

BACKGROUND

Whenever used flywheels or clutches are going to be put back into service after a powertrain service or repair, care must be taken to assure maximum component wear life and safety.

1. New clutches - These must work against smooth, flat flywheels which are either new or resurfaced. A used flywheel is only acceptable as-is if it is from a very low mileage installation, is perfectly smooth and flat, has no heat spots and has absolutely no perceptible wear or if it is being reinstalled with its original clutch.

2. Used clutches - These should be reinstalled against the flywheel they were mated to since new, with the flywheel in the as-is un-resurfaced state. A used clutch can only be used with a new or resurfaced flywheel if the clutch is from a very low mileage installation and the friction facings are perfectly smooth and flat with no perceptible wear.

Advisability of Resurfacing

Many engine manufacturers build extra iron into their flywheels specifically to allow for resurfacing but many do not. Those who do not forbid resurfacing of their flywheels with loss of certain warranty coverage if flywheels are resurfaced. It is advisable to contact the engine manufacturer or the vehicle manufacturer to obtain resurfacing guidelines and cutting depth allowances.

Resurfacing Guidelines

Once you determine that your flywheel can be resurfaced, follow these guidelines:

- Machine the surface down the minimum depth to remove all wear grooves, heat spots and heat checking
- Do not exceed the manufacturers cutting depth allowance
- Cut the friction surface flat and square running the surface outboard as much as possible without cutting into any clutch piloting rim inside surface. On pot type flywheels, a small radius should blend the resurfaced area to the pot wall inside surface. The pot wall inside

Release Bearing Noise with Pedal Up **(Continued ...)**

surface should not be machined. On pot flywheels, the top flat surface of the pot rim must be machined an amount equal to that removed from the clutch friction surface. This restores the critical step dimension between these two surfaces (see manufacturer's specifications).

- Resurfacing should duplicate the surface finish of a new flywheel (see manufacturer's specifications).
- Use a tap to clean out the threaded clutch mounting bolt holes after resurfacing.
- Clean the crankshaft mounting surface prior to installation.
- Remount the flywheel to the engine and check for clutch disc damper clearance to the flywheel mounting bolts. If necessary, apply modeler's clay or thick grease to the bolt heads and install the clutch disc on an alignment tool and against the flywheel. Rotate the disc and remove it and check the clay/grease thickness. This thickness should be at least 1/8 inch which is the required minimum running clearance.
- Thread the clutch mounting bolts into the bare flywheel to be certain they can go in deep enough to pull the clutch assembly tightly to the flywheel. In some cases, these threaded holes go completely through the flywheel. For these installations, be certain that the ends of the clutch mounting bolts will not contact the rear face of the engine or the flywheel housing front wall when the bolts are screwed in deep enough to mount the clutch correctly.
- The flywheel friction face should be clean and dry. Do not apply oil, grease or rust preventatives even if the flywheel will be stored for a while. These materials are almost impossible to remove from porous cast iron and can result in new installation slippage and clutch damage. Some surface rust is actually helpful in breaking in a new clutch.
- Before installing the clutch, check that the flywheel run-out meets clutch manufacturers' requirements.

Final Note

Truck flywheels must handle powertrain torques which on today's vehicles can easily exceed 3000 ft-lbs for brief periods of time. They must also absorb the heat of clutch operation while spinning up to engine red line speeds. They are made from relatively brittle cast iron and have been known to burst on rare occasions under abusive conditions. It is therefore wise to treat them with caution and respect and strictly adhere to these resurfacing guidelines.