

# Unbalanced Regulation: 47-48RE Valve Bodies



by Mark Puccinelli  
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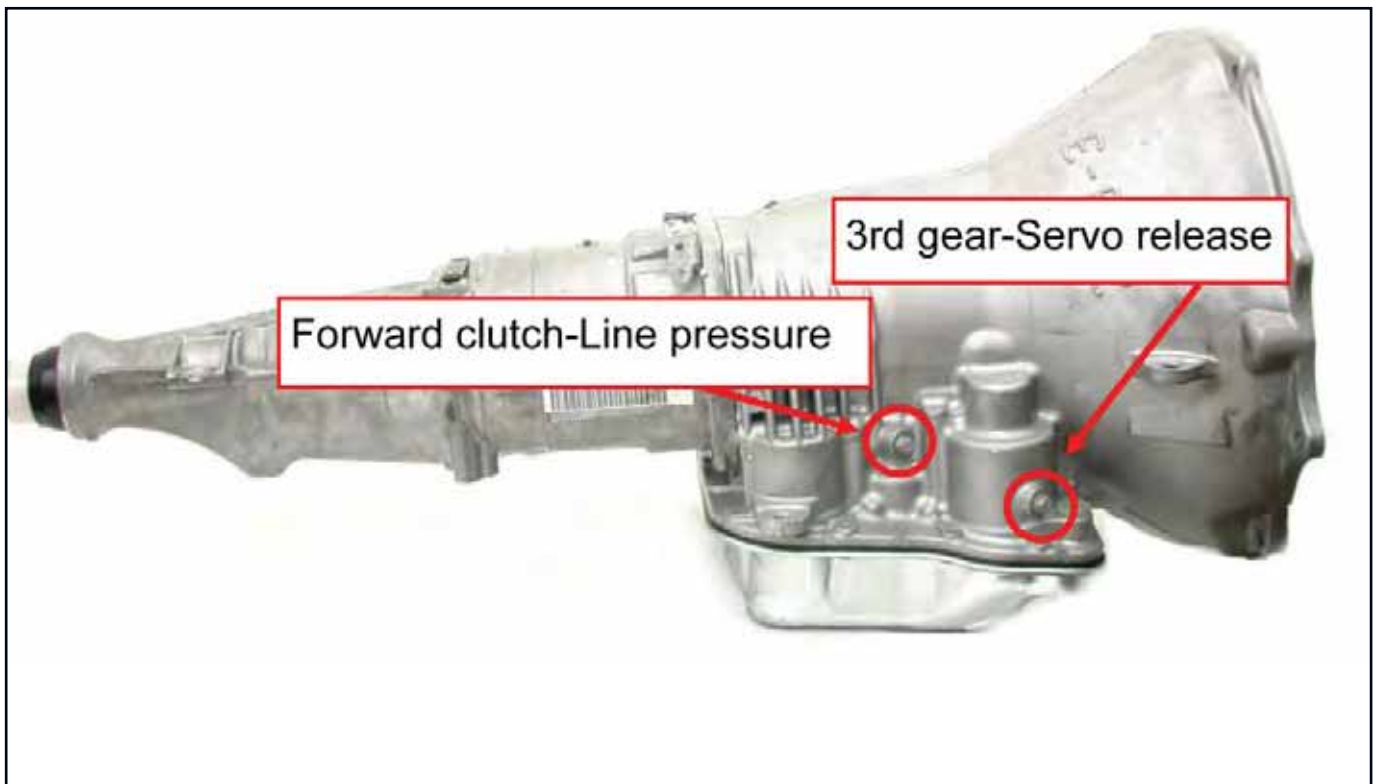


Figure 1

The Dodge RE series transmission has been in service since 1996. In 2003, Dodge released the 48RE for the 5.9 diesel and 8.0 V10. Dodge made several changes to the 48RE internal components, valve body, and TCM strategy to provide higher torque and towing capacity.

A local shop was working on a 48RE in a 2005 Dodge 2500 with a 5.9 Cummins diesel. It had no forward gears. After repairs, the technician noticed the shifts were firm during the road test. After the leak inspection he performed a second road test: The transmission was now slipping in 3<sup>rd</sup> gear and reverse.

The diagnosis began with a pres-

sure test. He connected the first gauge to the forward clutch pressure port. Forward clutch pressure was too high — 95–150 lbs — normal readings should be around 60–110. The high forward pressure explained the firm shifts.

The technician connected a second gauge to the 3<sup>rd</sup> gear/front servo release port to diagnose the slipping in 3<sup>rd</sup> gear and reverse (figure 1).

With both gauges connected, he disconnected the solenoid harness; this puts the transmission in 3<sup>rd</sup> gear. With the engine at 1200 RPM and the shift selector in drive, gauge readings showed 24 lbs on the 3<sup>rd</sup> gear/front servo release port and 100 lbs on the forward clutch port. These readings

**These readings should be within 5–8 lbs of each other. Somewhere there was a large leak in the 3<sup>rd</sup> gear/front servo release circuit.**

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He inspected the items that could be linked to the pressure readings:

- Pressure regulator assembly (high



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**Replacing the separator plate with the correct one took care of the high line pressure and firm shifts.**

- line pressure)
- TV valve assembly (high line pressure)
- #3 checkball placement and diameter (3<sup>rd</sup> gear pressure loss)
- Front servo and cover sealing rings (3<sup>rd</sup> gear pressure loss)

Everything looked good. So we have unresolved high line pressure and a loss of 3<sup>rd</sup> gear oil pressure. The 3<sup>rd</sup> gear pressure loss could be internal. The high forward pressure was probably a valve body problem that we hadn't identified yet.

I asked the tech whether he'd made any modifications to the valve body. No, but he did replace the separator plate. So I asked him to compare the separator plates.

Ka-ching! There was a hole missing next to the filter and one extra hole over the #2 checkball location (figure 2).

The separator plate he used was for a 47RE valve body. The 47RE has a different TCC pressure boost, TCC signal feed, and manual 3-2 circuit than the 48RE. Installing the 47RE separator plate on the 48RE valve body shut off all pressure regulator balance oil in reverse.

This created extremely high line pressure in reverse. The missing balance hole also reduced the balance area on the regulator valve in forward range. This explained the high forward pressure and firm shifts (figure 3).

Replacing the separator plate with the correct one took care of the high line pressure and firm shifts. Now we still needed to identify the cause for low 3<sup>rd</sup> gear oil pressure. The #3 checkball placement and diameter is part of the

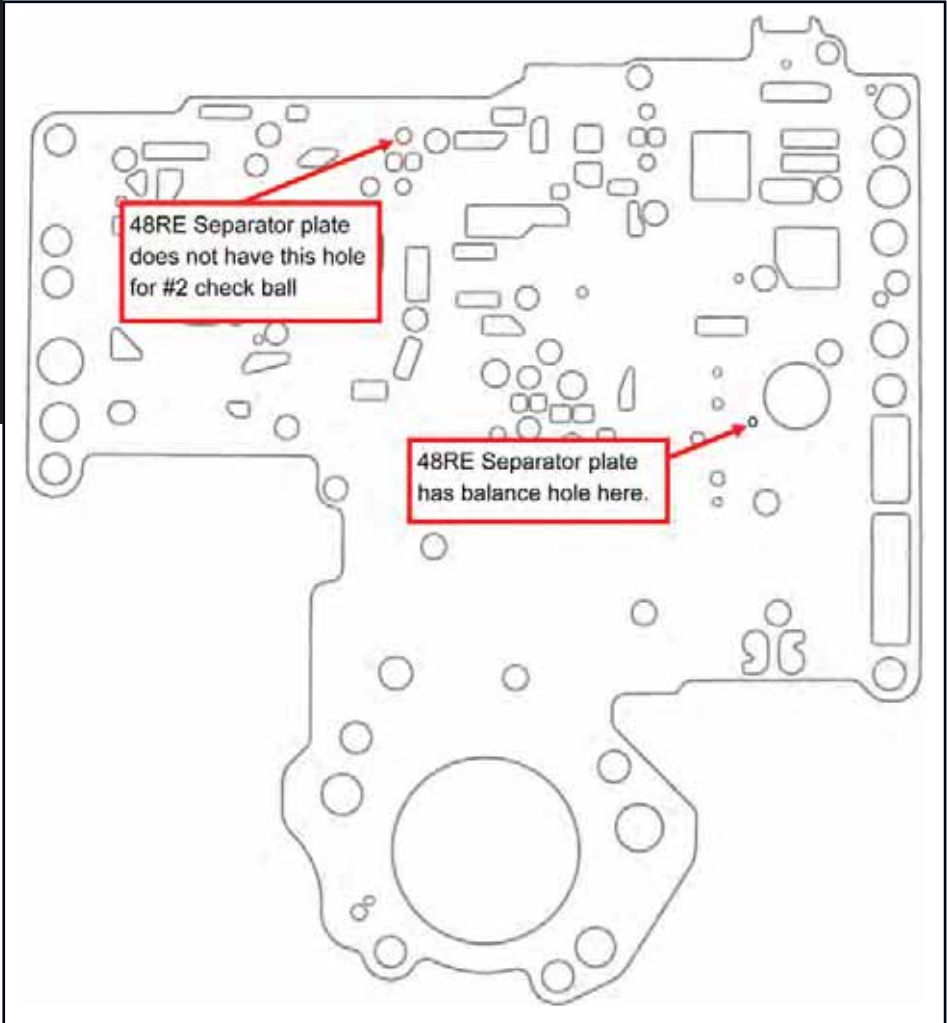


Figure 2

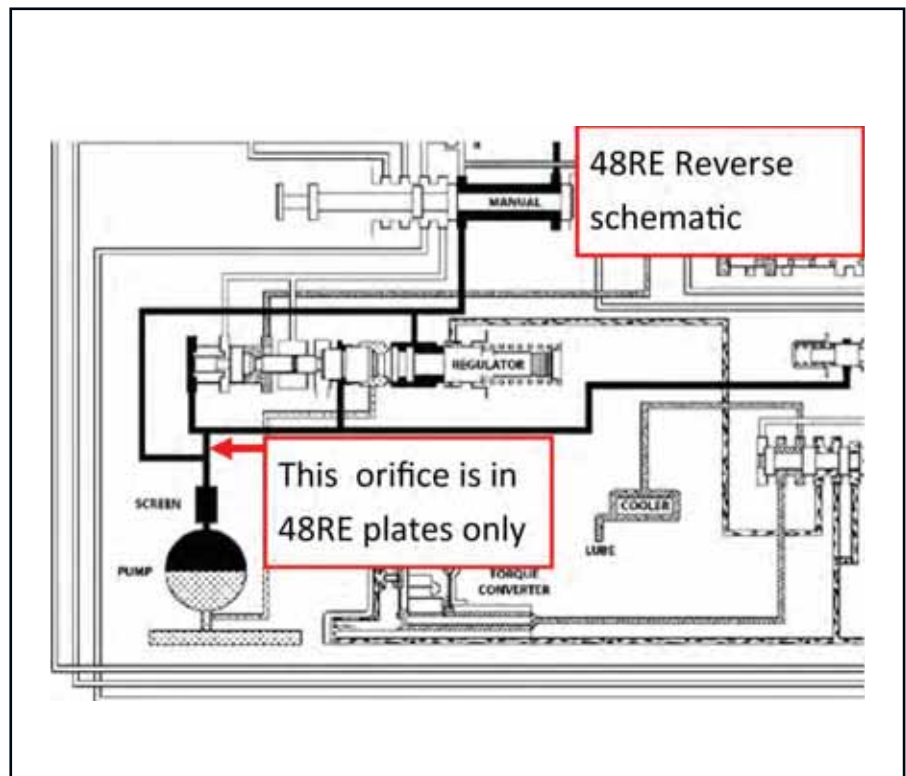


Figure 3

- HTE™  
Grey / Black
- HTS™  
Grey / Green
- HTL™  
Light Brown
- XTL™  
Dark Grey / Black

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## Unbalanced Regulation: 47-48RE Valve Bodies

3<sup>rd</sup> gear circuit. The #3 checkball was in place and it was the correct diameter (figure 4).

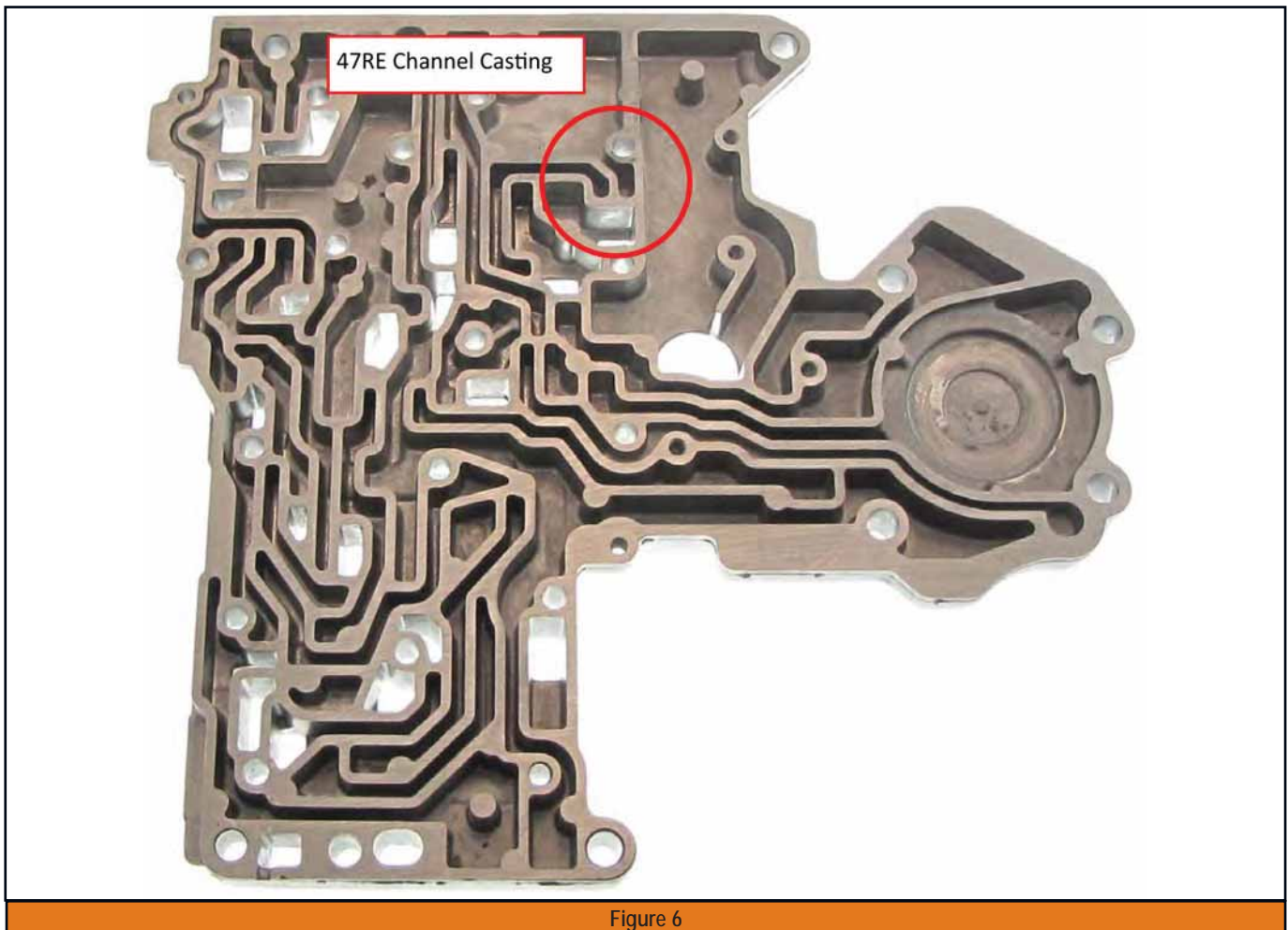
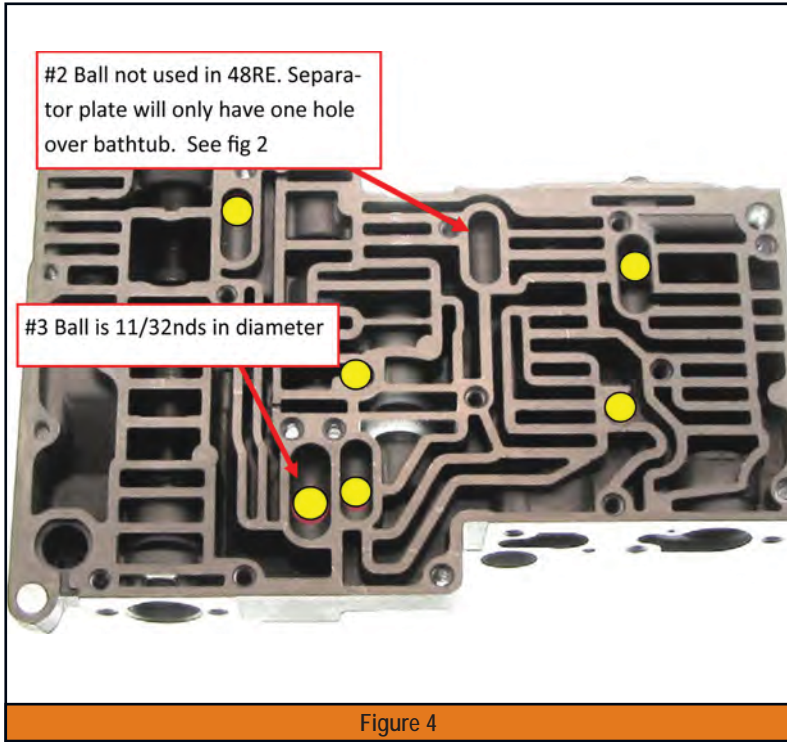
It was time for an internal inspec-

tion.

When the technician air checked the direct drum on the pump, it leaked excessively. The sealing rings looked

okay and fit properly in the drum bore.

So he removed the frictions and steels, and there was the leak (figure 5). The piston broke because there was no

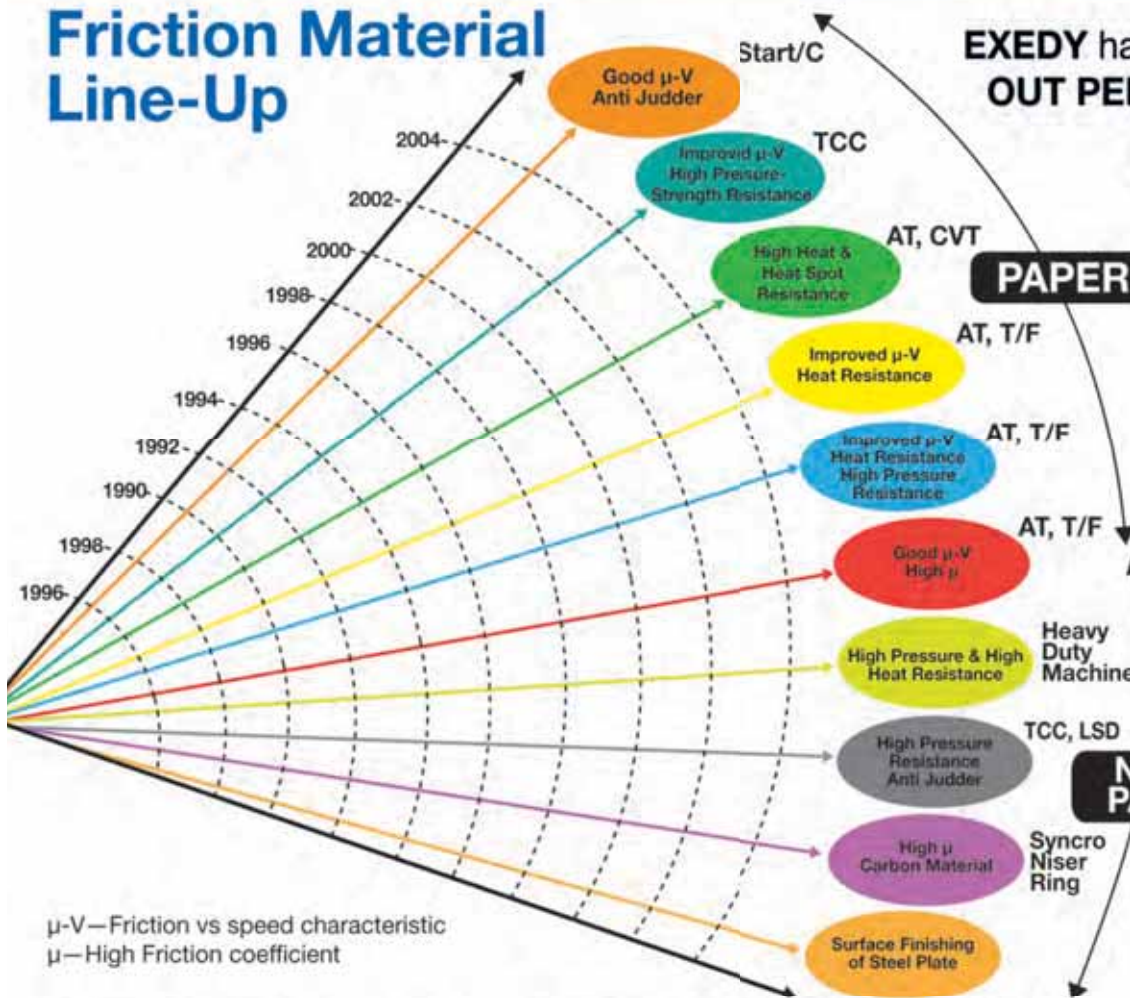


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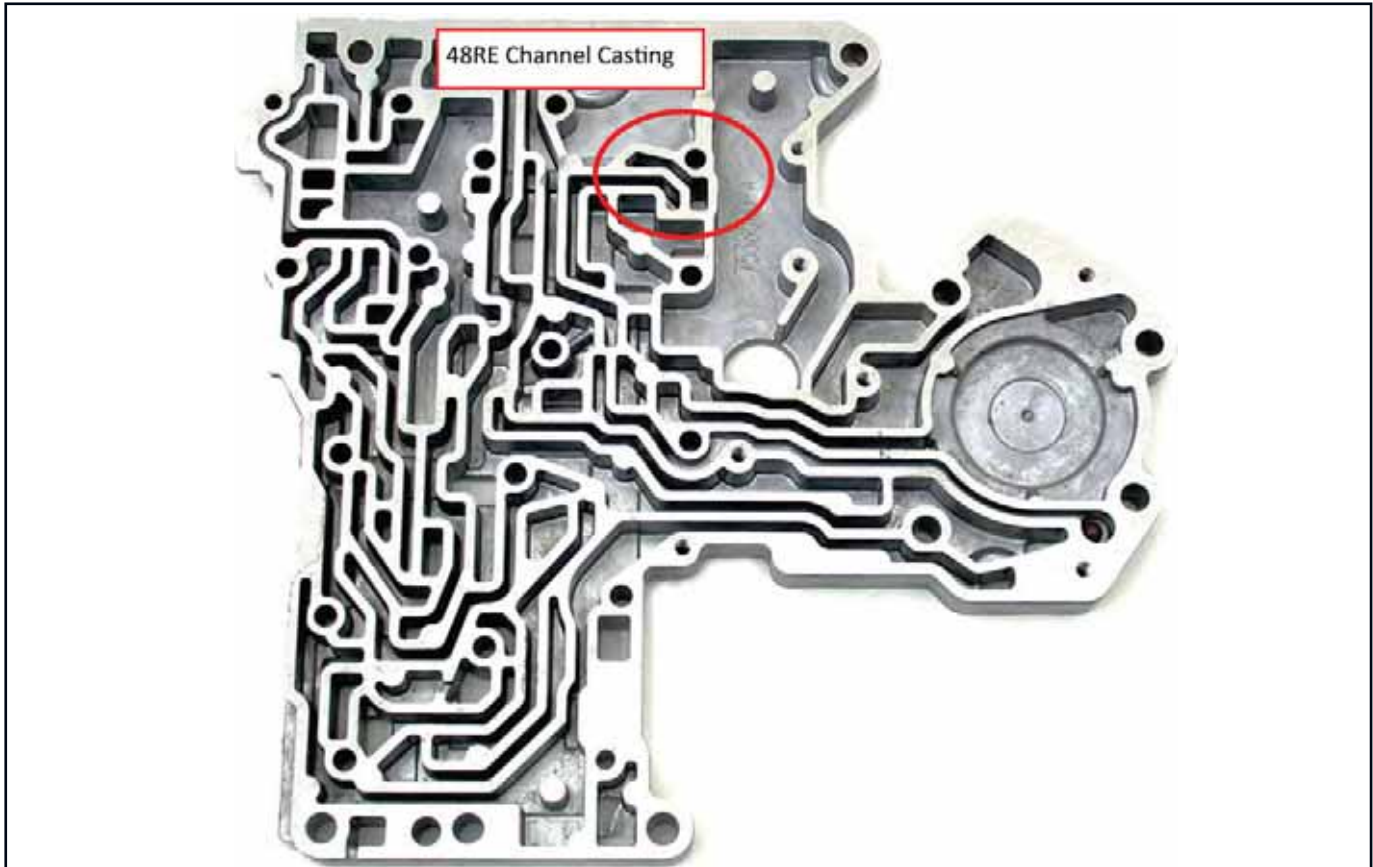


Figure 7



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pressure regulation in reverse. Without the balance oil, line pressure will run away until something gives.

There are other differences between these valve body components you should be aware of (figures 6, 7, and 8).

Remember, these units have been around the block a few times. When working on RE units, be diligent during your valve body inspections and repairs to avoid potential problems such as this one.

Parts, cores and rebuilt units are in abundance; that's good, but it's also a source for building in your own potential problems. Careful comparison can make the difference between a long, difficult diagnosis and a successful repair.

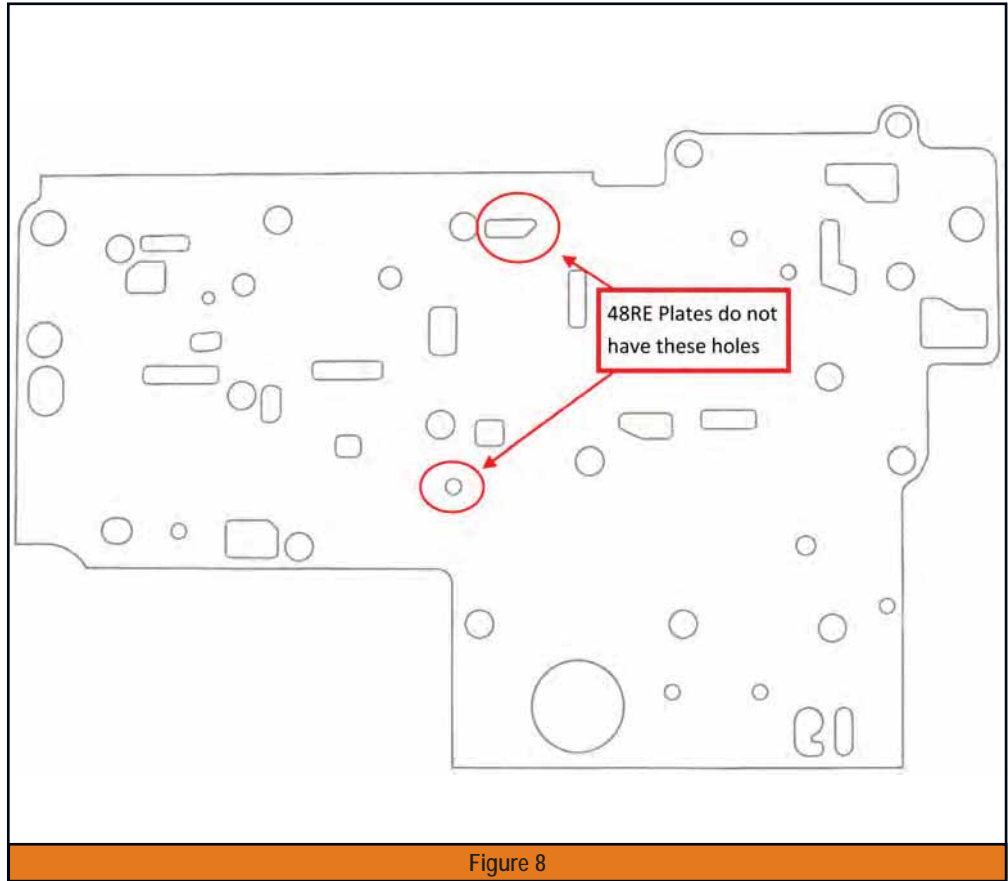


Figure 8

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