4R44E/55E and 5R44E/55E

TCC Concerns
How to Test the system

The easiest way to test the TCC circuit is to know what's happening when the computer is ready to apply the TCC. Once all parameters are met, and the computer is ready to apply the TCC, the TCC solenoid is energized by the computer. Hydraulically, the line pressure is supplied to the coast clutch regulator valve. The coast clutch regulator valve charges the TCC solenoid and now the TCC solenoid pulses the TCC regulator valve to apply the torque converter clutch. To determine whether or not the converter, solenoid or both are causing the problem simply energize the TCC in the stall on the lift, or stationary. This test is simply checking the integrity of the converter and the circuit.

If the engine Stalls: The converter is capable of locking-up and the valves definitely moved and the problem may be in the regulation of the valves and the performance of the PWM circuit.

If the engine doesn't Stall: The first thing to check is the solenoid if the solenoid is working then the TCC charge has a leak in the system. This leak can be in a number of different areas.

Using your scan tool, locate the parameter that says TCC% and TCCAMACT or TCC RPM on your data screen. These parameters will give you a quick look at the system. TCC% is the amount of duty cycle the computer is commanding the TCC solenoid to pulse, usually this parameter runs between 90% and 100% on your scanner. TCCAMACT is the amount of slip RPM the computer is detecting.

GOOD Reading:

TCC %	Varying between 90% and 100%
TCCAMACT	Varying between 0-10 RPM

BAD Reading:

TCC %	Varying between 90% and 100%
TCCAMCAT	Varying higher then 10 RPM and as high as 200 RPM

4R44E/55E and 5R44E/55E
TCC Concerns (continued)

Torque converter concerns on 4R44E/4R55E/5R55E have been a constant concern. In recent years there have been a number of concerns related to torque converter apply as well as No cooler flow, Harsh TCC and Soft TCC engagement, No Lock-up or loss of TCC when hot. Diagnosing torque converter problems can be troublesome. The following pages have tips you can use to determine the fix.

Here are the common codes you will get:

Codes	Discriptions
628:	Torque Converter Clutch Slip or Error
P0740:	Torque Converter Clutch System Problem
P0741:	Torque Converter Clutch System Performance or Stuck Off
P0742:	Torque Converter Clutch System Stuck Off
P0743:	Torque Converter Clutch System Electrical
P1740:	Torque Converter Clutch Malfunction
P1741:	Torque Converter Clutch Control Error
P1742:	Torque Converter Clutch Solenoid Failed On, MIL Lamp On
P1743:	Torque Converter Clutch Solenoid Failed On, TCIL Lamp ON
P1744:	Torque Converter Clutch Mechanical Noise or Stuck in Off Position

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TCC Concerns (continued)
Damaged TCC Solenoid

Concern: A no TCC apply on 1995 trough 1998 with a flashing overdrive light, DTC 628, P0741, P1740 or P1744.

Common Cause: TCC solenoid (there were certain TCC solenoid's that were poorly designed and the result was the tip blowing out and the brackets were cracking.

Repair: Replace solenoid.

Note: *Make sure not to reuse lot numbers between 769 and 771, these sole-noids are defective.*

Check the
crimped area for
cracks.

Lot number location

4R44E/55E and 5R44E/55E

TCC Concerns (continued)
Torque Converter Clutch Failure

Slip codes are very common. Make sure to diagnose converter codes correctly before replacing converter.

Concern: No converter clutch apply.

Common Cause: Torque converter lining burnt or flaked off.

Repair: Replace converter.

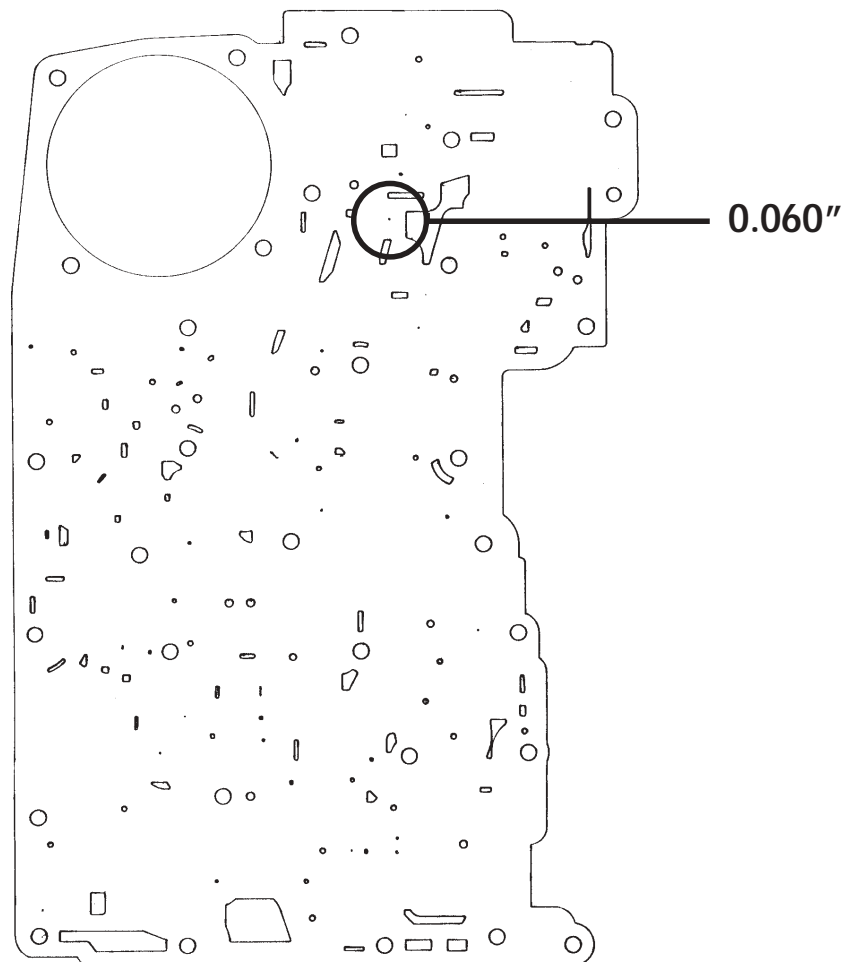# 4R44E/55E and 5R44E/55E
TCC Concerns (continued)
Separator Plate Feed Hole Modification

Modify the Separator plate to increase cooler flow. Cooler flow should be a minimum of 1 quart in 20 seconds. Make sure line pressure is within specification, high line pressures can cause low cooler flow.

Concern: TCC slip, or insufficient cooler flow.

Common Cause: The separator plate may have the wrong size feed holes. The converter feed holes are normally between 0.032″ and 0.048″.

Repair: Drill the converter feed hole in the separator plate to 0.060″ for increased cooler flow.

0.060″

4R44E/55E and 5R44E/55E
TCC Concerns (continued)
Butt-cut Seal Damaged

Concern: Slip or no TCC apply.

Common Cause: Seal broken or stator shaft worn or cracked.

Repair: Replace seal and check stator support for shaft wear or cracking around the seal area. If crack is evident replace stator.

Check seal for damage.
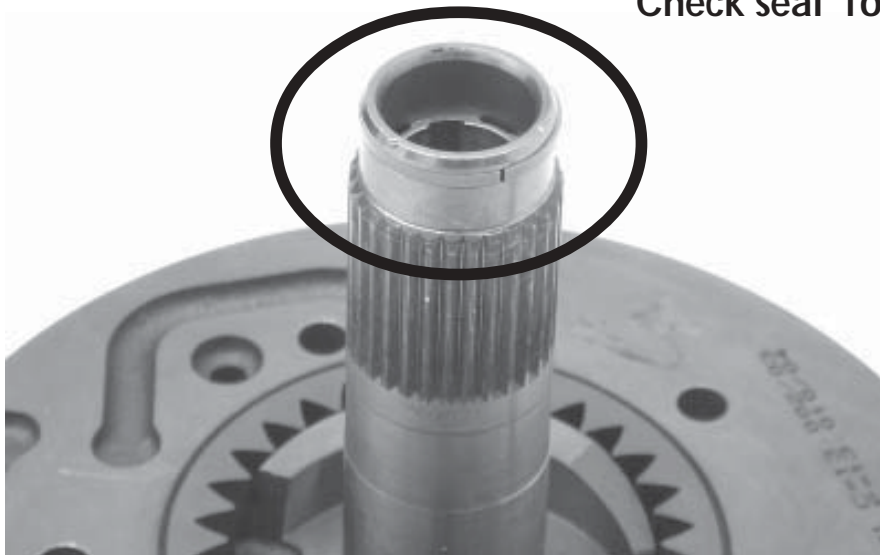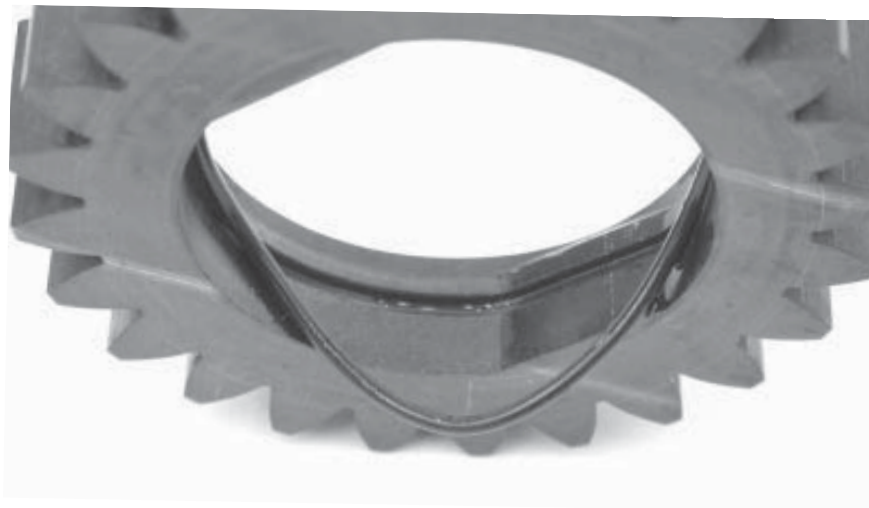
4R44E/55E and 5R44E/55E

TCC Concerns (continued)
Inner Pump Gear Seal Damaged

Concern: TCC slip

Common Cause: Installing A4LD pump gears that don't have an O-ring, or correct pump gear inner O-ring damaged or missing. This will allow converter charge oil to leak into the converter bushing lube or drain back passage creating low converter charge.

Repair: Install correct pump gears and O-ring. Inspect converter hub and lubricate prior to installation.
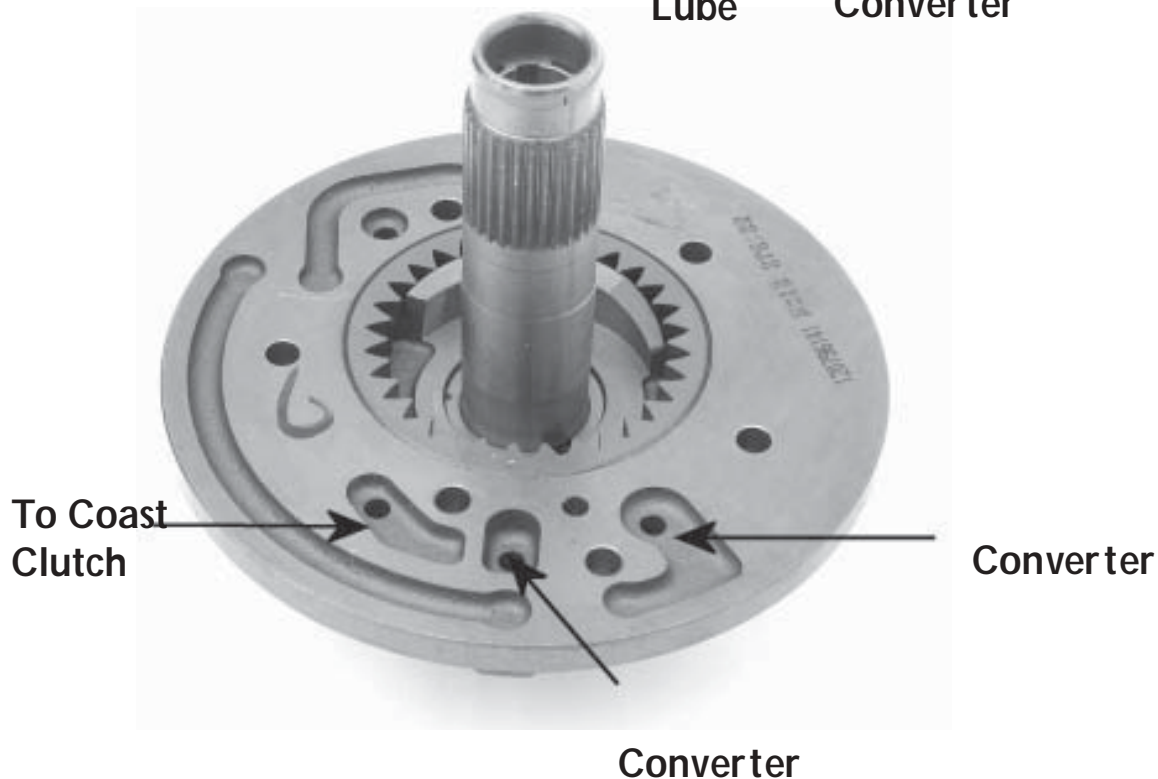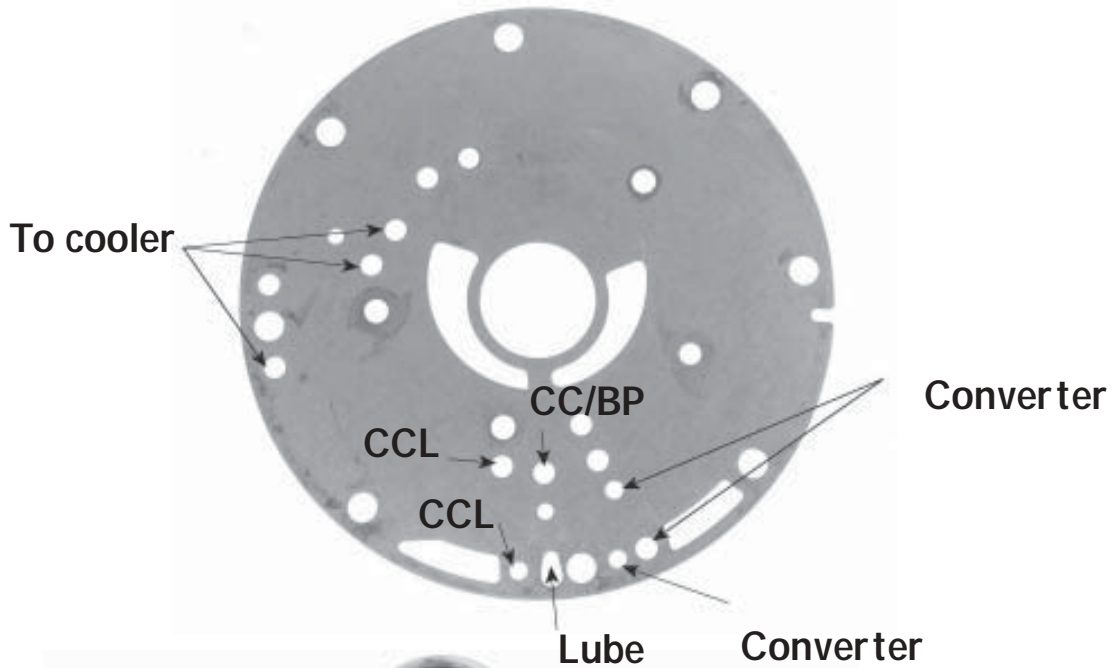
NOTE: Must have gear with o-ring.

4R44E/55E and 5R44E/55E
TCC Concerns (continued)
Pump and Spacer Plate Damage

Always inspect Pump assembly for damage, note any wear marks or warping and replace if necessary.

To cooler

CC/BP

CCL

CCL

Converter

Lube

Converter

To Coast
Clutch

Converter

Converter

4R44E/55E and 5R44E/55E

TCC Concerns (continued)
Valve Body Damage

The valve body can cause many different TCC related problems. There are a number of valves involved:

- Torque Converter Regulator Valve
- Torque Converter Modulator Valve
- Coast Clutch Shift Valve
- Thermostatic Bypass Valve
- Converter Relief Valve

Anyone of these valves can cause a TCC failure.
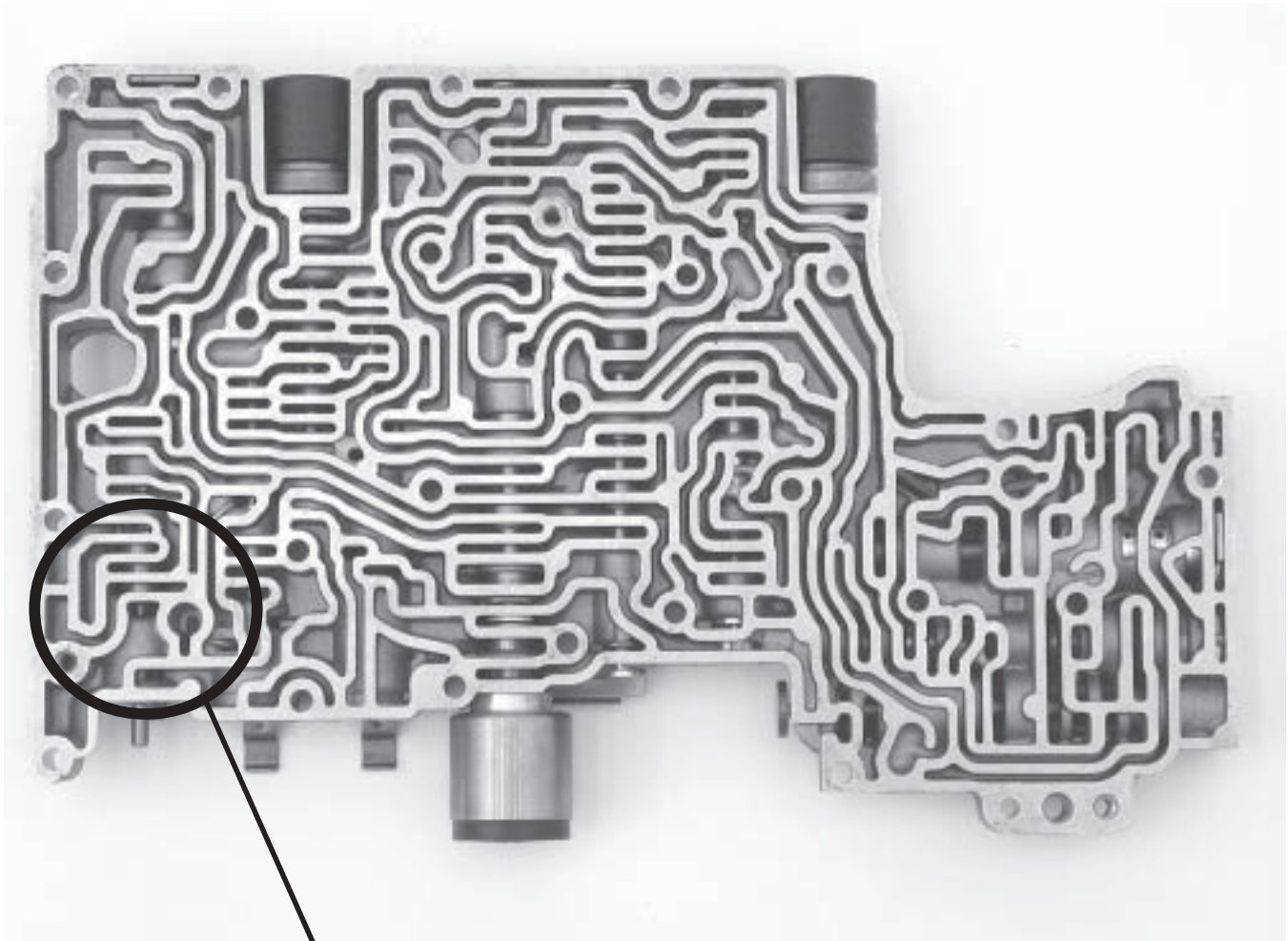
Concern: Slip or No TCC apply.

Common Cause: Wear in the Valve Body.

Repair: Repair or Replace Valve Body.

4R44E/55E and 5R44E/55E
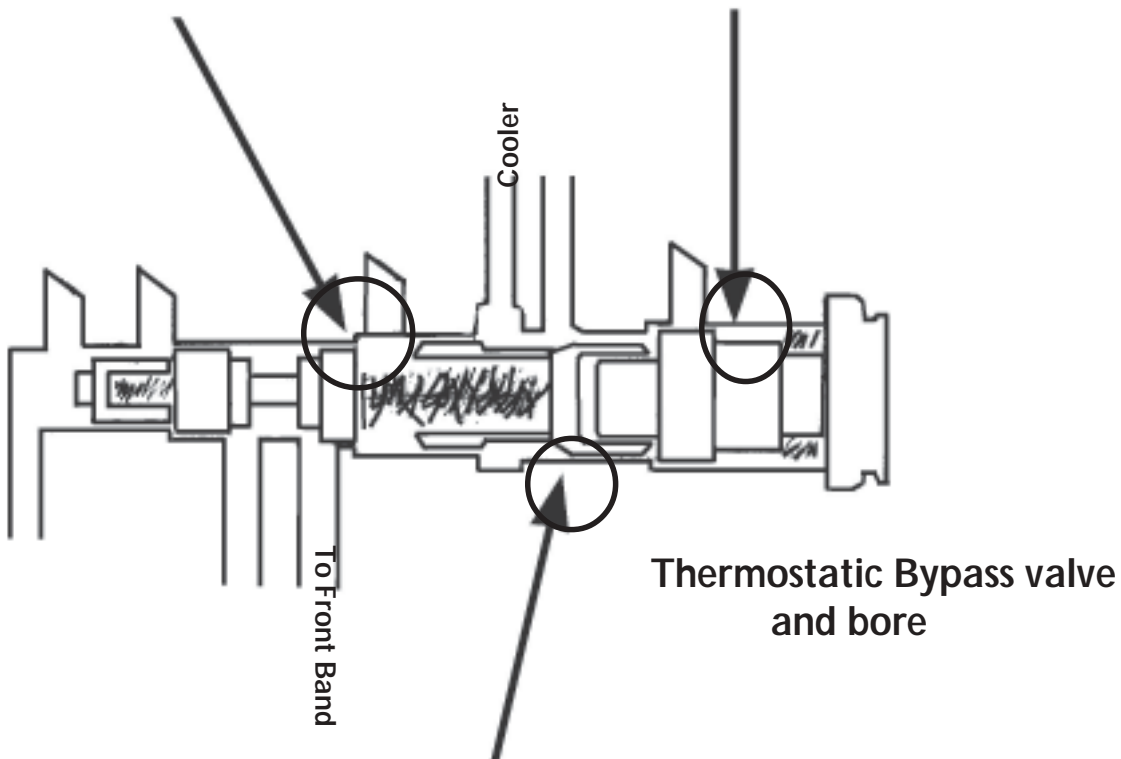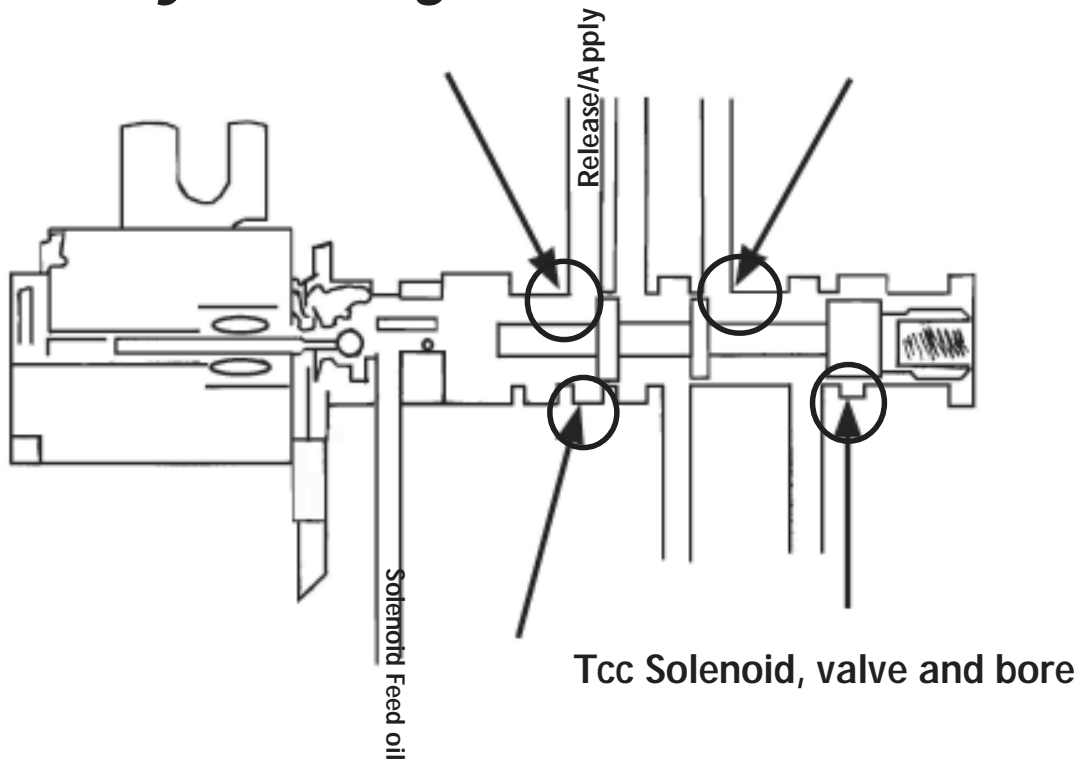## TCC Concerns (continued)
Valve Body Damage

Always check valve body surface for warping

4R44E/55E and 5R44E/55E
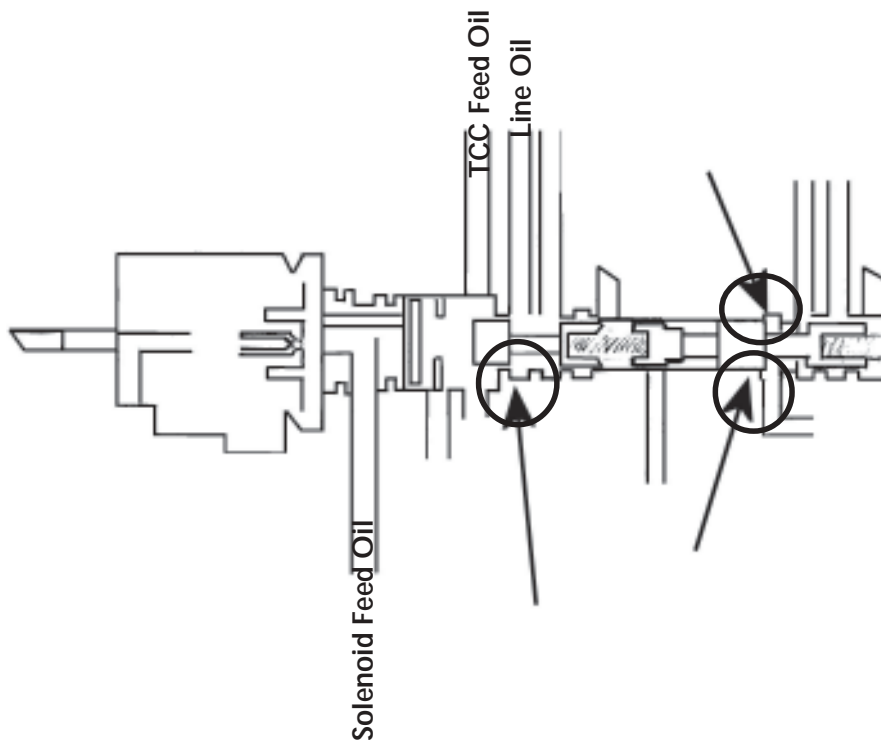
TCC Concerns (continued)
Valve Body Damage

Release/Apply

Solenoid Feed oil

Tcc Solenoid, valve and bore

Cooler

To Front Band

**Thermostatic Bypass valve
and bore**

4R44E/55E and 5R44E/55E

TCC Concerns (continued)
Valve Body Damage

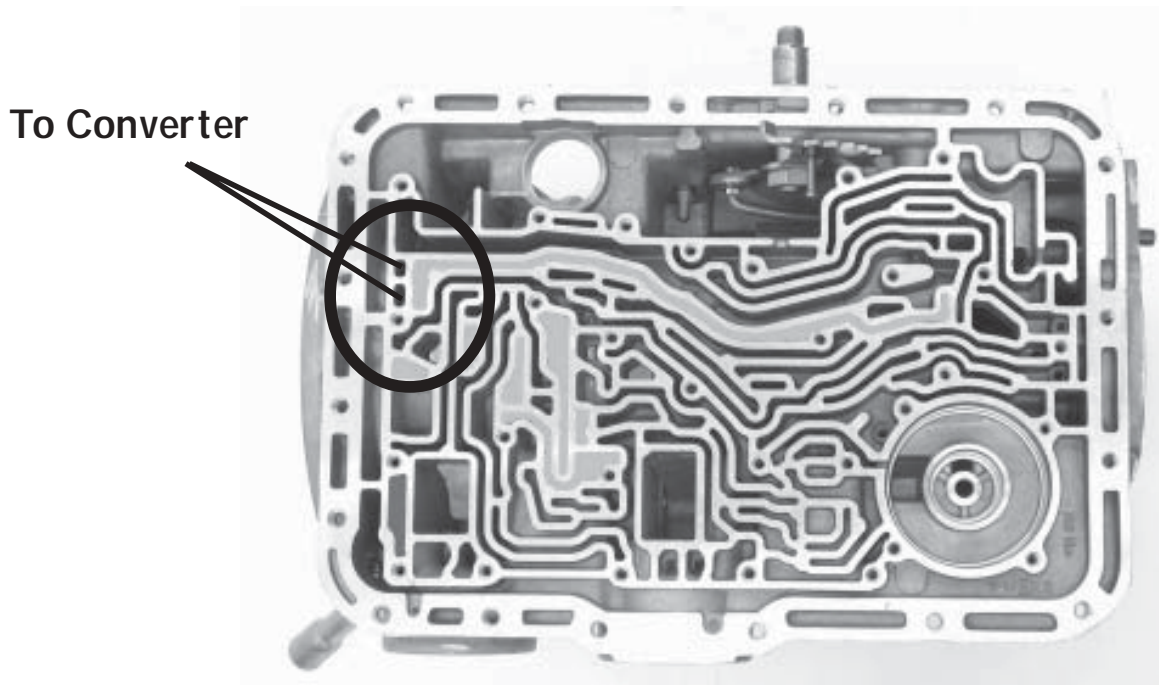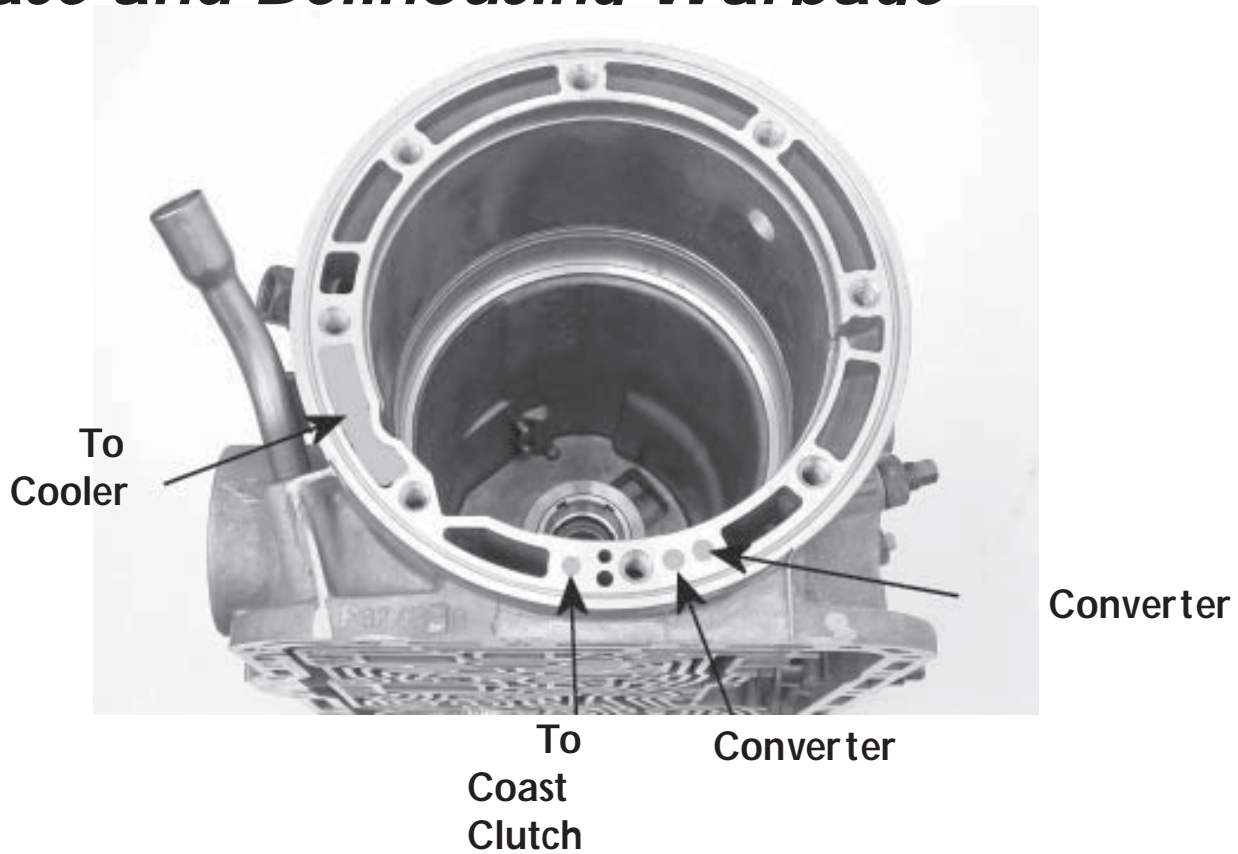**Coast Clutch Regulator Valve and Bore**

4R44E/55E and 5R44E/55E

TCC Concerns (continued)
Case and Bellhousing Warpage

To
Cooler

Converter

To
Coast
Clutch

Converter

To Converter

4R44E/55E and 5R44E/55E

TCC Concerns (continued)
Case and Bellhousing Warpage

To Cooler

To Coast Clutch

Converter   Converter