

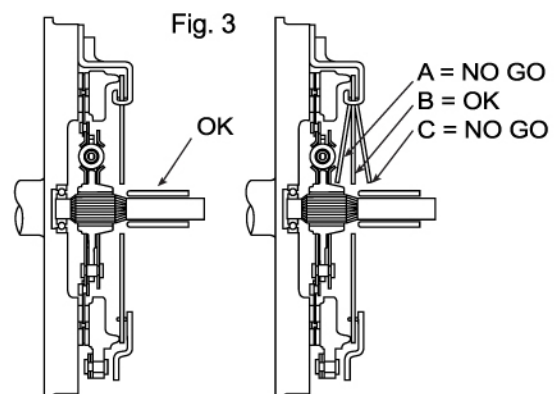
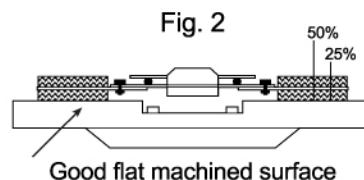
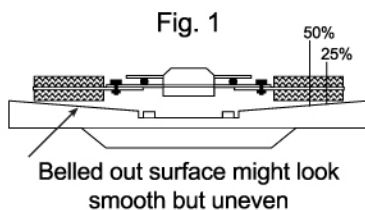
## How to get it right the first time...

### GENERAL CLUTCH INSTALLATION GUIDE

**Failure to observe these instructions when fitting your clutch will void any warranty!**

1. **Getting it right the first time:** It is vital to diagnose the cause of the clutch malfunction before clutch replacement, i.e. check the hydraulic system – bearing free travel, clutch cable, oil leaks, and check for any signs of red dust when the old clutch is being removed. Any or all of these problems must be corrected before installing a new clutch.
2. Ensure the clutch supplied is correct for the application. Fitting a clutch to the wrong application will void the warranty.
3. **All worn Flywheels must be resurfaced as shown below (Fig.2 max 0.03 in.) or the warranty will be void.** Check the pilot bearing or the pilot bushing and replace if necessary. Please note that the pilot bushing noises are more apparent when the engine and transmission systems are cold (i.e. in the morning).
4. Before fitting, check the clutch for any shipping damage. Next, clean the gear box main drive shaft splines, and then check that the clutch disc slides freely onto the shaft. **Lightly** grease the shaft splines with high melting point grease. Always ensure that the bell housing is degreased and is free of any dust, and that the fibers from the worn clutch are removed. If the clutch is a large size pull type clutch, check the ID of the bearing head for the correct spline size before installation. Lack of lubrication/dry splines will cause failure to disengage gears and also cause clutch drag.
5. Check the clutch release fork for cracks, the clutch cable for stretch signs, and the release bearing guide tube for any wear. Always lightly grease the outside diameter of the tube. This will allow smooth sliding of the bearing carrier. Always check the bearing on the clutch release fork after installing the bearing onto it. Move the fork forwards and backwards, (i.e., in both directions), to ensure that the bearing is secure and does not interfere on any part (clutch fork or bell housing) before refitting the gear box.
6. Place the clutch cover pressure plate assembly over the clutch disc. Check that the disc is the right way around and that the hub section of the disc does not interfere on the casting of the clutch cover assembly or the flywheel. A suitable clutch aligning tool will ensure correct alignment, and assist in the ease of installation, and avoid spline damage. (Burr on splines are a major cause of difficult gear disengagement). Ensure pressure plate dowels are aligned to the cover. Tighten bolts in a diagonal pattern and never use air tools to install a clutch over assembly. Torquing down bolts in an uneven pattern in some instances could cause the lever strut to dislodge itself from the pressure plate casting.
7. When the pressure plate has been torqued down securely to the flywheel, ensure that the diaphragm tips (in the case of a lever type cover assembly, the release level tips) are in a parallel position (Fig.3) and do not cover the center of the parallel position.
8. Refit the gear box, taking care not to bend the clutch disc. Never hang the gear box off the clutch disc, or use any force to align the gear box shaft.
9. Check that all bell housing dowels are in the correct position and tighten the bell housing bolts. Ensure that there is no dirt or foreign material between the mating surfaces of the engine and the bell housing.
10. Perform any clutch adjustments to the vehicle manufacturer's specifications and always reset the clutch master cylinder push rod to obtain a comfortable pedal release position (with the clutch taking up space as close as possible to the floor: this prevents clutch shudder and in most cases is preferred by vehicle drivers). Keep in mind that the diaphragm tip position has changed with the installation of the new clutch.
11. Always check the clutch cable if you are unable to obtain disengagement when a new clutch is fitted. Start off your checking process by replacing the cable. If it is a hydraulic clutch, start by checking the clutch master cylinder and the clutch slave cylinder, ensuring there is no air in the system. This is essential to obtain maximum travel for disengagement.
12. Road test the vehicle and never abuse a newly fitted clutch. Allow a 750 mile break-in period, and always adjust the free travel on your new clutch at 750 miles, and at 1500 miles. Thereafter, adjust at every 10,000 miles.

**WARNING:** Do not use clutches in any situation where the engine RPM's may exceed the manufacturer's specifications – a pressure plate could explode unexpectedly, causing serious injury or death to vehicle occupants and bystanders. Clutch cover and bell housing will not prevent against exploding pressure plates.





# Diagnosing Bearing Noises

## 1. Clutch Release Bearing

- A. Depress the clutch pedal approximately 2 in. The bearing is now in contact with the diaphragm. Should the bearing rumble or squeal, then the clutch release bearing is most likely at fault (providing it has been pressed onto the carrier the right way around).

## 2. Pilot Bearing or Bushing

- A. With engine running, depress the clutch fully.
- B. Select first gear.

- C. Release the clutch. If the squeal is heard at the point of the clutch taking up, then the pilot bearing is faulty. In the event it is a bronze bush, it will indicate lack of lubrication on the I.D. of the bush. If the bush as been lubricated on the I.D., there is a greater possibility that the O.D. of the bush is undersized and worn. The noise is then caused by the bush spinning in the end of the crank. If the new pilot bush has not been pressed in evenly, this could also result in the bush spinning, which could cause a grumbling

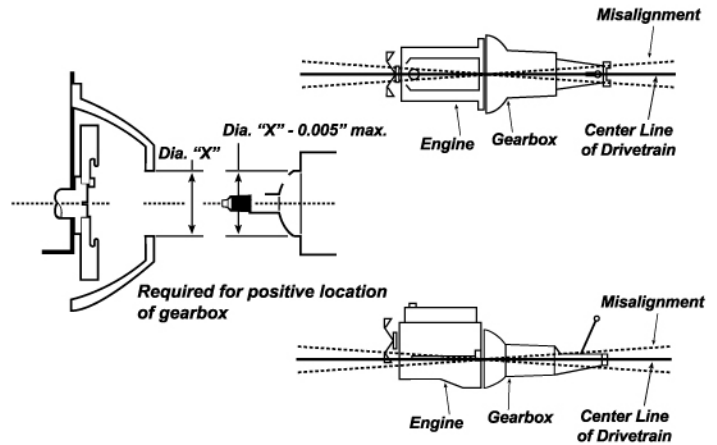
or squealing noise. Pilot bush noises are more apparent when the engine and transmission are cold (i.e. in the morning).

## 3. Front Gear Box Bearing

- A. Drive the vehicle at approximately 25 mph in gear. If a noticeable grumbling noise is heard, depress the clutch pedal to the floor. This will, in turn, stop the main drive and bearing from spinning. If the noise ceases, it is probable that the front gear box bearing is faulty (as there is no load on the bearing).

# General Misalignment Issues / Tips

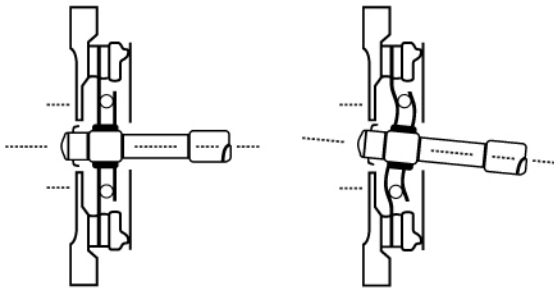
1. Check for a warped alloy bell housing.
2. Examine tubular dowel pins for damage during fitting of bell housing, or for missing dowel pins.
3. Examine gear box quill/gearbox main drive nose cone/bearing slide: Excessive wear can cause bearing to come in contact with the cover assembly diaphragm unevenly while actuating the clutch.
4. Ensure proper mating of bell housing to motor, and crankshaft to flywheel. These may not mate properly due to debris, grease, or other parts in the way of the mating surfaces.
5. Examine all bearings / bushings for excessive wear. Replace if necessary.
6. Replacement engines and gearboxes may have missing dowel pins. Ensure that you remove all pins from your product when you send your core for remanufacture, and refit or replace them when installing a new clutch.



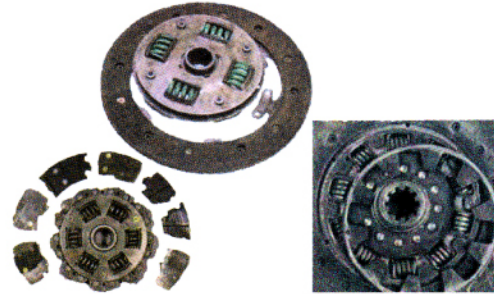
# Hanging the Gearbox

✓ Right

✗ Wrong!



**DON'T HANG THE RESULTS ON US!**



# Examples of Common Warranty Exclusions

