



M-6017-A504V

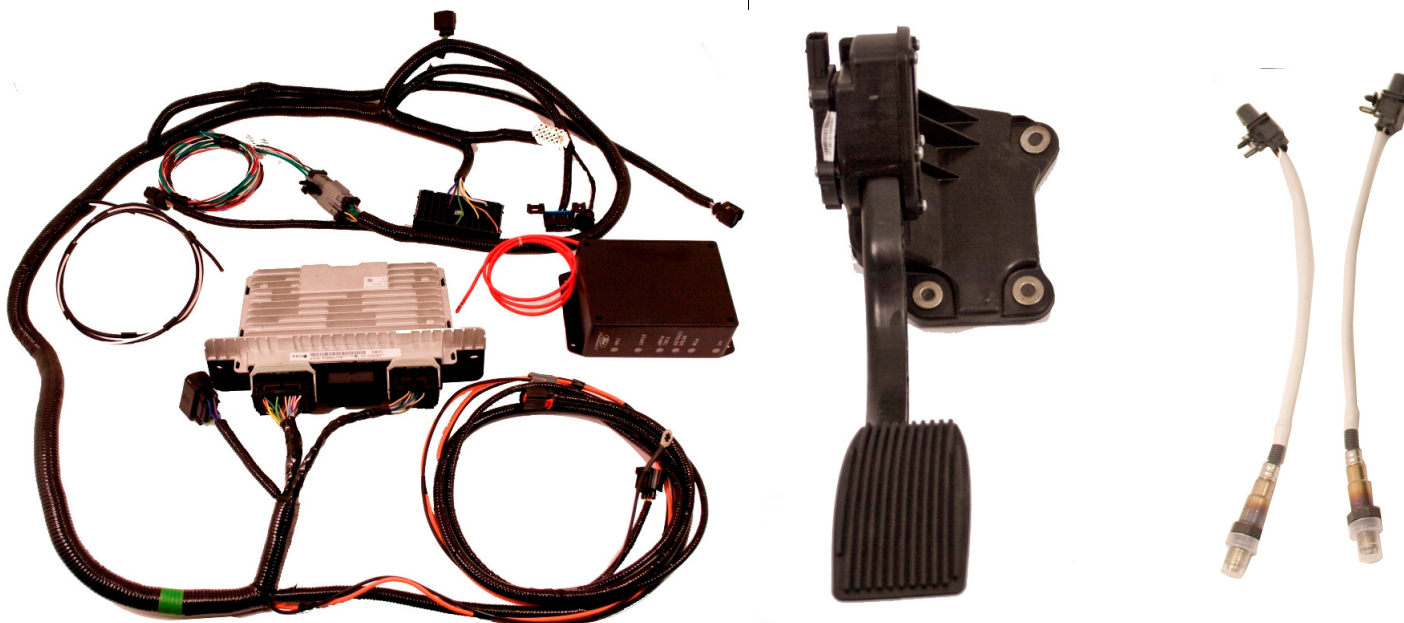
Electronic Throttle Crate Engine Controls Pack INSTRUCTION SHEET

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Please visit www.fordracingparts.com for the most current instruction and warranty information.

**!!! PLEASE READ ALL OF THE FOLLOWING INSTRUCTIONS CAREFULLY PRIOR TO INSTALLATION.
AT ANY TIME YOU DO NOT UNDERSTAND THE INSTRUCTIONS, PLEASE CALL THE FORD RACING
TECHLINE AT 1-800-367-3788 !!!**

Controls Pack Installation Manual 2011 and newer 5.0L 4V



Factory Ford shop manuals are available from Helm Publications, 1-800-782-4356



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1.0 INTRODUCTION

This kit was developed by Ford Racing to allow performance enthusiasts to easily install today's modern muscle into street rods from yesterday. We have developed this system to take the complexity and mystery out of installing a Mustang Electronic Throttle Control (ETC) engine into your vehicle.

NOTE: This system does not support cruise control.

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2.0 OVERVIEW

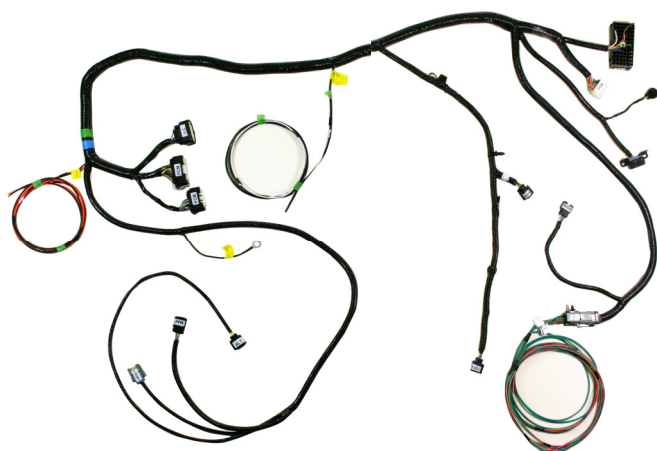
This booklet provides a step by step guide for the preparation and installation of the controls pack. Please read the instructions thoroughly before starting the installation. If you have any questions, contact Ford Racing Technical Support at (800) 367-3788.

3.0 COMPONENTS INCLUDED

3.1 Cowl Wiring Harness

CM-14A006-A5LB

This harness is labeled and includes all connections required to power up and run your engine equipped with a 2011 or newer factory engine harness.



3.2 Ford Racing Power Distribution Box

CM-14A068-B

The FRPDB connects directly to the **CM-14A006-A5LB** wiring harness. The FRPDB contains all relays and fuses needed for engine cooling fan control. The FRPDB may be mounted either in the passenger compartment (preferred) or in well ventilated under-hood locations away from direct sources of heat such as exhaust headers.



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3.3 Accelerator Pedal

BR3Z-9F836-D

This pedal is required for correct electrical interface with the PCM. The engine will not operate correctly without this exact pedal.



3.4 Powertrain Control Module (PCM)

CM-12A650-A5LA (5.0L 4V)

Commonly referred to as the engine computer, or 'brain', this PCM is calibrated for operation with a stock BR33-9600-BC air cleaner assembly (included with this kit) and 'Return Style' fuel system as shown on page 14. The PCM is designed for under-hood mounting but may also be located in the wet cowl/wiper motor area or passenger compartment of the vehicle if desired. Wiring modifications may be required to support location of the PCM in either of these two areas. The pictures below show an example of the PCM installed in the wet cowl area.



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PCM Calibration Application Notes:

- The calibration provided in this PCM will NOT work with the 'Returnless' fuel system as used on factory Mustang vehicles. Use of a return style fuel system is required. Refer to section 9 of this manual for more information on fuel system requirements for this PCM.
- The Air Filter Assembly with Integral Mass Air Flow Sensor included with this kit must be used to achieve acceptable engine performance. Refer to section 3.6 for more information about Air Inlet System requirements.
- **Premium Fuel Only (91 Octane or higher).**



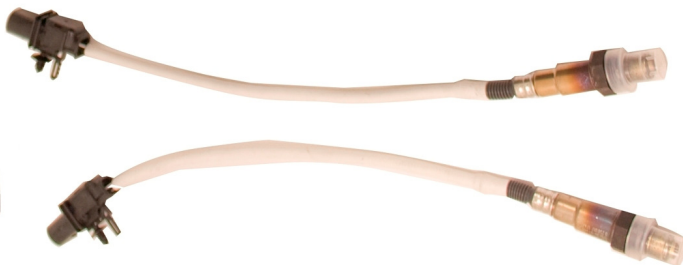
NOTE: Due to the fuel system requirement described above, installation of this PCM in ANY Production Mustang vehicle will result in a no-start condition!

3.5 Universal Exhaust Gas Oxygen Sensor (UEGO)

8F9A-9Y460-EA

Two UEGO sensors provide wide range feedback to the PCM for closed loop air fuel ratio control.

* Apply a light coat of anti-seize lubricant to the threads of the UEGOs before installing. This lubricant will damage the sensor element so make sure no lubricant comes in contact with the sensor element. Tighten to 48 Nm (35 lb-ft).



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The engine harness and controls package M-6017-A504V is designed to operate with the UEGO sensors in the 2011-2012 Mustang GT stock locations. Moving the UEGO sensors to alternate locations can result in the need to recalibrate the PCM.

Here are some tips if sensors have to be relocated.

The best option is to locate the sensor so it is sampling from all 4 cylinders and at a distance that does not require modification of the UEGO harness.

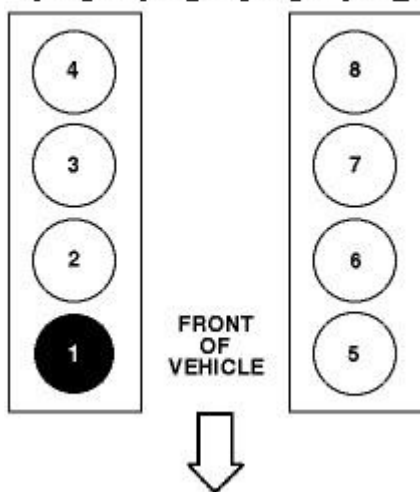
NOTE: Modification of the UEGO harness can affect function of UEGO sensor.

If your header design will not allow you to sample all 4 cylinders without UEGO harness modifications, a better alternative is locating the UEGO sensor to sample from a single cylinder.

The cylinders that have (on average) the closest A/F ratio to the bank average are cylinder #4 (on bank 1) and cylinder #7 (on bank 2). If that's not possible due to packaging constraints, the next best choices are cylinder #3 (on bank 1) and cylinder #8 (on bank 2). Calibration required!

Firing Order:

1 - 5 - 4 - 8 - 6 - 3 - 7 - 2



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3.6 Air Cleaner Assembly with Integral Mass Air Flow Sensor
BR33-9600-BC



IMPORTANT NOTE: The calibration of the PCM you have received requires use of this air box/MAF sensor system exactly as received. Any changes to the air inlet system will result in changes to how the air entering the engine is measured and will require modification to the PCM's calibration.

Ford Racing recognizes that it may not be practical to package this Air Box/MAF sensor system in some vehicle applications. The recommendations listed below are intended to serve as guidelines for designing an air inlet system that will provide good control system performance once the control system calibration has been modified to work with the new Air Inlet System:

- 1) Flow Profile: the MAF sensor should be located on a straight section of zip tube where the flow profile is generally uniform. If the sensor cannot be located on a straight section put the sensor on the outside radius of the zip tube so the sensor is located in the higher flow velocity area.
- 2) Flow Area: Keep the cross sectional area of the MAF sensor tube as close as possible to the cross sectional area of the original induction system.
- 3) Flow quality: minimize flow direction changes and maintain smooth tubing to minimize air flow disturbances and turbulence.
- 4) Flow pulsation: install sensor at least 6 to 8 inches upstream of the throttle body.
- 5) Transient performance: installing the sensor too far upstream of the throttle body (>24 inches) will result in transient lean/rich spikes due to the additional amount of time required for the measured air flow to travel from the MAF sensor to the intake manifold.
- 6) MAF sensor contamination: A) install sensor in upper half of cross sectional area to minimize possibility of condensation coming in contact with the MAF sensor element. In other words, if a clock is superimposed on a cross section of the zip tube, the sensor should be installed somewhere equal to or above the 9:00 and 3:00 positions. Most OEM applications have the sensor located at the 9:00 or 3:00 location. B) Sensor must be installed downstream of air filter and upstream of blow-by inlet. Ideally, sensor should be located 3 diameters upstream of the blow-by inlet.

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4.0 TOOLS REQUIRED

In addition to a common assortment of sockets, wrenches and screwdrivers, you will also need the following:

- Wire Strippers
- Digital Volt/Ohm Meter
- Solder Gun / Solder
- Electrical Tape / Shrink Tubing
- Hand Drill
- Hole Saw
- Utility Knife

5.0 PRE-INSTALLATION

5.1 Disconnect the battery prior to performing any wiring modifications.

5.2 Identify mounting location for the PCM and FRPDB. The harness design in this kit assumes PCM location in the right front (passenger side) of the engine compartment and FRPDB installation in the glove box/passenger compartment area. Some customers have successfully located both the PCM and FRPDB in the passenger compartment glove box area – some minor wiring modifications may be required to accommodate this configuration. Either location is acceptable as long as all connectors are able to mate without excessive strain on the harness wiring.

5.3 Identify where the Ford Racing Controls Pack harness can pass through on the Right (Passenger) side of the bulkhead. You will need to determine the proper location to cut a hole for the harness to pass through. Check for any wires, hoses, etc. that may become damaged by the hole saw.

5.4 Use a center punch to mark the location of the center of the hole. By using the center punch, this will keep the drill bit from 'walking' while you are cutting through the bulkhead.

5.5 Drill hole to size required to allow OBD II and accelerator pedal connectors to pass through from engine to passenger compartment. Clean any sharp edges with a file or die grinder.

5.6 The grommet will need to be cut in order to be installed onto the harness. Using a utility knife, carefully make one cut starting from the inside of the grommet and cutting outwards. It is always safest to pull the knife away from you while cutting.

5.7 Route the harness through the hole, starting from the engine compartment side; pass the accelerator pedal connector (Page 9, Connector #4), OBD II connector (Page 9, Connector #5), and blunt leads into the passenger compartment.

5.8 Route the accelerator pedal connector, OBD II connector, and blunt leads under the dashboard and towards the driver (left) side of the vehicle.

5.9 Route the remaining Fuel Pump Lead (Green wire) along the passenger side floor boards to the fuel pump at the rear of the vehicle. See fuel pump plumbing and location recommendations on page 14 and 15.

5.10 Install the PCM and FRPDB.

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6.0 HARNESS WIRE COLORS AND CONNECTOR LOCATIONS

BK = Black	GY = Gray	PK = Pink	WH = White
BR = Brown	LB = Light Blue	VT = Violet	YE = Yellow
DB = Dark Blue	LG = Light Green	RD = Red	
DG = Dark Green	OG = Orange	TN = Tan	

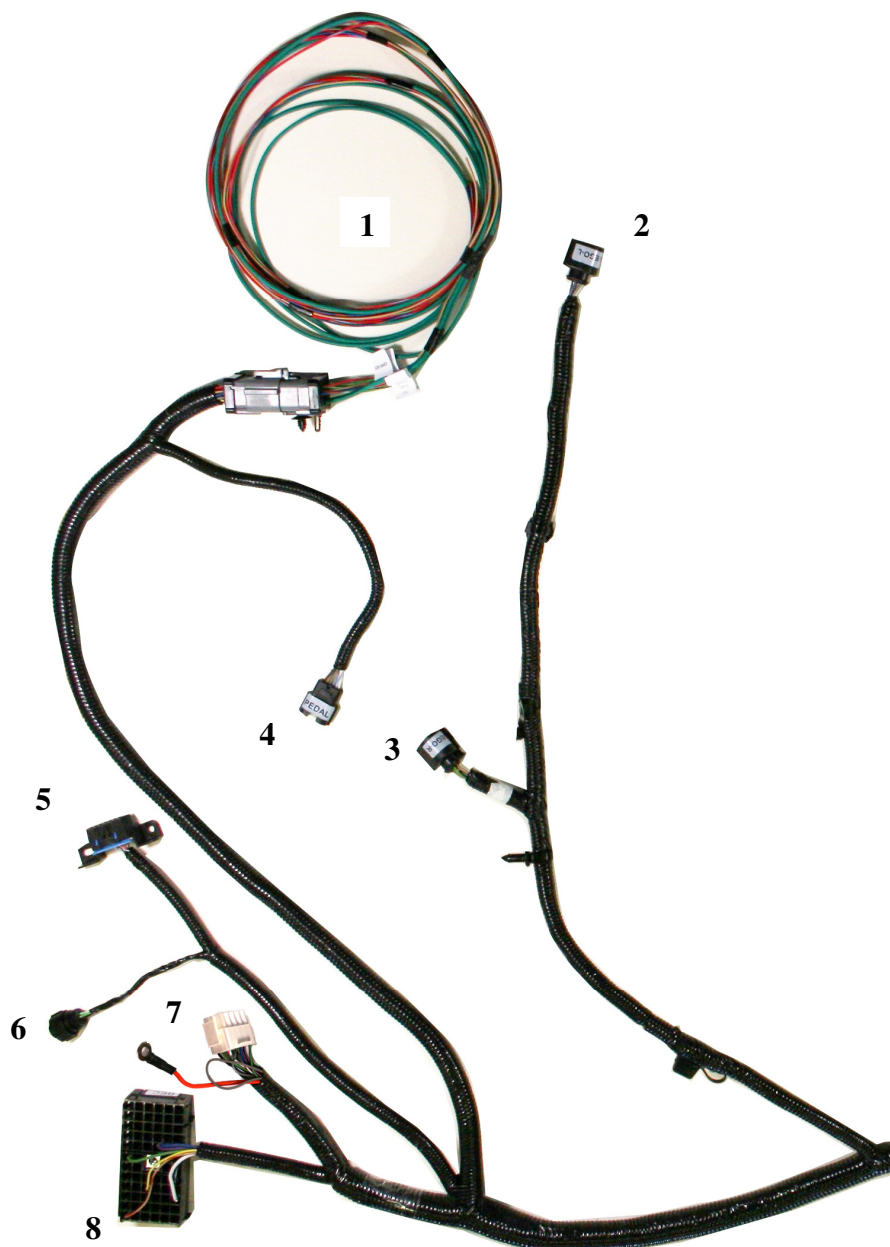
<u>Number</u>	<u>Connector</u>	<u>Connects to</u>	<u>Wire colors/Pin locations</u>
1	Blunt lead wire connections	See page 13	See Page 19
2	UEGO L	Bank 2 Universal Exhaust Gas Oxygen	See Page 18
3	UEGO R	Bank 1 Universal Exhaust Gas Oxygen	See Page 18
4	Accelerator Pedal	Accelerator Pedal Assembly (APPS)	See Page 18
5	OBD II Diagnostic connection	Diagnostic equipment	See Page 18
6	EPAS (AIM for race car)	Electronic Power Assisted Steering (if equipped)	See Page 18
7	PDB (15 pin) / Fan power eyelet (orange wire)	Power Distribution Box / Fan power lug (For connection instructions refer to photo page 16)	See Page 20
8	PDB BEC	Power Distribution Box (bolt in)	See Page 20
9	*Intercooler pump	*Supercharger Intercooler Pump (if equipped)	See Page 19
10	MAF	Mass Airflow Sensor	See Page 18
11	ALT	Alternator	See Page 18
12	Chassis ground eyelet	Vehicle frame / Sub-frame	Black
13	Cooling fan	Cooling fan motor	Orange=pos. Black=neg.
14	PCM (50 way)	Powertrain Control Module	See Page 20
15	PCM (70 way)	Powertrain Control Module	See Page 18
16	In-Line Connector (ILC)	Engine harness	See Page 18
17	Starter solenoid, Battery NEG	Starter Solenoid / Batt. NEG post	Starter=white Batt.neg.=Black

NOTE: Cooling fan is switched on at 195F, turns off at 190F. This is based on inferred engine coolant temperature. Engine coolant temperature is inferred from the cylinder head temperature. Inferred coolant temperature may not be the same as actual coolant temperature.

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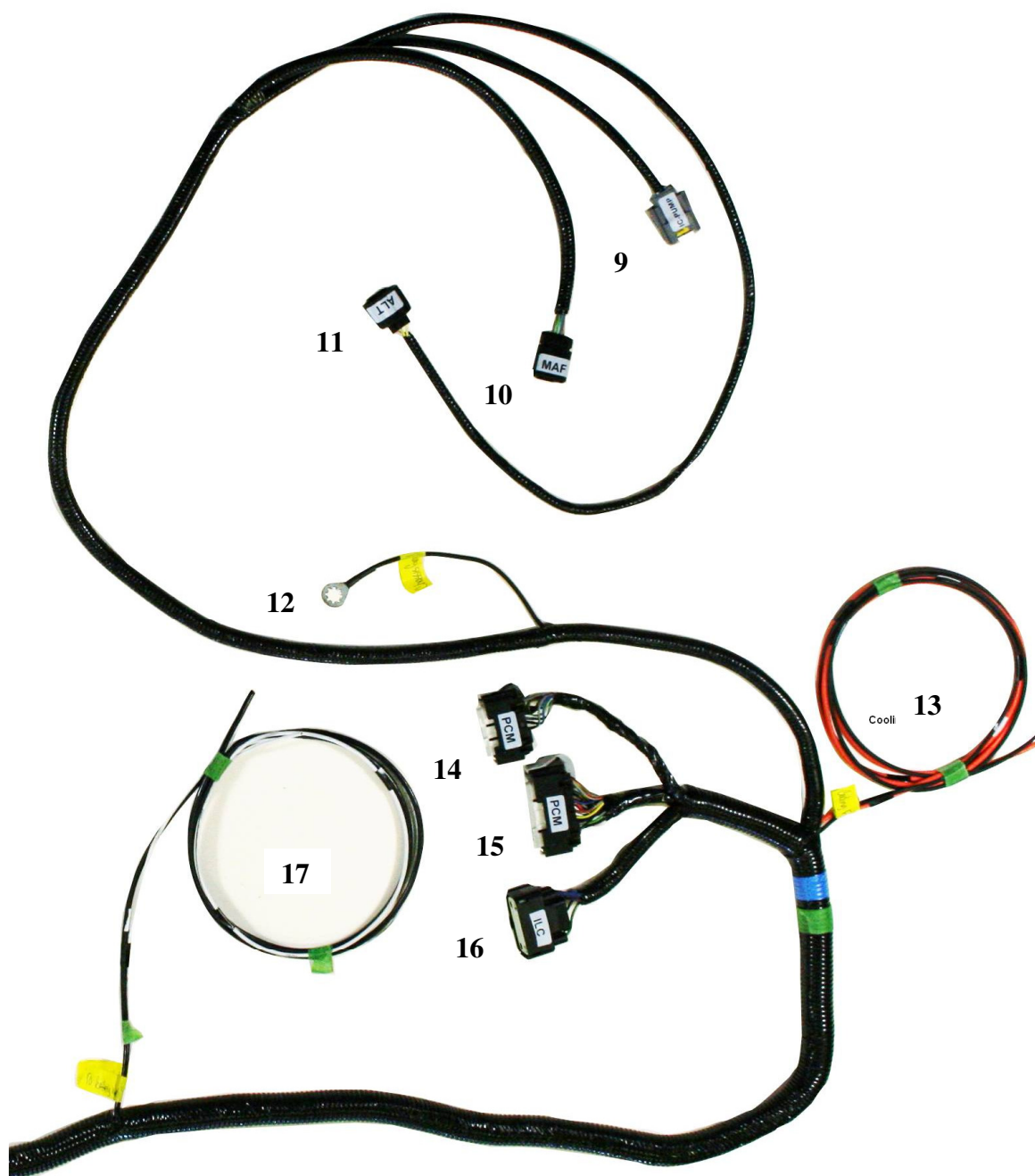
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7.0 HARNESS INSTALLATION

- 7.1** Attach main harness connector (Connector #8) to the FRPDB. Use a Phillips screwdriver to gently snug the mounting screw for this connector. Access to this screw is through a hole in the back side of PDB.
- 7.2** Attach the PCM Connector (Connector #15) to the cowl pocket (outside 70 pin connector) of the PCM
- 7.3** Attach the Auxiliary Inline Connector (Connector #16) to the mating inline connector of a 2011 MY or newer engine harness.
- 7.4** Attach the 15 pin FRPDB Connector (Connector #7) to the FRPDB. Attach the cooling fan power lead (orange wire with eyelet) to the cooling fan power lug using supplied nut (refer to picture in section 10). Leave the lid off of the FRPDB until verification of installation is complete to allow for trouble-shooting if necessary.
- 7.5** Using a sheet metal screw, attach the eyelet (Connector #12) to the inner fender or bulkhead. Verify that you have a good reliable ground path from the battery negative post to the location being used for this eyelet on the chassis. In general, the resistance from the battery ground to this chassis location should be less than 0.1 ohm.
- 7.6** Find a mounting location for the Accelerator Pedal. Ensure that the mounting location is sufficiently strong so the mounting surface will not fatigue over time from the constant usage of the accelerator pedal. If necessary, fabricate an additional support plate for mounting the accelerator pedal. Once the pedal is mounted, attach the Accelerator Pedal Connector (Connector #4)
- 7.7** Attach the OBD II Diagnostic Connector (Connector #5) at a location of your choosing that will provide easy access for connection of diagnostic tools. This is usually under the dashboard on the driver (left) side of the vehicle. Verify that the connector, once mounted, does not interfere with any part of your body while in the seated position.

Important Note on the Starting System

This kit includes connections and installation instructions for PCM controlled engine starting; however, it is **not required** that the customer utilize this option. Customers may choose to use their existing non-PCM controlled starting system if desired. If non-PCM controlled starting is used, step 8.2 C may be omitted, and unused blunt leads should be cut to ~2" length and sealed using heat shrink.

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8.0 WIRING CONNECTIONS

- 8.1 Locate each of the Blunt Leads. This is where you will need to make all of the soldered connections for the harness.
- 8.2 Connect the blunt leads as follows:
- A. **Blunt Lead 1 – Ignition Switch Position (Red/Light Green Wire):** Connect this wire to a **SINGLE SOURCE** on the ignition switch that provides 12 Volts when the key is in the 'Start' (cranking) and 'Run' position. It is imperative that this circuit be reliable, the PCM will interpret an intermittent voltage on this signal as a request to shut down the engine! (Hint, if your engine shuts down after a hard launch check here first).
 - B. **Blunt Lead 2 – Fuel Pump (Dark Green):** Connect to Fuel Pump positive. Separate ground for fuel pump must be provided. The fuel pump will be running any time key is on.
 - C. **Blunt Lead 3 – Starter Motor Request (Red/Light Blue):** Connect to start node of ignition switch so that 12 volts is provided when engine starting is requested.*
 - D. **Blunt Lead 4 – Clutch Position (Neutral Switch) (Dark Blue/Orange):** This circuit **must be grounded** either directly to ground or through an optional customer provided clutch pedal switch.* (PCM will not engage the starter without proper ground/switch)
 - E. **Blunt Lead 5 - CTO (Tan/Yellow):** This wire is the tachometer lead. This is not a mandatory connection.*

*If non-PCM controlled starting is used, step 8.2 C may be omitted, and unused blunt leads should be cut to ~2" length and sealed using heat shrink.

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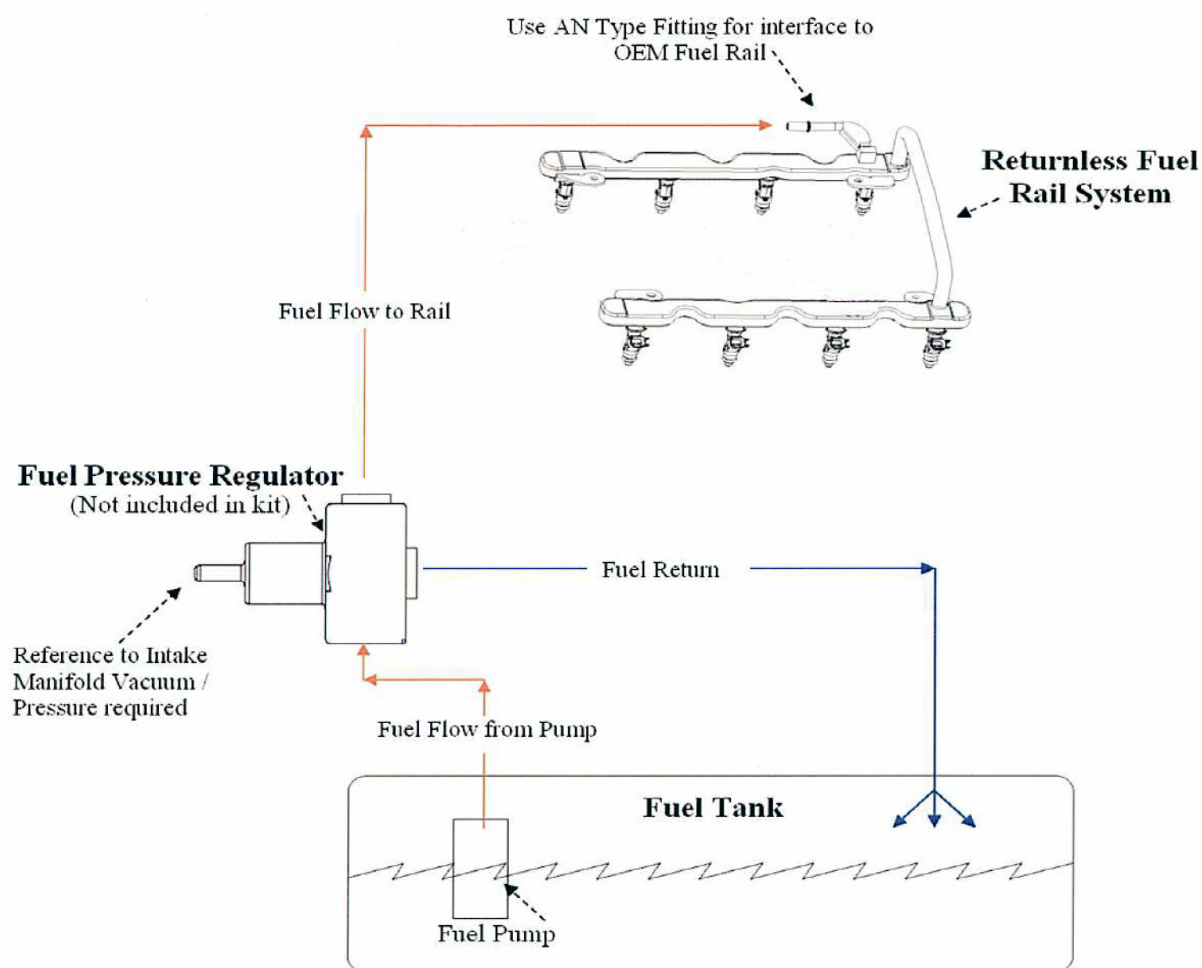
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9.0 Fuel System

The PCM is calibrated for a return style fuel system as shown below.

Notes:

- Set regulator to maintain 55 psi delta fuel pressure across injector (55 psi at fuel rail with engine off):
- Use only AN type fuel fitting to interface with OEM fuel rail.
- Fuel pressure regulator must have reference to manifold vacuum.





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Fuel pump requirements: 155L/Hr minimum at 55psi

Fuel pump location

A common and often overlooked problem is the location of the fuel pump or pumps. Optimally, the fuel pump should be mounted **IN THE TANK** to reduce the possibility of pump cavitation. Cavitation is essentially localized boiling caused by a reduction in pressure, generally occurring on the inlet side of a pump. This localized boiling results in fuel vapor bubbles which will reduce the volume of fuel the pump is capable of delivering to the engine. Any reduction in pressure or increase in temperature at the inlet side of the pump increases the chances that cavitation will occur. For this reason, it is always best to either have the pump inside the tank immersed in fuel or (in the case of an external pump) gravity fed, which will increase the pressure on the inlet side of the pump. If the fuel pump has to "pull" the fuel, this will result in a reduction in pressure at the fuel pump inlet potentially allowing cavitation and, thus, vapor bubbles to develop. These vapor bubbles are then drawn into the fuel pump and exit the high-pressure side of the fuel pump as compressed vapor.

They travel the entire length of the fuel system and are expelled through the fuel injector. This can cause issues ranging from stumbles and hesitations to engine damage due to insufficient fuel delivery and lean A/F ratios. Sometimes this problem can characterize itself by only appearing when the weather gets warmer, which can confound the diagnosis of the issue. In certain cases, it may seem to only develop when driving on certain surfaces, because pavement reflects more heat than an off-road 4x4 trail. Remember, more heat and lower pressure on the inlet side of the pump means a greater chance of cavitation, which is to be avoided whenever possible.

If you are using an external mounted fuel pump, you should run a very coarse (typically around 100 micron) filter on the inlet side of the fuel pump, and a finer (typically around 10 micron) filter on the outlet side of the pump. A paper filter is **NOT** recommended on the inlet of the fuel pump because it can cause a restriction in fuel flow which, as mentioned previously, can lead to cavitation.

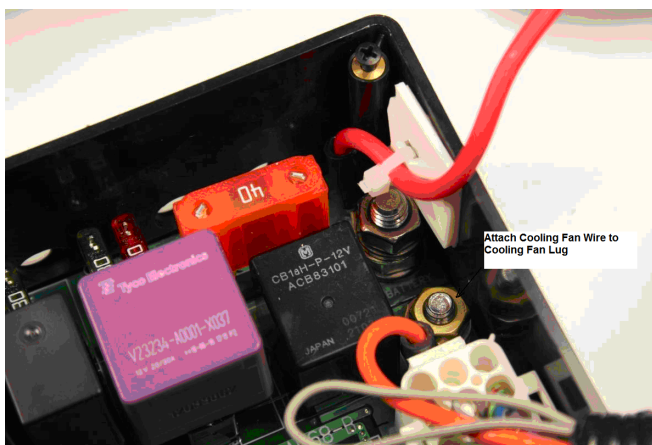
Warning: It is highly recommended that an inertia switch is incorporated into the fuel pump wiring to turn off the fuel pump in event of an accident.

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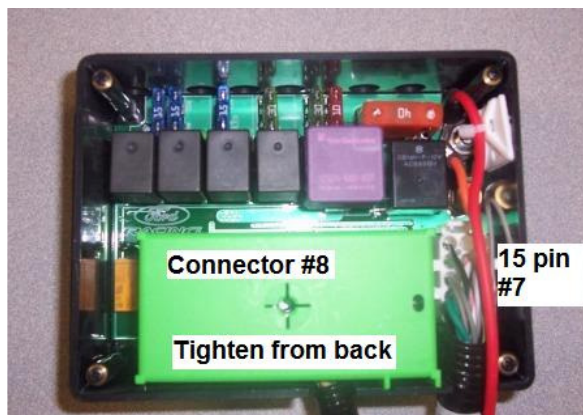
10.0 FRPDB Installation

- 10.1 Connect the main power lead from the FRPDB to the battery positive terminal. Note: This lead MUST be hot at all times (HAAT). If this lead is connected through a switch, the Keep Alive Memory (KAM) of the PCM will be cleared whenever the switch is opened. This will result in loss of diagnostic trouble codes, adaptive fuel parameters and other information stored in KAM by the PCM.
- 10.2 Connect the cooling fan power lead (orange wire with eyelet) to the cooling fan power lug of the FRPDB using supplied nut. Leave the lid off of the FRPDB until verification of installation is complete to allow for troubleshooting.



NOTE: Do not use power tools to tighten eyelet retaining nut, damage to the circuit board may occur if overtightened!

- 10.3 Connect the main harness connector #8 and 15 pin connector #7 to the FRPDB





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11.0 INITIAL START UP

The following information assumes completion of each of the previous steps of this installation manual

11.1 Check all fluid levels, electrical and fluid connections.

11.2 Pressurize the fuel system by turning the key on. Inspect the entire fuel system (from tank to engine) for leaks.
If any leaks are found, do not proceed further until these have been corrected.

11.3 Start Engine. Check for leaks and/or noises that may indicate a problem.

CAUTION: Be certain to run the vehicle in a well ventilated area.

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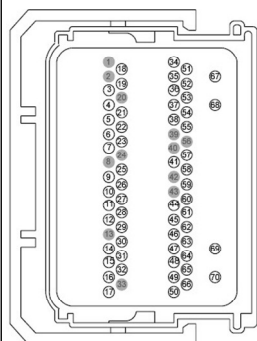
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12.0 CONNECTOR FACES AND WIRE USAGE SCHEMATIC

PCM - 70 Way
(Female Terminals)

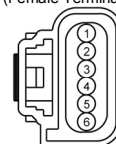


PIN	WIRE	GA.	CIRCUIT #	FUNCTION	TO
PCM70-02	LB/RD	20		MAF RTN	MAF-4
PCM70-05	PK	20		VSOUT	Blunt Lead*
PCM70-07	LG/YE	20		SMC	PDB-06
PCM70-10	TN/YE	20	3000	CTO	C47-07
PCM70-12	GY/WH	20	321B	ACCR	PDB-08
PCM70-13	VT	20	181C	BOO	C47-11
PCM70-14	PK/GY	20		GENLI	ALT-1
PCM70-16	WH/PK	20		SMR / 12V START	PDB-11
PCM70-18	TN/RD	20		Fan Relay Control	BEC-A12
PCM70-19	YE/OG	20	225	Fuel Pump Com. (FPC)	C47-15
PCM70-21	DB	20	608	Injector PWRM	S608
PCM70-28	TN/YE	20		APP 1	APPS-02
PCM70-29	LB/WH	20		APP 2	APPS-05
PCM70-32	BN/WH	20	518	Fuel Pump Mon. (FPM)	C47-16
PCM70-38	BN/VT	18	IAT#2	PCM Relay Control	MAF-5
PCM70-38	BN/PK	20		MAF (Freq)	PDB-10
PCM70-40	TN/LB	20			MAF-5
PCM70-42	RD/LG	20	201D	ISP-R	C47-03
PCM70-44	GY/RD	20		APPRTN (1)	APPS-03
PCM70-45	BN/WH	20		APPRVREF (1)	APPS-01
PCM70-47	GY	20		IAT	MAF-2
PCM70-48	DB/YE	20	3100	SCCS RTN	C47-09
PCM70-50	BK	18		Case Ground	S570
PCM70-51	DB/YE	20		SCICP PCM signal	PDB-14
PCM70-53	YELB	20		GENRC	ALT-2
PCM70-57	DB/WH	20		ACCS	PDB-7&8L
PCM70-58	PK/LG	20	152G	HS CAN (-)	S-800
PCM70-59	WH/LG	20	151G	HS CAN (+)	S-700
PCM70-60	GY	20		APPRTN (2)	APPS-04
PCM70-61	BN	20		APPRVREF (2)	APPS-06
PCM70-62	YE	20		KAPWR / 12VHAAT	S-70
PCM70-64	WH	20	3110	SCCS	C47-10
PCM70-67	GY/OG	20		VPWR	PDB-9
PCM70-68	GY/OG	20		VPWR	PDB-9
PCM70-69	BK/WH	20		PWR Ground	S-570
PCM70-70	BK/WH	20		PWR Ground	S-570

*VSOUT Blunt lead "Hank-taped" at C47 take-out

MAF

(Female Terminals)



PIN	COLOR	GA.	FUNCTION	TO
MAF-2	GY	20	IAT	PCM70-47
MAF-3	LG	20	VPWR	S-900
MAF-4	LB/RD	20	MAF RTN	PCM70-02
MAF-5	TN/LB	20	MAF (Freq)	PCM70-40

In-Line to EPAS (or AIM for Race Car)

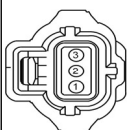
(Female Terminals)



PIN	COLOR	GA.	FUNCTION	TO
AIM-1	WH/LG	20	HS CAN (+)	S-700
AIM-2	BK	20	GND	S-570
AIM-3	LG/RD	20	KAPWR	S-70
AIM-4	PK/LG	20	HS CAN (-)	S-800

ALT

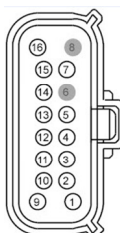
(Female Terminals)



PIN	COLOR	GA.	FUNCTION	TO
ALT-1	PK/GY	20	GENLI	PCM70-14
ALT-2	YE/LB	20	GENRC	PCM70-53
ALT-3	YE	20	VBAT Monitor	BEC-C9

AUX/ILC to 14C508 Engine Harness

(Female Terminals)

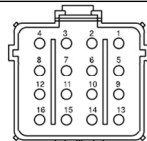


PIN	COLOR	GA.	CIRCUIT #	FUNCTION	TO
AUX-1	VT	14		VPWR3 - Coils	S-350
AUX-2	VT	18		VPWR3 (Non-MIL Loads)	S-350
AUX-9	DB	14		VPWRF - Fuel Injectors	S-608
AUX-12	BK/WH	18		PWR Ground	S-570
AUX-13	BN/VT	18		IAT #2	PCM70-36
AUX-16	LG	16		VPWR2, Engine Sensors	S-900

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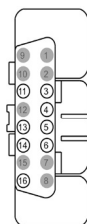
C47
(Female Terminals)
Inline to Blunt Leads Pigtail or
Vehicle Body Harness



C47 CONNECTOR					
PIN	COLOR	GA.	CIRCUIT #	FUNCTION	TO
C47-01	LG/BK	20	4033	Fuel Pump Relay (Hi)	PDB-13
C47-02	RD/LB	20	202	SMR 12V START	PDB-11
C47-03	RD/LG	20	201D	ISP-R	PCM70-42
C47-05	PK/LG	20	152C	HS CAN (-)	S-800
C47-06	WH/LG	20	151C	HS CAN (+)	S-700
C47-07	TN/YE	20	3000	CTO	PCM70-10
C47-08	LB/YE	20	1000	CPP-BT (1-19)	PCM50-19
C47-09	DG/BN	20	3100	SCCS RTN	PCM70-48
C47-10	WH	20	3110	SCCS	PCM70-64
C47-11	VT	20	181C	BOO	PCM70-13
C47-12	LG/VT	20	1010	CPP-TT (1-21)	PCM50-21
C47-13	DG	14	938A	Fuel Pump Feed 1 of 2	PDB-12
C47-14	DG	14	938B	Fuel Pump Feed 2 of 2	PDB-15
C47-15	YE/OG	20	225	Fuel Pump Com. (FPC)	PCM70-19
C47-16	BN/WH	20	518	Fuel Pump Mon. (FPM)	PCM70-32

**** Blunt Leads are 'Hank-Taped' into this Take-out

Data Link Connector (DLC)
(Female Terminals)



DLC CONNECTOR					
PIN	COLOR	GA.	FUNCTION	TO	
DLC-04	BK	20	PWR Ground	S-570	
DLC-05	BK/WH	20	PWR Ground	S-570	
DLC-06	WH/LG	20	HS CAN (+)	S-700	
DLC-14	PK/LG	20	HS CAN (-)	S-800	
DLC-16	LG/WD	20	KAPWR	S-70	

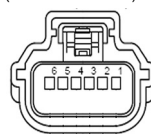
TWISTED PAIR

Supercharger Inter-cooler Pump (SCICP)
(for optional supercharger) C1217

SCICP CONNECTOR				
PIN	COLOR	GA.	FUNCTION	TO
SCICP-1	WH/RD	14	SCICP 12V Feed	PDB-5
SCICP-2	BK	20	GND	S-570

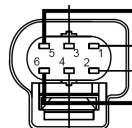


APPS
(Female Terminals)



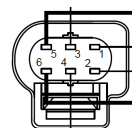
APPS CONNECTOR					
PIN	COLOR	GA.	FUNCTION	TO	
APPS-01	BN/WH	20	APPVREF (1)	PCM70-45	
APPS-02	TN/YE	20	APP 1	PCM70-28	
APPS-03	GY/RD	20	APPRTN (1)	PCM70-44	
APPS-04	GY	20	APPRTN (2)	PCM70-60	
APPS-05	LB/WH	20	APP 2	PCM70-29	
APPS-06	BN	20	APPVREF (2)	PCM70-61	

UEGO #1 Right Side



UEGO #1 CONNECTOR					
PIN	COLOR	GA.	FUNCTION	To	
UEGO1-1	TN/YE	20	UO2SIA Bank 1	PCM50-29	
UEGO1-2	GY/DB	20	UREF Bank 1	PCM50-15	
UEGO1-3	LG/TN	20	HTR Bank 1	PCM50-24	
UEGO1-4	VT/GY	20	VREF2	S900	
UEGO1-5	LG	20	UO2SIP Bank 1	PCM50-17	
UEGO1-6	TN/VT	20	UO2SN Bank 1	PCM50-4	

UEGO #2 Left Side



UEGO #2 CONNECTOR					
PIN	COLOR	GA.	FUNCTION	To	
UEGO2-1	WH	20	UO2SIA Bank 2	PCM50-28	
UEGO2-2	BN	20	UREF Bank 2	PCM50-40	
UEGO2-3	GY/VT	20	HTR Bank 2	PCM50-35	
UEGO2-4	VT/GY	20	VREF2	S900	
UEGO2-5	TN/LB	20	UO2SIP Bank 2	PCM50-16	
UEGO2-6	WH/LG	20	UO2SN Bank 2	PCM50-39	

****Blunt Leads

BL1 PK (20) to PCM-05, VSOUT
BL2 VT (20) to PDB-07, ACCR

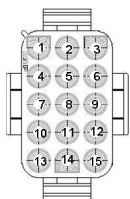
Each Blunt Lead wire extends 160mm past C47 and shall be 'Hank-Taped' to harness take-out.

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PDB 15pin

(Female Terminals)

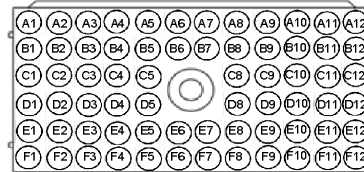


PDB CONNECTOR					
PIN	COLOR	GA.	CIRCUIT #	FUNCTION	TO
PDB-01					
PDB-02	BK/WH	18		PWR GND	S-570
PDB-03	LG/RD	20		KAPWR	S-70
PDB-04	WH/RD	14		SCICP 12V Feed	SCICP-1
PDB-05	LG/YE	20		SMC	PCM70-07
PDB-06	DB/WH	20		ACCS	PCM70-57
PDB-07	VT	20		ACCS	Blunt Lead**
PDB-08	GY/WH	20	321A	ACCR	PCM70-12
PDB-09	GY/OG	20		VPWR	PCM70-67
PDB-10	GY/OG	20		VPWR	PCM70-68
PDB-11	BN/PK	20		PCM Relay Control	PCM70-38
PDB-12	WH/PK	20		SMR	PCM70-16
PDB-13	RD/LB	20	202	SMR	C47-2
PDB-14	DG	14	938A	Fuel Pump Feed 1 of 2	C47-13
PDB-15	LG/BK	20	4033	Fuel Pump Relay (Hi)	C47-01
PDB-16	DB/YE	20		SCICP PCM signal	PCM70-50
PDB-17	DG	14	938B	Fuel Pump Feed 2 of 2	C47-14

**ACCS Blunt lead "Hank-taped" at C47 take-out

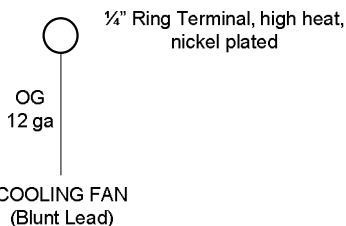
PDB BEC

(Female Terminals)



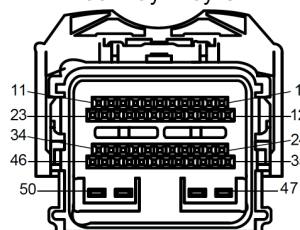
BEC CONNECTOR					
PIN	COLOR	GA.	CIRCUIT #	FUNCTION	TO
BEC-A6	LG	16		VPWR2, Engine Sensors	S-900
BEC-A12	TN/RD	20		Fan Relay Control	PCM70-18
BEC-C9	YE	20		VBAT Monitor	ALY-3
BEC-D5	VT	14		VPWR3, Coils	S-350
BEC-E5	DB	14		VPWRF, Fuel Injectors	AUX-9
BEC-F8	DB	20		Injector PWRM (5.4L)	PCM70-21
BEC-F8	BK/WH	18		PWR Ground	S-570
BEC-F10	TN/LG	12		Starter Solenoid, 12V Feed	BL-SS

Fan Ring Terminal Install on 1/4" Stud in PDB



PCM50way

50 Way "Key C"



PCM50 Way CONNECTOR				
PIN	COLOR	GA	FUNCTION	To
PCM50-4	TN/VT	20	UO2SN Bank 1	UEGO #1-6
PCM50-15	GY/DB	20	UREF Bank 1	UEGO #1-2
PCM50-16	TN/DB	20	UO2SIP Bank 2	UEGO #2-5
PCM50-17	LG	20	UO2SIP Bank 1	UEGO #1-5
PCM50-19	LB/YE	20	Bottom Clutch	C47-8
PCM50-21	LG/VT	20	Top Clutch	C47-12
PCM50-24	LB/VT	20	HTR Bank 1	UEGO #1-3
PCM50-28	WH	20	UO2SIA Bank 2	UEGO #2-1
PCM50-29	TN/YE	20	UO2SIA Bank 1	UEGO #1-1
PCM50-35	GY/VT	20	HTR Bank 2	UEGO #2-3
PCM50-39	WH/LG	20	UO2SN Bank 2	UEGO #2-6
PCM50-40	BN	20	UREF Bank 2	UEGO #2-2