

KEEP THOSE TRANNYS ROLLING

VALVE BODY PROBLEMS *with Toyota's*

U660E, U660F, U760E, and U760F



by Pete Huscher
members.atra.com

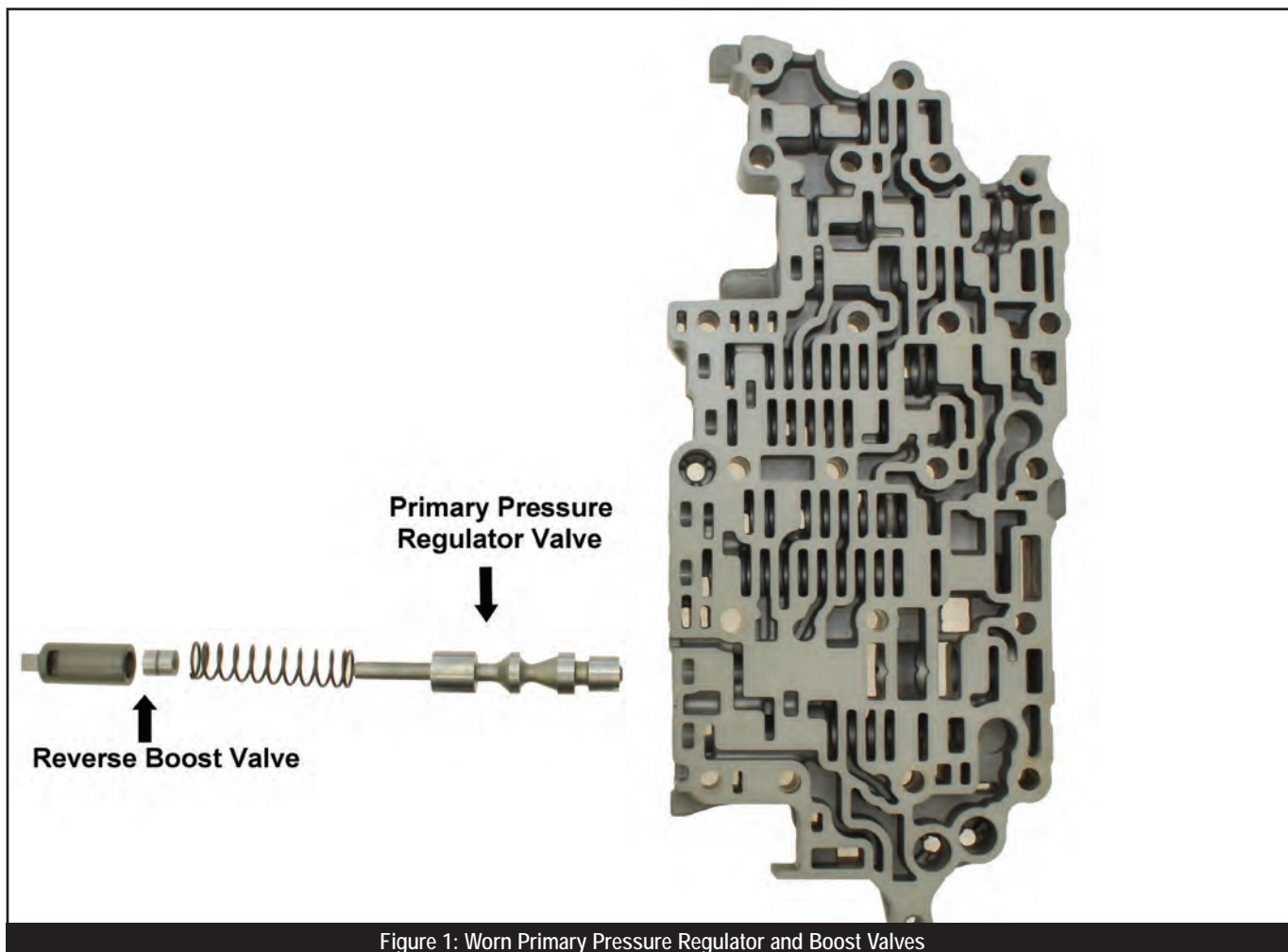


Figure 1: Worn Primary Pressure Regulator and Boost Valves

In this issue of *Keep Those Trannys Rolling*, we're going to look at some of the valve body problems we've encountered on Toyota's U660E, U660F, U760E, and U760F transmissions over the past few years.

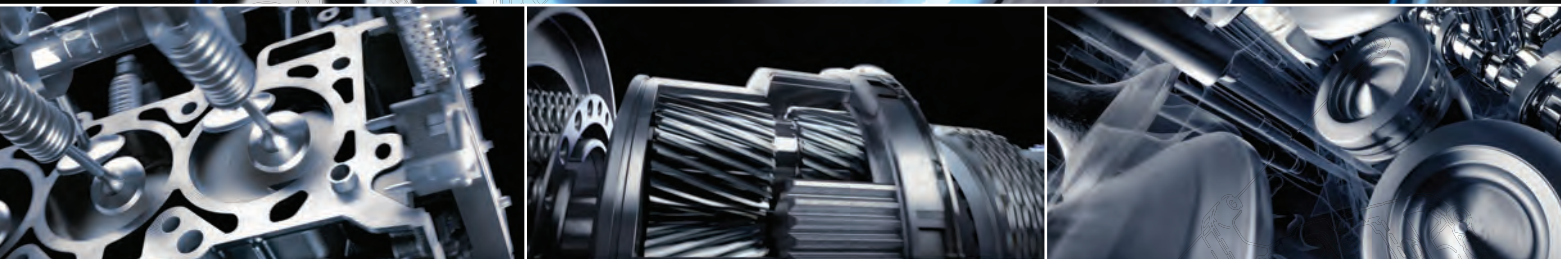
These problems include faulty engagements and shifts, TCC-related issues, and problems with the lube circuits.

Engagement Problems

Delayed or harsh engagement may be caused by a worn primary pressure regulator valve and bore (figure 1).

A delayed or harsh engagement into reverse may be caused by a worn

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A delayed reverse, no reverse, or slipping in reverse may be caused by a worn B2 apply control valve or bore, or a worn B2 control valve or bore.

reverse boost valve and sleeve.

Continuous modulation of the primary pressure regulator valve and reverse boost valve can cause premature valve, bore, and sleeve wear. If you find excessive wear in the primary pressure regulator valve and bore or in the reverse boost valve and sleeve, repair or replace the valve body.

A delayed reverse, no reverse, or slipping in reverse may be caused by a worn B2 apply control valve or bore (figure 2), or a worn B2 control valve or bore (figure 3). Continuous modulation of the B2 apply control valve causes premature wear of the valve body bore.

If you find excessive wear in the B2 apply control valve and bore or the B2 control valve and bore, repair or replace the valve body.

Shift Problems

Erratic 1-2 and 5-6 shifts or a burnt B1 brake may be caused by wear in the B1 apply boost valve or sleeve (figure 4). If you find excessive wear in the B1 apply boost valve and sleeve, repair or replace the valve body.

A flaring or harsh 4-5 shift may be caused by a worn clutch control valve or bore (figure 5). This wear can cause a loss of SL1 and SL2 pressure, causing an erratic 4-5 shift. If you find excessive clutch control valve or bore wear, repair or replace the valve body.



Figure 2: Worn B2 Apply Control Valve

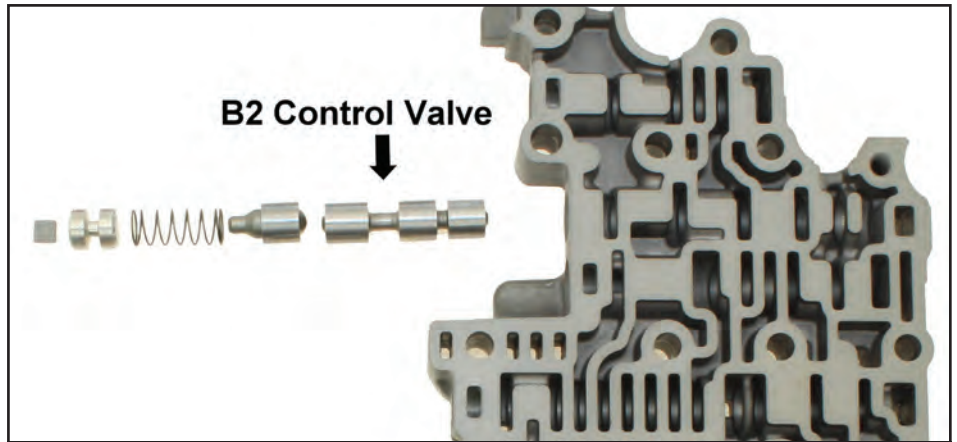


Figure 3: Worn B2 Control Valve

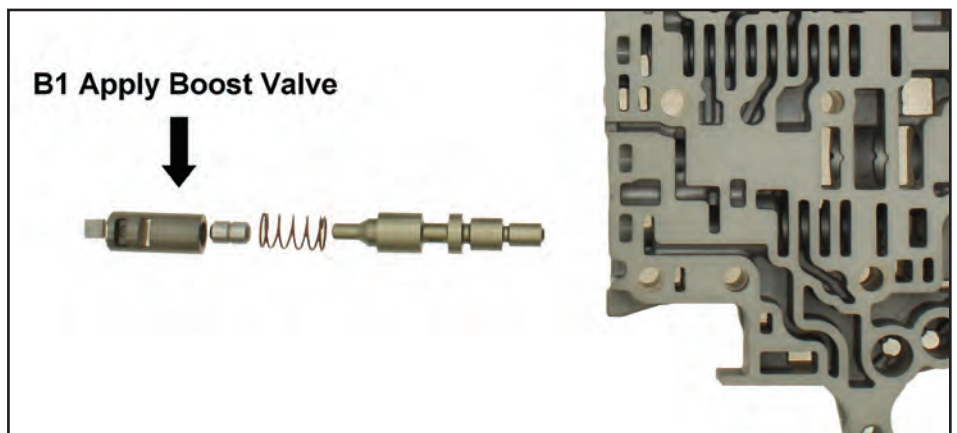


Figure 4: Worn B1 Apply Boost Valve and Sleeve

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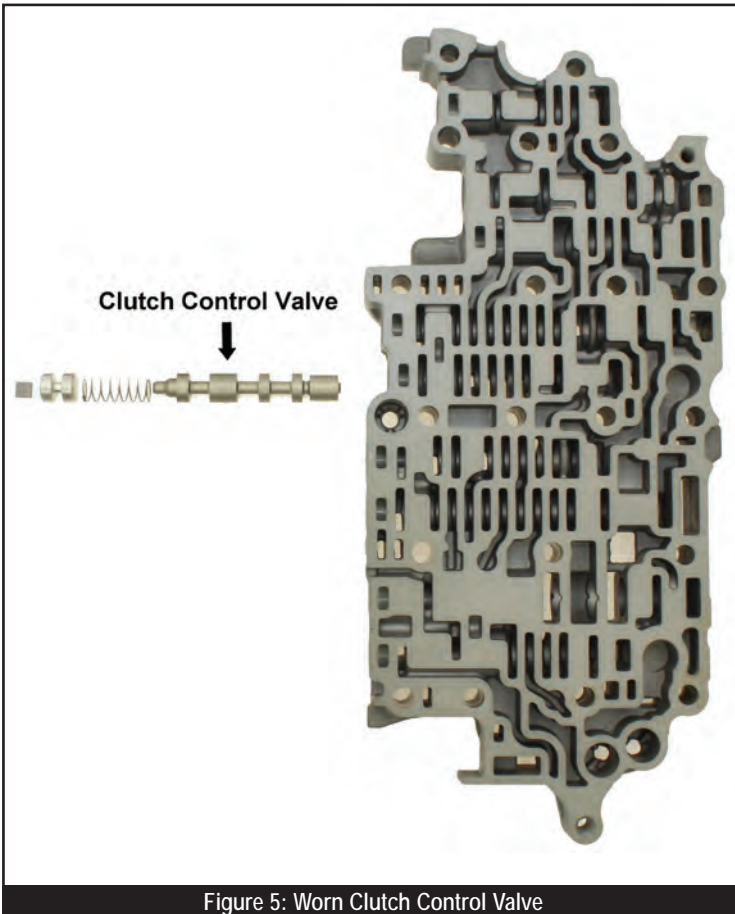


Figure 5: Worn Clutch Control Valve

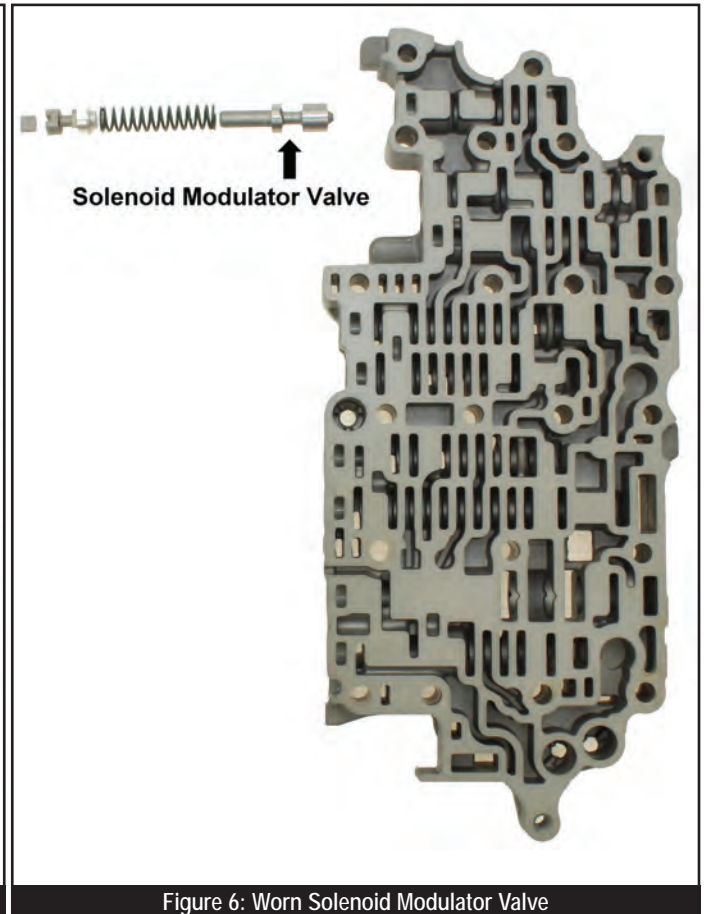


Figure 6: Worn Solenoid Modulator Valve

Erratic shifts, solenoid performance codes, and TCC apply and release problems may be caused by a worn solenoid modulator valve or bore (figure 6). Excessive wear in the solenoid modulator valve and bore can cause the valve to side load, resulting in erratic solenoid supply pressure. Repairing the solenoid modulator valve and bore will go a long way to correct erratic shifts.

Harsh or soft shifts into a specific gear may be caused by worn accumulators or accumulator bores (figure 7). Wear in the accumulator bores may allow apply oil to leak, which will cause erratic shifts. Repairing the accumulator bores will correct these problems.

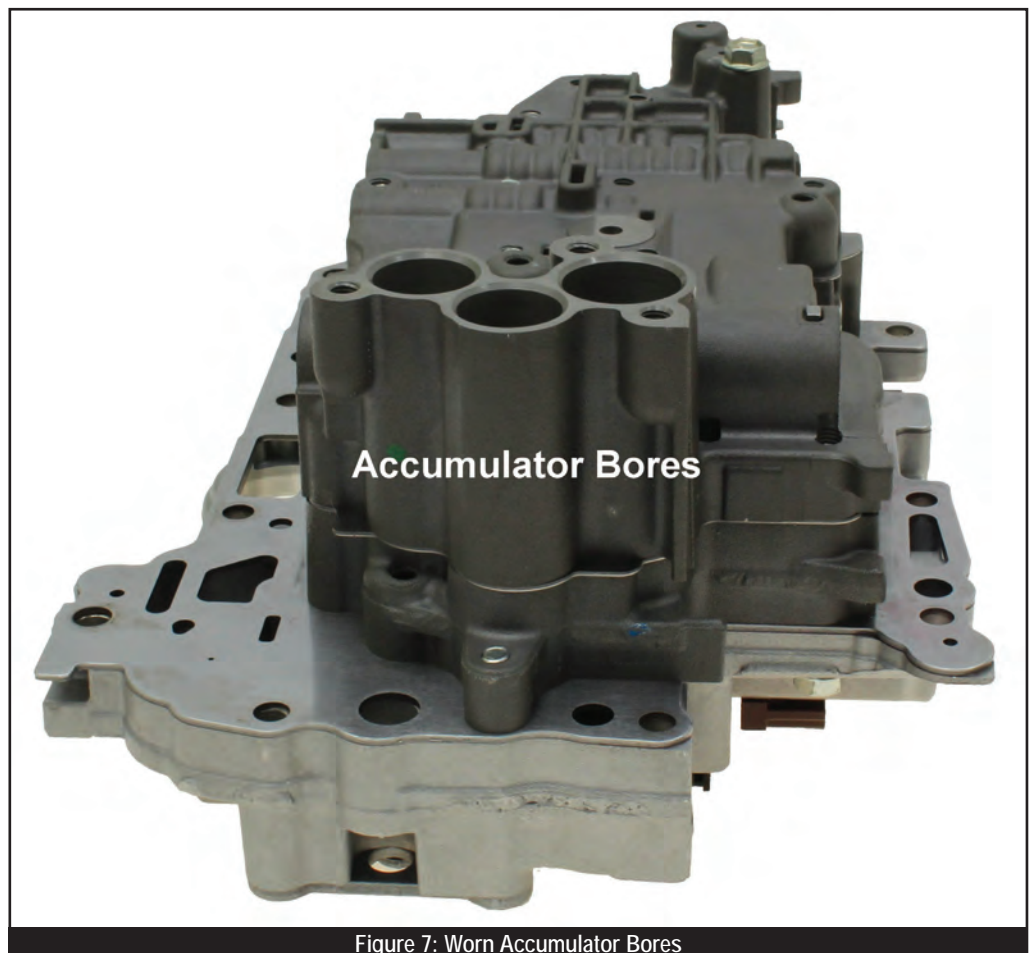


Figure 7: Worn Accumulator Bores



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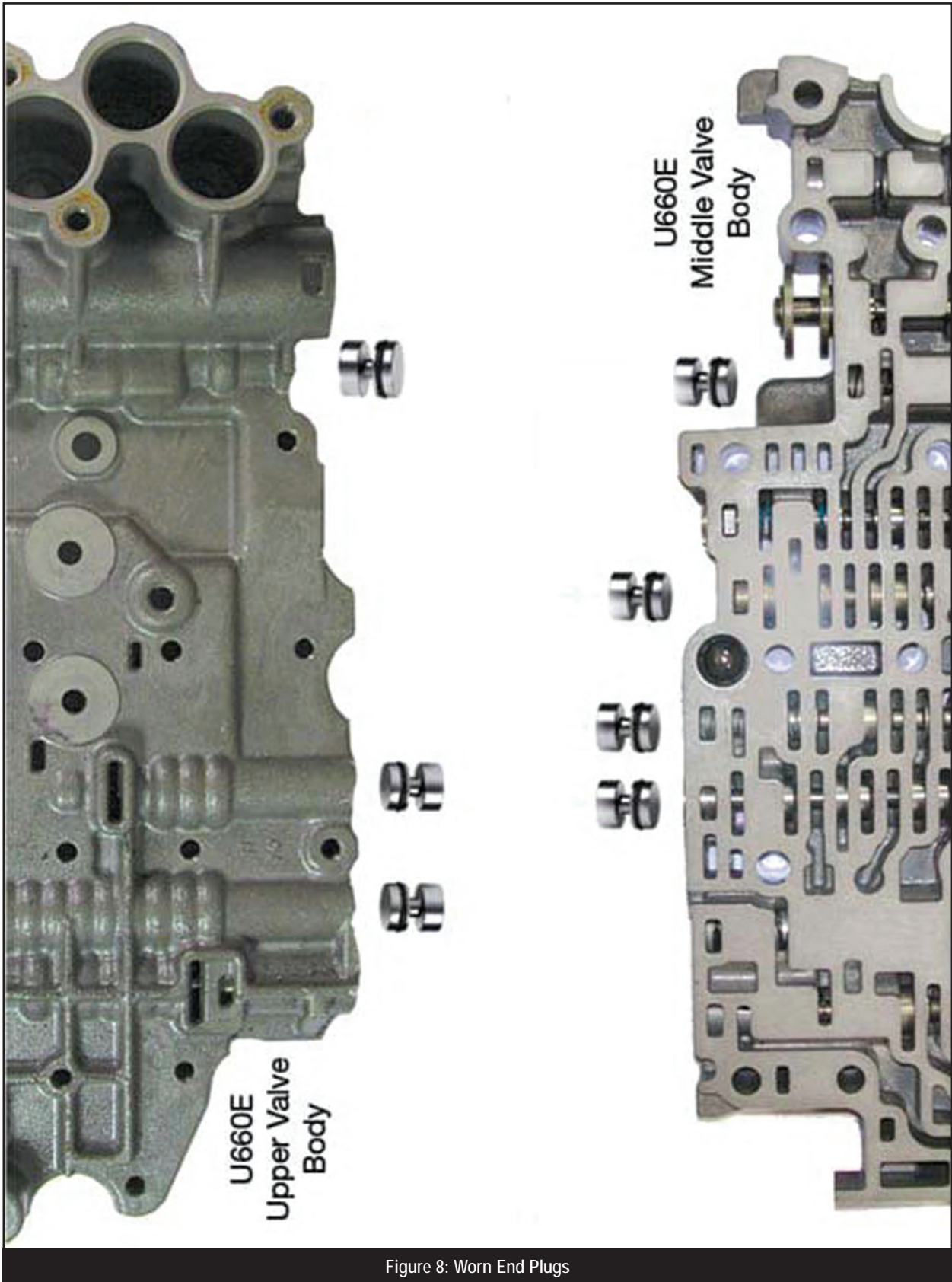
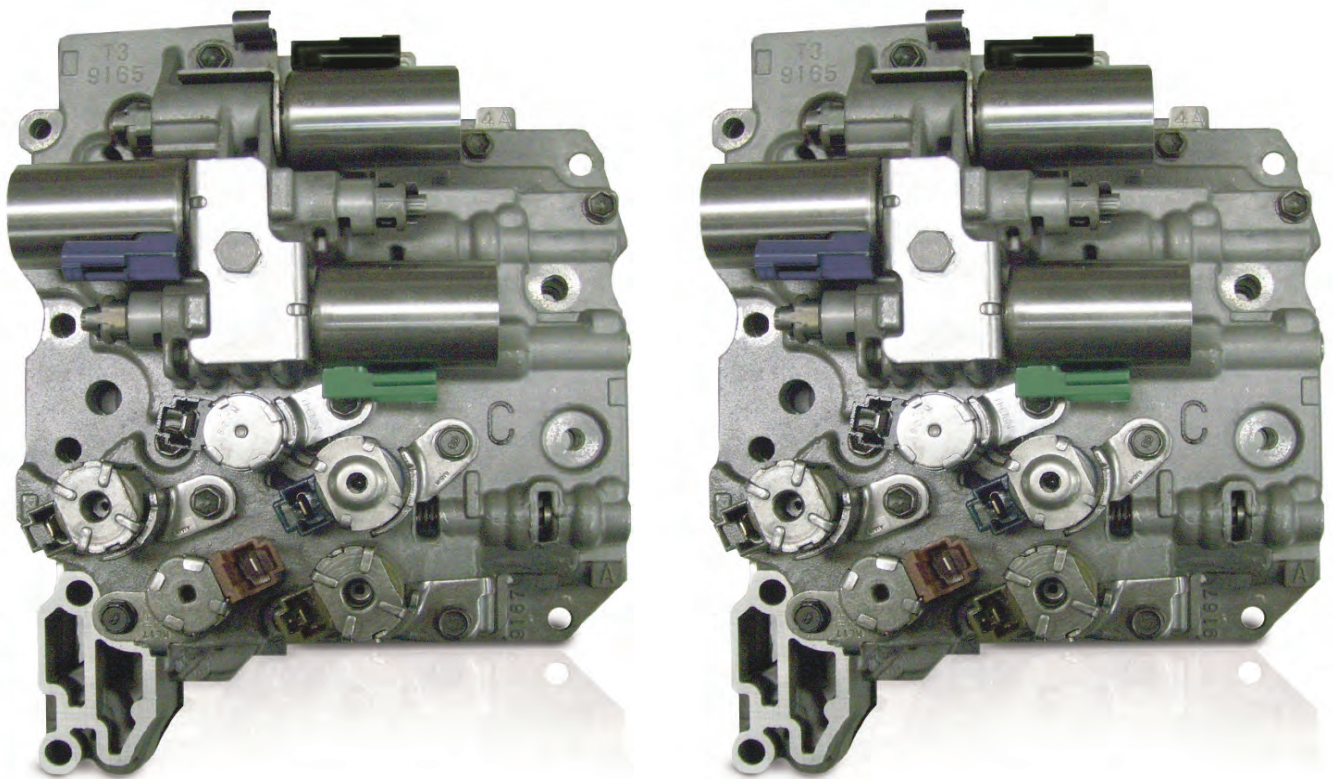


Figure 8: Worn End Plugs

Erratic shifts, lockup problems, and burnt clutch components may be caused by worn valve body end plugs (figure 8). Worn OEM end plugs may allow line pressure and SLT pressure to leak from around the valve body bores. Installing

O-ringed end plugs during every valve body repair should correct these problems.



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Lube problems, bearing or bushing failures, and transmission overheating can be caused by a worn secondary pressure regulator valve or bore.

TCC Problems

TCC apply and release problems, TCC slip codes, transmission overheating, and torque converter problems may be caused by a worn lockup control boost valve and sleeve (figure 9). This wear may cause the lockup control valve to stroke on or off prematurely, causing erratic TCC operation. Repairing the lockup control boost valve and sleeve may correct erratic TCC operation.

Lube Problems

Lube problems, bearing or bushing failures, and transmission overheating can be caused by a worn secondary pressure regulator valve or bore (figure 10). Excessive valve or bore wear at the solenoid modulator valve will cause EPC oil and balance oil pressure to leak, reducing lube flow. Repairing the solenoid modulator valve and bore will usually correct this condition.

Well there you have it: a brief look at some of Toyota's U660E, U660F, U760E, and U760F valve body problems and possible fixes. With a better understanding of these valve body problems, you, too, should be able to *keep those trannys rolling*.

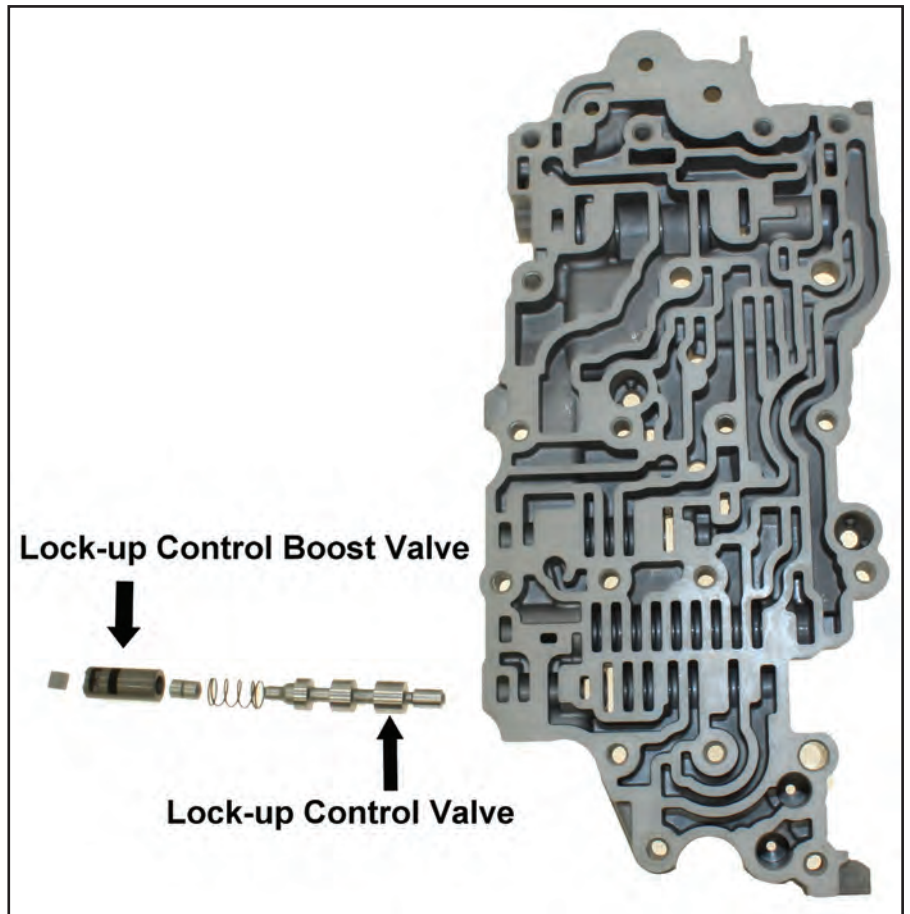


Figure 9: Worn Lock-up Control Boost Valve and Sleeve

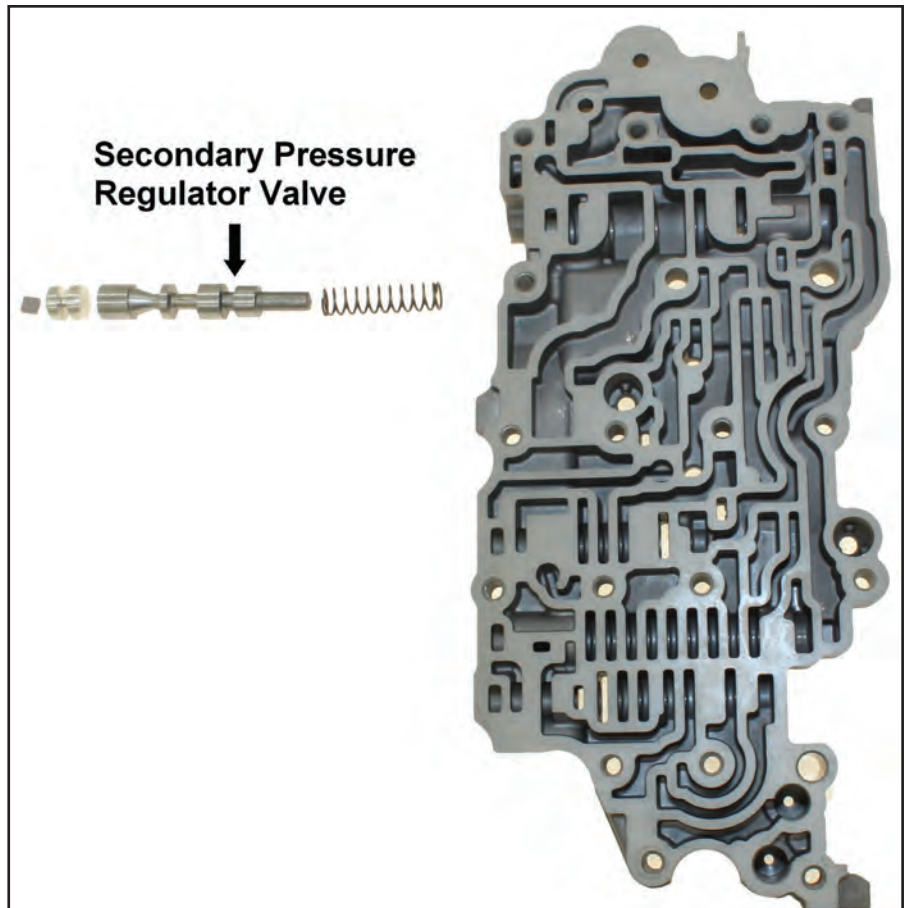


Figure 10: Worn Secondary Pressure Regulator Valve

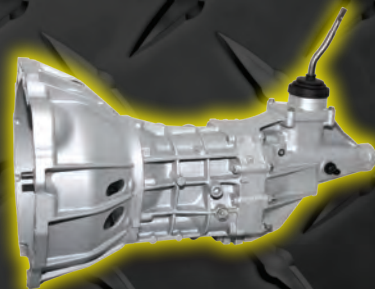


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