

## 1996 Honda Accord DX

1995-96 AUTOMATIC TRANSMISSIONS MPZA Overhaul (V6 2.7L)

### 1995-96 AUTOMATIC TRANSMISSIONS

#### MPZA Overhaul (V6 2.7L)

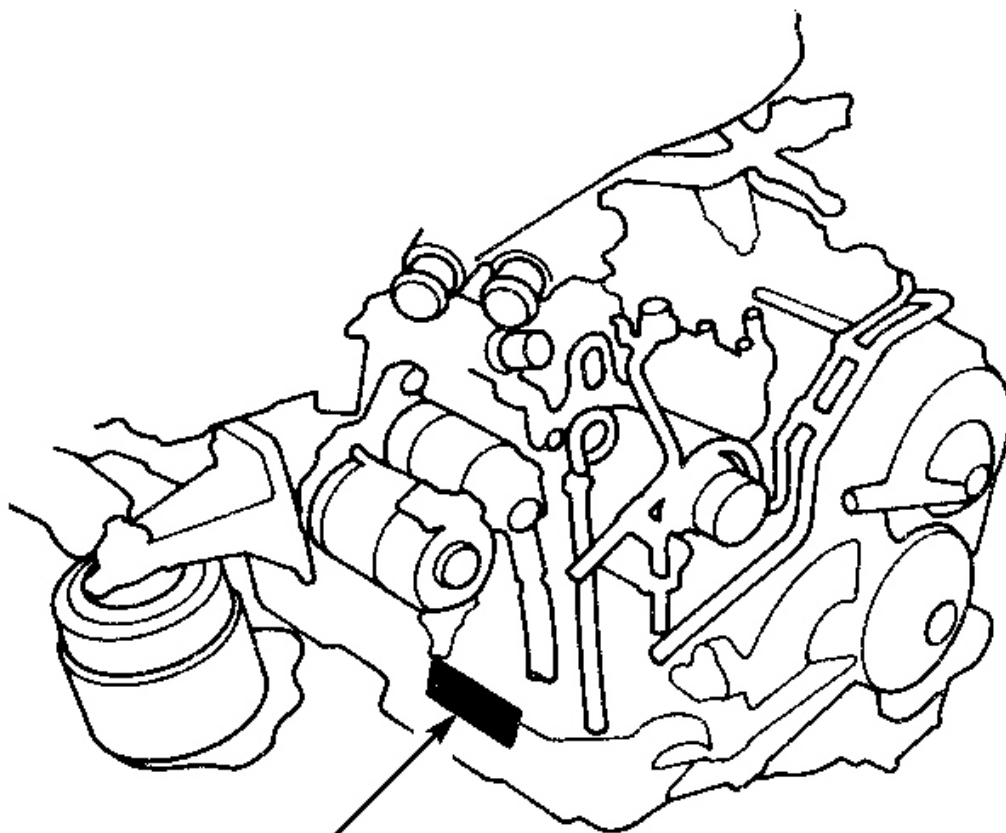
## APPLICATION

### TRANSAXLE APPLICATION

Application	Transaxle Model
Accord (V6 2.7L)	MPZA

## IDENTIFICATION

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



Transaxle Model &  
Serial Number

G96C30652

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

## DESCRIPTION

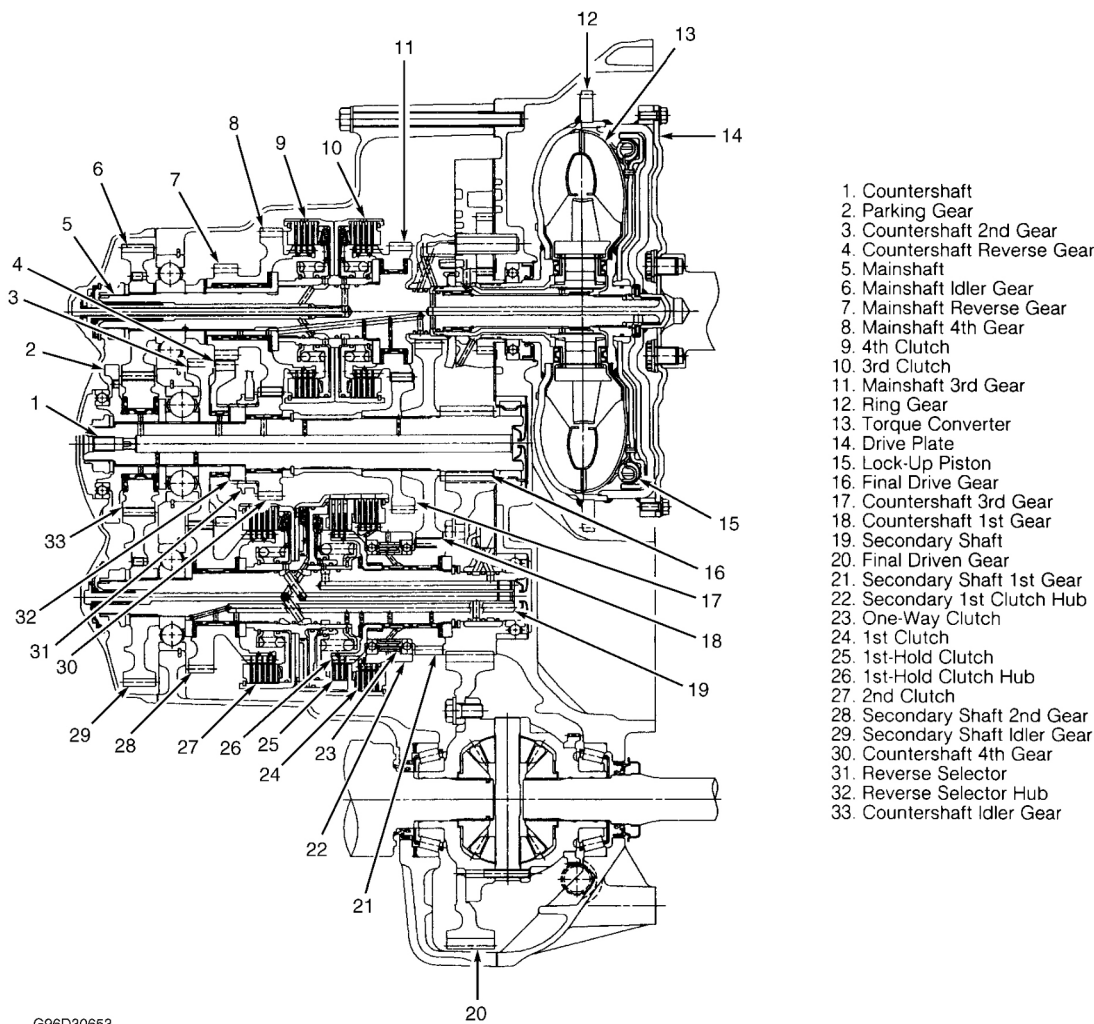
Automatic transaxle is electronically controlled with 4 forward speeds and one reverse speed. Transaxle consists of clutches, mainshaft, countershaft, secondary shaft, shift control solenoid valves, lock-up control solenoid valves, linear solenoid and a 3 element lock-up torque converter. See **Fig. 2** .

Valve bodies include; main valve body, secondary valve body, regulator valve body, servo body, lock-up valve body and accumulator valve body. Main valve body assembly consists of manual valve, 1-2 shift valve, 2nd orifice control valve, 2-3 shift valve, 3rd kickdown valve, modulator valve, cooler relief valve, lock-up shift

valve and main body valve. Secondary valve body consists of 2nd kickdown valve, 3-4 shift valve, main orifice control valve, servo control valve, servo orifice control valve and 4th exhaust valve. Regulator valve body consists of regulator valve, torque converter check valve and lock-up control valve. Servo body consists of servo valve and incorporates accumulators. Lock-up valve body consists of lock-up timing valve and relief valve. Accumulator valve body consists of 1st and 2nd accumulator pistons.

The linear solenoid/throttle valve body assembly is attached to outside of transaxle housing. Shift control solenoid valves "A" and "B", and lock-up control solenoid valves "A" and "B" are bolted to outside of torque converter housing.

Transaxle shifting and torque converter lock-up are controlled by the Transmission Control Module (TCM), which receives input signals from various sensors. The TCM determines appropriate shift point and activates appropriate shift control solenoid valve, lock-up control solenoid valves or linear solenoid.



1. Countershaft
2. Parking Gear
3. Countershaft 2nd Gear
4. Countershaft Reverse Gear
5. Mainshaft
6. Mainshaft Idler Gear
7. Mainshaft Reverse Gear
8. Mainshaft 4th Gear
9. 4th Clutch
10. 3rd Clutch
11. Mainshaft 3rd Gear
12. Ring Gear
13. Torque Converter
14. Drive Plate
15. Lock-Up Piston
16. Final Drive Gear
17. Countershaft 3rd Gear
18. Countershaft 1st Gear
19. Secondary Shaft
20. Final Driven Gear
21. Secondary Shaft 1st Gear
22. Secondary 1st Clutch Hub
23. One-Way Clutch
24. 1st Clutch
25. 1st-Hold Clutch
26. 1st-Hold Clutch Hub
27. 2nd Clutch
28. Secondary Shaft 2nd Gear
29. Secondary Shaft Idler Gear
30. Countershaft 4th Gear
31. Reverse Selector
32. Reverse Selector Hub
33. Countershaft Idler Gear

G96D30653

**Fig. 2: Cut-Away View Of 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. When certain transaxle gear combinations are engaged by clutches, power is transmitted from mainshaft to the countershaft and through the secondary shaft to provide different gears. Shift lever positions operate as follows:

- "P" (Park) Front wheels are 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 gear clutch is applied. Backup light switch, incorporated in A/T gear position switch, allows back-up lights to operate.
- "N" (Neutral) All clutches are released. Neutral position switch, incorporated in A/T gear position switch, allows engine starting in this position.
- "D4" (Drive/4th) 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 2nd, 3rd or 4th gear in "D4" position, TCM sends signal to operate torque converter lock-up.
- "D" (Drive/3rd) Transaxle starts off in 1st gear and upshifts automatically to 2nd gear and 3rd gear. On deceleration, transaxle will downshift through 2nd gear to 1st gear. When in 3rd gear in "D" position, TCM sends signal to operate torque converter lock-up.
- "2" (Second) Transaxle starts off and remains in 2nd gear for engine braking and better traction.
- "1" (First) Transaxle starts off and remains in 1st gear for engine braking.

When in "D" position in 3rd gear, or "D4" position in 2nd, 3rd or 4th gear, torque converter lock-up is present 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 TCM. The TCM receives various input signals and operates lock-up control solenoid valves. Operation of lock-up control solenoid valves controls modulator pressure.

The TCM contains a grade logic control system which controls transaxle shifting while vehicle is ascending or descending on a slope or when reducing vehicle speed. For more information on grade logic control system, see **MPZA ELECTRONIC CONTROLS (V6 2.7L)** article.

The TCM contains a self-diagnostic system, which will store a Diagnostic Trouble Code (DTC) if a failure is present in the transaxle electronic control system. The DTC can be retrieved to determine transaxle problem area. For information on electronic transaxle components, see **MPZA ELECTRONIC CONTROLS (V6 2.7L)** 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 pedal 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 interlock systems, see **MPZA ELECTRONIC CONTROLS (V6 2.7L)** 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 **MPZA**

**ELECTRONIC CONTROLS (V6 2.7L)** article.

## **LUBRICATION & ADJUSTMENTS**

See **SERVICING** article.

## **ON-VEHICLE SERVICE**

### **AXLE SHAFTS**

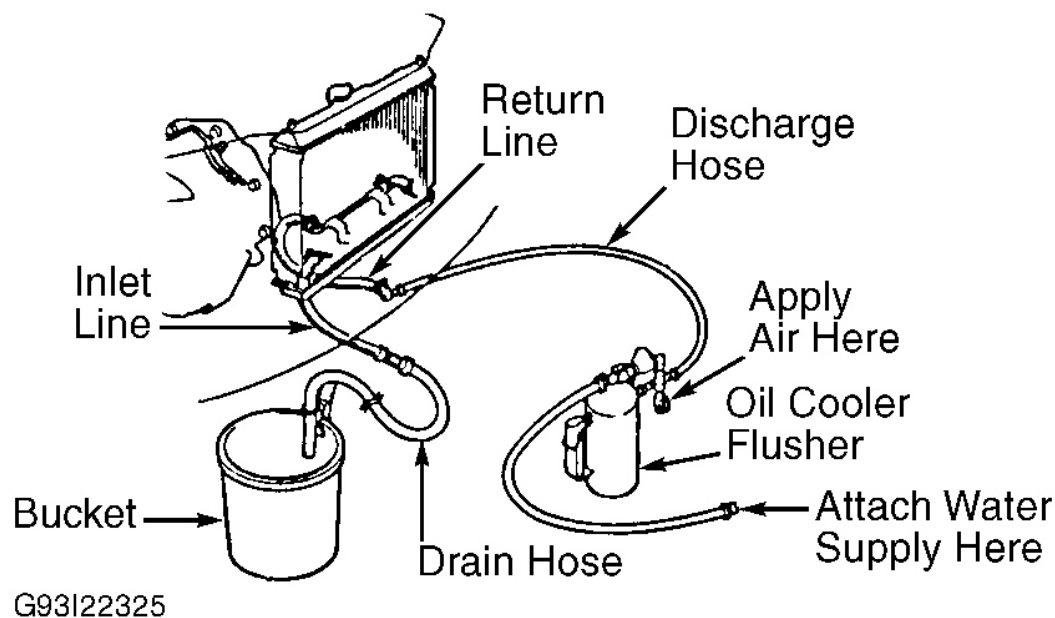
See **FWD AXLE SHAFTS** article in DRIVELINE/AXLES.

### **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 (550-829 kPa) 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.
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. 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 is present in oil cooler, as it 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. Ensure transaxle is in "P" position. Fill transaxle with Honda 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 (Typical)**

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

### SYMPTOM DIAGNOSIS

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

- Low ATF
- Mainshaft Worn/Damaged
- Countershaft Worn/Damaged
- Secondary Shaft Worn/Damaged
- Final Gears Worn/Damaged
- Oil Pump Worn Or Binding
- Regulator Valve Stuck Or Spring Worn

## 1996 Honda Accord DX

1995-96 AUTOMATIC TRANSMISSIONS MPZA Overhaul (V6 2.7L)

- Oil Filter Clogged
- Shift Cable Broken/Out Of Adjustment
- Drive Plate Defective Or Transaxle Misassembly

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

- 1st Gears Worn/Damaged
- 1st Clutch Defective
- One-Way Clutch Worn/Damaged
- 1st Accumulator Defective
- Shift Cable Broken/Out Of Adjustment

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

- 2nd Gears Worn/Damaged
- 2nd Clutch Defective
- One-Way Clutch Worn/Damaged
- 2nd Accumulator Defective
- Shift Cable Broken/Out Of Adjustment

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

- 4th Clutch Defective
- Reverse Gears Worn/Damaged
- Reverse Idler Gear Worn/Damaged
- Servo Valve Stuck
- Shift Cable Broken/Out Of Adjustment

### Vehicle Moves In "N" Position

- ATF Over Filled
- 1st Clutch Defective
- 2nd Clutch Defective
- 3rd Clutch Defective
- 4th Clutch Defective
- Needle Bearing Worn/Damaged
- Thrust Washer Worn/Damaged
- Clutch Clearance Incorrect

### Excessive Idle Vibration

- Binding Oil Pump

## 1996 Honda Accord DX

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- Lock-Up Shift Valve Stuck
- Engine Output Low
- Lock-Up Piston Defective
- Drive Plate Defective Or Transaxle Misassembly

### Excessive Vibration (All Engine Speeds)

- Drive Plate Defective Or Transaxle Misassembly

### Poor Acceleration & Flares On Starting Off In "R" Position With The Following Stall Conditions: Stall RPM High In "D4", "D", "2" & "1" Position

- Low ATF
- Oil Pump Worn Or Binding
- Regulator Valve Stuck Or Spring Worn
- Torque Converter Check Valve Stuck
- Oil Filter Clogged
- Shift Cable Broken/Out Of Adjustment
- Torque Converter One-Way Clutch Worn/Damaged

### Stall RPM High In "1" Position

- 1st Clutch Defective
- One-Way Clutch Worn/Damaged
- Shift Cable Broken/Out Of Adjustment

### Stall RPM High In "2" Position

- 2nd Clutch Defective
- Shift Cable Broken/Out Of Adjustment

### Stall RPM Within Specification

- ATF Over Filled

### Stall RPM Low

- Lock-Up Shift Valve Stuck
- Engine Output Low
- Engine Throttle Cable Out Of Adjustment
- Lock-Up Piston Defective

### Does Not Shift



- Lock-Up Shift Valve Stuck
- Shift Control Solenoid Valve "A" Defective
- Shift Control Solenoid Valve "B" Defective
- TCM Defective

**Fails To Shift In "D" Position; From 1st To 3rd Gear**

- 2-3 Shift Valve Stuck
- TCM Defective

**Fails To Shift In "D4" Position; From 1st To 4th Gear**

- 2-3 Shift Valve Stuck
- 3-4 Shift Valve Stuck
- TCM Defective

**Erratic 1-2 Upshift, 2-3 Upshift & 3-4 Upshift**

- TCM Defective

**Erratic 1-2 Upshift**

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

**Erratic 2-3 Upshift**

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

**Erratic 3-4 Upshift**

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

**Harsh Upshift (1-2)**

- 2nd Clutch Defective
- 2nd Accumulator Defective
- Main Orifice Control Valve Stuck
- Linear Solenoid Defective

**Harsh Upshift (2-3)**

- 3rd Clutch Defective

- 3rd Accumulator Defective
- 2nd Orifice Control Valve Stuck
- Main Orifice Control Valve Stuck
- Linear Solenoid Defective

**Harsh Upshift (3-4)**

- 4th Clutch Defective
- 4th Accumulator Defective
- Servo Orifice Control Valve Stuck
- Main Orifice Control Valve Stuck
- Linear Solenoid Defective

**Harsh Downshift (2-1)**

- 2nd Accumulator Defective
- 2nd Check Ball Stuck
- Main Orifice Control Valve Stuck
- Linear Solenoid Defective

**Harsh Downshift (3-2)**

- 3rd Accumulator Defective
- 3rd Check Ball Stuck
- 2nd Kickdown Valve Stuck
- Main Orifice Control Valve Stuck
- 4th Exhaust Valve Stuck
- Linear Solenoid Defective

**Harsh Downshift (4-3)**

- 4th Accumulator Defective
- 4th Check Ball Stuck
- 3rd Kickdown Valve Stuck
- Main Orifice Control Valve Stuck
- 4th Exhaust Valve Stuck
- Linear Solenoid Defective

**Flares On 2-3 Upshift**

- 3rd Clutch Defective
- 3rd Accumulator Defective

- Foreign Material In Main Orifice
- Foreign Material In 3rd Orifice
- 2nd Orifice Control Valve Stuck
- Linear Solenoid Defective

**Flares On 3-4 Upshift**

- 4th Clutch Defective
- 4th Accumulator Defective
- Foreign Material In Main Orifice
- Foreign Material In 4th Orifice
- Servo Orifice Control Valve Stuck
- Linear Solenoid Defective

**Excessive Shock On 2-3 Upshift**

- 3rd Clutch Defective
- 3rd Accumulator Defective
- 2nd Check Ball Stuck
- 2nd Orifice Control Valve Stuck
- Foreign Material In Separator Plate Orifice
- Linear Solenoid Defective

**Excessive Shock On 3-4 Upshift**

- 4th Clutch Defective
- 4th Accumulator Defective
- 3rd Check Ball Stuck
- Servo Orifice Control Valve Stuck
- Foreign Material In Separator Plate Orifice
- Linear Solenoid Defective

**Late Shift From "N" Position To "D4" Or "D" Position**

- 1st Clutch Defective
- Foreign Material In 1st Orifice

**Late Shift From "N" Position To "R" Position**

- 4th Clutch Defective
- Servo Valve Stuck
- 1-2 Shift Valve Stuck

- Servo Control Valve Stuck

**Noise From Transaxle In All Gears**

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

**Vehicle Does Not Accelerate Greater Than 31 MPH**

- Torque Converter One-Way Clutch Defective

**Shift Lever Does Not Operate Smoothly**

- Shift Cable Broken/Out Of Adjustment
- Joint In Shift Cable & Transmission Or Body Worn

**Fails To Shift; Stuck In 4th Gear**

- Shift Control Solenoid Valve "A" Defective
- Shift Control Solenoid Valve "B" Defective
- TCM Defective

**Transaxle Will Not Shift Into "P" Position**

- Shift Cable Broken/Out Of Adjustment
- Joint In Shift Cable & Transmission Or Body Worn

**Stall RPM High; All Clutch Pressures Within Specification**

- 1st Clutch Defective
- 2nd Clutch Defective
- One-Way Clutch Worn/Damaged
- Torque Converter Check Valve Stuck

**Lock-Up Clutch Does Not Disengage**

- Lock-Up Shift Valve Stuck
- Lock-Up Control Valve Stuck
- Lock-Up Timing Valve Stuck
- Lock-Up Control Solenoid Valve "A" Defective
- Lock-Up Control Solenoid Valve "B" Defective
- Linear Solenoid Defective
- TCM Defective
- Lock-Up Piston Defective

**Lock-Up Clutch Does Not Operate Smoothly**

- Torque Converter Check Valve Stuck
- Lock-Up Shift Valve Stuck
- Lock-Up Control Valve Stuck
- Lock-Up Timing Valve Stuck
- Lock-Up Control Solenoid Valve "A" Defective
- Lock-Up Control Solenoid Valve "B" Defective
- Linear Solenoid Defective
- TCM Defective
- Lock-Up Piston Defective

**Lock-Up Clutch Does Not Engage**

- Torque Converter Check Valve Stuck
- Lock-Up Shift Valve Stuck
- Lock-Up Control Valve Stuck
- Lock-Up Timing Valve Stuck
- Lock-Up Control Solenoid Valve "A" Defective
- Lock-Up Control Solenoid Valve "B" Defective
- Linear Solenoid Defective
- TCM Defective
- Lock-Up Piston Defective

**Excessive Shock When Shifting Into "1" Position**

- 1st-Hold Clutch Defective
- 1st-Hold Accumulator Defective
- Foreign Material In Separator Plate Orifice

**No Engine Braking In "1" Position**

- 1st-Hold Clutch Defective
- 1st-Hold Accumulator Defective
- Foreign Material In 1st-Hold Orifice

**TESTING**

**CAUTION: Vehicle is equipped with a Supplemental Restraint System (SRS). All wires have Yellow insulation and are located underdash or in instrument panel area. To avoid injury from accidental deployment, read and carefully follow all SERVICE PRECAUTIONS and DISABLING & ACTIVATING AIR BAG**

**SYSTEM procedures in appropriate AIR BAG DEACTIVATION PROCEDURES article in GENERAL INFORMATION.**

**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 procedures in the **MPZA ELECTRONIC CONTROLS (V6 2.7L)** 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 "D" position. Ensure engine does not stall. Manufacturer recommends monitoring of Throttle Position (TP) sensor voltage when performing road test. This ensures proper throttle opening for verifying shift points and lock-up of torque converter.
3. Remove right-side door sill molding. Pull carpet back to expose TCM. Remove ECM cover mounting nuts and turn TCM over. Ensure ignition is off. Using a DVOM, measure voltage (backprobe) between 22-pin TCM harness connector "B", terminal No. 4 (Red/Black wire) and 26-pin TCM harness connector "A", terminals No. 13 or 26 (Brown/Black wires). See **Fig. 4**.
4. Install scan tool. Road test vehicle on a flat road in "D4" position. Monitor TP sensor voltage and ensure shift points occur at specified speeds. See **Fig. 5**. Also check for abnormal transaxle noise and clutch slippage. See **CLUTCH APPLICATION** table.
5. 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.
6. 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.
7. 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.
8. Place shift lever in "R" position. Accelerate from a stop at full throttle. Check for abnormal noise or clutch slippage.
9. 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.

**CLUTCH APPLICATION**

Shift Lever Position	Elements In Use
"P" Or "N"	No Clutches Are Applied
"R"	4th Clutch
"D4"	
1st Gear	1st Clutch & <sup>(1)</sup> One-Way Clutch
2nd Gear	<sup>(2)</sup> 1st Clutch & 2nd Clutch
3rd Gear	<sup>(2)</sup> 1st Clutch & 3rd Clutch
4th Gear	<sup>(2)</sup> 1st Clutch & 4th Clutch
"D"	

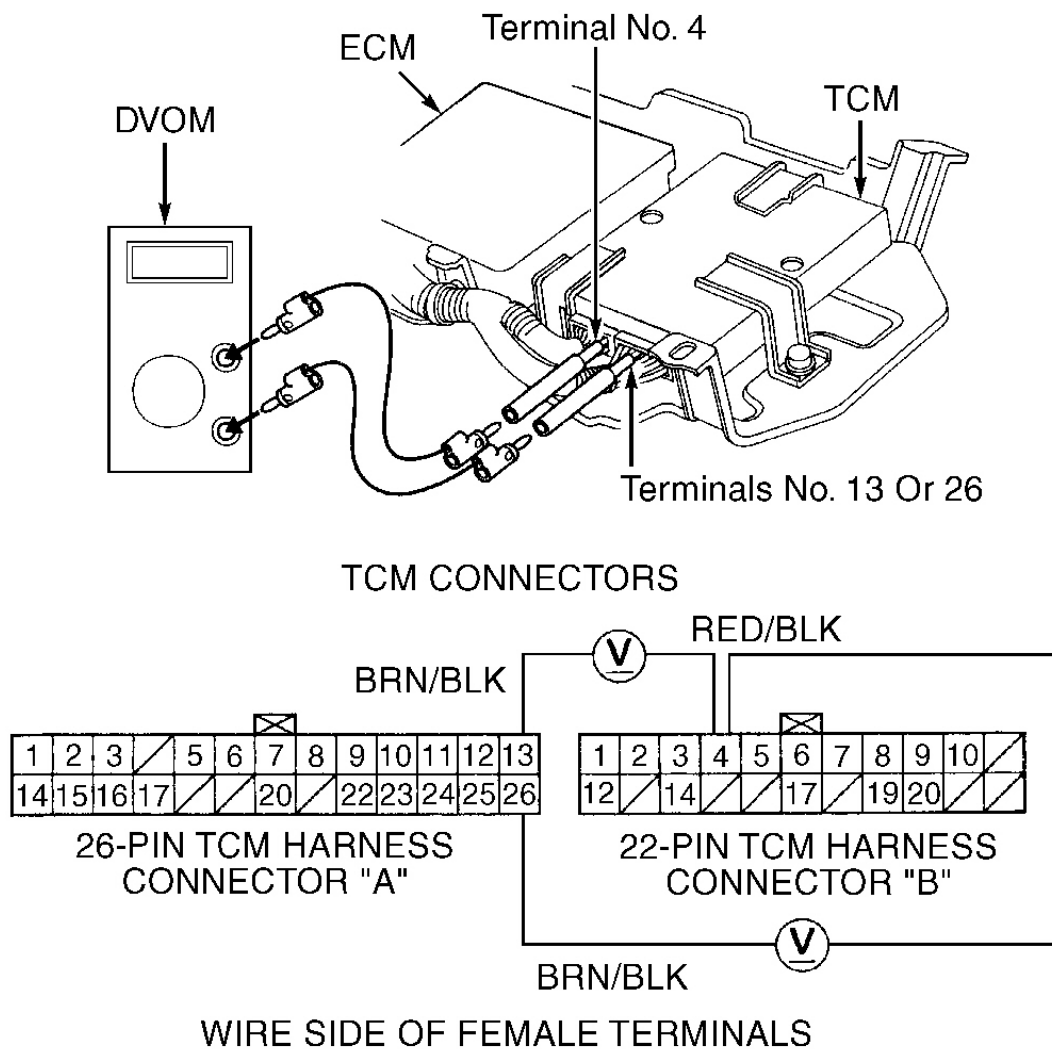
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1st Gear	1st Clutch & <sup>(1)</sup> One-Way Clutch
2nd Gear	<sup>(2)</sup> 1st Clutch & 2nd Clutch
3rd Gear	<sup>(2)</sup> 1st Clutch & 3rd Clutch
"2"	<sup>(2)</sup> 1st Clutch & 2nd Clutch
"1"	1st-Hold Clutch, 1st Clutch & <sup>(1)</sup> One-Way Clutch

(1) One-way clutch engages on acceleration and slips on deceleration. No engine braking occurs.

(2) The 1st clutch engages, but driving power is not transmitted, as one-way clutch slips.



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**Fig. 4: Measuring Throttle Position (TP) Sensor Voltage**

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1995-96 AUTOMATIC TRANSMISSIONS MPZA Overhaul (V6 2.7L)

Courtesy of AMERICAN HONDA MOTOR CO., INC.

● Upshift		1st → 2nd	2nd → 3rd	3rd → 4th	Lock-Up Clutch ON
Throttle position sensor voltage: 0.67 V	MPH	8 – 9	18 – 20	26 – 30	14 – 16
Coasting down-hill from a stop	KM/H	13 – 15	29 – 32	42 – 48	22 – 26
Throttle position sensor voltage: 2.26 V	MPH	19 – 21	35 – 39	52 – 55	60 – 65
Acceleration from a stop	KM/H	30 – 34	56 – 62	83 – 89	97 – 105
Full throttle	MPH	31 – 35	57 – 61	85 – 89	89 – 94
Acceleration from a stop	KM/H	50 – 56	92 – 98	137 – 143	143 – 151

● Downshift		Lock-Up Clutch OFF	4th → 3rd	3rd → 2nd	2nd → 1st
Throttle position sensor voltage: 0.67 V	MPH	13 – 16	18 – 21	——	6 – 8 (3rd → 1st)
Coasting or braking to a stop	KM/H	21 – 25	29 – 33	——	9 – 13 (3rd → 1st)
Throttle position sensor voltage: 2.26 V	MPH	51 – 56	——	——	——
When car is slowed by increased grade, wind, etc.	KM/H	82 – 90	——	——	——
Full throttle	MPH	83 – 88	79 – 83	52 – 55	25 – 29
When car is slowed by increased grade, wind, etc.	KM/H	134 – 142	127 – 133	83 – 89	41 – 47

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**Fig. 5: Checking Upshift & Downshift Speeds**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

### 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 all wheels. Connect tachometer. 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 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. Torque converter stall speed should be the same in "D4", "2", "1" and "R" positions 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	2450



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Service Limit

2300-2600

**TORQUE CONVERTER STALL SPEED TROUBLE SHOOTING**

<b>Torque Converter Stall Speed Test Results</b>	<b>Probable Cause</b>
Stall Speed RPM High In	
"D4", "2", "1" & "R"	Low Fluid Level, Low Oil Pump Output, Clogged Oil Filter, Pressure Regulator Valve Stuck Closed, Slipping Clutch
Stall Speed RPM High In "R"	Slipping 4th Clutch
Stall Speed RPM High In "2" & "D4"	Slipping 2nd Clutch
Stall Speed RPM High In "1"	Slipping 1st Clutch, Slipping One-Way Clutch
Stall Speed RPM 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. Apply parking brake and block rear wheels. Raise and support vehicle so front wheels can rotate.

**Pressure Test (Line, Clutch & Throttle Pressure)**

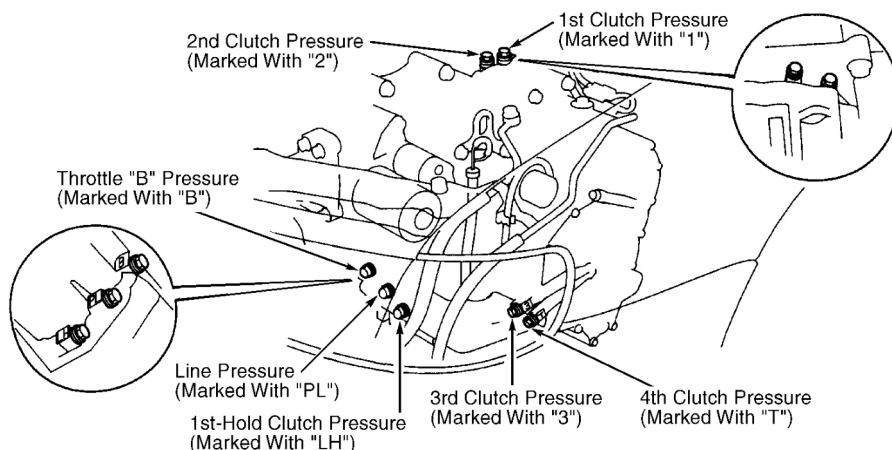
1. With engine off, remove appropriate pressure tap plugs to be tested. See **Fig. 6** . Attach Pressure Gauge Set (07406-0020400) and Low Pressure Gauge (07406-0070300) to appropriate pressure taps. Tighten hose fittings to 13 ft. lbs. (18 N.m).

**NOTE:** Apply battery voltage to linear solenoid terminal "B", and ground terminal "A" when checking pressures with throttle fully closed. See **Fig. 7** .

2. Disconnect linear solenoid harness connector. See **Fig. 7** . With shift lever in "P" or "N" position, start and operate engine at 2000 RPM. Note pressure at specified shift lever and throttle positions. See **Fig. 6** .
3. If pressure is not within specification, check for probable cause and repair as necessary. See **Fig. 6** . Turn engine off.
4. Using a NEW seal washer, install and tighten pressure tap plugs to 13 ft. lbs. (18 N.m).

# 1996 Honda Accord DX

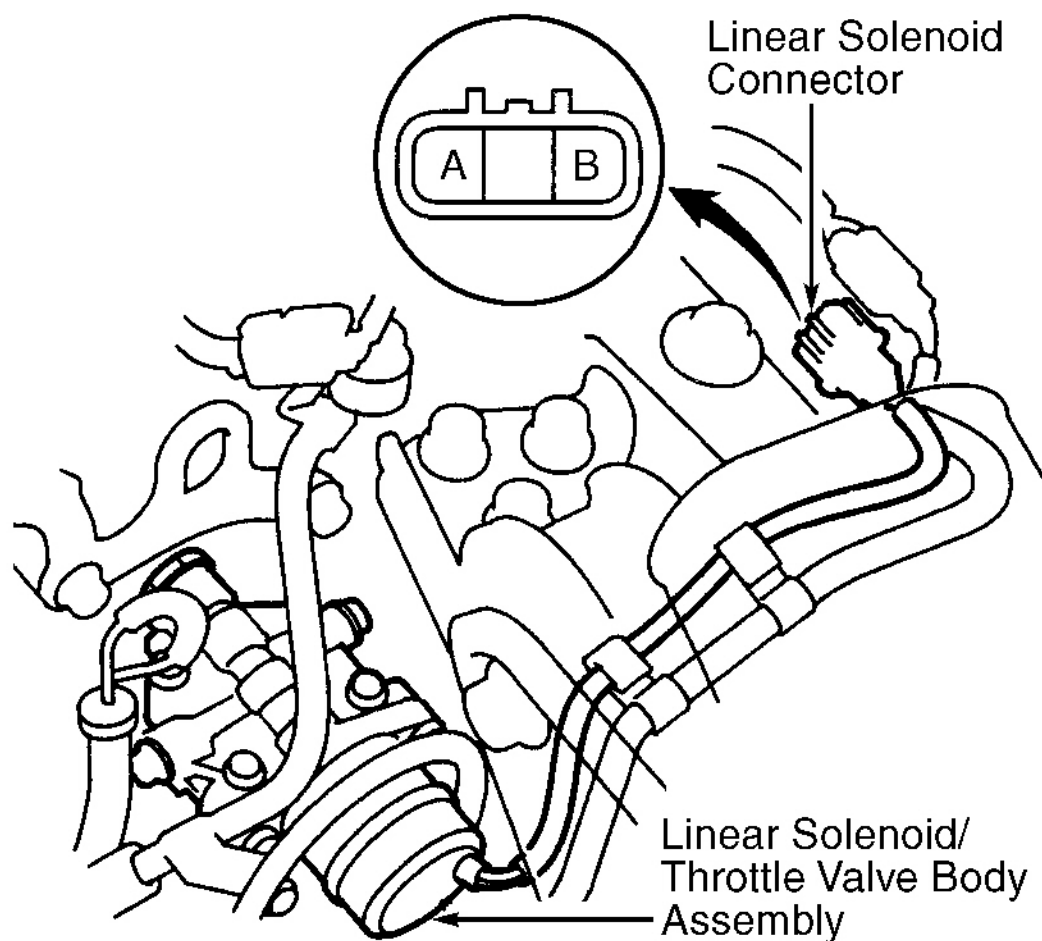
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PRESSURE	SHIFT LEVER POSITION	SYMPTOM	PROBABLE CAUSE	FLUID PRESSURE	
				Standard	Service Limit
Line	<b>N</b> or <b>P</b>	No (or low) line pressure	Torque converter, ATF pump, pressure regulator, torque converter check valve	490 kPa (5.0 kgf/cm <sup>2</sup> , 71 psi) Fully-closed throttle	440 kPa (4.5 kgf/cm <sup>2</sup> , 64 psi) Fully-closed throttle
1st Clutch	<b>1</b> or <b>D<sub>L</sub></b>	No or low 1st clutch pressure	1st Clutch	840 kPa (8.5 kgf/cm <sup>2</sup> , 120 psi) Fully-opened throttle	780 kPa (8.0 kgf/cm <sup>2</sup> , 110 psi) Fully-opened throttle
1st-hold Clutch	<b>1</b>	No or low 1st-hold clutch pressure	1st-hold Clutch		
2nd Clutch	<b>2</b>	No or low 2nd clutch pressure	2nd Clutch		
2nd Clutch	<b>D<sub>L</sub></b>	No or low 2nd clutch pressure			
3rd Clutch		No or low 3rd clutch pressure	3rd Clutch		
4th Clutch	<b>R</b>	No or low 4th clutch pressure	4th Clutch Servo Valve or 4th Clutch		
Throttle "B"	<b>D<sub>L</sub></b>	Pressure too high	Linear Solenoid/ Throttle Valve Body Assembly	0 kPa (0 kgf/cm <sup>2</sup> , 0 psi) Fully-closed throttle	—
		No or low throttle B pressure		590 kPa (6.0 kgf/cm <sup>2</sup> , 85 psi) Fully-opened throttle	540 kPa (5.5 kgf/cm <sup>2</sup> , 78 psi) Fully-opened throttle

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**Fig. 6: Testing Line, Clutch & Throttle Pressures**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.



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**Fig. 7: Linear Solenoid Harness Connector Terminals**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

## REMOVAL & INSTALLATION

### ELECTRICAL COMPONENTS

See MPZA ELECTRONIC CONTROLS (V6 2.7L) 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 **TORQUE CONVERTER STALL SPEED TEST** under TESTING.

## TRANSAXLE DISASSEMBLY

### LEFT-SIDE COVER

**NOTE:** Refer to illustration during disassembly. See **Fig. 8** .

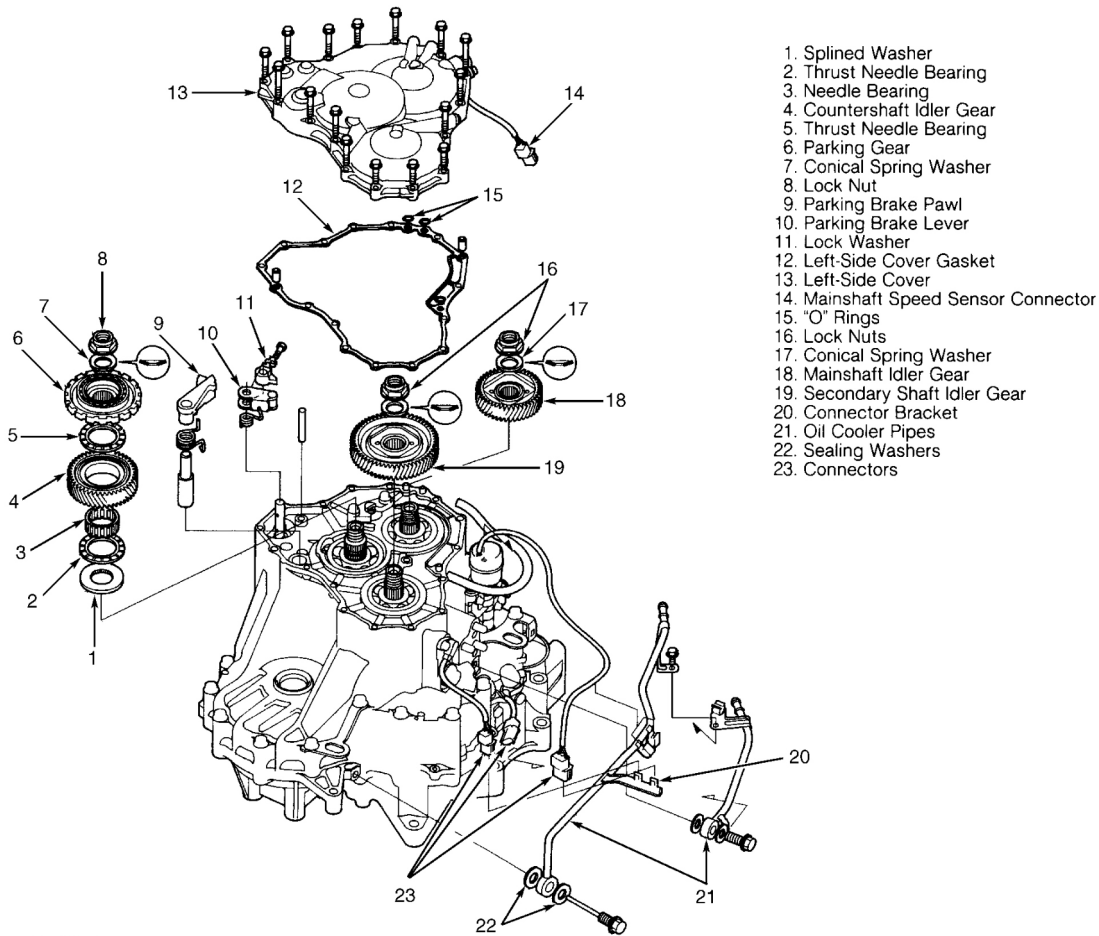
1. Remove mainshaft speed sensor harness connector from bracket. Remove 16 left-side cover bolts and remove cover. Install Mainshaft Holder (07GAB-PF50100 or 07GAB-PF5101) on mainshaft. See **Fig. 9** .

**NOTE:** Countershaft and secondary shaft lock nuts have **LEFT-HAND** threads. Save removed lock nuts for use in installation of press fit idler gears and parking gear.

2. Engage parking brake pawl with parking gear. Using a chisel, remove lock tabs from each shaft lock nut. Remove lock nuts and conical washers from each shaft.
3. Remove mainshaft holder. Using a puller, remove parking gear. See **Fig. 10** . Remove thrust needle bearing, countershaft idler gear, needle bearing, thrust needle bearing and splined washer from countershaft.
4. Using a puller, remove idler gears from mainshaft and secondary shaft. Remove parking brake pawl, spring, shaft and stop shaft from transaxle housing. Remove bolt securing parking brake stop.
5. Remove lock washer, parking brake stop, lever and spring from control shaft. Remove connectors from connector bracket on ATF cooler lines. Remove joint bolts and ATF cooler lines.

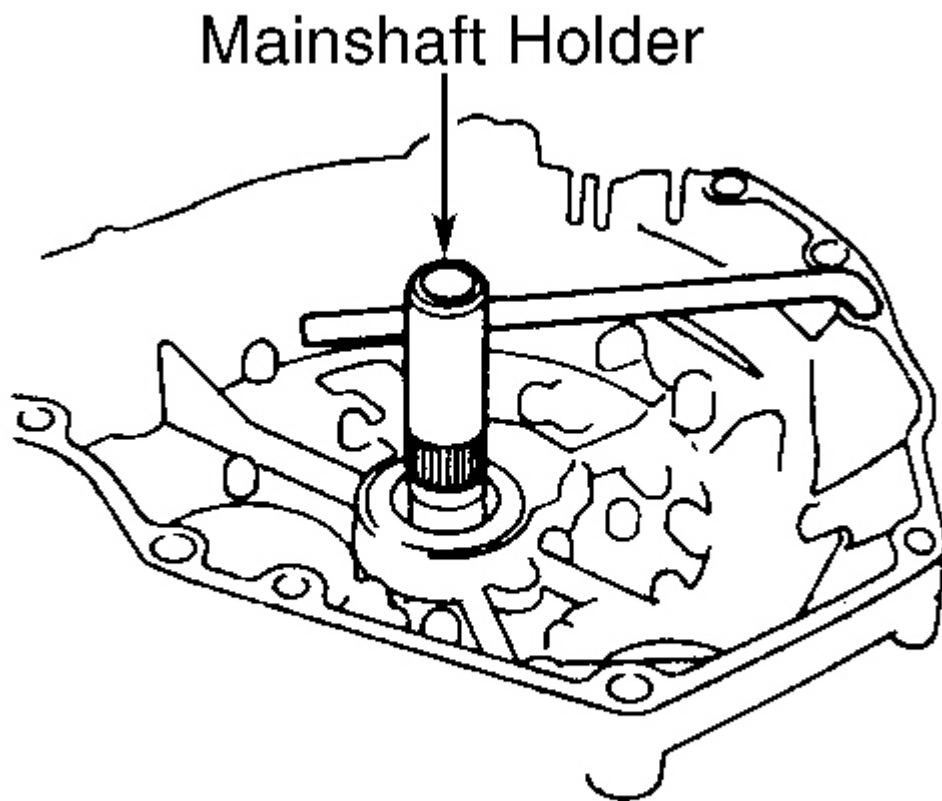
# 1996 Honda Accord DX

1995-96 AUTOMATIC TRANSMISSIONS MPZA Overhaul (V6 2.7L)



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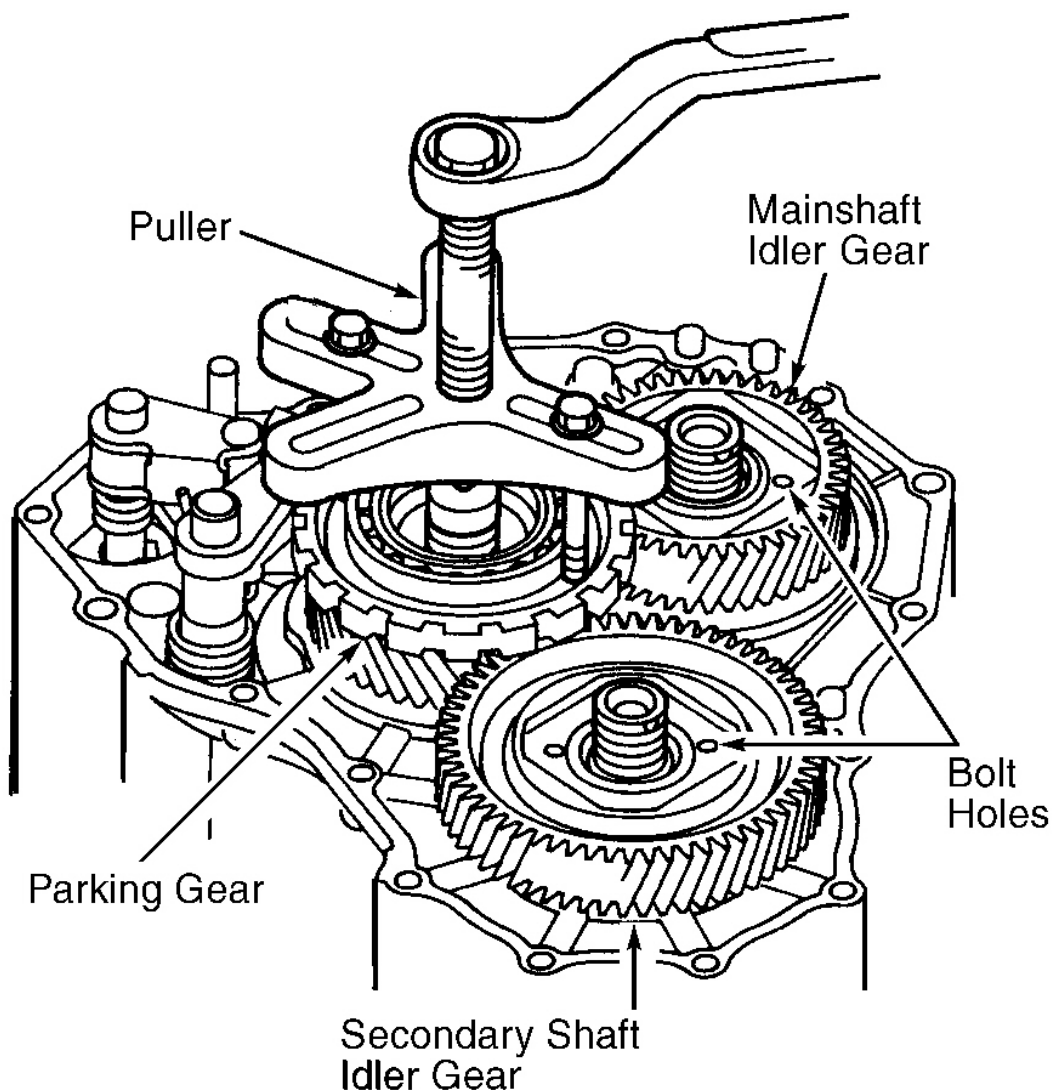
**Fig. 8: Exploded View Of Left-Side Cover & Related Components**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.



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**Fig. 9: Installing Mainshaft Holder**

Courtesy of AMERICAN HONDA MOTOR CO., INC.



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**Fig. 10: Removing Parking Gear**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

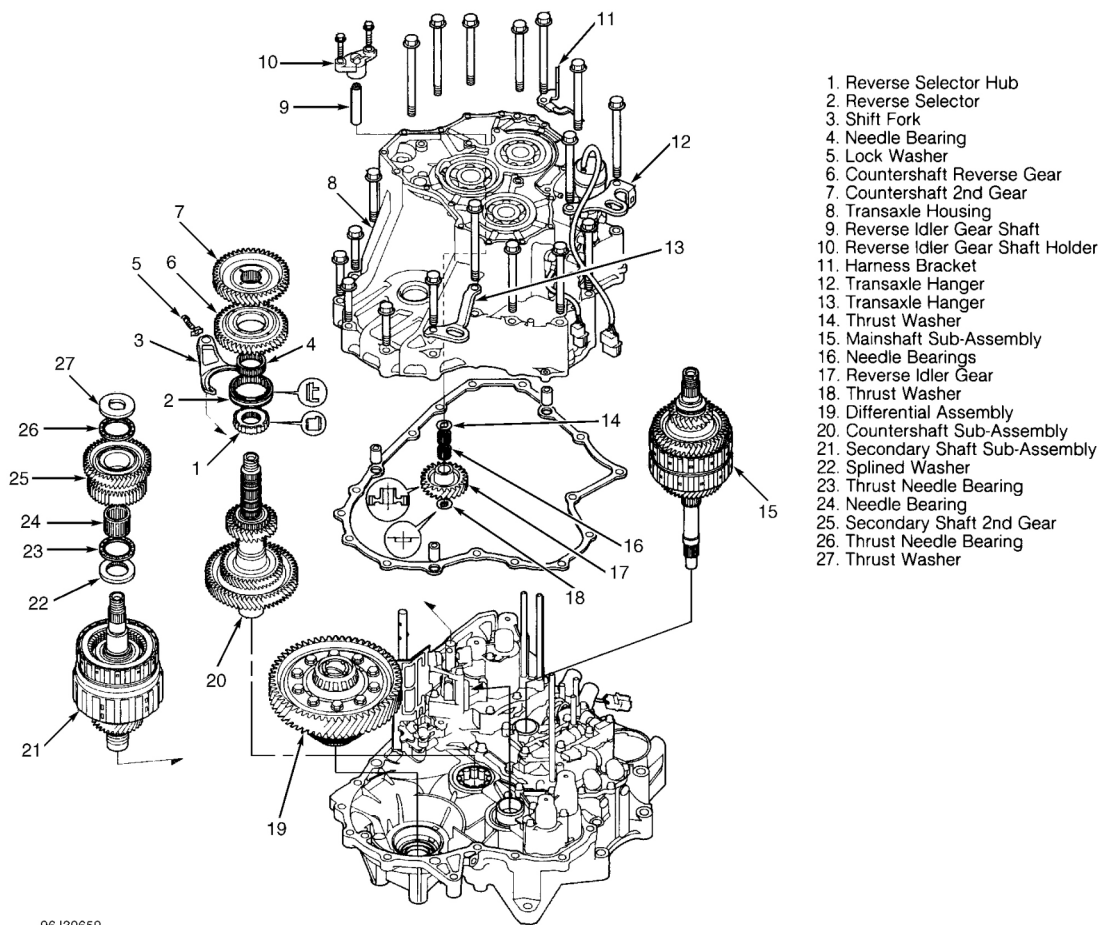
**TRANSAXLE HOUSING****NOTE:** Refer to illustration during disassembly. See **Fig. 11** .

1. Remove bolts holding reverse idler gear shaft holder. See **Fig. 12** . Remove reverse idler shaft holder, shaft and washer. Remove transaxle housing mounting bolts, transaxle hangers and bracket.

**NOTE:** Transaxle housing will **NOT** separate from torque converter housing if

**reverse idler gear is not moved as described in the following step.**

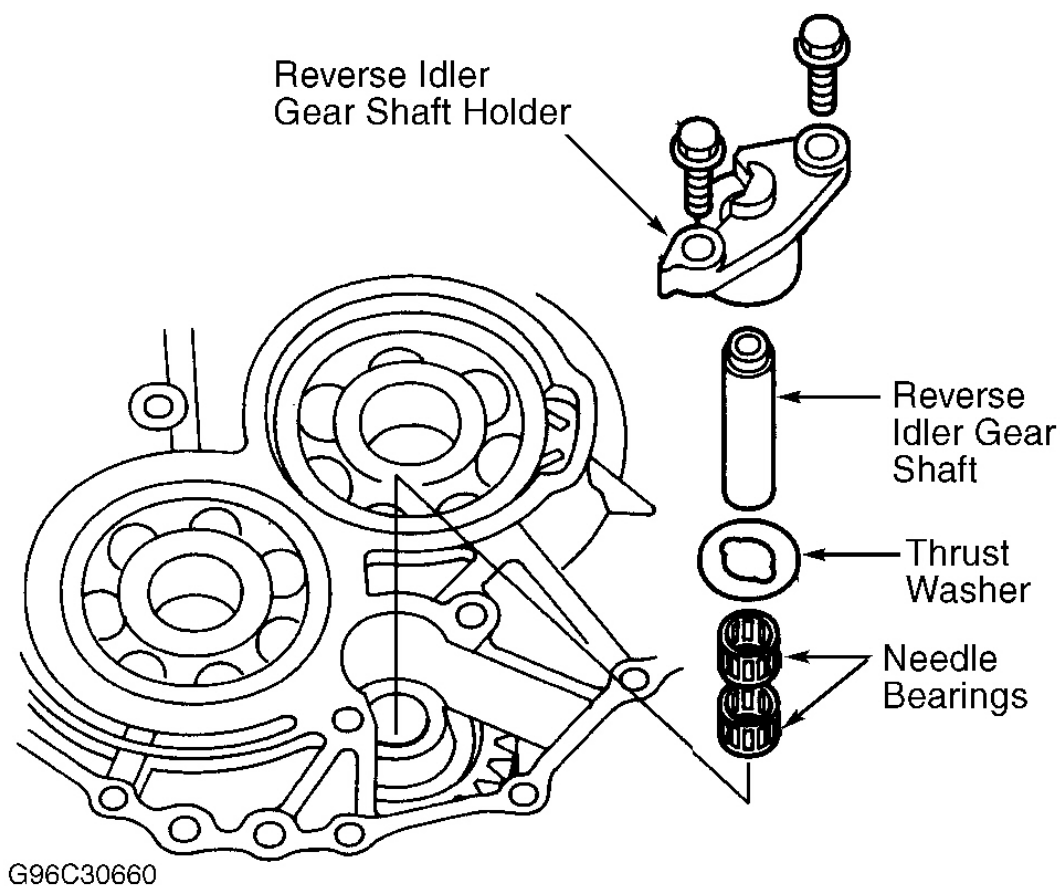
2. Disengage reverse idler gear from mainshaft and countershaft reverse gears. See **Fig. 13** . Align control shaft spring pin with transaxle housing groove by turning control shaft. See **Fig. 14** .
3. Install Housing Puller (07HAC-PK4010A) and Housing Puller Arm (07SCA-P0Z0100A) over mainshaft. See **Fig. 14** . Remove reverse idler gear, needle bearings and thrust washer from transaxle housing.
4. Remove countershaft 2nd gear, countershaft reverse gear, thrust washer, thrust needle bearing and secondary shaft 2nd gear together from countershaft and secondary shaft.
5. Remove needle bearing, thrust needle bearing and splined washer from secondary shaft. Remove secondary shaft, countershaft and mainshaft sub-assemblies. Remove differential assembly.



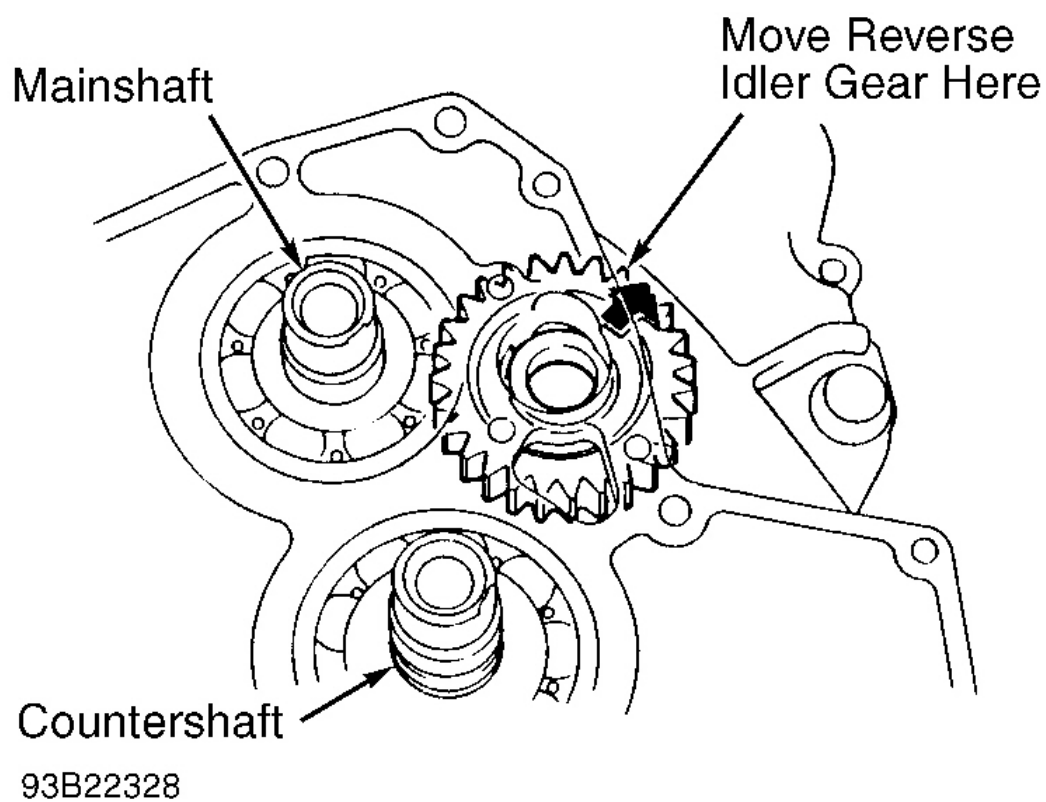
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**Fig. 11: Exploded View Of Transaxle Housing & Related Components**  
**Courtesy of AMERICAN HONDA MOTOR CO., INC.**

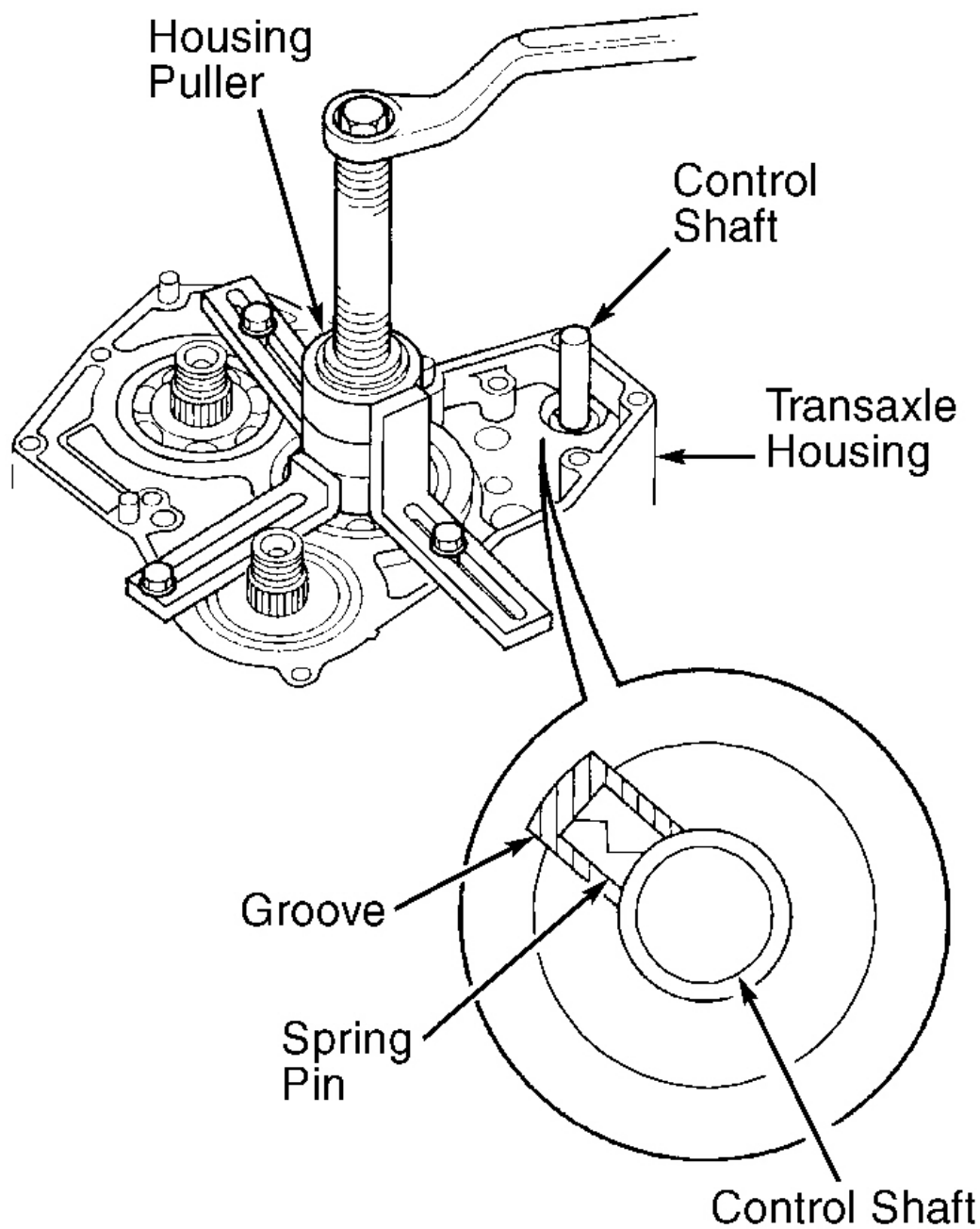




**Fig. 12: Removing Reverse Idler Gear Shaft Holder**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.



**Fig. 13: Disengaging Reverse Idler Gear**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.



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**Fig. 14: Control Shaft Alignment & Housing Removal**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

**TORQUE CONVERTER HOUSING/VALVE BODY**

1. Remove 2 ATF feed pipes from lock-up valve body, 2 pipes from servo body, one pipe from main valve body and one pipe from accumulator body. Remove 2 bolts and servo detent base.

**CAUTION: 4th accumulator is spring loaded. Press down on accumulator cover during bolt removal to prevent stripping servo body threads. DO NOT let check balls fall from secondary valve body during removal.**

2. Remove oil filter and 4th accumulator cover. Remove servo body and separator plate. Remove secondary valve body, separator plate and dowel pins. Remove lock-up valve body, separator plate and dowel pins.
3. Remove regulator valve body with torque converter check valve and spring. Remove stator shaft and stop shaft. Remove detent spring from detent arm. Separate control shaft from manual valve. Remove control shaft from torque converter housing.

**CAUTION: DO NOT let check balls fall from main valve body during removal.**

4. Remove detent arm and detent arm shaft from main valve body. Remove main valve body. Remove accumulator body. Remove oil pump driven gear shaft and oil pump gears. Remove main separator plate and 3 dowel pins.

**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. 15** . Use care when removing valve caps or spring seat, as they are under spring pressure.

**Cleaning & Inspection**

1. Clean components with solvent and dry with compressed air. Replace main valve body 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.

**1996 Honda Accord DX**

1995-96 AUTOMATIC TRANSMISSIONS MPZA Overhaul (V6 2.7L)

**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. Ensure all components are installed in correct location. See **Fig. 15** .

**SPRING SPECIFICATIONS**

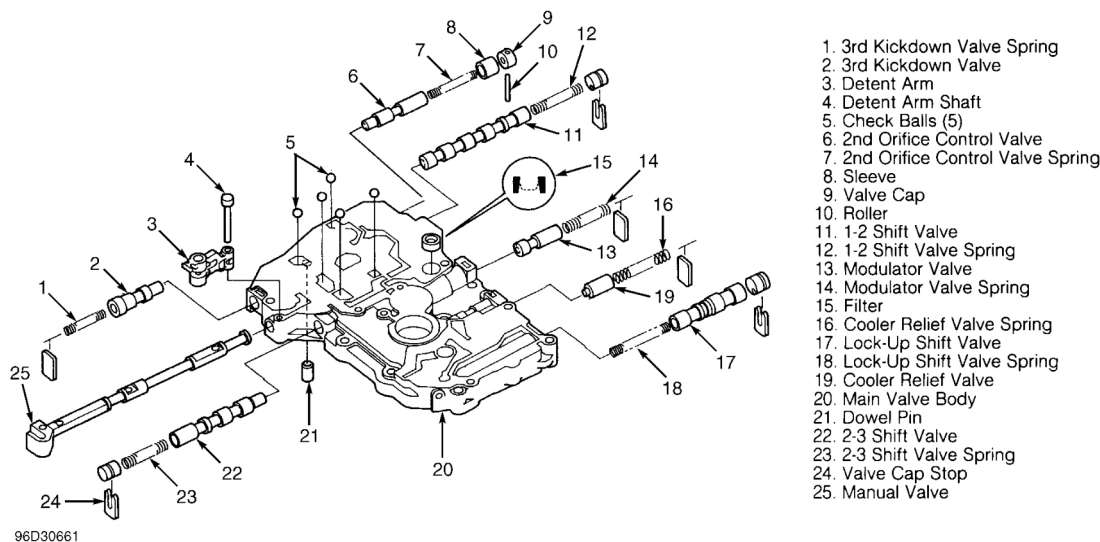
<b>Application</b>	<b>Free Length In. (mm)</b>
<b>Accumulator Valve Body</b>	
2nd Accumulator Spring "B"	2.028 (51.50)
2nd Accumulator Spring "A"	3.953 (100.40)
2nd Accumulator Spring "C"	.610 (15.50)
Lubrication Check Valve Spring	1.720 (43.70)
1st Accumulator Spring "B"	2.834 (72.00)
1st Accumulator Spring "A"	4.028 (102.30)
<b>Lock-Up Valve Body</b>	
Relief Valve Spring	1.587 (40.30)
Lock-Up Timing Valve Spring	2.126 (54.00)
<b>Main Valve Body</b>	
2-3 Shift Valve Spring	1.693 (43.00)
3rd Kick-Down Valve Spring	1.831 (46.50)
2nd Orifice Control Valve Spring	1.657 (42.10)
1-2 Shift Valve Spring	1.626 (41.30)
Modulator Valve Spring	1.299 (33.00) Or 1.276 (32.40)
Cooler Relief Valve Spring	1.843 (46.80)
Lock-Up Shift Valve Spring	2.480 (63.00)
<b>Regulator Valve Body</b>	
Stator Reaction Spring	1.311 (30.30)
Regulator Valve Spring "A"	2.819 (71.60)
Regulator Valve Spring "B"	1.732 (44.00)
Lock-Up Control Valve Spring	1.469 (37.30)
Torque Converter Check Valve Spring	1.398 (35.50)
<b>Secondary Valve Body</b>	
2nd Kickdown Valve Spring	1.780 (45.20)
3-4 Shift Valve Spring	2.244 (57.00)
Main Orifice Control Valve Spring	1.555 (39.50)
Servo Control Valve Spring	1.280 (32.50)
Servo Orifice Control Valve Spring	1.906 (48.40)
4th Exhaust Valve Spring	1.280 (32.50)

## 1996 Honda Accord DX

1995-96 AUTOMATIC TRANSMISSIONS MPZA Overhaul (V6 2.7L)

### Servo Body

3rd Accumulator Spring "B"	1.969 (50.00)
3rd Accumulator Spring "A"	4.118 (104.60)
4th Accumulator Spring	4.087 (103.80)
1st-Hold Accumulator Spring "B"	3.012 (76.50)
1st-Hold Accumulator Spring "A"	3.843 (97.60)



**Fig. 15: 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 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. Place straightedge across main valve body surface. Using a feeler gauge, measure thrust clearance between oil pump driven gear and straightedge. See **Fig. 16** . Replace oil pump gears and/or main valve body if thrust clearance is not within specification. See **OIL PUMP SPECIFICATIONS** table.
4. Install oil pump driven gear shaft in oil pump driven gear. Using a feeler gauge, measure side clearance of both gears between tip of gear teeth and main valve body. See **Fig. 16** . Replace oil pump gears and/or main valve body if side clearance is not within specification. See **OIL PUMP SPECIFICATIONS** table.

**1996 Honda Accord DX**

1995-96 AUTOMATIC TRANSMISSIONS MPZA Overhaul (V6 2.7L)

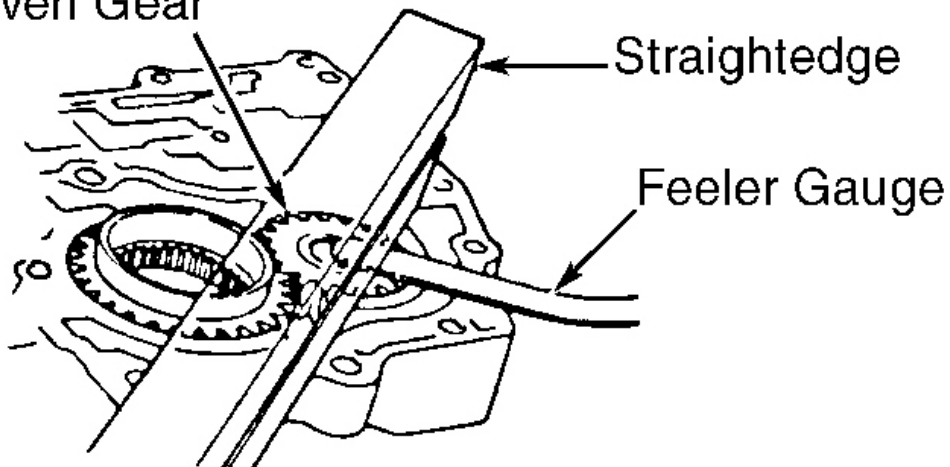
**OIL PUMP SPECIFICATIONS**

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

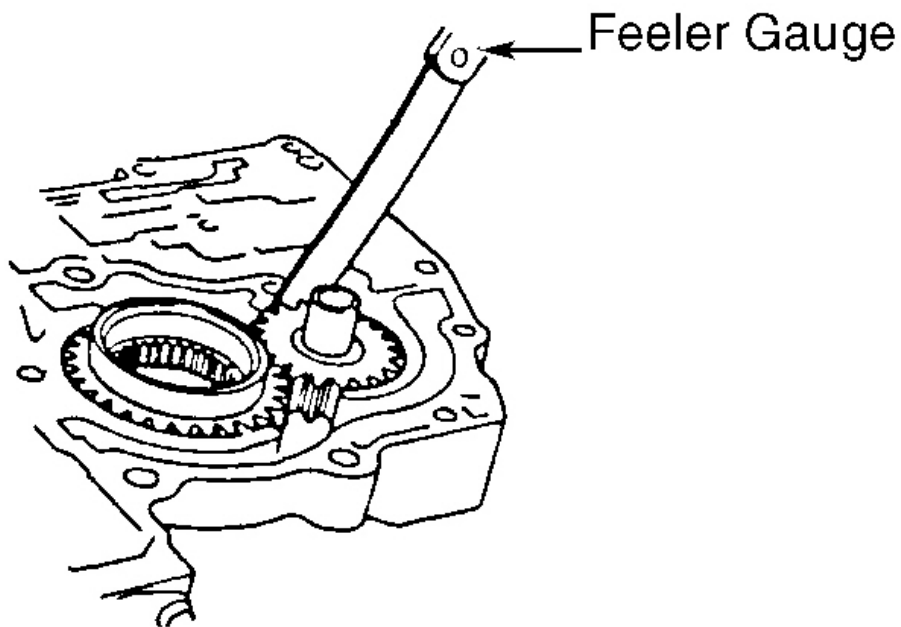
**Reassembly**

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

Oil Pump  
Driven Gear



CHECKING THRUST CLEARANCE



CHECKING SIDE CLEARANCE

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**Fig. 16: Checking 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 down when removing stopper bolt. Use care when removing valve cap, as valve cap is under spring pressure.

**Disassembly**

Note direction of valve cap installation before removing from regulator valve body. Hold regulator spring cap down, and remove stopper bolt. Slowly remove regulator spring cap and components from regulator valve body. See [Fig. 17](#) .

**Cleaning & Inspection**

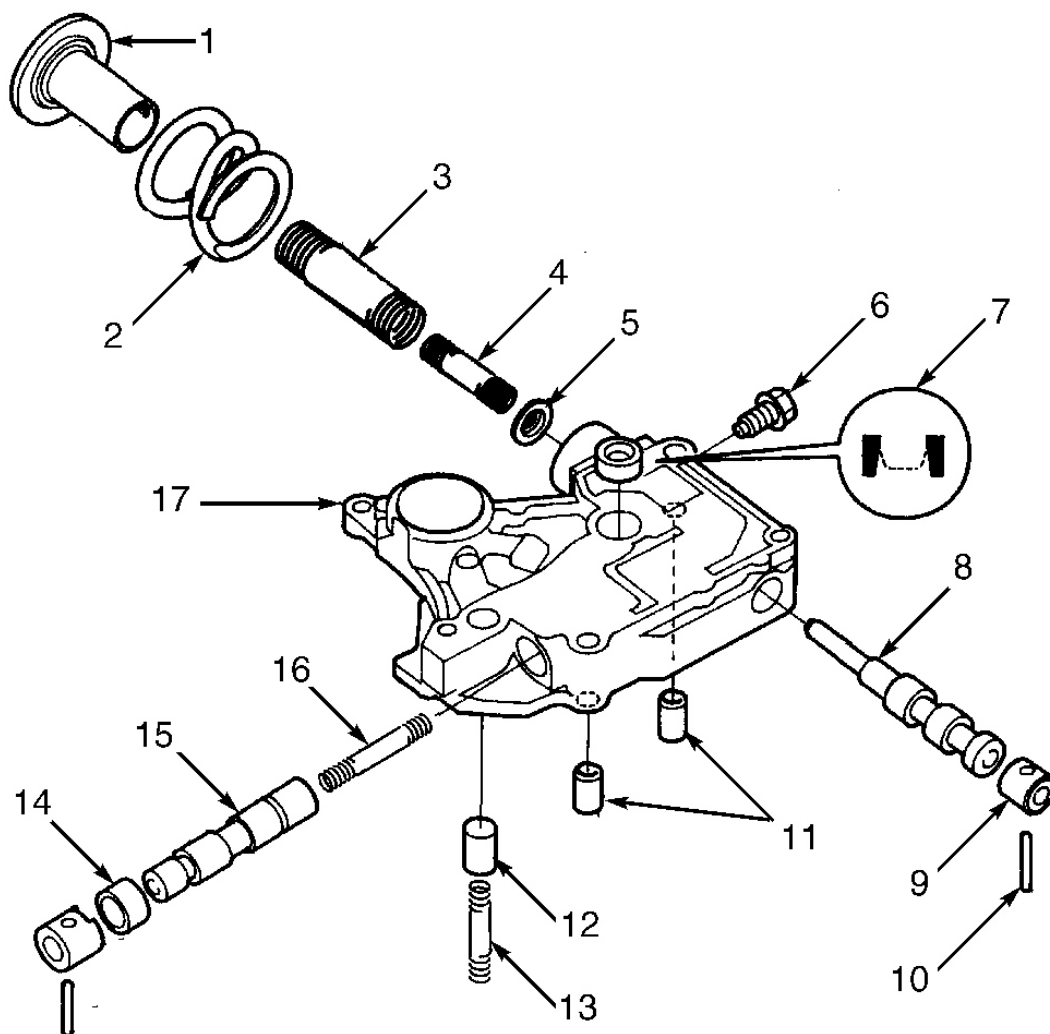
1. Clean components with solvent and dry with compressed air. Replace regulator valve body assembly if any parts are worn or damaged.
2. Ensure all valves slide freely in their bores. If valves do not slide freely, polish burrs or rough areas using No. 600 sandpaper soaked in ATF for at least 30 minutes. 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. 17](#) . Tighten stopper bolt to specification. See **TORQUE SPECIFICATIONS** .

## 1996 Honda Accord DX

1995-96 AUTOMATIC TRANSMISSIONS MPZA Overhaul (V6 2.7L)



1. Regulator Spring Cap
2. Stator Reaction Spring
3. Regulator Valve Spring "A"
4. Regulator Valve Spring "B"
5. Regulator Spring Seat
6. Stop Bolt
7. Filter
8. Regulator Valve
9. Valve Cap

10. Roller
11. Dowel Pins
12. Torque Converter Check Valve
13. Torque Converter Check Valve Spring
14. Sleeve
15. Lock-Up Control Valve
16. Lock-Up Control Valve Spring
17. Regulator Valve Body

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**Fig. 17: Exploded View Of Regulator Valve Body**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

## **LOCK-UP VALVE BODY**

### **Disassembly**

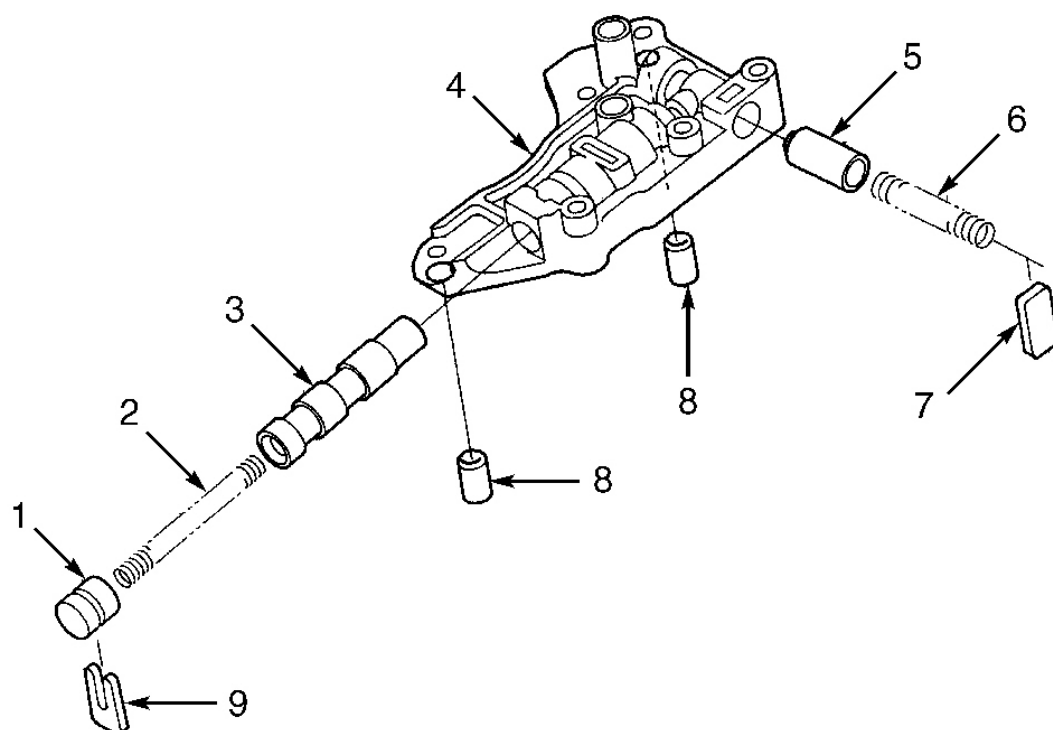
Note direction of valve cap installation before removing from lock-up valve body. Disassemble lock-up valve body. See **Fig. 18** . Use care when removing valve caps, as they are under spring pressure.

### **Cleaning & Inspection**

1. Clean components with solvent and dry with compressed air. Replace lock-up valve body 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 for 30 minutes in ATF. Thoroughly clean lock-up 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. See **Fig. 18** .



1. Valve Cap
2. Lock-Up Timing Valve Spring
3. Lock-Up Timing Valve
4. Lock-Up Valve Body
5. Relief Valve

6. Relief Valve Spring
7. Spring Seat
8. Dowel Pins
9. Valve Cap Stop

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**Fig. 18: Exploded View Of Lock-Up Valve Body**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

## SECONDARY VALVE BODY

**CAUTION:** When disassembling secondary valve body, place secondary 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 secondary valve body.

### Disassembly

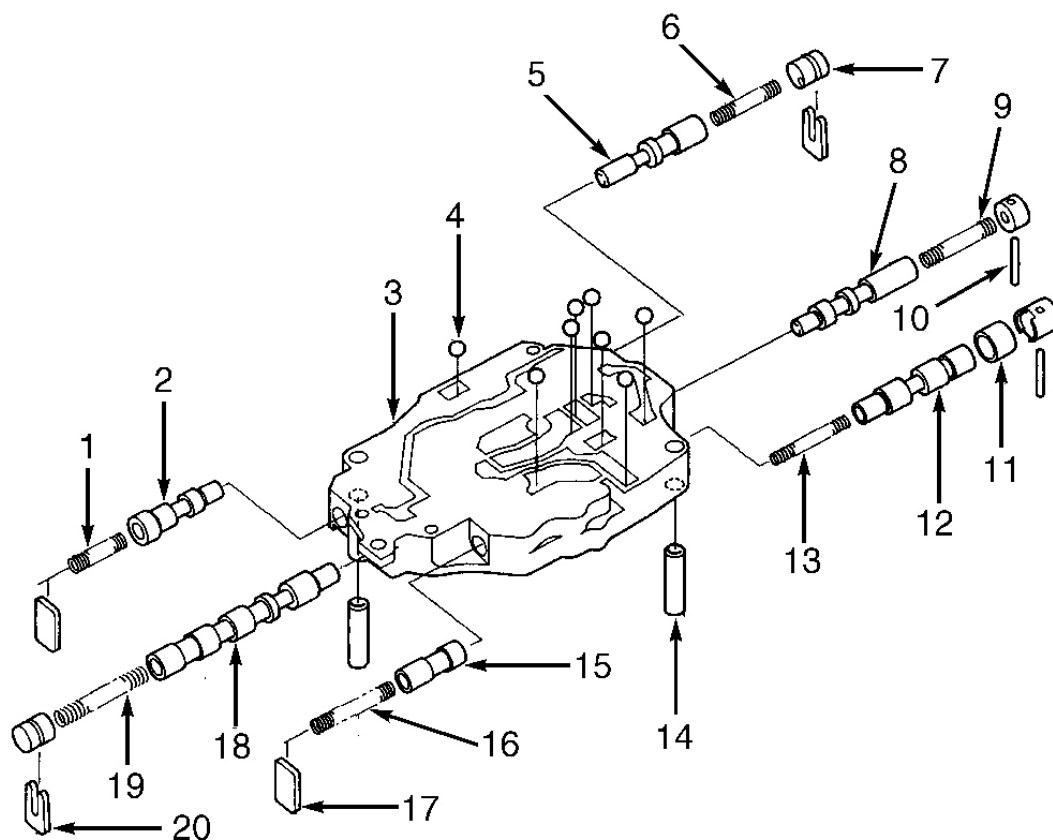
Disassemble secondary valve body. See **Fig. 19** . Use care when removing valve caps or spring seats, as they are under spring pressure.

**Cleaning & Inspection**

1. Clean components with solvent and dry with compressed air. Replace secondary valve body 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 for 30 minutes in ATF. 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. 19** .



1. Main Orifice Control Valve Spring
2. Main Orifice Control Valve
3. Secondary Valve Body
4. Check Balls (8)
5. Servo Control Valve
6. Servo Control Valve Spring
7. Valve Cap
8. Servo Orifice Control Valve
9. Servo Orifice Control Valve Spring

10. Roller
11. Sleeve
12. 4th Exhaust Valve
13. 4th Exhaust Valve Spring
14. Dowel Pin
15. 2nd Kickdown Valve
16. 2nd Kickdown Valve Spring
17. Spring Seat
18. 3-4 Shift Valve
19. 3-4 Shift Valve Spring
20. Valve Cap Stop

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**Fig. 19: Exploded View Of Secondary Valve Body**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

## SERVO BODY

**Disassembly**

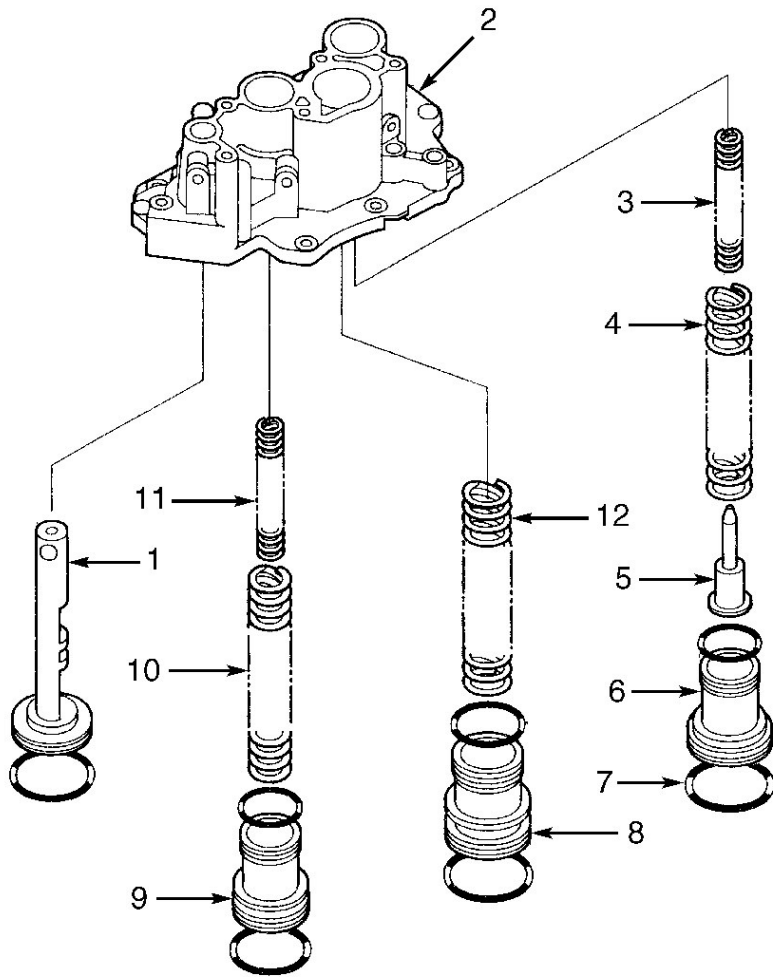
Disassemble servo body. See **Fig. 20** .

**Cleaning & Inspection**

1. Clean components with solvent and dry with compressed air. Replace servo body assembly if any parts are worn or damaged. Ensure all pistons slide freely in their bores.
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.



- |                                 |                                     |
|---------------------------------|-------------------------------------|
| 1. Servo Valve/Shift Fork Shaft | 7. "O" Ring                         |
| 2. Servo Body                   | 8. 4th Accumulator Piston           |
| 3. 3rd Accumulator Spring "B"   | 9. 1st-Hold Accumulator Piston      |
| 4. 3rd Accumulator Spring "A"   | 10. 1st-Hold Accumulator Spring "A" |
| 5. Accumulator Spring Guide     | 11. 1st-Hold Accumulator Spring "B" |
| 6. 3rd Accumulator Piston       | 12. 4th Accumulator Spring          |

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**Fig. 20: Exploded View Of Servo Body**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

## ACCUMULATOR BODY



**Disassembly**

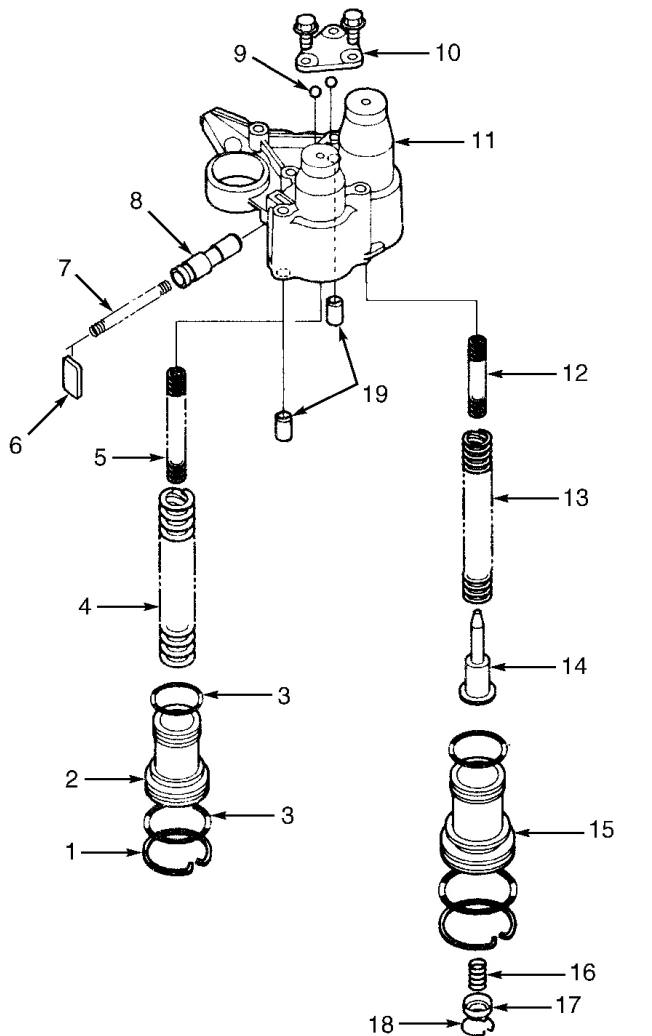
Disassemble accumulator body. See **Fig. 21** .

**Cleaning & Inspection**

1. Clean components with solvent and dry with compressed air. Replace servo body assembly if any parts are worn or damaged. Ensure all pistons slide freely in their bores.
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.



- |                                   |                                  |
|-----------------------------------|----------------------------------|
| 1. Snap Ring                      | 11. Accumulator Body             |
| 2. 1st Accumulator Piston         | 12. 2nd Accumulator Spring "B"   |
| 3. "O" Rings                      | 13. 2nd Accumulator Spring "A"   |
| 4. 1st Accumulator Spring "A"     | 14. Accumulator Spring Guide     |
| 5. 1st Accumulator Spring "B"     | 15. 2nd Accumulator Piston       |
| 6. Spring Seat                    | 16. 2nd Accumulator Spring "C"   |
| 7. Lubrication Check Valve Spring | 17. 2nd Accumulator Short Piston |
| 8. Lubrication Check Valve        | 18. Snap Ring                    |
| 9. Check Balls (2)                | 19. Dowel Pins                   |
| 10. Accumulator Body Cover        |                                  |

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

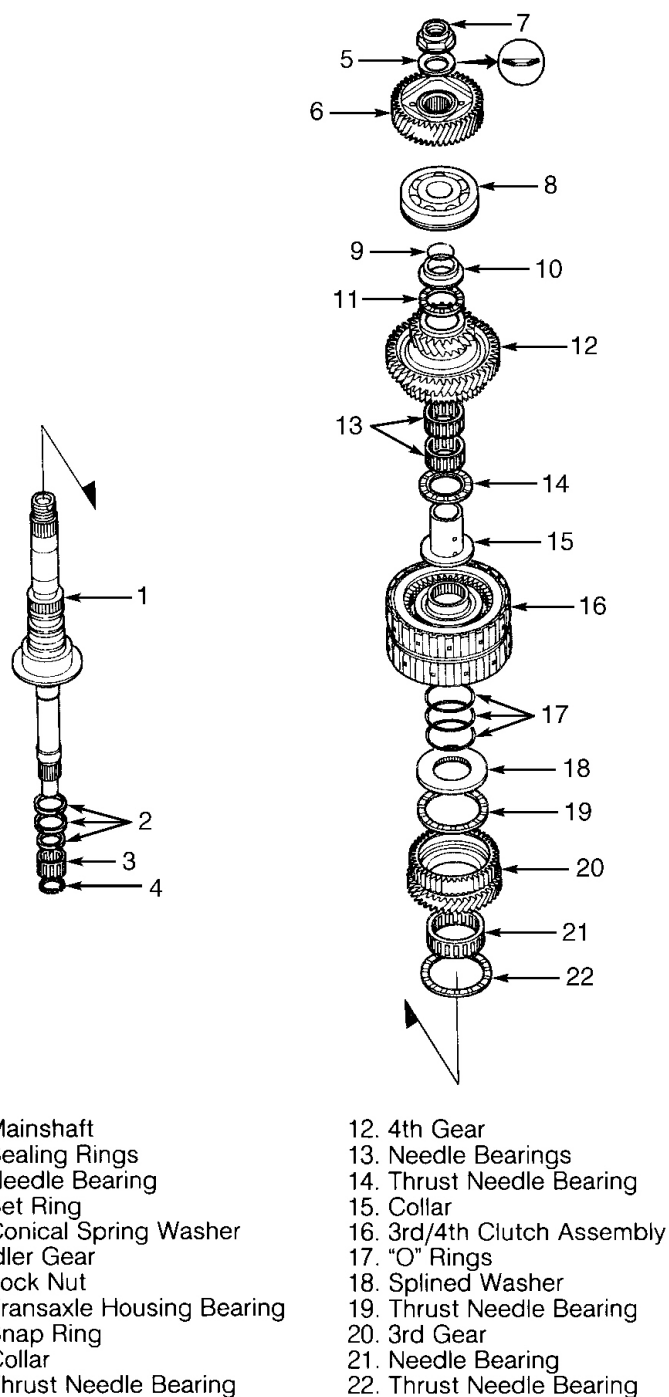
## MAINSHAFT

**Disassembly**

Note location of mainshaft components. See **Fig. 22** . 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.



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**Fig. 22: Exploded View Of Mainshaft Assembly**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

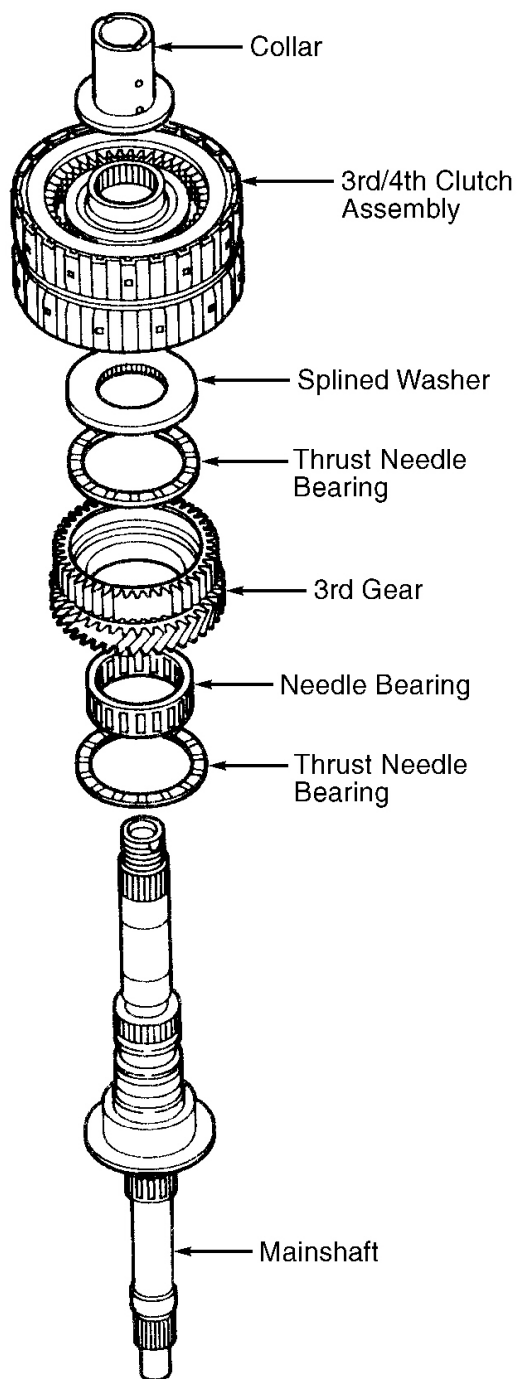
**NOTE:** Mainshaft 4th clutch hub-to-collar clearance must be checked during

**reassembly.****Reassembly**

1. To check mainshaft 4th clutch hub-to-collar clearance, install proper components, except "O" rings and mainshaft 4th gear on mainshaft. See **Fig. 23** .
2. Hold collar against 3rd/4th clutch assembly. Using a feeler gauge, measure clearance between collar and 4th clutch hub in at least 3 places. See **Fig. 24** . Use average measurement as actual clearance. Specified clearance is .001-.004" (.03-.11 mm).
3. If clearance is not as specified, remove splined washer and measure thickness. Different thickness splined washers are available. Select and install a new splined washer to obtain proper clearance. See **MAINSHAFT SPLINED WASHER THICKNESS** table.
4. Once correct thickness splined washer is obtained, lubricate all components with ATF. Reassemble mainshaft using a NEW lock nut. Before installing NEW "O" rings on mainshaft, wrap splines with tape.

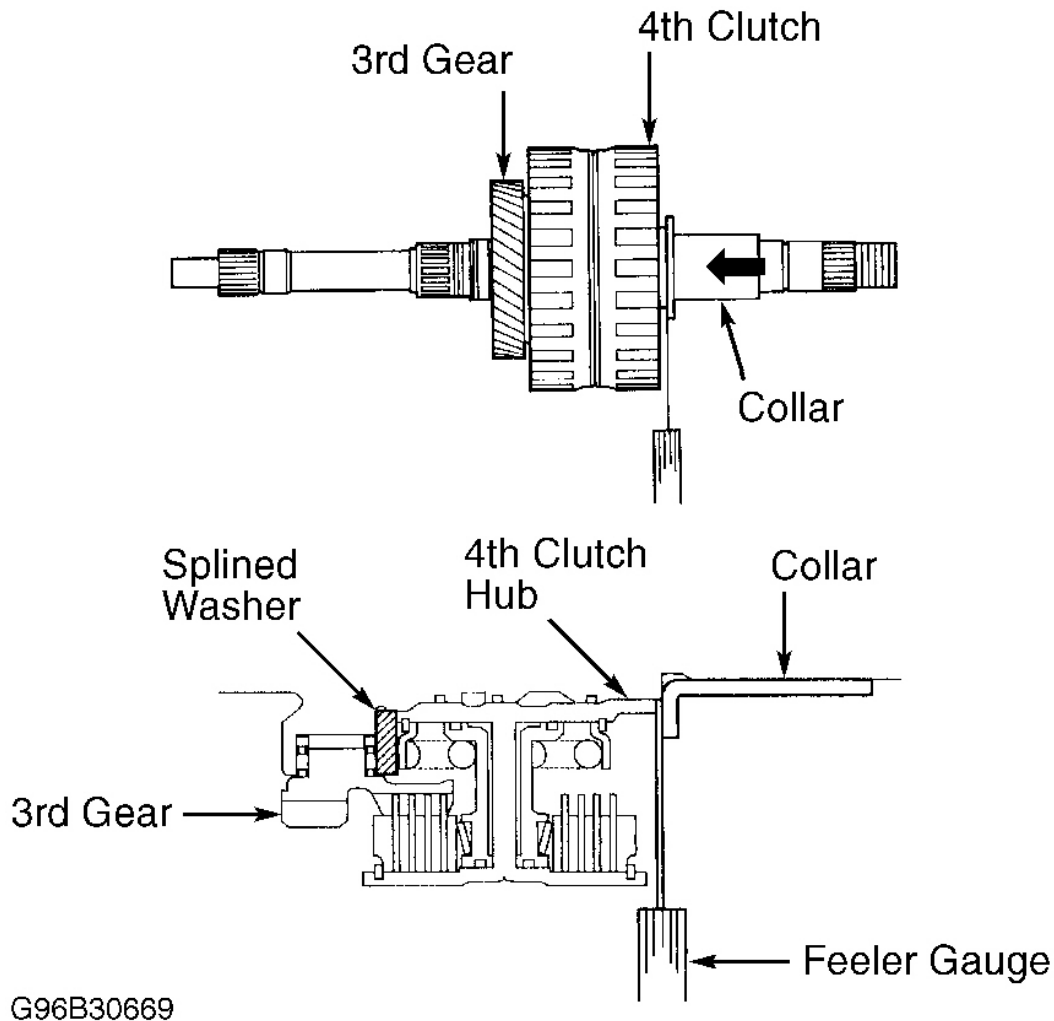
**MAINSHAFT SPLINED WASHER THICKNESS**

Washer Number	Part Number	Thickness In. (mm)
1	90414-P0Z-000	.191 (4.85)
2	90415-P0Z-000	.193 (4.90)
3	90416-P0Z-000	.195 (4.95)
4	90417-P0Z-000	.197 (5.00)
5	90418-P0Z-000	.199 (5.05)
6	90419-P0Z-000	.201 (5.10)



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**Fig. 23: Installed Components For Clearance Check**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.



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**Fig. 24: Measuring Mainshaft 4th Clutch Hub-To-Collar Clearance**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

## COUNTERSHAFT

**NOTE:** Countershaft lock nut has **LEFT-HAND** threads.

### Disassembly

1. Note location of countershaft components. See **Fig. 25** . Remove all components from countershaft down to the 1st and 3rd gears.
2. Place countershaft in hydraulic press while supporting countershaft 1st gear. Threaded end of countershaft must be facing upward (toward ram of press). Place a protective cap between hydraulic press and countershaft to prevent damage to countershaft. Press countershaft from 1st and 3rd gears. See **Fig.**

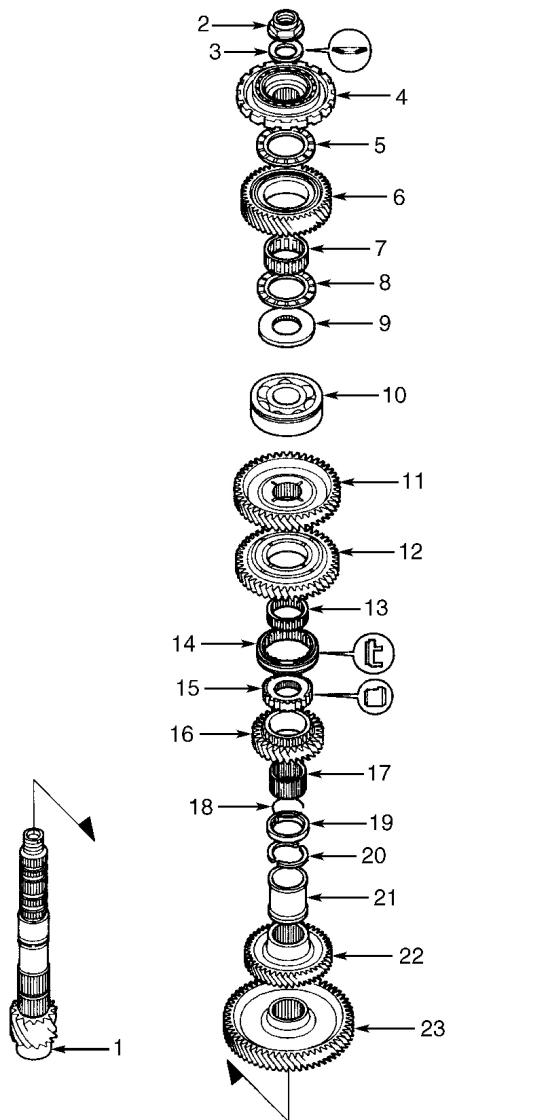
**26** .**Cleaning & Inspection**

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 parts with ATF. Align splines of 1st gear with splines on countershaft and press on until gear contacts final drive gear. See **Fig. 27** .
2. Align 3rd gear splines with countershaft splines and press on until gear contacts 1st gear. Assemble remaining components as shown using a NEW lock nut. See **Fig. 25** .

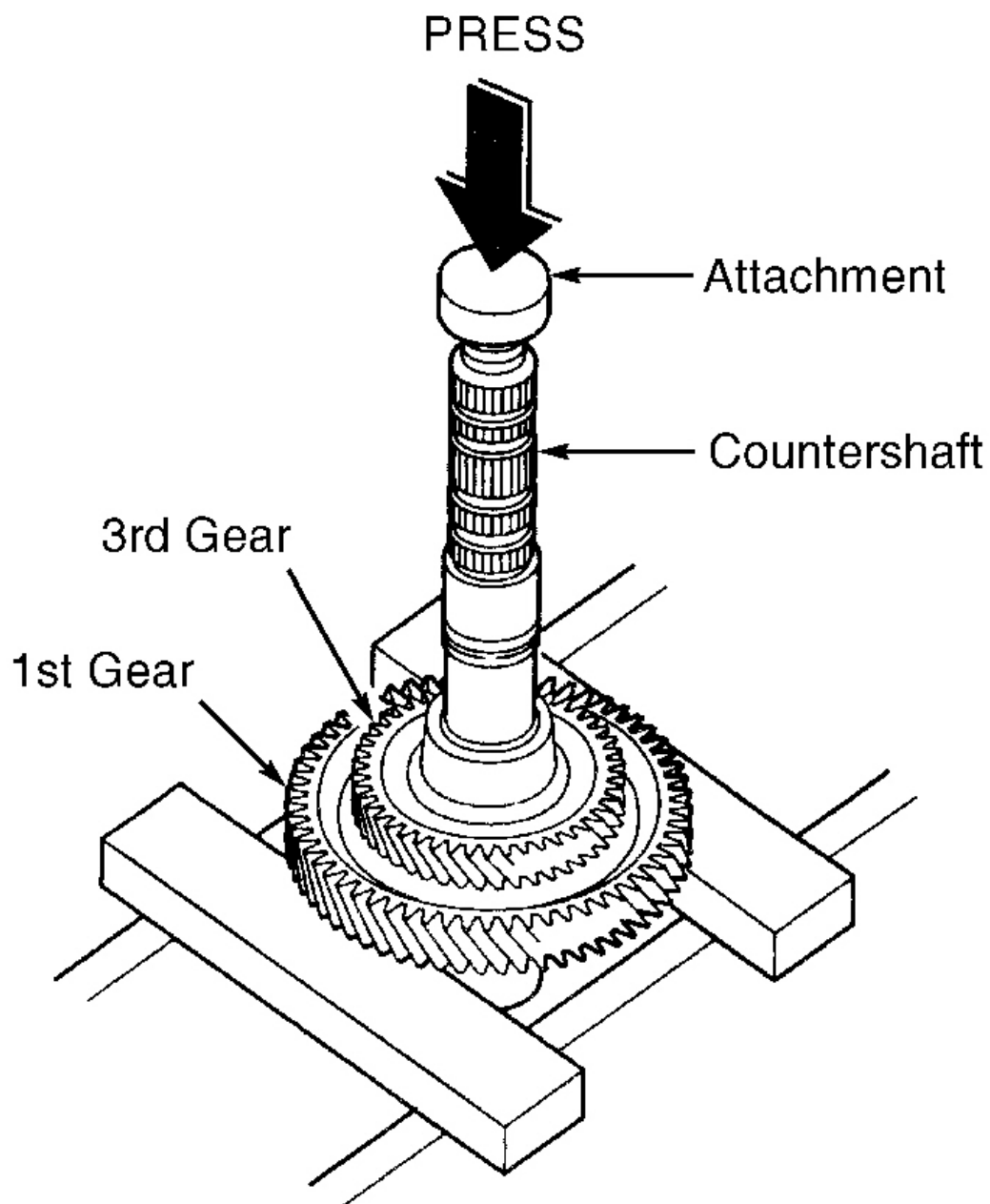




- |                               |                          |
|-------------------------------|--------------------------|
| 1. Countershaft               | 13. Needle Bearing       |
| 2. Lock Nut                   | 14. Reverse Selector     |
| 3. Conical Spring Washer      | 15. Reverse Selector Hub |
| 4. Parking Gear               | 16. 4th Gear             |
| 5. Thrust Needle Bearing      | 17. Needle Bearing       |
| 6. Idler Gear                 | 18. Snap Ring            |
| 7. Needle Bearing             | 19. Collar               |
| 8. Thrust Needle Bearing      | 20. Cotteners            |
| 9. Splined Washer             | 21. Distance Collar      |
| 10. Transaxle Housing Bearing | 22. 3rd Gear             |
| 11. 2nd Gear                  | 23. 1st Gear             |
| 12. Reverse Gear              |                          |

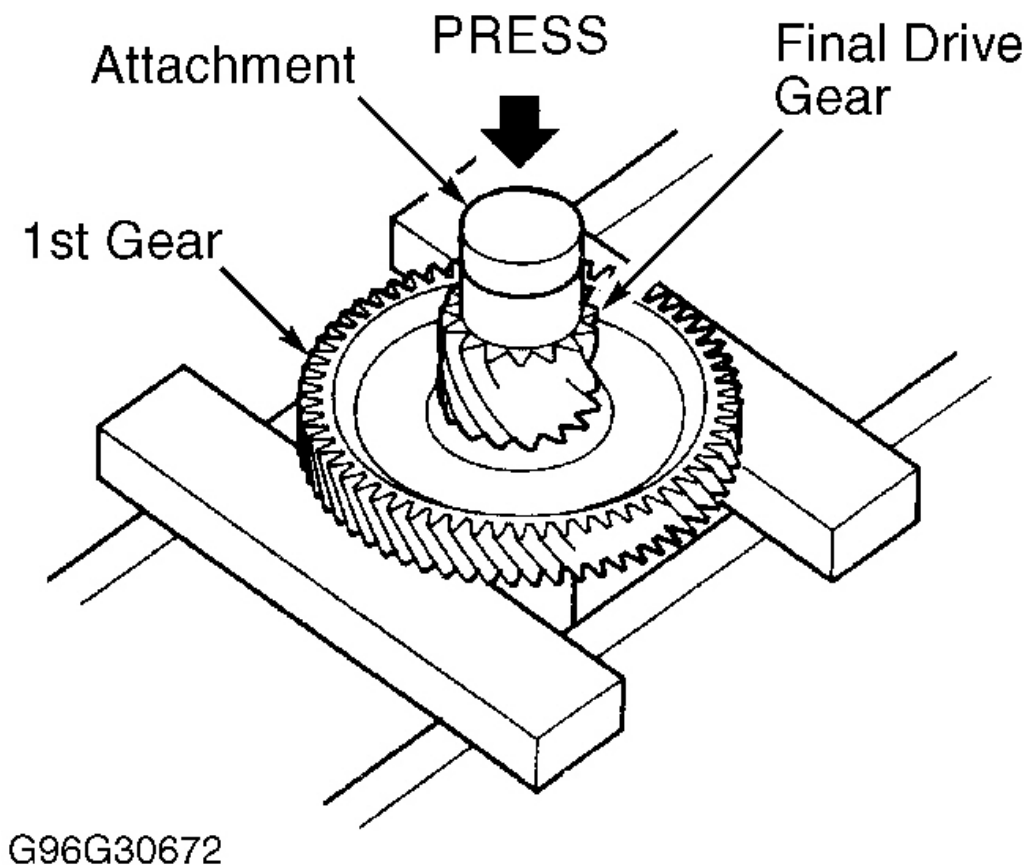
96E30670

**Fig. 25: Exploded View Of Countershaft Components**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.



96F30671

**Fig. 26: Removing 1st & 3rd Gear Assemblies**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.



**Fig. 27: Installing 1st Gear**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

## SECONDARY SHAFT

**NOTE:** Secondary shaft lock nut has **LEFT-HAND** threads.

### Disassembly

Note location of secondary shaft components. See [Fig. 28](#) . 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 (2nd Gear)

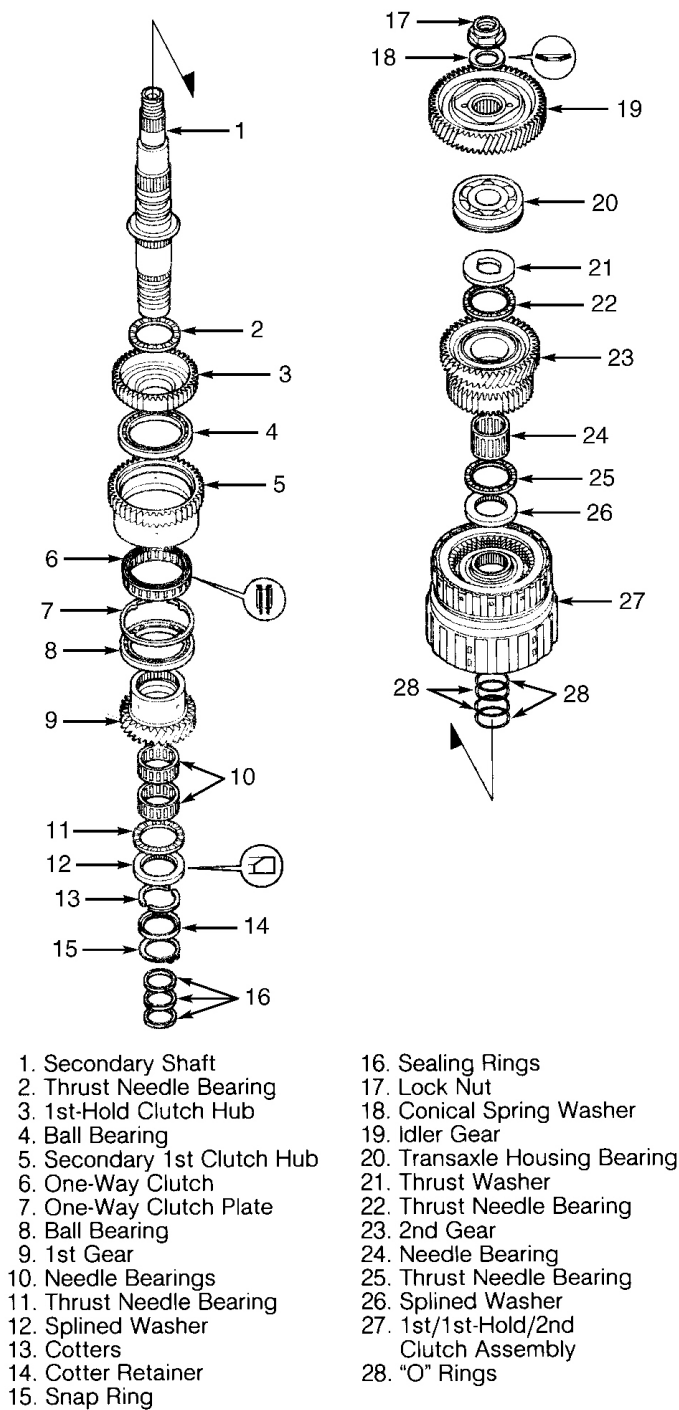
## 1996 Honda Accord DX

1995-96 AUTOMATIC TRANSMISSIONS MPZA Overhaul (V6 2.7L)

1. Lubricate all components with ATF. Reassemble specified secondary shaft components without "O" rings. See **Fig. 29** . Position dial indicator against 2nd gear. Hold thrust washer against clutch assembly. Measure 2nd gear axial clearance in at least 3 places while moving 2nd gear. See **Fig. 30** . Use average measurement as actual clearance. Specified clearance is .003-.006" (.07-.15 mm).
2. If clearance is not as specified, remove splined washer under 2nd gear and measure thickness. Different thickness splined washers are available. Select and install a new splined washer to obtain proper clearance. See **2ND GEAR SPLINED WASHER THICKNESS** table.
3. Once correct thickness splined washer is obtained, lubricate all components with ATF. Reassemble using a NEW lock nut. Before installing NEW "O" rings on secondary shaft, wrap splines with tape.

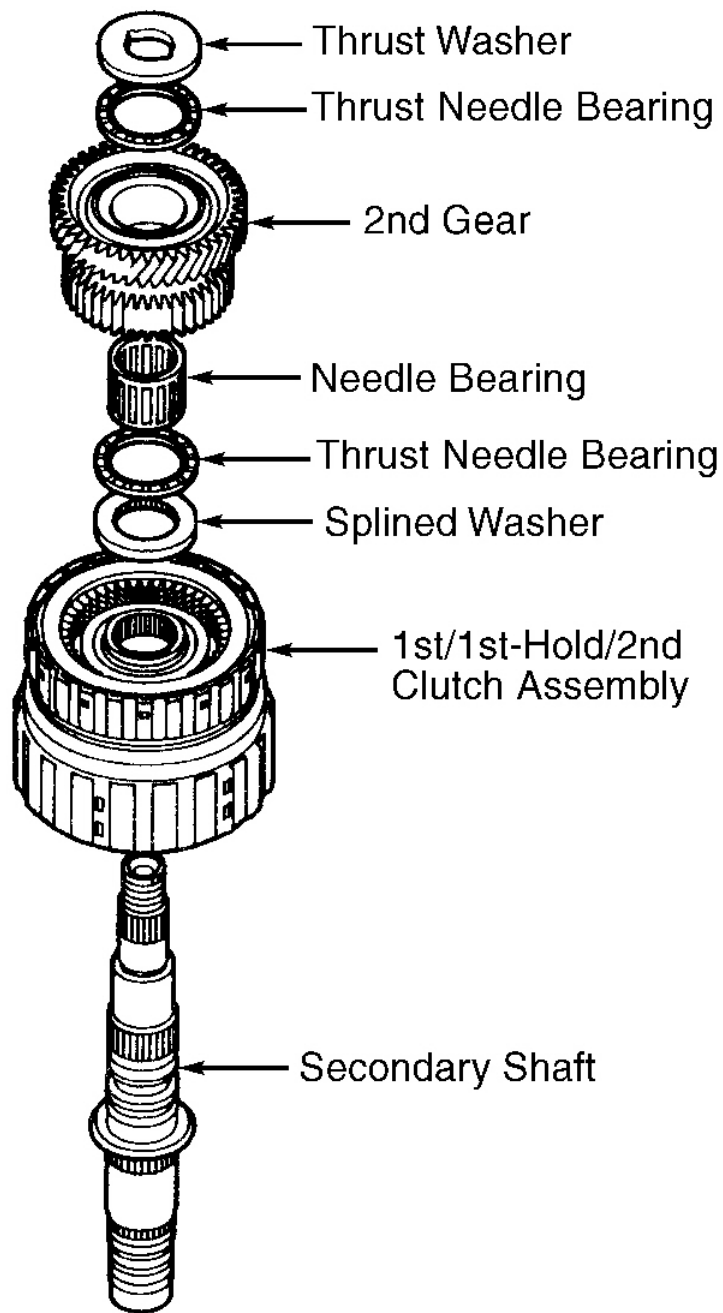
### 2ND GEAR SPLINED WASHER THICKNESS

Washer Number	Part Number	Thickness In. (mm)
1	90406-P0Z-000	.193 (4.90)
2	90407-P0Z-000	.195 (4.95)
3	90408-P0Z-000	.197 (5.00)
4	90409-P0Z-000	.199 (5.05)
5	90410-P0Z-000	.201 (5.10)
6	90411-P0Z-000	.203 (5.15)
7	90412-P0Z-000	.205 (5.20)



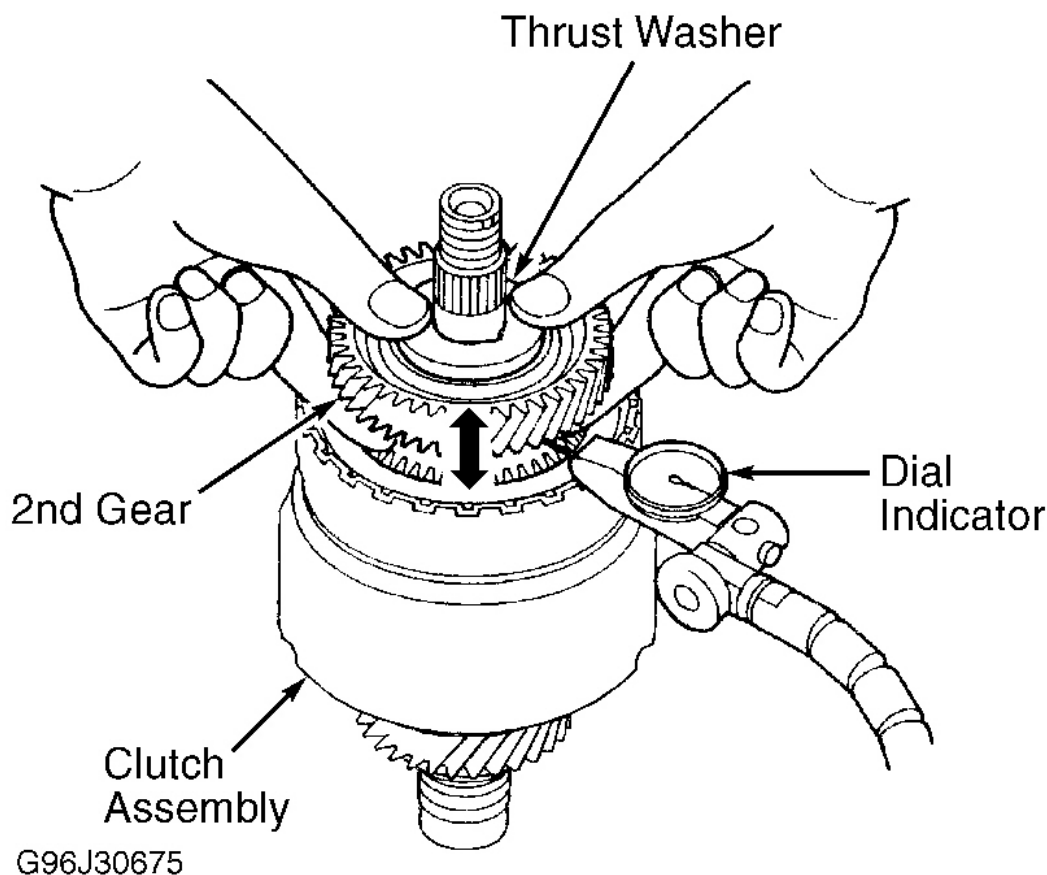
96H30673

**Fig. 28: Exploded View Of Secondary Shaft Components**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.



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**Fig. 29: Installed Components For 2nd Gear End Play Check**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.



**Fig. 30: Measuring 2nd Gear End Play**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

#### Reassembly (1st Gear)

1. Lubricate all components with ATF. Reassemble specified secondary shaft components. See **Fig. 31** . Using a feeler gauge, measure clearance between splined washer and cotter retainer in at least 3 places. See **Fig. 32** . Use average measurement as actual clearance. Specified clearance is .003-.006" (.07-.15 mm).
2. If clearance is not as specified, remove splined washer and measure thickness. Different thickness splined washers are available. Select and install a new splined washer to obtain proper clearance. See **1ST GEAR SPLINED WASHER THICKNESS** table.
3. Once correct thickness splined washer is obtained, lubricate all components with ATF and reassemble. Before installing NEW "O" rings on secondary shaft, wrap splines with tape.

#### 1ST GEAR SPLINED WASHER THICKNESS

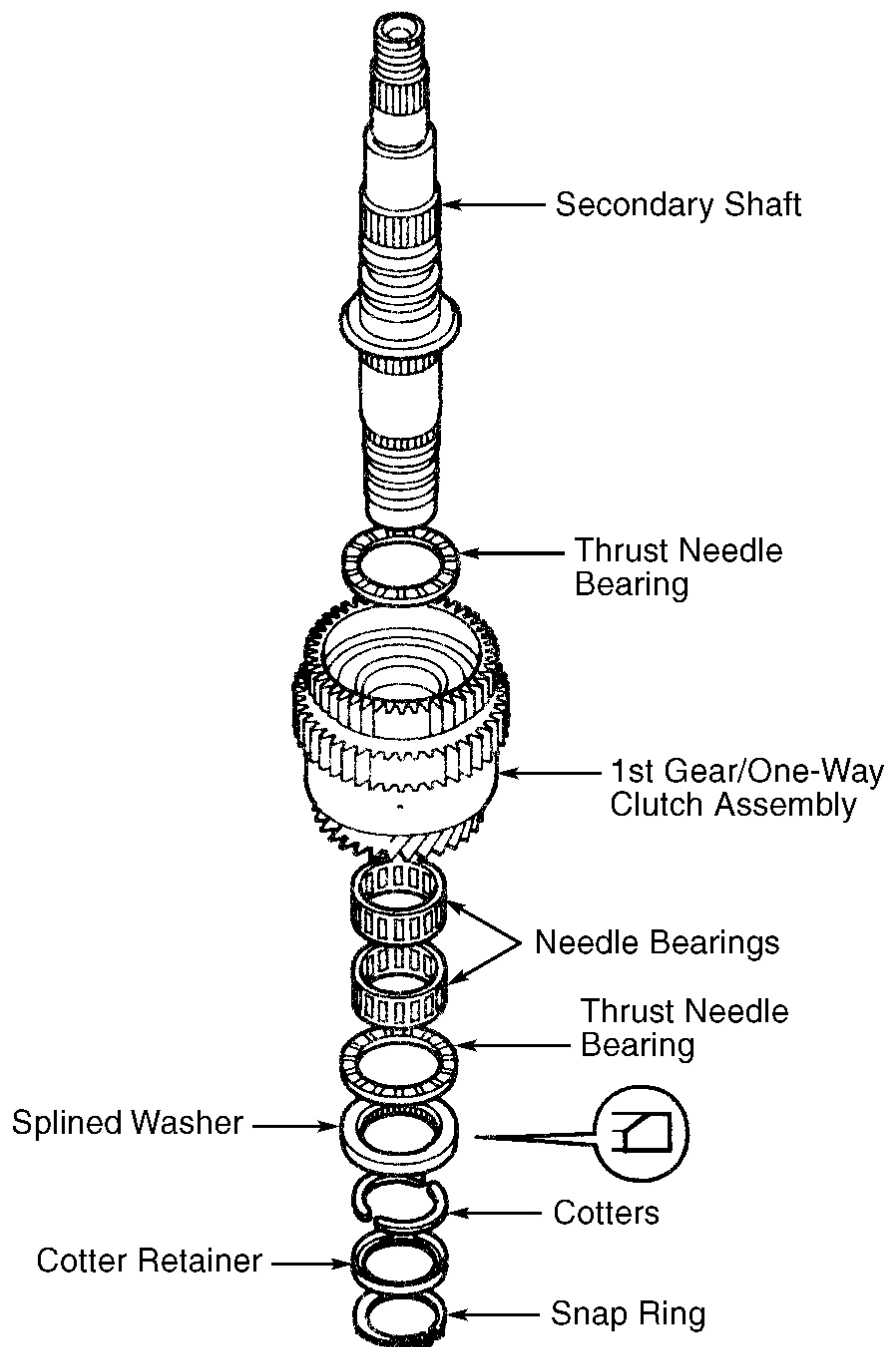
Washer Number	Part Number	Thickness In. (mm)

**1996 Honda Accord DX**

1995-96 AUTOMATIC TRANSMISSIONS MPZA Overhaul (V6 2.7L)

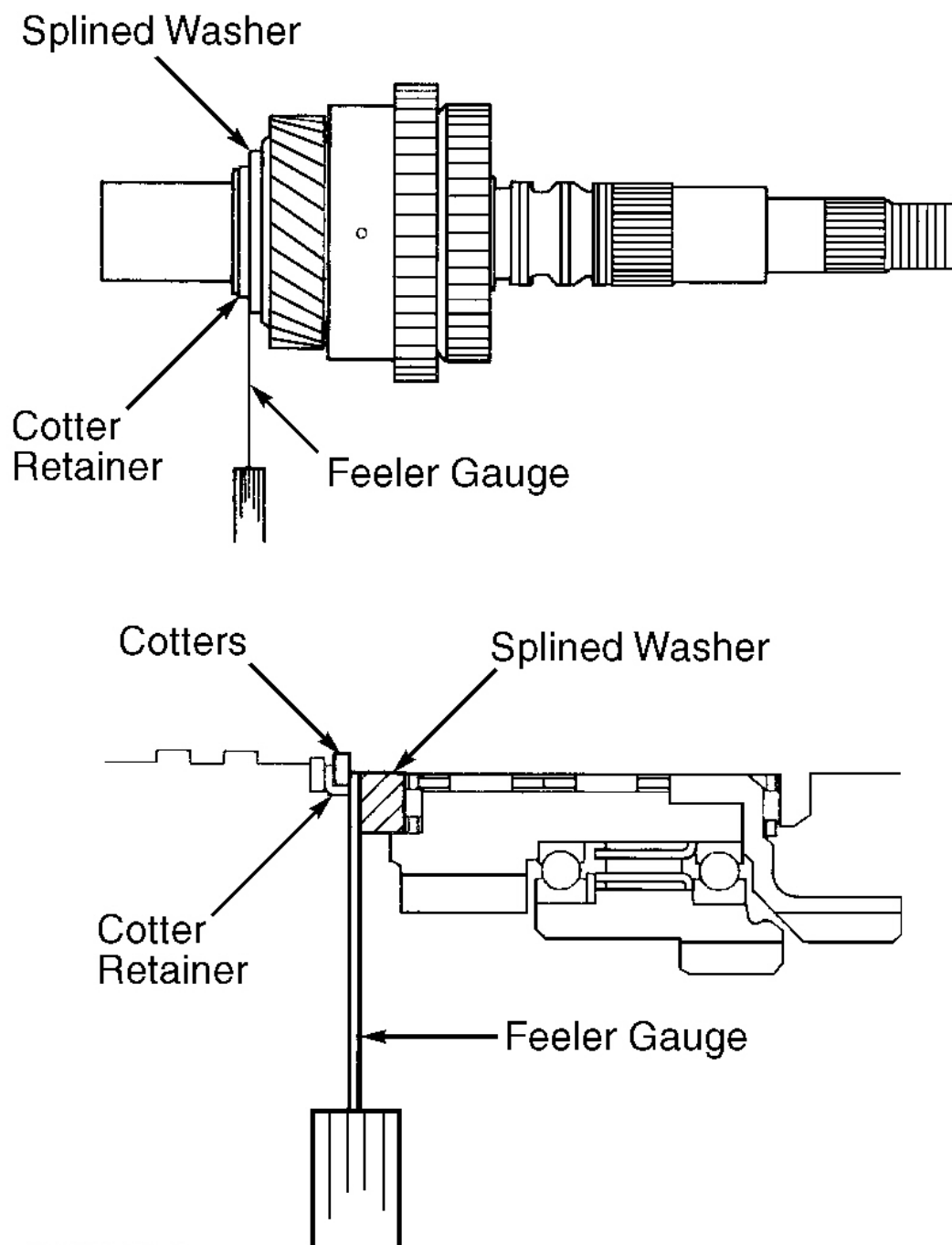
1	90502-P0Z-000	.270 (6.85)
2	90503-P0Z-000	.272 (6.90)
3	90504-P0Z-000	.274 (6.95)
4	90505-P0Z-000	.276 (7.00)
5	90506-P0Z-000	.278 (7.05)
6	90507-P0Z-000	.280 (7.10)





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**Fig. 31: Installed Components For 1st Gear End Play Check**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.



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**Fig. 32: Measuring 1st Gear End Play**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

## SECONDARY SHAFT ONE-WAY CLUTCH

**Disassembly**

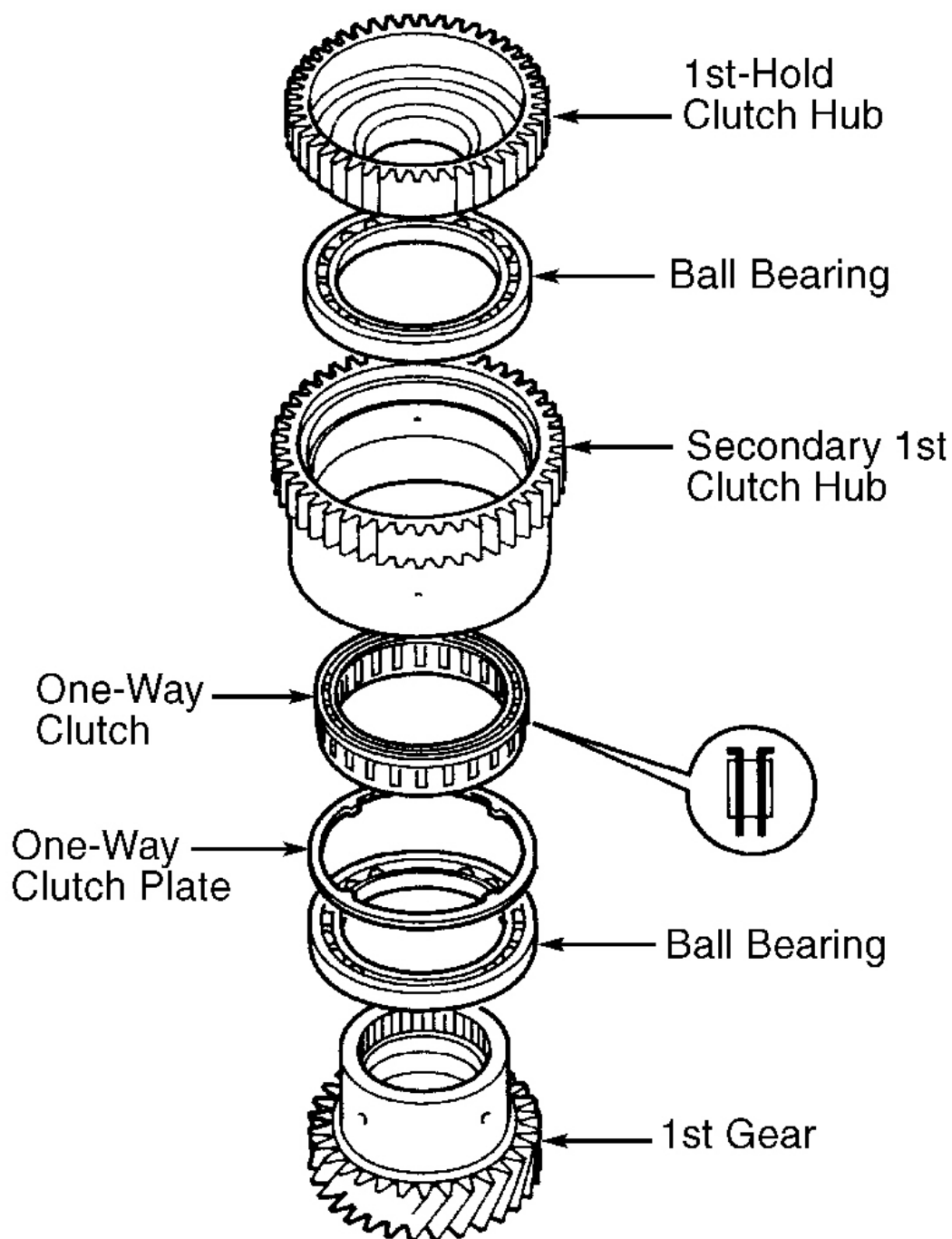
1. Note location of one-way clutch components. See **Fig. 33** . Using a press, remove 1st-hold clutch hub from secondary 1st clutch hub. Separate secondary 1st clutch hub from 1st gear by turning secondary 1st clutch hub clockwise.
2. Using a hammer and punch, remove ball bearing from secondary 1st clutch hub. Remove one-way clutch plate. Remove one-way clutch from secondary 1st clutch hub. Using a press, remove ball bearing from secondary 1st clutch hub.

**Cleaning & Inspection**

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

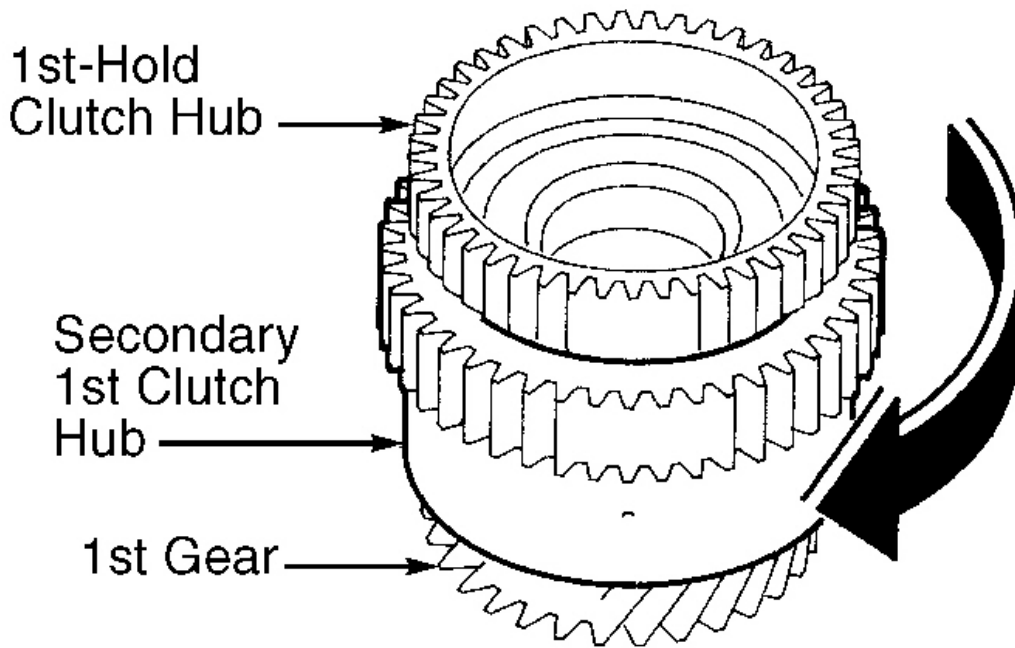
**Reassembly**

1. Lubricate all components with ATF. Using a press, install ball bearing in gear side of secondary 1st clutch hub. Install one-way clutch in secondary 1st clutch hub in direction shown. See **Fig. 33** . Install one-way clutch plate in secondary 1st clutch hub.
2. Using a press, install ball bearing in secondary 1st clutch hub. Assemble secondary 1st clutch hub and 1st gear by holding 1st gear and turning secondary 1st clutch hub clockwise.
3. Using a press, install 1st-hold clutch hub in 1st gear. Ensure one-way clutch rotates in proper direction. See **Fig. 34** .



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**Fig. 33: Exploded View Of One-Way Clutch Components**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.



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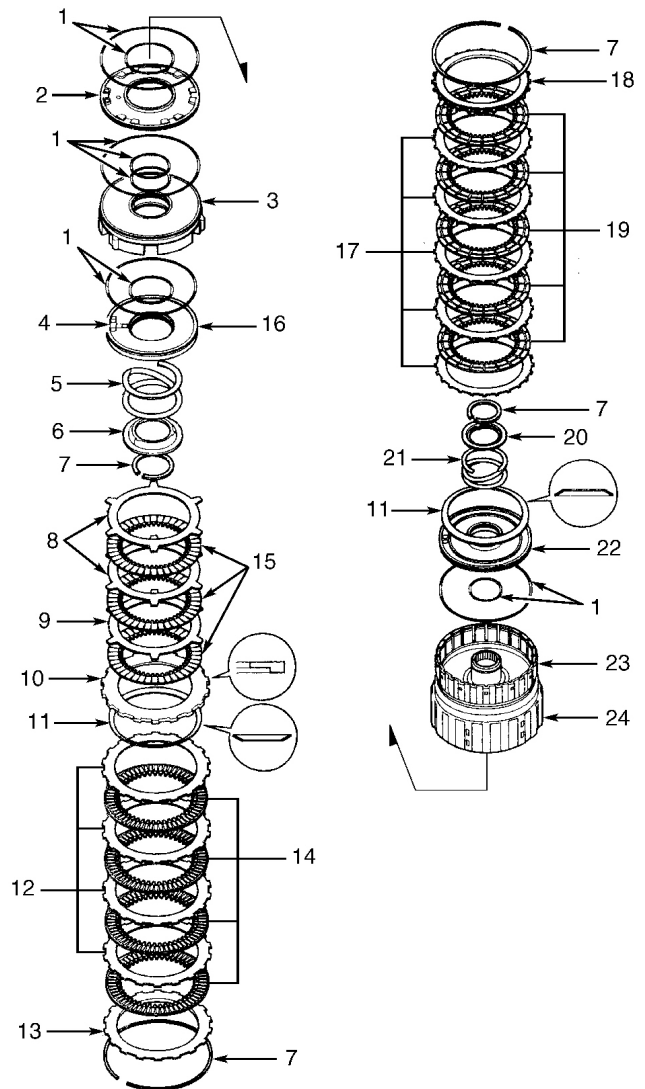
**Fig. 34: One-Way Clutch Rotation**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

## CLUTCH ASSEMBLIES

### Disassembly

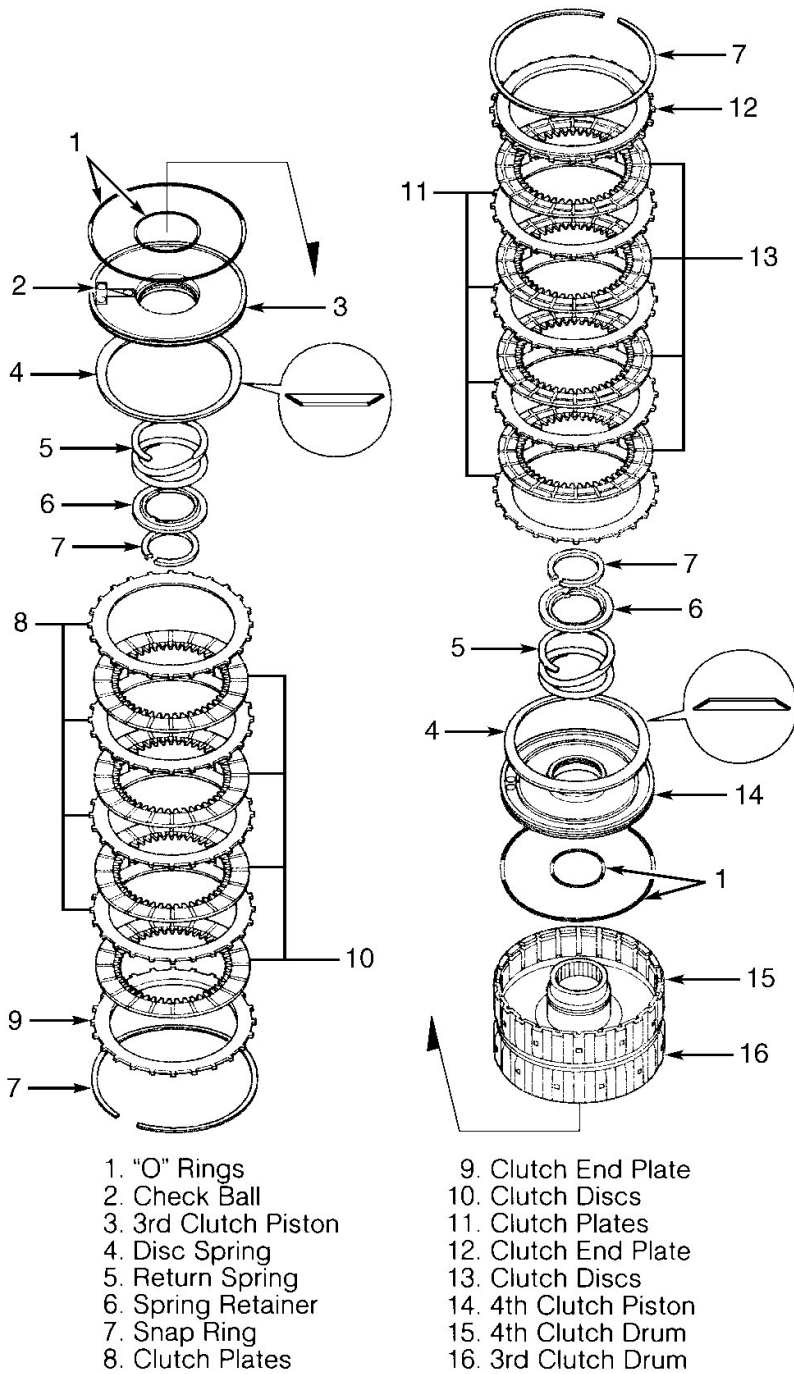
1. Remove snap ring, clutch end plate, clutch discs and clutch plates. See **Fig. 35** and **Fig. 36**.
2. Remove disc spring (except 1st-hold clutch). Install appropriate clutch spring compressor. Compress return spring and remove circlip. Release and remove spring compressor. Remove spring retainer and return spring.
3. Wrap shop towel around clutch drum. Apply light air pressure to oil passage on clutch drum to remove clutch piston. Remove "O" rings.
4. Install secondary shaft with old "O" rings in 1st/1st-hold/2nd clutch drum. Remove 1st clutch piston by applying air pressure to secondary shaft fluid passage.
5. Remove 1st/1st-hold/2nd clutch drum from secondary shaft. Remove 1st-hold clutch piston by applying air pressure to 1st clutch piston fluid passage. Remove 1st clutch back piston by applying air pressure to outside of 1st clutch drum.



- |                               |                              |
|-------------------------------|------------------------------|
| 1. "O" Rings                  | 12. 1st Clutch Plates        |
| 2. 1st Clutch Back Piston     | 13. 1st Clutch End Plate     |
| 3. 1st Clutch Piston          | 14. 1st Clutch Discs         |
| 4. Check Ball                 | 15. 1st-Hold Clutch Discs    |
| 5. Return Spring              | 16. 1st-Hold Clutch Piston   |
| 6. Spring Retainer            | 17. Clutch Plates            |
| 7. Snap Ring                  | 18. Clutch End Plate         |
| 8. 1st-Hold Clutch Plates     | 19. Clutch Discs             |
| 9. 1st-Hold Clutch End Plate  | 20. Spring Retainer          |
| 10. 1st-Hold Clutch Plate "B" | 21. Return Spring            |
| 11. Disc Spring               | 22. 2nd Clutch Piston        |
|                               | 23. 2nd Clutch Drum          |
|                               | 24. 1st/1st-Hold Clutch Drum |

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**Fig. 35: Exploded View Of 1st/1st-Hold/2nd Clutch Assemblies**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.



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**Fig. 36: Exploded View Of 3rd/4th Clutch Assemblies**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

### 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 securely fastened on clutch piston.
2. Inspect components for damage. Replace if necessary. Ensure no rough edges are present on "O" ring sealing areas.

**Reassembly (1st-Hold Clutch)**

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 circlip on spring retainer. Using spring compressor, compress return spring. Install circlip. Remove spring compressor.

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

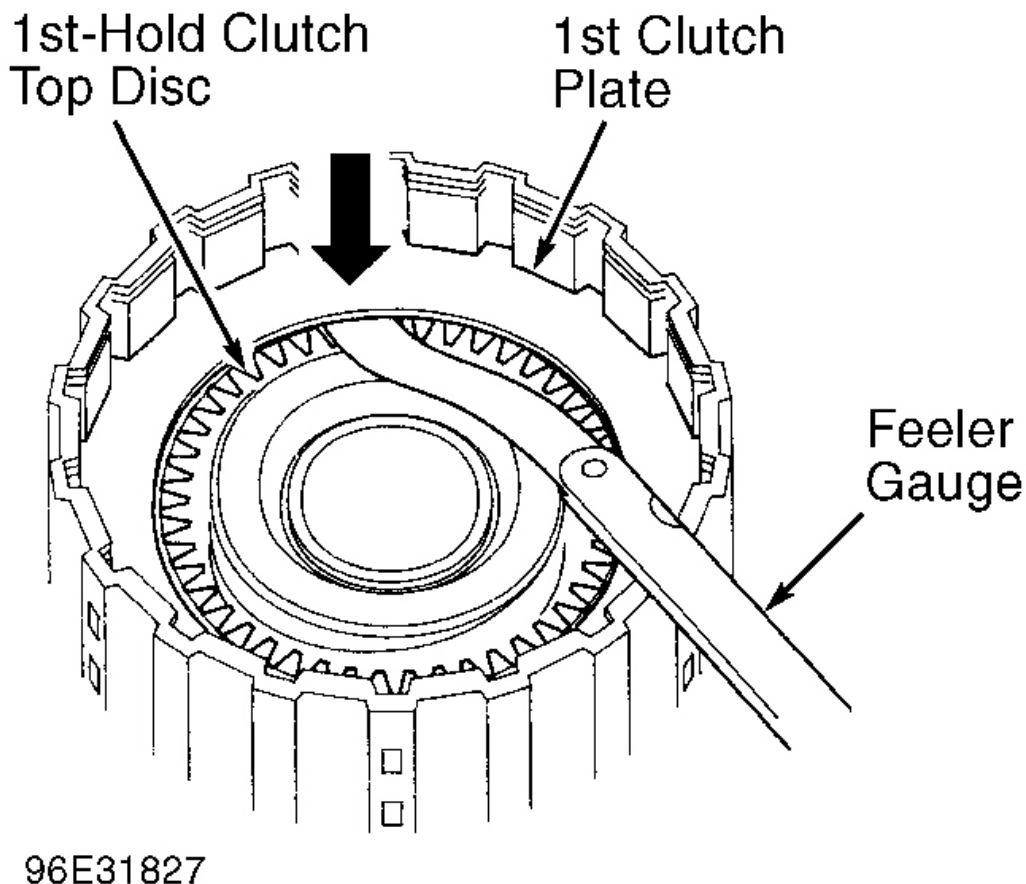
3. Starting with a clutch plate, alternately install 2 clutch plates and 2 discs. Install 1st-hold clutch end plate, then top clutch disc.
4. Install 1st clutch plate on top clutch disc of 1st-hold clutch so measurement of 1st-hold clutch end plate-to-top disc clearance can be made. Press down on 1st clutch plate. Using a feeler gauge, measure clearance between 1st clutch plate and 1st-hold clutch top disc. See **Fig. 37**.
5. Measure clearance in at least 3 places. Use average measurement for actual clearance. Specified clearance is .024-.039" (.60-1.00 mm). If clearance is not as specified, install appropriate clutch end plate to obtain proper clearance. See **1ST-HOLD CLUTCH END PLATE THICKNESS** table.
6. After clearance is set to specification, remove 1st clutch plate and install 1st-hold clutch plate "B" onto top disc.

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

**1ST-HOLD CLUTCH END PLATE THICKNESS**

Plate Number	Part Number	Thickness In. (mm)
1	22681-P0Z-003	.063 (1.60)
2	22682-P0Z-003	.071 (1.80)
N/A	22683-P0Z-003	.079 (2.00)
4	22684-P0Z-003	.087 (2.20)
5	22685-P0Z-003	.095 (2.40)





**Fig. 37: Measuring 1st Clutch Plate-To-1st-Hold Clutch Top Disc Clearance**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

**Reassembly (1st, 2nd & 3rd/4th Clutches)**

1. Install disc spring into clutch drum. Starting with a clutch plate, alternately install clutch plates and discs. Install clutch end plate with flat side toward disc. Install snap ring.
2. Using a dial indicator, measure clearance between clutch end plate and top disc. Zero dial indicator with clutch end plate lowered, and lift up to snap ring for measurement. See **Fig. 38**.
3. Take measurements in at least 3 places. Use average measurement for actual clearance. Ensure clearance is within specification. See **TRANSAXLE SPECIFICATIONS** table.
4. If clearance is not as specified, install appropriate clutch end plate to obtain proper clearance. See appropriate **CLUTCH END PLATE THICKNESS** table.

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

**1996 Honda Accord DX**

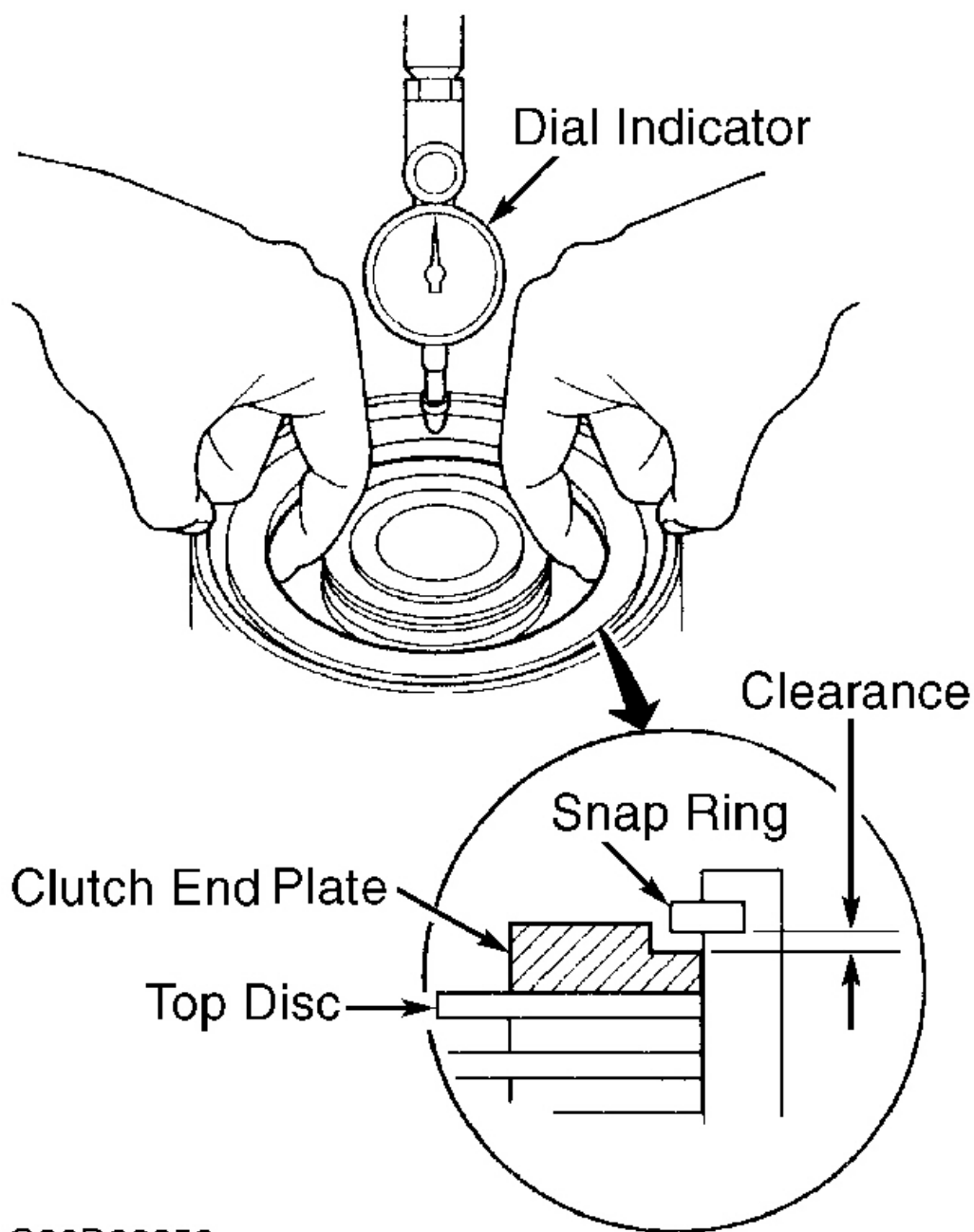
1995-96 AUTOMATIC TRANSMISSIONS MPZA Overhaul (V6 2.7L)

**1ST CLUTCH END PLATE THICKNESS**

Plate Number	Part Number	Thickness In. (mm)
1	22551-P0Z-003	.083 (2.10)
2	22552-P0Z-003	.087 (2.20)
3	22553-P0Z-003	.091 (2.30)
4	22554-P0Z-003	.094 (2.40)
5	22555-P0Z-003	.098 (2.50)
6	22556-P0Z-003	.102 (2.60)
7	22557-P0Z-003	.106 (2.70)
8	22558-P0Z-003	.110 (2.80)
9	22559-P0Z-003	.114 (2.90)

**2ND, 3RD & 4TH CLUTCH END PLATE THICKNESS**

Plate Number	Part Number	Thickness In. (mm)
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)



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**Fig. 38: Measuring Clutch End Plate Clearance**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

## 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. 39** . 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.

**CAUTION: Ring gear must be installed with chamfered side of ring gear toward differential carrier. See Fig. 40 . Ring gear bolts are LEFT-HAND thread.**

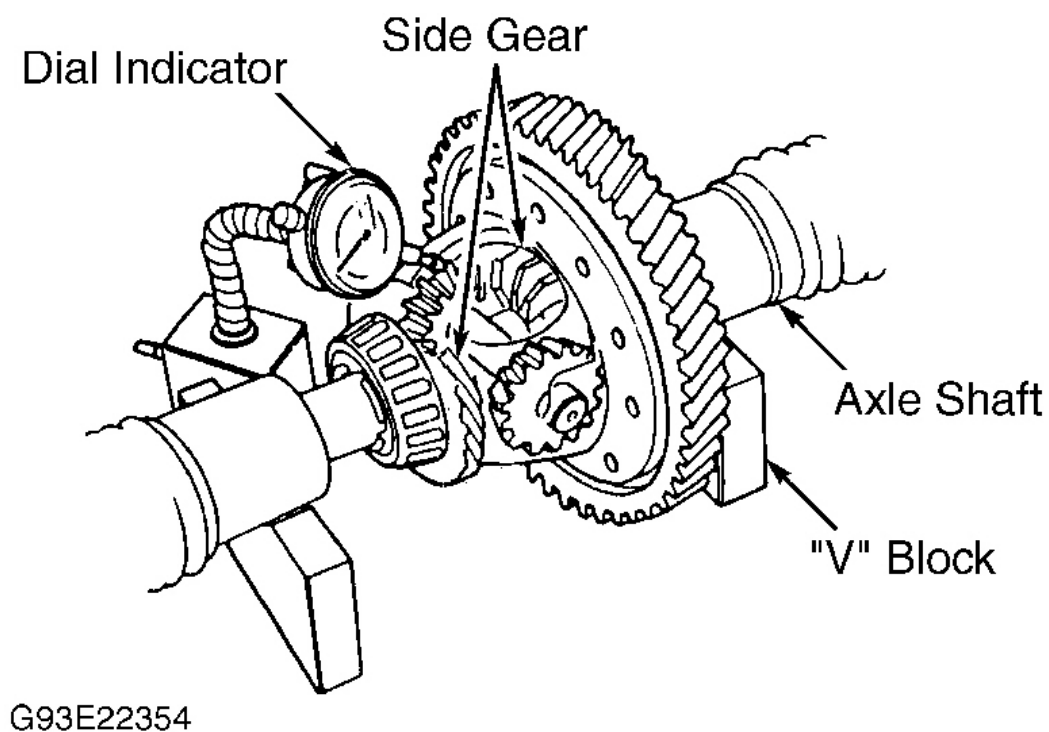
3. If replacing bearings, use bearing puller to remove bearings from differential carrier. Remove bolts and ring gear.

**Cleaning & Inspection**

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

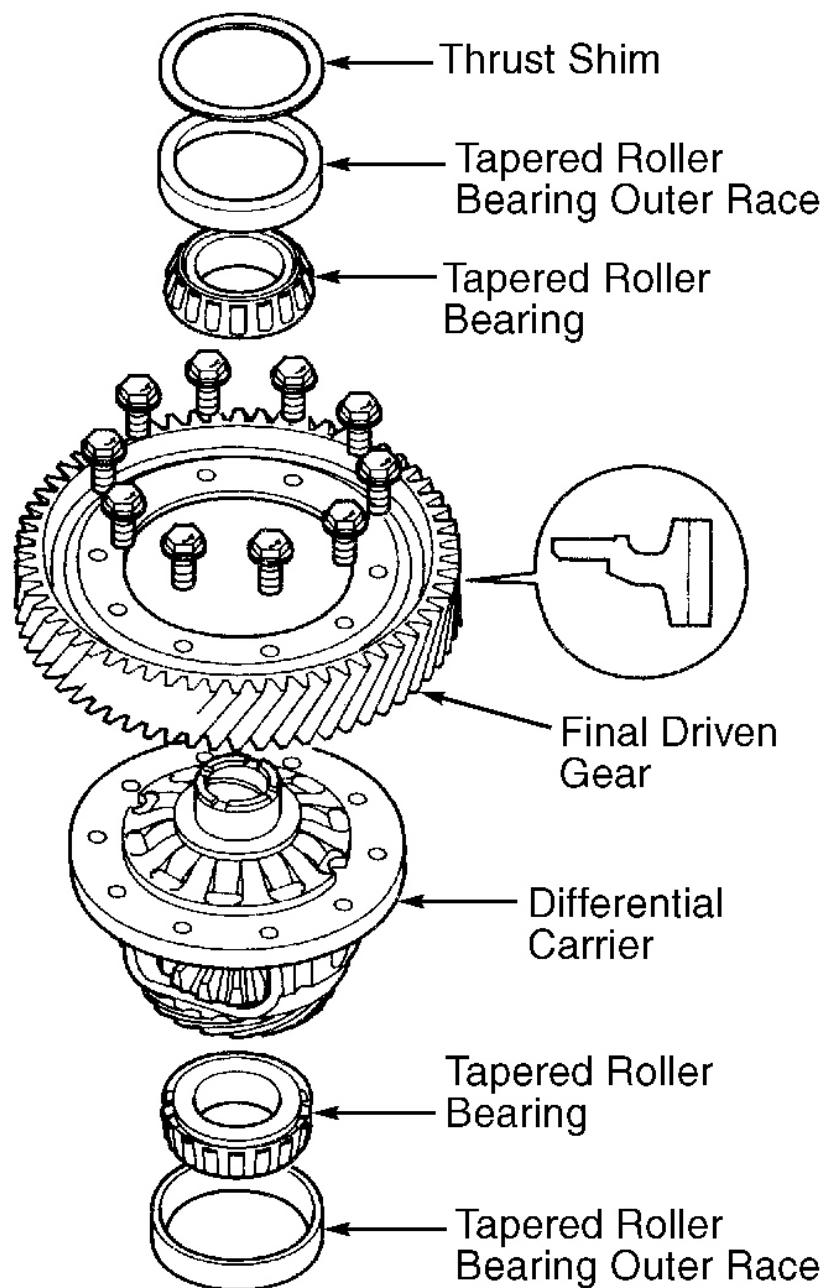
**Reassembly**

If installing NEW bearings, bearing preload must be checked and adjusted. See **DIFFERENTIAL ASSEMBLY BEARING PRELOAD** under TRANSAXLE REASSEMBLY. Install ring gear and tighten ring gear bolts to 75 ft. lbs. (102 N.m).



**Fig. 39: Checking Side Gear Backlash**

Courtesy of AMERICAN HONDA MOTOR CO., INC.



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**Fig. 40: Exploded View Of Differential Assembly**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

## TORQUE CONVERTER HOUSING

**Disassembly**

1. Remove countershaft bearing from torque converter housing using a slide hammer (if necessary). Remove oil guide plate from torque converter housing.

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

2. Remove secondary shaft bearing from torque converter housing using a slide hammer (if necessary). Remove oil guide plate from torque converter housing.
3. Remove snap ring from mainshaft bearing. Remove oil seal and mainshaft bearing from torque converter housing using a slide hammer (if necessary).
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 a 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 a hammer and bearing remover/installer to install bearing until bearing bottoms in torque converter housing.
2. Using a 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 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).
4. Using a hammer and bearing installer, install countershaft bearing into torque converter housing. To install secondary shaft bearing, install 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), zero being flush and .001" is past flush. Using a hammer and bearing installer, install secondary shaft bearing into torque converter housing.

**CAUTION: DO NOT install thrust shim in torque converter housing below differential bearing outer race. Thrust shim must be installed in transaxle housing. Outer bearing race in torque converter housing is not a press fit.**

6. Install differential bearing outer race. To install differential oil seal, use a 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 a 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 a hammer and bearing race installer, install differential bearing outer race in transaxle housing.
2. To install mainshaft, countershaft and secondary shaft bearings, expand snap ring and install bearing part way into transaxle housing. Release snap ring.
3. Press bearing into transaxle housing until snap ring engages with groove on bearing. Ensure snap ring end gap is 0-.276" (0-7.0 mm). If snap ring end gap is not within specification, reseal or replace 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. To install differential oil seal, use a hammer and oil seal installer. Install NEW oil seal into transaxle housing until oil seal is fully seated.

## LEFT-SIDE COVER

### Disassembly



Remove snap rings retaining clutch feedpipes in left-side cover. Remove feedpipe guides, clutch feedpipes and "O" rings from left-side cover.

### **Cleaning & Inspection**

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

### **Reassembly**

To reassemble, reverse disassembly procedure using NEW "O" rings.

## **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.

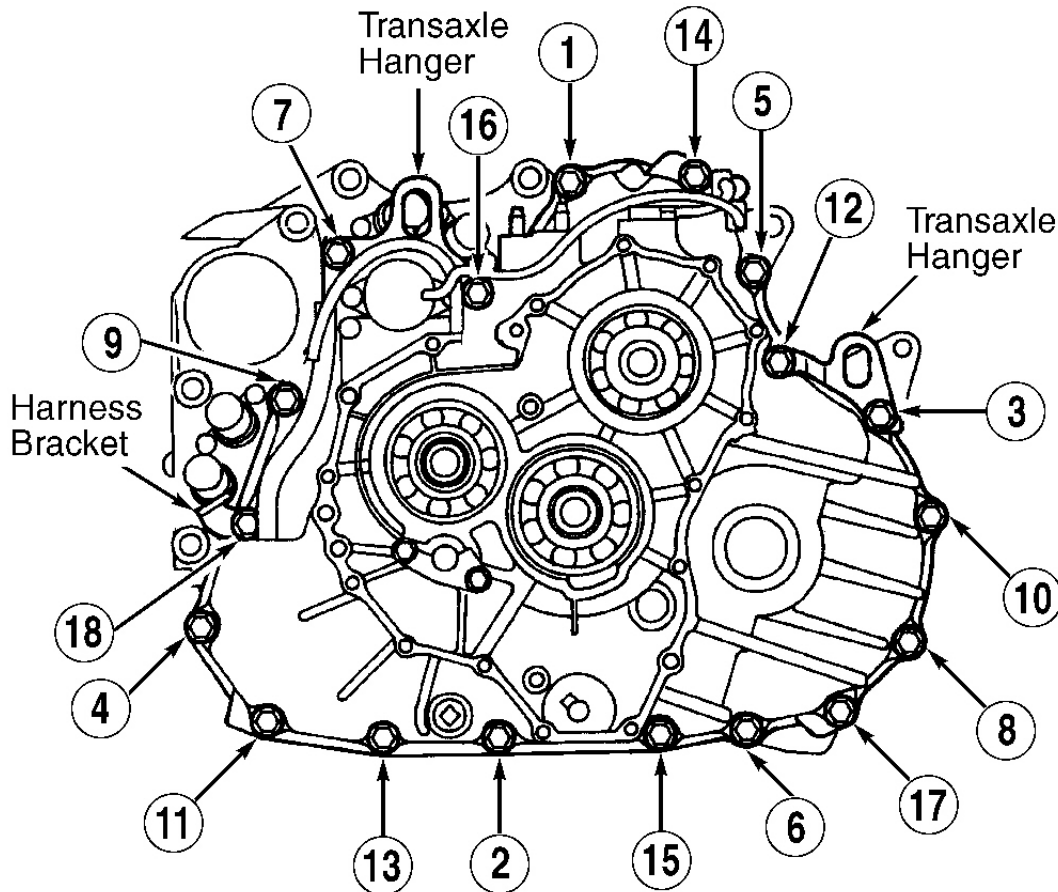
1. Using heat gun, heat transaxle housing around differential bearing outer race and thrust shim to 212°F (100°C). Tap differential bearing outer race from transaxle housing. Remove thrust shim, located below differential bearing outer race, from transaxle housing.
2. Allow transaxle housing to cool to room temperature. Select thrust shim so total thickness of thrust shim is .085" (2.15 mm). See **THRUST SHIM SPECIFICATIONS** table.

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

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

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

5. Install and tighten transaxle housing-to-torque converter housing bolts to 33 ft. lbs. (44 N.m) in sequence. See **Fig. 41** . Rotate differential assembly several revolutions to seat bearings.



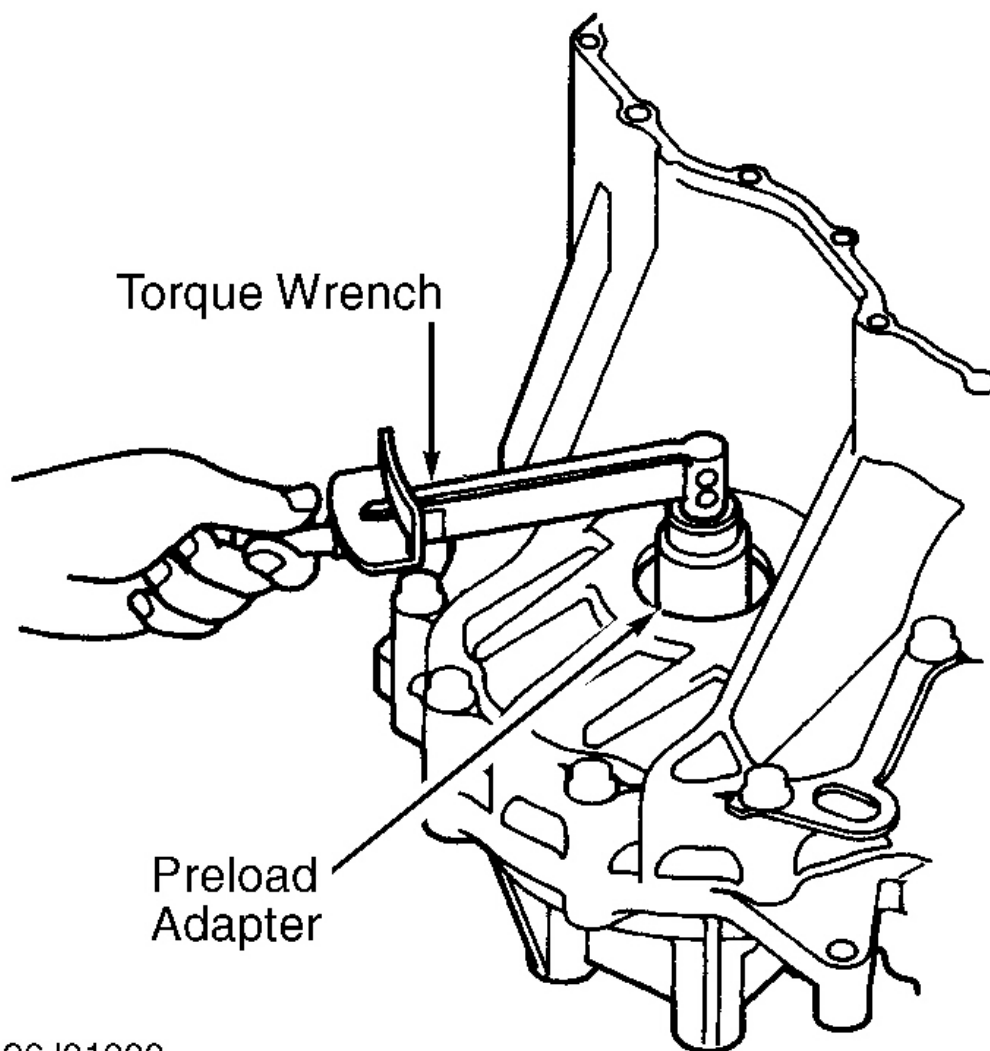
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**Fig. 41: Transaxle Housing Bolt Tightening Sequence**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Install Preload Adapter (07HAJ-PK40201) into differential assembly. See **Fig. 42** . 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.
8. If differential assembly 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 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.

**CAUTION: DO NOT use more than 2 thrust shims when adjusting differential assembly 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 a 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.

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**Fig. 42: Checking Differential Bearing Preload**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

#### **THRUST SHIM SPECIFICATIONS**

**1996 Honda Accord DX**

1995-96 AUTOMATIC TRANSMISSIONS MPZA Overhaul (V6 2.7L)

Thrust Shim I.D. Letter	Part Number	Thickness In. (mm)
A	41381-PG4-000	.035 (.90)
B	41382-PG4-000	.037 (.95)
C	41383-PG4-000	.039 (1.00)
D <sup>(1)</sup>	41384-PG4-000	.041 (1.05)
E <sup>(1)</sup>	41385-PG4-000	.043 (1.10)
F	41386-PG4-000	.045 (1.15)
G	41387-PG4-000	.047 (1.20)
H	41388-PG4-000	.049 (1.25)
I	41389-PG4-000	.051 (1.30)
J	41390-PG4-000	.053 (1.35)
K <sup>(2)</sup>	41391-PG4-000	.085 (2.15)
L	41392-PG4-000	.087 (2.20)
M	41393-PG4-000	.089 (2.25)
N	41394-PG4-000	.091 (2.30)
O	41395-PG4-000	.093 (2.35)
P	41396-PG4-000	.094 (2.40)
Q	41397-PG4-000	.096 (2.45)

(1) This is the standard thrust shim combination when adjusting preload with 2 shims.

(2) This is the standard thrust shim when adjusting preload with one shim.

**DIFFERENTIAL ASSEMBLY BEARING PRELOAD SPECIFICATIONS <sup>(1)</sup>**

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.

**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** under TRANSAXLE REASSEMBLY.

**NOTE:** Coat all components with ATF before reassembly.

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.

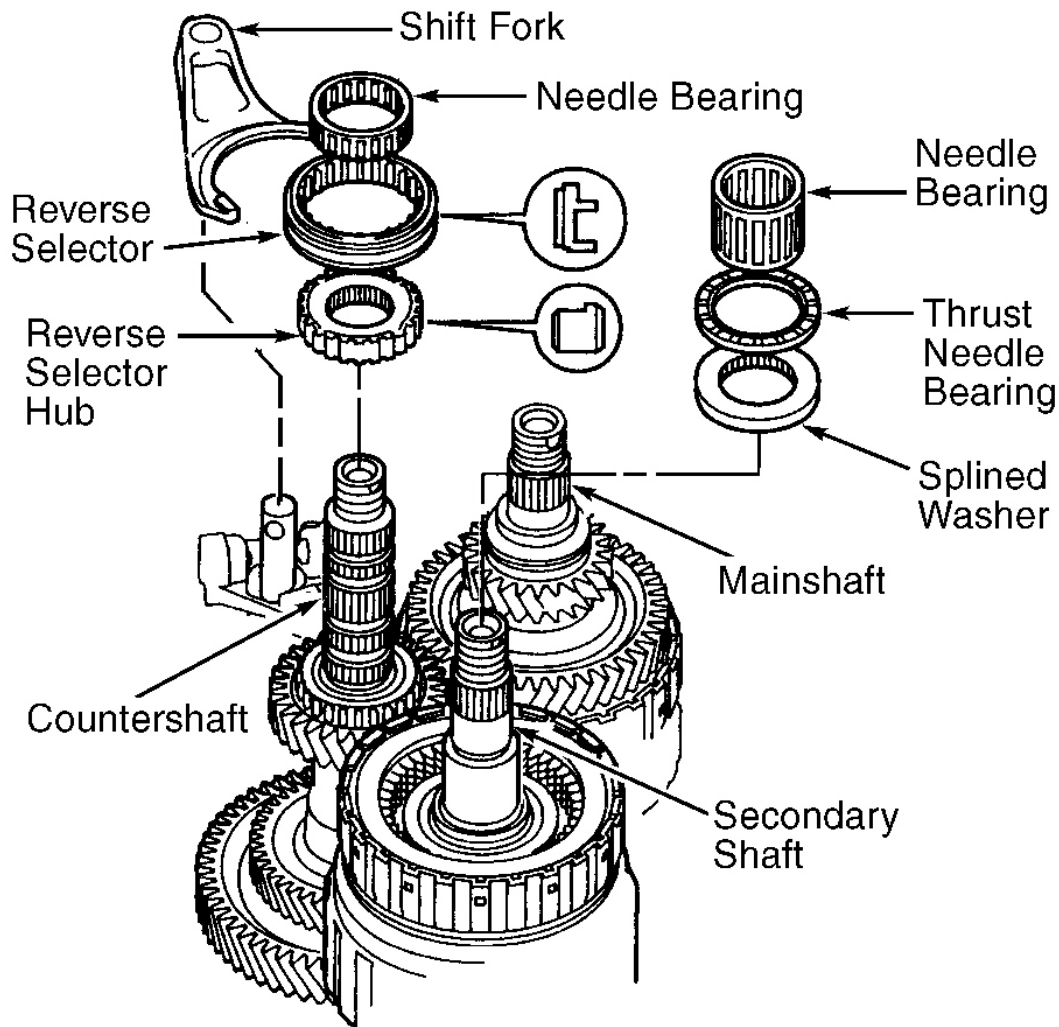
**CAUTION:** Ensure oil pump driven gear is installed with groove and chamfered

**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 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 check balls are installed in main valve body. See **Fig. 15** . Install stator shaft, NEW "O" ring and stop shaft. Install dowel pins in main valve body. Install spring and torque converter check valve in main valve body.
4. Install regulator valve body and bolt on main valve body. Install dowel pins and separator plate on regulator valve body. Install lock-up valve body.
5. Install control shaft in transmission housing with manual valve together. Install detent arm and arm shaft in main valve body. Hook detent spring to detent arm.
6. Install secondary valve body. Ensure check balls are installed in secondary valve body. See **Fig. 19** . Install servo separator plate and servo body. Install 4th accumulator cover, oil filter, servo detent base and accumulator body. Tighten bolts to specification.
7. Install one oil feed pipe in main valve body, 2 oil feed pipes in servo body, 2 oil feed pipes in lock-up valve body and one oil feed pipe in accumulator body.
8. Install differential assembly, countershaft sub-assembly, mainshaft sub-assembly and secondary shaft sub-assembly in torque converter housing. Install splined washer, thrust needle bearing and needle bearing on secondary shaft.
9. Install needle bearings, reverse selector hub and reverse selector with shift fork on countershaft in direction shown. See **Fig. 43** .
10. Rotate shift fork shaft on servo body so large chamfered hole aligns with hole in shift fork. Install shift fork bolt and NEW bolt lock. Tighten bolt to specification. Bend over tabs on bolt lock.
11. Install secondary shaft 2nd gear, thrust needle bearing and thrust washer on secondary shaft. Install needle bearing, countershaft reverse gear and countershaft 2nd gear on countershaft.
12. Install reverse idler gear in transaxle case with largest chamfered area facing upward (away from transaxle housing).



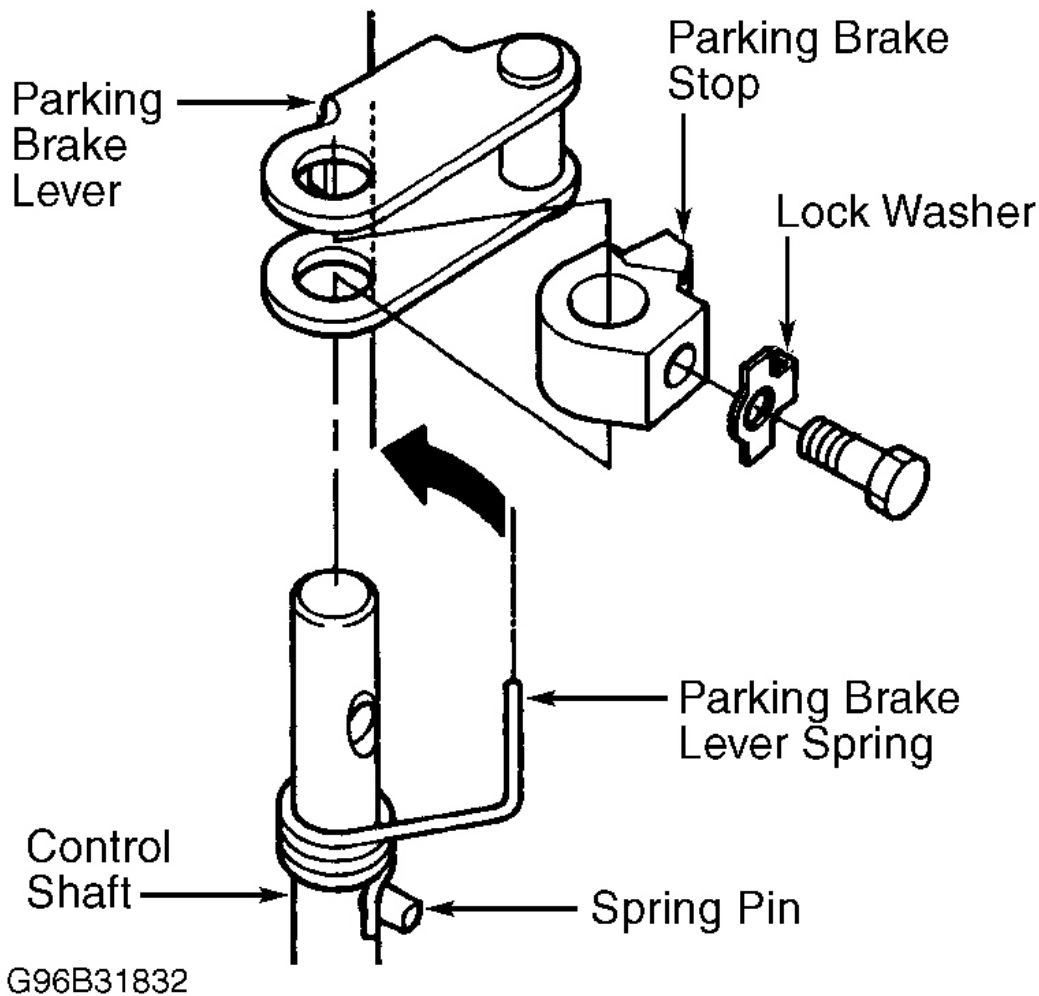
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**Fig. 43: Installing Shift Fork & Reverse Selector**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

13. Install dowel pins and NEW gasket on torque converter housing. Align spring pin with groove in transaxle housing by rotating control shaft. See **Fig. 14**.
14. Install transaxle housing on torque converter housing. Install and tighten bolts to specification in sequence using several steps. See **Fig. 41**. Engage reverse idler gear with countershaft reverse gear.
15. Coat reverse idler gear shaft and needle bearings with grease. Install shaft in reverse idler gear shaft holder.
16. Install reverse idler gear shaft holder with needle bearings in transaxle housing. Install and tighten bolts to specification.
17. Install parking brake lever spring and parking brake lever on control shaft. See **Fig. 44**. Install bolt and

NEW lock washer on parking brake lever. DO NOT tighten bolt at this time.

**NOTE:** Mainshaft lock nut has LEFT-HAND threads.



**Fig. 44: Installing Parking Brake Lever Components**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

18. Install Mainshaft Holder (07GAB-PF50100 or 07GAB-PF50101) on mainshaft to secure mainshaft from rotating. See **Fig. 9** . Install mainshaft idler gear on mainshaft. Install old mainshaft lock nut on mainshaft. Mainshaft has LEFT-HAND threads.
19. Tighten mainshaft lock nut to 166 ft. lbs. (225 N.m) to seat mainshaft idler gear on mainshaft. DO NOT use hammer to install mainshaft idler gear on mainshaft or impact wrench to tighten lock nut.
20. Install secondary shaft idler gear on secondary shaft. Install splined washer, thrust needle bearing, needle

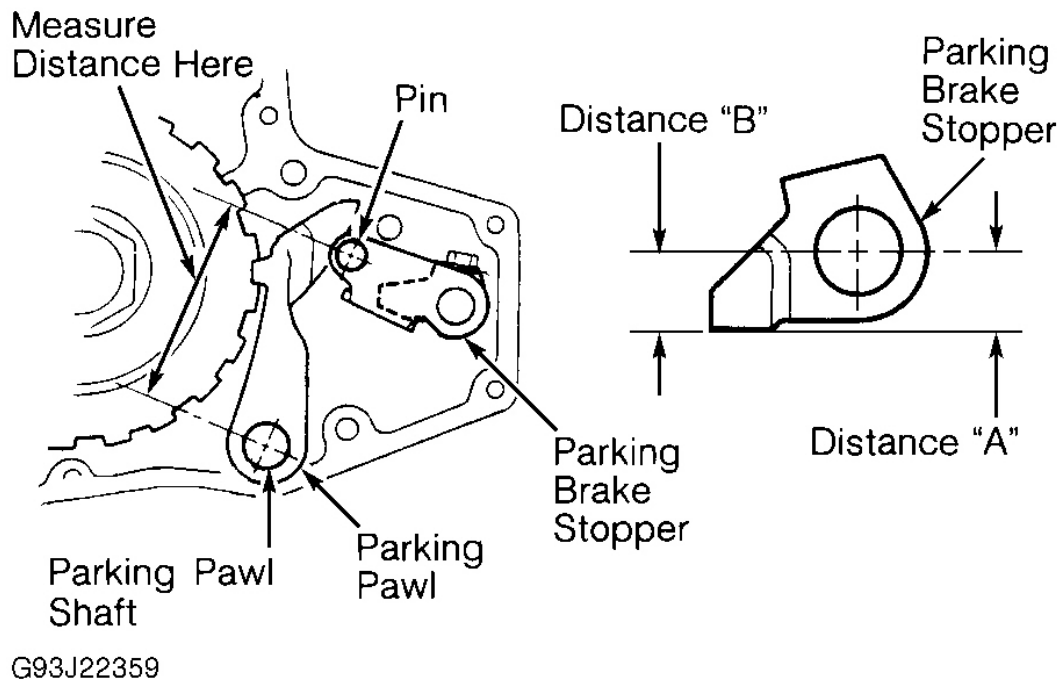
bearing, countershaft idler gear, thrust needle bearing and parking gear on countershaft. See **Fig. 8**.

21. Install old secondary shaft lock nut on secondary shaft. Tighten secondary shaft lock nut to 166 ft. lbs. (225 N.m) while holding countershaft idler gear to seat secondary shaft idler gear on secondary shaft. DO NOT use hammer to install secondary shaft idler gear on secondary shaft or impact wrench to tighten lock nut.
22. Place 24-mm socket at center of parking gear. Install a 10 x 1.25-mm bolt in end of countershaft. Install parking pawl shaft, parking pawl stopper, parking pawl spring and parking pawl. See **Fig. 8**. Engage parking pawl with parking gear.
23. Tighten bolt to pull parking gear onto the countershaft. DO NOT use hammer to install parking gear on countershaft. Remove bolt and socket. Install old countershaft lock nut on countershaft. Tighten countershaft lock nut to 166 ft. lbs. (225 N.m) to seat parking gear on countershaft. DO NOT use impact wrench to tighten lock nut.
24. Remove lock nuts from mainshaft, countershaft and secondary shaft. Install NEW spring washers and NEW lock nuts on mainshaft, countershaft and secondary shaft. Ensure spring washers are installed so large area of spring washer is against lock nut.
25. Tighten lock nuts to specification. DO NOT use impact wrench to tighten lock nuts. Stake lock nuts against shaft. Remove mainshaft holder.

**CAUTION: Ensure all lock nuts are securely staked against the shaft.**

26. Place parking brake lever in "P" position. 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. 45**.
27. Parking brake stopper distance should be 2.88-2.92" (73.2-74.2 mm). If parking brake stopper distance is not within specification, install different size parking brake stopper.
28. Parking brake stopper is available in different sizes. See **PARKING BRAKE STOPPER SPECIFICATIONS** table.





**Fig. 45: Measuring Parking Brake Stopper Distance & Parking Brake Stopper**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

**CAUTION:** Flush oil cooler if a transaxle failure was present. See **OIL COOLER FLUSHING** under ON-VEHICLE SERVICE.

#### PARKING BRAKE STOPPER SPECIFICATIONS

I.D. Mark	Part Number	(1) Distance "A" In. (mm)	(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 <b>Fig. 45</b> .			

#### TORQUE SPECIFICATIONS

**1996 Honda Accord DX**

1995-96 AUTOMATIC TRANSMISSIONS MPZA Overhaul (V6 2.7L)

**TORQUE SPECIFICATIONS**

<b>Application</b>	<b>Ft. Lbs. (N.m)</b>
Countershaft Lock Nut	123 (167)
Joint Bolt	21 (29)
Main Valve Body Bolt	
6-mm Bolt	(1)
8-mm Bolt	13 (18)
Mainshaft Lock Nut	123 (167)
Pressure Tap Plug	13 (18)
Reverse Idler Gear Shaft Holder Bolt	20 (27)
Ring Gear Bolt	75 (102)
Secondary Shaft Lock Nut	123 (167)
Transaxle Housing Bolt <sup>(2)</sup>	33 (44)
	<b>INCH Lbs. (N.m)</b>
Accumulator Body Bolt	106 (12.0)
Countershaft Speed Sensor Bolt	106 (12.0)
Left-Side Cover Bolt	106 (12.0)
Lock-Up Control Solenoid Valve Assembly Bolt	106 (12.0)
Linear Solenoid/Throttle Valve Body Bolt	106 (12.0)
Mainshaft Speed Sensor Bolt	106 (12.0)
Oil Filter Bolt	106 (12.0)
Parking Brake Lever Bolt	120 (14.0)
Regulator Valve Body Bolt	106 (12.0)
Servo Body Bolt	106 (12.0)
Servo Detent Base Bolt	106 (12.0)
Shift Control Solenoid Valve Assembly Bolt	106 (12.0)
Shift Fork Bolt	120 (14.0)
4th Accumulator Cover Bolt	106 (12.0)
(1) Tighten bolt to 106 INCH lbs. (12.0 N.m).	
(2) Tighten bolts to specification in sequence. See <b>Fig. 41</b> .	

**TRANSAXLE SPECIFICATIONS****TRANSAXLE SPECIFICATIONS**

<b>Application</b>	<b>Specification</b>
Clutch Clearance	
1st Clutch	.030-.037" (.75-.95 mm)
2nd Clutch	.028-.035" (.70-.90 mm)
1st-Hold Clutch	.024-.039" (.60-1.00 mm)
3rd Clutch	.026-.033" (.65-.85 mm)

**1996 Honda Accord DX**

1995-96 AUTOMATIC TRANSMISSIONS MPZA Overhaul (V6 2.7L)

4th Clutch	.022-.030" (.55-.75 mm)
Differential Bearing Preload <sup>(1)</sup>	
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	.003-.005" (.070-.125 mm)
Thrust Clearance	
Standard	.0010-.0020" (.030-.050 mm)
Wear Limit	.0028" (.070 mm)
Secondary Shaft 1st Gear Clearance	.003-.006" (.07-.15 mm)
Secondary Shaft 2nd Gear Clearance	.003-.006" (.07-.15 mm)
Differential Side Gear Backlash	.002-.006" (.05-.15 mm)
Parking Brake Stopper Distance	2.88-2.92" (73.2-74.2 mm)
4th Clutch Hub-To-Mainshaft End Play	.001-.004" (.03-.11 mm)
(1) This is the starting torque required to rotate differential assembly.	