Workshop Manual

Deutz Service

B/FL 1011/T

Reprinted

291-1942

CASE

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1. SPECIFICATION DATA

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			

000 General engine data

	English	F2L 1011	F3L 1011	F4L 1011	BF4L 1011 T
009	Combustion system	Direkt injection			
010	Compression ration	18,5 : 1			17 : 1
011	Compression pressure bar	25 - 30			22 - 27
012	Firing order	1 - 2	1 - 2 - 3	1 - 3 - 4 - 2	
020	Dimensions of engine incl. standard flywheel				
021	Max. length mm	522	630	741	
022	Max. width mm	444			490
023	Max. height mm	691		711	

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100 Fuel injection system

	English	F2L 1011	F3L 1011	F4L 1011	BF4L 1011 T
110	Fuel injection pump				
111	Make, model	OMAP			
112	Min. pres. that must be attained with abt. 5 rot. of crankshaft bar	300			
113	Pressure for testing tightness of relief valve bar	150, drop to 140 in a minute permiss.			
120	Governor				
121	Make, model	KHD			

100 Fuel injection system

	English	F2L 1011	F3L 1011	F4L 1011	BF4L 1011 T
130	Injection nozzle				
131	Make, model	OMAP			
132	Opening pres. (checking injector for re-use) bar	245 +8			245 +8 1) 205 +8
133	Opening pressure (new condition) bar	250 +8			250 +8 1) 210 +8

1) Engines for Messrs Holder

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100 Fuel injection system

	English	F2L 1011	F3L 1011	F4L 1011	BF4L 1011 T
140	Commencement of fuel delivery				
141	Static w/o advance / retard unit				
145	Installation dimension of injection pump mm		≦ 1800 57,3 ≧ 1801 56,8 1) 57,0		58,0

1) Engines for Messrs Holder

200-400 Cylinder unit

	English	F2L 1011	F3L 1011	F4L 1011	BF4L 1011 T
200	Cylinder head				
210	Valve guide				
211	Valve guide Outer dia. mm				
212	Valve guide bore in cyl. head mm				
213	Valve guide Inner dia. mm		$8^{+0,025}$		
220	Valve seat insert				
221	Valve seat insert Outer dia. Inlet mm		42,67 ±0,005		
222	Number of oversizes		1		

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200-400 Cylinder unit

	English	F2L 1011	F3L 1011	F4L 1011	BF4L 1011 T
223	Each oversize	0,2			
224	Valve seat Outer dia. Exhaust mm	37,07 ±0,005			
225	Number of oversize	1			
226	Each oversize	0,2			
227	Valve seat insert bore Inlet mm	42,6 +0,03			
228	Valve seat insert bore Exhaust mm	37 +0,03			
230	Valve				
231	Valve stem dia. Inlet mm	7,98 -0,015			

200-400 Cylinder unit

	English	F2L 1011	F3L 1011	F4L 1011	BF4L 1011 T
232	Valve stem dia. Exhaust mm	7,96 $^{-0,015}$			
233	Valve stem clearance Inlet standard mm	0,02 - 0,06			
234	Valve stem clearance Inlet Wear limit mm	0,12			
235	Valve stem clearance Exhaust standard mm	0,04 - 0,08			
236	Valve stem clearance Exhaust Wear limit mm	0,15			
237	Valve head Ø Inlet mm	40,1 ±0,1			40,5 ±0,1
238	Valve head Ø Exhaust mm	34,9 ±0,1			

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2. INSPECTIONS, TESTS, CHECKING, ADJUSTING

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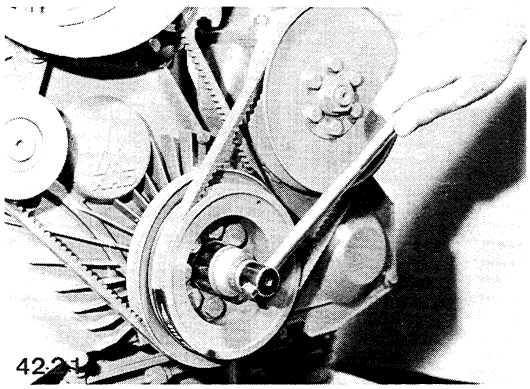
Valve clearance

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.

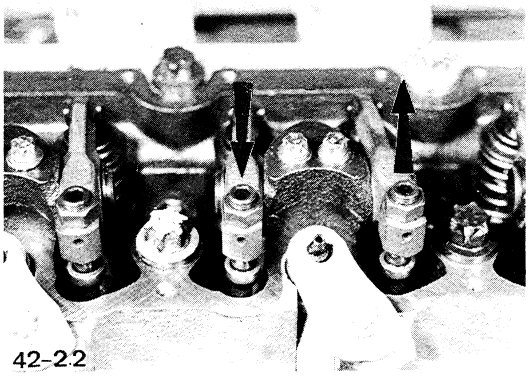
Cylinder head cover has been removed.

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



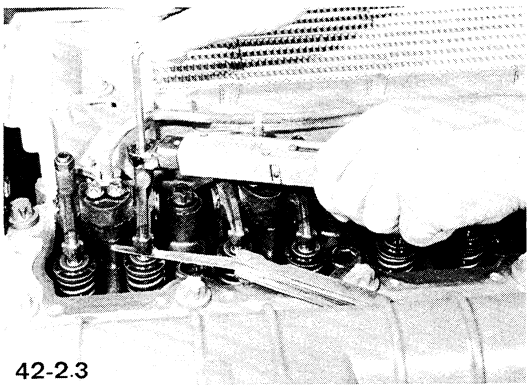
See schematic for valve clearance adjustment.

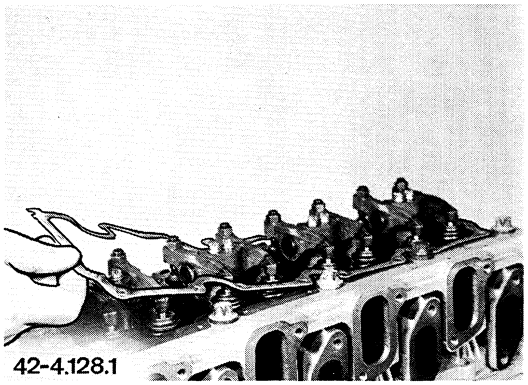
Note:
Valves overlapping means: exhaust valve about to close, inlet valve about to open. Both pushrods are now non-rotatable.



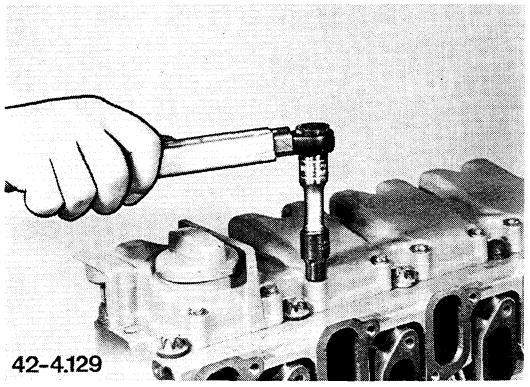
2. Adjust valve clearance on respective cylinder with feeler gauge.

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





3. Put gasket in place.



4. Fit cylinder head cover. Tighten bolts in accordance with specifications.

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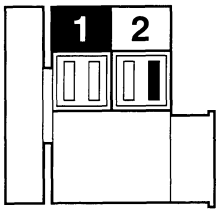
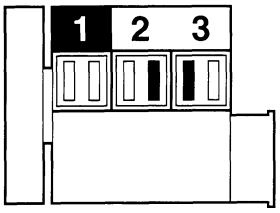
Schematic for valve clearance adjustment

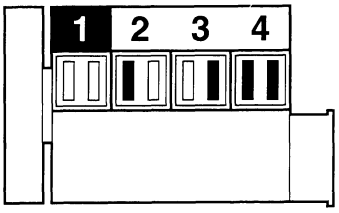
Crankshaft position **1**

Turn engine until valves of cylinder No. 1 overlap.

Not ready for adjustment



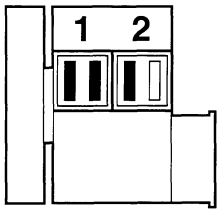


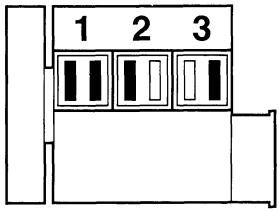


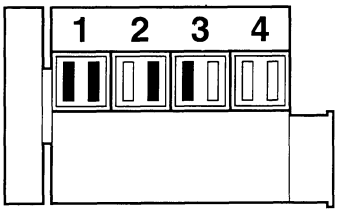
Crankshaft position **2**:

Turn engine further by one complete revolution (360°).

Ready for adjustment







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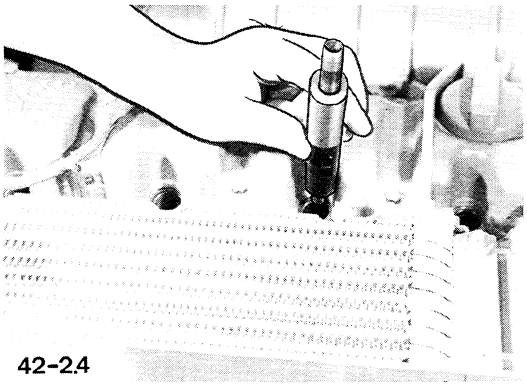
Compression pressure

Commercial tools required:
Compression tester 2461 Torx tools.

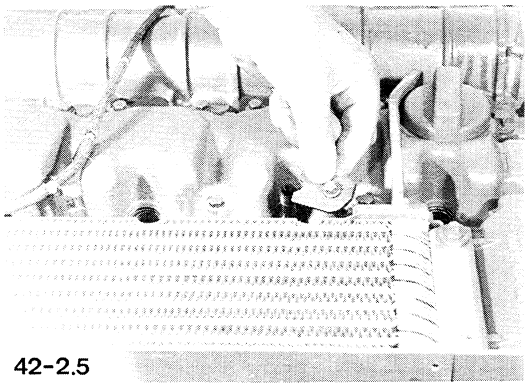
Special tool required:
Adapter 100090



42-2.4

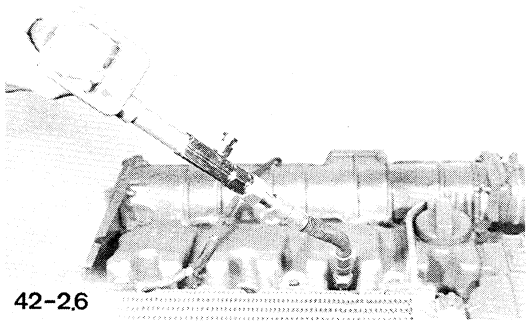
Injectors have been removed
Valve clearance has been checked.

1. Insert adapter with new special sealing ring.



42-2.5

2. Fit clamping pad. Tighten bolt.



42-2.6

3. Connect compression tester. Turn engine with starter.

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