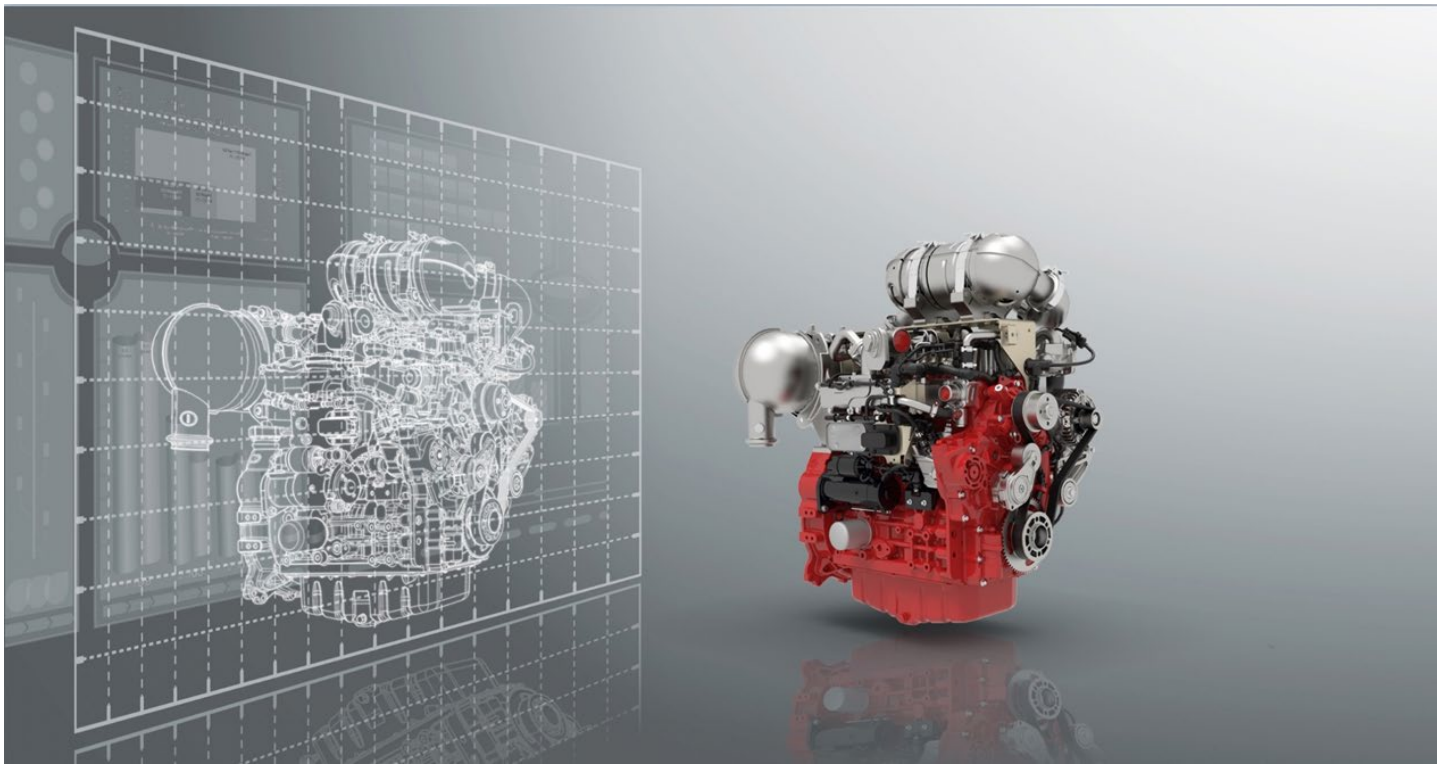


Quick Guide for Power Pack Installation

Table of Contents

Unboxing/Inspection

- Ensure engine is being unboxed right-side up, following all posted notifications on the packaging material.
    - Sharp implements (e.g., box cutters or knives) should be avoided during unboxing to avoid potential damage to product.
- Upon unboxing, inspect the components individually.
    - Do this to ensure that none of the components are visibly damaged or not as they should be, according to provided documentation.
- Inspection should also be done at the specified maintenance intervals for the specific parts of the power pack.

Lifting

General Alerts

1. Caution
    a. Before lifting/towing or moving the power pack, make sure that all equipment being used is suitably strong and firm enough to be able to support the weight of the power pack.
2. Warning
    a. ALWAYS make sure that the pathway is clear during lifting and lowering of the power pack and components.
    b. NEVER perform service operation on a power pack that is attached to a lift.
    c. Improper lifting of the power pack may result in bodily injury, death or damage to property and equipment. Please refer to installation manual for lifting instructions.
    d. Always make sure that the Department of Transportation Safety Towing Regulations and your local county or state safety towing regulations are being followed when towing the power pack.
    e. Never tow or move the power pack when it is in operation.

Lifting Practices

- Only lift components (alternator, genset, powerpack) by the appointed lift points, such as the eyebolts.

Be sure to only lift the load designed to be lifted when using the lift points (i.e., DO NOT lift the engine by the alternator's eyebolts).

Anchoring

Torque Table

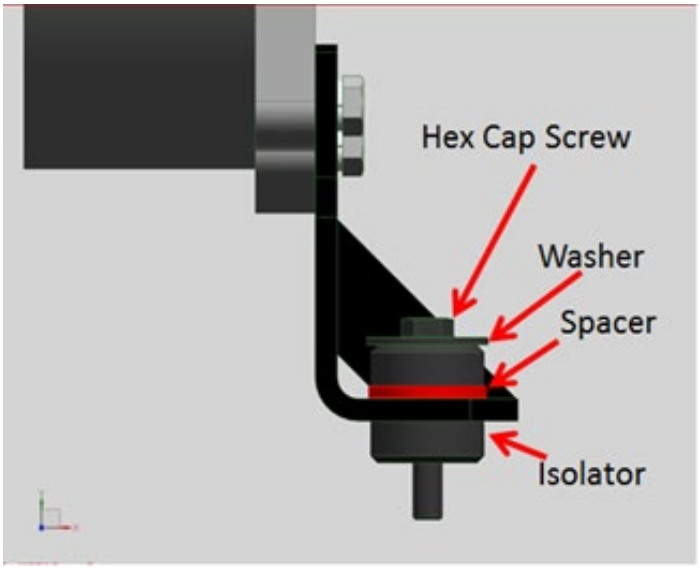
d mm	Property Class	Tightening Class (II) Nm
M8	10.9	30
M10	10.9	60
M12	10.9	110
M14	10.9	170
M16	10.9	260
M18	10.9	360
M20	10.9	500

General Guidelines

- Anchor using the correct torque ratings and obeying the right max deflection according to the individual ratings
- Over-torquing can lead to damage of components and reduced performance of the machine

Isolator Guidelines

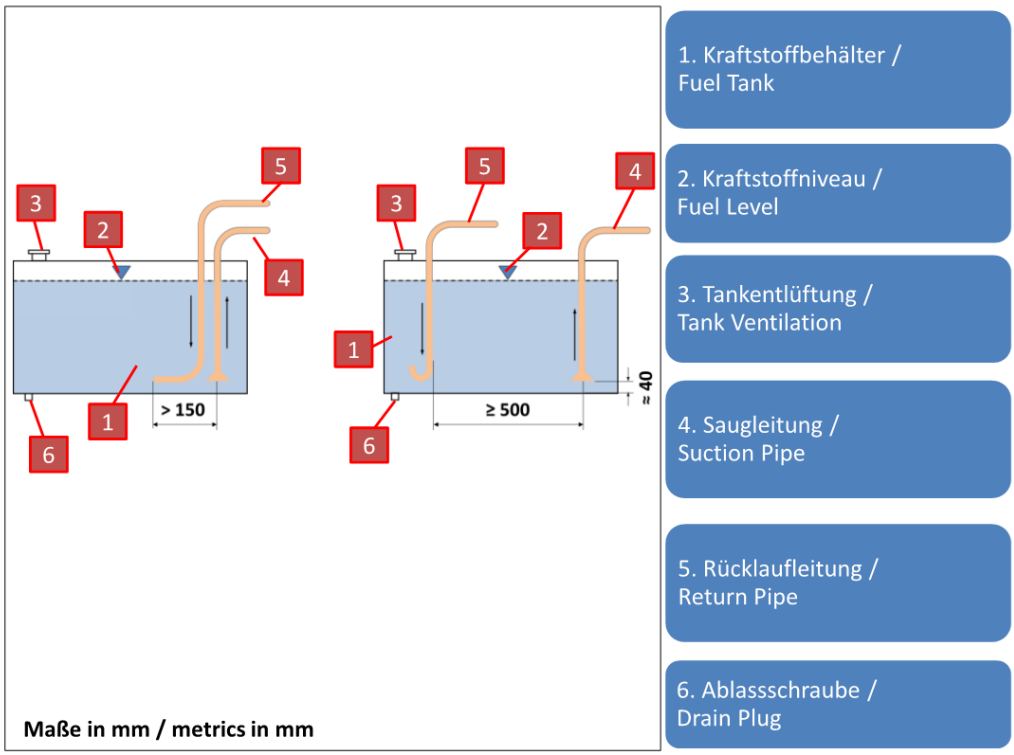
If an isolator is included with your purchase, install as seen in the example below. If not included, contact DEUTZ Engineering with specifications questions about rigid mounting.



Hose Connections

Fuel Tank

The tank has intake and return lines, their positions differing based on the size of the tank. These guidelines are not a suggestion and must be followed for proper operation and maintenance. For more information, consult the EBR or DEUTZ Engineering.



The lines connect to the engine in different ways depending on the position of the fuel tank relative to the engine

Fuel Line Guidelines

Intake Lines

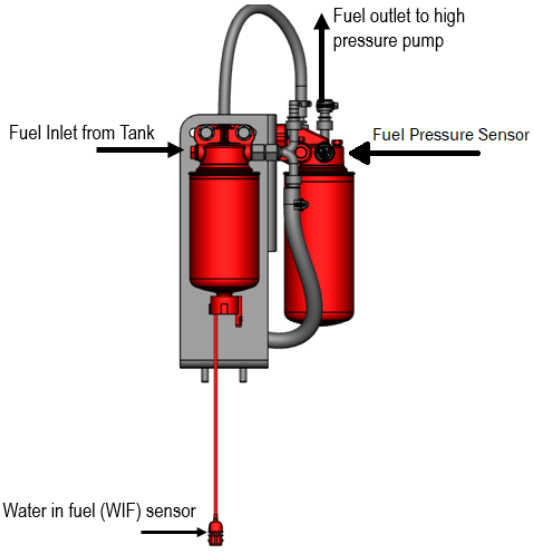
- ½" bulk, 400 psi (00306335)

Return Lines

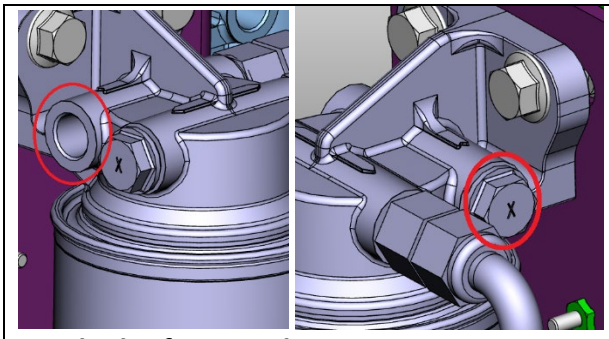
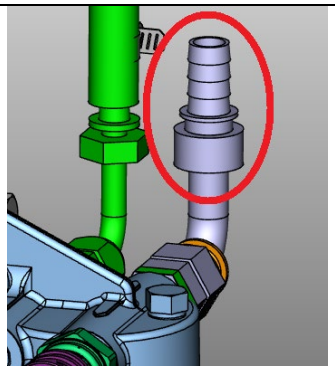
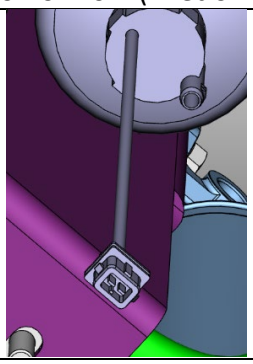
- 3/8" bulk, 400 psi (00306331)
    - Bigger engines will occasionally call for ½"

Ultimately the line size is dependent on the customer, contact DEUTZ Application Engineering team for any deviation from recommendation

Fuel Filter Connections



Fuel Filter overview, direction of arrows on overview image show general flow direction when applicable**. Note, ***the fuel pump included with system must be mounted with the outlet vertical.*

<table>
<tr>
<td> 
Fuel Inlet from Tank connection, option on either side. Shown on the top left of the Fuel Filter overview, arrows on filter head show direction of flow (inlet or outlet)</td>
<td> 
Fuel outlet to high pressure pump connection, shown on the top right of the Fuel Filter overview</td>
</tr>
<tr>
<td>  </td>
<td>  </td>
</tr>
</table>

Water in Fuel(WIF) sensor connection, shown on bottom of Fuel Filter overview	**Fuel pressure sensor** twist-on connection, shown on right of the Fuel Filter overview

DEF Lines

Overview and Length Standards

To guarantee the optimal functionality of the SCR system at low temperatures, all DEF lines must be heated. Heating control is carried out by the engine control unit utilizing an ambient temperature sensor.

As a general guideline, all lines should be plumbed with respect to the most recent specifications and guidelines with respect to coolant and DEF lines.

Suction and backflow lines must always be chosen with equal lengths

DEF Connections

Basic Connection Information

To ensure the correct assembly of the components, the different connectors are encoded using different diameters. All connections in the DEF system use J2044 quick connects, either straight or 90 degree. If DEF module is purchased from DEUTZ, the customer is responsible for the connection of the DEF Tank pressure line, to the Dosing Module on the engine (located on the EAT module).

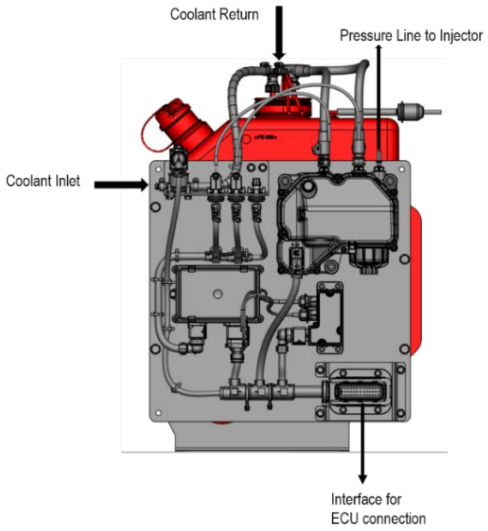
This is basic, general information regarding the connectors used, but is not an exhaustive list, and some unique circumstances could exist. If encountered, contact DEUTZ Engineering for more specific information.

Line Quick Connections Size Breakdown

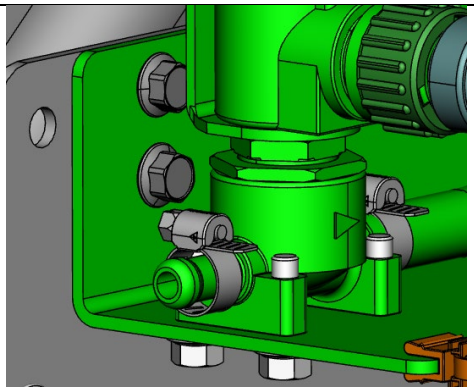
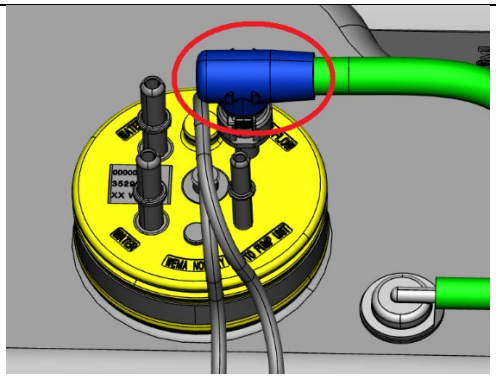
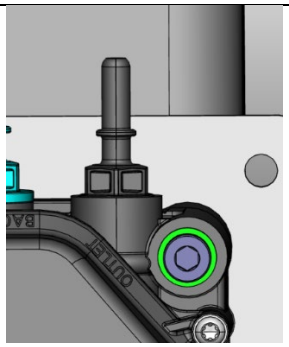
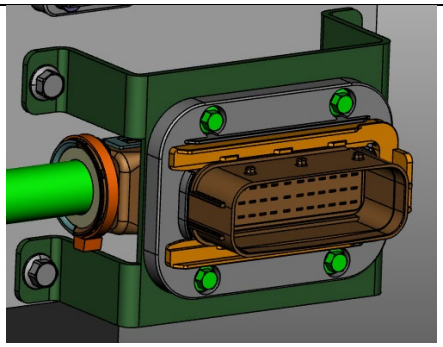
From	To	Details
Outlet	Inlet DEF Pump	5/16” to 3/8” (suction line)
Backflow DEF Pump	Inlet Tank	3/8” to 3/8” (backflow line)
Pressure line DEF Pump	Dosing Module	5/16” to 5/16” (pressure line)

See SIS: https://sisdoc.deutz.com/dashboard.action for depiction and further detail

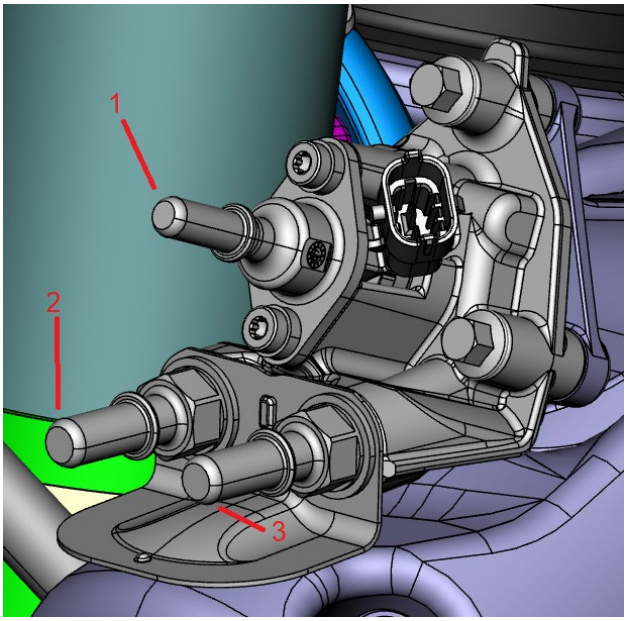
DEF Tank Connections



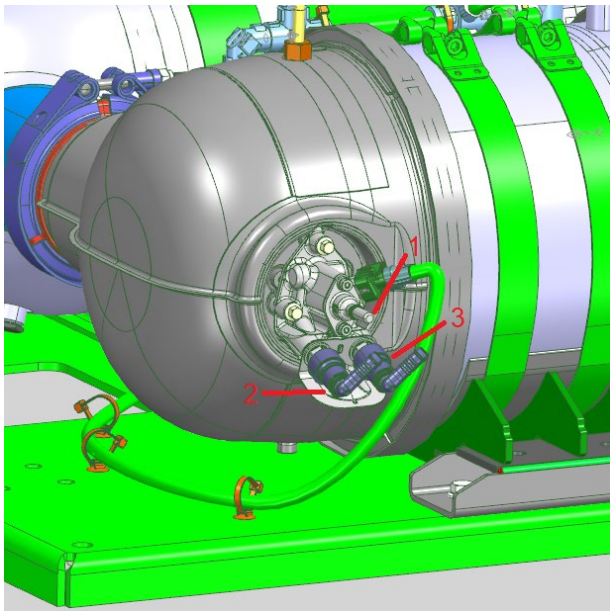
Overview of DEF Tank and connections, direction of arrows on overview image show general flow direction when applicable.

<table>
<tr>
<td> 
Coolant Inlet connection point, top left on Overview. Must be installed vertically due to solenoid</td>
<td> 
Coolant Return Line from top node on Overview</td>
</tr>
<tr>
<td> 
Pressure Line to Injector connection, top right on Overview</td>
<td> 
Interface for ECU connection, bottom right on Overview</td>
</tr>
</table>

DEF Dosing Module Connections



TCD3.6 Dosing Module



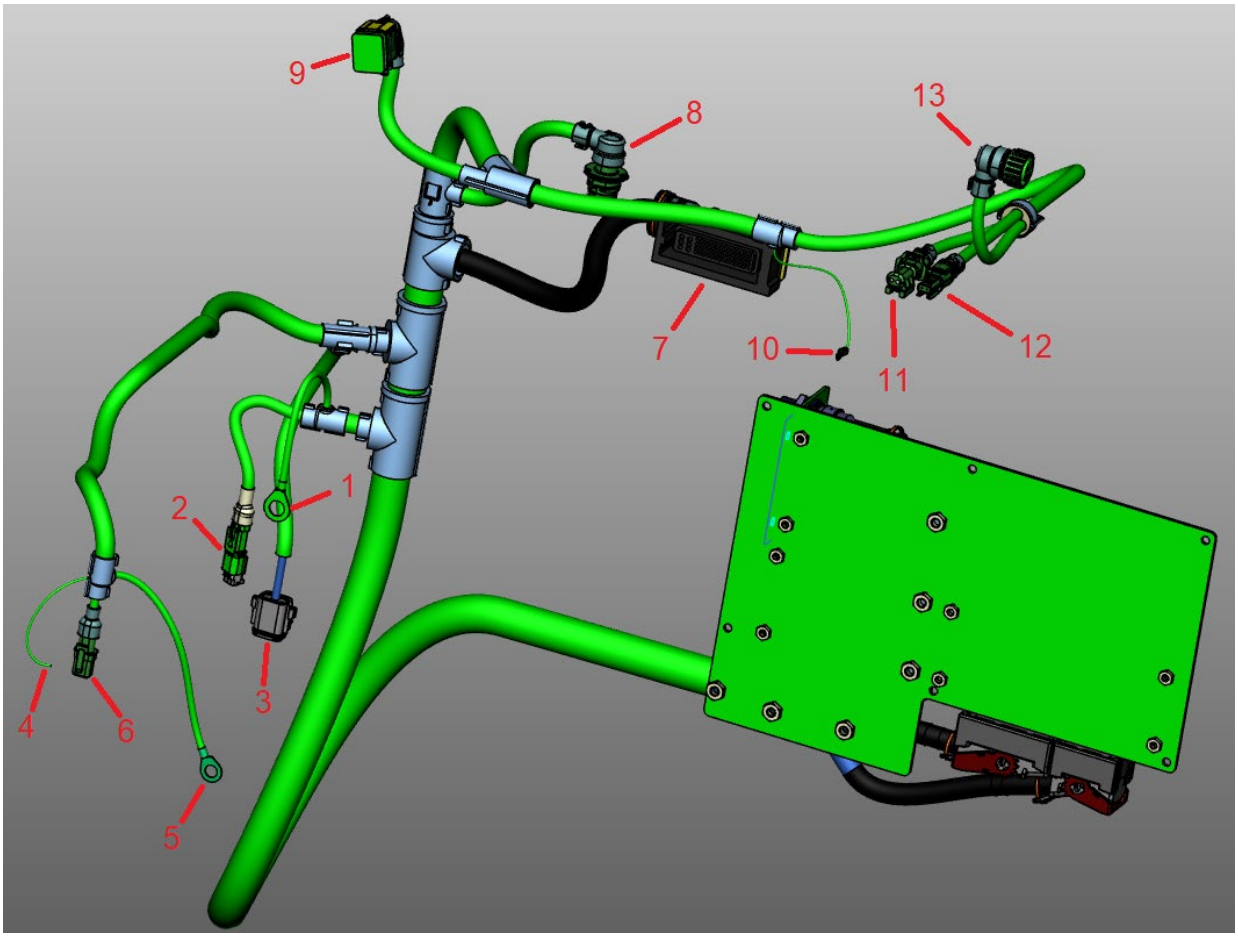
TCD5.2 Dosing Module

1 – DEF Pressure Line connection, from DEF Tank, 5/16” quick connect	2 – Coolant outlet connection, 3/8” quick connect
3 – Coolant inlet connection, 3/8” quick connect	

Modular Harness

Wiring Harness 2.2 – TD3.6

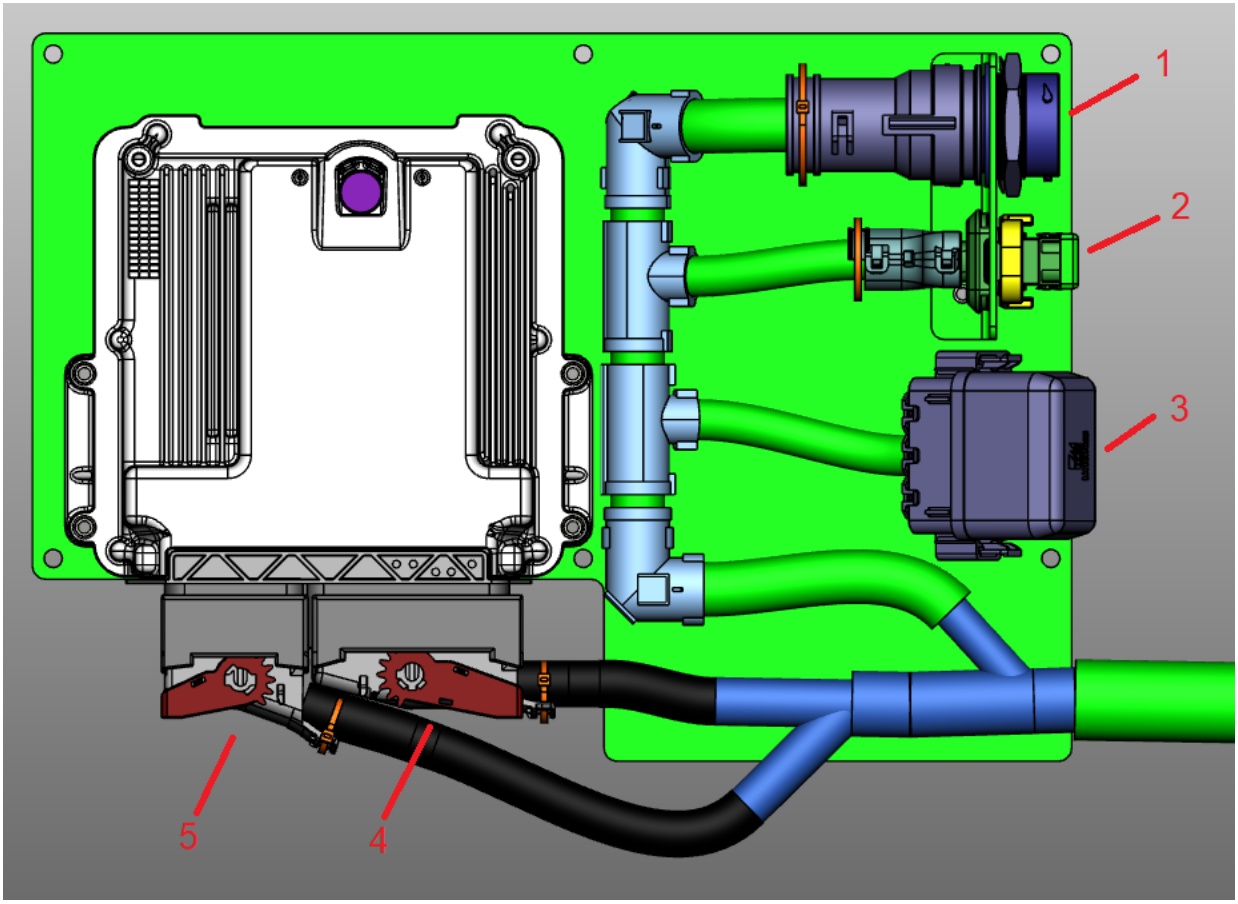
Noated Rear Overview



Wiring Harness 2.2 - TD3.6, general notated rear view. Exact position of connectors may not be consistent, as some harnesses will need to be modified to fit specific engines.

1 – GND: Harness Ground	2 – S44: Gearbox Neutral Position (switch)
3 – X.M4: Fuel Module connection (see Appendix 3 for pin out table)	4 – K2.SENSE: Preheat Relay Sense
5 – B+: Harness B+ supply	6 – K2: Preheat Relay
7 – X17: Engine Harness connection	8 – B51: Fuel Filter Pressure (pressure sensor)
9 – X39: EAT connection (Stage V)	10 – ALT D+ (alternator excite)
11 – B76.1: Fan Actuator (only connected D2.2)	12 – F80: Ambient Air (temperature sensor) (only connected Stage V)
13 – S31: Coolant Level (switch)	

Notated ECU Panel Detailed View

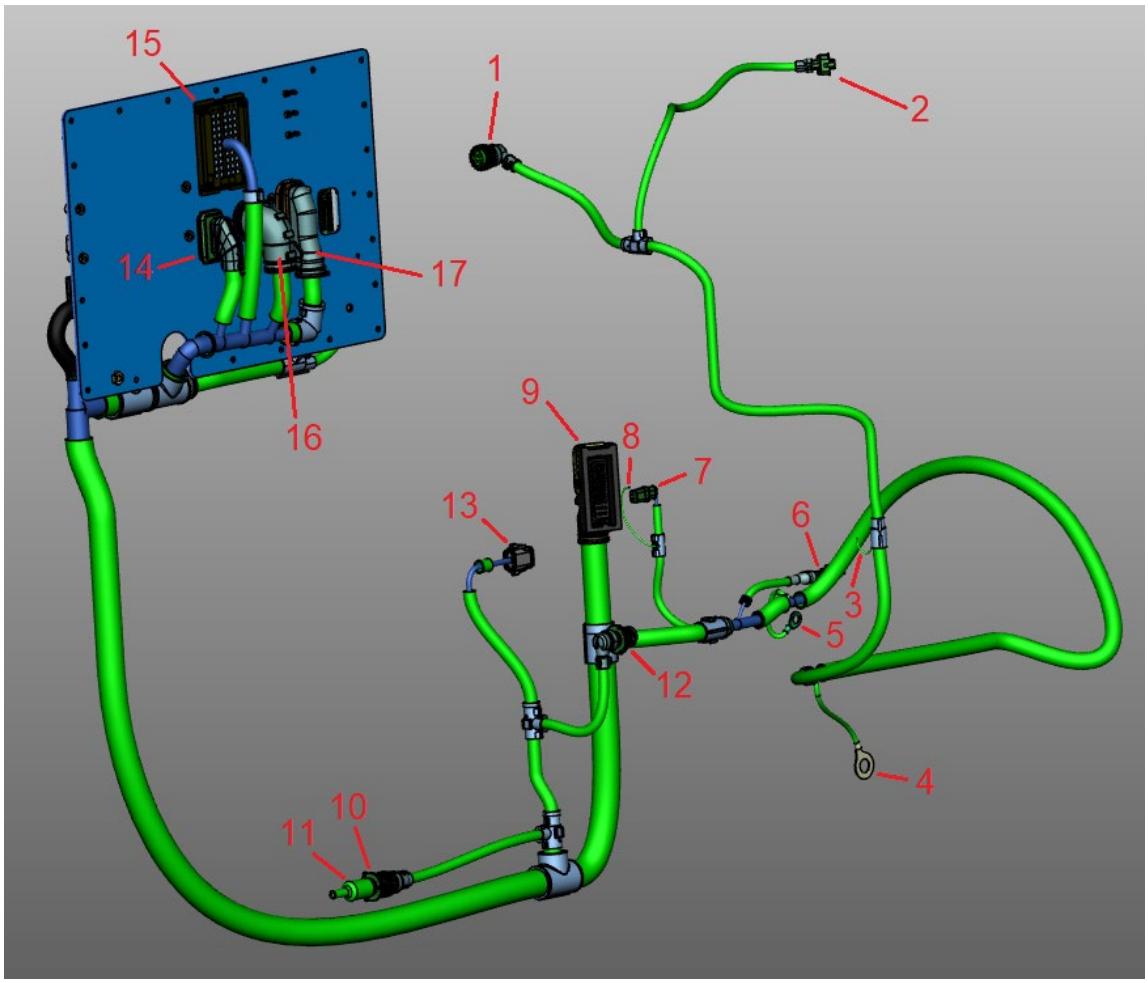


Wiring Harness 2.2 - TD3.6, notated ECU Panel detailed view. Exact position of connectors may not be consistent, as some harnesses will need to be modified to fit specific engines.

1 – C4: Control Panel connector (see Appendix 3 for pin out table)	2 – X33: Customer Interface (see Appendix 1 for pin out table)
3 – F8: Fusebox	4 – D2.2 (K): MD1 ECU connector
5 – D2.1 (A): MD1 ECU connector	

Wiring Harness TCD3.6

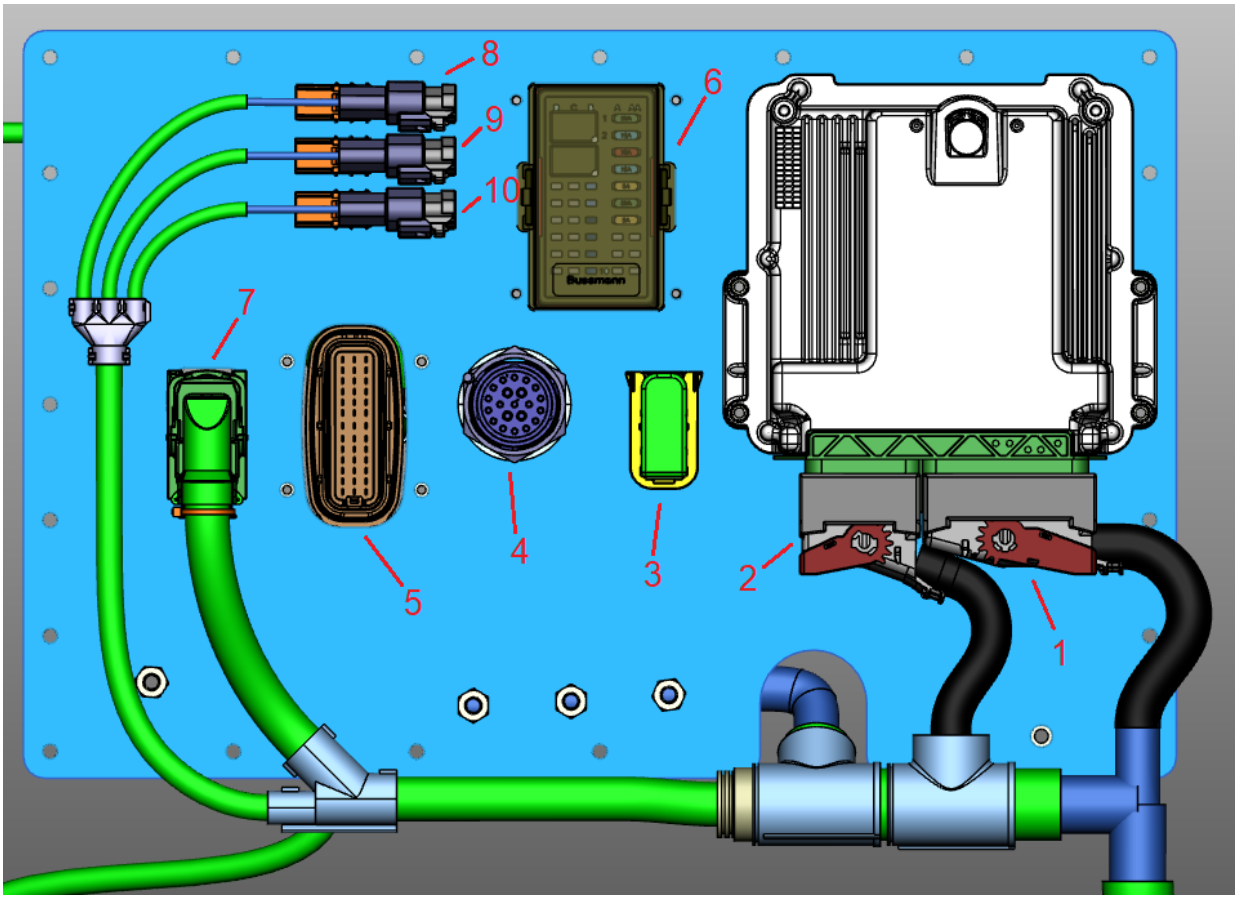
Notated Rear Overview



Wiring Harness TCD3.6, general notated rear view

1 – S31: Coolant Level (switch)	2 – F80: Ambient Air (temperature sensor)
3 – ALT D+ (alternator excite)	4 – BATT-
5 – BATT+	6 – S44: Gearbox Neutral Position (switch)
7 – K2: Preheat Relay	8 – K2.SENSE: Preheat Relay Sense
9 – X17: Engine Harness connection	10 – X47: 24V-12V DC/DC converter (only connected on 24V engine)
11 – X47.1: 12V Jumper	12 – B51: Fuel Filter Pressure (pressure sensor)
13 – X.M4: Fuel Module connection (see Appendix 5 for pin out table)	14 – X33: Customer Interface (see Appendix 2 for pin out table)
15 – F8: Fusebox	16 – C4: Control Panel connector (see Appendix 4 for pin out table)
17 – X43: DEF Tank connection	

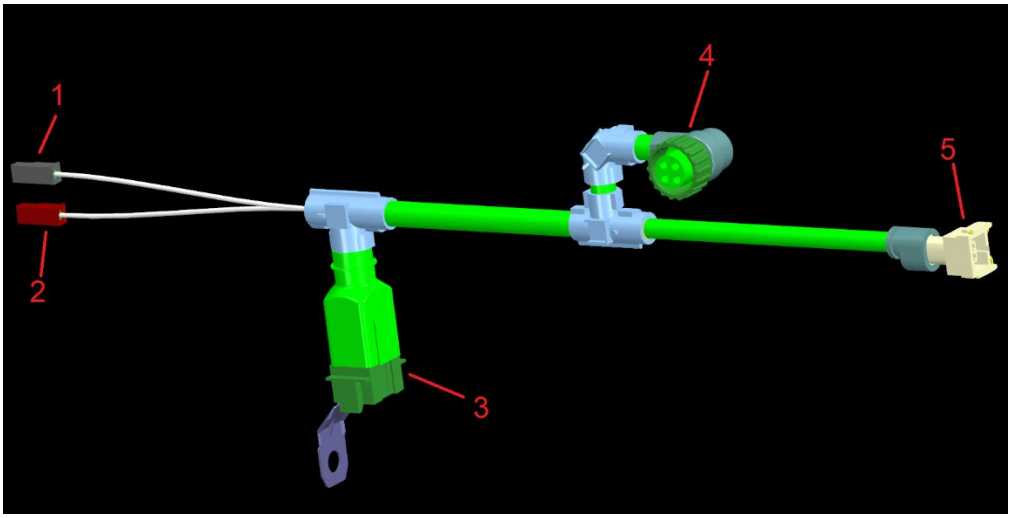
Notated ECU Panel Detailed View



Wiring Harness TCD3.6, notated ECU Panel detailed view

1 – D2.2 (K): MD1 ECU connector	2 – D2.1 (A): MD1 ECU connector
3 – X33: Customer Interface (see Appendix 2 for pin out table)	4 – C4: Control Panel connector (see Appendix 4 for pin out table)
5 – X43: DEF Tank connection	6 – F8: Fusebox
7 – X39: EAT connection	8 – R16.1: CAN termination
9 – R16.1: CAN termination	10 – R16.1: CAN termination

Fuel Module Harness

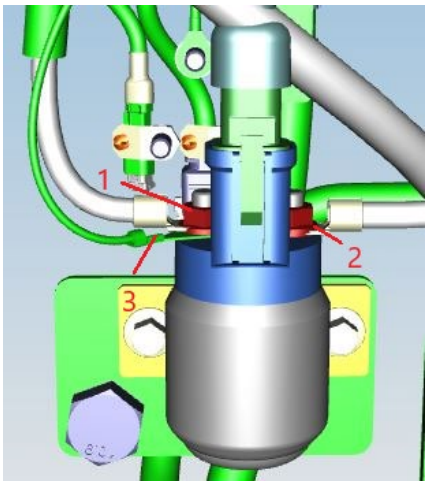


Fuel Module Harness, general notated overview

1 – M4-: Fuel Pump Ground (-)	2 – M4+: Fuel Pump Power (+)
3 – X.M4: Fuel Module connection (see Appendix 5 for pin out table)	4 – B51: Fuel Filter Pressure (pressure sensor)
5 – F78: Water In Fuel (WIF) switch connection	

Glow Plugs Relay Terminal Connection

Three wires from the harness route to the glow plug relay.



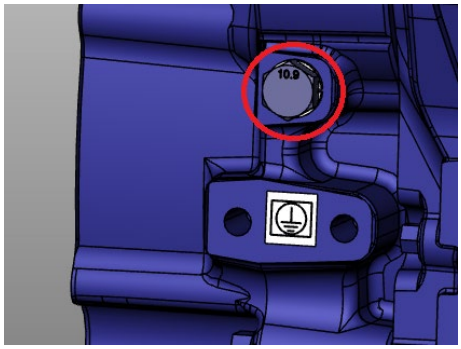
1 – Pre-heat Glow Plug Wire	2 – Fused Battery (B+) Wire
3 – K2.Sense Pre-heat relay sense wire	

Customer Supplied Starter Cables

All wire preferred to be 2/0 gauge.

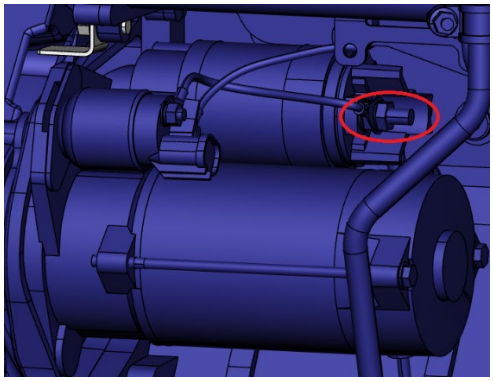
Ground Connection

Grounds battery to block, example point shown. Can be grounded to any convenient place on the block, but this is the noted example. Consult torque table to ensure proper torque of ground connection.



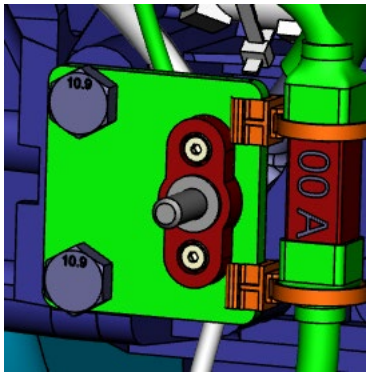
Starter Solenoid Connection

Battery to starter, example point shown. Consult torque table to ensure proper torque of starter solenoid connection.

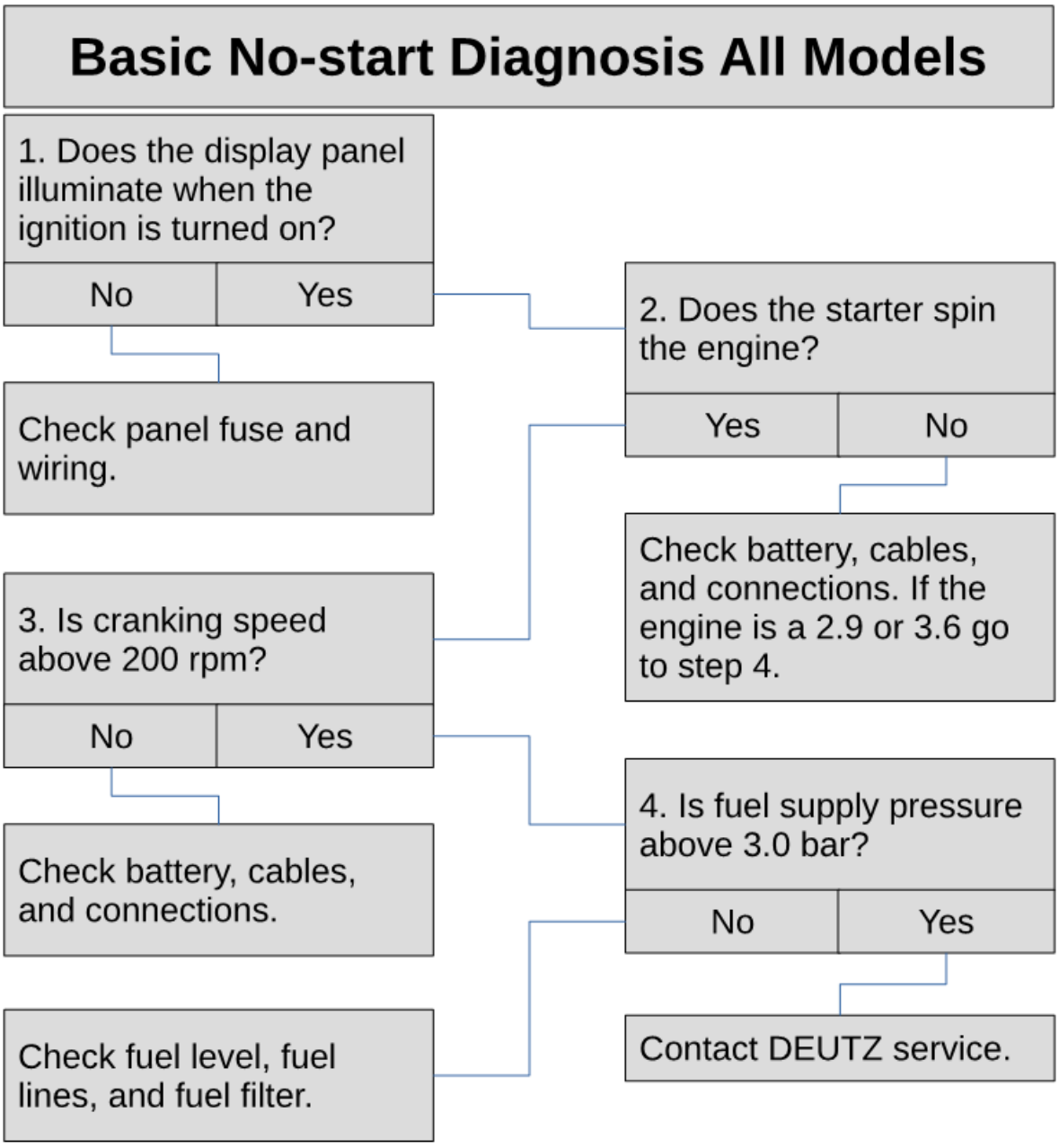


Power Terminal Connection

Battery to terminal, example point shown. Consult torque table to ensure proper torque of power terminal connection.



Startup Troubleshooting Guide



Appendix:

1. Pinout Table for X33 connector for 2.2 - TD3.6 Wiring Harness

From Conn.	From Pin	To Conn.	To Pin	Size	Signal
X33	1	D2.2 (K)	37	.75	SPEED (-) SIG
X33	2	D2.2 (K)	66	.75	TORQUE CURVE SIG
X33	3	D2.2 (K)	45	.75	PEDAL 1A +5V
X33	4	D2.2 (K)	61	.75	PEDAL 1A SIG
X33	5	D2.2 (K)	62	.75	PEDAL 1A GND
X33	6	D2.2 (K)	79	.75	FIX SPEED SETPOINT SIG
X33	7	D2.2 (K)	31	.75	ENGINE STOP SIG
X33	8	SPLICE K15	N/A	1	T15
X33	9	D2.2 (K)	18	.75	SPEED (+) SIG
X33	10		N/A		N/A
X33	11	D2.2 (K)	44	.75	PEDAL 1B +5V
X33	12	D2.2 (K)	83	.75	PEDAL 1B SIG
X33	13	D2.2 (K)	84	.75	PEDAL 1B GND
X33	14	D2.2 (K)	74	.75	FIX SPEED SETPOINT GND
X33	15	D2.2 (K)	87	.75	SWITCH GND
X33	16	SPLICE K31	N/A	1	GND

2. Pinout Table for X33 connector for TCD3.6 Wiring Harness

From Conn.	From Pin	To Conn.	To Pin	Size	Signal
X33	1	D2.2 (K)	37	.75	SPEED (-) SIG
X33	2	D2.2 (K)	66	.75	TORQUE CURVE SIG
X33	3	D2.2 (K)	45	.75	PEDAL 1A +5V
X33	4	D2.2 (K)	61	.75	PEDAL 1A SIG
X33	5	D2.2 (K)	62	.75	PEDAL 1A GND
X33	6	D2.2 (K)	79	.75	FIX SPEED SETPOINT SIG
X33	7	D2.2 (K)	31	1	ENGINE STOP SIG
X33	8	SPLICE K15	N/A	1	T15
X33	9	D2.2 (K)	18	.75	SPEED (+) SIG
X33	10	D2.2 (K)	22	.75	DROOP SIG
X33	11	D2.2 (K)	44	.75	PEDAL 1B +5V
X33	12	D2.2 (K)	83	.75	PEDAL 1B SIG
X33	13	D2.2 (K)	84	.75	PEDAL 1B GND
X33	14	SPLICE V10	N/A	.75	FIX SPEED SETPOINT GND
X33	15	SPLICE V9	N/A	1	CUSTOMER SWITCH GND
X33	16	SPLICE K31	N/A	1	GND

3. Pinout Table for C4 connector for 2.2 – TD3.6 Wiring Harnesses

From Conn.	From Pin	To Conn.	To Pin	Size	Signal
C4	A	SPLICE VP	1	.75	CAN 2 CONTROL PANEL LOW
C4	B	F8	B2	1.5	CONTROL PANEL SUPPLY
C4	C	SPLICE V0	1	.75	CAN 2 CONTROL PANEL HIGH
C4	D	SPLICE X50 (T31)		1.5	CONTROL PANEL GND
C4	E	SPLICE X48 (T15)	1	1.5	T15 SWITCHED POWER
C4	F	D2.2 (K)	35	.75	IGNITION SWITCH T50
C4	P	ALT D+	1	.75	ALTERNATOR EXCITE
C4	R	D2.2 (K)	88	.75	IGNITION SWITCH T15
C4	V	SPLICE VD	1	.75	CAN 1 CONTROL PANEL HIGH
C4	X	SPLICE VE	1	.75	CAN 1 CONTROL PANEL LOW

4. Pinout Table for C4 connector for TCD3.6 Wiring Harness

From Conn.	From Pin	To Conn.	To Pin	Size	Signal
C4	A	SPLICE VP		.75	DIAG CAN LOW
C4	B	F8	A5	1.5	KEYSWITCH SUPPLY, 15A
C4	C	SPLICE V0		.75	DIAG CAN HIGH
C4	D	SPLICE K31		1.5	PANEL GND
C4	E	D2.2 (K)	88	.75	T15 TO ECU
C4	F	D2.2 (K)	35	.75	T50 TO ECU
C4	P	ALT D+/L		1	ALTERNATOR EXCITE
C4	R	SPLICE K15		1.5	T15 SOURCE
C4	V	SPLICE VD		.75	CUSTOMER CAN HIGH
C4	X	SPLICE VE		.75	CUSTOMER CAN LOW

5. Pinout Table for X.M4 connector for Fuel Harness

From Conn.	From Pin	To Conn.	To Pin	Size	Signal
X.M4	1	B51	1	.75	Fuel Pressure +5V
X.M4	2	B51	2	.75	Fuel Pressure SIG
X.M4	3	B51	3	.75	N/A
X.M4	4	B51	4	.75	Fuel Pressure GND
X.M4	5	M4+	1	1.5	Fuel Pump Supply
X.M4	6	M4-	1	1.5	Fuel Pump GND
X.M4	7	F78	1	.75	WIF GND
X.M4	8	F78	2	.75	WIF SIGNAL