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Workshop Manual

Deutz Service

B/FL 1011/T

Reprinted

291-1942

CASE

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000 General engine data

	English	F2L 1011	F3L 1011	F4L 1011	BF4L 1011 T
001	Engine weight w/o starter w.generator ca. kg	162	202	242	248
002	Engine swept volume cm^3	1366	2049	2732	
003	Bore mm	91			
004	Stroke mm	105			
005	Direction of rotation	When facing flywheel left counter-clockwise			
006	Rated speed max. rpm	3000 / 3600			2500
007	Minimum idle speed rpm	900			
008	Working cycle	Four-stroke diesel			

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1

Tightening Specifications

	English	Initial tightening Nm	Tightening angles 1.	2.	3.	4.	Total	Remarks
901	Main bearing bolts	50	60	45	-	-	105°	
904	Big end bolts	30	60	60	-	-	120°	
907	Flywheel bolts	30	60	30	-	-	90°	
909	Cylinder head studs	a) 1. Stufe 30 2. Stufe 80 3. Stufe 160	120	-	-	-	120°	
910	Camshaft/Thrust bearing bolt M 8 x 35 8.8						22 ± 2 Nm	
911	Camshaft/Central bolt M14 x 1,5 x 110 10.9 M14 x 1,5 x 110 12.9	 30 30	 150 210	 - -	 - -	 - -	 150° 210°	
912	Crankshaft/Central bolt	130	210	-	-	-	210°	
913	Rockerarm bolts M 8 x 45 Torx 8.8						22 ± 2 Nm	

a) 1st step 2nd step 3rd step

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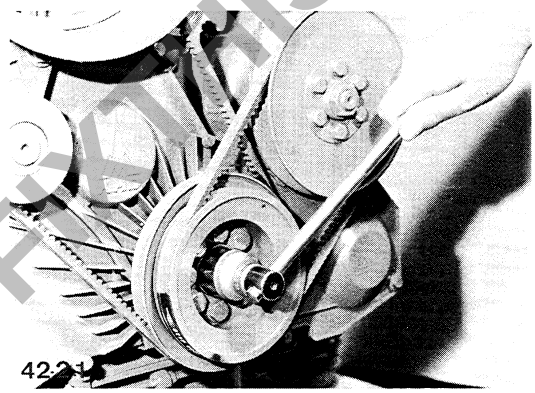
Valve clearance

The standard valve clearance can be adjusted: with engine cold or warm after cooling down for at least 0.5 h. Oil temperature ≤ 80°C.
Note: The valve clearance is to be increased by 0.1 mm at every cylinder head gasket renewal. The standard valve clearance is to be adjusted after completion of 50 hours of operation.

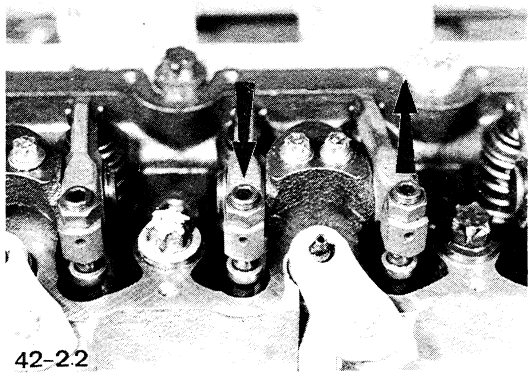
Cylinder head cover has been removed.

1. Turn engine until valves of cylinder No. 1 overlap.

See schematic for valve clearance adjustment.


42-2.1

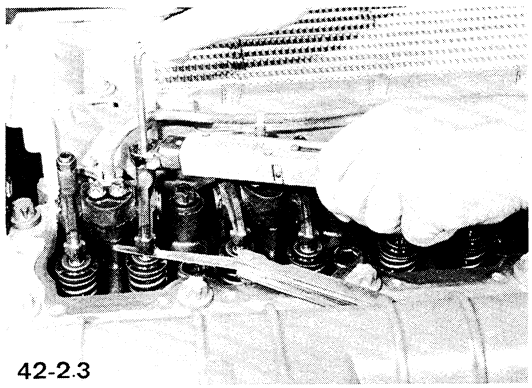
Note:
Valves overlapping means: exhaust valve about to close, inlet valve about to open. Both pushrods are now non-rotatable.


42-2.2

2. Adjust valve clearance on respective cylinder with feeler gauge.

Tighten locknut in accordance with specifications. Recheck the adjustment with feeler gauge.

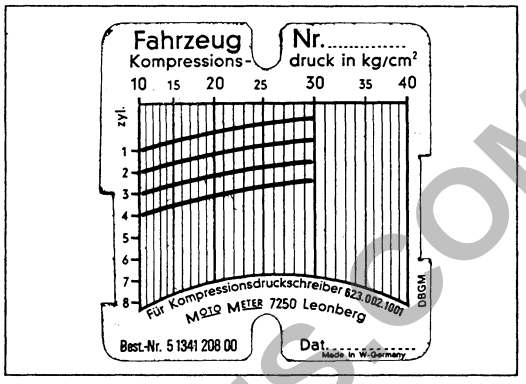
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262
914


42-2.3

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The measured compression pressure is dependent on the starting speed during the measurillg process and also on the altitude of the engine site. Limiting values are therefore difficult to lay down exactly. It is recommended to use the compression pressure measurement only for comparison of compression pressures of all cylinders in one engine. If a difference in pressure exceeding 15 % is determined, the cylinder unit concerned should be dismantled to establish the cause.



Note:
For fitting injectors and injection lines see chapter 4.

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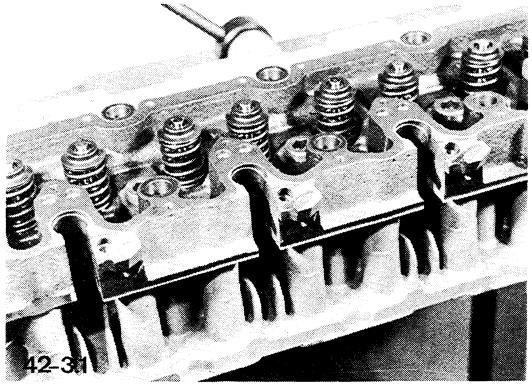
Cylinder head

Commercial tools required:
Magnetic measuring stand
Valve spring assembly lever
Valve reseating tool

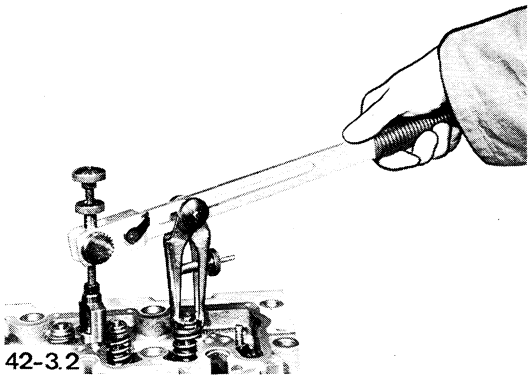
Special tools required:

Clamping stand 120900
Clamping plate 120910
Sleeve for fitting
valve stem seal 121410

1. Mount cylinder head on fixture.

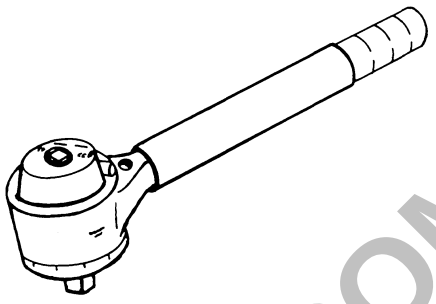
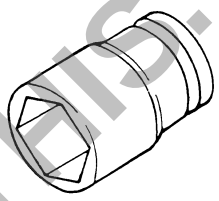
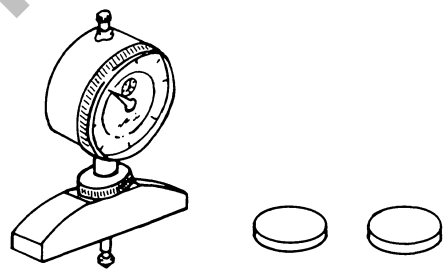
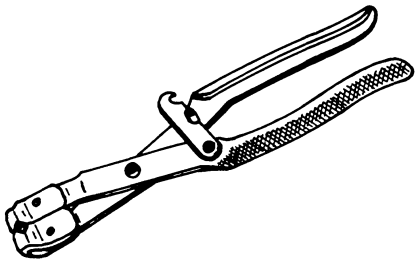
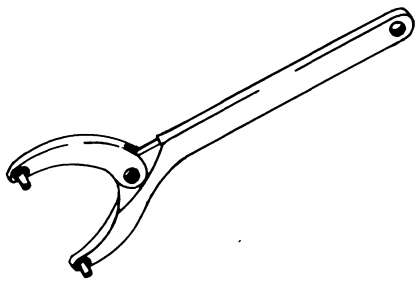


2. Remove valve collet, valve spring cap, valve springs and valves.



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No.	Multipower tool for central bolt.	
STW 392 **030 1124**		
SW 32 **030 1083**	Socket 60 JMP.	
TM2 **030 1084**	Depth gauge with spacer discs.	
2465	Hose clip pliers	
764 **030 1086**	Special two-pin spanner, swivel-type	

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Service telephone for technical enquiries

Personal answering from 8:15 a.m. to 5:00 p.m.

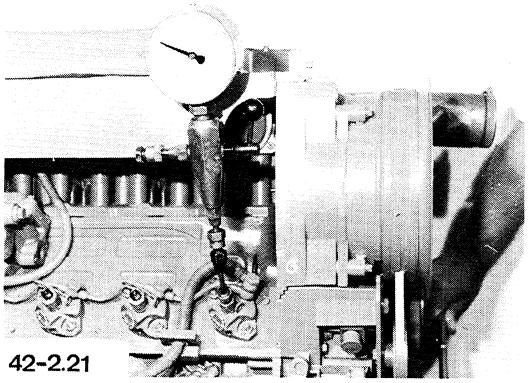


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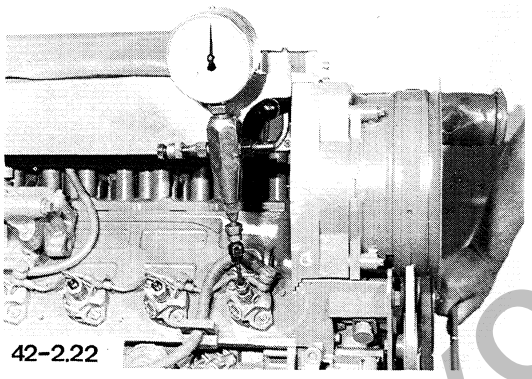
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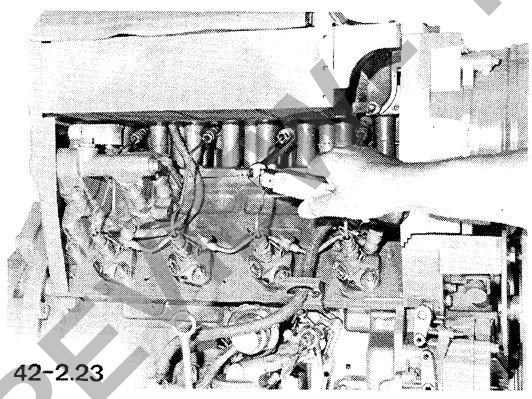
112

3. Turn crankshaft until a pressure of 150 bar is applied to the delivery valve. The indicated pressure should not drop more than 10 bar within one minute.



113

4. Turn crankshaft further until a pressure of 300 bar is generated. If this value is not attainable, remove injection pump.



929

5. Remove injection pump tester and reassemble engine.

Note:
Secure injection lines in accordance with specifications.

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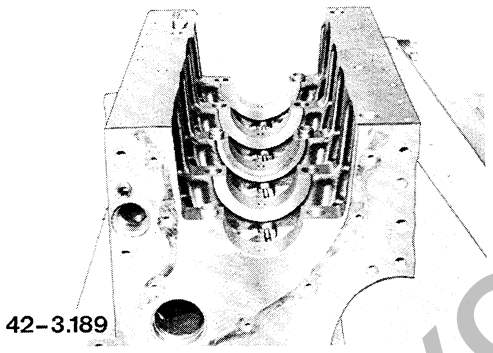
Crankcase with integrated cylinder liners

Commercial tools required:

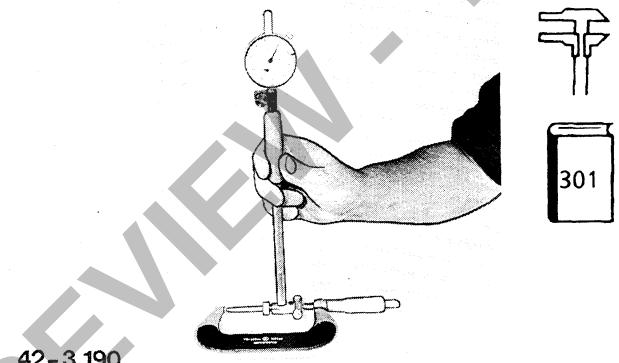
Screwdriver socket 740c
Internal dial gauge

Special tools required:

Assembly tool for camshaft sleeve..... 143720
Assembly tool for control rod sleeve 110100

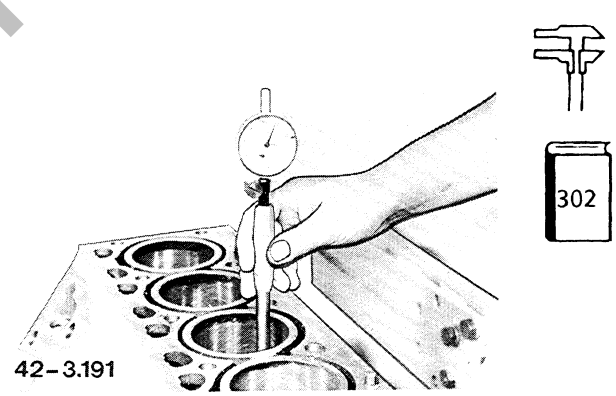

42-3.189

1. Clean crankcase and inspect for damage.



42-3.190

2. Set internal dial gauge.



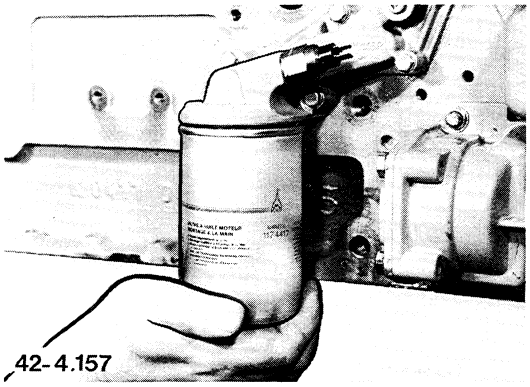
42-3.191

3. Gauge cylinders -

3

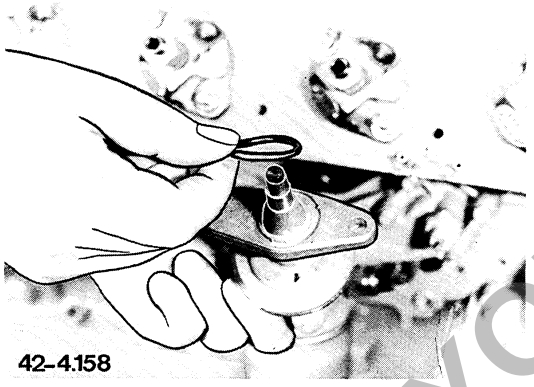
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42-4.157

106. Slightly oil oil filter gasket. Lock oil filter cartridge finger-tight.

Fuel feed pump


42-4.158

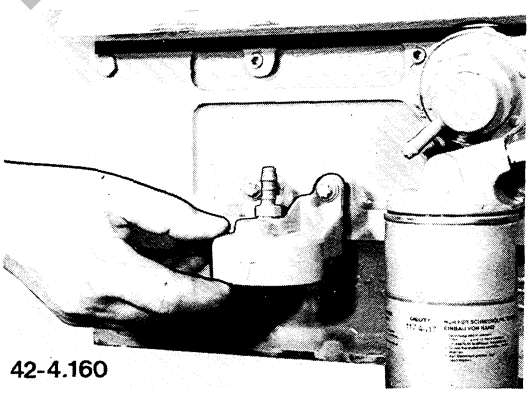
107. Fit new O-seal.


42-4.159

108. Mount fuel feed pump.Tighten bolts evenly in accordance with specifications.

925

Note:
Set lift cam to BDC.


42-4.160

109. Fit fuel filter bracket

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