

DJD Performance Engineering

Gen V LT High Pressure Fuel Pump Preload Measuring Tool



Overview:

LT high pressure fuel pump preload is a critical factor in the performance of your Gen V LT engine. Incorrect pump preload can result in reduced fuel pump performance, damage of the HPFP, as well as potential failure of the engine. The DJD Performance Engineering HPFP preload tool allows accurate measurement of the components that influence preload directly. Below are images of what can happen if the preload is incorrect.



What's included:

1. HPFP Tool Lower – The lower portion of the tool has a handle similar to a micrometer. That handle includes a ratcheting thumb screw and a lock that holds the measuring stem in place. The HPFP bolts to this portion of the tool for measurement of the pump.
2. HPFP Tool Upper- The upper portion of the tool is what includes the gauge. This is the measuring instrument used throughout the preload measuring process.
3. Assembly Bolts & Washers– The two included bolts attach the pump to the lower portion of the tool, as well as the upper and lower portions of the tool.

Instructions for fuel pump measurement:

1. Separate the upper and lower portions of the tool.
2. Ensure that the lock on the lower tool handle is off and loosen the measuring handle so the tool does not contact the pump when assembling. Failure to do this can cause damage to the tool.
3. Mount the fuel pump and gasket to the lower portion of the tool using the provided bolts. The beehive spring can be left on the pump for this measurement.
4. Once the two are assembled, thread the measuring handle into the pump plunger. Use the main portion of the measuring handle until it gets tight, then back it off a turn. Then use the ratcheting thumb screw to thread the handle in until the ratchet sound is heard. This ratcheting knob is present so that the handle is not overtightened. Engage the lock on the handle to retain the measurement.



Transferring the measurement from the lower tool to the upper tool:

1. Separate the lower tool from the HPFP. Remove the gasket and set it to the side.
2. Carefully assemble the lower portion of the tool to the upper portion of the tool. You will notice that the plunger of the lower tool will move the needle on the gauge.
3. Loosen the face locking screw on the right side of the gauge. Then rotate the face so that the dial reads zero. Tighten the screw to lock the ring back into place. Ensure the tab below the locking screw is contacting the gauge face. If it is not, the face can still move. **PAY ATTENTION TO THE POSITION OF THE SMALL NEEDLE IN THE BOTTOM LEFT!!**
4. You now have the gauge set and are ready to move to the engine portion.



Measuring preload on the engine:

1. Separate the upper and lower portions of the tool.
2. Roll the engine over with your finger on the fuel pump lifter. Feel for it to be at the bottom of its stroke.
3. Bolt the upper portion of the tool to the engine's valley plate using the longer M8 bolts. This measurement needs to be taken with no lashcap. Since we used the gasket in a previous step, the gasket is omitted for this step as well.
4. Rotate the engine over until the gauge reads its lowest value. Ensure the pintle of the gauge is making contact with the lifter on its way back down. Place your finger on the upper portion of the gauge to make sure it is against the lifter. Once you find the lowest point, this is your preload. Record the data in the attached sheet for your records.

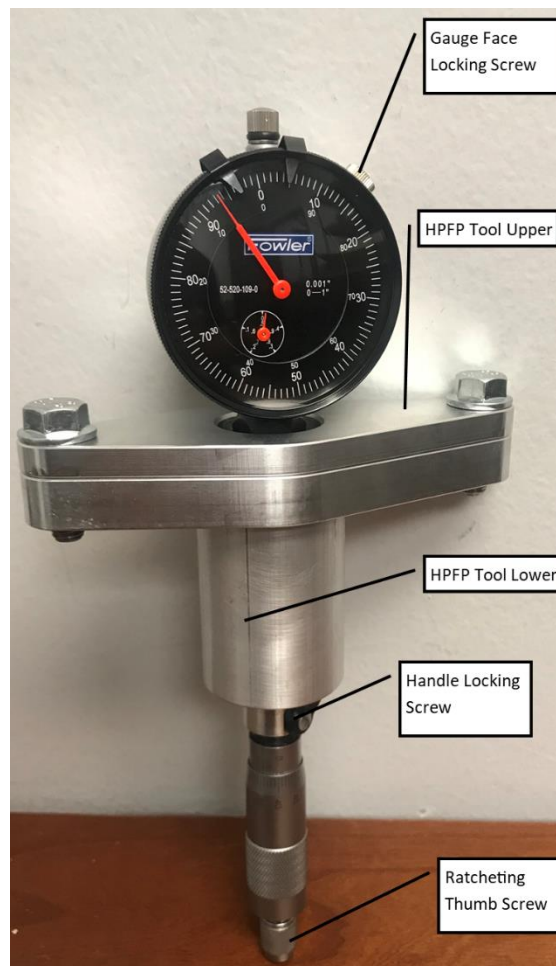


What to do with the value you collected:

The preload value you recorded in the previous step should be between .040" to .060". If you are going with an aftermarket pump, you will need to check with the manufacturer for recommended preload.

If your preload value recorded is higher than the recommended, you will need to space the pump up higher. This can be accomplished with an additional gasket. We will be offering thicker gaskets in the future.

If the preload value you measured is lower than the recommended value, there are a couple things you can do. Depending on how far off your preload value is, you can use an LS7 lash cap. These are typically .060", and .090". We have never had to use a .090". The other thing you can do is have your valley plate milled.





FUEL PUMP PRELOAD RECORD

Shop where measurement was performed: _____

Customer: _____

Vehicle (Year, Make, Model): _____

Camshaft installed in car: _____

High pressure fuel pump type installed (LPE, XDI, Stock LT4): _____

Preload measured before lash cap or any gaskets were added: _____

Lash cap used? _____

How many gaskets were used? _____

Final preload measurement: _____

Measured by (print name, title): _____

Signature: _____

**Please maintain this document for your records and provide the customer with
a copy**