

TECHNICAL BULLETINS - ENGLISH**LB120 CRITICAL DISC / FLYWHEEL MATCH**

Vehicles: 1987-93 5.0- and 5.8-liter Ford F- and E-Series

When replacing the clutch, match the disc to the flywheel prior to installation. A mismatch can cause contact between the disc damper and the inside diameter of the flywheel. Although the clutch may function properly initially, release problems will result. A similar situation results when the disc is installed backwards. Prior to installation, ensure the disc damper fits into the flywheel opening with proper clearance.

LB122 JEEP RELEASE PROBLEMS

Vehicles: 1980-86 Jeeps

Excessive wear or misalignment at any of the release mechanism components will cause insufficient slave cylinder travel. Check the condition of the pivot, washer and seal attached to the end of the slave cylinder on models with external slave cylinders. If any of these parts are missing, cracked, or severely worn, release problems will result.

LB129 FORD/GENERAL MOTORS BEARING RETAINER WEAR PROBLEMS

Vehicles: 1983-04 Ford Mustang, Thunderbird; Mercury Capri
1982-92 Chevrolet Camaro
1982-92 Pontiac Firebird
1982-02 Chevrolet Astro, Blazer, and S/10
1982-02 GMC S/15, Jimmy, Safari, and Sonoma

The bearing retainer on referenced vehicles equipped with the Borg-Warner T5 transmission can wear, causing the release bearing to bind. Binding and misalignment may cause hard pedal, improper release or clutch chatter. To avoid problems following installation, replace the bearing retainer.

LB132 CHEVROLET, GMC AND DODGE TRUCK RELEASE PROBLEMS

Vehicles: Chevrolet, GMC and Dodge Trucks

Use of oversized lock washers on the clutch mounting bolts of these trucks with 12-inch clutches can cause release problems. The larger diameter of the washers can extend through the cutouts in the clutch far enough to contact the disc. Use only standard 3/8-inch diameter lock washers or threadlocking compound and torque the bolts to manufacturers' specifications.

LB133 CRITICAL RELEASE BEARING / FORK

Vehicles: Jeep CJ, Cherokee, Wrangler and Comanche

Release bearing/fork combinations differ among models, and the parts are not interchangeable. The wrong combination will result in chatter and hard pedal when the fork contacts the bearing retainer. Following is a description of how to identify the two types.

Models through 1979 used a fork with two small pin-type locators at the bearing end. The locators fit into holes drilled in the release bearing plate under the clips. When installing the release bearing, ensure the locators fit all the way inside the holes in the release bearing plate.

After 1979 the fork had no locator pins. Instead it was centered by a release bearing collar that extended beyond the back of the bearing between the bearing retainer clips. When replacing the fork, ensure it is wide enough to pass freely over the centering collar.

LB134 RELEASE BEARINGS REPLACEMENT

Vehicles: 1974-02 Volkswagens

When installing a pull-type clutch with a release plate and wire ring, cycle the clutch prior to start up to ensure the circlip is fully seated under the tabs of the diaphragm spring. If the clutch set contains a release bearing, you must install it.

The bearing fits inside the transmission. The clutch release arm presses against the bearing to move a long rod passing through the transmission. The rod pushes the release plate to push the diaphragm fingers and disengage the clutch.

A sheet metal cover, usually green, must be pried out for access to the release bearing. This typically results in the destruction of the cover, which must be replaced to prevent transmission oil leaks. Also inspect the release rod for wear or bending, the lever for cracks and the shaft for spline damage.

LB135 PREVENTING SQUEAKS

Vehicles: 1995-84 Chevrolet/GMC Trucks

Insufficient lubrication between the fork and the ball stud may be misdiagnosed as a release bearing problem. Light pressure on the clutch pedal will silence the noise temporarily. Lubrication of the pivot ball-to-fork contact will eliminate the problem. To speed future lubrication, install a grease fitting.

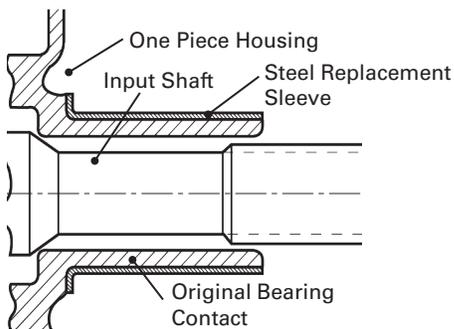
The 1984-93 S- and T- Series with Borg-Warner 5-speed transmissions (ML2, ML3, MW1) require a pre-drilled pivot ball and matching release fork. Locate the raised boss on the outside of the bell housing that is directly in-line with the center of the pivot ball mounting hole. Drill a hole through the center line of the boss into the pivot ball mounting hole, and tap the hole for installation of a 1/8-inch NPT grease fitting. Lubricate the pivot ball and reinstall the transmission with a pipe plug instead of a grease fitting. This will prevent over-lubrication of the pivot stud during normal maintenance.

For additional information, refer to GM bulletin #16-73-01. For specific information on the procedure for 1994-95 C/K and S/T Series, refer to GM bulletin #56-73-01.

LB145 INSTALLATION OF RELEASE BEARING AND SLEEVE

Vehicles: 1988-90 Ford Escort, 1988 EXP, 1989-95 Taurus SHO, 1988-94 Tempo; 1988-94 Mercury Topaz

Vehicles with MTX transmissions have a one-piece aluminum housing with integral bearing retainer prone to severe wear. The wear results in binding and misalignment of the release system. Clutch sets for these applications contain a stamped steel sleeve to renew the sliding surface of the bearing retainer. The revised release bearing is designed to retain the proper bearing-to-retainer clearance when used in combination with the sleeve. This allows servicing of the one-piece housing without replacing it. Install the sleeve until the flange bottoms against the transmission housing.



LB146 12-INCH CLUTCH UPGRADE

Vehicles: 1987-94 7.3-liter Ford F Series

A 12-inch clutch upgrade, recommended for all non-turbos and vehicles equipped with aftermarket turbochargers. The upgrade replaces the original 11-inch clutch. When installing the clutch, ensure the correct Dual-Mass flywheel is installed. Flywheels on different applications are balanced differently, and interchanging them may result in vibration and driveline damage. Always install new flywheel-crankshaft bolts and torque them to 45-49 ft-lb.

LB149 AVOID ENGINE SENSOR DAMAGE

Vehicles: 1988-96 3.9-liter Dodge Trucks

Excessive flywheel machining and installation of the wrong mounting bolts can damage the crankshaft position sensor. The sensor is mounted on the block directly behind the bolt circle of the clutch mounting bolts. Ensure the correct mounting bolts are installed and a minimum amount of material is machined off the flywheel.

LB150 CLUTCH CHATTER CAUSED BY IMPROPER DRIVESHAFT ANGLE

Vehicles: 1988-94 5.8- and 7.5-liter Ford F250 4x4 Supercab with 155-inch wheelbase

Chatter at takeoff may be caused by extreme driveshaft angle between the transmission and the differential. Replace the driveshaft center support bearing plate with Ford part #F4TZ-4831-A to eliminate the problem.

For additional information, refer to Ford bulletin #94-16-19.

LB151 NO RELEASE

Vehicles: 1986-94 Dodge Colt; Eagle Summit, Talon; Hyundai Elantra, Excel, Scoupe; Mitsubishi Eclipse, Mirage, Precis; and Plymouth Laser

The roll pins securing the release fork to the cross shaft can fatigue and break. This enables the fork to turn on the shaft. Replace the pins and ensure they fit snugly in the holes. Replace the fork if necessary.

LB152 HARD PEDAL

Vehicles: 1990 1.9-liter Ford Escort

The release bearing cross shaft is supported by plastic bushings in the transaxle. Bushing wear can cause a binding cross shaft and hard pedal, resulting in flexing and cracking of the firewall in the area of the cable. Always replace the bushings. Check the release system and all attachment points for damage.

LB153 GROWLING NOISE

Vehicles: 1994 5.0-liter Ford Mustang

A "growling" noise may be heard when the clutch is either released or engaged at higher engine speeds. The noise is caused by vibration at the connection between the release fork and cable. Install an isolator dampener, Ford part #F4ZZ-7C530-A, at the fork-to-cable junction to eliminate the noise.

For additional information, refer to Ford bulletin #94-20-7.

LB154 PREMATURE CLUTCH WEAR

Vehicles: 1994-98 Jeep Cherokee, Grand Cherokee, and Wrangler

Premature clutch wear may be caused by insufficient clearance between the bell housing and slave cylinder. The slave mounting surface is located too far forward, restricting movement. This prevents proper fork movement, causing partial release and slippage. Install a shim, Jeep part #4797072, between the slave cylinder and bell housing to avoid premature wear.

For additional information, refer to Chrysler bulletin #06-03-94.

LB157 HARD SHIFTING

Vehicles: 1990-91 2.4-liter Nissan Pickup

Release problems have been caused by the disc binding on the input shaft. Ensure the disc moves freely on the input shaft and the splines are free of galling or scoring. Inspect the slave cylinder for a minimum of 12-14 mm (0.47-0.55 inch) travel. Replace hydraulic components to restore proper travel at the slave and retest the clutch.

If slave travel is correct but the problem persists, check the flywheel step dimension. If the flywheel is within Nissan's specifications, replace the clutch, disc, release bearing and pilot bearing.

For additional information, refer to Nissan bulletin #NTB92-010.

LB158 SQUEALS WHEN COLD

Vehicles: 1988-93 3.0-liter Toyota Pickup

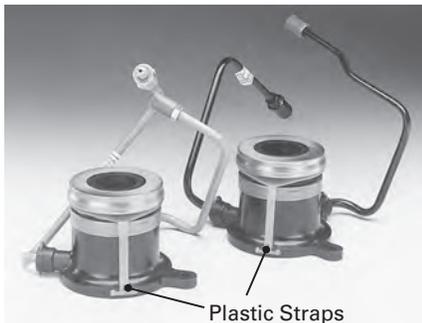
In vehicles with hydraulic release systems, the release bearing is in constant contact with the clutch diaphragm fingers. A squealing noise on engagement can result when the release bearing and clutch rotate at different speeds. If the noise stops after approximately five minutes, replace the slave cylinder. If the noise continues after the vehicle is warm, the cause is probably the release bearing and/or the pilot bearing. To determine which bearing is the source of the problem, set the parking brake, put the vehicle in neutral and start the engine. If it's the release bearing, you'll hear chirping which gets louder when you slowly depress the pedal. If it's the pilot bearing, you'll hear squealing when you actuate and hold the pedal.

For additional information, see Toyota bulletin #032.

LB163 INTERNAL SLAVE CYLINDERS

Slave cylinders located inside the bell housing require special handling to guarantee proper operation.

1. Do not cut the plastic straps. They are designed to hold the hydraulic piston in place during installation. They will break free the first time the clutch pedal is actuated.



2. Do not change the position of the release bearing. Moving the bearing from its position may result in damage to the seal and void the warranty.
3. Be careful not to drop the slave unit or bend the hydraulic lines. Inspect new slave cylinders for damage prior to installation. Inspect all protective

grommets to make sure they are not damaged and they are properly installed. These grommets prevent damage from vibration.

4. Install the slave without grease. To prevent damage and leaks, do not clean the slave with solvents.
5. Use the new pin and retaining nut included in the clutch set. Do not reuse fasteners, and avoid over-tightening the flare nut to prevent cracking of the housing.
6. Use only the manufacturers' recommended brake fluid. Make sure the fluid is fresh.
7. For some Jeep applications, it is necessary to remove the "quick disconnect" fittings from the hydraulic lines.

LB165 BOLT HOLES ON CLUTCHES DESIGNED FOR MULTIPLE APPLICATIONS

Referenced part numbers contain a diaphragm spring clutch that replaces the original coil spring clutch. The original had six bolt holes. The LuK replacement has nine holes because it is designed for use on multiple applications with different bolt patterns.



LB171 NO RELEASE

Vehicles: 1984-98 Ford Aerostar, Bronco II, Explorer, Ranger; Mazda B2300, B3000, B4000, Navajo

Referenced applications require special procedures to bleed the hydraulic system properly. The mounting position of the master cylinder on the firewall traps air in the rear portion of the cylinder. Before bleeding the system, remove the master cylinder from the firewall and position it so the reservoir end is higher than the push rod end. This will enable air to escape from the rear portion of the cylinders. Use only approved hydraulic fluid recommended by the manufacturer.

For additional information, refer to Ford bulletin #93-12-19.

LB172 NO RELEASE

Vehicles: 1993-95 7.3- and 7.5-liter Ford F250, F350 and F450 Super Duty

Referenced vehicles were prone to no release, caused by a defective hydraulic release system. To eliminate leaks that may cause this condition, install an upgraded master cylinder and slave cylinder. These components must be installed together. Contact your distributor for specific part numbers. A new tube kit, Ford part #F5TZ-7A512-A, and pedal pivot shaft lever, Ford part #E7T2-7A554-A, must be used with the upgraded parts.

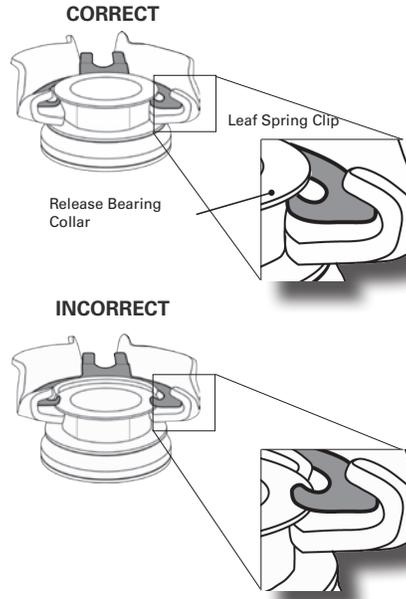
For additional information, refer to Ford bulletin #95-4-9.

LB176 SOLID FLYWHEEL OPTION

Vehicles: 1987-94 7.3-liter Ford F-Series Trucks

The solid flywheel option is designed to replace the original-equipment dual-mass flywheel. The solid flywheel must be used with the clutch set designed for it. It cannot be used with the original-equipment clutch and disc.

When replacing the old components, use only the bolts supplied with the new unit. Tighten the bolts in a star pattern. Torque the flywheel to crankshaft bolts to 45-49 ft-lb and the clutch bolts to 15-20 ft-lb. Thread sealant is pre-applied to the flywheel to crankshaft bolts. The pilot bearing included should be pressed in from the transmission side of the flywheel. The factory backing plate, located between the crank bolts and flywheel, must be reused.



LB177 HARD PEDAL CONCERNS

Vehicles: 1985-94 Chevrolet/GMC C/K, G, R and S/T Series, Blazer, Jimmy, Sonoma

Hard pedal and scraping noise while actuating the clutch pedal may be caused by failure of the clutch pedal return spring. Remove the return spring. It is not needed for proper operation.

For additional information, refer to GM bulletin #46-73-03.

LB178 REPLACE SLAVE CYLINDER TO ELIMINATE HARD PEDAL/RELEASE PROBLEMS

Vehicles: 1998-93 Ford Bronco, Explorer, F-Series, Ranger; Mazda B2300, B3000, B4000, Navajo

Hard pedal/release problems may result from leaks in the internal seal of the slave cylinder. Replace the slave cylinder with one that contains an upgraded seal to prevent leakage.

For additional information, refer to Ford bulletin #97-22-17.

LB179 RELEASE BEARING INSTALLATION

The release bearing fork/combination on many General Motors applications makes it very easy to install the parts incorrectly with the leaf spring clip of the fork above the bearing collar. Improper installation will cause slipping, hard pedal and release problems. Ensure the leaf spring is installed under the bearing collar.

LB180 DIAGNOSING SLIPPING AND CHATTER

Vehicles: Volkswagen Cabrio, Cabriolet, Golf, Jetta, Rabbit, Scirocco

Slipping or chattering conditions result from oil contamination of the disc friction material. The clutch push oil seal (VW part #020 311 108A) is often the source of the oil leak. Also inspect the push rod seal, the rear main engine seal and the transmission input shaft seals. Replace the push rod bushing (VW part #020 311 107C) with a push rod seal.

LB181 FLYWHEELS REQUIRE BALANCE WEIGHTS

Vehicles: 1989-96 Chevrolet Corvette (not required for Camaro or Firebird applications)

Chevrolet Corvettes manufactured from 1989 to 1996 were equipped with a dual-mass flywheel, which cannot be resurfaced and must be replaced.

The driveline in these vehicles is unusually sensitive to vibrations. For this reason, the flywheels are designed to allow fine balancing of the engine and flywheel/clutch assembly by adding additional balance weight(s).

When replacing the flywheel, the factory fine balance on the engine must be maintained. To do this, remove the existing flywheel and place it beside the new one so both flywheels are in the same position relative to the crankshaft dowel.

Install the same number of new balance weights in the same positions as the original flywheel.

Install the crankshaft bolts with Loctite® 262 to prevent oil leakage and torque all bolts to the specifications listed below:

- Flywheel to Crankshaft Bolt 74 ft-lb (100 Nm)
- Clutch to Flywheel Bolt 30 ft-lb (41 Nm)

LB182 SOLID FLYWHEEL OPTION

Vehicles: 1992-96 6.5-liter Chevrolet/GMC
C/K1500-3500, P30/3500

The solid flywheel option is designed to replace the original-equipment dual-mass flywheel. The solid flywheel must be used for the clutch set designed for it. It cannot be used with the original-equipment clutch and disc.

When upgrading to a solid flywheel, use only the bolts supplied with the new flywheel. Torque the flywheel to crankshaft bolts in a star pattern to 65 ft-lb and the clutch to flywheel bolts in a star pattern to 25 ft-lb. A propshaft damper must also be installed. The purpose of the damper is to balance the inertia of the engine with the drivetrain and eliminate vibration. Two-wheel drive trucks equipped with a propshaft brake (all 15, 000-GVW models) do not require the installation of a damper, as the added mass of the brake balances engine and drivetrain inertia values.

For installation of the propshaft damper in two-wheel drive applications, GM part #15664906 is required. When installing the yoke damper nut, use Loctite® 242 on the nut threads and torque to 325 ft-lb (441 Nm).

For installation of the propshaft damper in four-wheel drive applications, GM part #15635329 is required. The damper is installed between the transmission and the transfer case. The transmission rear extension housing must be removed to install the damper. When installing the retaining nut, apply Loctite® 242 to the nut threads and torque to 325 ft-lb (441 Nm).

LB183 LUK FLYWHEEL MUST BE INSTALLED

Vehicles: 1999-02 7.3-liter Ford F-Series Trucks

The clutch set for the referenced vehicles contains a clutch, disc and flywheel, engineered to install as a matched set. Combining the original-equipment flywheel with the clutch and disc in this set will result in interference with the clutch fork. Discard the original flywheel.

When replacing the old components, use only the bolts supplied with the new unit. Tighten the bolts in a star pattern. Torque flywheel to crankshaft bolts to 87-91 ft-lb, and the clutch bolts to 15-20 ft-lb. Thread sealant is not required on the flywheel to crankshaft bolts.

The factory backing plate, located between the crank bolts and flywheel, must be reused.

LB188 LUK SOLID FLYWHEEL OPTION

Vehicles: 1994-97 7.3-liter Ford F-Series Trucks

The solid flywheel option is designed to replace the original-equipment dual-mass flywheel. The solid flywheel must be used with the clutch set designed for it. It cannot be used with the original-equipment clutch and disc.

When replacing the old components, use only the bolts supplied with the new unit. Tighten the bolts in a star pattern. Torque flywheel to crankshaft bolts to 87-91 ft-lb, and the clutch bolts to 15-20 ft-lb. Thread sealant is not required on the flywheel to crankshaft bolts. The pilot bearing should be pressed in from the transmission side of the flywheel. The factory backing plate, located between the crankbolts and flywheel, must be reused.

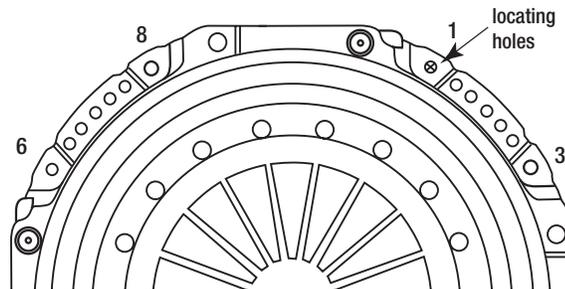
LB189 REMOVE DOWEL PINS PRIOR TO INSTALLATION

Vehicles: 1994-97 7.3-liter Ford F-Series Trucks

Remove the clutch-to-flywheel dowel pins prior to installation. They are unnecessary because the clutch is designed to center itself using the shoulder of the original-equipment mounting bolts. If the dowel pins are not removed, they will cause interference with the clutch cover.

When tightening the clutch, ensure you draw the clutch down following the numbered pattern below. By starting the sequence with the two locating holes (identified by the letter "L" stamped adjacent to the bolt hole), the clutch will be centered to the flywheel bolt circle. It is important that the clutch be tightened in even increments, using only hand tools, to minimize distortion of the cover. The torque specification for the clutch mounting bolts is 15 to 20 ft-lb.

Failure to follow the recommended tightening sequence may result in clutch chatter and/or driveline vibration..



LB190 HOWTO BLEED SLAVE CYLINDERS WITHOUT BLEED SCREWS

The slave cylinder for this application is manufactured without a bleed screw to purge air. If the slave cylinder has a gold allen screw, do not remove or loosen it. This set screw is not intended to be used for bleeding purposes. The proper bleeding procedures for slave cylinders without bleed screws follows.

1. Push the slave cylinder pushrod inward and disconnect both bands of the retaining strap to enable the pushrod to fully extend. Do not cut or discard the retaining strap.
2. Tilt the slave cylinder at a 45-degree angle. The master cylinder line port should be facing upward with the port at the high end of the slave. Fill the slave cylinder with fresh, clean brake fluid.
3. Insert the master cylinder line into the slave cylinder port. Lubricate the enclosed o-ring with brake fluid and insert the retaining pin.
4. Hold the slave cylinder vertically with the pushrod facing the ground. If this is not possible due to the master cylinder line, position the slave as far vertically as possible without putting excessive load on the master cylinder line. The slave cylinder must be lower than the master cylinder.
5. Remove the master cylinder reservoir cap.
6. Slowly push the slave cylinder pushrod into the slave approximately one inch, watching for air bubbles in the master cylinder reservoir. Air in the release system should be purged after 10 to 15 strokes of the slave cylinder pushrod.
7. After all air is purged from the system, slowly push the slave cylinder pushrod back into the slave and reconnect the two bands of the retaining strap.
8. Install the slave cylinder with the retaining strap in place. The retaining strap will break free with the first stroke of the pedal.

Note: The plastic cover over the end of the pushrod must be retained; it acts as a lubricant between the pushrod and the fork. Removing the cover can cause a no-release condition.

LB191 FLYWHEEL-TO-DISC INTERFERENCE

Vehicles: 1997-00 5.7-liter Chevrolet/GMC Full-Size Truck and 1996 with New Venture Transmission

The clearance between the disc damper and the flywheel-to crankshaft bolt heads on this application is minimal. When the original disc is removed, contact marks may be evident on the disc coil springs, indicating interference. Flywheel resurfacing increases this interference, causing noise and release problems.



This clutch set includes a low profile disc, designed to accommodate light flywheel resurfacing, along with a depth gage to verify clearance. After resurfacing, place the flywheel on a flat surface and insert a flywheel-to-crankshaft bolt. Place the gage on the flywheel friction surface and center it over the bolt head. There should be a visible air gap between the gage and the bolt head. If the gage touches the bolt head, the flywheel is too thin to fit the disc without interference, and a new flywheel must be installed.

LB192 DO NOT LUBRICATE

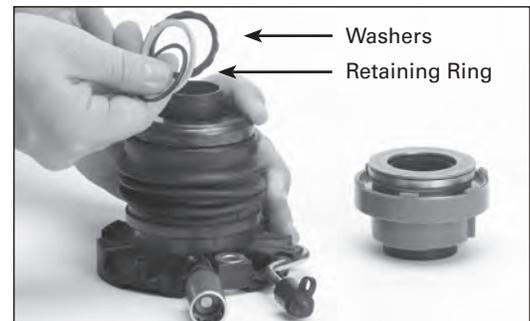
The release bearing and pre-lubricated internal slave cylinder are designed to operate without any additional lubrication. Do not lubricate these parts during installation. Doing so may cause premature failure.

LB194 RELEASE BEARING INSTALLATION PROCEDURE

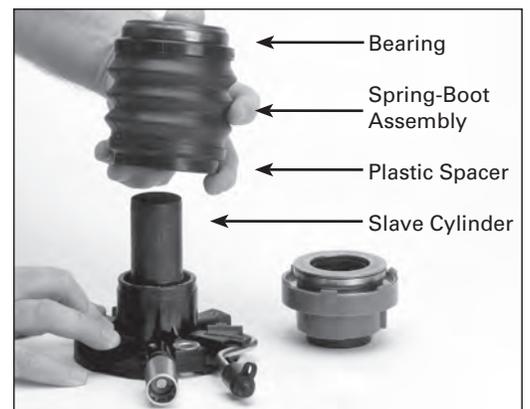
The slave cylinder you remove from the vehicle will appear similar to one of the two original-equipment designs shown below.



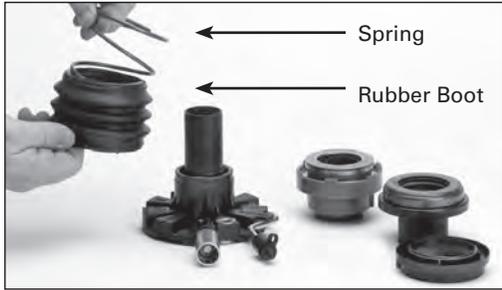
This procedure provides instruction for bearing installation on slave cylinders that include a spring boot assembly and plastic spacer.



Press down on the bearing to remove the retaining ring and two washers. Discard the ring and washers.



Remove the bearing, spring boot assembly and plastic spacer.



Remove the slave cylinder spring from the boot assembly, discarding the rubber boot, release bearing and plastic spacer.



Seat the new release bearing assembly on the slave cylinder spring and install the assembly on the slave cylinder.



Press down on the bearing to install the new retaining ring, included in the clutch set.



The slave cylinder is now ready for installation.

LB195 13-INCH FLYWHEEL UPGRADE FOR DODGE CUMMINS TURBO DIESELS

Vehicles: 1988-03 5-Speeds

The 13-inch flywheel upgrade is engineered specifically for Cummins-powered Dodge trucks. It features the same factory-installed flywheel design used in 2001 and newer models.

Attention to detail, thorough examination and replacement of all worn clutch system components can eliminate immediate off-the-lift problems and prevent premature clutch failure. Follow the manufacturers' guidelines for clutch removal and installation.

Reinstall the starter using the spacer plate and mounting bolts provided. Place the spacer plate between the engine block and starter mounting surfaces, and torque the bolts to 30-34 ft-lb. Install the flywheel and torque the mounting bolts to 99-103 ft-lb. Clean the contact surfaces of the flywheel with a non-residue, alcohol-based cleaner to remove any grease or contaminants. Install the clutch using the eight bolts provided in the kit. Torque the bolts to 15-20 ft-lb.

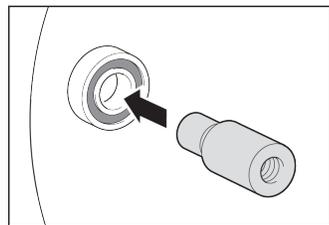
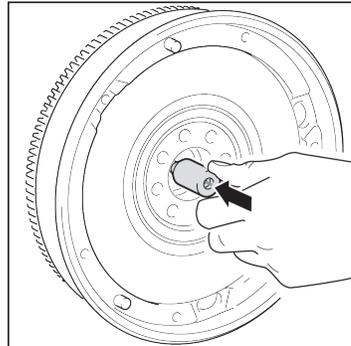
LB197 IMPORTANT INSTALLATION INFORMATION

Vehicles: BMWs with Self-adjusting Clutches

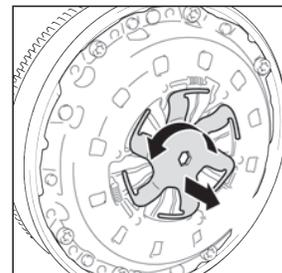
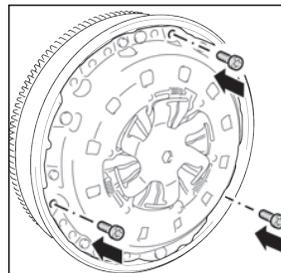
The self-adjusting clutches for some BMW applications include a shipping plate, which must not be removed prior to installation. If the plate is removed prematurely, the clutch will self-adjust and become completely unusable. Removal or tampering with the shipping plate will void the warranty. Follow the instructions below for proper installation.

Installation of these clutch sets requires a reusable, two-piece tool, which must be purchased separately.

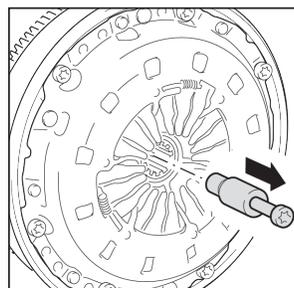
Contact your distributor for these tools:



Detach the threaded bolt and insert the body of the installation tool into the flywheel pilot bearing.



Install the clutch and disc. Insert a 14 mm hex-head wrench into the clutch shipping plate center hole and turn it counter-clockwise to remove. Discard the plate.



Thread the bolt into the installation tool body and remove the tool. Complete the clutch installation according to vehicle manufacturer's specifications.

LB199 CLUTCH INSTALLATION PROCEDURE

Vehicles: 2001-05 8.1- and 6.6-liter Chevrolet Silverado and GMC Sierra Trucks

These vehicles feature a sealed hydraulic release system and a concentric slave cylinder (CSC), which does not include a bleeder valve. Prior to disconnecting the slave cylinder, the release system hydraulic pressure must be relieved to prevent clutch release problems. Follow the procedures below and refer to the vehicle service manual for detailed clutch replacement instructions.

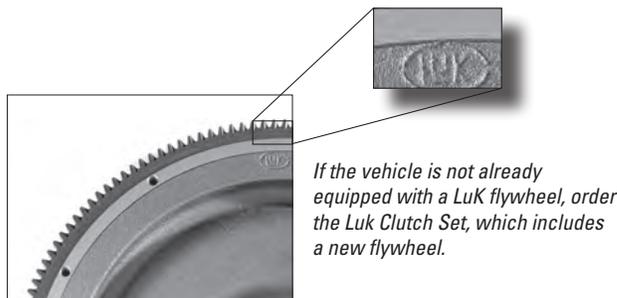
Unbolt the transmission from the engine block and rotate it 90° to expose the CSC. Remove fluid from the clutch master cylinder reservoir until the level is halfway between MIN and MAX. Push the CSC toward the transmission until it bottoms out. Locate and disconnect the slave cylinder “quick connect” hydraulic fitting on the outside of the bell housing.

Install the new clutch. Reconnect the slave cylinder “quick connect” fitting. Bolt the transmission to the engine. Inside the vehicle cab, actuate the clutch pedal three full strokes. Top off the clutch master cylinder reservoir to the MAX line with fresh fluid.

LB204 LUK FLYWHEEL MUST BE USED

Vehicles: 1999-02 7.3-liter Ford F-Series Trucks

Referenced clutch sets are engineered for use only with LuK flywheel #LFW140 (LuK #LFW140). Prior to ordering or installing these sets, you must verify that the vehicle contains a LuK flywheel. If these sets are installed with the original-equipment flywheel - or any other manufacturer’s flywheel - interference will result, the clutch will not function properly, and there is a possibility of complete and catastrophic failure of the system.



To verify the vehicle contains the correct flywheel, remove the flywheel from the vehicle and check the crankshaft side for the LuK insignia and the part number LFW140. If these are not found, order the clutch set that includes a new flywheel.

After removing the flywheel, it must be resurfaced; failure to resurface the flywheel voids the warranty. Install the resurfaced flywheel, reusing the factory-installed backing plate, located between the crankshaft bolts and flywheel. Tighten flywheel-to-crankshaft bolts in a star pattern to a torque of 87-91 ft-lb. Thread sealant is not required. Tighten the clutch bolts in a star pattern to a torque of 15-20 ft-lb.

LB207 NOISE AND PREMATURE CLUTCH WEAR

Vehicles: 2002-04 Ford Focus SVT

Referenced applications may exhibit signs of premature clutch wear or produce a clunk or rattle noise while the vehicle is in neutral and the clutch pedal is disengaged. The noise diminishes when the pedal is actuated. These problems may be caused by alignment issues in the clutch, disc, dual-mass flywheel or transaxle.

If the vehicle exhibits either of the these conditions, inspect the following:

- Transaxle fluid level – fill if low.
- Slave cylinder for leaks – replace if necessary.
- Release bearing for smooth operation – replace if rough.
- Bearing retainer to ensure the bearing slides smoothly - polish scoring with emery paper.
- Input shaft splines for wear or damage – polish small scoring or burrs with fine-grit emery paper or crocus cloth.
- Alignment of dowel pins with the engine and transaxle – replace if damaged.
- Corresponding dowel pin holes – if elongated to more than .040” out of round, the transaxle must be replaced.
- Separator plates, located between engine and transaxle, for damage or warping – replace if necessary.
- Crankshaft flange for contamination or rust – clean if necessary.

Install a complete clutch set, which includes a revised clutch, disc and dual-mass flywheel. You must install all of the new components because they are incompatible with those in the vehicle.

Torque all bolts in a star pattern to these specifications:

- Flywheel mounting bolts to 83 ft-lb
- Clutch mounting bolts to 21 ft-lb
- Transaxle mounting bolts to 35 ft-lb

For additional information, refer to Ford bulletin #04-21-19.

LB209 SQUEAKING NOISE

Vehicles: 2004-06 Ford Rangers

Referenced applications may produce a squeaking noise while the clutch pedal is actuated or released. The noise also may be detectable with the engine off while cycling the clutch pedal. If you confirm the noise is coming from the bell housing, replace the slave cylinder with LuK part #LSC003 or revised Ford part # 6L5Z-7A508-AA.

For additional information, refer to Ford bulletin #06-23-13.

LB212 INTERCHANGEABLE CLUTCH SETS

Vehicles: 2005-06 1.9-liter Volkswagen Jetta TDI with Engine Designation BRM

Both LuK and Sachs manufactured complete clutch sets for the above-referenced applications. Either manufacturer's system can replace the other, but only if all three components are replaced. DO NOT mix Sachs components with LuK components. The Sachs version may contain a defect, leading to burnt disc friction material and clutch pressure plate heat damage. Always replace the dual-mass flywheel if it shows signs of heat damage; it cannot be resurfaced.

LB227 PEDAL VIBRATION AND NOISE AFTER CLUTCH INSTALL

Some vehicles may exhibit a rattle, chirp, squeak, and or pedal vibration after a new clutch is installed. Insufficient pre-load on the release bearing may be the cause. The original self adjusting cable and plastic quadrant are known to wear and fail over time. The correction is to replace the cable and quadrant with a new upgraded, adjustable cable and all aluminum quadrant. This will allow for proper release bearing pre-load to be set.

Installation of new cable and quadrant :

1. Remove the old cable from the plastic quadrant and from the transmission.
2. Remove the three cotter pins or hitch pins and washers from the quadrant and ratcheting paw assembly. Keep the pins and washers for use during reinstallation.
3. With the pins removed, slide the plastic quadrant and ratcheting paw off the mounting studs. On some models the ratcheting paw assembly may have to be cut in half to remove due to the heater box being in the way.
4. Install new aluminum quadrant onto pedal assembly by sliding onto the studs.
5. Install the washers and the pins onto the studs.
6. Install the new cable assembly onto the quadrant.
7. Install the cable onto the clutch fork and adjust the cable to proper pre-load.
8. After test driving the vehicle recheck for proper cable adjustment.

LB228 NISSAN & INFINITI DMF INSTALLATION

Vehicles: 2002-12 Nissan, Infiniti

The vehicles equipped with this dual mass flywheel have a crankshaft tone ring built into the flywheel. The dual mass flywheel is not indexed on the crankshaft and can be installed different ways.

When installed incorrectly, the vehicle may not start, have a check engine light, and the engine will not rev past 2,000 RPM.

When removing a dual mass flywheel from the vehicles listed above, it is recommended to make your own indexing marks on the flywheel and crankshaft. When installing the new flywheel transfer your marks from the old flywheel to the new flywheel to ease installation and assure proper indexing.

If you have already removed the flywheel and did not make any indexing marks, follow this procedure for proper installation:

1. With the flywheel removed look for the alignment dowel pin hole on the end of the crankshaft.
2. On the new flywheel find the same alignment dowel pin hole.

This can be done by finding the locating hole and notch on the front side of the flywheel.(see Figure 2) When you have located the notch and hole on the front side, flip the flywheel over and find the same hole that goes all the way through the back side.

Then look at Figures 1-3 and find the dowel pin hole.

3. When both have been located align the two holes and torque the flywheel to the proper specifications.
4. See Figures 1-3 to aid in locating the correct dowel pin holes.

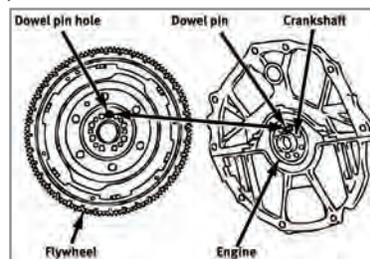


Figure 1



Figure 2

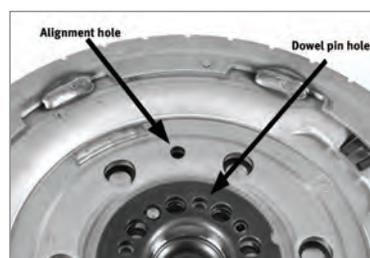


Figure 3

LB229 OVER-CENTER SPRINGS AND SOFT CLUTCH PEDALS

“Over-center” or release assist springs as they are sometimes called, may result in a very soft pedal when a coil spring clutch is replaced with a diaphragm spring clutch. designed to reduce the higher pedal effort associated with coil spring clutches, over-center springs may overcompensate when a diaphragm spring is installed. The results can include a very soft clutch pedal, and in some cases, a clutch pedal which will go to the floor- and stay there. To eliminate these problems, remove the over-center springs.

LB230 ABRUPT ENGAGEMENT OF HEAVY-DUTY CLUTCHES

Some Clutch kits contain heavy duty discs made of Cerametallic friction material. This material normally results in abrupt engagement of the clutch and some degree of clutch chatter. Please advise the owner of the vehicle that this characteristic is normal before you sell or install a clutch kit containing a cerametallic disc.

LB232 DODGE RAM DUAL MASS FLYWHEEL TO SOLID FLYWHEEL CONVERSION

**Vehicles: 1-24-05 production date to 2010
5.9L / 6.7L Cummins Dodge Ram with G-56 transmission**

	LuK #	LuK Global #
RepSet®	05-184	632 2164 000
Flywheel	LFW184	416 0228 100

*LuK now offers a Dual Mass Flywheel to Solid Flywheel conversion for the 1-24-2005 production date to 2010 5.9L/6.7L Cummins Dodge Ram with G-56 transmission.

You must use a new LuK RepSet® and new LuK solid flywheel together! The LuK RepSet and LuK flywheel are manufactured as a complete paired unit! If your vehicle currently has a solid flywheel conversion of another brand manufacturer when replacing the clutch assembly with LuK RepSet 05-184, you will need to use the matching LuK solid flywheel.

When replacing your clutch system with the complete LuK dual mass flywheel conversion kit, you will find that the LuK solid flywheel is thicker than your OEM flywheel. It is also made from nodular iron. This design benefit eliminates the need for the OE flex plate and helps withstand higher temperatures and clamp loads. Additionally, you are able to reuse the factory OEM hydraulics, so no need to replace release system and fork.

** Please be sure to replace the flywheel mounting bolts with the bolts included with the flywheel.*

** Due to the dual mass flywheel to solid flywheel conversion, some gear rattle may occur. This is a normal characteristic due to the lack of shock absorption from the new solid flywheel.*

Flywheel to crank torque specs: 85 ft. lbs

Clutch/pressure plate to flywheel torque specs: 40 ft. lbs.