1997-99 AUTOMATIC TRANSMISSIONS

Acura B6VA, Honda BAXA, MAXA, MDWA & M6HA Overhaul

APPLICATION

TRANSAXLE APPLICATION

Vehicle Application	Transaxle Model
Acura (1998-99) 2.3CL	B6VA
Honda	
Accord 2.3L (1998)	BAXA
Accord 2.3L (1999)	MAXA
Odyssey (1998)	MDWA
Prelude (1997-99)	M6HA

IDENTIFICATION

Transaxle model and serial number are stamped on the transaxle. See **Fig. 1**. Model and serial number may be required when ordering replacement components.

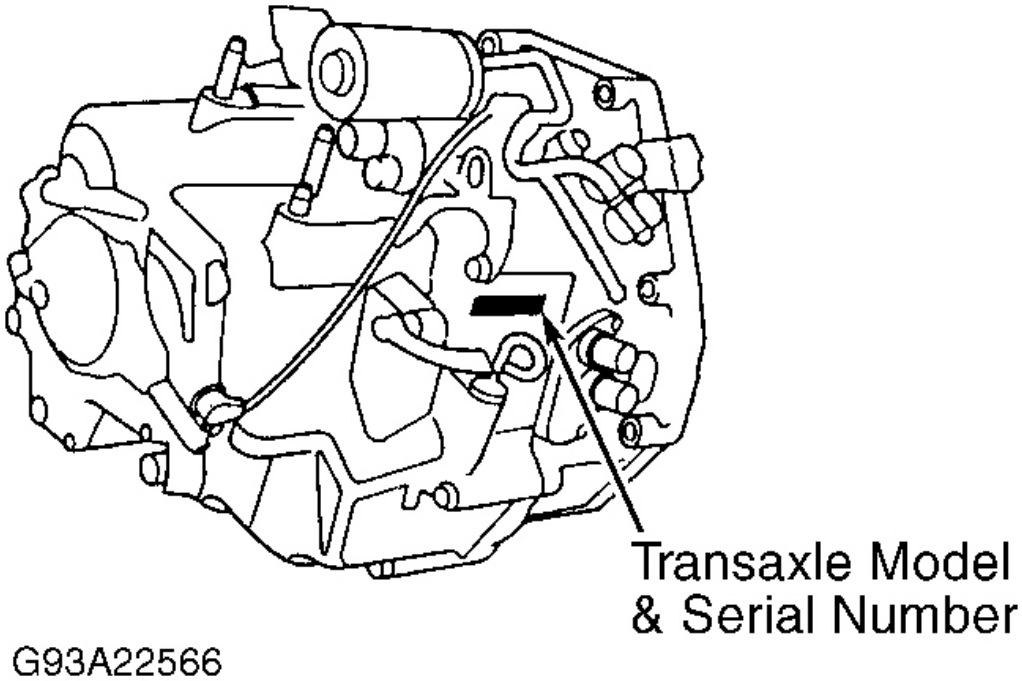


Fig. 1: Identifying Transaxle Model & Serial Number Location
Courtesy of AMERICAN HONDA MOTOR CO., INC.

DESCRIPTION

Automatic transaxle is an electronically controlled transaxle with 4 forward speeds and one reverse speed. Transaxle consists of clutches, mainshaft, countershaft, secondary shaft, shift control solenoid valves, lock-up control solenoid valves and lock-up torque converter. See **Fig. 2**.

Valve body assemblies consists of main valve body, regulator valve body, servo body and accumulator body. Transaxle shifting and torque converter lock-up are controlled by the Transmission Control Module (TCM). On Prelude models, Sequential Sportshift Mode (SSM) is incorporated in "D4" position.

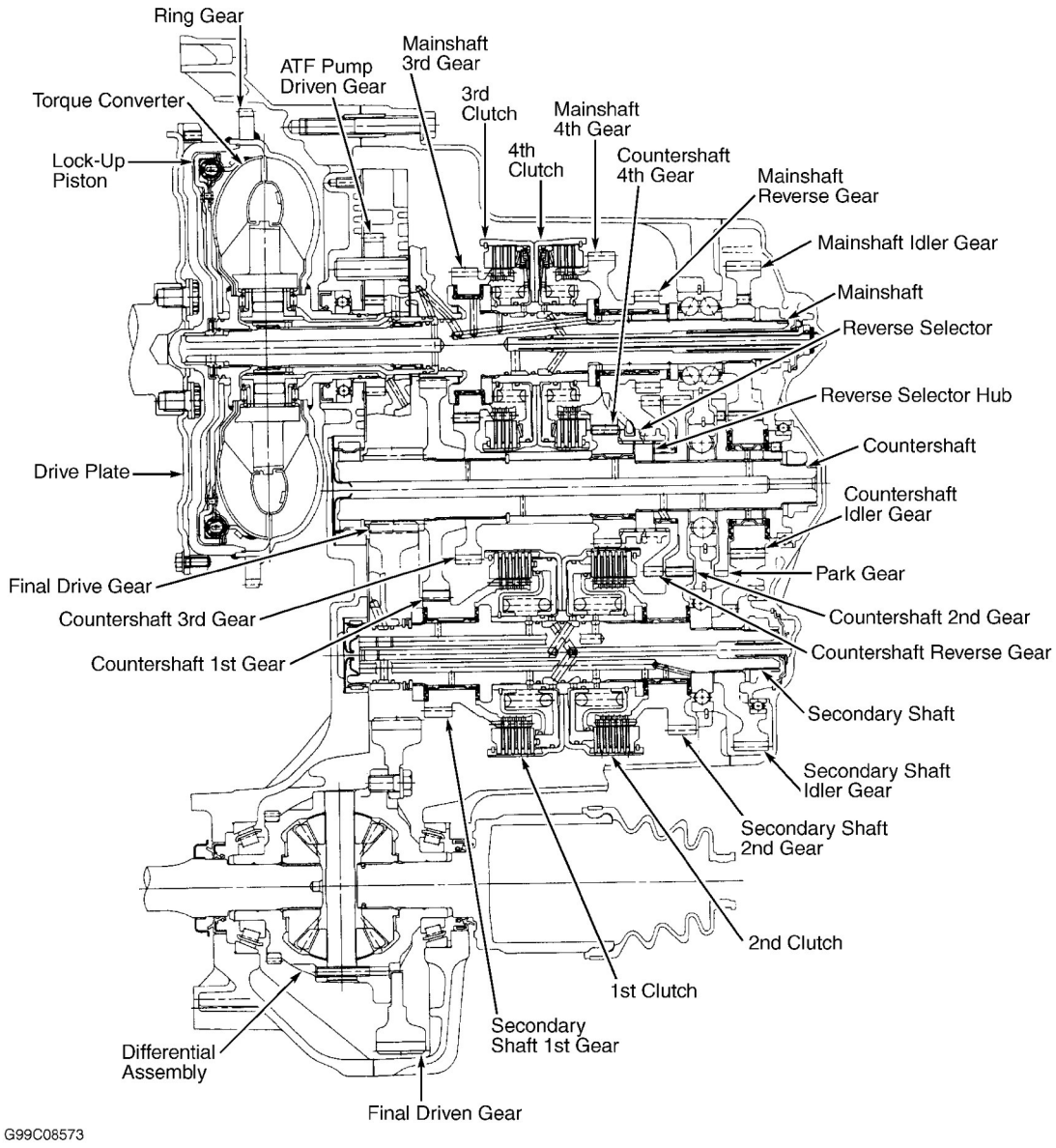


Fig. 2: Identifying Transaxle Components
Courtesy of AMERICAN HONDA MOTOR CO., INC.

OPERATION

Shift lever has 7 positions. When shift lever is moved, manual valve on main valve body is moved by the shift cable. Shift lever also changes position of the A/T gear position switch, mounted near shift lever. The A/T gear position switch delivers an input signal to the TCM to indicate shift lever position. The TCM uses input signal and operates shift control solenoid valves to control transaxle shifting.

When certain transaxle gear combinations are engaged by clutches, power is transmitted from mainshaft to countershaft via secondary shaft to final drive gear, providing different gears. Shift lever positions operate as

follows:

- **"P" (Park)**

  Front wheels locked as parking pawl engages with parking gear on countershaft. All clutches are released. Neutral position switch, incorporated in A/T gear position switch, allows engine starting in this position.

- **"R" (Reverse)**

  Reverse selector engages with countershaft reverse gear and 4th clutch is applied. Back-up light switch, incorporated in A/T gear position switch, operates back-up lights.

- **"N" (Neutral)**

  All clutches are released. Neutral position switch, incorporated in A/T gear position switch, allows engine starting in this position.

- **"D4" (Drive)**

  Transaxle starts in 1st gear and upshifts automatically to 2nd, 3rd then 4th gears. Transaxle will downshift through 3rd, 2nd and 1st gears until vehicle stops. When in 2nd, 3rd or 4th gear in "D4" position, TCM sends a signal to operate torque converter lock-up. Sequential Sportshift Mode (SSM) driving shifts between 1st and 4th with shift lever, like a manual transaxle. Transaxle will automatically downshift when power is needed. When vehicle comes to stop, transaxle will downshift to 1st gear.

- **"D3" (Drive)**

  Transaxle starts off in 1st gear and upshifts automatically to 2nd and then 3rd gear. Transaxle will downshift through 2nd to 1st gear on deceleration. When in 2nd or 3rd gear in "D3" position, TCM sends a signal to operate torque converter lock-up.

- **"2" (Second)**

  Transaxle starts off and remains in 2nd gear for engine braking and better traction. No upshift or downshift.

- **"1" (First)**

  Transaxle starts off and remains in 1st gear for engine braking.

When in "D4" position, 2nd, 3rd and 4th gears, or "D3" position 2nd and 3rd gear, torque converter lock-up exists and transaxle mainshaft rotates at the same speed as engine crankshaft. Under certain conditions, torque converter lock-up clutch is applied during deceleration when in 3rd and 4th gears. Torque converter lock-up is controlled by the TCM. The TCM receives various input signals and operates lock-up control solenoid valves. Operating lock-up control solenoid valves controls modulator pressure.

The TCM contains a self-diagnostic system, which will store a fault code if a failure or problem exists in the transaxle electronic control system. Fault code can be retrieved to identify transaxle problem area. For

information on electronic transaxle components, see appropriate ELECTRONIC CONTROLS article.

Transaxle is equipped with shift and key interlock systems. Shift interlock system prevents shift lever from being moved from "P" position unless brake pedal is depressed and accelerator is in idle position. In case of a malfunction, shift lever can be released by placing ignition key in release slot near shift lever. Key interlock system prevents ignition key from being removed from ignition switch unless shift lever is in "P" position. For additional information on shift and key interlock systems, see appropriate SHIFT INTERLOCK SYSTEMS article.

The A/T gear position indicator on instrument panel contains lights to indicate which position A/T gear position switch on shift lever is in. For information and testing of A/T gear position indicator, see appropriate ELECTRONIC CONTROLS article.

LUBRICATION & ADJUSTMENTS

See appropriate SERVICING article.

ON-VEHICLE SERVICE

AXLE SHAFTS

See appropriate AXLE SHAFTS article in DRIVELINE/AXLES.

OIL COOLER FLUSHING

1. Attach Oil Cooler Flusher (J38405-A) to oil cooler lines. See **Fig. 3**. Fill oil cooler flusher tank 2/3 full with Flushing Fluid (J35944-20). DO NOT use any other flushing fluid.
2. Ensure water and air valves on oil cooler flusher are off. Apply 80-120 psi (560-840 kPa) air pressure to oil cooler flusher. Turn oil cooler flusher water valve on so water will flow through oil cooler for 10 seconds. Replace oil cooler if water will not flow through oil cooler. Shut water valve off.
3. Depress and hold mixing trigger on oil cooler flusher downward. Turn water valve on and flush oil cooler for 2 minutes. Turn air valve on for 5 seconds every 15-20 seconds to create a surging action.
4. Turn water valve off. Release mixing trigger. Disconnect oil cooler flusher and reverse hoses so oil cooler can be flushed in the opposite direction.
5. Repeat steps 2 and 3 . Turn water valve off and release mixing trigger. Turn water valve on and rinse oil cooler for at least one minute. Once oil cooler is flushed in both directions, turn water off. Turn air valve on for 2 minutes or until no moisture is visible from drain hose.

CAUTION: Ensure no moisture exists in oil cooler, as moisture can cause damage to transaxle.

6. Turn air off. Disconnect oil cooler flusher. Reconnect inlet line on oil cooler. Once transaxle is installed, attach drain hose on return line and place in oil container. Ensure transaxle is in "P" position. Fill transaxle with ATF.
7. Start engine and operate for approximately 30 seconds or until one quart (.9L) of ATF is discharged from

return line. Shut engine off. Remove drain hose. Reinstall return line. Fill transaxle to proper level.

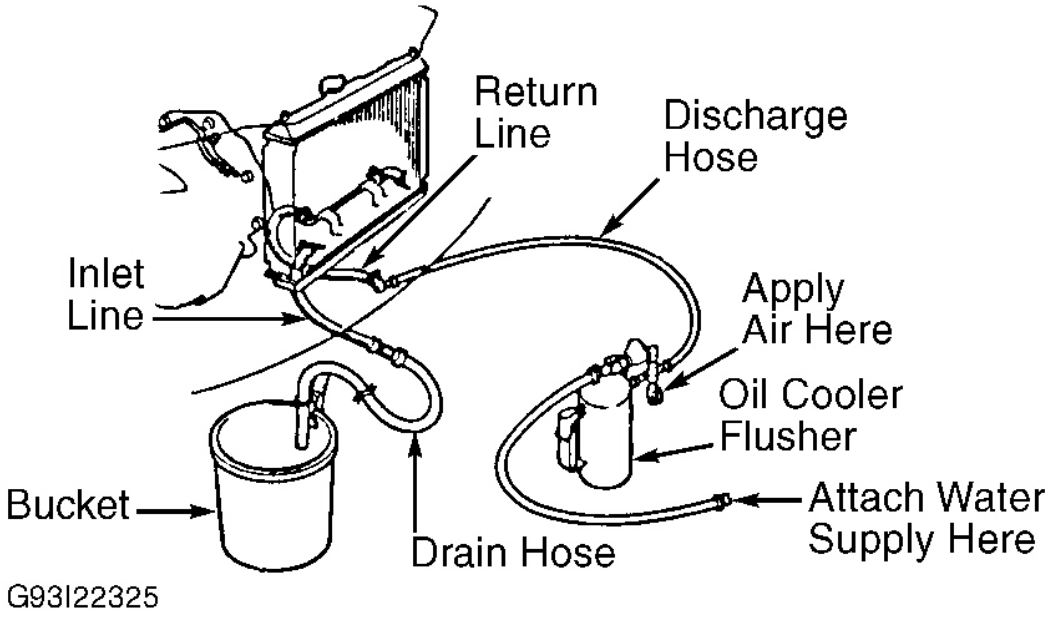


Fig. 3: Installing Oil Cooler Flusher
Courtesy of AMERICAN HONDA MOTOR CO., INC.

TROUBLE SHOOTING

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, fluid condition and cable adjustments. Perform road test to determine if problem has been corrected. If problem still exists, see **TESTING**.

SYMPTOM DIAGNOSIS

NOTE: Check all items listed for applicable symptom. If component listed is electrical or electronically controlled component, see appropriate ELECTRONIC CONTROLS article.

Engine Runs, But Vehicle Does Not Move In Any Gear Position

- Low ATF
- Shift Cable Broken/Out Of Adjustment
- Oil Pump Worn Or Binding
- Regulator Valve Stuck Or Spring Worn

- Oil Filter Clogged
- Mainshaft Worn/Damaged
- Final Gears Worn/Damaged

Vehicle Moves In "R" & "2", But Not In "D4", "D3" Or "1" Position

- 1st Accumulator Defective
- 1st Gears Worn/Damaged
- 1st Clutch Defective

Vehicle Moves In "D4", "D3", "1" & "R", But Not In "2" Position

- Shift Control Solenoid Valve "A" Defective
- Shift Valve "A" Defective
- 2nd Accumulator Defective
- 2nd Gears Worn/Damaged
- 2nd Clutch Defective

Vehicle Moves In "D4", "D3", "2" & "1", But Not In "R" Position

- Shift Fork Shaft Stuck
- Modulator Valve Defective
- Reverse CPC Valve Defective
- 4th Accumulator Defective
- 4th Clutch Defective
- Reverse Gears Worn/Damaged

Poor Acceleration & Flares On Starting Off In "D4" & "D3" Position

See **TORQUE CONVERTER STALL SPEED TEST** under TESTING.

Excessive Idle Vibration

- Low ATF
- Lock-Up Control Solenoid Valve Defective
- Drive Plate Defective Or Transaxle Misassembly
- Engine Output Low
- Lock-Up Clutch Piston Defective
- Binding Oil Pump
- Lock-Up Shift Valve Defective

Vehicle Moves In "N" Position

- ATF Over Filled
- Foreign Material In Separator Plate Office
- 1st Clutch Defective
- 2nd Clutch Defective
- 3rd Clutch Defective
- 4th Clutch Defective
- Clutch Clearance Incorrect
- Needle Bearing Worn/Damaged
- Thrust Washer Worn/Damaged

Late Shift From "N" To "D3" Or "D4"

- Shift Control Solenoid Valve "C" Defective
- A/T Clutch Pressure Control Solenoid Valves A/B Defective
- Shift Cable Broken/Out Of Adjustment
- Shift Fork Shaft Stuck
- CPC Valve "A" Defective
- Foreign Material In Separator Plate Office
- Shift Valve "C" Defective
- Servo Control Valve Defective
- 1st Accumulator Defective
- 1st Clutch Defective

Late Shift From "N" To "R"

- Shift Control Solenoid Valve "C" Defective
- A/T Clutch Pressure Control Solenoid Valves A/B Defective
- Shift Cable Broken/Out Of Adjustment
- Shift Fork Shaft Stuck
- CPC Valve "A" Defective
- Foreign Material In Separator Plate Office
- Reverse CPC Valve Defective
- 4th Accumulator Defective
- 4th Clutch Defective

No Shift

- Modulator Valve Defective

Erratic, 1-3 Upshift When In "D4"

- Shift Control Solenoid Valve "A" Defective
- Shift Valve "A" Defective
- Shift Valve "D" Defective

Erratic, 1-2 Upshift When In "D3" Or "D4"

- Shift Control Solenoid Valve "B" Defective
- Shift Fork Shaft Stuck
- Shift Valve "B" Defective
- Servo Control Valve Defective

Erratic, Starts Of In 3rd When In "D3", "D4" Or "1"

- Shift Control Solenoid Valve "B" Defective
- Shift Valve "B" Defective
- Shift Valve "E" Defective

Excessive Shock Or Flare In All Shift Lever Positions

- A/T Clutch Pressure Control Solenoid Valves A/B Defective
- CPC Valve "A" Defective
- CPC Valve "B" Defective
- Foreign Material In Separator Plate Office

Excessive Shock Or Flare During 1-2 Or 2-1 Shift

- Shift Control Solenoid Valve "A" Defective
- 2nd Clutch Pressure Switch Defective
- Foreign Material In Separator Plate Office
- Shift Valve "C" Defective
- 1st Accumulator Defective
- 2nd Accumulator Defective
- 1st Clutch Defective
- 2nd Clutch Defective

Excessive Shock Or Flare During 2-3 Or 3-2 Shift

- Shift Control Solenoid Valve "A" Defective
- Foreign Material In Separator Plate Office
- Shift Valve "C" Defective
- 2nd Accumulator Defective
- 3rd Accumulator Defective

- 2nd Clutch Defective
- 3rd Clutch Defective

Excessive Shock Or Flare During 3-4 Or 4-3 Shift

- Shift Control Solenoid Valve "A" Defective
- Foreign Material In Separator Plate Office
- Shift Valve "C" Defective
- 3rd Accumulator Defective
- 4th Accumulator Defective
- 3rd Clutch Defective
- 4th Clutch Defective

Noise From Transaxle In All Gears

- Oil Pump Worn Or Binding
- Torque Converter Housing Or Transaxle Housing Ball Bearing Worn/Damaged

Vehicle Does Not Accelerate Greater Than 31 MPH

- Torque Converter One-Way Clutch Defective

Excessive Vibration (All Engine Speeds)

- Drive Plate Defective Or Transaxle Misassembly

Shift Lever Does Not Operate Smoothly

- A/T Gear Position Switch Defective Or Out Of Adjustment
- Shift Cable Broken/Out Of Adjustment
- Joint In Shift Cable & Transaxle Or Body Worn

Shift Lever Does Not Shift Into "P"

- Shift Cable Broken/Out Of Adjustment
- Joint In Shift Cable & Transaxle Or Body Worn
- Park Mechanism Defective

Lock-Up Clutch Does Not Disengage

- Lock-Up Control Solenoid Valve Defective
- A/T Clutch Pressure Control Solenoid Valves A/B Defective
- Lock-Up Clutch Piston Defective
- Lock-Up Shift Valve Defective

- Lock-Up Control Valve Defective
- Lock-Up Timing Valve Defective

Lock-Up Clutch Does Not Operate Smoothly

- Lock-Up Control Solenoid Valve Defective
- A/T Clutch Pressure Control Solenoid Valves A/B Defective
- Lock-Up Clutch Piston Defective
- Torque Converter Check Valve Defective
- Lock-Up Shift Valve Defective
- Lock-Up Control Valve Defective
- Lock-Up Timing Valve Defective

Lock-Up Clutch Does Not Engage

- Lock-Up Control Solenoid Valve Defective
- A/T Clutch Pressure Control Solenoid Valves A/B Defective
- Mainshaft Speed Sensor Defective
- Countershaft Speed Sensor Defective
- Lock-Up Clutch Piston Defective
- Torque Converter Check Valve Defective
- Lock-Up Shift Valve Defective
- Lock-Up Control Valve Defective

TESTING

ROAD TEST

NOTE: If shift lever cannot be moved from "P" position with brake pedal depressed and accelerator at idle position, check shift interlock system. See appropriate SHIFT INTERLOCK SYSTEMS article.

1. Warm engine to normal operating temperature. Apply parking brake and block wheels. Start engine. Move shift lever to "D4" position while depressing brake pedal. Depress accelerator pedal and release it suddenly. Engine should not stall.
2. Repeat step 1 with shift lever in "D3" position. Ensure engine does not stall. Shut engine off. Manufacturer recommends monitoring of Throttle Position (TP) sensor voltage when performing road test to ensure proper throttle opening for verifying shift points and lock-up of torque converter.
3. On Odyssey models remove left heater lower cover. On Prelude and 2.3L CL models, remove door sill molding on passenger's side and remove small cover on passenger's side kick panel. On Accord models, Powertrain Control Module (PCM) is located in right side of center console. On all models, pull carpet back for access to PCM or Transmission Control Module (TCM). See **Fig. 4** or **Fig. 5** .

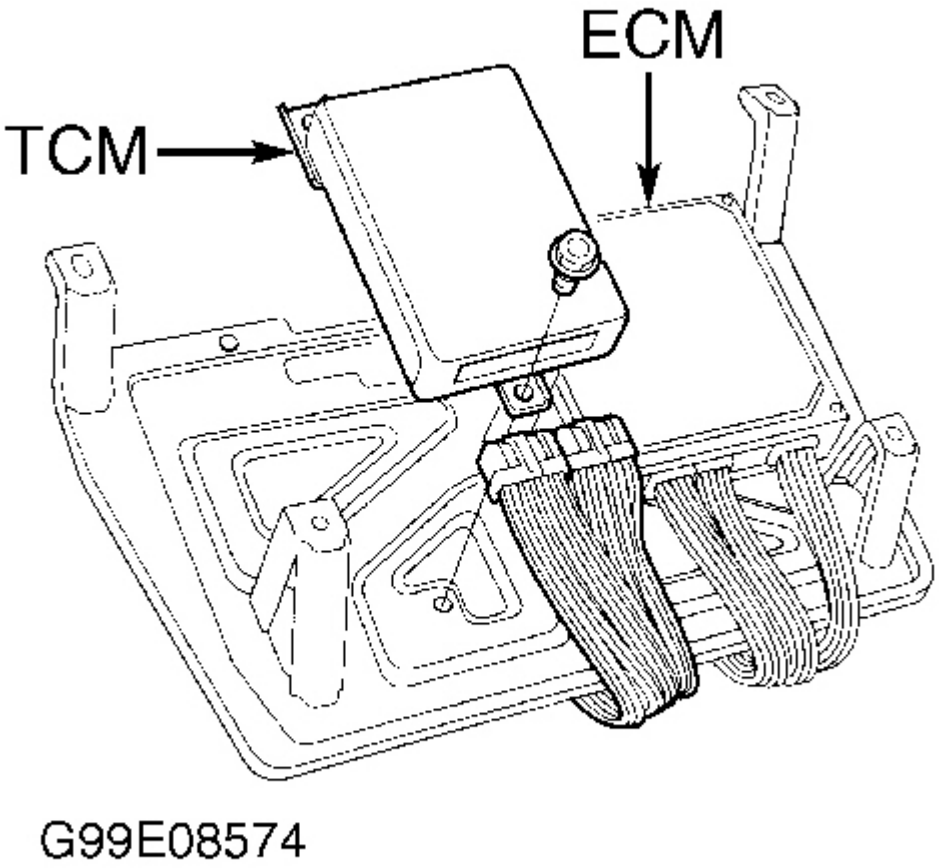


Fig. 4: Locating Transmission Control Module (TCM) (Prelude)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

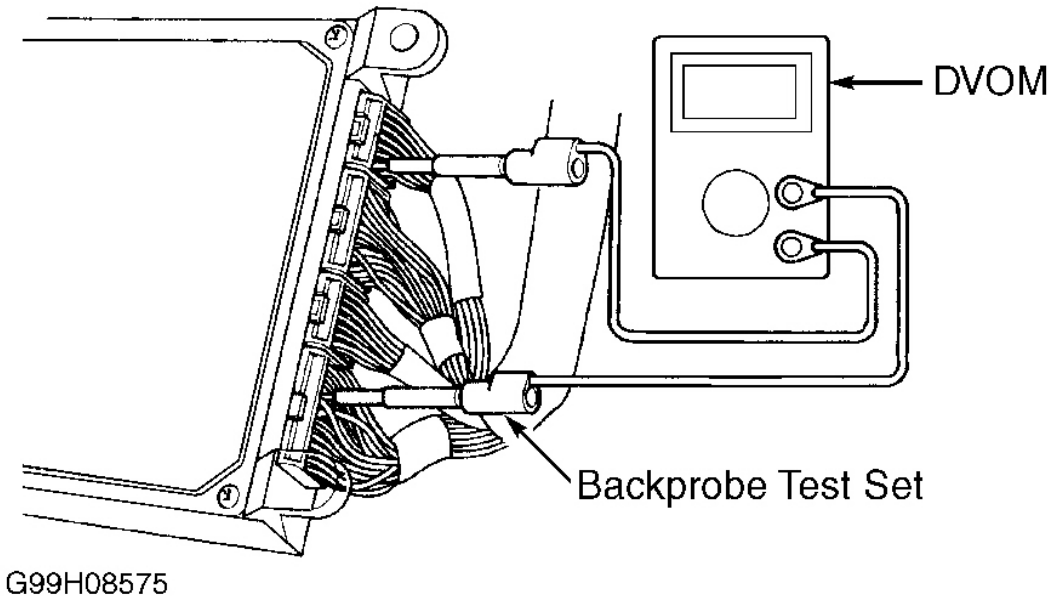


Fig. 5: Locating Powertrain Control Module (PCM) (Accord, Odyssey & 2.3CL)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Remove cover located above PCM or TCM. Turn cover and module assembly over, exposing connectors. Ensure ignition is off. Install Backprobe Test Set (07SAZ-001000A) or equivalent between PCM or TCM and DVOM leads.
5. Measure voltage using a DVOM . On Prelude, with positive lead at TCM connector terminal B4 and negative lead at terminal A13 or A26. See **Fig. 6**. On Accord, Odyssey and 2.3CL with positive lead at terminal D27 and negative lead at terminal B20 or B22. See **Fig. 7**.

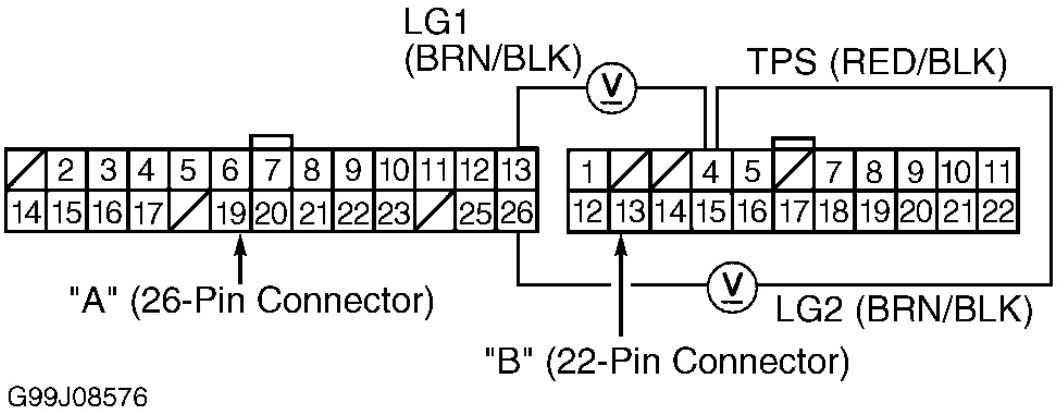


Fig. 6: Measuring TP Sensor Voltage (Prelude)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

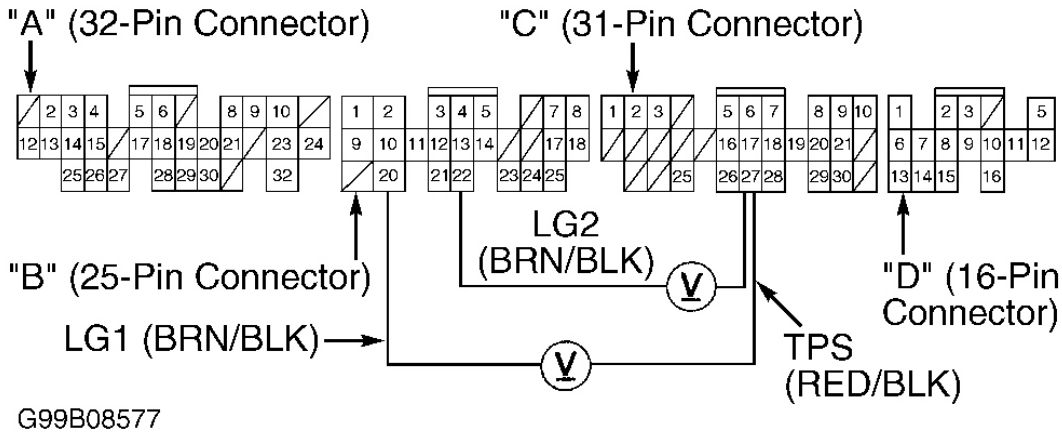


Fig. 7: Measuring TP Sensor Voltage (Accord, Odyssey & 2.3CL)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. On all models, road test vehicle and check for abnormal noise and clutch slippage. Specified clutch is applied in designated gear. See **CLUTCH APPLICATION** table.
7. Ensure upshift and downshift points and lock-up of torque converter are correct in relation to throttle position sensor voltage or throttle opening and vehicle speed with shift lever in "D4" position. See appropriate tables under **TRANSAXLE UPSHIFT SPECIFICATIONS** and **TRANSAXLE DOWNSHIFT SPECIFICATIONS** .

CAUTION: DO NOT shift from "D4" to "2" at speeds over 63 MPH or transaxle may be damaged.

8. With shift lever in "D4" position, accelerate to about 35 MPH so transaxle is in 4th gear. Move shift lever to "2" position. Ensure engine braking occurs.
9. Place shift lever in "1" position. Accelerate from a stop at full throttle. Check for abnormal noise or clutch slippage. Upshifts and downshifts should not occur in this shift lever position.
10. Place shift lever in "2" position. Accelerate from a stop at full throttle. Check for abnormal noise or clutch slippage. Upshifts and downshifts should not occur in this shift lever position.
11. Place shift lever in "R" position. Accelerate from a stop at full throttle. Check for abnormal noise or clutch slippage.
12. Park vehicle on a slope. Apply parking brake. Place shift lever in "P" position. Release parking brake. Ensure vehicle does not move. If vehicle moves, check for defective shift cable or parking components.
13. Ensure ignition is off. Remove test harness and reinstall electrical connectors, PCM or TCM cover, carpet and appropriate moldings.

CLUTCH APPLICATION

Shift Lever Position	Elements In Use
"P" & "N"	No Clutches Are Applied
"R"	4th Clutch
"D4"	
1st Gear	1st Clutch
2nd Gear	2nd Clutch
3rd Gear	3rd Clutch
4th Gear	4th Clutch
"D3"	
1st Gear	1st Clutch
2nd Gear	2nd Clutch
3rd Gear	3rd Clutch
"2"	(1) 2nd Clutch
"1"	1st Clutch
(1) Accord, Odyssey and 2.3CL only. On Prelude, 1st clutch and 3rd clutch are applied in "2".	

TRANSAXLE UPSHIFT SPECIFICATIONS

UPSHIFT SPECIFICATIONS IN MPH (ACCORD & 2.3CL)

Application (D4 Position)	1-2	2-3	3-4	Lock-Up Clutch On
Throttle Position Sensor Voltage .8 Volt	9-11	21-23	26-30	47-49
Throttle Position Sensor Voltage 2.25 Volts	21-23	39-43	58-62	68-72
Full Throttle, Throttle Position Sensor Voltage 4.5 Volts	34-38	62-65	96-100	97-101

UPSHIFT SPECIFICATIONS IN MPH (ODYSSEY)

Application (D4 Position)	1-2	2-3	3-4	Lock-Up Clutch On
Throttle Position Sensor Voltage .9 Volt	11-12	22-25	30-34	47-49
Throttle Position Sensor Voltage 2.25	21-23	39-43	58-62	68-72
Full Throttle, Throttle Position Sensor Voltage 4.5 Volts	33-37	62-65	88-92	91-94

UPSHIFT SPECIFICATIONS IN MPH (1) (PRELUDE)

Application (D4 Position)	1-2	2-3	3-4
Throttle Position Sensor Voltage .772-	13-16	24-27	29-34

.828 Volt			
Throttle Position Sensor Voltage 2.175-2.325	20-24	43-48	61-66
Full Throttle	36-41	68-76	86-96

(1) For lock-up specifications, see **UPSHIFT SPECIFICATIONS - LOCK-UP IN MPH (PRELUDE)**.

UPSHIFT SPECIFICATIONS - LOCK-UP IN MPH (PRELUDE)

Application	D3 Or D4 Position & SSM (1) In 4th	SSM (1) In 2nd Or 3rd Gear
Throttle Position Sensor Voltage .675-.725 Volt	19-23	41-46
Throttle Position Sensor Voltage 2.175-2.325	73-79	108-113
Full Throttle	93-104	108-118

(1) Sequential Sportshift Mode (SSM).

TRANSAXLE DOWNSHIFT SPECIFICATIONS

DOWNSHIFT SPECIFICATIONS IN MPH (ACCORD & 2.3CL)

Application (D4 Position)	Lock-Up Clutch Off	4-3	3-2	2-1
Throttle Position Sensor Voltage .8 Volt	45-48	19-21	.....	(1) 5-7
Throttle Position Sensor Voltage 2.25 Volts	58-62	.....	.....	.....
Full Throttle, Throttle Position Sensor Voltage 4.5 Volts	91-94	85-89	54-58	26-30

(1) Downshift from 3rd to 1st.

DOWNSHIFT SPECIFICATIONS IN MPH (ODYSSEY)

Application (D4 Position)	Lock-Up Clutch Off	4-3	3-2	2-1
Throttle Position Sensor Voltage .9 Volt	45-48	19-21	.....	5-7
Throttle Position Sensor Voltage 2.25 Volts	60-63	.....	.....	.....
Full Throttle, Throttle Position Sensor Voltage 4.5 Volts	85-88	79-83	52-55	25-29

DOWNSHIFT SPECIFICATIONS IN MPH (1) (PRELUDE)

Application (D4 Position)	4-3	3-2	2-1
Throttle Position Sensor Voltage .822-.878 Volt	6-9	13-16	13-16

Full Throttle	28-33	58-65	86-96

(1) For lock-up specifications, see **DOWNSHIFT SPECIFICATIONS IN MPH - LOCK-UP OFF (PRELUDE)**.

DOWNSHIFT SPECIFICATIONS IN MPH - LOCK-UP OFF (PRELUDE)

Application	D3 Or D4 Position & SSM (1) In 4th	SSM (1) In 2nd Or 3rd Gear
Throttle Position Sensor Voltage .675-.725 Volt	18-21	24-29
Throttle Position Sensor Voltage 2.175-2.325	62-68	104-110
Full Throttle	87-97	104-114

(1) Sequential Sportshift Mode (SSM).

TORQUE CONVERTER STALL SPEED TEST

CAUTION: DO NOT perform torque converter stall speed test for more than 10 seconds or transaxle may be damaged. DO NOT move shift lever while increasing engine speed.

1. Apply parking brake. Block front wheels. Connect tachometer and start engine. Ensure A/C is off. Warm engine to normal operating temperature. Place shift lever in "2" position.
2. Fully depress brake pedal. Fully depress accelerator for 6-8 seconds and note engine speed. This is the torque converter stall speed.
3. Allow transaxle to cool for 2 minutes. Repeat test procedure with shift lever in "D4", "1" and "R" positions.
4. Ensure torque converter stall speed is within specification. Torque converter stall speed should be the same in "D4", "2", "1" and "R" positions. See **TORQUE CONVERTER STALL SPEED SPECIFICATIONS** table. If torque converter stall speed is not within specification, see **TORQUE CONVERTER STALL SPEED TROUBLE SHOOTING** table for possible causes.

TORQUE CONVERTER STALL SPEED SPECIFICATIONS

Application	Engine RPM
Accord (Non-VTEC), Odyssey & Prelude	
Standard	2500
Service Limit	2350-2650
Accord (VTEC) & 3.2CL	
Standard	2550
Service Limit	2400-2700

TORQUE CONVERTER STALL SPEED TROUBLE SHOOTING

Stall Speed Test Results (RPM)	Probable Cause
High In "D4", "2", "1" & "R"	Low Fluid Level, Low Oil Pump Output, Clogged Fluid Strainer, Pressure Regulator Valve Stuck Closed, Slipping

	Clutch
High In "R"	Slipping 4th Clutch
High In "D4"	Slipping 1st Clutch
High In "2"	Slipping 2nd Clutch
High In "1"	Slipping 1st Clutch
Low In "D4", "2", "1" & "R"	Engine Output Low, Torque Converter One-Way Clutch Slipping

HYDRAULIC PRESSURE TEST

Pressure Test Preparation

Ensure transaxle fluid level is correct. Warm engine to normal operating temperature (cooling fan will engage). Apply parking brake. Block rear wheels. Raise and support vehicle so front wheels can rotate.

Line Pressure Test

1. With engine off, remove pressure tap plug from line pressure tap on transaxle. See **Fig. 8**. Attach pressure gauge to line pressure tap. Tighten hose fitting to 13 ft. lbs. (18 N.m).
2. With shift lever in "P" position, start and operate engine at 2000 RPM. Note line pressure. Place shift lever in "N" position and note line pressure with engine at 2000 RPM.
3. Line pressure should be within specification. See appropriate table under **HYDRAULIC PRESSURE TESTING SPECIFICATIONS** table. If line pressure is not within specification, see **HYDRAULIC PRESSURE TEST TROUBLE SHOOTING** table. Shut engine off.
4. Remove pressure gauge set. Using NEW seal washer, install and tighten pressure tap plug to specification. See **TORQUE SPECIFICATIONS**.

Clutch Pressure Test

NOTE: Check clutch pressure at each clutch pressure tap on transaxle. See Fig. 8.

1. With engine off, remove pressure tap plug from appropriate clutch pressure tap on transaxle. See **Fig. 8**. Attach pressure gauge to appropriate pressure tap. Tighten hose fitting to 13 ft. lbs. (18 N.m).
2. Start and operate engine at 2000 RPM. Note clutch pressure reading with shift lever in appropriate position. See appropriate **HYDRAULIC PRESSURE TESTING SPECIFICATIONS** table.
3. Ensure clutch pressure is within specification. If clutch pressure is not within specification, see **HYDRAULIC PRESSURE TEST TROUBLE SHOOTING** table. Shut engine off.
4. Remove pressure gauge set. Using NEW seal washer, install and tighten pressure tap plug to specification. See **TORQUE SPECIFICATIONS**.

HYDRAULIC PRESSURE TESTING SPECIFICATIONS

HYDRAULIC PRESSURE TEST SPECIFICATIONS (ACCORD, PRELUDE & 2.3CL)

Application	Lever Position	psi (kPa)

Line Pressure		
At 2000 RPM	"P" Or "N"	123-132 (850-910)
Clutch Pressure		
1st Clutch		
At 2000 RPM	"1"	122-133 (840-920)
2nd Clutch		
At 2000 RPM	"2"	122-133 (840-920)
3rd Clutch		
At 2000 RPM	"D3"	122-133 (840-920)
4th Clutch		
At 2000 RPM	"R" Or "D4"	122-133 (840-920)

HYDRAULIC PRESSURE TEST SPECIFICATIONS (ODYSSEY)

Application	Lever Position	psi (kPa)
Line Pressure		
At 2000 RPM	"P" Or "N"	131-139 (900-960)
Clutch Pressure		
1st Clutch		
At 2000 RPM	"1"	129-141 (890-970)
2nd Clutch		
At 2000 RPM	"2"	129-141 (890-970)
3rd Clutch		
At 2000 RPM	"D4"	129-141 (890-970)
4th Clutch		
At 2000 RPM	"R" & "D4"	129-141 (890-970)

HYDRAULIC PRESSURE TEST TROUBLE SHOOTING

Application	Probable Cause
Line Pressure	
Low Or No Line Pressure	Defective Torque Converter, Defective Torque Converter Check Valve, Defective Pressure Regulator Valve, Defective Oil Pump
Clutch Pressure	
Low Or No 1st Clutch Pressure	Defective 1st Clutch
Low Or No 2nd Clutch Pressure	Defective 2nd Clutch
Low Or No 3rd Clutch Pressure	Defective 3rd Clutch

Low Or No 4th Clutch Pressure	Defective 4th Clutch, Defective Servo Valve On 4th Clutch

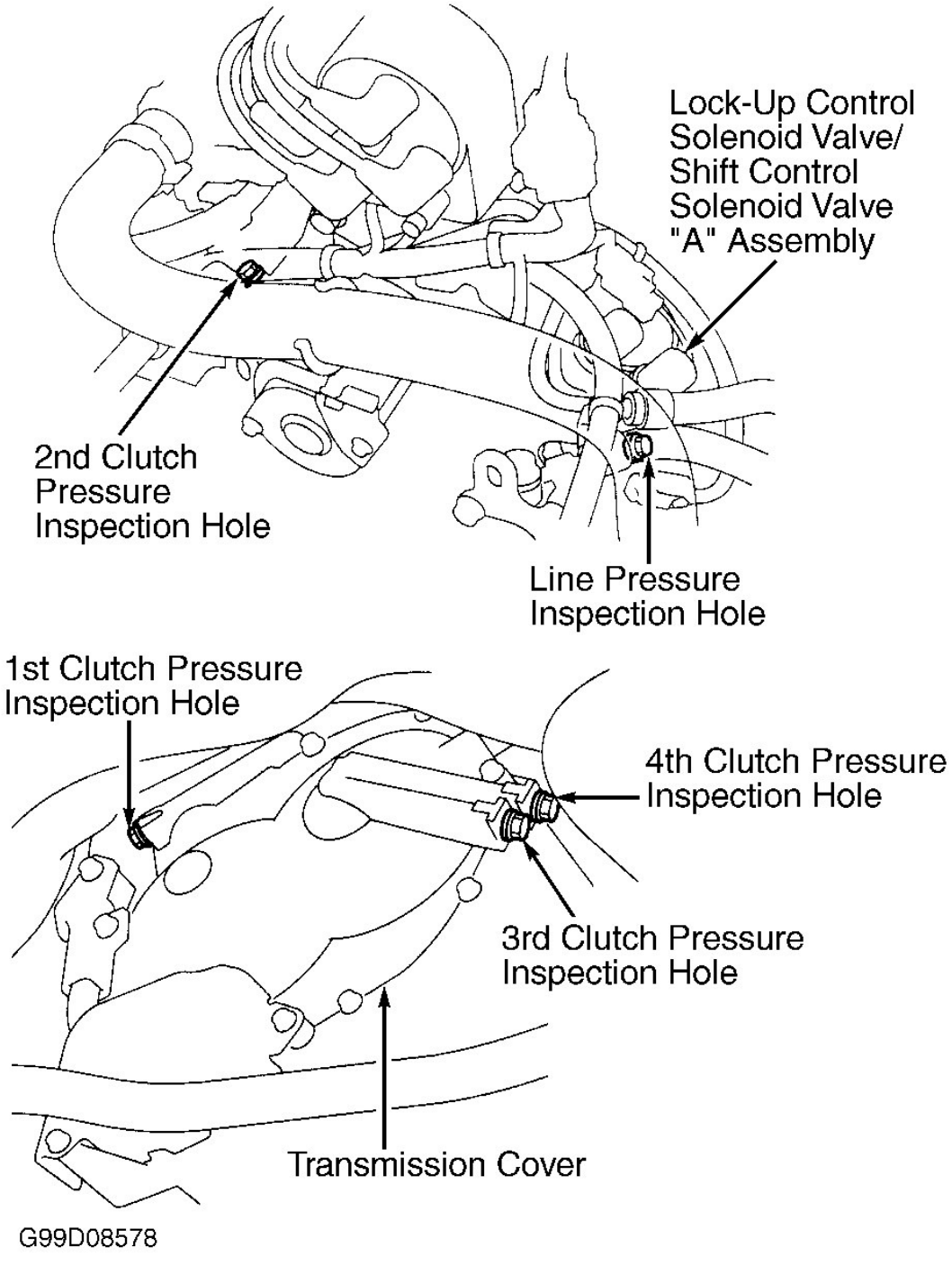


Fig. 8: Identifying Transaxle Pressure Taps

Courtesy of AMERICAN HONDA MOTOR CO., INC.

REMOVAL & INSTALLATION

ELECTRICAL COMPONENTS

See appropriate ELECTRONIC CONTROLS article.

TRANSAXLE

See appropriate REMOVAL & INSTALLATION article.

TORQUE CONVERTER

Torque converter consists of pump, turbine and stator, which are assembled as a unit. Torque converter cannot be serviced and must be replaced if defective.

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

TRANSAXLE DISASSEMBLY

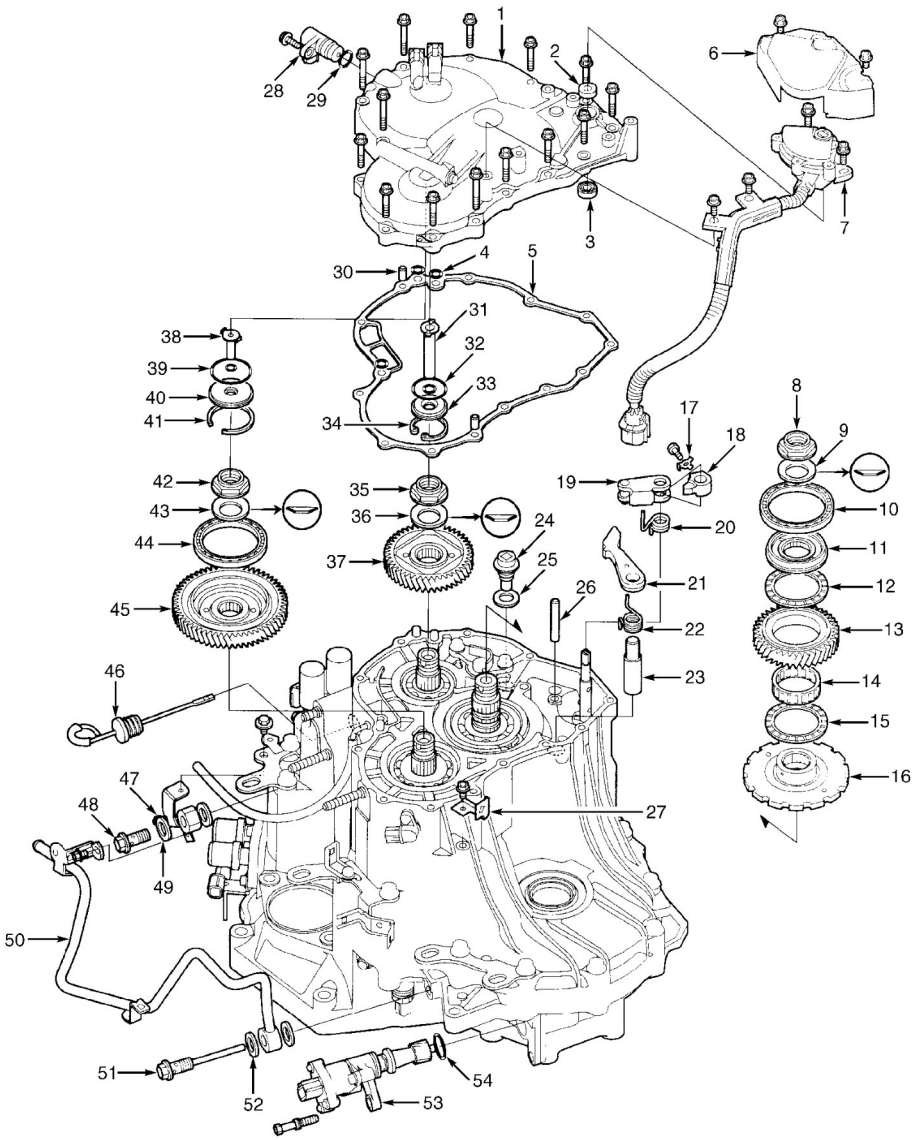
VALVE BODIES & INTERNAL COMPONENTS

1. Remove A/T gear position switch cover and switch with harness (if equipped). Remove bolts, right side cover and gasket. See **Fig. 9**. Install Mainshaft Holder (07GAB-PF50100 or 07GAB-PF50101) on mainshaft to secure mainshaft from rotating. See **Fig. 10**.

   NOTE: Mainshaft lock nut has left-hand threads.

2. Engage parking pawl with parking gear. Using hammer and chisel, cut lock tabs on countershaft, mainshaft and secondary shaft lock nuts. Remove lock nuts and spring washers. See **Fig. 9**.
3. Remove mainshaft holder once all lock nuts are removed. Using puller, remove idler gears from mainshaft and secondary shaft. Using puller, remove countershaft bearing hub.
4. Remove thrust needle bearing, countershaft idler gear, needle bearing and thrust needle bearing thrust washer from countershaft. Using puller remove parking gear from countershaft. Remove parking pawl, parking pawl spring, parking pawl shaft and parking pawl stop.
5. Remove park lever from control shaft. Remove ATF cooler line-to-hanger bolt and cooler lines. Remove A/T clutch pressure control solenoid valve A/B assembly. Remove countershaft speed sensor. Remove transaxle housing bolts.
6. Remove bolts from reverse idler gear shaft holder. Screw bolt into center of shaft on reverse idler gear shaft holder. See **Fig. 11**.
7. Pull reverse idler gear shaft holder with shaft and needle bearing from transaxle housing. Separate shaft with "O" rings and needle bearing from reverse idler gear shaft holder.

NOTE: Transaxle housing will not separate from torque converter housing if reverse idler gear shaft holder is not removed and reverse idler gear repositioned.



1. End Cover
2. Oil Seal
3. Ball Bearing
4. "O" Ring
5. End Cover Gasket
6. A/T Gear Position Switch Cover
7. A/T Gear Position Switch
8. Countershaft Lock Nut
9. Conical Spring Washer
10. Ball Bearing
11. Bearing Hub
12. Thrust Needle Bearing
13. Countershaft Idler Gear
14. Needle Bearing
15. Thrust Needle Bearing
16. Park Gear
17. Lock Washer
18. Park Stop
19. Park Lever
20. Park Lever Spring
21. Park Pawl
22. Park Pawl Spring
23. Park Pawl Shaft
24. Drain Plug
25. Sealing Washer
26. Park Pawl Stop
27. Harness Clamp
28. Mainshaft Speed Sensor
29. "O" Ring
30. Dowel Pin
31. 4th Clutch Feed Pipe
32. "O" Ring
33. Feed Pipe Guide
34. Snap Ring
35. Mainshaft Lock Nut
36. Conical Spring Washer
37. Mainshaft Idler Gear
38. 1st Clutch Feed Pipe
39. "O" Ring
40. Feed Pipe Guide
41. Snap Ring
42. Secondary Shaft Lock Nut
43. Conical Spring Washer
44. Ball Bearing
45. Secondary Shaft Idler Gear
46. ATF Dipstick
47. ATF Cooler Pipe (Outlet)
48. Line Bolt
49. Sealing Washer
50. ATF Cooler Pipe (Inlet)
51. Line Bolt
52. Sealing Washer
53. Vehicle Speed Sensor
54. "O" Ring

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Fig. 9: Exploded View Of Typical Right Side Cover & Components

Courtesy of AMERICAN HONDA MOTOR CO., INC.

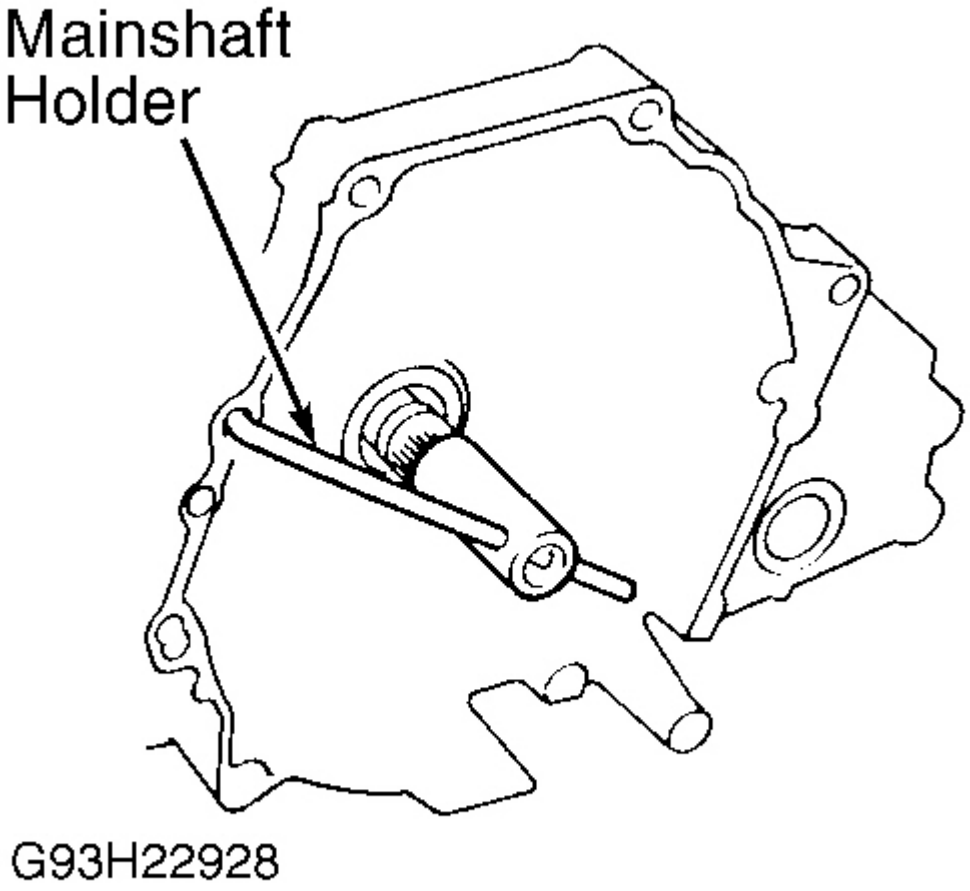


Fig. 10: Installing Mainshaft Holder
Courtesy of AMERICAN HONDA MOTOR CO., INC.

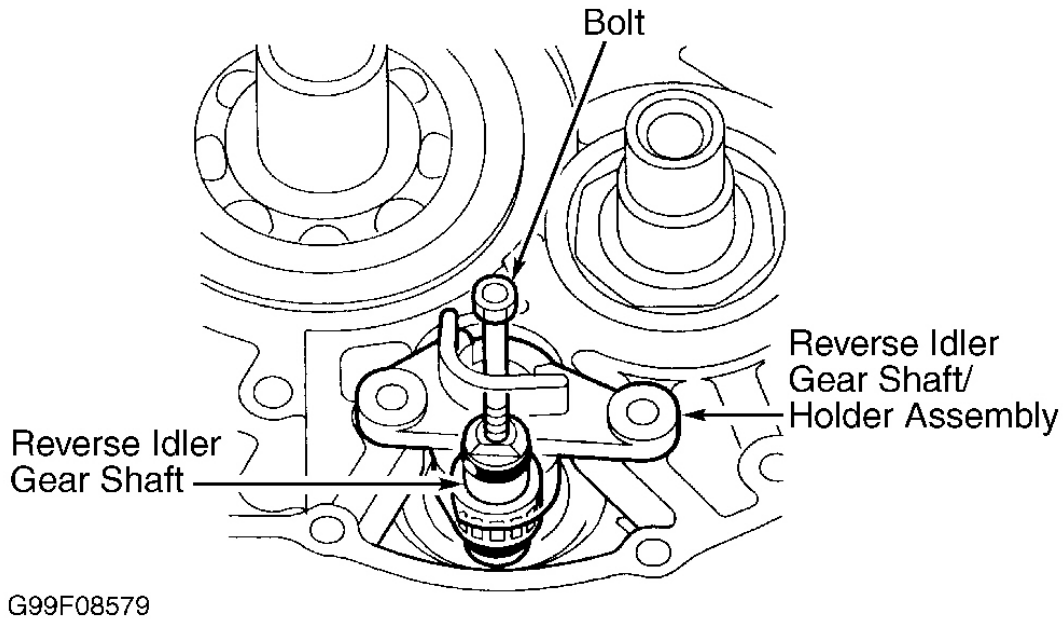


Fig. 11: Removing Idler Gear Shaft Holder & Components
Courtesy of AMERICAN HONDA MOTOR CO., INC.

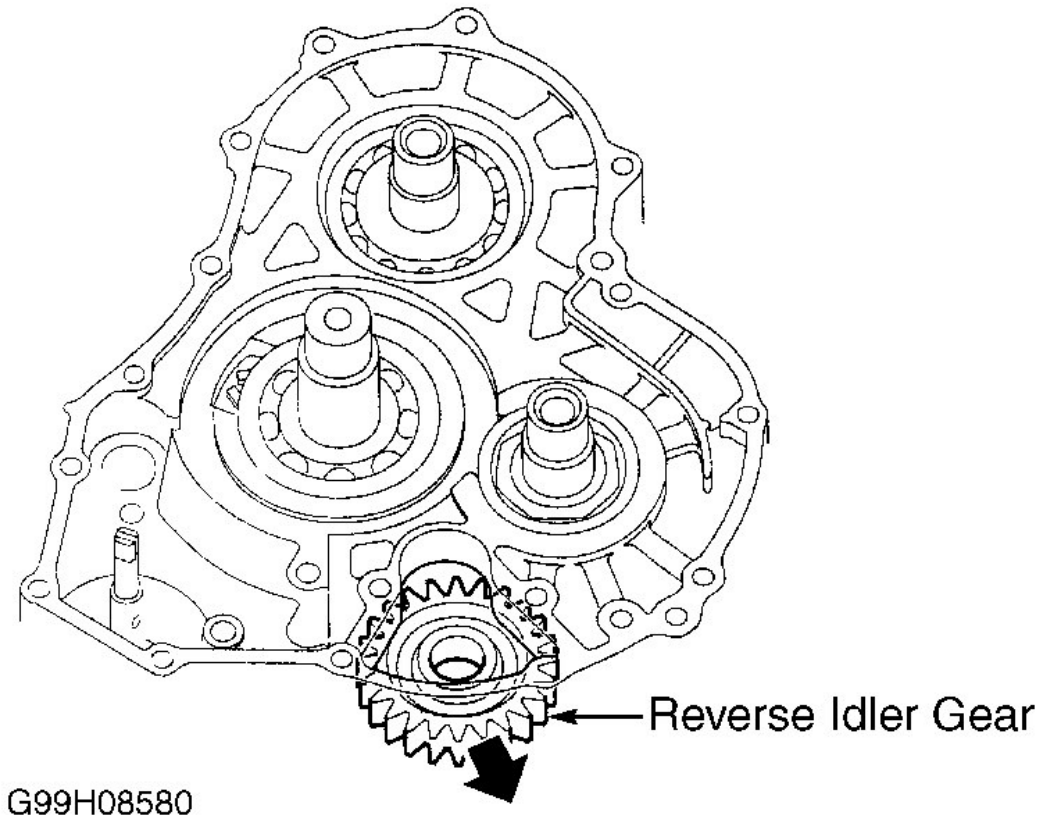


Fig. 12: Positioning Reverse Idler Gear
Courtesy of AMERICAN HONDA MOTOR CO., INC.

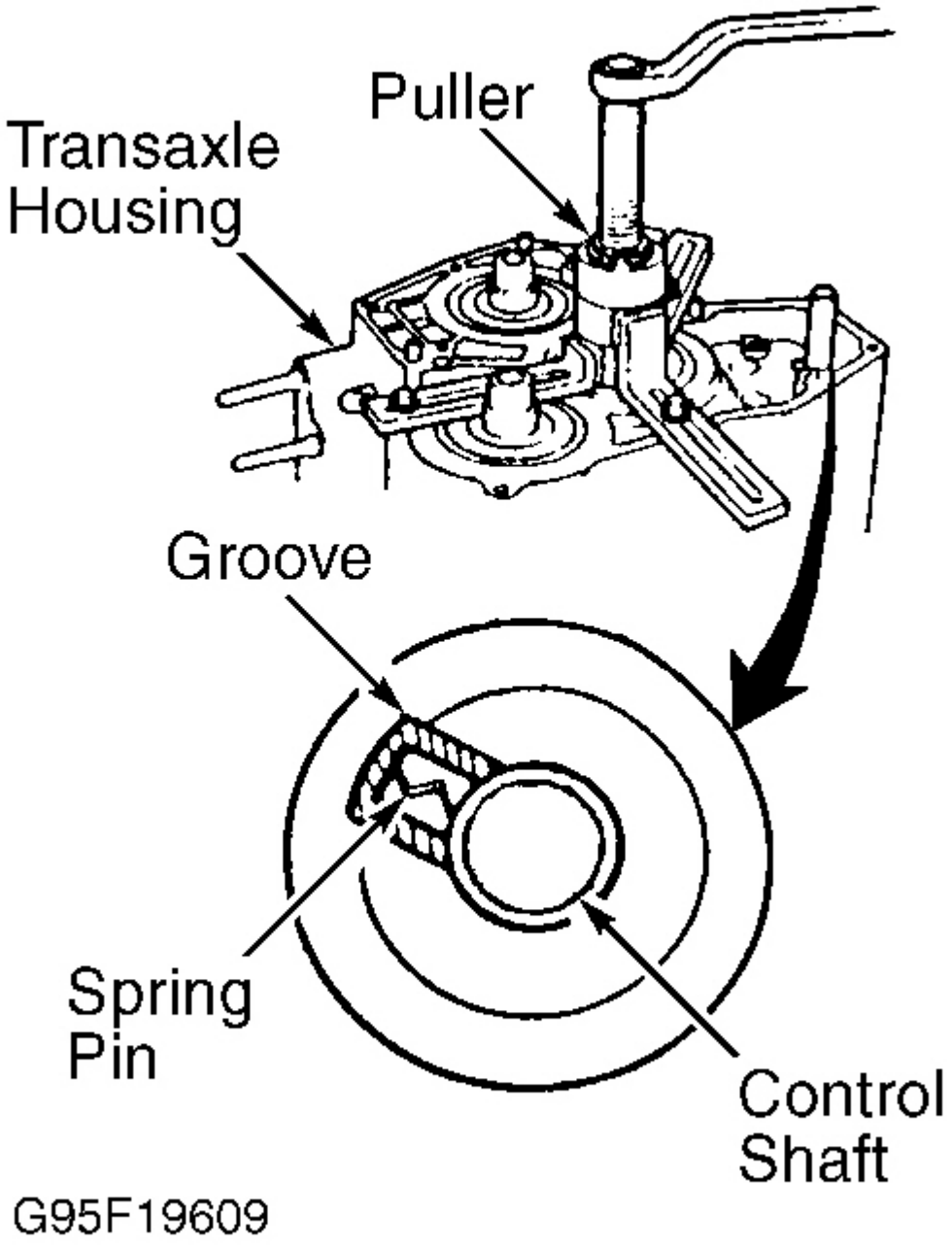


Fig. 13: Aligning Spring Pin & Removing Transaxle Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

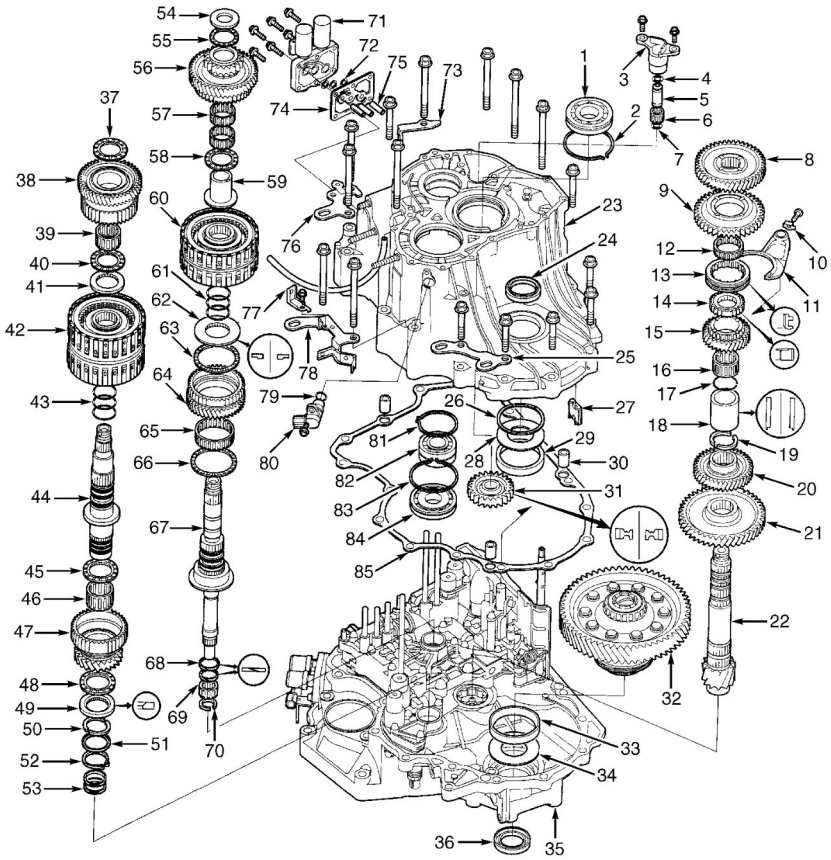
8. Move reverse idler gear to disengage from countershaft reverse gear. See **Fig. 12**. Align spring pin on

control shaft with groove in transaxle housing by rotating control shaft. Using Puller (07HAC-PK40102), remove transaxle housing. See **Fig. 13**.

9. Remove reverse idler gear from transaxle housing. Remove countershaft 2nd gear, and slide countershaft reverse gear and needle bearing from housing. See **Fig. 14**. Remove bolt, bolt lock, shift fork, reverse selector hub, reverse selector from countershaft and countershaft 4th gear.
10. Remove secondary shaft, mainshaft and countershaft assemblies from torque converter housing. Remove differential assembly from torque converter housing. Remove ATF cooler lines from main valve body, regulator valve body and servo body. Remove bolts, bolt locks (if equipped) and servo detent base. See **Fig. 15**. Remove bolts and fluid strainer.

CAUTION: Accumulator cover is under spring tension. Hold accumulator cover downward when removing bolts in a crisscross pattern to prevent bolt damage.

11. Using care, remove bolts, accumulator cover and "O" ring. Remove bolts, servo body, valve cap clip (if equipped) and servo separator plate. Remove accumulator body.
12. Remove bolts and regulator valve body. Remove stator shaft with "O" ring and stator shaft stop. Disconnect detent spring from detent arm. Remove detent arm shaft, detent arm and control shaft. See **Fig. 15**.
13. Remove cooler check valve spring and cooler check valve (steel ball). Remove bolts and main valve body. Remove torque converter check valve and spring. Remove oil pump driven gear shaft, oil pump driven and drive gears, main separator plate and dowel pins.



1. Countershaft Transmission Housing Bearing
2. Snap Ring
3. Reverse Idler Gear Shaft Holder
4. "O" Ring
5. Reverse Idler Gear Shaft
6. Needle Bearing
7. "O" Ring
8. Countershaft 2nd Gear
9. Countershaft Reverse Gear
10. Lock Washer
11. Reverse Shift Fork
12. Needle Bearing
13. Reverse Selector
14. Reverse Selector Hub
15. Countershaft 4th Gear
16. Needle Bearing
17. Snap Ring
18. Distance Collar
19. Cotter
20. Countershaft 3rd Gear
21. Countershaft 1st Gear
22. Countershaft
23. Transmission Housing
24. Oil Seal
25. Transmission Hanger
26. Thrust Shim
27. Transmission Magnet
28. Spacer (1998 Model)
29. Tapered Roller Bearing Outer Race
30. Dowel Pin
31. Reverse Idler Gear
32. Differential Assembly
33. Tapered Roller Bearing Outer Race
34. Spacer (1998 Model)
35. Torque Converter Housing
36. Oil Seal
37. Thrust Needle Bearing
38. Secondary Shaft 2nd Gear
39. Needle Bearing
40. Thrust Needle Bearing
41. Thrust Shim
42. 1st/2nd Clutch Assembly
43. "O" Ring
44. Secondary Shaft
45. Thrust Needle Bearing
46. Needle Bearing
47. Secondary Shaft 1st Gear
48. Thrust Needle Bearing
49. Splined Washer
50. Cotter
51. Cotter Retainer
52. Snap Ring
53. Sealing Ring
54. Thrust Washer
55. Thrust Needle Bearing
56. Mainshaft 4th Gear
57. Needle Bearing
58. Thrust Needle Bearing
59. 4th Gear Collar
60. 3rd/4th Clutch Assembly
61. "O" Ring
62. Thrust Shim
63. Thrust Needle Bearing
64. Mainshaft 3rd Gear
65. Needle Bearing
66. Thrust Needle Bearing
67. Mainshaft
68. Sealing Ring
69. Needle Bearing
70. Set Ring
71. A/T Clutch Pressure Control Solenoid Valve A/B Assembly
72. "O" Ring
73. Transmission Ground Terminal Bracket
74. A/T Clutch Pressure Control Solenoid Valve Gasket
75. ATF Feed Pipe
76. Transmission Hanger
77. Connector Bracket
78. Transmission Hanger/ Connector Bracket
79. "O" Ring
80. Countershaft Speed Sensor
81. Snap Ring
82. Mainshaft Transmission Housing Bearing
83. Snap Ring
84. Secondary Shaft Transmission Housing Bearing
85. Transmission Housing Gasket

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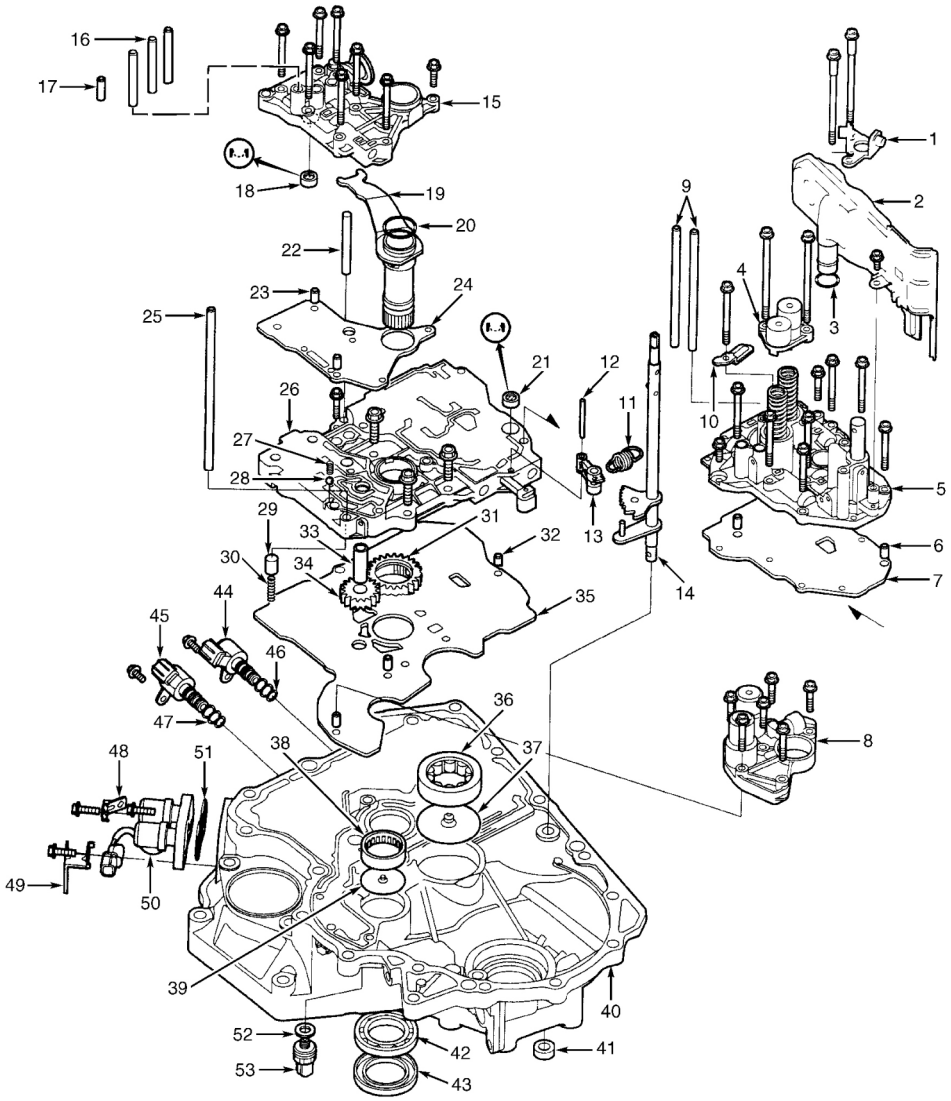
Fig. 14: Exploded View Of Transaxle Housing & Components
Courtesy of AMERICAN HONDA MOTOR CO., INC.



1. Servo Detent Base
2. ATF Strainer
3. "O" Ring
4. Accumulator Cover
5. Servo Body
6. Dowel Pin
7. Servo Separator Plate
8. Accumulator Body
9. ATF Feed Pipe
10. Valve Cap Clip Cover (1997 Model)
11. Detent Arm Spring
12. Detent Arm Shaft
13. Detent Arm
14. Control Shaft
15. Regulator Valve Body
16. ATF Feed Pipe
17. ATF Feed Pipe
18. Filter
19. Stator Shaft
20. "O" Ring
21. Filter
22. Stator Shaft Stop
23. Dowel Pin
24. Regulator Separator Plate
25. ATF Feed Pipe
26. Main Valve Body
27. Cooler Check Valve Spring
28. Cooler Check Valve (Steel Ball)
29. Torque Converter Check Valve
30. Torque Converter Check Valve Spring
31. ATF Pump Drive Gear
32. Dowel Pin
33. ATF Pump Driven Gear Shaft
34. ATF Pump Driven Gear
35. Main Separator Plate
36. Countershaft Torque Converter Housing Bearing
37. ATF Guide Plate
38. Secondary Shaft Torque Converter Housing Bearing
39. ATF Guide Plate
40. Torque Converter Housing
41. Oil Seal
42. Mainshaft Torque Converter Housing Bearing
43. Mainshaft Oil Seal
44. Shift Control Solenoid Valve "C"
45. Shift Control Solenoid Valve "B"
46. "O" Ring
47. "O" Ring
48. Harness Clamp Bracket
49. Connector Bracket
50. Lock-Up Control Solenoid Valve/Shift Control Solenoid Valve "A" Assembly
51. Lock-Up Control Solenoid Valve/Shift Control Solenoid Valve "A" Filter/Gasket
52. Sealing Washer
53. 2nd Clutch Pressure Switch

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Fig. 15: Exploded View Of Torque Converter Housing & Components
Courtesy of AMERICAN HONDA MOTOR CO., INC.

COMPONENT DISASSEMBLY & REASSEMBLY

MAIN VALVE BODY

CAUTION: When disassembling main valve body, place main valve body components in order and mark spring locations for reassembly reference. DO NOT use force to remove components. DO NOT use magnet to remove check balls, as check balls may become magnetized. Note direction of valve cap installation before removing from main valve body.

Disassembly

Disassemble main valve body. See **Fig. 16**. Use care when removing valve caps or spring seats, as they are under spring pressure.

Cleaning & Inspection

1. Clean components with solvent and dry with compressed air. Replace main valve body as an assembly if any parts are worn or damaged.
2. Ensure all valves slide freely in bores. If valves do not slide freely, polish burrs or rough areas using No. 600 sandpaper soaked in ATF for at least 30 minutes. Thoroughly clean main valve body and components if polishing was needed.
3. Ensure spring free length is within specification. See **SPRING SPECIFICATIONS** table. Replace springs if not within specification.

NOTE: Oil pump clearance must be checked in main valve body. See OIL PUMP under COMPONENT DISASSEMBLY & REASSEMBLY.

Reassembly

Coat all components and bores with ATF. To reassemble, reverse disassembly procedure. Install NEW filter. Ensure all components are installed in correct location. See **Fig. 16**.

SPRING SPECIFICATIONS

Application	Free Length In. (mm)
Main Valve Body	
Lock-Up Control Valve Spring	1.689 (42.90)
Lock-Up Shift Valve Spring	2.480 (63.00)
Shift Valve "E" Spring	1.268 (32.20)
Shift Valve "D" Spring	1.406 (35.70)
Shift Valve "C" Spring	1.933 (49.10)
Modulator Valve Spring	1.319 (33.50)
Reverse CPC Valve Spring	.701 (17.80)
Servo Control Valve Spring	1.406 (35.70)
Torque Converter Check Valve Spring	
Accord, Odyssey & 2.3CL	1.504 (38.20)
Prelude	1.350 (34.30)

Cooler Check Valve Spring	.571 (14.50)
Regulator Valve Body	
Regulator Valve Spring "A"	77.40 (3.047)
Regulator Valve Spring "B"	1.732 (44.00)
Relief Valve Spring	1.567 (39.80)
Lock-Up Timing Valve Spring	1.370 (34.80)
Accumulator Body	
1st Accumulator Spring (Prelude)	2.429 (61.70)
1st Accumulator Spring "A" (Accord, Odyssey & 2.3CL)	2.744 (69.70)
1st Accumulator Spring "B" (Accord, Odyssey & 2.3CL)	1.949 (49.50)
2nd Accumulator Spring "A"	2.685 (68.20)
2nd Accumulator Spring "B"	2.008 (51.00)
Servo Body	
Shift Valve "A" Spring	1.591 (40.40)
Shift Valve "B" Spring	1.591 (40.40)
CPC Valve "A" Spring	.701 (17.80)
CPC Valve "B" Spring	.701 (17.80)
3rd Accumulator Spring	
Accord, Odyssey & 2.3CL	2.354 (59.80)
Prelude	2.429 (61.70)
4th Accumulator Spring	
Accord, Odyssey & 2.3CL	2.354 (59.80)
Prelude	2.429 (61.70)

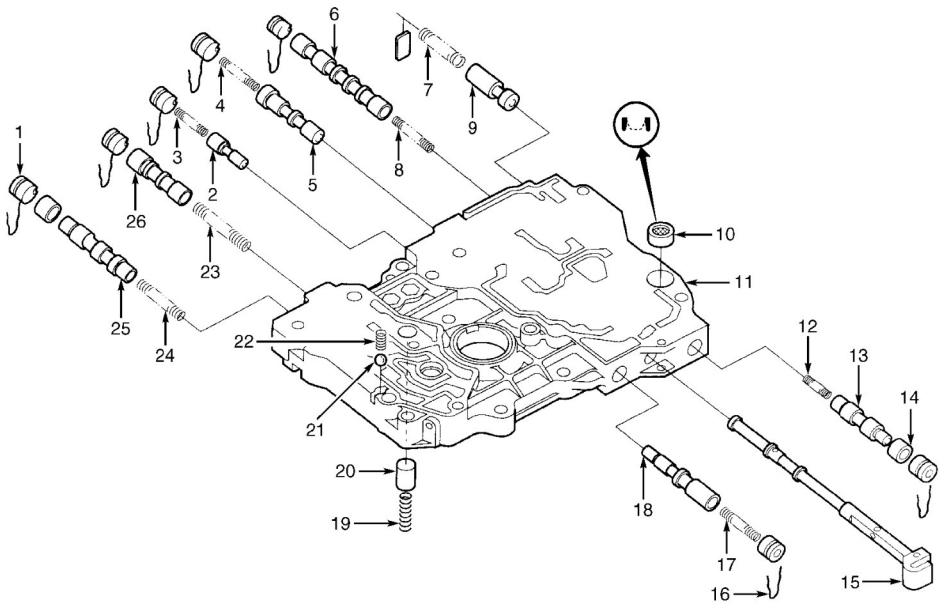


Fig. 16: Exploded View Of Main Valve Body
Courtesy of AMERICAN HONDA MOTOR CO., INC.

OIL PUMP

Disassembly

Note direction of oil pump gear installation in main valve body. Remove oil pump driven gear shaft and oil pump gears from main valve body (if not previously removed).

Cleaning & Inspection

1. Clean components with solvent and dry with compressed air. Inspect components and replace if damaged.
2. Lubricate all parts with ATF prior to reassembly and inspection. Install oil pump gears and oil pump driven gear shaft in main valve body. Ensure chamfered and grooved side of oil pump driven gear is facing upward (toward separator plate side of main valve body).
3. Using feeler gauge, measure side clearance of both gears between tip of gear teeth and main valve body. See **Fig. 17**. Replace oil pump gears and/or main valve body if side clearance is not within specification. See **OIL PUMP SPECIFICATIONS** table.
4. Remove oil pump driven gear shaft. Place straightedge across main valve body surface. Using feeler gauge, measure thrust clearance between oil pump gears and straightedge. See **Fig. 17**. Replace oil pump gears and/or main valve body if thrust clearance is not within specification. See **OIL PUMP SPECIFICATIONS** table.

OIL PUMP SPECIFICATIONS

Application	In. (mm)
Side Clearance	
Oil Pump Drive Gear	.0083-.0104 (.210-.265)
Oil Pump Driven Gear	.0028-.0049 (.070-.125)
Thrust Clearance	
Standard	.0010-.0020 (.030-.050)
Wear Limit	.0028 (.070)

Reassembly

Coat components with ATF. To reassemble, reverse disassembly procedure. Ensure chamfered and grooved side of oil pump driven gear is facing upward (toward separator plate side of main valve body).

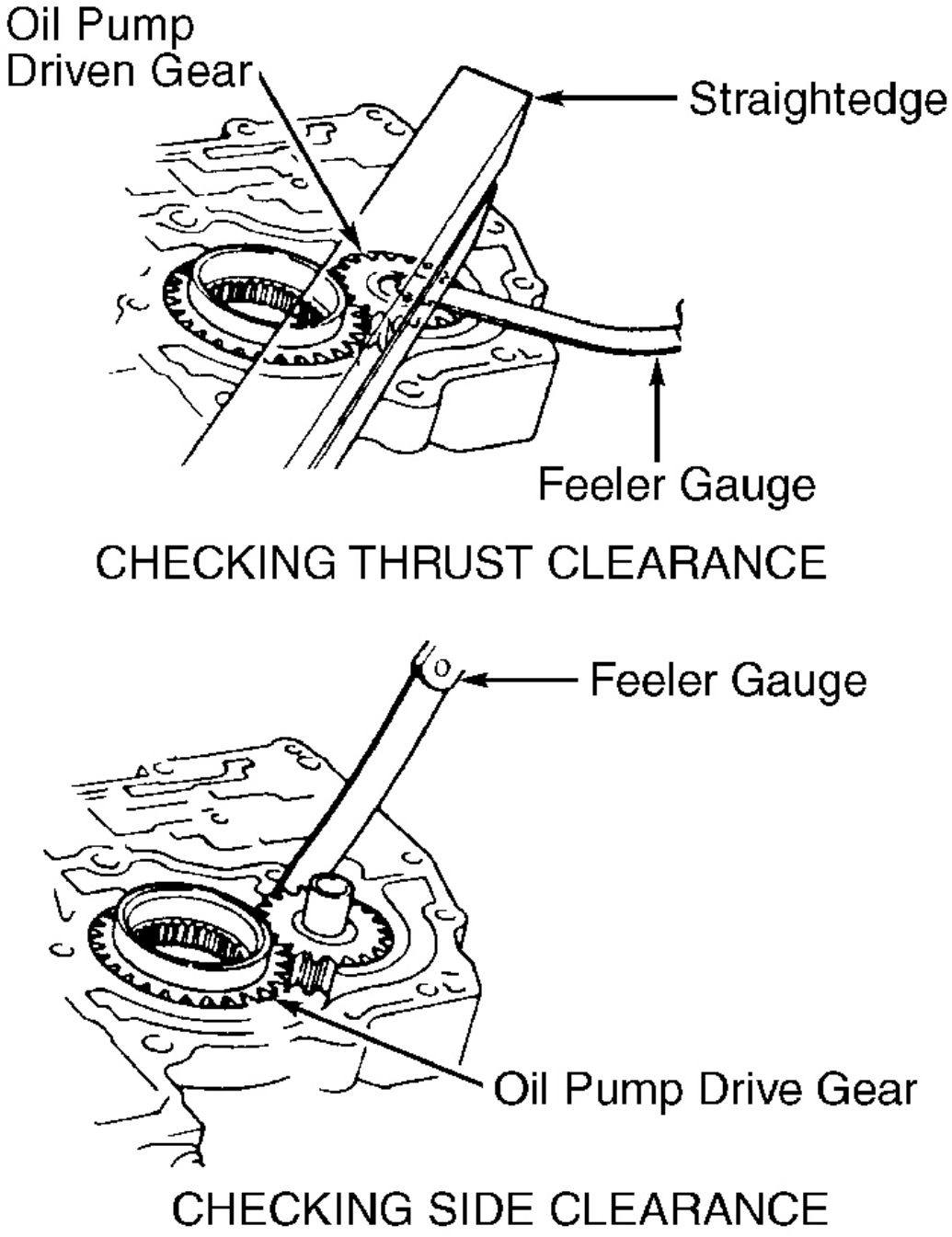


Fig. 17: Measuring Oil Pump Clearances
Courtesy of AMERICAN HONDA MOTOR CO., INC.

REGULATOR VALVE BODY

CAUTION: Regulator spring cap is under spring pressure. Ensure regulator spring cap is held downward when removing stop bolt.

Disassembly

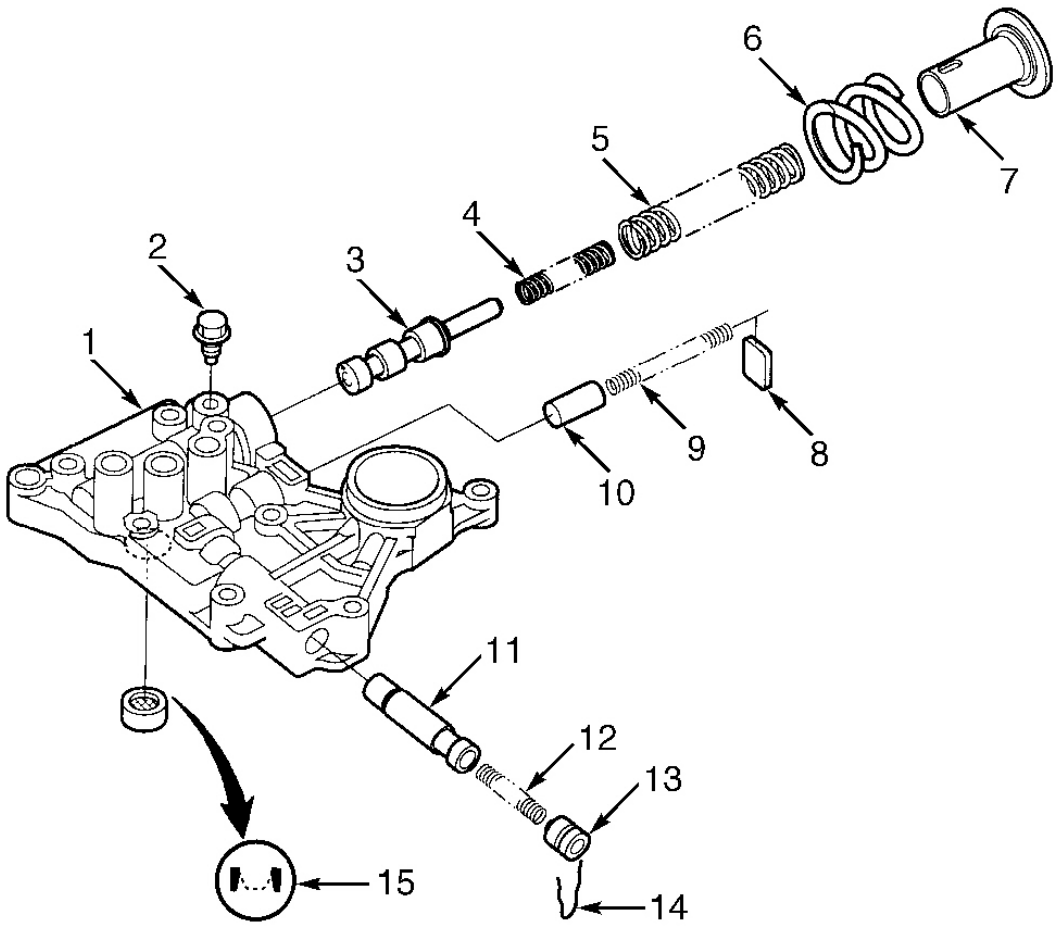
Hold regulator spring cap downward. Remove stop bolt. Slowly remove regulator spring cap and components from regulator valve body. See **Fig. 18**.

Cleaning & Inspection

1. Clean components with solvent and dry with compressed air. Replace regulator valve body as an assembly if any parts are worn or damaged.
2. Ensure all valves slide freely in bore. If valves do not slide freely, polish burrs or rough areas using No. 600 sandpaper soaked in ATF for at least 30 minutes. Thoroughly clean regulator valve body and components if polishing was needed.
3. Ensure spring free length is within specification. See **SPRING SPECIFICATIONS** table. Replace springs if not within specification.

Reassembly

Coat all components and bores with ATF. To reassemble, reverse disassembly procedure. Install NEW filter. Ensure all components are installed in correct location. See **Fig. 18**. Tighten stop bolt to specification. See **TORQUE SPECIFICATIONS**.



1. Regulator Valve Body
2. Stop Bolt
3. Regulator Valve
4. Regulator Valve Spring "B"
5. Regulator Valve Spring "A"
6. Stator Reaction Spring
7. Regulator Spring Cap
8. Spring Seat
9. Relief Valve Spring
10. Relief Valve
11. Lock-Up Timing Valve
12. Lock-Up Timing Valve Spring
13. Valve Cap
14. Valve Cap Clip
15. Filter

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Fig. 18: Exploded View Of Regulator Valve Body
Courtesy of AMERICAN HONDA MOTOR CO., INC.

ACCUMULATOR BODY

Disassembly

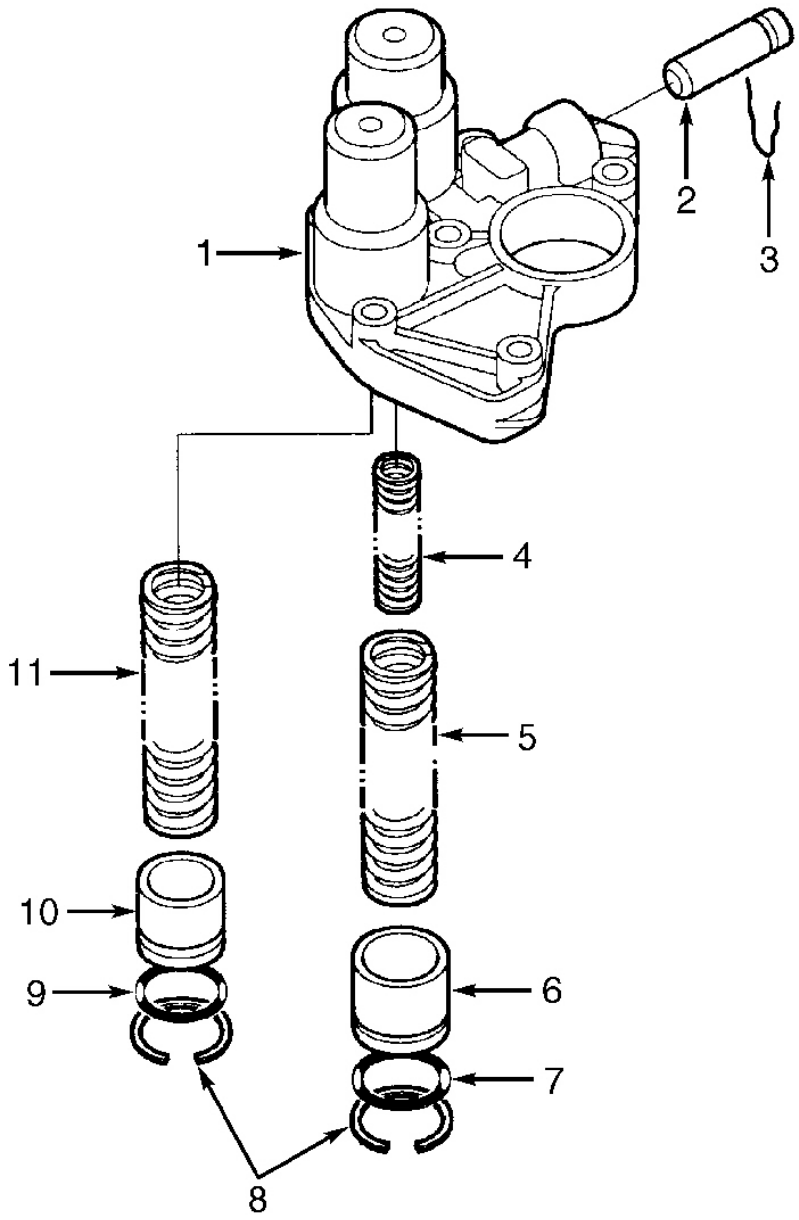
Disassemble accumulator body. See **Fig. 19** and **Fig. 20** . Use care when removing snap rings, as snap rings are under spring pressure. DO NOT use magnet to remove check ball, as check ball may become magnetized.

Cleaning & Inspection

1. Clean components with solvent and dry with compressed air. Replace components if worn or damaged.
2. Ensure spring free length is within specification. See **SPRING SPECIFICATIONS** table. Replace springs if not within specification.

Reassembly

Coat all components and bores with ATF. To reassemble, reverse disassembly procedure using NEW "O" rings. See **Fig. 19** and **Fig. 20** .



1. Accumulator Body
2. Lubrication Check Valve
3. Valve Clip
4. 2nd Accumulator Spring "B"
5. 2nd Accumulator Spring "A"
6. 2nd Accumulator Piston
7. "O" Ring
8. Snap Ring
9. "O" Ring
10. 1st Accumulator Piston
11. 1st Accumulator Spring

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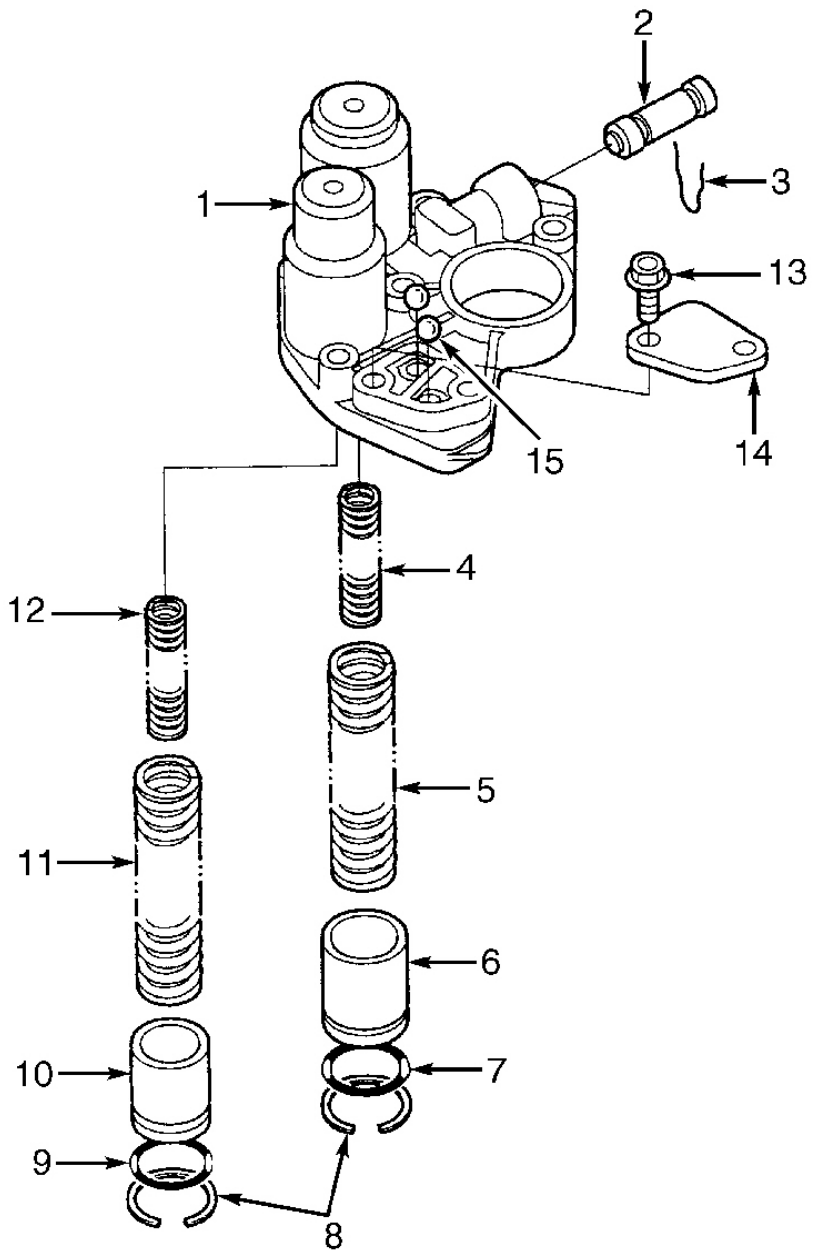
Fig. 19: Exploded View Of Accumulator Body (Prelude)

Courtesy of AMERICAN HONDA MOTOR CO., INC.



1. Accumulator Body
2. Lubrication Check Valve
3. Valve Clip
4. 2nd Accumulator Spring "B"
5. 2nd Accumulator Spring "A"
6. 2nd Accumulator Piston
7. "O" Ring
8. Snap Ring
9. "O" Ring
10. 1st Accumulator Piston
11. 1st Accumulator Spring "A"
12. 1st Accumulator Spring "B"
13. Stop Bolt
14. Accumulator Body Cover
15. Check Ball

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Fig. 20: Exploded View Of Accumulator Body (Accord, Odyssey & 2.3CL)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

SERVO BODY

Disassembly

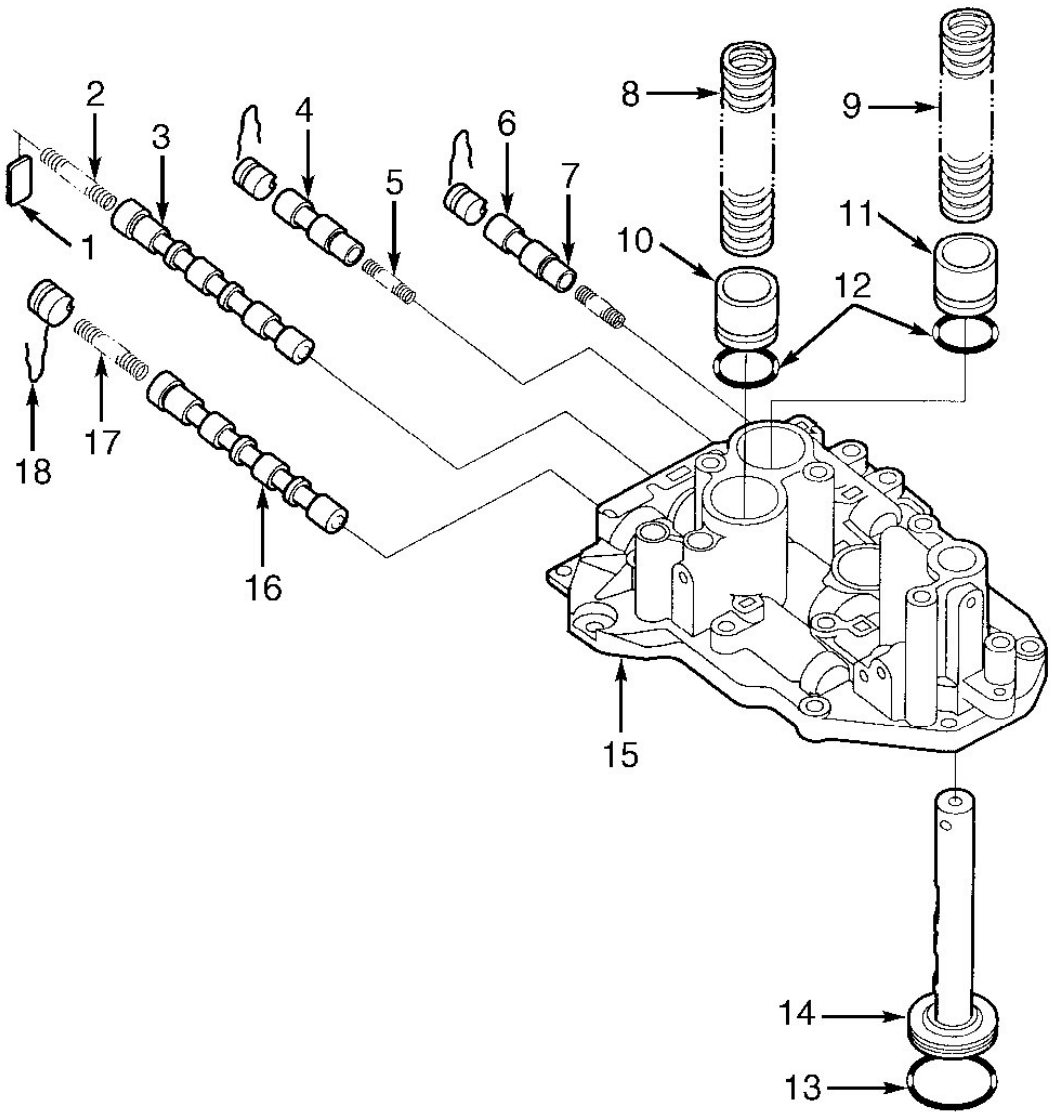
Disassemble servo body. See **Fig. 21**. Use care when removing accumulator cover, as it is under spring pressure.

Cleaning & Inspection

1. Clean components with solvent and dry with compressed air. Replace components if worn or damaged.
2. Replace fluid strainer if clogged. Ensure spring free length is within specification. See **SPRING SPECIFICATIONS** table. Replace springs if not within specification.

Reassembly

Coat all components and bores with ATF. To reassemble, reverse disassembly procedure using NEW "O" rings. See **Fig. 21**.



1. Valve Seat
2. Shift Valve "A" Spring
3. Shift Valve "A"
4. CPC Valve "A"
5. CPC Valve "A" Spring
6. CPC Valve "B"
7. CPC Valve "B" Spring
8. 3rd Accumulator Spring
9. 4th Accumulator Spring
10. 3rd Accumulator Piston
11. 4th Accumulator Piston
12. "O" Ring
13. "O" Ring
14. Shift Fork Shaft/ Servo Valve
15. Servo Body
16. Shift Valve "B"
17. Shift Valve "B" Spring
18. Valve Cap Clip

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Fig. 21: Exploded View Of Servo Body
Courtesy of AMERICAN HONDA MOTOR CO., INC.

MAINSHAFT

NOTE: Lock nut has left-hand threads.

Disassembly

Note location of mainshaft components. See **Fig. 14**. Remove mainshaft components.

Cleaning & Inspection

Clean components with solvent and dry with compressed air. Inspect splines for excessive wear. Check bearing surfaces for scoring or wear. Inspect all needle bearings for galling and rough movement.

Reassembly

1. Lubricate components with ATF. Reassemble mainshaft with thrust shim, 3rd/4th clutch assembly and 4th gear collar only. See **Fig. 14**. Assemble mainshaft without "O" rings. Ensure thrust shim is installed
2. Hold 4th gear collar against 3rd/4th clutch assembly. Using feeler gauge, measure clearance between clutch guide of 3rd/4th clutch assembly and 4th gear collar at 3 places. Average the 3 measurements to obtain mainshaft clearance.
3. Replace thrust shim if clearance is not .001-.004" (.03-.11 mm). Different thickness thrust shims are available. See **THRUST SHIM SPECIFICATIONS** table. Install different thickness thrust shim (if necessary) and recheck clearance.

THRUST SHIM SPECIFICATIONS

Washer No. (Mark)	Part No.	Thickness In. (mm)
1	90414-PH6-010	.250 (6.35)
2	90415-PH6-010	.252 (6.40)
3	90416-PH6-010	.254 (6.45)
4	90417-PH6-010	.256 (6.50)
5	90418-PH6-010	.258 (6.55)
6	90419-PH6-010	.260 (6.60)

4. Reassemble mainshaft. Ensure thrust needle bearings are installed with unrolled edge of bearing retainer facing washer. Before installing NEW "O" rings on mainshaft, wrap splines on mainshaft with tape to prevent damage to "O" rings.

COUNTERSHAFT

Disassembly

1. Note location of countershaft components. See **Fig. 14**. Remove countershaft components down to the

reverse selector hub.

2. Using 2 or 3-jaw puller, remove reverse selector hub and 4th gear. Ensure countershaft is protected during pulling process. Remove needle bearing, distance collar and 31 mm cotters from countershaft. Pull 1st and 3rd gear as an assembly.

Cleaning & Inspection

Clean components with solvent and dry with compressed air. Inspect splines for excessive wear. Check bearing surfaces for scoring or wear. Inspect all needle bearings for galling and rough movement.

Reassembly

1. Lubricate all components with ATF. Align countershaft 1st gear splines with countershaft splines. Press countershaft into countershaft 1st gear. Align splines for countershaft 3rd gear and press countershaft into countershaft 3rd gear.
2. Install 31 mm cotters, distance collar, snap ring, needle bearing and countershaft 4th gear on countershaft. Using appropriate driver, press reverse selector hub onto countershaft 4th gear.

SECONDARY SHAFT

Disassembly

Note location of secondary shaft components. See **Fig. 14**. Remove secondary shaft components.

Cleaning & Inspection

Clean components with solvent and dry with compressed air. Inspect splines for excessive wear. Check bearing surfaces for scoring or wear. Inspect all needle bearings for galling and rough movement.

Reassembly

1. Lubricate all components with ATF. Reassemble all secondary shaft components on 1st gear side of secondary shaft between thrust needle bearing and snap ring, without "O" rings. See **Fig. 14**. Ensure thrust needle bearings are installed with unrolled edge of bearing retainer facing washer.
2. Check secondary shaft 1st gear clearance. Using feeler gauge, measure clearance between splined washer and cotters at 3 places on splined washer. Average the 3 measurements to obtain secondary shaft 1st gear clearance.
3. Replace splined washer if secondary shaft 1st gear clearance is not .003-.006" (.07-.15 mm). Different thickness splined washers are available. See **SPLINED WASHER SPECIFICATIONS** table. Install different thickness splined washer (if necessary) and recheck clearance.

SPLINED WASHER SPECIFICATIONS

Washer No. (Mark)	Part No.	Thickness In. (mm)
1	90406-P6H-000	.193 (4.90)
2	90407-P6H-100	.195 (4.95)

3	90408-P6H-100	.197 (5.00)
4	90409-P6H-100	.199 (5.05)
5	90410-P6H-100	.201 (5.10)
6	90411-P6H-100	.203 (5.15)
7	90412-P6H-100	.205 (5.20)

4. Reassemble all secondary shaft components on 1st/2nd clutch assembly side of secondary shaft between 1st/2nd clutch assembly and 2nd gear thrust washer (27 x 47 x 5 mm), without "O" rings. See **Fig. 14**. Ensure thrust needle bearings are installed with unrolled edge of bearing retainer facing washer.
5. Mount dial indicator with stem against secondary shaft 2nd gear. See **Fig. 22**. Push secondary shaft 2nd gear inward (toward 1st-2nd clutch) and zero dial indicator.
6. Pull secondary shaft 2nd gear outward and note axial clearance. This is the secondary shaft 2nd gear clearance. Check secondary shaft 2nd gear clearance at 3 places on secondary shaft 2nd gear. Average the 3 measurements to obtain secondary shaft 2nd gear clearance.
7. Replace splined washer located next to 1st-2nd clutch assembly if secondary shaft 2nd gear clearance is not .003-.006" (.07-.15 mm). Different thickness splined washers are available. See **2ND GEAR THRUST WASHER SPECIFICATIONS** table. Install different thickness splined washer (if necessary) and recheck clearance.

2ND GEAR THRUST WASHER SPECIFICATIONS

Washer No. (Mark)	Part No.	Thickness In. (mm)
1	90406-P6H-000	.193 (4.90)
2	90407-P6H-000	.195 (4.95)
3	90408-P6H-000	.197 (5.00)
4	90409-P6H-000	.199 (5.05)
5	90410-P6H-000	.201 (5.10)
6	90411-P6H-000	.203 (5.15)
7	90412-P6H-000	.205 (5.20)

8. Lubricate all components with ATF. Reassemble secondary shaft. Ensure thrust needle bearings are installed with unrolled edge of bearing retainer facing washer. Before installing NEW "O" rings on secondary shaft, wrap splines on secondary shaft with tape to prevent damage to "O" rings.

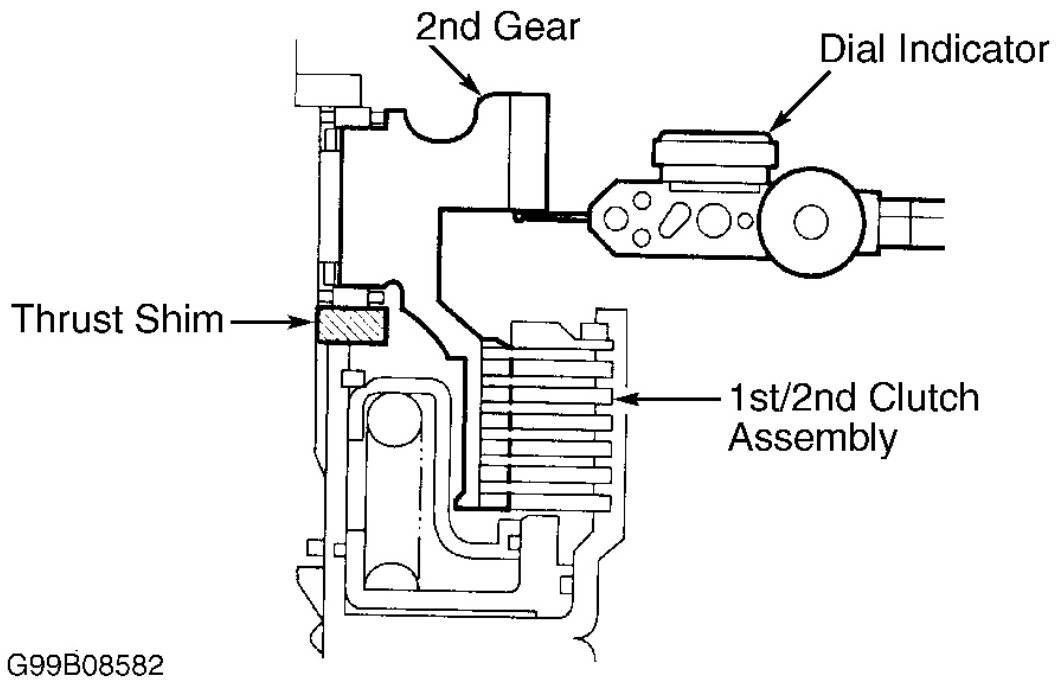

Fig. 22: Checking Secondary Shaft 2nd Gear Clearance
Courtesy of AMERICAN HONDA MOTOR CO., INC.

CLUTCH ASSEMBLIES

Disassembly

1. Remove snap ring, clutch end plate, clutch discs and clutch plates. See **Fig. 23**.
2. Remove disc spring from 3rd and 4th clutches. Note direction of disc spring installation. Remove waved washer spring from 3rd or 4th clutch.
3. Using clutch spring compressor, compress return spring. Remove snap ring. Release and remove clutch spring compressor. Remove spring retainer and return spring.
4. On 3rd and 4th clutches, wrap shop towel around clutch drum. Apply light air pressure to oil passage on clutch drum to remove clutch piston. Remove "O" rings.

Cleaning & Inspection

1. Clean metal components with solvent and dry with compressed air. Blow out all passages with compressed air. Ensure check valve on rear of clutch piston is thoroughly cleaned and securely fastened on clutch piston.
2. Inspect components for damage. Ensure check valve on 3rd and 4th pistons is tight. If check valve is loose, replace piston. Replace if necessary. Ensure no rough edges exist on "O" ring sealing areas.

Reassembly

1. Lubricate all components with ATF. Install NEW "O" rings. Install clutch piston in clutch drum. Slightly rotate clutch piston back and forth during installation to prevent damaging "O" rings.

CAUTION: DO NOT apply excessive force on clutch piston, or "O" rings will be damaged.

2. Install return spring and spring retainer in clutch drum. Place snap ring on spring retainer. Using clutch spring compressor, compress return spring. Install snap ring. Remove clutch spring compressor.
3. On 3rd and 4th clutches, install disc spring. Ensure disc spring is installed in proper direction. See **Fig. 23**.

CAUTION: Soak clutch discs in ATF for at least 30 minutes before installing.

4. Alternately install clutch plates and clutch discs starting with clutch plate. Install clutch end plate with flat side toward clutch disc. Install snap ring.

NOTE: The 2nd clutch on Prelude uses 6 clutch discs and 6 clutch plates, while 2nd clutch on Accord, Odyssey and 3.2CL only uses 5 clutch discs and 5 clutch plates.

5. Using dial indicator, measure clutch clearance between clutch end plate and top clutch disc. See **Fig. 24**. Zero dial indicator with clutch end plate lowered, and then lift clutch end plate upward against snap ring. Distance measured is clutch clearance.
6. Measure clutch clearance at 3 different locations. Clutch clearance should be within specification. See **CLUTCH CLEARANCE SPECIFICATIONS**.
7. If clutch clearance is not within specification, install different thickness clutch end plate. See **CLUTCH END PLATE SPECIFICATIONS**.

NOTE: If thickest clutch end plate is installed and clutch clearance still exceeds specification, replace clutch discs and clutch plates.

CLUTCH CLEARANCE SPECIFICATIONS

Application	In. (mm)
1st Clutch	.045-.053 (1.15-1.35)
2nd Clutch	.039-.047 (1.00-1.20)
3rd Clutch	.024-.031 (.60-.80)
4th Clutch	.016-.024 (.40-.60)

CLUTCH END PLATE SPECIFICATIONS

Plate No.	Part No.	Thickness In. (mm)

1st & 2nd Clutches		
6	22551-PH6-003	.102 (2.60)
7	22552-PH6-003	.106 (2.70)
8	22553-PH6-003	.110 (2.80)
9	22554-PH6-003	.114 (2.90)
0	22555-PH6-003	.118 (3.00)
1	22556-PH6-003	.122 (3.10)
2	22557-PH6-003	.126 (3.20)
3	22558-PH6-003	.130 (3.30)
4	22559-PH6-003	.134 (3.40)
3rd & 4th Clutches		
1	22551-PX4-003	.083 (2.10)
2	22552-PX4-003	.087 (2.20)
3	22553-PX4-003	.091 (2.30)
4	22554-PX4-003	.094 (2.40)
5	22555-PX4-003	.098 (2.50)
6	22556-PX4-003	.102 (2.60)
7	22557-PX4-003	.106 (2.70)
8	22558-PX4-003	.110 (2.80)
9	22559-PX4-003	.114 (2.90)

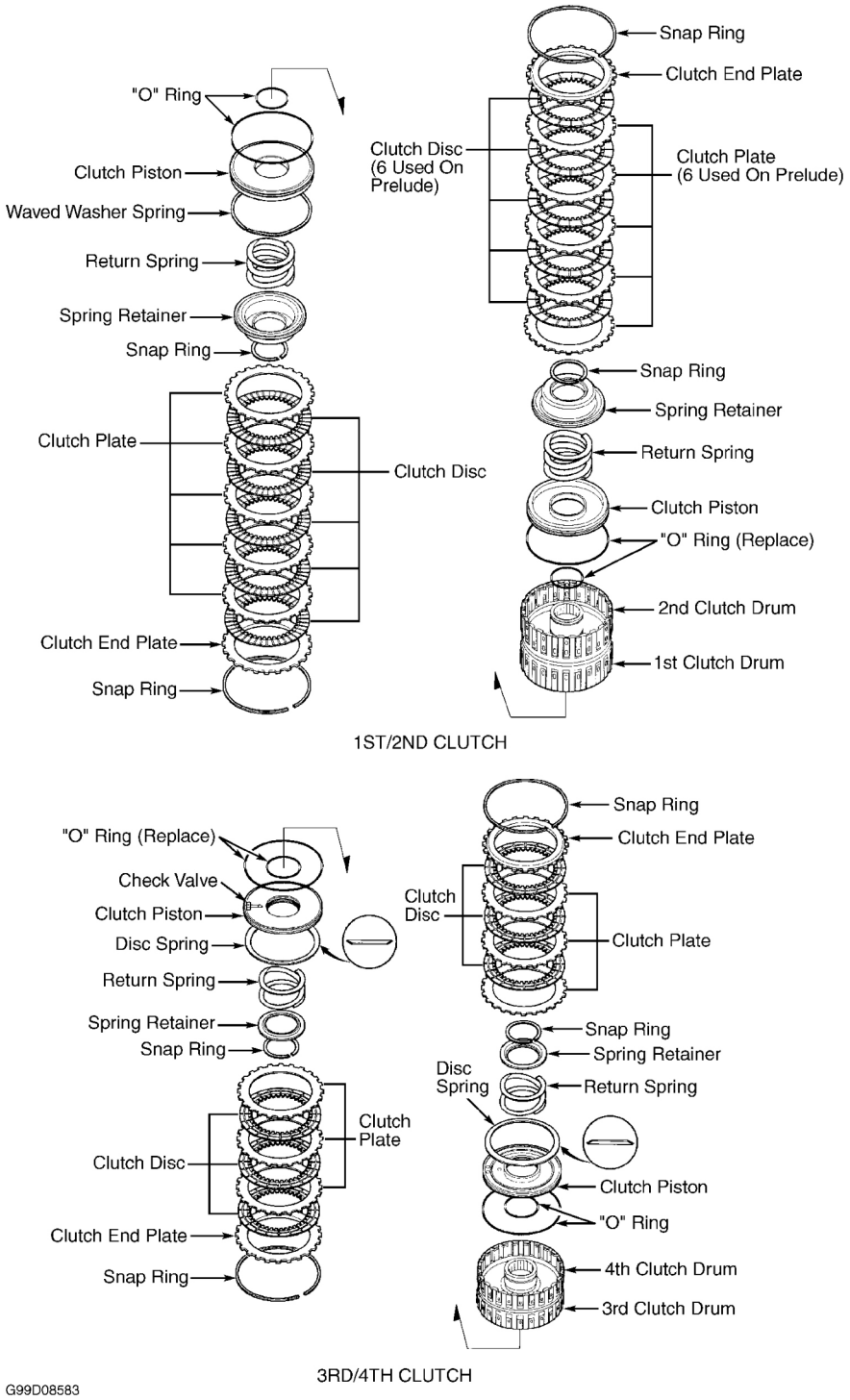

Fig. 23: Exploded View Of 1st-2nd & 3rd-4th Clutches
Courtesy of AMERICAN HONDA MOTOR CO., INC.

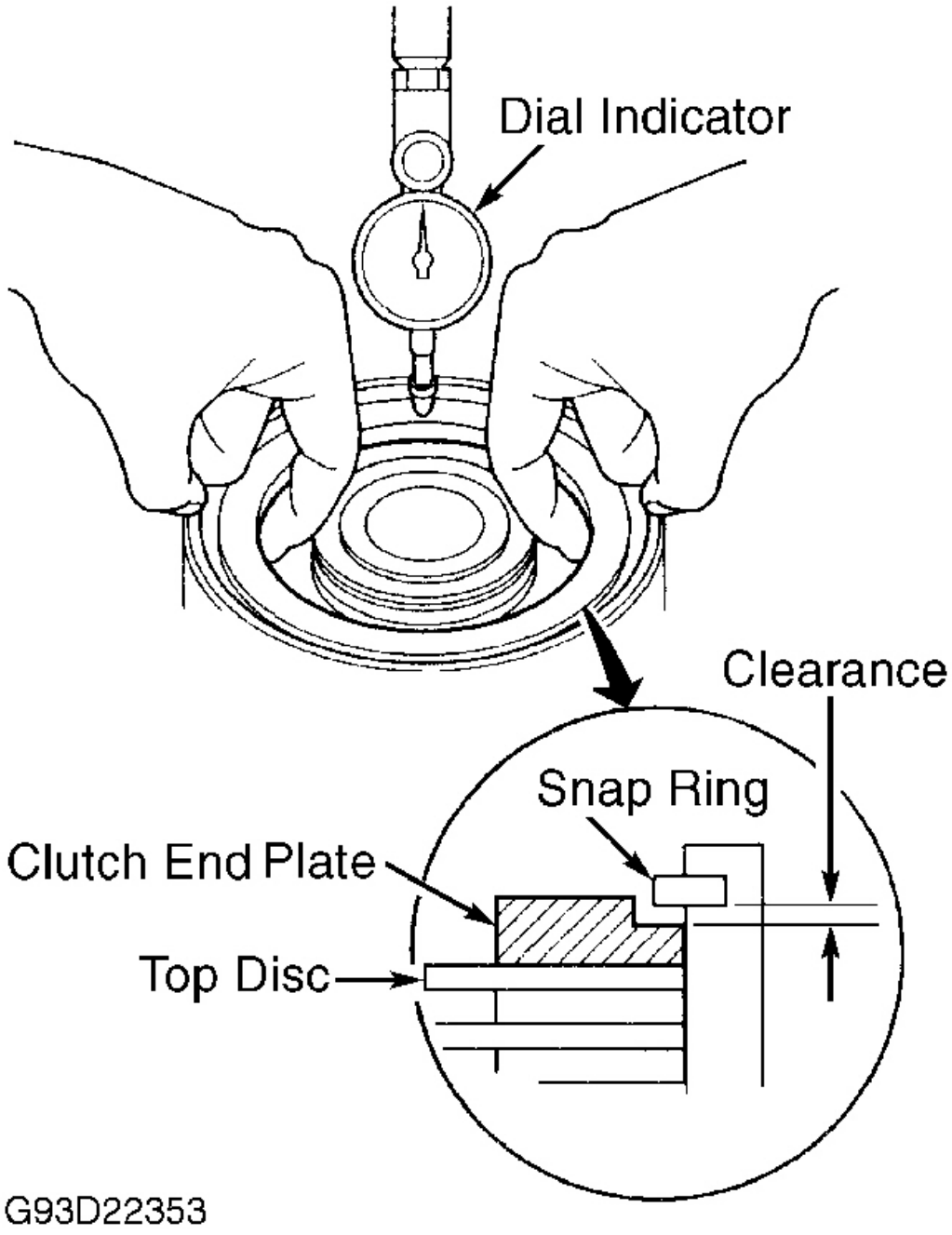

Fig. 24: Measuring Clutch Clearance
Courtesy of AMERICAN HONDA MOTOR CO., INC.

TORQUE CONVERTER HOUSING

Disassembly

1. Remove mainshaft bearing and oil seal from torque converter housing using slide hammer (if necessary). See **Fig. 15**.
2. Remove countershaft bearing from torque converter housing using slide hammer (if necessary). Remove oil guide plate from torque converter housing.
3. Remove secondary shaft bearing from torque converter housing using slide hammer (if necessary). Remove oil guide plate from torque converter housing.
4. If removing differential bearing outer race from torque converter housing, use heat gun to heat torque converter housing around differential bearing outer race to 212°F (100°C).
5. Tap bearing race from torque converter housing. Using hammer and drift, tap differential oil seal from torque converter housing.

Cleaning & Inspection

Clean components with solvent and dry with compressed air. Inspect torque converter housing for cracks and damage in bearing areas. Replace torque converter housing if damaged.

Reassembly

1. To install mainshaft bearing, use hammer and bearing remover/installer, install bearing until bearing bottoms in torque converter housing.
2. Using hammer and oil seal installer, install NEW mainshaft oil seal in torque converter housing. Oil seal should be flush with torque converter housing surface.
3. To install countershaft bearing, install NEW oil guide plate in countershaft bearing bore of torque converter housing. Ensure oil guide plate is installed so tab in center of oil guide plate faces upward (away from torque converter housing surface). See **Fig. 15**.
4. Using hammer and bearing installer, install countershaft bearing into torque converter housing. To install secondary shaft bearing, install NEW oil guide plate in secondary shaft bearing bore of torque converter housing.
5. Ensure oil guide plate is installed so tab in center of oil guide plate is facing upward (away from torque converter housing surface). Ensure oil guide is installed to a depth of 0-.001" (0-.03 mm) below surface. Using hammer and bearing installer, install secondary shaft bearing into torque converter housing.
6. To install differential bearing outer race, use hammer and bearing race installer, install differential bearing outer race in torque converter housing until race is even with torque converter housing surface.

CAUTION: DO NOT install thrust shim in torque converter housing below differential bearing outer race. Thrust shim must be installed in transaxle housing.

7. To install differential oil seal, use hammer and oil seal installer, install NEW oil seal into torque converter housing until oil seal is fully seated.

TRANSAXLE HOUSING

Disassembly

1. Expand snap ring, and press mainshaft, countershaft and secondary shaft bearings from transaxle housing. Using hammer and drift, tap differential oil seal from transaxle housing.

CAUTION: DO NOT heat transaxle housing to more than 212°F (100°C), or housing may be damaged.

2. If removing differential bearing outer race, use heat gun to heat transaxle housing around differential bearing outer race to 212°F (100°C).
3. Tap differential bearing outer race from transaxle housing. Remove thrust shim, located below differential bearing outer race from transaxle housing.

Cleaning & Inspection

Clean components with solvent and dry with compressed air. Inspect transaxle housing for cracks and damage in bearing areas. Replace transaxle housing if damaged.

NOTE: Ensure original thickness thrust shim is installed. If any components have been changed, differential assembly bearing preload must be checked. See DIFFERENTIAL ASSEMBLY BEARING PRELOAD under TRANSAXLE REASSEMBLY.

Reassembly

1. Install thrust shim. Using hammer and bearing race installer, install differential bearing outer race in transaxle housing.
2. To install differential oil seal, use hammer and oil seal installer, install NEW oil seal into transaxle housing until oil seal is fully seated.
3. To install mainshaft, countershaft and secondary shaft bearings, expand snap ring and install bearing part way into transaxle housing. Release snap ring.

CAUTION: Ensure bearings are installed with groove of bearing facing inside of transaxle housing so snap ring engages in bearing when bearing is fully installed. Ensure snap ring fully engages in bearing.

4. Press bearing into transaxle housing until snap ring engages with groove on bearing. Ensure snap ring end gap is 0-.276" (0-7.00 mm). If snap ring end gap is not within specification, reseat or replace snap ring.

DIFFERENTIAL ASSEMBLY

Disassembly

1. Before disassembling differential assembly, check side gear backlash. Place differential assembly on "V" blocks with both axle shafts installed.

2. Install dial indicator with stem resting against pinion gear. See **Fig. 25**. Check side gear backlash. Side gear backlash should be .002-.006" (.05-.15 mm). If side gear backlash is not within specification, replace differential carrier.

NOTE: Ring gear bolts have left-hand threads.

3. If replacing bearings, use bearing puller to remove bearings from differential carrier. Remove bolts and ring gear.

Cleaning & Inspection

Clean components with solvent and dry with compressed air. Inspect components for wear and damage. Replace components as necessary.

Reassembly

CAUTION: Ring gear must be installed with chamfered side of ring gear toward differential carrier. See Fig. 26. Ring gear bolts are left-hand thread.

Install ring gear. Install and tighten ring gear bolts to specification. See **TORQUE SPECIFICATIONS**. Using press, install NEW bearings on differential carrier (if removed). Ensure bearings are fully seated on differential carrier.

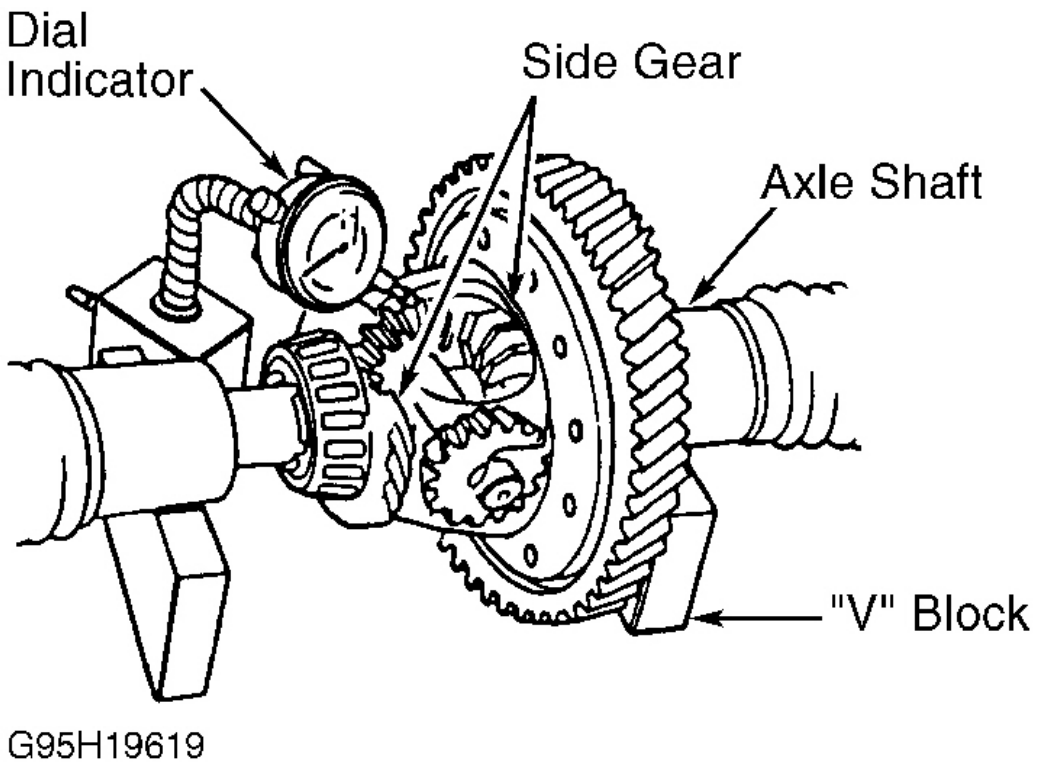

Fig. 25: Checking Side Gear Backlash
Courtesy of AMERICAN HONDA MOTOR CO., INC.

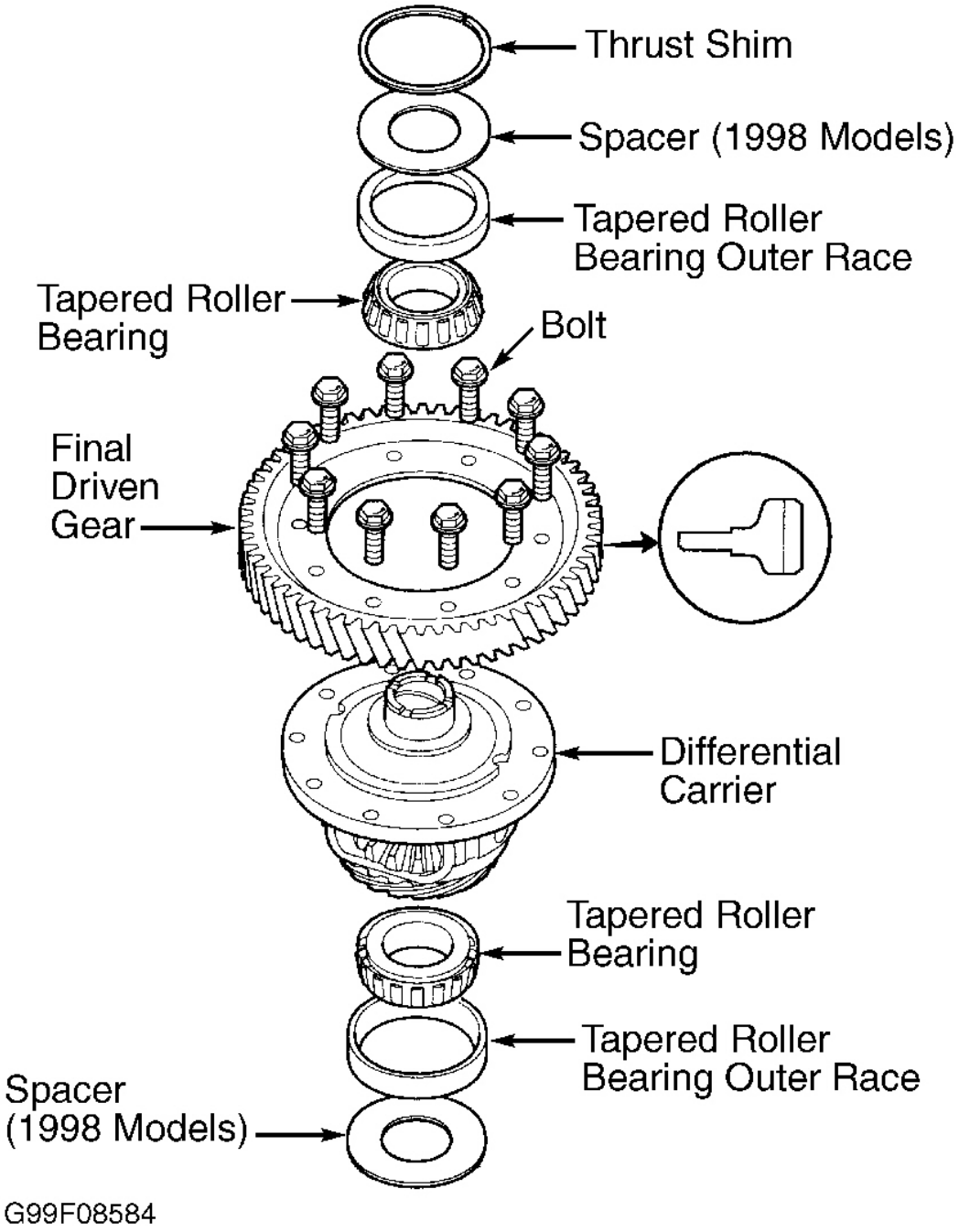

Fig. 26: Exploded View Of Differential Assembly
Courtesy of AMERICAN HONDA MOTOR CO., INC.

TRANSAXLE REASSEMBLY

DIFFERENTIAL ASSEMBLY BEARING PRELOAD

NOTE: If transaxle housing, torque converter housing, differential carrier, bearings, thrust shim, spacer or differential bearing outer races are replaced, differential assembly bearing preload must be checked.

CAUTION: DO NOT heat transaxle housing to more than 212°F (100°C), or housing may be damaged.

1. Using heat gun, heat transaxle housing around differential bearing outer race and thrust shim to 212°F (100°C). Tap differential bearing outer race from transaxle housing. Remove thrust shim, located below differential bearing outer race, from transaxle housing.
2. Allow transaxle housing to cool to room temperature. Select thrust shim so total thickness of thrust shim is .102" (2.60 mm). See **THRUST SHIM SPECIFICATIONS** table.

CAUTION: DO NOT use more than 2 thrust shims when adjusting differential assembly bearing preload.

THRUST SHIM SPECIFICATIONS

Part Number	Thickness In. (mm)
41438-PX4-000	.081 (2.05)
41439-PX4-000	.083 (2.10)
41440-PX4-000	.085 (2.15)
41441-PX4-000	.087 (2.20)
41442-PX4-000	.089 (2.25)
41443-PX4-000	.091 (2.30)
41444-PX4-000	.093 (2.35)
41445-PX4-000	.094 (2.40)
41446-PX4-000	.096 (2.45)
41447-PX4-000	.098 (2.50)
41448-PX4-000	.100 (2.55)
41449-PX4-000	.102 (2.60)
41450-PX4-000	.104 (2.65)
41451-PX4-000	.106 (2.70)
41452-PX4-000	.108 (2.75)
41453-PX4-000	.110 (2.80)
41454-PX4-000	.112 (2.85)
41455-PX4-000	.114 (2.90)
41456-PX4-000	.116 (2.95)
41457-PX4-000	.118 (3.00)
41458-PX4-000	.120 (3.05)

3. Install thrust shim in transaxle housing. Using hammer and bearing race installer, install differential bearing outer race in transaxle housing. Ensure differential bearing outer race is fully seated in transaxle housing.

CAUTION: Ensure gasket is installed when checking differential assembly bearing preload.

4. Install gasket on torque converter housing. DO NOT apply sealer at this time. Install differential assembly in torque converter housing. Install transaxle housing on torque converter housing without mainshaft, countershaft and secondary shaft installed.
5. Install and tighten transaxle housing-to-torque converter housing bolts to 33 ft. lbs. (44 N.m) in sequence. See **Fig. 27**. Rotate differential assembly several revolutions to seat bearings.

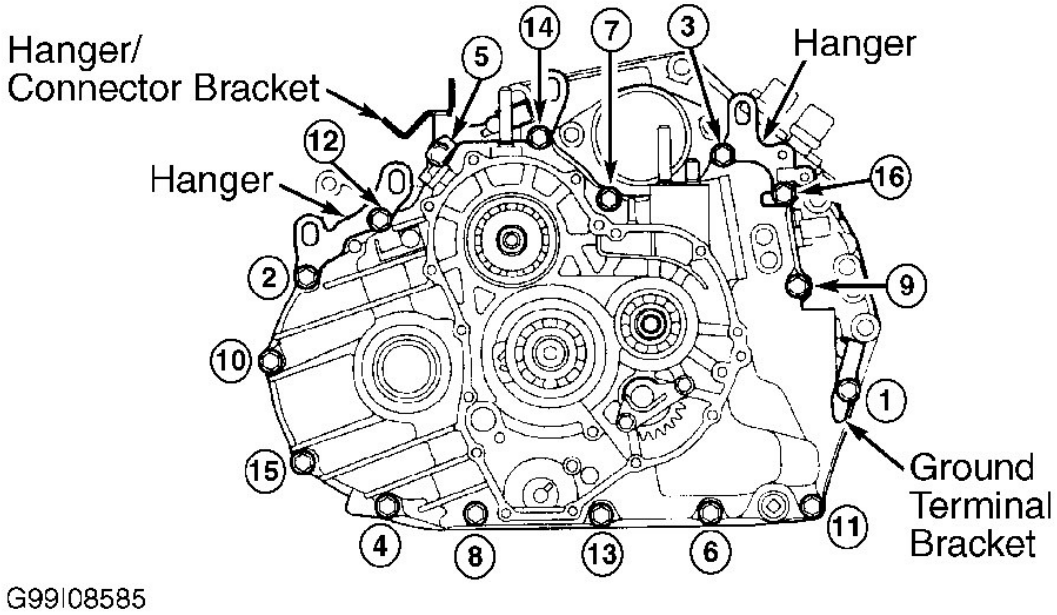

Fig. 27: Transaxle Housing Bolt Tightening Sequence
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Install Preload Adapter (07HAJ-PK40201) into differential assembly. See **Fig. 28**. Install INCH-lb. torque wrench on preload adapter. Measure differential assembly bearing preload by checking starting torque required to rotate differential assembly in both directions at room temperature.
7. Differential assembly bearing preload should be within specification. See **DIFFERENTIAL ASSEMBLY BEARING PRELOAD SPECIFICATIONS** table.

DIFFERENTIAL ASSEMBLY BEARING PRELOAD SPECIFICATIONS (1)

Application	INCH Lbs. (N.m)

New Bearings	24-35 (2.7-3.9)
Used Bearings	22-32 (2.5-3.6)
(1) The starting torque required to rotate differential assembly.	

8. If differential assembly bearing preload is not within specification, select proper thickness thrust shim to obtain correct reading. See **THRUST SHIM SPECIFICATIONS** table.

CAUTION: DO NOT use more than 2 thrust shims when adjusting differential assembly bearing preload.

9. Changing thrust shim to the next size will increase or decrease bearing preload about 2.60-3.50 INCH lbs. (.3-.4 N.m). Increase thrust shim thickness to increase differential assembly bearing preload. Decrease thrust shim thickness to decrease bearing preload.
10. If adjusting differential assembly bearing preload, remove transaxle housing from torque converter housing. Remove differential bearing outer race from transaxle housing. Install correct thrust shim. Using hammer and bearing race installer, install differential bearing outer race in transaxle housing.
11. Reinstall transaxle housing and recheck differential assembly bearing preload. Once correct differential assembly bearing preload is obtained, remove transaxle housing, gasket and differential assembly from torque converter housing.

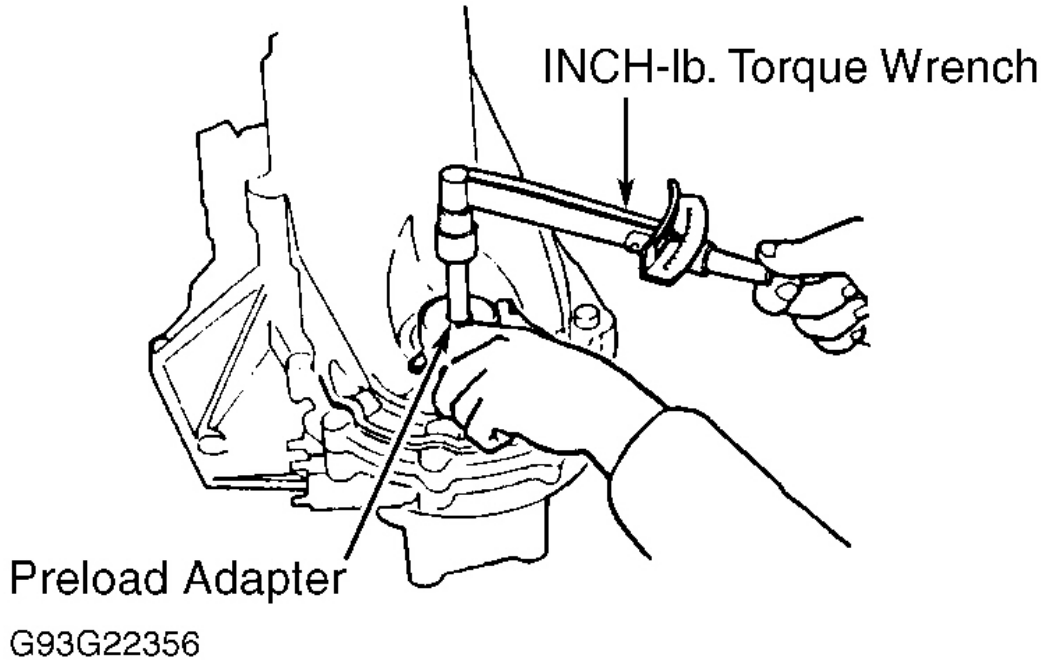

Fig. 28: Checking Differential Bearing Preload
Courtesy of AMERICAN HONDA MOTOR CO., INC.

VALVE BODIES & INTERNAL COMPONENTS

NOTE: If transaxle housing, torque converter housing, differential carrier, bearings, thrust shim, spacer or differential bearing outer races are replaced, differential assembly bearing preload must be checked. See DIFFERENTIAL ASSEMBLY BEARING PRELOAD under TRANSAXLE REASSEMBLY.

NOTE: Coat all components with ATF before reassembly.

CAUTION: Ensure oil pump driven gear is installed with groove and chamfered side facing downward (toward main separator plate).

1. Install main separator plate and 3 dowel pins on torque converter housing. Install oil pump drive gear, oil pump driven gear and oil pump driven gear shaft.
2. Install torque converter check valve and spring. Install main valve body. Loosely install all main valve body bolts. Once all bolts are installed, tighten main valve body bolts to specification. See **TORQUE SPECIFICATIONS**.

CAUTION: Ensure oil pump gears rotate smoothly and oil pump driven gear shaft moves freely once main valve body is installed. If components do not operate correctly, loosen main valve body bolts and realign oil pump gears and oil pump driven gear shaft. Failure to align oil pump driven gear shaft may result in seized oil pump gears or shaft.

3. Ensure cooler check valve and spring are installed in main valve body. See **Fig. 16**. Install stator shaft, NEW "O" ring and stop shaft. Install dowel pins in main valve body. Install servo separator plate on main valve body.
4. Install throttle control shaft in torque converter housing and align manual valve lever with manual valve guide. Ensure control shaft engages with manual valve on main valve body.
5. Install detent arm and detent arm shaft on main valve body. See **Fig. 15**. Install detent spring and hook on detent arm and control shaft.
6. Install servo body and valve cap, if equipped. Tighten servo body bolts to specification. Install and tighten accumulator cover bolts to specification. Install fluid strainer.
7. Install and tighten fluid strainer bolts to specification. Install servo detent base. Install 2 oil feed pipes in servo body, 4 in regulator valve body and one in main valve body.
8. Install differential assembly, mainshaft subassembly, secondary shaft subassembly and countershaft subassembly in torque converter housing. Install countershaft 4th gear on countershaft. Install reverse selector hub on countershaft.
9. Rotate shift fork shaft on servo body so large chamfered hole aligns with hole in shift fork. Install shift fork bolt and reverse selector as an assembly. Install NEW shift fork bolt lock. Tighten bolt to specification. Bend over tabs on bolt lock.

10. Install needle bearing, countershaft reverse gear and countershaft 2nd gear on countershaft. Install reverse idler gear in transaxle case with double groove chamfered area facing upward (away from transaxle housing). See Fig. 29.

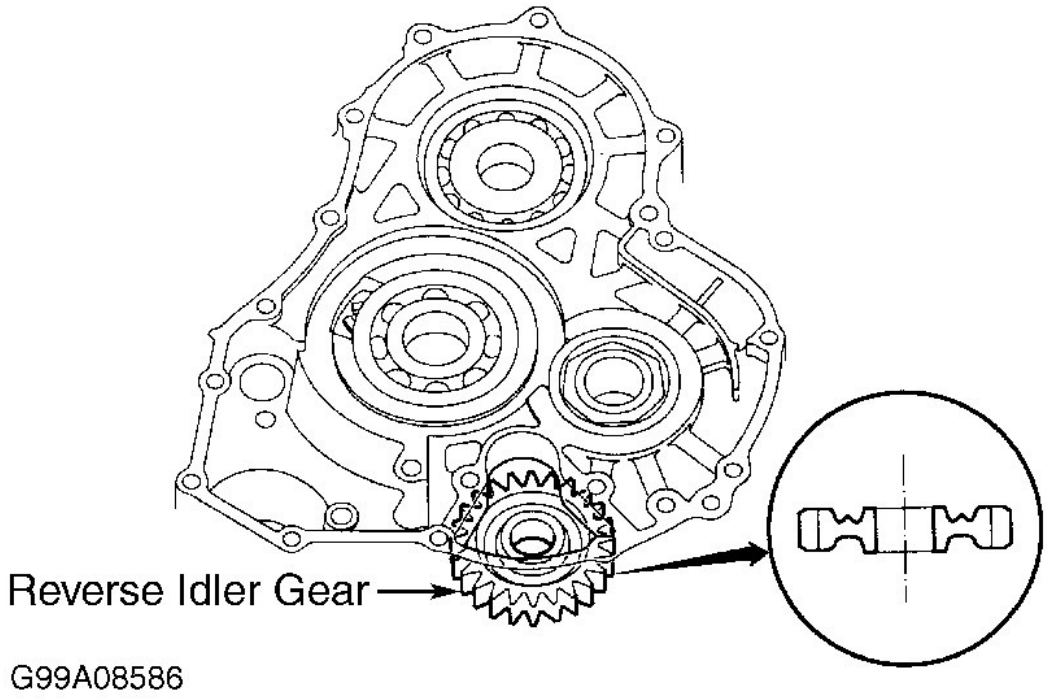

Fig. 29: Installing Reverse Idler Gear
Courtesy of AMERICAN HONDA MOTOR CO., INC.

11. Align spring pin with groove in transaxle housing by rotating control shaft. See **Fig. 13**. Install 3 dowel pins and NEW gasket on torque converter housing.
12. Install transaxle housing on torque converter housing. Install bolts with transaxle hanger/connector bracket, hangers and ground terminal bracket. Tighten bolts to specification in sequence using several steps. See **Fig. 27**.
13. Install countershaft speed sensor on transaxle housing. Install "O" rings on ATF feed pipes and install pipes. Install A/T clutch pressure solenoid valve A/B assembly with new gasket. See **Fig. 30**.

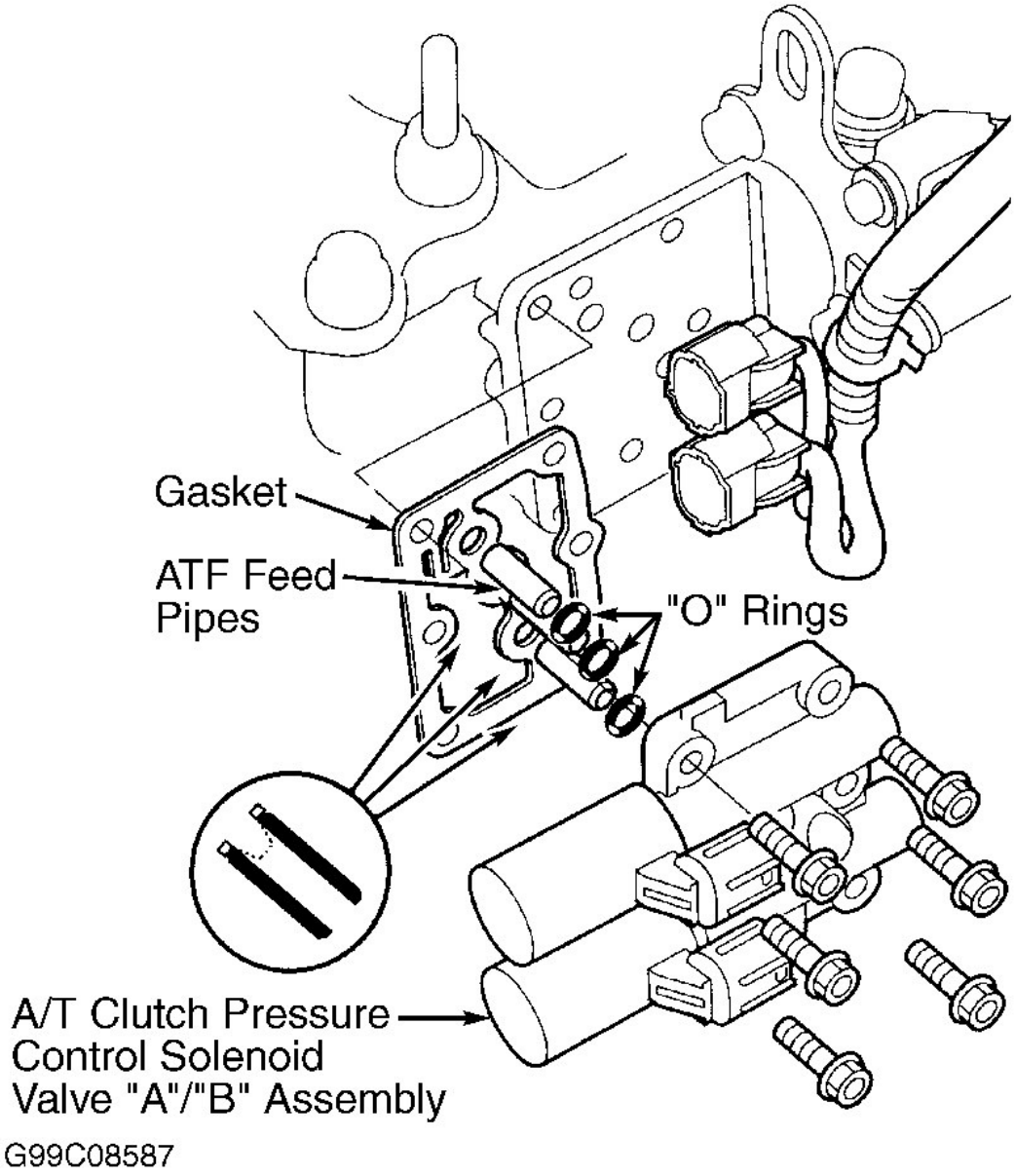

Fig. 30: Installing A/T Clutch Pressure Solenoid Valve A/B Assembly
Courtesy of AMERICAN HONDA MOTOR CO., INC.

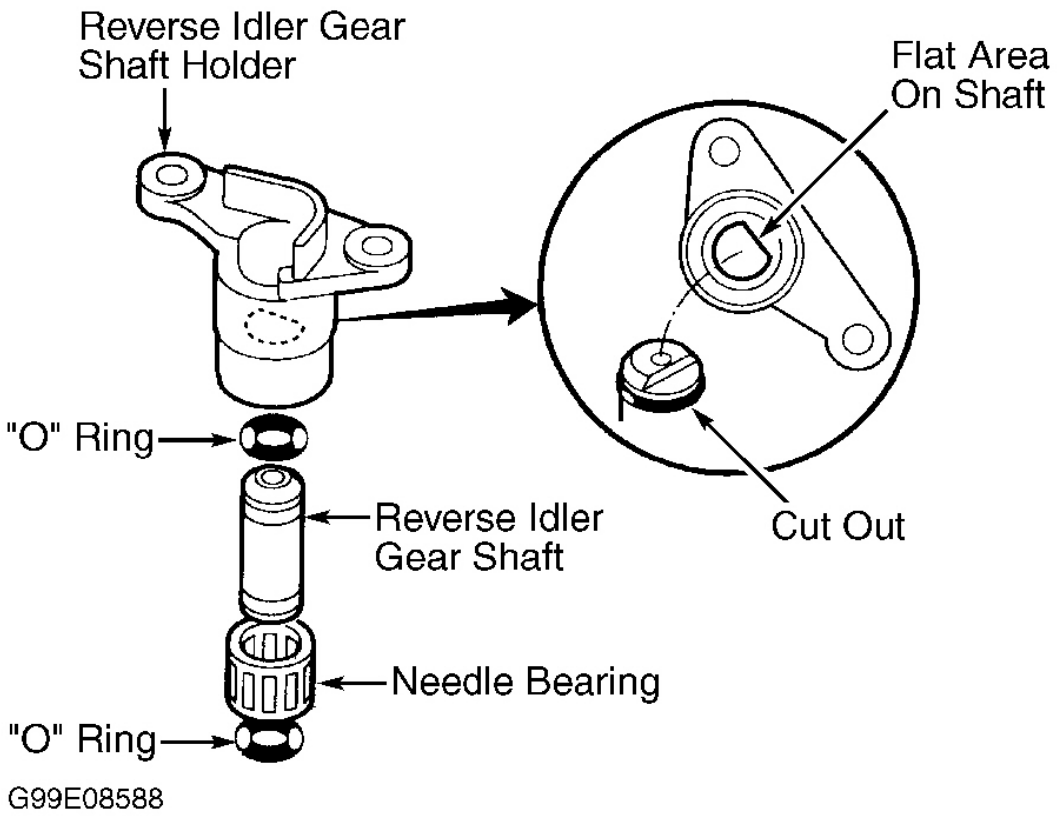

Fig. 31: Installing Reverse Idler Shaft Holder
Courtesy of AMERICAN HONDA MOTOR CO., INC.

14. Install NEW "O" rings on shaft for reverse idler shaft holder. See **Fig. 11** and **Fig. 31** . Coat shaft, needle bearing and NEW "O" rings with grease.
15. Engage reverse idler gear with countershaft reverse gear and mainshaft reverse gear. Install shaft in reverse idler gear shaft holder. Ensure flat area on shaft engages with flat area on reverse idler gear shaft holder.
16. Install reverse idler gear shaft holder with needle bearing on transaxle housing. Install and tighten bolts to specification. Install parking brake lever spring and parking brake lever on control shaft. See **Fig. 9**. Install bolt and NEW bolt lock on parking brake lever. DO NOT tighten bolt at this time.

NOTE: DO NOT use impact wrench to tighten lock nut.

17. Coat countershaft splines, used lock nut, conical spring washer and countershaft threads with ATF. Install park gear on countershaft with collar and used lock nut. Hold park pawl to engage park gear. Tighten lock nut until countershaft splines appear above park gear.
18. Remove used lock nut and collar. Install bearing hub/bearing assembly and used conical spring washer. Tighten used lock nut to 166 ft. lbs. (226 N.m) to seat park gear. Remove used lock nut and collar.

19. Using a puller, remove bearing hub/bearing assembly. Install thrust needle bearing, needle bearing, countershaft idler gear and thrust needle bearing, bearing hub/bearing assembly, and used conical spring washer on countershaft. See **Fig. 9**.
20. Tighten used lock nut to 123 ft. lbs. (167 N.m). Using dial indicator, measure countershaft idler gear axial clearance. See **Fig. 32**. Zero dial indicator with countershaft idler gear in resting position, and then lift countershaft idler gear upward. Distance measured is countershaft idler gear axial clearance.

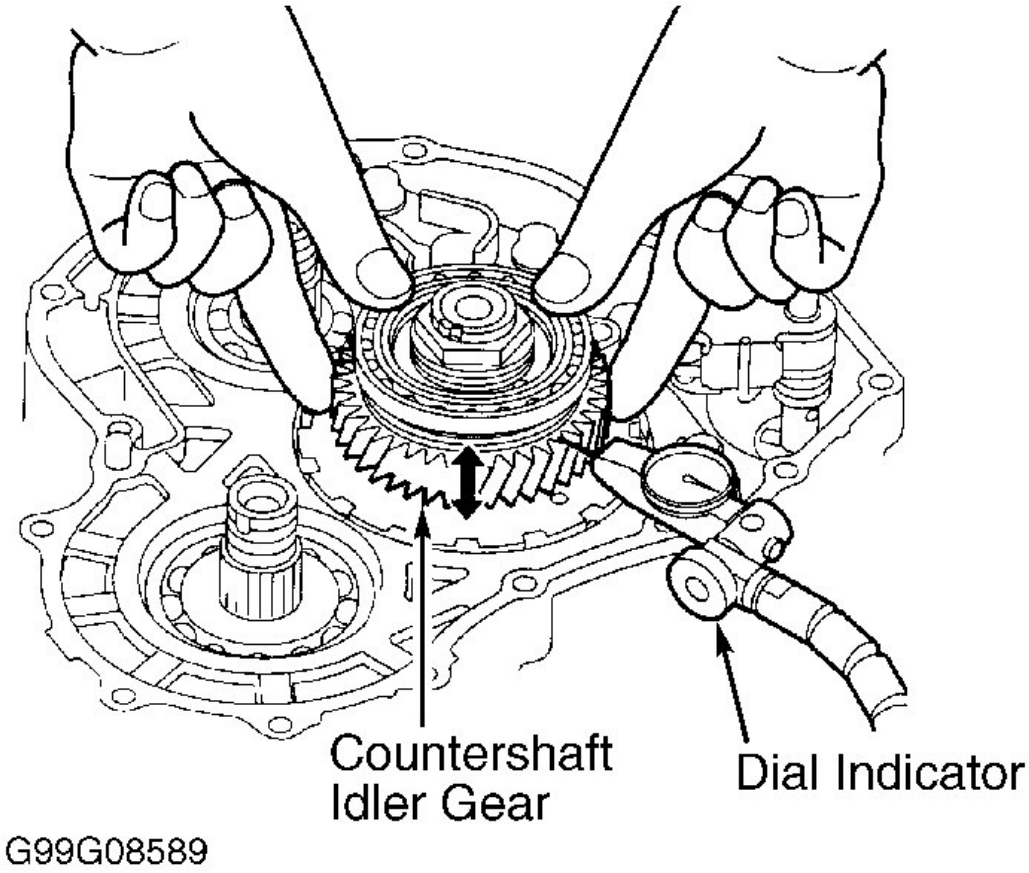

Fig. 32: Measuring Countershaft Idler Gear Axial Clearance
Courtesy of AMERICAN HONDA MOTOR CO., INC.

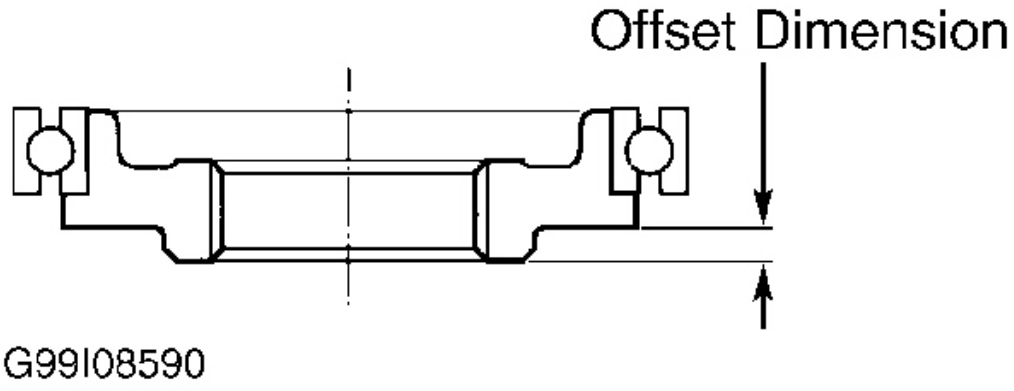

Fig. 33: Identifying Selective Portion (Snout) Of Bearing Hub/Bearing Assembly
Courtesy of AMERICAN HONDA MOTOR CO., INC.

21. If clearance is not .0006-.0018 (.015-.045 mm), remove bearing hub/bearing assembly. Select and install appropriate bearing hub/bearing assembly. See **BEARING HUB/BEARING ASSEMBLY SPECIFICATIONS** table. Recheck countershaft idler gear axial clearance.

BEARING HUB/BEARING ASSEMBLY SPECIFICATIONS

ID	Part Number	(1) Offset Dimension In. (mm)
A	90520-P6H-000	.1379 (3.503)
B	90521-P6H-000	.1374 (3.490)
C	90522-P6H-000	.1369 (3.477)
D	90523-P6H-000	.1364 (3.464)
(1) Thickness of bearing hub/bearing assembly snout, see **Fig. 33**.		

NOTE: Mainshaft lock nut has left hand threads. DO NOT use impact wrench to tighten lock nut.

22. Remove used lock nut and conical spring washer from countershaft. Install Mainshaft Holder (07GAB-PF50100 or 07GAB-PF50101) on mainshaft to secure mainshaft from rotating. See **Fig. 10**.
23. Coat mainshaft splines, secondary shaft splines, idler gears, used lock nuts, conical spring washers, mainshaft threads and secondary shaft threads with ATF. Install mainshaft idler gear and used conical spring washer on mainshaft. Tighten used lock nut to 166 ft. lbs. (226 N.m).
24. Install secondary shaft idler gear and used conical spring washer on secondary shaft. Tighten used lock nuts to 166 ft. lbs. (226 N.m) to seat idler gears. Remove used lock nuts and conical spring washers from mainshaft and secondary shaft.

25. Coat new lock nut, conical spring washers and shaft threads with ATF. Install new lock nuts and conical spring washers on all 3 shafts. Ensure conical spring washers are installed so large area of spring washer is against lock nut. See **Fig. 9**.
26. Tighten all lock nuts to 123 ft. lbs. (167 N.m). Stake all lock nuts against shaft. Place parking brake lever in "P" position.
27. Ensure parking pawl fully engages with parking gear. If parking pawl does not fully engage, measure parking brake stopper distance between parking pawl shaft and pin on parking brake stopper. See **Fig. 34**.

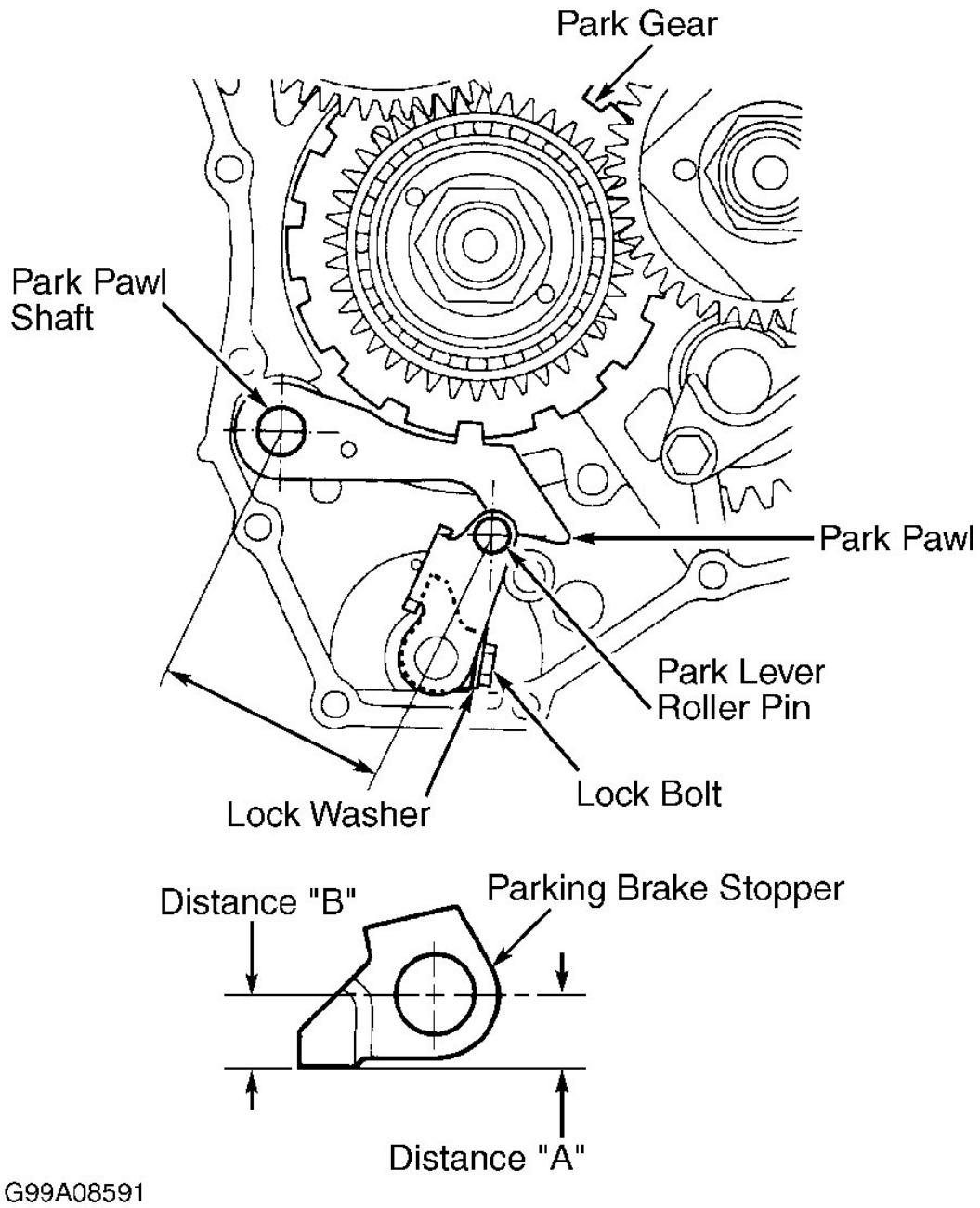

Fig. 34: Measuring Parking Brake Stopper Distance & Parking Brake Stopper
Courtesy of AMERICAN HONDA MOTOR CO., INC.

28. Parking brake stopper distance should be 2.74-2.78" (69.5-70.5 mm). If parking brake stopper distance is not within specification, install different size parking brake stopper.
29. Parking brake stopper is available in different sizes. See **Fig. 34**. See **PARKING BRAKE STOPPER SPECIFICATIONS** table.

PARKING BRAKE STOPPER SPECIFICATIONS (1)

ID	Part Number	Distance "A" In. (mm) (1)	(1) Distance "B" In. (mm)
1	24537-PA9-003	.433 (11.00)	.433 (11.00)
2	24538-PA9-003	.425 (10.80)	.419 (10.65)
3	24539-PA9-003	.417 (10.60)	.406 (10.30)
(1) Measured from center of parking brake stopper. See **Fig. 34**.			

30. Tighten parking brake lever bolt to specification. Bend over tabs on bolt lock. Using NEW gasket, install right side cover. Install and tighten bolts to specification.
31. To install remaining components, reverse removal procedure. Use NEW seal washers when installing joint bolts for ATF cooler pipes. Tighten all fasteners to specification.

CAUTION: If transaxle failure existed, flush oil cooler. See OIL COOLER FLUSHING under ON-VEHICLE SERVICE.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS

Application	Ft. Lbs. (N.m)
Countershaft Lock Nut	123 (167)
Drain Plug	36 (49)
Joint Bolt	21 (28)
Main Valve Body Bolt	
6-mm Bolt	(1)
8-mm Bolt	13 (18)
Mainshaft Lock Nut	123 (167)
Pressure Tap Plug	13 (18)
Ring Gear Bolt	74.5 (101)
Secondary Shaft Lock Nut	123 (167)
Speed Sensor Assembly Bolt	13 (18)
Transaxle Housing Bolt (2)	33 (44)
	INCH Lbs. (N.m)
A/T Clutch Pressure Control Solenoid Valve A/B Assembly	106 (12.0)
A/T Gear Position Switch	106 (12.0)
Accumulator Body Cover Bolt	106 (12.0)
Accumulator Cover Bolt	106 (12.0)
Countershaft Speed Sensor Bolt	106 (12.0)
End Cover Bolt	106 (12.0)
Fluid Strainer Bolt	106 (12.0)

Lock-Up Control Solenoid Valve Assembly Bolt	106 (12.0)
Mainshaft Speed Sensor Bolt	106 (12.0)
Parking Brake Lever Bolt	124 (14.0)
Regulator Valve Body Bolt	106 (12.0)
Reverse Idler Gear Shaft Holder Bolt	106 (12.0)
Reverse Shift Fork Bolt	124 (14.0)
Servo Body Bolt	106 (12.0)
Shift Control Solenoid Valve Assembly Bolt	106 (12.0)
Stop Bolt	106 (12.0)
(1) Tighten bolt to 106 INCH lbs. (12.0 N.m).	
(2) Tighten bolts to specification in sequence. See **Fig. 27**.	

TRANSAXLE SPECIFICATIONS

TRANSAXLE SPECIFICATIONS

Application	Specification In. (mm)
Clutch Clearance	
1st Clutch	.045-.053 (1.15-1.35)
2nd Clutch	.039-.047 (1.00-1.20)
3rd Clutch	.024-.031 (.60-.80)
4th Clutch	.016-.024 (.40-.60)
Differential Bearing Preload (1)	
New Bearings	24-35 (2.7-3.9)
Used Bearings	22-32 (2.5-3.6)
Oil Pump Side Clearance	
Oil Pump Drive Gear	.0083-.0104 (.210-.265)
Oil Pump Driven Gear	.0028-.0049 (.070-.125)
Oil Pump Thrust Clearance	
Standard	.0010-.0020 (.030-.050)
Wear Limit	.0028 (.070)
Mainshaft Clearance	.001-.004 (.03-.11)
Secondary Shaft 1st Gear Clearance	.003-.006 (.07-.15)
Side Gear Backlash	.002-.006 (.05-.15)
Parking Brake Stopper Distance	2.54-2.58 (64.5-65.6)
(1) This is the starting torque required to rotate differential assembly.	