

## INSTALLATION INSTRUCTIONS

**INSTALLATION OF THIS CLUTCH SET SHOULD ONLY BE PERFORMED BY PROPERLY TRAINED, PROFESSIONAL TECHNICIANS. THE INFORMATION ON THIS SHEET IS INTENDED FOR REFERENCE ONLY AND DOES NOT DETAIL ALL POSSIBLE CLUTCH REPLACEMENT AND INSTALLATION SCENARIOS. THIS SHEET STRESSES SAFETY AND GENERAL SERVICE PRACTICES TO PROMOTE A SAFE AND SUCCESSFUL INSTALLATION. CONSULT A MODEL-SPECIFIC SERVICE MANUAL FOR MANUFACTURER'S TORQUE SPECIFICATIONS AND ADDITIONAL INFORMATION. FOR ALL PROCEDURES LISTED BELOW PLEASE WEAR EYE PROTECTION.**

**TEST DRIVE:** Test drive the vehicle whenever possible prior to clutch replacement to determine any faults that must be addressed or repaired during the clutch replacement.

**VEHICLE DISASSEMBLY:** NOTE: Many FWD and FWD based 4WD/AWD vehicles require the engine to be supported from the top with an engine support fixture (see manufacturer's recommendations). Disconnect negative battery cable. Raise and support vehicle. Check transmission (transaxle) fluid level and condition. On 4WD/AWD vehicles, check transfer case fluid level and condition. If vehicle is equipped with a clutch release cable, disconnect it. Remove the driveshaft(s) or CV axles. On 4WD and RWD vehicles, use a tire crayon or permanent marker to make alignment marks between the driveshaft(s) and yoke(s). This will prevent possible driveline vibration and clutch chatter upon reassembly. Remove the starter as needed. Disconnect speedometer cable (if equipped). If vehicle is equipped with rod and bell crank ("Z-bar") release linkage, disconnect it. If vehicle is equipped with a hydraulic release mechanism, remove slave cylinder (external slave) or disconnect hydraulic hose from internal concentric slave cylinder. While supporting the transmission with a jack, remove transmission mount(s) and/or cross member. Lower transmission jack (or engine support fixture) to gain access to bolts and wiring connectors necessary for transmission (transaxle) removal. Disconnect sensor wires leading to the transmission (transaxle) and tie them out of the way. Remove transmission (transaxle) to engine bolts. If transmission separates from bell housing, it will ease removal and installation to take them apart. Remove the pressure plate by loosening the bolts a little at a time in a star pattern. This prevents undue damage to old pressure plate so that diagnosis of the clutch failure may be accurate. When lifting the pressure plate off of the flywheel, do not allow disc to fall. This way you know which side of the disc goes toward the flywheel. Markings on discs are not always obvious. Mark the flywheel side of the old disc, then compare to the new disc. If the new disc does not show its flywheel side, mark it and set it aside.

**FLYWHEEL:** Check for hot spots, heat cracks, warp, and starter ring gear wear. Replace flywheel as necessary. Resurfacing of moderately worn flywheels is a possible option to replacement.

**DUAL MASS FLYWHEELS** Per manufacturer's instructions it is a wear item that cannot be resurfaced and should be replaced.

**SANITATION AND INSPECTION:** With the flywheel removed, carefully inspect the engine for any leaks. Repair all fluid leaks. It is important to thoroughly clean the bell housing and the back of the engine block before reinstalling the clutch. Clean the flywheel. Inspect the transmission input shaft bearing retainer (quill) for any wear or damage. Make sure the new release bearing slides easily on bearing retainer without being loose. Carefully inspect the fork and its pivot(s) (where applicable) for flat spots. Look for gouging on the contact points (back) of the old release bearing. Carefully inspect the pilot running surface of the transmission input shaft. Make sure it is round and there are no burrs or galling. Use manufacturer's specifications to check the transmission input shaft for run-out and end-play. Thoroughly clean the splines of the input shaft of old grease and any rust. On vehicles with a release cable, inspect cable ends for fraying. Check the cable casing for cracks. Make sure it operates smoothly. On vehicles with a rod and bell crank ("Z-bar") linkage check to see if any bushings are worn or missing. Carefully inspect bell crank arms for straightness and welds for cracking. Make sure linkage rods are not bent and the adjuster threads work smoothly. On all vehicles, check for worn or missing clutch pedal bushings. On 4WD and RWD vehicles, inspect universal joints for wear, damage and proper lube. Inspect driveshaft(s) for dents and damaged yokes. On FWD vehicles, check CV joints for torn boots and excessive (torsional) movement. Replace all worn or damaged parts.

**PILOT BEARING/BUSHING:** Any pilot bearing or bushing must be replaced. To remove a flywheel-fit pilot, remove the flywheel from the engine and drive or press out the pilot out of the flywheel. Press or gently tap new pilot into flywheel. For crankshaft-fit pilots, use a pilot bearing puller to remove the pilot. Install the new pilot carefully using a bearing driver. Inspect needle bearing pilots for adequate grease on the needles. Do not grease pilot bushings. Pilot bushings are oil impregnated at manufacturing; a few drops of 30W oil can be applied during installation if desired.

**PRESSURE PLATE AND DISC:** Before installing disc, make sure it slides smoothly on the transmission input shaft. Apply a thin film of high temperature wheel bearing grease to the splines of the input shaft. **DO NOT USE ANTI-SEIZE!** Slide the disc back and forth on input shaft to distribute the grease and remove any excess. Do not contaminate the disc facing. Clean the pressure ring of the pressure plate with brake cleaner to remove the rust inhibiting coating. Place the disc on the flywheel noting flywheel side orientation or on the pressure plate and hold it in place with the alignment tool. Set the pressure plate on flywheel dowel pins (if equipped) and lightly snug the bolts. Carefully check the centering of the disc with the alignment tool, re-centering as necessary. With hand tools, tighten pressure plate bolts 1/2 turn at a time in a star pattern until seated. Then tighten to the manufacturer's torque specification. Remove the alignment tool.

**RELEASE BEARING (Fork Mounted):** Lightly grease all contact points of the fork, pivot ball and release bearing. Assemble noting proper position of any clips or retainers. If bell housing separates from transmission, it is helpful to install bell housing and linkage to check for proper clutch release before transmission is installed. Do not attempt to start the vehicle when doing this.

**RELEASE BEARING (Concentric Slave Cylinder, CSC):** Slide the CSC assembly over input shaft and torque fasteners to specification. Use caution on CSC's with input shaft seals to not damage these seals.

**VEHICLE REASSEMBLY:** Make sure alignment dowel pins are secured in the back of the engine block. Make sure engine and transmission mating surfaces are clean and free from burrs. Put the transmission in gear. Using a transmission jack, lift transmission into position. Carefully mate the transmission to the engine and bolt together. If transmission will not easily mate up to the engine, carefully rotate the output shaft (RWD) or partially insert CV shaft into differential (FWD) and turn slightly to align the input shaft splines with the disc. It may also be necessary to adjust transmission angle. Do not rock the transmission into place. This will likely damage the disc.

**NEVER USE BOLTS TO DRAW ENGINE AND TRANSMISSION TOGETHER!** Make sure that nothing is pinched between the engine or transmission. Wiring harnesses, hoses, brackets may become pinched between the engine and transmission. This will cause misalignment, and ultimately clutch failure. Reverse removal procedure for assembling the rest of the vehicle. Properly torque all fasteners. Check transmission (transaxle) fluid level and add recommended fluid as necessary. On 4WD/AWD vehicles, check transfer case fluid level and add recommended fluid as necessary.

**TEST DRIVE:** Make sure clutch engages smoothly within the desired pedal travel. Make sure there are no unusual noises. Drive until vehicle reaches normal operating temperature shifting through all gears. To test for clutch slippage drive up hill in the highest gear the engine will allow without lugging the engine and fully depress the accelerator. This puts maximum torque load on the clutch. Slipping would be indicated by the engine RPM increasing without a matching increase in MPH. Any indication of slippage, stop the test immediately.

**NOTE:** Never perform a live clutch test with the engine running and the wheels of the vehicle off of the ground. This test can damage a clutch causing failure to release or clutch chatter.