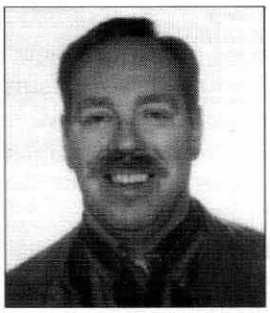
Clutches Doing The Right Thing



By Mike Weinberg
Contributing Editor

In the current automotive market, an increasing number of vehicles are purchased with standard transmissions. Clutch replacement is a welcome profitable addition to the service provided by transmission repair shops.

Doing The Right Thing

You know the old saying "There is never enough time to do the job right, but there is always enough time to do the job over." You only have one chance to sell the parts and labor required to do a first class job for your customer. Anything that is overlooked or not sold will result in a comeback, where the parts and labor come out of your pocket.

Successful clutch replacement starts with a test drive if possible. The next step is a thorough physical inspection of the entire clutch

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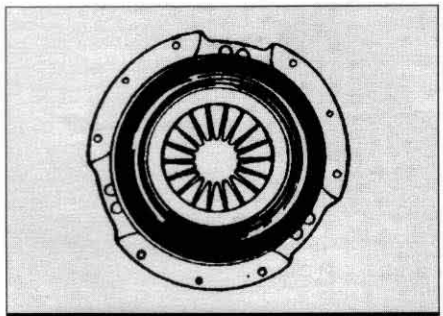
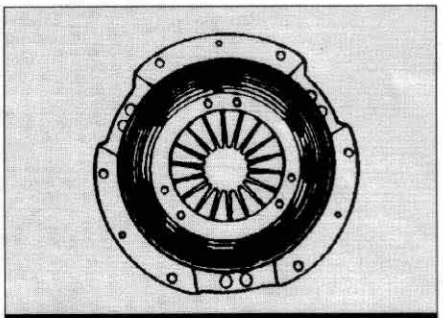
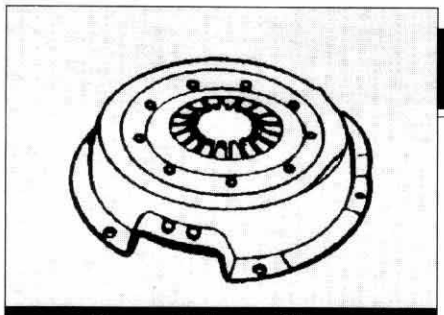


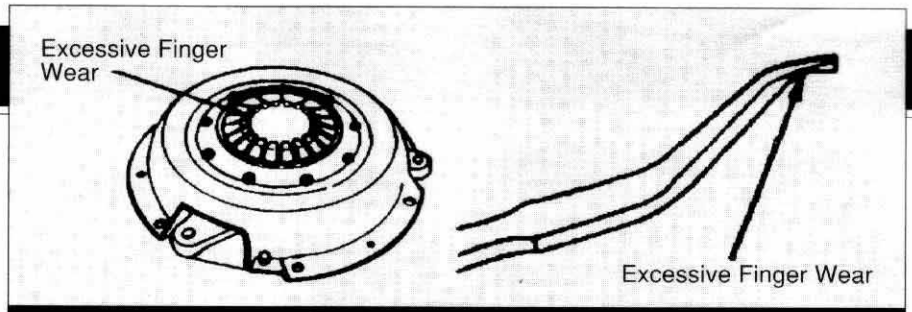
Excessive Scoring



Clutch Chatter



Normal Finger Wear



Excessive Finger Wear

operating system. This means inside the passenger compartment, under the hood and under the car. Accepting the fact that a chain is only as strong as its weakest link, anything we miss on the initial inspection will result in a recurring failure. Clutch failure can be attributed to one of the following causes:

1 – Normal wear after sufficient mileage has been reached.

2 – Premature mechanical failure of one or more of the clutch operating components.

3 – Wear or failure of external linkage, hydraulic systems, cables, mounts, firewall, etc.

4 – Oil contamination of the disc due to leaks from the motor or transmission lube.

5 – Driver abuse.

Once we have noted all defective external component, we are ready to pull the gear box and inspect the disc, pressure plate release bearing, pilot bearing clutch fork and front bearing retainer on the trans. Somewhere in the latter part of this century, the OE clutch manufacturers discovered that an aftermarket (us) existed. Most of those manufacturers advertise their products on the pages of this magazine. They are the same parts that the automakers use when the car is built. They are very reasonably priced (which means a decent profit margin for us), and they come with an excellent warranty. The only reason not to replace clutch parts as a matched set, disc, pressure plate, release bearing and pilot bearing, is that you can't stand prosperity. The components are balanced to work together properly and the disc damping and friction materials are matched to the engine and drivetrain.

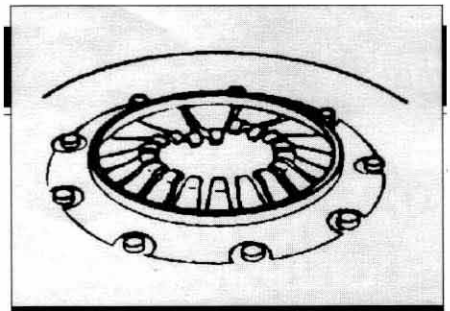
Next we resurface the flywheel by grinding. I specify grinding because some shops will cut a flywheel on a lathe. A lathe will skip over the hot spots that are surface annealed and very hard, and cannot produce a proper finish or maximum disc life. Without resurfacing a flywheel correctly, you have just wasted all your other efforts.

After correcting all external components that need replacement, adjusting the clutch for proper freeplay, and a good road test, you are ready to collect payment. Take five minutes out of your busy day to go for a road test when the customer picks up his vehicle. Let the owner drive. He gets to see that his money is well spent, and you get to check out his driving habits. Ask each customer to return to the shop in two weeks for another checkup to make sure that no readjustments have to be made due to clutch break in.

Expect the unexpected. Over the years we have seen many oddball clutch problems. A few easy-to-overlook ones will illustrate the point.

Blind hole bolts in flywheels. Make sure that the bolts that hold the pressure plate to the flywheel do not bottom out in a blind hole, without fully clamping the clutch cover to the flywheel. This will cause an early friction failure.

Honda clutch cables are notorious for sawing through the end of the housing at the clutch fork. This causes the clutch to change adjustment as the cable keeps cutting through the housing. Check all cable operated Hondas for this wear.



Broken or Bent Fingers

Body mounts wear out on pickup trucks, especially tow vehicles. When this happens, the driver steps on the clutch and the "z" bar linkage picks up the body instead of releasing the clutch fully I had one tow operator put in four new discs in short order before he brought us the truck and we found the problem.

Transaxle with arm-mounted clutch forks are prone to bushing wear in the clutch arm, cracks in the cable arm and roll pins that break, allowing the clutch fork to have less than full throw.

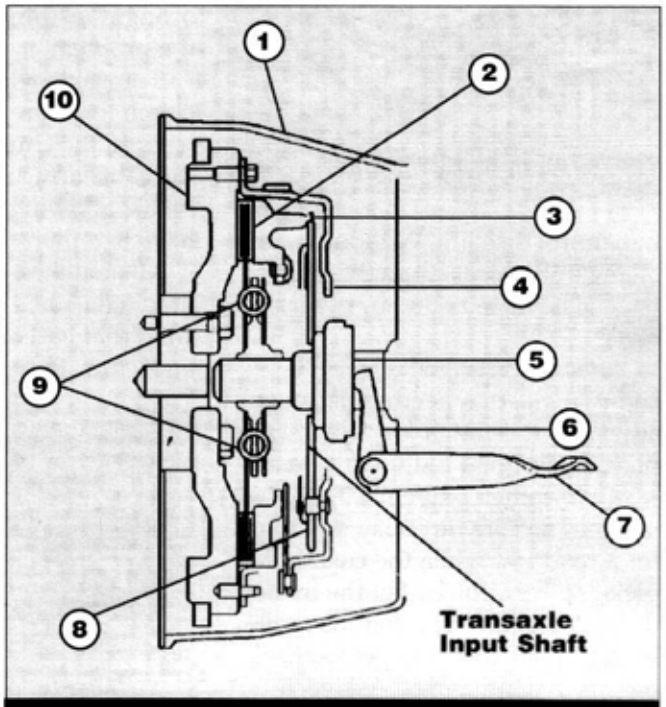
Mismatched parts will give you grey hair. I had a tech call from a shop that had done a clutch job on an Acura. The unit would tear the disc up in a few miles. After asking a few questions, we found that the shop had installed Honda clutches. They appeared to be the same, but since the engine rotation was opposite, the clutch self destructed.

Replacing the parts only fixes the symptoms, finding the CAUSE creates the cure.

See figure on the following page

Happy and healthy holidays to you all.

Up To Standards



Clutch Components

1. Transaxle Housing
2. Clutch Disc (Attached To The Transaxle Shaft With A Splined Hub) Has Friction Material On Both Sides Where It Contacts The Flywheel And Pressure Plate
3. Pressure Plate (Applies Pressure Against Clutch Disc) Holds Clutch Disc Tight Against Surface Of Engine Flywheel
4. Cover (Part Of Pressure Plate Assy)
5. Release Bearing (Constantly Engaged With Release Fingers) Provide Connection Between Release Fingers And Fork
6. Release Fork
7. Release Lever (Release Fork And Release Lever Impart Pedal Motion To Release Bearing) Lever Is Connected To Clutch Cable
8. Release Fingers (Part Of The Belleville Load Spring) Movement Toward Flywheel Removes Clamp Load From Clutch Disc
9. Damper Springs (Part Of The Disc Assy) Aid In Absorbing Engine Pulses
10. Engine Flywheel (Bolted To Engine Crankshaft And Rotates With The Crankshaft) Machined To Provide A Friction Surface Which Meets With The Friction Surface Of The Clutch Disc When The Clutch Is Engaged. This Forms A Continuous System By Which Engine Power Is Connected To The Transaxle

Note: This System Requires No Pilot Bearing ■