

2001-03 AUTOMATIC TRANSMISSIONS**BGFA & MGFA Overhaul****APPLICATION**

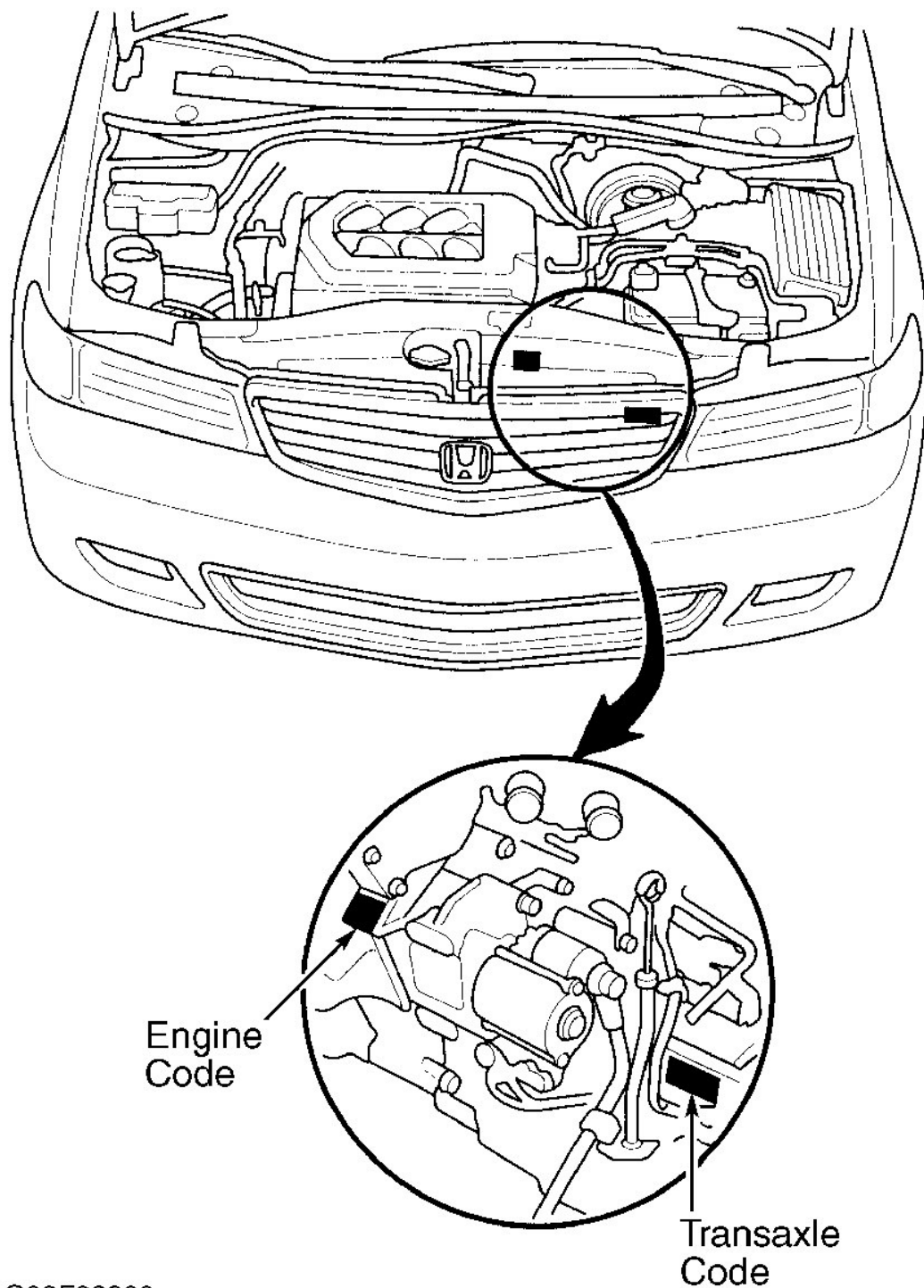
CAUTION: Flush oil cooler and oil cooler lines prior to transmission installation. Oil cooling system contamination may cause premature transmission failure. For additional information, see LUBRICATION in appropriate **SERVICING** article.

TRANSAXLE APPLICATION

Application	Transaxle Model
3.2CL	
2001	MGFA
2002-03	BGFA

IDENTIFICATION**TRANSAXLE**

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



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

GEAR RATIOS

TRANSAXLE GEAR RATIOS

Gear Range	Gear Ratio
1st	2.563:1
2nd	1.552:1
3rd	1.021:1
4th	0.653:1
5th	0.470:1
Reverse	1.846:1
Final Drive	4.428:1

DESCRIPTION & OPERATION

INTRODUCTION

Automatic transaxle is an electronically controlled transaxle with 5 forward speeds and one reverse speed. Transaxle consists of clutches, mainshaft, countershaft, secondary shaft, shift control solenoid valves, lock-up control solenoid valves and lock-up torque converter. See **Fig. 2** .

Valve body assemblies consists of main valve body, regulator valve body, servo body and accumulator body. Transaxle shifting and torque converter lock-up are controlled by the Powertrain Control Module (PCM). Sequential Sportshift Mode (SSM) is incorporated in "D5" position.

Shift lever has 8 positions. When shift lever is moved, manual valve on main valve body is moved by the shift cable. Shift lever also changes position of the A/T shift switch, mounted near shift lever. The A/T shift switch delivers an input signal to the PCM to indicate shift lever position. The PCM uses input signal and operates shift control solenoid valves to control transaxle shifting.

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

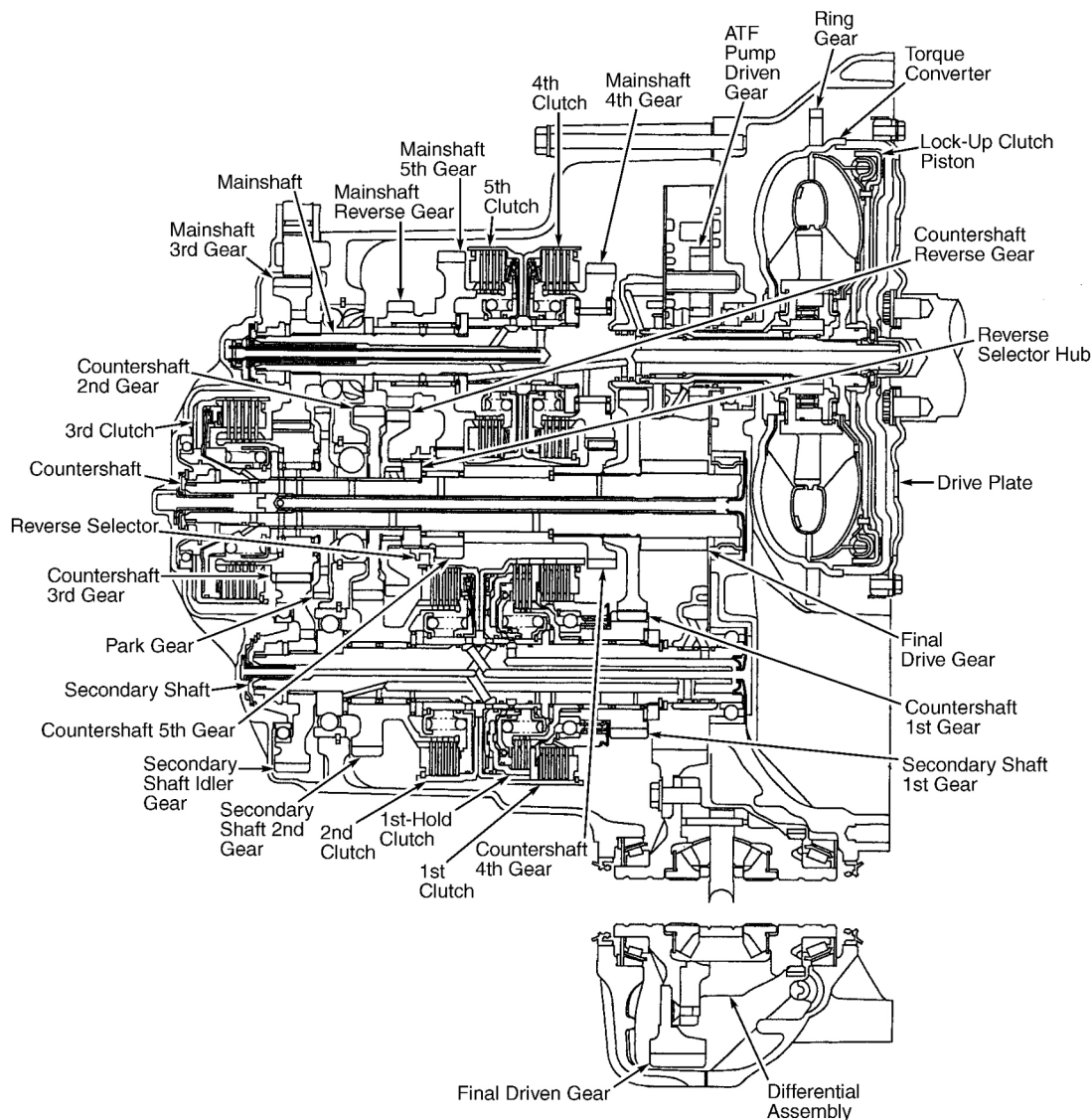
Torque converter lock-up engages and transaxle mainshaft rotates at same speed as engine crankshaft when transaxle is in "D5" position (3rd, 4th and 5th gears), "D4" position (3rd and 4th gears) or "D3" position (3rd gear). Under certain conditions, torque converter lock-up clutch is applied during deceleration when in 3rd, 4th and 5th gears. Torque converter lock-up is controlled by the PCM. The PCM receives various input signals and operates lock-up control solenoid valves. Operating lock-up control solenoid valves controls modulator pressure.

The PCM contains a self-diagnostic system, which will store a fault code if a failure or problem exists in the transaxle electronic control system. Fault code can be retrieved to identify transaxle problem area. For information on electronic transaxle components, see appropriate DIAGNOSIS article.

Transaxle is equipped with shift and key interlock systems. Shift interlock system prevents shift lever from being moved from "P" position unless brake pedal is depressed and accelerator is in idle position. In case of a malfunction, shift lever can be released by placing ignition key in release slot near shift lever. Key interlock

system prevents ignition key from being removed from ignition switch unless shift lever is in "P" position. For additional information on shift and key interlock systems, see appropriate SHIFT INTERLOCK SYSTEMS article.

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



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Fig. 2: Cut-Away View Of BGFA & MGFA Transaxle
Courtesy of AMERICAN HONDA MOTOR CO., INC.

LUBRICATION

NOTE: See appropriate **SERVICING** article.

TROUBLE SHOOTING

NOTE: Transmission malfunctions may be caused by poor engine performance, improper adjustments, fluid condition or failure of hydraulic, mechanical or electronic components. Ensure all concerns have been properly checked prior to transmission overhaul. See appropriate **DIAGNOSIS** article.

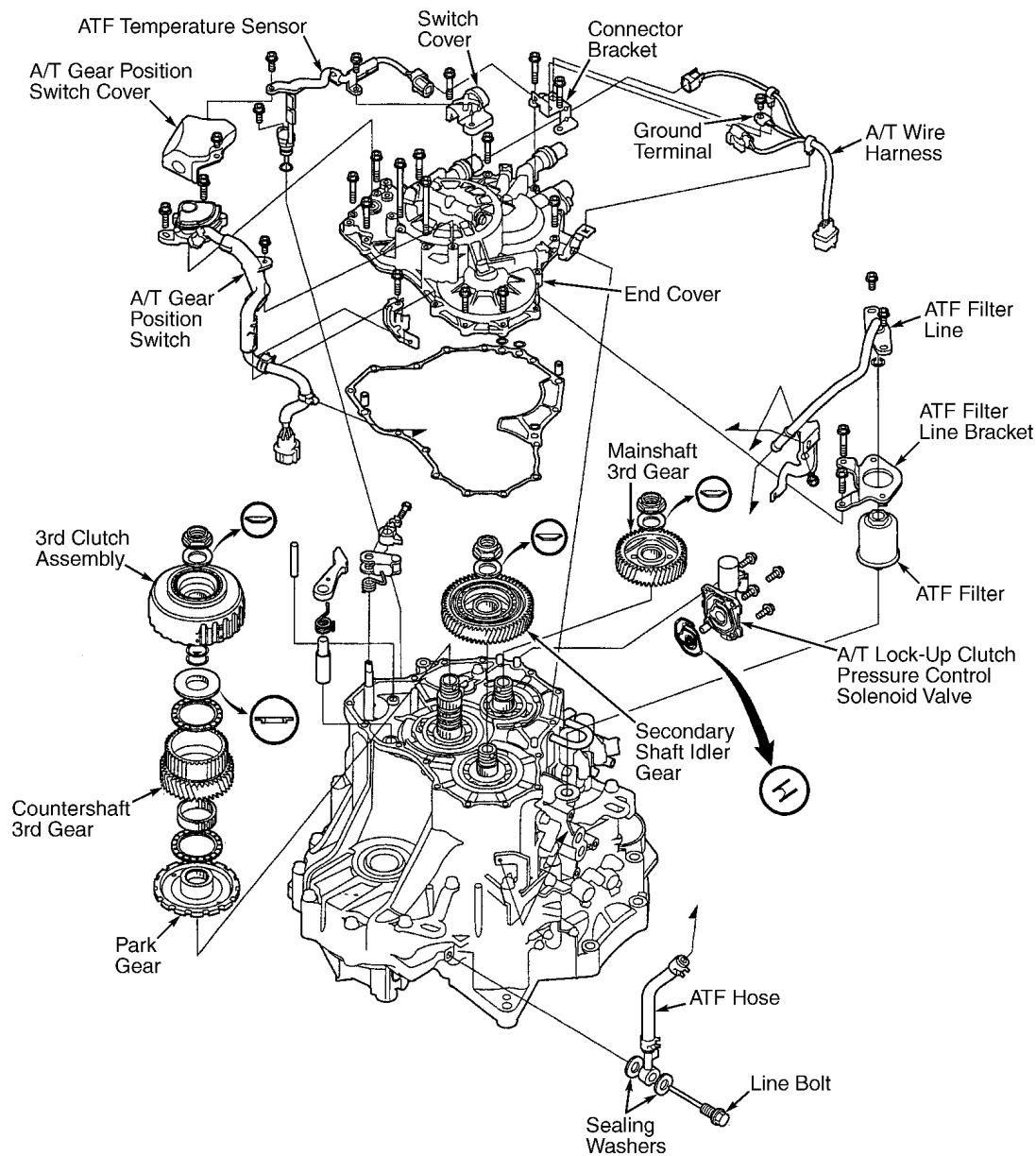
TRANSAXLE DISASSEMBLY

1. Remove A/T harness mounting bolts and brackets. Remove switch cover and ATF temperature sensor. Remove A/T gear position switch cover and switch with harness. Remove ATF filter line and filter. Remove lock-up clutch pressure control solenoid valve. Remove bolts, end cover and gasket. See **Fig. 3** . Install Mainshaft Holder (07GAB-PF50100 or 07GAB-PF50101) on mainshaft to secure mainshaft from rotating. See **Fig. 4** .

NOTE: Countershaft and secondary shaft lock nuts have left-hand threads.

2. Engage parking pawl with parking gear. Using hammer and chisel, cut lock tabs on countershaft, mainshaft and secondary shaft lock nuts. Remove lock nuts and spring washers. See **Fig. 3** .
3. Remove mainshaft holder once all lock nuts are removed. Using 2-jaw puller with slide hammer, remove 3rd clutch assembly. Remove splined washer, thrust needle bearing, countershaft 3rd gear, needle bearing and thrust needle bearing from countershaft. Using appropriate puller, remove mainshaft 3rd gear, secondary shaft idler gear and park gear.
4. Remove parking pawl, parking pawl spring, parking pawl shaft and parking pawl stop. Remove park lever from control shaft. Remove ATF dipstick tube. Remove bolts from reverse idler gear shaft holder. See **Fig. 5** . Pull reverse idler gear shaft holder with shaft and needle bearing from transaxle housing. Separate shaft with "O" rings and needle bearing from reverse idler gear shaft holder. Remove transaxle housing bolts.

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



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Fig. 3: Exploded View Of End Cover & Components
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

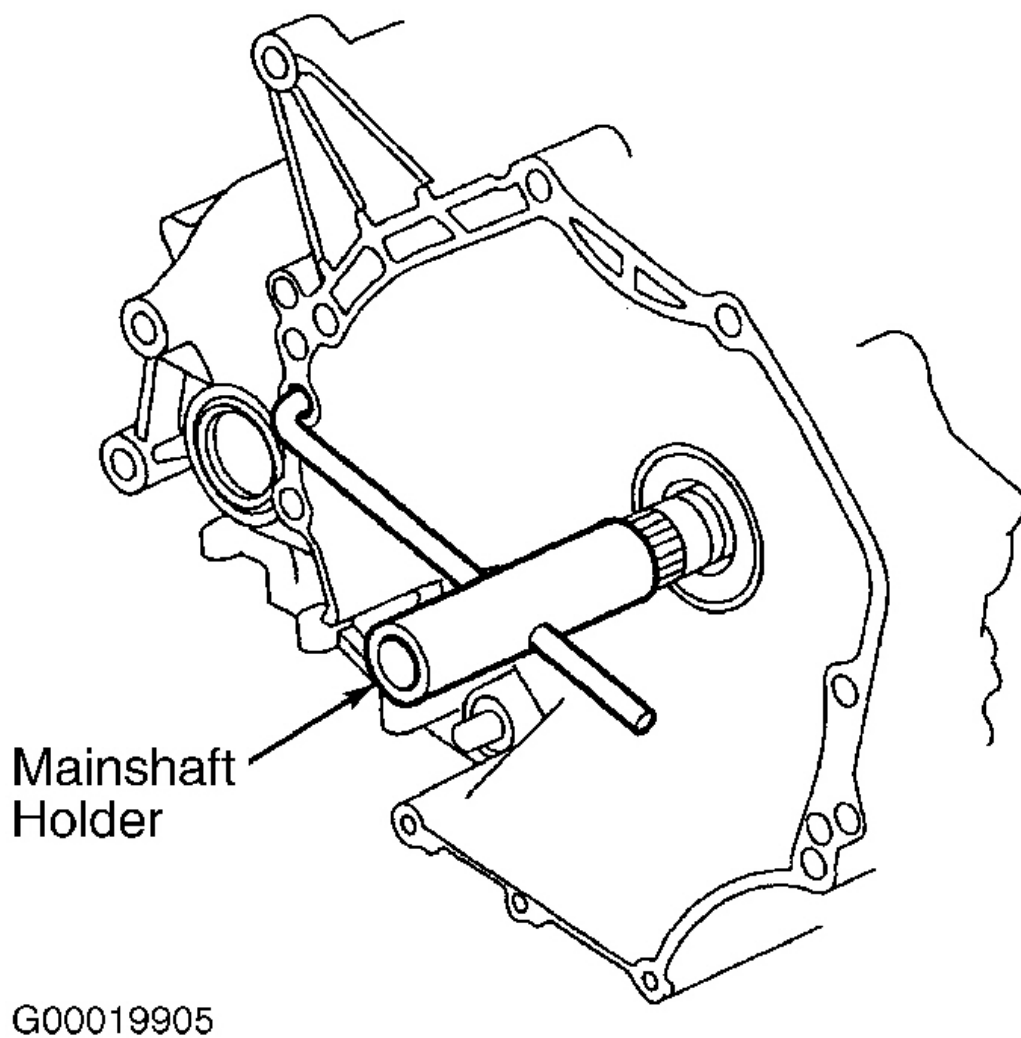
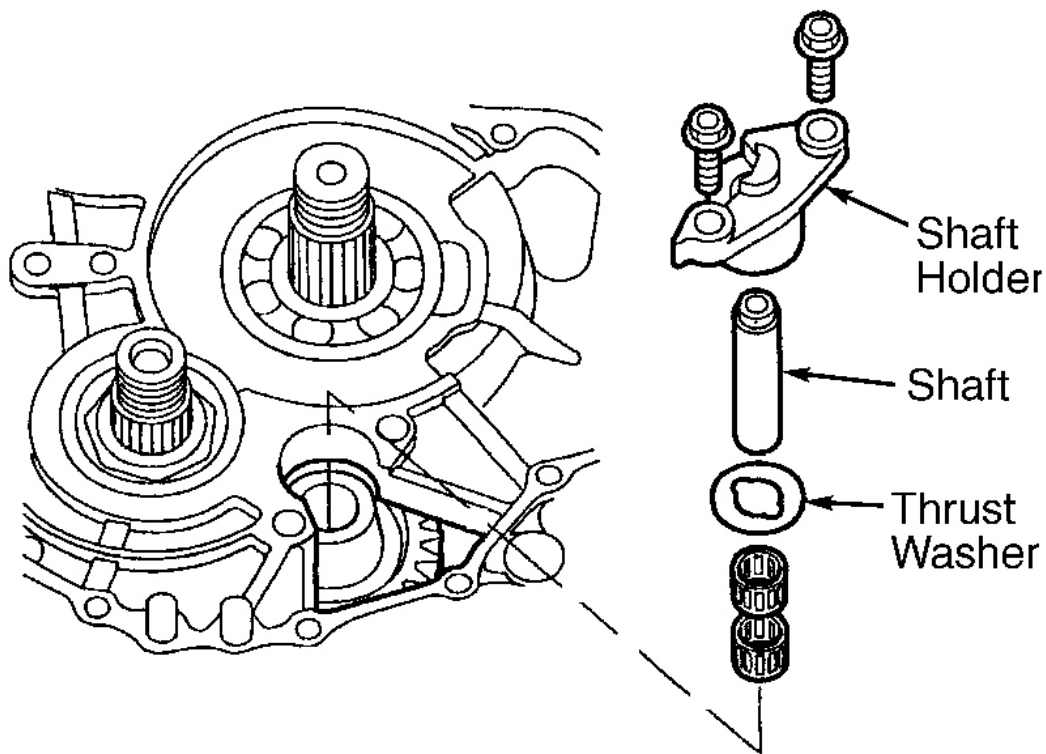
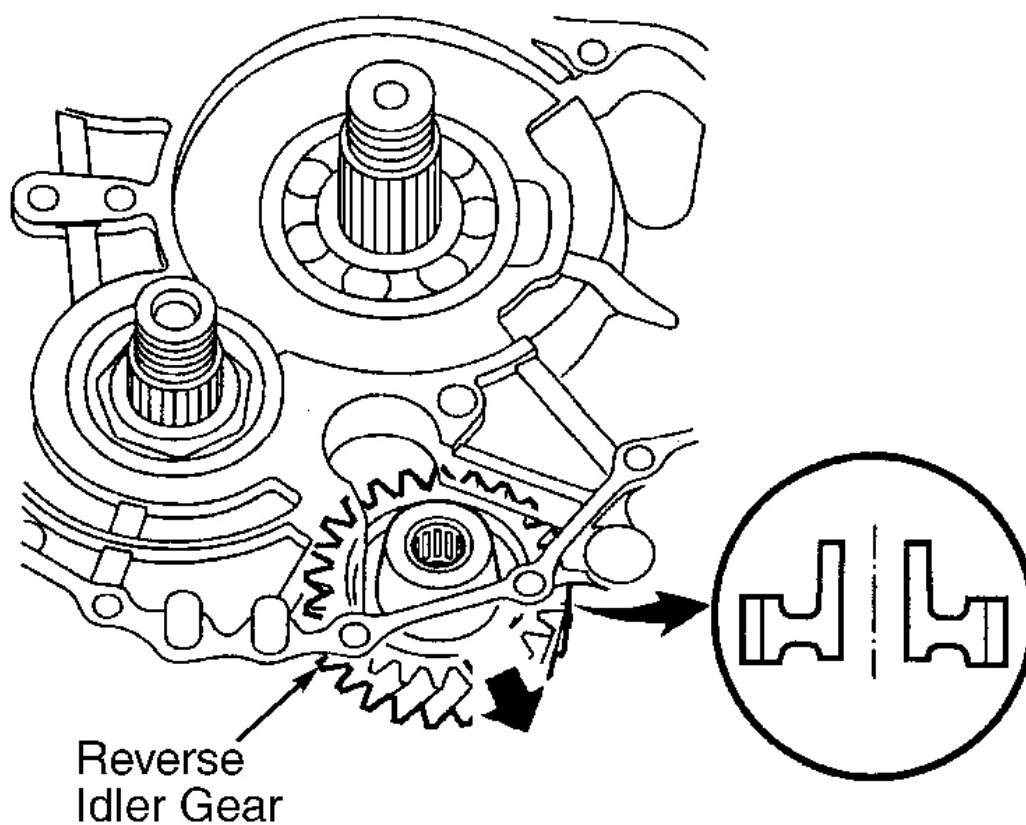


Fig. 4: Installing Mainshaft Holder
Courtesy of AMERICAN HONDA MOTOR CO., INC.



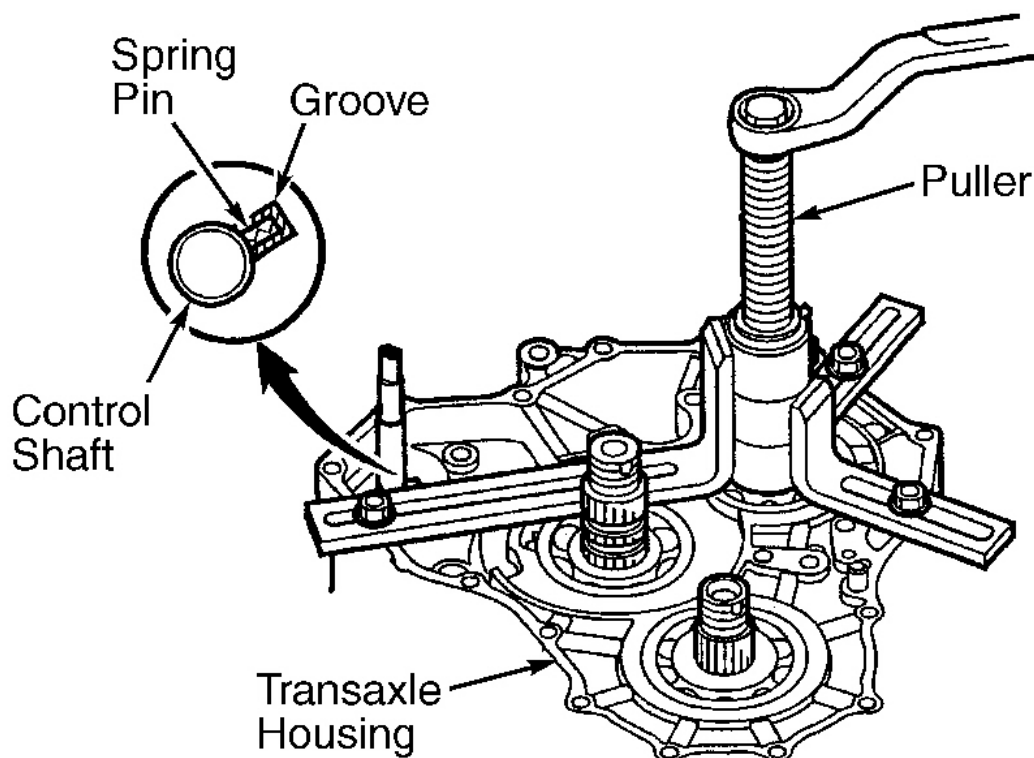
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Fig. 5: Removing Reverse Idler Gear Shaft & Components
Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 6: Positioning Reverse Idler Gear For Transaxle Housing Removal
Courtesy of AMERICAN HONDA MOTOR CO., INC.

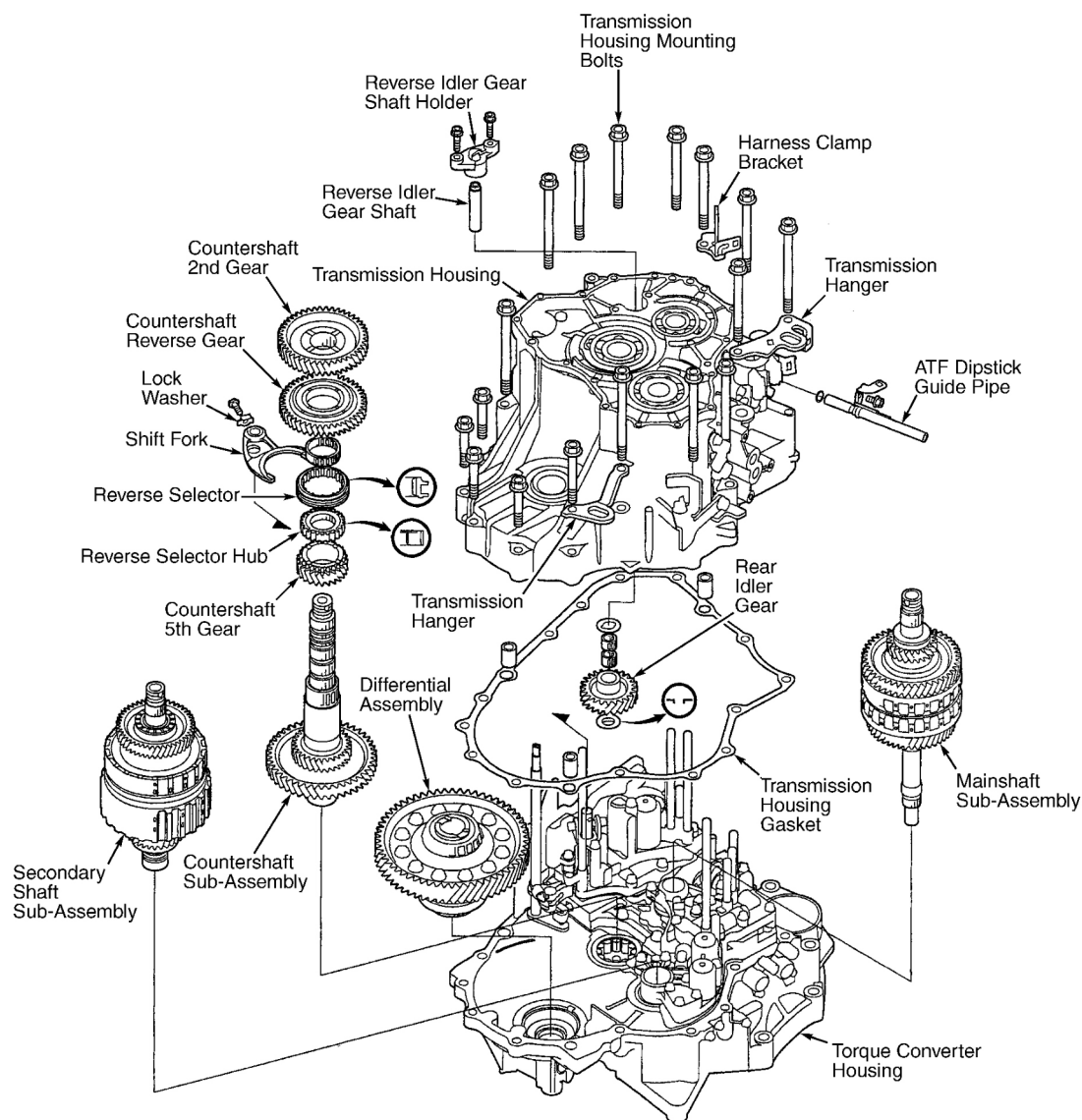


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Fig. 7: Aligning Spring Pin & Removing Transaxle Housing
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

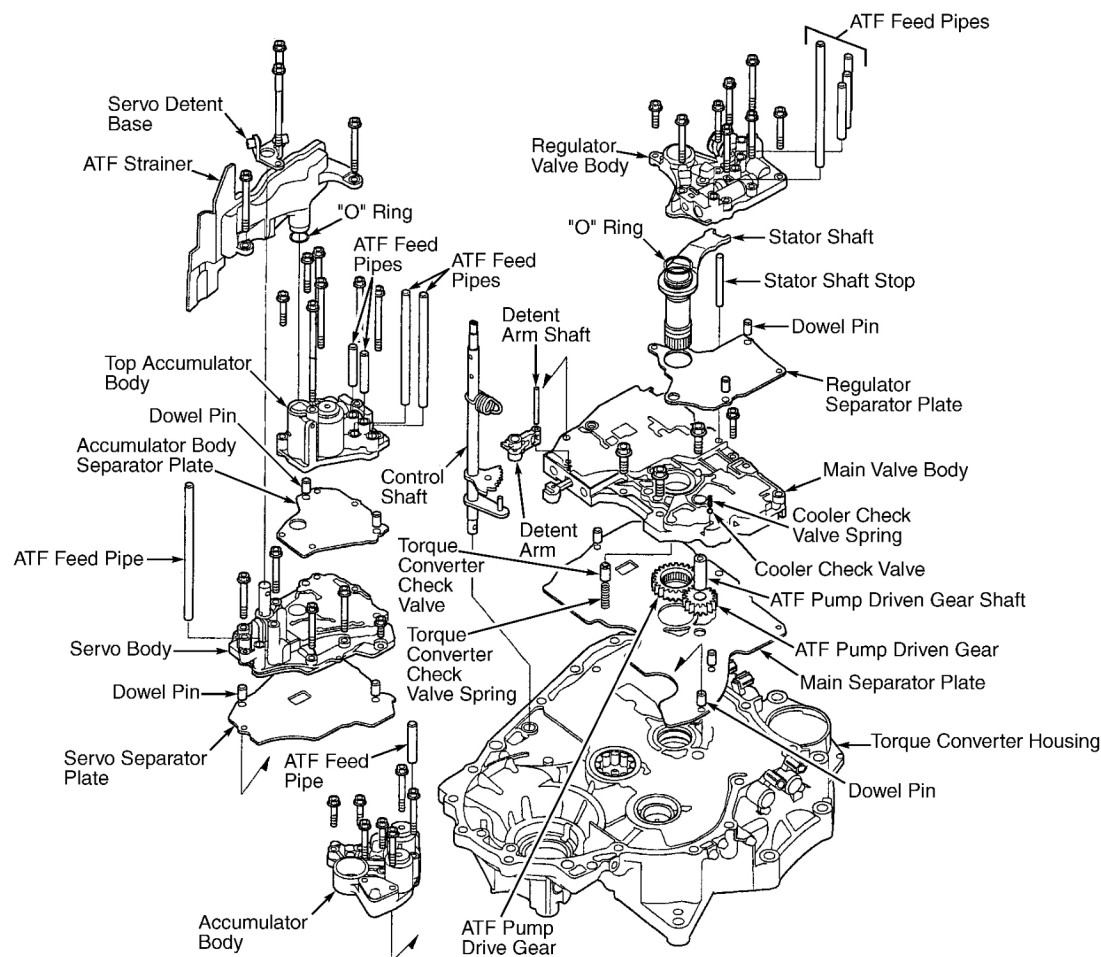
5. Move reverse idler gear to disengage from countershaft reverse gear. See **Fig. 6** . Align spring pin on control shaft with groove in transaxle housing by rotating control shaft. Using Puller (07MAC-PK40102), remove transaxle housing. See **Fig. 7** .
6. Remove reverse idler gear from transaxle housing. Remove countershaft 2nd gear, and slide countershaft reverse gear and needle bearing from housing. See **Fig. 8** . Remove bolt, bolt lock, shift fork, reverse selector hub, reverse selector from countershaft and countershaft 5th gear with needle bearing.
7. Remove secondary shaft sub-assembly, mainshaft and countershaft sub-assemblies from torque converter housing. Remove differential assembly from torque converter housing. Remove ATF feed pipes from servo valve body, top accumulator and accumulator valve body. Remove servo detent base. See **Fig. 9** . Remove bolts and fluid strainer.
8. Remove top accumulator body and separator plate with dowel pins. Remove servo body and separator plate with dowel pins. Remove regulator valve body. Remove stator shaft with "O" ring and stator shaft stop. Remove regulator separator plate and dowel pins. Disconnect detent spring from detent arm. Remove detent arm shaft, detent arm and control shaft. See **Fig. 9** .
9. Remove cooler check valve spring and cooler check valve (steel ball). Remove bolts and main valve body. Remove torque converter check valve and spring. Remove oil pump driven gear shaft, oil pump

driven and drive gears. Remove accumulator body. Remove main separator plate and dowel pins.



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Fig. 8: Exploded View Of Transaxle Housing & Shaft Assemblies
 Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 9: Exploded View Of Torque Converter Housing & Valve Bodies
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

COMPONENT DISASSEMBLY & REASSEMBLY

MAIN VALVE BODY

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

Disassembly

Disassemble main valve body. See **Fig. 12** . Use care when removing valve caps or spring seats, as they are under spring pressure.

Cleaning & Inspection

1. Clean components with solvent and dry with compressed air. Replace main valve body as an assembly if any parts are worn or damaged.
2. Ensure all valves slide freely in bores. If valves do not slide freely, see **VALVE BODY REPAIR PROCEDURES** . Thoroughly clean main valve body and components if polishing was needed.
3. Ensure spring free length is within specification. See **MAIN VALVE BODY SPRING SPECIFICATIONS** table. Replace springs if not within specification.

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

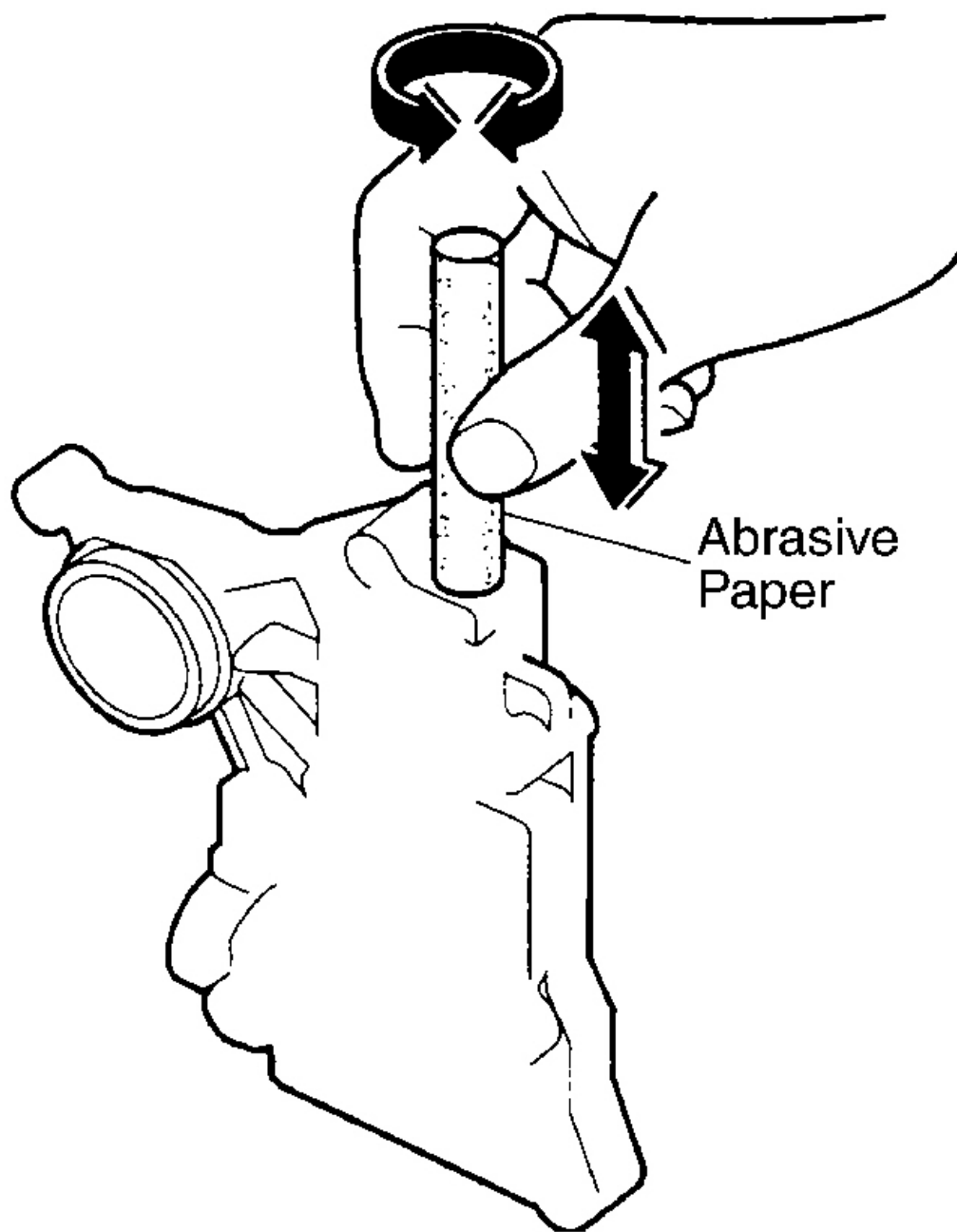
Valve Body Repair Procedures

NOTE: **This repair is only necessary if one or more of the valves in a valve body do not slide smoothly in their bores. Use this procedure to free the valves.**

1. Soak a sheet of No. 600 abrasive paper in ATF for about 30 minutes.
2. Carefully tap the valve body so the sticking valve drops out of its bore. It may be necessary to use a small screwdriver to pry the valve free. Be careful not to scratch the bore with the screwdriver.
3. Inspect the valve for any scuff marks. Use the ATF-soaked No. 600 paper to polish off any burrs that are on the valve, then wash the valve in solvent and dry it with compressed air.
4. Roll up half a sheet of ATF-soaked No. 600 paper and insert it in the valve bore of the sticking valve. See **Fig. 10** . Twist the paper slightly, so that it unrolls and fits the bore tightly, then polish the bore by twisting the paper as you push it in and out.

NOTE: **The valve body is aluminum and doesn't require much polishing to remove any burrs.**

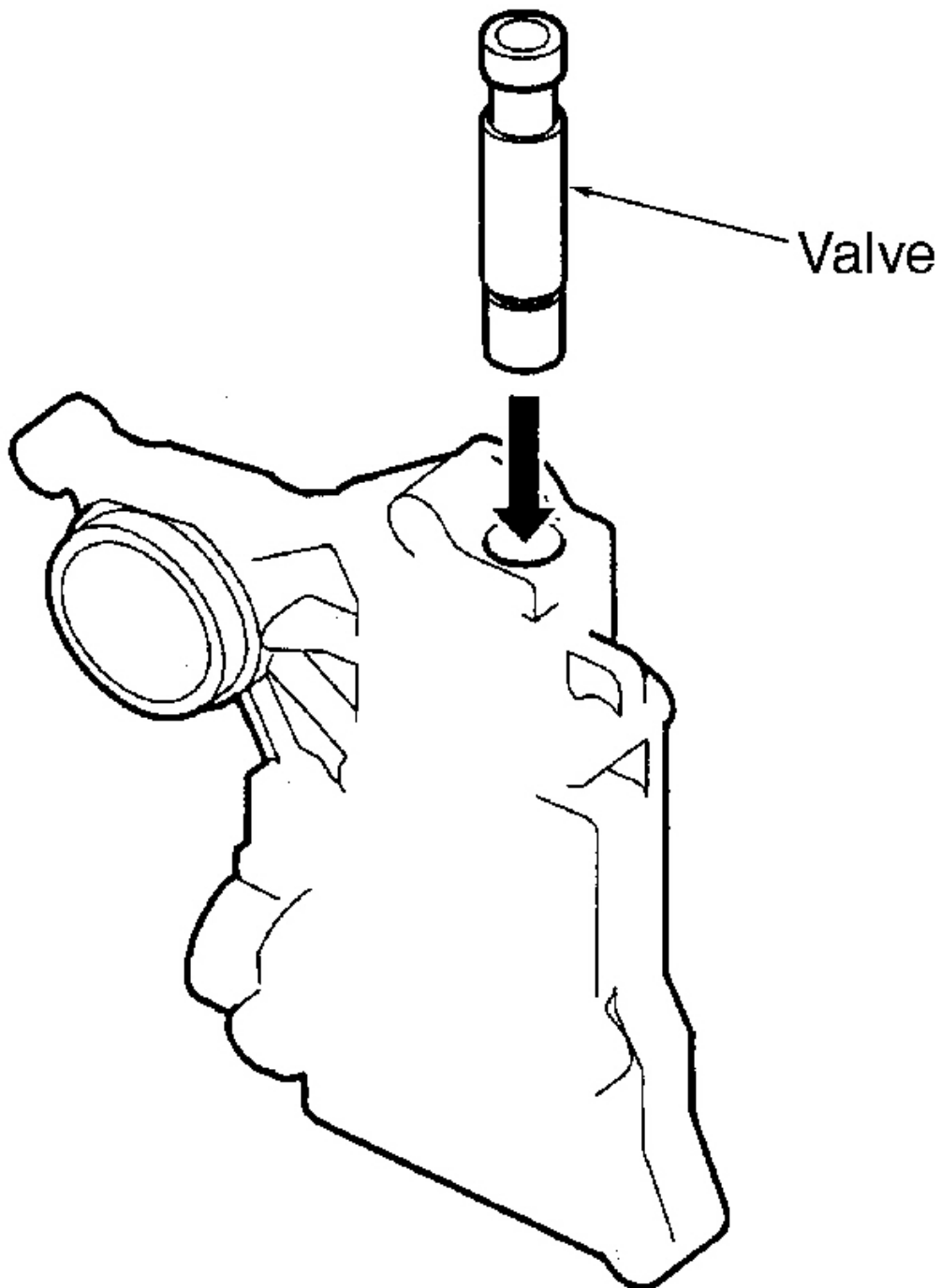
5. Remove the No. 600 paper. Thoroughly wash the entire valve body in solvent, then dry it with compressed air.
6. Coat the valve with ATF, then drop it into its bore. See **Fig. 11** . It should drop to the bottom of the bore under its own weight. If not, repeat steps 4 and 5 , then retest. If the valve still sticks, replace the valve body.
7. Remove the valve, and thoroughly clean it and the valve body with solvent. Dry all parts with compressed air, then reassemble using ATF as a lubricant.



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Fig. 10: Polishing Valve Body Bore

Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 11: Installing Valve In Bore

Courtesy of AMERICAN HONDA MOTOR CO., INC.

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. 12**.

MAIN VALVE BODY SPRING SPECIFICATIONS

Application	Free Length - In. (mm)
Cooler Check Valve Spring	.571 (14.5)
Kick-Down Valve Spring	1.933 (49.1)
Lock-Up Shift Valve Spring	2.480 (63.0)
Modulator Valve Spring	1.319 (33.5)
Relief Valve Spring	1.535 (39.0)
Reverse CPC Valve Spring	.701 (17.8)
Servo Control Valve Spring	1.280 (32.5)
Shift Valve "C" Spring	1.933 (49.1)
Shift Valve "D" Spring	1.327 (33.7)
Torque Converter Check Valve	1.354 (34.4)

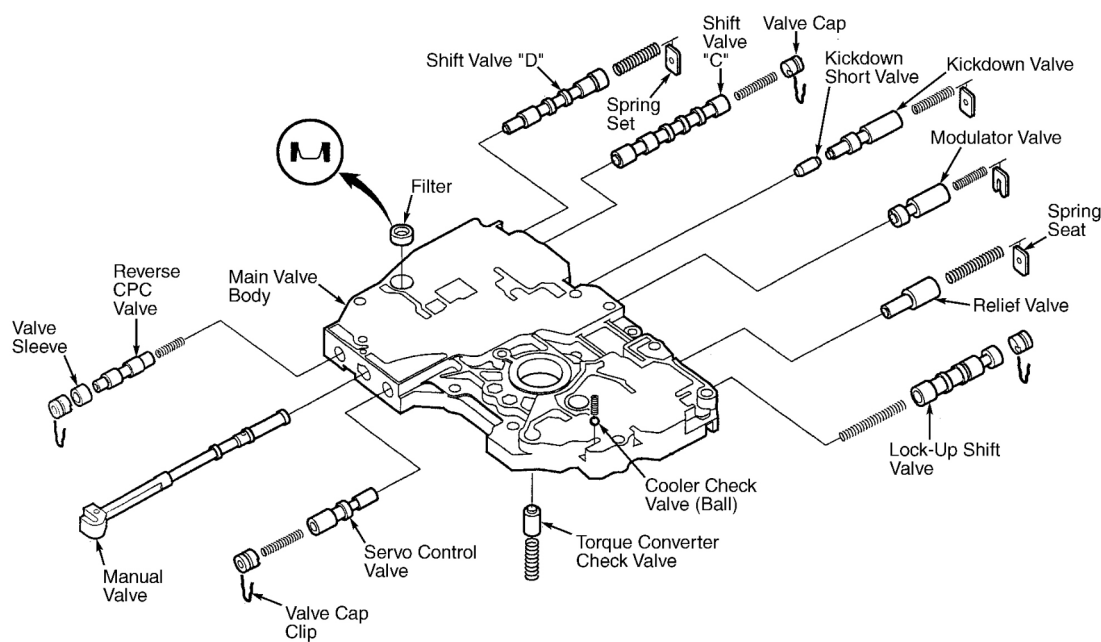


Fig. 12: Exploded View Of Main Valve Body
Courtesy of AMERICAN HONDA MOTOR CO., INC.

OIL PUMP

Disassembly

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

Cleaning & Inspection

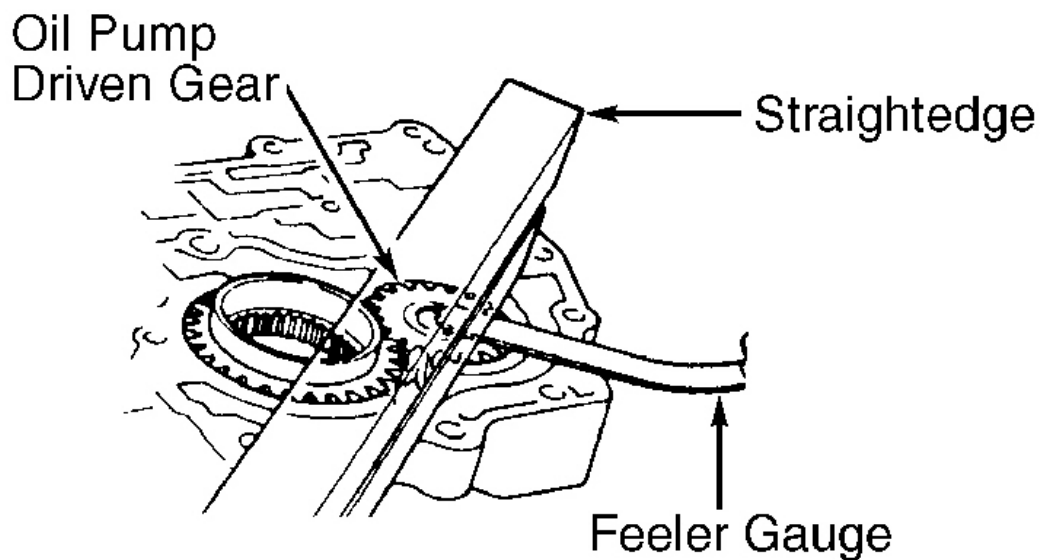
1. Clean components with solvent and dry with compressed air. Inspect components and replace if damaged.
2. Lubricate all parts with ATF prior to reassembly and inspection. Install oil pump gears and oil pump driven gear shaft in main valve body. Ensure chamfered and grooved side of oil pump driven gear is facing upward (toward separator plate side of main valve body).
3. Using feeler gauge, measure side clearance of both gears between tip of gear teeth and main valve body. See **Fig. 13** . Replace oil pump gears and/or main valve body if side clearance is not within specification. See **OIL PUMP SPECIFICATIONS** table.
4. Remove oil pump driven gear shaft. Place straightedge across main valve body surface. Using feeler gauge, measure thrust clearance between oil pump gears and straightedge. See **Fig. 13** . Replace oil pump gears and/or main valve body if thrust clearance is not within specification. See **OIL PUMP SPECIFICATIONS** table.

OIL PUMP SPECIFICATIONS

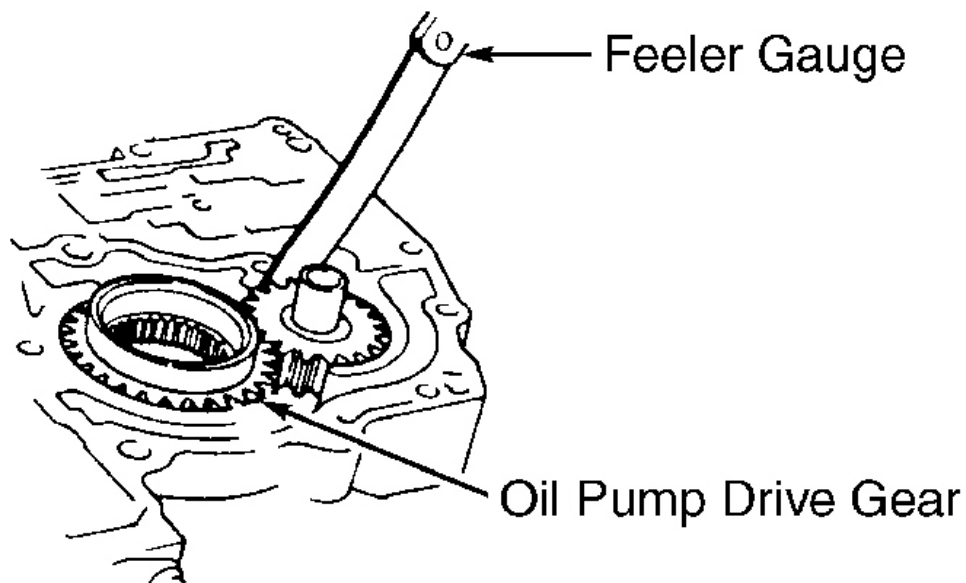
Application	In. (mm)
Side Clearance	
Oil Pump Drive Gear	.0083-.0104 (.210-.265)
Oil Pump Driven Gear	.0028-.0049 (.070-.125)
Thrust Clearance	
Standard	.0010-.0020 (.030-.050)
Wear Limit	.0028 (.070)

Reassembly

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



CHECKING THRUST CLEARANCE



CHECKING SIDE CLEARANCE

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Fig. 13: Measuring Oil Pump Clearances

Courtesy of AMERICAN HONDA MOTOR CO., INC.

REGULATOR VALVE BODY

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

Disassembly

Hold regulator spring cap downward. Remove stop bolt. Slowly remove regulator spring cap and components from regulator valve body. See **Fig. 14** .

Cleaning & Inspection

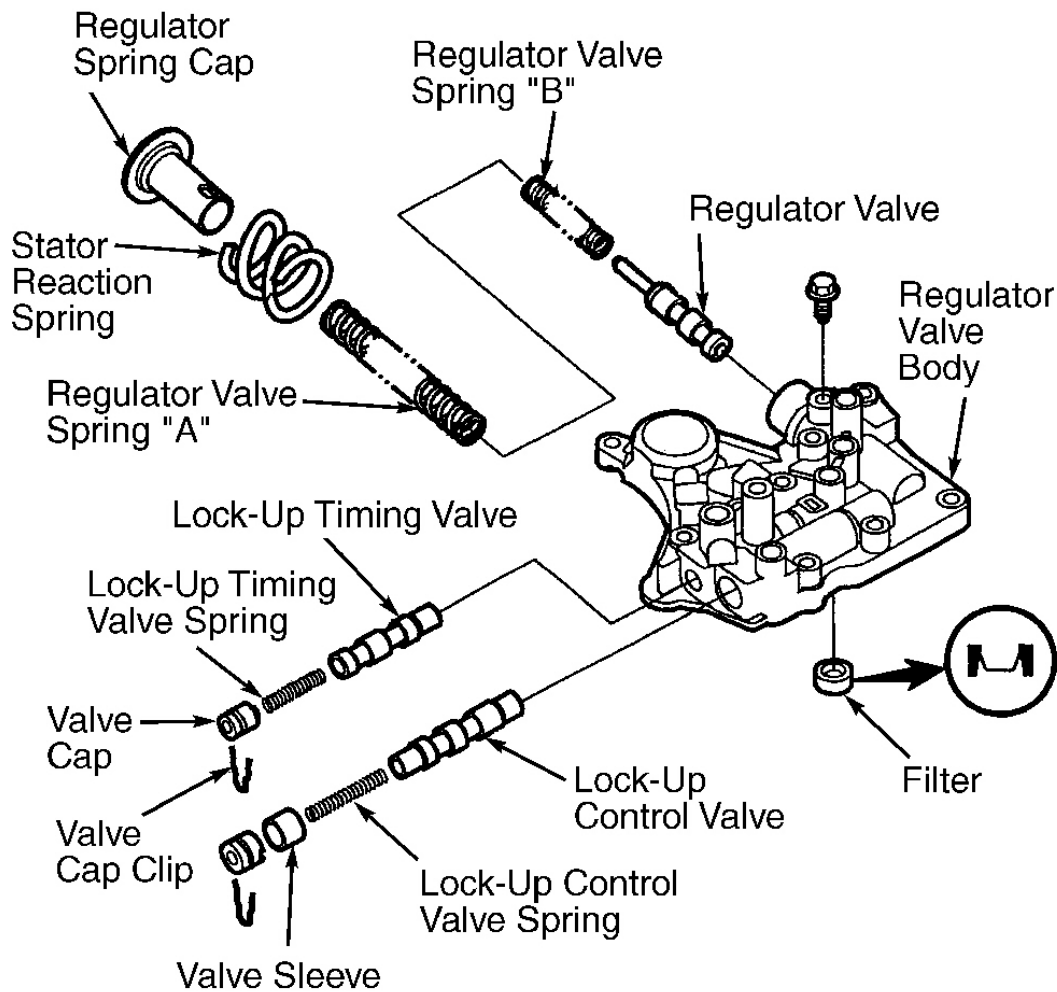
1. Clean components with solvent and dry with compressed air. Replace regulator valve body as an assembly if any parts are worn or damaged.
2. Ensure all valves slide freely in bores. If valves do not slide freely, see **VALVE BODY REPAIR PROCEDURES** under MAIN VALVE BODY. Thoroughly clean main valve body and components if polishing was needed.
3. Ensure spring free length is within specification. See **REGULATOR VALVE BODY SPRING SPECIFICATIONS** table. Replace springs if not within specification.

Reassembly

Coat all components and bores with ATF. To reassemble, reverse disassembly procedure. Install NEW filter. Ensure all components are installed in correct location. See **Fig. 14** . Tighten stop bolt to specification. See **TORQUE SPECIFICATIONS** .

REGULATOR VALVE BODY SPRING SPECIFICATIONS

Application	Free Length - In. (mm)
Lock-Up Control Valve Spring	1.689 (42.9)
Lock-Up Timing Valve Spring	1.370 (34.8)
Regulator Valve Spring "A"	3.173 (80.6)
Regulator Valve Spring "B"	1.732 (44.0)
Stator Reaction Spring	1.193 (30.3)



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Fig. 14: Exploded View Of Regulator Valve Body
Courtesy of AMERICAN HONDA MOTOR CO., INC.

SERVO BODY

Disassembly

Disassemble servo body. See **Fig. 15** . Use care when removing accumulator cover, as it is under spring pressure.

Cleaning & Inspection

NOTE: If replacement of either CPC valve spring is required, replace CPC valve springs "A" and "B", and A/T clutch pressure control solenoid valve A/B assembly as a

set.

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

Reassembly

Coat all components and bores with ATF. To reassemble, reverse disassembly procedure using NEW "O" rings. See **Fig. 15** .

SERVO VALVE BODY SPRING SPECIFICATIONS

Application	Free Length - In. (mm)
CPC Valve Spring "A"	.701 (17.8)
CPC Valve Spring "B"	.701 (17.8)
Shift Valve "A" Spring	1.933 (49.1)
Shift Valve "B" Spring	1.933 (49.1)

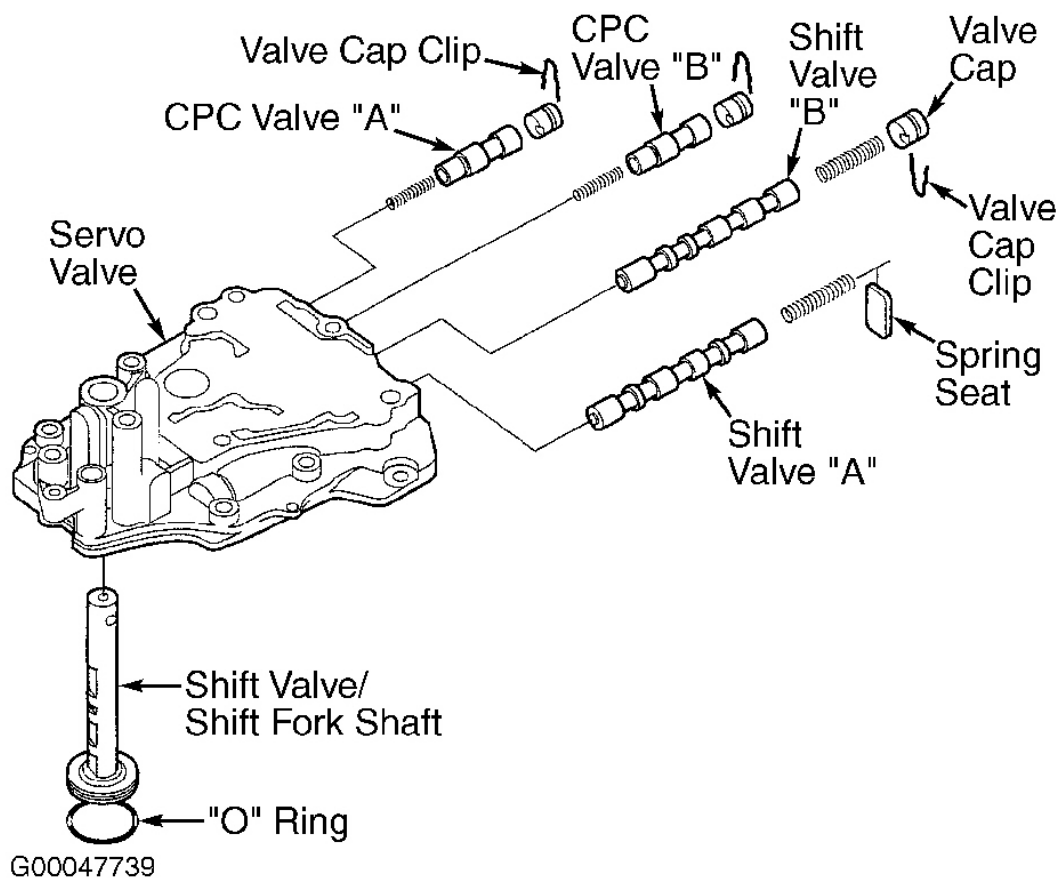


Fig. 15: Exploded View Of Servo Body

Courtesy of AMERICAN HONDA MOTOR CO., INC.

TOP ACCUMULATOR BODY

Disassembly

Disassemble top accumulator body. See **Fig. 16** . Use care when removing snap rings, as snap rings are under spring pressure. DO NOT use magnet to remove valves, as valves may become magnetized.

Cleaning & Inspection

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

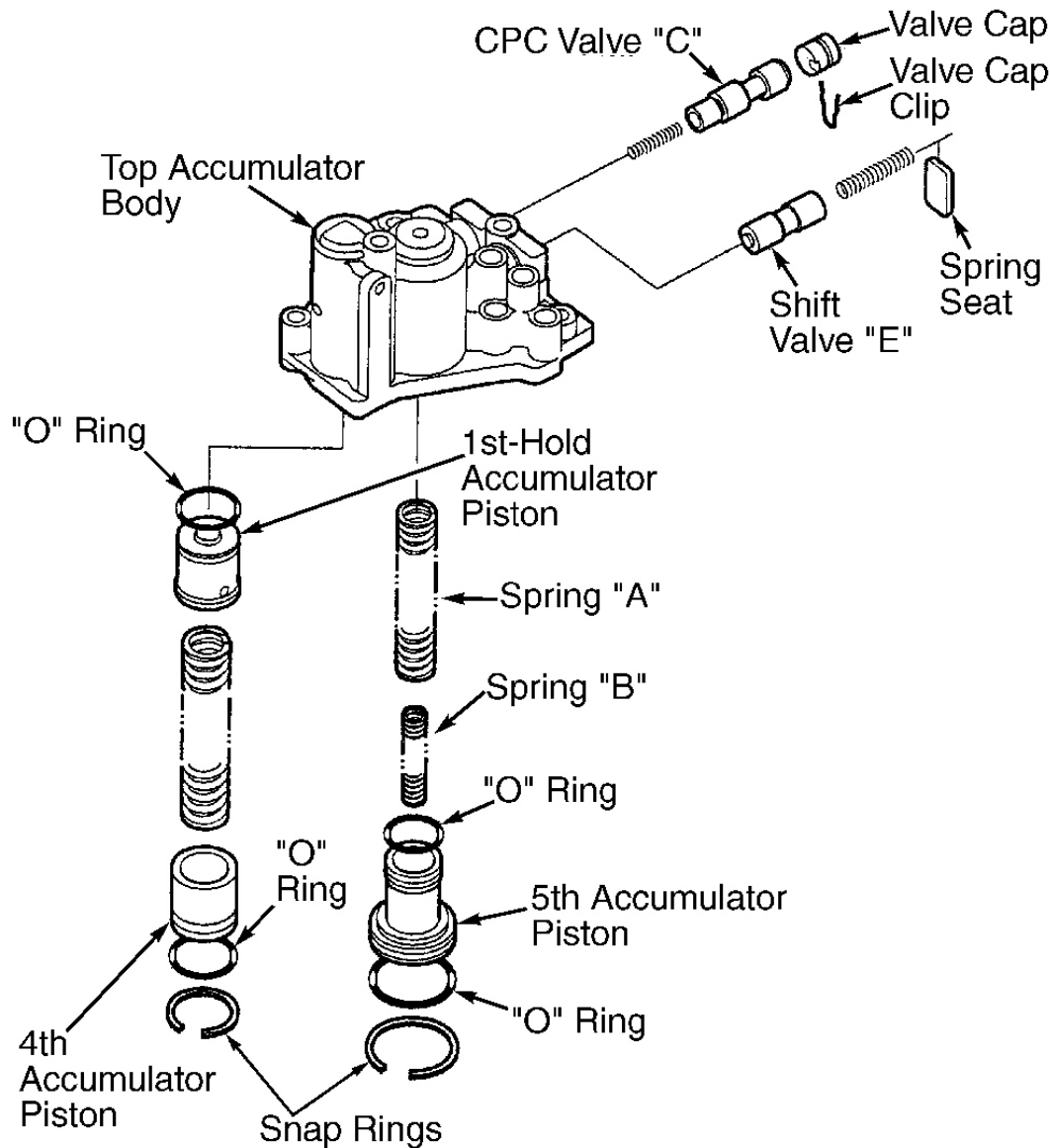
Reassembly

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

See **Fig. 16** .

TOP ACCUMULATOR VALVE BODY SPRING SPECIFICATIONS

Application	Free Length - In. (mm)
1st-Hold Accumulator Spring	2.260 (57.4)
5th Accumulator Spring "A"	2.980 (75.7)
5th Accumulator Spring "B"	1.791 (45.5)
CPC Valve "C"	.701 (17.8)
Shift Valve "E"	1.929 (49.0)



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

ACCUMULATOR BODY

Disassembly

Disassemble accumulator body. See **Fig. 17** . Use care when removing snap rings, as snap rings are under spring pressure. DO NOT use magnet to remove check ball, as check ball may become magnetized.

Cleaning & Inspection

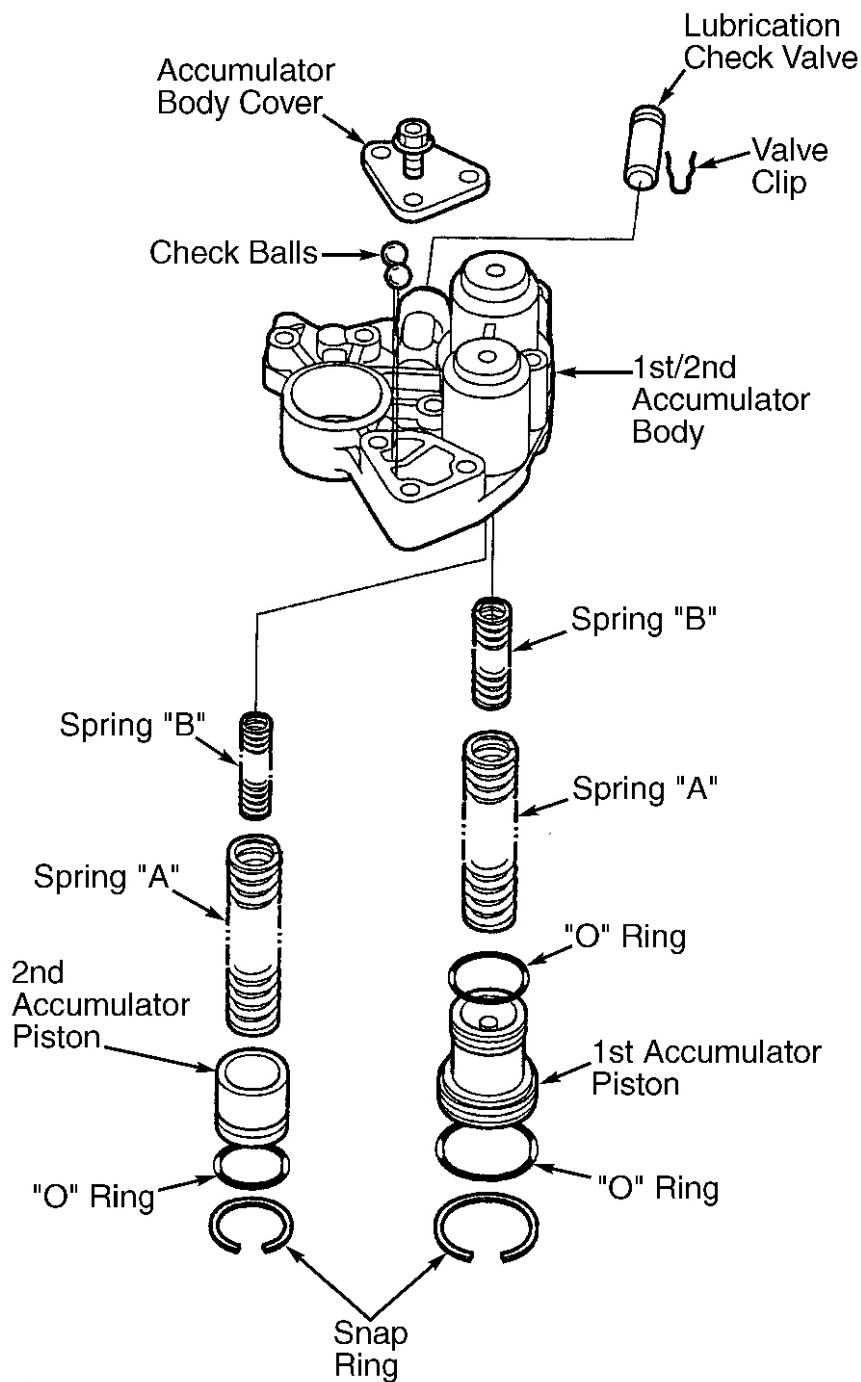
1. Clean components with solvent and dry with compressed air. Replace components if worn or damaged.
2. Ensure spring free length is within specification. See **ACCUMULATOR VALVE BODY SPRING SPECIFICATIONS** table. Replace springs if not within specification.

Reassembly

Coat all components and bores with ATF. To reassemble, reverse disassembly procedure using NEW "O" rings. See **Fig. 17** .

ACCUMULATOR VALVE BODY SPRING SPECIFICATIONS

Application	Free Length - In. (mm)
1st Accumulator Spring "A"	2.665 (67.7)
1st Accumulator Spring "B"	1.654 (42.0)
2nd Accumulator Spring "A"	2.272 (57.7)
2nd Accumulator Spring "B"	1.732 (44.0)



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

3RD ACCUMULATOR & END COVER

Disassembly

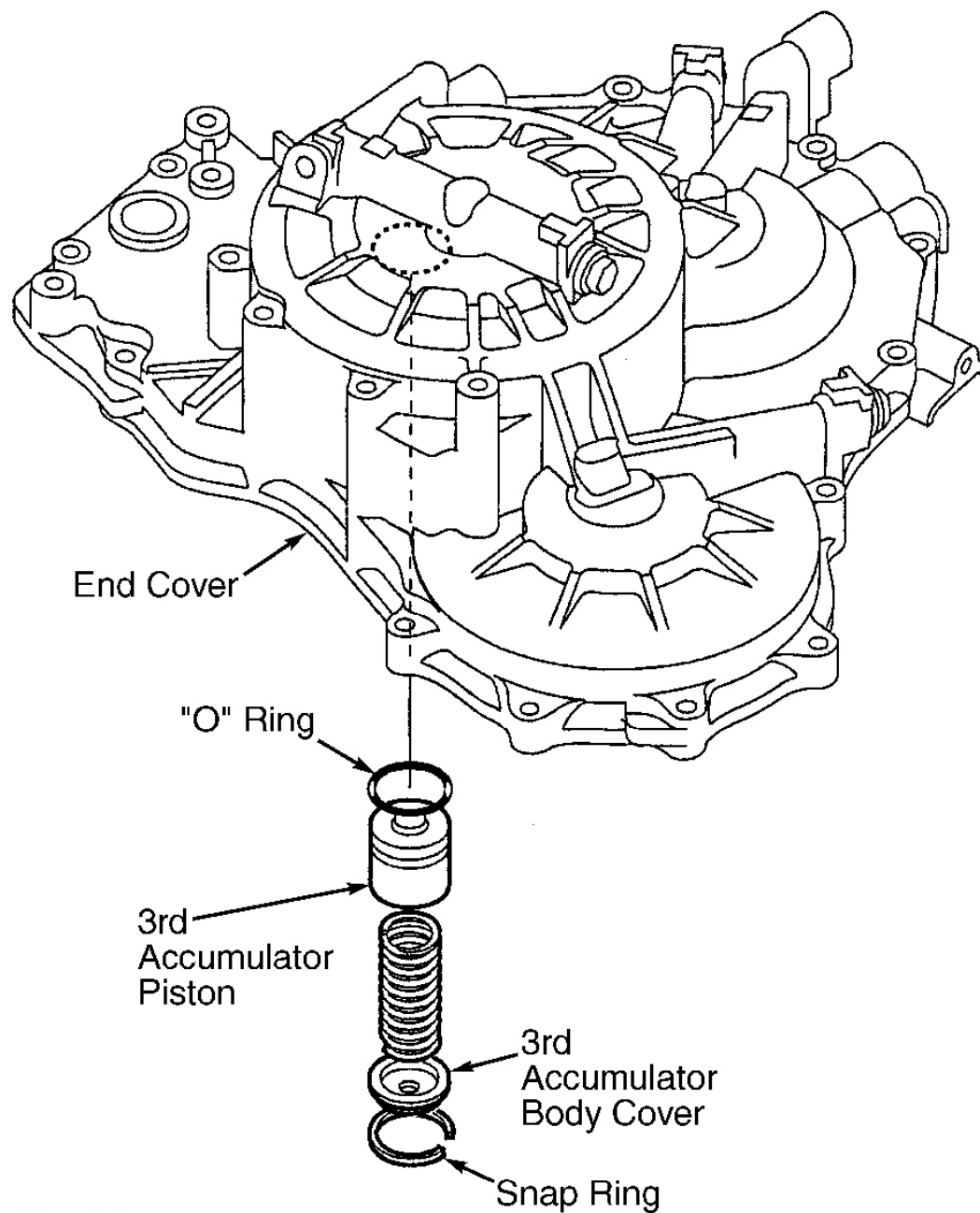
Disassemble 3rd accumulator from end cover. See **Fig. 18** . Use care when removing snap ring, as snap ring is under spring pressure.

Cleaning & Inspection

1. Clean components with solvent and dry with compressed air. Replace components if worn or damaged.
2. Ensure spring free length is within specification. Spring should be 1.551" (39.4 mm). Replace spring if not within specification.

Reassembly

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



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Fig. 18: Exploded View Of 3rd Accumulator & End Cover
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

MAINSHAFT

Disassembly

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

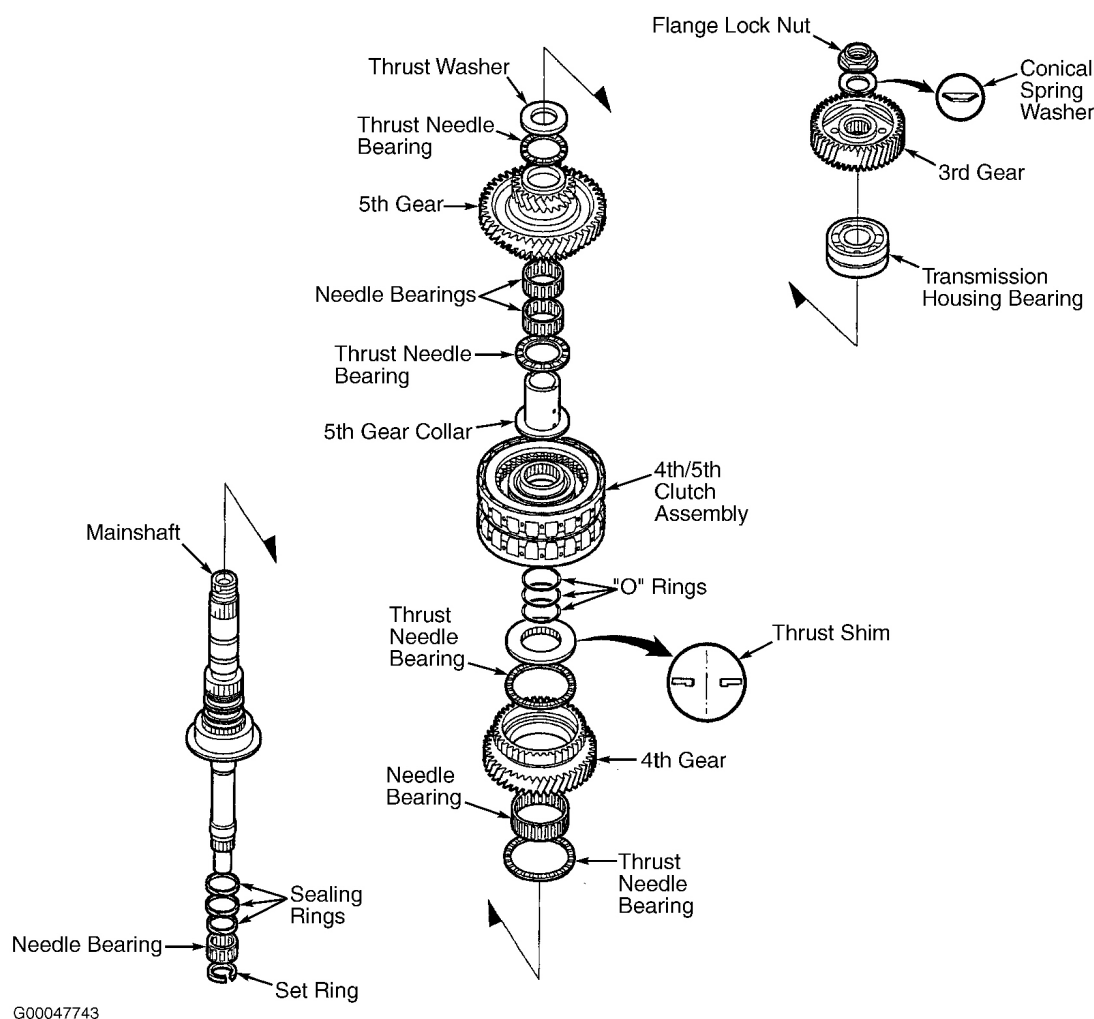


Fig. 19: Exploded View Of Mainshaft

Courtesy of AMERICAN HONDA MOTOR CO., INC.

Cleaning & Inspection

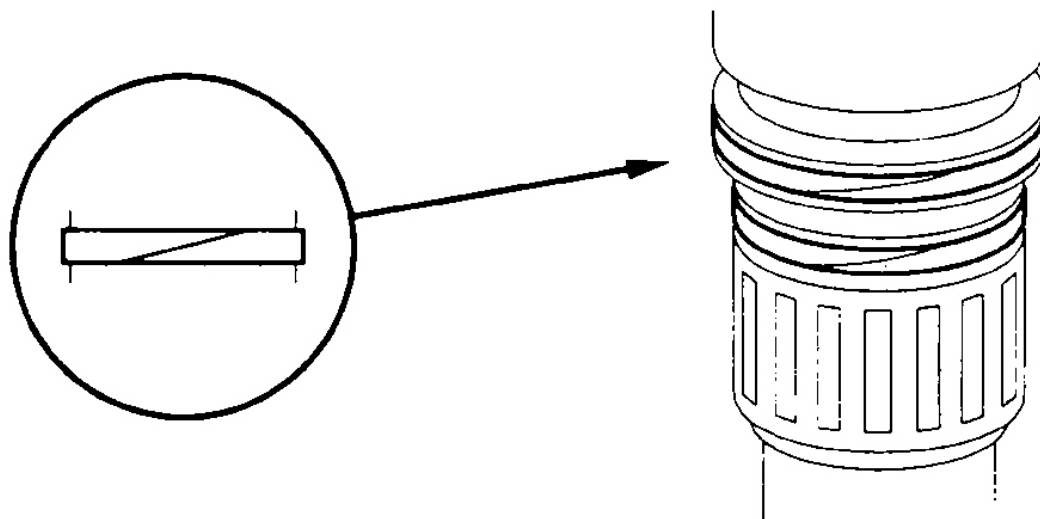
Clean components with solvent and dry with compressed air. Inspect splines for excessive wear. Check bearing surfaces for scoring or wear. Inspect all needle bearings for galling and rough movement.

Mainshaft Sealing Ring Replacement

NOTE: The sealing rings are synthetic resin with chamfered ends. Check the condition of the sealing rings, and replace them only if they are worn, distorted, or damaged.

1. For a better fit, squeeze sealing rings together slightly before installing them.

2. Apply ATF to the new sealing rings then install them on the mainshaft.
3. After installing the sealing rings, verify the following:
 - The rings are fully seated in the groove.
 - The rings are not twisted.
 - The chamfered ends of the rings are properly joined. See **Fig. 20**.



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Fig. 20: Identifying Sealing Ring Installation
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Reassembly

1. Lubricate components with ATF. Reassemble mainshaft with thrust shim, 4th-5th clutch assembly and 5th gear collar only. See **Fig. 19**. Assemble mainshaft without "O" rings. Ensure thrust shim is installed.
2. Hold 5th gear collar against 4th-5th clutch assembly. Using feeler gauge, measure clearance between clutch guide of 4th-5th clutch assembly and 5th gear collar at 3 places. Average the 3 measurements to obtain mainshaft clearance. See **Fig. 21**.
3. Replace thrust shim if clearance is not .001-.004" (.03-.11 mm). Thrust shims range in thickness from .309" (7.85 mm) to .319" (8.10 mm) in .002" (.05 mm) increments. Install selected thrust shim (if necessary) and recheck clearance.
4. Reassemble mainshaft. Ensure thrust needle bearings are installed with unrolled edge of bearing retainer facing washer. Before installing NEW "O" rings on mainshaft, wrap splines on mainshaft with tape to prevent damage to "O" rings. Slightly squeeze sealing rings before installing. Ensure rings are fully seated in grooves.

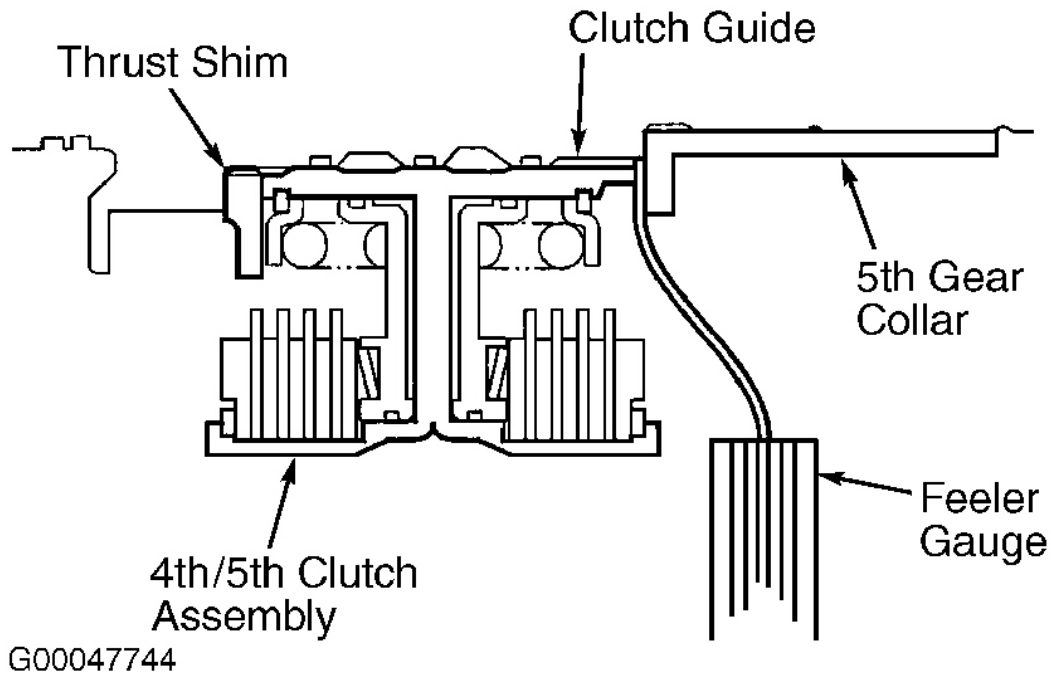


Fig. 21: Measuring 4th-5th Clutch Assembly Clearance
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

COUNTERSHAFT

NOTE: Lock nut has left-hand threads.

Disassembly

1. Note location of countershaft components. See [Fig. 22](#) or [Fig. 23](#) . Remove countershaft components down to reverse selector hub.

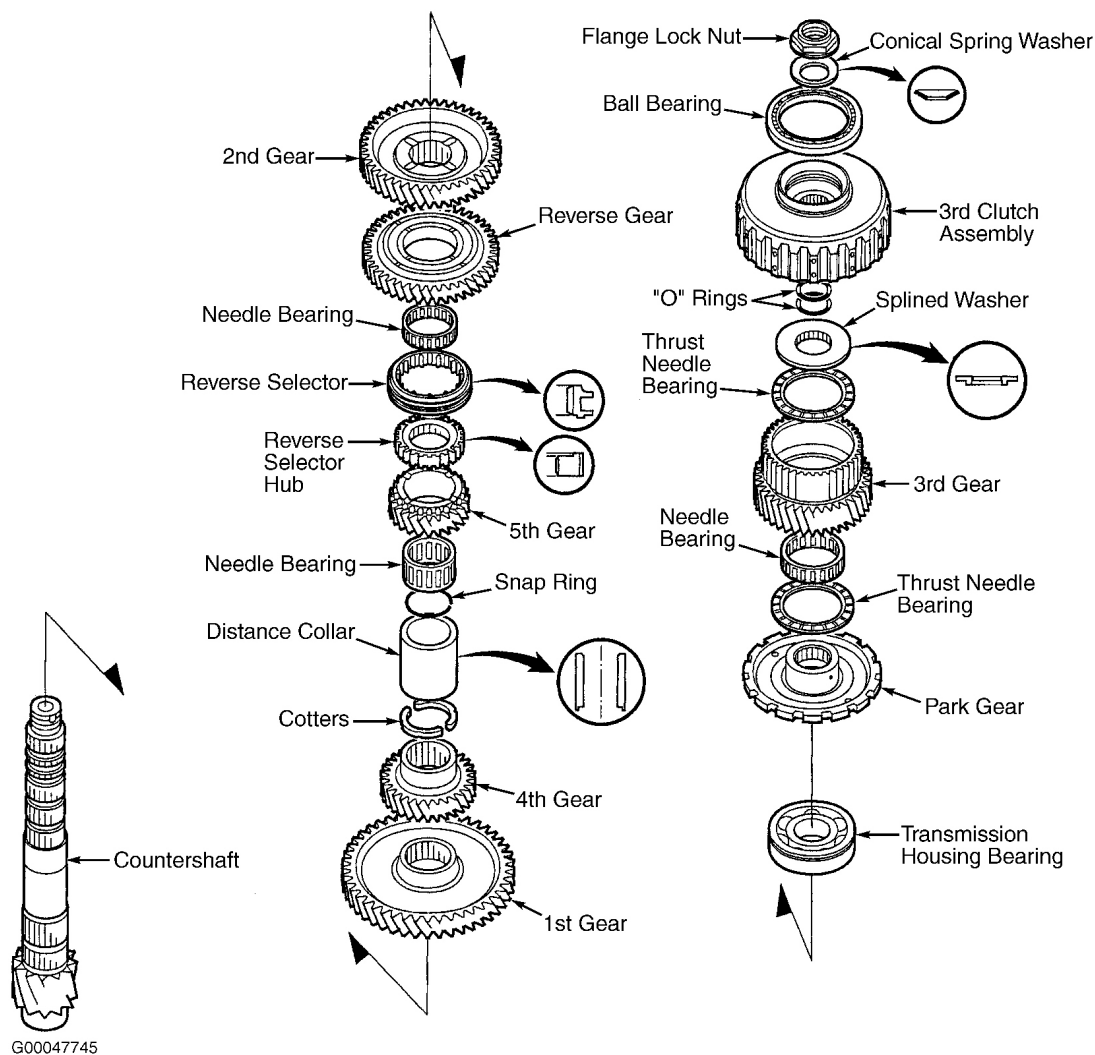


Fig. 22: Exploded View Of Countershaft (2001 Models)
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

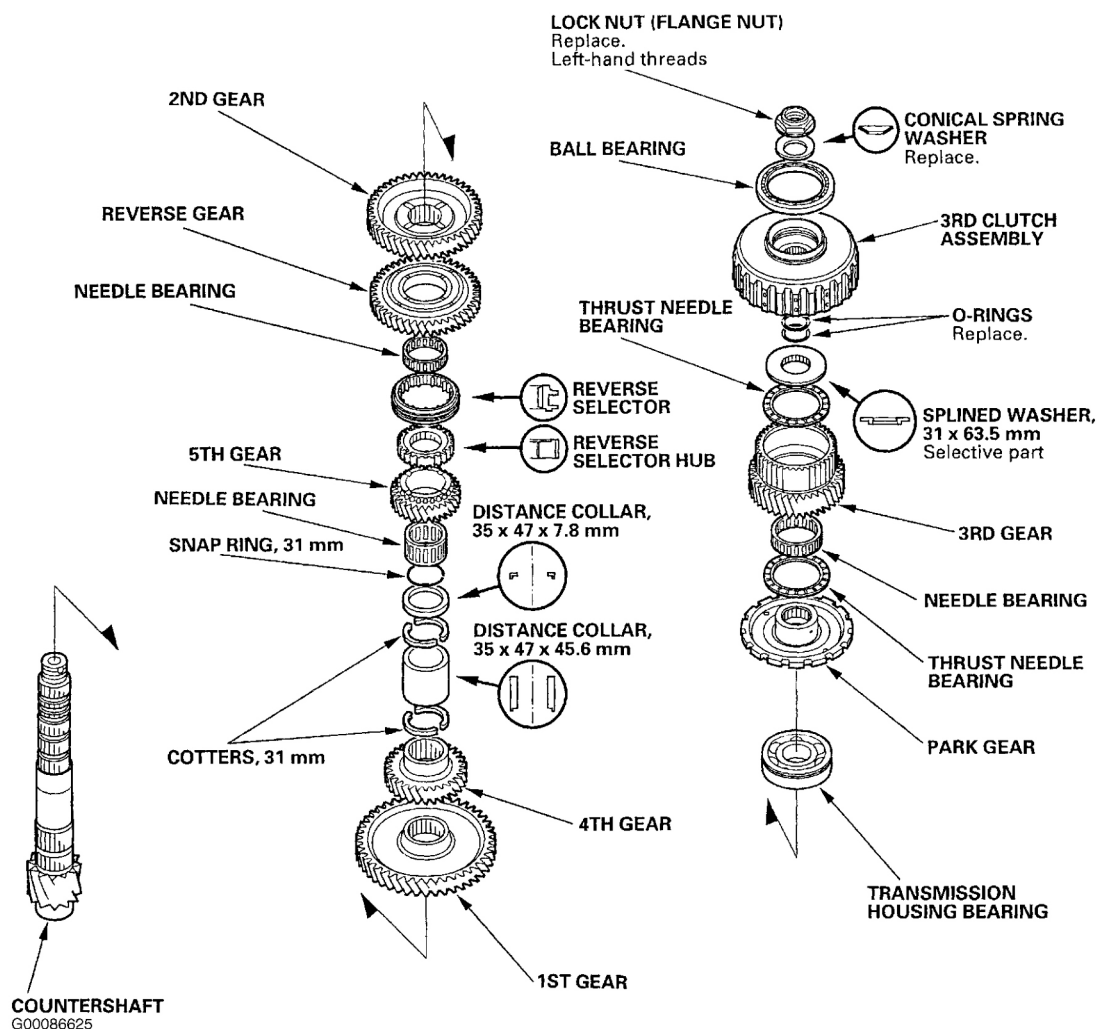


Fig. 23: Exploded View Of Countershaft (2002-03 Models)
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

- Using 2 or 3-jaw puller (if needed), remove reverse selector hub and 5th gear. Ensure countershaft is protected during pulling process. Remove remaining components from countershaft. Press off 1st and 4th gear as an assembly.

Cleaning & Inspection

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

Reassembly

- Lubricate all components with ATF. Align countershaft 1st gear splines with countershaft splines. Install countershaft into countershaft 1st gear. Align splines for countershaft 4th gear and press countershaft into countershaft 4th gear.

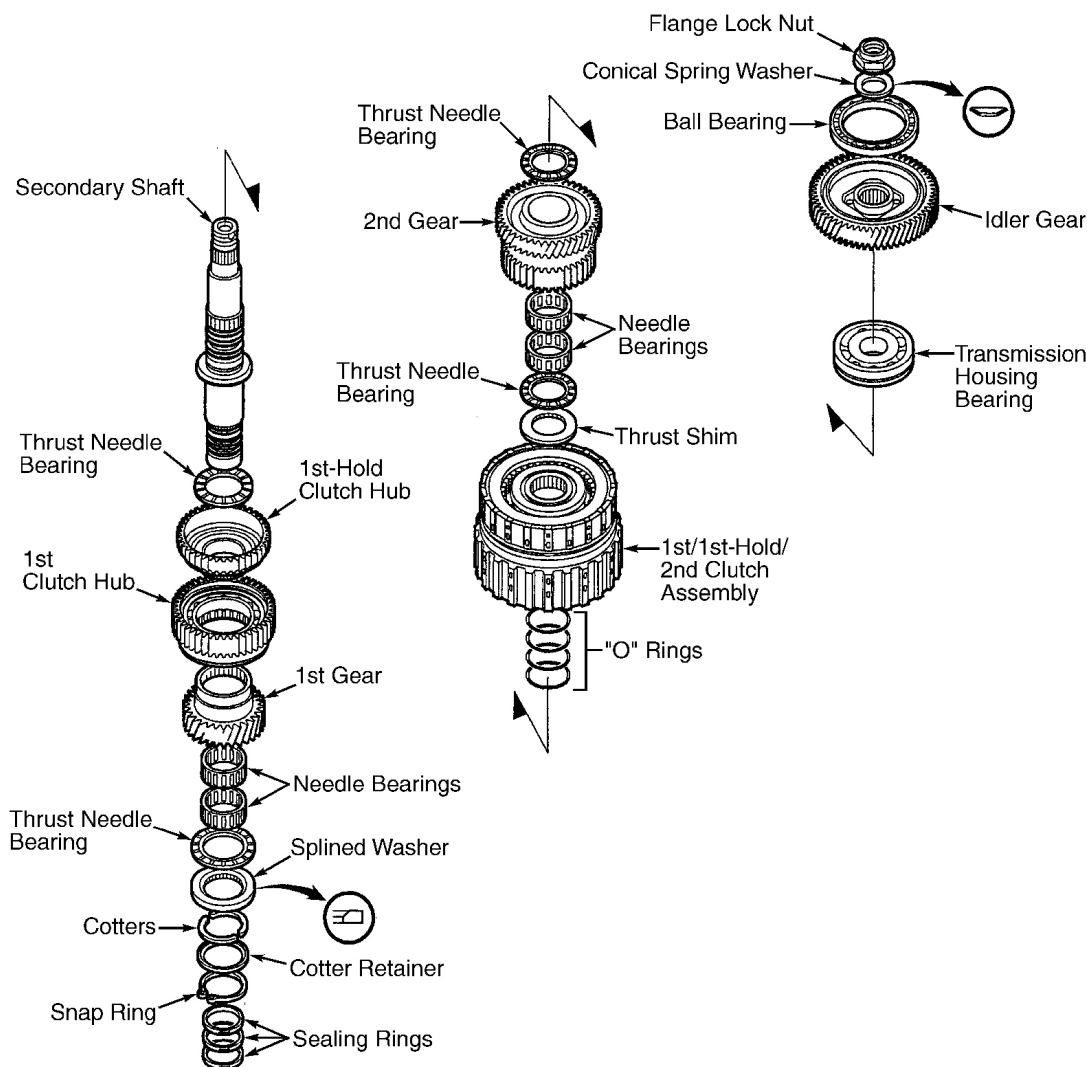
2. Install remaining components. See **Fig. 22** or **Fig. 23** . Using appropriate driver, press reverse selector hub onto countershaft 4th gear. Install remaining components.

SECONDARY SHAFT

NOTE: Lock nut has left-hand threads.

Disassembly

Note location of secondary shaft components. See **Fig. 24** . Remove secondary shaft components.



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Fig. 24: Exploded View Of Secondary Shaft
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Cleaning & Inspection

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

Reassembly

1. Lubricate all components with ATF. Reassemble all secondary shaft components on 1st gear side of secondary shaft between thrust needle bearing and snap ring, without "O" rings. See **Fig. 24** . Ensure thrust needle bearings are installed with unrolled edge of bearing retainer facing washer.
2. Check secondary shaft 1st gear clearance. Using feeler gauge, measure clearance between splined washer and cotters at 3 places on splined washer. Average the 3 measurements to obtain secondary shaft 1st gear clearance. See **Fig. 25** .

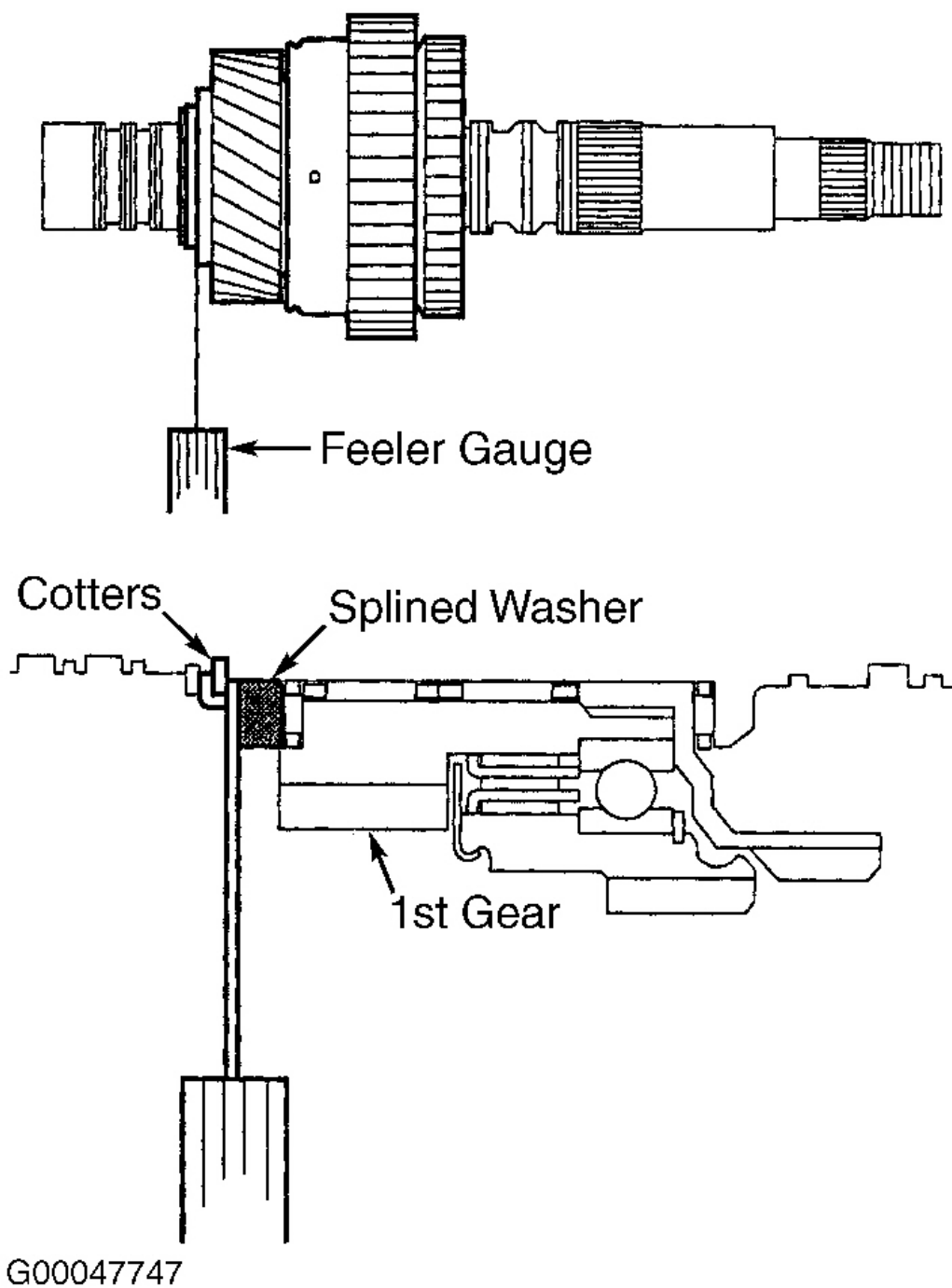
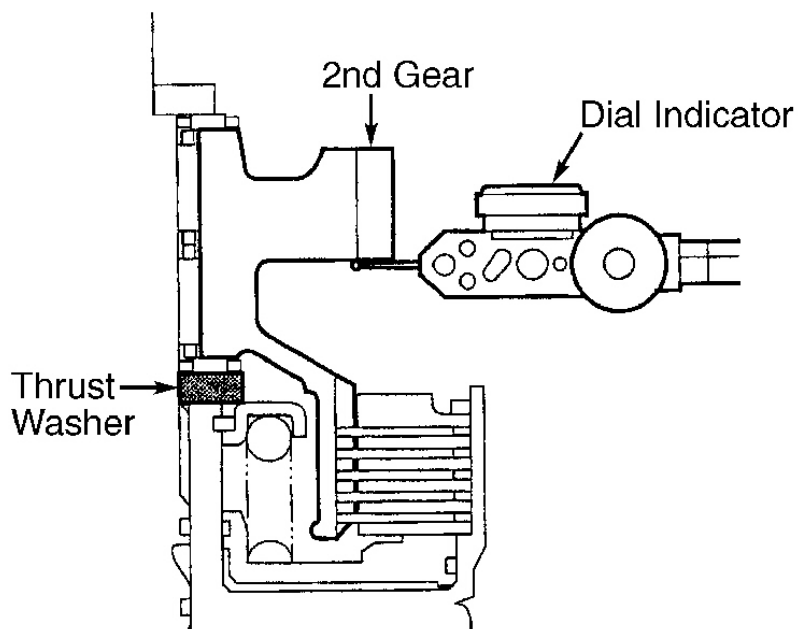
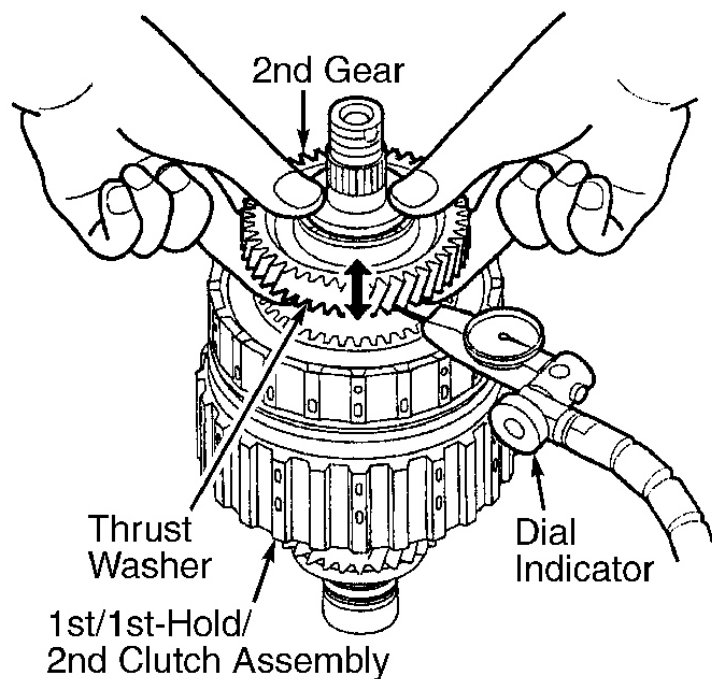


Fig. 25: Measuring 1st Gear Clearance

Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Replace splined washer if secondary shaft 1st gear clearance is not .003-.006" (.07-.15 mm). Splined washers range in thickness from .270" (6.85 mm) to .280" (7.10 mm) in .002" (.05 mm) increments. Install selected splined washer (if necessary) and recheck clearance.
4. Reassemble all secondary shaft components on 1st, 1st-hold and 2nd clutch assembly side of secondary shaft between 1st, 1st-hold and 2nd clutch assembly and 2nd gear thrust washer (27 x 47 x 5 mm), without "O" rings. See [Fig. 24](#) . Ensure thrust needle bearings are installed with unrolled edge of bearing retainer facing washer.
5. Mount dial indicator with stem against secondary shaft 2nd gear. See [Fig. 26](#) . Push secondary shaft 2nd gear inward (toward 1st, 1st-hold and 2nd clutch) and zero dial indicator.
6. Pull secondary shaft 2nd gear outward and note axial clearance. This is the secondary shaft 2nd gear clearance. Check secondary shaft 2nd gear clearance at 3 places on secondary shaft 2nd gear. Average the 3 measurements to obtain secondary shaft 2nd gear clearance.
7. Replace splined washer located next to 1st, 1st-hold and 2nd clutch assembly if secondary shaft 2nd gear clearance is not .002-.005" (.04-.12 mm). Splined washers range in thickness from .193" (4.90 mm) to .205" (5.20 mm) in .002" (.05 mm) increments. Install selected splined washer (if necessary) and recheck clearance.
8. Lubricate all components with ATF. Reassemble secondary shaft. Ensure thrust needle bearings are installed with unrolled edge of bearing retainer facing washer. Before installing NEW "O" rings on secondary shaft, wrap splines on secondary shaft with tape to prevent damage to "O" rings.



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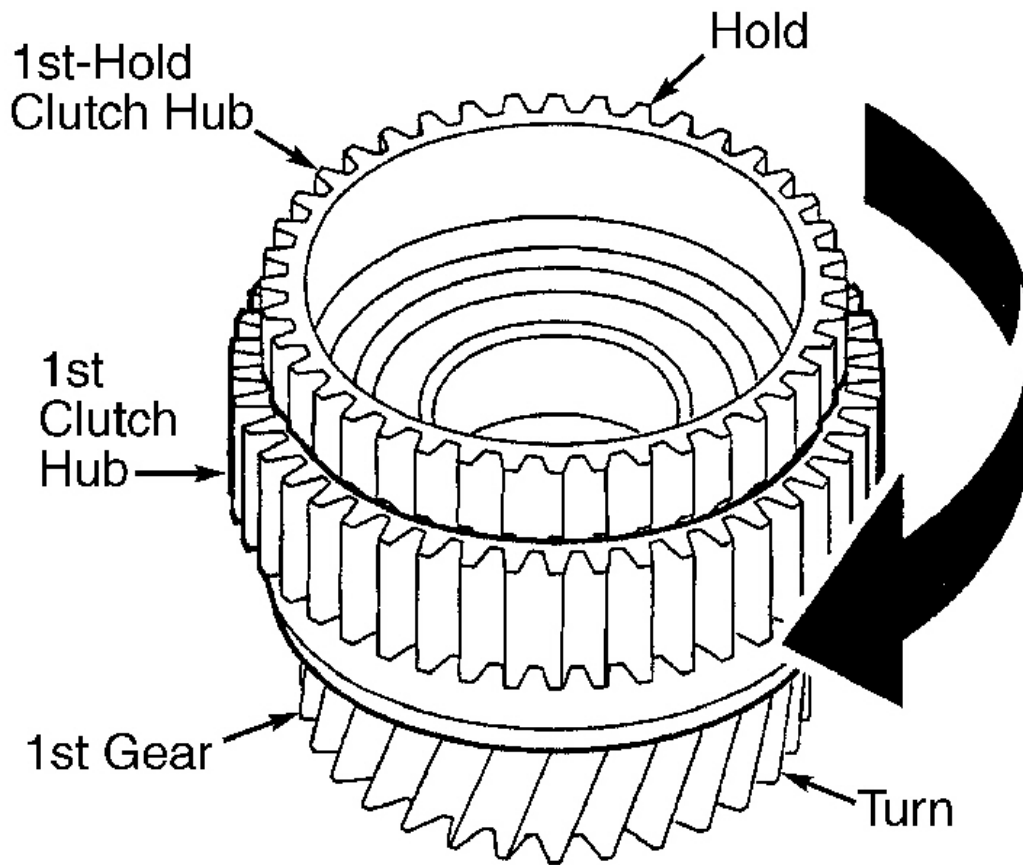
Fig. 26: Measuring Secondary Shaft 2nd Gear Clearance
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

1ST GEAR ONE-WAY CLUTCH

Inspection

NOTE: 1st gear one-way clutch is not available from manufacturer separately from 1st clutch hub.

Hold 1st-hold clutch hub and turn 1st gear. 1st gear should turn in clockwise direction and lock in counterclockwise direction. See **Fig. 27** . If one-way clutch does not operate as specified, replace 1st clutch hub.



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Fig. 27: Checking 1st Gear 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. 28 -Fig. 30** .

2. Remove disc spring from 1st, 3rd, 4th and 5th clutches. Note direction of disc spring installation.
3. Using clutch spring compressor, compress return spring. Remove snap ring. Release and remove clutch spring compressor. 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. Blow out all passages with compressed air. Ensure check valve on rear of clutch piston is thoroughly cleaned and securely fastened on clutch piston.
2. Inspect components for damage. Ensure check valve on 3rd and 4th pistons is tight. If check valve is loose, replace piston. Replace if necessary. Ensure no rough edges exist on "O" ring sealing areas.

Reassembly

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

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

2. Install return spring and spring retainer in clutch drum. Place snap ring on spring retainer. Using clutch spring compressor, compress return spring. Install snap ring. Remove clutch spring compressor.
3. On 1st, 3rd, 4th and 5th clutches, install disc spring. Ensure disc spring is installed in proper direction. See **Fig. 28 -Fig. 30** .

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

4. Alternately install clutch plates and clutch discs starting with clutch plate. Install clutch end plate with flat side toward clutch disc. Install snap ring.
5. Using dial indicator, measure clutch clearance between clutch end plate and top clutch disc. See **Fig. 31** . 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. End plates for 1st clutch range in thickness from .122" (3.10 mm) to .154" (3.90 mm) in .004" (.10 mm) increments. End plates for 2nd, 3rd, 4th and 5th clutches range in thickness from .083" (2.10 mm) to .114" (2.90 mm) in .004" (.10 mm) increments.

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	.043-.051 (1.10-1.30)
2nd Clutch	
Premium Model	.028-.035 (.70-.90)
Type "S" Model	.033-.041 (.85-1.05)
3rd Clutch	.028-.035 (.70-.90)
4th Clutch	.022-.030 (.55-.75)
5th Clutch	.022-.030 (.55-.75)
1st-Hold Clutch	.020-.035 (.50-.90)

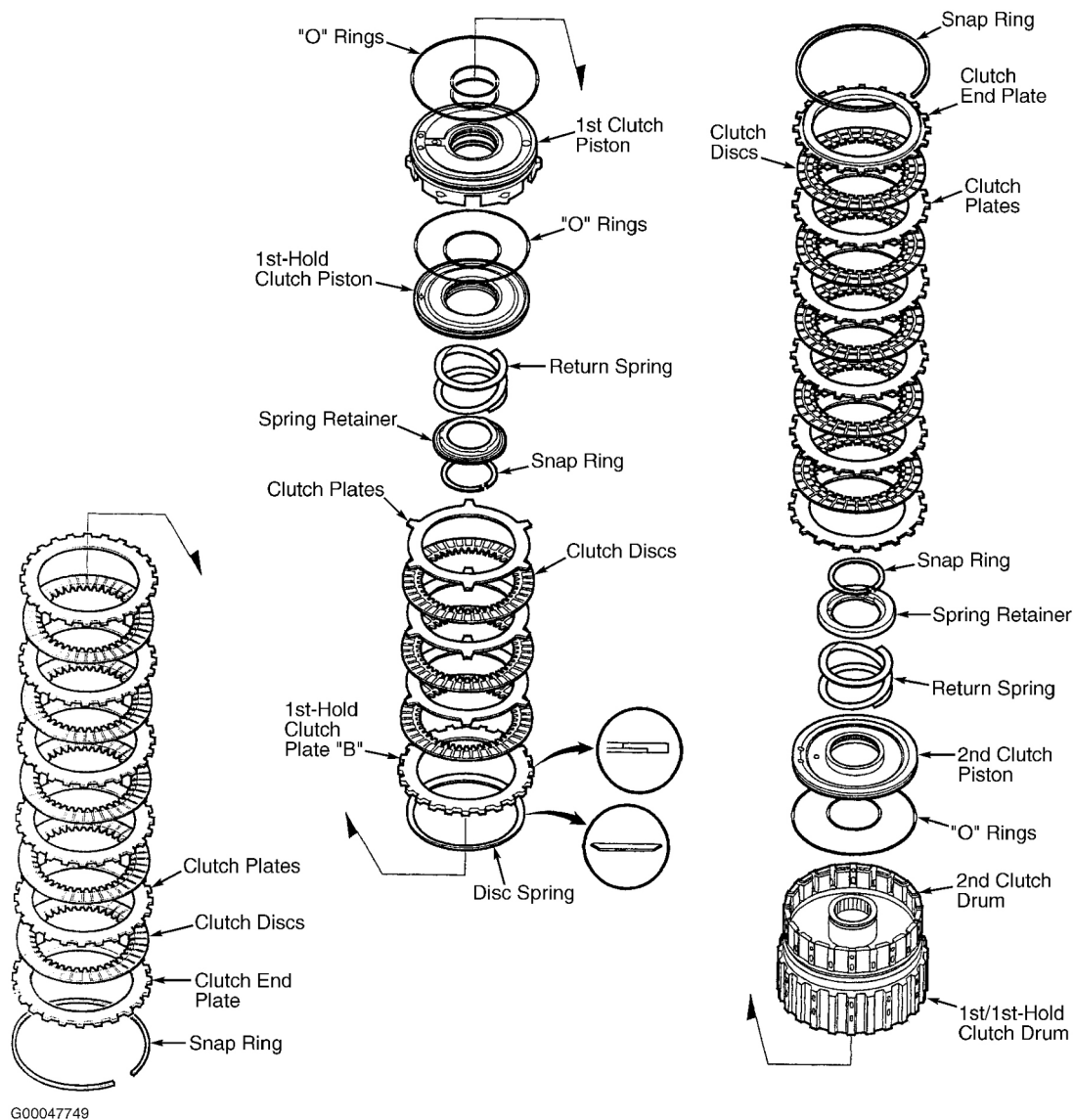
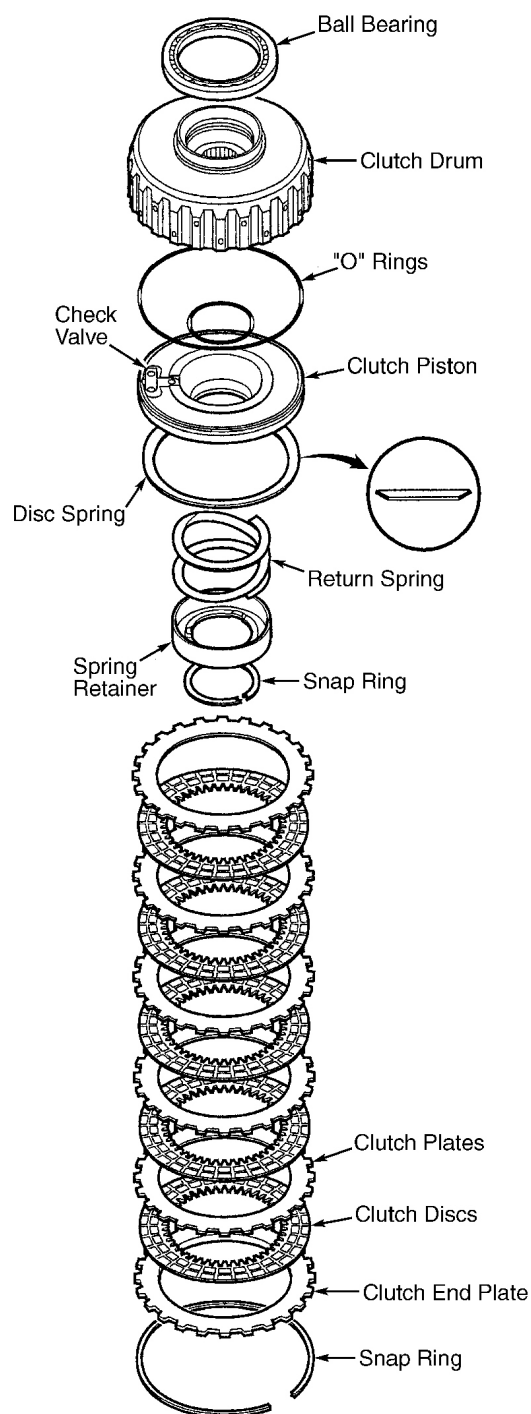


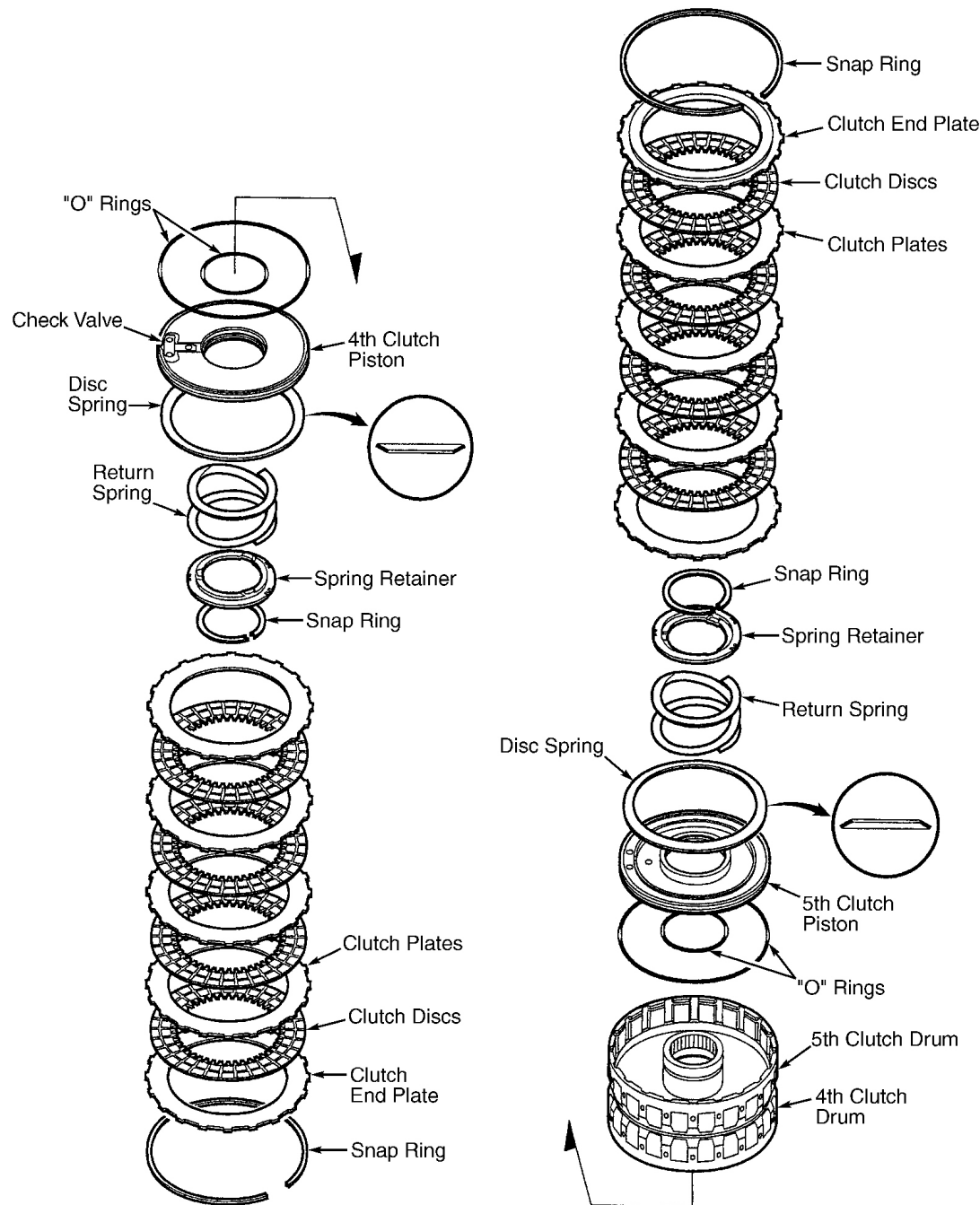
Fig. 28: Exploded View Of 1st, 1st-Hold & 2nd Clutch Assembly

Courtesy of AMERICAN HONDA MOTOR CO., INC.



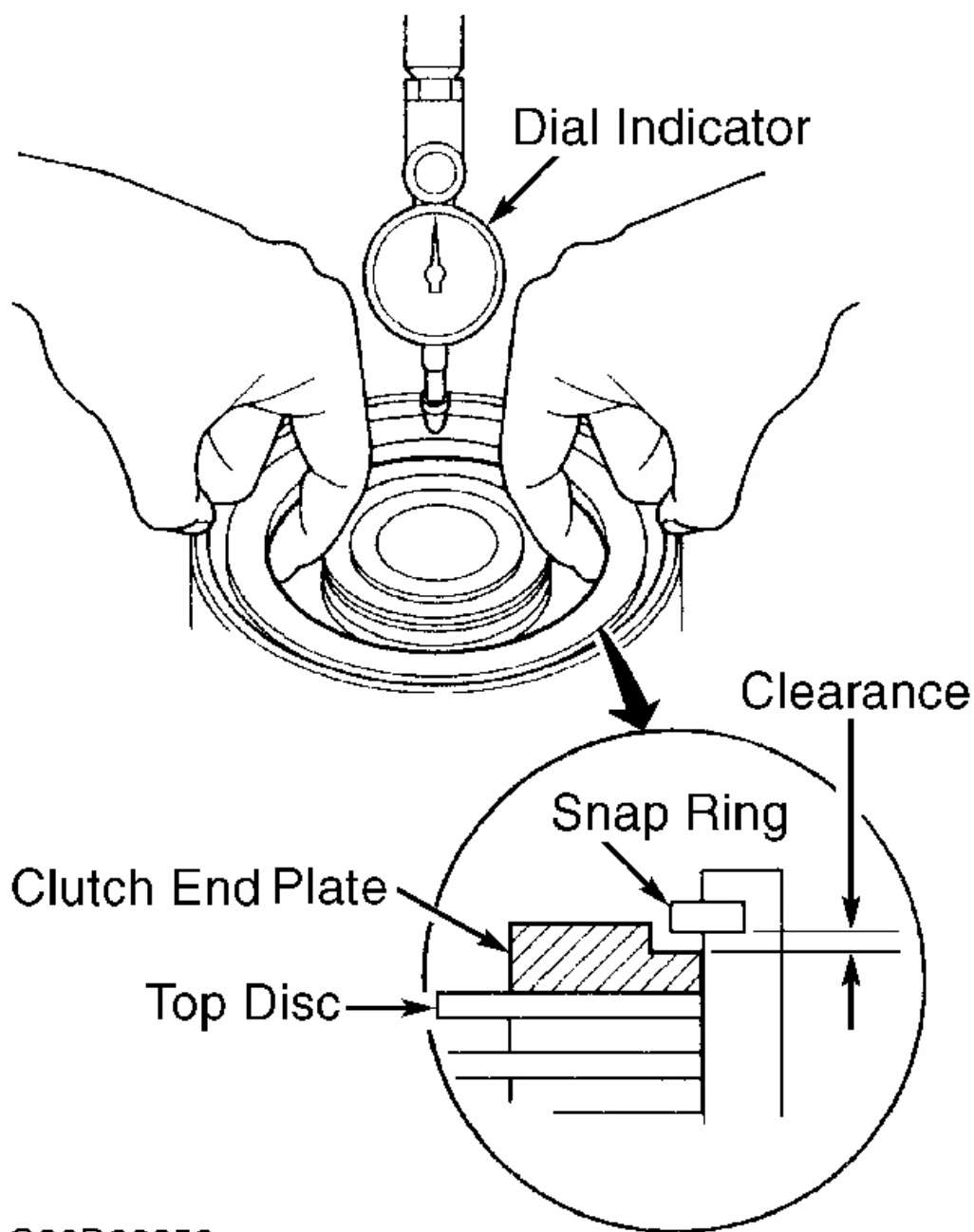
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Fig. 29: Exploded View Of 3rd Clutch Assembly
 Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 30: Exploded View Of 4th-5th Clutch Assembly
 Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 31: Measuring Clutch Clearance

Courtesy of AMERICAN HONDA MOTOR CO., INC.

TORQUE CONVERTER HOUSING

Disassembly

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

Cleaning & Inspection

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

Reassembly

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

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

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

TRANSAXLE HOUSING**Disassembly**

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

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

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

Cleaning & Inspection

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

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

Reassembly

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

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

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

DIFFERENTIAL ASSEMBLY

Disassembly

1. Before disassembling differential assembly, check side gear backlash. Place differential assembly on "V" blocks with both axle shafts installed.
2. Install dial indicator with stem resting against pinion gear. See **Fig. 32**. Check side gear backlash. Side gear backlash should be .002-.006" (.05-.15 mm). If side gear backlash is not within specification, replace differential carrier.

NOTE: Ring gear bolts have left-hand threads.

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

Cleaning & Inspection

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

Reassembly

CAUTION: Ring gear must be installed with chamfered side of ring gear toward differential carrier. See Fig. 33 . Ring gear bolts are left-hand thread.

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

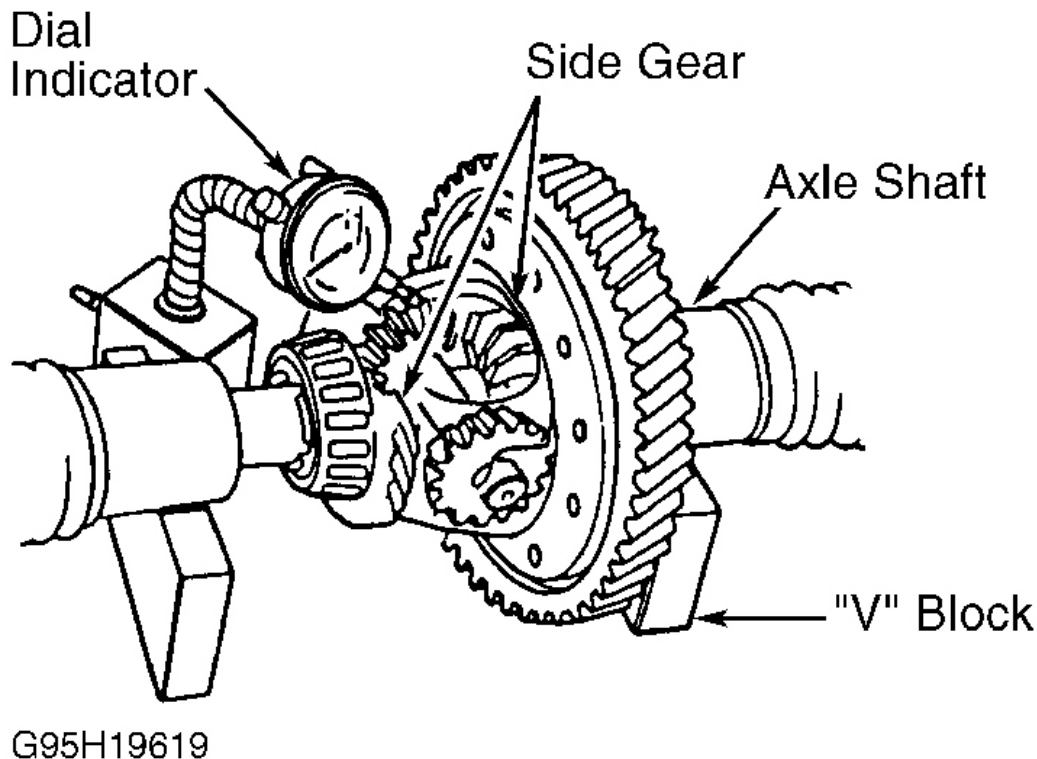


Fig. 32: Checking Side Gear Backlash

Courtesy of AMERICAN HONDA MOTOR CO., INC.

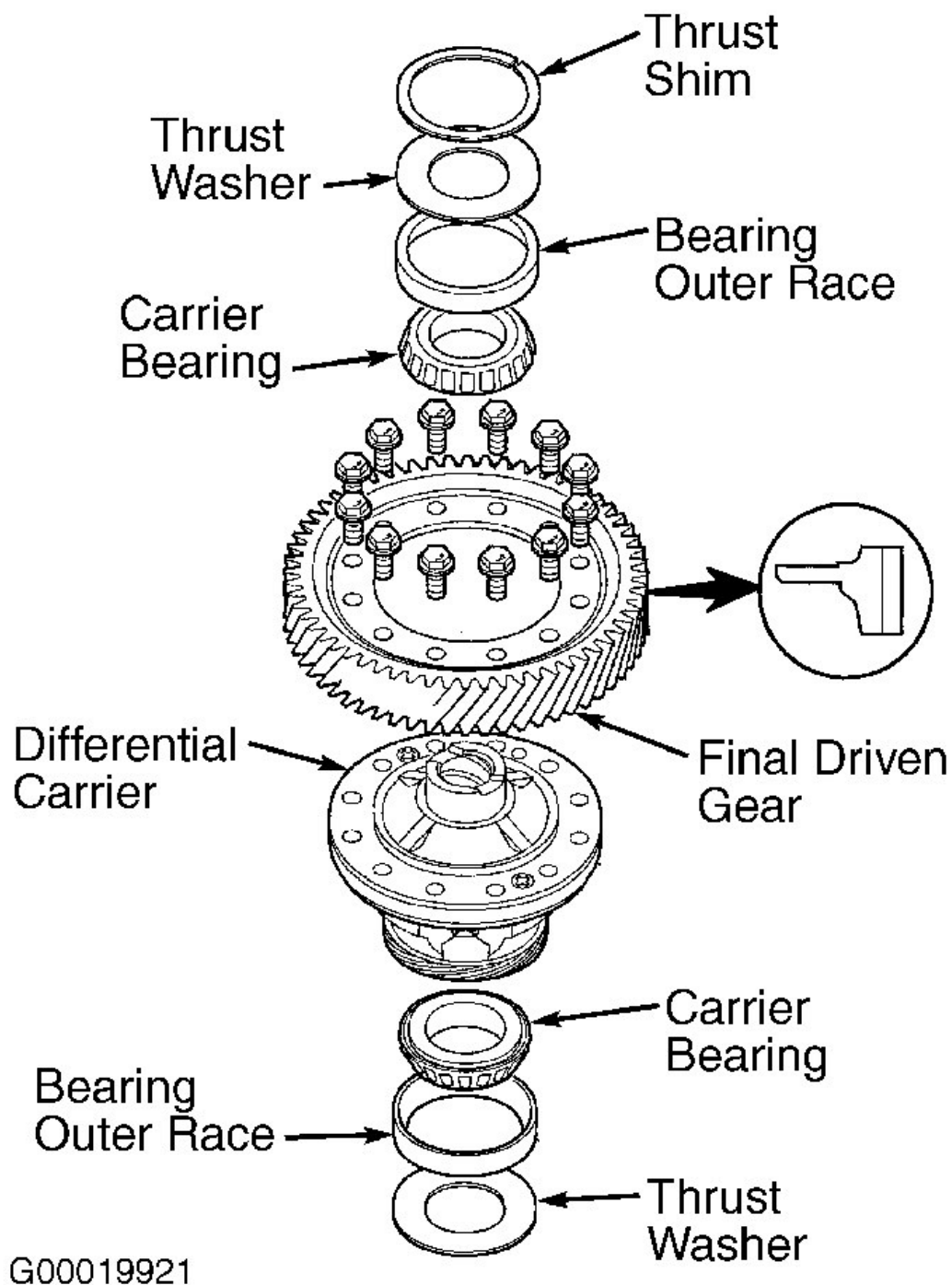


Fig. 33: Exploded View Of Differential Assembly
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Differential Assembly Bearing Preload

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

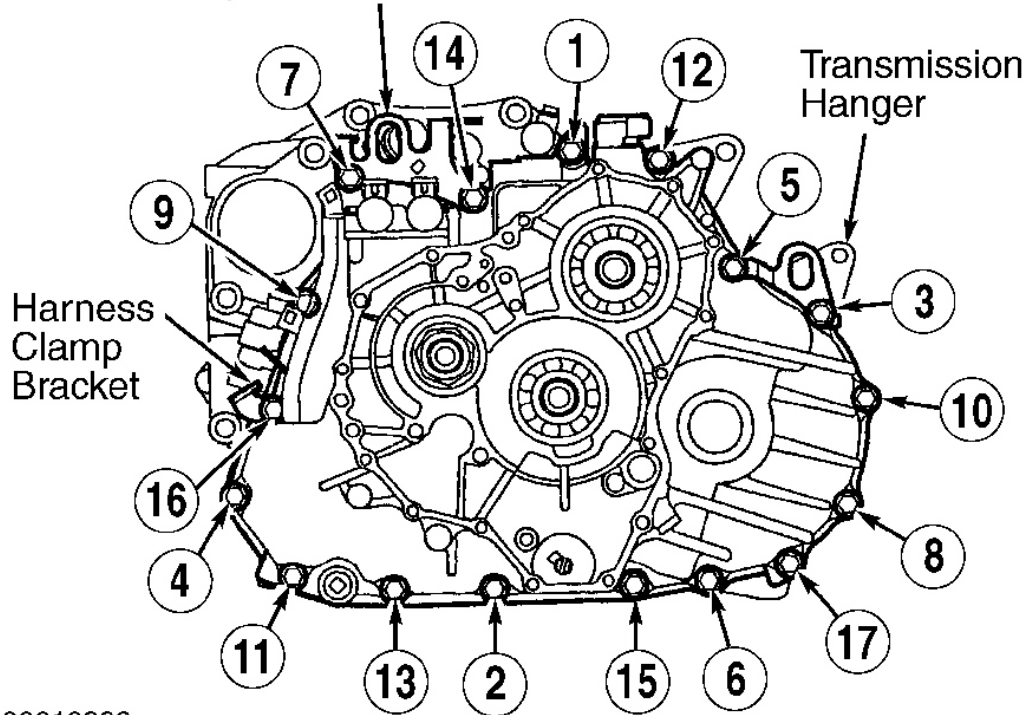
CAUTION: DO NOT heat transaxle housing to more than 212°F (100°C), or housing may be damaged.

1. Using heat gun, heat transaxle housing around differential bearing outer race and thrust shim to 212°F (100°C). Tap differential bearing outer race from transaxle housing. Remove thrust shim located below differential bearing outer race, from transaxle housing.
2. Allow transaxle housing to cool to room temperature. Install a .102" (2.60 mm) thrust shim in transaxle housing. Using hammer and bearing race installer, install differential bearing outer race in transaxle housing. Ensure differential bearing outer race is fully seated in transaxle housing.

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

3. 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.
4. Install and tighten transaxle housing-to-torque converter housing bolts to 33 ft. lbs. (44 N.m) in sequence. See **Fig. 34** . Rotate differential assembly several turns to seat bearings.

Transmission Hanger
Harness Clamp Bracket



G00019922

Fig. 34: Transaxle Housing Bolt Tightening Sequence
Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Install Preload Adapter (07HAJ-PK40201) into differential assembly. See **Fig. 35** . 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.
6. Differential assembly bearing preload should be within specification. See **DIFFERENTIAL ASSEMBLY BEARING PRELOAD SPECIFICATIONS** table.

DIFFERENTIAL ASSEMBLY BEARING PRELOAD SPECIFICATIONS ⁽¹⁾

Application	INCH Lbs. (N.m)
New Bearings	24-35 (2.7-3.9)
Used Bearings	22-32 (2.5-3.6)

(1) Starting torque required to rotate differential assembly.

7. If differential assembly bearing preload is not within specification, select proper thickness thrust shim to obtain correct reading. Thrust shims range in thickness from .081" (2.05 mm) to .120" (3.05 mm) in .002" (.05 mm) increments.

8. Changing thrust shim to the next size will increase or decrease bearing preload about 2.7-3.5 INCH lbs. (.3-.4 N.m). Increase thrust shim thickness to increase differential assembly bearing preload. Decrease thrust shim thickness to decrease bearing preload.
9. If adjusting differential assembly bearing preload, remove transaxle housing from torque converter housing. Remove differential bearing outer race from transaxle housing. Install correct thrust shim. Using hammer and bearing race installer, install differential bearing outer race in transaxle housing.
10. Reinstall transaxle housing and recheck differential assembly bearing preload. Once correct differential assembly bearing preload is obtained, remove transaxle housing, gasket and differential assembly from torque converter housing.

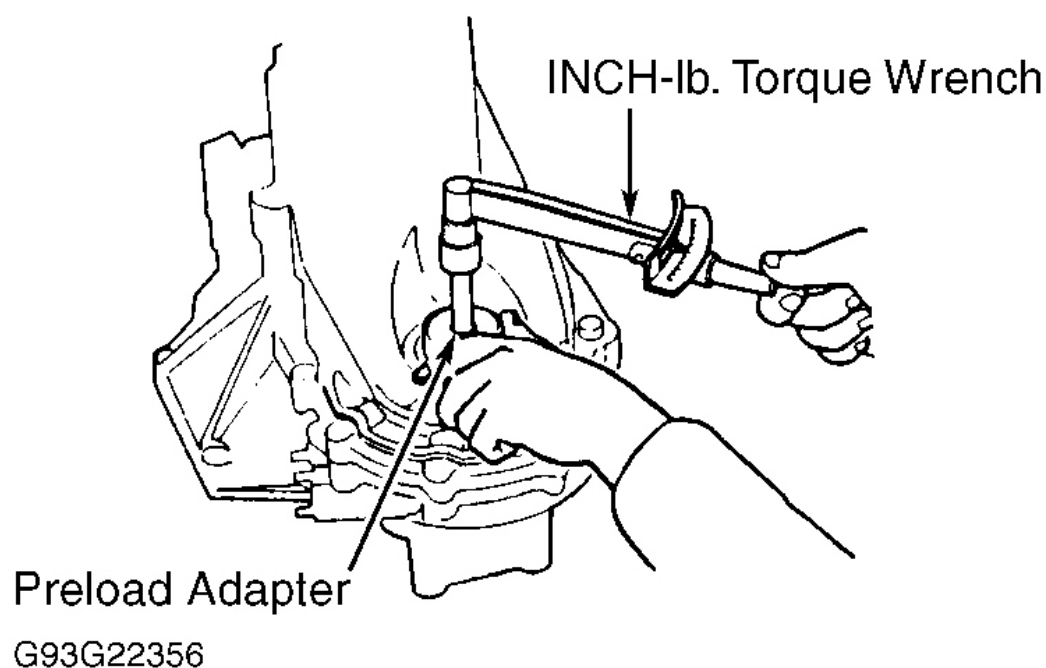


Fig. 35: Checking Differential Bearing Preload
Courtesy of AMERICAN HONDA MOTOR CO., INC.

TRANSAXLE REASSEMBLY

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

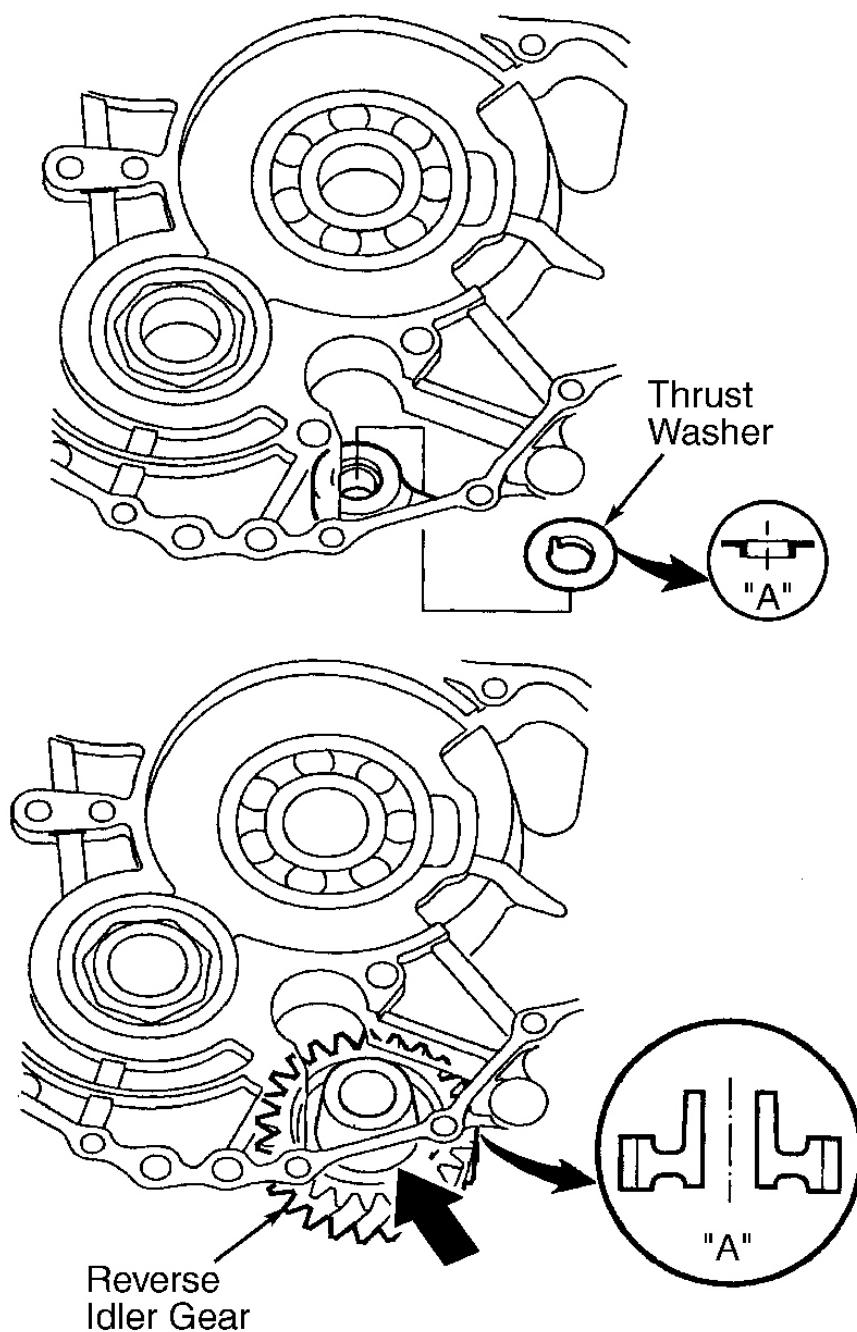
NOTE: Coat all components with ATF before reassembly.

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

1. Install main separator plate and 3 dowel pins on torque converter housing. Install oil pump drive gear, oil pump driven gear and oil pump driven gear shaft.
2. Install 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. Install torque converter check valve and spring. Ensure cooler check valve and spring are installed in main valve body. See **Fig. 9** and **Fig. 12**. Install 2 dowel pins and regulator separator plate. Install stator shaft, NEW "O" ring and shaft stop. Install regulator valve body. Install dowel pins in main valve body. Install servo separator plate on main valve body.
4. Install control shaft in torque converter housing and align manual valve lever with manual valve guide. Ensure control shaft engages with manual valve on main valve body.
5. Install detent arm and detent arm shaft on main valve body. See **Fig. 9**. Install detent spring and hook on detent arm and control shaft.
6. Install servo body. Tighten servo body bolts to specification. Install top accumulator body separator plate with dowel pins on servo body. Install top accumulator body. Tighten bolts to specification. Install fluid strainer.
7. Install servo detent base. Install accumulator body. Install 2 oil feed pipes in servo body, 4 in regulator valve body, 4 in top accumulator body and suction tube in accumulator body.
8. Install differential assembly, mainshaft sub-assembly, secondary shaft sub-assembly and countershaft sub-assembly in torque converter housing. Install countershaft 5th gear and reverse selector hub on countershaft.
9. Rotate shift fork shaft on servo body so large chamfered hole aligns with hole in shift fork. Install shift fork bolt and reverse selector as an assembly. Install NEW shift fork bolt lock. Tighten bolt to specification. Bend over tabs on bolt lock.
10. Install needle bearing, countershaft reverse gear and countershaft 2nd gear on countershaft. Install reverse idler gear thrust washer in transaxle case. Install reverse idler and position as shown. See **Fig. 36**.



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Fig. 36: Installing Reverse Idler Gear

Courtesy of AMERICAN HONDA MOTOR CO., INC.

11. Align spring pin with groove in transaxle housing by rotating control shaft. See **Fig. 7** . Install 3 dowel pins and NEW gasket on torque converter housing.

12. Install transaxle housing on torque converter housing. Install bolts with transaxle hanger/connector bracket and hangers. Tighten bolts to specification in sequence using 2 or more steps. See **Fig. 34**.
13. Engage reverse idler gear with countershaft reverse gear and mainshaft reverse gear. Install needle bearings in reverse idler. Install reverse idler shaft, thrust washer and shaft holder. Tighten shaft holder bolts to specifications. See **Fig. 5**.
14. Install parking brake lever spring and parking brake lever on control shaft. See **Fig. 37**. Install bolt and NEW bolt lock on parking brake lever. DO NOT bend lock tab.

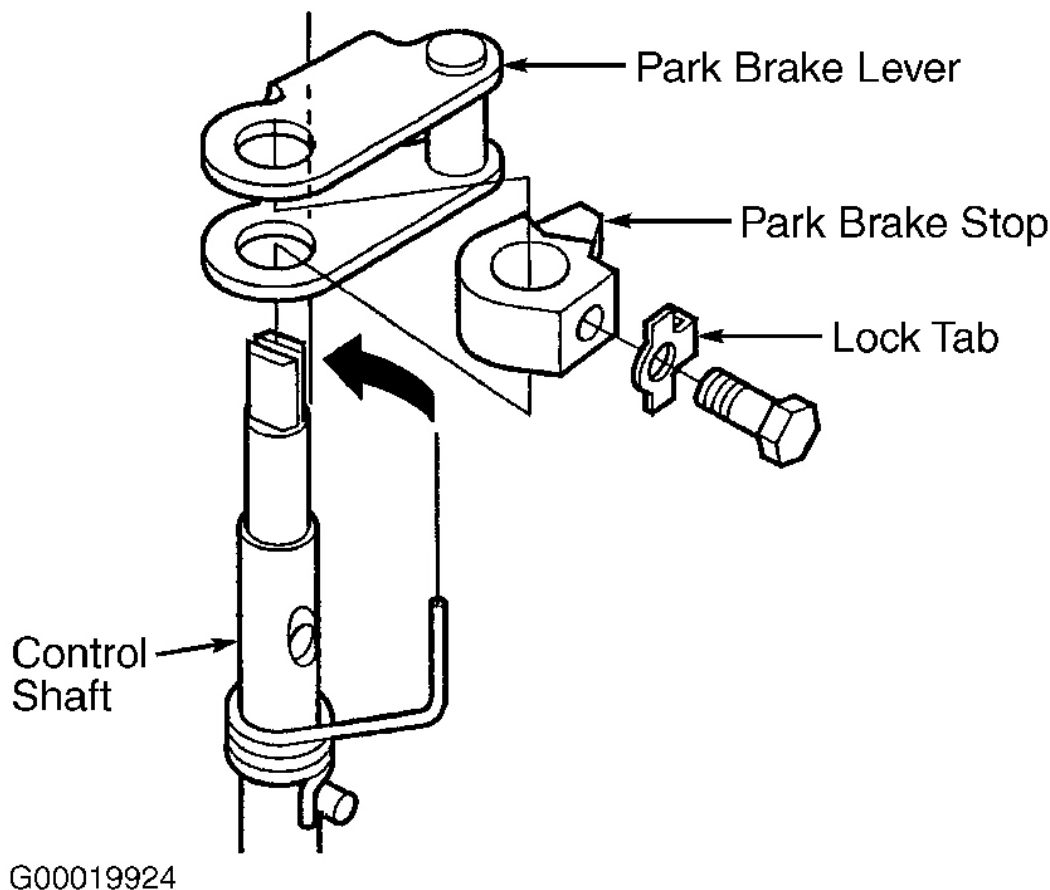


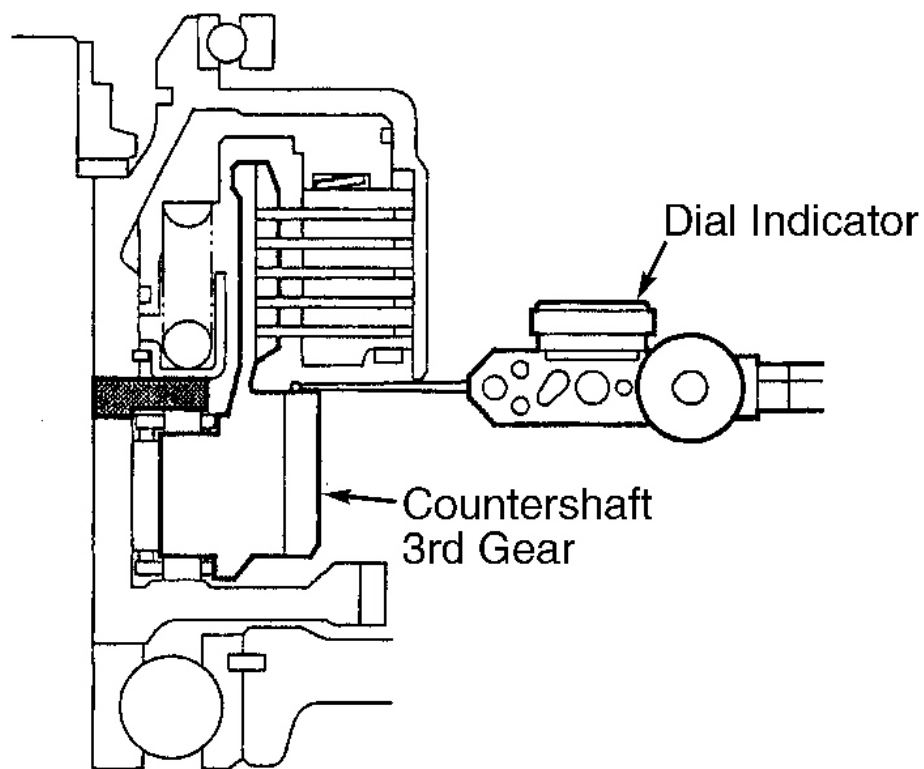
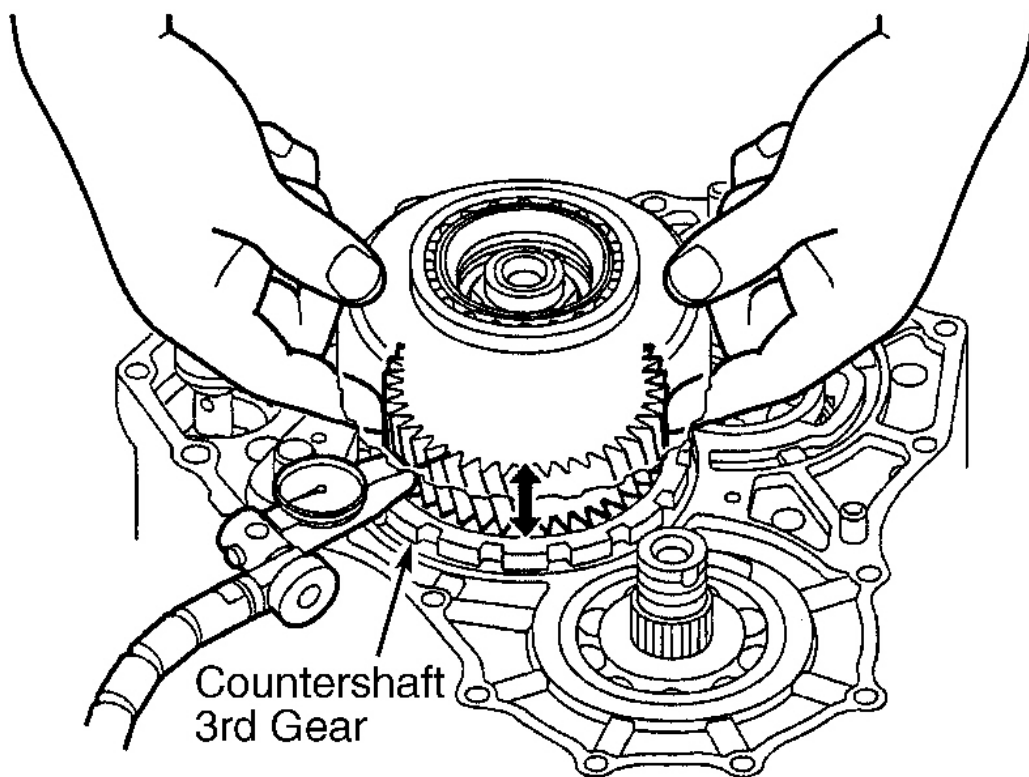
Fig. 37: Assembling Park Brake Lever

Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

15. Coat countershaft splines, used lock nut, conical spring washer and countershaft threads with ATF. Install park gear on countershaft with collar and used lock nut. Hold park pawl to engage park gear. Tighten lock nut until countershaft splines appear above park gear.

16. Remove used lock nut and collar. Install thrust needle bearing, needle bearing, 3rd gear, thrust needle bearing, splined washer, 3rd clutch assembly and used conical spring washer. See **Fig. 3** . Tighten used lock nut to 166 ft. lbs. (226 N.m). Remove used lock nut and collar.
17. Using dial indicator, measure countershaft 3rd gear axial clearance. See **Fig. 38** . Zero dial indicator with countershaft 3rd gear in resting position, and then lift countershaft 3rd gear upward. Distance measured is countershaft 3rd gear axial clearance. Record measurement.

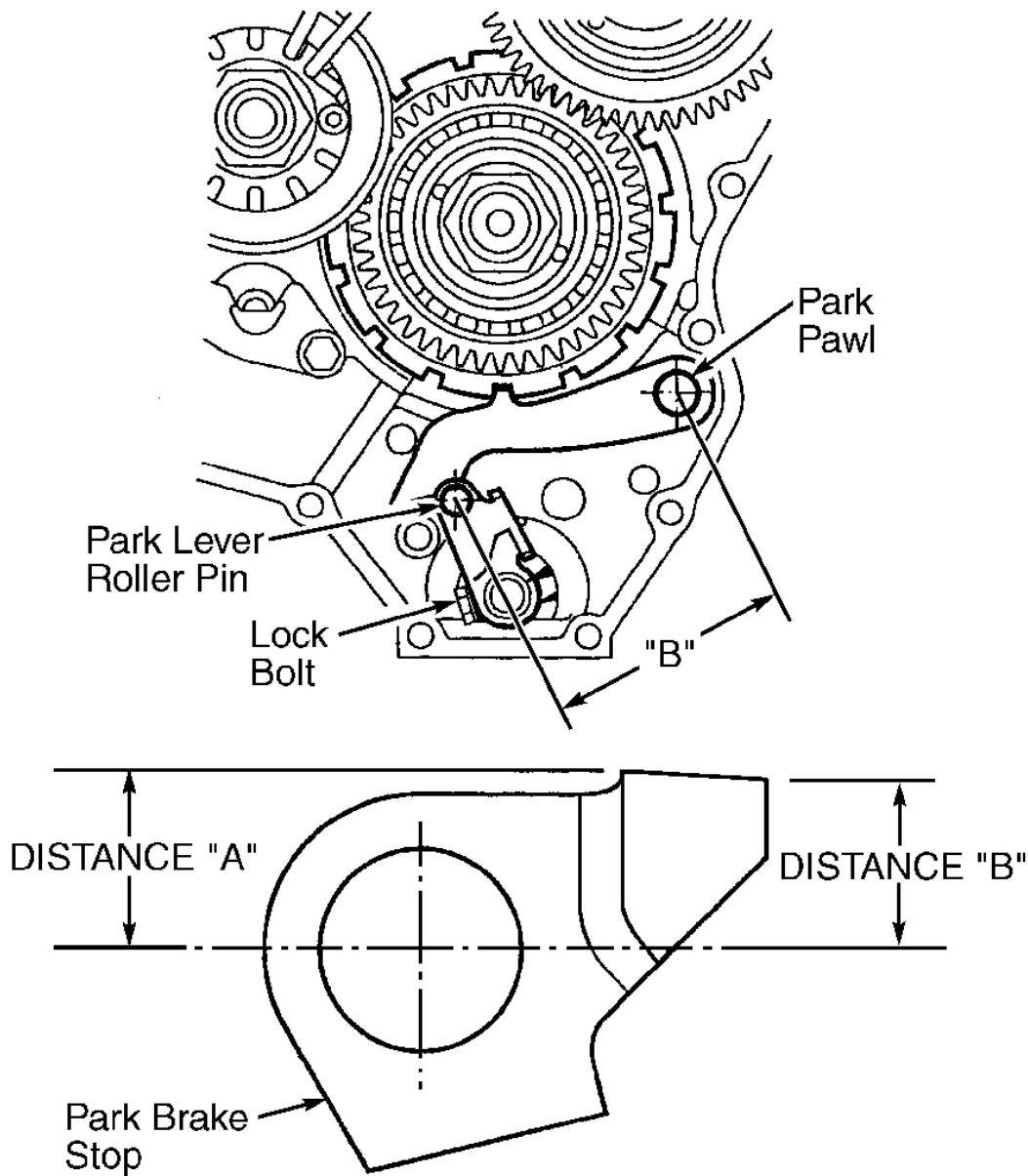


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Fig. 38: Measuring Countershaft 3rd Gear Axial Clearance
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

18. Remove used lock nut and conical spring washer from countershaft. Remove 3rd clutch assembly. Install splined washer, thrust needle bearing, 3rd gear, needle bearing and thrust needle bearing. Install Mainshaft Holder (07GAB-PF50100 or 07GAB-PF50101) on mainshaft to secure mainshaft from rotating. See **Fig. 4**.
19. Coat mainshaft splines, secondary shaft splines, mainshaft 3rd gear and secondary idler gear splines, used lock nuts, conical spring washers, mainshaft threads and secondary shaft threads with ATF. Install mainshaft 3rd gear and used conical spring washer on mainshaft. Tighten used lock nut to 166 ft. lbs. (226 N.m) to seat 3rd gear.
20. Install secondary shaft idler gear and used conical spring washer on secondary shaft. Tighten used lock nut to 166 ft. lbs. (226 N.m) to seat idler gear. Remove used lock nuts and conical spring washers from mainshaft and secondary shaft.
21. Install thrust needle bearing, needle bearing, 3rd gear, thrust needle bearing on countershaft. If clearance measured in step 17 was not .0006-.0018 (.015-.045 mm), select and install splined washer with appropriate step height. Washer step heights range from .1364" (3.464 mm) to .1379" (3.503 mm) in .0005" (.003 mm) increments.
22. Install "O" rings on countershaft. Install 3rd clutch assembly. Install used conical washer and lock nut on countershaft. Tighten used lock nut to 166 ft. lbs. (226 N.m) to seat 3rd clutch assembly. Remove used lock nut and conical washer.
23. Coat NEW lock nuts, conical spring washers and shaft threads with ATF. Install new lock nuts and conical spring washers on all 3 shafts. Ensure conical spring washers are installed so large area of spring washer is against lock nut. See **Fig. 3**.
24. Tighten all lock nuts to 123 ft. lbs. (167 N.m). Recheck countershaft 3rd gear axial clearance. Stake all lock nuts against shaft. Remove mainshaft holder. Place parking brake lever in "P" position.
25. Ensure parking pawl fully engages with parking gear. If parking pawl does not fully engage, measure park brake stop distance between parking pawl shaft and pin on park brake stop. See **Fig. 39**.



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Fig. 39: Measuring Park Brake Stop Distance & Park Brake Stop
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

26. Park brake stop distance should be 3.33-3.37" (84.6-85.6 mm). If park brake stop distance is not within specification, install different size park brake stop.
27. Park brake stop is available in 3 different sizes. See **Fig. 39** . See **PARK BRAKE STOP SPECIFICATIONS** table.

PARK BRAKE STOP SPECIFICATIONS ⁽¹⁾

ID	Part Number	Distance "A" - In. (mm) ⁽¹⁾	Distance "B" - In. (mm) ⁽¹⁾
1	24537-PA9-003	.433 (11.00)	.433 (11.00)
2	24538-PA9-003	.425 (10.80)	.419 (10.65)
3	24539-PA9-003	.417 (10.60)	.406 (10.30)
(1) Measured from center of parking brake stopper. See Fig. 39 .			

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

TORQUE SPECIFICATIONS**TORQUE SPECIFICATIONS**

Application	Ft. Lbs. (N.m)
Countershaft Lock Nut	123 (167)
Drain Plug	36 (49)
Joint Bolt	21 (28)
Main Valve Body Bolt	
6-mm Bolt	(1)
8-mm Bolt	13 (18)
Mainshaft Lock Nut	123 (167)
Pressure Tap Plug	13 (18)
Reverse Idler Gear Shaft Holder Bolt	20 (26)
Ring Gear Bolt	74.5 (101)
Secondary Shaft Lock Nut	123 (167)
Speed Sensor Assembly Bolt	13 (18)
Transaxle Housing Bolt ⁽²⁾	33 (44)
	INCH Lbs. (N.m)
A/T Clutch Pressure Control Solenoid Valve A/B Assembly	106 (12.0)
A/T Gear Position Switch	106 (12.0)
Accumulator Body Cover Bolt	106 (12.0)
Accumulator Cover Bolt	106 (12.0)
Countershaft Speed Sensor Bolt	106 (12.0)
End Cover Bolt	106 (12.0)
Fluid Strainer Bolt	106 (12.0)
Lock-Up Control Solenoid Valve Assembly Bolt	106 (12.0)
Mainshaft Speed Sensor Bolt	106 (12.0)

2001 Acura 3.2CL Type S**2001-03 AUTOMATIC TRANSMISSIONS BGFA & MGFA Overhaul**

Park Brake Stop Bolt	124 (14.0)
Regulator Valve Body Bolt	106 (12.0)
Reverse Shift Fork Bolt	124 (14.0)
Servo Body Bolt	106 (12.0)
Shift Control Solenoid Valve Assembly Bolt	106 (12.0)
(1) Tighten bolt to 106 INCH lbs. (12.0 N.m).	
(2) Tighten bolts to specification in sequence. See Fig. 34 .	

TRANSAXLE SPECIFICATIONS**TRANSAXLE SPECIFICATIONS**

Application	Specification - In. (mm)
Clutch Clearance	
1st Clutch	.043-.051 (1.10-1.30)
2nd Clutch	(1)
3rd Clutch	.028-.035 (.70-.90)
4th & 5th Clutch	.022-.030 (.55-.75)
1st-Hold Clutch	.020-.035 (.50-.90)
Clutch Disc Thickness	.076 (1.94)
Clutch Plate Thickness	
1st & 2nd Clutch	.063 (1.60)
3rd & 4th Clutch	.091 (2.30)
5th Clutch	.079 (2.00)
1st-Hold Clutch	.071 (1.80)
Oil Pump Side Clearance	
Oil Pump Drive Gear	.0083-.0104 (.210-.265)
Oil Pump Driven Gear	.0028-.0049 (.070-.125)
Oil Pump Thrust Clearance	
Standard	.0010-.0020 (.030-.050)
Wear Limit	.0028 (.070)
Mainshaft Clearance	.001-.004 (.03-.11)
Secondary Shaft 1st Gear Clearance	.003-.006 (.07-.15)
Secondary Shaft 2nd Gear Clearance	.002-.005 (.04-.12)
Side Gear Backlash	.002-.006 (.05-.15)
Parking Brake Stopper Distance	3.33-3.37 (84.6-85.6)
(1) Premium model clearance is .028-.035 (.70-.90). Type "S" model clearance is .033-.041 (.85-1.05).	

DIFFERENTIAL BEARING PRELOAD ⁽¹⁾

Application	INCH Lbs. (N.m)
New Bearings	24-35 (2.7-3.9)

2001 Acura 3.2CL Type S

2001-03 AUTOMATIC TRANSMISSIONS BGFA & MGFA Overhaul

Used Bearings

22-32 (2.5-3.6)

(1) Starting torque required to rotate differential assembly.