Genie
A TEREX BRAND

# Service and Repair Manual

| | Serial Number Range |
|---|---|
| **S®-80 XC™** | from S80XCH-3101 |
| **S®-80 HF** | |
| **S®-85 XC™** | from S85XCH-3091<br>from S85XCD-2002 |
| **S®-85 HF** | |

This manual includes:
Repair procedures
Fault Codes
Electrical and
Hydraulic Schematics

For detailed maintenance procedures, refer to the appropriate Maintenance Manual for your machine.

Original Instructions
Part No. 1315679GT
Rev A
April 2022

# Table of Contents

## Deutz TD 2.9 L4 Engine

| | |
|---|---|
| **Displacement** | 177 cu. in<br>2,9 liters |
| **Number of cylinders** | 4 |
| **Bore and Stroke** | 3.6 x 4.3 in<br>92 x 110 mm |
| **Horsepower net intermittent @ 2600 rpm** | 74.2 hp<br>55 kW |
| **Induction system** | turbocharged |
| **Firing order** | 1 - 3 - 4 - 2 |
| **Low idle, standby** | 1000 rpm |
| **Low idle, function enable** | 1500 rpm |
| **High idle** | 2500 rpm |
| **Compression ratio** | 17.4:1 |
| Compression pressure (psi or bar) of the lowest cylinder must be at least 75% of the highest cylinder | |
| **Governor** | electronic |
| **Valve clearance, cold** | |
| Intake | 0.012 in<br>0,3 mm |
| Exhaust | 0.020 in<br>0,5 mm |
| **Lubrication system** | |
| Oil pressure, hot (@ 2000 rpm) | 40 - 60 psi<br>2,8 - 4,1 bar |
| Oil capacity (including filter) | 12.8 quarts<br>12,1 liters |
| **Oil viscosity requirements** | Low ash oil required |
| -22°F to 86°F / -30°C to 30°C | 5W-30 (synthetic) |
| -4°F to 104°F / -20°C to 40°C | 10W-40 |
| Above 5°F / -15°C | 15W-40 |
| Unit ships with 15W-40. Extreme operating temperatures may require the use of alternative engine oils. For oil requirements, refer to the Engine Operator Manual for your engine. | |
| **Oil Temperature sender** | |
| Installation torque | 8 - 18 ft-lbs<br>11 - 24 Nm |
| **Oil Pressure sender** | |
| Installation torque | 8 - 18 ft-lbs<br>11 - 24 Nm |
| **Fuel injection system** | Motorpal |
| Injection pump pressure, maximum | 15,000 psi<br>1034 bar |
| Injector opening pressure | 3046 psi<br>210 bar |
| **Fuel requirement** | |
| For fuel requirements, refer to the engine Operator Manual for your engine. | |
| Starter motor | |
| Current draw, normal load | 140 - 200A |
| Cranking speed | 250 - 350 rpm |
| **Battery – Engine starting and control system** | |
| Type | 12V DC, Group 31 |
| Quantity | 2 |
| Battery capacity, maximum | 1000A |
| Reserve capacity @ 25A rate | 200 minutes |
| **Alternator output** | 95A @ 14V DC |
| **Fan belt deflection** | 3/8 - 1/2 in<br>9 - 12 mm |

The Control System on this machine allows access to calibrations through the Service Mode. The procedures that follow will require the operator to be in Service Mode. Service Mode can only be entered at machine start up and requires a special code.

1 At the ground controls, select the ground control mode using the key switch.

2 Push and hold buttons numbered **2** and **3** underneath the display screen.

3 Pull out the red Emergency Stop button.

4 You will be prompted for a password. Enter **3 - 3 - 2 - 4**.

5 Press the Gear button to access the settings menu.

Note: There will be a delay while the menu is being loaded on the display screen.

6 The machine will now operate normally and allow the viewing and modification of calibrations and parameters.

Note: When a parameter is changed in Service Mode, the change is effective immediately when button 4 (OK) is pushed. Machine restart is not required. A confirmation beep accompanies every save (button 4).

Note: Pushing in the red Emergency Stop button will exit Service Mode.

Note: If there has been no input for 10 minutes while in Service Mode, the ALC-600 will power down and Service Mode will be exited, unless the engine is running.

## 1-3 Full Machine Calibration

Full machine calibration must be completed in the proper sequence when the ALC-600 controller (TCON) in the ground control box has been replaced.

### How to Fully Calibrate the Machine

Calibration procedures shall only be completed by qualified technicians that have Genie factory service training.

**⚠WARNING** Tip-over hazard. Failure to calibrate the machine in the proper sequence could cause the machine to tip over resulting in death or serious injury.

Note: A digital level will be required to perform this procedure.

Note: Start this procedure with the machine in the fully stowed position.

## 1-7
## How to Replace the Display Controller (DISCON) Module

1 Push in the red Emergency Stop button to the off position at both the ground and platform controls.

2 Disconnect the negative terminal from the start battery and auxiliary battery, if equipped.

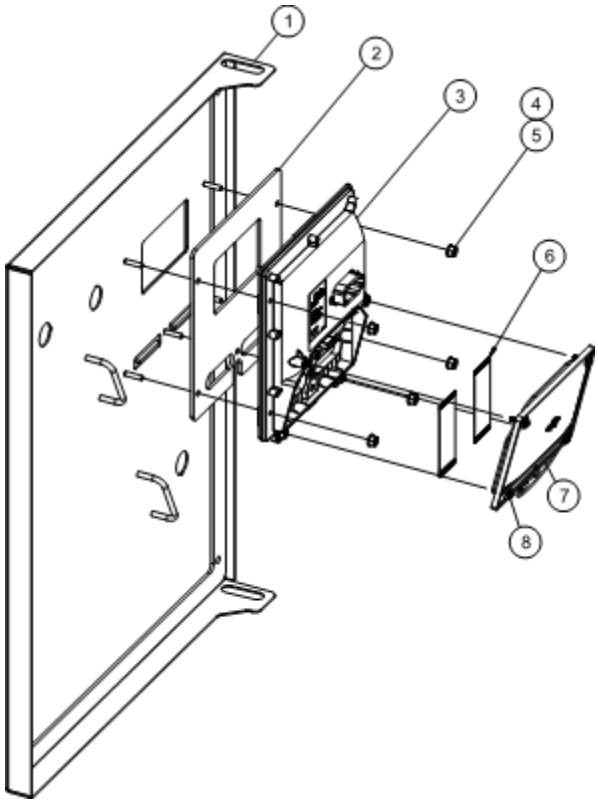



Illustration 1

1 ground box lid
2 DISCON gasket
3 DISCON
4 8/32 nylock nuts
5 #8 flat washers
6 ribbon cable
7 DISCON door
8 Torx head screws

3 Open the ground box lid (1) and disconnect the wire harness going to the display controller (DISCON).

4 Remove the DISCON door from the back by loosening the four Torx head screws (8) and remove the two ribbon cables (6) connecting the ground box overlay to the DISCON.

Note the orientation of the cables for reassembly.

5 Remove the DISCON from the ground control box lid by removing the five hex nuts and washers (4, 5). Discard the nuts and washers.

Note the lanyard attachment point for reassembly.

6 Remove the old DISCON gasket (2) from the ground box lid and clean the lid surface from any dirt, oil or old adhesive residue. Use a 99% solution of isopropyl alcohol to clean the surface. Allow the surface to completely dry.

Note: Both the ground box lid and new gasket must be 70° F / 21° C or higher at the time of application. Application of the new gasket at lower temperatures is not recommended.

7 Peel the adhesive protective film from the back of the new gasket. Carefully line up the new gasket over the ground box lid, making sure the cutouts for the LCD screen, ribbon cables and mounting studs are centered and lining up with the gasket. Apply the new gasket to the ground box lid and work from the center out to eliminate air bubbles and make sure all the gasket edges are securely fixed.

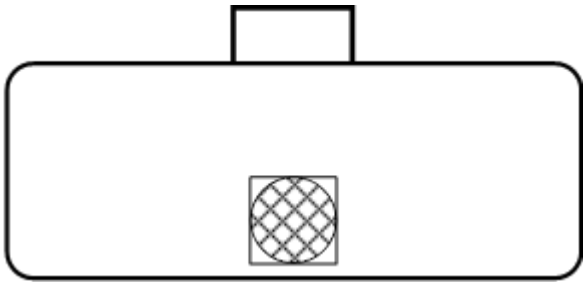
Note: Once applied it is not recommended to lift the gasket and attempt to reposition it.

# Platform Components

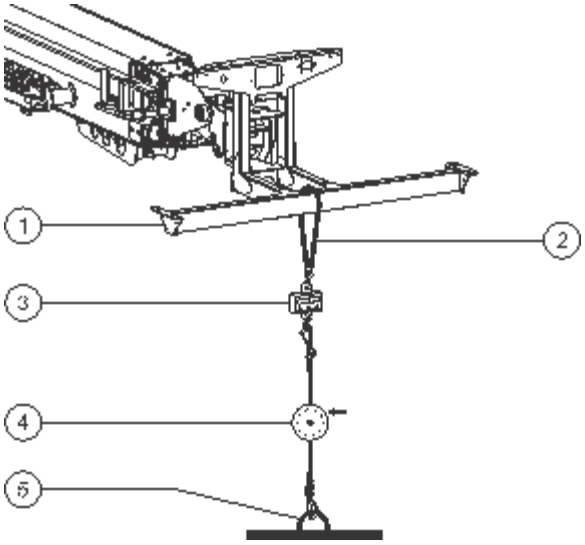
10 Place a test weight on the platform floor using a suitable lifting device. Place the weight near the center entry point of the platform, as far away from the operator controls as possible.

Weight = 1,000 lbs / 454 kg

Note: If test weights are not available, you may use an industrial scale to weigh available objects until it equals the platform's maximum capacity.



Note: Alternate method for achieving rated load in the platform is to attach a hanging scale to the bottom of the platform and apply load using a winch or chain hoist until the readout displays the appropriate weight.




Platform hidden from illustration for clarity

1 platform support
2 sling
3 hanging scale
4 winch or chain hoist
5 anchoring device

11 Follow the prompts to accept the weight.

12 Calibration is now complete.

13 Exit Service Mode.

14 Push in the red Emergency Stop button to the off position.

**Confirm calibration:**

15 Start the engine from the ground controls.

16 Add an additional 50 lbs / 23 kg of weight or load to the platform.

⊙ Result: The alarm sounds. The engine turns off. The platform overload indicator light flashes at the platform controls and *Platform Overload* is displayed on the LCD screen at the ground controls.

Note: There may be a 2 second delay before the overload indicator lights flash and the alarm sounds.

17 Test all machine functions from the ground controls.

⊙ Result: Engine does not start. Limited APU functionality. Elevate and extend functions do not operate.

18 Remove the weight or rated load from the platform.

# Boom Components

22 Tag, disconnect and plug the boom extension cylinder hydraulic hoses. Cap the fittings on the cylinder.

**⚠WARNING** Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

23 Tag and disconnect the electrical connector for the cable break limit switch.

24 Tag and disconnect all boom wire harness electrical connectors located at the pivot end of the boom.

25 Tag, disconnect and plug the hydraulic hoses from the bulkhead fittings at the pivot end of the boom. Cap the bulkhead fittings.

**⚠WARNING** Bodily injury hazard. Spraying hydraulic oil can penetrate and burn skin. Loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

26 Remove the external snap rings from both boom pivot pins at the short and long link arms. Do not remove the pins.

27 Using the overhead crane, adjust the boom as necessary to relieve pressure from the pivot pins.

28 Use a soft metal drift to remove each boom pivot pin. Carefully remove the boom assembly from the machine and place it on a structure capable of supporting it.

**⚠WARNING** Crushing hazard. The boom could fall if not properly supported by the overhead lifting device when each boom pivot pin is removed.

**⚠CAUTION** Crushing hazard. The long and short link arms may fall if not properly supported when the boom pivot pins are removed.

## 5-1
## RPM Adjustment

Refer to Maintenance Procedure in the appropriate Service or Maintenance Manual for your machine, *Check and Adjust the Engine RPM*.

## 5-2
## Flex Plate

The flex plate acts as a coupler between the engine and the pump. It is bolted to the engine flywheel and has a splined center to drive the pump.

Type "B" flex plates combines the pump coupler, as part of the flex plate, which is installed onto the engine flywheel.

**Type "B"**
(flexplate with coupler combined)

### How to Remove the Flex Plate

Note: Perform this procedure with the engine off and cool to the touch.

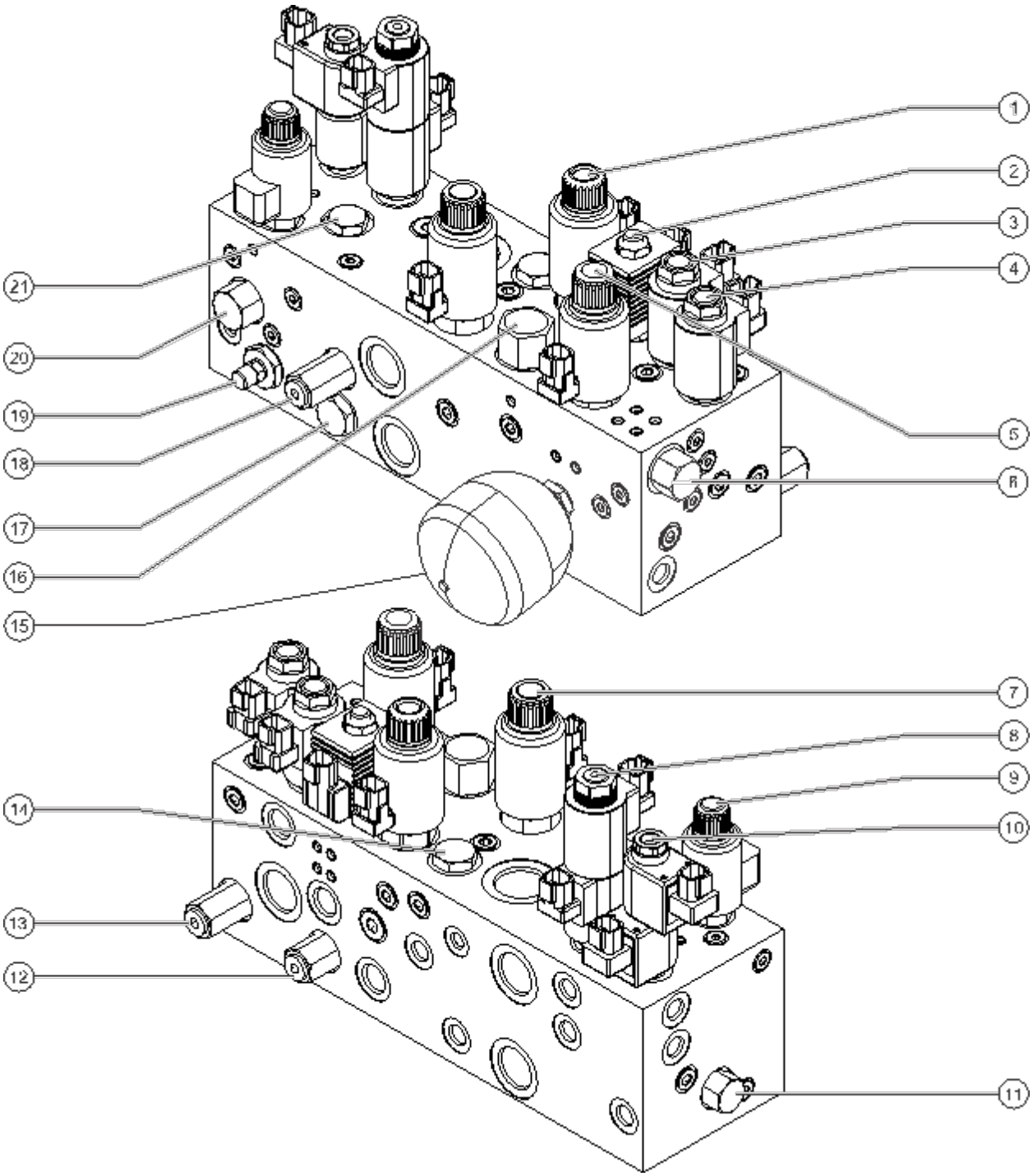
1 Open the engine side turntable cover.

2 Tag and disconnect the battery cables from the battery(s).

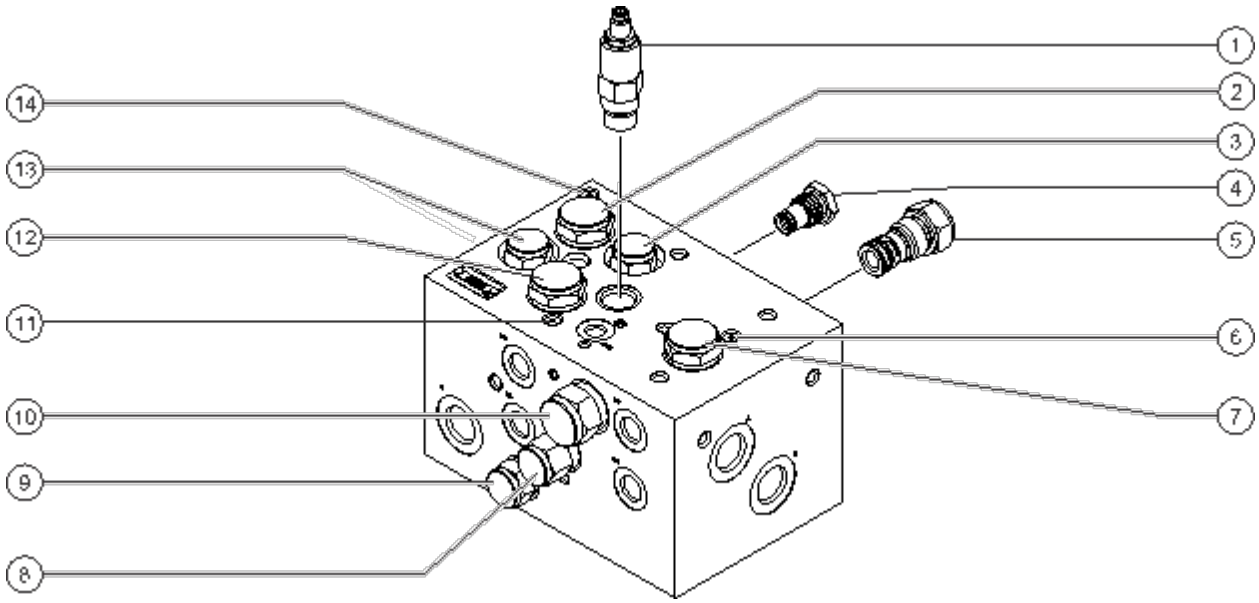
**⚠WARNING** Electrocution/burn hazard. Contact with electrically charged circuits could result in death or serious injury. Remove all rings, watches and other jewelry.

3 Tag and disconnect the wiring plug at the electronic displacement controller (EDC), located on the drive pump.

# Manifolds

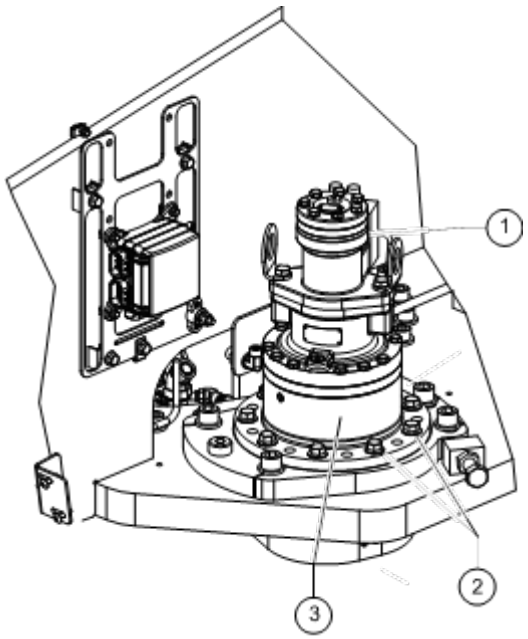


# Manifolds



# Turntable Rotation Components

5 Clean up any oil that may have spilled.




1 motor
2 drive hub mounting bolts
3 drive hub with brake

## How to Adjust the Turntable Rotation Gear Backlash

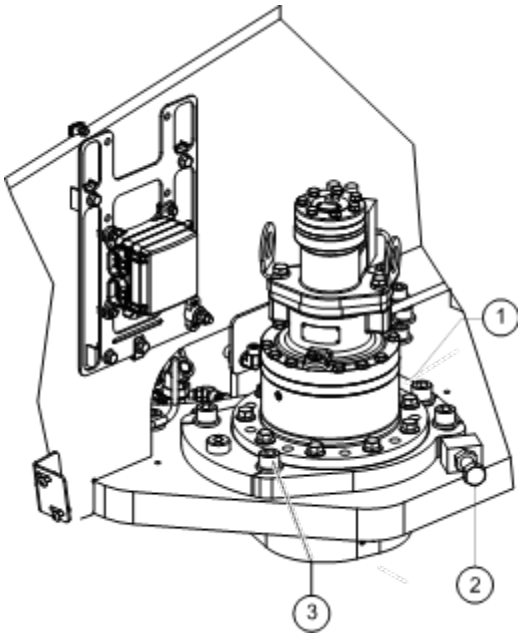
The turntable rotation drive hub is mounted on an adjustable plate that controls the gap between the rotation motor pinion gear and the turntable bearing ring gear.

Note: Perform this procedure with the boom between the non-steer end tires and with the machine on a firm and level surface.

1 Secure the turntable from rotating with the turntable rotation lock pin.

Note: The turntable rotation lock pin is located next to the boom rest pad.

2 Loosen the backlash pivot plate mounting fasteners.




1 backlash pivot plate
2 adjustment bolt with lock nut
3 backlash pivot plate mounting bolts

# Control System Fault Codes

| ID | Component | ID | Name | Cause | Effect | Solution |
|---|---|---|---|---|---|---|
| 12 | Machine CAN Bus | 13 | Not detected | Machine CANBUS CAN+ or CAN- shorted to supply. | Machine will not be functional. | *Verify with a voltmeter that CAN+ and CAN- lines are not shorted.<br>*Measure the resistance between D82CAN+ (YL, TCON J5-3) and D81CAN- (GR, TCON J5-4); should be between 55 and 65 ohms.<br>*D81CAN+ (YL, TCON J5-3) should be between 1V and 5V.<br>*D81CAN- (GR, TCON J5-4) should be between 1V and 5V.<br>*Remove short(s) and cycle power. |
| 13 | Jib Up/Down Switch | 27 | Active at startup | Toggle switch input was detected as HIGH at start-up. | The Jib Up or Down functions will not operate. | *Verify with a voltmeter that the Jib Up/Down Toggle Switch (TS8) is operating properly.<br>* C43JU (BL, PCON J17-6) should be 0 V with the switch OFF and 12 V with the switch held in the UP position.<br>* C44JD (BL/BK, PCON J17-8) should be 0 V with the switch OFF and 12 V with the switch held in the DOWN position.<br>*Cycle power to allow the machine to re-test the fault. |
| 15 | Foot Switch | 27 | Active at startup | Foot switch input was detected as HIGH at start-up, or the foot switch was held for too long and caused the foot switch timer to elapse. | Machine will not be functional. | * Release foot switch and cycle power.<br>* If problem persists, with a voltmeter verify that C24FS (WH, PCON J12-2) is LOW when foot switch is released and 12 V when held down. |
| | | 28 | Timeout | Foot switch depressed too long without action. | Machine will not be functional. | |
| 17 | Aux Pump Coil | 11 | Shorted to supply voltage | TCON detected that C27AUX circuit is shorted to 12 V or GND. | Machine will not be functional. | *Check C27AUX (RD, TCON J3-3) wiring. *With a voltmeter verify that C27AUX (RD, TCON J3-3) is 0 V when the Auxiliary Power toggle switch is OFF and 12 V when switch is ON.<br>*Verify the terminals of the APU solenoid have a resistance greater than 5 ohms. If not, replace the solenoid. |
| 19 | Aux Enable Switch | 27 | Active at startup | Aux button held at startup. | Machine will not be functional. | Release Aux button, check DISCON overlay and ribbon cable if issue persists. |

# Control System Fault Codes

| ID | Component | ID | Name | Cause | Effect | Solution |
|---|---|---|---|---|---|---|
| 78 | Platform Controller (PCON) | 13 | Not detected | TCON has not detected the PCON primary processor on the communications bus. | Controls from the platform will not operate. | * Verify PCON is receiving power. Check for 12 V on J15-2 (+) and J15-1 (-).<br>* Verify PCON is receiving ESTOP signals. With ground ESTOP pulled out and keyswitch set to Platform, verify 12 V is reaching PCON J15-10.<br>* Verify CAN bus is functional. Pull out connector J15 from the PCON and with a voltmeter set to resistance verify that pins 3 and 4 on the harness connector measure between 110 and 130 Ohms. Check wiring and boom cable for open or short circuits if resistance check fails.<br>* Replace PCON if necessary. |
| | | 29 | Software version mismatch | PCON software is out of date. | Machine limited to recovery functions | Download latest software from firmware site and update machine. |
| 79 | Display Controller (DISCON) | 13 | Not detected | TCON has not detected the DISCON on the communications bus. | Controls from the ground will not operate. | * Verify DISCON is operating by checking that the display on the front is operating properly.<br>* If there is no display, try to power up the DISCON by setting the key switch to Ground, pull out the ground ESTOP and press the Ground Function Enable button. The display should start.<br>* If there is still no display, check DISCON power on J10 pins 2 (+) and 1 (-).<br>* If DISCON operates but fault persists, check the CAN bus wiring. Disconnect J10 and with a voltmeter set to resistance verify that the resistance between pins 3 and 4 on the harness connector are between 55 and 65 ohms. Check CAN wiring if resistance check fails.<br>* Replace DISCON if required. |
| | | 29 | Software version mismatch | DISCON software is out of date. | Machine limited to recovery functions. | Download latest software from firmware site and update machine. |

# Deutz TD 2.9 L4 Teir IV Engine Fault Codes

SPN = Suspect Parameter Number
FMI = Failure Mode Identifier
KWP = Keyword Protocol

| SPN | FMI | KWP | Description |
|---|---|---|---|
| 175 | 2 | 738 | Sensor oil temperature; plausibility error |
| 175 | 2 | 739 | Sensor oil temperature; plausibility error oil temperature too high |
| 175 | 3 | 743 | Sensor error oil temperature; signal range check high |
| 175 | 4 | 744 | Sensor error oil temperature; signal range check low |
| 190 | 0 | 389 | Engine speed above warning threshold (FOC-Level 1) |
| 190 | 2 | 421 | Offset angle between crank- and camshaft sensor is too large |
| 190 | 8 | 419 | Sensor camshaft speed; disturbed signal |
| 190 | 8 | 422 | Sensor crankshaft speed; disturbed signal |
| 190 | 11 | 390 | Engine speed above warning threshold (FOC-Level 2) |
| 190 | 12 | 420 | Sensor camshaft speed; no signal |
| 190 | 12 | 423 | Sensor crankshaft speed; no signal |
| 190 | 14 | 391 | Engine speed above warning threshold (Overrun Mode) |
| 190 | 14 | 1222 | Camshaft- and Crankshaft speed sensor signal not available on CAN |
| 411 | 0 | 791 | Physical range check high for differential pressure Venturiunit (EGR) |
| 411 | 1 | 792 | Physical range check low for differential pressure Venturiunit (EGR) |
| 411 | 3 | 795 | Sensor error differential pressure Venturiunit (EGR); signal range check high |
| 411 | 4 | 381 | Physical range check low for EGR differential pressure |
| 411 | 4 | 796 | Sensor error differential pressure Venturiunit (EGR); signal range check low |
| 412 | 3 | 1007 | Sensor error EGR cooler downstream temperature; signal range check high |
| 412 | 4 | 1008 | Sensor error EGR cooler downstream temperature; signal range check low |
| 520 | 9 | 306 | Timeout Error of CAN-Receive-Frame TSC1TR; Setpoint |
| 597 | 2 | 49 | Break lever mainswitch and break lever redundancy switch status not plausible |
| 624 | 3 | 971 | SVS lamp; short circuit to batt. |
| 624 | 4 | 972 | SVS lamp; short circuit to grd. |
| 624 | 5 | 969 | SVS lamp; open load |
| 624 | 12 | 970 | SVS lamp; powerstage over temperature |
| 630 | 12 | 376 | Access error EEPROM memory (delete) |
| 630 | 12 | 377 | Access error EEPROM memory (read) |
| 630 | 12 | 378 | Access error EEPROM memory (write) |
| 639 | 14 | 84 | CAN-Bus 0 "BusOff-Status" |
| 651 | 3 | 580 | Injector 1 (in firing order); short circuit |
| 651 | 4 | 586 | High side to low side short circuit in the injector 1 (in firing order) |
| 651 | 5 | 568 | Injector 1 (in firing order); interruption of electric connection |
| 652 | 3 | 581 | Injector 2 (in firing order); short circuit |
| 652 | 4 | 587 | High side to low side short circuit in the injector 2 (in firing order) |
| 652 | 5 | 569 | Injector 2 (in firing order); interruption of electric connection |
| 653 | 3 | 582 | Injector 3 (in firing order); short circuit |
| 653 | 4 | 588 | High side to low side short circuit in the injector 3 (in firing order) |
| 653 | 5 | 570 | Injector 3 (in firing order); interruption of electric connection |

# Deutz TCD 2.2 L3, TD 2.9 L4 Stage IV Engine Fault Codes

DTC = Diagnostic Trouble Code
FMI = Failure Mode Identifier
SPN = Suspect Parameter Number

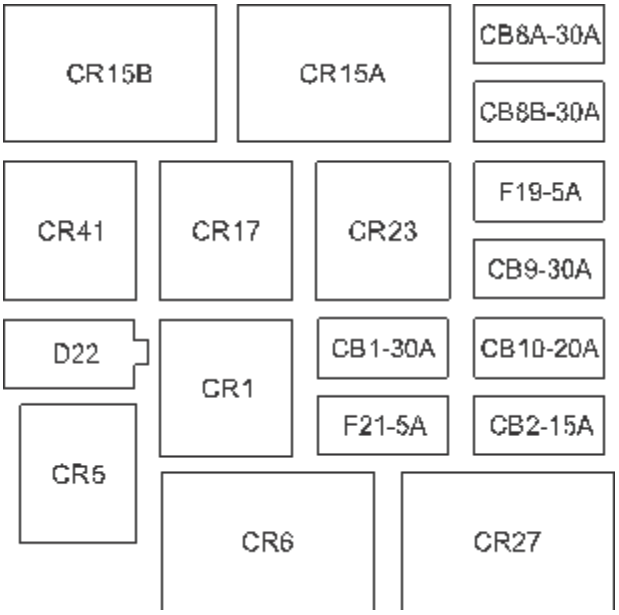
| DTC | SPN | FMI | Description |
|---|---|---|---|
| 111 | 102 | 0 | Engine intake manifold pressure above normal operational range. |
| 1114 | 102 | 1 | Engine intake manifold pressure below normal operational range. |
| 1115 | 102 | 3 | Intake manifold pressure sensor voltage above normal or shorted to high. |
| 1116 | 102 | 4 | Intake manifold pressure sensor voltage below normal or shorted to low. |
| 1118 | 102 | 1 | Intake manifold pressure below normal operational range. |
| 1121 | 102 | 2 | DFC for signal variation check for pressure sensor of the intake manifold. |
| 1122 | 102 | 0 | Intake air pressure valve sensor, warning condition exceeded. |
| 1123 | 102 | 1 | Intake air pressure valve sensor, shutoff condition exceeded. |
| 1124 | 1209 | 2 | Engine exhaust pressure turbine upstream differs from ambient pressure while engine not running. |
| 1125 | 1209 | 15 | Engine exhaust pressure turbine upstream above upper limit. |
| 1126 | 1176 | 1 | Engine turbocharger compressor intake pressure below normal operational range. |
| 1127 | 1209 | 2 | Engine exhaust pressure turbine upstream tuck check failed. Pressure does not change between engine operating points. |
| 1130 | 1209 | 3 | Engine exhaust pressure sensor voltage above normal or shorted to high. |
| 1131 | 1209 | 4 | Engine exhaust pressure sensor voltage below normal or shorted to low. |
| 1134 | 3251 | 3 | DPF voltage above normal or shorted to high. |
| 1135 | 3251 | 4 | DPF voltage below normal or shorted to low. |
| 1136 | 3251 | 14 | DPF reporting communication error. |
| 1137 | 3251 | 14 | DPF reporting data error. |
| 1138 | 3251 | 14 | DPF reporting fast channel 1 error. |
| 1139 | 3251 | 14 | DPF reporting fast channel 2 signal range error. |
| 1149 | 3251 | 2 | DPF difference pressure value not plausible. |
| 1150 | 3251 | 0 | DPF difference pressure above shut off threshold. |
| 1151 | 3251 | 16 | DPF difference pressure above warning threshold. |
| 1152 | 3251 | 1 | DPF difference pressure below shut off threshold. |
| 1153 | 3251 | 18 | DPF difference pressure below warning threshold. |
| 1161 | 5571 | 16 | Rail fuel pressure relief valve above normal operational range. |
| 1162 | 5571 | 2 | Rail fuel pressure relief valve is forced to open, perform pressure increase. |
| 1163 | 5571 | 2 | Rail fuel pressure relief valve is forced to open. Performed by pressure increase. |
| 1164 | 5571 | 16 | Rail fuel pressure relief valve is forced to open. Shutoff conditions. |
| 1165 | 5571 | 15 | Rail fuel pressure relief valve is forced to open. Warning conditions. |
| 1166 | 5571 | 0 | Open rail fuel pressure relief valve was detected. |
| 1167 | 5571 | 2 | Unexpected opening of the rail fuel pressure relief valve. |
| 1168 | 5571 | 2 | Successful rail fuel pressure relief valve opening cannot be ensured. |
| 1169 | 5571 | 13 | Averaged rail fuel pressure after valve opening is outside the expected tolerance range. |

# Perkins 404-22 Engine Fault Codes

SPN = Suspect Parameter Number
FMI = Failure Mode Identifier

| SPN | FMI | Description |
|---|---|---|
| 3251 | 3 | Particulate Trap Differential Pressure: Voltage Above Normal |
| 3251 | 4 | Particulate Trap Differential Pressure: Voltage Below Normal |
| 3473 | 7 | Aftertreatmert #1 Failed to Ignite: Not Responding Properly |
| 3473 | 11 | Aftertreatmert #1 Failed to Ignite : Other Failure Mode |
| 3484 | 0 | Aftertreatmert #1 Ignition : High-most severe (3) |
| 3484 | 3 | Aftertreatmert #1 Ignition : Voltage Above Normal |
| 3484 | 4 | Aftertreatmert #1 Ignition : Voltage Below Normal |
| 3556 | 6 | Aftertreatmert 1 Hydrocarbon Doser 1: Current Above Normal |
| 3610 | 3 | Diesel Particulate Filter Outlet Pressure or 1: Voltage Above Normal" |
| 3610 | 4 | DieselParticulate Filter Outlet Pressure Sensor 1: Voltage Below Normal |
| 3713 | 7 | DPF Active Regeneration Inhibited Due to System Timeout: Not Responding Properly |
| 3713 | 31 | DPF Active Regeneration Inhibited Due to System Timeout |
| 3719 | 0 | Particulate Trap #1 Soot Load Percent: High- most severe (3) |
| 3719 | 16 | Particulate Trap #1 Soot Load Percent: High-moderate severity (2) |
| 4016 | 6 | High Current Auxiliary Power Relay 1: Current Above Normal |
| 4201 | 3 | Engine Speed Sensor #1: Voltage Above Normal |
| 4201 | 4 | Engine Speed Sensor #1: Voltage Below Normal |
| 4201 | 8 | Engine Speed Sensor #1: Abnormal Frequency, Pulse \Nidth, or Period |
| 4201 | 10 | Engine Speed Sensor #1: Abnormal Rate of Change |
| 4765 | 1 | Aftertreatmert #1 Diesel Oxidation Catalyst Intake Gas Temperature: Low-most severe (3) |
| 4765 | 3 | Aftertreatmert #1 Diesel Oxidation Catalyst Intake Gas Temperature: Voltage Above Normal |
| 4765 | 4 | Aftertreatmert #1 Diesel Oxidation Catalyst Intake Gas Temperature: Voltage Below Normal |
| 4765 | 15 | Aftertreatmert #1Diesel Oxidation Catalyst Intake Gas Temperature: High-least severe (1) |
| 4765 | 16 | Aftertreatmert #1 Diesel Oxidation Catalyst Intake Gas Temperature: High-moderate severity (2) |
| 5487 | 3 | Aftertreatmert 1 Burner Unit Combustion Chamber Temperature: Voltage Above Normal |
| 5487 | 4 | Aftertreatmert 1 Burner Unit Combustion Chamber Temperature: Voltage Below Normal |
| 6581 | 6 | Aftertreatmert 1 Hydrocarbon Doser 2 : Current Above Normal |

# Engine Relay Layout - Deutz TD 2.9 L4, TCD 2.2 L3




**Deutz TD 2.9 L4, TCD 2.2 L3**

**Fuses**

| | | |
|---|---|---|
| CB8A | 30A | Refer to electrical schematic for circuits |
| CB8B | 30A | |
| F19 | 15A | |
| F21 | 10A | |
| CB9 | 30A | |
| CB10 | 20A | |
| CB1 | 30A | |
| CB2 | 15A | |

**Diode**

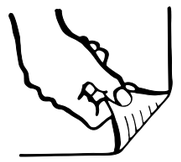
| | | |
|---|---|---|
| D22 | 6A | Alternator Ext. |

**Relays**

| | |
|---|---|
| CR1 | Ignition on |
| CR5 | Horn |
| CR6 | Fuel pump |
| CR15A | Glow plugs |
| CR15B | Glow plugs |
| CR17 | Hydraulic oil cooler |
| CR27 | Auxiliary |
| CR41 | R21IGN |

# Electrical Schematic, Platform Controller

**(from S80XCH-3101, S85XCH-3091, S85XCD-2002)**



# Electrical Schematic, Deutz TD 2.9 L4 Tier IV Engine

## (from S80XCH-3101, S85XCH-3091, S85XCD-2002)