Service Training
IC truck

Series 393

H25D, H25T, H30D, H30T, H35D, H35T

Edition 10/2008

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393 804 24 01 EN – 10/2008

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BEU diesel engine

Description of the drive

BEU technical data

Manufacturer	VW
Engine type	BEU (SDI industrial engine)
Number of cylinders	4
Displacement	1896 cm^3
Power rating	43 kW at 2600 rpm
Maximum torque	173 Nm at 1800 rpm
Injector pressure	220 bar, wear limit 200 bar
Compression	19.5:1
Compression pressure	25 - 31 bar, wear limit 19 bar
Maximum permissible pressure difference	5 bar
Lower idle speed	1000 rpm
Upper idle speed	2700 rpm when driving
	2800 rpm with working hydraulics
Valve clearance	Automatic adjustment
Ignition sequence	1 – 3 – 4 – 2
Position of cylinder 1	Opposite the power release side
Thermostat	Starts to open at 87 °C, fully open at 102 °C
Fuel	Diesel fuel to DIN EN 590, RME-based biodiesel permissible
Flywheel teeth count	135
Oil pressure at 2000rpm and oil temperature of 80 °C	not less than 2 bar
Pressure speed against working hydraulics with pressure relief valve set for 190 bar	< 2600 rpm at 60 °C hydraulic oil temperature
Bosch-specified sooting speed (full load): before or without the particle filter after the particle filter	 max. 2.5 max. 0.5

Explanation of engine number: The engine code letters and engine number are stamped on the left side of the cylinder block above the fuel pump. In addition, there is a label on the toothed belt cover

Structure of the engine number:Example: BEU / 002141 (engine type / serial number)

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Display	Possible cause of the error	Error resolution
More than 13 mg/stroke	Engine too cold	Run the engine at a higher speed to warm it up, and repeat the check
	Mixture too lean	Change the injection pump.

Evaluation of "pump voltage" (sensor voltage for control valve travel)

Display	Possible cause of the error	Error resolution
Less than 1.92 Volt	Mixture too rich	Change the injection pump.
More than 2.19 Volt	Engine too cold	Run the engine at a higher speed to warm it up, and repeat the check
	Mixture too lean	Change the injection pump.

Full load measurement

- Engine at full load, 2500–2800rpm
- Engine at operating temperature, coolant temperature not less than 80°C

Measured value block	Number	Display field	Setpoint value
01	1	Engine speed	2400–2850rpm
	2	Fuel injection quantity	22–34 mg/stroke
	3	Pump voltage	2.9–4.0 V
	4	Coolant temperature	80–110 °C

Measured value block 03 – evaluation

Idling measurement

- Engine idling
- Engine at operating temperature, coolant temperature not less than 80°C

Measured value block	Number	Display field	Setpoint value
03	1	Engine speed	960–1050rpm
	2	Exhaust gas recirculation valve duty cycle	5–20 %
	3	Intake air volume (setpoint)	650–750 mg/stroke
	4	Intake air volume (actual)	650–750 mg/stroke

Evaluation of "intake air volume (setpoint)"

Display	Possible cause of the error	Error resolution
More than 750 mg/stroke	Engine too cold	Run the engine at a higher speed to warm it up, and repeat the check

Evaluation of "intake air volume (actual)"

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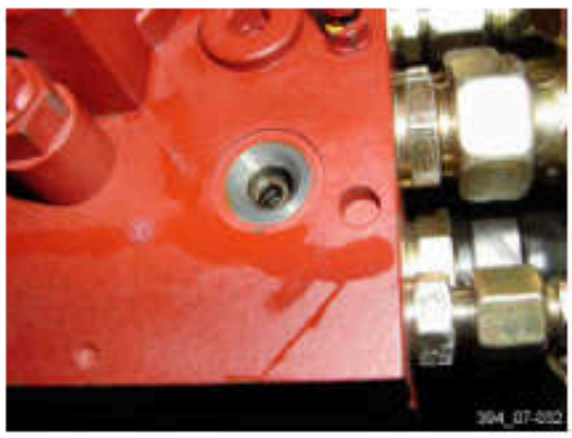
Circuit Diagram Standard Equipment, LPG Engine, sheet 3

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➢ Make sure that the tip of the cone lies in the valve seat.



The spring lies about 5 mm deep in the threaded hole.

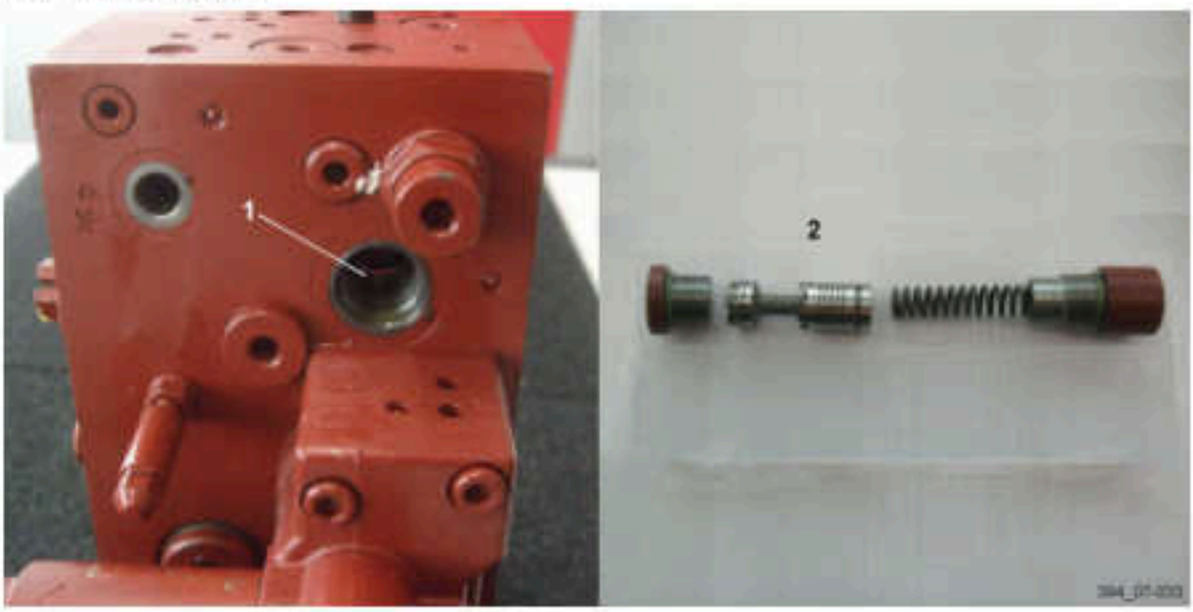


➢ Refit the self-locking nut with adjustment screw. Tighten the self-locking nut to 60 Nm.

➢ Close the fuel tank cap.

➢ Measure the maximum pressure and correct if necessary.

Flow balance valve



1 Position of the pressure governor
2 Pressure governor complete with screw plugs

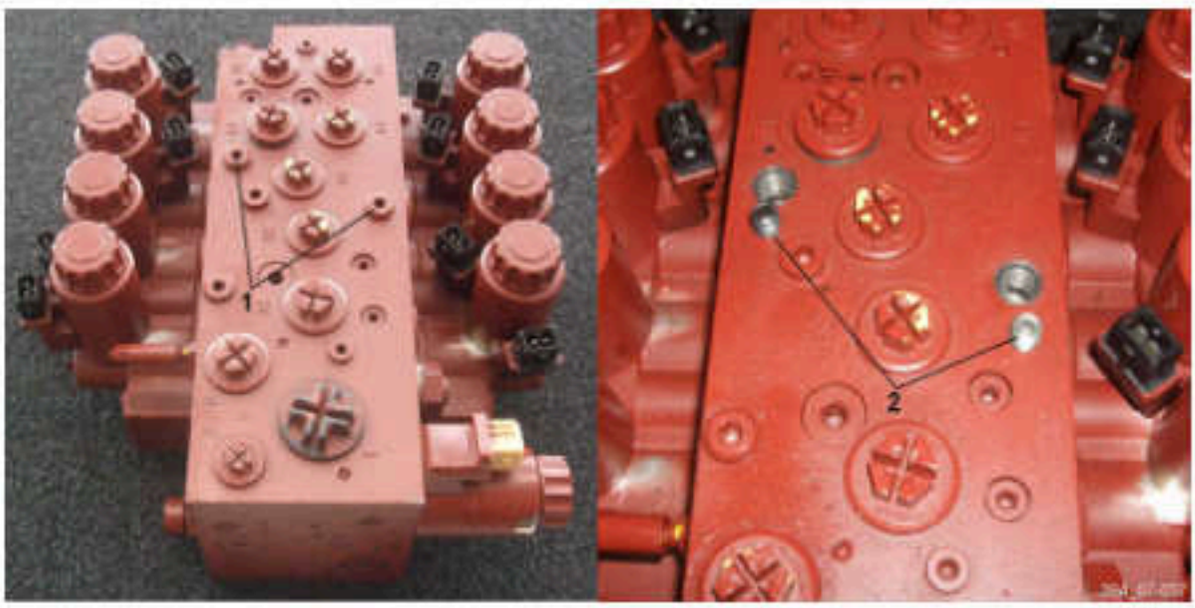
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Component	Possible defect	Possible cause	Measures	Test
Over-centre valve	Mast tilts forwards without actuation.	Dirt on the valve seat.	Clean the components. When refitting, check for free movement.	Safety risk! Always perform a leakage test in accordance with UVV regulations. If necessary repeat the test several times.
		Dirt between ball and seat.	Clean the valve. When refitting, check for free movement.	
		Valve is stiff in the bore.	Clean the valve. The sealing ring must be undamaged. When refitting, check for free movement.	

Disassembly of the over-centre valve with non-return valve. ▷

Over-centre valve with non-return valve. Ball (1) must move freely. ▷

Nozzles at the over-centre valve

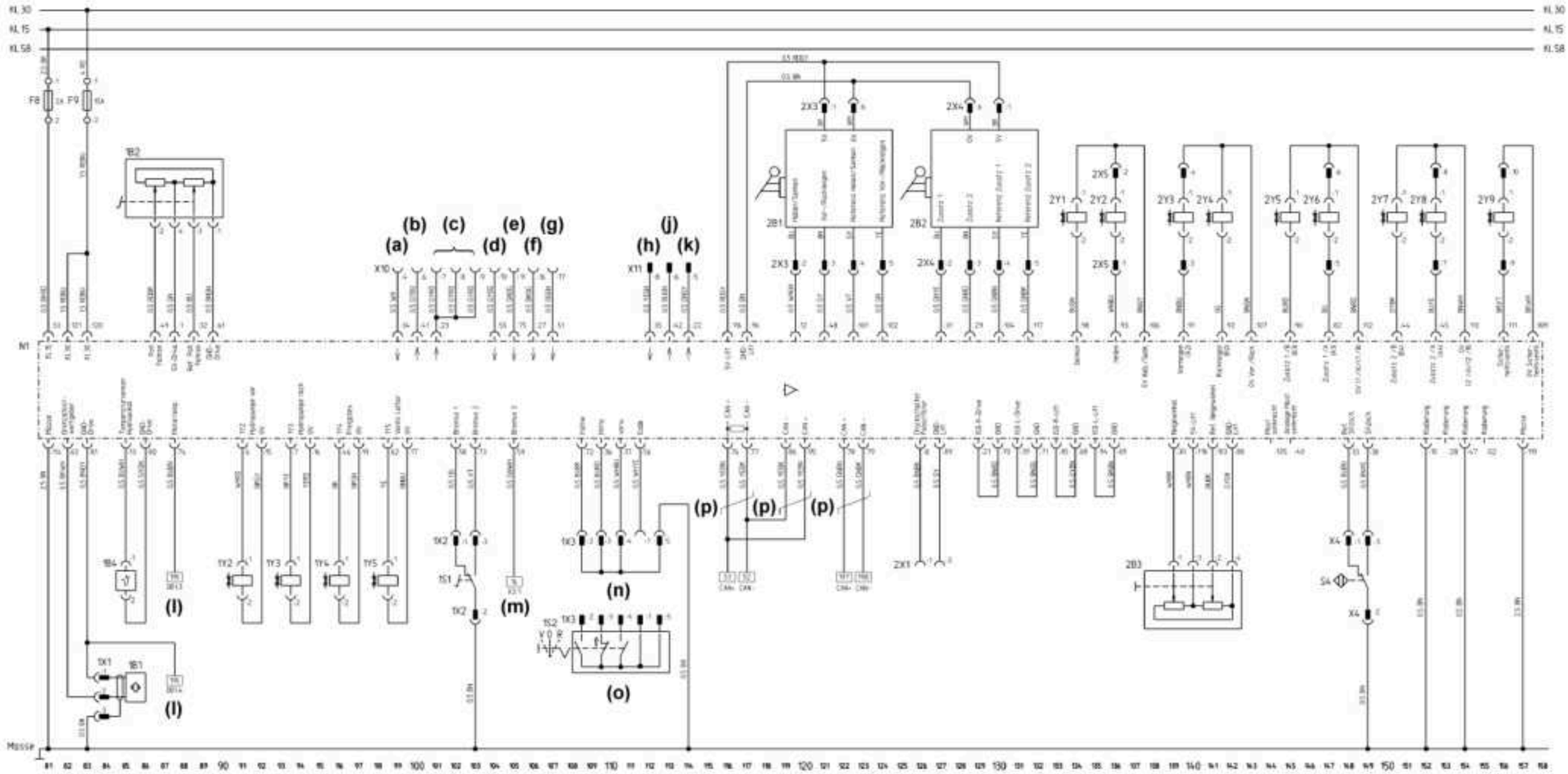


1 Sealing plug, M_A = 20 Nm
2 Nozzles, M6 (M_A = 5.9 Nm) and M8 (M_A = 14 Nm)

Component	Possible defect	Possible cause	Measures	Test
Nozzles at the over-centre valve	Jerky movement during tilting.	Nozzles are dirty.	Remove and change the nozzles.	
	Mast does not tilt when actuated.			

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Basic equipment for LPG sheet 2



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