INSTALLATION INSTRUCTIONS ACCEL/DFI PRO RAM 'FORD'

INSTALLATION EQUIPMENT LIST

The Following is a partial list of the tools you may need for the installation of your new system.

- Socket set, 3/8" Drive
- Open end wrenches
- Silicone Sealant
- Screw driver set
- Needle nose pliers • Gasket Scraper
- 1- 5/8" Green Lee Punch • hole saw
- Drain bucket
- Timing Light
- Torque Wrench
- Volt/Ohmmeter (example: Snap on MT406, Matco ET 856)

ADDITIONAL PARTS REQUIRED

Intake Manifold Gasket Set (302 CU IN Mr Gasket # 5831 STK – 351W Part # 5832 Standard Port– 5834 Med Port).
Thermostat Housing Gasket # 746
3/8" Stainless Steel Braided Feed Fuel Line & Fittings
160 Degree Fahrenheit Thermostat # 4363 or 180 deg #4364

MANIFOLD INSTALLATION INSTRUCTIONS.

Warning: Read and follow instructions before, during and after installation to preserve warranty. Also disconnect battery leads and drain engine coolant prior to manifold installation.

In the vast majority of cases, the manifold may be installed without modifications, if further port matching is required, material removal should be blended up at least two inches into the runner.

Since the casting lines between the runners and the plenum floor are located entirely outside of the runner entries, an ideal runner approach radius is insured as cast.

Note: It may be necessary to purchase some of the parts listed (or the equivalent) in order to properly complete the manifold installation. Also, before moving the distributor, set the rotor to the number one cylinder.

Note: To reduce chances of engine contamination by dirt or other foreign material, it is advisable to clean the engine exterior before starting the manifolds change.

After removing the distributor and existing intake manifold, clean the gasket surfaces prior to installing the Small Block Pro Ram system. It is recommended at this point to use the Green Lee Punches or a hole saw to put a 1 5/8" hole in the fire wall to accommodate the Main Wire Harness. (Remember to cover engine completely when drilling through the firewall) Once the gasket surface has

been cleaned, apply a fine bead of silicone on the bottom sides of the replacement intake gaskets and place on the heads.
Next, place a 1/4" bead of silicone on both ends of the engine block. With all the intake gaskets in place, carefully place the assembled Small Block Single Plane Multi Point System onto the engine. Be sure that the gaskets are still aligned with the bolt holes and start to thread the intake bolts into the engine heads. Torque the intake bolts first to 20 LB/ft. then to 30 LB/ft. Next install the distributor making sure that the rotor is aligned properly with the No.1 cylinder cap tower location.
The next step is to route the vacuum lines. The following items need to be referenced to manifold vacuum:
1) Map sensor 2) Pressure regulator 3) Power brake booster 4) PCV 5) Transmission kick-down ***Note: Never splice the Map Sensor or Pressure Regulator vacuum lines.***

MOUNTING THE ECM

The ECM comes with four mounting holes designed for a #8 screw. The ECM should be mounted behind the passengers kick panel on the floor. If your kick panel has an air vent incorporated into it, DO NOT mount the ECM here. This enclosure is not waterproof and therefore needs a mounting place free of moisture. The alternate location is in the dash board area behind the glove box; you can also mount the ECM in the engine compartment although it is not recommended since it is only moisture resistant and not water proof. .

MAIN WIRE HARNESS ROUTING AND CONNECTIONS

BEFORE PROCEEDING DISCONNECT BOTH BATTERY TERMINALS FROM THE BATTERY.

The System contains two (2) Wire Harnesses. A Main Wire Harness (this will be referenced as the MWH in the following instructions) and an Injector Wire Harness.
The harness can be routed and connected as follows: Begin by connecting the MWH's connectors to the ECM. Then route MWH leg through the firewall hole. Continue pulling the harness leg through the firewall until the rubber grommet seat the firewall.

Make sure to connect the +12 V switch (PINK) to the switched IGN accessory in the fuse box. The switched ignition accessory must maintain 12 volts during cranking.
Connect + 12 V (3/8" ring terminal), and battery ground (3/8" ring terminal) connectors directly to battery. (Do not connect to back of alternator) Then connect all sensors and IAC (connectors are labeled).
Finally connecting the fuel pump; **(Refer to fuel pump mounting)** if you need to lengthen the red/black 12 volt+ wire to the fuel pump, be sure to use at least a 14-gauge wire.

DISTRIBUTOR SELECTION AND SETUP.

ACCEL DUAL SYNC
FORD TFI

Select the ignition type in the Systems screen under IGNITION TYPE SELECTION.

FUEL PUMP MOUNTING.

The most important component of the high-pressure fuel system is the fuel pump. The location and mounting of the pump is critical. The pump must be located at the rear of the vehicle near the tank at a point below the fuel level in a protected area. It can be mounted using a special fabricated bracket or with an ACCEL fuel pump mounting bracket that is supplied.
The fuel pump requires a 12-volt source. If your vehicle already has an electronic high pressure fuel pump, you still MUST connect the +12 VDC side of the fuel pump to the
ACCEL main harness (red/black wire). The +12 VDC comes from the fuel pump relay via the red/black wire in the main harness. The pump draws up to 30 amps of current depending on size and fuel system pressure; the ground can be connected to any clean, paint-free point on the chassis. Route and secure the wiring from the pump into the engine compartment so that it does not hang below the vehicle, interfere with rotating parts or become exposed to excess heat.

There seems to be a misunderstanding that a fuel pump “produces pressure”. This is wrong. What actually happens is the pump produces fuel flow at a given system pressure which is maintained by the pressure regulator. The pressure regulator is a dynamic modulating devise, which regulates the fuel rail pressure by either restricting or bypassing fuel back to the fuel tank.

MECHANICAL PUMP REMOVAL

Bypass or remove the mechanical engine driven fuel pump.
Cap the fittings or block off the opening to prevent leakage.
Install a fuel pump block off plate.

HIGH PRESSURE FUEL FILTER MOUNTING

The high-pressure fuel filter **(5 to 20 Microns)** should be located between the outlet of the high-pressure fuel pump and fuel rail. It is recommended to place a fuel filter/strainer **(100 Microns)** between the fuel tank outlet and pump inlet. Connect the filter to the fuel line using the ACCEL fittings supplied with the system.

HIGH PRESSURE FUEL LINE INSTALLATION

The system comes with a high-pressure pump and fuel filter. These must be used in conjunction with either 3/8” S.S. braided line or hard tubing to route the fuel line from the tank outlet to the fuel rail inlet.
At this point, the high-pressure circuit of the fuel system can be plumbed. If the existing fuel supply line cannot sustain 150-PSI pressure, then it must be replaced with high-pressure fuel line/tubing. Remember that a carbureted system operates at 6 PSI. Never take any chances. If in doubt, replace the hose. Use only 3/8” diameter double braided stainless steel high-pressure gasoline hose such as Mr Gasket Shadow Series or equivalent. Use this exclusively to connect the fuel pump and filter to the balance of the fuel system along the entire length

of the vehicle. ACCEL recommends supporting the fuel line/tubing every three - (3) feet.

DUAL FUEL TANKS

It is important to note that for vehicles with either two tanks and/or class A RV s, it is highly recommended that a boost pump be installed in each tank and fed through a multi port switching valve when operating in hot climates. Boost pumps used on such vehicles as a Ford 1985 F-250, 5.0L EFI, will work well for this type of application. Also, the switching valve from a Ford 6.9L Diesel, 1984 or Chevrolet 1986 C-10, 305 will work well in dual tank applications. Dual tank equipped must be plumbed to return excess fuel to the tank, which is in use supplying fuel to the EFI System to avoid tank overflow problems. The remotely activated dual three way valves described above will work well in these applications.

RETURN FUEL LINE INSTALLATION

If your car was originally equipped with a carburetor, a 1/4” diameter fuel line was used to return the bypassed fuel back to the tank. This line is insufficient to return the bypass fuel of the PRO RAM Injection System. Therefore ACCEL recommends using a 5/16” diameter return line from the pressure regulator outlet to the fuel tank. Be sure to route the return line in protected areas with restriction free bends. For the tank connection, ACCEL recommends a 5/16” compression fitting to 6AN `hose fitting.

SENDING UNIT MODIFICATION

To install a return line in your tank, remove the sending unit assembly from the fuel tank. Have a gas tank repair shop install the return line through the lid on the sending unit.

MOUNTING THE OXYGEN SENSOR

The PRO RAM Kit includes an oxygen sensor and a M18 x 1.5 hex nuts. This nut should be welded to the passenger side header collector or exhaust pipe as close to the connecting flange without interfering with the mounting of the exhaust manifold or header. Prior to mounting the nut, drill an 11/16” diameter hole in the exhaust pipe, the hole must be drilled perpendicular to the exhaust pipe.

Now you are ready for pre-startup. Refer to GEN 7 or THRUSTER Pre Start & Tuning guide on CD-R disc.