

2002 Mazda MPV Transmission Repair

Intro:

First off, I'd like to express my gratitude to mpvclub.com in general, and to member *sbeltinc* specifically, for helping me do this. While this is a fairly straightforward project, having someone who has gone before you is always a big help.

At 119,000 miles, my 2002 Mazda MPV's transmission died. The first sign of impending doom happened when we would try to pass someone at highway speeds, and the tranny would downshift. We experienced rough shifting at first, then the tranny started slipping when we would try to accelerate. Finally, near home, no power was being delivered to the wheels; the engine just revved freely, regardless of gear.

After a day or so, I tried moving the van again, and found that it would drive in Reverse, L, and 2, but nothing higher than that. If it was in Drive, the transmission would attempt to shift into 3, but then it would slip, and the engine would rev freely. Fluid was dark red, and smelled burnt.

Fortunately, mpvclub.com member "sbeltinc" had similar symptoms, and [tackled the problem](#) of figuring out what parts needed to be replaced, and how to get at them. I've simply documented the process that sbeltinc pioneered.

If your transmission suffers from loss of gears 3-5 (R, L, and 2 still work), than this repair may well work for you. It appears that a small crack develops in the high piston, allowing fluid to flow into the reverse piston. This causes the reverse piston's frictions to burn up.

While sbeltinc was able to do this project in 3-4 hours, it took me considerably longer, mainly due to the fact that I didn't lower the engine/tranny before I tried to remove the tranny end cover.

Cost was somewhat higher for me, as well, as I discovered a burr on one of my high clutch steels, and decided to replace the entire pack. I also discovered that my reverse clutch snap ring was extremely loose, and needed to be replaced. I probably should have waited until I had disassembled the tranny before ordering parts, as I wouldn't have had to pay shipping twice (second time for high clutch parts). Total cost for parts and shipping, including fluid to flush the system at the end, came in at around \$250.

Parts:

www.wittrans.com

Part #	Description	Quantity	Unit Price
D183892A	Snap Ring, Holds Reverse Clutch Pressure Plate	1	\$9.57
183126A	Steel, High Clutch .095" (18 Teeth) (3.608" ID)	4	\$2.85
183126B	Steel, High Clutch .062"(18 Teeth) (3.608"ID)	1	\$4.80
83106BA	Friction, High Clutch .059"(24 Teeth) (4.400"OD)	5	\$4.47
183338AK	Seal Set, Reverse Clutch Piston Seals	1	\$16.89
183130A	Steel, Reverse Clutch .079" (36 Teeth) (5 5/8" ID)	2	\$5.04
183110A	Friction, Reverse Clutch .063" (32 Teeth) (6 1/8" OD)	2	\$7.20
A183985A	Retainer/Piston,High Clutch Spring(Bonded) (4,120"OD, 1.655"ID)	1	\$7.46

www.transtar1.com

Part #	Description	Quantity	Unit Price
D98966AK	PISTON KIT (INCLUDES REVERSE AND HIGH)	1	\$82.25

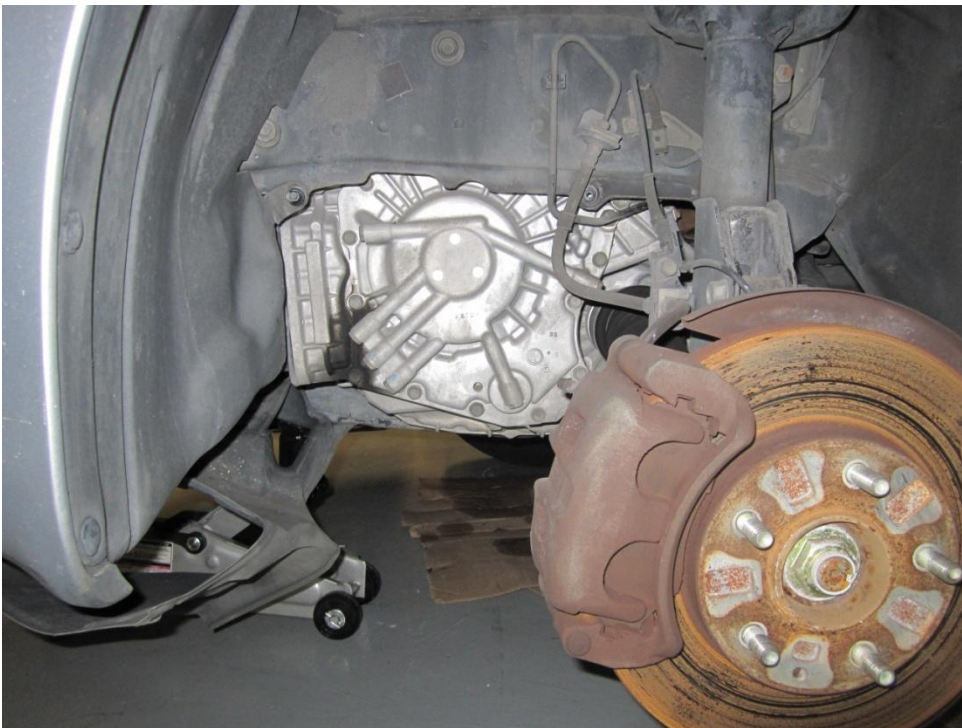
Note that the piston kit was purchased from Transtar, as wittrans only had used pistons. However, Transtar does not ship to individuals; I had a store local to me, and was able to pick it up.

Procedure:

1. Jack up your van, remove the front driver's side tire, and place jackstands.



2. Remove the nut, bolt, and plastic body fastener, and fold the plastic splash guard forward, exposing the transmission end panel.



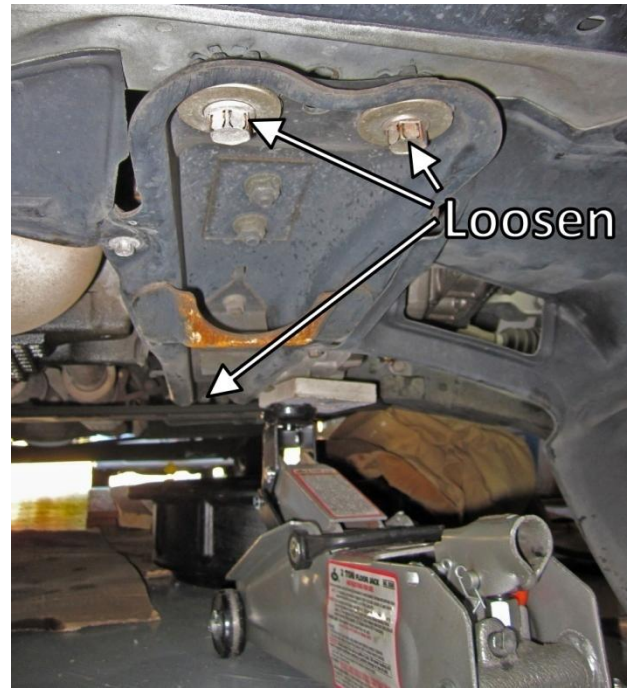
3. You will need to lower the engine & transmission a bit in order to fully access the end panel. Make sure your engine/transmission is supported. Since the engine mount member is still supporting the transmission, a jack may not be necessary, but I felt better with it in place. I originally had the jack on the oil pan, but found that wasn't far enough over on the driver's side to effectively lower/raise the transmission. I placed it on the driver's side of the engine mount member.



4. Remove the air filter, battery, and battery tray to expose the driver's side engine mount. Remove the engine mount through bolt. This might cause the engine/tranny to shift a bit.



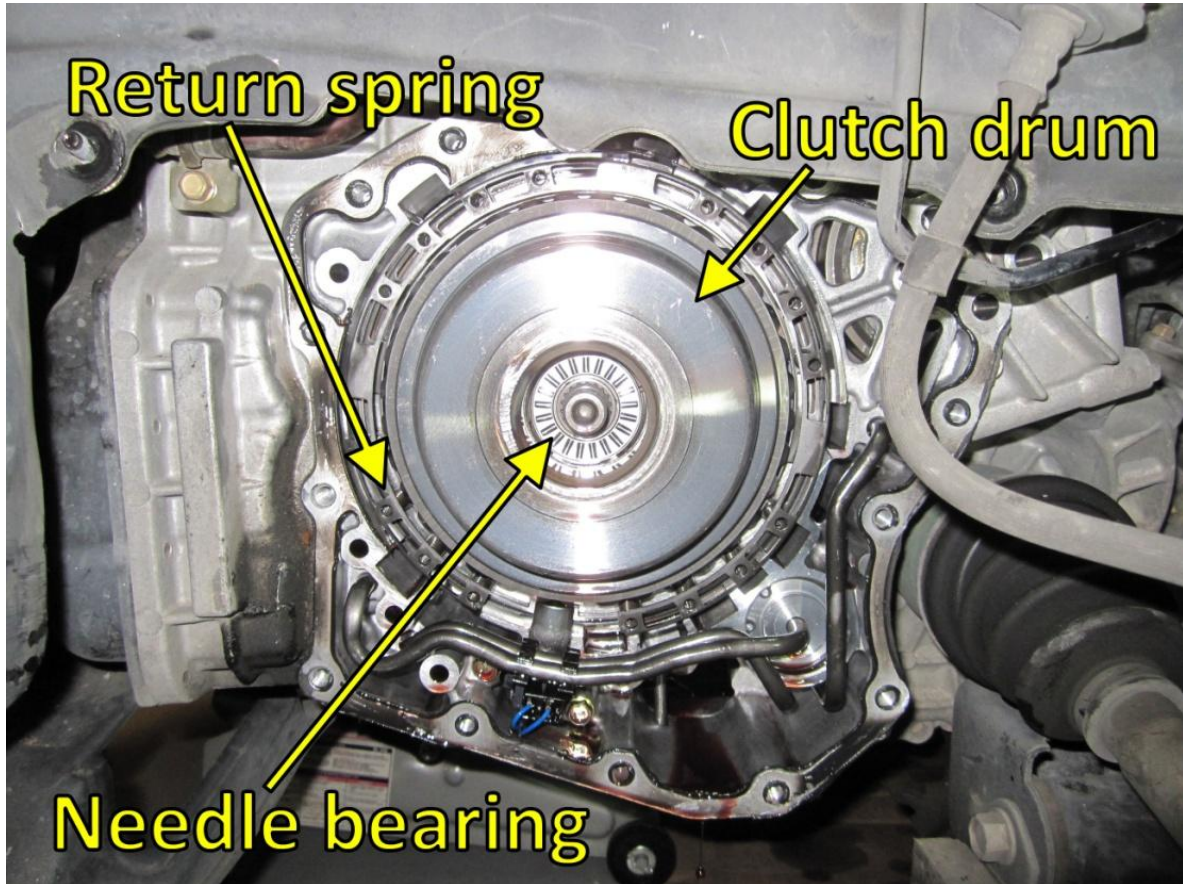
5. Loosen, but don't remove, the 3 bolts (2 front, 1 rear) on the engine mount member to allow the engine/ transmission to lower some. Even with the jack supporting the transmission, be careful here- there's not much supporting the driver's side of the transmission at this point.



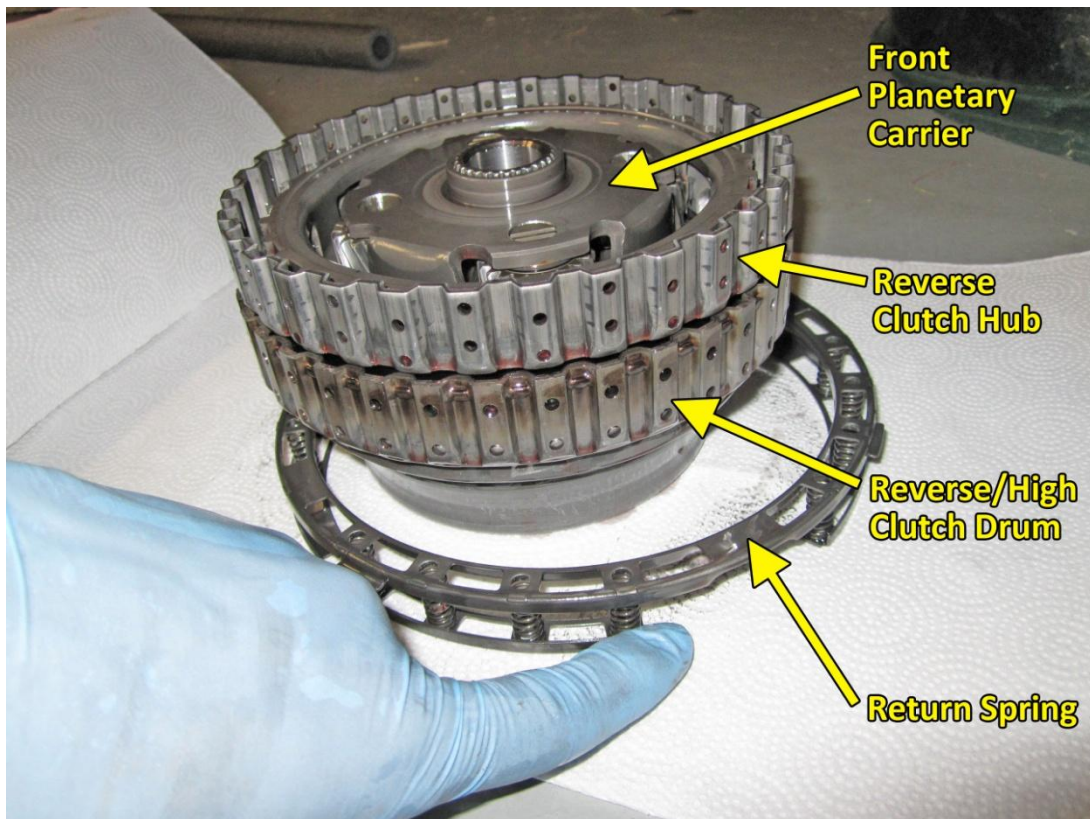
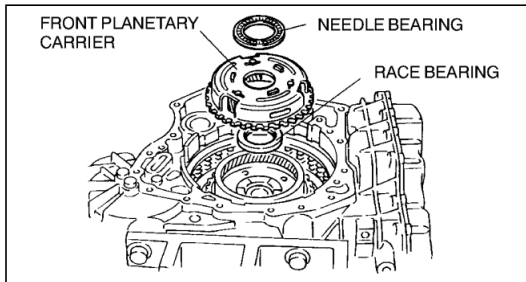
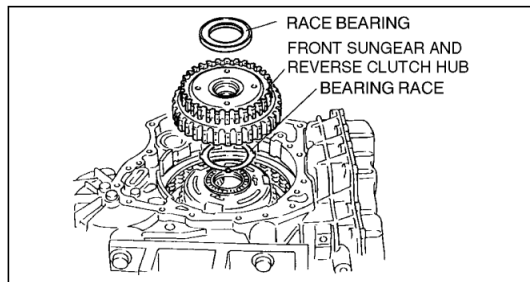
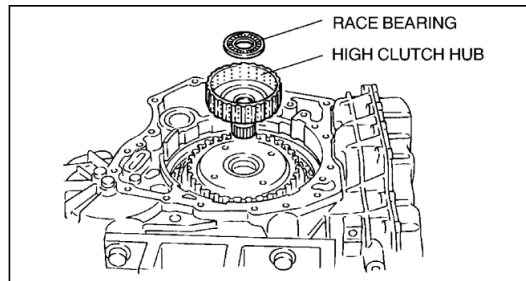
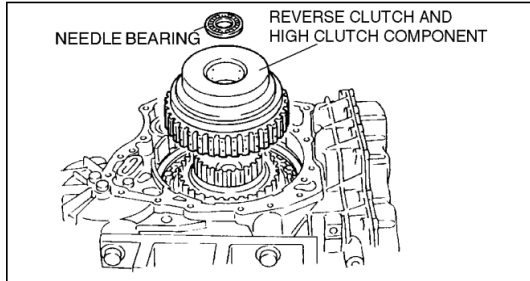
6. Put a pan under the end panel, as you will be soon have a few quarts of transmission fluid flowing out. Remove the bolts around the perimeter of the transmission end panel. The two larger bolts in the upper right-hand corner of the panel gave me the most trouble, because they were close together. After all bolts (16, I believe) are removed, give the end panel a few taps with a rubber mallet to break the gasket seal. After the drainage of fluid slows, pull the end panel off. You might have to rotate it to get clear of the body.



7. Here's where you need to keep things in good order, so that you can track the orientation and order of all parts removed. I found that in at least one example, the Mazda Transmission Manual had a bearing's orientation drawn incorrectly. Speaking of the Mazda Transmission Manual, I'm working from page K1-10 at this point. Depending on what's wrong in your transmission, different pistons/drums may stick together, so what you pull off at this point might not be the same as what came off when I pulled. **Remove the reverse/high clutch drum.** The return spring will probably come with it. Watch out for the needle bearing in the middle, it will probably drop out.



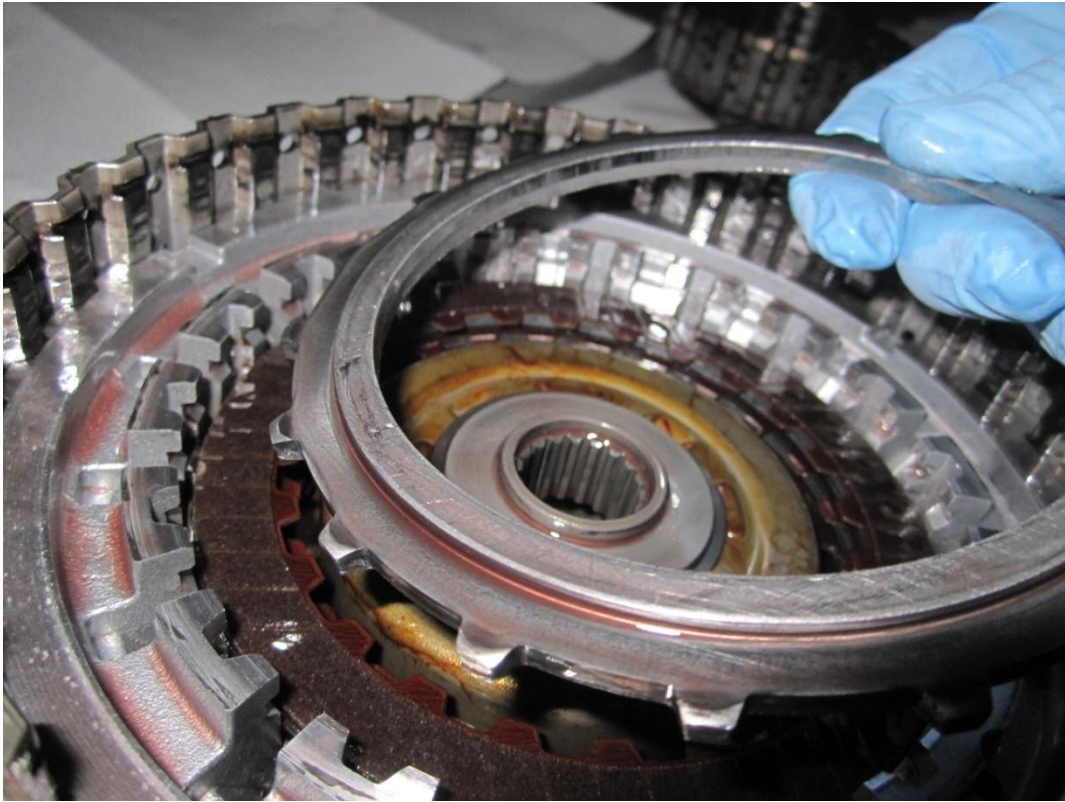
8. In my case, removing the reverse/high clutch drum pulled not only the reverse and high clutches, but also the high clutch hub, reverse clutch hub, and front planetary carrier. **Note that the high clutch hub drawing below has the race bearing facing the wrong way.**



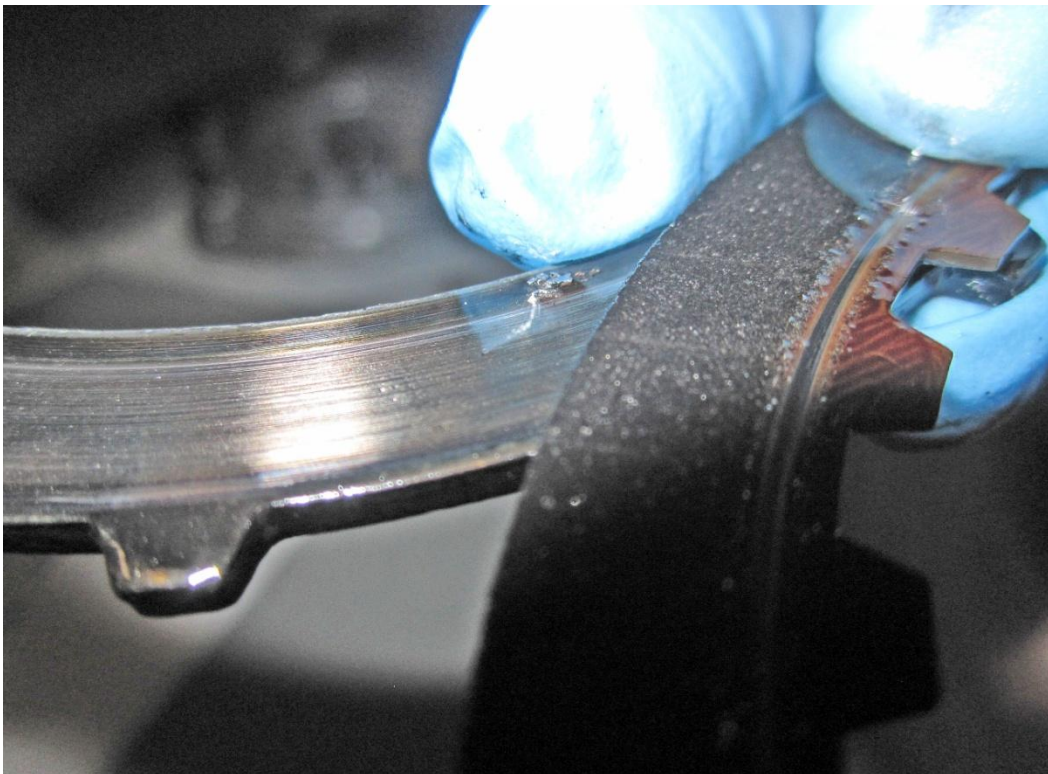
9. I didn't go any farther into the transmission, but instead focused on the reverse/high clutch drum, which had obvious signs of damage inside (in fact, the outside of the drum was darkened due to the burnt friction material). Start by removing the snap ring, the retaining plate (looks like a thicker "gear"), and the alternating frictions and steels. My reverse frictions were toast; complete loss of friction material, and one was bent. Steels looked grooved and worn.



10. Next up is the high snap ring, retaining plate, frictions and steels.



My high frictions looked a lot better, except for one which had a deep groove in it. I checked the corresponding steel, and sure enough, there was a burr on it -- probably came from the factory this way. At that point I decided to buy a whole new set of frictions/steels for the high piston.



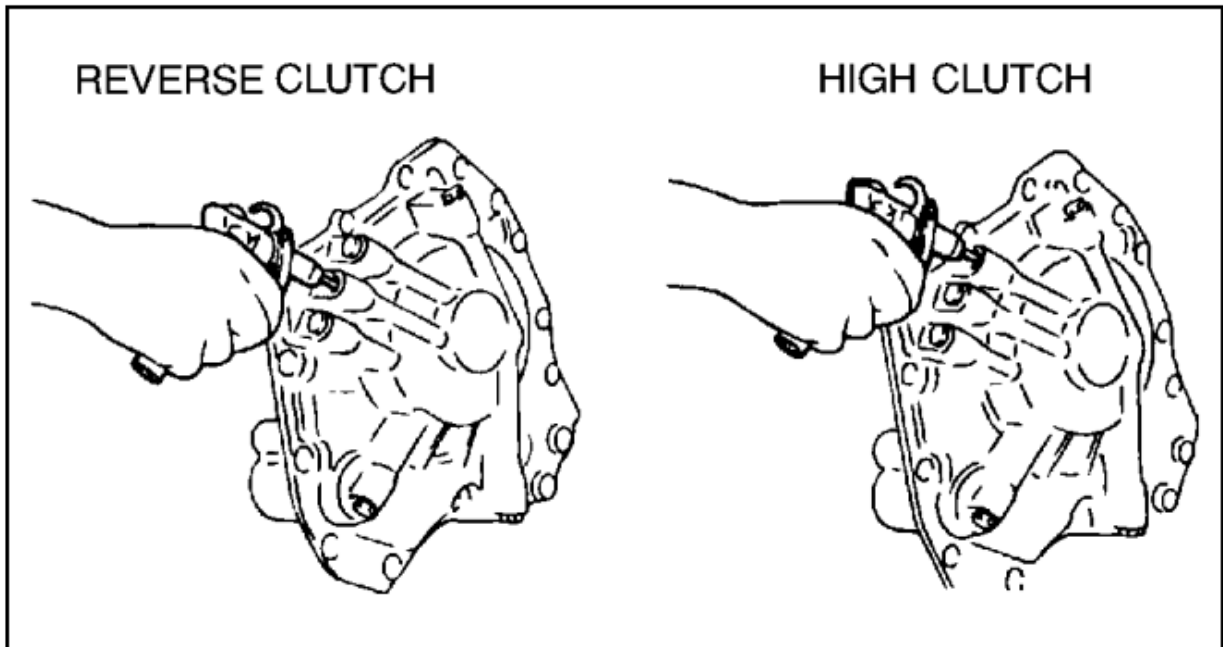
11. Next is the snap ring on the spring retainer. The spring retainer is that bronzish looking "hat" shape, and it's got a stout spring under it. To remove, compress the spring with a couple C - clamps until you have enough slack to pop out the snap ring. You risk damaging the edges of the retainer if you compress too much, although if you followed my parts list, you do have a spare spring retainer.



12. Remove the spring retainer and the spring underneath.



13. Remove the reverse and high pistons from the drum. To do this, place the clutch drum back in the end cover that you took off the transmission housing. Using compressed air, blow air into the proper hole to get the pistons to pop out. Take a break- now you've got the thing disassembled!



14. Install the D-rings on the high/reverse pistons (coat the rings with ATF). From this point on, basically it's just a reverse order of disassembly. Take your time, clean up components as you go along, and apply a nice coat of ATF to just about everything. Make sure the teeth of the frictions are lined up in each clutch pack, as this will allow you to slide all the components back together. After sticking everything back in the transmission housing, clean off the old gasket material, and place a bead of RTV silicone gasket maker (I used Permatex Black) around the mating face of the end panel. Tighten everything up, raise the engine & put other parts back on while the gasket is curing, let it sit overnight, then flush out the transmission using Bubba's method from mpvclub.com. Don't forget to factor in the fluid you lost when you cracked open the transmission.

