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TCI® 720012 – 2 PIECE POWERGLIDE TRANSMISSION CASE

These instructions point out specific features of the TCI® 2 piece case and how to use these features to your advantage. For detailed information on how to assemble a Powerglide, use of a factory instruction manual is recommended.

All Powerglide parts bolt right into the new TCI® case. (Non-TCI® dragster type shorty housings may need a minor modification to clear the boss on the rear of the case. **See Figure 3.**) The case does not accept the rear oil pump. If you need to use a rear oil pump, you must use a one piece design case. When swapping cases, clean and inspect all components so that any worn components can be replaced.

Assemble the transmission according to the factory manual using a torque wrench to tighten all fasteners. A torque specification sheet is included with these instructions

If you are already using a stamped steel midplate type shield, you can leave it in your car and just bolt the transmission over the existing shield with no modifications required. This case is SFI spec. 4.1 certified and requires no external shield and is good for 5 years.

There is a 5/32" diameter hole in the case that is located just above the output shaft (**See Figure 1**) that vents the tailshaft housing to the case. If you are using a custom made rear bearing housing (replaces the governor housing) make sure that there is a vent hole drilled through the bearing housing to allow venting from the tailshaft housing back to the case. A hole sized 1/4" in diameter is sufficient. **See Figure 2** for the location of this vent hole. Stock governor housings already have a vent hole. Shorty housings do not need to be vented.

TIPS

- Use anti-seize lubricant or equivalent on all fasteners.
- Use gray bolt prep or equivalent on the cooler fitting pipe threads. Any time aluminum fittings are screwed into an aluminum housing without sealer, the aluminum could gall and rip out the threads.
- Lubricate the adjuster bolt o-ring with ATF before installing.
- Screw the breather vent into the housing using gray bolt prep or equivalent.
- Every valve body is different so it is important to check the port matching between the trans-brake feed (reverse feed) hole in the valve body/valve body plate/gasket and the reverse piston feed hole in the transmission case. Basically, the opening in the valve body/valve body plate/gasket should be equal to or larger in size than the hole in the case so when the trans-brake is released, the oil flows out of the case into the valve body more freely. The shape of the valve body/valve body plate/gasket hole is unimportant; the hole just has to be as big as or bigger than the hole in the transmission case.
- It is recommended that you use a stock low gear servo return spring instead of a heavy-duty spring. With the improved shift characteristics of this new case, a heavy spring is not needed. The heavy spring requires higher oil pressure to lock the low gear band. When the trans-brake is applied, the reverse piston takes a big gulp of fluid, which temporarily causes low pressure if the oil pump is weak and/or the idle speed is low. The low gear band releases and the car either rocks backwards or actually starts to back up. There is still enough pressure to hold reverse gear, but there is not enough oil pressure to overcome the heavy spring, so the low gear band won't hold. At higher rpms, the oil pump puts out plenty of pressure and volume, so upping the line pressure even higher is not a solution. The higher pressure is harder on the pump and the transmission and it still doesn't correct the low RPM problem. At higher temperatures, it's even harder on the pump to maintain pressure and flow. If this situation appears, even with a stock spring, either rebuild the oil pump or raise the staging RPM (idle). With the tighter tolerances, better surface finishes, and better shift

characteristics of the new TCI® case, this is much less of a problem than with stock Powerglides.

SETTING THE ADJUSTMENT BOLT

The adjustment bolt's purpose is to soften the shock on the tires when the trans-brake is released. If your car hits the tires so hard that they spin, softening (slowing) the rate of trans-brake release will solve this problem. When you first assemble the transmission, screw the adjustment bolt all the way in. Then, while screwing the bolt out, count the number of turns until the bolt completely uncovers the reverse piston feed hole (i.e., until there is no restriction in the passage). Lock the adjustment bolt down and record this number in your logbook. Finish assembling your transmission. Make your first runs at the track with this wide-open setting. Screw in on the bolt one full turn at a time until the reaction time starts to get worse, then open it up a flat or two (screw the bolt out). This will give you the softest hit for your combination. The softer the hit, the less sensitive to a slick track the car will become and therefore the more consistent it will be. If the car still spins the tires, you can crank the bolt in more until the spinning stops. Now remove time from your delay box to compensate for the slower transmission trans-brake release time. Remember to log how far the bolt is turned in from the wide-open position.

TORQUE SPECIFICATIONS

Bellhousing to Transmission Case	25 to 30 ft. lbs.
Oil pan to Case	10 to 13 ft. lbs.
Tailhousing to Case	20 to 30 ft. lbs.
Servo Cover to Case	15 to 20 ft. lbs.
Front Pump to Case	13 to 17 ft. lbs.
Governor Support to Case	8.5 to 11 ft. lbs.
Valve Body to Case	13.5 to 15 ft. lbs.
Valve Body Filter	2.5 to 3 ft. lbs.
Parking Lock Pawl Bracket to Case	8.5 to 11 ft. lbs.
Pressure Test Plugs	5 to 7 ft. lbs.
Low Band Adjustment Lock Nut	13 to 17 ft. lbs.
Oil Pan Drain Plug	15 to 20 ft. lbs.
Shift Shaft Inner Lever Nut	2 to 3 ft. lbs.

WARRANTY

All TCI® products are warranted to be free from defects in workmanship and materials for a period of thirty (30) days from THE DATE OF PURCHASE on racing equipment and a period of ninety (90) days from the DATE OF PURCHASE on Street/Strip equipment. We recommend that you keep a copy of your sale receipt showing DATE OF PURCHASE during this warranty period. In returning any merchandise for warranty consideration you must enclose a copy of the original dated sales invoice. During the warranty period TCI® will repair or replace, at our discretion, any part or parts that are determined by TCI® to be defective due to workmanship or materials. Transportation charges for return of defective parts must be PREPAID by the customer. This warranty is limited to the value of the part or parts covered herein and is in lieu of all warranties, expressed or implied, including the warranty of merchantability and fitness of the product for any purpose. No consequential damages will be allowed.

This Warranty does not include the following:

- Failure due to improper installation or maintenance
- Failure to maintain proper cooling or fluid levels
- Water damage
- Loss or injury from use or operation of TCI® products
- Misuse, abuse or unauthorized repairs
- Removal or replacement cost, transmission oil or shipping cost
- Cost incurred due to downtime of vehicle.

TRANS
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**TRANSMISSION
REAR VIEW**

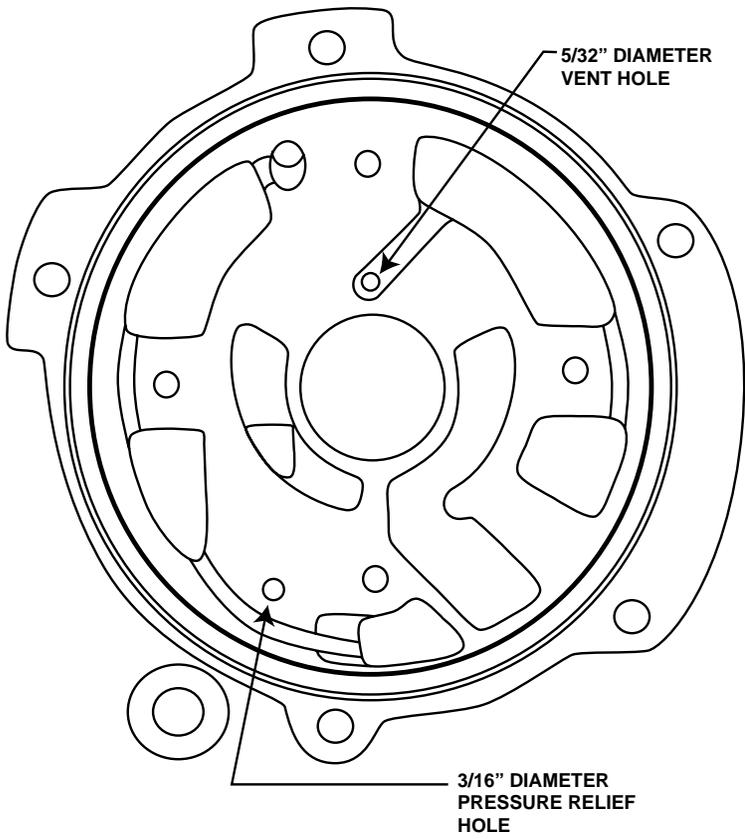


FIGURE 1

**TRANS
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**MODIFICATION FOR CUSTOM
REAR BEARING HOUSING**

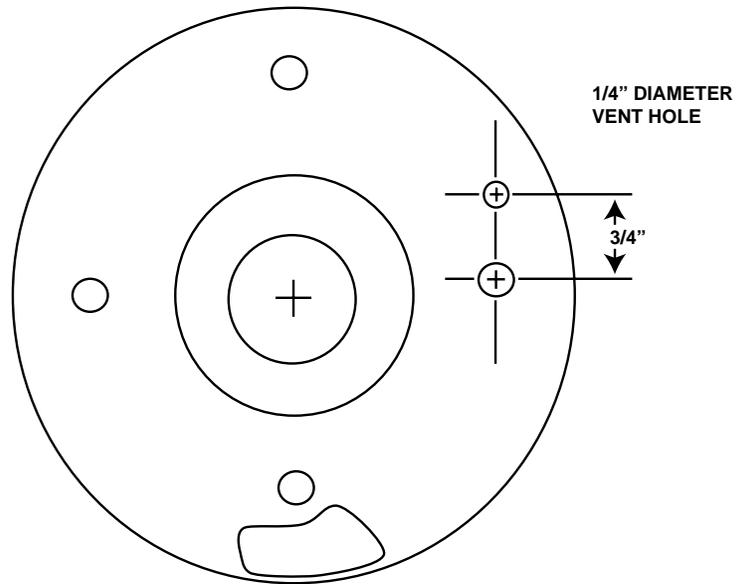


FIGURE 2

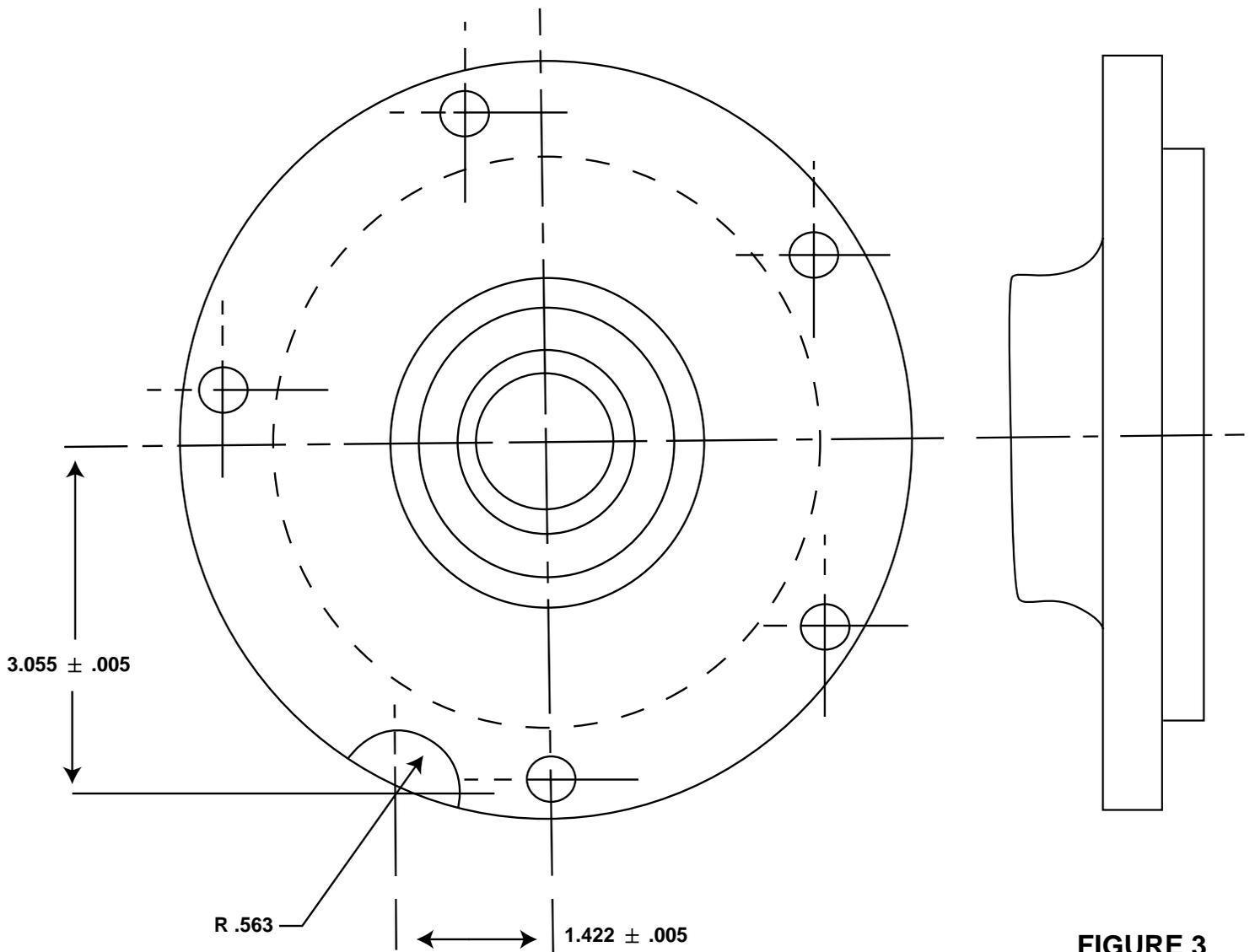


FIGURE 3