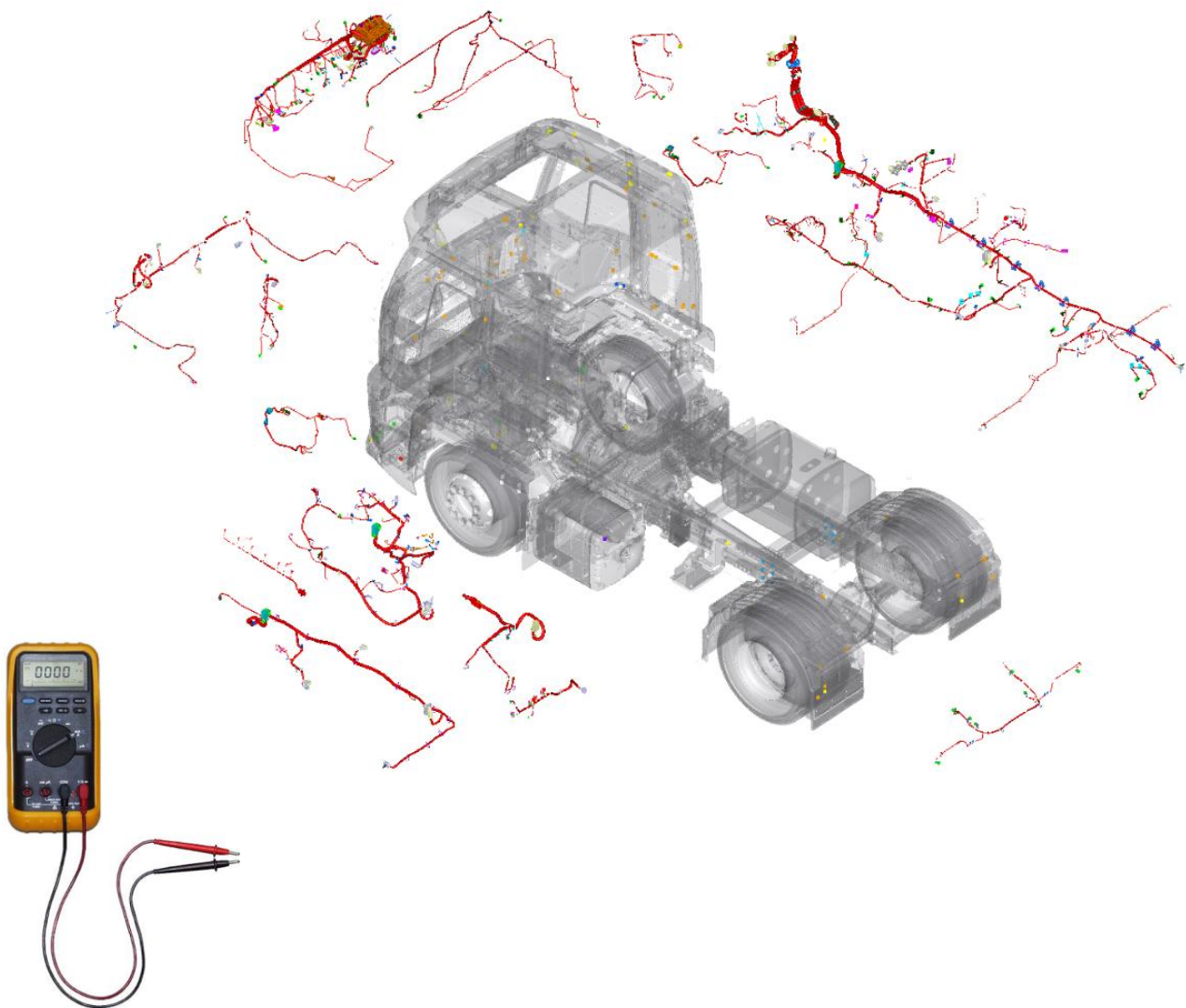


FORD TRUCKS

Electrical System Troubleshooting - Repair Manual



TRUCKS

Ford Trucks Service Engineering	
Contact:	Bilal Aktepe – Gokhan Aksu
E-mail:	baktepe@ford.com.tr / gaksu@ford.com.tr
Tel. No:	0216 564 7191 / 0222 213 2188

Updates:

Level	Date	Page	Name	Revision

Charts and Diagrams Referenced In This Manual:

Sequence No.	Name of the wiring	Middle No.	2D Images	Sketch Images
1	Sensor on engine wiring	12A690	GC46-12A690-EC	ILGC46-12A690-EC
2	SCR-AdBlue wiring	14D378	GC46-14D378-BA	ILGC46-14D378-BA
3	BCU wiring (Main wiring)	14398	GC46-14398-FLA	ILGC46-14398-FLA
4	On-transmission wiring	14K039	GC46-14K039-AJA	ILGC46-14K039-AJA
5	Rear lighting wiring	14405	GC46-14405-GBC	ILGC46-14405-GBC
6	Exhaust-SCR wiring	9L430	GC46-9L430-BC	ILGC46-9L430-BC
7	Cab wiring	14401	GC46-14401-BUD	ILGC46-14401-BUD
8	Injector wiring inside the engine	9H589	GC46-9H589-AD	ILGC46-9H589-AD
9	Bumper wiring	13N052	GC46-13N052-JC	ILGC46-13N052-JC
10	Front under hood wiring	14B242	GC46-14B242-DC	ILGC46-14B242-DC
11	Roof wiring	15A404	GC46-15A404-CD	ILGC46-15A404-CD
12	Door internal wiring	14A584	GC46-14A584-AC	ILGC46-14A584-AC

Wiring Diagrams Index:

Sequence No.	Subject	Illustration No.	Date of Issue
1	Indicator-1	PHGC46-70A000-A	30/04/2014
2	Indicator-2	PHGC46-70A000-B	30/04/2014
3	Radio (Tuner)	PHGC46-70A102-A	30/04/2014
4	Automated Transmission	PHGC46-70B023-A	30/04/2014
5	PTO	PHGC46-70B024-A	30/04/2014
6	Differential Lock	PHGC46-70B024-A	30/04/2014
7	Engine Management Engine Side 9L	PHGC46-70B042-A	30/04/2014
8	Engine Management Engine Side 13L	PHGC46-70B042-B	30/04/2014
9	Engine Management Vehicle Side-1	PHGC46-70B042-C	30/04/2014
10	Engine Management Vehicle Side-2	PHGC46-70B042-D	30/04/2014
11	Engine Brake	PHGC46-70B200-A	30/04/2014
12	Intarder	PHGC46-70B200-B	30/04/2014
13	SCR System-1	PHGC46-70B200-C	30/04/2014
14	SCR System-2	PHGC46-70B200-D	30/04/2014
15	Diesel Particulate Filter	PHGC46-70B201-A	30/04/2014
16	Auxiliary Relay Box	PHGC46-70C000-A	30/04/2014
17	Power Distribution-1	PHGC46-70C000-A	30/04/2014
18	Power Distribution-2	PHGC46-70C000-B	30/04/2014
19	Power Distribution-3	PHGC46-70C000-C	30/04/2014
20	Power Distribution-4	PHGC46-70C000-D	30/04/2014
21	Power Distribution-5	PHGC46-70C000-E	30/04/2014
22	Power Distribution-6	PHGC46-70C000-F	30/04/2014
23	Power Distribution-7	PHGC46-70C000-G	30/04/2014
24	Power Distribution-8	PHGC46-70C000-H	30/04/2014
25	BCU Module-1	PHGC46-70C001-A	30/04/2014
26	BCU Module-2	PHGC46-70C001-B	30/04/2014
27	BCU Module-3	PHGC46-70C001-C	30/04/2014
28	BCU Module-4	PHGC46-70C001-D	30/04/2014
29	BCU Module-5	PHGC46-70C001-E	30/04/2014
30	BCU Module-6	PHGC46-70C001-F	30/04/2014
31	BCU Module-7	PHGC46-70C001-G	30/04/2014
32	BCU Module-8	PHGC46-70C001-H	30/04/2014
33	Main Switch	PHGC46-70C004-A	30/04/2014
34	Ground -1	PHGC46-70C020-A	30/04/2014
35	Ground -2	PHGC46-70C020-B	30/04/2014
36	Ground -3	PHGC46-70C020-C	30/04/2014
37	Ground -4	PHGC46-70C020-D	30/04/2014
38	Ground -5	PHGC46-70C020-E	30/04/2014
39	HS-CAN 1 Line-1	PHGC46-70C030-A	30/04/2014
40	HS-CAN 1 Line-2	PHGC46-70C030-B	30/04/2014
41	HS-CAN 3 Line	PHGC46-70C030-A	30/04/2014

TRUCKS

Sequence No.	Subject	Illustration No.	Date of Issue
42	MS-CAN Line	PHGC46-70C030-A	30/04/2014
43	Fault Detection System	PHGC46-70C031-A	30/04/2014
44	Starting/Charging Systems	PHGC46-70C040-A	30/04/2014
45	LIN Line	PHGC46-70C051-A	30/04/2014
46	Horn	PHGC46-70C070-A	30/04/2014
47	Anti-Lock Brake System (ABS/ESP)-1	PHGC46-70C071-A	30/04/2014
48	Anti-Lock Brake System (ABS/ESP)-2	PHGC46-70C071-B	30/04/2014
49	Electronic Brake System (EBS/ESP)-1	PHGC46-70C072-A	30/04/2014
50	Electronic Brake System (EBS/ESP)-2	PHGC46-70C072-B	30/04/2014
51	Electronic Brake System (EBS/ESP)-3	PHGC46-70C072-C	30/04/2014
52	Electronic Brake System (EBS/ESP)-4	PHGC46-70C072-D	30/04/2014
53	Trailer Brake	PHGC46-70C075-A	30/04/2014
54	Electronically Controlled Air Suspension (ECAS)	PHGC46-70C076-A	30/04/2014
55	Enhanced Emergency Brake System /Radar	PHGC46-70C078-A	30/04/2014
56	Air Conditioning System	PHGC46-70C121-A	30/04/2014
57	Webasto Dry/Wet Type Heater	PHGC46-70C124-A	30/04/2014
58	Step Lamps Low Roof	PHGC46-70C140-A	30/04/2014
59	Step Lamps High Roof	PHGC46-70C140-A	30/04/2014
60	Console Illumination	PHGC46-70C140-A	30/04/2014
61	Lighting-Accessories	PHGC46-70C141-A	30/04/2014
62	Fog lights	PHGC46-70C160-A	30/04/2014
63	Front Headlamps	PHGC46-70C160-A	30/04/2014
64	Turn Signal and Hazard Warning-1	PHGC46-70C160-A	30/04/2014
65	Turn Signal and Hazard Warning-2	PHGC46-70C160-B	30/04/2014
66	Brake Lamps	PHGC46-70C162-A	30/04/2014
67	Reversing Lamps	PHGC46-70C163-A	30/04/2014
68	Park Lamps	PHGC46-70C164-A	30/04/2014
69	Dome Lamps	PHGC46-70C164-A	30/04/2014
70	Front Headlamp Levelling Motor	PHGC46-70C165-A	30/04/2014
71	Lane Departure Warning System	PHGC46-70C183-A	30/04/2014
72	Central Lock	PHGC46-70C202-A	30/04/2014
73	Power Mirrors	PHGC46-70C240-A	30/04/2014
74	Heated Mirrors	PHGC46-70C243-A	30/04/2014
75	Heated Seats	PHGC46-70C270-A	30/04/2014
76	Power Windows	PHGC46-70C340-A	30/04/2014
77	Power Sunroof	PHGC46-70C370-A	30/04/2014
78	Windshield Water Spray	PHGC46-70C400-A	30/04/2014
79	Heated Windscreen	PHGC46-70C403-A	30/04/2014
80	Fleet Monitoring System	PHGC46-70C425-A	30/04/2014
81	Immobilizer Module	PHGC46-70C426-A	30/04/2014
82	Tachograph	PHGC46-70C427-A	30/04/2014

Sequence No.	Subject	Illustration No.	Date of Issue
83	Trailer Connection-1	PHGC46-70C441-A	30/04/2014
84	Trailer Connection-2	PHGC46-70C441-B	30/04/2014
85	2nd Axle - Self Steering	PHGC46-70C445-B	30/04/2014
86	2nd Axle Lifting	PHGC46-70C445-A	30/04/2014
87	Cab Tilting	PHGC46-70C446-A	30/04/2014
88	Cigar lighter	PHGC46-70C462-A	30/04/2014
89	Voltage Convertor	PHGC46-70C463-A	30/04/2014
90	Marker-Warning Lamps	PHGC46-70C481-A	30/04/2014

PREFACE

This repair manual for Ford Cargo vehicles is prepared for providing correct and appropriate workshops services in technical manner.

This manual covers the information and repair methods required for performing electrical repair work that will be carried on the vehicle. Described repairs shall be performed by qualified and trained personnel.

It covers information on the system description, operation, and displaying the system on the vehicle, and electrical circuit diagrams, connector positions and pin layouts. Also, safety rules are provided in the introduction section.

Before starting any workshop procedure, relevant service bulletins shall also be inspected, if available, and procedures shall be performed according to the new information. Contact service representatives or relevant personnel of Ford Trucks Service Engineering department.

This repair manual cannot be printed or copied without prior approval of FORD OTOMOTİV SANAYİ A.Ş. partially or completely. All rights are reserved by FORD OTOMOTİV SANAYİ A.Ş. Information, instructions, figures, specifications, connectors, operating systems, pin layouts and sensor values given in the repair manual may be modified in the cover of continuous development and improvement efforts of FORD OTOMOTİV SANAYİ A.Ş.

FORD OTOMOTİV SANAYİ VE TİCARET A.Ş.

TRUCKS**SECTION: 1 INTRODUCTION**

- 1.1. Safety Alert**
- 1.2. Warnings**
- 1.3. Workshop Equipment**

SECTION: 2 FUSES AND RELAYS

- 2.1. General Description for Fuses**
- 2.2. Fuse and Relay Box**
 - 2.2.1. Fuses
 - 2.2.2. Relays
- 2.3. Mega Fuse**

SECTION: 3 WIRING INSTALLATIONS

- 3.1. Basic Approaches on Fault Finding**
- 3.2. Wiring Diagram Abbreviations**
- 3.3. 3D indication of Vehicle Wiring Installations**
 - 3.3.1. 12A690: Sensor On Engine Wiring-P. 27
 - 3.3.2. 14D378: AdBlue-SCR Wiring-P. 40
 - 3.3.3. 14398: BCU Wiring (Main Wiring)-P. 49
 - 3.3.4. 14K039: On-transmission Wiring-P. 81
 - 3.3.5. 9L430: Exhaust - SCR Wiring-P. 89
 - 3.3.6. 9H589: Injector wiring inside the engine-P. 95
 - 3.3.7. 14401: Cab Wiring-P. 97
 - 3.3.8. 13N052: Bumper Wiring-P. 150
 - 3.3.9. 14B242: Front Under Hood Wiring-P. 156
 - 3.3.10. 15A404: Roof Wiring-P. 164
 - 03/03/2011. 14A584: Door Internal Wiring-P. 171
 - 03/03/2012. 14405: Rear Lighting Wiring-P. 178
- 3.4. Chassis (Ground) Connections**
 - 3.4.1. 2D Sketch Image
 - 3.4.2. Under-cab ground connection points
 - 3.4.3. Cab ground connection points

SECTION: 4 MAIN SYSTEMS

- 4.1. Control Unit Data Lines and CAN Line Control**
 - 4.1.1. Control Units
 - 4.1.2. Pin Layout of On-Board Diagnostics (OBD) Connector
 - 4.1.3. CAN Line Control
- 4.2. Instrument**
 - 4.2.1. Instrument warning lamps function
 - 4.2.2. Instrument LCD Display images
 - 4.2.3. Battery level limits display
 - 4.2.4. Urea level limits display
 - 4.2.5. Instrument Connectors and Pin Layout
- 4.3. Multi-function Lever**
 - 4.3.1. Operating Principle
 - 4.3.2. Multi-functional Lever-Left Connectors and Pin Layout
 - 4.3.2. Multi-functional Lever-Right Connectors and Pin Layout

TRUCKS**4.4. Engine**

- 4.4.1. Engine Control Unit (ECU)
- 4.4.2. Injectors
- 4.4.3. Engine Brake Solenoid Valve
- 4.4.4. Air Heater
- 4.4.5. WCAC Pump
- 4.4.6. Torque Reduction Strategy
- 4.4.7. Alternator, Smart Charging System and Battery Monitoring Sensor (BMS)

4.5. SCR (AdBlue) System

- 4.5.1. Schematic View of SCR System
- 4.5.2. Sensor and Actuator Diagram for SCR and Exhaust System
- 4.5.3. Pump Module
- 4.5.4. Valve used for heating the AdBlue Tank
- 4.5.5. Dosage Module
- 4.5.6. AdBlue Tank-Wema Sensor
- 4.5.7. Exhaust Gas Temperature Sensor (EGT)
- 4.5.8. NOx Sensor
- 4.5.9. Layout of EGT, NOx and DPS Sensors on Exhaust
- 04/05/2010. DPF Differential Pressure Sensor (DPS)

4.6. EBS

- 4.6.1. Main Functions
- 4.6.2. System Components
 - 4.6.2.1. Foot Brake Module (FBM)
 - 4.6.2.2. Electro-Pneumatic Module (EPM)
 - 4.6.2.3. Trailer Control Module (TCM)
 - 4.6.2.4. Pressure Control Valve (PCV)
 - 4.6.2.5. Axle Load Sensor (ALS)
 - 4.6.2.6. Steering Angle Sensor (SAS)
 - 4.6.2.7. Yaw Rate Sensor (YRS)
 - 4.6.2.8. EBS Electronic Control Unit Connectors and Pin Layout (EBS ECU)
 - 4.6.2.9. Wheel Speed Sensors (WSS)
- 4.6.3. CWS (in vehicles with disc brakes) Brake lining monitoring sensor
- 4.6.4. PWI (in vehicles with drum brakes) Brake lining wear sensor
- 4.6.5. EBS System Configuration
- 4.6.6. EBS Wiring Diagram

4.7. Passive Anti-Theft System PATS (Immobilizer)

- 4.7.1. Schematic Operating Principle
- 4.7.2. PATS Connector and Pin Layout
- 4.7.3. System Components
- 4.7.4. Instrument Cluster Flashing Error Codes
- 4.7.5. Things to do when the PATS module is replaced

4.8. Comfort Module (RKE)

- 4.8.1. Operating Principle
- 4.8.2. RKE Module Location
- 4.8.3. Comfort Module Connector and Pin Layout

TRUCKS**4.9. Body Electronics Control Unit (BCU)**

- 4.9.1. Function
- 4.9.2. Functions supported by BCU
- 4.9.3. Importance of BCU In the Active Safety Systems
- 4.9.4. Body Electronics Control Unit (BCU) Connector and Pin Layout
- 4.9.5. Ambient Temperature Sensor (OAT)
- 4.9.6. APU Pressure Sensor (Air Drier)
- 4.9.7. Rain and Sunlight Sensor

4.10. ECAS-Electronically Controlled Air Suspension

- 4.10.1. Schematic Operating Principle
- 4.10.2. System Components
 - 4.10.2.1. Height Sensors
 - 4.10.2.2. Pressure Sensors
 - 4.10.2.3. Solenoid Valve
- 4.10.3. ECAS Connector and Pin Layout

4.11. Tachograph

- 4.11.1. Schematic Operating Principle
- 4.11.2. Connector and Pin Layout

4.12. Automated Transmission (AMT)

- 4.12.1. System Components
- 4.12.2. AMT (Control Unit) Connector and Pin Layout
- 4.12.3. Selector Mechanism
- 4.12.4. Selector Knob

4.13. Manual Transmission (M/T)

- 4.13.1. Switch Locations on Manual Transmission (PTO installed)
- 4.13.2. Switch Locations on Manual Transmission (Intarder installed)
- 4.13.3. Descriptions of Connectors on Manual Transmission

4.13.4. Kitas 2+ Sensors**4.14. Intarder (EST54)****4.15. PTO**

**TRUCKS****SECTION: 5 FAULT CODES****5.1. Fault code reading from the Instrument****5.2. FODP Fault Codes**

5.2.1. ECM Engine Fault Codes

5.2.2. BCU Fault Codes

5.2.3. AMT Automatic Transmission Fault Codes

5.2.4. Intarder Fault Codes

5.2.5. DTCO Digital Tachograph Fault Codes

5.2.6. MTCO Mechanical Tachograph Fault Codes

5.2.7. Instrument Cluster Fault Codes

5.2.8. ECAS Error Codes

5.2.9. EBS-ABS Fault Codes

05/02/2011. Camera Fault Codes

05/02/2012. Radar Fault Codes

SECTION: 6 ELECTRIC DIAGRAMS**6.1. Power Distribution and Ground**

6.1.1. Main Switch

6.1.2.1. Power Distribution-1-8

6.1.3.1. Ground-1-5

6.2. Starting/Charging and Data Lines

6.2.1.1. HS-CAN 1 Line-1

6.2.1.2. HS-CAN 1 Line-2

6.2.2. HS-CAN 3 Line

6.2.3. MS-CAN Line

6.2.4. LIN Line

6.2.5. Fault Detection System

6.2.6. Starting/Charging Systems

6.3. Powertrain

6.3.1. Automated Transmission

6.3.2. PTO

6.3.3. Differential Lock

6.3.4. Engine Management Engine Side 9L

6.3.5. Engine Management Engine Side 13L

6.3.6. Engine Management Vehicle Side-1

6.3.7. Engine Management Vehicle Side-2

6.3.8. Engine Brake

6.3.8. Intarder

6.4. Brake and Suspension Systems

6.4.1.1. Anti-Lock Brake System (ABS/ESP)-1

6.4.1.2. Anti-Lock Brake System (ABS/ESP)-2

6.4.2.1. Electronic Brake System (EBS/ESP)-1-4

6.4.3. Trailer Brake

6.4.4. Electronically Controlled Air Suspension (ECAS)

6.4.5. Enhanced Emergency Brake System /Radar

6.4.6.1. Trailer Connection-1

6.4.6.2. Trailer Connection-2

6.4.7. 2nd Axle S.S. (Self Steerable)

6.4.8. 2nd Axle Lifting-Autodrop System

**TRUCKS****6.5. Modules and Systems**

- 6.5.1.1. Indicator-1
- 6.5.1.2. Indicator-2
- 6.5.2.1. SCR System-1
- 6.5.2.2. SCR System-2
- 6.5.3. Diesel Particulate Filter
- 6.5.4.1. BCU Module-1-8
- 6.5.5. Air Conditioning System
- 6.5.6. Lane Departure Warning System
- 6.5.7. Fleet Monitoring System
- 6.5.8. Immobilizer Module
- 6.5.9. Tachograph
- 06/05/2010. Voltage Convertor

6.6. Lighting and Systems

- 6.6.1. Webasto Dry/Wet Type Heater
- 6.6.2. Radio (Tuner)
- 6.6.3. Step Lamps Low Roof
- 6.6.4. Step Lamps High Roof
- 6.6.5. Console Illumination
- 6.6.6. Lighting-Accessories
- 6.6.7. Fog lights
- 6.6.8. Front Headlamps
- 6.6.9. Turn Signal and Hazard Warning-1
- 06/06/2010. Turn Signal and Hazard Warning-2
- 06/06/2011. Brake Lamps
- 06/06/2012. Reversing Lamps
- 06/06/2013. Park Lamps
- 06/06/2014. Dome Lamps
- 06/06/2015. Front Headlamp Levelling Motor
- 06/06/2016. Central Lock
- 06/06/2017. Power Mirrors
- 06/06/2018. Heated Mirrors
- 06/06/2019. Horn
- 06/06/2020. Heated Seats
- 06/06/2021. Power Windows
- 06/06/2022. Power Sunroof
- 06/06/2023. Windshield Water Spray
- 06/06/2024. Heated Windscreen
- 06/06/2025. Cab Tilting
- 06/06/2026. Cigar lighter
- 06/06/2027. Marker-Warning Lamps

TRUCKS**SECTION: 1 INTRODUCTION****1.1. Safety Alert**

To prevent any accidents during repair and to ensure personnel safety and health, it is required to follow the procedures in this manual. Repair manual includes proper procedures and safety warnings for repair procedures. However, there are many variables in repair operations, such as the tools used, the skill of the technician and the physical conditions of environment etc. This repair manual does not consider all of these variables. Technician shall always consider his own safety.

1.2. Warnings:

Follow the general safety warnings below while working on the vehicle:

- Always use work goggles.
- If you shall work under a vehicle lifted with a jack, place a safety part under the axle.
- Hand brake shall be applied while the vehicle is parked.
- Chock the wheels to prevent moving of the vehicle.
- If the vehicle shall be operated inside the workshop, exhaust gas shall be discharged with an exhaust hose. Exhaust gas contains poisonous Carbon monoxide gas.
- Keep your body and garments away from moving and rotating parts on the vehicle. Especially, use caution while working near the pulley, belt and driveshaft. Wear proper work clothes.
- Avoid wearing clothes with long sleeves and cuffs.
- Do not touch hot parts on the vehicles which have recently been operated or have just arrived to the workshop. Parts such as hot exhaust muffler, catalyst, radiator, exhaust manifold etc. may cause serious burns.
- Do not smoke while working on the vehicle.
- Remove jewellery such as rings, watches, bracelets etc. if you will be working on the vehicle.
- If you will be working under the cab while the cab has been tilted, place a safety chock. Ensure that cab is completely tilted.
- Always make sure that nobody is present under the vehicle and in the vicinity of the vehicle before operating the vehicle.
- If the operation of the vehicle may cause risk for you, e.g. if you are working on parts such as radiator fan, driveshaft etc., remove the key from ignition switch. Put a “do not operate” sign on the steering wheel.

1.3. Workshop Equipment

TRUCKS

Computer Connection Interface: Samtec®

Part No: AC46-INTER-FACE

Recommended procurement point: Ford Otosan



Adaptor Cable for 1848T:

Part No: C-000615-AB

Recommended procurement point: Çevik Makina



Laptop Computer:

Recommended brand: Power Distribution & Ground

Recommended procurement point: Market



Diagnostic Software: FODP-2

Recommended procurement point: Ford Otosan

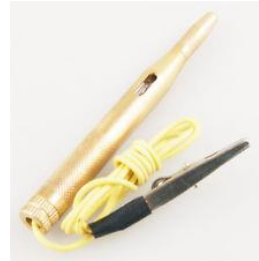


TRUCKS
Digital Multimeter:

Recommended brand: Fluke® 88V/A
Recommended procurement point: Market


Inspection Lamp: 12V and 24V

Recommended brand: -
Recommended procurement point: Market


Pin Crimper:

Recommended brand: -
Recommended procurement point: Market


Soldering gun and iron

Recommended brand: -
Recommended procurement point: Market



TRUCKS

Electric Line Piercing Clip

Recommended brand: Fluke® TP82

Recommended procurement point: Market



Insulation material:

- Electric tape
- Heat-shrink tubes with various diameters

Recommended brand: -

Recommended procurement point: Market

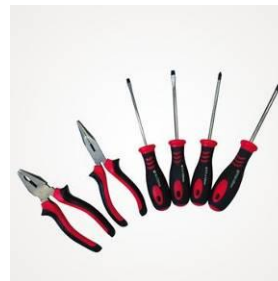


Standard service equipment:

- Set of pliers
- Set of diagonal pliers
- Set of flat screwdrivers
- Set of phillips screwdrivers

Recommended brand: -

Recommended procurement point: Market



Recommended equipment:

Oscilloscope

Recommended brand: Fluke® 123

Recommended procurement point: Market



SECTION: 2 FUSES AND RELAYS

2.1. General Description for Fuses

Fuses and relays are the first points to be checked in an electrical failure. This section describes the fuses and relays in the vehicle and their functions.

Fuses are safety elements. They are included in the system in order to protect the power line and the component that they are connected to. They are included in the electrical system in order to protect the power line in case of excessive current consumption and/or short circuit. When the fuse is blown, it shall be replaced in order to remove the fault. However, it shall be examined carefully why the fuse has blown, the root cause of the fault and proper intervention shall be made to resolve this.

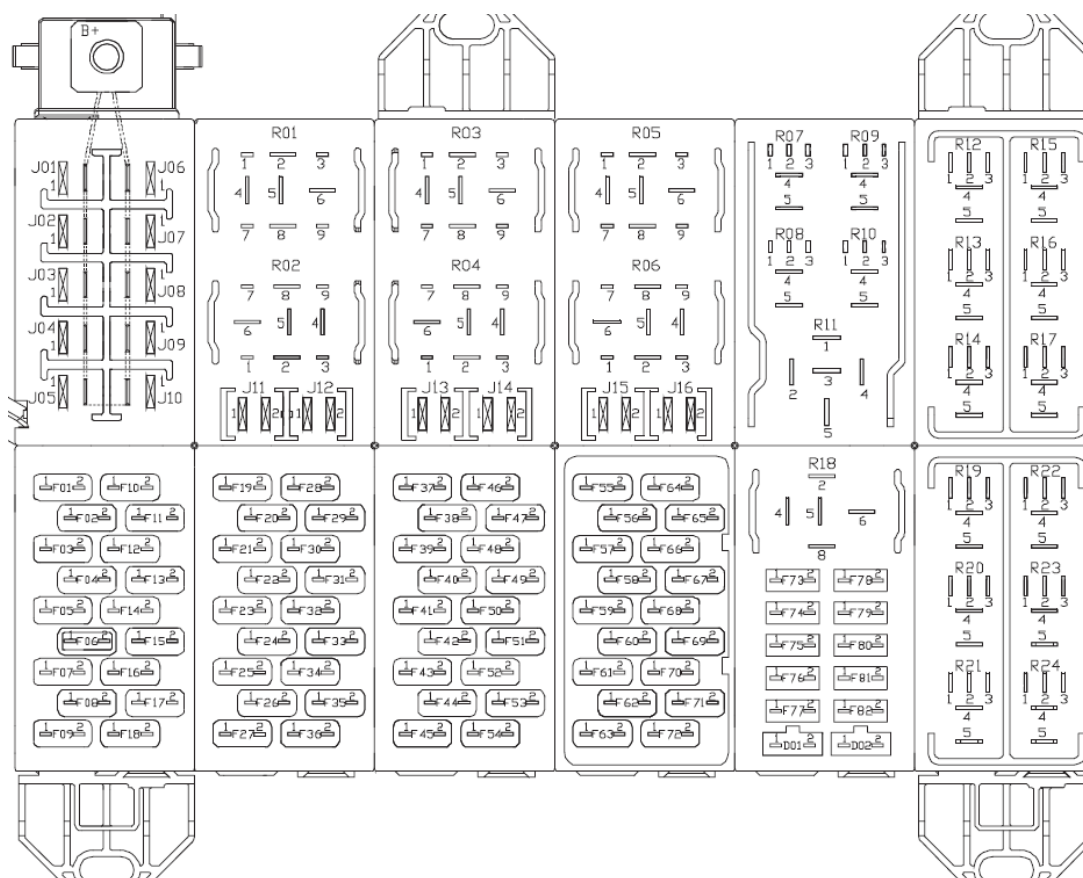
If there is a problem with the fuse:

- 1- Wiring shall be checked.
- 2- Components connected to the wiring shall be checked.

Always use 'genuine' fuses and relays with 'correct amperage'.

Components inside the Fuse Box:

- BLADE FUSE (shown with a J)
- MINI FUSE (shown with an F)
- RELAYS (shown with a R)
- MEGA FUSE
- DIODES (shown with a D)

TRUCKS
2.2. Fuse and Relay Box:

Fuse and Relay Box Diagram View:

J01	J06	R01		R03		R05		R07	R09	R12	R15
J02	J07							R08	R10		
J03	J08	R02		R04		R06		R11		R13	R16
J04	J09									R14	R17
J05	J10	J11	J12	J13	J14	J15	J16	R18		R19	R22
F1	F10	F19	F28	F37	F46	F55	F64				
F2	F11	F20	F29	F38	F47	F56	F65	R20		R20	R23
F3	F12	F21	F30	F39	F48	F57	F66				
F4	F13	F22	F31	F40	F49	F58	F67	F73	F78	R21	R24
F5	F14	F23	F32	F41	F50	F59	F68	F74	F79		
F6	F15	F24	F33	F42	F51	F60	F69	F75	F80	R21	R24
F7	F16	F25	F34	F43	F52	F61	F70	F76	F81		
F8	F17	F26	F35	F44	F53	F62	F71	F77	F82	R21	R24
F9	F18	F27	F36	F45	F54	F63	F72	D01	D02		



TRUCKS

2.2.1. Fuses:

CODE	AMPERE	SYSTEM	CODE	AMPERE	SYSTEM
F1	5	ABS/EBS	F36	15	NOX
F2	5	AIR SUSPENSION (ECAS)	F37	7,5	LEFT TRAILER SIGNAL LAMP
F3	3	COMFORT MODULE (RKE)	F38	7,5	INTERIOR LIGHTS
F4	7,5	CAMERA / RADAR	F39	7,5	RIGHT TRAILER SIGNAL LAMP
F5	7,5	INTARDER (INT3)	F40	7,5	REAR FOG LIGHT
F6	7,5	AUTOMATIC TRANSMISSION	F41	7,5	STOPLAMPS
F7	5	INSTRUMENT PANEL	F42	7,5	DOME MARKER LAMP
F8	5	ENGINE CONTROL UNIT (ECM)	F43		SPARE
F9	5	TACHOGRAPH	F44	5	REVERSE GEAR
F10	1/3	TACHOGRAPH	F45	5	HAZARD WARNING
F11	15	COMFORT MODULE (RKE)	F46	7,5	RIGHT PARKING LAMPS / DOME LAMP
F12	1	TACHOGRAPH BMS CAN SUPPLY	F47	30	CAB LIFTING
F13	7,5	INTARDER (INT3)	F48	7,5	LEFT PARKING LAMPS
F14	3	RADAR / CAMERA	F49	30	TRAILER 7 PIN SUPPLY
F15	7,5	AIR SUSPENSION (ECAS)	F50	7,5	TRAILER PARK
F16	7,5	AUTOMATIC TRANSMISSION	F51	5	HEADLIGHT ADJUSTMENT MOTOR
F17	5	INSTRUMENT PANEL	F52	5	WEBASTO TIMER MODULE PARK
F18	20	CONVERTER	F53	5	LIGHTER
F19	5	A/C EQUIPMENT	F54	3	DOME LAMP
F20	7,5	SWITCH AND IGNITION RELAY	F55	5	WEBASTO TIMER
F21	20	A/C BLOWER	F56	15	COMFORT MODULE (RKE)
F22	7,5	SELECTOR POSITION	F57	20	WEBASTO PUMP
F23	10	HEATED SEAT / POWER MIRROR	F58		SPARE
F24	15	AIR DRIER / FUEL FILTER HEATER	F59	5	WCAC
F25	20	WIPER MOTOR	F60	15	SIGNAL AND HORN LEVER
F26	7,5	TRAILER IGNITION	F61	20	A/C MOTOR (WET TYPE)
F27	15	MULTI-FUNCTION LEVER	F62	20	WIPER MOTOR SPEED 1 and 2
F28	30	WINDSHIELD HEATER -1	F63		SPARE
F29	30	WINDSHIELD HEATER -2	F64	20	BCU1
F30	5	LANE DEPARTURE WARNING SYSTEM (LDWS) BUZZER	F65	20	BCU2
F31	5	BCU	F66	20	BCU3
F32	15	EBS/ABS	F67	20	BCU4
F33	15	SUCTION LINE HEATER / ELECTRO HEATER	F68	20	BCU5
F34	20	ENGINE CONTROL UNIT (ECM)	F69	20	BCU6
F35	7,5	WEMA	F70	15	IGNITION SWITCH


TRUCKS

CODE	AMPERE	SYSTEM	CODE	AMPERE	SYSTEM
F71	15	VGT and EGR	J1	40	INTARDER/RKE/ECAS/INSTRUMENT
F72	30	WCAC PUMP	J2	40	LDWS/TACHOGRAPH/CONVERTOR/ AUTOMATIC TRANSMISSION
F73	15	COMFORT MODULE CONVERTOR	J3	40	LAMPS
F74	20	RADIO (Tuner)	J4	40	WEBASTO
F75	5	RADIO ILLUMINATION	J5	30	AUTOMATIC TRANSMISSION
F76	10	DIAGNOSTICS	J6	40	CAB LIFTING / TRAILER
F77	5	WEBASTO TIMER	J7	60	BCU1
F78	5	TAG AXLE 1 and 2	J8	60	BCU2
F79	20	AFTER SALES IGNITION SUPPLY (EXTERNAL)	J9	40	REMOTE CONTROL/HORN/HAZARD/WIPERS
F80	15	AFTER SALES IGNITION SUPPLY and FMS	J10	40	ABS-EBS / ECM
F81	20	AFTER SALES IGNITION SUPPLY (INTERNAL)	J11	40	IGNITION-1
F82	1	RAIN SENSOR and HEADLAMP SWITCH	J12	40	IGNITION-2
			J13	20	POWER POINT (12 VOLT OUTLET)
			J14	40	PM-WEMA / VGT-EGR / WCAC
D01	1	INTARDER (INT3-F5)	J15	40	HEATED WINDSCREEN
D02		DIODE-2 (N/A)	J16	40	WCAC / IGNITION SUPPLY

J (BLADE) FUSE DESCRIPTION			
AMPERE [A]	COLOR	MANUFACTURER	PART NUMBER
20	BLUE	YAZAKI	F8SB-14A094-AA
30	PINK	YAZAKI	F8SB-14A094-BA
40	GREEN	YAZAKI	F8SB-14A094-CA
60	YELLOW	YAZAKI	XS21-14A094-AA

F (MINI) FUSE DESCRIPTION			
AMPERE [A]	COLOR	MANUFACTURER	PART NUMBER
3	PURPLE	LITTELFUSE	1L3T-14A094-BA
5	ORANGE	LITTELFUSE	1L3T-14A094-DA
7.5	BROWN	LITTELFUSE	1L3T-14A094-EA
10	RED	LITTELFUSE	1L3T-14A094-FA
15	BLUE	LITTELFUSE	1L3T-14A094-GA
20	YELLOW	LITTELFUSE	1L3T-14A094-HA
30	GREEN	LITTELFUSE	1L3T-14A094-KA



TRUCKS

2.2.2. Relays:

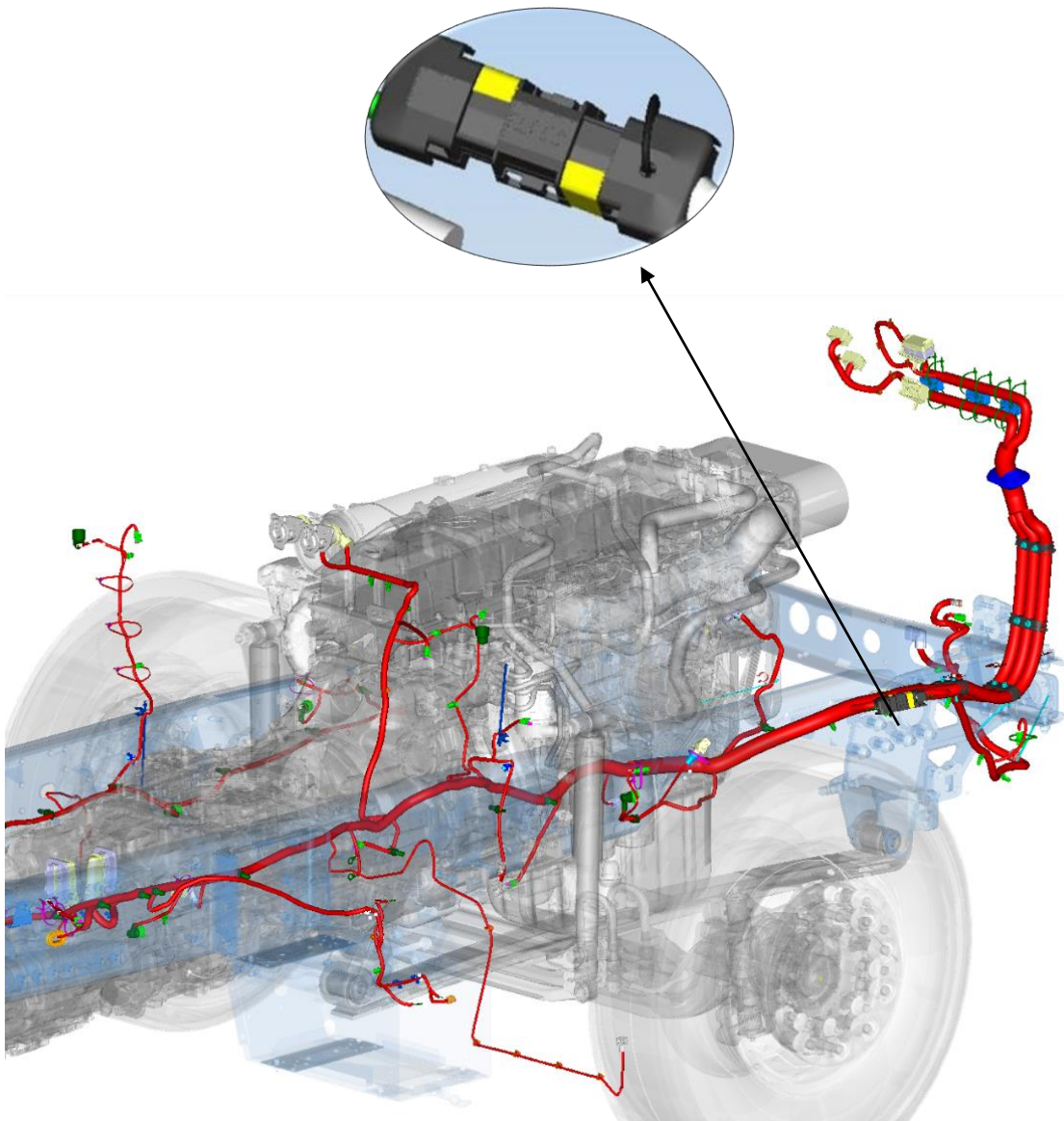
CODE	AMPERE	SYSTEM	PART NUMBER
R01	40 A	IGNITION RELAY-1	DU5T-14B192-BA
R02	40 A	VGT & EGR, WEMA, NOX	DU5T-14B192-BA
R03	40 A	IGNITION RELAY-2	DU5T-14B192-BA
R04	40 A	WINDSHIELD HEATER -1	DU5T-14B192-BA
R05	40 A	WINDSHIELD HEATER -2	DU5T-14B192-BA
R06	40 A	CAB TILTING	DU5T-14B192-BA
R07	20 A	ROOF MARKER LAMP	DU5T-14B192-AA
R08	20 A	AUX.	DU5T-14B192-AA
R09	20 A	PUSH-PULL	DU5T-14B192-AA
R10	20 A	HEATER-1	DU5T-14B192-AA
R11	-	-	-
R12	20 A	ENGINE OFF	DU5T-14B192-AA
R13	20 A	HEATER-2	DU5T-14B192-AA
R14	20 A	WIPER HIGH SPEED	DU5T-14B192-AA
R15	20 A	BRAKING LAMPS -1	DU5T-14B192-AA
R16	20 A	REVERSE GEAR	DU5T-14B192-AA
R17	20 A	PARKING LAMPS	DU5T-14B192-AA
R18	40 A	BRAKING LAMPS -2	DU5T-14B192-BA
R19	20 A	RADIO (Tuner)	DU5T-14B192-AA
R20	20 A	LEFT TRAILER LAMP	DU5T-14B192-AA
R21	20 A	RIGHT TRAILER LAMP	DU5T-14B192-AA
R22	20 A	WIPER LOW SPEED	DU5T-14B192-AA
R23	20 A	WCAC PUMP	DU5T-14B192-AA
R24	20 A	REAR FOG LIGHT	DU5T-14B192-AA

TRUCKS

2.3. Mega Fuse:



This is the fuse with the highest amperage installed for the protection of electrical installations of vehicles. It is rated at 150 Amperes.



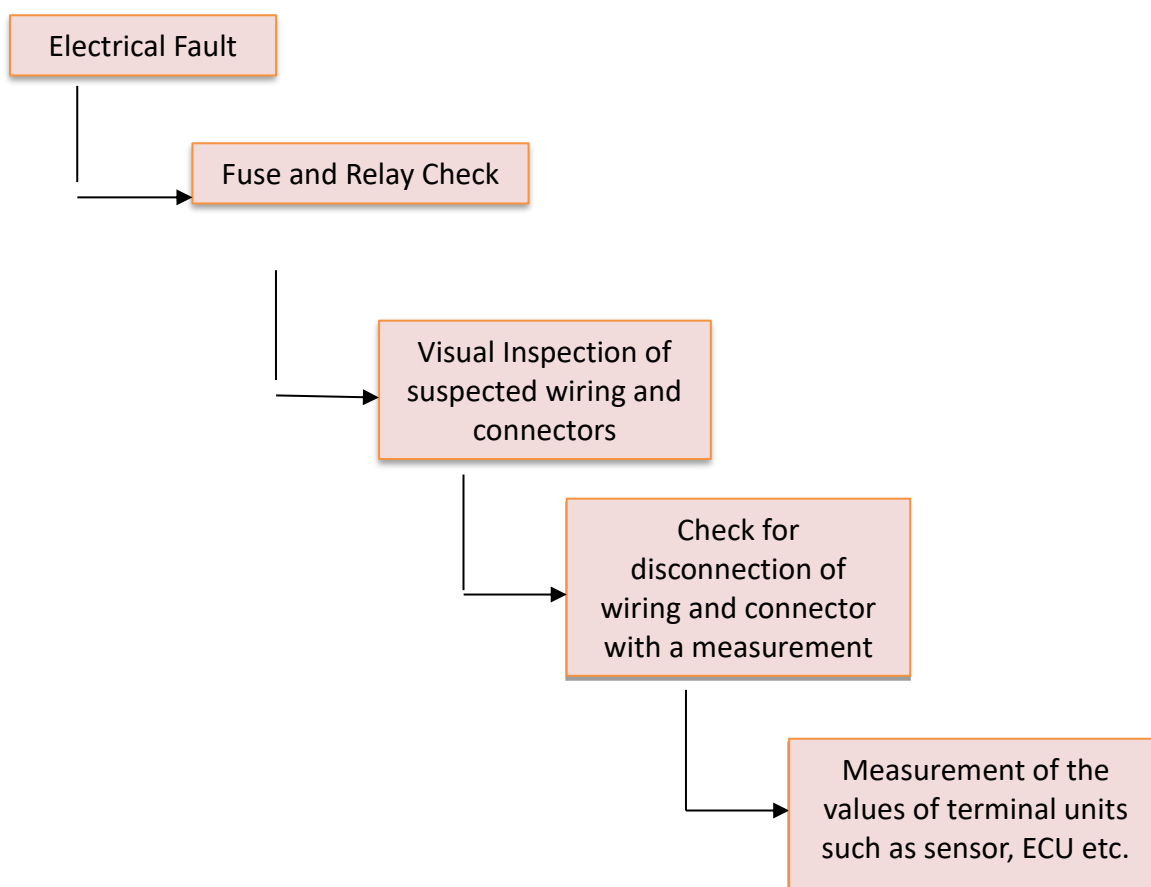
TRUCKS

SECTION: 3 WIRING INSTALLATIONS

3.1. Basic Approaches on Fault Finding

We have mentioned in section 2 that the fuses and relays are the first points to be checked in an electrical failure. If there is no failure on fuses or relays, visually inspect the relevant line.

During visual inspection, check for cable sheath damage and whether the conductive part has come out due to friction in wires especially. Connectors on the line may be removed and re-installed again for visual inspection. Check for oxidation, loosening of the pins and check whether they are driven in. If you cannot observe any fault, check for open (disconnection) or short circuit in the line. If the line is also OK, perform measurements of terminal units such as control units.



The main guide in these inspections is the “wiring diagrams.” These shall be available in the computer or in the briefcase of each technician as a printed book.

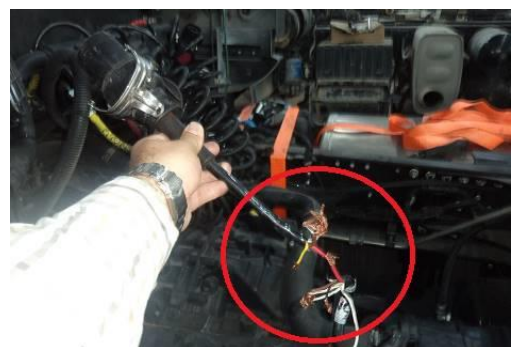
Open circuit or short circuit faults may be “continuous” or may appear intermittently as per conditions. For example, fault may appear when the vehicle falls in a pit or when it enters a turn with a high speed, and it may be non-apparent when the vehicle is on a straight road. Intermittent faults are the most difficult ones to diagnose. In this respect, “passive” faults displayed in the diagnostics unit give us important information. If it is required to repeat the fault condition, one of the methods is making a test drive by connecting a measurement tool and trying to repeat the fault by changing many driving and environmental parameters. For example, if a CAN line disconnection is present between automatic transmission and Engine ECU, it is possible to view the disconnection moment graphically in a road test by connecting an oscilloscope to the transmission CAN line.

Another way of recurring the fault is “static” operation. It is checked whether the fault recurs by jiggling the suspected line while the vehicle is parked.

Some examples that may cause a fault in the power line:

TRUCKS

- Driving in of the connector pin: this condition is seen in connectors frequently removed and installed.
- Loosened female to male connection due to the loosening of connector tab:
- Corrosion (oxidation) of connector pins: Corrosion makes that the pins lose their conductive properties and causes an open/short circuit due to the contact of the liquids such as water, acid etc. with connector pins. Corrosion may especially be seen in areas where contact with liquids is probable. For example, it may be encountered with higher risk of mud, snow splashes, or where liquids flow from the upperstructure to the connector. (This shall be considered in vehicles that carry liquids such as mixers, dump trucks, tankers etc.)
- Wire short circuit due to friction
- Damage to the wire that connect the trailer to vehicle while cornering
- Overheating of a source in the vicinity of the connector; e.g. a turbocharger or falling of the wiring in the vicinity of a heat producing source due to break of the cable tie that fixes the line.



3.2. Wiring Diagram Abbreviations:



TRUCKS

S

B

B

09

14401

RD

4.0

Cable Cross-section mm2	Length m	Weight kg	Price €
16	100	1.2	120
25	100	1.8	180
35	100	2.5	250
50	100	3.5	350
70	100	4.8	480
95	100	6.2	620
120	100	7.8	780
150	100	9.5	950
185	100	11.5	1150
240	100	14.5	1450
300	100	18.0	1800
350	100	21.0	2100
400	100	24.0	2400
500	100	30.0	3000
630	100	37.5	3750
800	100	48.0	4800
1000	100	60.0	6000

RD: Red
BU: Blue
YE: Yellow
GN: Green
GY: Grey
BN: Brown
VT: Purple
WH: White
BK: Black
OG: Orange

Color

Wiring Middle No.

Wiring Middle No.

Fuse No

[illegible]

From the Fuse

P= Mini Fuse

B= J Type Fuse

C= Ignition Supply

S= Battery Supply

V= CAN Line

Supply

SBB09A RD 2TBD-4.0
14401

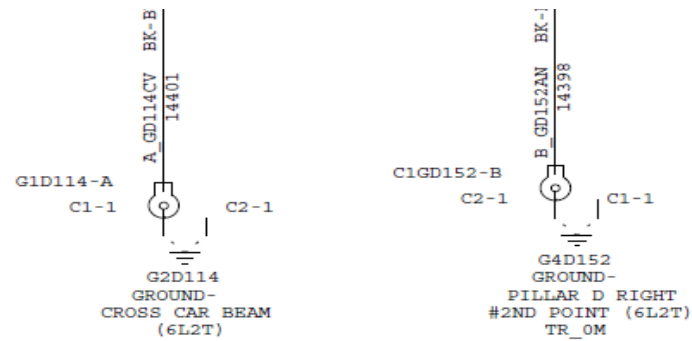
SBB09B RD 2TBD-6.0
14401

SBB09C RD 2TBD-4.0
14401

SBP56A VT/RD 2TBD-2.5
14401

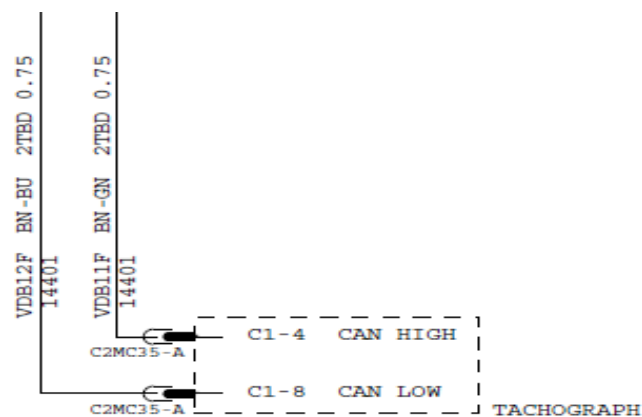
GD

= Ground (Chassis)



VDB

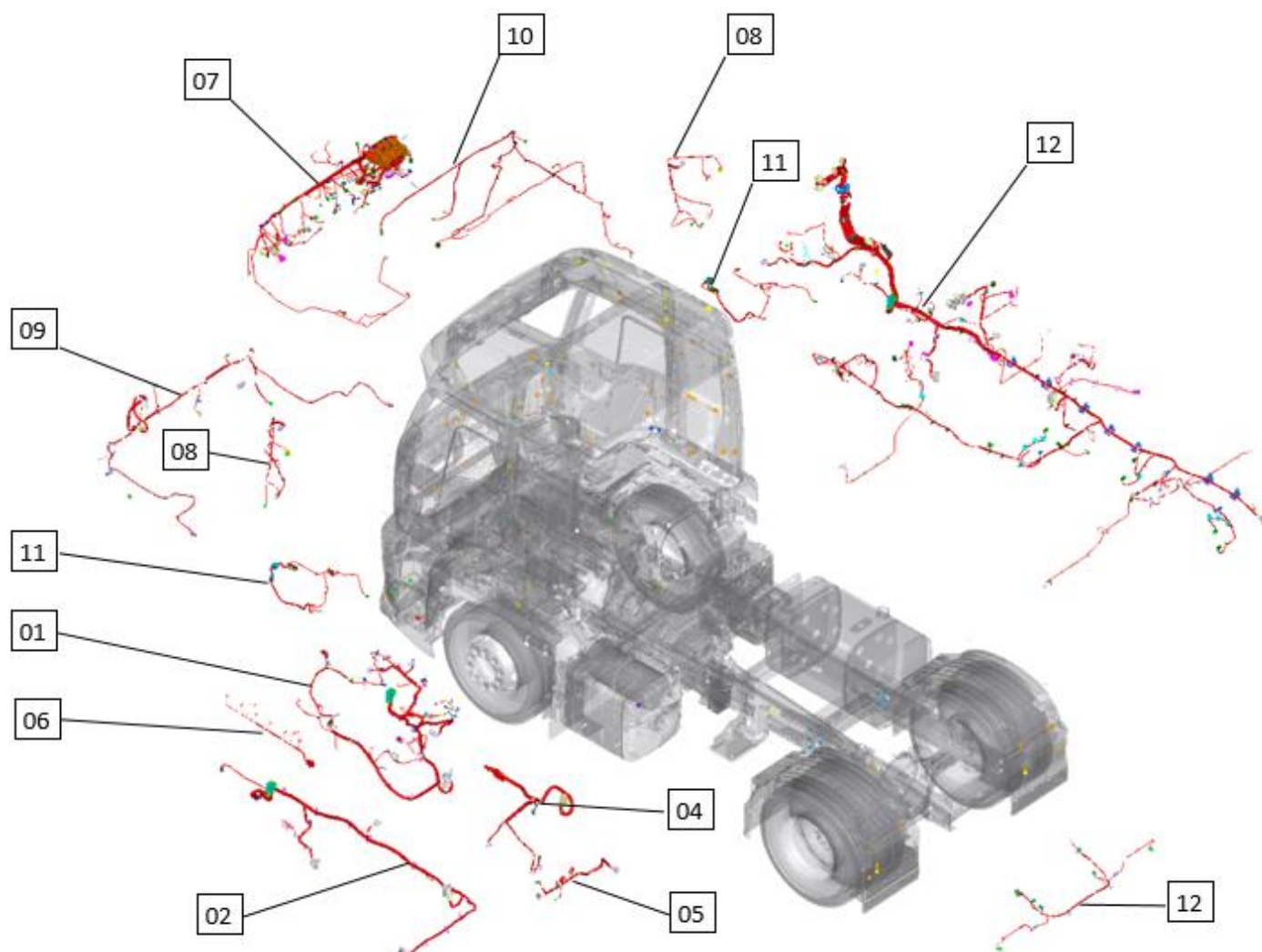
= CAN Line



3.3. 3D indication of vehicle wiring installations:

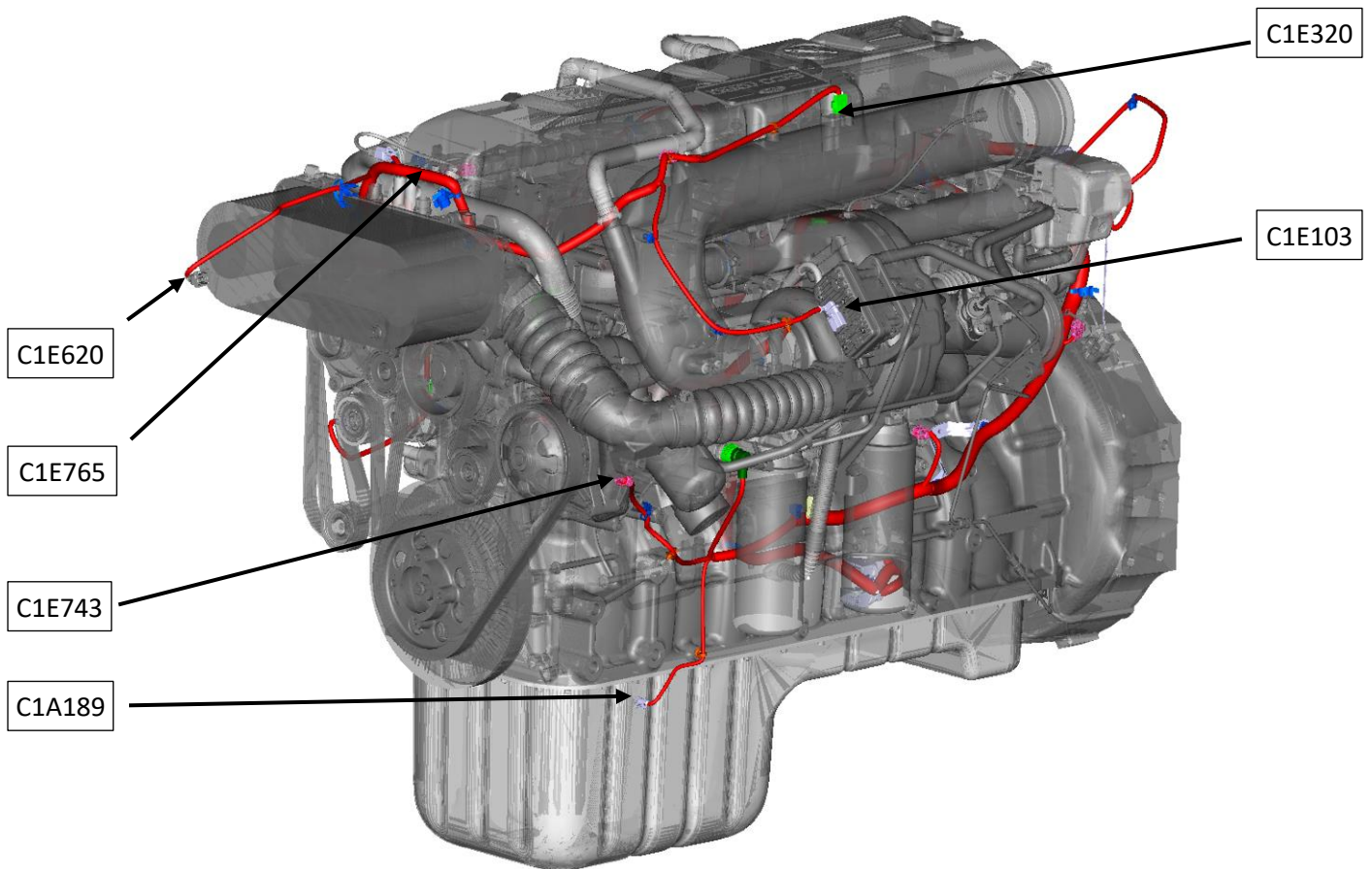
TRUCKS

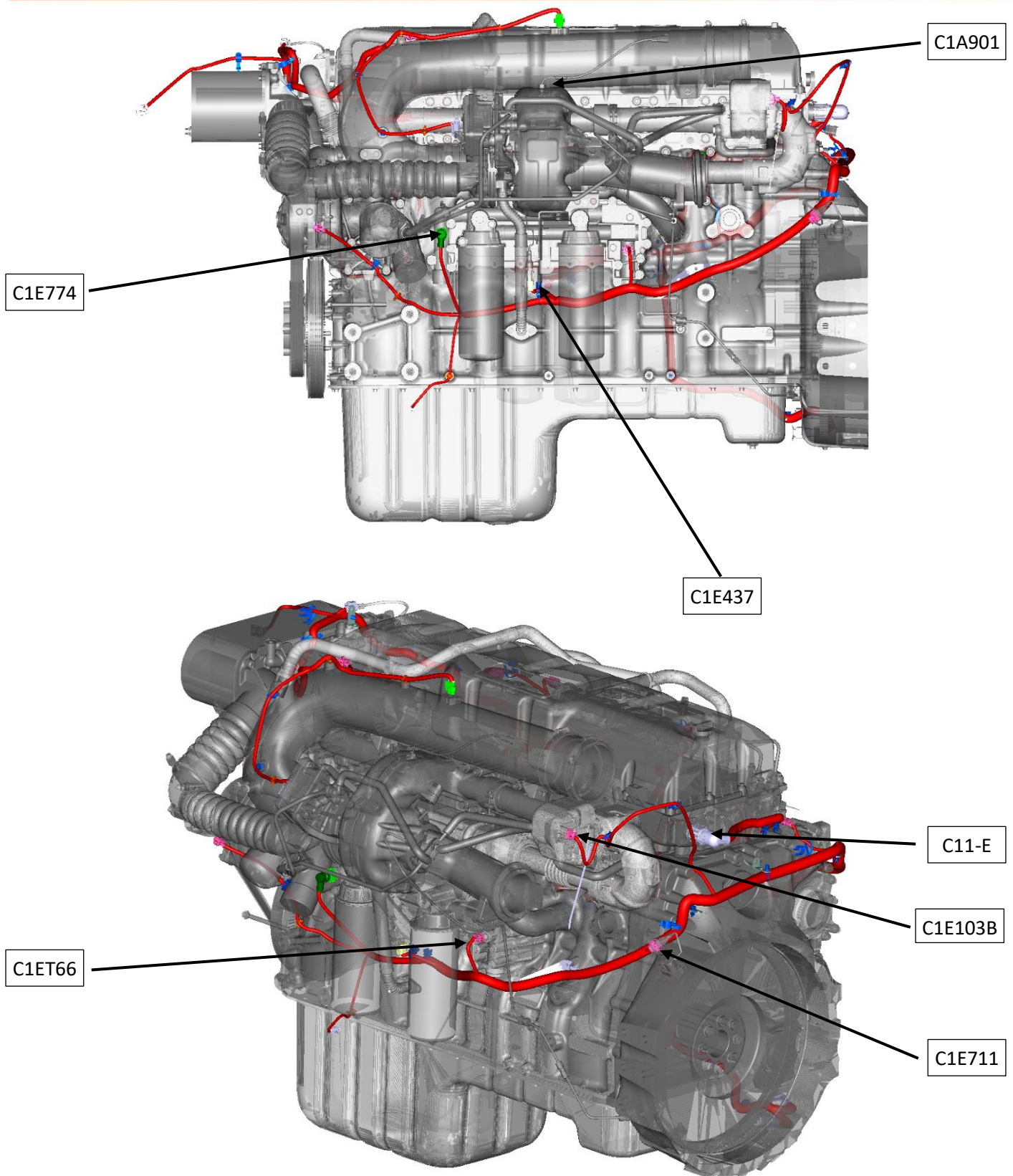
There are 12 main wirings on a vehicle. You may find detailed information the wirings, connectors on the wirings and checking of wirings on the following pages.

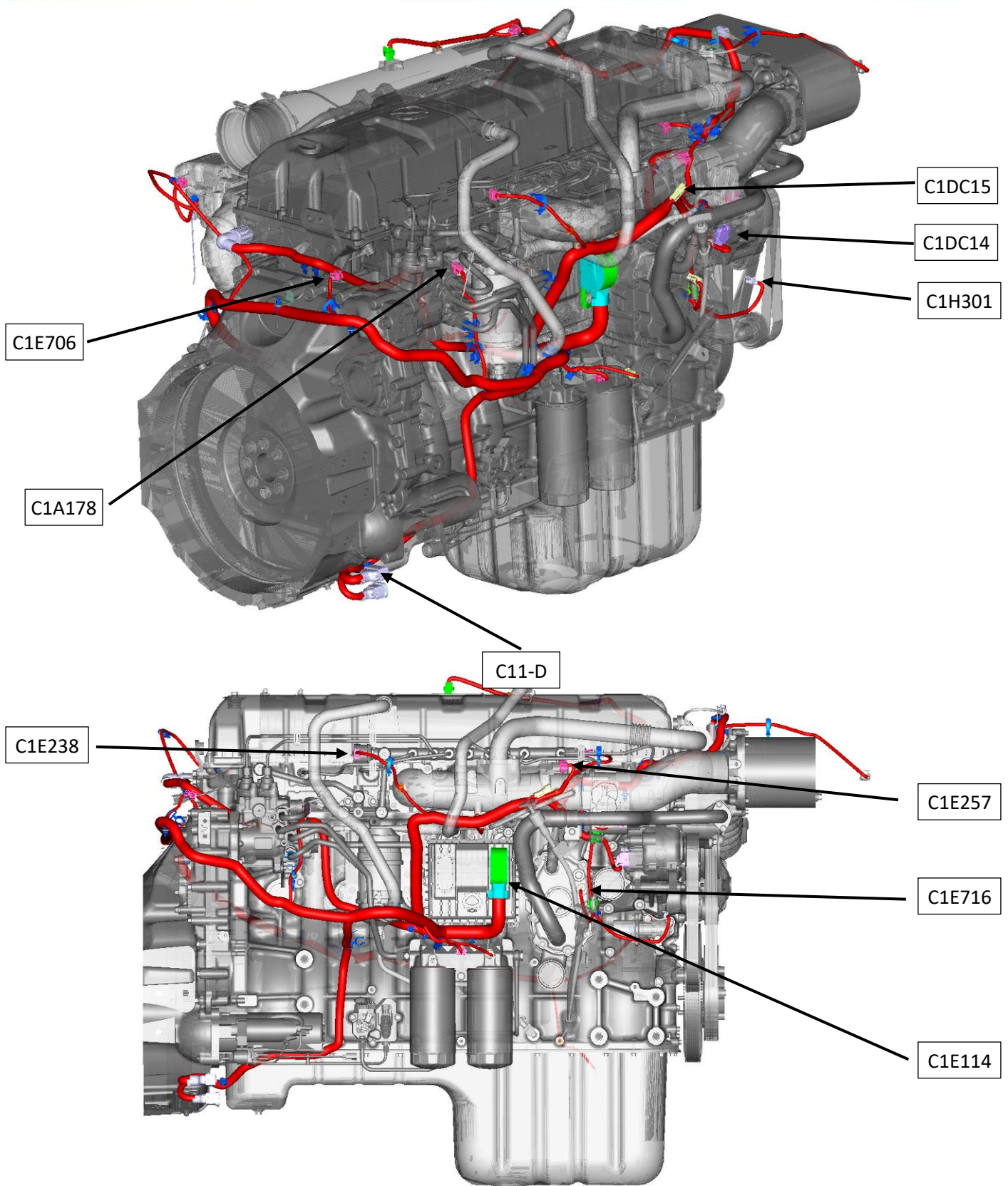


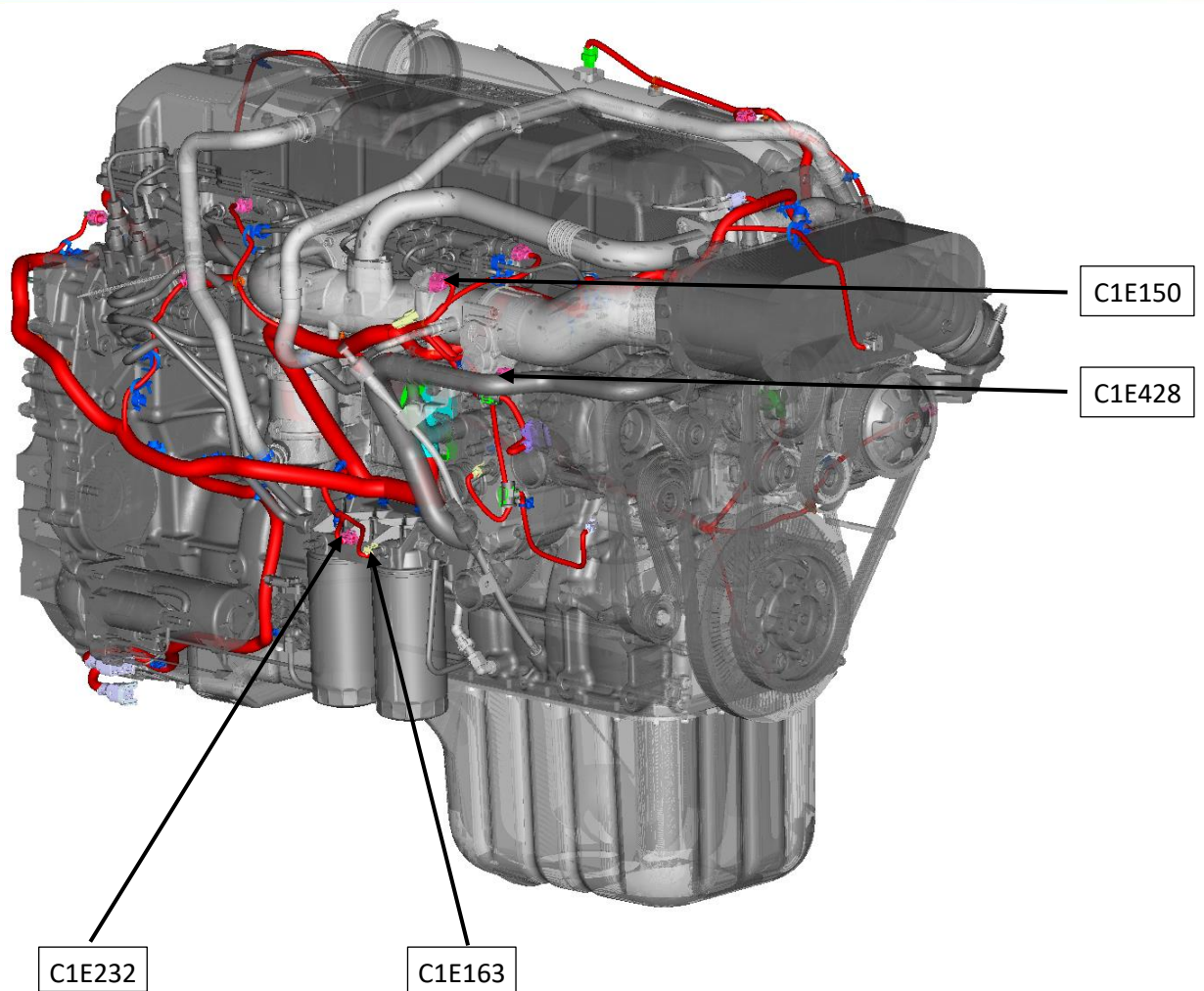
Sequence No.	Name of the wiring	Middle No.
1	Sensor on engine wiring	12A690
2	AdBlue-SCR wiring	14378
3	BCU wiring (Main wiring)	14398
4	On-transmission wiring	14K039
5	Exhaust-SCR wiring	9L430
6	Injector wiring inside the engine	9H589
7	Cab wiring	14401
8	Bumper wiring	13N052
9	Front under hood wiring	14B242
10	Roof wiring	15A404
11	Door internal wiring	14A584
12	Rear lighting wiring	14405

3.3.1. 12A690 → Sensor on Engine Wiring



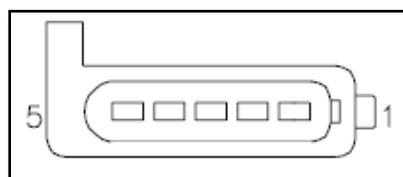






TRUCKS

12A690→Sensor on engine wiring connector descriptions:



Con. Code	C1DC06			
Con. Desc.	ALTERNATOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
3	CDC15A	0,75	Violet	
4	CDC06I	0,75	Violet/White	
5	VDC73A	0,75	Green/White	

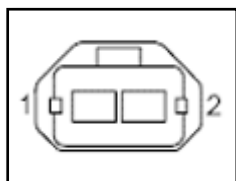


Con. Code	C1DC15			
Con. Desc.	RESISTANCE-ALTERNATOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CDC15B	0,75	Violet	
2	CE606A	0,75	Green/Orange	

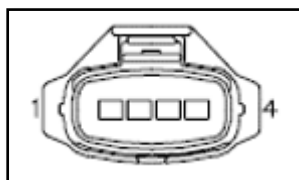


Con. Code	C1H301			
Con. Desc.	HVAC COMPRESSOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CH401B	1	Violet/White	

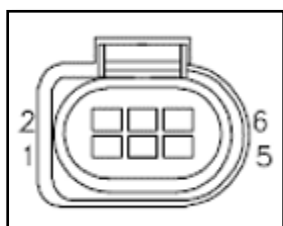
TRUCKS



Con. Code	C1E716			
Con. Desc.	ENGINE COOLANT SENSOR CONNECTOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VE716C	0,75	Yellow	
2	ZA152E	0,75	Orange/Green	

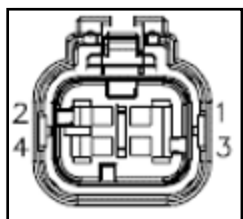


Con. Code	C1E150			
Con. Desc.	TMAP SENSOR CONNECTOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	RE150A	0,75	Green/Blue	
2	VE824A	0,75	Yellow/Green	
3	LE150A	0,75	Blue/White	
4	ZA174A	0,75	Orange/Yellow	

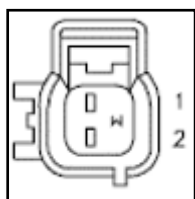


Con. Code	C1E428			
Con. Desc.	THROTTLE POSITION SENSOR CONNECTOR (TPS)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VE820A	0,75	Gray	
2	LE428A	0,75	Blue/White	
3	VE819A	1	Green/Violet	
5	VE818A	1	Brown	
6	VE720A	0,75	Violet	

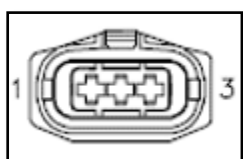
TRUCKS



Con. Code	C1E103A			
Con. Desc.	TC ACTUATOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CE103A	0,75	Blue/Brown	
2	A_GD163C	0,75	Black/Gray	
3	VDB29A	0,75	Green/Blue	
4	ZA025	0,75	Black	
5	VDB30A	0,75	White/Green	
6	ZA026	0,75	Black	

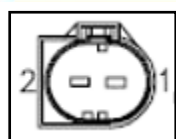


Con. Code	C1E765			
Con. Desc.	EXHAUST GAS RECIRCULATION SENSOR CONNECTOR (EGRT)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VE765A	0,75	Gray/Blue	
2	CH422D	0,75	Violet	

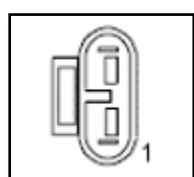


Con. Code	C1E238			
Con. Desc.	RAIL PRESSURE SENSOR CONNECTOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	RE238A	0,75	Blue/Brown	
2	VE727A	0,75	Blue/Brown	
3	LE238A	0,75	Gray	

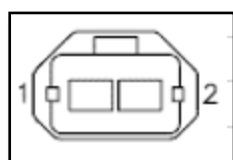
TRUCKS



Con. Code	C1A178			
Con. Desc.	FUEL PUMP CONNECTOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	ZA178A	0,75	Orange/White	
2	ZA179A	0,75	Orange/Black	



Con. Code	C1E604			
Con. Desc.	AIR GRID RELAY CONNECTOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CE606C	0,75	Green/Orange	
2	CE604A	0,75	Yellow/Violet	

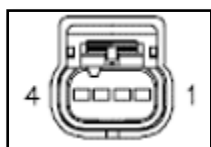


Con. Code	C1E232			
Con. Desc.	FUEL TEMPERATURE SENSOR CONNECTOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	RE232A	0,75	Violet/White	
2	ZA152B	0,75	Orange/Green	

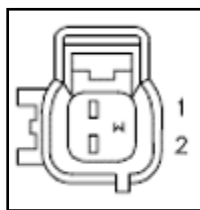
TRUCKS



Con. Code	C1E163			
Con. Desc.	FUEL FILTER CLOG SENSOR CONNECTOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CE163A	0,75	Violet/Gray	
2	CE623A	0,75	Brown/Blue	

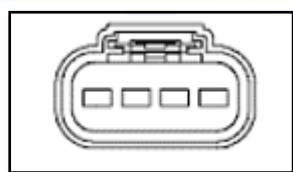


Con. Code	C1E320			
Con. Desc.	MASS AIR FLOW SENSOR CONNECTOR (MAF)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	RE320A	0,75	Blue	
2	VE807A	0,75	Yellow/Violet	
3	VE809A	0,75	Green/Orange	
4	ZA156A	0,75	Orange/Black	

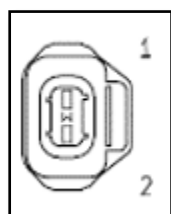


Con. Code	C1A901			
Con. Desc.	T3 SENSOR CONNECTOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	ZA153A	0,75	Orange/Gray	
2	RE771B	0,75	Gray/Orange	

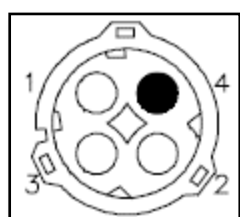
TRUCKS



Con. Code	C1E103B			
Con. Desc.	EGR VALVE			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VDB29F	0,75	Green/Blue	
2	VDB30F	0,75	White/Green	
3	A_GD163B	0,75	Black/Gray	
4	CE103C	0,75	Blue/Brown	

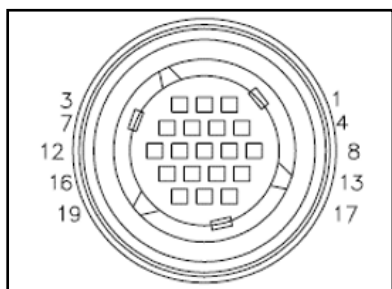


Con. Code	C1E257			
Con. Desc.	FUEL PRESSURE CONTROL VALVE CONNECTOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CE257A	0,75	Gray/Brown	
2	ZA181A	0,75	Orange	

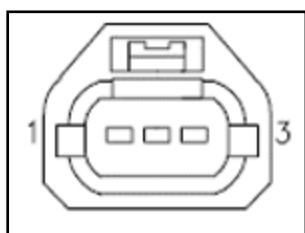


Con. Code	C1PK45			
Con. Desc.	ENGINE START STOP CONNECTOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CPK45	0,75	Yellow/Violet	
2	CE937	0,75	Violet/Gray	
3	LE423H	0,75	Green/Violet	

TRUCKS

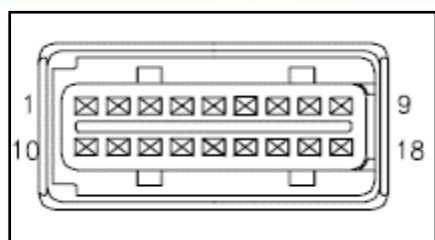


Con. Code	C11-E			
Con. Desc.	CYLINDER HEAD CONNECTOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CE205C	1,5	Green/Blue	
2	RE205C	1,5	Yellow/Blue	
3	CE206C	1,5	Gray/Yellow	
4	RE206C	1,5	Yellow/Orange	
5	CE207C	1,5	Violet/Gray	
6	RE207C	1,5	Green/Violet	
7	CE208C	1,5	Blue/Orange	
8	RE208C	1,5	Blue	
9	CE209C	1,5	Brown	
10	RE209C	1,5	White/Green	
11	CE210C	1,5	Green/White	
12	RE210C	1,5	Brown/Violet	
13	CCB04C	1	White	
14	CCB05A	1	Gray/Blue	
15	CCB14A	0,75	Violet	
16	CCB05F	0,75	Gray/Blue	



Con. Code	C1E706			
Con. Desc.	CAMSHAFT SPEED SENSOR CONNECTOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VE706B	0,75	Brown/Blue	
2	VE707B	0,75	Green/Violet	
3	ZA142B	0,75	Orange/Yellow	

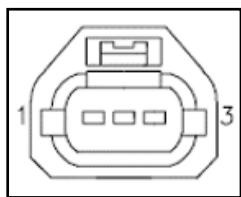
TRUCKS



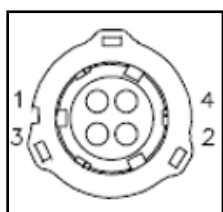
Con. Code	C11-D			
Con. Desc.	14398 WIRING-1			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	A_GD163D	1,5	Black/Gray	
3	VDB29D	0,75	Green/Blue	
4	VDB30D	0,75	White/Green	
5	CPK45A	0,75	Yellow/Violet	
6	CE937E	0,75	Violet/Gray	
7	LE423N	0,75	Green/Violet	
10	CH401B	1	Violet/White	
11	CDC06I	0,75	Violet/White	
12	CE103B	0,75	Blue/Brown	
13	CCB04E	1	White	
14	LE139B	0,75	Brown/White	
15	RE139B	0,75	Gray/Orange	
17	RET33C	0,75	White/Violet	
18	VET33C	0,75	White/Orange	

Con. Code	C11-G			
Con. Desc.	14398 WIRING-2			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	RE771D	0,75	Gray/Orange	EU6
2	VE351B	0,75	Violet/Orange	EU6
3	VE350B	1	Gray	EU6
4	LE357B	0,75	White	EU6
5	RE357B	0,75	Violet/White	EU6
6	RE803D	0,75	Brown/Green	EU6
7	VE803D	0,75	Blue/Green	EU6
8	RE804D	0,75	Green/Blue	EU6
9	ZA153A	0,75	Orange/Gray	-
10	VE804D	0,75	Green/Brown	EU6
11	VE770B	0,75	Gray/Brown	EU6
12	VE769B	0,75	Blue/Gray	EU6
13	VDC73A	0,75	Green/White	-
14	CH302C	0,75	White/Brown	-
15	CE612B	1	Gray/Violet	-
16	CH422B	0,75	Gray	EU6
17	CH423B	0,75	Yellow	-
18	CE613B	0,75	White/Violet	-

TRUCKS



Con. Code	C1E711			
Con. Desc.	CRANKSHAFT SPEED SENSOR CONNECTOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VE711A	0,75	White/Brown	
2	ZA159A	0,75	Orange/Blue	
3	ZA142C	0,75	Orange/Yellow	

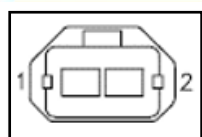


Con. Code	C1E774			
Con. Desc.	ENGINE OIL PRESSURE SENSOR CONNECTOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VE774A	0,75	Yellow/Green	
2	CMC24A	0,75	Gray	
4	RE774B	0,75	Green/Orange	

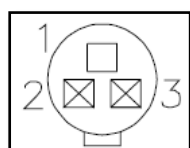


Con. Code	C1E437			
Con. Desc.	VGT SPEED SENSOR CONNECTOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	LE437A	0,75	Yellow	
2	RE437A	0,75	Gray	

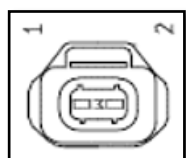
TRUCKS



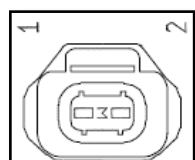
Con. Code	C1ET66			
Con. Desc.	ENGINE OIL TEMPERATURE SENSOR CONNECTOR (EOT)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VET66A	0,75	Green	
2	RE774C	0,75	Green/Orange	



Con. Code	C1A189			
Con. Desc.	ENGINE OIL LEVEL SENSOR CONNECTOR (EOL)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	ZA189A	0,75	Orange	
2	ZA188A	0,75	Orange/Green	
3	VE809C	0,75	Green/Orange	

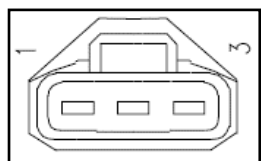


Con. Code	C1E743			
Con. Desc.	WATER PUMP CONNECTOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CE174A	0,75	Yellow/Gray	
2	CE628A	0,75	Gray	

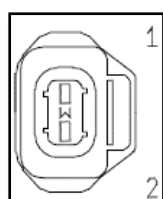


Con. Code	C1E351			
Con. Desc.	METERING VALVE CONNECTOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VE351	0,75	Violet/Orange	
2	VE350	1	Gray	

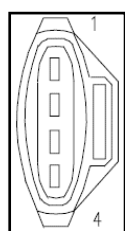
TRUCKS



Con. Code	C1ET08			
Con. Desc.	HCI PRESSURE SENSOR DOWNSTREAM			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CET08	0,75	Brown/White	
2	CET10	0,75	Blue/Gray	
3	CET09	0,75	Yellow/Violet	



Con. Code	C1E357			
Con. Desc.	SHUT-OFF VALVE			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	LE357	0,75	White	
2	RE357	0,75	Violet/White	



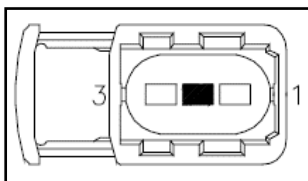
Con. Code	C1ET05			
Con. Desc.	HCI PRESSURE SENSOR UPSTREAM			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	RE771B	0,75	Gray/Orange	
2	CCET05	0,75	Blue/Green	
3	CET06	0,75	Green/Brown	
4	CET07	0,75	Gray/Orange	



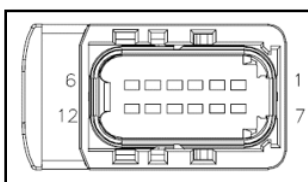
3.3.2. 14D378 ➔ AdBlue-SCR Wiring

TRUCKS

14D378→AdBlue-SCR wiring connector descriptions:

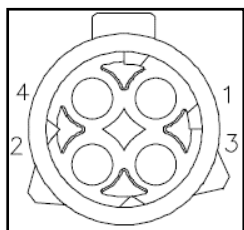


Con. Code	C1E356			
Con. Desc.	ADBLUE TANK HEATER VALVE CONNECTOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	LE423O	0,75	Green/Violet	
3	RCL17B	0,75	White/Orange	

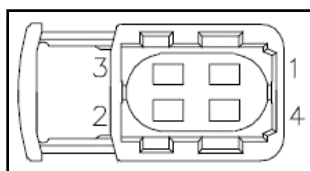


Con. Code	C1E348			
Con. Desc.	ADBLUE PUMP MODULE CONNECTOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
2	VE353C	0,75	Gray/Blue	
3	VE708	0,75	Green/Brown	
4	RE353	0,75	Green/Violet	
5	CE356	0,75	Blue/Orange	
6	CH304	1,5	Yellow/Gray	
8	RE354	0,75	White/Blue	
9	CE354E	0,75	Brown/Blue	
10	VE354	0,75	Green/Blue	
11	CE354C	0,75	Brown/Blue	
12	RE355	0,75	Green	

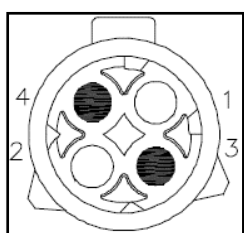
TRUCKS



Con. Code	C1A160			
Con. Desc.	HEATER-1 PRESSURE LINE			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CE356B	0,75	Blue/Orange	
2	VE352	1	Brown	

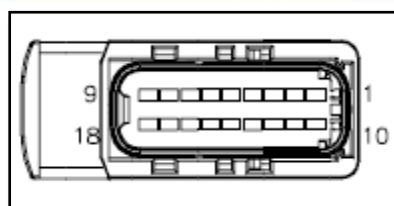


Con. Code	C1E834			
Con. Desc.	WEMA SENSOR CONNECTOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VE766B	0,75	Gray/Yellow	
2	VDB30E	0,75	White/Green	
3	VDB29E	0,75	Green/Blue	
4	A_GD163L	0,75	Black/Gray	



Con. Code	C1A161			
Con. Desc.	HEATER-2 BACK PRESSURE			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CE354D	1	Brown/Blue	
2	RE356	1	Violet	

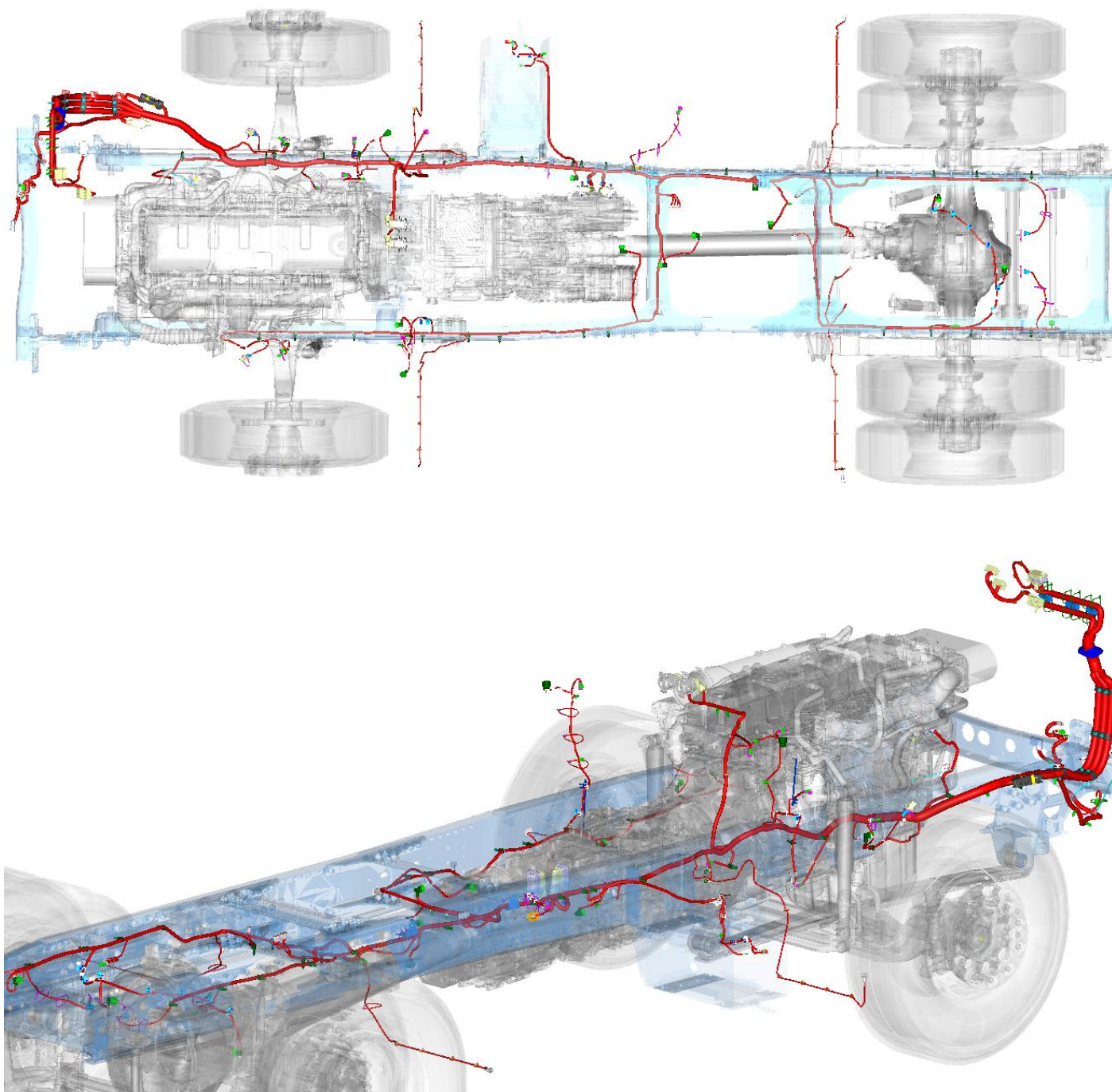
TRUCKS



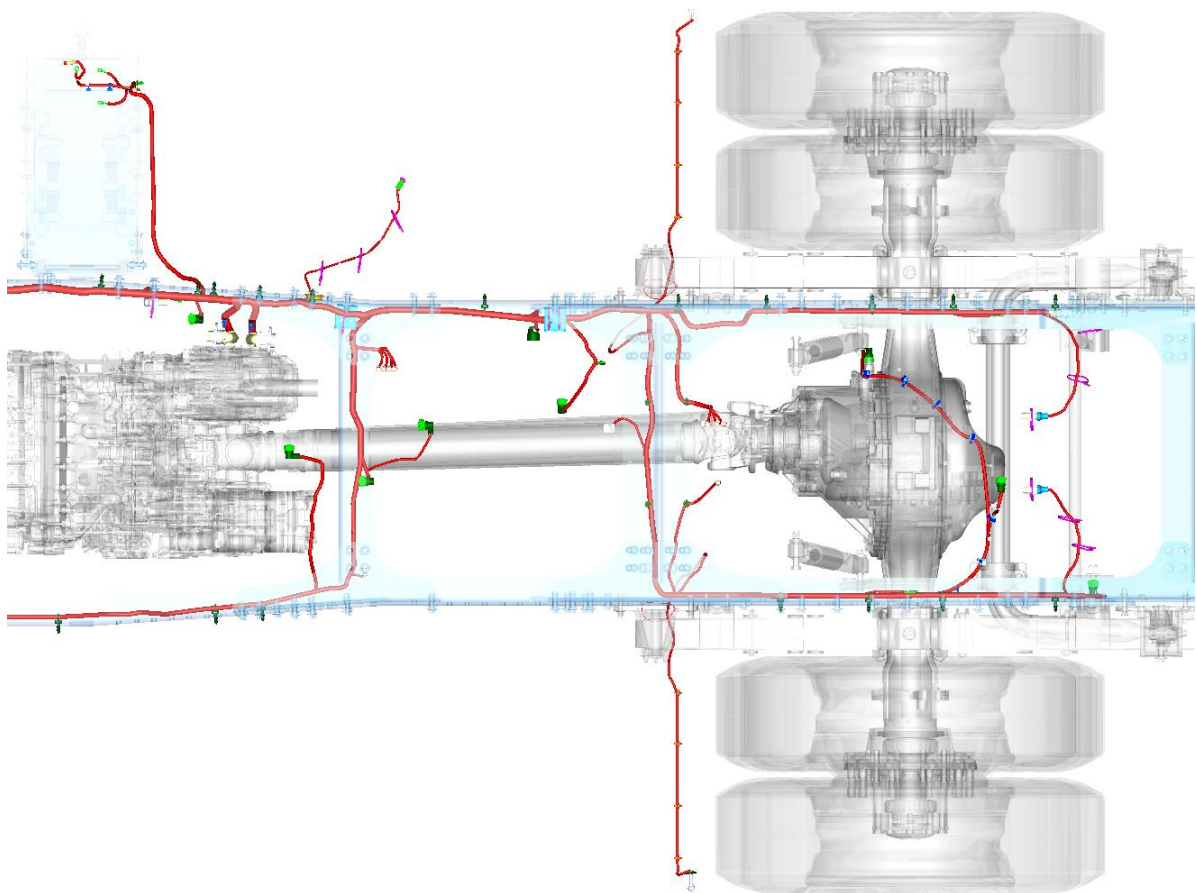
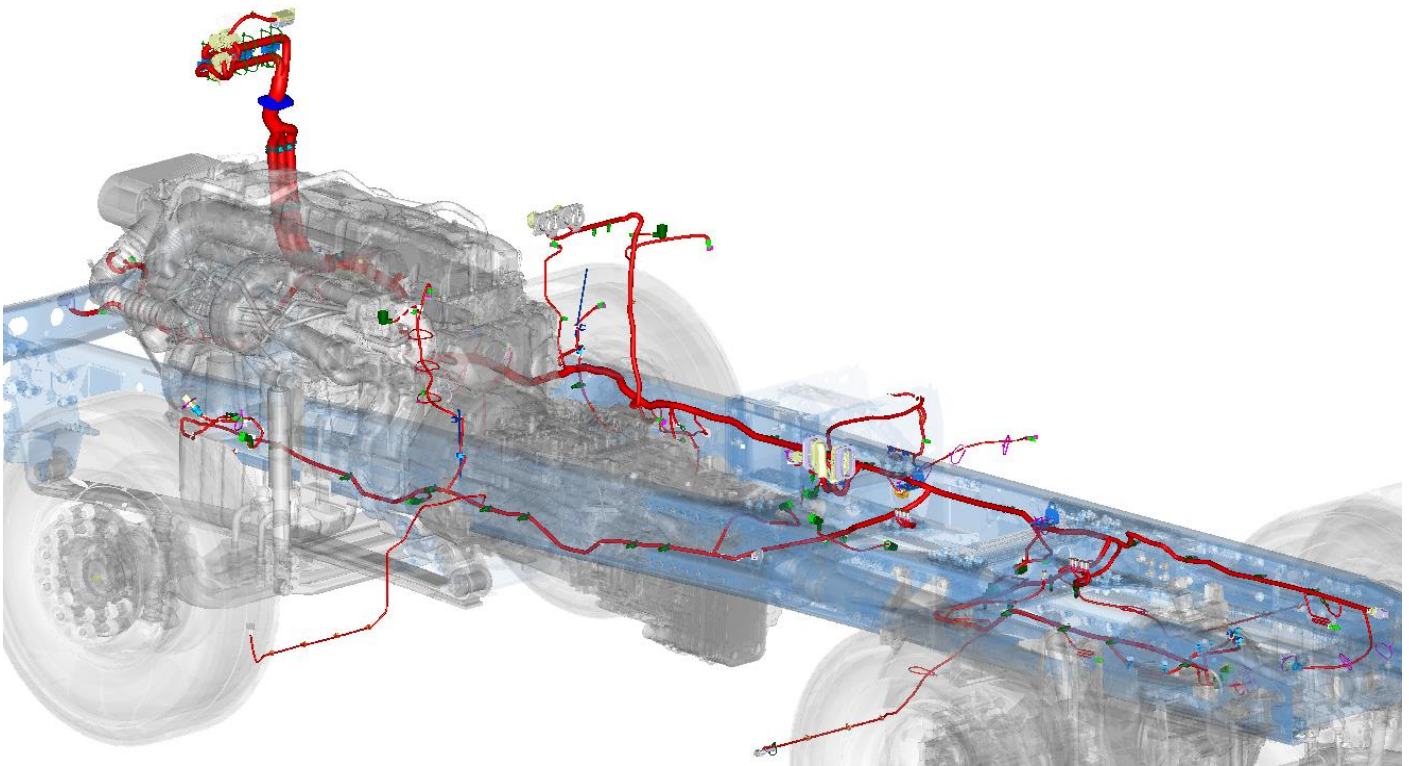
Con. Code	C11-H			
Con. Desc.	14398 INLINER			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VE834B	0,75	GN	EU5
1	VE766D	0,75	GY/YE	EU6
2	RE771K	0,75	GY/OG	EU5
2	VDB30N	0,75	WH/GN	EU6
3	VE762B	0,75	BU/GY	EU5
3	VDB29N	0,75	GN/BU	EU6
4	A_GD163L	0,75	BK/GY	EU6
5	CE354C	1,5	BN/BU	EU5 EU6
6	RE356B	1	VT	EU5 EU6
7	CE356B	0,75	BU/OG	EU5 EU6
8	VE352B	1	BN	EU5 EU6
9	LE423O	0,75	GN/VT	EU5 EU6
10	RCL17B	0,75	WH/OG	EU5 EU6
11	VE353A	0,75	GY/BU	EU5 EU6
12	VE708B	0,75	GN/BN	EU5 EU6
13	RE353A	0,75	GN/VT	EU5 EU6
14	CH304B	1,5	YE/GY	EU5 EU6
15	RE354B	0,75	WH/BU	EU5 EU6
16	VE354B	0,75	GN/BU	EU5 EU6
17	RE355B	0,75	GN	EU5 EU6

TRUCKS

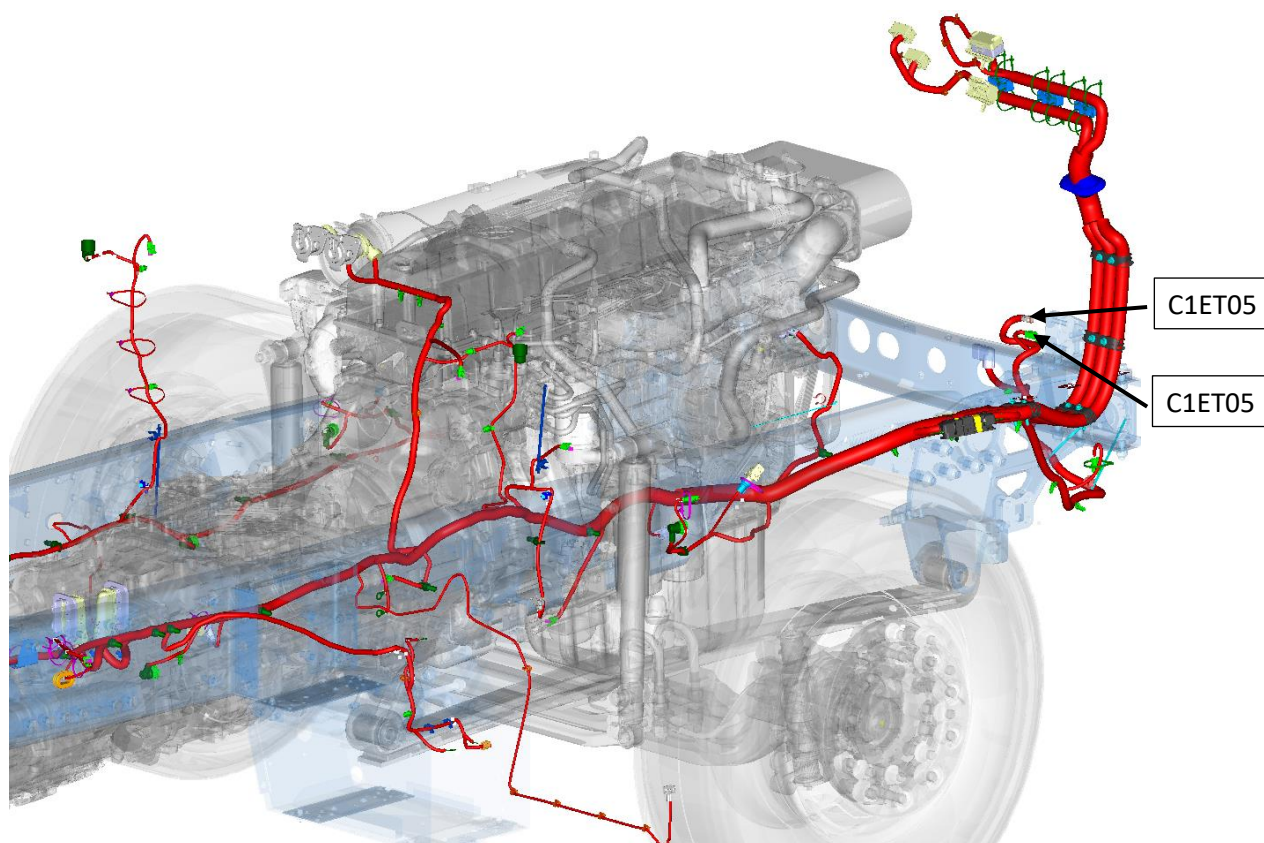
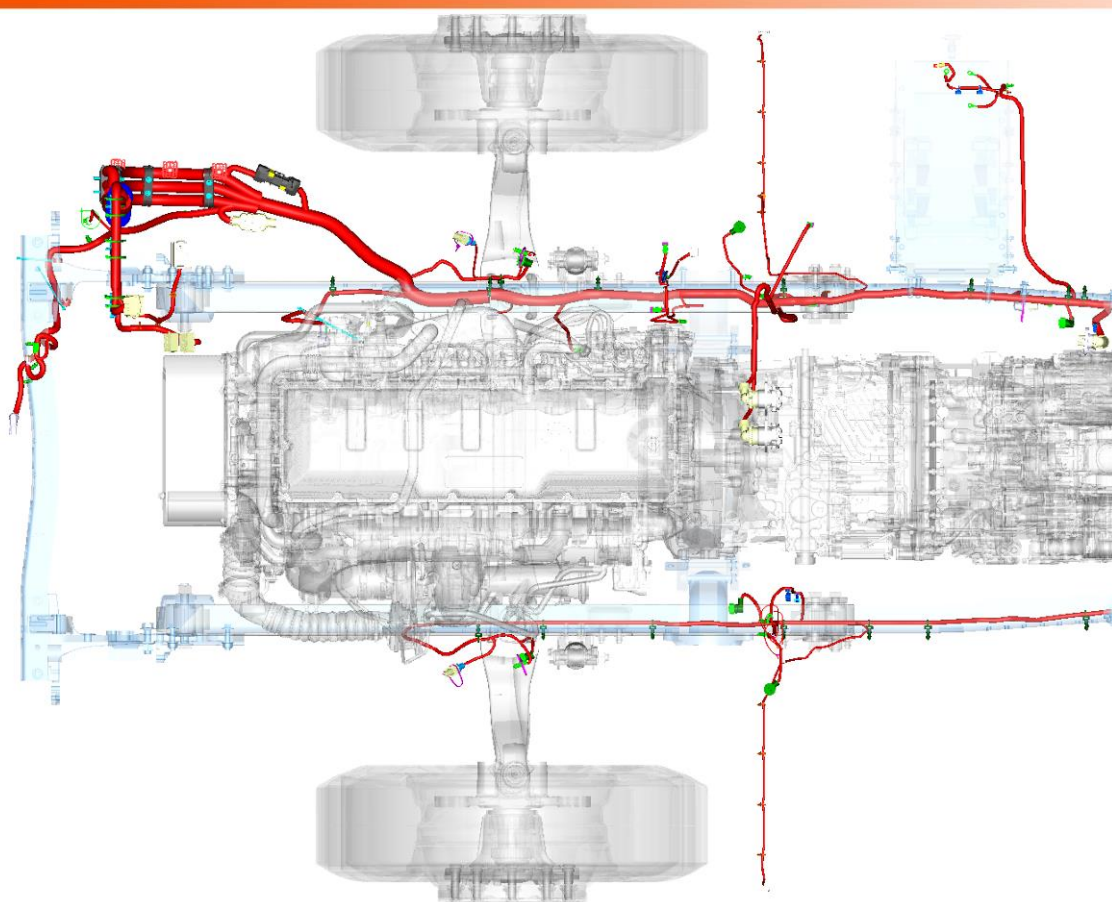
3.3.3. 14398 → BCU (Body Electronics Control Unit) Wiring

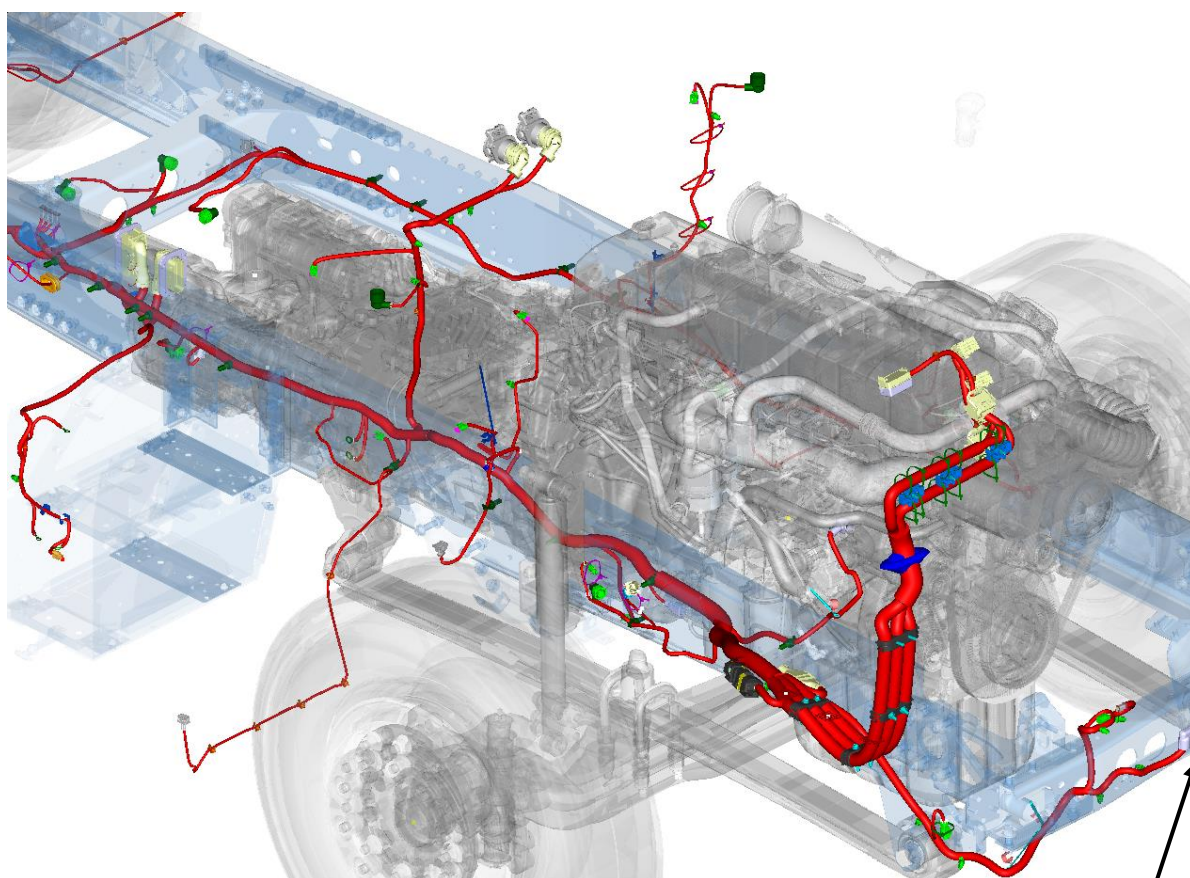


TRUCKS

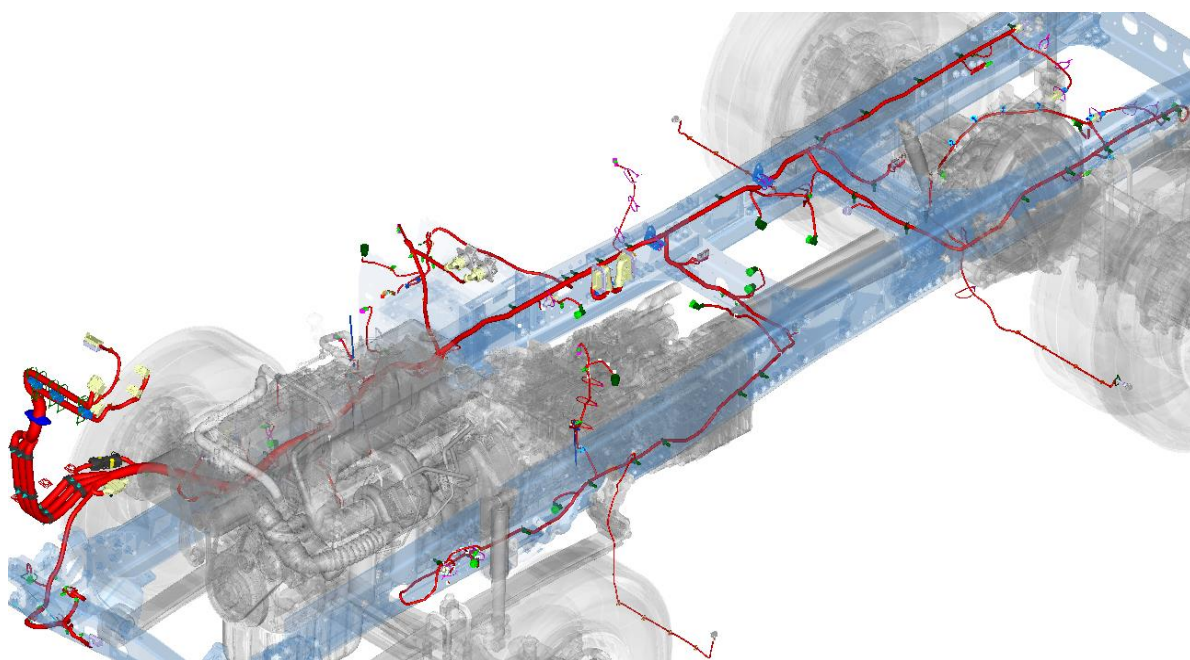


TRUCKS



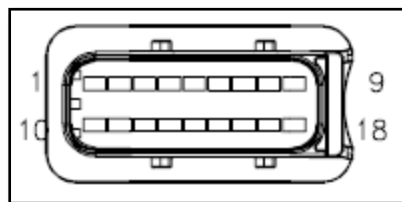


C1ET05

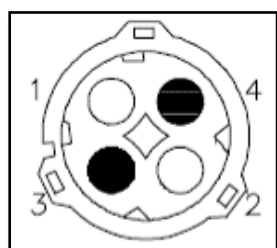


TRUCKS

14398→BCU wiring (Main Wiring) connector descriptions:

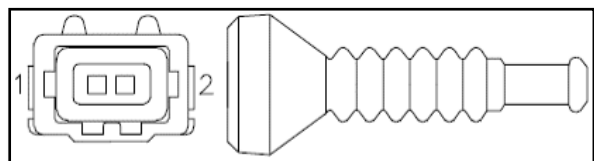


Con. Code	C14-A			
Con. Desc.	14405 INLINER			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP46F	1,5	White/Blue	
2	CBP48D	1,5	Gray/Yellow	
3	ZA119A	1,5	Orange/Blue	
4	CCA26B	1,5	Blue/Gray	
5	ZA116D	0,75	Orange/Yellow	
6	CLS21B	0,75	Blue/Green	
7	CLS25B	0,75	Yellow/Violet	
8	ZA111	0,75	Orange/Blue	
9	VCL19	0,75	Green	
10	ZA112	0,75	Orange/Green	
11	LCD19	0,75	Violet	
14	VCD12	0,75	Violet/White	
17	VCD13	0,75	Green/Violet	
18	ZA201	0,75	Orange	



Con. Code	C1A156A			
Con. Desc.	DIFF. LOCK 1 SOLENOID			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	RCA21E	0,75	Brown/Green	
2	A_GD151C	0,75	Black/Green	

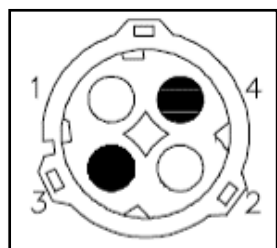
TRUCKS



Con. Code	C4LS14A			
Con. Desc.	LAMPSIDE MARKER REAR RIGHT			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP46G	0,75	White/Blue	
2	A_GD151F	0,75	Black/Green	

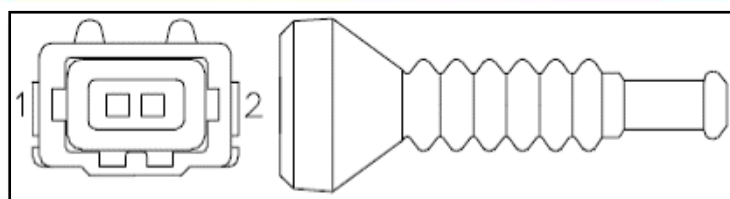


Con. Code	C1A129			
Con. Desc.	EPM REAR AXLE MODULE CONNECTOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	ZA205	1	Orange/Gray	
2	ZA204	1	Orange/Green	
3	VDB04A	1	White/Blue	
4	VDB05A	1	White	

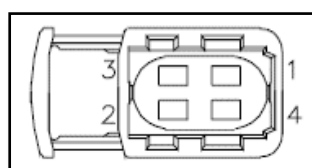


Con. Code	C1A156-B			
Con. Desc.	SWITCH DIFF LOCKOUT2			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	A_GD151BE	0,75	Black/Green	
2	ZA327	0,75	Orange/Blue	

TRUCKS



Con. Code	C4LS13A			
Con. Desc.	LAMPSIDE MARKER REAR LEFT			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP48G	0,75	Gray/Yellow	
2	A_GD151H	0,75	Black/Green	

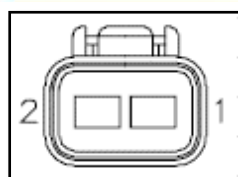


Con. Code	C1A220-A			
Con. Desc.	VALVE CENTRAL SOLENOID (ONLY C4AS)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	RCD03A	0,75	Violet/Brown	
2	CCD03A	0,75	White/Blue	
3	RCD04A	0,75	Blue/Orange	
4	ZA117A	1,5	Orange	

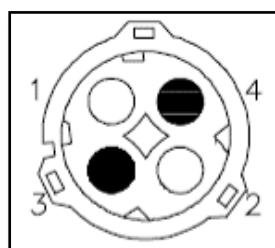


Con. Code	C1A132			
Con. Desc.	EPM FRONT AXLE MODULE TO EBS MODULE			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	ZA207	1	Orange/Black	
2	ZA206	1	Orange/White	
3	VDB04B	1	White/Blue	
4	VDB05B	1	White	

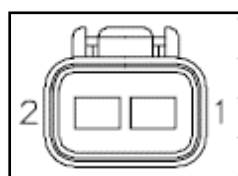
TRUCKS



Con. Code	C1A131			
Con. Desc.	EPM FRONT AXLE MODULE TO WHEEL SPEED RIGHT FRONT SENSOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VCA05B	0,75	Gray/Violet	
2	RCA19B	0,75	Violet	

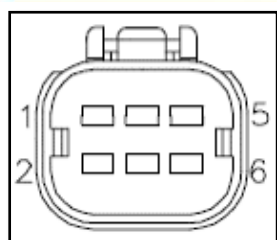


Con. Code	C1YT13			
Con. Desc.	AIR COMPRESSOR PRESSURE SWITCH			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CYT13	0,75	Brown/Violet	
2	A_GD151Z	0,75	Black/Green	

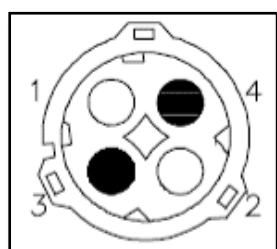


Con. Code	C1A130			
Con. Desc.	EPM FRONT AXLE MODULE TO WHEEL SPEED LEFT FRONT SENSOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VCA03B	0,75	Violet/White	
2	RCA17B	0,75	Yellow	

TRUCKS

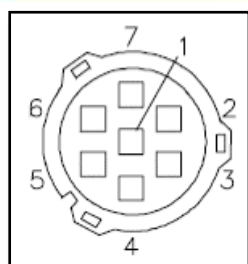


Con. Code	C1A105			
Con. Desc.	EPM FRONT AXLE MODULE TO SENSOR BRAKE PADS			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	ZA149	0,75	Orange	
2	CMC09C	0,75	Gray/Orange	
3	ZA143	0,75	Orange/Blue	
4	ZA144	0,75	Orange/Green	
5	ZA145	0,75	Orange/Gray	
6	CMC07C	0,75	Blue/Green	



Con. Code	C1A224			
Con. Desc.	AIR DRYER HEATER			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	GBP24C	2,5	Violet/Green	
2	A_GD151J	2,5	Black/Green	

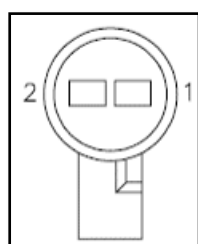
TRUCKS



Con. Code	C1A165			
Con. Desc.	SENSOR UNIT AIR PRESSURE			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
2	LCA37	0,75	Yellow/Orange	
3	VCA38B	0,75	Brown/Violet	
4	RMC27B	0,75	White/Brown	
5	RCA37	0,75	White/Blue	
6	VCA38A	0,75	Brown/Violet	
7	RMC27A	0,75	White/Brown	

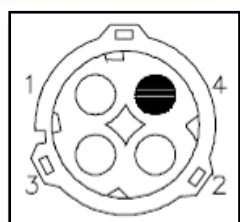


Con. Code	C1A156			
Con. Desc.	LIGHTING ACCESSORY			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP22A	1	Green/Orange	
2	A_GD150C	1	Black/White	

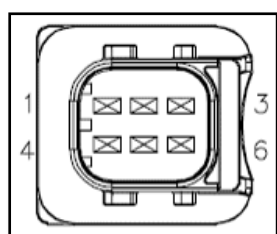


Con. Code	C1A168-A			
Con. Desc.	SWITCH CABIN LATCH LEFT			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	AG CPL30B	0,75	Blue/Brown	
2	AG A_GD152N	0,75	Black/Blue	

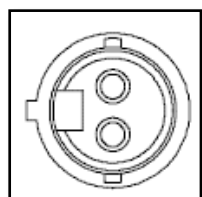
TRUCKS



Con. Code	C1A124			
Con. Desc.	VALVE PRESSURE CONTROL LEFT FRONT			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CET10A	1,5	Blue/Gray	
2	CET11B	1,5	Green/Orange	
3	CET09A	1,5	Yellow/Violet	

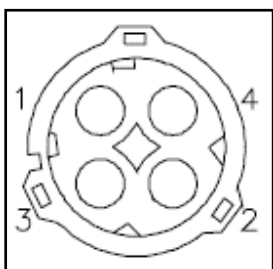


Con. Code	C2A504			
Con. Desc.	FRONT AXLE LEFT BRAKE PAD SENSOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	A_GD150M	0,75	Black/White	
2	ZA148	0,75	Orange/White	
3	CMC07C	0,75	Blue/Green	
4	ZA145	0,75	Orange/Gray	
5	ZA144	0,75	Orange/Green	

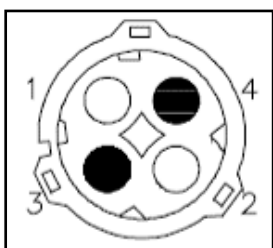


Con. Code	C1AC03A			
Con. Desc.	FRONT AXLE LEFT A SPEED SENSOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VCA03B	0,75	Violet/White	
2	RCA17B	0,75	Yellow	

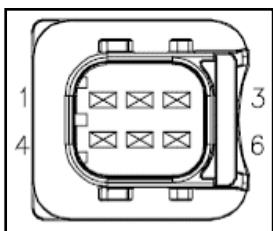
TRUCKS



Con. Code	C1CA09			
Con. Desc.	YAW RATE SENSOR (YRS)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	B_CCA09A	1	Violet/Brown	
2	B_RCA09A	1	Green/Violet	
3	B_VCA23A	1	Blue/White	
4	B_VCA24A	1	Green/Orange	

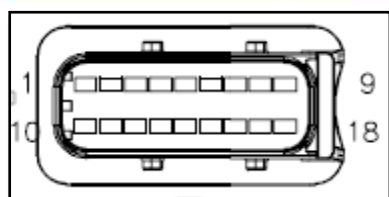


Con. Code	C1A115			
Con. Desc.	BRAKE SWITCH			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	ZA115	0,75	Orange/White	
2	A_GD150L	0,75	Black/White	

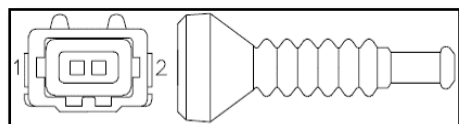


Con. Code	C21-G			
Con. Desc.	14N013 INLINER			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CDC05	0,75	Gray/Violet	
2	SDC02B	0,75	Red	
3	SDC68B	0,75	Brown/Violet	
4	A_GD150H	0,75	Black/White	
5	CDC05D	0,75	Gray/Violet	

TRUCKS

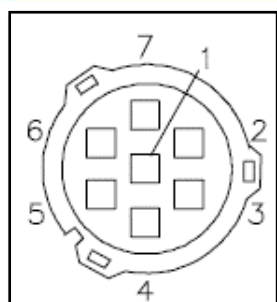


Con. Code	C1CF37			
Con. Desc.	AFTER MARKET CONNECTOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP50G	0.75	YE/OG	
2	CBP80C	1.0	YE/GN	
3	SBP79A	1.5	WH/RD	
4	B_GD150B	1.5	BK/WH	
5	VES10A	0.75	WH	
6	CES06A	0.75	BU/GN	
7	CES04D	0.75	VT/OG	
8	B_GD150C	1.5	BK/WH	
9	CES05D	0.75	BN/BU	
10	CRH02B	0.75	BU/WH	
11	ZA370A	0.75	OG/WH	
12	CLS44D	0.50	VT/BN	
13	ZA372A	0.75	OG/GY	
14	ZA371A	0.75	OG/BK	



Con. Code	C1LS13			
Con. Desc.	SIGNAL AUXILARY LEFT FRONT TURN LAMP			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP48C	0,75	Gray/Yellow	
2	A_GD152E	0,75	Black/Blue	

TRUCKS



Con. Code	C1AT03			
Con. Desc.	TRAILER CONTROL MODULE (TCM)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CET05	1	Blue/Green	
2	CET07	1	Gray/Orange	
3	CET06	1	Green/Brown	
4	CAT19	1	Blue	
5	RAT08	1	White	
6	VET12	1	Violet/Brown	
7	CET08	1	Brown/White	

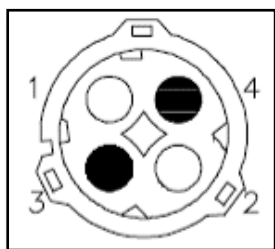


Con. Code	C1A227			
Con. Desc.	HEATER WEBASTO PUMP			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CE504	0,75	Blue/Brown	
2	VE518	0,75	Brown/White	



Con. Code	C1MC11			
Con. Desc.	FUEL LEVEL SENSOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	RMC32	0,75	Green/Blue	
2	RMC27C	0,75	White/Brown	

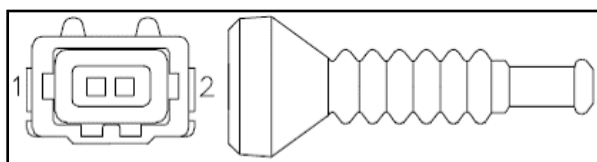
TRUCKS



Con. Code	C1E925			
Con. Desc.	PTO ACTUATOR SWITCH			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VE925A	0,75	Green/White	
2	A_GD150A	0,75	Black/White	

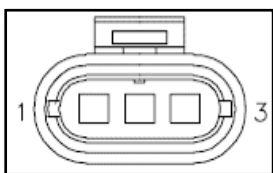


Con. Code	C1E501			
Con. Desc.	AIR TEMPERATURE SENSOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CE501	0,75	Gray	
2	A_GD152H	0,75	Black/Blue	

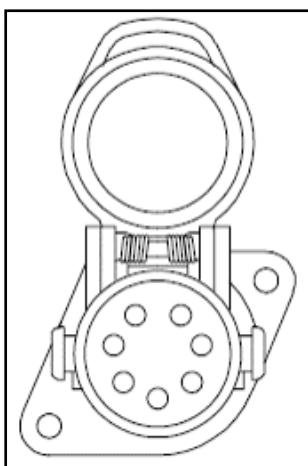


Con. Code	C1LS14			
Con. Desc.	SIGNAL AUXILARY RIGHT FRONT TURN LAMP			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP46E	0,75	White/Blue	
2	A_GD152D	0,75	Black/Blue	

TRUCKS

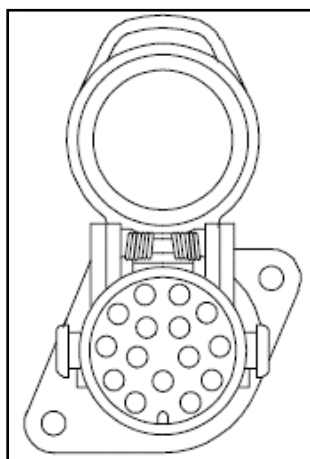


Con. Code	C14-F			
Con. Desc.	14C574 INLINER			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	ZA321	0,75	Orange/Gray	
2	ZA322	2,5	Orange/White	
3	A_GD150G	2,5	Black/White	

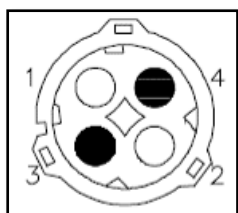


Con. Code	C1AT23A			
Con. Desc.	TRAILER 7 PIN CONNECTOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	SBP49	4	Red	
2	CBP26	1,5	Blue/White	
3	B_GD152C	1,5	Black/Blue	
4	B_GD152D	4	Black/Blue	
5	CAT04A	1,5	Gray/Orange	
6	VDB04	1,5	White/Blue	
7	VDB05	1,5	White	

TRUCKS

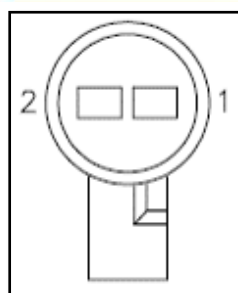


Con. Code	C1AT23B			
Con. Desc.	TRAILER 15 PIN CONNECTOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CAT06A	1,5	Yellow	
2	CAT09A	1,5	Green	
3	CLS29A	1,5	White	
4	B_GD152A	1,5	Black/Blue	
5	CBP50A	1,5	Yellow/Orange	
6	CBP50B	1,5	Yellow/Orange	
7	CCA26A	1,5	Blue/Gray	
8	ZA119B	1,5	Orange/Blue	
9	CAT10	1,5	Red	
10	CAT11	1,5	Brown	
11	CAT12	1,5	Blue/Gray	
12	CAT13	1,5	Green/Orange	
13	B_GD152B	1,5	Black/Blue	
14	CAT14	1,5	Orange	
15	CAT23	1,5	Gray/Yellow	

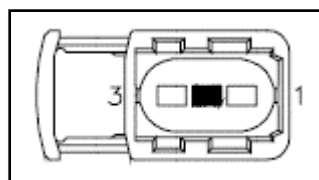


Con. Code	C1CF27			
Con. Desc.	LOW LINER VALVE			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CCF27B	0,75	Gray	
2	A_GD152AD	0,75	Black/Blue	

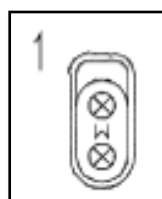
TRUCKS



Con. Code	C1A168-B			
Con. Desc.	SWITCH CABIN LATCH RIGHT			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	AG CPL30A	0,75	Blue/Brown	
2	AG A_GD152G	0,75	Black/Blue	

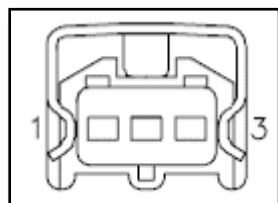


Con. Code	C1CL17			
Con. Desc.	COMPRESSOR SWITCHABLE AIR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	LE423BC	0,75	Green/Violet	
3	VE175	0,75	Brown/White	

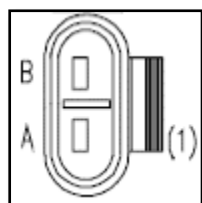


Con. Code	C1DC35			
Con. Desc.	STARTER SELENOID			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CDC55	2,5	Brown/Violet	
2	CDC25	2,5	Brown/Green	

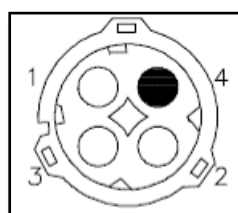
TRUCKS



Con. Code	C1E823			
Con. Desc.	WATER IN FUEL SENSOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VE823	0,75	Blue/Brown	
2	RE405B	0,75	Green/White	
3	LE423BA	0,75	Green/Violet	

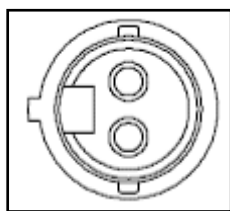


Con. Code	C1A179			
Con. Desc.	FUEL FILTER HEATER			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
A	AG CBP24A	2,5	Violet/Green	
B	AG A_GD152J	2,5	Black/Blue	

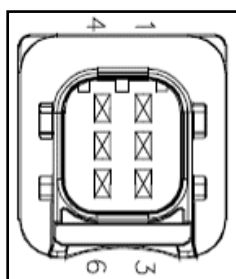


Con. Code	C1A123			
Con. Desc.	PRESSURE CONTROL FRONT RIGHT VALVE			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CET10	1,5	Blue/Gray	
2	CET11A	1,5	Green/Orange	
3	CET09	1,5	Yellow/Violet	

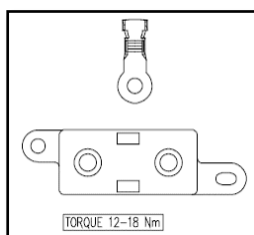
TRUCKS



Con. Code	C1AC05A			
Con. Desc.	FRONT RIGHT SPEED SENSOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VCA05B	0,75	Gray/Violet	
2	RCA19B	0,75	Violet	

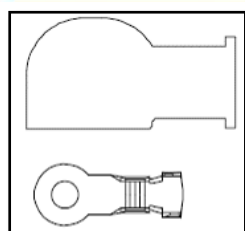


Con. Code	C2A504A			
Con. Desc.	FRONT RIGHT AXLE BRAKE PAD SENSOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	ZA148	0,75	Orange/White	
2	WMC17	0,75	Blue/Orange	
3	CMC09C	0,75	Gray/Orange	
4	ZA143	0,75	Black/Blue	
5	ZA149	0,75	Orange	

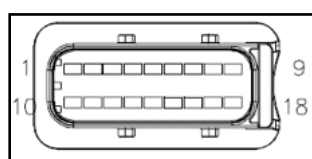


Con. Code	C1DF14-C			
Con. Desc.	MEGA FUSE BOX			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	A_SDC14	25	Red	

TRUCKS

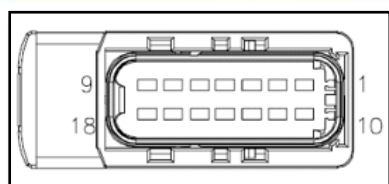


Con. Code	C1DC14-C			
Con. Desc.	ALTERNATOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	A_SDC14	25	Red	

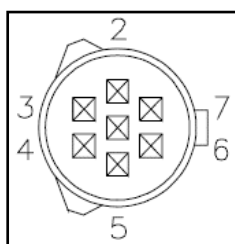


Con. Code	C14-C			
Con. Desc.	9L430 INLINER			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VE719	0,75	Gray/Violet	
2	VE723	0,75	Green/Violet	
3	VE771	0,75	Brown/Violet	
4	RE771A	0,75	Gray/Orange	
5	VDB11G	0,75	Brown/Green	
6	VDB12G	0,75	Brown/Blue	
7	VDB11U	0,75	Brown/Green	
8	VDB12U	0,75	Brown/Blue	
9	VE356	0,75	Gray/Violet	
10	CE352	1	Yellow/Gray	
11	CE506	0,75	Green	
12	A_GD163B	0,75	Black/Gray	
14	CE353	0,75	Yellow/Orange	
15	RE405C	0,75	Green/White	
16	CEC01C	0,75	White/Blue	
17	VE722	0,75	Brown	
18	A_GD163S	1,5	Black/Gray	

TRUCKS



Con. Code	C11-D			
Con. Desc.	12A690 INLINER			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	A_GD163P	1,5	Black/Gray	
3	VDB29A	0,75	Green/Blue	
4	VDB30A	0,75	White/Green	
5	CPK45	0,75	Yellow/Violet	
6	CE937B	0,75	Violet/Gray	
7	LE423H	0,75	Green/Violet	
10	CH401	1	Violet/White	
11	CDC06A	0,75	Violet/White	
12	CE103	0,75	Blue/Brown	
13	CCB04D	1	White	
17	RET33	0,75	White/Violet	
18	VET33	0,75	White/Orange	



Con. Code	C1EC01			
Con. Desc.	ENGINE FAN			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VEC03	0,75	White/Blue	
2	CEC02	0,75	Green/Blue	
3	CEC11	0,75	Violet/White	
4	LE423T	0,75	Green/Violet	
5	CEC05A	0,75	Violet/Gray	

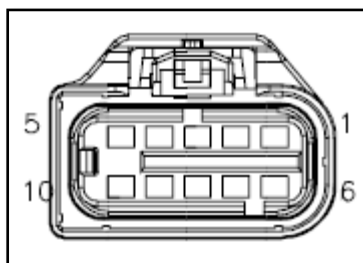
TRUCKS



Con. Code	C1H407			
Con. Desc.	AMBIENT AIR TEMPERATURE SENSOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VE740	0.75	VT/GY	
2	RMC27B	0.75	WH/BN	

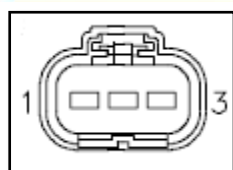


Con. Code	C1RH02			
Con. Desc.	HORN			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CRH02A	0.75	BU/WH	
2	B_GD186E	0.75	BK/BU	



Con. Code	C1MF10			
Con. Desc.	RADAR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VDB11A	0.75	BN/GN	
2	VMF04	0.75	BN/BU	
5	A_GD114H	0.75	BK/BU	
6	VDB12A	0.75	BN/BU	
7	VMF05	0.75	GY/BU	
8	CBP04B	0.75	VT	

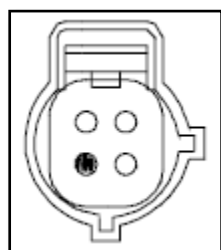
TRUCKS



Con. Code	C2DC56			
Con. Desc.	BMS SENSOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	LDC59	1	BU/WH	
2	CDC56	0.75	WH	
3	LDC69	1	VT/GY	

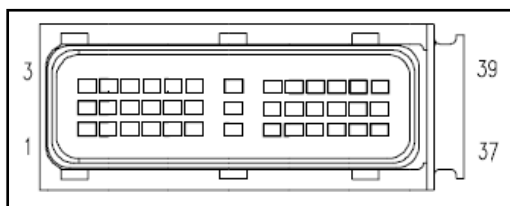


Con. Code	C1A227A			
Con. Desc.	HEATER WEBASTO PUMP			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CE504	0,75	Blue/Brown	
2	VE518	0,75	Brown/White	



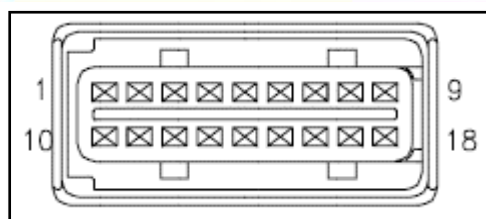
Con. Code	C1H423			
Con. Desc.	AC PRESSURE SWITCH			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CH422	0,75	Violet	
2	CH302	0,75	White/Brown	
3	CH423	0,75	Yellow	

TRUCKS



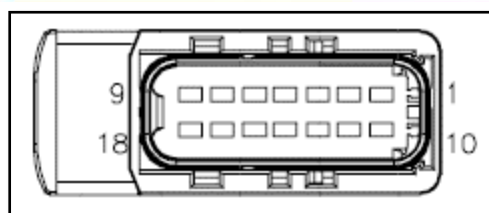
Con. Code	C21-C			
Con. Desc.	14K039 BAĞLANTI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VDB11Y	0,75	BN/GN	EU5 EU6
2	VDB12Y	0,75	BN/BU	EU5 EU6
3	ZA325B	0,75	OG	MAN
4	CBP22D	0,75	GN/OG	MAN
5	RE327B	0,75	GY/VT	MAN
6	CCL10B	0,75	WH	MAN
7	SBB05B	2,5	GY/RD	AUTO
8	SBP16D	2,5	VT/RD	AUTO
9	CEC01C	0,75	WH/BU	EU6
12	CBP05B	1	YE	INT3
13	VDB11U	0,75	BN/GN	RDR
14	VDB12U	0,75	BN/BU	RDR
15	SBP13E	2,5	GY/RD	INT3
16	CBP06D	2,5	WH/BU	AUTO
17	CET16B	0,75	WH/BU	MAN
18	CET17B	0,75	GN/BU	MAN
19	CCB36B	0,75	BU/GY	-
20	RCB36B	0,75	YE/BU	-
21	VCB35B	0,75	BN/WH	-
22	VMC39B	0,75	BU	-
23	LCA27A	0,75	BN/WH	-
24	B_CET47D	0,75	BU	MAN
25	CDC37C	0,75	GY/VT	-
26	VDB13B	0,75	BU/GY	AUTO
27	VDB14B	0,75	VT/GY	AUTO
28	B_GD184R	2,5	BK/GY	AUTO
29	VDB10G	0,75	GY	-
30	B_GD184T	2,5	BK/GY	AUTO
31	B_GD184U	0,75	BK/GY	-
32	RET33A	0,75	WH/VT	MAN
33	VET33A	0,75	WH/OG	MAN
34	VE738B	0,75	YE/BU	MAN
35	VDB25B	0,75	GN/OG	AUTO
36	VDB26B	0,75	GY/BU	AUTO
37	B_GD184V	1	BK/GY	INT3
38	B_GD184W	2,5	BK/GY	INT3
39	B_GD184X	2,5	BK/GY	INT3

TRUCKS

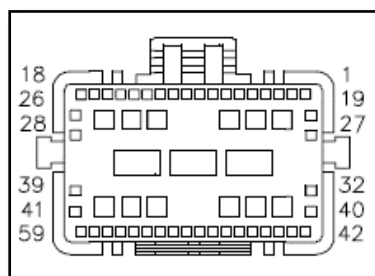


Con. Code	C11-H			
Con. Desc.	14D378 INLINER			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VE766E	0,75	GY/YE	EU6
1	VE834A	0,75	GN	EU5
2	RE771J	0,75	GY/OG	EU5
2	VDB30C	0,75	WH/GN	EU6
3	VDB29C	0,75	GN/BU	EU6
3	VE762A	0,75	BU/GY	EU5
4	A_GD163Q	0,75	BK/GY	EU6
5	CE354F	1,5	BN/BU	EU5 EU6
6	RE356A	1	VT	EU5 EU6
7	CE356D	0,75	BU/OG	EU5 EU6
8	VE352A	1	BN	EU5 EU6
9	LE423L	0,75	GN/VT	EU5 EU6
10	RCL17A	0,75	WH/OG	EU5 EU6
11	VE353B	0,75	GY/BU	EU5 EU6
12	VE708A	0,75	GN/BN	EU5 EU6
13	RE353B	0,75	GN/VT	EU5 EU6
14	CH304A	1,5	YE/GY	EU5 EU6
15	RE354A	0,75	WH/BU	EU5 EU6
16	VE354A	0,75	GN/BU	EU5 EU6
17	RE355A	0,75	GN	EU5 EU6

TRUCKS



Con. Code	C11-G			
Con. Desc.	12A690 INLINER (2)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	RE771H	0,75	GY/OG	EU5 EU6
2	VE351A	0,75	VT/OG	EU6
3	VE350A	1	GY	EU6
4	LE357A	0,75	WH	EU6
5	RE357A	0,75	VT/WH	EU6
6	RE803C	0,75	BN/GN	EU6
7	VE803C	0,75	BU/GN	EU6
8	RE804C	0,75	GN/BU	EU6
9	ZA153B	0,75	OG/GY	-
10	VE804C	0,75	GN/BN	EU6
11	VE770A	0,75	GY/BN	EU6
12	VE769A	0,75	BU/GY	EU6
13	VDC73C	0,75	GN/WH	-
14	CH302A	0,75	WH/BN	-
15	CE612C	0,75	GY/VT	-
16	CH422A	0,75	VT	-



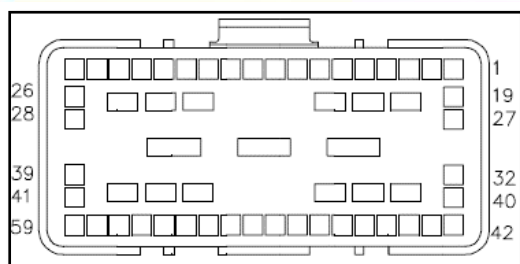
Con. Code	C12-A (Without Band)			
Con. Desc.	14401 INLINER (1)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VE702B	0,75	BU/WH	-
2	CE356D	0,75	BU/OG	EU5 EU6
3	CCB10D	0,75	YE/GN	-
4	CE103F	0,75	BU/BN	-
5	VDB27B	0,75	VT/GN	-
6	VDB28B	0,75	GY/VT	-
7	RE405E	0,75	GN/WH	-
8	CMC14B	0,75	BN/YE	-



TRUCKS

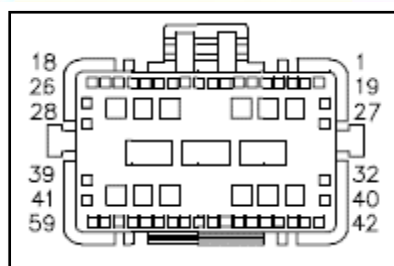
9	CE937C	0,75	VT/GY	-
10	VE356G	0,75	GY/VT	-
11	LE423K	0,75	GN/VT	-
12	VDB30B	0,75	WH/GN	EU6
13	VDB29B	0,75	GN/BU	EU6
14	CH401C	0,75	VT/WH	-
15	CCB04F	0,75	WH	-
17	VES10A	0,75	WH	-
18	CES06A	0,75	BU/GN	-
19	CCD05B	1	GN/BU	! C4AS
20	CBP80C	1	YE/GN	-
21	SBP79A	1,5	WH/RD	-
22	ZA119D	1,5	OG/BU	-
23	GD108E	1,5	BK/VT	BMS
24	CBP22C	1	GN/OG	-
25	ZA117C	1,5	OG	! C4AS
25	ZA117B	1,5	OG	C4AS
26	ZA111B	1	OG/BU	-
27	ZA112E	0,75	OG/GN	H566
28	VCD12C	0,75	VT/WH	H566
29	SBP49B	4	RD	-
30	A_GD123C	4	BK/GY	-
31	SBP34G	4	YE/RD	-
32	VCD13C	0,75	GN/VT	H566
33	B_RCA09C	1	GN/VT	-
34	B_VCA24C	1	GN/OG	-
35	B_VCA23C	1	BU/WH	-
36	B_CCA09C	1	VT/BN	-
37	CAT04B	1,5	VT/OG	-
38	CAT19B	1	BU	-
39	LCD19C	0,75	VT	H566
40	VCL19E	0,75	GN	H566
41	RCD04B	0,75	BU/OG	C4AS C6AS
42	CCD03C	0,75	WH/BU	-
43	RCD03B	0,75	VT/BN	-
44	CCD04B	1	GY/YE	! C4AS
45	VDB25B	0,75	GN/OG	AUTO
46	VDB26B	0,75	GY/BU	AUTO
48	ZA321B	0,75	OG/GY	-
49	CCB36B	0,75	BU/GY	-
50	RCB36B	0,75	YE/BU	-
51	VCB35B	0,75	BN/WH	-
52	VMC39B	0,75	BU	-
53	ZA115D	0,75	OG/BK	-
54	CCF01D	0,75	BN	-
55	CLS25G	0,75	YE/VT	-
56	CLS21G	0,75	BU/GN	-

TRUCKS



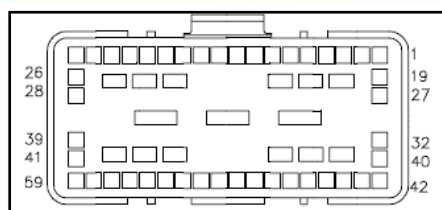
Con. Code	C12-B (Red Band on It)			
Con. Desc.	14401 INLINER (2)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CES05D	0,75	BN/BU	-
2	CES04D	0,75	VT/OG	-
3	ZA372A	0,75	OG/GY	-
4	CLS44D	0,5	VT/BN	-
15	A_GD114I	0,75	BK/BU	RDR
16	VMF04B	0,5	BN/BU	RDR
17	VMF05B	0,5	GY/BU	RDR
18	CBP04D	0,75	VT	RDR
20	CBP05B	1	YE	INT3
21	CET05	1	BU/GN	-
22	CET08	1	BN/WH	-
23	CET06	1	GN/BU	-
24	VDB04B	1,5	WH/BU	-
25	VDB05B	1,5	WH	-
29	CDC06D	0,75	VT/WH	-
32	CCF27D	0,75	GY	C4AS
33	ZA204B	1	OG/GN	-
34	VDB04B	1	WH/BU	-
35	VDB05B	1	WH	-
36	ZA205B	1	OG/GY	-
37	CAT12A	1,5	BU/GY	-
38	CAT13A	1,5	GN/OG	-
39	ZA201C	0,75	OG	EBS

TRUCKS



Con. Code	C12-C (Green Band on It)			
Con. Desc.	14401 INLINER (3)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
2	B_CET47D	0,75	BU	MAN
3	CE501B	0,75	GY	-
4	CDC37C	0,75	GY/VT	-
5	VDB13B	0,75	BU/GY	AUTO
6	VDB14B	0,75	VT/GY	AUTO
7	VE740A	0,75	VT/GY	-
12	RE327B	0,75	GY/VT	MAN
15	RMC32B	0,75	GN/BU	-
16	RCA37B	0,75	WH/BU	-
17	VCA38B	0,75	BN/VT	-
20	CAT10A	1,5	RD	-
21	CAT11A	1,5	BN	-
22	CAT14A	1,5	OG	-
23	CAT23A	1,5	GY/YE	-
24	ZA322B	2,5	OG/WH	-
25	CBP24C	2,5	VT/GN	-
26	CRH02C	0,75	BU/WH	-
29	SBB05B	2,5	GY/RD	AUTO
30	SBP16D	2,5	VT/RD	AUTO
31	CBP06D	2,5	WH/BU	AUTO
33	CBP46G	1,5	WH/BU	H566
34	CCA26C	1,5	BU/GY	-
35	CAT09C	1,5	GN	6X2&&TRL
35	CAT09G	1,5	GN	H566
36	CAT06G	1,5	YE	H566
37	CBP50D	1,5	YE/OG	H566&&6X2
38	SBP13E	2,5	GY/RD	INT3
39	SDC02B	0,75	RD	BMS
42	ZA370A	0,75	OG/WH	-
43	ZA371A	0,75	OG/BK	-

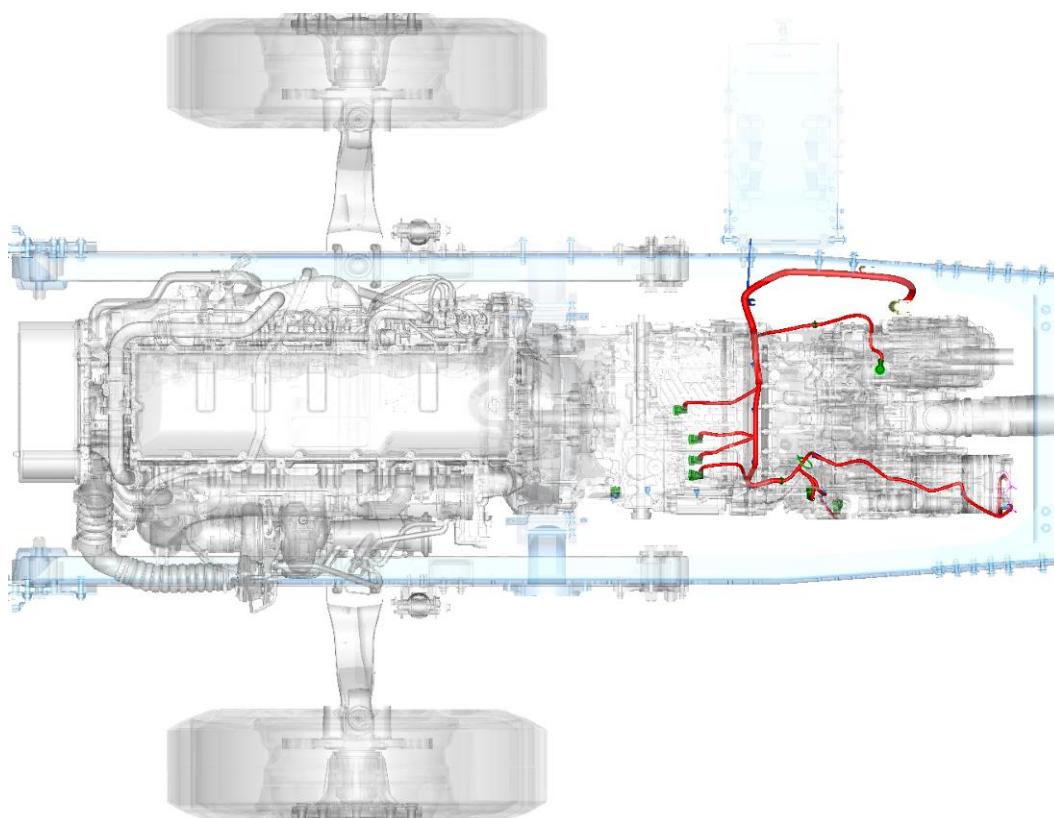
TRUCKS

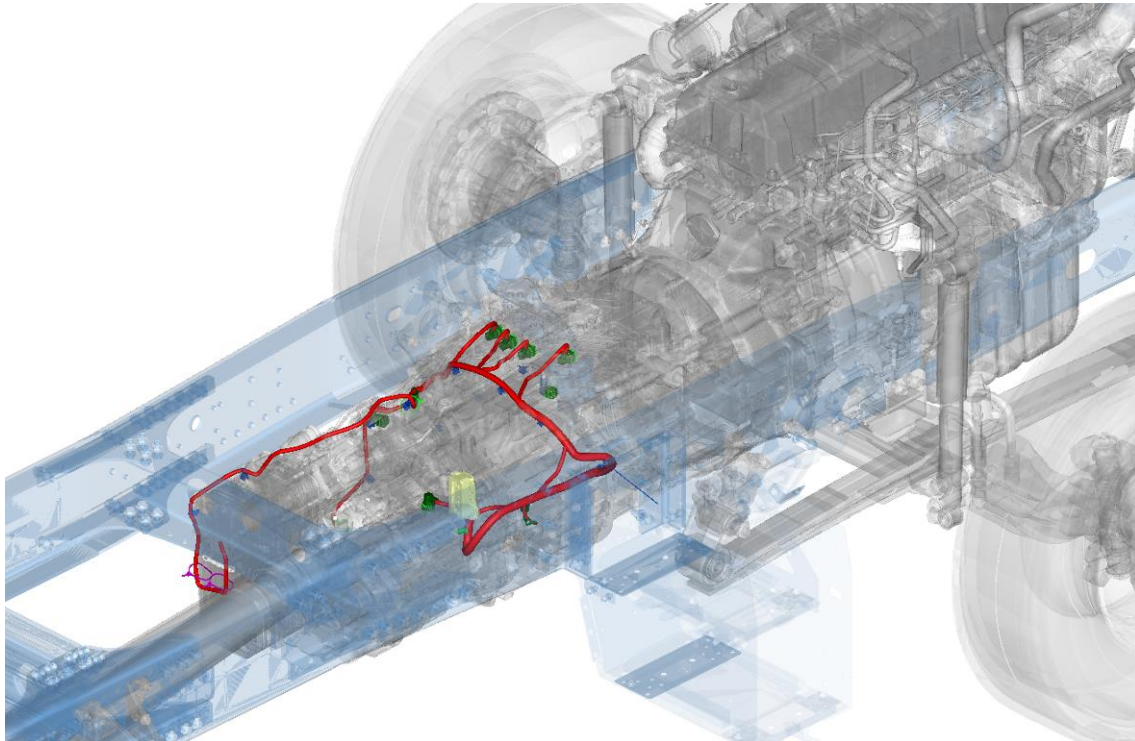
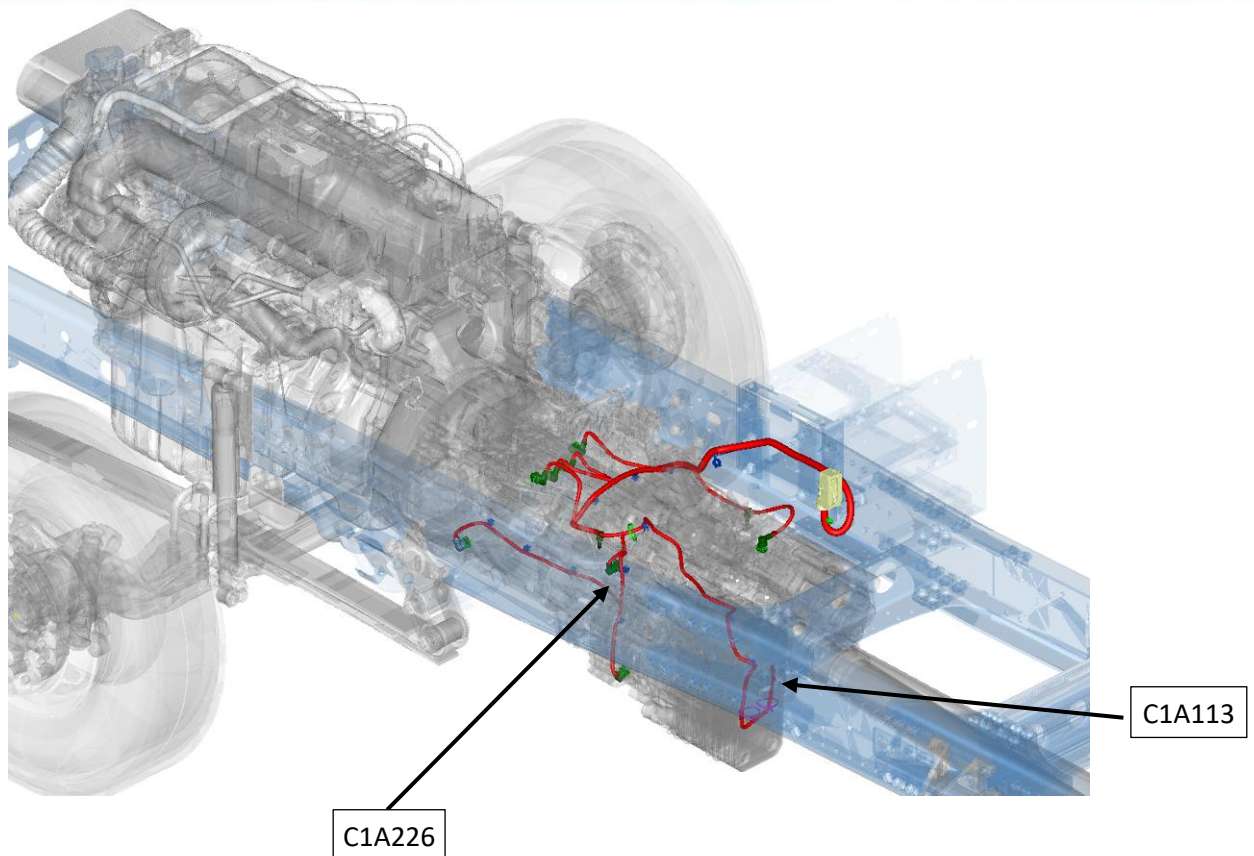


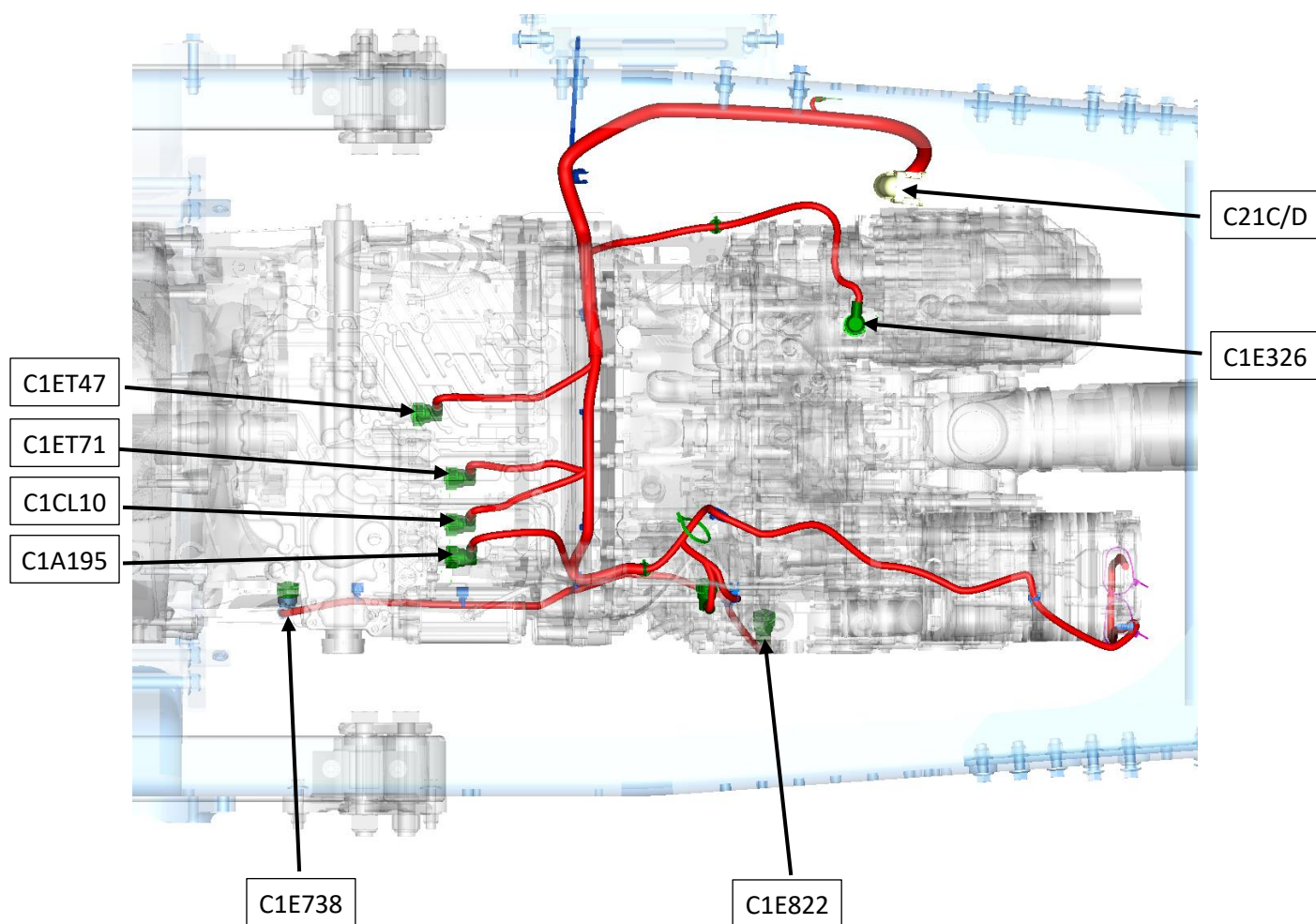
Con. Code	C12-D (Yellow Band on It)			
Con. Desc.	14401 INLINER (4)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CDC05E	0,75	GY/VT	-
2	ZA325B	0,75	OG	MAN
4	CDC05D	0,75	GY/VT	-
8	VDB11AA	0,75	BN/GN	RDR
9	VDB12AA	0,75	BN/BU	RDR
10	A_VE925D	0,75	GN/WH	-
12	RMC27B	0,75	WH/BN	-
13	LCA37B	0,75	YE/OG	-
14	SDC68C	0,75	BN/VT	-
15	ZA116E	0,75	OG/YE	-
16	CDC56B	0,75	WH	-
18	CYT13B	0,75	BN/VT	-
20	B_CET10B	1,5	BU/GY	-
21	A_CET09B	1,5	YE/VT	-
22	B_CET09B	1,5	YE/VT	-
23	CET11B	1,5	GN/OG	-
24	VET12B	1	VT/BN	-
25	RAT08B	1	WH	-
27	VMC17B	0,75	BU/OG	-
28	RCA21A	0,75	BN/GN	-
29	CBP48E	1,5	GY/YE	H566
30	CBP26B	1,5	BU/WH	-
31	A_CET10B	1,5	BU/GY	-
32	ZA327B	0,75	OG/BU	-
33	CLS29F	1,5	WH	H566
34	ZA206B	1	OG/WH	-
35	ZA207B	1	OG/BK	-
36	A_VDB04B	1	WH/BU	-
37	A_VDB05B	1	WH	-
38	VE803B	1	BU/GN	-
39	CPL30B	0,75	BU/BN	-
40	VDB10H	0,75	GY	-
41	CE317B	0,75	GY	-
42	CCB08B	0,75	VT/WH	-
43	LCA27B	0,75	BN/WH	-
44	CDC39B	0,75	GN/BU	EU5 EU6
45	CE354B	0,75	BN/BU	EU5 EU6
46	VMC38B	0,75	GY/YE	-
47	LE136B	0,75	GN/OG	-
48	RE136B	0,75	VT/GN	-
49	VE701B	0,75	YE/OG	-
50	CBP08B	0,75	GY/YE	-

TRUCKS

51	CE901B	0,75	YE/BU	-
52	CMC25B	0,75	WH/VT	-
53	CCB15B	0,75	BN/GN	-
54	CE612C	0,75	GY/VT	-
55	CE613C	0,75	WH/VT	-
56	VE766B	0,75	GY/YE	EU6
57	CDC12B	0,75	YE	-
59	CE417B	0,75	GY/BN	MAN

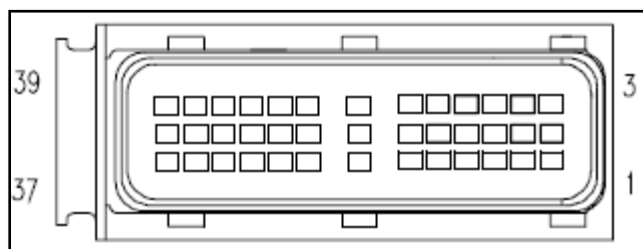
3.3.4. 14K039➔ On-transmission wiring






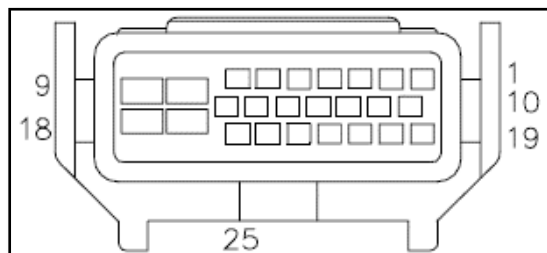
TRUCKS

14K039→ On-transmission wiring connector descriptions:

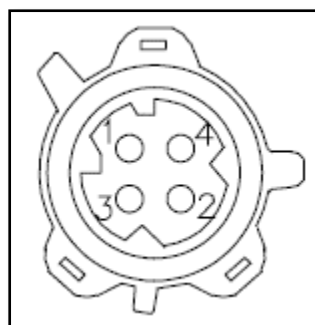


Con. Code	C21-C			
Con. Desc.	14398			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VDB11O	0,75	BN/GN	INT3 AUTO
2	VDB12O	0,75	BN/BU	INT3 AUTO
5	RE327C	0,75	GY/VT	PTO
7	SBB05C	2,5	GY/RD	AUTO
8	SBP16E	2,5	VT/RD	AUTO
12	CBP05C	1	YE	INT3
13	VDB11X	0,75	BN/GN	AUTO
14	VDB12X	0,75	BN/BU	AUTO
15	SBP13A	2,5	GY/RD	AUTO INT3
16	CBP06E	2,5	WH/BU	AUTO
19	CCB36A	0,75	BU/GY	-
20	RCB36A	0,75	YE/BU	-
21	VCB35A	0,75	BN/WH	-
22	VMC39A	0,75	BU	-
26	VDB13C	0,75	BU/GY	AUTO
27	VDB14C	0,75	VT/GY	AUTO
28	B_GD184O	2,5	BK/GY	AUTO
29	VDB10F	0,75	GY	INT3
30	B_GD184N	2,5	BK/GY	AUTO
31	B_GD184I	0,75	BK/GY	AUTO INT3
35	VDB25C	0,75	GN/OG	AUTO
36	VDB26C	0,75	GY/BU	AUTO
37	B_GD184K	1	BK/GY	INT3
38	B_GD184M	2,5	BK/GY	INT3
39	B_GD184L	2,5	BK/GY	INT3

TRUCKS

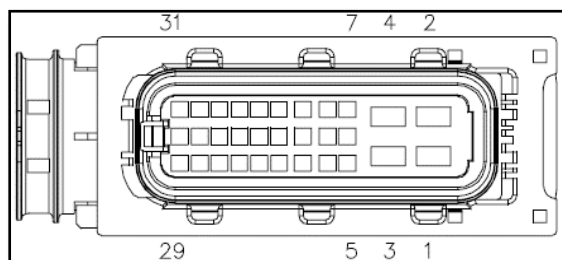


Con. Code	C1A114			
Con. Desc.	INTARDER - 2			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VDB10G	0,75	Gray	
5	VDB12A	0,75	Brown/Blue	INT3
7	B_GD184C	1	Black/Gray	
8	SBP13H	2,5	Gray/Red	
9	SBP13G	2,5	Gray/Red	
17	B_GD184A	2,5	Black/Gray	
18	B_GD184B	2,5	Black/Gray	
23	VDB11A	0,75	Brown/Green	INT3
25	CBP05G	1	Yellow	

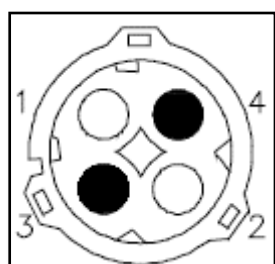


Con. Code	C1E822B			
Con. Desc.	AMT SPEED SENSOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CCB36A	0,75	Blue/Gray	
2	RCB36A	0,75	Yellow/Blue	
3	VCB35A	0,75	Brown/White	
4	VMC39A	0,75	Blue	

TRUCKS



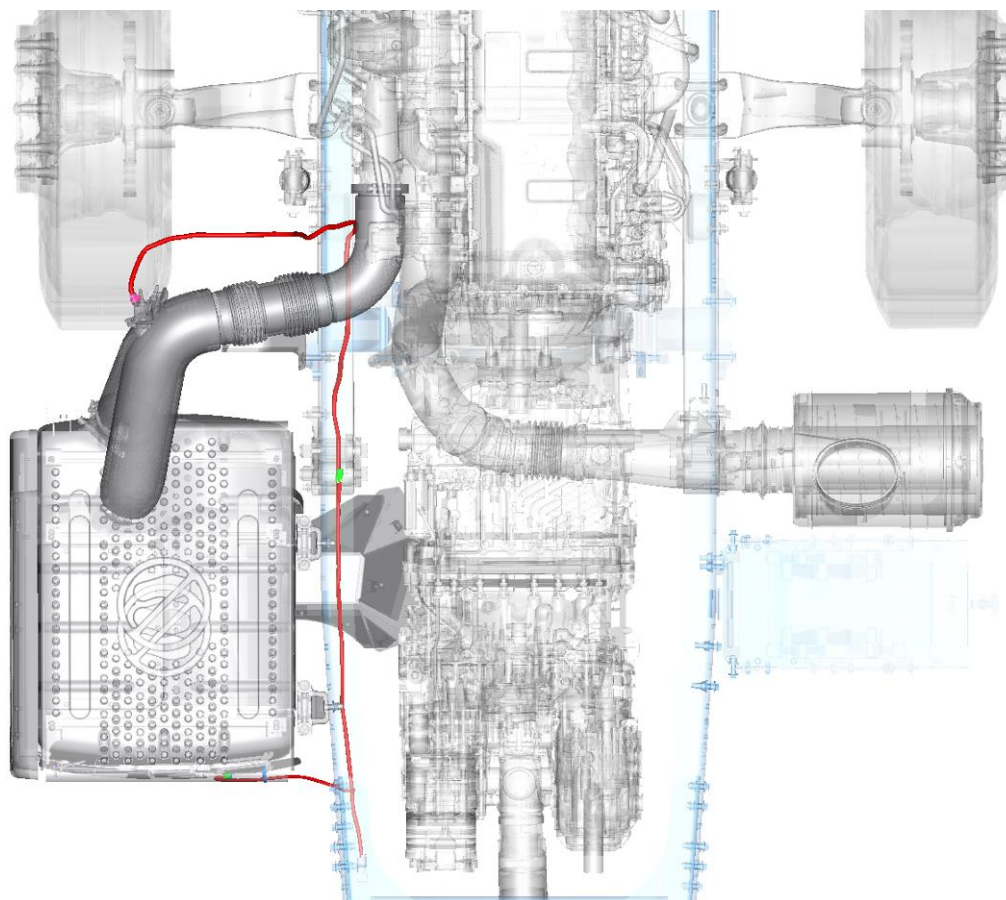
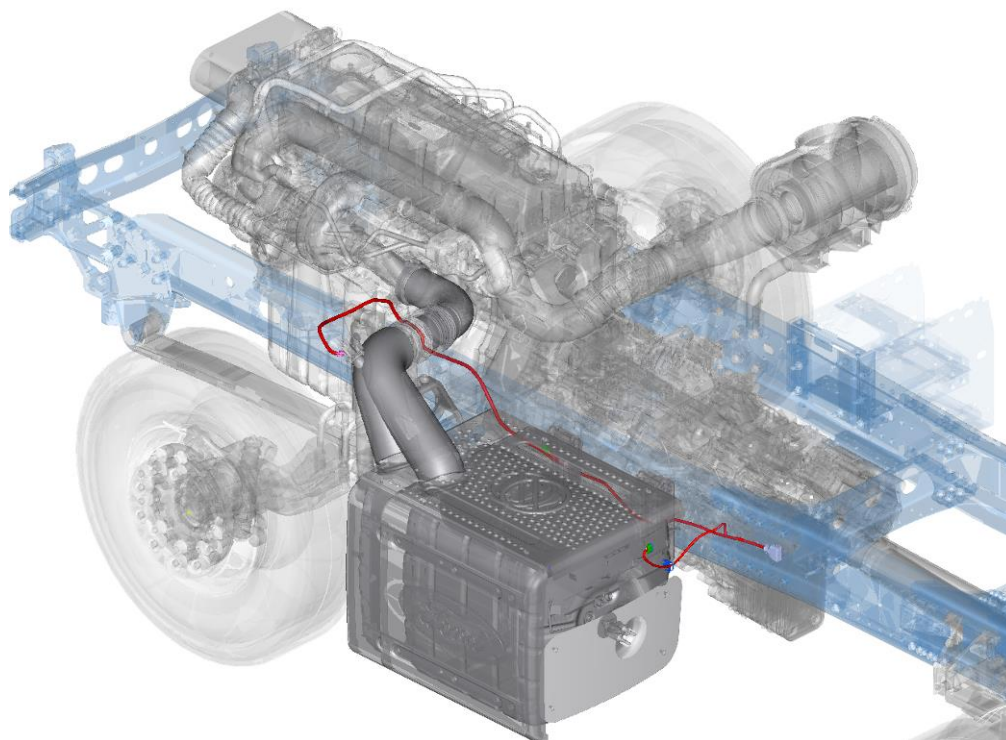
Con. Code	C1ET07			
Con. Desc.	AMT MODULE			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	B_GD184E	2,5	Black/Gray	
2	SBP16B	2,5	Violet/Red	
3	B_GD184D	2,5	Black/Gray	
4	SBB05	2,5	Gray/Red	
9	CBP06B	2,5	White/Blue	
17	VDB25	0,75	Green/Orange	
19	VDB26	0,75	Gray/Blue	
23	VDB13	0,75	Blue/Gray	
25	VDB14	0,75	Violet/Gray	
29	VDB11F	0,75	Brown/Green	INT3
31	VDB12F	0,75	Brown/Blue	INT3

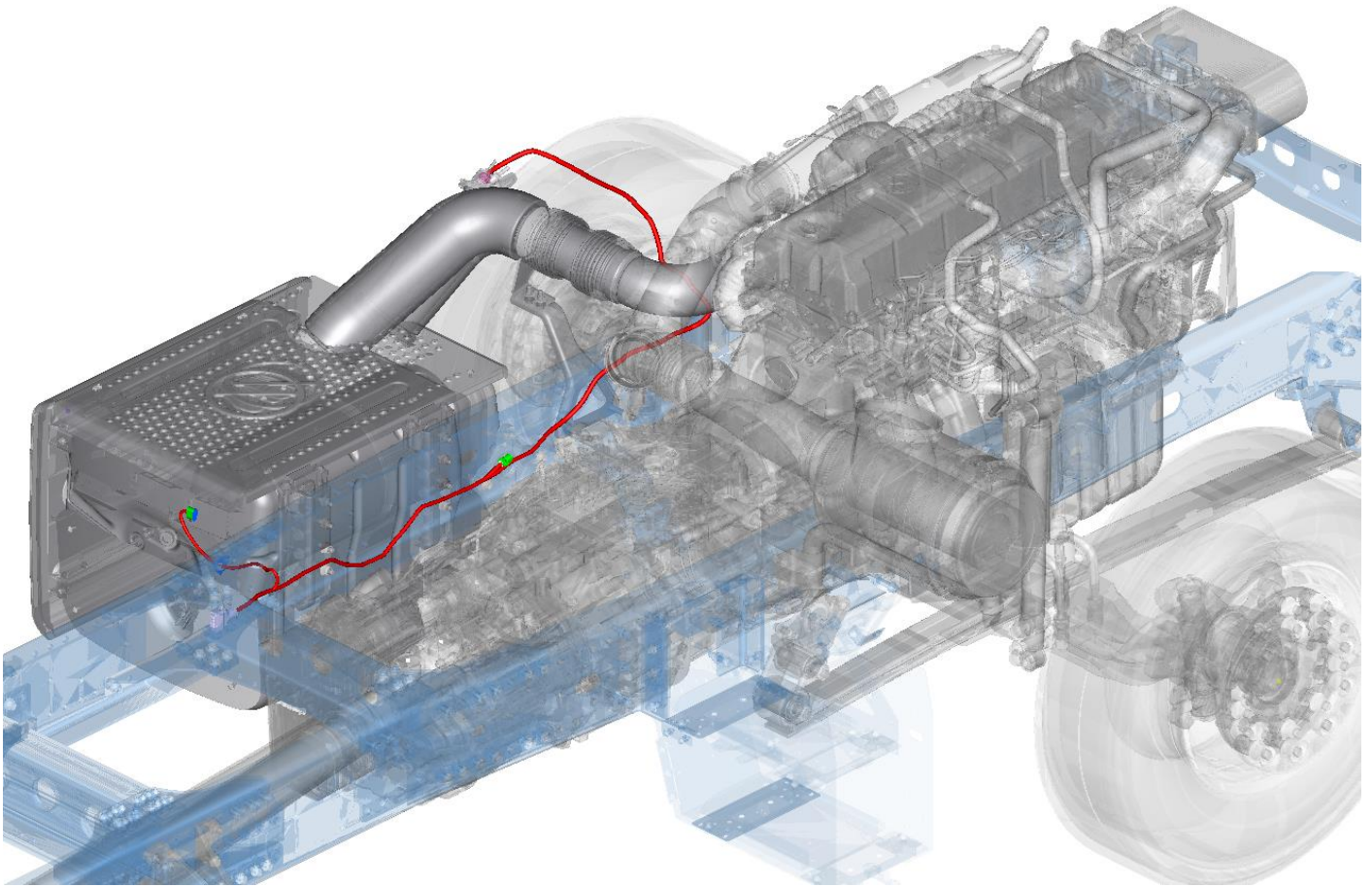


Con. Code	C1E326			
Con. Desc.	PTO SWITCH			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	B_GD184I	0,75	Black/Gray	
2	RE327	0,75	Gray/Violet	

TRUCKS

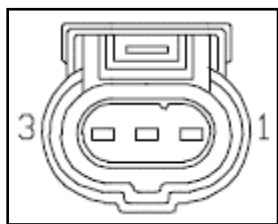
3.3.5. 9L430 → Exhaust-SCR Wiring



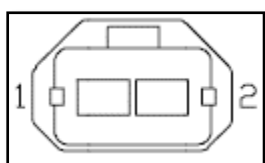


TRUCKS

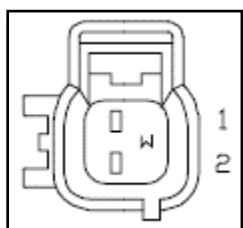
9L430➔ Exhaust-SCR wiring connector descriptions:



Con. Code	C1E353			
Con. Desc.	DPF PRESSURE SENSOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CE353	0,75	Yellow/Orange	
2	RE405C	0,75	Green/White	
3	CEC01C	0,75	White/Blue	

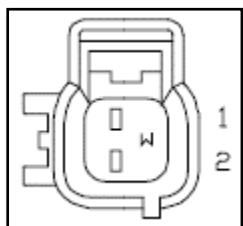


Con. Code	C1E506			
Con. Desc.	UREA DOSING MODULE			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CE506	0,75	Green	
2	CE352	1	Yellow/Gray	

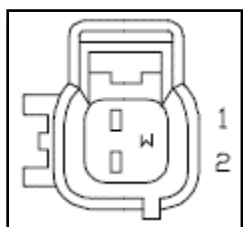


Con. Code	C1E722			
Con. Desc.	EGT-1			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VE722	0,75	Brown	
2	VE719A	0,75	Gray/Violet	

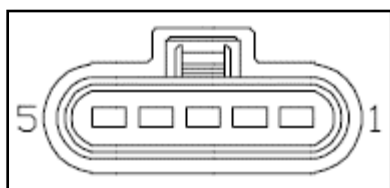
TRUCKS



Con. Code	C1E723			
Con. Desc.	EGT-2			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VE723	0,75	Green/Violet	
2	VE719B	0,75	Gray/Violet	

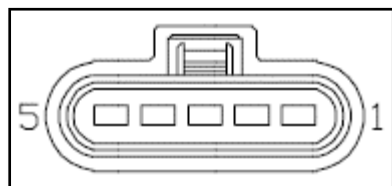


Con. Code	C1E771			
Con. Desc.	EGT-3			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VE771	0,75	Brown/Violet	
2	RE771A	0,75	Gray/Orange	

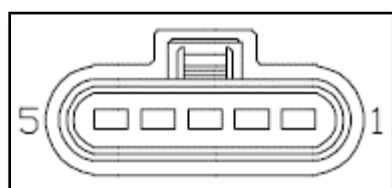


Con. Code	C1E826-B			
Con. Desc.	NOX-2 SENSOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VE356B	0,75	Gray/Violet	Eu6
2	A_GD163K	0,75	Black/Gray	Eu6
3	VDB12M	0,75	Brown/Blue	Eu6
4	VDB11M	0,75	Brown/Green	Eu6

TRUCKS

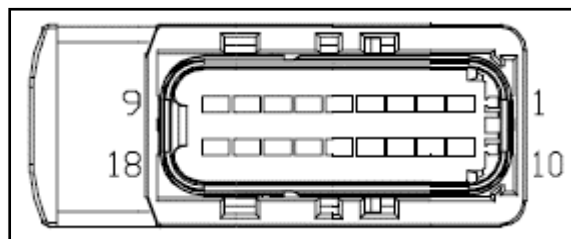


Con. Code	C1E826-A			
Con. Desc.	NOX-1 SENSOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VE356A	0,75	Gray/Violet	Eu6
2	A_GD163B	0,75	Black/Gray	Eu6
3	VDB12T	0,75	Brown/Blue	Eu6
4	VDB11T	0,75	Brown/Green	Eu6
5	A_GD1630	0,75	Black/Gray	Eu6



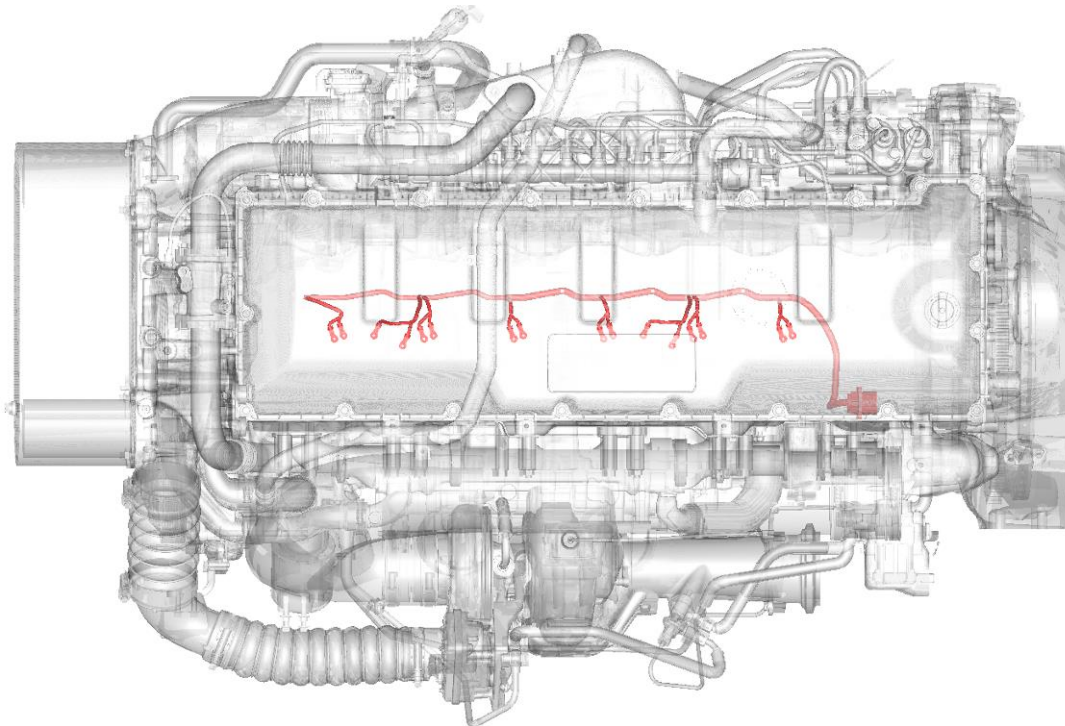
Con. Code	C1E826-C			
Con. Desc.	NOX-1 SENSOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VE356A	0,75	Gray/Violet	Eu5
2	A_GD163D	0,75	Black/Gray	Eu5
3	VDB11O	0,75	Brown/Green	Eu5
4	VDB12O	0,75	Brown/Blue	Eu5

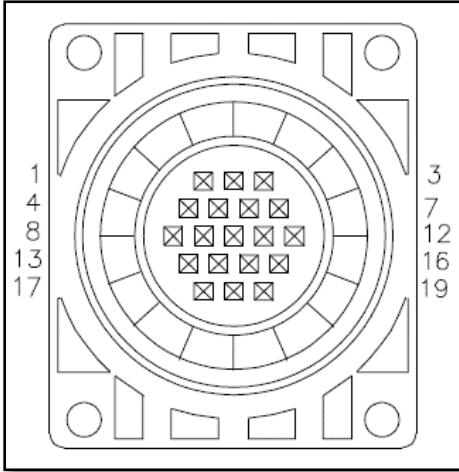
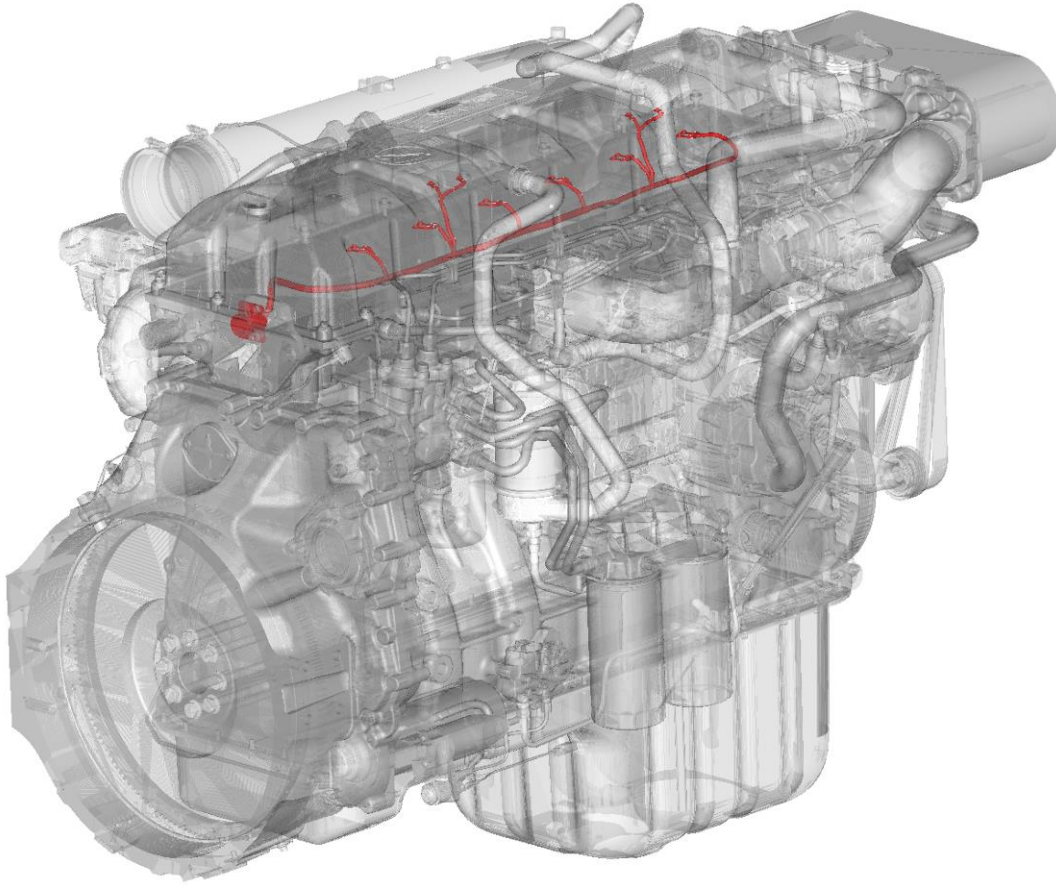
TRUCKS



Con. Code	C14-C			
Con. Desc.	14D378-B/C INLINER			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VE719	0,75	Gray/Violet	
2	VE723	0,75	Green/Violet	
3	VE771	0,75	Brown/Violet	
4	RE771A	0,75	Gray/Orange	
5	VDB11K	0,75	Brown/Green	
6	VDB12K	0,75	Brown/Blue	
7	VDB11U	0,75	Brown/Green	
8	VDB12U	0,75	Brown/Blue	
9	VE356	0,75	Gray/Violet	
10	CE352	1	Yellow/Gray	
11	CE506	0,75	Green	
12	A_GD163B	0,75	Black/Gray	
14	CE353	0,75	Yellow/Orange	
15	RE405C	0,75	Green/White	
16	CEC01C	0,75	White/Blue	
17	VE722	0,75	Brown	
18	A_GD163S	1,5	Black/Gray	

3.3.6. 9H589 → Injector wiring inside the engine





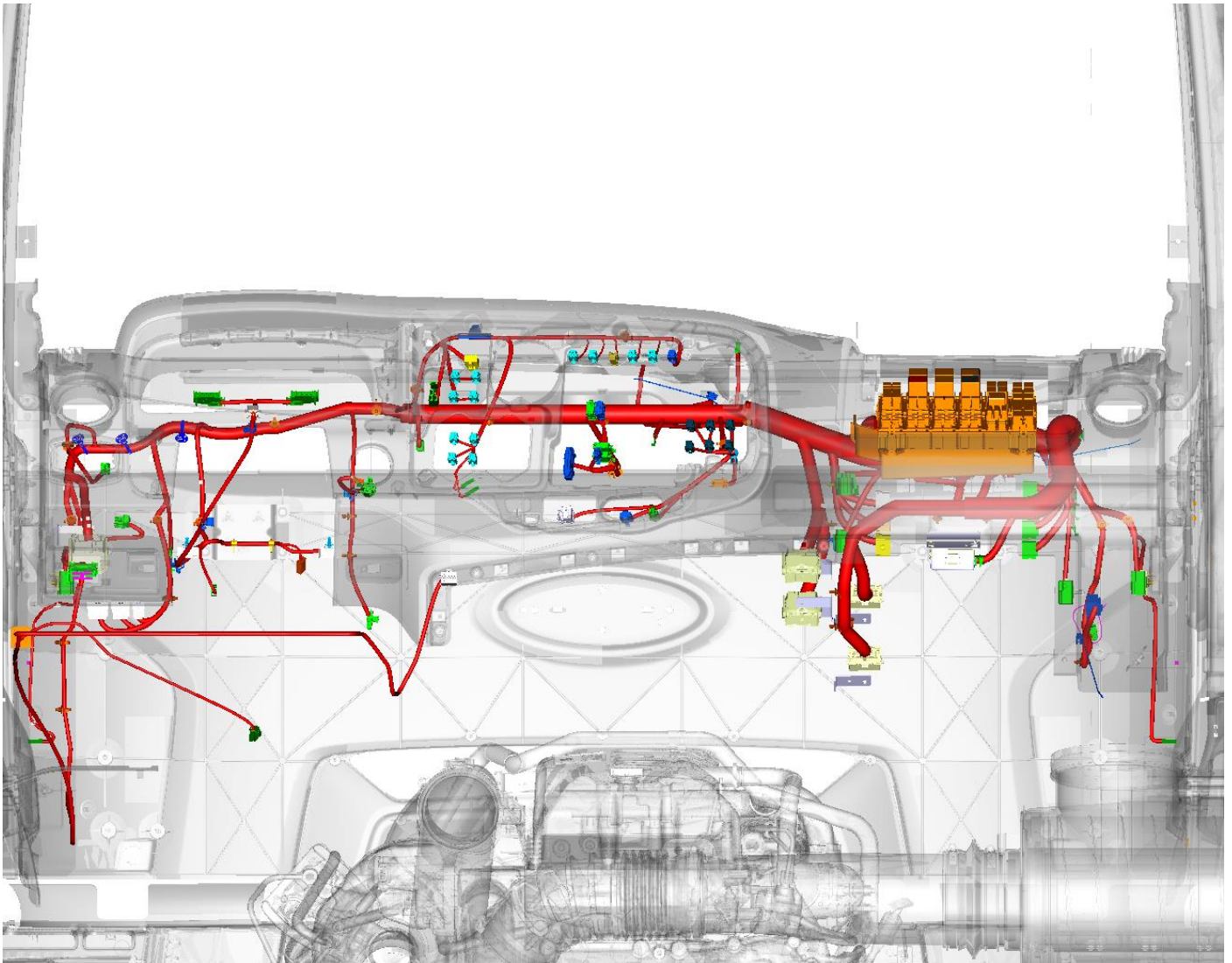
Con. Code	C11-E			
Con. Desc.	SİLİNDİR KAFA KONNEKTÖRÜ			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CE205	1,5	Green/Blue	INJ-2/CYL-6
2	RE205	1,5	Yellow/Blue	INJ-2/CYL-6
3	CE206	1,5	Gray/Yellow	INJ-1/CYL-5

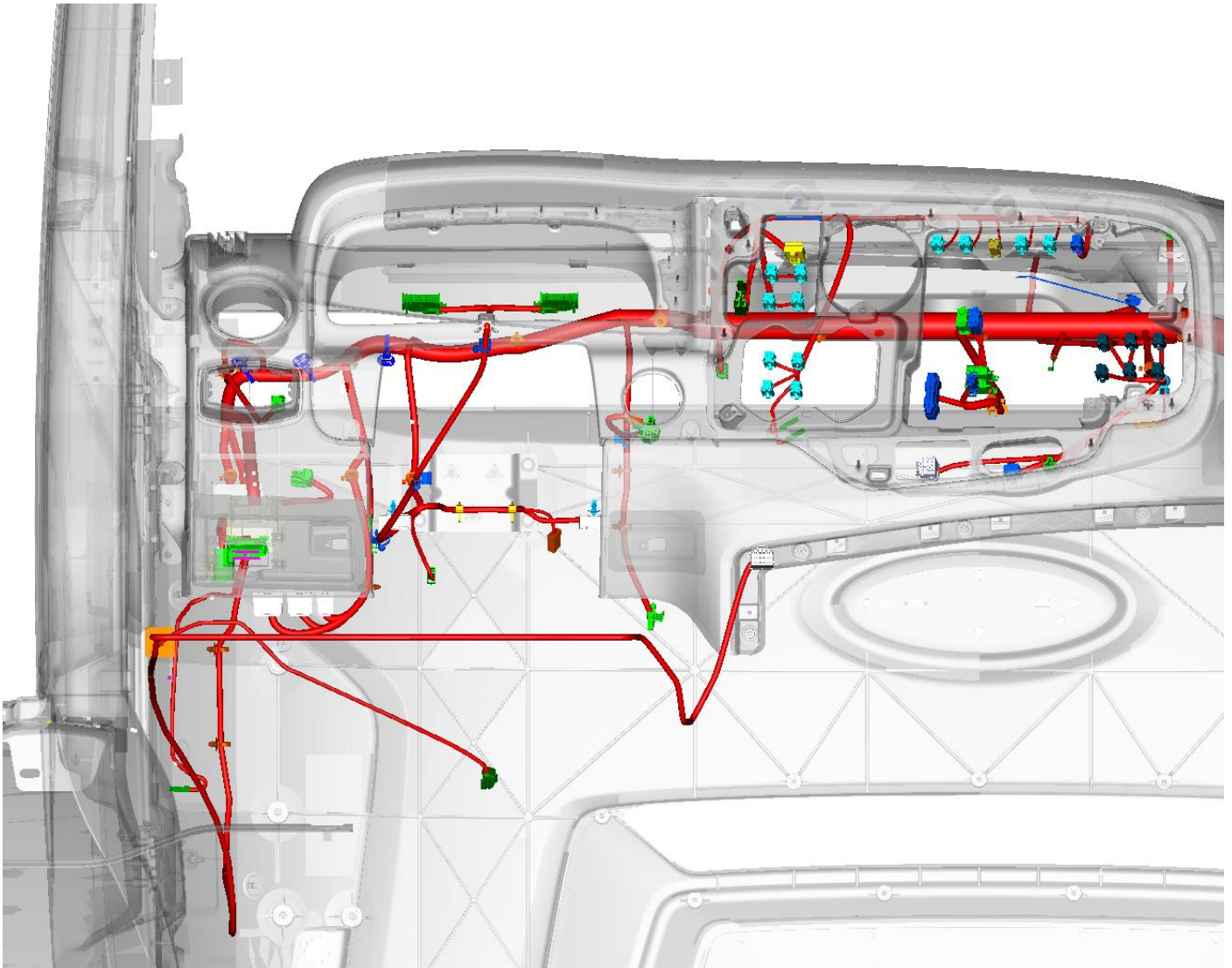
**TRUCKS**

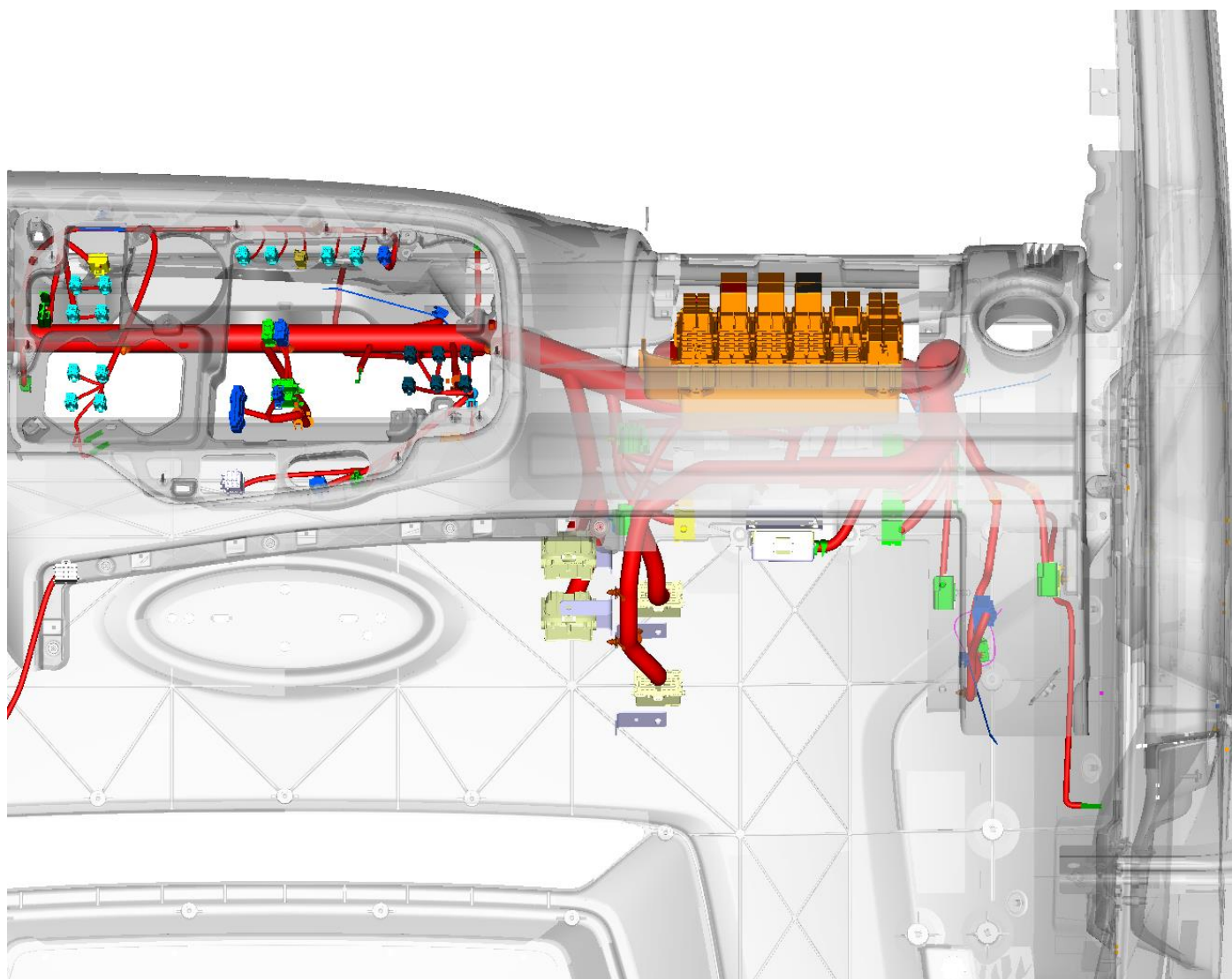
4	RE206	1,5	Yellow/Orange	INJ-1/CYL-5
5	CE207	1,5	Violet/Gray	INJ-3/CYL-4
6	RE207	1,5	Green/Violet	INJ-3/CYL-4
7	CE208	1,5	Blue/Orange	INJ-2/CYL-3
8	RE208	1,5	Blue	INJ-2/CYL-3
9	CE209	1,5	Brown	INJ-3/CYL-2
10	RE209	1,5	White/Blue	INJ-3/CYL-2
11	CE210	1,5	Green/White	INJ-1/CYL-1
12	RE210	1,5	Brown/Violet	INJ-1/CYL-1
13	CCB04	1	White	2.Motor Freni-1
14	CCB05	1	Gray/Blue	2.Motor Freni-2
15	CCB14	0,75	Violet	1.Motor Freni-1
16	CCB13	0,75	Gray	1.Motor Freni-2

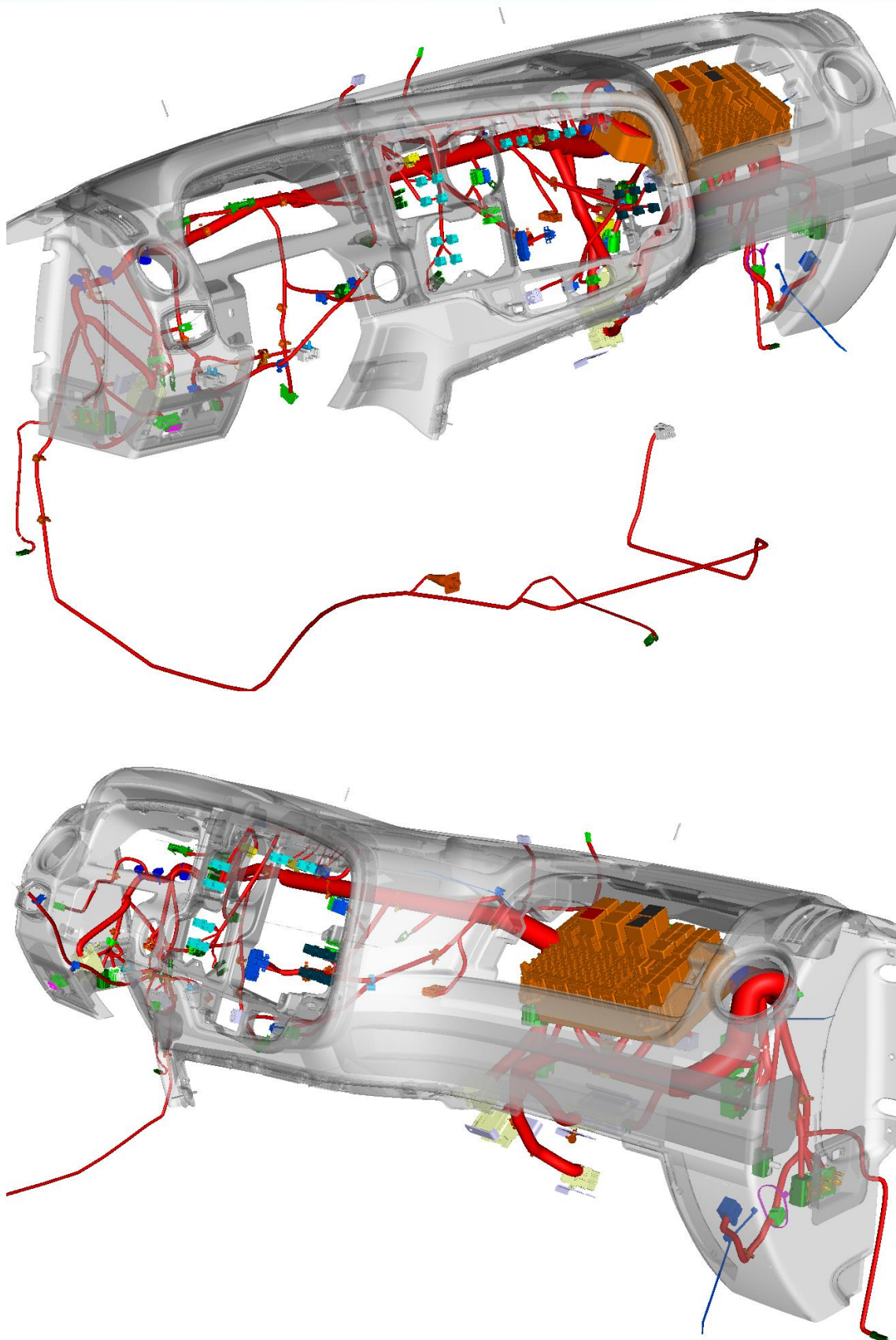
TRUCKS

3.3.7. 14401 → Cab Wiring



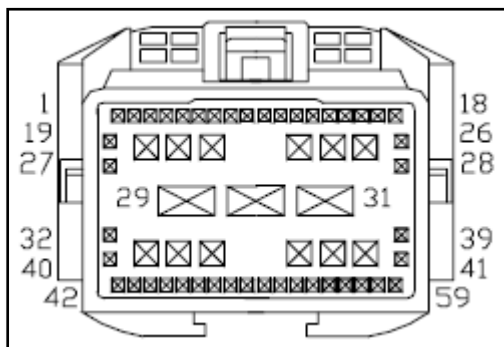






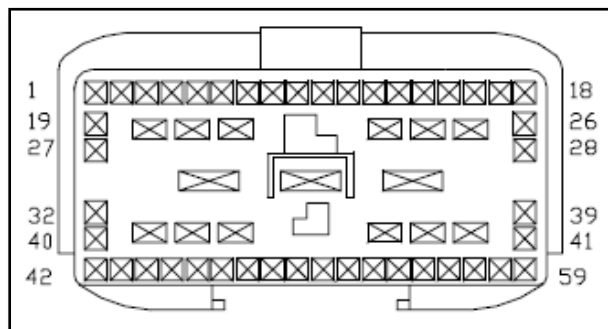
TRUCKS

14401 → Cab wiring connector descriptions:



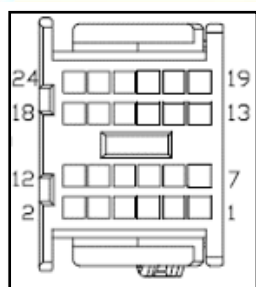
Con. Code	C12-C			
Con. Desc.	14398 INLINER (3)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
3	CE501A	0,35	GY	-
5	VDB13A	0,5	BU/GY	AUTO
6	VDB14A	0,5	VT/GY	AUTO
7	VE740B	0,35	VT/GY	-
12	RE327A	0,35	GY/VT	-
14	CMC06C	0,35	BN/BU	-
15	RMC32A	0,35	GN/BU	-
16	RCA37A	0,35	WH/BU	-
17	VCA38A	0,35	BN/VT	-
20	CAT10B	1	RD	EBS
21	CAT11B	1	BN	EBS
22	CAT14B	1	OG	EBS
23	CAT23B	1	GY/YE	EBS
24	ZA322A	2,5	OG/WH	-
25	CBP24A	1	VT/GN	-
26	CRH02A	0,75	BU/WH	-
27	CLN38B	0,35	BU/GY	-
28	CLN39C	0,35	BN/WH	-
29	SBB05A	2,5	GY/RD	AUTO
30	SBP16B	0,5	VT/RD	AUTO
31	CBP06B	0,5	WH/BU	AUTO
32	CLN47B	0,35	BU	-
33	CBP46D	0,5	WH/BU	-
34	CCA26B	0,5	BU/GY	-
35	CAT09H	0,5	GN	-
36	CAT06A	0,5	YE	-
37	CBP50C	0,75	YE/OG	-
38	SBP13D	0,5	GY/RD	INT3
42	ZA370B	0,35	OG/WH	-
43	ZA371B	0,5	OG/BK	-

TRUCKS

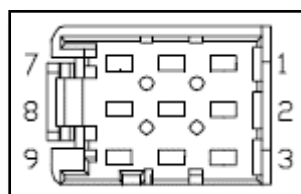


Con. Code	C12-B			
Con. Desc.	14398 INLINER (2)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CES05C	2TAD-0.35	BN/BU	-
2	CES04C	2TAD-0.35	VT/OG	-
3	ZA372B	2TAD-0.75	OG/GY	-
4	CLS44E	2TAD-0.50	VT/BN	-
15	A_GD114D	2TAD-0.75	BK/BU	EBS && EU6
16	VMF04A	2TAD-0.35	BN/BU	EBS && EU6
17	VMF05A	2TAD-0.35	GY/BU	EBS && EU6
18	CBP04C	2TAD-0.50	VT	EBS && EU6
20	CBP05A	2TAD-1.0	YE	INT3
21	RE803A	2TAD-0.35	BN/GN	EBS
22	VE804A	2TAD-0.35	GN/BN	EBS
23	RE804A	2TAD-0.35	GN/BU	EBS
24	C_VDB04A	2TAD-0.50	WH/BU	EBS
25	C_VDB05A	2TAD-0.50	WH	EBS
29	CDC06H	2TAD-0.50	VT/WH	BMS
30	SDC02B	2TBD-2.5	RD	BMS
32	CCF27C	2TAD-0.35	GY	EBS&&C4AS
33	B_ZA204A	2TAD-0.50	OG/GN	EBS
34	B_VDB04A	2TAD-0.50	WH/BU	EBS
35	B_VDB05A	2TAD-0.50	WH	EBS
36	B_ZA205A	2TAD-0.50	OG/GY	EBS
37	CAT12B	2TAD-1.0	BU/GY	EBS
38	CAT13B	2TAD-1.0	GN/OG	EBS
39	ZA201A	2TAD-0.35	OG	EBS
42	ZA209B	2TAD-0.50	OG	EBS
43	ZA208B	2TAD-0.50	OG/WH	EBS
44	D_VDB05B	2TAD-0.50	WH	EBS
45	D_VDB04B	2TAD-0.50	WH/BU	EBS

TRUCKS

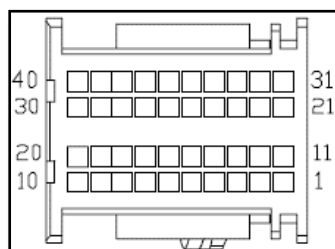


Con. Code	C2AM02-B			
Con. Desc.	BCU MODULE (B)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
5	CLN39B	0.35	BN/WH	
6	CDC56F	0.35	WH	
7	B_GD185E	0.75	BK/WH	
8	B_GD185F	0.75	BK/WH	
9	ZA327A	0.35	OG/BU	
10	CCB11A	0.35	BU	
16	CRW25A	0.75	BU/GY	
17	CH422A	0.5	WH/BN	
19	A_CLS03A	0.35	GN/WH	
20	CES05A	0.35	BN/BU	
21	RRW24A	0.5	GN/VT	
23	RME41A	0.5	BU/BN	
24	ZA326	0.5	OG/YE	



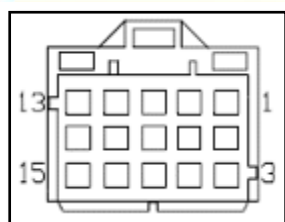
Con. Code	C2AM02-A			
Con. Desc.	BCU MODULE (A)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	A_CCB10A	0.35	YE/GN	
2	SBP64A	1.0	VT/RD	
3	B_GD185A	2.5	BK/WH	
4	CH401A	0.35	VT/WH	
5	CLF10A	0.35	GN/OG	
6	CLF09A	0.35	BU/GY	
7	CRD17F	0.35	GY	
8	SBP66A	1.0	YE/RD	
9	CLF31A	0.35	YE/GY	

TRUCKS

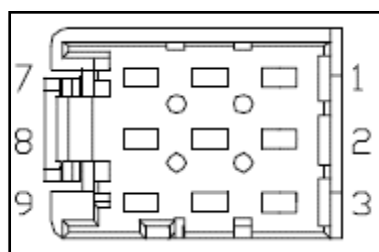


Con. Code	C2AM02-D			
Con. Desc.	BCU MODULE (D)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP77B	0.75	WH	
5	CE907A	0.75	YE/GY	
6	CET39A	0.75	BU/GY	
8	RAP07A	0.75	BU/WH	
17	VMR33A	0.75	YE/GY	
20	VMR34A	0.75	WH/BN	
22	ZA113A	0.75	OG/GY	
23	CPL32A	0.75	GY/BU	
25	CCB20A	0.35	BU/WH	
26	CYT13A	0.75	BN/VT	
27	CCB21A	0.35	GN/WH	
28	CCB22A	0.35	WH/BN	
29	CCB23A	0.35	WH/BN	
32	CCB24A	0.35	WH/OG	
33	VES10B	0.75	WH	
34	CES06B	0.75	BU/GN	
35	CES04A	0.75	VT/OG	
36	CLF02A	0.75	GY/BN	
37	CRB05A	0.75	GN/OG	
39	ZA385	0.35	OG/GY	

TRUCKS

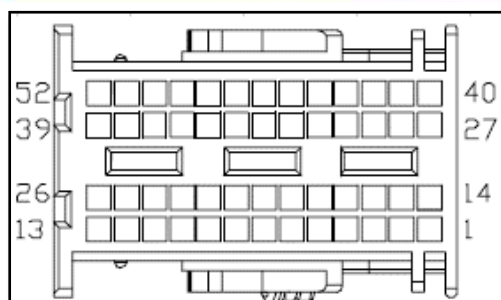


Con. Code	C2AM02-F			
Con. Desc.	BCU MODULE (F)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CLF08A	0.75	YE/VT	
2	CLN47B	0.75	BU	
3	CLS21B	0.75	BU/GN	
4	CLS25B	0.75	YE/VT	
5	CBP31A	1.5	BU/OG	
6	SBP67A	1.5	BU/RD	
7	ZA127	0.5	OG/BU	
8	ZA116B	0.75	OG/YE	
9	B_GD185D	2.5	BK/WH	
10	A_VE925B	0.75	GN/WH	
12	SBP69A	1.5	GY/RD	
13	CRW05A	0.75	BU	
14	CCF27A	0.75	GY	



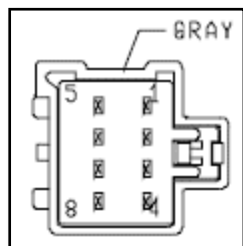
Con. Code	C2AM02-E			
Con. Desc.	BCU MODULE (E)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	B_GD185G	2.5	BK/WH	
2	SBP68	1.0	GN/RD	
7	CLS05	0.5	BU/GY	
8	SBP65	1.0	RD	
9	CLF12	0.5	BN/YE	

TRUCKS

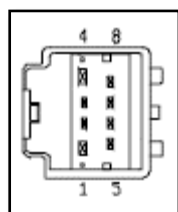


Con. Code	C2AM02-C			
Con. Desc.	BCU MODULE (C)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VDB11W	0.75	BN/GN	
2	VDB12W	0.75	BN/BU	
4	VDB10F	0.75	GY	
5	ZA321A	0.75	OG/GY	
6	CLN38B	0.75	BU/GY	
7	CLF17A	0.75	WH/OG	
8	ZA370	0.75	OG/WH	
9	CLS42A	0.75	VT/BN	
10	CLS32A	0.75	BN/YE	
12	ZA101A	0.75	OG	
13	CPL35A	0.75	BU	
14	VDB30E	0.75	WH/GN	
17	RCB37A	0.75	BN/BU	
18	CCB09A	0.75	GY/BU	
19	CRW24A	1.5	GY	
20	CRD08A	0.75	GN/OG	
27	VDB29E	0.75	GN/BU	
30	CRW10A	0.75	BU/GN	
31	RE327A	0.75	GY/VT	
32	CE913A	0.75	BU	
34	VCA07A	0.75	BU/OG	
35	CRW17A	0.75	GN/VT	
42	B_GD185G	0.75	BK/WH	
43	B_GD185H	0.75	BK/WH	
44	B_GD185I	0.75	BK/WH	
46	CRD01A	0.75	VT/OG	
48	CLS35A	0.75	VT	
50	RCA21B	0.75	BN/GN	
52	CLS03A	0.75	GN/WH	

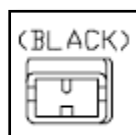
TRUCKS



Con. Code	C26-C			
Con. Desc.	14A584-PASSENGER (C)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
3	CPW01B	0.5	BN/BU	
6	CPW11	0.5	BU/GY	
7	CPW10	0.5	YE/VT	
8	B_GD186C	0.5	BK/BU	

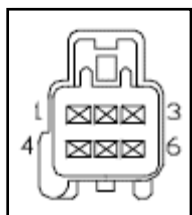


Con. Code	C26-A			
Con. Desc.	14A584-PASSENGER (A)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CPW40	1.5	WH	
2	CPL11B	1.5	GY/BN	
3	CPL13B	1.5	BN/GN	
4	CPW41	1.5	GY/YE	
5	CPL42B	1.0	GY/YE	
6	CPL43B	1.0	VT/GY	
7	VME10	0.75	WH/VT	
8	RME10	0.75	WH/OG	

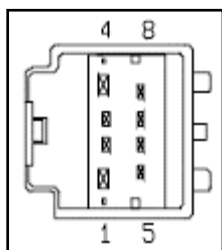


Con. Code	C3PL15			
Con. Desc.	RIGHT DOOR AJAR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CLN28B	0.75	GN/BU	

TRUCKS

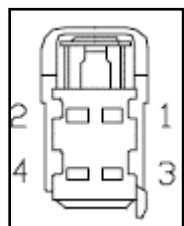


Con. Code	C26-B			
Con. Desc.	14A584-PASSENGER (B)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CPM23A	0.5	GY	
2	CPM20	0.5	BN/WH	
3	CPM21	0.5	YE/VT	
4	CRD17B	0.75	GY	
5	B_GD186B	1.0	BK/BU	
6	B_GD186D	0.75	BK/BU	

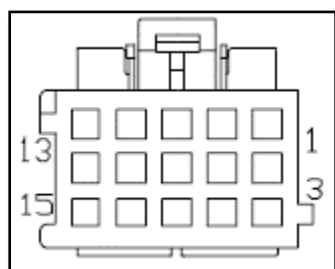


Con. Code	C24-A			
Con. Desc.	DRY TYPE HEATER			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	SBP57A	2.5	RD	
2	VHF03	0.75	GN/VT	
3	RHF03	0.75	WH/VT	
4	A_GD116C	2.5	BK/VT	
5	VHF04B	0.75	BN/VT	
6	CHF03A	0.75	GN/OG	
7	CDC06A	0.75	VT/WH	
8	A_GD116D	0.75	BK/VT	

TRUCKS

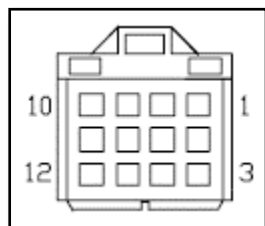


Con. Code	C2LS03-A			
Con. Desc.	AEBS BUZZER			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	ZA126	0.75	OG/YE	
2	CLS03	0.75	GN/WH	
3	CBP30A	0.75	YE/BU	
4	RAP07	0.75	BU/WH	

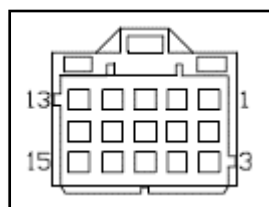


Con. Code	C2DC13			
Con. Desc.	VOLTAGE CONVERTER			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CME31A	2.5	BU/GN	
3	CME34A	1.0	BU/GY	
6	CDC33C	2.5	VT/GN	
7	CDB08A	2.5	BN	
8	CDC17A	2.5	GY/YE	
9	CYD04D	2.5	BU/OG	
10	CYD03A	2.5	BN/YE	
12	VYD07A	1.5	YE/GN	
13	ZA340A	2.5	OG	
14	B_GD186K	2.5	BK/BU	
15	SBP18A	2.5	YE/RD	

TRUCKS

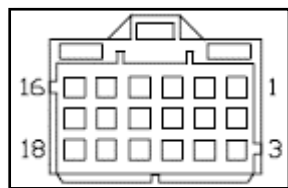


Con. Code	C2CB01-D			
Con. Desc.	EBS MODULE (D)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CAT19	1.0	BU	
2	VET12	1.0	VT/BN	
3	RAT08	1.0	WH	
4	CET07	1.0	GY/OG	
5	CET05	1.0	BU/GN	
6	CET08	1.0	BN/WH	
7	CET06	1.0	GN/BN	
8	VDB04	1.0	WH/BU	
9	VDB05	1.0	WH	
10	CAT15	0.75	BN/YE	
11	CAT04B	0.75	VT/OG	

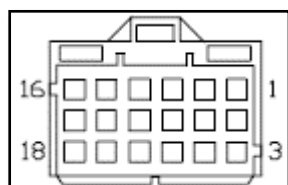


Con. Code	C2CB01-C			
Con. Desc.	EBS MODULE (C)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	B_RCA09A	0.75	GN/VT	
1	B_RCA09B	1.0	GN/VT	
4	B_VCA24A	0.75	GN/OG	
4	B_VCA24B	1.0	GN/OG	
7	B_VCA23A	0.75	BU/WH	
7	B_VCA23B	1.0	BU/WH	
9	ZA201A	1.0	OG	
10	B_CCA09A	0.75	VT/BN	
10	B_CCA09B	1.0	VT/BN	
11	ZA115B	0.75	OG/BK	
14	ZA202A	0.75	OG/YE	

TRUCKS

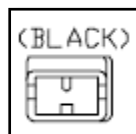


Con. Code	C2CB01-B			
Con. Desc.	EBS MODULE (B)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
4	B_ZA204A	1.0	OG/GN	
5	B_VDB04A	1.0	WH/BU	
6	B_VDB05A	1.0	WH	
7	ZA206A	1.0	OG/WH	
8	A_VDB04A	1.0	WH/BU	
9	A_VDB05A	1.0	WH	
10	A_CET10A	1.5	BU/GY	
12	B_ZA205A	1.0	OG/GY	
13	A_CET09A	1.5	YE/VT	
14	B_CET10A	1.5	BU/GY	
15	ZA207A	1.0	OG/BK	
16	B_CET09A	1.5	YE/VT	
18	CET11A	1.5	GN/OG	

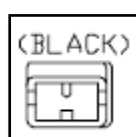


Con. Code	C2CB01-A			
Con. Desc.	EBS MODULE (A)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VDB12Z	0.75	BN/BU	
3	VDB11Z	0.75	BN/GN	
4	RCA30A	1.0	BU	
5	VCA30A	1.0	YE/VT	
6	CCA29A	1.0	GN/BU	
7	LCA30A	1.0	GY/OG	
8	VCA43A	1.0	WH/GN	
10	CCA58B	0.75	YE/GN	
11	A_GD186J	2.5	BK/BU	
12	A_GD186K	2.5	BK/BU	
13	CBP01D	1.0	BU	
16	SBP32C	2.5	VT/RD	
17	SBP32D	2.5	VT/RD	

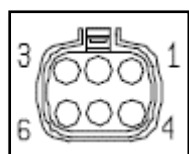
TRUCKS



Con. Code	C2RD03-C			
Con. Desc.	WINDSCREEN HEATER GROUND			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	B_GD115B	4.0	BK/BU	

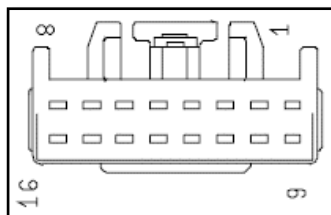


Con. Code	C2RD03-D			
Con. Desc.	WINDSCREEN HEATER POWER			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP29	4.0	WH/VT	
8	A_GD116D	0.75	BK/VT	

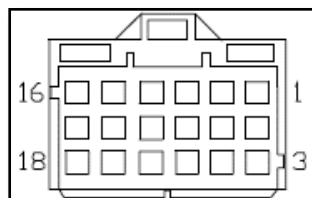


Con. Code	C1_1			
Con. Desc.	FLEET MANAGEMENT MODULE			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	SBP81C	0.75	RD	
2	VMR34	0.75	WH/BN	
3	VMR33	0.75	YE/GY	
4	CBP80F	1.0	YE/GN	
5	B_GD116A	1.0	BK/VT	
6	ZA384	0.5	OG/GN	

TRUCKS

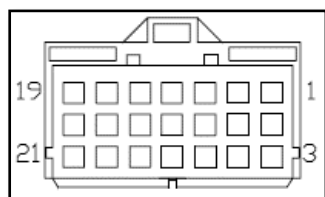


Con. Code	C19-A			
Con. Desc.	15A404 INLINER			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VLN40I	0.75	YE/BU	
2	SBP38C	0.75	BN/RD	
3	A_CBR31A	0.75	VT/BN	
4	A_CPR40A	0.75	YE/OG	
5	CBP46E	0.75	WH/BU	
6	CLN16A	0.75	YE/OG	
7	CLN19D	0.75	GN/WH	
8	SBP54B	0.75	BN/RD	
9	CHF02B	0.75	BU/WH	
10	VHF04E	0.75	BN/VT	
11	RLN29A	0.75	WH/OG	
12	CYD04C	0.75	BU/OG	
13	CDC18A	0.75	YE/OG	

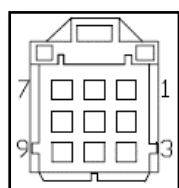


Con. Code	C2PL01-A			
Con. Desc.	RKE MODULE (A)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	SBP56	2.5	VT/RD	
2	CPW34	1.5	BU	
3	CPW40	1.5	WH	
4	SBP11	2.5	BU/RD	
8	CPW35	1.5	GN	
11	CPW41	1.5	GY/YE	
13	A_GD186I	2.5	BK/BU	
14	A_GD186K	2.5	BK/BU	
15	VLN40	0.75	YE/BU	
16	CBP73	1.5	WH/BN	
17	A_GD186L	2.5	BK/BU	
18	CPW01	0.50	BN/BU	

TRUCKS

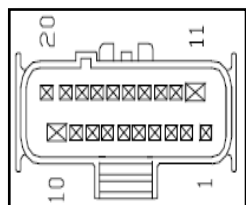


Con. Code	C2PL01-C			
Con. Desc.	RKE MODULE (C)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CPL35	0.75	BU	
2	CPL32	0.75	GY/BU	
3	CLN26	0.75	BU	
4	VMC38A	0.75	GY/YE	
5	CPR40A	0.75	YE/OG	
6	CPR31A	0.75	VT/BN	
8	CPL42	1.0	GY/YE	
10	CPL43	1.0	VT/GY	
12	CBP03	0.75	GY	
13	VDB11AM	0.75	BN/GN	
14	VDB12AM	0.75	BN/BU	
15	CPW13	0.50	BN/YE	
16	CPW11	0.50	BU/GY	
17	CPW12	0.50	GN/OG	
18	CPW19	0.50	VT	
19	A_GD186M	2.5	BK/BU	
20	CPW20	0.75	WH/OG	
21	CPW10	0.50	YE/VT	

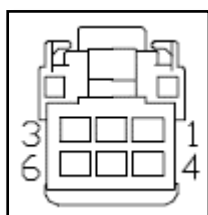


Con. Code	C2PL01-B			
Con. Desc.	RKE MODULE (B)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CPL11	1.5	GY/BN	
2	CPL13	1.5	BN/GN	
3	CYD04C	2.5	BU/OG	
4	CPR31	0.75	VT/BN	
5	CLN28C	0.75	GN/BU	
6	CLN28D	0.75	GN/BU	
7	RLN29	0.75	WH/OG	
8	A_CPR40A	0.75	YE/OG	
9	CLN19	0.75	GN/WH	

TRUCKS

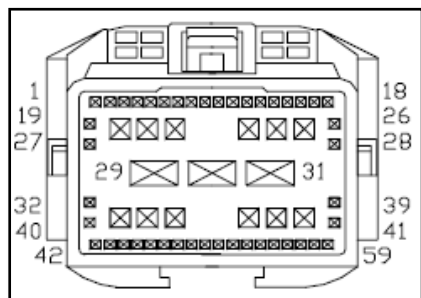


Con. Code	C2_1			
Con. Desc.	AFTER MARKET APPLICATION			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP50A	0.75	YE/OG	
2	CBP80A	1.0	YE/GN	
3	SBP81A	1.5	RD	
4	B_GD116B	1.5	BK/VT	
5	VES10C	0.35	WH	
6	CES06C	0.35	BU/GN	
7	CRH02A	0.75	BU/WH	
8	CLN39A	0.75	BN/WH	
9	VMC38C	0.35	GY/YE	
10	CAT14B	1.5	OG	
11	CAT12B	1.5	BU/GY	
12	CAT23B	1.5	GY/YE	
13	CAT13B	1.5	GN/OG	
14	CAT11B	1.5	BN	
15	CAT10B	1.5	RD	
16	B_GD116C	1.5	BK/VT	
17	VMR33B	0.5	YE/GY	
18	VMR34B	0.5	WH/BN	
19	ZA372	0.5	OG/YE	
20	ZA371	0.5	OG/BK	

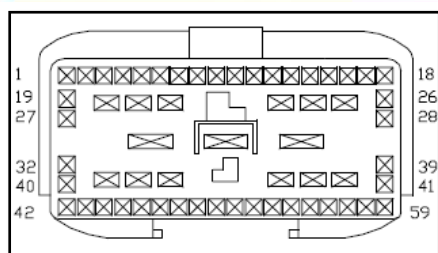


Con. Code	C2A106-A			
Con. Desc.	DIFF LOCK 1 SWITCH (A)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
2	VCA07A	0.75	BU/OG	
3	A_GD184AL	0.75	BK/GY	
4	CLS05M	0.75	BU/GY	
6	RCA21C	0.75	BN/GN	

TRUCKS

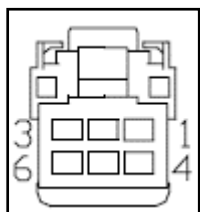


Con. Code	C12-A								
Con. Desc.	14398 INLINER (1)								
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit	Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VE702A	0,35	BU/WH	-	29	SBP49A	4	RD	-
2	CE356A	0,75	BU/OG	-	30	A_GD123B	4	BK/GY	-
3	CCB10A	0,75	YE/GN	INT3	31	SBP34F	4	YE/RD	-
4	CE103D	0,75	BU/BN	-	32	VCD13A	0,5	GN/VT	C4AS
5	VDB27A	0,5	VT/GN	-	33	B_RCA09B	0,35	GN/VT	EBS
6	VDB28A	0,5	GY/VT	-	34	B_VCA24B	0,35	GN/OG	EBS
7	RE405A	0,35	GN/WH	-	35	B_VCA23B	0,35	BU/WH	EBS
8	CMC14A	0,35	BN/YE	-	36	B_CCA09B	0,35	VT/BN	EBS
9	CE937A	0,5	VT/GY	EBS	37	CAT04A	0,35	VT/OG	-
10	VE356B	0,75	GY/VT	-	38	CAT19A	0,35	BU	EBS
11	LE423H	0,5	GN/VT	-	39	LCD19A	0,5	VT	C4AS
12	VDB30P	0,5	WH/GN	-	40	VCL19A	0,5	GN	C4AS
13	VDB29P	0,5	GN/BU	-	41	RCD04A	0,5	BU/OG	C4AS
14	CH401A	0,35	VT/WH	-	42	CCD03A	0,5	WH/BU	C4AS
17	VES10C	0,35	WH	-	43	RCD03A	0,5	VT/BN	C4AS
18	CES06C	0,35	BU/GN	-	45	VDB25A	0,5	GN/OG	AUTO
19	CCD05A	0,5	GN/BU	-	46	VDB26A	0,5	GY/BU	AUTO
20	CBP80B	1	YE/GN	-	48	ZA321A	0,35	OG/GY	-
21	SBP79B	2,5	WH/RD	-	49	CCB36C	0,35	BU/GY	-
22	ZA119C	0,5	OG/BU	-	50	RCB36C	0,35	YE/BU	-
23	GD108C	1,5	BK/VT	-	51	VCB35C	0,35	BN/WH	-
24	CBP22B	0,5	GN/OG	-	52	VMC39C	0,35	BU	-
25	ZA117A	0,5	OG	C4AS	53	ZA115C	0,35	OG/BK	EBS
26	ZA111A	0,5	OG/BU	C4AS	55	CLS25D	0,5	YE/VT	-
27	ZA112A	0,5	OG/GN	C4AS	56	CLS21E	0,5	BU/GN	-
28	VCD12A	0,5	VT/WH	C4AS	-	-	-	-	-

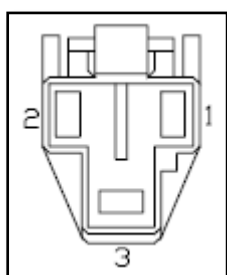
TRUCKS


Con. Code	C12-D								
Con. Desc.	14398 INLINER (D)								
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit	Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CDC05F	0,5	GY/VT	BMS	30	CBP26A	0,5	BU/WH	-
3	ZA320A	0,35	OG/GN	-	31	A_CET10A	0,5	BU/GY	EBS
4	CDC05G	0,5	GY/VT	BMS	32	ZA327A	0,35	OG/BU	-
5	CPR48A	0,5	GY	-	33	CLS29C	0,5	WH	-
6	CPR51A	0,5	YE/OG	-	34	ZA206A	0,5	OG/WH	EBS
7	CPR49A	0,5	BN/YE	-	35	ZA207A	0,5	OG/BK	EBS
8	VDB11I	0,5	BN/GN	-	36	A_VDB04A	0,5	WH/BU	EBS
9	VDB12I	0,5	BN/BU	-	37	A_VDB05A	0,5	WH	EBS
10	A_VE925C	0,35	GN/WH	-	38	VE803A	0,35	BU/GN	EBS
11	VE518B	0,75	BN/WH	-	39	CPL30A	0,35	BU/BN	-
12	RMC27F	0,35	WH/BN	-	40	VDB10D	0,5	GY	-
13	LCA37A	0,35	YE/OG	-	41	CE317A	0,35	GY	-
14	SDC68B	0,5	BN/VT	BMS	42	CCB08A	0,35	VT/WH	-
15	ZA116D	0,5	OG/YE	-	43	LCA27D	0,35	BN/WH	-
16	CDC56D	0,35	WH	-	44	CDC39A	0,5	GN/BU	-
17	CE504B	0,75	BU/BN	-	45	CE354A	0,5	BN/BU	-
18	CYT13A	0,35	BN/VT	-	46	VMC38C	0,35	GY/YE	-
19	CMC08C	0,35	GN/BN	-	47	LE136A	0,35	GN/OG	-
20	B_CET10A	0,5	BU/GY	EBS	48	RE136A	0,35	VT/GN	-
21	A_CET09A	0,5	YE/VT	EBS	49	VE701A	0,35	YE/OG	-
22	B_CET09A	0,5	YE/VT	EBS	50	CBP08A	0,5	GY/YE	-
23	CET11A	0,5	GN/OG	EBS	51	CE901A	0,35	YE/BU	-
24	VET12A	0,35	VT/BN	EBS	52	CMC25A	0,5	WH/VT	-
25	RAT08A	0,35	WH	EBS	53	CCB15A	0,35	BN/GN	-
26	VMC16B	0,35	YE	-	54	CE612A	0,5	GY/VT	-
27	VMC17C	0,35	BU/OG	-	55	CE613A	0,5	WH/VT	-
28	RCA21D	0,35	BN/GN	-	56	VE766A	0,5	GY/YE	EU6
29	CBP48C	0,5	GY/YE	-	57	CDC12A	0,75	YE	-

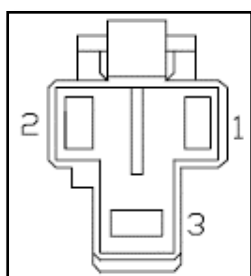
TRUCKS



Con. Code	C2E907			
Con. Desc.	LOW LINER			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
2	CE907A	0.75	YE/GY	
3	A_GD184C	0.75	BK/GY	
4	CLS05K	0.75	BU/GY	
6	CCF27B	0.75	GY	

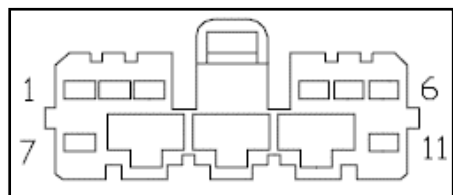


Con. Code	C2DC07			
Con. Desc.	LIGHTER CIGAR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	SBP53	2.5	GY/RD	
3	B_GD184E	2.5	BK/GY	

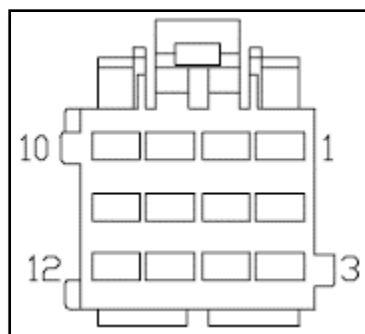


Con. Code	C2DC08			
Con. Desc.	POWER POINT			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	SBB13	2.5	GY/RD	
3	CYD04A	2.5	BU/OG	

TRUCKS

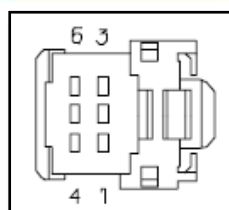


Con. Code	C2H102			
Con. Desc.	BLOWER MODULE			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CH421A	0.75	GY	
2	CBP19A	0.75	BN/WH	
5	B_GD184E	0.75	BK/GY	
6	CH424A	0.75	WH/BU	
7	CH302A	0.75	WH/BN	
8	CH402A	1.5	YE/GN	
9	CH430A	1.5	VT/OG	
10	CH428A	1.5	GN/WH	
11	CH427A	0.75	BN	

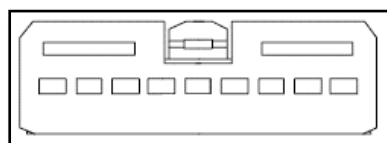


Con. Code	C2HF01			
Con. Desc.	DRY/WET TYPE HEATER			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP52B	0.75	GN/WH	
2	VHF04D	0.75	BN/VT	
6	VHF03B	0.75	GN/VT	
7	CHF02B	0.75	BU/WH	
8	CHF03C	0.75	GN/OG	
9	RHF03B	0.75	WH/VT	
10	CBP77C	0.75	WH	
11	SBP55A	0.75	WH/RD	
12	A_GD116E	1.0	BK/VT	

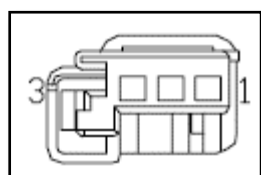
TRUCKS



Con. Code	C2E907-B			
Con. Desc.	LOW LINER (2)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP20H	0.35	YE/VT	
2	RMC19	0.35	YE/GY	
3	A_GD184BP	0.35	BK/GY	
4	CLS05BL	0.35	BU/GY	
6	A_GD184BR	0.35	BK/GY	

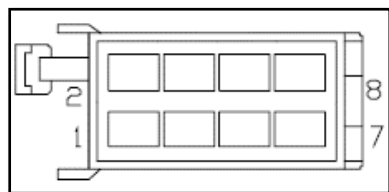


Con. Code	C2MC47			
Con. Desc.	CAMERA			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	SBP14A	0.50	BN/RD	-
3	VDB12A	0.50	BN/BU	EBS&EU6
4	VDB11A	0.50	BN/GN	EBS&EU6
6	VMF05B	0.50	GY/BU	EBS&EU6
7	VMF04B	0.50	BN/BU	EBS&EU6
8	A_GD114C	0.50	BK/BU	-
9	CBP04A	0.50	VT	-

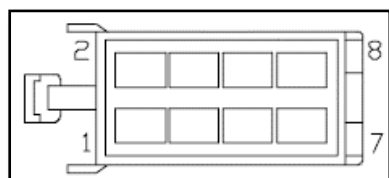


Con. Code	C2YD07			
Con. Desc.	RAIN SENSOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	SBP82B	0.75	YE/RD	
2	VYD07B	0.75	YE/GN	
3	CDC56B	0.75	WH	

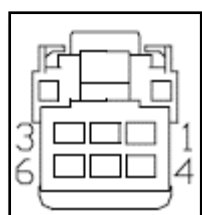
TRUCKS



Con. Code	C2ME03-B			
Con. Desc.	RADIO (B)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
3	RME10B	0.75	WH/OG	
4	VME10B	0.75	WH/VT	
5	RME07B	0.75	WH/BN	
6	VME07B	0.75	WH	

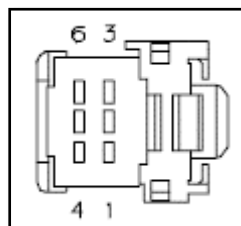


Con. Code	C2ME03-A			
Con. Desc.	RADIO (A)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CME05A	0.75	GN/BU	
4	CBP74A	1.5	VT/BN	
6	CBP75A	0.75	YE/GY	
7	CBP75C	0.75	YE/GY	
8	CME34A	1.5	BU/GY	

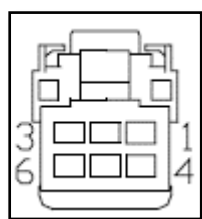


Con. Code	C2RB05-A			
Con. Desc.	LDWS SWITCH			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	A_GD184AH	0.75	BK/GY	
2	CRB05A	0.75	GN/OG	
3	A_GD184K	0.75	BK/GY	
4	CLS05AB	0.75	BU/GY	

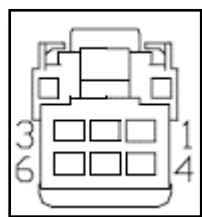
TRUCKS



Con. Code	C2E912			
Con. Desc.	PTO SWITCH			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
2	CE913A	0.75	BU	
3	A_GD184D	0.75	BK/GY	
4	CLS05AD	0.75	BU/GY	
6	A_VE925A	0.75	GN/WH	

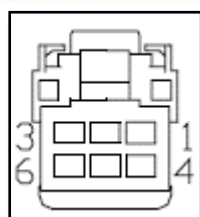


Con. Code	C2CB11			
Con. Desc.	AEBS SWITCH			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	A_GD184A	0.75	BK/GY	
2	CCB11A	0.75	BU	
3	A_GD184E	0.75	BK/GY	
4	CLS05D	0.75	BU/GY	

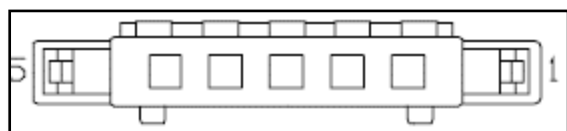


Con. Code	C2CD16B			
Con. Desc.	DPF MANUEL SWITCH			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	A_GD184V	0.75	BK/GY	
2	CCB09A	0.75	GY/BU	
3	A_GD184M	0.75	BK/GY	
4	CLS05I	0.75	BU/GY	

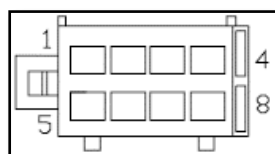
TRUCKS



Con. Code	C2LN57			
Con. Desc.	ROOF LAMP			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP46B	0.75	WH/BU	
2	CLN16A	0.75	YE/OG	
3	A_GD184AA	0.75	BK/GY	
4	CLS05O	0.75	BU/GY	

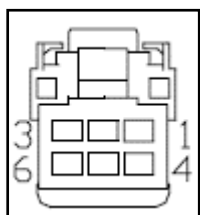


Con. Code	C2H426-A			
Con. Desc.	BLOWER HIZ ANAHTARI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
2	CH430	1.5	VT/OG	
3	CH428	1.5	GN/WH	
4	CH427	1.5	BN	
5	B_GD184C	1.5	BK/GY	

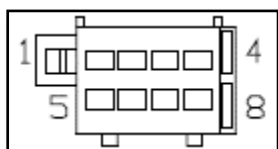


Con. Code	C2MC35-B			
Con. Desc.	TAKOGRAF MODUL (B)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CCB36	0.75	BU/GY	
2	RCB36	0.75	YE/BU	
3	VCB35	0.75	BN/WH	
4	VMC39	0.75	BU	
7	VMC38	0.75	GY/YE	

TRUCKS

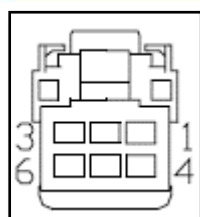


Con. Code	C2A181			
Con. Desc.	HARİTA LAMBASI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	SBP38C	0.75	BN/RD	
2	CLN26	0.75	BU	
3	A_GD184R	0.75	BK/GY	
4	CLS05S	0.75	BU/GY	

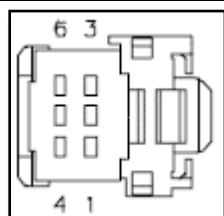


Con. Code	C2MC35-A			
Con. Desc.	TAKOGRAF MODUL (A)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	SBP10A	0.75	YE/RD	
2	CLS05V	0.75	BU/GY	
3	CBP09A	0.75	VT/GY	
4	VDB11S	0.75	BN/GN	
5	GD108C	1.5	BK/VT	
6	B_GD184C	1.5	BK/GY	
8	VDB12S	0.75	BN/BU	

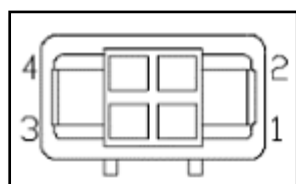
TRUCKS



Con. Code	C2A116			
Con. Desc.	TREYLER FRENİ			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP20B	0.75	YE/VT	
2	CAT15	0.75	BN/YE	
3	A_GD184C	0.75	BK/GY	
4	CLS05C	0.75	BU/GY	
5	CAT04B	0.75	VT/OG	

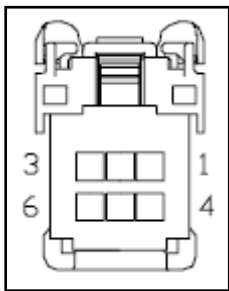


Con. Code	C2PR40			
Con. Desc.	SUNROOF			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
2	CPR40A	0.75	YE/OG	
3	A_GD184AD	0.75	BK/GY	
4	CLS05T	0.75	BU/GY	
5	CPR31A	0.75	VT/BN	
6	CBP20D	0.75	YE/VT	

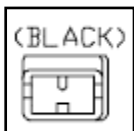


Con. Code	C2H426-B			
Con. Desc.	BLOWER HIZI (B)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CLS05BC	0.75	BU/GY	
4	A_GD184F	0.75	BK/GY	

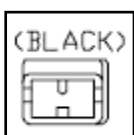
TRUCKS



Con. Code	C2RB05			
Con. Desc.	OTOMATİK ŞANZIMAN			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	A_GD184CD	0.75	BK/GY	
2	CET39	0.75	BU/GY	
3	A_GD184BK	0.75	BK/GY	
4	CLS05AB	0.75	BU/GY	

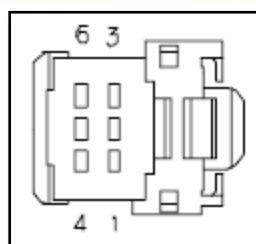


Con. Code	C2MC25-B			
Con. Desc.	PARK FRENİ (B)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CMC25	0.75	WH/VT	

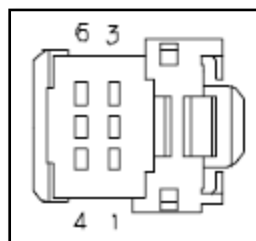


Con. Code	C2MC35-A			
Con. Desc.	PARK FRENİ (A)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	LCA27C	0.75	BN/WH	

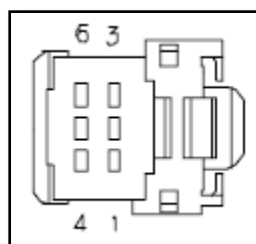
TRUCKS



Con. Code	C2A118			
Con. Desc.	HILLHOLDER			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	A_GD184D	0.75	BK/GY	
2	ZA202	0.75	OG/YE	
3	A_GD184E	0.75	BK/GY	
4	CLS05D	0.75	BU/GY	

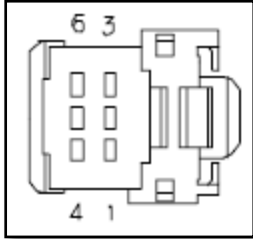


Con. Code	C2CD17B			
Con. Desc.	DPF INHIBIT			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	A_GD184W	0.75	BK/GY	
2	RCB37A	0.75	BN/BU	
3	A_GD184N	0.75	BK/GY	
4	CLS05J	0.75	BU/GY	

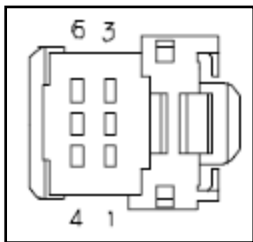


Con. Code	C2RD12			
Con. Desc.	AYNA ISITMA			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
2	ZA101A	0.75	OG	
3	A_GD184B	0.75	BK/GY	
4	CLS05C	0.75	BU/GY	
6	CRD17C	0.75	GY	

TRUCKS

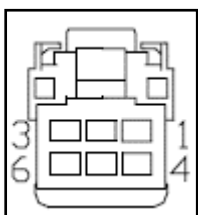


Con. Code	C2H424			
Con. Desc.	KLİMA A/C SİRKULASYON			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP19D	0.75	BN/WH	
2	CH424A	0.75	WH/BU	
3	A_GD184AJ	0.75	BK/GY	
4	CLS05Z	0.75	BU/GY	

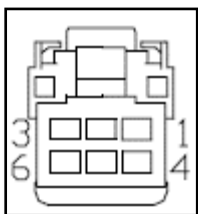


Con. Code	C2AE01			
Con. Desc.	TAVAN AYDINLATMA			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP20E	0.75	YE/VT	
2	CAE01A	0.75	WH/GN	
3	A_GD184AE	0.75	BK/GY	
4	CLS05U	0.75	BU/GY	

TRUCKS



Con. Code	C2A115			
Con. Desc.	ESP (EBS) ANAHTARI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CCA58B	0.75	YE/GN	
2	A_GD184X	0.75	BK/GY	
3	A_GD184P	0.75	BK/GY	
4	CLS05E	0.75	BU/GY	



Con. Code	C2A183			
Con. Desc.	BLENDING KARIŞTIRICI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP20AA	0.75	YE/VT	
2	ZA331C	0.75	OG/BK	
3	A_GD184AK	0.75	BK/GY	
4	CLS05B	0.75	BU/GY	
6	ZA328A	0.75	OG/GN	

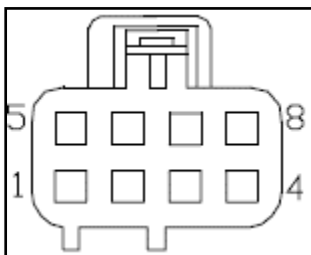


Con. Code	C2A103-A			
Con. Desc.	ADR ANAHTARI (A)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CDC05	0.75	GY/VT	BMS

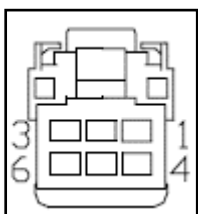
TRUCKS



Con. Code	C2A103-B			
Con. Desc.	ADR ANAHTARI (B)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CDC05D	GY/VT	0.75	BMS

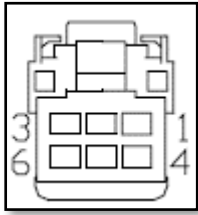


Con. Code	C2LS32			
Con. Desc.	DÖRTLÜ FLAŞÖR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	SBP45	0.75	GY/RD	
2	ZA113A	0.75	OG/GY	
3	A_GD184AB	0.75	BK/GY	
4	CLS05Q	0.75	BU/GY	



Con. Code	C2H421			
Con. Desc.	KLİMA A/C KOMPRESÖR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP19C	0.75	BN/WH	
2	CH421A	0.75	GY	
3	A_GD184AI	0.75	BK/GY	
4	CLS05AA	0.75	BU/GY	
5	CH427B	0.75	BN	
6	CH427C	0.75	BN	

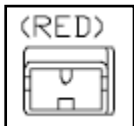
TRUCKS



Con. Code	C2RD08			
Con. Desc.	ISITMALI ÖN CAM			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
2	CRD08A	0.75	GN/OG	
3	A_GD184AF	0.75	BK/GY	
4	CLS05X	0.75	BU/GY	
6	CRD01C	0.75	VT/OG	

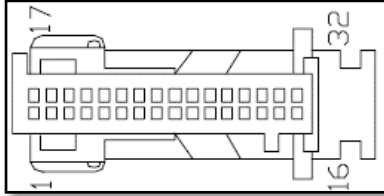


Con. Code	C2LS44C			
Con. Desc.	MOTOR DURDURMA			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CLS44C	0.5	VT/BN	

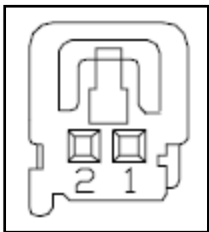


Con. Code	C2LS44C-A			
Con. Desc.	MOTOR DURDURMA (A)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP20J	0.5	YE/VT	

TRUCKS

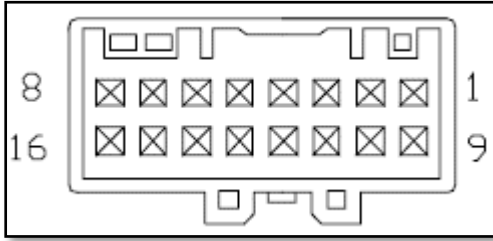


Con. Code	C2MC01-B			
Con. Desc.	CLUSTER GÖSTERGE MODUL (B)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CPL30A	0.75	BU/BN	
2	CE501A	0.75	GY	
3	VMC17B	0.75	BU/OG	
4	CLF08B	0.75	YE/VT	
5	CMC14A	0.75	BN/YE	
8	VMC16B	0.75	YE	
9	CAT06C	0.75	YE	TRL
10	CLN28E	0.35	GN/BU	
11	CAT04A	0.75	VT/OG	TRL
13	LE423E	0.75	GN/VT	
14	CE317A	0.75	GY	
20	CMC08B	0.75	GN/BN	
21	CMC06B	0.75	BN/BU	
22	CDC06B	0.75	VT/WH	BMS
23	ZA331B	0.35	OG/BK	
24	CAT09C	0.75	GN	TRL
25	VE715A	0.75	VT/WH	
26	CLF12F	0.75	BN/YE	
27	ZA116C	0.75	OG/YE	

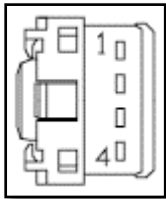


Con. Code	C2CA50			
Con. Desc.	FREN KİLİTLEME VALFİ			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP20G	0.35	YE/VT	
2	A_GD184BN	0.35	BK/GY	

TRUCKS

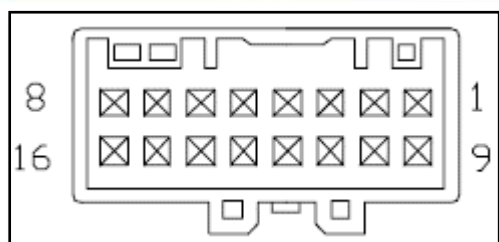


Con. Code	C2X101-A_1			
Con. Desc.	MULTIFUNCTION SOL			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP27C	0.75	GN/BN	
2	CLS42A	0.75	VT/BN	
3	CLS32A	0.75	BN/YE	
4	CLF17A	0.75	WH/OG	
5	CLF02A	0.75	GY/BN	
6	CBP27B	0.75	GN/BN	
7	SBP60B	0.75	GN/RD	
8	CRW17A	0.75	GN/VT	
9	CRW10B	1.5	BU/GN	
10	CRW03A	1.5	VT/WH	
11	SRH01	0.75	YE/RD	
12	CRW24C	0.75	GY	
13	CBP27D	1.5	GN/BN	
14	CRW08C	1.5	VT/OG	
16	SBP60C	0.75	GN/RD	

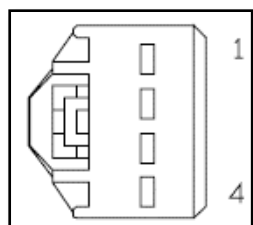


Con. Code	C2RT23			
Con. Desc.	PATS (HIRSIZLIĞA KARŞI KORUMA MODULU)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CRT31	0.50	YE	
2	A_GD114F	0.50	BK/BU	
3	VRT07	0.50	VT/BN	
4	VRT23	0.50	VT/GY	

TRUCKS



Con. Code	C2X101-B			
Con. Desc.	MULTIFUNCTION SAĞ			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP20E	0.35	YE/VT	
2	ZA328A	0.75	OG/GN	
3	CCB20A	0.75	BU/WH	
4	CCB21A	0.75	GN/WH	
5	CCB22A	0.75	WH/BN	
6	CCB23A	0.75	WH/BN	
7	CCB24C	0.75	WH/OG	
8	ZA239A	0.75	OG/BK	
9	VES10D	0.75	WH	
10	CES06D	0.75	BU/GN	
11	CES05A	0.75	BN/BU	
13	A_GD184MM	0.75	BK/GY	
14	CES04A	0.75	VT/OG	

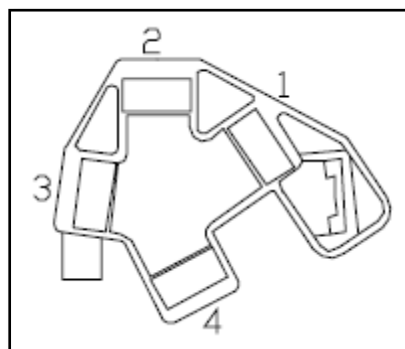


Con. Code	C2CB08-B			
Con. Desc.	FREN PEDALI ANAHTARI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CCB08A	0.75	VT/WH	
2	CCB15A	0.75	BN/GN	
3	LCA27B	0.75	BN/WH	
4	LE423C	0.75	GN/VT	

TRUCKS

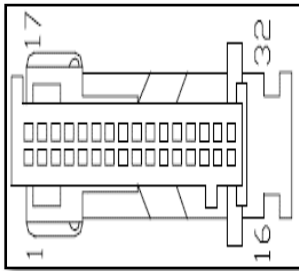


Con. Code	C2E701			
Con. Desc.	GAZ PEDALI ANAHTARI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VE702A	0.75	BU/WH	
2	LE136A	0.75	GN/OG	
3	RE136A	0.75	VT/GN	
4	VE701A	0.75	YE/OG	
5	CE901A	0.75	YE/BU	
6	RE405A	0.75	GN/WH	

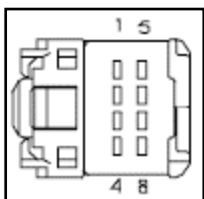


Con. Code	C2DC32			
Con. Desc.	KONTAK ANAHTARI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CDC12	0.75	YE	
2	CDC33	1.0	VT/GN	
3	CDC32	1.0	BN/YE	
4	SBP70	1.0	BN/RD	

TRUCKS

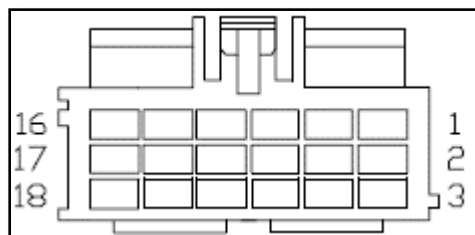


Con. Code	C2MC01-A			
Con. Desc.	CLUSTER GÖSTERGE MODUL (A)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	SBP17C	0.75	RD	
4	ZA239A	0.75	OG/BK	
5	ZA384	0.5	OG/GN	
6	CR150A	0.75	BU/OG	
7	VE740C	0.75	VT/GY	
8	ZA385	0.35	OG/GY	
9	A_GD114B	0.75	BK/BU	
12	CRT31	0.35	YE	
13	VRT23A	0.50	VT/GY	
14	VRT07A	0.50	VT/BN	
16	VDB12Q	0.75	BN/BU	
17	SBP17B	0.75	RD	
19	CBP07	0.5	GN/BU	
21	VCA38A	0.75	BN/VT	
22	RCA37A	0.75	WH/BU	
23	RMC27G	0.75	WH/BN	
24	LCA37A	0.75	YE/OG	
25	RMC32A	0.75	GN/BU	
26	A_GD114A	0.75	BK/BU	
27	CLS21D	0.75	BU/GN	
28	CLS25E	0.75	YE/VT	
29	CBP52A	0.75	GN/WH	
30	ZA320A	0.75	OG/GN	
32	VDB11Q	0.75	BN/GN	



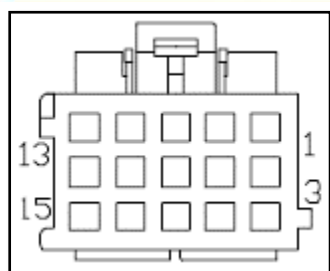
TRUCKS

Con. Code	C2LF23			
Con. Desc.	ÖN FAR AYDINLATMA			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	SBP82B	0.75	YE/RD	
5	CDC56G	0.75	WH	
6	VLF22A	0.75	VT/GN	
7	VYD07B	0.75	YE/GN	

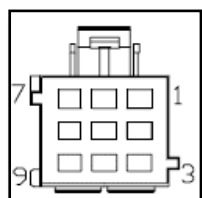


Con. Code	C2DC01-A			
Con. Desc.	ECAS MODUL (A)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VDB12J	0.75	BN/BU	
3	VDB11J	0.75	BN/GN	
5	RMC19	0.35	YE/GY	
7	SBP15A	2.5	WH/RD	
8	ZA108A	0.75	OG	
9	VDB10C	0.75	GY	
10	CBP02A	1.0	GN	
11	ZA110A	0.75	OG/YE	
12	A_GD114G	2.5	BK/BU	
13	ZA106A	0.75	OG/WH	
15	ZA107A	0.75	OG/BK	

TRUCKS

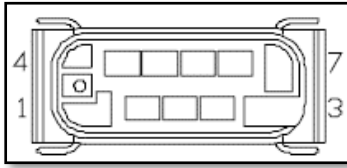


Con. Code	C2DC01-B			
Con. Desc.	ECAS MODUL (B)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	ZA112A	1.0	OG/GN	
2	VCL19	0.5	GN	
4	ZA117A	2.5	OG	
5	VCD12A	1.0	VT/WH	
6	LCD19A	1.0	VT	
7	ZA111A	1.0	OG/BU	
8	VCD13A	1.0	GN/VT	
10	CCD03A	1.0	WH/BU	
11	RCD03A	1.0	VT/BN	
13	RCD04A	1.0	BU/OG	

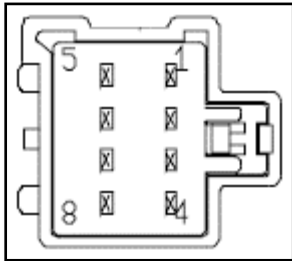


Con. Code	C2DC01-C			
Con. Desc.	ECAS MODUL (C)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CCD04	1.0	GY/YE	C6AS
3	LCL13	1.0	GN/BU	C6AS
6	LCL12	1.0	VT/OG	C6AS

TRUCKS

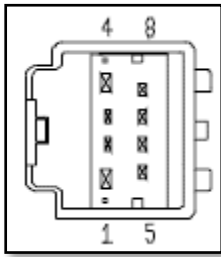


Con. Code	C2CA41			
Con. Desc.	DİREKSİYON AÇI SENSÖRÜ			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	B_RCA09A	0.75	GN/VT	
2	B_CCA09A	0.75	VT/BN	
3	B_VCA23A	0.75	BU/WH	
4	B_VCA24A	0.75	GN/OG	

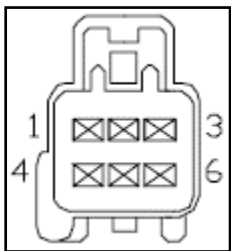


Con. Code	C25-C			
Con. Desc.	14A584 SÜRÜCÜ (3)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	B_GD114A	0.5	BK/BU	
2	CBP23B	0.75	BN/YE	
3	CPW01B	0.5	BN/BU	
4	CPW20A	0.75	WH/OG	
5	CPW19A	0.5	VT	
6	CPW12A	0.5	GN/OG	
7	CPW13A	0.5	BN/YE	
8	B_GD114F	0.5	BK/BU	

TRUCKS

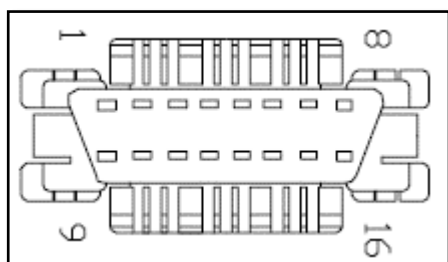


Con. Code	C25-A			
Con. Desc.	14A584 SÜRÜCÜ (1)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CPW34A	1.5	BU	
2	CPL11C	1.5	GY/BN	
3	CPL13C	1.5	BN/GN	
4	CPW35A	1.5	GN	
5	CPL42C	1.0	GY/YE	
6	CPL43B	1.0	VT/GY	
7	VME07B	0.75	WH	
8	RME07B	0.75	WH/BN	

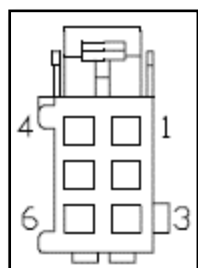


Con. Code	C25-B			
Con. Desc.	14A584 SÜRÜCÜ (2)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CPM23H	0.5	GY	
2	CPM20C	0.5	BN/WH	
3	CPM21C	0.5	YE/VT	
4	CRD17D	0.75	GY	
5	B_GD114E	1.0	BK/BU	
6	B_GD185KC	0.75	BK/WH	

TRUCKS

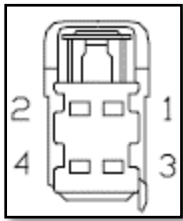


Con. Code	C2DB04			
Con. Desc.	ARIZA TESPİT - DIAGNOSTİK			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VDB25	0.75	GN/OG	
3	VDB27A	0.75	VT/GN	
4	B_GD114L	0.75	BK/BU	
6	VDB11P	0.75	BN/GN	
7	VDB10B	0.75	GY	
9	VDB26	0.75	GY/BU	
11	VDB28A	0.75	GY/VT	
14	VDB12P	0.75	BN/BU	
15	CDC56E	0.75	WH	
16	SBP76A	0.75	GN/RD	

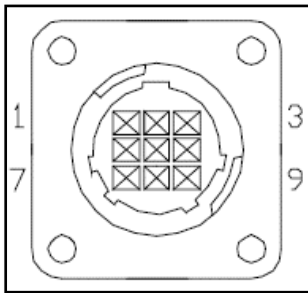


Con. Code	C3HS04			
Con. Desc.	ISITMALI KOLTUK			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
3	CBP23D	1.5	BN/YE	
4	B_GD114K	1.5	BK/BU	
5	CR150A	0.75	BU/OG	

TRUCKS



Con. Code	C2LS03-B			
Con. Desc.	BUZZER SESLİ UYARI- AEBS (B)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	B_GD114J	0.75	BK/BU	
2	A_CLS03A	0.75	GN/WH	
3	CBP30C	0.75	YE/BU	
4	ZA126A	0.75	OG/YE	



Con. Code	C2A182-A			
Con. Desc.	UZAKTAN KONTROL ECAS			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	ZA106	0.75	OG/WH	
2	ZA107	0.75	OG/BK	
3	ZA108	0.75	OG	
4	ZA110	0.75	OG/YE	

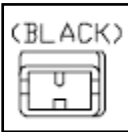


Con. Code	C3PL42			
Con. Desc.	SOL KAPI ANAHTARI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CLN28A	0.75	GN/BU	

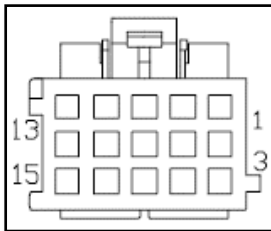
TRUCKS



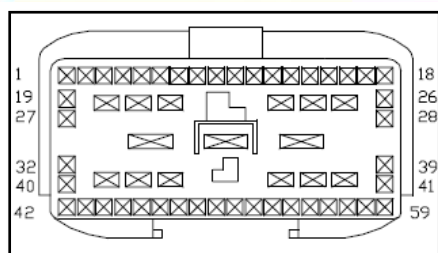
Con. Code	C2RD03-A			
Con. Desc.	ISITMALI ÖN CAM ŞAŞİ-GROUND			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	B_GD115A	4.0	BK/BU	



Con. Code	C2RD03-B			
Con. Desc.	ISITMALI ÖN CAM (SUPPLY)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP28	4.0	GY/VT	

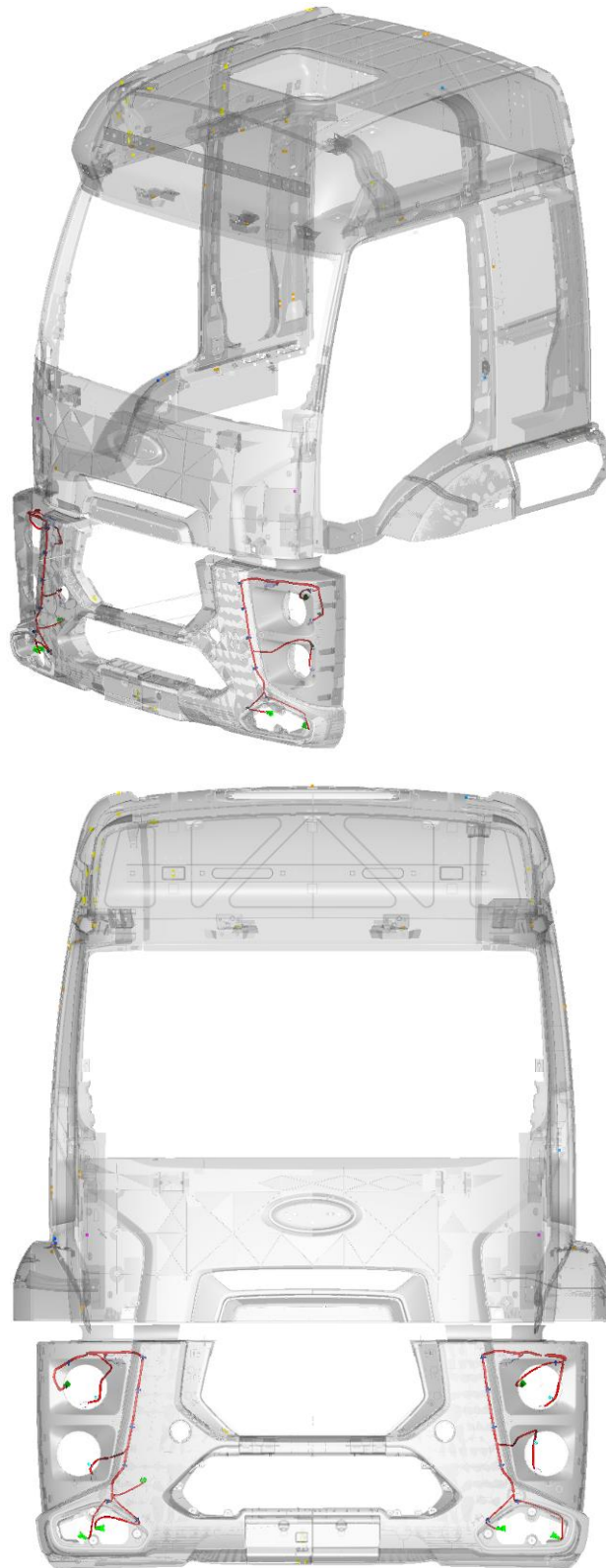


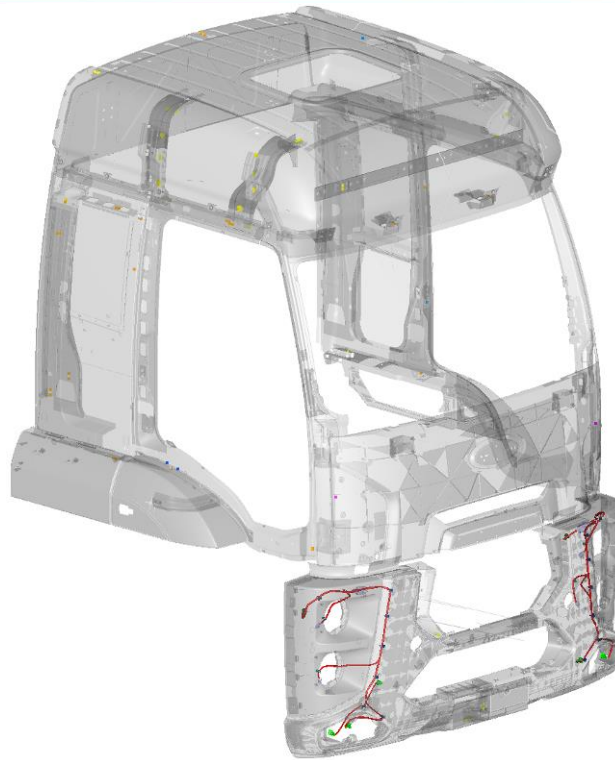
Con. Code	C2E706			
Con. Desc.	VİTES MEKANİZMASI MODUL			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VDB14A	0.75	VT/GY	
3	VDB13A	0.75	BU/GY	
6	SBP16C	0.75	VT/RD	
7	CBP06C	0.75	WH/BU	
8	A_GD114F	0.75	BK/BU	
9	ZA211A	0.75	VT/RD	
12	ZA212A	0.75	OG/GN	
14	VDB03A	0.75	GY/BN	
15	VDB03A	0.75	GY/BN	

TRUCKS


Con. Code	C12-E								
Con. Desc.	14B242 INLINER								
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit	Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CLS21C	0,5	BU/GN	-	26	VHF04G	0,35	BN/VT	-
2	CLF09A	0,35	BU/GY	-	27	CHF06A	0,5	VT/GN	-
4	VE715A	0,35	VT/WH	-	28	CDC06F	0,35	VT/WH	BMS
5	CLF12G	0,5	BN/YE	-	29	CBP25A	1,5	WH/OG	-
7	CLF08E	0,5	YE/VT	-	30	A_GD123B	4	BK/GY	-
8	VLF22A	0,35	VT/GN	-	31	SBP57D	1,5	RD	-
9	CLF10A	0,35	GN/OG	-	32	CE504B	0,75	BU/BN	-
10	CLF31A	0,35	YE/GY	-	33	VCA43A	0,35	WH/GN	EBS
11	CLS25C	0,5	YE/VT	-	34	VCA30A	0,35	YE/VT	EBS
12	CBP46E	0,5	WH/BU	-	35	CRW25A	0,75	BU/GY	-
14	CBP51A	0,5	BN	-	36	A_GD116F	2,5	BK/VT	BMS
15	CBP48D	0,5	GY/YE	-	37	SBP72A	2,5	VT/RD	-
17	SBP38D	0,5	BN/RD	-	38	CHF03E	0,35	GN/OG	-
18	VLN40G	0,5	YE/BU	-	39	VE518B	0,75	BN/WH	-
20	CBP59A	0,5	BN/WH	-	42	VDB30P	0,5	WH/GN	-
21	CCA29A	0,35	GN/BU	EBS	43	VDB29P	0,5	GN/BU	-
22	CRW08B	1,5	VT/OG	-	48	LCA30A	0,35	GY/OG	EBS
23	CRW24B	1,5	GY	-	58	VDB30H	0,5	WH/GN	-
24	CRW10C	1,5	BU/GN	-	59	VDB29H	0,5	GN/BU	-
25	RCA30A	0,35	BU	EBS					

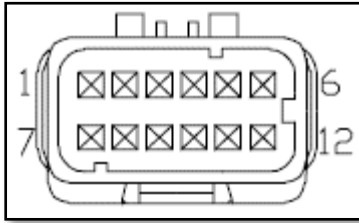
3.3.8. → 13N052 Bumper Wiring





TRUCKS

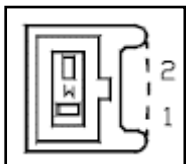
13N052 → Bumper wiring connector descriptions:



Con. Code	C21-B			
Con. Desc.	14B242 INLINER			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	A_GD120A	1.5	BK/GN	
2	CLF08G	0.75	YE/VT	
3	CLF12H	0.75	BN/YE	
4	CLF31C	0.75	YE/GY	
5	CLS21C	0.75	BU/GN	
6	VLF22F	0.75	VT/GN	
7	SBP54F	0.75	BN/RD	
9	CLF10E	0.75	GN/OG	
10	CBP46P	0.75	WH/BU	

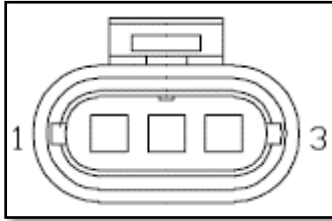


Con. Code	C1LF29			
Con. Desc.	SİS LAMBASI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CLF12B	0.75	BN/YE	
2	A_GD120E	0.75	BK/GN	

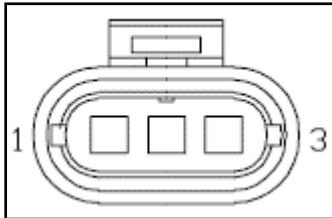


Con. Code	C1LS25A			
Con. Desc.	DÖNÜŞ SİNYAL LAMBASI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CLS21C	0.75	BU/GN	
2	A_GD120H	0.75	BK/GN	

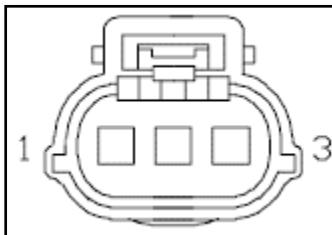
TRUCKS



Con. Code	C1LF03			
Con. Desc.	UZUN FAR LAMBASI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CLF10C	0.75	GN/OG	
2	A_GD120A	0.75	BK/GN	
3	CLF08C	0.75	YE/VT	

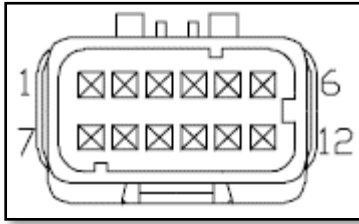


Con. Code	C1LF05			
Con. Desc.	PARK LAMBASI- KISA FAR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP46B	0.75	WH/BU	
2	A_GD120B	0.75	BK/GN	
3	CLF31	0.75	YE/GY	

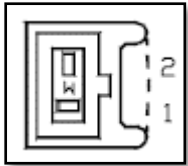


Con. Code	C1A113			
Con. Desc.	FAR SEVİYE MOTORU			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	SBP54E	0.75	BN/RD	
2	VLF22A	0.75	VT/GN	
3	A_GD120G	0.75	BK/GN	

TRUCKS



Con. Code	C21-A			
Con. Desc.	14B242 INLINER			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	A_GD120C	1.5	BK/GN	
2	CLF08H	0.75	YE/VT	
3	CLF12D	0.75	BN/YE	
4	CLF09C	0.75	BU/GY	
5	CLS21K	0.75	BU/GN	
6	VLF22E	0.75	VT/GN	
7	SBP54G	0.75	BN/RD	
9	CLF10F	0.75	GN/OG	
10	CBP48K	0.75	GY/YE	

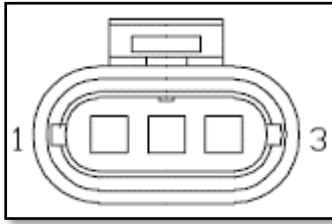


Con. Code	C1LS25A			
Con. Desc.	DÖNÜŞ SİNYAL LAMBASI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CLS21C	0.75	BU/GN	
2	A_GD120H	0.75	BK/GN	

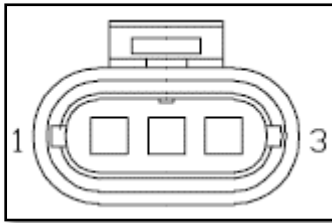


Con. Code	C1LF29			
Con. Desc.	SİS LAMBASI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CLF12B	0.75	BN/YE	
2	A_GD120E	0.75	BK/GN	

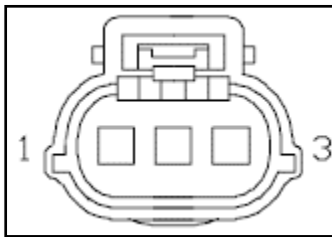
TRUCKS



Con. Code	C1LF03			
Con. Desc.	UZUN FAR LAMBASI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CLF10C	0.75	GN/OG	
2	A_GD120A	0.75	BK/GN	
3	CLF08B	0.75	YE/VT	

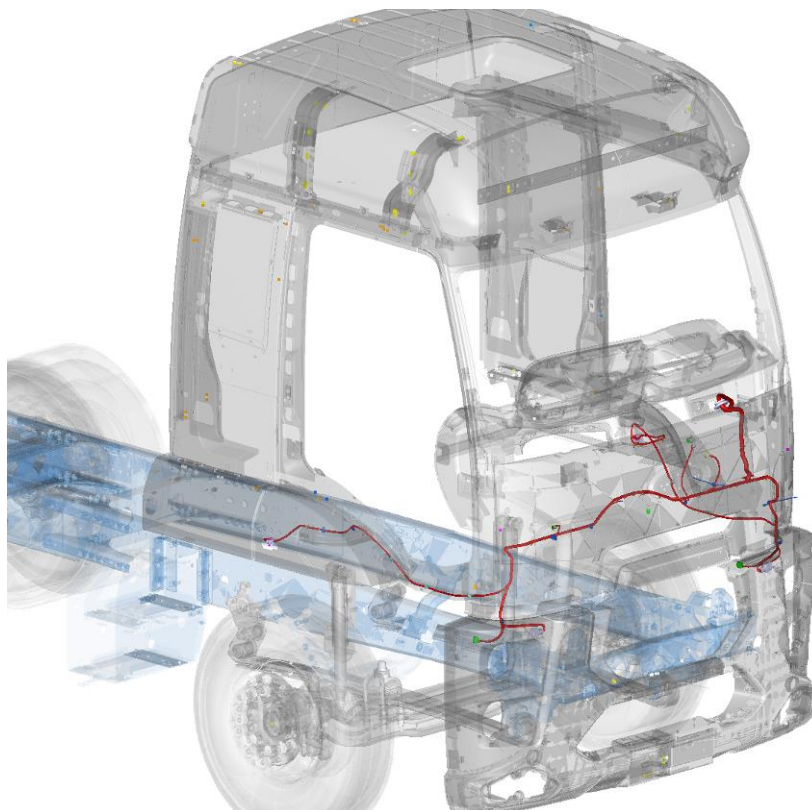
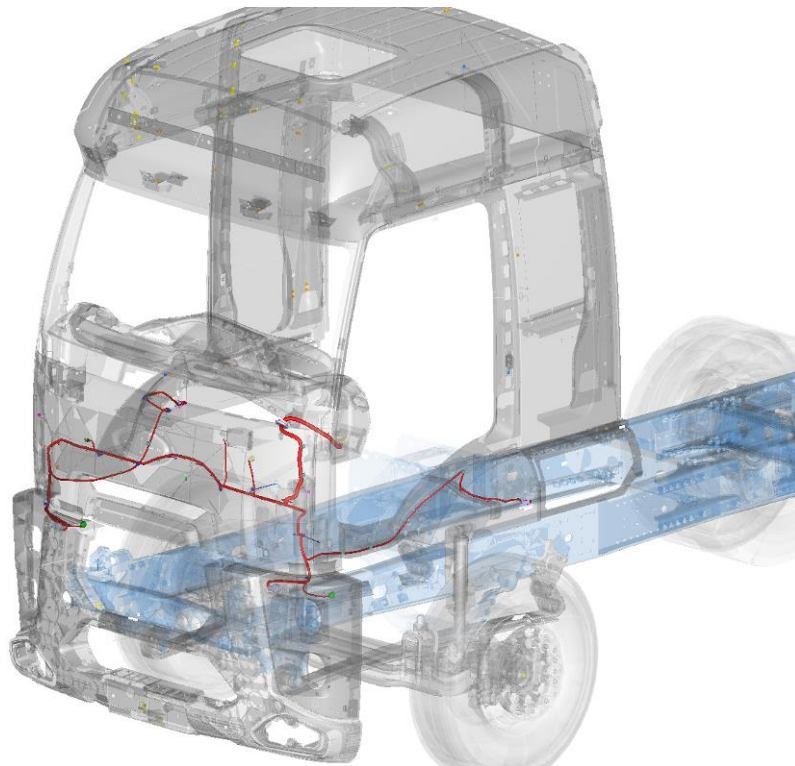


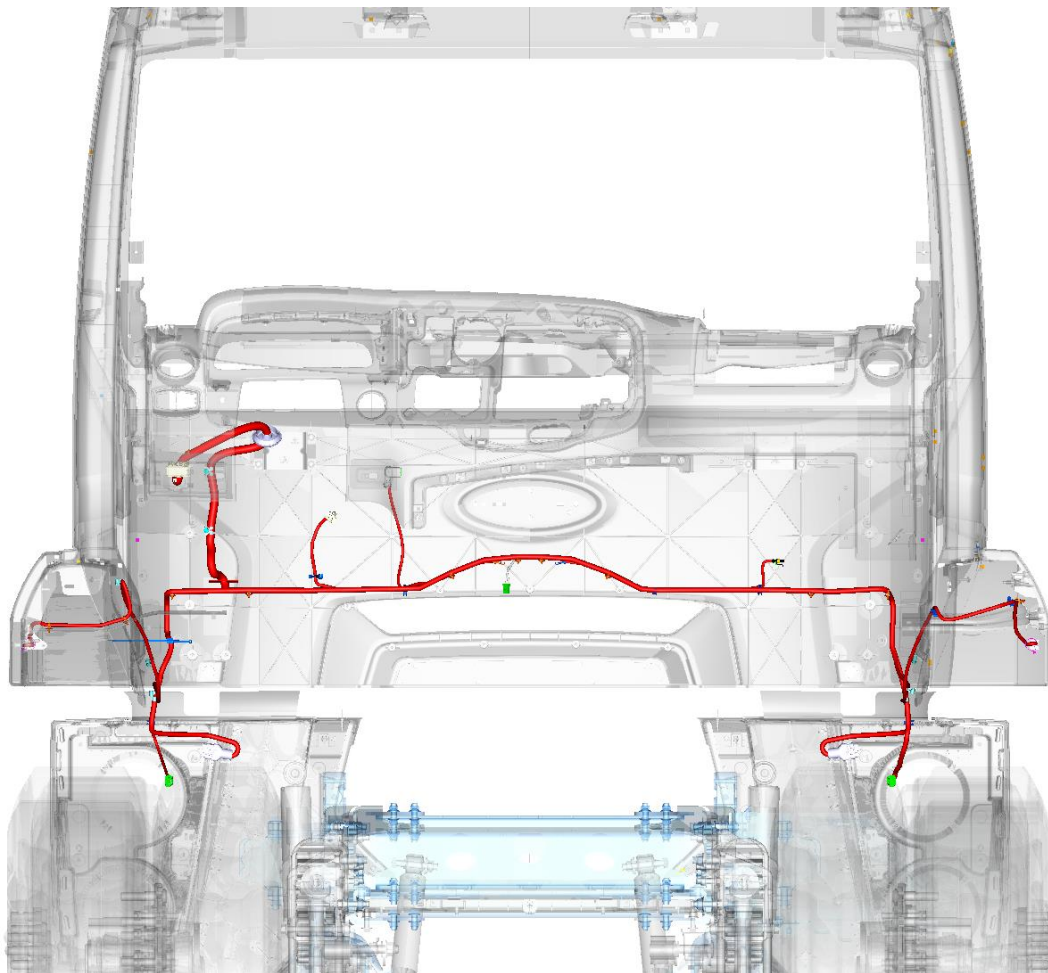
Con. Code	C1LF05			
Con. Desc.	PARK LAMBASI+KISA FAR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP48B	0.75	GY/YE	
2	A_GD120B	0.75	BK/GN	
3	CLF09A	0.75	BU/GY	



Con. Code	C1A113			
Con. Desc.	FAR SEVİYE MOTORU			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	SBP54D	0.75	BN/RD	
2	VLF22A	0.75	VT/GN	
3	A_GD120G	0.75	BK/GN	

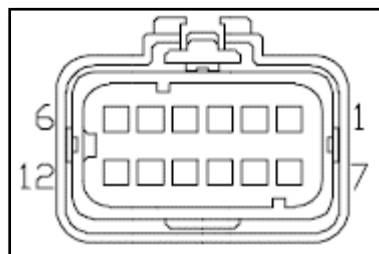
3.3.9. → 14B242 Front under hood wiring



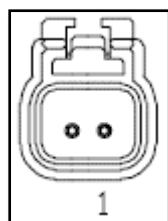


TRUCKS

14B242 → Front under hood wiring connector descriptions:

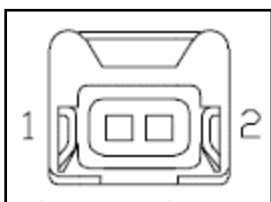


Con. Code	C21-B			
Con. Desc.	13N052 INLINER (SAĞ)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	A_GD120C	1.5	BK/GN	
2	CLF08E	0.75	YE/VT	
3	CLF12A	0.75	BN/YE	
4	CLF31B	0.75	YE/GY	
5	CLS25I	0.75	YE/VT	
6	VLF22D	0.75	VT/GN	
7	SBP54D	0.75	BU/RD	
9	CLF10C	0.75	GN/OG	
10	CBP46O	0.75	WH/BU	

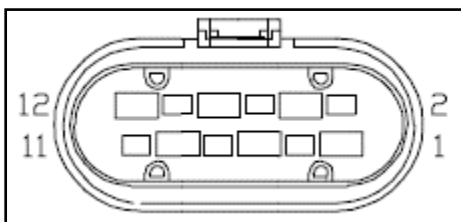


Con. Code	C21-E			
Con. Desc.	13B712 INLINER (B)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	SBP38D	0.75	BN/RD	
2	VLN40BB	0.75	YE/BU	

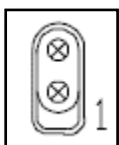
TRUCKS



Con. Code	C1LS14			
Con. Desc.	SAĞ DÖNÜŞ SİNYAL AUX LAMBASI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CLS25C	0.75	YE/VT	
2	A_GD120B	0.75	BK/GN	



Con. Code	C1A191			
Con. Desc.	ISLAK TİP ISITICI MODUL			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
2	CHF06B	0.75	VT/GN	
3	VHF04A	0.75	BN/VT	
4	CHF03A	0.75	GN/OG	
5	A_GD116B	2.5	BK/VT	
6	VE271A	0.75	GY	
7	CDC06E	0.75	VT/WH	
9	B_GD123F	2.5	BK/GY	
12	SBP57A	2.5	RD	

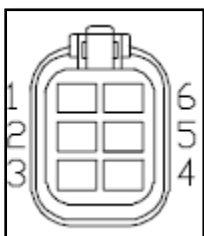


Con. Code	C1A192			
Con. Desc.	ISLAK TİP ISITICI-DİAGNOSTİK			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
2	VE271A	0.75	GY	

TRUCKS



Con. Code	C1E620-B			
Con. Desc.	WCAC POMPASI (B)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
2	B_GD123H	2,5	Black/Gray	
3	SBP72B	2,5	Violet/Red	
4	CBP59B	2,5	Brown/White	

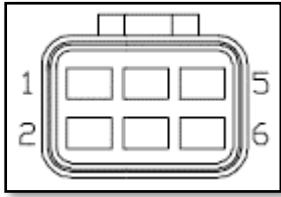


Con. Code	C1E320			
Con. Desc.	WCAC POMPASI (A)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VDB29H	0,75	GN/BU	
6	VDB30H	0,75	WH/GN	

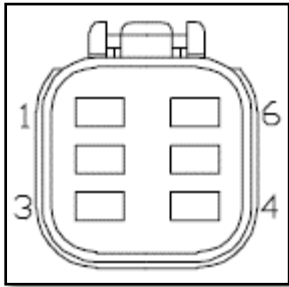


Con. Code	C1MC21			
Con. Desc.	DÜŞÜK SU SEVİYE SENSÖRÜ			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	B_GD123A	0.75	BK/GY	
2	VE715	0.75	VT/WH	

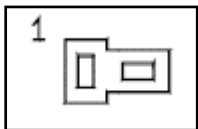
TRUCKS



Con. Code	C1A119			
Con. Desc.	AYAK FRENİ MODUL (FBM)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	RCA30B	0.75	BU	
2	LCA30B	0.75	GY/OG	
4	VCA30B	0.75	YE/VT	
5	VCA43B	0.75	WH/GN	
6	CCA29B	0.75	GN/BU	



Con. Code	C1RW01			
Con. Desc.	SİLECEK MOTOR			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP25B	2.5	WH/OG	
2	CRW08D	1.5	VT/OG	
3	B_GD123D	2.5	BK/GY	
4	CRW10D	1.5	BU/GN	
5	CRW25B	2.5	BU/GY	

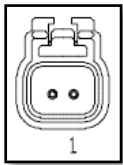


Con. Code	C1RW14			
Con. Desc.	SİLECEK SUYU DEPO POMPASI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CRW24B	1.5	GY	
2	B_GD123B	1.5	BK/GY	

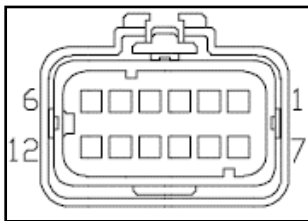
TRUCKS



Con. Code	C1LS13			
Con. Desc.	SOL DÖNÜŞ SİNYAL AUX LAMBASI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CLS21C	0.75	BU/GN	
2	B_GD120B	0.75	BK/GN	

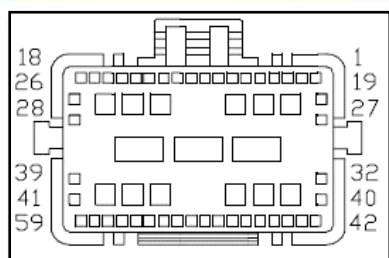


Con. Code	C21-D			
Con. Desc.	13B712 INLINER			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	SBP38F	0.75	BN/RD	
2	VLN40BA	0.75	YE/BU	



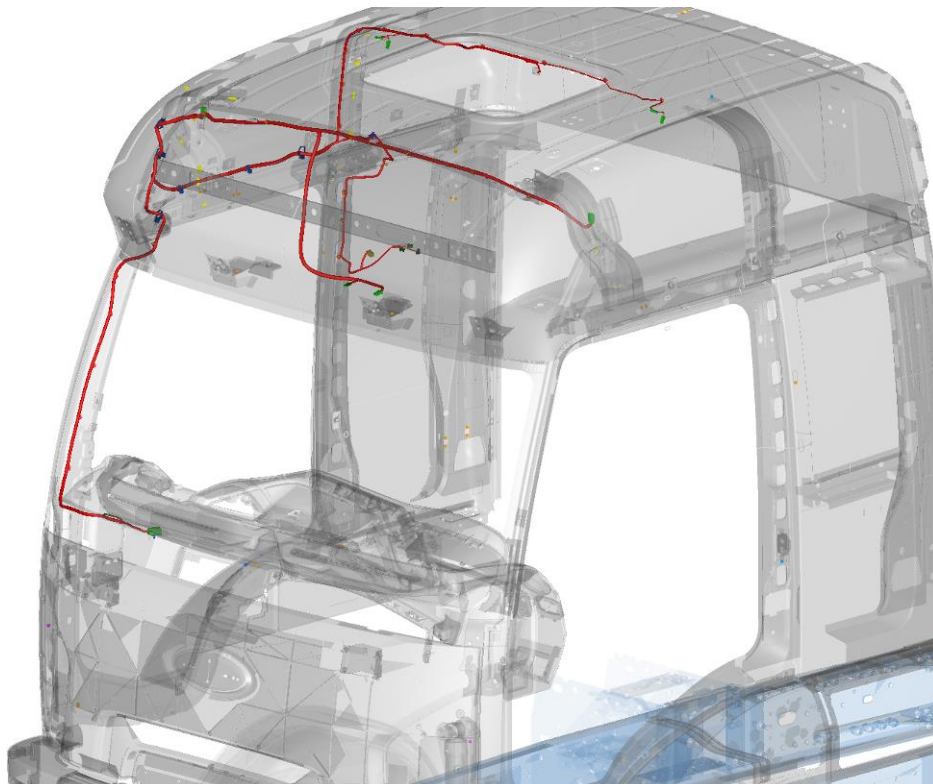
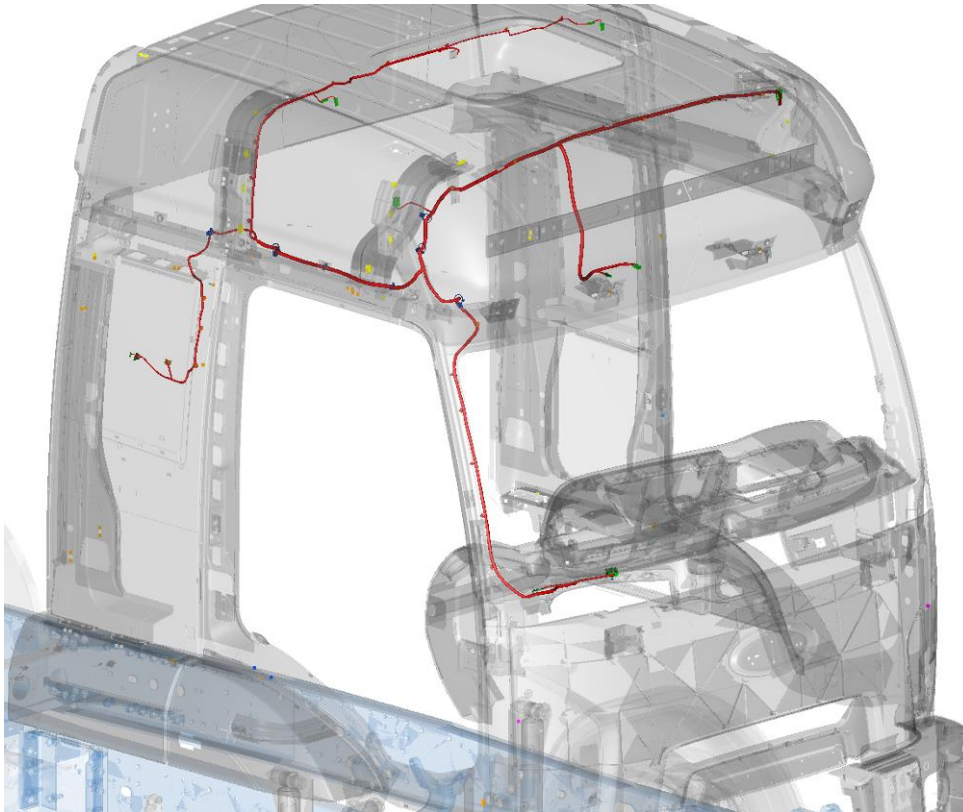
Con. Code	C21-A			
Con. Desc.	13N052 INLINER (SOL)			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	B_GD120B	1.5	BK/GN	
2	CLF08F	0.75	YE/VT	
3	CLF12C	0.75	BN/YE	
4	CLF09B	0.75	BU/GY	
5	CLS21J	0.75	BU/GN	
6	VLF22C	0.75	VT/GN	
7	SBP54E	0.75	BN/RD	
9	CLF10D	0.75	GN/OG	
10	CBP48J	0.75	GY/YE	

TRUCKS



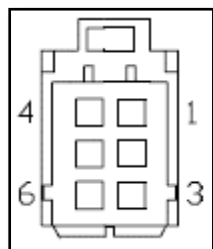
Con. Code	C12-E			
Con. Desc.	14401 INLINER			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CLS21A	0.75	BU/GN	
2	CLF09B	0.75	BU/GY	
4	VE715	0.75	VT/WH	
5	CLF12A	0.75	BN/YE	
7	CLF08A	0.75	YE/VT	
8	VLF22	0.75	VT/GN	
9	CLF10	0.75	GN/OG	
10	CLF31	0.75	YE/GY	
11	CLS25A	0.75	YE/VT	
12	CBP46B	0.75	WH/BU	
14	SBP54A	0.75	BU/RD	
15	CBP48B	0.75	GY/YE	
17	SBP38B	0.75	BN/RD	STL
18	VLN40B	0.75	YE/BU	STL
20	CBP59	2.5	BN/WH	WCAC
21	CCA29	0.75	GN/BU	EBS
22	CRW08A	1.5	VT/OG	
23	CRW24B	1.5	GY	
24	CRW10A	1.5	BU/GN	
25	RCA30	0.75	BU	
26	VHF04C	0.75	BN/VT	WET
27	CHF06	0.75	VT/GN	WET
28	CDC06B	0.75	VT/WH	WET
29	CBP25	2.5	WH/OG	
30	A_GD123	4.0	BK/GY	
31	SBP57B	2.5	RD	WET
33	VCA43	0.75	WH/GN	EBS
34	VCA30	0.75	YE/VT	EBS
35	CRW25	2.5	BU/GY	
36	A_GD116F	2.5	BK/VT	WET
37	SBP72	2.5	VT/RD	WCAC
38	CHF03B	1.5	GN/OG	WET
42	VDB30G	0.75	WH/GN	WCAC
43	VDB29G	0.75	GN/BU	WCAC
48	LCA30	0.75	GY/OG	EBS
58	VDB30F	0.75	WH/GN	WCAC
59	VDB29F	0.75	GN/BU	WCAC

3.3.10. → 15A404 Roof Wiring

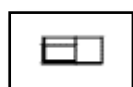


TRUCKS

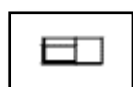
15A404➔ Roof wiring connector descriptions:



Con. Code	CPR39			
Con. Desc.	SUNROOF MOTORU			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CPR40	0.75	YE/OG	
2	CPR31	0.75	VT/BN	



Con. Code	C9LN19-A			
Con. Desc.	SOL HARİTA LAMBASI-A			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	A_GD138G	0.75	BK/WH	

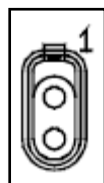


Con. Code	C9LN19-C			
Con. Desc.	SOL HARİTA LAMBASI-C			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	A_GD138J	0.75	BK/WH	

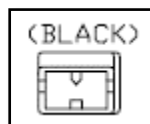


Con. Code	C9LN19-B			
Con. Desc.	SOL HARİTA LAMBASI-B			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CLN19A	0.75	GN/WH	

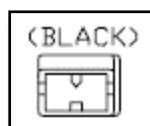
TRUCKS



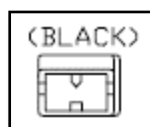
Con. Code	C9LS28			
Con. Desc.	SOL İŞARET LAMBASI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP46DA	0.75	WH/BU	
2	A_GD138B	0.75	BK/WH	



Con. Code	C9LN28-A			
Con. Desc.	TEPE LAMBASI-A			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	A_GD138C	0.75	BK/WH	

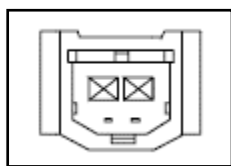


Con. Code	C9LN28-B			
Con. Desc.	TEPE LAMBASI-B			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VLN40A	0.75	YE/BU	

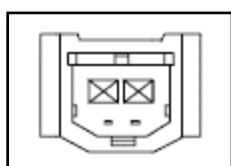


Con. Code	C9LN28-C			
Con. Desc.	TEPE LAMBASI-C			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	SBP38AB	0.75	BN/RD	

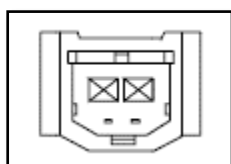
TRUCKS



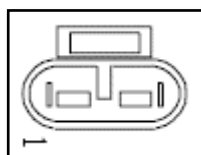
Con. Code	C9A162			
Con. Desc.	TAVAN LAMBASI-1			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CLN16A	0.75	YE/OG	
2	B_GD138B	0.75	BK/WH	



Con. Code	C9A163			
Con. Desc.	TAVAN LAMBASI-2			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CLN16B	0.75	YE/OG	
2	B_GD138C	0.75	BK/WH	



Con. Code	C9A164			
Con. Desc.	TAVAN LAMBASI-3			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CLN16C	0.75	YE/OG	
2	B_GD138D	0.75	BK/WH	

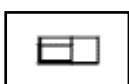


Con. Code	C9DC18			
Con. Desc.	TAVAN AYDINLATMA LAMBASI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CDC18A	1.5	GY/YE	GCC
2	B_GD138HA	1.5	BK/WH	GCC

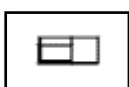
TRUCKS



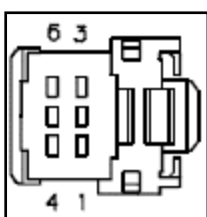
Con. Code	C2LN21-A			
Con. Desc.	YATAK LAMBASI-A			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	SBP38A	0.75	BN/RD	



Con. Code	C2LN21-B			
Con. Desc.	YATAK LAMBASI-B			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	A_GD138E	0.75	BK/WH	



Con. Code	C2LN21-C			
Con. Desc.	YATAK LAMBASI-C			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	A_GD138F	0.75	BK/WH	

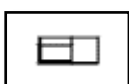


Con. Code	C2HF02			
Con. Desc.	WEBASTO ANAHTARI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CHF02	0.75	BU/WH	
2	B_GD138E	0.75	BK/WH	
3	B_GD138F	0.75	BK/WH	
4	VHF04A	0.75	BN/VT	

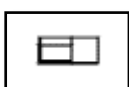
TRUCKS



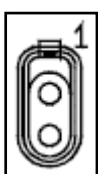
Con. Code	C9LN20-B			
Con. Desc.	SAĞ HARİTA LAMBASI-B			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CLN19B	0.75	GN/WH	



Con. Code	C9LN20-A			
Con. Desc.	SAĞ HARİTA LAMBASI-A			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	A_GD138D	0.75	BK/WH	



Con. Code	C9LN20-C			
Con. Desc.	SAĞ HARİTA LAMBASI-C			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	A_GD138H	0.75	BK/WH	

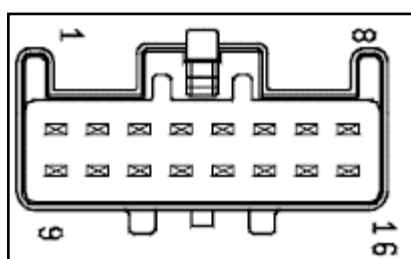


Con. Code	C9LS33			
Con. Desc.	SAĞ İŞARET LAMBASI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP46DB	0.75	WH/BU	
2	A_GD138A	0.75	BK/WH	

TRUCKS

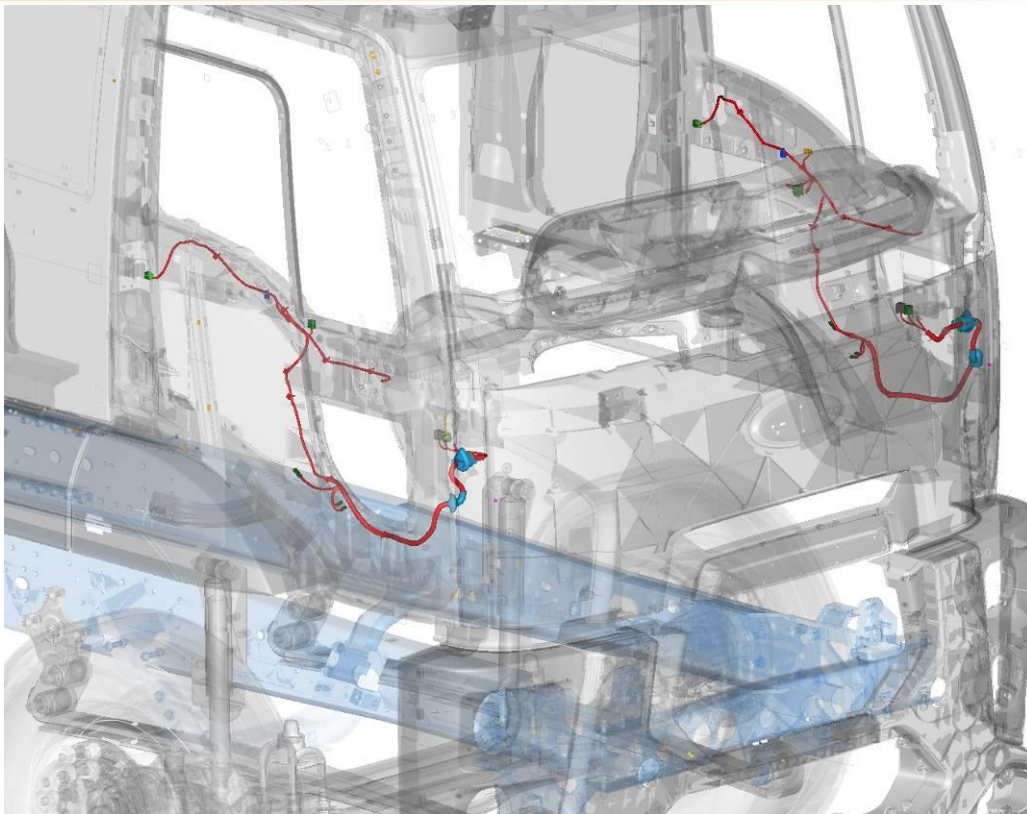


Con. Code	C9DC18			
Con. Desc.	TAVAN AYDINLATMA LAMBASI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CDC18A	1.5	GY/YE	
2	B_GD138HA	1.5	BK/WH	



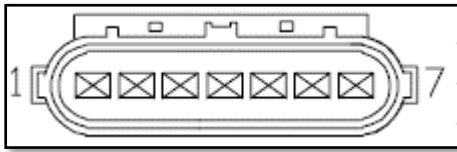
Con. Code	C19-A			
Con. Desc.	14401 INLINER			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
2	SBP38A	0.75	BN/RD	
3	CPR31	0.75	VT/BN	
4	CPR40	0.75	YE/OG	
5	CBP46D	0.75	WH/BU	
6	CLN16	0.75	YE/OG	
7	CLN19	0.75	GN/WH	
8	SBP54	0.75	BN/RD	
9	CHF02	0.75	BU/WH	
10	VHF04A	0.75	BN/VT	
11	RLN29	0.75	WH/OG	
12	CYD04B	0.75	BU/OG	

03.03.11. ➔ 14A584 Door internal wiring



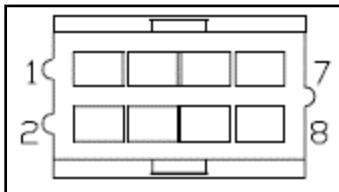
14A584 → Door internal wiring connector descriptions:

TRUCKS



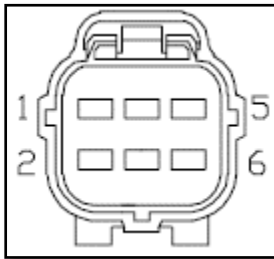
Con. Code	C5PM26			
Con. Desc.	ELEKTRİKLİ AYNA ÜNİTESİ-SÜRÜCÜ			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
2	CPM23C	0.5	GY	
3	CPM17	0.5	BU/GN	
4	CPM16	0.5	BN/BU	
5	CPM23	0.5	GY	
6	CRD17A	0.5	GY	
7	B_GD114E	0.5	BK/BU	

Con. Code	C6PM31			
Con. Desc.	ELEKTRİKLİ AYNA ÜNİTESİ-YOLCU			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
2	CPM23	0.5	GY	
3	CPM21	0.5	YE/VT	
4	CPM20	0.5	BN/WH	
5	CPM23B	0.5	GY	
6	CRD17B	0.5	GY	
7	B_GD186D	0.5	BK/BU	



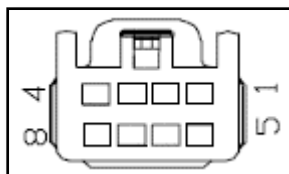
Con. Code	C5PM20			
Con. Desc.	ELEKTRİKLİ AYNA ANAHTARI-SÜRÜCÜ			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CPM17	0.5	BU/GN	
2	CPM21	0.5	YE/VT	
3	CPM23B	0.75	GY	
4	B_GD114G	0.5	BK/BU	
5	CPM20	0.75	BN/WH	
7	CPM16	0.5	BN/BU	
8	CBP23A	0.5	BN/YE	

TRUCKS



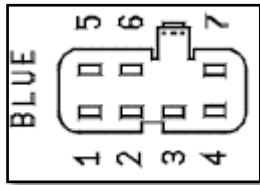
Con. Code	C1PK09			
Con. Desc.	KAPI KİLİDİ-SÜRÜCÜ			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
2	B_GD114D	1.0	BK/BU	
3	CPL42A	1.0	GY/YE	
4	CPL43A	1.0	VT/GY	
5	CPL13A	1.5	BN/GN	
6	CPL11A	1.5	GY/BN	

Con. Code	C6PK10			
Con. Desc.	KAPI KİLİDİ-YOLCU			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CPL11B	1.5	GY/BN	
2	CPL13B	1.5	BN/GN	
3	CPL42B	1.0	GY/YE	
4	CPL43B	1.0	VT/GY	
6	B_GD186B	1.0	BK/BU	

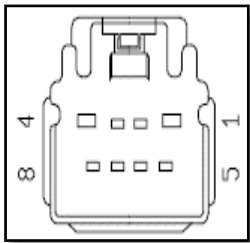


Con. Code	C5PW10			
Con. Desc.	ELEKTRİKLİ CAM-SÜRÜCÜ			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CPW20	0.75	WH/OG	
2	B_GD114F	0.5	BK/BU	
3	CPW13	0.5	BN/YE	
4	CPW19	0.5	VT	
5	CPW12	0.5	GN/OG	
7	CPW01A	0.5	BN/BU	

TRUCKS



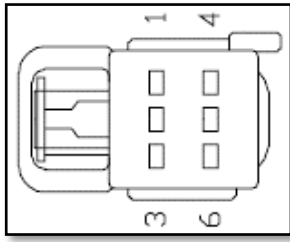
Con. Code	C6PW19			
Con. Desc.	ELEKTRİKLİ CAM-YOLCU			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CPW10B	0.5	YE/VT	
2	CPW01B	0.5	BN/BU	
4	B_GD186C	0.5	BK/BU	
7	CPW11B	0.5	BU/GY	



Con. Code	C25-A			
Con. Desc.	14401 INLINER 1-YOLCU			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CPW34	1.5	BU	
2	CPL11A	1.5	GY/BN	
3	CPL13A	1.5	BN/GN	
4	CPW35	1.5	GN	
5	CPL42A	1.0	GY/YE	
6	CPL43A	1.0	VT/GY	
7	VME07	0.75	WH	
8	RME07	0.75	WH/BN	

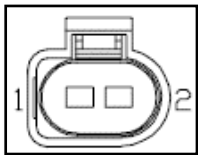
Con. Code	C26-A			
Con. Desc.	14401 INLINER 1-SÜRÜCÜ			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CPW40	1.5	WH	
2	CPL11B	1.5	GY/BN	
3	CPL13B	1.5	BN/GN	
4	CPW41	1.5	GY/YE	
5	CPL42B	1.0	GY/YE	
6	CPL43B	1.0	VT/GY	
7	VME10	0.75	WH/VT	
8	RME10	0.75	WH/OG	

TRUCKS



Con. Code	C25-B			
Con. Desc.	14401 INLINER 2-YOLCU			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CPM23A	0.75	GY	
2	CPM20	0.75	BN/WH	
3	CPM21	0.5	YE/VT	
4	CRD17A	0.5	GY	
5	B_GD114D	1.0	BK/BU	
6	B_GD114E	0.5	BK/WH	

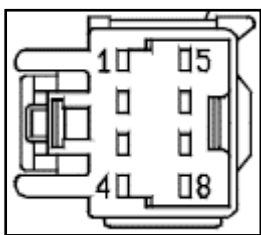
Con. Code	C26-B			
Con. Desc.	14401 INLINER 2-SÜRÜCÜ			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CPM23A	0.5	GY	
2	CPM20	0.5	BN/WH	
3	CPM21	0.5	YE/VT	
4	CRD17B	0.5	GY	
5	B_GD186B	1.0	BK/BU	
6	B_GD186D	0.5	BK/WH	



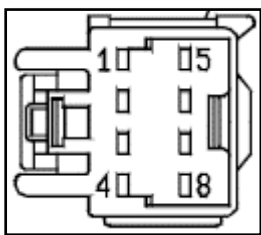
Con. Code	C5PW11			
Con. Desc.	ELEKTRİKLİ CAM MOTORU-SÜRÜCÜ			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CPW34	1.5	BU	
2	CPW35	1.5	GN	

Con. Code	C6PW20			
Con. Desc.	ELEKTRİKLİ CAM MOTORU-YOLCU			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CPW40	1.5	WH	
2	CPW41	1.5	GY/YE	

TRUCKS



Con. Code	C25-C			
Con. Desc.	14401 INLINER 3-SÜRÜCÜ			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	B_GD114G	0.5	BK/BU	
2	CBP23A	0.5	BN/YE	
3	CPW01A	0.5	BN/BU	
4	CPW20	0.75	WH/OG	
5	CPW19	0.5	VT	
6	CPW12	0.5	GN/OG	
7	CPW13	0.5	BN/YE	
8	B_GD114F	0.5	BK/BU	



Con. Code	C26-C			
Con. Desc.	14401 INLINER 3-SÜRÜCÜ			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
3	CPW01B	0.5	BN/BU	
6	CPW11B	0.5	BU/GY	
7	CPW10B	0.5	YE/VT	
8	B_GD186C	0.5	BK/BU	

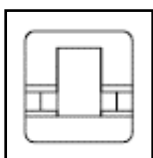
TRUCKS



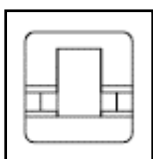
Con. Code	C1ME07-1			
Con. Desc.	SOL ÖN HOPARLÖR-1			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VME07	0.75	WH	



Con. Code	C6ME10-1			
Con. Desc.	SAĞ ÖN HOPARLÖR-1			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VME10	0.75	WH/VT	

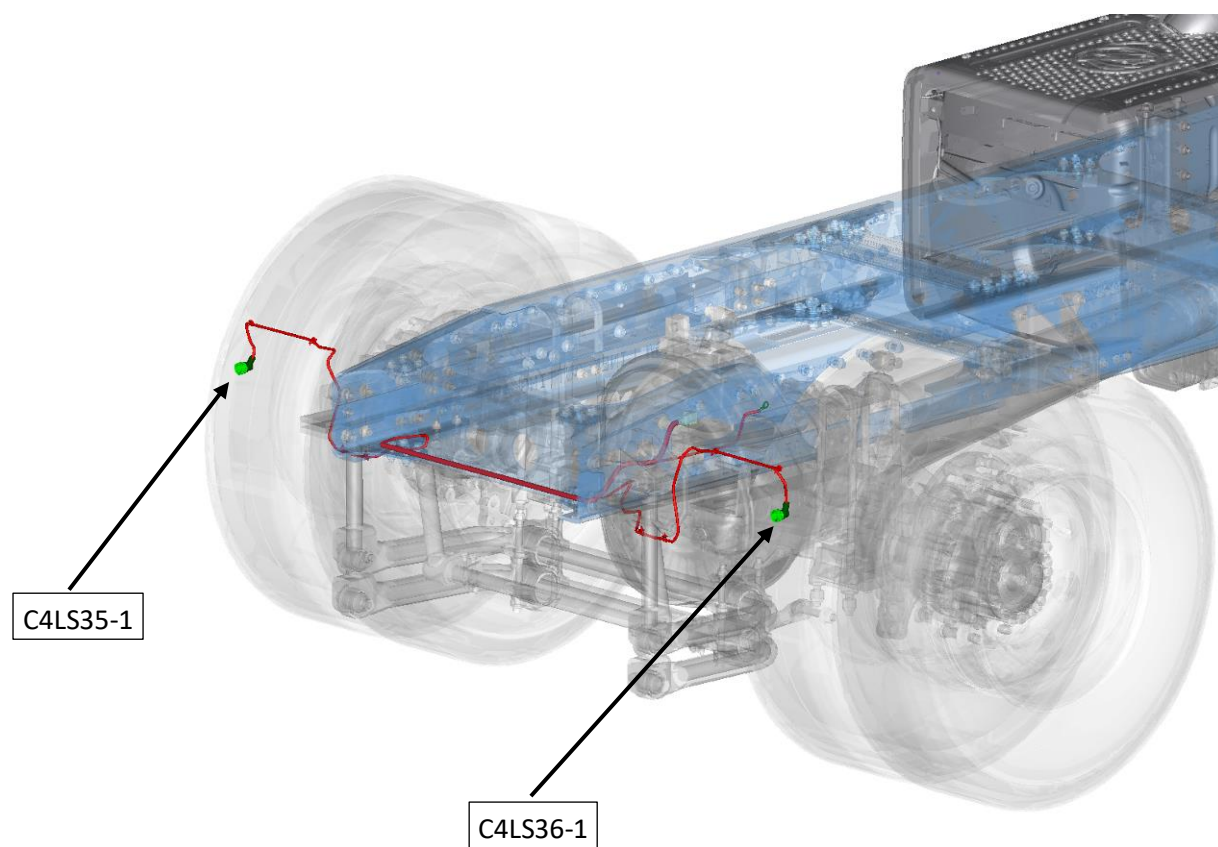
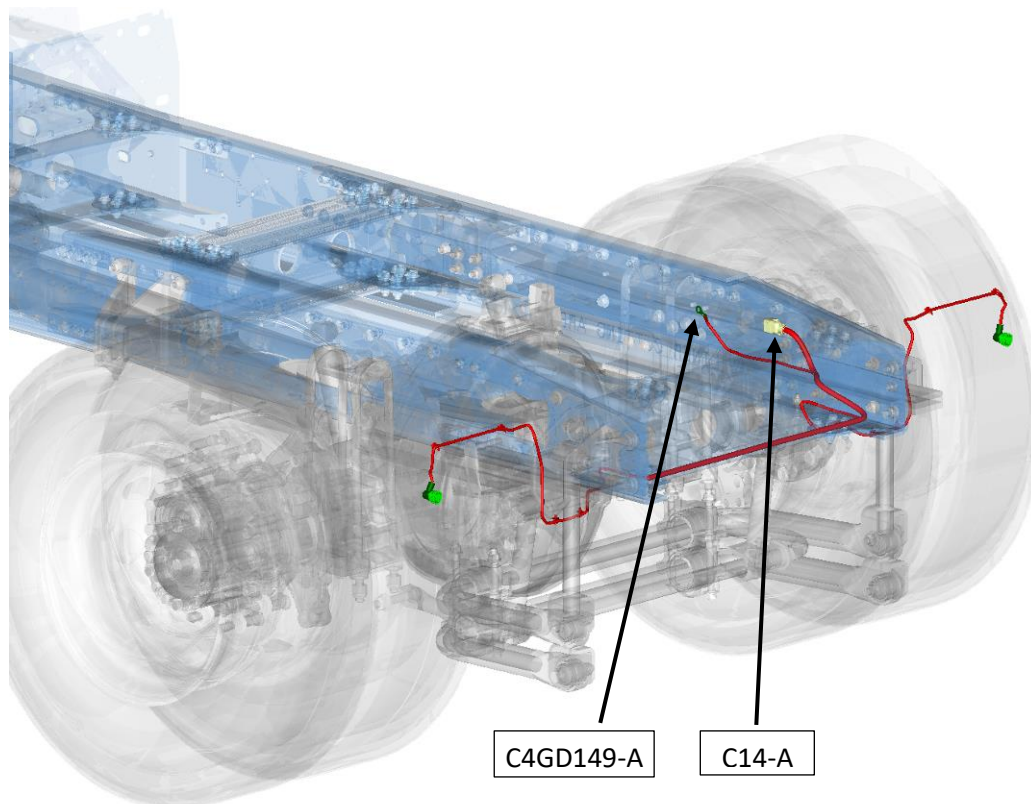


Con. Code	C1ME07-2			
Con. Desc.	SOL ÖN HOPARLÖR-2			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	RME07	0.75	WH/BN	



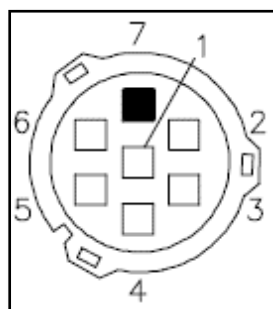
Con. Code	C6ME10-2			
Con. Desc.	SAĞ ÖN HOPARLÖR-2			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	RME10	0.75	WH/OG	

3.3.12. → 14405 Rear lighting wiring

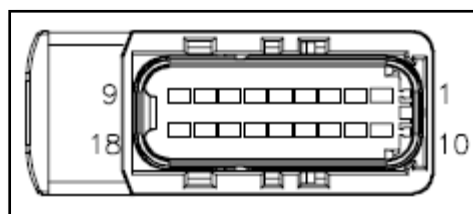


TRUCKS

14405 → Rear lighting wiring connector descriptions:



Con. Code	C4LS35-1			
Con. Desc.	SOL STOP LAMBASI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	A_GD149M	1.5	BK/GY	
2	CBP48G	0.75	GY/YE	
3	ZA119E	0.75	OG/BU	
4	CLS21B	0.75	BU/GN	
5	CCA26E	0.75	BU/GY	
6	ZA116F	0.75	OG/YE	

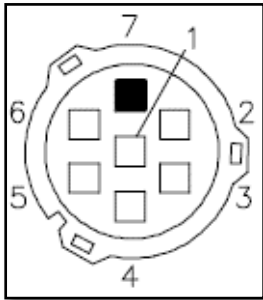


Con. Code	C14-A			
Con. Desc.	14398 INLINER			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	CBP46I	0.75	WH/BU	
2	CBP48G	0.75	GY/YE	
3	ZA119A	1.5	OG/BU	
4	CCA26B	1.5	BU/GY	
5	ZA116D	0.75	OG/YE	
6	CLS21B	0.75	BU/GN	
7	CLS25B	0.75	YE/VT	
8	ZA111	0.75	OG/BU	
9	VCL19	0.75	GN	
10	ZA112	0.75	OG/GN	
11	LCD19	0.75	VT	
14	VCD12	0.75	VT/WH	
17	VCD13	0.75	GN/VT	
18	ZA201	0.75	OG	

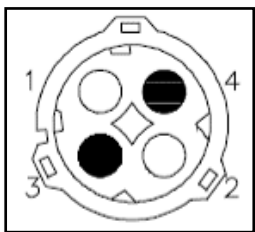
TRUCKS



Con. Code	C4GD149-A			
Con. Desc.	ŞASE ŞASI BAĞLANTISI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	A_GD149	4.0	BK/GY	

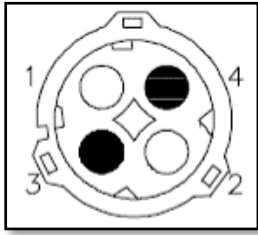


Con. Code	C4LS36-1			
Con. Desc.	SAĞ STOP LAMBASI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	A_GD149L	1.5	BK/GY	
2	CBP46I	0.75	WH/BU	
3	ZA119DA	0.75	OG/BU	
4	CLS25B	0.75	YE/VT	
5	CCA26DA	0.75	BU/GY	
6	ZA116E	0.75	OG/YE	

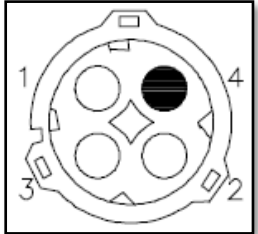


Con. Code	C4CD12			
Con. Desc.	ARKA AKS SOL YÜKSEKLİK SENSÖRÜ			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VCD12	1	Violet/White	
2	ZA111H	1	Orange/Blue	

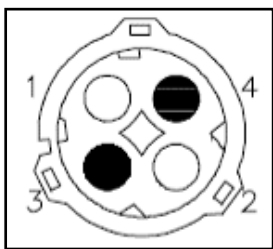
TRUCKS



Con. Code	C4A201			
Con. Desc.	DÜŞÜK BASINÇ ANAHTARI			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	ZA201	1	Orange	
2	A_GD149N	1	Black/Gray	

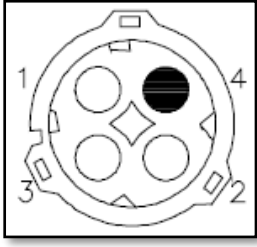


Con. Code	C4CL15			
Con. Desc.	ARKA AKS SOL BASINÇ SENSÖRÜ			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	ZA112B	0.75	Orange/Green	
2	ZA111B	0.75	Orange/Blue	
4	LCD19	0.75	Violet	



Con. Code	C4CD13			
Con. Desc.	ARKA AKS SAĞ YÜKSEKLİK SENSÖRÜ			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	VCD13	1	Green/Violet	
2	ZA111G	1	Orange/Blue	

TRUCKS

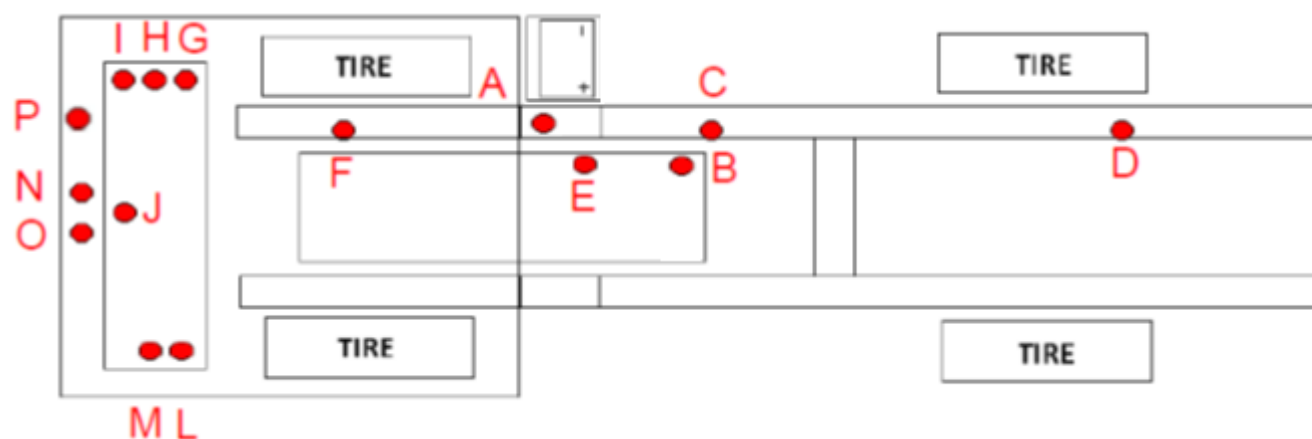


Con. Code	C4CL19			
Con. Desc.	ARKA AKS SAĞ BASINÇ SENSÖRÜ			
Pin Layout	Wire Number	Wire Thickness	Wire Colour	Unit
1	ZA112A	0.75	Orange/Green	
2	ZA111A	0.75	Orange/Blue	
4	LCD19	0.75	Green	

TRUCKS

3.4. Chassis (Ground) Connections

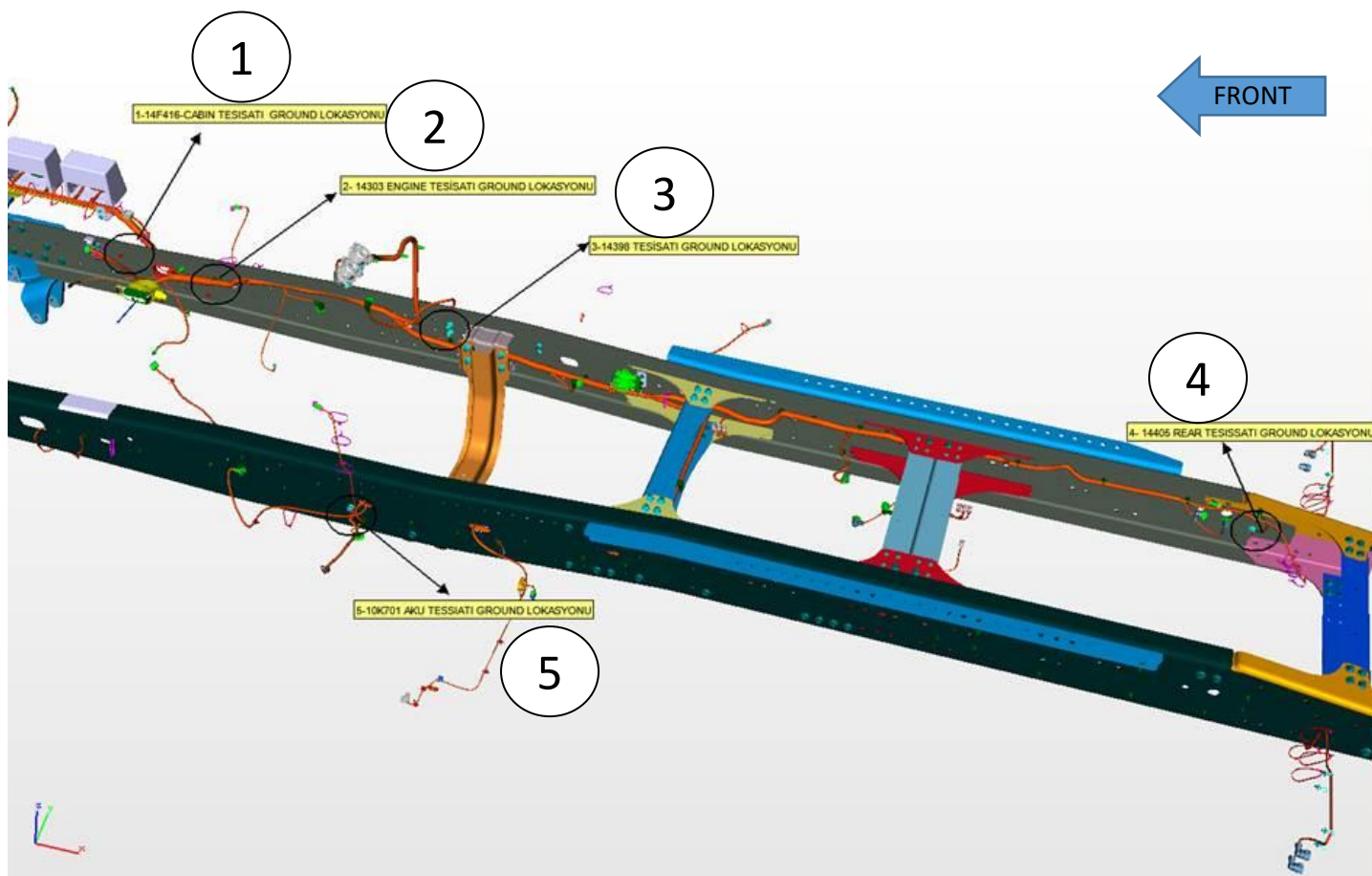
3.4.1. 2D Sketch Image:



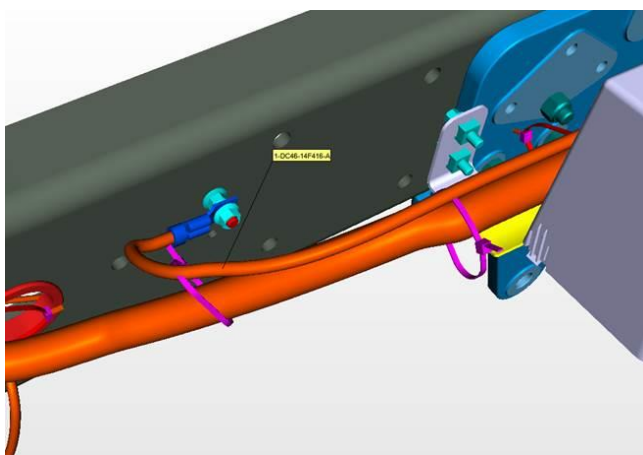
CODE	DESCRIPTION
A	Battery negative
B	Engine block ground connection-1
C	Chassis side arm middle ground connection
D	Rear lighting ground connection
E	Engine block ground connection-2
F	Chassis side arm power ground connection
G	Cab front cross ground connection -2
H	Cab front cross ground connection -1
I	Cab front cross ground connection -6
J	Cab front cross radio ground connection -3
L	Cab front cross ground connection -4
M	Cab front cross ground connection -5
N	Front bumper right ground connection
O	Front bumper left ground connection
P	Roof wiring ground connection

TRUCKS

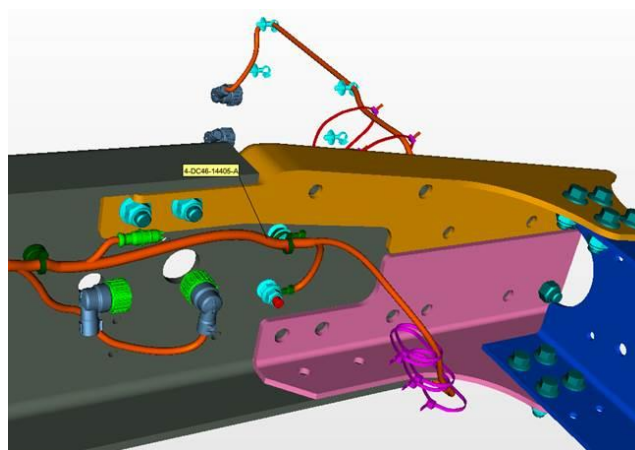
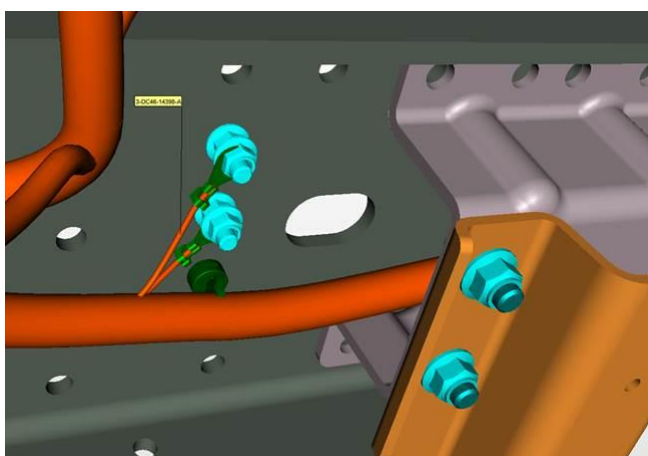
Under-cab ground connection points:



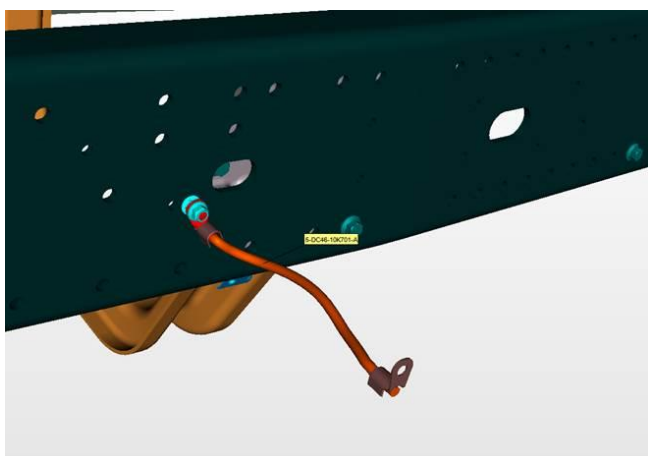
- 1- CAB WIRING GROUND CONNECTION
- 2- ENGINE WIRING GROUND CONNECTION
- 3- ENGINE COMPARTMENT WIRING (14398) GROUND CONNECTION
- 4- REAR WIRING (14405) GROUND CONNECTION
- 5- BATTERY WIRING (10K701) GROUND CONNECTION



1- Cab wiring ground connection 2- Engine wiring ground connection



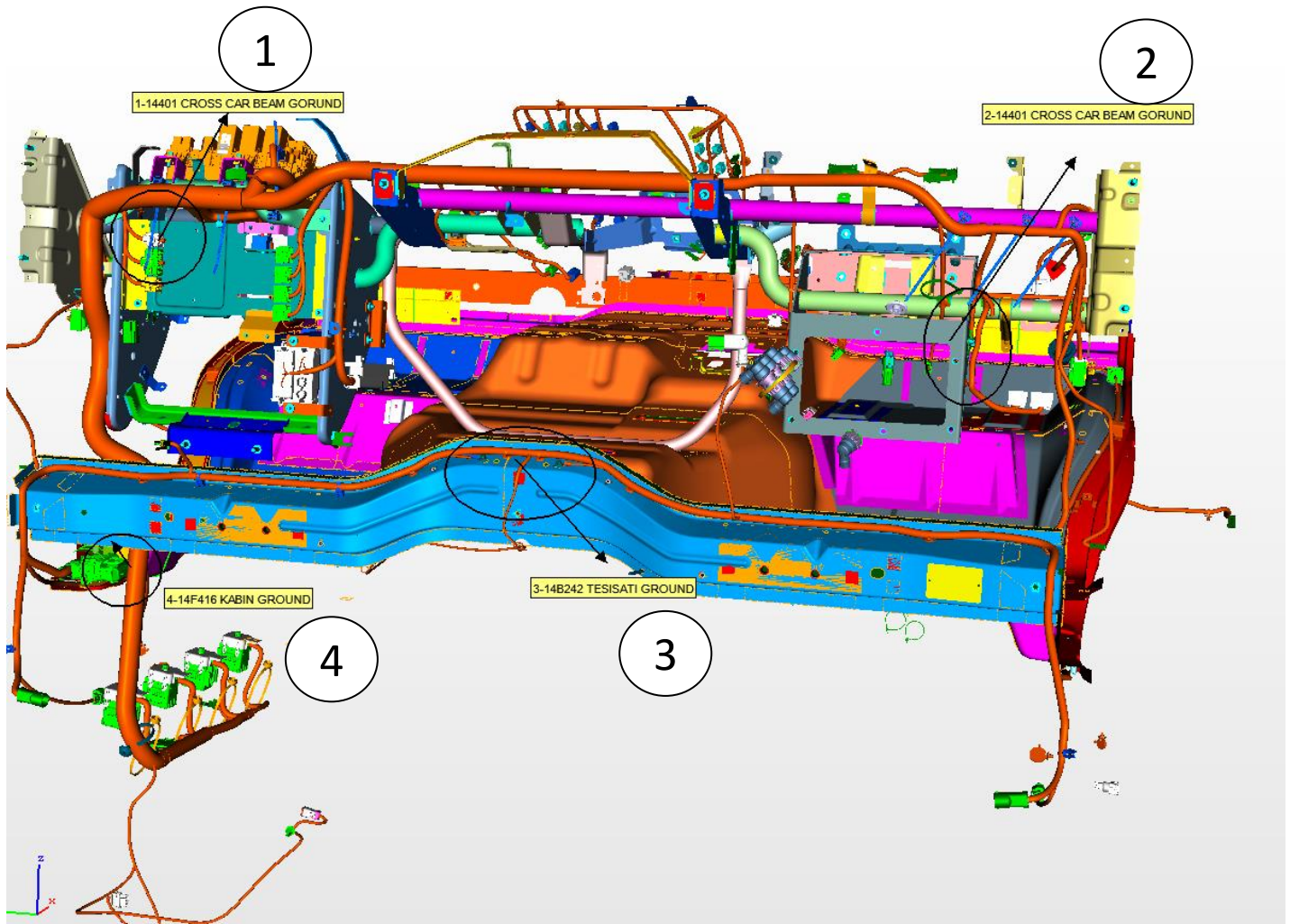
3- Engine compartment wiring (14398) ground connection 4- Rear wiring (14405) ground connection



TRUCKS

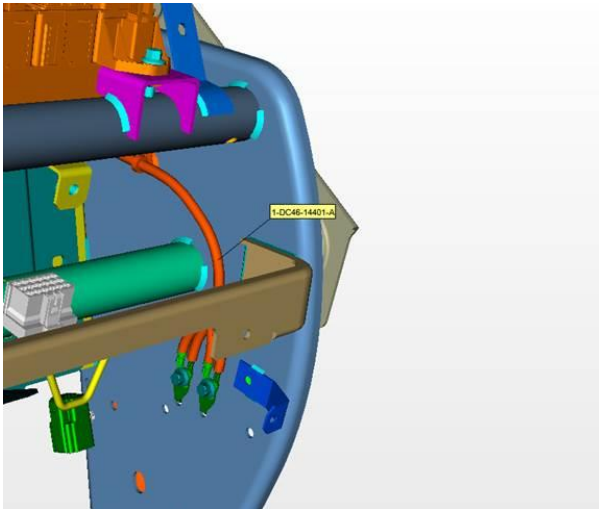
5- Battery wiring (10K701) ground connection

Cab Ground Connection Points:

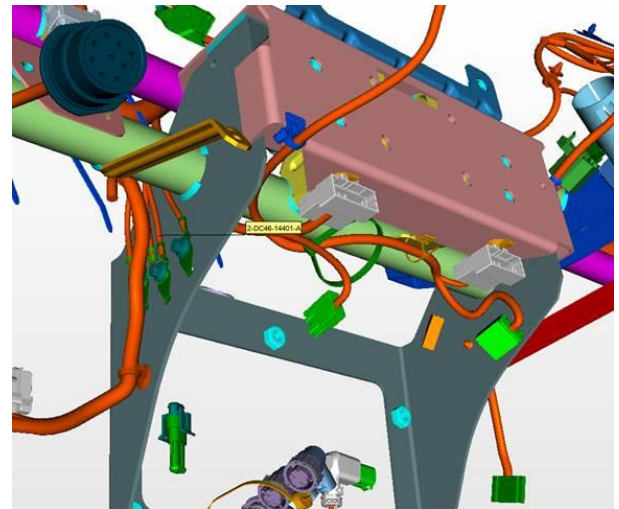


- 1- Cross cab ground connection - Right
- 2- Cross cab ground connection - Left
- 3- Under hood ground connection
- 4- Cab ground connection

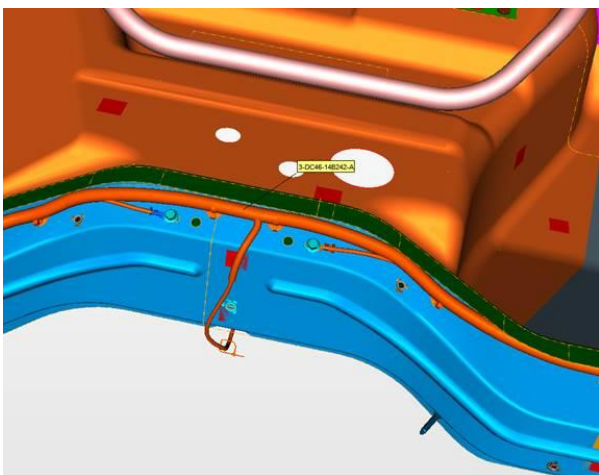
TRUCKS



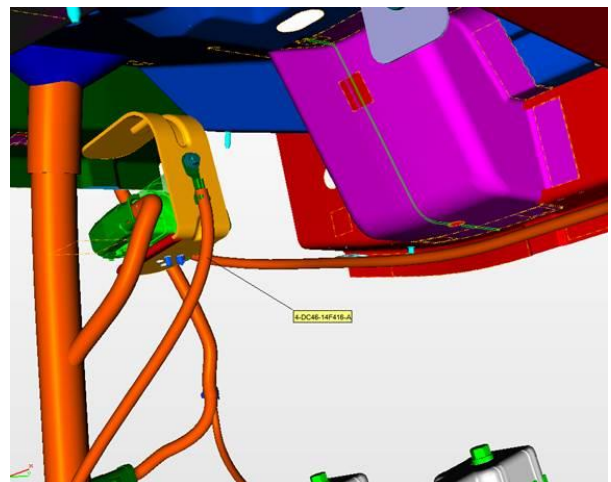
1- Cross cab ground connection – Right



2- Cross cab ground connection – Left



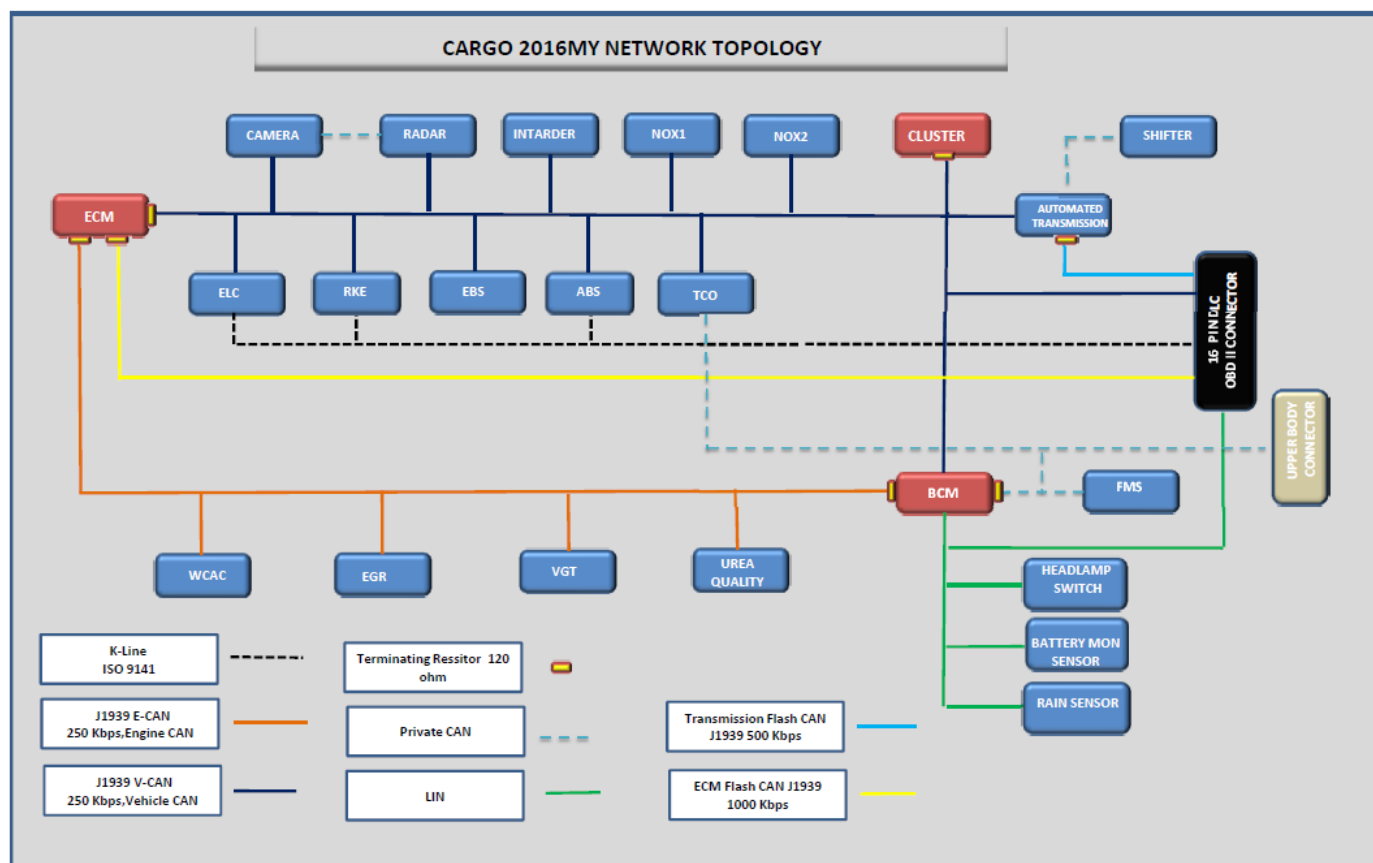
3- Under hood ground connection



4- Cab ground connection

SECTION: 4 MAIN SYSTEMS

4.1. Control Unit Data Lines and CAN Line Control

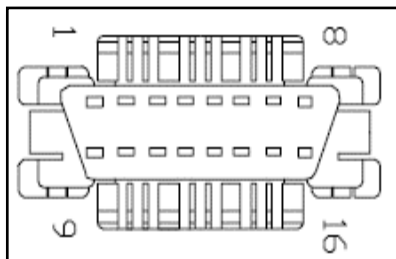


4.1.1. Control Units:

Sequence No.	Acronym	Description
1	ECM	Engine Control Unit
2	CLUSTER	Instrument
3	BCM	Body Electronics Control Unit
4	AMT	Automated Transmission
5	RKE	Comfort Module
6	EBS	Electronic braking system
7	ABS	Anti-lock brake system
8	ELC	ECAS-Electronically Controlled Air Suspension
9	TCO	Tachograph
10	FMS	Fleet Monitoring System

TRUCKS

4.1.2. Pin Layout of On-Board Diagnostics (OBD) Connector



Connector Code	C2DB04	
Connector Description	FAULT FINDING - DIAGNOSTICS	
Pin Layout	Function	Wiring Colour
1	AMT Flash CAN-H	GN/BU
3	ECM Flash CAN-H	VT/GN
4	Chassis (Ground)	BK/BU
5	Signal (Ground)	WH
6	CAN-H Vehicle CAN	BN/GN
7	K-Line	GY
9	AMT Flash CAN-L	WH/GN
11	ECM Flash CAN-L	GY/VT
14	CAN-L Vehicle CAN	BN/BU
15	LIN Connection	WH
16	Battery Power (24V)	GN/RD

Colour Legend	
RD	RED
BU	BLUE
YE	YELLOW
GN	GREEN
GY	GREY
BN	BROWN
VT	PURPLE
WH	WHITE
BK	BLACK
OG	ORANGE

4.1.3. CAN line control:

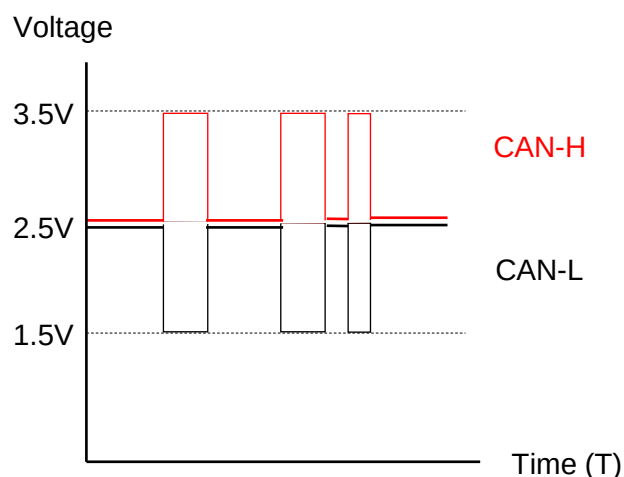
Voltage when the ignition is on → between pins no. 4 and 16: 24 V

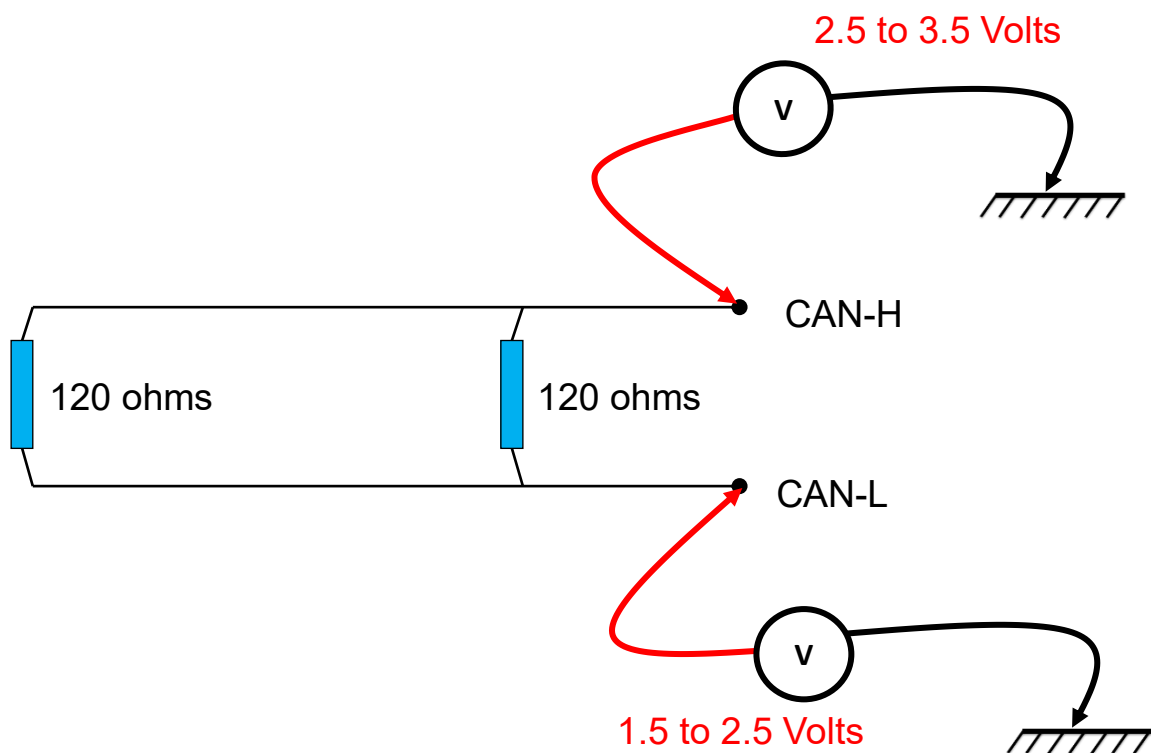
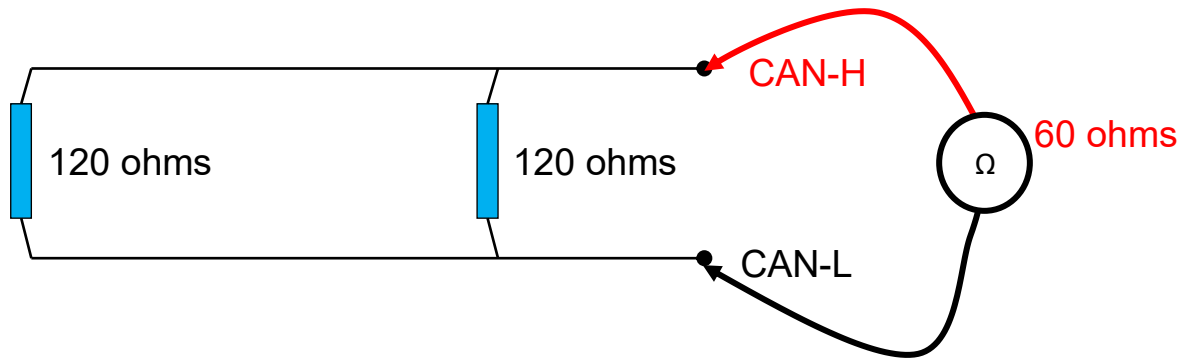
Resistance when the ignition is off → between pins no. 6 and 14: 60 Ω

Voltage when the ignition is on → between pins no. 6 and 4: 2,5,-3.5 V

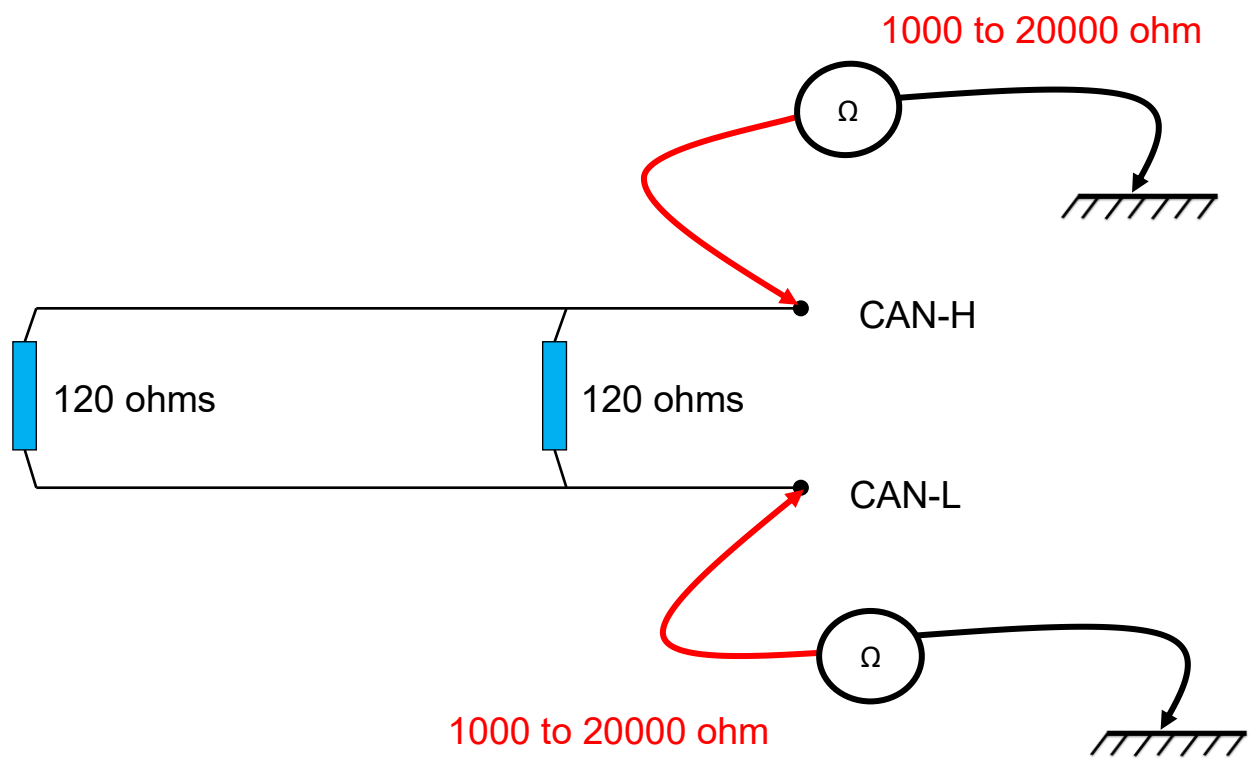
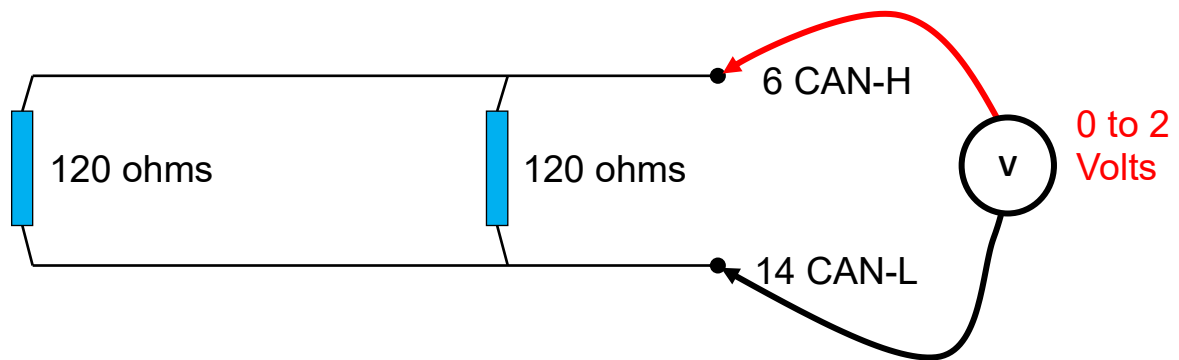
Voltage when the ignition is on → between pins no. 14 and 4: 1,5,-2.5 V

Voltage when the ignition is on → between pins no. 6 and 14: 0,-2 V





TRUCKS



TRUCKS

4.2. Instrument



No	Description
1	Air pressure indicator
2	Engine oil pressure indicator
3	Speedometer
4	Tachometer
5	Engine coolant temperature gauge
6	Fuel gauge
7	Trip computer

4.2.1. Instrument warning lamps function:

FUNCTION	SYMBOL	COLOR	SIGNAL SOURCE	ACTIVATION METHOD	CONTROL BUTTON	BUZZER
Left signal light		Green	-	-	Multi-functional handle (left)	Yes
Right signal light		Green	-	-		
Low brake air pressure		Red	Brake air pressure indicator	CAN and Internal logic	Instrument	Yes
EBS		Red/Amber			Automatic	N/A
ABS		Red/Amber			Automatic	Yes
High-beam		Blue	-	-	Multi-functional handle (left)	N/A
Generator		Red			Automatic	N/A
Park brake sign		Red	ECM	CAN	Park brake control	N/A
Cab lock sign		Red	-	-	Automatic	Yes
Oil pressure warning		Red	ECM / Low oil pressure switch	CAN or HW (-)	Automatic	Yes
Cold Starting Aid		Amber	ECM	CAN	Automatic	N/A
High coolant temperature		Red	ECM	CAN	Automatic	Yes
Trailer ABS/EBS		Amber			ABS/EBS Module	N/A

TRUCKS

FUNCTION	SYMBOL	COLOR	SIGNAL SOURCE	ACTIVATION METHOD	CONTROL BUTTON	BUZZER
Trailer right/left turn signal warning		Green	-	-	Multi-functional handle (left)	N/A
Engine warning lamp		Amber	ECM	CAN	Automatic	N/A
Cruise Control		Green	ECM	CAN	Multi-functional handle (right)	N/A
Front fog lamp		Green	-	-	Control button on the control panel	N/A
Rear fog lamp		Amber	-	-	Control button on the control panel	N/A
Fuel level warning		Amber			Automatic	N/A
Air pressure 1		Green			Air pressure control button on the indicator	N/A
Air pressure 2		Green				
Seat belt warning		Red	-	-	Automatic	Yes
ESP		Amber	ABS/EBS	CAN	Control button on the control panel	N/A
Immobilizer		Red	PATS	Internal logic	Automatic	N/A
MIL (malfunction indicator lamp)		Amber	ECM	HW (-) (Direct connection to led)	Automatic	N/A
Intarder		Amber	ERM_ZF	CAN	Multi-functional handle (right)	N/A
Oil level warning		Red	ECM	CAN	Automatic	N/A
Engine brake		Amber	Engine Brake	CAN	Multi-functional handle (right)	N/A
Information warning		Red	(Multiple signals)	Internal Logic	Automatic	Yes
Lane departure warning		Amber	Lane departure warning system	CAN	Automatic	N/A
Advanced emergency braking system		Amber	AEBS	CAN	Automatic	Yes
Icing warning		Red	External temperature SW	Internal logic	Automatic	N/A
Park lamp indicator warning		Green	Lighting Switch (KL58 HW input)	HW (+)	Control button on the control panel	N/A

TRUCKS

4.2.2. Instrument LCD Display images:

Yol Bilgisayarı



Dil seçimi


1-Vites
2-Saat
3-Bilgi ekranı
4-Ure seviyesi
5-Araç kilometresi

1-Akü voltajı
2-Dış hava sıcaklığı

1-Kilometre (sıfırlanabilir)
2-Motor çalışma saati (sıfırlanamaz)

1-Motor toplam çalışma saati (sıfırlanamaz)
2-Bakıma kalan kilometre

1-Anlık yakıt tüketimi
2-Ortalama yakıt tüketimi

1-Ortalama hız
2-Kalan yakıtla gidilebilecek mesafe

Akü durum göstergesi.
Göstergede bu ikaz çıktığında aracınızı servise götürmeniz gerekmektedir.


Yük ağırlığı



Balata durum göstergesi



Şeritten sapma uyarı sistemi


Yağ seviyesi
Göstergede yağ seviyesine , araç düz bir zeminde dururken ve rölantide çalıştırdıktan yaklaşık 1 dakika sonra bakınız.

TRUCKS



FUNCTION	SYMBOL	SIGNAL SOURCE	ACTIVATION METHOD
ECAS	ECAS	ECAS ECU	CAN
Oil Change Warning ¹		ECU	CAN
Water in fuel warning		ECU	CAN
Air Filter Blocking		Air filter blocking switch	HW (-)
Steering low oil pressure		Steering low oil pressure switch	HW (-)
Fuel Filter		ECU	CAN
Low coolant level ¹		Low coolant level switch	HW (-)
Hill launch assist ¹		ABS/EBS	CAN
Transmission Fault	STOP (Amber)	TCU	CAN
Differential lock		BCU	CAN
Air suspension		ECAS ECU	CAN
Rear axle lifting 1		BCU / ECAS ECU	CAN
Rear axle lifting 2		BCU	CAN
2nd Differential lock		BCU	CAN
Interlock (Interaxle lock)		BCU	CAN
PTO		TCU	CAN
Lowliner		BCU	CAN

TRUCKS

4.2.3. Battery level limits display:

	Limitler (% Akü Şarjı)	
	Düşük	Yüksek
L10	90%	100%
L9	80%	90%
L8	70%	80%
L7	60%	70%
L6	50%	60%
L5	40%	50%
L4	30%	40%
L3	20%	30%
L2	10%	20%
L1	0%	10%

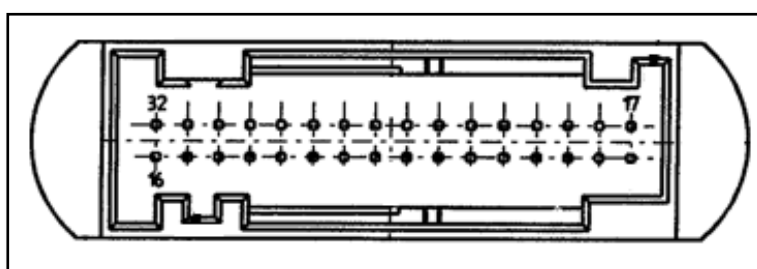
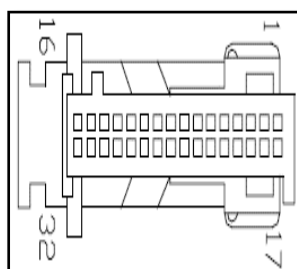
%	L1	L2	L3	L4
0<=Level<=10	Blink (1Hz)	OFF	OFF	OFF
10<Level<=20	Blink (1Hz)	Blink (1Hz)	OFF	OFF
20<Level<=30	Blink (1Hz)	Blink (1Hz)	Blink (1Hz)	OFF
30<Level<=40	ON / Blink (1Hz)*	ON / Blink (1Hz)*	ON / Blink (1Hz)*	ON / Blink (1Hz)*

4.2.4. Urea level limits display:

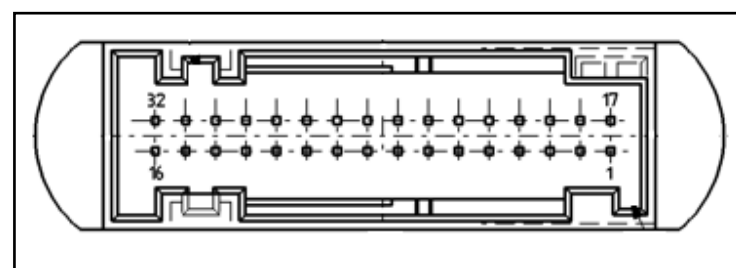
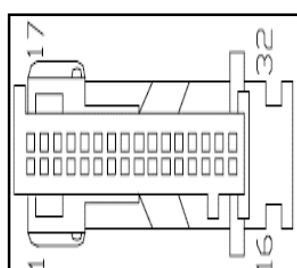
Urea Level	Urea left (l)		Instrument warning (EU6)	Instrument warning (EU5)	Instrument Level Warning	Effect on the Vehicle (EU6)	Effect on the Vehicle (EU5)
	Small Tank	Big Tank					
12%	5.8	8.9	Urea level low	Urea level low		No Effect.	No Effect.
10%			Urea level low	Urea level low		No Effect.	No Effect.
6%	3.4	4.2	Add Urea	Urea level low	Blink	No Effect.	No Effect.
3%	1.7	1.8	Add Urea	Add Urea	Blink	Level 1 (75% torque reduction)	No Effect.
1%	0.7	0.8	Add Urea	Add Urea	Blink	Hard Level (Max. vehicle speed 20km/h)	Level 1 (60% torque reduction)

4.2.5. Instrument Connector and Pin Layout:

TRUCKS



Connector Code	C2MC01-A			
Connector Description	CLUSTER INSTRUMENT MODULE (BLUE)			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	KL_30 Battery positive voltage	0.75	RD	
2	Selector Status	0.75	OG	
4	Menu-1 Button	0.75	OG/BK	
6	Seat belt warning	0.75	BU/OG	
7	Ambient temperature signal	0.75	VT/GY	
9	KL_31 chassis (Ground)	0.75	BK/BU	
12	PATS Supply	0.50	YE	
13	PATS-RX	0.50	VT/GY	
14	PATS-TX	0.50	VT/BN	
16	CAN-L	0.75	BN/BU	
17	KL_30 Battery positive voltage	0.75	RD	
19	KL-15 Ignition	0.75	GN/BU	
21	Pressure sensor supply	0.75	BN/VT	
22	Air pressure sensor-2 signal	0.75	WH/BU	
23	KL_31 Ground (Pressure sensor, Fuel level, Ambient Temperature)	0.75	WH/BN	
24	Air pressure sensor-1 signal	0.75	YE/OG	
25	Fuel level signal	0.75	GN/BU	
26	KL_31 chassis (Ground)	0.75	BK/BU	
27	Left Turn	0.75	BU/GN	
28	Right Turn	0.75	YE/VT	
29	KL59 Lighting signal	0.75	GN/WH	
30	Low steering pressure warning	0.75	OG/GN	
32	CAN-H	0.75	BN/GN	



TRUCKS

Connector Code	C2MC01-B			
Connector Description	CLUSTER INSTRUMENT MODULE (GREEN)			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Cabin lock open warning	0.75	BU/BN	
2	Air filter restriction	0.75	GY	
3	ECAS warning	0.75	BU/OG	
4	High beam headlamps	0.75	YE/VT	
5	Low engine oil pressure warning	0.75	BN/YE	
7	"Neutral (N)" Position warning	0.75	GY/VT	
8	Air Suspension Level	0.75	YE	
9	Trailer Turn Indicator Left	0.75	YE	
10	Door open warning	0.75	GN/BU	
11	Trailer ABS/EBS	0.75	VT/OG	
13	OBD/Engine fault lamp supply (ECM)	0.75	GN/VT	
14	Engine fault lamp warning	0.75	GY	
20	Traction aid	0.75	GN/BN	
21	ASR	0.75	BN/BU	
22	Alternator Lamp	0.75	VT/WH	
24	Trailer Turn Indicator Right	0.75	GN	
25	Low coolant level warning	0.75	VT/WH	
26	Front Fog Lamp	0.75	BN/YE	
27	Rear Fog Lamp	0.75	OG/YE	
28	Blending button-1	0.75	OG/GY	
28	Blending button-1	0.75	OG/BK	

4.3. Multi-function Lever

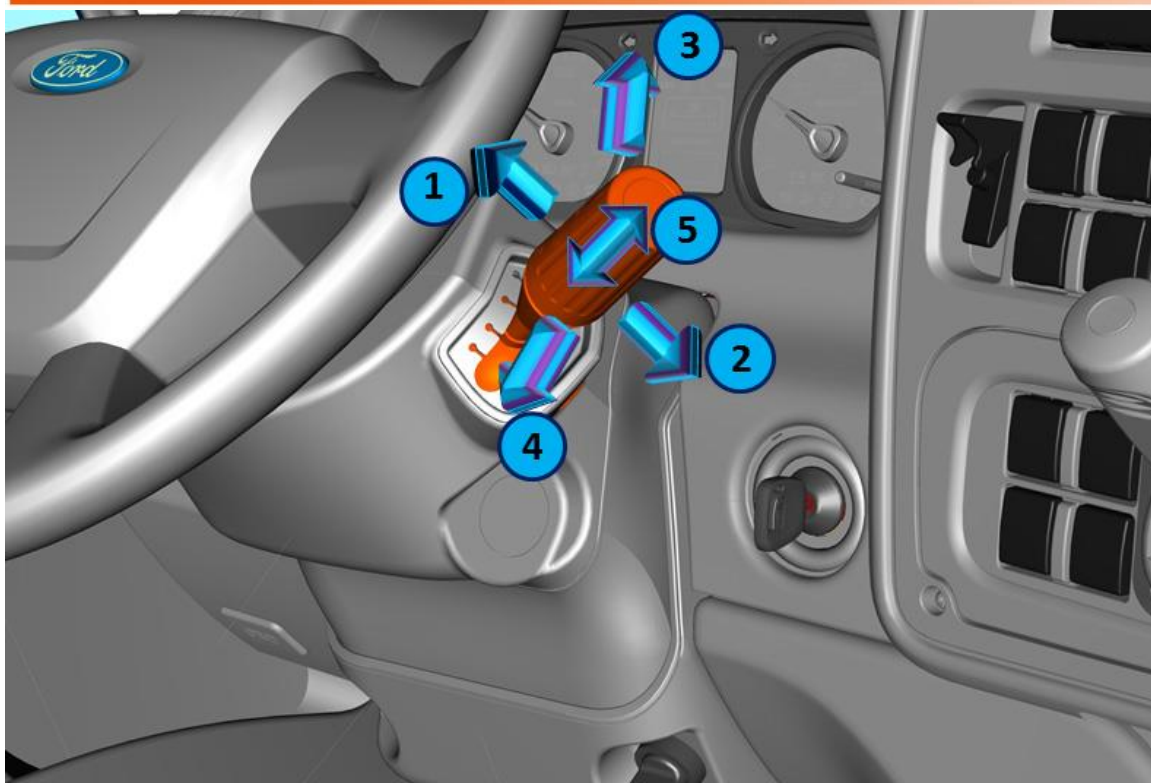
4.3.1. Operating Principle:

It has 5 steps in vehicles with Intarder.

It has 2 steps in vehicles without Intarder.

Version without retarder:

TRUCKS



This handle has the following functions:

Cruise control, increase speed, reduce speed and interarder functions.

1-Activation of the cruise control and increasing the speed

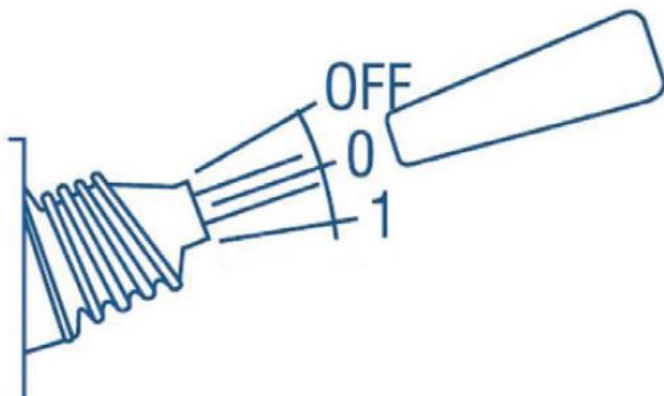
2-Decreasing the speed

3-Deactivation of the cruise control

4-Activation of the engine brake

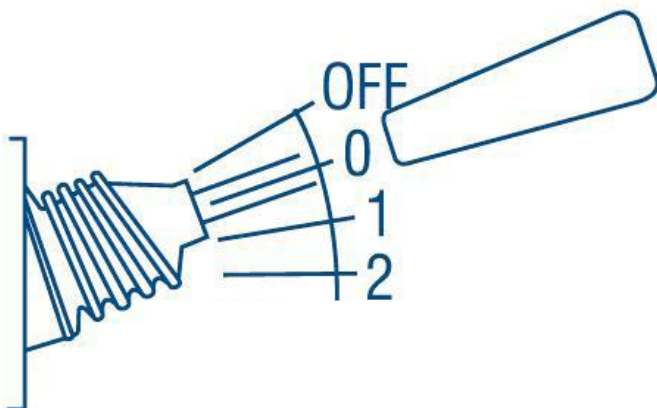
5-Resuming cruise control

On vehicles without Interarder and with ABS

TRUCKS


Handle Positions	Engine brake addition status (no additional switch)
0	OFF
1	ON

On vehicles without Intarder and with EBS



Handle Positions	Engine brake addition status (no additional switch)
0	OFF
1	Brake Pedal Activates the Engine Brake.
2	ON

Engine brake is activated by the lever on the right of the steering.

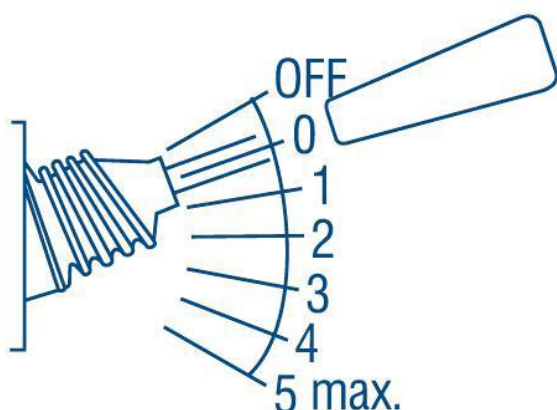
X warning is d on the indicator.

TRUCKS

Vehicles with Intarder

Intarder is a special brake system for decelerating the vehicle and maintaining the speed in downhill travels, and also known in the market as "drive shaft brake". Intarder provided in your vehicle has a hydrodynamic braking system also known in the market as fluid type.

- Braking Moment: 3,500 Nm
- Braking Power: 600 kW
- Weight: 70 kg .
- Operating principle: Hydrodynamic braking
- Fully compliant with ABS-EBS system



Location	Engine Brake/Intarder	
	Switch ON	Switch OFF
0	Brake Pedal Activates the Engine Brake.	OFF
1 (Bremsomat)	Fixed speed intarder brake + engine brake (if required)	
2	Engine Brake + 25% Intarder	
3	Engine Brake + 50% Intarder	
4	Engine Brake + 75% Intarder	
5	Engine Brake + 100% Intarder	

Activation of the gradual continuous braking operations:

Bring the gradual braking lever from 1 to max. position. The vehicle is continually decelerated according to the selected position.

Position 1 = Low deceleration

Max. Position = Violete deceleration

Deactivation of the gradual continuous braking operations:

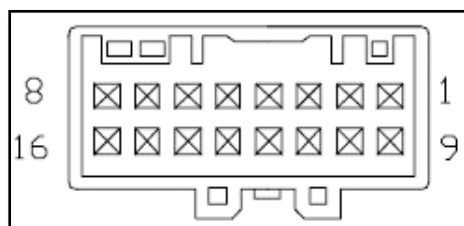
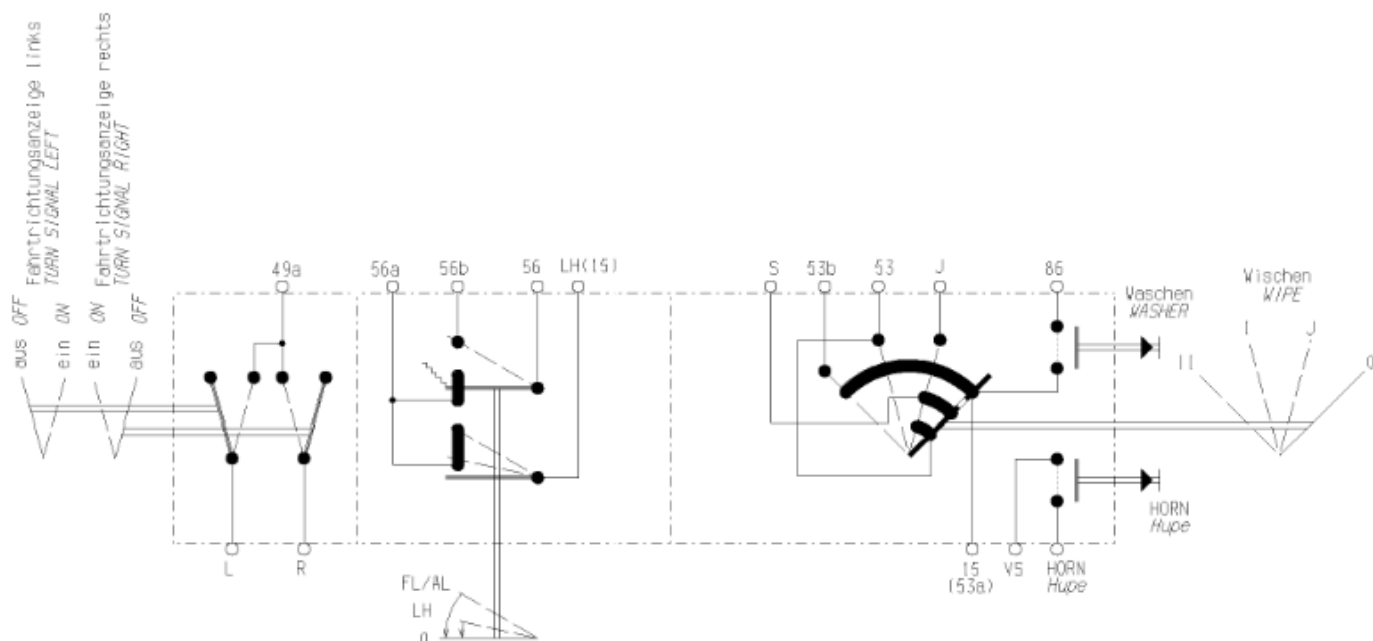
Gradual brake lever: OFF position or position 1 = BREMSOMAT function.

X warning is displayed on the disp  in the intarder is activated. Bring the intarder lever to 0 (off) position when the required speed is reached.

When the intarder lever is pulled, rear brake lamps are turned on when the vehicle reaches a specified braking power. (-0,7 m/s²)

TRUCKS

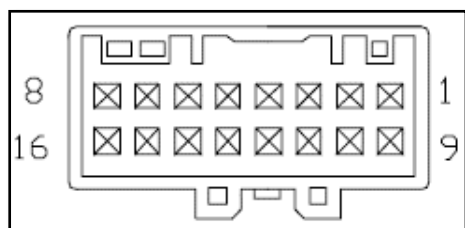
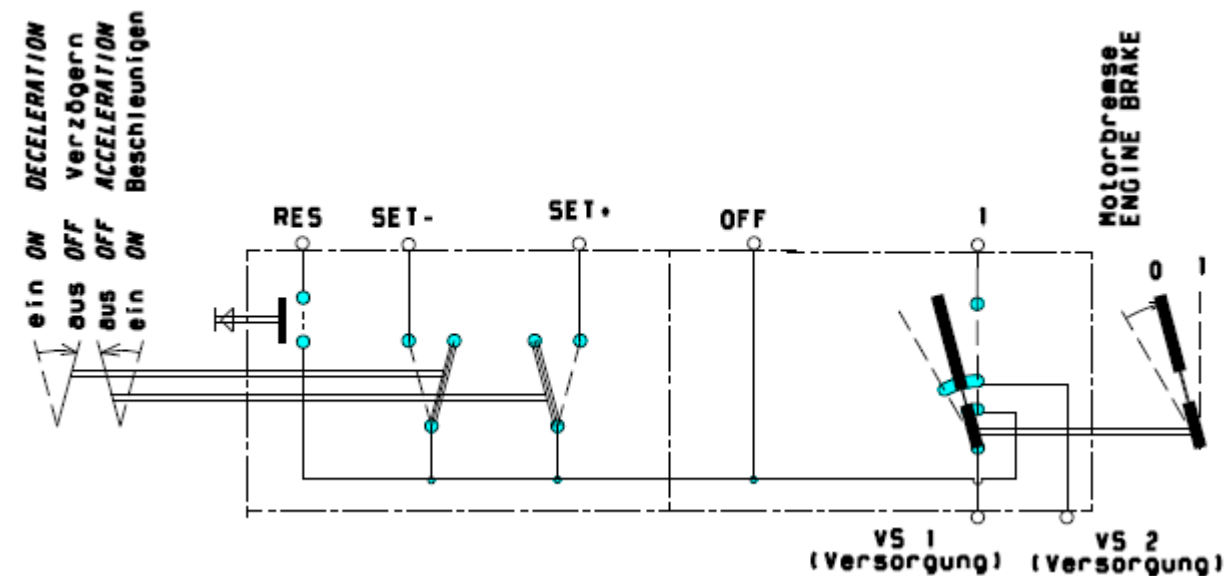
Multi-functional Lever-Left Connectors and Pin Layout



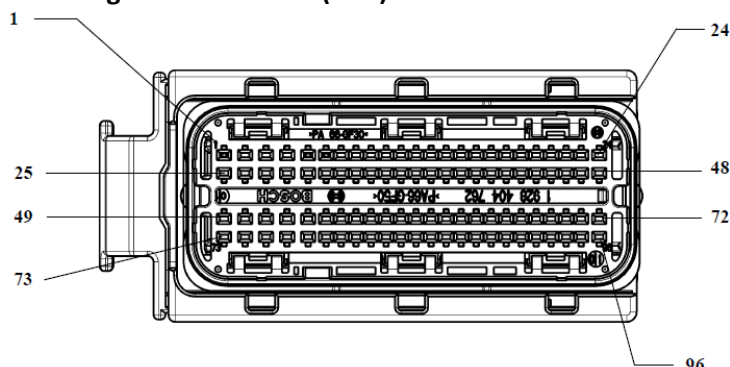
Connector Code	C2X101-A				
Connector Description	MULTI-FUNCTIONAL LEVER-LEFT				
Pin Layout	Code	Function	Wire Thickness	Wiring Colour	Target Unit
1	49a	Supply Power	0.75	GN/BN	
2	L	Turn Indicator Left	0.75	VT/BN	
3	R	Turn Indicator Right	0.75	BN/YE	
4	56	High Beam	0.75	WH/OG	
5	56a	Flasher (Flash to pass)	0.75	GY/BN	
6	56b	Supply Power	0.75	GN/BN	
7	LH(15)	Horn (+)	0.75	GN/RD	
8	J	Auto Wiper	0.75	GN/VT	
9	53	Low Speed Wiper	1.5	BU/GN	
10	S	Low Speed Wiper Relay	1.5	VT/WH	
11	Horn	Horn (-)	0.75	BU/WH	
12	86	Washer Fluid Pump	0.75	GY	
13	15(53a)	Supply Power	1.5	GN/BN	
14	53b	High Speed Wiper Relay	1.5	VT/OG	
16	VS	Horn (+)	0.75	GN/RD	

TRUCKS

Multi-functional Lever-Right Connectors and Pin Layout:



Connector Code	C2X101-B				
Connector Description	MULTI-FUNCTIONAL LEVER-RIGHT				
Pin Layout	Code	Function	Wire Thickness	Wiring Colour	Target Unit
1	VS1	Power Supply	0.75	YE/VT	
2	SK	Blending	0.75	OG/GN	
3	1	Engine Brake-1	0.75	OG/GY	
4	2	Engine Brake-2	0.75	YE/GN	
5	3	Engine Brake-3	0.75	WH/BN	
6	4	Engine Brake-4	0.75	WH/BN	
7	5	Engine Brake-5	0.75	WH/OG	
8	MENU/RESET	Speed Limiter Menu	0.75	OG/BK	
9	SET+	Speed Limiter (+)	0.75	WH	
10	SET-	Speed Limiter (-)	0.75	BU/GN	
11	OFF	Speed Limiter OFF	0.75	BN/BU	
13	VS2	Power Supply	0.75	YE	
14	RESUME	Speed Limiter Resume	0.75	VT/OG	

TRUCKS
4.4. Engine
4.4.1. Engine Control Unit (ECU)


Colour Legend	
RD	RED
BU	BLUE
YE	YELLOW
GN	GREEN
GY	GREY
BN	BROWN
VT	PURPLE
WH	WHITE
BK	BLACK
OG	ORANGE

Connector Code	C1E115-A		
Connector Description	12K510-ECU CONNECTOR		
Pin Layout	Function	Wire Thickness	Wiring Colour
1	Positive voltage from battery	1.5	YE/RD
2	AdBlue pump module heater signal	1.5	YE/GY
3	Negative voltage from battery	1.5	BK/GY
4	AdBlue pressure line heater signal	1.0	BN
5	Negative voltage from battery	1.5	BK/GY
6	Low oil pressure indicator warning lamp	0.75	BN/YE
7	AdBlue pressure sensor signal	0.75	GN/BN
8	AdBlue tank temperature sensor signal	0.75	BU/GY
9	T3 sensor signal	0.75	OG/GY
10	Sensor ground connection (Departronic input pressure+temperature, EGT3, AdBlue Tank temperature and level, T3)	0.75	GY/OG
11	Engine stop switch in engine compartment	0.75	VT/GY
12	Brake pedal switch	0.75	BN/GN
13	Accelerator kick-down switch	0.75	BU/WH
15	Low range selection switch (M/T only)	0.75	WH
16	EGT1 sensor signal	0.75	BN
17	EGT2 sensor signal	0.75	GN/VT
18	EGT1 and EGT2 sensor ground connection	0.75	GY/VT
19	Starter positive voltage	0.75	BN/GN
20	Departronic turn off valve positive voltage	0.75	WH
22	Departronic dosage valve positive voltage	0.75	VT/OG
23	AdBlue dosage valve positive voltage	0.75	GN
24	Departronic dosage valve ground connection	1.0	GY
25	Positive voltage from battery	1.5	YE/RD
26	Positive voltage from battery	1.5	YE/RD

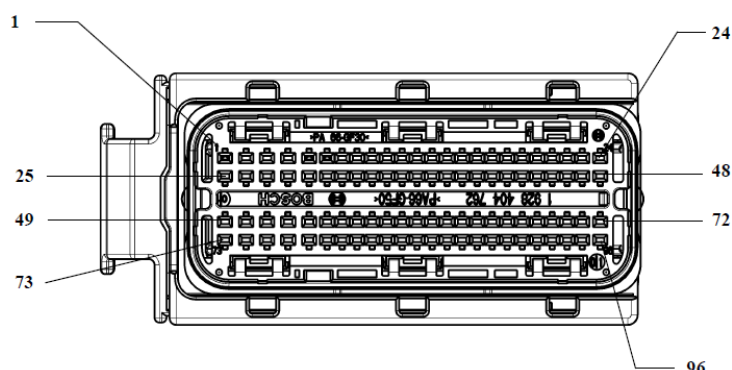
TRUCKS

Connector Code	C1E115-A		
Connector Description	12K510-ECU CONNECTOR		
Pin Layout	Function	Wire Thickness	Wiring Colour
27	Battery Voltage (Replaceable air compressor, Transmission shaft switch, Park brake, Brake pedal switch, High-Low range switching lock valve, 1st to 2nd/3rd to 4th gear switching lock valve output)	1.5	BN/WH
28	Negative voltage from battery	1.5	BK/GY
30	Departronic input pressure sensor signal	0.75	GY/OG
31	AdBlue tank level sensor signal	0.75	GN
32	EGT3 sensor signal	0.75	BN/VT
33	Departronic output pressure sensor ground connection	0.75	BU/GY
35	Transmission shaft switch	0.75	YE/BU
37	Park Brake Switch	0.75	WH/VT
38	Engine on switch in engine compartment	-	-
39	AdBlue pressure sensor ground connection	0.75	GN/VT
40	Water in fuel sensor signal	0.75	BU/BN
42	Departronic input temperature sensor signal	0.75	BU/GN
43	Sensor ground connection (Idle position switch, accelerator kick-down, DPS, WIF)	0.75	GN/WH
44	OBD-LED light switch negative voltage	0.75	GY
45	Departronic turn off valve negative voltage	0.75	VT/WH
46	CAN-H (Nox,DS,US)	0.75	BN/GN
47	CAN-L (Nox,DS,US)	0.75	BN/BU
49	Positive voltage from battery	1.5	YE/RD
50	Battery Voltage (AdBlue pump, recollection valve, back pressure line heating, auxiliary system relay)	1.5	BN/BU
52	Negative voltage from battery	1.5	BK/GY
53	Vehicle frequency speed sensor signal from tachometer	1.0	GY/YE
54	Vehicle frequency speed sensor ground connection from tachometer	0.75	BK/GY
55	DPS (DPF differential pressure sensor) signal	0.75	YE/OG
56	Departronic output pressure sensor signal	0.75	YE/VT
58	Engine Brake switch signal	0.75	YE/GN
59	Clutch pedal switch signal (Torque converter)	0.75	GY/BN
60	Idle status switch signal	0.75	YE/BU
61	1st to 2nd/3rd to 4th gear switching lock valve output	0.75	WH/BU
62	High-Low range switching lock valve	0.75	GN/BU
63	T50 ignition switch (24V)	0.75	YE
64	Fan speed sensor signal	0.75	WH/BU
65	Fan speed sensor ground connection	0.75	GN/BU
66	Accelerator pedal sensor positive voltage (5V)	0.75	GN/OG
67	Departronic output pressure sensor positive voltage (5V)	0.75	BN/WH
68	AdBlue Pressure sensor positive voltage (5V)	0.75	GY/BU
69	T15 ignition switch (24V)	0.75	GY/YE
71	CAN-H	0.75	VT/GN



TRUCKS

Connector Code	C1E115-A		
Connector Description	12K510-ECU CONNECTOR		
Pin Layout	Function	Wire Thickness	Wiring Colour
72	AdBlue intake line heater	1.0	VT
73	Positive voltage from battery	1.5	YE/RD
74	Battery voltage (WIF, Clutch pedal and Main brake switch, Engine on and off switch, AdBlue tank heater valve, Electronic FAN, Engine Brake switch, OBD-LED)	1.5	GN/VT
75	Negative voltage from battery	1.5	BK/GY
79	Accelerator pedal sensor signal	0.75	YE/OG
80	Accelerator sensor ground connection	0.75	VT/GN
82	Main Brake switch signal	0.75	VT/WH
83	Adblue tank heater valve	0.75	WH/OG
84	AdBlue pump	0.75	GN/BU
85	AdBlue recollection valve	0.75	GN
86	Replaceable air compressor	0.75	BN/WH
87	Electronically controlled fan viscous	0.75	VT/WH
88	Starter negative voltage	0.75	BN/VT
89	AdBlue pump ground connection	0.75	WH/BU
90	Fan speed sensor, DPS, Low range selection switch positive voltage (5V)	0.75	WH/BU
91	Departronic input pressure sensor positive voltage (5V)	0.75	GN/BN
93	Auxiliary system relay	0.75	GN/BU
95	CAN-L	0.75	GY/VT
96	AdBlue dosage sensor ground connection	1.0	YE/GY

TRUCKS


Colour Legend	
RD	RED
BU	BLUE
YE	YELLOW
GN	GREEN
GY	GREY
BN	BROWN
VT	PURPLE
WH	WHITE
BK	BLACK
OG	ORANGE

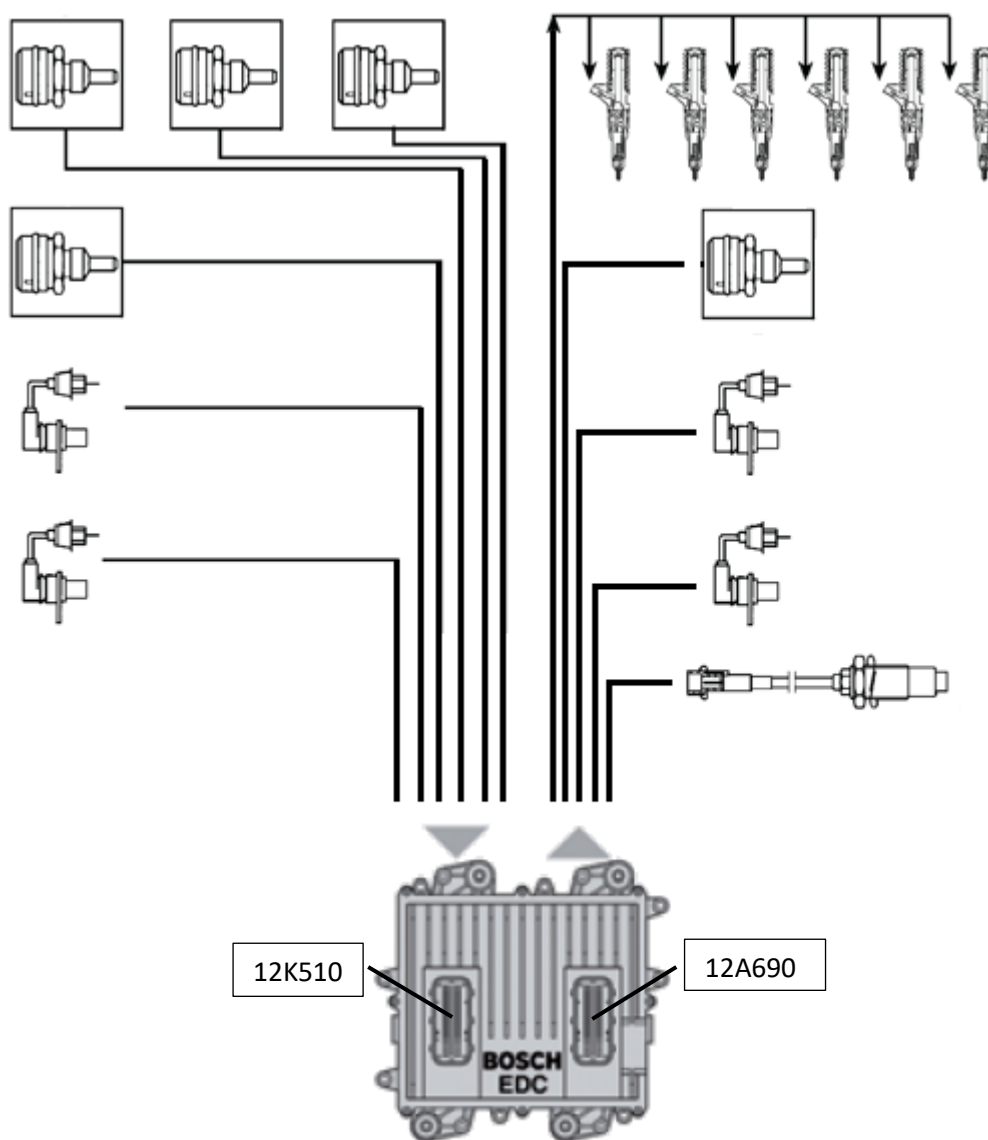
Connector Code	C1E115-B		
Connector Description	12A690-ECU CONNECTOR		
Pin Layout	Function	Wire Thickness	Wiring Colour
1	5th cylinder injector output	1.5	BU/OG
2	6th cylinder injector output	1.5	YE/BU
3	4th cylinder injector output	1.5	GN/VT
4	2nd solenoid activating the engine brake	1.0	WH
5	Throttle output	1.0	GN/VT
6	Oil temperature and pressure sensor ground connection	0.75	GN/OG
7	TMAP sensor positive voltage (5V)	0.75	BU/WH
9	MAF sensor positive voltage (5V)	0.75	YE/VT
11	Fuel rail pressure sensor positive voltage (5V)	0.75	GY
12	Fuel temperature sensor signal	0.75	VT/WH
13	Oil temperature sensor signal	0.75	GN
14	Fuel filter blockage sensor signal	0.75	VT/GY
15	Throttle position sensor signal	0.75	GY
17	CAN-H (Urea quality, VGT, EGR)	0.75	GN/BU
18	CAN-L (Urea quality, VGT, EGR)	0.75	WH/GN
19	Fuel filter blockage sensor ground connection	0.75	BN/BU
20	Air heater output signal	1.5	YE/VT
22	Replaceable water pump output signal	0.75	GY
23	WCAC pump output signal	0.75	GN/WH
24	Battery voltage (Alternator, air heater)	1.5	GN/OG
25	5th cylinder injector output	1.5	GY/YE
26	6th cylinder injector output	1.5	GN/BU
27	4th cylinder injector output	1.5	VT/GY
28	2nd solenoid activating the engine brake	1.0	GY/BU
29	Throttle output	1.0	BN
30	MAF+temperature, Oil level sensor ground connection	0.75	GN/OG
31	Oil pressure sensor positive voltage (5V)	0.75	YE/GN
32	A/C pressure sensor positive voltage (5V)	0.75	WH/BN
34	Throttle sensor positive voltage (5V)	0.75	BU/WH
35	Oil pressure sensor signal	0.75	GY

TRUCKS

Connector Code	C1E115-B		
Connector Description	12A690-ECU CONNECTOR		
Pin Layout	Function	Wire Thickness	Wiring Colour
36	Fuel rail pressure sensor signal	0.75	BU/BN
37	Fuel temperature sensor signal	0.75	YE/GN
38	EGR temperature sensor signal	0.75	GY/BU
39	Engine coolant temperature sensor signal	0.75	YE
40	Throttle position sensor ground connection	0.75	VT
42	EGR temperature and A/C pressure sensor ground connection	0.75	VT
47	Alternator output	0.75	VT
48	Battery voltage (Replaceable water pump)	0.75	YE/GY
49	1st cylinder injector output	1.5	GN/WH
50	3rd cylinder injector output	1.5	YE/OG
51	2nd cylinder injector output	1.5	BN
54	MAF sensor signal	0.75	BU
56	Oil level sensor signal	0.75	OG/GN
58	Battery voltage (fuel metering unit)	0.75	OG/WH
59	Fuel and engine coolant temperature sensor ground connection	0.75	OG/GN
60	Fuel rail pressure sensor ground connection	0.75	BU/BN
61	A/C pressure sensor signal	0.75	YE
65	Crankshaft position sensor negative signal	0.75	YE/VT
66	Crankshaft position sensor positive signal	0.75	OG/BU
67	Camshaft position sensor negative signal	0.75	GN/VT
68	Camshaft position sensor positive signal	0.75	BN/BU
69	Cam and Crankshaft status sensor ground connection	0.75	OG/YE
70	1st solenoid activating the engine brake	0.75	GY/OG
73	1st cylinder injector output	1.5	BN/VT
74	3rd cylinder injector output	1.5	BU
75	2nd cylinder injector output	1.5	WH/GN
81	Fuel rail pressure control valve output signal	0.75	OG
82	Battery voltage (Fuel rail pressure control valve)	0.75	GY/BN
83	Fuel metering unit output signal	0.75	OG/BK
84	Oil level sensor positive voltage (12V)	0.75	OG
85	MAF temperature sensor signal	0.75	OG/BK
86	MAP pressure sensor signal	0.75	OG/YE
89	EGR, NoX, PM, VGT ground connection	0.75	WH/VT
90	TMAP sensor ground connection	0.75	GN/BU
91	MT shaft speed sensor signal	0.75	WH/VT
92	MT shaft speed sensor ground connection	0.75	WH/OG
93	Turbo blade speed sensor positive signal	0.75	YE
94	Turbo blade speed sensor negative signal	0.75	GY
95	1st solenoid activating the engine brake	0.75	BN/WH
96	Battery voltage (EGR, NoX, PM, VGT)	1.0	GY/VT

TRUCKS

4.4.1. Engine Control Unit (ECU) diagram view:



TRUCKS
4.4.2. Systems operating in the Engine Control Unit:

C1E115-A			
12K510			
Sensor	Switch	Solenoid valve (Actuator)	
EGT1	Idle position	Departronic dosage	
EGT2	Accelerator kick-down	Departronic off	
DPF differential pressure	Low range selection (M/T)	AdBlue pump	
Water in fuel filter sensor	Clutch pedal (M/T)	AdBlue recollection	
Vehicle speed from tachometer	Service Brake 1 and 2	Adblue tank heater	
FAN speed	Engine on in engine compartment	AdBlue Dosage	
Departronic input pressure,temp.	Engine off in engine compartment	Replaceable air compressor	
Departronic output pressure	T15 ignition	Starter	
EGT3	T50 ignition		
AdBlue pressure	Engine Brake		
Adblue tank temperature	Park Brake		
Adblue tank level	1st to 2nd/3rd to 4th gear switching lock		
T3	High-Low range switching lock		
NoX input and output	Transmission shaft (M/T)		

C1E115-B			
12A690			
Sensor	Injector	Switch	Solenoid valve (Actuator)
MAF	Cylinder 1	A/C Pressure	Engine brake 2nd solenoid
Oil Temperature	Cylinder 2	Fuel Filter Blocked	Replaceable water pump
Oil Pressure	Cylinder 3		WCAC pump
EGRT	Cylinder 4		Alternator
Fuel Temperature	Cylinder 5		Fuel metering unit
Engine coolant temperature	Cylinder 6		Fuel rail pressure control valve
Turbo speed			VGT Turbo actuator
Oil level			EGR Valve
Camshaft status			Engine brake 1st solenoid
Crankshaft status			
Air heater			
TMAP			
Throttle position			
Transmission shaft speed (M/T)			
Rail pressure			
Urea quality			

TRUCKS
4.4.2. Injectors:

Injector solenoid coil resistance is as follows.

Nominal: 295 mΩ (0.295 Ω)

Max: 505 mΩ (0.505 Ω)

Tolerance at 20°C: ±5%

Tolerance at 200°C: ±5%

Engine control unit may determine whether the injection operation is correct or if there is a mechanical fault according to the voltage value obtained by the solenoid. ECU can detect injector faults when the engine is operated or while the vehicle is driven only.

Injectors are independently connected to engine control unit:

In 12A690 On-Engine Wiring C1E115-B connector:

pins **73 / 49** Cylinder 1 Injector **Brown-Purple / Green-White**

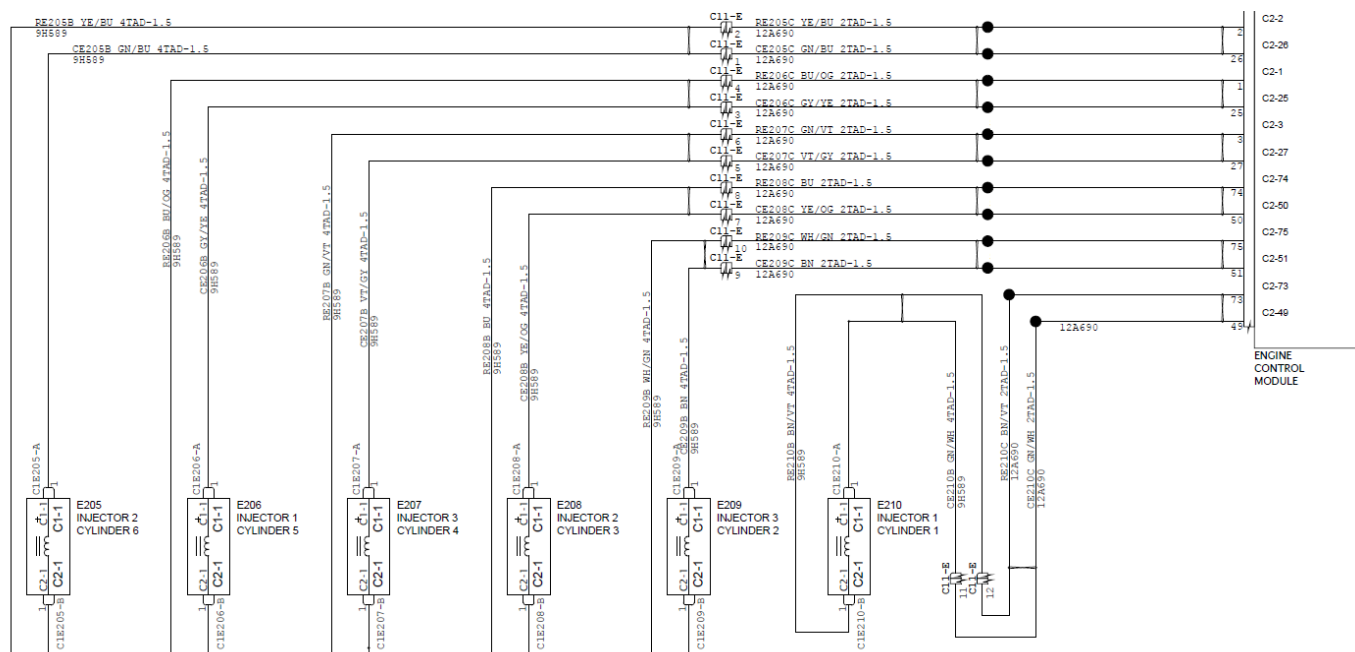
pins **75 / 51** Cylinder 2 Injector **White-Green / Brown**

pins **74 / 50** Cylinder 3 Injector **Blue / Yellow-Orange**

pins **03 / 27** Cylinder 4 Injector **Green-Purple / Purple-Gray**

pins **01 / 25** Cylinder 5 Injector **Blue-Orange / Gray-Yellow**

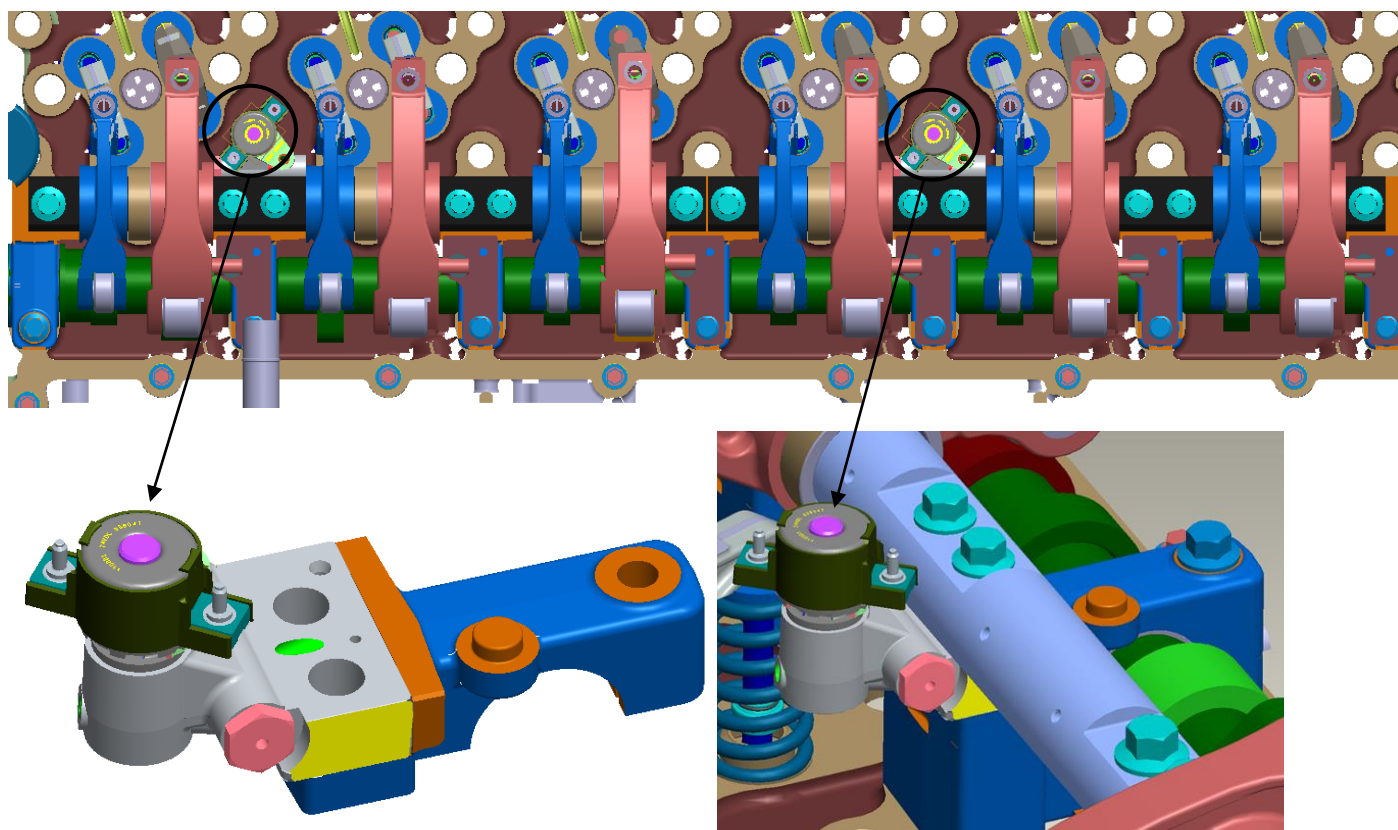
pins **02 / 26** Cylinder 6 Injector **Yellow-Blue / Green-Blue**



TRUCKS

4.4.3. Engine Brake Solenoid Valve:

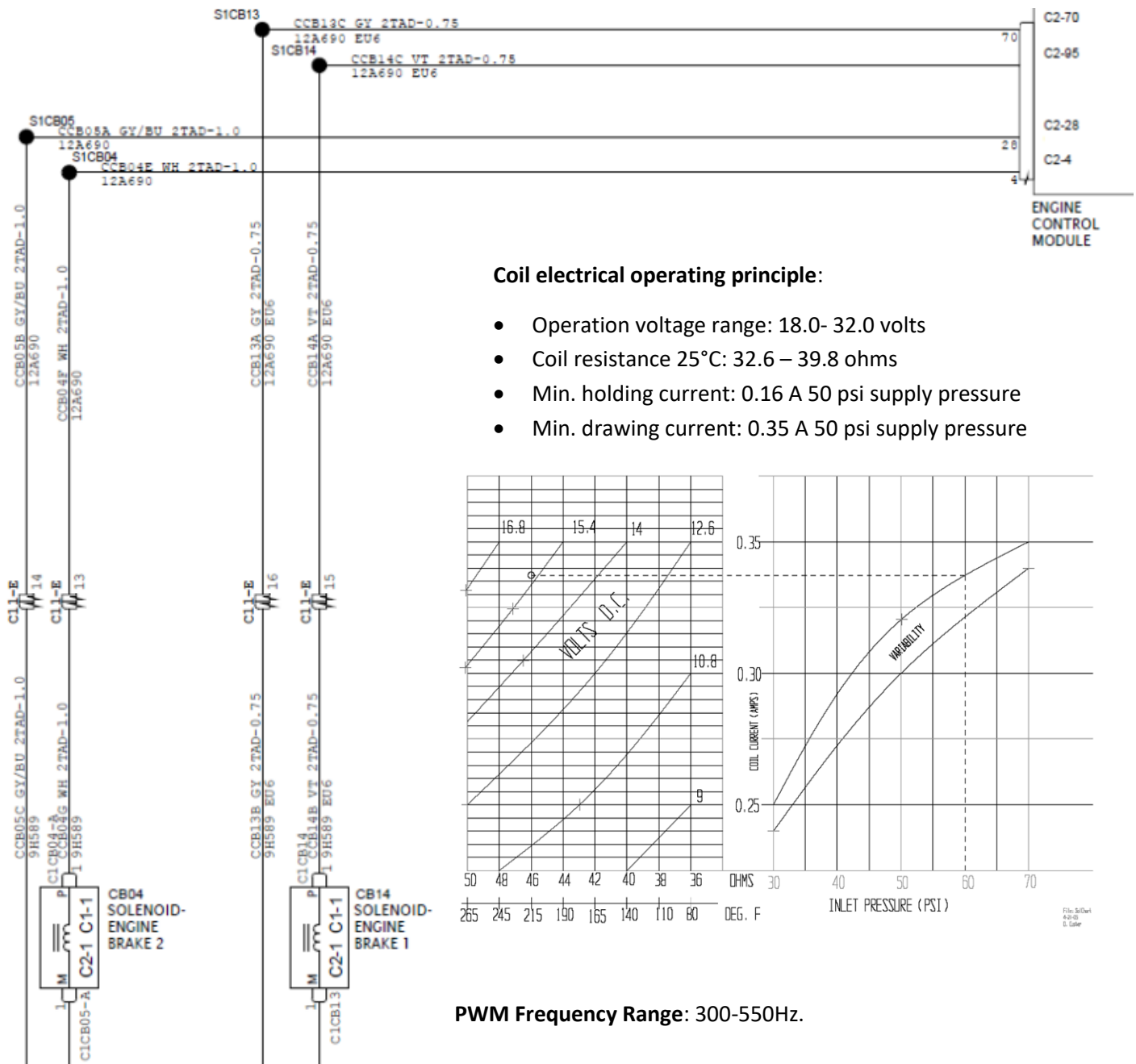
When Engine Brake solenoids are supplied with 24V, valve shaft is opened against the oil pressure thanks to the magnetic force generated in the coils and oil supplied is provided in solenoid output.



Connector Code	C11-E			
Connector Description	9H589-CYLINDER HEAD CONNECTOR			
Pin Layout	Wiring Number	Wire Thickness	Wiring Colour	Function
13	CCB04	1.0	White	2nd Engine Brake-1
14	CCB05	1.0	Grey/Blue	2nd Engine Brake-2
15	CCB14	0.75	Purple	1st Engine Brake-1
16	CCB13	0.75	Grey	1st Engine Brake-2

Connector Code	C1E115-B		
Connector Description	12A690-ECU CONNECTOR		
Pin Layout	Function	Wire Thickness	Wiring Colour
4	2nd solenoid activating the engine brake	1.0	White
28	2nd solenoid activating the engine brake	1.0	Grey/Blue
95	1st solenoid activating the engine brake	0.75	Purple
70	1st solenoid activating the engine brake	0.75	Grey

Engine Brake Solenoid Wiring Diagram:



PWM Frequency Range: 300-550Hz.

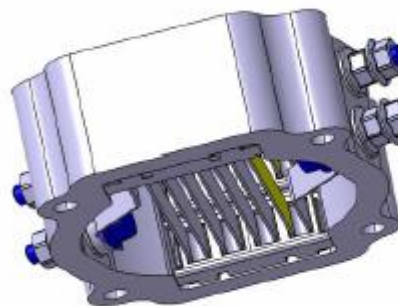
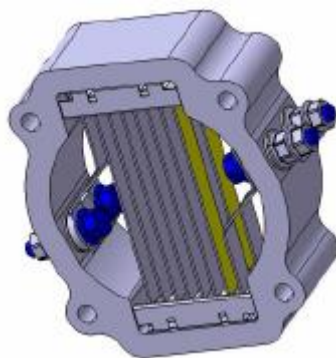
TRUCKS
4.4.4. Air Heater (Gray Heater):

This resistor element is placed between the cylinder head and intake duct and used for heating the air in pre/post heating operations.

Engine control unit activates the pre/post heating when any of the water, air or oil temperature sensors detects a temperature value under 10 °C and turns on the warning light inside the cab according to the temperature value, and after a while, light flashes to indicate the driver that the engine may be operated.



Relay specifications:
Continuous Current 130A at



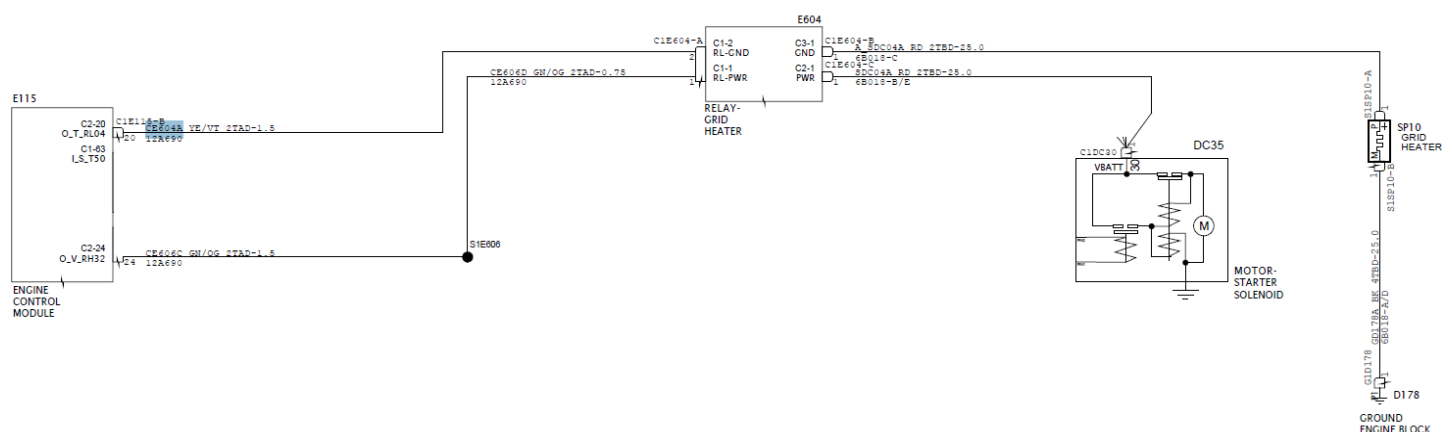
Battery Voltage

Ground

Air heater operating voltage: 24 Volt
Air heater resistance: 235 mOhm $\pm$ 10%

Connector Description:

Connector Code	C1E604			
Connector Description	AIR HEATER (GRAYLL HEATER) RELAY			
Pin Layout	Wiring Number	Wire Thickness	Wiring Colour	Function
1	CE606C	0.75	Green/Orange	Engine Control Unit C2-24 (C1E115-B)
2	CE604A	0.75	Yellow/Purple	Engine Control Unit C2-20 (C1E115-B)

Air Heater Wiring Diagram:


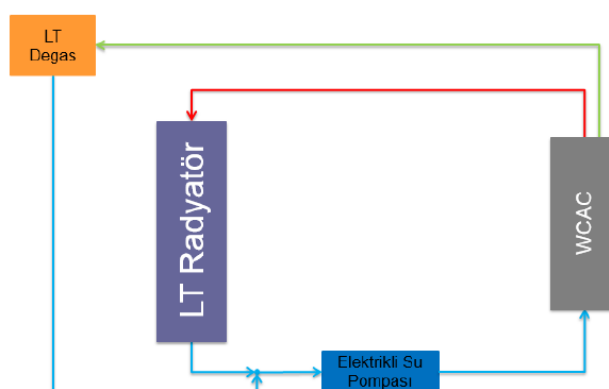
TRUCKS

4.4.5. WCAC Pump:

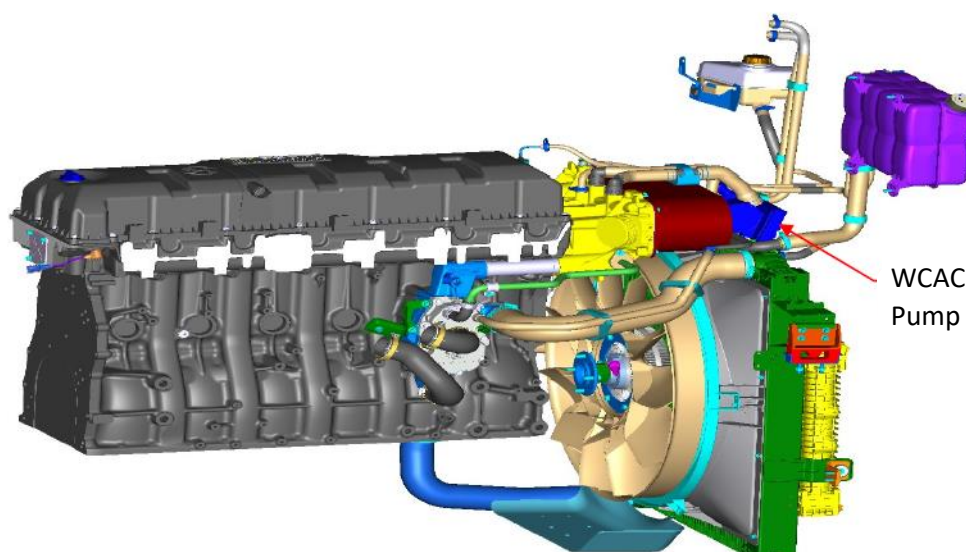


Function :

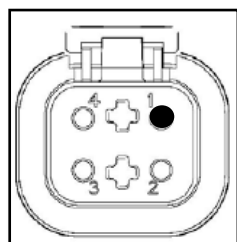
It is used to cool the WCAC unit, which is used to cool the air taken from the turbo compressor and that shall be entering the intake manifold. It has its own circulation independent of the engine coolant.



Location on the engine:



TRUCKS



Connector Code	C1E620				
Connector Description	WCAC Pump				
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit	Target Pin Layout
2	Chassis (Ground)	0.75	Black/Blue		D152 Ground Connection
3	Power	0.75			
4	Signal	0.75		Fuse Box	Relay R23-20A

Checking Method:

WCAC PUMP (24V)				
Parameter	Min.	Nom.	Max.	Unit
Operating Voltage	18	27	32	V
Operating Current	-	9	15	A
Current when ignition off	-	-	300	μ A
Current when engine off	-	60	-	mA
Instantaneous Current	-	-	370	A
Instantaneous current period	-	-	250	μ S

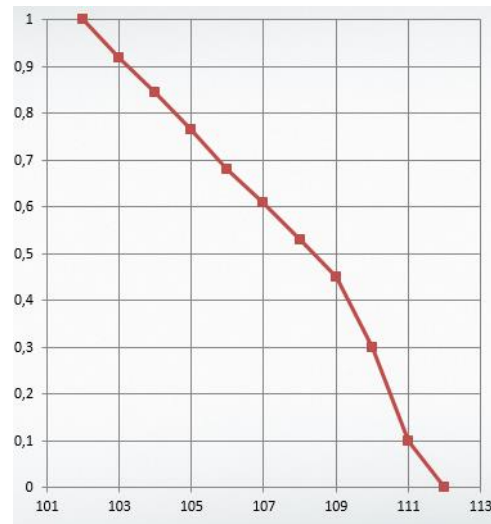
- When the temperature of the electronic unit on the WCAC Pump reaches 130 °C, pump turns itself off for protection. Pump is activated again automatically when the unit temperature is 125 °C.

4.4.6. Torque Reduction Strategy

Engine Coolant Temperature:

- If no replaceable air compressor is available:

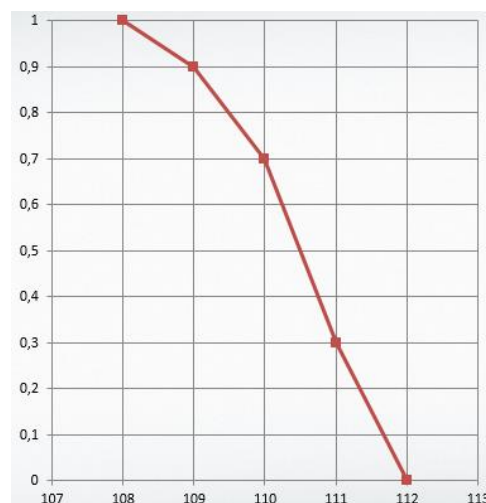
Engine Coolant Temperature (°C)



- Torque reduction starts at 102 °C, vehicle reduces torque so that loaded vehicle can move at 112 °C.

- If a replaceable air compressor is available:

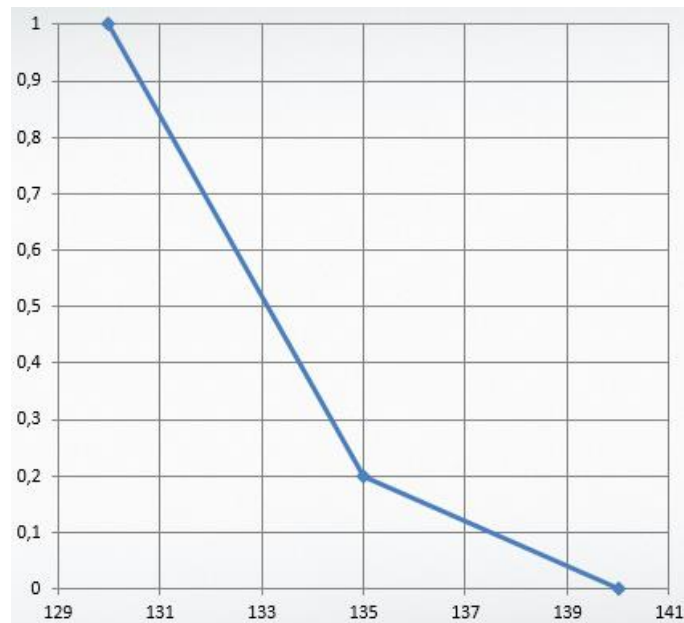
Engine Coolant Temperature (°C)



- Torque reduction starts at 108 °C, vehicle reduces torque so that loaded vehicle can move at 112 °C.

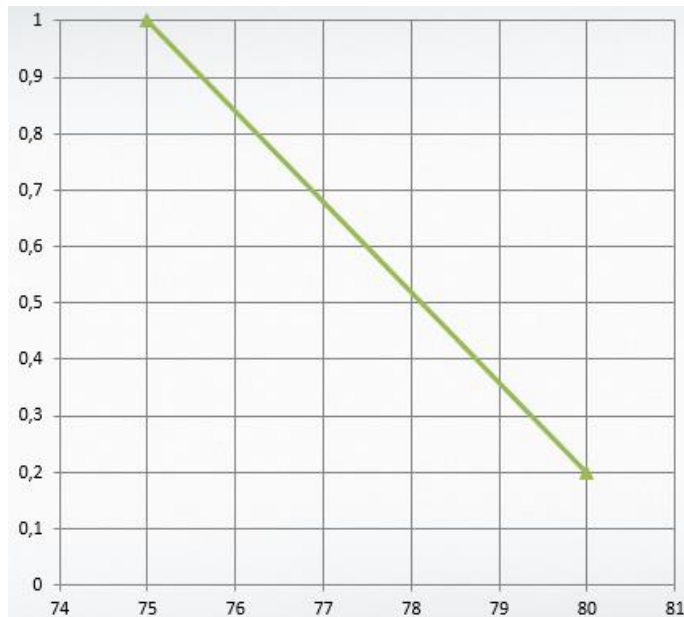
TRUCKS

Engine oil temperature:



- Torque reduction starts at 130 °C, vehicle reduces torque so that loaded vehicle can move at 140 °C.

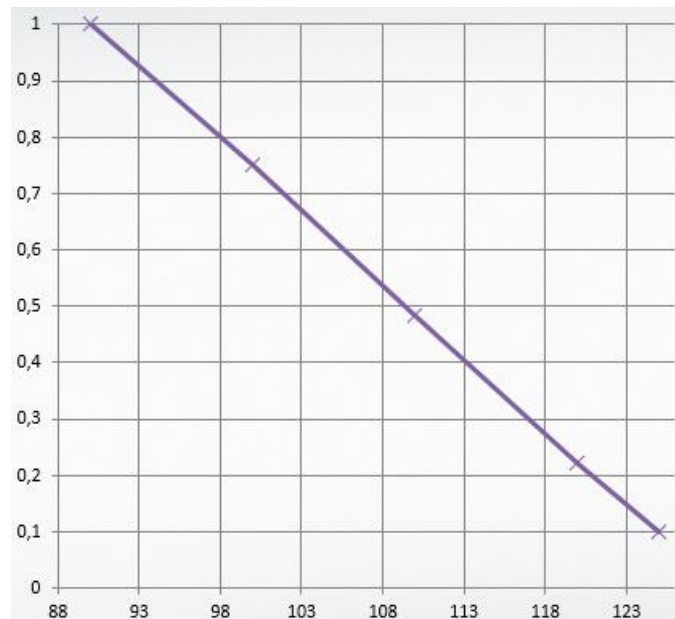
Fuel Temperature:



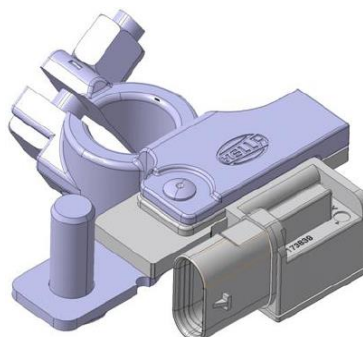
- Torque reduction starts at 75 °C, vehicle reduces torque so that loaded vehicle can move at 80 °C.

TRUCKS

Engine Air Input Temperature:



- Torque reduction starts at 90 °C, vehicle reduces torque so that loaded vehicle can move at 125 °C.

TRUCKS
4.4.7. Alternator, Smart Charging System and Battery Monitoring Sensor (BMS)
Battery Monitoring Sensor (BMS):

Function :

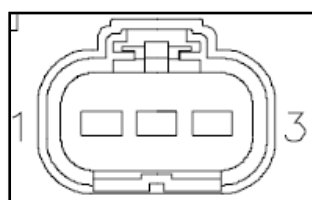
With the sensor on battery (-) terminal, temperature, current and voltage values are measured on the battery. Information obtained from the measurements taken are transferred to Body Electronics Control Unit (BCU). BCU ensures calibration by controlling with the ECU (Engine Control Unit) via CAN line.

According to the information sent, battery status information is monitored via ECU.

- 1- SOC (State of Charge) - Battery state-of-charge
- 2- SOH (State of Health) - Battery state-of-health
- 3- SOH (State of Temperature) - Battery state-of-temperature
- 4- Internal Resistance

Manufacturer:

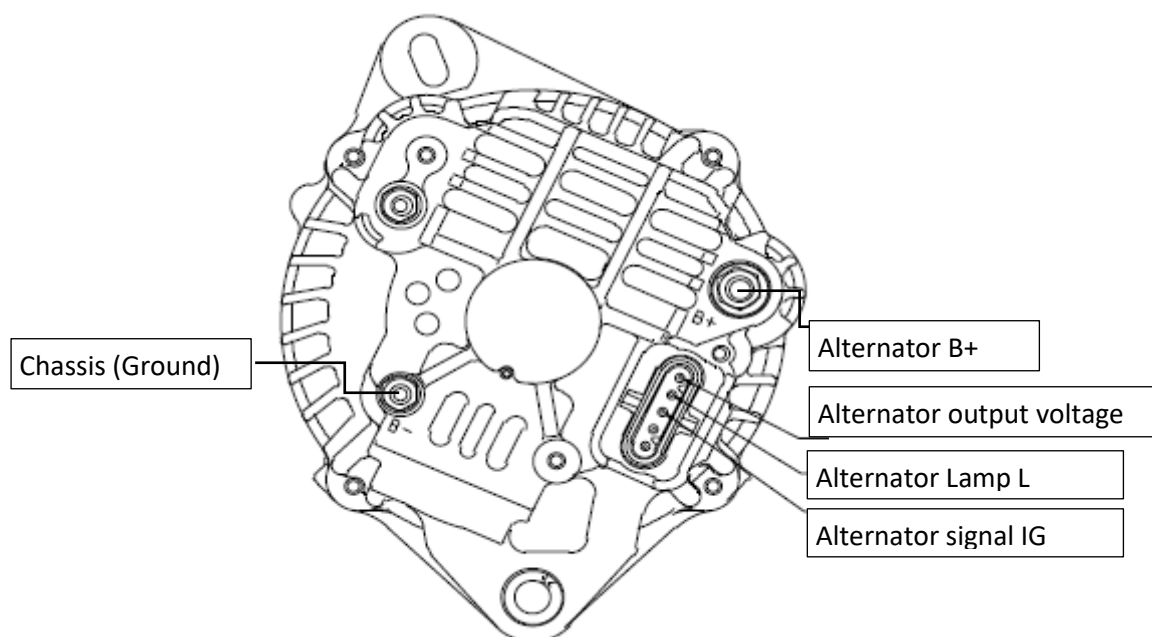
Hella



Connector Code	C2DC56			
Connector Description	BMS Sensor			
Pin Layout	Wire Thickness	Wiring Colour	Function	Target Unit
1	1	Blue/White	Battery-1 (12V)	Battery-1 positive voltage
2	0.75	White	LIN Line	BCU - (C2AM02-B) - 06
3	1	Purple/Grey	Battery-2 (24V)	Battery-2 positive voltage

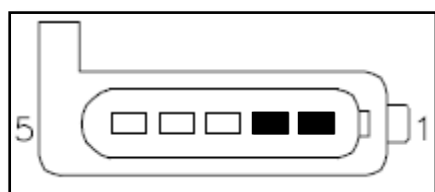
TRUCKS

Alternator :

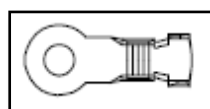


Manufacturer :

Mitsubishi



Connector Code	C1DC06			
Connector Description	ALTERNATOR			
Pin Layout	Wire Thickness	Wiring Colour	Function	Target Unit
3	0.75	Purple	Signal (IG)	ECU - (C1E115-B) - 47
4	0.75	Purple/White	Indicator Light (L)	CLUSTER - (C2MC01-B) - 22
5	0.75	Green/White	Output voltage (W)	A.CABIN - (C2_1) - 15



Connector Code	C1DC14-C		
Connector Description	ALTERNATOR (B+)		
Pin Layout	Wire Thickness	Wiring Colour	Target Unit
1	25	Red	Mega Fuse - 150A

TRUCKS

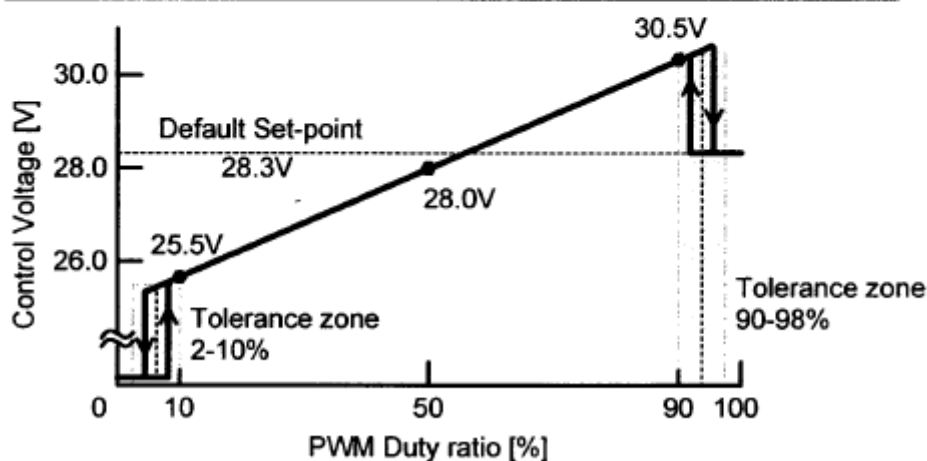
Operating Principle and Checking Method:

Alternator includes a PWM (Pulse Width Modulation) controlled regulator. Regulator performs voltage regulation with the signal (IG) from ECU. Regulator, determines the frequency and duty cycle of the signal from ECU and changes the control voltage as per duty cycle.

Regulator stops the output and alternator stops generating energy if the signal received from ECU is less than 2% PWM duty cycle. It fixes the control voltage at 28.3V if the signal received from ECU is Violete than 98% PWM duty cycle.

Operation frequency range of the PWM controlled regulator when measured with an oscilloscope: **200Hz** (+/-10Hz)

Duty ratio of PWM signal	Control Voltage (20°C) [V]			Temperature Compensation of Control Voltage [mV/°C]		
	Min.	Typ.	Max.	Min.	Typ.	Max.
< 2 % (0%)	Stop excitation (ADR)			-----		
10 %	25.0	25.5	26.0	-3.0	0	3.0
50 %	27.5	28.0	28.5			
90 %	30.0	30.5	31.0			
> 98 % (100%)	27.8	28.3	28.8	-3.0	0	3.0



Control voltage vs PWM Duty ratio (20°C)

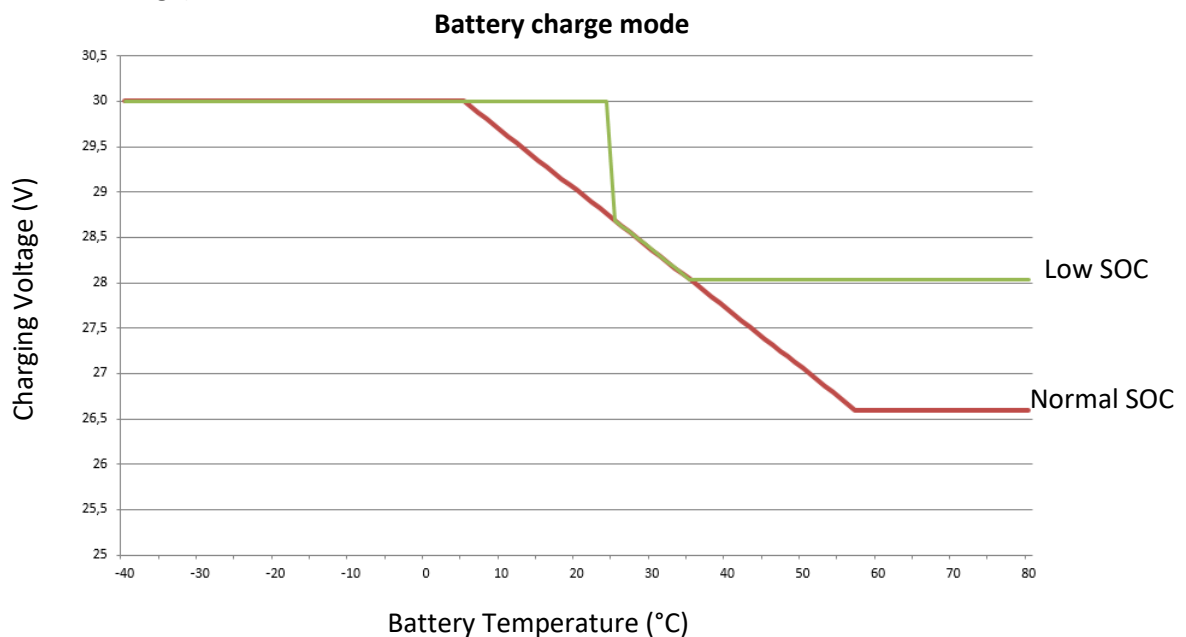
TRUCKS

Smart Regenerative Charging

Ford Smart Regenerative Charging system is an advanced software that transforms kinetic energy to electric energy by increasing the output power of alternator in deceleration and coasting conditions and thus allows that battery is always kept at optimum charge level.

System has 2 modes.

- 1) **Battery Charge mode:** It is controlled by the BCU as per the signals received from BMS. It is activated when SOC (State of Charge) is less than 85%.



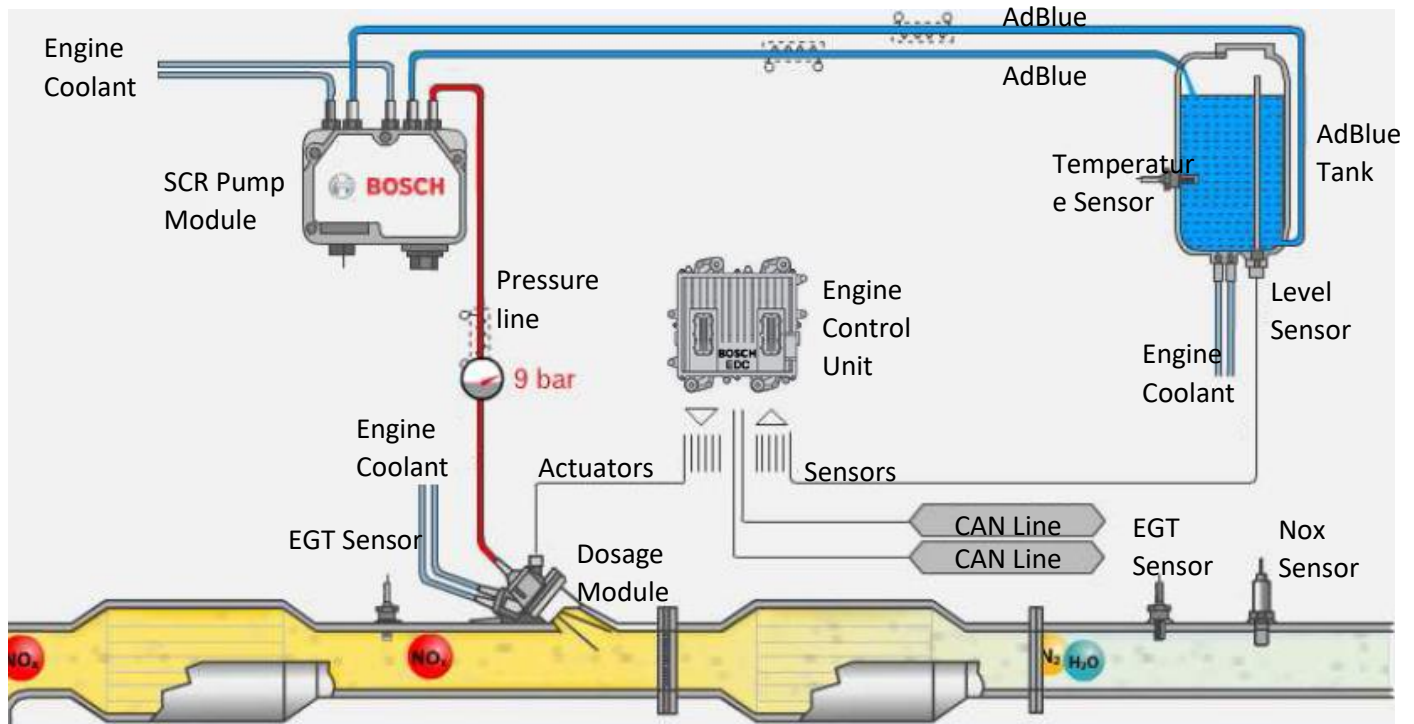
- 2) **Regeneration Mode:** It is controlled by the ECU as per the signals received from BMS. It uses 2 methods for the purpose of fuel economy.

2-a) Zero Current Mode:

On heavy load conditions, alternator cuts off the charging with the command issued by ECU as per the signals received.

2-b) Regeneration Mode:

It is based on the principle of benefiting from the kinetic energy by increasing the charge level in deceleration and coasting conditions.

TRUCKS
4.5. SCR (AdBlue) System
4.5.1. Schematic View of SCR System:


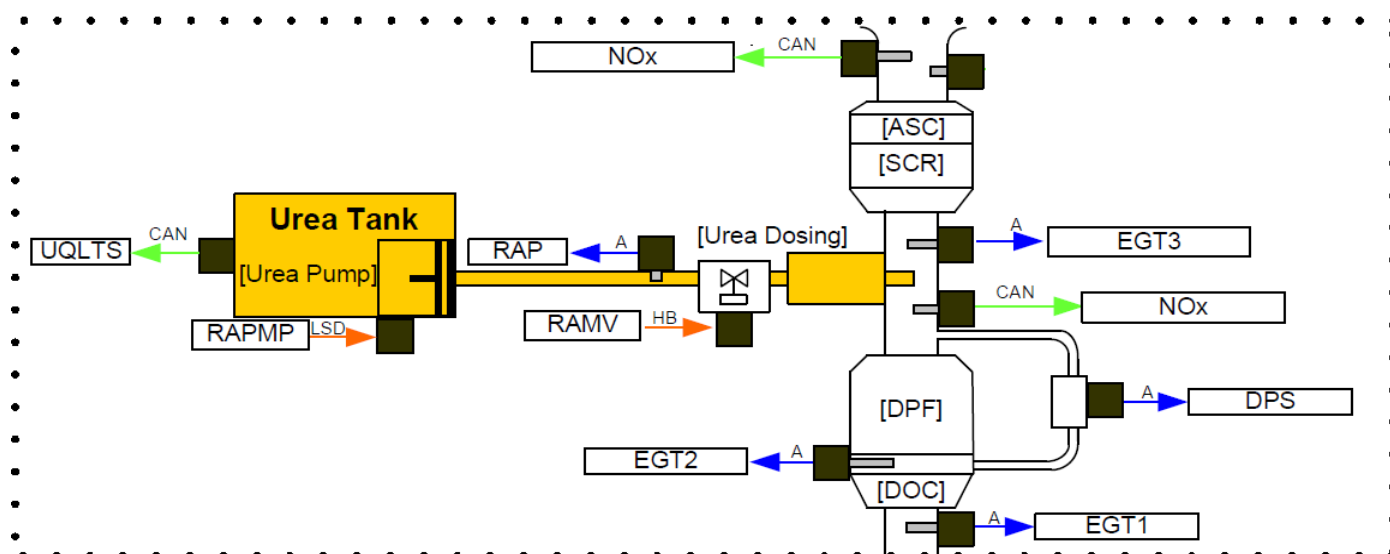
NO_x gas is formed by mixing of Oxygen and Nitrogen gas with air that occur during combustion in high temperatures while the engine is operating. According to sensor information received from engine control unit, Adblue mixture is pumped from the tank via the pump module as per the NO_x level and sent to the dosage module via hydraulic lines. When system pressure reaches 9 bar, dosage module starts to inject, ADblue mixture to the exhaust pipe.

SCR System Equipment:

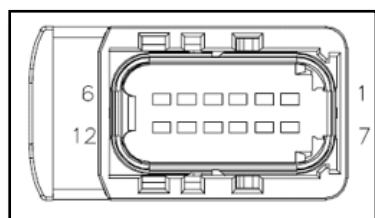
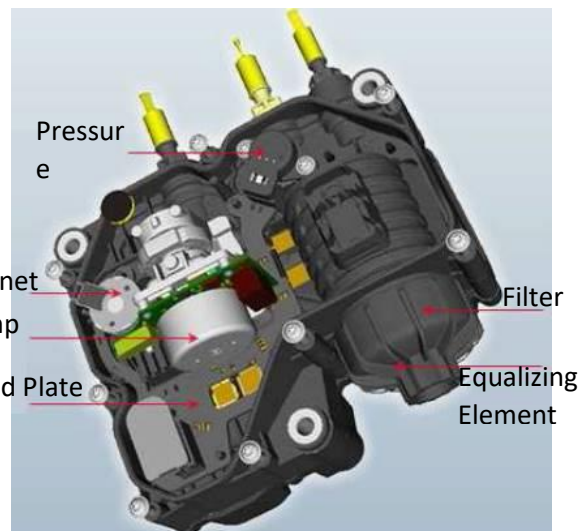
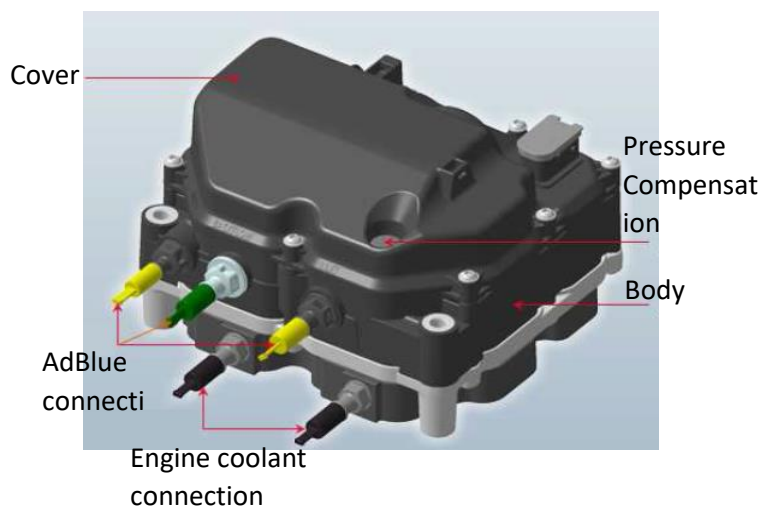
- Pump Module
- Dosage Module
- AdBlue Tank
- Engine Control Unit
- Sensors (Level, Temperature, Pressure, Urea Quality)
- Hydraulic Lines (Engine coolant, AdBlue)

TRUCKS

4.5.2. Sensor and Actuator Diagram for SCR and Exhaust System:



Acronym	Emission Norm			Definition
	EU3	EU5	EU6	
-				-
EGT1		X	-	Exhaust gas temperature sensor-1
EGT2		-	X	Exhaust gas temperature sensor-2
DPF		-	X	Diesel Particulate Filter
DPS		-	X	Differential Pressure Sensor for DPF
NOx		X	X	NOx sensor
EGT3		-	X	Exhaust gas temperature sensor-1
RAMV		X	X	AdBlue Dosage Module
RAP		X	X	AdBlue Pressure Sensor
RAPMP		X	X	AdBlue Pump Module
UQLTS		X	X	Urea Quality-Wema Sensor

TRUCKS
4.5.3. Pump Module:


Connector Code	C1E348 – 12K510 Wiring No.			
Connector Description	SCR ADBLUE PUMP MODULE			
Pin Layout	Wire Thickness	Wiring Colour	Function	Target Unit
2	0.75	Grey/Blue	Pressure sensor positive voltage (5V)	ECU - (C1E115-A) - 68
3	0.75	Green/Brown	Pressure sensor signal	ECU - (C1E115-A) - 07
4	0.75	Green/Purple	Pressure sensor ground connection	ECU - (C1E115-A) - 39
5	0.75	Blue/Orange	Line Heater Signal	AUX Relay R8(20A) - 01
6	1.5	Yellow/Grey	Pump module heater signal	ECU - (C1E115-A) - 02
8	0.75	White/Blue	Pump motor ground connection	ECU - (C1E115-A) - 89
9	0.75	Brown/Blue	Pump motor positive voltage	ECU - (C1E115-A) - 50
10	0.75	Green/Blue	Pump motor PWM signal	ECU - (C1E115-A) - 84
11	0.75	Brown/Blue	Recollection valve positive voltage	ECU - (C1E115-A) - 50
12	0.75	Green	Recollection valve signal	ECU - (C1E115-A) - 85

TRUCKS

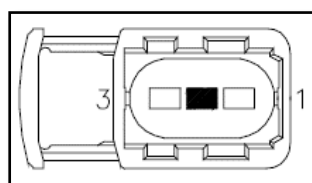
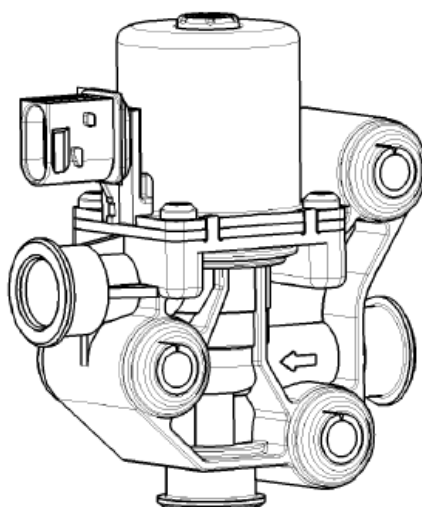
Pump Module Control Method:

Required Parts	Connector Pin No.	Value	Condition
Pump Motor Current	8.9	400 mA $\pm$ 200 mA	no dosage at 23°C $\pm$ 5°C, at 28.5V voltage and 900 kPa.
Pressure Sensor Supply	2.4	5.00 V $\pm$ 0.25 V	Stable Voltage is provided by the ECU.
Pressure Sensor Signal	3.4	3,357 V $\pm$ 0.05 V	at 23 °C $\pm$ 5 °C, 900kPa system pressure
Recollection valve	11.12	21.10 Ω $\pm$ 3 Ω	Resistance value at 23 °C $\pm$ 5 °C
Heater	5.6	6.0 Ω $\pm$ 1 Ω	Resistance value at 23 °C $\pm$ 5 °C

4.5.4. Valve used for heating the AdBlue Tank:

It is used for heating the engine coolant and AdBlue Tank.

This valve operates as connected to the urea temperature sensor and air temperature sensor inside the tank. It operates without closing until -7 degrees of urea temperature, at by opening and closing according a frequency dependent on the air temperature from -7 degrees to 0 degrees. When the urea temperature inside the tank exceeds 0 degrees, valve closes until it is cooled to -2 degrees again as heating is no longer required, and no coolant passes through the tank.

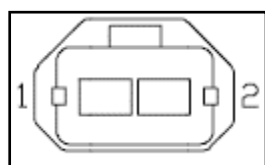


TRUCKS

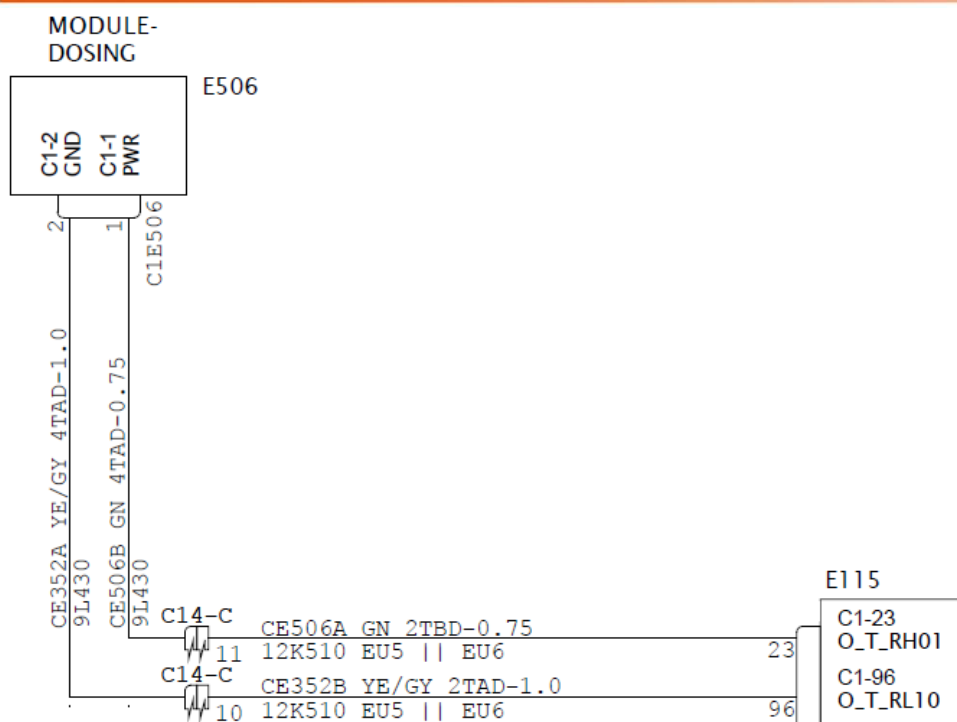
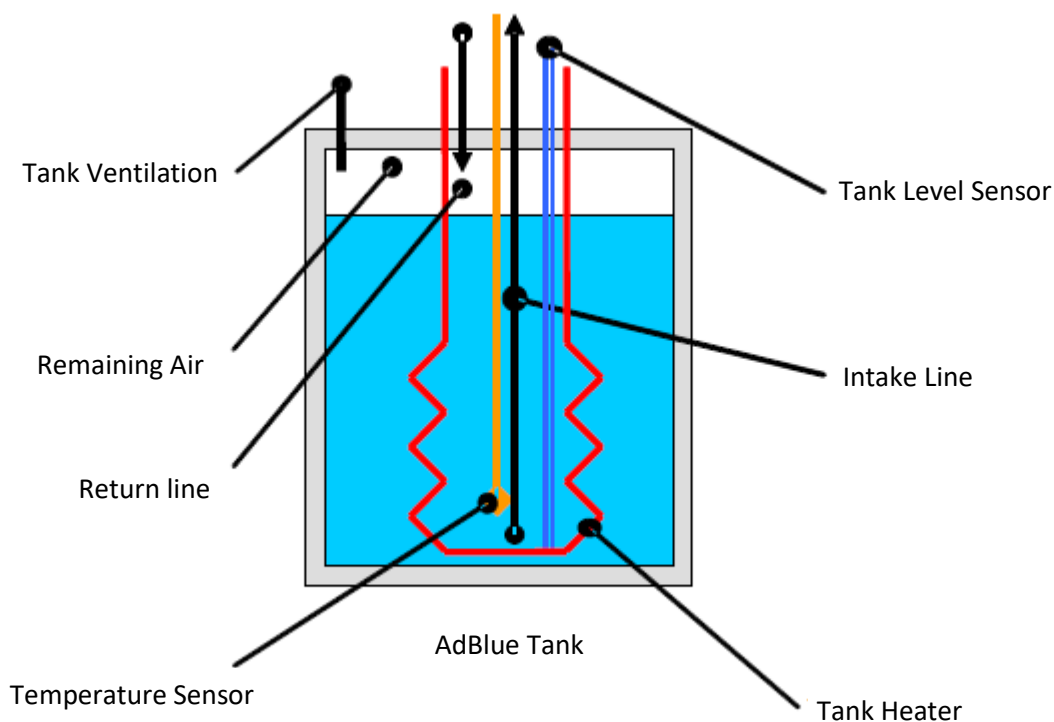
Connector Code	C1E356			
Connector Description	AdBlue TANKI HEATING VALVE			
Pin Layout	Wire Thickness	Wiring Colour	Function	Target Unit
1	0.75	Green/Purple	Battery Voltage	ECU - (C1E115-A) - 74
3	0.75	White/Orange	Signal	ECU - (C1E115-A) - 83

Checking Method:

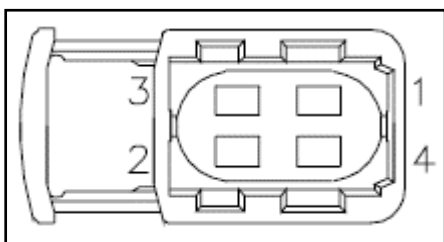
Current value that shall be read at 20 °C while voltage value is 24V is 0.75A

4.5.5. Dosage Module:


Connector Code	C1E506			
Connector Description	DOSAGE MODULE			
Pin Layout	Wire Thickness	Wiring Colour	Function	Target Unit
1	0.75	Green	AdBlue dosage valve positive voltage	ECU - (C1E115-A) - 23
2	1	Yellow/Grey	AdBlue dosage valve ground connection	ECU - (C1E115-A) - 96

TRUCKS

4.5.6. AdBlue Tank - Wema Sensor:


TRUCKS

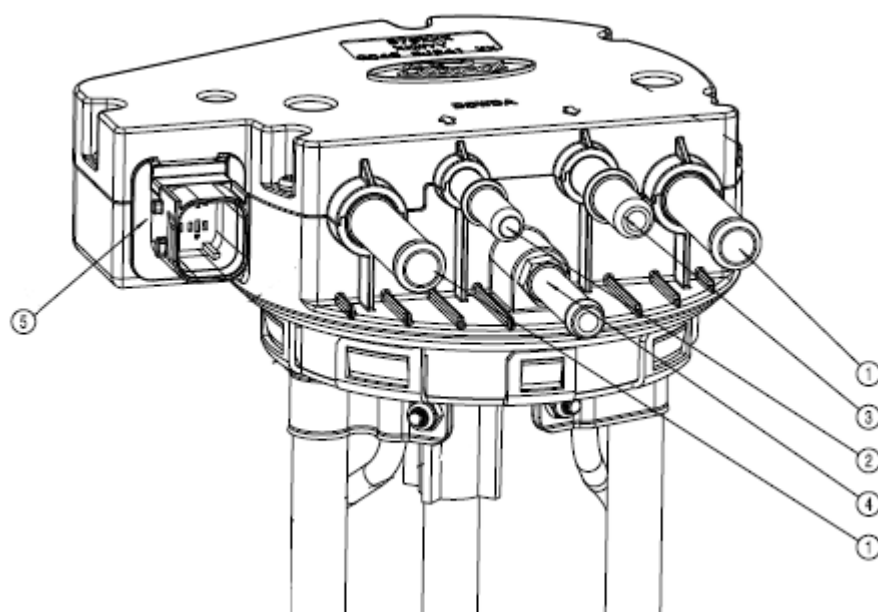


EU5

Connector Code	C1E834			
Connector Description	ADBLUE TANK - WEMA SENSOR			
Pin Layout	Wire Thickness	Wiring Colour	Function	Target Unit
1	0.75	Green	AdBlue tank level sensor supply/signal	ECU - (C1E115-A) - 31
2	0.75	Gray/Orange	Sensor Ground Connection	ECU - (C1E115-A) - 10
3	0.75	Blue/Grey	AdBlue tank temperature sensor supply/signal	ECU - (C1E115-A) - 08

EU6

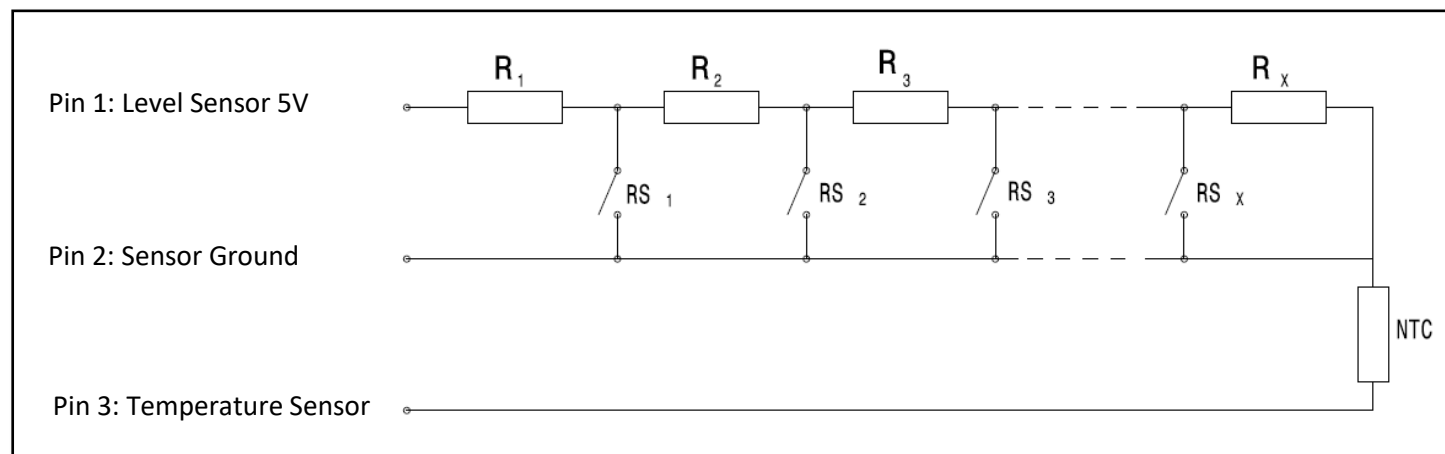
Connector Code	C1E834			
Connector Description	ADBLUE TANK - WEMA SENSOR			
Pin Layout	Wire Thickness	Wiring Colour	Function	Target Unit
1	0.75	Gray/Yellow	24V	ECU - (C1E115-A) -
2	0.75	White/Green	CAN-L	ECU - (C1E115-A) -
3	0.75	Green/Blue	CAN-H	ECU - (C1E115-A) -
4	0.75	Black/Grey	Ground connection	ECU - (C1E115-A) -



- 1- Engine coolant (for heating) Inlet line
- 2- AdBlue Return line
- 3- AdBlue Intake Line
- 4- Air Inlet
- 5- Wema sensor connector

TRUCKS

Wema Sensor Wiring Diagram:



AdBlue Tank Float (WEMA Sensor) Checking Method:

Pin Number	Signal Name	Measured Current (A) at Voltage Value (V)						Description
		Min.		Norm		Max.		
		mA	V	mA	V	mA	V	
1	Level	4.4	0.54	4.5	0.54	4.6	0.54	Tank Full
1	Level	0.4	4.4	0.46	4.4	0.5	4.4	Tank Empty
3	Temperature	1	3.7	1.1	3.7	1.2	3.7	Room Temperature (25 °C)

AdBlue Tank Float (WEMA Sensor) Resistance Values:

Temperature Sensor:

Resistance value at 25 °C 3.3 kOhm +/- 5%

Level Sensor:

Resistance value at 25 °C

TRUCKS

EU5

Short Type

L : 547mm

R (ohm)	L (mm)
120	>480
211	480
302	459
393	438
484	417
575	396
666	375
786	354
906	333
1026	312
1146	291
1326	270
1506	249
1686	228
1866	207
2046	186
2516	165
3026	144
3536	123
4096	102
5896	81
9496	60

Long Type

L : 617mm

R (ohm)	L (mm)
120	>543
211	543
302	522
393	501
484	480
575	459
666	438
757	417
848	396
939	375
1059	354
1179	333
1299	312
1419	291
1599	270
1779	249
1959	228
2139	207
2319	186
2789	165
3299	144
3859	123
4419	102
6019	81
9499	60

4.5.7. Exhaust gas temperature sensor (EGT):



Function:

TRUCKS

EGT sensor is installed to various points on the exhaust, and measures whether the catalytic converter in the exhaust operates within an efficient temperature range.

Manufacturer:

BERU – Borg Warner

Type:

This is a PTC type sensor.

Resistance value changes; and changes the voltage on resistance divider circuit on the ECU and generates a meaningful signal for Engine Control Unit (ECU).

Connector Pin Layout:


Connector Code	C1E722				
Connector Description	EGT-1				
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit	Target Pin Layout
1	Signal	0.75	Brown	ECM (Engine Control Module)	C1-16
2	Chassis (Ground)	0.75	Grey/Purple	ECM (Engine Control Module)	C1-18

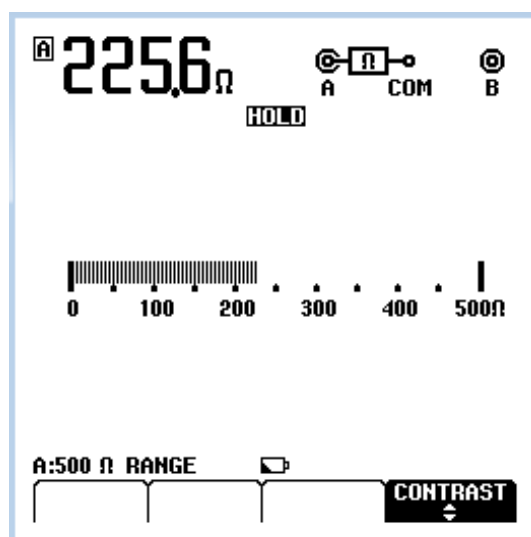
Connector Code	C1E723				
Connector Description	EGT-2				
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit	Target Pin Layout
1	Signal	0.75	Green/Purple	ECM (Engine Control Module)	C1-17
2	Chassis (Ground)	0.75	Grey/Purple	ECM (Engine Control Module)	C1-18

TRUCKS

Connector Code	C1E771				
Connector Description	EGT-3				
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit	Target Pin Layout
1	Signal	0.75	Brown/Purple	ECM (Engine Control Module)	C1-32
2	Chassis (Ground)	0.75	Gray/Orange	ECM (Engine Control Module)	C1-10

Checking Method:

When measured from the terminals no. 1 and 2 on connector pins; the value that shall be observed at 25 °C sensor temperature shall be 220 Ohm +/- 5%.



TRUCKS

4.5.8. NOX Sensor (NOx) :



Function:

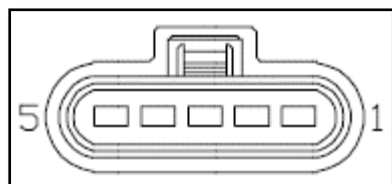
NOx sensor is used in 2 pieces in the EU6 norms. Sensors are placed in the front and end of the urea dosage. Sensor in the front determines how much urea shall be injected as per the NOx level in the exhaust gas; and the sensor in the end determines the efficiency of catalytic converter and how much of the NOx is converted successfully.

It communicates with the ECU via the internal CAN line.

Manufacturer:

Continental

Connector Pin Layout:



Connector Code	C1E826-C				
Connector Description	NOx-1 SENSOR				
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit	Target Pin Layout
1	Power	0.75	Grey/Purple	Fuse Box	Mini Fuse F36
2	Chassis (Ground)	0.75	Black/Grey	S1D163 Connection	D163 Ground Connection
3	CAN-H	0.75	Brown/Green	ECM-Engine Control Unit	C1-46
4	CAN-L	0.75	Brown/Blue	ECM-Engine Control Unit	C1-47

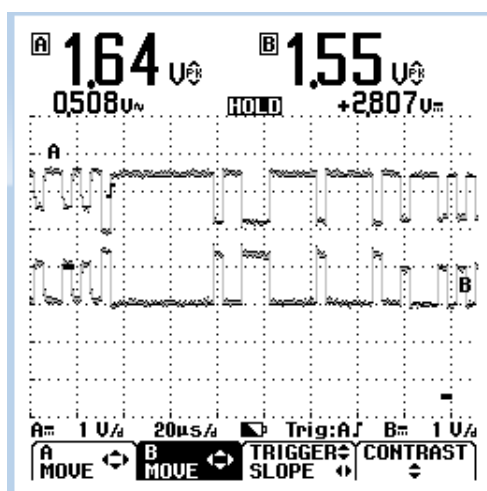
TRUCKS
EU6

Connector Code	C1E826-A				
Connector Description	NOx-1 SENSOR				
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit	Target Pin Layout
1	Power	0.75	Grey/Purple	S1E356B Connection	Mini Fuse F36
2	Chassis (Ground)-1	0.75	Black/Grey	S1D163 Connection	D163 Ground Connection
3	CAN-H	0.75	Brown/Green	ECM-Engine Control Unit	C1-46
4	CAN-L	0.75	Brown/Blue	ECM-Engine Control Unit	C1-47
5	Chassis (Ground)-2	0.75	Black/Grey	S1D163A Connection	D163 Ground Connection

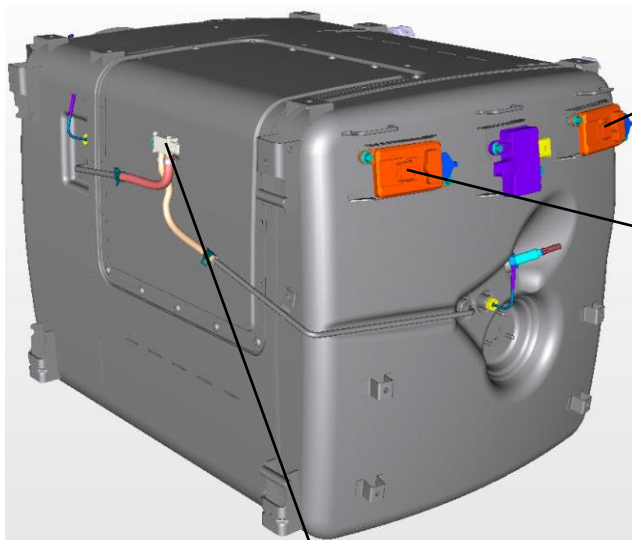
Connector Code	C1E826-B				
Connector Description	NOx-2 SENSOR				
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit	Target Pin Layout
1	Power	0.75	Grey/Purple	S1E356B Connection	Mini Fuse F36
2	Chassis (Ground)	0.75	Black/Grey	S1D163A Connection	D163 Ground Connection
3	CAN-L	0.75	Brown/Blue	ECM-Engine Control Unit	C1-47
4	CAN-H	0.75	Brown/Green	ECM-Engine Control Unit	C1-46

Checking Method:

It is inspected with the measurement made from the CAN line with the oscilloscope.


4.5.9. Layout of EGT, NOx and DPS Sensors on Exhaust:

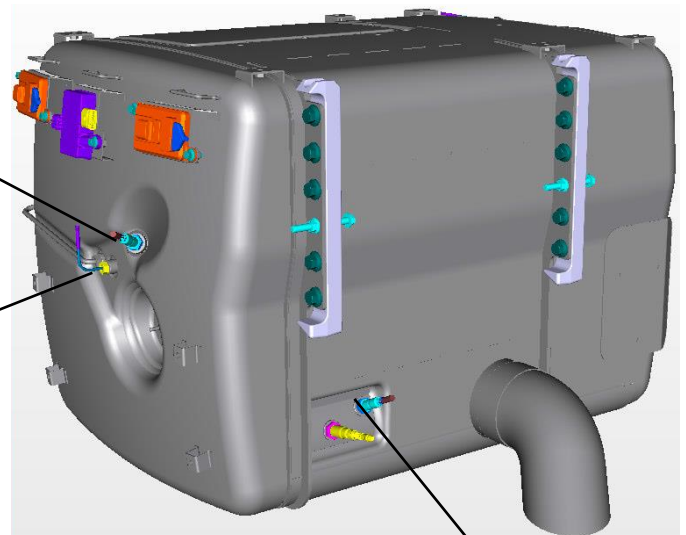
TRUCKS



DPS

NOx Module-

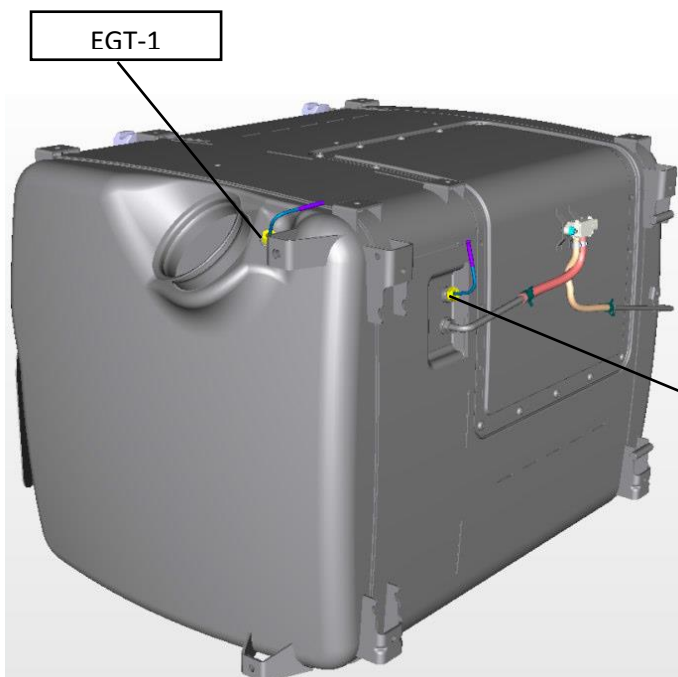
NOx Module-



NOx-2

EGT-3

NOx-1

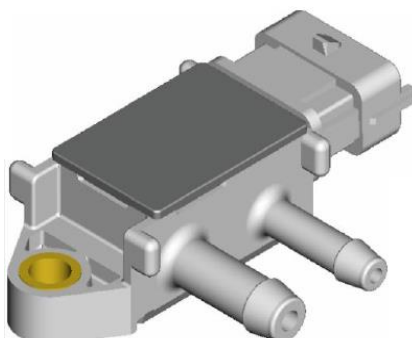


EGT-1

EGT-2

04/05/2010. DPF Differential Pressure Sensor (DPS):

TRUCKS



Function :

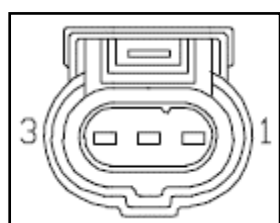
Determines whether DPF is filled with soot by measuring the input and output pressure of DPF (Diesel Particulate Filter). If the filter is full, regeneration command is issued and the soot inside the DPF is burnt with the fuel injected from Departronic injection unit on the exhaust outlet pipe of the turbo.

Manufacturer :

Continental

Type :

This is a Piezo-resistive (PRT) type sensor.

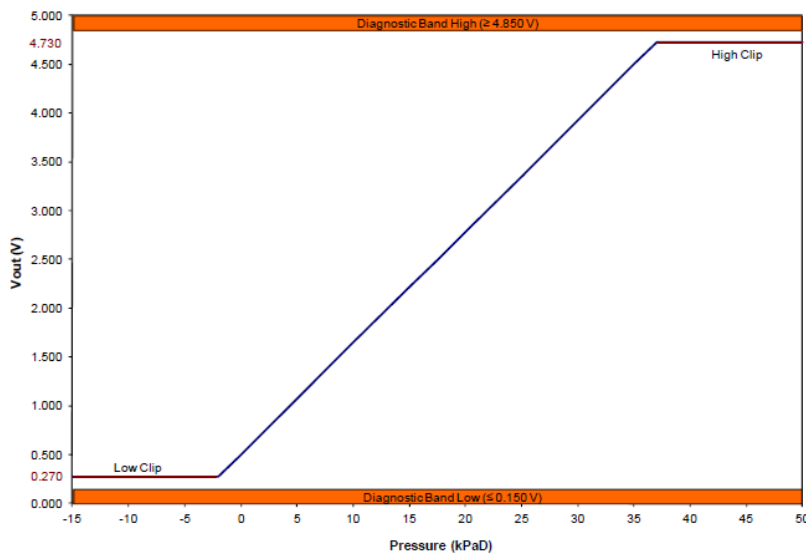
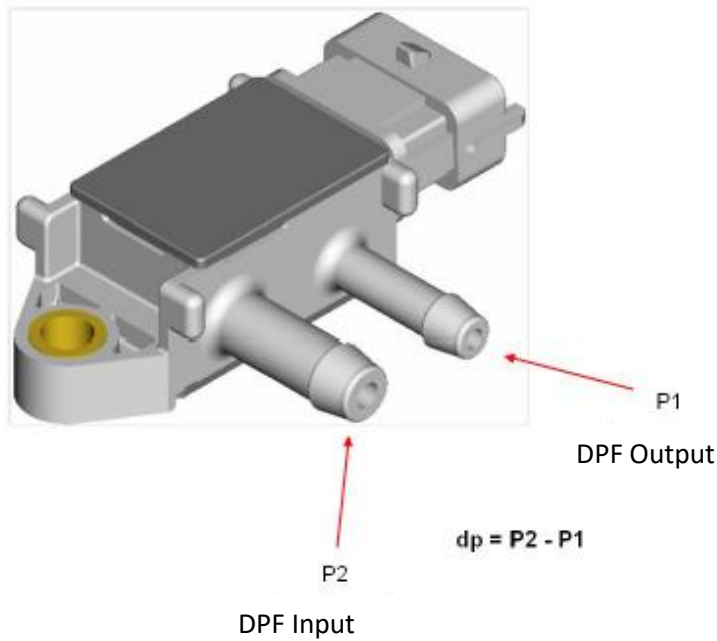


Connector Code	C1E353				
Connector Description	DPS - DPF PRESSURE SENSOR				
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit	Target Pin Layout
1	Signal	0.75	Yellow/Orange	ECM-Engine Control Unit	C1-55
2	Chassis (Ground)	0.75	Green/White	ECM-Engine Control Unit	C1-43
3	Power (5V)	0.75	White/Blue	ECM-Engine Control Unit	C1-90

Checking Method:

Measuring Method	Min. Value	Symbol
Resistance between Pin 1 (Signal) and Pin 3 (Power 5V)	90	k Ω
Resistance between Pin 1 (Signal) and Battery Voltage (24V)	612	k Ω
Resistance between Pin 1 (Signal) and Pin 2 (Chassis-Ground 5V)	46	k Ω

TRUCKS



Voltage chart in pressure difference between $0 \geq dp \geq 35$ kPaD is as giving in the image on the side.

When sensor voltage is 5V and differential pressure is 0,

Vout shall be read as 0.5V.

Vout is the voltage read from Pin 1 (Signal).

TRUCKS**4.6. EBS****4.6.1. Main Functions:**

Functions of EBS system are applied in the central control unit (ECU). Some functions are optional and may be activated or deactivated by EoL programming. Some EBS functions are as follows:

Brake power control

Driver's speed reduction demand is recorded and according to this demanded speed reduction, brake pedal position characteristic is converted to braking pressures considering the axle load independently of the load condition of the vehicle. Brake pedal characteristics may be set by EoL parameter.

ABS function.

The purpose of ABS function is to prevent locking of wheels during braking in order to maintain steerability and stability of the vehicle and minimize the stop distance. ABS intervenes braking at every condition where the friction available between the road and the tire of a wheel is lower than the braking power applied to the wheel and thus it causes that the wheel reduces speed very quickly (wheel locking).

Automatic Traction Control function

The purpose of ATC (Automatic Traction Control) function is to maintain the stability of vehicle while driving and prevent slippage of the driven wheels in order to increase traction power during acceleration. ATC may be divided to two sub-functions: engine control and brake control.

DTC function

The purpose of DTC (Direct Torque Control) is to prevent the inclination of driven wheels to lock caused by the engine inertia on a low friction surface. If the average speed of driven wheels indicate a locking due to low friction, DTC demands a specific amount of engine torque to drive the driven wheels.

Brake assist function

As per the experiences, pedal movement of the driver is adequately quick on the start of an emergency braking only and it is not possible to apply the brakes fully. The purpose of this function is to assist the driver in such a condition and provide him a precious time in the first, quick operation of the emergency braking. Brake pressure shall be increased compared to the real demand of the driver according to the brake demand and movement speed of brake pedal.

Retarder integration

The purpose of this function is to reduce the friction brakes by using auxiliary brakes instead of braking power. Auxiliary brakes (engine controlled resistance brake and primary or secondary retarder) are automatically applied by EBS when brake pedal is pressed. Retarder integration function does not change the conformity of towing and towed vehicles (retarder assists braking of both towing and towed vehicles).

TRUCKS**Connection power control**

The purpose of the Connection Power Control function is distributing the brake energy between towing and towed vehicle. The output of the function is a differential pressure that changes the trailer connection head pressure.

Trailer brake function

Trailer brake function allows braking of the trailer independently of the vehicle. Using a button in the instrument cluster, EBS sets 4 bar pressure to trailer if the vehicle speed is under a specified limit (almost stationary).

Differential lock prevention

Power supply to differential lock switch shall be coming from EBS. EBS checks the speed difference between drive wheels and if the speed difference is over a limit, it prevents the activation request to prevent damage to the differential lock.

Hill Start Assist function

Hill Start Assist function is used for assisting the uphill starts by maintaining the service brake pressure or delaying the release of service brake in order to provide Violete time for the driver as he switches through the pedals. This function is not intended to be used as park brake.

ESP Function

ESP (Electronic Stability Program) is intended to maintain the drive stability of the vehicle. This can only be achieved within rules of physics! ESP consists of two sub-functions:

Yaw Control (YC): intended for conditions such as sharp turns in low and medium- μ conditions, low and excessive steering etc.

Roll-Over Protection (ROP): reduces the risk of roll-over in high and medium- μ conditions.

Driver information and troubleshooting

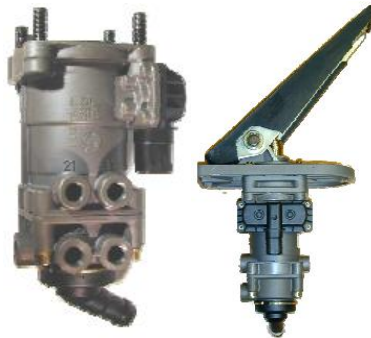
Warning and information screens are different for different applications; and these are connected to electrical system of the vehicle. EBS5's basic communication interface for display and warnings is the CANJ1939 communication line (KWP over CAN), which is also the interface for troubleshooting. However, some lamps may be directly controlled from EBS ECU.

TRUCKS

4.6.2. EBS System Components:

- 1- Foot Brake Module (FBM)
- 2- Electro-Pneumatic Valve (EPM)
 - 2.1- 1C-EPM (1 Pressure Channel)
 - 2.2- 2C-EPM (2 Pressure Channels)
- 3- Trailer Control Valve (TCM)
- 4- Pressure Control Valve (PCV)
- 5- Axle Load Sensor (ALS)
- 6- Steering Angle Sensor (SAS)
- 7- Yaw Rate Sensor (YRS)
- 8- EBS Control Unit (EBS ECU)
- 9- Wheel Speed Sensor (WSS)

4.6.2.1. Foot Brake Module (FBM)



C1A119				
Connector Description	FOOT BRAKE MODULE (FBM)			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Chassis (Ground)	0.75	BU	EBS (A) - 4
2	Power Supply	0.75	GY/OG	EBS (A) - 7
4	Signal-1	0.75	YE/VT	EBS (A) - 5
5	Signal-2	0.75	WH/GN	EBS (A) - 8
6	Button Switch	0.75	GN/BU	EBS (A) - 6

A displacement sensor integrated to foot brake module of the EBS system in order to measure the brake pedal movement that will be transferred to the driver's speed reduction demand. FBM also includes two pneumatic control circuits. In case of a serious electric fault in the system, vehicle may be braked with the **pneumatic backup** line.

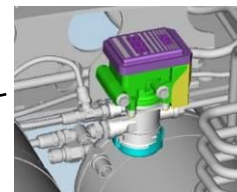
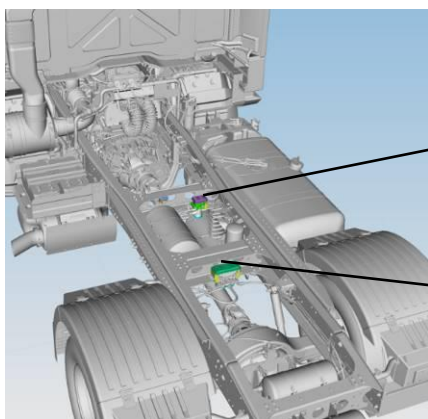
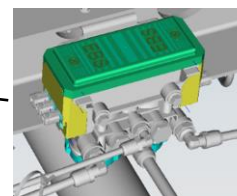
4.6.2.2. Electro-Pneumatic Module (EPM)

TRUCKS

EPM is an electro-pneumatic control. It consists of a relay valve, filter, muffler, solenoid valve for backup circuit, an input and output valve (solenoids), pressure sensor, electronic control unit and pneumatic and electronic connections. Wheel speed sensors and lining wear sensors may also be connected to EPM that shall transfer the signal to EBS-ECU via Brake-CAN.

There are two types of EPM available:

- 1C-EPM: this is a single channel control. It can serve a pneumatic channel with two wheels. It is used for the front axle of the vehicle.
- 2C-EPM: this is a dual channel control. It may serve two individual pneumatic channels with four wheels. It is used for the rear axle of the vehicle.


1C-EPM

2C-EPM
1C-EPM:

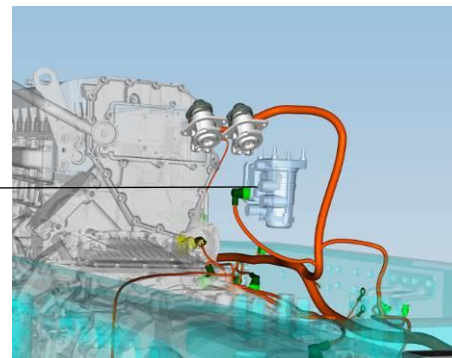
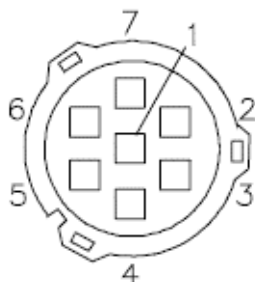

Symbol	Pneumatic connections	Electric plug
	1 Supply pressure	WSS A WSS B
	2 Braking pressure (2x)	LWS A/B
	3 Vent to atmosphere	
	4 Backup pressure	CANB SPL GND
		Pin / Signal
		1 Wheel speed sensor
		2 Wheel speed sensor
		1 Ground, LWS B
		2 Signal, LWS B
		3 Supply voltage, LWS B
		4 Ground, LWS A
		5 Supply voltage, LWS A
		6 Signal, LWS A
		Pin on ECU for
		front rear add1 add2
		1 Ground X2/15 X2/12 X2/11 X3/2
		2 Supply X2/7 X2/4 X2/1 X3/12
		3 CAN high X2/8 X2/5 X2/2 X3/8
		4 CAN low X2/9 X2/6 X2/3 X3/5

2C-EPM:


Symbol	Pneumatic connections	Electric plug
	1 Supply pressure	WSS A,B C,D
	21 Braking pressure, 2x channel 1	LWS A/B LWS C/D
	22 Braking pressure, 2x channel 2	ALS A/B
	3 Vent to atmosphere	
	4 Backup pressure	CANB SPL GND
		Pin / Signal
		1 Wheel speed sensor
		2 Wheel speed sensor
		1 Ground, LWS B (D)
		2 Signal, LWS B (D)
		3 Supply voltage, LWS B (D)
		4 Ground, LWS A (C)
		5 Supply voltage, LWS A (C)
		6 Signal, LWS A (C)
		1 Ground
		2 Signal ALS B
		3 Signal ALS A
		4 Supply voltage
		Pin on ECU for
		front rear add1 add2
		1 Ground X2/15 X2/12 X2/11 X3/2
		2 Supply X2/7 X2/4 X2/1 X3/12
		3 CAN high X2/8 X2/5 X2/2 X3/8
		4 CAN low X2/9 X2/6 X2/3 X3/5

TRUCKS

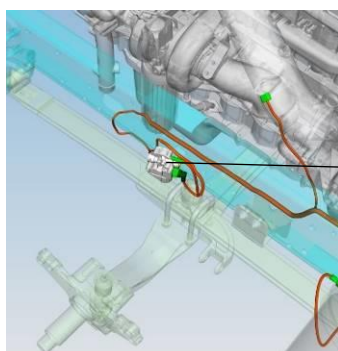
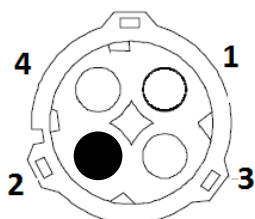
4.6.2.3. Trailer Control Module (TCM)



Connector Code	C1AT03			
Connector Description	TRAILER CONTROL MODULE (TCM)			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Valve Inlet	1.0	Blue/Green	EBS(D)-5
2	Valve power supply	1.0	Gray/Orange	EBS(D)-4
3	Backup valve	1.0	Green/Brown	EBS(D)-7
4	Sensor supply	1.0	Blue	EBS(D)-1
5	Sensor ground	1.0	White	EBS(D)-3
6	Sensor Signal	1.0	Purple/Brown	EBS(D)-2
7	Valve output	1.0	Brown/White	EBS(D)-6

TCM is an electro-pneumatic control designed for trailer pressure control. It consists of a relay valve, filter, muffler, solenoid valves for backup circuit, an input and output valve (solenoids), pressure sensor and pneumatic and electronic connections. Also, brake pressure is controlled by the park brake system beside the service brake system.

4.6.2.4. Pressure control valve (PCV)



TRUCKS

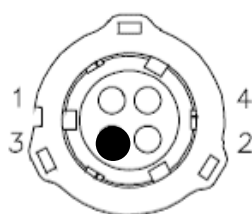
Connector Code	C1A124 - C1A123			
Connector Description	FRONT LEFT-RIGHT PRESSURE CONTROL VALVE (PCV)			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Output	1.5	Blue/Grey	EBS(B)-10/14
2	Chassis (Ground)	1.5	Green/Orange	EBS(B)-18
3	Introduction	1.5	Yellow/Purple	EBS(B)-13/16

As single channel EPM is used on front axle, a pressure control valve is also used. Pressure control valves are required for ESP and improved ABS functions. There is one valve each on front right and front left wheels.

4.6.2.5. Axle Load Sensor (ALS)

Axle load sensor is a pressure sensor that generates analog output voltage in technical terms. It is placed on the rear suspension bellow and informs the EBS system by generating a signal proportional to the bellow pressure. ECU uses the axle load information in critical setting such as braking power.

Electrical connection of the load sensor is with 2C-EPM. It takes the 5V power supply from 2C-EPM.

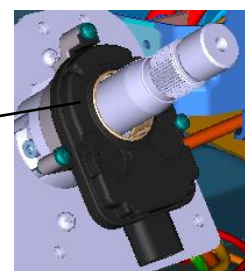
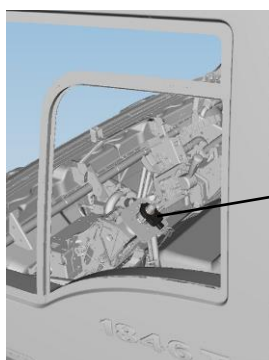
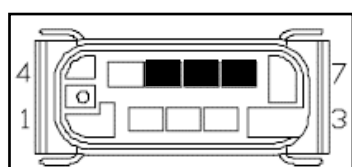


Connector Code	C1A127			
Connector Description	AXLE LOAD SENSOR			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Power (Supply)	1.0	Orange/White	C1A128-1
2	Signal	1.0	White/Brown	C1A128-3
4	Chassis (Ground)	1.0	Orange/Black	C1A128-4

4.6.2.6. Steering Angle Sensor (SAS)

Steering angle sensor (SAS) is a no-contact, analog angle sensor that measures the absolute angle position of the steering wheel. It outputs a digital sensor value via CAN interface. This sensor is required for EBS with ESP. Sensor is installed to the steering shaft so that it shall measure the rotating angle of the steering wheel only without any intervention from any additional secondary motions.

When the sensor is replaced, it shall be calibrated with the FODP2 software.



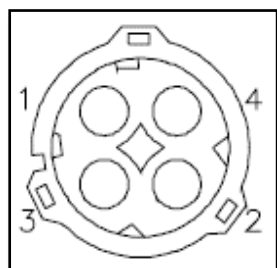
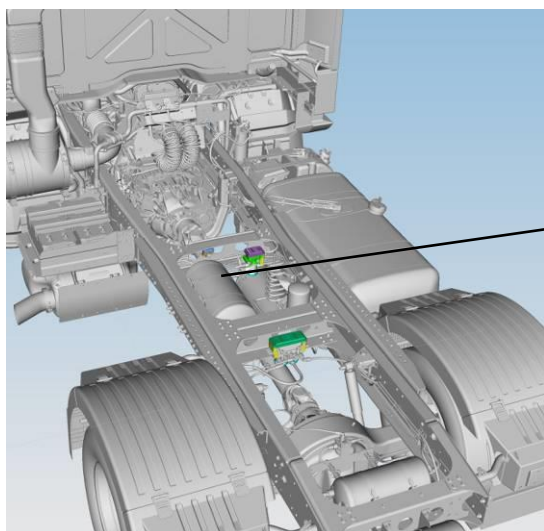
TRUCKS

Connector Code	C2CA41			
Connector Description	STEERING ANGLE SENSOR (SAS)			
Pin Layout	Wiring Number	Wire Thickness	Wiring Colour	Target Unit
1	Chassis (Ground)	0.75	GN/VT	EBS(C)- 1
2	Power	0.75	VT/BN	EBS(C)- 10
3	CAN-H	0.75	BU/WH	EBS(C)- 7
4	CAN-L	0.75	GN/OG	EBS(C)- 4

4.6.2.7. Yaw Rate Sensor (YRS)

YRS is a combined yaw rate and lateral acceleration sensor. It outputs a digital sensor value via CAN interface. This sensor is required for EBS with ESP. YRS shall be installed to the vehicle body. This position shall be selected in a position where movements related with the vehicle dynamics only occur. As this will cause a high natural resonance frequency level, installation position shall be very rigid.

When the sensor is replaced, it shall be calibrated with the FODP2 software.

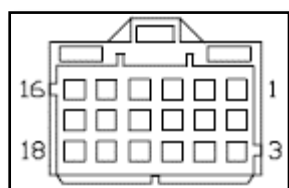
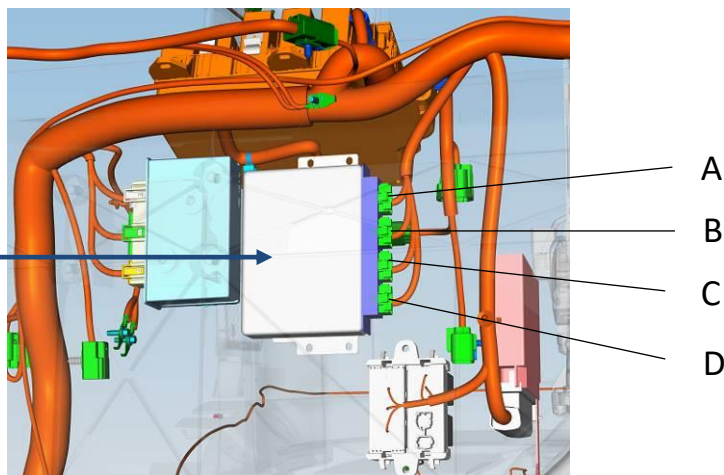
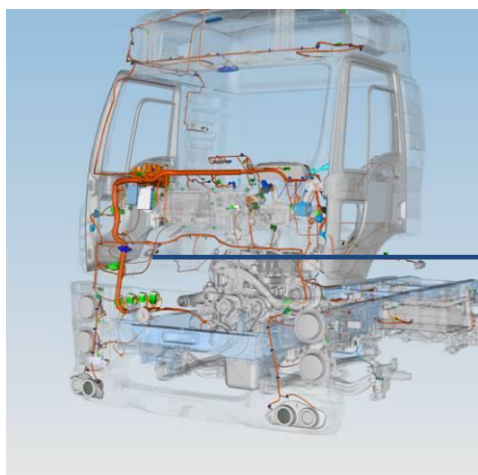


TRUCKS

Connector Code	C1CA09			
Connector Description	YAW RATE SENSOR (YRS)			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Power	1.0	Purple/Green	EBS(C) - 1
2	Can-L	1.0	Green/Orange	EBS(C) - 4
3	CAN-H	1.0	Blue/White	EBS(C) - 7
4	Chassis (Ground)	1.0	Green/Purple	EBS(C) - 10

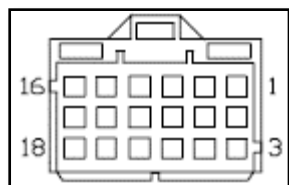
4.6.2.8. EBS Electronic Control Unit (EBS ECU)

It includes the operating system, hardware drivers, brake control algorithms, monitoring and service functions. ECU's software portion may be divided into two as main software and dataset. Main software includes all functions and features covering all vehicle range and applications (supported by EBS5) and it shall be configured according to the vehicle specifications via dataset. It is placed on the front right console of the vehicle, under the fuse box.



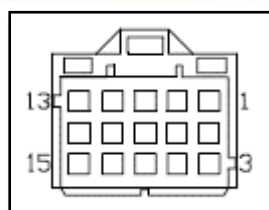
TRUCKS

Connector Code	C2CB01-A			
Connector Description	EBS MODULE (A)			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	CAN-L: Diagnostic Line	0.75	BN/BU	
3	CAN-H: Diagnostic Line	0.75	BN/GN	
4	Brake Pedal Ground	1.0	BU	
5	Brake Pedal Signal-1	1.0	YE/VT	
6	Brake Pedal SW1	1.0	GN/BU	
7	Brake Pedal Supply	1.0	GY/OG	
8	Brake Pedal Signal-2	1.0	WH/GN	
9	PARKING BRAKE SWITCH			
10	EBS Off Button	0.75	YE/GN	
11	Ground -1	2.5	BK/BU	
12	Ground -2	2.5	BK/BU	
13	Supply (Ignition)	1.0	BU	
14	Differential Lock Button			
16	Supply (Battery)	2.5	VT/RD	
17	Supply (Battery)	2.5	VT/RD	

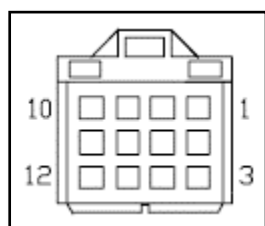


Connector Code	C2CB01-B			
Connector Description	EBS MODULE (B)			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
4	2C EPM Supply	1.0	OG/GN	
5	2C EPM CAN-H	1.0	WH/BU	
6	2C EPM CAN-L	1.0	WH	
7	1C EPM Supply	1.0	OG/WH	
8	1C EPM CAN-H	1.0	WH/BU	
9	1C EPM CAN-L	1.0	WH	
10	Pressure Control Valve OV-Left	1.5	BU/GY	
12	2C EPM Ground	1.0	OG/GY	
13	Pressure Control Valve IV-Left	1.5	YE/VT	
14	Pressure Control Valve OV-Right	1.5	BU/GY	
15	1C EPM Ground	1.0	OG/BK	
16	Pressure Control Valve IV-Right	1.5	YE/VT	
18	Pressure Control Valve Ground (Right & Left)	1.5	GN/OG	

TRUCKS



Connector Code	C2CB01-C			
Connector Description	EBS MODULE (C)			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Lateral Acceleration Sensor Ground	0.75	GN/VT	
4	Lateral Acceleration Sensor CAN-L	0.75	GN/OG	
7	Lateral Acceleration Sensor CAN-H	0.75	BU/WH	
9	Low Pressure Sensor	1.0	OG	
10	Lateral Acceleration Sensor Supply	0.75	VT/BN	
11	Brake Pedal Stop Lamp Switch	0.75	OG/BK	
14	Hill Start Assist Button	0.75	OG/YE	



Connector Code	C2CB01-D			
Connector Description	EBS MODULE (D)			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Trailer Control Valve PS Supply	1.0	BU	
2	Trailer Control Valve Signal	1.0	VT/BN	
3	Trailer Control Valve Ground	1.0	WH	
4	Trailer Control Valve Supply	1.0	GY/OG	
5	Trailer Control Valve IV	1.0	BU/GN	
6	Trailer Control Valve OV	1.0	BN/WH	
7	Trailer Control Valve BV	1.0	GN/BN	
8	Trailer Connector CAN-H	1.0	WH/BU	
9	Trailer Connector CAN-L	1.0	WH	
10	Trailer Brake Button	0.75	BN/YE	
11	Trailer Brake Button Lamp	0.75	VT/OG	

TRUCKS

4.6.2.9. Wheel Speed Sensors: (WSS)

It generates AC voltage according to the wheel speed and the gap between the sensor and counter ring. Voltage generated is directly proportional to wheel speed.

There are four sensors on the vehicle such as front right/front left/rear right/rear left. The abbreviation for wheel speed sensor is WSS.

1st wheel: front left

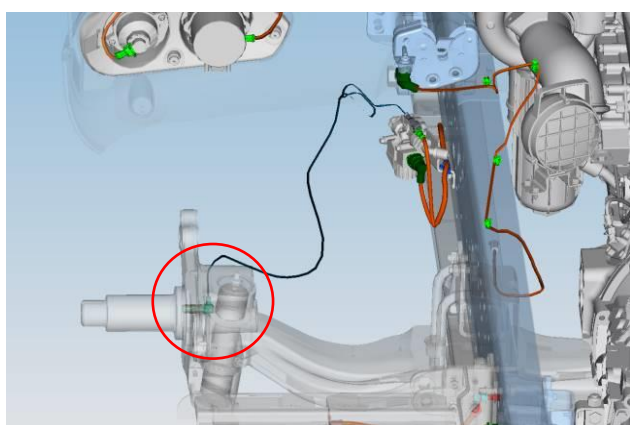
2nd wheel: Front right

3rd wheel: rear left

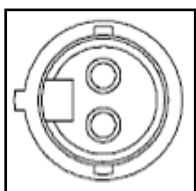
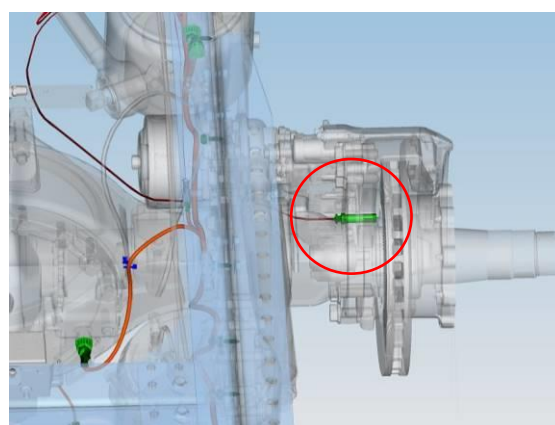
4th wheel: rear right

It is important to know this order. Because, in computer error codes wheel speed sensor error is displayed such as "1st wheel WSS error." In this case, you should know that the 1st wheel is the front left wheel.

Front



Rear



C1CA03-Front Left

Connector Code	C1CA03			
Connector Description	FRONT LEFT SPEED SENSOR			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Signal	0.75	Purple/White	C1A130-C3-1
2	Signal	0.75	Yellow	C1A130-C3-2

C1CA04-Rear Left

Connector Code	C1CA04			
Connector Description	REAR LEFT SPEED SENSOR			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Signal	0.75	Blue/Orange	C1A125-C4-1
2	Signal	0.75	Brown/Green	C1A125-C4-2

TRUCKS
C1CA05-Front Right

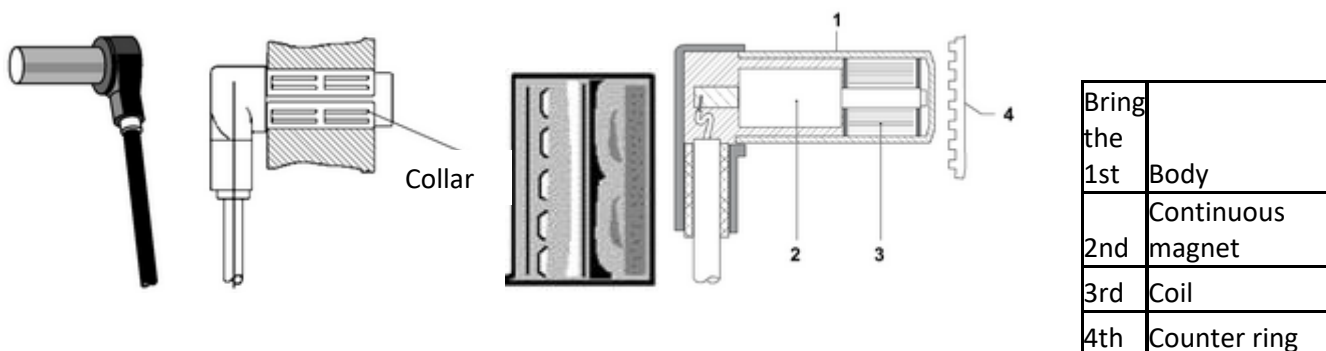
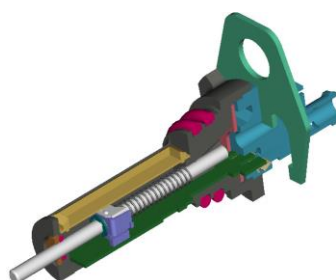
Connector Code	C1CA05			
Connector Description	FRONT RIGHT SPEED SENSOR			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Signal	0.75	Grey/Purple	C1A131-C4-1
2	Signal	0.75	Purple	C1A131-C4-2

C1CA06- Rear Right

Connector Code	C1CA06			
Connector Description	REAR RIGHT SPEED SENSOR			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Signal	0.75	White/Orange	C1A126-C5-1
2	Signal	0.75	Brown	C1A126-C5-2

During installation:

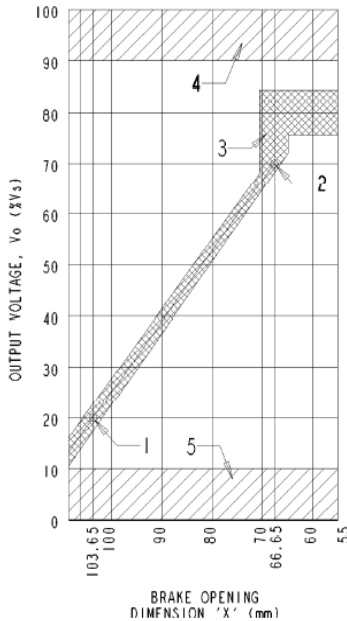
Wheel speed sensor is installed by tightening it inside a collar. It is recommended that the collar is replaced when the speed sensor is replaced.
 Install the collar by greasing it.
 Push the sensor up to the counter ring after installing the collar inside the seat. Do not push further after it contacts.
 The distance between the sensor and counter ring is adjusted by itself after a few rotations of the wheel.
 Check the routing of the sensor wire. Make sure that there is no rubbing.


4.6.3. CWS (in vehicles with disc brakes) Brake lining monitoring sensor

Function :

Lining wear sensor is used for measuring the wear amount on discs and linings. Brake distance adjustment mechanism on the calliper and the shaft mechanism connected to it moves as the lining and disc wear. Sensor operates as a linear potentiometer. It operates with 5V DC current from the EBS. It sends signal directly proportional to the position of sensor shaft. Signal voltage increases from 0.2 to 4.8 V as the shaft gets longer. EBS sends the remaining lining amount to the cluster as a % ratio according to the voltage amount received. EBS adjusts the brake pressures according to the signal received from CWS to ensure that all linings are worn approximately with the same amount.

TRUCKS

Checking Method:



No	Brake Opening Ratio (mm)	Output Voltage % value	Output Voltage	Output Voltage % Tolerance	Output Voltage Tolerance
1	103.65	20	1.00	±2.75	0.862 of 1.138
2	66.65	70	3.50	±2.50	3.37 of 3.63
3	<66.65	80	4.00	±4.40	3.78 of 4.22
4	Error Range	>90	>4.50	-	-
5	Error Range	<10	>0.50	-	-



Balata durum göstergesi

CWS Warning Strategy:

Warning light is illuminated when the amount of any lining reduces to 20%.

Warning light is illuminated when the difference of levels of right and left brake assemblies on the same axle exceeds 25%.

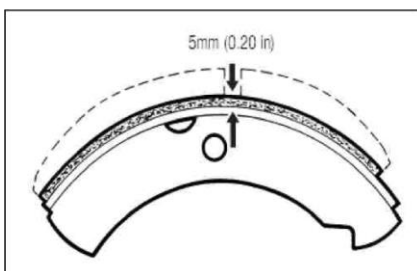
CWS assumes minimum lining thickness as 3mm. (% 0 = 3mm)

CWS assumes maximum lining thickness as 19mm. (% 100 = 19mm)

4.6.4. PWI (in vehicles with drum brakes) Brake lining wear sensor

Function :

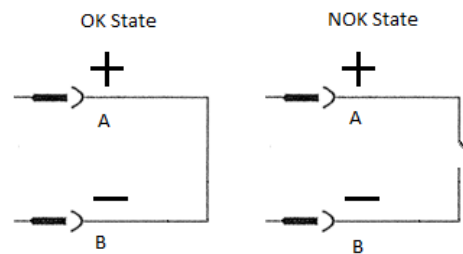
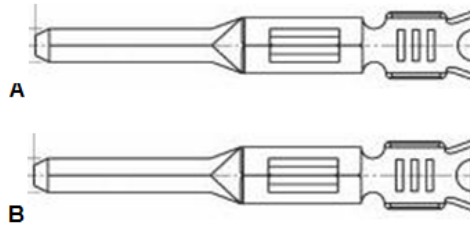
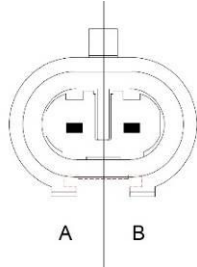
Lining wear sensor is a sensor that visually warns the driver via the instrument panel of the vehicle when the lowest recommended thickness of linings, 5 mm, is reached in Z-Cam brakes. Thus, brake pad and rivets are prevented from damaging the drum, the component against them, as a result of wearing out of the lining.



Operating Principle:

TRUCKS

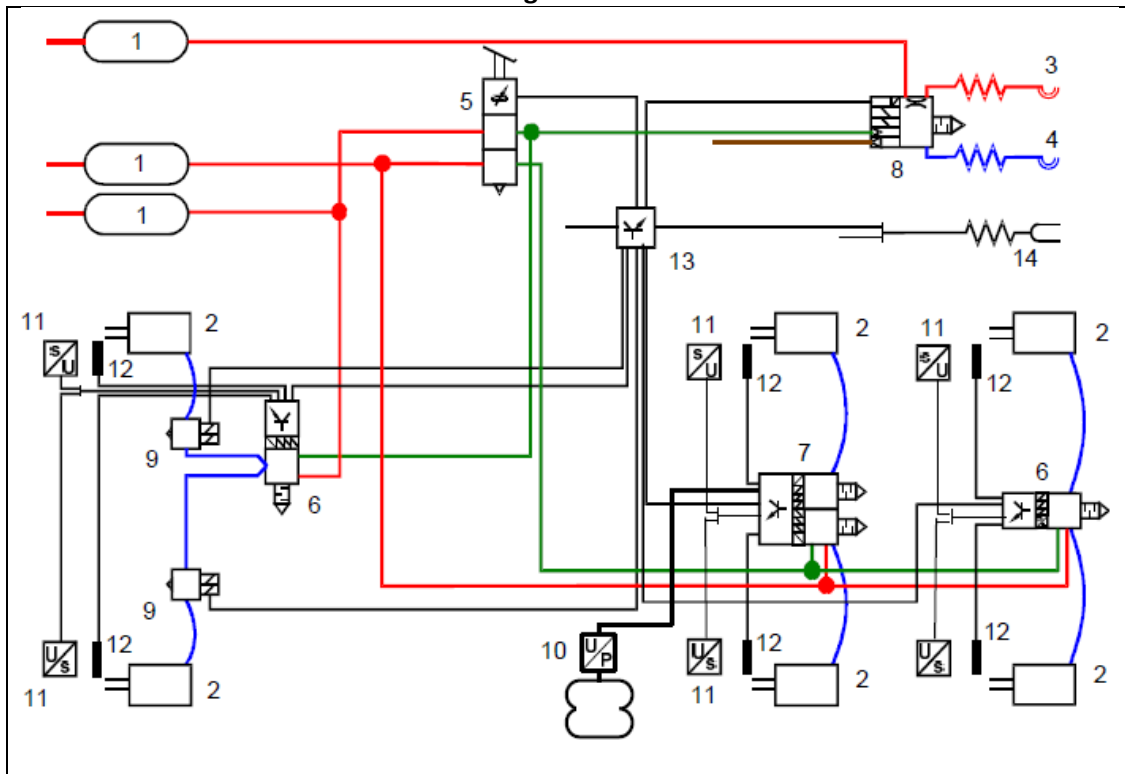
Lining wear sensor is connected to leading brake pad in all Z-cam brakes. Sensor gets closer to the lining as the lining wear by rubbing to the drum. Sensor cable coming out of the A end of the sensor connector is connected to the B end of sensor connector by turning on the head section of sensor, which is connected to the pad. Circuit is completed by connecting the sensor connector to the electrical system of the vehicle, and the system does not issue a warning. Circuit is broken and system gives a warning to the driver as the sensor cable gets damaged with the contact of the head section of the sensor to the drum.


Checking Method:

When the circuit is broken (NOK condition), it is possible to determine whether there is a disconnection in the sensor cable thanks to a closed circuit system including a warning light.

Manufacturer:

Sensor is manufactured by a sub-contractor of Ege Fren, supplier of Z-Cam Brakes, and installed to the brake by Ege Fren.

TRUCKS
4.6.5. System Configuration:
Brake Diagram 6x2 Tractor


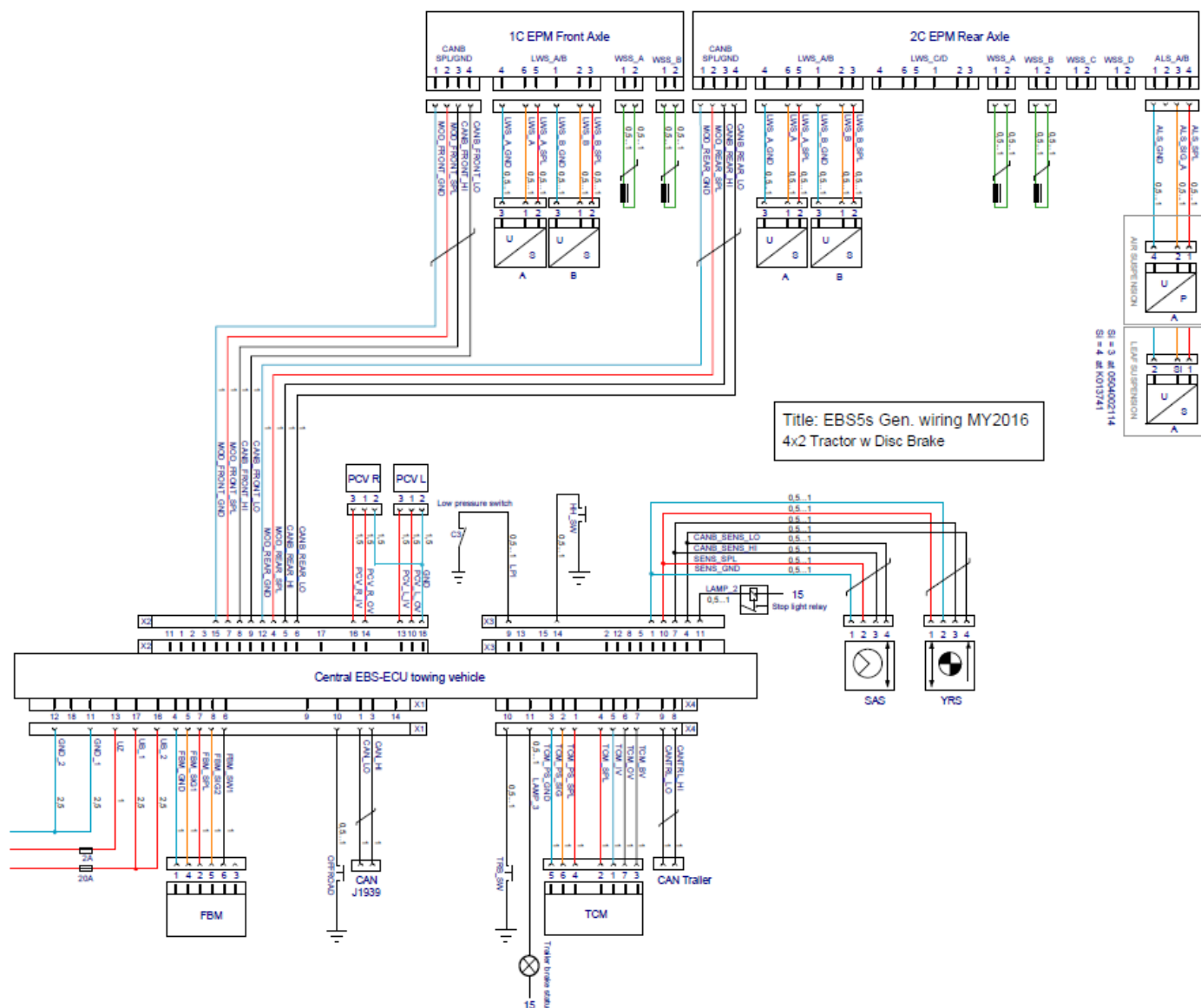
Sequence No.	Pcs.	Description	Application
1	3	Air Reservoir	Conventional Brake System
2	6	Brake Cylinder	
3	1	Trailer supply clutch head	
4	1	Trailer control clutch head	
5	1	Foot Brake Module (FBM)	EBS
6	2	1-Channel Electro-Pneumatic Module (1C-EPM)	
7	1	2-Channel Electro-Pneumatic Module (2C-EPM)	
8	1	Trailer Control Module (TCM)	
9	2	Pressure Control Valve (PCV)	
10	1	Axle Load Sensor (ALS)	
11	6	Brake Lining Wear Sensor (LWS)	
12	6	Wheel Speed Sensor (WSS)	
13	1	Electronic Control Unit (ECU)	
14	1	Trailer Connector	

General layout of the EBS system is given above. Wheel speed sensors connected to electro-pneumatic control valve are available on each axle.

There are wheel speed sensors connected to EPM on all axles. Front axle is controlled by 2 PCVs (Pressure Control Valves) and a 1C EPM (1 Channel Electro-pneumatic Modulator) to ensure a lateral pressure modulation for ABS control (Modified Individual Control). Rear axle is equipped with a 2C-EPM (2 Channel Electro-pneumatic Modulator), pneumatic output port 21 controls left side, and port 22 controls right side (ABS Individual Control). Pressure sensor connected to the air bellows of drive axle is connected to 2C-EPM and signal is used to measure the load of the axle.

TRUCKS

4.6.6. EBS Wiring Diagram:



TRUCKS

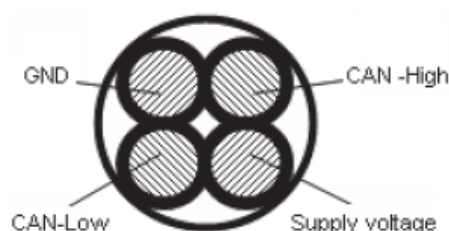
Abbreviations and their definitions:

Abbreviations	
1C EPM	1-channel electro-pneumatic module
2C EPM	2-channel electro-pneumatic module
AUX	Auxiliary valve / auxiliary port
BV	Back-up valve
CANB	CAN-Brake network (internal CAN network for EBS)
CAN Trailer	ISO11992 communication line to ISO7638 connector
DIFF_IN	Differential lock status signal (Switch to +24V)
DIFF_OUT	Differential lock solenoid control
DOOR_SW	Door switch input (Switch to +24V)
EBI	Endurance brake integration enable switch (switch to GND)
EMDB	Emergency brake release switch for door brake (switch to GND)
FBM	Foot brake module
GND	Power supply ground connection
IV	Inlet valve
HH_SW	Hill Start Aid function enable switch (push-button to GND)
HI	High side of CAN cables
LAMP_1, 2, 3	Lamp control output (function configurable)
LO	Low side of CAN cables
LPI	Low pressure input for supply pressure (switch to GND)
OFFROAD	Off-road switch input (push-button to GND)
OV	Outlet valve
PB_SW	Parking brake switch (switch to GND)
PCV_L, PCV_R	Pressure Control Valve left, right
RET RELAY	Hardwired retarder relay control
SAS	Steering Angle Sensor
SIG	Sensor signal input
SPL	Power supply
TCM	Trailer Control Module
TRB_SW	Trailer Brake Switch (push-button to GND)
UB	Battery supply
UZ	Ignition
WLS	Hardwired red warning lamp
YRS	Yaw rate and acceleration sensor

Notes

Wheel speed sensor wires should be twisted (40 twists per meter)

In order to assure the fulfillment of EMC requirements, it is recommended to use star-quad-twisted cables for the wiring between the EPM's, ESP sensors and the ECU whose cable assembly is shown in the following figure.

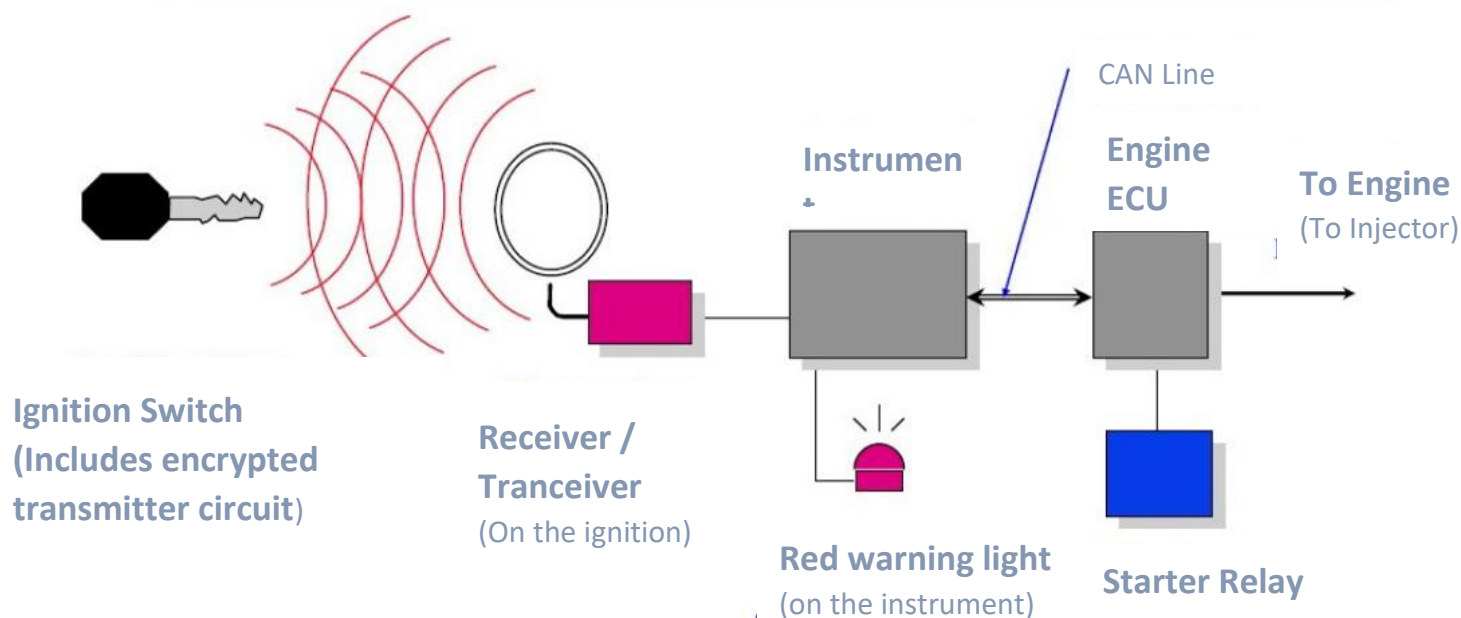


TRUCKS

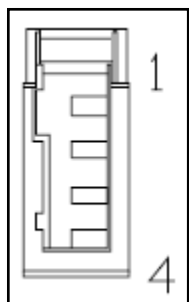
4.7. PATS: Passive Anti-Theft System (Immobilizer)

This is a safety system against vehicle theft. Engine does not allow fuel injection and operation of the starter unless it takes the correct code from ignition switch.

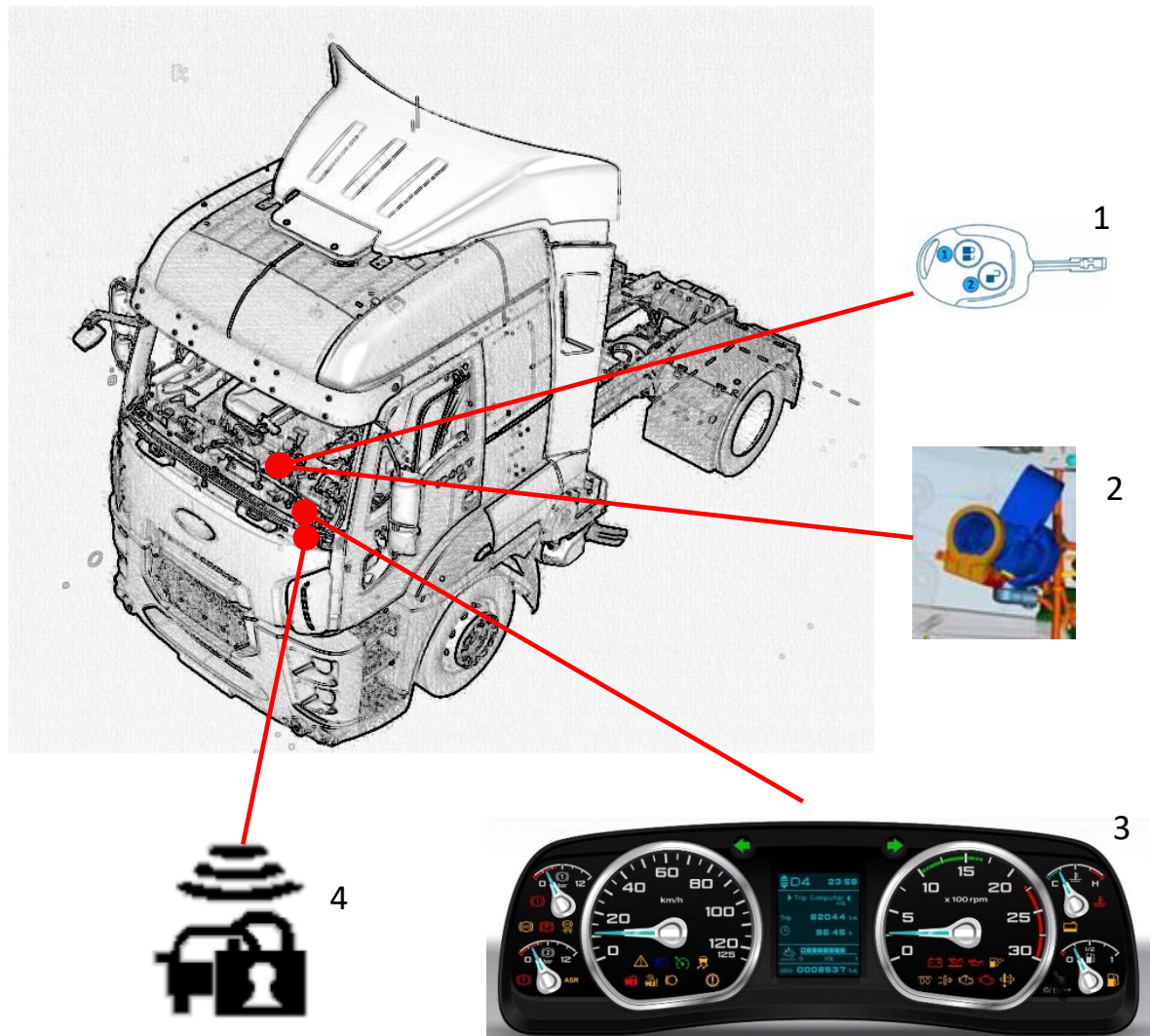
4.7.1. Schematic Operating Principle:



4.7.2. PATS Module Connector and Pin Layout:



Connector Code	C2RT23			
Connector Description	PATS (ANTITHEFT PROTECTION) MODULE			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Power	0.50	YE	Instrument (C2MC01-A) C1-12
2	Chassis (Ground)	0.50	BK/BU	D114 Ground Point
3	TX Signal Input	0.50	VT/BN	Instrument (C2MC01-A) C1-14
4	RX Signal Output	0.50	VT/GY	Instrument (C2MC01-A) C1-13

4.7.3. System Components:


1- Ignition Switch 2- Receiver 3- Instrument 4-Immobilizer warning lamp

1- Ignition Switch:

- It includes a circuit encrypted for each vehicle.
- Two keys are programmed in factory for each vehicle.

2- For:

- It activates the ignition switch with a circular antenna on the ignition switch.
- It reads the encrypted code on the key circuit and transfers it to the instrument cluster.
- There is no need to reprogram the new transceiver when it is replaced.

TRUCKS
3- Instrument:

- It checks whether the transceiver code and key code transferred by the transceiver match.
- It communicates with Engine ECU via CAN. It does not allow operation of starter and fuel injection systems if it detects non-matching codes.

4- Warning Lamp (Red)

It is placed on the instrument cluster. It indicates that the PATS system is activated and also gives an error code if there is a fault in the system.

- When ignition is OFF: It flashes once every 2 seconds to indicate that the PATS system is activated.
- When ignition is in position II:
 - a) Normal operation: lamp is illuminated for 3 seconds, turns off and does not turn on.
 - b) Fault in the system: lamp does not turn off after 3 seconds illumination. It flashes continuously. If ignition is not switched from position II, lamp flashes for 30 seconds and finally it turns off for 3 seconds. Then, it flashes to give an ERROR CODE.

Example: For Error Code 21:

Switch the ignition to position II.

PATS warning lamp flashes for 30 seconds.

Turns off for 3 seconds.

Flashes 2 times: This gives the first digit of error code. In this example: '2'

Waits for 2 seconds.

Flashes 1 times: This gives the 2nd digit of error code. In this example: '1'

Thus, error code 21 can be read. Same error code is displayed by the system repeatedly.

4.7.4. Instrument Cluster Flashing Error Codes:

ERROR CODE	ERROR CODE NAME	ERROR CODE DESCRIPTION	REACTION OF THE VEHICLE	POSSIBLE CAUSES OF THE FAULT
720D02	PATS error	PATS transceiver information not received.	Vehicle does not start.	PATS transceiver connection error
740D02	PATS error	PATS antenna not installed.	Vehicle does not start.	PATS connector not installed.
750D02	PATS error	PATS switch information not received.	Vehicle does not start.	Ignition switch configuration is not suitable.
760D02	PATS error	PATS switch information received incorrectly.	Vehicle does not start.	Ignition switch configuration is not suitable.
01F002	PATS error	Key programming error.	Vehicle does not start.	FODP Configuration error
02F002	PATS error	Key reading error.	Vehicle does not start.	Ignition switch configuration is not suitable.
03F002	PATS error	Wrong information read from the ignition switch.	Vehicle does not start.	Ignition switch configuration is not suitable.
04F002	PATS error	Less keys are introduced than the required number of keys to be introduced.	Vehicle does not start after some time.	Not started with the 2nd key.

TRUCKS**4.7.5. Things To Do When the Control Module Is Replaced:**

On the instrument menu of the FODP-2 software, select the operation required and follow the following procedures:

When the Instrument Cluster is Replaced Only & When Instrument Cluster and Engine Control Unit Are Replaced Together:

- Bring ignition to position 2.
- Press replacement of cluster.
- Wait for 16 minutes.
- When the operation is completed, both keys are put in the ignition switch and ignition is brought to position 2.
- Operation is completed successfully if the Number of programmed keys: 2 is displaced on FODP2 screen.

When the Engine Control Unit (ECM) is Replaced Only:

- Turn off the ignition.
- Turn off switch.
- Install new ECM to vehicle.
- Turn on the main switch.
- Turn on the ignition.
- Write the vehicle VIN to ECM with FODP-2. (Requires a ticket.)
- Perform Module Programming with FODP-2. (Requires a ticket.)
- Enter injector code. (Requires a ticket)
- Enter CALID code.
- Connect to instrument cluster with FODP-2, select the “ECM replacement only” option from PATS menu. (requires a ticket). System starts counting down 16 minutes for safety purposes. When 16 minutes are over, introduce ignition key and spare ignition key by following the instructions on the screen. Operation is completed successfully if the Number of programmed keys: 2 is displaced on FODP2 screen.

Fault 017F may be seen on ECM when a new ECM is programmed. You can just delete it.

Key Deletion:

This is applied when vehicle is lock because of PATS. It shall be applied if PATS lamp does not turn off when ignition switch is brought to position II and flashes intermittently.

- Bring ignition to position 2.
- Press delete key.
- Wait for 16 minutes.
- When the operation is completed, both keys are put in the ignition switch and ignition is brought to position 2.
- Operation is completed successfully if the Number of programmed keys: 2 is displaced on FODP2 screen.

Introduction of additional keys (3rd Key)

This is applied when the customer asks for a 3rd key.

- Bring ignition to position 2.
- Press Introduce additional (new) key.
- Wait for 16 minutes.
- After completing the operation:
- Install original key. Bring ignition to position 2 and remove the key. Wait for 3 seconds, install original spare key before the 7th second. Bring ignition to position 2. Remove the key, wait for 3 seconds, install original spare key before the 7th second, and bring ignition to position 2. Wait for 3 seconds.
- Operation is completed successfully if the Number of programmed keys: 3 is displaced on FODP2 screen.

TRUCKS**4.8. Comfort Module (RKE: Central Lock and Window Module)****4.8.1. Operating Principle:**

This is the module that allows management of central locking and windows. It is also known as **RKE**. (Remote Keyless Entry)

It shall be configured with FODP2 when the module is replaced.

Central locking function:**- Manual control;**

The change in the position of any internal door handle is detected automatically and the other doors is brought to this position, too. Central locks are locked or unlocked together. When any of the doors are brought to the correct position for any reason (mechanical or electrical), error is detected and both doors are brought to open position. If the problem persists (doors are on different positions), module switches to error mode. Central locking function on manual opening and closing is temporarily disabled until central locks are brought to the same position. Error is removed by itself when positions are brought to the same position.

- Remote control;

Central locks are opened when the open button of the control is pressed. It is brought to off position with the closing key. Opening and closing signal outputs are activated if the opening and closing function is performed successfully in central locks. When any of the doors are brought to the correct position for any reason (mechanical or electrical), error is detected and both doors are brought to open position. If the problem persists (doors are on different positions), module switches to error mode. It is possible issue commands again to the system in error mode. However, central locking function on manual opening and closing is temporarily disabled until central locks are brought to the same position. Error is removed by itself when positions are brought to the same position.

- Global Opening/Closing;

Doors are unlocked and windows are lowered to the minimum level when opening button on the remote control is pressed for more than a specified time (3 seconds). This feature also includes the opening of sunroof with the windows on vehicles with Sunroof. Doors are locked and windows are closed automatically when closing button on the remote control is pressed for more than a specified time (3 seconds). This feature also includes the closing of sunroof after the doors on vehicles with Sunroof. Window closing operation is not performed if the "One Touch Closing" feature is not set on the windows.

- Automatic Re-Locking;

Doors are locked again if the central lock is opened with remote control and doors are not opened physically.

- Automatic Locking;

Doors are locked automatically when vehicle speed exceeds 10 km/h.

- Sleep mode;

System switches to sleep mode if it is locked with remote control. This is the mode where module consumes minimum energy. You shall press the opening key on the remote control or manually open the central locks with the opening latch to exit this position.

TRUCKS**- Protection mode;**

Module switches to protection mode if opening and closing operation is performed successively for 8 times in central locks both manually and via the remote control. System stops manual operation and operations by the control for 7 seconds. It performs the operations received after that 7 seconds later. This condition ends if you wait for 1 minute without any intervention.

Power Window;**1- Window opening and closing**

Window moves to opening or closing direction while the opening/closing buttons are pressed. Power provided to the motors is turned off automatically when the window reaches uppermost or lowermost position. Buttons are active while the ignition is on.

- One Touch Closing

Window is closed automatically when the window closing button is pressed once for a short time. If jamming is detected while raising the windows, power windows are opened again to a specified level. If the window is jammed twice in a row while quick closing, window quick raising feature is deactivated. In order to activate the quick raising feature again, the window in question is brought to the start position as 1/4 closed. Then the window is completely lowered and waited for 5 seconds while holding the opening button, then it is closed completely without delay and waited for 5 seconds while holding the closing button. This operation is performed separately for both windows."

- One Touch Opening

Window is opening automatically when the window opening button is pressed 1 time for a short time. No special procedure is required at the end of the line for this function.

Sunroof Inspection;**1- Sunroof opening and closing**

Sunroof moves to opening or closing direction while the opening/closing buttons are pressed. Power provided to the motors is turned off automatically when the Sunroof reaches uppermost or lowermost position. Buttons are active while the ignition is on.

- One Touch Closing

Window is closed automatically when the Sunroof closing button is pressed 1 time for a short time.

- One Touch Opening

Window is opened automatically when the Sunroof opening button is pressed 1 time for a short time.

Reading Lamp Inspection;

Reading Lamp shall be illuminated as long as the relevant button is pressed.

Roof Lamp;

It is illuminated as long as the doors are open.

Step Lamp Inspection;

It is illuminated as long as the doors are open. However, step lamp feature is cancelled temporarily when the engine is on and when the vehicle speed exceeds 10 km/h or when the doors are left open for more than 15 minutes. It returns to normal operation when the ignition is turned on and the doors are opened.

**TRUCKS****Remote Control Problems;**

Consult an authorized Ford-Otosan service if you encounter any problem with the remote that controls the central locking system.

When the RKE Module on the vehicle is replaced, it shall be introduced to the vehicle. The steps that shall be followed are as follows:

1- Introduction of the key:

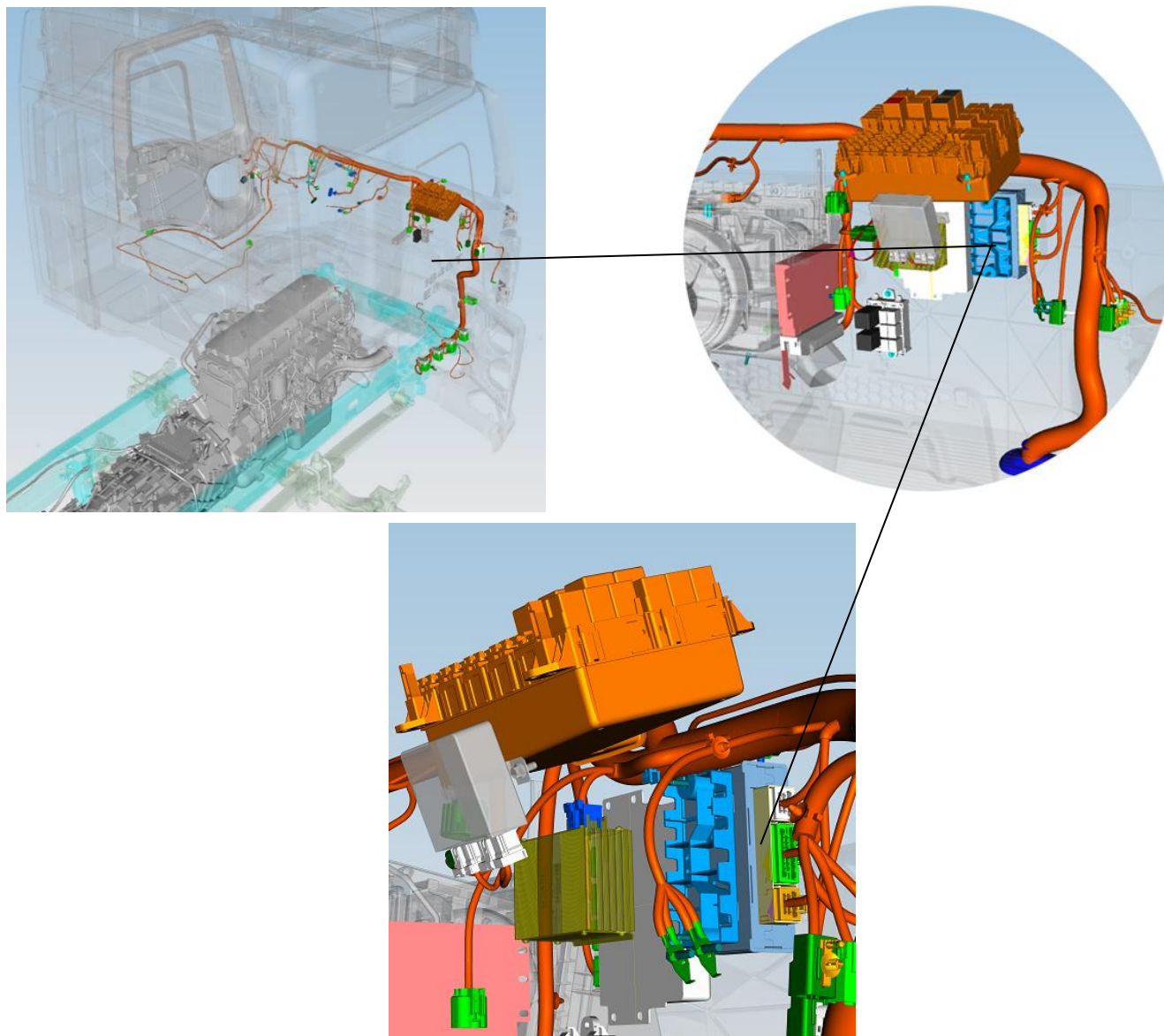
Ignition is brought to position II and off 7 times. On the 8th operation, ignition is turned on in position II and one of the locking or unlocking switches on the key is pressed. Thus, the key shall be introduced to RKE module. Doors shall be closed during these operations.

2- Configuring:

Connect the vehicle with FODP 2. Send the RKE module introduction request ticket to Cargo Service Engineering. After the electronic confirmation, install the configuration to RKE module with FODP. Doors shall be closed during these operations.

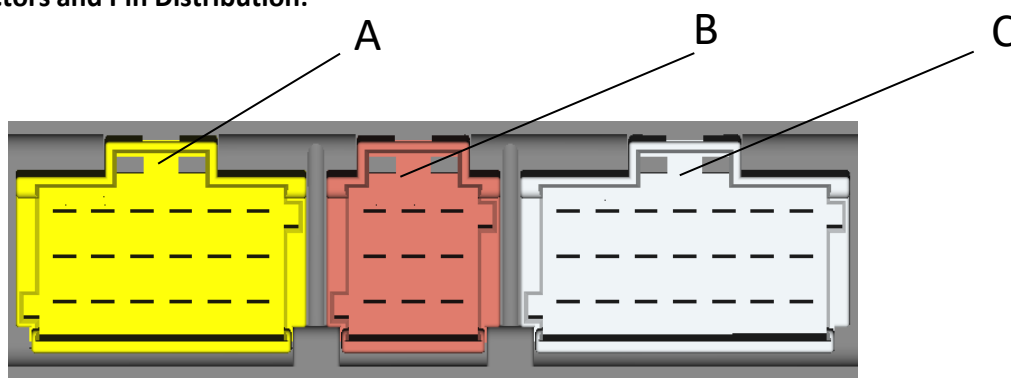
TRUCKS

4.8.2. RKE Module Location on the Vehicle:



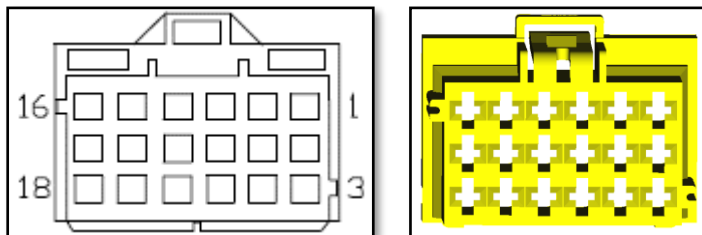
4.8.3. Module Connectors and Pin Distribution:

Module Side View:



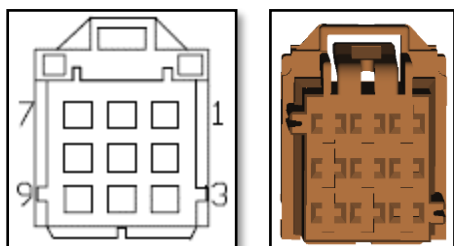
TRUCKS

Connector A:



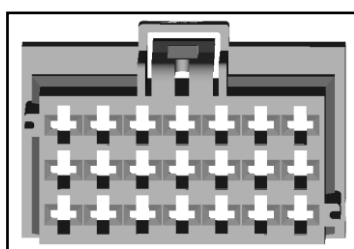
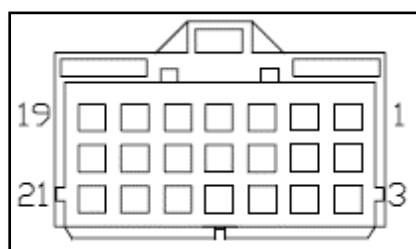
Connector Code	C2PL01-A			
Connector Description	COMFORT MODULE (A)			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Window Motors Positive Supply	2.5	VT/RD	
2	Driver Side Window Motor Up	1.5	BU	
3	Passenger Side Window Motor Up	1.5	WH	
4	Window Motors Positive Supply	2.5	BU/RD	
8	Driver Side Window Motor Down	1.5	GN	
11	Passenger Side Window Motor Down	1.5	GY/YE	
13	Window Motor Ground	2.5	BK/BU	
14	Window Motor Ground	2.5	BK/BU	
15	Step Lamp	0.75	YE/BU	
16	Door Lock Systems Supply	1.5	WH/BN	
17	Window Motor Ground	2.5	BK/BU	
18	Switch Positive Supply	0.50	BN/BU	

Connector B:



TRUCKS

Connector Code	C2PL01-B			
Connector Description	COMFORT MODULE (B)			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Door Lock Motor Unlocking Output	1.5	GY/BN	
2	Door Lock Motor Locking Output	1.5	BN/GN	
3	Door lock systems ground	2.5	BU/OG	
4	Sunroof Motor Closing	0.75	VT/BN	
5	Driver side door button	0.75	GN/BU	
6	Passenger side door button	0.75	GN/BU	
7	Roof Lamp supply 12V	0.75	WH/OG	
8	Sunroof Motor Opening	0.75	YE/OG	
9	Reading Lamp supply 24V	0.75	GN/WH	

Connector C:


Connector Code	C2PL01-C			
Connector Description	COMFORT MODULE (C)			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Locking Signal	0.75	BU	
2	Opening Signal	0.75	GY/BU	
3	Reading Lamp button 24V	0.75	BU	
4	Speed Sensor Signal	0.75	GY/YE	
5	Sunroof closing switch	0.75	YE/OG	
6	Sunroof opening switch	0.75	VT/BN	
7	Horn Output			
8	Door locking switch	1.0	GY/YE	
10	Door unlocking switch	1.0	VT/GY	
12	Ignition switch	0.75	GY	
13	CAN-H	0.75	BN/GN	
14	CAN-L	0.75	BN/BU	
15	Driver Side passenger window raising button	0.50	BN/YE	
16	Passenger side window lowering button	0.50	BU/GY	
17	Driver side passenger window lowering button	0.50	GN/OG	
18	Driver side window lowering button	0.50	VT	
19	Window motors ground connection	2.5	BK/BU	
20	Driver side window raising button	0.75	WH/OG	
21	Passenger side window raising button	0.50	YE/VT	

4.9. BCM-BCU Body Electronics Control Unit



4.9.1. Function:

With the BCU (Body Electronics Control Unit), LIN communications line has been started to be used for the first time. Automatic wipers, automatic headlamps and smart charging systems shall also be introduced for the first time.

With the BCU, vehicle monitoring system is separated from the main CAN line, and it is prevented from accessing the system. Main CAN line and engine CAN line are separated by providing a specific CAN line for the engine.

With the BCU, our special functions have been made Violete reliable. Thus, both the parts used on the vehicle are protected, and driving safety is provided.

4.9.2. Functions that shall be supported by BCU:

Reverse Gear	Cruise Control	Mirror Heating	Windshield Heating	Cornering lamps
Exterior Parking Lamps	Front Fog Lamps	Rear Fog Lamps	High beam headlamps	Low beam headlamps
Home Safe Lamps	Advanced Emergency Braking System Button	Lane Departure Warning System Button	Radio Off and LDWS Buzzers	Windshield Wipers
Daytime Running Lights	Bring the 1st Differential Lock	2nd Differential Lock	Diesel Particulate Inhibit Button	Diesel Particulate Manual Regen Button
Upper Structure Manufacturer Power Outlet	Refuse Collector	A/C Compressor Clutch	A/C Fan Clutch	Air Pressure Sensor
Automatic Low Beam Headlamps	Automatic Wipers	Internal park lamps brightness adjustment	Low Liner vehicles	Automatic transmission mode selection button
Smart Battery Charging	Autodrop	Park Lamps	Coach Lamps	Automatic Cab Lifting

TRUCKS

- LDWS: Lane Departure Warning System
- AEBS: Advanced Emergency Braking System

- **Functions Introduced with Legislation.**

AEBS, LDWS, Autodrop, Diesel Particulate Buttons (EURO 6)

- **Functions with Smart Algorithms**

Windshield Heating, Upper Structure Manufacturer Power Outlet, Differential Locks, Automatic Cab Lifting, Low Liner

- **Innovative Functions**

Smart Battery Charging, Automatic Wipers, Automatic Headlamps

- **Special Vehicle Functions**

Concrete Pump, Refuse Collector

- **Powertrain Functions**

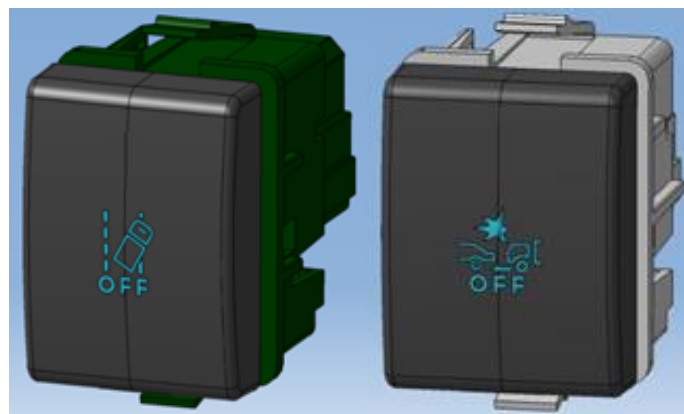
Speed Limiter, Engine Fan Clutch, Reverse Gear

- **Functions Contributing to Fuel Economy**

Air Line Pressure Sensor, Smart Battery Charging

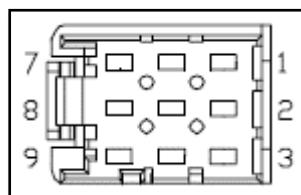
4.9.3. Importance of BCU In the Active Safety Systems:

Body Electronics Control Unit supports Lane Departure Warning System (LDWS) and Emergency Braking System (EBS) in many points to ensure that active safety systems operate efficiently.



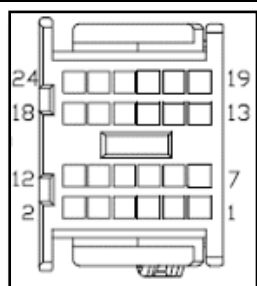
- Emergency Braking System closing button information is shared by BCU with EBS.
- Security of messages with EBS is provided with a checksum algorithm.
- Warning of the drivers of the vehicles behind by turning on the flashers when EBS is activated.
- Lane Departure Warning System closing button information is shared by ECU with Radar.
- Sharing of signal lever information with LDWS.
- Muting the radio and activating the buzzers when LDWS or EBS systems are activated.

TRUCKS



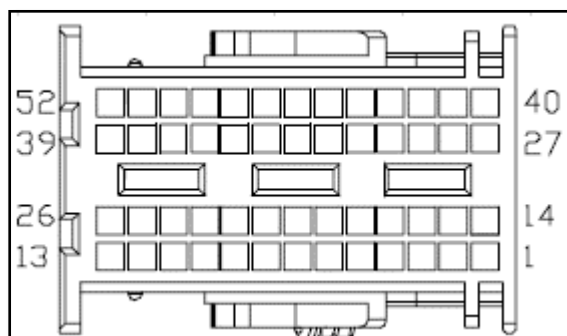
4.9.4. Body Electronics Control Unit (BCU) Connectors and Pin Layout:

Connector Code	C2AM02-A			
Connector Description	BCU MODULE (A)			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Spare-Outlet (Int3)	0.75	YE/GN	
2	KL_30 Battery (+)	1.5	VT/RD	
3	KL_31 Battery (+)	2.5	BK/WH	
4	A/C compressor clutch (+)	1.0	VT/WH	
5	Daytime Running Lights (+)	0.75	GN/OG	
6	Left low beam (+)	0.75	BU/GY	
7	Heated Mirror	0.75	GY	
8	KL_30 Battery (+)	1.5	YE/RD	
9	Right low beam (+)	0.75	YE/GY	



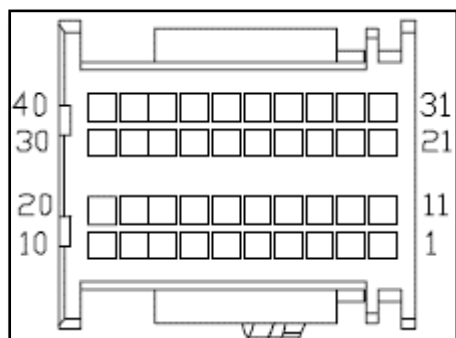
Connector Code	C2AM02-B			
Connector Description	BCU MODULE (B)			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
5	Refuse Collector Emergency stop button	0.75	BN/WH	
6	LIN Line (for Rain sensor and BMS)	0.75	WH	
7	Chassis (Ground)	0.75	BK/WH	
8	Chassis (Ground)	0.75	BK/WH	
9	Bring the 1st Differential lock engaged signal	0.75	OG/BU	
10	AEBS deactivation switch	0.75	BU	
11	Autodrop-1 Switch	0.75	BU/OG	
13	Autodrop-2 Switch	0.75	VT/OG	
14	2nd Differential lock engaged signal	0.75	OG	
15	Transfer box engaged signal	0.75	YE/GY	
16	MFS-wiper motor connector pin 5 (Park signal)	0.75	BU/GY	
17	Air conditioning compressor switch			
18	Transfer box switch relay	0.75	YE/GN	
19	AEBS system buzzer- Left	0.75	GN/WH	
20	MFS (Multi-functional lever) Cruise Control off	0.75	BN/BU	
21	High speed wiper relay (Pin85)	0.75	GN/VT	
23	Radio Mute	0.75	BU/BN	
24	Cab lifting relay (Pin 85)	0.75	OG/YE	

TRUCKS



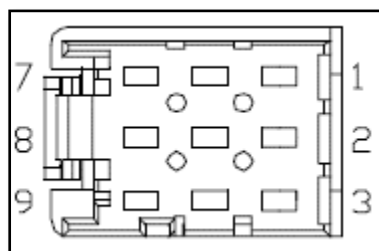
Connector Code	C2AM02-C			
Connector Description	BCU MODULE (C)			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	P CAN-H	0.75	BN/GN	
2	P CAN-L	0.75	BN/BU	
3	P-CAN Insulation (Ground)			
4	K-Line	0.75	GY	
5	Automatic cabin tilting switch	0.75	OG/GY	
6	Refuse Collector rear step	0.75	BU/GY	
7	MFS (Multi-functional lever) - High Beam	0.75	WH/OG	
8	A/C Motor Fan Cut-off			
9	MFS-Turn Indicator Left	0.75	VT/BN	
10	MFS-Turn Indicator Right	0.75	BN/YE	
11	Reverse gear (Manual Transmission)	0.75	BU	
12	Mirror heating switch	0.75	OG	
13	RKE lock deactivation information (Wake)	0.75	BU	
14	M CAN-L	0.75	WH/GN	
17	DPF inhibit switch	0.75	BN/BU	
18	DPF manual regen switch	0.75	GY/BU	
19	MFS-Wiper fluid pump 86 (pin 12)	1.5	GY	
20	Windshield heating switch	0.75	GN/OG	
27	M CAN-H	0.75	GN/BU	
30	MFS-Low speed wiper (pin 9)	0.75	BU/GN	
31	PTO engaged signal	0.75	GY/VT	
32	PTO SWITCH	0.75	BU	
33	Interlock Switch	0.75	GN/BN	
34	Differential lock-1 switch	0.75	BU/OG	
35	MFS-J or Auto (pin 8)	0.75	GN/VT	
36	Differential lock-2 switch	0.75	BU/WH	
42	Chassis (Ground)	0.75	BK/WH	
43	Chassis (Ground)	0.75	BK/WH	
44	Chassis (Ground)	0.75	BK/WH	
46	Windshield heating relay	0.75	VT/OG	
48	Park lamp relay (pin 85)	0.75	VT	
50	Differential lock-2 solenoid valve	0.75	BN/GN	
52	AEBS system buzzer- Right	0.75	GN/WH	

TRUCKS

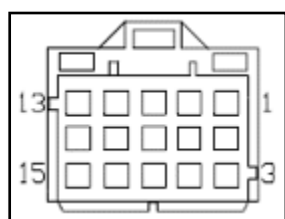


Connector Code	C2AM02-D			
Connector Description	BCU MODULE (D)			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Ignition KL_15A	0.75	WH	
3	Autodrop sensors ground	0.75	GY/VT	
5	Lowliner switch	0.75	YE/GY	
6	AMT switch	0.75	BU/GY	
7	Engine operation by CP	0.75	BU/BN	
8	Lane departure warning system buzzer diagnostics	0.75	BU/WH	
11	Autodrop-1	0.75	GN/BN	
12	Autodrop-2	0.75	BU/GN	
13	Autodrop-3	0.75	GY/BU	
14	Autodrop-4	0.75	YE/BU	
17	I-CAN-H	0.75	YE/GY	
19	I-CAN-L	0.75	WH/BN	
22	Hazard lamp switch	0.75	OG/GY	
23	RKE module lock signal	0.75	GY/BU	
24	Interlock switch	0.75	WH/BN	
25	MFS-Right lever Retarder (INT3)	0.75	BU/WH	
26	Replaceable air pressure switch	0.75	BN/VT	
27	MFS-Right lever Retarder (INT3)	0.75	GN/WH	
28	MFS-Right lever Retarder (INT3)	0.75	WH/BN	
29	MFS-Right lever Retarder (INT3)	0.75	WH/BN	
31	Autodrop Sensor Supply	0.75	BN	
32	MFS-Right lever Retarder (INT3)	0.75	WH/OG	
33	MFS-Cruise control set (+)	0.75	WH	
34	MFS-Cruise control set (-)	0.75	BU/GN	
35	MFS-Cruise control resume signal	0.75	VT/OG	
36	MFS switch-Flash to pass	0.75	GY/BN	
37	Lane departure warning system switch	0.75	GN/OG	

TRUCKS



Connector Code	C2AM02-E			
Connector Description	BCU MODULE (E)			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	KL_31 Battery (+)	2.5	BK/WH	
2	KL_30 Battery (+)	1.5	GN/RD	
4	Differential lock-2 solenoid valve	0.75	GN/WH	
5	Axle-1 Lowering	0.75	BN	
6	Axle-2 Lowering	0.75	GN/WH	
7	Park lamps dimming	1.5	BU/GY	
8	KL_30 Battery (+)	1.5	RD	
9	Front fog lamp (+)	0.75	BN/YE	



Connector Code	C2AM02-F			
Connector Description	BCU MODULE (F)			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	High beam left and right (+)	0.75	YE/VT	
2	Refuse Collector brake valve (+)	0.75	BU	
3	Left turn signal lamp and relay	0.75	BU/GN	
4	Right turn signal lamp and relay	0.75	YE/VT	
5	Ignition KL_15	1.5	BU/OG	
6	KL_30 Battery (+)	1.5	BU/RD	
7	Brake lamp-2 relay	1.0	OG/BU	
8	Rear fog lamp (+)	0.75	OG/YE	
9	KL_31 Battery (-)	2.5	BK/WH	
10	PTO Valve	0.75	GN/WH	
11	Interlock valve-2	0.75	YE/OG	
12	KL_30 Battery (+)	1.5	GY/RD	
13	Low speed wiper relay (Pin85)	0.75	BU	
14	Low Liner valve	0.75	GY	

4.9.5. Ambient Temperature Sensor (OAT):

**Function :**

Measures the ambient temperature and sends the required information to Instrument Cluster. Cluster shares this information with the driver on LCD display.

Manufacturer:

GE

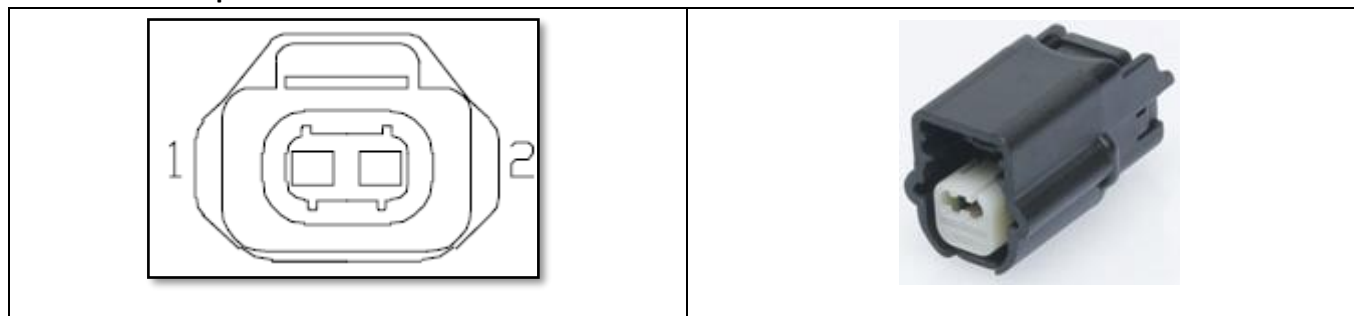
Type :

This is a Negative Temperature Coefficient (NTC) type sensor.

Location:

TRUCKS

Connector Description:



Connector Code	C1H407			
Connector Description	AMBIENT TEMPERATURE SENSOR (OAT)			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Sensor supply/signal	0.75	VT/GY	Cluster-C1-7
2	Sensor Ground	0.75	WH/BN	Cluster-C1-23

Checking Method:

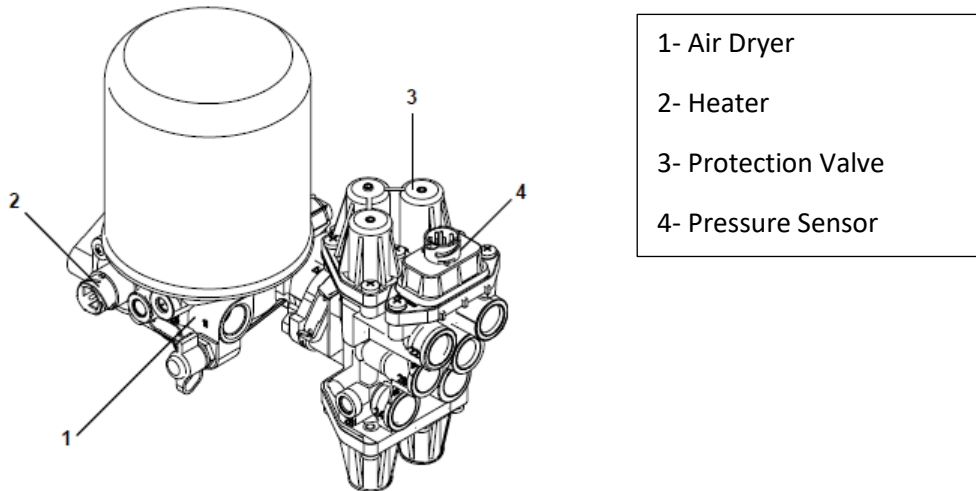
When we connect the black (ground) terminal of multimeter to pin no. 2 on sensor side, and the red (signal) terminal to pin no. 1 on sensor side,

values shown on the table shall be read on specific temperatures.

The value that shall be read at 25 °C is 10K Ω $\pm$ 1.5%.

Temp. (°C)	Rnominal (ohms)	Res. Tol. $\pm$ %	Rmin. (Ohms)	Rmax. (Ohms)	Temp. Coef. (%/ °C)	Temp. Accy. ($\pm$ °C)
0	32566	2.71	32683	33448	5.10	0.53
5	25338	2.44	24720	25956	4.94	0.49
10	19869	2.19	19433	20304	4.79	0.46
15	15695	1.95	15389	16001	4.65	0.42
20	12486	1.72	12271	12701	4.51	0.38
25	10000	1.50	9850	10150	4.38	0.34

4.9.6. APU Pressure Sensor (Air Drier):



Function :

It allows displaying of the pressure on service brake tubes (front and rear brake tubes) on the Instrument Cluster.

Sensor has a pressure-voltage characteristic, voltage value corresponding to the current pressure is transmitted to the instrument cluster as an electrical signal.

Manufacturer:

Wabco

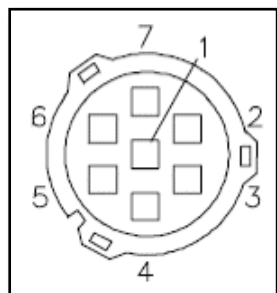
Type :

This is a Piezo-resistive type sensor.

Location:

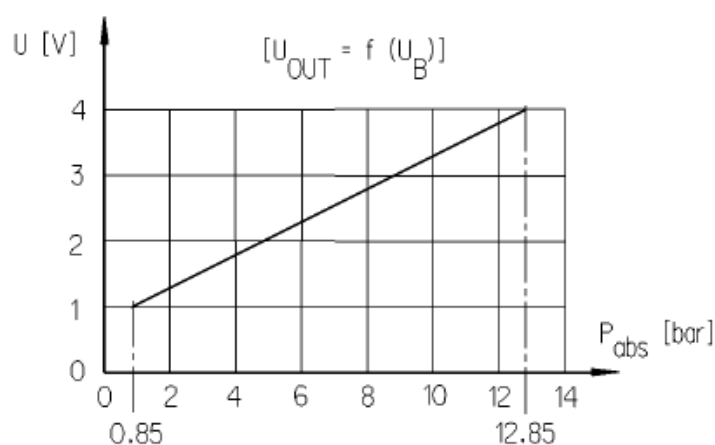
TRUCKS

Connector Description:



Connector Code	C1A165			
Connector Description	AIR PRESSURE UNIT PRESSURE SENSOR (APU)			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
2	Sensor-1 Signal	0.75	Yellow/Orange	Cluster-C1-24
3	Power (Supply)	0.75	Brown/Purple	Cluster-C1-21
4	Chassis (Ground)	0.75	White/Brown	Cluster-C1-23
5	Sensor-2 Signal	0.75	White/Blue	Cluster-C1-22
6	Power (Supply)	0.75	Brown/Purple	Cluster-C1-21
7	Chassis (Ground)	0.75	White/Brown	Cluster-C1-23

Checking Method:

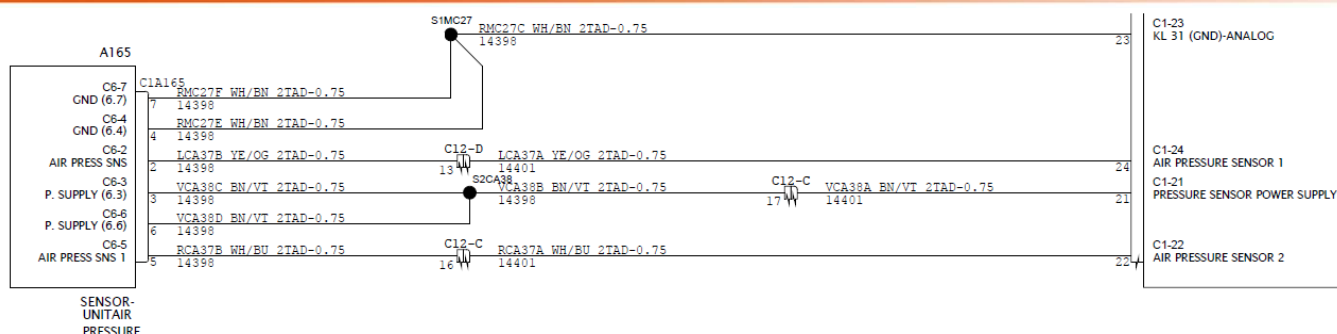
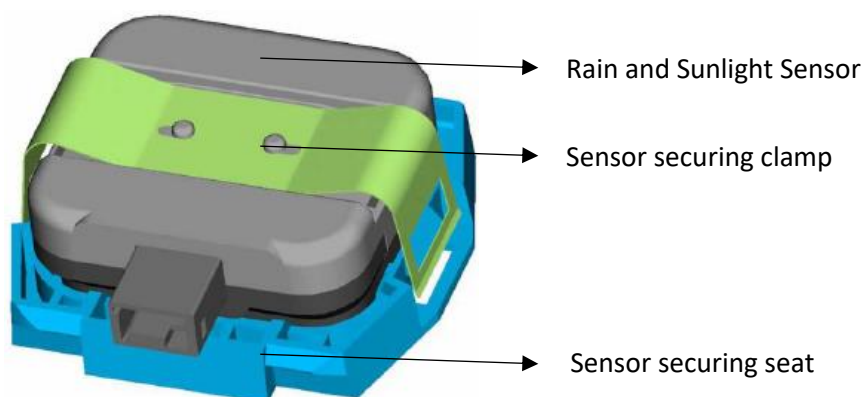


It shall be measured by connecting the red terminal of multimeter to pin no. 2-5 (signal), and the black (ground) terminal to pin no. 4-7 (ground).

The value to be observed is

1V = 0.85 Bar

4V = 12.85 Bar

TRUCKS

4.9.7. Rain and Sunlight Sensor:

Function of Rain Sensor:

Automatic wiper function uses rain sensor. Sensor is placed on the rear bottom side of windshield. Rain sensor checks humidity level on the windshield and operates the wipers automatically. System adjusts the wiper speed according to the humidity level detected on the windshield by the sensor.



Wiper arm "Automatic wiper" position

If your vehicle is equipped with an Automatic Wiper, wipers shall operate for one cycle to indicate that the function is activated when you bring the wiper arm to "Automatic Wiper" position . Then, wipers shall be operated automatically as per the amount of rain.

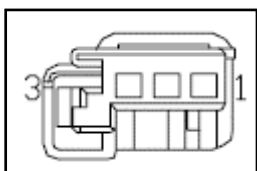
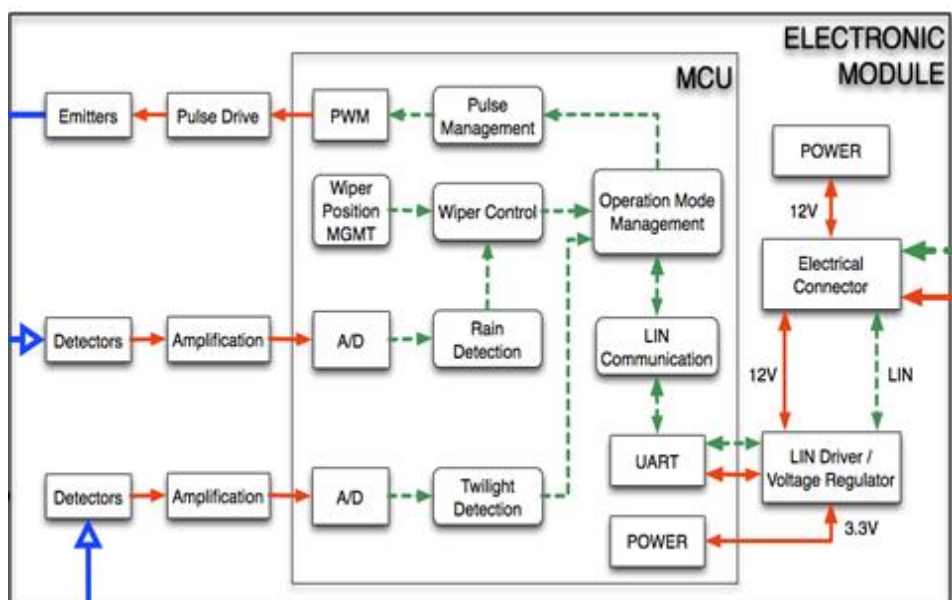
When you bring the wiper arm to another position than the Automatic Wiper position , Automatic Wiper function shall be turned off and wipers shall operate as per your selection.

TRUCKS

Function of Sunlight Sensor:



When the lighting control is on automatic headlamp position, low beam headlamps are turned on automatically when it gets dark on the evening and sensor detects that the ambient lighting level is not adequate.



Connector Code	C2YD07			
Connector Description	RAIN SENSOR			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Battery Voltage	0.75	YE/RD	Sig. Box-C2BB0-F82-10A
2	Chassis (Ground)	0.75	YE/GN	Converter-C2DC13-C1-12
3	LIN Line	0.75	WH	Diagnostics-C2DB04-C1-15

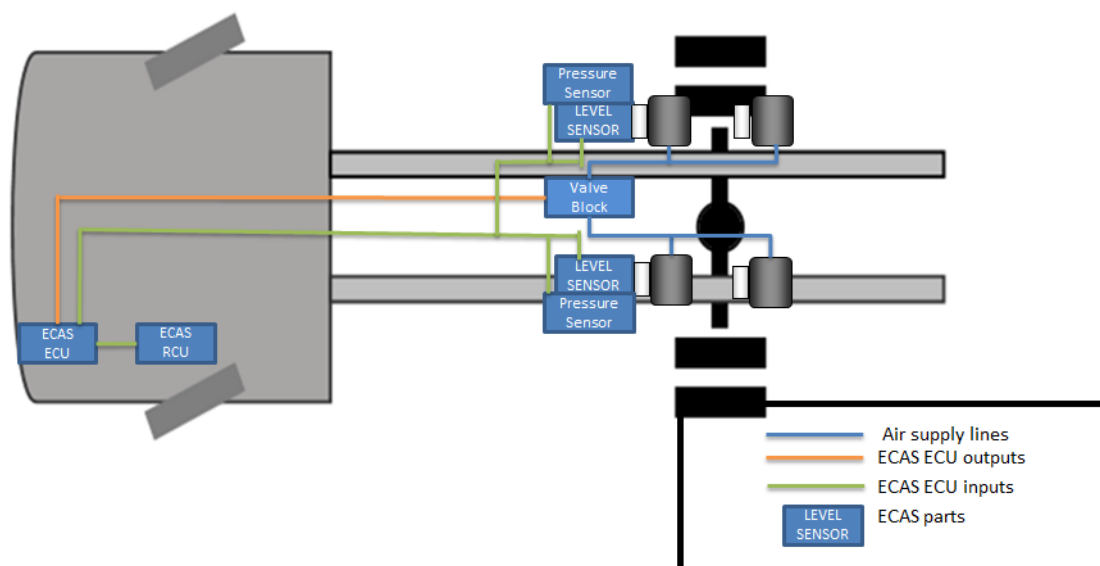
TRUCKS

4.10. ECAS - Electronic Controlled Air Suspension

4.10.1. Schematic Operating Principle:

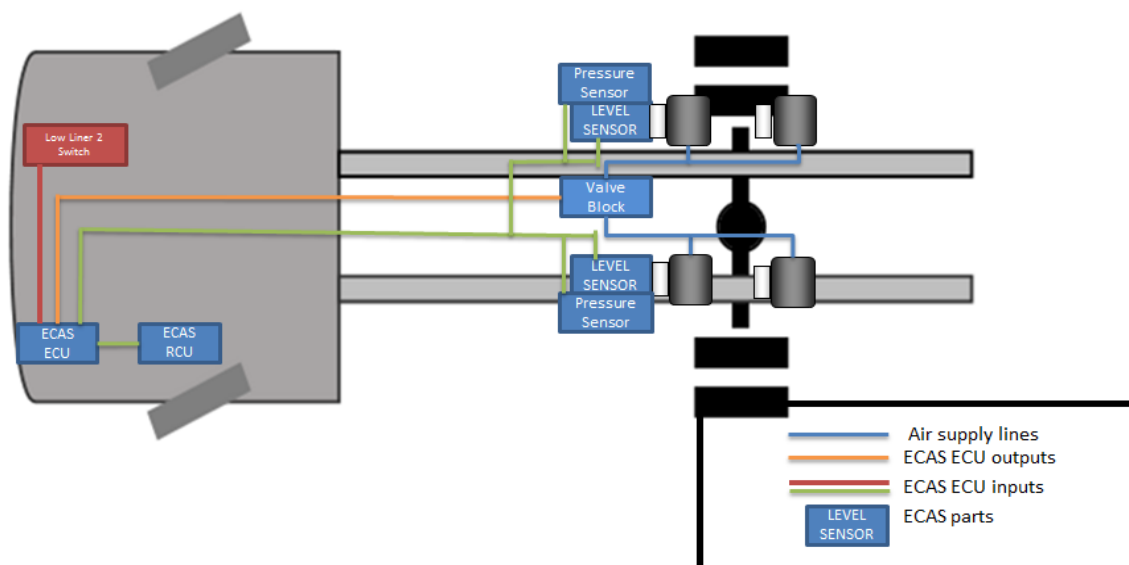
H566 :

4x2



H566 LowLiner :

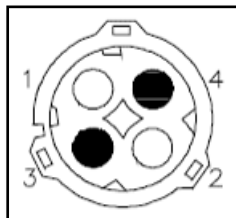
4x2



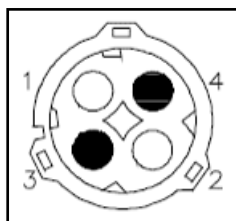
TRUCKS

4.10.2. System Components:

4.10.2.1. Height Sensors:

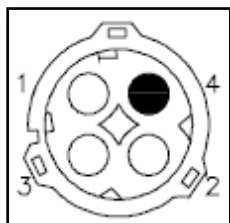


Connector Code	C1CD12			
Connector Description	REAR AXLE LEFT HEIGHT SENSOR			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Signal / supply	1.0	Purple/White	ECAS-B-5
2	Chassis (Ground)	1.0	Orange/Blue	ECAS-B-7



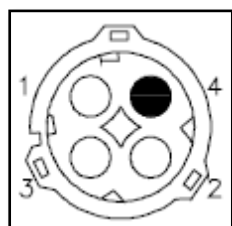
Connector Code	C1CD13			
Connector Description	REAR AXLE RIGHT HEIGHT SENSOR			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Signal / supply	1.0	Green/Purple	ECAS-B-8
2	Chassis (Ground)	1.0	Orange/Blue	ECAS-B-7

4.10.2.2. Pressure Sensors:

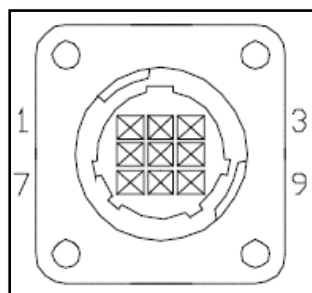


Connector Code	C1CL12			
Connector Description	REAR AXLE LEFT PRESSURE SENSOR			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Power Supply	1.0	OG/GN	ECAS-B-1
2	Chassis (Ground)	1.0	OG/BU	ECAS-B-7
3	Signal	1.0	VT	ECAS-B-6

TRUCKS

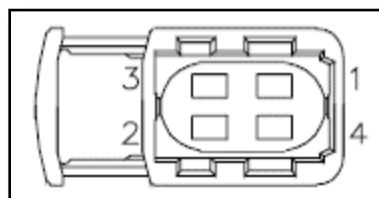


Connector Code	C1CL13			
Connector Description	REAR AXLE RIGHT PRESSURE SENSOR			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Power Supply	1.0	OG/GN	ECAS-B-1
2	Chassis (Ground)	1.0	OG/BU	ECAS-B-7
3	Signal	1.0	GN/BU	ECAS-B-13



Connector Code	C2A182			
Connector Description	REMOTE CONTROL ECAS			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Power Supply	0.75	OG/WH	ECAS-A-13
2	Chassis (Ground)	0.75	OG/BK	ECAS-A-15
3	Clock	0.75	OG	ECAS-A-8
4	Data	0.75	OG/YE	ECAS-A-11

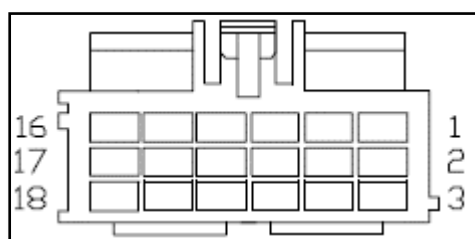
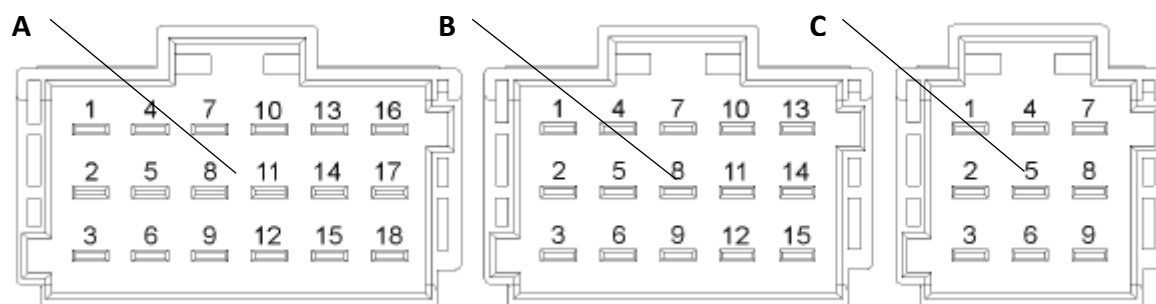
4.10.2.3. Solenoid Valve:



Connector Code	C1A220-A			
Connector Description	ECAS CENTRAL SOLENOID VALVE			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Central 3/2 Signal	1.0	Purple/Brown	ECAS-B-11
2	Rear left axle signal	1.0	White/Blue	ECAS-B-10
3	Pressure sensor - Left axle raising	1.0	Blue/Orange	ECAS-C-3
4	Power Supply	1.5	Orange	ECAS-B-4

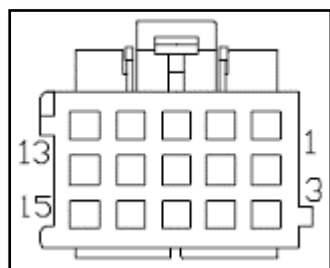
TRUCKS

4.10.3. ECAS Control Unit Connector and Pin Layout:

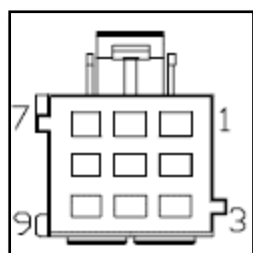


Connector Code	C2DC01-A		
Connector Description	ECAS MODULE (A)		
Pin Layout	Function	Wire Thickness	Wiring Colour
1	CAN-L	0.75	BN/BU
3	CAN-H	0.75	BN/GN
5	Level Button (Lowliner)	0.75	YE/GY
7	Battery Supply	2.5	WH/RD
8	Remote control - Clock	0.75	OG
9	K-Line Diagnostic	0.75	GY
10	Ignition Supply	1.0	GN
11	Remote control - Data	0.75	OG/YE
12	Chassis (Ground)	2.5	BK/BU
13	Remote control - Supply	0.75	OG/WH
15	Remote control - Ground	0.75	OG/BK

TRUCKS



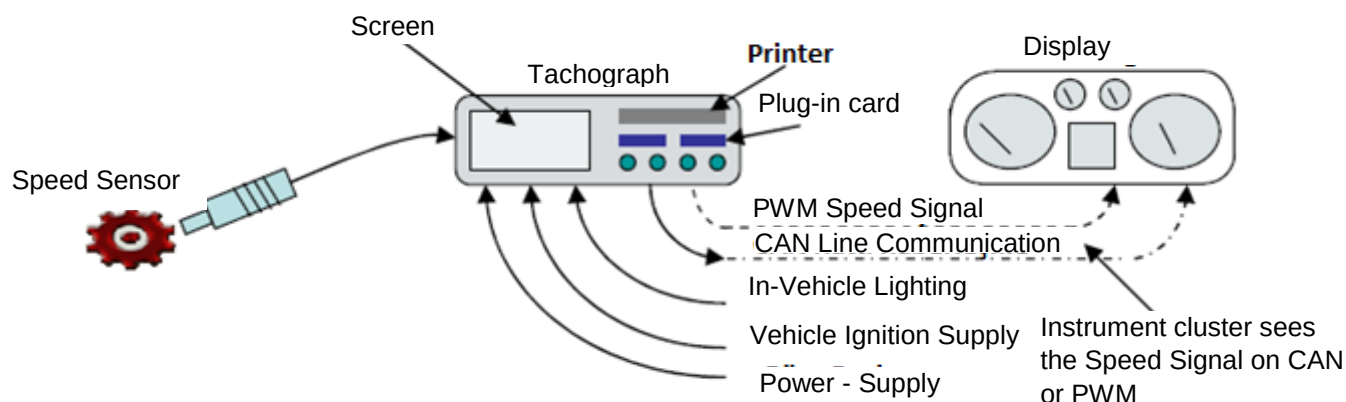
Connector Code	C2DC01-B		
Connector Description	ECAS MODULE (B)		
Pin Layout	Function	Wire Thickness	Wiring Colour
1	Pressure Sensor - Supply	1.0	OG/GN
4	Solenoid valve - Supply	2.5	OG
5	Left Height Sensor Signal	1.0	VT/WH
6	Left Pressure Sensor Signal	1.0	VT
7	Sensors Ground	1.0	OG/BU
8	Right Height Sensor Signal	1.0	GN/VT
10	Solenoid valve – Rear left axle signal	1.0	WH/BU
11	Solenoid valve – Central 3/2 signal	1.0	VT/BN
13	Solenoid valve – Rear right axle signal	1.0	BU/OG
14	Solenoid valve – Axle lifting signal	1.0	GN/BU



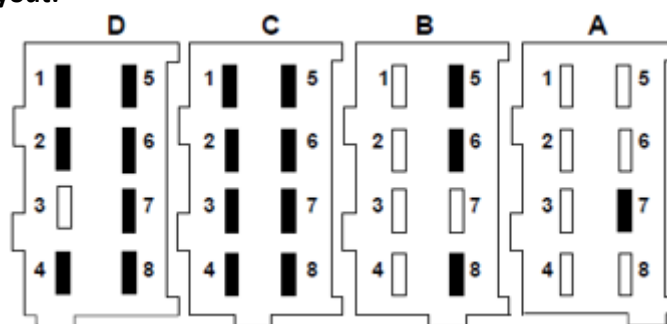
Connector Code	C2DC01-C		
Connector Description	ECAS MODULE (C)		
Pin Layout	Function	Wire Thickness	Wiring Colour
1	Solenoid valve – Bellow lifting	1.0	GY/YE
3	Pressure sensor - Left axle raising	1.0	GN/BU
6	Lamp - Load Transfer	1.0	VT/OG

TRUCKS

4.11. Tachograph



4.11.2. Connector and Pin Layout:



Connector Code	C2MC35-A			
Connector Description	TACHOGRAPH MODULE (A)			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Battery Voltage - Supply	0.75	YE/RD	
2	Interior Lighting	0.75	BU/GY	
3	Ignition	0.75	VT/GY	
4	CAN-H	0.75	BN/GN	
5	Battery Ground	1.5	BK/VT	
6	Chassis (Ground)	1.5	BK/GY	
8	CAN-L	0.75	BN/BU	

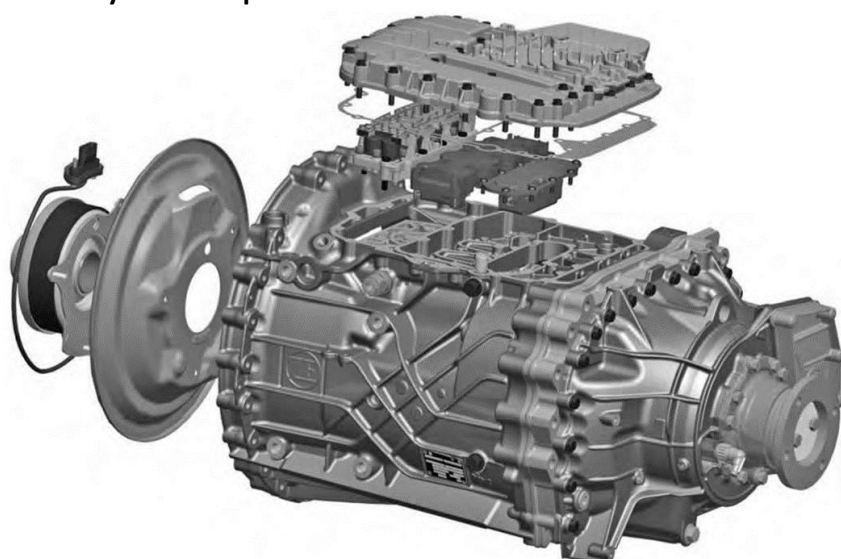
Connector Code	C2MC35-B			
Connector Description	TACHOGRAPH MODULE (B)			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Speed Sensor Supply	0.75	BU/GY	
2	Speed Sensor Ground	0.75	YE/BU	
3	Speed Sensor Signal	0.75	BN/WH	
4	Speed Sensor Data	0.75	BU	
7	Speed Sensor Output	0.75	GY/YE	

TRUCKS

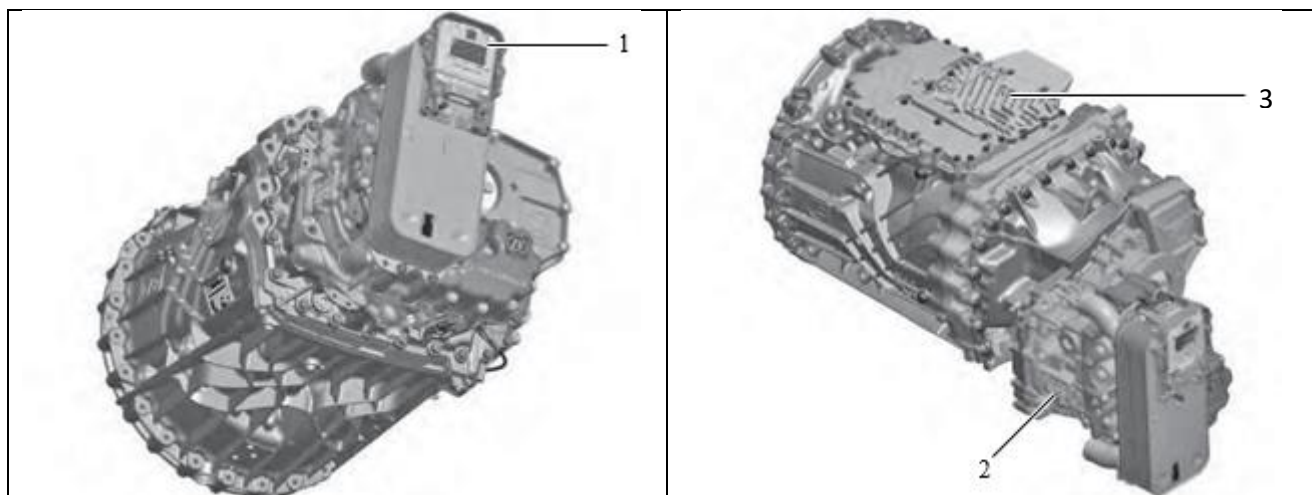
Connector Code	C2MC35-C			
Connector Description	TACHOGRAPH MODULE (D)			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Positive Supply	0.75	GN/RD	

4.12. Automated Transmission (AMT - Traxon) and Intarder (EST54)

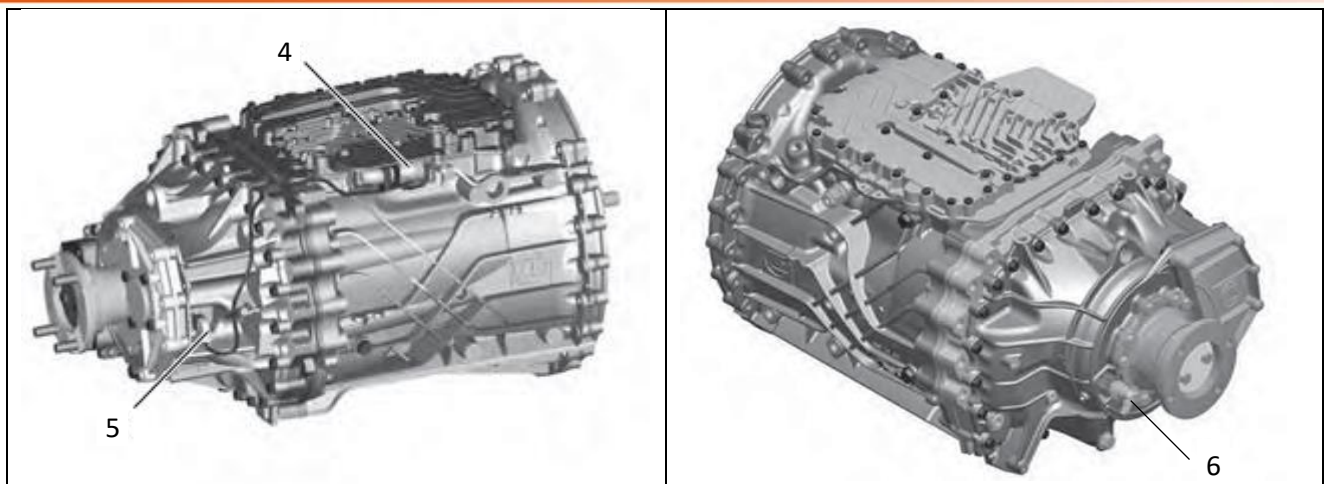
4.12.1. System Components:



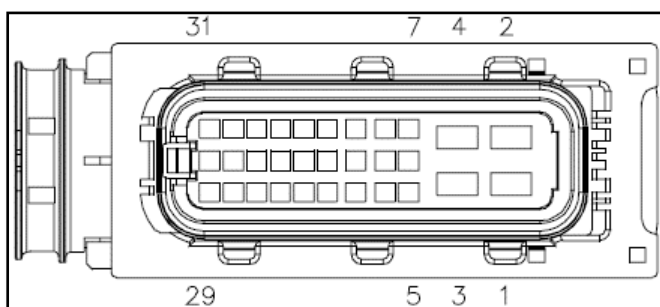
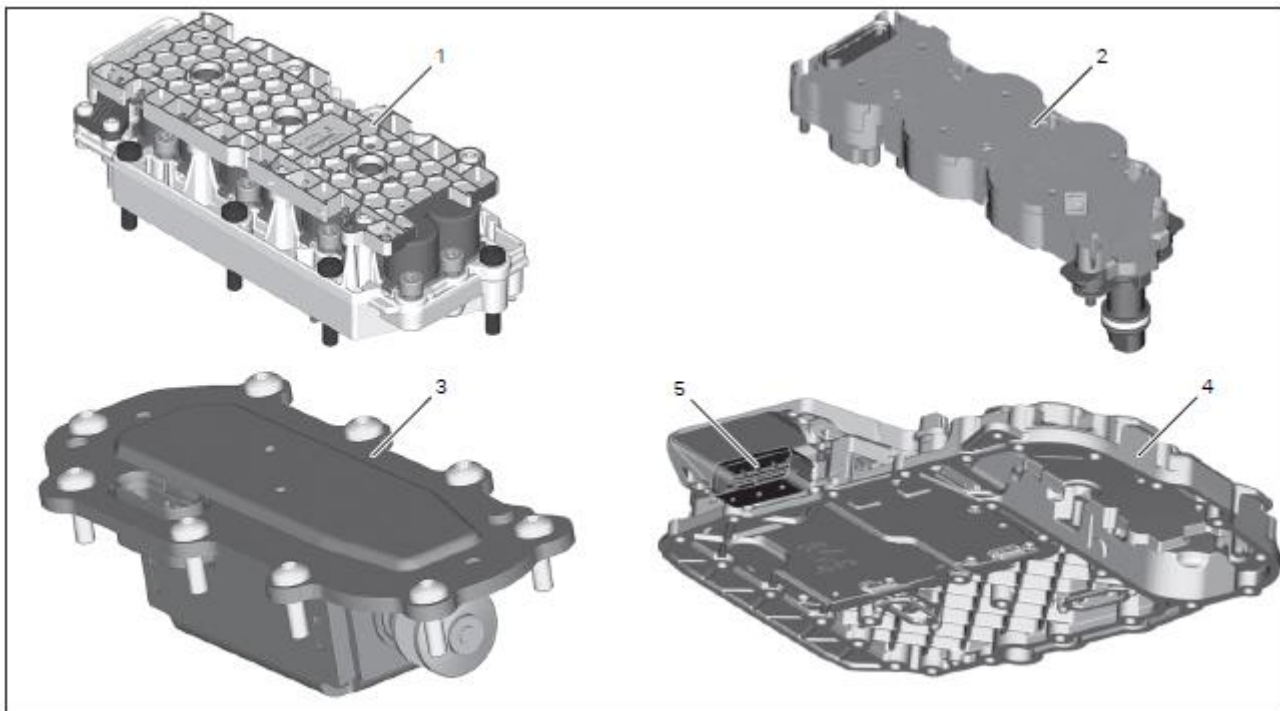
- 1-Intarder Control Unit
- 2-Intarder
- 3- TCU (Transmission Control Unit)
- 4-TCU-Vehicle Connector (C1ET07)
- 5- Speed Sensor
- 6-Tachometer connection



TRUCKS



4.12.2. Automated Transmission Control Unit (TCU) Connectors and Pin Layout



- 1- Valve Block
- 2- Sensor Module
- 3- Gear Selection Actuator
- 4- TCU (Transmission Control Unit)
- 5- TCU-Vehicle Connector (C1ET07)

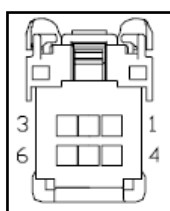
TRUCKS

Connector Code	C1ET07			
Connector Description	AUTOMATIC TRANSMISSION MODULE (TCU)			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Chassis (Ground)	2.5	Black/Grey	D184-B Ground
2	Shift Mechanism Module (Fuse F16-10A)	2.5	Purple/Red	C1ET06-06
3	Chassis (Ground)	4	Black/Grey	D184-B Ground
4	Supply (+)	2.5	Grey/Red	J5-30A-01
9	Shift Mechanism Module (Fuse F6-10A)	2.5	White/Blue	C1ET06-07
23	CAN-H (Shift Mechanism Module)	0.75	Blue/Grey	C1ET06-03
25	CAN-L (Shift Mechanism Module)	0.75	Purple/Grey	C1ET06-01
29	CAN-H	0.75	Brown/Green	-
31	CAN-L	0.75	Brown/Blue	-

4.12.3. Selector Mechanism:


TRUCKS

Connector Code	C1ET06			
Connector Description	SHIFT MECHANISM MODULE			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	CANF-L (TCU Communication)	0.75	VT/GY	TCU-C1ET07-25
3	CANF-H (TCU Communication)	0.75	BU/GY	TCU-C1ET07-23
6	VPE (TCU Signal)	0.75	VT/RD	TCU-C1ET07-02
7	EDVP (TCU Signal)	0.75	WH/BU	TCU-C1ET07-09
8	VM2 (Ground)	0.75	BK/BU	D114 Ground Connection
9	AD1 (Reverse Gear Relay)	0.75	OG/BU	R16-20A-03
12	VM3 (Reverse Gear Relay)	0.75	OG/GN	R16-20A-01
13	ADM (Neutral Gear Relay)	0.75	GN/OG	R11-40A-02
14	CANF-Ra	0.75	GY/BN	C1ET06-15
15	CANF-Rb	0.75	GY/BN	C1ET06-14

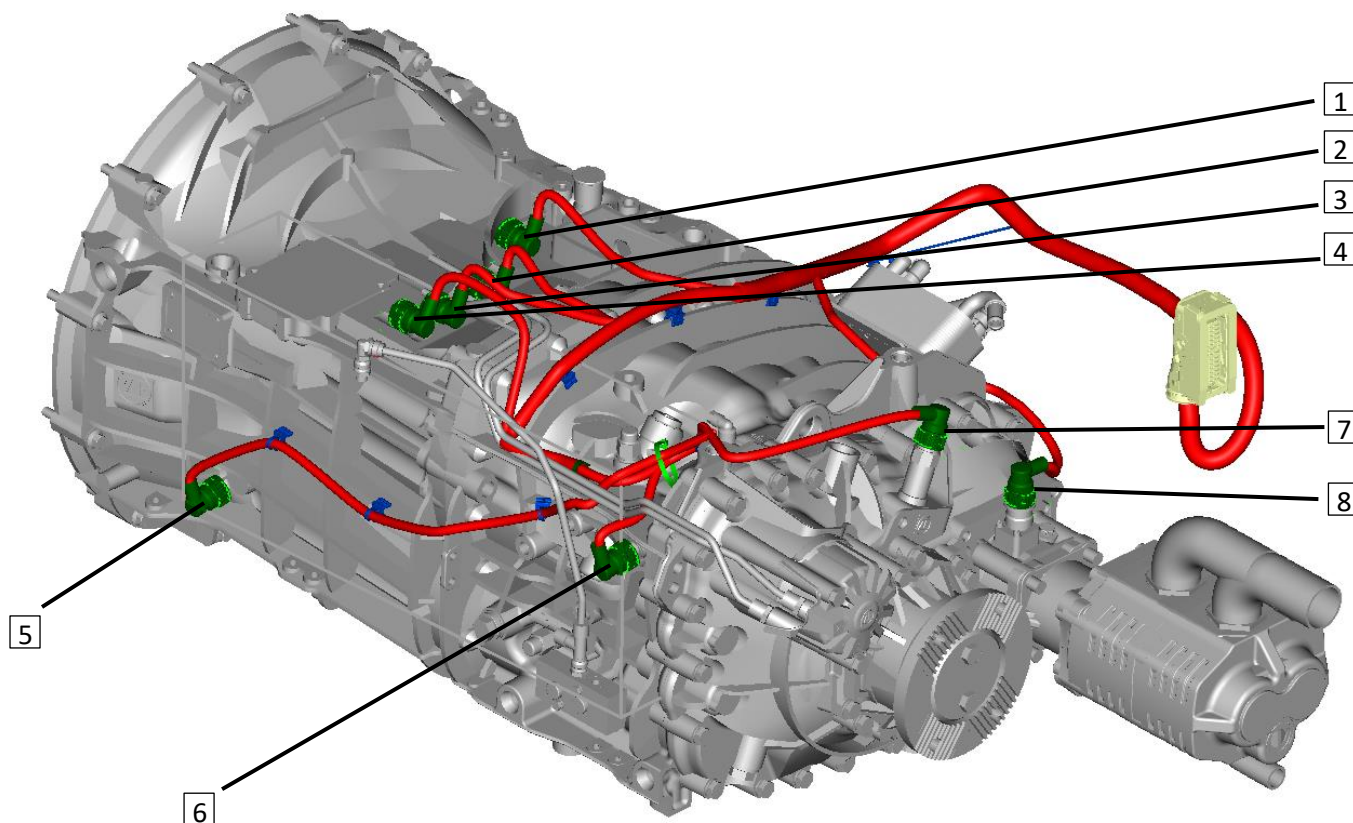
4.12.4. Selector Knob:


Connector Code	C2RB05-A			
Connector Description	SELECTOR KNOB			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Chassis (Ground)	0.75	BK/GY	D184 Ground Connection
2	BCU Signal	0.75	GN/OG	BCU-D-06
3	Chassis (Ground)	0.75	BK/GY	D184 Ground Connection
4	Switch Lighting Dimming	0.75	BU/GY	BCU-E-07

TRUCKS

4.13. Manual Transmission (M/T)

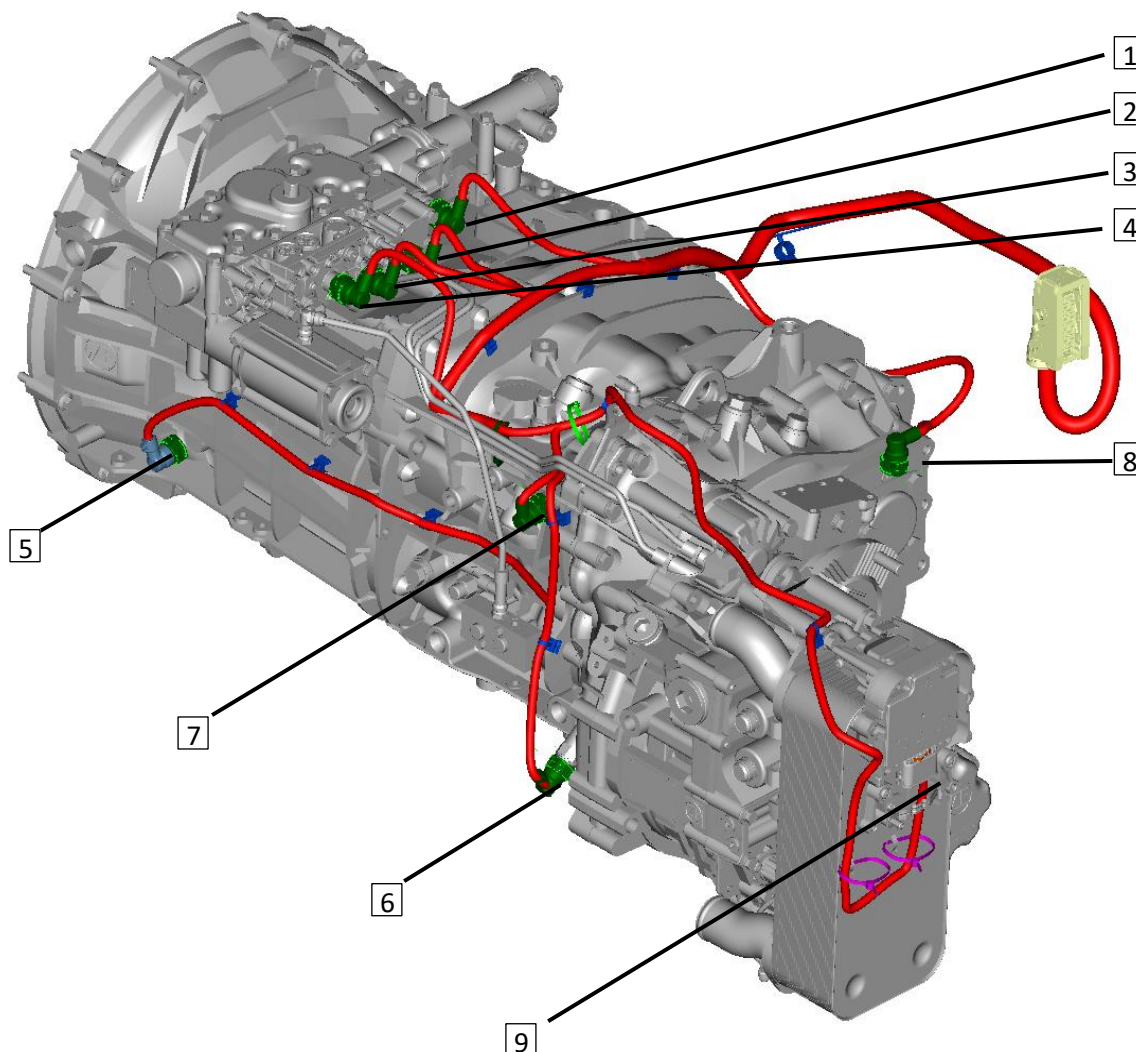
4.13.1. Switch Locations on Manual Transmission (PTO installed):



Sequence No.	Description
1	Reverse Gear (R) Switch
2	Neutral Gear (N) Switch
3	Pressure Switch
4	Wrong Gear Prevention Switch
5	GV Splitter (Half) Valve Switch
6	GP Range (Low/High) Valve Switch
7	Speed Sensor
8	PTO SWITCH

TRUCKS

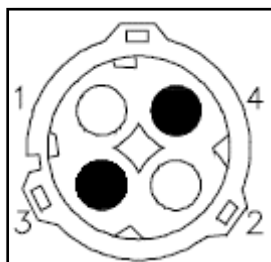
4.13.2. Switch Locations on Manual Transmission (Intarder installed):



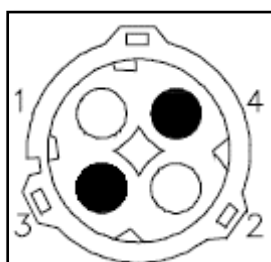
Sequence No.	Description
1	Reverse Gear (R) Switch
2	Neutral Gear (N) Switch
3	Pressure Switch
4	Wrong Gear Prevention Switch
5	GV Splitter (Half) Valve Switch
6	GP Range (Low/High) Valve Switch
7	Speed Sensor
8	PTO SWITCH
9	Intarder

TRUCKS

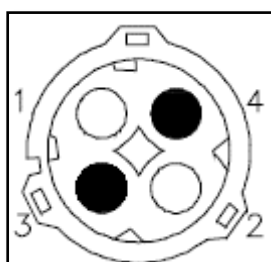
4.13.3. Descriptions of Connectors on Manual Transmission:



Connector Code	C1ET47			
Connector Description	Reverse Gear (R) Switch			
Pin Layout	Wiring Number	Wire Thickness	Wiring Colour	Target Unit
1	B_GD184	0.75	Black/Grey	D184-B Ground Point
2	B_CET47	0.75	Blue	BCU-C2AM02-C3-11

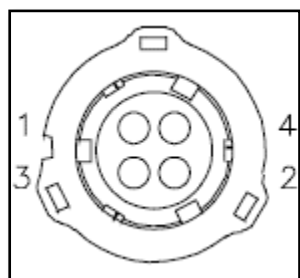


Connector Code	C1ET71			
Connector Description	Neutral Gear (N) Switch			
Pin Layout	Wiring Number	Wire Thickness	Wiring Colour	Target Unit
1	B_GD184	0.75	Black/Grey	D184-B Ground Point
2	CDC37D	0.75	Grey/Purple	ECU-C1E115A-C1-63

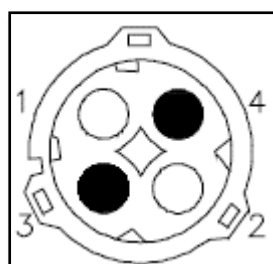


Connector Code	C1CL10			
Connector Description	Pressure Switch			
Pin Layout	Wiring Number	Wire Thickness	Wiring Colour	Function
1	CCL10A	0.75	White	ECU-C1E115A-C1-15
2	CEC01A	0.75	White/Blue	ECU-C1E115A-C1-90

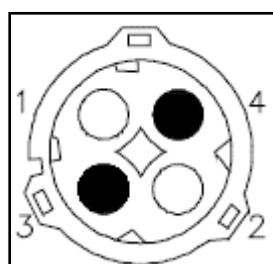
TRUCKS



Connector Code	C1A195			
Connector Description	Wrong Gear Prevention (MissShift) Switch			
Pin Layout	Wiring Number	Wire Thickness	Wiring Colour	Target Unit
1	CET16A	0.75	White/Blue	ECU-C1E115A-C1-61
2	CET17A	0.75	Green/Blue	ECU-C1E115A-C1-62
3	LCA27F	0.75	Brown/White	ECU-C1E115A-C1-27
4	LCA27G	0.75	Brown/White	ECU-C1E115A-C1-27

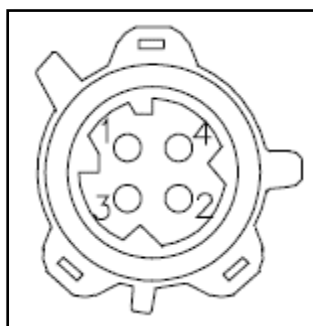


Connector Code	C1E738			
Connector Description	GV Splitter (Half Valve Switch)			
Pin Layout	Wiring Number	Wire Thickness	Wiring Colour	Target Unit
1	LCA27D	0.75	Brown/White	ECU-C1E115A-C1-27
2	VE738A	0.75	Yellow/Blue	ECU-C1E115A-C1-35

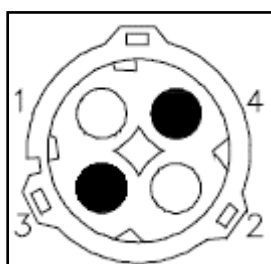


Connector Code	C1A226			
Connector Description	GP Range (Low/High) Valve Switch			
Pin Layout	Wiring Number	Wire Thickness	Wiring Colour	Target Unit
1	ZA325A	0.75	Orange	Cluster-C2MC01-C1-2
2	CBP22E	0.75	Green/Orange	Sig. Box-C2BB0-F22-10A

TRUCKS



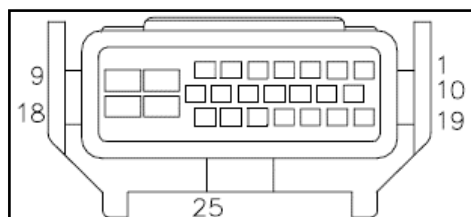
Connector Code	C1E822A			
Connector Description	Vehicle Speed Sensor			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Supply Voltage	0.75	Blue/Grey	Tach-C2MC35-C2-1
2	Chassis (Ground)	0.75	Yellow/Blue	Tach-C2MC35-C2-2
3	Signal (Hall)	0.75	Brown/White	Tach-C2MC35-C2-3
4	Signal (Tach)	0.75	Blue	Tach-C2MC35-C2-4



Connector Code	C1ET33			
Connector Description	SHAFT SPEED SENSOR			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Signal Supply	0.75	White/Purple	ECU-C1E115B-C2-91
2	Chassis (Ground)	0.75	White/Orange	ECU-C1E115B-C2-92

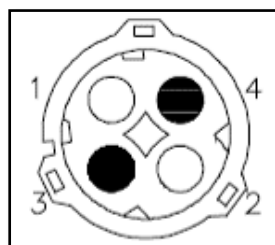
TRUCKS

4.14. Intarder (EST54):



Connector Code	C1A113			
Connector Description	INTARDER - EST54			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	K Line	0.75	Grey	
2	CAN-L 2	1	Purple/Orange	
5	CAN-L HS	0.75	Brown/Green	
7	Chassis (Ground)	1	Black/Grey	
8	Supply (Fuse F13-10A)	2.5	Green/Red	
9	Supply (Fuse F13-10A)	2.5	Green/Red	
11	CAN-H 2	1	Green/Orange	
17	Chassis (Ground)	2.5	Black/Grey	
18	Chassis (Ground)	2.5	Black/Grey	
23	CAN-H HS	0.75	Brown/Blue	
25	Multi-Functional Lever (Right) - (Fuse F5-10A)	1	Yellow	

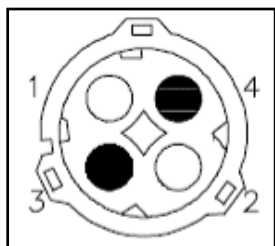
4.15. PTO :



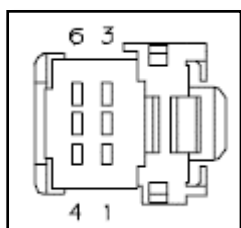
Connector Code	C1E925			
Connector Description	PTO ACTUATOR VALVE			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Signal	0.75	Green/White	BCU-C6-10

TRUCKS

2	Chassis (Ground)	0.75	Black/White	D150 Ground Connection
---	------------------	------	-------------	------------------------



Connector Code	C1E326			
Connector Description	PTO BUTTON (CONSOLE)			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
1	Chassis (Ground)	0.75	Black/Grey	D184B Ground Connection
2	Signal	0.75	Grey/Purple	BCU-C3-31



Connector Code	C2E912			
Connector Description	PTO CONNECTOR			
Pin Layout	Function	Wire Thickness	Wiring Colour	Target Unit
2	Activating signal	0.75	Blue	BCU-C3-32
3	Chassis (Ground)	0.75	Black/Grey	D184 Ground Connection
4	Park lamps dimming	0.75	Blue/Grey	BCU-C5-07
6	PTO Valve	0.75	Green/White	BCU-C6-10