

## High Flow Direct Injection K-DI™ Kinetic Nozzle Geometry 27 GPS Fuel Injectors for GM Gen V V8 Applications



PN: L730136927

## Parts List

### High Flow Direct Injection K-DI™ Kinetic Nozzle Geometry 27 GPS Fuel Injector PN: L730136927

#	Description	Part number
8	27 GPS DI Fuel Injector	L730126927
1	Jumper Harness	
1	Instruction Manual	

## Tools & Materials Required

- Speed wrench
- Torque wrench
- 13 mm socket
- 10 mm socket
- 17 mm wrench
- 17 mm crowfoot wrench
- Pry tool
- 3/8" quick disconnect fuel line release tool
- Injector retaining clip installer
  - PN: EN-51097
- Teflon seal compression tool
  - PN: 0 986 616 099 or EN-49245
- Tuning Software (HP Tuners and EFLive support available)

## Optional Items

#	Description	Part number
1	Big Bore Direct Injection High Volume Fuel Pump For GM Gen V V8 Applications	L710166914
1	Lingenfelter GT35-6.5 Camshaft Supercharged LT1/LT4/L83/L86 2014-18	L210200215
1	Lingenfelter GT35-7.85 Camshaft Supercharged LT1/LT4/L83/L86 2014-18	L210287515

## Applications:

- High horsepower GM Gen V V8 direct injection engines including LT4, LT1, L86, and L83
- E85 conversions of GM Gen V V8 engines
- 2014-2017 C7 Corvette (LT1)
- 2015-2017 C7 Z06 Corvette (LT4)
- 2016-2017 Camaro SS (LT1)
- 2016-2017 CTS-V (LT4)
- 2017 ZL1 Camaro (LT4)
- 2014-2017 Silverado and Sierra with 5.3L L83 and 6.2L L86 engines
- 2015-2017 Suburban, Tahoe, Yukon and Escalade with 5.3L L83 and 6.2L L86 engines

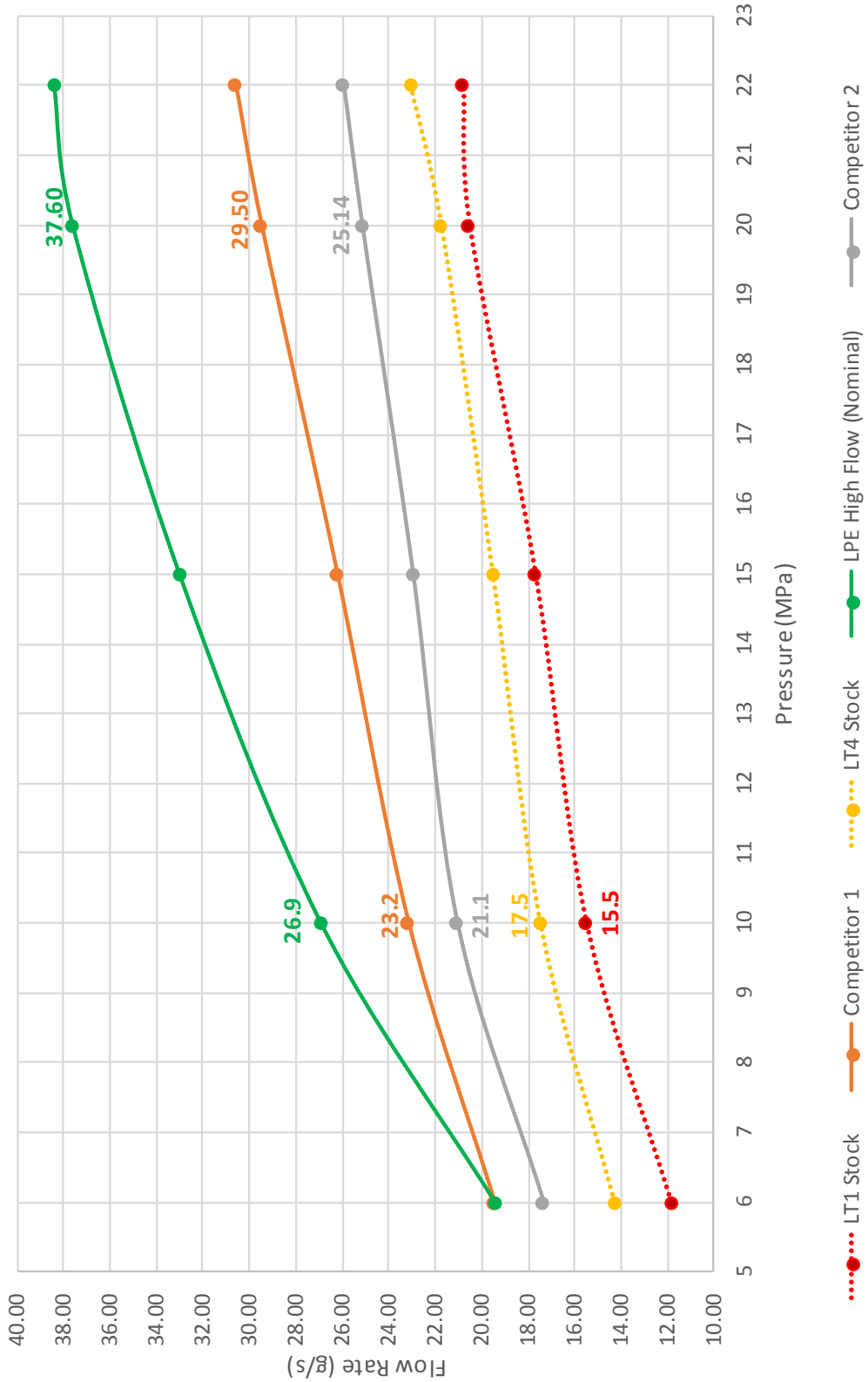
## Description:

These high flow gasoline direct injection injectors are specifically designed for use in the GM Gen V V8 direct injection engines (aka "LT" engines). At 27 grams per second flow rate these injectors provide the needed fuel flow for high horsepower applications without having to resort to auxiliary fuel systems. These injectors feature Nostrum's patented K-DI™ kinetic nozzle geometry which provides high flow rates without sacrificing atomization. Spray targeting is designed for optimal combustion quality. These features, combined with the supplied injector characterization data, ensures that the high flow injectors will perform well at low RPM light load idle all the way to high RPM peak power/load conditions. The injectors are also E85 compatible allowing higher output engines to take advantage of the availability of E85 fuel.

## Specifications for the Lingenfelter Direct Injection K-DI™ Kinetic Nozzle Geometry 27 GPS Fuel Injector:

- Rated flow of 27 gram/second at 10 MPa
  - 122% more flow than the production L83 fuel injectors
  - 76% more flow than production LT1/L86 injectors
  - 52% more flow than production LT4 injectors
- E85 compatible.





### GM LT Direct Injectors - Flow Rate Comparison



**WARNING: DO NOT EXCEED 20 MPa or 200 bar**

**Features:**

- Built & tested to OEM durability & performance specifications.
- Flow tested, sorted and marked by flow rate for improved injector matching.
  - Flow matched within +/- 3%
- Flow characterization data is provided for calibration purposes.
- All injectors are burst and leak tested.
- Patented K-DI™ kinetic nozzle geometry that provides high flow with short liquid length & small fuel droplets for better atomization.

Injector Spray Pattern Comparison	
Stock LT4	Competitor 1
	
Competitor 2	Lingenfelter DI Injector with the Nostrum Patented K-DI™ Kinetic Nozzle Geometry
	

- Spray targeted to produce the specific spray plume shape for the GM Gen V V8 engine’s combustion chamber and intake charge motion for optimal combustion quality.
- Optimized spray plumes, controllability and response for easy integration.

# LINGENFELTER

## PERFORMANCE ENGINEERING

### Benefits:

- Easy installation.
- High flow rates.
- Allows E85 conversion of stock and modified L86, LT1 & LT4 engines – providing an easier and more cost effective way to obtain higher octane pump fuel.
- This product allows tuners to increase horsepower without sacrificing full range performance.
- Flow characteristics can be easily calibrated with aftermarket tools using supplied data.
- Eliminates the need for secondary fuel systems.

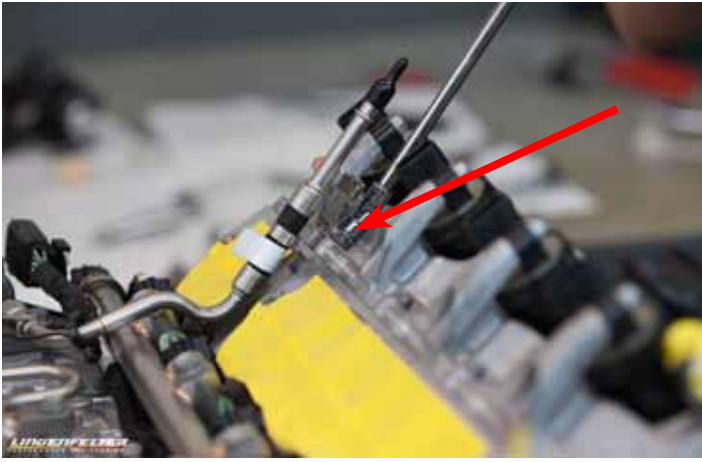
### Notes:

- Read all of the instructions before beginning the installation process in order to make sure you have all of the tools and equipment needed and that you feel comfortable performing the installation.
- Be careful on the torque specifications. Some torque specifications are in lb-ft and others are in lb-in.
- Be sure to save all of the parts you remove from the vehicle. Many components will be re-used during the installation of this system.
- Be careful not to damage any components while removing them from the vehicle. Some parts cannot be purchased by themselves from GM and must be purchased as part of an entire assembly.
- Estimated installation time is 30-35 minutes after the intake manifold/supercharger has been removed.

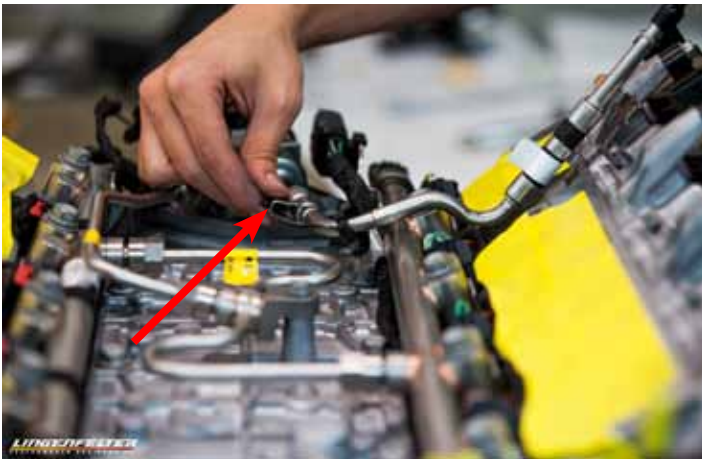
**If you have been using the vehicle, allow the vehicle to cool down before beginning this installation.**

**Installation instructions begin after intake manifold/supercharger removal.**

**RECALIBRATION OF THE ENGINE CONTROL MODULE IS REQUIRED**



1. Remove the low pressure fuel feed pipe to left hand rocker cover bolt using a 10 mm socket.



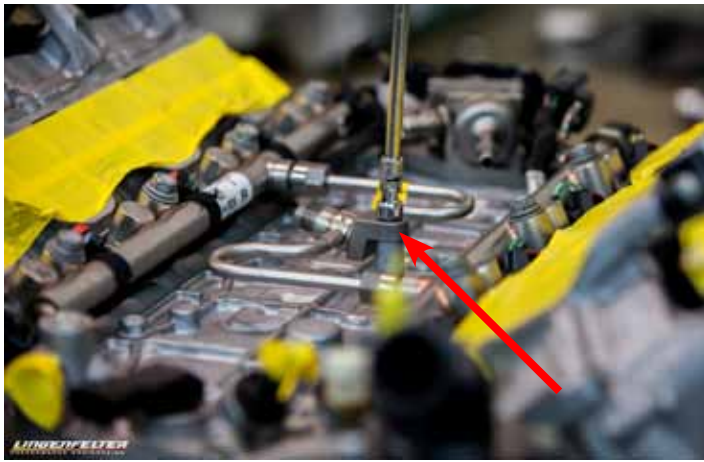
2. Remove the low pressure feed pipe redundant clip.



3. Remove the low pressure fuel feed pipe from the fuel pump using a 3/8" quick disconnect fuel line release tool.



4. Remove the high pressure fuel feed pipe that connects the fuel pump to the crossover pipe by loosening the fuel feed pipe fittings using a 17 mm wrench.



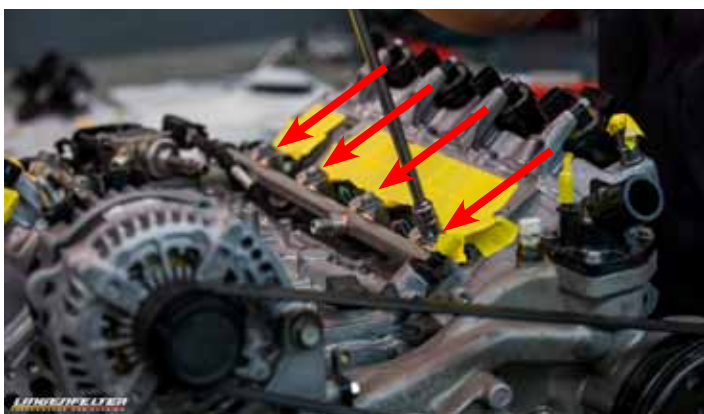
5. Remove the high pressure fuel rail crossover pipe bolt using a 10 mm socket.



6. Remove the high pressure fuel rail crossover pipe by loosening the fuel pipe fittings using a 17 mm wrench.



7. Disconnect the high pressure fuel pump regulator electrical connector.



8. Remove the fuel rail bolts using a 13 mm socket.



9. Remove the high pressure fuel rail ensuring that the stock injectors are pulled out evenly.

10. Set the high pressure rail with the stock injectors on a clean work surface.

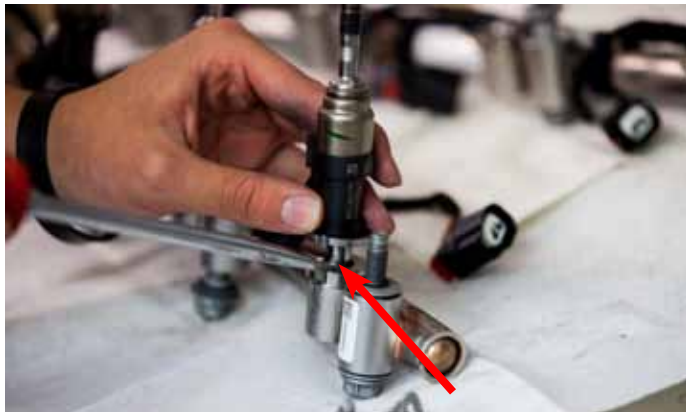


11. Disconnect the stock fuel injectors from the injector harness.



12. Remove the fuel injector retainer clip using an injector retaining clip installer spreading both sides of the clip evenly. Repeat on all injectors.





- Using a pry tool, carefully remove the stock injector from the fuel rail. Repeat on all injectors.



- Install the high flow injector onto the fuel rail. Line the high flow injector locator pins to the key on the fuel rail.

NOTE: The Lingenfelter High Flow injectors use locator pins instead of a retaining clip to ensure correct injector orientation



- Use the Teflon seal compression tool on the injector. Orientation of the tool is important. The inside diameter of the tool tapers. The side with the larger inside diameter goes onto the injector first.

**WARNING:** A Teflon seal compression tool must be used. The purpose of the seal compression tool is to compress the seal, so the injector can be installed into the cylinder head without binding to the cylinder head wall. This allows the seal to be more resistant to compression set. This will increase the lifetime of the seal.



16. Leave the Teflon compression tool on the injector for 15-20 seconds.



17. Repeat steps 14-16 installing the high flow injectors one rail at a time.

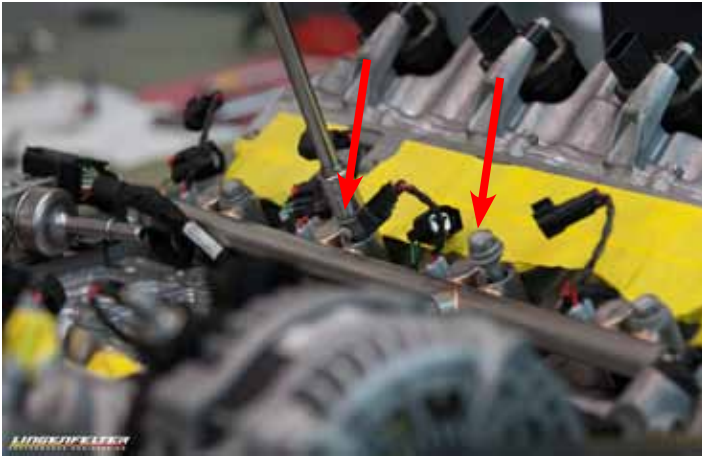


18. Install the high flow injectors into the cylinder head. Ensure that the injectors are placed into the cylinder head evenly.

**WARNING:** Do not use lubricant when installing the injectors. Lubricant can burn which can damage the injector seals.



19. Tighten the outside bolts to draw the fuel rail down evenly to avoid damage to the injectors and the injector bore.



20. Tighten down the two middle fuel rail bolts before torquing.



21. Torque the fuel rail bolts to 18 ft-lbs (25 Nm).

22. Repeat steps 14-21 on the opposite fuel rail.



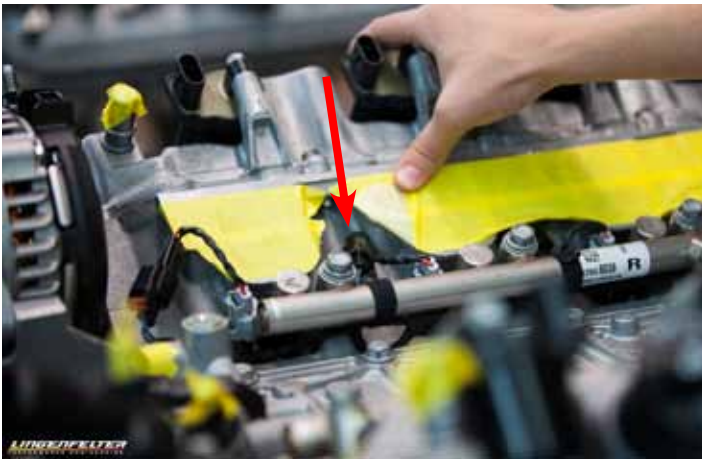
23. Tuck fuel injector harness connectors underneath the fuel rail so the connectors are on the same side as the cylinder head.



24. Connect the high flow fuel injector jumper harness connector to the fuel injector harness. Repeat on all injectors.



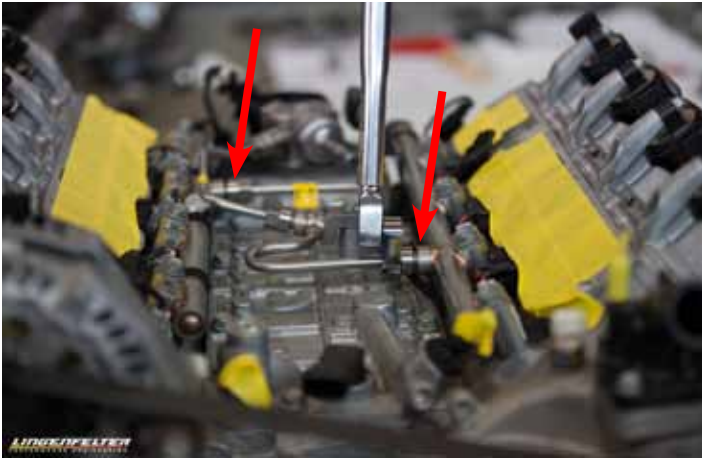
25. Ensure that the connector position assurance clip is locked into position. Repeat on all injectors.



26. Tuck the connector between the cylinder head intake ports. Repeat on all injectors.



27. Install the high pressure fuel rail crossover pipe. Hand tighten the fuel rail crossover pipe fitting nuts and the fuel rail crossover pipe bolt.



28. Torque the fuel rail crossover pipe fitting nuts to 22 ft-lbs using a 17 mm Crowfoot wrench.



29. Torque the fuel rail crossover pipe bolt to 89 in-lbs (10 Nm) using a 10 mm socket.

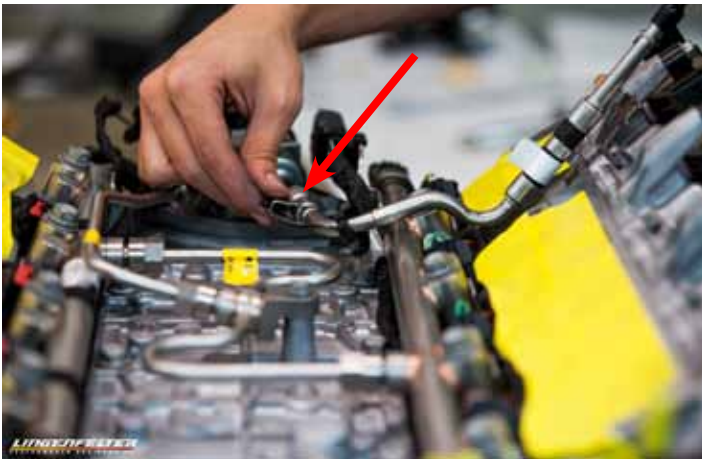


30. Install the high pressure fuel feed pipe. Hand tighten the high pressure fuel feed pipe fitting nuts.

31. Torque the high pressure fuel feed pipe fitting nuts to 22 ft-lbs using a 17 mm Crowfoot wrench.



32. Connect the high pressure fuel pump regulator electrical connector.



33. Install the low pressure feed pipe redundant clip.



34. Install the low pressure fuel feed pipe to the left hand rocket cover. Torque to 89 in-lbs (10 Nm) using a 10 mm socket.

**Installation of the 27 GPS High Flow Direct Injection K-DI™ Kinetic Nozzle Geometry Fuel Injectors is now complete!**

**Please refer to the Calibration Addendum on page 15 for calibration assistance on the new high flow injectors.**

# Calibration Addendum

This addendum is provided to assist with the recalibration of the GM E92 Engine Control Module (ECM) for the Lingenfelter High Flow injectors. Calibration support is provided for both HP Tuners and EFILive.

## Identifying your injector set:

The injectors sets are matched to +/- 3%. The set of injector can be identified by the color coded sticker on the injector and the injector box. The three possible colors are blue, green, and purple.



Once your injector set has been identified you can now select the appropriate calibration support file.

## Selecting your calibration support file:

There are three pieces of information you must know before selecting your calibration support file:

- Tuning Software (EFILive, HP Tuners)
- Matched Injector Set Color (Blue, Green, Purple)
- Engine RPO Code (L83, LT1/L86, LT4)

The naming convention for the calibration support file can be seen below.

(Tuning Software) Injector Characteristics - (Engine RPO Code) - (Matched Injector Set Color) v(Version).xls

Example:

HP Tuners Injector Characteristics - LT4 - Green v1.0.xlsx

The calibration support files include detailed screenshots and location descriptions on where the high flow injector data needs to be changed within your vehicle's calibration. The calibration support files can be found on our website at <https://www.lingenfelter.com/CalibrationSupportFiles.html>

# **LINGENFELTER**

---

## **P E R F O R M A N C E   E N G I N E E R I N G**

### **NOTICES:**

It is the responsibility of the purchaser to follow all guidelines and safety procedures supplied with this product and any other manufacture's product used with this product.

Lingenfelter Performance Engineering assumes no responsibility for damages resulting from accident, improper installation, misuse, abuse, improper operation, lack of reasonable care, or all previously stated reasons due to incompatibility with other manufacturer's products.

Lingenfelter Performance Engineering assumes no responsibility or liability for damages incurred from the use of products manufactured or sold by Lingenfelter Performance Engineering on vehicles used for competition racing.

It is the purchaser's responsibility to check the state and local laws and sanctioning body requirements pertaining to the use of this product for racing applications. Lingenfelter Performance Engineering does not recommend nor condone the use of its products for illegal street racing.

### **DISCLAIMER:**

The information provided in this document is intended for informational purposes only and is subject to change without notice. Lingenfelter Performance Engineering also reserves the right to make improvements and/or changes to the product described at any time without notice.

**For additional product installation information and technical support, contact Lingenfelter Performance Engineering or your Lingenfelter Performance Engineering products distributor. You can also find technical support and usage discussions regarding this product and many other Lingenfelter Performance Engineering products in our Internet forums:**

[http://www.lingenfelter.com/forum\\_lingenfelter/index.php](http://www.lingenfelter.com/forum_lingenfelter/index.php)

**Join us on Facebook!**

<http://www.facebook.com/#!/lpehp>

Lingenfelter Performance Engineering  
1557 Winchester Road  
Decatur, IN 46733  
(260) 724-2552  
(260) 724-8761 fax  
[www.lingenfelter.com](http://www.lingenfelter.com)

L730136927 27 GPS Gen V V8 Direct Injection Fuel Injectors, v1.1.indd