"We Put The Quality In Conversions"

DualCutve

For Alternate Fuels

FORD INTEGRATED PROCESSOR III™
PN 5918

Installation Instructions

APPLICATION:

The PN 5918 is designed to provide total conversion support for 1994-95 Ford Taurus or Mercury Sable 3.0L V-6 engines.

FEATURES:

Three-in-one unit provides Computer Support, Timing Advance, and Fuel Control for Cars. No cylinder select loops to be cut.

- Prevents False "Check Engine" lights
- Prevents Adaptive Learn While Operating on Alternate Fuels
- Provides Precise, Load-Sensitive Timing Advance
- Built-in Failure Detection Logic Allows Malfunctions To Be Displayed by OEM Dashboard Warning Lights
- Economical and Easy To Install

PARTS INCLUDED IN THIS KIT

1 - Ford Integrated Processor III PN 5918
1 - Wiring Harness
1 - Three Port Solenoid Valve
1 - Foam Air Filter
4 - Sheet Metal Screws
4 - Heat Shrink Caps
4 - Cable Ties

OPERATION:

The Ford Integrated Processor III PN 5918 is designed to support either dedicated or bi-fuel conversions to LPG, CNG, or LNG of the 1994 and 1995 Ford Taurus equipped with the 3.0L engine. It provides support in three vital areas: ① OEM Computer interface, ②Timing advance, and ③ Closed-loop fuel control.

① OEM COMPUTER INTERFACE: The factory engine computer is designed to recognize rich/lean conditions in the gasoline/air mixture by way of signals from the vehicle's oxygen sensor, and adjust the mix accordingly by lengthening or shortening the time the gasoline fuel injectors are opened. When the vehicle is operated on alternate fuels, the computer is unable to recognize the proper oxygen concentration for these fuels, and is unable to regulate the mixture by sending instructions to the gasoline injectors. This results in false "check engine" lights and trouble codes. Additionally, as the factory computer attempts adaptive learning for the new fuel, it loses its normal gasoline fuel map. When the vehicle is switched to gasoline operation, very poor driveability and fuel mileage are experienced while the vehicle re-learns its gasoline fuel map. The Ford Integrated Processor III eliminates these problems by sending the factory computer the appropriate signals during alternate fuel operation. This both prevents false

"check engine" lights and trouble codes, but also preserves driveability when switching back to gasoline. However, should the air/fuel ratio on alternate fuel actually go out of proper range or any other problems such as engine overheating occur, the condition will be immediately signaled by a "check engine" light, and the proper code stored in the computer memory. The Ford Integrated Processor III thus provides computer support for alternate fuel operation, while preserving all OEM computer diagnostic abilities.

(2) TIMING ADVANCE: Since both LPG and CNG have much higher octane ratings (slower burning times) than unleaded gasoline, an advanced ignition timing curve is required in order to obtain maximum performance, economy, and driveability. Retaining the factory computer timing curve which is intended for gasoline can result in increased exhaust valve temperature, potentially catastrophic backfires, and reduced engine performance and fuel mileage. Using sophisticated logic, the Ford Integrated Processor III senses vehicle load and provides the exact degree of timing advance for optimum performance and mileage when operating on alternate fuels. This precise load-sensing ability allows the unit to eliminate any unnecessary timing advance, which could result in increased NOx emissions.

(3) FUEL CONTROL: When operating on alternate fuels, the Ford Integrated Processor III interprets the signal from the factory oxygen sensor and regulates the air/fuel mixture to maintain a stoichiometric ratio. It achieves this by rapidly pulsating a solenoid valve, varying a vacuum draw against the converter diaphragm. The rapid on/off action of this valve maintains the exact air/fuel ratio for improved exhaust emissions, driveability, and fuel economy.

SECTION 1 - HARDWARE INSTALLATION

WARNING: For a safe and reliable installation, a thorough knowledge of the vehicle's mechanical and electrical systems is essential. Otherwise, the installation should be done by a professional mechanic/technician. An improperly installed system can cause poor vehicle performance and/or lead to personal injury or property damage. You (the installer) as the purchaser's agent MUST read COMPLETELY through these instructions BEFORE you begin any installation of the hardware or electrical wires, and carefully follow the instructions, including the pictures.

STEP 1: MOUNTING THE UNIT

Use the four (4) sheet metal screws in the parts bag to mount the unit in a location that will permit the wiring harness to reach its proper locations. Do NOT mount the unit on the engine or near the exhaust manifold. Extreme heat from these locations can damage the unit. The unit is moisture resistant. However, dot not mount it in a position that will allow water to collect in the case.

STEP 2: MOUNT THE SOLENOID VALVE

Remove one of the screws which hold the converter cover. Use the screw to secure the solenoid valve to the converter cover.
See Figure 1

NOTE: For Propane conversions, we STRONGLY recommend the use of a fiber washer (not included in this kit) inserted between the solenoid mounting tab and the converter cover. This will insulate the solenoid from the heat of engine coolant and prevent solenoid failure.

STEP 3: INSTALL THE VACUUM ELBOW IN THE CONVERTER

Remove the atmospheric vent cover screen from the converter cover. Thread the plastic vacuum elbow into the threaded hole beneath the screen. Tighten it just snug enough to ensure that there is no air leakage, but not so tight that the threads on the elbow break. A good method is to tighten the elbow until it is barely seated, then give one additional full turn. On the side of the elbow opposite the vacuum line connector is a small hole. If possible, position this hole facing down, to allow any moisture which might accumulate in the line to drain.
See Figure 1

STEP 4: INSTALL THE VACUUM LINE

Using a piece of 3/16" vacuum line (not included), connect the Vacuum Elbow, as pictured to the solenoid valve's plastic side port. Now use some 3/16" vacuum hose to connect the plastic port at a right angle to that port to the mixer's air valve vacuum port. Making sure that you do not block the port opening, place a drop of adhesive on the brassport and place the foam air filter over the solenoid valve's brass port.
See Figure 1

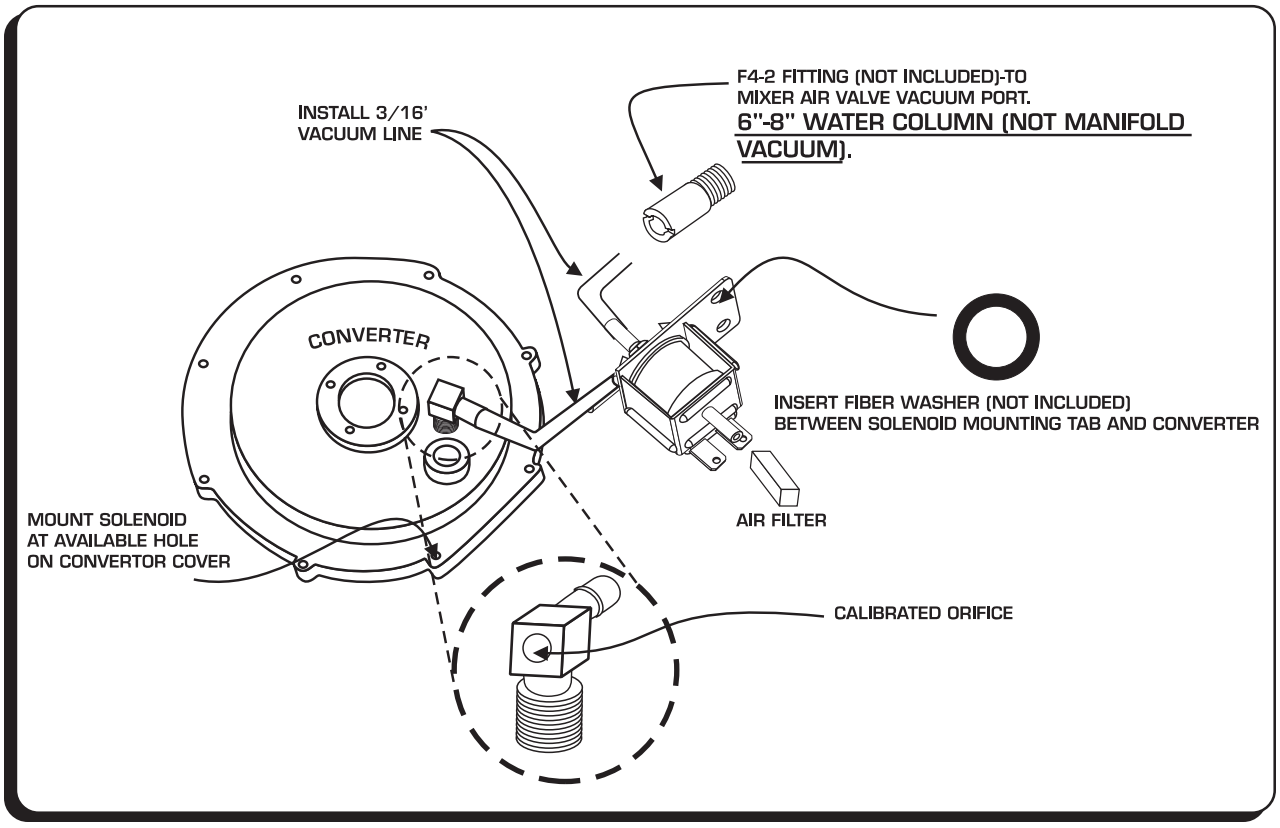

Figure 1

SECTION 2 - WIRE IDENTIFICATION

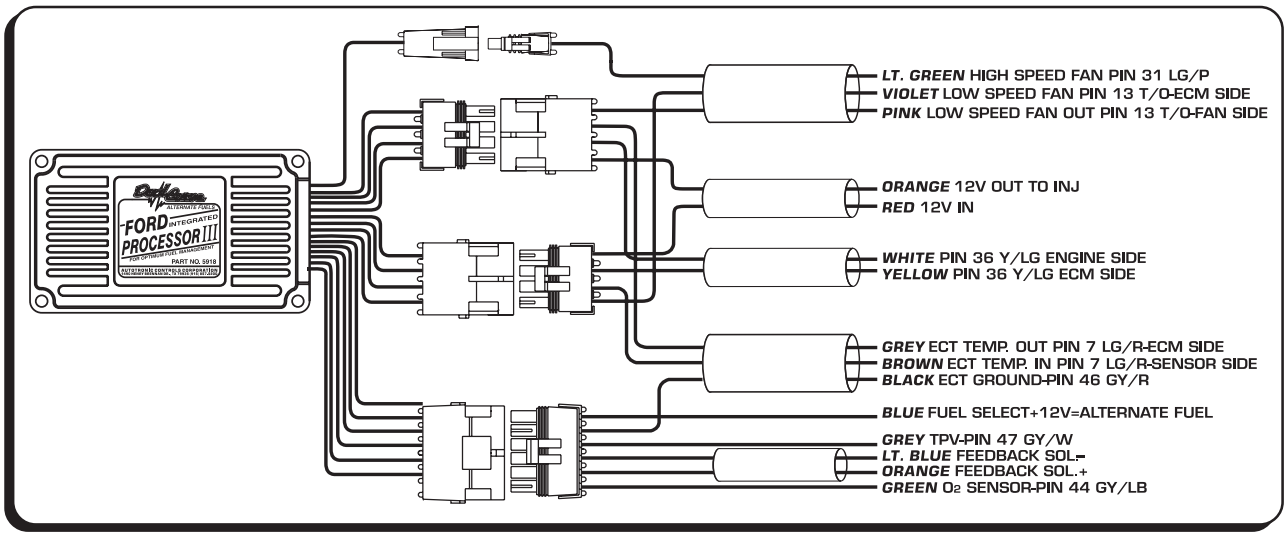

Figure 2

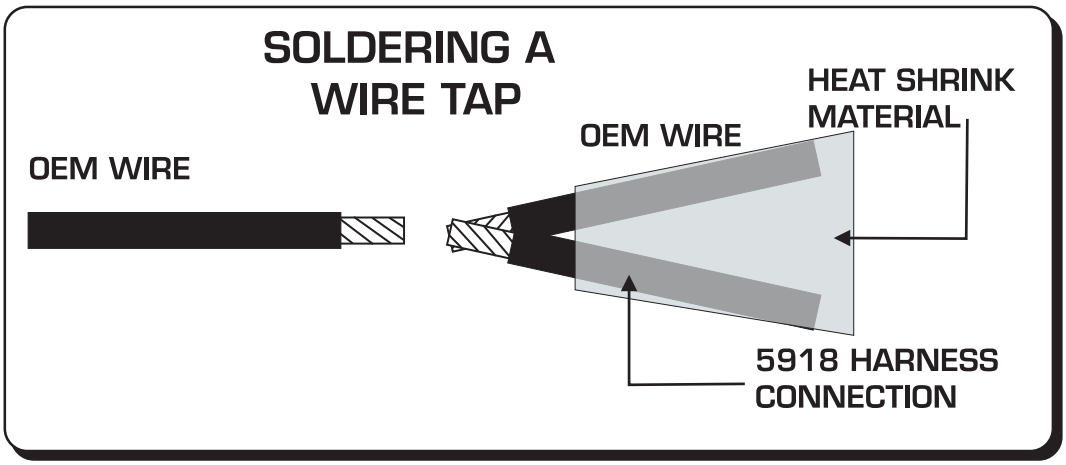

Figure 3

SECTION 3 - WIRING THE UNIT

NOTICE: To ensure proper and permanent electrical connections, ALL wire taps andsplices MUST be soldered and sealed, using a rosin core solder.

WARNING: Keep all wires away from HOT or MOVING parts or SPARK PLUG WIRES.

These instructions show the proper method for wiring the Ford Integrated Processor III directly to the 60 Pin Connector for the factory computer. Wiring the Ford Integrated Processor III in this manner will both give a very professional appearance to the conversion, and minimize the chance of electrical interference entering the Processor wiring harness. Before performing any of the following steps, MAKE SURE that you have disconnected the battery. You can locate the 60 Pin Connector on the passenger side of the vehicle's firewall. It is secured to the firewall by a single bolt in the center

of the connector. You should loosen this bolt and unplug the connector from the firewall for easy access to the wiring.

NOTICE: The numbers used for the 60 Pin Connector indicate PIN LOCATIONS, that is, holes in the connector. Not all the PIN LOCATIONS will have a wire attached to them. BE SURE that you count PIN LOCATIONS and NOT wires.

STEP 1 - LIGHT GREEN WIRE, CONNECTING TO THE HIGH SPEED FAN

Locate the LIGHT GREEN/PINK wire at Pin 31 of the 60 Pin Connector. This is the High Speed Fan Control. Attach the LIGHT GREEN wire which is sleeved with the Violet and Pink wires on the PN 5918 harness and attach it to this LIGHT GREEN/PINK wire ***See Figure 4***

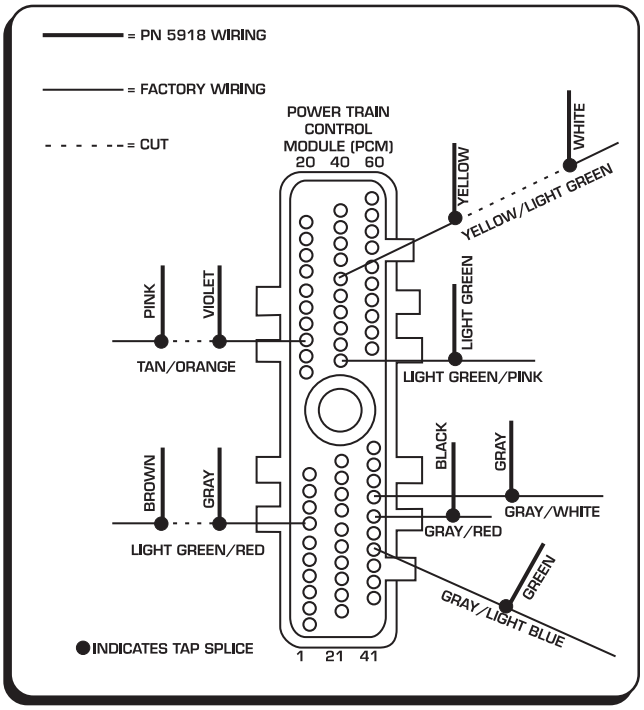

Figure 4

STEP 2 - VIOLET AND PINK WIRES, WIRING THE LOW SPEED FAN

Locate the TAN/ORANGE wire at Pin 13 of the 60 Pin Connector. This is the Low Speed Fan Control. Cut this wire and attach the VIOLET wire which is in the same sleeving with the Light Green and PINK wires in the PN 5918 harness to the 60 Pin Connector side of the cut. Attach the PINK wire in the same sleeving to the engine harness side of the cut. ***See Figure 4***

STEP 3 - RED AND ORANGE WIRES, WIRING THE FUEL INJECTORS

Locate the +12VDC supply to the injectors. This is the large RED wire found inside the black plastic corrugated sleeve running beneath the air intake manifold. Cut this wire and connect the ORANGE wire from the PN 5918 harness to the fuel injector side of the cut. Then connect the RED wire from the PN 5918 harness to the computer side of the cut.

NOTE: Making the cut in the location described above will result in a loss of power to the idle air control motor, air diverter solenoid, and torque converter lock-up solenoid. This can be remedied by re-connecting the RED wires from each of these to constant +12VDC supplies such as the RED wire in the PN 5918 harness so that there will be no feedback during alternate fuel operation.

STEP 3A - ALTERNATE WIRING HOOK-UP FOR FUEL INJECTORS

The +12VDC to the injectors on the 3.0L can also be cut in an alternate location, eliminating the need for re-wiring. To accomplish this, remove the six 13mm bolts holding the air intake plenum in place. Remove the brackets holding different control devices to the plenum, along with any vacuum lines. Lift the plenum up. Although the gasket underneath is not adhered to the plenum, you should be careful not to damage it. Beneath the plenum, you will find the large RED wire, with several nodes along it, where wires are connected and sealed with black plastic tape. Locate the last node, where the wires to the injectors are attached. To make sure you have the correct node, you can trace one of the RED wires from the node and see that it runs to an injector. Cut the large RED wire just before the node and attach the ORANGE and RED wires from the PN 5918 harness as described above. This attachment method will insure no loss of current to any other engine components.

STEP 4 - WHITE AND YELLOW WIRES, WIRING THE IGNITION ADVANCE

Locate the YELLOW/LIGHT GREEN wire at Pin 36 of the 60 Pin Connector. This is the Spark Output (SPOUT). Cut the wire and take the WHITE wire which is sleeved with the YELLOW wire on the PN 5918 harness and attach it to the engine harness side of the cut. Attach the YELLOW wire in the same sleeving to the 60 Pin Connector side of the cut.
See Figure 4

STEP 5 - GRAY AND BROWN WIRES, WIRING THE ECT SIGNAL

Locate the LIGHT GREEN/RED wire at Pin 7 of the 60 Pin Connector. This is the Engine Coolant Temperature (ECT) signal wire. Cut this wire and attach the GRAY wire which is sleeved with the BROWN and Black wires in the PN 5918 harness to the 60 Pin Connector side of the cut. Then attach the BROWN wire in the same sleeving to the engine harness side of the cut.
See Figure 4

STEP 6 - BLACK WIRE, GROUNDING THE PN 5918 COMPUTER

Locate the GRAY/RED wire located at Pin 46 of the 60 Pin Connector. This is the ground for the vehicle's sensors and computer. Connect the BLACK wire which is sleeved with the Gray and Brown wires in the PN 5918 harness and attach it to this GRAY/RED wire.
See Figure 4

STEP 7 - BLUE WIRE, WIRING THE FUEL SELECTOR SWITCH

Take the single BLUE wire from the PN 5918 harness and run it through the vehicle's firewall to the fuel selector switch. Attach it in such a way that the wire receives +12V on alternate fuel and -0-V on gasoline operation. Alternately, the BLUE wire can be connected to the alternate fuel lock-off solenoid wire.

STEP 8 - GRAY WIRE, WIRING THE TPS SIGNAL

Locate the GRAY/WHITE wire on Pin 47 of the 60 Pin Connector. This is the Throttle Position Sensor (TPS) signal wire. Take the single GRAY wire from the PN 5918 wiring harness and attach it to this GRAY/WHITE wire.
See Figure 4

STEP 9 - ORANGE AND LIGHT BLUE WIRES, WIRING THE FUEL CONTROL SOLENOID

Take the ORANGE and LIGHT BLUE wires which are sleeved together in the PN 5918 wiring harness and attach them to the two spade terminals of the solenoid valve which you attached to the Converter cover.

STEP 10 - GREEN WIRE, CONNECTING THE OXYGEN SENSOR SIGNAL

Locate the GRAY/LIGHT BLUE wire on Pin 44 of the 60 Pin Connector. This is the signal wire from the front cylinder bank oxygen sensor. Take the single GREEN wire from the PN 5918 harness and attach it to this GRAY/LIGHT BLUE wire. ***See Figure 4***

Limited Warranty

Autotronic Controls Corporation warrants this product to be free from defects in material and workmanship under normal use and if properly installed for a period of one year from date of purchase. If found to be defective as mentioned above, it will be replaced or repaired if returned prepaid along with proof of date of purchase. This shall constitute the sole remedy of the purchaser and the sole liability of Autotronic Controls Corporation. To the extent permitted by law, the foregoing is exclusive and in lieu of all other warranties or representations whether expressed or implied, including any implied warranty of merchantability or fitness. In no event shall Autotronic Controls Corporation be liable for special or consequential damages.