

2006 Chevrolet Corvette Z06

2006 TRANSMISSION Automatic Transmission - 6L80 - Overhaul - Corvette

2006 TRANSMISSION**Automatic Transmission - 6L80 - Overhaul - Corvette****SPECIFICATIONS****FASTENER TIGHTENING SPECIFICATIONS****Fastener Tightening Specifications**

Application	Ref No.	Quantity	Size	Specification	
				Metric	English
Case Extension Stud to Case Extension	17	2	M10x1.5	15 N.m	11 lb ft
Case Extension to Case Assembly	16	6	M10x1.5x40	50 N.m	37 lb ft
Control Solenoid Valve Assembly and Control Valve Lower Body Assembly to Control Valve Upper Body Assembly	310	6	M5x0.8x55	8 N.m	71 lb in
Control Solenoid Valve Assembly and Control Valve Lower Body Assembly to Control Valve Upper Body Assembly	309	10	M5x0.8x45	8 N.m	71 lb in
Control Solenoid Valve Heat Sink to Valve Body	312	2	M5x0.8x53	8 N.m	71 lb in
Control Valve Upper Body Assembly to Control Valve Lower Body Assembly	301	12	M5x0.8x36	8 N.m	71 lb in
Control (with Body and Valve) Valve Assembly to Case Assembly	22	6	M5x0.8x73	8 N.m	71 lb in
Fluid Pan Assembly to Case Assembly	30	18	M6x1.0x20	9 N.m	80 lb in
Trans Oil Level Check Plug to Fluid Pan Assembly	31	1	M12x1.75	25 N.m	18 lb ft
Fluid Pump Cover Assembly to Torque Converter Housing	231	13	M6 1.0x40	11 N.m	97 lb in
Input and Output Speed					

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Sensor Assembly to Control Valve Upper Body Assembly	302	2	M6x1.0x20	12 N.m	106 lb in
Line Pressure Test Hole Plug to Torque Converter Housing	202	1	1/8-27 NPTF	11 N.m	97 lb in
Manual Shaft Detent Assembly to Valve Body	23	1	M6x1.0x14.5	12 N.m	106 lb in
Torque Converter Housing Assembly to Case Assembly	3	9	M10x1.5x50	72 N.m	53 lb ft
*Reference number refers to the component callout number in Disassembled Views					

TRANSMISSION GENERAL SPECIFICATIONS**Transmission General Specifications**

Name	6L80
RPO Codes	MYC
Production Location	Ypsilanti, Michigan (USA)
Transmission Drive	Rear Wheel Drive
1st Gear Ratio	4.027
2nd Gear Ratio	2.364
3rd Gear Ratio	1.532
4th Gear Ratio	1.152
5th Gear Ratio	0.852
6th Gear Ratio	0.667
Reverse	3.064
Torque Converter Size - Diameter of Torque Converter Turbine	258/300 mm
Pressure Taps	Line Pressure
Transmission Fluid Type	DEXRON VI®
Transmission Type: 6	Six Forward Gears
Transmission Type: L	Longitude Mount
Transmission Type: 80	Product Series
Position Quadrant	P, R, N, D, S (some models)
Case Material	Die Cast Aluminum
Transmission Net Weight - Approximate	100 kg (220 lb)
Maximum Trailer Towing Capacity	Refer to applicable owner's manual

FLUID CAPACITY SPECIFICATIONS**Fluid Capacity Specifications**

	Specification
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Application	Metric	English
Pan Removal - Approximate Capacity	6.2 liters	6.5 quarts
Overhaul - Approximate Capacity (STSV/XLRV)	9.5 liters	10 quarts
Overhaul - Approximate Capacity (Corvette)	11.8 liters	12.5 quarts
Complete Trans System Fluid Capacity (STSV)	10.01 liters	10.58 quarts
Complete Trans System Fluid Capacity (XLRV)	10.32 liters	10.91 quarts
Complete Trans System Fluid Capacity (Corvette)	12.53 liters	13.24 quarts

FLUID PUMP SELECTIVE SPECIFICATIONS**Fluid Pump Selective Specifications**

Size Classification	Thickness (mm)	Thickness (in)
IMPORTANT:		
• Rotor and slide must be chosen from the same size classification as the oil pump body. • Allowable rotor and slide to fluid pump body end play is as follows:		
Specification:		
○ Slide to Fluid Pump Body End Play - 0.020-0.051 mm (0.0008-0.0020 in) ○ Rotor to Fluid Pump Body End Play - 0.020-0.051 mm (0.0008-0.0020 in)		
The fluid pump assembly has selective rotor and slide components. These components are chosen based on pump body dimensions. Fluid pump rotor and slide components are available in three size classifications (1, 2, 3) with the following tolerances:		
Rotor Selection		
1	17.948-17.961	0.7066-0.7071
2	17.961-17.974	0.7071-0.7076
3	17.974-17.987	0.7076-0.7081
Slide Selection		
1	17.948-17.961	0.7066-0.7071
2	17.961-17.974	0.7071-0.7076
3	17.974-17.987	0.7076-0.7081
Fluid Pump Body Depth		
1	17.98-17.994	0.7079-0.7084
2	17.994-18.007	0.7084-0.7089
3	18.007-18.033	0.7089-0.7100

CLUTCH BACKING PLATE RETAINING RING SPECIFICATIONS**3-5 Reverse Clutch**

Clutch Pack Travel Specification - 1.21-1.79 mm (0.048-0.070 in)		
Retaining Ring Thickness		O.D. Color
Metric	English	

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IMPORTANT:

After measuring clutch pack travel, determine if the measurement is within the specification. If the measurement is not within the specification, measure the thickness of the existing retaining ring, and then choose a thicker or thinner retaining ring that will bring the measurement within specification.

1.61-1.71 mm	0.063-0.067 in	Gray
1.88-1.98 mm	0.074-0.078 in	Light Green
2.15-2.25 mm	0.085-0.089 in	Yellow
2.42-2.52 mm	0.095-0.099 in	None
2.69-2.79 mm	0.106-0.110 in	Purple

1-2-3-4 Clutch

Clutch Pack Travel Specification - 1.53-1.99 mm (0.060-0.078 in)		
Retaining Ring Thickness		O.D. Color
Metric	English	
IMPORTANT: After measuring clutch pack travel, determine if the measurement is within the specification. If the measurement is not within the specification, measure the thickness of the existing retaining ring, and then choose a thicker or thinner retaining ring that will bring the measurement within specification.		
2.15-2.25 mm	0.085-0.089 in	Yellow
2.42-2.52 mm	0.095-0.099 in	None
2.69-2.79 mm	0.106-0.110 in	Purple
2.96-3.06 mm	0.117-0.120 in	Light Blue
3.23-3.33 mm	0.127-0.131 in	Orange

4-5-6 Clutch

Clutch Pack Travel Specification - 1.28-1.89 mm (0.050-0.074 in)		
Retaining Ring Thickness		O.D. Color
Metric	English	
IMPORTANT: After measuring clutch pack travel, determine if the measurement is within the specification. If the measurement is not within the specification, measure the thickness of the existing retaining ring, and then choose a thicker or thinner retaining ring that will bring the measurement within specification.		
1.60-1.70 mm	0.063-0.067 in	Yellow
2.02-2.12 mm	0.080-0.083 in	None
2.44-2.54 mm	0.096-0.100 in	Purple

COMPONENT LOCATOR

DISASSEMBLED VIEWS

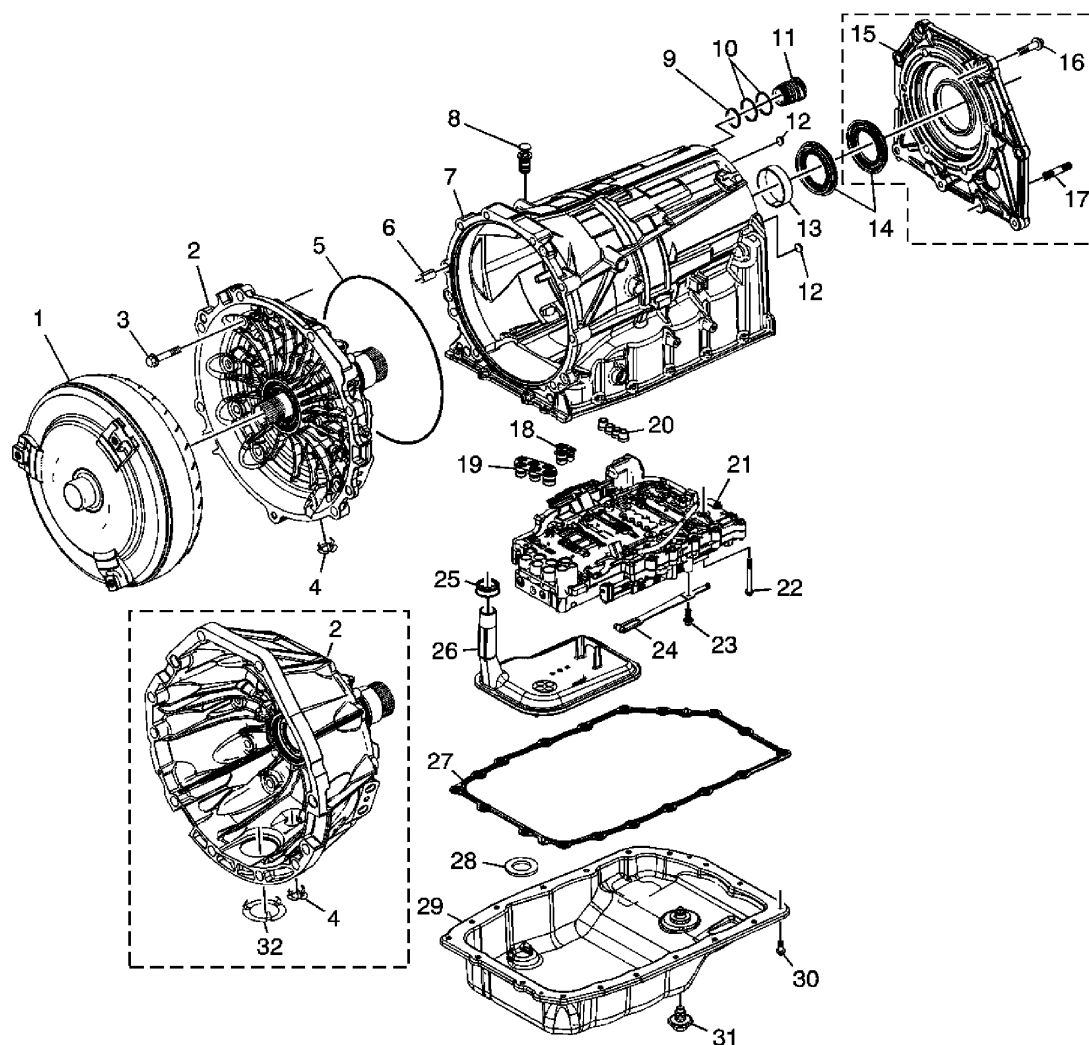


Fig. 1: Case and Associated Parts

Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
1	Torque Converter Assembly
2	Torque Converter (with Fluid Pump) Housing Assembly - Model Dependent
3	Bolt, M10 x 50 mm
4	Torque Converter Housing Access Hole Cover - Model Dependent
5	A/Trans Fluid Pump Seal
6	Torque Converter Housing Locator Pin
7	A/Trans Case Assembly
8	Transmission Fluid Fill Tube Plug Assembly
9	A/Trans Connector Seal
10	A/Trans Connector (O-ring) Seal

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11	A/Trans Electrical Connector Passage Sleeve
12	A/Trans Case Plug
13	Output Shaft Bushing
14	Output Shaft Seal Assembly
15	A/Trans Case Extension - Model Dependent
16	Bolt, M10 x 40 mm - Model Dependent
17	A/Trans Case Extension Stud - Model Dependent
18	A/Trans Fluid Pump Seal Assembly
19	A/Trans Fluid Pump Seal Assembly
20	Center Support Fluid Passage Seal Assembly
21	Control (with Body and Valve) Valve Assembly
22	Bolt, M5 x 73 mm
23	Bolt, M6 x 14.5 mm
24	Manual Shaft Detent Assembly
25	A/Trans Fluid Filter Seal Assembly
26	A/Trans Fluid Filter Assembly
27	A/Trans Fluid Pan Gasket
28	A/Trans Fluid Pan Magnet
29	A/Trans Fluid Pan Assembly
30	Bolt, M6 x 20 mm
31	Trans Oil Level Check Plug
32	Torque Converter Housing Access Hole Cover - Model Dependent

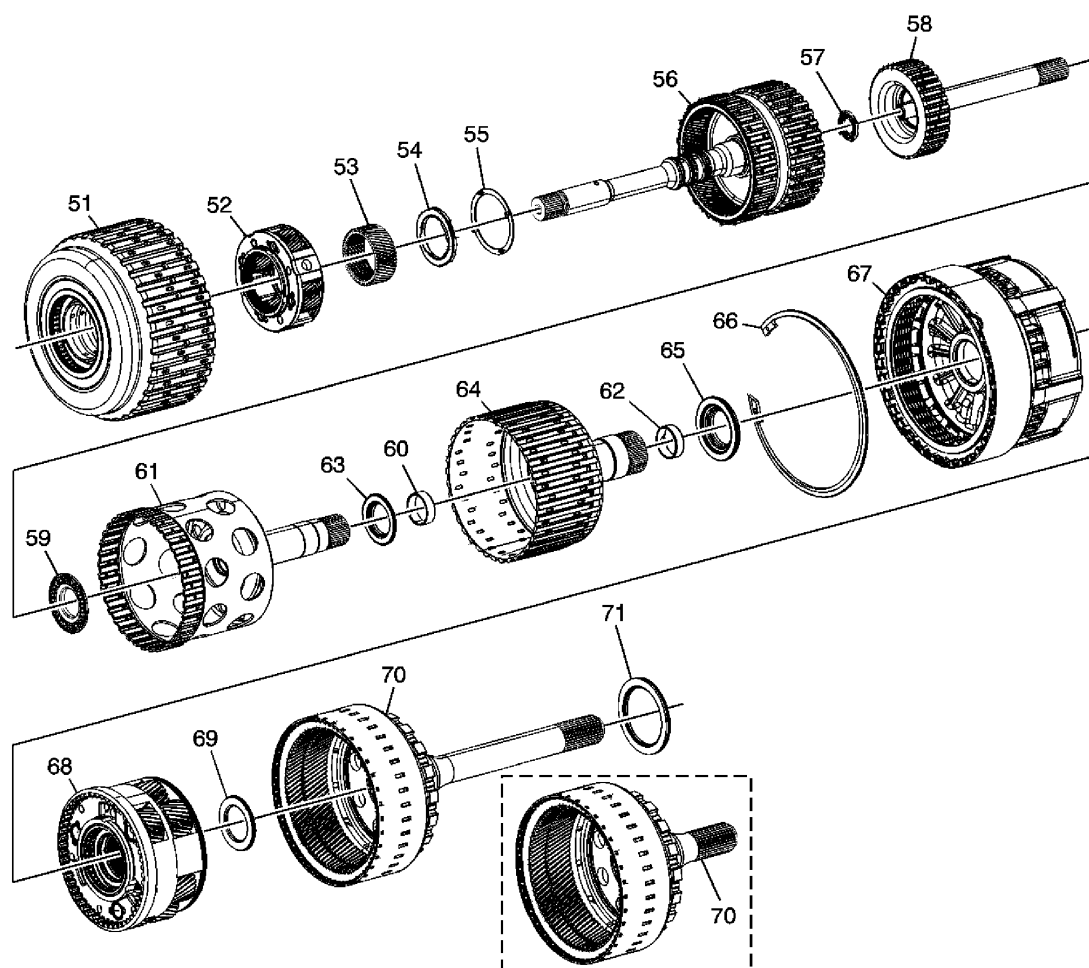


Fig. 2: Clutch Assemblies and Associated Parts
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
51	1-2-3-4 and 3-5 Reverse Clutch Assembly
52	Input Carrier Assembly
53	Input Sun Gear
54	Input Sun Gear Thrust Bearing
55	Input Sun Gear Thrust Washer
56	4-5-6 (w/ Turbine Shaft) Clutch Assembly
57	Turbine Shaft Thrust Bearing Assembly
58	4-5-6 Clutch (w/ Output Carrier Shaft and Dampener) Hub Assembly
59	4-5-6 Clutch Hub Thrust Bearing Assembly
60	Output Carrier Inner Sun Gear Shaft (Front) Bushing
61	1-2-3-4 Clutch (w/ Output Carrier Inner Sun Gear Shaft) Hub Assembly
62	Output Carrier Inner Sun Gear Shaft Bushing

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63	1-2-3-4 Clutch Hub Thrust Bearing Assembly
64	2-6 and 3-5 Reverse Clutch (w/ Output Carrier Outer Sun Gear Shaft) Hub Assembly
65	2-6 and 3-5 Reverse Clutch Hub Thrust Bearing Assembly
66	Center Support Retaining Ring
67	Center (w/ 2-6 Low and Reverse Clutch) Support Assembly
68	Output Carrier Assembly
69	Output Carrier Thrust Bearing Assembly
70	Output Shaft Assembly - Model Dependent
71	Output Shaft Thrust Bearing Assembly

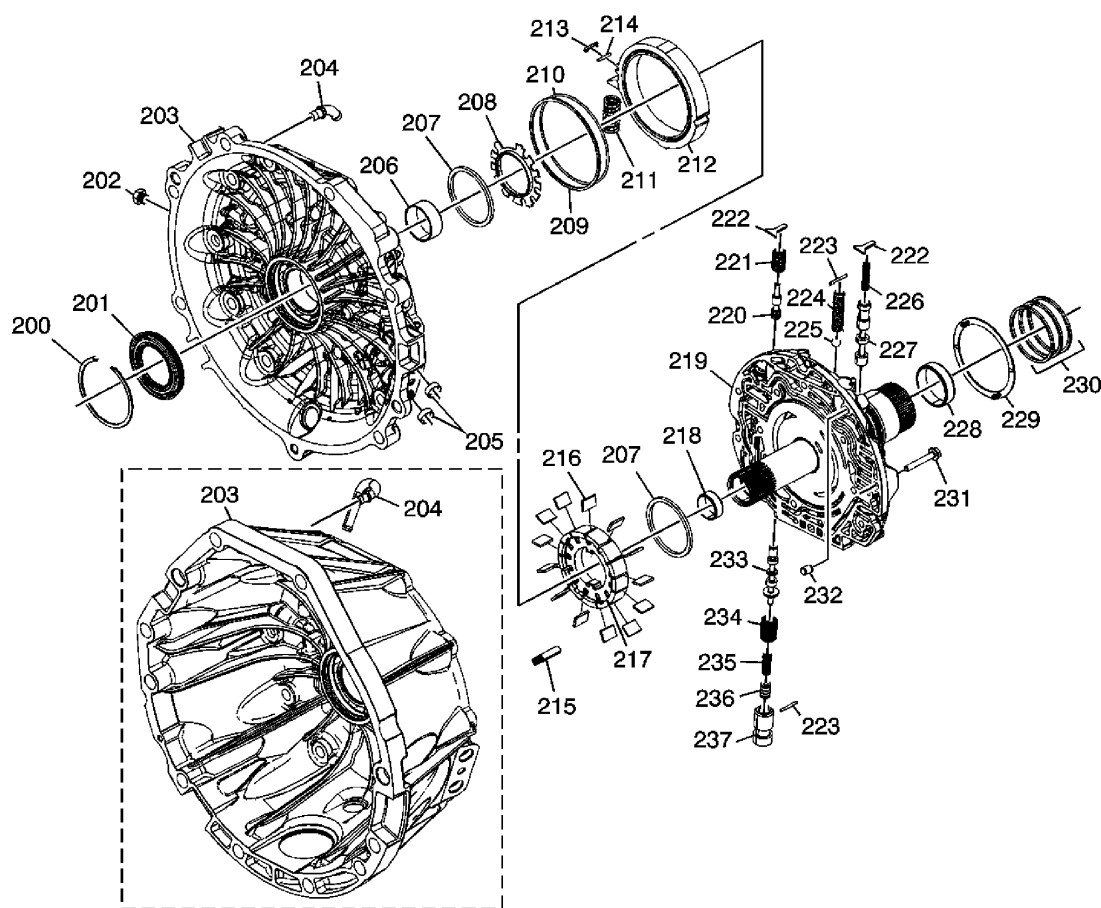


Fig. 3: Torque Converter (w/Fluid Pump) Housing Assembly
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
200	Torque Converter Fluid Seal Retaining Ring
201	Torque Converter Fluid Seal Assembly
202	Line Pressure Test Hole Plug

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203	Torque Converter Housing - Model Dependent
204	A/Trans Vent Pipe - Model Dependent
205	Trans Fluid Cooler Pipe Fitting Seal
206	Torque Converter Bushing
207	A/Trans Fluid Pump Vane Ring
208	A/Trans Fluid Pump Rotor Guide
209	A/Trans Fluid Pump Slide Fluid Seal Ring
210	A/Trans Fluid Pump Slide (O-ring) Seal
211	A/Trans Fluid Pump Slide Outer Spring
212	A/Trans Fluid Pump Slide
213	A/Trans Fluid Pump Slide Seal
214	A/Trans Fluid Pump Slide Seal Support
215	A/Trans Fluid Pump Slide Pivot Pin
216	A/Trans Fluid Pump Vane
217	A/Trans Fluid Pump Rotor
218	Turbine Shaft Front Bushing
219	A/Trans Fluid Pump Cover Assembly
220	Converter Feed Limit Valve
221	Converter Feed Limit Valve Spring
222	Valve Spring Retainer
223	Pressure Relief Ball Valve Spring Pin
224	Pressure Relief Ball Valve Spring
225	Pressure Relief Ball Valve
226	TCC Control Valve Spring
227	TCC Control Valve
228	Turbine Shaft Rear Bushing
229	1-2-3-4 and 3-5 Reverse Clutch Housing Thrust Washer
230	1-2-3-4 and 3-5 Reverse Clutch Fluid Seal Ring
231	Bolt, M6 x 40 mm
232	A/Trans Fluid Pump Locator Pin
233	Pressure Regulator Valve
234	Pressure Regulator Valve Outer Spring
235	Pressure Regulator Valve Inner Spring
236	Isolator Valve
237	Isolator Valve Sleeve

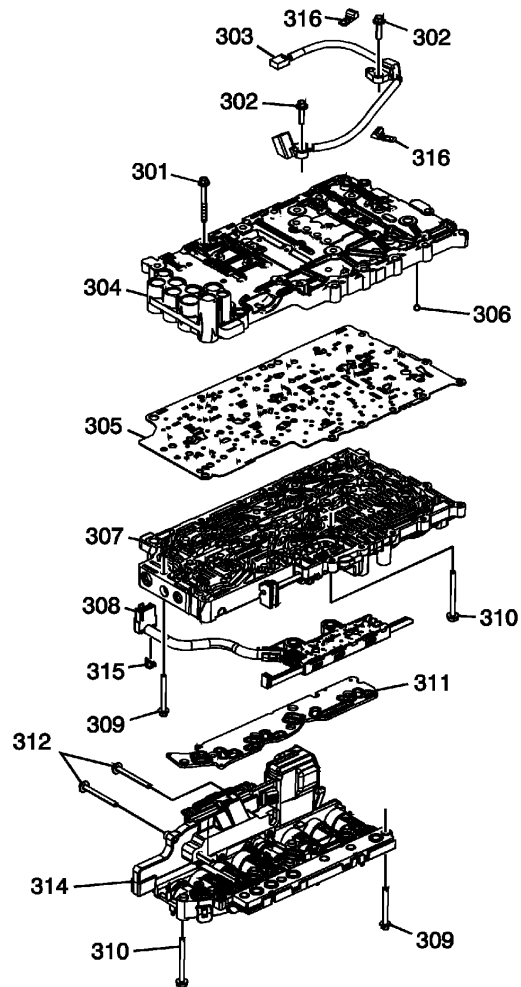


Fig. 4: Control (with Body and Valve) Valve Assembly
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
301	Bolt, M5 x 36 mm
302	Bolt, M6 x 20 mm
303	A/Trans Input and Output Speed Sensor Assembly
304	Control Valve Upper Body Assembly
305	Control Valve Body Spacer (w/ Gasket) Plate Assembly
306	Control Valve Body Ball Check Valve
307	Control Valve Lower Body Assembly
308	A/Trans Manual Shift Shaft Position Switch Assembly
309	Bolt, M5 x 45 mm
310	Bolt, M5 x 55 mm
311	Filter Plate Assembly
312	Bolt, M5 x 53 mm
314	Control Solenoid (w/ Body and TCM) Valve Assembly

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315	A/Trans Manual Shaft Position Switch Wiring Harness Clip
316	A/Trans Input and Output Speed Sensor Wiring Harness Clip

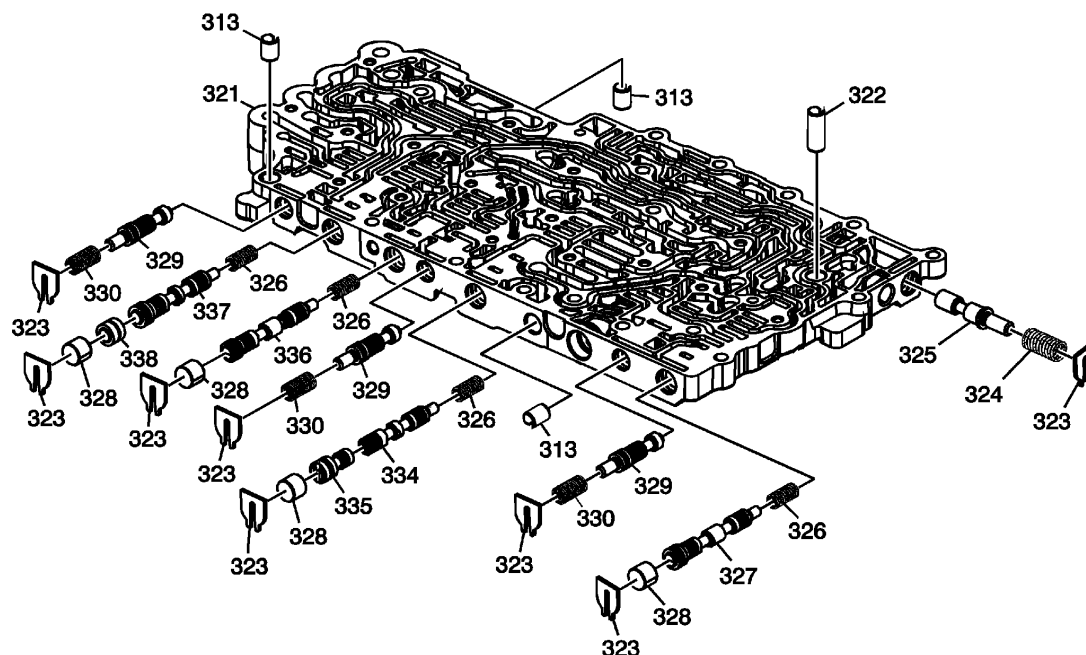


Fig. 5: Upper Control Valve Body Assembly
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
313	Control Valve Body Locator Pin
321	Control Valve Upper Body
322	Control Valve Body Locator Pin
323	Retainer
324	Actuator Feed Limit Valve Spring
325	Actuator Feed Limit Valve
326	Clutch Regulator Valve Spring
327	1st/Reverse Band and 4-5-6 Clutch Regulator Valve
328	Clutch Regulator Valve Bore Plug
329	Clutch Boost Valve
330	Clutch Boost Valve Spring
334	2-6 Clutch Regulator Valve
335	2-6 Clutch Regulator Valve Gain Valve
336	3-5 Reverse Clutch Regulator Valve
337	1-2-3-4 Clutch Regulator Valve
338	Shuttle Valve

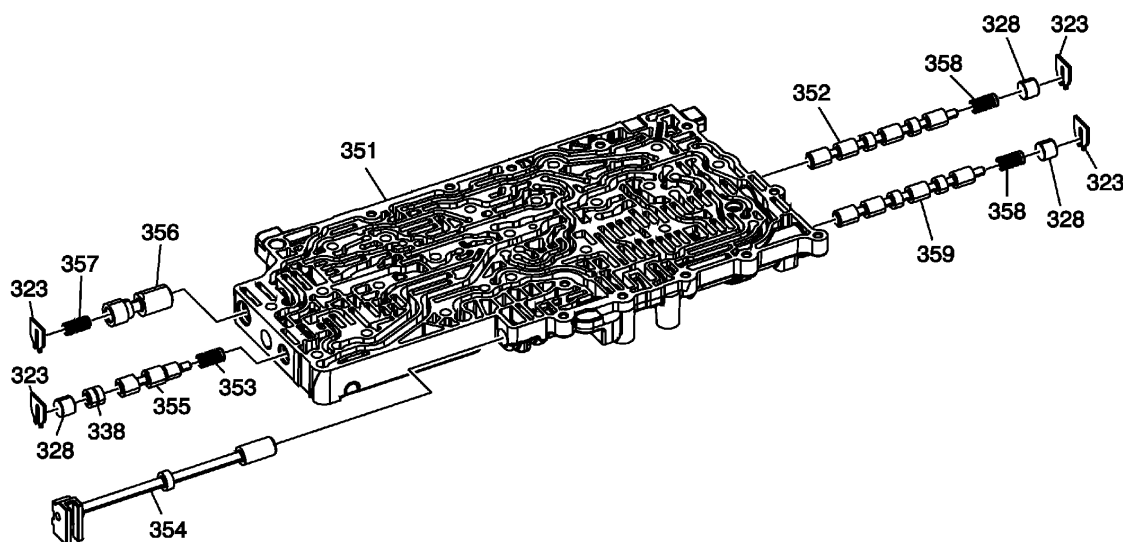


Fig. 6: Lower Control Valve Body Assembly
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
323	Retainer
328	Clutch Regulator Valve Bore Plug
338	Shuttle Valve
351	Control Valve Lower Body
352	Clutch Select Solenoid Valve
353	Clutch Select Solenoid Valve Spring
354	Manual Valve
355	TCC Regulator Apply Valve
356	Clutch Piston Dam Feed Regulator Valve
357	Clutch Piston Dam Feed Regulator Valve Spring

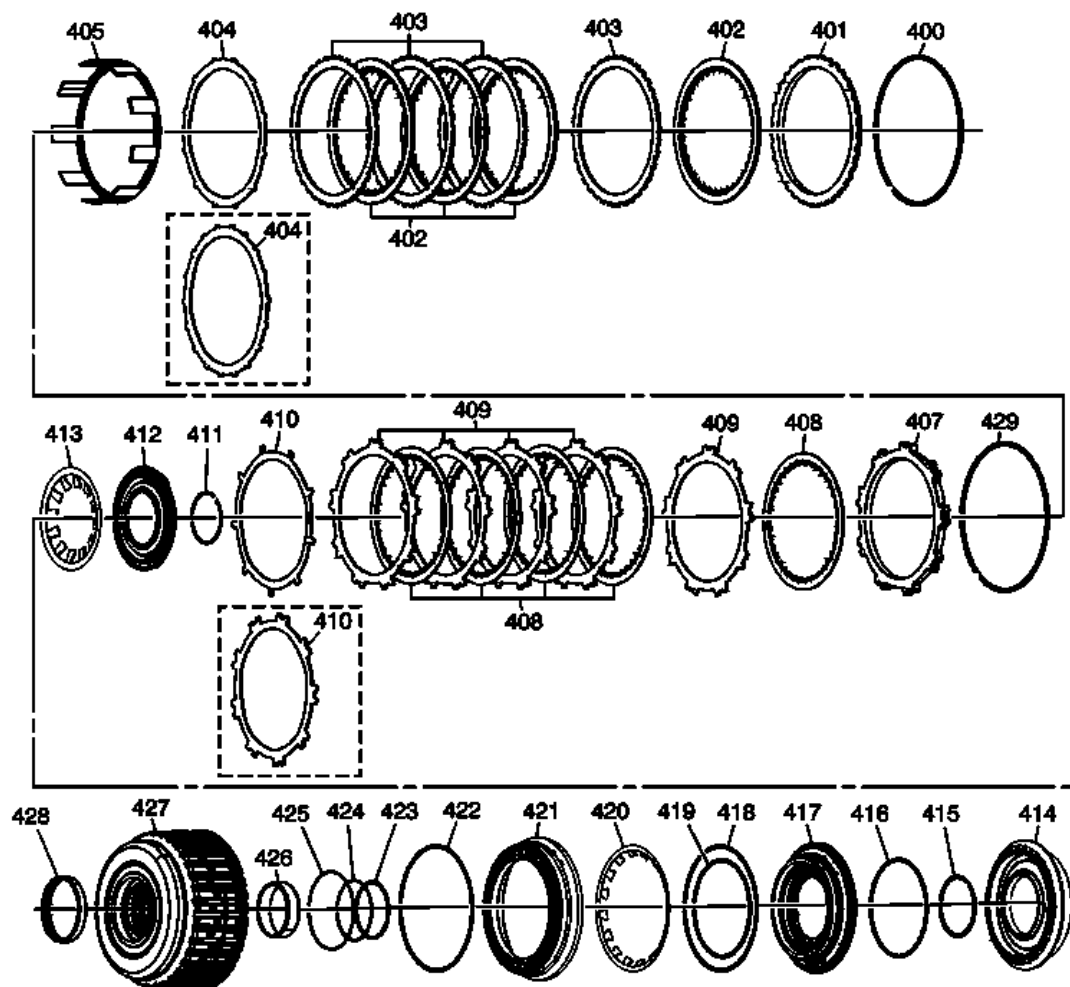


Fig. 7: 1-2-3-4 and 3-5 Reverse Clutch Assembly
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
400	3-5 Reverse Clutch Backing Plate Retaining Ring
401	3-5 Reverse Clutch Backing Plate
402	3-5 Reverse Clutch Plate Assembly
403	3-5 Reverse Clutch Plate
404	3-5 Reverse Clutch (Waved) Plate
405	3-5 Reverse Clutch Apply Ring
407	1-2-3-4 Clutch Backing Plate
408	1-2-3-4 Clutch Plate Assembly
409	1-2-3-4 Clutch Plate
410	1-2-3-4 Clutch (Waved) Plate
411	1-2-3-4 Clutch Piston Dam Retaining Ring
412	1-2-3-4 Clutch Piston Dam Assembly
413	1-2-3-4 Clutch Spring

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414	1-2-3-4 Clutch Piston
415	1-2-3-4 Clutch Piston Housing Retaining Ring
416	1-2-3-4 Clutch Piston Seal
417	1-2-3-4 Clutch Piston Housing
418	3-5 Reverse Clutch Piston Dam (O-ring) Seal
419	3-5 Reverse Clutch Piston Inner Seal
420	3-5 Reverse Clutch Spring
421	3-5 Reverse Clutch Piston
422	3-5 Reverse Clutch Piston Outer Seal
423	1-2-3-4 Clutch Piston Inner Seal
424	1-2-3-4 Clutch Piston Housing Seal
425	1-2-3-4 Clutch Piston Housing Seal
426	1-2-3-4 and 3-5 Reverse Clutch Housing Rear Bushing
427	1-2-3-4 and 3-5 Reverse Clutch Housing Assembly
428	1-2-3-4 and 3-5 Reverse Clutch Bearing Assembly
429	1-2-3-4 Clutch Backing Plate Retaining Ring

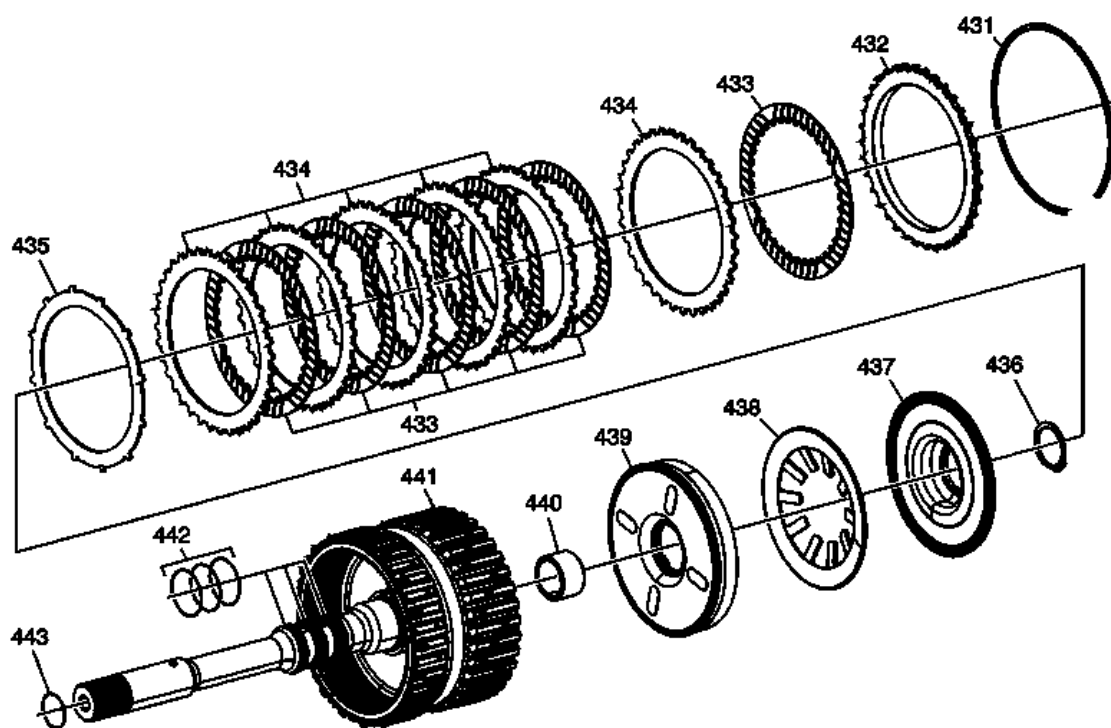


Fig. 8: 4-5-6 (w/Turbine Shaft) Clutch Assembly
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
431	4-5-6 Clutch Backing Plate Retaining Ring
432	4-5-6 Clutch Backing Plate

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433	4-5-6 Clutch Plate Assembly
434	4-5-6 Clutch Plate
435	4-5-6 Clutch (Waved) Plate
436	4-5-6 Clutch Piston Dam Retaining Ring
437	4-5-6 Clutch Piston Dam Assembly
438	4-5-6 Clutch Spring
439	4-5-6 Clutch Piston Assembly
440	Output Carrier Shaft Housing Bushing
441	4-5-6 (w/Turbine Shaft) Housing Assembly
442	Turbine Shaft Fluid Seal Ring
443	Turbine Shaft (O-ring) Seal

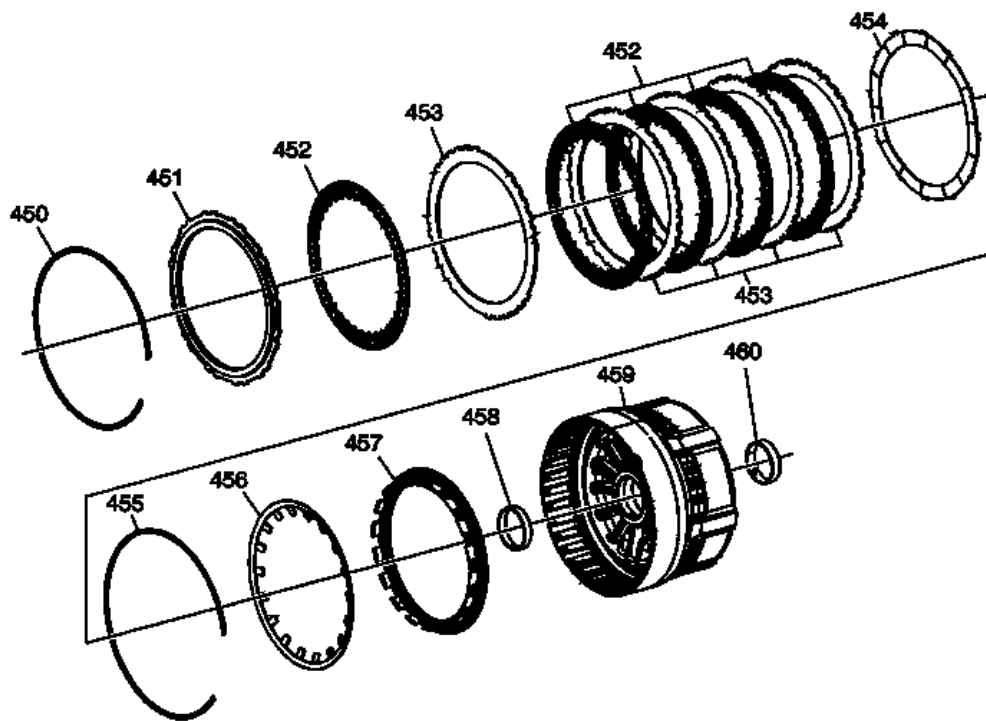


Fig. 9: 2-6 Clutch Assembly

Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
450	2-6 Clutch Backing Plate Retaining Ring
451	2-6 Clutch Backing Plate
452	2-6 Clutch Plate Assembly
453	2-6 Clutch Plate
454	2-6 Clutch (Waved) Plate
455	2-6 Clutch Spring Retaining Ring
456	2-6 Clutch Spring

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457	2-6 Clutch Piston Assembly
458	Output Carrier Outer Sun Gear Shaft (Front) Bushing
459	Center Support Assembly
460	Output Carrier Outer Sun Gear Shaft Rear Bushing

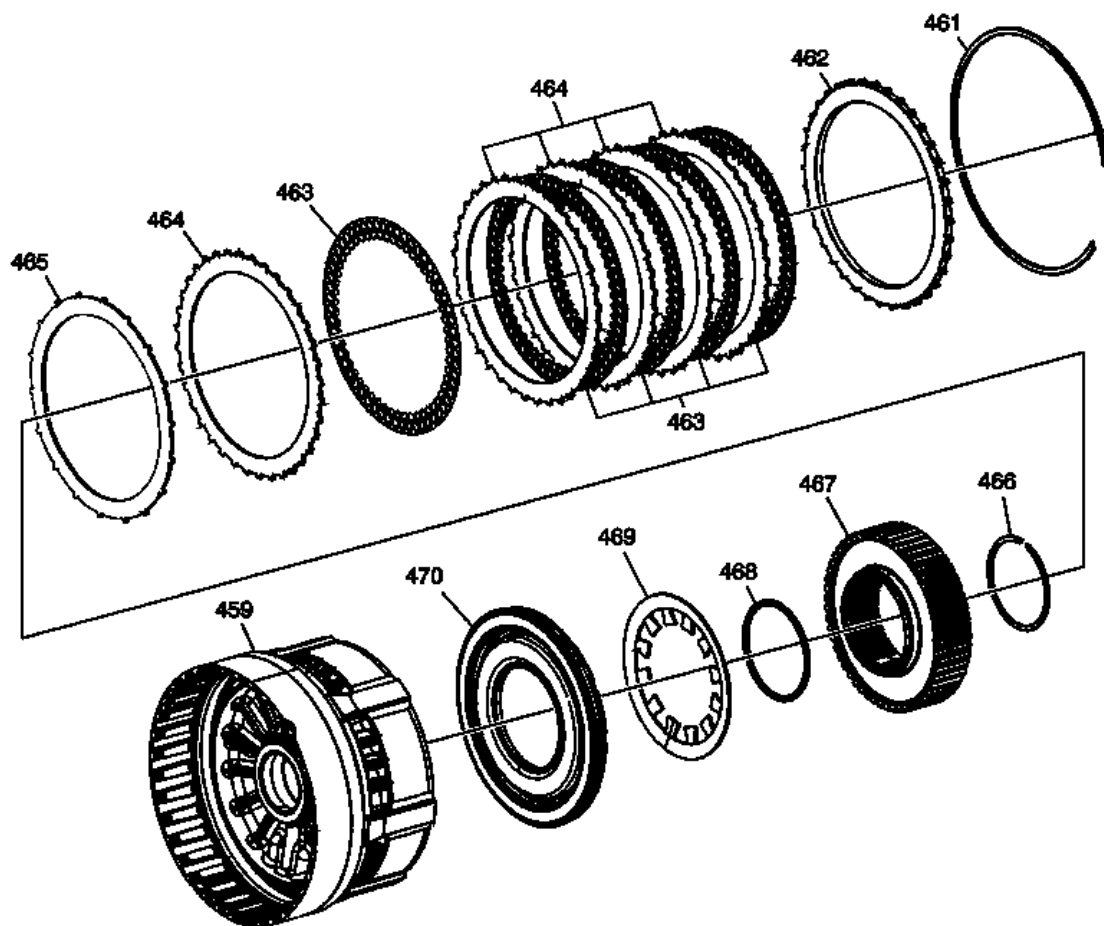


Fig. 10: Low and Reverse Clutch Assembly
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
459	Center Support Assembly
461	Low and Reverse Clutch Backing Plate Retaining Ring
462	Low and Reverse Clutch Backing Plate
463	Low and Reverse Clutch Plate Assembly
464	Low and Reverse Clutch Plate
465	Low and Reverse Clutch (Waved) Plate
466	Low and Reverse Clutch Spring Retaining Ring
467	Low Clutch Sprag Assembly

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468	Low Clutch Sprag Seal
469	Low and Reverse Clutch Spring
470	Low and Reverse Clutch Piston Assembly

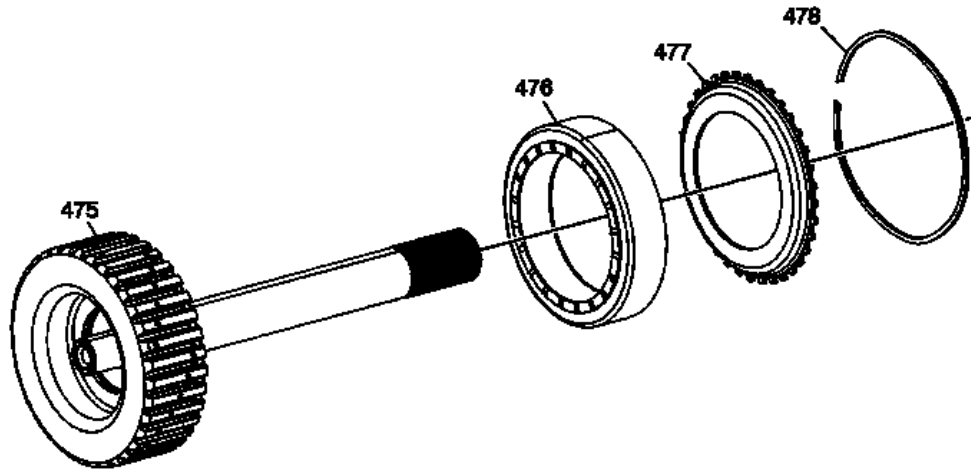


Fig. 11: 4-5-6 Clutch Hub Assembly

Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
475	4-5-6 Clutch (w/ Output Carrier Shaft) Hub Assembly
476	4-5-6 Clutch Dampener
477	4-5-6 Clutch Dampener Apply Plate
478	4-5-6 Clutch Dampener Retaining Ring

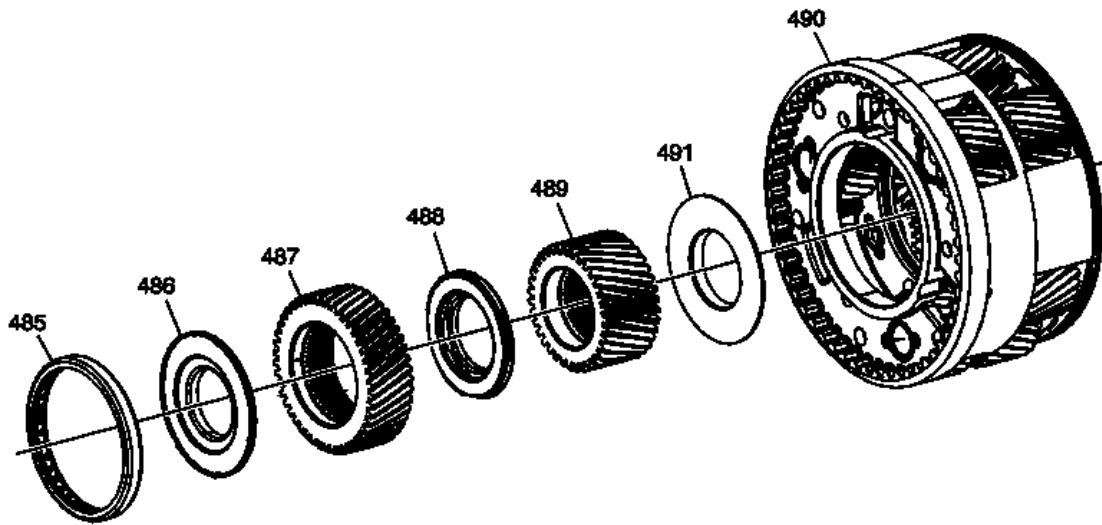


Fig. 12: Output Carrier Assembly
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
485	Center Support Roller Bearing Assembly
486	Output Carrier Front Sun Gear Thrust Bearing Assembly
487	Output Carrier Front Sun Gear
488	Output Carrier Front Sun Gear Rear Thrust Bearing Assembly
489	Output Carrier Rear Sun Gear
490	Output Carrier
491	Output Carrier Rear Sun Gear Thrust Bearing Assembly - Captured

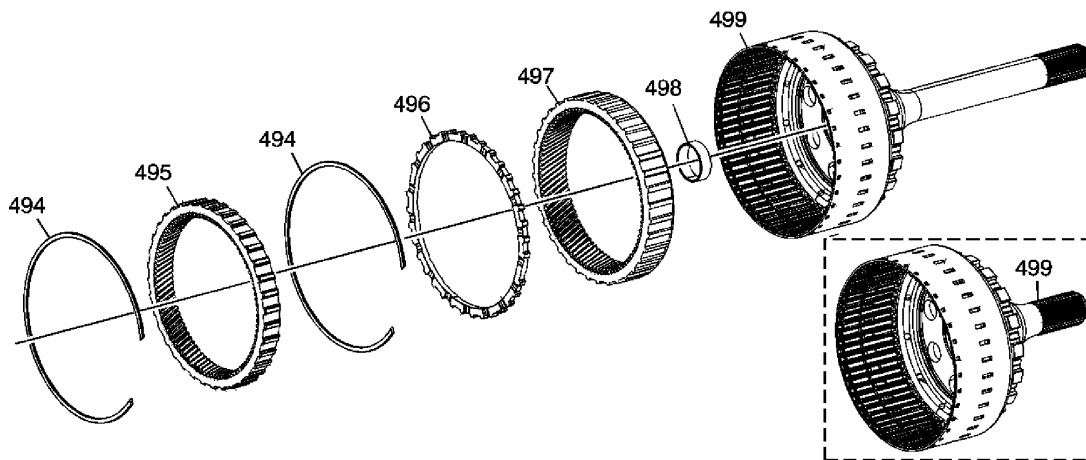


Fig. 13: Output Shaft Assembly
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
494	Output Carrier Internal Gear Retaining Ring
495	Output Carrier Internal Front Gear
496	Output Carrier Internal Gear Spacer
497	Output Carrier Internal Rear Gear
498	Output Carrier Bushing
499	Output Shaft Assembly - Model Dependent

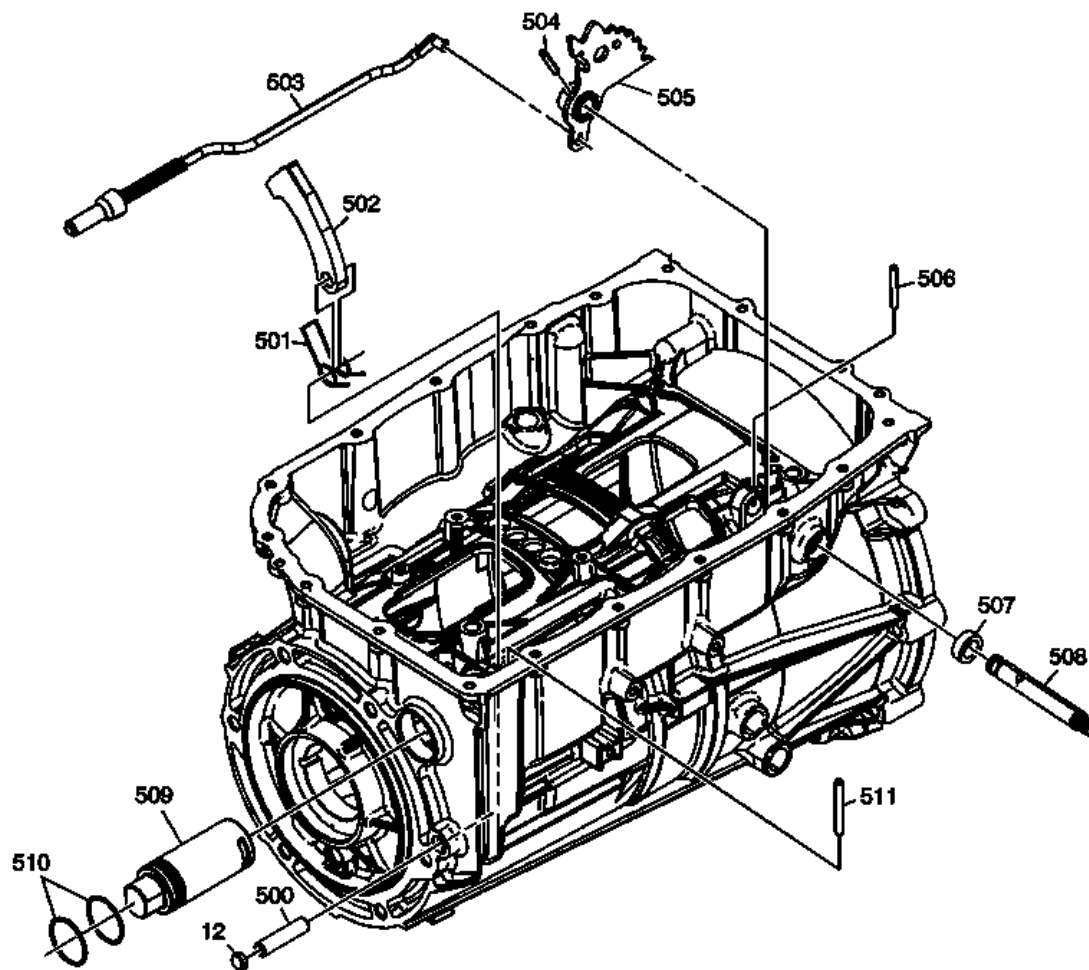


Fig. 14: Park System Components
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
12	A/Trans Case Plug
500	Park Pawl Shaft
501	Park Pawl Spring
502	Park Pawl
503	Park Pawl Actuator Assembly
504	Manual Shaft Detent Lever Hub Pin
505	Manual Shaft Detent Lever Assembly
506	Manual Shift Shaft Pin
507	Manual Shift Shaft Seal
508	Manual Shift Shaft
509	Park Pawl Actuator Guide
510	Park Pawl Actuator Guide (O-ring) Seal
511	Park Pawl Actuator Guide Pin

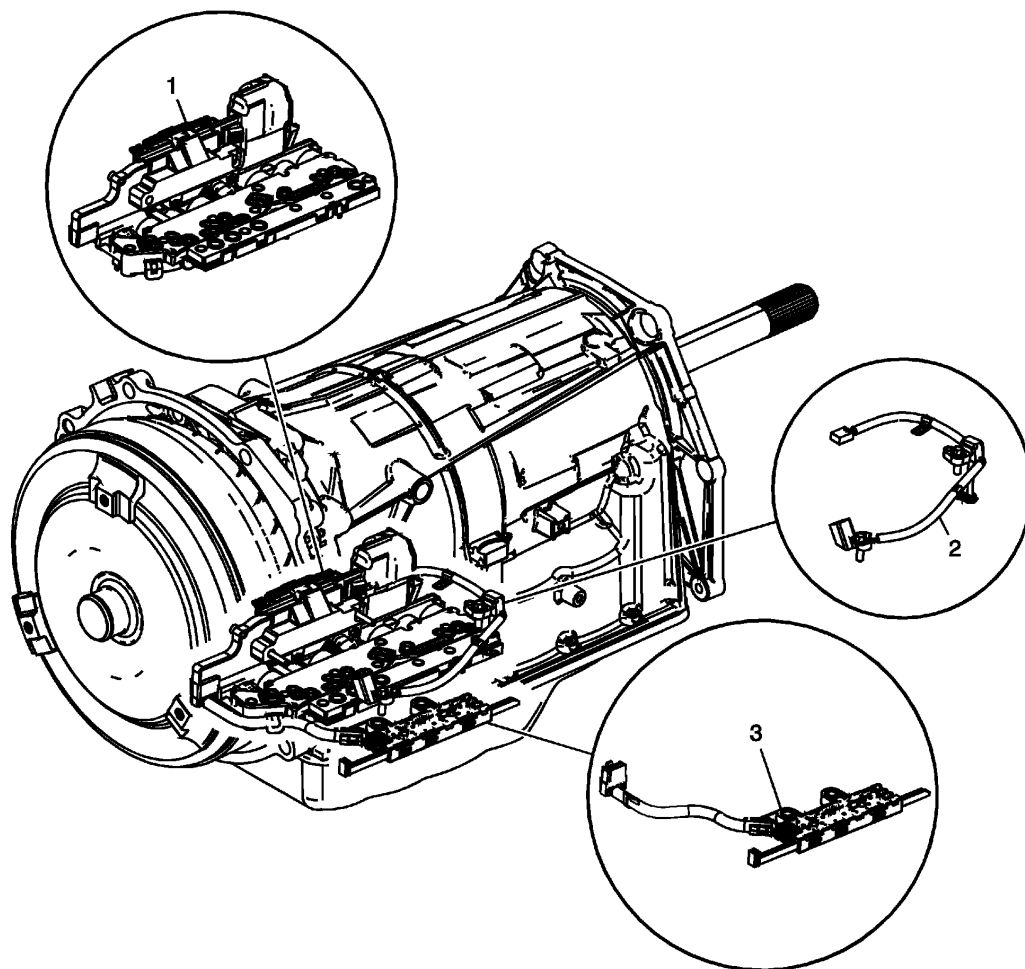
AUTOMATIC TRANSMISSION ELECTRONIC COMPONENT VIEWS

Fig. 15: Electronic Components
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
1	Control Solenoid (with Body and TCM) Valve Assembly
2	A/Trans Input and Output Speed Sensor Assembly
3	A/Trans Manual Shift Shaft Position Switch Assembly

COMPONENT LOCATION

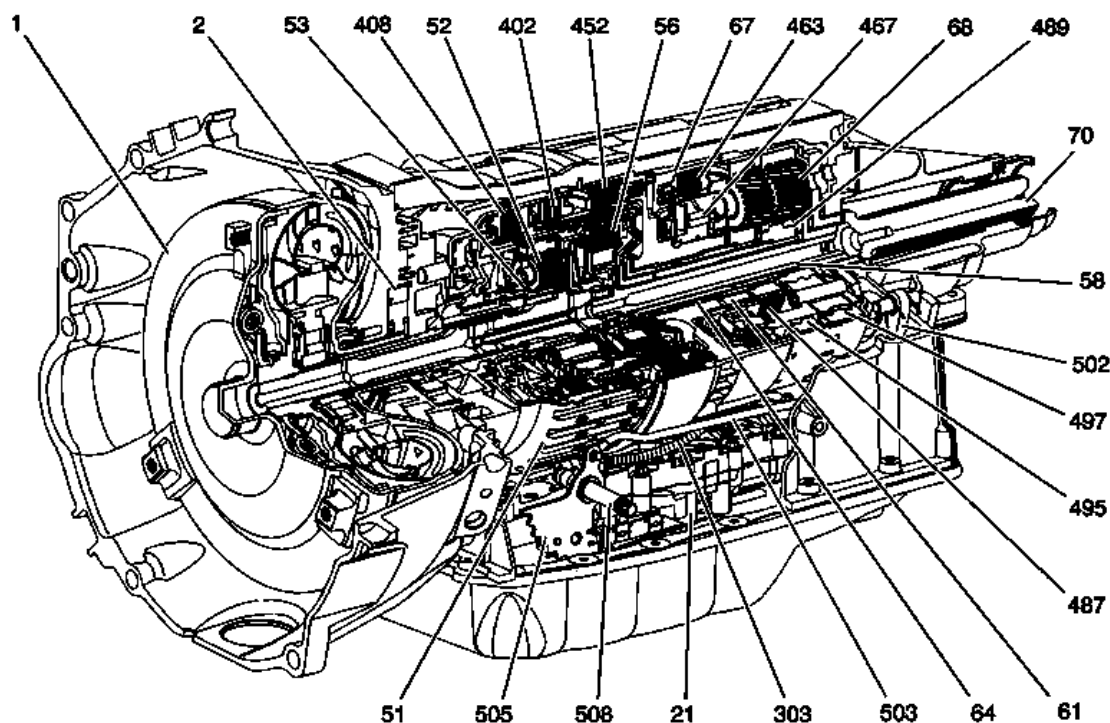


Fig. 16: Component Locations

Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
1	Torque Converter Assembly
2	Torque Converter (with Fluid Pump) Housing Assembly
21	Control (with Body and Valve) Valve Assembly
51	1-2-3-4 and 3-5 Reverse Clutch Assembly
52	Input Carrier Assembly
53	Input Sun Gear
56	4-5-6 (w/Turbine Shaft) Clutch Assembly
58	4-5-6 Clutch (w/Output Carrier Shaft and Dampener) Hub Assembly
61	1-2-3-4 Clutch (w/Output Carrier Inner Sun Gear Shaft) Hub Assembly
64	2-6 and 3-5 Reverse Clutch (w/Output Carrier Outer Sun Gear Shaft) Hub Assembly
67	Center (w/2-6 Low and Reverse Clutch) Support Assembly
68	Output Carrier Assembly
70	Output Shaft Assembly
303	A/Trans Input and Output Speed Sensor Assembly
402	3-5 Reverse Clutch Plate Assembly
408	1-2-3-4 Clutch Plate Assembly
452	2-6 Clutch Plate Assembly
463	Low and Reverse Clutch Plate Assembly
467	Low Clutch Sprag Assembly

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487	Output Carrier Front Sun Gear
489	Output Carrier Rear Sun Gear
495	Output Carrier Internal Front Gear
497	Output Carrier Internal Rear Gear
502	Park Pawl
503	Park Pawl Actuator Assembly
505	Manual Shaft Detent Lever Assembly
508	Manual Shift Shaft

BUSHING, BEARING, AND WASHER LOCATIONS (6L80)

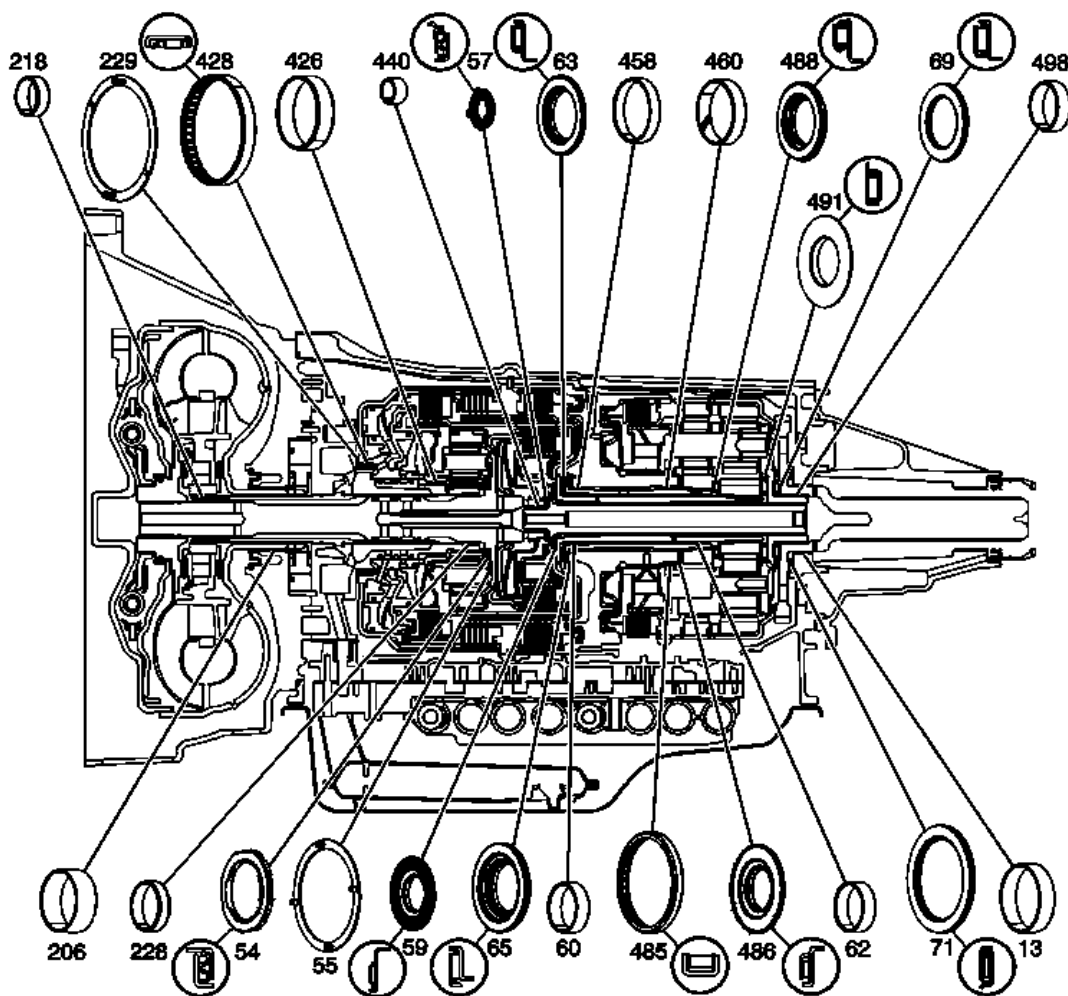


Fig. 17: Bushing, Bearing and Washer Locations
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
13	Output Shaft Bushing
54	Input Sun Gear Thrust Bearing

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55	Input Sun Gear Thrust Washer
57	Turbine Shaft Thrust Bearing Assembly
59	4-5-6 Clutch Hub Thrust Bearing Assembly
60	Output Carrier Inner Sun Gear Shaft (Front) Bushing
62	Output Carrier Inner Sun Gear Shaft Bushing
63	1-2-3-4 Clutch Hub Thrust Bearing Assembly
65	2-6 and 3-5 Reverse Clutch Hub Thrust Bearing Assembly
69	Output Carrier Thrust Bearing Assembly
71	Output Shaft Thrust Bearing Assembly
206	Torque Converter Bushing
218	Turbine Shaft Front Bushing
228	Turbine Shaft Rear Bushing
229	1-2-3-4 and 3-5 Reverse Clutch Housing Thrust Washer
426	1-2-3-4 and 3-5 Reverse Clutch Housing Rear Bushing
428	1-2-3-4 and 3-5 Reverse Clutch Bearing Assembly
440	Output Carrier Shaft Housing Bushing
458	Output Carrier Outer Sun Gear Shaft (Front) Bushing
460	Output Carrier Outer Sun Gear Shaft Rear Bushing
485	Center Support Roller Bearing Assembly
486	Output Carrier Front Sun Gear Thrust Bearing Assembly
488	Output Carrier Front Sun Gear Rear Thrust Bearing Assembly
491	Output Carrier Rear Sun Gear Thrust Bearing - Captured
498	Output Carrier Bushing

SEAL LOCATIONS (6L80)

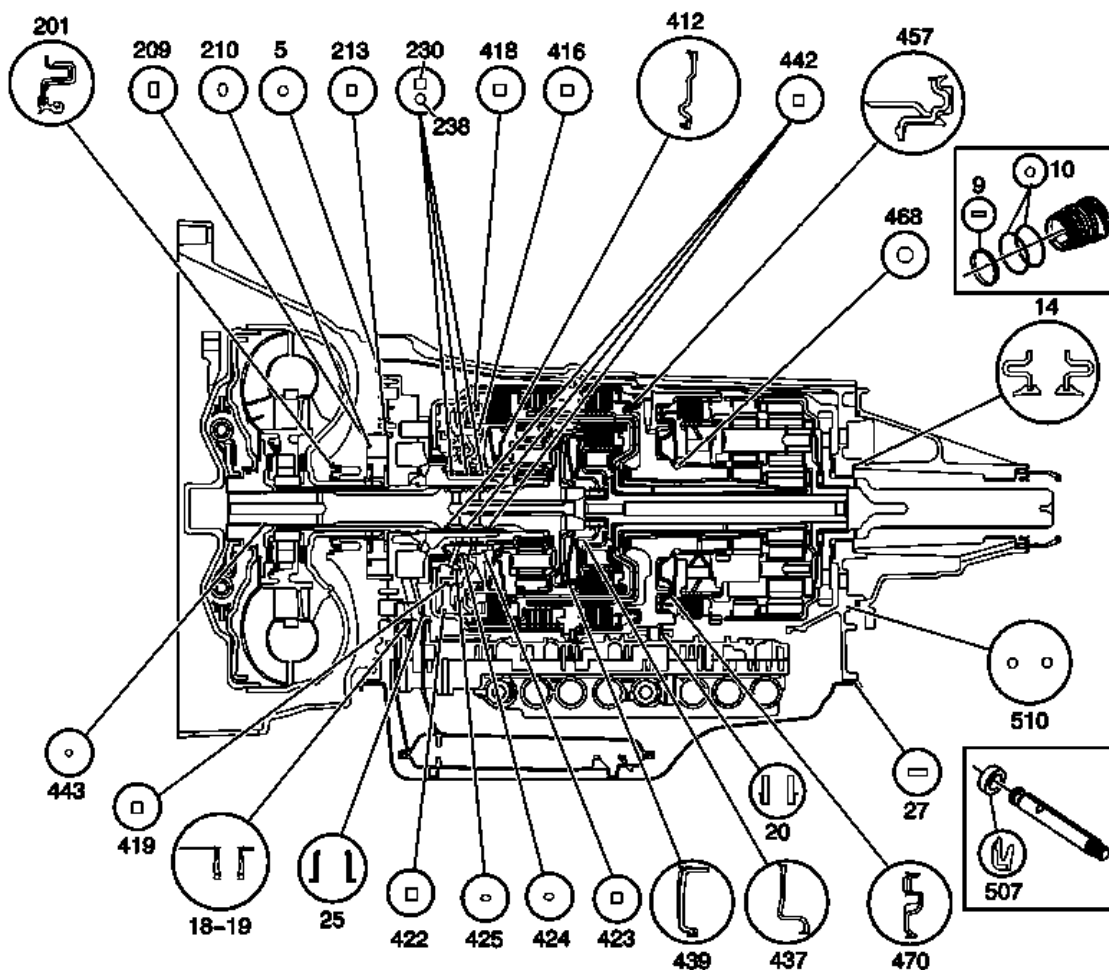


Fig. 18: Seal Locations

Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
5	A/Trans Fluid Pump Seal
9	A/Trans Connector Seal
10	A/Trans Connector (O-ring) Seal
14	Output Shaft Seal Assembly
18	A/Trans Fluid Pump Seal Assembly
19	A/Trans Fluid Pump Seal Assembly
20	Center Support Fluid Passage Seal Assembly
25	A/Trans Fluid Filter Seal Assembly
27	A/Trans Fluid Pan Gasket
201	Torque Converter Fluid Seal Assembly
209	A/Trans Fluid Pump Slide Fluid Seal Ring
210	A/Trans Fluid Pump Slide (O-ring) Seal
213	A/Trans Fluid Pump Slide Seal

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230	1-2-3-4 and 3-5 Reverse Clutch Fluid Seal Ring
412	1-2-3-4 Clutch Piston Dam Assembly
416	1-2-3-4 Clutch Piston Seal
418	3-5 Reverse Clutch Piston Dam (O-ring) Seal
419	3-5 Reverse Clutch Piston Inner Seal
422	3-5 Reverse Clutch Piston Outer Seal
423	1-2-3-4 Clutch Piston Inner Seal
424	1-2-3-4 Clutch Piston Housing Seal
425	1-2-3-4 Clutch Piston Housing Seal
437	4-5-6 Clutch Piston Dam Assembly
439	4-5-6 Clutch Piston Assembly
442	Turbine Shaft Fluid Seal Ring
443	Turbine Shaft (O-ring) Seal
457	2-6 Clutch Piston Assembly
468	Low Clutch Sprag Seal
470	Low and Reverse Clutch Piston Assembly
507	Manual Shift Shaft Seal
510	Park Pawl Actuator Guide (O-ring) Seal

BALL CHECK VALVE LOCATIONS

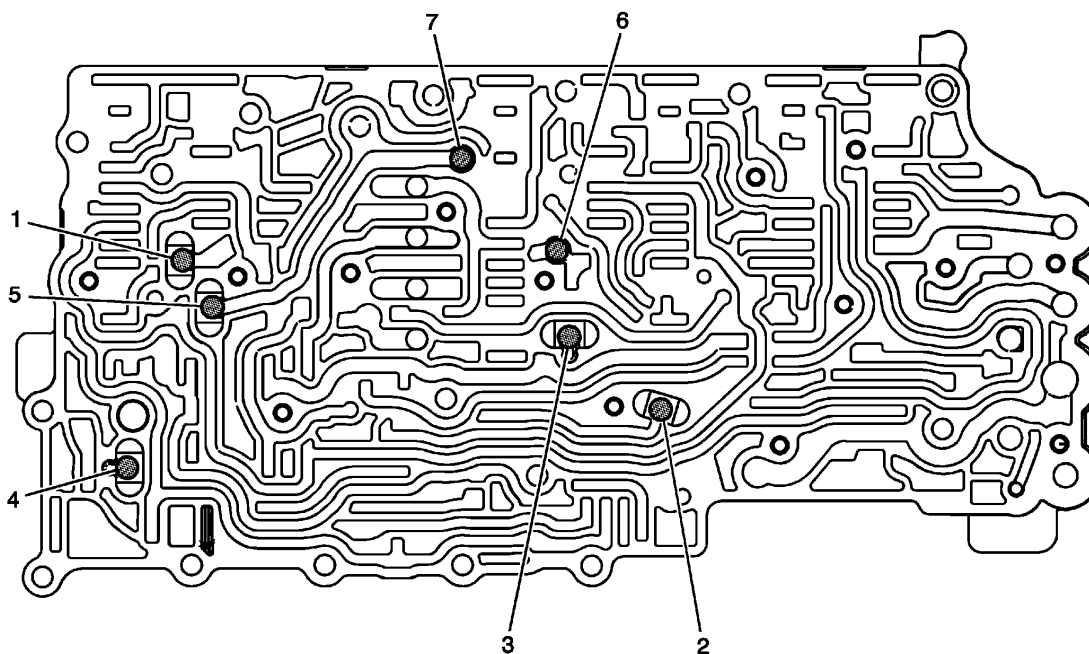


Fig. 19: Ball Check Valve Locations
Courtesy of GENERAL MOTORS CORP.

Ball Check Valve Locations

I.D.	Input Oil	Input Oil	Output Oil
1	Drive 1-6	DRV B	CB26/C1234 FD
2	Sol 1	Reverse (Park)	CSV2 Enable
3	Sol 2	C456	CSV3 Enable
4	PS4	C456	CSV2 Latch
5	Drive 1-6	C35R Rev FD	C35R Supply
6	CB26/C1234 FD	-	C1234 FD
7	C35R Supply	-	C35R FD

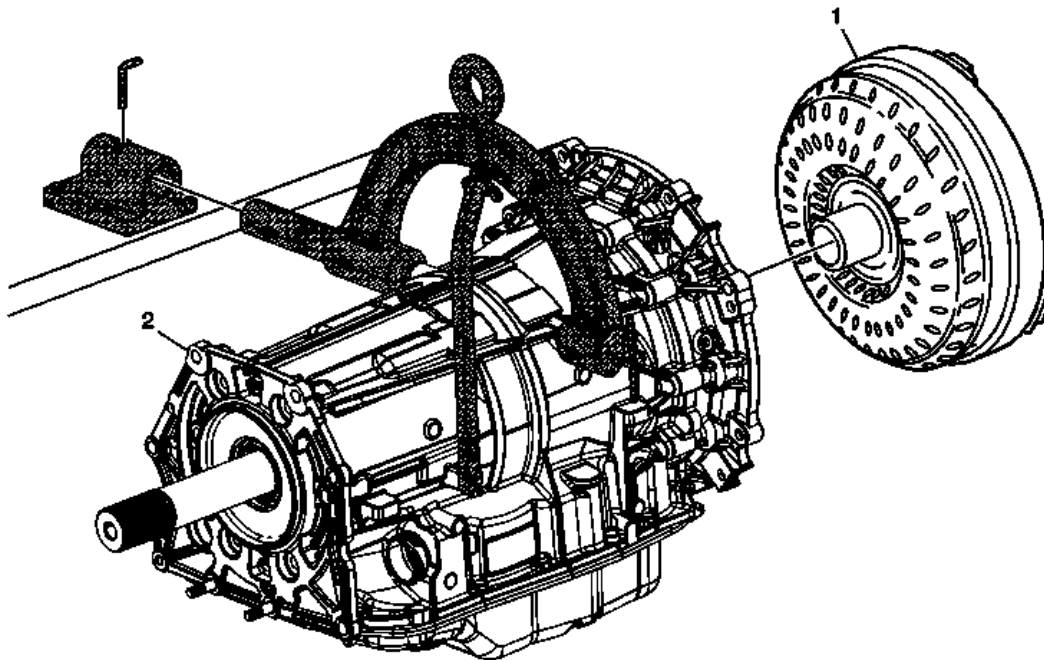
REPAIR INSTRUCTIONS**TORQUE CONVERTER REMOVAL AND HOLDING FIXTURE INSTALLATION**

Fig. 20: Removing Torque Converter and Installing Holding Fixture
 Courtesy of GENERAL MOTORS CORP.

Torque Converter Removal and Holding Fixture Installation

Callout	Component Name
1	Torque Converter Assembly
	Transmission Case Assembly
	Tip: 1. Rotate the transmission so that the converter housing

2

is up and secure with locking pin.

2. Allow any remaining transmission fluid to drain from the case extension.

Special Tools

- **DT 47605** Holding Fixture Adapter. See **Special Tools**.
- **J 3289-20** Holding Fixture Base Assembly
- **J 8763-B** Holding Fixture

CASE EXTENSION ASSEMBLY REMOVAL

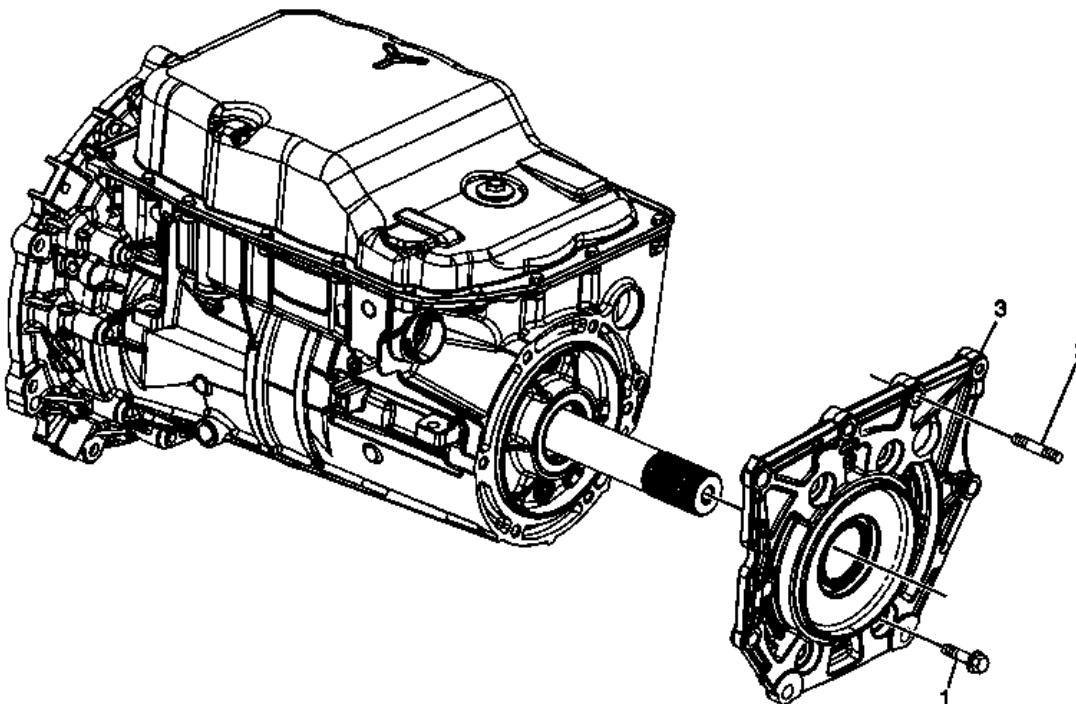


Fig. 21: Removing Case Extension Assembly
Courtesy of GENERAL MOTORS CORP.

Case Extension Assembly Removal

Callout	Component Name
1	Bolt M10 x 40 (Quantity: 6)
2	Case Extension Studs (Quantity: 2)
3	Case Extension

FLUID PAN, FLUID FILTER AND ELECTRICAL CONNECTOR PASSAGE SLEEVE REMOVAL

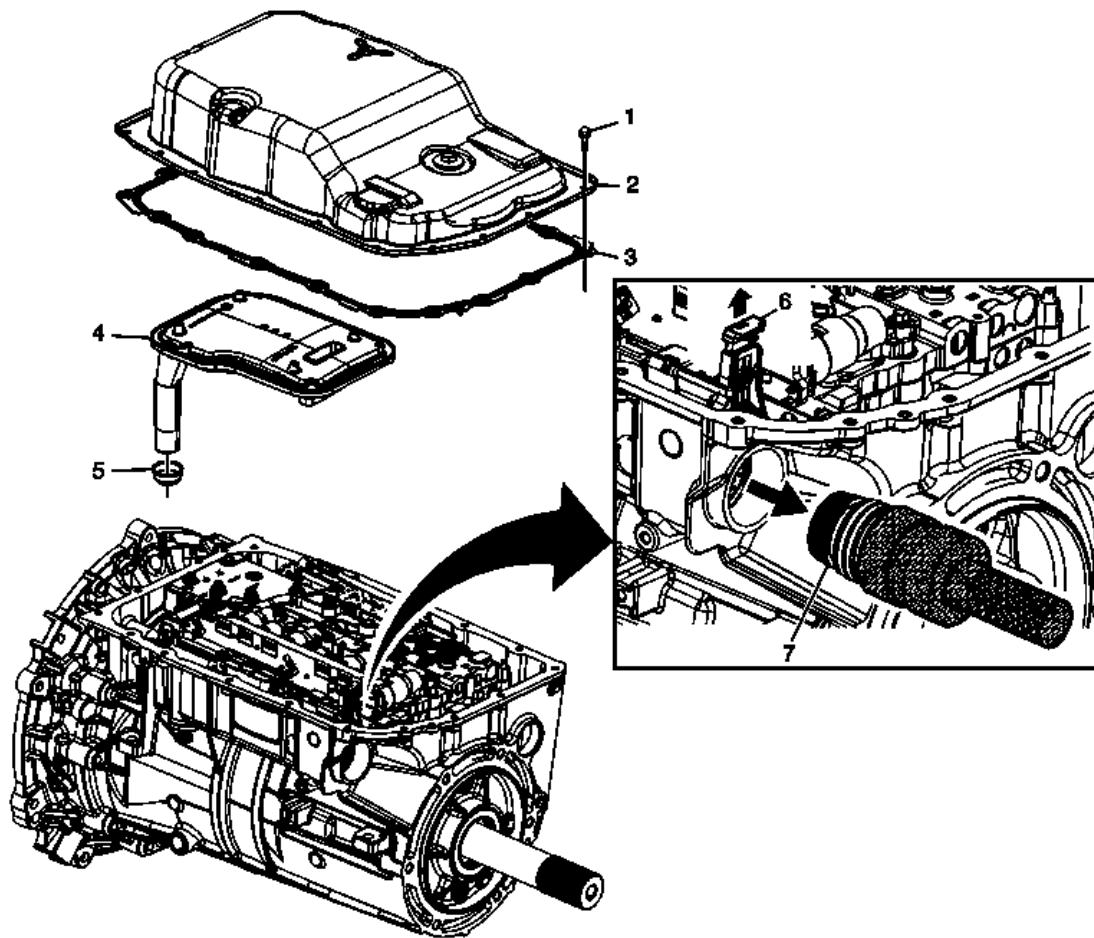


Fig. 22: Removing Fluid Pan, Fluid Filter, and Electrical Connector Passage Sleeve
 Courtesy of GENERAL MOTORS CORP.

Fluid Pan, Fluid Filter and Electrical Connector Passage Sleeve Removal

Callout	Component Name
1	Bolt M6 x 20 (Quantity: 18)
2	Fluid Pan Assembly
3	Fluid Pan Gasket Tip: The fluid pan gasket is reusable. Inspect the gasket to determine if it may be reused. If the gasket is stuck to the case or pan, it should be replaced.
4	Fluid Filter Assembly NOTE: Pull the fluid filter assembly straight out to avoid damage. Do not bend or twist the filter neck.
	Fluid Filter Seal Assembly

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5	NOTE: Do not damage the case sealing surface when removing the filter seal assembly. Tip: Use a screwdriver or snap ring pliers.
6	Electrical Connector Slide Lock NOTE: Pull up on the electrical connector slide lock to avoid damage to the connector.
7	Electrical Connector Passage Sleeve Special Tools • DT 47715 Electrical Connector Passage Sleeve Remover/Installer. See Special Tools. • J 42183 Driver Handle. See Special Tools.

CONTROL VALVE BODY ASSEMBLY REMOVAL

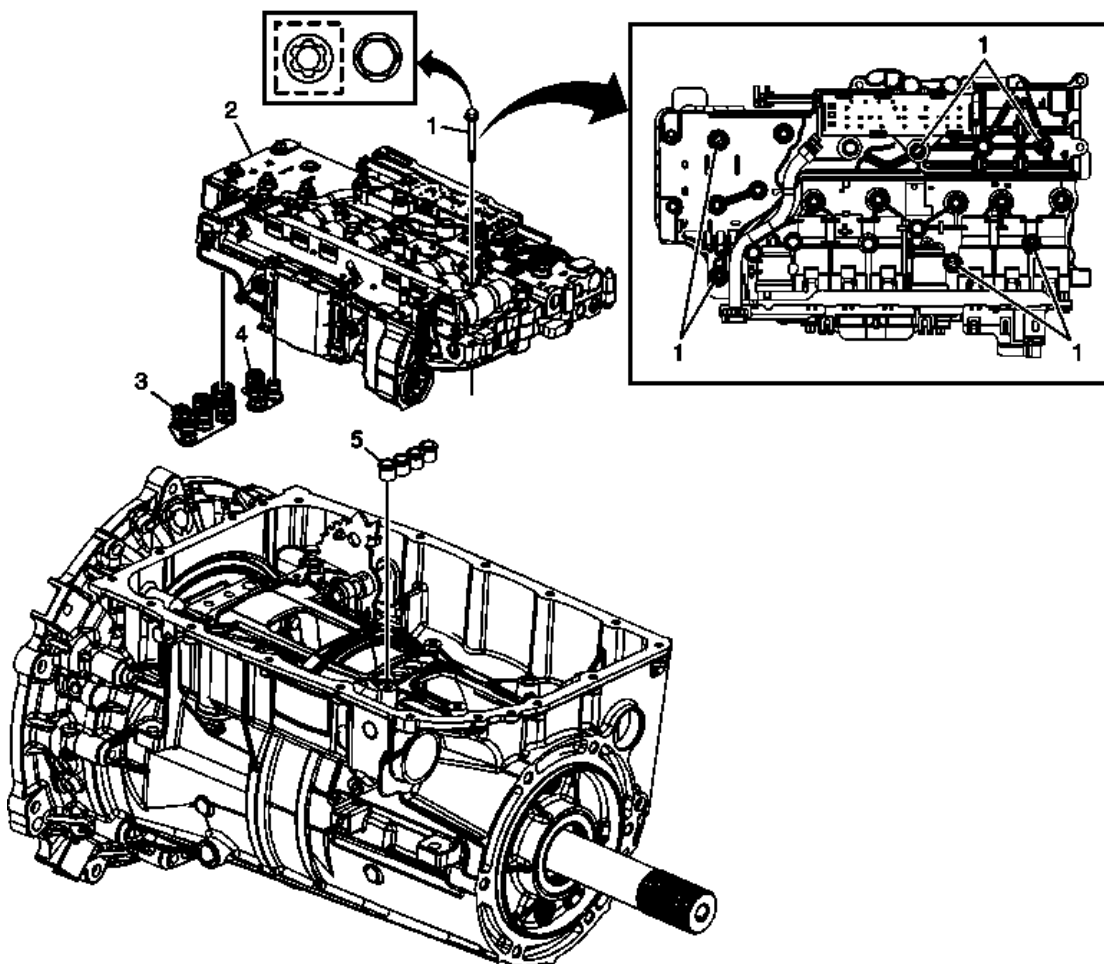


Fig. 23: Removing Control Valve Body Assembly
 Courtesy of GENERAL MOTORS CORP.

Control Valve Body Assembly Removal

Callout	Component Name
1	Bolt M5 x 73 (Quantity: 6) Tip: Do not remove all the bolts in the control valve body assembly. Remove only the bolts indicated.
2	Control Valve Body Assembly NOTE: Use care when handling the control valve body assembly. If dropped, damage to the control solenoid valve body assembly internal components, including the transmission control module (TCM), may result.
3	Fluid Pump Seal Assembly NOTE:

	Refer to <u>Seal Reuse Notice</u> .
4	Fluid Pump Seal Assembly NOTE: Refer to <u>Seal Reuse Notice</u> .
5	Center Support Fluid Passage Seal Assembly NOTE: Refer to <u>Seal Reuse Notice</u> .

TORQUE CONVERTER HOUSING WITH FLUID PUMP REMOVAL

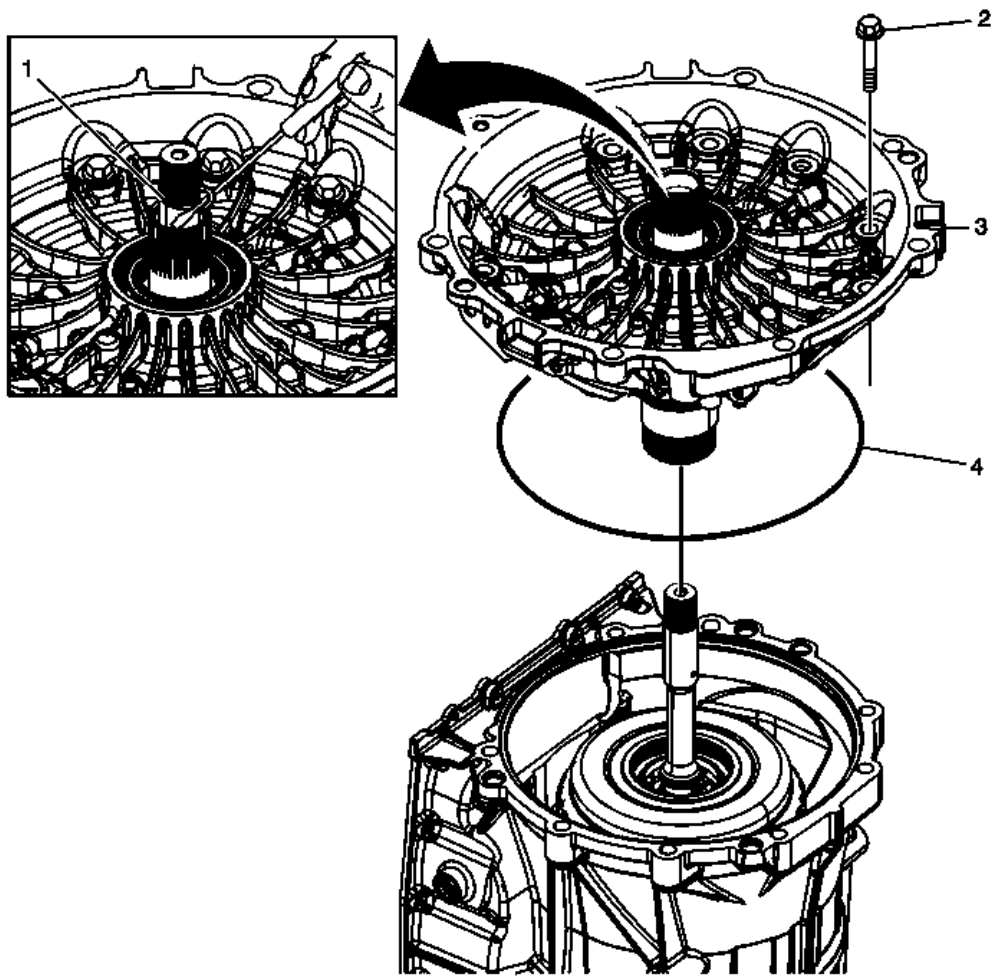


Fig. 24: Removing Torque Converter Housing with Fluid Pump
Courtesy of GENERAL MOTORS CORP.

Torque Converter Housing with Fluid Pump Removal

Callout	Component Name

NOTE:

The valve body assembly must be removed prior to removing the torque converter (with fluid pump) housing assembly. Failure to ensure this will cause severe damage to both fluid pump seal assemblies. Also, the load of the valve body pushing on the seals, which in turn push on the pump, may prevent proper pump installation into the case.

Tip: Refer to Control Valve Body Assembly Removal.

1	Turbine Shaft (O-ring) Seal
2	Bolt M10 x 50 (Quantity: 9)
3	Torque Converter (With Fluid Pump) Housing Assembly
4	Fluid Pump Seal

1-2-3-4 AND 3-5 REVERSE CLUTCH ASSEMBLY AND 4-5-6 CLUTCH ASSEMBLY REMOVAL

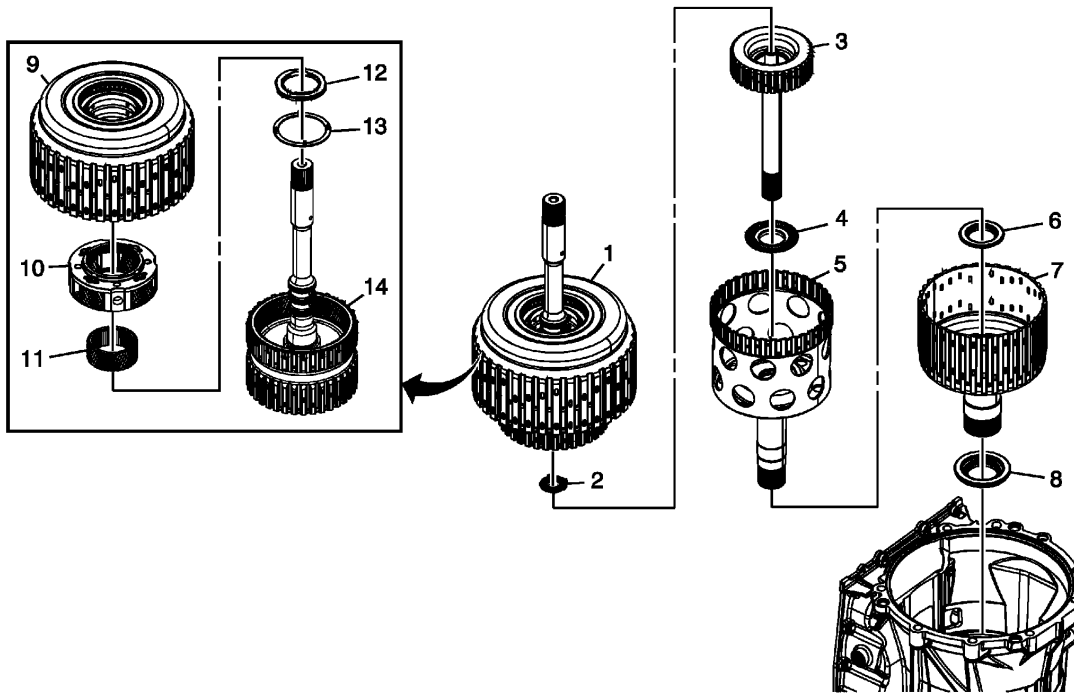


Fig. 25: Removing 1-2-3-4 and 3-5 Reverse Clutch Assembly and 4-5-6 Clutch Assembly
Courtesy of GENERAL MOTORS CORP.

1-2-3-4 and 3-5 Reverse Clutch Assembly and 4-5-6 Clutch Assembly Removal

Callout	Component Name
1	1-2-3-4 and 3-5 Reverse Clutch Assembly and 4-5-6 (With Turbine Shaft) Clutch Assembly
2	Turbine Shaft Thrust Bearing Assembly
3	4-5-6 Clutch (With Output Carrier Shaft and Dampener) Hub Assembly

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4	4-5-6 Clutch Hub Thrust Bearing Assembly
5	1-2-3-4 Clutch (With Output Carrier Inner Sun Gear Shaft) Hub Assembly
6	1-2-3-4 Clutch Hub Thrust Bearing Assembly
7	2-6 and 3-5 Reverse Clutch (With Output Carrier Outer Sun Gear Shaft) Hub Assembly
8	2-6 and 3-5 Reverse Clutch Hub Thrust Bearing Assembly
9	1-2-3-4 and 3-5 Reverse Clutch Assembly
10	Input Carrier Assembly
11	Input Sun Gear
12	Input Sun Gear Thrust Bearing
13	Input Sun Gear Thrust Washer
14	4-5-6 (With Turbine Shaft) Clutch Assembly

CENTER SUPPORT, OUTPUT CARRIER AND OUTPUT SHAFT REMOVAL

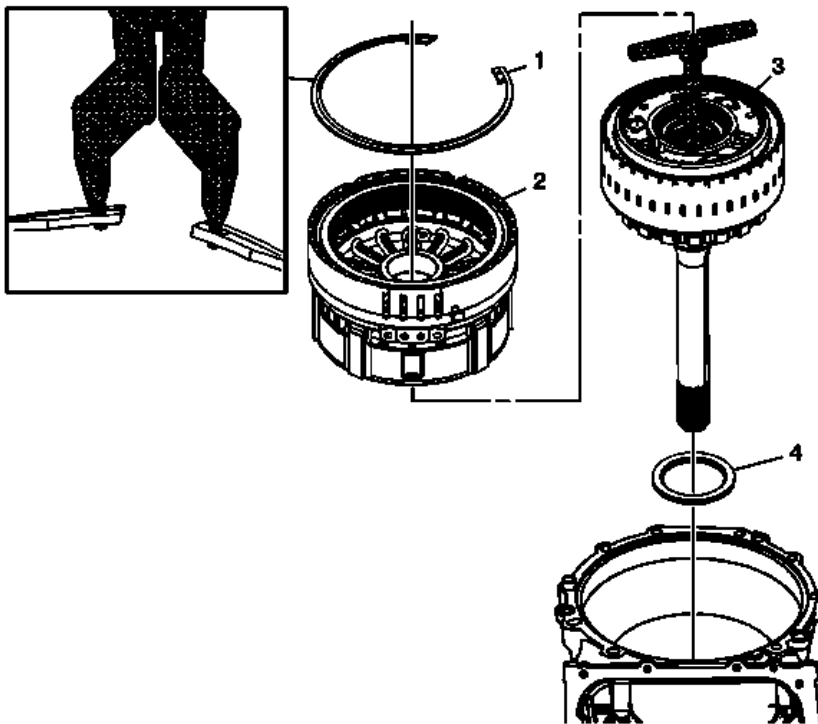


Fig. 26: Removing Center Support, Output Carrier and Output Shaft
Courtesy of GENERAL MOTORS CORP.

Center Support, Output Carrier and Output Shaft Removal

Callout	Component Name
	Center Support Retaining Ring

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1	CAUTION: Use care when removing or installing the retaining ring. Ensure the J 45126 and DT 47773 are installed properly onto the retaining ring or bodily injury may occur. Tip: To release tension on the retaining ring, place the retaining ring flat on the floor and step on it, then remove the tool. Special Tools • DT 47773 Snap Ring Pliers Adapter Set. See <u>Special Tools</u>. • J 45126 Snap Ring Pliers
2	Center (with 2-6 Low and Reverse Clutch) Support Assembly
3	Output Carrier Assembly and Output Shaft Assembly NOTE: Ensure the DT 47786 is completely threaded into the output shaft assembly. Due to the weight of the assembly, incomplete threading may cause the assembly to break free from the DT 47786, causing component damage. Special Tool: DT 47786 Output Carrier/Shaft Lifting Tool. See <u>Special Tools</u>.
4	Output Shaft Thrust Bearing Assembly

MANUAL SHIFT SHAFT AND PARKING SYSTEM COMPONENTS OVERHAUL

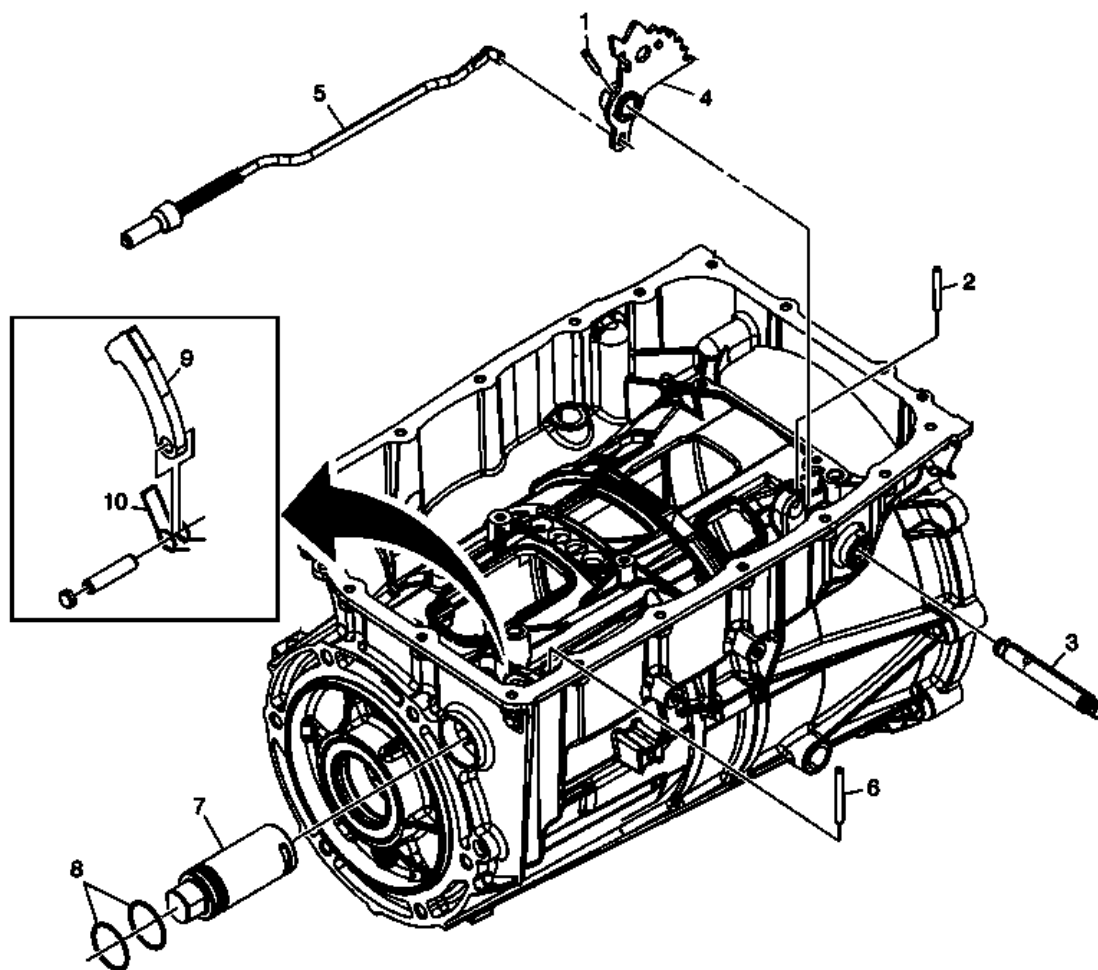


Fig. 27: Overhauling Manual Shift Shaft and Parking System Components
 Courtesy of GENERAL MOTORS CORP.

Manual Shift Shaft and Parking System Components Overhaul

Callout	Component Name
1	Manual Shaft Detent Lever Hub Pin NOTE: Refer to <u>Pin Reuse Notice</u> .
2	Manual Shift Shaft Pin NOTE: Refer to <u>Pin Reuse Notice</u> .
	Manual Shift Shaft NOTE: Ensure the manual shift shaft seal is replaced before installing the shaft. Installing the seal after

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3	the shaft may cause damage to the seal, resulting in fluid leaks and transmission damage. Tip: Refer to <u>Manual Shift Shaft Seal Replacement</u>.
4	Manual Shaft Detent Lever Assembly
5	Park Pawl Actuator Assembly
6	Park Pawl Actuator Guide Pin NOTE: Refer to <u>Pin Reuse Notice</u> . Tip: Use a large pair of side cutters to "walk" the pin out.
7	Park Pawl Actuator Guide
8	Park Pawl Actuator Guide (O-ring) Seals NOTE: Refer to <u>Seal Reuse Notice</u> .
9	Park Pawl Tip: Inspect for damage only. Do not remove. The park pawl is not a serviceable component.
10	Park Pawl Spring Tip: Inspect for damage only. Do not remove. The park pawl spring is not a serviceable component.

MANUAL SHIFT SHAFT SEAL REPLACEMENT

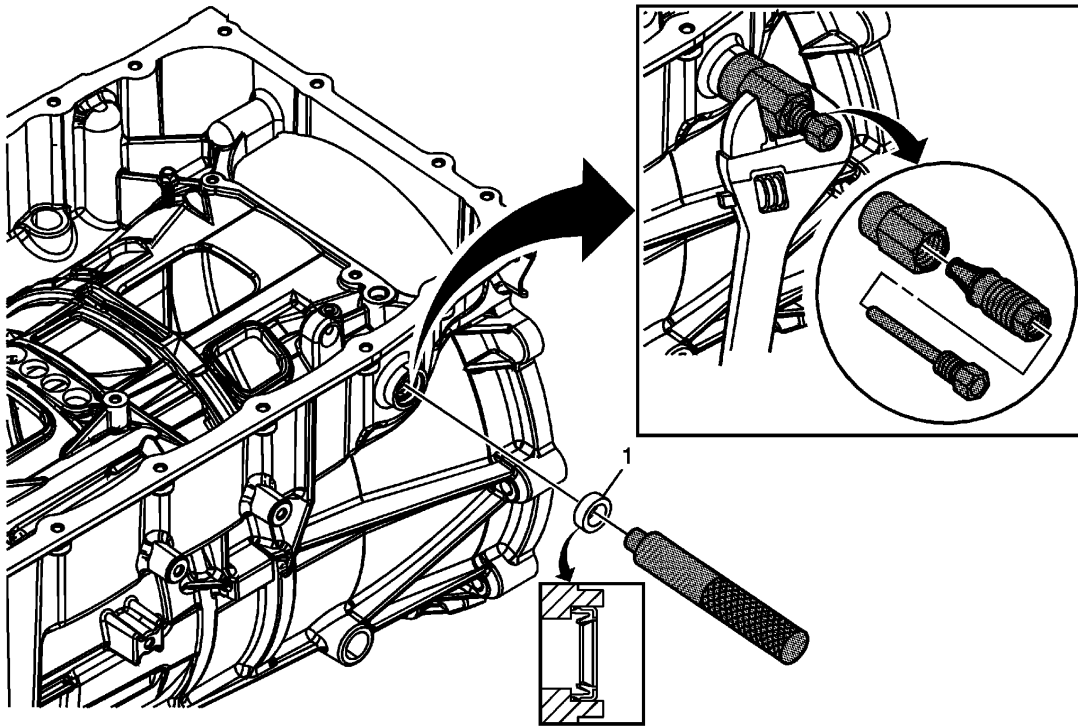


Fig. 28: Replacing Manual Shift Shaft Seal
 Courtesy of GENERAL MOTORS CORP.

Manual Shift Shaft Seal Replacement

Callout	Component Procedure
1	Manual Shift Shaft Seal NOTE: Do not damage the case bore during removal of the manual shift shaft seal. NOTE: When installing the seal, ensure the seal lip is firmly seated against the case bore surface. Do not allow the seal lip to be crushed, or a leak may result. NOTE: Refer to <u>Seal Reuse Notice</u> . Special Tools • DT 47770 Seal Installer. See <u>Special Tools</u>. • J 45201 Cooler Line Seal Remover. See <u>Special Tools</u>.

OUTPUT SHAFT SEAL REPLACEMENT

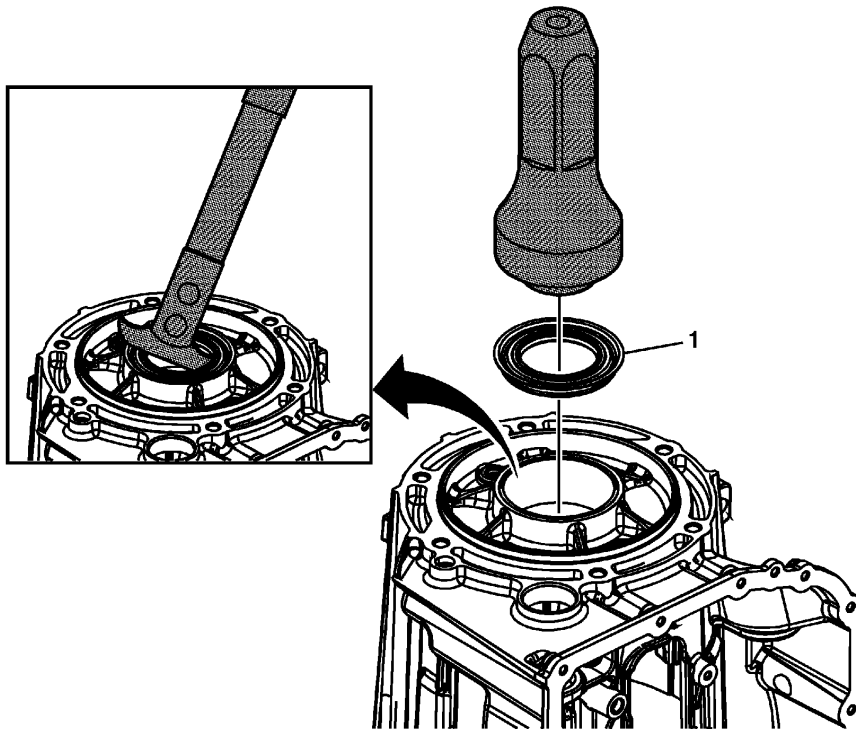


Fig. 29: Replacing Output Shaft Seal
Courtesy of GENERAL MOTORS CORP.

Output Shaft Seal Replacement

Callout	Component Name
1	Output Shaft Seal NOTE: Use care not to damage the output shaft bushing with the J 45000. NOTE: Refer to <u>Seal Reuse Notice</u> . Special Tools • J 38693 Seal Installer. See <u>Special Tools</u>. • J 45000 Seal Remover

CASE INSPECTION

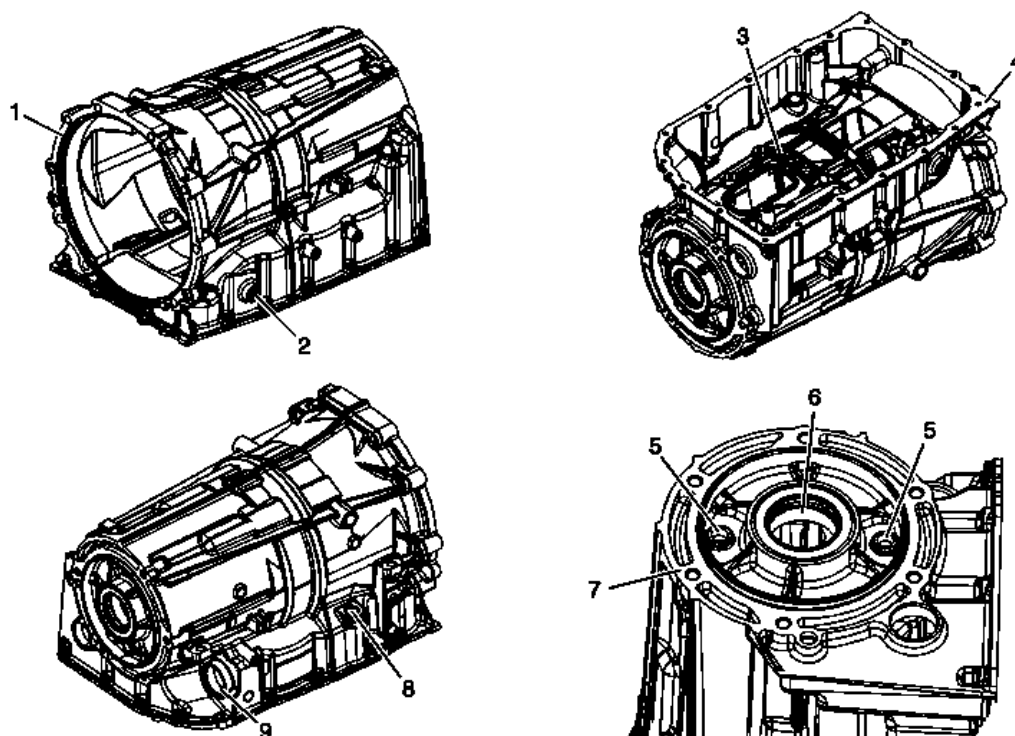


Fig. 30: Inspecting Case
Courtesy of GENERAL MOTORS CORP.

Case Inspection

Callout	Component Name
NOTE: After cleaning the transmission components, allow to air dry. Do not use cloth or paper towels in order to dry any transmission components. Lint from the towels can cause component failure. NOTE: Do not reuse cleaning solvents. Previously used solvents may deposit sediment which may damage the component.	
Preliminary Procedures 1. Thoroughly clean the transmission case assembly, including case threads, with clean solvent. 2. Clean gasket sealing surfaces. Remove all residual gasket material. 3. Inspect all threaded holes. If necessary, repair any thread damage.	
1	Front Case Sealing Surface
2	Manual Shift Shaft Seal Tip: Refer to <u>Manual Shift Shaft Seal Replacement</u> .
3	Center Support Fluid Passage Seal Bores
4	Fluid Pan Sealing Surface
5	Case Plugs

6	Output Shaft Bushing
7	Rear Case Sealing Surface
8	Fill Tube Bore
9	Electrical Connector Passage Sleeve Bore

OUTPUT SHAFT DISASSEMBLE

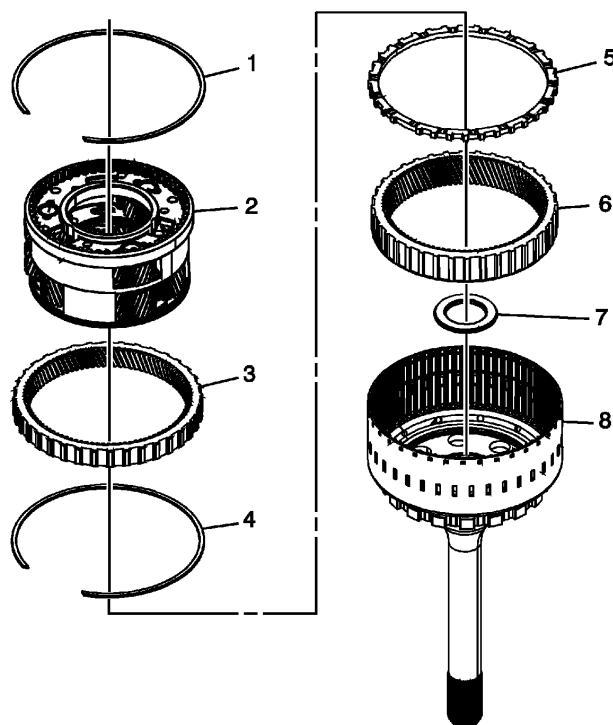


Fig. 31: Disassembling Output Shaft
Courtesy of GENERAL MOTORS CORP.

Output Shaft Disassemble

Callout	Component Name
Tip: Inspect each component and replace as necessary.	
1	Output Carrier Internal Gear Retaining Ring
2	Output Carrier Assembly
3	Output Carrier Internal Front Gear
4	Output Carrier Internal Gear Retaining Ring
5	Output Carrier Internal Gear Spacer
6	Output Carrier Internal Rear Gear
7	Output Carrier Thrust Bearing Assembly
8	Output Shaft Assembly

OUTPUT SHAFT ASSEMBLE

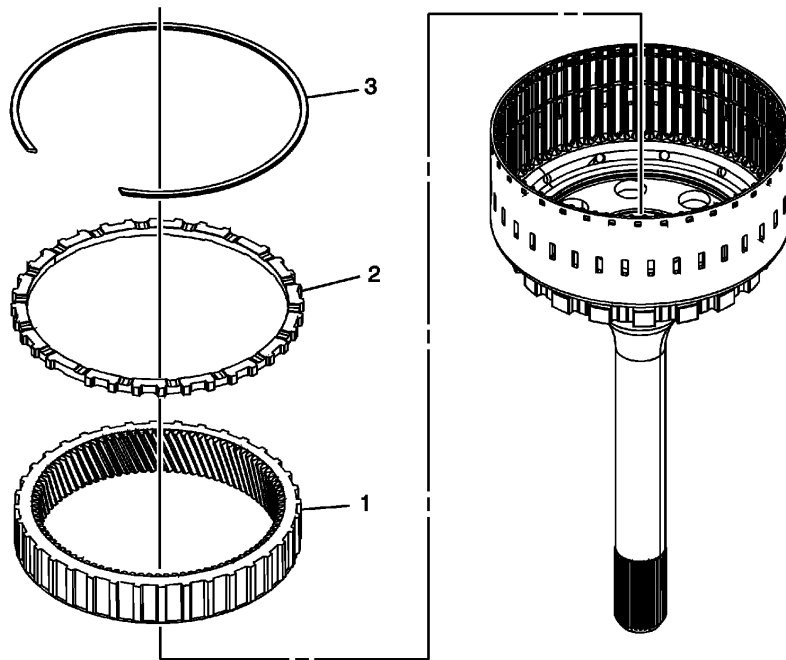


Fig. 32: Assembling Output Shaft
 Courtesy of GENERAL MOTORS CORP.

Output Shaft Assemble

Callout	Component Name
1	Output Carrier Internal Rear Gear NOTE: Install the gear chamfer side down. Failure to install the gear chamfer side down may result in transmission damage.
2	Output Gear Internal Gear Spacer
3	Output Carrier Internal Gear Retaining Ring Tip: Do not install the output carrier internal front gear and retaining ring yet. These components will be installed during assembly of the output carrier to the output shaft.

OUTPUT CARRIER ASSEMBLY OVERHAUL

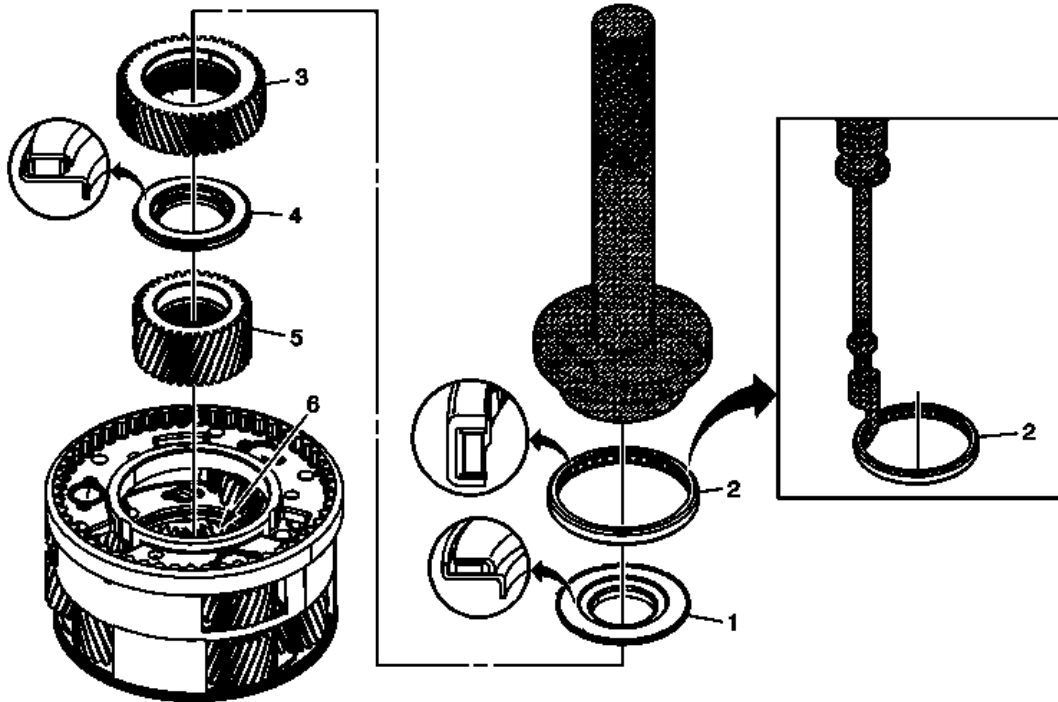


Fig. 33: Overhauling Output Carrier Assembly
Courtesy of GENERAL MOTORS CORP.

Output Carrier Assembly Overhaul

Callout	Component Name
1	Output Carrier Front Sun Gear Thrust Bearing Assembly
2	Center Support Roller Bearing NOTE: Do not reuse the center support roller bearing. Install a NEW center support roller bearing. Reusing an old bearing may result in damage to the output carrier. Tip: The thick side of the bearing shell faces up. Special Tools • DT 47857 Bearing Installer. See Special Tools. • J 6125-B Slide Hammer. See Special Tools. • J 8092 Driver Handle • J 23129 Universal Seal Remover
	Output Carrier Front Sun Gear

3	NOTE: Install the gear chamfer side up. Failure to install the gear chamfer side up may result in transmission damage.
4	Output Carrier Front Sun Gear Rear Thrust Bearing Assembly
5	Output Carrier Rear Sun Gear
6	NOTE: Install the gear chamfer side up. Failure to install the gear chamfer side up may result in transmission damage. Tip: Inspect for damage only. Do not remove. The bearing assembly is not a serviceable component.

OUTPUT CARRIER TO OUTPUT SHAFT ASSEMBLE

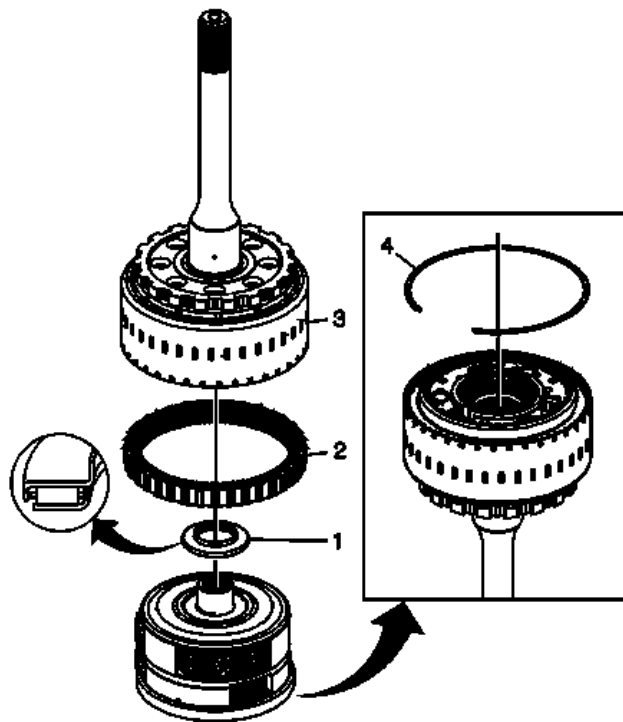


Fig. 34: Assembling Output Carrier to Output Shaft
 Courtesy of GENERAL MOTORS CORP.

Output Carrier to Output Shaft Assemble

Callout	Component Name
1	Output Carrier Thrust Bearing Assembly
	Output Carrier Internal Front Gear

2	NOTE: Install the gear flat side down. Failure to install the gear flat side down may result in transmission damage.
3	Output Shaft Assembly
4	Output Carrier Internal Gear Retaining Ring Tip: Grasp the output shaft and carrier with both hands to turn over.

2-6 CLUTCH OVERHAUL (6L80)

2-6 Clutch Plates Removal

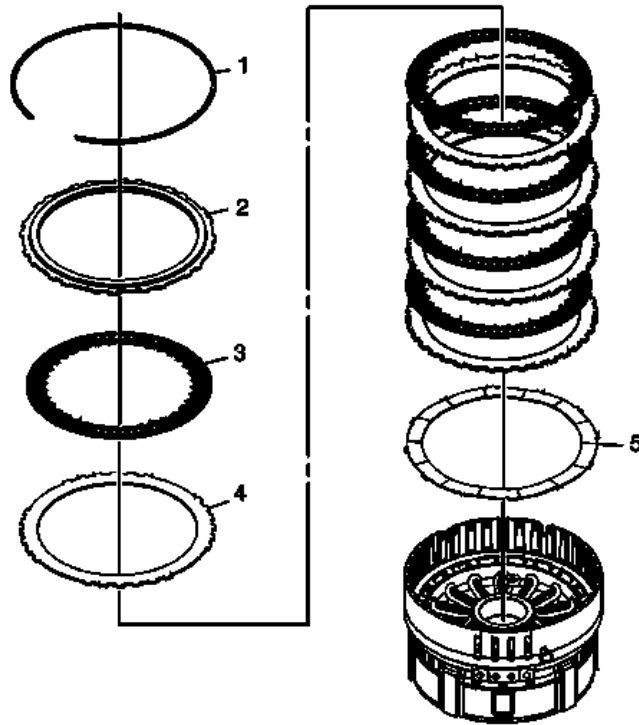


Fig. 35: Overhauling 2-6 Clutch (6L80)
Courtesy of GENERAL MOTORS CORP.

2-6 Clutch Plates Removal

Callout	Component Name
1	2-6 Clutch Backing Plate Retaining Ring
2	2-6 Clutch Backing Plate
3	2-6 Clutch Plate Assembly (Quantity: 5)
4	2-6 Clutch Plate (Quantity: 5)
5	2-6 Clutch (Waved) Plate

2-6 Clutch Piston Replacement

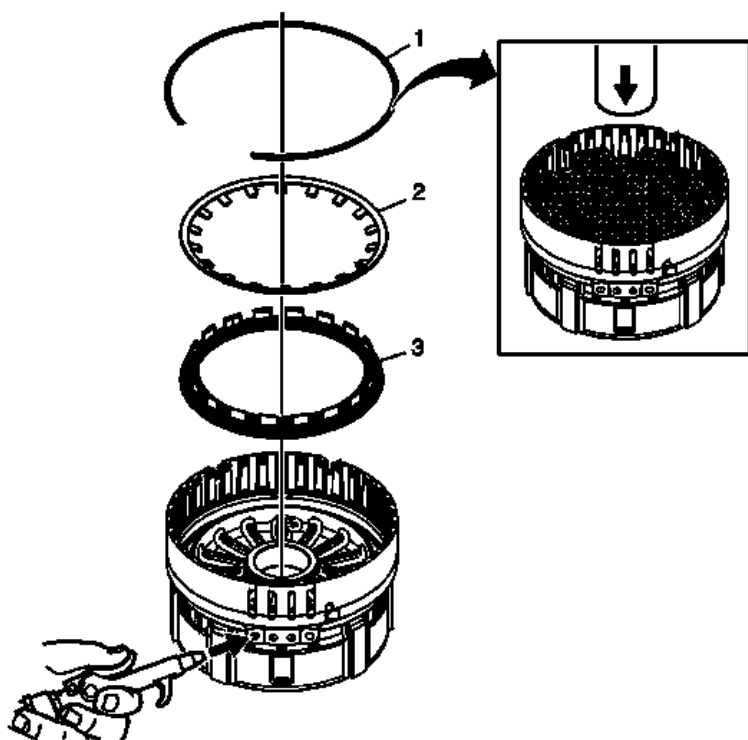


Fig. 36: Replacing 2-6 Clutch Piston
Courtesy of GENERAL MOTORS CORP.

2-6 Clutch Piston Replacement

Callout	Component Name
1	2-6 Clutch Spring Retaining Ring Tip: Ensure the DT 47761 is centered over the clutch spring. See Special Tools . Special Tool: DT 47761 Clutch Spring Compressor. See Special Tools .
2	2-6 Clutch Spring NOTE: Ensure the spring tabs are facing down during installation and that the tabs fit between the teeth on the piston. Failure to do so may cause damage to the clutch assembly.
3	2-6 Clutch Piston Assembly Tip: It may be necessary to apply air to the apply passage in order to unseat the piston.

2-6 Clutch Plates Installation

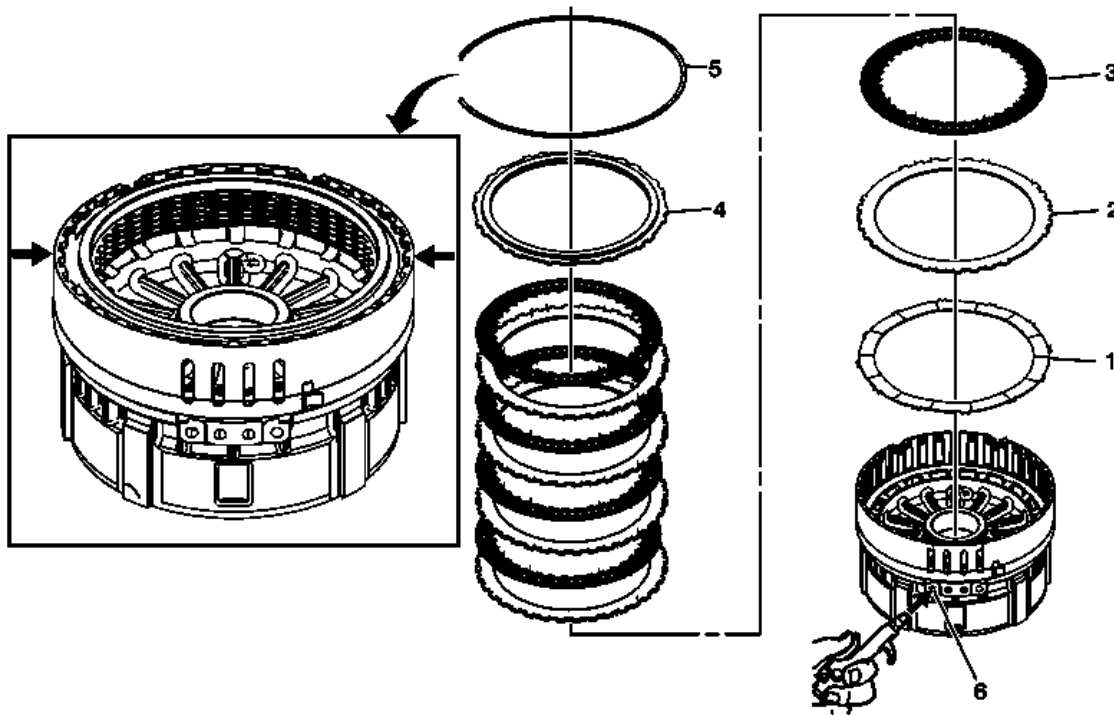


Fig. 37: Installing 2-6 Clutch Plates
 Courtesy of GENERAL MOTORS CORP.

2-6 Clutch Plates Installation

Callout	Component Name
1	2-6 Clutch (Waved) Plate
2	2-6 Clutch Plates (Quantity: 5) Tip: Alternate between steel and fiber clutch plates.
3	2-6 Clutch Plate Assembly (Quantity: 5) Tip: Alternate between steel and fiber clutch plates.
4	2-6 Clutch Backing Plate
5	2-6 Clutch Backing Plate Retaining Ring
6	2-6 Clutch Apply Passage Tip: Apply air to verify proper installation of all 2-6 clutch components.

LOW AND REVERSE CLUTCH OVERHAUL

Low and Reverse Clutch Plate Removal

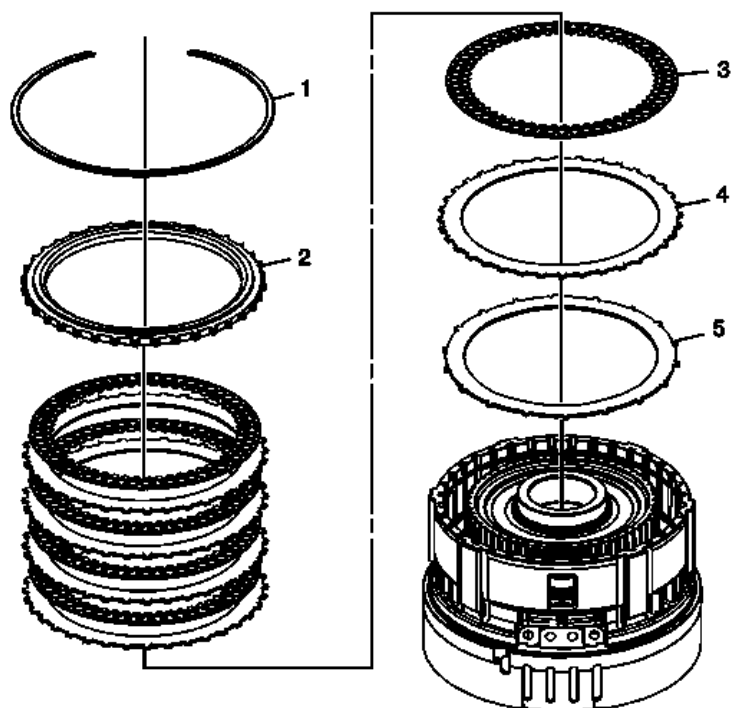


Fig. 38: Removing Low And Reverse Clutch Plate
 Courtesy of GENERAL MOTORS CORP.

Low and Reverse Clutch Plate Removal

Callout	Component Name
1	Low and Reverse Clutch Backing Plate Retaining Ring
2	Low and Reverse Clutch Backing Plate
3	Low and Reverse Clutch Plate Assembly (Quantity: 5)
4	Low and Reverse Clutch Plate (Quantity: 5)
5	Low and Reverse Clutch (Waved) Plate

Low and Reverse Clutch Piston Removal

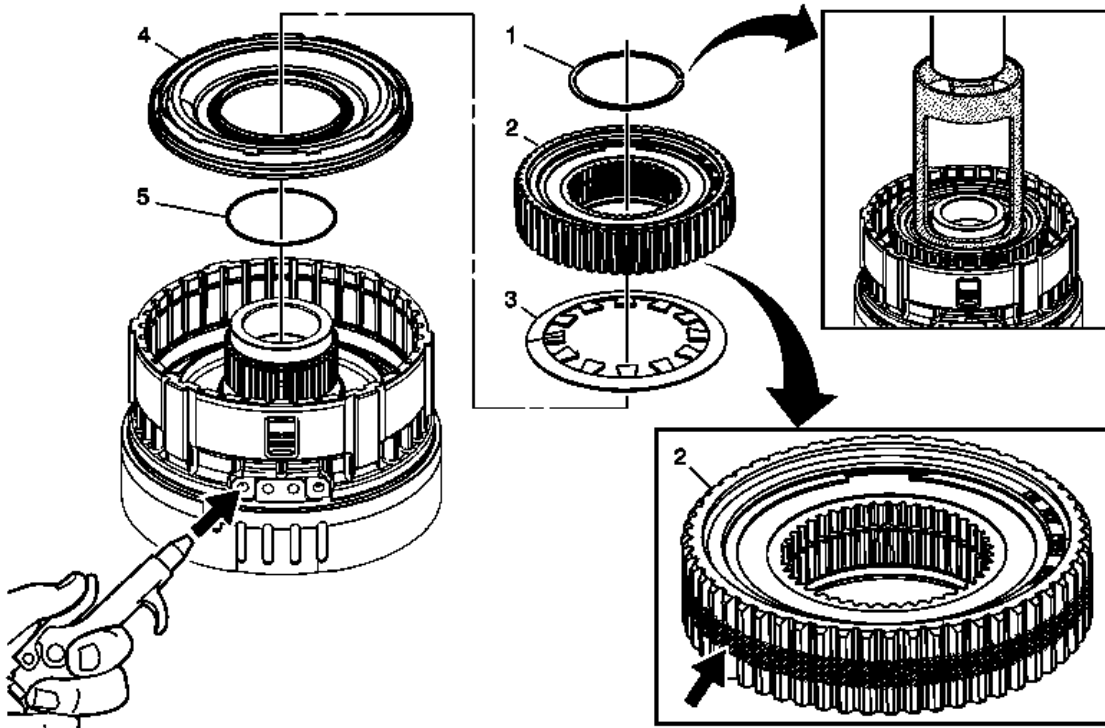


Fig. 39: Removing Low And Reverse Clutch Piston
Courtesy of GENERAL MOTORS CORP.

Low and Reverse Clutch Piston Removal

Callout	Component Name
1	Low and Reverse Clutch Spring Retaining Ring NOTE: Ensure the DT 47779 contacts the sprag assembly and not the sprag retaining ring. Damage to the sprag may result. Special Tool: DT 47779 Clutch Spring Compressor. See Special Tools .
2	Low Clutch Sprag Assembly
3	Low and Reverse Clutch Spring
4	Low and Reverse Clutch Piston Assembly Tip: It may be necessary to apply air to the apply passage in order to unseat the piston.
5	Low Clutch Sprag Seal NOTE: Refer to Seal Reuse Notice .

Low and Reverse Clutch Piston Installation

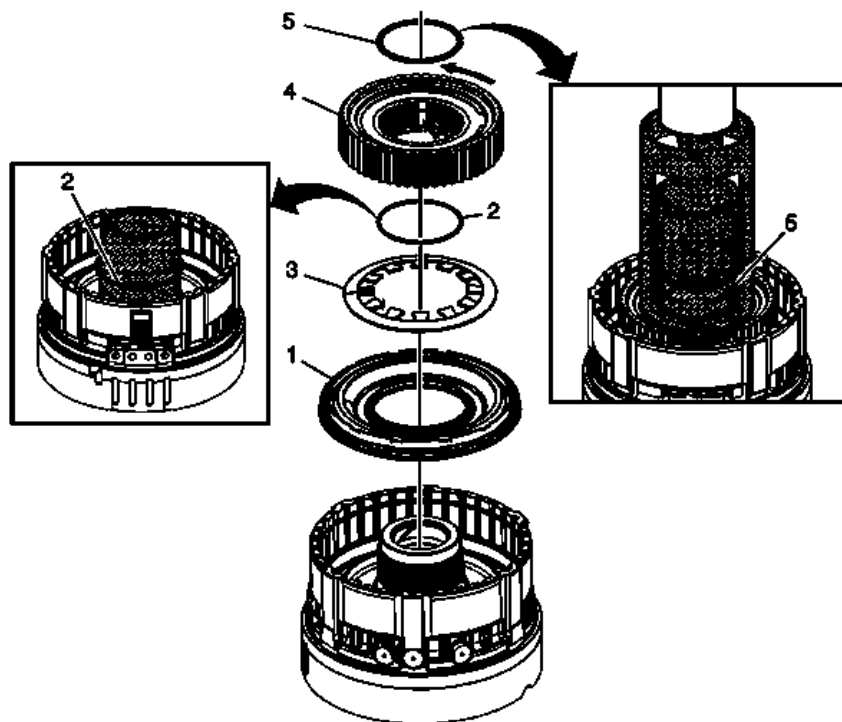


Fig. 40: Installing Low And Reverse Clutch Piston
 Courtesy of GENERAL MOTORS CORP.

Low and Reverse Clutch Piston Installation

Callout	Component Name
1	Low and Reverse Clutch Piston Assembly Tip: Lubricate the inner and outer sealing surfaces of the piston assembly with automatic transmission fluid (ATF) in order to ease installation into the center support assembly.
2	Low Clutch Sprag Seal NOTE: Refer to <u>Seal Reuse Notice</u> . Tip: Apply ATF to the DT 47780 to ease seal installation. See <u>Special Tools</u> . Special Tool: DT 47780 Low Clutch Sprag Seal Cone. See <u>Special Tools</u> .
3	Low and Reverse Clutch Spring NOTE: Ensure the spring tabs are facing up during installation. Failure to do so may cause damage to the clutch

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	assembly.
4	Low Clutch Sprag Assembly Tip: • Verify that the low clutch sprag is operating correctly. Refer to the illustration for proper freewheel direction. • Ensure the missing splines on the sprag assembly are aligned with the missing splines on the center support hub.
5	Low and Reverse Clutch Spring Retaining Ring NOTE: Ensure the DT 47779 contacts the sprag assembly and not the sprag retaining ring. Damage to the sprag may result. NOTE: The retaining ring gap must be aligned with the 3 missing splines on the center support hub. Failure to do so may cause damage to the clutch assembly. Special Tools • DT 47778-1 Low Clutch Sprag Retaining Ring Cone. See <u>Special Tools</u>. • DT 47778-2 Low Clutch Sprag Retaining Ring Pusher. See <u>Special Tools</u>. • DT 47779 Clutch Spring Compressor. See <u>Special Tools</u>.

Low and Reverse Clutch Plate Installation

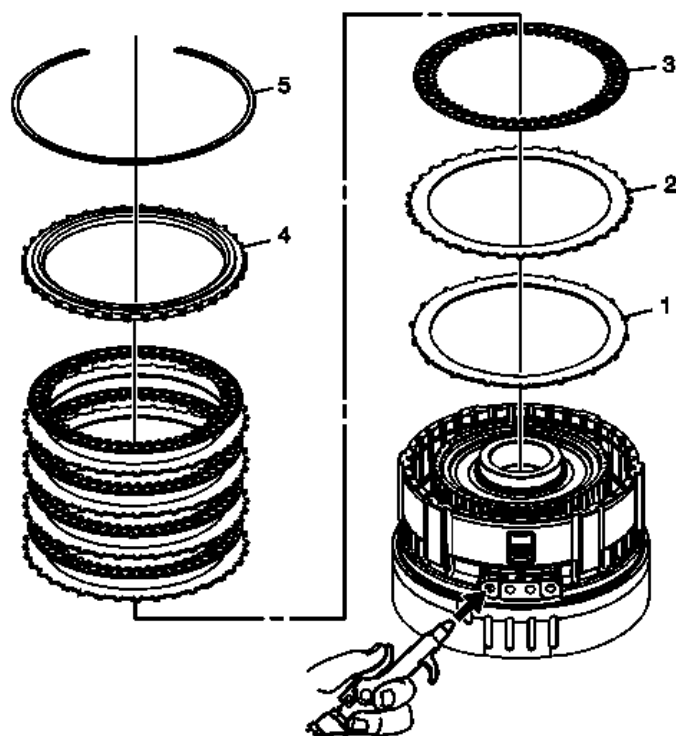


Fig. 41: Installing Low And Reverse Clutch Plate
 Courtesy of GENERAL MOTORS CORP.

Low and Reverse Clutch Plate Installation

Callout	Component Name
1	Low and Reverse Clutch (Waved) Plate
2	Low and Reverse Clutch Plate (Quantity: 5)
3	Low and Reverse Clutch Plate Assembly (Quantity: 5)
4	Low and Reverse Clutch Backing Plate
5	Low and Reverse Clutch Backing Plate Retaining Ring Tip: Apply air to verify proper installation of all low and reverse clutch components.

4-5-6 CLUTCH DAMPENER OVERHAUL

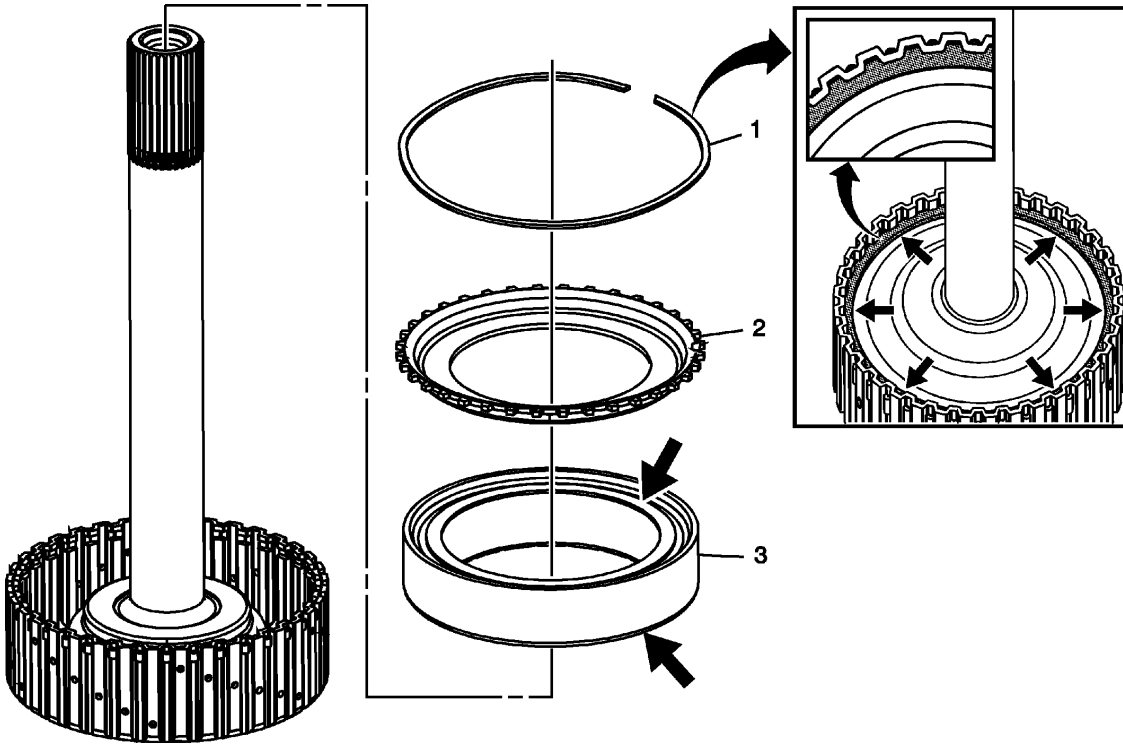


Fig. 42: Overhauling 4-5-6 Clutch Dampener
Courtesy of GENERAL MOTORS CORP.

4-5-6 Clutch Dampener Overhaul

Callout	Component Name
1	4-5-6 Clutch Dampener Retaining Ring NOTE: Ensure the retaining ring is fully seated when installed. Using a screwdriver, fully seat the retaining ring into the groove by pushing on the inside diameter around the whole circumference. If the retaining ring is not fully seated, transmission damage will result.
2	4-5-6 Clutch Dampener Apply Plate
3	4-5-6 Clutch Dampener Tip: Dry and inspect the clutch dampener for the following conditions: • Pitting • Flaking • Delamination • Wear • Glazing • Cracking

4-5-6 CLUTCH OVERHAUL

4-5-6 Clutch Plates Removal

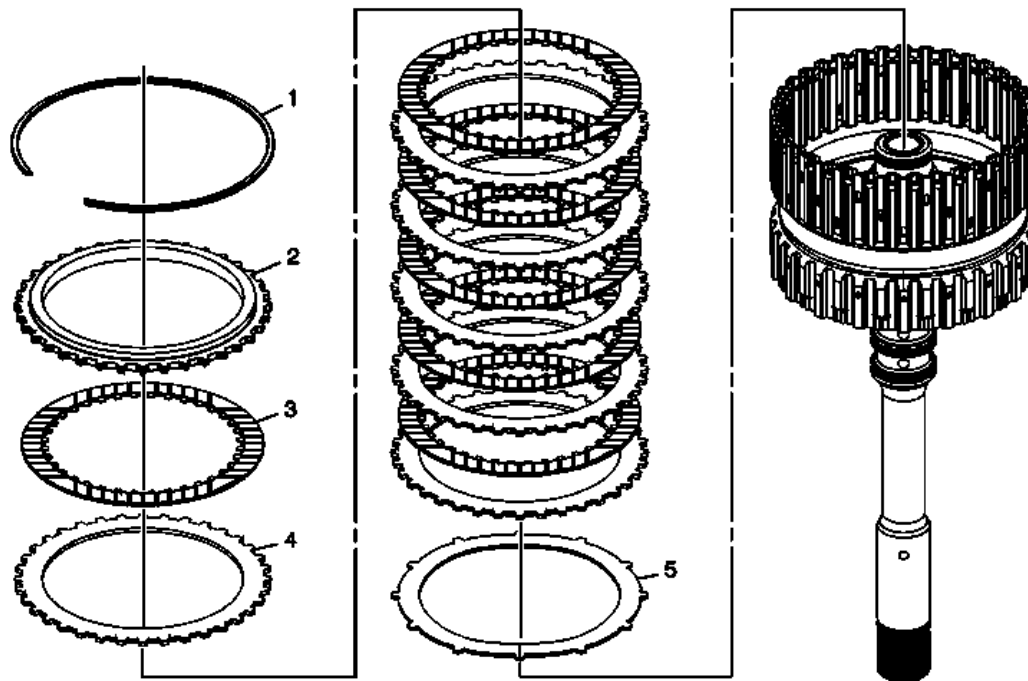


Fig. 43: Removing 4-5-6 Clutch Plates
Courtesy of GENERAL MOTORS CORP.

4-5-6 Clutch Plates Removal

Callout	Component Name
1	4-5-6 Clutch Backing Plate Retaining Ring
2	4-5-6 Clutch Backing Plate
3	4-5-6 Clutch Plate Assembly (Quantity: 6)
4	4-5-6 Clutch Plate (Quantity: 6)
5	4-5-6 Clutch (Waved) Plate

4-5-6 Clutch Piston Removal

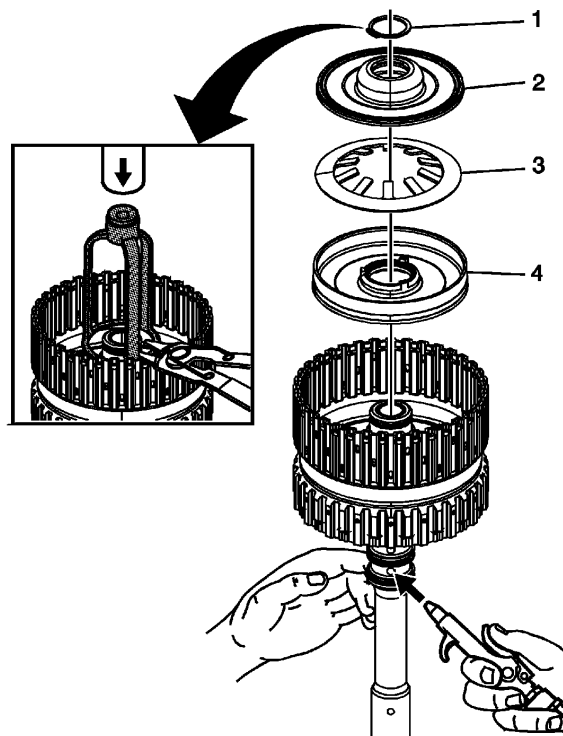


Fig. 44: Removing 4-5-6 Clutch Piston
 Courtesy of GENERAL MOTORS CORP.

4-5-6 Clutch Piston Removal

Callout	Component Name
1	4-5-6 Clutch Piston Dam Retaining Ring NOTE: Use care when compressing the 4-5-6 clutch piston assembly, spring and dam assembly. Compressing the dam assembly too much may damage it. NOTE: Refer to <u>Retaining Ring Reuse Notice</u> . Special Tool: J 43074 Clutch Spring Compressor. See Special Tools .
2	4-5-6 Clutch Piston Dam Assembly Tip: It may be necessary to apply air pressure to remove the dam and piston.
3	4-5-6 Clutch Spring
4	4-5-6 Clutch Piston Assembly Tip: It may be necessary to apply air pressure to

remove the piston.

Turbine Shaft Fluid Seal Ring Replacement

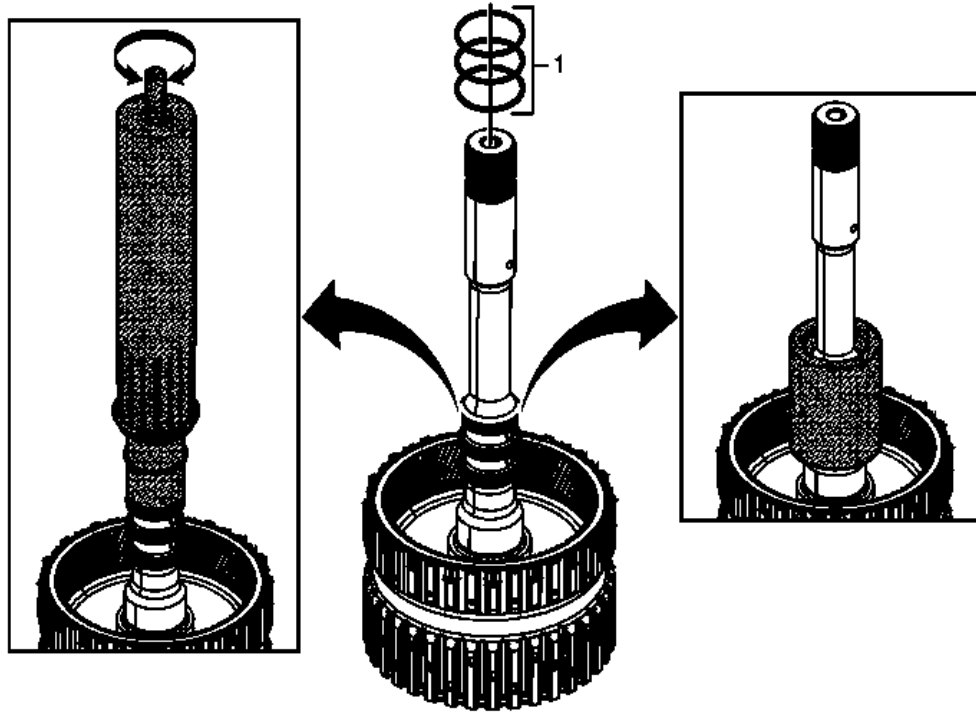


Fig. 45: Replacing Turbine Shaft Fluid Seal Ring
Courtesy of GENERAL MOTORS CORP.

Turbine Shaft Fluid Seal Ring Replacement

Callout	Component Name
Preliminary Procedures - Inspect the turbine shaft fluid passages and splines. - Clean any plugged passages.	
1	Turbine Shaft Fluid Seal Ring (Quantity: 3) NOTE: Do not use old seal rings. Install NEW seal rings. Reusing old seal rings may cause internal transmission leaks and transmission damage. NOTE: Size the fluid seal rings for at least 5 minutes after installation to obtain proper seal ring size. Failure to do so may cause internal transmission leaks and transmission damage.

Tip: Adjust the turn screw on the **DT 47768-1** and install the bottom seal ring first. See **Special Tools**.

Special Tools

- **DT 47768-1** Seal Protector. See **Special Tools**.
- **DT 47768-2** Seal Pusher. See **Special Tools**.
- **DT 47768-3** Seal Sizer. See **Special Tools**.

4-5-6 Clutch Piston Installation

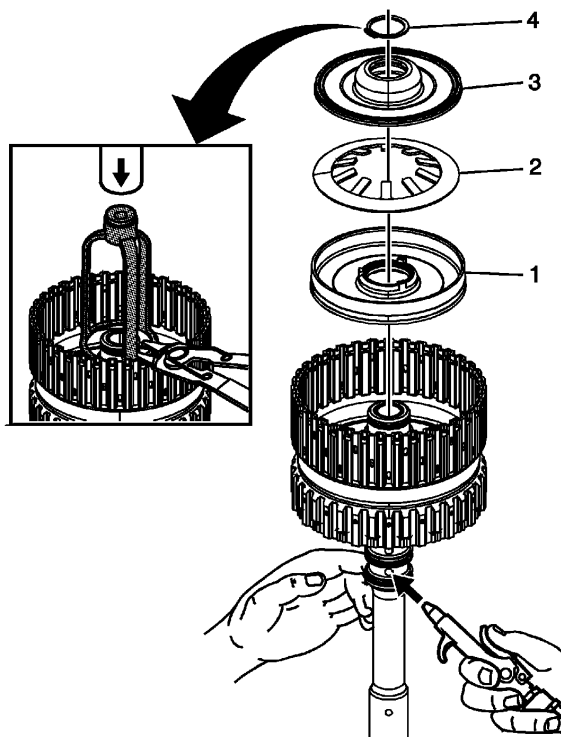


Fig. 46: Installing 4-5-6 Clutch Piston
Courtesy of GENERAL MOTORS CORP.

4-5-6 Clutch Piston Installation

Callout	Component Name
1	4-5-6 Clutch Piston Assembly
2	4-5-6 Clutch Spring
	NOTE: Ensure the spring tabs are facing up during installation. Failure to do so may cause damage to the clutch assembly.
	4-5-6 Clutch Piston Dam Assembly

3	Tip: Lubricate the inner and outer sealing surfaces of the dam assembly with automatic transmission fluid (ATF) in order to ease installation into the piston.
4	4-5-6 Clutch Piston Dam Retaining Ring NOTE: Use care when compressing the 4-5-6 clutch piston assembly, spring and dam assembly. Compressing the dam assembly too much may damage it. NOTE: Refer to <u>Retaining Ring Reuse Notice</u> . Tip: Apply air to verify proper installation of all 4-5-6 clutch components. Piston should apply and release smoothly. Special Tool: J 43074 Clutch Spring Compressor. See <u>Special Tools</u>.

4-5-6 Clutch Plates Installation

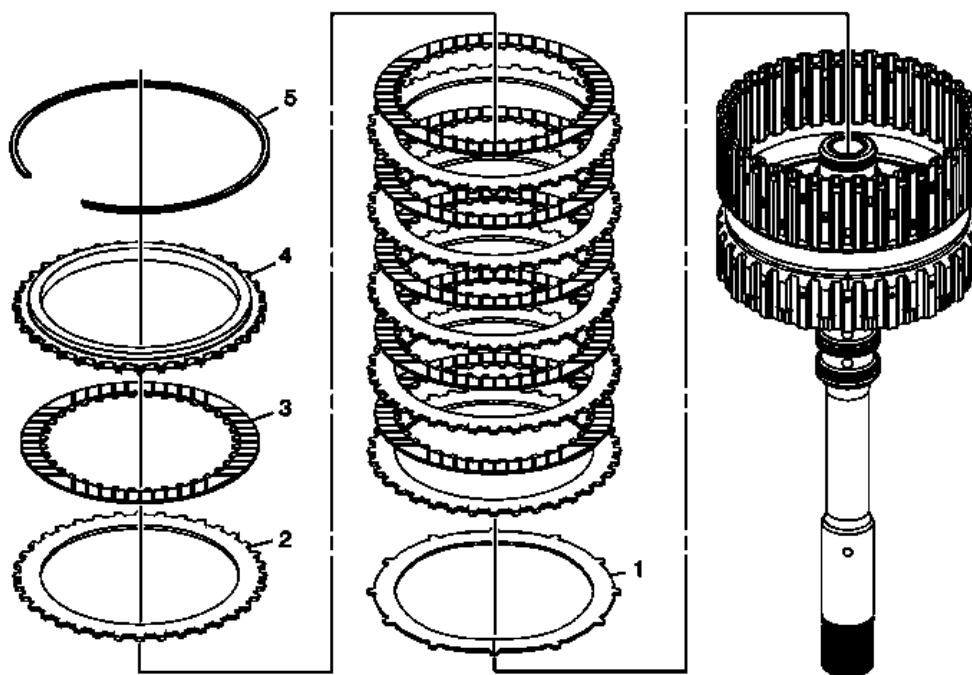


Fig. 47: Installing 4-5-6 Clutch Plates
Courtesy of GENERAL MOTORS CORP.

4-5-6 Clutch Plates Installation

Callout	Component Name
1	4-5-6 Clutch (Waved) Plate
2	4-5-6 Clutch Plate (Quantity: 6)
3	4-5-6 Clutch Plate Assembly (Quantity: 6)
4	4-5-6 Clutch Backing Plate
5	4-5-6 Clutch Backing Plate Retaining Ring Tip: After the retaining ring is installed, determine clutch piston travel in order to verify if the correct selective retaining ring is being used. Refer to 4-5-6 Clutch Backing Plate Retaining Ring Measurement.

4-5-6 CLUTCH BACKING PLATE RETAINING RING MEASUREMENT

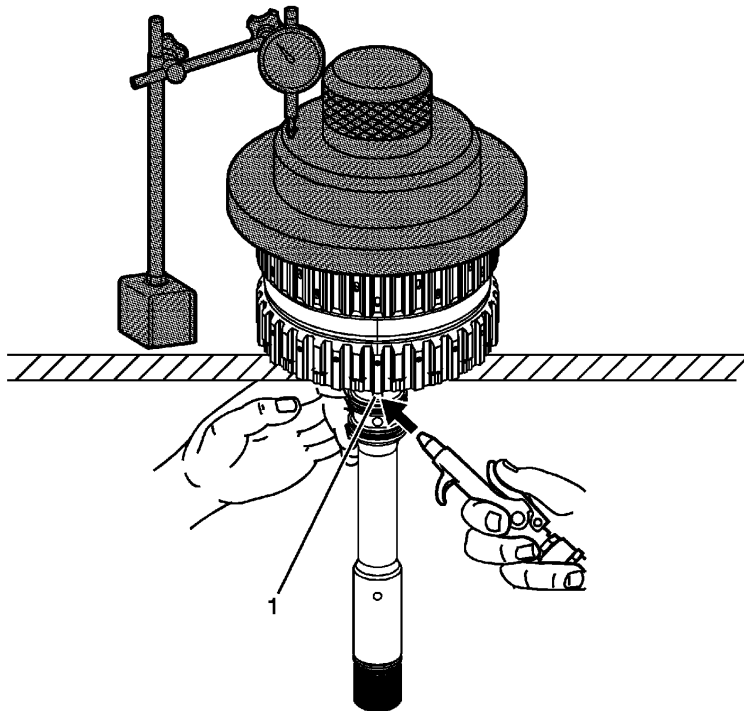


Fig. 48: Measuring 4-5-6 Clutch Backing Plate Retaining Ring
Courtesy of GENERAL MOTORS CORP.

4-5-6 Clutch Backing Plate Retaining Ring Measurement

Callout	Component Name
Preliminary Procedures	
1. Install the clutch assembly into a hole in the workbench 2. Zero out the dial indicator on the DT 47868-1 . See Special Tools.	
Special Tools	

- **DT 47868-1** Pack Travel Weight. See **Special Tools**.
- **J 8001** Dial Indicator Set
- **J 26900-13** Magnetic Base. See **Special Tools**.

1

4-5-6 Clutch Apply Passage

Tip: While using one finger to block the top passage hole on the turbine shaft, apply compressed air to the opposite top passage hole, and observe the dial indicator measurement. Refer to **Clutch Backing Plate Retaining Ring Specifications** to determine the correct retainer.

1-2-3-4 AND 3-5 REVERSE CLUTCH OVERHAUL

1-2-3-4 and 3-5 Reverse Clutch Plates Removal

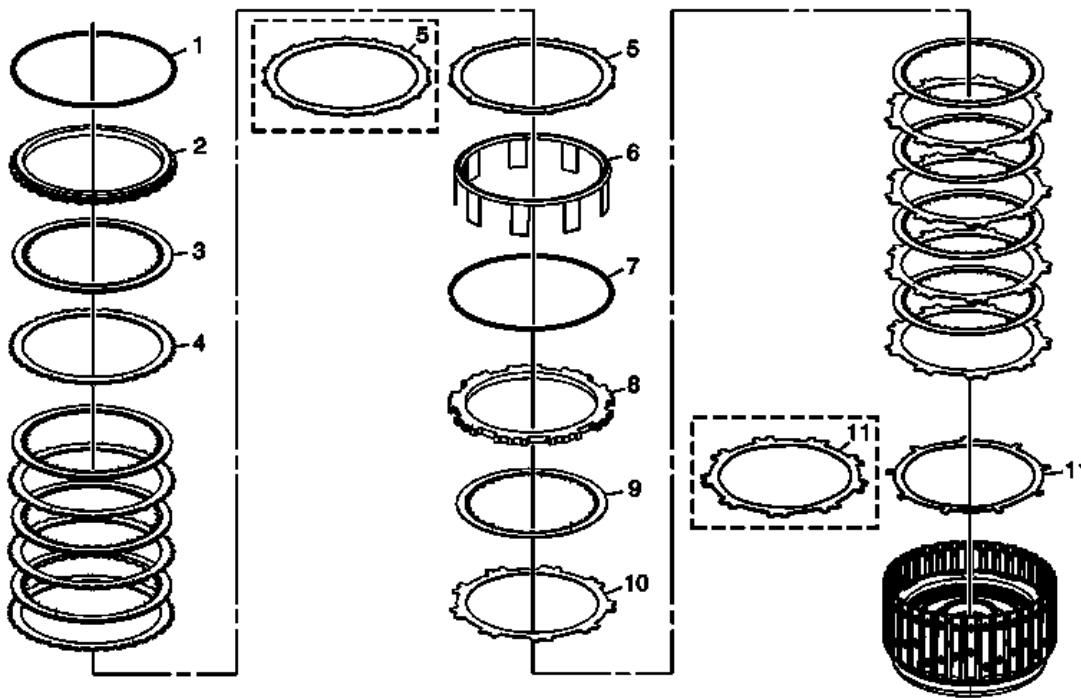


Fig. 49: Removing 1-2-3-4 and 3-5 Reverse Clutch Plates
Courtesy of GENERAL MOTORS CORP.

1-2-3-4 and 3-5 Reverse Clutch Plates Removal

Callout	Component Name
1	3-5 Reverse Clutch Backing Plate Retaining Ring
2	3-5 Reverse Clutch Backing Plate
3	3-5 Reverse Clutch Plate Assembly (Quantity: 4)
4	3-5 Reverse Clutch Plate (Quantity: 4)

5	3-5 Reverse Clutch (Waved) Plate
6	3-5 Reverse Clutch Apply Ring
7	1-2-3-4 Clutch Backing Plate Retaining Ring
8	1-2-3-4 Clutch Backing Plate
9	1-2-3-4 Clutch Plate Assembly (Quantity: 5)
10	1-2-3-4 Clutch Plate (Quantity: 5)
11	1-2-3-4 Clutch (Waved) Plate

1-2-3-4 Clutch Piston Removal

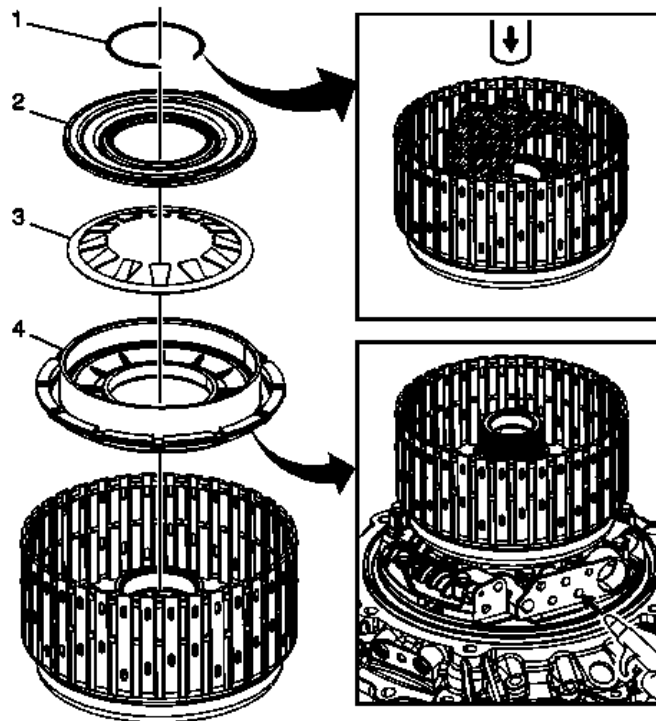


Fig. 50: Removing 1-2-3-4 Clutch Piston
Courtesy of GENERAL MOTORS CORP.

1-2-3-4 Clutch Piston Removal

Callout	Component Name
1	1-2-3-4 Clutch Piston Dam Retaining Ring. NOTE: Use care when compressing the 1-2-3-4 clutch spring and dam assembly. Compressing the dam assembly too much may damage it. NOTE: Refer to <u>Retaining Ring Reuse Notice</u> .

	Special Tool: J 38734 Intermediate Spring Compressor Adapter
2	1-2-3-4 Clutch Piston Dam Assembly.
3	1-2-3-4 Clutch Spring
4	1-2-3-4 Clutch Piston Tip: It may be necessary to apply air to the apply passage in order to remove the piston. Install the 1-2-3-4 clutch housing onto the torque converter (with fluid pump) housing assembly in order to apply air. Tip: After air is applied, it may be necessary to turn the housing assembly upside down and carefully tap the housing against a flat surface in order to release the piston.

3-5 Reverse Clutch Piston Removal

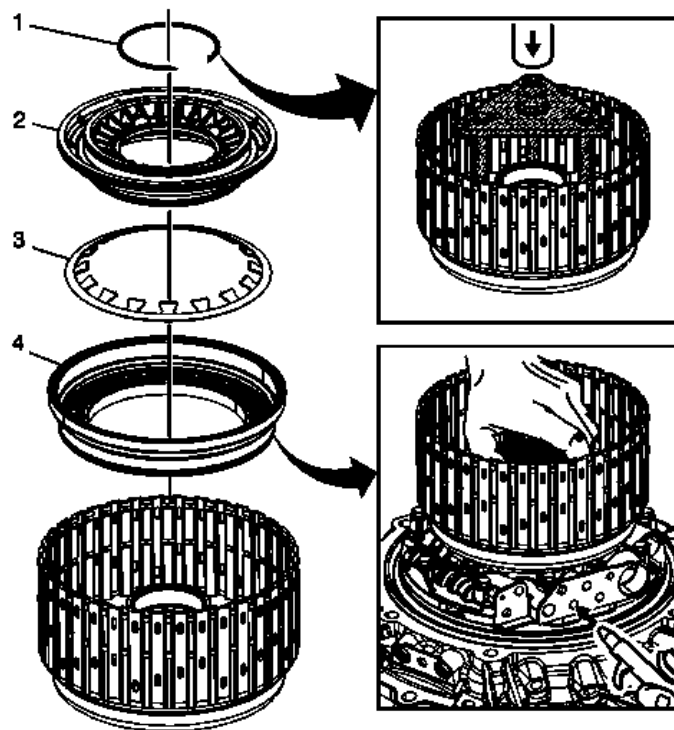


Fig. 51: Removing 3-5 Reverse Clutch Piston
 Courtesy of GENERAL MOTORS CORP.

3-5 Reverse Clutch Piston Removal

Callout	Component Name
	1-2-3-4 Clutch Piston Housing Retaining Ring
	NOTE:

Refer to Retaining Ring Reuse Notice .

1

Special Tool:

DT 47867 Adjustable Clutch Spring Compressor.
See Special Tools.

Preliminary Procedures

1. Install the 1-2-3-4 and 3-5 reverse clutch housing assembly onto the torque converter (with fluid pump) housing assembly.
2. Apply hand pressure on the 1-2-3-4 clutch piston housing while applying compressed air to the apply passage in order to unseat the 3-5 reverse clutch piston.

2

1-2-3-4 Clutch Piston Housing

3

3-5 Reverse Clutch Spring

4

3-5 Reverse Clutch Piston

Tip: It may be necessary to turn the housing assembly upside down and carefully tap the housing against a flat surface in order to release the piston.

1-2-3-4 and 3-5 Reverse Clutch Piston Seals Replacement

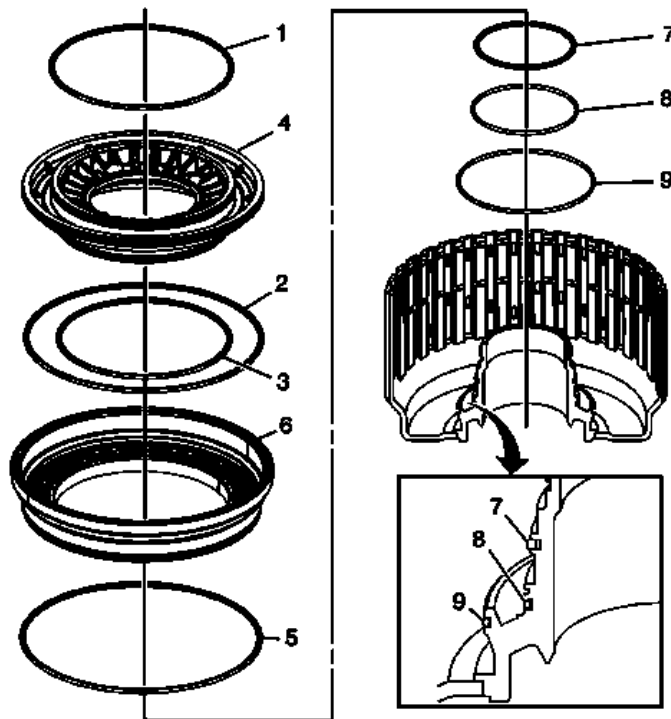


Fig. 52: Replacing 1-2-3-4 and 3-5 Reverse Clutch Piston Seals
Courtesy of GENERAL MOTORS CORP.

2006 Chevrolet Corvette Z06

2006 TRANSMISSION Automatic Transmission - 6L80 - Overhaul - Corvette

1-2-3-4 and 3-5 Reverse Clutch Piston Seals Replacement

Callout	Component Name
NOTE: Refer to <u>Seal Reuse Notice</u> .	
Tip: Lubricate all seals with automatic transmission fluid (ATF) prior to installation.	
1	1-2-3-4 Clutch Piston Seal
2	3-5 Reverse Clutch Piston Dam (O-Ring) Seal
3	3-5 Reverse Clutch Piston Inner Seal
4	1-2-3-4 Clutch Piston Housing
5	3-5 Reverse Clutch Piston Outer Seal
6	3-5 Reverse Clutch Piston
7	1-2-3-4 Clutch Piston Inner Seal NOTE: Do not install a NEW 1-2-3-4 clutch piston inner seal yet. A special tool used to install the 1-2-3-4 clutch piston housing retaining ring may damage the seal if the seal is installed prior to installing the retaining ring. Refer to <u>3-5 Reverse Clutch Piston Installation</u> .
8	1-2-3-4 Clutch Piston Housing Seal
9	1-2-3-4 Clutch Piston Housing Seal

3-5 Reverse Clutch Piston Installation

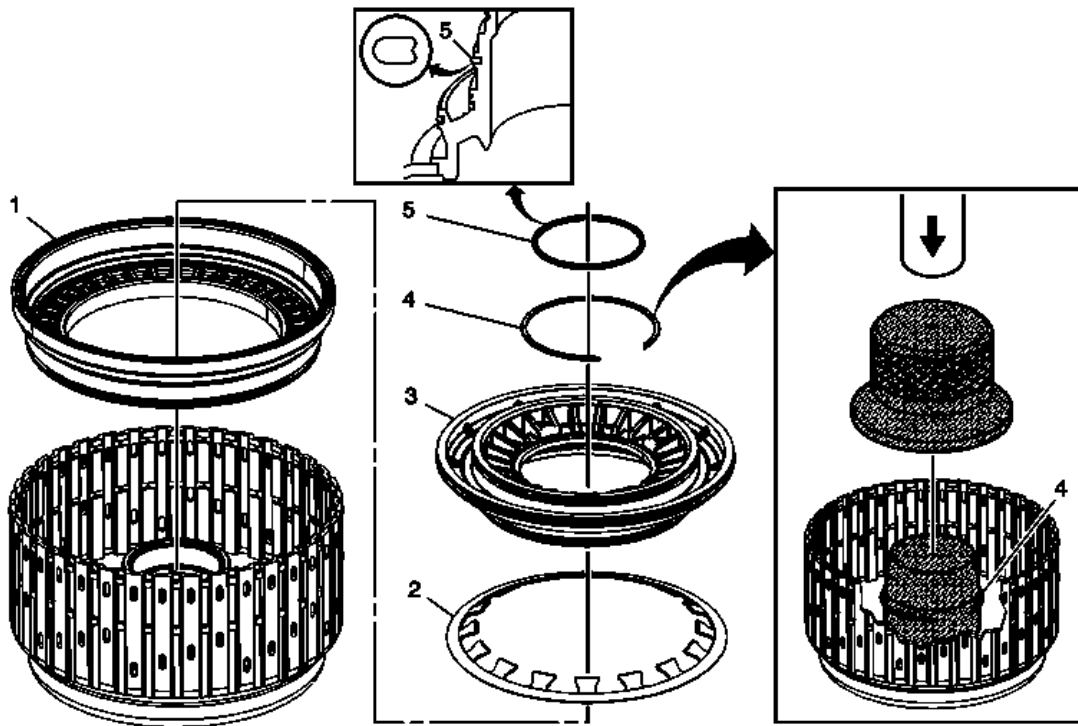


Fig. 53: Installing 3-5 Reverse Clutch Piston
 Courtesy of GENERAL MOTORS CORP.

3-5 Reverse Clutch Piston Installation

Callout	Component Name
1	3-5 Reverse Clutch Piston
2	3-5 Reverse Clutch Spring NOTE: Ensure the clutch spring is centered on the piston with the tabs facing up. Failure to do so may cause damage to the clutch assembly.
3	1-2-3-4 Clutch Piston Housing
	1-2-3-4 Clutch Piston Housing Retaining Ring NOTE: Before using the DT 47782-2, push the retaining ring over the DT 47782-1 by hand so that the ring is positioned below the tapered area of the DT 47782-1. If the ring is positioned above the tapered area when it is being installed, the ring will become lodged between both tools and damage to the tools, retaining ring, and piston housing will result. NOTE: Refer to <u>Retaining Ring Reuse Notice</u> .

4	NOTE: Push the retaining ring down over the cone until the ring seats firmly in the retaining ring groove. The retaining ring will make a distinctive click sound when it seats. Failure to properly seat the retaining ring may cause damage to the 3-5 reverse clutch assembly. Special Tools • DT 47782-1 Retaining Ring Cone. See Special Tools. • DT 47782-2 Retaining Ring Installer. See Special Tools.
5	1-2-3-4 Clutch Piston Inner Seal NOTE: Install a NEW seal and orientate as shown. Failure to do so may cause internal transmission leaks and damage to the transmission.

1-2-3-4 Clutch Piston Installation

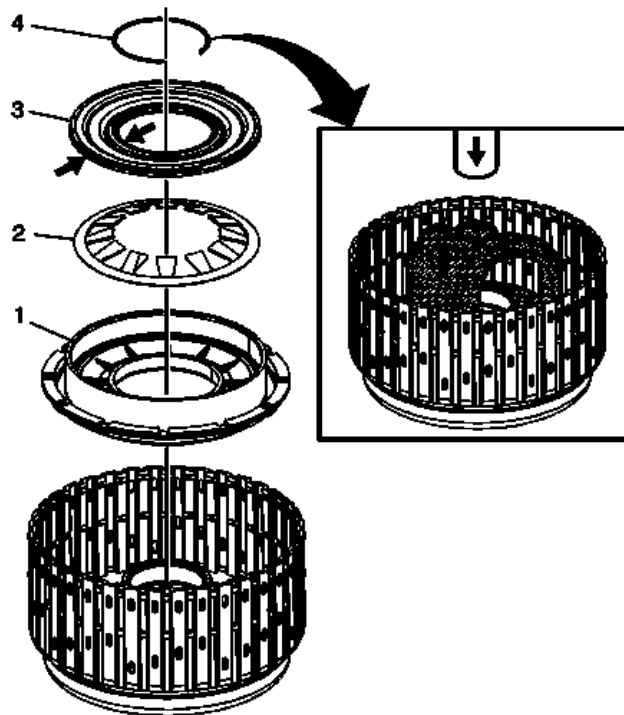


Fig. 54: Installing 1-2-3-4 Clutch Piston
Courtesy of GENERAL MOTORS CORP.

2006 Chevrolet Corvette Z06

2006 TRANSMISSION Automatic Transmission - 6L80 - Overhaul - Corvette

1-2-3-4 Clutch Piston Installation

Callout	Component Name
1	1-2-3-4 Clutch Piston
2	1-2-3-4 Clutch Spring NOTE: Ensure the clutch spring is centered on the piston with the tabs facing up. Failure to do so may cause damage to the clutch assembly.
3	1-2-3-4 Clutch Piston Dam Assembly Tip: Lubricate the inner and outer surfaces of the dam assembly with ATF in order to ease installation into the piston. Install the tabs facing up.
4	1-2-3-4 Clutch Piston Dam Retaining Ring NOTE: Use care when compressing the 1-2-3-4 clutch spring and dam assembly. Compressing the dam assembly too much may damage it. NOTE: Refer to <u>Retaining Ring Reuse Notice</u> . Special Tool: J 38734 Intermediate Spring Compressor Adapter

1-2-3-4 Clutch Plate Installation

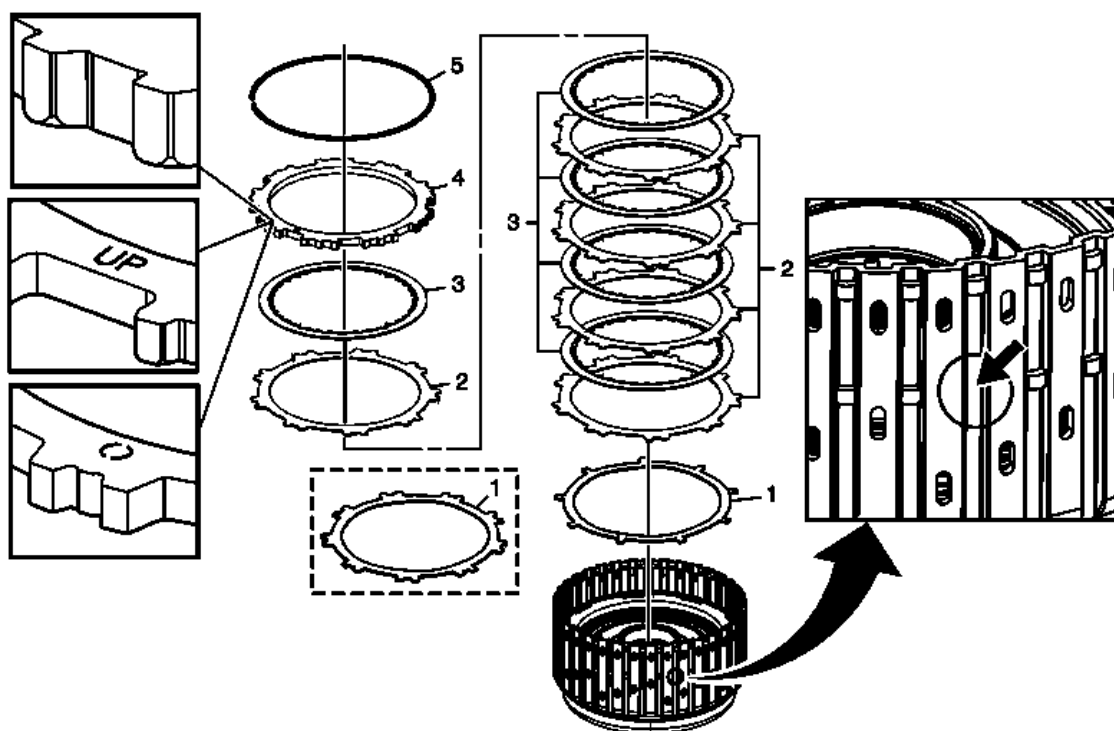


Fig. 55: Installing 1-2-3-4 Clutch Plate
 Courtesy of GENERAL MOTORS CORP.

1-2-3-4 Clutch Plate Installation

Callout	Component Name
1	1-2-3-4 Clutch (Waved) Plate NOTE: Ensure an opening between the external splines of the waved plate is oriented with the missing snap ring groove punch in the housing. Failure to do so may cause damage to the clutch assembly.
2	1-2-3-4 Clutch Plate (Quantity: 5) NOTE: Ensure all clutch plates are centered in the housing. When installing the first steel clutch plate, ensure an opening between the external splines is oriented with the missing snap ring groove punch in the housing. Align the external splines of each remaining steel clutch plate with the first steel clutch plate. Failure to do so may cause damage to the clutch assembly.
3	1-2-3-4 Clutch Plate Assembly (Quantity: 5)
	1-2-3-4 Clutch Backing Plate

4	NOTE: Align the external splines of the backing plate with the external splines of the steel clutch plates. Failure to do so may cause damage to the clutch assembly.
5	1-2-3-4 Clutch Backing Plate Retaining Ring NOTE: Align the retaining ring gap with the missing snap ring groove punch in the housing. Failure to do so may cause damage to the clutch assembly. Tip: After the retaining ring is installed, determine clutch piston travel in order to verify if the correct selective retaining ring is being used. Refer to <u>1-2-3-4 Clutch Backing Plate Retaining Ring Measurement</u>.

3-5 and Reverse Clutch Plate Installation

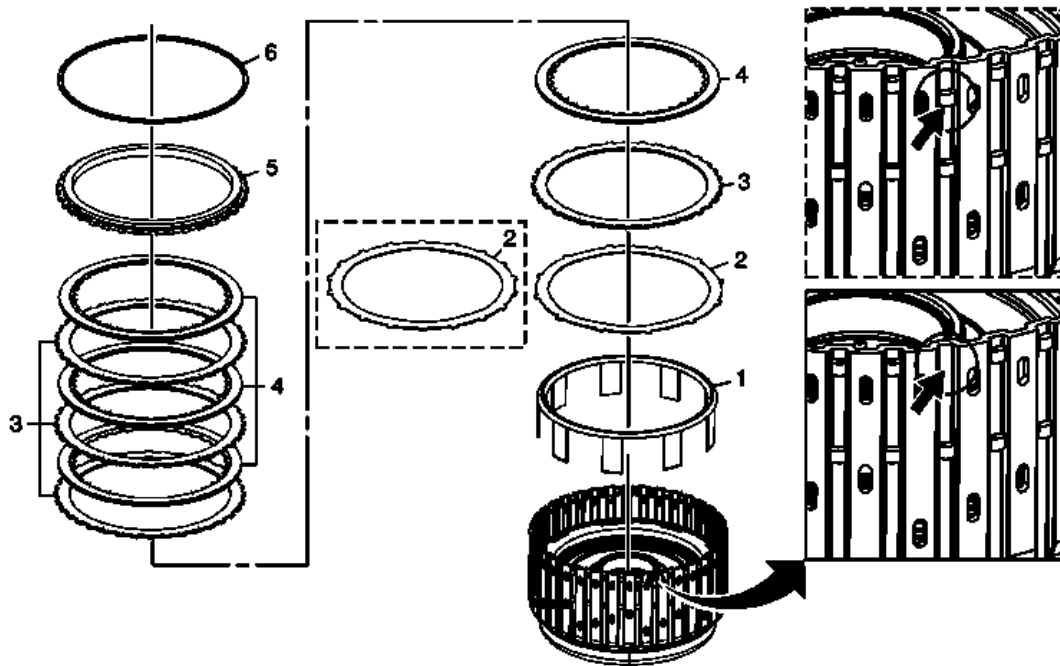


Fig. 56: Installing 3-5 and Reverse Clutch Plate
Courtesy of GENERAL MOTORS CORP.

3-5 and Reverse Clutch Plate Installation

Callout	Component Name
	3-5 Reverse Clutch Apply Ring

1	NOTE: Ensure apply ring legs are positioned into the 3-5 reverse clutch piston. Failure to do so may cause damage to the 3-5 reverse clutch assembly.
2	3-5 Reverse Clutch (Waved) Plate
3	3-5 Reverse Clutch Plate (Quantity: 4)
4	3-5 Reverse Clutch Plate Assembly (Quantity: 4)
5	3-5 Reverse Clutch Backing Plate
6	3-5 Reverse Clutch Backing Plate Retaining Ring NOTE: Align the retaining ring gap with the missing snap ring groove punch in the housing. Failure to do so may cause damage to the clutch assembly. Tip: After the retaining ring is installed, determine clutch piston travel in order to verify if the correct selective retaining ring is being used. Refer to <u>3-5 Reverse Clutch Backing Plate Retaining Ring Measurement</u>.

1-2-3-4 and 3-5 Reverse Clutch Bearing Assembly Replacement

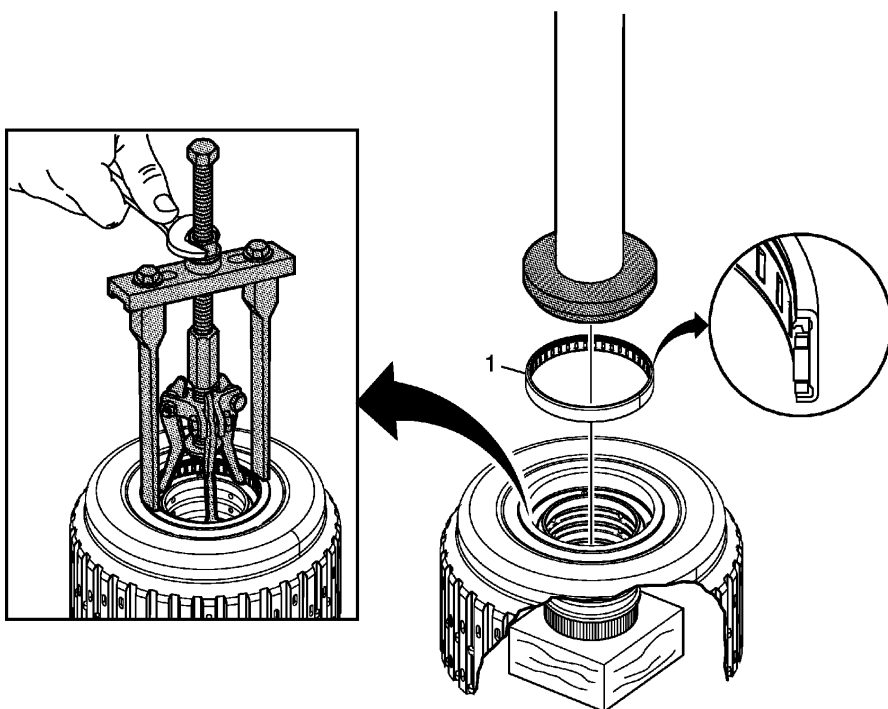


Fig. 57: Replacing 1-2-3-4 and 3-5 Reverse Clutch Bearing Assembly

Courtesy of GENERAL MOTORS CORP.

1-2-3-4 and 3-5 Reverse Clutch Bearing Assembly Replacement

Callout	Component Name
1	3-5 Reverse Clutch Bearing NOTE: Install the NEW bearing assembly with the seal side up. Improper installation of the bearing may cause damage to the transmission. NOTE: Do not reuse the bearing. Install a NEW bearing. Reusing an old bearing may cause damage to the transmission. Specification: Install the bearing flush to 0.3 mm below the thrust surface. Special Tools • DT 47865 Bearing Remover. See <u>Special Tools</u>. • DT 47866 Bearing Installer. See <u>Special Tools</u>. • J 8092 Driver Handle • J 45124 Removal Bridge

1-2-3-4 CLUTCH BACKING PLATE RETAINING RING MEASUREMENT

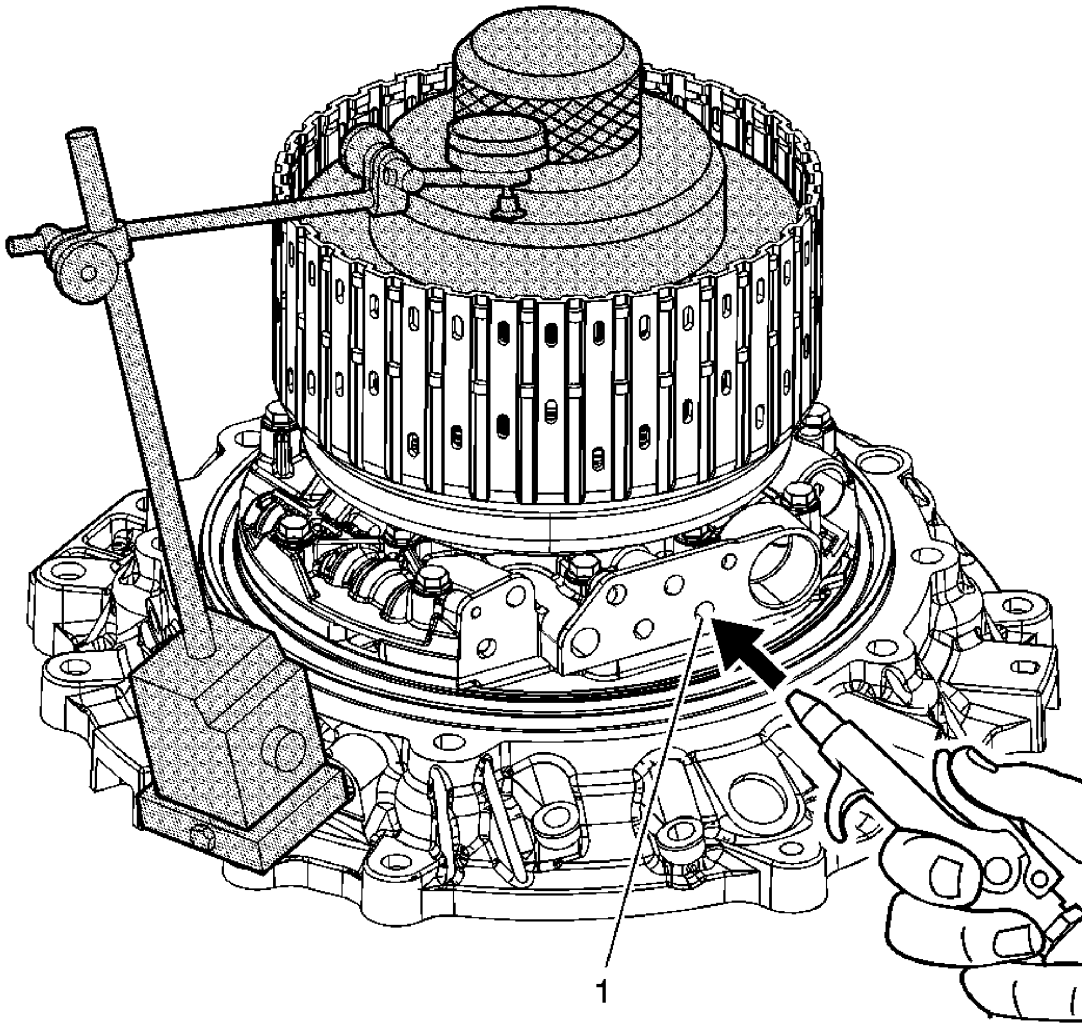


Fig. 58: Measuring 1-2-3-4 Clutch Backing Plate Retaining Ring
 Courtesy of GENERAL MOTORS CORP.

1-2-3-4 Clutch Backing Plate Retaining Ring Measurement

Callout	Component Name
Preliminary Procedures	
1. Install the 1-2-3-4 and 3-5 reverse clutch housing with the 1-2-3-4 clutch plates installed, onto the torque converter housing. 2. Install the DT 47868-2 onto the torque converter housing. See Special Tools. 3. Install DT 47868-1 onto the 1-2-3-4 clutch backing plate. See Special Tools. 4. Install the J 26900-13 onto DT 47868-2 . See Special Tools. 5. Attach the J 8001 to the J 26900-13 and zero out the dial indicator on the DT 47868-1 . See Special Tools.	

Special Tools

- **DT 47868-1** Clutch Pack Travel Weight. See **Special Tools**.
- **DT 47868-2** Magnetic Base Adapter. See **Special Tools**.
- **J 8001** Dial Indicator Set
- **J 26900-13** Magnetic Base. See **Special Tools**.

1

1-2-3-4 Clutch Apply Passage

Tip: Apply compressed air to the apply passage hole, at least 3 times and observe the dial indicator measurement each time. This action "fluffs" the clutch plates to ensure an accurate measurement. Refer to **Clutch Backing Plate Retaining Ring Specifications**.

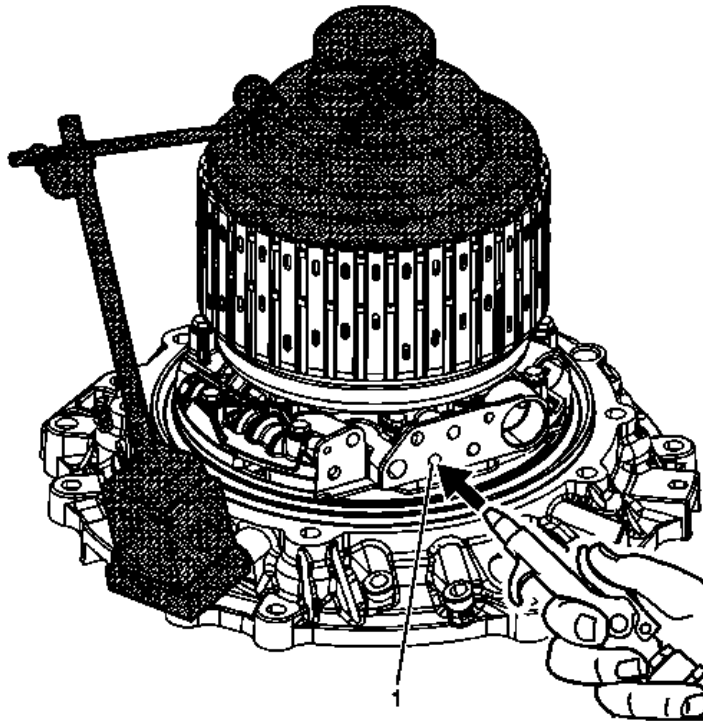
3-5 REVERSE CLUTCH BACKING PLATE RETAINING RING MEASUREMENT

Fig. 59: Measuring 3-5 Reverse Clutch Backing Plate Retaining Ring
 Courtesy of GENERAL MOTORS CORP.

3-5 Reverse Clutch Backing Plate Retaining Ring Measurement

Callout	Component Name
Preliminary Procedures	
1. Install the 1-2-3-4 and 3-5 reverse clutch housing with the 1-2-3-4 and 3-5 reverse clutch plates installed, onto the torque converter housing. 2. Install the DT 47868-2 onto the torque converter housing. See Special Tools.	

3. Install **DT 47868-1** onto the 3-5 reverse clutch backing plate. See Special Tools.
4. Install the **J 26900-13** onto **DT 47868-2** . See Special Tools.
5. Attach the **J 8001** to the **J 26900-13** and zero out the dial indicator on the **DT 47868-1** . See Special Tools.

Special Tools

- **DT 47868-1** Clutch Pack Travel Weight. See Special Tools.
- **DT 47868-2** Magnetic Base Adapter. See Special Tools.
- **J 8001** Dial Indicator Set
- **J 26900-13** Magnetic Base. See Special Tools.

1

3-5 Reverse Clutch Apply Passage

Tip: Apply compressed air to the apply passage hole, and observe the dial indicator measurement. Refer to Clutch Backing Plate Retaining Ring Specifications.

TORQUE CONVERTER HOUSING WITH FLUID PUMP DISASSEMBLE

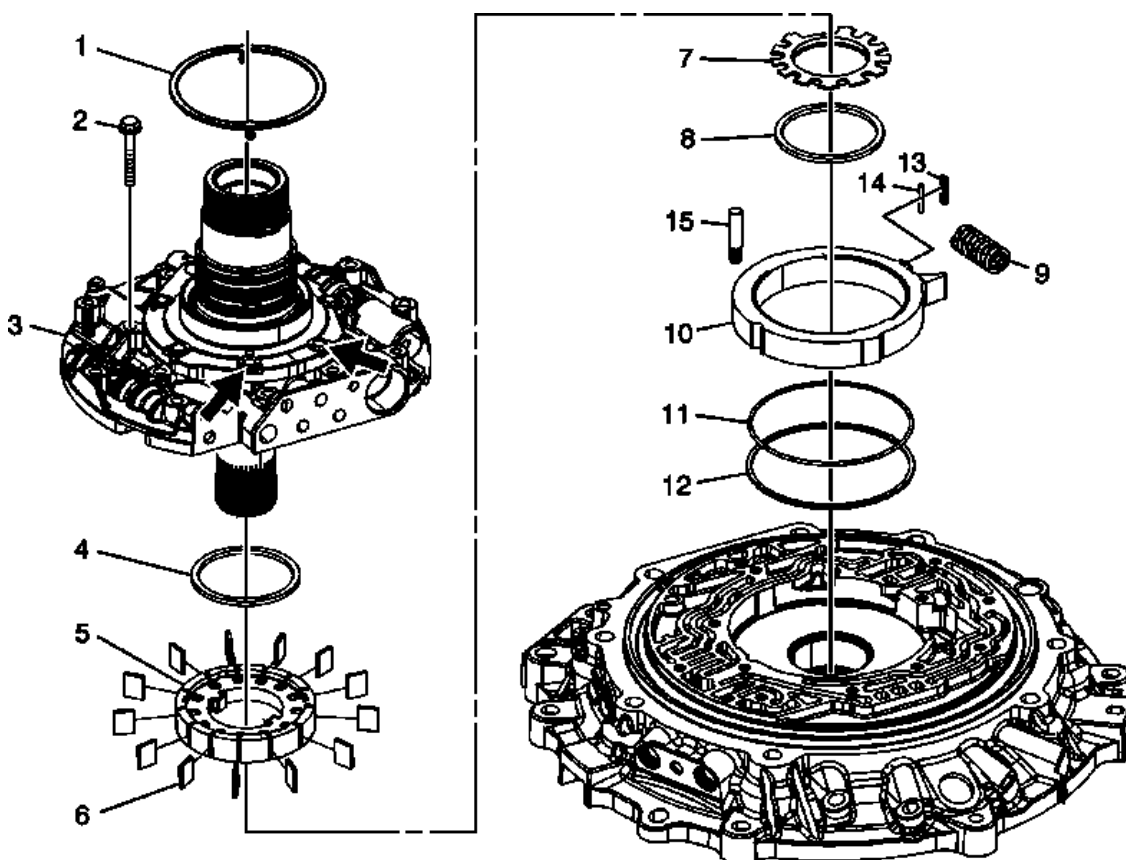


Fig. 60: Disassembling Torque Converter Housing with Fluid Pump
Courtesy of GENERAL MOTORS CORP.

Torque Converter Housing with Fluid Pump Disassemble

2006 Chevrolet Corvette Z06

2006 TRANSMISSION Automatic Transmission - 6L80 - Overhaul - Corvette

Callout	Component Name
NOTE: Do not loosen or remove the 6 bolts securing the clutch support to the pump cover assembly. These bolts have been installed and torqued only after specific clutch support rotational requirements have been met. If the clutch support is not installed properly, damage to the transmission will occur.	
1	1-2-3-4 and 3-5 Reverse Clutch Housing Thrust Washer
2	Bolt M6 x 40 (Quantity: 13)
3	Fluid Pump Cover Assembly
4	Fluid Pump Vane Ring
5	Fluid Pump Rotor
6	Fluid Pump Vanes (Quantity: 13)
7	Fluid Pump Rotor Guide
8	Fluid Pump Vane Ring
9	Fluid Pump Slide Outer Spring
10	Fluid Pump Slide
11	Fluid Pump Slide (O-Ring) Seal
12	Fluid Pump Slide Fluid Seal Ring
13	Fluid Pump Slide Seal
14	Fluid Pump Slide Seal Support
15	Fluid Pump Slide Pivot Pin

FLUID PUMP COVER CLEANING AND INSPECTION

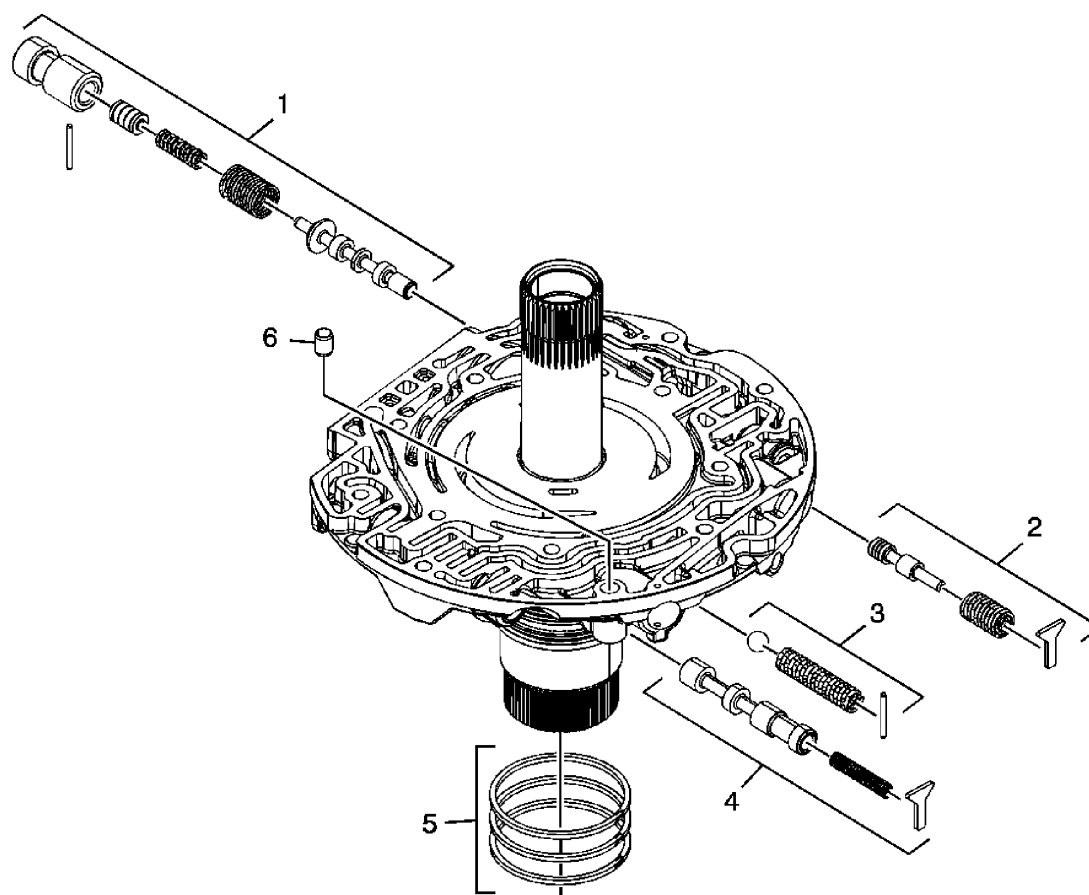


Fig. 61: Inspecting Fluid Pump Cover
Courtesy of GENERAL MOTORS CORP.

Fluid Pump Cover Cleaning and Inspection

Callout	Component Name
CAUTION: Valve springs can be tightly compressed. Use care when removing retainers and plugs. Personal injury could result.	
Tip: Clean and inspect all components and machined surfaces.	
1	Pressure Regulator Valve Train
2	Converter Feed Limit Valve Train
3	Pressure Relief Ball Valve and Spring
4	TCC Control Valve and Spring
5	1-2-3-4 and 3-5 Reverse Clutch Fluid Seal Rings (Quantity: 3)
	NOTE: Do not use old seal rings. Install NEW seal rings.

Reusing old seal rings may cause internal transmission leaks and transmission damage.

6

A/Trans Fluid Pump Locator Pin

TORQUE CONVERTER HOUSING CLEANING AND INSPECTION

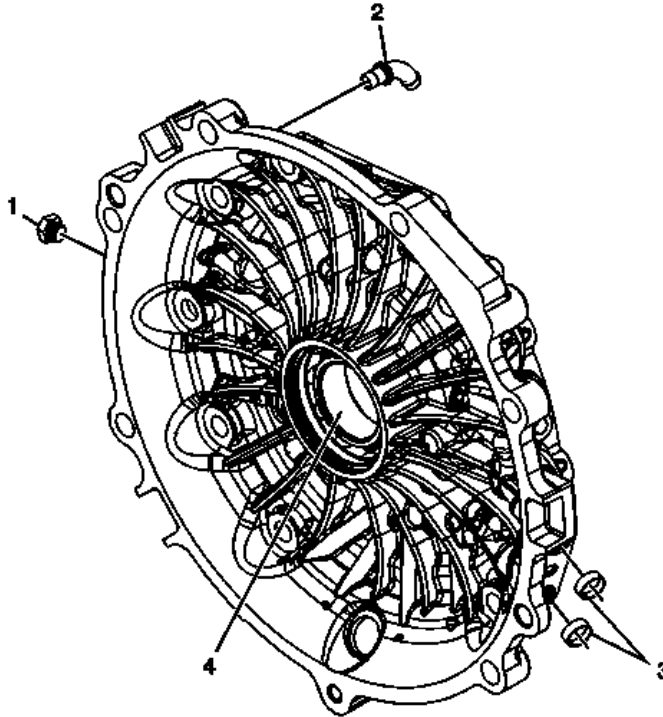


Fig. 62: Cleaning Torque Converter Housing
Courtesy of GENERAL MOTORS CORP.

Torque Converter Housing Cleaning and Inspection

Callout	Component Name
Preliminary Procedures	
1. Thoroughly clean the torque converter housing assembly, including threads, with clean solvent. 2. Clean sealing surfaces. 3. Inspect all threaded holes. If necessary, repair any thread damage.	
1	Line Pressure Test Hole Plug
2	A/Trans Vent Pipe
3	Trans Fluid Cooler Pipe Fitting Seals (Quantity: 2) NOTE: Refer to <u>Seal Reuse Notice</u> .

Tip: Refer to **Oil Cooler Pipe Seals Replacement.**

4

Torque Converter Bushing

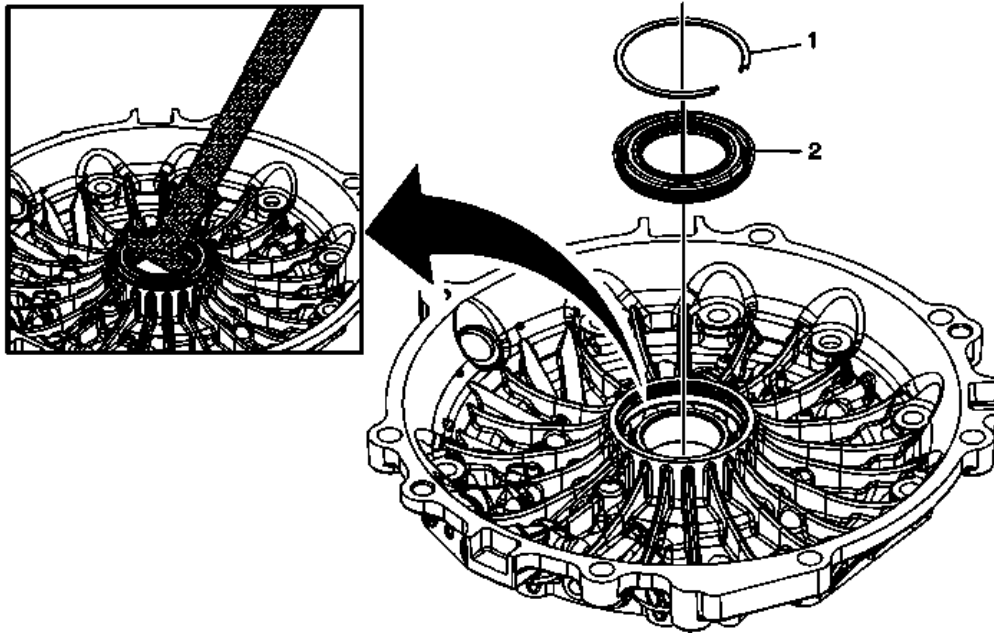
TORQUE CONVERTER FLUID SEAL REPLACEMENT

Fig. 63: Replacing Torque Converter Fluid Seal
Courtesy of GENERAL MOTORS CORP.

Torque Converter Fluid Seal Replacement

Callout	Component Name
1	Torque Converter Fluid Seal Retaining Ring
2	Torque Converter Fluid Seal Assembly. Special Tool: J 45000 Seal Remover

OIL COOLER PIPE SEALS REPLACEMENT

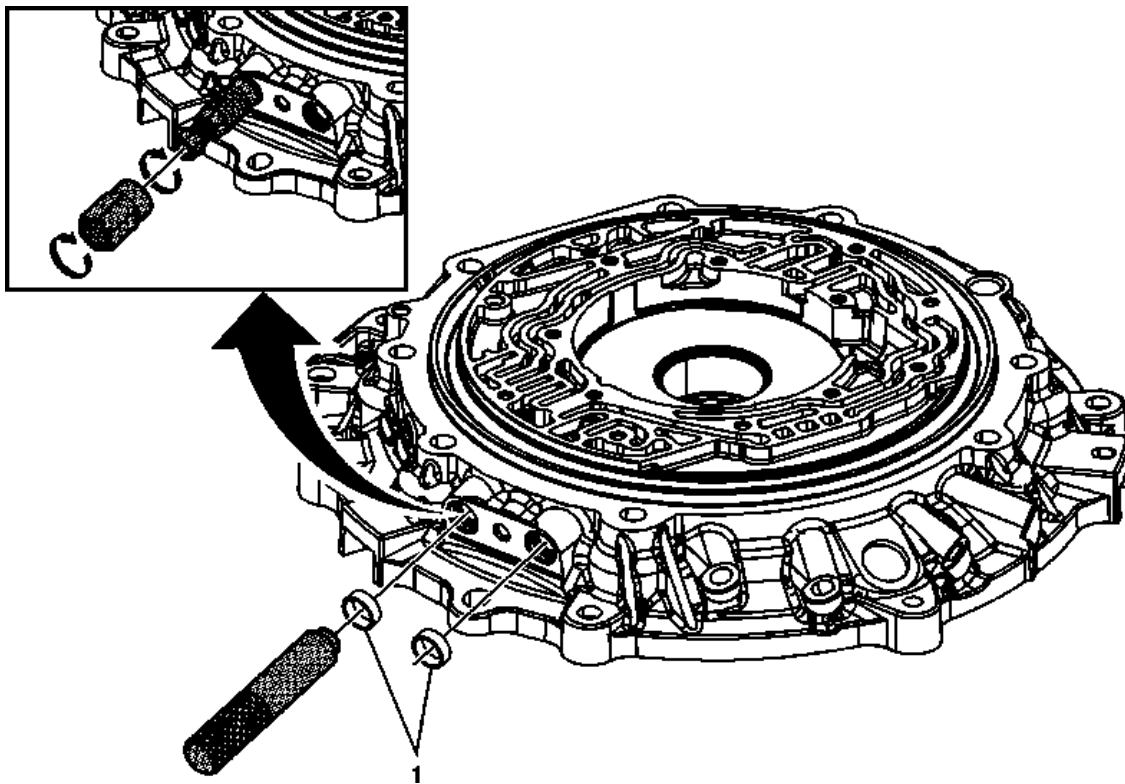


Fig. 64: Replacing Oil Cooler Pipe Seals
Courtesy of GENERAL MOTORS CORP.

Oil Cooler Pipe Seals Replacement

Callout	Component Name
1	Trans Fluid Cooler Pipe Fitting Seals (Quantity: 2) Special Tools • DT 47770 Seal Installer. See Special Tools. • J 45201 Cooler Line Seal Remover. See Special Tools.

FLUID PUMP SELECTIVE MEASUREMENT

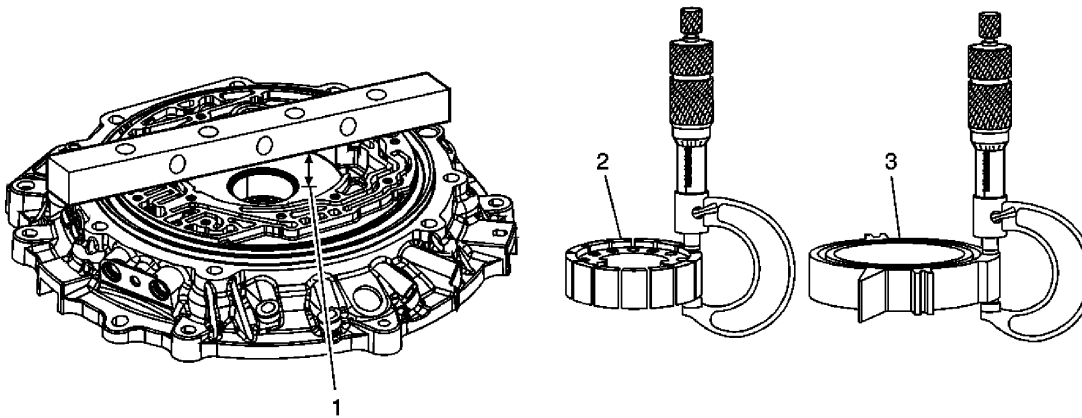


Fig. 65: Measuring Fluid Pump Selective
 Courtesy of GENERAL MOTORS CORP.

Fluid Pump Selective Measurement

Callout	Component Name
1	Pump Rotor Cavity Tip: Measure the distance from the bottom of the gage bar to the bottom of the pump rotor cavity. Refer to <u>Fluid Pump Selective Specifications</u> .
2	A/Trans Fluid Pump Rotor Tip: Refer to <u>Fluid Pump Selective Specifications</u> to select the correct rotor.
3	A/Trans Fluid Pump Slide Tip: Refer to <u>Fluid Pump Selective Specifications</u> to select the correct slide.

TORQUE CONVERTER HOUSING WITH FLUID PUMP ASSEMBLE

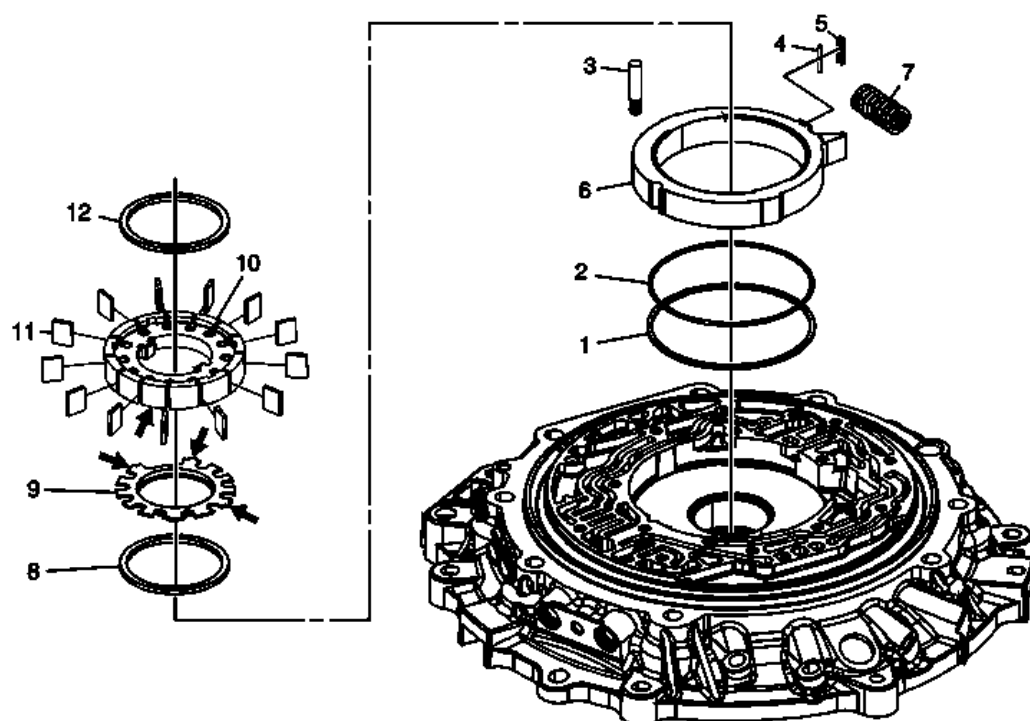


Fig. 66: Assembling Torque Converter Housing with Fluid Pump
 Courtesy of GENERAL MOTORS CORP.

Torque Converter Housing with Fluid Pump Assemble

Callout	Component Name
Tip: If installing a NEW pump rotor and slide into the torque converter housing, ensure to properly select the correct rotor and slide before performing this procedure. Refer to Fluid Pump Selective Measurement and Fluid Pump Selective Specifications .	
1	Fluid Pump Slide Fluid Seal Ring
2	Fluid Pump Slide (O-Ring) Seal
3	Fluid Pump Slide Pivot Pin
4	Fluid Pump Slide Seal Support Tip: The seal support is circular. The seal is rectangular.
5	Slide Seal
6	Fluid Pump Slide
7	Fluid Pump Slide Outer Spring
8	Fluid Pump Vane Ring
9	Fluid Pump Rotor Guide NOTE: Align the rotor guide tabs to the notches on the bottom of the rotor. Failure to do so may cause transmission damage.
10	Fluid Pump Rotor

11	Fluid Pump Vanes (Quantity: 13)
12	Fluid Pump Vane Ring

FLUID PUMP COVER INSTALLATION

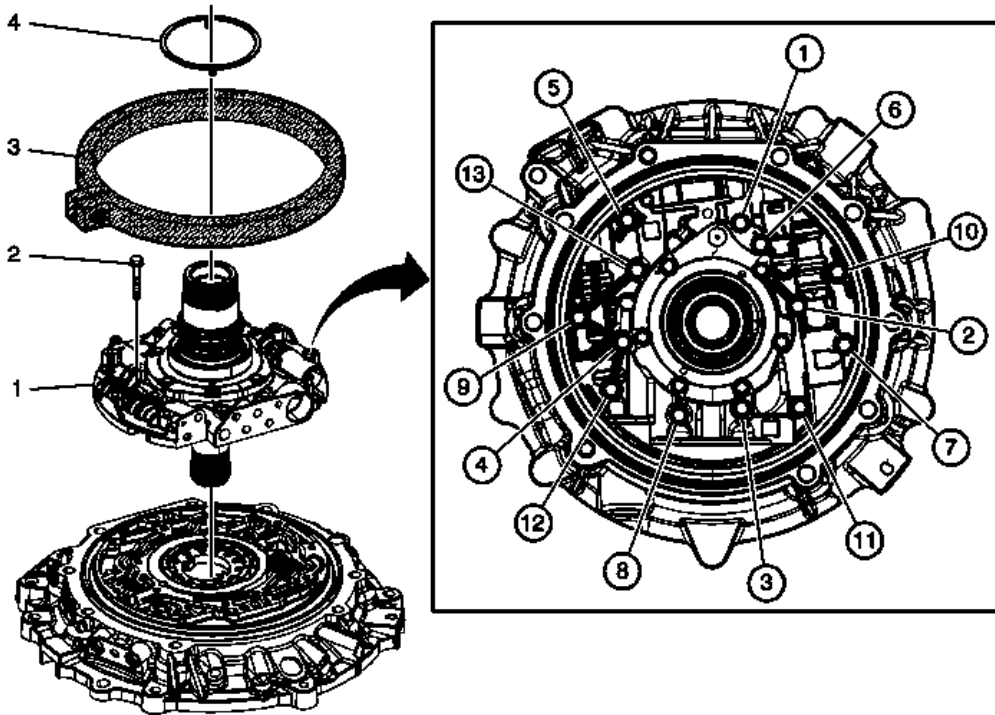


Fig. 67: Installing Fluid Pump Cover
Courtesy of GENERAL MOTORS CORP.

Fluid Pump Cover Installation

Callout	Component Name
NOTE: Refer to Fastener Notice .	
Fastener Tightening Specifications: Refer to Fastener Tightening Specifications .	
1	Fluid Pump Cover Assembly
2	Fluid Pump Cover Bolts M6 x 40 (Quantity: 13) Tip: Hand tighten only.
3	Alignment Tool and Bolt Tip: 1. Center the J 46664 around the fluid pump cover assembly in the 9 o'clock position and tighten the alignment bolt. See Special Tools. 2. Tighten the fluid pump cover bolts in the sequence shown.

	Tighten: 11 N.m (97 lb in) Special Tool: J 46664 Pump Cover Alignment Tool. See Special Tools.
4	NEW 1-2-3-4 and 3-5 Reverse Clutch Housing Thrust Washer

CONTROL VALVE BODY ASSEMBLY DISASSEMBLE

Input and Output Speed Sensor Assembly Removal

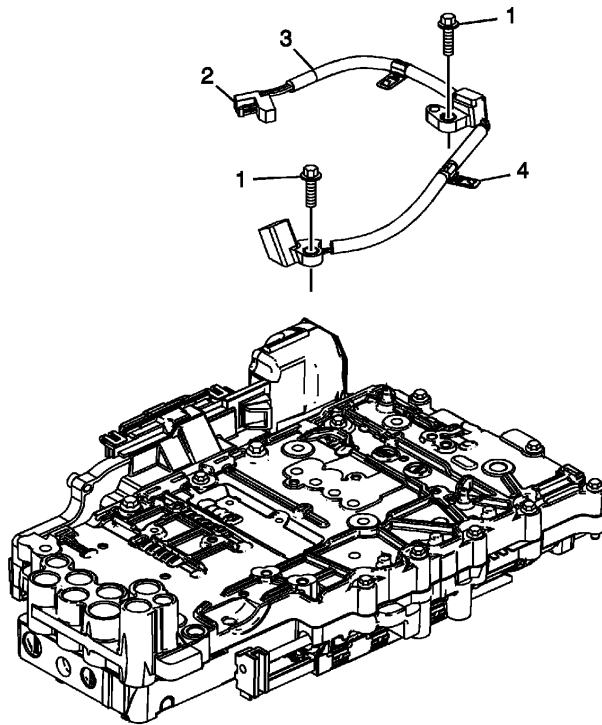


Fig. 68: Removing Input and Output Speed Sensor Assembly
 Courtesy of GENERAL MOTORS CORP.

Input and Output Speed Sensor Assembly Removal

Callout	Component Name
1	Bolt M6 x 20 (Quantity: 2)
2	Speed Sensor Electrical Connector Tip: Release the connector lock before disconnecting.
3	A/Trans Input and Output Speed Sensor Assembly
4	A/Trans Input and Output Speed Sensor Wiring Harness Clip (Quantity: 2) Tip: Inspect the clips and replace if damaged.

Manual Shaft Detent Assembly and Manual Shift Shaft Position Switch Removal

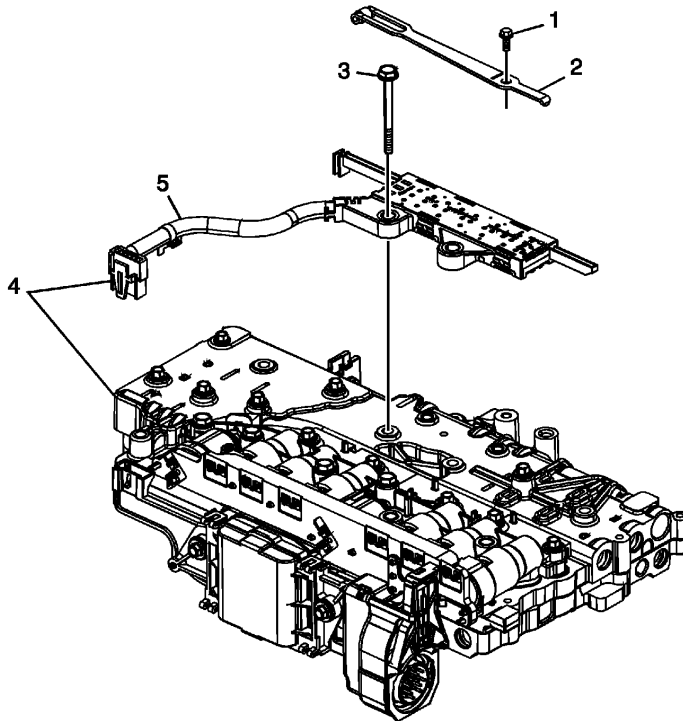


Fig. 69: Removing Manual Shaft Detent Assembly and Manual Shift Shaft Position Switch
Courtesy of GENERAL MOTORS CORP.

Manual Shaft Detent Assembly and Manual Shift Shaft Position Switch Removal

Callout	Component Name
1	Bolt M6 x 14.5
2	Manual Shaft Detent Assembly
3	Bolt M5 x 55
4	A/Trans Manual Shift Shaft Position Switch Assembly Electrical Connector Tip: Release the connector lock before disconnecting.
5	A/Trans Manual Shift Shaft Position Switch Assembly

Control Solenoid Valve Assembly Removal

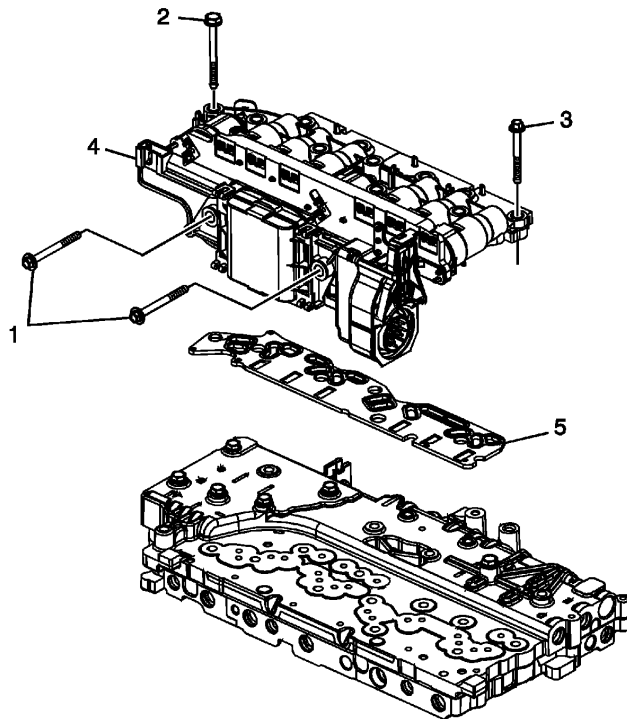


Fig. 70: Removing Control Solenoid Valve Assembly
Courtesy of GENERAL MOTORS CORP.

Control Solenoid Valve Assembly Removal

Callout	Component Name
1	Bolt M5 x 53 (Quantity: 2)
2	Bolt M5 x 55 (Quantity: 4)
3	Bolt M5 x 45 (Quantity: 5)
4	Control Solenoid (w/Body and TCM) Valve Assembly NOTE: Use care when handling the control valve body assembly. If dropped, damage to the control solenoid valve body assembly internal components, including the transmission control module (TCM), may result.
5	Filter Plate Assembly NOTE: Use care when removing or installing the filter plate assembly. A broken or missing retaining tab may not adequately secure the filter plate to the control solenoid valve assembly, resulting in possible damage or contamination. NOTE: Discard the filter plate. Replace with a NEW filter plate.

Reusing an old filter plate may cause damage to the control solenoid valve assembly.

Upper and Lower Valve Bodies Disassemble

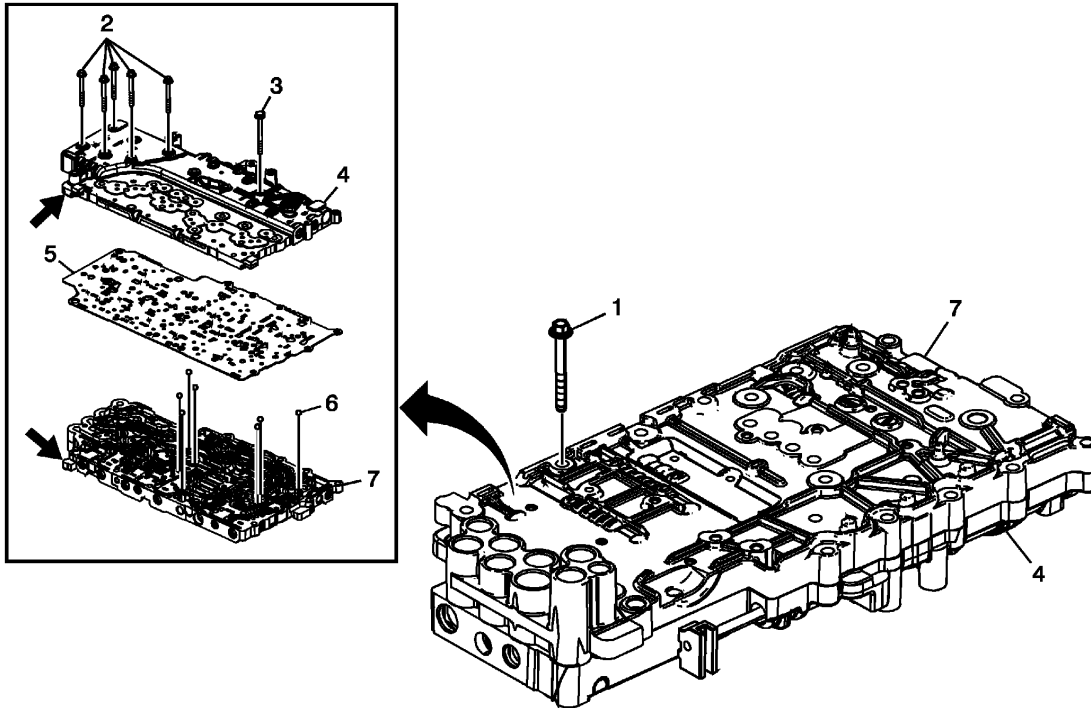


Fig. 71: Disassembling Upper and Lower Valve Bodies
Courtesy of GENERAL MOTORS CORP.

Upper and Lower Valve Bodies Disassemble

Callout	Component Name
1	Bolt M5 x 36 (Quantity: 12)
2	Bolt M5 x 45 (Quantity: 5)
3	Bolt M5 x 55
4	Control Valve Lower Body Assembly Tip: - Separate the upper and lower valve bodies by carefully prying at the point indicated. - Refer to <u>Control Valve Lower Body Assembly Cleaning and Inspection.</u>
5	Control Valve Body Spacer (w/Gasket) Plate Assembly NOTE: Do not use the old spacer plate. Install a NEW spacer plate. Reusing an old spacer plate may cause internal

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	transmission leaks and transmission damage.
6	Control Valve Body Ball Check Valve (Quantity: 7) Tip: Note the position of the ball check valves.
7	Control Valve Upper Body Assembly Tip: Refer to <u>Control Valve Upper Body Assembly Cleaning and Inspection.</u>

CONTROL VALVE LOWER BODY ASSEMBLY CLEANING AND INSPECTION

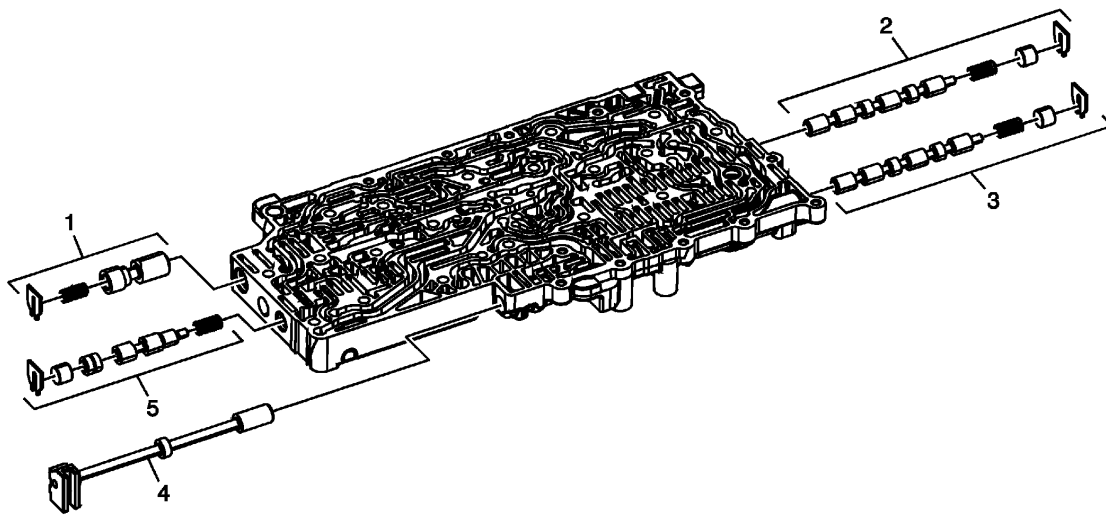


Fig. 72: Cleaning Control Valve Lower Body Assembly
Courtesy of GENERAL MOTORS CORP.

Control Valve Lower Body Assembly Cleaning and Inspection

Callout	Component Name
CAUTION: Valve springs can be tightly compressed. Use care when removing retainers and plugs. Personal injury could result.	
Tip: Clean and inspect all valve components and the valve body. The control valve lower body is replaceable only as an assembly.	
1	Clutch Piston Dam Feed Regulator Valve Train
2	Clutch Select Solenoid Valve Train
3	Clutch Select Solenoid Valve Train
4	Manual Valve

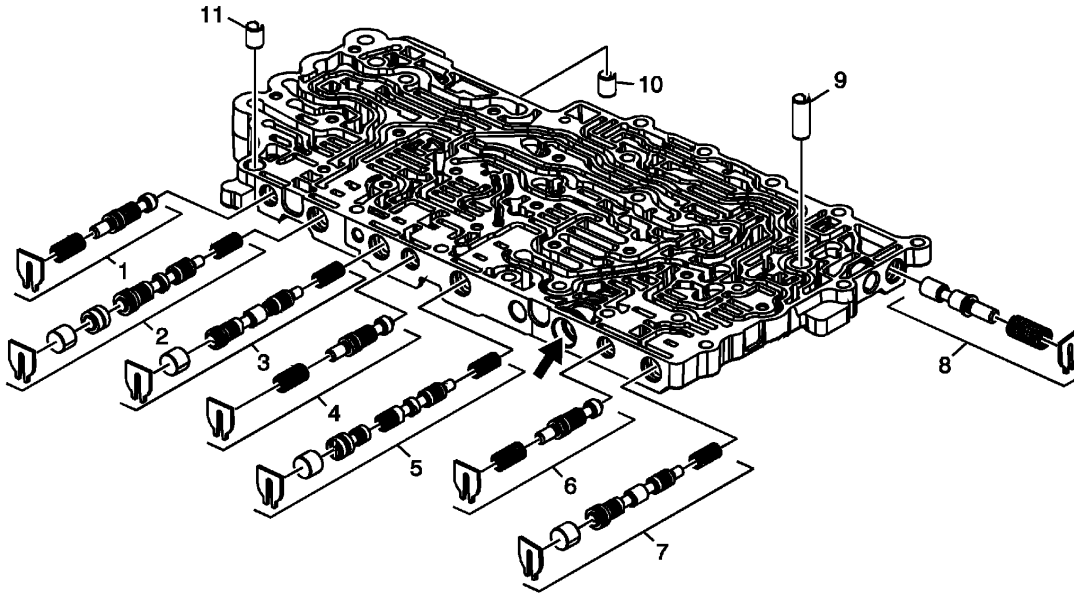
CONTROL VALVE UPPER BODY ASSEMBLY CLEANING AND INSPECTION

Fig. 73: Cleaning Control Valve Upper Body Assembly
 Courtesy of GENERAL MOTORS CORP.

Control Valve Upper Body Assembly Cleaning and Inspection

Callout	Component Name
CAUTION: Valve springs can be tightly compressed. Use care when removing retainers and plugs. Personal injury could result.	
NOTE: Do not remove the clutch piston exhaust blow off ball plug, valve, or spring. The plug is set to a precise depth. Replacement of this plug could cause internal transmission damage.	
Tip: Clean and inspect all valve components, locating pins, and the valve body. The control valve upper body is replaceable only as an assembly.	
1	Clutch Boost Valve Train
2	1-2-3-4 Clutch Regulator Valve Train
3	3-5 Reverse Clutch Regulator Valve Train
4	Clutch Boost Valve Train
5	2-6 Clutch Regulator Valve Train
6	Clutch Boost Valve Train

7	1/Reverse Band and 4-5-6 Clutch Regulator Valve Train
8	Actuator Feed Limit Valve Train
9	Control Valve Body Locator Pin
10	Control Valve Body Locator Pin
11	Control Valve Body Locator Pin

CONTROL VALVE BODY ASSEMBLY ASSEMBLE

Upper to Lower Control Valve Body Assemblies Assemble

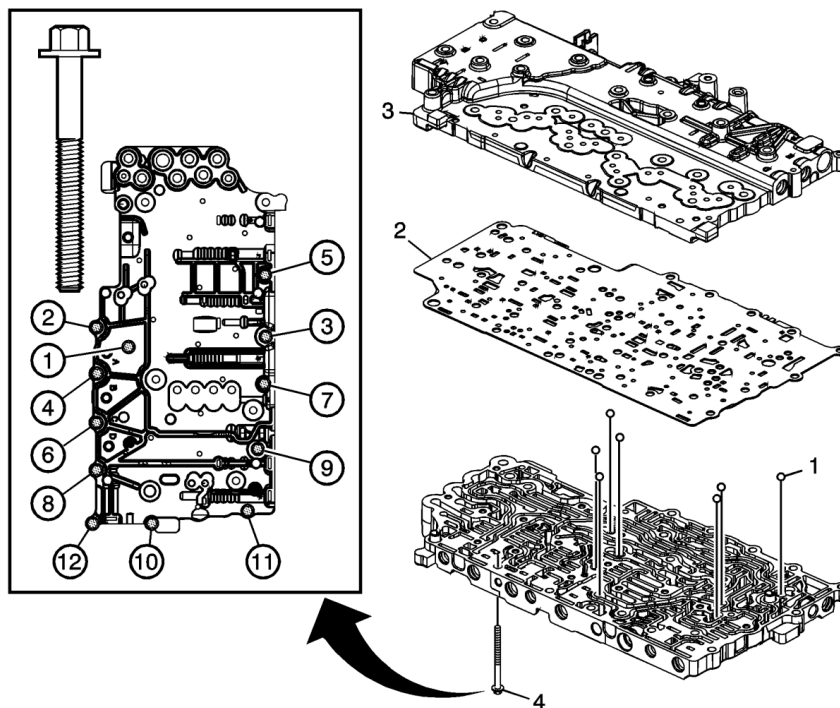


Fig. 74: Assembling Control Valve Body Assembly
Courtesy of GENERAL MOTORS CORP.

Upper to Lower Control Valve Body Assemblies Assemble

Callout	Component Name
NOTE: Refer to <u>Fastener Notice</u> . Fastener Tightening Specifications: Refer to <u>Fastener Tightening Specifications</u> .	
1	Control Valve Body Ball Check Valve (Quantity: 7) Tip: Refer to <u>Ball Check Valve Locations</u> .
	Control Valve Body Spacer (w/Gasket) Plate Assembly

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2	NOTE: Do not use the old spacer plate. Install a NEW spacer plate. Reusing an old spacer plate may cause internal transmission leaks and transmission damage.
3	Control Valve Lower Body Assembly Tip: Turn the valve body assembly over after installing to upper body.
4	Bolt M5 x 36 (Quantity: 12) Tighten: Tighten the bolts in the sequence shown to 8 N.m (71 lb in).

Filter Plate Installation

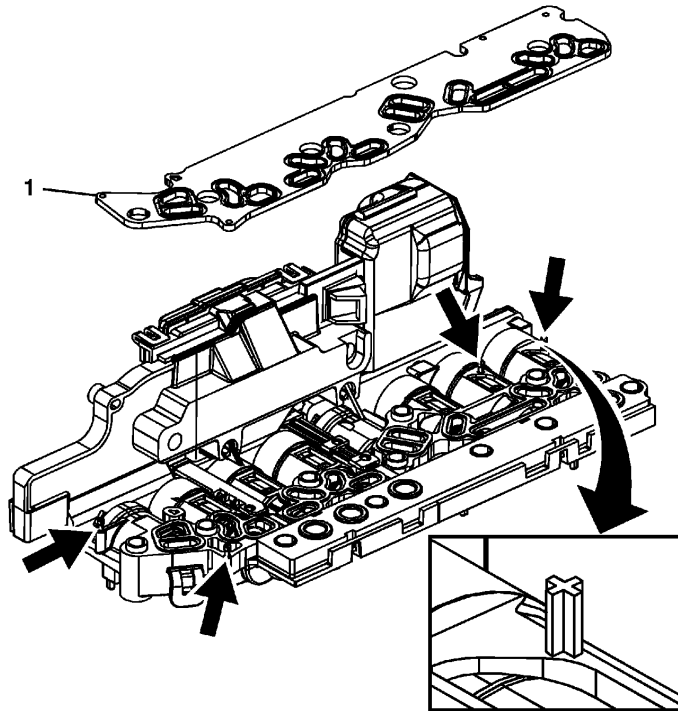


Fig. 75: Installing Filter Plate
Courtesy of GENERAL MOTORS CORP.

Filter Plate Installation

Callout	Component Name
	Filter Plate Assembly NOTE: Use care when handling the control valve body assembly. If dropped, damage to the control solenoid valve body assembly internal

1

components, including the transmission control module (TCM), may result.

NOTE:

Discard the filter plate. Replace with a NEW filter plate. Reusing an old filter plate may cause damage to the control solenoid valve assembly.

Tip: Use care when removing or installing the filter plate assembly. However, if a retaining tab is broken or missing, DO NOT replace the control solenoid valve assembly. The filter plate assembly can still be adequately aligned.

Control Solenoid Valve Assembly Installation

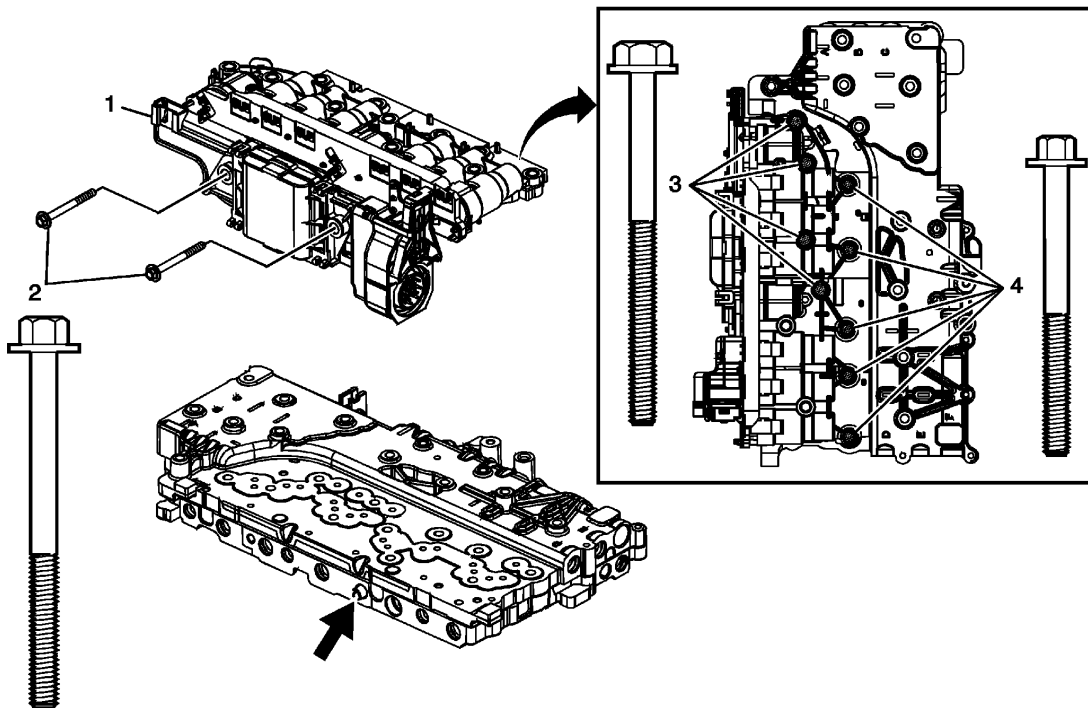


Fig. 76: Installing Control Solenoid Valve Assembly
Courtesy of GENERAL MOTORS CORP.

Control Solenoid Valve Assembly Installation

Callout	Component Name
1	Control Solenoid (w/Body and TCM) Valve Assembly Tip: Note the locator pin on the control valve lower body assembly while aligning the control

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	solenoid valve assembly.
2	Bolt M5 x 53 (Quantity: 2) Tip: Hand tighten only.
3	Bolt M5 x 55 (Quantity: 4) Tip: Hand tighten only.
4	Bolt M5 x 45 (Quantity: 5) Tip: Hand tighten only.

Manual Shift Shaft Position Switch Installation

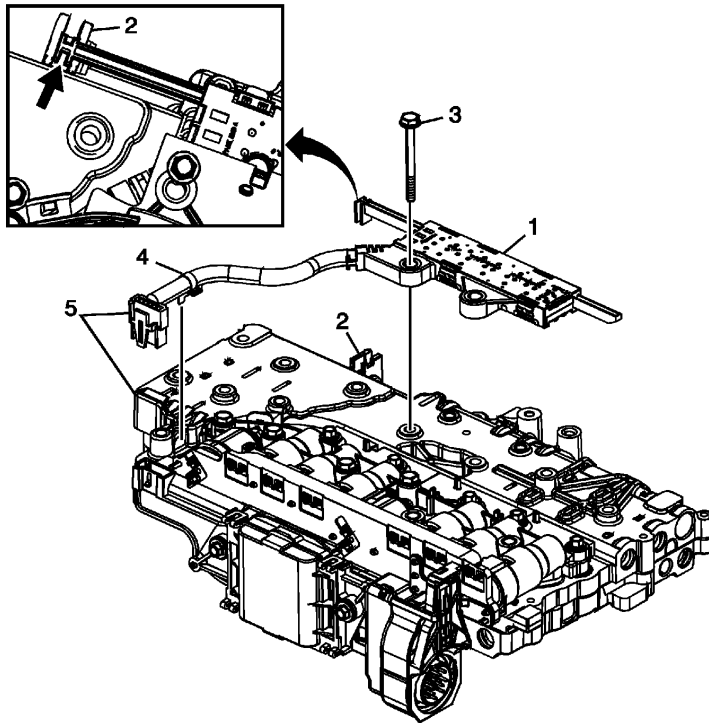


Fig. 77: Installing Manual Shift Shaft Position Switch
Courtesy of GENERAL MOTORS CORP.

Manual Shift Shaft Position Switch Installation

Callout	Component Name
1	A/Trans Manual Shift Shaft Position Switch Assembly
2	Manual Valve Link Tip: Align the switch activator slide with the manual valve link.
3	Bolt M5 x 55 Tip: Hand tighten only.
	A/Trans Manual Shift Shaft Position Switch Harness Clip Tip: The wiring harness clip on the manual shift shaft

4	position switch does not need to be replaced if damaged or missing. The clip functions only as a manufacturing assembly aid to keep the harness clear during an automated bolt installation process. If the clip is damaged, simply remove and discard.
5	A/Trans Manual Shift Shaft Position Switch Electrical Connector Tip: Connect and lock the manual shift shaft position switch electrical connector to the control solenoid valve assembly.

Valve Body, Control Solenoid Torque Sequence

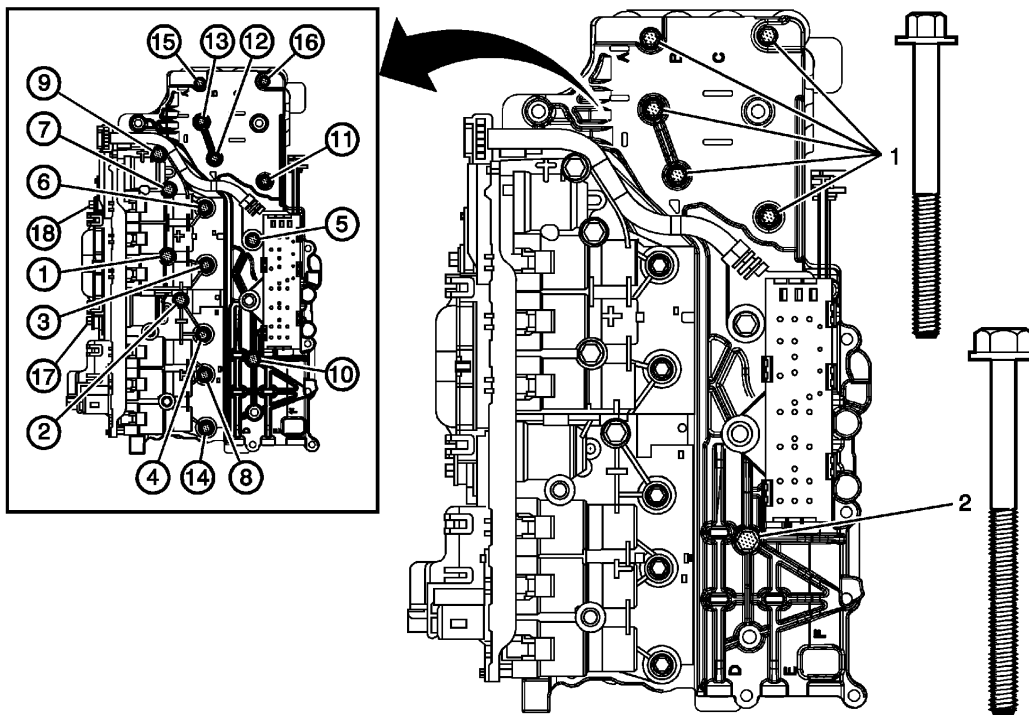


Fig. 78: Control Solenoid Torque Sequence
Courtesy of GENERAL MOTORS CORP.

Valve Body, Control Solenoid Torque Sequence

Callout	Component Name
NOTE: Refer to <u>Fastener Notice</u> . Fastener Tightening Specifications: Refer to <u>Fastener Tightening Specifications</u>. NOTE: Bolt torque sequencing is critical to the proper function of the control solenoid valve assembly.	

Failure to follow the required sequencing may result in transmission malfunction.

Tip:

1. Hand tighten the last 6 bolts before final torque sequence.
2. The 2 "heat sink" bolts must be tightened last.

1	Bolts M5 x 45 (Quantity: 5)
2	Bolt M5 x 55 Tighten: Tighten all 18 bolts in the sequence shown to 8 N.m (71 lb in).

Control Solenoid Valve Assembly Contact Gap Inspection

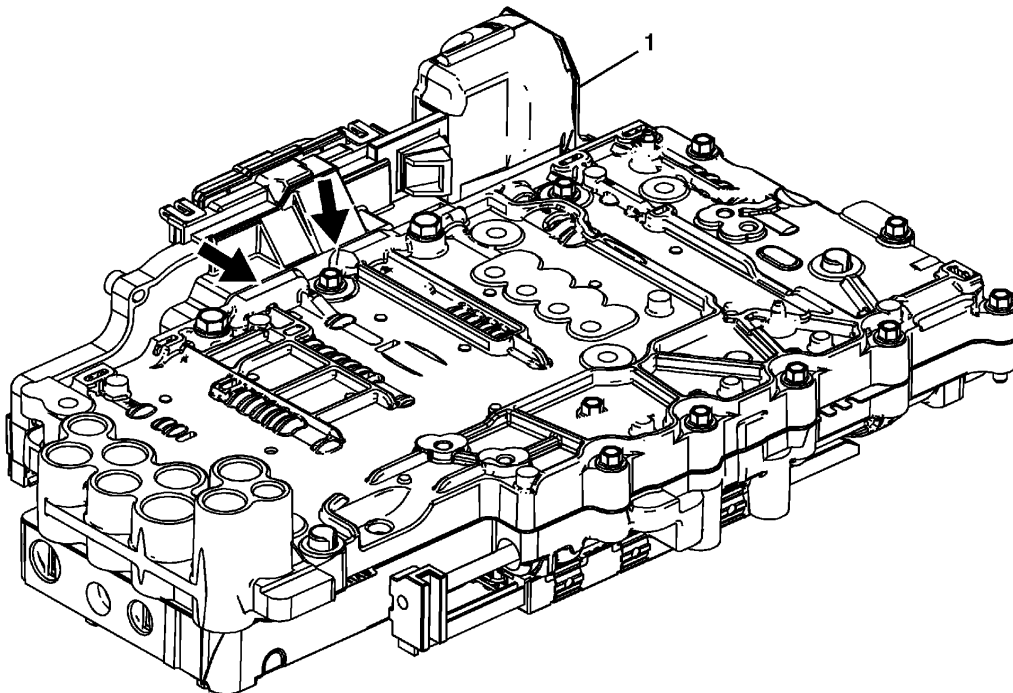


Fig. 79: Inspecting Control Solenoid Valve Assembly Contact Gap
Courtesy of GENERAL MOTORS CORP.

Control Solenoid Valve Assembly Contact Gap Inspection

Callout	Component Name
1	Control Solenoid (w/Body and TCM) Valve Assembly Tip: Inspect the contact area between the "heat sink" area of the control solenoid valve assembly and the valve body. There should be no visible gap. If a gap exists, loosen all 18 bolts and

retighten in the required sequence.

Input and Output Speed Sensor Assembly Installation

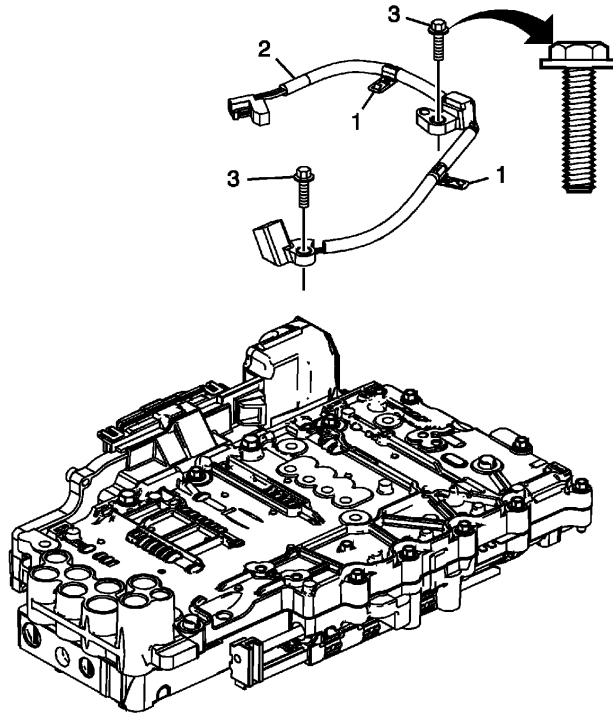


Fig. 80: Installing Input and Output Speed Sensor Assembly
Courtesy of GENERAL MOTORS CORP.

Input and Output Speed Sensor Assembly Installation

Callout	Component Name
NOTE: Refer to <u>Fastener Notice</u> .	
Fastener Tightening Specifications: Refer to <u>Fastener Tightening Specifications</u> .	
1	A/Trans Input and Output Speed Sensor Wiring Harness Clip (Quantity: 2) Tip: Inspect the 2 wiring harness clips for damage. Replace if damaged.
2	A/Trans Input and Output Speed Sensor Assembly
3	Bolt M6 x 20 (Quantity: 2) Tighten: Tighten bolts to 12 N.m (106 lb in)

CENTER SUPPORT, OUTPUT CARRIER AND OUTPUT SHAFT INSTALLATION

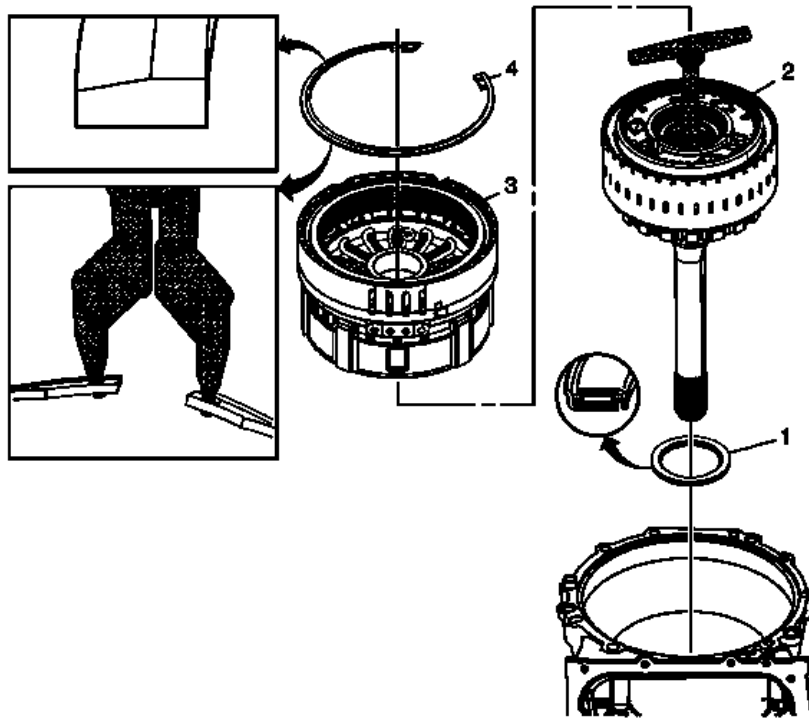


Fig. 81: Installing Output Carrier and Output Shaft
Courtesy of GENERAL MOTORS CORP.

Center Support, Output Carrier and Output Shaft Installation

Callout	Component Name
1	Output Shaft Thrust Bearing Assembly
	Output Carrier Assembly and Output Shaft Assembly
	NOTE: Apply automatic transmission fluid (ATF) to the inside diameter of the output shaft seal before installing the output shaft assembly into the case. Failure to lube the seal may cause the seal to roll during output shaft installation, which will result in transmission damage. NOTE: Ensure the DT 47786 is completely threaded into the output shaft assembly. Due to the weight of the assembly, incomplete threading may cause the assembly to break free from the DT 47786, causing component damage. Special Tool: DT 47786 Output Carrier/Shaft Lifting Tool. See Special Tools.
2	

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3	Center Support Assembly Tip: • When the center support assembly is properly installed, the fluid passages should align with the fluid passage seal bores in the case assembly. • It may be necessary to rotate the output shaft by hand in order to fully install the center support assembly.
4	Center Support Retaining Ring CAUTION: Use care when removing or installing the retaining ring. Ensure the J 45126 and DT 47773 are installed properly onto the retaining ring or bodily injury may occur. NOTE: Ensure the retaining ring is installed with the tapered side up, and in the 9 o'clock position from the pan side of the case. Failure to properly install the retaining ring will cause transmission damage. Special Tools • DT 47773 Snap Ring Pliers Adapter Set. See <u>Special Tools</u>. • J 45126 Snap Ring Pliers

1-2-3-4 AND 3-5 REVERSE CLUTCH ASSEMBLY AND 4-5-6 CLUTCH ASSEMBLY INSTALLATION

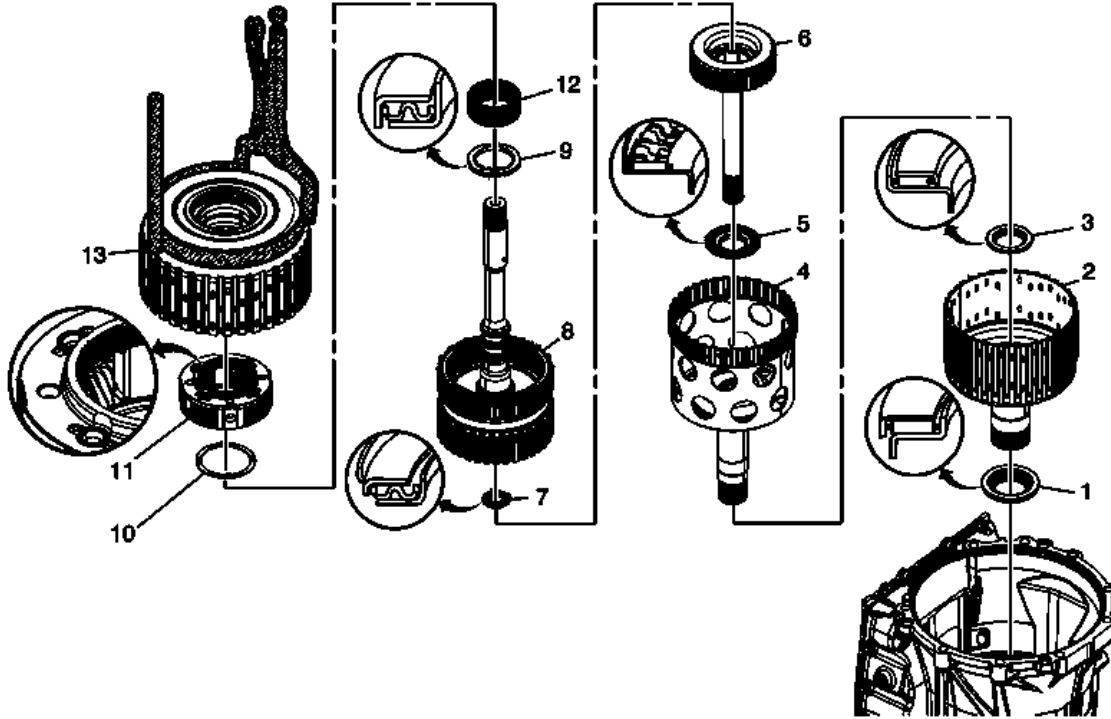


Fig. 82: Installing 1-2-3-4 And 3-5 Reverse Clutch Assembly And 4-5-6 Clutch Assembly
Courtesy of GENERAL MOTORS CORP.

1-2-3-4 and 3-5 Reverse Clutch Assembly and 4-5-6 Clutch Assembly Installation

Callout	Component Name
1	2-6 and 3-5 Reverse Clutch Hub Thrust Bearing Assembly
2	2-6 and 3-5 Reverse Clutch (with Output Carrier Outer Sun Gear Shaft) Hub Assembly
3	1-2-3-4 Clutch Hub Thrust Bearing Assembly
4	1-2-3-4 Clutch (with Output Carrier Inner Sun Gear Shaft) Hub Assembly
5	4-5-6 Clutch Hub Thrust Bearing Assembly
6	4-5-6 Clutch (with Output Carrier Shaft and Dampener) Hub Assembly Tip: Refer to 4-5-6 Clutch Dampener Overhaul for complete inspection.
7	Turbine Shaft Thrust Bearing Assembly
8	4-5-6 (with Turbine Shaft) Clutch Assembly
9	Input Sun Gear Thrust Bearing Tip: Thrust bearing snaps onto input carrier assembly.
10	Input Sun Gear Thrust Washer
11	Input Carrier Assembly

12	Input Sun Gear
13	1-2-3-4 and 3-5 Reverse Clutch Assembly Tip: Wiggle the DT 47781 in order to align the 1-2-3-4 and 3-5 reverse clutch plates with the external splines of the 4-5-6 clutch assembly. See Special Tools. To verify that the 1-2-3-4 and 3-5 reverse clutch assembly is fully installed, lift up on the turbine shaft. There should not be any noticeable slack. Special Tool: DT 47781 C1234 35R Clutch Assembly Installer. See Special Tools.

TORQUE CONVERTER HOUSING WITH FLUID PUMP INSTALLATION

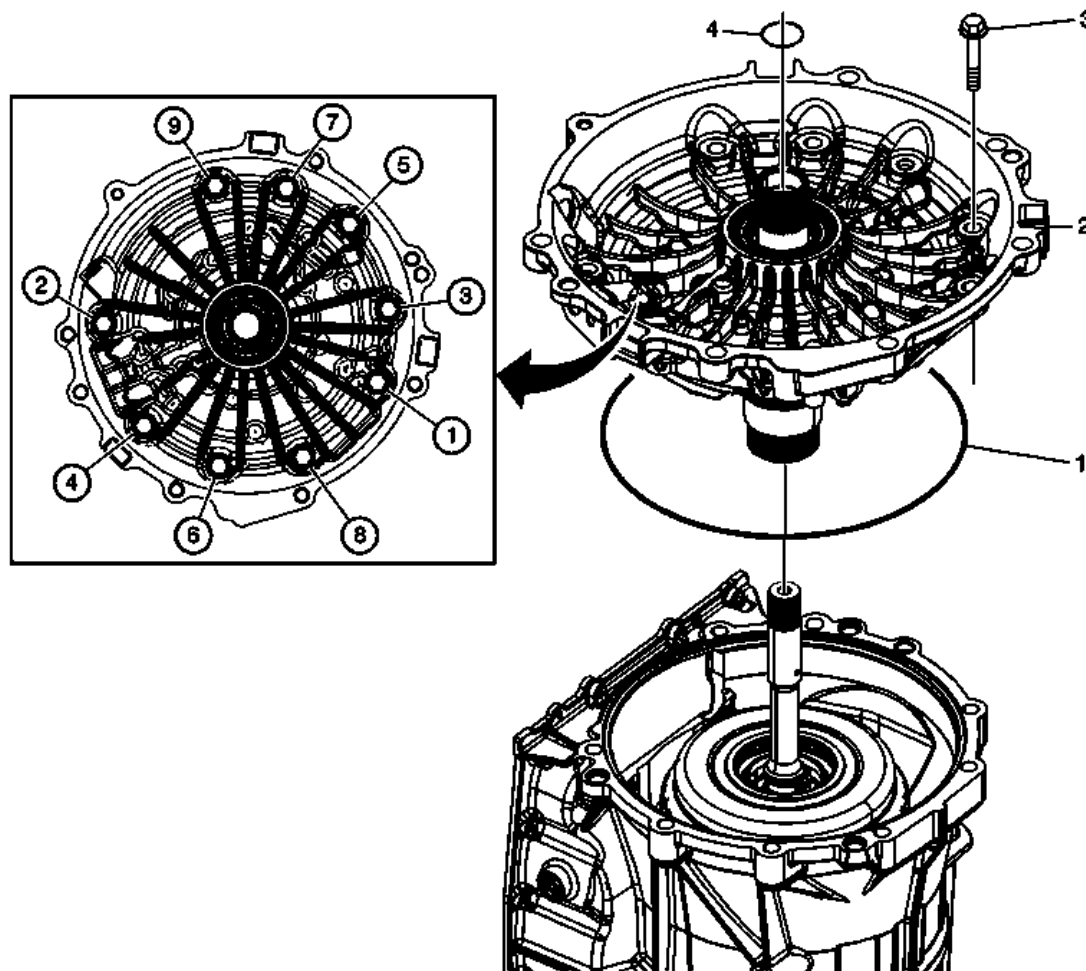


Fig. 83: Installing Torque Converter Housing with Fluid Pump
 Courtesy of GENERAL MOTORS CORP.

Torque Converter Housing with Fluid Pump Installation

Callout	Component Name
NOTE: Refer to <u>Fastener Notice</u> .	
Fastener Tightening Specifications: Refer to <u>Fastener Tightening Specifications</u> .	
1	NEW Fluid Pump Seal
2	Torque Converter (with Fluid Pump) Housing Assembly NOTE: Ensure the turbine shaft (O-ring) seal is not installed prior to installing the torque converter housing assembly. The seal may become cut or damaged during installation of the torque converter housing assembly.
3	Bolts M10 x 50 (Quantity: 9) Tighten: 72 N.m (53 lb ft) in the sequence shown.
4	NEW Turbine Shaft (O-Ring) Seal

CASE EXTENSION SEAL REPLACEMENT

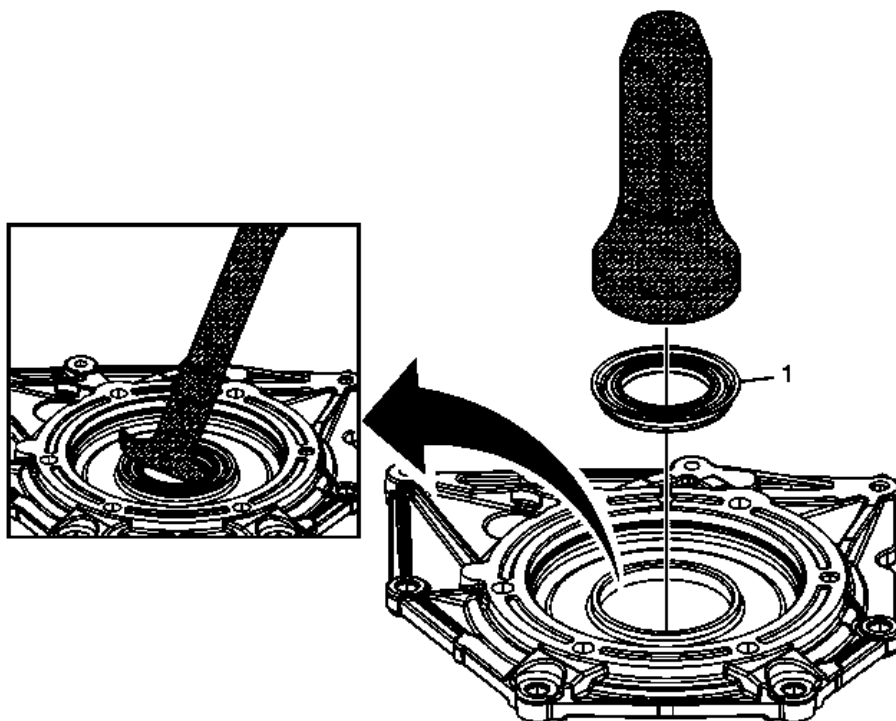


Fig. 84: Replacing Case Extension Seal
 Courtesy of GENERAL MOTORS CORP.

Case Extension Seal Replacement

Callout	Component Name
1	Output Shaft Seal Assembly
	Special Tools
	• J 38693 Seal Installer. See <u>Special Tools</u>. • J 45000 Seal Remover

CONTROL VALVE BODY ASSEMBLY INSTALLATION

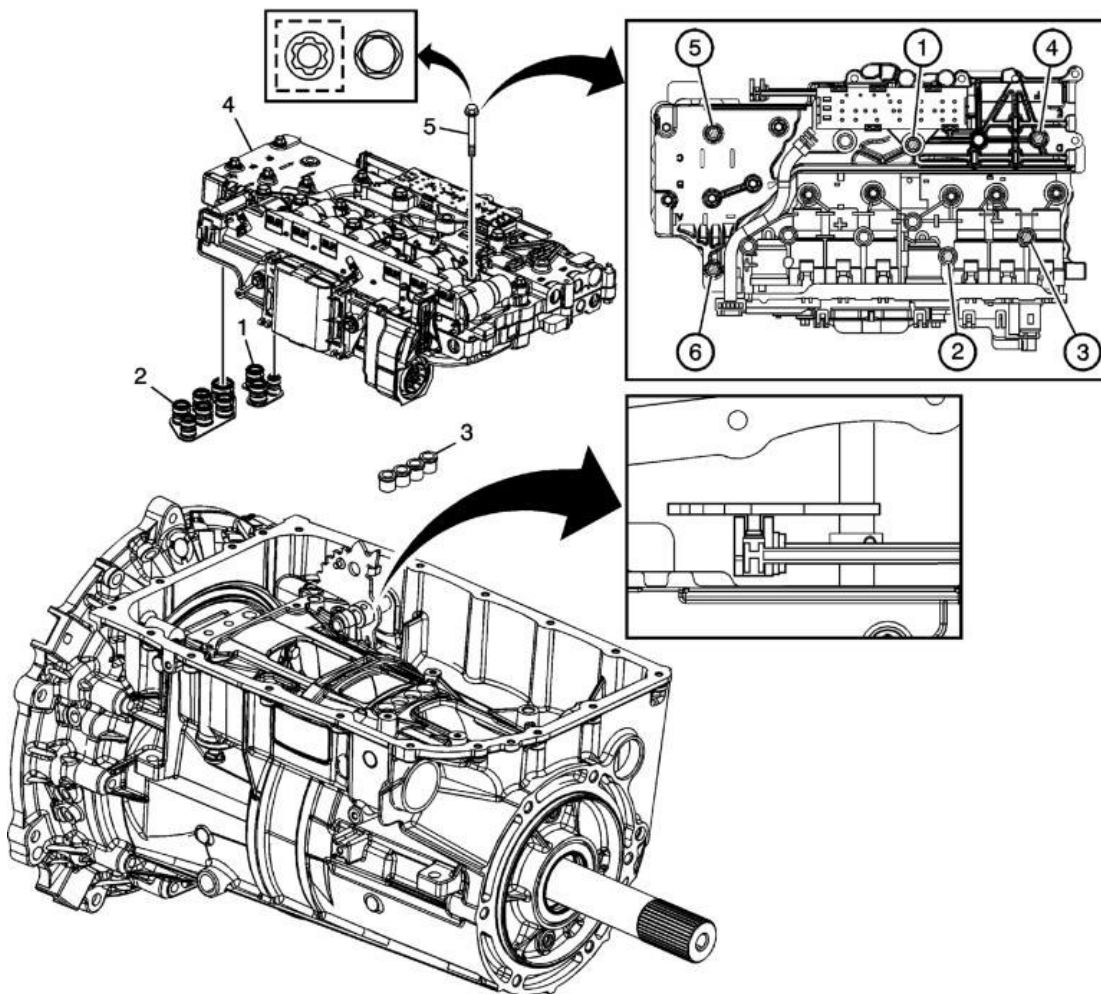


Fig. 85: Installing Control Valve Body Assembly
 Courtesy of GENERAL MOTORS CORP.

Control Valve Body Assembly Installation

Callout	Component Name
NOTE: Refer to <u>Fastener Notice</u> .	

Fastener Tightening Specifications: Refer to **Fastener Tightening Specifications**.

1	NEW Fluid Pump Seal Assembly
2	NEW Fluid Pump Seal Assembly
3	NEW Center Support Fluid Passage Seal Assembly
4	Control Valve Body Assembly Tip: Align the manual shift shaft position switch activator slide with the detent lever guide pin.
5	Bolts M5 x 73 (Quantity: 6) Tighten: 8 N.m (71 lb in) in the sequence shown.

AUTOMATIC TRANSMISSION ELECTRICAL CONNECTOR PASSAGE SLEEVE INSTALLATION

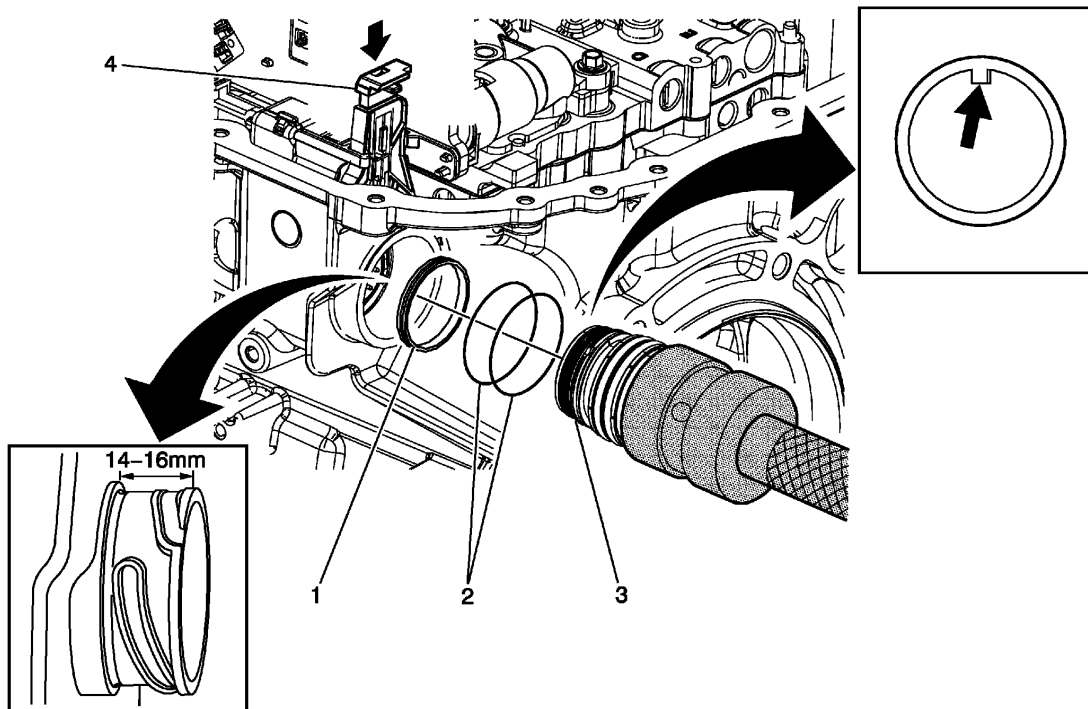


Fig. 86: Installing Automatic Transmission Electrical Connector Passage Sleeve
Courtesy of GENERAL MOTORS CORP.

Automatic Transmission Electrical Connector Passage Sleeve Installation

Callout	Component Name
1	NEW Lip Seal
2	NEW O-Ring Seals (Quantity: 2)
	Electrical Connector Passage Sleeve
	Specification: 14-16 mm

3	Special Tools • DT 47715 Electrical Connector Passage Sleeve Remover/Installer. See Special Tools. • J 42183 Driver Handle. See Special Tools. NOTE: Orientate the alignment tab inside the passage sleeve with the slot in the electrical connector of the control solenoid valve assembly. Push the sleeve straight into the case bore and connector. Do NOT rotate the sleeve at any time. Ensure the sleeve is fully seated into the case. When the sleeve is properly installed, the distance from the case surface to the end of the sleeve should be 14-16 mm. Even though the correct electrical connections may still be maintained, failure to ensure proper installation of the sleeve may result in a fluid leak around the sleeve lip seal and into the sleeve cavity.
4	Electrical Connector Slide Lock Tip: Push down on the electrical connector slide lock to ensure proper installation.

FLUID FILTER AND MANUAL SHIFT DETENT ASSEMBLY INSTALLATION

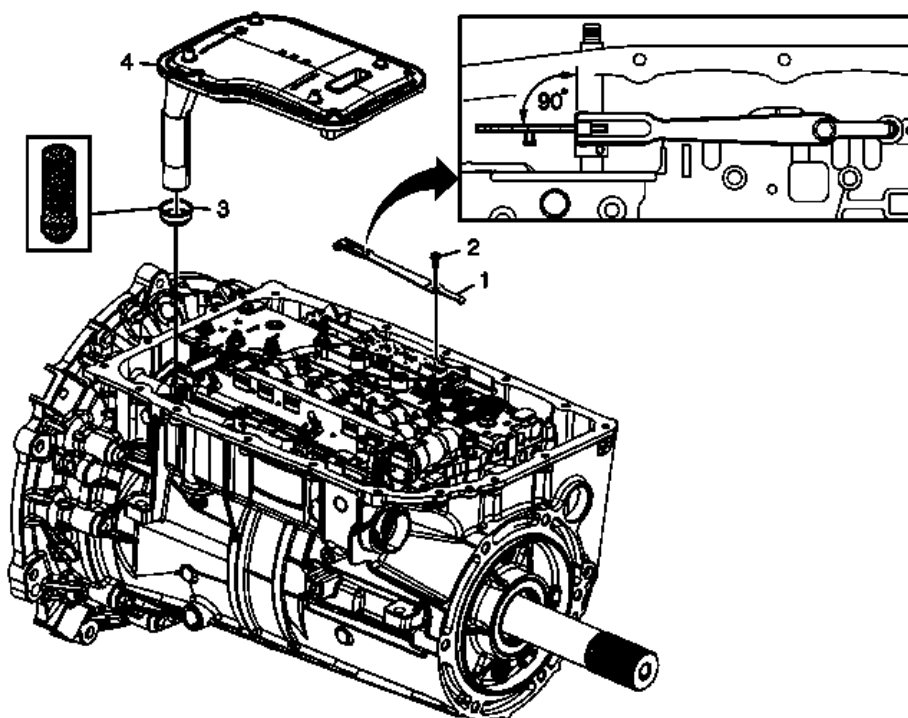


Fig. 87: Installing Fluid Filter and Manual Shift Detent Assembly
Courtesy of GENERAL MOTORS CORP.

Fluid Filter and Manual Shift Detent Assembly Installation

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Callout	Component Name
NOTE: Refer to <u>Fastener Notice</u> .	
Fastener Tightening Specifications: Refer to <u>Fastener Tightening Specifications</u>.	
1	Manual Shaft Detent Assembly NOTE: Ensure the manual shaft detent assembly roller is centered over the manual shaft detent lever assembly. Failure to center the roller may cause hard or no shift lever operation.
2	Bolt M6 x 14.5 Tighten: 12 N.m (106 lb in).
3	NEW Fluid Filter Seal Assembly Special Tools • DT 47848 Seal Installer. See <u>Special Tools</u>. • J 42183 Driver Handle. See <u>Special Tools</u>.
4	NEW Fluid Filter Assembly

TRANSMISSION FLUID PAN INSTALLATION

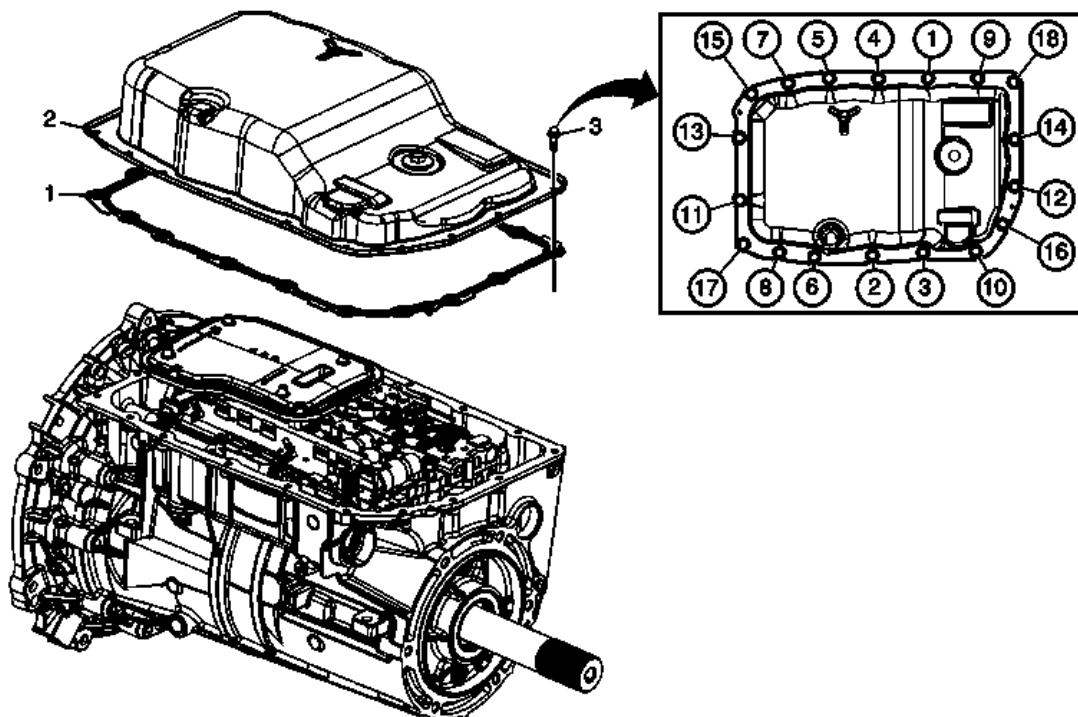


Fig. 88: Installing Transmission Fluid Pan
 Courtesy of GENERAL MOTORS CORP.

Transmission Fluid Pan Installation

Callout	Component Name
NOTE: Refer to Fastener Notice .	
Fastener Tightening Specifications: Refer to Fastener Tightening Specifications .	
1	Fluid Pan Gasket Tip: The fluid pan gasket is reusable. Inspect the gasket to determine if it may be reused. If the gasket is stuck to the case or pan, it should be replaced.
2	Fluid Pan Assembly
3	Fluid Pan Bolts M6 x 20 (Quantity: 18) Tighten: 9 N.m (80 lb in) in sequence shown.

CASE EXTENSION ASSEMBLY INSTALLATION

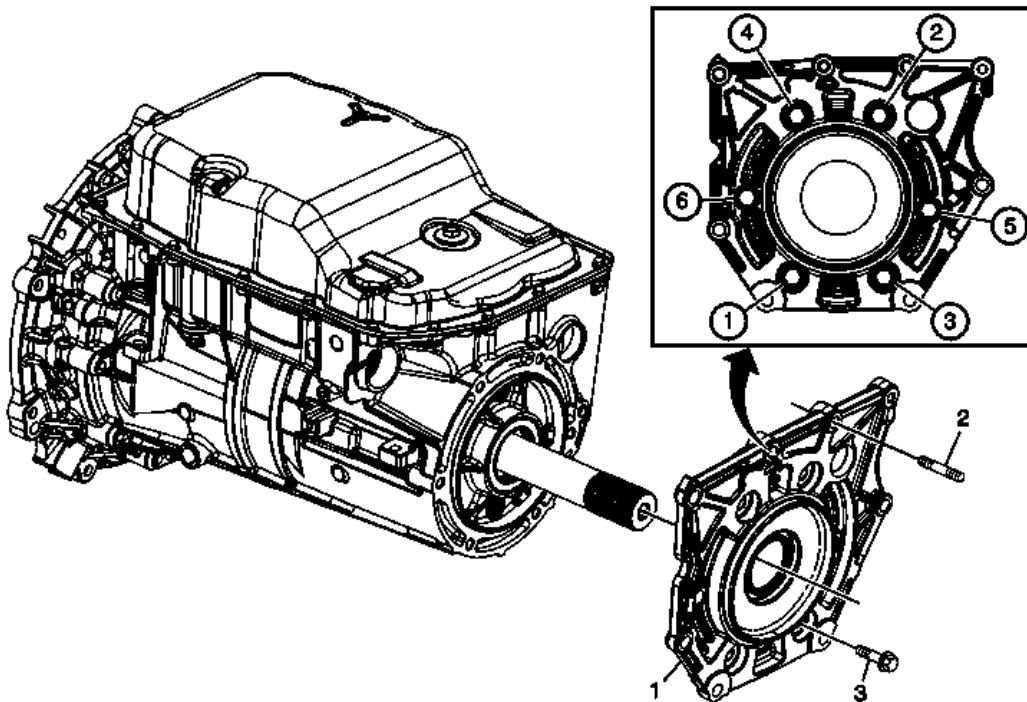


Fig. 89: Installing Case Extension Assembly
 Courtesy of GENERAL MOTORS CORP.

Case Extension Assembly Installation

Callout	Component Name
NOTE: Refer to Fastener Notice .	
Fastener Tightening Specifications: Refer to Fastener Tightening Specifications .	
1	Case Extension
2	Case Extension Studs (Quantity: 2) Tighten: 15 N.m (11 lb ft)
3	Bolts M10 x 40 (Quantity: 6) Tighten: 50 N.m (37 lb ft) in the sequence shown.

TORQUE CONVERTER INSTALLATION AND HOLDING FIXTURE REMOVAL

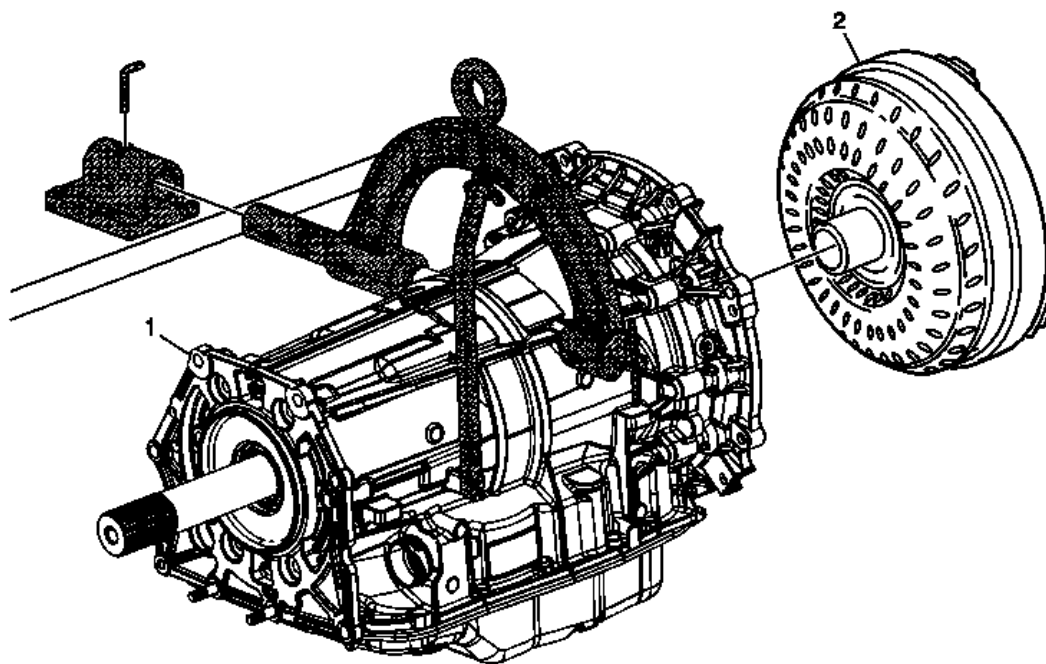


Fig. 90: Removing Torque Converter Installation and Holding Fixture
Courtesy of GENERAL MOTORS CORP.

Torque Converter Installation and Holding Fixture Removal

Callout	Procedure
Tip: Rotate the transmission so that the fluid pan assembly is down.	
	Transmission Case Assembly
	Special Tools

1	• DT 47605 Holding Fixture Adapter. See Special Tools. • J 3289-20 Holding Fixture Base Assembly • J 8763-B Holding Fixture
2	Torque Converter Assembly

DESCRIPTION AND OPERATION

TRANSMISSION ID INFORMATION

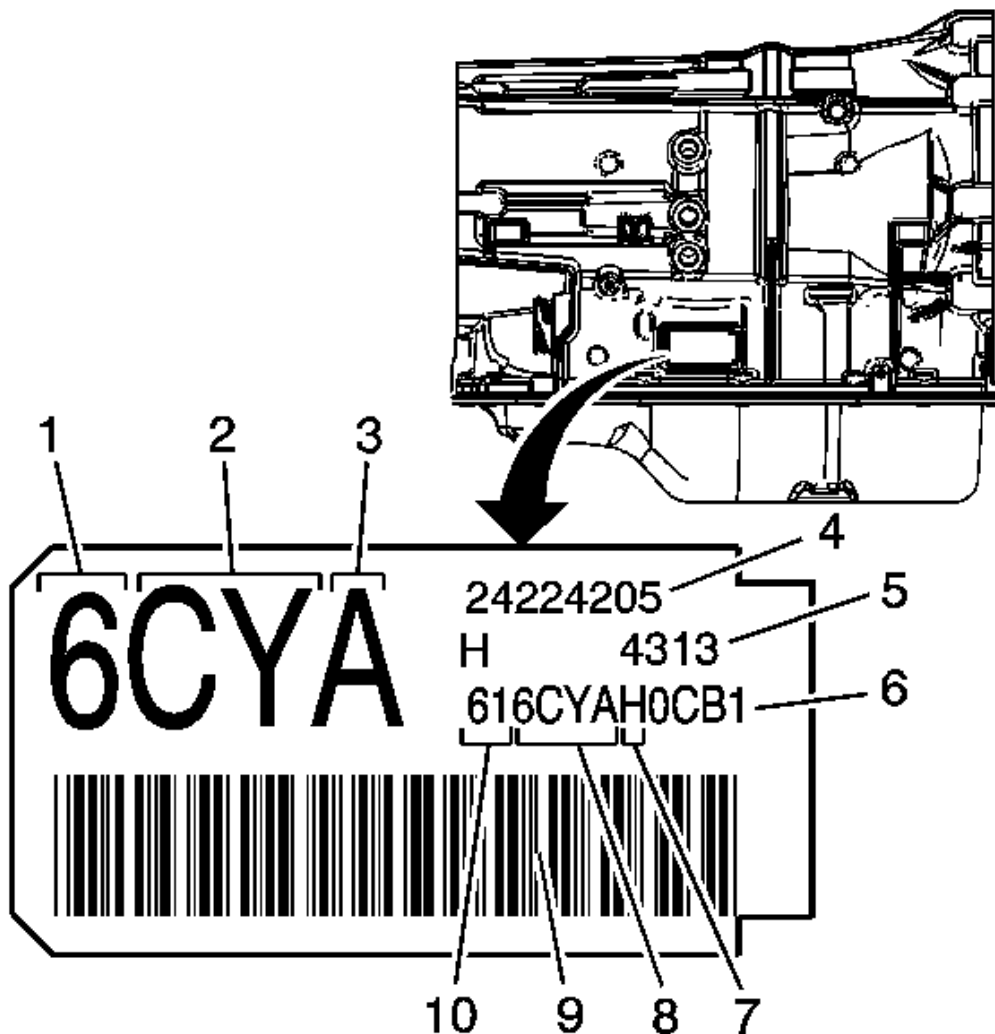


Fig. 91: Identifying Transmission ID Information
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
1	Model Year
2	Model Code
3	Transmission Family
4	Transmission Assembly Number
5	Julian date
6	Sequential Serial Number
7	Source Code
8	Broadcast Code
9	Bar Code
10	Transmission I.D.

AUTOMATIC TRANSMISSION HYDRAULIC DIAGRAMS

Park - Engine Running

When the gear selector lever is in the Park (P) position, fluid is drawn into the pump through the transmission fluid filter assembly, from the transmission fluid pan assembly. Line pressure is then directed to the following valves:

Fluid Pressure Directed in Preparation for a Shift

Manual Valve

Mechanically controlled by the gear selector lever, the manual valve is in the Park (P) position and prevents line pressure from the pressure regulator valve from entering the reverse and drive circuits.

CBR1/C456 Pressure Control (PC) Solenoid 3

The CBR1/C456 pressure control solenoid (PCS) is energized (HIGH) allowing actuator feed limit fluid to enter the PCS CBR1/C456 CL fluid circuit. PCS CBR1/C456 CL fluid is then routed through orifice #31 to the 4-5-6 clutch boost valve and through orifice #39 to the CBR1/ C456 clutch regulator valve.

CBR1/C456 Clutch Regulator Valve

PCS CBR1/C456 CL fluid at the CBR1/C4-5-6 clutch regulator valve moves the valve against CBR1/C4-5-6 clutch regulator spring force and CBR1/FDBK fluid. This allows line pressure to pass through the valve and enter the CBR1/456CL FD circuit. CBR1/456CL FD is then routed to clutch select valve 2.

Shift Solenoid 1

Shift solenoid 1 is energized (ON) allowing actuator feed limit fluid to enter the solenoid 1 circuit. Solenoid 1 fluid is routed to the #2 ball check valve and through orifice #10 to the torque converter clutch (TCC) regulator valve and shuttle valve (SHTL).

TCC Regulator Valve and Shuttle Valve

Solenoid 1 fluid is routed to the TCC regulator valve and shuttle valve and moves the valve against TCC regulator valve spring force.

#2 Ball Check Valve

Solenoid 1 fluid seats the #2 ball check valve against the reverse fluid passage and fluid is forced through orifice #22 into the CSV2 enable fluid circuit.

Clutch Select Valve 2

CSV2 enable fluid is routed to the clutch select valve 2 and moves the valve against clutch select valve 2 spring force. This allows CBR1/456 CL FD fluid to pass through the valve and enter the CBR1/CBR FD circuit. CBR1/CBR FD fluid is then routed: to clutch select valve 3, into the CBR1 fluid circuit and, through orifice #49 where it enters the CBR fluid circuit and an exhaust passage at the clutch select valve 3 (this fluid is intended to keep the low and reverse clutch full of fluid but not pressurized). CBR1 fluid is then routed to the low & reverse clutch assembly in preparation for a shift into low or reverse gear.

Shift Solenoid 2

Shift solenoid 2 is energized (ON) allowing actuator feed limit fluid to enter the solenoid 2 fluid circuit and is then routed to the #3 ball check valve.

3-5 Reverse Clutch Regulator Valve

Actuator feed limit fluid is routed through the valve and into the PS1 fluid passage. PS1 fluid is then sent to the normally closed #1 pressure switch and opens the switch.

#3 Ball Check Valve

Solenoid 2 fluid seats the #3 ball check valve against 456 CL fluid passage and fluid is forced through orifice #20 into the CSV3 enable fluid circuit. CSV3 enable fluid is then routed to the clutch select valve 3.

Clutch Select Valve #3

CSV3 enable fluid moves the clutch select valve 3 against clutch select valve 3 spring force. CBR fluid at the clutch select valve 3 passes through the valve and exhausts.

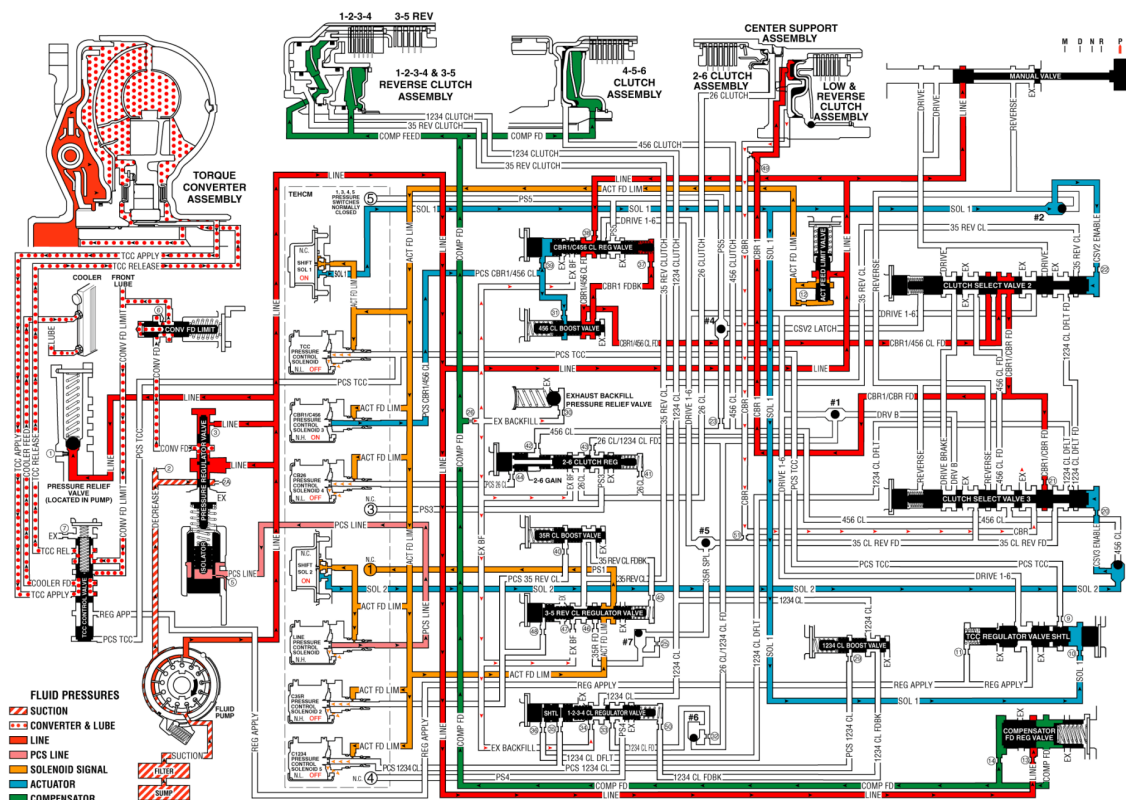


Fig. 92: Park - Engine Running
 Courtesy of GENERAL MOTORS CORP.

Reverse

When the gear selector lever is moved to the Reverse (R) position (from the Park position) the normally high C35R pressure control solenoid 2 is commanded ON and the following changes occur in the transmission's hydraulic and electrical systems:

Fluid Pressure Directed in Preparation for a Shift

Manual Valve

With the manual valve in the reverse position, line pressure is directed into the reverse fluid circuit to the #2 ball check valve and clutch select valve 3.

#2 Ball Check Valve

Reverse fluid seats the #2 ball check valve against the solenoid 1 fluid passage and fluid is forced through orifice #22 into the CSV2 enable circuit.

Clutch Select Valve 2

CSV2 enable fluid, present at the valve from Park position, continues to hold the clutch select valve 2 against clutch select valve 2 spring force.

Low & Reverse Clutch Applies**Clutch Select Valve 3**

Reverse fluid from the manual valve is routed to clutch select valve 3 to combine with clutch select valve 3 spring force to keep the valve in the off position. This allows reverse fluid to pass through the valve and enter the 3-5 clutch reverse feed circuit. The 3-5 clutch reverse feed fluid from the clutch select valve 3 is also routed to #5 ball check valve. CBR1/CBR FD fluid is also directed through the clutch select valve 3 to the low and reverse clutch assembly.

Low & Reverse Clutch

CBR & CBR1 fluid pressures are routed to both the inner and outer areas of the low and reverse clutch piston to hold the piston against spring force and hold the low and reverse clutch plates. The clutch was already applied in Park, but is applied with more holding capacity in Reverse (both piston areas are pressurized).

#5 Ball Check Valve

The 3-5 clutch reverse feed fluid seats #5 ball check valve against the drive 1-6 circuit allowing 3-5 clutch reverse feed fluid to enter the 3-5 reverse supply circuit. The 3-5 reverse supply fluid is then routed to #7 ball check valve and through orifice #25 where it enters the 3-5 reverse feed circuit. The 3-5 reverse feed passes through orifice #46 and then is routed to the 3-5 reverse clutch regulator valve.

3-5 Reverse Clutch Applies**C35R Pressure Control Solenoid 2**

The C35R pressure control solenoid 2 is energized (HIGH) allowing actuator feed limit fluid to enter the PCS 3-5 reverse clutch circuit. PCS 3-5 reverse clutch fluid is then routed through orifice #48 to the 3-5 reverse clutch regulator valve and through orifice #40 to the 3-5 reverse boost valve.

3-5 Reverse Clutch Regulator Valve

PCS 3-5 reverse clutch fluid moves the 3-5 reverse clutch regulator valve against 3-5 reverse clutch regulator valve spring force and 3-5 reverse clutch feedback fluid. This allows 3-5 reverse feed to pass through the valve and enter the 3-5 reverse clutch circuit. The 3-5 reverse clutch fluid is then routed to the 3-5 reverse clutch and the 3-5 reverse boost valve. PS1 fluid from pressure switch 1 exhausts through the valve allowing the switch to close.

3-5 Reverse Boost Valve

PCS 3-5 reverse clutch fluid pressure acts on a differential area moving the 3-5 reverse clutch boost valve against the 3-5 reverse clutch boost valve spring. The 3-5 reverse clutch fluid passes through the valve and enters the 3-5 reverse clutch feedback circuit. As PCS 3-5 reverse clutch fluid pressure is increased to a given value, the 3-5 reverse clutch boost valve opens the 3-5 reverse clutch feedback circuit to exhaust. This results in the 3-5 reverse clutch regulator valve moving to the full feed position sending full 3-5 clutch reverse feed pressure (full line pressure) to the clutch.

3-5 Reverse Clutch

The 3-5 reverse clutch fluid enters the 1-2-3-4 & reverse clutch housing to move the piston against spring force and compensator feed fluid to apply the 3-5 reverse clutch plates.

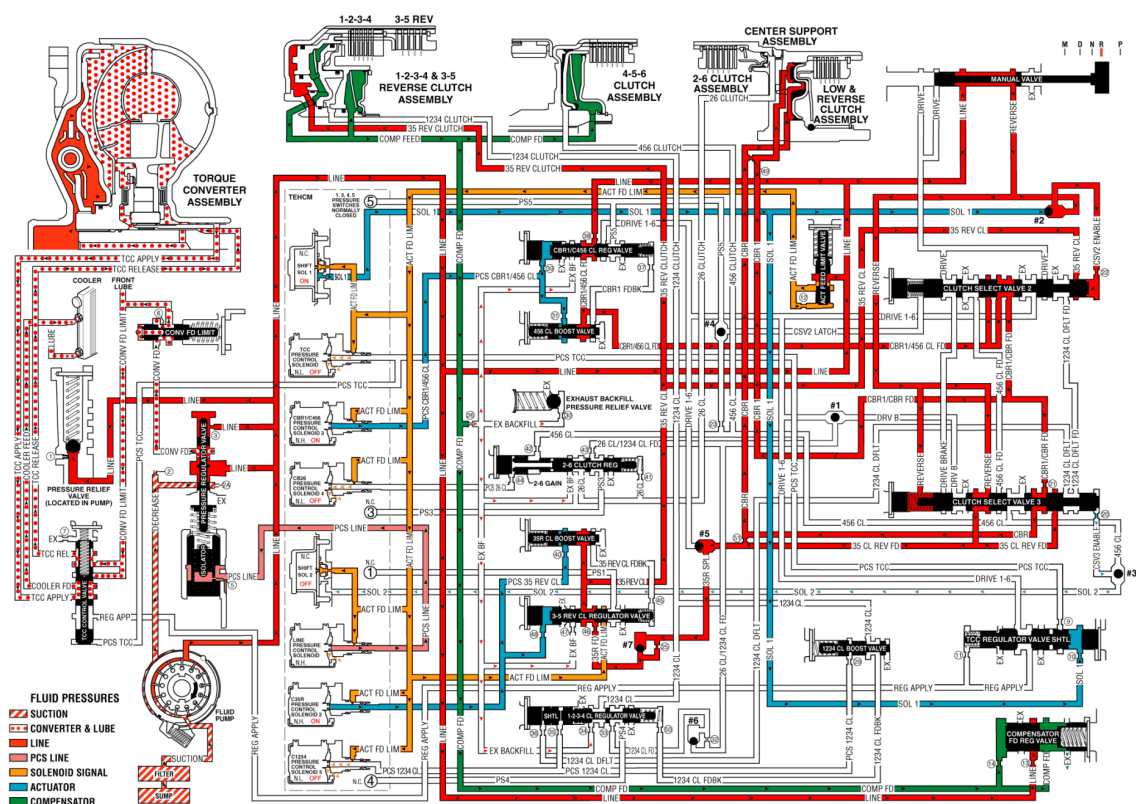


Fig. 93: Reverse
Courtesy of GENERAL MOTORS CORP.

Neutral - Engine Running

When the gear selector is moved to the Neutral (N) position, the hydraulic and electrical system operation is identical to Park (P) range. However, if Neutral is selected after the vehicle was operating in Reverse (R), the normally high C35R pressure control solenoid 2 is commanded OFF and the following changes would occur in the hydraulic system:

3-5 Reverse Clutch Releases

Manual Valve

The manual valve is moved to the Neutral position and blocks line pressure from entering the reverse and drive fluid circuits. The reverse fluid from the #2 ball check valve and clutch select valve 3 is opened to an exhaust passage at the manual valve.

C35R Pressure Control Solenoid 2

The C35R pressure control solenoid 2 is commanded OFF allowing PCS 3-5 reverse clutch fluid from the 3-5 reverse clutch boost valve and 3-5 reverse clutch regulator valve to exhaust.

3-5 Reverse Clutch Boost Valve

The 3-5 reverse boost valve spring force moves the valve to allow 3-5 reverse clutch feedback fluid from the 3-5 reverse clutch regulator valve to enter the 3-5 reverse clutch circuit and exhaust.

3-5 Reverse Clutch Regulator Valve

The 3-5 reverse clutch regulator valve spring force moves the valve to allow 3-5 reverse clutch fluid from the 3-5 reverse clutch and clutch select valve 2 to pass through the valve and enter the exhaust backfill fluid circuit. The 3-5 reverse clutch fluid then enters the exhaust backfill fluid circuit and is routed through orifice #30 to the exhaust backfill pressure relief valve where excess pressure is exhausted.

3-5 Reverse Clutch

The 3-5 reverse clutch spring force combined with a force from the compensator moves the 3-5 reverse clutch piston to release the 3-5 reverse clutch plates and force 3-5 reverse clutch fluid to exhaust from the 1-2-3-4 and 3-5 reverse clutch housing. The 3-5 reverse clutch fluid is then routed to the 3-5 reverse clutch regulator valve allowing the 3-5 reverse clutch to release.

Clutch Select Valve 3

When reverse fluid exhausts through the manual valve, CSV3 enable fluid moves the valve against clutch select valve 3 spring force. The 3-5 reverse feed fluid is routed around #7 ball check valve and into the 3-5 reverse supply circuit. The 3-5 reverse supply fluid is routed around #5 ball check valve and into the 3-5 clutch reverse feed circuit and exhausts at the clutch select valve 3.

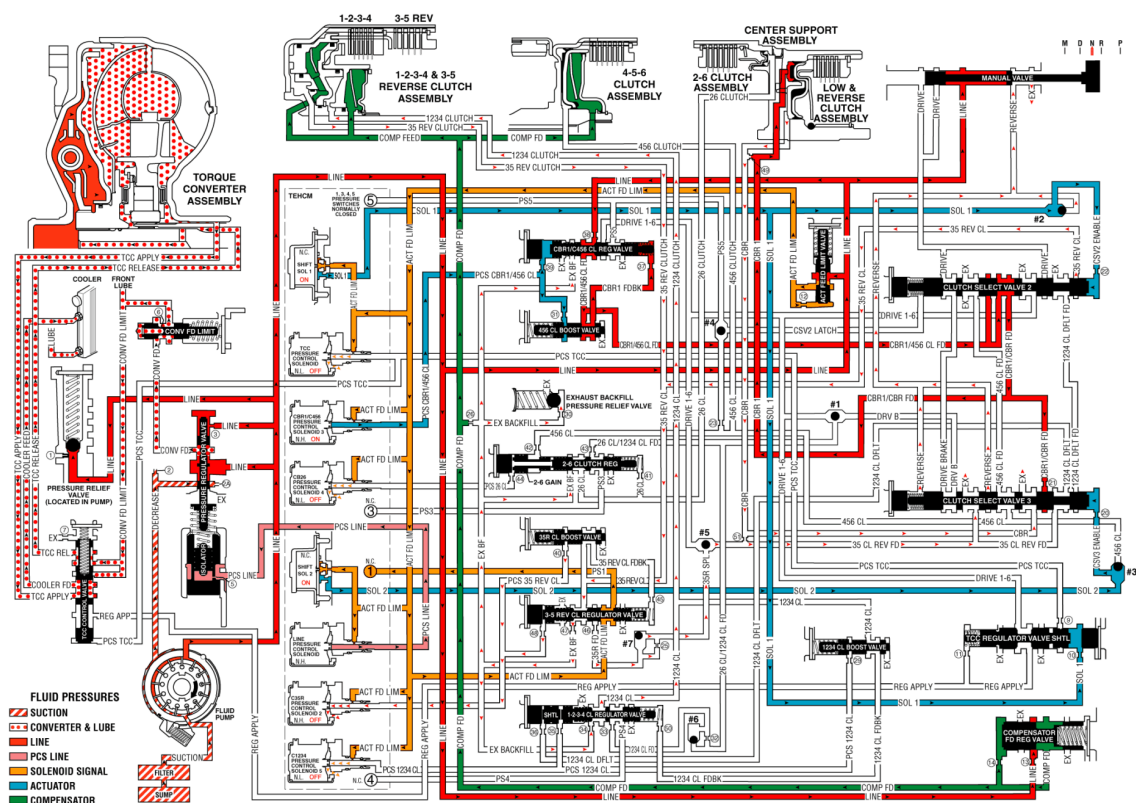


Fig. 94: Neutral - Engine Running**Courtesy of GENERAL MOTORS CORP.****Drive Range, First Gear Engine Braking**

When the gear selector lever is moved to the Drive (D) range from the Neutral (N) position, the transmission will provide engine braking. In this operating range, the normally-low C1234 pressure control solenoid 5 is commanded ON and in the engine braking mode the following changes occur within the hydraulic circuits:

Fluid Pressure is Directed to the 1-2-3-4 Clutch and the Low & Reverse Clutch to Provide Engine Braking**Manual Valve**

The manual valve is moved to the Drive (D) position and allows line fluid pressure to enter the drive fluid circuit. Drive fluid is then routed to the clutch select valve 2.

Clutch Select Valve 2

Drive fluid at the clutch select valve 2 passes through the valve and enters the drive brake circuit. Drive brake fluid is then routed to the clutch select valve 3.

Clutch Select Valve 3

Drive brake fluid at the clutch select valve 3 passes through the valve and enters the Drive B fluid circuit. Drive B fluid is then routed to #1 ball check valve.

#1 Ball Check Valve

Drive B fluid seats the #1 ball check valve against drive 1-6 fluid to force drive B fluid into the CB26/C1234 feed passage. CB26/ C1234 feed fluid is routed to the #6 ball check valve, through orifice #43 and, to the 2-6 clutch regulator valve. CB26/C1234 feed fluid passes through the 2-6 clutch regulator valve and enters the pressure switch 3 (PS3) fluid circuit. PS3 fluid is then routed to the normally closed pressure switch 3 and opens the switch.

#6 Ball Check Valve

CB26/C1234 feed fluid seats the #6 ball check valve against the 1234 clutch feed passage forcing CB26/C1234 feed fluid through orifice #32 before entering the 1234 clutch feed circuit. The 1234 clutch feed fluid is routed through orifice #33 and then to the 1-2-3-4 clutch regulator valve.

1-2-3-4 Clutch Applies**C1234 Pressure Control Solenoid 5**

The C1234 pressure control solenoid 5 is commanded ON allowing actua #35 to the 1-2-3-4 clutch regulator valve. PCS1234 clutch fluid is also routed through orifice #29 and then to the 1-2-3-4 clutch boost valve.

1-2-3-4 Clutch Regulator Valve

PCS1234 clutch fluid moves the 1-2-3-4 clutch regulator valve against 1-2-3-4 clutch regulator valve spring force to allow 1234 clutch feed fluid to pass through the valve and enter the 1234 clutch fluid circuit. The 1234 clutch fluid is then routed to the 1234 clutch boost valve and the 1-2-3-4 clutch.

1-2-3-4 Clutch Boost Valve

PCS1234 clutch fluid pressure acts on a differential area moving the 1234 clutch boost valve against the 1234 clutch boost valve spring. The 1234 clutch fluid passes through the valve and enters the 1234 clutch feedback circuit. As PCS 1234 clutch fluid pressure is increased to a given value, the 1234 clutch boost valve opens the 1234 clutch feedback circuit to exhaust. This results in the 1234 clutch regulator valve moving to the full feed position sending full 26 CL/1234 CL feed pressure (full line pressure) to the clutch.

1-2-3-4 Clutch

The 1234 clutch fluid enters the 1234 clutch housing to move the piston against spring force and compensator feed fluid to apply the 1-2-3-4 clutch plates.

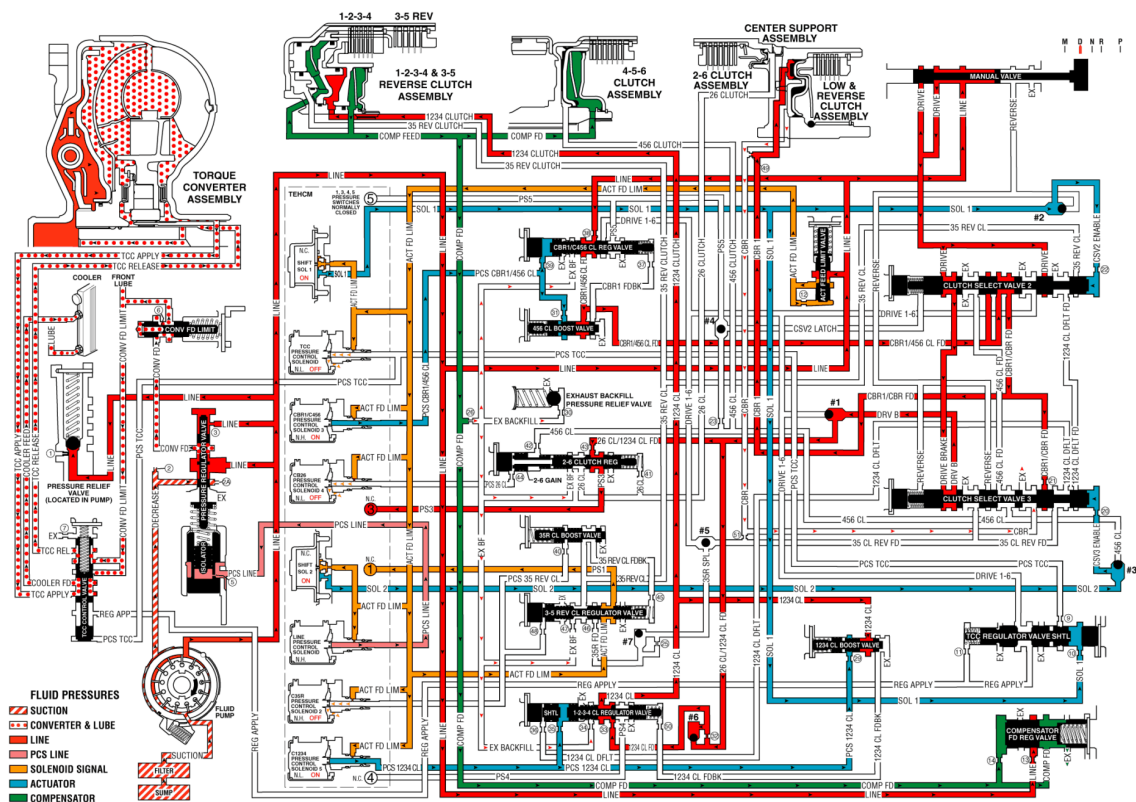


Fig. 95: Drive Range, First Gear Engine Braking
Courtesy of GENERAL MOTORS CORP.

Drive Range, First Gear

As the vehicle speed increases, the transmission control module (TCM) receives input signals from the automatic transmission input and output speed sensors, throttle position sensor and other vehicle sensors to determine the precise moment to de-energize or "turn off" shift solenoid 1 and command OFF the normally-high CBR1/C456 pressure control solenoid 3.

Low & Reverse Clutch Releases**Shift Solenoid 1**

When shift solenoid 1 is "turned OFF", CSV2 enable fluid from the clutch select valve 2 passes by the #2 ball check valve and enters the solenoid 1 fluid circuit. Solenoid 1 fluid from the #2 ball check valve and TCC regulator valve is then routed to the solenoid where it exhausts.

Clutch Select Valve 2

Clutch select valve 2 (CSV2) enable fluid is exhausted from the clutch select valve 2 and clutch select valve 2 spring force moves the valve to the released position. With clutch select valve 2 in the released position, drive fluid from the manual valve passes through the valve and enters the drive 1-6 fluid circuit. Drive 1-6 fluid then feeds all clutch regulator valves and the TCC regulator valve.

CBR1/C456 Pressure Control Solenoid 3

The CBR1/C456 pressure control solenoid 3 is commanded OFF allowing PCS CBR1/C456 fluid from the CBR1/C456 clutch regulator valve and 456 clutch boost valve to exhaust.

CBR1/C456 Clutch Regulator Valve

CBR1/C456 clutch regulator valve spring force moves the valve to exhaust the CBR1/456 clutch feed circuit and allow drive 1-6 fluid to enter the PS5 fluid circuit. PS5 fluid is then routed to the normally-closed pressure switch 5 and opens the switch. PS5 fluid is also routed to the #4 ball check valve and flows into the CSV2 latch fluid circuit.

#4 Ball Check Valve

PS5 fluid pressure seats the #4 ball check valve against the 456 clutch fluid circuit. PS5 fluid is then directed into the CSV2 latch fluid circuit and routed to the clutch select valve 2. CSV2 latch fluid combines with clutch select valve 2 spring force and holds the valve in this position during all 6 forward gear ranges.

#5 Ball Check Valve

Drive 1-6 fluid pressure seats the #5 ball check valve against the 35 clutch reverse feed fluid passage. Drive 1-6 fluid is then directed into the 35R supply fluid circuit which is routed to the #7 ball check valve and orifice #25.

#7 Ball Check Valve

The 35R supply fluid seats the #7 ball check valve against the 35R feed fluid passage to force 35R supply fluid through orifice #25 before entering the 35R feed circuit. The 35R feed fluid is then routed to the 3-5 reverse clutch regulator valve.

Low and Reverse Clutch

Low and reverse clutch spring force moves the low and reverse clutch piston which forces clutch braking (CBR) and CBR1 fluid out of the center support. CBR fluid is routed to the clutch select valve 3 where it exhausts. CBR1 fluid is routed to the clutch select valve 2 where it exhausts. The low and reverse clutch is in

the released position.

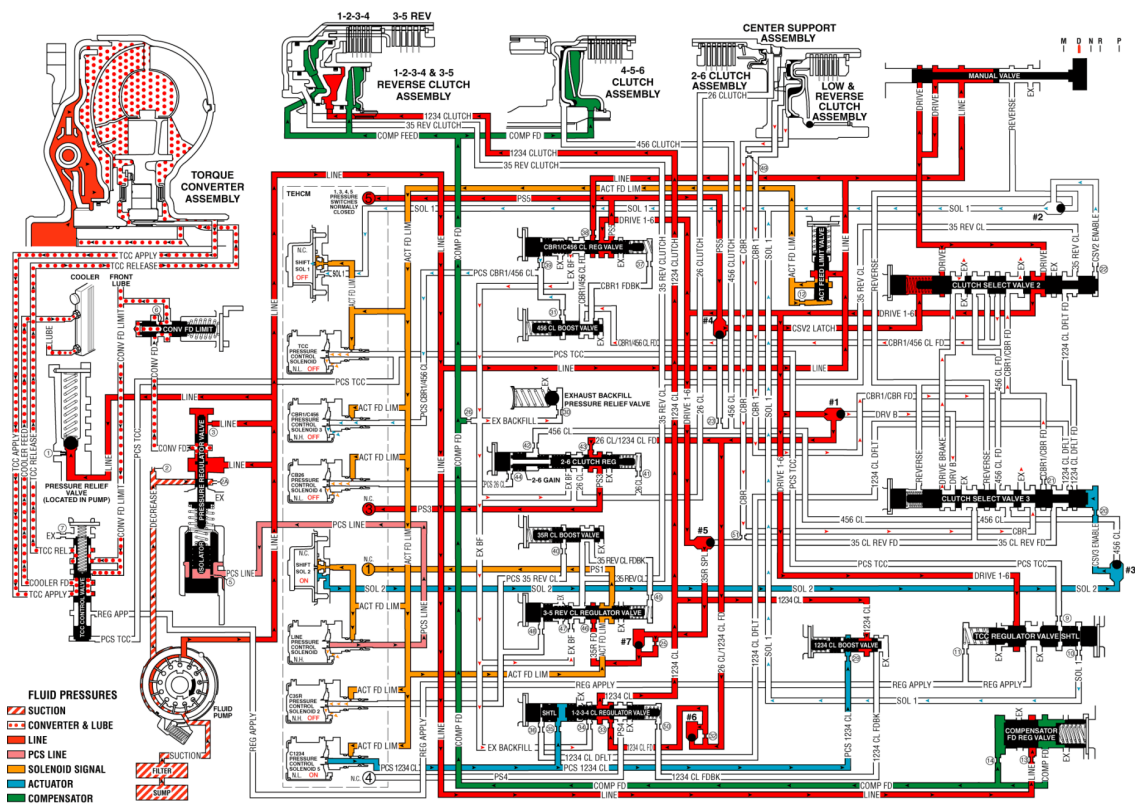


Fig. 96: Drive Range, First Gear
Courtesy of GENERAL MOTORS CORP.

Drive Range, Second Gear

As the vehicle speed increases, the transmission control module (TCM) receives input signals from the automatic transmission input and output speed sensors, the throttle position sensor and other vehicle sensors to determine the precise moment to command ON the normally-low pressure control solenoid 4.

Second Clutch Applies

CB26 Pressure Control Solenoid 4

The CB26 pressure control solenoid 4 is commanded ON, allowing actuator feed limit fluid to enter the pressure control solenoid (PCS) 26 clutch fluid circuit. PCS 26 clutch fluid is then routed through orifice #44 to the 2-6 clutch regulator gain valve.

2-6 Clutch Regulator Gain Valve

The 2-6 clutch regulator gain valve allows the gain (valve input to output pressure magnification factor) of the 2-6 clutch regulator valve to be different for a 1-2 shift versus a 5-6 shift. For a 1-2 shift, PCS 26 clutch fluid pressure acts on a differential area resulting in the "high gain" pressure output.

2-6 Clutch Regulator Valve

PCS 26 clutch fluid moves the 2-6 clutch regulator / gain valve assembly against the 2-6 clutch regulator valve spring force to allow 26 clutch/1234 clutch feed fluid to pass through the valve. The 26 clutch/1234 clutch feed fluid is routed into the 26 clutch fluid circuit where it passes through orifice #41 and then to the spring end of the 2-6 clutch regulator valve, and to the 2-6 clutch within the center support.

2-6 Clutch

The 26 clutch fluid from the 2-6 clutch regulator valve is routed through the center support and to the 2-6 clutch piston assembly. The 26 clutch fluid pressure moves the piston against 2-6 clutch spring force to apply the 2-6 clutch plates.

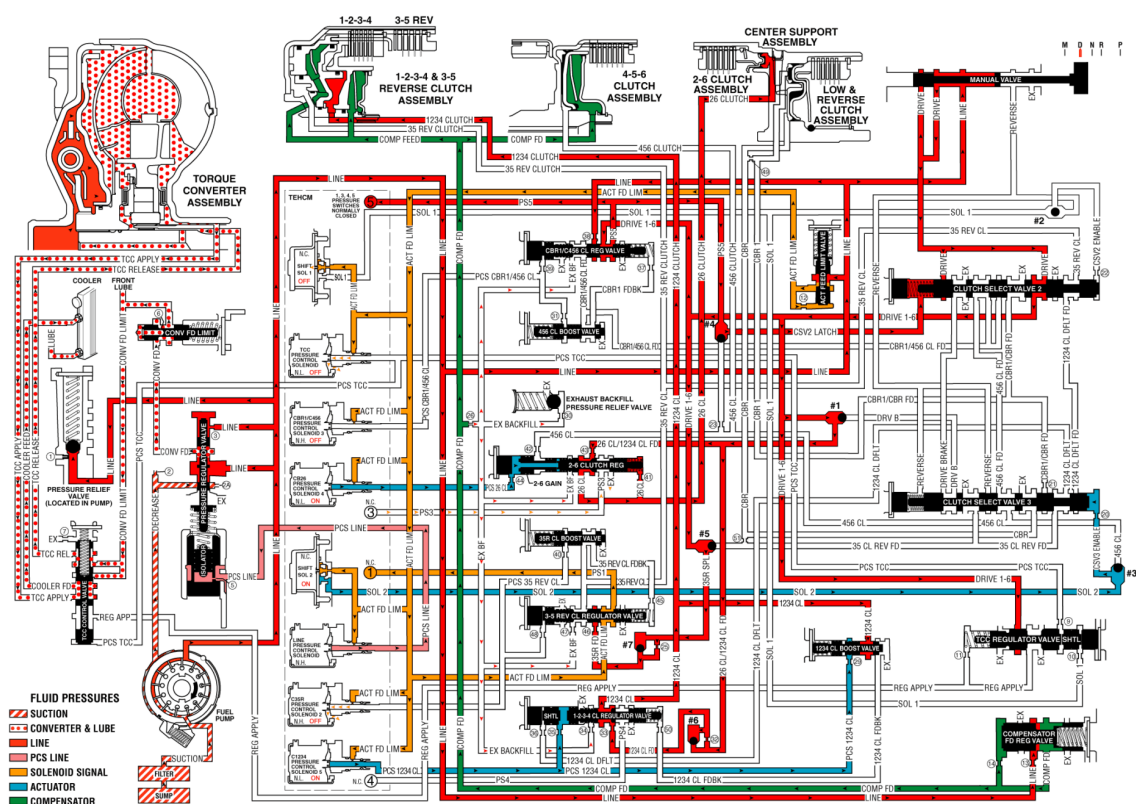


Fig. 97: Drive Range, Second Gear

Courtesy of GENERAL MOTORS CORP.

Drive Range, Third Gear

As the vehicle speed increases, the transmission control module (TCM) receives input signals from the automatic transmission input and output speed sensors, the throttle position sensor and other vehicle sensors to determine the precise moment to command OFF the normally-low CB26 pressure control solenoid 4. At the same time the C35R pressure control solenoid 2 is also commanded ON to regulate 3-5 clutch apply.

3-5 Reverse Clutch Applies

C35R Pressure Control Solenoid 2

The C35R pressure control solenoid 2 is commanded ON allowing actuator feed fluid to enter the pressure control solenoid (PCS) 35 reverse clutch fluid circuit. PCS 35 reverse clutch fluid is routed through orifice #48 and then to the 3-5 reverse clutch regulator valve. PCS 35 reverse clutch fluid is also routed through orifice #40 and then to the 3-5 reverse clutch boost valve.

3-5 Reverse Clutch Boost Valve

PCS 35 reverse clutch fluid pressure acts on a differential area moving the 3-5 reverse clutch boost valve against the 3-5 reverse clutch boost valve spring. The 35 reverse clutch fluid passes through the valve and enters the 35 reverse clutch feedback circuit. As PCS 35 reverse clutch fluid pressure is increased to a given value, the 3-5 reverse clutch boost valve opens the 35 reverse clutch feedback circuit to exhaust. This results in the 3-5 reverse clutch regulator valve moving to the full feed position sending full 35 reverse clutch feed pressure (full line pressure) to the clutch.

3-5 Reverse Clutch Regulator Valve

PCS 35 reverse clutch fluid moves the 3-5 reverse clutch regulator valve against 3-5 reverse clutch regulator valve spring force and 35 reverse clutch feedback fluid. This allows 35 reverse feed to pass through the valve and enter the 35 reverse clutch circuit. The 35 reverse clutch fluid is then routed to the 3-5 reverse clutch, the 3-5 reverse boost valve and the clutch select valve 2. When the 3-5 reverse clutch regulator valve is in this position, PS1 fluid from the pressure switch 1 exhausts through the valve allowing the switch to close.

3-5 Reverse Clutch

The 35 reverse clutch fluid enters the 1-2-3-4 & 3-5 reverse clutch housing to move the piston against spring force combined with force from the compensator to apply the 3-5 reverse clutch plates.

2-6 Clutch Releases**CB26 Pressure Control Solenoid 4**

The CB26 pressure control solenoid 4 is commanded OFF allowing PCS 26 clutch fluid from the 2-6 clutch regulator valve to exhaust. The 26 clutch/1234 clutch feed fluid at the 2-6 clutch regulator valve passes through the valve and enters the PS3 fluid circuit. PS3 fluid is then routed to pressure switch 3 and opens the normally-closed switch.

2-6 Clutch Regulator Valve

The 2-6 clutch regulator valve spring force moves the valve to allow 26 clutch fluid from the 2-6 clutch to pass through the valve and enter the exhaust backfill fluid circuit.

2-6 Clutch

The 2-6 clutch spring force moves the 2-6 clutch piston to release the 2-6 clutch plates and forces 26 clutch fluid to exhaust from the center support. The 26 clutch fluid is routed through the 2-6 clutch regulator valve where it enters the exhaust backfill fluid circuit and is routed through orifice #30 to the exhaust backfill pressure relief valve where excess pressure is exhausted.

1-2-3-4 Clutch

With the 1-2-3-4 clutch regulator valve still held in the open position, the 1-2-3-4 clutch will stay applied.

3-5 Reverse Clutch Applied or Applies**C35R Pressure Control Solenoid 2**

The normal state for the C35R pressure control solenoid 2 is ON, therefore PSC 35 reverse clutch fluid will still be routed to the 3-5 reverse clutch regulator valve and the 3-5 reverse clutch boost valve.

3-5 Reverse Clutch Regulator Valve

PCS 3-5 reverse clutch fluid moves the 3-5 reverse clutch regulator valve against 3-5 reverse clutch regulator valve spring force and 3-5 reverse clutch feedback fluid. This allows 3-5 reverse feed to pass through the valve and enter the 3-5 reverse clutch circuit. 3-5 reverse clutch fluid is then routed to the 3-5 reverse clutch, the 3-5 reverse boost valve and the clutch select valve 2. When the 3-5 reverse clutch regulator valve is in this position, PS1 fluid from the pressure switch 1 exhausts through the valve, allowing the switch to close.

3-5 Reverse Clutch Boost Valve

PCS 3-5 reverse clutch fluid pressure acts on a differential area moving the 3-5 reverse clutch boost valve against the 3-5 reverse clutch boost valve spring. The 3-5 reverse clutch fluid passes through the valve and enters the 3-5 reverse clutch feedback circuit. As PCS 3-5 reverse clutch fluid pressure is increased to a given value, the 3-5 reverse clutch boost valve opens the 3-5 reverse clutch feedback circuit to exhaust. This results in the 3-5 reverse clutch regulator valve moving to the full feed position sending full 3-5 reverse clutch feed pressure (full line pressure) to the clutch.

3-5 Reverse Clutch

The 3-5 reverse clutch fluid enters the 1-2-3-4 & 3-5 reverse clutch housing to move the piston against spring force combined with force from the compensator to apply the 3-5 reverse clutch plates.

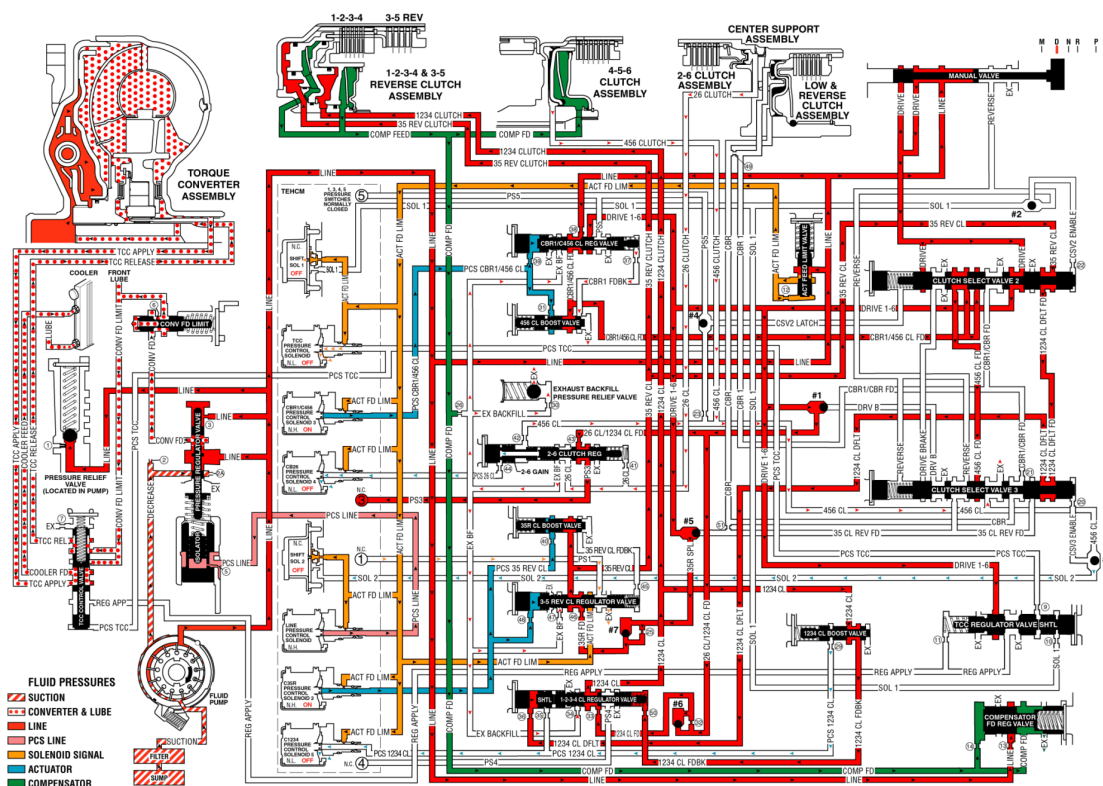


Fig. 99: Drive Range, Third Gear Default
Courtesy of GENERAL MOTORS CORP.

Drive Range - Fourth Gear

As the vehicle speed increases, the transmission control module (TCM) receives input signals from the automatic transmission input and output speed sensors, the throttle position sensor and other vehicle sensors to determine the precise moment to command OFF the normally-high C35R pressure control solenoid 2. At the same time the normally-low CBR1/C456 pressure control solenoid 3 is commanded ON to regulate 4-5-6 clutch apply.

4-5-6 Clutch Applies

CBR1/C456 Pressure Control Solenoid 3

The CBR1/C456 pressure control solenoid 3 (PCS) is commanded ON allowing actuator feed fluid to enter the PCS CBR1/456 clutch fluid circuit. PCS CBR1/456 clutch fluid is routed through orifice #39 to the CBR1/C456 clutch regulator valve and, through orifice #31 to the CBR1/C456 clutch boost valve.

CBR1/C456 Clutch Regulator Valve

PCS CBR1/456 clutch fluid moves the CBR1/C456 clutch regulator valve against CBR1/C456 clutch regulator valve spring force to allow line fluid to pass through the valve and enter the CBR1/456 clutch feed circuit. CBR1/456 clutch feed is then routed to the 4-5-6 clutch boost valve and clutch select valve 2.

4-5-6 Clutch Boost Valve

PCS CBR1/456 clutch fluid pressure acts on a differential area moving the CBR1/456 clutch boost valve against the CBR1/456 clutch boost valve spring. CBR1/456 clutch fluid passes through the valve and enters the CBR1/456 clutch feedback circuit. As PCS CBR1/456 clutch fluid pressure is increased to a given value, the CBR1/456 clutch boost valve opens the CBR1/456 clutch feedback circuit to exhaust. This results in the CBR1/456 clutch regulator valve moving to the full feed position, sending full line pressure to the clutch.

Clutch Select Valve 2

CBR1/456 clutch feed fluid passes through the clutch select valve 2 and enters the 456 clutch feed circuit. The 456 clutch feed fluid is routed to the clutch select valve 3 where it passes through the valve and enters the 456 clutch fluid circuit. The 456 clutch fluid is routed to the 4-5-6 clutch, the 2-6 clutch regulator gain valve and to the #3 ball check valve. The 456 clutch fluid seats the #3 ball check valve against solenoid 2 fluid passage and directed into the CSV3 enable fluid circuit where it is routed through orifice #20 and to clutch select valve 3.

4-5-6 Clutch

The 456 clutch fluid enters the 4-5-6 clutch housing to move the piston against spring force, combined with force from the compensator to apply the 4-5-6 clutch plates.

3-5 Reverse Clutch Releases**C35R Pressure Control Solenoid 2**

The C35R pressure control solenoid 2 is commanded OFF, allowing PCS 35 reverse clutch fluid from the 3-5 reverse clutch boost valve and the 3-5 reverse clutch regulator valve to exhaust through the solenoid.

3-5 Reverse Clutch Boost Valve

The 3-5 reverse boost valve spring force moves the valve to allow 35 reverse clutch feedback fluid from the 3-5 reverse clutch regulator valve to enter the 35 reverse clutch fluid circuit and exhaust.

3-5 Reverse Clutch Regulator Valve

The 3-5 reverse clutch regulator valve spring force moves the valve to allow 35 reverse clutch fluid from the 3-5 reverse clutch to pass through the valve and enter the exhaust backfill fluid circuit. The 35 reverse clutch fluid then enters the exhaust backfill fluid circuit and is routed through orifice #30 to the exhaust backfill pressure relief valve where excess pressure is exhausted.

3-5 Reverse Clutch

The 3-5 reverse clutch spring force combined with force from the compensator move the 3-5 reverse clutch piston to release the 3-5 clutch plates and forces 35 reverse clutch fluid to exhaust from 1- 2-3-4 and 3-5 reverse clutch housing. The 35 reverse clutch fluid is then routed to the 3-5 reverse clutch regulator valve and exhausted.

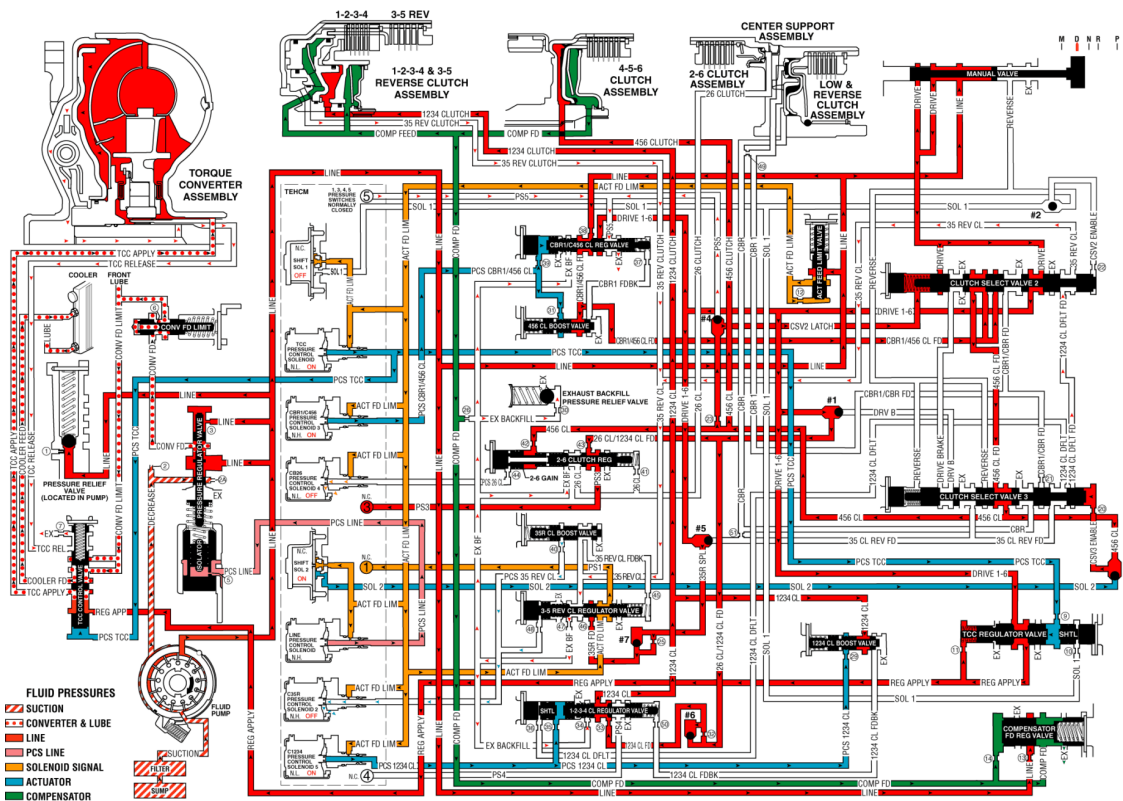


Fig. 100: Drive Range, Fourth Gear
 Courtesy of GENERAL MOTORS CORP.

Drive Range, Fifth Gear

As the vehicle speed increases, the transmission control module (TCM) receives input signals from the automatic transmission input and output speed sensors, the throttle position sensor and other vehicle sensors to determine the precise moment to command ON the normally-high C35R pressure control solenoid 2. At the same time the normally-low C1234 pressure control solenoid 5 is commanded OFF.

3-5 Reverse Clutch Applies

C35R Pressure Control Solenoid 2

The C35R pressure control solenoid 2 is commanded ON, allowing actuator feed fluid to enter the PCS 35 reverse clutch fluid circuit. PCS 35 reverse clutch fluid is routed through orifice #48 and then to the 3-5 reverse clutch regulator valve. PCS 35 reverse clutch fluid is also routed through orifice #40 and then to the 3-5 reverse clutch boost valve.

3-5 Reverse Clutch Boost Valve

PCS 35 reverse clutch fluid pressure acts on a differential area moving the PCS 3-5 reverse clutch boost valve against the 3-5 reverse clutch boost valve spring. The 35 reverse clutch fluid passes through the valve and enters the 35 reverse clutch feedback circuit. As PCS 35 reverse clutch fluid pressure is increased to a given value, the 3-5 reverse clutch boost valve opens the 35 reverse clutch feedback circuit to exhaust. This results in the 3-5

reverse clutch regulator valve moving to the full feed position sending full 35 reverse clutch feed pressure (full line pressure) to the clutch.

3-5 Reverse Clutch Regulator Valve

PCS 35 reverse clutch fluid moves the 3-5 reverse clutch regulator valve against 3-5 reverse clutch regulator valve spring force and 35 reverse clutch feedback fluid. This allows 35 reverse feed to pass through the valve and enter the 35 reverse clutch circuit. The 35 reverse clutch fluid is then routed to the 3-5 reverse clutch, the 3-5 reverse boost valve and the clutch select valve 2. When the 3-5 reverse clutch regulator valve is in this position, PS1 fluid from the pressure switch 1 exhausts through the valve allowing the switch to close.

Clutch Select Valve 2

The 35 reverse clutch fluid passes through the clutch select valve 2 and enters the 1234 clutch default feed fluid circuit. The 1234 clutch default feed fluid is then routed to the clutch select valve 3.

3-5 Reverse Clutch

The 35 reverse clutch fluid enters the 1-2-3-4 & 3-5 reverse clutch housing to move the piston against spring force combined with force from the compensator to apply the 3-5 reverse clutch plates.

1-2-3-4 Clutch Releases

C1234 Pressure Control Solenoid 5

The C1234 pressure control solenoid 5 is commanded OFF, allowing PCS 1234 clutch fluid from the 1-2-3-4 clutch regulator valve and 1-2-3-4 clutch boost valve to exhaust.

1-2-3-4 Clutch Regulator Valve

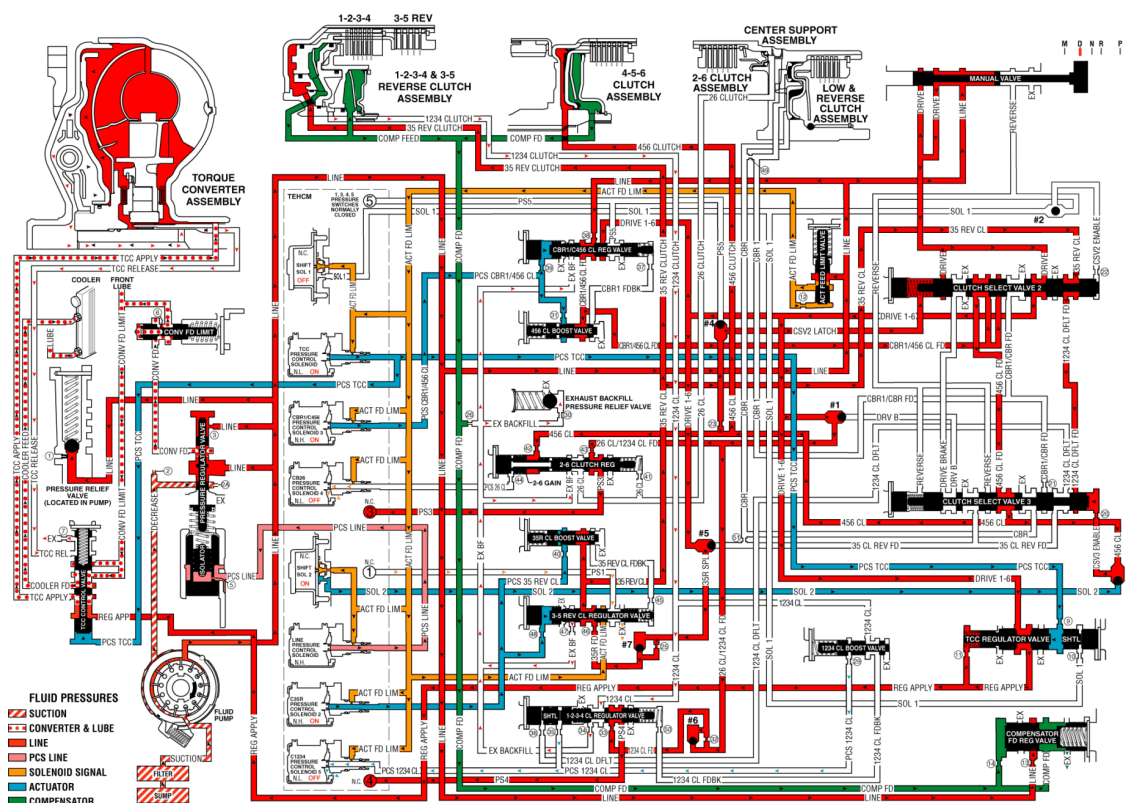
The 1-2-3-4 clutch regulator valve spring force moves the valve to allow 1234 clutch feed fluid from the 1-2-3-4 clutch to pass through the valve and enter the exhaust backfill fluid circuit. The 1234 clutch fluid enters the exhaust backfill fluid circuit and is routed through orifice #30 to the exhaust backfill pressure relief valve where excess pressure is exhausted. Also, 1234 clutch regulator valve spring force moves the valve to allow 1234 clutch feed fluid to pass through the valve and enter the PS4 fluid circuit. PS4 fluid is then routed to pressure switch 4 and opens the normally-closed switch.

1-2-3-4 Clutch Boost Valve

The 1-2-3-4 clutch boost valve spring force moves the valve to allow 1234 clutch feedback fluid from the 1-2-3-4 clutch regulator valve to enter the 1234 clutch circuit and exhaust.

1-2-3-4 Clutch

The 1-2-3-4 clutch spring force combined with force from the compensator moves the 1-2-3-4 clutch piston to release the clutch plates and force 1234 clutch fluid from the 1-2-3-4 and 3-5 reverse clutch housing. The 1234 clutch fluid is routed through the 1-2-3-4 clutch regulator valve where it enters the exhaust backfill fluid circuit.

**Fig. 101: Drive Range, Fifth Gear**

Courtesy of GENERAL MOTORS CORP.

Drive Range, Fifth Gear Default

If the transmission is in 4th, 5th or 6th gear during a transmission electrical component failure, the transmission will default to 5th gear. All solenoids will default to their normal state. If the torque converter clutch was applied, it will release. The transmission will stay in 5th gear default range until the ignition has been turned off or transmission shifted to reverse. When the vehicle is restarted, and shifted back into drive, the transmission will then operate in the 3rd gear default range. This default action will enable the vehicle to be safely driven to a service center.

3-5 Reverse Clutch Applies**C35R Pressure Control Solenoid 2**

The C35R pressure control solenoid 2 defaults to ON, allowing actuator feed fluid to enter the pressure control solenoid (PCS) 35 reverse clutch fluid circuit. PCS 35 reverse clutch fluid is routed through orifice #48 and then to the 3-5 reverse clutch regulator valve. PCS 35 reverse clutch fluid is also routed through orifice #40 and then to the 3-5 reverse clutch boost valve.

3-5 Reverse Clutch Boost Valve

PCS 3-5 reverse clutch fluid pressure acts on a differential area moving the PCS 3-5 reverse clutch boost valve against the 3-5 reverse clutch boost valve spring. The 3-5 reverse clutch fluid passes through the valve and enters the 3-5 reverse clutch feedback circuit. As PCS 3-5 reverse clutch fluid pressure is increased to a given

value, the 3-5 reverse clutch boost valve opens the 3-5 reverse clutch feedback circuit to exhaust. This results in the 3-5 reverse clutch regulator valve moving to the full feed position sending full 3-5 reverse clutch feed pressure (full line pressure) to the clutch.

3-5 Reverse Clutch Regulator Valve

PCS 3-5 reverse clutch fluid moves the 3-5 reverse clutch regulator valve against 3-5 reverse clutch regulator valve spring force and 3-5 reverse clutch feedback fluid. This allows 3-5 reverse feed to pass through the valve and enter the 3-5 reverse clutch circuit. The 3-5 reverse clutch fluid is then routed to the 3-5 reverse clutch, the 3-5 reverse boost valve and the clutch select valve 2. When the 3-5 reverse clutch regulator valve is in this position, PS1 fluid from the pressure switch 1 exhausts through the valve, allowing the switch to close.

3-5 Reverse Clutch

The 3-5 reverse clutch fluid enters the 1-2-3-4 & 3-5 reverse clutch housing to move the piston against spring force combined with force from the compensator to apply the 3-5 reverse clutch plates.

Clutch Select Valve 3

Once the clutch select valve 3 is moved to the ON position in 4th gear, it will remain in this position throughout the 5th gear default range, until the ignition has been turned OFF. When the ignition is OFF, fluid will exhaust from the valve, thus when the vehicle is restarted, the transmission will then be in the 3rd gear default range.

1-2-3-4 Clutch Releases or 2-6 Clutch Releases

C1234 Pressure Control Solenoid 5

If the transmission was in 4th gear when an electrical condition commands a protection mode, the C1234 pressure control solenoid 5 defaults to the OFF position, allowing PCS 1234 clutch fluid from the 1-2-3-4 clutch, the 1-2-3-4 clutch regulator valve and 1- 2-3-4 clutch boost valve to exhaust.

2-6 CB26 Pressure Control Solenoid 4

If the transmission was in 6th gear when an electrical condition commands a protection mode, the CB26 pressure control solenoid 4 defaults to the OFF position, allowing PCS 26 clutch fluid from the 2-6 clutch regulator valve, and the 2-6 clutch to exhaust.

Torque Converter Clutch Releases

TCC Pressure Control Solenoid

The torque converter clutch (TCC) pressure control solenoid will default to it's normal state, OFF. PCS TCC fluid will exhaust from the TCC control valve, and spring force will shuttle the valve to the off position. TCC apply fluid will then be routed to the cooler, and TCC release fluid will be routed to the torque converter for complete TCC release.

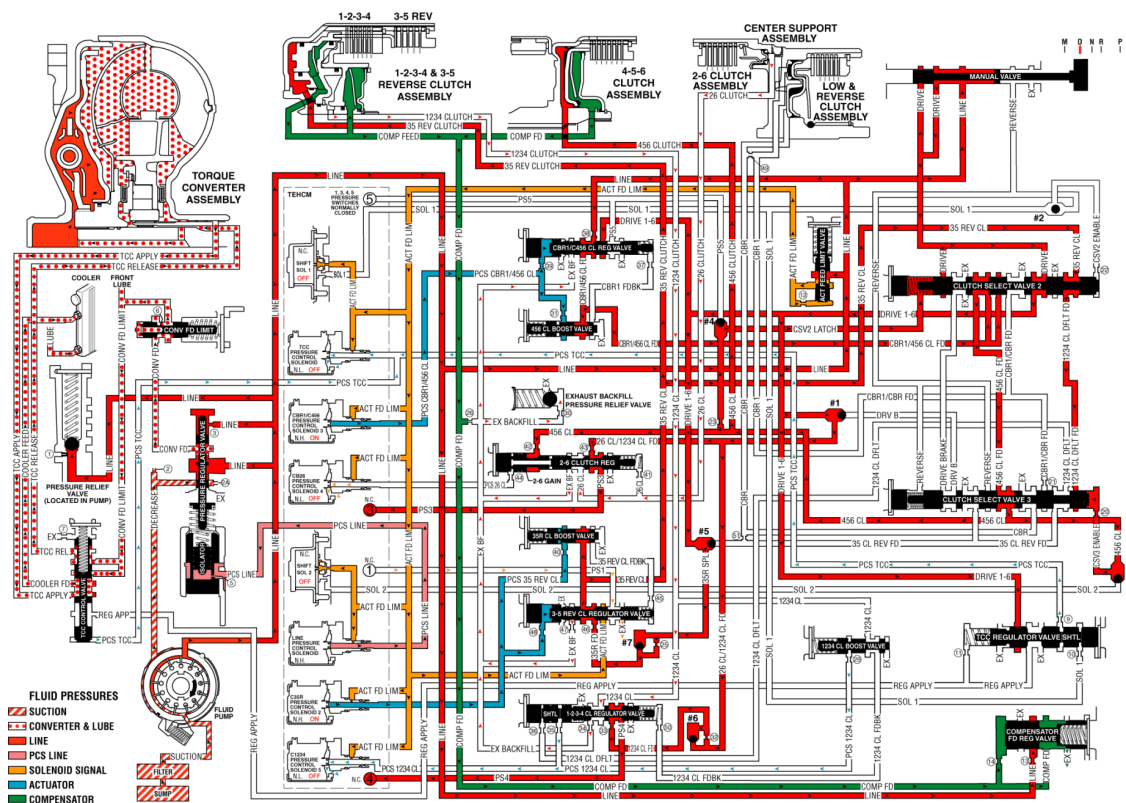


Fig. 102: Drive Range, Fifth Gear Default
 Courtesy of GENERAL MOTORS CORP.

Drive Range, Sixth Gear

As the vehicle speed increases, the transmission control module (TCM) receives input signals from the automatic transmission input and output speed sensors, the throttle position sensor and other vehicle sensors to determine the precise moment to command ON the normally-low CB26 pressure control solenoid 4 (PCS). At the same time the normally-high C35R pressure control solenoid 2 is commanded OFF.

2-6 Clutch Applies

CB26 Pressure Control Solenoid 4

The CB26 pressure control solenoid 4 is commanded ON, allowing actuator feed fluid to enter the PCS 26 clutch fluid circuit. PCS 26 fluid is routed through orifice #44 and then to the 2-6 clutch regulator gain valve.

2-6 Clutch Regulator Gain Valve

The 2-6 clutch regulator gain valve allows the gain (valve input to output pressure magnification factor) of the 2-6 clutch regulator valve to be different for a 1-2 shift verses a 5-6 shift. For a 5-6 shift PCS 26 clutch fluid pressure passes through the hollow valve and only acts on the 26 regulator valve area, resulting in the "low gain" pressure output.

2-6 Clutch Regulator Valve

PCS 26 clutch fluid moves the 2-6 clutch regulator/gain valve assembly against the 2-6 clutch regulator valve spring force to allow 26 clutch/1234 clutch feed fluid to pass through the valve. The 26 clutch/1234 clutch feed fluid is routed into the 26 clutch fluid circuit where it passes through orifice #41 and then to the spring end of the 2-6 clutch regulator valve, and to the 2-6 clutch within the center support.

2-6 Clutch

The 26 clutch fluid from the 2-6 clutch regulator valve is routed through the center support and to the 2-6 clutch piston assembly. The 26 clutch fluid pressure moves the piston against 2-6 clutch spring force to apply the 2-6 clutch plates.

3-5 Clutch Releases

C35R Pressure Control Solenoid 2

The C35R pressure control solenoid 2 is commanded OFF, allowing PCS 35 reverse clutch fluid from the 3-5 reverse clutch boost valve and the 3-5 reverse clutch regulator valve to exhaust through the solenoid.

3-5 Reverse Clutch Boost Valve

The 3-5 reverse boost valve spring force moves the valve to allow 35 reverse clutch feedback fluid from the 3-5 reverse clutch regulator valve to enter the 35 reverse clutch circuit and exhaust.

3-5 Reverse Clutch Regulator Valve

The 3-5 reverse clutch regulator valve spring force moves the valve to allow 35 reverse clutch fluid from the 3-5 reverse clutch to pass through the valve and enter the exhaust backfill fluid circuit. The 35 reverse clutch fluid then enters the exhaust backfill fluid circuit and is routed through orifice #30 to the exhaust backfill pressure relief valve where excess pressure is exhausted.

3-5 Reverse Clutch

The 3-5 reverse clutch spring force combined with force from the compensator move the 3-5 reverse clutch piston to release the 3-5 clutch plates and forces 35 reverse clutch fluid to exhaust from 1-2-3-4 and 3-5 reverse clutch housing. The 35 reverse clutch fluid is then routed to the 3-5 reverse clutch regulator valve where it enters the exhaust backfill circuit.

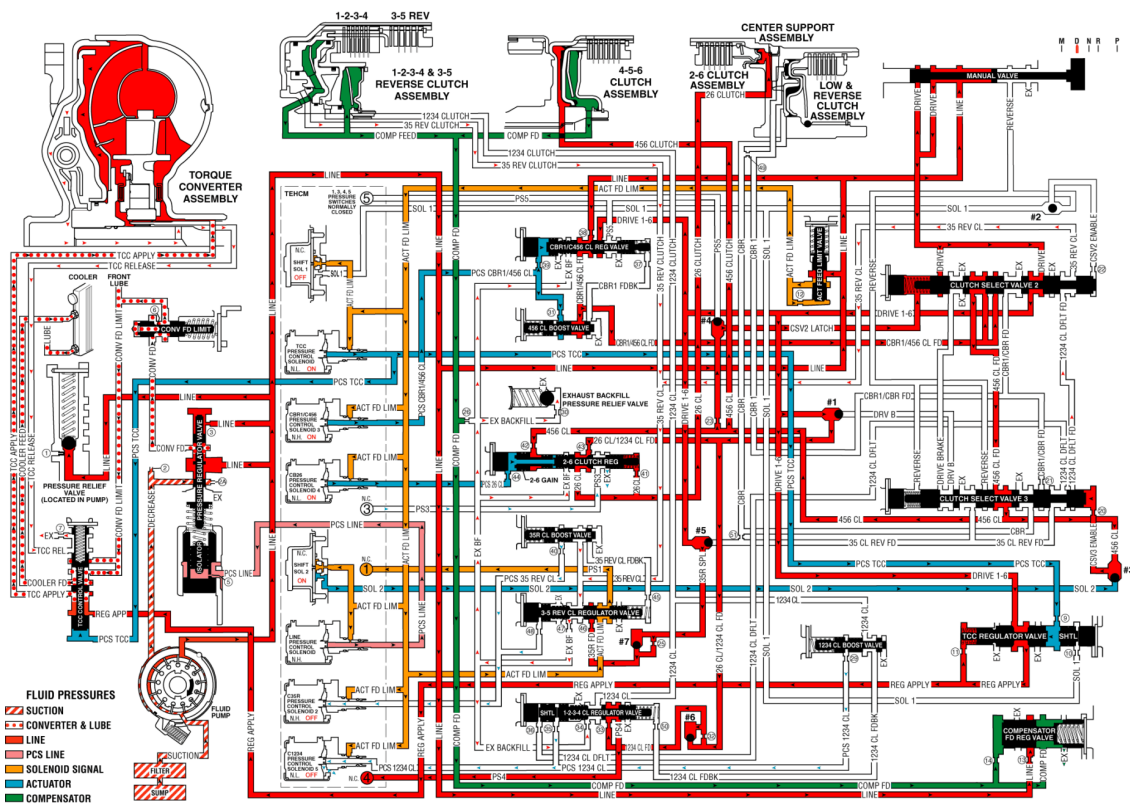


Fig. 103: Drive Range, Sixth Gear
Courtesy of GENERAL MOTORS CORP.

FLUID PASSAGES

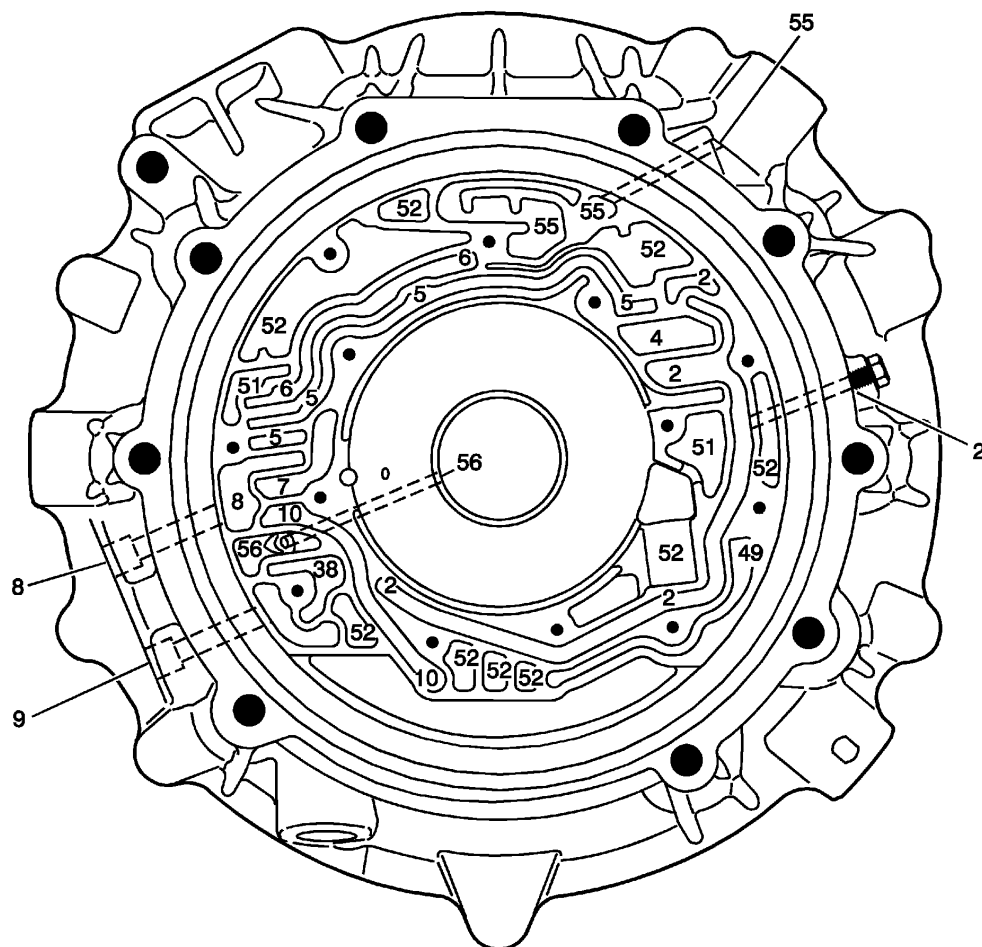


Fig. 104: Torque Converter Housing - Fluid Pump Cover Side
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
2	Line
4	Converter Feed
5	Converter Feed Limit
6	TCC Release
7	TCC Apply
8	Cooler Feed
9	Center Lube
10	Regulator Apply
38	PCS TCC
49	PCS Line
51	Exhaust
52	Void
55	Vent

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Torque Converter Seal Drainback

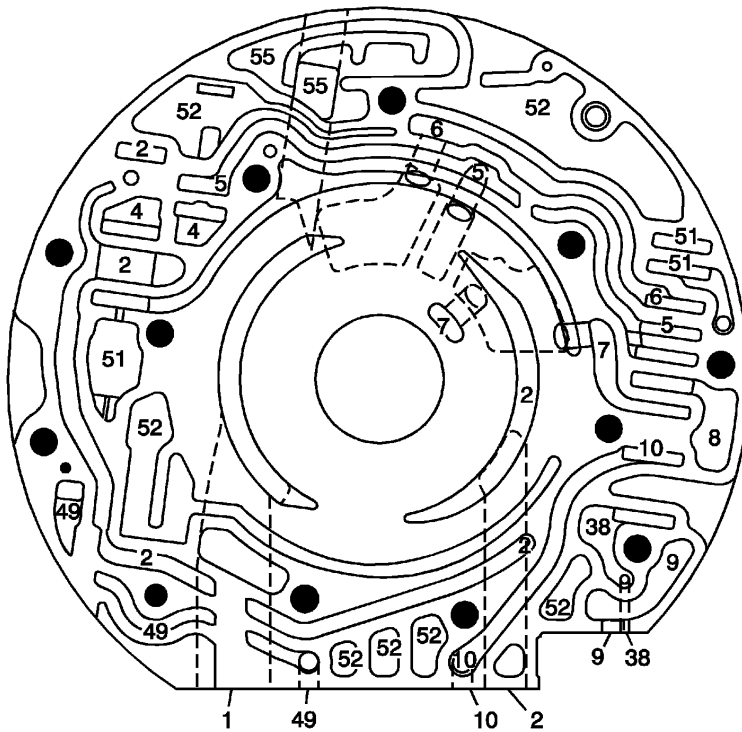


Fig. 105: Fluid Pump Cover - Torque Converter Housing Side
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
1	Suction
2	Line
4	Converter Feed
5	Converter Feed Limit
6	TCC Release
7	TCC Apply
8	Cooler Feed
9	Center Lube
10	Regulator Apply
38	PCS TCC
49	PCS Line
51	Exhaust
52	Void
55	Vent

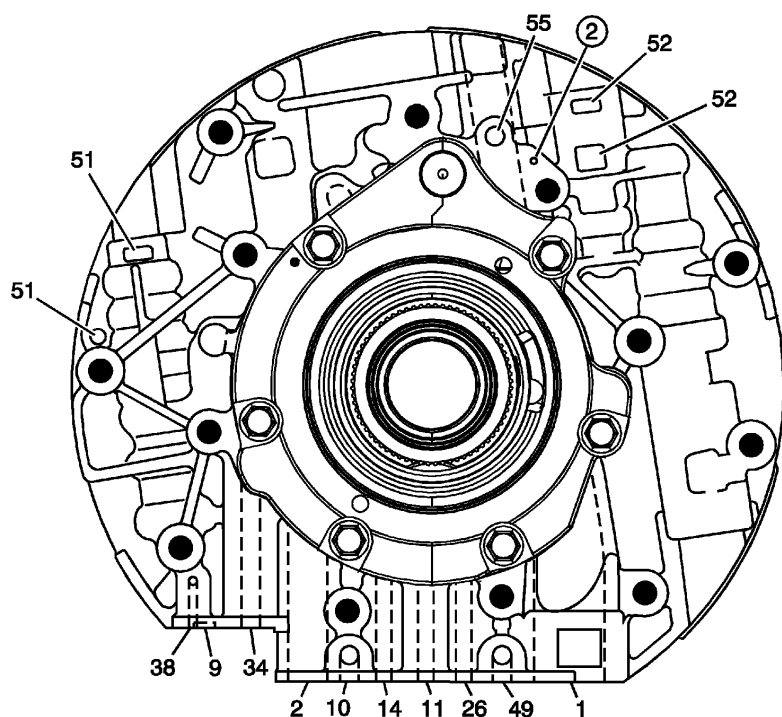


Fig. 106: Fluid Pump Cover - Case Side
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
1	Suction
2	Line
9	Center Lube
10	Regulator Apply
11	Compensator Feed
14	35 Reverse Clutch
26	1234 Clutch
34	456 Clutch
38	PCS TCC
49	PSC Line
51	Exhaust
52	Void
55	Vent

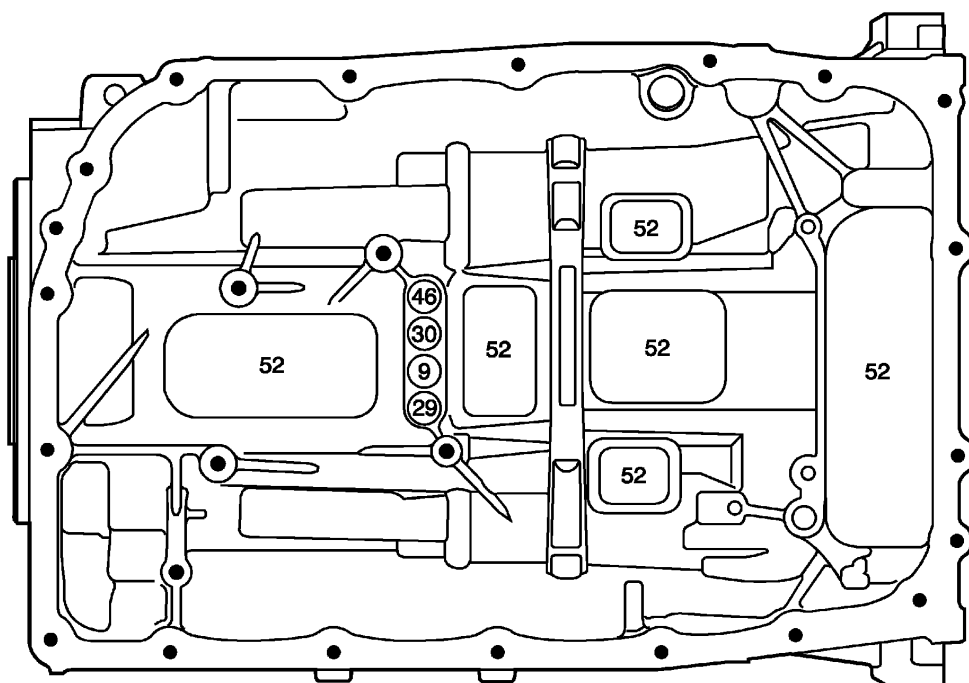
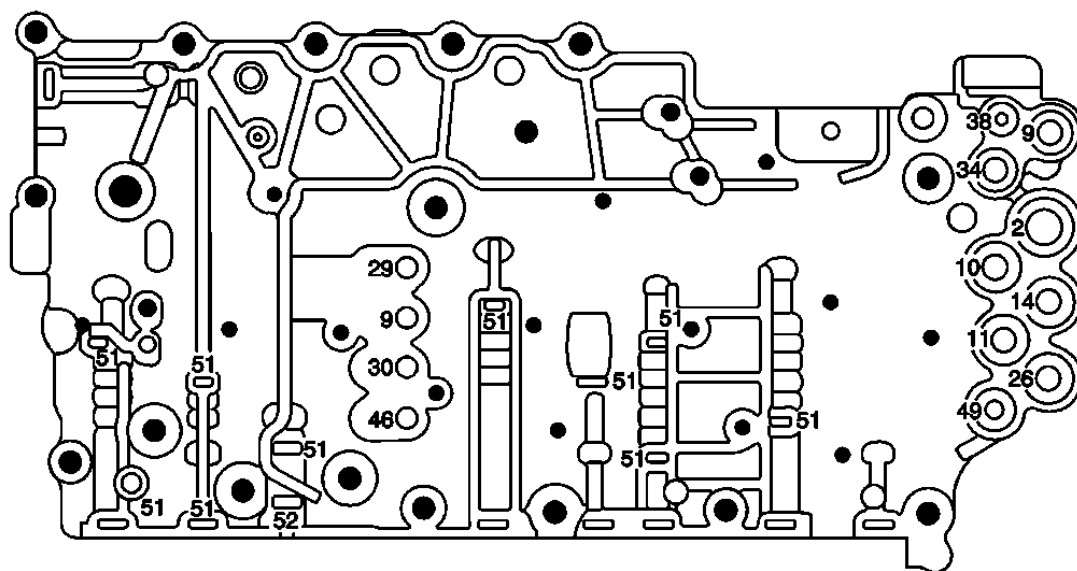


Fig. 107: Case - Top Channel Plate Side
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
52	Void



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Fig. 108: Control Valve Upper Body Assembly - Case Side
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
2	Line
9	Center Lube
10	Regulator Apply
11	Compensator Feed
14	35 Reverse Clutch
26	1234 Clutch
29	CBR1
30	CBR
34	456 Clutch
38	PCS TCC
46	26 Clutch
49	PCS Line
51	Exhaust
52	Void

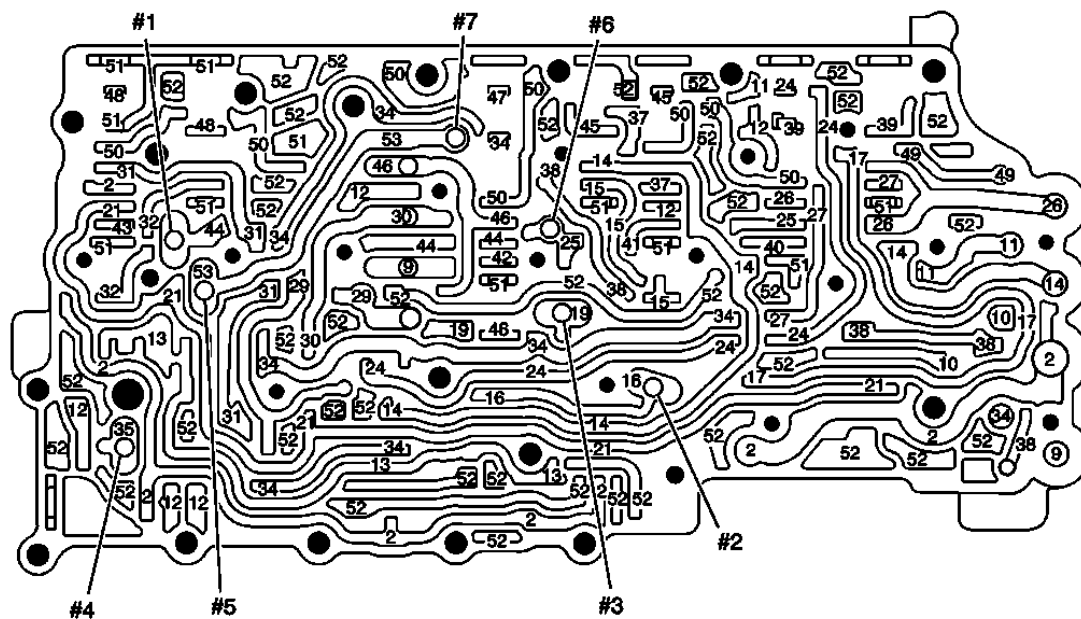


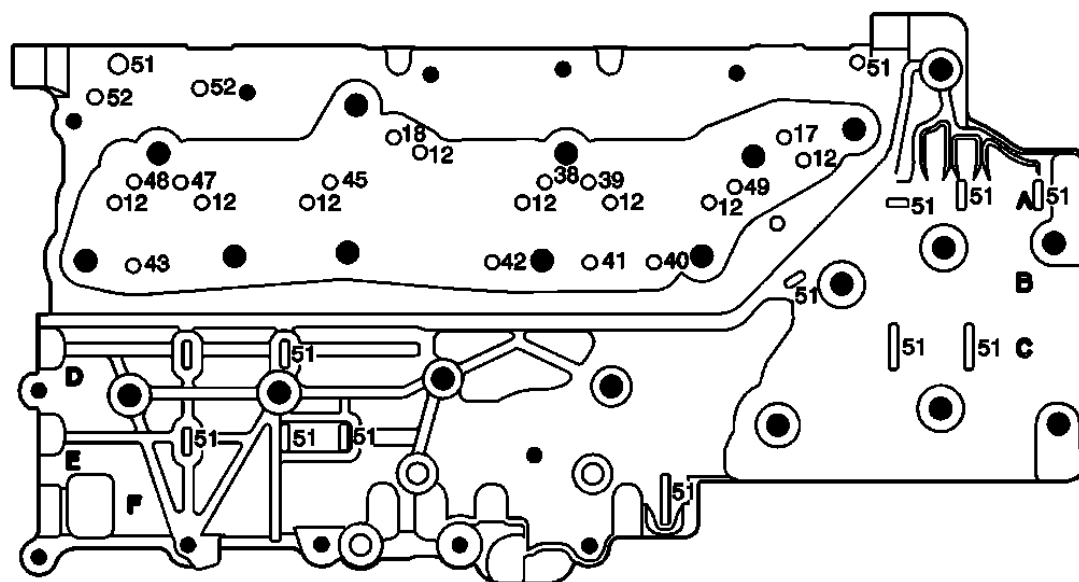
Fig. 109: Control Valve Upper Body Assembly - Bottom Channel Plate Side
Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
2	Line

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9	Center Lube
10	Regulator Apply
11	Compensator Feed
12	Actuator Feed Limit
13	Reverse
14	35 Reverse Clutch
15	35 Reverse Clutch Feedback
16	CSV2 Enable
17	Solenoid 1
19	CSV3 Enable
21	Drive 1-6
24	1234 Clutch DFLT
25	1234 Clutch Feed
26	1234 Clutch
27	1234 Clutch Feedback
29	CBR1
30	CBR
31	CBR1/456 Clutch Feed
32	CBR1 Feedback
34	456 Clutch
35	CSV2 Latch
37	35 Reverse Feed
38	PCS TCC
39	PCS 1234 Clutch
40	PS4
41	PS1
42	PS3
43	PS5
44	26 Clutch/1234 CL Feed
45	PCS 35 Rev Clutch
46	26 Clutch
47	PCS 26 Clutch
48	PCS CBR1/456 Clutch
49	PCS Line
50	Exhaust BF
51	Exhaust
52	Void
53	35 R Supply



Callout	Component Name
12	Actuator Feed Limit
17	Solenoid 1
18	Solenoid 2
38	PCS TCC
39	PCS 1234 Clutch
40	PS4
41	PS1
42	PS3
43	PS5
45	PCS 35 Rev Clutch
47	PCS 26 Clutch
48	PCS CBR1/456 Clutch
49	PCS Line
51	Exhaust
52	Void

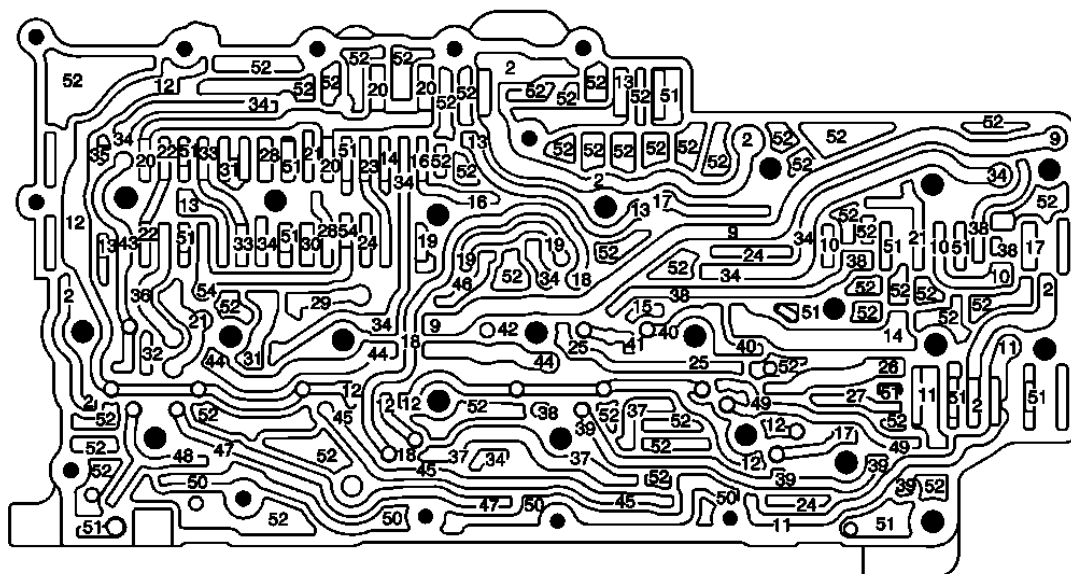


Fig. 111: Control Valve Lower Body Assembly - Control Valve Upper Body Assembly Side
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
2	Line
9	Center Lube
10	Regulator Apply
11	Compensator Feed
12	Actuator Feed Limit
13	Reverse
14	35 Reverse Clutch
15	35 Reverse Clutch Feedback
16	CSV2 Enable
17	Solenoid 1
18	Solenoid 2
19	CSV3 Enable
20	Drive
21	Drive 1-6
22	Drive Brake
23	1234 Clutch DFLT Feed
24	1234 Clutch DFLT
25	1234 Clutch Feed
26	1234 Clutch

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27	1234 Clutch Feedback
28	CBR1/CBR Feed
29	CBR1
30	CBR
31	CBR1/456 Clutch Feed
32	CBR1 Feedback
33	456 Clutch Feed
34	456 Clutch
35	CSV2 Latch
36	Drive B
37	35 Reverse Feed
38	PCS TCC
39	PCS 1234 Clutch
40	PS4
41	PS1
42	PS3
43	PS5
44	26 Clutch/1234 CL Feed
45	PCS 35 Rev Clutch
46	26 Clutch
47	PCS 26 Clutch
48	PCS CBR1/456 Clutch
49	PSC Line
50	Exhaust BF
51	Exhaust
52	Void
54	35 Clutch Reverse Feed

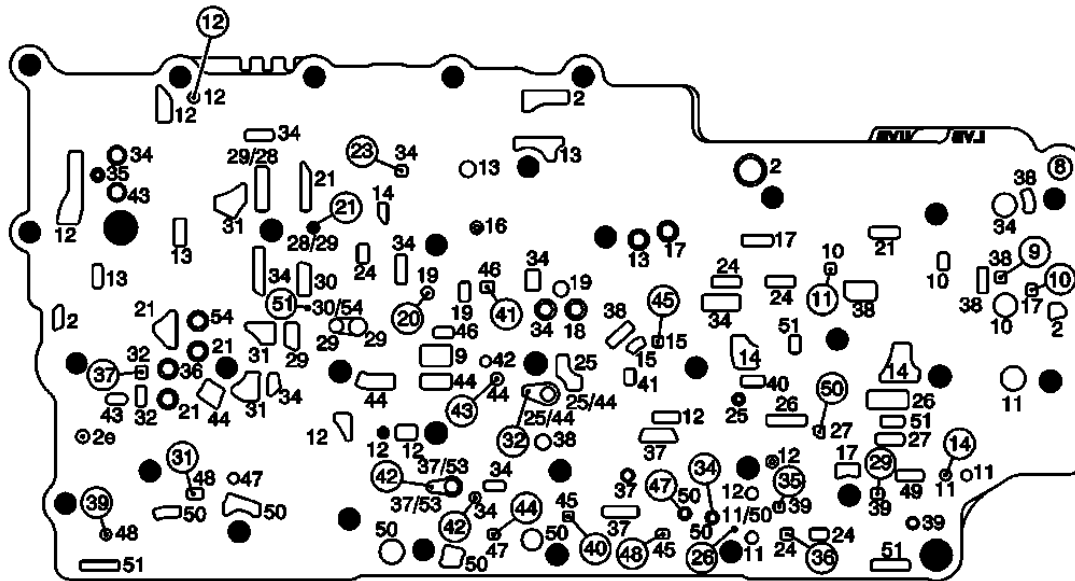


Fig. 112: Control Valve Body Spacer Plate Assembly - Bottom Channel Plate Side
 Courtesy of GENERAL MOTORS CORP.

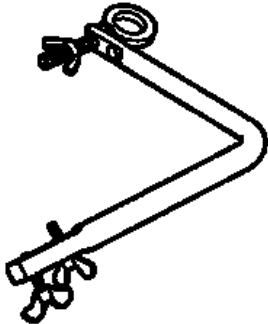
Callout	Component Name
2	Line
8	Cooler Feed
9	Center Lube
10	Regulator Apply
11	Compensator Feed
12	Actuator Feed Limit
13	Reverse
14	35 Reverse Clutch
15	35 Reverse Clutch Feedback
16	CSV2 Enable
17	Solenoid 1
18	Solenoid 2
19	CSV3 Enable
21	Drive 1-6
24	1234 Clutch DFLT
25	1234 Clutch Feed
26	1234 Clutch
27	1234 Clutch Feedback
28	CBR1/CBR Feed

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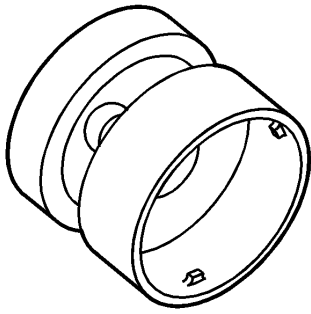
29	CBR1
30	CBR
31	CBR1/456 Clutch Feed
32	CBR1 Feedback
34	456 Clutch
35	CSV2 Latch
36	Drive B
37	35 Reverse Feed
38	PCS TCC
39	PCS 1234 Clutch
40	PS4
41	PS1
42	PS3
43	PS5
44	26 Clutch/1234 CL Feed
45	PCS 35 Rev Clutch
46	26 Clutch
47	PCS 26 Clutch
48	PCS CBR1/456 Clutch
49	PCS Line
50	Exhaust BF
51	Exhaust
53	35 R Supply
54	35 Clutch Reverse Feed

SPECIAL TOOLS AND EQUIPMENT**SPECIAL TOOLS****Special Tools**

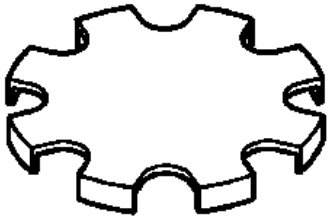
Illustration	Tool Number/Description
	DT 47605 Holding Fixture Adapter

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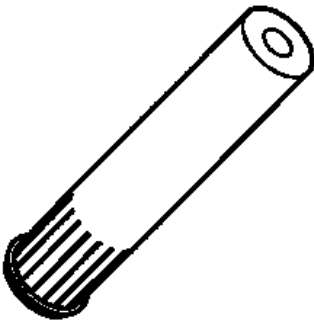
2006 TRANSMISSION Automatic Transmission - 6L80 - Overhaul - Corvette



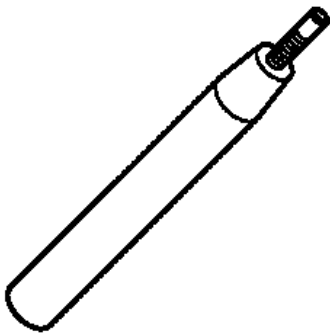
DT 47715
Electrical Connector Passage Sleeve
Remover/Installer



DT 47761
Clutch Spring Compressor



DT 47768-1
Seal Protector

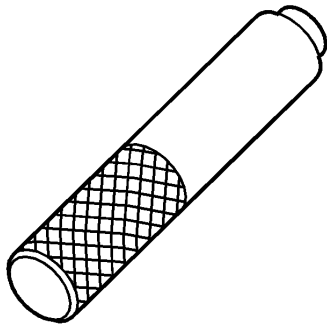
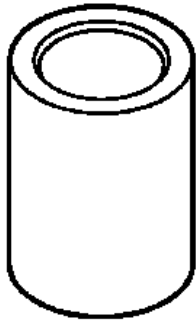


DT 47768-2
Seal Pusher

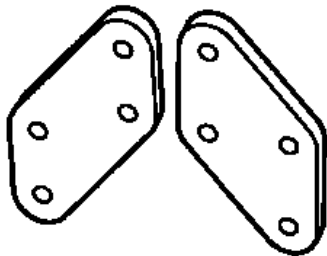
DT 47768-3
Seal Sizer

2006 Chevrolet Corvette Z06

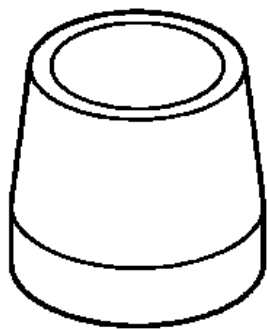
2006 TRANSMISSION Automatic Transmission - 6L80 - Overhaul - Corvette



DT 47770
Seal Installer



DT 47773
Snap Ring Pliers Adapter Set

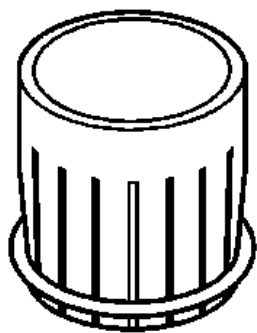


DT 47778-1
Low Clutch Sprag Retaining Ring Cone

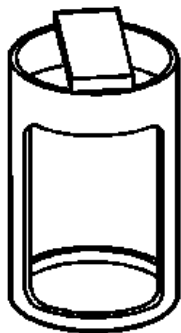
DT 47778-2
Low Clutch Sprag Retaining Ring Pusher

2006 Chevrolet Corvette Z06

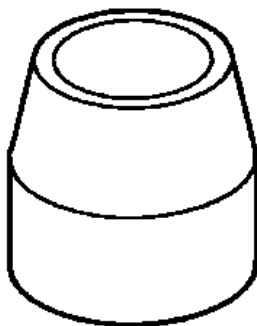
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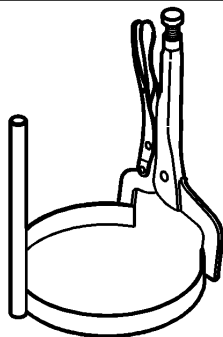
DT 47779
Clutch Spring Compressor



DT 47780
Low Clutch Sprag Seal Cone



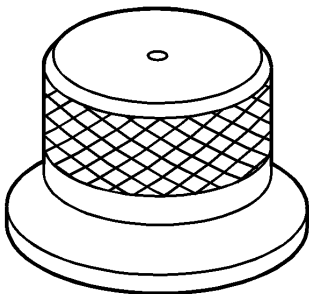
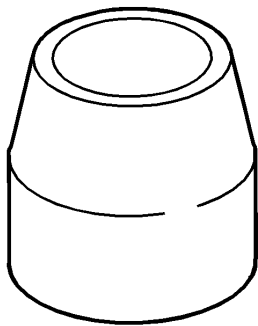
DT 47781
C1234 and 35R Clutch Assembly Installer



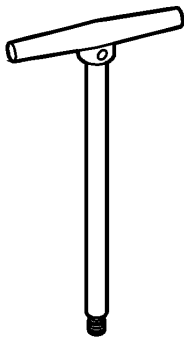
DT 47782-1
Retaining Ring Cone

2006 Chevrolet Corvette Z06

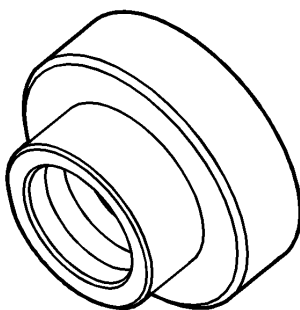
2006 TRANSMISSION Automatic Transmission - 6L80 - Overhaul - Corvette



DT 47782-2
Retaining Ring Installer



DT 47786
Output Carrier/Shaft Lifting Tool

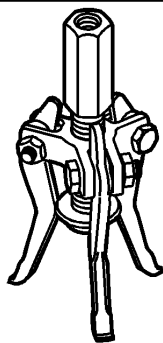
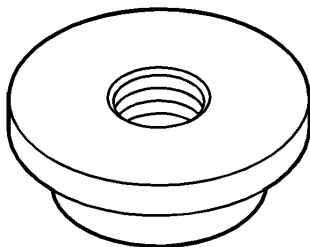


DT 47848
Seal Installer

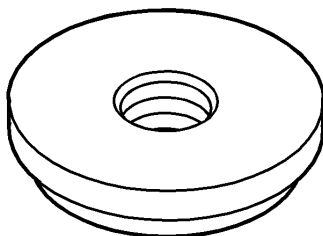
DT 47857
Bearing Installer

2006 Chevrolet Corvette Z06

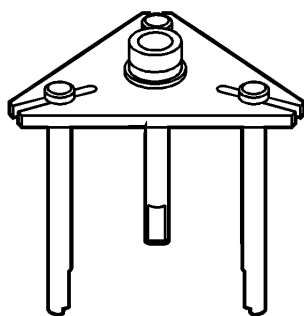
2006 TRANSMISSION Automatic Transmission - 6L80 - Overhaul - Corvette



DT 47865
Bearing Remover



DT 47866
Bearing Installer

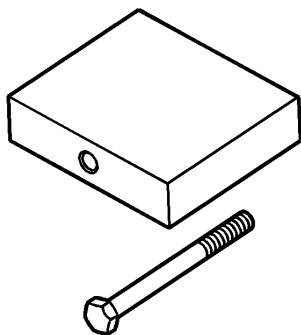
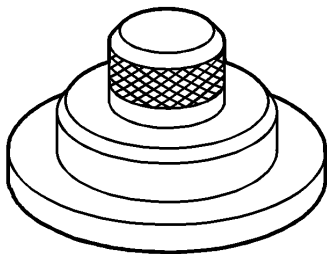


DT 47867
Adjustable Clutch Spring Compressor

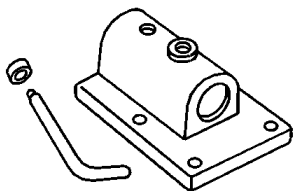
DT 47868-1
Pack Travel Weight

2006 Chevrolet Corvette Z06

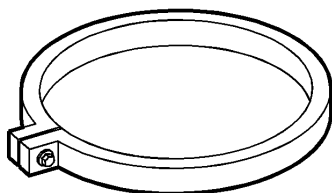
2006 TRANSMISSION Automatic Transmission - 6L80 - Overhaul - Corvette



DT 47868-2
Magnetic Base Adapter



J 3289-20
Holding Fixture Base Assembly

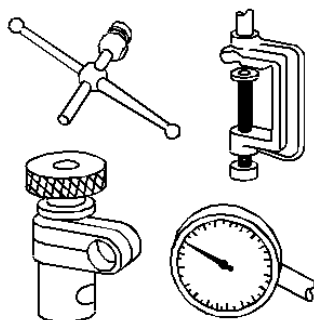


J 46664
Pump Cover Alignment Tool

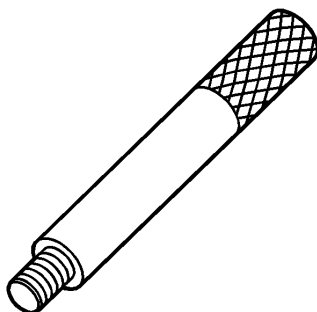
J 6125-B
Slide Hammer

2006 Chevrolet Corvette Z06

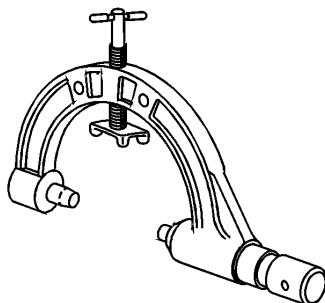
2006 TRANSMISSION Automatic Transmission - 6L80 - Overhaul - Corvette



J 8001
Dial Indicator Set



J 8092
Driver Handle

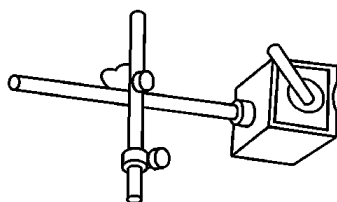
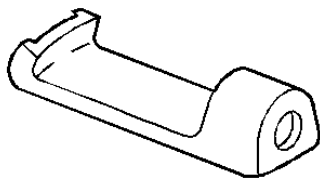


J 8763-B
Holding Fixture

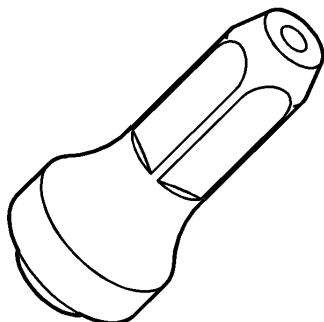
J 23129
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2006 Chevrolet Corvette Z06

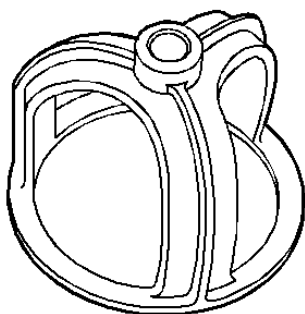
2006 TRANSMISSION Automatic Transmission - 6L80 - Overhaul - Corvette



J 26900-13
Magnetic Base



J 38693
Seal Installer

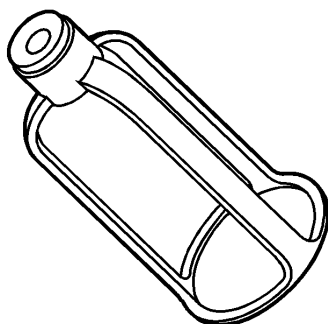
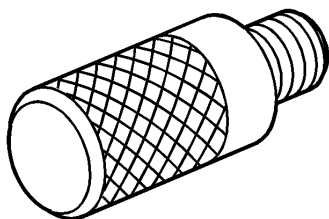


J 38734
Intermediate Spring Compressor Adapter

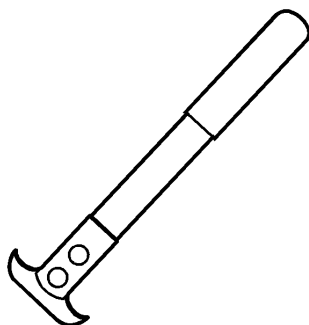
J 42183
Driver Handle

2006 Chevrolet Corvette Z06

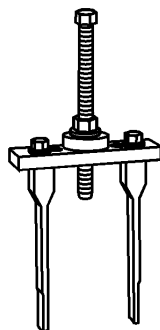
2006 TRANSMISSION Automatic Transmission - 6L80 - Overhaul - Corvette



J 43074
Clutch Spring Compressor



J 45000
Seal Remover

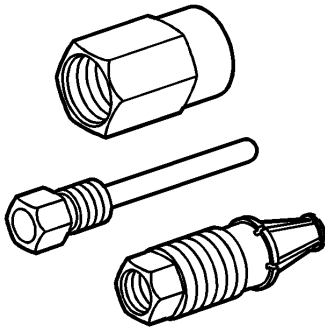
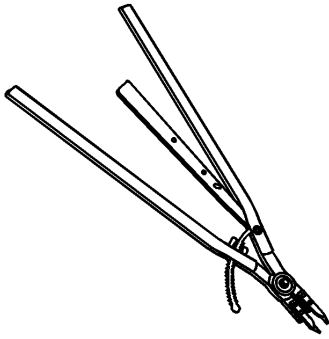


J 45124
Remover Bridge

J 45126
Snap Ring Pliers

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J 45201
Cooler Line Seal Remover