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**READ INSTRUCTIONS**

**FIRST BEFORE INSTALLING**

**TRANSMISSION:**

**To fulfill warranty requirements, you MUST follow the Read First Instructions that are sent to you with your transmission or that were emailed to you upon purchase. You MUST send warranty requirement pictures \*BEFORE OPERATION\* to** [**jake@jakesperformance.com**](http://jake@jakesperformance.com) **to validate your warranty. If you fail to fulfill this requirement, your warranty is VOID! Warranty information is on the last page of this packet. Our intent is to prevent failure before it happens, from installation error. If you do not send us these pictures BEFORE OPERATION, you have no warranty.**

**READ FIRST!**

Thanks for your purchase from Jake’s Performance. We strive to offer the best performance transmissions and converters on the market. Our success is measured by your success on the track, the street, and offroad.

This packet contains important installation and warranty information to help you but it cannot replace a professional technician. If you do not have the experience or tools to do the installation, please seek the services of a qualified shop. Proper installation and operation is the responsibility of the purchaser.

Over the years of selling transmissions to the end user we have seen the common installation errors. We would like to eliminate these to prevent unnecessary expense and hassle for the customer. A simple mistake like not properly filling the fluid level before and after operation, or a shifter not adjusted properly can result in immediate or short term failure that WILL cost a minimum of shipping costs plus an average of $1000 for a 2 or 3 speed transmission, and $1500 for an overdrive transmission for us to repair the transmission. In the past we have often done these repairs as a courtesy but we are not responsible for installer error and will no longer warranty them at our cost. PLEASE be sure to follow the guide and call/email us with any questions. Keep in mind we are not a 24-hour installation help service, we will offer our best support because we understand the complex nature of the product better than most and ultimately we want our product to always be successful.

Some of the tips provided may seem elementary but our experience is that even many professional shops overlook these simple but important steps.

Proper installation REQUIRES the following steps be taken. Many shops or experienced installers skip these steps because “they’ve done it a hundred times”. Don’t let this cost you hundreds of dollars. We have to charge a reasonable rate to cover our overhead and parts costs. The typical failed transmission due to installation error will cost $200-400 in parts, we have to pay our technicians to teardown, clean, build, dyno, and repackage the unit. This is about 12 hours’ worth of labor, almost the same amount of time as a new build. We charge significantly more for a new build. Our repair/refreshen prices for previous builds are essentially our COST to do so. It is a service provided to our existing customers so they don’t have to pay full cost. Converter cut and clean costs add to this.

**Basic Installation:**

Too often we see customers damage the transmission before ever firing the engine by improper basic installation. This includes miss-installed torque converters causing torque converter, pump, and case damage. This type of damage is easily determined because it results in deformed or cracked torque converter hub, broken pump rotor or gears, pump damage if cranked, and possibly broken bellhousing.

Before installation, the engine block to transmission bellhousing dowel pins should be checked to be sure they are in place, proper length to locate the transmission to the engine, and not damaged.

The torque converter should be checked to be sure the bolt pattern matches the flexplate, that the pilot on the front is the proper size and length to locate into the rear of the crankshaft, and that the bolt holes in the flexplate are large enough for the torque converter bolts. Check the flexplate for cracks and chipped teeth on the ring gear. Check for the o-ring on the input shaft of any lockup unit. Be sure it hasn’t been damaged in shipping. It will not be present on non-lockup modified transmissions.

Add a 1/2 quart of new transmission fluid to the torque converter. The torque converter must be completely installed into the transmission. You CANNOT rely on “3 clicks” or any other arbitrary method. This needs to be confirmed by measuring. Guessing may be costly. The following are measurements you can make to insure the torque converter is all the way in the transmission:  
  
- GM-TH350, Powerglide=1.125" from bellhousing to the converter pads.  
  
- GM TH400 = 1.187" from bellhousing to converter pads.  
  
- GM 700 R4, 4L60E, 200-4R = 1.125" from bellhousing to converter pads.  
  
- GM 4L80E = 1.030" from bellhousing to converter pads.  
  
\*\*\*Distance may vary +/- .050".

Remove any debris in the crankshaft pilot hole and lubricate. Clean and lubricate the dowel pins. Check to see that dowel pins will be in the transmission bellhousing by more than .250".

Mount transmission to the back of the engine block making sure the bellhousing fits squarely against the block. If it does not, find out why! Is there something between the bellhousing and block or has the torque converter slipped out of the transmission?

DO NOT PULL UP THE BELLHOUSING TO THE BLOCK USING THE BELLHOUSING BOLTS!!!! Tighten the bellhousing bolts up evenly, starting just snug then come back and finish tightening.

After the transmission bellhousing bolts are tightened, check to see if the torque converter will turn by hand. Push the torque converter back into the transmission as far as it will go. Using feeler gauges or calipers measure the gap between the flexplate converter mounting pad and the torque converter mounting pad. If gap distance is between .120" and .187" it is OK to bolt up the torque converter. If the gap is greater than .187" install a .060" flat washer between the torque converter and flexplate.

Other basic installation items that must be considered are proper cooling, mounting, driveshaft length, shifter adjustment, and fluid level.

We recommend using an auxiliary cooler with any performance transmission. This can be used alone or it can be installed AFTER the radiator cooler. Most GM transmissions the lower fitting is out; upper fitting is returned. The 200 and 200-4R are the exception being opposite.

Later 4L80E’s (1997-newer) have the return line towards the rear of the transmission. Be aware these REQUIRE a fitting with a tube that goes into the center support for proper lube. We offer OEM style fittings (installed) and AN fittings.

Cooler size is up to the installer. It should be of sufficient size to keep trans temps below 200 degrees and preferably below 180 degrees in most situations. A 20,000 GVWR or larger rated cooler is usually plenty of capacity. Any existing coolers MUST be thoroughly flushed with solvent and compressed air, both directions.

Most of our units are set up to use a standard commonly available slip yoke. We machine the output shafts on TH400s and 4L80Es to allow this. The slip yoke MUST have at least ¾” of travel when installed with the suspension loaded. Some applications may need more due to suspension travel and design. If suspension travel allows the driveshaft to “bottom out” in the transmission, transmission damage will occur.

Shifter adjustment is another critical often overlooked aspect of the installation. You will want the shifter to be aligned with the transmission in EVERY gear. We recommend starting the adjustment process with the shifter and trans in the main “drive” gear. If you primarily drive in the Overdrive position, put the trans and shifter in this range, and be sure everything lines up. Then check the rest of the gears to be sure they are aligned. A misadjusted shifter can cause low line pressure or cross leaks that burn up clutches.

**Fluid Level:**

This is one of the most common issues we see. The fluid level is CRITICAL to the operation of an automatic transmission. It is a hydraulically operated device in a dynamic environment, yet it is the most common reason we see for failure. We WILL NOT warranty a unit that shows signs of low pressure or fluid level. This is evident by multiple burnt clutch packs with certain packs being more prevalent.

The first step in ensuring proper fluid level is to verify the dipstick accuracy. This CANNOT be assumed; it MUST be checked.

The warm, running, full level should be even with the pan rail or slightly above it (1/4in). Install the dipstick tube and indicator and confirm the FULL mark is properly located by visually checking or measuring if necessary. Do NOT assume your dipstick is accurate. We have seen OEM dipsticks off by as much as 3 qts. The braided flexible dipsticks are often inaccurate. Checking the dipstick accuracy cannot be overlooked because any later fluid checks rely on this step.

Once the transmission is installed we recommend installing 4-5 qts of fluid and then firing up the engine, immediately add 2-3 more qts then begin checking fluid level. Shift the trans into each gear range and back up to park a couple of times. Once the fluid is full and the vehicle is ready to drive, drive at LIGHT THROTTLE to let the transmission shift through all the gears. If it is an auto shift, let it shift automatically and also shift it manually through each gear. It will then need to be refilled as it will use some fluid to fill all the passages during operation.

Once fluid is full, check for leaks, and drive the vehicle with progressively firmer throttle to ensure proper operation. If there are any problems, STOP driving immediately and address them. Do not continue to drive the unit as damage may result.

**Line Pressure:**

We HIGHLY recommend using a pressure gauge on initial install. This will allow you to see the pressures and detect any issues early. If adjusting a TV cable operated transmission or tuning an electronically controlled transmission this should be considered mandatory.

Many installers adjust the parameters in the tune but without using a pressure gauge they have no real world data. On most electronically controlled transmission (4L80E’s and 4L60E’s) line pressure is controlled by the pressure control solenoid using a PWM amperage signal that varies from 0 amps to 1 amp. 0 amps is default and it causes maximum pressure, 1 amp is minimum pressure. There is usually very little change in line pressure at the ends of the range. Most of the changes occur at .3-.7 amps. Keep in mind when tuning that lower amps is more pressure. Depending on your tuning software this can be confusing.

Another important note for forced induction applications, line pressure cannot be tuned TPS based, it needs to be MAP based so that anytime the engine gets into boost the line pressure is maximum. A forced induction application can make tremendous power at 25% throttle, so you cannot follow the TPS signal to assume load/power.

**Fluid Type:**

Fluid type isn’t usually critical. We typically recommend regular non-synthetic Dexron/Mercon type fluid. In vehicles with a turbocharged engine and transbrake equipped transmission that may see extended time building boost on the transbrake, a tractor transmission/hydraulic fluid such as John Deere Hygard or equivalent may be a good choice. We have customers using all types of fluid with success, and it’s usually not critical. The only advantage gained by any of the fluids may be heat resistance for the hydraulic fluids or synthetics.

**WARRANTY INFORMATION**

We dyno test each unit for function, pressure, lockup, cooler flow and pressure, and unusual noise. This gives us a good indicator that there are no issues. There is always a chance that a part can fail or other issues arise that are related to the build and we are aware of that. We will fix issues that are determined to be our fault but in order to keep pricing competitive, we cannot be responsible for installation/tuning errors or other component’s failure that is beyond our control.

Disclaimer: The warranty is not valid when the READ FIRST is not followed. A picture of where the dipstick is marked for the full level and a picture of the converter spacing measurement when installed is required so we can verify that it’s installed properly. Please send these pictures to: [jake@jakesperformance.com](mailto:jake@jakesperformance.com)

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Our policies and warranty information can be seen at:

<http://www.jakesperformance.com/Policies.html>

Purchase and installation of our products is your agreement to acceptance of our Policies and Conditions.

From the team at Jake’s Performance, thank you for your business!