

Overview

BODY CONTROL SYSTEM DESCRIPTION AND OPERATION

The body control system consists of the body control module (BCM), communications, and various input and outputs. Some inputs, outputs and messages require other modules to interact with the BCM. The BCM also has discrete input and output terminals to control the vehicle's body functions. The BCM is wired to the GMLAN high speed serial data buss and the GMLAN low speed serial data buss and acts as a gateway between them. If the BCM does not communicate the vehicle will not start due to the inability of the engine control module (ECM)/ powertrain control module (PCM) and theft deterrent module (TDM) to communicate without the BCM providing the gateway function.

POWER MODE DESCRIPTION AND OPERATION

Serial Data Power Mode Master

Power to many of this vehicles circuits is controlled by the module that is designated the power mode master (PMM). This vehicles PMM is the body control module (BCM). The ignition switch is a low current switch with multiple discrete ignition switch signals to the PMM for determination of the power mode that will be sent over the serial data circuits to the other modules that need this information. The PMM will also activate relays and other direct outputs of the PMM as needed. The PMM determines which power mode (Off, Accessory, Run, Crank Request) is required, and reports this information to other modules via serial data. Modules which have switched voltage inputs may operate in a default mode if the PMM serial data message does not match what the individual module can see from its own connections.

The PMM receives ignition switch signals to identify the operators desired power mode. The PMM Power Mode Parameters table below illustrates the correct state of these input parameters (circuits) in correspondence to the ignition switch position:

PMM Power Mode Parameters

Ignition Switch Position	Power Mode Transmitted	Ign. Off / Run / Crank (Run Crank Ignition 1 Voltage Circuit)	Ignition Accessory / Run (Accessory Voltage Circuit)	Ignition Run/Crank (Ignition 1 Voltage Circuit)
Off Key Out	Off	Key Out/ACC	Inactive	Inactive
Off Key IN	Off	Key In/Off	Inactive	Inactive
Accessory	Accessory	Key Out/ACC	Active	Inactive
Run	Run	Run	Active	Active
Start	Crank Request	Crank	Inactive	Active

Backup Alarm/Camera - Backup Alarm Relay Schematic

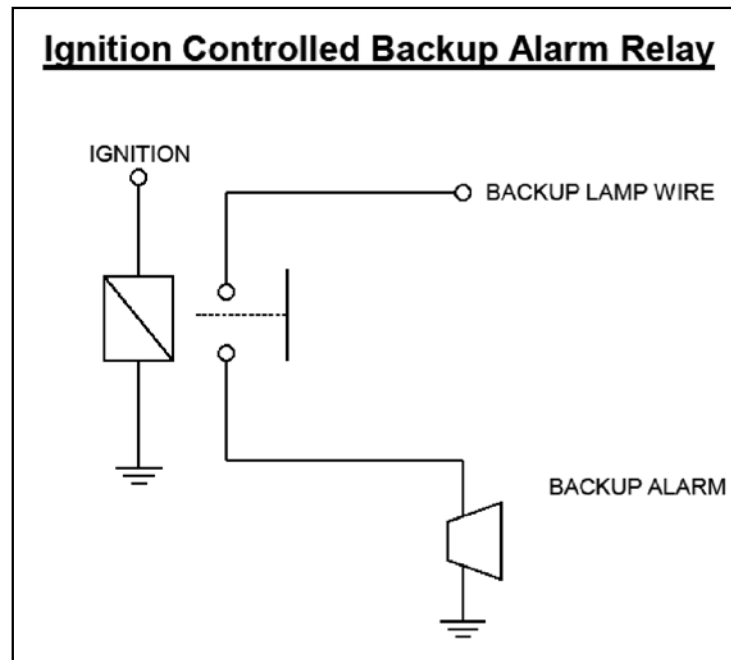
For installation of backup alarm/camera on vehicles without option code 8S3 [Factory backup alarm], connection can be made at the rear lighting connector X1 or X2.

The backup lamps come on with perimeter lighting and key fob acknowledgement, to avoid operation upon entry and exit from the vehicle there are two options...

1. Have the dealer load the SFW [backup alarm calibration] software in your body computer. This calibration disables the perimeter lighting feature and will eliminate the activation of the back-up alarm when exiting and/or key fob activation. Note there is a fee for the dealers to perform this service. The back-up alarm can then be wired directly to the back-up lamp circuit directly and will operate (alarm sounded) when the vehicle is in reverse and the back-up lamps are illuminated.

OR

2. Add an ignition controlled relay to connect the backup alarm/camera to the backup lamp circuit so that it will only operate when the ignition is on and the backup lamps are on

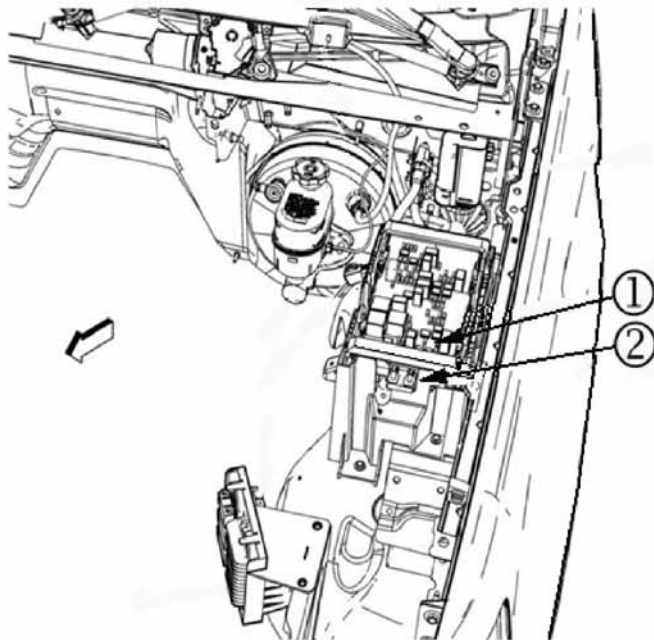


Battery/Ignition/Ground Feeds - Installation of Electrical Aftermarket Accessories - Battery, Ignition and Ground Feeds (cont'd)

UBEC -- Underhood Bussed Electrical Center

On vehicles not equipped with an Auxiliary Battery (Auxiliary Battery RPO TP2), there is a stud that could be used for a fused battery feed at the UBEC. The UBEC is located on the left side of the engine compartment (refer to graphic).

Connecting Aftermarket Electrical Devices On Vehicles Not Equipped with TP2:



Important: A J-case fuse (1) with a 40 amp maximum rating **MUST** be inserted into this position (1) for the stud (2) to be powered.
Outboard M6 stud (2) can be used for a fused battery feed.

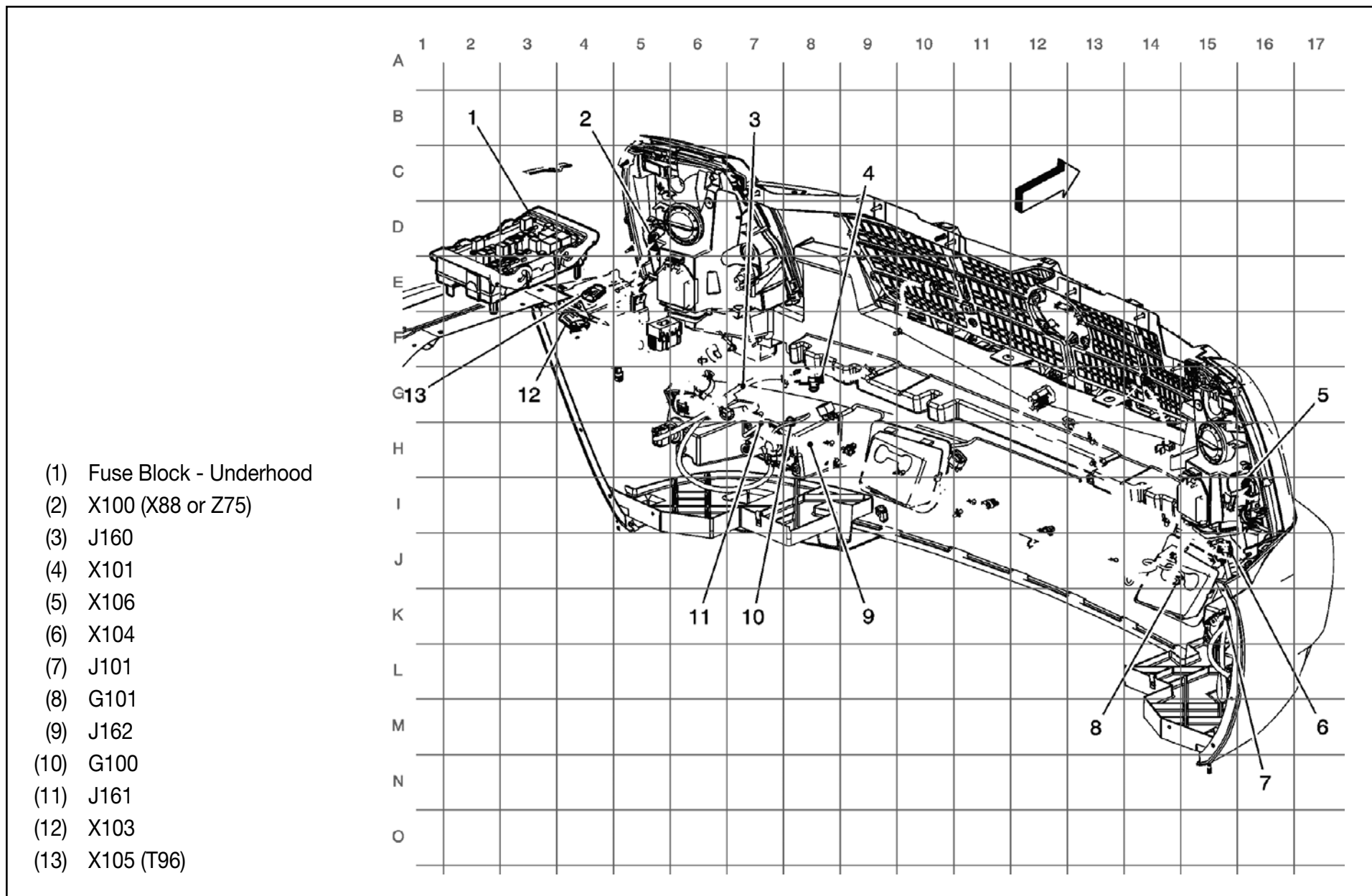
Wire Gauge Selection

For any of these powered connections to be used, Circuit Protection Guidelines must be followed to assure that the circuit gauge is selected appropriately so that it will be protected by the fuse in case of a short circuit.

Parts Information

Part Number	Description	Qty
12112422	Diode	1

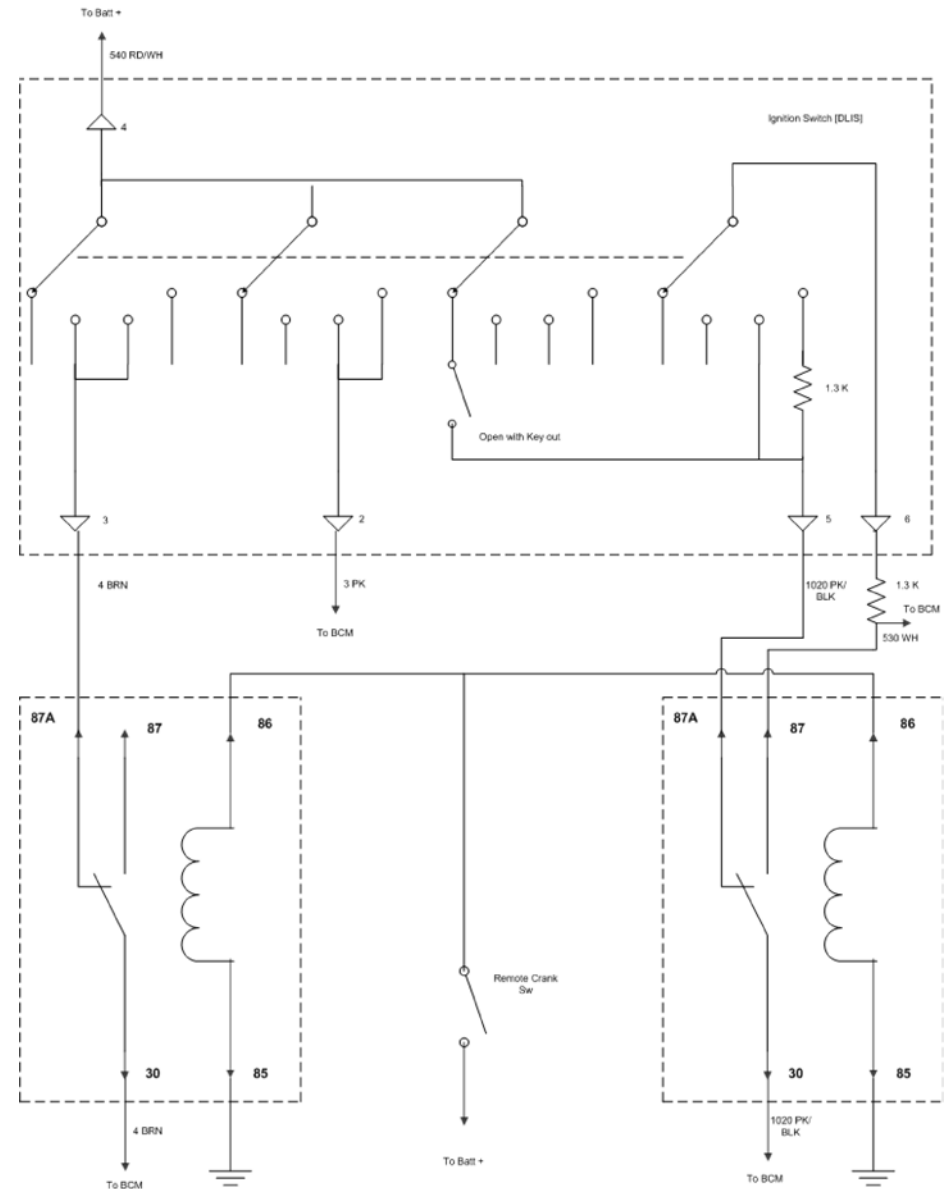
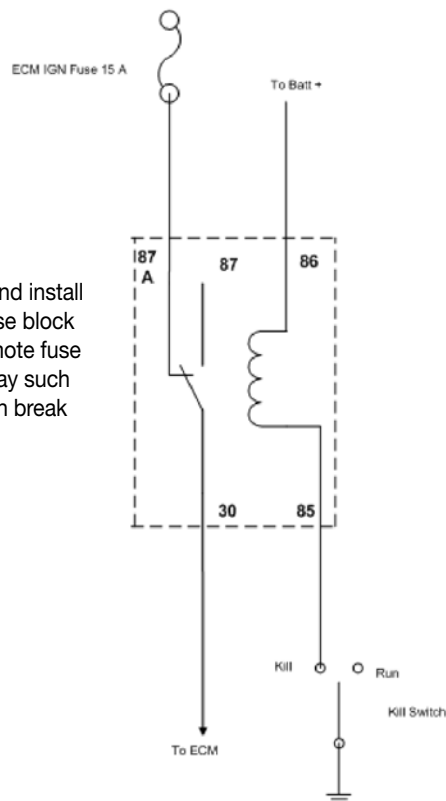
Forward Lighting - Lamp Harness Routing (HP2)



Remote Start Stop

There is no OEM provision to remotely start and stop this vehicle. The best work around solution is to implement the wiring called out in the drawings GM Truck – CK GH Remote Crank and GM Trucks – CK GH – Engine Kill Sw. This method requires the key to be left in the ignition in the RUN position. If desired an interlock can be installed to immobilize the vehicle while in the remote modes. The schematic for this is in the Immobilizer quick reference.

Note: Pull fuse and install terminals into fuse block with wires to remote fuse holder. Install relay such that contacts can break 'load' side.



Trailer Brake Control Module (JL1 with 31 Series)

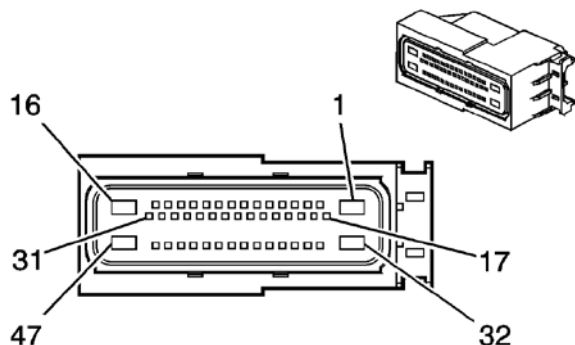
Connector Part Information

Harness: Chassis

OEM: 15491306

Service: 19168025

Description: 47-Way F
ASG Series Sealed (BK)



Terminal Part Information

Pins: 1, 32

Terminal/Tray: 15476168/5

Core/Insulation Crimp: F/3

Release Tool/Test Probe: 15315247/J-35616-42 (RD)

Pins: 2, 6-9, 10-11, 14-15, 17, 21-22, 25, 28, 33, 37

Terminal/Tray: SAITS-A03T-M064/14

Core/Insulation Crimp: 9/9

Release Tool/Test Probe: J-38125-215A/J-35616-64B (L-BU)

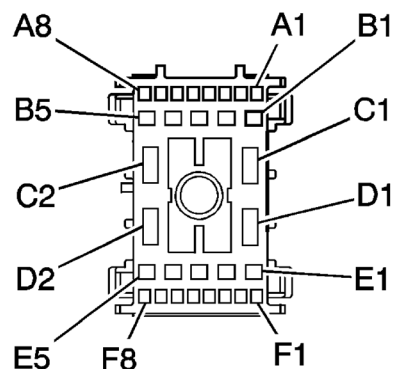
Pin	Wire Color	Circuit No.	Function
1	2 BK	1750	Ground
2	0.5 D-BU	7632	5-Volt Reference
3-5	--	--	Not Used
6	0.5 TN	2501	High Speed GMLAN Serial Data Bus (-)
7	0.5 TN/BK	2500	High Speed GMLAN Serial Data Bus (+)
8	0.5 TN	7631	Low Reference

Pin	Wire Color	Circuit No.	Function
9	0.5 L-GN	944	Relay Feedback
10	--	--	Not Used
11	0.5 L-GN/BK	7633	Integrated Trailer Brake Controller User Gain Signal
12-13	--	--	Not Used
14	0.5 TN	945	Integrated Trailer Brake Relay Control Active Low
15	0.5 PK	239	Ignition 1 Voltage
16	--	--	Not Used
17	0.5 L-BU	5986	Serial Data Communication Enable
18-20	--	--	Not Used
21	0.5 TN	2501	High Speed GMLAN Serial Data Bus (-)
22	0.5 TN/BK	2500	High Speed GMLAN Serial Data Bus (+)
23-24	--	--	Not Used
25	0.5 BN	7634	Integrated Trailer Brake Controller Redundant Manual Apply Signal
26	--	--	Not Used
27	0.5 YE	7635	Integrated Trailer Brake Controller Manual Apply Signal
28	0.5 D-BU	47	Solid State Relay Feedback
29-31	--	--	Not Used
32	2 RD/WH	4340	Battery Positive Voltage
33	0.5 YE/BK	7521	Solid State Relay Enable
34-36	--	--	Not Used
37	0.5 L-BU/WH	6311	TCC Brake Signal
38-47	--	--	Not Used

Fuse Block - Underhood X1

Connector Part Information

Harness:
Forward Lamp
OEM: 13513343
Service: 19115674
Description: 30-Way F
GT 150 280 Metri-Pack
Series (GY)



Terminal Part Information

Pins: A1, A2, A4, E2, E3
Terminal/Tray: 13525970/4
Core/Insulation Crimp: 2/A
Release Tool/Test Probe: 15315247/J-35616-4A (PU)

Pins: A2, A3, A7, A8, E1, E5, F5, F8
Terminal/Tray: 15496302/5
Core/Insulation Crimp: E/A
Release Tool/Test Probe: 15315247/J-35616-2A (GY)

Pins: B1
Terminal/Tray: 13525969/4
Core/Insulation Crimp: E/A
Release Tool/Test Probe: 15315247/J-35616-4A (PU)

Pins: B3

Terminal/Tray: 13525970/4

Core/Insulation Crimp: E/A

Release Tool/Test Probe: 15315247/J-35616-4A (PU)

Pins: B5

Terminal/Tray: 13525969/4

Core/Insulation Crimp: See Terminal Repair Kit

Release Tool/Test Probe: 15315247/J-35616-4A (PU)

Pins: C1, C2, D1, D2

Terminal/Tray: 12110127/19

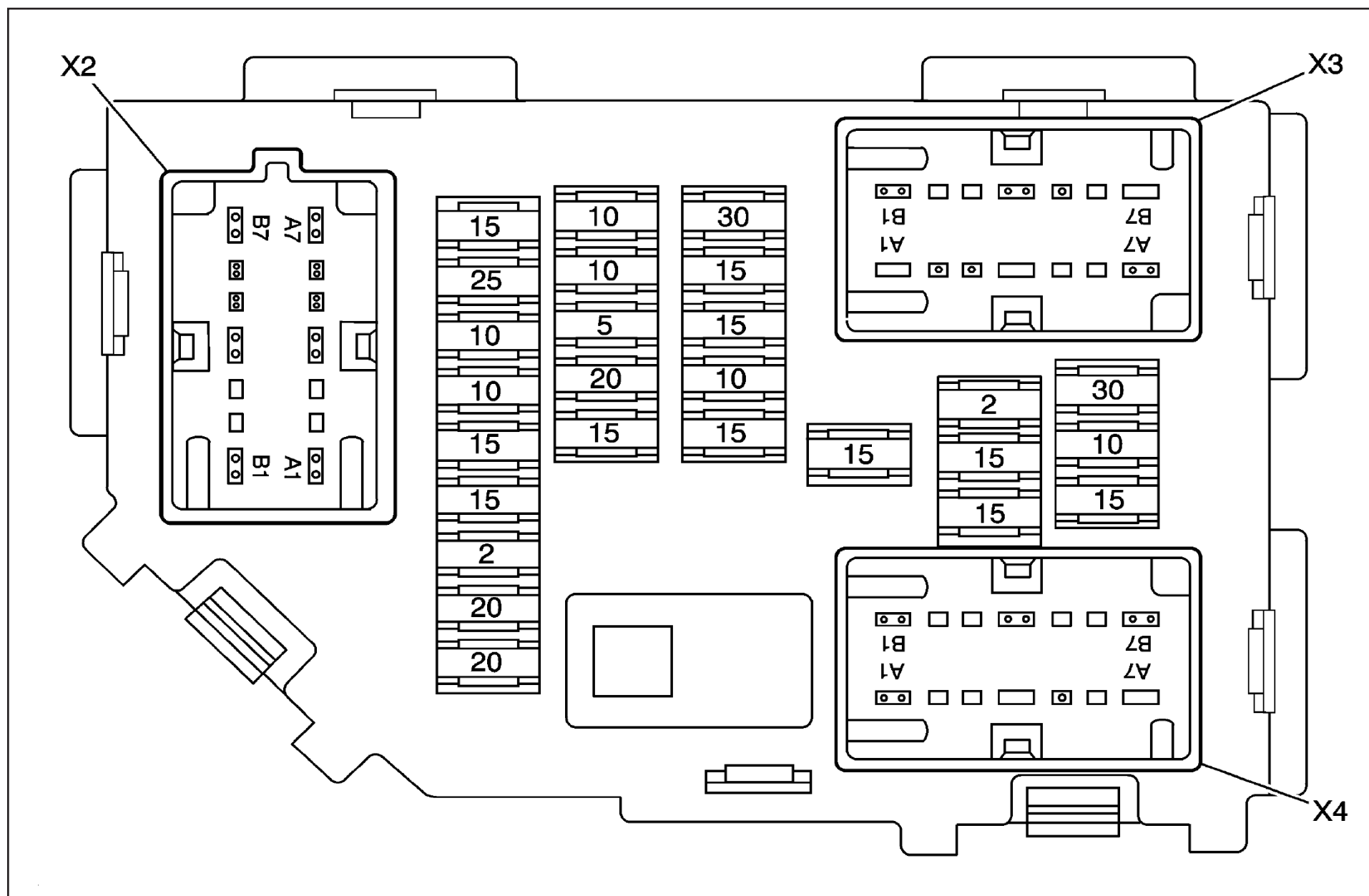
Core/Insulation Crimp: F/G

Release Tool/Test Probe: 12150860/J-35616-44 (YE)

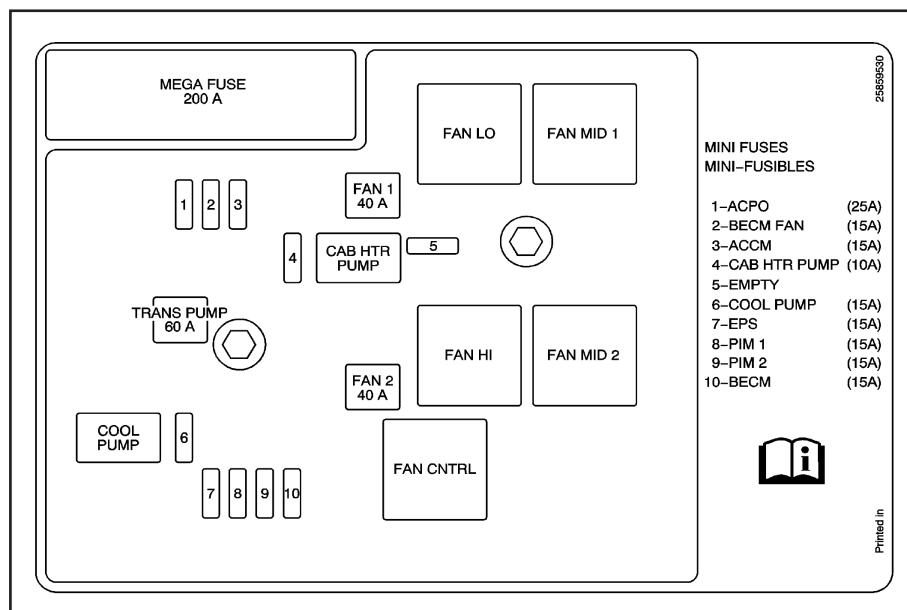
Pin	Wire Color	Circuit No.	Function
A1	0.8 BK	250	Ground
A2	0.8 L-BU/WH	1314	Left Front Turn Signal Lamp Supply Voltage
A3	0.5 D-BU	545	DRL Supply Voltage (T61)
A4	0.8 D-BU/WH	1315	Right Front Turn Signal Lamp Supply Voltage
A5-A6	--	--	Not Used
A7	0.5 L-GN/BK	311	Right Headlamp High Beam Supply Voltage
A8	0.5 D-GN/WH	711	Left Headlamp High Beam Supply Voltage
B1-B2	--	--	Not Used
B3	0.5 D-BU	545	DRL Supply Voltage (T61)
B4	--	--	Not Used

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Fuse Block - I/P Top View



Fuse Block - Auxiliary (HP2) Label



Pin	Wire Color	Circuit No.	Function
1	ACPO Fuse	25A	Not Used
2	BECM FAN Fuse	15A	Generator Battery Vent Fan Relay
3	ACCM Fuse	15A	A/C Compressor
4	CAB HTR PUMP Fuse	10A	Heater Coolant Pump
5	EMPTY	--	Not Used
6	COOL PUMP Fuse	15A	Generator Control Module Coolant Pump - Left, Generator Control Module Coolant Pump - Right

Pin	Wire Color	Circuit No.	Function
7	EPS Fuse	15A	Electronic Power Steering Motor Control Module
8	PIM 1 Fuse	15A	Drive Motor Generator Power Inverter Module
9	PIM 2 Fuse	15A	Drive Motor Generator Power Inverter Module
10	BECM Fuse	15A	Drive Motor Generator Battery Control Module, Serial Data Gateway (SDG) Module
--	FAN 1 Fuse	40A	FAN LO Relay, FAN MID 1 Relay
--	FAN 2 Fuse	40A	FAN HI Relay, FAN MID 2 Relay
--	TRANS PUMP Fuse	60A	Auxiliary Transmission Pump Control Module
--	CAB HTR PUMP Relay	--	CAB HTR PUMP Fuse, Heater Coolant Pump
--	COOL PUMP Relay	--	COOL PUMP Fuse, Generator Control Module Coolant Pump - Left, Generator Control Module Coolant Pump - Right
--	FAN LO Relay	--	Cooling Fan - Left
--	FAN MID 1 Relay	--	Engine Cooling Fan Resistor - Left
--	FAN MID 2 Relay	--	Cooling Fan - Right
--	FAN HI Relay	--	Cooling Fan - Right
--	FAN CNTRL Relay	--	Cooling Fan - Left

Fuse Holder, Device Usage (Gas and Diesel)

Fuse Holder , Device Usage (Gas)

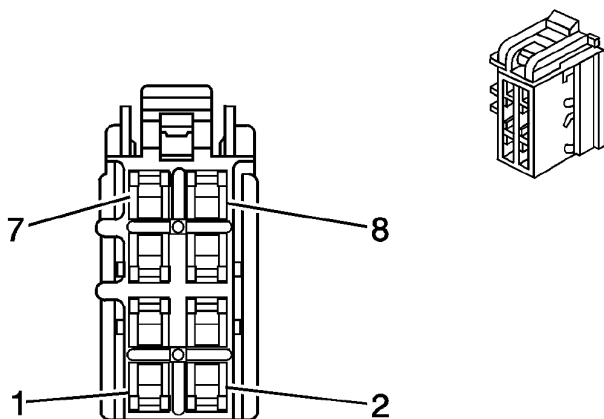
Device	Rating	Description
Mega Fuse	175A	Fuse Block - Underhood, Generator
Mega Fuse	125A	Auxiliary Battery Relay (TP2)
Mega Fuse	60A	Fuse Block - Mobile Radio (9L4)

Fuse Holder , Device Usage (Diesel)

Device	Rating	Description
Mega Fuse	175A	Fuse Block - Underhood, Generator
Mega Fuse	175A	Auxiliary Battery Relay (TP2), Generator - Auxiliary (K76/YF2), Intake Air Heater
Mega Fuse	125A	Glow Plug Control Module

Junction Block - Left I/P X10 (except MEX)

Connector Part Information



Harness: Headliner

OEM: 13516830

Service: 19149291

Description: 8-Way F GT 280 Series (GY)

Terminal Part Information

Terminal/Tray: 13525970/4

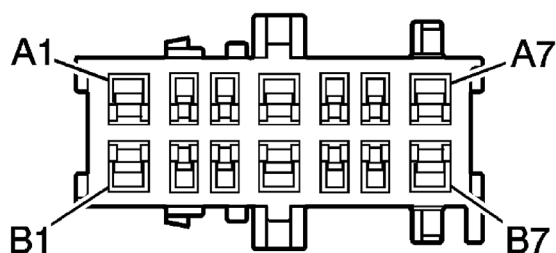
Core/Insulation Crimp: E/A

Release Tool/Test Probe: 15315247/J-35616-4A (PU)

Pin	Wire Color	Circuit No.	Function
1	0.5 RD/WH	240	Battery Positive Voltage (TRW, 5Y0, 5X7 or UG1)
2	0.35 OG	6815	Inadvertent Power Control
	0.35 OG	6815	Inadvertent Power Control (Extended Cab or Crew Cab without YE9)
3	0.35 PK	1691	Low Reference (DL3 with DD8 or DRC)
4	0.35 BN/WH	230	Instrument Panel Lamps Dimming Control
5	--	--	Not Used
6	0.35 D-GN	6134	Linear Interconnect Network Bus (YE9)
7	0.35 GY	1690	Automatic Day/Night Mirror Signal (DL3 with DD8 or DRC)
8	0.35 D-BU	38	Backup Lamp Relay Control (YE9)

Junction Block - Right I/P X4

Connector Part Information



Harness: Front HVAC Module

OEM: 15467620

Service: 19115662

Description: 14-Way F GT 150 280 Series (BK)

Terminal Part Information

Pins: A1, A4, B1, B4

Terminal/Tray: 15304711/8

Core/Insulation Crimp: 2/A

Release Tool/Test Probe: 15315247/J-35616-4A (PU)

Pins: A2, A3, A5, A6, B2, B3, B5, B6, B7

Terminal/Tray: 12191812/19

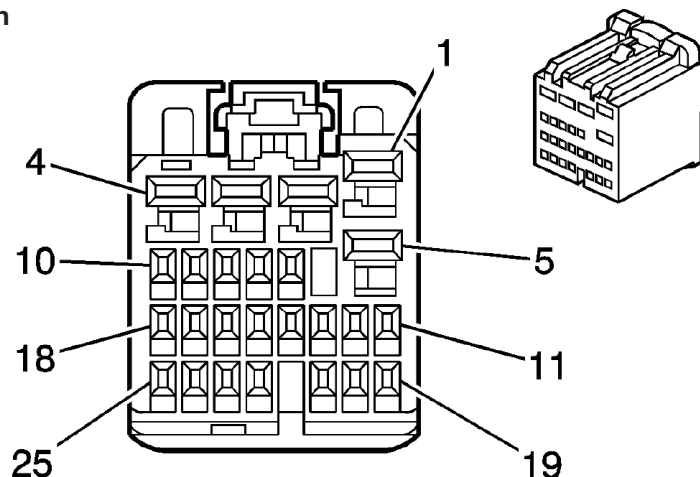
Core/Insulation Crimp: E/C

Release Tool/Test Probe: 15315247/J-35616-2A (GY)

Pin	Wire Color	Circuit No.	Function
A1	0.35 L-BU/BK	598	5-Volt Reference
	0.35 L-BU/BK	598	5-Volt Reference (C67 or CJ2)
A2	0.35 GY/BK	520	Lower Right Air Temperature Sensor Signal (CJ2)
	0.35 TN	552	Low Reference (C67)
A3	0.35 WH/BK	518	Lower Left Air Temperature Sensor Signal (CJ2)
A4	0.35 YE	1791	Low Reference
	0.35 YE	1791	Low Reference (C67 or CJ2)
A5	0.35 PU	1838	Recirculation Door Position Signal (CJ2)
A6	0.35 PU/WH	754	Blower Motor Speed Control
A7	--	--	Not Used
B1	0.35 L-BU/BK	598	5-Volt Reference
	0.35 L-BU/BK	598	5-Volt Reference (CJ2)
B2	0.35 D-BU	1199	Left Air Temperature Door Control (CJ2)
B3	0.35 TN	2273	Mode Door Control
B4	0.35 YE	1791	Low Reference
	0.35 YE	1791	Low Reference (CJ2)
B5	0.35 L-GN	713	Mode Door Position Signal
B6	0.35 L-BU	733	Left Air Temperature Door Position Signal (CJ2)
B7	0.35 WH	2622	Evaporator Temperature Sensor Signal (except HP2)

Body Control Module (BCM) X6

Connector Part Information



Harness: Body

OEM: 15482793

Service: 88988842

Description: 25-Way F HIT Series (PK)

Terminal Part Information

Pins: 2

Terminal/Tray: SNAC-A061T-M2.8/20

Core/Insulation Crimp: C/A

Release Tool/Test Probe: 12094429/J-35616-4A (PU)

Pins: 8-10, 14-16, 18, 20, 22, 23

Terminal/Tray: SNAC3-A021T-M0.64/20

Core/Insulation Crimp: J/J

Release Tool/Test Probe: 12094429/J-35616-64B (L-BU)

Pin	Wire Color	Circuit No.	Function
1	--	--	Not Used
2	1 WH/BK	158	Courtesy Lamp Supply Voltage
3-7	--	--	Not Used
8	0.35 TN/WH	746	Right Front Door Ajar Switch Signal (except AN3 or DL3)
9	0.35 D-BU	245	Passenger Door Lock Switch Unlock Signal (YE9 without AN3 or DL3 or except YE9, MEX or A52)
10	0.35 GY/BK	745	Left Front Door Ajar Switch Signal (except AN3 or DL3)
11-13	--	--	Not Used
14	0.35 L-GN/BK	748	Right Rear Door Ajar Switch Signal (Crew Cab)
15	0.35 L-BU/BK	747	Left Rear Door Ajar Switch Signal (Crew Cab)
16	0.35 OG	5922	Passenger Door Open Switch Signal (MEX or A52)
17	--	--	Not Used
18	0.35 L-BU	244	Passenger Door Lock Switch Lock Signal (YE9 without AN3 or DL3 or except YE9, MEX or A52)
19	--	--	Not Used
20	0.35 L-GN	262	Driver Door Key Switch Signal (AU3 without AN3 or DL3)
21	--	--	Not Used
22	0.35 TN	126	Front Door Open Switch Signal (MEX or A52)
23	0.5 YE	5058	Intrusion Sensor Armed Signal (SPO Alarm)
24-25	--	--	Not Used

X700 Left Rear Door Harness to Body Harness (Extended Cab)

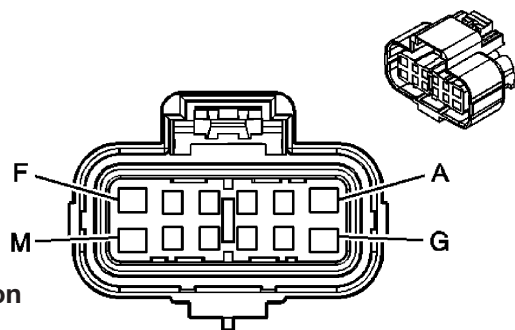
Connector Part Information

Harness: Left Rear Door

OEM: 15336205

Service: 88986267

Description: 12-Way F
GT Mixed (BK)



Terminal Part Information

Pins: A, F

Terminal/Tray: 15304713/19

Core/Insulation Crimp: F/D

Release Tool/Test Probe: 15315247/J-35616-4A (PU)

Pins: B-E, H

Terminal/Tray: 12191812/19

Core/Insulation Crimp: E/C

Release Tool/Test Probe: 15315247/J-35616-2A (GY)

Pins: G

Terminal/Tray: 15304711/8

Core/Insulation Crimp: E/A

Release Tool/Test Probe: 15315247/J-35616-4A (PU)

Pins: K, L (UQA)

Terminal/Tray: 12191812/19

Core/Insulation Crimp: C/A

Release Tool/Test Probe: 15315247/J-35616-2A (GY)

Pins: K, L (UQ3 or UQ5)

Terminal/Tray: 12191812/19

Core/Insulation Crimp: E/C

Release Tool/Test Probe: 15315247/J-35616-2A (GY)

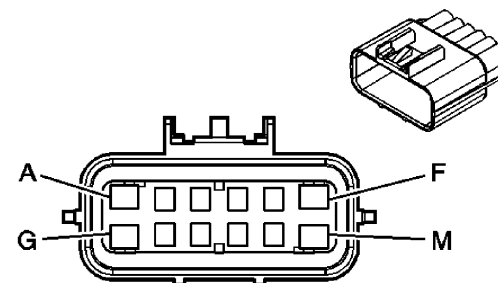
Connector Part Information

Harness: Body

OEM: 15336209

Service: 88986259

Description: 12-Way M
GT Mixed (BK)



Terminal Part Information

Pins: A, F

Terminal/Tray: 15304724/8

Core/Insulation Crimp: C/D

Release Tool/Test Probe: 15315247/J-35616-5 (PU)

Pins: B-E

Terminal/Tray: 15304702/19

Core/Insulation Crimp: E/C

Release Tool/Test Probe: 15315247/J-35616-3 (GY)

Pins: F-H

Terminal/Tray: 15304702/19

Core/Insulation Crimp: E/4

Release Tool/Test Probe: 15315247/J-35616-3 (GY)

Pins: G

Terminal/Tray: 15304722/8

Core/Insulation Crimp: E/C

Release Tool/Test Probe: 15315247/J-35616-5 (PU)

Pins: K, L

Terminal/Tray: 15304702/19

Core/Insulation Crimp: 2/4

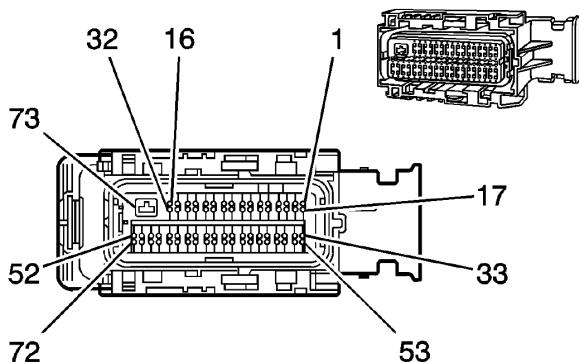
Release Tool/Test Probe: 15315247/J-35616-3 (GY)

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Engine Control Module (ECM) X2 (L96)

Connector Part Information



Harness:
Engine

OEM: 15499466

Service: 88988931

Description: 73-Way F MX123 Series, Sealed (BK)

Terminal Part Information

Pins: 11, 24, 29, 40, 43-44, 60, 63, 65

Terminal/Tray: 33467-0003/23

Core/Insulation Crimp: H/H

Release Tool/Test Probe: J-38125-213/J-35616-64B (L-BU)

Pins: 3-5, 11, 18-20, 25, 27, 29, 31, 33, 39, 43, 45, 47, 53, 56

Terminal/Tray: 33467-0005/23

Core/Insulation Crimp: Pins: 1-9, 15-20, 25, 28, 33-36, 41, 47-50, 52-56, 61, 67-70, 72 - J/J

Core/Insulation Crimp: Pins: 49-50, 69-70 - K/K

Release Tool/Test Probe: J-38125-213/J-35616-64B (L-BU)

Pins: 73

Terminal/Tray: 7116-4152-02/9

Core/Insulation Crimp: A/5

Release Tool/Test Probe: J-38125-11A/J-35616-35 (VT)

Pin	Wire Color	Circuit No.	Function
1	0.5 PU	2121	IC 1 Control
2	0.5 TN	1744	Fuel Injector 1 Control
3	0.5 D-BU/WH	878	Fuel Injector 8 Control
4	0.5 OG/BK	877	Fuel Injector 7 Control
5	0.5 L-GN/BK	1745	Fuel Injector 2 Control
6	0.5 YE/BK	846	Fuel Injector 6 Control
7	0.5 TN/WH	845	Fuel Injector 5 Control
8	0.5 L-BU/BK	844	Fuel Injector 4 Control
9	0.5 PK/BK	1746	Fuel Injector 3 Control
10	--	--	Not Available
11	0.35 PU	5284	Camshaft Actuator Solenoid Control
12-14	--	--	Not Available
15	0.5 YE	581	TAC Motor Control - 1
16	0.5 BN	582	TAC Motor Control - 2
17	0.5 PU/WH	2128	IC 8 Control
18	0.5 D-GN/WH	2124	IC 4 Control
19	0.5 BN/WH	2130	Low Reference
20	0.5 GY	6272	Low Reference
21-23	--	--	Not Available
24	0.35 BN	6266	Low Reference
25	0.5 BK	2755	Low Reference
26-27	--	--	Not Available
28	0.5 PK/BK	1339	Ignition 1 Voltage
29	0.35 TN	2199	Low Reference
30-32	--	--	Not Available
33	0.5 OG	2127	IC 7 Control
34	0.5 D-GN	2125	IC 5 Control

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