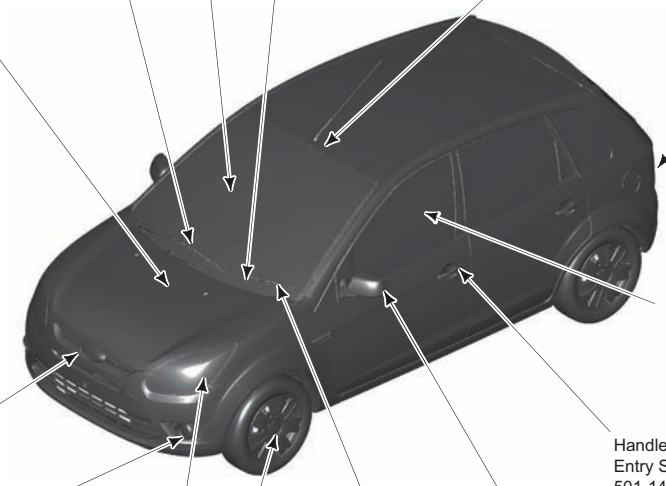
Systems Overview



Multifunction Electronic Control Modules
419-10-00

Instrument Cluster & Panel Illumination
413-00-00

Instrument Cluster
413-01-00

Horn
413-06-00

Anti-Theft-Passive
419-01B-00

Instrument Panel & Console-Cigar lighter, front
501-12-00

Heating & Ventillation
412-02-00

Air Conditioning
412-03-00

Audio Unit
415-01-00

Speakers
415-03-00

Module Communications Network-Data Link Connector (DLC)
418-00-00

Fuel Charging & Controls-1.19L Duratec-16V (Sigma)
303-04A-00

Fuel Charging & Controls-1.4L Duratorq-TDCi (DV) Diesel
303-04B-00

Starting System
303-06-00

Engine Ignition 1.19L Duratec-16V Sigma)
303-07A-00

Electronic Engine Controls-1.19L Duratec-16V (Sigma)
303-14A-00

Electronic Engine Controls-1.4L Duratorq-TDCi (DV) Diesel
303-14A-00

Airbag
419-01A-00-01

Interior Lighting
417-02-00

Exterior Lighting-Stop Lamps
417-01-00-04

Exterior Lighting-Rear fog Lamps
417-01-00-10

Exterior Lighting-Reversing Lamps
417-01-00-11

Glass,Frames & Mechanisms
501-11-00

Handles, Locks, Latches & Entry Systems
501-14-00

Rear View Mirrors
501-09-00

Wipers & Washers
501-16-00

Anti-Lock Control
206-09A-00

Exterior Lighting-Front fog lamps
417-01-00-09

Engine Cooling-1.19L Duratec-16V (Sigma)
303-03A-00

Engine Cooling-1.4L Duratorq-TDCi (DV) Diesel
303-03B-00

Generator & Regulator
414-02-00

Exterior Lighting-Head lamps
417-01-00-01

Exterior Lighting-Head lamp Levelling
417-01-00-02

Exterior Lighting-Position & Parking Lamps, Licence plate lamps
417-01-00-03

Exterior Lighting-Turn Signal & Hazard Flasher Lamps
417-01-00-05

Component Name	Connector No.	Component No.	Page No.
Head Lamp RH Side	C1LF09	E7	417-01-00-01
Head Lamp switch	C2LF23	N120	413-00-00-01
Heated Rear Window Switch	C2RD09	N10	413-00-00-01
Heater Control Module	C2H101	A128	412-03-00-01
High Beam Relay	C2BP02-R5	K244	700-01-00-01
High Mounted Stop Lamp	C4LS50	E70	417-01-00-04
High Speed Cooling Fan Relay	C1B102-R2	K46	700-01-00-01
High Tone Horn	C1RH02-A	H4	413-06-00-01
Horn Relay	C2BP02-R9	K33	700-01-00-01
Ignition Relay	C2BP02-R3	K41	700-01-00-01
Ignition Switch	C2DC32	N278	303-06-00-01
Inertia Fuel Shutoff Switch	C3E911	N316	303-14A-00-05
Instrument Cluster	C2MC01	A30	206-09A-00-01
Interior Lamp Front	C9LN28-A	E18	417-02-00-01
Interior Lamp Front	C9LN28-B	E18	417-02-00-01
Knock Sensor	C1E801	B45	303-14A-00-08
LH C - Pillar	C81		700-07-00-17
LH A - Pillar	C50		700-07-00-11
LH B - Pillar	C52		700-07-00-12
License Plate Lamp LH Side	C4LS04-A	E34	417-01-00-03
License Plate Lamp RH Side	C4LS05-A	E35	417-01-00-03
Low Beam Relay	C2BP02-R4	K243	700-01-00-01
Low Speed Cooling Fan Relay	C1B102-R4	K45	700-01-00-03
Low Tone Horn	C1RH02-B	H1	413-06-00-01
Luggage Compartment Lamp	C3LN13	E57	417-02-00-03
Mass Air Flow Sensor	C1E824	B22	303-14B-00-05
Oil Pressure Switch (1.19L -Duratec)	C1MC24-A	N17	413-01-00-03
Oil Pressure Switch (1.4L -TDCi)	C1MC24-B	N17	413-01-00-03
Parking Brake Switch	C3MC25	N63	413-01-00-03
Passenger Airbag	C2R103		419-1A-00-01
Passenger Anti-Theft System Transceiver Module	C2RT23-A	A102	419-1B-00-01
Passenger Door (Exterior)	C55		501-09-00-01
PCM Module Relay	C2BP02-R11	K163	700-01-00-01
Piezo Injector 1	C1E205-B	Y167	303-04B-00-01
Piezo Injector 2	C1E206-B	Y168	303-04B-00-01
Piezo Injector 3	C1E207-B	Y169	303-04B-00-01
Piezo Injector 4	C1E208-B	Y170	303-04B-00-01
Power Mirror Adjust Switch	CAPM20	N193	501-09-00-01
Powertrain Control Module (PCM) (1.19L - Duratec)	C1E104-A	A147	700-07-00-01
Powertrain Control Module (PCM) (1.4L-TDCi)	C1E105-A	A147	700-07-00-02

Numbering Description

Item	Description
1	Circuit code
2	Wire insulation specification (temperature)
3	Wire diameter (mm²)
4	Component name
5	Connector code
6	Wire color code
7	Wiring harness code

Circuit Code

Example: RE208B

Position	Description
1	Electrical potential
2	System
3	Sub-system
4 and 5	Function
Some circuit codes also have a suffix. Suffices are used when parts of a circuit are separated with a connector.	

Note: The function code is vary from circuit to circuit.

Position 1: Potential

Code	Description
G	Ground
S	Standard voltage
H	Higher than standard voltage
C	Changing or switched
V	Variable signal
L	Lower than standard voltage
R	Return or reference
D	Drain wire
Z	Any of the above with a temporary function

- Switch OFF all electrical loads & stabilize battery. Connect a multimeter across the battery terminals and check the open circuit voltage. If the battery reads 12.50V and above the battery is OK.
- If it is less than 12.50V it is recommended to recharge the battery as per the procedure given in this bulletin. A battery that has been discharged to less than 10.50V may have suffered internal damage from sulphation and may not recharge satisfactorily. When a battery becomes slightly discharged, it is important to recharge it as soon as possible to avoid permanent damage.

Stabilised voltage	% Charge	Notes
11.6 to 11.9	0 - 25	Recharge immediately
11.9 to 12.2	25 - 50	Recharge immediately
12.2 to 12.4	50 - 75	Recharge immediately
12.4 to 12.7	75 - 100	Adequately charged
12.8 +	100	Battery is not fully stabilised

Battery Charging Procedure

Equipment: Elak Charger

Initial Preparation:

- Connect the charger with main supply.
- Switch ON the power-on switch provided in front of the panel of the charger.
- Keep the voltage control knob in 12V position for 1 battery and 30V position for 2 batteries.
- Keep the current control knob in first position. Do not short circuit the output cables while the charger is ON measure the voltage across the cable, if no output then press the reset button available in the front panel of the charger.
- Verify the voltage as per the table below,

Battery	Voltage Selection	Approx. Voltage Output
1	12V	19.5V
2	30V	33.0V

- After confirmation of above conditions the charger is ready for charging.Then switch OFF the charger.

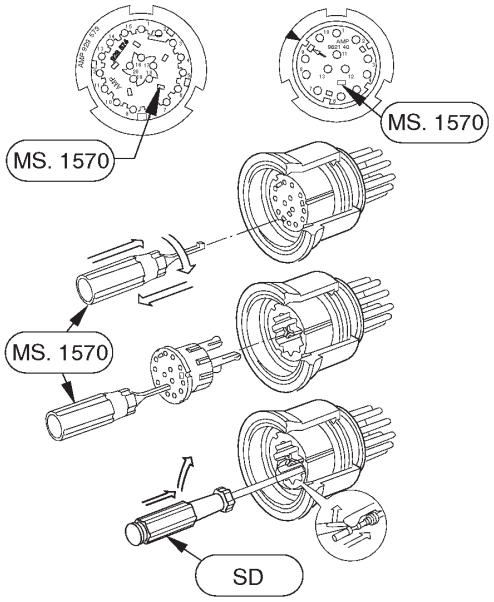
Battery: To ensure the battery condition

- Physically check for any damage.
- Electrolyte level, if not add D.M (D.M: De mineralised water)
- Check specific gravity and record. (Specific gravity need not be checked if D.M water is topped up)
- Check the open circuit voltage and record.

Charging: One battery Charging

- Connect the battery positive to the charger positive cable and battery negative to the negative cable.
- Keep the voltage control knob at position 12V and current control at position 1.
- Un screw all the vent plug from the battery to avoid excess pressure due to gasing inside the battery during charging.
- After the above steps switch ON the charge Power-on switch.
- Notice the ammeter reading and adjust the value to 4A by setting the knob at next higher position.
- Adjust the current control knob to the next higher position when the reading of the ammeter falls, as the battery is gradually charged. This manual adjustment is required from time to time and charging

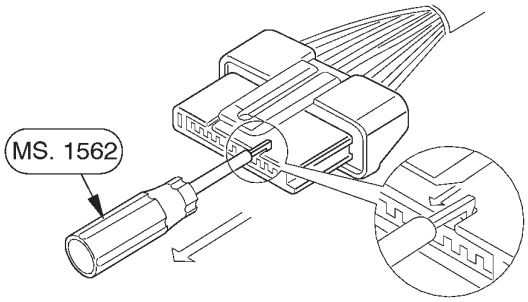
Dismantling Round Plugs



Insert extractor MS. 1570 in one of the rectangular openings, turn through 90 and pull out the red locking device completely. Then lift the locking tab of the pin or sleeve type terminal in question slightly with screwdriver SD and pull out the terminal on the cable.

When inserting the replacement terminal, make sure that the terminal and red locking device engage fully.

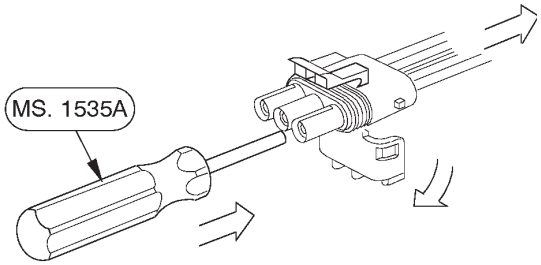
Dismantling Single-Row Multiplugs



Pull the locking device towards the front using extractor MS. 1562 (to disengage it). Then pull out the single terminal in question on its cable towards the rear.

The locking device must engage correctly after insertion of the replacement terminal.

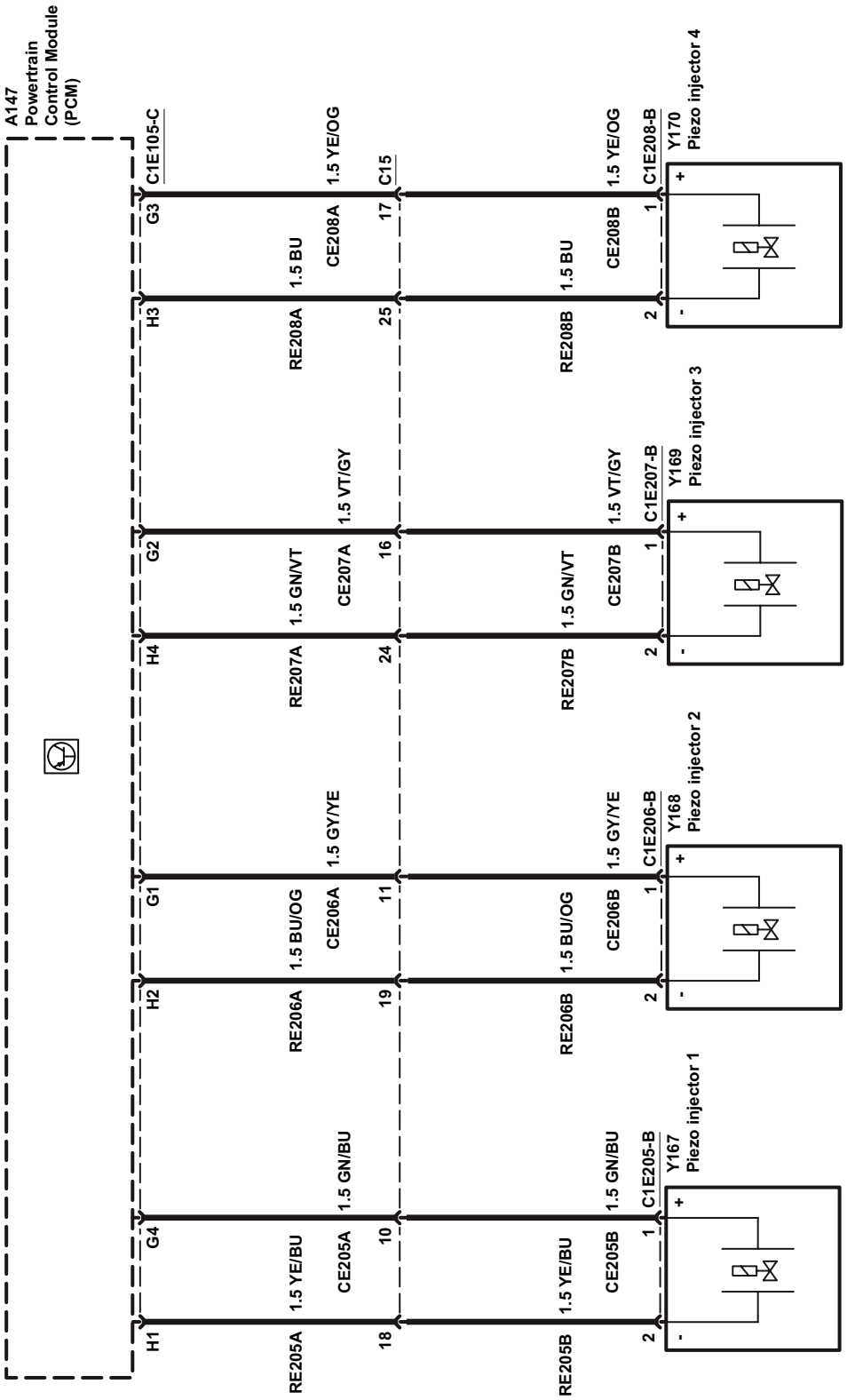
Dismantling 3-Pin Plugs



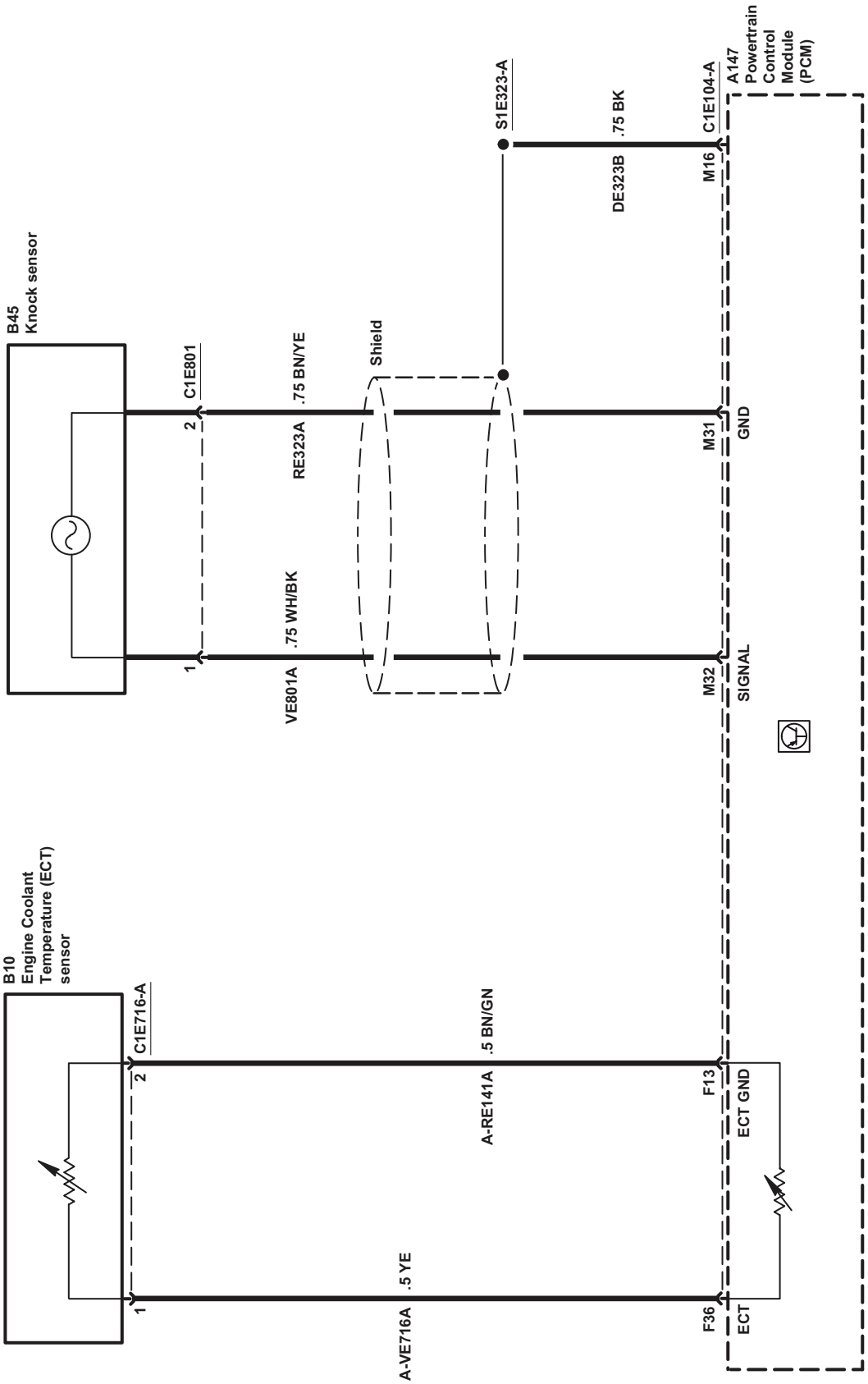
Open the locking device. Then press in the pin in question - as shown - with the available releasing tool MS. 1535A and pull out the cable towards the rear.

When inserting the replacement terminal, listen or feel for the “click” to make sure that the pin and locking device engage correctly.

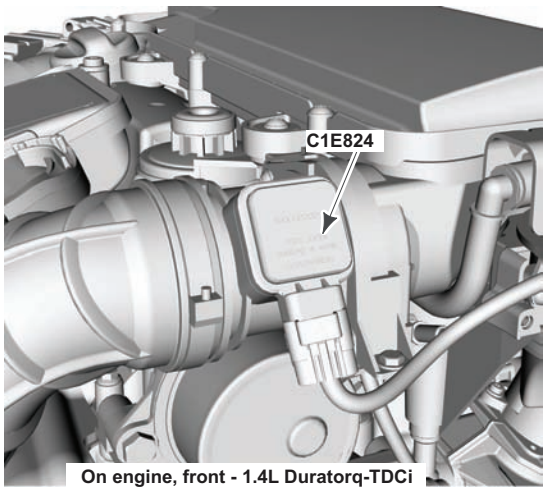
1.4L Duratorq - TDCi(DV) Diesel



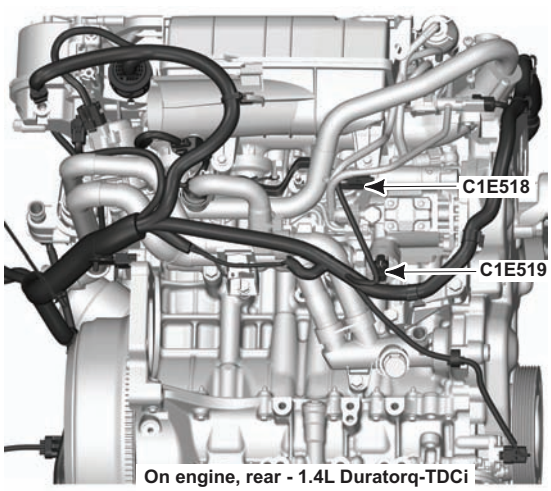
1.19L Duratec - 16V(Sigma)



Connector Views & Location

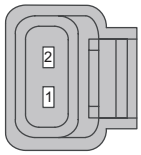


On engine, front - 1.4L Duratorq-TDCi



On engine, rear - 1.4L Duratorq-TDCi

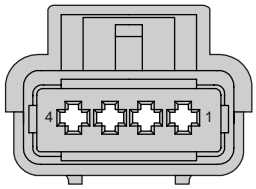
C1E518 (WH)
14K011



(1) CP12M (GN/WH)
(2) CE256A (BU/OG)

Y47
Fuel flow regulator valve

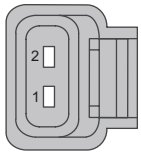
C1E824 (GY)
14K011



(1) VE807A (YE/VT)
(2) VE740A (VT/GY)
(3) RE320A (BU)
(4) CBP12K (GN/WH)

B22
Mass Air Flow (MAF) sensor

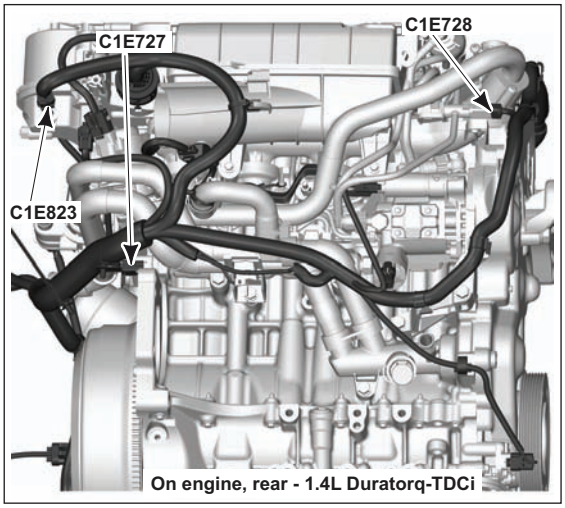
C1E519 (OG)
14K011



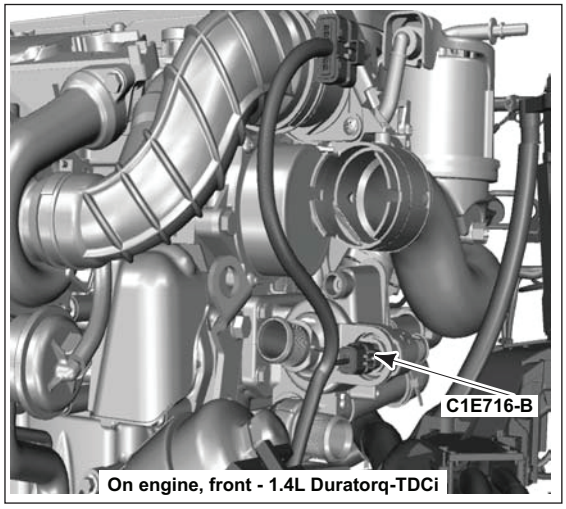
(1) CBP12L (GN/WH)
(2) CE153A (GN/VT)

Y165
Fuel pressure regulator valve

Connector Views & Location

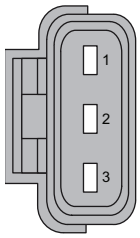


On engine, rear - 1.4L Duratorq-TDCi



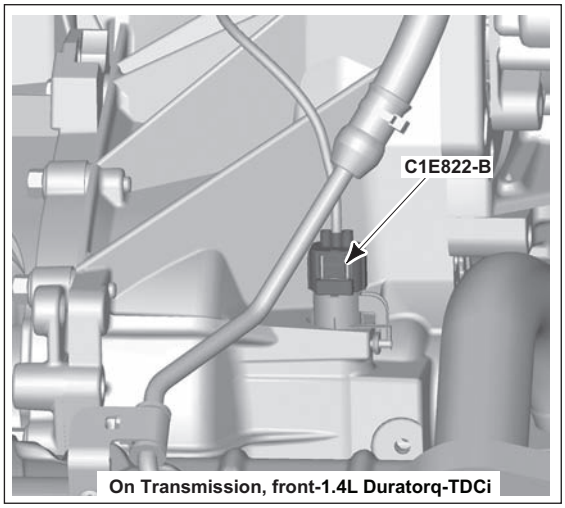
On engine, front - 1.4L Duratorq-TDCi

C1E727



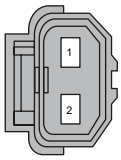
(1) VE727A (BU/BN)
(2) RE238B (BU/BN)
(3) LE238B (GY)

B225
Fuel rail pressure sensor



On Transmission, front-1.4L Duratorq-TDCi

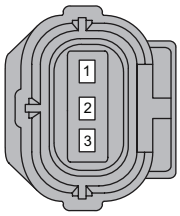
C1E716-B
14K011



(1) VE716A (YE)
(2) RE141A (BN/GN)

B10
Engine Coolant Temperatue (ECT) sensor

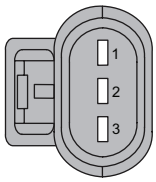
C1E822-B
14401



(1) A-GD121D (BK/YE)
(2) VE822A (YE/BU)
(3) CBP12D (GN/WH)

B11
Vehicle speed sensor (VSS)

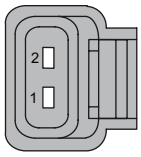
C1E823
14K011



(1) CBP12N (GN/WH)
(2) RE823A (GY/YE)
(3) VE823A (BU/BN)

B12
Water-in-fuel sensor

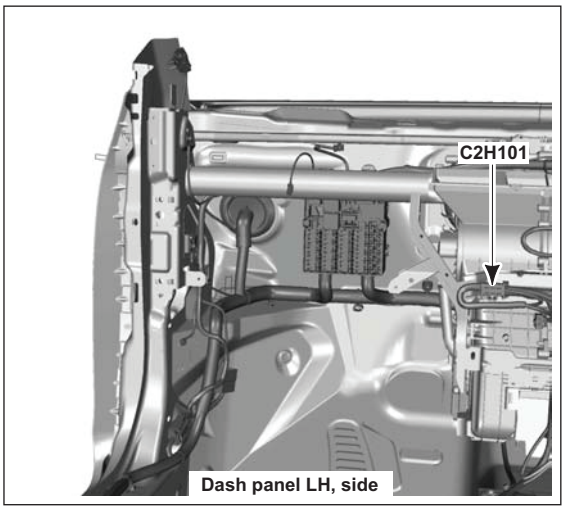
C1E728 (RD)
14K011



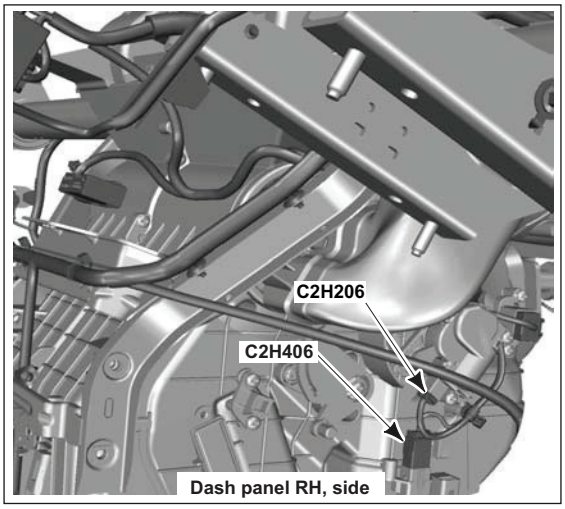
(1) VE728A (GN)
(2) RE232A (VT/WH)

B109
Fuel temperatue sensor

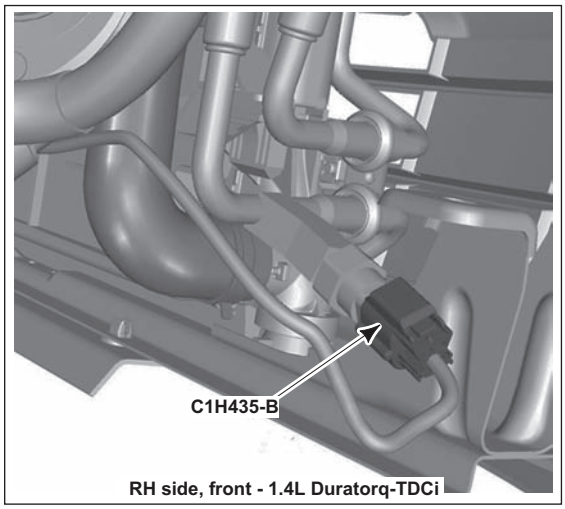
Connector Views & Location



Dash panel LH, side

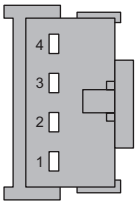


Dash panel RH, side



RH side, front - 1.4L Duratorq-TDCi

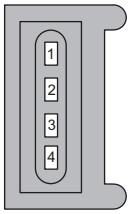
C2H206
14K024



(1)
(2) CH207A (BU/GY)
(3)
(4) CH208A (GN/OG)

M69
Recirculated airactuator

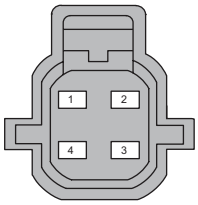
C2H406
14K024



(1) CBP38F (GY/BU)
(2) VH406A (VT/BN)
(3) CH434A (GY/YE)
(4) GD215B (BK/GY)

B310
A/C thermistor

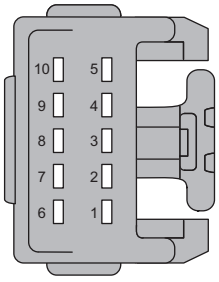
C1H435-B
14K011



(1) VH406C (VT/BN)
(2) CH419A (BU)
(3) CH420A (GN)
(4) GD121E (BK/YE)

N266
Triple pressure switch

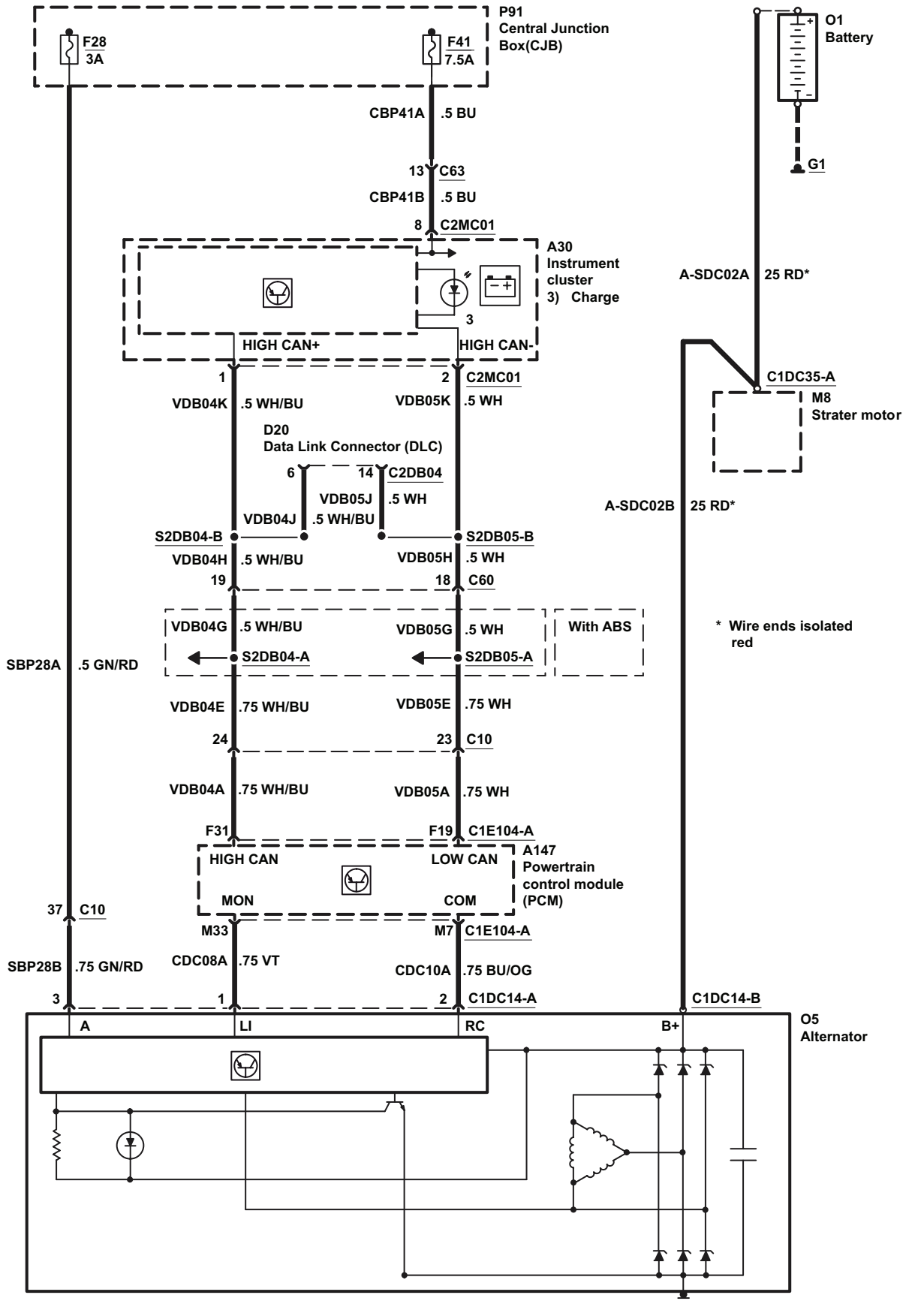
C2H101
14K024



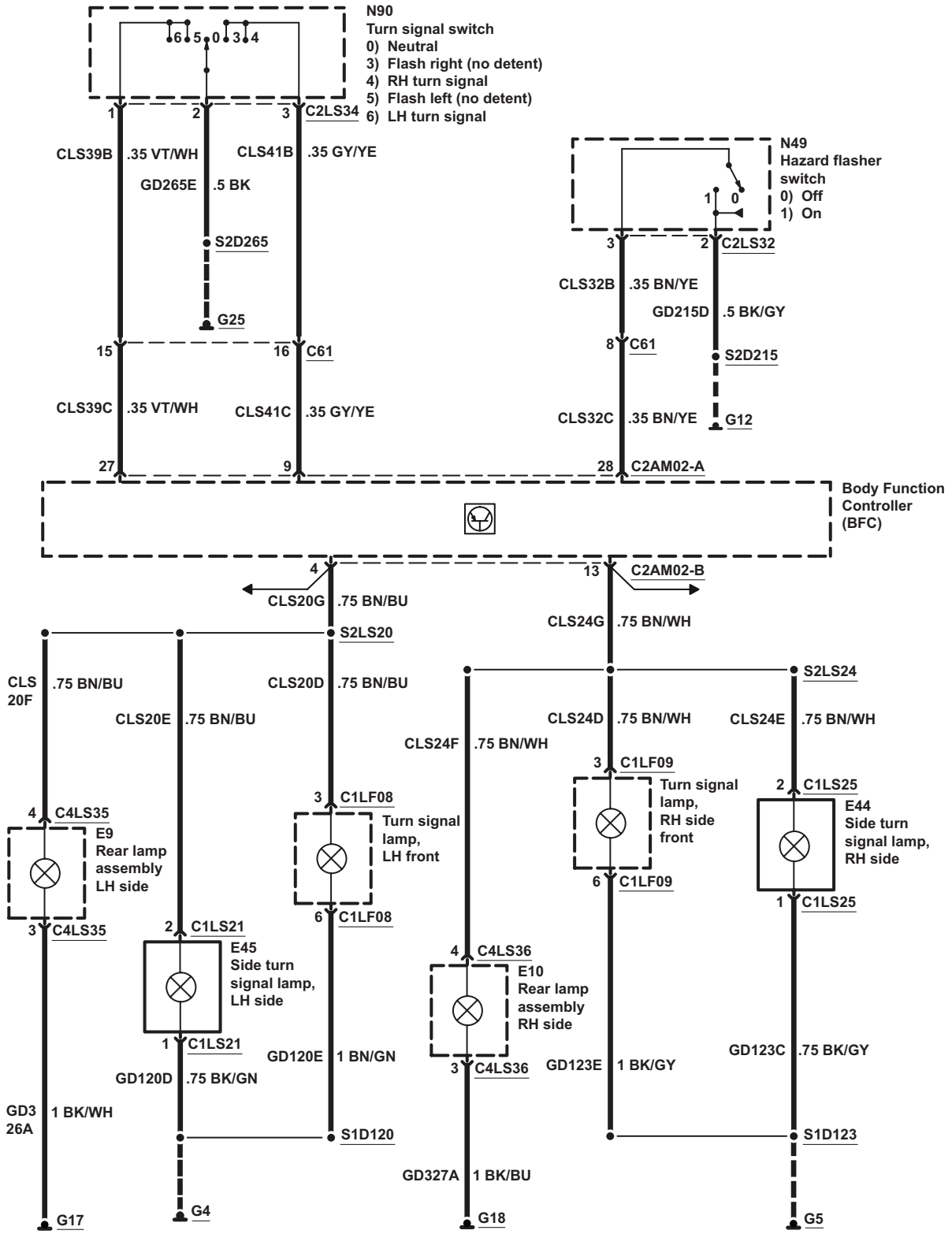
(1) CBP38D (GY/BU)
(2) CH434A (GY/YE)
(3) CH207A (BU/GY)
(4) CH208A (GN/OG)
(5) CH427B (BN)
(6)
(7) SBP04D (GN/RD)
(8) CBP33J (WH/BN)
(9)
(10) GD215H (BK/GY)

A128
Heater control module

Generator and Regulator - 1.19L Duratec - 16V(Sigma)



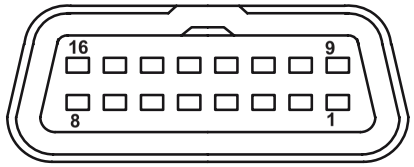
Exterior Lighting - Turn Signal and Hazard Flasher Lamps(High)



Module Communication Network - DLC

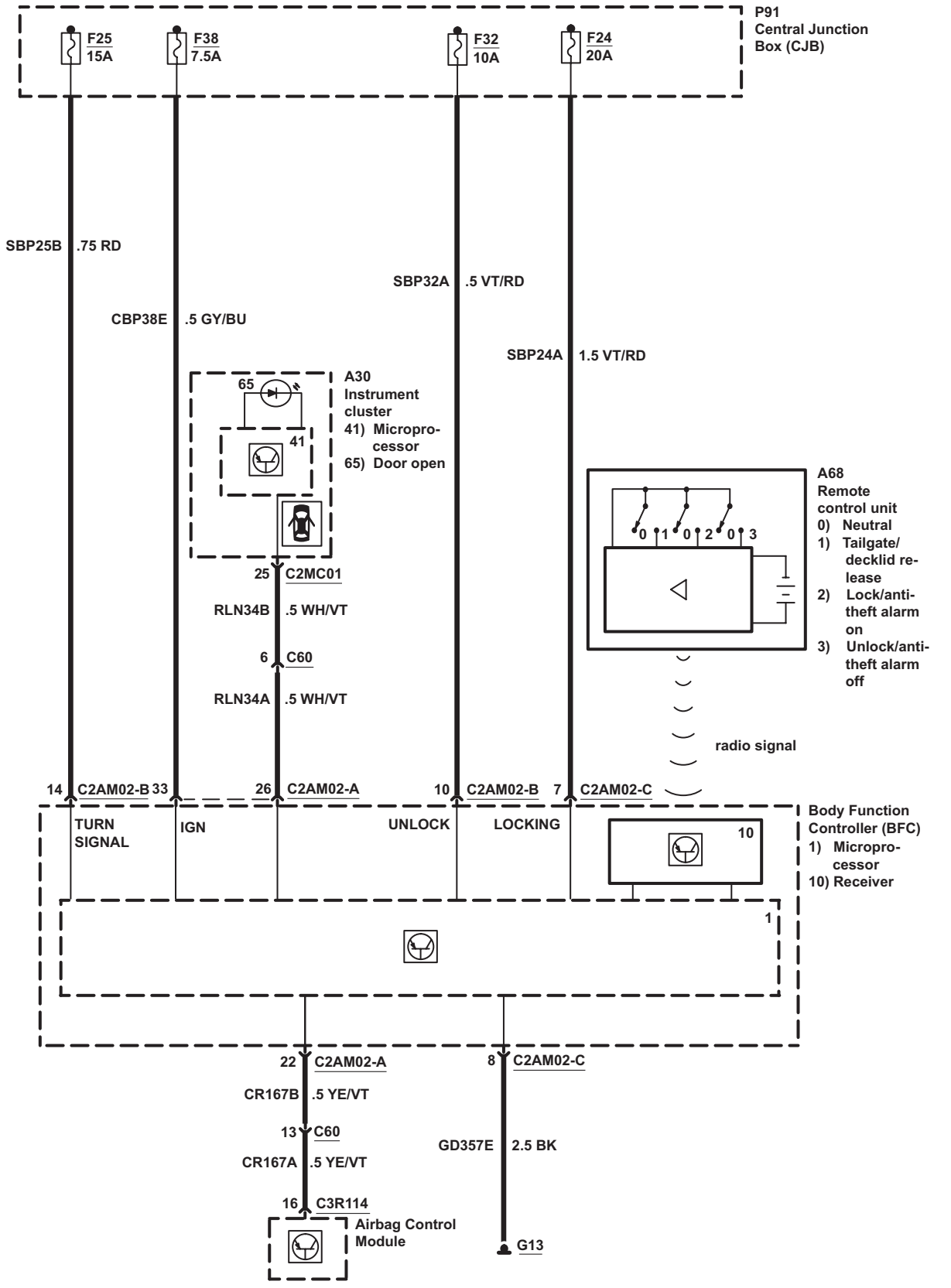
C2DB04

F16016

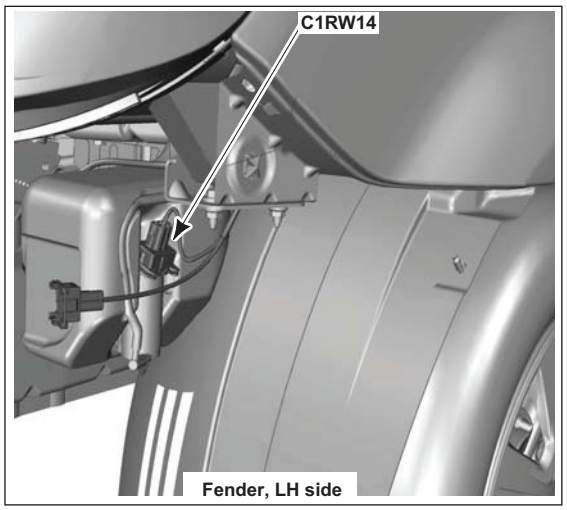


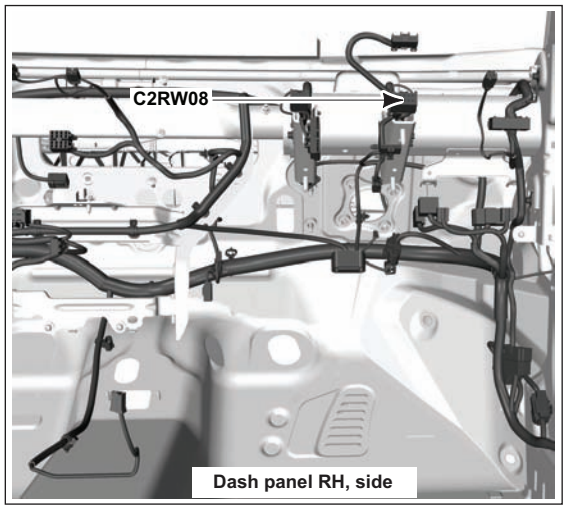
Pin number	Description	Wire colours
1		
2		
3	MS CAN Bus +	GY/OG
4	Chassis Ground	BK
5	Signal Ground	BK/BU
6	High CAN Bus+	WH/BU
7	Data Bus ISO 9141 (K--line)	GY
8		
9	Ignition voltage	BN/YE
10		
11	Middle CAN Bus —	VT/OG
12		
13		
14	High CAN Bus —	WH
15		
16	Battery Power	YE/RD

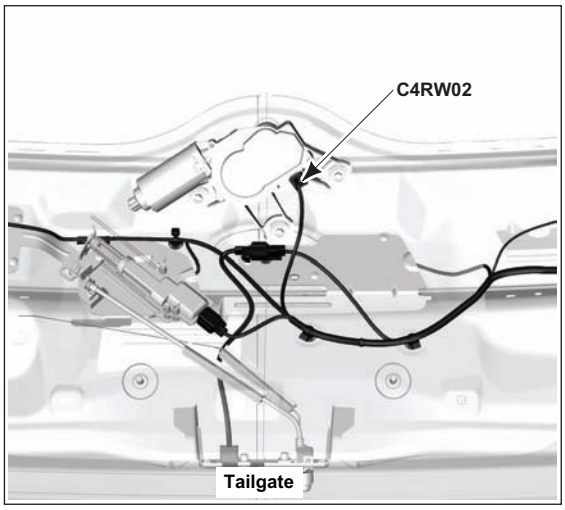
Handles, Locks, Latches and Entry Systems (High)



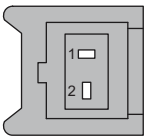
Connector Views & Location







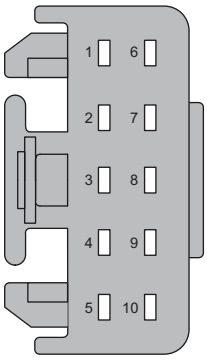
C1RW14
14401



(1) CRW07C (GY/BN)
(2) CRW12B (GY/OG)

M112
Windshield washer pump motor

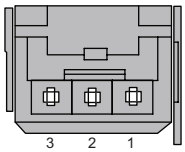
C2RW08
14K024



(1) VRW11A (GN/BN)
(2) CRW07A (GY/BN)
(3) GD215F (BK/GY)
(4) CRW12A (GY/OG)
(5) CRW13A (GN)
(6) CBP46C (WH/BU)
(7) CRW01B (WH)
(8) CRW08A (VT/OG)
(9) CRW10A (BU/GN)
(10) CRW17A (GN/VT)

N104
Wiper/Washer switch

C4RW02
17K400



(1) CRW13C (GN)
(2) CBP47B (GN/BU)
(3) GD326L (BK/WH)

M9
Rear wiper motor