



## EDELBROCK LS416 CRATE ENGINE

### LONG BLOCK ONLY / SUPERCHARGED

Part #46720, 46730, 46740, 46750, 46760

### GENERAL INSTALLATION INSTRUCTIONS

**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 GM aluminum LS3 block with a forged and balanced Manley crankshaft, forged Manley H-Beam connecting rods and Manley forged aluminum pistons which are then combined with Edelbrock's E-Force Supercharger to create a 416ci LS3 stroker with 4.065" Bore and 4" Stroke that will produce 702 horsepower and 658 ft-lbs. of torque on 91 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 46720 - LS416 Long Block Only
- P/N 46730 - Supercharged LS416 Crate Engine, Supercharged Engine Only
- P/N 46740 - Supercharged LS416 Crate Engine, W/ Accessories
- P/N 46750 - Supercharged LS416 Crate Engine, W/ Complete EFI
- P/N 46760 - Supercharged LS416 Crate Engine, W/ Complete EFI and Accessories

#### PRODUCT SPECIFICATIONS:

- Displacement: 416 c.i.d. (4.000" bore x 4.065" stroke)
- Horsepower: 702 (Supercharged Versions)
- Torque: 658 (Supercharged Versions)
- Compression: 9.5:1
- Block: New GM, LS3 Aluminum
- Crankshaft: Forged 4340
- Pistons: Forged Aluminum - 18cc
- Camshaft: 215°/247° , .629/.656, 121 cl
- Rocker Arms: LS3, 1.7 ratio
- Cylinder Heads: GM LSA with Edelbrock Valve Springs #5768
- Finish: Black Powder Coated (Manifold and Valve Covers)
- Warranty: 2 Year/Unlimited Mileage
- Fuel Type: **Requires 91 Octane At All Times**

#### ANCILLARY PARTS REQUIRED FOR INSTALLATION

- Low Temperature Radiator (LTR)
  - #15405: Full Face Universal Fit
  - #15406: Compact Universal Fit
  - #15407: Compact, 16" x 16", Universal Fit
- LTR/Intercooler Plumbing
- Fuel Pump - A minimum fuel flow of 75gph @ 60psi differential pressure is required. *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.*
- Fuel Pressure Regulator with Boost Reference.

- Spark Plugs - NGK - BR7EFS or equivalent, are highly recommended for this application.
- Spark Plug Wires and Coil Mounting Hardware.

**ENGINE OIL:** Your engine is supplied with Edelbrock Break-In Oil in the crate. The engine oil must be changed no more than 300 miles after break-in. A CAT safe SAE 5W30 synthetic oil is highly recommended after break-in.

**OIL PAN CLEARANCE:** A GM Performance Muscle Car Oil Pan Kit (PN 19212593) is used on the LS416 crate engines. Make sure you have adequate subframe and ground clearance before installing the engine.

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

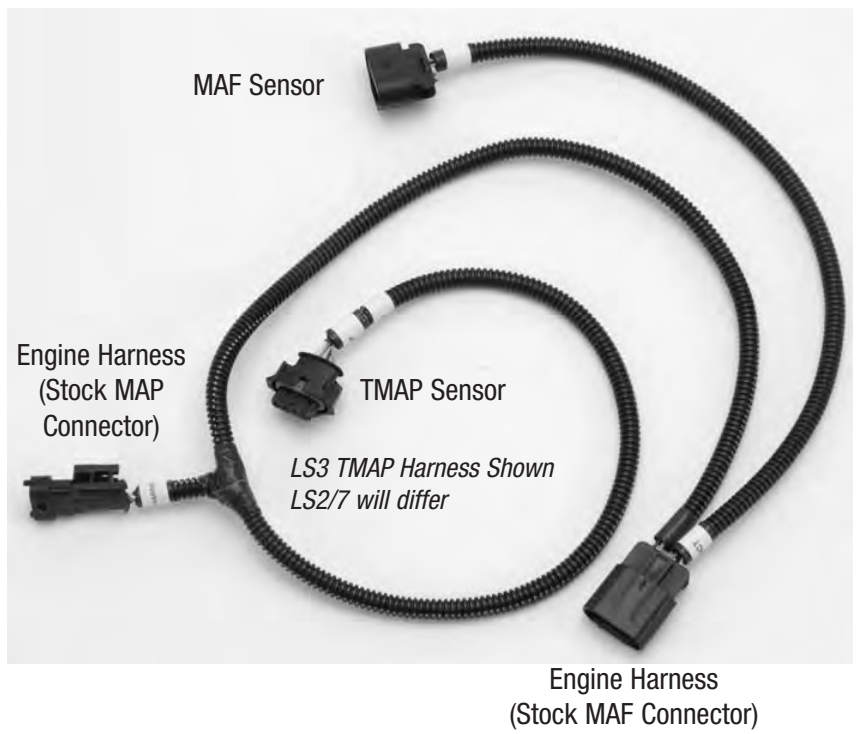
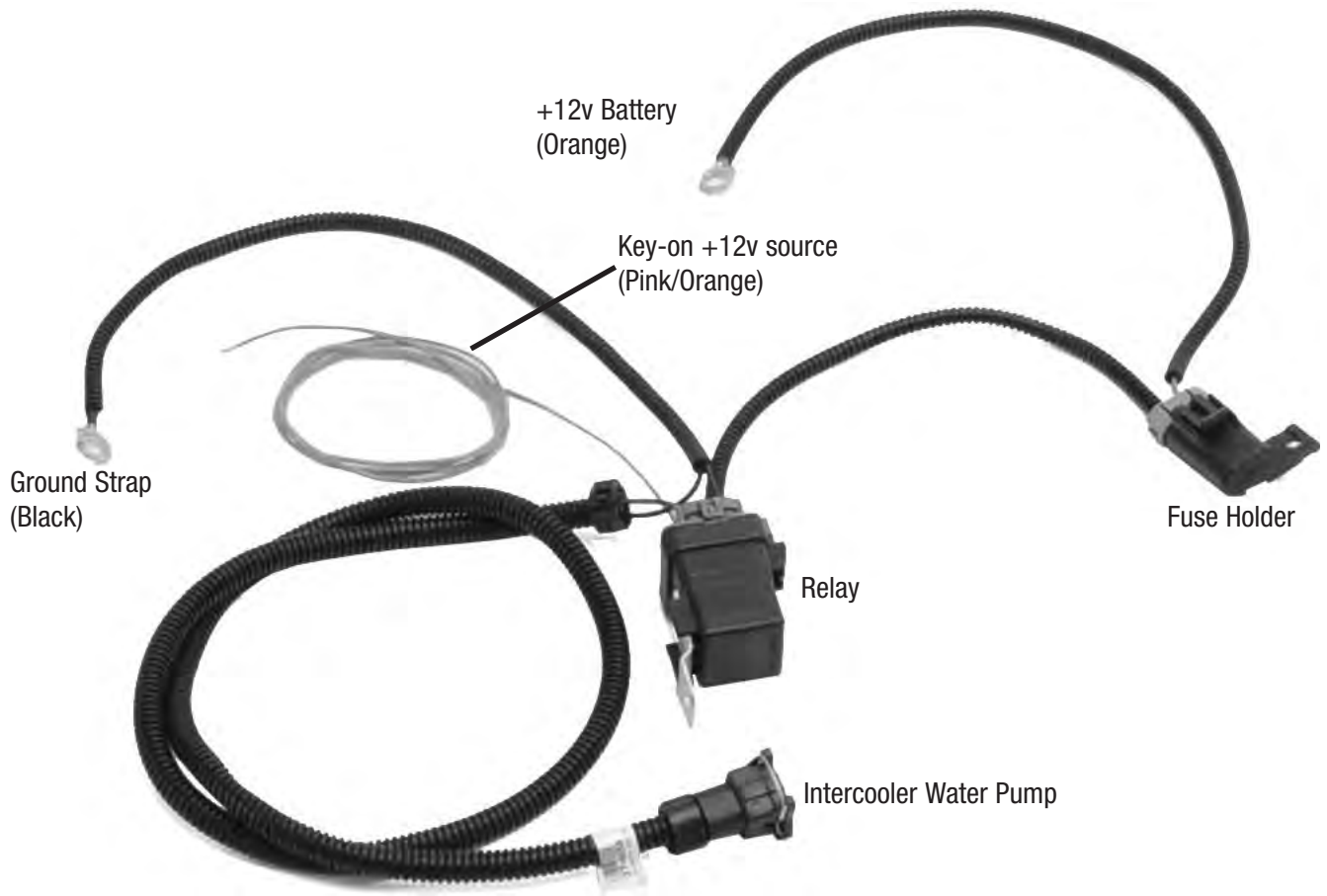
**START-UP:** The engine should be primed with oil prior to starting. Install an oil pressure gauge to the existing oil pressure sensor. Remove the spark plugs and disconnect the engine control unit as well as the injector wires. ***NOTE: Make sure ignition and fuel are not provided to the engine.*** 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 & FLEXPLATES:** LS3 engines use special flexplates or flywheels. See below. NOTE: Apply silicon or thread sealer onto flywheel/flexplate bolts as the mounting holes are through holes.

	Flexplate	Flywheel
GM Part Number	12602448	12571611
Outside Diameter	14"	14"
Converter Bolt Pattern	11.063" (281mm)	11.5" Single Disc
Starter Ring Gear Tooth	168	168

# WIRE HARNESS IDENTIFICATION GUIDE

(Not included with #46720)



# HOSE IDENTIFICATION GUIDE

(Not included with #46720)

Intercooler Outlet Hose

PCV Hoses

Brake Booster to  
Manifold Hose

Bulk 3/4" Intercooler Hose

Intercooler Inlet Hose



# Supercharger Intercooler Routing Diagram

