



Workshop Service Manual TCD 4.1 L4 (Tier 4f)

This document is subject to changes which may become necessary in the course of further development of the engines. Reprinting and reproductions of any kind, even in part, require our written permission.

Regarding copyright questions and licensing agreements
please contact :

MB-IL, Mr. Lippke
Phone: 0221 822-2599
E-mail: lippke.d@deutz.com

DEUTZ AG
Sales & Service
Information Systems
Ottostraße 1
D-51149 Köln (Cologne)
Phone: +49 (0) 221-822-0
Fax: +49 (0) 221-822-3525
Internet: www.deutz.com
E-mail: info@deutz.com

Printed in Germany
All rights reserved
© 03/2017
Order no. 0312 4480 en



The engine company.

Workshop Manual	1
General	7
Safety information / User information	8
Special tools	14
Job cards	34
01 Crankcase/Front cover	34
W 01-01-01 Removing and installing the crankcase ventilation	34
W 01-02-01 Replacing the crankshaft sealing ring (opposite side to flywheel)	39
W 01-02-02 Mounting / dismounting shaft sleeve on the crankshaft (opposite side to flywheel) ...	44
W 01-03-01 Removing and fitting the front cover (Fastening parts).....	48
W 01-05-02 Checking the cylinder	52
W 01-08-01 Removing and installing the piston cooling nozzles	54
W 01-09-01 Removing and installing mass balancing shafts	56
W 01-09-02 Checking mass compensation shafts	60
W 01-11-01 Removing and installing the camshaft bearing (camshaft removed)	62
W 01-11-02 Checking the camshaft bearings.....	69
W 01-12-01 Removing and installing crankshaft bearing covers	72
W 01-90-01 Sealing parts.....	74
02 Oil pan	76
W 02-01-01 Removing and installing the lubricating oil pan (metal sheet lubricating oil pan).....	76
W 02-90-24 Oil filler neck (Lubricating oil pan, start page).....	82
05 Crankshaft/Torsional vibration damper/	83
W 05-02-01 Removing and installing the torsional vibration damper	83
W 05-03-01 Removing and installing the flywheel (Fastening parts)	86
W 05-03-03 Replacing the starter ring on the flywheel.....	90
W 05-04-01 Removing and installing the mass compensation gear	93
W 05-05-01 Removing and installing the crankshaft.....	101
W 05-05-02 Checking the crankshaft	103
W 05-05-03 Checking axial clearance of the crankshaft	107
W 05-06-01 Removing and installing crankshaft bearings	110
W 05-06-02 Checking the crankshaft bearing	113
W 05-07-01 Removing and installing the sensor wheel	115
06 Connecting rod	117
W 06-01-01 Removing and installing the con rod.....	117
W 06-01-02 Checking the con-rod.....	124
07 Piston.....	131
W 07-01-01 Removing and installing the piston	131
W 07-01-02 Checking the piston	133
W 07-02-01 Removing and installing piston rings	137
W 07-02-02 Checking piston rings	139
08 Cylinder head	141
W 08-00-01 Checking the compression pressure	141
W 08-01-01 Removing and installing the cylinder head cover	145
W 08-03-01 Removing and installing the cylinder head (Fastening parts).....	148
W 08-04-01 Removing and installing the valves	152

W 08-04-02 Checking the valves, valve guide, valve spring, valve lag	155
W 08-05-02 Replacing the injector sleeve	158
W 08-90-14 Engine suspension (Cylinder head)	165
09 Gear case/Gear drive	166
W 09-01-01 Replacing the crankshaft sealing ring (Flywheel side)	166
W 09-02-01 Removing and installing the gear case	170
W 09-90-01 Sealing parts (Gear case cover)	173
10 Camshaft	174
W 10-02-01 Removing and installing the camshaft	174
W 10-02-02 Checking the camshaft	176
11 Control parts	177
W 11-01-01 Checking and setting valve clearance (4 cylinders)	177
W 11-02-01 Removing and installing the valve control	181
W 11-02-02 Dismantling and assembling the valve control	184
W 11-03-01 Removing and installing control units	187
15 Lubricating oil cooler/Lubricating oil filter	189
W 15-02-01 Removing and installing the lubricating oil cooler	189
W 15-02-02 Removing and installing the lubricating oil cooler housing	192
W 15-90-01 Sealing parts (Lubricating oil cooler housing)	196
W 15-90-12 Add-on parts (Lubricating oil cooler housing)	197
W 15-90-32 Coolant line (Lubricating oil cooler housing - Crankcase)	199
16 Lubricating oil pipe	200
W 16-01-01 Removing and installing the oil suction pipe	200
17 Injection pump/High pressure pump	202
W 17-01-01 Removing and installing the control block (Fastening parts)	202
W 17-01-03 Dismantling and assembling the control block	205
W 17-01-04 Removing and installing the high-pressure pump (Fastening parts)	210
19 Fuel injector/Injector	215
W 19-01-01 Removing and installing the injector (1600 bar injection system)	215
20 Fuel filter/Fuel pump	225
W 20-02-01 Removing and installing the fuel supply pump (Fastening parts)	225
W 20-90-17 Fuel filter	227
21 Fuel pipes	229
W 21-01-02 Removing and installing the fuel line (control block - high-pressure pumps)	229
W 21-04-01 Removing and installing the rail (1600 bar injection system)	232
W 21-04-03 Removing and installing the pressure relief valve (Rail)	238
W 21-04-05 Removing and installing the rail pressure sensor	241
W 21-90-30 Fuel lines (Fuel supply pump, fuel filter, control block, rail, cylinder head)	244
22 Air filter/Suction pipe/Charge air line	248
W 22-01-01 Removing and installing the charge air line	248
W 22-90-20 Pressure sensor (Mixing pipe)	251
37 Coolant pump	253
W 37-03-01 Removing and installing the coolant pump (Fastening parts)	253
W 37-05-01 Removing and installing the adapter (Coolant pump - thermostat housing)	257
W 37-90-13 V-ribbed pulley	260

38 Coolant pipes/Thermostat housing	261
W 38-01-02 Checking the thermostat (when removed).....	261
W 38-02-01 Removing and installing the thermostat housing (Fastening parts).....	264
W 38-90-01 Sealing parts (Thermostat housing).....	268
W 38-90-32 Venting line (Thermostat housing - cooler)	269
39 Cooling fan/Fan	270
W 39-03-01 Removing and installing the fan bearing (Fastening parts)	270
W 39-03-03 Dismantling and assembling the fan bearing.....	272
W 39-90-76 Belt tensioner (Belt drive)	278
41 Exhaust pipe/Exhaust gas recirculation.....	279
W 41-01-01 Removing and installing the exhaust pipe	279
W 41-05-01 Removing and installing the flutter valve	282
W 41-05-02 Removing and installing the cooler.....	285
W 41-05-03 Removing and installing the actuator.....	294
W 41-05-10 Removing and installing the Venturi tube	298
W 41-05-13 Removing and installing the bracket (cooler - exhaust gas recirculation).....	302
W 41-06-01 Removing and installing the temperature sensor	305
W 41-06-02 Removing and installing the pressure sensor (Venturi tube)	309
W 41-90-01 Threaded socket (Exhaust line).....	313
W 41-90-32 Line (Exhaust pipe - mixing pipe)	314
43 Exhaust gas turbocharger	315
W 43-01-01 Removing and installing the exhaust gas turbocharger.....	315
W 43-04-01 Removing and installing the lubricating oil line (Exhaust turbocharger)	318
W 43-05-01 Removing and installing the lubricating oil return line (upper partial section) (Exhaust turbocharger).....	321
W 43-05-02 Removing and installing the lubricating oil return line (lower partial section) (Exhaust turbocharger).....	323
44 Generator/Starter.....	327
W 44-02-01 Removing and installing the generator (V-rib belt, level 1)	327
W 44-02-03 Removing and installing the V-ribbed pulley (with clamping cone).....	329
W 44-90-05 Fastening parts (Starter).....	332
W 44-90-08 Shield plate (Starter).....	333
48 Electric.....	334
W 48-02-01 Removing and installing the engine speed sensor (crankshaft) (Fastening parts).....	334
W 48-02-03 Removing and installing the speed sensor (camshaft) (add-on parts)	336
W 48-03-01 Removing and installing pressure/temperature sensor (Charge air)	338
W 48-90-05 Fastening parts (Cable harness)	340
W 48-90-05 Fastening parts (Relay - generator).....	341
W 48-90-05 Fastening parts (Speed sensor crankshaft).....	342
W 48-90-19 Temperature sensor.....	343
49 Tools/Special tools	344
W 49-02-02 Installing and removing the turning gear (Torsional vibration damper).....	344
52 Connection housing.....	346
W 52-01-01 Installing and removing the connection housing.....	346
W 52-90-07 Cover sheet (Connection housing)	350

It's a preview. You can download the full file by clicking the link below.

<https://shopservicemanual.com/>

Service Manuals from 2\$