



GM 9T45, 9T50, 9T60, 9T65 ZIP KIT®

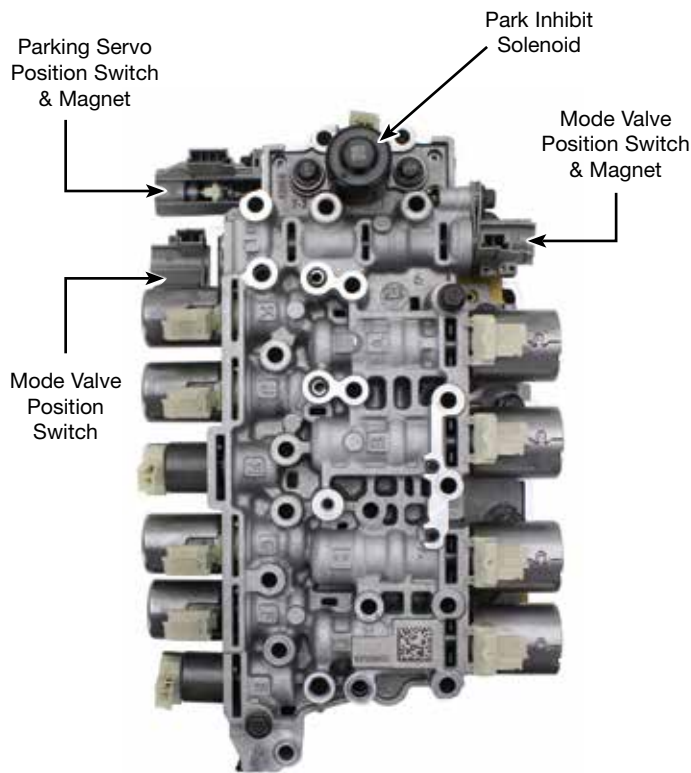
PART NUMBER 9T45-ZIP

IDENTIFICATION GUIDE

Valve Body Identification Guide

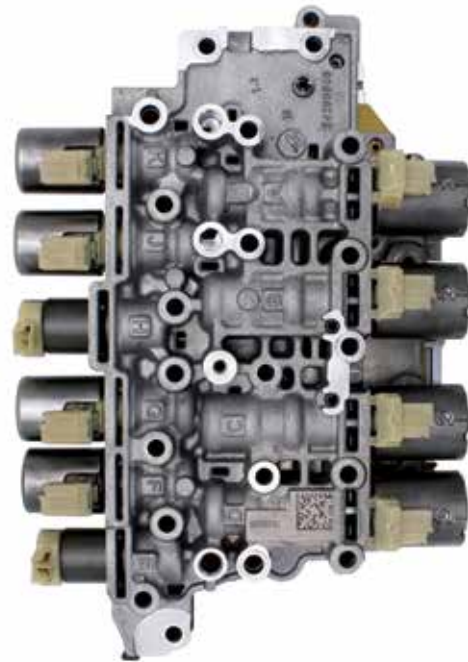
9T50 ETRS

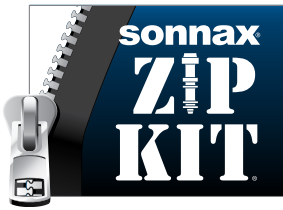
The Electronic Transmission Range Select (ETRS) valve bodies have 3 position switches and a solenoid.



9T50 Non-ETRS

The Non-Electronic Transmission Range Select valve bodies do not have these additional components.





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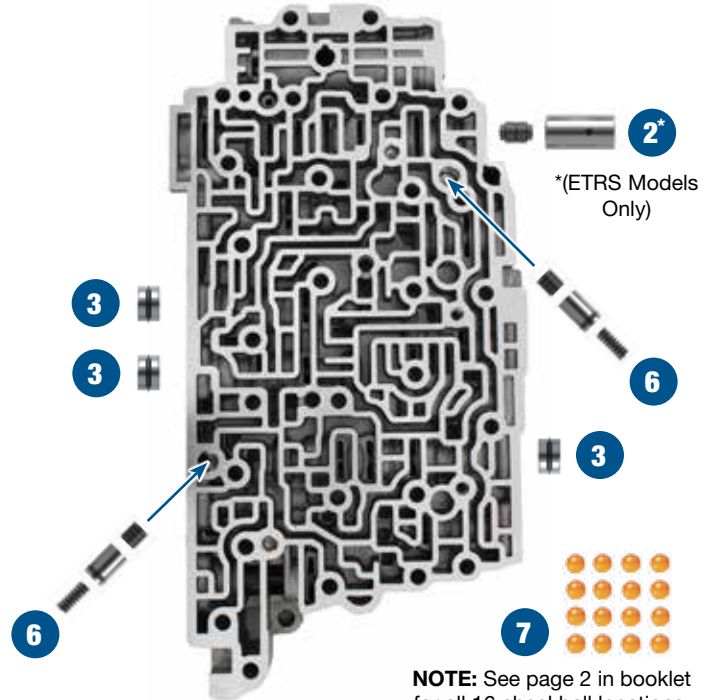
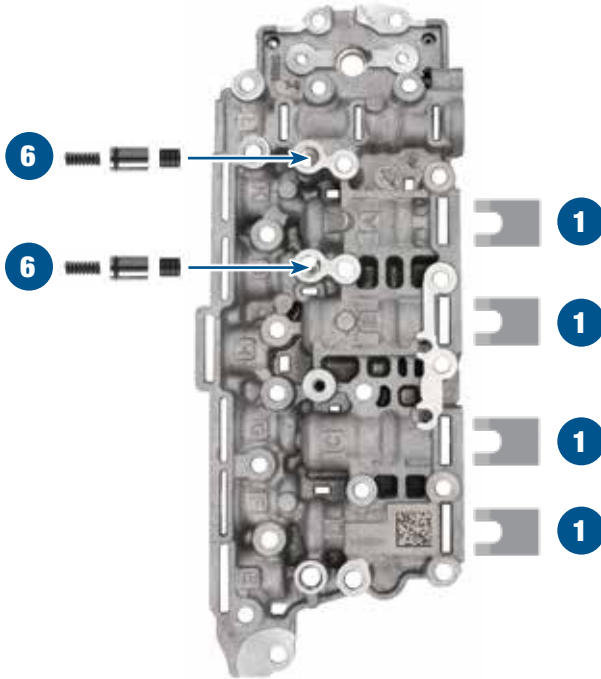
QUICK GUIDE

Parts are labeled here in order of installation. See other side of sheet for details on kit contents.

INSTALLATION DIAGRAM

9T50 Solenoid Control Valve Body

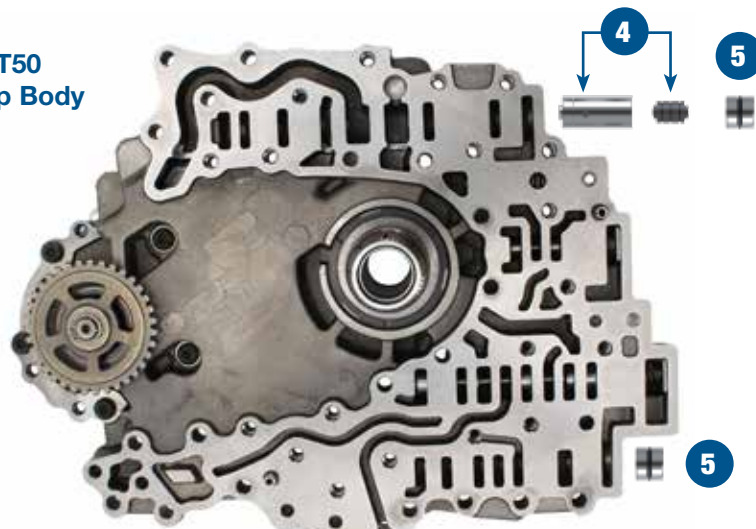
9T50 Main Control Valve Body



NOTE: See page 2 in booklet for all 16 checkball locations.

NOTE: The valve bodies shown above are ETRS. However, this Zip Kit fits both transmissions with ETRS and without ETRS.

9T50
Pump Body



In addition to general rebuilding tips and technical information, the technical booklet included in this kit contains vacuum testing and additional repair options for higher mileage units or for repairing specific complaints which are beyond the scope of this kit.

Kit Contents & Installation Steps

Step 1 Install Solenoid Stabilization Clip Inserts

If the spring retainer has collapsed, use proper tools to expand the clip out. Be sure not to bend the part too far as to damage it further. It should be open to about the width of the Solenoid shaft that it fits on. These Sonnax stabilization clips inserts need to be used in conjunction with the OE clip.



Packaging Pocket 1

- Solenoid Stabilization Clip Inserts (4)

Step 2 Replace Main Control Valve Body ETRS Mode 2 Boost Valve Assembly (ETRS models only)

Reuse OE ETRS valve, spring, and retainer. Non ETRS models do not use this valve.

Packaging Pocket 2

- Sleeve
- Valve

Step 3 Replace Main Control Valve Body End Plugs

Place O-ring in groove, lubricate with Sonnax Slippery Stick O-LUBE and roll on bench to size.

Packaging Pocket 3

- End Plugs (3)
- O-Rings (5) 2 Extra

Step 4 Replace Pump Body Pressure Regulator Boost Valve Assembly

Reuse OE main pressure regulator valve, spring and retainer.

Packaging Pocket 4

- Sleeve
- Valve

Step 5 Replace Pump Body End Plugs

Place O-ring in groove, lubricate with Sonnax Slippery Stick O-LUBE and roll on bench to size.

Packaging Pocket 5

- End Plugs (2)
- O-Rings (4) 2 Extra

Step 6 Replace Solenoid Valve Body & Main Control Valve Body Signal Damper Pistons

Two are located in the main valve body and two are located in the solenoid valve body. Install O-Ring into sleeve groove, lubricate with Sonnax Slippery Stick O-Lube and roll on bench to size.

Packaging Pocket 6

- Pistons (4)
- Sleeves (4)
- O-Rings (5) 1 Extra
- Springs (4)

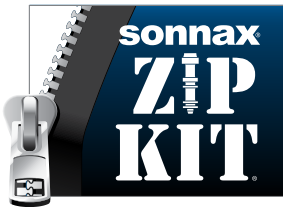
Step 7 Replace Checkballs

See page 2, Figures 5 and 6 in the Booklet for locations.

Packaging Pocket 7

- Checkballs, .250" (16)

NOTE: The parts listed here may be protected by Patent Nos. 12,129,922 and 12,188,525.



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PART NUMBER 9T45-ZIP

INSTALLATION & TESTING BOOKLET

Removal & Disassembly

1. Valve Body

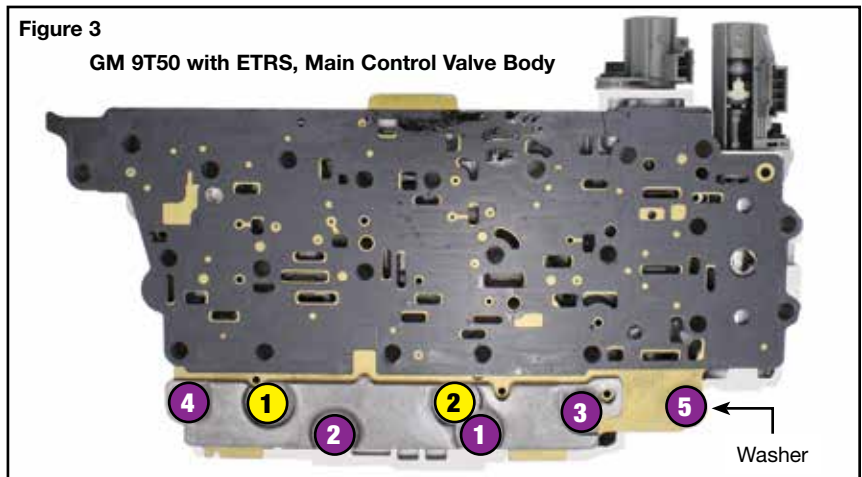
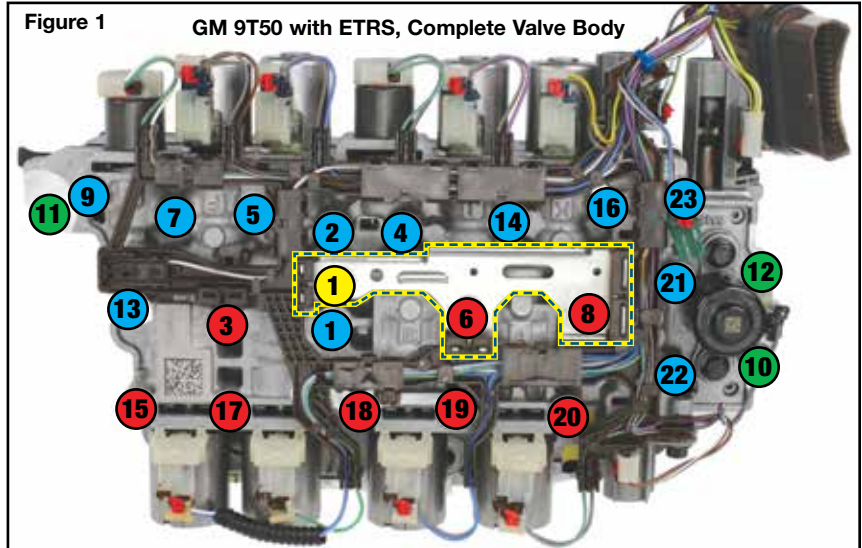
- Disconnect the wiring harness from the 11 solenoids and the 3 position switches (Figure 1).
- Remove the 3 bolts from the wire harness mount (yellow dashed-line area) and remove the wiring harness from the valve body (Figure 1).
- Remove the remaining 21 bolts from the solenoid valve body (Figures 1 & 2).
- Remove the solenoid control valve body.
- Remove the 7 bolts from the main control valve body and remove the main control valve body (Figure 2 & 3).
- Remove the plastic push clips to remove the second separator plate on the main control valve body (Figure 4).



CAUTION: Be careful when removing the main control valve body to not lose any check balls. They may come loose and fall when the separator plate is removed.

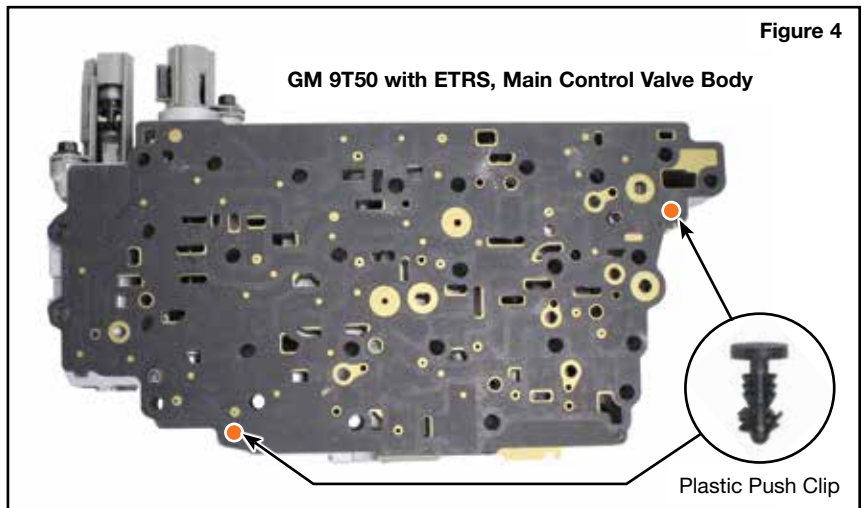
Figure 2

Bolt Color Code	Bolt Length	Bolt Head
Red	94mm	8mm
Blue	85mm	8mm
Green	65mm	8mm
Purple	55mm	8mm
Yellow	20mm	8mm



2. Pump

Remove all 22 pump cover bolts using a E12 Torx Socket (Figure 5, page 2).



Zip Kit Installation

Install Zip Kit parts as shown on diagram of separate quick guide included in this Zip Kit.

Detailed checkball locations are shown in the main valve body and case in **Figures 5 & 6**.



***NOTE:** ETRS has 16 total checkballs, Non-ETRS has only 13 checkballs.

Sonnax recommends vacuum testing critical wear areas not covered by this kit to determine whether additional Sonnax parts are required (see pages 3, 4 & 5).

1. Valve Body Reassembly

- a. Reattach the rear separator plate using the plastic push clips (**Figure 4**).
- b. Bolt the separator plate and oil transfer plate on to the main control body using (2) 20mm length bolts. Torque to 80 in-lb (**Figure 3**).
- c. Bolt the main control valve body to the case. Torque to 71 in-lb in the sequence indicated (**Figure 2**).



CAUTION: Don't forget the one washer under the bolt that is not on the oil transfer plate.

- d. Install the solenoid control valve body to the main control valve body and hand tighten all the bolts (**Figure 1 & 2**).
- e. Install the wiring harness with its 3 bolts (yellow dashed-line area) and plug in all the connectors (**Figure 1**).



CAUTION: Ensure each connector is locked with the red tab.

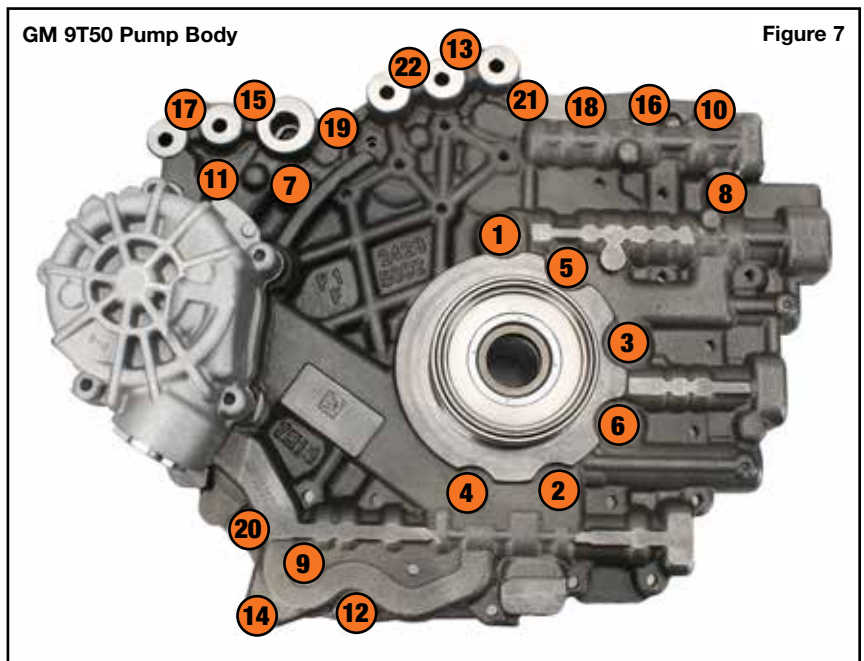
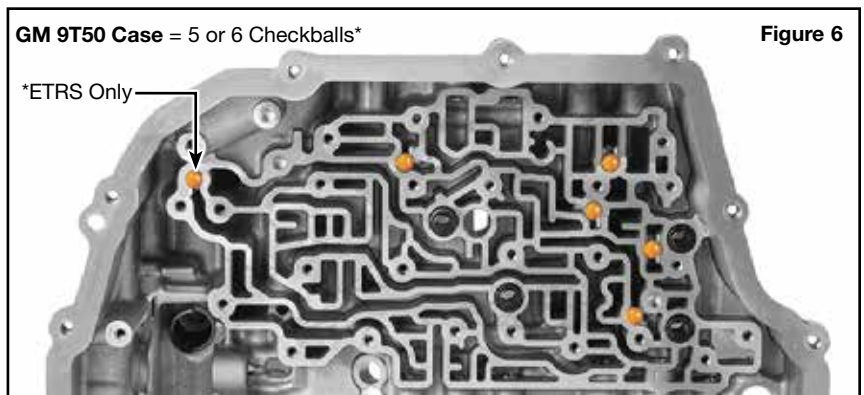
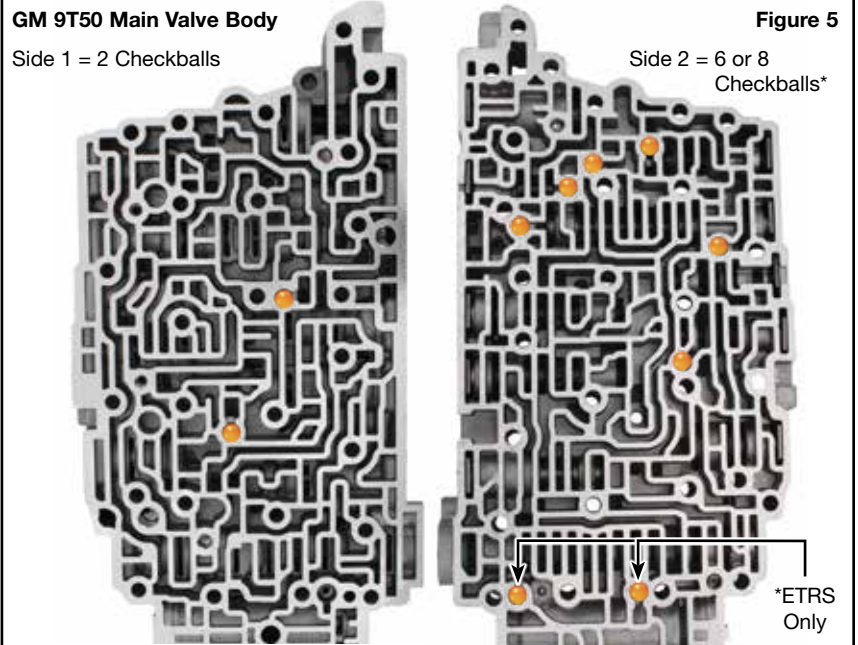
- f. Torque all bolts to 71 in-lb in the sequence indicated (**Figure 1**).

2. Pump Reassembly

Install separator plate and pump cover to the transmission case. Torque all 22 bolts to 53 in-lb first pass, then torque bolts an additional 20 degrees on final pass using angular gauge. For both passes, tighten bolts in sequence shown (**Figure 7**).



CAUTION: The pump cover bolts are one time use torque-to-yield bolts. Always use new bolts for reassembling.



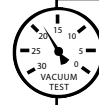
Critical Wear Areas & Vacuum Test Locations



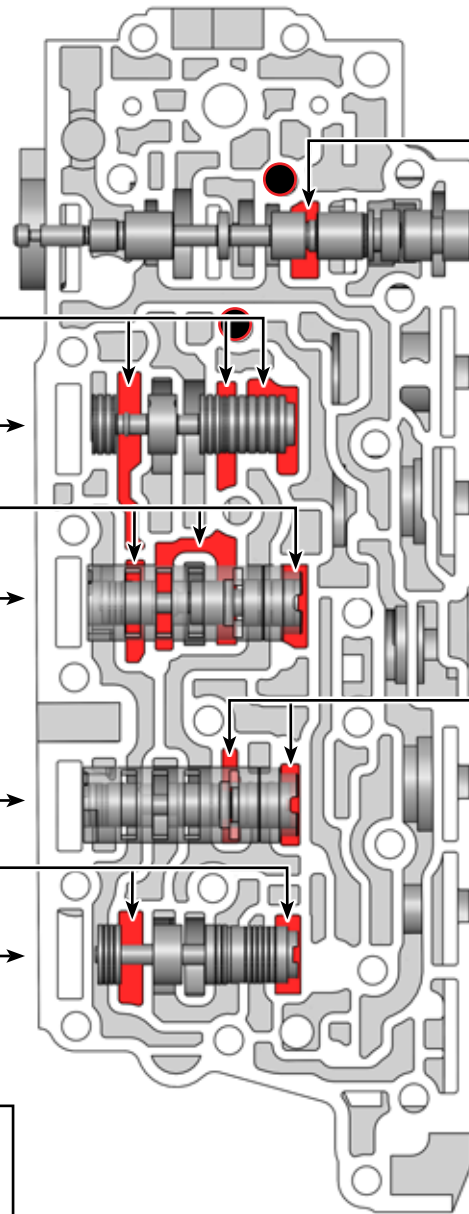
Drop-In Zip Valve™
Parts Available

NOTE: OE valves are shown in rest position and should be tested in rest position unless otherwise indicated. Test locations are pointed to with an arrow. Springs are not shown for visual clarity. Low vacuum reading indicates wear and Sonnax parts are noted for replacement.

Solenoid Control Valve Body • 9T50 ETRS Shown



For specific vacuum test information, refer to individual part instructions included in kits and available at www.sonnax.com.



2-9 Clutch Regulator Valve

- 1-2 Flare/Slip
- Gear ratio codes in 2nd & 9th

1-2-3-4-5-6 Clutch Solenoid Regulator Valve

- Delayed Forward engagement
- No Forward
- Gear ratio codes

5-7 Reverse Clutch Regulator Valve

- No 5th
- 4-5 Flare
- Gear ratio codes in 5th & 7th

Mode 1 Electronic Transmission Range Selector Valve

- Park engagement & release issues

NOTE: This part does not exist in the non-ETRS valve body.

1-Reverse & 6-7-8-9 Clutch Regulator Valve

- SOWC clutch failure
- No Forward
- No Reverse

Solenoid

- Loss of shift solenoid control pressure
- Poor shift quality
- Various shift concerns
- Burnt clutches
- Damaged valve body casting

Stabilize with Sonnax Part No. 184740-04K*

◆ = Four Locations

Signal Damper Piston

- Burnt clutches
- Soft shifts
- Shift concerns associated with circuit pressure loss

Replace with Sonnax Part No. 184740-01K*

● = Four Locations

Part numbers with an asterisk () are included in this Zip Kit.

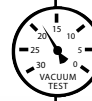
Critical Wear Areas & Vacuum Test Locations



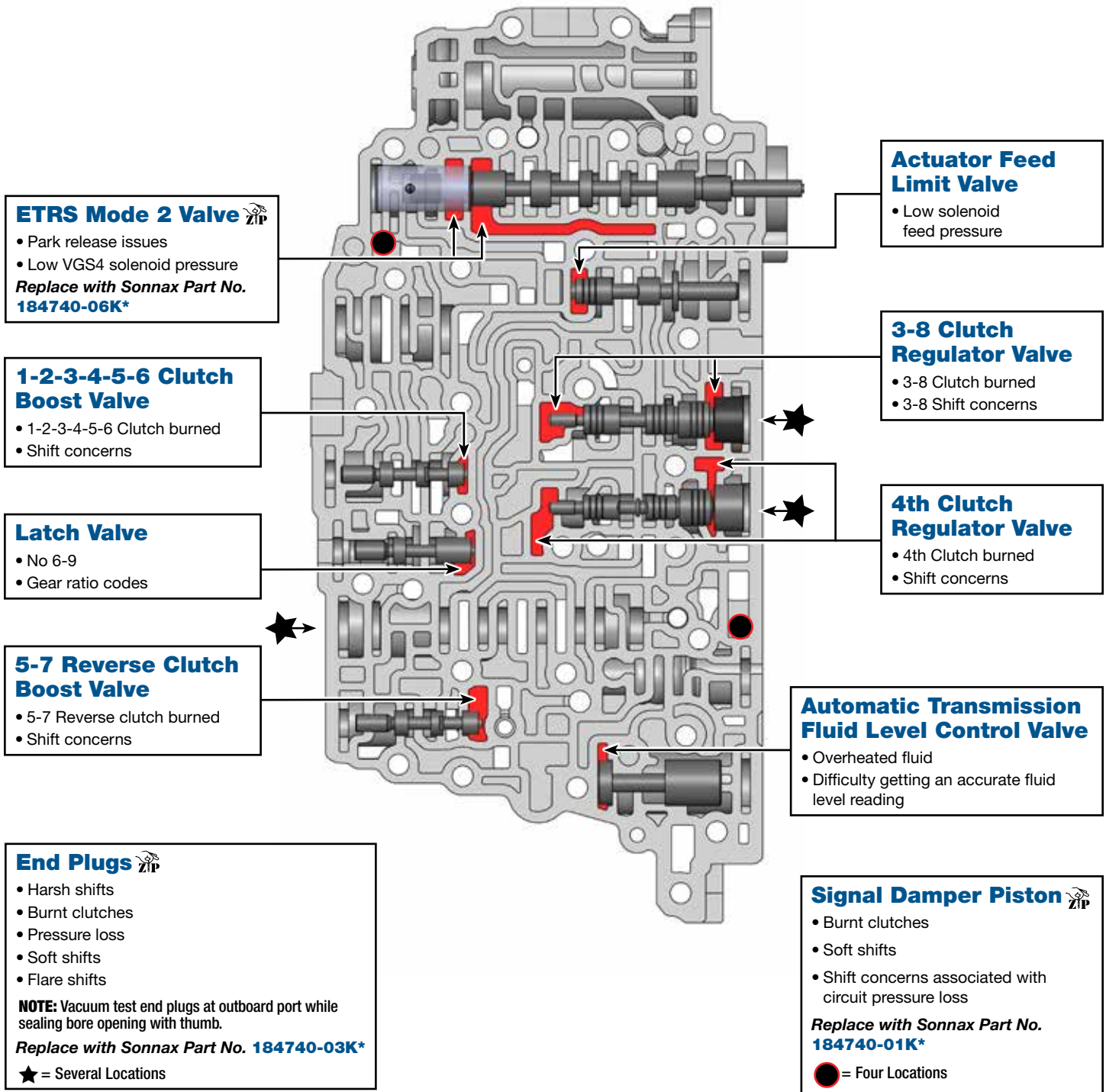
Drop-In Zip Valve™
Parts Available

NOTE: OE valves are shown in rest position and should be tested in rest position unless otherwise indicated. Test locations are pointed to with an arrow. Springs are not shown for visual clarity. Low vacuum reading indicates wear and Sonnax parts are noted for replacement.

Main Control Valve Body • 9T50 ETRS Shown



For specific vacuum test information, refer to individual part instructions included in kits and available at www.sonnax.com.



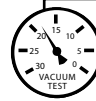
Part numbers with an asterisk () are included in this Zip Kit.

Critical Wear Areas & Vacuum Test Locations



NOTE: OE valves are shown in rest position and should be tested in rest position unless otherwise indicated. Test locations are pointed to with an arrow. Springs are not shown for visual clarity. Low vacuum reading indicates wear and Sonnax parts are noted for replacement.

Pump Body • 9T50 ETRS Shown



For specific vacuum test information, refer to individual part instructions included in kits and available at www.sonnax.com.

Pressure Regulator Valve

- Erratic line pressure
- Burnt clutches
- Poor shift quality
- Low converter & lube flow
- Overheating

Replace with Sonnax Part No. **184740-02K**

Transmission Fluid Pump Blow-off Ball Valve

- No Forward
- No Reverse
- Low line pressure
- Poor shift quality

Lube Regulator Valve

- Low lube oil flow
- Overheated fluid
- Gear train failure

Torque Converter Clutch Blow-off Ball Valve

- No TCC apply
- TCC slip codes

Torque Converter Clutch Control Valve

- No TCC
- Engine stall on engagement
- TCC slip concerns

Torque Converter Clutch Regulator Apply Valve

- TCC slip codes
- Overheated converter

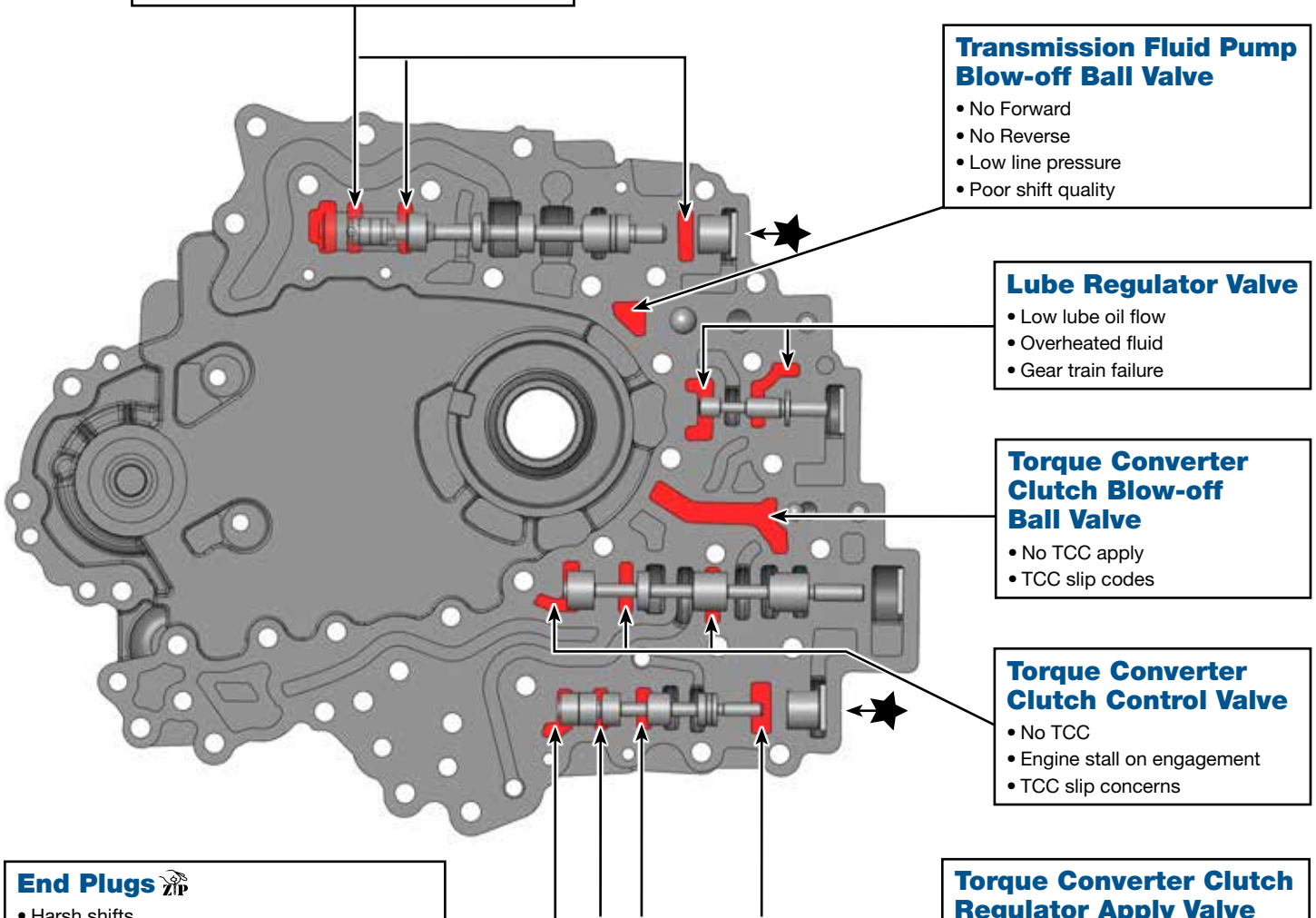
End Plugs

- Harsh shifts
- Burnt clutches
- Pressure loss
- Soft shifts
- Flare shifts

NOTE: Vacuum test end plugs at outboard port while sealing bore opening with thumb.

Replace with Sonnax Part No. **184740-03K***

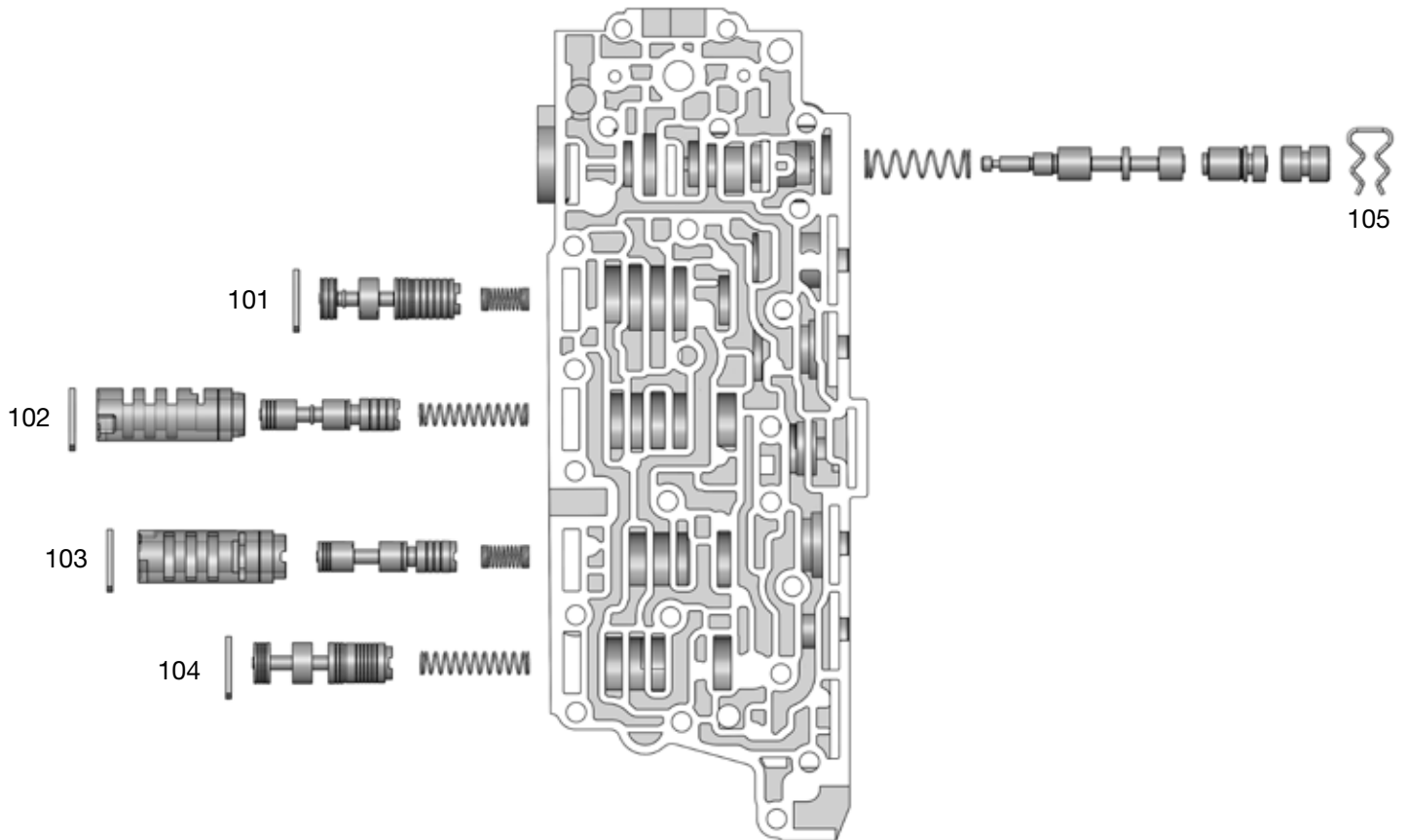
★ = Several Locations



OE Exploded View

Solenoid Control Valve Body • 9T50 ETRS Shown

NOTE: Depending upon vehicle application, the OE springs shown may not be present.

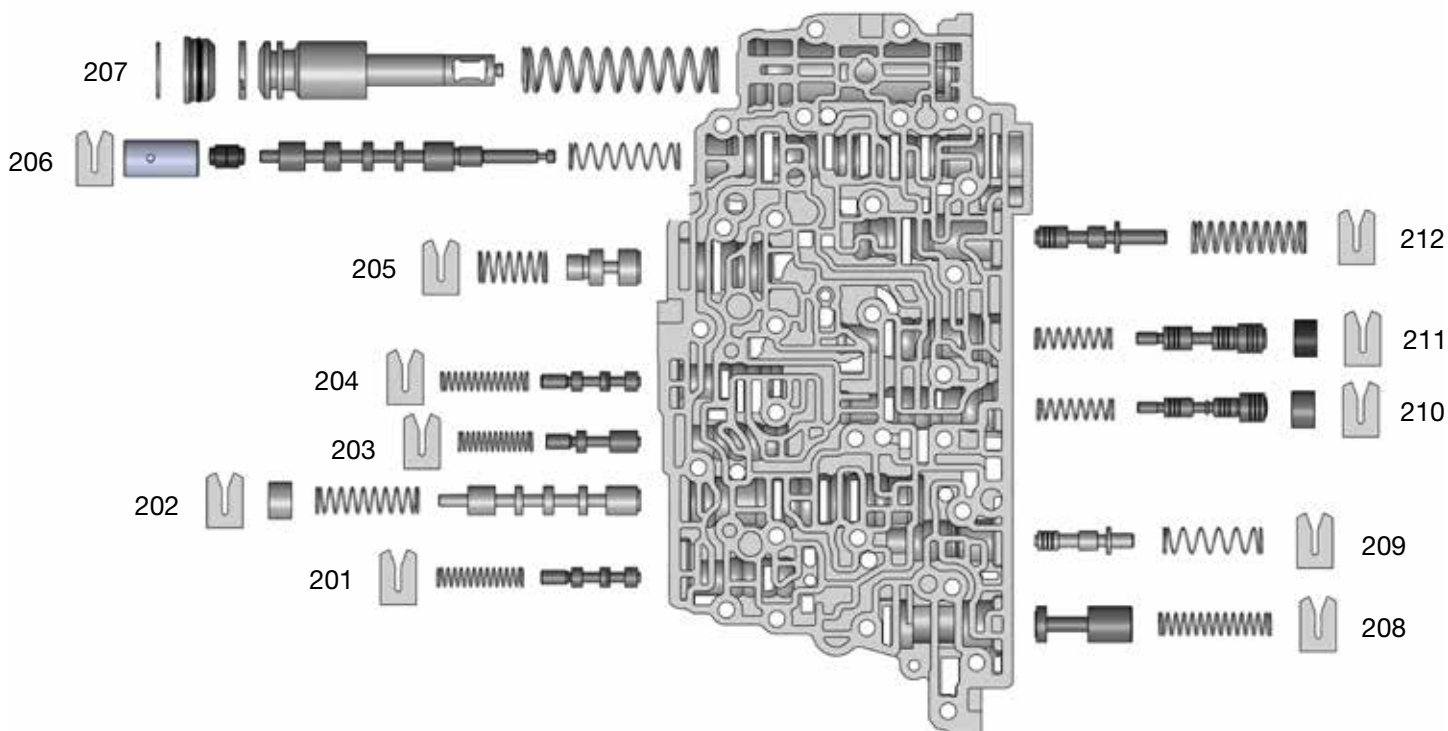


Solenoid Control Valve Body Descriptions	
I.D. No.	Description
101	2-9 Clutch Regulator Valve
102	1-2-3-4-5-6 Clutch Solenoid Regulator Valve
103	1-Reverse & 6-7-8-9 Clutch Regulator Valve
104	5-7 Reverse Clutch Solenoid Regulator Valve
105	Mode 1 Electronic Transmission Range Selector Valve

OE Exploded View

Main Control Valve Body • 9T50 ETRS Shown

NOTE: Depending upon vehicle application, the OE springs shown may not be present.



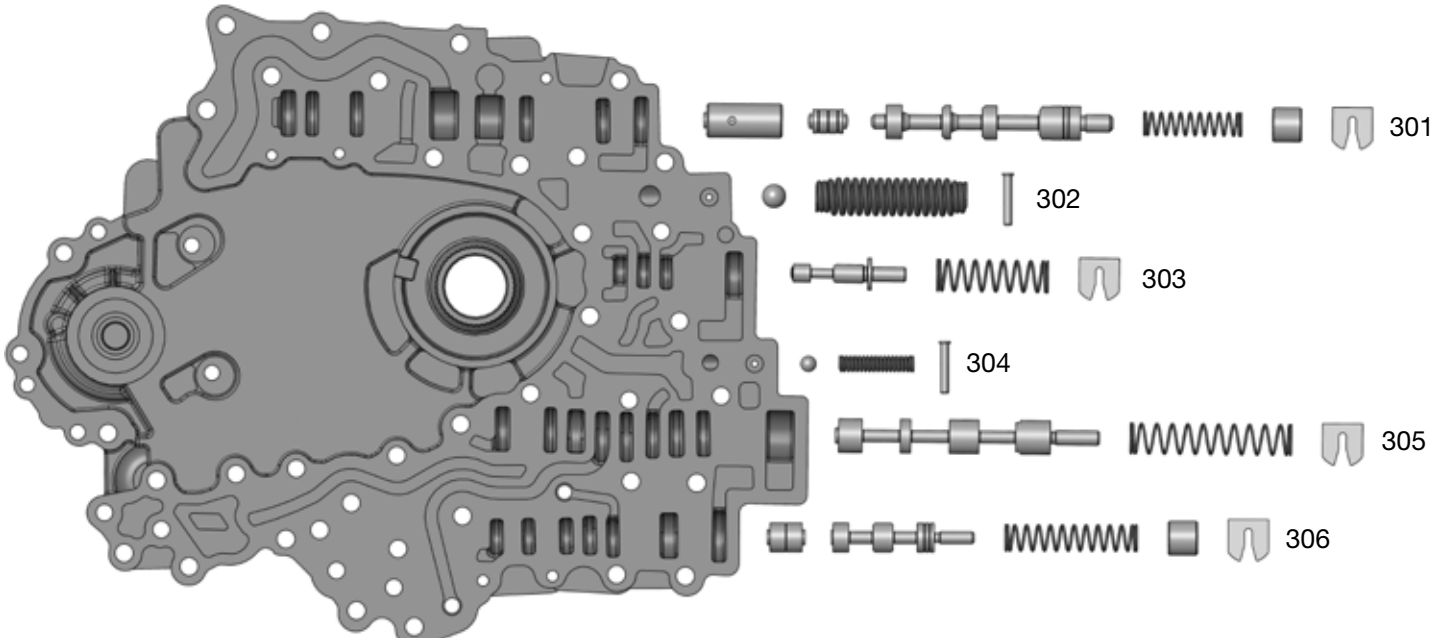
Main Control Valve Body Descriptions

I.D. No.	Description
201	5-7 Reverse Clutch Boost Valve
202	Clutch Selector Valve
203	Latch Valve
204	1-2-3-4-5-6 Clutch Boost Valve
205	ETRS Mode 1 Enable Valve
206	ETRS Mode 2 Valve
207	Park Release Servo Piston
208	Automatic Transmission Fluid Level Control Valve
209	Feed Limit Valve
210	4th Clutch Regulator Valve
211	3-8 Clutch Regulator Valve
212	Actuator Feed Limit Valve

OE Exploded View

Pump Body • 9T50 ETRS Shown

NOTE: Depending upon vehicle application, the OE springs shown may not be present.



Pump Body Descriptions

I.D. No.	Description
301	Pressure Regulator Valve
302	Transmisison Fluid Pump Blow-Off Ball Valve
303	Lube Regulator Valve
304	Torque Converter Clutch Blow-Off Valve
305	Torque Converter Clutch Control Valve
306	Torque Converter Clutch Regulator Apply Valve