



About

ACES Fuel Injection specializes in developing and manufacturing state-of-the-art performance-engine management systems and ignition components geared toward do-it-yourself automotive enthusiasts. Our company was founded on an electromechanical engineering background, and our talented staff stays aware of the newest technology available. We use this expertise to guarantee top-notch quality components and constant innovation of new products and services for car and truck enthusiasts around the world.

Our greatest advantage is the overall simplicity of our products. From a painless installation to real-time tuning in just hours, our fuel injection systems offer a great advantage over the competition. Our JACKPOT™ series GM LS EFI system features a built-in interface that allows users to have full control of the engine without the need of a PC. This allows you to install the system at home without the need for special tools or software. We also offer several other components to help seamlessly integrate our advanced technology into your LS-based vehicle.

Our craftsmanship and technology are built upon a foundation of extreme performance. With a history of producing winning results in a wide variety of applications, our pedigree offers proof of our commitment to attain the best results, wherever we compete. With more than 10 years of experience developing and designing high-performance products, ACES Fuel Injection has a product to fit your needs.

Mission

Research, innovate, and develop real, efficient, quality solutions, making engine management technology the key factor of success, and bring pride and satisfaction to customers by integrating them into the ACES Fuel Injection Team.

Vision

Become the world's leading company in engine management technology.

Values

Ethics, commitment, professionalism, teamwork, quality, pioneering spirit, creativity, continuous innovation, pursuit of results and customer satisfaction.

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JACKPOT™ EFI OVERVIEW

The JACKPOT™ ECU delivers advanced engine control capabilities. Through the JACKPOT™ ECU, ACES makes this engine control technology affordable for both professional racers and entry-level consumers.

The JACKPOT™ ECU is built with a 32-bit Power Architecture® based MCU and other IC drivers for automotive powertrain applications. The JACKPOT™ ECU combines a die-cast aluminum housing (for better heat dissipation), automotive-grade chips, a professional 4-layer PCB and high-quality connectors, wiring, and protective sheathing. This allows the JACKPOT™ to be a reliable solution to your engine management needs.

JACKPOT™ ECU features dual Wideband O2 sensors, Closed Loop fuel control, self-learning fuel and ignition control, 8 coil outputs, 8 injector drivers, fan control (high and low speed), boost control, nitrous oxide control, transmission control, and much more.

JACKPOT™ comes fully loaded with base maps for common GM LS engine combinations to get you out of the garage and on the road or track fast. JACKPOT™ TBI kits include a 7" Handheld LCD display for initial setup. Whether you are building a budget beater or a purpose-built race car, ACES JACKPOT™ EFI kit has advanced features and technology, making it your best choice.

ACES fuel injection JACKPOT™ EFI Features:

- 32-bit Power Architecture® based MCU and others IC drivers' chips for automotive powertrain applications
- Strong anti-interference, high stability hardware and software design
- Speed density-based airflow algorithm strategy
- 58x and 24x-tooth reluctor wheel compatible
- 8 coils signal and 8 injectors drivers (High-Impedance Injectors) Sequential fuel and spark control with individual cylinder trim.
- Self-learning: adaptive idle control (ETC and IAC), adaptive fuel control (3D-map), adaptive ignition control (3D-map).
- Wideband O2 sensor closed loop control
- Boost Compatible
- Nitrous timing control
- Transmission control is suitable for GM 4L60, 4L65, 4L80 or 4L85 transmissions.

JACKPOT™ EFI Kit CAPABILITIES:

- Based airflow speed density models algorithm strategy VE-based fuel map
- Closed Loop fuel control multi-fuel capable
- Transient fuel control (TPS MAP based) Flex fuel compensated
- Boost capable
- Programmable launch control
- Programmable Rev Limiter control
- Transient condition control (fuel, ignition, and ETC/IAC)
- Target Lambda control for full engine operation
- Configurable coil dwell (RPM, voltage and load based)
- Individual cylinder ignition trim (RPM based)
- Map switching
- 3D fuel/ignition trim maps (coolant air temperature and ambient pressure)
- Diagnostics: SCB, SCG, OC sensors, coils, injectors, ETC, IAC

*This kit does not work with variable valve timing. These engines can be modified to remove these components.

Thank you for betting on ACES! We are proud to be your manufacturer of choice.

ADVANCED USER CAPABILITIES

The JACKPOT™ software does allow for advanced tuning functionality. A laptop is required to access the advance tuning functions. These functions are not recommended for enthusiasts without extensive EFI tuning knowledge and experience. Making changes to the calibration in the advanced tuning functions can lead to catastrophic engine damage if not done correctly. ACES is not responsible for any damage caused due to advanced tuning errors.

WARNINGS, NOTES, AND NOTICES

NOTE: This system does not contain fuel system components including the fuel pump, fuel filters, fuel pressure regulator, and lines. ACES fuel injection offers complete kits which can be purchased separately (coming soon!).

NOTE: This system is designed for stock and mild cam, naturally aspirated, boosted, and nitrous oxide GM LS engines.

WARNING! The JACKPOT™ TBI systems consist of several sophisticated components. The failure of any one component does not constitute, nor does it justify, warranty replacement of the complete system. Individual service items are available for replacement of components.

WARNING! To preserve the warranty, these instructions must be read and followed thoroughly and completely before and during installation. It is important that you become familiar with the parts and the installation of the JACKPOT™ TBI system before you begin. Failure to read and understand these instructions could result in damage to JACKPOT™ TBI components that are not covered by the warranty and could result in serious personal injury and property damage.

WARNING! The oxygen sensors in this kit are recommended for use with unleaded fuel ONLY. Use of leaded fuels will degrade the oxygen sensor and will result in incorrect exhaust gas oxygen readings and improper fuel delivery. Failure to follow these directions does not constitute the right to a warranty claim.

WARNING! Failure to follow these instructions will result in an improper installation, which may lead to personal injury, including death, and/or property damage. Improper installation and/or use of this or any ACES product will void all warranties.

WARNING! Use of some RTV silicone sealers will destroy the oxygen sensors used with this kit. Ensure the RTV silicone sealant you use is compatible with oxygen sensor vehicles. This information should be found on the RTV package.

WARNING! For the safety and protection of you and others, only a trained mechanic having adequate fuel system experience should perform the installation, adjustment, and repair. It is particularly important to remember one of the basic principles of safety: fuel vapors are heavier than air and tend to collect in low places where an explosive fuel/air mixture may be ignited by any spark or flame resulting in property damage, personal injury, and/or death. Extreme caution must be exercised to prevent spillage and thus eliminate the formation of such fuel vapors.

WARNING! This type of work MUST be performed in a well-ventilated area. Do not smoke or have an open flame present near gasoline vapors or an explosion may result.

WARNING! This installation is not for the tuning novice! Use this system with EXTREME caution! The ACES JACKPOT™ EMS allows for total flexibility in engine tuning. Misuse or improper tuning of this product can destroy your engine! If you are not well versed in engine dynamics and the tuning of engine management systems DO NOT attempt the installation. Refer the installation to an ACES-trained tuning shop or call ACES for technical assistance.

NOTE: All supplied ACES FUEL INJECTION calibrations, wizards and other tuning information are offered as potential starting points only. IT IS THE RESPONSIBILITY OF THE ENGINE TUNER TO ULTIMATELY CONFIRM IF THE CALIBRATION IS SAFE FOR ITS INTENDED USE. ACES FUEL INJECTION holds no responsibility for any engine damage that results from the misuse or mistuning of this product!

1.0 Part List

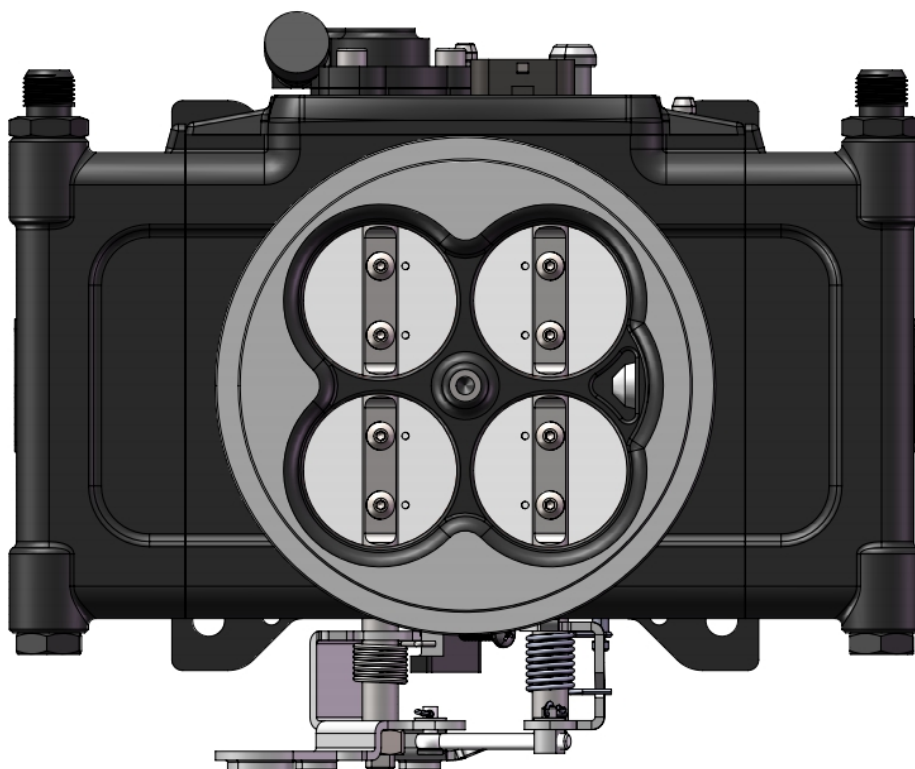
Item	Description	QTY	Service Part
1	JACKPOT™ ECU	1	AS2011
2	Handheld	1	AS2009
3	Main harness	1	AH2011A
4	Transmission sub harness	1	AH2011-1
5	Coil sub harness	2	AH2011-2
8	Crank and CAM sub harness *58X sub harness 5 volts *24X sub harness 12 volts	2	AH2011-5
9	Knock sub harness	1	AH2011-6
11	Additional wires	1	AH2011-9
13	Wideband O2 sensor	1	AE1060
15	Clamp-on Oxygen Sensor Bung	1	AE1061

2.0 JACKPOT™ TBI SYSTEM INSTALLATION

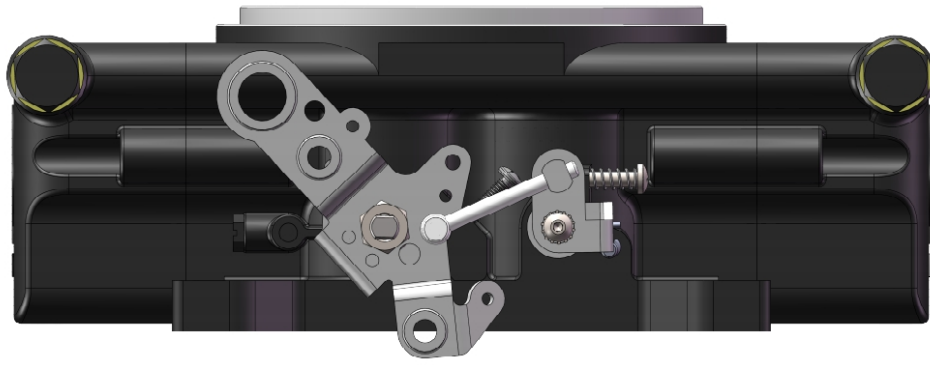
2.1 Throttle Body Installation

The throttle body has two connectors: one to control TPS and the other to control fuel injectors, IAC, and TMAP sensor.

The ACES throttle body design not only makes the throttle body structure clean and easy to install, but also the fuel injection controller is located externally. It is not affected by the high temperature and vibration of the engine, ensuring stability of performance.

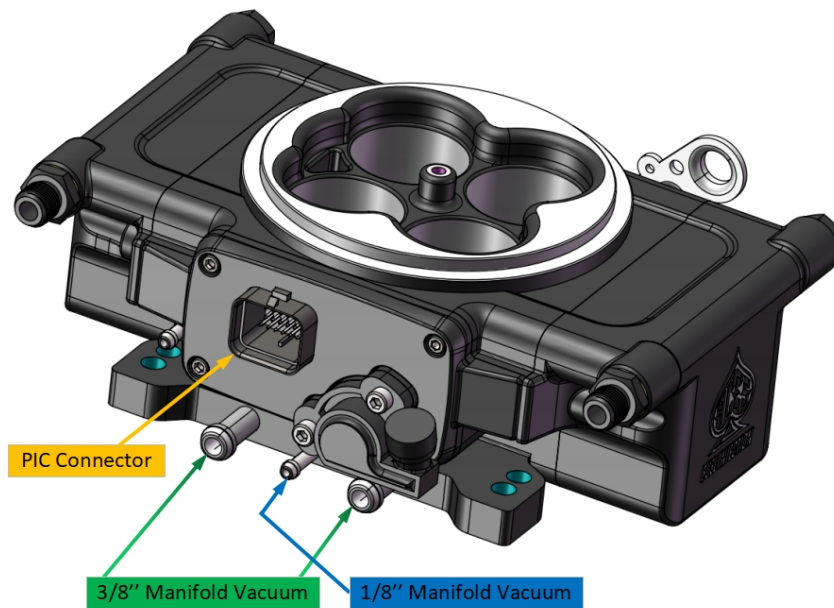


Throttle Body Aerial View



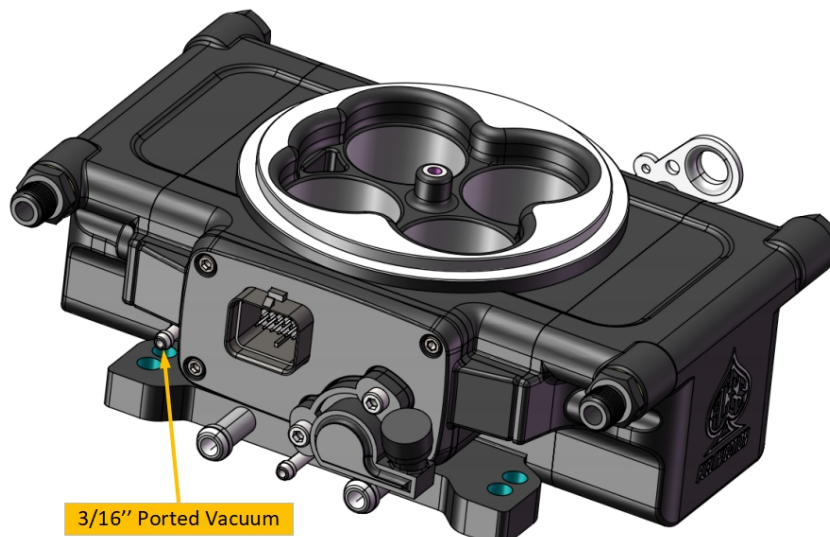
Throttle Body Side View

1) Begin by removing your carburetor. As you remove the carburetor, note which vacuum lines are running to ported or manifold vacuum. Determining if a vacuum port is “ported” or “manifold” vacuum varies on each carburetor; refer to the manufacturer’s specs for your specific carburetor.



NOTE: If you will have the carburetor removed for a length of time, be sure to plug your manifold with clean rags so that no foreign debris is allowed to enter the engine.

2) Install your new throttle body using the provided gasket and fasten using the screws or studs that were used for your carburetor.



- 3) Reconnect all vacuum hoses, being sure to connect any ported vacuum systems to the correct 3/16" port as shown above. Leave any unused ports capped with the provided rubber caps.
- 4) When your entire installation is finished, be sure to install an air cleaner onto your throttle body.

2.2 Fuel System

Suggested Aces Fuel System Kits and Installation

A complete high-pressure EFI fuel system must be installed for the Aces The Jackpot™ TBI system to operate properly. The pump should be capable of supplying 255 liters/hour or 400 lb./hr. of fuel at the The Jackpot™ TBI system requirement of 43-58 PSI. If using an in-line fuel pump, there should be a 100-micron pre-filter before the pump. All systems should contain a 30-micron post filter after the fuel pump. An EFI fuel pressure regulator is required. It should be installed after the fuel rail in a return-style configuration. If you need help with your fuel system components or configuration, please contact the Aces Technical Service department or visit our web acesefi.com

AF4004 Commander center 2 surge tank(340 LPH)

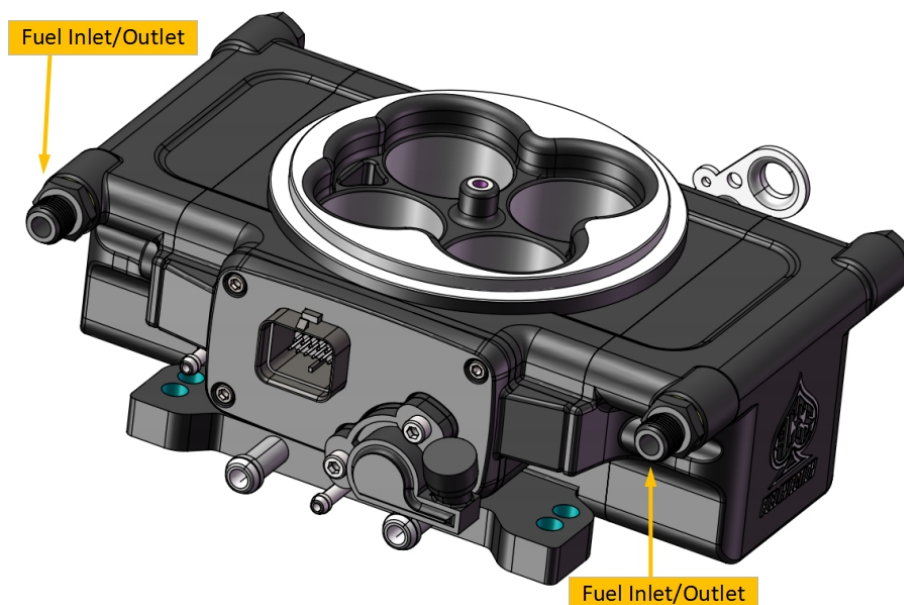
AF4015 Tight Fit In-tank (255 LPH)

AF4019 Tank Conversion Internal Regulator (340 LPH)

AF4101 PTFE Hose Kit 20ft

AF4102 PTFE Hose Kit 40ft

AF2010P Fuel Delivery Kit in-line pump 650hp



All systems should contain a 10-micron post-fuel filter after the fuel pump. An EFI-rated high-pressure, vacuum-referenced, bypass fuel pressure regulator is required.

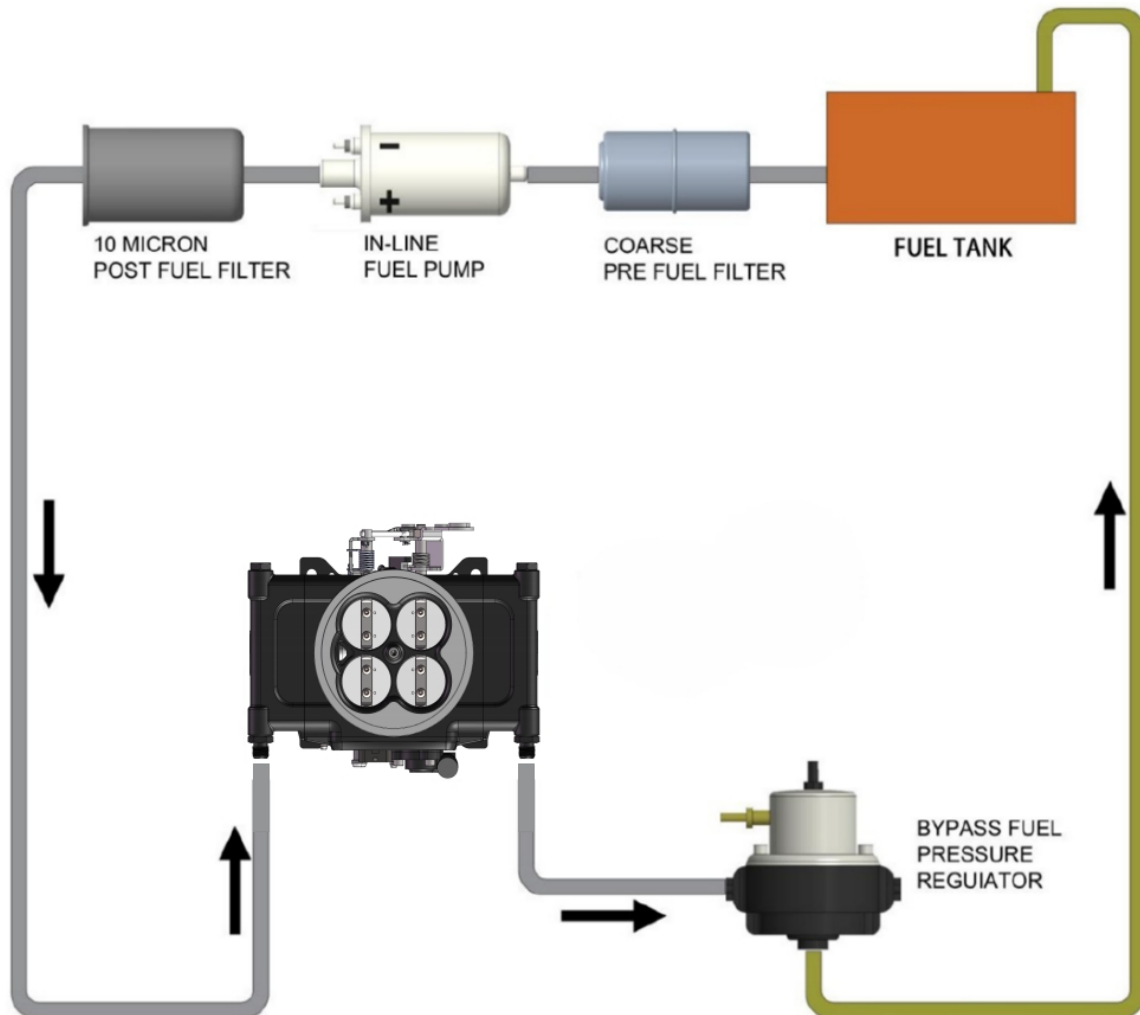
The fuel pump **MUST** be mounted lower than the lowest part of the fuel tank, and as close to the tank as possible. The fuel tank must also be properly vented.

- 1) Use the following diagram as a reference for the orientation and location of the fuel system components.
- 2) Mount the electric fuel pump as close to the fuel tank outlet as possible with the bracket provided. Mounting the fuel pump in this manner will ensure that the pump will prime easily to ensure faster starts.
- 3) The pre-filter **MUST** be installed between the fuel tank and the fuel pump inlet. The purpose of this filter is to protect the fuel pump from particles of dirt or other foreign material. The filter should be installed with the arrow on the filter pointing in the direction of the fuel flow.

4) The post-fuel filter should be installed between the electric pump outlet and TBI unit and should be a 10-micron EFI filter. Position the filter so the fuel hoses can be routed without kinks or sharp bends. The filter should be installed with the arrow on the filter pointing in the direction of the fuel flow.

WARNING! Ensure both filters are installed in the proper direction. A flow direction arrow is printed on the side of the filter to indicate the direction of fuel flow. Failure to do so will result in a system malfunction.

Some late model vehicles that were originally equipped with a throttle body injection system may already have a return line to the fuel tank that can be utilized. The return line must not present a pressure restriction to the return fuel flow. There should never be more than approximately 3 PSI of pressure in the return line. A line that is too small or has restrictions will cause tuning problems with the system.



DANGER! Do not use the vapor canister lines as a fuel return line. Possible fuel leaks may create a fire or explosion hazard, potentially causing serious injury or death.

DANGER! Proper installation of a fuel return line, if indicated, may necessitate complete removal of the fuel tank. This work should be done by a fuel tank specialist, who regularly does this work and is familiar with safety regulations and precautions necessary to do this work. If a person attempts this work, who is not familiar with the safety regulations and precautions, an explosion may result in causing serious injury or death.

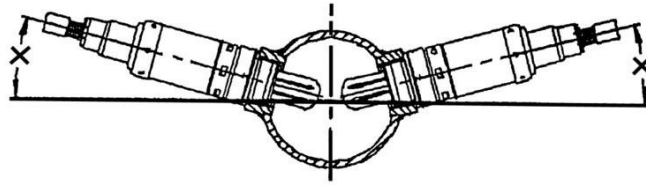
2.3 Oxygen Sensor Installation

IMPORTANT! Position and support your vehicle on a suitable surface. USE CAUTION AND WORK ONLY ON A LEVEL SURFACE USING JACKS AND JACK STANDS OF SUFFICIENT CAPACITY TO LIFT AND SUPPORT YOUR VEHICLE. NEVER WORK UNDER A VEHICLE SUPPORTED BY A FLOOR OR BUMPER JACK. Use of a two-post underarm lift or four-post drive-on lift will considerably reduce the time and effort required to complete the installation. MAKE SURE LIFT LOCKS ARE ENGAGED BEFORE WORKING UNDER THE VEHICLE.

WARNING! Failure to disconnect the AIR pump and/or locating the oxygen sensor downstream from AIR injection will result in an extremely rich mixture, which could cause drivability problems and severe engine damage. If disconnecting the AIR pump,

check with local ordinances for the legality of this procedure in your area.

1) Locate a position for the oxygen sensor as close to the engine as possible. The oxygen sensor should be mounted at a point where it can read a good average of all the cylinders on one bank. This would be slightly after all the cylinders merge. If you have long tube headers, mount the sensor approximately 6"-10" after the collector. You must have at least 18" of exhaust pipe after the sensor. If your vehicle has catalytic converters, the oxygen sensor **MUST** be located between the engine and the catalytic converters.



2) Ensure the sensor is located at the approximate angle shown above. This will help prevent condensation in the exhaust tubing from entering the sensor. The sensor can be mounted on either side of the tubing.

3) Drill a 7/8" hole in the intended location for the sensor. Weld an oxygen sensor weld ring into the 7/8" hole or use the clamp on bung system included. Weld all the way around the bung to ensure a leak-proof connection. Allow the bung to cool completely, install the oxygen sensor into the weld ring, and tighten securely. It is a good idea to add anti-seize to the threads to aid in removal. Do not get any anti-seize on the tip of the sensor.

- * The sensor should be installed in or after the collector. This gives the ECU an average reading across an entire bank instead of from just one cylinder.

- * The sensor should not be mounted near the open end of the exhaust system. At low engine speeds, free air may reverberate into the exhaust and cause false readings.

- * The system will not function properly if there are any exhaust leaks. Any fresh air that gets to the sensor will cause false lean readings. The ECU will respond by adding fuel that the engine does not need.

NOTE: Never run the engine with the oxygen sensor installed if it is not plugged in and powered by the ECU, or it will be damaged. If you need to plug the hole temporarily, use an O₂ sensor plug, or a spark plug with an 18mm thread.

2.4 Boost Reference Port (For Roots Style Supercharger Only)



1) Turn the throttle body upside down. Using a small drop of Loctite on the plug, install the plug into the threaded orifice next to the throttle blades.

2) Locate the boost reference port on the throttle body. It is located on the lower right corner of the throttle body on the same side as throttle cable linkage and remove the plug.

3) Install A 1/16 pipe to hose fitting into the boost reference port on the throttle body.

The boost reference port on the throttle body should be referenced below the supercharger directly off of the manifold or can

be split off of the boost gauge reference line.

3.0 Wiring Harness Installation

3.1 Main Power/Battery Connection

The JACKPOT™ ECU has a main battery power connector labeled 12V Battery + (red) and ground connector labeled 12V battery - (black) on the Main harness. The loose wires of the JACKPOT™ harness located approximately 20" from the ECU connectors are the power (red wire) and ground (black wire), which should be connected DIRECTLY to the positive and negative battery terminals. If you have a "dual post" battery, it is a great idea to purchase separate posts/studs to connect the ECU power and ground to the non-used terminals. Only use the fused power cable with the proper connectors supplied by ACES. Do not connect to the ECU until after ALL wiring and installation is performed.

3.2 ECU Connectors



JACKPOT™ ECU has one 94 pins connector:

PIN	DEFINATION		PIN	DEFINATION	
1	GND		48	FAN2	
2	GND		49	LINE PRESSURE	
3	Vmain		50	TCC_CONTROL	
4	Vmain		51	Vmain	
5	ETC2		52	S5V	
6	ETC1		53	KS2	
7	HT1		54	MAP	
8	Rev in2		55	PPS	
9	AC_REQ		56	IAT	
10	Range B		57	VSS	
11	S5V_1		58	APE1	
12	ATF		59	RE1+	
13	CTS		60	APE2	

14	Rev in5		61	CD1	
15	Rev in3		62	VR1-	
16	RT1		63	OUTA	
17	AGND		64	OUTB	
18	FAN1		65	IGN7	
19	RLY2		66	IGN3	
20	VVT1		67	VR2-	
21	RLY1		68	3-2 SOLENOID	
22	AC Clutch		69	INJ5	
23	SOL A		70	INJ1	
24	SOLB		71	MRD	
25	TCC CONTRID		72	VVT2	
26	INJ8		73	VMAIN	
27	IGN5		74	S5V	
28	INJ7		75	KS1	
29	HT2		76	GND	
30	Rev in1		77	PPSRD	
31	Range C		78	OPS	
32	Range A		79	TURBINE SPEED	
33	TPS		80	IGNSW	
34	TPSRD		81	IPN1	
35	FPS		82	BAT	
36	Brake SW		83	CD0	
37	Rev in4		84	IPN2	
38	RE2+		85	VR1+	
39	RT2		86	OUTC	
40	AGND		87	OUTD	
41	TACHOUT		88	IGN6	
42	IGN8		89	IGN4	
43	RLY PUMP		90	VR2+	
44	ING2		91	INJ6	
45	ING1		92	INJ2	
46	CANH		93	INJ3	
47	CANL		94	INJ4	

3.3 Harness Routing

If the ECU is mounted in the interior, the main harness will have to be routed through the firewall into the engine compartment. Use a 2" hole saw to create a hole in a desired location if no other point of access is available. Use a grommet for a 2" hole to seal this area.

If the ECU is mounted in the engine compartment, the cable to the 5" handheld will have to be routed to the CAN connector on the main harness (located near the ECU main connector). This is assuming you want to access the hand-held module after startup. This will require routing the small CAN connector somewhere through the firewall.

4.0 HARNESS INSTALLATION AND SENSOR CONNECTIONS

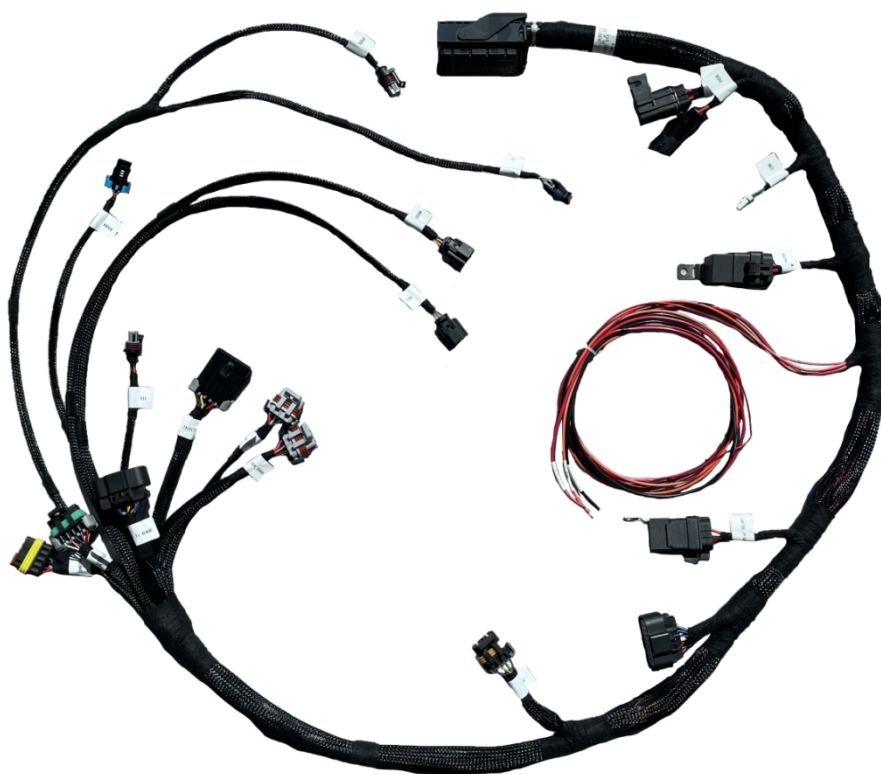
The following indicates the primary sensors that are required to be connected. Each connector on the main harness is labeled with the sensor name. The name on this label for each sensor is in parenthesis below.

4.1 Oil Pressure Sensor

Connect to the factory oil pressure sensors located at the rear of the engine. NOTE: LS2 GTO & F-Body Oil Pressure sensors have a unique pin-out and cannot be used with the JACKPOT™ Harness.

ACES EFI pressure sensor kits are top-quality parts for use with ACES EFI systems. These kits include plastic/steel sensors that have 1/8 in.-27 NPT threads and include a -6 AN fuel pressure take-off adapter fitting and 2 sets of 45 push lock hose ends.

Pressure sensors are great for logging oil pressure, fuel pressure, boost pressure. displaying pressure on the Handheld or Dash screen and on your data log files.



JACKPOT™ Main Wire Harness AH2011

4.2 Coolant Temperature Sensor (CTS)

Connect the CTS connector to the sensor, which should be in the front of the driver's side cylinder head.

CTS is specifically designed for temperature measurements in automotive systems.



Coolant Temperature Sensor Connector

NOTE: Default CTS calibration data in JACKPOT™ ECU is GM LSX CTS sensor.

4.3 Wideband Oxygen Sensor

Connect to the oxygen sensor previously installed. There is an adapter harness included in the kit which allows the Bosch 4.9 sensor to plug into the main engine harness. If you need an extension cable, one is available from ACES AE1060. The JACKPOT™ systems are intended to be used with a Bosch LSU 4.9 wideband oxygen sensor supplied by ACES.



Wideband O2 sensor Connectors

4.4 Fuel Pressure (Fuel)

A fuel pressure transducer connector (optional) is pre-installed in the main harness. If these are not connected to a pressure transducer, the fuel pressure shown on the handheld display will not be accurate. However, this will not cause any performance issues. Connect to the transducer (if installed).



Fuel Pressure Sensor Connector

ACES EFI pressure sensor kits are top-quality parts for use with ACES EFI systems. These kits include plastic/steel sensors that have 1/8 in.-27 NPT threads and include a -6 AN fuel pressure take-off adapter fitting and 2 sets of 45 push lock hose ends.

Pressure sensors are great for logging oil pressure, fuel pressure, boost pressure. displaying pressure on the Handheld or Dash screen and on your data log files.



4.5 Sensor Connection

Connect the bulkhead, CTS, WBO₂, CAN, and throttle body connectors (PIC) to their dedicated sensors/connectors in the diagram.

The throttle body connector (PIC) integrates the injectors, TMAP, TPS, and IAC wires. Plug this PIC connector into the corresponding connector on the throttle body.



Throttle Body Connector (PIC)

4.6 Camshaft Position Sensor

The camshaft position sensor is used to calculate engine position. It is necessary for sequential fuel calculations. It senses a toothed wheel (reluctor wheel, reluctor ring, etc.) and converts this pattern into a voltage/frequency signal that the ACES EMS uses for basic calculations. Combined with the crank position sensor, it is one of the most important inputs to the system. There are two basic types of cam sensors, variable reluctance (VR or “mag”) and hall-effect.

All VR Camshaft Position Sensor inputs to the JACKPOT™ ECU must be connected such that the rising edge of the raw sensor signal is the consistent zero crossing edge. Failure to do this could result in misfires or ignition timing inaccuracies. Verify data with an oscilloscope or contact your sensor manufacturer to verify polarity.

The camshaft position sensor of LS engines is in one of two locations depending on whether the harness is for a 24x or 58x reluctor wheel. If 24x, the camshaft position sensor is located on top at the rear of the block, at the back of the intake manifold. If 58x, the cam sensor is in the timing cover on the driver’s side. The ACES harness plugs directly into the sensor, not the short pigtail that may be on the engine.

4.7 Crankshaft Position Sensor

The crankshaft position sensor is used to calculate engine speed, ignition timing, and injection phasing angles. It senses a toothed wheel (reluctor wheel, reluctor ring, etc.) and converts this pattern into a voltage/frequency signal that the EMS uses for basic calculations. Either on its own, or combined with the cam position sensor, it is the most important input to the system. There are two basic types of crankshaft position sensors, variable reluctance (VR or “mag”) and hall-effect.

The crankshaft position sensor harness should be bundled in heat shielding for protection. The crankshaft position sensor is located behind the starter. It is imperative this harness routed away from heat sources. Connect to the crankshaft position sensor.

The JACKPOT™ EFI system has two detachable sub harnesses for crankshaft and camshaft position sensors for 24x and 58x reluctor wheel applications.



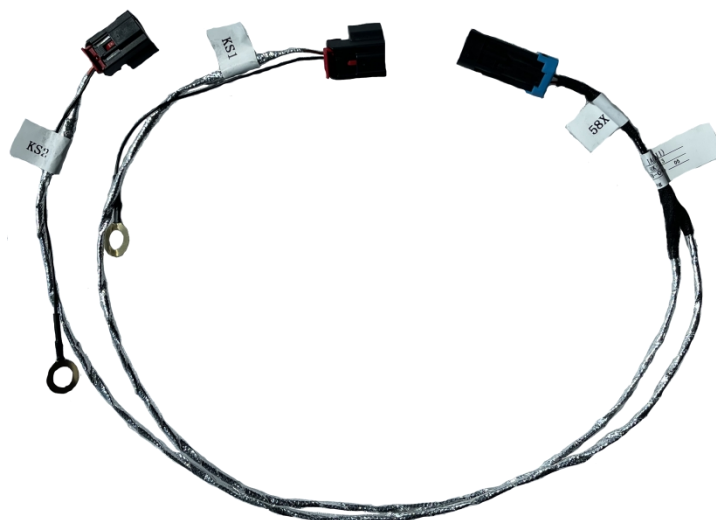
24x Reluctor Wheel Sub harness AH2011-5



58x Reluctor Wheel Sub harness AH2011-5

4.8 Knock Sensors

Connect to the Knock Sensor(s). Earlier model LS engines will have a knock sensor located in the center valley of the engine. Later model LS engines have knock sensors located on the bottom of the block near the oil pan rails. Knock Sensors are not enabled in JACKPOT™ base calibrations but may be configured by using ACES EFI software.



Knock sub harness AH2011-6

The knock sensor connector (pictured above) is used in earlier GM LS engines. Later model GM LS engines have two knock sensors. ACES includes a detachable dual knock sensor sub harness for JACKPOT™ EFI kits

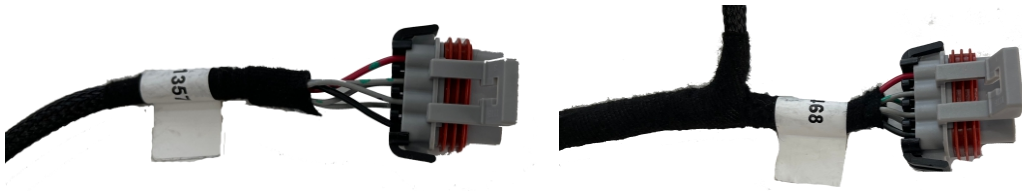
4.9 Ignition Coils

ACES IGBT Smart Coil

The JACKPOT™ ECU can support most OE and aftermarket smart coils, but ACES EFI highly recommends ACES smart coils (PN AC2011) for use with the JACKPOT™ EFI system. Connect the coil connectors into the coil harness. This coil harness is connected into each ACES smart coil.

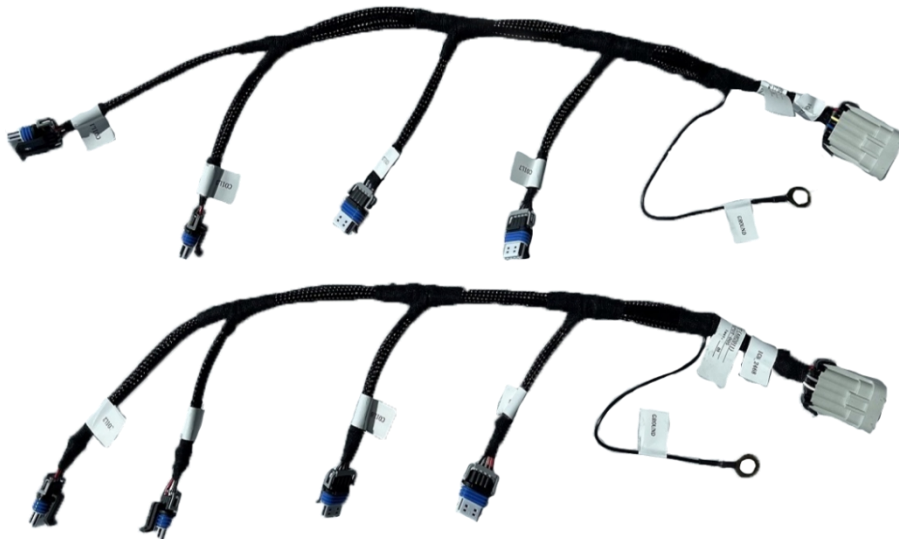
High Performance Coil

Connect the coil connectors into each bank of coils. The driver side connector should be labeled **"IGN_1357"**. The passenger side connector should be labeled **"IGN_2468"**. Make sure these are properly connected. If they are not, the firing order will not occur correctly, and damage could result.



Ignition Coil Connector

Make sure these two connectors are plugged into detachable coil sub harness (AH2011-2) correctly. If they are not, the firing order will not occur properly, and damage could result.



Coil Sub Harness AH2011-2

ACES Performance Coil

NOTE: ACES recommend FULL HOUSE™ CDI and High-Performance Coils with JACKPOT™ EFI kits.

Connect connector labeled **"IGN_1357"** to the connector labeled **"ODD"** on the FULL HOUSE™ CDI harness; connect connector

labeled **"IGN_2468"** to the connector labeled **"EVEN"** on the FULL HOUSE™ CDI harness.

ACES FULL HOUSE™ CDI gives you powerful spark energy (over 750 mJ), with eight-channel ignition control. The spark energy of ACES performance coils (AC2010) is 200mJ. The combination of ACES JACKPOT™ EFI and FULL HOUSE™ CDI Ignition help your engine achieve higher performance levels.

4.10 Handheld

The handheld controller is used to create the initial calibration for the system, allows for simple tuning changes during regular operation, and is also used to view various real-time data of the EFI system. It should be installed such that the handheld controller can be easily used in the passenger compartment. The handheld plugs directly into the main harness at either connector labeled **"CAN."** This connector is located approximately 12" from the ECU connector. The handheld does not have to remain in the vehicle or be utilized after the vehicle is set up and running properly.



CAN Bus connector

4.11 LOOSE WIRES

The following loose wires in the main wiring harness should be connected as follows on all systems.

IGNSW (Red) Should be connected to a clean key-on/cranking +12V power source. Power source should only be active when the ignition is on (key-on power). Make sure the source has power when the engine is cranking as well (check with voltmeter). Not all sources apply power when the ignition switch is in "cranking" position. This wire is located approximately 20" from the ECU connectors. DO NOT connect to a "DIRTY" source like an ignition coil!

12V Battery + (Red) MUST be connected directly to the positive battery terminal. This powers the fuel pump and fuel injectors. This wire is protected by a fuse in a sealed fuse holder. The fuse holder is located about 8" from the ECU connector. A 20-amp (20A) fuse is pre-installed.

12V Battery - (Black) MUST be connected directly to the negative battery terminal. Using a traditional chassis ground can cause electrical issues with the JACKPOT™ ECU. This wire is located approximately 20" from the ECU connectors.

4.12 ADDITIONAL OUTPUTS

JACKPOT™ ECU base calibrations are pre-configured with 3 outputs and one input to be used for the following features:

VMAIN (Red) – This output will provide a 12V power supply from the main relay. This wire is located approximately 32" from the ECU connectors.

Tach out (Orange) This wire provides a 12V square wave output and can be used to trigger a conventional tachometer.

Fuel Pump (Orange) (+12V) Do not use this wire to power fuel pumps that require over 15 Amps. Refer to your fuel pump manufacturer for amperage ratings. For high current pumps, use this wire to trigger a separate relay and use larger gauge wire to feed the pump - 10 gauge is recommended. The fuel pump will also require a ground wire. Run a wire from the negative side of the fuel pump. Connect it to a solid chassis/frame ground.

Fan1 (Purple) This output will provide a ground output to trigger a relay used for a cooling fan. This output should never be directly connected to a fan, but the relay that powers the fan. It should be connected to the ground trigger of the relay. This wire is located approximately 32" from the ECU connectors.

Fan2 (Green) This output will provide a ground output to trigger a relay used for a cooling fan. This output should never be directly connected to a fan, but the relay that powers the fan. It should be connected to the ground trigger of the relay. This wire is located approximately 32" from the ECU connectors.

Burn (Color = Yellow) Burn out Rev Limiter, feeding 12V power to this wire tells the ECU that a burn out control has been

activated.

Launch (Color = Blue) Launch Rev Limiter, feeding 12V power to this wire tells the ECU that a Launch control has been activated.

Step (Color = Brown) Step Retard, feeding 12V power to this wire tells the ECU that a step retard has been activated.

Power en (Color = Red) 12V power to alternator

Brake Switch (Color = Brown) Wired to the brake light switch. This must be installed to a +12v source (as most brake light switches are). This input is used to unlock the torque converter when the brakes are applied.

VSS (Color = Blue) Vehicle Speed sensor input, Located on the rear driver's side on a 4L80E and the rear passengers' side on a 4L60E.



5.0 TRANSMISSION HARNESS

5.1 Transmission Wiring

The transmission harness can be used on GM 4L60E, 4L65E, 4L80E, and 4L85E transmissions. Each connector is labeled.



Transmission Harness

5.2 Transmission ECU Connector (B1)– Plugs into the C7 connector on the JACKPOT™ main wire harness AH2011A. Plugs into the last connector opposite the main harness.

5.3 Main Transmission Connector – Plugs into the connector on the transmission on the driver’s side of 4L80E (installed horizontally) and the passenger side of 4L60E (installed vertically).

5.4 Vehicle Speed Sensor (VSS)/Transmission Output Speed Sensor (OSS) – Located on the rear driver’s side on a 4L80E and the rear passengers’ side on a 4L60E

5.5 Turbine Speed Sensor (TSS) – The 4L60E does not have a turbine speed sensor. For 4L80E applications, it is located towards the front driver’s side of the transmission. NOTE: the 4L70E has an internally wired TSS, but it does not connect to the JACKPOT™ harness. The TSS is not used for calibration in the ECU, just for monitoring purposes.

5.6 Brake Switch (Brown) – Wired to the brake light switch. This must be installed to a +12v source (as most brake light switches are). This input is used to unlock the torque converter when the brakes are applied.

6.0 PREVIOUS INSTALLATION REQUIRED

Once all harnessing has been connected, the installation of your EFI system should be 100 percent complete. The ECU, JACKPOT™ Handheld controller, throttle body and intake hardware, all sensors, wiring, fuel pump, regulator and return line, and all other hardware should be installed. The vehicle should be ready to start and run. If this is not the case, refer to the hardware installation manual included with your specific system.

7.0 QUICKSTART OF JACKPOT™ INSTRUCTIONS AND TUNING

The JACKPOT™ EFI systems are designed to be easy to use for the first time EFI tuner. The instructions are set up in that manner as well. These instructions will not go into detail about EFI theory and operation. They will provide the steps necessary to get you up and running quickly. The JACKPOT™ EFI system allows for the user to perform some basic changes to the tuning if they desire to do so.

The instructions are sequenced to get you up and running so you can enjoy your vehicle, then review some of the parameters that can be adjusted to fine tune your vehicle later, if desired.

7.1 INITIAL POWER-UP

Turn the ignition key to the “run” position. This should apply power to the ECU, as well as to the ACES Handheld control module. The handheld should power up and the Home Screen should appear. At this time, you should hear the fuel pump cycle on and run for 5 seconds. Check for fuel leaks before moving forward.

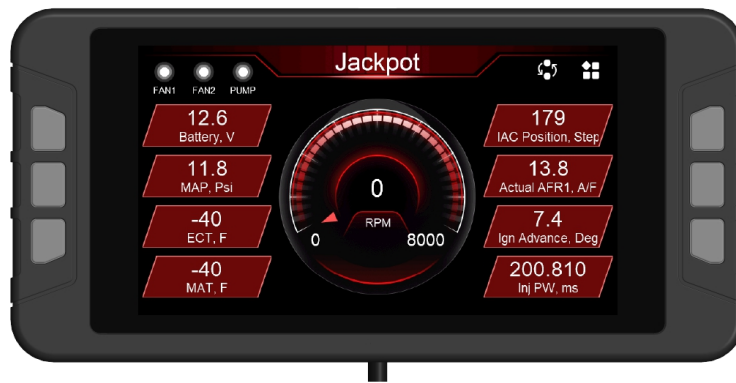
The Home screen contains icons which will navigate to different functional features of the 5” Touch Screen. These features will be discussed in detail throughout this manual.

7.2 HANDHELD NAVIGATION & USE

The handheld is composed of a 5.0" capacitive touch screen with six physical buttons. The handheld is equipped with a robust color LCD display with a large screen size. There are navigation buttons on either side of the screen. The external interface is CAN bus- and USB-C-based. All operations can be done by touching the screen or the physical buttons on either side.

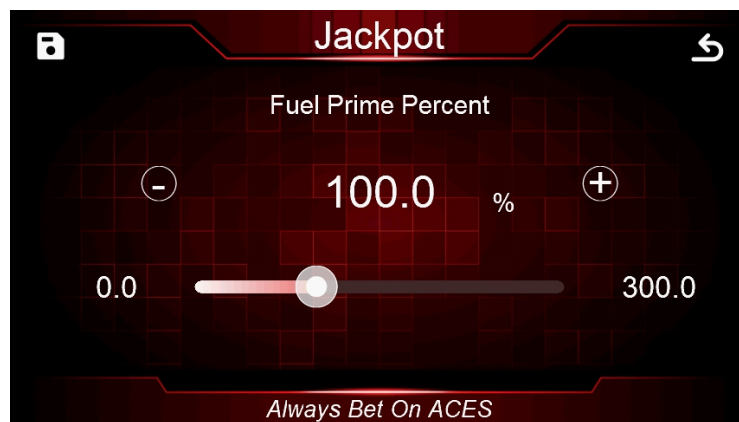
The handheld can be used to calibrate the system and to monitor engine data (engine RPM, AFR targets, battery voltage, etc.) when it is connected to the ECU. It is very portable and can be connected to ECU for monitoring and calibration at any time.

There are buttons on either side of the display, which activate different functions and operations within the system. The user can operate the scan tool by touching the screen or the buttons on either side, such as switching the interface and modifying the calibration data, upload/download calibration data, etc.



Making Adjustments

(1) Slider Bar: Slide the bar or click "<" and ">" on the touchscreen to adjust the parameters, click "Save" to save, and click "Cancel" to cancel saving

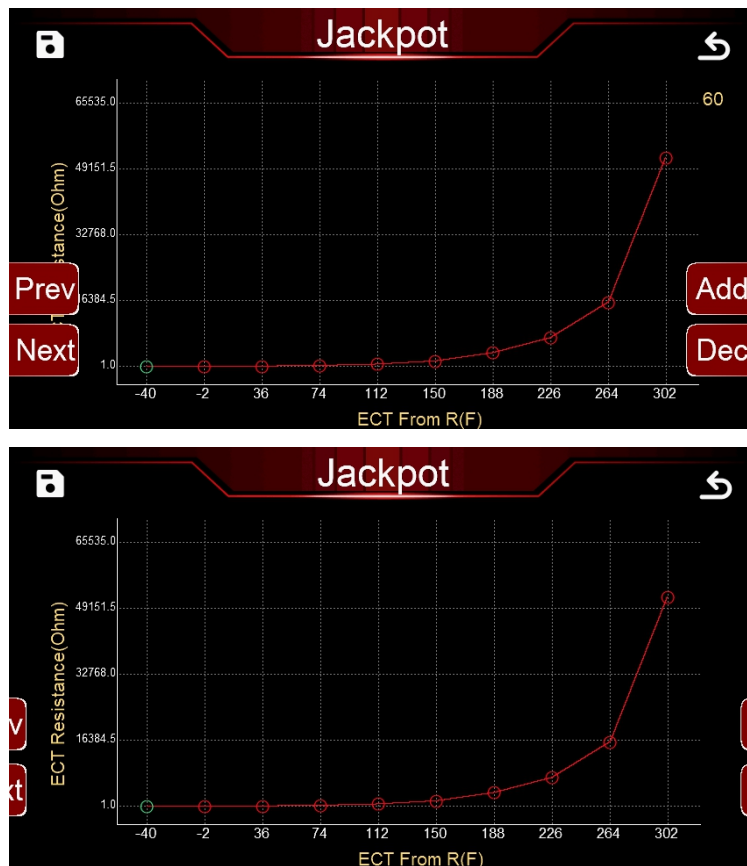


(2) Numeric keyboard: Click the edit box "100.0%" above the sliding bar to pop up the numeric keyboard.



(3) 2D Graph: Drag the red dot on the graph or click the mechanical buttons on both sides to adjust the parameters. When adjusting the parameter, the y-axis coordinate value of the currently adjusted parameter will be displayed in the upper right corner. The four buttons on both sides of the interface will disappear after a short display. Clicking the two mechanical buttons at the lower left corner can switch the position of the green dot, clicking the button at the right center can raise the position of the green dot, and clicking the mechanical button at the lower right corner can lower the position of the yellow dot. The y-axis coordinate value of the green dot is displayed in the upper right corner of the interface.

After the configuration is complete, click "Save" to download the calibration data to the ECU; click "Cancel" to cancel the modification.



7.3 Connection

The handheld connects to the ECU through the CAN bus connection, and its software can be updated through the Type-C USB interface when needed.

7.4 Navigation Buttons

ACES designed its handheld controller for reliable operation and easy use. There are buttons on either side of the display, which operate different interfaces within the system. The user can operate the scan tool by touching the screen or the buttons, such as switching the interface and modifying the calibration data, upload/download calibration data, etc.

7.5 Home Screen



The home screen has 6 icons that direct the user to different functions.

Monitor - A variety of gauge and dash displays.

Calibration - Allows for various parameters to be easily adjusted.

Logging - The user can freely choose the monitored object to write to the log file in order to better observe the ECU data.

File - Saves and loads calibrations. Also shows information about the ECU and handheld controller.




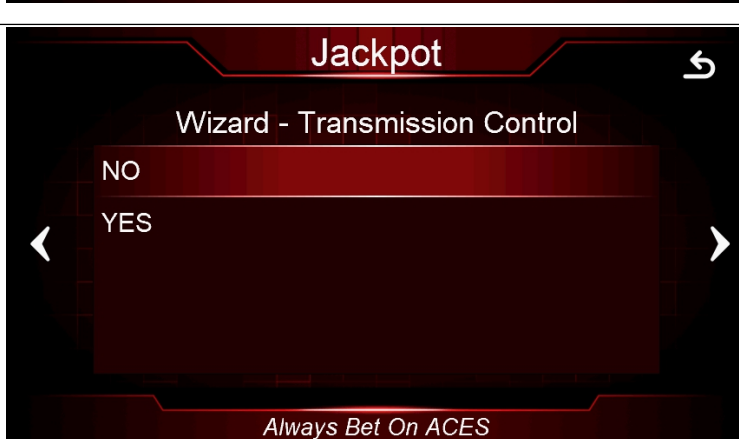
Setting - The local settings can adjust the backlight brightness, sound volume of button or touch, and information about the handheld.



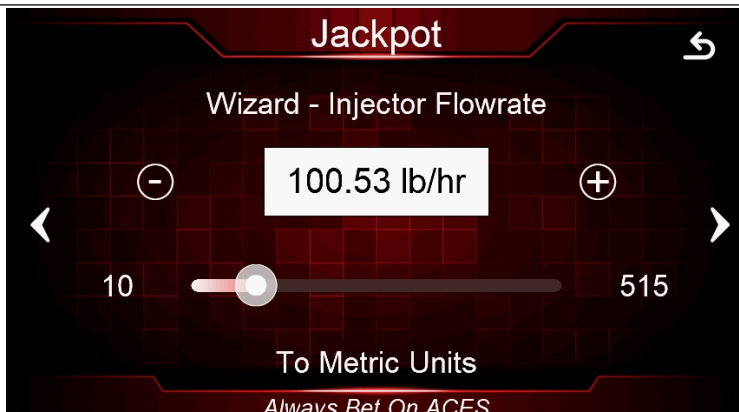

Wizards - Creates a base calibration and performs the TPS Zero Auto learn function.


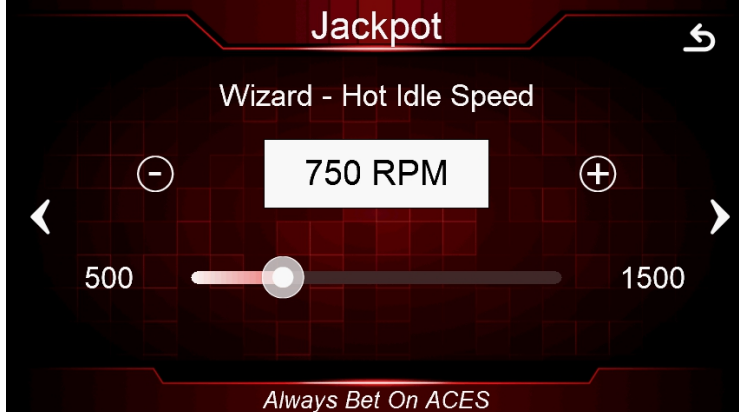

The JACKPOT™ EFI system will build a custom calibration for your engine based on a few easy-to-answer questions. To begin, Choose the “Wizards” icon from the main menu.

8.0 CALIBRATION WIZARD

	<p>“Crankshaft Type,” Set your engine crank reluctor wheel</p>
	<p>“CAM Type”</p>

	<p>"MAP Type"</p> <p>Select "Custom Coef AB"</p> <p>Jackpot LS TBI throttle body has custom TMAP sensor</p>
	<p>"Dual WBOS"</p> <p>Select "Only WOS1" for Jackpot LS TBI system</p>
	<p>"Drive By Wire"</p> <p>Select "NO" for Jackpot LS TBI system</p>
	<p>"Transmission Control", the "YES" item will be enable and the "NO" is disable Trans control function.</p>

	<p>"Transmission Type"</p>
	<p>"Number Of Injectors" Select "4" for Jackpot LS TBI system</p>
	<p>"Injector Flowrate"</p> <p>Jackpot LS TBI throttle body has 4 100lb/hr injectors</p>
	<p>"Engine Displacement"</p>

	<p>"Firing Order"</p>
	<p>"Hot Idle Speed"</p>
	<p>Click "✓" to save the configuration to the ECU, click "⏪" to return to wizard for modifying configuration, click "↶" to return to the main menu.</p>

9.0 SENSOR VERIFICATION

Before starting the vehicle, verify that every sensor is reading properly. Turn the key off and cycle it back on. At this time, you will hear the fuel pump cycle on and run for 5 seconds. Check again for fuel leaks.

On the Home Screen, With the key on and the engine off, these sensors should read as follows:

Engine RPM – Will show "0" when not cranking.

MAP (Manifold Air Pressure) – Should read between 95-102. At high elevations it could read as low as 75.

TPS (Throttle Position Sensor) – Slowly depress the throttle to wide open. It should read 100 at wide open throttle. Cable operated throttle bodies should read 0 closed.

CTS (Coolant Temperature Sensor) – reads engine temperature. If the engine is "cold," it should read close to ambient temperature.

Battery – Will read battery voltage. It should be 12.0 volts minimum.

NOTE: If ANY of these sensors are not reading properly DO NOT attempt to start the engine.

10.0 STARTUP ENGINE

With each sensor reading properly, the vehicle should be ready to be started. Open the Home Screen and make sure the TPS is reading 0. If it does not, do a TPS Zero Learn or if it is reading 1-2%, close the idle screw on the throttle body slightly till the TPS

reads “0”.

Crank the engine and look at the RPM parameter. It should indicate the engine RPM while cranking. The engine should start and idle. Engine cold start will have a higher RPM (around 1,200-1,500 RPM) and should come to the commanded idle speed as the engine temperature increases.

If there is no RPM signal, confirm wiring connections are correct and verify system setup. Call ACES Fuel Injection Technical Support if the problem persists.

11.0 AFTER STARTUP

Once the vehicle has started, look for any fuel or coolant leaks. Let the vehicle come up to normal operating temperature and monitor the engine parameters to ensure proper operation.

Fuel Loop1 State – Indicates whether the engine is operating in “Closed Loop” or “Open Loop”. Closed Loop indicates that the ECU is adding or subtracting fuel to maintain the target air/fuel ratio. The JACKPOT™ calibrations are such that the system should most often be operating closed loop.

Injector Percentage – This is the percentage of fuel compensation that the ECU is adding or subtracting to maintain the target air/fuel ratio at any specific moment. A value of less than 100% indicates that the ECU is removing fuel. A value more than 100% indicates that the ECU is adding fuel. When in Open Loop operation, the Injector Percentage will always stay at 100%.

Target Air/Fuel Ratio – This is the target AFR (air/fuel ratio) the ECU is trying to maintain. This will vary depending on the engine speed and load.

Fuel Learn State – This indicates the state of the JACKPOT™ “Self-Tuning” operation (Learn Status). The system will automatically self-tune as you drive. There are several conditions that must be met for the Self-Tuning feature to occur. The engine temperature must exceed 160° F, the system must be operating in a Closed Loop mode, and Self-Tuning must be enabled. The base JACKPOT™ calibrations have the Self-Tuning feature enabled. Once the engine reaches 160° F, Self-Tuning should be active.

NOTE: If any of these parameters are not displaying a proper value, troubleshoot before further operation.

12.0 IDLE SETTING

Once the engine is at operating temperature, the idle speed can be set as desired.

Select the Tuning tab. Find the target hot idle speed. Move the button left and right to adjust it. Click the button to save the new value or select CANCEL at the bottom to move out of this screen.

Whether you change the target idle or not, you need to set the throttle plates on the throttle body to an optimal position. To do so, with the engine running, select the Monitor tab. You will see the Idle screen. Look at the “IAC Position” value. This value should be set between 6 and 20 with the engine in neutral and at operating temperature. Also make sure the “TPS” displays 0. If it is not, you need to perform the TPS Zero Learn procedure.

If the “IAC Position” value shows 0, you must close the throttle plates by adjusting the throttle plate position until it reads a value of 6-20. Slowly turn the throttle plate adjustment screw on the throttle body counterclockwise. If the IAC position is “stuck” at 0, it is likely the engine is idling at a higher speed than you have set the target idle speed for. You need to adjust the throttle plates to resolve this issue.

If the “IAC Position” value is greater than 20, open the throttle plates (turn the throttle shaft adjustment screw in, clockwise) until the “IAC Position” value is between 6 and 20. Note that if you open the throttle plates such that the “TPS” position goes above a value of 0, you will need to shut the vehicle off and perform TPS Zero Learn process.

Then restart the vehicle and continue adjusting the throttle plates. Once the TPS goes above a value of 0, the ECU goes out of its “idle” mode and will lock the IAC Position to a fixed value.

When the adjustments are completed, make sure the TPS reads a value of 0 with the engine idling.

13.0 SELF-TUNING

It is time to drive the vehicle and let the system perform the self-tuning process. The best way to self-tune is to drive the vehicle under as many different operating conditions as possible—different engine speeds and loads. Start by slowly revving the engine in neutral and holding it at different speeds, up to 2,500 RPM. This will help the system learn these points. Then drive the vehicle, using different

transmission gears, when possible, to learn in different areas. If you have an automatic transmission, you may want to put it in gear, and with your foot on the brake pedal, apply a SMALL amount of throttle so that the system learns in this area as well.

NOTE: There are several conditions where Learning will NOT occur. They are the following:

- If the engine is below 160° F
- When the engine detects quick accelerator pedal movement
- At certain times when the accelerator pedal is lifted, and the vehicle is coasting
- If learning is disabled by the user

If you are interested in seeing if Self-Tuning is completed in a certain area, you can look at the following:

Select Monitor from the Main Menu then select Monitors

Select the Fuel Inj FW icon

The Fuel Learn1 State and Fuel Learn2 State indicate if the learn feature is active.

At this point you can drive and enjoy your JACKPOT™ EFI as it is.

DIAGNOSTIC LEDS

LED#	Function	Color	Definition
1	Power Indicator	Red	System power indicator
2	Engine Running Indicator	Blue	Engine running indicator, Blinking becomes faster with speed
3	Main Relay Indicator	Red	The main relay indicator, the ignition key is turned on, the main relay is turned on, and the key is turned off, the main relay is turned off after the system saves the learning data etc.
4	Fuel Pump Indicator	Blue	Fuel pump relay working indicator



TUNING REFERENCE MANUAL

1.0 System Setting

1.1 Number of Cylinders

This parameter is a part of the ECU calculation to determine the amount of fuel to inject. Enter the number of cylinders the engine has. This must be entered correctly, or the engine will not run correctly, if at all in some cases.

1.2 Engine Displacement

This parameter is a part of the ECU calculation to determine the amount of fuel to inject when running. Enter the engines displacement in cubic inches. This must be entered correctly, or the engine will run richer or leaner than intended.

1.3 Injector Flowrate

This parameter is a part of the ECU's calculation to determine the amount of fuel to inject when running. It is also used for fuel flow and mileage calculations. Enter the flow rate of the injectors in lbs./hr. This must be entered correctly, or the engine will run richer or leaner than intended. Keep in mind that fuel pressure affects flow rate. When manufacturers rate injectors, it is at a certain fuel pressure. Injectors from ACES are rated at 58 psi. Increased fuel pressure will cause a rich condition, lower fuel pressure will cause a lean condition.

1.4 Firing Oder

Jackpot™ EFI systems employ one coil on each spark plug and is the most reliable system used. Each coil fires sequentially in the cylinder firing order. The firing order must be corrected for your engine, if not, this will cause engine operation problems, plug the connector of ignition coil and injector harness of Jackpot™ harness into each of bank injectors and coils, make sure these are plugged in correctly. If they aren't, the firing order will not occur properly, and damage could result.

The Default setting firing order is LS engine 1-8-7-2-6-5-4-3.

1.5 Hot Idle Speed

Set idle speed of warm engine.

1.6 TPS Closed Threshold

This number is the threshold of TPS closed.

1.7 TPS Closed Hysteresis

This number is the hysteresis during TPS closed, bigger than Closed threshold.

1.8 Fan control

Fan1 On ECT--195° F

Fan2 On ECT--205° F

Fan1 Off ECT--180° F

Fan2 Off ECT--190° F

Fan1 On Delay Time

Fan2 On Delay Time

The ECU has an output to operate a cooling fan. This output switches to ground and is wired to the negative terminal of a relay to activate the fan. This parameter defines the coolant temperature that must be exceeded to activate the fan. It needs to be set higher than Fan Off Temperature (*F).

Delay time is how long time ECU turn on fan when the conditions are met.

1.9 Knock Sensor Numbers

Earlier model LS engines will have a knock sensor located in the center valley of the engine; the knock sensor number is 1. Later model LS engines have knock sensors located on the bottom of the block near the oil pan rails, the knock number is 2. Knock Sensors are not enabled in Jackpot™ ECU base calibrations but may be configured by using ACES Tuning software.

1.10 Knock Frequency

Knock center frequency is the sound that the sensor is looking to pick up.

1.11 Knock Detect Max/Min Speed

This RPM rang is knock detect window.

1.12 Knock Detect Min MAP

Knock detection will be enabled higher than this value.

1.13 Crankshaft Type

Engine reluctor wheel, option is 24x or 58x, select it for your engine configuration.

1.14 Dual WBOS

Jackpot™ ECU has dual lambda controller, each bank exhaust has one wide band O2 sensor, it is very important to make sure injector connector connected properly into each cylinder injector. Follow Jackpot™ wire harness installation carefully to install all the units.

Default setting is dual WBOS, dual wide band O2 sensor.

1.15 Drive By wire

The option is yes or no to configure your engine if has DBW throttle body.

1.16 Transmission Control

This option is to enable automatic transmission control, if your car has an electronically controlled auto transmission, select yes.

1.17 Transmission type

Jackpot™ ECU support to control GM4L60/65E,4L80/85E transmission.

1.18 Force TPS Zero Learn

Throttle Zero Position is an auto-learn strategy in Jackpot™ ECU, choose yes to do TPS Zero Learn again.

1.19 Key Off Clear Learn Data

Choose yes, then turn the ignition key to the off position, wait 5 seconds, then turn the key to the on position. All the Learn data (fuel learn table, IAC learn steps, ETC learn steps etc.) will be cleared.

2.0 SENSOR

2.1 MAP calibration

The MAP sensor sends a varying 0-5V signal to the ECU based on the vacuum/pressure the sensor is exposed to. The MAP Calibration table tells the ECU how to relate the voltage level with vacuum/pressure. MAP sensors typically have linear

calibrations.

ACES Jackpot™ EFI system include a 3bar TMAP sensor, the default setting of MAP sensor is ACES TMAP sensor AE1032, MAP sensor calibration type allows you change custom MAP sensor, edit the value of pressure vs different voltage. Information on MAP sensor calibration should be available from the sensor's manufacturer.

Our latest version of PC tuning software have a Map calculator

Type the value of pressure vs different voltage into calculator, then calculate the Coef A and Coef B.

MAP Linearity Coef A : 932

MAP Linearity CoefB: 79714

Make sure the **MAP Sensor Type** selected **Custom Coef A,B**

OPS Linearity Coef A

OPS Linearity Coef B

Oil pressure sensor calibration

FPS Linearity Coef A

FPS Linearity Coef B

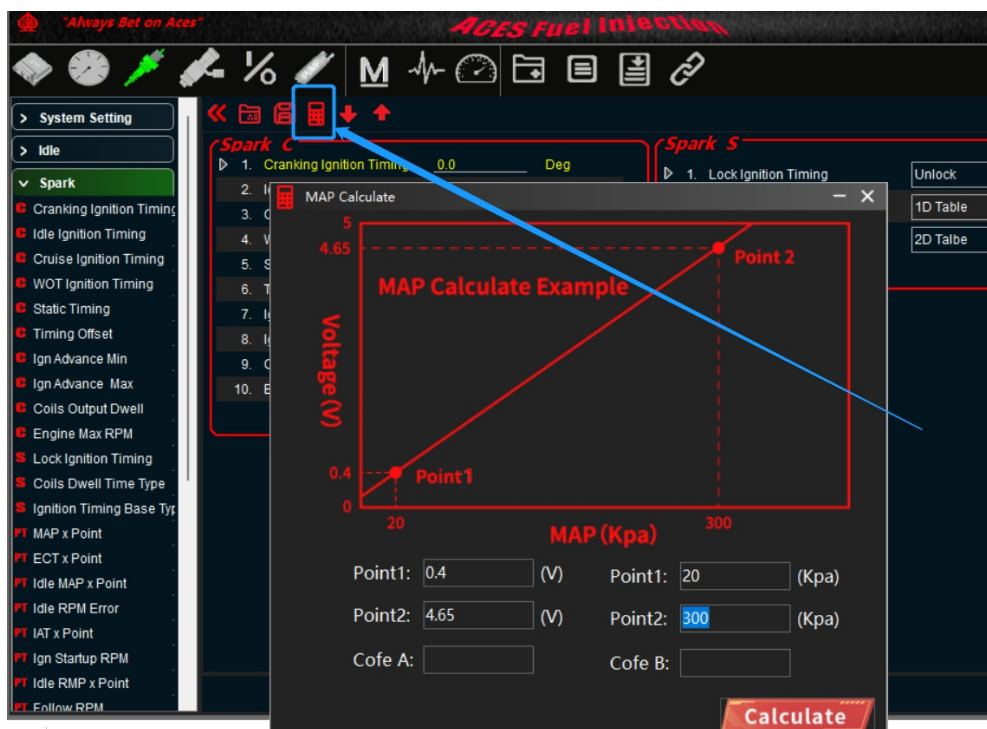
Fuel pressure sensor calibration

Oil Pressure Calibration Type

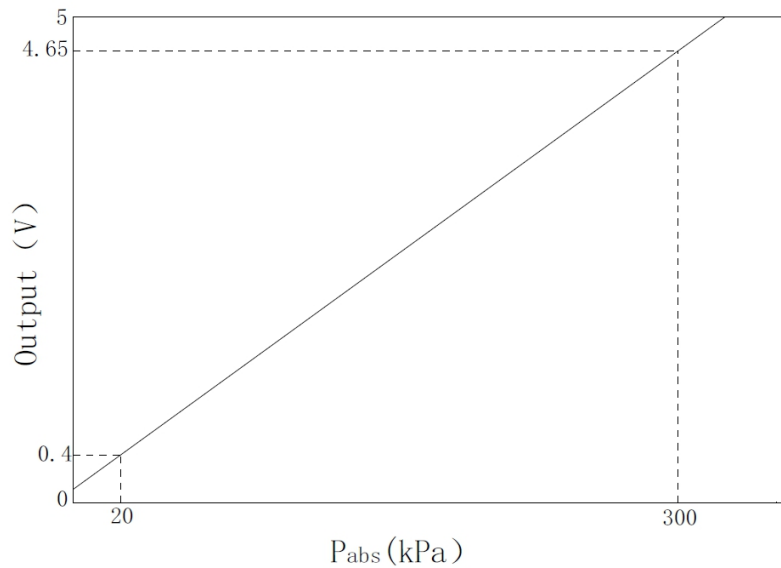
Select the calibration type Coef AB or 1D table

Fuel Pressure Calibration Type

Select the calibration type Coef AB or 1D table



MAP Calculator



Map sensor Voltage Chart

2.2 Other Pressure sensor calibration

The calibration method of Engine oil pressure sensor and Fuel pressure sensor are same as MAP sensor.

2.3 Temperature Sensors calibration

There are several methods for calibrating temperature sensors for automotive systems. The most used method is the Comparison Method which utilizes two sensors: one of unknown quality (the sensor of interest) and one of reference or standard quality. Both sensors are subject to the same temperature environment and the temperature is cycled over the range of interest. The sensor calibration curve is modified during the controlled temperature sweep so the displayed temperature from the unknown sensor is the same as that of the reference sensor.

2.4 Coolant Temperature sensors (CTS) calibration

The default calibration of coolant temperature sensor is LSx sensor. To change the CTS sensor, edit the value of resistance vs different temperature. Information on CTS sensor calibration should be available from the sensor's manufacturer.

2.5 Manifold Intake Air Temperature sensors (IAT/MAT) calibration

The default calibration of IAT is LSx sensor. To change the IAT sensor, edit the value of resistance vs different temperature. Information on IAT sensor calibration should be available from the sensor's manufacturer.

2.6 TPS setting

IAC TPS Calc Max

Drive by cable throttle body sensor calculation AD Max value

IAC TPS Default Zero

Drive by cable throttle body closed AD value

IAC TPS Zero Window Size

The AD value of window size at TPS closed

ETB TPS Calc Max

Drive by wire throttle body sensor calculation AD Max value

ETB TPS Default Zero

Drive by wire throttle body closed AD value

ETB TPS Zero Window Size

The AD value of window size at TPS closed

3.0 IDLE

The goal of the engine operating states is to define the state of the engine related to its operating point. This state depends basically on engine speed and load. The following states are defined here: **engine stopped, startup, idle, push, WOT, push fuel cutoff, follow**. **Follow** is an engine operating state to make engine get to idle smoothly

3.1 Basic Idle Parameter

Follow Above Idle Min RPM

Min threshold RPM to get into follow states

Push Above Idle Min RPM

Min threshold RPM to get into push states

Push Above Idle Max RPM

Max threshold RPM to get into push states

Idle IAC Min Step

The minimum of IAC steps

Push Air Increase Ratio

This Value is Air (IAC motor steps) increase ratio during throttle body open process, bigger number is increasing fast.

Push Air Decay Ratio

This Value is Air (IAC motor steps) decrease ratio during throttle body close process

Follow Air Decay Ratio

This Value is Air (IAC motor steps) decrease ratio once engine is at Follow state, bigger number is decreasing fast to get idle target quickly, but too fast, engine is easy to shut down, smaller number will cause engine stuck at Follow state with high RPM long time

ETB Air Decay Adjust

The adjustment for air decay of Drive by wire throttle body

ETB Max Bypass Air

Max TPS of drive by wire throttle body at key on.

ETB Park Air vs ECT

This is the % position the drive by wire throttle body motor will be at during cranking and immediately after the engine starts. If it is too high, the engine RPM speed will be at too high once it starts - too low and poor starting will result. Note that this is a temperature-based table. The percentage value changed in the handheld offsets this entire curve.

IAC Park Air vs ECT

This is the % position the IAC motor will be at during cranking and immediately after the engine starts. If it is too high, the engine RPM speed will be too high once it starts - too low and poor starting will result. Note that this is a temperature-based table. The percentage value changed in the handheld offsets this entire curve.

Speed Rise Air

This is the % position of IAC or TPS % of DBW for adjusting peak RPM after engine startup

Idle Target Speed

The Idle Target Base table is used to set the desired engine idle speed vs coolant temperature. Typically, slightly higher target values are used at colder engine temperatures.

IAC Main P

Current idle speed is higher than target idle speed, the setting of proportion.

IAC Main I

Current idle speed is higher than target idle speed, the setting of integrate.

IAC Low Side P

Current idle speed is lower than target idle speed, the setting of proportion.

IAC Low Side I

Current idle speed is lower than target idle speed, the setting of integrate.

Idle Blanking windows Pos -- At engine idle state, when current idle speed is greater than the target idle speed, the difference between the current speed and target idle speed is less than this value, and the IAC closed-loop control is not performed. This parameter is a positive value.

Idle Blanking windows Neg -- At engine idle state, when current idle speed is less than the target idle speed, the difference between the current speed and target idle speed is less than this value, and the IAC closed-loop control is not performed. This parameter is a positive value.

3.2 Startup Air

Startup Air Fast Decay Cycle -- After the engine is started, the starting air quickly decays to the target idle speed according to a certain period. The smaller the value, the faster the air decays.

Startup Air Slow Decay cycle -- After the engine is started, the starting air quickly decays to the target idle speed in a certain period. When the actual speed is close to the target idle speed, the air decay speed should be slowed down. The larger the value, the slower the air decay.

After Start Air Decay Type -- If you select this option, the speed of starting air attenuation is determined by the 1D table, and the attenuation speed is determined by the ECT look-up table.

Park Air vs ECT

This is the % position the IAC motor will be at during cranking and immediately after the engine starts. If it is too high, the engine will be at too high of an RPM once it starts - too low and poor starting will result. Note that this is a temperature-based table. The percentage value changed in the handheld offsets this entire curve.

Speed Raise Air

This is the % position of IAC for adjusting peak RPM after engine startup.

Startup Air Fast Decay Cycle

1D table for Startup Air is decaying fast to get to target idle speed.

Startup Air Slow Decay Cycle

1D table for Startup Air is decaying slow to get to target idle speed.

4.0 SPARK

4.1 Basic Spark Parameter

Ign Advance Min

Min threshold of ignition advance

Ign Advance Max

Max threshold of ignition advance

Engine Max RPM

Max RPM of engine, Rev limiter is spark control.

Nitrous On Retard

This is the maximum amount of timing retard allowed if the Nitrous is activated.

Nitrous Retard Ramp Time

Nitrous is effective, the transition time of ignition advance delays smoothly from 0 to the target value, the larger value, the slower transition.

Launch Retard Ramp Time

When Launch control is activated, this value determines the time of launch on retard decays to 0.

Launch On Retard

This is the maximum amount of timing retard allowed if the Launch is activated.

Gear Upshift 1->2 Retard

This is the maximum amount of timing retard allowed if Gear upshift 1->2.

Gear Upshift 2->3 Retard

This is the maximum amount of timing retard allowed if Gear upshift 2->3.

Gear Upshift 3->4 Retard

This is the maximum amount of timing retard allowed if Gear upshift 3->4

Gear Downshift 4->3 Retard

This is the maximum amount of timing retard allowed if Gear Downshift 4->3

Gear Downshift 3->2 Retard

This is the maximum amount of timing retard allowed if Gear Downshift 3->2

Gear Downshift 2->1 Retard

This is the maximum amount of timing retard allowed if Gear Downshift 2->1

4.2 Knock Parameter

Knock Detect enable.

This option is knock detect function enable or disable.

Knock Sensor Numbers

There are 2 knock sensors for your V8 engine, default setting is 2.

Knock Detect Max speed.

Max threshold of engine speed for Knock Detect

Knock Detect Min Speed

Min threshold of engine speed for Knock Detect

Knock Detect Min MAP

Max threshold of MAP for Knock Detect

Knock Frequence

This frequency is dependent primarily on cylinder bore diameter, combustion pressure and temperature.

4.3 Rev limiter Type

There are 3 type rev limiters to choose:

***Cut Fuel** – Cut fuel flow only when the Engine Max RPM is hit. means that fuel will be removed from individual cylinders as needed to limit RPM.

Cut ignition – Cut ignition only when the Engine Max RPM is hit. Means that ignition will be removed from individual cylinders as needed to limit RPM.

***Cut Ign & Fuel** – Cut ignition and fuel when the Engine Max RPM is hit. Means that ignition and fuel will be removed from individual cylinders as needed to limit RPM.

*The strategy of fuel and ignition cut is individual cylinders control, it performs engine stable and smooth at Max rpm, Launch RPM, Burn RPM status.

4.4 Spark Correction

Idle RPM Fast Adjust

The ECU modifies commanded timing at idle to help maintain the target idle speed. This is a 2D graph used to vary ignition timing to help regulate idle speed. The horizontal axis of the graph represents the difference between the actual idle speed and the target idle speed, and the vertical axis of the graph represents the number of degrees to alter the ignition timing. If the idle speed is too high, the ECU will retard the timing by the amount specified in the graph. If the idle speed is too low, the ECU will advance the timing by the amount specified in the graph. It is recommended to set this entire table to zero as a starting point. Add timing trim only if you are otherwise unable to achieve a smooth, stable idle.

IAT Adjust

The IAT Adjust table is used to trim the ignition timing vs inlet air temperature. Often used on boosted applications as a safety mode. Ignition timing is reduced at very high air temperature readings to avoid detonation. Note that the trim values in this table are added (positive values) or subtracted (negative values) from the base ignition timing.

Idle ECT Adjust

The Idle ECT Adjust is used to trim the ignition timing vs coolant temperature at idle. Sometimes used on N/A applications with very large camshafts to help with warmup. A few degrees of additional timing during warmup can help quite a bit. Note that the trim values in this table are added (positive values) or subtracted (negative values) from the base ignition timing.

Boost Retard

This is Boost Retard table is used to retard the ignition time vs Boost pressure.

Launch Retard Enable

This feature will be activated when the launch button is applied. It is programmable from 0° - 20° in 1° increments. The Launch retard is used to offset the ignition timing during the 8 seconds after the launch button is released. It can optimize traction immediately after launch.

N2O Retard Enable

The High Roller CDI system can be configured to automatically retard timing when a Nitrous Oxide System is utilized. When the Nitrous is activated and the throttle position indicates wide open throttle the High Roller CDI can be programmed to remove timing from the overall timing that is set, this is configured with the handheld programmer.

Gear Shift Retard Enable

Timing retard is enable during Gear shift

Advance Coef

This Coef is timing gradient ramping rate between different ignition tables, the smaller value, the slower ramp.

Cranking Timing

Crank ignition advance is normally set to 15 for most engines to help quick start.

Idle Timing

10-30 degrees is typically used at idle but depends on configuration, camshaft, and engine displacement, etc.

Cruise Timing

25-40 degrees is typically used when cruising for optimal fuel economy.

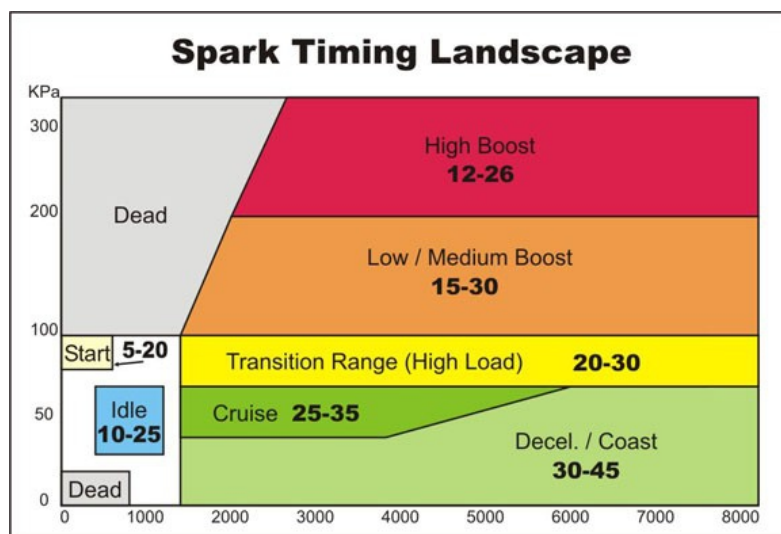
WOT Timing

LS V8 engines are usually between 25-35 degrees.

4.5 Base Spark

MBT Timing

The MBT Timing is the main ignition table in the calibration. The MBT Timing Table is a 3D table used for setting ignition timing throughout the operating range of your engine. The first step in calibrating the MBT Timing table is to use the table below to fill in your timing values. This table gives you a general idea of during starting, idle, cruise, transition or high load, and deceleration. These values will get you in a safe area to start the tuning process.



Startup Base Timing

The startup base timing is 3D table used for helping engine startup quickly.

Idle Base Timing

The Idle Base Timing is 3D table used for setting ignition timing vs RPM and MAP at idle, in order to get a good idle performance with different idle target and load.

Follow Base Timing

The follow base timing is 3D table used for setting ignition timing vs RPM and MAP at Follow of engine operating states. This table will be enabled during throttle body closed; it makes transition smoother when push, Push fuel cut off, and engine states go to idle.

5.0 FUEL

5.1 Basic Fuel Parameter

Clear Flood TPS

If the TPS value is at 65 or higher during cranking, the ECU will operate in "clear flood" mode, meaning that it will trigger the ignition but will not fire the injectors.

Fuel Prime Percent

This value is multiplying fuel PW of first injection during engine cranking.

Rated Injector Pressure

This value is injector working pressure, Fuel pressure of ACES fuel injector is at least 43 PSI.

After Start Decay Cycle

After engine startup, engine rpm will get to idle from peak RPM. During this period, start air will decay. A smaller number of decay cycle will cause a faster rate of decay—engine goes to idle faster.

After Start Decay Rate

After engine startup, engine rpm will get to idle from peak RPM. During this period, start air will decay. A larger number of decay rate will cause a faster rate of decay—engine goes to idle faster.

5.2 Target AFR Setting

Idle AFR

Target AFR of fuel control when the engine is at Idle, typically between 13.5 and 15.0. Engines with larger cams may need a richer setting for smoothest idle.

Cruise AFR

Target AFR of fuel control when the engine is at Cruise, typically between 13.5 and 15.0. Engines with larger cams may need a richer AFR.

WOT AFR

Target AFR of fuel control when the engine is at Wot, typically between 12.5 and 13.2 on naturally aspirated engines (lower on power-adder combinations). Running richer may reduce power. Running leaner may reduce power or cause potential engine damage.

5.3 Individual Cylinder Fuel Correction

Cylinder 1-8 Correction

Fuel correction of each cylinder is multiplying fuel PW. The Simple option is a value multiplying fuel PW for each cylinder at whole engine operation. Another option is 3D table for setting fuel percent vs MAP and RPM. This table should be adjusted on the engine dyno or chassis dyno, it is better to have a lambda meter installed into each exhaust runner to monitor lambda.

5.4 Fuel Advanced Setting

Fuel Loop

This option is to enable or disable fuel loop control. Default setting is enabled fuel loop control. There is typically no reason to turn off closed loop operation unless you suspect an oxygen sensor problem and want to disable the sensor.

Fuel Learn

This option is to enable or disable fuel learn control, default setting is enabled fuel learn control. If enabled, self -tuning is performed. Learning should be enabled when an engine is first run with the Jackpot™ and the tuning process is occurring.

Target AFR type

The simple option is a value at different engine state, The Target AFR Table is a 2D table used for setting target air/fuel ratios throughout the operating range of the engine.

Fuel Correction Type

The Simple option is a value multiplying fuel PW for each cylinder at whole engine operation. Another option is 2D table for setting fuel percent vs MAP and RPM.

Fuel Pressure Sensor Used

Fuel pressure sensor default setting is NO in Jackpot™ EFI system.

5.5 Fuel Correction and Compensation

Min Fuel PW

Injector close time.

Injector Off Time

Injector opening time vs different battery voltage.

MAT Fuel Enrichment

The Manifold Air Temp Enrichment table is used to compensate for air density changes with inlet air temperature. It can also be used in a safety mode to add additional cooling fuel at very high inlet air temperatures on boosted applications.

ECT Fuel Enrichment

This table is displayed as a 3D graph of after start fuel enrichment, based on coolant temperature and MAP. This feature allows adding more fuel to get engine warmup quickly. The higher you set these values, the longer it would take after start fueling to

begin once the engine is started.

5.6 Startup Fuel

Cranking Fuel

This table mainly affects cold start-up. It is displayed as a 2D graph of injector pulse width during cranking based on engine coolant temperature vs RPM or Rev. At normal operating temperature, this graph is typically set to deliver 40-50% more fuel than is used at an idle. The colder the engine is, the more cranking fuel it will require for easy starting. If your engine seems to crank for a long time before it fires, try increasing the pulse width; if the engine produces black smoke or seems to “load up” when it fires, try reducing the pulse width.

After Start Enrichment

After start enrichment is helpful for providing additional fuel right after initial startup to help a cold motor stay running, and it helps prevent a heat-soaked motor from surging on startup as well, acting as somewhat of a “choke” function. This table is displayed as a 3D graph of fuel enrichment applied after the engine is started based on engine coolant temperature and engine revolution. This enrichment will be applied after the ECU enters “run” mode. This fuel enrichment will decay out as the number of engine revolutions increases.

After Start Decay Rate

This table is displayed as a 2D graph of the rate at which the after-start enrichment will decay out based on engine temperature. The decay rate is shown as the number of crank pulses that must be received by the ECU to reduce the after-start enrichment. The higher you set these values, the longer it would take for the after-start fuel to decay out once it was applied.

5.7 Acceleration/Deceleration Fueling

When the throttle is rapidly opened or closed the demand for fuel increases or decreases. If at a low-throttle-angle, steady-state running condition the throttle is opened rapidly, manifold pressure increases. In this situation, the sudden demand for air (hence power) requires a temporary enrichment of the mixture to maintain a reasonable AFR. Because the rapid opening of the throttle is consistent with the need for high-power AFR during acceleration, it is equivalent to the value needed for full power.

The amount of enrichment required is largely dependent on the design of the inlet tract and placement of the injectors. Enrichment for systems where the injectors are placed far from the inlet valves will have to be higher than if the injectors are placed near the inlet valves. This is because when the injectors are far from the inlet valves, such as on throttle body systems, there is considerable manifold wall wetting.

At low manifold pressures (commonly high manifold vacuum), fuel tends to stay in the air stream in a vapor-like state and has relatively low wetting characteristics. The reason the wetting is lower at high vacuum is because the pressure in the inlet manifold is closer to the vapor pressure of the fuel, allowing the fuel to evaporate more readily (This is the same phenomenon that makes water boil at a lower temperature at higher altitudes than at sea level).

As the throttle opens, manifold pressure increases (vacuum decreases), which increases the pressure on the fuel vapor driving it to a more liquid state. This causes droplets of fuel to deposit on the manifold walls and come out of the air stream. When the air speed in the inlet manifold increases to a point where the liquid fuel on the manifold walls is reintroduced into the air stream, there is no need for additional fueling and acceleration fuel is shut off.

With most modern road cars, the injectors are placed near the inlet valves so that manifold wall wetting is virtually eliminated. With the elimination of wetting comes the drastic reduction of acceleration fuel requirement. This configuration of fuel injector needs short duration and a small amount of fuel for acceleration enrichment.

The prime input for acceleration data for the ECU is the throttle position sensor (TPS). The TPS indicates the rate of change of the throttle plate to the ECU so that it can calculate the amount of fuel in both volume (additional pulse width) and time (duration of additional pulse width). Very rapid throttle movements usually require a short duration of a large amount of fuel, while slow throttle changes use minimal amounts of additional fuel over a longer period.

When the throttle is closed rapidly the need for fuel is reduced sharply. Under deceleration manifold pressure is very low (high vacuum). Any fuel that was on the manifold walls, port walls, or valve head is re-introduced into the air stream due to the rapid decrease in manifold pressure resulting in a temporarily rich mixture. The main fuel MAP values are usually very low when experiencing low manifold pressure, so minimal fuel is being injected into the engine. However, the mixture will still be rich due to the re vaporization of the wetted fuel.

Acceleration Enrichment vs TPS

Ads additional, momentary fuel based on the rate of change of the TPS. Same function as an accelerator pump on a carburetor.

TPS Acceleration Enrichment vs ECT

Displays a 2D graph of acceleration enrichment fuel applied in ECT change. This 2D graph is increasing or decreasing the 3D table of TPS base film which is activated to running at engine state of acceleration and deceleration.

MAP Acceleration Enrichment vs ECT

Displays a 2D graph of acceleration enrichment fuel applied in ECT change. This 2D graph is increasing or decreasing the 3D table of MAP base film which is activated to running at engine state of acceleration and deceleration.

TPS Acceleration Decay Rate

Displays a 2D graph of TPS acceleration enrichment fuel decay rate applied in ECT change.

MAP Acceleration Decay Rate

Displays a 2D graph of MAP acceleration enrichment fuel decay rate applied in ECT change.

Acceleration Correction vs TPS

Displays a 2D graph of TPS acceleration enrichment fuel.

TPS Acceleration Enrich vs ECT

Displays a 2D graph of acceleration enrichment fuel applied in ECT change. This 2D graph is increasing or decreasing the 3D table of TPS base film which is activated to running at engine state of acceleration and deceleration.

MAP Acceleration Enrich vs ECT

Displays a 2D graph of acceleration enrichment fuel applied in ECT change. This 2D graph is increasing or decreasing the 3D table of MAP base film which is activated to running at engine state of acceleration and deceleration.

5.8 Base Fuel MAP

Volumetric Efficiency

The Volumetric Efficiency table will appear as a 3D table of % VE values vs. intake manifold pressure in PSI and engine RPM. The table will be labeled "Volumetric Efficiency vs. RPM and MAP".

This table gives you a general idea of where the cursor will be during idle, cruise, transition or high load, and deceleration. These values will get you in a safe area to start the tuning process.

The Volumetric Efficiency table should be calibrated in one of two ways:

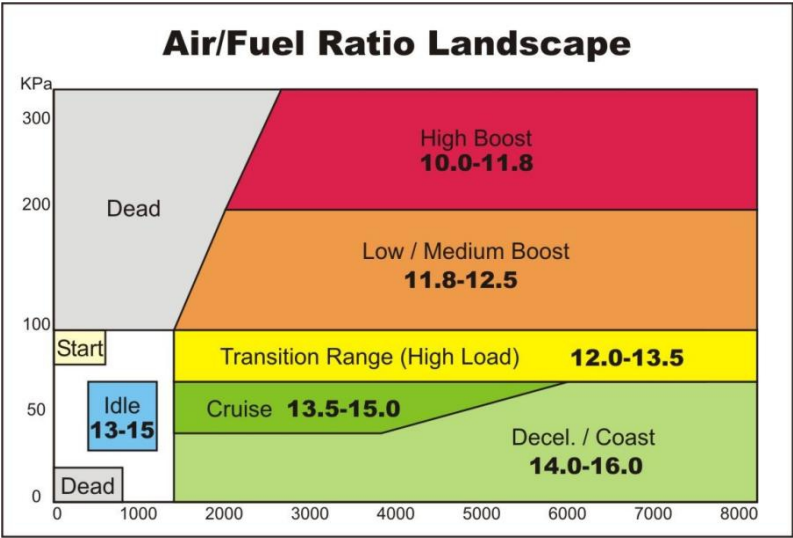
1. While operating in closed loop mode, adjust the values in each cell so that the INJ Loop % (which can be viewed below the table as part of the dashboard function) values are as small as possible while operating within that cell. See the Measure or Gauge section for more details. For example, if you are operating in a cell in the VE table with a value of 50 and you see that there is a 10% INJ Loop being applied, increase 10% correction to that cell value in the VE table. The result is that the cell that was reading 50 will now read 55, and the INJ Loop % will be very close to zero. Please bear in mind that this utility is meant to be used only in a "steady state" mode. You should also only use this utility when the floating cursor is centered within a single cell. If the cursor is being influenced by surrounding cells, if the engine speed or load is changing, or if any acceleration enrichment fuel is being applied, the results of using this will be well off from the intended result.
2. While operating in open loop mode, adjust the values in each cell so that the actual measured air/ fuel ratio (Actual A/F) matches the target air/fuel ratio (Target A/F) as closely as possible.

Target AFR

The Target AFT Table is a 3D table used for setting target air/fuel ratios throughout the operating range of the engine appearing as "Target Air/Fuel Ratio vs. RPM & MAP" .

There is a particular ratio of air to fuel that results in all the oxygen molecules combining chemically with all the fuel molecules. This ratio is 14.7:1, meaning 14.7 parts of air for every one part of fuel. Running an engine at this air/fuel ratio helps to minimize emissions and maximize fuel economy, but this air/ fuel ratio is generally not safe to run at high RPM and/or engine load

conditions. Since most oxygen sensors produced are only meant to accurately measure a 14.7:1 air/fuel ratio, they shouldn't be used in applications where much richer or leaner target air/fuel ratios are selected. The wide-band oxygen sensor used with this system is capable of accurately measuring a much wider range of air/fuel ratios. This system can measure any ratio from as rich as 9:1 to as lean as 16:1, thus allowing us to tune for more power and better fuel efficiency. The first step in calibrating the target air/fuel ratio table is to use the table below to fill in your table air/fuel ratio values. This table gives you a general idea of where the cursor will be during starting, idle, cruise, transition or high load, and deceleration. These values will get you in a safe area to start the tuning process.



ECT AFR Offset

This table is displayed as a 3D graph of compensate AFR target based on coolant temperature and MAP. This feature allows an offset AFR target throughout engine operating range. Positive value increases the AFR target to lean side, negative value decrease to rich side.

Fuel Self Learn Table/2

The fuel self-learn control strategy is designed to compensate for variability in the fuel system components. If, during normal vehicle operation, the fuel system is detected to be biased, rich or lean, the fuel self-learn control will make a corresponding shift in the fuel delivery calculation. Learning should be enabled when an engine is first run with the Jackpot™ and the tuning process is occurring. After the vehicle is driven under various operating conditions, and is running well, this table will learn and adapt your engine setup and fuel.

FPS Type

FPS type allows you select different fuel pressure sensor.

FPS Fuel Inj Compe Enable

Fuel pressure compensation enable for fuel calculation.

OPS Type

OPS type allows you select different oil pressure sensor.

Fuel Learn Min ECT

The threshold of ECT is enable fuel learn

6.0 FUEL PUMP

6.1 Turn Off RPM

Engine rpm lower than setting numbers, fuel pump will turn off.

6.2 Key-On Pump Hold Time

The length of time the fuel pump will run when key-on power is present without engine cranking. This is primarily used for

priming the fuel system prior to starting the engine.

6.3 Turn Off After Lose RPM

The length of time that the fuel pump will run before shutting off after the ECU loses crank signal.

7.0 System IO

Fan1 On ECT--195° F

Fan2 On ECT--205° F

Fan1 Off ECT--180° F

Fan2 Off ECT--190° F

Fan1 On Delay Time

Fan2 On Delay Time

The ECU has an output to operate a cooling fan. This output switches to ground and is wired to the negative terminal of a relay to activate the fan. This parameter defines the coolant temperature that must be exceeded to activate the fan. It needs to be set higher than Fan Off Temperature (*F).

8.0 TRANSMISSION

8.1 Basic Setting

Transmission Type

Select your transmission type: 4L60/65E or 4L80/85E

Transmission Control

Transmission control enable or disable, chosen by YES or NO

Teeth For VSS Sensor

The teeth number of VSS sensor for calculation

Tire Diameter

The overall tire diameter. Example (234/65R15 tire size =27" tire diameter)

"Rear Gear Ratio

The final drive axle ratio of your car. Example (3:73, 4:10, 3:23)

VSS Correction

The Correction of vehicle speed, use a GPS instrument or Google Map on a smart phone, or other calibrated measurements to set this correctly.

4L60/5E Gear Ratio1

4L60/5E Gear Ratio2

4L60/5E Gear Ratio3

4L60/5E Gear Ratio4

The gear ratio of your 4L60/5E transmission.

4L80/5E Gear Ratio1

4L80/5E Gear Ratio2

4L80/5E Gear Ratio3

4L80/5E Gear Ratio4

The gear ratio of your 4L80/5E transmission.

8.2 TCC Setting

Contains parameters that tune TCC activation and deactivation.

THE TCC WILL NOT APPLY UNTIL THE ENGINE IS ABOVE 122°F, AS WELL AS A TRANSMISSION FLUID TEMPERATURE ABOVE 46°F.

TCC Disable

This will disable TCC functionality in all conditions.

Unlock TCC During Upshift

Unlock TCC During Downshift

Minimum Gear TCC Enable

This is the minimum Gear in which the Torque Converter Clutch will enable.

Minimum RPM TCC Enable

This is the minimum RPM at which the Torque Converter Clutch will enable. This value can be adjusted so that engines with large camshafts do not hesitate surge if the TCC is applied at too low of an engine speed.

Below RPM Disable TCC

Used to unlock the TCC once it is locked. The Lock and Unlock values should not be too close together, or they will continuously lock and unlock. Applications with high stall torque converters will typically need 400 -700 RPM or more between these values.

TCC Enable Maximum TPS

Throttle position value when the TCC unlocks. Most lockup torque converters do not have a clutch designed to lock up when higher power is being applied. It is best to unlock the converter under moderate to hard acceleration. Typically, TPS values should be between 25 -50%.

TCC Lock Ramp Time

When TCC Lock is active, the transition time (climbing time) of PWM duty cycle changes from small to large.

TCC Unlock Ramp Time

When TCC Unlock is active, the transition time (drop time) of PWM duty cycle changes from large too small.

TCC Lock Start Duty Cycle

PWM initial duty cycle of TCC starting lock.

TCC Lock End Duty Cycle

PWM duty cycle of TCC locked completely.

TCC Unlock Start Duty Cycle

PWM initial duty cycle of TCC starting to unlock.

TCC Unlock End Duty Cycle

PWM duty cycle of TCC unlocked completely.

TCC Lock Speed

This is a table to adjust when the TCC locks based upon throttle position and vehicle speed.

TCC Unlock Speed

This is a table to adjust when the TCC unlocks based upon throttle position and vehicle speed.

*These parameters work in addition to the TCC Parameters by offering additional tuning based on vehicle speed. This keeps the TCC from locking up during 'around-town' driving if it is not desired. The Lock values should always be higher than the Unlock values. Adjustments to these can be done by using the graph.

8.3 Shift Gear

Each Up-shift and Down-shift can be completely configured by selecting 'Shifts' from the transmission menu.

All Upshift points must occur at a higher speed than downshift. although it can be programmed with the handheld, the ECU won't allow a downshift to occur if it will over -rev the past the MAXIMUM RPM in the SYSTEM>TRANSMISSION>TRANS SETUP area.

Upshift 1st->2nd Speed

Table used to modify 1-2 upshift based on throttle position (or MAP for boosted applications) and speed.

Upshift 2nd->3rd Speed

Table used to modify 2-3 upshift based on throttle position (or MAP for boosted applications) and speed.

Upshift 3rd->4th Speed

Table used to modify 3-4 upshift based on throttle position (or MAP for boosted applications) and speed.

Downshift 2nd->1st Speed

Table used to modify 1-2 downshift based on throttle position (or MAP for boosted applications) and speed.

Downshift 3rd->2nd Speed

Table used to modify 3-2 downshift based on throttle position (or MAP for boosted applications) and speed.

Downshift 4th->3rd Speed

Table used to modify 4-3 downshift based on throttle position (or MAP for boosted applications) and speed.

WOT shift

1-2 WOT Upshift

This is the RPM at which the 1 -2 upshift will occur.

2-3 WOT Upshift

This is the RPM at which the 1 -2 upshift will occur.

3-4 WOT Upshift

This is the RPM at which the 1 -2 upshift will occur.

8.4 Line Pressure

Tune the line pressure vs. TPS or MAP for each gear. A lower duty cycle (moving towards 0%) increases line pressure with 0% providing maximum line pressure applied. Values above 40-50% typically result in a line pressure too low for any throttle position, which may result in transmission damage.

Naturally aspirated and nitrous calibrations created through the wizard use TPS for line pressure vs. load scaling, whereas turbo or supercharged calibrations use map sensor for line pressure vs load scaling.

Line Pressure 1st Gear

Editable line pressure curve for 1st gear.

Line Pressure 2nd Gear

Editable line pressure curve for 2nd gear.

Line Pressure 3rd Gear

Editable line pressure curve for 3rd gear

Line Pressure 4th Gear

Editable line pressure curve for 4th gear

Line Pressure ATF Correction

ATF correction of line pressure

9.0 Rev Limiter

Rev Limiter Type

Cut Ign&Fuel - Cut ignition and fuel when the Engine Max RPM is hit. Means that ignition and fuel will be removed from individual

cylinders as needed to limit RPM.

*The strategy of fuel and ignition cut is individual cylinder control, it ensures the engine performs stable and smooth at Max RPM, Launch RPM, Burn RPM status.

Engine Max Rev

The Max rpm of engine revolution

Launch Target Rev

The target rpm of launch control

Launch Released Drop Rev

This option is for Manual shift applications using the clutch switch between shifts. This value will set up an RPM window so the Launch RPM limit feature will not reactivate when using the clutch between shifts. This RPM must be set lower than Launch RPM.

High Roller Launch Rev setting example:

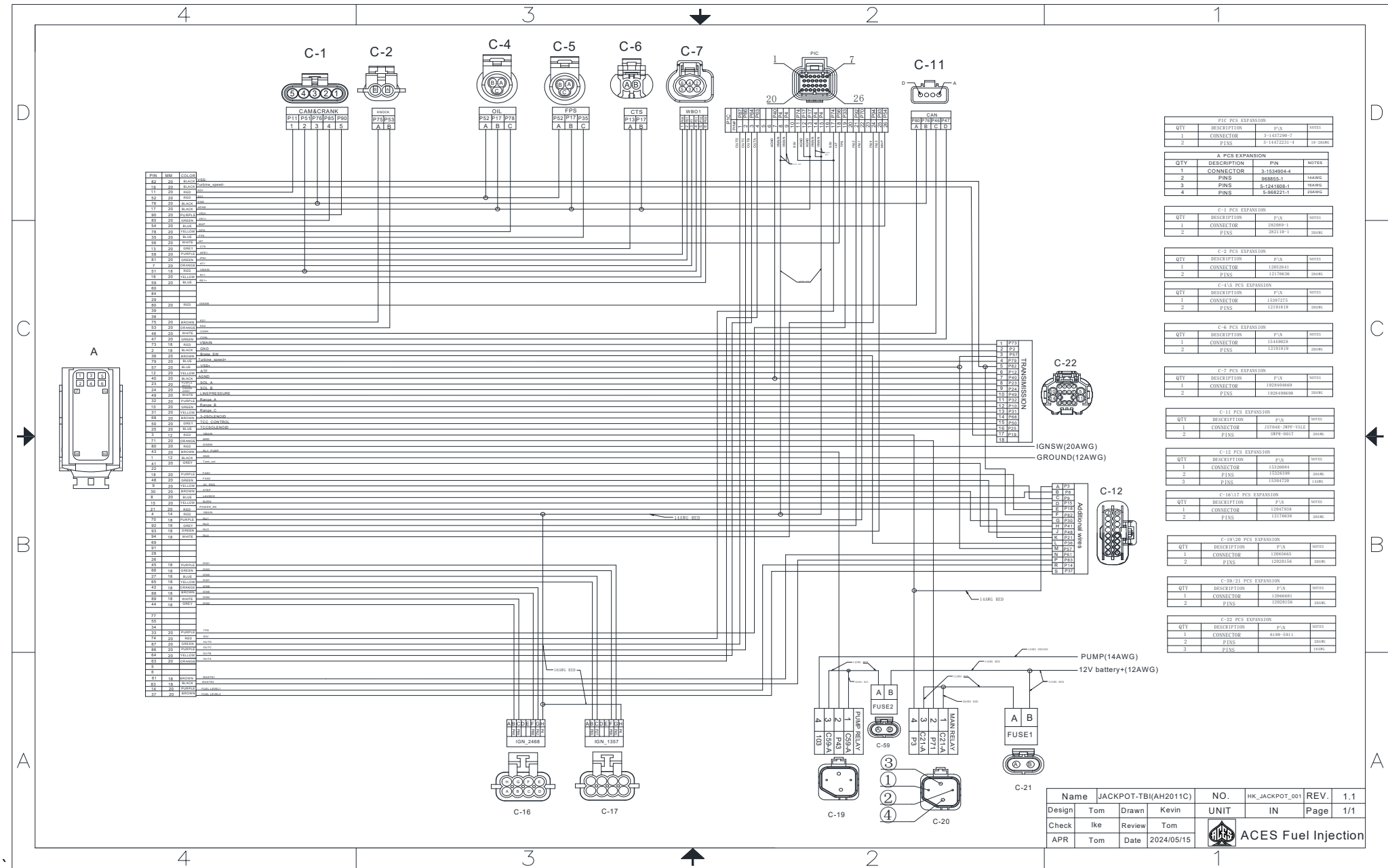
Launch Limit RPM: 3800

Launch Drop RPM: 1000

This example shows the car will launch at 3,800 rpm and will have to drop to 2800 (3800 - 1000) rpm during running to reset the launch feature.

HARNESS DRAWINGS - LS engine main harness

AH2011C



P/C PCS EXPANSION			
QTY	DESCRIPTION	PIN	NOTES
1	CONNECTOR	3-1437290-2	
2	PINS	3-1437291-3	10-0000

A PCS EXPANSION			
QTY	DESCRIPTION	PIN	NOTES
1	CONNECTOR	3-1934004-4	
2	PINS	3-1934005-1	10-0000
3	PINS	3-1934006-1	10-0000
4	PINS	3-068221-3	10-0000

C-1 PCS EXPANSION			
QTY	DESCRIPTION	PIN	NOTES
1	CONNECTOR	252009-1	
2	PINS	282110-1	10-0000

C-2 PCS EXPANSION			
QTY	DESCRIPTION	PIN	NOTES
1	CONNECTOR	12012041	
2	PINS	12176630	10-0000

C-4 PCS EXPANSION			
QTY	DESCRIPTION	PIN	NOTES
1	CONNECTOR	15597775	
2	PINS	12181819	10-0000

C-4 PCS EXPANSION			
QTY	DESCRIPTION	PIN	NOTES
1	CONNECTOR	15449028	
2	PINS	12181819	10-0000

C-7 PCS EXPANSION			
QTY	DESCRIPTION	PIN	NOTES
1	CONNECTOR	192840409	
2	PINS	192840900	10-0000

C-11 PCS EXPANSION			
QTY	DESCRIPTION	PIN	NOTES
1	CONNECTOR	252009-1	
2	PINS	282110-1	10-0000

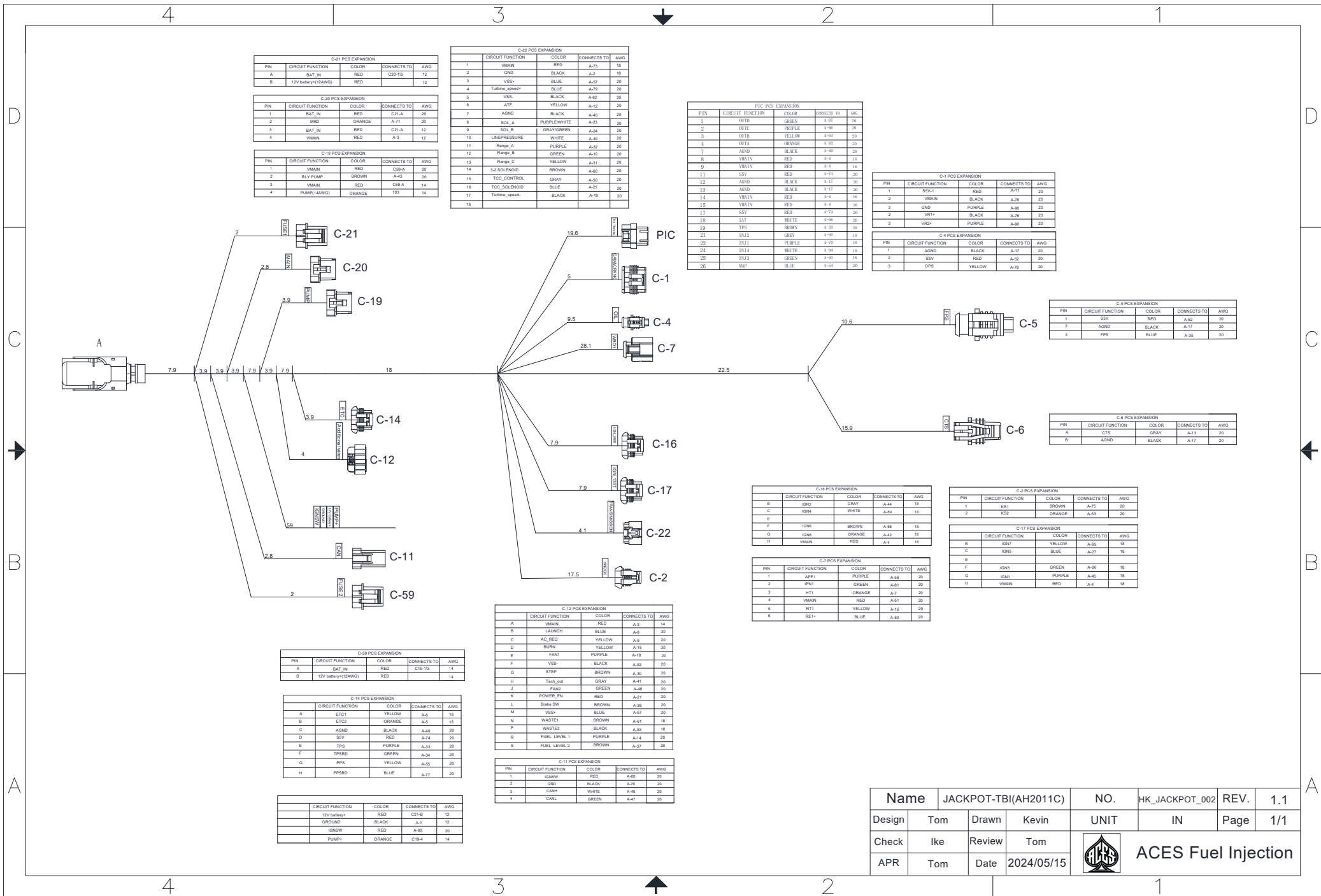
C-12 PCS EXPANSION			
QTY	DESCRIPTION	PIN	NOTES
1	CONNECTOR	12012041	
2	PINS	12176630	10-0000
3	PINS	12181819	10-0000

C-16/17 PCS EXPANSION			
QTY	DESCRIPTION	PIN	NOTES
1	CONNECTOR	12012041	
2	PINS	12176630	10-0000

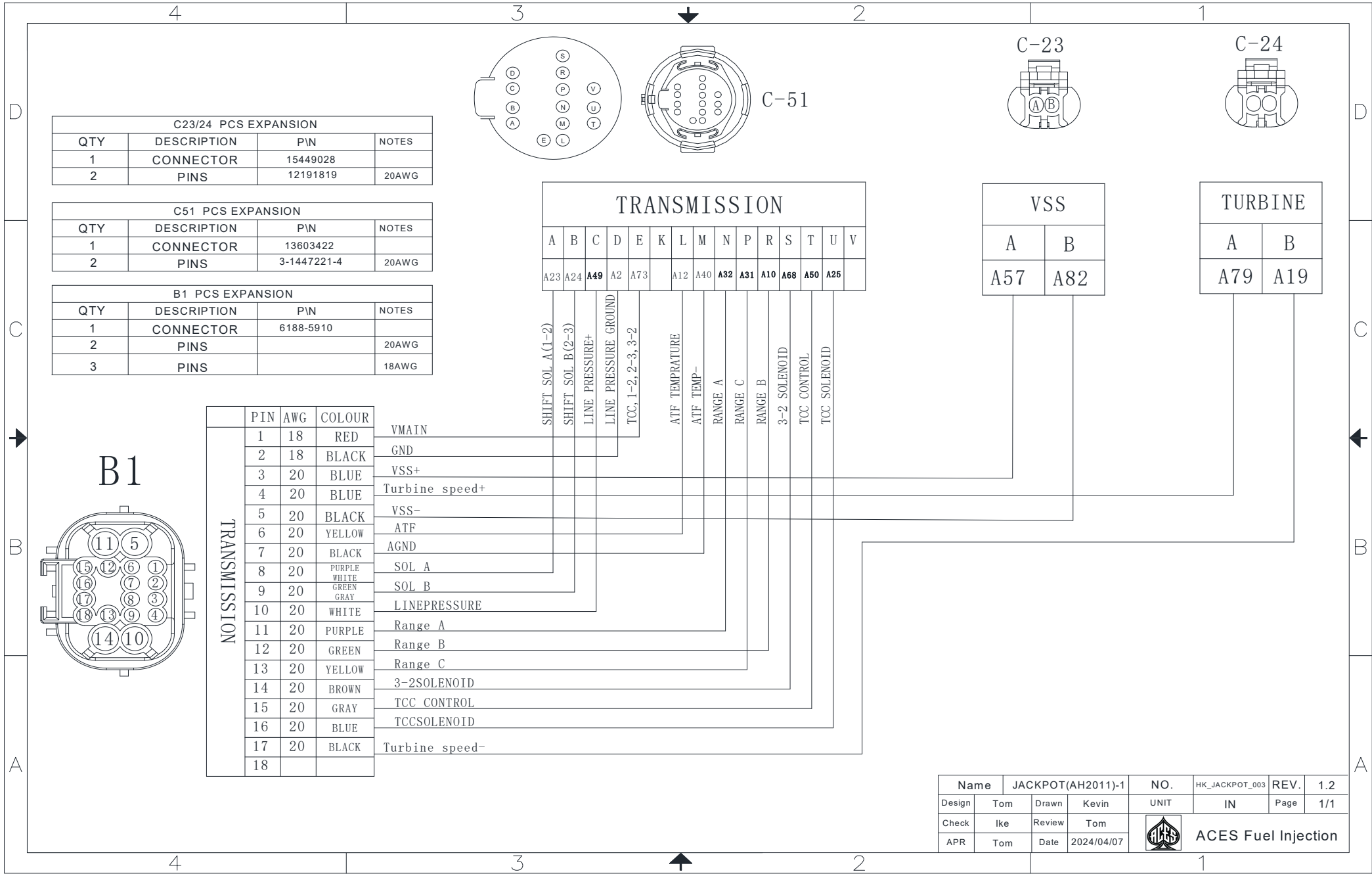
C-19/20 PCS EXPANSION			
QTY	DESCRIPTION	PIN	NOTES
1	CONNECTOR	12012041	
2	PINS	12176630	10-0000

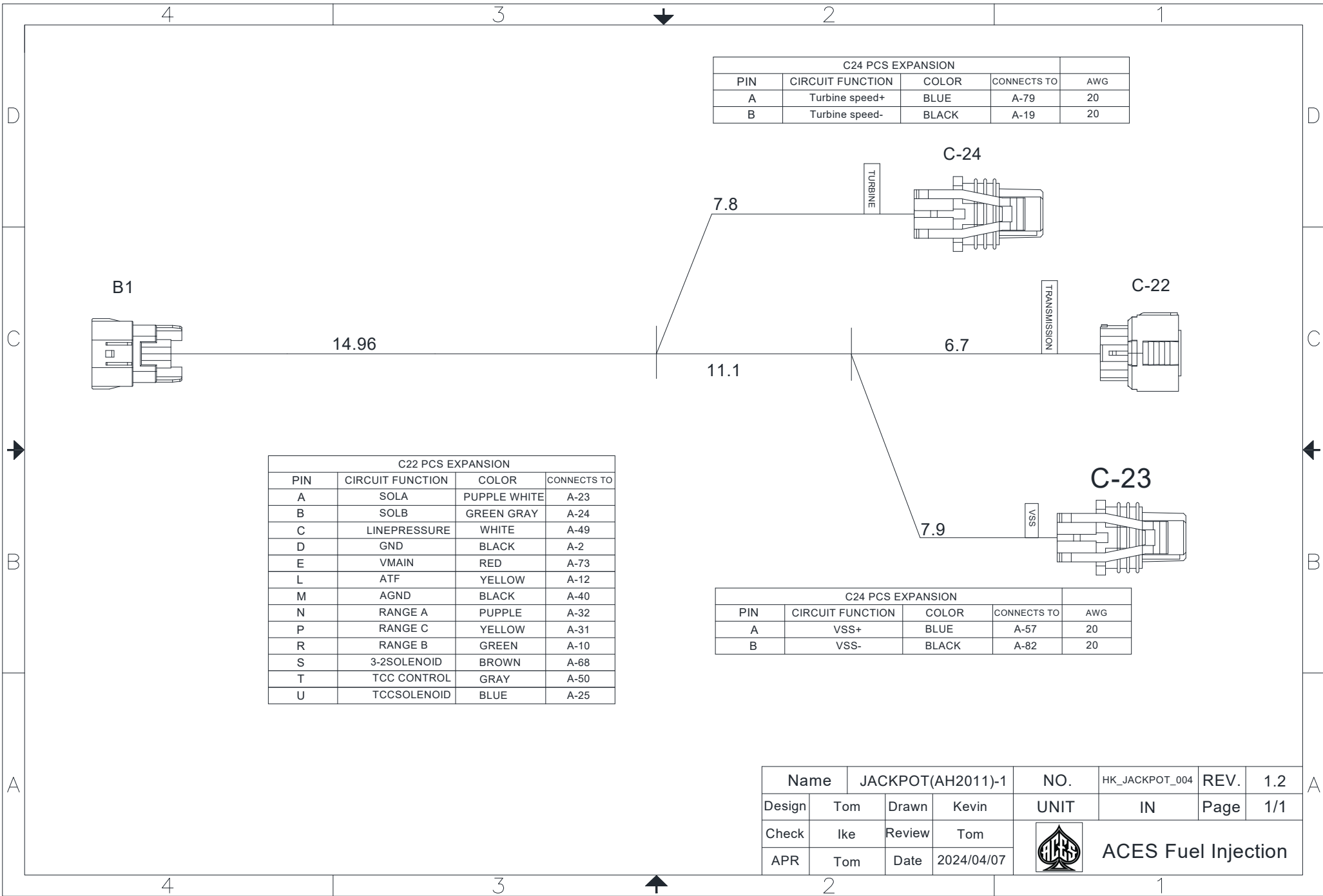
C-22 PCS EXPANSION			
QTY	DESCRIPTION	PIN	NOTES
1	CONNECTOR	4318-2011	
2	PINS		10-0000
3	PINS		


Name	JACKPOT-TBI(AH2011C)	NO.	HK_JACKPOT_001	REV.	1.1
Design	Tom	Drawn	Kevin	UNIT	IN
Check	Ike	Review	Tom	Page	1/1
APR	Tom	Date	2024/05/15	ACES Fuel Injection	



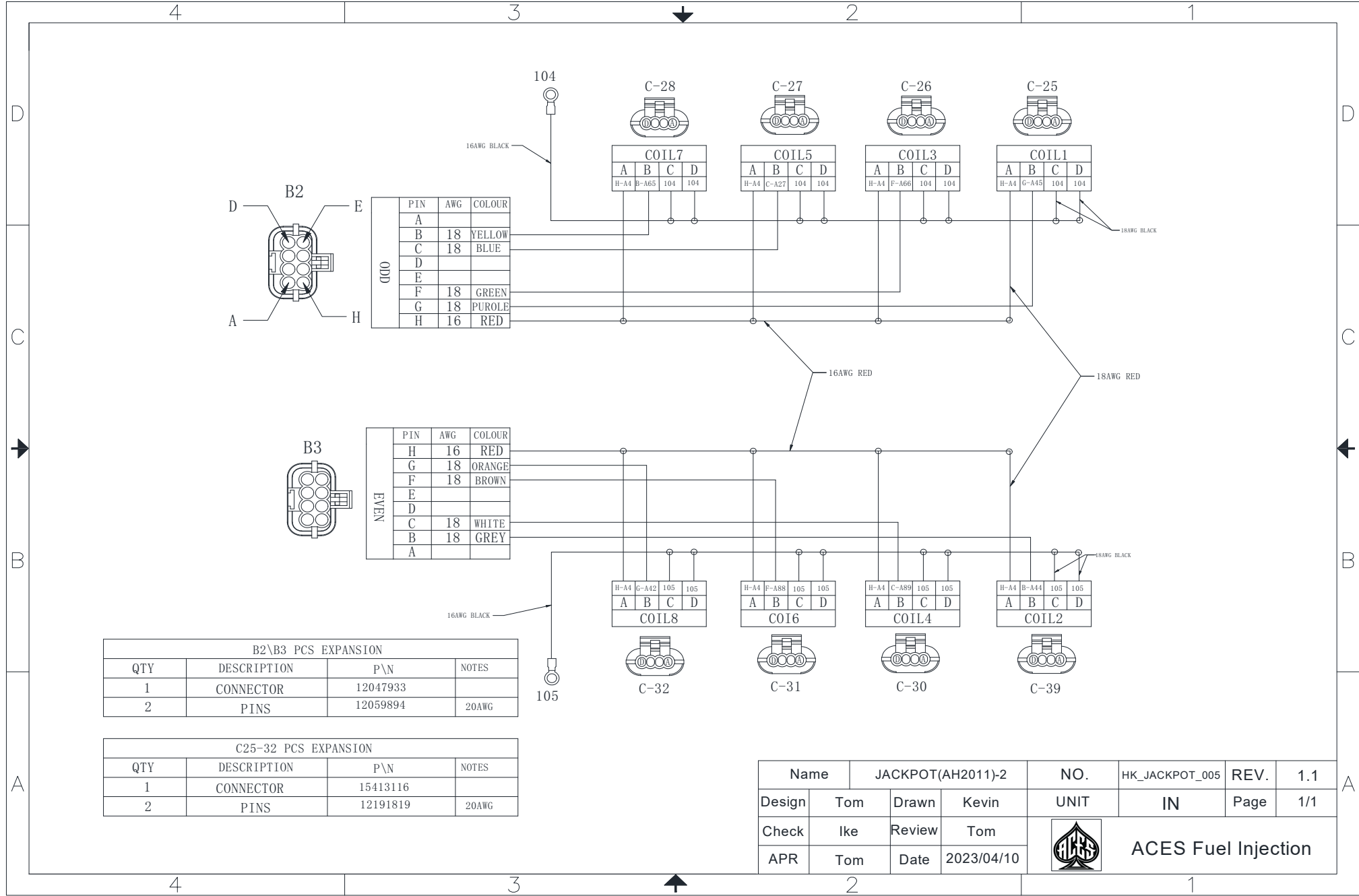
Transmission Harness AH2011-1

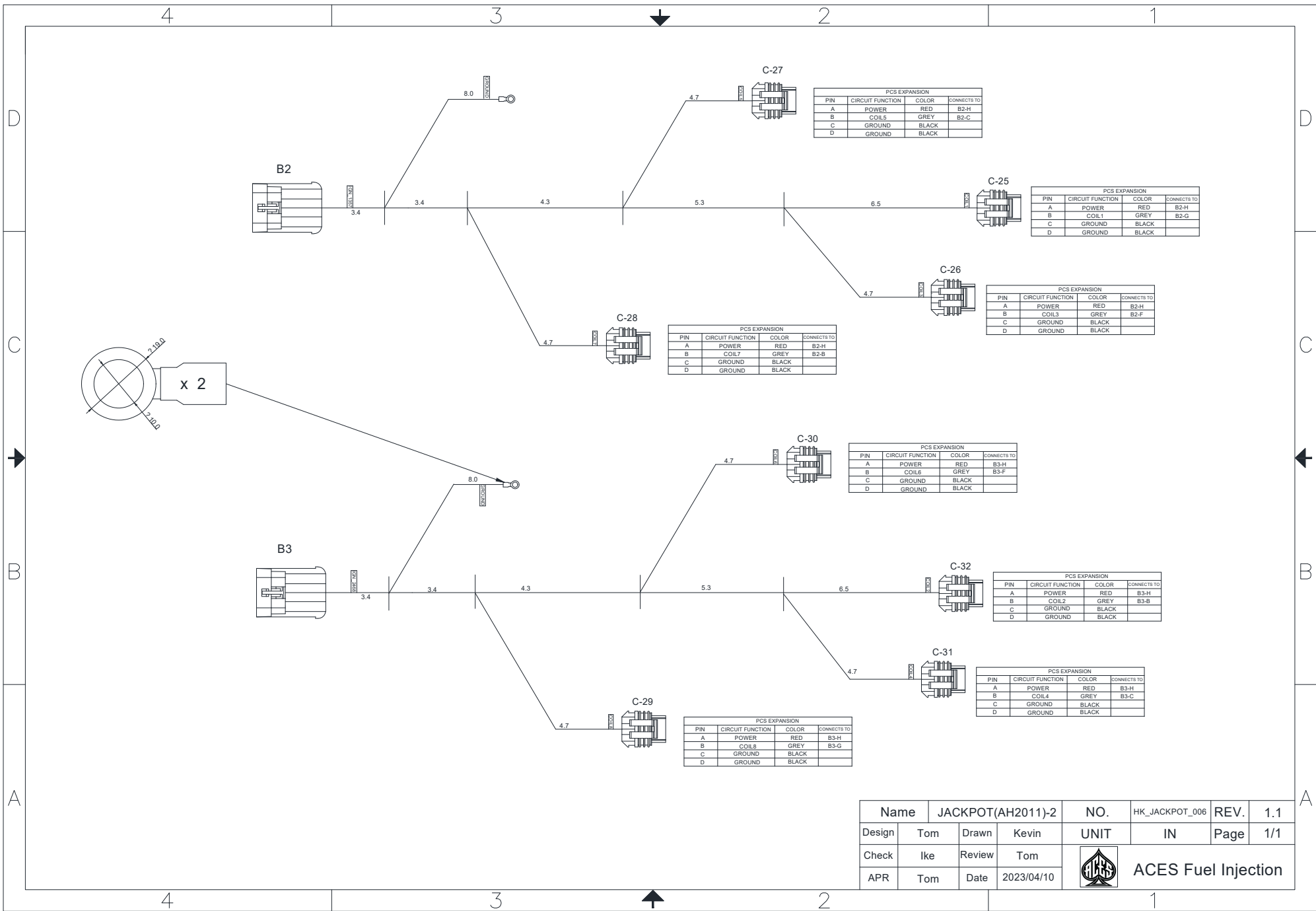




Name		JACKPOT(AH2011)-1		NO.	HK_JACKPOT_004	REV.	1.2
Design	Tom	Drawn	Kevin	UNIT	IN	Page	1/1
Check	Ike	Review	Tom	<div> ACES Fuel Injection</div>			
APR	Tom	Date	2024/04/07				

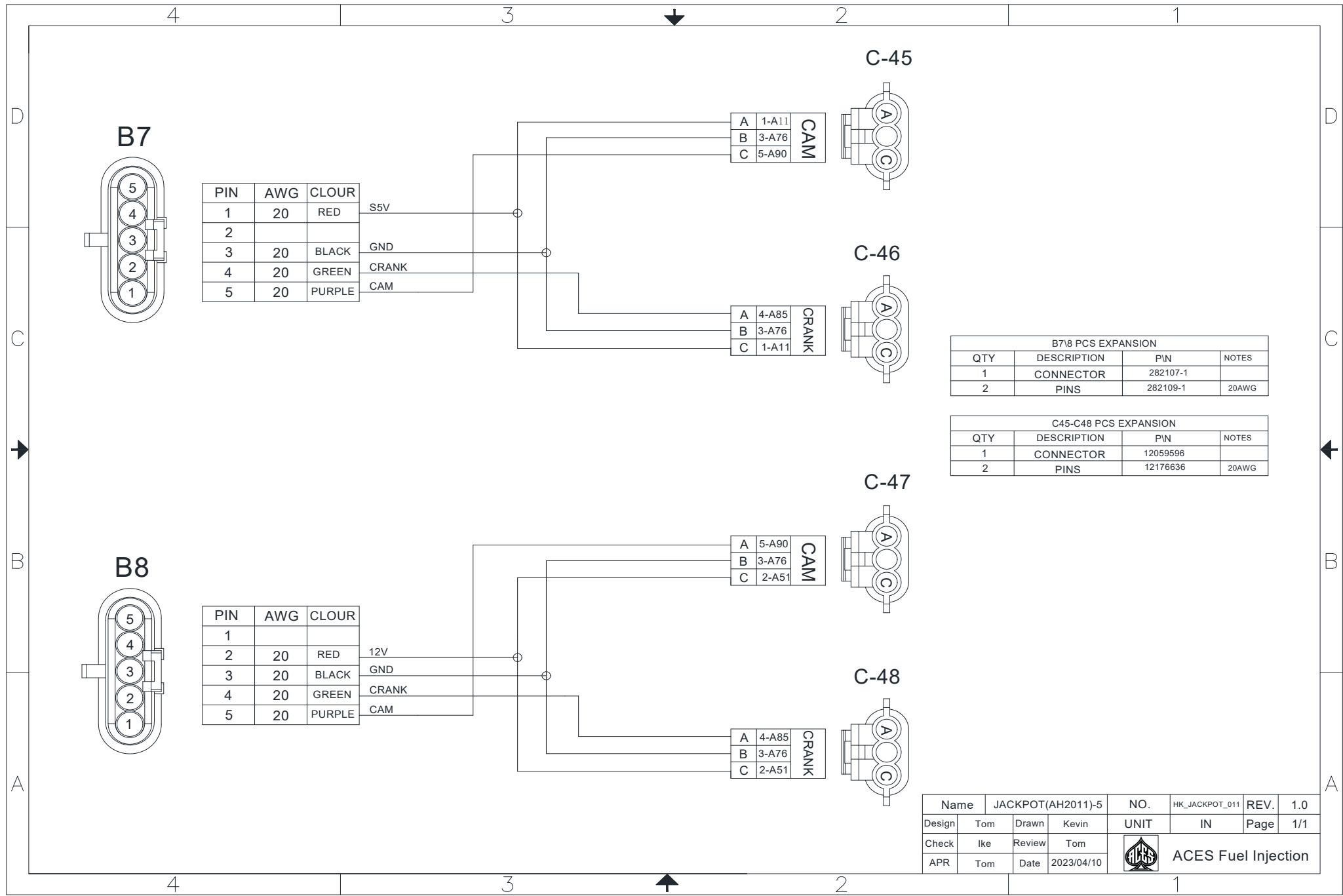
Coil Harness AH2011-2

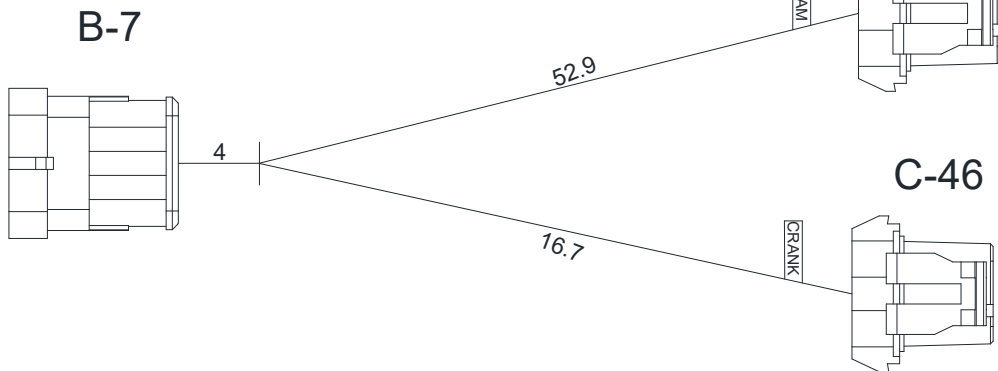




Name	JACKPOT(AH2011)-2		NO.	HK_JACKPOT_006	REV.	1.1
Design	Tom	Drawn	Kevin	UNIT	IN	Page 1/1
Check	Ike	Review	Tom	 ACES Fuel Injection		
APR	Tom	Date	2023/04/10			

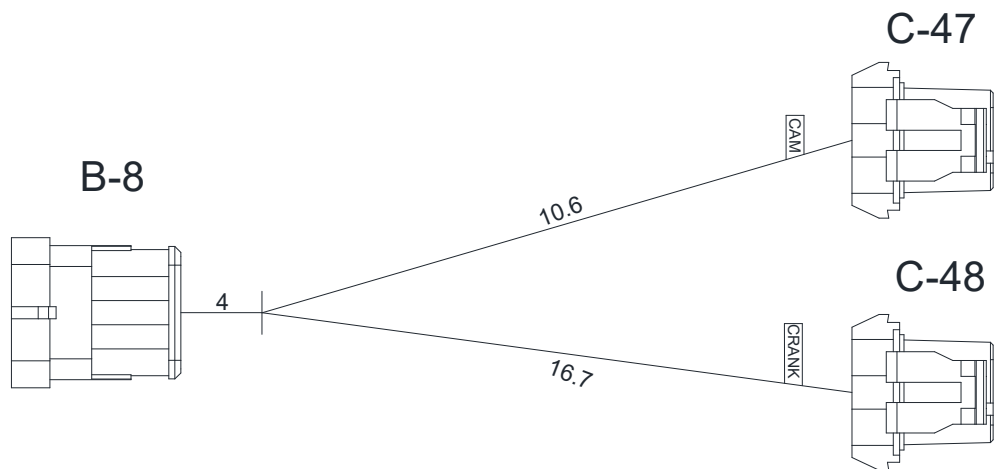
Crank and Cam Harness AH2011-5





C-45 PCS EXPANSION				
	CIRCUIT FUNCTION	COLOR	CONNECTS TO	AWG
A	S5V	RED	B7-1	20
B	GND	BLACK	B7-3	20
C	CAM	PURPLE	B7-5	20

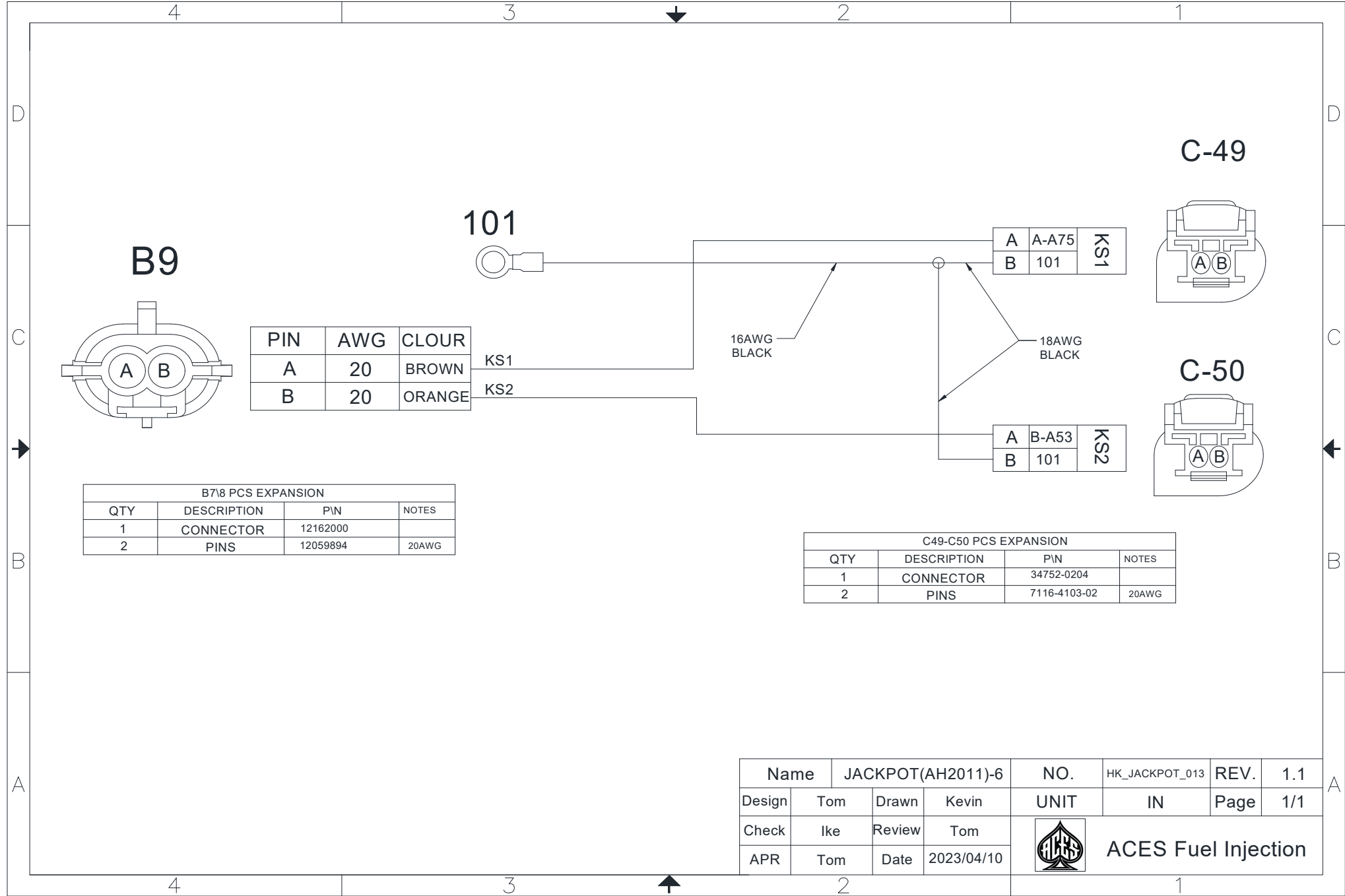
C-46 PCS EXPANSION				
	CIRCUIT FUNCTION	COLOR	CONNECTS TO	AWG
A	CRANK	GREEN	B7-4	20
B	GND	BLACK	B7-3	20
C	S5V	RED	B7-1	20

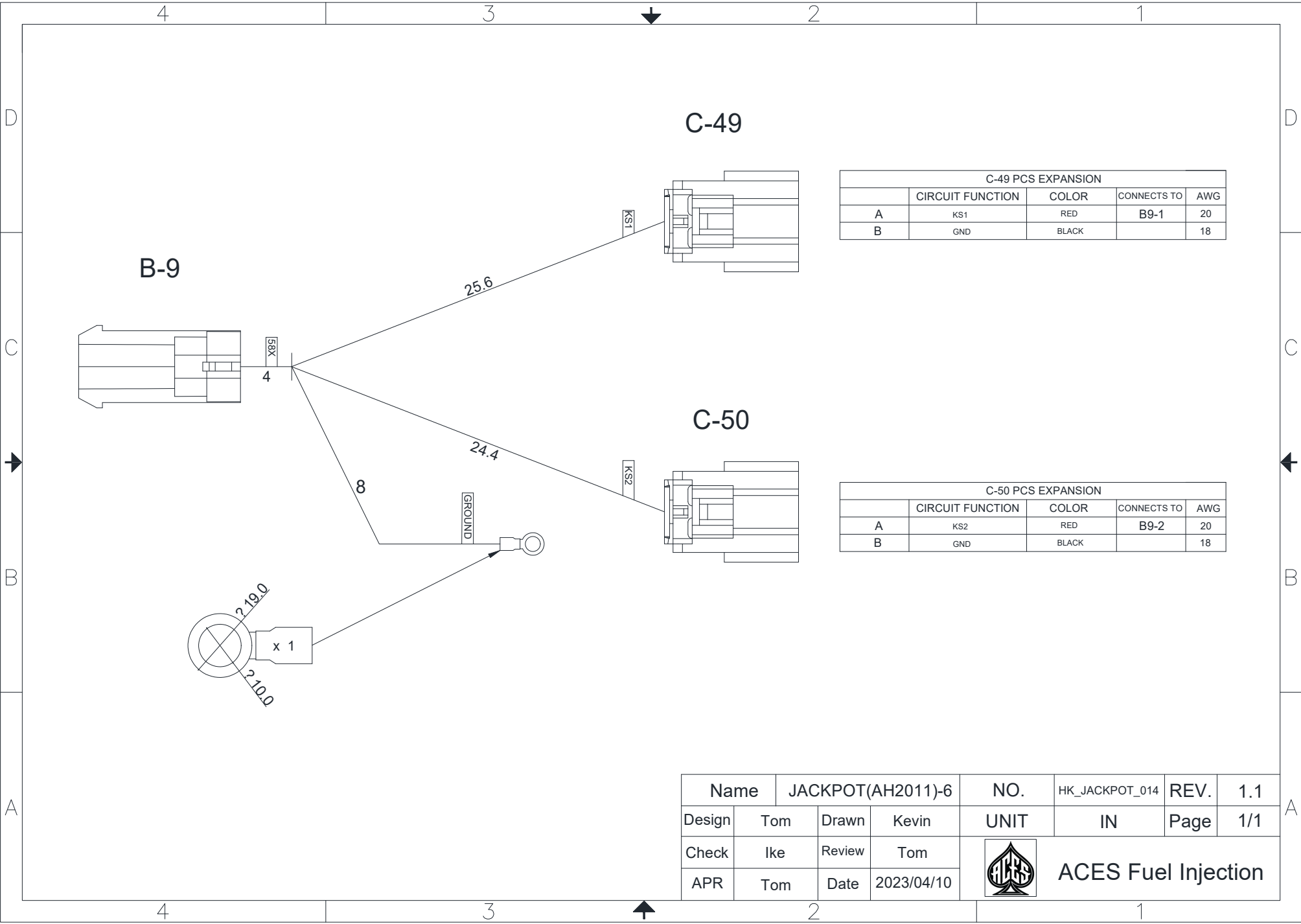


C-47 PCS EXPANSION				
	CIRCUIT FUNCTION	COLOR	CONNECTS TO	AWG
A	CAM	PURPLE	B8-5	20
B	GND	BLACK	B8-3	20
C	VMAIN	RED	B8-2	20

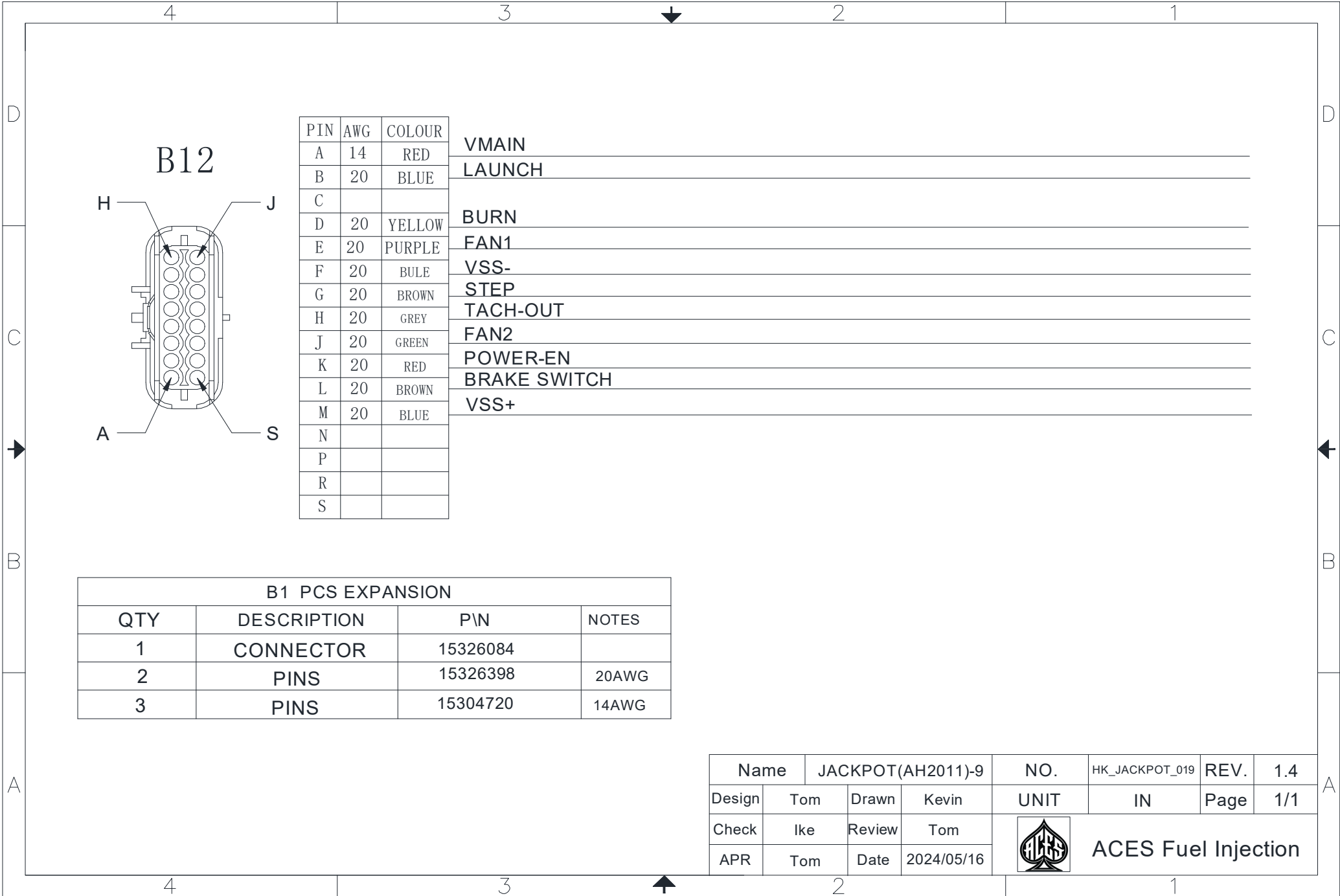
C-48 PCS EXPANSION				
	CIRCUIT FUNCTION	COLOR	CONNECTS TO	AWG
A	CRANK	GREEN	B8-4	20
B	GND	BLACK	B8-3	20
C	VMAIN	RED	B8-2	20

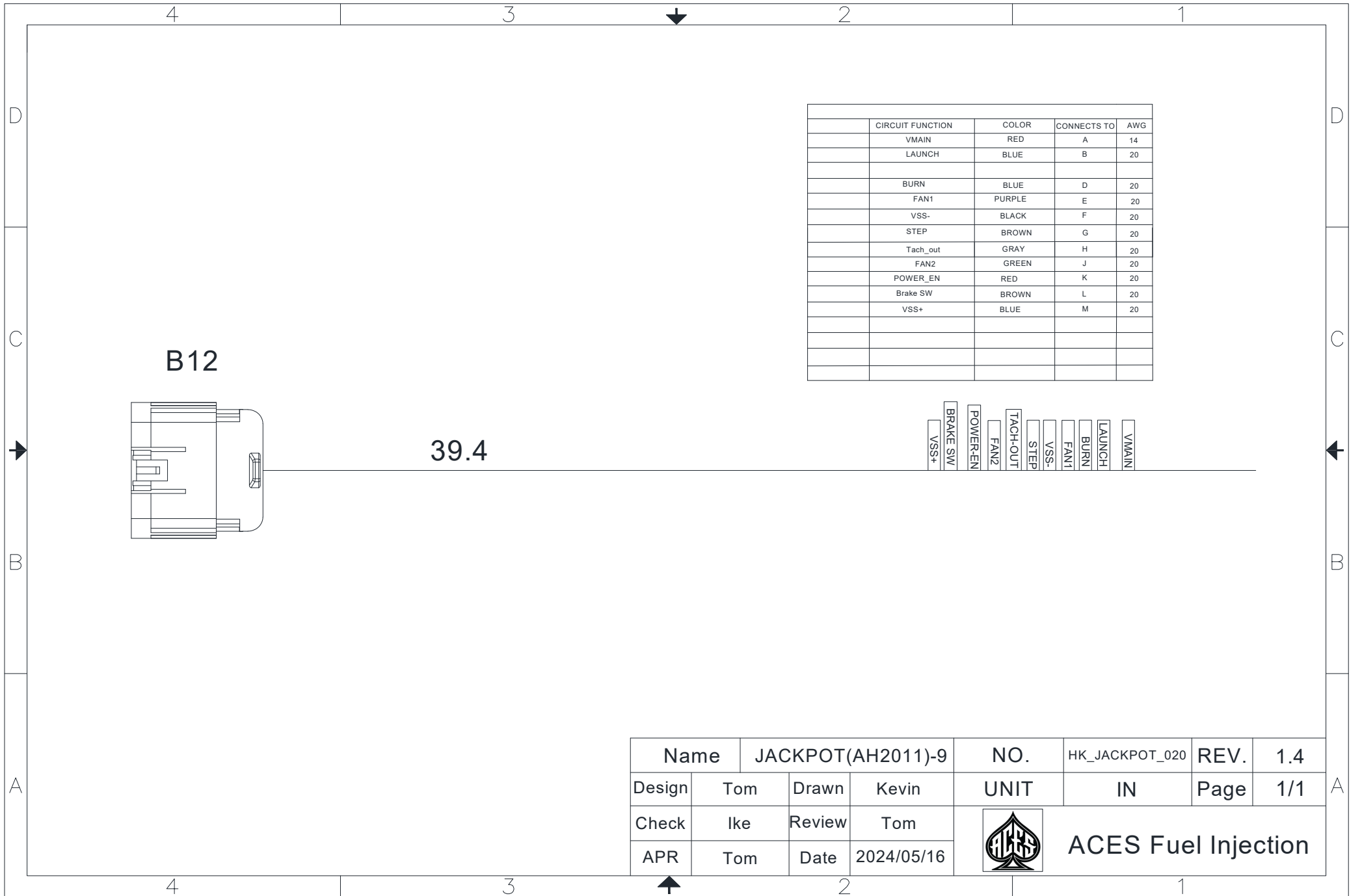
Name		JACKPOT(AH2011)-5		NO.	HK_JACKPOT_012	REV.	1.0
Design	Tom	Drawn	Kevin	UNIT	IN	Page	1/1
Check	Ike	Review	Tom	 ACES Fuel Injection			
APR	Tom	Date	2023/04/10				





Name		JACKPOT(AH2011)-6		NO.	HK_JACKPOT_014	REV.	1.1
Design	Tom	Drawn	Kevin	UNIT	IN	Page	1/1
Check	Ike	Review	Tom	<div> ACES Fuel Injection</div>			
APR	Tom	Date	2023/04/10				





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