

INSTALLATION INSTRUCTIONS

Here at Countywide Transmissions our goals are customer safety and satisfaction. Please take a few minutes to read the following material. Reviewing it will insure a properly installed transmission which will operate well.

SAFETY FIRST!

Always use a properly operating lift or support stands before getting under any vehicle. NEVER use cinder blocks, milk crates, wooden blocks, etc. ALWAYS use a proper transmission jack to lift the transmission into place. Be sure to secure the transmission to the jack with a safety chain. Always disconnect the battery cables before starting any type of repair!

PRE-INSTALLATION INSPECTION AND RECOMMENDATIONS

DOWEL PINS

Two dowel pins must be in place in the back of the engine block to maintain correct alignment of the crankshaft and transmission mainshaft centerlines when the transmission is installed. If these dowel pins are not in place torque converter, flywheel and transmission may be damaged.

FLYWHEEL

Flywheel must be inspected for cracks around bolt holes, damaged starter ring gear teeth, and for flatness. If flywheel is replaced, make sure the correct replacement flywheel is used. Many flywheels differ in offset by only a few thousandths of an inch, and appear to be the same at a glance. Installing the wrong flywheel will cause immediate pump and converter failure! Be certain that any balance weights are in place and secure. flywheel damage will occur.

TORQUE CONVERTER

Throughout the industry it is highly recommended that a new torque converter be installed at the same time that the transmission is changed. There are two reasons to do this. First the transmission and torque converter share the same fluid and in the event of a transmission failure the contamination will be shared by the converter since it is a welded unit. The only sure way of removing the contaminants is to cut the converter open on a lathe and scrub the internal components with a brush. Converter flushing devices have proven to be ineffective at this task and thus leave behind fine metal debris which later will stick valve bodies and governors causing transmission failure. Countywide Transmissions will not warranty any transmission damage due to contaminated converter or cooler! Second most transmissions used today use a lockup clutch inside of the torque converter. The only way to inspect the friction clutch in this type of converter is to cut it open and visually inspect it. If a special type converter is being used such as a Hi Stall or Non-Lockup converter then you MUST make our staff aware of this! This is to ensure that we can make modifications to accommodate these type of converters. Failure to do so will result in transmission damage and will void your 90 day warranty. If a lockup type transmission is to be installed in a vehicle that is not equipped with the factory wiring harness or computer then our staff MUST be notified so we can provide a "Lockup Switch Kit" which will allow the lockup feature to work properly. Failure to do so will result in transmission overheating and eventual failure!

TRANSMISSION COOLER

The factory transmission cooler is normally installed in the radiator surrounded by 190° F water. It is small in size and is not adequate for Hi-performance use. The internal construction consists of very small orifices, which cannot be properly cleaned and contain metal debris. Flushing WILL NOT remove all of this, and the fresh transmission fluid which contains detergent will break the contaminants loose allowing them to stick the valve body and governor. We at Countywide Transmissions HIGHLY RECOMMEND using an AUXILIARY TRANSMISSION COOLER and bypassing the radiator cooler entirely.

TRANSMISSION COOLER LINES

Factory cooler lines must be flushed using solvent and compressed air. The lines should be inspected for wear, kinks, crushing, or leaks. Repairs should be made using compression unions and STEEL line. Copper or aluminum tubing should never be used as it is prone to cracking. Rubber hose should only be used in short lengths such as hooking up to oil coolers. Use barbed connections or slightly flare the steel line and securely clamp the hose to the steel line BEHIND the flair to prevent it from popping off under pressure. Cooler lines should be properly secured to prevent vibration and chafing and should be routed so as to be kept clear of the exhaust system, cooling fans and under car hazards.

ENGINE AND ENGINE MOUNTS

Both motor mounts and the transmission mount must be examined for separation, dry rotting, oil soaking, and breakage and be replaced if needed. This will help prevent vibration, linkage misalignment, and noise.

DRIVE SHAFT

Drive shafts should be thoroughly inspected for straightness, dents, and missing balance weights. Worn universal joints must be replaced. The front yoke should be smooth and free from wear or corrosion that would damage the transmission rear seal and bushing. Slight surface rust and dirt may be cleaned up using fine sandpaper. When the drive shaft is installed it should be approximately 3/4" from its forward most position. This is to allow for its normal thrusting movement as the rear suspension moves up and down. AT LEAST 2 1/2", (two and one half inches) of the yoke must be inside of the transmission for proper support and to prevent oil leakage or vibration.

VACUUM MODULATOR

If your unit is equipped with a vacuum modulator (i.e. Turbo 350 or 400) ensure that the vacuum line coming from the engine is free of kinks, cranks, and wear. Be sure the fittings on the engine are not plugged with carbon. Check rubber hoses for cracks, excessive hardness, looseness, or collapsing. With engine running the vacuum line should be disconnected from the modulator and a vacuum gauge installed. A reading of 18" - 21" of vacuum is required for proper operation of the transmission. Be certain that the vacuum source is connected below the throttle plates, and is manifold vacuum, not ported vacuum. If you are in doubt contact our friendly staff for clarification before driving the vehicle. Connecting modulator to ported vacuum will damage the transmission in a VERY short time.

INSTALLATION

INSTALLING CONVERTER IN TRANSMISSION

Pour 1/2 quart of transmission fluid into torque converter and also lubricate the hub. The converter should be installed into the transmission by slowly rotating the converter while gently wiggling it as it is pushed towards the rear of the transmission until it seated into the pump. In some cases the converter may contact the inside of the bell housing, this is normal. It will be pulled forward upon bolting to the flywheel. If this is not possible and the converter cannot be rotated or pulled forward towards the flywheel it is not properly engaged into the transmission pump.

WARNING: do not proceed further until this condition is corrected. Failure to follow this procedure may result in serious transmission damage resulting in your warranty being voided!

INSTALLING TRANSMISSION IN VEHICLE

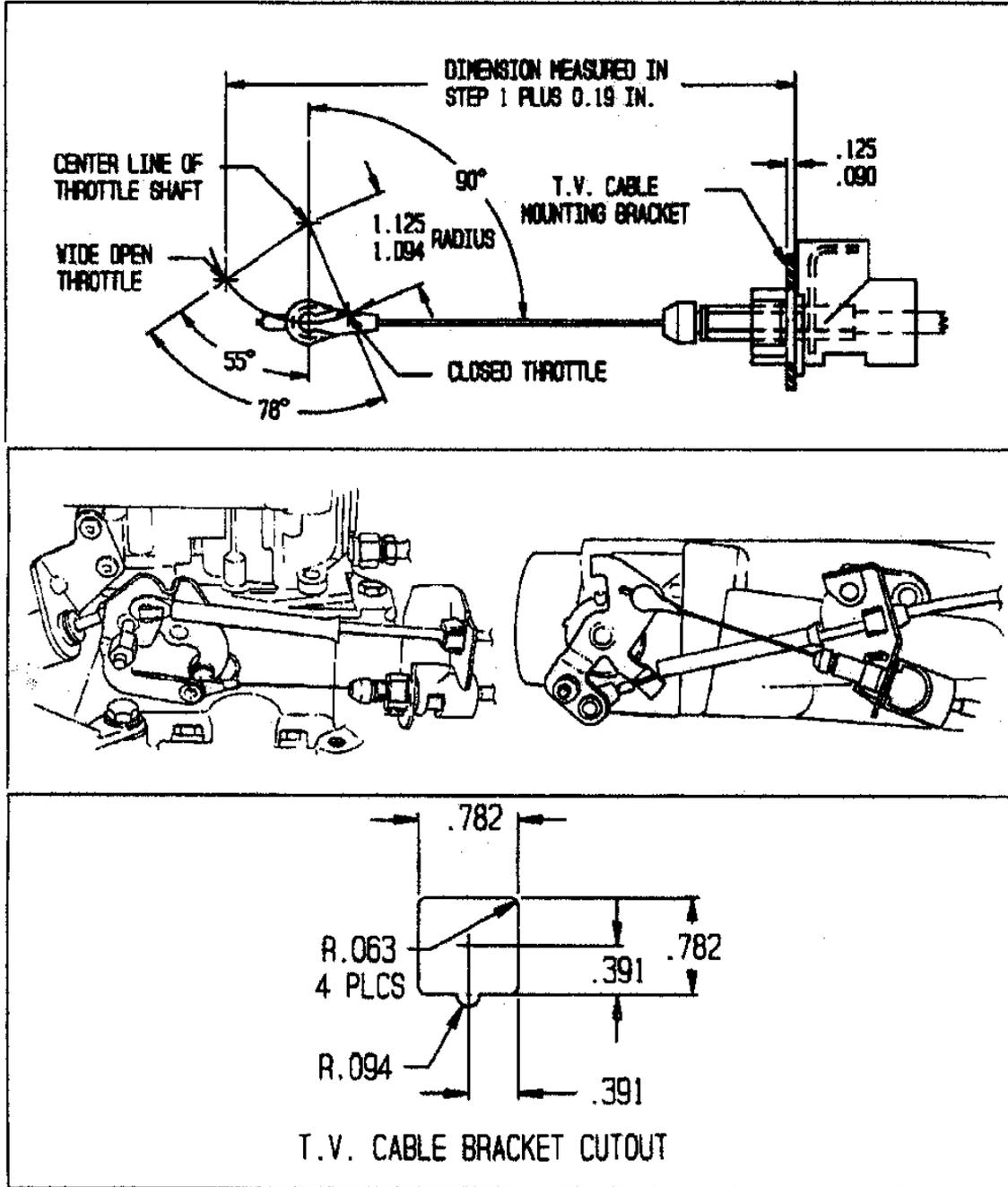
A transmission jack and an assistant are highly recommended for safety's sake and for ease of installation. Once the transmission has been placed against the back of the motor and bolt holes and Dowel Pin holes have aligned tighten the bolts evenly and slowly to ensure that the transmission pulls up evenly and flush with the back face of the engine block. **DO NOT USE AIR TOOLS AT THIS POINT!** Torque converter at this point should be able to be moved forwards toward the flywheel approximately 1/8" If the converter must be removed more than 1/4" flat washers may be used as spacers between the flywheel and converter to limit the clearance to approximately 1/8" After tightening the bell housing the torque converter belts fully jack the transmission up at a solid area or using a wide wooden block beneath the oil pan to prevent bending of the oil pan. Cross member should be installed at this point. A new transmission mount is highly recommended.

MANUAL LINKAGE ADJUSTMENT

Raise car so that drive wheels are off the ground and free to turn. **WARNING:** make sure car is on a level surface and properly secured with jack stands before working around or under the vehicle. Check all linkage for wear, corrosion, bent, Binding, or missing parts and replace as required. Have an assistant place the vehicle shift selector into Park Range. Now place the manual lever on the transmission into Park Range. To verify proper lever position attempt to rotate the output shaft. The output shaft should NOT rotate more than 1/4 turn in park. The manual linkage should slip into place on the manual lever. If necessary adjust the linkage until properly aligned. **NEVER** move the shifter out of its park position to compensate for linkage misalignment.

THROTTLE CABLE INSPECTION AND ADJUSTMENT

The Throttle Value Cable (TV Cable) is vital to the survival of the transmission as well as to the correct shift timing and shift feel. Cables must be examined for breakage, kinks, binding, fraying, and broken cable ends. To properly adjust the TV Cable push inward on the "D" shaped metal tap (see illustration) and pull the plastic cable housing towards the rear of the vehicle. With the engine off, depress the gas to the floor. A clicking sound and slight resistance when depressing the gas pedal are normal. This puts the cable in its properly adjusted position. If your engine does not have brackets and connection points for the TV cable contact Countywide Transmissions (609- 893-7401) so that we can provide you with information on how to install these parts. NEVER operate the transmission without the TV cable hooked up and properly adjusted.



STARTUP PROCEDURE

Drive wheels should be off the ground and the transmission selector should be in neutral. Add four quarts of ATF to transmission before any attempt is made to start the engine. Have approximately 10 quarts of oil on hand. Start the engine and allow to idle while continuing to check the dipstick until the fluid level reaches the full mark. After transmission has reached full operating temperature manually shift the transmission through all ranges 3 times. Recheck the fluid level at this point. NOTE: We highly recommend overfilling the transmission approximately 1 inch above the full mark. This is done to prevent uncovering of the filter during hard acceleration. This overfilling will cause no damage to the transmission. Before lowering the vehicle check the transmission for leaks.

COOLER FLOW TEST

After installing the transmission, remove the return cooler line from the transmission. Place the end of the line into a 1 quart container. Start the engine and watch the cooler line flow rate. The 1 quart container MUST be filled in no more than 20 seconds. If the vehicle fails this test, contact us at Countywide Transmissions for tech. support before operating the vehicle. If the vehicle is operated with insufficient cooler flow SEVERE transmission damage will result!

ROAD TEST

Road test the vehicle at normal posted speeds while observing the shift feel and timing until the vehicle is up to operating temperature. With a lockup torque converter be sure that the lockup torque converter engagement is felt. This will not occur until after the vehicle reaches normal operating temperature. On heavy duty and SUPERDUTY units up shifts will be quite firm. This is normal and is required to provide long transmission life as well as maximum performance. Fine tuning in shift feel and in shift timing are possible. Full throttle up shifts should be avoided for at least 25 miles.

PROPER USAGE AND ABUSE

Certain unorthodox driving procedures will cause severe damage to the transmission. These include neutral starts the act of revving the engine to high RPM in neutral and then pulling the selector into drive or reverse. The damage to the transmission is severe and obvious as to the cause and will not be covered by warranty, as this constitutes abuse. Power braking: the procedure of holding the brake on while in gear and while holding the throttle to the floor. This causes tremendous heat buildup in the torque converter. This starting line technique should be used only for periods of no more than 2 seconds and should not be used as standard practice. Lastly a cooler failure that restricts lube flow thought the unit will turn gears bushings and thrust washers blue from lack of lubrication. Because of this lack of cooler flow as previously discussed in prior pages, we at Countywide Transmissions HIGHLY recommend bypassing the radiator cooler and installing an auxiliary cooler to prevent this problem. Units with discolored gear trains due to clogged coolers will void your warranty.

CORE RETURN

The old transmission MUST be drained before removing it and returning it to Countywide Transmissions. Always use an approved container and dispose of old oil at an authorized drop-off point. NEVER dump oil on the ground, into storm drains, or bodies of water.

WARRANTY INFORMATION:

Countrywide Transmissions warranties only the transmission, torque converter, and related parts sold to the customer against defects in workmanship and parts for a period of 90 days from date of sale. We assume NO responsibility for labor or any other expenses incurred by the customer arising out of removal and/or re-installation of transmission, torque converter, or any related parts or any other subsequent damage or loss. Improper installation, improper application, or abuse resulting in damage to transmission, torque converter, or any related parts will VOID any and all warranties expressed or implied.

Thank you very much for purchasing your transmission from Countywide Transmissions. We wish you the best and know that you will be quite satisfied.

Yours truly,

Chuck Dublick