



**EDELBROCK CRATE ENGINE
SUPERCHARGED FORD 5.0L COYOTE
Part #46890, 468900
GENERAL INSTALLATION INSTRUCTIONS**

PLEASE study these instructions carefully before beginning this installation. If you have any questions, please call our **Technical Hotline at: 1-800-416-8628**, 7:00 AM - 5:00 PM Pacific Standard Time, Monday through Friday.

Proper installation is the responsibility of the installer. Improper installation will void the manufacturer's warranty and may result in poor performance and engine or vehicle damage.

IMPORTANT NOTE: This instruction sheet provides general installation guidelines which can affect your warranty. Read it carefully. It is not our intent to cover each detail of installation here as the procedures are vehicle specific. We want to caution you that installing an engine is a complicated procedure that requires a good general knowledge of automotive mechanics. It is a good idea to refer to the factory service manual for your vehicle. If you are not confident that you can complete the engine installation successfully, we suggest you consider having it installed by an experienced mechanic.

CAUTION: This engine is NOT INTENDED for marine use. Not legal for use in pollution controlled vehicles.

DESCRIPTION: This crate engine is built using a Ford aluminum 5.0L block with a forged and balanced crankshaft, forged Manley H-Beam connecting rods and Mahle forged aluminum pistons which are then combined with Edelbrock's R2650 DP-3C Supercharger to produce 785 horsepower and 660 ft.-lbs. of torque on **93 octane** pump gas. Its compact design allows for a seamless swap into most platforms, eliminating the need for modifications to your engine bay or hood.

AVAILABLE VARIANTS:

- P/N 46890 - Supercharged Ford 5.0L Crate Engine, Complete With Calibrated Electronics
- P/N 468900 - Supercharged Ford 5.0L Crate Engine, Complete Without Electronics; No Calibration

PRODUCT SPECIFICATIONS:

Displacement:	4.957L (302 ci)
Bore / Stroke	3.629" bore / 3.649" stroke
Horsepower:	785
Torque:	660
Compression:	9.5:1
Block:	New Ford Aluminum 2015 Spec
Cylinder Heads:	Factory Aluminum 2015 Spec
Supercharger:	Edelbrock E-Force R2650 TVS
Belt Size:	85.625" 8-Rib (Gates K080850RPM)
Pistons:	Mahle Forged Aluminum
Crankshaft:	Forged 4340
Camshaft Duration:	Intake: 260°; Exhaust: /263°
Camshaft Lift:	Intake: 13mm; Exhaust 13mm
Rocker Arms:	2:1 ratio
Spark Plugs:	Ford M-12405-M50 (.032 Gap)
Fuel Type:	<u>Requires Minimum 91 Octane</u>
Fuel Injectors:	60 lb/hr Ford M-9593-LU60
Firing Order:	1-5-4-8-6-3-7-2
Maximum Rated RPM:	7200 RPM
Warranty:	2 Year/Unlimited Mileage

ANCILLARY PARTS REQUIRED FOR INSTALLATION

- Low Temperature Radiator (LTR) - See Catalog for details.
- LTR/Intercooler Plumbing
- Fuel Pressure Regulator with Boost Reference.
- Fuel Pump - **A minimum fuel flow of 75gph @ 70psi differential pressure is required when using the calibration provided with PN 46890. See diagram for required Fuel System routing on Page #5. It is the responsibility of the customer to ensure that adequate fuel flow is achieved at the operating voltage of the fuel pump. Engine damage can occur if fuel flow is insufficient.**

GENERAL SUPERCHARGER PLUMBING INSTALLATION

- Determine the ideal mounting location for the intercooler heat exchanger (not included). It is important that the heat exchanger receives the coldest air possible, which means mounting it in front of the radiator, A/C condenser and any oil or trans cooler the vehicle might have equipped.

- Determine the ideal mounting location for the water pump. A universal mounting bracket has been supplied to simplify installation. **Please note that the pump should be mounted no higher than the inlet of the heat exchanger.** The inlet of the pump is in line with the axis of the pump motor, while the outlet extends out perpendicularly from the pump body.

- Determine the ideal mounting location for the intercooler reservoir tank. To simplify installation, a universal mounting bracket and a groove around the perimeter of the tank, for use with a large worm clamp, have been included.

NOTE: Be sure to mount the tank as high as possible to prevent air bubbles from accumulating in the cooling system.

- Refer to the diagram on Page 3 for the suggested intercooler plumbing (not included). Note that the intercooler routing can be inverted so that the pump and tank are mounted on the driver side. Regardless of component mounting locations, it is important that the correct direction of flow is maintained.

INTERCOOLER SYSTEM: A 50/50 coolant and water mixture is required.

AIR INTAKE SYSTEM: PN 46890 MUST use the provided 95mm MAF housing and air filter for calibration compatibility. The air filter should be located away from and/or shielded from direct airflow from cooling fans or air entering the grille. **Failure to use the provided MAF housing and proper air filter location will result in poor performance and can lead to engine damage.**

GENERAL HARNESS INSTALLATION

- Determine the ideal mounting location for the relay and fuse holder on the water pump harness. Connect the POSITIVE (+) lead to a CONSTANT +12V power source. Connect the GROUND (-) lead to a chassis ground. Connect the water pump connector to the electric water pump. Connect the factory female EVAP connector to the male EVAP connector on the water pump harness. Then plug the female end of the water pump harness onto the EVAP solenoid.

- Install the ACT Harness to the ACT sensor on the rear of the supercharger manifold. The female MAF adaptor connects to the factory male MAF connector. The male MAF connector connects to the factory MAF sensor.

- If using the Ford Racing Electronic Throttle Crate Engine Controls Pack (#46890 Only), please refer to the installation instructions included with the controls pack for installation guidelines.

ENGINE OIL: This crate engine is shipped dry without engine oil. Make sure to add the recommended Ford oil prior to priming the engine oil. The engine oil must be changed no more than 300 miles after break-in. A full synthetic SAE 5W-50 is highly recommended after the break-in period. Engine oil capacity is eight (8) quarts.

OIL PAN CLEARANCE: Make sure you have adequate subframe and ground clearance before installing the engine.

START-UP: The engine should be primed with oil prior to starting. Install an oil pressure gauge to the existing oil pressure sensor. Remove the spark plugs and disconnect the engine control unit as well as the injector wires. **NOTE: Make sure ignition and fuel are not provided to the engine.** Once fuel and spark have been disabled, crank the engine using the starter for 10 seconds, checking the oil gauge for oil pressure. If no pressure is indicated, wait 30 seconds and crank again for 10 seconds. Repeat this process until oil pressure is indicated on the gauge. Reconnect the engine control unit, injector wires and reinstall spark plugs. Start the engine and listen for any uncommon sounds. If uncommon sounds are not present, run the engine at idle until it reaches operational temperatures.

FLYWHEELS AND FLEXPLATES: The 5.0L Coyote engines use special flexplates or flywheels. See below:

Flexplate: *(Sold Separately)*

Ford Part Number:	BL3Z6375A (OEM)
Converter Bolt Pattern:	8 Bolt, 11.5"
Outside Diameter:	14.25"
Starter Ring Gear Tooth:	164
Torque Spec:	177 lb-in, Plus additional 60°

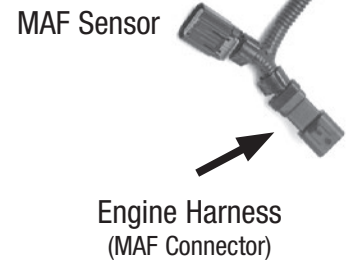
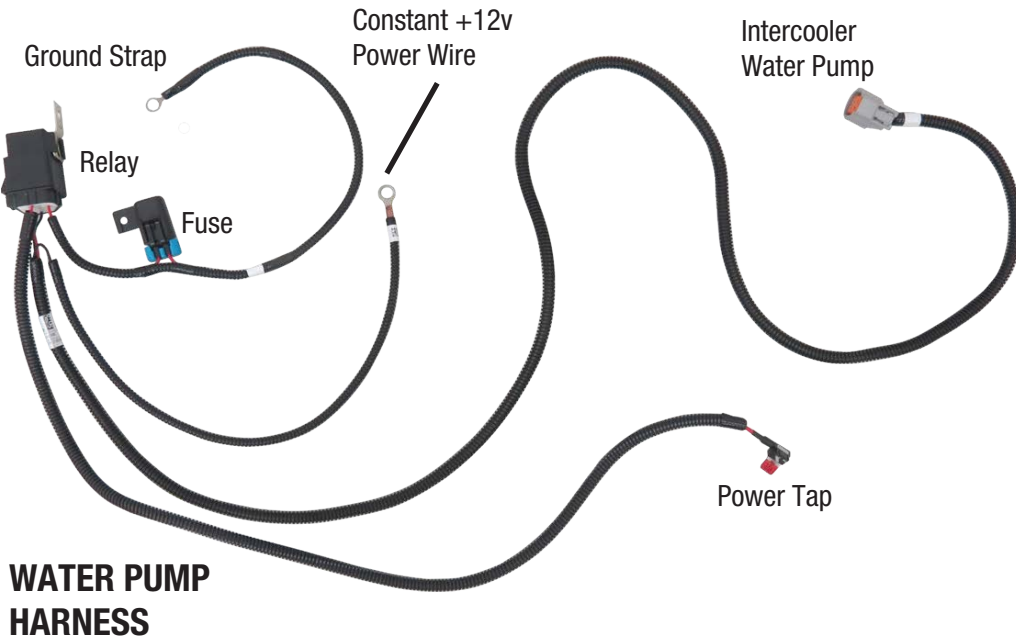
Flywheel: *(Included w/ Engine)*

Ford Part Number:	BR3Z6375D (OEM)
Flywheel Bolt Pattern:	8 Bolt
Outside Diameter:	14.25"
Clutch Bolt Pattern:	6 Bolt, 10.5/11.5"
Starter Ring Gear Tooth:	164
Flywheel Torque Spec:	177 lb-in, Plus additional 60°
Clutch Torque Spec:	35 ft-lbs, Plus additional 60°

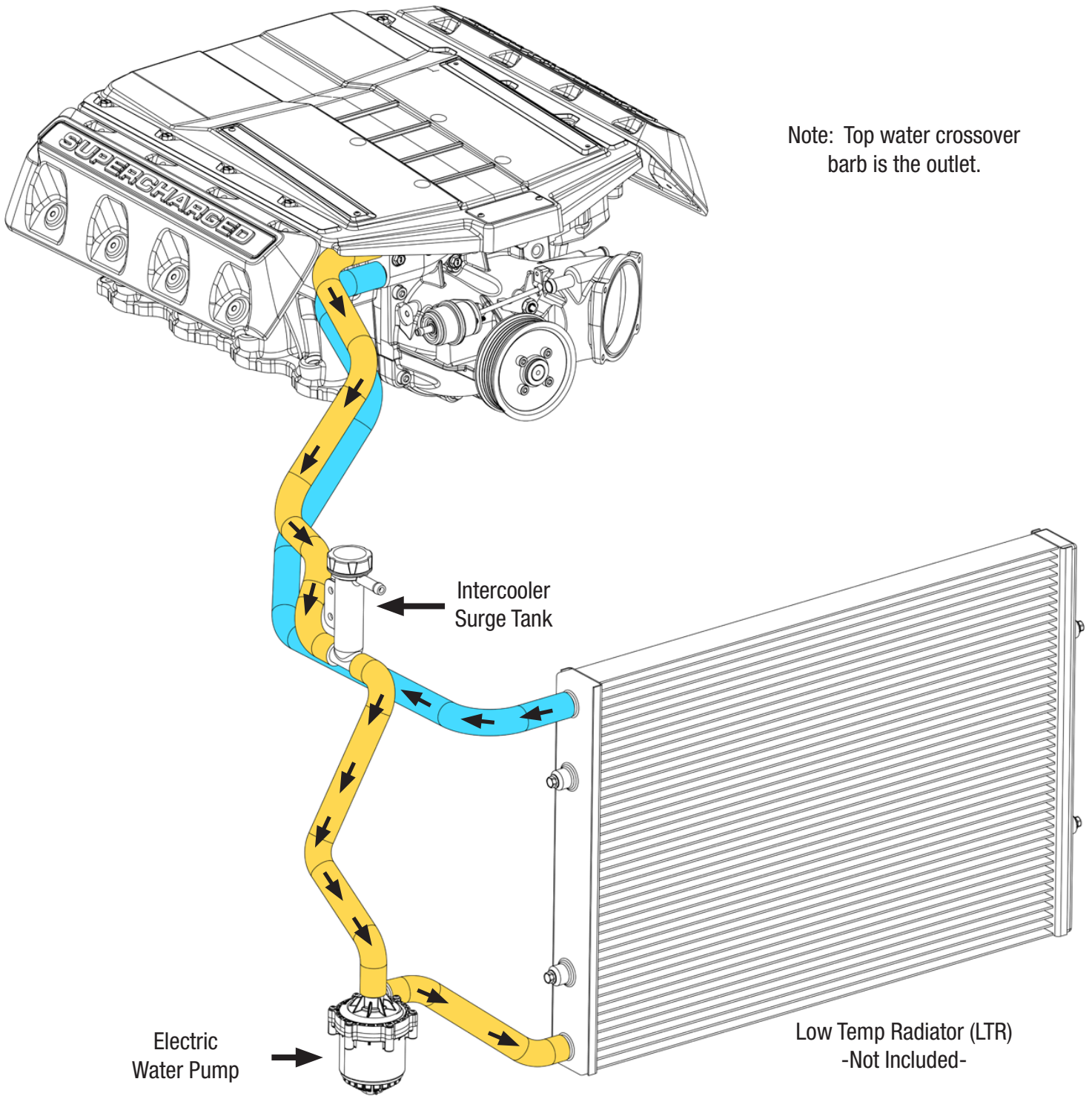
POWER STEERING: Please note that this crate engine is based on a 2015-2017 5.0 Mustang equipped with electric power steering. In order to run power steering, you can retrofit an appropriate electric power steering pump. Another option is to use the Ford Racing Power Steering Pump Bracket for the 2011-2013 5.0L. This bracket can be purchased directly from Ford Racing (**Part Number - M-8511-M50BR**). Please note that the Ford Racing solution mounts the power steering pump in the A/C compressor location. As a result, the Ford Racing bracket is not compatible if you will be running A/C.

Harness Layout

ACT Sensor **ACT Harness**



Supercharger Intercooler Routing Diagram

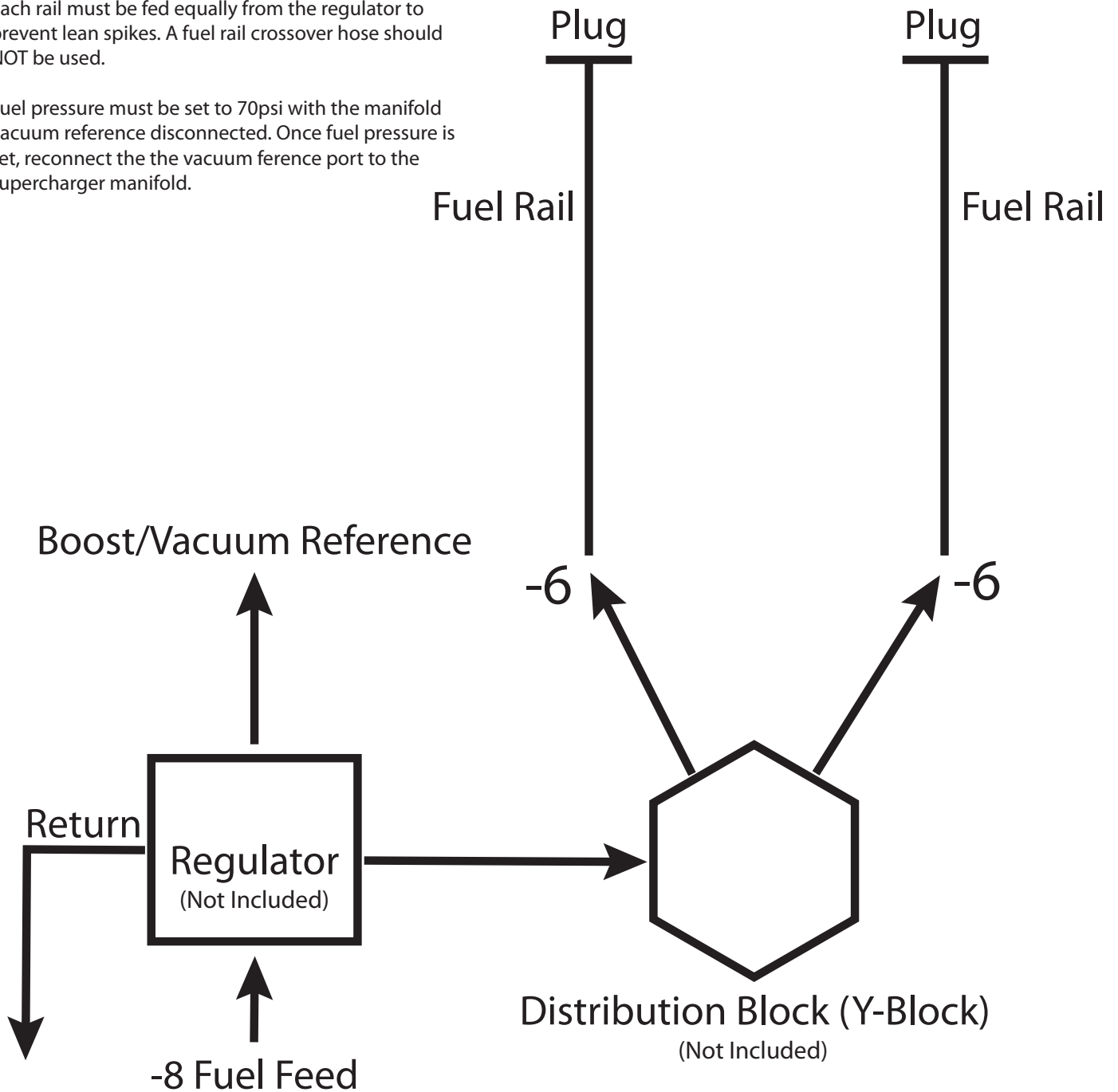


Fuel System Routing Diagram

This diagram is a basic drawing of the fuel system from the regulator to the fuel rails.

Each rail must be fed equally from the regulator to prevent lean spikes. A fuel rail crossover hose should NOT be used.

Fuel pressure must be set to 70psi with the manifold vacuum reference disconnected. Once fuel pressure is set, reconnect the the vacuum ference port to the supercharger manifold.



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