



## **Turbo Hydra-Matic 400 Stick Shift**

# **400-3 REPROGRAMMING KIT™**

**READ THIS BEFORE STARTING INSTALLATION** Installing this kit completely eliminates automatic shifting. “D” position is high gear, “2” is second gear, “1” position is low gear.

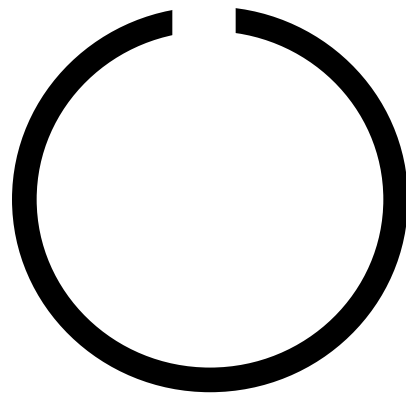
**Trans in vehicle: Start with page 2**  
**During major Repair: Start here**

**If trans is apart, these items will improve quality and durability:**

1. Install a waved plate in all the clutch packs, (Fwd,2nd, & direct) even if it didn't have them. This will reduce the light throttle clangs and bangs but still give short and firm shifts with hard throttle.
2. Hand sand or tumble 2nd and direct steel plates for fast break-in and cooler operation.
3. Use high quality frictions—OE type smooth tan Borg-Warner work great.
4. Install 2nd clutch snap ring included with this kit, to reduce risk of snap ring pop-out and broken case lugs. (Step 1 below).
5. Install direct clutch return springs furnished in this kit to reduce accidental clutch drag and burnout. (Step 2 below).

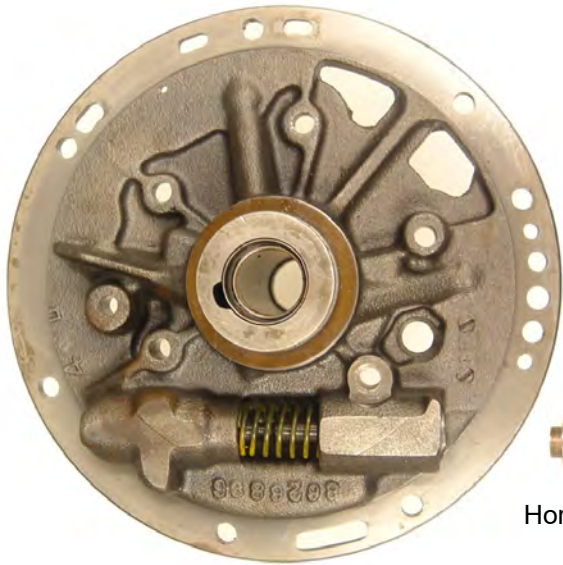
### **Step 1. Heavy Duty Snap Ring:**

Intermediate [2nd] pressure plate snap ring.  
This is the last snap ring that installs in case.



### **Step 2. Direct Clutch—High Rate Return**

Install ALL 16 new springs in direct clutch.  
(When installing these springs it is not necessary to put any special bleed holes in the piston or drum unless engine RPM is to exceed 7500 RPM).

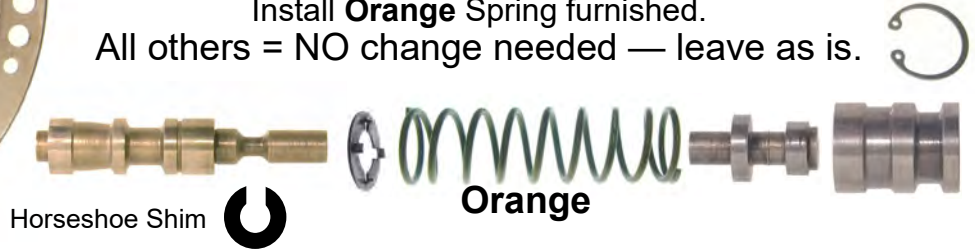


### Step 1. Pressure Regulator Over 450 HP ONLY

Remove & discard any Horseshoe shim(s).

Install **Orange** Spring furnished.

All others = NO change needed — leave as is.



Horseshoe Shim

**Orange**

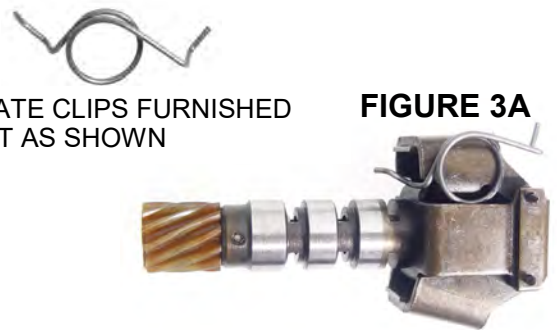
Trans in vehicle: Access Pressure Regulator valve through case window next to filter hole after VB is off.

### STEP 2. INSTALLING GOVERNOR CLIPS

- A. Governor is located on the passenger side of transmission towards rear of case. Remove 4 bolts (use 1/2" socket). Remove cover and scrape gasket off cover and case.
- B. Remove governor from case.
- C. Install the spring type CLIPS furnished in kit as shown in figure 3A, 3B, and 3C.
- D. Reinstall governor and cover using new gasket furnished in kit. Tighten bolts until snug with short wrench (6 to 8 ft lbs).

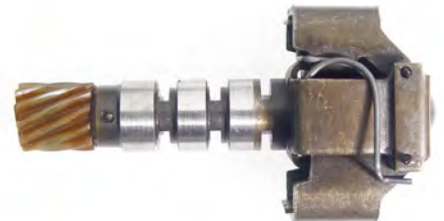
LOCATE CLIPS FURNISHED  
IN KIT AS SHOWN

**FIGURE 3A**



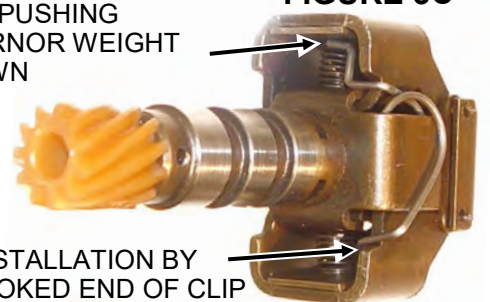
GOVERNOR ASSEMBLY

**FIGURE 3B**



TWIST CLIP  
INTO POSITION MAKING  
SURE END IS PUSHING  
INNER GOVERNOR WEIGHT  
OUT AS SHOWN

**FIGURE 3C**



COMPLETE INSTALLATION BY  
SNAPPING HOOKED END OF CLIP  
OVER OUTER GOVERNOR WEIGHT

### IMPORTANT OPERATING INSTRUCTIONS

Do not attempt to make rolling reverse "Wheelie" or start a burnout while moving backwards. The entire force of changing directions goes to the low roller (Sprag). Always use the brakes to stop then select forward gear.

### AUTOMATIC SHIFTS

To convert back to automatic shifts just remove Clip from governor. That's it

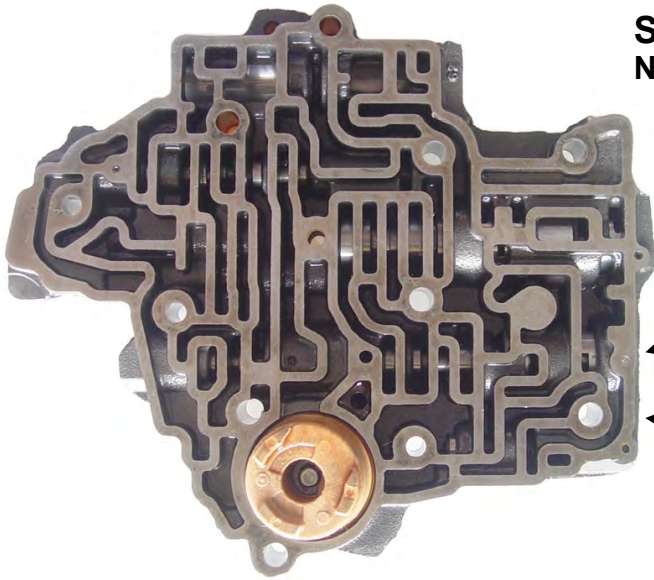
TransGo

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**Step 1.** Discard original 1-2 shift valve. Install the **NEW 1-2 Valve** that is the same diameter as the original.



1-2 Shift Valve

**Step 2.** Install **White** Spring here



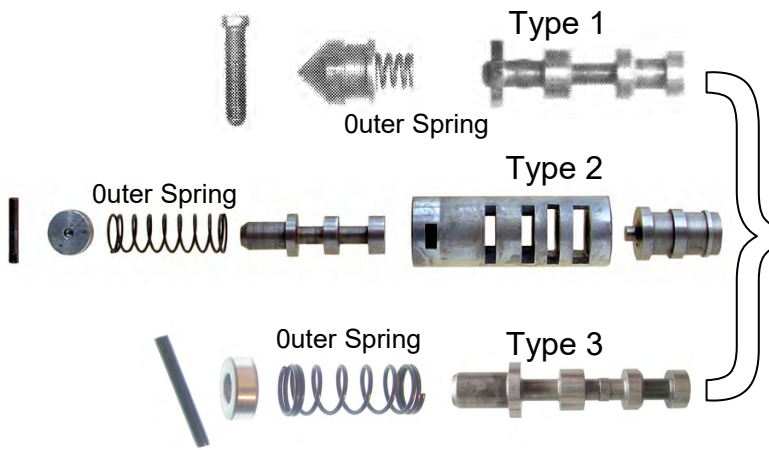
2-3 Shift Valve



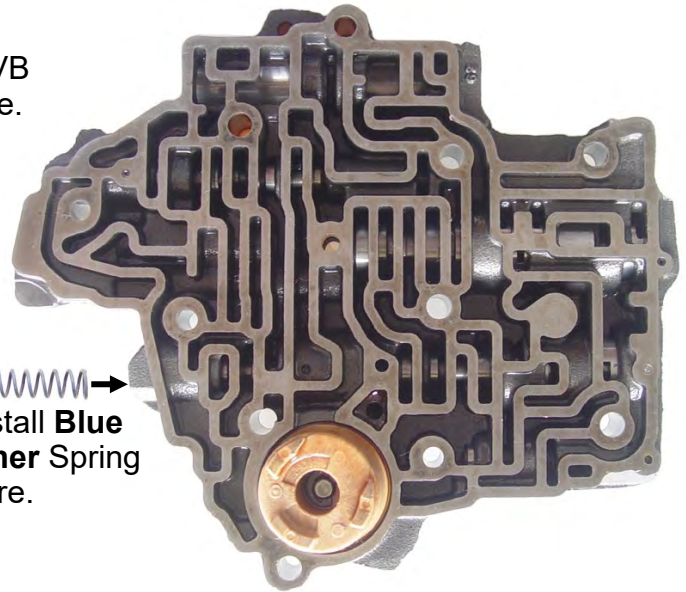
3-2 Valve  
Not used all models.  
If VB has one install  
Red spring.

**Step 3.** Install **RED** Spring here

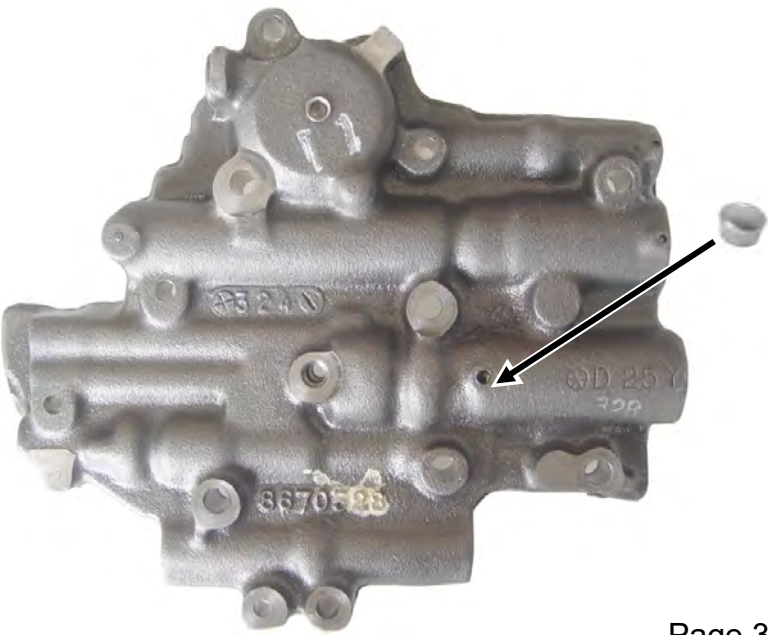
**Step 4. All types:** Install **Blue Inner** spring even if VB did not have one. Remove outer spring if VB had one.



Install **Blue Inner** Spring here.



**Step 5.** Install **PLUG** with small hammer



# Selecting Shift Firmness

## Choosing feed hole size

### Hole A: 2nd feed hole size

**Range #1:** .093 Comfort at light throttle and shorter at heavy throttle.

**Range #2:** .110 Starts getting short above 1/4 throttle.

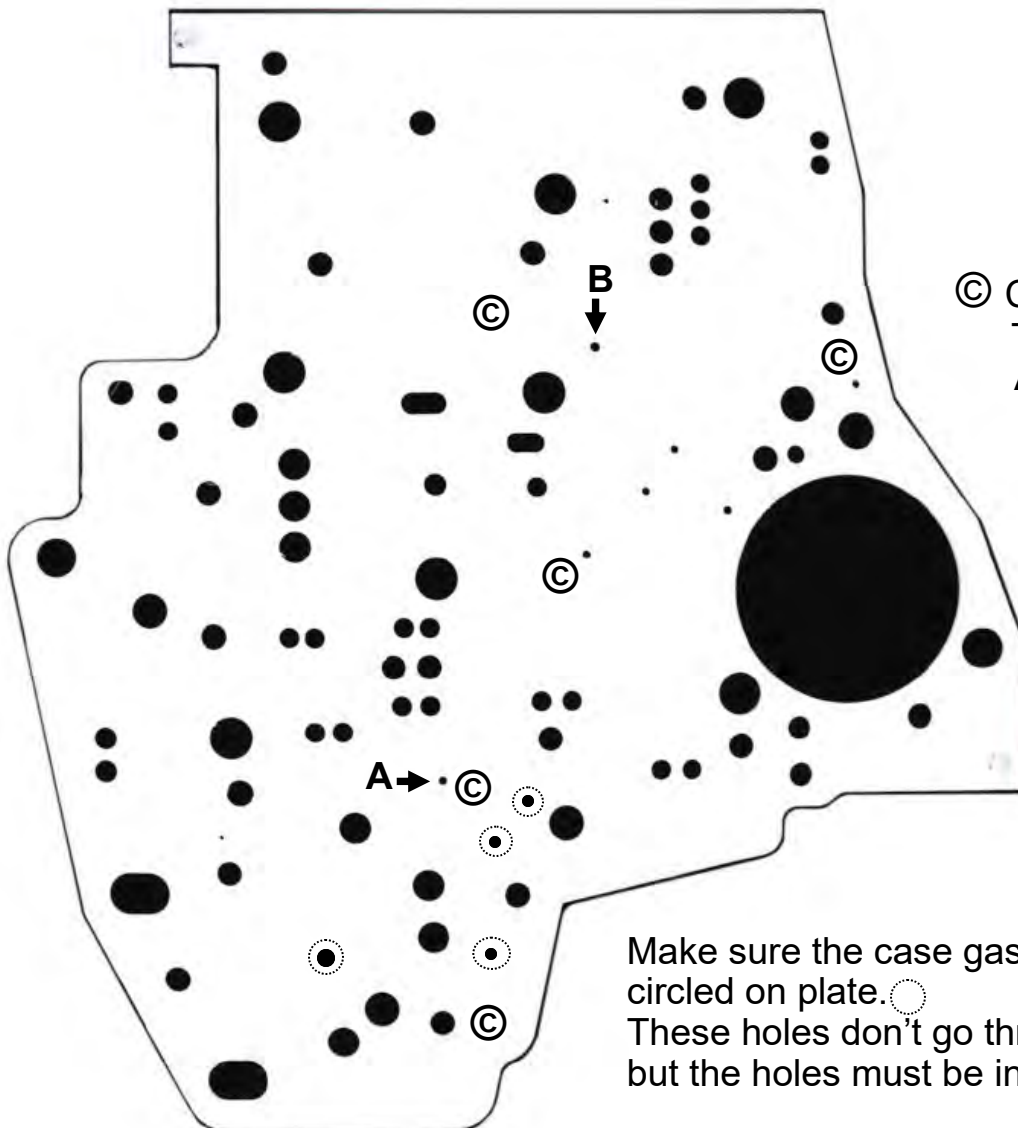
**Range #3:** .156 Race/Competition only.

### Hole B: 3rd feed hole size

**Range #1** .082 Some comfort at light throttle and shorter at heavy throttle

**Range #2** .110 Firm

**Range #3** .156 Race/Competition only.



© Checkball locations  
Trans in vehicle  
**ALL MODELS!**

Make sure the case gasket has the four holes circled on plate. These holes don't go through all three plates but the holes must be in the case gasket.

## STEP 1. Rear Servo Disassembly

- A. Remove (6) bolts (using 1/2 inch socket) and remove rear servo cover and gasket.
- B. Remove servo piston and accumulator by twisting and pulling down.
- C. Remove the "E" clip that holds the band apply pin and discard it. Remove the spring and spring seat from the pin and discard them. (See below).

## STEP 2. ADJUSTING REAR SERVO

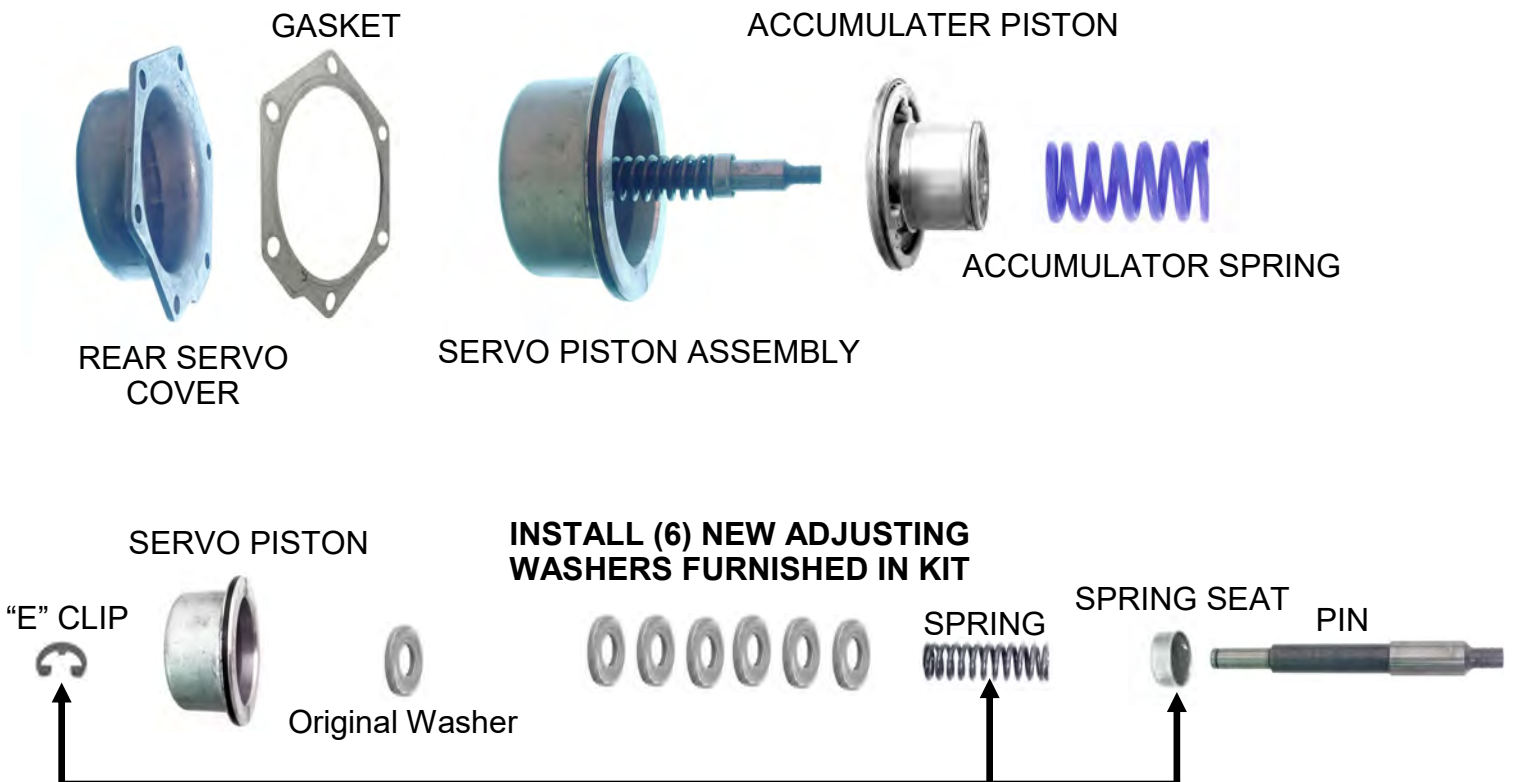
- A. Install (6) washers furnished in kit, in addition to original washer on servo pin as shown below.
- B. Install servo pin with all seven washers and piston in case.
- C. Place servo cover in position and push up hard. Remove washers one at a time until cover will push up flush with case.
- D. Then remove (2) additional washers to obtain some band clearance.

## STEP 3. REAR SERVO RE-ASSEMBLY

- A. Install accumulator piston and spring in rear servo piston.
- B. Install rear servo into case.
- C. Install servo cover using new gasket furnished in kit and tighten bolts 15-20 ft lbs).

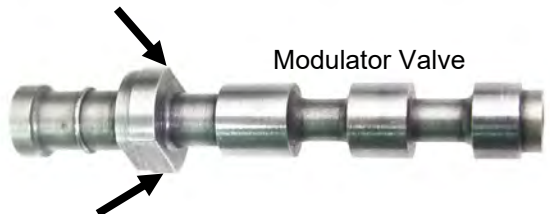
## STEP 4. FINAL BAND CLEARANCE CHECK

With servo installed perform final check by turning output shaft to make sure drum will rotate freely in band. Drum and band can be seen through window in case. (See Next Page)



**REMOVE AND DISCARD THESE PARTS**

**"E" CLIP, SPRING AND SPRING SEAT ARE NOT USED ON FINAL ASSEMBLY**



Modulator Valve

**Step 1.** Grind two flat spot on large land of modulator valve about 1/4" wide as shown Then install the valve and pink spring.



Modulator



**PINK**

Modulator Valve

Install Five 1/4 Balls © as shown  
**ALL MODELS!!!**  
Including models with 7 Ball Case!

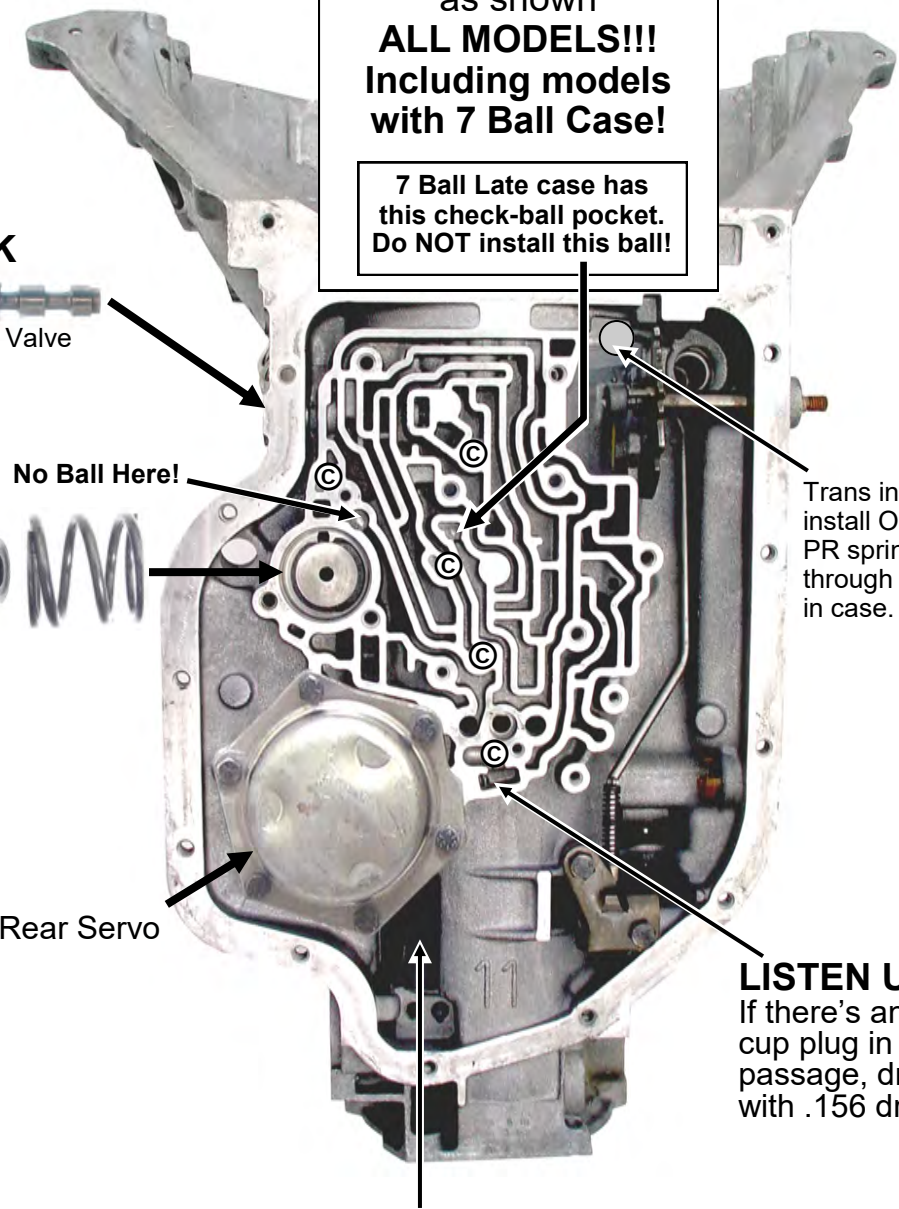
7 Ball Late case has this check-ball pocket. Do NOT install this ball!



**INSTALL (6) NEW ADJUSTING WASHERS FURNISHED IN KIT**

**STEP 2. ADJUSTING INTERMEDIATE SERVO**

- A. Remove and disassemble intermediate servo assembly.
- B. Install 6 of washers furnished in kit on pin between piston and original washer (70 and earlier) or horseshoe clip (71 and later Shown).
- C. Install servo pin and piston into case.
- D. Position valve body without lower gasket as though installing it and push up hard until servo bottoms out. Remove shims one at a time until valve body will push flat against new Separator Plate.
- E. Remove 2 additional washers to obtain band clearance.
- F. Reinstall servo assembly using original spring.



Rear Servo

Case Window for checking rear band clearance

No Ball Here!

7 Ball Late case has this check-ball pocket. Do NOT install this ball!

Trans in vehicle install Orange PR spring through window in case.

**LISTEN UP:**  
If there's an orifice cup plug in this passage, drill it out with .156 drill.