

Contents Engines

Ident No. 8716755

This Edition include the Update
No. 4 from 05.2003

Manuel No.

Owner

.....

1. Technical Data

2. Inspections, Checks and
Adjustments

3. Cylinder Assembly

4. Crankcase, Crankshaft and
Camshaft Inspection and
Bushing Replacement

5. Components Fan side

6. Components Flywheel side

7. Fuel injection System

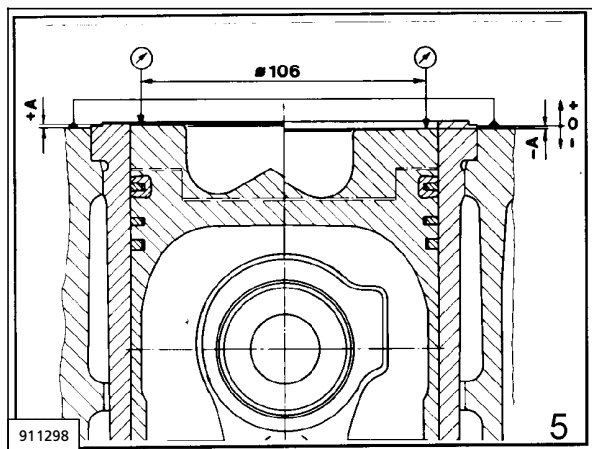
8. Pumps / Add on Components

9. Disassembly and Assembly of
Complete Engine

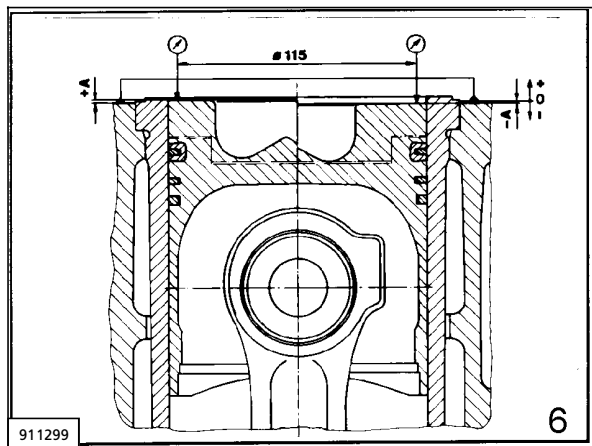
10. Turbocharger

11. Special Tools

12. Electronic engine governor
(EMR)



For measuring points on the D 904 / 906 engines with piston of 115 mm, see fig. 5.



For measuring points on the D 914 / 916 / 924 / 926 engines with piston of 120 or 122 mm, see fig. 6.

Note:

If the piston clearance is checked without the special tool, the measuring points, depending on the piston diameter, must be crosswise to the engine axis, see fig. 5 and 6.

The values given in the chart below are valid only for these measuring points.

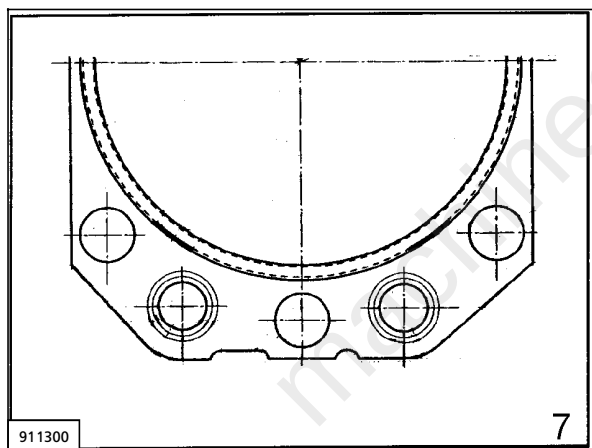
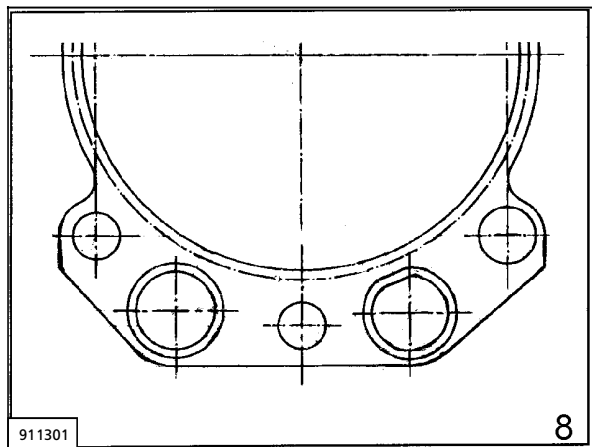


Chart Piston clearance measurement

Measurement A Medium value determined from 2 measuring points	Cylinder head gasket " thickness "	Cylinder head gasket
0.24 to + 0.09 mm	1.3 mm	Soft gasket Fig. 7
	1.25 mm	Metalic elastomer gasket Fig. 8



IMPORTANT:

If the soft cylinder head gaskets were installed, soft cylinder head gaskets (see fig. 7) must be reinstalled.

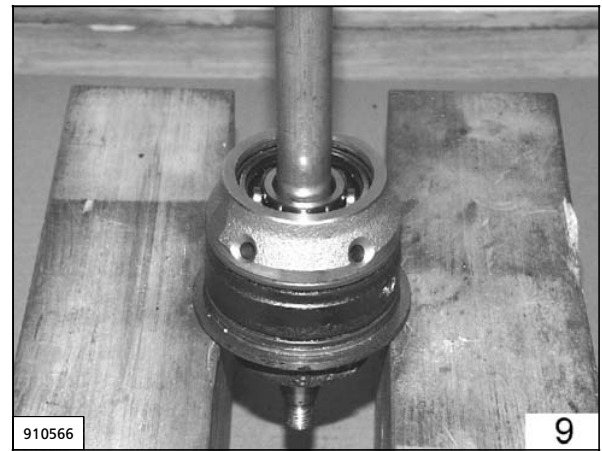
If metal elastomer cylinder head gasket were installed, metal cylinder head gaskets (see fig. 8) must be reinstalled.

This has two reasons:

The liner protrusion between soft and metal gaskets is different.

Metal gaskets are installed with different liners, which have a rough serrated gasket mating surface.

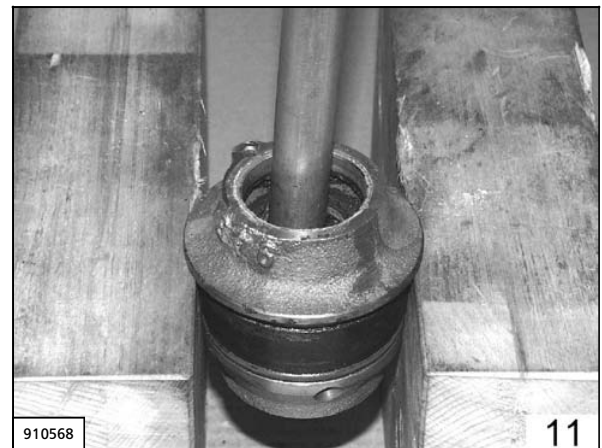
Place the housing 8 on a level surface as shown in fig. 9. With a soft punch, drive knock shaft 6 with slinger plate 9 and seal 10 from housing 8 by hitting the gear side of the shaft.



Turn the housing 8 over, drive ball bearing 11, spacer 12 and ball bearing 13 with a soft punch from the housing.



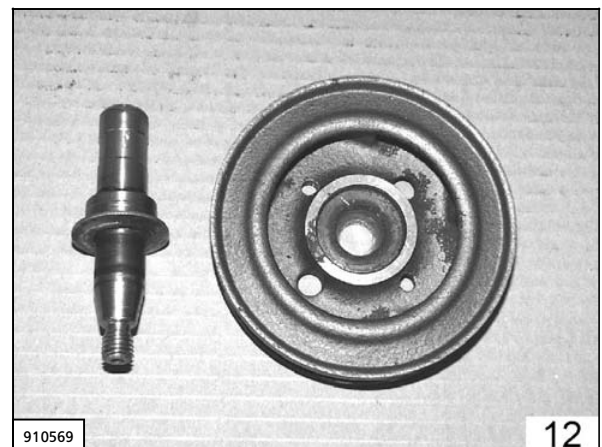
Drive the shaft seal 14 with a punch from housing 8.



Clean all parts.

Check the impeller wheel 1 and shaft 6 for wear and damage (visually). Replace parts, as necessary.

On shaft 6, check if the slinger plate is securely seated. If necessary, install a new slinger plate with Loctite 242, 243.

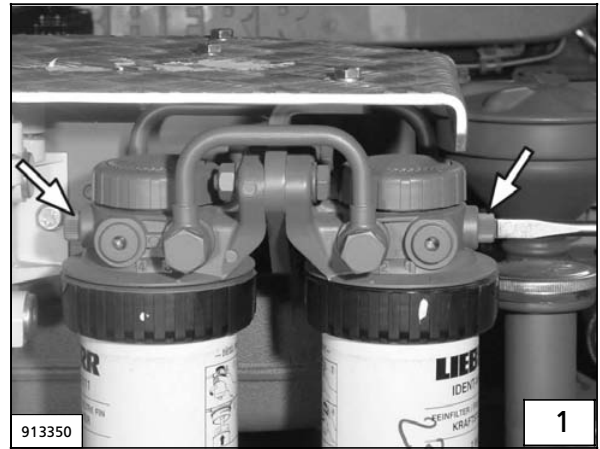


Bleeding the fuel system

Distributor (VE) fuel injection pump

If installed, open the shut off valve on the fuel tank.

Loosen the bleeder screws on the fuel fine filters.



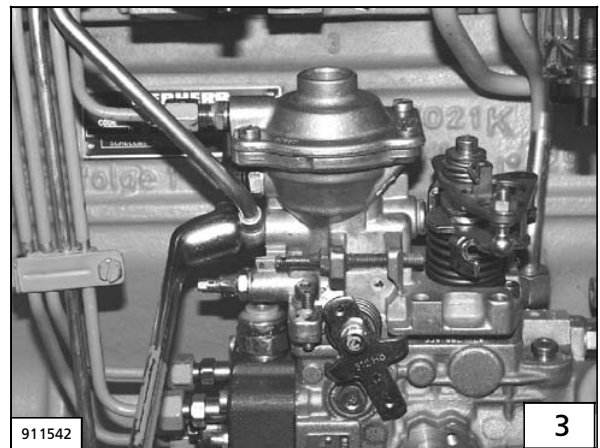
Actuate the lever on the fuel pump until clean fuel free of air bubbles appears.

Tighten the bleeder screws on the fine filters .



Loosen the fuel return line to the tank on the fuel pump.

Actuate the lever on the fuel pump until clean fuel free of air bubbles appears. Tighten the fuel line.



Loosen the union nuts on the fuel injector lines at the fuel injectors.

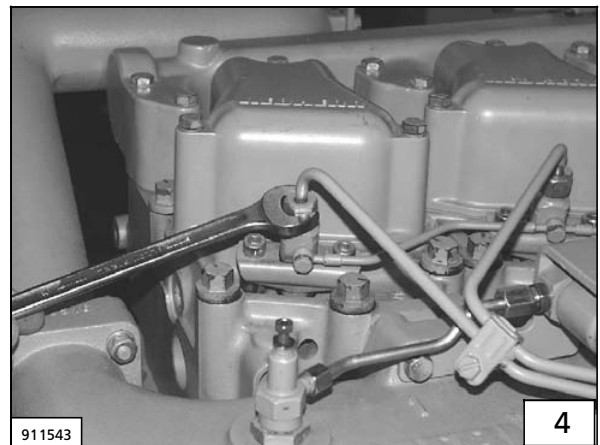
Note: To prevent the engine from starting, engage engine shut off / mechanical or electrical.

Actuate the starter until clean fuel free of air bubbles appears. Tighten the union nuts.

Start the engine and check the connections for leaks.

Note:

In case of starting problems, repeat the bleeding procedure, as necessary.



REPAIR INSTRUCTIONS

SERIES K1/K2 uncontrolled



Turbolader

Valid: 5900 008 25 32 12.91 E
Cancelled: 5900 008 25 32 07.89 E

- Heat compressor wheel (20) to a max. temp. of 130 ° C, using hot air blower (See: Repair Tools) (Protect the rotor threads from overheating), and carefully push out shaft and turbine wheel assy. (5), using a press (a vertical drilling machine).

Illustrations 1.2.3, 1.2.4

ATTENTION:
Fit heat shield (31) concentrically.

1.3 Bearing Housing (1)

- Carefully remove the shaft and turbine wheel assy. (5) from the bearing housing (1).
- Remove piston rings (6) from shaft and turbine wheel assy. (5).

Illustration 1.3.1

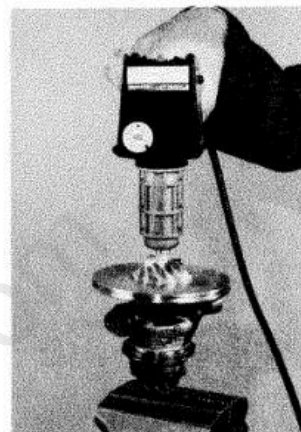
- Remove heat shield (31).
- Clamp bearing housing (1) in vice between the oil feed and return flanges.

REMARK: Use vice jaw guards.

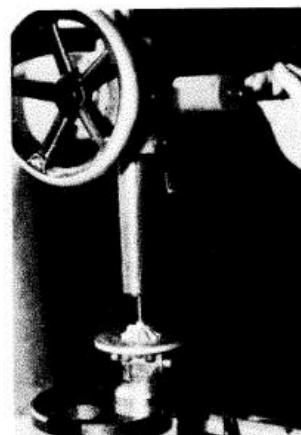
- Remove the fixing screws (18).

Illustration 1.3.2

ATTENTION:
Fixing screws (18) are secured with LOCTITE 640.



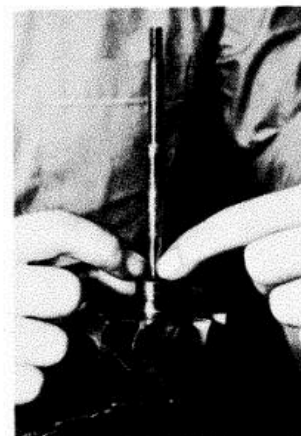
1.2.3



1.2.4



1.3.2



1.3.1

3605	5VRefAnalog/TempIn3		
	Level:	1	Current value of reference voltage of the analog input 3
	Range:	0..7,35 V	and temperature input 3
3606	5VRefAnalog/TempIn4		
	Level:	1	Current value of reference voltage of the analog input 4
	Range:	0..7,35 V	and temperature input 4
3607	InternTemp1		
	Level:	1	Current value of internal temperature 1
	Range:	-50..+150 °C	
3608	InternTemp2		
	Level:	1	Current value of internal temperature 1
	Range:	-50..+150 °C	
3611	FeedbackDigitalOut1		
	Level:	1	Current value of feedback input of digital output 1
	Range:	0/1	
3612	FeedbackDigitalOut2		
	Level:	1	Current value of feedback input of digital output 2
	Range:	0/1	
3613	FeedbackDigitalOut3		
	Level:	1	Current value of feedback input of digital output 3
	Range:	0/1	
3614	FeedbackDigitalOut4		
	Level:	1	Current value of feedback input of digital output 4
	Range:	0/1	
3615	FeedbackDigitalOut5		
	Level:	1	Current value of feedback input of digital output 5
	Range:	0/1	
3616	FeedbackDigitalOut6		
	Level:	1	Current value of feedback input of digital output 6
	Range:	0/1	
3617	FeedbackDigitalOut7		
	Level:	1	Current value of feedback input of digital output 7
	Range:	0/1	
3618	FeedbackDigitalOut8		
	Level:	1	Current value of feedback input of digital output 8
	Range:	0/1	
3619	FeedbackDigitalOut9		
	Level:	1	Current value of feedback input of digital output 9
	Range:	0/1	
3620	FeedbackDigitalOut10		
	Level:	1	Current value of feedback input of digital output 10
	Range:	0/1	
3621	FeedbackDigitalOut11		
	Level:	1	Current value of feedback input of digital output 11
	Range:	0/1	
3622	FeedbackDiagnosPort		
	Level:	1	Current value of feedback input of diagnosis port
	Range:	0/1	

Description	Torque specifications	For sequence and data, see page
Nut on injection pump drive	pretension Nm 30 Nm 300	26
Screw for gear injection pump drive (drive mounted in timing case)	pretension Nm 30 $\angle^{\circ}$ 40 Nm 110	26.1 / 26.2
Nut for gear shaft on injection pump	**** only VE-P. M 14 x 1,5 M 18 x 1,5 M 20 x 1,5 Nm 85 ⁺¹⁵ Nm 100 ⁺¹⁰ Nm 150 ⁺¹⁰	25
Injector mount	Nm 23	27
Union nut for fuel injector	D 904/ 906/ 914/ 916/ 926TI D 924 / 926T-E/TI-E Nm 50 ⁺²⁰ Nm 40 ⁺¹⁰	27.1
Injection lines	Nm 20	
Piston cooling nozzle	** Nm 30	10
Screw for coolant pump gear	pretension Nm 30 $\angle^{\circ}$ 90 Nm 115	20
Nut on coolant pump impeller	*** Nm 100	20
Screw for coolant pump hub	pretension Nm 30 $\angle^{\circ}$ 90 Nm 115	20
Nut for coolant pump impeller (coolant pump integrated in timing case)	* pretension Nm 30 Nm 70 ⁺²⁵	20.1 / 20.2 20.3 / 20.4

Full Version Available

Liebherr D 904, D 906, D 914 and D 916 Engine Service Manual

Liebherr D 904, D 906, D 914, D 916 engine service manual with repair procedures, engine data and torques. 28 PDF files. Instant PDF download.

VIEW THE FULL MANUAL

<https://machinecatalogic.com/liebherr-d-904-d-906-d-914-and-d-916-engine-service-manual/>

File Pages: 8,427 · File Count: 28 · File Language: English, French, German