1991 AUTOMATIC TRANSMISSIONS

MY8A Overhaul

APPLICATION

TRANSAXLE APPLICATION

Application	Transaxle Model
Prelude	MY8A

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.

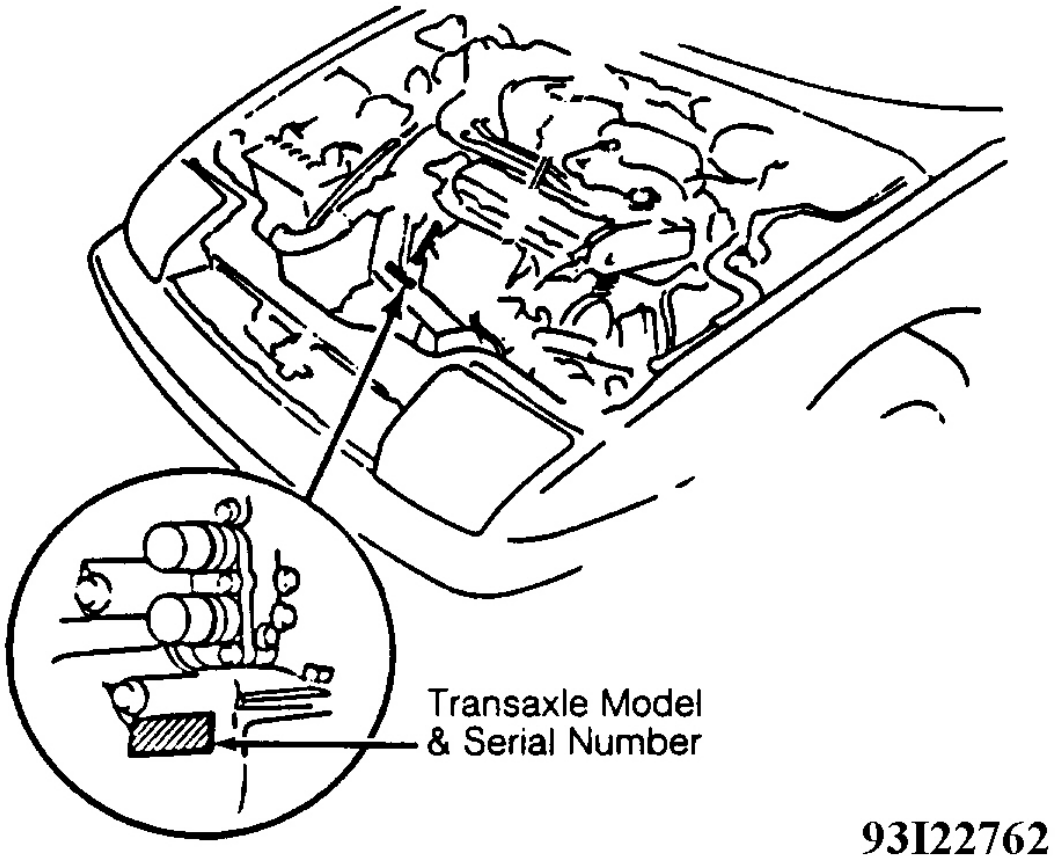


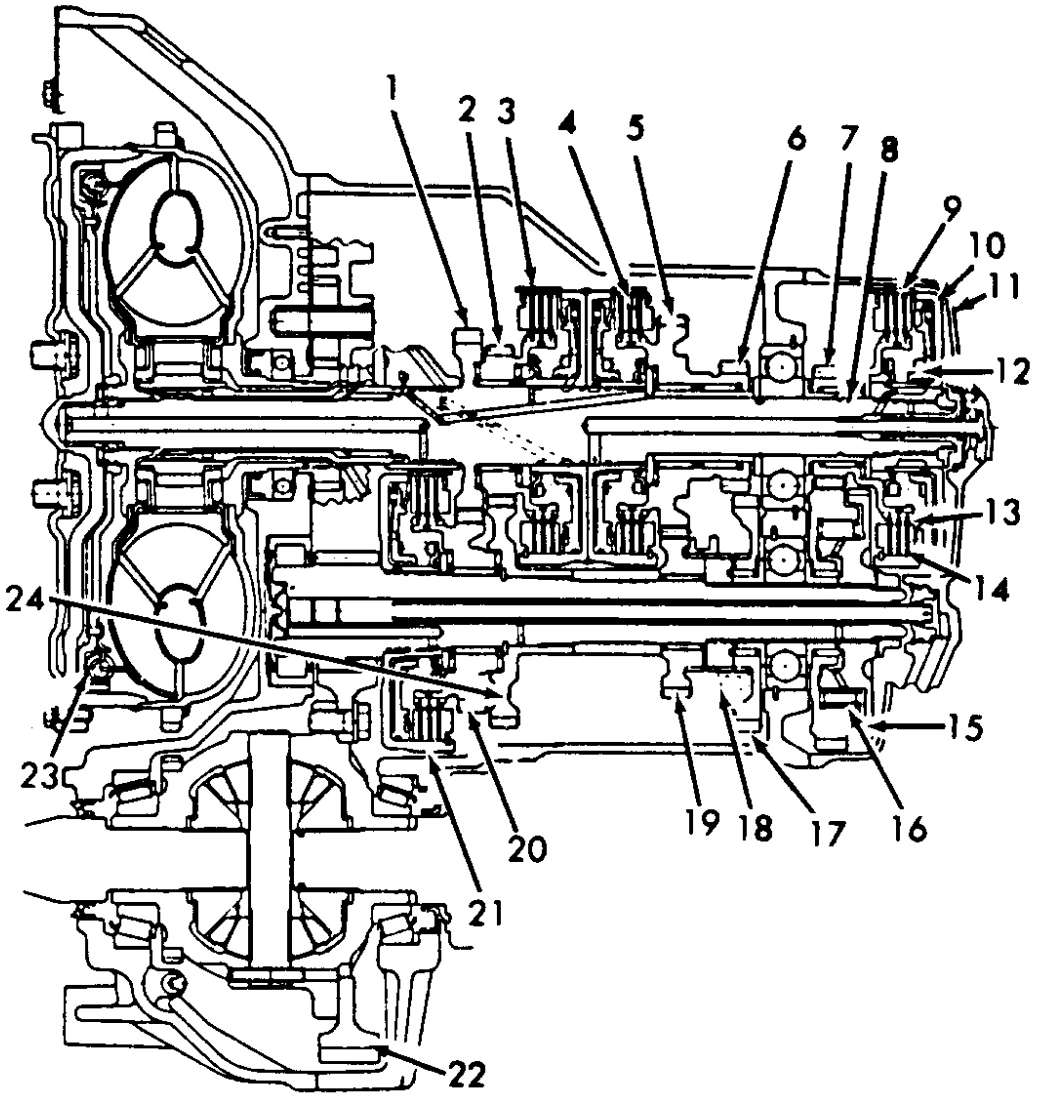
Fig. 1: Locating Transaxle Model & Serial Number
Courtesy of AMERICAN HONDA MOTOR CO., INC.

DESCRIPTION

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

Valve assembly consists of main valve body, secondary valve body, servo valve body, regulator valve body and lock-up body. Transaxle shifting and torque converter lock-up are controlled by the Automatic Transaxle Control Unit (ATCU).

An "S4" (sport mode) switch is mounted on the shift lever. The "S4" switch is used to change shift points under part throttle acceleration when shift lever is in the "S" position. If "S4" switch is pressed, transaxle will shift into 4th gear depending on throttle position and vehicle speed. The "S4" light on instrument panel will come on when switch is depressed.



1. Mainshaft 3rd Gear
2. Mainshaft 2nd Gear
3. 2nd Clutch
4. 4th Clutch
5. Mainshaft 4th Gear
6. Mainshaft Reverse Gear
7. Mainshaft 1st Gear
8. Mainshaft
9. 1st Clutch
10. Clutch Drum
11. Right Side Cover
12. Clutch Piston
13. Clutch Plate
14. Clutch Disc
15. Parking Gear
16. One-Way Clutch
17. Countershaft Reverse Gear
18. Reverse Selector
19. Countershaft 4th Gear
20. Countershaft 3rd Gear
21. 3rd Clutch
22. Differential Assembly
23. Lock-Up Clutch
24. Countershaft 2nd Gear

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

OPERATION

Shift lever has 6 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 shift position console switch, mounted near shift lever. Shift position console switch delivers an input signal to the ATCU to indicate shift lever position. The ATCU uses input signal to activate shift control solenoid valves and control transaxle.

When certain transaxle gear combinations are engaged by clutches, power is transmitted from the mainshaft to the countershaft to provide different gears. Shift lever positions operate as follows:

"P" (Park)

Front wheels lock as parking pawl engages with parking gear on countershaft. All clutches are released. Neutral safety switch, incorporated in shift position console switch, allows starting in this position.

"R" (Reverse)

Reverse selector engages with countershaft reverse gear, and 4th gear clutch is applied. Back-up light switch, incorporated in shift position console switch, turns on back-up lights.

"N" (Neutral)

All clutches are released. Neutral safety switch, incorporated in shift position console switch, allows starting in this position.

"D" (Drive)

Transaxle starts in 1st gear and upshifts automatically to 2nd, 3rd and 4th gears. Transaxle will downshift through 3rd, 2nd and 1st gears until vehicle stops. When in this gear, torque converter lock-up will operate by signal delivered from ATCU.

"S" (Sport)

Transaxle starts off in 1st gear and upshifts automatically to 2nd and then 3rd gear. The "S" light on instrument panel will come on with shift lever in this position. If "S4" switch is pressed, transaxle will shift into 4th gear depending on throttle position and vehicle speed. The "S4" light on instrument panel will come on when switch is depressed. Transaxle will downshift through 2nd to 1st gear on deceleration. Torque converter lock-up will operate when in 3rd gear and signal is delivered from ATCU.

"2" (Second)

Transaxle starts off and remains in 2nd gear for engine braking and better traction.

When in "S4" or "D", 2nd through 4th gears, 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 ATCU. The ATCU receives various input signals to activate lock-up control solenoid valves. Operation of lock-up control solenoid valves controls modulator pressure.

The ATCU has a self-diagnostic system, which will store fault code if failure or problem exists in the transaxle electronic control system. Fault code can be retrieved to determine transaxle problem area. For Information on electronic transaxle components, see **MY8A 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 more information on shift and key interlock systems, see **MY8A ELECTRONIC CONTROLS** article.

LUBRICATION & ADJUSTMENTS

See **SERVICING** article.

ON-VEHICLE SERVICE

AXLE SHAFTS

See **FWD 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 (5.6-8.4 kg/cm^2) air pressure to oil cooler flusher. Turn oil cooler flusher water valve on so water will flow through oil cooler for 10 seconds. Shut water valve off. Replace oil cooler if water will not flow through oil cooler.
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. Turn water valve off. Release mixing trigger.
4. Disconnect oil cooler flusher, and reverse hoses so oil cooler can be flushed in opposite direction. Repeat steps 2 and 3 .
5. 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 damage 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. 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.

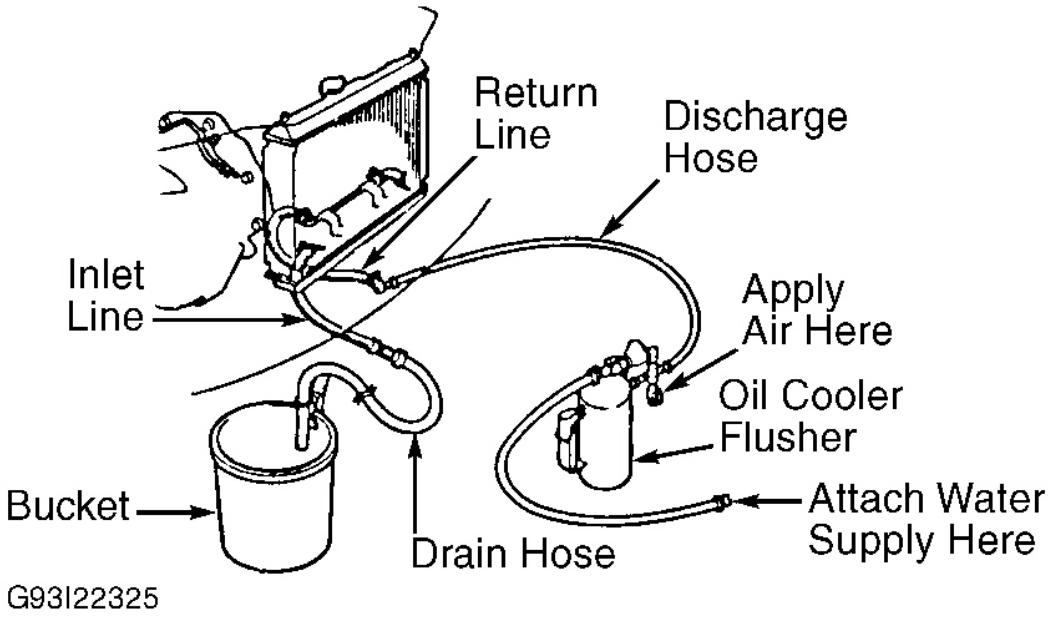


Fig. 3: Installing Oil Cooler Flusher
Courtesy of AMERICAN HONDA MOTOR CO., INC.

TROUBLE SHOOTING

PRELIMINARY INSPECTION

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, several tests must be performed on transaxle. See **TESTING** .

SYMPTOM DIAGNOSIS

Excessive Drag In Transaxle

- Binding Oil Pump

Excessive Idle Vibration

- Defective Torque Converter

- Incorrect Idle RPM

Excessive Vibration (RPM Related)

- Torque Converter Not Fully Seated In Oil Pump

Flares On 1-2 Upshift

- Clutch Pressure Control Valve Stuck
- Throttle Valve "B" Stuck
- Throttle Valve (T.V.) Cable Adjusted Too Long

Flares On 2-3 Upshift

- Clutch Pressure Control Valve Stuck
- Defective Seal Rings Or Guide
- Feedpipe "O" Ring Damaged
- Throttle Valve "B" Stuck
- Throttle Valve (T.V.) Cable Adjusted Too Long
- 2nd Orifice Control Valve Stuck

Flares On 3-4 Upshift

- Clutch Pressure Control Valve Stuck
- Defective Seal Rings Or Guide
- Feedpipe "O" Ring Damaged
- Orifice Control Valve Stuck
- Throttle Valve "B" Stuck
- Throttle Valve (T.V.) Cable Adjusted Too Long

Gear Whine That Changes With RPM & Shifts

- Damaged Mainshaft Or Countershaft
- Defective 1st Clutch
- Defective 3rd Gears

Gear Whine That Changes With Speed

- Defective Differential Gears
- Shift Fork Bent

Harsh Downshift At Closed Throttle

- Clutch Pressure Control Valve Stuck

- Throttle Valve "B" Stuck
- Throttle Valve (T.V.) Cable Adjusted Too Short

Harsh Kickdown Shifts

- Clutch Pressure Control Valve Stuck
- Throttle Valve "B" Stuck
- Throttle Valve (T.V.) Cable Adjusted Too Short
- 3rd Kickdown Valve Stuck
- 3-2 Kickdown Valve Stuck
- 4th Exhaust Valve Stuck

Harsh Upshifts & Downshifts

- Clutch Pressure Control Valve Stuck
- Improper Type ATF
- Incorrect Clutch Clearance
- Orifice Control Valve Stuck
- Throttle Valve "B" Stuck
- Throttle Valve (T.V.) Cable Adjusted Too Short
- 2nd Orifice Control Valve Stuck
- 3rd Kickdown Valve Stuck
- 3-2 Kickdown Valve Stuck

Harsh 1-2 Upshift

- Clutch Pressure Control Valve Stuck
- Defective 2nd Clutch
- Throttle Valve "B" Stuck
- Throttle Valve (T.V.) Cable Adjusted Too Short

Harsh 2-1 Kickdown Shift

- Defective One-Way Clutch

Harsh 2-3 Upshift

- Clutch Pressure Control Valve Stuck
- Defective 3rd Clutch
- Throttle Valve "B" Stuck
- Throttle Valve (T.V.) Cable Adjusted Too Short
- 2nd Orifice Control Valve Stuck

Harsh 3-4 Upshift

- Clutch Pressure Control Valve Stuck
- Defective 4th Clutch
- Orifice Control Valve Stuck
- Throttle Valve "B" Stuck
- Throttle Valve (T.V.) Cable Adjusted Too Short

Lock-Up Clutch Does Not Lock-Up Smoothly

- Defective Torque Converter
- Lock-Up Clutch Control Valve Stuck
- Lock-Up Clutch Shift Valve Stuck

Lock-Up Clutch Does Not Operate Properly

- Improperly Adjusted Throttle Valve (T.V.) Cable
- Lock-Up Clutch Control Valve Stuck
- Lock-Up Clutch Shift Valve Stuck
- Lock-Up Clutch Timing Valve Stuck
- Throttle Valve "B" Stuck
- Torque Converter Check Valve Stuck

Noise From Transaxle In All Gears

- Defective Oil Pump
- Defective Torque Converter

Noise From Transaxle With Wheels Rolling

- Defective Differential Gears
- Damaged Reverse Gears
- Reverse Hub Installed Upside Down

Popping Noise When Taking Off In "R"

- Damaged Reverse Gears
- Shift Fork Bent
- Worn Reverse Selector

Ratcheting Noise When Shifting To "R"

- Damaged Reverse Gears
- Defective Oil Pump

- Pressure Regulator Stuck
- Shift Fork Bent
- Worn Reverse Selector

Ratcheting Noise When Shifting From "R" To "P" Or "N"

- Damaged Reverse Gears
- Damaged 4th Gears
- Shift Fork Bent
- Worn Reverse Selector

Shifts Erratically

- Modulator Valve Stuck
- Throttle Valve (T.V.) Cable Adjusted Too Short
- 3-2 Kickdown Valve Stuck

Slips In All Gears

- Defective Oil Pump
- Fluid Strainer Clogged
- Pressure Regulator Stuck

Slips In Reverse

- Defective 4th Clutch Or 4th Accumulator
- Servo Valve Stuck
- Feedpipe "O" Ring Damaged

Slips In 1st Gear

- Defective One-Way Clutch
- Defective 1st Clutch Or 1st Accumulator
- Feedpipe "O" Ring Damaged

Slips In 2nd Gear

- Clutch Pressure Control Valve Stuck
- Defective Seal Rings Or Guide
- Defective 2nd Clutch Or 2nd Accumulator
- 2-3 Shift Valve Stuck

Slips In 3rd Gear

- Clutch Pressure Control Valve Stuck
- Defective Seal Rings Or Guide
- Defective 3rd Clutch Or 3rd Accumulator
- Feedpipe "O" Ring Damaged
- 3-4 Shift Valve Stuck

Slips In 4th Gear

- Clutch Pressure Control Valve Stuck
- Defective 4th Clutch Or 4th Accumulator
- Feedpipe "O" Ring Damaged

Upshifts Late

- Modulator Valve Stuck

Vehicle Locks In "R"

- Parking Brake Lever Installed Upside Down
- Shift Fork Retaining Bolt Not Installed

Vehicle Moves In All Gears Except "R"

- Defective Or Improperly Adjusted Shift Cable
- Defective Or Worn Reverse Gears
- Defective 4th Clutch
- Servo Control Valve Stuck
- Servo Valve Stuck
- Shift Fork Bent
- Worn Reverse Selector

Vehicle Moves In All Gears Except "2"

- Defective Seal Rings Or Guide
- Defective 2nd Clutch Or 2nd Accumulator

Vehicle Moves In "N"

- Defective Or Improperly Adjusted Shift Cable
- Defective 1st, 2nd, 3rd Or 4th Clutch
- Incorrect Gear Or Clutch Clearance

Vehicle Moves In "R" & "2" Only

- Defective One-Way Clutch
- Defective 1st Clutch Or 1st Accumulator
- Feedpipe "O" Ring Damaged

Vehicle Will Not Move

- Defective Oil Pump
- Defective Or Improperly Adjusted Shift Cable
- Fluid Strainer Clogged
- Pressure Regulator Stuck

Vehicle Will Not Move In "S" Or "D"

- One-Way Clutch Installed Upside Down

Will Not Downshift To Low Gear

- 1-2 Shift Valve Stuck

Will Not Upshift (Stays In Low Gear)

- Clutch Pressure Control Valve Stuck
- Modulator Valve Stuck
- 1-2 Shift Valve Stuck

TESTING

ROAD TEST

NOTE: If shift lever cannot be moved from "P" with brake pedal depressed and accelerator at idle position, check shift interlock system. See MY8A ELECTRONIC CONTROLS article.

CAUTION: DO NOT shift from "D" or "S" to "2" at speeds greater than 60 MPH, or damage to transaxle may result.

1. Warm engine to normal operating temperature. Apply parking brake, and block wheels. Start engine, move shift lever to "D" while depressing brake pedal. Depress accelerator pedal and release it suddenly. Engine should not stall.
2. Repeat step 1) with shift lever in "S", and ensure engine does not stall. Road test vehicle, and check for abnormal noise and clutch slippage. See **CLUTCH APPLICATION** table for clutch engagement specification.
3. Verify that shift points are within specifications. See **UPSHIFT SPECIFICATIONS (MPH)** and **DOWNSHIFT SPECIFICATIONS (MPH)** tables.

4. With shift lever in "D", accelerate to about 35 MPH so transaxle is in 4th gear. Move shift lever to "2" position, and ensure engine braking occurs.
5. Place shift lever in "2". Accelerate from stop at full throttle. Check for abnormal noise or clutch slippage. Upshifts and downshifts should not occur in this range.
6. Place shift lever in "R". Accelerate from stop at full throttle. Check for abnormal noise or clutch slippage.
7. Park vehicle on a slope. Apply parking brake, and place shift lever in "P". Release parking brake and ensure vehicle does not move. If vehicle moves, check for defective shift cable or parking components.

CLUTCH APPLICATION

Shift Lever Position	Elements In Use
Park & Neutral	No Clutches Are Applied
"R"	4th Clutch
"D" Or "S4"	
1st Gear	1st Clutch, One-Way Clutch
2nd Gear	(1) 2nd Clutch
3rd Gear	(1) 3rd Clutch
4th Gear	(1) 4th Clutch
"S"	
1st Gear	1st Clutch, One-Way Clutch
2nd Gear	(1) 2nd Clutch
3rd Gear	(1) 3rd Clutch
"2"	2nd Clutch
(1) The 1st clutch engages, but driving power is not transmitted, as one-way clutch slips.	

UPSHIFT SPECIFICATIONS (MPH)

Shift Lever Position & Condition	1st-2nd Gear	2nd-3rd Gear	3rd-4th Gear	Lock-Up Clutch On
2.0L				
"D" Range				
1/8 Throttle Coasting Downhill From Stop	11-13	22-26	28-34	13-17
1/2 Throttle Accelerating From Stop	21-25	39-45	59-65	68-72
Full Throttle Accelerating From Stop	36-41	65-71	91-97	80-84
"S" Range With "S4" Switch On (MD121)				
1/8 Throttle Coasting Downhill From Stop	11-13	23-27	31-37	24-28
1/2 Throttle Accelerating From Stop	28-32	49-55	71-77	76-80
Full Throttle Accelerating	36-41	65-71	91-97	80-84

From Stop				
2.1L				
"D" Range				
1/8 Throttle Coasting Downhill From Stop	11-13	22-26	28-34	13-17
1/2 Throttle Accelerating From Stop	21-25	39-45	59-65	68-72
Full Throttle Accelerating From Stop	33-38	61-67	83-89	82-86
"S" Range With "S4" Switch On (MD121)				
1/8 Throttle Coasting Downhill From Stop	11-13	23-27	31-37	24-28
1/2 Throttle Accelerating From Stop	28-32	49-57	71-77	76-80
Full Throttle Accelerating From Stop	33-38	61-67	83-89	82-86
- The "S4" switch is located on shift lever.				

DOWNSHIFT SPECIFICATIONS (MPH)

Shift Lever Position & Condition	Lock-Up Clutch Off	4th-3rd Gear	3rd-2nd Gear	2nd-1st Gear
2.0L				
"D" Range				
1/8 Throttle Coasting Or Braking To A Stop	13-15	(1)	18-22	6-9
1/2 Throttle Vehicle Slowing By Grade Or Load	53-57	(1)	(1)	(1)
Full Throttle Vehicle Slowing By Grade Or Load	76-80	75-83	56-63	23-29
"S" Range With "S4" Switch On (2)				
1/8 Throttle Coasting Or Braking To A Stop	23-27	(1)	18-22	6-9
1/2 Throttle Vehicle Slowing By Grade Or Load	58-62	(1)	(1)	(1)
Full Throttle Vehicle Slowing By Grade Or Load	76-80	75-83	56-63	23-29
2.1L				
"D" Range				
1/8 Throttle Coasting Or Braking To A Stop	13-15	(1)	18-22	6-9

1/2 Throttle Vehicle Slowing By Grade Or Load	53-57	(1)	(1)	(1)
Full Throttle Vehicle Slowing By Grade Or Load	76-80	75-82	56-63	23-29
"S" Range With "S4" Switch On (2)				
1/8 Throttle Coasting Or Braking To A Stop	24-26	(1)	18-22	6-9
1/2 Throttle Vehicle Slowing By Grade Or Load	58-62	(1)	(1)	(1)
Full Throttle Vehicle Slowing By Grade Or Load	76-80	75-82	56-63	23-29
(1) - Specification is not available from manufacturer.				
(2) - The "S4" switch is located on shift lever.				

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 and block front wheels. Connect tachometer and start engine. Warm engine to normal operating temperature. Ensure A/C is off. Place shift lever in "2".
2. Fully depress brake pedal. Fully depress accelerator for 6-8 seconds, and check engine speed. This is the torque converter stall speed.
3. Allow transaxle to cool for 2 minutes. Repeat test procedure with shift lever in "D" and "R".
4. Torque converter stall speed should be the same in "D", "2" and "R" and within specification. 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 problem areas.

TORQUE CONVERTER STALL SPEED SPECIFICATIONS

Application	Engine RPM
Standard	2650
Service Limit	2500-2800

TORQUE CONVERTER STALL SPEED TROUBLE SHOOTING

Torque Converter Stall Speed Test Results	Probable Cause
Stall Speed RPM High In "D", "2" & "R"	Low Fluid Level, Low Oil Pump Output, Clogged Fluid Strainer, Pressure Regulator Valve Stuck

	Closed, Slipping Clutch
Stall Speed RPM High In "R"	Slipping 4th Clutch
Stall Speed RPM High In "D"	Slipping 1st Clutch, Defective One-Way Clutch
Stall Speed RPM High In "2"	Slipping 2nd Clutch
Stall Speed RPM Low In "D", "2" & "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. Apply parking brake and block rear wheels. Raise and support vehicle so front wheels can rotate.

Line Pressure Test

1. With engine off, remove plug from line pressure tap on transaxle. See **Fig. 4** . Attach Pressure Gauge Set (07406-0020003) to line pressure tap using NEW aluminum washer. Tighten hose fitting to 13 ft. lbs. (18 N.m).
2. With shift lever in "P", start and operate engine at 2000 RPM. Note line pressure. Place shift lever in "N" and note line pressure.
3. Line pressure should be within specification. See **HYDRAULIC PRESSURE TEST SPECIFICATIONS** table. If line pressure is not within specification, see **HYDRAULIC PRESSURE TROUBLE SHOOTING** table. Shut engine off. Remove pressure gauge set, and install plug.

NOTE: Check clutch pressure at each clutch pressure tap on transaxle. See Fig. 4 .

Clutch Pressure Test

1. With engine off, remove plug from appropriate clutch pressure tap on transaxle. See **Fig. 4** . Attach Pressure Gauge Set (07406-0020003) to appropriate pressure tap using NEW aluminum washer. Tighten hose fitting to 13 ft. lbs. (18 N.m).

   NOTE: Clutch pressure on some applications may vary with position of Throttle Valve (T.V.) lever on transaxle. T.V. cable must be disconnected for some tests. Ensure shift lever is in proper position when checking clutch pressures.

2. Operate engine at 2000 RPM, and note clutch pressure reading with shift lever in proper position. See **HYDRAULIC PRESSURE TEST SPECIFICATIONS** table.
3. Clutch pressure should be within specification. If clutch pressure is not within specification, see **HYDRAULIC PRESSURE TROUBLE SHOOTING** table. Shut engine off. Remove pressure gauge set, and install plug.

Low/High Pressure Test

1. The low/high pressure is tested at 2nd, 3rd and 4th clutch pressure taps on transaxle. See **Fig. 4** . Disconnect Throttle Valve (T.V.) cable from transaxle T.V. lever.

NOTE: When disconnecting T.V. cable, unhook cable from transaxle T.V. lever. DO NOT loosen lock nuts used for cable adjustment.

2. With engine off, remove plug from appropriate clutch pressure tap on transaxle. Attach Pressure Gauge Set (07406-0020003) to appropriate pressure tap using NEW aluminum washer. Tighten hose fitting to 13 ft. lbs. (18 N.m).
3. Start engine and allow to idle. To check 2nd or 3rd clutch, move shift lever to "S" or "D" position. To check 4th clutch, place shift lever in "D" and "R" positions. Slowly increase engine speed until pressure is indicated on pressure gauge. Release throttle, allow engine to idle, and note low pressure reading.
4. With engine idling, lift transaxle T.V. lever upward approximately1/2 the distance of lever travel. Increase engine speed, and note highest pressure reading.
5. Repeat procedure on remaining clutches. The low/high pressure should be within specification. See **HYDRAULIC PRESSURE TEST SPECIFICATIONS** table. If low/high pressure is not within specification, see **HYDRAULIC PRESSURE TROUBLE SHOOTING** table.
6. Shut engine off. Remove pressure gauge set, and install plug. Reconnect T.V. cable.

Throttle Valve "B" Pressure Test

1. Disconnect Throttle Valve (T.V.) cable from transaxle T.V. lever. With engine off, remove plug from throttle valve "B" pressure tap. See **Fig. 4** .

NOTE: When disconnecting T.V. cable, unhook cable from transaxle T.V. lever. DO NOT loosen lock nuts used for cable adjustment.

2. Attach Pressure Gauge Set (07406-0020003) to throttle valve "B" pressure tap using NEW aluminum washer. See **Fig. 4** . Tighten hose fitting to 13 ft. lbs. (18 N.m).
3. Start engine and operate at 1000 RPM. Place shift lever in "S" or "D" position. No pressure should exist with transaxle T.V. lever released (closed position). Lift transaxle T.V. lever fully upward (open position). Note throttle valve "B" pressure reading.
4. Throttle valve "B" pressure should be within specification. See **HYDRAULIC PRESSURE TEST SPECIFICATIONS** table. If pressure is not within specification, see **HYDRAULIC PRESSURE TROUBLE SHOOTING** table. Shut engine off. Remove pressure gauge set, and install plug. Reconnect T.V. cable.

NOTE: Check modulator pressure at lock-up and shift control solenoid valve modulator pressure taps on transaxle. See Fig. 4 .

Modulator Pressure

1. With engine off, remove plug from appropriate modulator pressure tap on transaxle. See **Fig. 4** . Attach Pressure Gauge Set (07406-0020003) to pressure tap using NEW aluminum washer. Tighten hose fitting to 13 ft. lbs. (18 N.m).

2. With shift lever in "P" or "N" position, start and operate engine at 2000 RPM. Note modulator pressure.
3. Modulator pressure should be within specification. See **HYDRAULIC PRESSURE TEST SPECIFICATIONS** table. If modulator pressure is not within specification, see **HYDRAULIC PRESSURE TROUBLE SHOOTING** table. Shut engine off. Remove pressure gauge set, and install plug.

HYDRAULIC PRESSURE TEST SPECIFICATIONS

Application	Shift Lever Position	psi (kg/cm^2)
Line Pressure		
With Engine At 2000 RPM	"P" Or "N"	114-128 (8.0-9.0)
Clutch Pressure		
1st Clutch With Engine At 2000 RPM	"S" Or "D"	114-128 (8.0-9.0)
2nd Clutch		
With Engine At 2000 RPM	"2"	114-128 (8.0-9.0)
With Transaxle T.V. Lever Fully Closed (1)	"S" Or "D"	61-68 (4.3-4.8)
With Transaxle T.V. Lever Open More Than 3/8 (2)	"S" Or "D"	114-128 (8.0-9.0)
3rd Clutch		
With Transaxle T.V. Lever Fully Closed (2)	"S" Or "D"	61-68 (4.3-4.8)
With Transaxle T.V. Lever Open More Than 3/8 (2)	"S" Or "D"	114-128 (8.0-9.0)
4th Clutch		
With Engine At 2000 RPM	"R"	114-128 (8.0-9.0)
With Transaxle T.V. Lever Fully Closed (1) (3)	"S" Or "D"	61-68 (4.3-4.8)
With Transaxle T.V. Lever Open More Than 3/8 (2) (3)	"S" Or "D"	114-128 (8.0-9.0)
Low Pressure		
With Transaxle T.V. Lever Fully Closed (1)		
2nd Or 3rd Clutch	"S" Or "D"	61-68 (4.3-4.8)
4th Clutch	"D"	61-68 (4.3-4.8)
High Pressure		
With Transaxle T.V. Lever Lifted Upward 1/2 Distance Of T.V. Lever Travel		
2nd Or 3rd Clutch	"S" Or "D"	114-128 (8.0-9.0)
4th Clutch	"D"	114-128 (8.0-

		9.0)
Throttle Valve "B" Pressure		
With Transaxle T.V. Lever Fully Open (4)	"S" Or "D"	114-128 (8.0-9.0)
Modulator Pressure		
Lock-Up Control Solenoid Valves	"P" Or "N"	61-74 (4.3-5.2)
Shift Control Solenoid Valves	"P" Or "N"	61-74 (4.3-5.2)

(1) Check pressure with engine at 2000 RPM. The T.V. cable must be disconnected. Fully closed position is with transaxle T.V. lever in released position and not being pulled upward by T.V. cable.

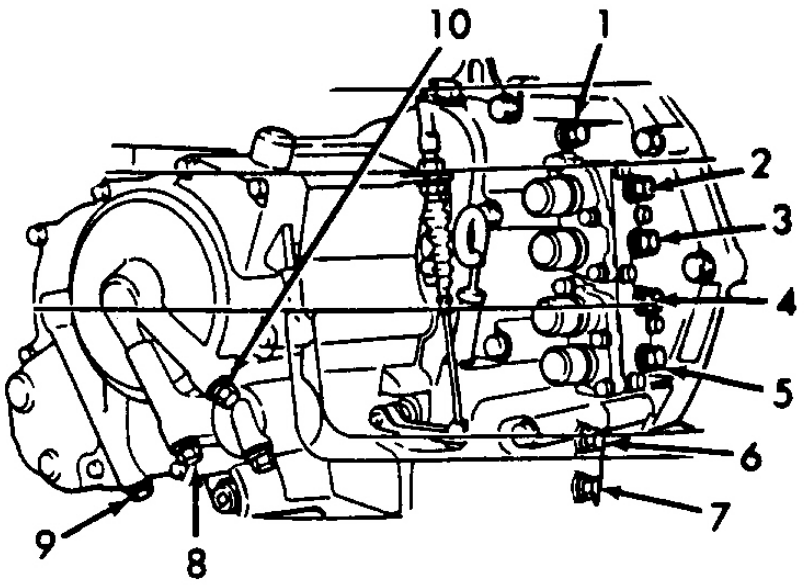
(2) Check pressure with engine at 2000 RPM. The T.V. cable must be disconnected. Open position is with transaxle T.V. lever being pulled upward 3/8 the distance of lever travel.

(3) When checking pressure in "S" position, ensure "S4" switch, located on shift lever, is turned on.

(4) Check pressure with engine at 1000 RPM. Open position is with transaxle T.V. lever being pulled fully upward.

HYDRAULIC PRESSURE TROUBLE SHOOTING

Application	Probable Cause
Line Pressure	
Low Or No Pressure	Defective Torque Converter, Defective Torque Converter Check Valve, Defective Oil Pump Pressure Regulator, 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
Low/High Pressure	
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
Throttle Valve "B" Pressure	
Low Or No Pressure	Defective Throttle Valve "B"
Modulator Valve Pressure	
Low Or No Lock-Up Control Solenoid Valve Pressure	Defective Lock-Up Control Solenoid Valve
Low Or No Shift Control Solenoid Valve Pressure	Defective Shift Control Solenoid Valve
Low Or No Modulator Pressure At All Pressure Taps	Defective Modulator Valve
High Modulator Pressure At All Pressure Taps	Defective Modulator Valve



1. Line Pressure Tap
2. Lock-Up Control Solenoid Valve "B" Modulator Pressure Tap
3. Lock-Up Control Solenoid Valve "A" Modulator Pressure Tap
4. Shift Control Solenoid Valve "A" Modulator Pressure Tap
5. Shift Control Solenoid Valve "B" Modulator Pressure Tap
6. Throttle Valve "B" Pressure Tap
7. 2nd Clutch Pressure Tap
8. 4th Clutch Pressure Tap
9. 3rd Clutch Pressure Tap
10. 1st Clutch Pressure Tap

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Fig. 4: Identifying Transaxle Pressure Taps
Courtesy of AMERICAN HONDA MOTOR CO., INC.

REMOVAL & INSTALLATION

ELECTRICAL COMPONENTS

See **MY8A ELECTRONIC CONTROLS** article.

TRANSAXLE

See **REMOVAL & INSTALLATION** article.

TORQUE CONVERTER

Torque converter consists of pump, turbine and stator assembled as a unit. Torque converter cannot be serviced

and must be replaced if defective.

NOTE: For torque converter stall speed test, see TESTING .

TRANSAXLE DISASSEMBLY

VALVE BODIES & INTERNAL COMPONENTS

1. Remove bolts, right side cover and gasket. See **Fig. 5** . Install Mainshaft Holder (07GAB-PF50100) on mainshaft to secure mainshaft. See **Fig. 6** .
2. Engage parking pawl with parking gear. Using hammer and chisel, cut lock tabs on countershaft and mainshaft lock nuts. Remove lock nuts. See **Fig. 5** .

NOTE: Mainshaft lock nut has left-hand threads.

3. Remove mainshaft holder once all lock nuts are removed. Remove 1st clutch assembly, thrust washer, thrust needle bearing and needle bearing. See **Fig. 5** .
4. Remove mainshaft 1st gear, thrust washer and mainshaft 1st gear collar from mainshaft. Remove parking pawl, parking pawl spring, parking pawl shaft and stop pin. See **Fig. 5** .
5. Using puller, remove parking gear and countershaft 1st gear from countershaft. Remove needle bearing and countershaft 1st gear collar from countershaft. Remove bolt and bolt lock from parking brake stopper. See **Fig. 5** .
6. Remove parking brake stopper, parking shift arm and parking pawl spring. Remove bolt, bolt lock, throttle control lever and throttle control shaft spring. Remove bolts, reverse idler gear holder, steel ball, spring and needle bearing. See **Fig. 5** .

NOTE: DO NOT lose steel ball and spring when removing reverse idler gear holder.

7. Remove transaxle housing bolts. Align spring pin with cut-out area in transaxle housing by rotating control shaft. See **Fig. 7** . Using Puller (07HAC-PK4010A), remove transaxle housing and gasket. Remove reverse idler gear from transaxle housing. Remove bolt and speed pulser (if necessary).

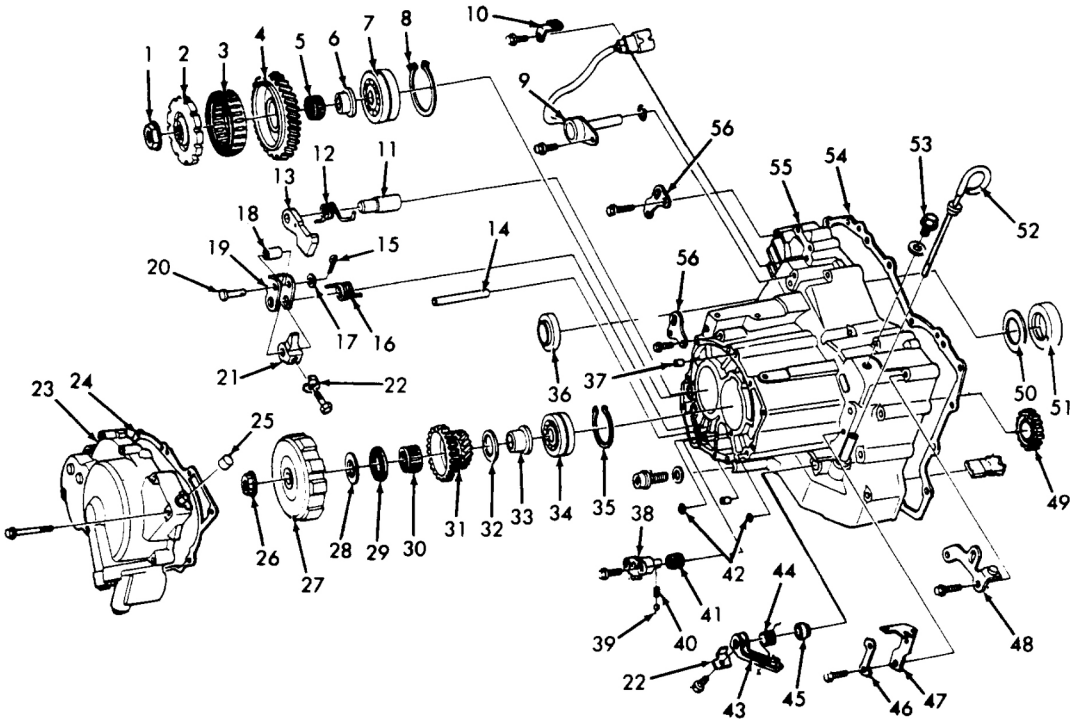


Fig. 5: View Of Right Side Cover, Transaxle Housing & Components
Courtesy of AMERICAN HONDA MOTOR CO., INC.

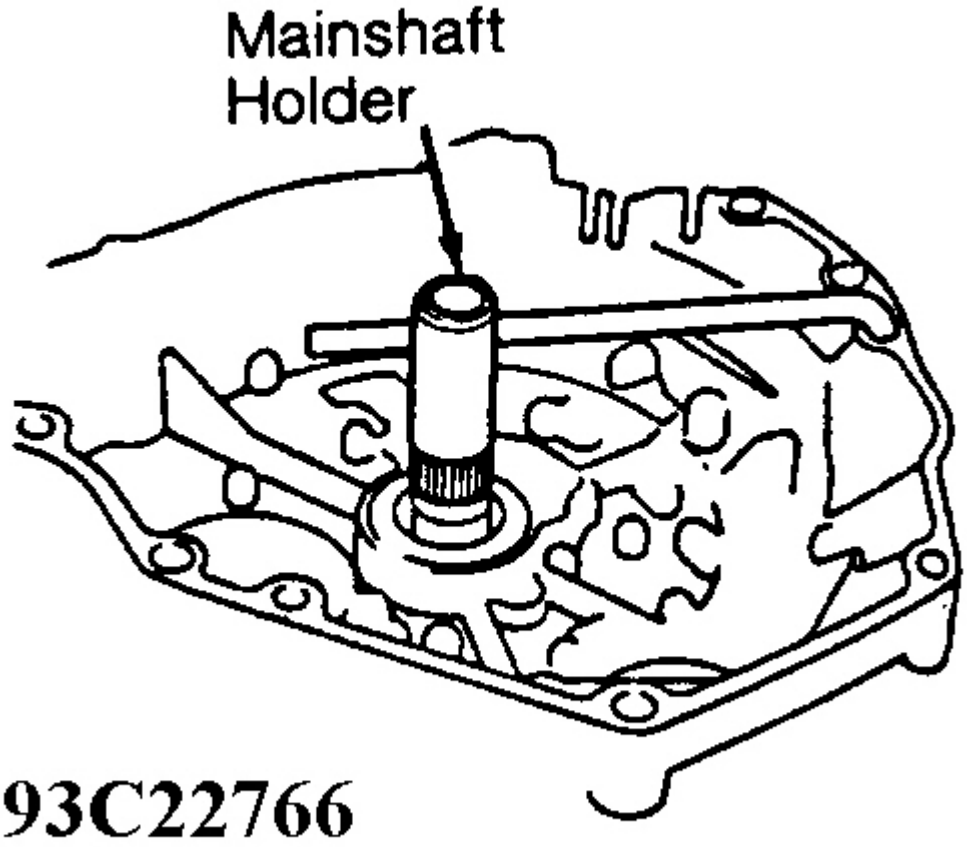


Fig. 6: Installing Mainshaft Holder
Courtesy of AMERICAN HONDA MOTOR CO., INC.

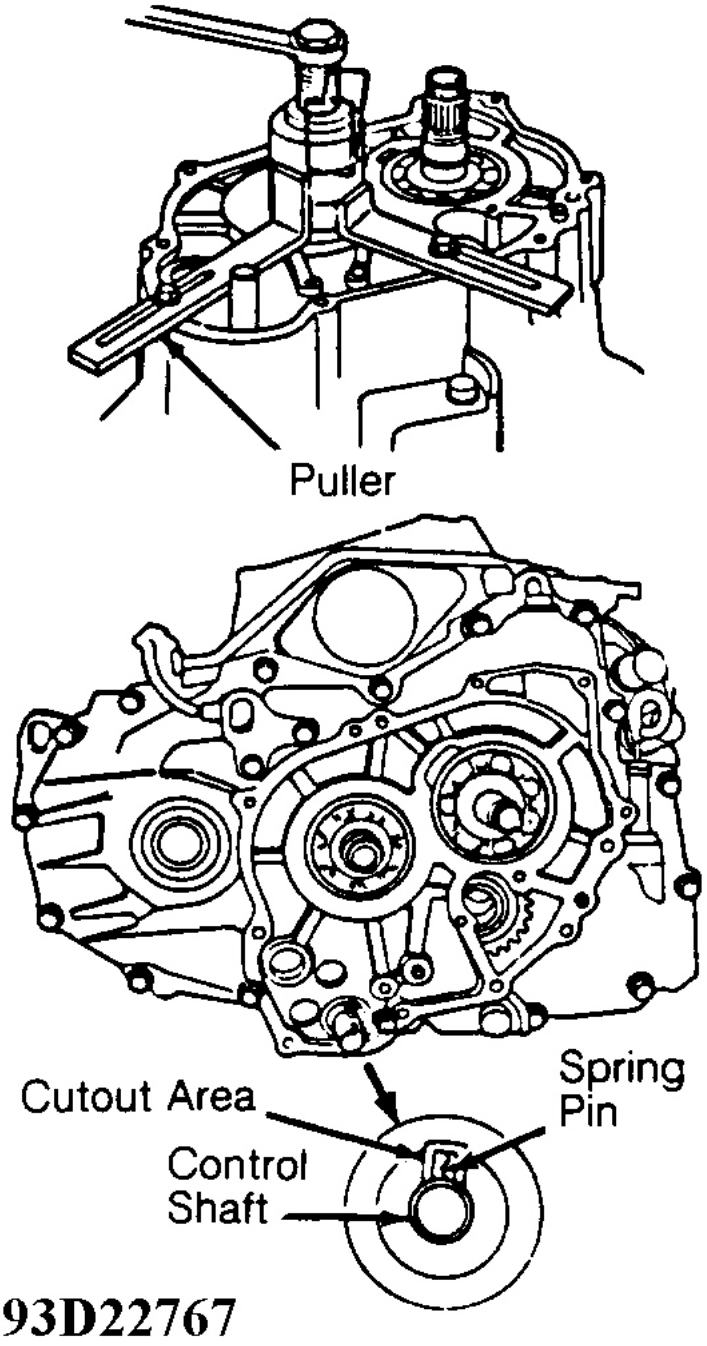


Fig. 7: Aligning Spring Pin & Removing Transaxle Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

8. Remove bolt, bolt lock and reverse shift fork. Remove countershaft reverse gear collar, needle bearing and countershaft reverse gear. See **Fig. 8** .

9. Remove reverse gear selector, reverse selector hub and countershaft 4th gear. Remove needle bearing, distance collar, countershaft and mainshaft. See **Fig. 8** .

CAUTION: DO NOT lose check balls from valve body when removing secondary valve body

10. Remove pulser rotor and 2nd accumulator body. Remove fluid strainer, servo detent base and accumulator cover. Remove servo valve body and servo separator plate. Remove secondary valve body, secondary separator plate and dowel pins. See **Fig. 8** .
11. Remove throttle control shaft. Remove lock-up body, lock-up body separator plate and dowel pins. Remove regulator valve body, "O" ring and stator shaft. Remove bolt, bolt lock and control shaft lever. See **Fig. 8** .

CAUTION: DO NOT lose check balls from valve body when removing main valve body.

12. Remove main valve body and dowel pins. Remove differential assembly. Remove oil pump drive gear, oil pump driven gear shaft and oil pump driven gear. Remove main separator plate. Remove shift control solenoid valve assemblies and gaskets. See **Fig. 8** .

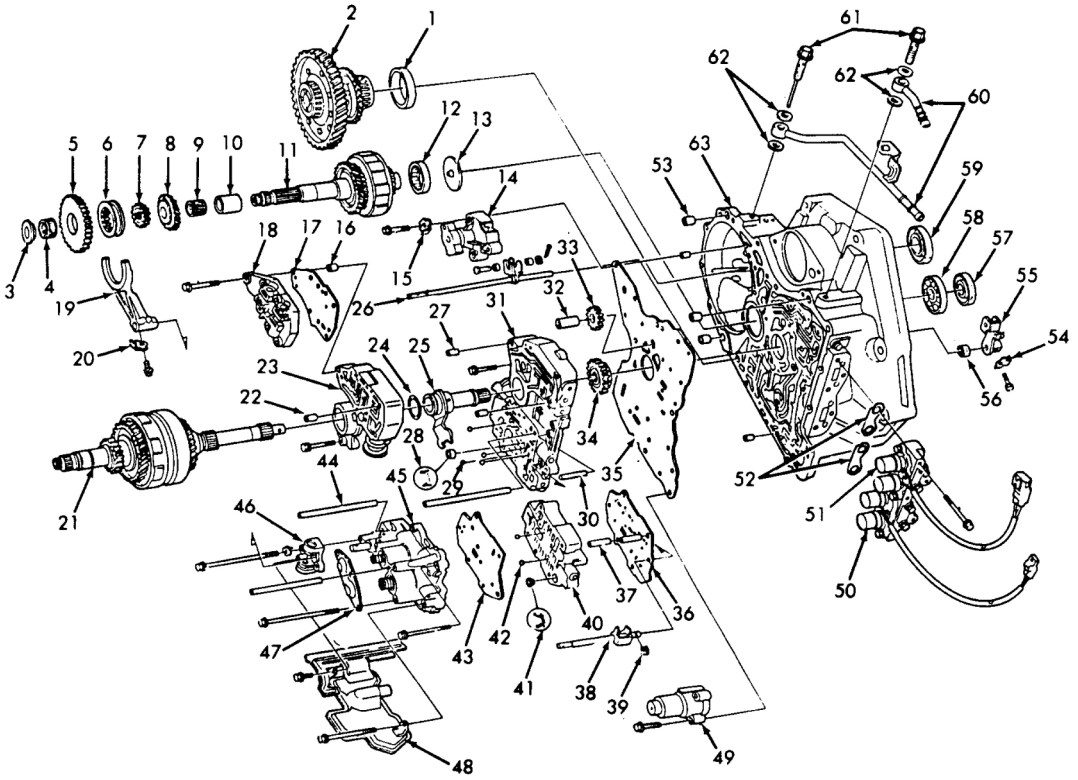


Fig. 8: Exploded View Of Torque Converter Housing & Components
Courtesy of AMERICAN HONDA MOTOR CO., INC.

COMPONENT DISASSEMBLY & REASSEMBLY

MAIN VALVE BODY

CAUTION: When disassembling main valve body, place 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.

Disassembly

Disassemble main valve body. See **Fig. 9** . 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 their 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 .

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. 9** .

SPRING SPECIFICATIONS

Application	Free Length In. (mm)
Lock-Up Body	
Relief Valve Spring	2.276 (57.80)
Torque Converter Check Valve Spring	1.429 (36.30)
Main Valve Body	
Cooler Check Valve Spring	1.843 (46.80)
Lock-Up Shift Valve Spring	2.902 (73.70)
Lock-Up Timing Valve Spring	2.394 (60.80)
Orifice Control Valve Spring	1.575 (40.00)
1-2 Shift Valve Spring	1.634 (41.50)
2nd Kickdown Valve Spring	1.461 (37.10)
2-3 Shift Valve Spring	2.000 (50.80)
3-4 Shift Valve Spring	2.000 (50.80)
Regulator Valve Body	
Lock-Up Control Valve Spring	1.496 (38.00)
Regulator Valve Spring "A"	3.488 (88.60)
Regulator Valve Spring "B"	1.732 (44.00)
Stator Reaction Spring	1.193 (30.30)
Right Side Cover	
Steel Ball Spring	.551 (14.00)
1st Accumulator Spring "A"	2.212 (56.20)

1st Accumulator Spring "B"	1.654 (42.00)
Secondary Valve Body	
Modulator Valve Spring	1.276 (32.40)
Servo Control Valve Spring	1.654 (42.00)
Throttle Valve Adjusting Spring	1.181 (30.00)
Throttle Valve "B" Spring	1.630 (41.40)
2nd Orifice Control Valve Spring	1.846 (46.90)
3rd Kickdown Valve Spring	2.500 (63.50)
Servo Valve Body	
Clutch Pressure Control Valve Spring	1.441 (36.60)
3rd Accumulator Spring	2.988 (75.90)
4th Accumulator Spring	3.110 (79.00)
4th Exhaust Valve Spring	1.343 (34.10)
2nd Accumulator Body	
2nd Accumulator Spring	3.346 (85.00)

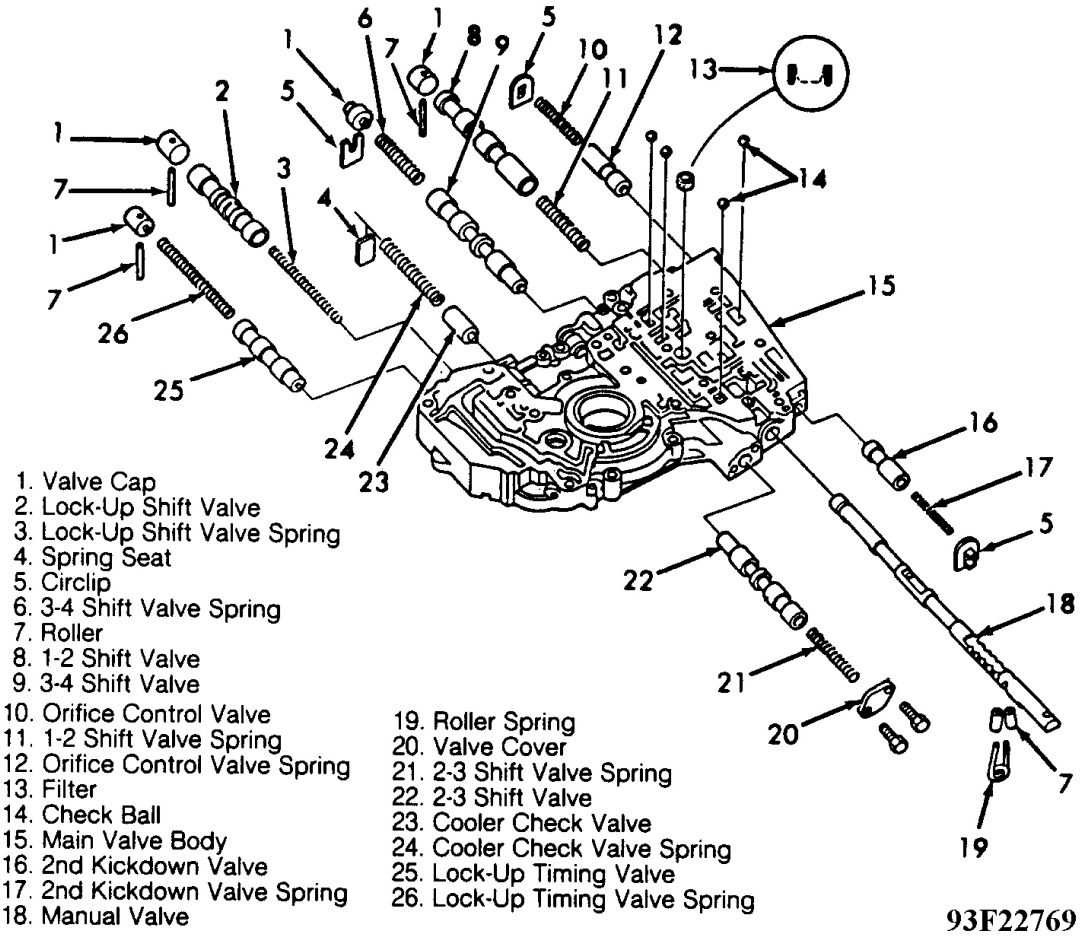


Fig. 9: Exploded View Of Main Valve Body
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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. Install oil pump gears and oil pump driven gear shaft in main valve body. Ensure chamfered side of oil pump driven gear is facing upward (toward separator plate side of main valve body). Place straightedge across main valve body surface.
3. Using feeler gauge, measure thrust clearance between oil pump driven gear and straightedge. See **Fig. 10** . Replace oil pump gears and/or main valve body if thrust clearance is not within specification. See **OIL PUMP SPECIFICATIONS** table.
4. Using feeler gauge, measure side clearance between tip of gear teeth and main valve body on both gears. See **Fig. 10** . Replace oil pump gears and/or main valve body if side clearance is not within specification. See **OIL PUMP SPECIFICATIONS** table.

Reassembly

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

OIL PUMP SPECIFICATIONS

Application	In. (mm)
Side Clearance	
Oil Pump Drive Gear	.0083-.0104 (.210-.265)
Oil Pump Driven Gear	.0014-.0025 (.035-.063)
Thrust Clearance	
Standard	.001-.002 (.03-.05)
Wear Limit	.0028 (.070)

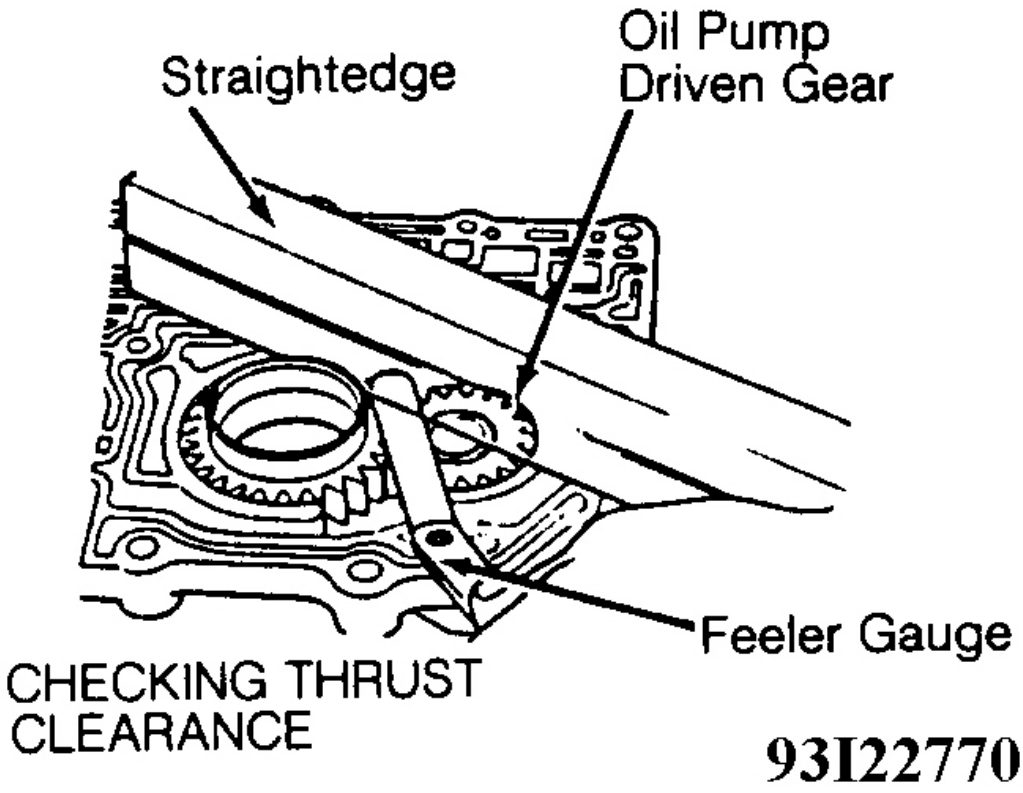


Fig. 10: Checking Thrust Clearance
Courtesy of AMERICAN HONDA MOTOR CO., INC.

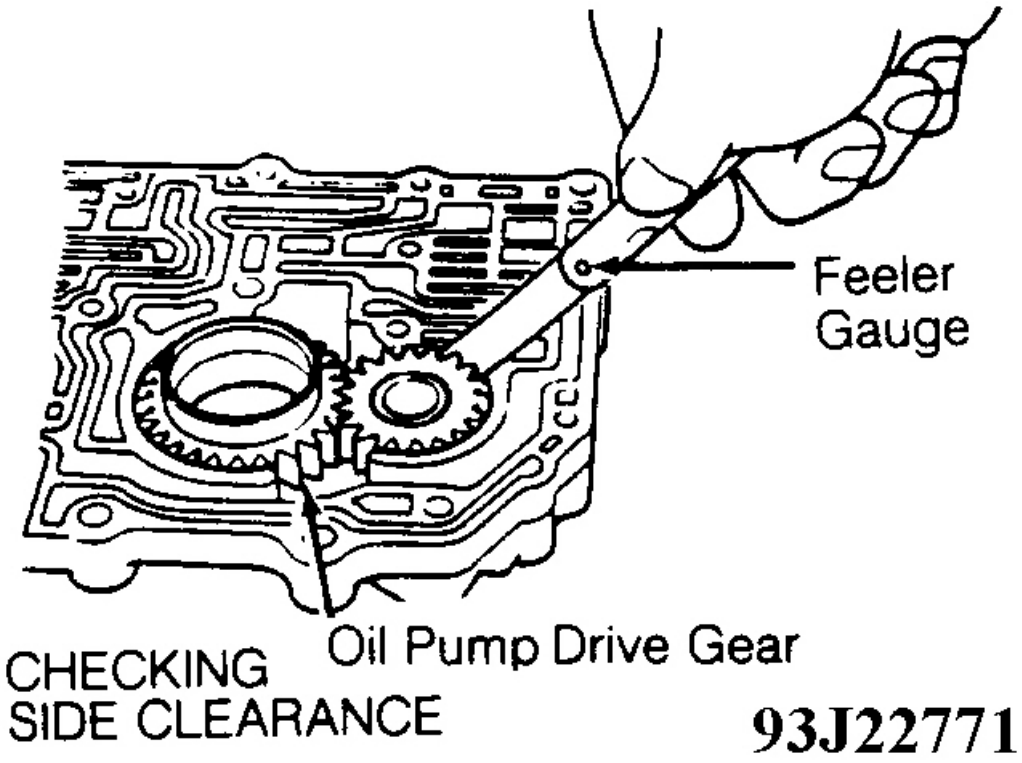


Fig. 11: Checking Side Clearance
Courtesy of AMERICAN HONDA MOTOR CO., INC.

REGULATOR VALVE BODY

CAUTION: Regulator spring cap is under spring pressure. Ensure regulator spring cap is held down when removing stopper bolt.

Disassembly

Hold regulator spring cap down, and remove stopper bolt. Slowly remove regulator spring cap and components from regulator valve body. See **Fig. 12** .

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 their 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 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. Ensure all components are installed in correct location. See **Fig. 12** . Tighten stopper bolt to specification. See **TORQUE SPECIFICATIONS** .

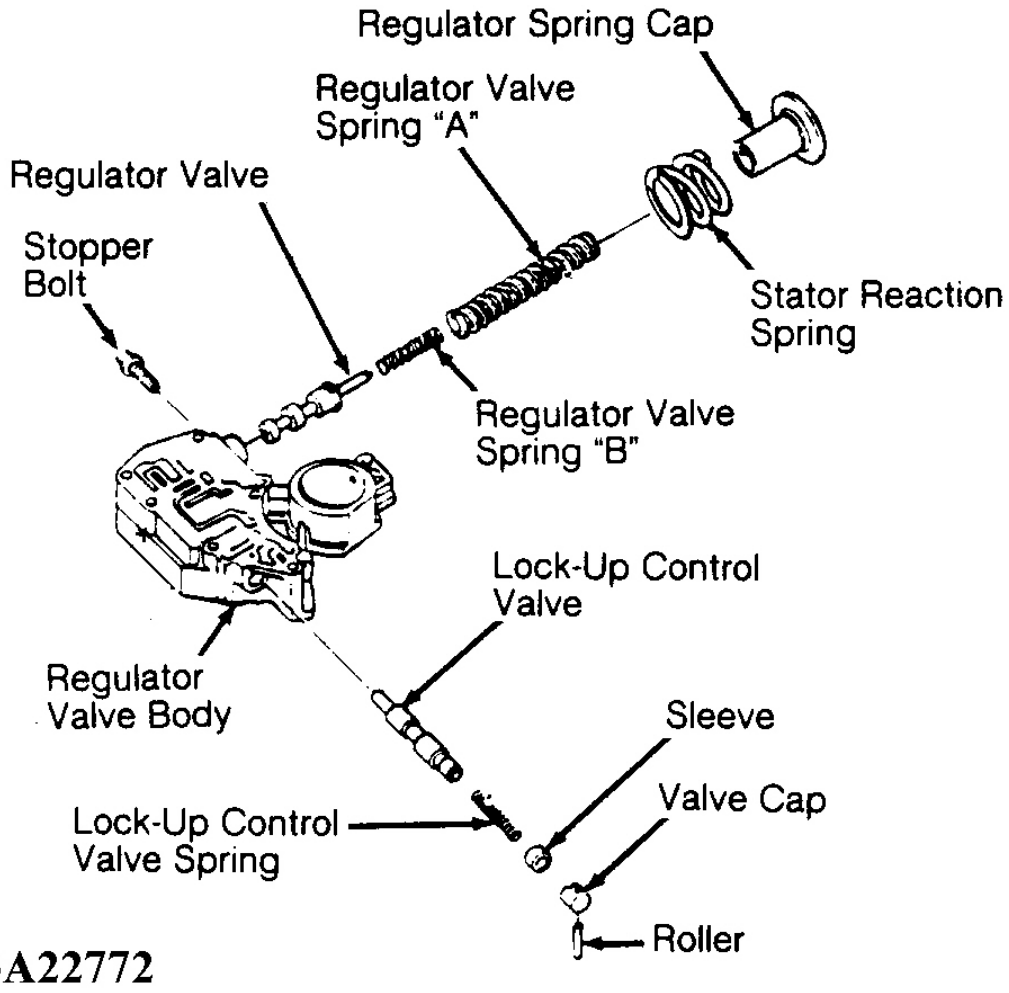


Fig. 12: Exploded View Of Regulator Valve Body
Courtesy of AMERICAN HONDA MOTOR CO., INC.

SECONDARY VALVE BODY

CAUTION: When disassembling secondary valve body, place 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.

Disassembly

Disassemble secondary valve body. See **Fig. 13** . 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 secondary valve body as an assembly if any parts are worn or damaged.
2. Ensure all valves slide freely in their 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 secondary 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. Ensure all components are installed in correct location. See **Fig. 13** .

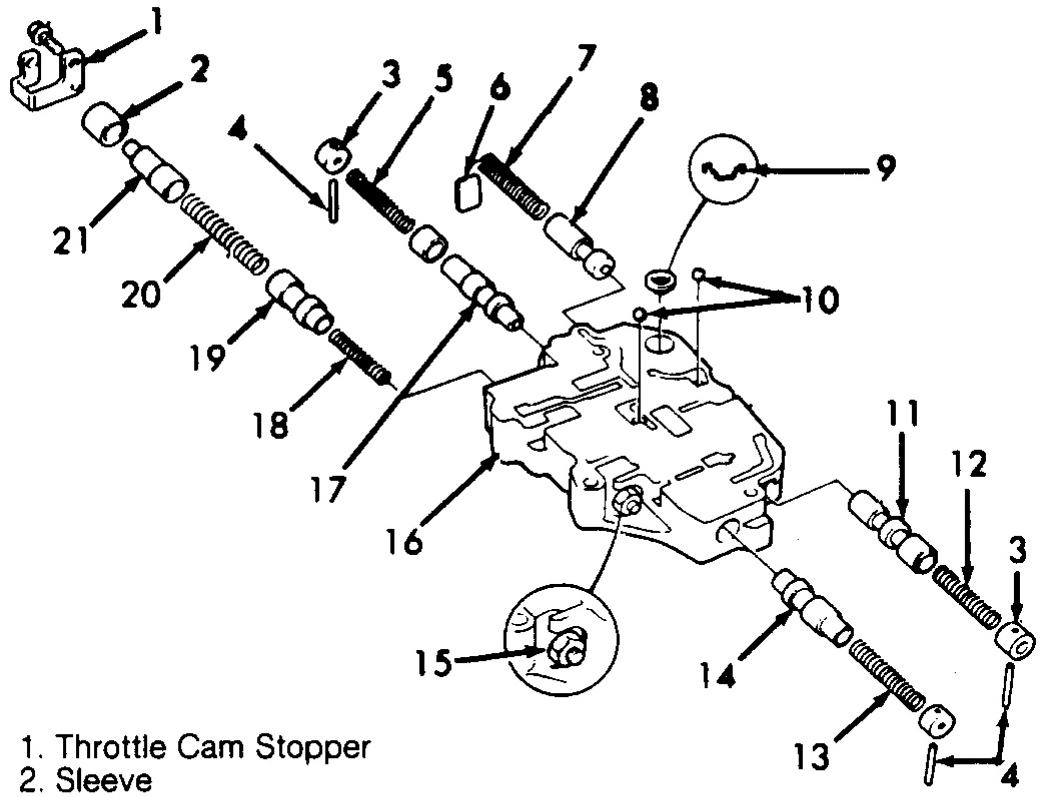


Fig. 13: Exploded View Of Secondary Valve Body
Courtesy of AMERICAN HONDA MOTOR CO., INC.

SERVO VALVE BODY

Disassembly

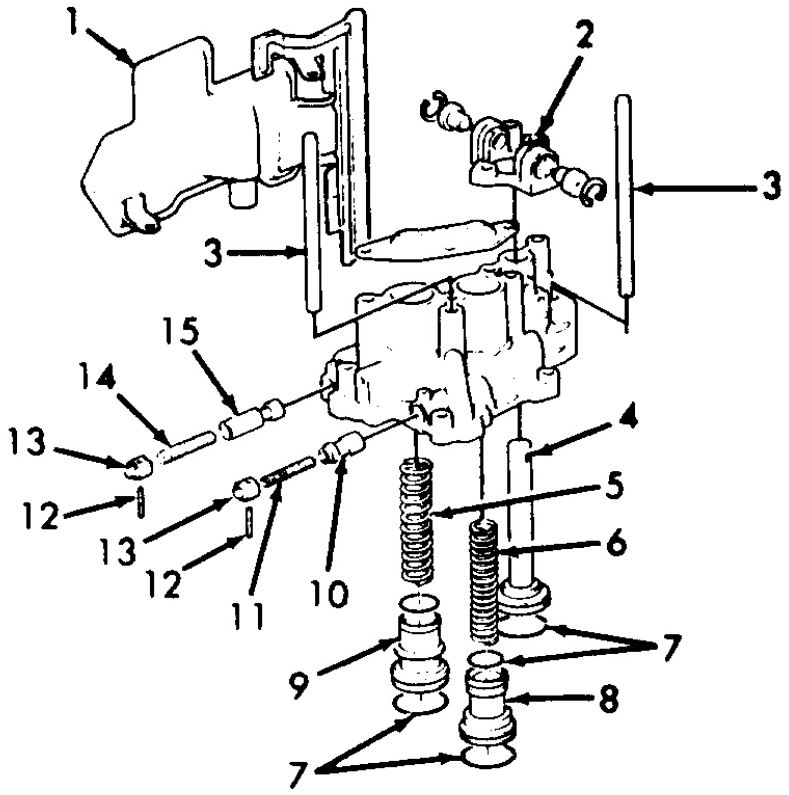
Disassemble servo valve body. See **Fig. 14** . Use care when removing valve cap, as it is under spring pressure.

Cleaning & Inspection

1. Clean components with solvent and dry with compressed air. Replace components if worn or damaged.
2. Ensure all valves slide freely in their 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 servo valve body and components if polishing was needed.
3. Replace fluid strainer if clogged. Check shift fork shaft for bent. 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.



1. Fluid Strainer
2. Servo Detent Base
3. Clutch Feedpipe
4. Shift Fork Shaft
5. 4th Accumulator Spring
6. 3rd Accumulator Spring
7. "A" Ring
8. 3rd Accumulator Piston
9. 4th Accumulator Piston
10. 4th Exhaust Valve
11. 4th Exhaust Valve Spring
12. Roller
13. Valve Cap
14. Clutch Pressure Control Valve Spring
15. Clutch Pressure Control Valve

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Fig. 14: Exploded View Of Servo Valve Body

Courtesy of AMERICAN HONDA MOTOR CO., INC.

LOCK-UP BODY

Disassembly

Disassemble lock-up body. See **Fig. 14** . Use care when removing valve seats, as they are under spring pressure.

Cleaning & Inspection

1. Clean components with solvent and dry with compressed air. Replace components if worn or damaged.
2. Ensure all valves slide freely in their 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 lock-up 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.

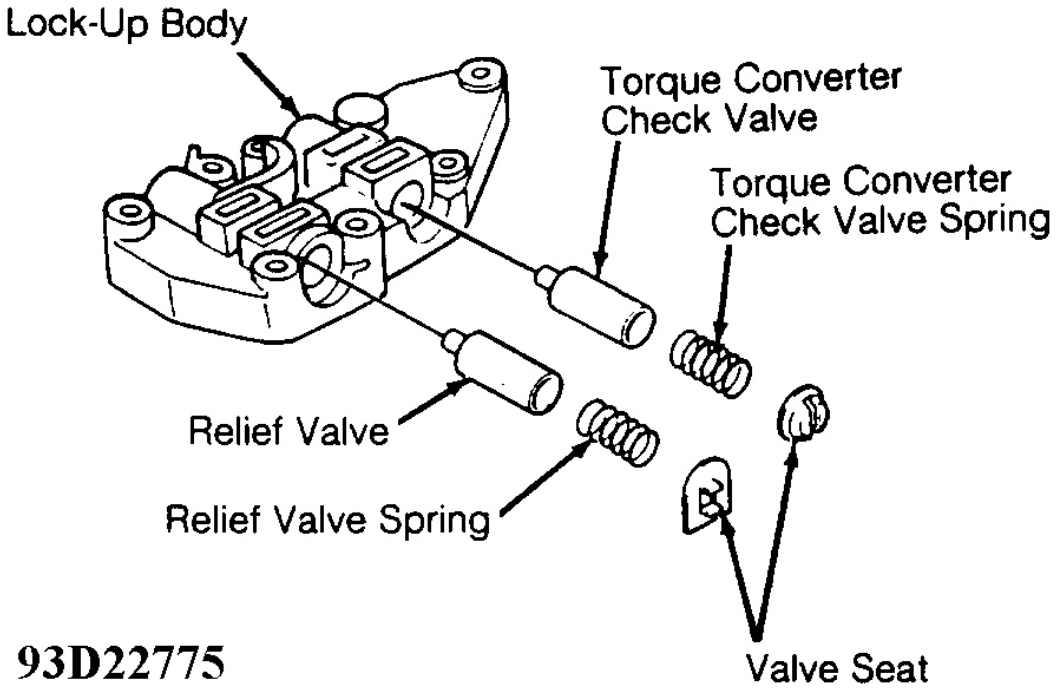


Fig. 15: Exploded View Of Lock-Up Body
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2ND ACCUMULATOR BODY

Disassembly

Disassemble 2nd accumulator body. See **Fig. 16** .

Cleaning & Inspection

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

Reassembly

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

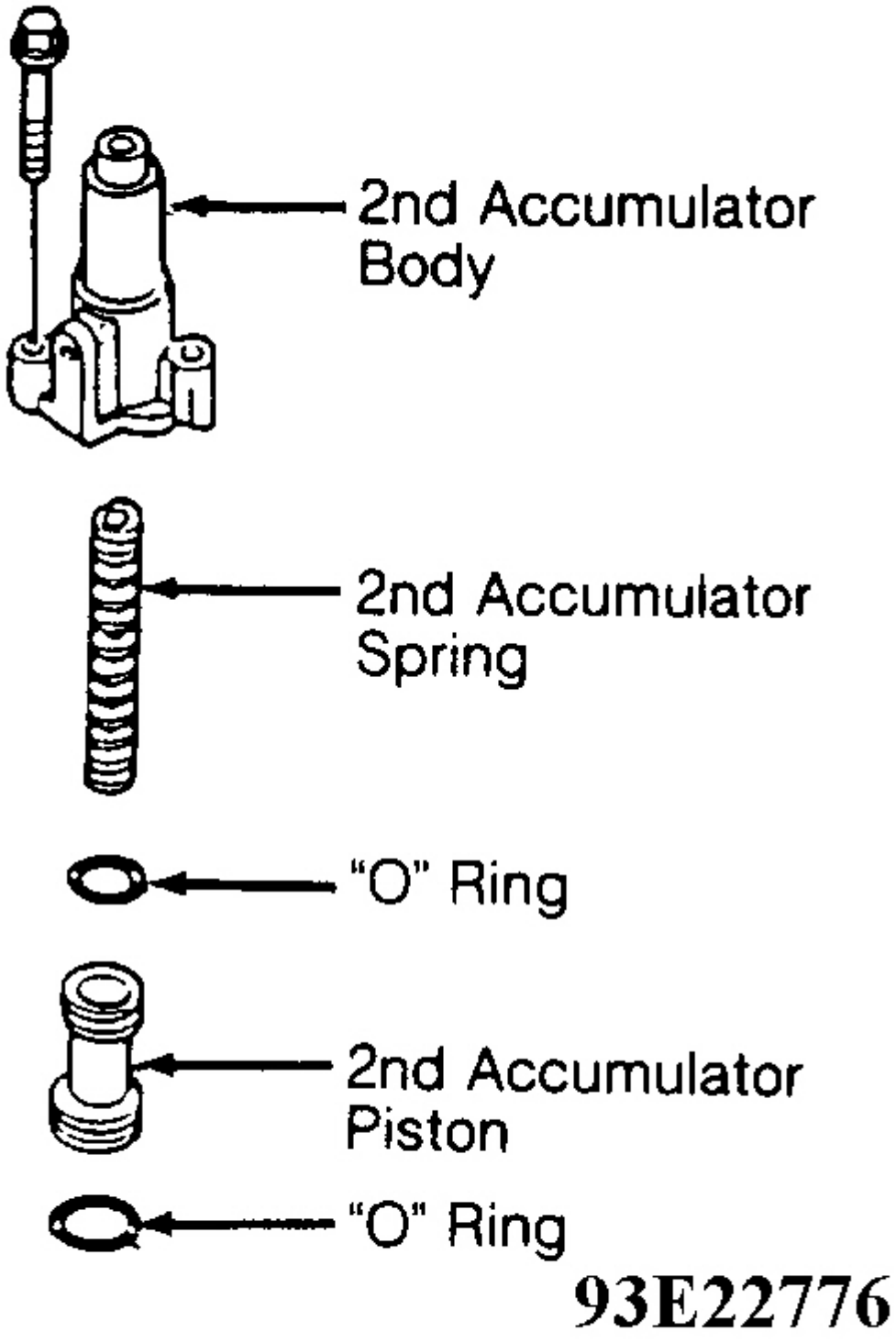


Fig. 16: Exploded View Of 2nd Accumulator Body
Courtesy of AMERICAN HONDA MOTOR CO., INC.

PULSER ROTOR

Disassembly

Remove circlip and disassemble pulser rotor. See **Fig. 17** .

Cleaning & Inspection

Clean components with solvent and dry with compressed air. Replace components if worn or damaged.

Reassembly

To reassemble, reverse disassembly procedure.

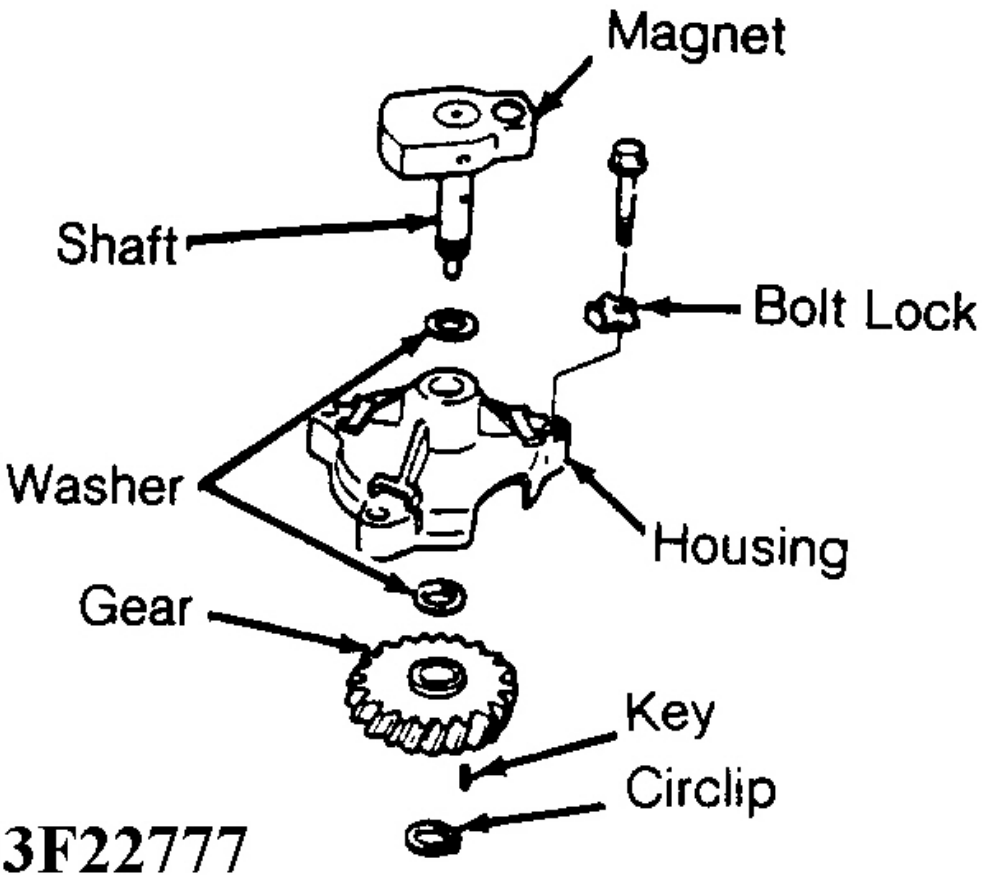


Fig. 17: Exploded View Of Pulser Rotor
Courtesy of AMERICAN HONDA MOTOR CO., INC.

RIGHT SIDE COVER

Disassembly

Remove snap rings, and disassemble right side cover. See **Fig. 18** .

Cleaning & Inspection

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

Reassembly

To reassemble, reverse disassembly procedure using NEW "O" rings and NEW seal washers. Tighten right side cover sealing bolts to specification. See **TORQUE SPECIFICATIONS** .

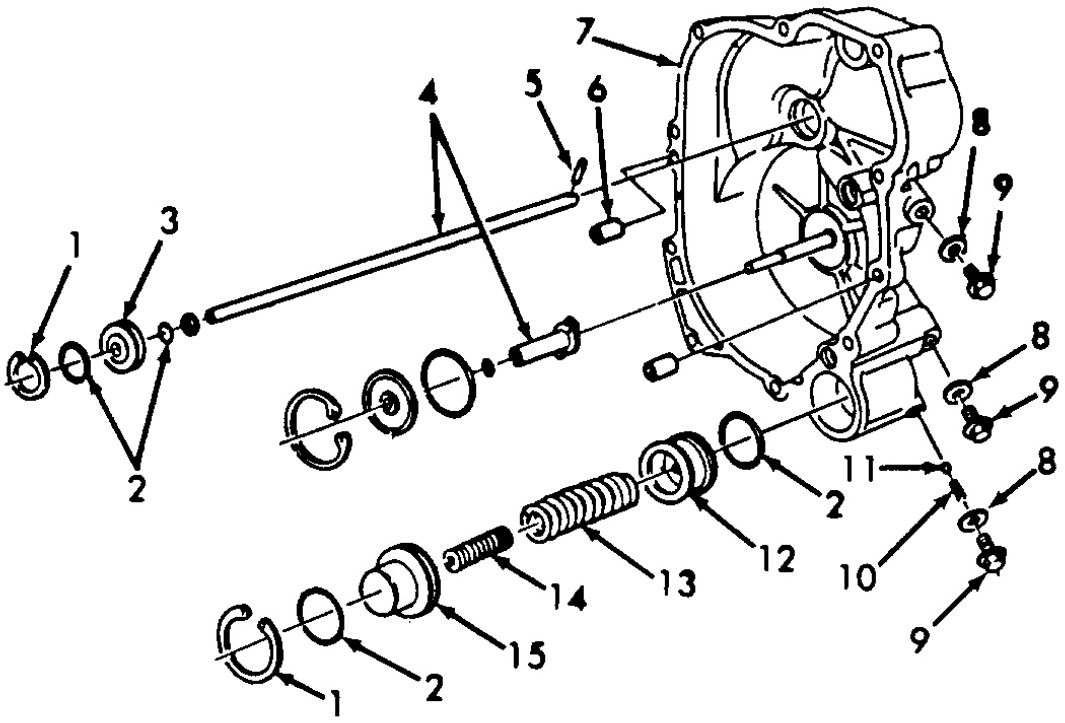


Fig. 18: Exploded View Of Right Side Cover
Courtesy of AMERICAN HONDA MOTOR CO., INC.

MAINSHAFT

Disassembly

Note location of mainshaft components. See **Fig. 19** . Remove mainshaft components.

Cleaning & Inspection

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

Reassembly

1. Install thrust needle bearing, needle bearing and mainshaft 2nd gear on mainshaft. Install thrust needle bearing, thrust washer and 2nd-4th clutch on mainshaft.
2. Install dial indicator on mainshaft, with stem resting against mainshaft 2nd gear. See **Fig. 20** . Measure mainshaft 2nd gear clearance while pushing 2nd-4th clutch toward mainshaft 2nd gear.
3. Replace thrust washer if clearance is not .003-.006" (.08-.15 mm). Different thickness thrust washers are available. See **THRUST WASHER SPECIFICATIONS** table. Recheck 2nd gear clearance.
4. Once correct thickness thrust washer is obtained, lubricate all components with ATF. Reassemble mainshaft. Ensure thrust needle bearings are installed with unrolled edge of bearing retainer facing washer.
5. Use NEW metal seal rings and NEW "O" rings. Before installing "O" rings on mainshaft, wrap splines with tape.

THRUST WASHER SPECIFICATIONS

Thrust Washer Part Number	Thickness In. (mm)
90441-PG4-010	.156-.157 (3.97-4.00)
90442-PG4-010	.158-.159 (4.02-4.05)
90443-PG4-010	.160-.161 (4.07-4.10)
90444-PG4-010	.162-.163 (4.12-4.15)
90445-PG4-010	.164-.165 (4.17-4.20)
90446-PG4-010	.166-.167 (4.22-4.25)
90447-PG4-010	.168-.169 (4.27-4.30)
90448-PG4-010	.170-.171 (4.32-4.35)
90449-PG4-010	.172-.173 (4.37-4.40)

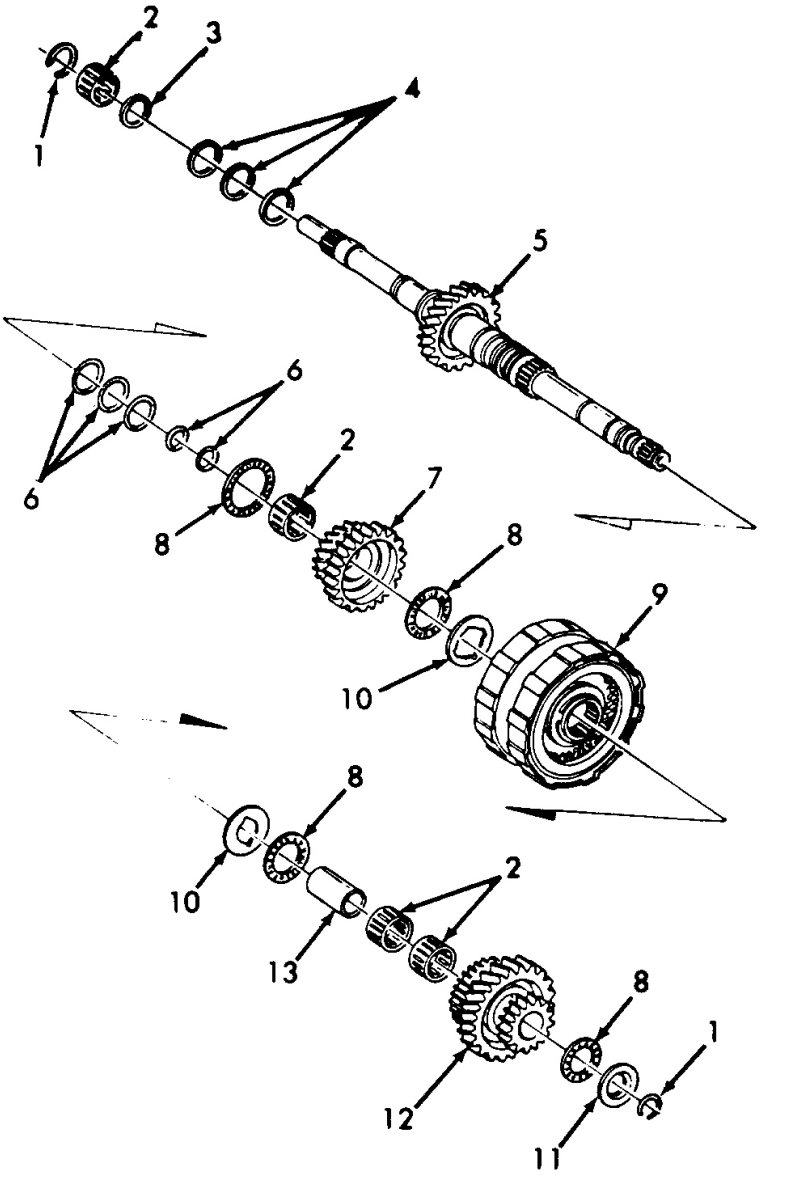


Fig. 19: Exploded View Of Mainshaft & Components
Courtesy of AMERICAN HONDA MOTOR CO., INC.

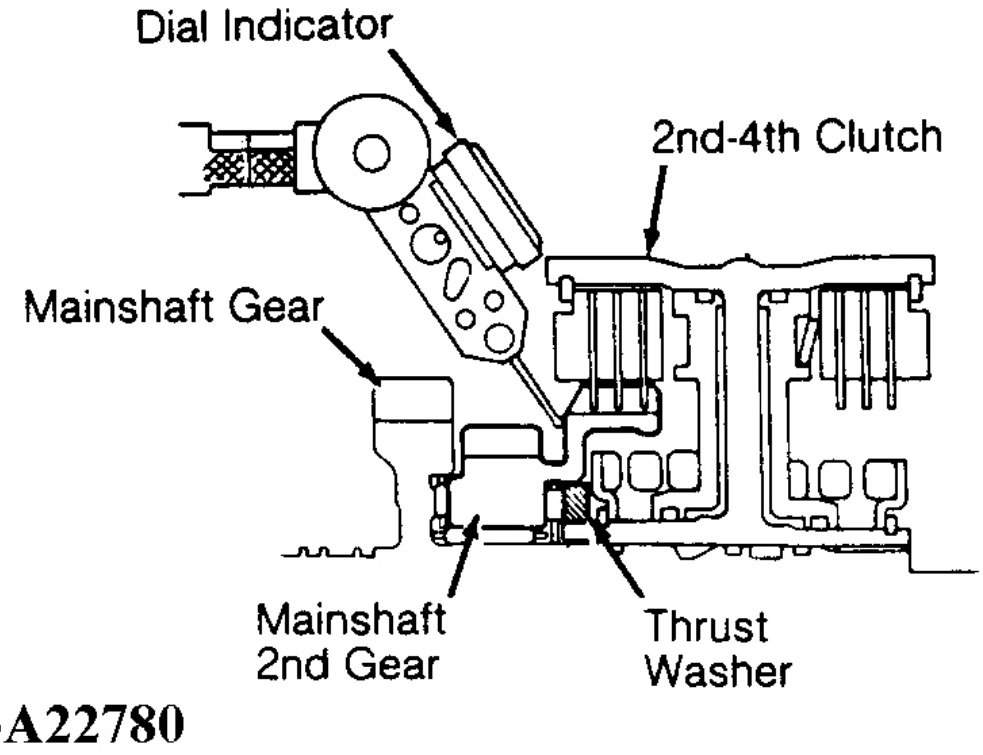


Fig. 20: Checking Mainshaft 2nd Gear Clearance
Courtesy of AMERICAN HONDA MOTOR CO., INC.

COUNTERSHAFT

Disassembly

Note location of countershaft components. See **Fig. 21** . Remove countershaft components.

Cleaning & Inspection

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

CAUTION: When reassembling countershaft, countershaft 4th gear clearance and 2nd gear-to-3rd gear clearance must be checked.

Reassembly

1. Remove snap ring and countershaft bearing from transaxle housing. Reassemble countershaft components. Install countershaft bearing removed from transaxle housing on countershaft.

2. Install countershaft 1st gear, parking gear and lock nut on countershaft. See **Fig. 22** . Tighten lock nut to 22 ft. lbs. (30 N.m).
3. Using feeler gauge, measure countershaft 4th gear clearance between shoulder on reverse selector hub and shoulder on countershaft 4th gear. See **Fig. 22** .
4. To check countershaft 2nd gear-to-3rd gear clearance, leave feeler gauge installed between shoulder on reverse selector hub and shoulder on countershaft 4th gear. Slide countershaft 3rd gear fully outward (away from countershaft 2nd gear). Using a second feeler gauge, measure clearance between countershaft 2nd gear and 3rd gear. See **Fig. 23** .
5. Slide countershaft 3rd gear fully inward (toward countershaft 2nd gear), and measure clearance between countershaft 2nd gear and 3rd gear. Calculate difference between 2 measurements to determine countershaft 2nd gear-to-3rd gear clearance. Remove feeler gauges.
6. Replace distance collar if countershaft 4th gear clearance is not .003-.006" (.08-.15 mm). Different length distance collars are available. See **DISTANCE COLLAR SPECIFICATIONS** table. Recheck countershaft 4th gear clearance.
7. Replace splined washer if countershaft 2nd gear-to-3rd gear clearance is not .003-.006" (.08-.15 mm). Different thickness splined washers are available. See **SPLINED WASHER SPECIFICATIONS** table. Recheck countershaft 2nd gear-to-3rd gear clearance.
8. Once correct gear clearances are obtained, lubricate all components with ATF. Reassemble countershaft. Ensure thrust needle bearings are installed with unrolled edge of bearing retainer facing washer.
9. Use NEW "O" rings on countershaft. Before installing "O" rings on countershaft, wrap splines with tape.

DISTANCE COLLAR SPECIFICATIONS

Part Number	Length In. (mm)
90503-PC9-000	1.534-1.535 (38.97-39.00)
90504-PC9-000	1.538-1.539 (39.07-39.10)
90505-PC9-000	1.542-1.543 (39.17-39.20)
90507-PC9-000	1.546-1.547 (39.27-39.30)
90508-PC9-000	1.536-1.537 (39.02-39.05)
90509-PC9-000	1.540-1.541 (39.12-39.15)
90510-PC9-000	1.544-1.545 (39.22-39.25)
90511-PC9-000	1.570-1.571 (39.87-39.90)
90512-PC9-000	1.572-1.573 (39.92-39.95)

SPLINED WASHER SPECIFICATIONS

Part Number	Thickness In. (mm)
90411-PF4-000	.117-.118 (2.97-3.00)
90412-PF4-000	.119-.120 (3.02-3.05)
90413-PF4-000	.121-.122 (3.07-3.10)
90414-PF4-000	.123-.124 (3.12-3.15)
90415-PF4-000	.125-.126 (3.17-3.20)
90416-PF4-000	.127-.128 (3.22-3.25)
90417-PF4-000	.129-.130 (3.27-3.30)

90418-PF4-000	.131-.132 (3.32-3.35)
90419-PF4-000	.133-.134 (3.37-3.40)

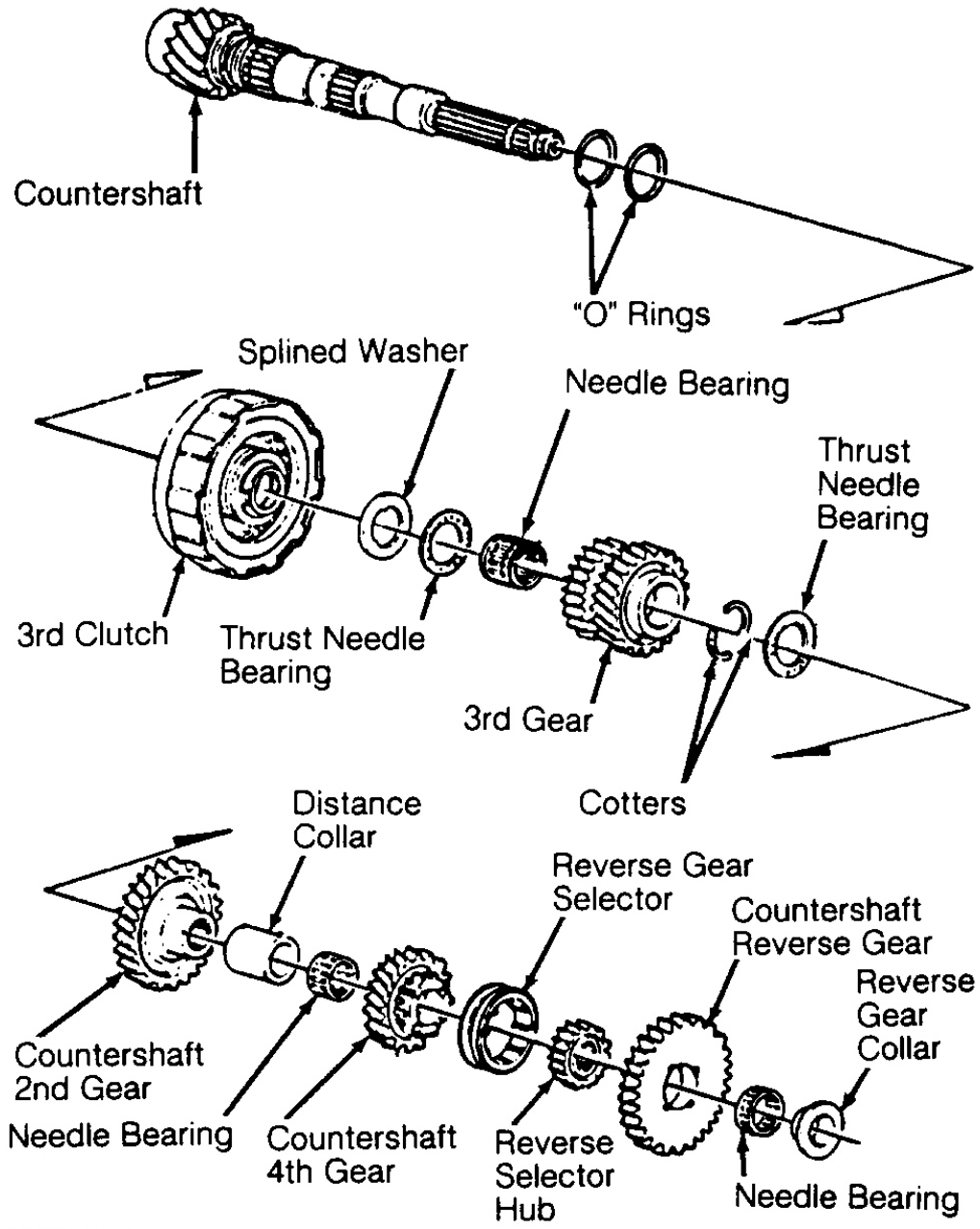


Fig. 21: Exploded View Of Countershaft & Components
Courtesy of AMERICAN HONDA MOTOR CO., INC.

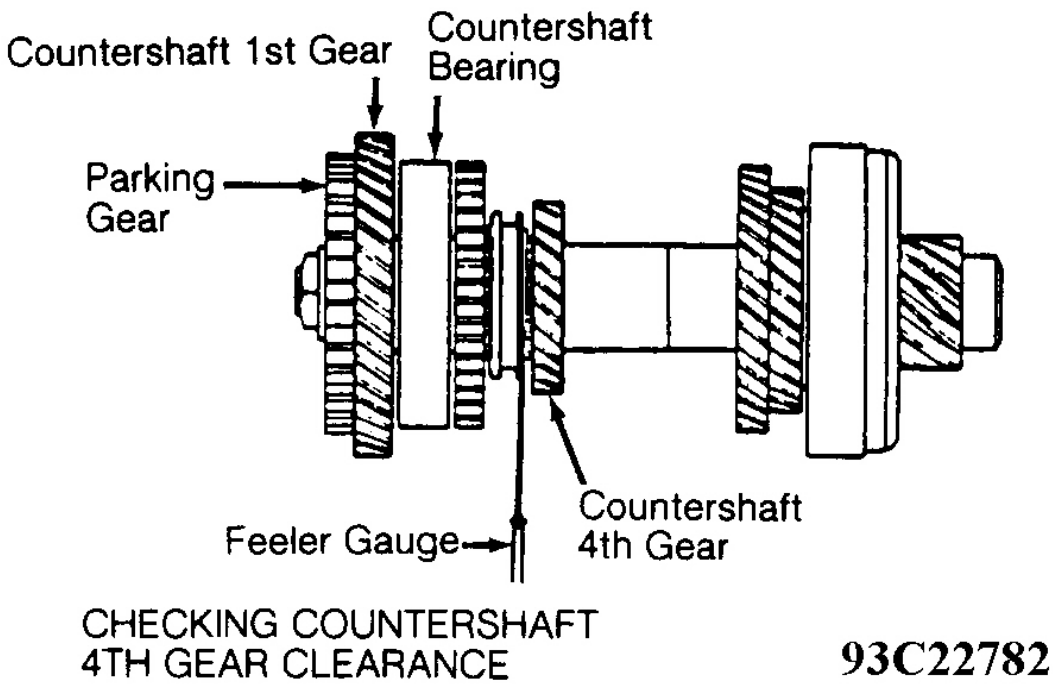


Fig. 22: Checking Countershaft 4th Gear Clearance
Courtesy of AMERICAN HONDA MOTOR CO., INC.

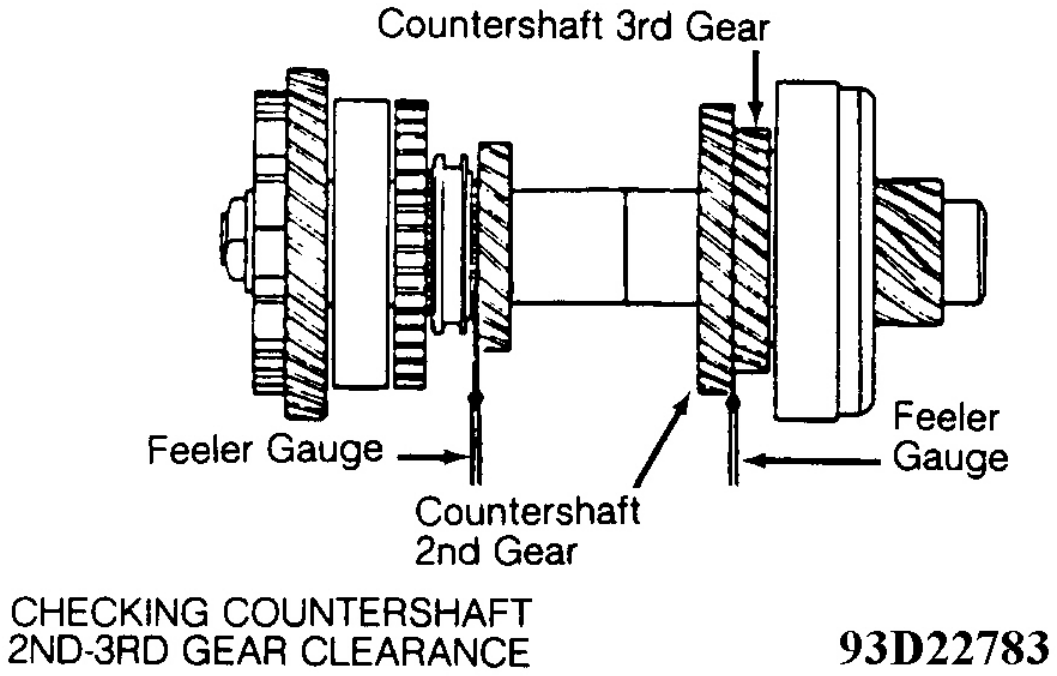


Fig. 23: Checking Countershaft 2nd Gear-To-3rd Gear Clearances
Courtesy of AMERICAN HONDA MOTOR CO., INC.

PARKING GEAR & ONE-WAY CLUTCH

Disassembly

1. To separate parking gear from countershaft 1st gear, hold countershaft 1st gear and rotate parking gear counterclockwise. Remove parking gear.
2. Note direction of one-way clutch installation in countershaft 1st gear. Using screwdriver, gently pry one-way clutch from countershaft 1st gear.

Cleaning & Inspection

Clean components with solvent and dry with compressed air. Inspect components for damage.

Reassembly

Lubricate all components with ATF. Install one-way clutch with large flange area toward countershaft 1st gear. See **Fig. 22** . Install parking gear. Hold countershaft 1st gear, and ensure parking gear rotates counterclockwise. See **Fig. 22** .

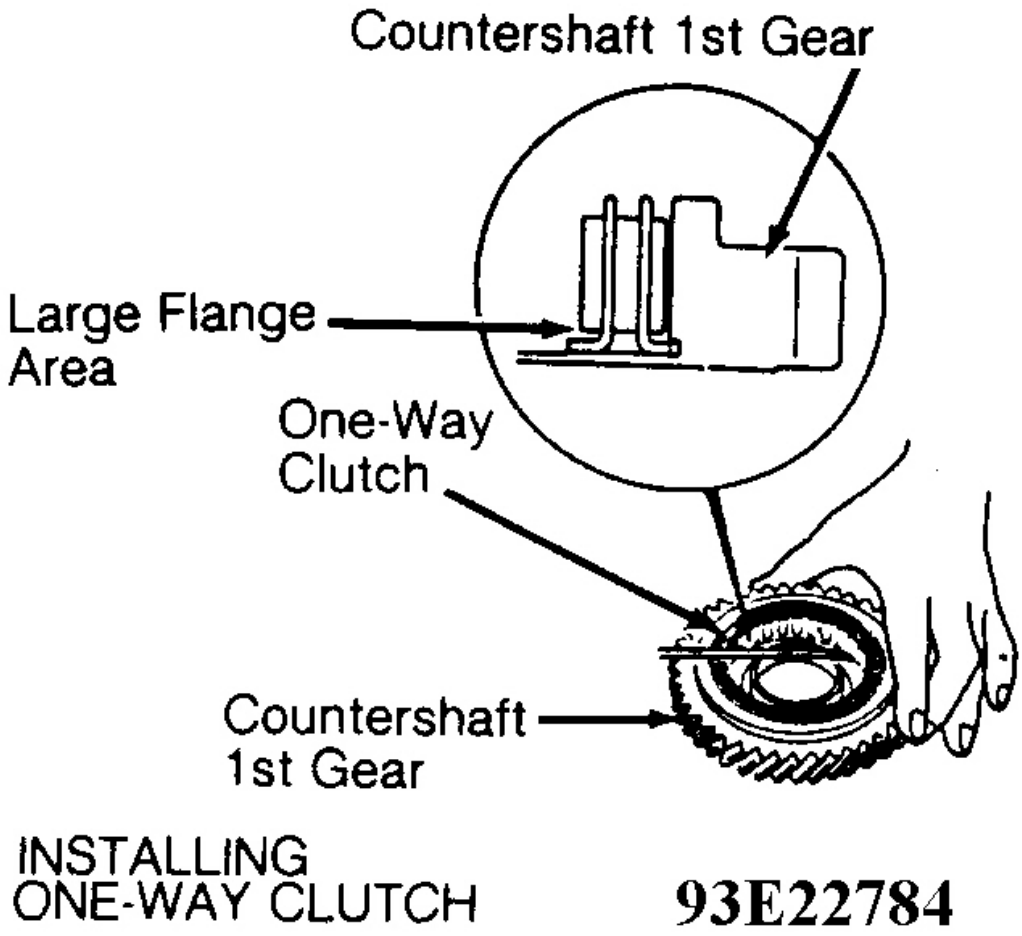


Fig. 24: Installing Checking One-Way Clutch Operation
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Fig. 25: Checking One-Way Clutch Operation
Courtesy of AMERICAN HONDA MOTOR CO., INC.

CLUTCH ASSEMBLIES

Disassembly

1. Remove snap ring, clutch end plate, clutch discs and clutch plates. See **Fig. 26** . On 1st and 2nd clutches, note direction of disc spring installation. Remove disc spring.

CAUTION: Ensure adapter is centered over area of spring retainer supported by return spring. Spring retainer may be damaged if not supported by return spring.

2. On all clutches, use Spring Compressor (07LAE-PX40100), Adapter (07960-6120100) and Bolt (07GAE-PG40200) to compress return spring. See **Fig. 29** .
3. Remove snap ring. Release and remove spring compressor components. Remove spring retainer and return spring.
4. 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. Ensure check valve on rear of clutch piston is thoroughly cleaned and is not loose on clutch piston.
2. Inspect components for damage. Replace as necessary. Ensure no rough edges exist on "O" ring sealing areas. On 3rd and 4th clutches, ensure disc spring is securely staked to clutch piston.

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 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 spring compressor, compress return spring. Install snap ring, and remove spring compressor.
3. Install disc spring on 1st and 2nd clutches. Ensure disc spring is installed in proper direction. See **Fig. 26** .

CAUTION: Ensure clutch discs are soaked 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.
5. Using dial indicator, measure clutch clearance between clutch end plate and top clutch disc. See **Fig. 30** . 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** table.
7. If clutch clearance is not within specification, install different thickness clutch end plate. See **CLUTCH END PLATE SPECIFICATIONS** table.

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	.026-.033 (.65-.85)
2nd, 3rd & 4th Clutches	.016-.024 (.40-.60)

CLUTCH END PLATE SPECIFICATIONS

Plate Number	Part Number	Thickness In. (mm)
1	22551-PF4-000	.082 (2.10)
2	22552-PF4-000	.086 (2.20)
3	22553-PF4-000	.090 (2.30)

4	22554-PF4-000	.094 (2.40)
5	22555-PF4-000	.098 (2.50)
6	22556-PF4-000	.102 (2.60)
7	22557-PF4-000	.106 (2.70)
8	22558-PF4-000	.110 (2.80)
9	22559-PF4-000	.114 (2.90)
10	22560-PF4-000	.118 (3.00)
11	22561-PF4-000 (1)	.122 (3.10)
12	22562-PF4-000 (1)	.126 (3.20)
13	22563-PF4-000 (1)	.130 (3.30)
14	22564-PF4-000 (1)	.134 (3.40)
(1) Available for 1st clutch only.		

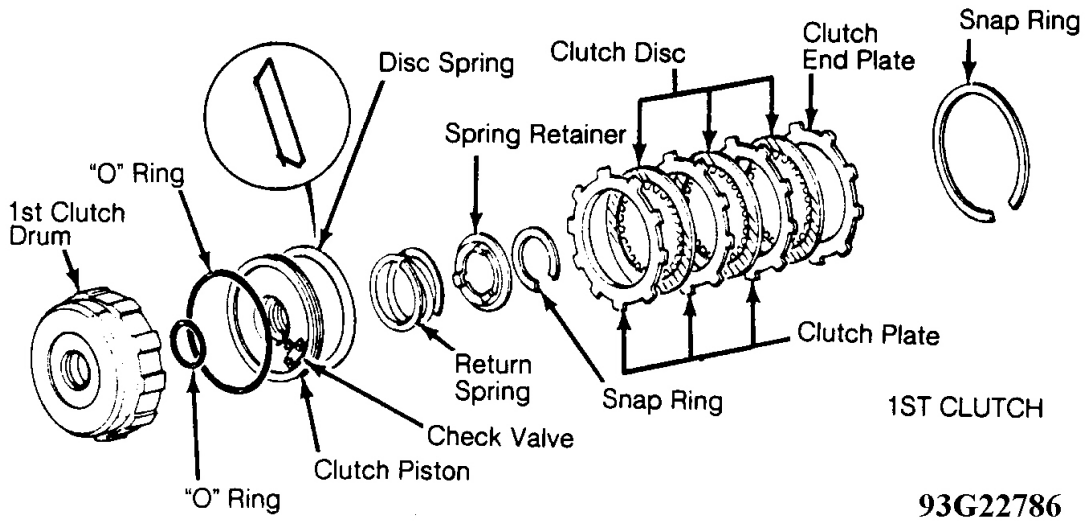


Fig. 26: Exploded View Of Clutch Assemblies (1 of 3)
Courtesy of AMERICAN HONDA MOTOR CO.,

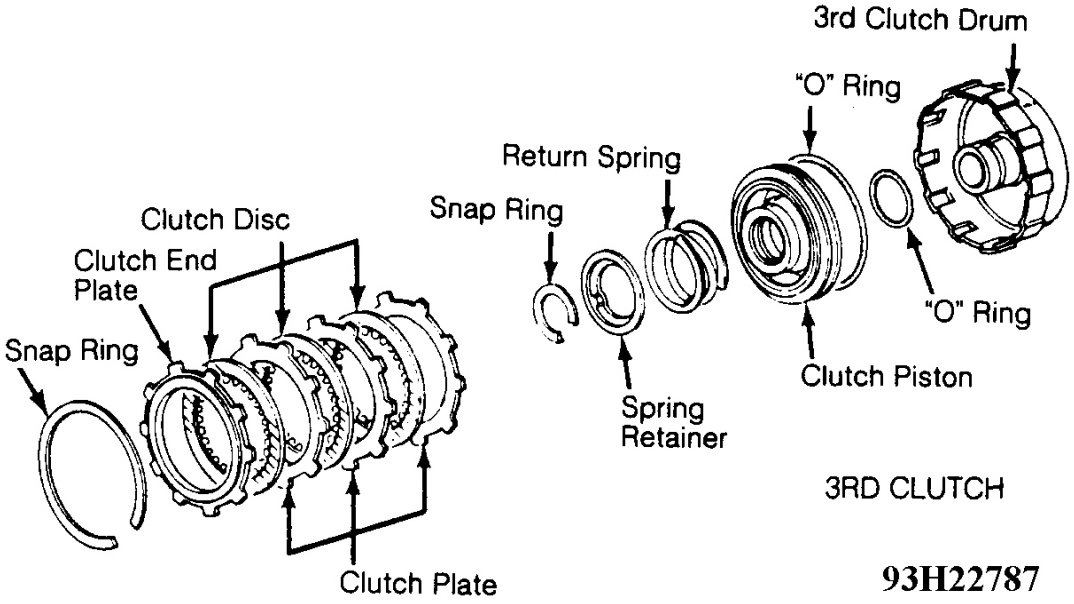


Fig. 27: Exploded View Of Clutch Assemblies (2 of 3)
Courtesy of AMERICAN HONDA MOTOR CO.,

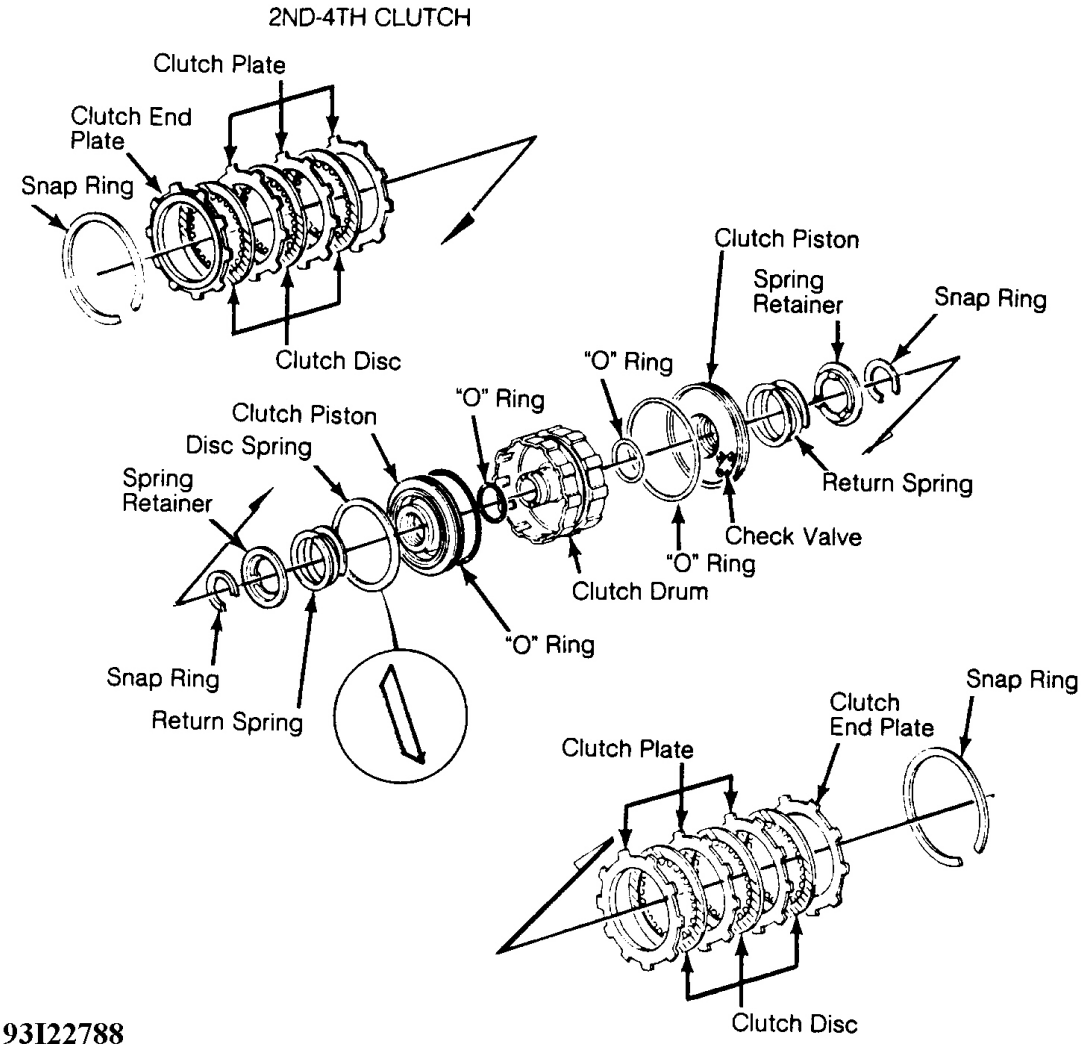


Fig. 28: Exploded View Of Clutch Assemblies (3 of 3)
Courtesy of AMERICAN HONDA MOTOR CO.,

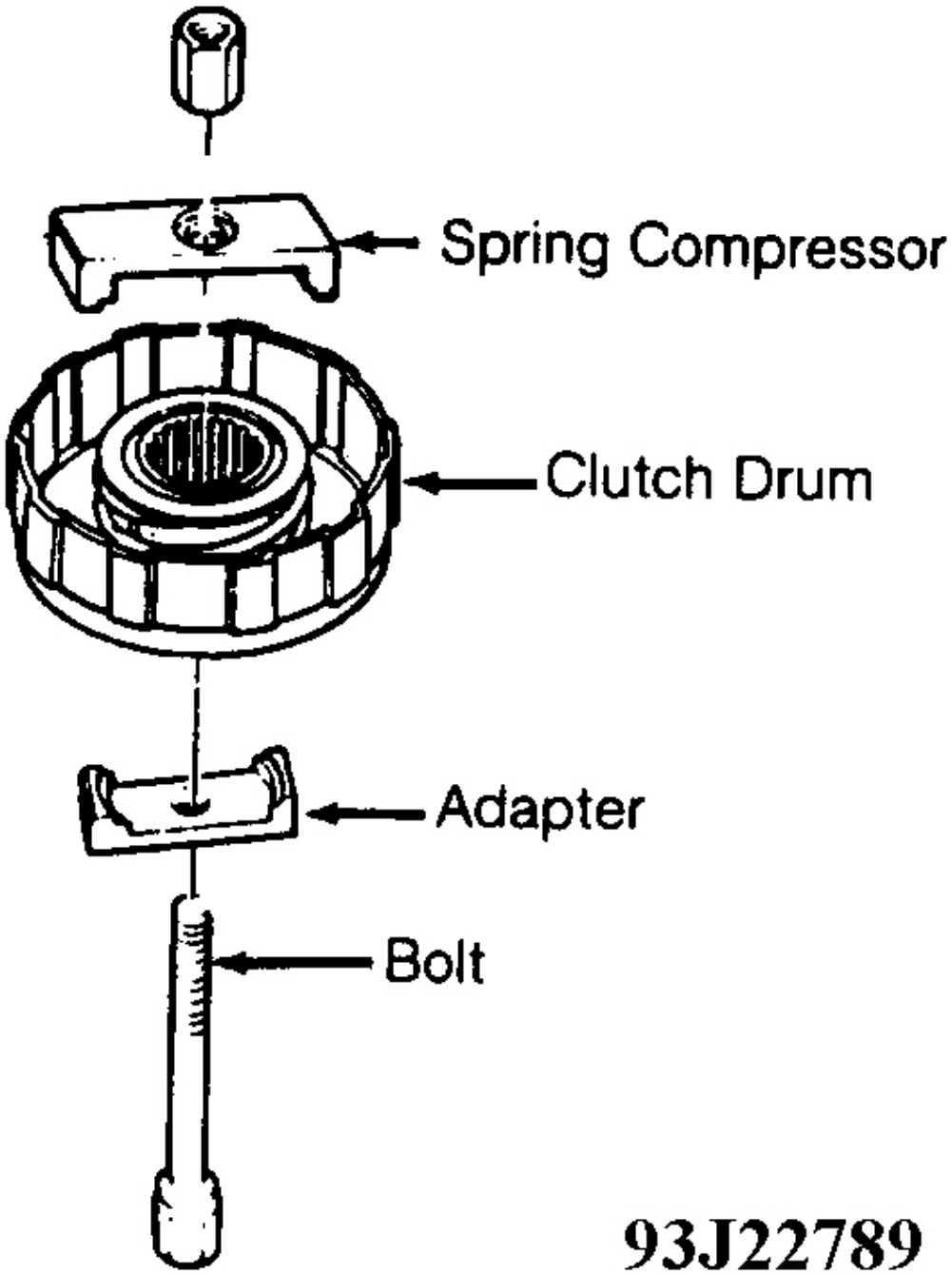


Fig. 29: Compressing Return Spring (1st Clutch Shown; Others Are Similar)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

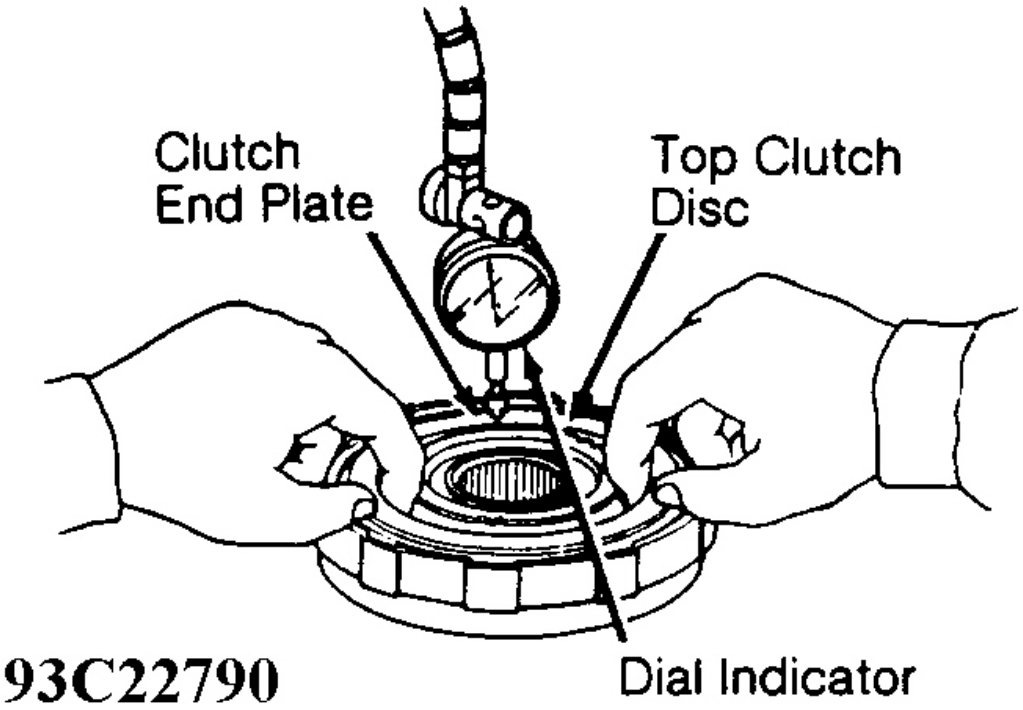


Fig. 30: Measuring Clutch Clearance
Courtesy of AMERICAN HONDA MOTOR CO., INC.

TORQUE CONVERTER HOUSING

Disassembly

1. Remove countershaft bearing from torque converter housing using Bearing Remover (07736-A01000A) and slide hammer (if necessary). Remove oil guide plate. See **Fig. 8** .
2. Remove mainshaft bearing and oil seal using hammer, Driver (07749-0010000) and Adapter (07947-6340500). Pry differential bearing outer 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, Driver (07749-0010000), Pilot (07746-0010500) and Oil Seal Driver (07947-6340201). Drive bearing in until bearing bottoms in torque converter housing.

2. Using hammer, driver and Adapter (07746-0010500), install mainshaft oil seal in torque converter housing. Oil seal should be even 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 with tab in center facing upward (away from torque converter housing surface). See **Fig. 8** .
4. Using hammer, driver and Adapter (07746-0010500), drive countershaft bearing into torque converter housing.
5. To install differential bearing outer race, tap bearing outer race into torque converter housing. Install differential bearing outer race 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.

6. To install differential oil seal, use driver, Adapter (07947-6110501) and Pilot Driver (07JAD-PH80400). Drive oil seal into torque converter housing until oil seal is fully seated.

TRANSAXLE HOUSING

Disassembly

1. Expand snap ring, and press mainshaft and countershaft 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). Pry 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

Install thrust shim. Tap differential bearing outer race into transaxle housing. To reassemble remaining components, reverse disassembly procedure. Ensure bearings are installed with groove away from transaxle

housing so snap ring will engage in bearing.

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. 31** . Check side gear backlash. Side gear backlash should be .003-.006" (.08-.15 mm).
3. If side gear backlash is not within specification, install different thickness pinion gear thrust washer during reassembly. See **PINION GEAR THRUST WASHER SPECIFICATIONS** table.

PINION GEAR THRUST WASHER SPECIFICATIONS

Part Number	Thickness In. (mm)
41351-PG1-000	.028 (.70)
41352-PG1-000	.029 (.75)
41353-PG1-000	.031 (.80)
41354-PG1-000	.033 (.85)
41355-PG1-000	.035 (.90)
41356-PG1-000	.037 (.95)
41357-PG1-000	.039 (1.00)
41358-PG1-000	.041 (1.05)

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

NOTE: Note direction of ring gear installation on differential carrier before removing. Ring gear bolts have left-hand threads.

5. Drive pin from differential carrier. See **Fig. 32** . Remove pinion shaft, pinion gears, side gears and thrust washers.

Cleaning & Inspection

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

Reassembly

1. Coat both side of pinion gears and side gears with grease. Install side gears and side gear thrust washers in differential carrier.
2. Install pinion gears and pinion gear thrust washers in differential carrier so they are exactly opposite each other. Rotate pinion gears until they align with pinion shaft hole in differential carrier. Install pinion shaft and pin.

3. Recheck side gear backlash. If side gear backlash is not .003-.006" (.08-.15 mm), select different thickness pinion gear thrust washers. If side gear backlash is still not within specification, replace side and pinion gears.
4. Recheck side gear backlash. If not within specification, replace differential carrier. Install ring gear. Install and tighten ring gear bolts to specification. See **TORQUE SPECIFICATIONS** .
5. Press bearings onto differential carrier (if removed). Ensure bearings are fully seated on differential carrier.

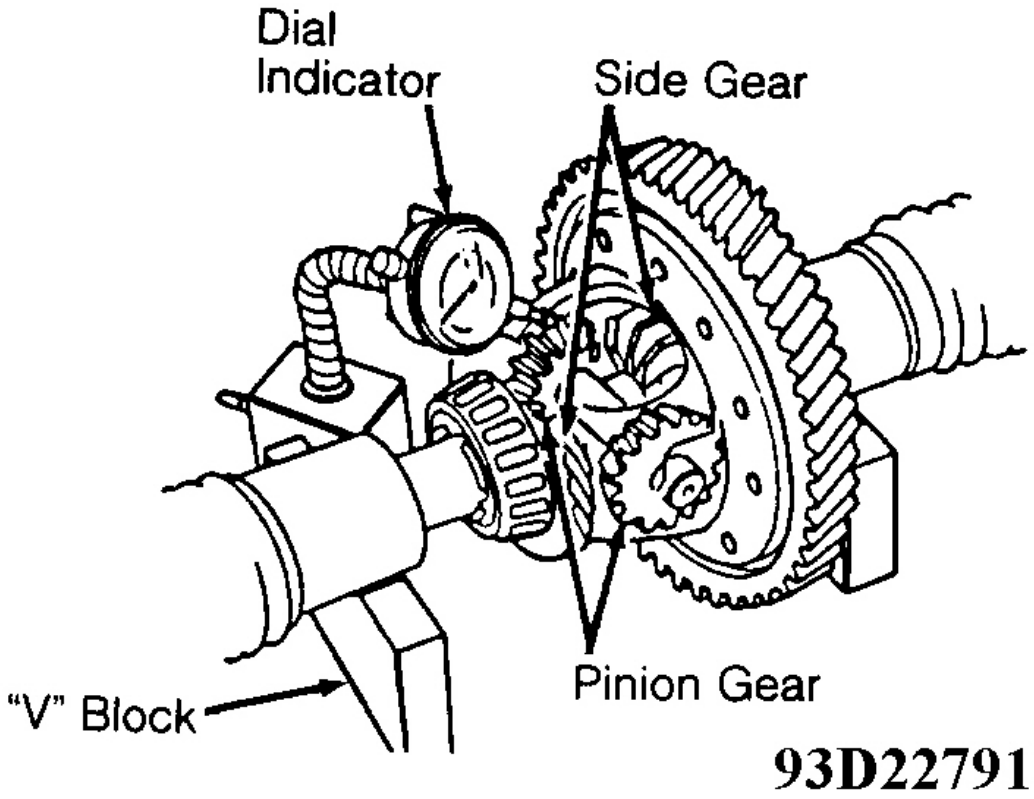
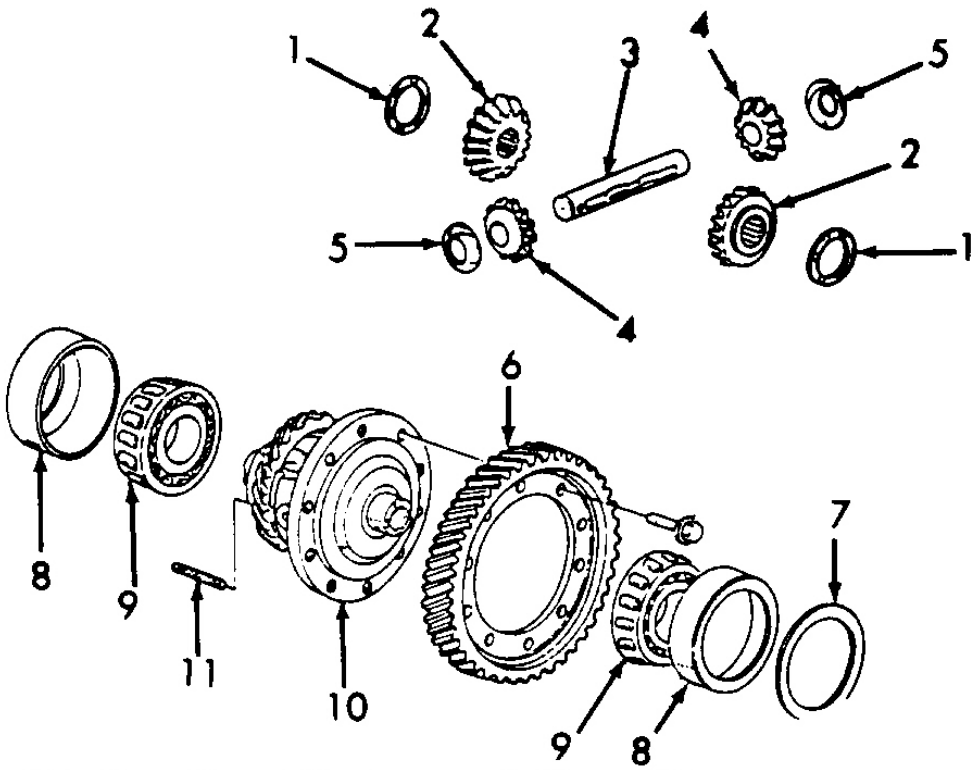


Fig. 31: Checking Side Gear Backlash
Courtesy of AMERICAN HONDA MOTOR CO., INC.



1. Side Gear Thrust Washer
2. Side Gear
3. Pinion Shaft
4. Pinion Gear
5. Pinion Gear Thrust Washer
6. Ring Gear
7. Thrust Shim
8. Differential Bearing Outer Race
9. Bearing
10. Differential Carrier
11. Pin

Fig. 32: 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 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, to 212°F (100°C). Pry 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. Install standard thrust shim with thickness of .102" (2.60 mm). See **THRUST SHIM SPECIFICATIONS** table.

THRUST SHIM SPECIFICATIONS

Thrust Shim I.D. Letter	Part Number	Thickness In. (mm)
"A"	41441-PK4-000	.087 (2.20)
"B"	41442-PK4-000	.089 (2.25)
"C"	41443-PK4-000	.091 (2.30)
"D"	41444-PK4-000	.093 (2.35)
"E"	41445-PK4-000	.094 (2.40)
"F"	41446-PK4-000	.096 (2.45)
"G"	41447-PK4-000	.098 (2.50)
"H"	41448-PK4-000	.100 (2.55)
"I" (1)	41449-PK4-000	.102 (2.60)
"J"	41450-PK4-000	.104 (2.65)
"K"	41451-PK4-000	.106 (2.70)
"L"	41452-PK4-000	.108 (2.75)
"M"	41453-PK4-000	.110 (2.80)
"N"	41454-PK4-000	.112 (2.85)
"O"	41455-PK4-000	.114 (2.90)
"P"	41456-PK4-000	.116 (2.95)
"O"	41457-PK4-000	.118 (3.00)
"R"	41458-PK4-000	.120 (3.05)

(1) This is the standard thrust shim.

3. Install thrust shim in transaxle housing. Tap differential bearing outer race into transaxle housing. Ensure differential bearing outer race is fully seated in transaxle housing.
4. Install gasket on torque converter housing. Install differential assembly in torque converter housing. Install transaxle housing on torque converter housing without mainshaft and countershaft installed.

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

5. Install and tighten transaxle housing-to-torque converter housing bolts to 40 ft. lbs. (54 N.m). Rotate differential assembly several revolutions to seat bearings.
6. Install Preload Adapter (07HAJ-PK40201) into differential assembly. See **Fig. 33** . 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.

7. Ensure differential assembly bearing preload is within specification. See **DIFFERENTIAL ASSEMBLY BEARING PRELOAD** table.

DIFFERENTIAL ASSEMBLY BEARING PRELOAD (1)

Application	INCH Lbs. (N.m)
New Bearings	24-35 (2.8-4.0)
Used Bearings	22-32 (2.5-3.7)
(1) This is the starting torque required to rotate differential assembly.	

8. If bearing preload is not within specification, select proper thickness thrust shim to obtain correct reading. See **THRUST SHIM SPECIFICATIONS** table.
9. Changing thrust shim to the next size will change bearing preload about 2.60-3.47 INCH lbs. (.29-.39 N.m). To increase bearing preload, increase thrust shim thickness. To decrease bearing preload, decrease thrust shim thickness.

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

10. If adjusting differential assembly bearing preload, remove differential bearing outer race from transaxle housing. Install correct thrust shim. Install differential bearing outer race in transaxle housing.
11. Recheck differential assembly bearing preload. Once correct bearing preload is obtained, remove transaxle housing, gasket and differential assembly from torque converter housing.

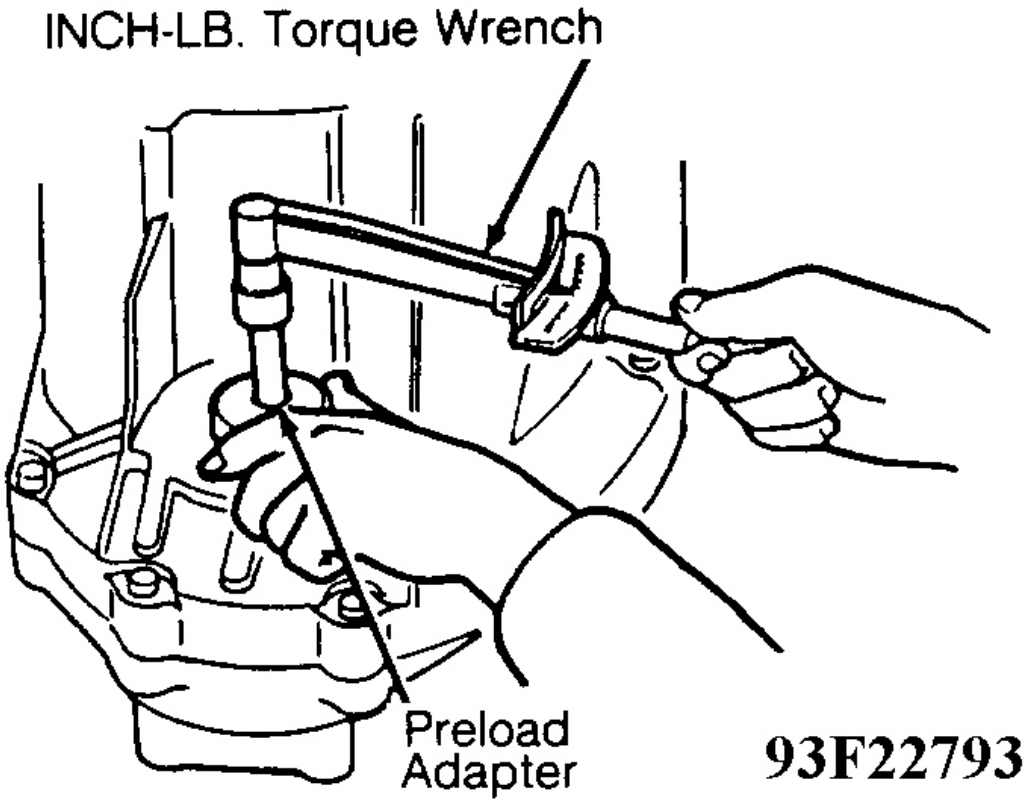


Fig. 33: Checking Differential Bearing Preload
Courtesy of AMERICAN HONDA MOTOR CO., INC.

VALVE BODIES & INTERNAL COMPONENTS

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

NOTE: Coat all components with ATF before reassembly.

1. Install main separator plate and dowel pins on torque converter housing. Install oil pump drive gear, oil pump driven gear and oil pump driven gear shaft.

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

2. 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 retaining 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 filter and check balls are installed in main valve body. See **Fig. 9** . Install stator shaft and stop pin. Install regulator valve body. Install dowel pin, lock-up body separator plate and lock-up body. Tighten lock-up body bolts to specification.
4. Install secondary separator plate, dowel pins and secondary valve body. Ensure filter and check balls are installed in secondary valve body. See **Fig. 13** .
5. Install throttle control shaft and retaining ring. Install servo separator plate, servo valve body and accumulator cover. Tighten bolts to specification. Install servo detent base. Tighten bolts to specification.
6. Install clutch feedpipes. Install fluid strainer. Tighten bolts to specification. Install 2nd accumulator body. Tighten bolts to specification.
7. Install control shaft on torque converter housing. Ensure control shaft engages with manual valve on main valve body. See **Fig. 8** . Install differential assembly. Install pulser rotor. Tighten bolts to specification. Install mainshaft and countershaft as an assembly on torque converter housing.

NOTE: DO NOT use hammer to tap mainshaft and countershaft into torque converter housing.

8. Install distance collar, needle bearing and countershaft 4th gear on countershaft. Install reverse gear selector and reverse selector hub on countershaft.

CAUTION: Reverse gear selector must be installed with flat side facing upward (away from torque converter housing). Reverse selector hub must be installed with groove facing upward (away from torque converter housing). See Fig. 34 .

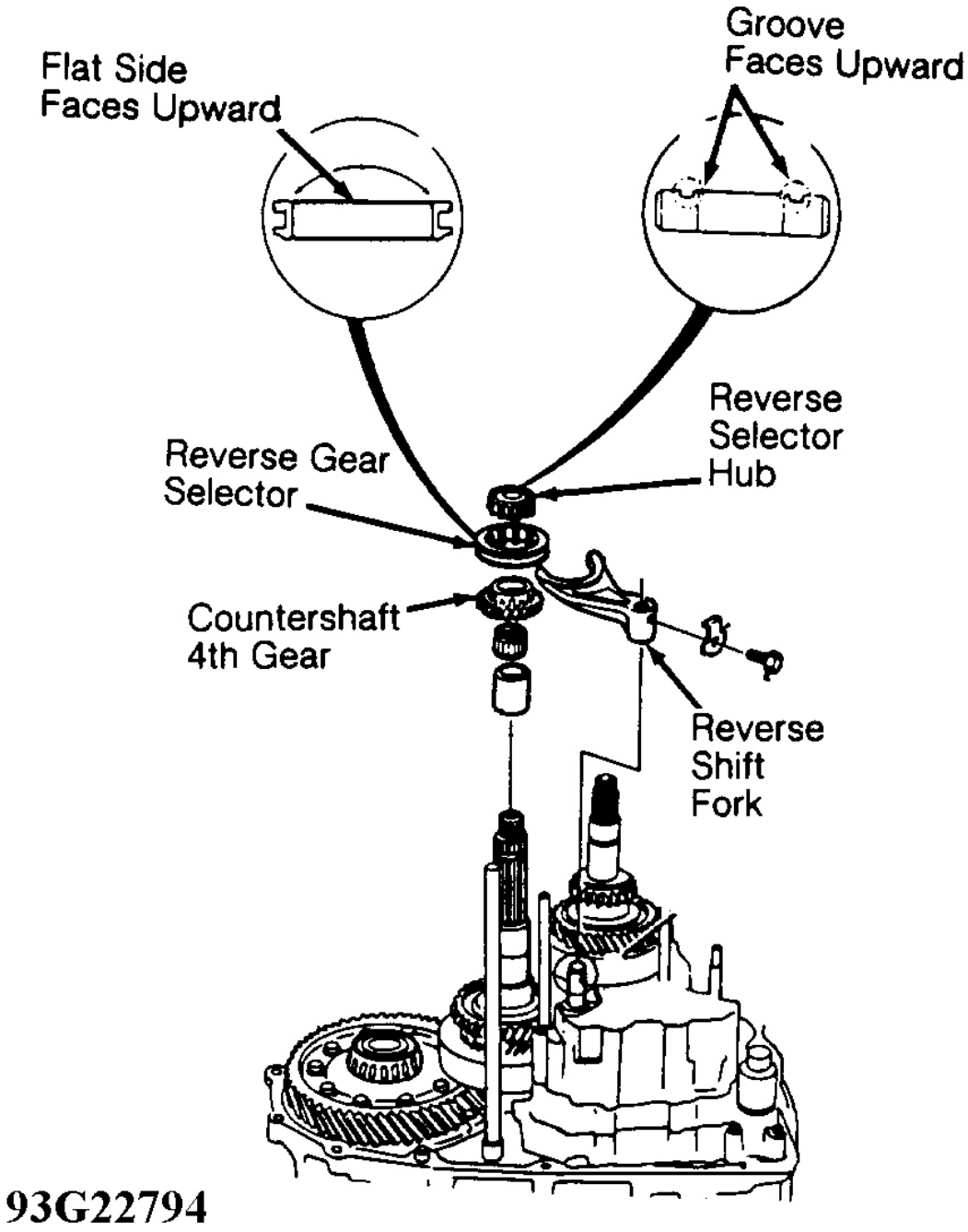


Fig. 34: Installing Reverse Gear Selector & Reverse Selector Hub
Courtesy of AMERICAN HONDA MOTOR CO., INC.

9. Install reverse shift fork. Rotate shift fork shaft on servo valve body so large chamfered hole aligns with hole in reverse shift fork. Install reverse shift fork bolt and NEW bolt lock. Tighten bolt to specification. Bend tabs on bolt lock over.

10. Install countershaft reverse gear, needle bearing and countershaft reverse gear collar. Install NEW gasket on torque converter housing. Install dowel pins in torque converter housing.

CAUTION: Ensure reverse idler gear is installed in transaxle housing with chamfered side of gear toward torque converter housing (away from transaxle housing).

11. Install reverse idler gear in transaxle housing. Ensure chamfered side of reverse idler gear is toward torque converter housing (away from transaxle housing).
12. Install shaft in reverse idler gear holder. See **Fig. 35** . Install spring, NEW washer and shaft retaining bolt. Tighten shaft retaining bolt to specification.
13. Install spring and steel ball in shaft. Depress steel ball, and install needle bearing on shaft. See **Fig. 35** . Install reverse idler gear holder on transaxle housing. Install and tighten bolts to specification.
14. Align spring pin with groove in transaxle housing by rotating control shaft. See **Fig. 7** . Install transaxle housing on torque converter housing. Install and tighten bolts to specification in several steps and in sequence. See **Fig. 31** . See **TORQUE SPECIFICATIONS** .

NOTE: Ensure reverse idler gear meshes with countershaft and mainshaft, or transaxle housing will not fit on torque converter housing.

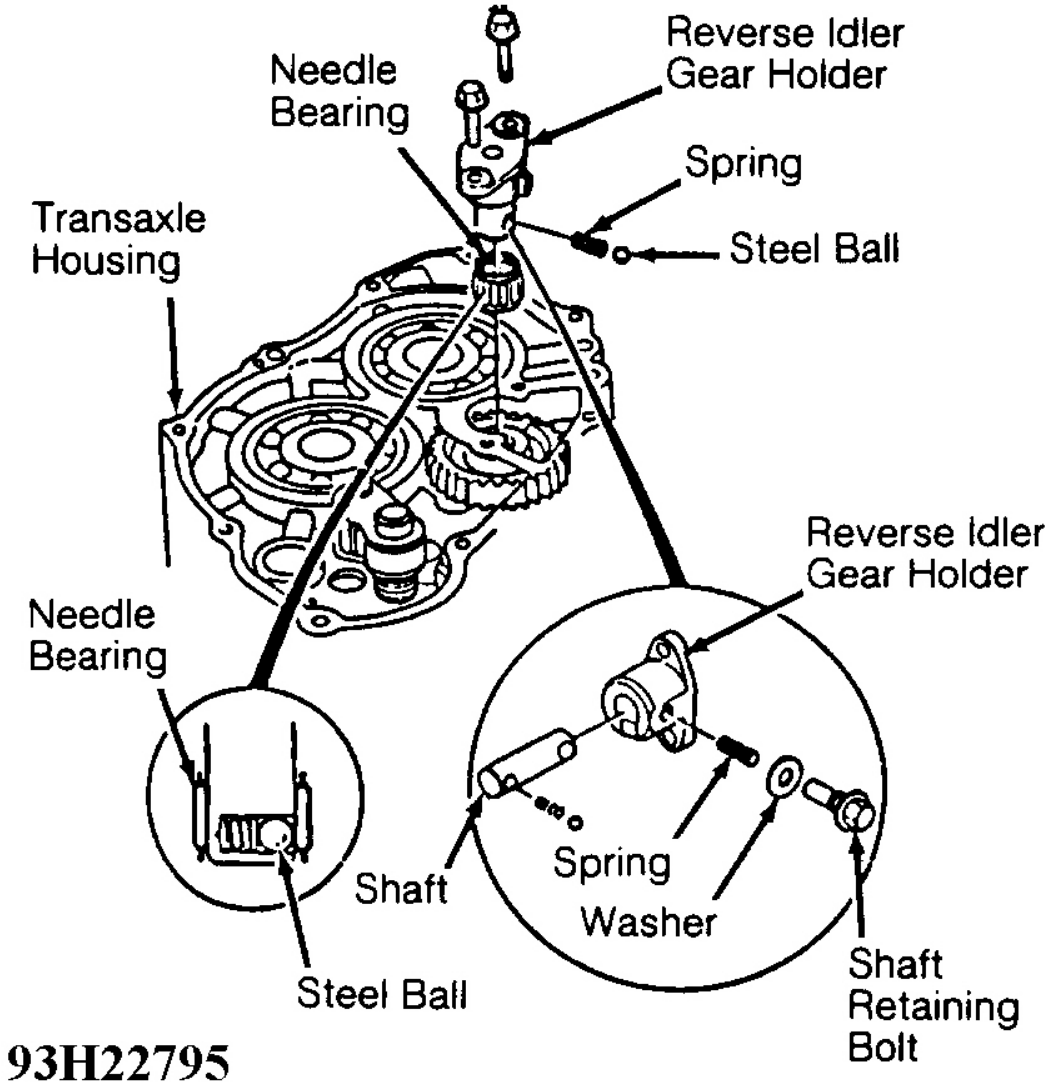


Fig. 35: Installing Reverse Idler Gear Holder
Courtesy of AMERICAN HONDA MOTOR CO., INC.

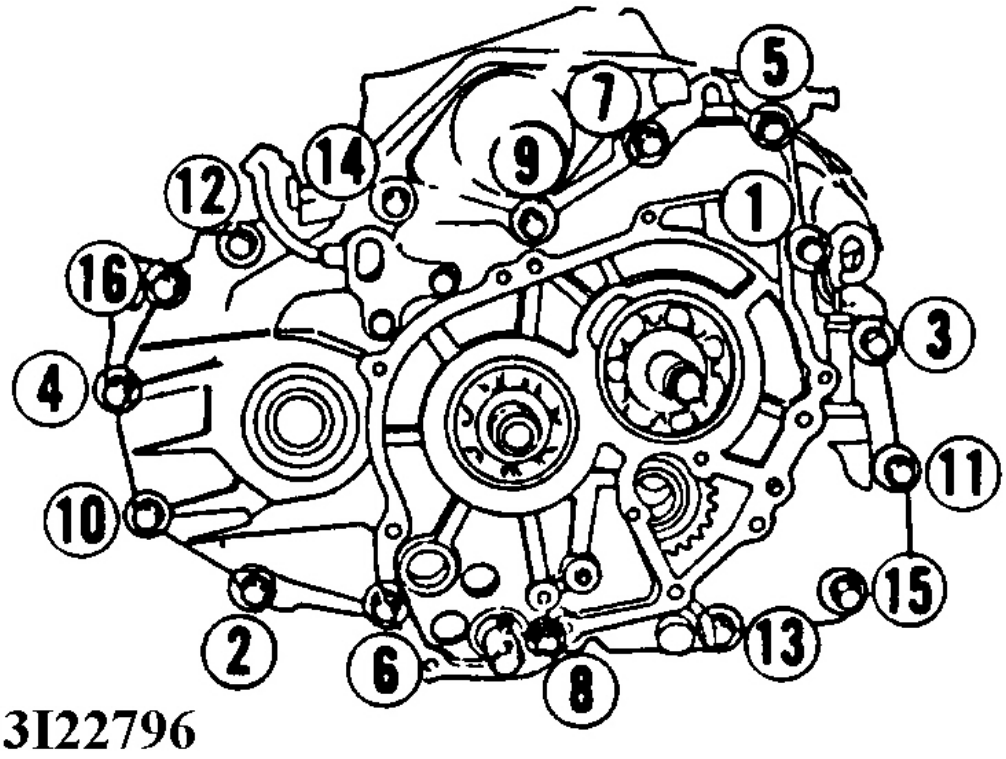


Fig. 36: Transaxle Housing Bolt Tightening Sequence
Courtesy of AMERICAN HONDA MOTOR CO., INC.

15. Install throttle control shaft spring and throttle control lever on throttle control shaft. See **Fig. 5** . Install NEW bolt lock and bolt. Tighten bolt to specification. Bend tabs on bolt lock over.
16. Install parking brake roller, roller pin and washer on parking shift arm. See **Fig. 5** . Install NEW cotter pin in roller pin.
17. Install parking pawl spring, parking shift arm and parking brake stopper on control shaft. See **Fig. 5** . Install NEW bolt lock and bolt on parking brake stopper. Tighten bolt to specification. Bend tabs on bolt lock over.
18. Install countershaft 1st gear collar and needle bearing on countershaft. Install mainshaft 1st gear collar on mainshaft. Install NEW "O" rings on mainshaft end.
19. Install countershaft 1st gear and parking gear on countershaft. Using soft-faced hammer and 34-mm socket, tap countershaft 1st gear and parking gear onto countershaft. Loosely install NEW lock nut on countershaft.
20. Install stop pin, parking pawl shaft, parking pawl and parking pawl spring. See **Fig. 5** .

NOTE: Ensure one end of parking pawl spring engages in transaxle housing, and other end engages with parking pawl. Spring tension should force parking

pawl away from parking gear.

21. Move control shaft so parking pawl engages parking gear. Install mainshaft holder on mainshaft. See **Fig. 6** .
22. Tighten countershaft lock nut to specification. Loosen countershaft lock nut and then retighten to specification. Stake lock nut against grooves in parking gear at 2 different areas.

CAUTION: Ensure countershaft lock nut is securely staked against grooves in parking gear at 2 different areas.

23. Install thrust washers, needle bearings, mainshaft 1st gear and 1st clutch assembly on mainshaft. See **Fig. 5** .
24. Install NEW lock nut on mainshaft and tighten to specification. Loosen lock nut and then retighten to specification. Stake lock nut against groove in 1st clutch assembly.

CAUTION: Ensure mainshaft lock nut is securely staked against groove in 1st clutch assembly.

25. Place parking shift arm in "P" position and ensure parking pawl engages parking gear. Measure parking brake stopper distance between parking pawl shaft and roller pin on parking brake stopper. See **Fig. 37** .
26. Parking brake stopper distance should be 1.181-1.220" (30.00-31.00 mm). If parking brake stopper distance is not within specification, install different size parking brake stopper. Parking brake stopper is available in 3 different sizes.

CAUTION: Ensure the 2 "O" rings are installed on transaxle housing before installing right side cover.

27. Install NEW gasket, NEW "O" rings and dowel pins on transaxle housing. Install right side cover. Tighten bolts to specification.
28. To install remaining components, reverse removal procedure. Ensure NEW seal washers are used when installing joint bolts for cooler pipes. Tighten all fasteners to specification. See **TORQUE SPECIFICATIONS** .

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

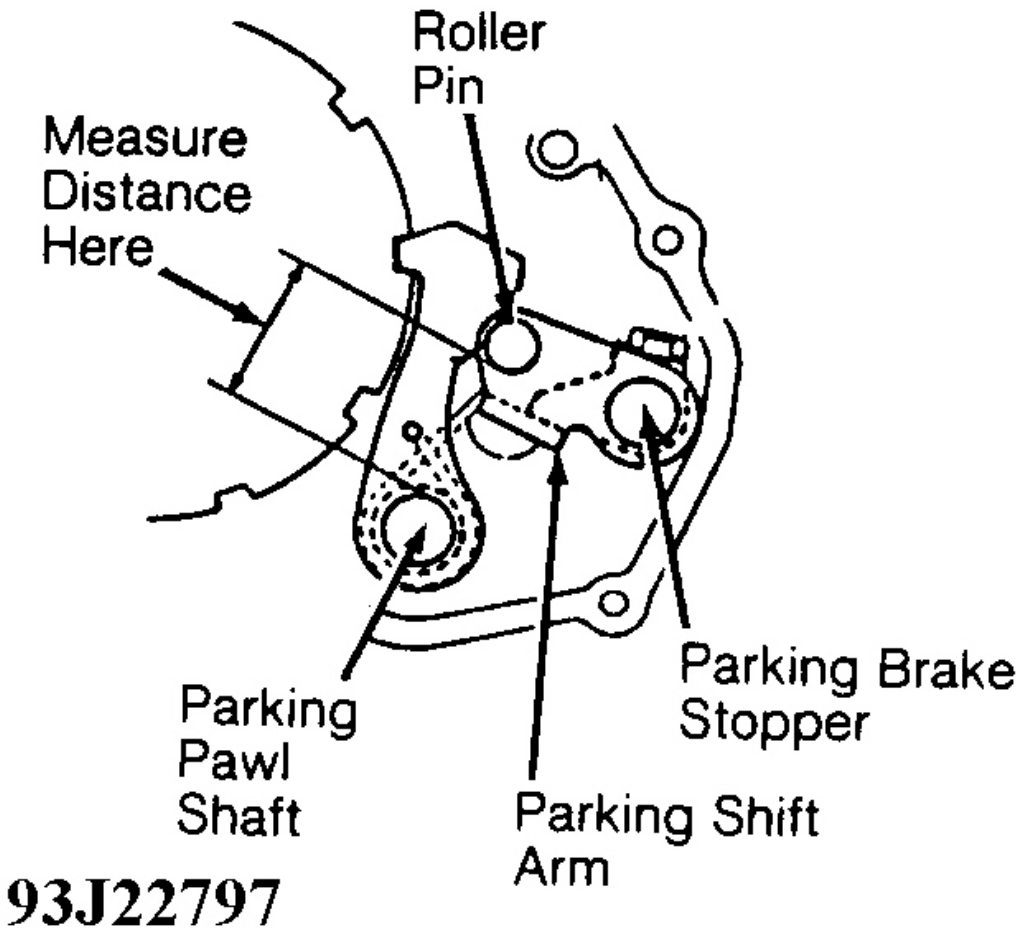


Fig. 37: Measuring Parking Brake Stopper Distance
Courtesy of AMERICAN HONDA MOTOR CO., INC.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS

Application	Ft. Lbs. (N.m)
Control Shaft Lever Bolt	11 (15)
Countershaft Lock Nut	103 (140)
Drain Bolt	29 (39)
Filler Bolt	33 (45)
Mainshaft Lock Nut	70 (95)
Parking Brake Stopper Bolt	11 (15)

Reverse Shift Fork Bolt	11 (15)
Right Side Cover Sealing Bolt	13 (18)
Ring Gear Bolt	74 (100)
Shaft Retaining Bolt	20 (27)
Transaxle Housing-To-Torque Converter Housing Bolt (1)	40 (54)
	INCH Lbs. (N.m)
Fluid Strainer Bolt	106 (12)
Lock-Up Body Bolt	106 (12)
Lock-Up Control Solenoid Valve Assembly Bolt	106 (12)
Main Valve Body Bolt	106 (12)
Pulser Rotor Bolt	106 (12)
Regulator Valve Body Bolt	106 (12)
Reverse Idler Gear Holder Bolt	106 (12)
Right Side Cover Bolt	106 (12)
Servo Detent Base Bolt	106 (12)
Servo Valve Body Bolt	106 (12)
Shift Control Solenoid Valve Assembly Bolt	106 (12)
Speed Pulser Bolt	106 (12)
Stopper Bolt	106 (12)
Throttle Cam Stopper Bolt	106 (12)
Throttle Control Lever Bolt	71 (8)
Valve Cover Bolt	71 (8)
2nd Accumulator Body Bolt	106 (12)
(1) Tighten bolts to specification in sequence. See **Fig. 31** .	

TRANSAXLE SPECIFICATIONS

TRANSAXLE SPECIFICATIONS

Application	Specification
Clutch Clearances	
1st Clutch	.026-.033" (.65-.85 mm)
2nd, 3rd & 4th Clutches	.016-.024" (.40-.60 mm)
Gear Clearances	
Countershaft 2nd Gear-To-3rd Gear	.003-.006" (.08-.15 mm)
Countershaft 4th Gear	.003-.006" (.08-.15 mm)
Mainshaft 2nd Gear	.003-.006" (.08-.15 mm)
Differential Bearing Preload (1)	
New Bearings	24-35 INCH Lbs. (2.8-4.0 N.m)
Used Bearings	22-32 INCH Lbs. (2.5-3.7 N.m)
Oil Pump Clearances	

Side Clearance	
Oil Pump Drive Gear	.0083-.0104" (.210-.265 mm)
Oil Pump Driven Gear	.0014-.0025" (.035-.063 mm)
Thrust Clearance	
Standard	.001-.002" (.03-.05 mm)
Wear Limit	.0028" (.070 mm)
Parking Brake Stopper	
Distance	1.181-1.220" (30.00-31.00 mm)
Side Gear Backlash	.003-.006" (.08-.15 mm)
(1) This is the starting torque required to rotate the differential assembly.	