

INSTALLATION INSTRUCTIONS



Powerglide Racing Oil Pump Model PGP-1

The model PGP-1 is a custom engineered racing oil pump that is a direct replacement for the "GM" Powerglide front pump. It has already been machined for a roller thrust bearing and has been preassembled, ready for installation. You do not need to disassemble the pump or have it machined in any way.

Installation is easiest if you use the Reid Racing installation kit p/n PGP-IK. This kit includes a roller thrust bearing, endplay adjustment shims, seals, gasket, o-ring and high gear drum seals.

PRE-INSTALLATION CHECKS

Before installing any pump, especially this one, it is important that you check the fit between the torque converter and the pump.

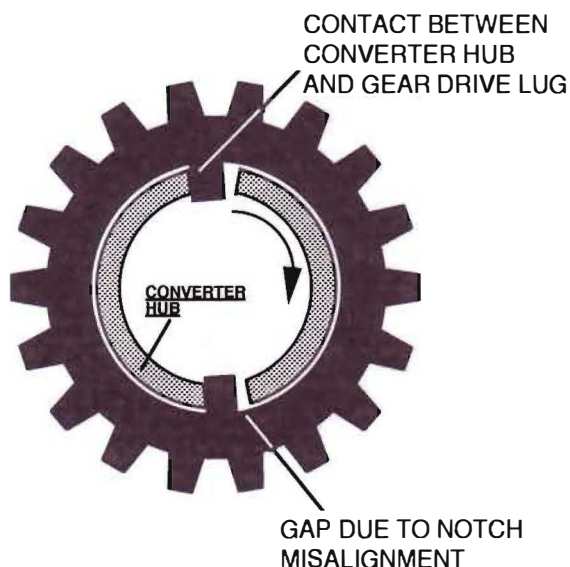
In a Powerglide, the oil pump gear has 2 lugs that are driven by notches cut into the torque converter hub. Gear breakage is often caused by misalignment of these notches. For maximum pump life, both lugs of the oil pump gear must be driven equally. Misalignment causes the notches to drive only one of the lugs (see illustration), which overloads the lug and causes it to break off. The second lug quickly breaks and the pump is destroyed. The misalignment can be caused by an incorrectly machined hub where the notches have been machined off-center, but more often it is caused by wear with age.

To insure the pump will have maximum life:

- 1) Coat the converter hub notches with dykem, prussian blue, etc. and slide it into the pump. Rotate the converter in the clockwise direction only (looking into the transmission from the engine side).
- 2) Slide the converter out of the transmission and observe the contact pattern on the notches. If both notches have equal contact patterns, then everything is ok.
- 3) If the notches show contact on one notch only, stuff a rag into the hub to prevent metal chips from falling into the converter and carefully file the notch that shows contact. Repeat step 1 and 2 until both notches contact evenly.
- 4) You are now ready to install the oil pump into the transmission.

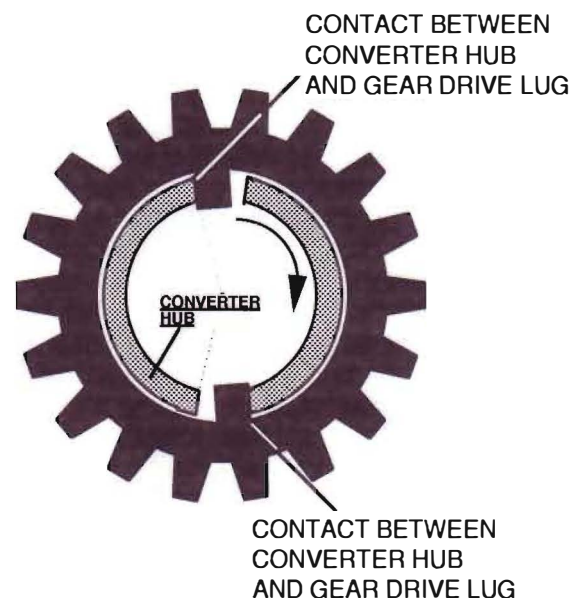
INCORRECT

SINGLE LUG DRIVING PUMP GEAR



CORRECT

BOTH LUGS DRIVING EQUALLY



Installation into transmission
(with Reid Racing Installation Kit p/n PGP1-IK)

1) Discard the factory bronze high gear drum thrust washer. Find the .010 thick adjustment shim (determine this by measuring the shim thicknesses) and slide it over the hub of the pump. Next, slide the roller thrust bearing over the hub with the large flange closest to the pump as shown in the drawing.

2) Install the two new cast iron high gear drum seal rings onto the hub and install the square o-ring onto the outside of the pump body. Lubricate the o-ring with ATF or assembly lubricant. Pour some ATF into the pump ports to pre-lube the gears.

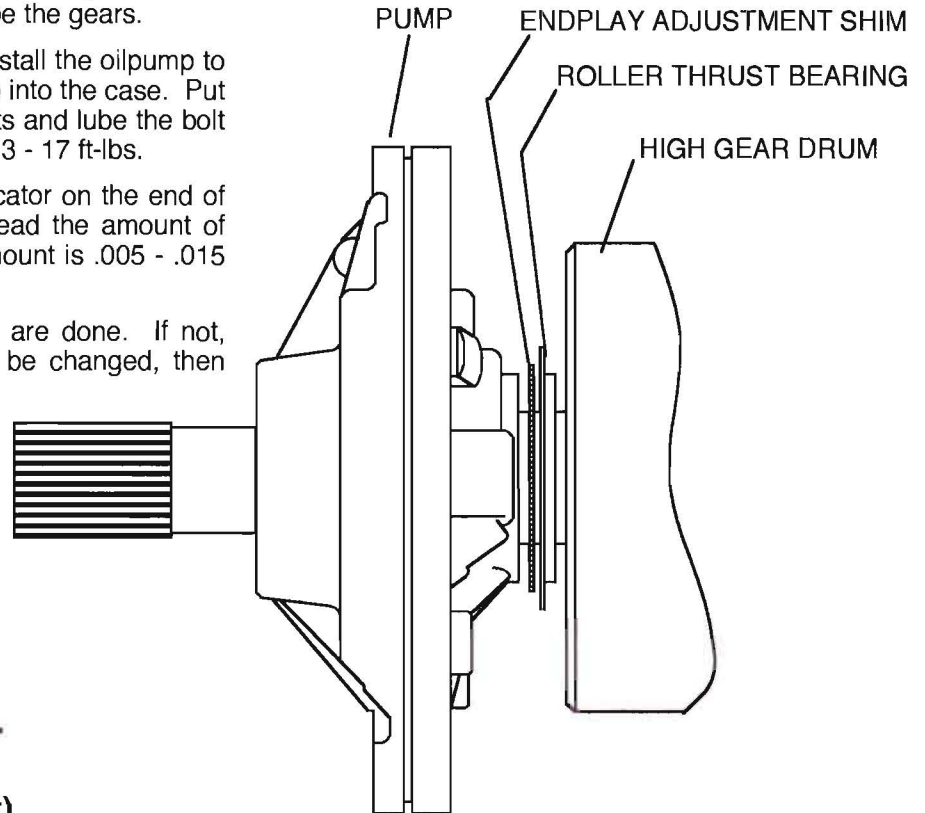
3) With the transmission standing upright, install the oil pump to transmission case gasket and lower the pump into the case. Put the sealing washers on the pump to case bolts and lube the bolt threads. Install the bolts and torque them to 13 - 17 ft-lbs.

4) Insert the input shaft. Set up a dial indicator on the end of the shaft. Lift up on the output shaft and read the amount of endplay on the dial indicator. The desired amount is .005 - .015 inches.

5) If the endplay is within tolerances, you are done. If not, determine how much the endplay needs to be changed, then remove the pump from the case.

6) Remove the roller thrust bearing and shim. Select the proper shim from the kit or use multiple shims to make the necessary change in the endplay amount and slide them over the hub. Re-install the roller thrust bearing.

7) Repeat steps 3 thru 5 until the correct endplay is achieved.



Installation into transmission
(without Reid Racing Installation Kit)

1) Use the above procedure except use your own shims and roller thrust bearing. Set the endplay to the amount specified for your particular bearing.

Installation into transmission
(with after market high gear drum)

1) Some after market high gear drums have a recess machined into the face of the drum that accepts a roller thrust bearing. If you have this type of drum, use a stock bronze thrust washer on the pump. This will give you the proper end play with the roller thrust bearing that is supplied with the drum. To change end play, change to a different thickness bronze thrust washer, just as you would do if a roller thrust bearing was not being used.

The transmission is now ready to be re-installed back into the car

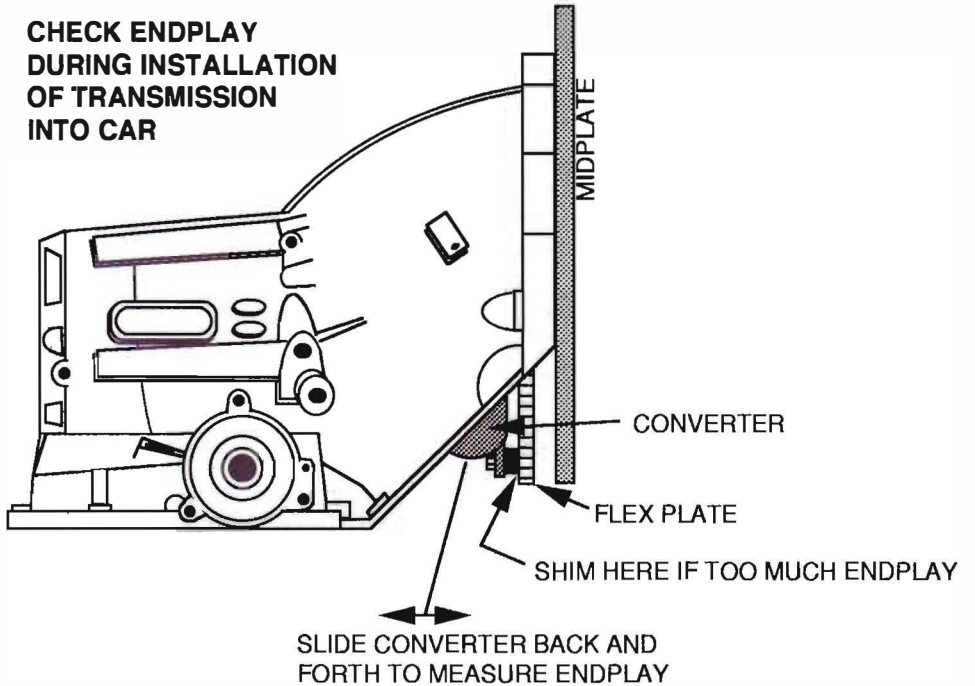
For the oil pump to work correctly and to prevent pump failure, there must be proper end clearance between the torque converter hub and the oil pump. If there is not enough clearance, the converter hub will jam into the back of the oil pump housing and destroy the pump by galling the gear and the pump body or by wiping out the crankshaft thrust bearing in the engine. If there is too much end play, the torque converter hub notches will not engage the pump gear lugs far enough and will either break the lugs off or round off the corners of the lugs and they will jump out of the hub notches. Again, the pump and/or converter will be ruined.

When re-installing the transmission, slide the converter back into the oil pump as far as possible, making sure that the notches in the converter drive hub slip over the pump gear lugs. Bolt the transmission to the engine and slide the converter forward until it contacts the flexplate. Slide the converter back and forth between the flexplate and the transmission and measure the amount of slide (endplay). The endplay should be between 1/16" - 1/8" of an inch (.080" - .100" inches is ideal)

(Under no circumstances go less than 1/16 " of an inch!)

If you have less than 1/16" of an inch of endplay, the converter was probably made for a thicker engine midplate or thinner flexplate than you are using. You will have to have the converter attaching ears machined to give you the proper clearance.

If there is more than 1/8" inch of endplay, put shim washers on the three torque converter bolts between the flexplate and the converter. Make sure you use washers that have been ground to the same identical thickness otherwise the converter will wobble. Shim washers are available from most transmission companies. If you shim the converter, check to see that the pilot hub is still engaged in the crankshaft. If not, you will have to have the converter hub lengthened.



WARNING:
DO NOT MODIFY THIS OIL PUMP IN ANY WAY! IT HAS UNDERGONE HUNDREDS OF HOURS OF DESIGN, DYNO TESTING, AND ON-TRACK EVALUATION. THIS IS AN ENGINEERED PART THAT HAS BEEN OPTIMIZED FOR MAXIMUM COOLANT FLOW, CONVERTER CHARGING, OPERATING PRESSURE AND OIL FLOW. MODIFICATIONS WILL DEGRADE IT'S PERFORMANCE, VOID THE WARRANTY, AND POSSIBLY CAUSE ENGINE & TRANSMISSION DAMAGE DUE TO EXCESSIVE CONVERTER PRESSURE.

QUICK DATA

- Input shaft endplay with Reid Racing roller thrust bearing:005 - .015 inches
- Pump to case bolt torque: 13 - 17 ft-lbs. lubricated.
- Converter endplay:080 - .100 inches