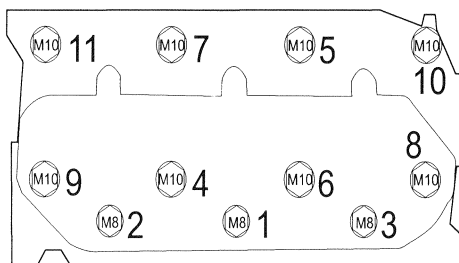
Technical Data

Valve clearance	cold	0.25	mm	inlet & exhaust
Injection nozzle pressure		140	bar	(+ 10 / - 0)
Compression pressure	new:	28	bar	lower limit 22
Injection timing		15°	v.OT*	up to 2000 min ⁻¹
Injection timing		17°	v.OT*	more than 2000 till 3600 min ⁻¹
Injection timing		19°	v.OT*	3600 min ⁻¹

*v.OT = before top dead centre

Tightening torques

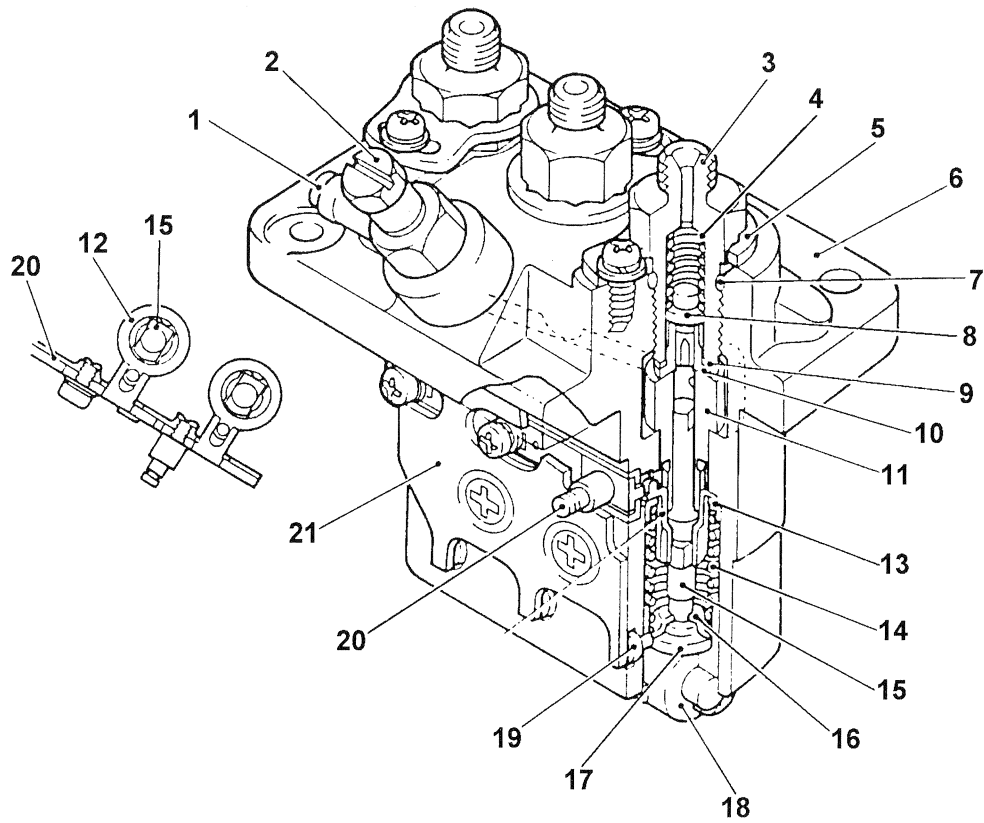
Crankshaft pulley	M 16	100 to 120 Nm
Main bearing cap	M 10	50 to 55 Nm
Connecting rod cap	M 8	32 to 35 Nm
Flywheel bolts	M 10	85 to 95 Nm
Nozzle holder	M 20	50 to 60 Nm
Glow plug	M 10	15 to 20 Nm
General bolts	M 6	7 Nm
General bolts	M 8	17 Nm
General bolts	M 10	35 Nm
General bolts	M 12	64 Nm



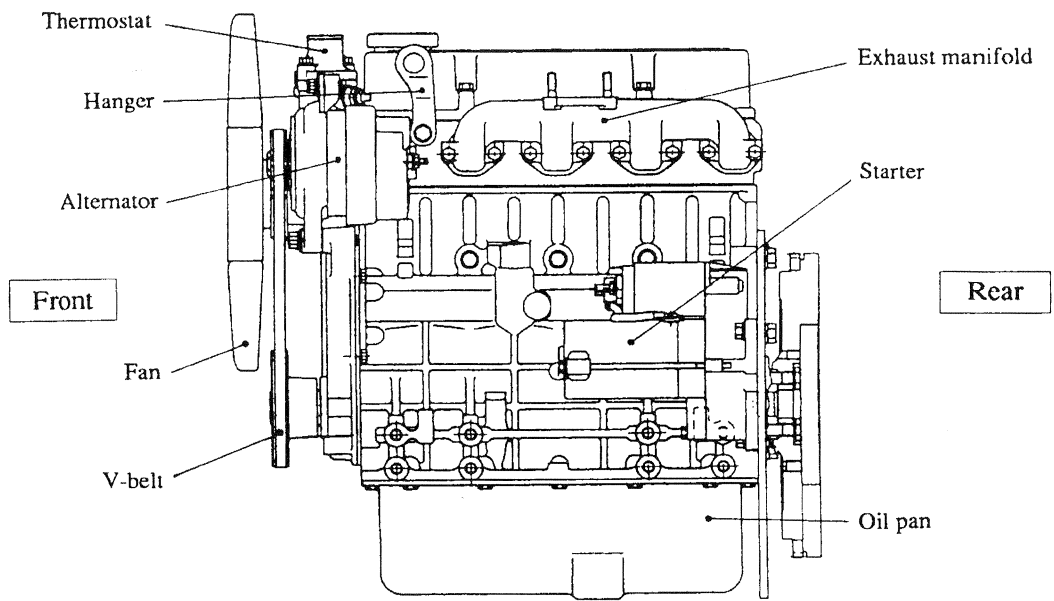
R12m36-SHB

cylinder head - tightening order

Cylinder head bolts	M 10	75 to 85 Nm
Cylinder head bolts	M 8	20 to 30 Nm

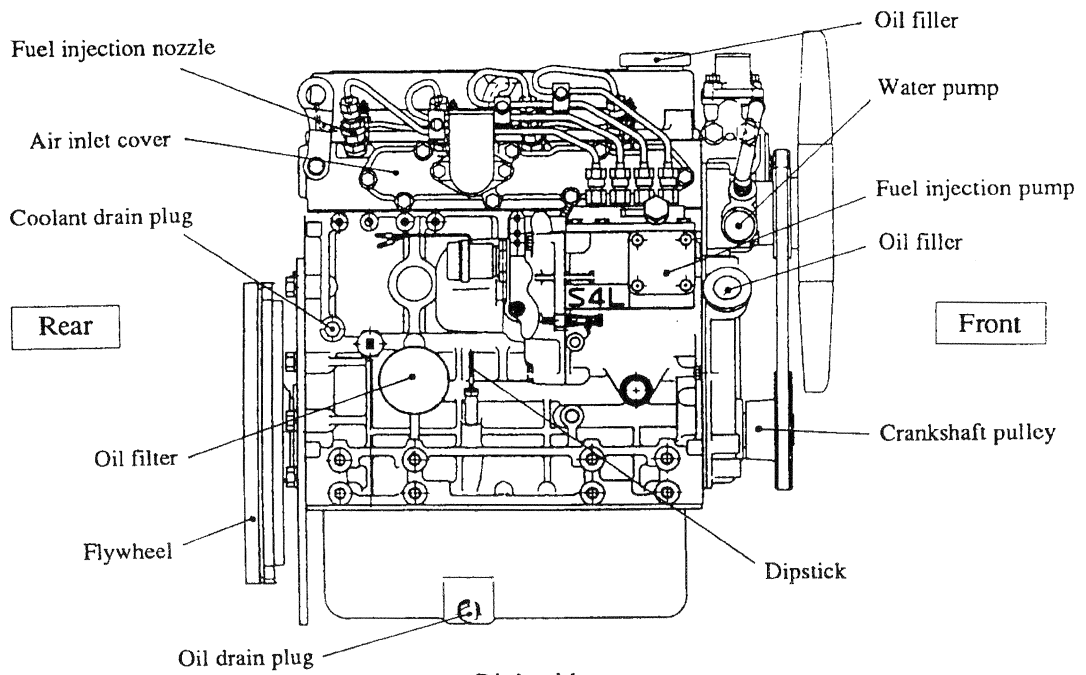


- | | | | |
|----|-----------------------|----|-------------------|
| 1 | union collar | 12 | sleeve |
| 2 | air vent screw | 13 | upper seat |
| 3 | delivery valve holder | 14 | plunger spring |
| 4 | valve spring | 15 | plunger |
| 5 | holder stopper | 16 | lower seat |
| 6 | housing | 17 | adjusting shim |
| 7 | O - ring | 18 | tappet roller |
| 8 | delivery valve | 19 | pin |
| 9 | gasket | 20 | control rack |
| 10 | seat valve | 21 | stop wire bracket |
| 11 | plunger barrel | | |



Left side

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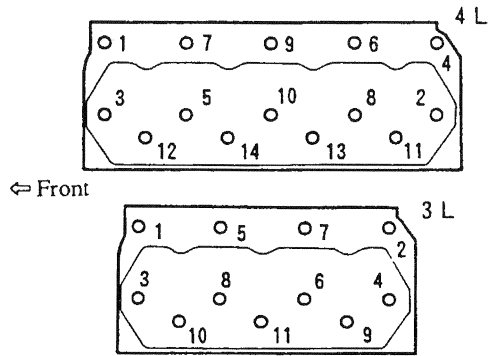


Right side

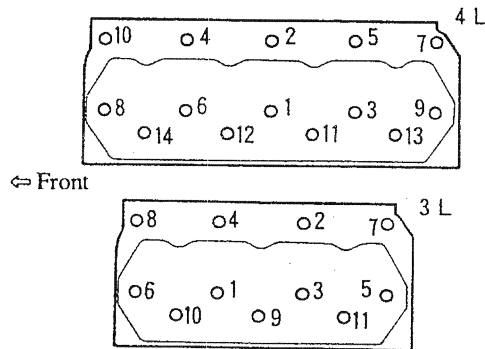
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CYLINDER HEAD

Loosening of the bolts - sequence -



Tightening of the bolts - sequence -



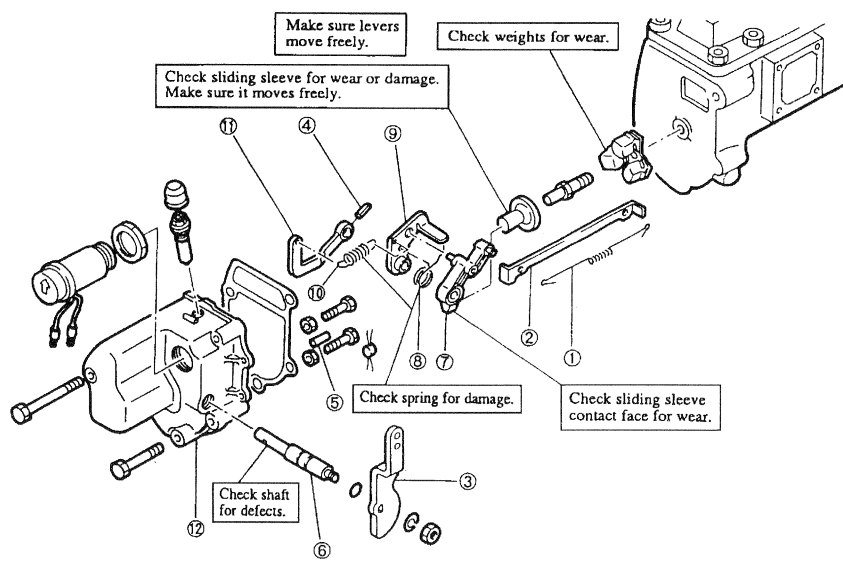
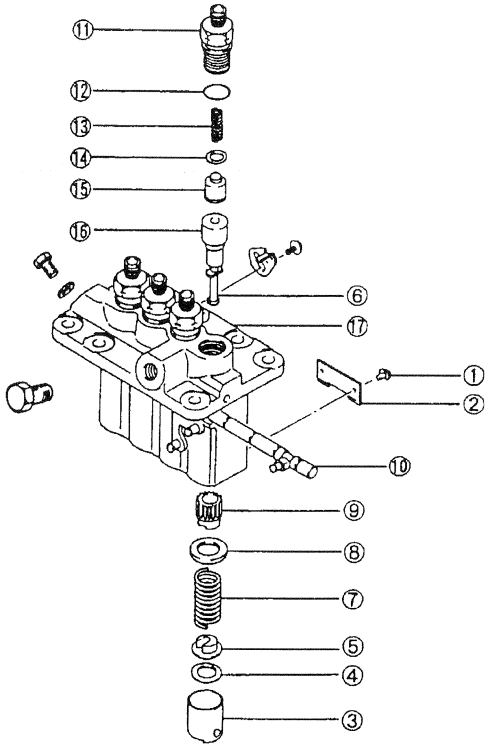
Tightening torque, cylinder head bolts: 88 ± 5 Nm

Technical Data

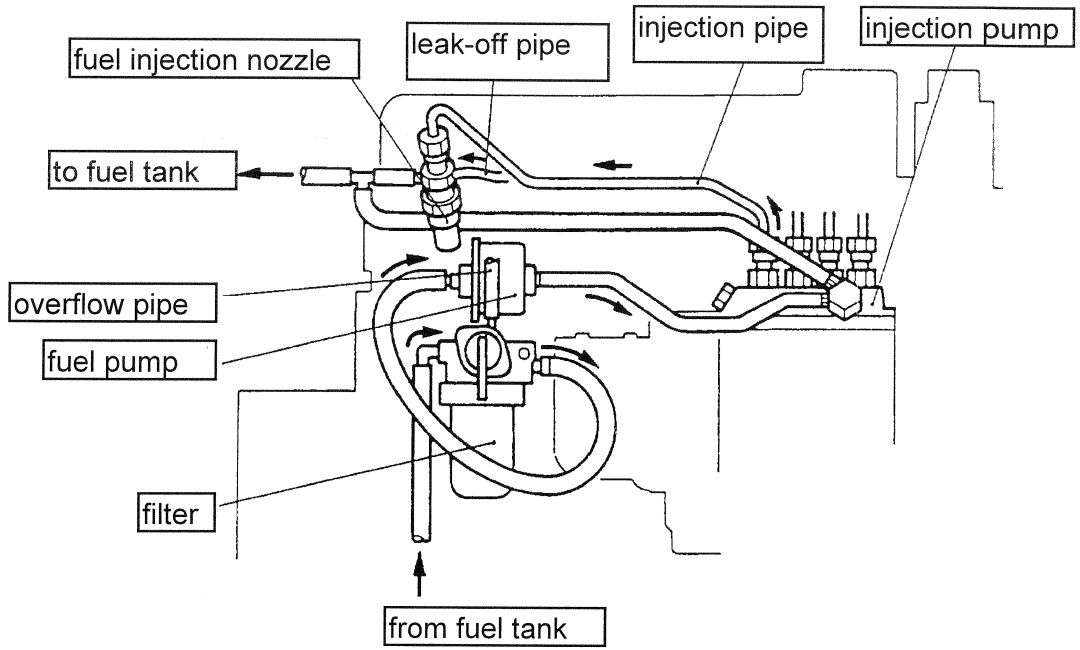
Valve clearance, cold	0.25	mm	inlet & exhaust
Injection pressure	140	bar	+ 5 bar
Compression pressure new	30	bar	lower limit: 27 bar
Injection timing	17°	before top	dead centre
Oil pressure, service temperature	3.5	bar	± 0.5 bar

Tightening torques: Bolts/nuts in general

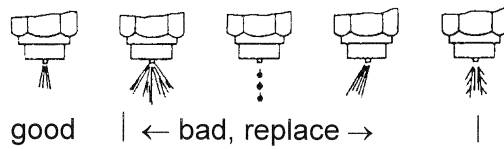
Thread	Quality class 4	Quality class 7
M 6	4 Nm	9 Nm
M 8	11 Nm	18 Nm
M 10	21 Nm	35 Nm
M 12	35 Nm	64 Nm
M14	60 Nm	93 Nm



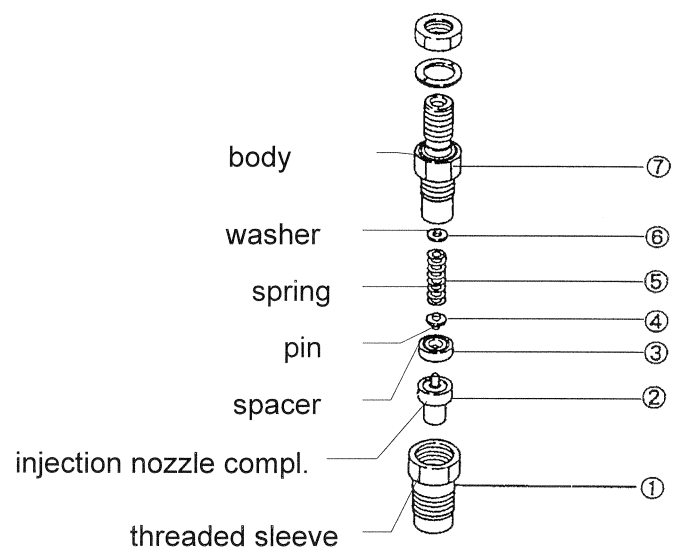
Fuel system



Injection nozzles - injection figures



Injection nozzle



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