



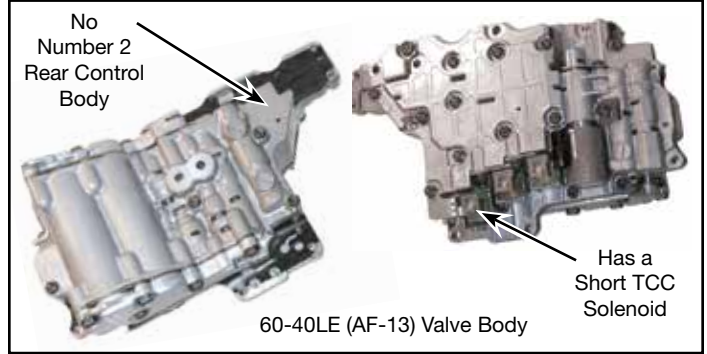
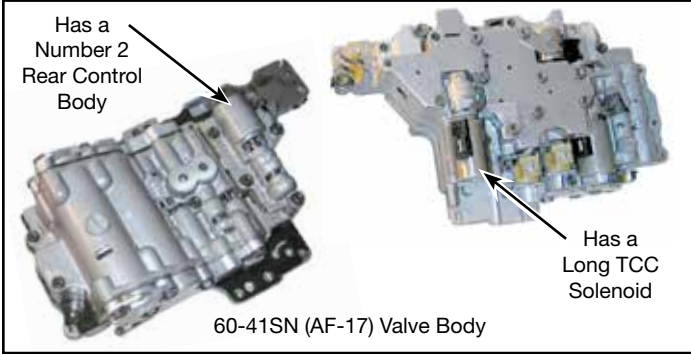
# AISIN AW 60-41SN (AF-17) ZIP KIT

PART NUMBER **AW60-41SN-ZIP**

**QUICK GUIDE**

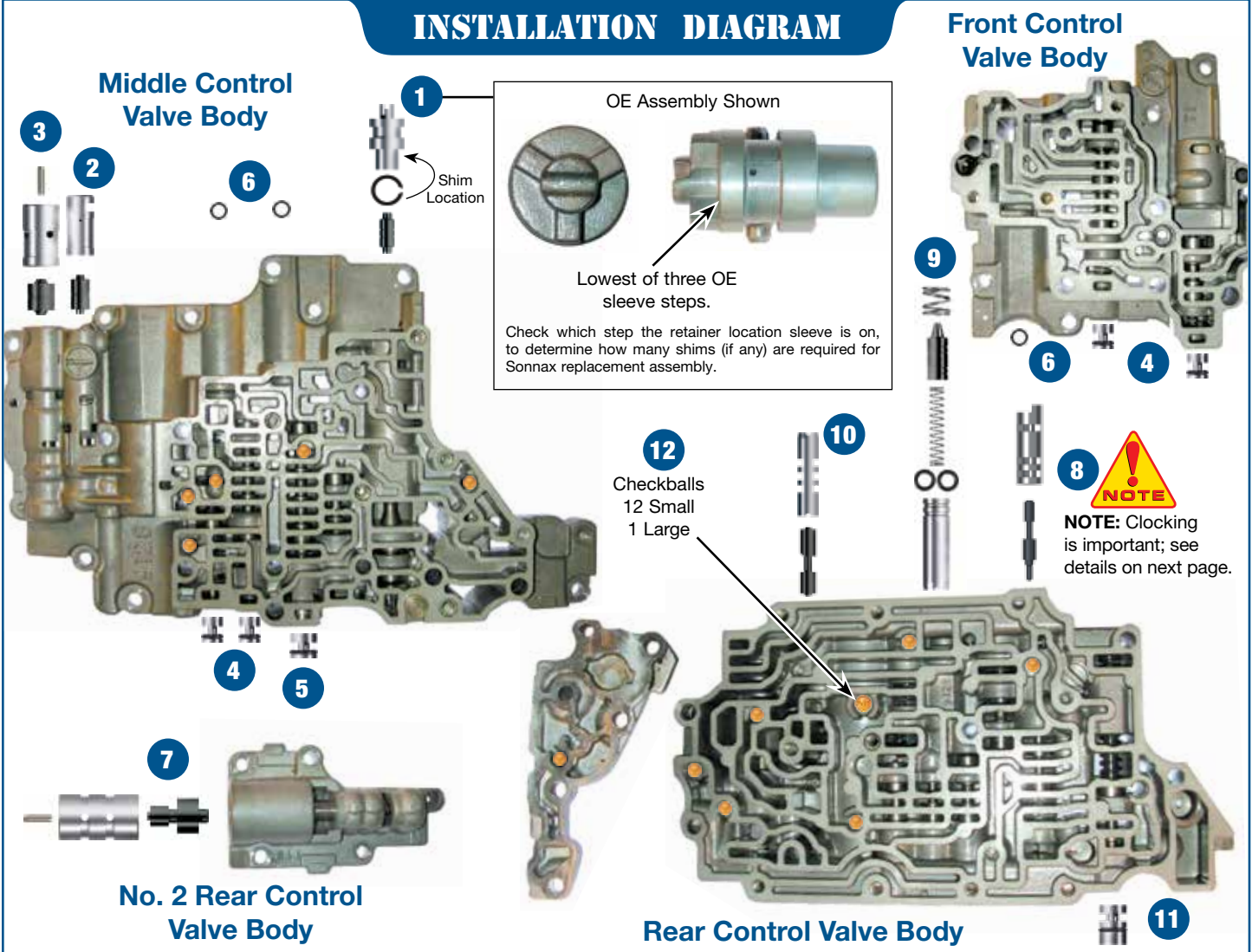
## Valve Body Identification

**NOTE:** This Zip Kit **AW60-41SN-ZIP** is designed for 60-41SN (AF-17) applications only. A separate Zip Kit **AW60-40LE-ZIP** is available for 60-40LE (AF-13) applications.



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

## INSTALLATION DIAGRAM



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.

# Zip Kit Contents & Installation Steps

## Step 1 Replace OE Reverse Boost Assembly

Observe the step location of the retainer on OE sleeve prior to removal. If set at the lowest step, do not use the Sonnax shims. If set at middle step, use one Sonnax shim. If set at the highest step, use two Sonnax shims. Shims should be placed on inboard sleeve diameter.

### Packaging Pocket 1

• Valve • Sleeve • Shims (3) 1 extra

## Step 2 Replace OE Accumulator Control Plunger Valve Assembly

### Packaging Pocket 2

• Valve • Sleeve

## Step 3 Replace OE B1 Modulator Plunger Valve Assembly

Discard OE retainer and use replacement pin to retain lineup.

### Packaging Pocket 3

• Valve • Sleeve • Retaining Pin

## Step 4 Replace OE End Plugs

Place O-rings in large groove, lubricate with Sonnax Slippery Stick **O-LUBE** and roll to size on bench. Install end plugs with O-ring outboard.

### Packaging Pocket 4

• End Plugs, Medium (4) • O-Rings, Medium (6) 2 extra

## Step 5 Replace OE End Plugs

Place O-rings in large groove, lubricate with Sonnax Slippery Stick **O-LUBE** and roll to size on bench. Install end plugs with O-ring outboard.

### Packaging Pocket 5

• End Plug, Large • O-Rings, Large (2) 1 extra

## Step 6 Replace OE Solenoid O-Rings

### Packaging Pocket 6

• O-Rings, Small (4) 1 extra

## Step 7 Replace OE TCC Control Plunger Valve Assembly

Discard OE retainer and use replacement pin to retain sleeve.

### Packaging Pocket 7

• Valve • Sleeve • Retaining Pin

## Step 8 Replace OE Lockup Relay Plunger Valve Assembly



**NOTE:** Clocking is important; when properly installed, sleeve ports face upward and endface protrusion to the left of the plate.

### Packaging Pocket 8

• Valve • Sleeve

## Step 9 Replace OE C1 Damper Piston Assembly

Place O-rings in the two sleeve grooves, lubricate with Sonnax Slippery Stick **O-LUBE** and roll to size on bench. Push into bore, O-ring end outboard. Place long, narrow spring into valve pocket. Push into installed sleeve, spring end first. Larger diameter spring functions as sleeve retainer.

### Packaging Pocket 9

• Valve • Sleeve • Springs (2) • O-Rings, Large (3) 1 extra

## Step 10 Rework OE C1 Control Assembly

Install Sonnax C1 control valve assembly into existing OE C1 control sleeve. Remove and discard OE valve. Install replacement assembly into OE sleeve tapered end (four notches) first. Ensure Sonnax valve has orificed spool at the blind-bottom end of the OE sleeve.

### Packaging Pocket 10

• Valve • Sleeve

**NOTE:** This sleeve is designed to be a slight/hand press fit-to-minimal slip fit into the OE sleeve.

## Step 11 Replace OE Secondary Regulator Valve End Plug

Place O-rings in large groove, lubricate with Sonnax Slippery Stick **O-LUBE** and roll to size on bench. Install end plugs with O-ring outboard.

### Packaging Pocket 11

• End Plug, Large • O-Rings, Large (2) 1 extra

## Step 12 Replace OE Checkballs

### Packaging Pocket 12

• Checkballs, Small .218" dia. (12) • Checkball, Large .250" dia.



# AISIN AW 60-41SN (AF-17) ZIP KIT

**PART NUMBER AW60-41SN-ZIP**

**INSTALLATION & TESTING BOOKLET**

Torque Specifications	
<b>Manual Shaft Detent Spring Bolt</b> 89 in-lb	<b>Manual Shift Shaft Detent Lever Bolts</b> 89 in-lb
<b>Manual Shift Shaft Retaining Nut</b> 61 in-lb	<b>Park/Neutral Position Switch Bolt</b> 18 ft-lb
<b>Transmission Speed Sensor Bolt</b> 48 in-lb	<b>Torque Converter Housing Bolts</b> 22 ft-lb
<b>Transmission Case Cover Bolts</b> 18 ft-lb	<b>Transmission Fluid Baffle Bolts</b> 48 in-lb
<b>Transmission Fluid Drain Plug</b> 29 ft-lb	<b>Transmission Fluid Pump Cover Bolt</b> 89 in-lb
<b>Transmission Fluid Pump-to-Case Bolt</b> 18 ft-lb	<b>Valve-Body-to-Case Bolts</b> 18 ft-lb

## Fluid Chart

**Recommended Capacities:** Toyota / GM T-IV ATF

<b>Approximate Capacity, Complete Overhaul</b> 7.6 qt (7.2L)	<b>Approximate Capacity, Drain and Fill</b> 4.2 qt (4.0L)
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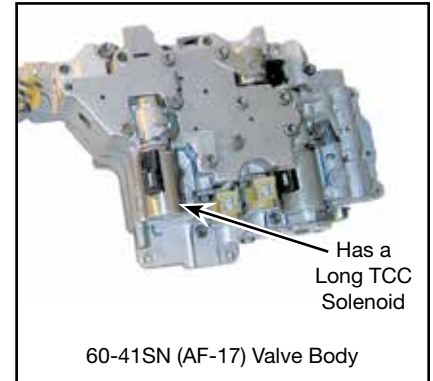
## Component Apply Chart

Position	Clutch				Brake		1-Way Clutch	
	C0	C1	C2	C3	B1	B2	F0	F1
<b>P</b>				X				
<b>R &lt;= 7 mph</b>			X	X		X		
<b>R &gt; 7 mph</b>			X	X				
<b>N</b>				X				
<b>D</b>	<b>1</b>		X	X			X	X
	<b>2</b>		X	X	X		X	
	<b>N Cont.</b>		X	X	X		X	
	<b>3</b>	X	X	X			X	
	<b>4</b>	X	X		X			
<b>3</b>	<b>1</b>		X	X			X	X
	<b>2</b>		X	X	X		X	
	<b>3</b>	X	X	X			X	
	<b>4</b>	X	X		X			
<b>2</b>	<b>1</b>		X	X			X	X
	<b>2</b>		X	X	X		X	
	<b>(3rd)</b>	X	X	X			X	
<b>1</b>	<b>1</b>		X	X		X	X	X
	<b>(2nd)</b>		X	X	X		X	

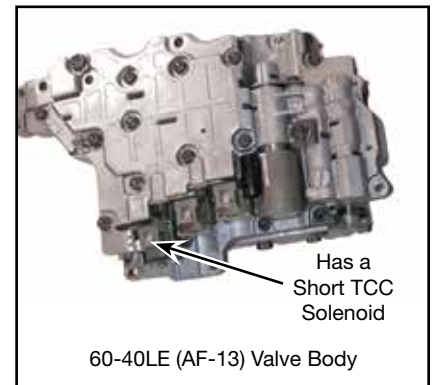
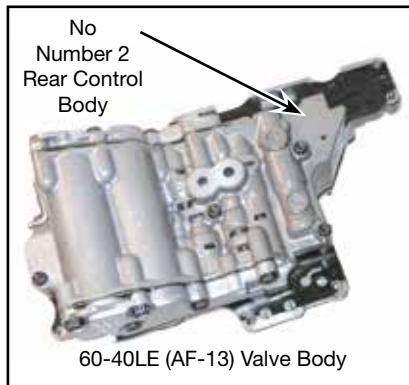
**NOTE:** This Zip Kit **AW60-41SN-ZIP** is designed for 60-41SN (AF-17) applications only. A separate Zip Kit **AW60-40LE-ZIP** is available for 60-40LE (AF-13) applications.

## Valve Body Identification

**60-41SN (AF-17) Valve Body: Use this kit.**



**60-40LE (AF-13) Valve Body: Use AW60-40LE-ZIP kit.**





# Electronic Cautions

## Performance Modes

The transmission control module (TCM) programming allows the driver to select among various modes for enhanced performance based upon driving conditions. The TCM itself has the capability to change modes automatically when specific conditions are met. These modes will alter shift feel, and could be confused with shift problems by the driver if they are unaware of the TCM programming.

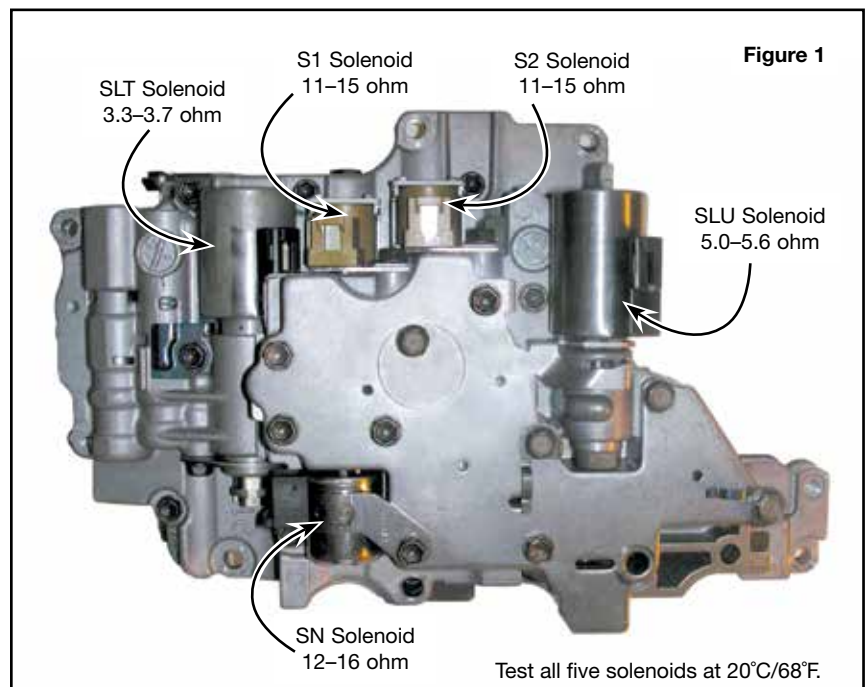
- **Economy Mode/Power Mode** The transmission is programmed to start and operate in Economy Mode. This shift strategy sets the shift points to occur at a lower speed than Power Mode to maximize fuel economy. The TCM will automatically switch to Power Mode when the driver accelerates more aggressively (higher engine load), or at higher speed, maximizing performance.
- **Winter Mode** is activated by the driver by a switch on the shifter. This mode starts the vehicle in 3rd gear to reduce tire slip on icy/slippery roads. Once the vehicle is moving, the TCM will automatically shift to the appropriate gear. Shifting into manual 1st or 2nd will cancel Winter Mode.
- **Neutral Control** is automatically activated by the TCM if the vehicle is in Drive and comes to a stop for longer than 2 seconds with the brakes applied. This condition allows the C1 (forward clutch) to be disengaged, placing the vehicle in Neutral, for improved fuel economy. When the brake is released, the C1 clutch is automatically applied and the vehicle will take off in 1st gear.
- **Hill Hold** The TCM monitors vehicle speed to determine if the driver is coming to a stop on a hill. If so, the TCM will automatically apply the B1 (2/4 brake) to prevent vehicle rolling. Upon takeoff, the B1 brake is released, and the vehicle moves forward in 1st gear. The TCM will disable Neutral Control if Hill Hold is activated.

Position		Solenoid			
		S1	S2	SN	SLU
<b>P</b>		X			
<b>R</b>	<= 7 mph	X			
<b>R</b>	> 7 mph		X		
<b>N</b>		X			
<b>D</b>	1	X			
	2	X	X		
	N Cont.	X	X	X	
	3		X		X
<b>3</b>	4				X
	1	X			
	2	X	X		
	3		X		X
<b>2</b>	4				X
	1	X			
	2	X	X		
<b>1</b>	(3rd)		X		X
	1	X			
	(2nd)	X	X		

# Solenoids

This 60-41SN unit uses five solenoids (**Figure 1**).

- The S1 solenoid is an on/off style, operated by the TCM to control the 2-3 shift.
- The S2 solenoid is an on/off style, operated by the TCM to control the 1-2 and 3-4 shifts.
- The SN solenoid is an on/off style, operated by the TCM to operate Neutral Control.
- The SLU linear solenoid is pulse width modulated by the TCM to operate the converter clutch.
- The SLT linear solenoid is modulated by the TCM to regulate line pressure.



# Zip Kit Instructions

## 1. Valve Body Disassembly

**NOTE:** See color charts for bolt lengths.

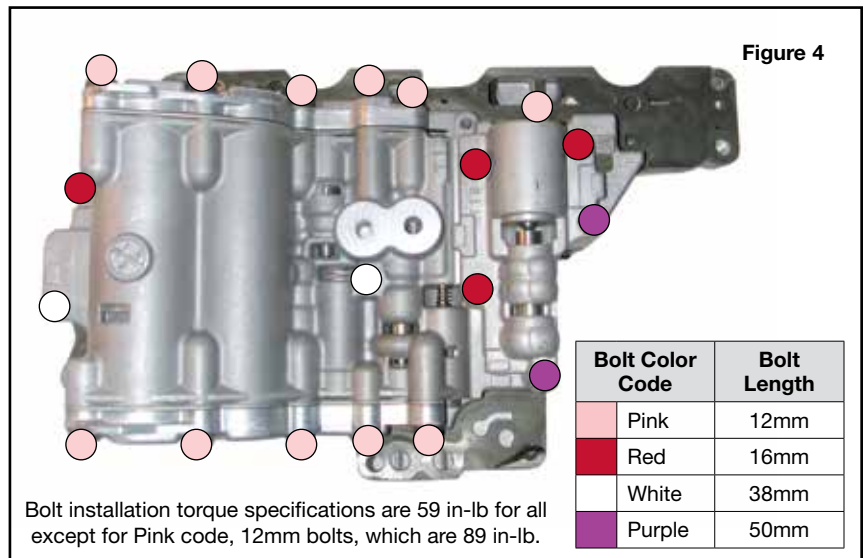
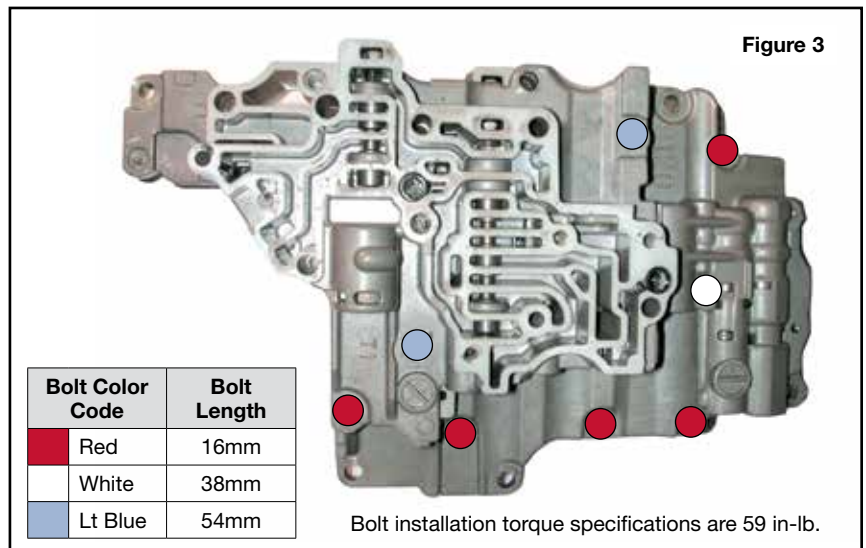
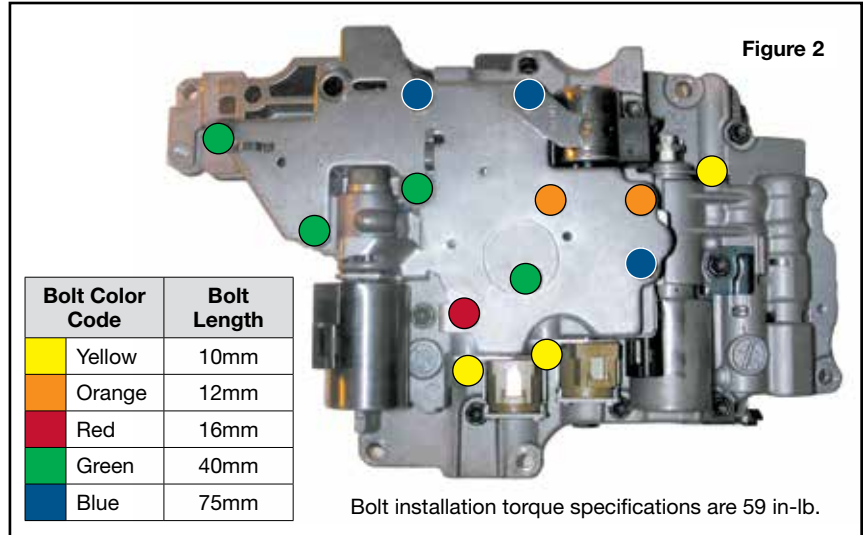
- Remove the 13 bolts (**Figure 2**).
- Remove the five solenoids (**Figure 2**).
- Remove the eight bolts (**Figure 3**).
- Remove the central (non-pink-coded) bolts (**Figure 4**). The two rear valve body covers can be removed to access bore components by removing the 11 cover bolts (pink-coded).

## 2. Installation

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

## 3. Valve Body Assembly

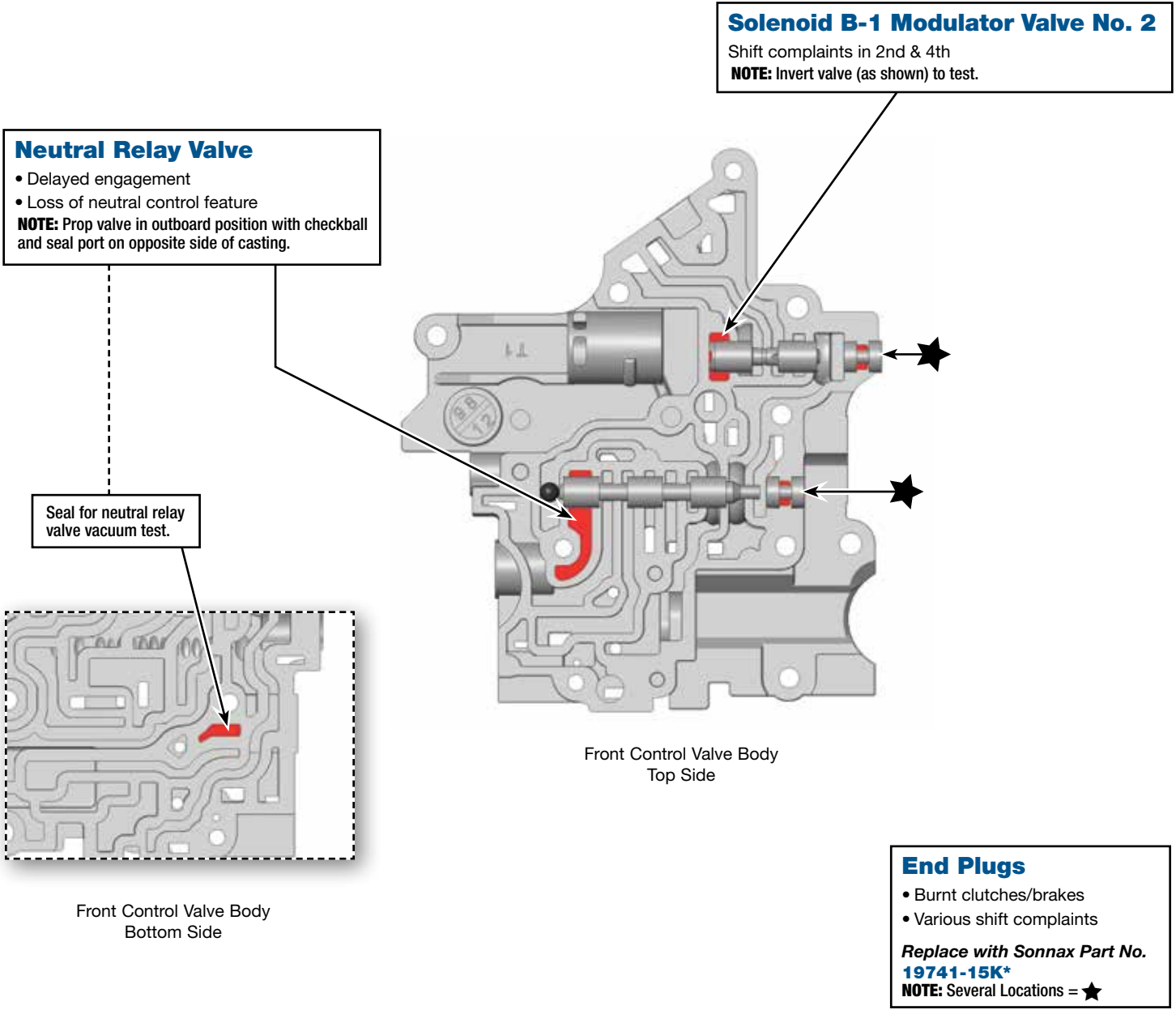
- Loosely install the central (non-pink-coded) bolts (**Figure 4**), then torque to 59 in-lb. The 11 cover bolts (pink-coded) should be torqued to 89 in-lb.
- Loosely install the eight bolts (**Figure 3**), then torque to 59 in-lb.
- Reinstall the five solenoids (**Figure 2**).
- Loosely install the 13 bolts (**Figure 2**), then torque to 59 in-lb.



## 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.

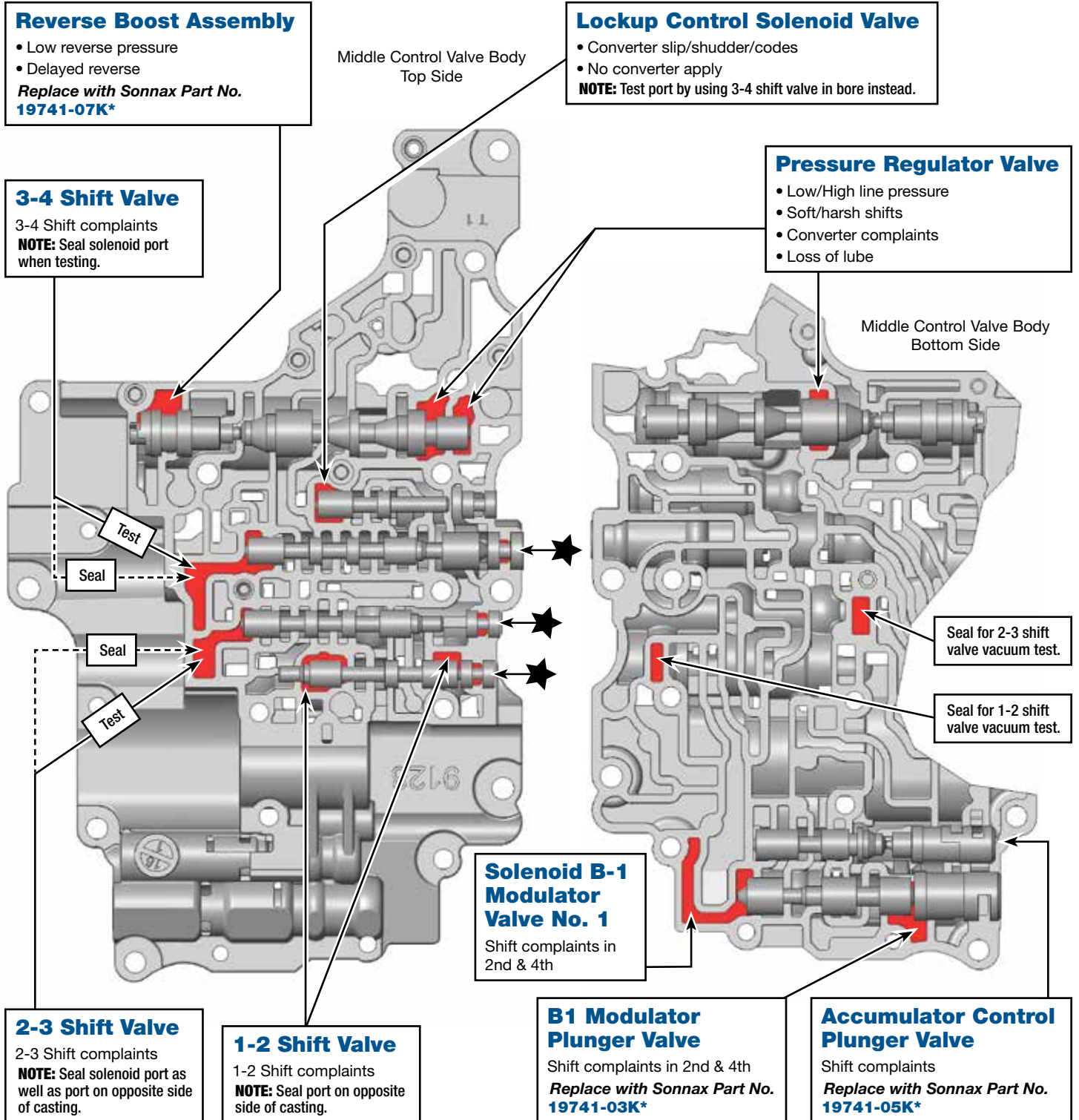
### Front Control Valve Body - Top Side (Bottom Side Inset) Shown Here



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



**Middle Control Valve Body - Top & Bottom Sides Shown Here**



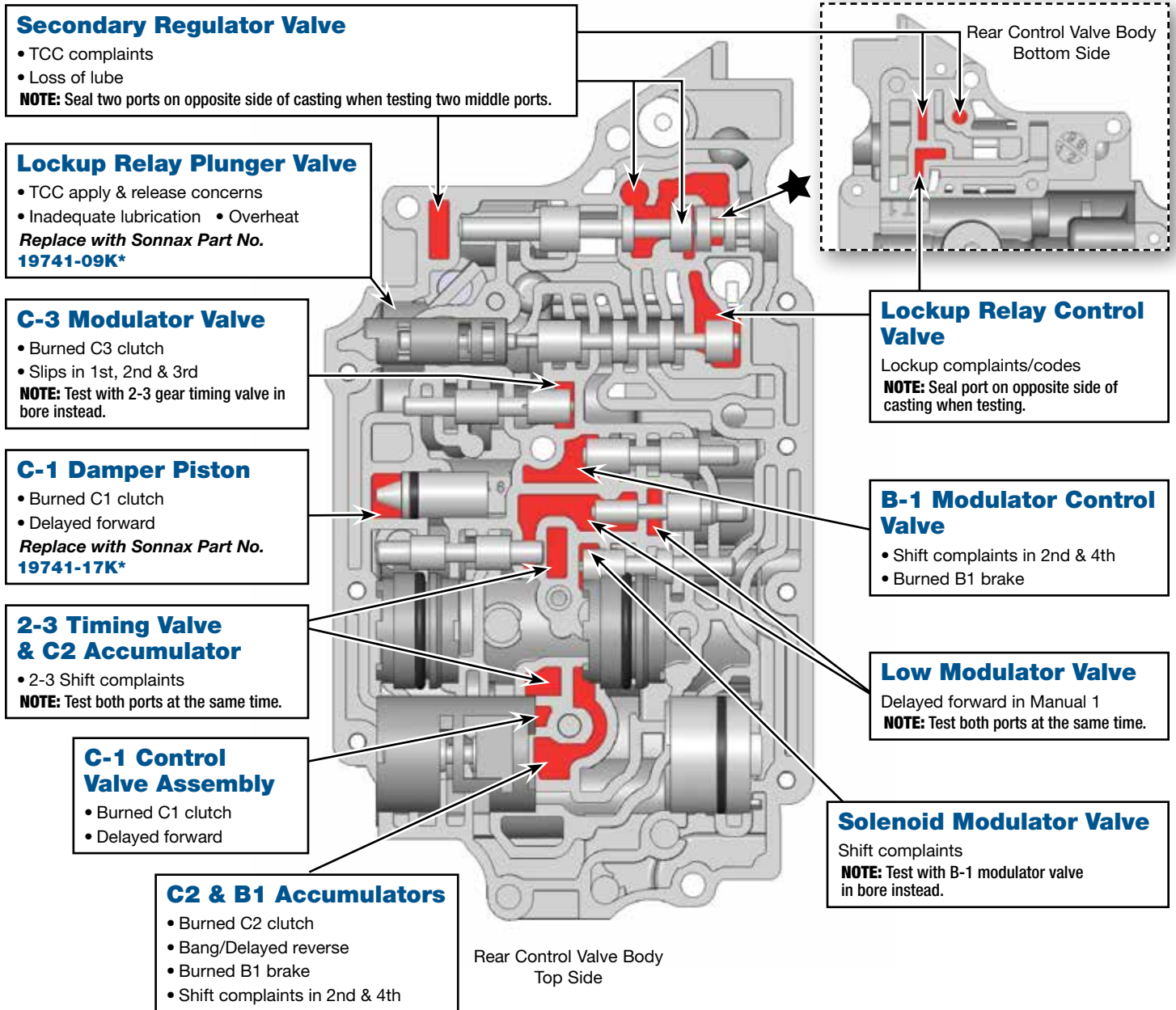


# Critical Wear Areas & Vacuum Test Locations

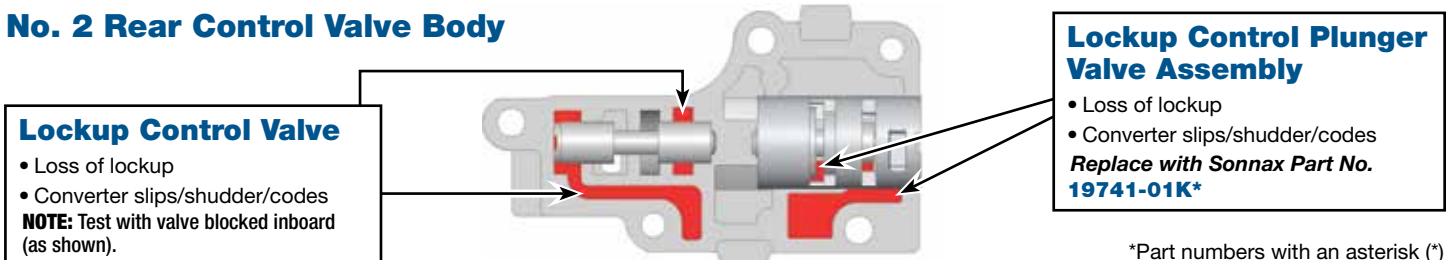


**NOTE:** OE valves are shown in rest position and should be tested in rest position unless otherwise indicated. Test locations are pointed to with an arrow. Springs are not shown for visual clarity. Low vacuum reading indicates wear.

## Rear Control Valve Body - Top Side (Bottom Side Inset) Shown Here



## No. 2 Rear Control Valve Body



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

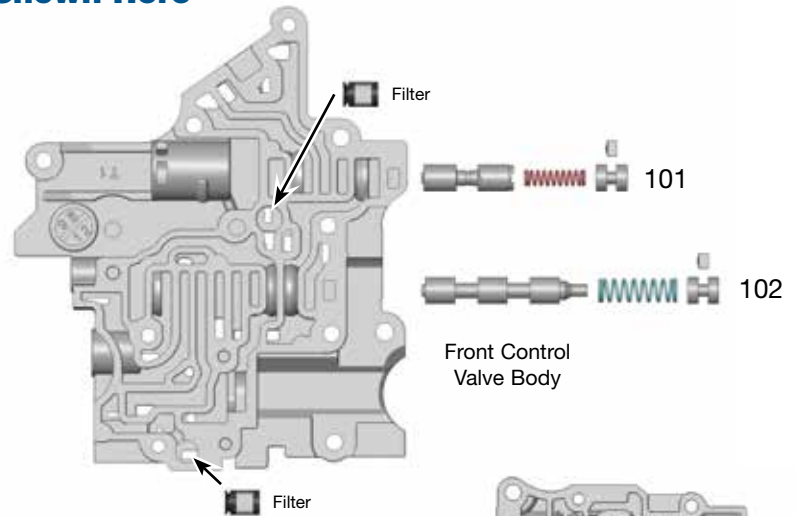


# OE Exploded View

## Front & Middle Control Valve Bodies Shown Here

### Front Control Valve Body Descriptions

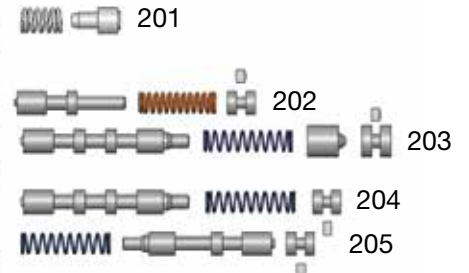
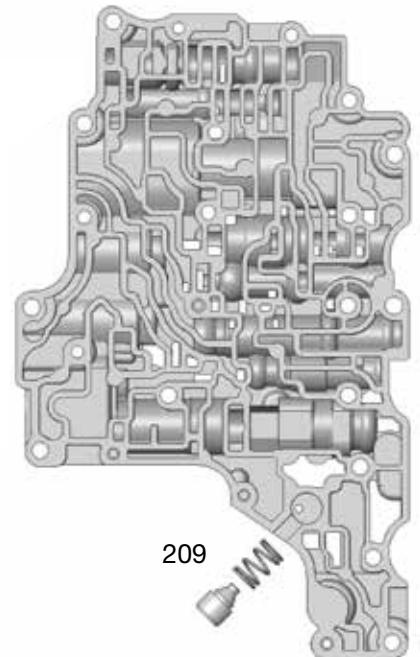
I.D. No.	Description
101	Solenoid B-1 Modulator Valve No. 2
102	Neutral Relay Valve



### Middle Control Valve Body Descriptions

I.D. No.	Description
201	Pressure Relief Valve
202	Lockup Control Solenoid Valve
203	3-4 Shift Valve
204	2-3 Shift Valve
205	1-2 Shift Valve
206	Solenoid B-1 Modulator Valve No.1
207	Accumulator Regulator Valve and Plunger Valve Assembly
208	Primary Regulator Valve & Reverse Boost Assembly
209	Pressure Relief Valve

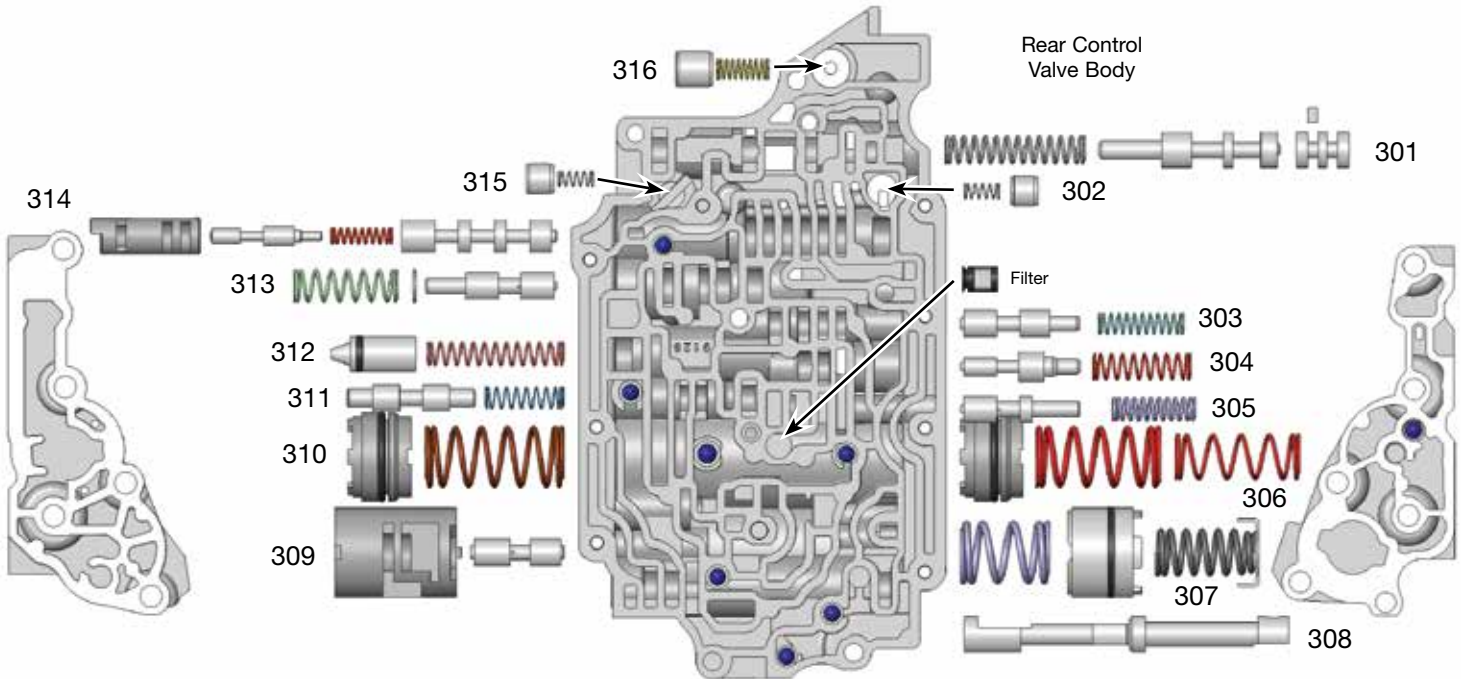
Middle Control Valve Body (Bottom Side)



Middle Control Valve Body (Front Side)

# OE Exploded View

Rear & No. 2 Rear Control Valve Bodies Shown Here



Rear Control Valve Body Descriptions	
I.D No.	Description
301	Secondary Regulator Valve
302	Check Valve
303	B-1 Modulator Control Valve
304	Low Modulator Valve
305	Solenoid Modulator Valve
306	C-2 Accumulator
307	B-1 Accumulator
308	Manual Valve
309	C-1 Control Valve Assembly
310	C-0 Accumulator
311	2-3 Timing Valve
312	C-1 Damper Piston
313	C-3 Modulator Valve
314	Lockup Relay Control Valve & Plunger Assembly
315	Check Valve
316	Check Valve



No. 2 Rear Control Valve Body Descriptions	
I.D. No.	Description
401	TCC Control Valve & Plunger Valve Assembly