1997-98 AUTOMATIC TRANSMISSIONS

Mitsubishi F4A51 Overhaul

APPLICATION

TRANSAXLE APPLICATION

Vehicle Application	Transaxle Model
Diamante	F4A51

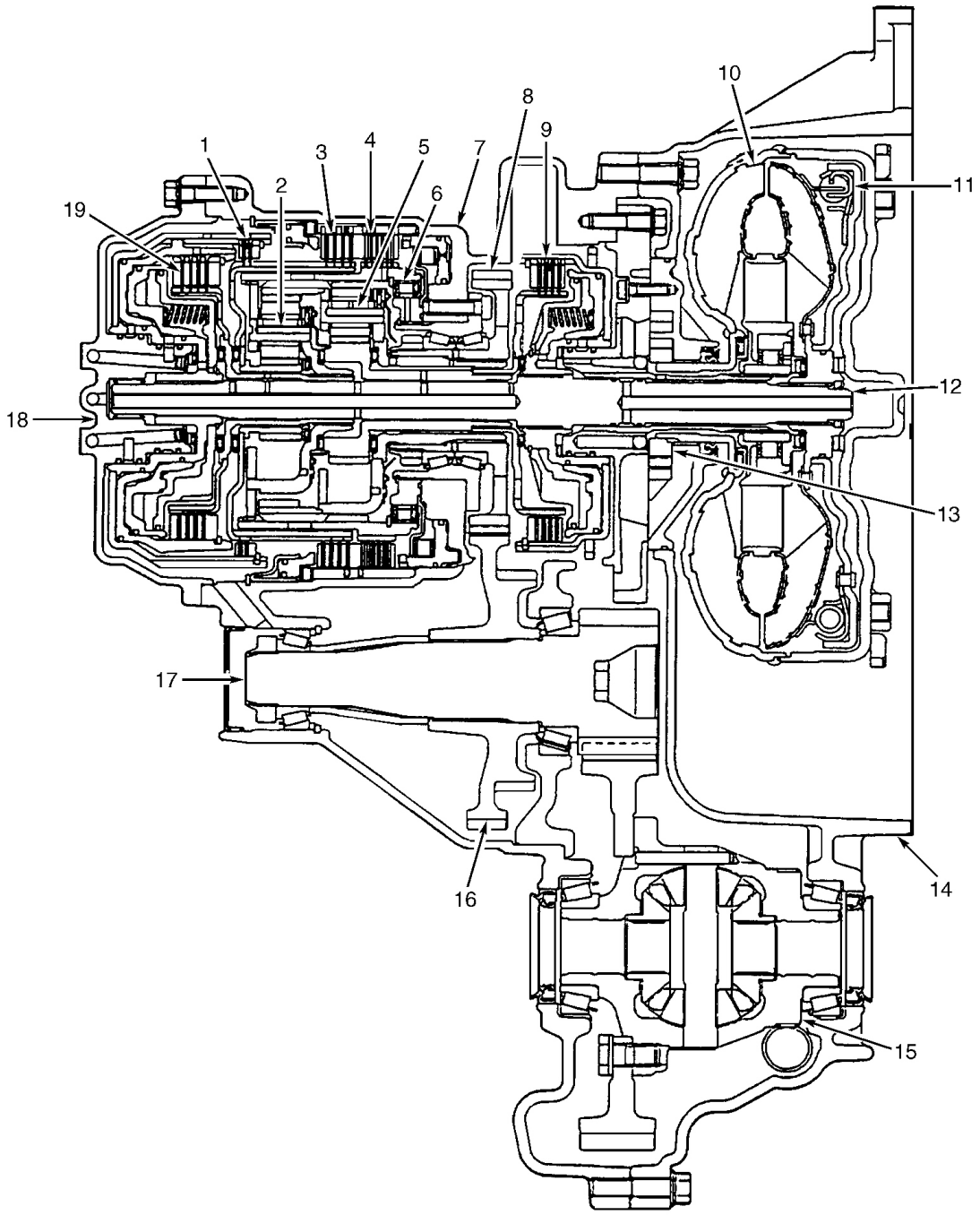
IDENTIFICATION

Transaxle model can be identified on metal tag attached to center of firewall.

DESCRIPTION

Transaxle is an electronically controlled 4-speed automatic. Transaxle consists of brakes, clutches, and planetary gear sets. See **Fig. 1** .

Gear shifting clutches are incorporated with feedback and learning control to suppress shifting shocks throughout the vehicle. Gear shifting clutches use a hydraulic balancing mechanism to enable gear shifting at extra-high engine speed. The Transaxle Control Module (TCM) controller contains a self-diagnostic system, which stores a fault code if a transaxle fault exists. Fault code can be retrieved to determine the transaxle problem area. For information on electronic transaxle components, see MITSUBISHI F4A41, F4A42 & F4A51 ELECTRONIC CONTROLS article.



1. Reverse Clutch
2. Overdrive Planetary Carrier
3. Second Brake
4. Low-Reverse Brake
5. Output Planetary Carrier
6. One-Way Clutch
7. Transaxle Case
8. Transfer Drive Gear
9. Underdrive Clutch
10. Torque Converter
11. Torque Converter Clutch
12. Input Shaft
13. Oil Pump
14. Torque Converter Housing
15. Differential
16. Transfer Driven Gear
17. Output Shaft
18. Rear Cover
19. Overdrive Clutch

G99J51317

Fig. 1: Identifying Transaxle Components
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

LUBRICATION

NOTE: Manufacturer recommended transaxle fluid is Diamond ATF SP II, Dexron II ATF or equivalent. See appropriate AUTOMATIC TRANSMISSION SERVICING article in TRANSMISSION SERVICING for additional information on draining and refilling procedures.

ADJUSTMENTS

LINE PRESSURE

NOTE: It may be necessary to remove transaxle assembly from vehicle to remove valve body cover.

CAUTION: Check line pressure before attempting line pressure adjustment.

1. Remove valve body cover. Note location of line pressure adjusting screw. See **Fig. 2** . Rotate line pressure adjusting screw clockwise to decrease line pressure and counterclockwise to increase line pressure.
2. Rotating line pressure adjusting screw one revolution will change line pressure approximately 5.1 psi (35 kPa). Line pressure specification is 147-152 psi (1010-1050 kPa). Reinstall valve body cover. Fill transaxle with ATF, and recheck line pressure.

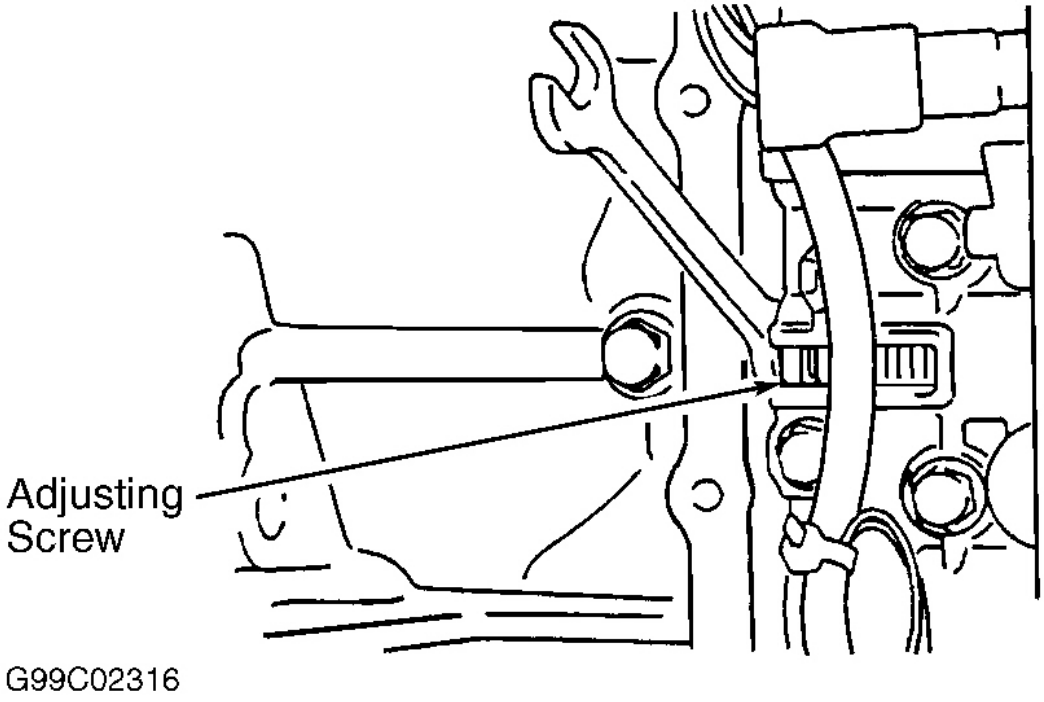


Fig. 2: Locating Line Pressure Adjusting Screw
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

TROUBLE SHOOTING

SYMPTOM DIAGNOSIS

Transaxle malfunctions may be caused by poor engine performance, improper adjustments or failure of hydraulic, mechanical or electronic components. Always begin by checking fluid level and fluid condition. Perform road test to determine if problem has been corrected. If problem still exists, several tests must be performed on transaxle. See **TESTING** .

Vehicle Will Not Move In Any Forward Gear

Check for abnormal line pressure, defective underdrive clutch, defective underdrive solenoid valve or malfunction in valve body.

Vehicle Will Not Move In Reverse

Check for abnormal low and reverse brake pressure, abnormal reverse clutch pressure, defective low and reverse solenoid valve, defective reverse clutch, defective low and reverse brake or malfunction in valve body.

Vehicle Will Not Move

Check for abnormal line pressure, powertrain malfunction, defective oil pump or malfunction in valve body.

Engine Stalls When Transaxle Is Shifted From Neutral To Drive Or Reverse

Check for defective Torque Converter Clutch Solenoid Valve (TCCSV) on valve body or wiring circuit, improper engine idle speed or performance, defective torque converter or malfunction in valve body.

Abnormal Vibration Or Shock When Transaxle Is Shifted Into Forward & Long Lag

Check for abnormal underdrive clutch pressure, defective underdrive clutch, defective underdrive solenoid valve, defective or improperly adjusted closed throttle position switch, or malfunction in valve body.

Abnormal Vibration Or Shock When Transaxle Is Shifted Into Reverse & Long Lag

Check for abnormal reverse clutch pressure, abnormal low and reverse brake pressure, defective low and reverse solenoid valve, defective reverse clutch, defective low and reverse brake, defective or improperly adjusted closed throttle position switch, or malfunction in valve body.

Abnormal Vibration Or Shock When Transaxle Is Shifted Into Forward Or Reverse & Long Lag

Check for abnormal line pressure, defective oil pump or malfunction in valve body.

Abnormal Vibration Or Shock When Transaxle Upshifts Or Downshifts

Check for abnormal line pressure, defective solenoid valve, defective brake, defective clutch, defective oil pump or malfunction in valve body.

Shift Points High Or Low

Check for abnormal line pressure, defective output shaft speed sensor, defective solenoid valve, defective or improperly adjusted throttle position sensor, defective Transaxle Control Module (TCM) or malfunction in valve body.

Vehicle Will Not Shift While Driving

Check for defective or improperly adjusted park/neutral position switch or defective Transaxle Control Module (TCM).

Poor Acceleration

Check for engine system malfunction or defective brake or clutch.

Vibration Driving At Constant Speed Or Accelerating In Top Gear

Check for abnormal torque converter clutch pressure, engine system malfunction, defective torque converter clutch solenoid, defective torque converter or malfunction in valve body.

TESTING

NOTE: A road test can be performed to check transaxle shift points. Hydraulic pressure test can be performed to check operation of transaxle internal components. Torque converter stall speed test can be performed to check torque converter operation.

ROAD TEST

1. Ensure shift cable is properly adjusted, and fluid level and condition are okay. Add fluid and adjust shift cable if necessary. Road test vehicle, and check if shift points are at specified speeds. See **Fig. 3** and **Fig. 4** .
2. If shift points are not as specified, check for stored fault codes. See MITSUBISHI F4A41, F4A42 & F4A51 ELECTRONIC CONTROLS article. If slippage occurs, perform hydraulic pressure test to check transaxle internal components. See **HYDRAULIC PRESSURE TEST** .

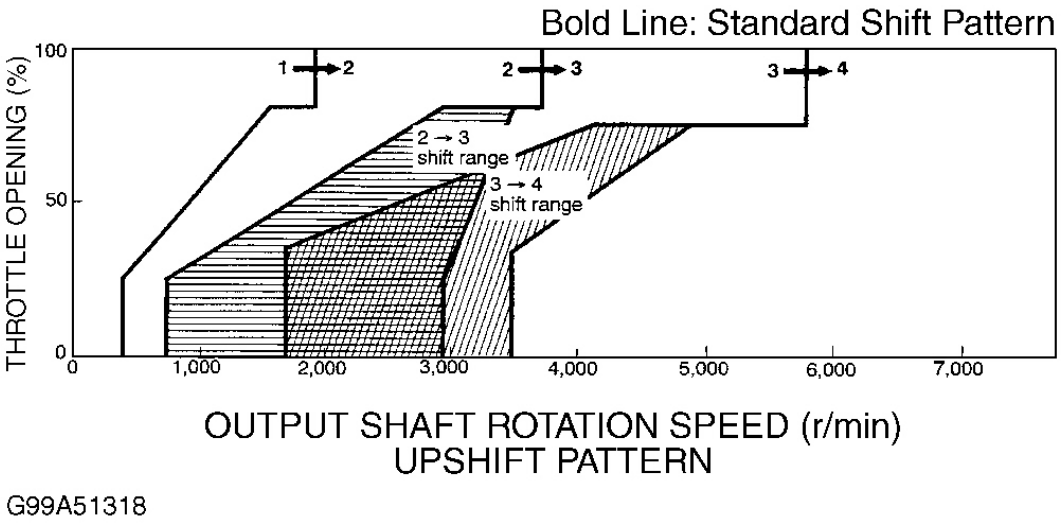


Fig. 3: Identifying Transaxle Upshift Points
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

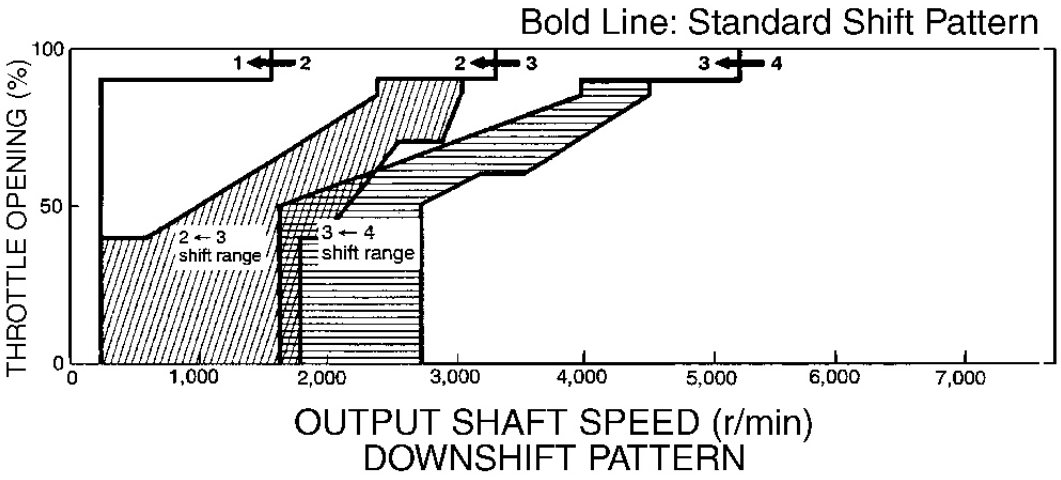


Fig. 4: Identifying Transaxle Downshift Points
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

TORQUE CONVERTER STALL SPEED TEST

Stall Speed Test Procedure

1. Install tachometer. Ensure transaxle fluid level is correct. Start engine, and operate it until transaxle fluid is at normal operating temperature. Ensure engine operating temperature is approximately 180-210°F (83-100°C).
2. Block rear wheels. Apply parking and service brakes. Place transaxle in Drive, and open throttle to wide open position. Note maximum engine RPM. This is torque converter stall speed.

CAUTION: DO NOT open throttle to wide open position for more than 5 seconds, or transaxle damage may occur. If performing more than one torque converter stall speed test, operate engine at 1000 RPM in Neutral for at least 2 minutes to cool transaxle fluid before performing next stall speed test.

3. Repeat procedure with transaxle in Reverse. Once stall speed is obtained, place transaxle in Neutral. Operate engine, allowing transaxle to cool. Stop engine and place transaxle in Park. Stall speed should be 2100-2600 RPM in Drive and Reverse positions. If stall speed is as specified, test is complete. If stall speed is not as specified, use following symptoms for trouble shooting results of stall speed tests. Remove tachometer.

Stall Speed Exceeds Specification

If stall speed exceeds specification in Drive only, check for underdrive clutch slippage. If stall speed exceeds specification in Reverse only, check for reverse clutch slippage. If stall speed exceeds specification in Drive and

Reverse, check for low and reverse brake slippage or low line pressure. If incorrect line pressure is suspected, adjust line pressure. See **LINE PRESSURE** under ADJUSTMENTS. If component failure is suspected, perform hydraulic pressure test. See **HYDRAULIC PRESSURE TEST** .

Stall Speed Is Less Than Specification In Drive & Reverse

If stall speed is less than specified, check for poor engine performance. If engine operates correctly, torque converter is defective. To replace torque converter, see appropriate AUTOMATIC TRANSMISSION REMOVAL article in TRANSMISSION SERVICING.

HYDRAULIC PRESSURE TEST

1. Ensure transaxle is at normal operating temperature and fluid level is correct. Raise and support vehicle so drive wheels rotate freely. Install tachometer, and position it so driver can view it.
2. Note locations of hydraulic pressure taps on side of transaxle case and near oil pan. See **Fig. 5** . Remove plug, and install adapter and pressure gauge to each pressure tap.
3. Measure hydraulic pressure at 2500 RPM in appropriate transaxle gear. See **Fig. 6** . If pressure is within specification, go to next step. If pressure is not within specification, see **HYDRAULIC PRESSURE TEST DIAGNOSIS** table.
4. Remove pressure gauge. Install and tighten plug to specification. See **TORQUE SPECIFICATIONS** .

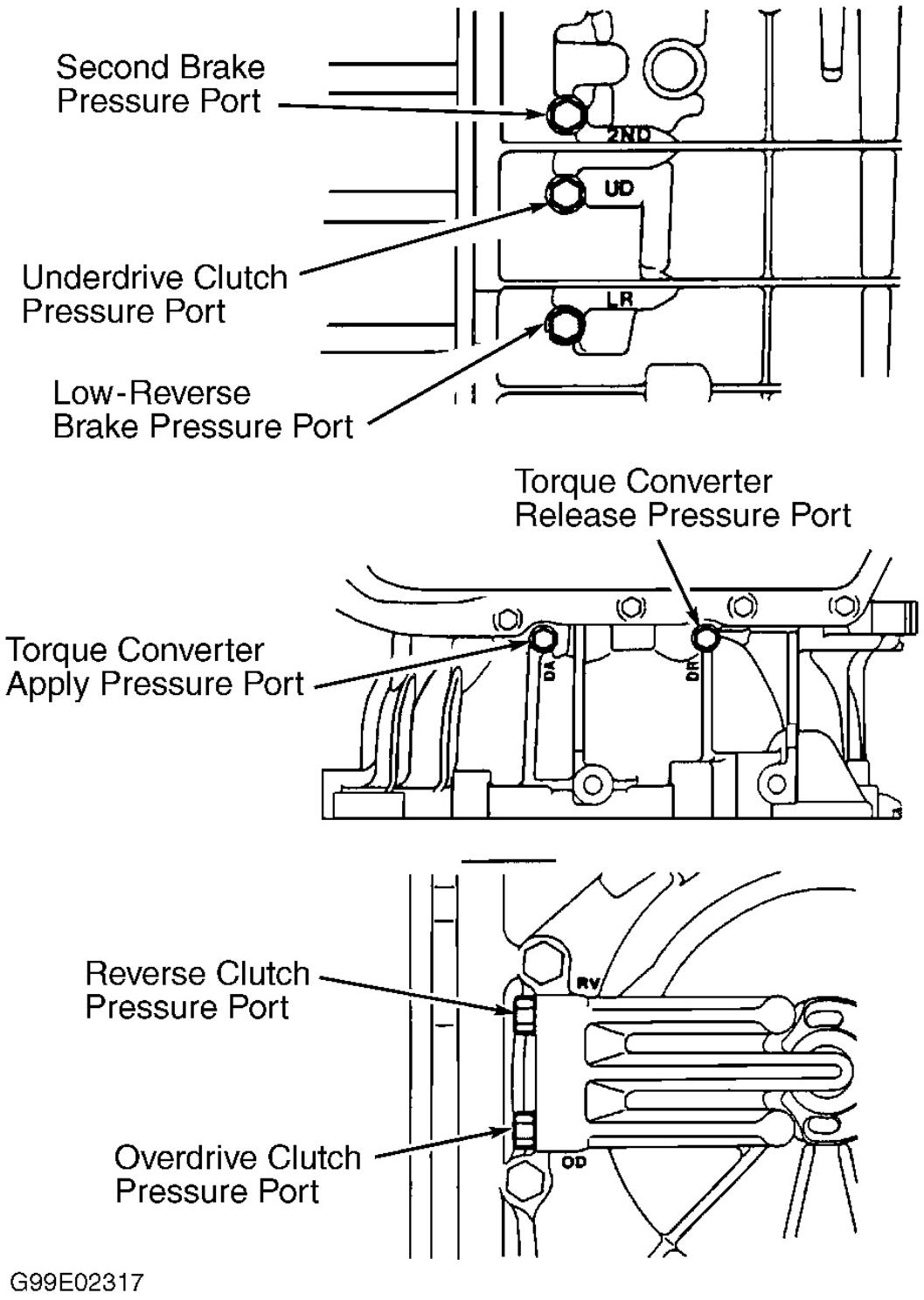


Fig. 5: Identifying Transaxle Hydraulic Pressure Taps

Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

Measurement condition			Standard hydraulic pressure psi					
Selector lever position	Shift position	Engine speed (r/min)	Underdrive clutch pressure	Reverse clutch pressure	Overdrive clutch pressure	Low and reverse brake pressure	Second brake pressure	Torque converter pressure
P	–	2,500	–	–	–	38 – 50	–	38 – 50
R	Reverse	2,500	–	192 – 250	–	192 – 250	–	73 – 101
N	–	2,500	–	–	–	46 – 57	–	38 – 50
D	1st gear	2,500	147 – 152	–	–	147 – 152	–	73 – 101
	2nd gear	2,500	147 – 152	–	–	–	147 – 152	73 – 101
	3rd gear	2,500	114 – 128	–	114 – 128	–	–	65 – 94
	4th gear	2,500	–	–	114 – 128	–	114 – 128	65 – 94

G99G05251

Fig. 6: Testing Transaxle Hydraulic Pressures
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

HYDRAULIC PRESSURE TEST DIAGNOSIS

Symptom	Probable Cause
All Pressures High	Incorrect Line Pressure Adjustment, Malfunction Of Regulator Valve
All Pressures Low	Incorrect Line Pressure Adjustment, Oil Pump Malfunction, Clogged Internal Oil Filter, Clogged Oil Cooler, Regulator Valve Malfunction, Relief Valve Malfunction, Incorrect Valve Body Installation
Abnormal Pressure In Reverse Only	Regulator Valve Malfunction, Clogged Orifice, Incorrect Valve Body Installation
Abnormal Pressure In 3rd Or 4th Only	Overdrive Solenoid Valve Malfunction, Overdrive Pressure Control Valve Malfunction, Regulator Valve Malfunction, Switch Valve Malfunction, Clogged Orifice, Incorrect Valve Body Installation
Abnormal Underdrive Pressure Only	Malfunction Of Oil Seal K, L Or M (1) , Underdrive Solenoid Valve Malfunction (2) , Underdrive Pressure Control Valve Malfunction, Check Ball Malfunction, Clogged Orifice, Incorrect Valve Body Installation
Abnormal Reverse Clutch Pressure Only	Malfunction Of Oil Seal A, B Or C (1) , Clogged Orifice, Incorrect Valve Body Installation
Abnormal Overdrive Pressure Only	Malfunction Of Oil Seal D, E Or F (1) , Overdrive Solenoid Valve Malfunction (2) , Overdrive Pressure Control Valve Malfunction, Check Ball Malfunction, Clogged Orifice, Incorrect Valve Body Installation
Abnormal Low & Reverse Pressure Only	Malfunction Of Oil Seal I Or J (1) , Low & Reverse Solenoid Valve Malfunction (2) , Low & Reverse Pressure Control Valve Malfunction, Switch

	Valve Malfunction, Fail Safe Valve A Malfunction, Check Ball Malfunction, Clogged Orifice, Incorrect Valve Body Installation
Abnormal 2nd Pressure Only	Malfunction Of Oil Seal G, H Or O (1) , Second Solenoid Valve Malfunction (2) , Second Pressure Control Valve Malfunction, Fail Safe Valve B Malfunction, Clogged Orifice, Incorrect Valve Body Installation
Abnormal Torque Converter Pressure Only	Clogged Oil Cooler, Malfunction Of Oil Seal N (1) , Torque Converter Clutch Solenoid Malfunction (2) , Torque Converter Clutch Control Valve Malfunction, Torque Converter Pressure Control Valve Malfunction, Clogged Orifice, Incorrect Valve Body Installation
Pressure Applied To Element Which Should Not Receive Pressure	Incorrect Transaxle Control Cable Adjustment, Manual Valve Malfunction, Check Ball Malfunction, Incorrect Valve Body Installation

(1) See **Fig. 7** for seal locations.

(2) See **Fig. 8** for valve body component locations.

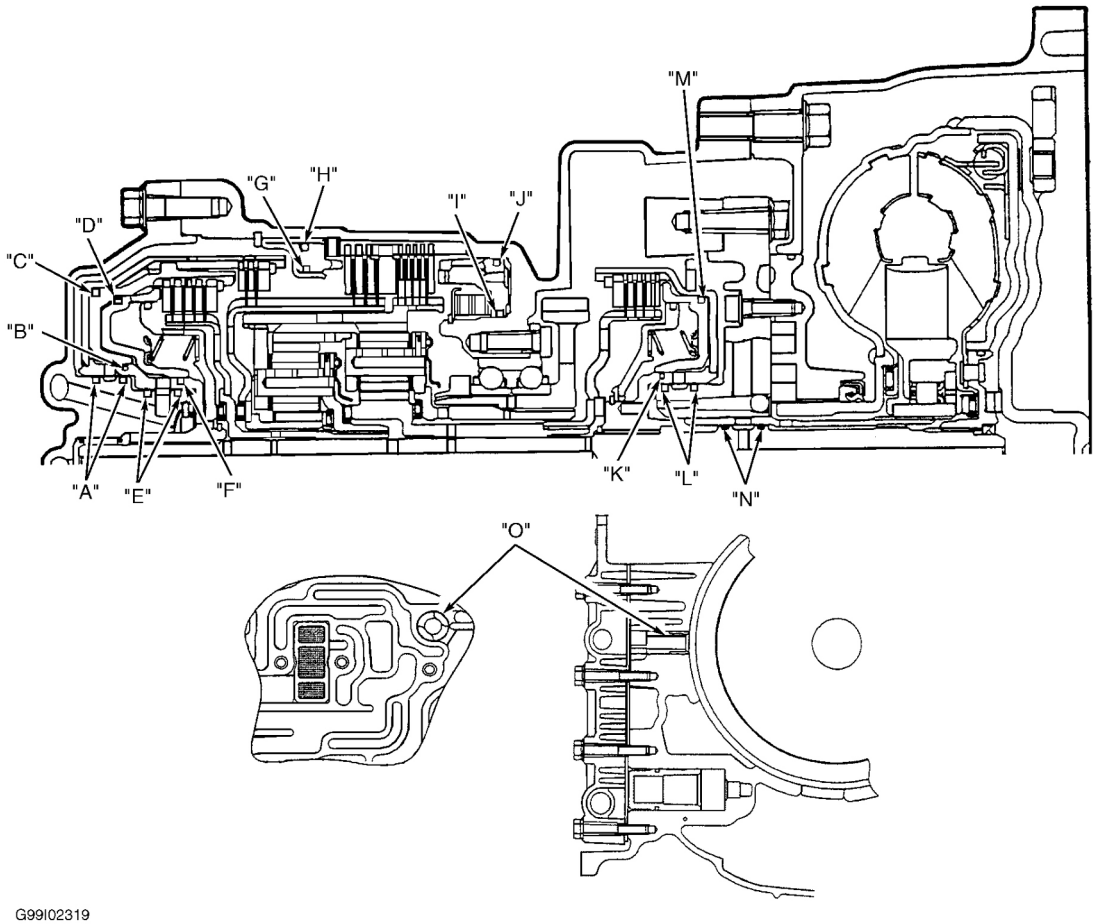


Fig. 7: Identifying Oil Seal Locations
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

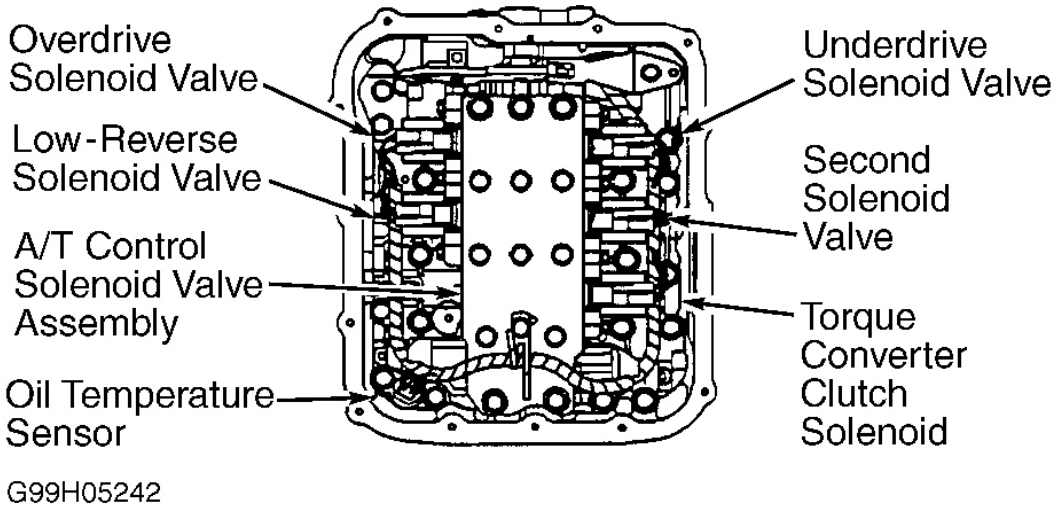


Fig. 8: Identifying Valve Body Bolts & Solenoid Valves
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

TORQUE CONVERTER

CAUTION: Torque converter is a welded assembly and is not serviceable. If a malfunction occurs or torque converter becomes contaminated with foreign material, it MUST be replaced. Torque converter cannot be flushed or repaired.

NOTE: For torque converter stall speed test, see TORQUE CONVERTER STALL SPEED TEST .

REMOVAL & INSTALLATION

AXLE SHAFTS

NOTE: See appropriate AXLE SHAFTS article in AXLE SHAFTS & TRANSFER CASES.

TRANSAXLE ASSEMBLY

NOTE: See appropriate AUTOMATIC TRANSMISSION REMOVAL article in TRANSMISSION SERVICING.

VALVE BODY

NOTE: For valve body replacement, see VALVE BODY & COMPONENTS under

TRANSAXLE DISASSEMBLY.

TRANSAXLE DISASSEMBLY

VALVE BODY & COMPONENTS

CAUTION: Note locations of all thrust bearings, thrust races and thrust washers for reassembly reference. See Fig. 9 .

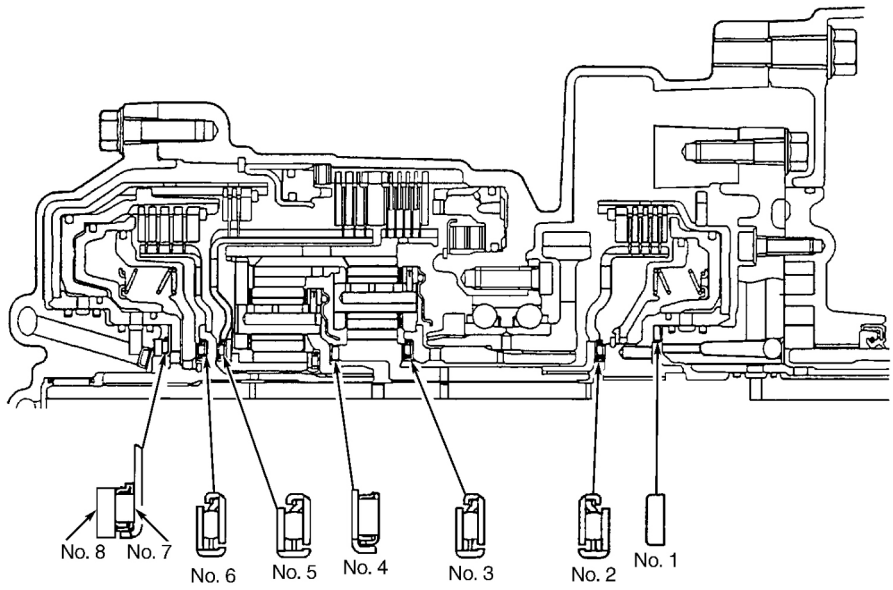
1. Remove torque converter. Using dial indicator, check input shaft end play for reassembly reference. See **Fig. 10** . Record result. Remove brackets. See **Fig. 11** . Remove oil level gauge. Remove eye bolt, gasket and oil cooler feed tube. Remove oil filter and oil filter gasket. Remove input shaft speed sensor. Remove output shaft speed sensor. Remove manual control lever. Remove park/neutral position switch. Remove speedometer gear.
2. Remove valve body cover. Remove manual control shaft detent. Disconnect valve body harness connectors. See **Fig. 8** . Remove valve body bolts. Note bolt length and location for reassembly reference. Remove oil temperature sensor. See **Fig. 12** . Remove valve body, valve body gasket and 2 steel check balls. Remove snap ring and solenoid harness. Remove strainer and second brake retainer oil seal. Remove accumulator pistons and springs.
3. Using a magnet, remove steel retaining pin for manual control lever shaft. Remove manual control lever shaft and parking pawl rod. Remove torque converter housing mounting bolts and torque converter housing. See **Fig. 13** . Remove 2 torque converter housing-to-transaxle case "O" rings. See **Fig. 14** .
4. Remove differential. Remove transaxle oil filter. Remove 6 oil pump mounting bolts. Using Oil Pump Remover (MD998333), remove oil pump. See **Fig. 15** . Remove oil pump gasket. Remove No. 1 thrust washer.
5. Holding input shaft, remove underdrive clutch. Remove No. 2 thrust bearing. Remove underdrive clutch hub. Remove rear cover. See **Fig. 16** . Remove No. 8 thrust race. Remove 4 seal rings from rear cover. Remove input shaft rear bearing. Remove 3 "O" rings in transaxle case, near reverse and overdrive clutch. Remove reverse and overdrive clutch and No. 7 thrust bearing. Remove overdrive clutch hub and No. 6 thrust bearing. Remove No. 5 thrust bearing.
6. Remove planetary reverse sun gear. Remove snap ring. Remove second brake piston and return spring. Remove 1 pressure plate, 4 brake discs, and 3 brake plates. Remove overdrive planetary carrier.
7. Remove output planetary carrier and No. 4 thrust bearing. Remove underdrive sun gear and No. 3 thrust bearing from output planetary carrier. Remove snap ring. Remove reaction plate and brake disc. Remove snap ring. Remove 6 brake discs, 5 brake plates and 1 pressure plate.

CAUTION: When removing parking pawl shaft, note location of spring for reassembly purposes. Illustration for spring not available.

8. Remove wave spring. Remove parking pawl shaft, spacer and spring. Remove 2 parking roller support shafts, parking pawl case and parking roller support.
9. Using Spring Compressor (MB998338) and Spring Compressor Retainer (MD998924), remove snap ring. See **Fig. 17** . Remove one-way clutch inner race and "O" ring. Remove spring retainer, return spring and low-reverse brake piston. Remove 4 transfer drive gear mounting bolts. Remove transfer drive gear.

CAUTION: Output shaft lock nut has left-hand threads.

10. Remove output shaft cap. See **Fig. 18** . Straighten locking tab of output shaft lock nut. Using Special Sockets (MB991625 and MB990607), remove output shaft lock nut. Remove output shaft bearing retainer mounting bolts. Tap on rear of output shaft to remove output shaft, taper roller bearing and collar. Remove spacer and outer race. Remove snap ring.
11. Remove differential bearing outer race and spacer from torque converter housing. Remove differential bearing outer race from transaxle case.



IDENTIFICATION OF THRUST BEARINGS, THRUST RACES, AND THRUST WASHERS

Symbol	O.D. mm (in.)	I.D. mm (in.)	Thickness mm (in.)	Part number
#1	59 (2.32)	47 (1.85)	1.8 (0.071)	MD754509
#1	59 (2.32)	47 (1.85)	2.0 (0.079)	MD754508
#1	59 (2.32)	47 (1.85)	2.2 (0.087)	MD754507
#1	59 (2.32)	47 (1.85)	2.4 (0.094)	MD753793
#1	59 (2.32)	47 (1.85)	2.6 (0.102)	MD753794
#1	59 (2.32)	47 (1.85)	2.8 (0.110)	MD753795
#2	49 (1.93)	36 (1.42)	3.6 (0.142)	MD756846
#3	49 (1.93)	36 (1.42)	3.6 (0.142)	MD756846
#4	45.3 (1.783)	31 (1.22)	3.3 (0.130)	MD757647
#5	49 (1.93)	36 (1.42)	3.6 (0.142)	MD756846
#6	49 (1.93)	36 (1.42)	3.6 (0.142)	MD756846
#7	59 (2.32)	37 (1.46)	2.8 (0.110)	MD754595
#8	48.9 (1.925)	37 (1.46)	1.6 (0.063)	MD707267
#8	48.9 (1.925)	37 (1.46)	1.7 (0.067)	MD759681
#8	48.9 (1.925)	37 (1.46)	1.8 (0.071)	MD723064
#8	48.9 (1.925)	37 (1.46)	1.9 (0.075)	MD754794
#8	48.9 (1.925)	37 (1.46)	2.0 (0.079)	MD707268
#8	48.9 (1.925)	37 (1.46)	2.1 (0.083)	MD754795
#8	48.9 (1.925)	37 (1.46)	2.2 (0.087)	MD723065
#8	48.9 (1.925)	37 (1.46)	2.3 (0.091)	MD754796
#8	48.9 (1.925)	37 (1.46)	2.4 (0.094)	MD724358
#8	48.9 (1.925)	37 (1.46)	2.5 (0.098)	MD754797
#8	48.9 (1.925)	37 (1.46)	2.6 (0.102)	MD754798

G99J05243

Fig. 9: Identifying Thrust Bearings, Races & Washers
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

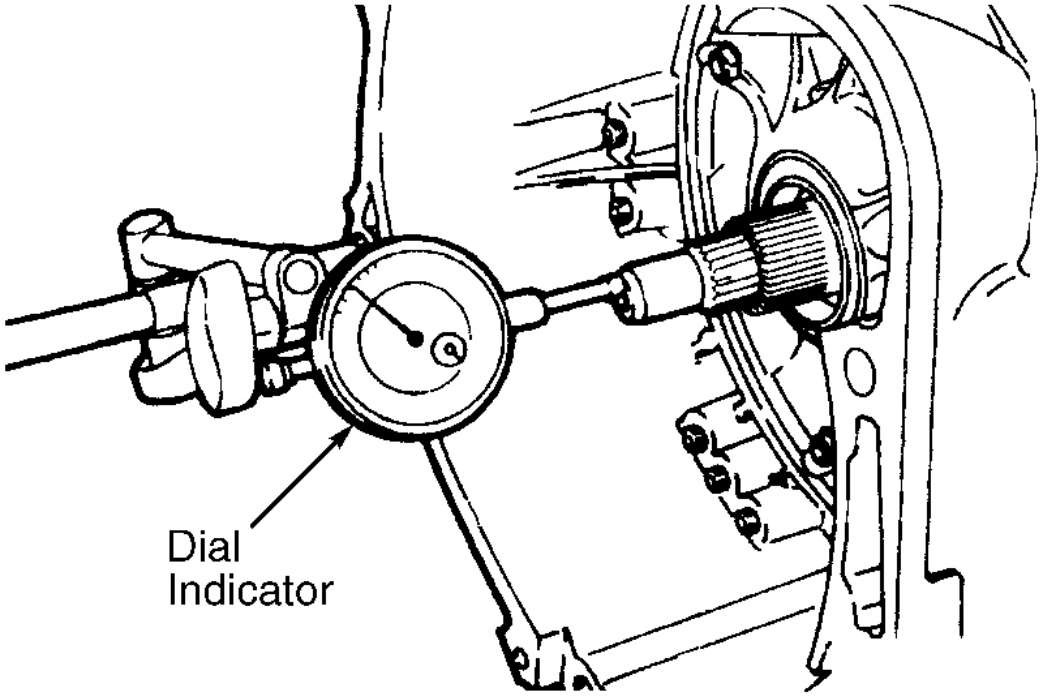
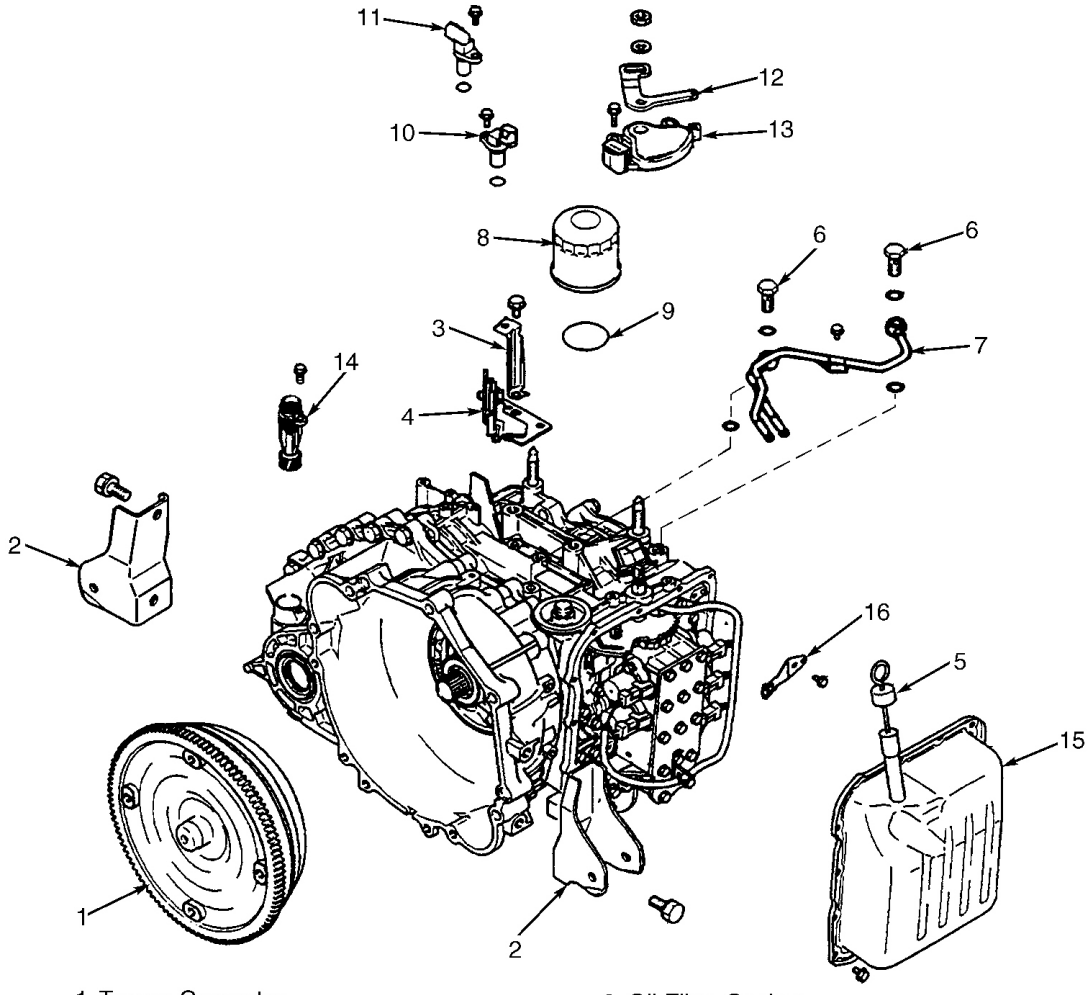


Fig. 10: Measuring Input Shaft End Play
Courtesy of CHRYSLER CORP.



1. Torque Converter
2. Roll Stopper Bracket
3. Harness Bracket
4. Control Cable Support Bracket
5. Oil Level Dipstick
6. Eye Bolt
7. Oil Cooler Feed Tube
8. Oil Filter
9. Oil Filter Gasket
10. Input Shaft Speed Sensor
11. Output Shaft Speed Sensor
12. Manual Control Lever
13. Park/Neutral Position (PNP) Switch
14. Speedometer Gear
15. Valve Body Cover
16. Manual Control Shaft Detent

G99I05247

Fig. 11: Exploded View Of Transaxle External Components
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

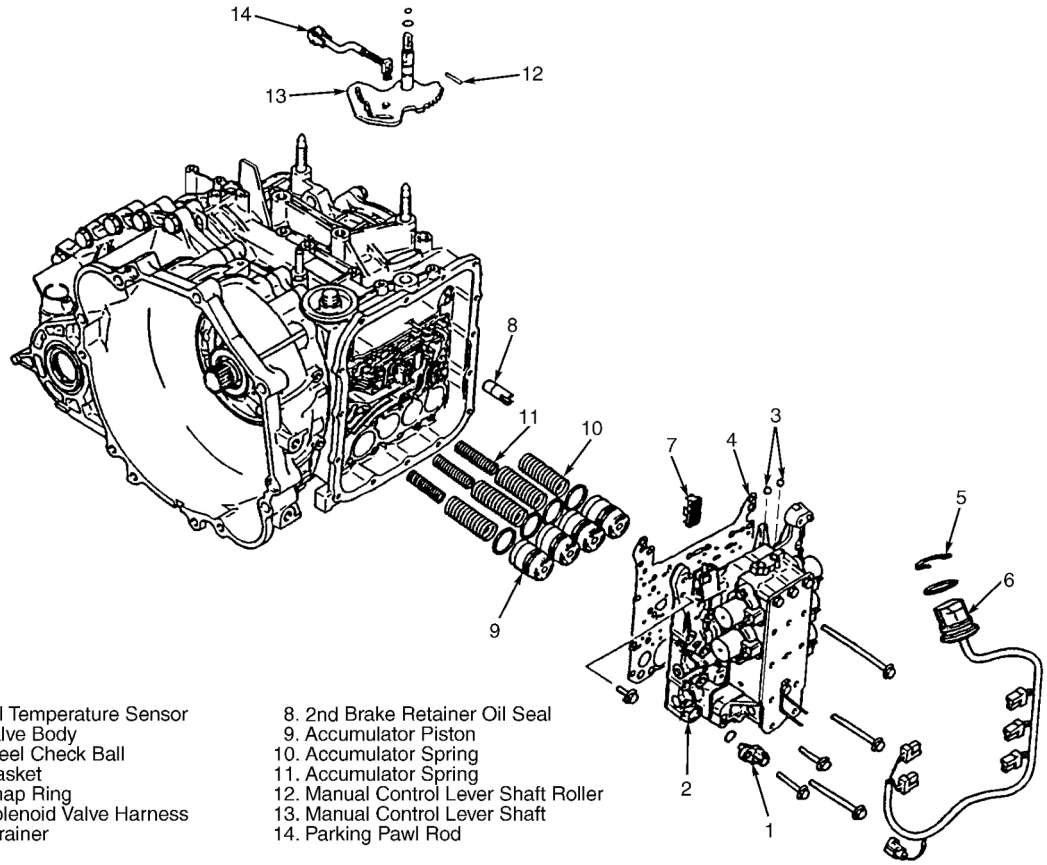
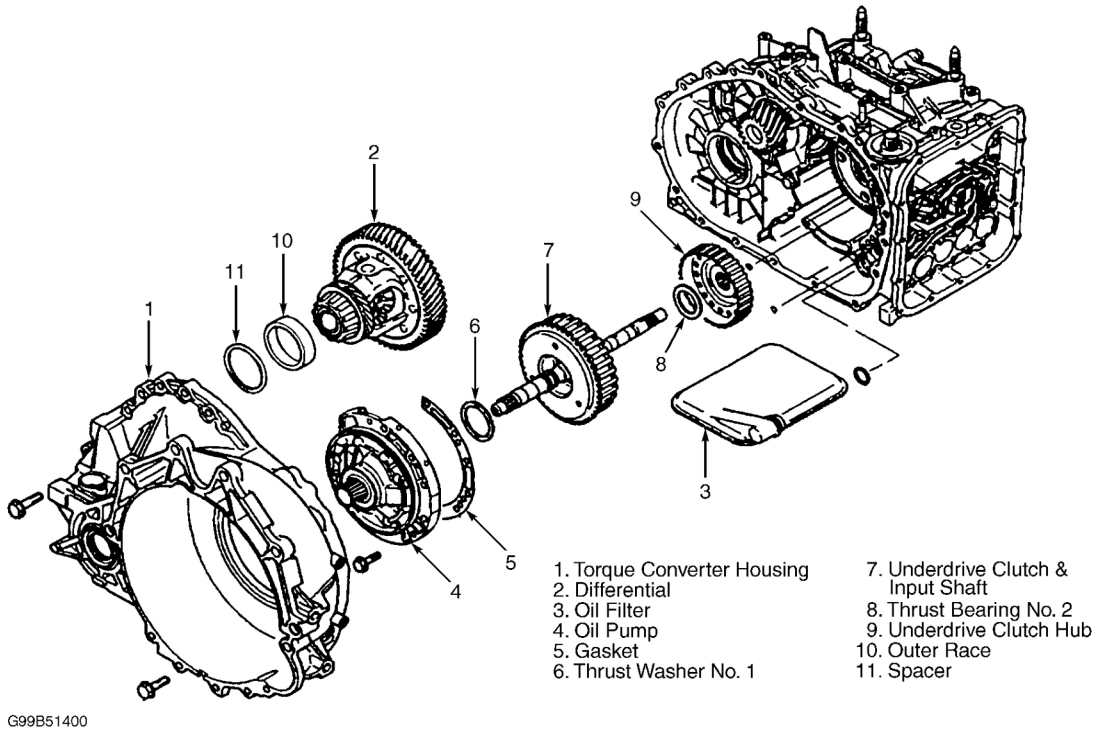


Fig. 12: Exploded View Of Valve Body Components
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.



1. Torque Converter Housing
2. Differential
3. Oil Filter
4. Oil Pump
5. Gasket
6. Thrust Washer No. 1
7. Underdrive Clutch & Input Shaft
8. Thrust Bearing No. 2
9. Underdrive Clutch Hub
10. Outer Race
11. Spacer

Fig. 13: Exploded View Of Differential Components
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

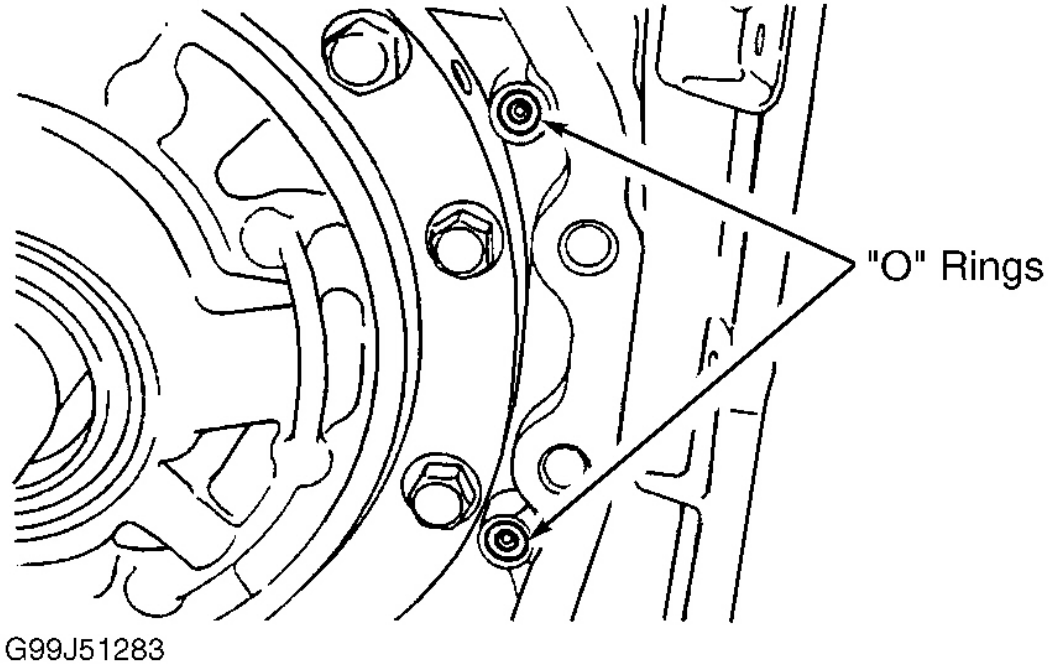


Fig. 14: Identifying Torque Converter Housing-To-Transaxle Case "O" Rings
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

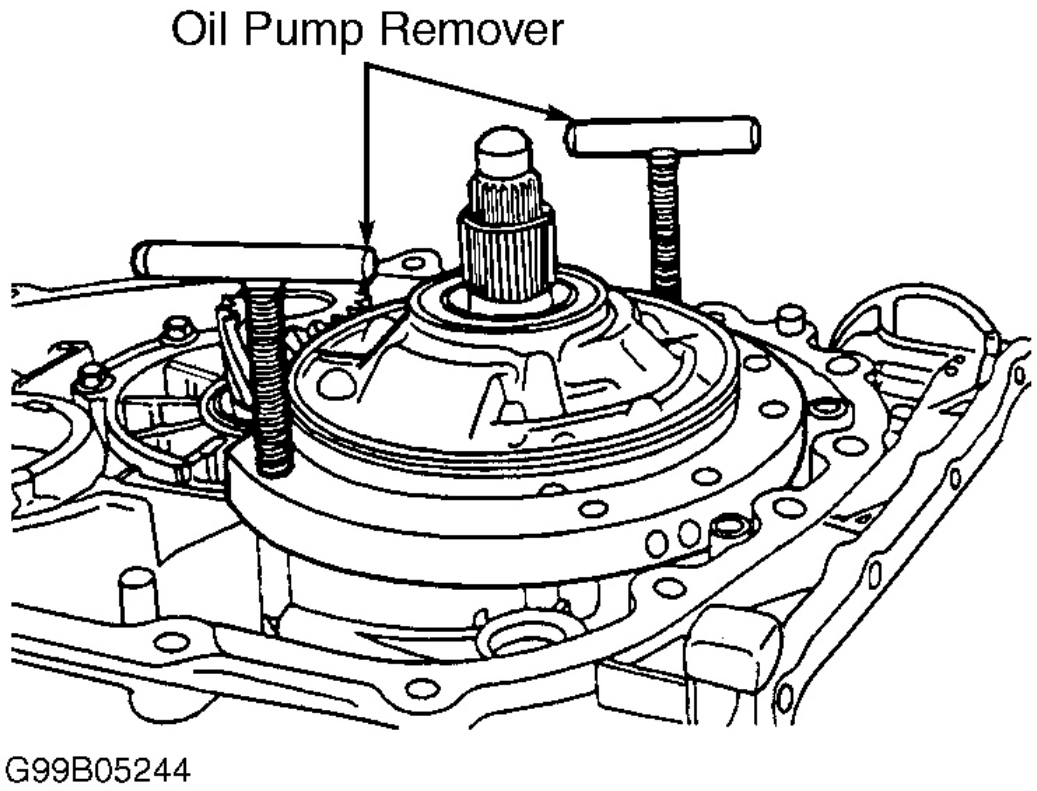
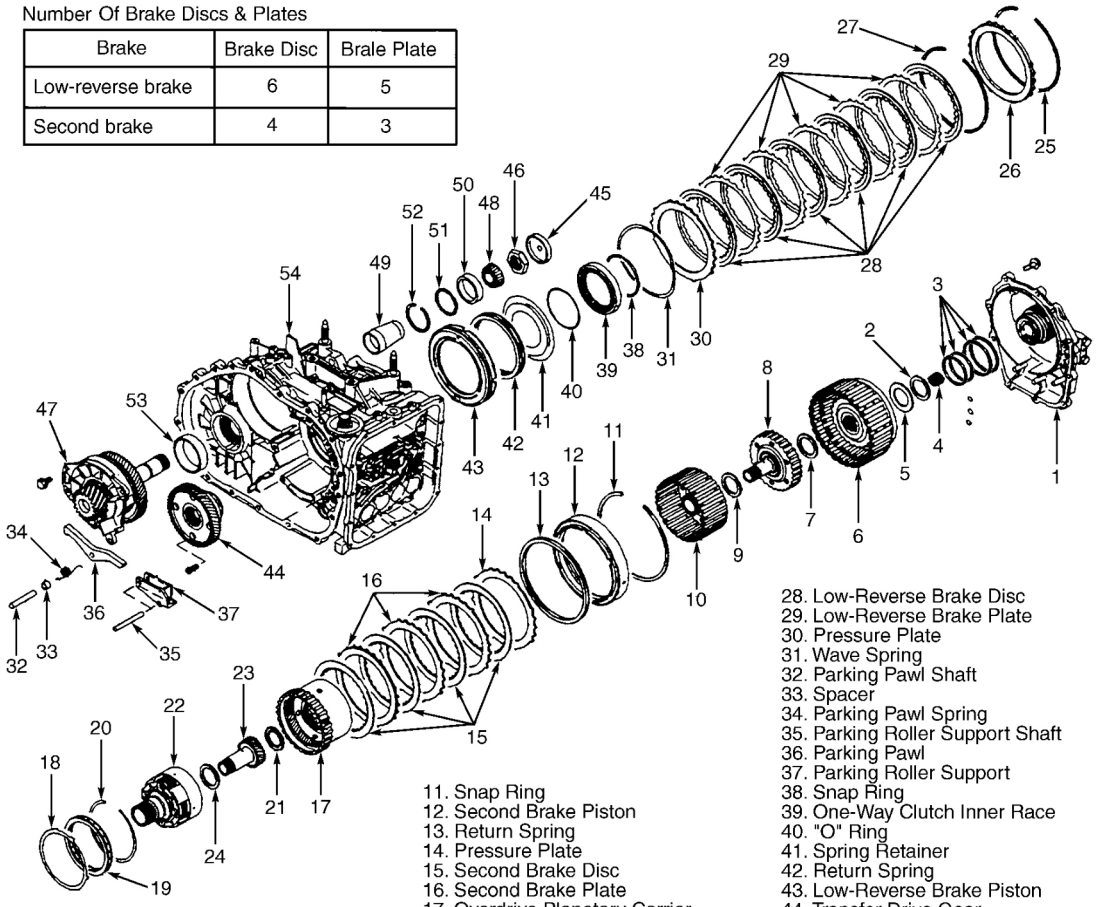


Fig. 15: Removing Oil Pump
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

Number Of Brake Discs & Plates

Brake	Brake Disc	Brale Plate
Low-reverse brake	6	5
Second brake	4	3



1. Rear Cover
2. Thrust Race No. 8
3. Seal Ring
4. Input Shaft Rear Bearing
5. Thrust Bearing No. 7
6. Reverse & Overdrive Clutch
7. Thrust Bearing No. 6
8. Overdrive Clutch Hub
9. Thrust Bearing No. 5
10. Planetary Reverse Sun Gear
11. Snap Ring
12. Second Brake Piston
13. Return Spring
14. Pressure Plate
15. Second Brake Disc
16. Second Brake Plate
17. Overdrive Planetary Carrier
18. Stopper Plate
19. One-Way Clutch
20. Snap Ring
21. Thrust Bearing No. 4
22. Output Planetary Carrier
23. Underdrive Sun Gear
24. Thrust Bearing No. 3
25. Snap Ring
26. Reaction Plate
27. Snap Ring
28. Low-Reverse Brake Disc
29. Low-Reverse Brake Plate
30. Pressure Plate
31. Wave Spring
32. Parking Pawl Shaft
33. Spacer
34. Parking Pawl Spring
35. Parking Roller Support Shaft
36. Parking Pawl
37. Parking Roller Support
38. Snap Ring
39. One-Way Clutch Inner Race
40. "O" Ring
41. Spring Retainer
42. Return Spring
43. Low-Reverse Brake Piston
44. Transfer Drive Gear
45. Cap
46. Lock Nut
47. Output Shaft
48. Taper Roller Bearing
49. Collar
50. Outer Race
51. Spacer
52. Snap Ring
53. Outer Race
54. Transaxle Case

G99C51401

Fig. 16: Exploded View Of Transaxle Internal Components
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

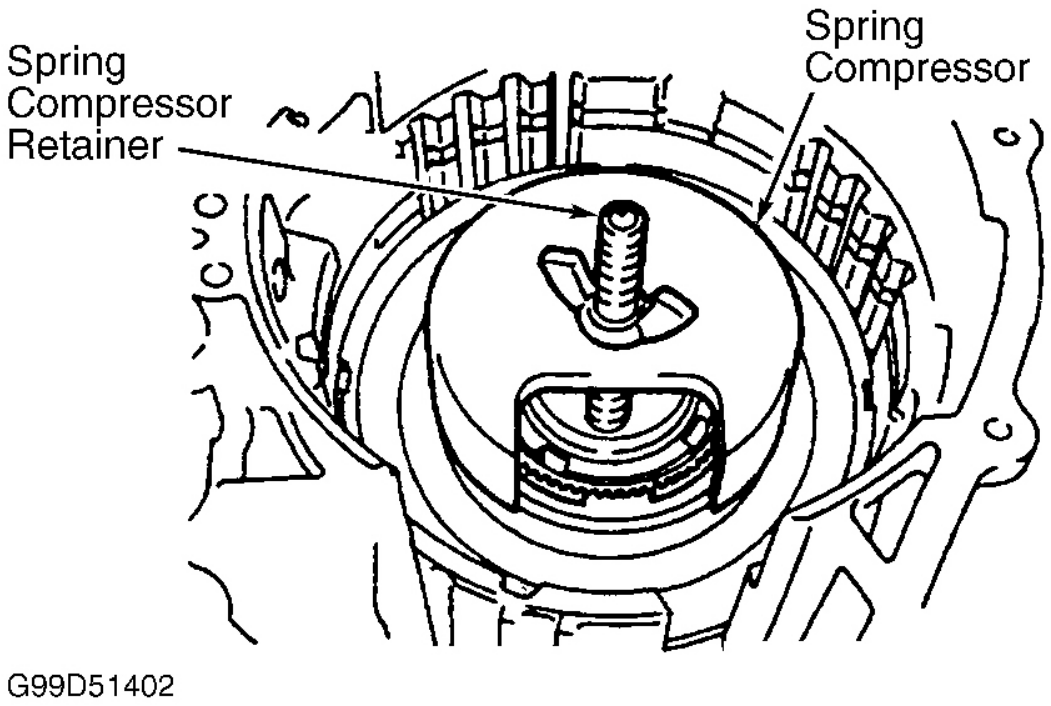


Fig. 17: Removing Snap Ring Using Spring Compressor & Spring Compressor Retainer
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

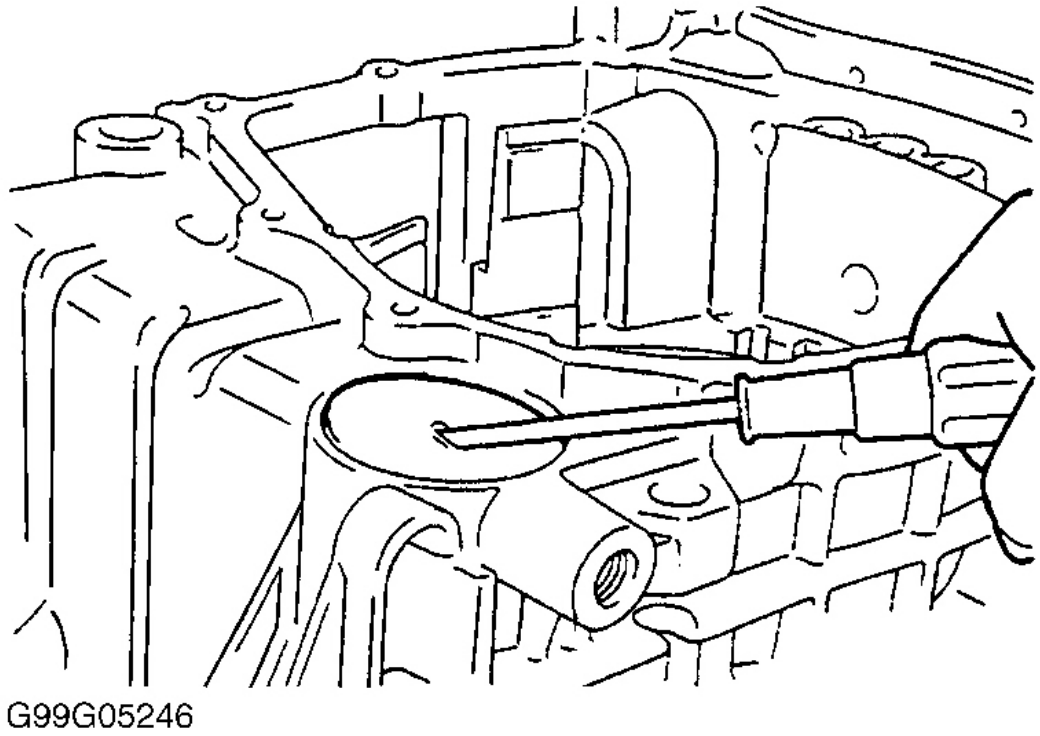


Fig. 18: Removing Output Shaft Cap
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

COMPONENT DISASSEMBLY & REASSEMBLY

NOTE: Manufacturer specifies the use of only Diamond ATF SP II for use in this transaxle. This fluid should also be used during assembly. See appropriate AUTOMATIC TRANSMISSION SERVICING article in TRANSMISSION SERVICING for additional information and draining and refilling procedures.

OIL PUMP

Disassembly

Remove "O" ring from outer groove of oil pump housing. See **Fig. 19** . Remove 2 seal rings. Remove oil seal from front of oil pump housing.

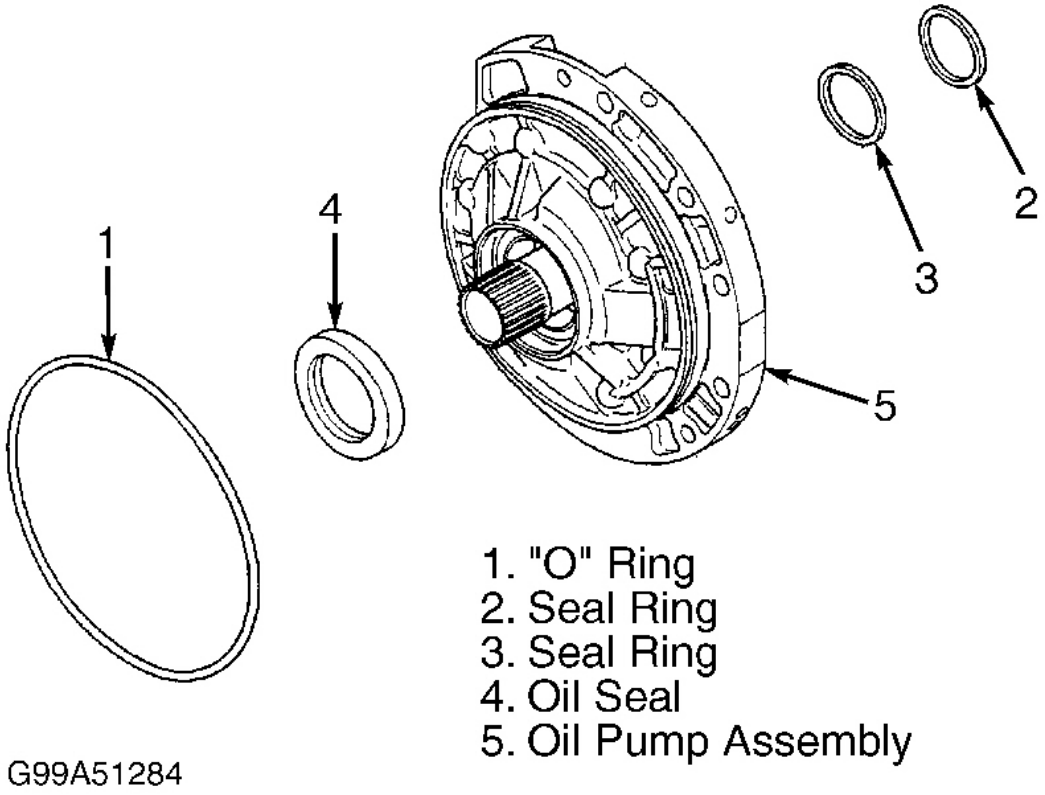


Fig. 19: Exploded View Of Oil Pump & Oil Seals
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

Cleaning & Inspection

Clean and inspect components for damage. Inspect all machined surfaces for pitting or damage.

Reassembly

Using Seal Installer (MD998334), install NEW oil seal into front of oil pump housing. Install 2 NEW seal rings into appropriate positions. One seal ring has color identification and one does not. See **Fig. 20** . Install NEW "O" ring lubricated with ATF or petroleum jelly into outer groove of oil pump housing.

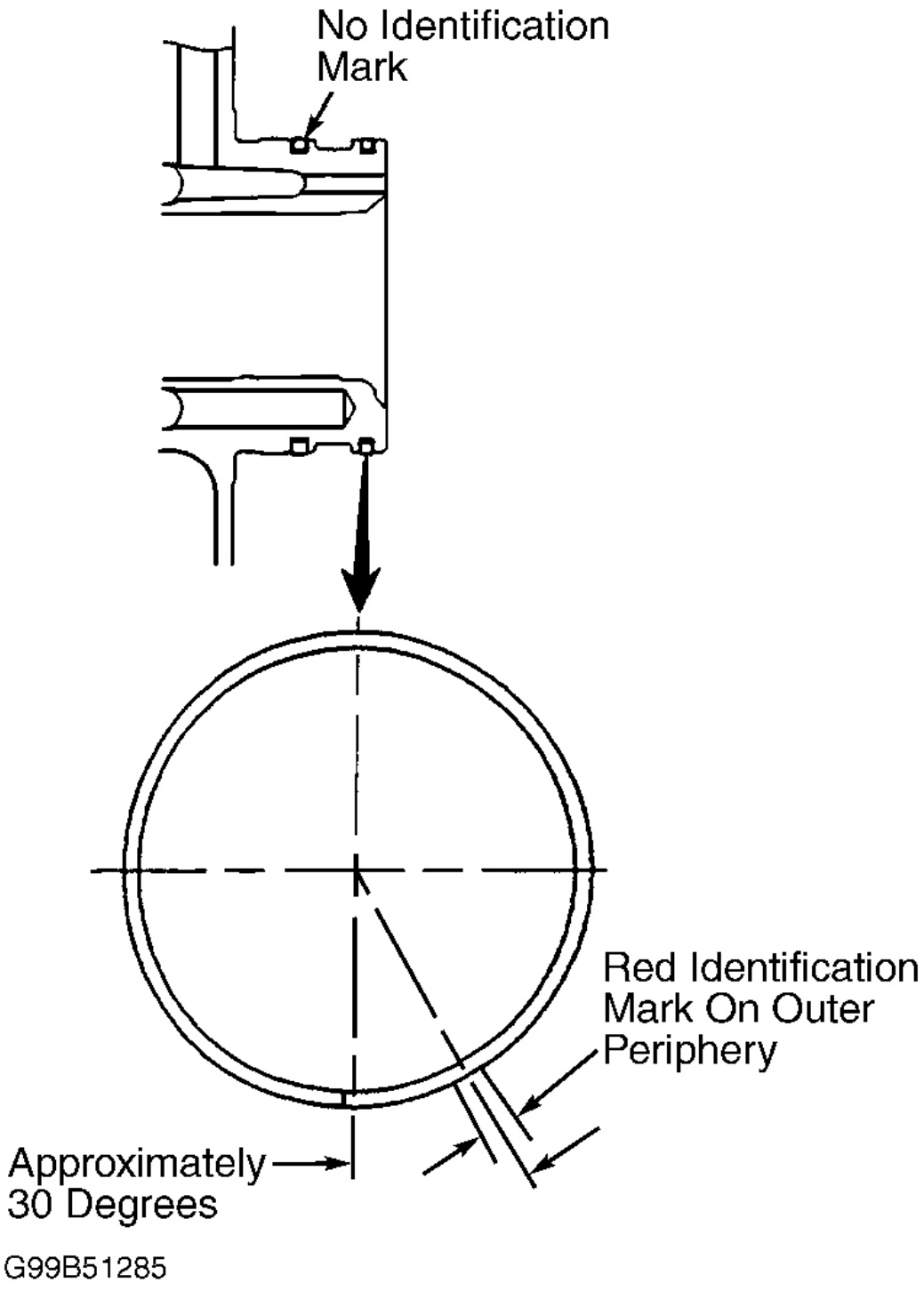
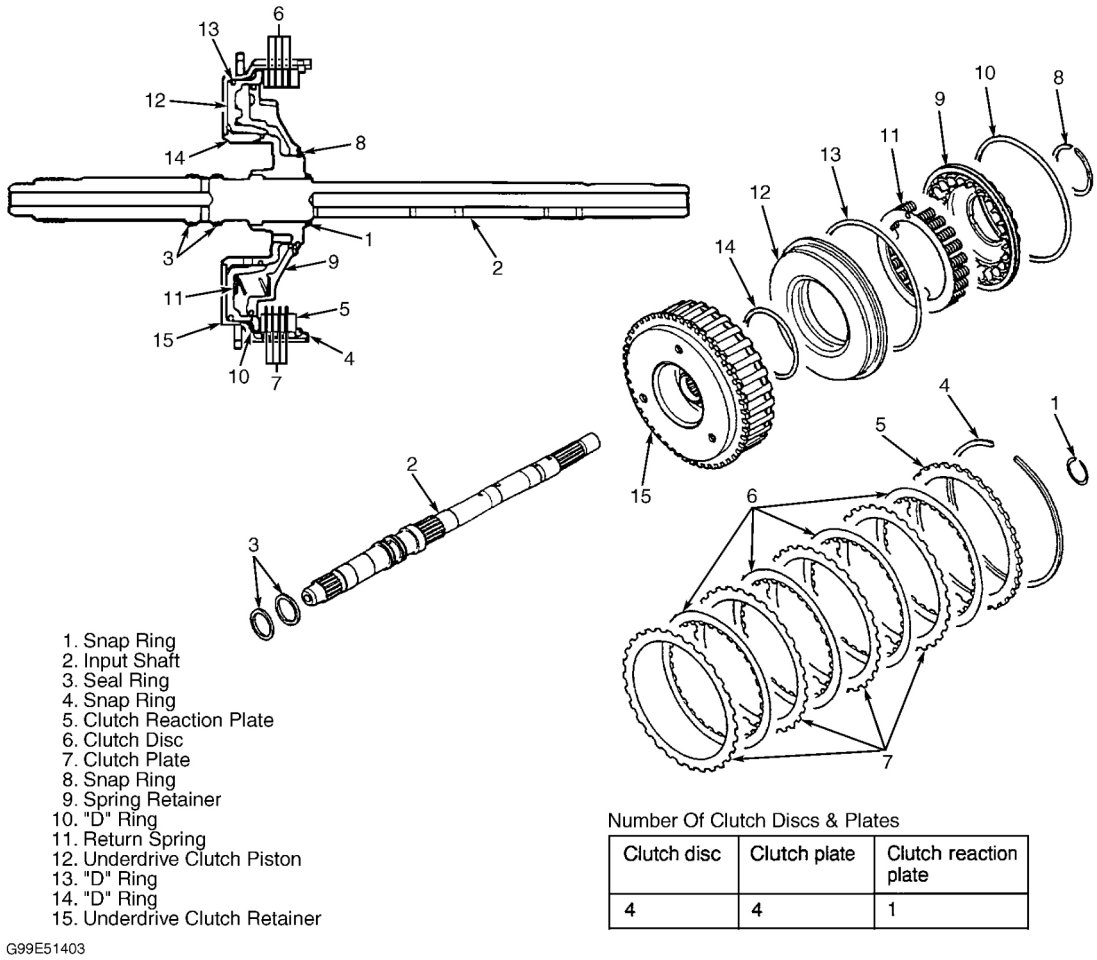


Fig. 20: Positioning Oil Pump Seal Rings
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

UNDERDRIVE CLUTCH & INPUT SHAFT

Disassembly

Remove snap ring, input shaft and 2 seal rings. See **Fig. 21** . Remove snap ring, clutch reaction plate, 4 clutch discs and 4 clutch plates. Using Spring Compressor (MD998907) and Spring Compressor Retainer (MD998924), remove underdrive clutch snap ring. See **Fig. 22** . Remove D-ring, spring retainer and return spring. Remove D-ring and underdrive clutch piston. Remove D-ring from underdrive clutch retainer.



Number Of Clutch Discs & Plates

Clutch disc	Clutch plate	Clutch reaction plate
4	4	1

Fig. 21: Exploded View Of Underdrive Clutch & Input Shaft
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

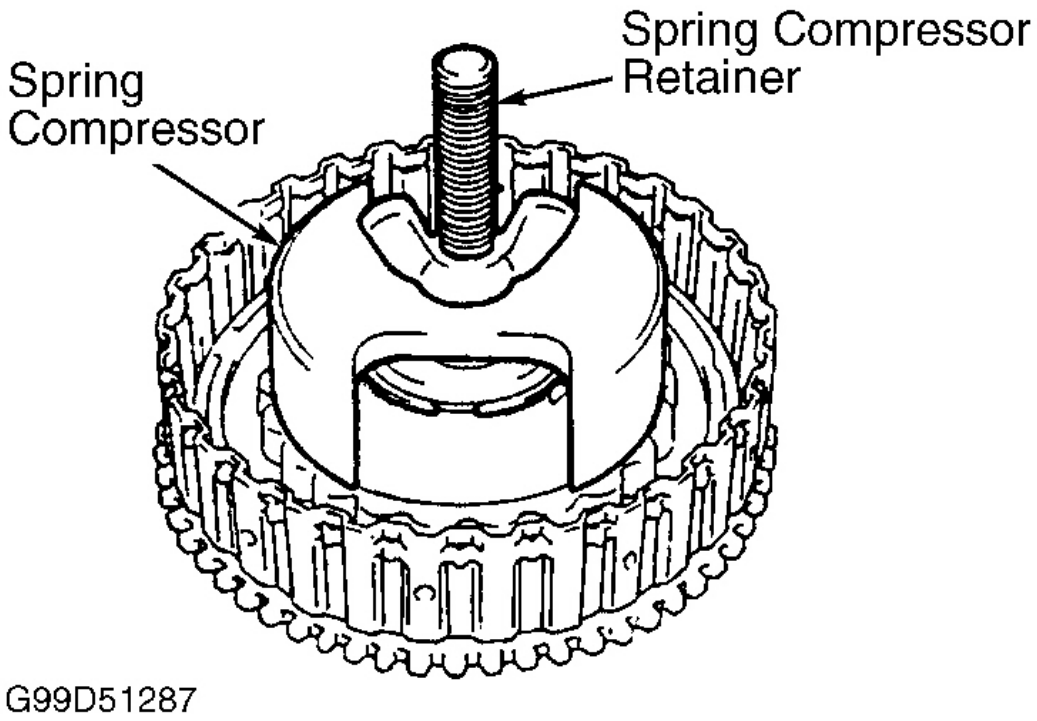


Fig. 22: Removing/Installing Underdrive Clutch Snap Ring
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

Reassembly

NOTE: Apply ATF to all moving parts before installation. Immerse clutch discs in ATF before installation. Apply ATF or petroleum jelly to all D-rings before installation.

1. Install D-ring into underdrive clutch retainer. Install underdrive clutch piston and D-ring. Install return spring, spring retainer and D-ring.
2. Using Spring Compressor and Spring Compressor Retainer, install underdrive clutch snap ring. See **Fig. 22** . Align space between teeth of clutch plates, clutch discs and reaction plate with outer circumference hole of underdrive clutch retainer. See **Fig. 23** . Install 4 clutch plates, 4 clutch discs and reaction plate into underdrive clutch retainer, ensuring discs and plates are positioned correctly.
3. Install snap ring. Using Spring Compressor (MB991628) and Spring Compressor Retainer (MD998924), apply even pressure on reaction plate. See **Fig. 24** . Measure clearance between snap ring and reaction plate. Clearance should be .065-.073" (1.65-1.85 mm). If clearance is not as specified, replace snap ring to adjust. See **UNDERDRIVE & OVERDRIVE CLUTCH END PLAY SNAP RING SPECIFICATIONS** table. Install input shaft, 2 NEW seal rings and snap ring.

UNDERDRIVE & OVERDRIVE CLUTCH END PLAY SNAP RING SPECIFICATIONS

Thickness In. (mm)	Identification Symbol	Part Number
.063 (1.6)	None	MD759660
.067 (1.7)	Blue	MD759661
.071 (1.8)	Brown	MD759662
.075 (1.9)	None	MD758892
.079 (2.0)	Blue	MD750841
.083 (2.1)	Brown	MD750842
.087 (2.2)	None	MD750843
.091 (2.3)	Blue	MD750844
.094 (2.4)	Brown	MD750845
.098 (2.5)	None	MD750846
.102 (2.6)	Blue	MD750847
.106 (2.7)	Brown	MD750848
.110 (2.8)	None	MD750849
.114 (2.9)	Blue	MD750850
.118 (3.0)	Brown	MD750851

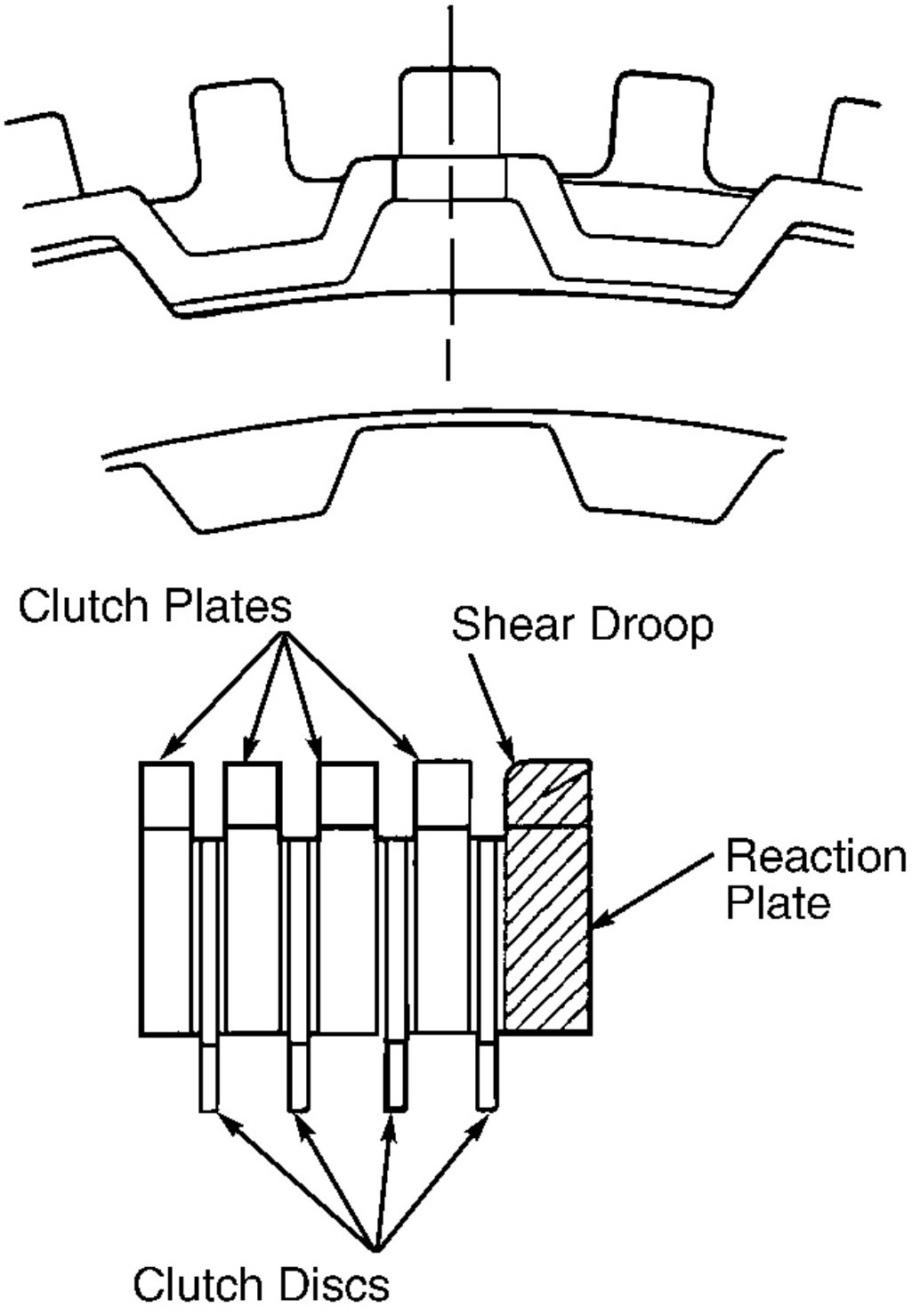


Fig. 23: Positioning Underdrive & Overdrive Clutch Discs & Plates
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

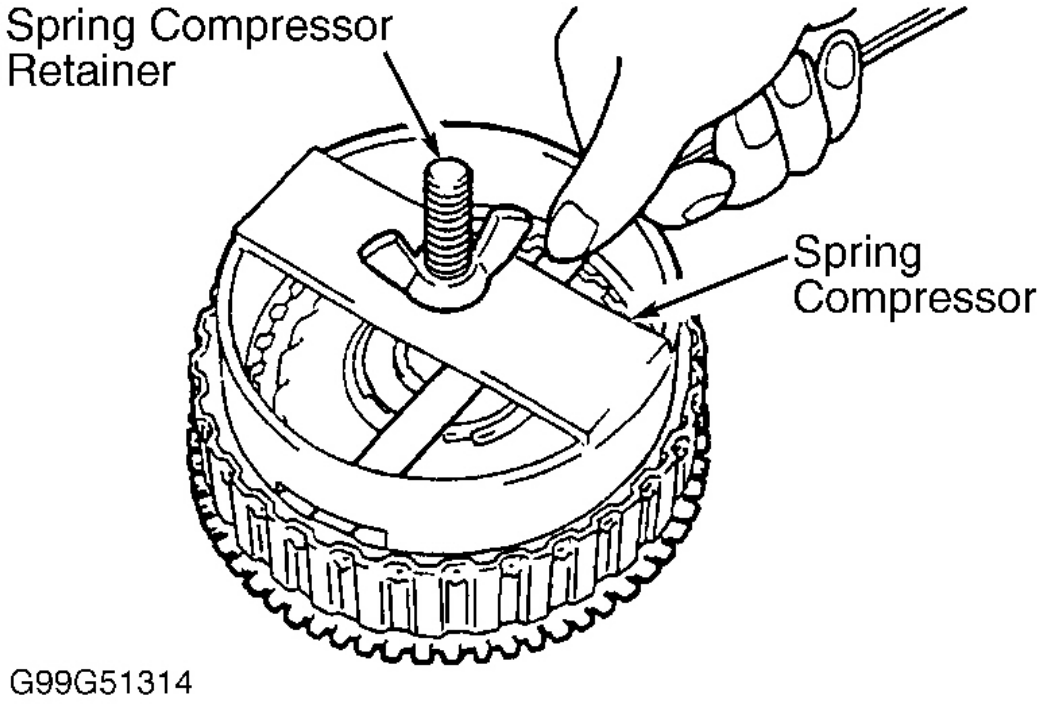
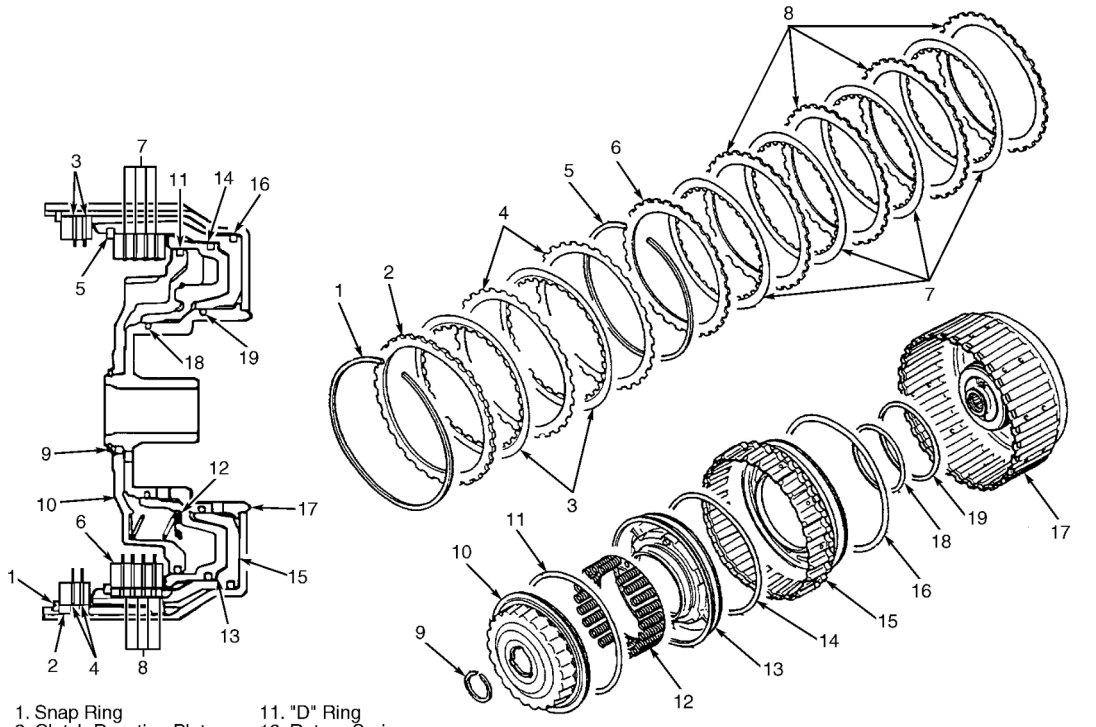


Fig. 24: Measuring Underdrive Clutch Reaction Plate End Play
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

REVERSE & OVERDRIVE CLUTCH

Disassembly

1. Remove snap ring, reaction plate, clutch discs and clutch plates. See **Fig. 25** . Remove second snap ring, reaction plate, clutch discs and clutch plates. Using Spring Compressor (MB999590) and Spring Compressor Retainer (MD998924), remove overdrive clutch snap ring. See **Fig. 26** . Remove spring retainer.
2. Remove D-ring, return spring and overdrive clutch piston. Remove D-ring and reverse clutch piston. Remove remaining 3 D-rings from reverse clutch retainer.



1. Snap Ring
2. Clutch Reaction Plate
3. Clutch Disc
4. Clutch Plate
5. Snap Ring
6. Clutch Reaction Plate
7. Clutch Disc
8. Clutch Plate
9. Snap Ring
10. Spring Retainer
11. "D" Ring
12. Return Spring
13. Overdrive Clutch Piston
14. "D" Ring
15. Reverse Clutch Piston
16. "D" Ring
17. Reverse Clutch Retainer
18. "D" Ring
19. "D" Ring

G99F51404

Number Of Clutch Discs & Plates

Clutch disc	Clutch plate	Clutch reaction plate
4	4	1

Fig. 25: Exploded View Of Reverse & Overdrive Clutch
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

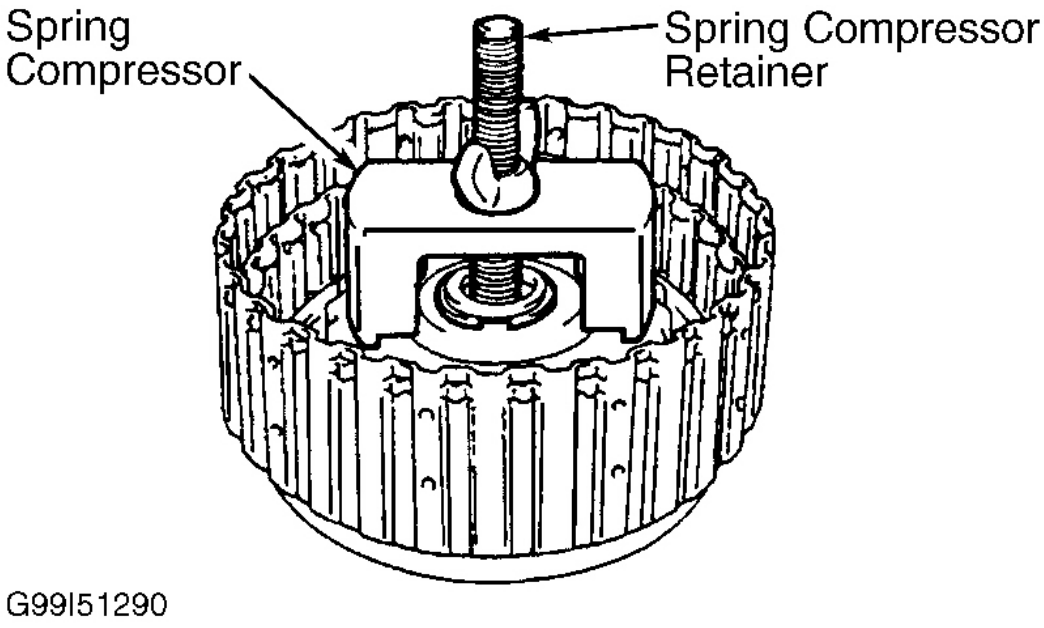


Fig. 26: Removing Overdrive Clutch Snap Ring
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

Reassembly

NOTE: Apply ATF to all moving parts before installation. Immerse clutch discs in ATF before installation. Apply ATF or petroleum jelly to all D-rings before installation.

1. Install 3 D-rings into reverse clutch retainer. Install reverse clutch piston into reverse clutch retainer while aligning outer circumference holes. See **Fig. 27** . Install D-ring and overdrive clutch piston. Install return spring, D-ring and spring retainer.
2. Using Spring Compressor and Spring Compressor Retainer, install snap ring. See **Fig. 26** . Apply approximately 11 lbs. even pressure on spring retainer. Measure clearance between snap ring and spring retainer. Clearance should be 0-.004" (0-.10 mm). If clearance is not as specified, replace snap ring to adjust. See **REVERSE & OVERDRIVE CLUTCH SPRING RETAINER SNAP RING SPECIFICATIONS** table.

REVERSE & OVERDRIVE CLUTCH SPRING RETAINER SNAP RING SPECIFICATIONS

Thickness In. (mm)	Identification Symbol	Part Number
.0583 (1.48)	Brown	MD755600
.0602 (1.53)	None	MD755601
.0622 (1.58)	Blue	MD755602
.0642 (1.63)	Brown	MD755603

3. Install clutch plates, clutch discs and reaction plate into reverse clutch retainer, ensuring discs and plates are positioned correctly. See **Fig. 23** . Install snap ring. Using Spring Compressor (MB991628) and Spring Compressor Retainer (MD998924), apply even pressure on reaction plate. See **Fig. 28** . Measure clearance between snap ring and reaction plate. Clearance should be .063-.071" (1.60-1.80 mm). If clearance is not as specified, replace snap ring to adjust. See **REVERSE CLUTCH END PLAY SNAP RING SPECIFICATIONS** table.

REVERSE CLUTCH END PLAY SNAP RING SPECIFICATIONS

Thickness In. (mm)	Identification Symbol	Part Number
.063 (1.6)	None	MD761088
.067 (1.7)	Blue	MD761089
.071 (1.8)	Brown	MD761090
.075 (1.9)	None	MD758947
.079 (2.0)	Blue	MD756690
.083 (2.1)	Brown	MD756691
.087 (2.2)	None	MD756692
.091 (2.3)	Blue	MD756693
.094 (2.4)	Brown	MD756694
.098 (2.5)	None	MD756695
.102 (2.6)	Blue	MD756696
.106 (2.7)	Brown	MD756697
.110 (2.8)	None	MD756698

4. Align space between teeth of clutch plates, clutch discs and reaction plate with outer circumference hole of reverse clutch retainer. See **Fig. 23** . Install clutch plates, clutch discs and reaction plate into reverse clutch retainer, ensuring discs and plates are positioned correctly.
5. Install snap ring. Apply approximately 11 lbs. even pressure on reaction plate. Measure clearance between snap ring and reaction plate. Clearance should be .060-.062" (1.52-1.57 mm). If clearance is not as specified, replace snap ring to adjust. See **REVERSE CLUTCH END PLAY SNAP RING SPECIFICATIONS** table.

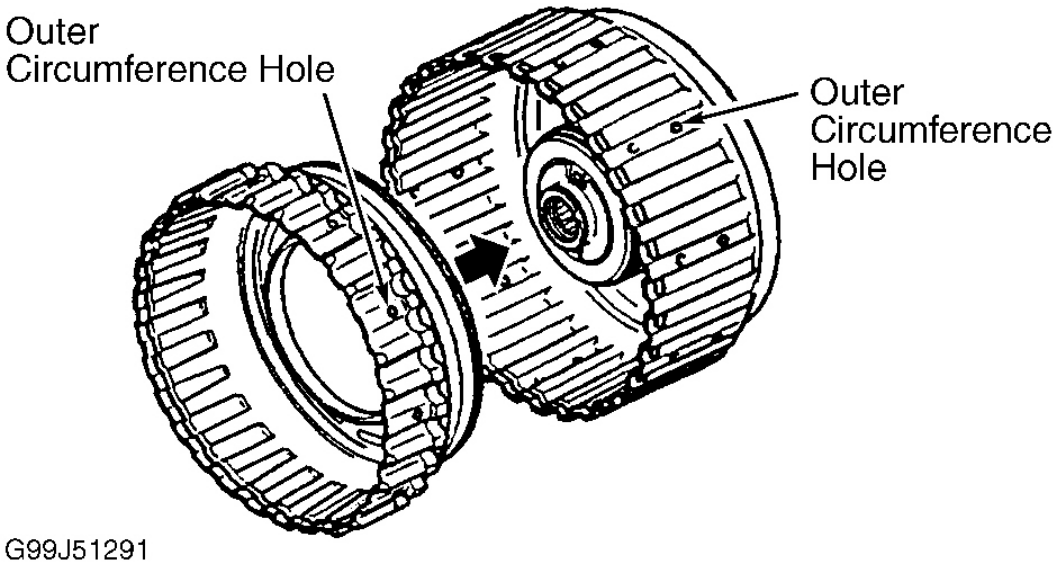


Fig. 27: Aligning Reverse Clutch Piston & Retainer Outer Circumference Holes
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

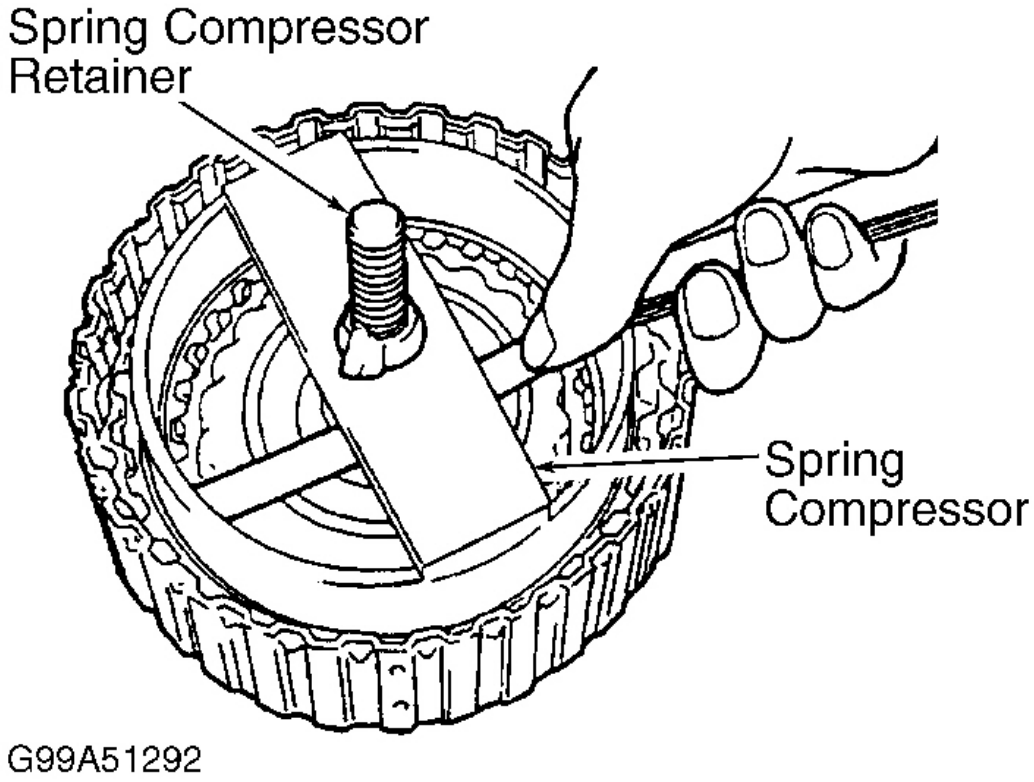


Fig. 28: Measuring Reverse Clutch Reaction Plate End Play
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

OVERDRIVE PLANETARY CARRIER

Disassembly & Reassembly

Remove snap ring. Separate overdrive planetary carrier from overdrive annulus gear. Lubricate all internal parts with ATF during reassembly. To assemble, reverse removal procedure.

LOW-REVERSE BRAKE

Disassembly & Reassembly

Remove D-rings and low-reverse brake piston. Apply ATF to low-reverse brake piston. Apply ATF or petroleum jelly to all D-rings before installation. To assemble, reverse removal procedure.

SECOND BRAKE

Disassembly & Reassembly

Separate second brake retainer, D-ring, second brake piston and remaining D-ring. Apply ATF or petroleum jelly to D-rings. Apply ATF to second brake retainer. To assemble, reverse removal procedure.

OUTPUT SHAFT

Disassembly

Using Bearing Remover (MD998917), remove transfer driven gear from output shaft. See **Fig. 29** and **Fig. 30** . Remove bearing retainer and outer race. Using Bearing Remover (MD998801), remove taper roller bearing from output shaft.

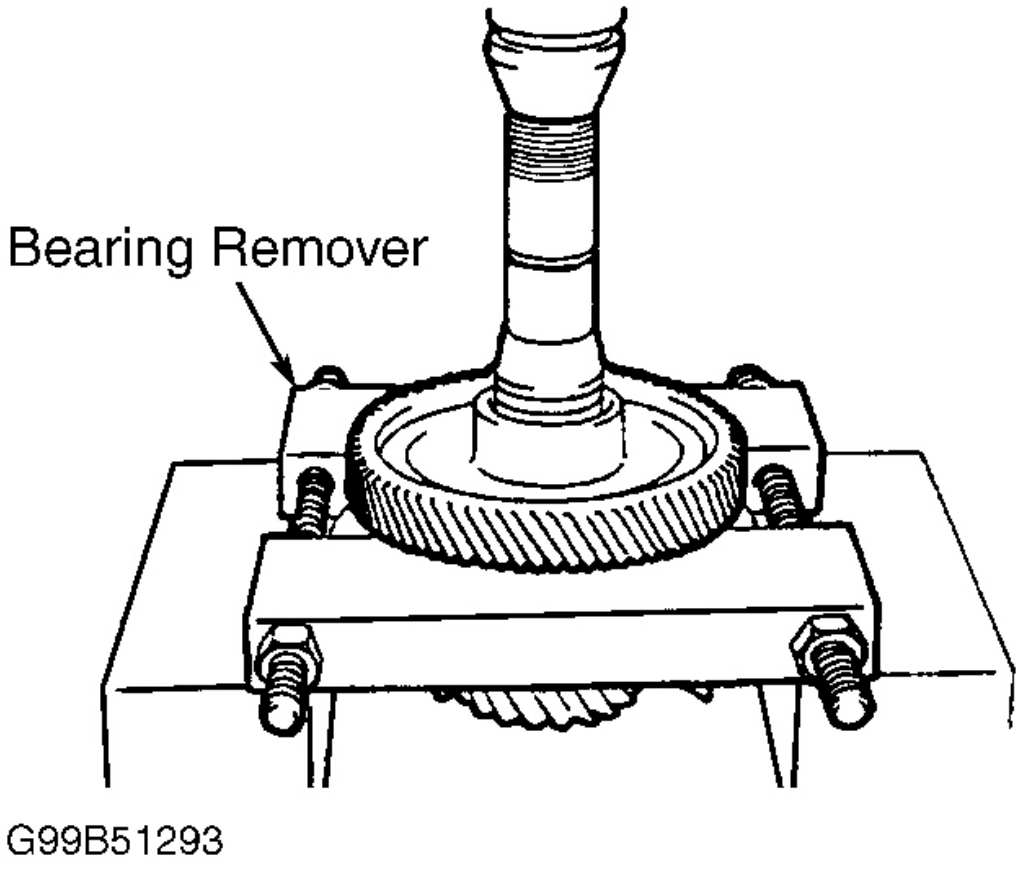


Fig. 29: Removing Transfer Driven Gear From Output Shaft
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

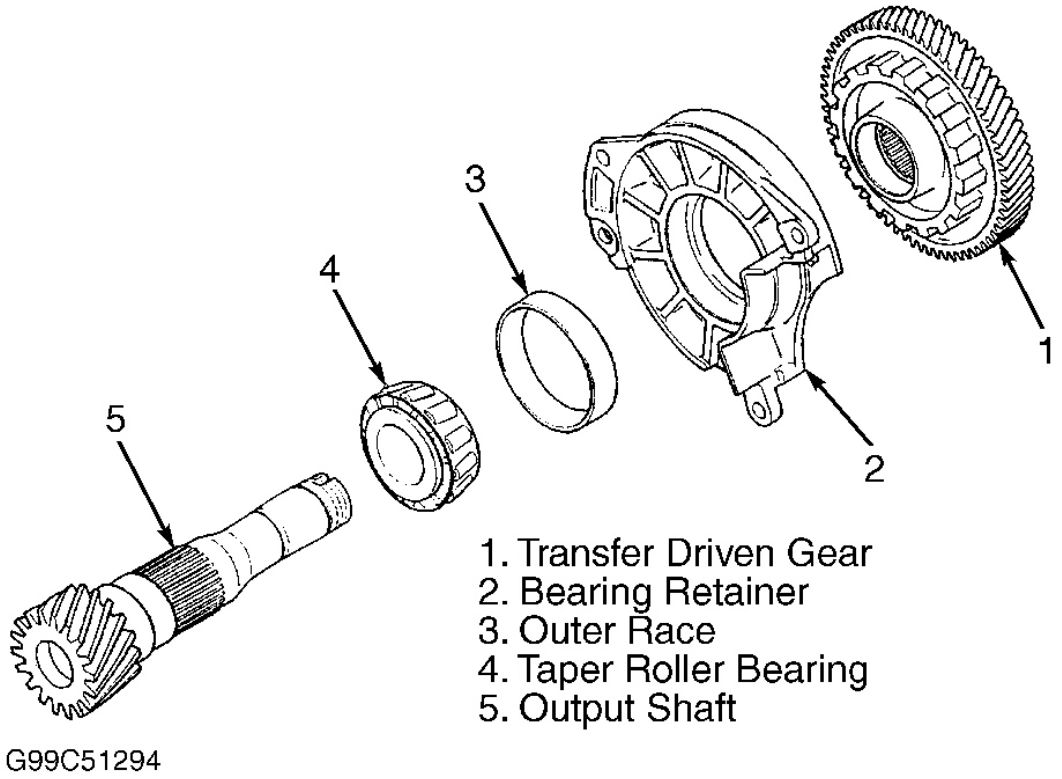


Fig. 30: Exploded View Of Output Shaft
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

Reassembly

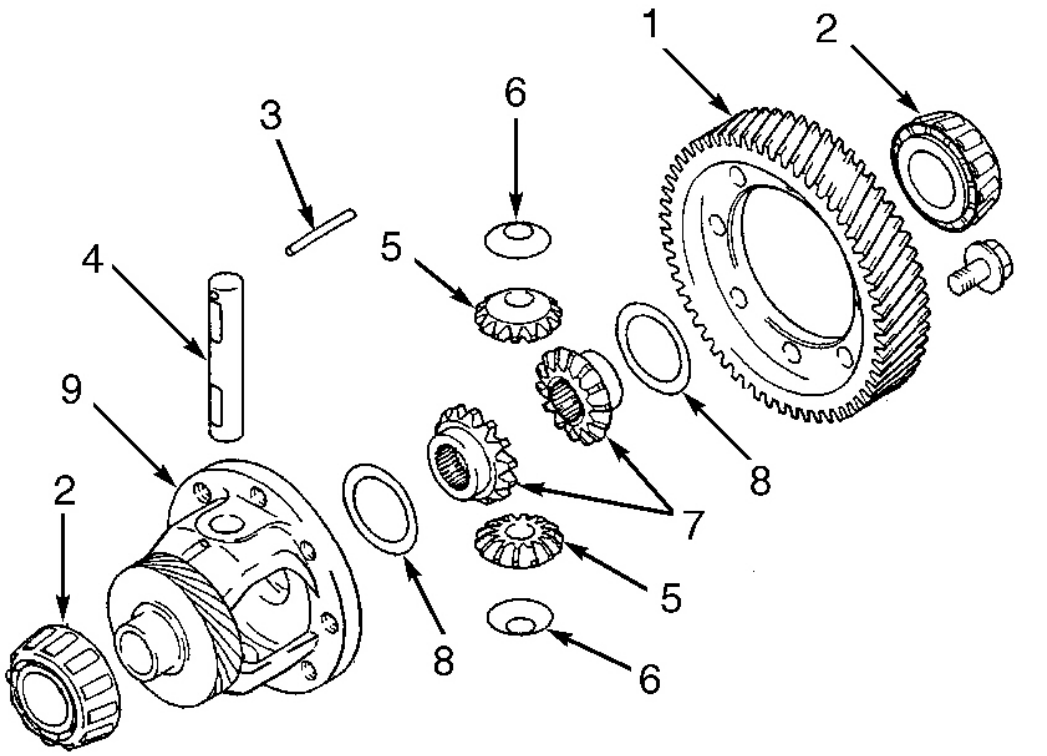
NOTE: Apply ATF to all moving parts during reassembly.

Using Installer Cap (MD998812), Installer (MD998814) and Installer Adapter (MD998827), install taper roller bearing onto output shaft. Using Handle (MB990938) and Installer Adapter (MB990937), install outer race into bearing retainer. Place bearing retainer on output shaft. Using Installer Cap (MD998812), Installer (MD998813) and Installer Adapter (MD998824), install transfer driven gear onto output shaft.

DIFFERENTIAL

Disassembly

Remove differential drive gear mounting bolts. Remove differential drive gear from differential case. See **Fig. 31** . Using Bearing Remover (MD998801), remove differential case taper roller bearings. Remove lock pin from pinion shaft. Remove pinion shaft. Remove pinions and washers. Remove side gears and spacers.



1. Differential Drive Gear
2. Taper Roller Bearing
3. Lock Pin
4. Pinion Shaft
5. Pinion
6. Washer
7. Side Gear
8. Spacer
9. Differential Case

G99G51405

Fig. 31: Exploded View Of Differential Assembly
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

Reassembly

NOTE: Apply ATF to all moving parts during reassembly.

1. If replacing side gears, obtain .037-.040" (.94-1.02 mm) medium thickness spacers. If using original side gears, use original spacers. Mount appropriate spacers on back of side gears. Install side gears with spacers into differential case. Set pinion washers on back of pinions. Put pinions simultaneously in mesh with side gears. Rotate pinions into position to allow for pinion shaft installation. Insert pinion shaft.

NOTE: When measuring backlash, ensure both sides are equal.

2. Measure backlash between side gears and pinions. Backlash should be .001-.006" (.025-.150 mm). If backlash is as specified, go to next step. If backlash is not as specified, select appropriate spacers and return to step 1 .
3. Insert lock pin into pinion shaft, chamfered side first. See **Fig. 32** . Use Installer Cap (MD998812) and Installer Adapter (MD998824) to install differential case taper roller bearings. Apply ATF to differential drive gear bolt threads. Mount differential drive gear to differential case. Tighten differential drive gear bolts in sequence to 98 ft. lbs. (132 N.m). See **Fig. 33** .

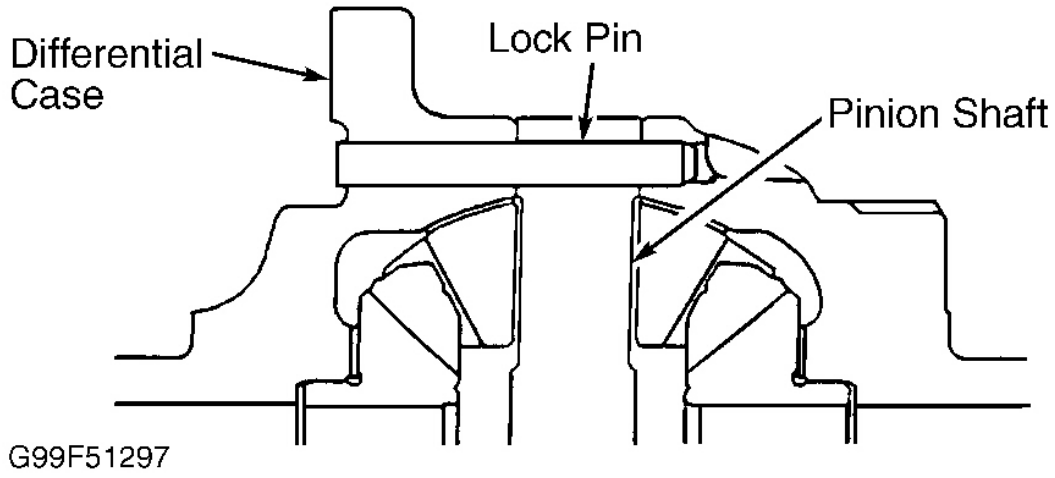
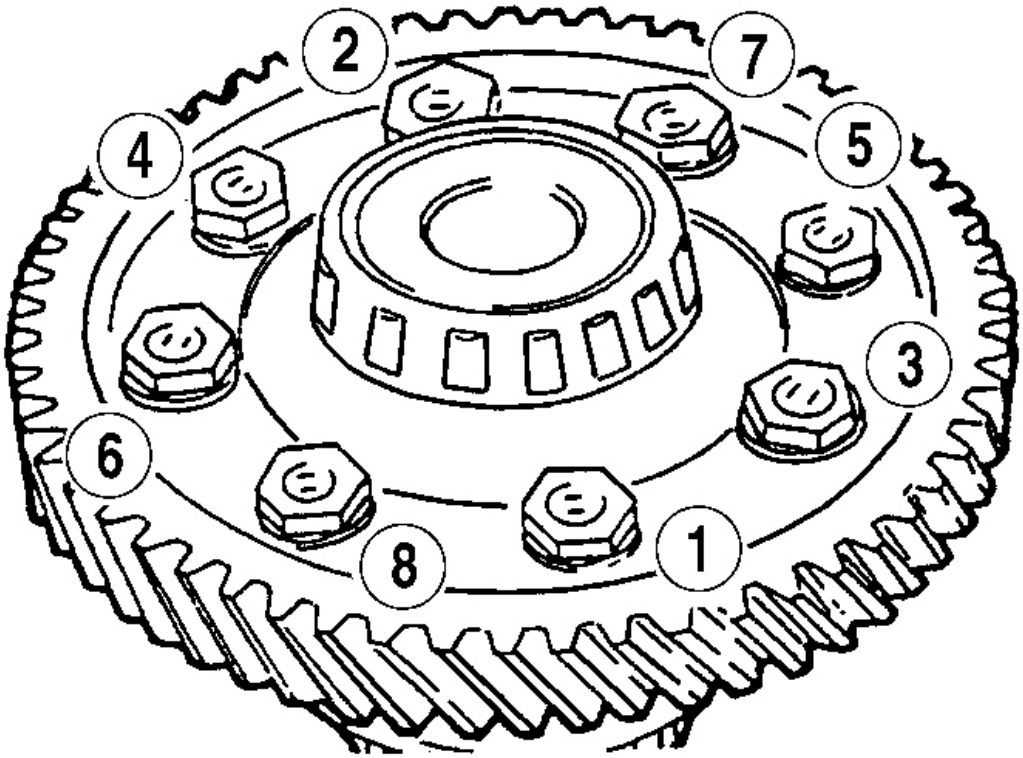


Fig. 32: Installing Lock Pin Into Pinion Shaft
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.



G99G51298

Fig. 33: Differential Drive Gear Tightening Sequence
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

VALVE BODY

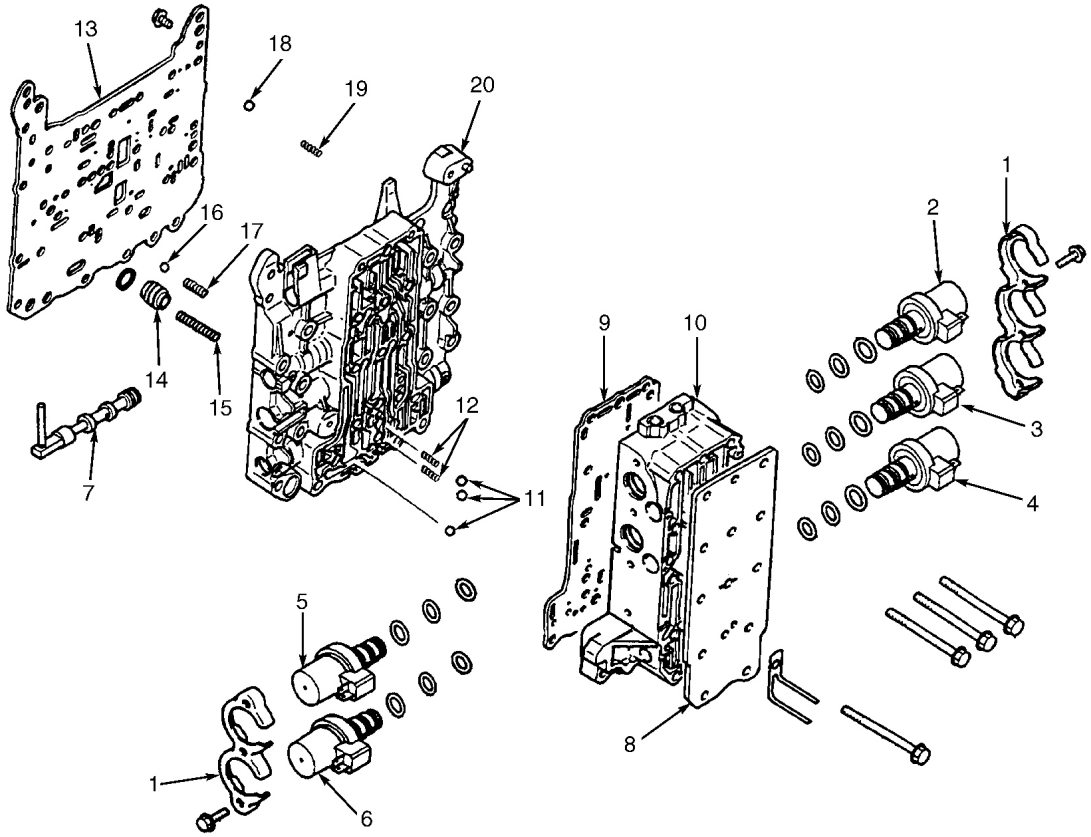
Disassembly

NOTE: Ensure valve body component locations are referenced for correct installation.

1. Remove solenoid valve supports. See **Fig. 34** . Remove all solenoid valves from valve body. Remove manual valve from valve body. Remove cover, outer valve body and plate. Remove steel check balls and springs. Separate inner valve body from plate. Remove damping valve and .300" (7.62 mm) diameter spring. Remove steel ball (line relief) and spring. Remove steel check ball and spring.
2. Remove roller and torque converter clutch control valve sleeve from inner valve body. See **Fig. 35** . Remove torque converter clutch control valve and spring. Remove plate and screw. Remove regulator valve spring and regulator valve. Remove plate and fail-safe valve "A" sleeve. Remove fail-safe valve "A2". Remove fail-safe valve "A" spring. Remove fail-safe valve "A1". Remove plate and plug. Remove torque converter valve and spring. Remove plate and fail-safe valve "B" sleeve. Remove fail-safe valve

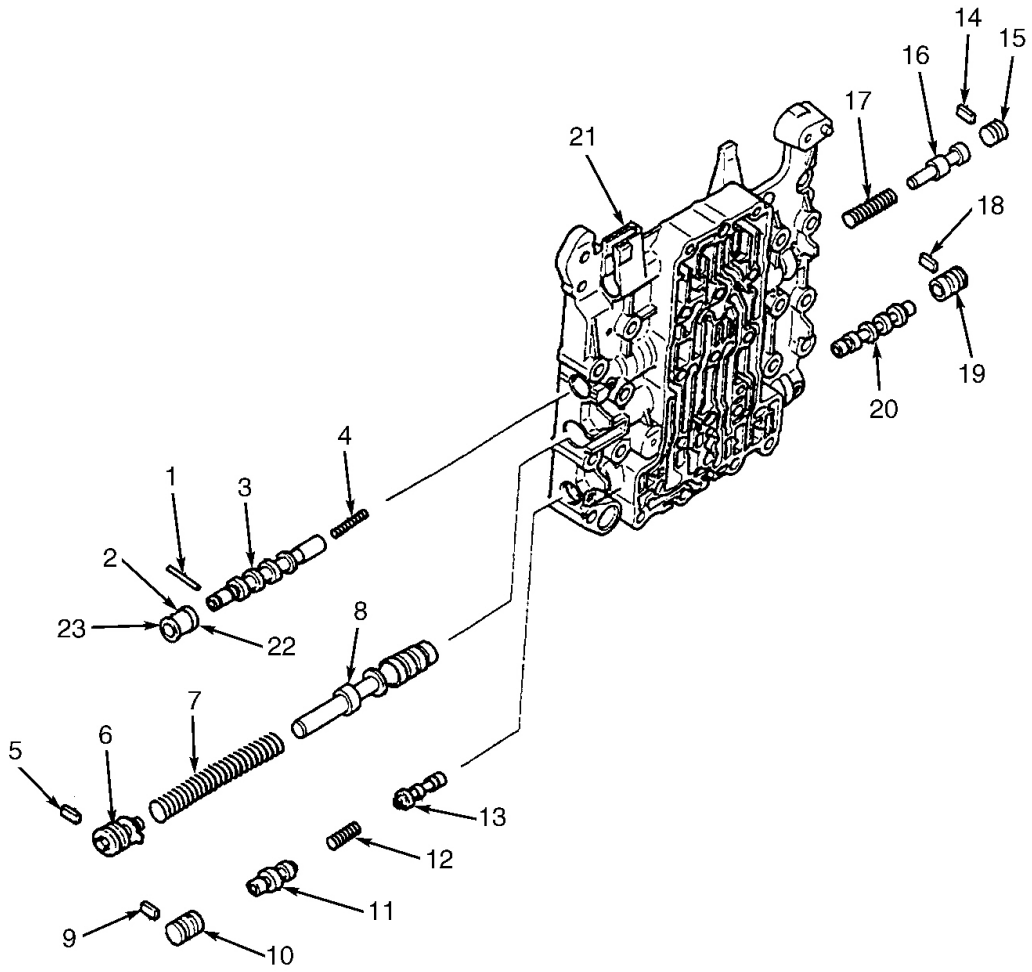
"B".

3. Remove roller and overdrive pressure control valve sleeve. See **Fig. 36** . Remove overdrive pressure control valve (5-land) and spring. Remove roller and low-reverse pressure control valve sleeve. Remove low-reverse pressure control valve (6-land) and spring. Remove plate, plug and switching valve. Remove roller and underdrive pressure control valve sleeve. Remove underdrive pressure control valve and spring. Remove roller and second pressure control valve sleeve. Remove second pressure control valve and spring.



1. Solenoid Valve Support
2. Underdrive Solenoid Valve
3. Second Solenoid Valve
4. Torque Converter Clutch Control Solenoid Valve
5. Overdrive Solenoid Valve
6. Low-Reverse Solenoid Valve
7. Manual Valve
8. Cover
9. Plate
10. Outside Valve Body Assembly
11. Steel Check Ball
12. Spring
13. Plate
14. Damping Valve
15. Damping Valve Spring
16. Steel Check Ball (Line Relief)
17. Spring
18. Steel Check Ball (Orifice)
19. Spring
20. Inner Valve Body Assembly

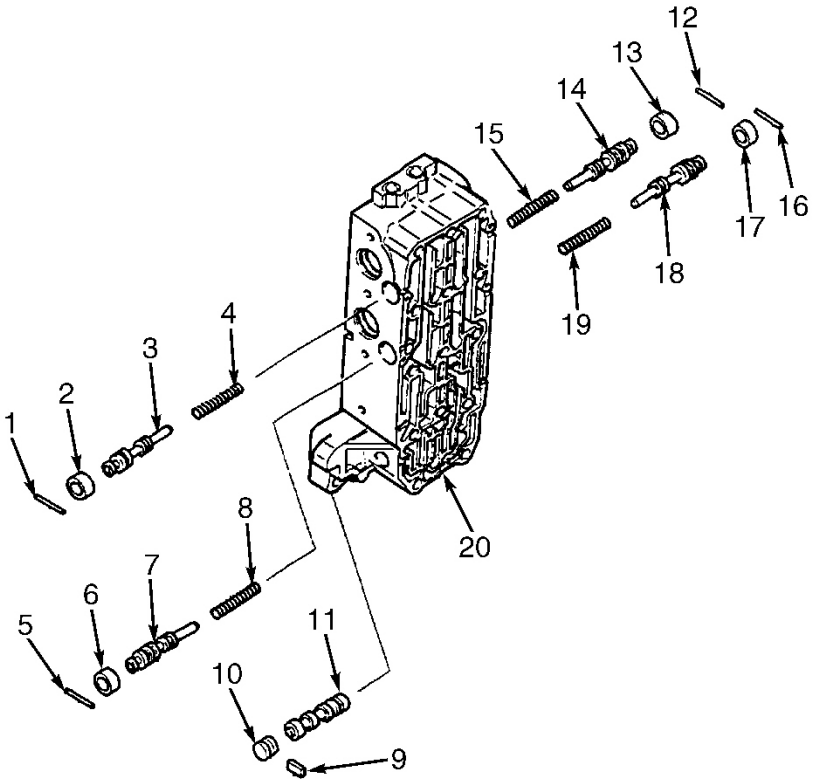
Fig. 34: Exploded View Of Inner & Outer Valve Body
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.



1. Roller
2. Torque Converter Clutch Control Valve Sleeve
3. Torque Converter Clutch Control Valve
4. Torque Converter Clutch Control Valve Spring
5. Plate
6. Screw
7. Regulator Valve Spring
8. Regulator Valve
9. Plate
10. Fail-Safe Valve "A" Sleeve
11. Fail-Safe Valve A2
12. Fail-Safe Valve "A" Spring
13. Fail-Safe Valve A1
14. Plate
15. Plug
16. Torque Converter Valve
17. Torque Converter Valve Spring
18. Plate
19. Fail-Safe Valve "B" Sleeve
20. Fail-Safe Valve "B"
21. Inner Valve Body Assembly
22. Wide Land
23. Narrow Tapered Land

G99A51300

Fig. 35: Exploded View Of Inner Valve Body
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.



1. Roller
2. Overdrive Pressure Control Valve Sleeve
3. Overdrive Pressure Control Valve
4. Overdrive Pressure Control Valve Spring
5. Roller
6. Low-Reverse Pressure Control Valve Sleeve
7. Low-Reverse Pressure Control Valve
8. Low-Reverse Pressure Control Valve Spring
9. Plate
10. Plug
11. Switching Valve
12. Roller
13. Underdrive Pressure Control Valve Sleeve
14. Underdrive Pressure Control Valve
15. Underdrive Pressure Control Valve Spring
16. Roller
17. Second Pressure Control Valve Sleeve
18. Second Pressure Control Valve
19. Second Pressure Control Valve Spring
20. Outer Valve Body Assembly

G99B51301

Fig. 36: Exploded View Of Outer Valve Body
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

Reassembly

NOTE: Apply ATF to all moving parts during reassembly.

To reassemble, reverse disassembly procedure. Ensure check balls and springs are installed in correct locations. See **Fig. 37** . Ensure solenoid valves are installed in correct locations. See **Fig. 8** .

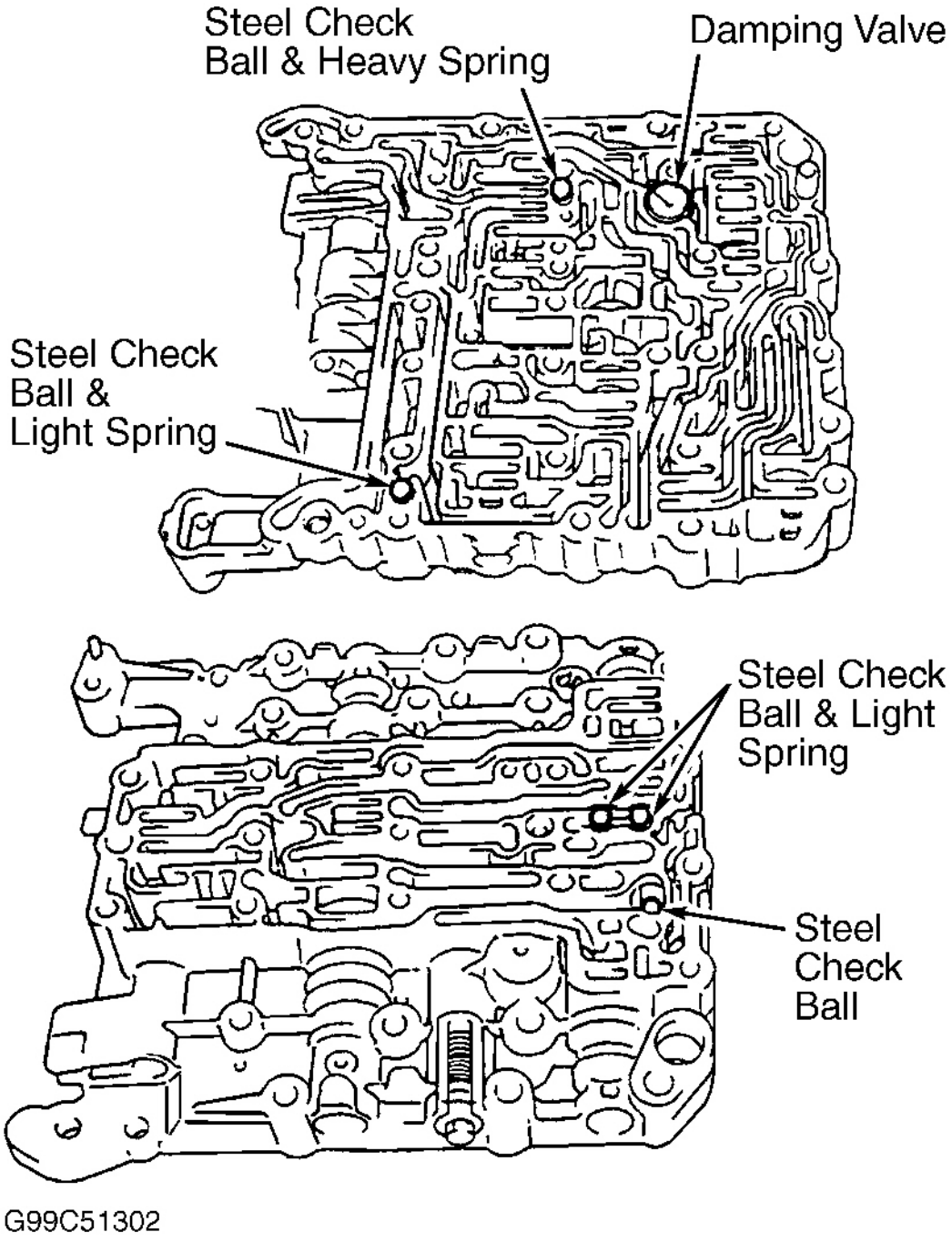


Fig. 37: Locating Valve Body Steel Check Balls & Springs
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

SPEEDOMETER GEAR

Disassembly & Reassembly

NOTE: Apply ATF to all internal parts during reassembly.

Remove E-clip, speedometer gear and "O" ring as necessary. To reassemble, reverse disassembly procedure.

DRIVE SHAFT OIL SEAL

NOTE: Apply ATF to all internal parts during reassembly.

Disassembly & Reassembly

Remove drive shaft oil seal(s). Remove torque converter housing from transaxle case as necessary for access. Using Oil Seal Installer (MD998800), install NEW drive shaft oil seal(s). Reinstall torque converter housing to transaxle case, if removed for access.

TRANSAXLE REASSEMBLY

VALVE BODY & INTERNAL COMPONENTS

NOTE: Apply Diamond ATF SP II to all internal parts during reassembly.

NOTE: Never reuse gaskets, "O" rings or seals. Use petroleum jelly or vaseline to hold thrust bearings, thrust races and thrust washers in position. Soak brake and clutch discs in Diamond ATF SP II for 2 hours before assembly. Ensure thrust bearings, thrust races and thrust washers are installed in original location and proper direction. See Fig. 9 .

1. Using Installer Adapter (MB990935) and Installer Handle (MB990938), install differential bearing outer race into transaxle case. Using Installer Adapter (MB990930) and Installer Handle (MB990938), install output shaft bearing outer race into transaxle case. Install the used spacer and snap ring. Install transfer gear, low-reverse brake piston, return spring and spring retainer. Install one-way clutch and "O" ring. Using Spring Compressor (MB998338) and Spring Compressor Retainer (MD998924), install snap ring.
2. Install wave spring. Substitute Clearance Dummy Plate (MD991632) for low-reverse brake pressure plate. Install Clearance Dummy Plate, 6 low-reverse brake discs, 5 brake plates, and snap ring. Install reaction plate and original snap ring. See **Fig. 38** . Move Clearance Dummy Plate and measure end play using dial gauge. End play should be 0-.006" (0-.15 mm). If end play is as specified, go to next step. If end play is not as specified, replace snap ring to adjust. See **LOW-REVERSE BRAKE & SECOND BRAKE REACTION PLATE SNAP RING SPECIFICATIONS** table.

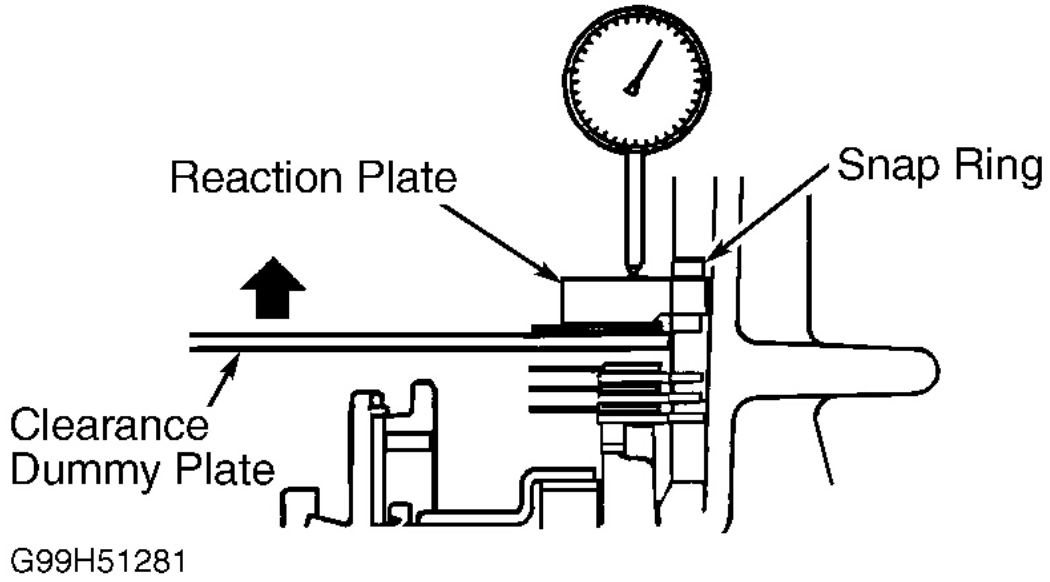


Fig. 38: Measuring Low-Reverse Brake End Play
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

LOW-REVERSE BRAKE & SECOND BRAKE REACTION PLATE SNAP RING SPECIFICATIONS

Thickness In. (mm)	Identification Symbol	Part Number
.087 (2.2)	Blue	MD756784
.091 (2.3)	Brown	MD756785
.094 (2.4)	None	MD758552
.098 (2.5)	Blue	MD758553

3. Substitute Clearance Dummy Plate for second brake pressure plate. Install Clearance Dummy Plate, brake disc and brake plate. See **Fig. 39** . Install return spring, second brake piston and snap ring. Move Clearance Dummy Plate and measure end play with dial gauge. End play should be .042-.060" (1.07-1.52 mm). Determine correct thickness pressure plate by adding .018-.037" (.45-.81 mm) to end play measurement. See **SECOND BRAKE PRESSURE PLATE THICKNESS** table. Install pressure plate and recheck end play.

SECOND BRAKE PRESSURE PLATE THICKNESS

Thickness In. (mm)	Identification Symbol	Part Number
.071 (1.8)	E	MD759425
.079 (2.0)	D	MD759426
.087 (2.2)	C	MD759427
.094 (2.4)	B	MD759428

.102 (2.6)	A	MD759429
.110 (2.8)	O	MD759430

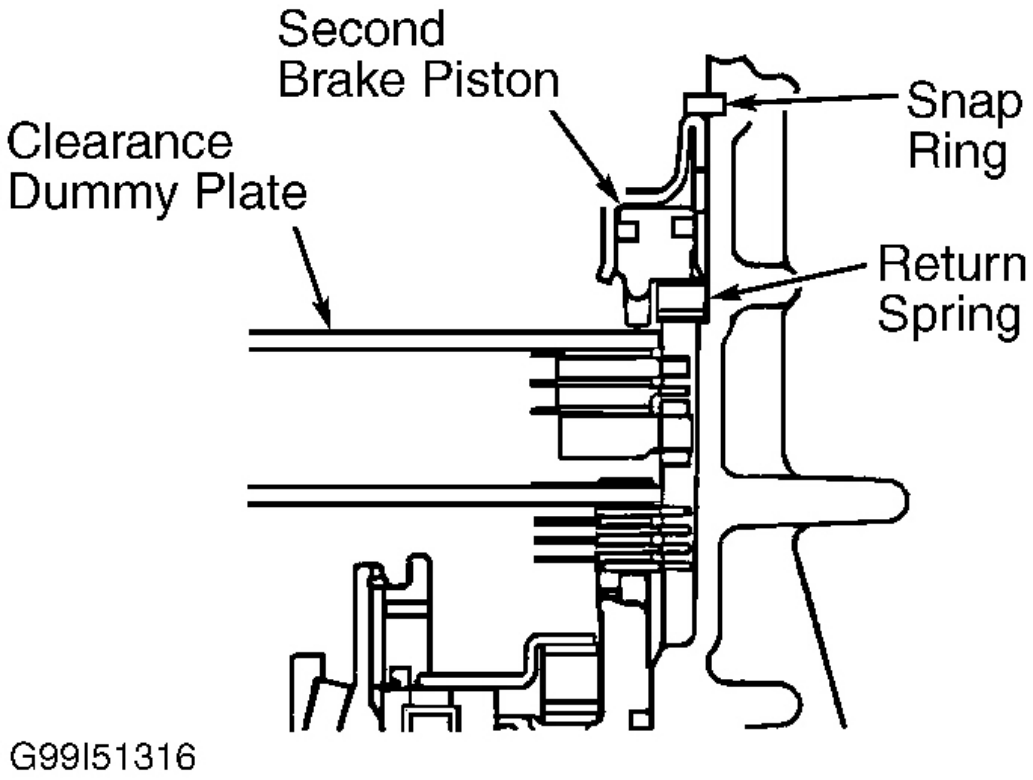


Fig. 39: Installing Second Brake Discs & Plates For Second Brake End Play Adjustment
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

4. Turn transaxle over. Install Dial Gauge Extension (MD998913) in a dial gauge. Move Clearance Dummy Plate and measure axial play. See **Fig. 40** . Axial play should be .065-.080" (1.65-2.03 mm). To determine correct size pressure plate, add .079" (2.0 mm) to axial play measurement. Subtract .080-.065" (2.11-1.65 mm) from this measurement to get pressure plate thickness needed. See **LOW-REVERSE BRAKE PRESSURE PLATE THICKNESS** table.

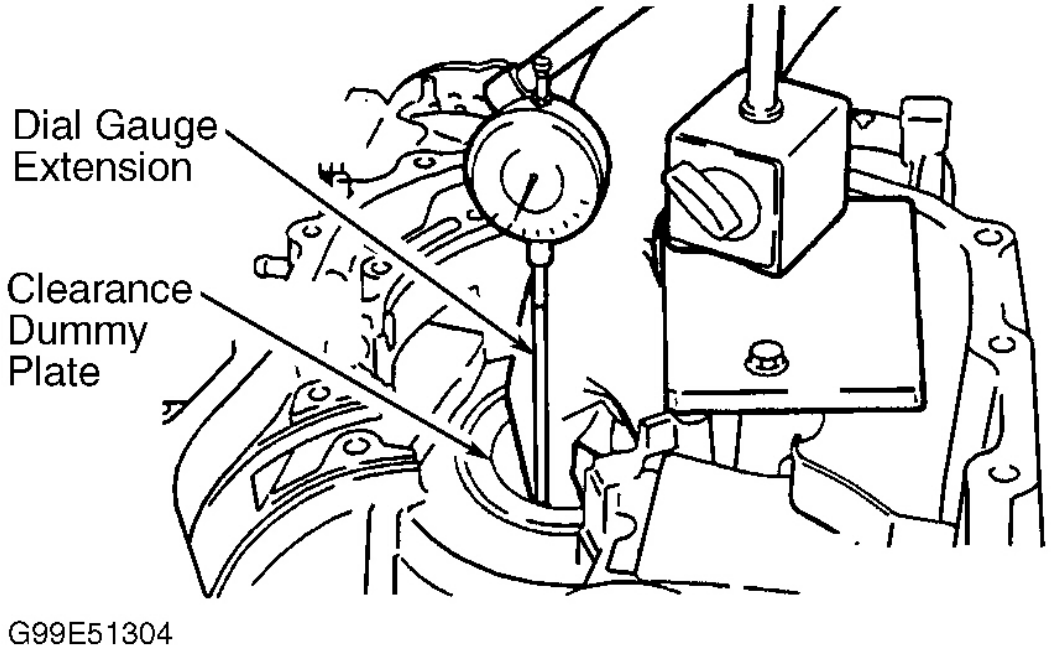


Fig. 40: Measuring Low-Reverse Clutch Axial Play
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

LOW-REVERSE BRAKE PRESSURE PLATE THICKNESS

Thickness In. (mm)	Identification Symbol	Part Number
.063 (1.60)	F	MD759568
.071 (1.80)	E	MD759425
.079 (2.00)	D	MD759426
.087 (2.20)	C	MD759427
.094 (2.40)	B	MD759428
.102 (2.60)	A	MD759429
.110 (2.80)	O	MD759430
.118 (3.00)	1	MD759431

5. Remove snap ring, second brake piston and return spring. Remove second brake discs and brake plates. Remove snap ring and reaction plate. Remove snap ring and low-reverse brake discs and brake plates. Remove wave spring. Install output shaft bearing retainer and tighten mounting bolts to specification. See **TORQUE SPECIFICATIONS** .
6. Install output shaft into transaxle case. Using Bearing Installer (MD998350), install collar and taper roller bearing. Apply ATF to a NEW output shaft lock nut (left hand threads). Using Special Sockets (MB991625 and MB990607), tighten output shaft lock nut to specification. Turn output shaft lock nut back one turn and then tighten to specification.

7. Move output shaft to measure end play using a dial gauge. To obtain thickness of proper adjustment spacer needed, add measurement of adjustment spacer already installed to end play measurement. Add .0006-.0035" (.015-.075 mm) to this measurement. This is measurement range of adjustment spacer needed. See **OUTPUT SHAFT PRELOAD SPACER SPECIFICATIONS** table. Remove output shaft lock nut. Remove output shaft bearing retainer. Remove collar and taper roller bearing. Replace adjustment spacer.

OUTPUT SHAFT PRELOAD SPACER SPECIFICATIONS

Thickness In. (mm)	Identification Symbol	Part Number
.0740 (1.88)	88	MD756579
.0756 (1.92)	92	MD756580
.0772 (1.96)	96	MD756581
.0787 (2.00)	00	MD756582
.0803 (2.04)	04	MD756583
.0819 (2.08)	08	MD756584
.0835 (2.12)	12	MD756585
.0850 (2.16)	16	MD756586
.0866 (2.20)	20	MD756587
.0882 (2.24)	24	MD756588
.0898 (2.28	28	MD756589
.0913 (2.32)	32	MD756590
.0929 (2.36)	36	MD756591
.0945 (2.40)	40	MD756592
.0961 (2.44)	44	MD756593
.0976 (2.48)	48	MD756594
.0992 (2.52)	52	MD756595
.1008 (2.56)	56	MD756596
.1024 (2.60)	60	MD756597
.1039 (2.64)	64	MD756598
.1055 (2.68)	68	MD756599
.1071 (2.72)	72	MD760685
.1087 (2.76)	76	MD760686

8. Reinstall collar and taper roller bearing. Reinstall output shaft bearing retainer with NEW mounting bolts. Tighten output shaft bearing retainer mounting bolts to specification. See **TORQUE SPECIFICATIONS** . Tighten output shaft lock nut to specification. Turn output shaft lock nut back one turn and then tighten to specification. Use a punch to stake lock nut in 2 places to prevent it from turning. Using Installer Adapter (MB990931) and Installer Handle (MB990938), install Output Shaft Cap into transaxle case recessing it .098-.118" (2.5-3.0 mm).
9. Using Oil Pump/Transfer Drive Gear Guide (MD998412), install transfer drive gear. See **Fig. 41** . Tighten 4 transfer drive gear mounting bolts to specification. Install parking pawl, spacer and spring. Install parking pawl shaft. Install parking roller support and parking roller support shafts.

NOTE: Ensure thrust bearings are installed in original location and proper direction. See Fig. 9 .

10. Install underdrive sun gear and thrust bearing No. 3 into output planetary carrier. Install output planetary carrier and thrust bearing No. 4. See **Fig. 42** . Install overdrive planetary carrier. Install planetary reverse sun gear. Install wave spring and pressure plate. Install low-reverse brake discs, brake plates and snap ring. Install reaction plate and snap ring. Install second brake discs, brake plates and pressure plate. Install return spring, second brake piston and snap ring. Install thrust bearing No. 5. See **Fig. 43** .
11. Install overdrive clutch hub and thrust bearing No. 6 into reverse and overdrive clutch. Install reverse and overdrive clutch into transaxle case. Install thrust bearing No. 7. See **Fig. 44** . Install 3 NEW "O" rings into transaxle case near reverse and overdrive clutch. Using Installer Handle (MB990938), install input shaft bearing. Install 4 seal rings, ensuring identification marks are positioned correctly. See **Fig. 45** . Install used thrust race No. 8. Temporarily install rear cover.
12. Install underdrive clutch hub. See **Fig. 11** . Using a dial gauge, measure underdrive sun gear end play. Underdrive sun gear end play should be .010-.018" (.25-.46 mm). Replace thrust race No. 8 as necessary to adjust end play within specification. See **Fig. 9** .
13. Remove rear cover. Apply Mitsubishi Liquid Gasket (MD974421) to rear cover. Install rear cover. Tighten rear cover mounting bolts to specification. Allow liquid gasket to dry for one hour before letting ATF touch adhesion surface.
14. Install thrust bearing No. 2. See **Fig. 46** . Hold underdrive clutch by input shaft and install into transaxle case. Install used thrust washer No. 1. Using Oil Pump/Transfer Drive Gear Guide (MD998412), install oil pump. Tighten oil pump mounting bolts to specification. Using a dial gauge, measure input shaft end play. See **Fig. 10** . Input shaft end play should be .028-.057" (.71-1.45 mm). Using Oil Pump Remover (MD998333), remove oil pump. See **Fig. 15** . Replace thrust washer No. 1 as necessary to adjust end play within specification. See **Fig. 9** .
15. Install thrust washer No. 1 onto underdrive clutch retainer. Using Oil Pump/Transfer Drive Gear Guide (MD998412), install oil pump and NEW gasket. Tighten oil pump mounting bolts to specification. Install oil filter. Install differential. Place 2 beads of solder approximately .39" (10 mm) in length and .12" (3 mm) in thickness on torque converter housing. See **Fig. 47** . Install torque converter housing to transaxle case (without sealant). Tighten torque converter housing mounting bolts to specification. Loosen bolts, remove torque converter housing and remove solder.
16. Using a micrometer, measure thickness of solder. Select a spacer .002-.004" (.05-.10 mm) thicker than measurement of solder. See **DIFFERENTIAL CASE PRELOAD SPACER SPECIFICATIONS** . Install spacer into torque converter housing. Using Installer Handle (MB990938) and Installer Adapter (MB990936), install outer race.

DIFFERENTIAL CASE PRELOAD SPACER SPECIFICATIONS

Thickness In. (mm)	Identification Symbol	Part Number
.0280 (.71)	71	MD754475
.0291 (.74)	74	MD727660
.0303 (.77)	77	MD754476
.0315 (.80)	80	MD727661
.0327 (.83)	83	MD720937
.0339 (.86)	86	MD720938
.0350 (.89)	89	MD720939

.0362 (.92)	92	MD720940
.0374 (.95)	95	MD720941
.0386 (.98)	98	MD720942
.0398 (1.01)	01	MD720943
.0409 (1.04)	04	MD720944
.0421 (1.07)	07	MD720945
.0433 (1.10)	J	MD710454
.0445 (1.13)	D	MD700270
.0457 (1.16)	K	MD710455
.0469 (1.19)	L	MD710456
.0480 (1.22)	G	MD700271
.0492 (1.25)	M	MD710457
.0504 (1.28)	N	MD710458
.0516 (1.31)	E	MD706574
.0528 (1.34)	O	MD710459
.0539 (1.37)	P	MD710460

17. Apply Mitsubishi Liquid Gasket (MD974421) to mating surface of torque converter housing. Install 2 NEW "O" rings. See **Fig. 14** . Install torque converter housing. Tighten torque converter housing mounting bolts to specification. Install manual control lever shaft and parking pawl rod. See **Fig. 12** . Install manual control lever shaft roller. Identify correct location of accumulator pistons. See **Fig. 48** . Install accumulator pistons, new seal rings and springs. Ensure correct accumulator piston spring is used. See **ACCUMULATOR PISTON SPRING IDENTIFICATION** table.
18. Install strainer and second brake retainer oil seal. See **Fig. 49** . Install solenoid valve harness, securing snap ring to connector groove. Place valve body and 2 steel check balls into transaxle case using NEW gasket. Install oil temperature sensor. See **Fig. 8** . Install 28 valve body bolts and tighten to specification. Connect all valve body electrical connectors.
19. Install manual control shaft detent. See **Fig. 11** . Apply Mitsubishi Liquid Gasket (MD974421) to mating surface of valve body cover. Install valve body cover. Tighten valve body cover bolts to specification. Install speedometer gear. Install park/neutral position switch and manual control lever. Install input shaft speed sensor. Install output shaft speed sensor. Apply small amount of ATF to oil filter gasket. Install and tighten oil filter.
20. Install eye bolt, NEW gasket and oil cooler feed tube. Install oil dipstick. Install all brackets. Apply small amount of ATF to torque converter oil pump drive hub. Install torque converter being careful as to not damage oil seal. Ensure converter is fully seated into oil pump. When torque converter is fully seated, torque converter will be recessed approximately .37" (9.4 mm) from transaxle-to-engine mounting flange.

ACCUMULATOR PISTON SPRING IDENTIFICATION

Application	Color	Number Of Coils	Winding Style
Low-Reverse Brake			
Outer Spring	Plain	12	Close
Inner Spring	Plain	16	Very Close
Underdrive Clutch			

Outer Spring	Black	13	Close
Inner Spring	Black	15	Close
Second Brake			
Outer Spring	Black	10	Loose
Inner Spring	Black	9	Loose
Overdrive Clutch (1)			
Outer Spring	Plain	12	Close
(1) Inner spring not used.			

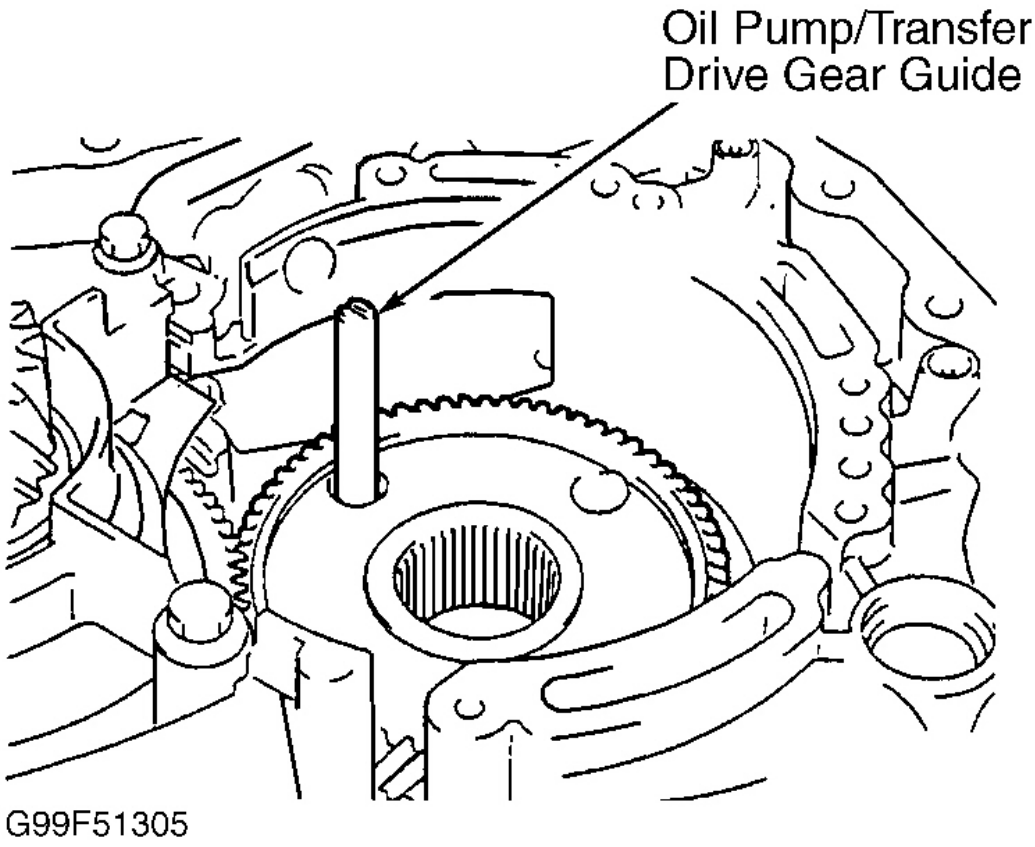


Fig. 41: Installing Transfer Drive Gear
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

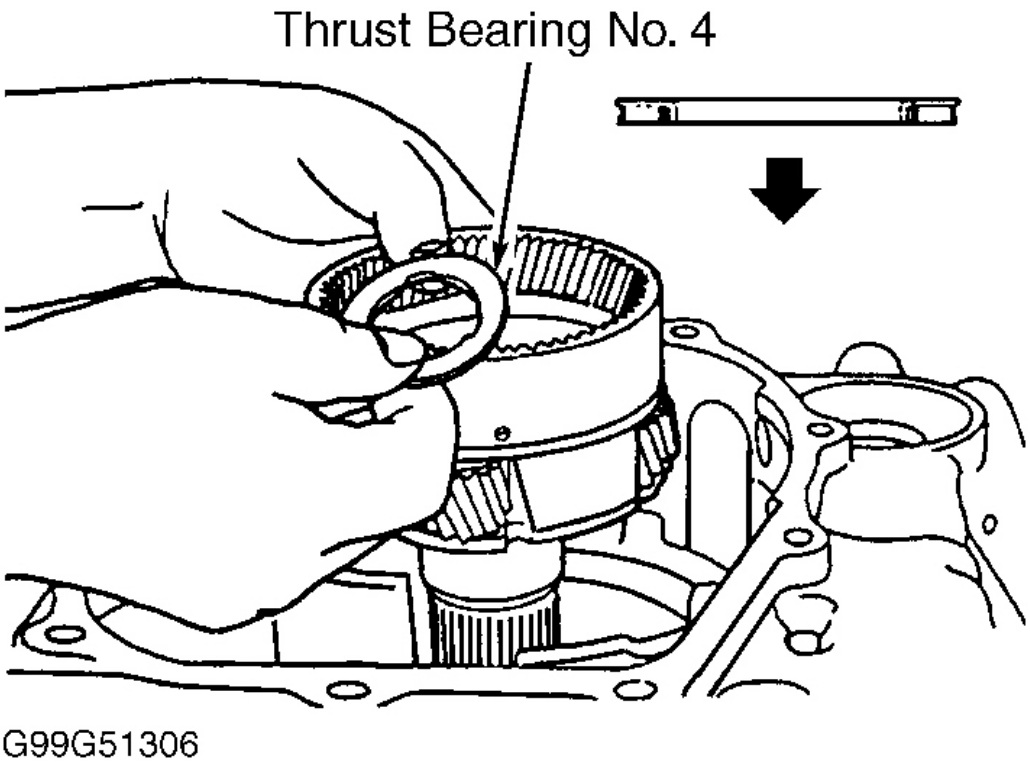


Fig. 42: Installing Output Planetary Carrier & Thrust Bearing No. 4
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

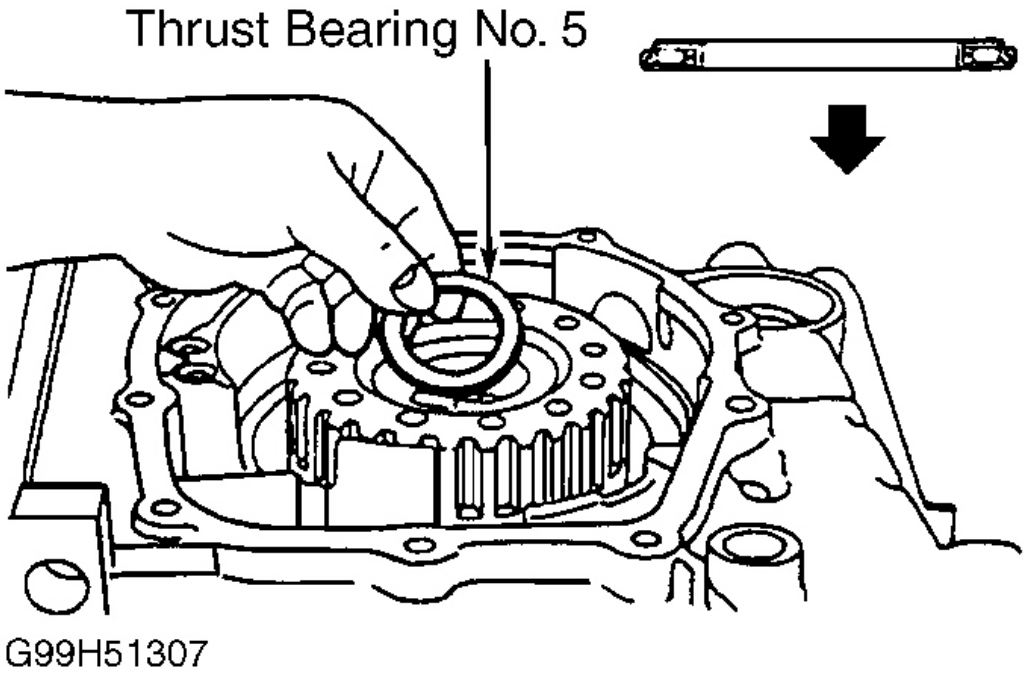


Fig. 43: Installing Thrust Bearing No. 5
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

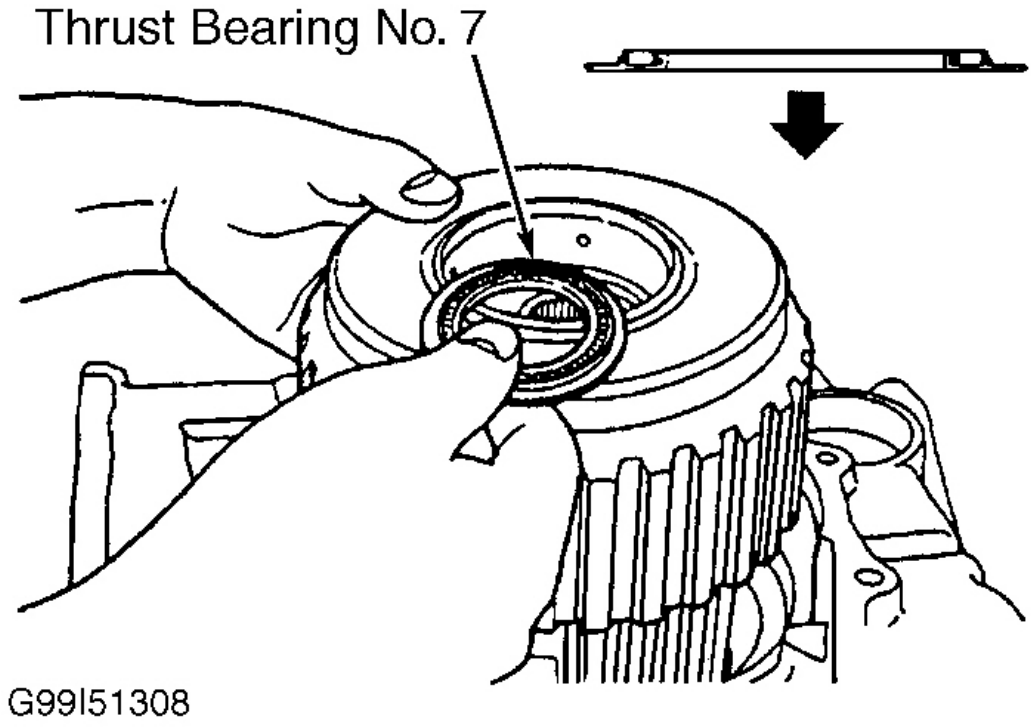


Fig. 44: Installing Thrust Bearing No. 7
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

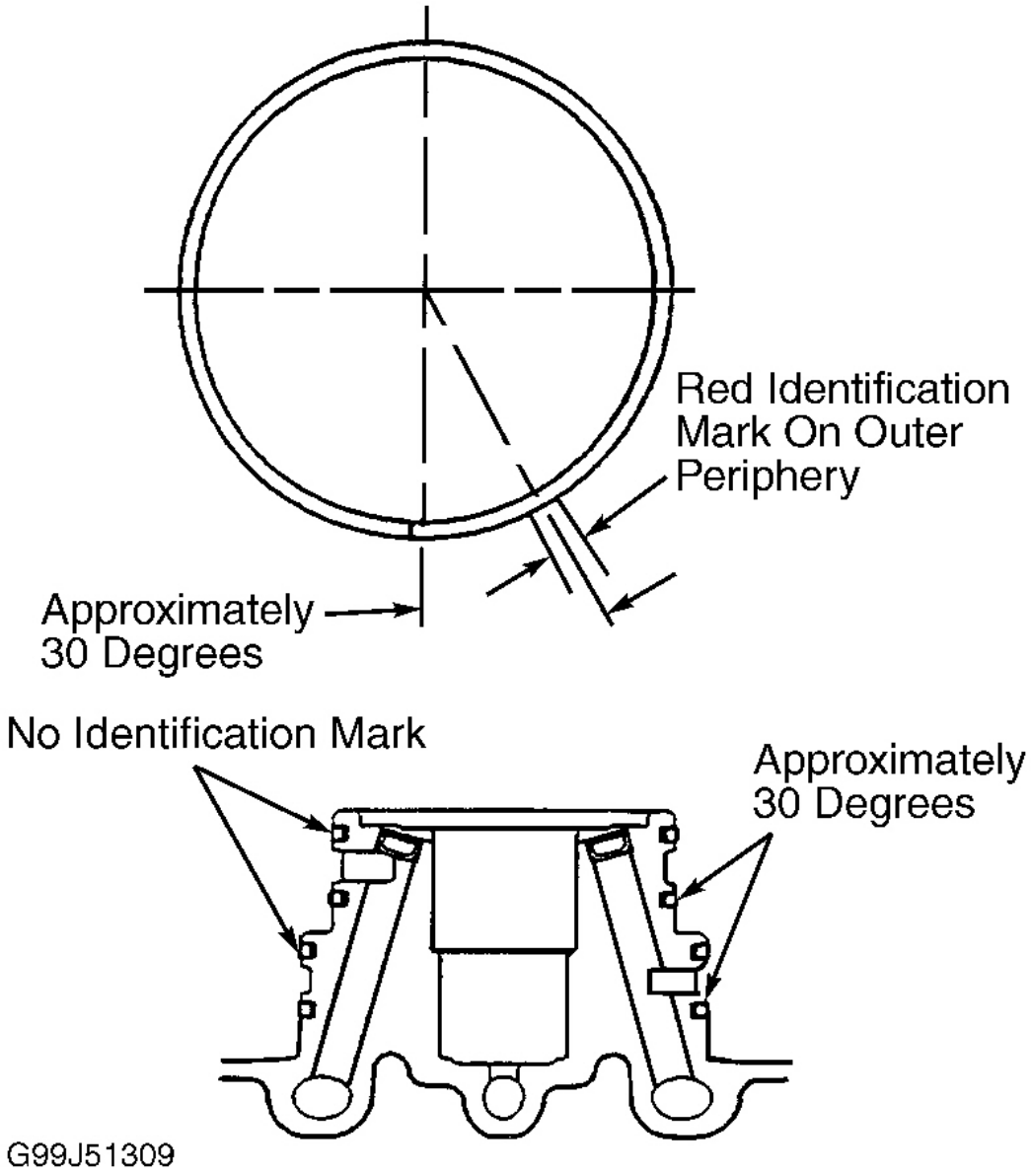


Fig. 45: Positioning Oil Seal Rings
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

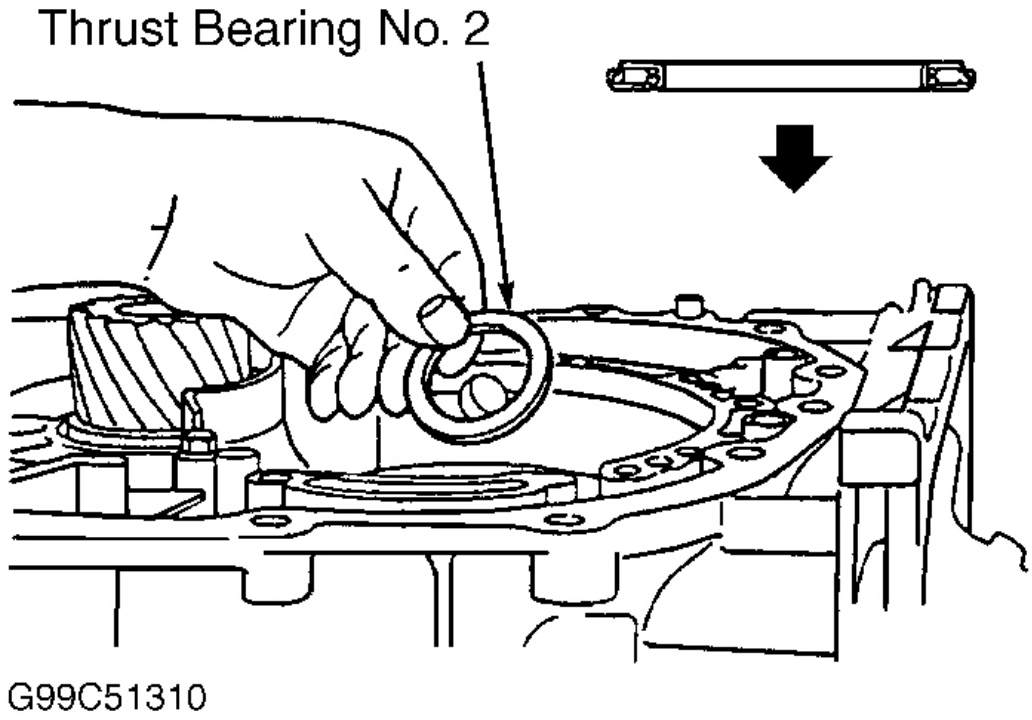


Fig. 46: Installing Thrust Bearing No. 2
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

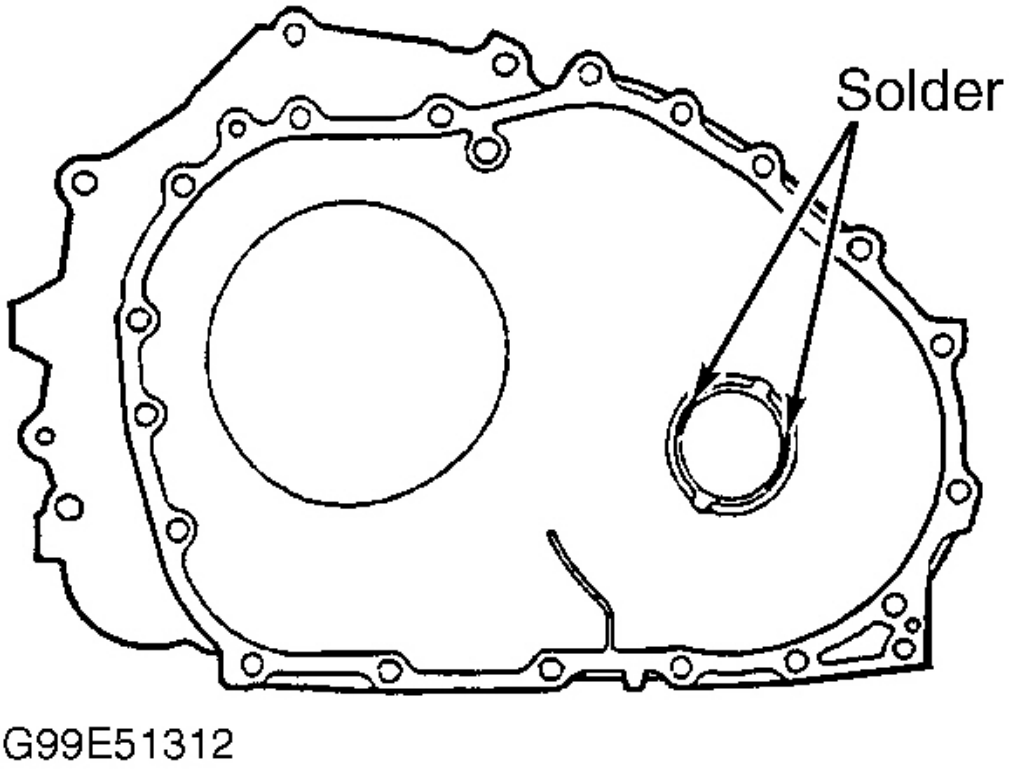


Fig. 47: Determining Differential End Clearance
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

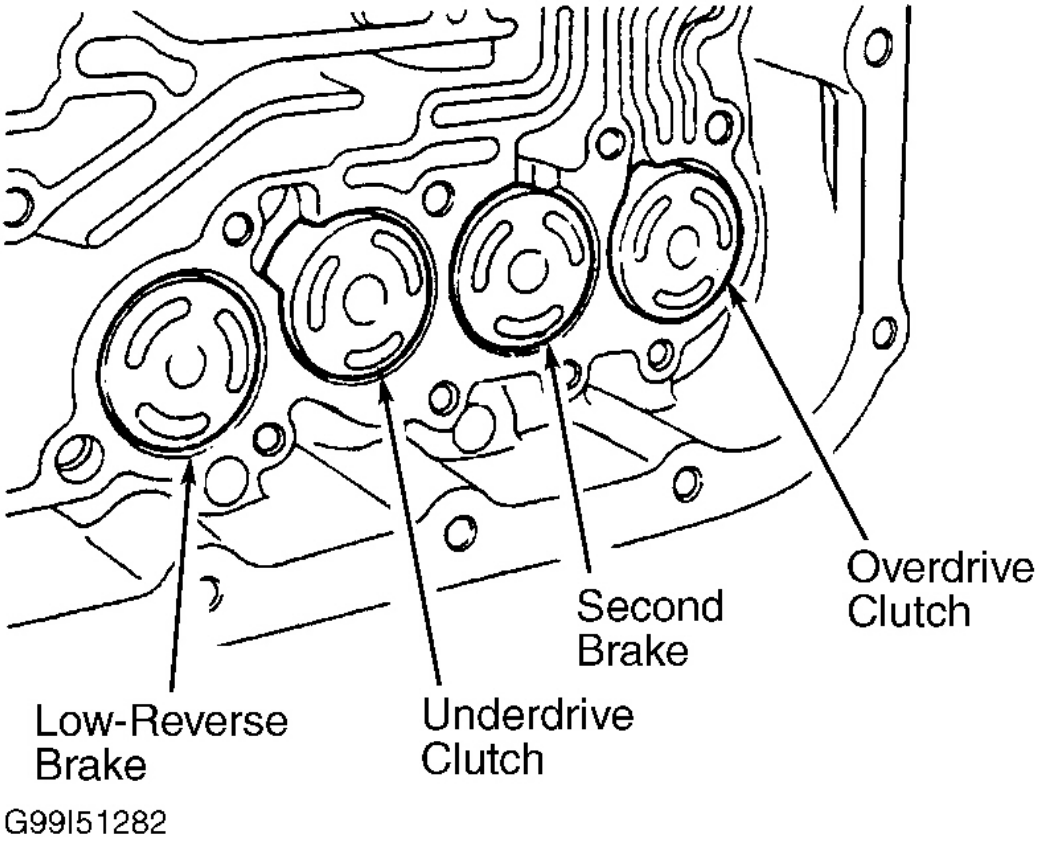


Fig. 48: Identifying Location Of Accumulator Pistons
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

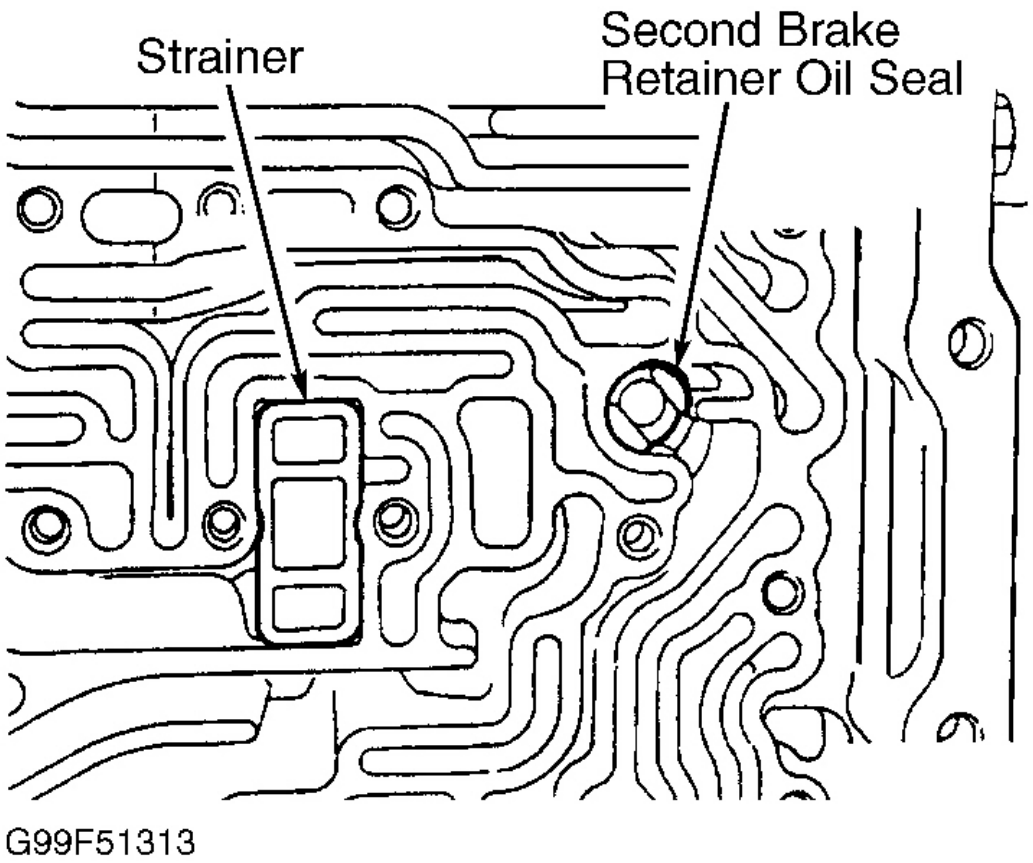


Fig. 49: Installing Strainer & Second Brake Retainer Oil Seal
Courtesy of MITSUBISHI MOTOR SALES OF AMERICA.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS

Application	Ft. Lbs. (N.m)
Control Cable Bracket	17 (23)
Differential Drive Gear	98 (132)
Eye Bolt	22 (30)
Manual Control Lever	16 (22)
Oil Pump	17 (23)
Output Shaft Bearing Retainer	17 (23)
Output Shaft Lock Nut	123 (167)
Park/Neutral Position Switch Wiring Harness Bracket	17 (23)
Rear Cover	17 (23)

Roll Stopper Bracket Bolts	51 (69)
Torque Converter Housing	35 (47)
Transfer Drive Gear	14 (19)
	INCH Lbs. (N.m)
Input Shaft Speed Sensor	97 (11)
Manual Control Shaft Detent	53 (6)
Oil Cooler Feed Tube	89 (10)
Oil Filter	106 (12)
Oil Temperature Sensor	97 (11)
Output Shaft Speed Sensor	97 (11)
Park/Neutral Position (PNP) Switch	97 (11)
Speedometer Gear	44 (5)
Valve Body Cover	97 (11)
Valve Body Mounting Bolts	97 (11)
Valve Body Solenoid Valve Support Bracket Bolt	53 (6)

TRANSAXLE SPECIFICATIONS

TRANSAXLE SPECIFICATIONS

Application	**In. (mm)**
Backlash Between Differential Side Gear & Pinion	.001-.006 (.025-.150)
Brake Reaction Plate End Play	0-.006 (0-.16)
Differential Case Preload	.002-.004 (.05-.10)
Input Shaft End Play	.028-.057 (.70-1.45)
Low-Reverse Brake End Play	.065-.080 (1.65-2.11)
Output Shaft Preload	.0004-.0035 (.010-.090)
Overdrive Clutch End Play	.063-.071 (1.60-1.80)
Reverse Clutch End Play	.060-.062 (1.50-1.60)
Reverse & Overdrive Clutch Return Spring End Play	0-.0035 (0-.090)
Second Brake End Play	.042-.060 (1.09-1.55)
Underdrive Clutch End Play	.065-.073 (1.60-1.80)
Underdrive Sun Gear End Play	.010-.018 (.25-.45)

