4R100-HD2 Tugger ™ Reprogramming Kit ™

This kit also fits: E4OD 1989 to1998

This product Requires Trans Removal to Install!

Kit requires trans removal for the installation of the internal parts. Trans still in vehicle? Use our E4OD-HD2 fits 4R100's too!

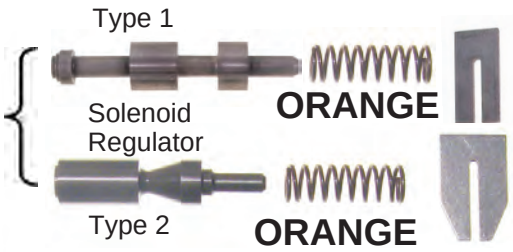
Doubles the holding power of the L/R clutches in manual low. Prevents downhill clutch burnup. A must when using exhaust brake or loaded downgrade use. Reduces 2nd Clutch burnup.

Short-Crisp high throttle upshifts with "Class" Performance & Durability.

1st Type VB
***do not drill*.**

2nd Type VB

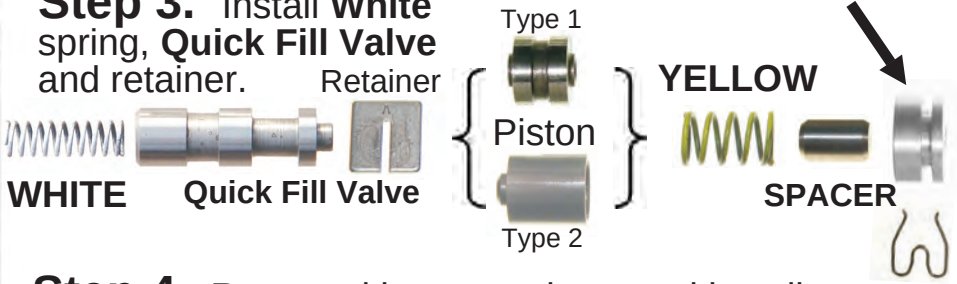
Step 1. 2nd Type Valve Body Only: Drill .110 hole through the casting into the bore. Do not drill to other side of bore. Debur bore with small file.



Step 2.
Install **Orange** spring on either type of Solenoid Regulator.

Discard original retainer**.** Install new **END PLUG,** thick end inboard.

Step 3. Install **White** spring, **Quick Fill Valve** and retainer.



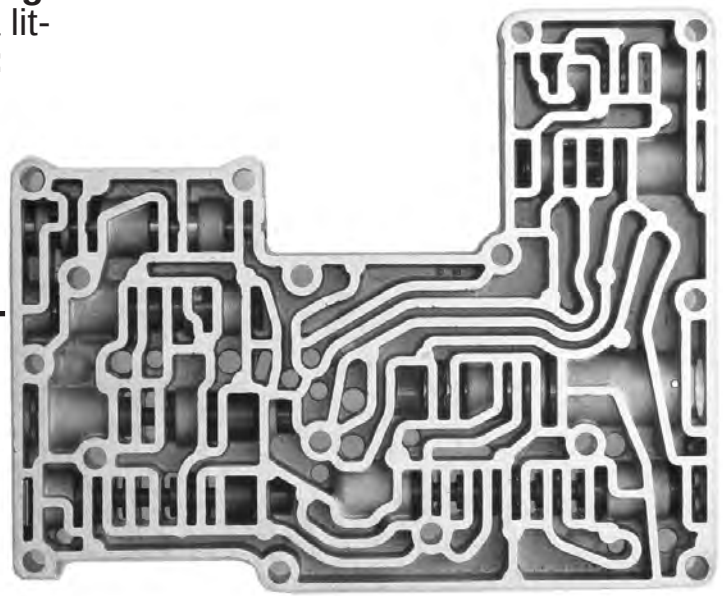
Step 4. Re-use either type piston and install New **Yellow Spring**, **Spacer, End Plug** & **Clip**.

Step 1.

2nd Type VB: Install new L/R **Mod Boost Valve, Bushing** and **White** spring in open end of valve. **LISTEN UP:** Use a little Trans Jel or Vaseline to hold spring in Valve. **Update: After installing clip push bushing out board from other side of VB make sure both inner valves are free.**

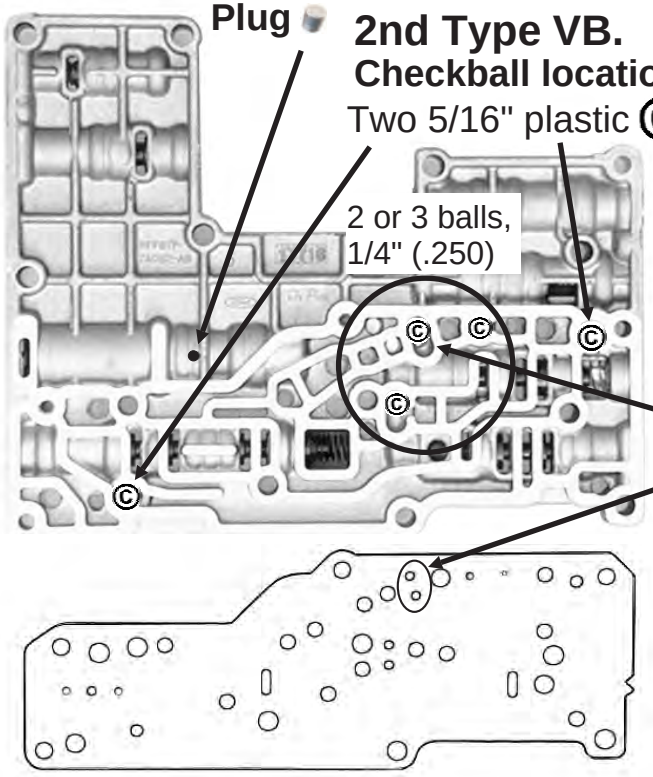
2nd Type

1st Type VB:
Install **Red** spring.



Step 2. 2nd type VB Only:

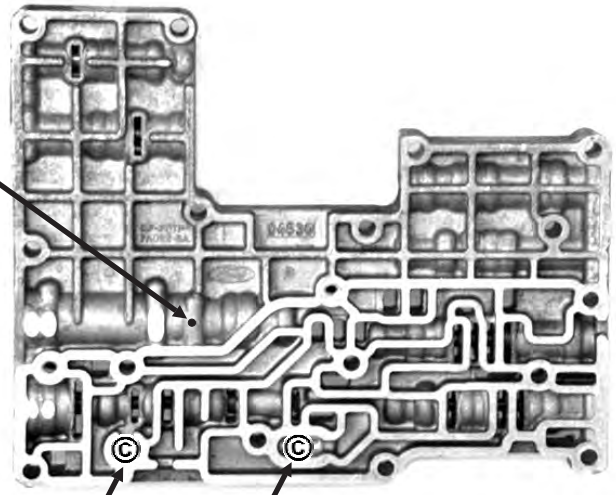
If **VB** has hole here, plug it with small **Tapered plug.** ***Gently*** tap it in flush.



2nd Type VB.
Checkball locations:
Two 5/16" plastic Ⓒ

Checkball here?
Look at plate here.
Two holes = Install ball
One hole = No ball

1st Type VB:
Don't plug hole.



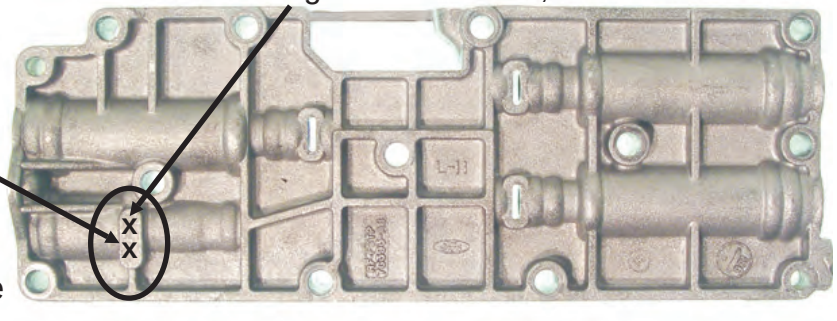
Two 5/16" plastic Ⓒ

1st Type VB.
Checkball locations

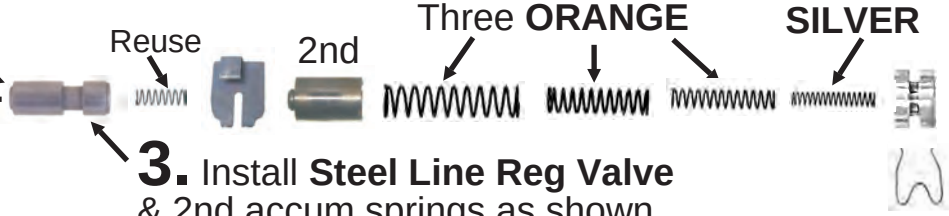
1. Accumulator Valve Body.

Remove Line mod valve and accum valve. **Drill** two .076 to .093 holes thru casting at the **"X's"** it's not fussy. If it has a slot here, no need to drill holes.

LOOK: If casting has a slot here, no need to drill.

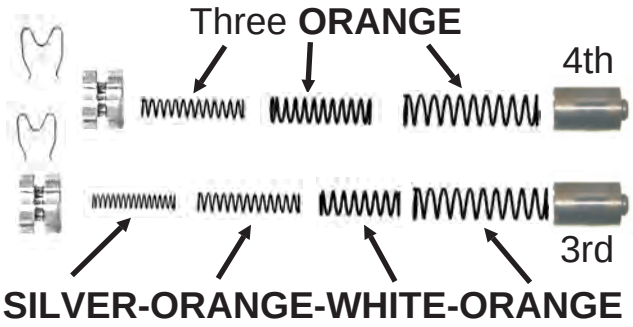


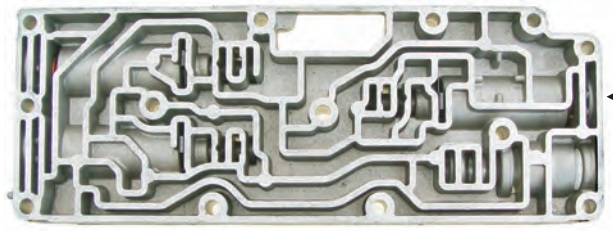
Steel valve furnished fits all locations. Now available separately **E4-VL-LR3** pack of 3.



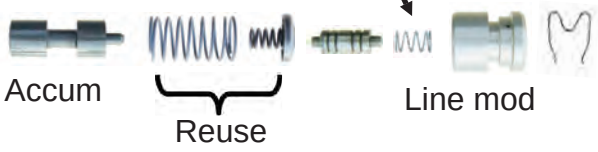
3. Install **Steel Line Reg Valve** & 2nd accum springs as shown.

2. Install new springs into the 4th & 3rd accumulator pistons as shown.

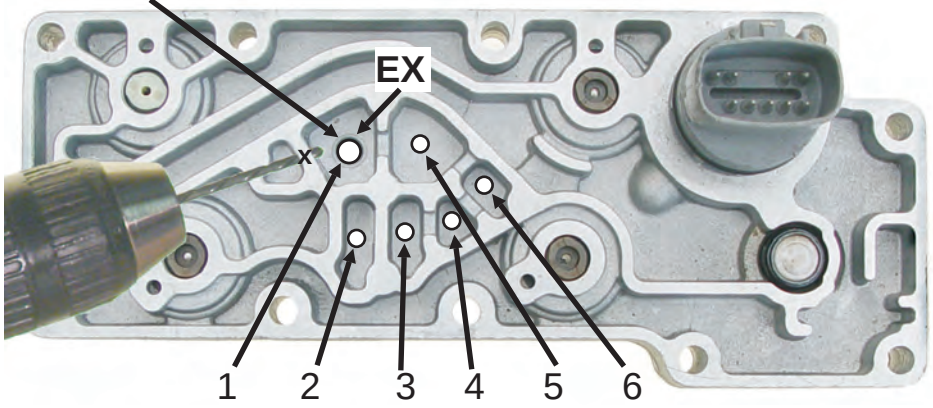




4. Install short **BLUE** spring.



LOOK: If casting has hole **EX,** no drilling needed.



5. Solenoid Pack. If casting *has* hole **EX**, install solenoid pack ***as it is.***

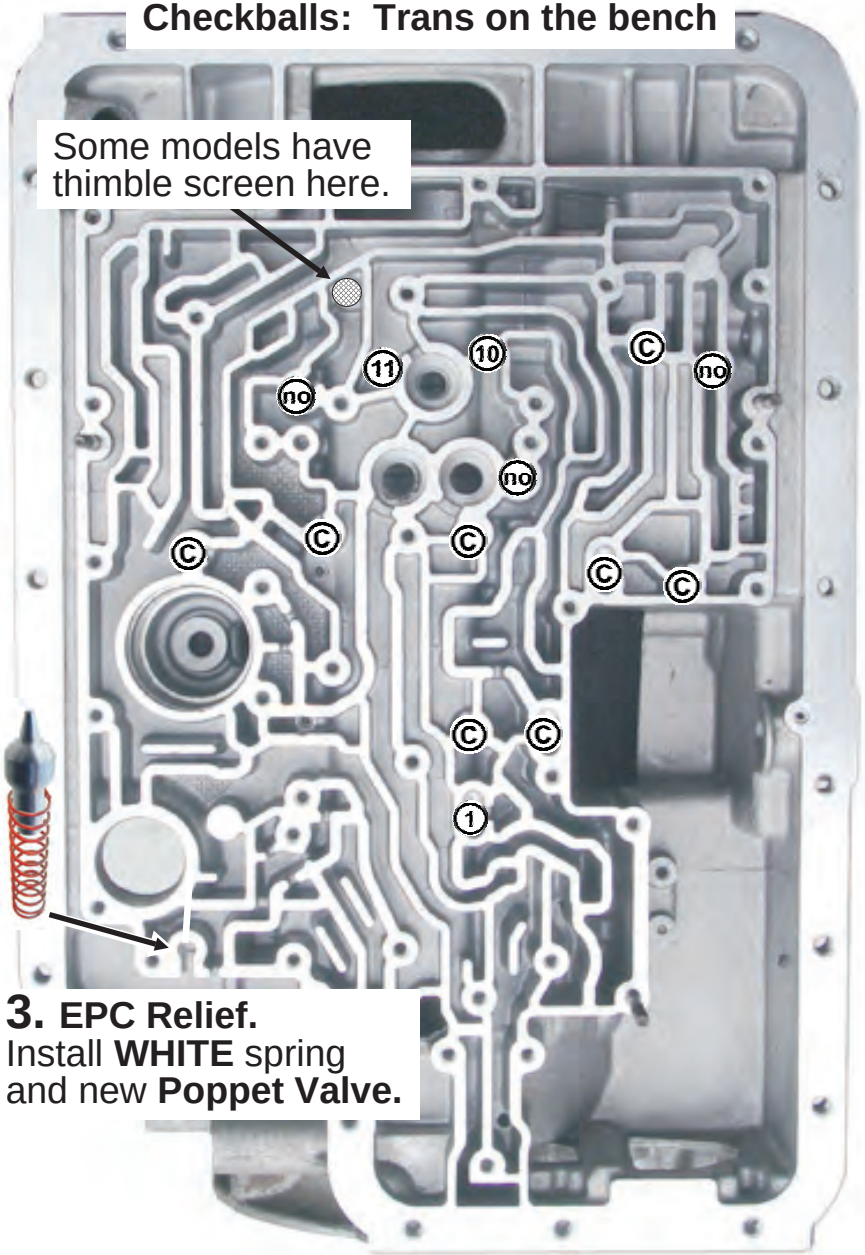
If there is **no hole EX, drill** six 1/8" **holes** as shown. Then drill one more hole **thru partition** under **"X".**

Note: Pack **without** "**EX**" hole ceased production in the late 90's. Consider replacing the pack for long term durability.

Ball locations © All models.
Ball 1: 89 to 95 only Balls 10 & 11: 1989 0nly
Ball 10 is 5/16 steel when used, all others 5/16" plastic

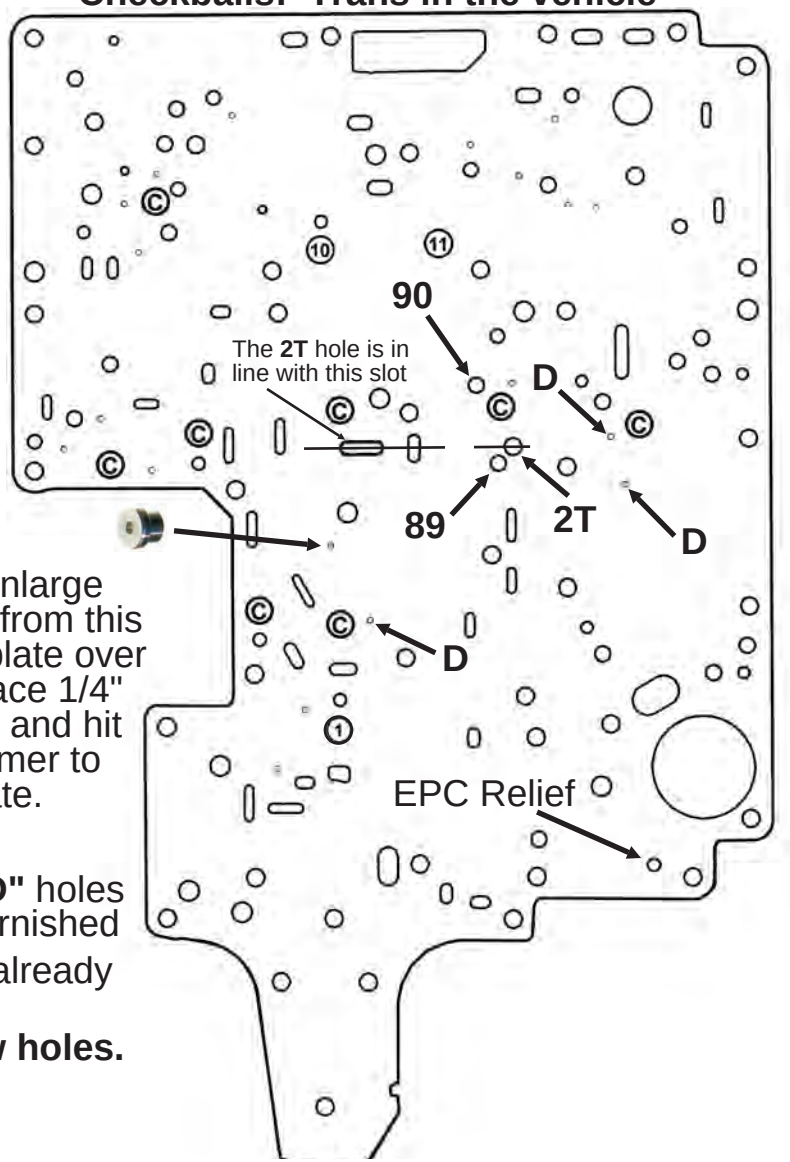
If plate *has* hole 89, install all 11 balls.
If plate *has* hole 90, don't use ball 10 & 11.
If plate *has* hole 2T, don't use ball 1, 10 & 11.
When used: Ball 10 must be 5/16" steel, all others 5/16" plastic.

Checkballs: Trans on the bench



3. EPC Relief.
Install **WHITE** spring and new **Poppet Valve.**

Checkballs: Trans in the vehicle



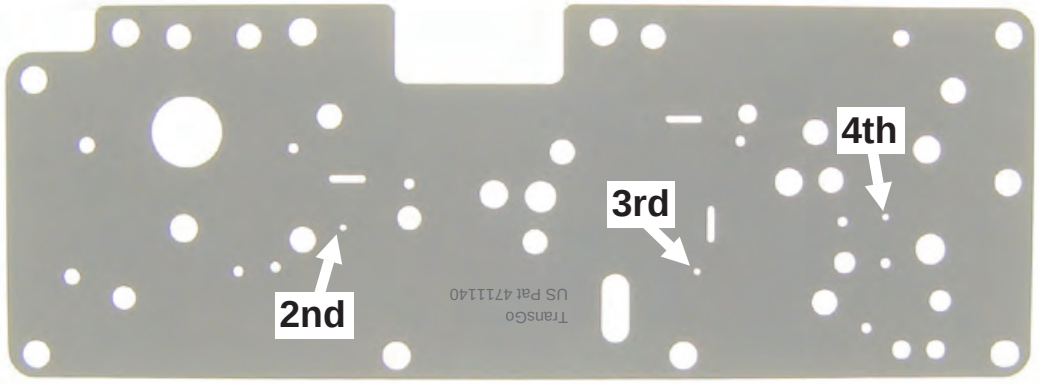
1. Plate orifice.

With the .110 drill enlarge hole. Install orifice from this side of plate. Flip plate over on steel bench. Place 1/4" steel ball on orifice, and hit ball with small hammer to tighten orifice in plate.

2. Enlarge three **"D"** holes with the .081 drill furnished

It's OK if holes are already bigger or not there.
Don't drill any new holes.

Make sure gaskets don't cover any holes in plate.



Size	2nd	3rd	4th
6 Cyl	.076	.063-.067	.076-.086
V8	.094	.073-.082	.094
Diesel & V10	.110-.116	.073-.082	.086-.096

A ***bigger*** hole makes the shift ***firmer***.

After road test:

Slightly firmer shift make hole .010 larger.
A ***lot firmer*** make hole .030 larger.

Step 1. Calibration Plate

Shift firmness is affected by engine power, axle ratio, weight, computer strategy, and clutch quality. There's no way to get it perfect on first try.

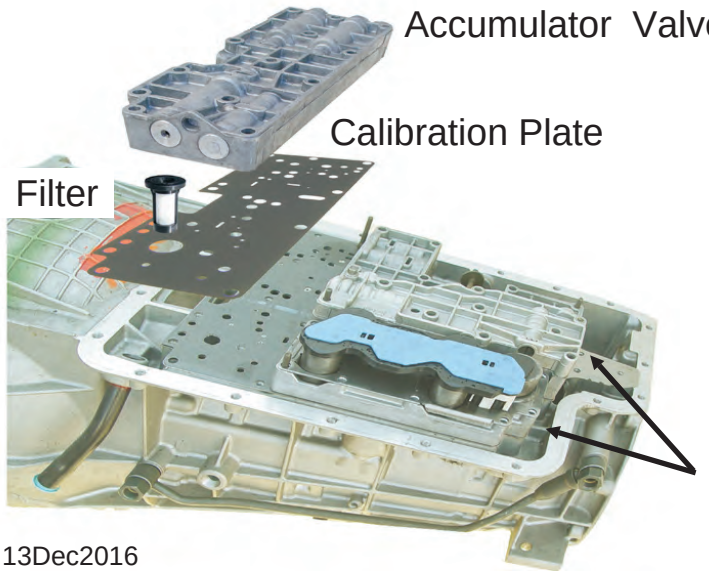
This plate lets you choose an average firmness, then make changes if needed. The 2nd, 3rd & 4th holes are .053 in the plate furnished.

Select a start firmness and drill holes to that size. After road test you may change sizes to adjust firmness.

For sure read this:

When using a custom LOW STALL converter make hole sizes same as 6 cyl, then road test. Then enlarge holes for any shift you want firmer.

Have a Trans question or problem?
Want some heavy duty information?
Call our Technicians 626-443-7451



Step 2. First install the Separator Plate, Gaskets, Main Valve Body & the Solenoid Pack. Then install Calibration plate. Insert filter thru both plates and rotate it 1/4 turn to lock it in place. Last install the Accumulator Valve Body. It's OK without a gasket.

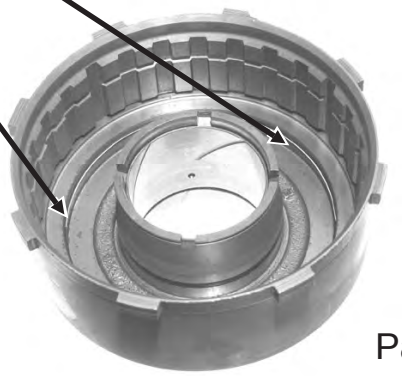
If trans has modulated PWM type lockup, you can upgrade durability and firmness by installing TransGo ON/OFF lockup valve kit.
Order **TransGo 4R100 LU.**

1. Install the **Direct Clutch Seal** furnished.

LISTEN UP: Roll the seal ***inside out*** as you install it.

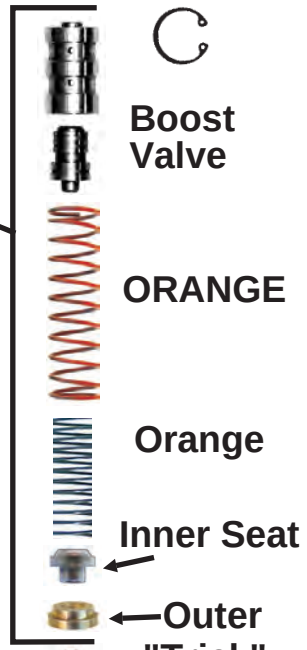
Install **seal** with the paint stripe showing.

Before installing the seal, scrape the muck out of the groove. A piece of metal sealing ring makes a good scraper



Direct drum

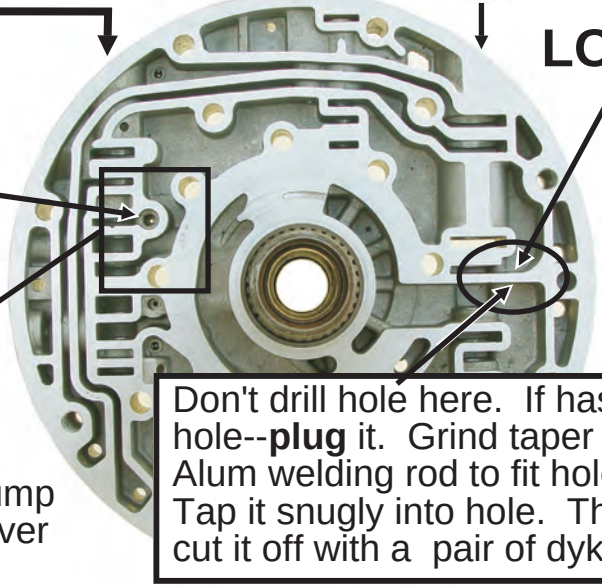
4. ***Remove*** and ***discard*** original Spring Seat, Springs and Boost Valve. Install new parts furnished.



3. **YELLOW**

2. Lockup Firmness:
Only models with orifice cup plug here:
Normal .076, Firm .082, Firmest .093

Pump cover



Don't drill hole here. If has hole--**plug** it. Grind taper on Alum welding rod to fit hole. Tap it snugly into hole. Then cut it off with a pair of dykes.

4R1- SR- 4th

4R100-E4OD 4th Clutch Spiral Lock Snap Ring

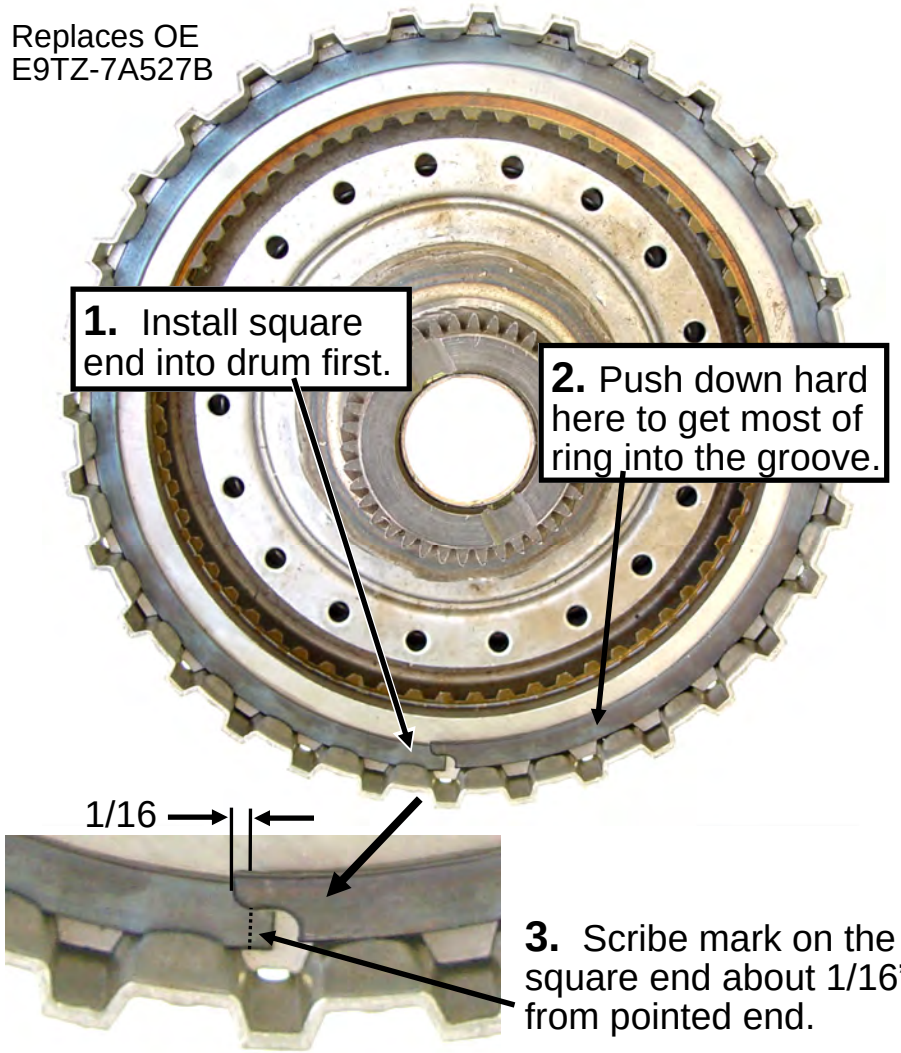
4th piston snap ring Pop-Off:
This has been going on for years – When ring popped off on early models (with cast iron type drum) – no real damage or complaint occurred.

BUT...when 4th piston snap ring pops off on a late model trans (stamped type drum) **MAJOR** damage occurs. Drum catches snap ring & return springs, spins them around, and eventually destroys the housing.

4R1- SR- CST

Butt Lock Snap Ring
4R100 & E4OD Coast Clutch
Stops jump apart and broken pressure plate.

Replaces OE
E9TZ-7A527B

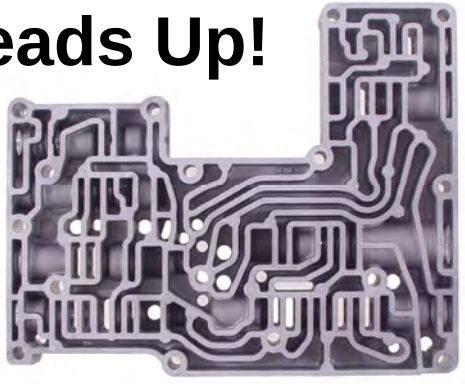


3. Scribe mark on the square end about 1/16" from pointed end.

4. Then grind the square end to the mark and reinstall ring.

15 Oct 04

Heads Up!



It’s not every call but it’s common enough to take a moment to check the 1-2 Shift valve spring on all **RFF6** and **RFF8** casted bodies. It bends and breaks but may LOOK ok unless you take it apart & check it. The new **Blue** spring provided is a replacement. Only use it on bodies that require 4 or 5 check balls under the lower body. **(RFF6 & RFF8 Only!)**

Blue 1-2/D2 Shift

4R100 Tugger Kit™

Altho this “Circuit Surgery” kit was originally made for the 98up 4R100 it was then expanded for use in working E4OD’s to prevent clutch failure and complaints during downgrade hold back use.

All you will need to do is make the following road test to verify and feel the upgrades you have installed.

Without Kit	With Kit Installed
1. At 60mph lift throttle and move lever to “2”	
Delay before engaging 2nd.	Goes to 2nd immediately
2. At 60mph lift throttle and move lever to “1”.	
Delay before going to 2nd. At around 40mph falls out of 2nd into a neutral feeling condition, which is actually the L/R clutches slipping. Then around 28 to 30 the L/R clutches engage 1st gear. [2003: Will not command 1st above 30 mph and engages with a bang.]	Immediately goes to 2nd with no neutral or delay. At around 39mph will downshift into 1st gear with no neutral or delay. L/R clutches are holding, not slipping and burning.

3. 1996-97 models have manual 1-2 bindup, most noticeable at around 22 to 24 mph.
Continued use burns L/R and 2nd clutches.
This kit corrects that bindup by furnishing full flow L/R exhaust during manual shift.

4. Pressure and flow for all the automatic shifts and lockup have been recalibrated for increased efficiency and improved durability.

Thanks for Listening, “Let us hear from you”

TransGo Tech Team.

This kit cost BIG $$, so you need to know what your money is FIXing, Correcting, Preventing, or Reducing.

1. Immediate or repeat L/R clutch burnout when using “1” for hold back.
2. Manual “1” pull-in slips L/R clutches from 39 to about 29mph then bangs in.
   [39 to 29mph feels like neutral, but it’s not, it’s just slipping.]
3. Lift throttle delay when using pull-in to “2”.
4. Stops reverse bleed circuit leak.
5. 1-2 manual shift bindup or long slip. Burns L/R and/or 2nd clutches.
6. Long, soft shifts. Lockup slip and converter burnup.

You will achieve the following Upgrades and Fixes:

1. New Low-Reverse Clutch Circuit and path doubles L/R pressures for safe use of pull-in “1”. Corrects delay, slip, neutral condition, and clutch burnup.
2. **Pull-in to “1” puts it in 1st NOW,** not a half a block later.
3. No more “D” to “2” neutral type delay. **Pull-in “2” gets 2nd NOW**.
4. Maintains no more than 5 PSI on the Low & Reverse clutches in Park, Neutral and Drive range 1st gear, to prevent reverse delay complaint.
5. Quick, clean exhaust of the Low & Reverse clutch during the 1-2 upshift, to reduce bindup burning of the 2nd clutch plates.
6. Substantial increase in shift pressures and flow. Crisp shifts and Lockup.

With kit installed give the truck a good road test. The trans will tell you how happy it is. When the trans is happy the whole truck is too.

Exhaust Brake: If trans has 2 plate Coast Clutch do not use brake in “D” with OD cancelled [3rd gear]. **With 2 plate drum use “2” or “1” ONLY.** The coast clutch receives no boost in pressure when OD is canceled. In “2” and “1” pressure is boosted to prevent coast clutch slippage.

Coast Clutch Upgrade: With this kit and a PTO 3 plate drum or custom 4 plate drum exhaust brake can be used in all gears. PTO drum 98up **1C3Z-7G-387BA** $238 list price. Custom 4 plate drum. Your cost $265: Call 800-868-0053

Mr Shift®

“Thanks for listening.
Let us hear from you.”