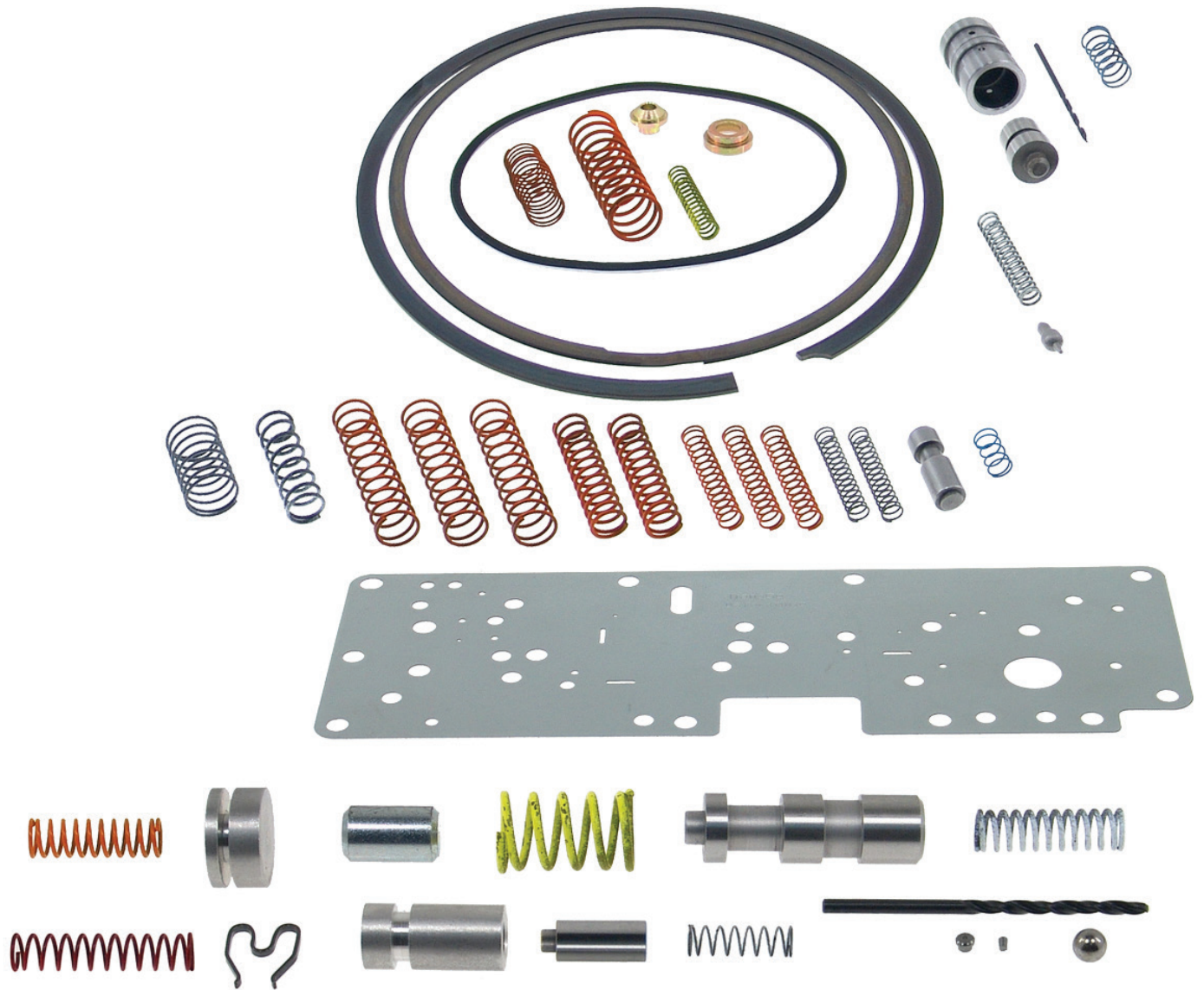


# Reprogramming Kit

555-60951

1989-1998 | Ford E4OD & 4R100 Transmissions  
Gasoline & Diesel Applications



# Introduction

We would like to take this opportunity to thank you for purchasing this JEGS 1989-1998 Ford E4OD Reprogramming Kit. We welcome any comments or feedback you might have. If you have any questions about this product or about the installation procedure, please feel free to contact us at 1.800.345.4545.

## Features:

- Better lubrications and cooling
- Compatible with exhaust brake
- Adjustable firmness of shifts
- Doubles clutch holding pressure during downhill compression braking when in manual 1<sup>st</sup>
- Short crisp hard throttle up-shifts

This kit is designed to address the following:

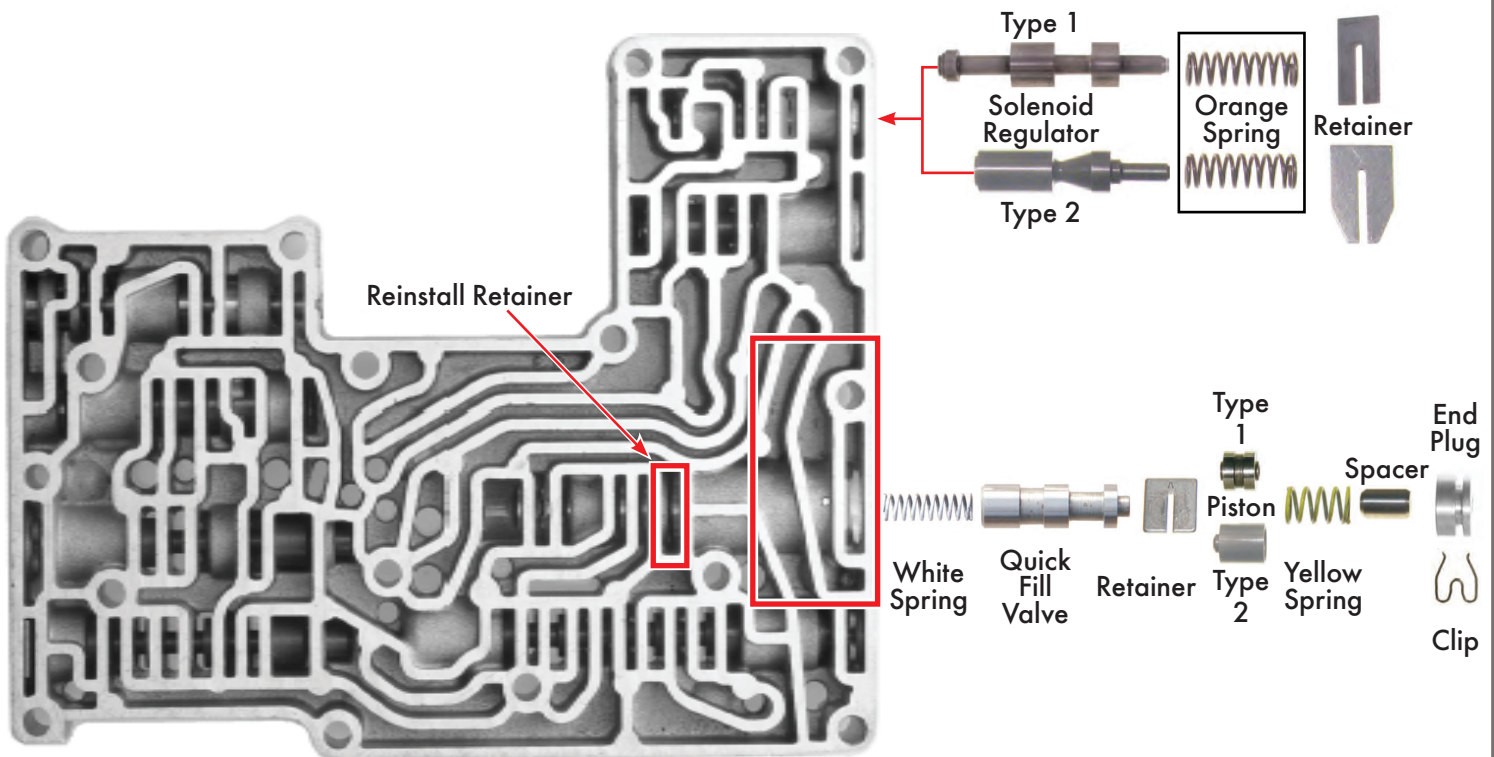
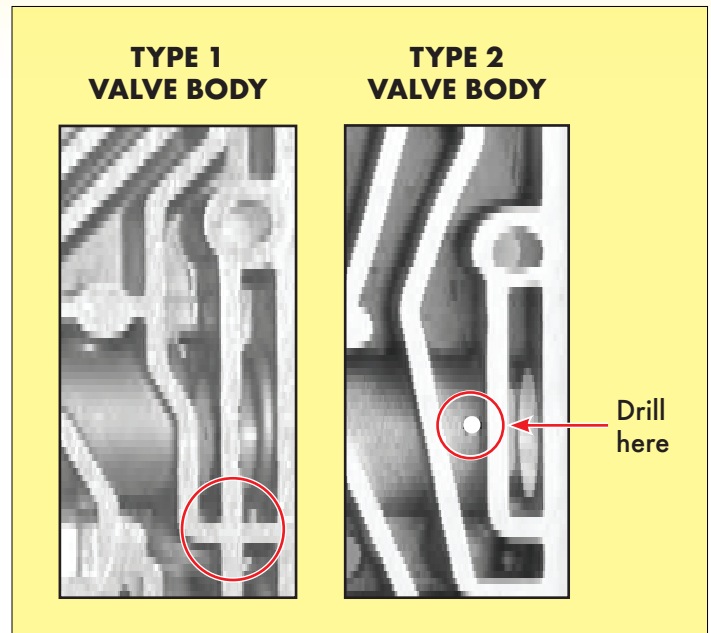
- CEL Codes: 628, P1740, & P1744
- Soft shifts
- 2<sup>nd</sup>-3<sup>rd</sup> burn-up
- Converter burn-up & shudder
- Downhill clutch burn-up
- Lack of reverse when hot
- Delayed reverse engagement
- Pump buzz

## **NOTE**

**INSTALLATION REQUIRES REMOVAL OF THE TRANSMISSION.**

# Installation (Valve Body)

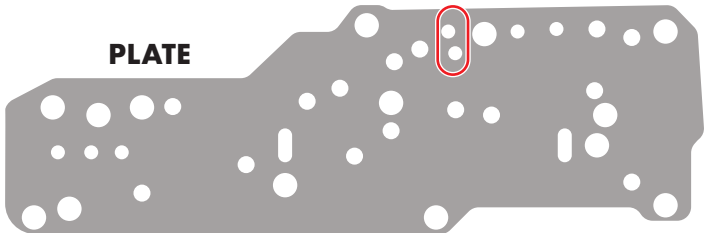
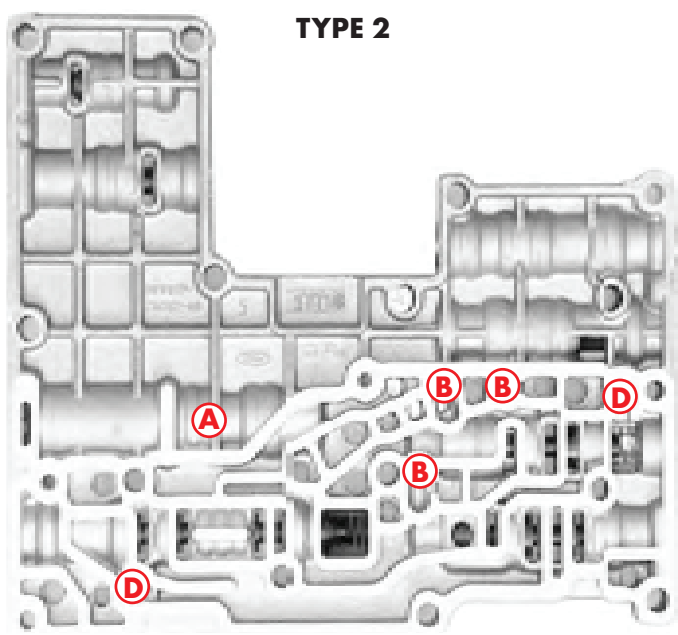
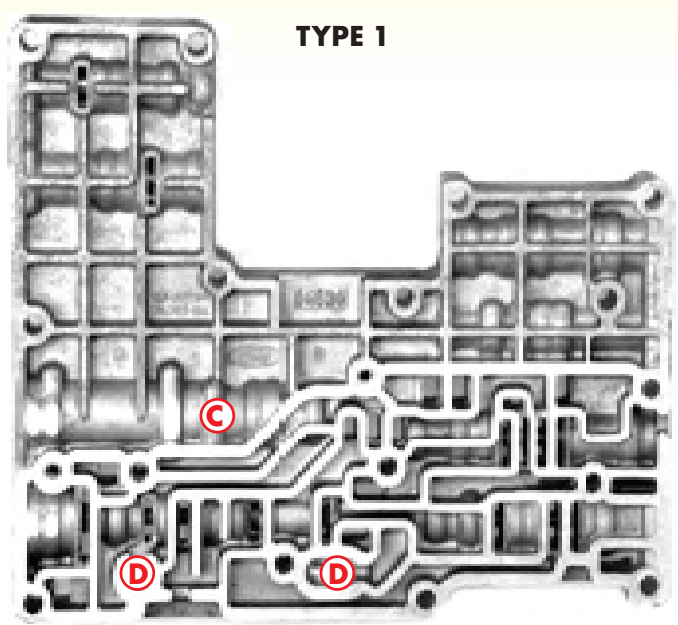
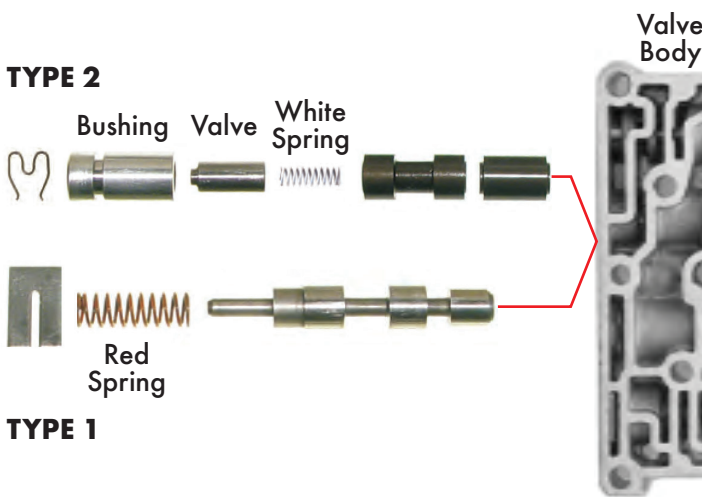
- TYPE 2 VALVE BODY ONLY.** Drill a 0.110 in. hole through the casting into the bore. Do not drill to the other side of the bore. Deburr with a small file.
- Install the orange spring onto the solenoid regulator before the retainer.
  - This works on either type of regulator.
- Install the white spring and then the quick fill valve with the retainer.
  - The retainer that follows the quick fill valve is inserted from outside of the bore.
  - Discard the original end retainer. Install new end plug with the thicker end inserted into the valve body.
- Reuse the original piston and install the new yellow spring, spacer, end plug, and clip.



# Installation (Valve Body)

- TYPE 2 VALVE BODY ONLY.** Install new Low/Reverse mod boost valve, bushing and white spring in open end of valve.
  - Vaseline helps to hold the spring in the valve.
  - After installing the clip, push the bushing out from other side of valve body to ensure that both inner valves are free.
- TYPE 2 VALVE BODY ONLY.** If the valve body has a hole in location "A" plug it with a small tapered plug. Gently tap it in flush.
- TYPE 2 VALVE BODY ONLY.** If there is a checkball in location "B" on the Type 2 valve body image see the following bullet points for how to proceed.
  - Look at the selected area of the valve body plate.
    - If there are two holes install a ball.
    - If there is one hole do not install a ball.
- TYPE 1 VALVE BODY ONLY.** If the valve body has a hole in location "C" leave it open.
- See the guides for both Type 1 and Type 2 valve bodies for checkball locations "D".
  - Both valve bodies use  $5/16$  in. plastic checkballs.

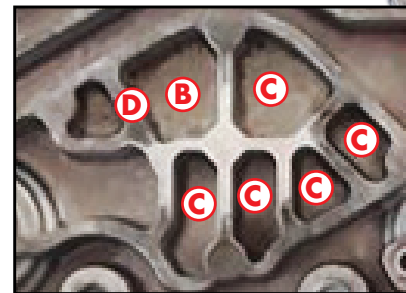
**NOTE**  
 Modification are specific for the Type 1 and Type 2 valve bodies. Make sure to follow the correct steps for your application.



# Installation (Accumulator Valve Body)

1. Remove line mod valve and accumulator valve. Drill two 0.076 - 0.093 in. holes through the casting at "A" marking. Fig. 01
  - If there is a slot already there, it is unnecessary to drill the holes.
2. Install the new springs into the 4<sup>th</sup> and 3<sup>rd</sup> accumulator pistons. Fig. 02
  - 4<sup>th</sup> - Uses three orange springs
  - 3<sup>rd</sup> - Uses silver, orange, white, and orange springs.
3. Install the new steel line reg valve and 2nd accumulator springs. Fig. 02
4. Install the short blue spring. Fig. 02
5. SOLENOID PACK. If the casting has hole "B", install the solenoid pack as it is. No drilling required.
  - If there is no hole "B", drill six size 1/8 in. holes "C" as show in Fig. 03. Drill a seventh hole through the partition at "D".

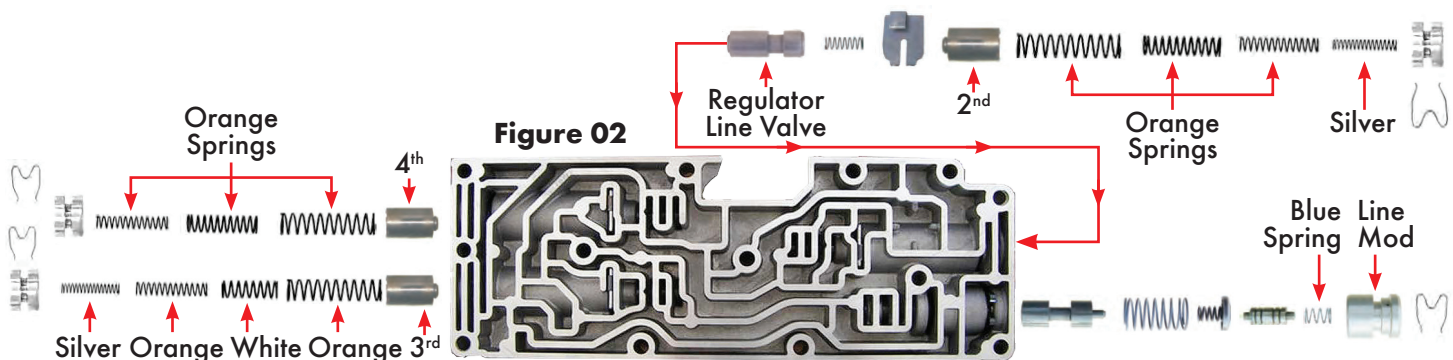
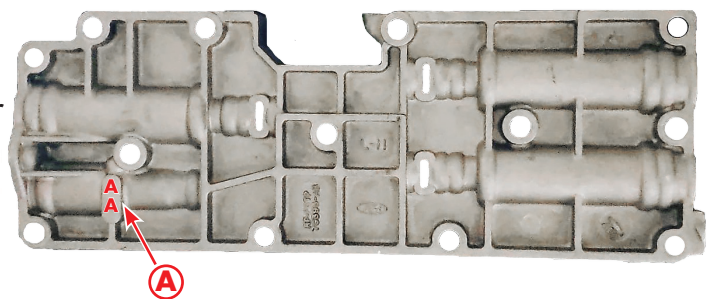
## SOLENOID PACK



### NOTE

Solenoid packs with a "B" hole ceased production in the late 1990s. These packs should be replaced to ensure long term durability.

## ACCUMULATOR VALVE BODY (Figure 01)



# Installation (Ball Location)

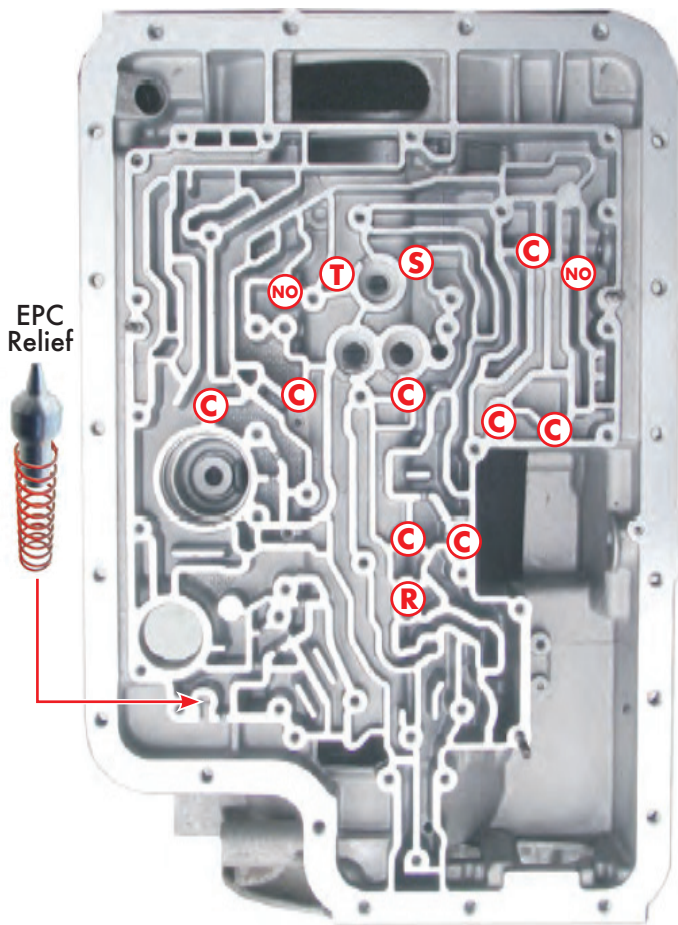
1. PLATE ORIFICE. With the 0.110 in. drill bit enlarge hole "A". Install the orifice from this side of plate. Flip the plate over on solid surface. Place the 1/4 in. steel ball on the orifice, and hit the ball with a small hammer to tighten the orifice in the plate.
2. Enlarge three "D" holes with the 0.081 in. drill bit.
  - No action is necessary if the holes are already bigger or not there.
  - Don't drill any new holes.

3. EPC RELIEF. Install the white spring and the new poppet valve.
4. Ensure the gaskets don't cover any holes on the plate.

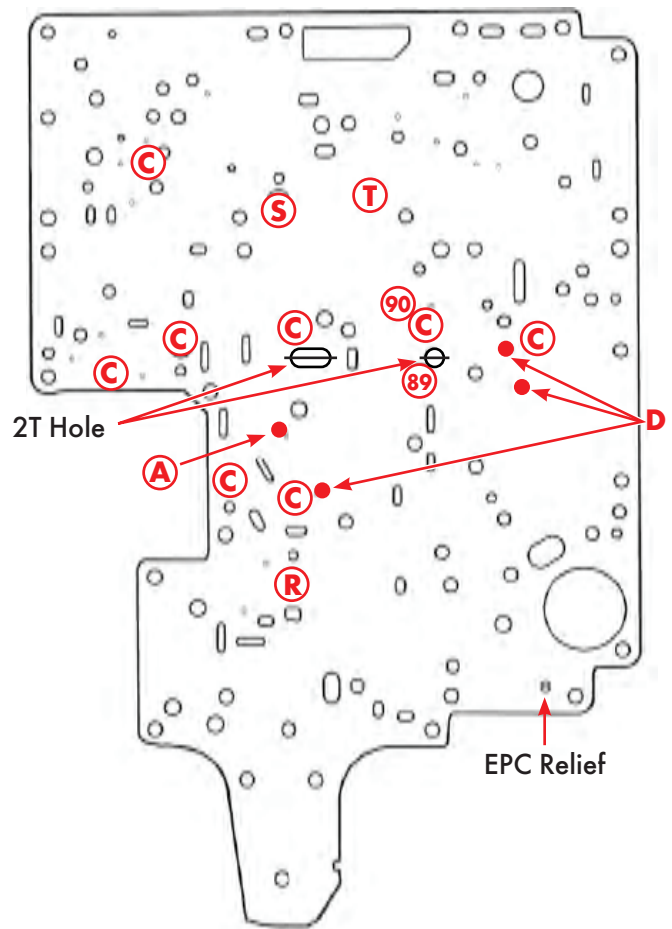
## CHECKBALL DETAILS

- Plate has 89 hole - Install "T" plastic checkball
- Plate has 90 hole - Don't use "S & T" checkballs
- Plate has 2T hole - Don't use "R, S, & T" checkballs
- All checkballs are 5/16 in.
- See key at bottom of page.

**CHECKBALL LOCATION  
TRANSMISSION ON BENCH**



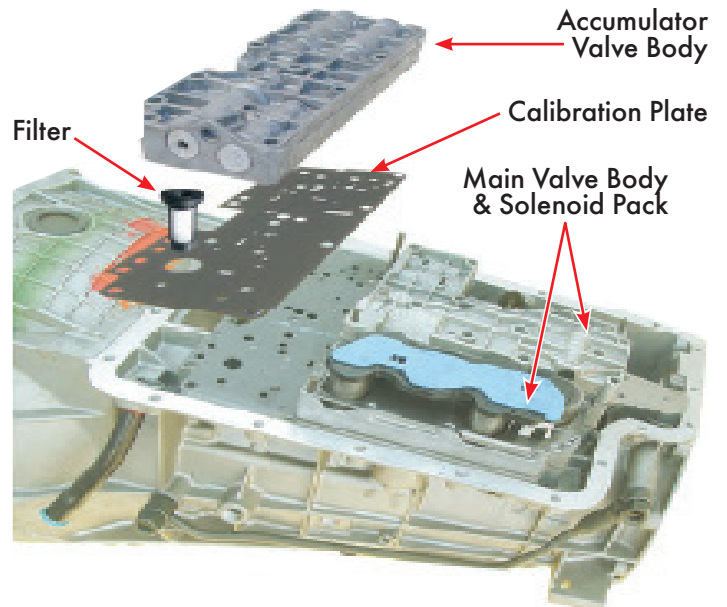
**CHECKBALL LOCATION  
TRANSMISSION IN VEHICLES**



**KEY:** (C) Plastic Checkball (S) Steel Checkball (NO) No Checkball (R) 1989-95 Only (S) (T) 1989 Only

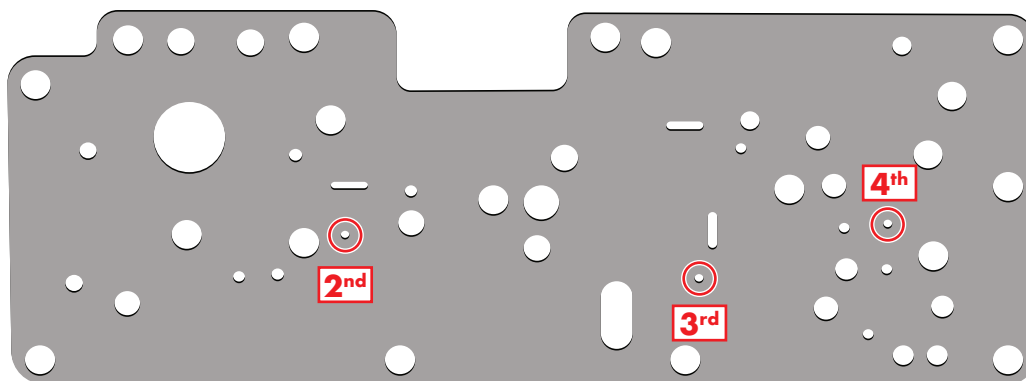
# Installation (Calibration Plate)

- The transmission's 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 2<sup>nd</sup>, 3<sup>rd</sup> & 4<sup>th</sup> holes are 0.053 in. in the plate furnished. Select a start firmness and drill holes to that size. After a road test you may change sizes to adjust firmness.
  - If using a Low Stall torque converter drill the holes to the same size as listed for a 6-cylinder in the chart below. This is your baseline, you can enlarge the holes incrementally to achieve a firmer shift.
- Install the Separator Plate, Gaskets, Main Valve Body & the Solenoid Pack. Then install Calibration plate.
- Insert the filter through both plates and rotate it 1/4 turn to lock it in place.
- Finish by installing the accumulator valve body.
  - This can be installed without a gasket.



## ADJUSTMENTS (AFTER A ROAD TEST)

- Slightly firmer shift: Enlarge hole by 0.010 in.
- Much firmer shift: Enlarge hole by 0.030 in.
- The larger the hole, the firmer the shift.

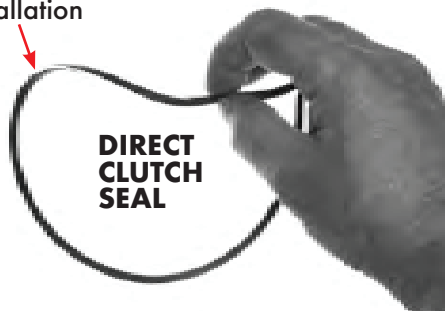


ENGINE	2 <sup>ND</sup> (in.)	3 <sup>RD</sup> (in.)	4 <sup>TH</sup> (in.)
6-Cylinder	0.076	0.063 - 0.067	0.076 - 0.086
8-Cylinder	0.094	0.073 - 0.082	0.094
Diesel & V10	0.110 - 0.116	0.073 - 0.082	0.086 - 0.096

# Installation (Front Pump)

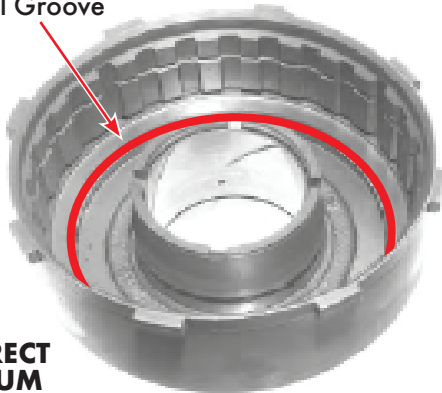
1. Install direct clutch seal into the direct drum.
  - Before installing the seal, clean any debris out of the groove
  - Roll the seal inside out as you install it.
  - Install the seal with the stripe showing.
2. Check location "A" on the pump cover. If there is no hole here, leave it alone. If you cover has a hole, it needs to be plugged.
3. LOCKUP FIRMNESS. This step is only for transmissions with an orifice cup plug at "B" on pump cover
  - Normal: 0.076 in.
  - Firm: 0.082 in.
  - Firmest: 0.093 in.
4. Install yellow spring with the converter regulator.
5. When reassembling the boost valve, replace the original spring seat, springs, and boost valve with the new kit components.

Roll inside out during installation



**DIRECT CLUTCH SEAL**

Seal Groove



**DIRECT DRUM**

Orifice Cup

