



LS3 EFI Crate Engines Specifications

Specifications part number: 19329243

Thank you for choosing Chevrolet Performance as your high performance source. Chevrolet Performance is committed to providing proven, innovative performance technology that is truly... more than just power. Chevrolet Performance are engineered, developed and tested to exceed your expectations for fit and function. Please refer to our catalog for the Chevrolet Performance Authorized Center nearest you or visit our website at www.chevroletperformance.com.

This publication provides general information on components and procedures which may be useful when installing or servicing your crate engine. Please read this entire publication before starting work.

These crate engines are assembled using brand new, premium quality components. They utilize modern technologies as fuel injection, individual ignition coil per cylinder, and electronic throttle control. Due to the wide range of small block applications, if you are retrofitting a previous small block application, you may encounter installation differences between your crate engine assemblies and the previous version. These differences may require modifications or additional components not included with the engine, including cooling, fuel, electrical, and exhaust systems.

Some fabrication work may be required.

The LS3 crate engines require an engine control system and harness which are available from your Chevrolet Performance dealer. Check with your dealer or on www.chevroletperformance.com for the control system packages that are currently available. Generally, the fuel system requirement is 60 psi (400 kPa) constant fuel pressure, but check the information included in your engine control system for the actual pressure requirement.

It is not the intent of these specifications to replace the comprehensive and detailed service practices explained in the GM service manuals.

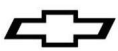
For information about warranty coverage, please contact your local Chevrolet Performance dealer.

Observe all safety precautions and warnings in the service manuals when installing a crate engine in any vehicle. Wear eye protection and appropriate protective clothing. When working under or around the vehicle support it securely with jack stands. Use only the proper tools.

Exercise extreme caution when working with flammable, corrosive, and hazardous liquids and materials. Some procedures require special equipment and skills. If you do not have the appropriate training, expertise, and tools to perform any part of this conversion safely, this work should be done by a professional.

Legal and Emissions Information

This publication is intended to provide information about the crate engine and related components. This manual also describes procedures and modifications that may be useful during the installation of an LS3 crate engine. It is not intended to replace the comprehensive service manuals and parts catalogs which cover Chevrolet Performance engines and components. Rather, it is designed to provide supplemental information in areas of interest to "do-it-yourself" enthusiasts and mechanics. This publication pertains to engines and vehicles which are used off the public highways except where specifically noted otherwise. Federal law restricts the removal of any part of a federally required emission control system on motor vehicles. Further, many states have enacted laws which prohibit tampering with or modifying any required emission or noise control system. Vehicles which are not operated on public highways are generally exempt from most regulations, as are some special interest and pre-emission vehicles. The reader is strongly urged to check all applicable local and state laws. Many of the parts described or listed in this manual are merchandised for off-highway application only, and are tagged with the "Special Parts Notice" reproduced here:



Special Parts Notice

This part has been specifically designed for Off-Highway application only. Since the installation of this part may either impair your vehicle's emission control performance or be uncertified under current Motor Vehicle Safety Standards, it should not be installed in a vehicle used on any street or highway. Additionally, any such application could adversely affect the warranty coverage of such an on-street or highway vehicle.

Package Contents:

Item	Description	Quantity
1	Engine Assembly	1
2	Engine Instructions	1

Component Information:

Additional service information not included in this document can be found from your Chevrolet Performance Parts dealer under the GM 2014 Chevrolet SS sedan LS3 RPO for all components. When servicing or replacing items below, use information for a GM 2014 Chevrolet SS sedan LS3 RPO.

Additional Parts That May Be Needed:

Engine Control System

As indicated above, the LS3 crate engines require an engine control system and harness which are available from your Chevrolet Performance dealer. Check with your dealer or on www.chevroletperformance.com for the control system packages that are currently available.

Flywheel

The LS3 crate engine includes an original equipment flexplate (12654640) used on 2014 Chevrolet SS sedan. Flywheel 12571611 is also available from your Chevrolet Performance Parts dealer for manual transmission applications.

Pilot Bearing

You must install a pilot bearing in the rear of the crankshaft if the engine will be used with a manual transmission. The pilot bearing aligns the transmission input shaft with the crankshaft centerline. A worn or misaligned pilot bearing can cause shifting problems and rapid clutch wear. There are two different pilot bearings for the LS3 engine. 14061685 for a long input shaft and 12557583 for a short input shaft. Verify fit prior to transmission installation or damage will occur.

Starter

The LS3 crate engine does not include a starter. Chevrolet Performance Parts part number 10465385 is matched to this application and is recommended. See your Chevrolet Performance Parts dealer for details.

Air Induction

A foam or paper element, low restriction air filter/cleaner should be used to protect the engine from excessive wear. Additionally, your engine control system may have recommendations for air cleaners and intake systems for best performance.

Fuel Pump

The LS3 engine does not include a fuel pump. Generally, the EFI system requirement is 58 psi constant pressure, but consult the information with your engine control system for the actual recommendation. The fuel pump you choose must be capable of 45 gallons per hour (GPH) @ the recommended pressure. Chevrolet Part Number 19151145 is an in-tank unit that meets these requirements, but may not be adaptable for all applications. Numerous aftermarket pumps will meet these requirements as well. Chevrolet Performance offers a fuel filter/regulator part number 19239926 that will regulate to the correct fuel pressure.

Accessory Drive Brackets

Accessory Drive Kit part 19155067 and 19155066 with air conditioning or 19299070 and 19257325 without air conditioning are available from Chevrolet Performance to fit the LS3 engines. These kits contain all components and hardware necessary for installation (includes air conditioning compressor, power steering pump, and alternator). Please see your Chevrolet Performance dealer or visit us on the web at www.chevroletperformance.com.

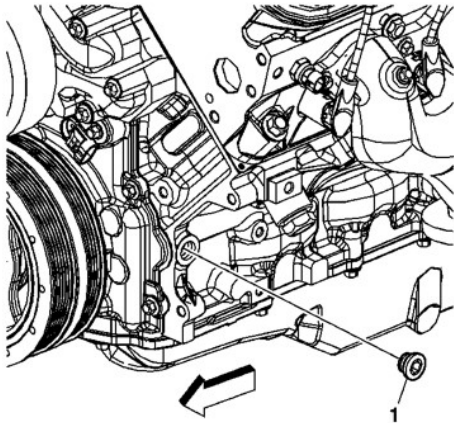


Start-up and Break-in Procedures:

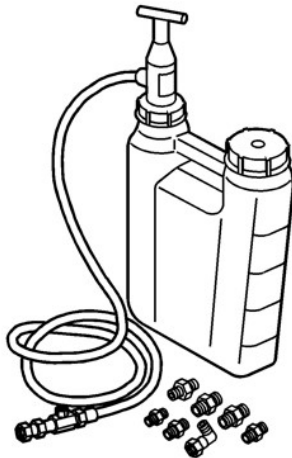
Safety first, if the vehicle is on the ground, be sure the park brake is set, the wheels are chocked and the car cannot fall into gear. Verify everything is installed properly and nothing was missed.

1. This engine assembly needs to be filled with oil. After installing the engine, ensure the crankcase has been filled with the appropriate motor oil to the recommended oil fill level on the dipstick. These crate engines require a special oil meeting DEXOS1 - 5W30. Also check and fill as required any other necessary fluids such as coolant, power steering fluid, etc.
2. This engine **MUST** be primed with oil before starting. The use of Kent-Moore engine preluber kit J 45299 is the preferred process for priming.

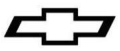
NOTE: A constant and continuous flow of clean engine oil is required in order to properly prime the engine. Be sure to use approved engine oil, as specified.



- A. Remove the engine oil filter, and fill with clean engine oil.
- B. Install the oil filter and tighten.
- C. Locate and remove the engine block left front oil gallery plug (1).
- D. Install the M16 x 1.5 adapter P/N 509375
J 45299 Engine Preluber



- E. Install the flexible hose to the adapter and open the valve.
- F. Pump the handle on the J 45299 preluber in order to flow a minimum of 1-1.9 liters (1-2 quarts) engine oil. Observe the flow of engine oil through the flexible hose and into the engine assembly. The engine will be primed after a small amount of pressure change is seen on the in car oil pressure gauge while pumping J 45299.
- G. Close the valve and remove the flexible hose and adapter from the engine.
- H. Apply approved thread sealer and install the oil gallery plug to the engine and tighten to 60 **N•m (44 lb ft)**. Top-off the engine oil tank to the proper level.



3. Start the engine and listen for any unusual noises. If no unusual noises are noted, run the engine at approximately 1000 RPM until normal operating temperature is reached.
4. When possible, you should always allow the engine to warm up prior to driving. It is a good practice to allow the oil sump and water temperature to reach 180°F before towing heavy loads or performing hard acceleration runs.
5. The engine should be driven at varying loads and conditions for the first 30 miles or one hour without wide open throttle (WOT) or sustained high RPM accelerations.
6. Run five or six medium throttle (50%) accelerations to about 4000 RPM and back to idle (0% throttle) in gear.
7. Run two or three hard throttle (WOT 100%) accelerations to about 4000 RPM and back to idle (0% throttle) in gear.
8. Change the oil and filter. Replace the oil per the specification in step 1, and replace the filter with a new PF48 AC Delco oil filter. Inspect the oil and the oil filter for any foreign particles to ensure that the engine is functioning properly.
9. Drive the next 500 miles (12 to 15 engine hours) under normal conditions. Do not run the engine at its maximum rated engine speed. Also, do not expose the engine to extended periods of high load.
10. Change the oil and filter. Again, inspect the oil and oil filter for any foreign particles to ensure that the engine is functioning properly.

LS3 Engine Specifications:

Type:	6.2L Gen IV Small Block V8
Displacement:	376 cubic inches
Bore x Stroke:	4.065 inch x 3.622 inch
Compression:	10.7:1
Block:	Cast aluminum, six bolt cross-bolted main caps
Cylinder Head:	Cast aluminum rectangle port
Valve Diameter (Intake/Exhaust):	2.16"/1.59"
Chamber Volume:	68cc
Crankshaft:	Nodular iron, internally balanced
Connecting Rods:	Powdered metal
Pistons:	Hypereutectic aluminum
Camshaft	Hydraulic roller tappet
Lift:	0.551" intake, 0.522" exhaust
Duration:	202° intake, 212° exhaust @.050" tappet lift
Centerline:	117.5° LSA
Rocker Arm Ratio:	1 .7:1
Oil Capacity:	5.5-quart (with filter)
Oil Pressure (Minimum, with hot oil):	6 psig @ 1000 RPM
	18 psig @ 2000 RPM
	24 psig @ 4000 RPM
Recommended Oil:	DEXOS1
Oil Filter:	AC Delco part # PF48
Fuel:	Premium unleaded-92 (R+M/2)
Maximum Engine Speed:	6600 RPM
Spark Plugs:	GM 12609877
	AC Delco # 41-985
Spark Plug Gap:	.040"
Firing Order:	1-8-7-2-6-5-4-3

Information may vary with application. All specifications listed are based on the latest production information available at the time of printing.