

24x LT1/LT4 Installation Tips

EFI Connection best practices for the installation of the 24x LT1/LT4 system.



About the 24x LT1/LT4 System

EFI Connection is pleased to be the first to make available a package that equips the LT1 and LT4 engines with the required crankshaft signal (24x) and camshaft signal (1x) to run a true LS1 PCM and coil per cylinder calibration. With the LS1 PCM, your LT1/LT4 engine will outperform the original LT1 fuel management system while eliminating the troublesome optispark distributor ignition system. What's more? EFI Connection's components will never wear out. The only serviceable parts are the crank and cam sensors; both GM parts.

24x Crankshaft Reluctor and Sensor

The 24x crank reluctor installs on the crankshaft behind a 96-97 LT1 timing cover and is indexed to the proper orientation by the 96-97 crank key (GM# 12550096). The 24x crank reluctor is a direct replacement to the 4x crank reluctor already installed on 96-97 LT1/LT4 engines. Engines prior to 1996 will require the 96-97 timing cover and crank key. The crank key will require minor filing to be flush with the crank so that the hub will reinstall without interference by the key.

GM's 24x crank sensor (GM# 10456248) is required for the 24x installation. The 96-97 LT1's 4x crank sensor is not compatible with the 24x crank reluctor.

The 96-97 LT1 timing cover does not allow clearance for a double row timing chain. If you have the necessary fabrication skills to extend the crank seal area of the timing cover, you can optionally order the 24x crank reluctor for the early small-block Chevy engines and use a double row timing chain.

The 24x crank reluctor has the same thickness as the 4x crank reluctor so that no machining is required for the 96-97 crankshaft hub. The 92-95 LT1 crankshaft hub snout must be milled the thickness of the 24x crank reluctor to avoid misalignment of the crankshaft balancer and accessory belt.

Camshaft Housing, 1x Reluctor, and Sensor

The optispark distributor is completely replaced by the cast aluminum camshaft housing. Installation requires the removal of the three timing sprocket bolts, installation of the 1x cam reluctor and button-head bolts, and then camshaft housing. Use caution while tightening the three cam reluctor bolts by tightening the bolts evenly until the cam reluctor is seated flush with the timing sprocket. The camshaft housing installs in place of the optispark distributor and uses the original seal in the timing cover. The 1x cam signal is sensed through the housing. The cam sensor is commonly used with Gen 4 LS type engines (GM# 12591720).

Engine Wiring Harness

The 24x conversion is ideal for engine swaps into older vehicles. Newer vehicles have other onboard modules that may require signals from the PCM. The engine wiring harness must be pinned at the PCM so that injectors/coils 2&3 and 7&4 are swapped (when compared to an original LS type wiring diagram). EFI Connection offers stand alone type engine wiring harnesses and also 93-97 Camaro/Firebird plug and play 24x LT1 engine harnesses.

PCM Calibration and Initial Changes

The 24x system allows you to use any Gen 3 LS type PCM and compatible engine calibration. Closed loop operation is corrected through the PCM calibration by adjusting the injector to bank assignment table. For engines equipped with a vacuum operated fuel pressure regulator, the fuel injector flow rate must be set as a constant. After the injector bank assignments and fuel injector flow rate changes, the majority of the calibration work is then related to spark and fuel adjustments. Best results will be achieved by using an all-inclusive tuning package like EFILive or HPTuners.