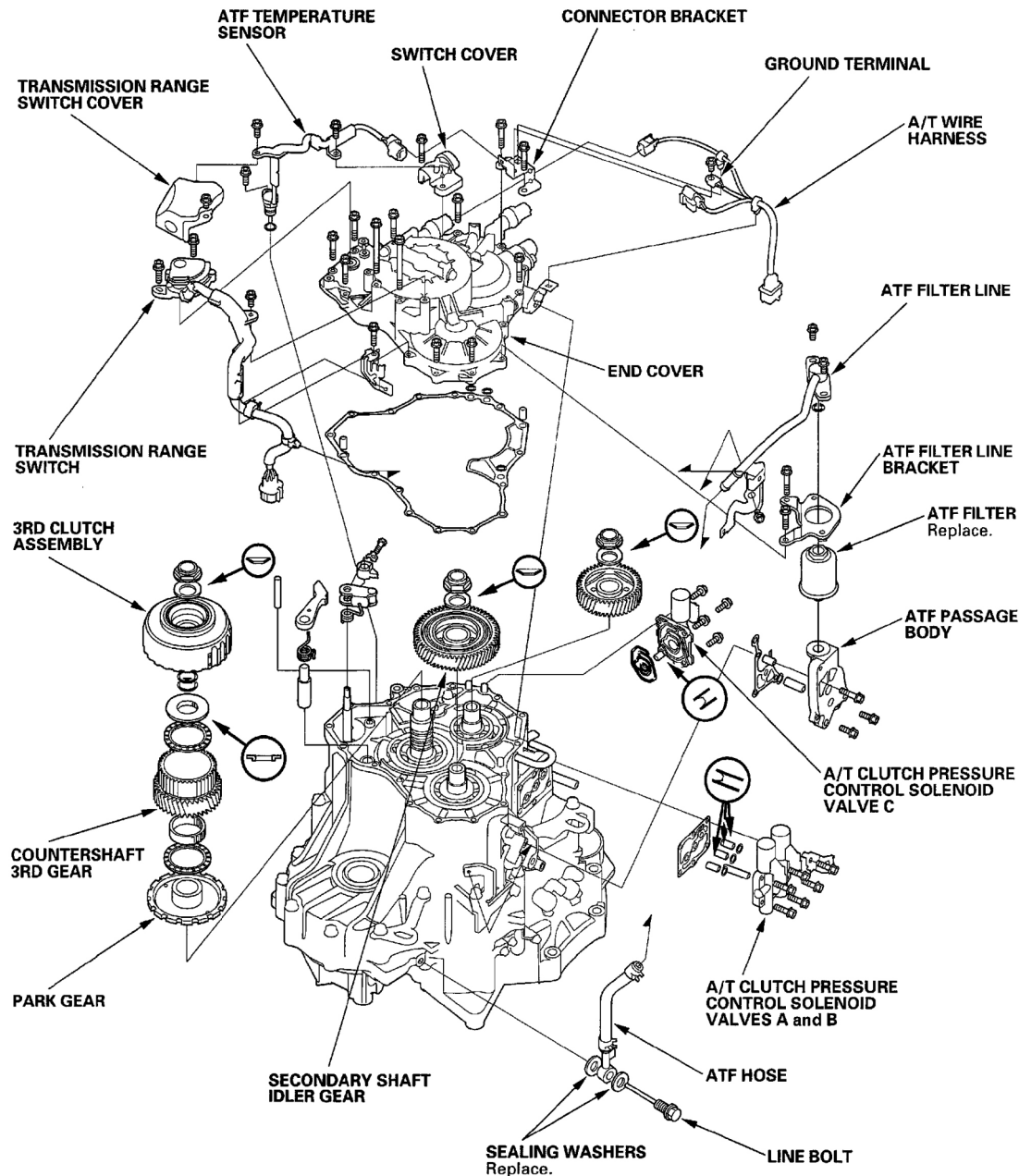


2000-03 AUTOMATIC TRANSMISSION

Overhaul - 3.2TL (B7VA)

TRANSMISSION END COVER

END COVER, 3RD GEARS, IDLER GEAR, AND 3RD CLUTCH REMOVAL



G01160509

Fig. 1: Exploded View Of End Cover, 3rd Gears, Idler Gear, & 3rd Clutch

Courtesy of AMERICAN HONDA MOTOR CO., INC.

Special Tools Required

- Mainshaft holder
07GAB-PF50101 or 07GAB-PF50100
- Adjustable bearing puller, 25-40 mm
07736-A01000B or 07736-A01000A

NOTE: Refer to the Exploded View as needed during the following procedure.

1. Remove the ATF temperature sensor connector from the connector bracket, then disconnect the connector.
2. Remove the ATF temperature sensor harness clamp bolts and the ATF temperature sensor, then remove the switch cover.
3. Remove the A/T wire harness ground terminal from the connector bracket, and disconnect the 3rd clutch pressure switch connector, then remove the connector bracket.
4. Remove the transmission range switch cover.
5. Remove the transmission range switch harness clamp bolts and harness clamp, then remove the transmission range switch.
6. Remove the line bolt, the ATF hose, and the ATF filter line.
7. Remove the ATF filter line bracket and ATF filter. Remove the ATF passage body if necessary.
8. Remove the A/T clutch pressure control solenoid valve C.
9. Remove the remaining 11 bolts on the end cover, then remove the end cover.
10. Slip the special tool onto the mainshaft.

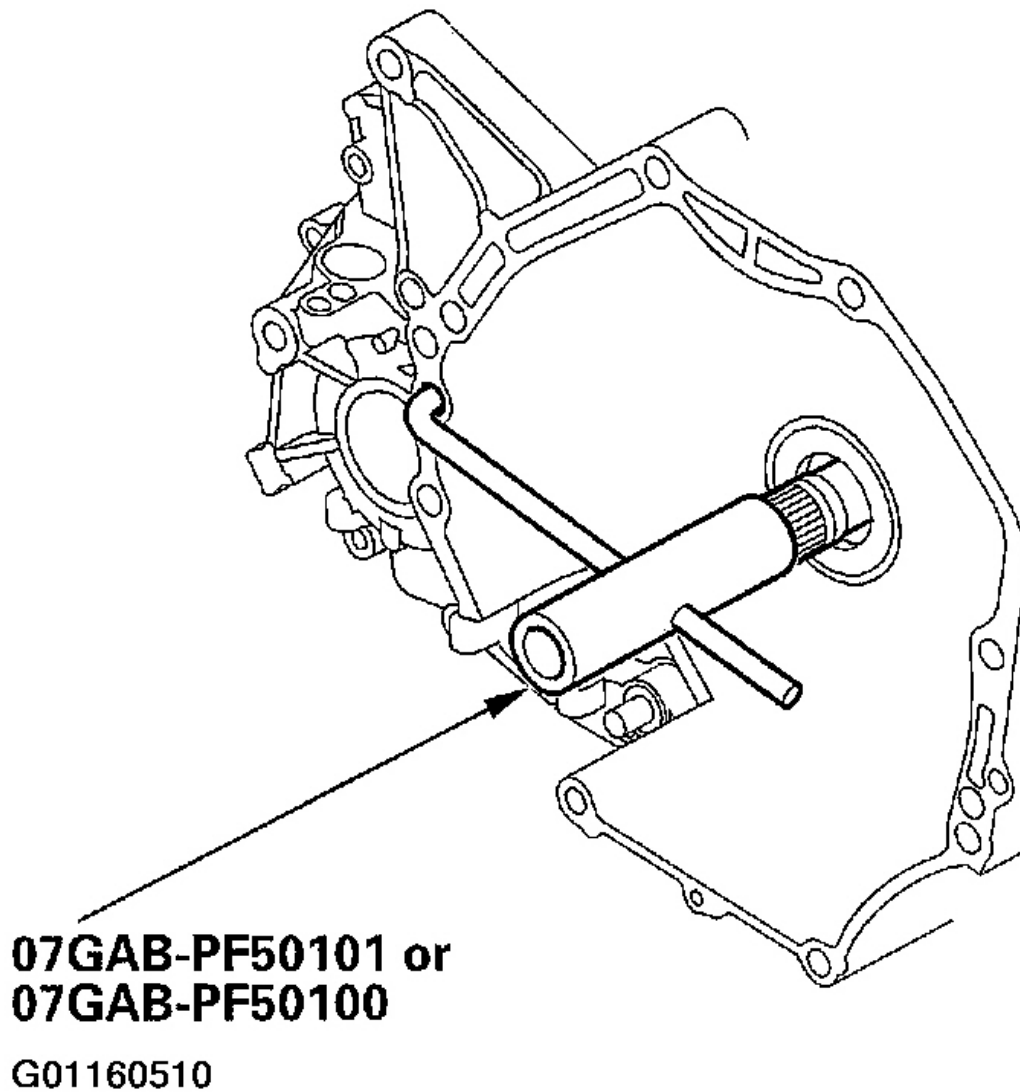


Fig. 2: Slipping Holder Onto Mainshaft

Courtesy of AMERICAN HONDA MOTOR CO., INC.

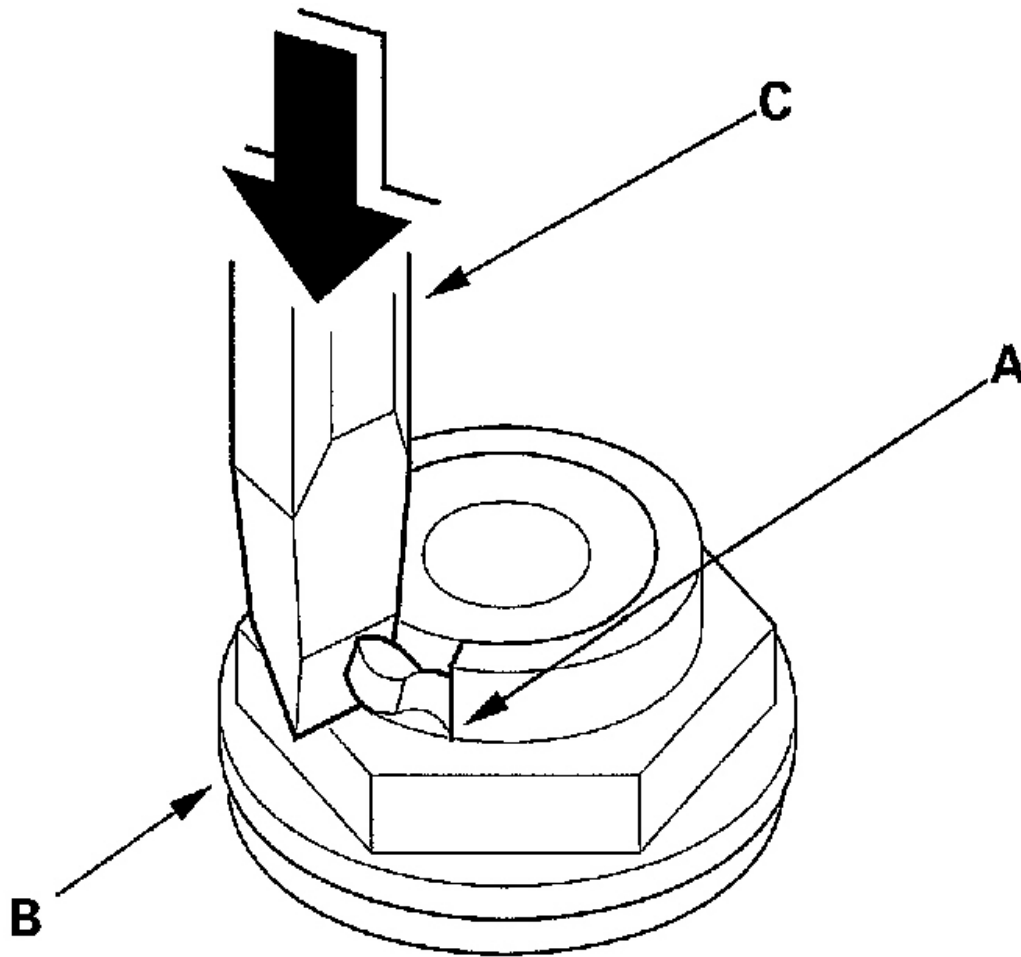
11. Engage the park pawl with the park gear.
12. Cut the lock tabs (A) of each shaft locknut (B) using a chisel (C). Then remove the locknuts and conical spring washers from each shaft.

NOTE:

- Countershaft and secondary shaft locknuts have left-hand threads.
- Clean the old locknut; they are used to install the press fit mainshaft 3rd gear, secondary shaft idler gear, park gear, and 3rd clutch

assembly on the countershaft.

- Keep all of the chiseled particles out of the transmission.



G01160511

Fig. 3: Removing Locknuts & Conical Spring Washers
Courtesy of AMERICAN HONDA MOTOR CO., INC.

13. Remove the special tool from the mainshaft.
14. Remove the 3rd clutch assembly using the special tool and a commercially available 3/8-16" slide hammer (A).

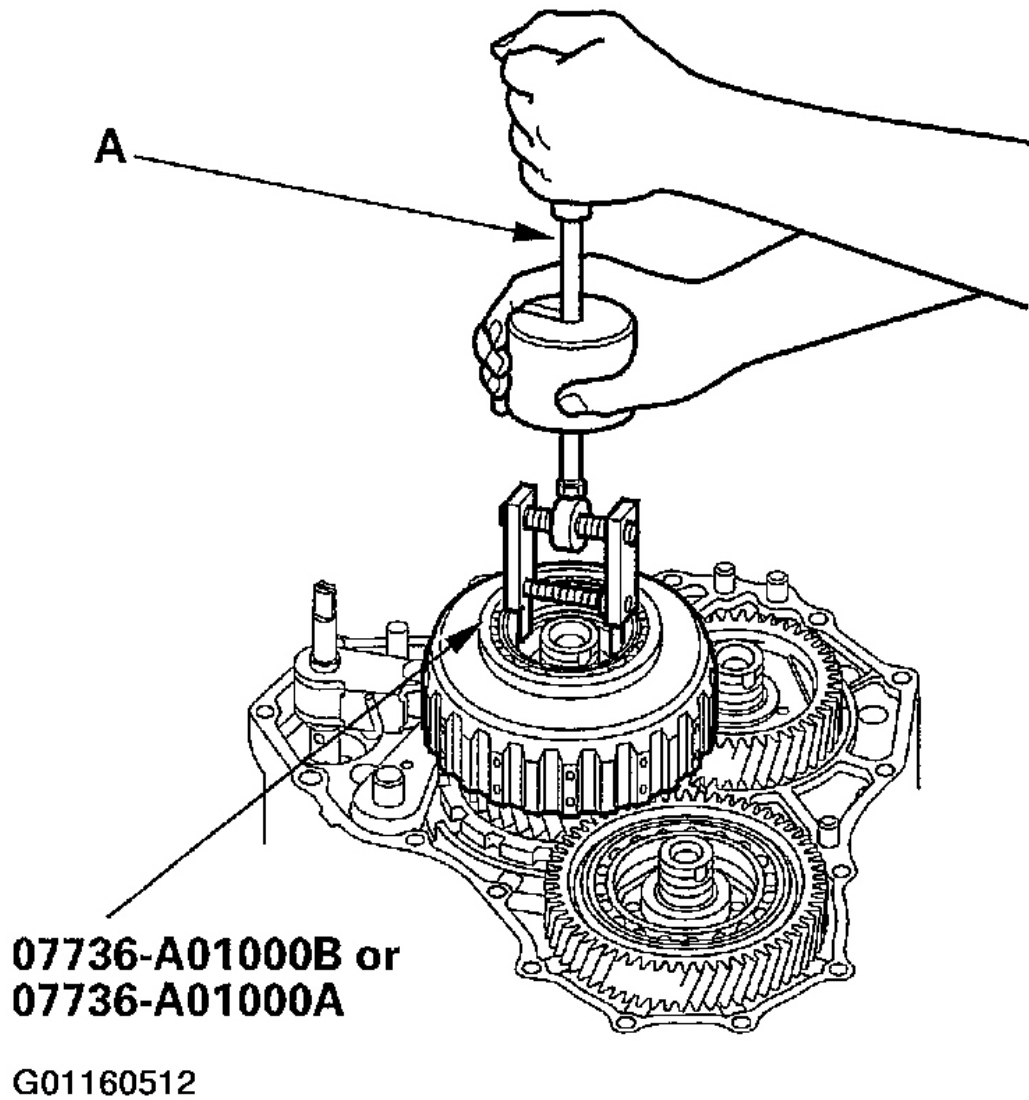
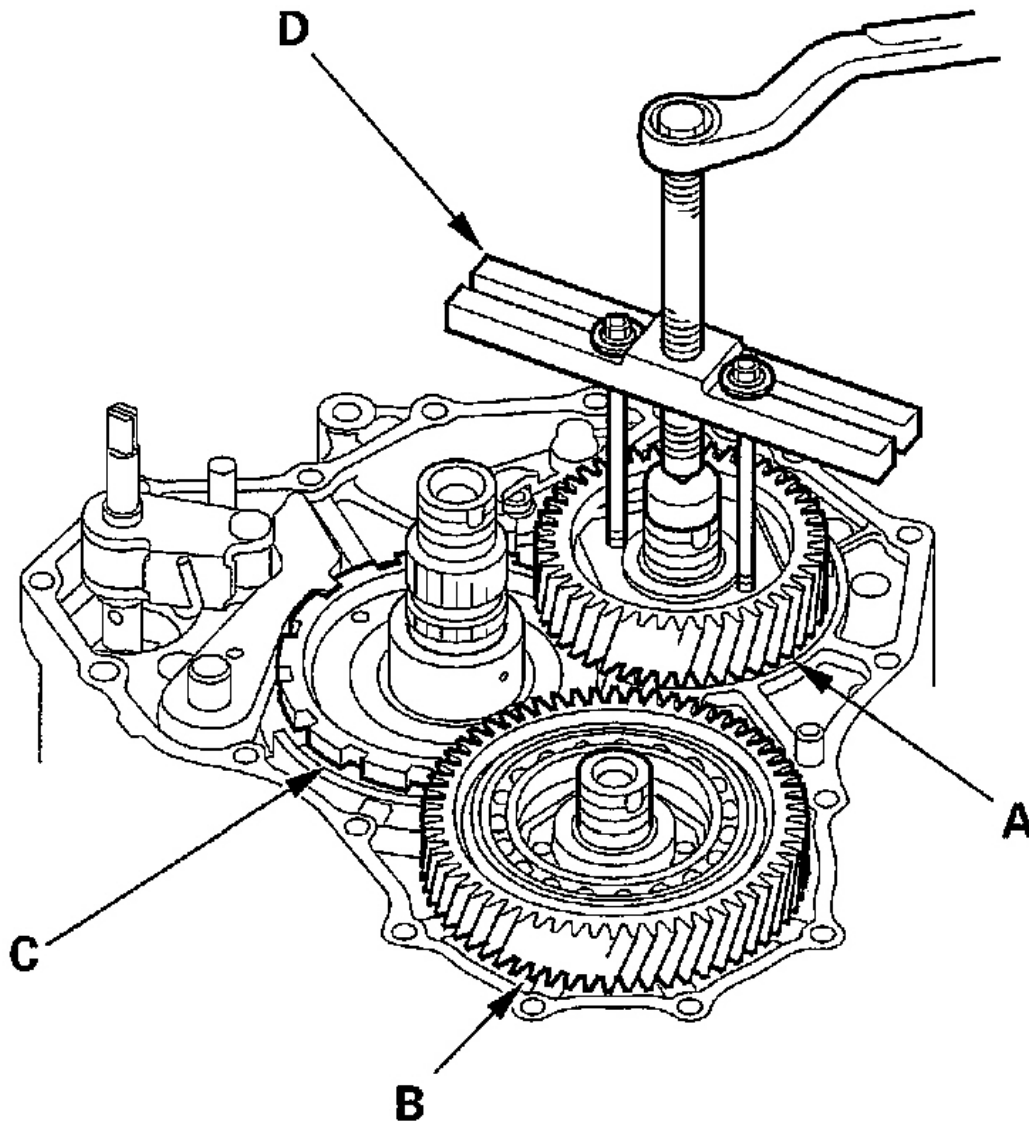


Fig. 4: Removing 3rd Clutch Assembly

Courtesy of AMERICAN HONDA MOTOR CO., INC.

15. Remove the splined washer, thrust needle bearing, countershaft 1st gear, needle bearing, and thrust needle bearing from the countershaft.
16. Remove the mainshaft 3rd gear (A), secondary shaft idler gear (B), and park gear (C) with a puller (D).



G01160513

Fig. 5: Removing Mainshaft 3rd Gear, Secondary Shaft Idler Gear, & Park Gear
Courtesy of AMERICAN HONDA MOTOR CO., INC.

17. Remove the park pawl, park pawl spring, park pawl shaft, and stop shaft.
18. Remove the park lever from the control shaft.
19. Remove the A/T clutch pressure control solenoid valves A and B.

PARK LEVER STOP INSPECTION AND ADJUSTMENT

1. Set the park lever (A) in the **P** position.
2. Measure the distance (B) between the park pawl shaft (C) and the park lever roller pin (D).

STANDARD: 84.6-85.6 mm (3.33-3.37 in.)

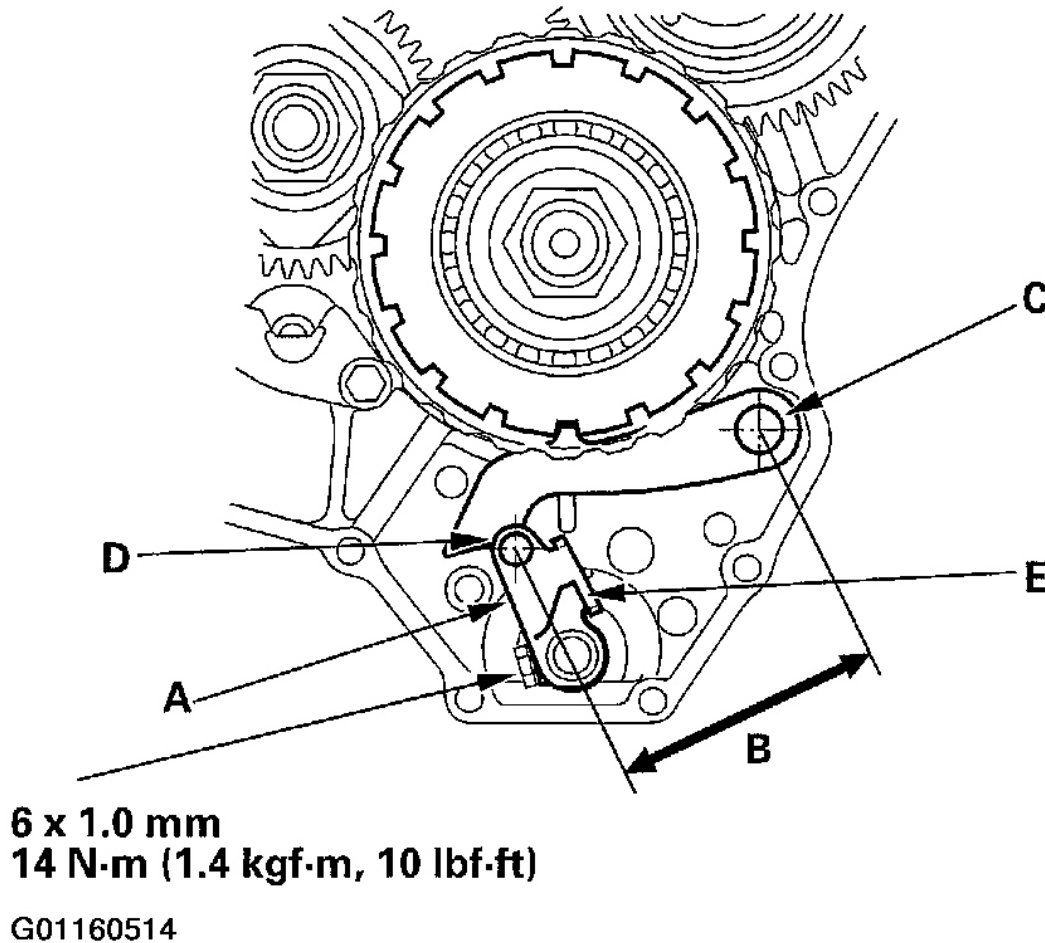


Fig. 6: Measuring Distance Between Park Pawl Shaft & Park Lever Roller Pin
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. If the measurement is out of tolerance, select and install the appropriate park lever stop (E) from the table below.

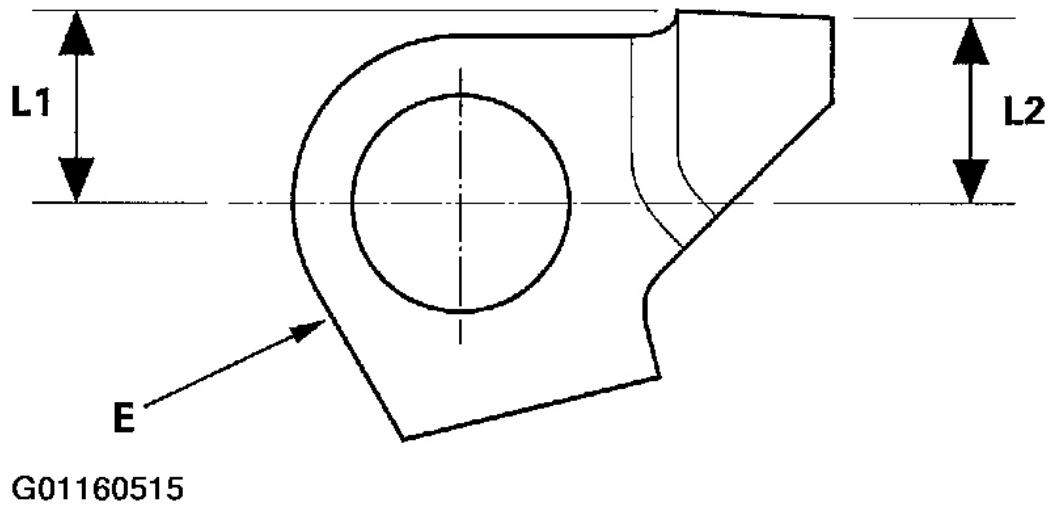


Fig. 7: Determining Appropriate Park Lever Stop
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

Mark	Part Number	L1	L2
1	24537-PA9-003	11.00 mm (0.433 in.)	11.00 mm (0.433 in.)
2	24538-PA9-003	10.80 mm (0.425 in.)	10.65 mm (0.419 in.)
3	24539-PA9-003	10.60 mm (0.417 in.)	10.30 mm (0.406 in.)

G01160516

Fig. 8: Park Lever Stop Identification Table
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

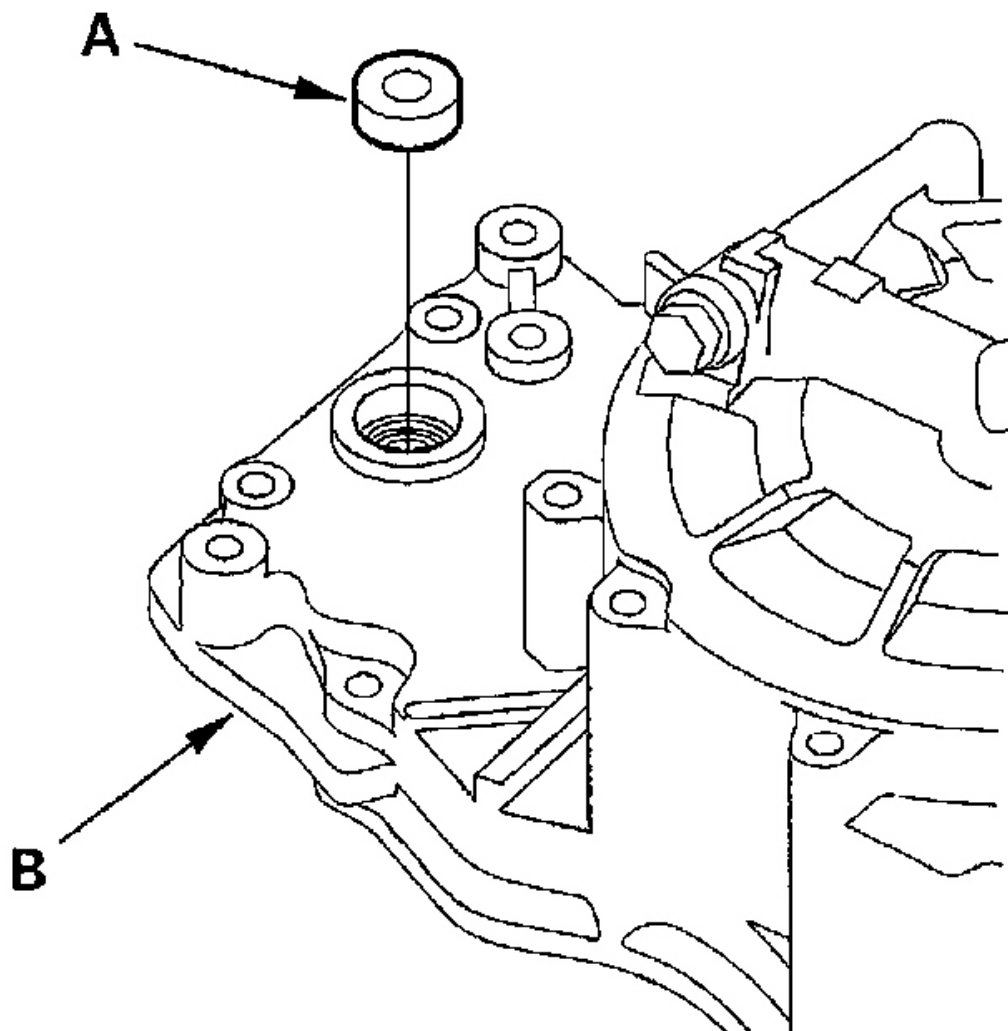
- After replacing the park lever stop, make sure the distance is within tolerance.

CONTROL SHAFT OIL SEAL REPLACEMENT

Special Tools Required

- Driver 07749-0010000
- Attachment, 22 x 24 mm 07746-0010800

1. Remove the oil seal (A) from the end cover (B).



G01160517

Fig. 9: Removing Oil Seal From End Cover

Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Install the new oil seal flush to the end cover with the special tools.

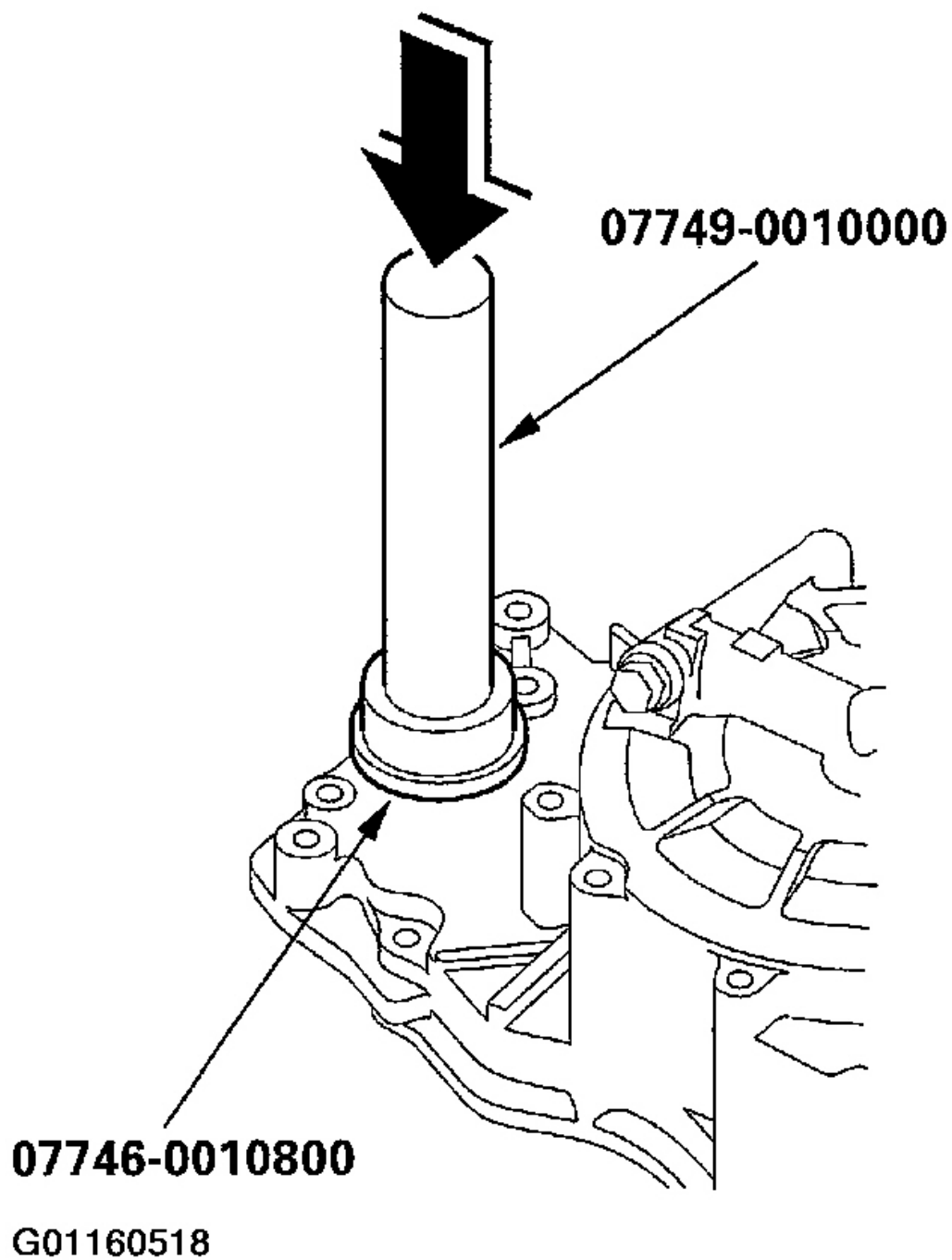
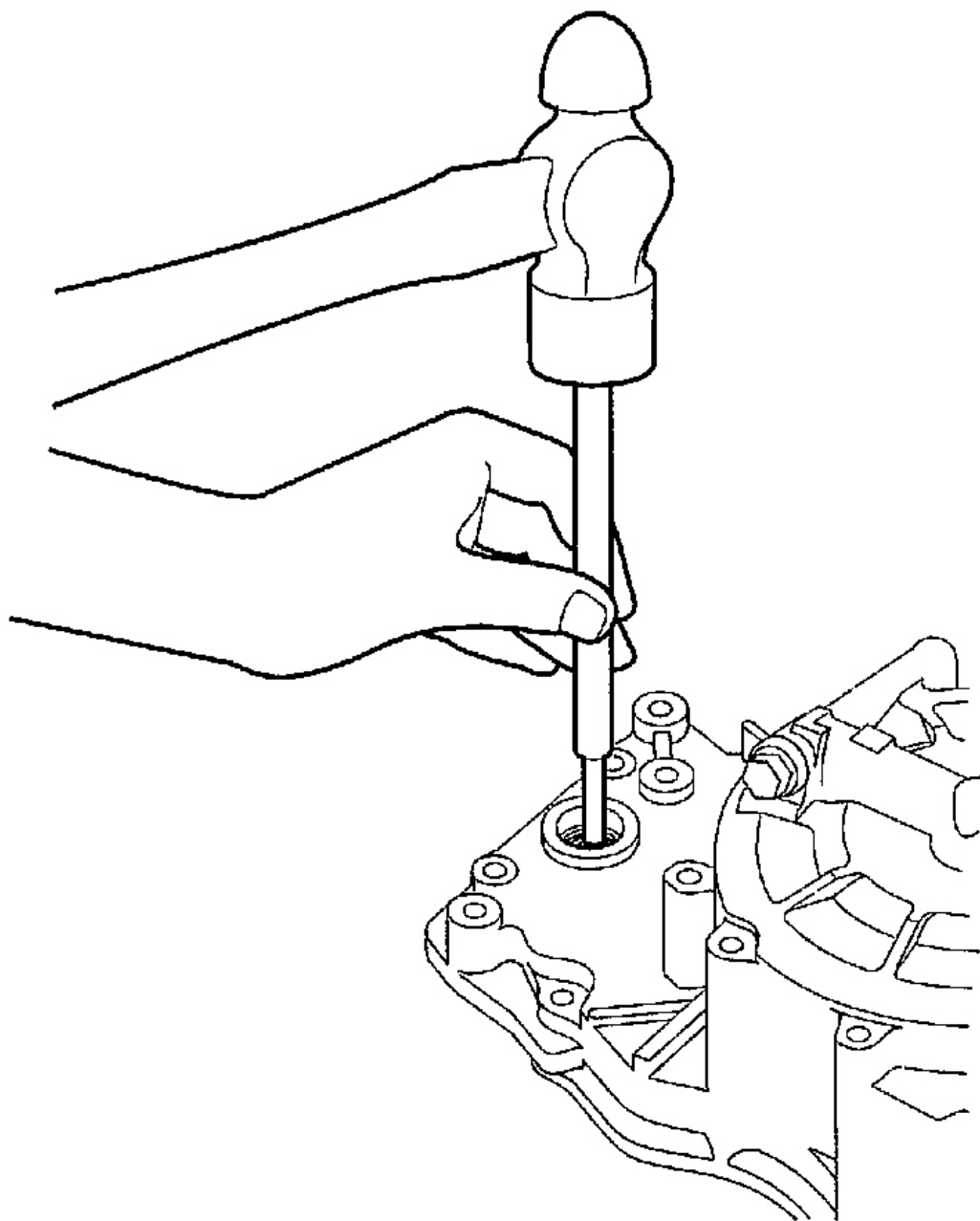


Fig. 10: Installing New Oil Seal Flush
Courtesy of AMERICAN HONDA MOTOR CO., INC.

CONTROL SHAFT BEARING REPLACEMENT**Special Tools Required**

- Driver 07749-0010000
- Attachment, 22 x 24 mm 07746-0010800

1. Remove the oil seal from the end cover, then remove the bearing.



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Fig. 11: Removing Oil Seal & Bearing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Install the new bearing flush to the end cover with the special tools.

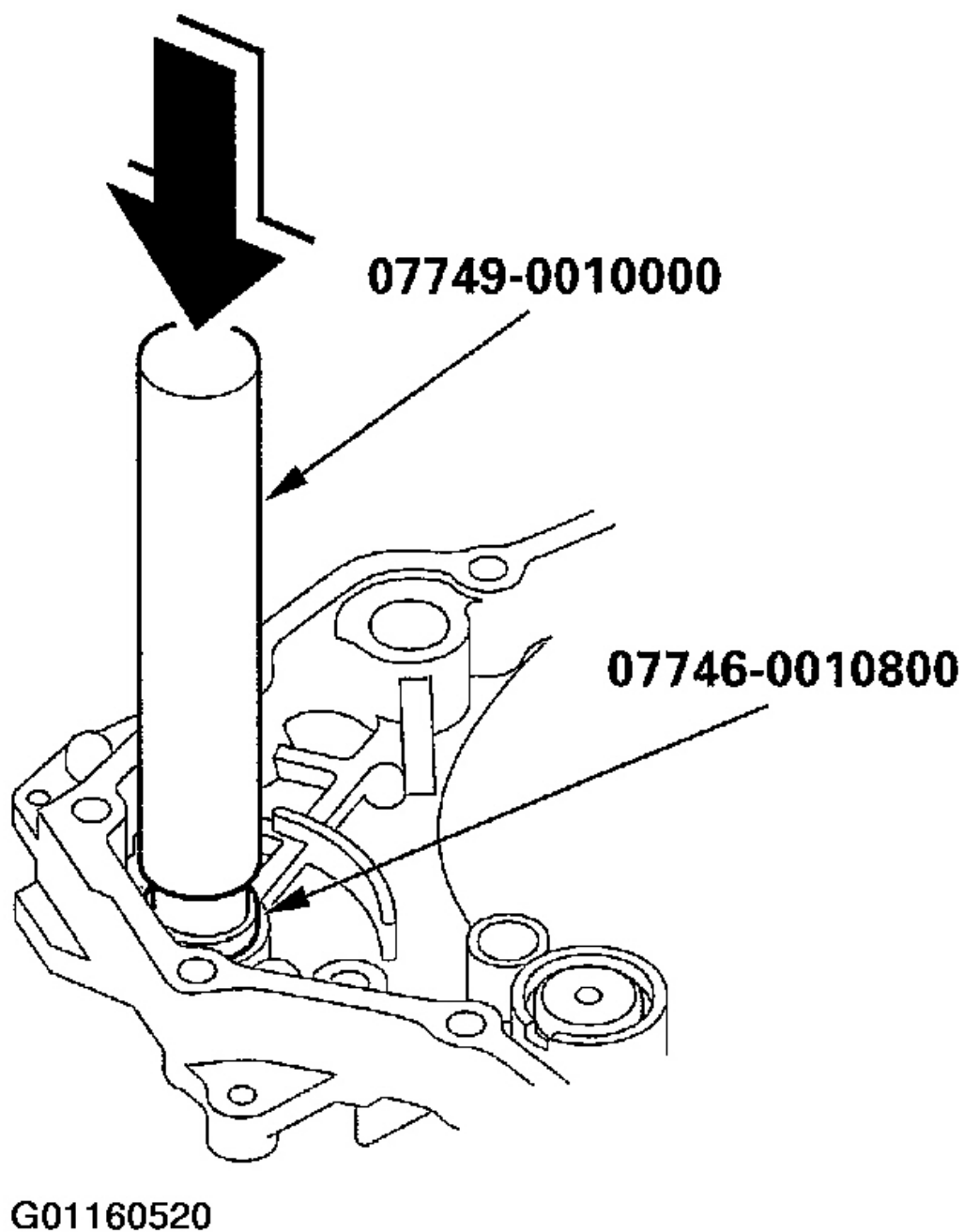
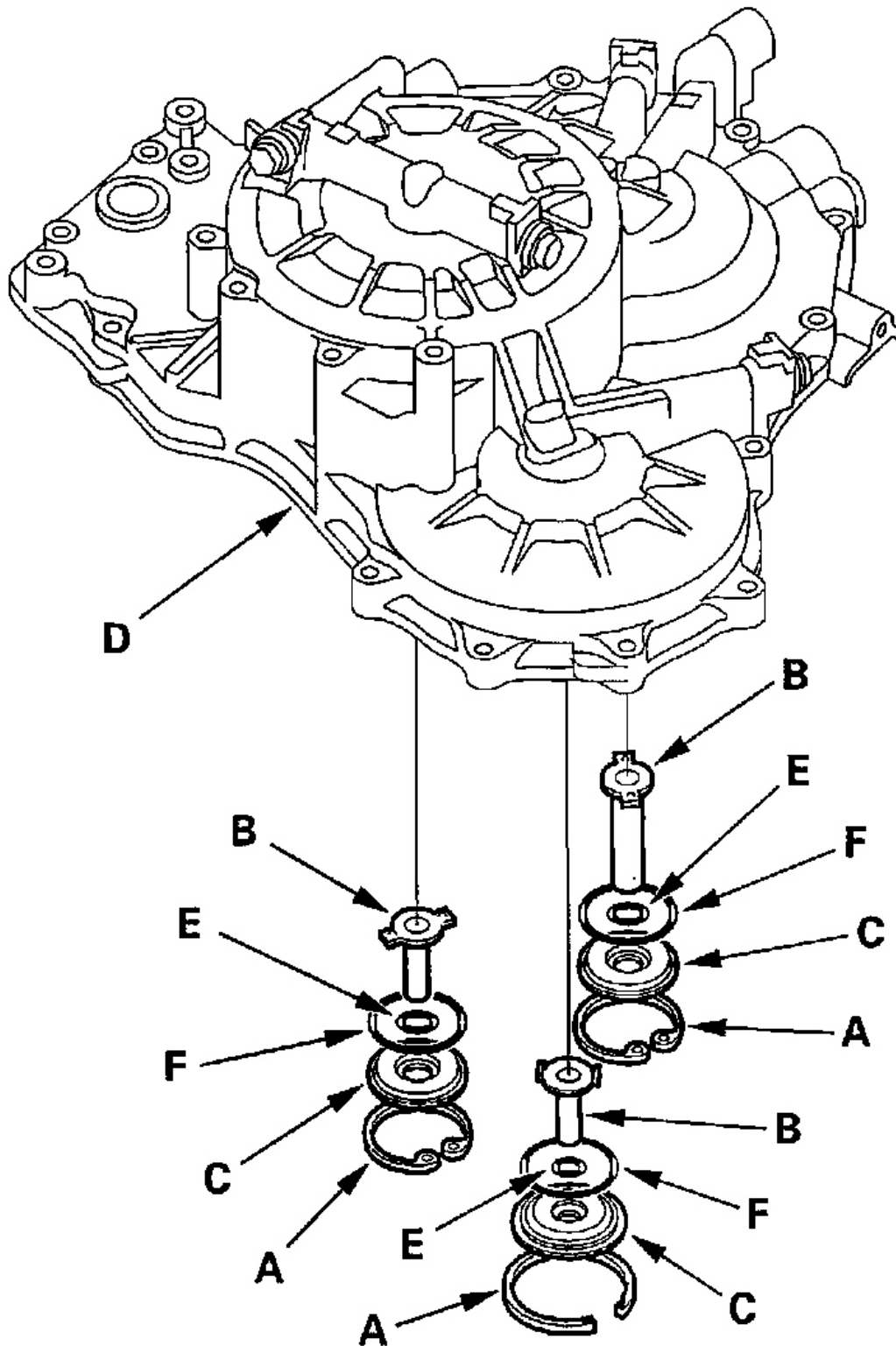


Fig. 12: Installing New Bearing Flush
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Install the new oil seal.

ATF FEED PIPES REPLACEMENT

1. Remove the snap rings (A), ATF feed pipes (B) and feed pipe flanges (C) from the end cover (D).



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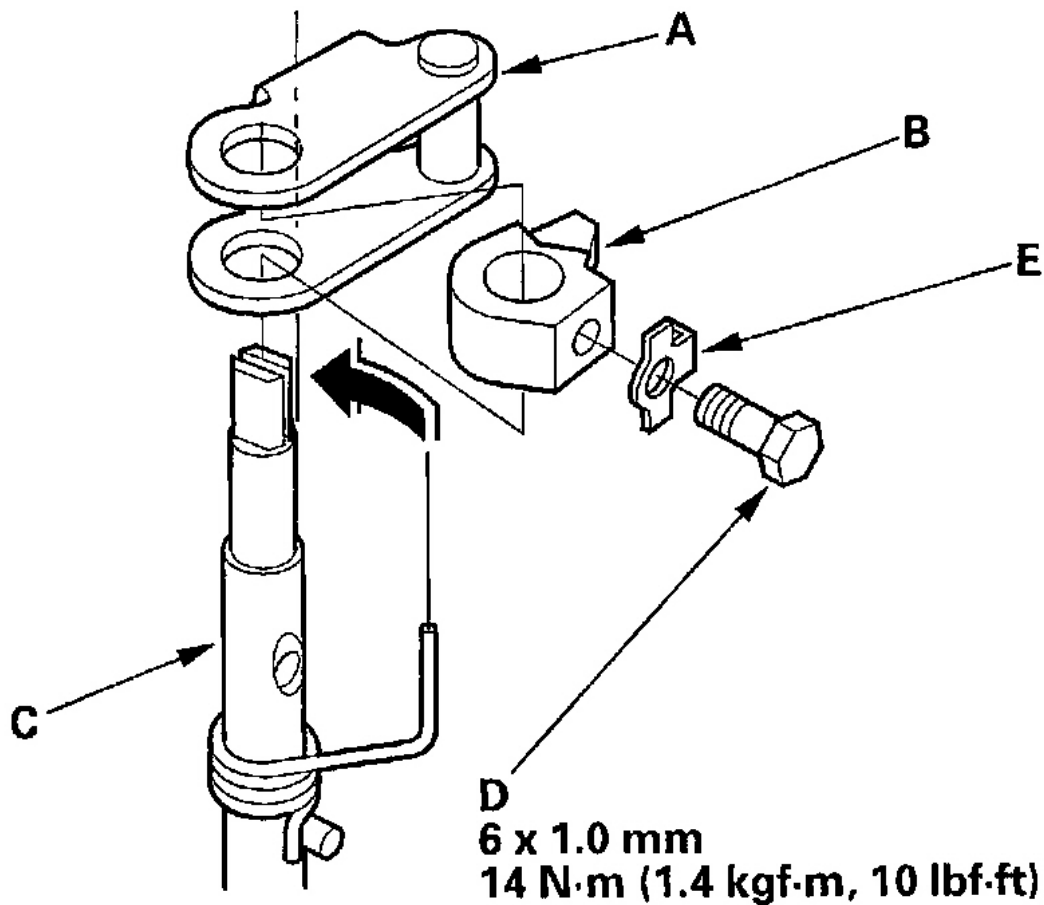
Fig. 13: Removing Snap Rings, ATF Feed Pipes & Feed Pipe Flanges
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Install the new O-ring (E) over the ATF feed pipe.
3. Install ATF feed pipe in the end cover with aligning the feed pipe tabs with the indentations in the end cover.
4. Install the new O-ring (F) in the end cover, then install the feed pipe flange over the ATF feed pipe and O-rings.
5. Secure the ATF feed pipe and feed pipe flange with the snap ring.

END COVER, 3RD GEARS, IDLER GEAR, AND 3RD CLUTCH INSTALLATION

Special Tools Required

- Mainshaft holder 07GAB-PF50101 or 07GAB-PF50100
 - Adjustable bearing puller, 25-40 mm 07736-A01000B or 07736-A01000A
1. Install the park lever (A) and park lever stop (B), on the control shaft (C), then install the lock bolt (D) with a new lock washer (E). Do not bend the lock tab of the lock washer until step 28.



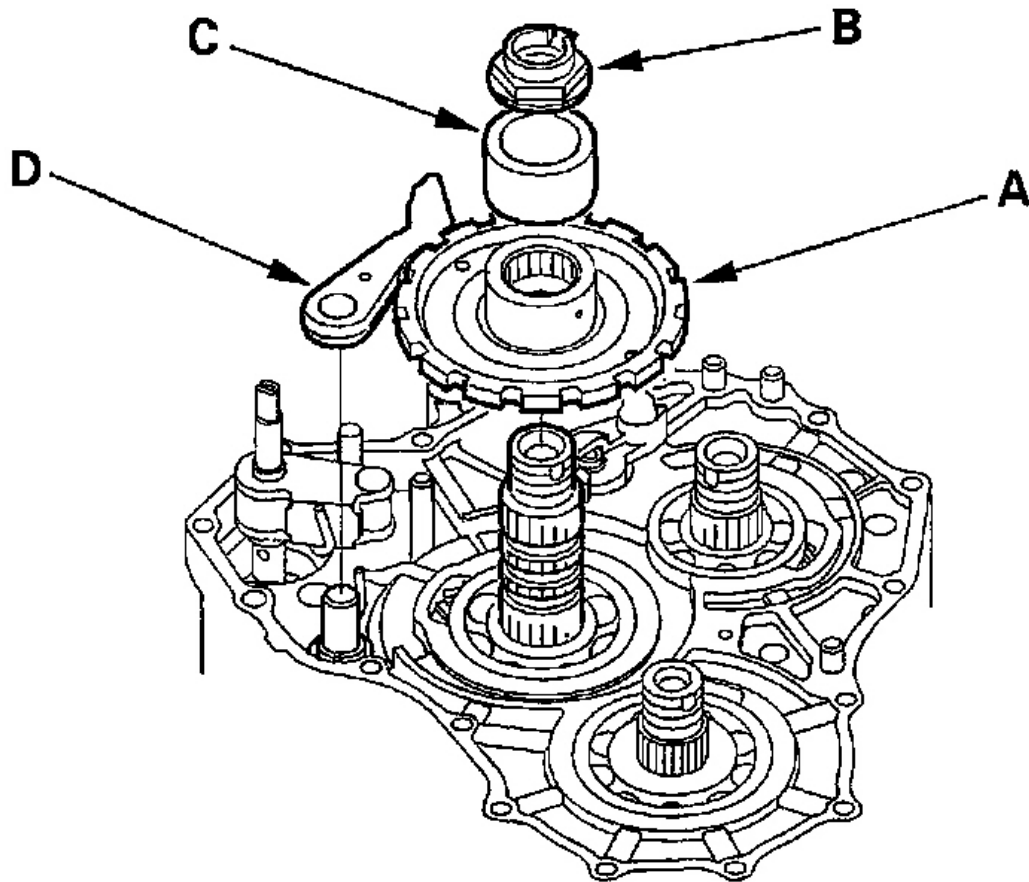
G01160632

Fig. 14: Installing Park Lever & Park Lever Stop On The Control Shaft
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Lubricate the following parts with ATF:
 - Splines of the countershaft, the park gear, and the old locknut.
 - Threads of the countershaft and the old locknut.
 - Old conical spring washer.
3. Install the park gear (A) using the old locknut (B) and a collar (C). Hold the park pawl (D) against the park gear, then tighten the old locknut until the shaft splines come out over the park gear splines.

NOTE:

- **Do not use an impact wrench.**
- **Countershaft locknut has left-hand threads.**



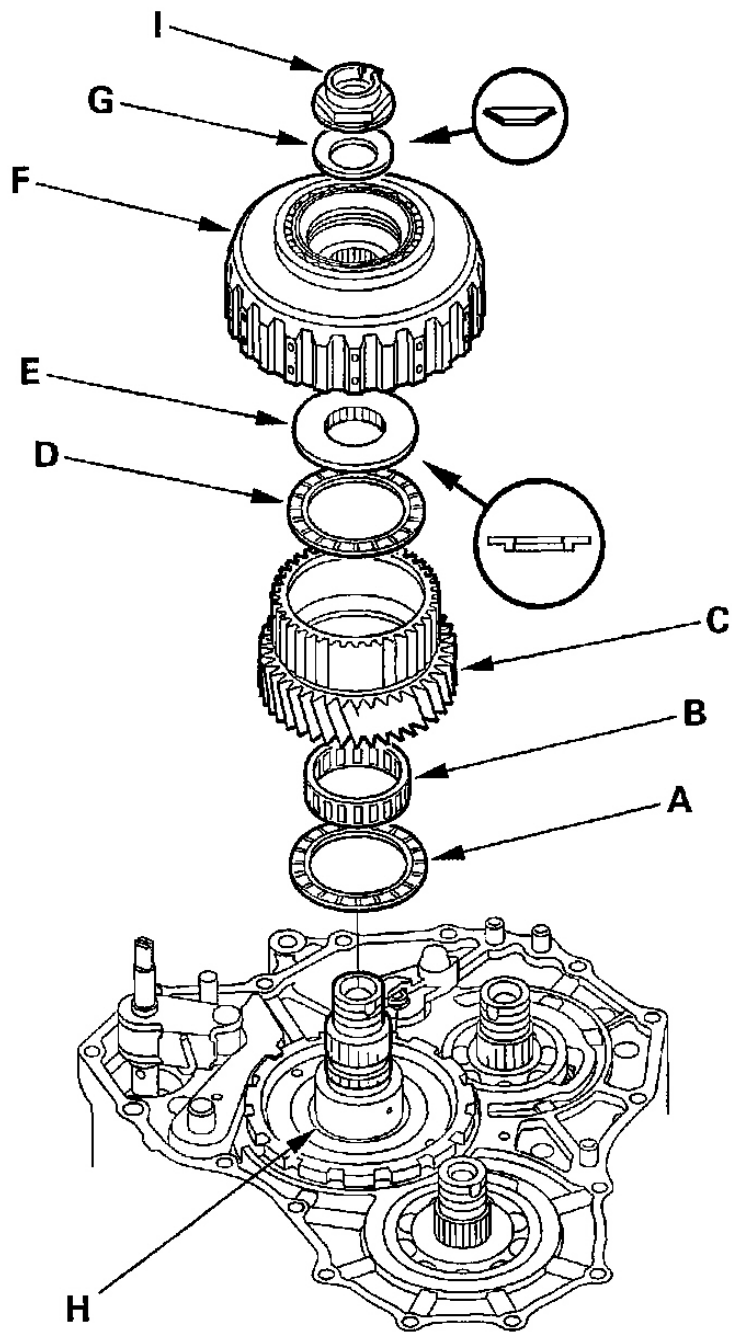
G01160633

Fig. 15: Installing Park Gear

Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Remove the locknut and collar.
5. Install the thrust needle bearing (A), needle bearing (B), 3rd gear (C), thrust needle bearing (D), 31 x 63.5 mm splined washer (E), 3rd clutch assembly (F), and old conical spring washer (G) on the countershaft (H). Tighten the old locknut (I) to 226 N.m (23.0 kgf.m, 166 Ft.Lbs.).

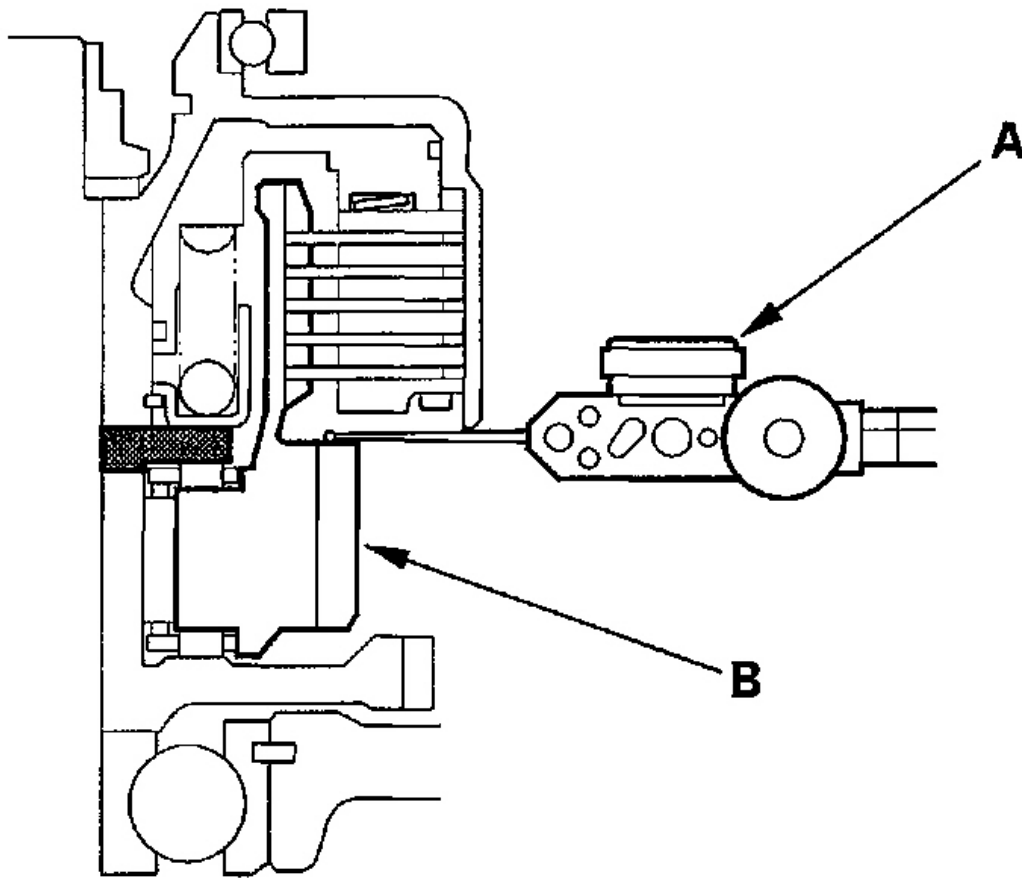
NOTE: Use a torque wrench to tighten the locknut. Do not use an impact wrench.



G01160634

Fig. 16: Installing Thrust Needle Bearing, Needle Bearing, 3rd Gear, Thrust Needle Bearing, 31 x 63.5 mm Splined Washer, 3rd Clutch Assembly & Old Conical Spring Washer
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Set the dial indicator (A) to the countershaft 3rd gear (B).



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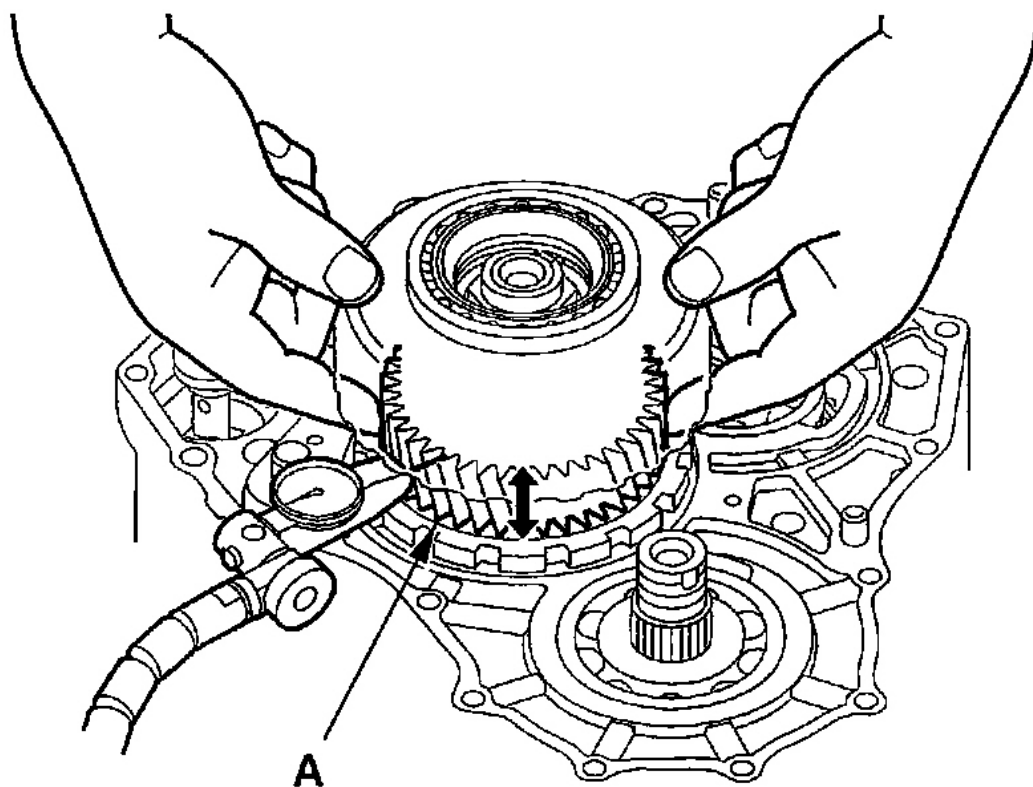
Fig. 17: Setting Dial Indicator To Countershaft 3rd Gear
Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. Measure the countershaft 3rd gear axial clearance in at least three places, while moving the countershaft 3rd gear (A).

Use the average as the actual clearance.

If the clearance is out of standard, select the appropriate 31 x 63.5 mm splined washer in step 16.

STANDARD: 0.015-0.045 mm (0.0006-0.0018 in.)



G01160636

Fig. 18: Measuring Countershaft 3rd Gear Axial Clearance
Courtesy of AMERICAN HONDA MOTOR CO., INC.

8. Remove the locknut and conical spring washer.
9. Remove the 3rd clutch assembly (A) with the special tool and a commercially available 3/8-16" slide hammer (B).

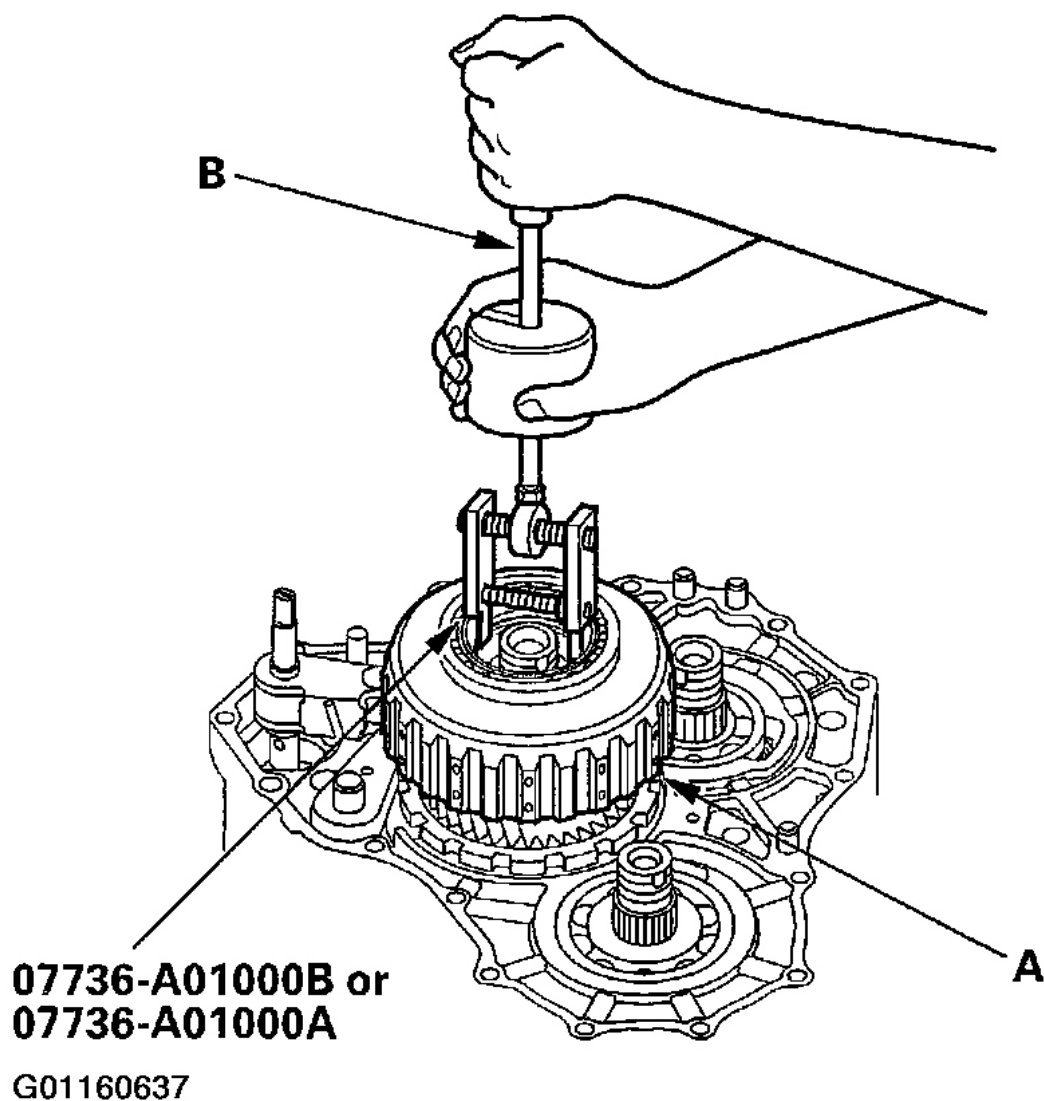


Fig. 19: Removing 3rd Clutch Assembly

Courtesy of AMERICAN HONDA MOTOR CO., INC.

10. Remove the parts that were installed in step 5.
11. Install the special tool onto the mainshaft.

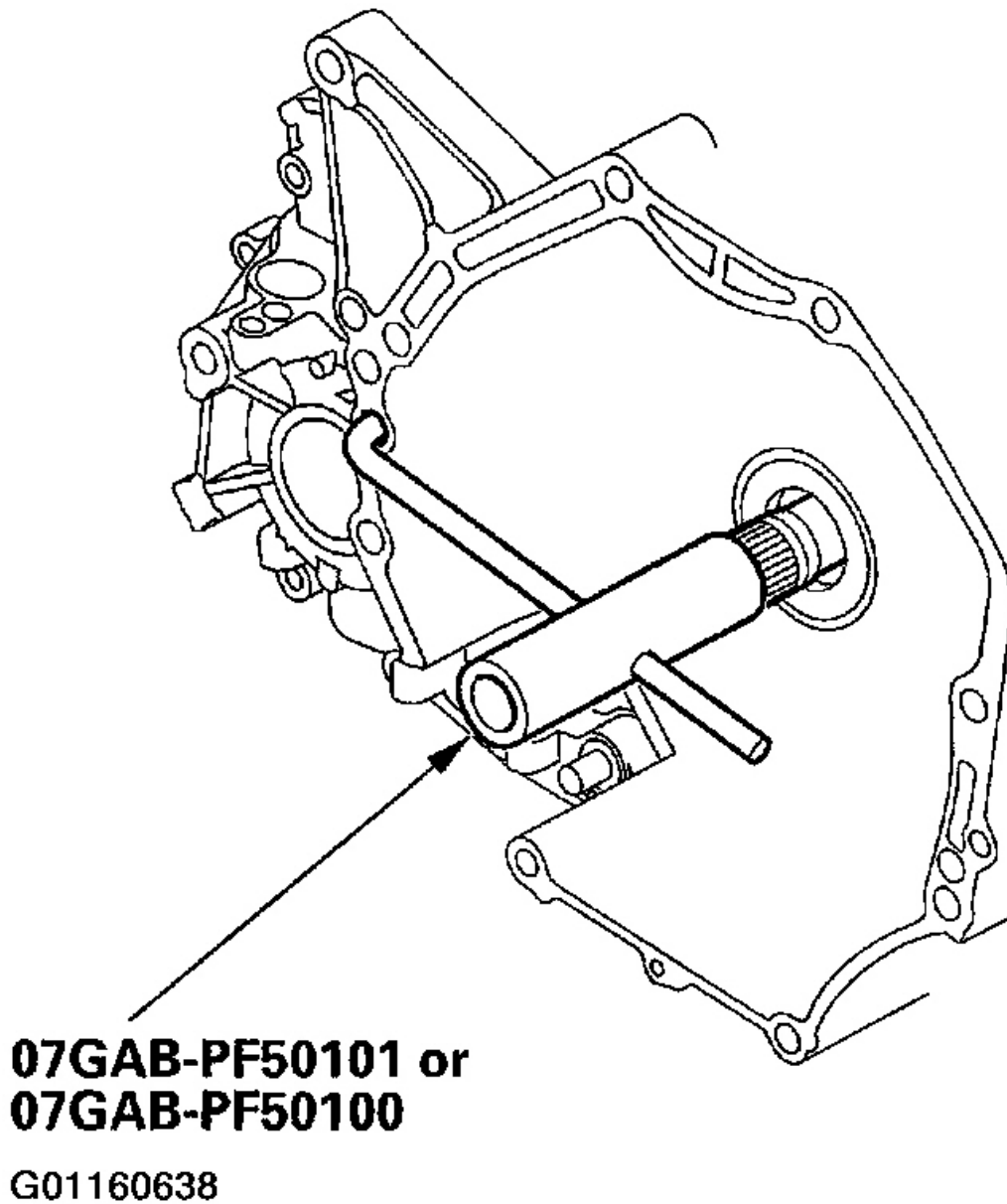
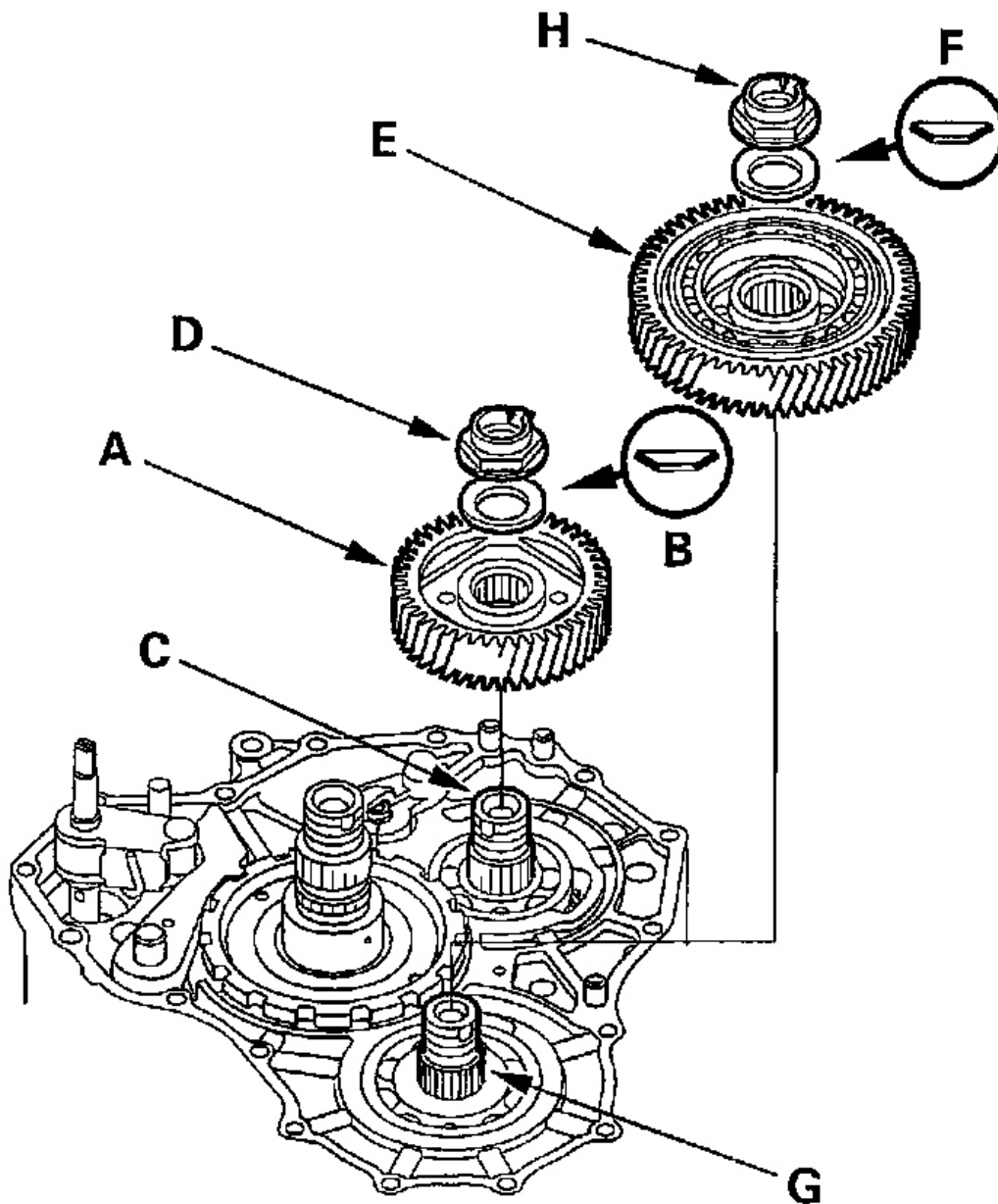


Fig. 20: Installing Special Tool Onto Mainshaft
Courtesy of AMERICAN HONDA MOTOR CO., INC.

12. Lubricate the following parts with ATF:
- Splines of the mainshaft 3rd gear and secondary shaft idler gear.
 - Threads of the mainshaft and secondary shaft.
 - Threads of the old mainshaft and secondary shaft locknuts.

- Old conical spring washer.
13. Install the mainshaft 3rd gear (A) and the old conical spring washer (B) on the mainshaft (C). Tighten the old locknut (D) to seat the 3rd gear to 226 N.m (23.0 kgf.m, 166 Ft.Lbs.).

NOTE: **Use a torque wrench to tighten the locknut. Do not use an impact wrench.**



G01160639

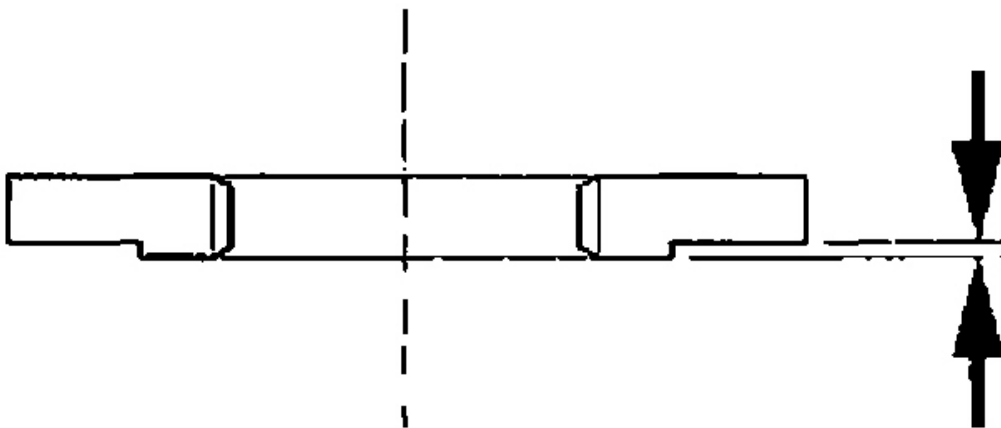
Fig. 21: Installing Mainshaft 3rd Gear & Old Conical Spring Washer
Courtesy of AMERICAN HONDA MOTOR CO., INC.

14. Install the secondary shaft idler gear (E) and the old conical spring washer (F) on the secondary shaft (G). Tighten the old locknut (H) to seat the secondary shaft idler gear to 226 N.m (23.0 kgf.m, 166 Ft.Lbs.).

NOTE:

- Use a torque wrench to tighten the locknut. Do not use an impact wrench.
- Secondary shaft locknut has left-hand threads.

15. Remove the old locknuts and old conical spring washers from the mainshaft and secondary shaft.
16. If the 3rd gear axial clearance is out of standard (measured in step 7) measure the difference of the 31 x 63.5 mm splined washer, and select the appropriate splined washer from the table below.



G01160640

Fig. 22: Selecting Appropriate Splined Washer

Courtesy of AMERICAN HONDA MOTOR CO., INC.

Mark	Part Number	Difference
A	90520-P7W-000	3.503 mm (0.1379 in.)
B	90521-P7W-000	3.490 mm (0.1374 in.)
C	90522-P7W-000	3.477 mm (0.1369 in.)
D	90523-P7W-000	3.464 mm (0.1364 in.)

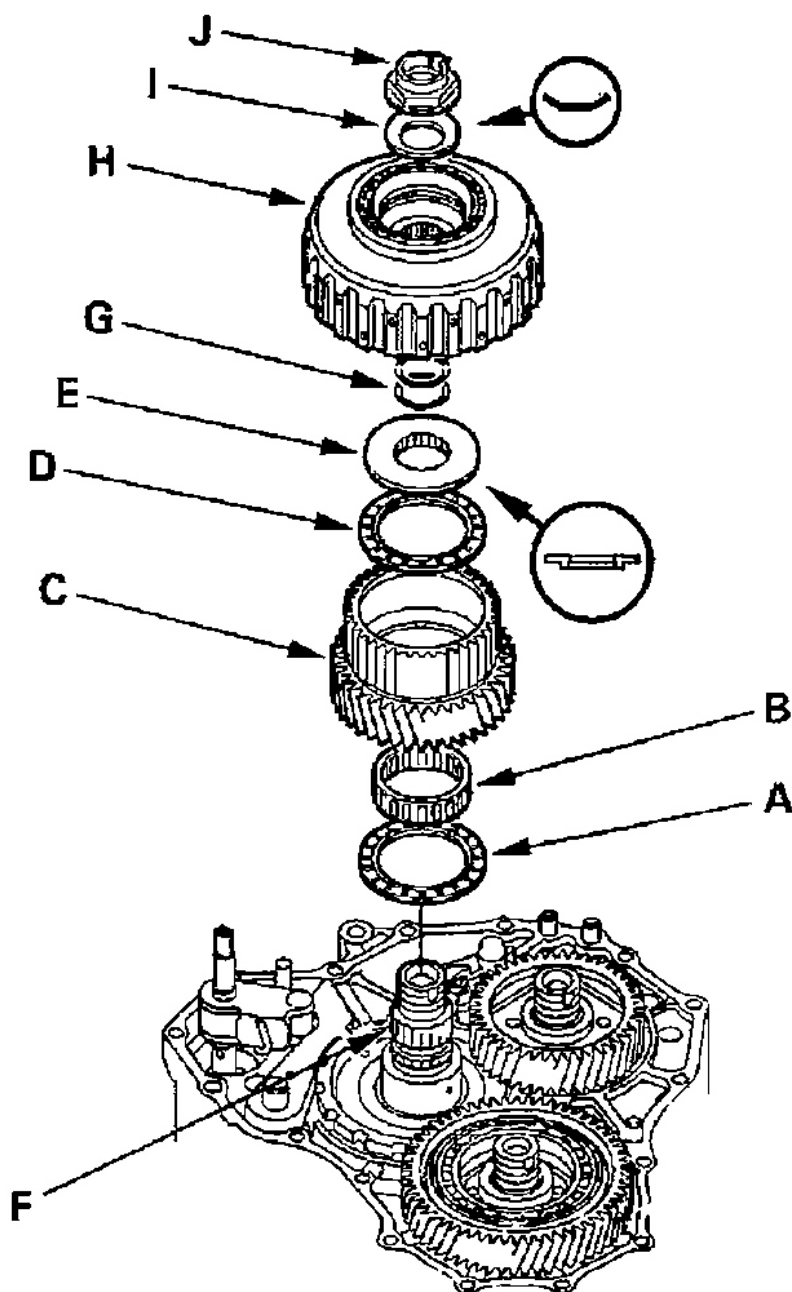
G01160641

Fig. 23: Identifying Splined Washer (31 x 63.5 mm)

Courtesy of AMERICAN HONDA MOTOR CO., INC.

17. Install the thrust needle bearing (A), needle bearing (B), 3rd gear (C), thrust needle bearing (D), and 31 x 63.5 mm splined washer (E) on the countershaft (F).
18. Wrap the shaft splines with tape to prevent O-ring damage, then install new O-rings (G).
19. Remove the tape, then install the 3rd clutch assembly (H), and old conical spring washer (I). Tighten the old locknut (J) to 226 N.m (23.0 kgf.m, 166 Ft.Lbs.).

NOTE: **Use a torque wrench to tighten the locknut. Do not use an impact wrench.**

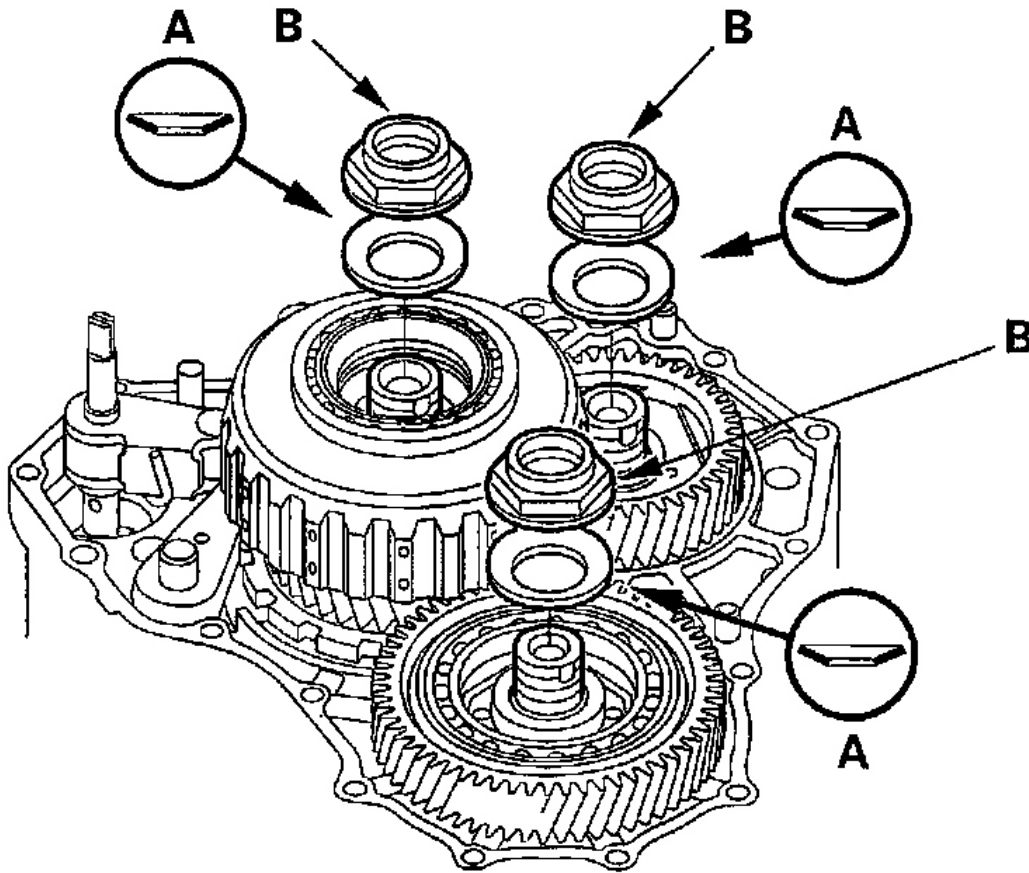


G01160642

Fig. 24: Installing 3rd Clutch Assembly & Old Conical Spring Washer
Courtesy of AMERICAN HONDA MOTOR CO., INC.

20. Remove the old locknut and old conical spring washer from the countershaft.
21. Lubricate the threads of each shaft, the new locknuts, and new conical spring washers with ATF.

22. Install the new conical spring washers (A) in the direction shown, and install the new locknuts (B).



G01160643

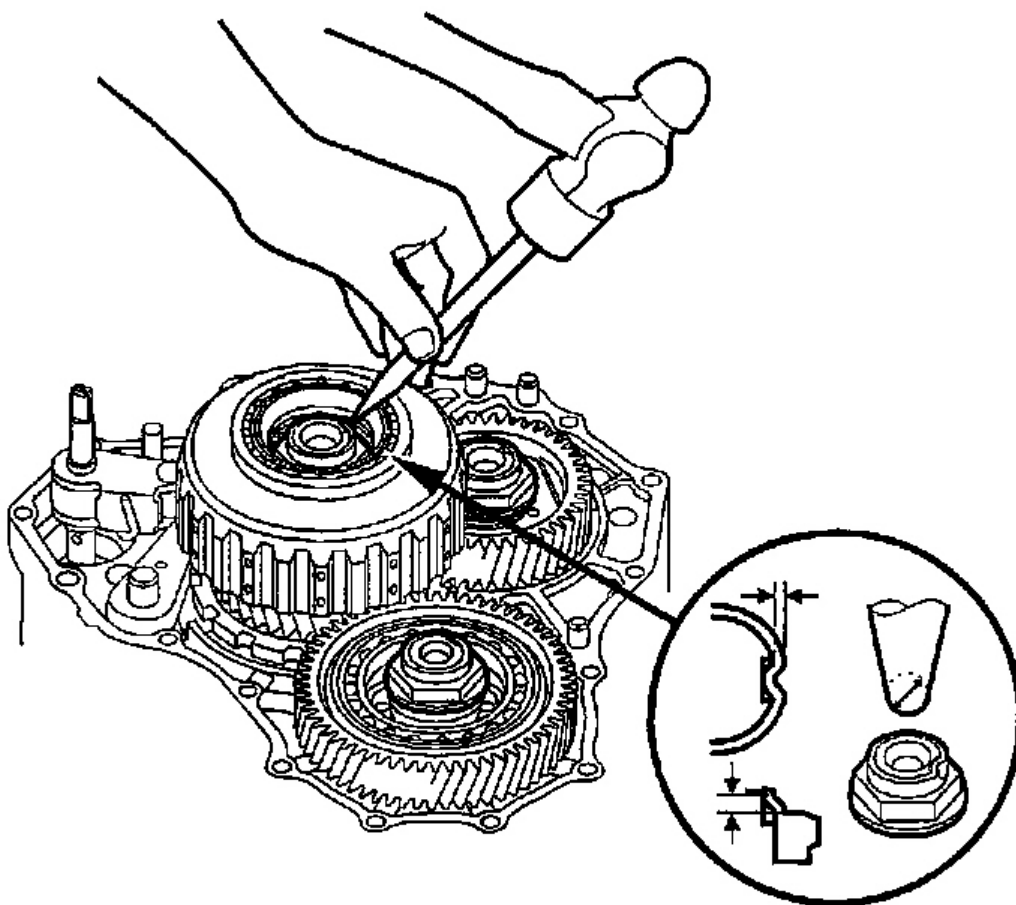
Fig. 25: Installing New Conical Spring Washers
Courtesy of AMERICAN HONDA MOTOR CO., INC.

23. Tighten the locknuts to 167 N.m (17.0 kgf.m, 123 Ft.Lbs.).

NOTE:

- Use a torque wrench to tighten the locknuts. Do not use an impact wrench.
- Countershaft and secondary shaft locknuts have left-hand threads.

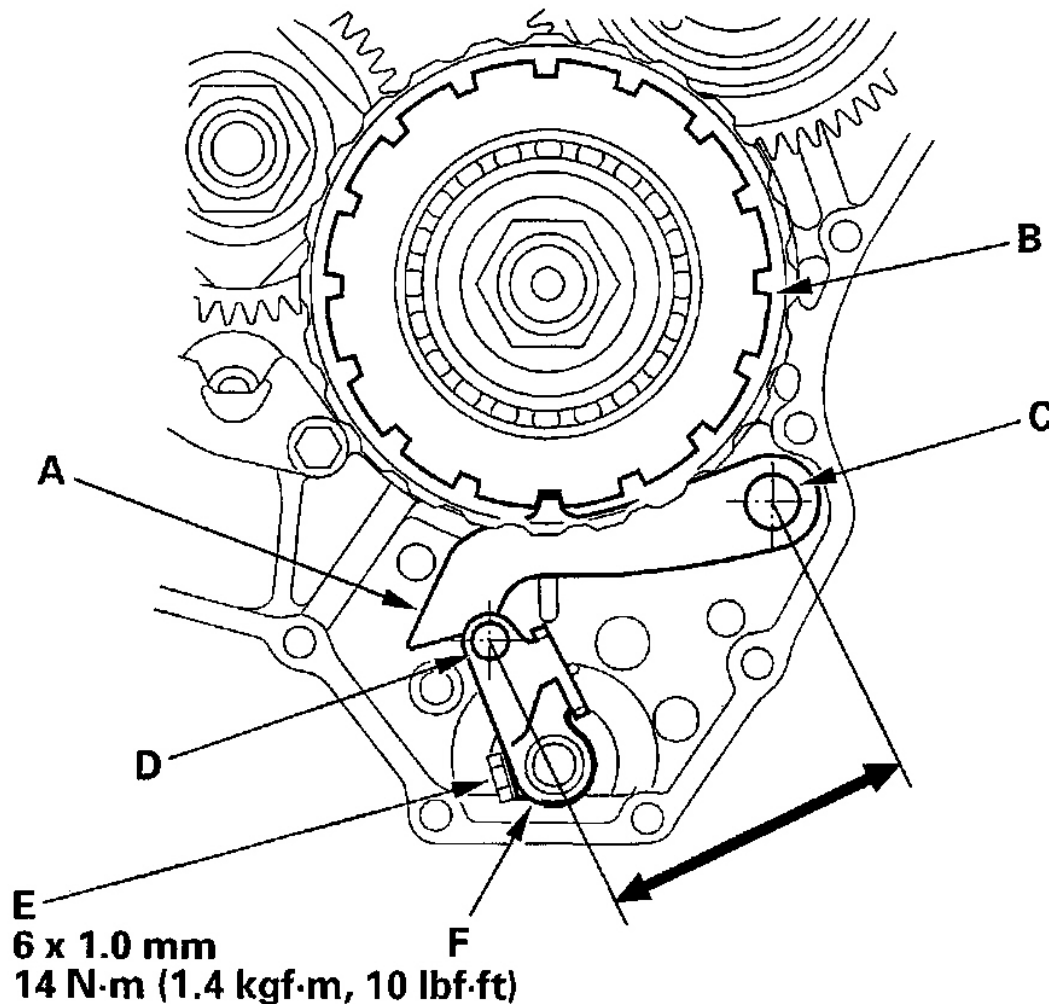
24. Remove the special tool from the mainshaft.
25. Stake each locknut into its shaft using a 3.5 mm punch.



G01160644

Fig. 26: Staking Each Locknut Into Its Shaft
Courtesy of AMERICAN HONDA MOTOR CO., INC.

26. Set the park lever in the **P** position, then verify that the park pawl (A) engages the park gear (B).

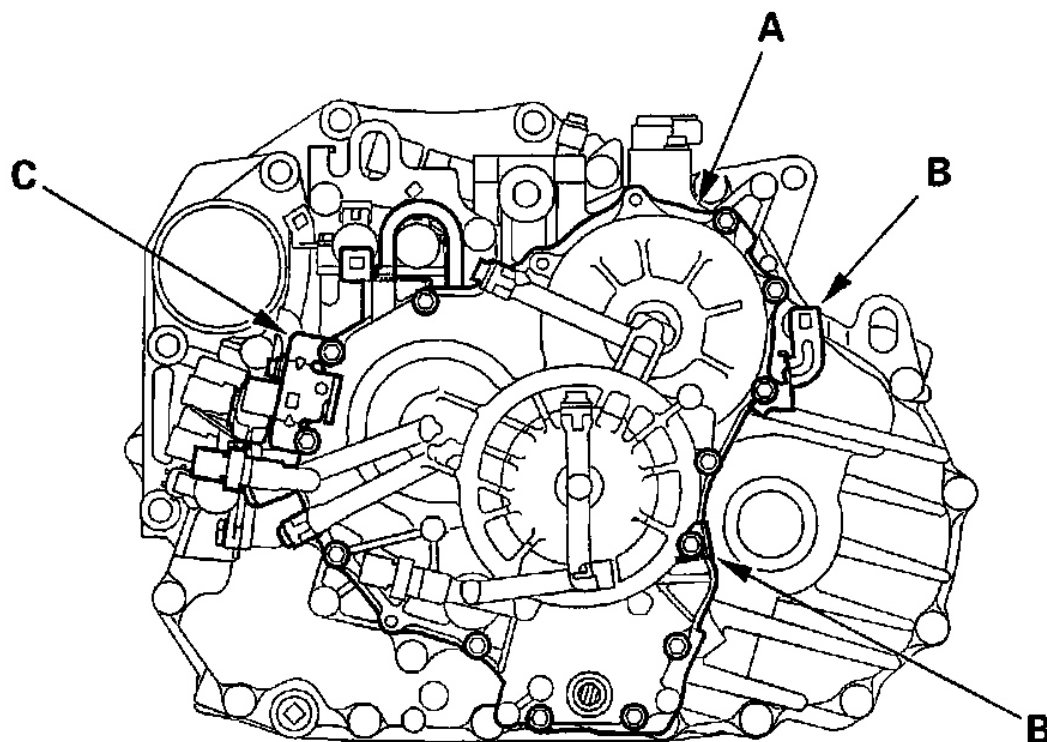


G01160645

Fig. 27: Setting Park Lever In P Position

Courtesy of AMERICAN HONDA MOTOR CO., INC.

27. If the park pawl does not engage fully, check the distance between the pawl shaft (C) and the park lever roller pin (D). See **Park Lever Stop Inspection and Adjustment**.
28. Tighten the lock bolt (E), and bend the lock tab of the lock washer (F) against the lock bolt head.
29. Install the end cover (A) with the two dowel pins, new O-rings, new gasket, harness clamp bracket (B), and connector bracket (C). Tighten the 13 bolts to 12 N.m (1.2 kgf.m, 8.7 Ft.Lbs.).

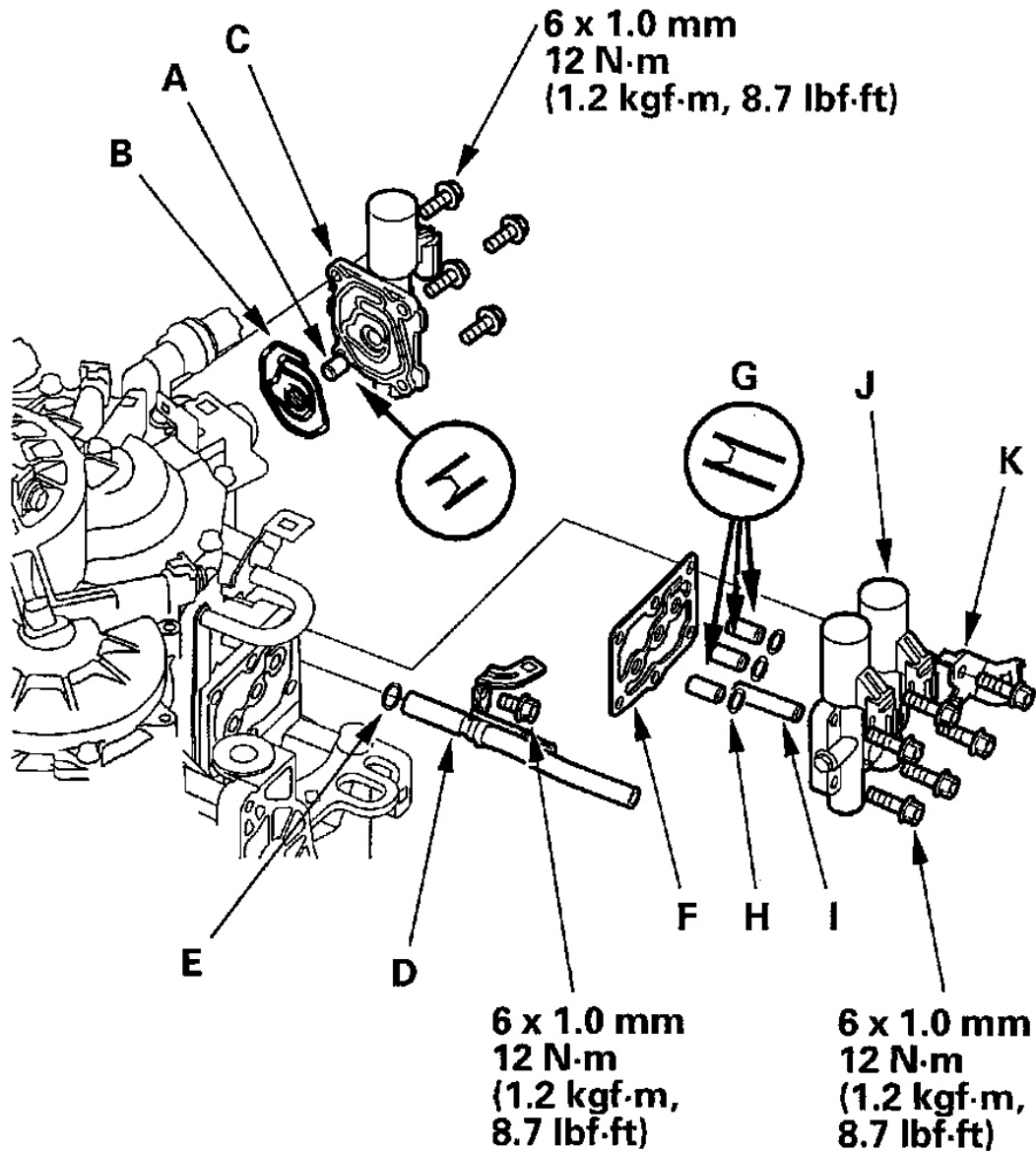


G01160646

Fig. 28: Installing End Cover With Two Dowel Pins, New O-Rings, New Gasket, Harness Clamp Bracket, & Connector Bracket

Courtesy of AMERICAN HONDA MOTOR CO., INC.

30. Install the 8 x 12 mm ATF feed pipe (A) with its filter side into the transmission housing.



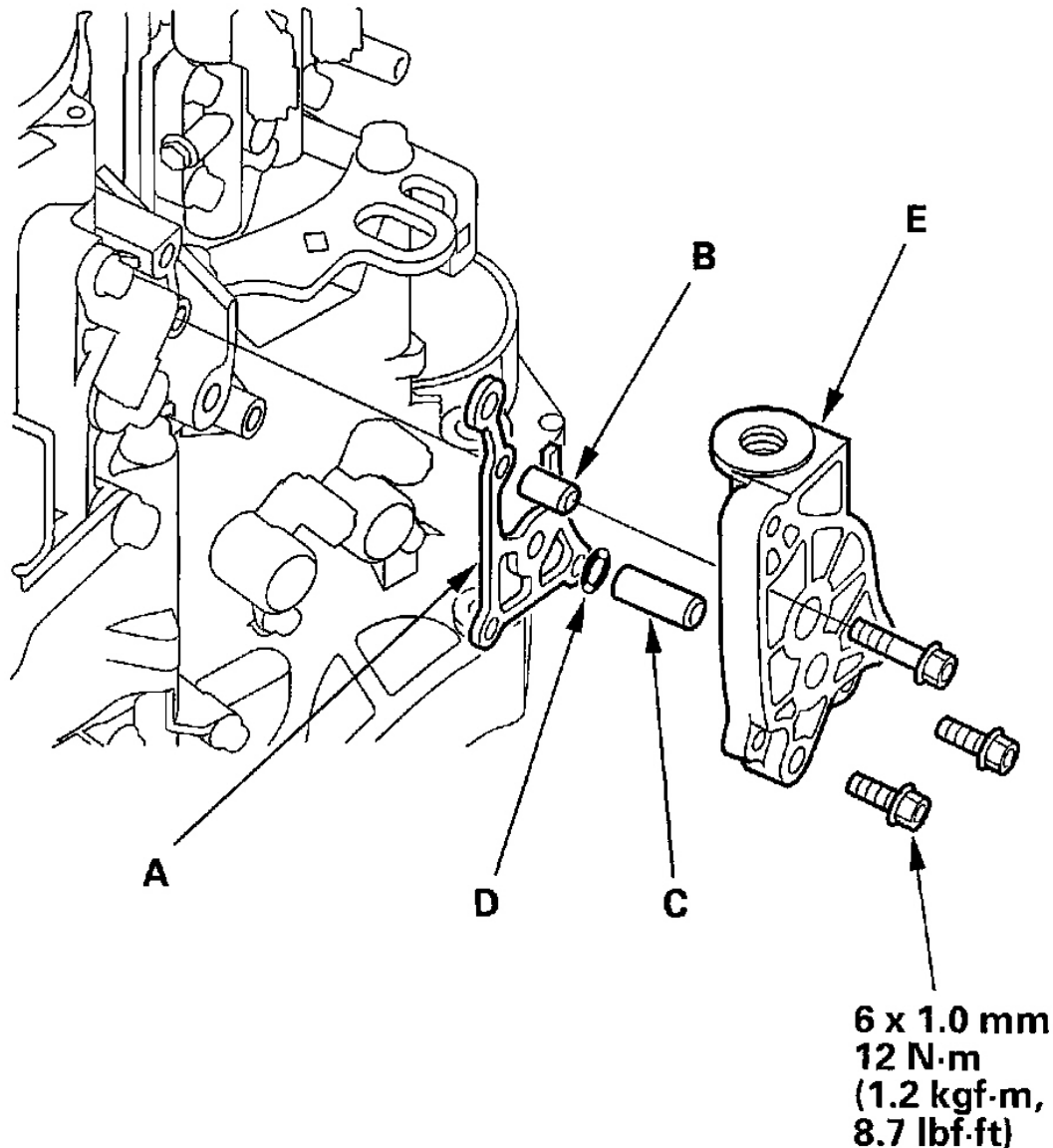
G01160647

Fig. 29: Installing 8 x 12 mm ATF Feed Pipe

Courtesy of AMERICAN HONDA MOTOR CO., INC.

31. Install the new gasket (B) in the mounting groove of the A/T clutch pressure control solenoid valve C body (C) properly, then install them on the transmission housing. Do not pinch the gasket.
32. Install the ATF dipstick guide pipe (D) with the new O-ring (E).
33. Place the new gasket (F) on the transmission housing, then install the 8 x 18 mm ATF feed pipes (G) with their filter side into the transmission housing.

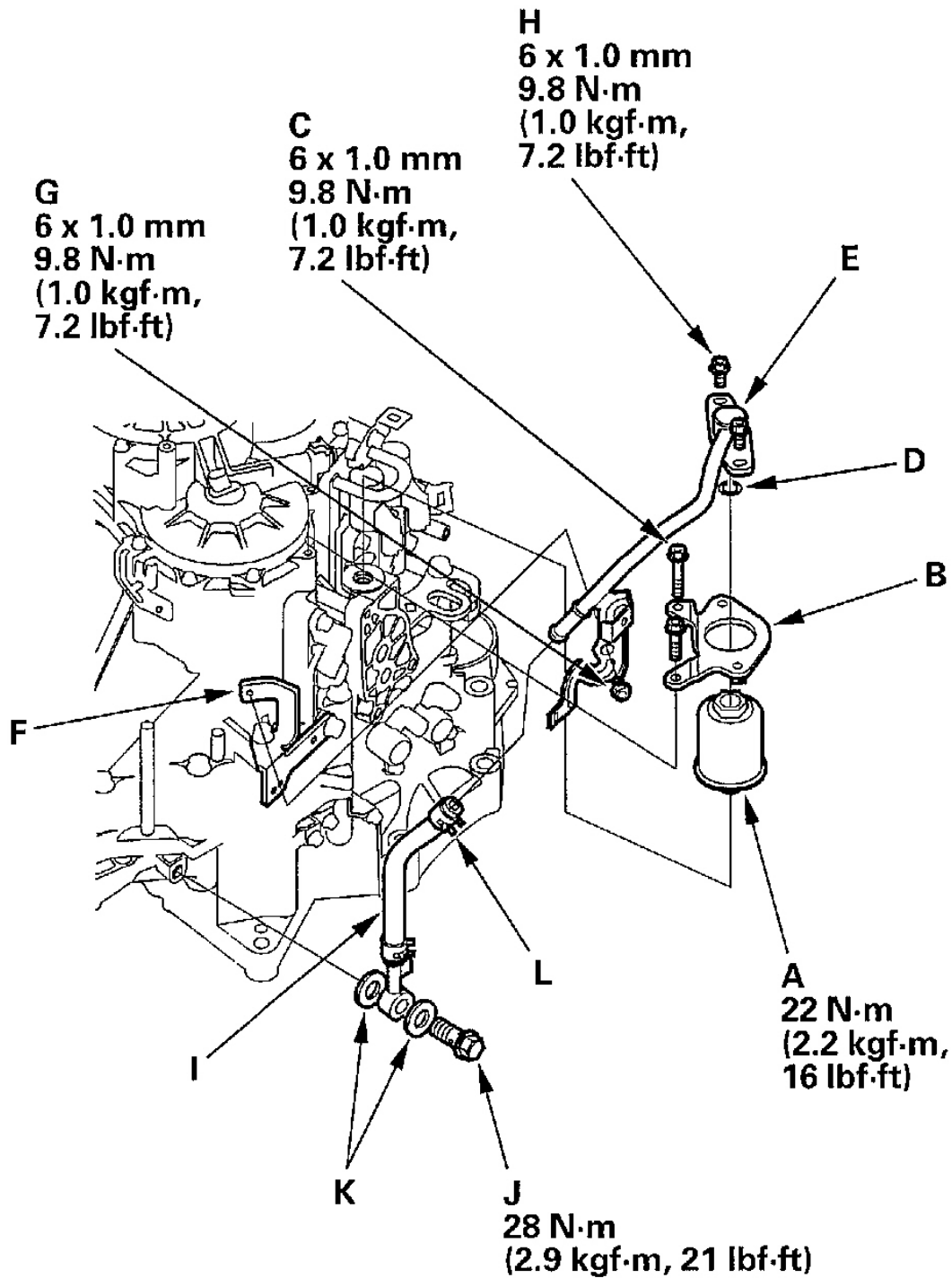
34. Install the new O-rings (H) over the feed pipes, and install the 8 x 40 mm ATF feed pipe (I).
35. Install the A/T clutch pressure control solenoid valves A and B (J) and the harness clamp bracket (K).
36. Place the new ATF passage body gasket (A) on the transmission housing, then install the 8 x 14 mm dowel pin (B) and the 10 x 25.5 mm ATF feed pipe (C) with the new O-ring (D). Install the ATF passage body (E) on the transmission housing, if it was removed.



G01160648

Fig. 30: Placing New ATF Passage Body Gasket On Transmission Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

37. Install the new ATF filter (A) on the transmission housing.

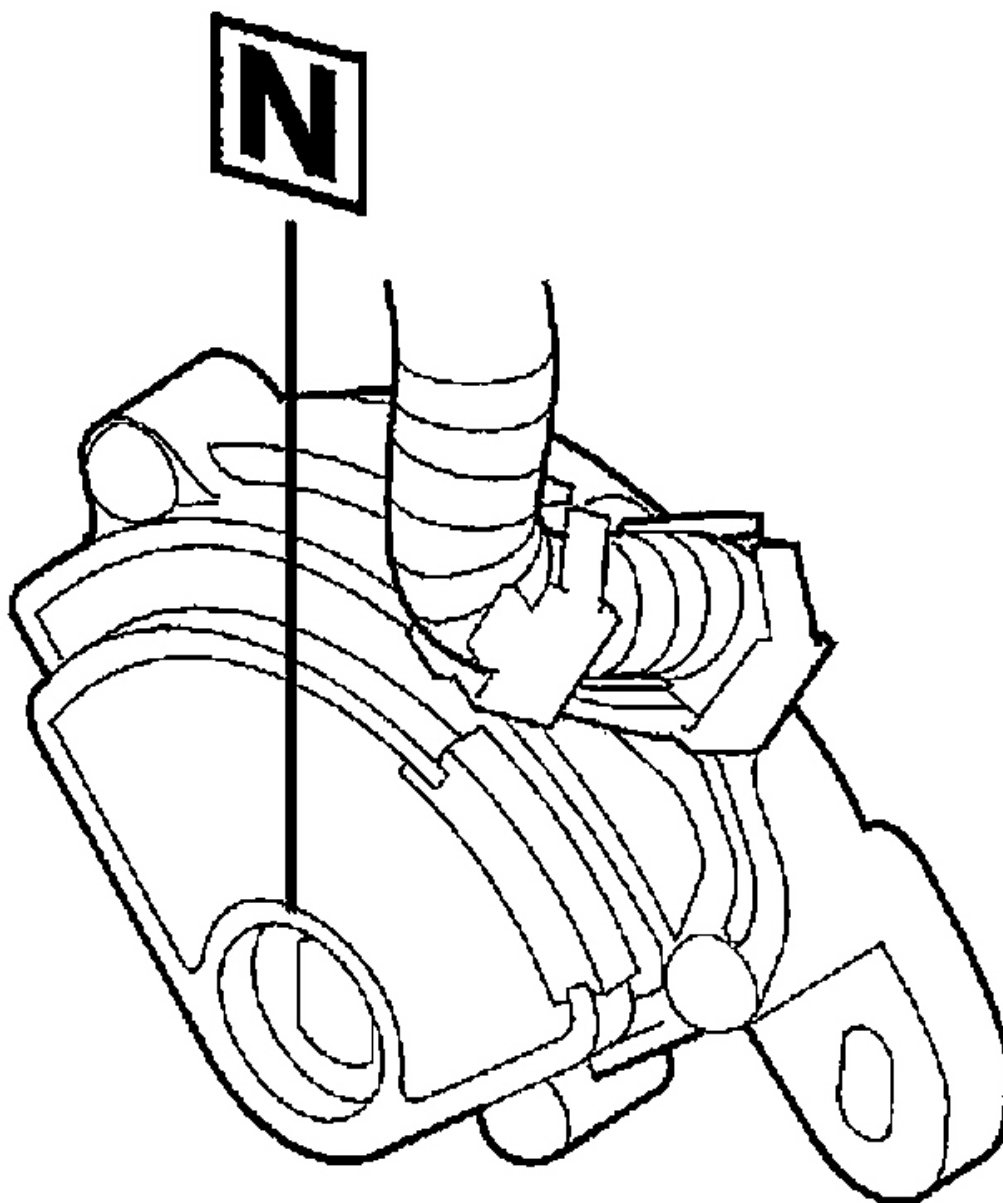


G01160649

Fig. 31: Installing New ATF Filter**Courtesy of AMERICAN HONDA MOTOR CO., INC.**

38. Install the filter line bracket (B) on the ATF filter, and loosely install the bolts (C).
39. Install the new O-ring (D) to the filter line (E), then install the filter line on the ATF filter.
40. Secure the end of the filter line on the bracket (F) with the bolt (G).
41. Secure the filter line on the filter line bracket with the bolts (H).
42. Tighten the bolts (C) on the filter line bracket to the specified torque.
43. Install the ATF hose (I) and line bolt (J) with the new sealing washers (K).
44. Connect the hose to the filter line, and secure it with the clip (L).
45. Set the transmission range switch to the **N** position.

NOTE: **The transmission range switch clicks in the [N] position.**

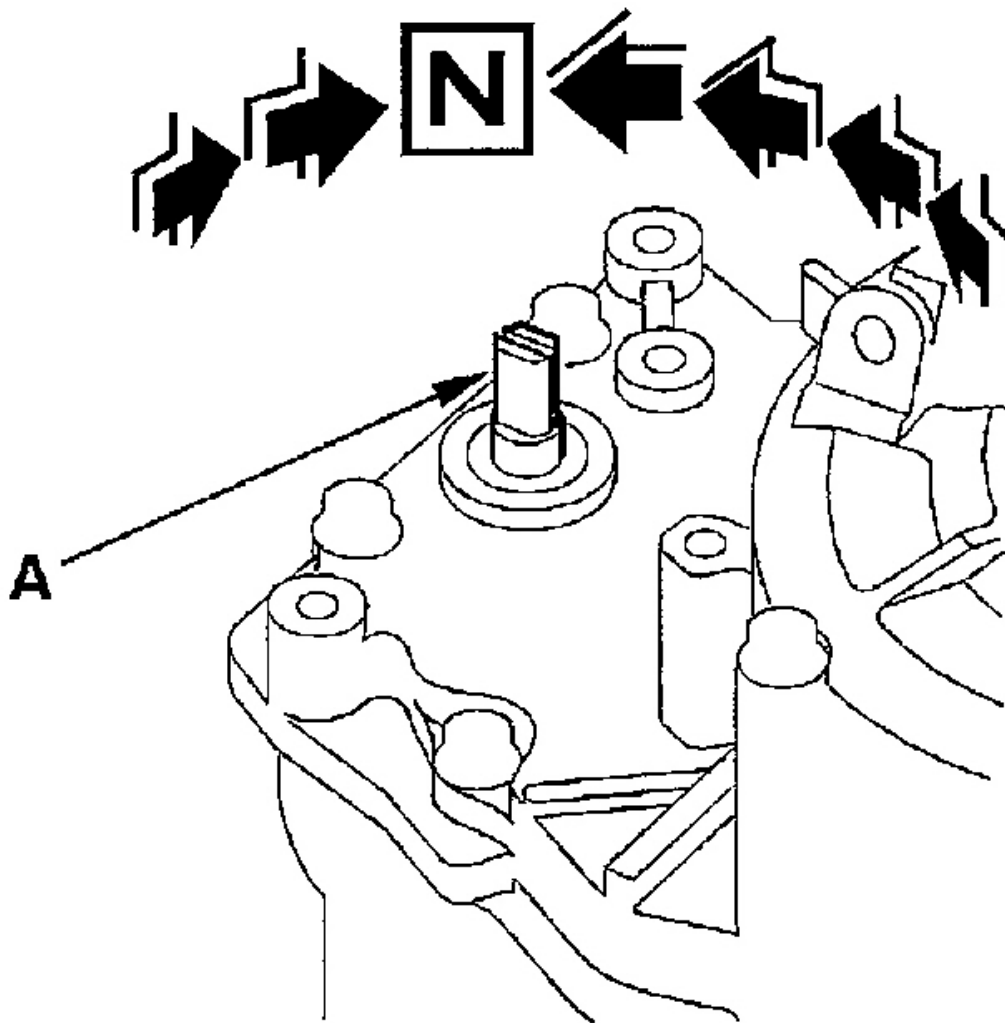


G01160650

Fig. 32: Setting Transmission Range Switch To N Position
Courtesy of AMERICAN HONDA MOTOR CO., INC.

46. Set the control shaft (A) to the N position by turning it.

NOTE: Be careful not to squeeze the end of the control shaft tips together. If the tips are squeezed together it will cause a faulty shift signal or position due to the play between the control shaft and the switch.

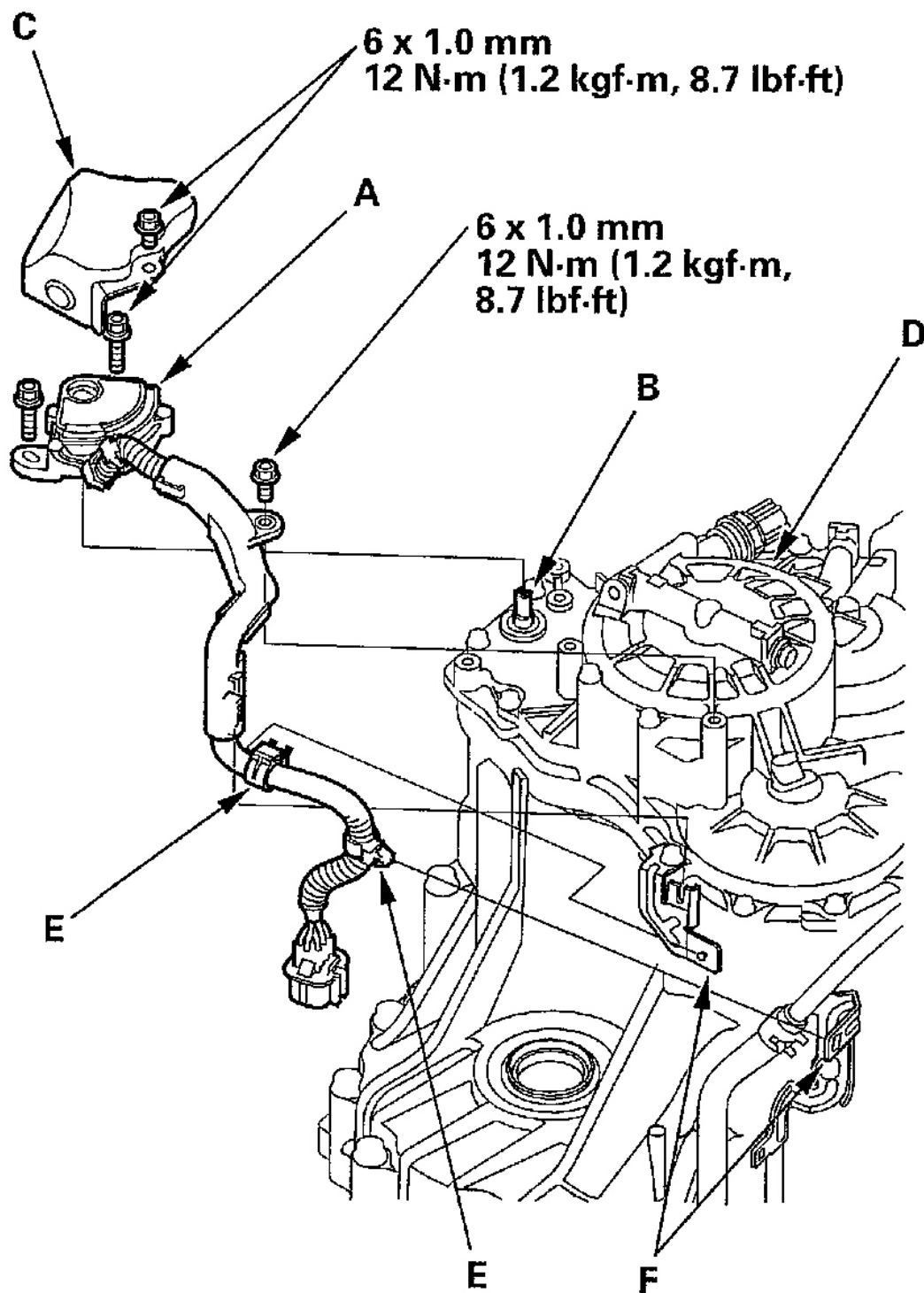


G01160651

Fig. 33: Setting Control Shaft To N Position
Courtesy of AMERICAN HONDA MOTOR CO., INC.

47. Install the transmission range switch (A) gently on the control shaft (B). Take care not to move the transmission range switch when tightening its bolts.
48. Install the transmission range switch cover (C); secure the harness with the bolt on the end cover (D);

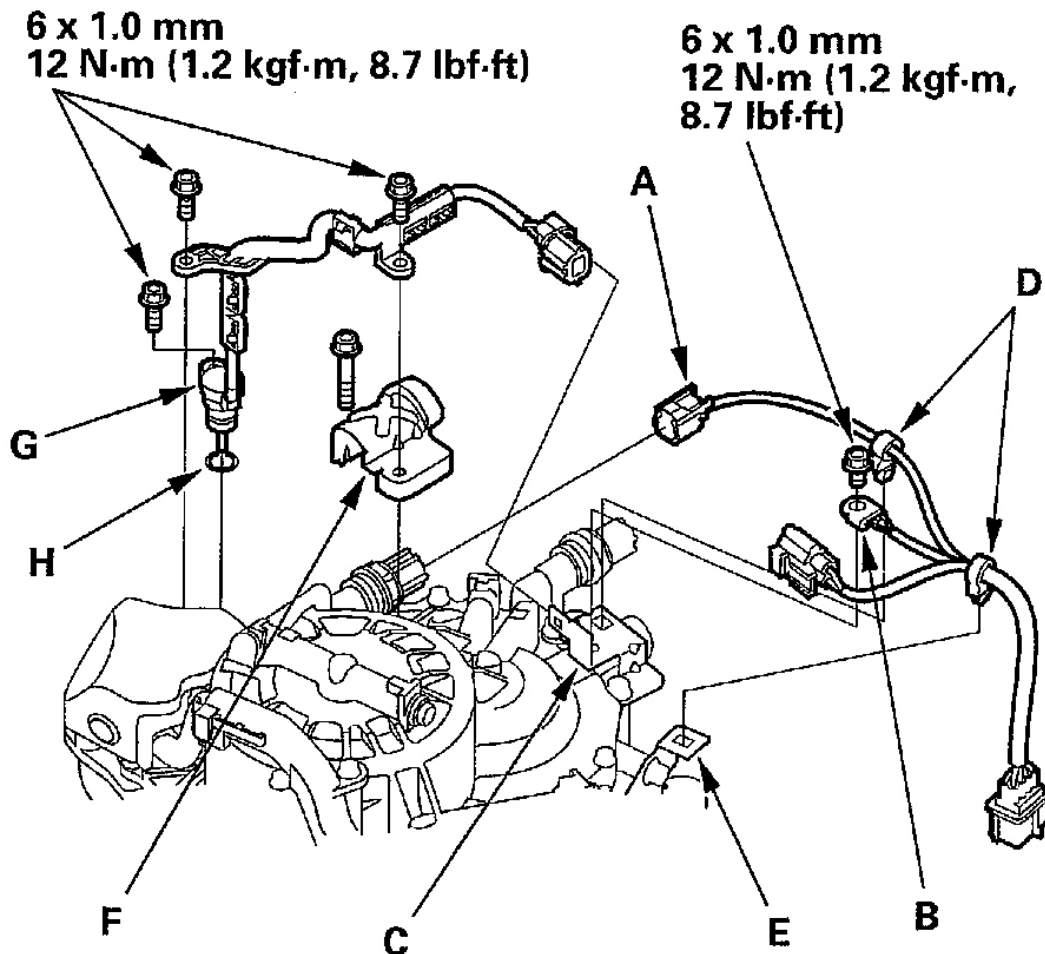
install the harness clamps (E) on the clamp brackets (F).



G01160652

Fig. 34: Installing Transmission Range Switch Cover & Harness Clamps
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

49. Connect the 3rd clutch pressure switch connector (A) and A/T wire harness ground terminal (B) on the connector bracket (C), then install the clamps (D) on the clamp bracket (E).



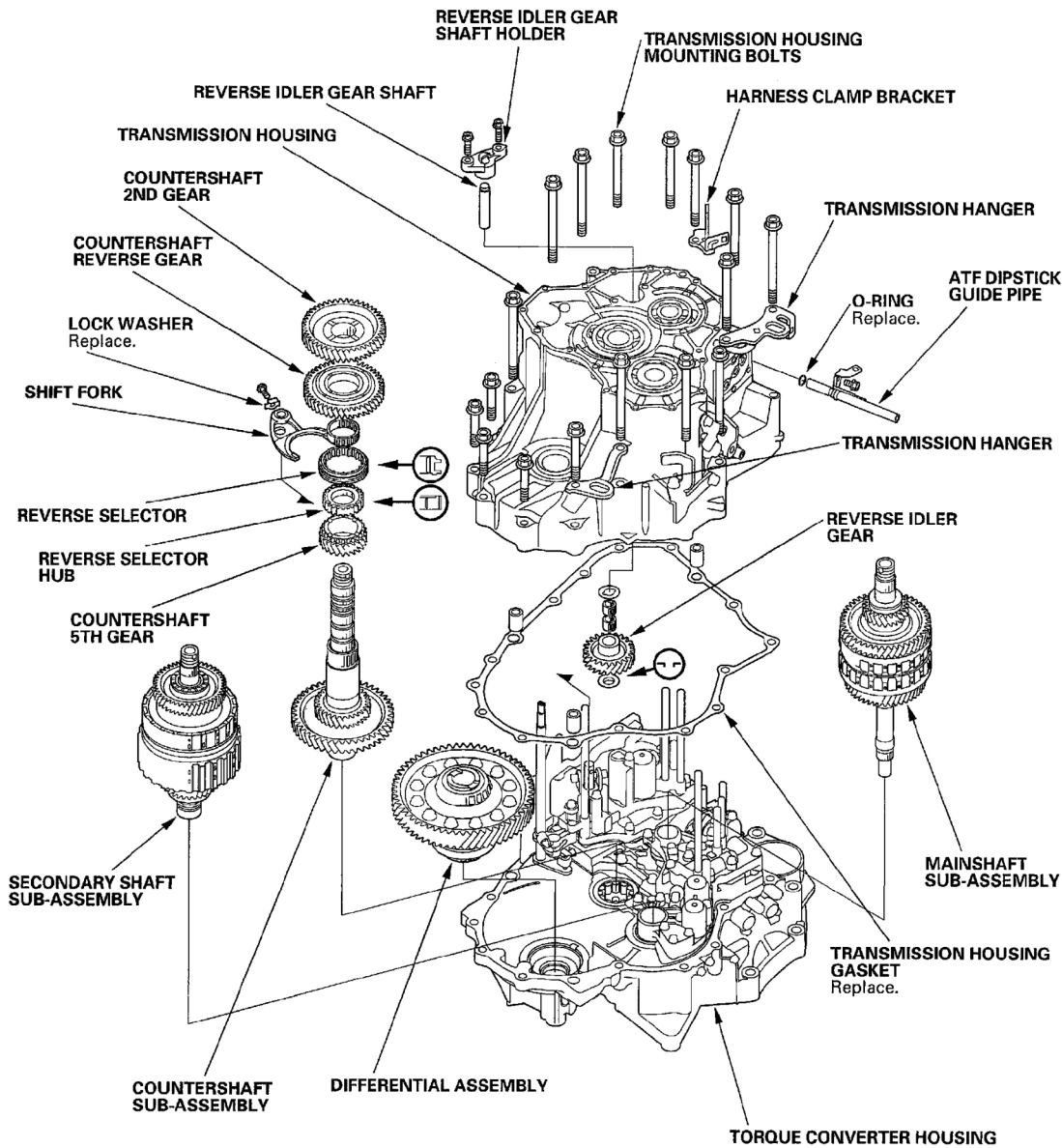
G01160653

Fig. 35: Connecting 3rd Clutch Pressure Switch Connector & A/T Wire Harness Ground Terminal
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

50. Install the switch cover (F).
51. Install the ATF temperature sensor (G) with the new O-ring (H), then secure the harness with the bolts. Connect the sensor connector to the A/T wire harness connector, then install it on the connector bracket (C).
52. Install the dipstick.

TRANSMISSION HOUSING

HOUSING AND SHAFT ASSEMBLIES REMOVAL



G01160522

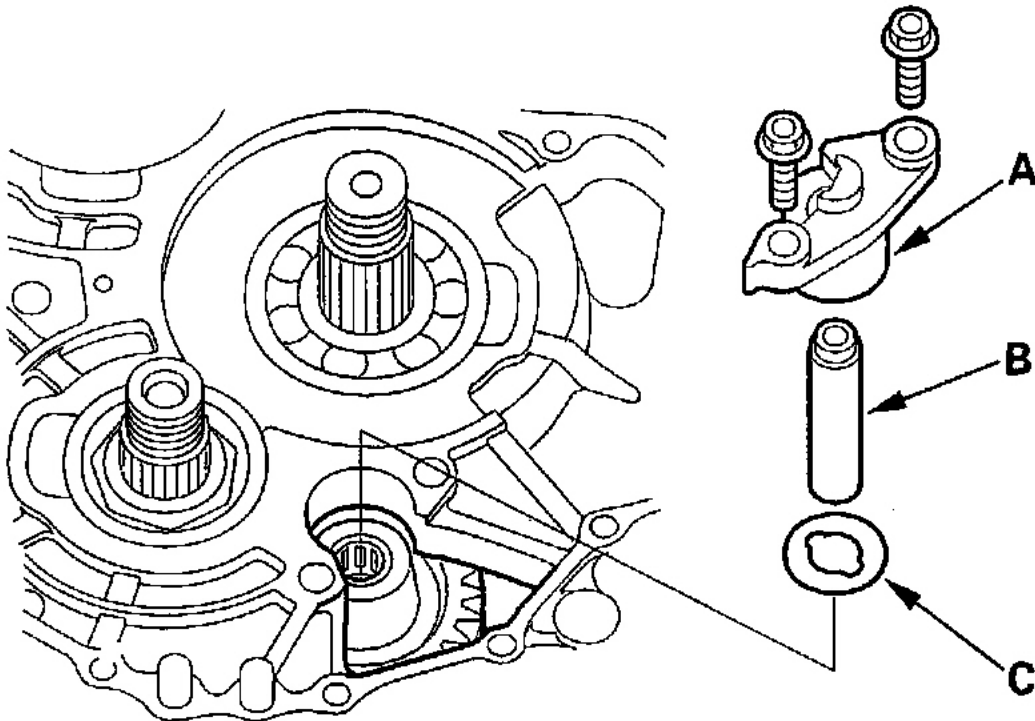
Fig. 36: Exploded View Of Housing and Shaft Assemblies Removal
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

Special Tools Required

Housing puller 07HAC-PK40102

NOTE: Refer to the Exploded View as needed during the following procedure.

1. Remove the ATF dipstick guide pipe.
2. Remove the two bolts securing the reverse idler gear shaft holder, then remove the reverse idler gear shaft holder (A), shaft (B), and washer (C).

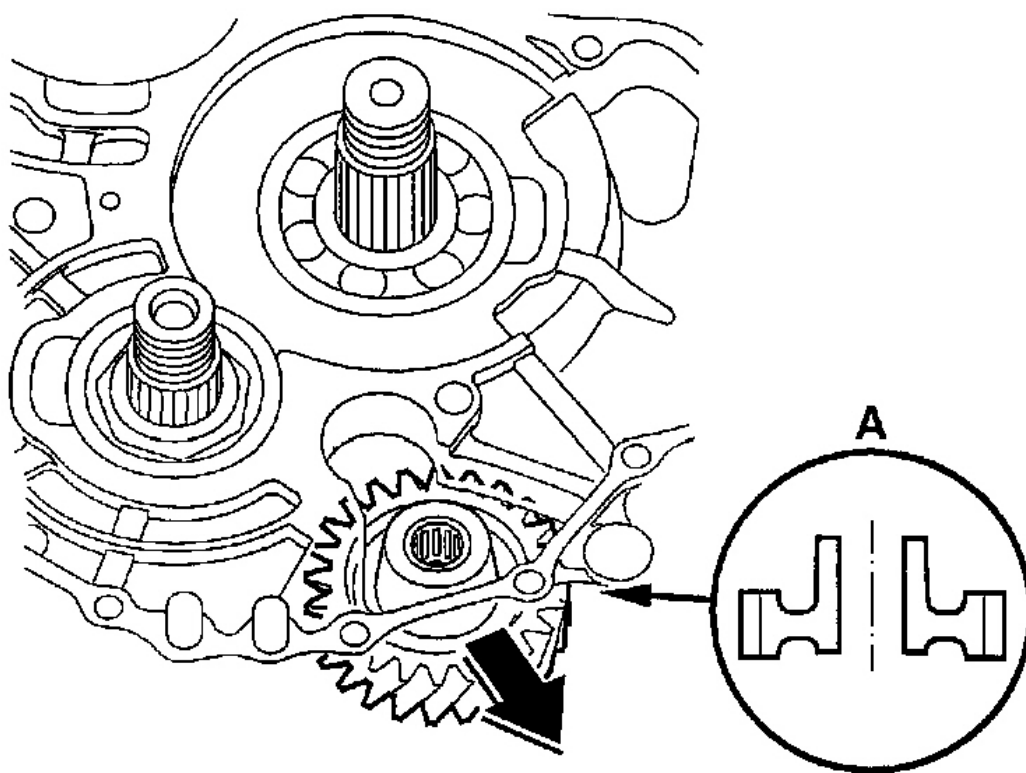


G01160523

Fig. 37: Removing Reverse Idler Gear Shaft Holder, Shaft & Washer
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Remove the transmission housing mounting bolts, transmission hangers, and harness clamp bracket.
4. Move the reverse idler gear (A) to disengage it from the mainshaft and countershaft reverse gears.

NOTE: The transmission housing will not separate from the torque converter housing if the reverse idler gear is not moved.



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Fig. 38: Disengaging Reverse Idler Gear From Mainshaft & Countershaft Reverse Gears
Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Align the spring pin (A) on the control shaft (B) with the transmission housing groove (C) by turning the control shaft.

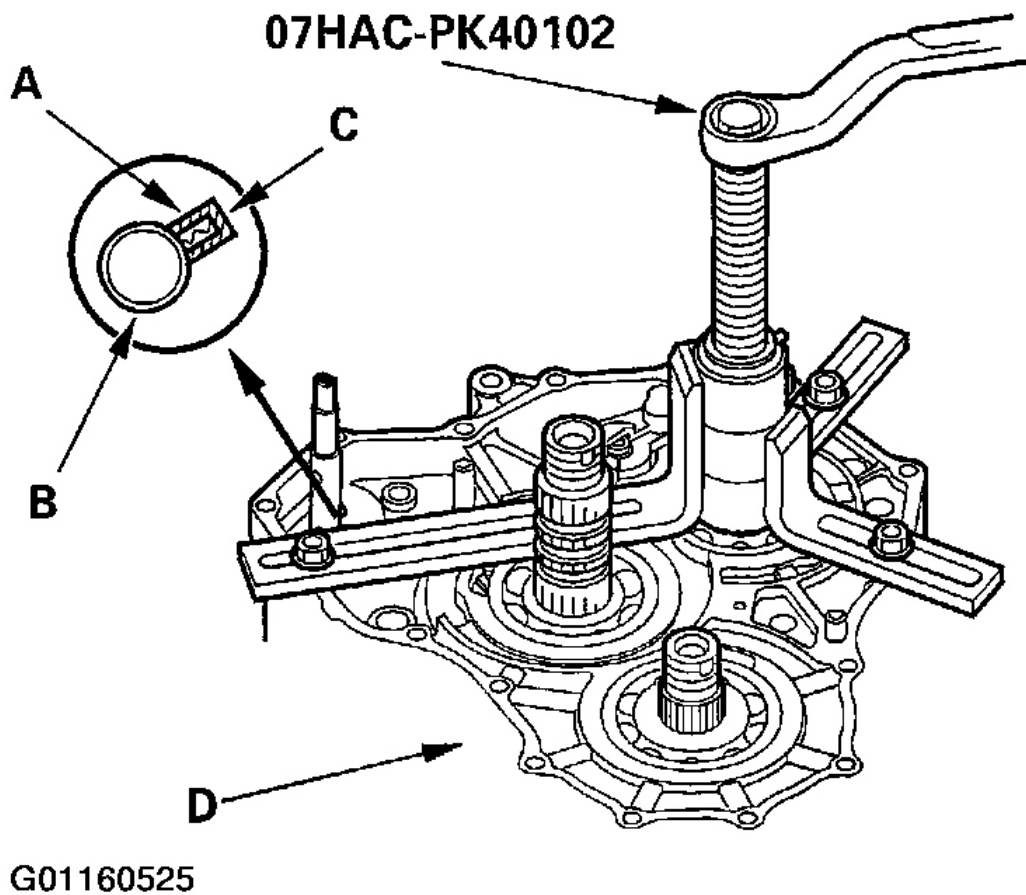


Fig. 39: Aligning Spring Pin On Control Shaft
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Install the special tool over the mainshaft, then remove the transmission housing (D).

NOTE: If the top arm of your housing puller is too short, replace it with Housing Puller Arm, 205 mm 07SAC-P0Z0101.

7. Remove the reverse idler gear, needle bearings, and thrust washer from the transmission housing.
8. Remove the countershaft 2nd gear, then remove the countershaft reverse gear and the needle bearing.
9. Remove the lock bolt securing the shift fork, then remove the shift fork with the reverse selector. If the reverse selector hub is not press-fitted, remove the reverse selector hub, countershaft 5th gear, and needle bearing from the countershaft.
10. Remove the secondary shaft subassembly. If the reverse selector hub is press-fitted, remove the secondary shaft subassembly, countershaft subassembly and mainshaft subassembly together.
11. Remove the countershaft subassembly.

12. Remove the mainshaft subassembly.
13. Remove the differential assembly.

BEARING REMOVAL AND INSTALLATION

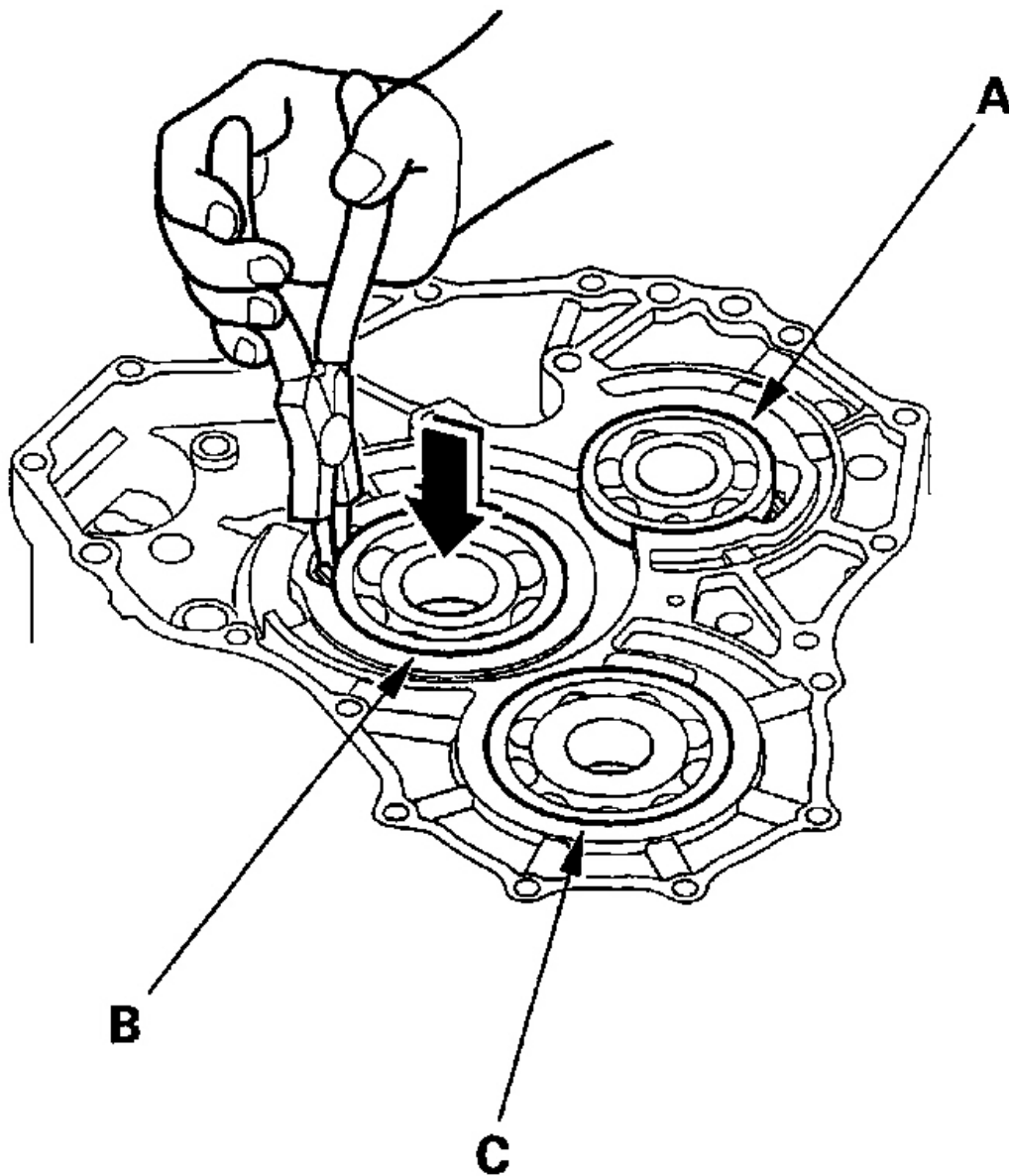
Special Tools Required

- Driver 07749-0010000
- Seal driver attachment 07GAD-PG40101 or 07GAD-PG40100
- Attachment, 62 x 68 mm 07746-0010500
- Attachment, 72 x 75 mm 07746-0010600

NOTE: **Coat all parts with ATF before assembly.**

1. To remove the mainshaft bearing (A), countershaft bearing (B), and secondary shaft bearing (C) from the transmission housing, expand each snap ring with the snap ring pliers, then push the bearing out.

NOTE: **Do not remove the snap rings unless it's necessary to clean the grooves in the housing.**

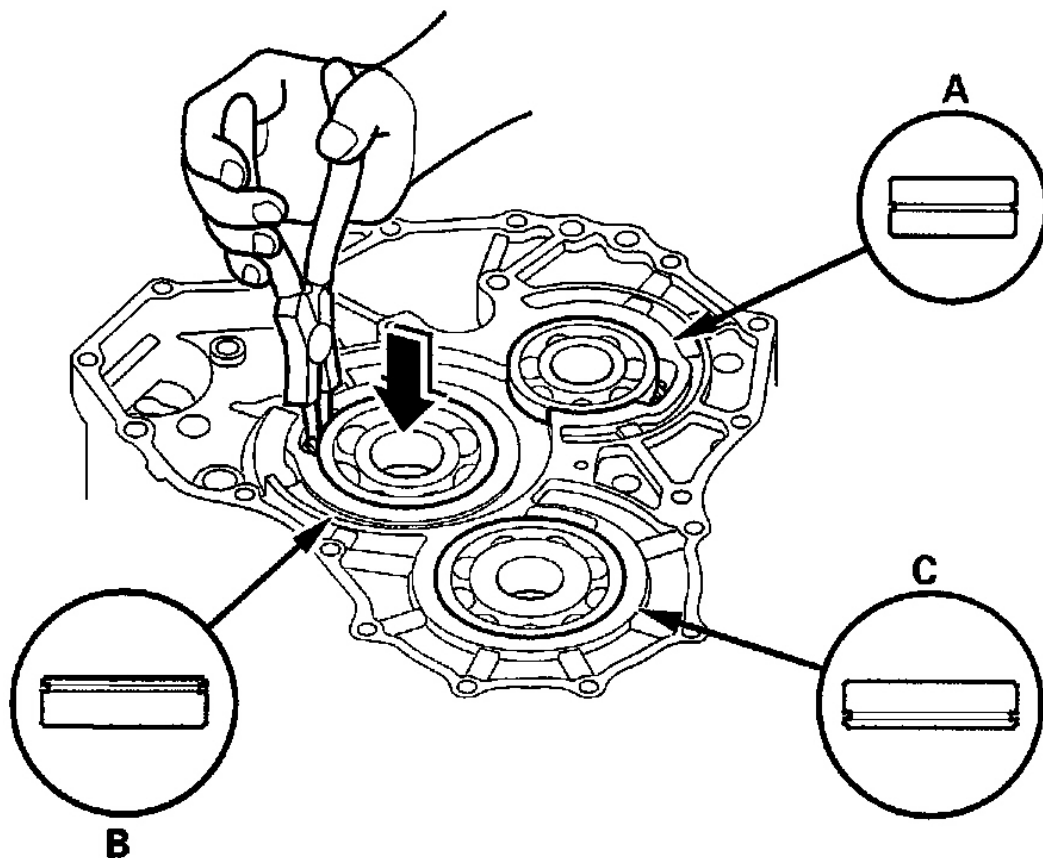


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Fig. 40: Removing Mainshaft Bearing, Countershaft Bearing & Secondary Shaft Bearing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Install the bearings in the direction shown.
3. Expand each snap ring with the snap ring pliers, and insert the bearing part-way into the housing.
4. Release the pliers, then push the bearing down into the housing until the snap ring snaps in place around

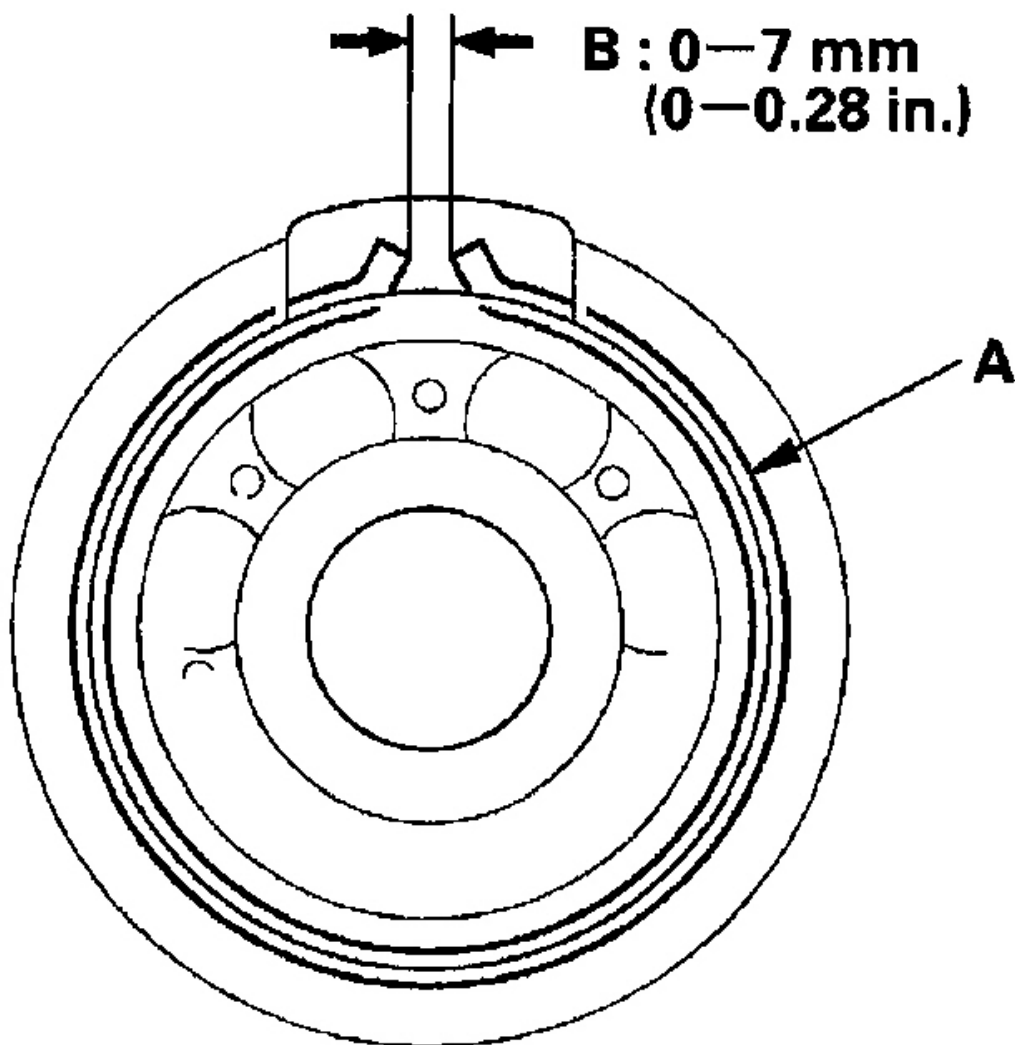
it.



G01160527

Fig. 41: Push Bearing Down Into Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. After installing the bearings verify the following:
 - The snap rings (A) are seated in the bearing and housing grooves.
 - The ring end gaps (B) are correct.

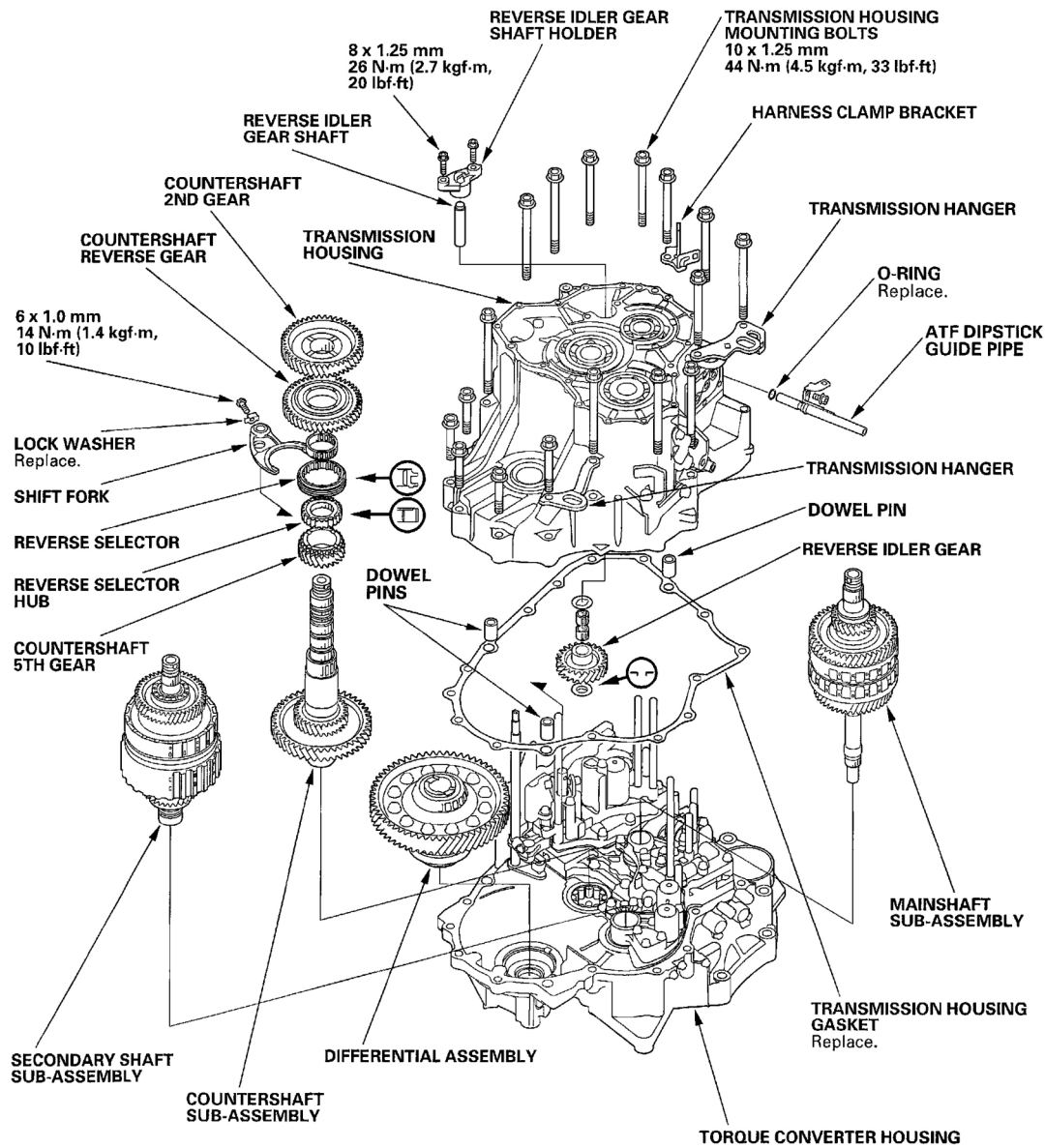


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Fig. 42: Identifying Ring End Gap

Courtesy of AMERICAN HONDA MOTOR CO., INC.

SHAFT ASSEMBLIES AND HOUSING INSTALLATION



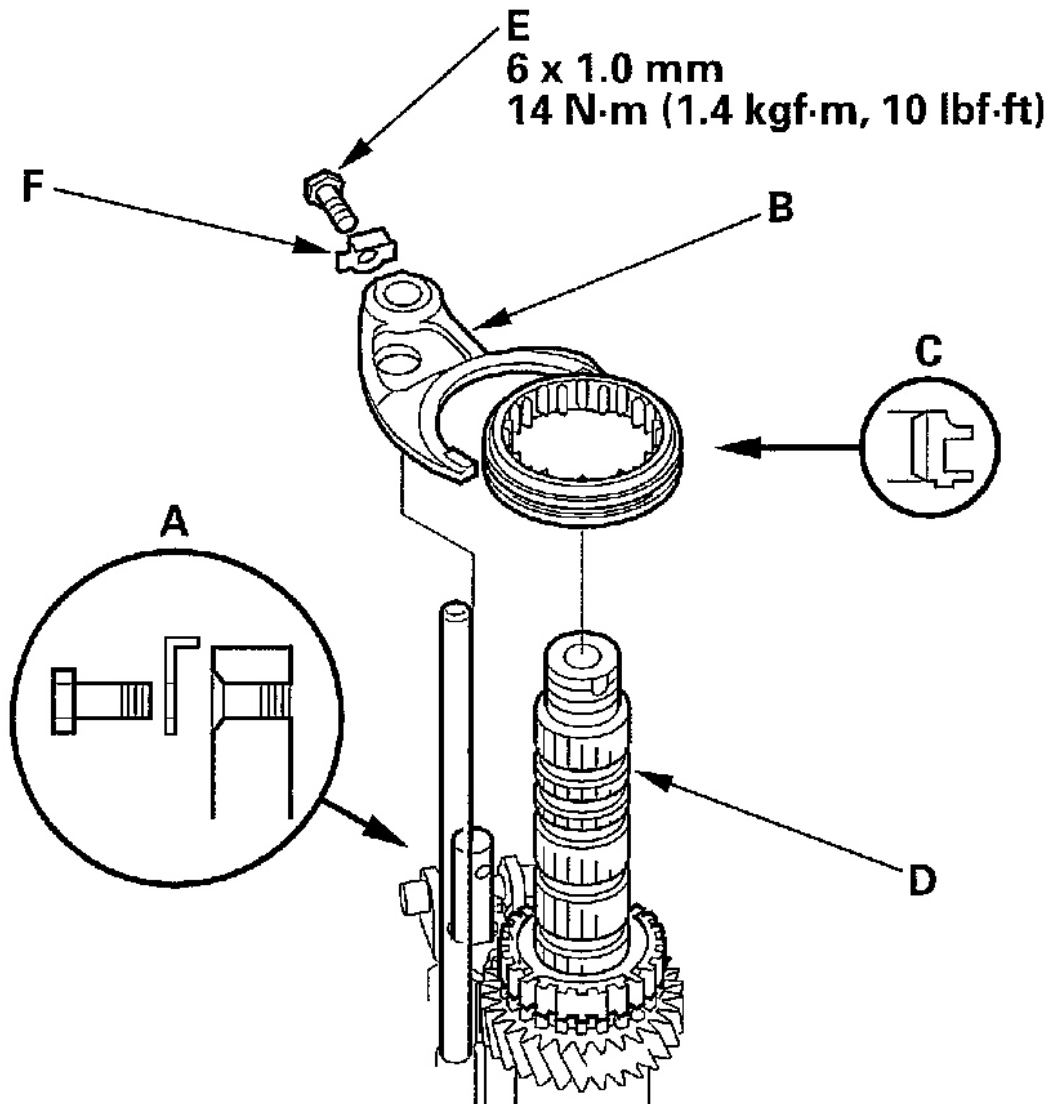
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Fig. 43: Exploded View Of Shaft Assemblies & Housing Installation
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

NOTE: Refer to the Exploded View as needed during the following procedure.

1. Install the differential assembly in the torque converter housing.
2. If the reverse selector hub is press-fitted type, join the mainshaft, countershaft, and secondary shaft together, then install them in the torque converter housing.
3. If the reverse selector hub is not press-fitted type, install the countershaft, mainshaft, and secondary shaft in the torque converter housing, then install the countershaft 5th gear and reverse selector hub on the countershaft.

4. Turn the shift fork shaft (A) so the large chamfered hole is facing the fork bolt hole. Then install the shift fork (B) and reverse selector (C) together on the shift fork shaft and countershaft (D). Secure the shift fork to the shift fork shaft with the lock bolt (E) and a new lock washer (F), then bend the lock washer against the bolt head.

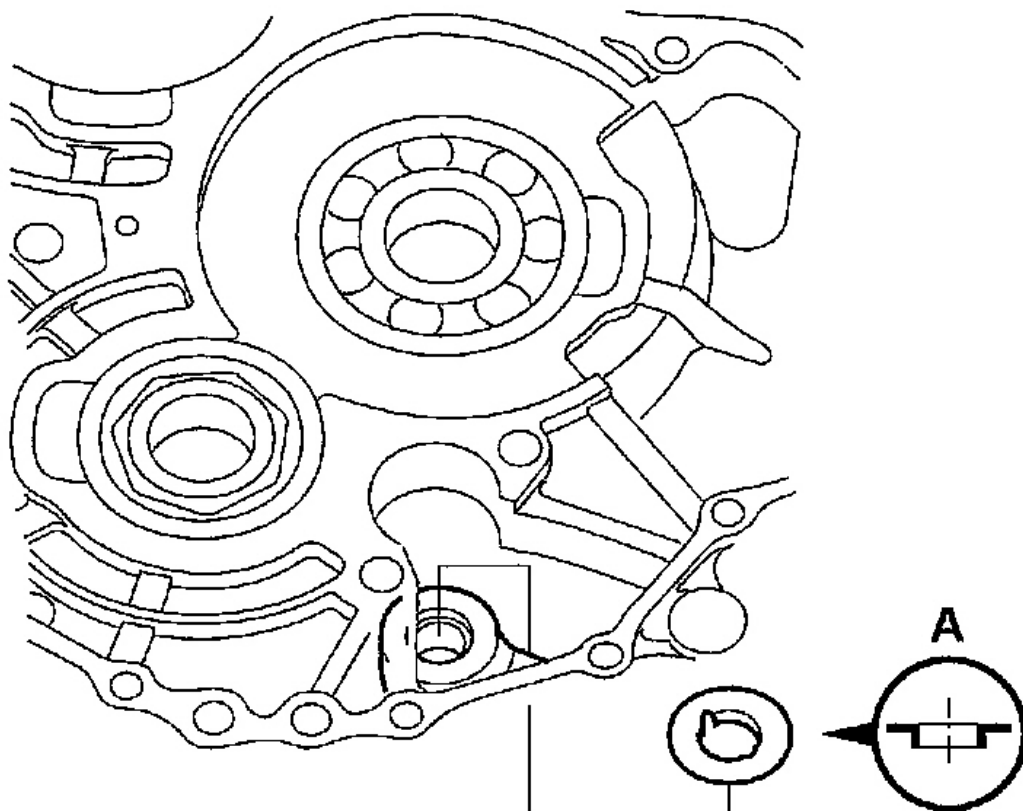


G01160626

Fig. 44: Installing Shift Fork & Reverse Selector
Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Install the needle bearing, countershaft reverse gear, and countershaft 2nd gear on the countershaft.

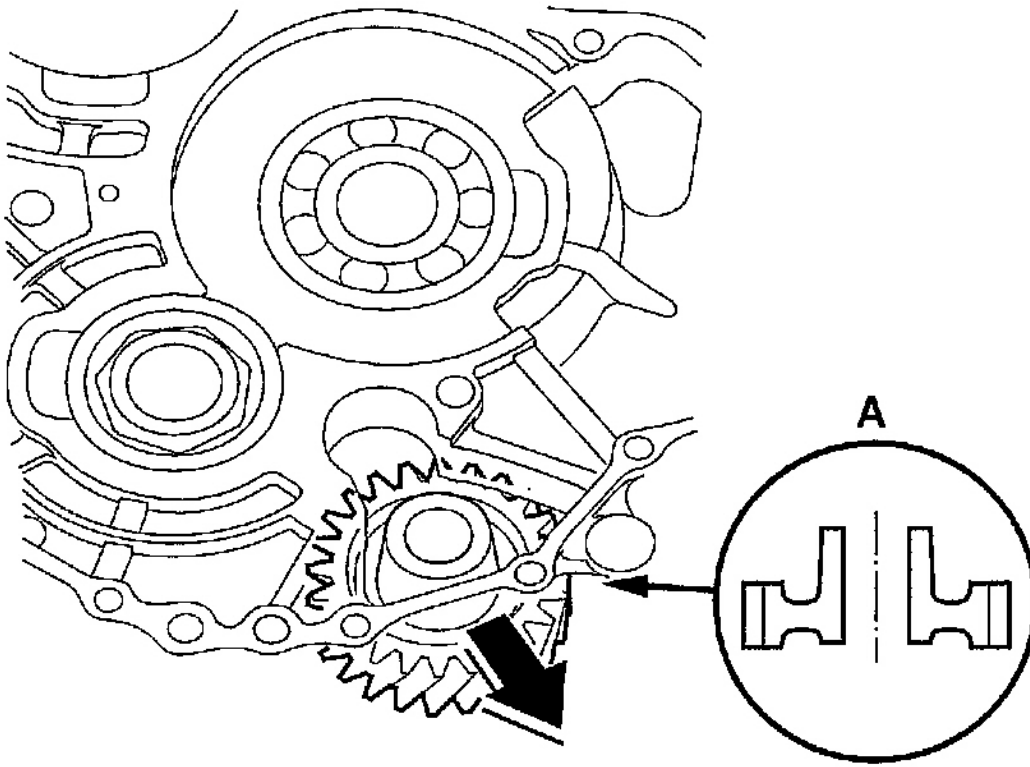
6. Place the thrust washer (A) in the transmission housing.



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Fig. 45: Placing Thrust Washer In Transmission Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. Place the reverse idler gear (A) in the transmission housing as shown, then slide it in the direction shown.

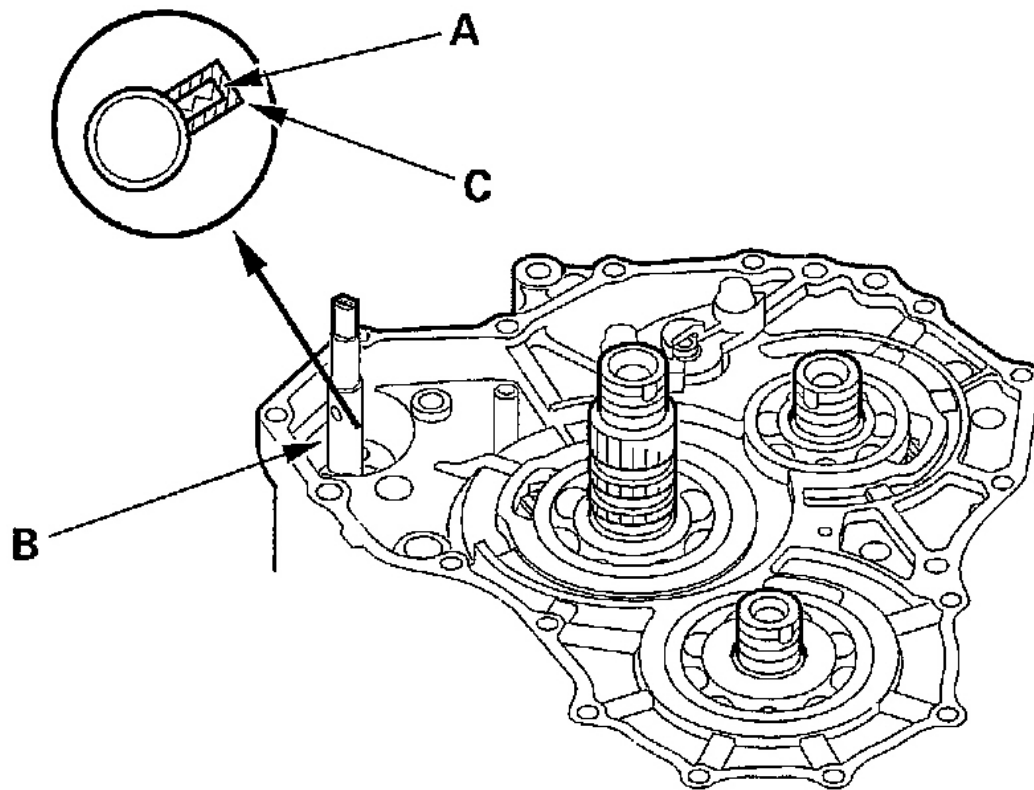


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Fig. 46: Placing Reverse Idler Gear In Transmission Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

8. Align the spring pin (A) on the control shaft (B) with the transmission housing groove (C) by turning the control shaft.

NOTE: Be careful not to squeeze the end of the control shaft tips together. If the tips are squeezed together it will cause a faulty shift signal or position due to the play between the control shaft and the transmission range switch.

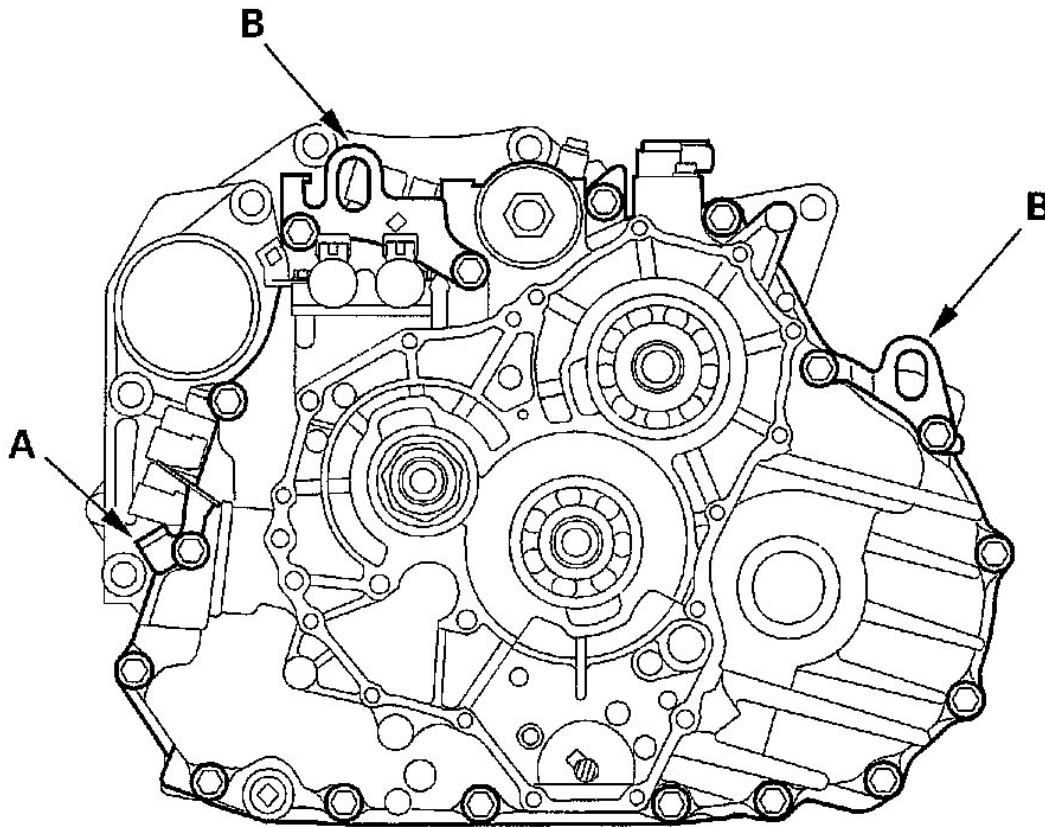


G01160629

Fig. 47: Aligning Spring Pin On The Control Shaft
Courtesy of AMERICAN HONDA MOTOR CO., INC.

9. Install three dowel pins and a new gasket on the torque converter housing.
10. Place the transmission housing on the torque converter housing, then install the transmission housing mounting bolts along with the harness clamp bracket (A) and transmission hangers (B). Tighten the bolts in a crisscross pattern in two or more steps.

TORQUE: 44 N.m (4.5 kgf.m, 33 Ft.Lbs.)

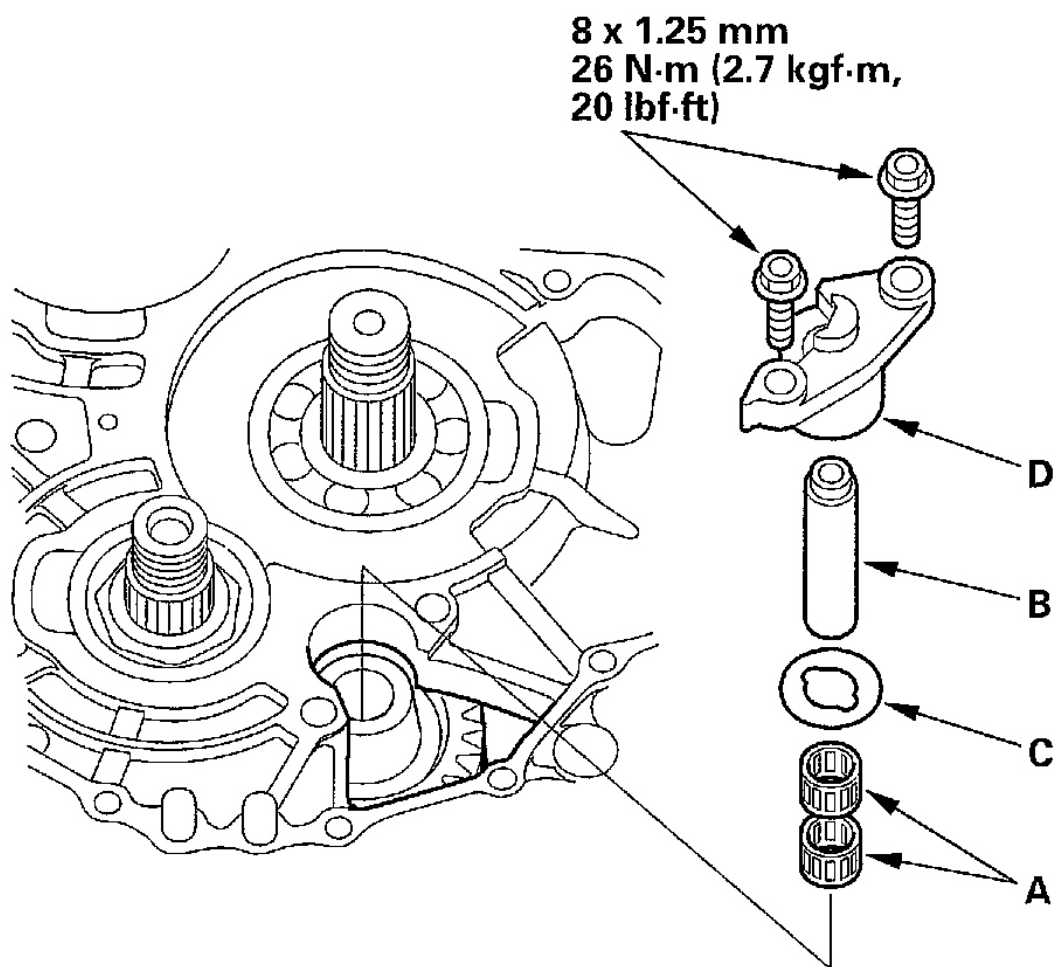


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Fig. 48: Installing Transmission Housing Mounting Bolts Along With Harness Clamp Bracket & Transmission Hangers

Courtesy of AMERICAN HONDA MOTOR CO., INC.

11. Engage the reverse idler gear with the countershaft reverse gear and the mainshaft reverse gear. Then install the needle bearings (A), reverse idler gear shaft (B), and thrust washer (C) in the reverse idler gear, and install the reverse idler gear shaft holder (D) on the transmission housing.

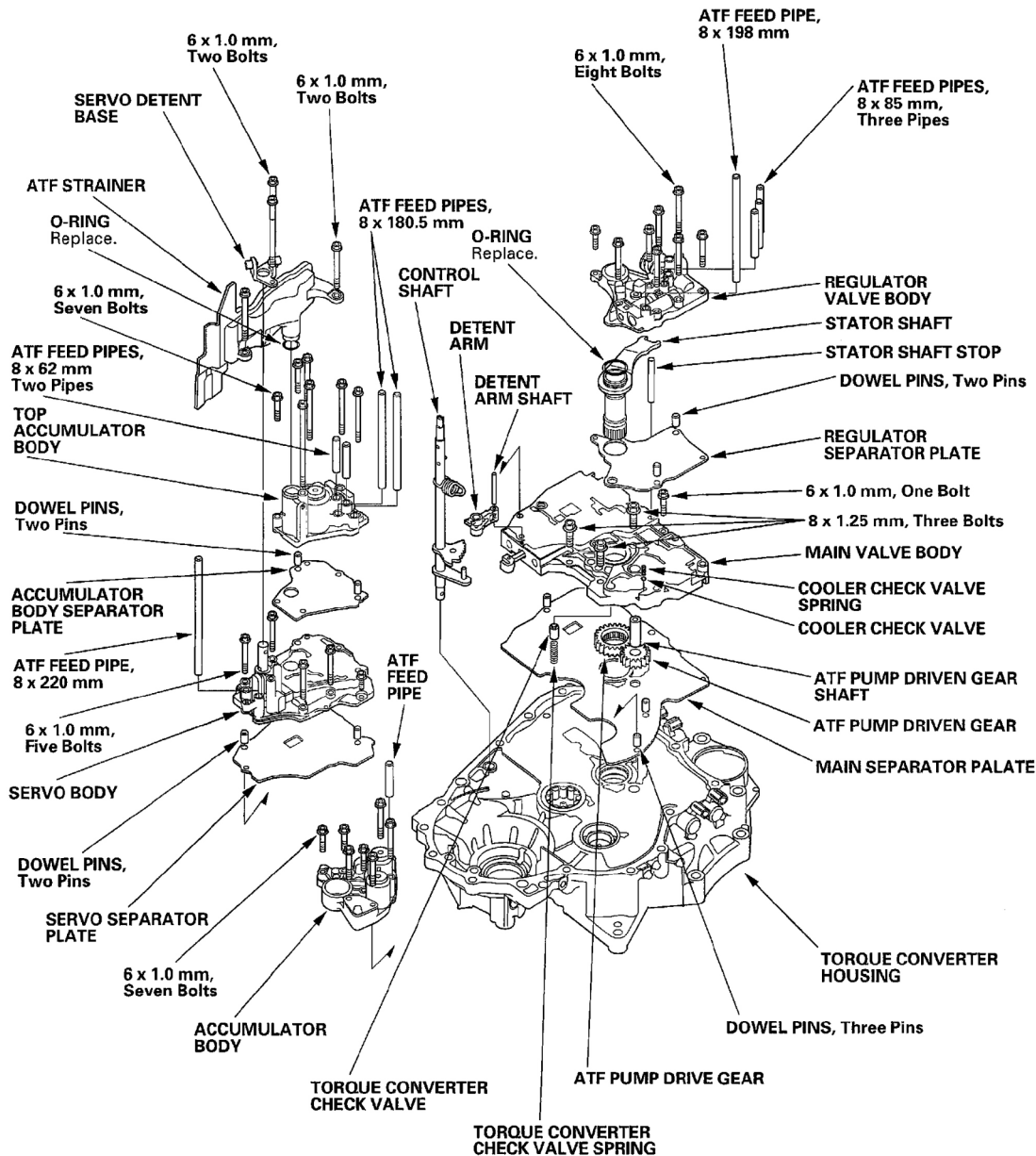


G01160631

Fig. 49: Installing Needle Bearings, Reverse Idler Gear Shaft & Thrust Washer
Courtesy of AMERICAN HONDA MOTOR CO., INC.

VALVE BODIES

VALVE BODIES AND ATF STRAINER REMOVAL



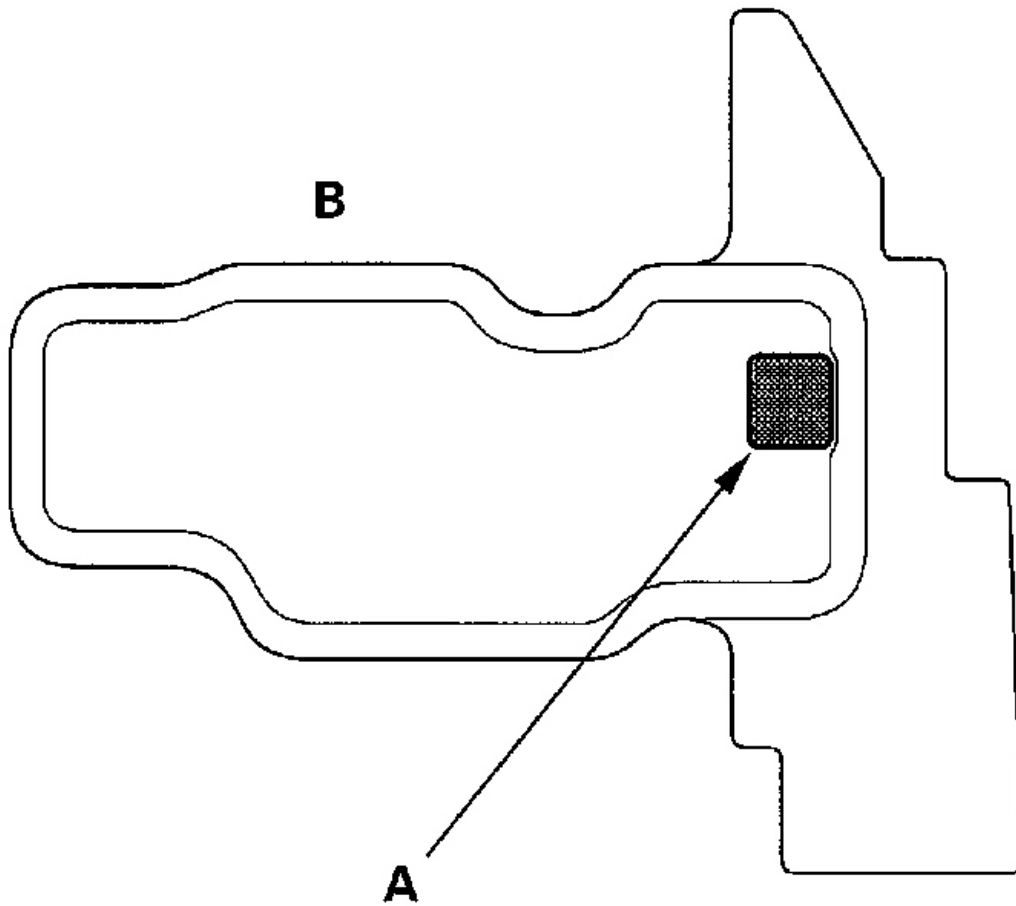
G01160529

Fig. 50: Exploded View Of Valve Bodies & ATF Strainer
Courtesy of AMERICAN HONDA MOTOR CO., INC.

NOTE: Refer to the Exploded View as needed during the following procedure.

1. Remove the ATF feed pipes from the regulator valve body, servo body, top accumulator body, and accumulator body.
2. Remove the servo detent base (two bolts).
3. Remove the ATF strainer (two bolts).

4. Remove the top accumulator body (seven bolts), then remove the accumulator body separator plate and dowel pins (two).
5. Remove the servo body (five bolts), then remove servo separator plate and dowel pins (two).
6. Remove the regulator valve body (eight bolts).
7. Remove the stator shaft and stator shaft stop.
8. Remove the regulator separator plate and dowel pins (two).
9. Unhook the detent spring from the detent arm, then remove the detent arm shaft, detent arm, and control shaft.
10. Remove the cooler check valve spring and cooler check valve (ball).
11. Remove the main valve body (four bolts).
12. Remove the torque converter check valve and spring.
13. Remove the ATF pump driven gear shaft, then remove the ATF pump gears.
14. Remove the accumulator body (seven bolts).
15. Remove the main separator plate and dowel pins (three).
16. Clean the inlet opening (A) of the ATF strainer (B) thoroughly with compressed air, then check that it is in good condition and that the inlet opening is not clogged.



G01160530

Fig. 51: Cleaning Inlet Opening Of The ATF Strainer
Courtesy of AMERICAN HONDA MOTOR CO., INC.

17. Test the ATF strainer by pouring clean ATF through the inlet opening, and replace it if it is clogged or damaged.

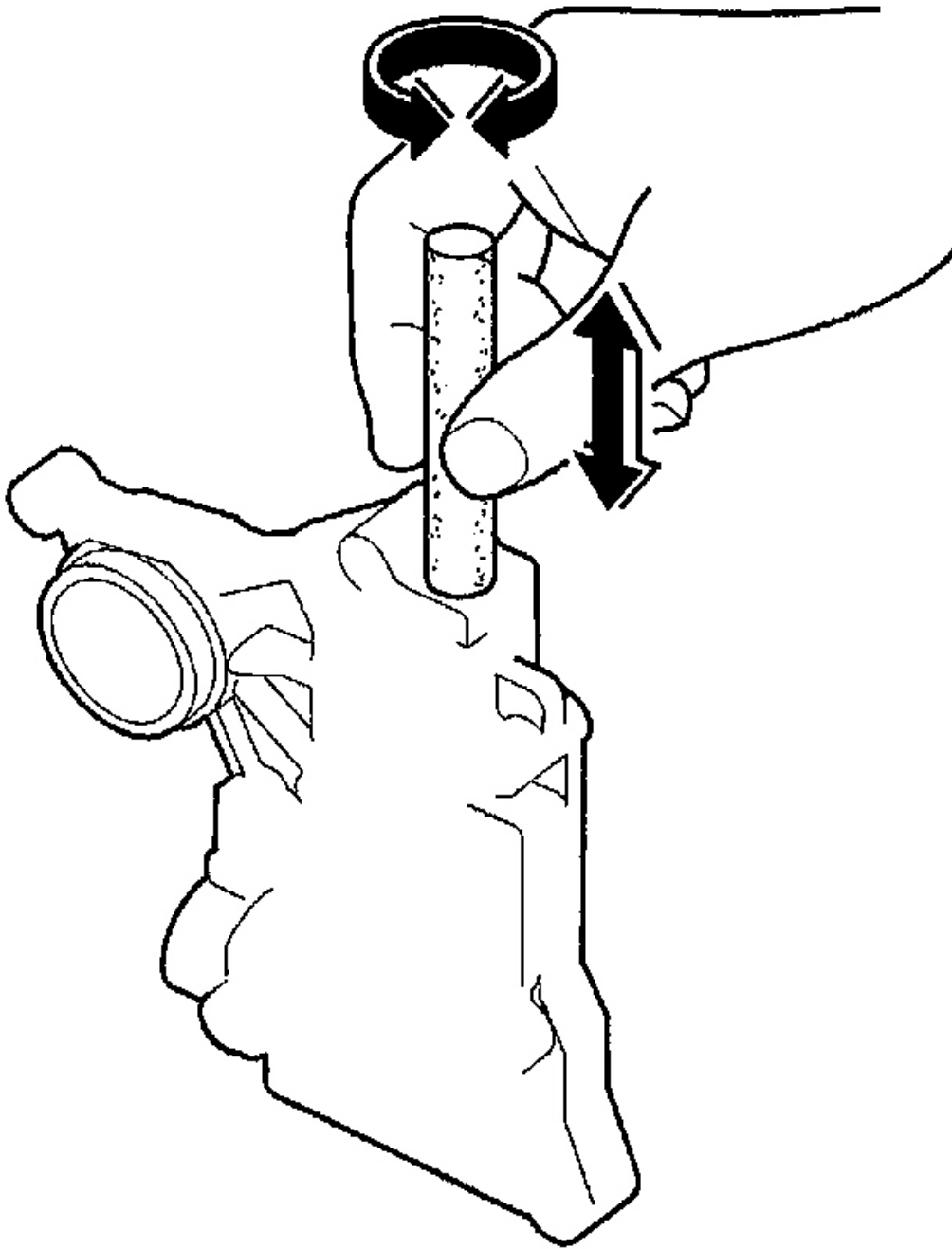
VALVE BODY REPAIR

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 # 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 # 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 # 600 paper and insert it in the valve bore of the sticking valve. 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.

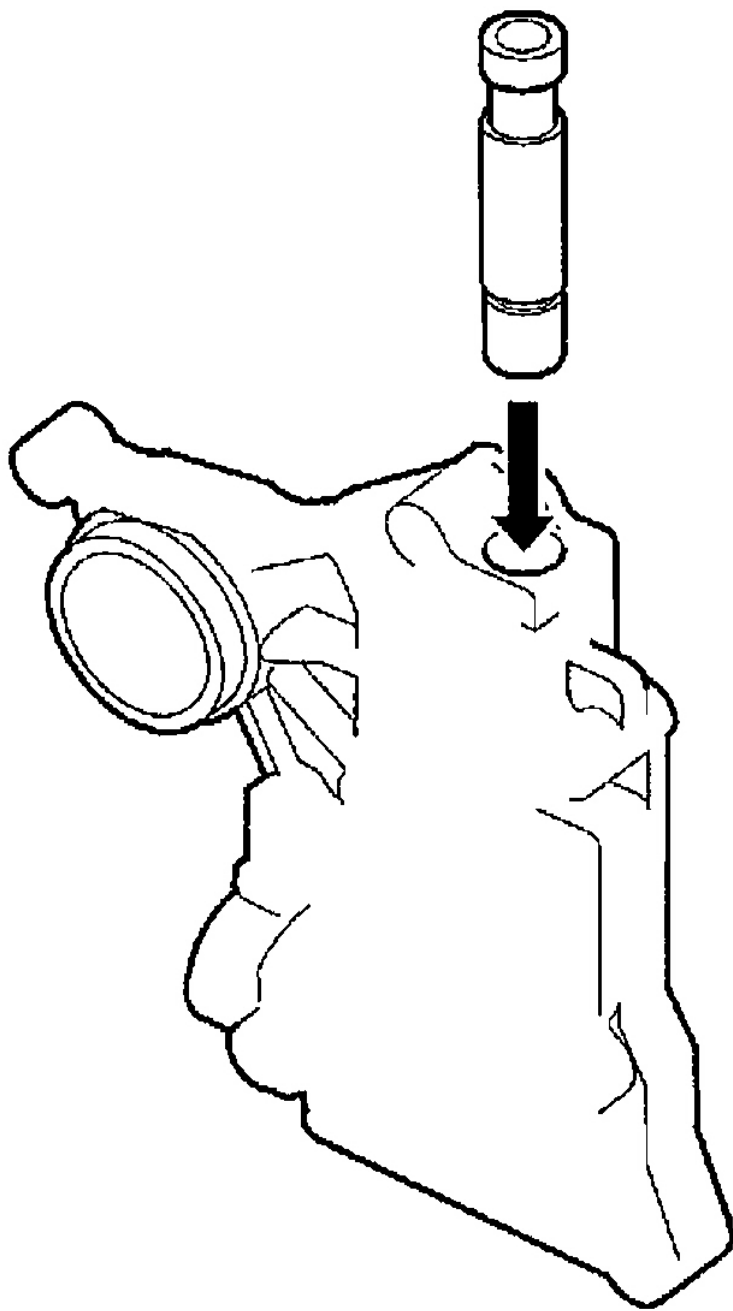
NOTE: **The valve body is aluminum and doesn't require much polishing to remove any burrs.**



G01160531

Fig. 52: Polishing Valve Body Bore
Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Remove the # 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. It should drop to the bottom of the bore under its own weight. If not, repeat step 4 and 5, then retest. If the valve still sticks, replace the valve body.



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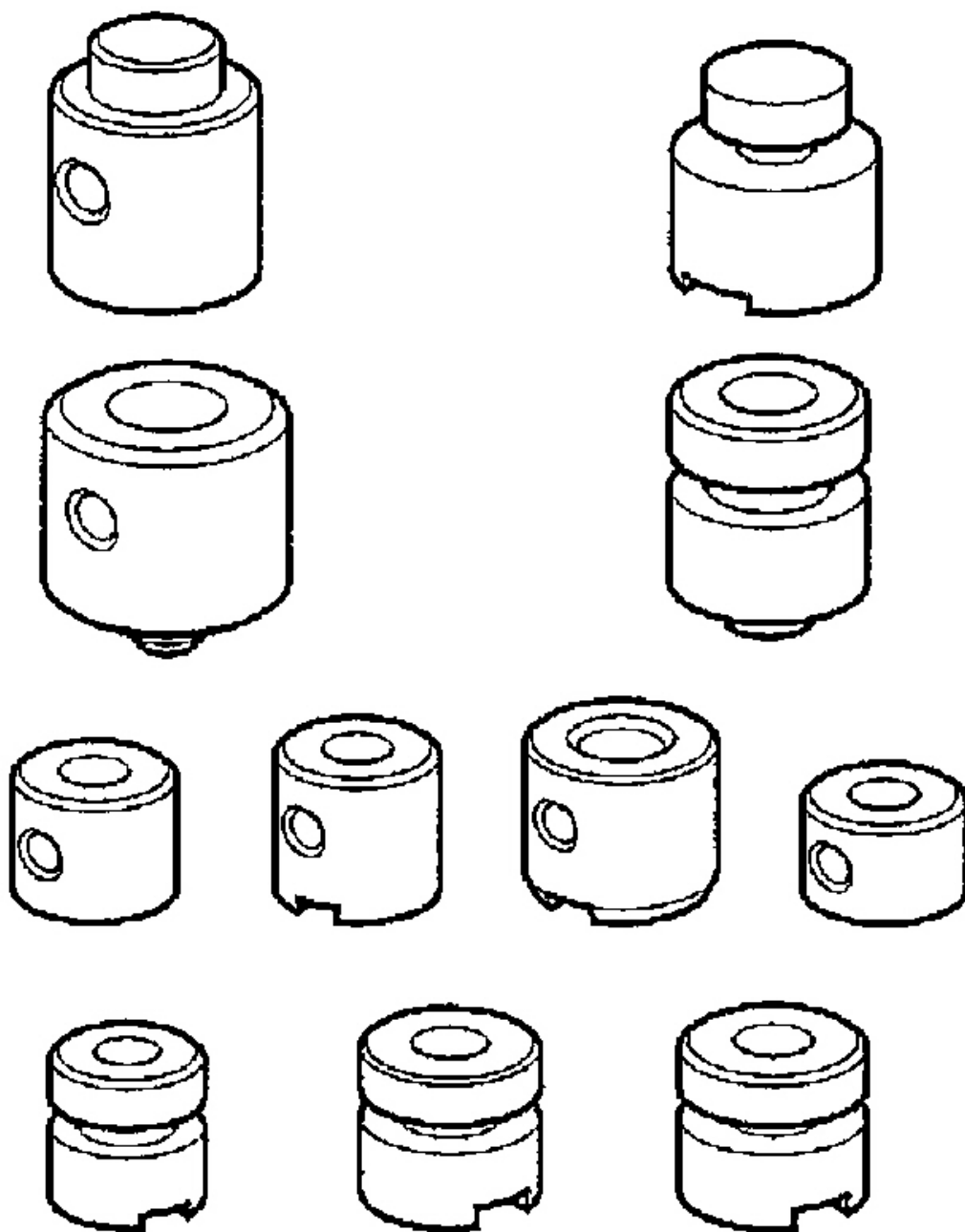
Fig. 53: Inserting Valve In Bore

Courtesy of AMERICAN HONDA MOTOR CO., INC.

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.

VALVE BODY VALVE INSTALLATION

1. Coat all parts with ATF before assembly.
2. Install the valves and springs in the sequence shown for the main valve body, see **Main Valve Body Disassembly, Inspection, and Reassembly**, regulator valve body, see **Regulator Valve Body Disassembly, Inspection, and Reassembly**, servo body, see **Servo Body Disassembly, Inspection, and Reassembly**, and top accumulator body, see **Top Accumulator Body Disassembly, Inspection, and Reassembly**. Refer to the following valve cap illustrations, and install each valve cap so the end shown facing up will be facing the outside of the valve body.

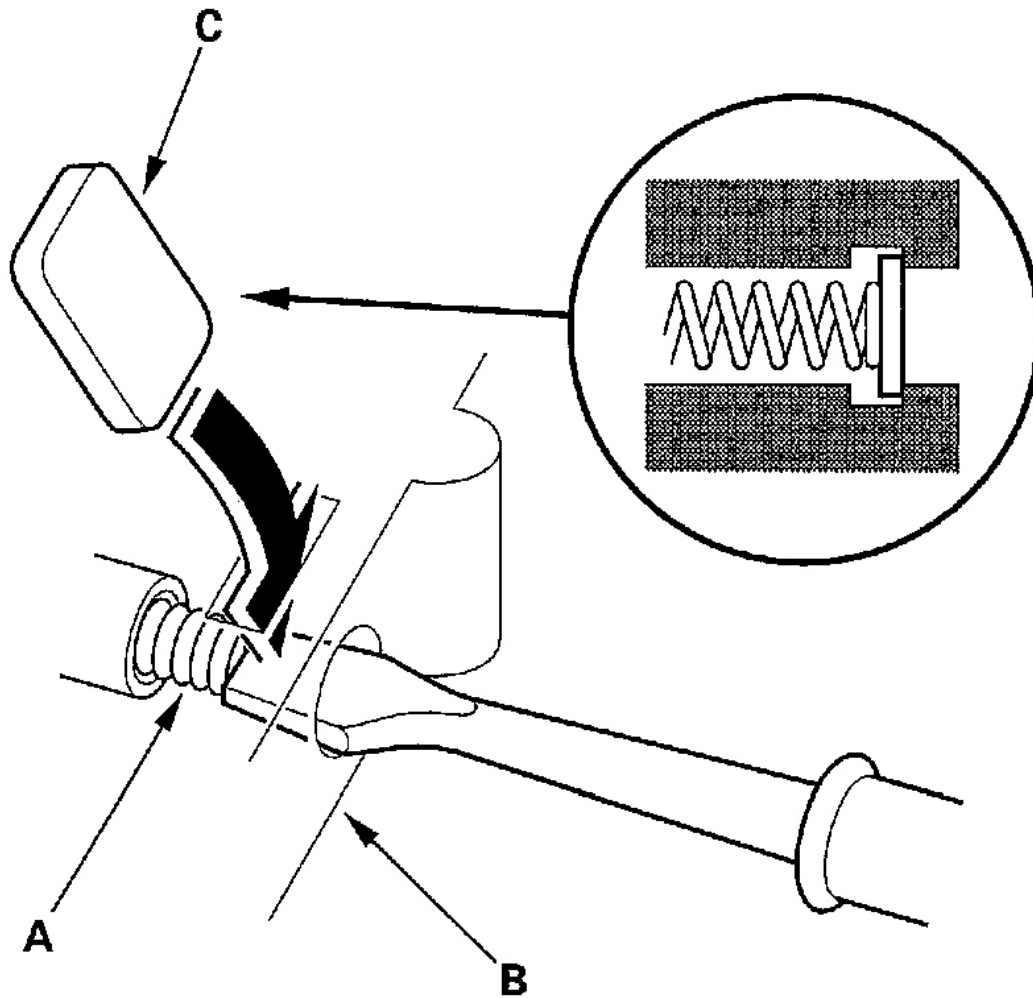


G01160533

Fig. 54: Identifying Valve Caps

Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Install all the springs and seats. Insert the spring (A) in the valve, then install the valve in the valve body (B). Push the spring in with a screwdriver, then install the spring seat (C).



G01160534

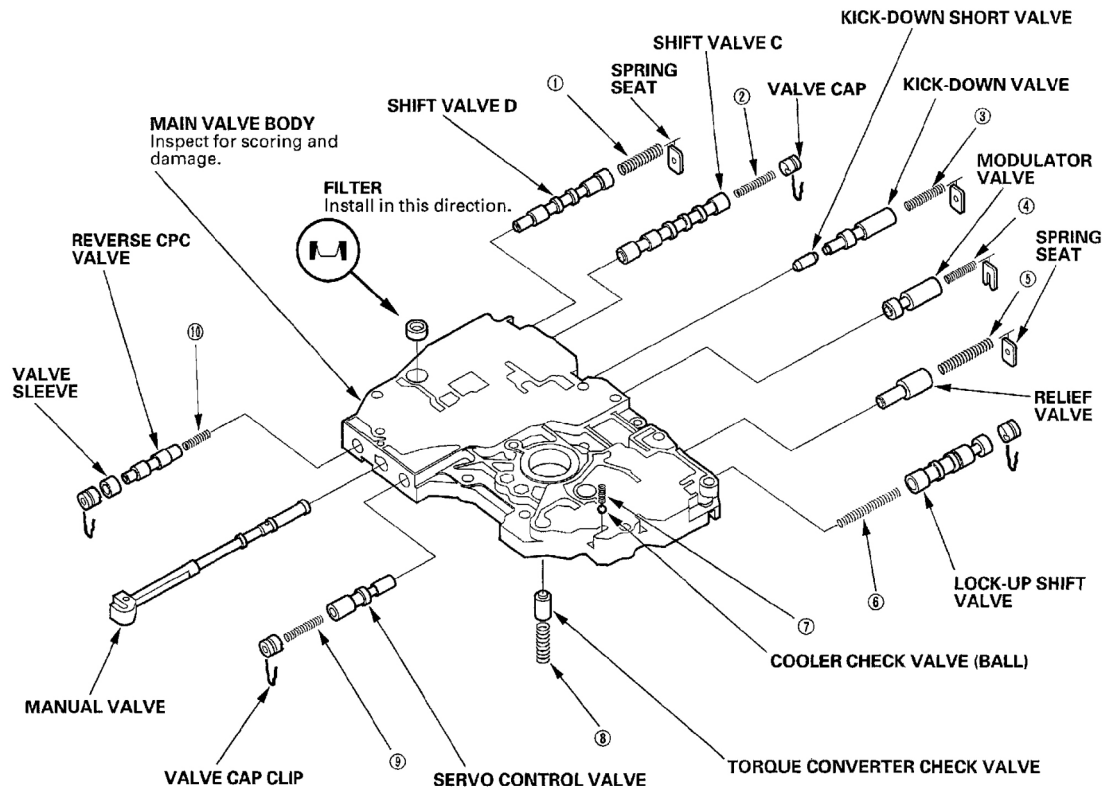
Fig. 55: Installing Springs & Seats

Courtesy of AMERICAN HONDA MOTOR CO., INC.

MAIN VALVE BODY DISASSEMBLY, INSPECTION, AND REASSEMBLY

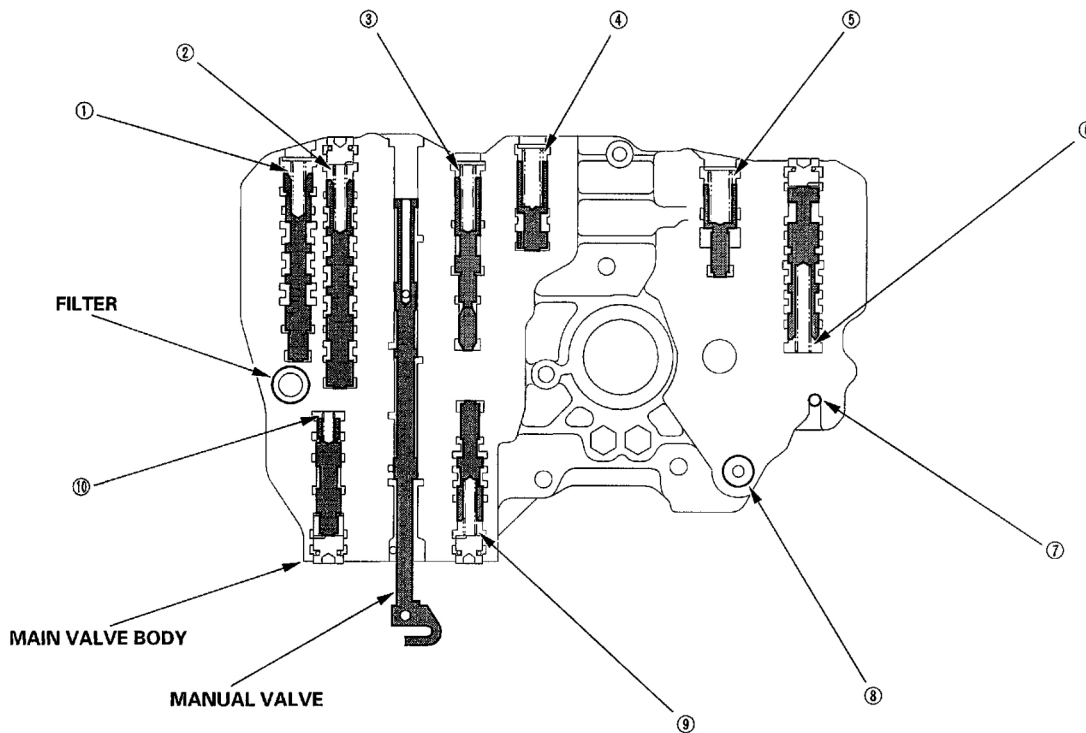
1. Clean all parts thoroughly in solvent or carburetor cleaner, and dry them with compressed air. Blow out all passages.
2. Do not use a magnet to remove the check ball, it may magnetize the ball.
3. Check all valves for free movement. If any fail to slide freely, see **Valve Body Repair**.

4. Replace the valve body as an assembly if any parts worn or damaged.
5. Coat all parts with ATF during assembly.
6. Install the filter in the direction shown.



G01160535

Fig. 56: Exploded View Of Main Valve Body
 Courtesy of AMERICAN HONDA MOTOR CO., INC.



G01160536

Fig. 57: Sectional View Of Main Valve Body Disassembly, Inspection, and Reassembly
Courtesy of AMERICAN HONDA MOTOR CO., INC.

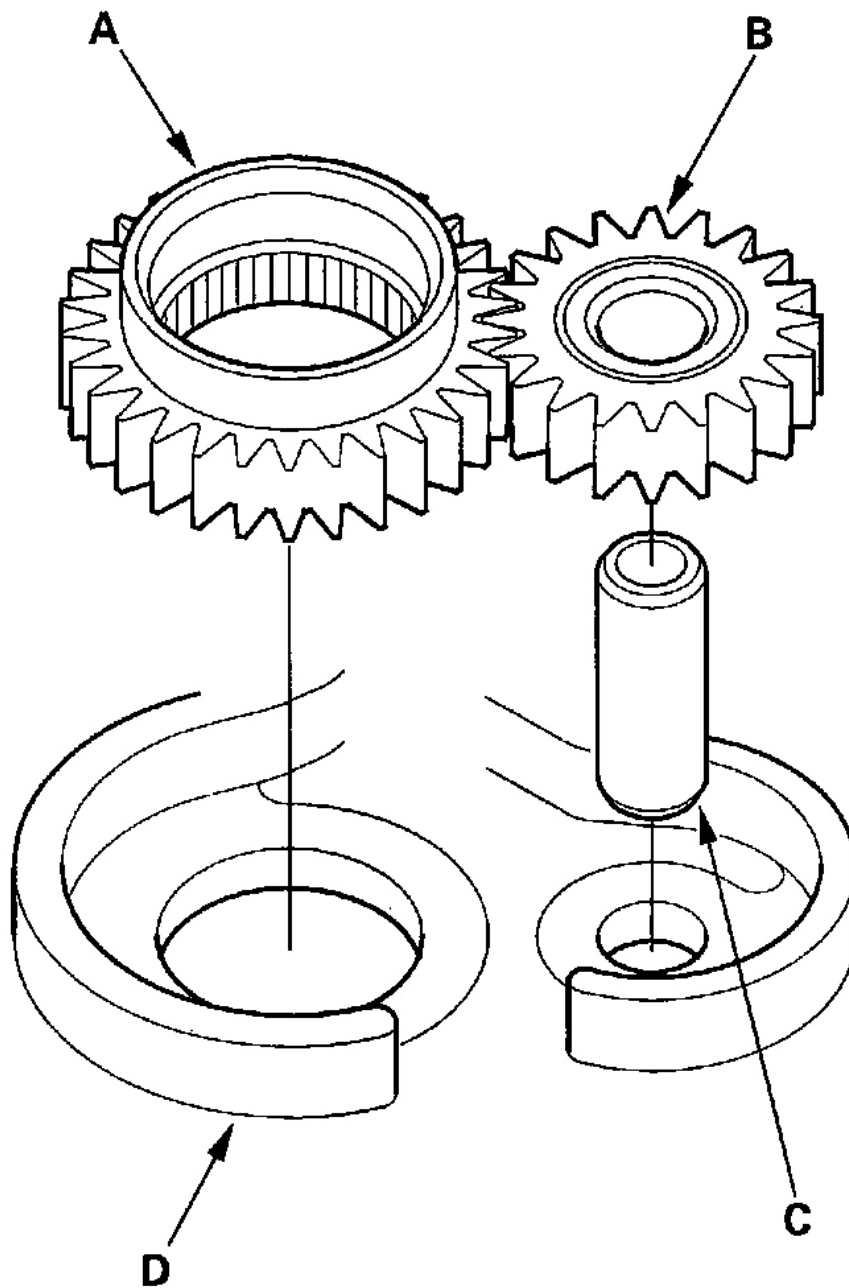
No.	Spring	Standard (New)-Unit: mm (in.)			
		Wire Dia.	O.D.	Free Length	No. of Coils
①	Shift valve D spring	0.7 (0.028)	6.6 (0.260)	33.7 (1.327)	11.6
②	Shift valve C spring	0.8 (0.031)	6.6 (0.260)	49.1 (1.933)	21.7
③	Kick-down valve spring	0.8 (0.031)	6.6 (0.260)	49.1 (1.933)	21.7
④	Modulator valve spring	1.6 (0.063)	10.4 (0.409)	33.5 (1.319)	9.8
⑤	Relief valve spring	1.2 (0.047)	11.1 (0.437)	39.0 (1.535)	9.9
⑥	Lock-up shift valve spring	0.9 (0.035)	7.6 (0.299)	63.0 (2.480)	22.4
⑦	Cooler check valve spring	0.6 (0.024)	5.8 (0.228)	14.5 (0.571)	6.8
⑧	Torque converter check valve spring	1.2 (0.047)	8.6 (0.339)	34.4 (1.354)	11.7
⑨	Servo control valve spring	0.9 (0.035)	6.4 (0.252)	32.5 (1.280)	17.5
⑩	Reverse CPC valve spring	0.7 (0.028)	6.1 (0.240)	17.8 (0.701)	7.9

G01160537

Fig. 58: Identifying Spring Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

ATF PUMP INSPECTION

1. Install the ATF pump drive gear (A), driven gear (B), and ATF pump driven gear shaft (C) in the main valve body (D). Lubricate all parts with ATF, and install the ATF pump driven gear with its grooved and chamfered side facing up.



G01160538

Fig. 59: Installing ATF Pump Drive Gear, Driven Gear & ATF Pump Driven Gear Shaft
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Measure the side clearance of the ATF pump drive gear (A) and driven gear (B).

ATF Pump Gears Side (Radial) Clearance:

Standard (New):

ATF Pump Drive Gear

0.210-0.265 mm (0.0083-0.00104 in.)

ATF Pump Driven Gear

0.070-0.125 mm (0.0028-0.0050 in.)

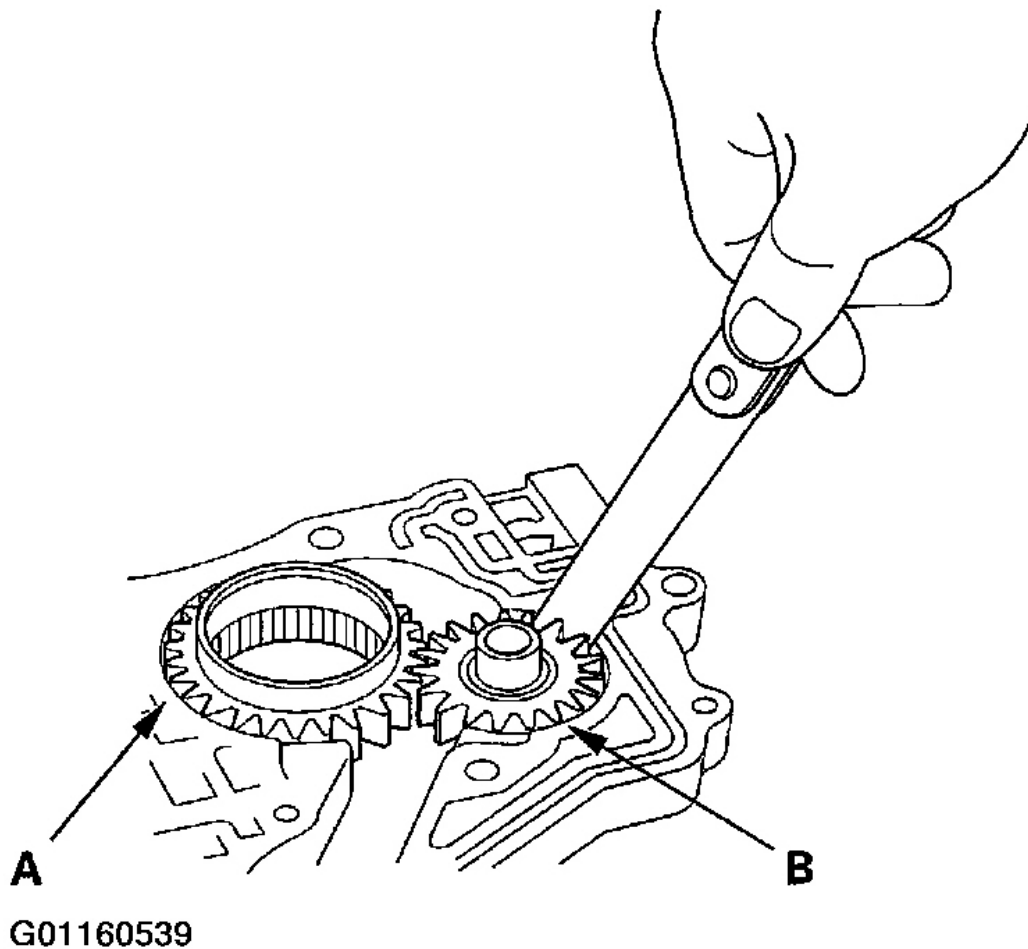


Fig. 60: Measuring Side Clearance Of ATF Pump Drive Gear & Driven Gear
Courtesy of AMERICAN HONDA MOTOR CO., INC.

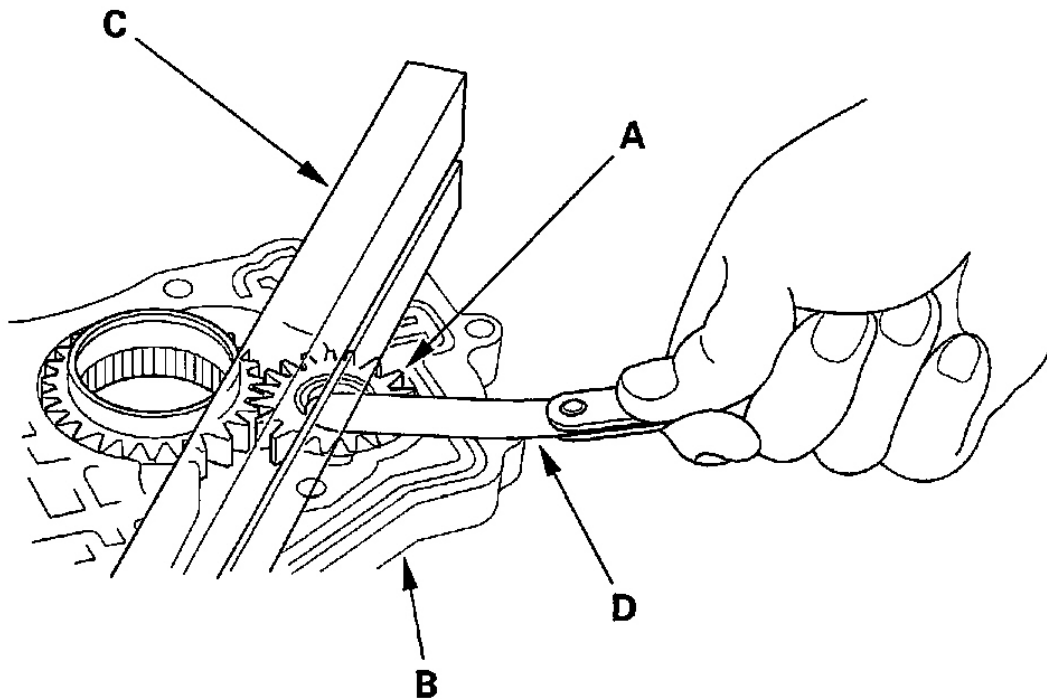
3. Remove the ATF pump driven gear shaft. Measure the thrust clearance between the ATF pump driven gear (A) and the valve body (B) with a straight edge (C) and a feeler gauge (D).

ATF Pump Drive/Driven Gear Thrust (Axial)

Clearance:

Standard (New): 0.03-0.05 mm (0.001-0.002 in.)

Service Limit: 0.07 mm (0.003 in.)



G01160540

Fig. 61: Measuring Thrust Clearance Between ATF Pump Driven Gear & Valve Body
Courtesy of AMERICAN HONDA MOTOR CO., INC.

REGULATOR VALVE BODY DISASSEMBLY, INSPECTION, AND REASSEMBLY

1. Clean all parts thoroughly in solvent or carburetor cleaner, and dry them with compressed air. Blow out all passages.
2. Check all valves for free movement. If any fail to slide freely, see **Valve Body Repair**.
3. Replace the valve body as an assembly if any parts are worn or damaged.
4. Hold the regulator spring cap in place while removing the stop bolt. The regulator spring cap is spring

- loaded. Once the stop bolt is removed, release the spring cap slowly so it does not pop out.
- Reassembly is the reverse of the disassembly. Install the filter in the direction shown.
 - Coat all parts with ATF during assembly.
 - Align the hole in the regulator spring cap with the hole in the valve body, then press the spring cap into the valve body, and tighten the stop bolt.

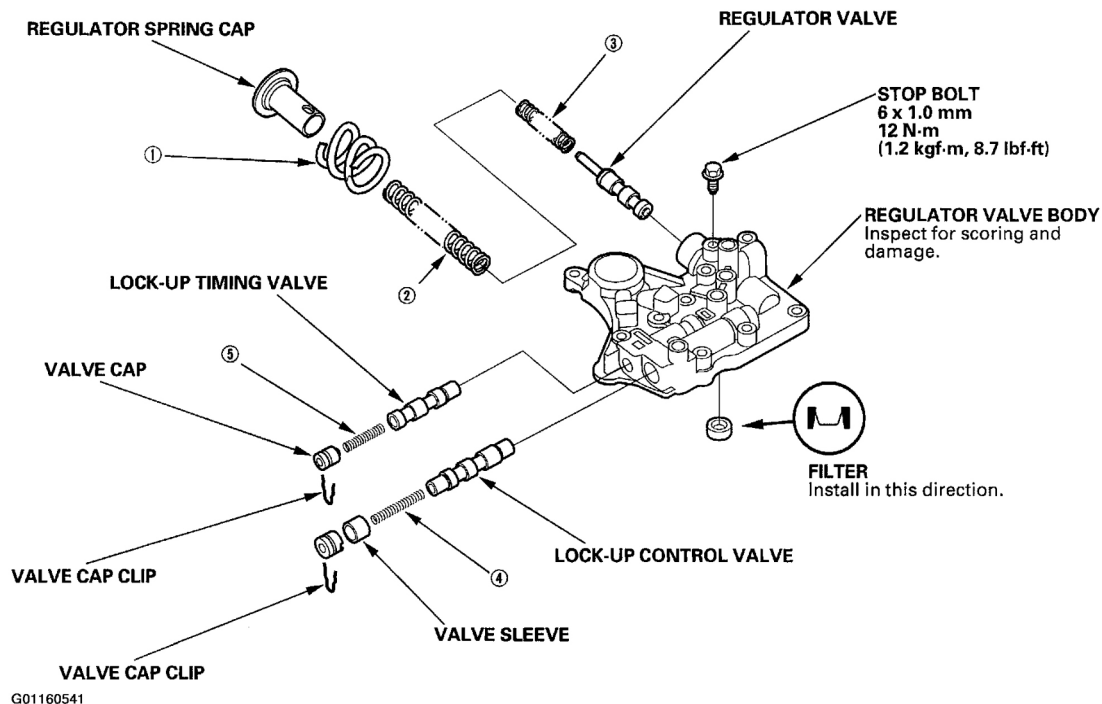


Fig. 62: Exploded View Of Regulator Valve Body
Courtesy of AMERICAN HONDA MOTOR CO., INC.

No.	Spring	Standard (New)-Unit: mm (in.)			
		Wire Dia.	O.D.	Free Length	No. of Coils
①	Stator reaction spring	5.5 (0.217)	37.4 (1.472)	30.3 (1.193)	2.1
②	Regulator valve spring A	1.9 (0.075)	14.7 (0.579)	80.6 (3.173)	16.1
③	Regulator valve spring B	1.6 (0.063)	9.2 (0.362)	44.0 (1.732)	12.5
④	Lock-up control valve spring	0.7 (0.028)	6.6 (0.260)	42.9 (1.689)	14.2
⑤	Lock-up timing valve spring	0.65 (0.026)	6.6 (0.260)	34.8 (1.370)	15.6

G01160542

Fig. 63: Identifying Spring Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

SERVO BODY DISASSEMBLY, INSPECTION, AND REASSEMBLY

- Clean all parts thoroughly in solvent or carburetor cleaner, and dry them with compressed air. Blow out all passages.
- Check all valves for free movement. If any fail to slide freely, see Valve Body Repair.

3. Replace the valve body as an assembly if any parts worn or damaged.
4. Coat all parts with ATF during reassembly.

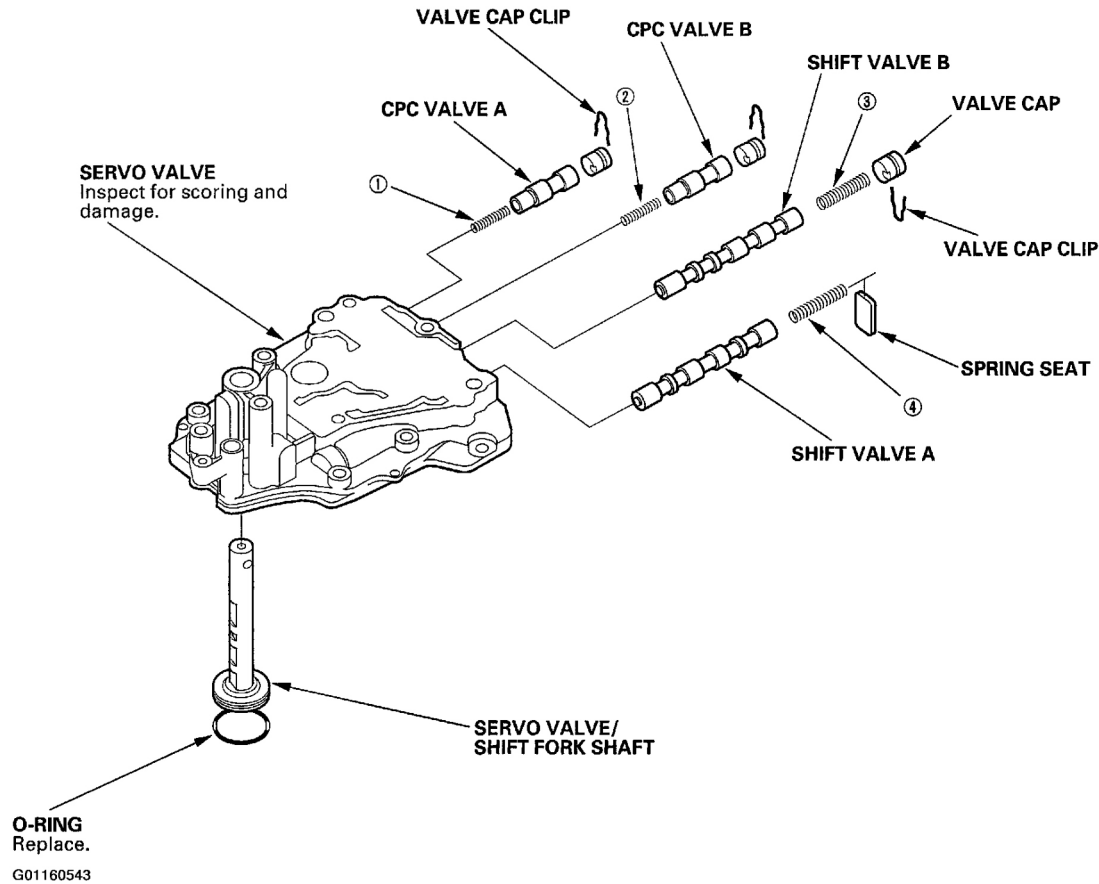


Fig. 64: Exploded View Of Servo Body
Courtesy of AMERICAN HONDA MOTOR CO., INC.

No.	Spring	Standard (New)-Unit: mm (in.)			
		Wire Dia.	O.D.	Free Length	No. of Coils
①	CPC valve A spring	0.7 (0.028)	6.1 (0.240)	17.8 (0.701)	7.9
②	CPC valve B spring	0.7 (0.028)	6.1 (0.240)	17.8 (0.701)	7.9
③	Shift valve B spring	0.8 (0.031)	6.6 (0.260)	49.1 (1.933)	21.7
④	Shift valve A spring	0.8 (0.031)	6.6 (0.260)	49.1 (1.933)	21.7

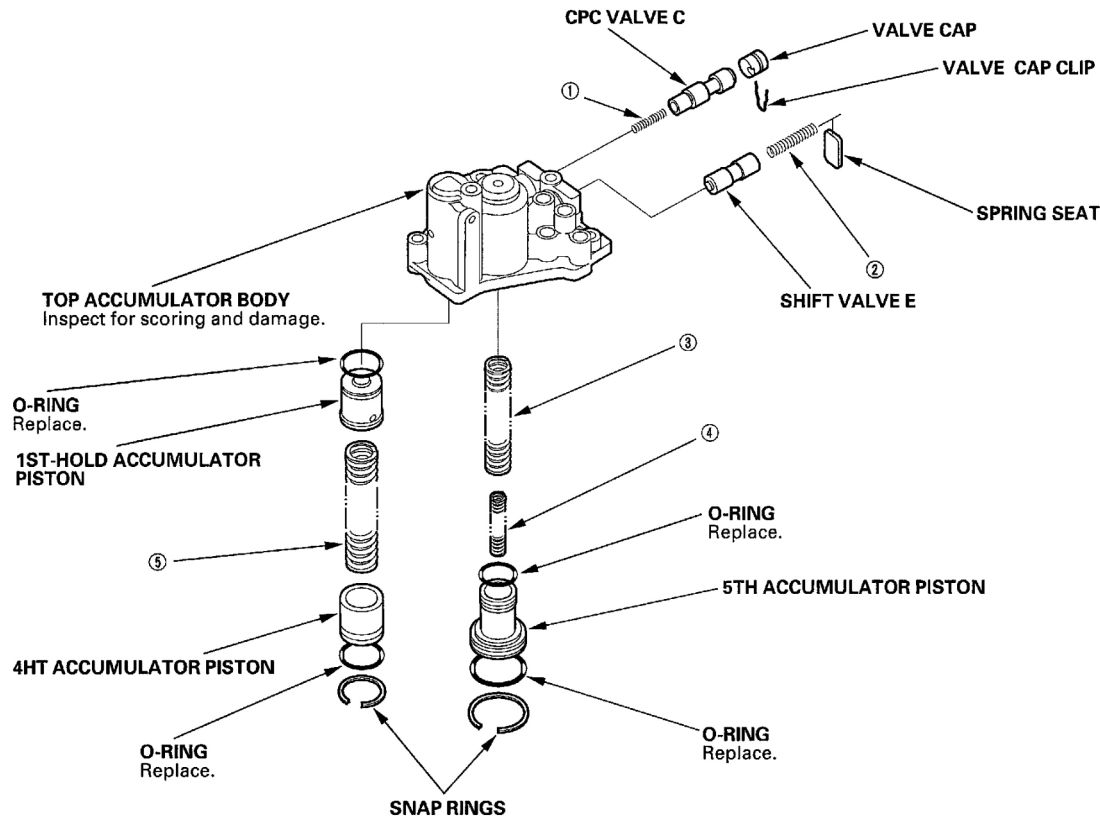
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Fig. 65: Identifying Spring Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

TOP ACCUMULATOR BODY DISASSEMBLY, INSPECTION, AND REASSEMBLY

1. Clean all parts thoroughly in solvent or carburetor cleaner, and dry them with compressed air. Blow out all passages.

2. Check all valves for free movement. If any fail to slide freely, see **Valve Body Repair**.
3. Replace the valve body as an assembly if any parts worn or damaged.
4. Coat all parts with ATF during assembly.



G01160545

Fig. 66: Exploded View Of Top Accumulator Body
Courtesy of AMERICAN HONDA MOTOR CO., INC.

No.	Springs	Standard (New)-Unit: mm (in.)			
		Wire Dia.	O.D.	Free Length	No. of Coils
①	CPC valve C spring	0.7 (0.028)	6.1 (0.240)	17.8 (0.701)	7.9
②	Shift valve E spring	0.8 (0.031)	7.1 (0.280)	49.0 (1.929)	17.2
③	5th accumulator spring A	2.2 (0.087)	16.4 (0.646)	75.7 (2.980)	14.2
④	5th accumulator spring B	2.0 (0.079)	10.0 (0.394)	45.5 (1.791)	11.6
⑤	4th/1st-hold accumulator spring	3.4 (0.134)	19.6 (0.772)	57.4 (2.260)	8.4

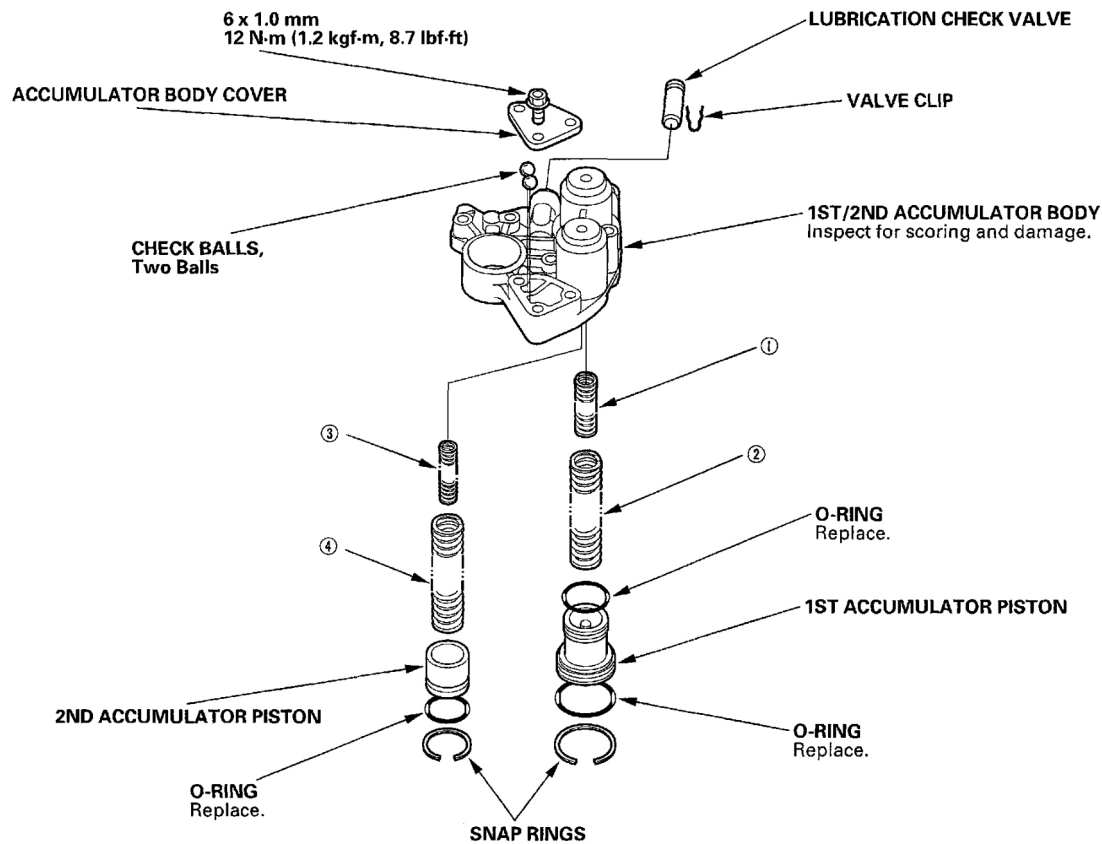
G01160546

Fig. 67: Identifying Spring Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

ACCUMULATOR BODY DISASSEMBLY, INSPECTION, AND REASSEMBLY

1. Do not use a magnet to remove the check balls; it may magnetize the balls.

- Clean all parts thoroughly in solvent or carburetor cleaner, and dry them with compressed air. Blow out all passages.
- Coat all parts with ATF during assembly.



G01160547

Fig. 68: Exploded View Of Accumulator Body
Courtesy of AMERICAN HONDA MOTOR CO., INC.

No.	Springs	Standard (New)-Unit: mm (in.)			
		Wire Dia.	O.D.	Free Length	No. of Coils
①	1st accumulator spring B	2.3 (0.091)	12.6 (0.496)	42.0 (1.654)	9.9
②	1st accumulator spring A	2.4 (0.094)	19.5 (0.768)	67.7 (2.665)	10.2
③	2nd accumulator spring B	2.6 (0.102)	13.0 (0.512)	44.0 (1.732)	9.0
④	2nd accumulator spring A	2.5 (0.098)	19.6 (0.772)	57.7 (2.272)	9.5

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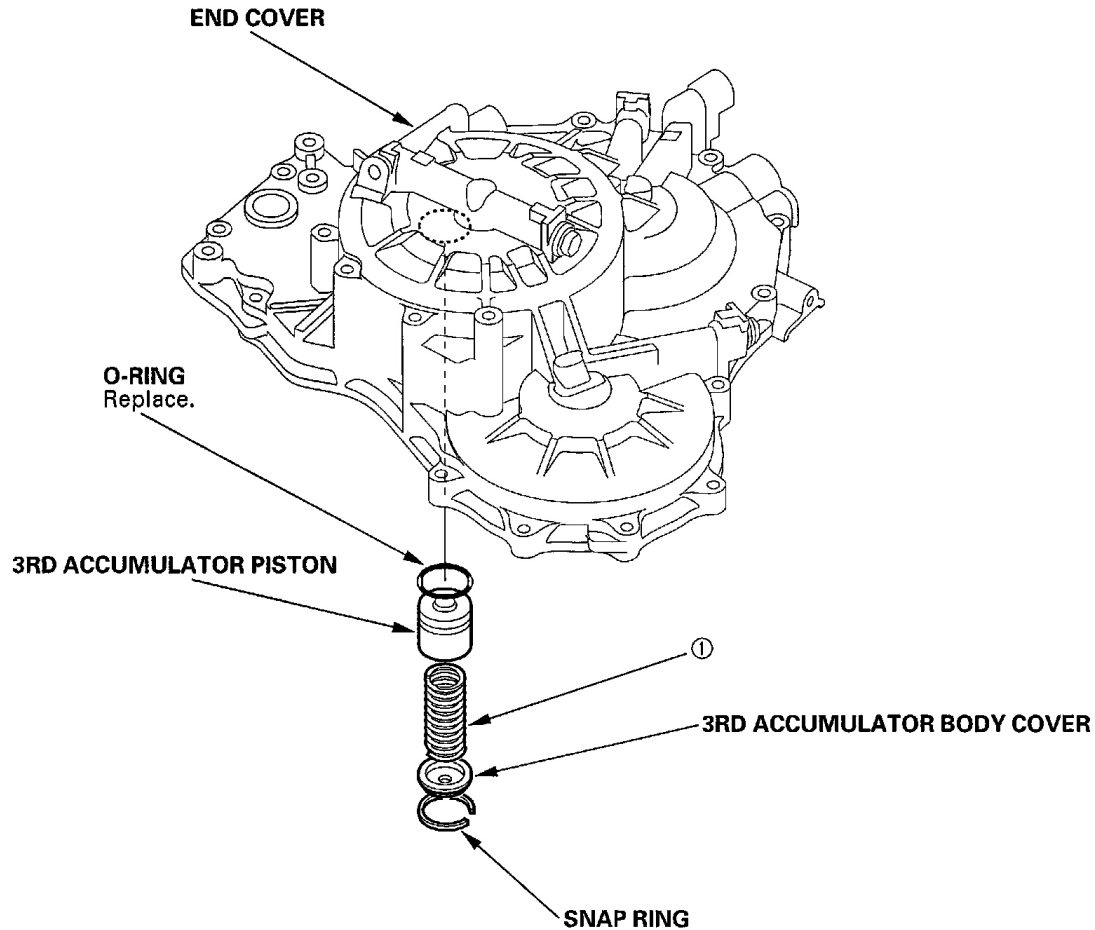
Fig. 69: Identifying Spring Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3RD ACCUMULATOR/END COVER DISASSEMBLY, INSPECTION, AND REASSEMBLY

- Clean all parts thoroughly in solvent or carburetor cleaner, and dry them with compressed air. Blow out

all passages.

2. Coat all parts with ATF during assembly.



G01160549

Fig. 70: Exploded View Of 3rd Accumulator/End Cover
Courtesy of AMERICAN HONDA MOTOR CO., INC.

No.	Springs	Standard (New)-Unit: mm (in.)			
		Wire Dia.	O.D.	Free Length	No. of Coils
①	3rd accumulator spring	3.1 (0.122)	19.6 (0.772)	39.4 (1.551)	5.5

G01160550

Fig. 71: Identifying Spring Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

VALVE BODIES AND ATF STRAINER INSTALLATION

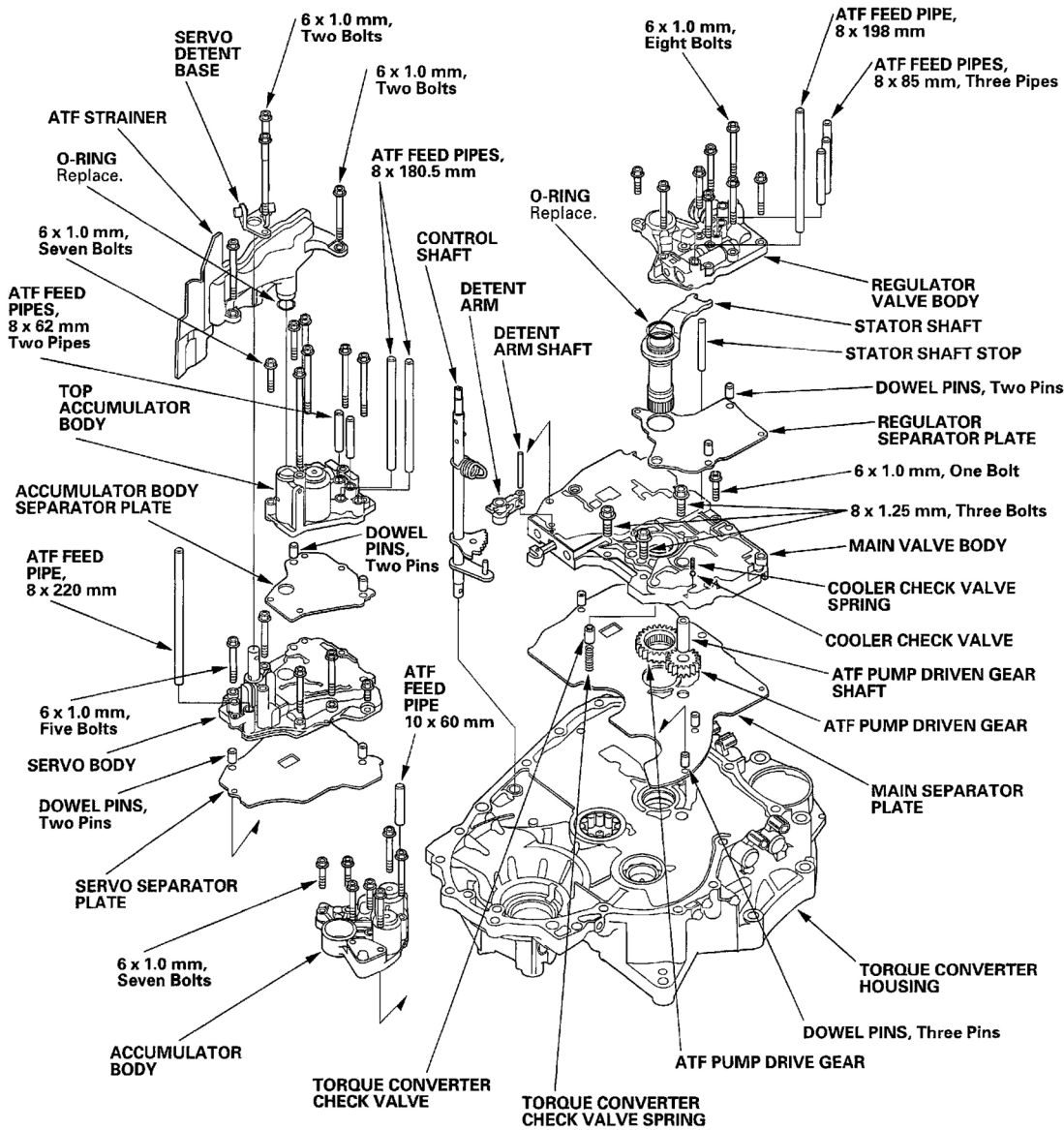
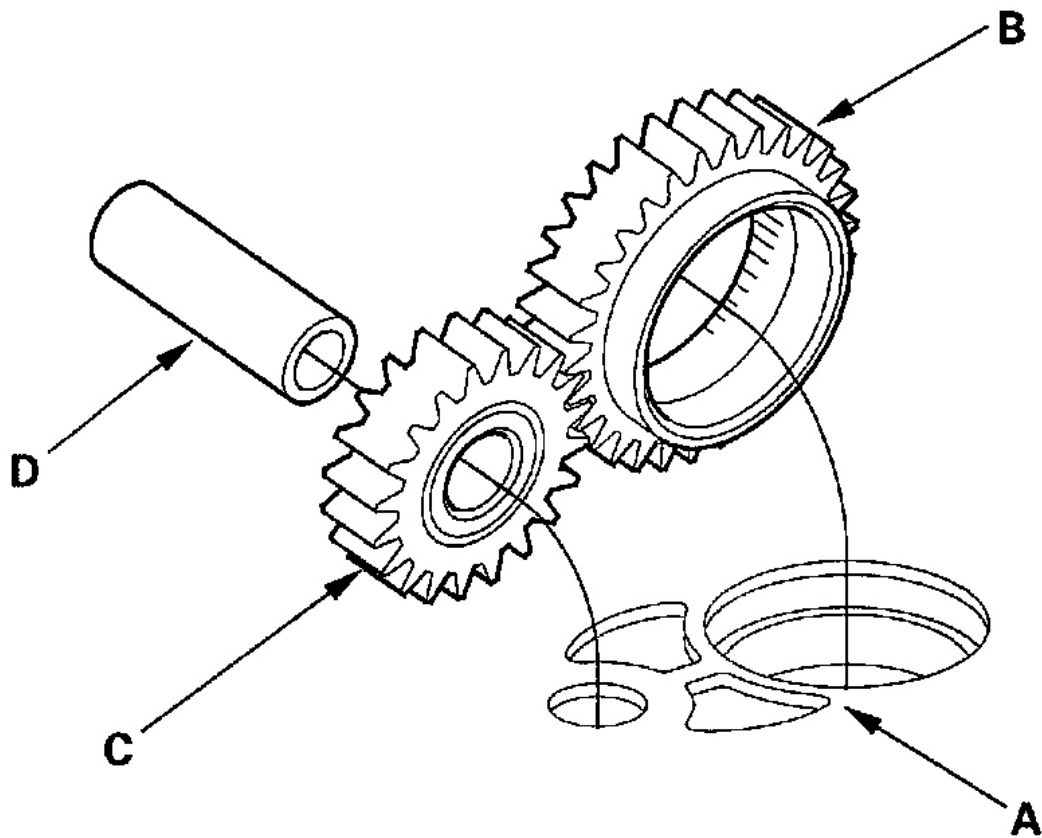


Fig. 72: Exploded View Of Valve Bodies and ATF Strainerz
Courtesy of AMERICAN HONDA MOTOR CO., INC.

1. Install the main separator plate (A) and three dowel pins on the torque converter housing. Then install the ATF pump drive gear (B), driven gear (C), and ATF pump driven gear shaft (D). Install the ATF pump driven gear with its grooved and chamfered side facing down.

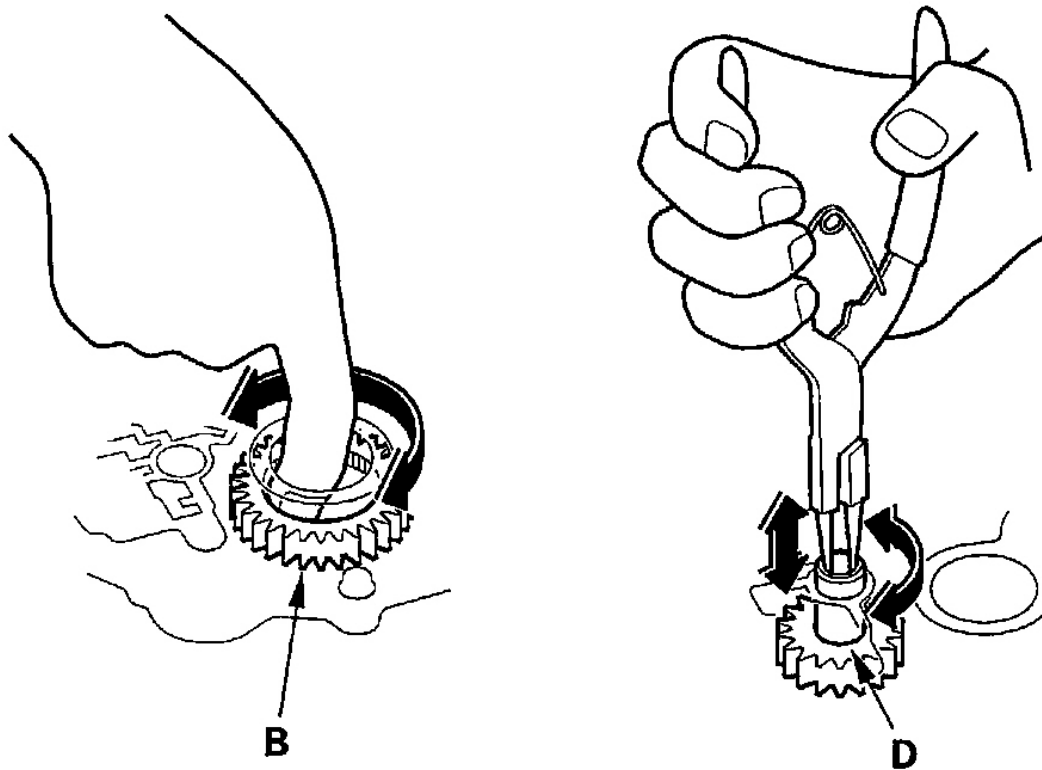


G01160622

Fig. 73: Installing Main Separator Plate, ATF Pump Drive Gear, Driven Gear & ATF Pump Driven Gear Shaft

Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Install the main valve body (one 6 mm bolt and three 8 mm bolts). Make sure the ATF pump drive gear (B) rotates smoothly in the normal operating direction, and the ATF pump driven gear shaft (D) moves smoothly in the axial and normal operating direction.



G01160623

Fig. 74: Ensuring ATF Pump Drive Gear Rotates Smoothly
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. If the ATF pump drive gear and ATF pump driven gear shaft do not move smoothly, loosen the main valve body bolts. Realign the ATF pump driven gear shaft, and retighten the bolts to the specified torque, then recheck. Failure to align the ATF pump driven gear shaft correctly will result in a seized ATF pump drive gear or ATF pump driven gear shaft.
4. Install the torque converter check valve and spring, and the cooler check valve and spring on the main valve body, then install the two dowel pins and the regulator separator plate.
5. Install the stator shaft and stator shaft stop.
6. Install the regulator valve body (eight bolts).
7. Install the two dowel pins and the servo separator plate on the main valve body.
8. Install the control shaft (A) in the torque converter housing along with the manual valve (B).

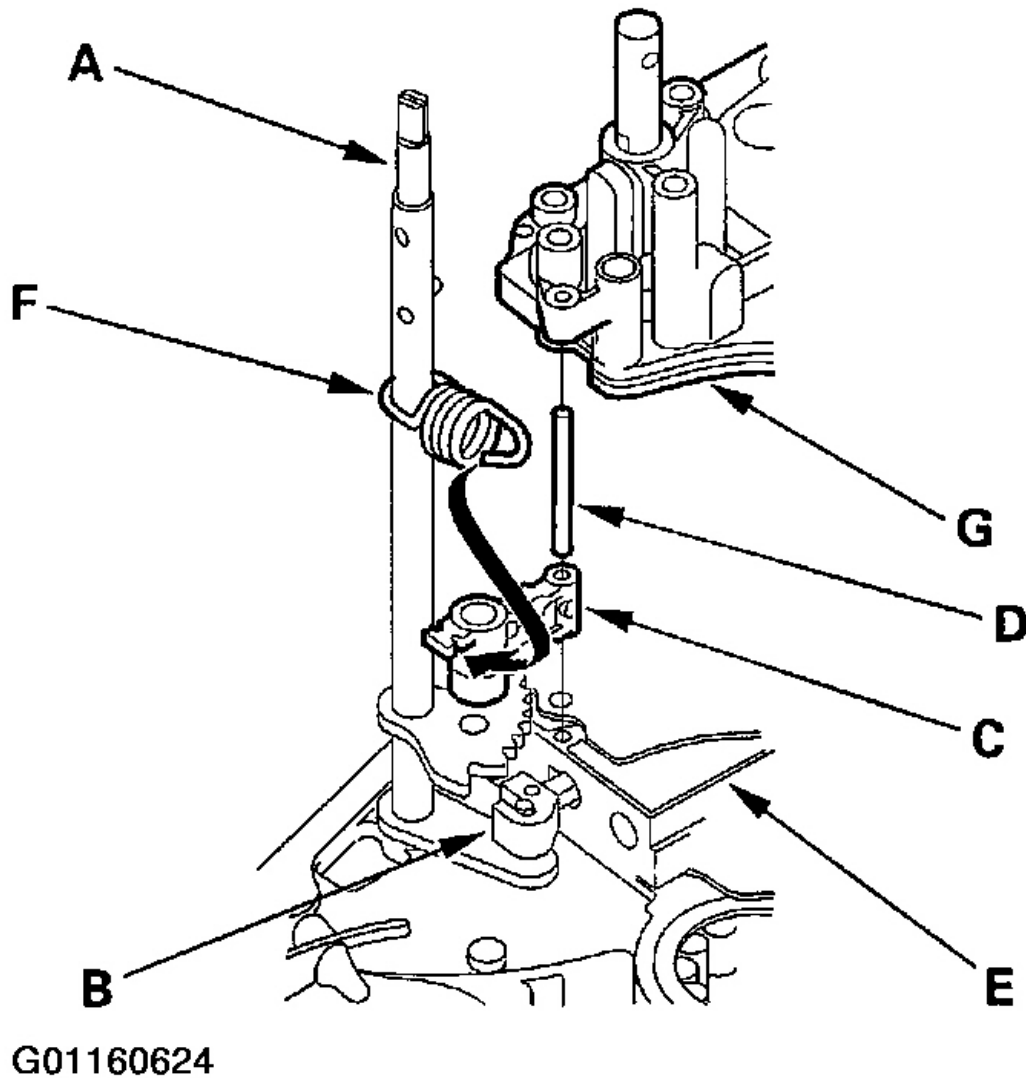


Fig. 75: Installing Control Shaft

Courtesy of AMERICAN HONDA MOTOR CO., INC.

9. Install the detent arm (C) and arm shaft (D) in the main valve body (E), then hook the detent arm spring (F) to the detent arm.
10. Install the servo body (G) (five bolts).
11. Install the top accumulator body separator plate with two dowel pins on the servo body, then install the top accumulator body (seven bolts).
12. Install the ATF strainer (two bolts).
13. Install the servo detent base (two bolts).

14. Install the accumulator body (seven bolts).
15. Install the one ATF feed pipe in the servo body, four pipes in the regulator valve body, four pipes in the top accumulator body, and one pipe in the accumulator body.

TORQUE CONVERTER HOUSING

MAINSHAFT BEARING AND OIL SEAL REPLACEMENT

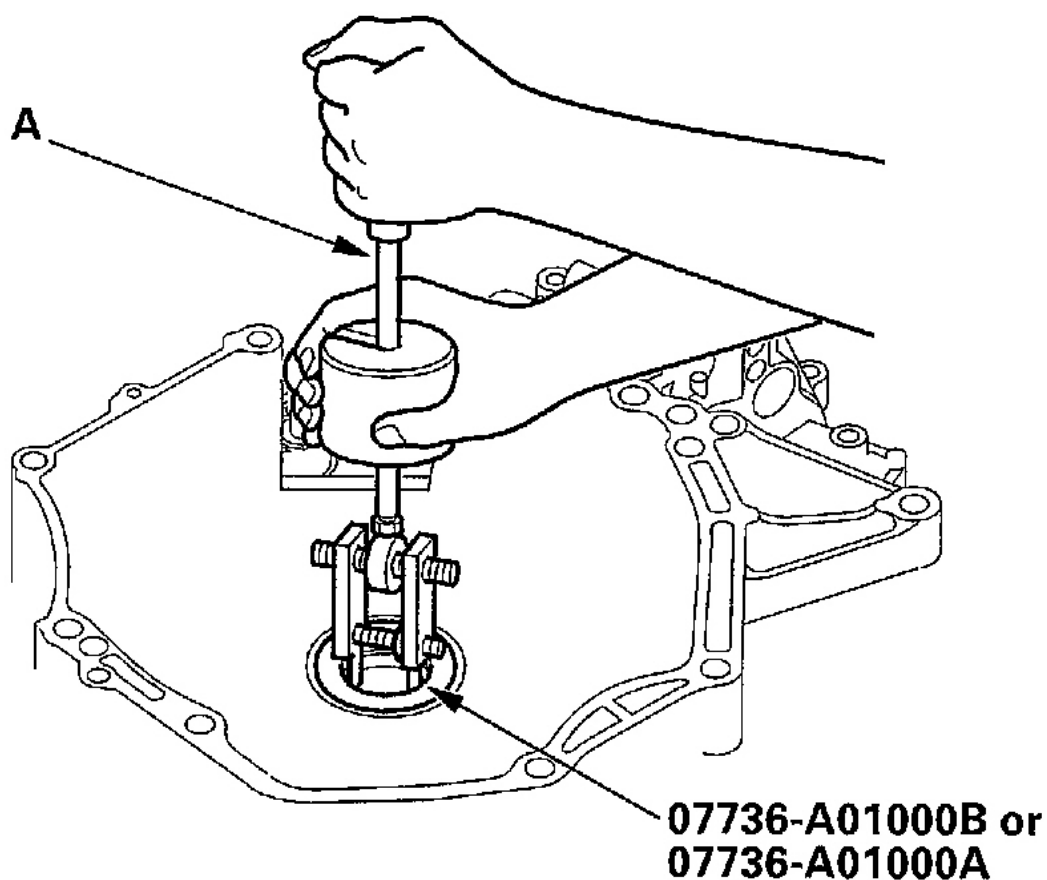
Special Tools Required

- Adjustable bearing puller, 25 - 40 mm

07736-A01000B or 07736-A01000A

- Driver 07749-0010000
- Attachment, 62 x 68 mm 07746-0010500
- Attachment, 72 x 75 mm 07746-0010600

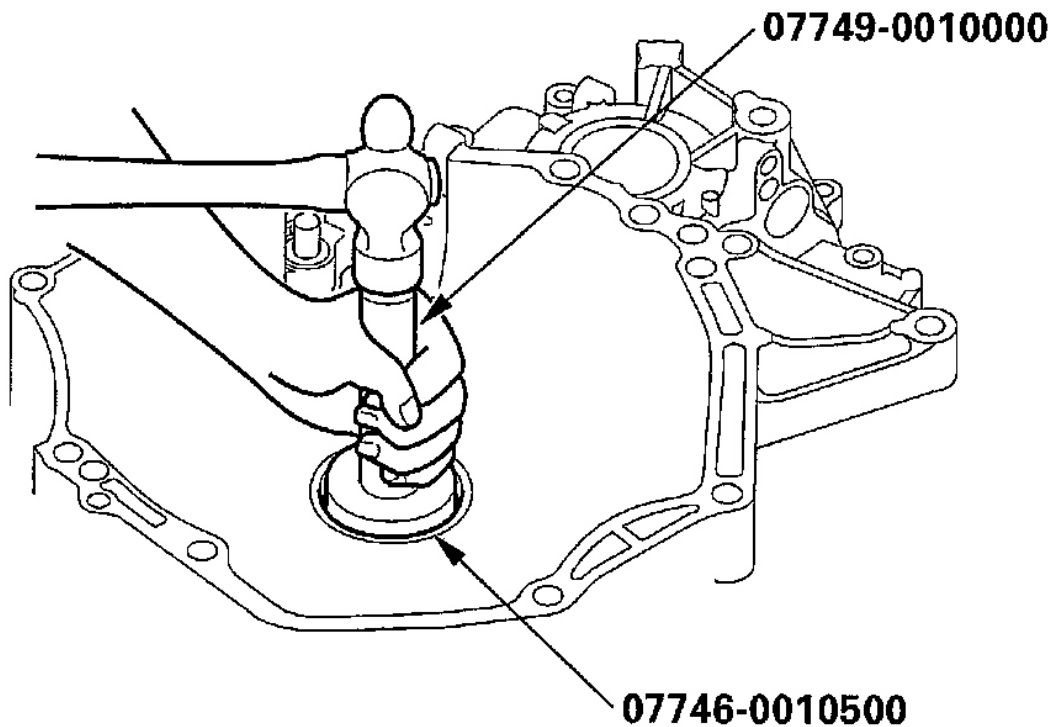
1. Remove the mainshaft bearing and oil seal with the special tool and a commercially available 3/8"-16 slide hammer (A).



G01160551

Fig. 76: Removing Mainshaft Bearing & Oil Seal
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Install the new mainshaft bearing until it bottoms in the housing with the special tools.



G01160552

Fig. 77: Installing New Mainshaft Bearing

Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Install the new oil seal flush to the housing with the special tools.

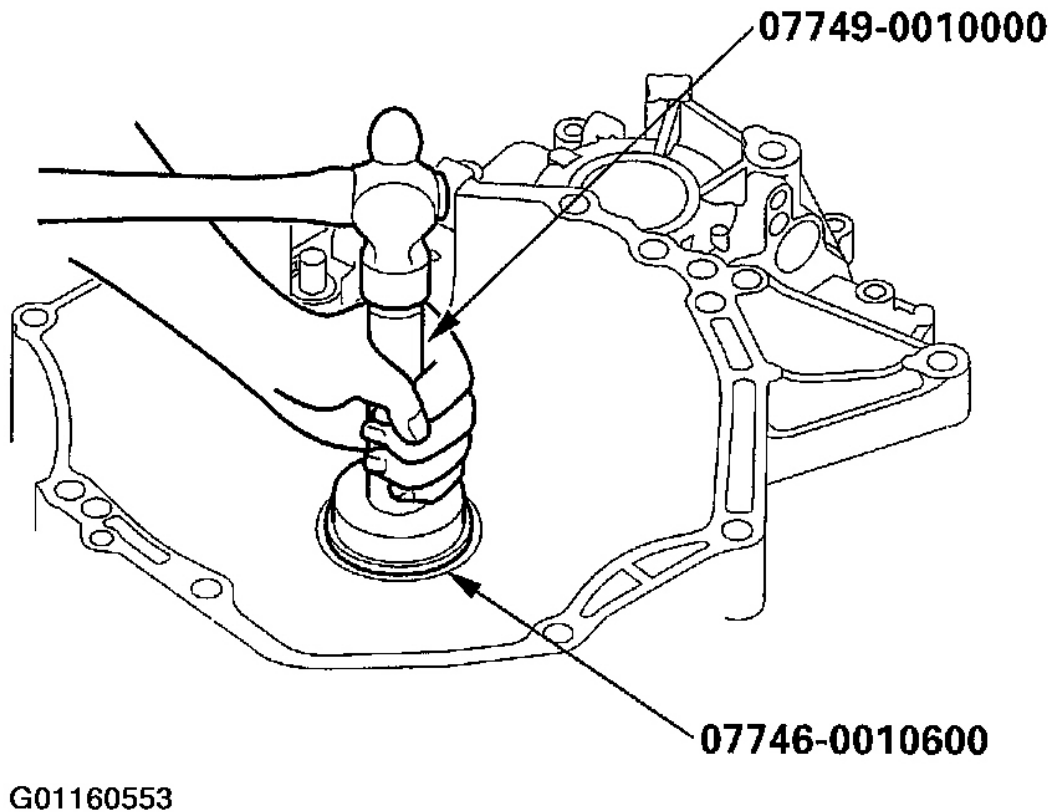


Fig. 78: Installing New Oil Seal Flush
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

COUNTERSHAFT BEARING REPLACEMENT

Special Tools Required

- Adjustable bearing puller, 25-40 mm
 07736-A01000B or 07736-A01000A
- Driver 07749-0010000
- Attachment, 62 x 68 mm 07746-0010500

1. Remove the countershaft bearing (A) with the special tool and a commercially available 3/8"-16 slide hammer (B).

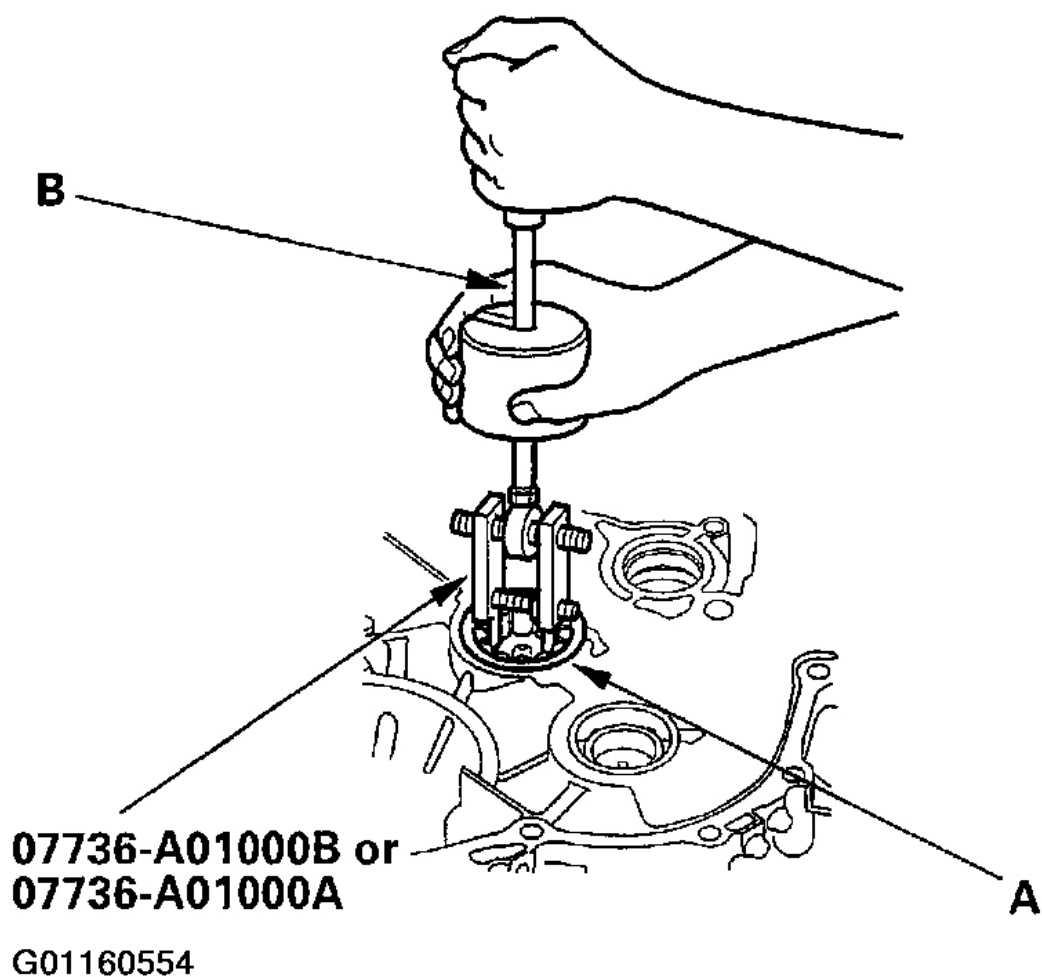


Fig. 79: Removing Countershaft Bearing
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Install the ATF guide plate (A).

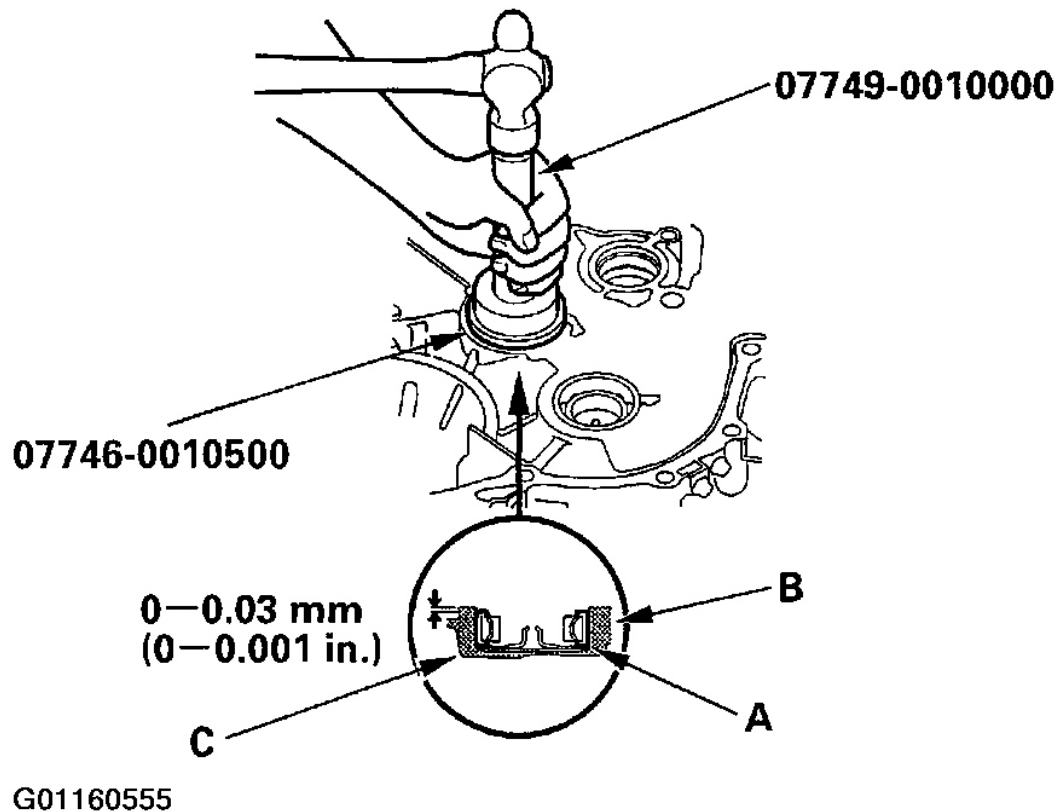


Fig. 80: Installing ATF Guide Plate

Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Install the new bearing (B) into the housing (C) with the special tools.

SECONDARY SHAFT BEARING REPLACEMENT

Special Tools Required

- Adjustable bearing puller, 25 - 40 mm

07736-A01000B or 07736-A01000A

- Driver 07749-0010000
- Driver attachment 07947-6340500

1. Remove the secondary shaft bearing (A) with the special tool and a commercially available 3/8"-16 slide hammer (B).

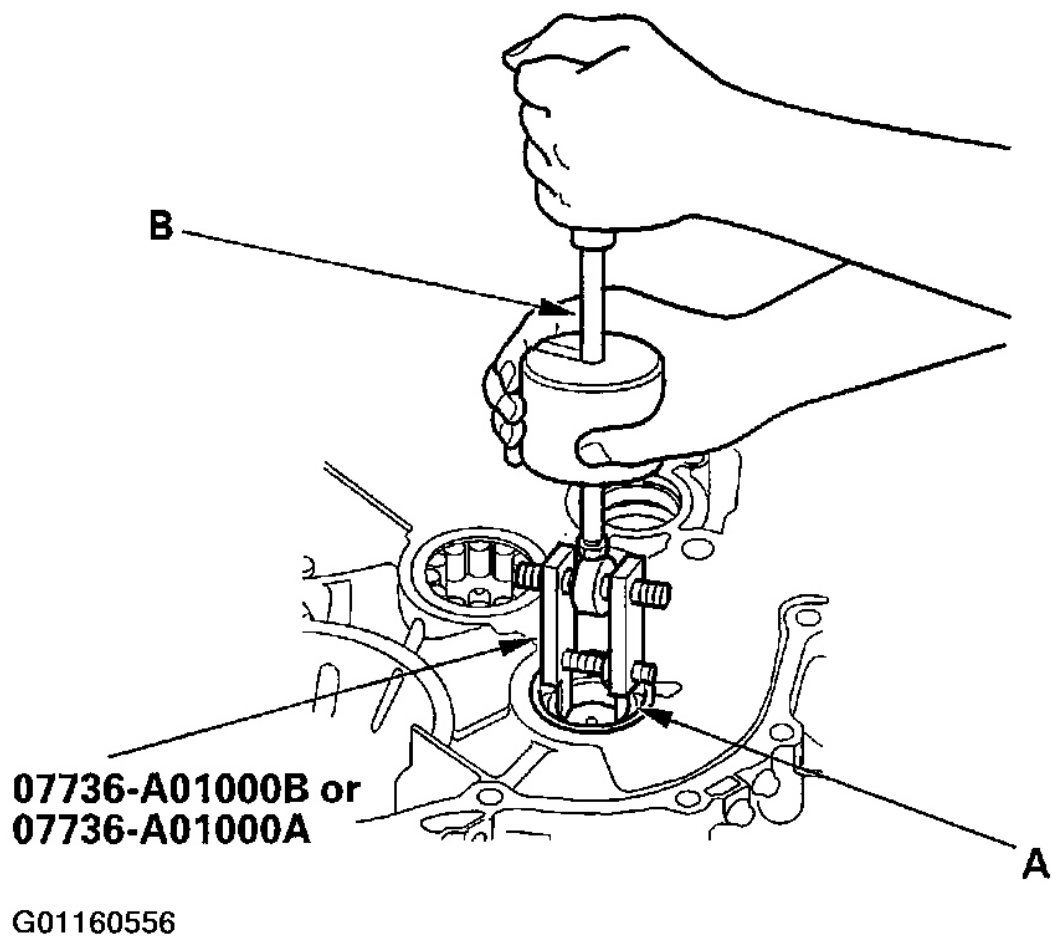


Fig. 81: Removing Secondary Shaft Bearing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Install the ATF guide plate (A).

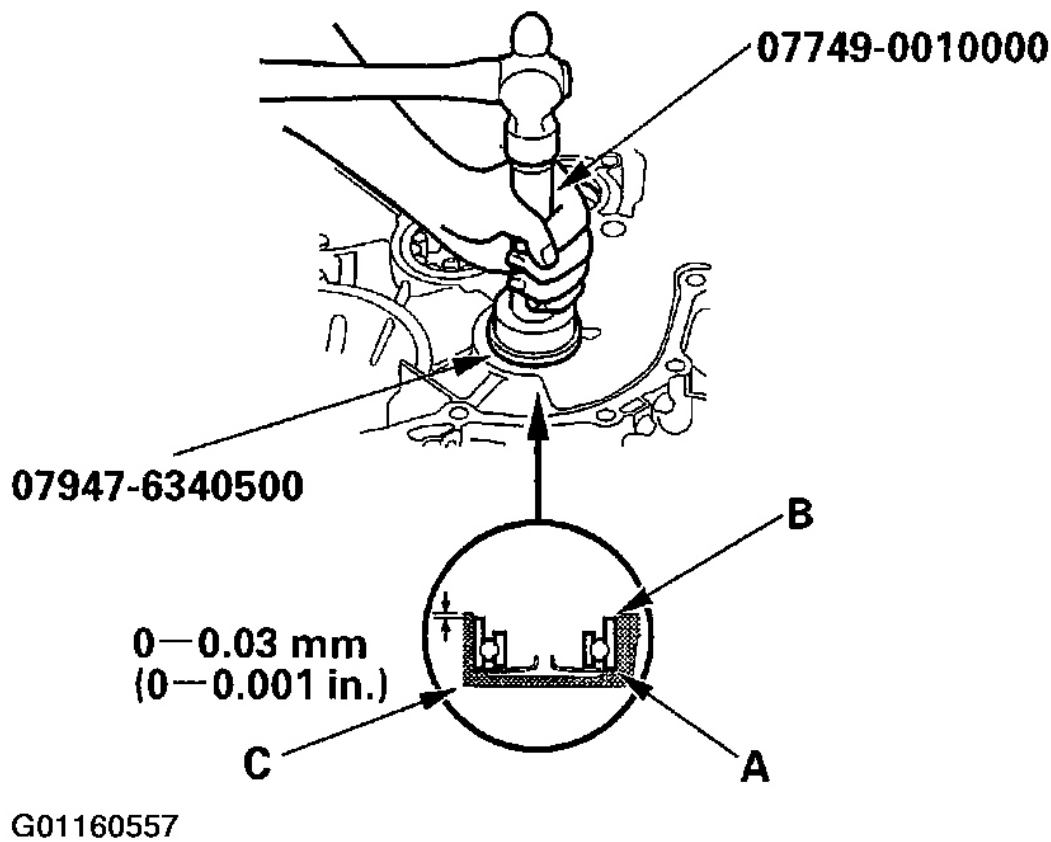


Fig. 82: Installing ATF Guide Plate
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

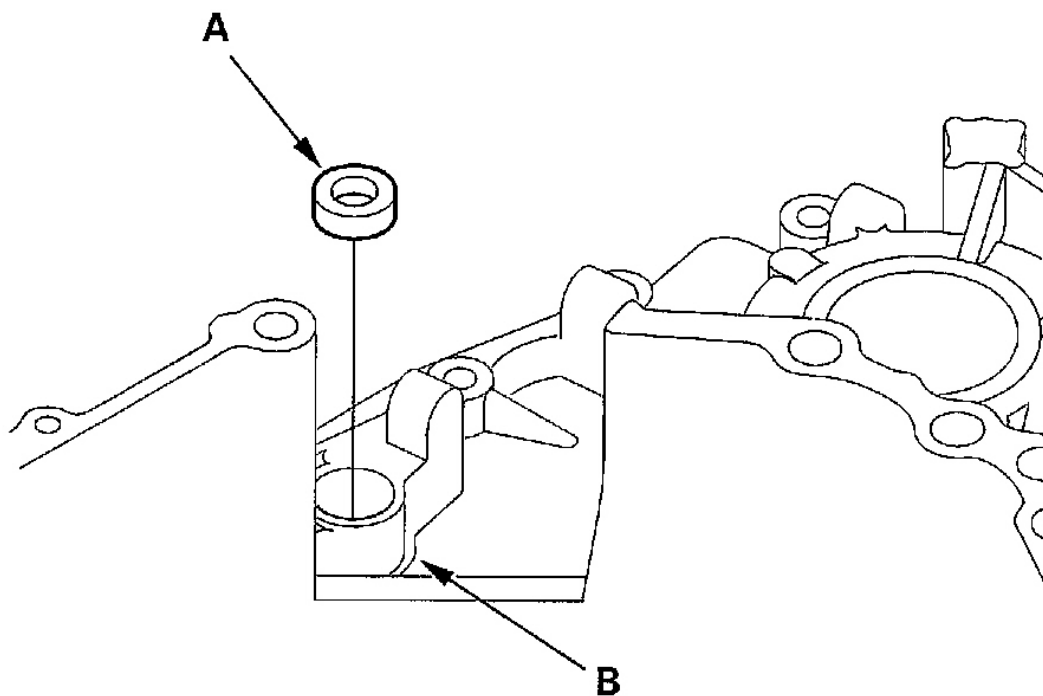
3. Install the new bearing (B) into the housing (C) with the special tools.

CONTROL SHAFT OIL SEAL REPLACEMENT

Special Tools Required

- Driver 07749-0010000
- Attachment, 22 x 24 mm 07746-0010800

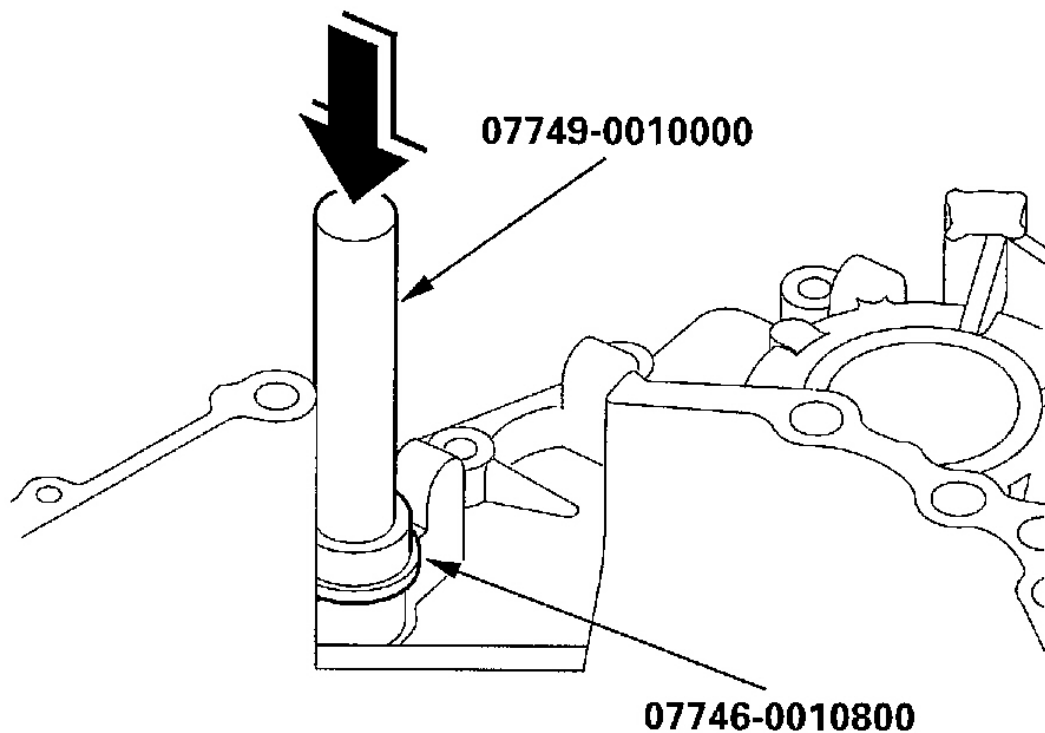
1. Remove the oil seal (A) from the torque converter housing (B).



G01160558

Fig. 83: Removing Oil Seal From Torque Converter Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Install the new oil seal flush to the torque converter housing with the special tools.

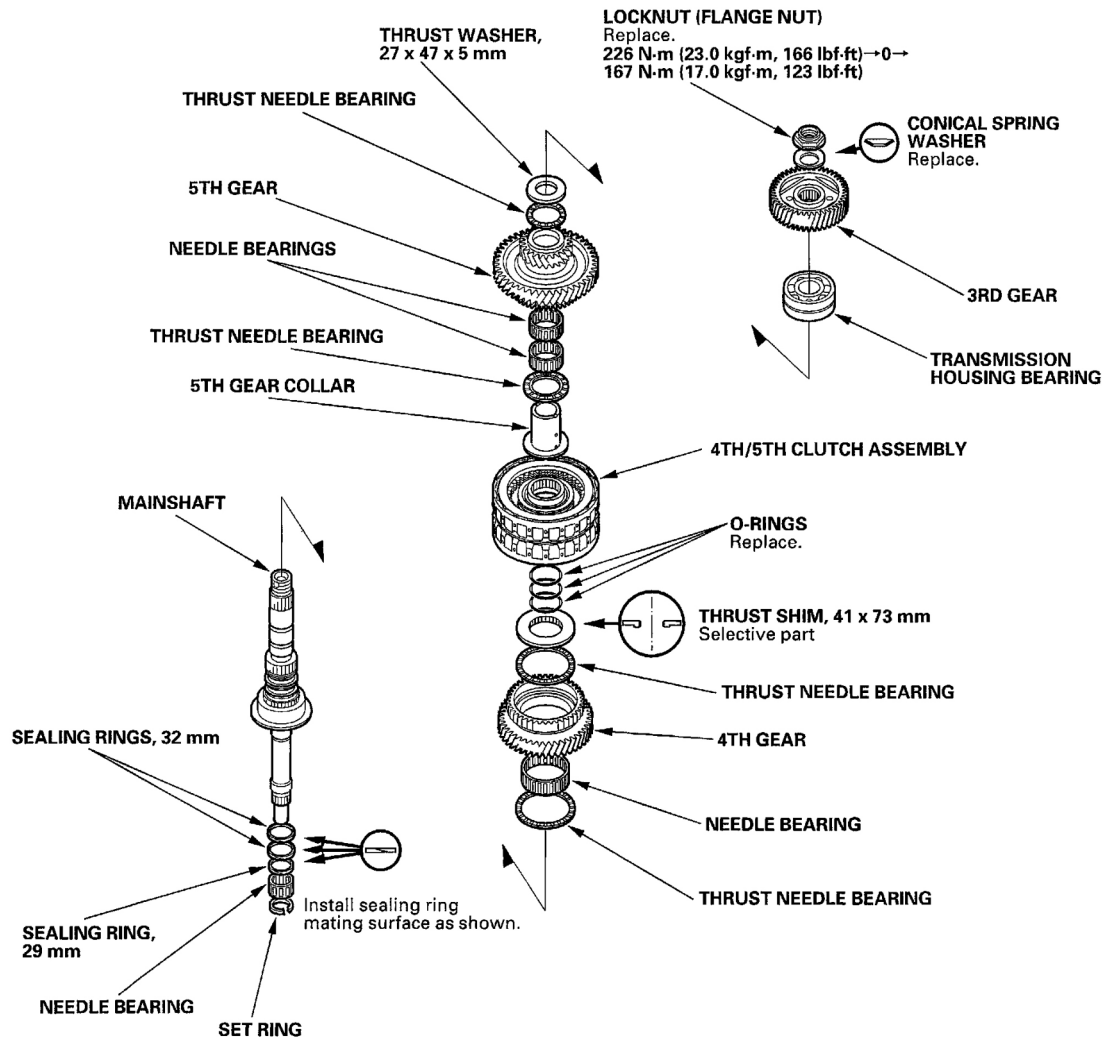


G01160559

Fig. 84: Installing New Oil Seal Flush
Courtesy of AMERICAN HONDA MOTOR CO., INC.

SHAFTS AND CLUTCHES

MAINSHAFT DISASSEMBLY, INSPECTION, AND REASSEMBLY

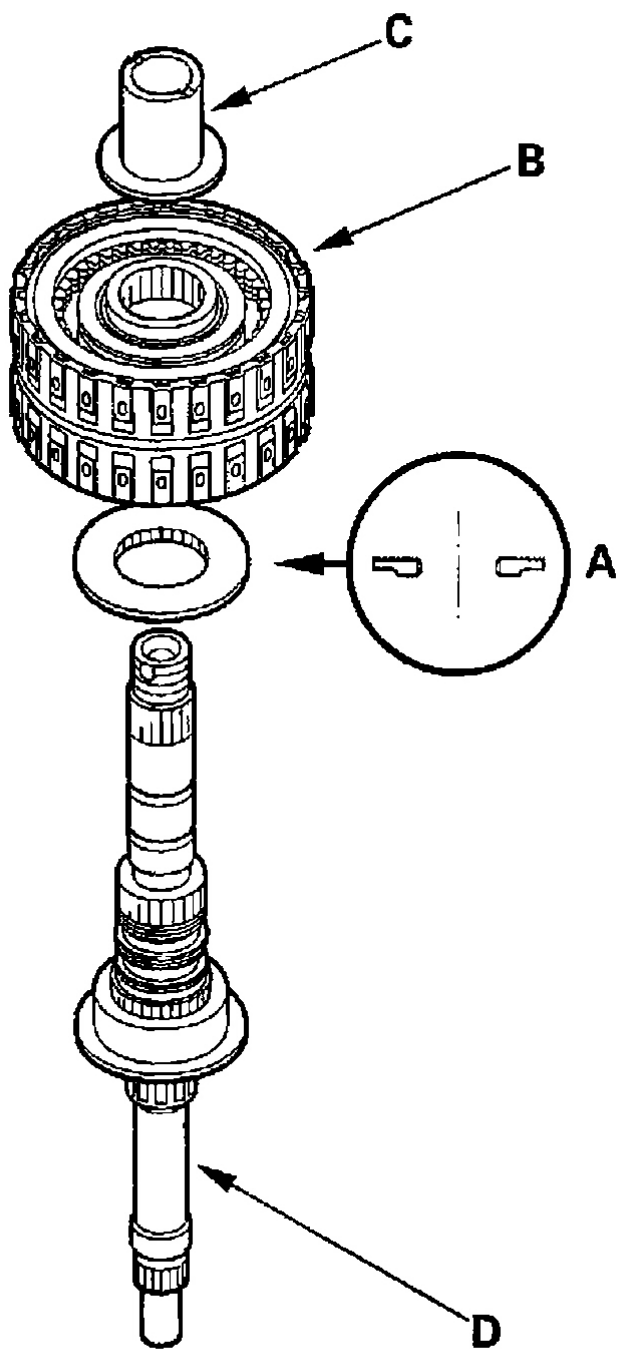
**Fig. 85: Exploded View Of Mainshaft**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

1. Lubricate all parts with ATF during assembly.
2. Check the clearance of the 4th/5th clutch assembly.
3. Inspect the thrust needle bearing and the needle bearing for galling and rough movement.
4. Inspect the splines for excessive wear and damage.
5. Check shaft bearing surfaces for scoring and excessive wear.
6. Before installing the O-rings, wrap the shaft splines with tape to prevent O-ring damage.
7. Install the conical spring washer and 41 x 73 mm thrust washer in the direction shown.
8. Inspect the condition of the sealing rings. If the sealing rings are worn, distorted, or damaged, replace them. See **Mainshaft Sealing Rings Replacement**.

4TH/5TH CLUTCH CLEARANCE INSPECTION

1. Remove the O-rings from the mainshaft.
2. Assemble the 41 x 73 mm thrust shim (A), 4th/5th clutch assembly (B), and 5th gear collar (C) on the mainshaft (D).

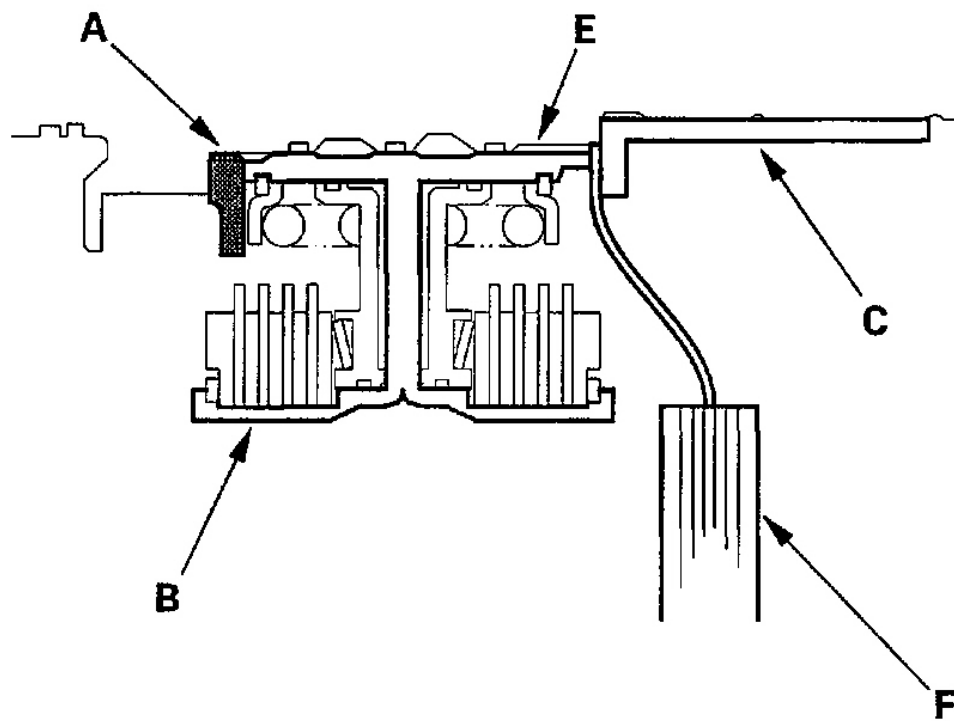
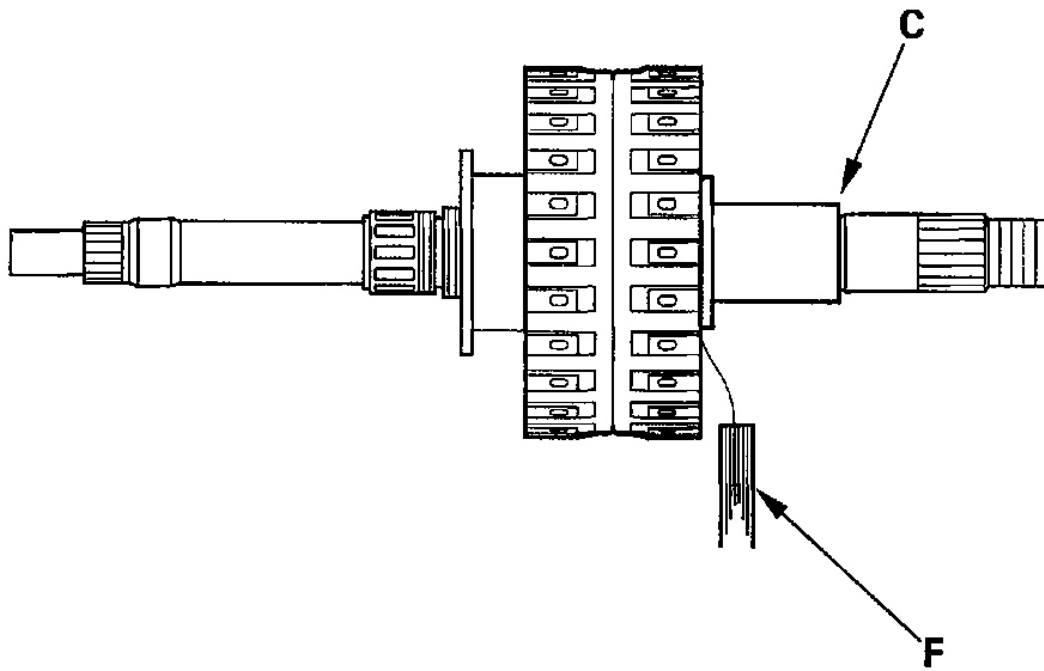


G01160561

Fig. 86: Assembling 41 x 73 mm Thrust Shim, 4th/5th Clutch Assembly, & 5th Gear Collar
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Hold the 5th gear collar (C) against the clutch assembly (B), then measure the clearance between the clutch guide (E) and the 5th gear collar with a feeler gauge (F) in at least three places. Use the average as the actual clearance.

STANDARD: 0.03-0.11 mm (0.001-0.004 in.)



G01160562

Fig. 87: Measuring Clearance Between Clutch Guide & 5th Gear Collar
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. If the clearance is out of standard, remove the thrust shim and measure its thickness.
5. Select and install a new shim, then recheck.

No.	Part Number	Thickness
1	90414-P7W-000	7.85 mm (0.309 in.)
2	90415-P7W-000	7.90 mm (0.311 in.)
3	90416-P7W-000	7.95 mm (0.313 in.)
4	90417-P7W-000	8.00 mm (0.315 in.)
5	90418-P7W-000	8.05 mm (0.317 in.)
6	90419-P7W-000	8.10 mm (0.319 in.)

G01160563

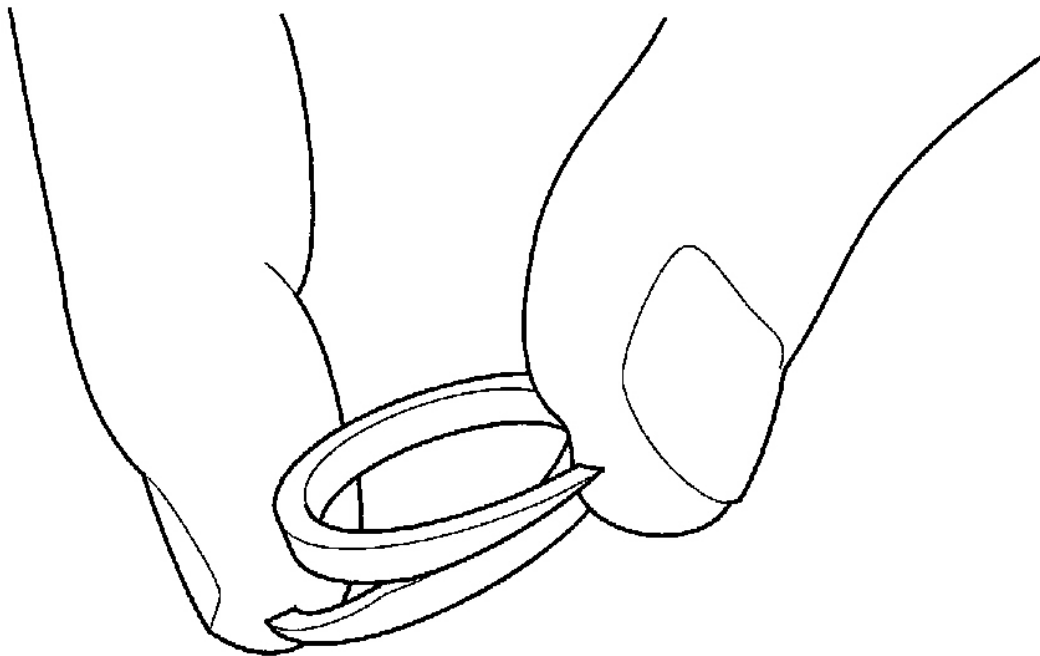
Fig. 88: Identifying Thrust Shim (41 x 73 mm)
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. After replacing the thrust shim, make sure the clearance is within standard.

MAINSHAFT SEALING RINGS REPLACEMENT

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.

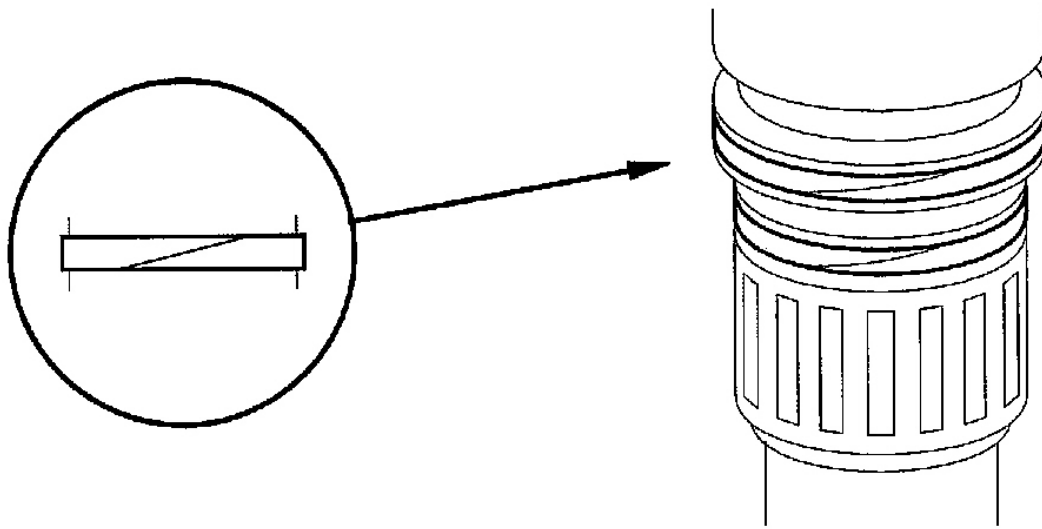


G01160564

Fig. 89: Squeezing Sealing Rings

Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Apply ATF to the new sealing rings then install them on the mainshaft.



G01160565

Fig. 90: Installing New Sealing Rings**Courtesy of AMERICAN HONDA MOTOR CO., INC.**

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.

COUNTERSHAFT DISASSEMBLY, INSPECTION, AND REASSEMBLY

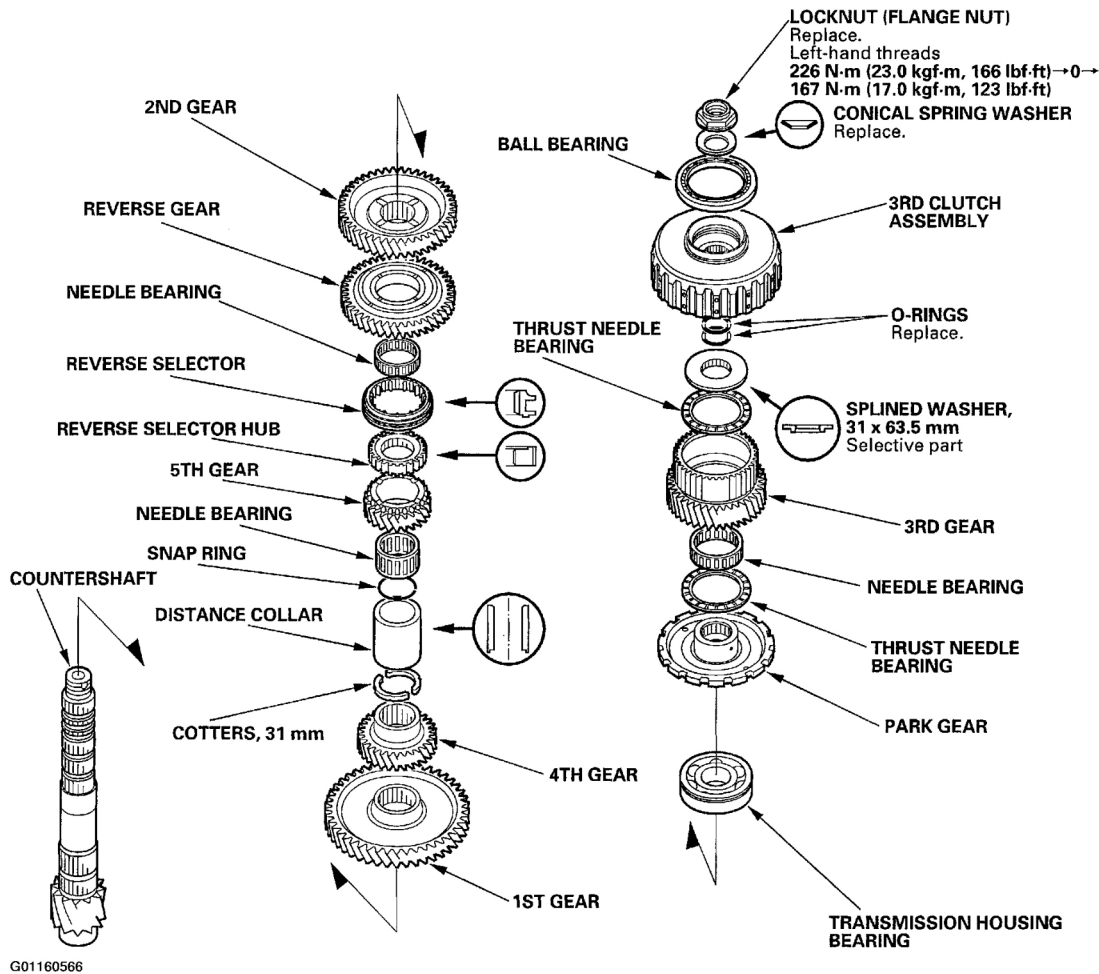


Fig. 91: Exploded View Of Countershaft
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

'00-01 Models:

1. Remove the locknut, and take off components down to the reverse selector hub.
2. Remove the reverse selector hub, 4th gear, and 1st gear. See **Countershaft Reverse Selector Hub and 4th Gear Removal**.
3. Check the bearing on the 3rd clutch for wear and rough movement. If the bearing is worn or damaged, replace it. See **3rd Clutch Ball Bearing Replacement**.
4. Inspect the thrust needle bearing and the needle bearing for galling and rough movement.
5. Check the splines for excessive wear and damage.
6. Check the shaft bearing surfaces for scoring and excessive wear.
7. Lubricate all parts with ATF, and reassemble the shafts and gears.
8. Install the conical spring washer, 31 x 63.5 mm splined washer, reverse selector, reverse selector hub, and distance collar in the direction shown.

'02-03 Models:

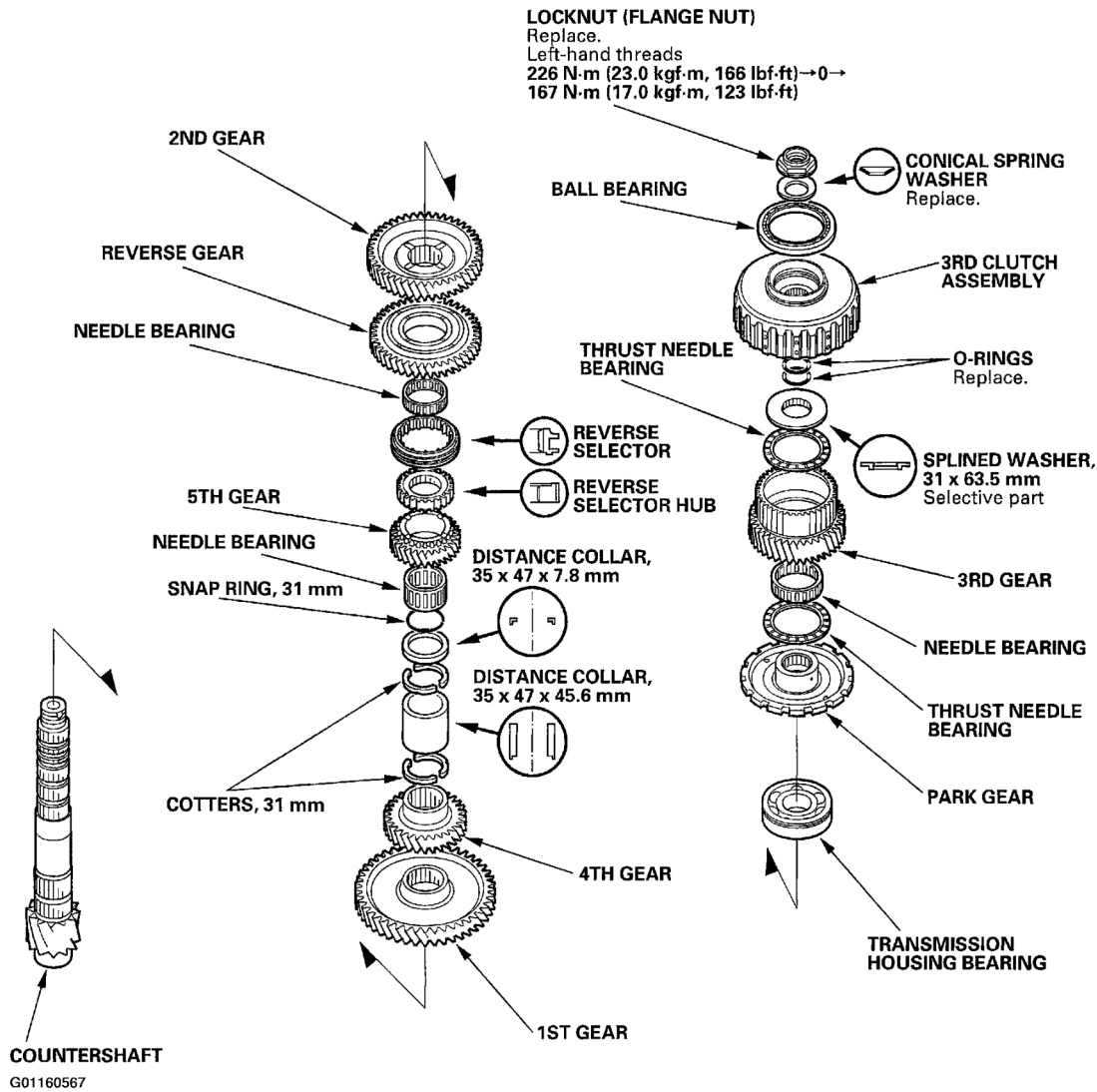


Fig. 92: Exploded View Of Countershaft Disassembly & Reassembly
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

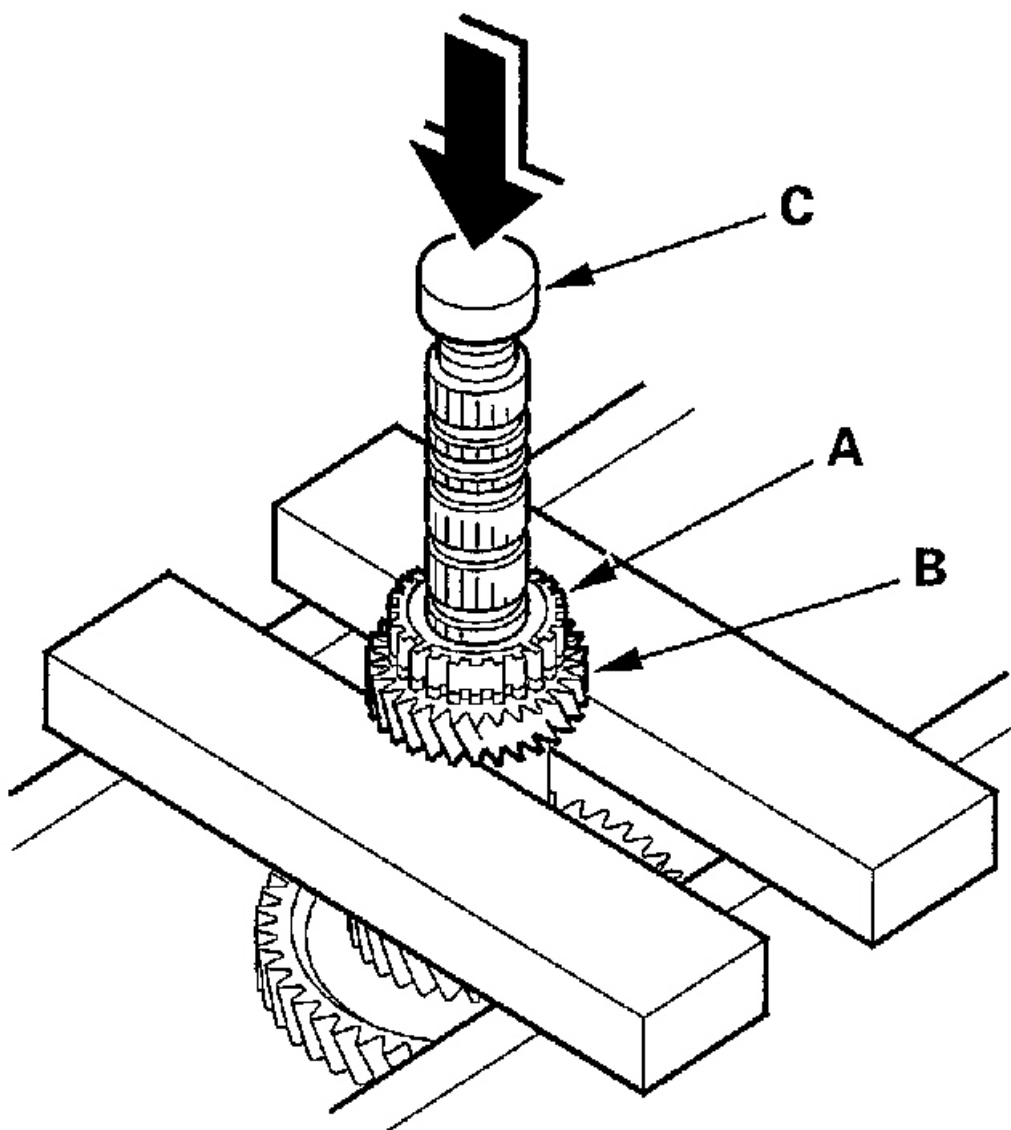
1. Remove the locknut, and take off components down to the reverse selector hub.
2. Remove the reverse selector hub, 4th gear, and 1st gear. See **Countershaft Reverse Selector Hub and 4th Gear Removal**.
3. Check the bearing on the 3rd clutch for wear and rough movement. If the bearing is worn or damaged, replace it. See **3rd Clutch Ball Bearing Replacement**.
4. Inspect the thrust needle bearing and the needle bearing for galling and rough movement.
5. Check the splines for excessive wear and damage.
6. Check the shaft bearing surfaces for scoring and excessive wear.

7. Lubricate all parts with ATF, and reassemble the shafts and gears.
8. Install the distance collars, reverse selector hub, reverse selector, splined washer, and conical spring washer in the direction shown.

COUNTERSHAFT REVERSE SELECTOR HUB AND 4TH GEAR REMOVAL

1. Remove the reverse selector hub (A) and the 5th gear (B) from the countershaft with a press. Place a shaft protector (C) between the countershaft and press to prevent damaging the countershaft.

NOTE: **Some reverse selector hubs are not pressfitted, and can be removed without using a puller.**

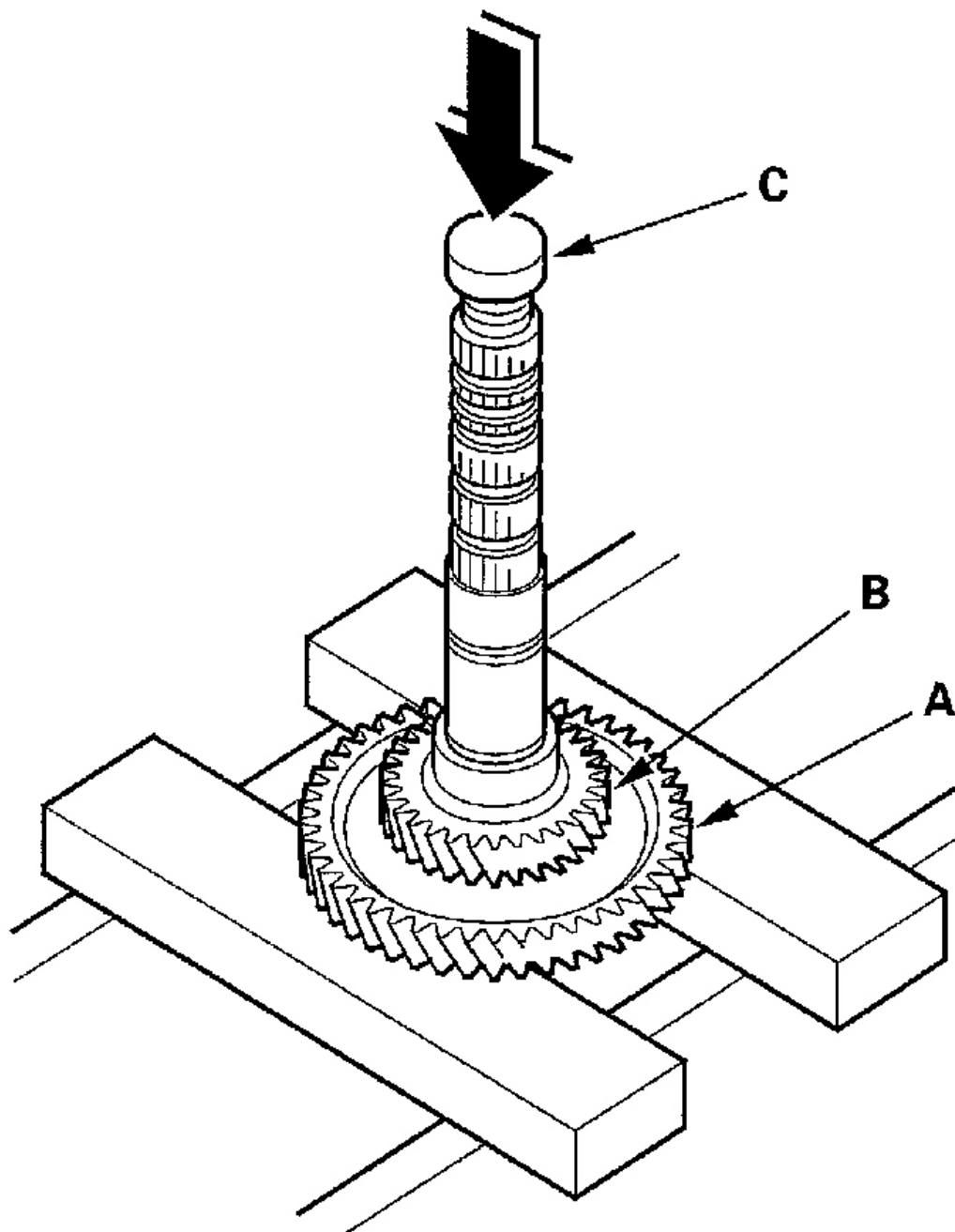


G01160568

Fig. 93: Removing Reverse Selector Hub & 5th Gear
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Remove the following parts from the countershaft:
 - '00-01 models:
 - Needle bearing
 - Snap ring

- Distance collar
- Cotter pins, 31 mm
- '02-03 models:
 - Needle bearing
 - Snap ring
 - Distance collar, 35 x 47 x 7.8 mm
 - Cotter pins, 31 mm
 - Distance collar, 35 x 47 x 45.6 mm
 - Cotter pins, 31 mm
- 3. Remove the 1st gear (A) and 4th gear (B) together from the countershaft with a press. Place a shaft protector (C) between the countershaft and press to prevent damaging the countershaft.



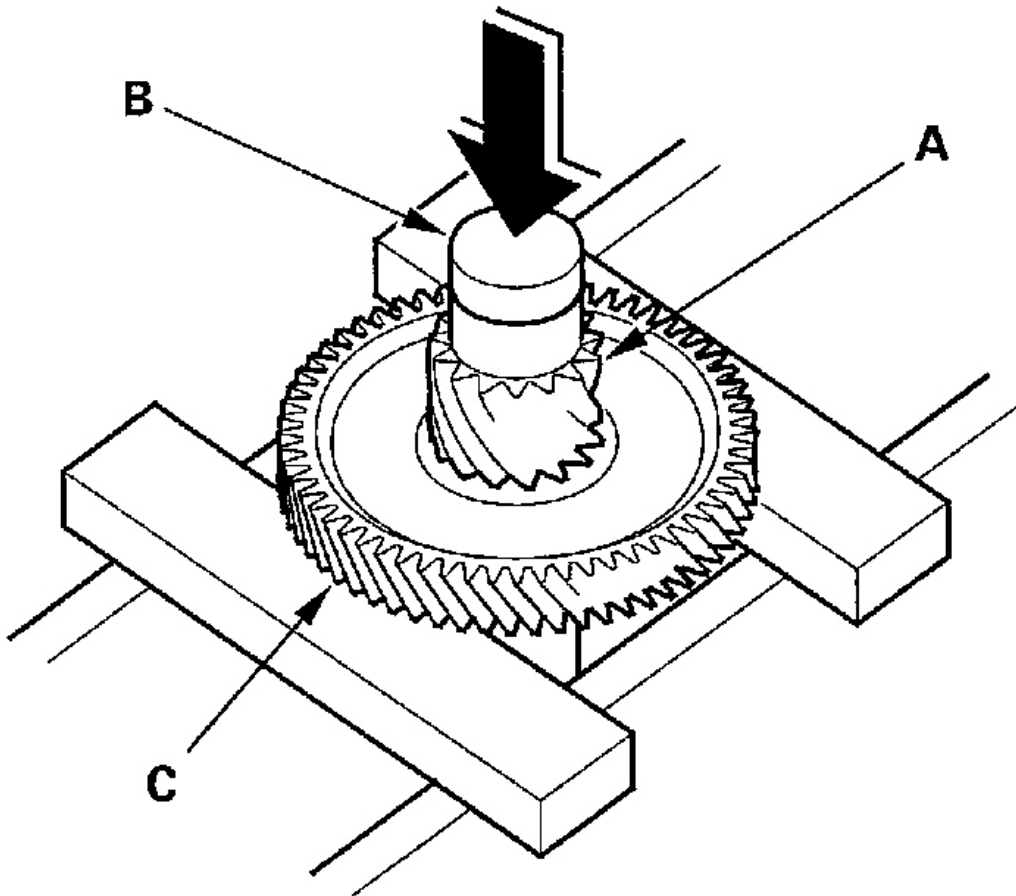
G01160569

Fig. 94: Removing 1st Gear & 4th Gear
Courtesy of AMERICAN HONDA MOTOR CO., INC.

COUNTERSHAFT 4TH GEAR AND REVERSE SELECTOR HUB INSTALLATION**Special Tool Required**

Driver, 40 mm I.D. 07746-0030100

1. Apply ATF to the parts.
2. Install the 1st gear on the countershaft by hand.
3. Align the shaft splines with those on 4th gear, then press the countershaft (A) into the 4th gear with a press. Place an attachment (B) between the press and countershaft to prevent damaging the countershaft.

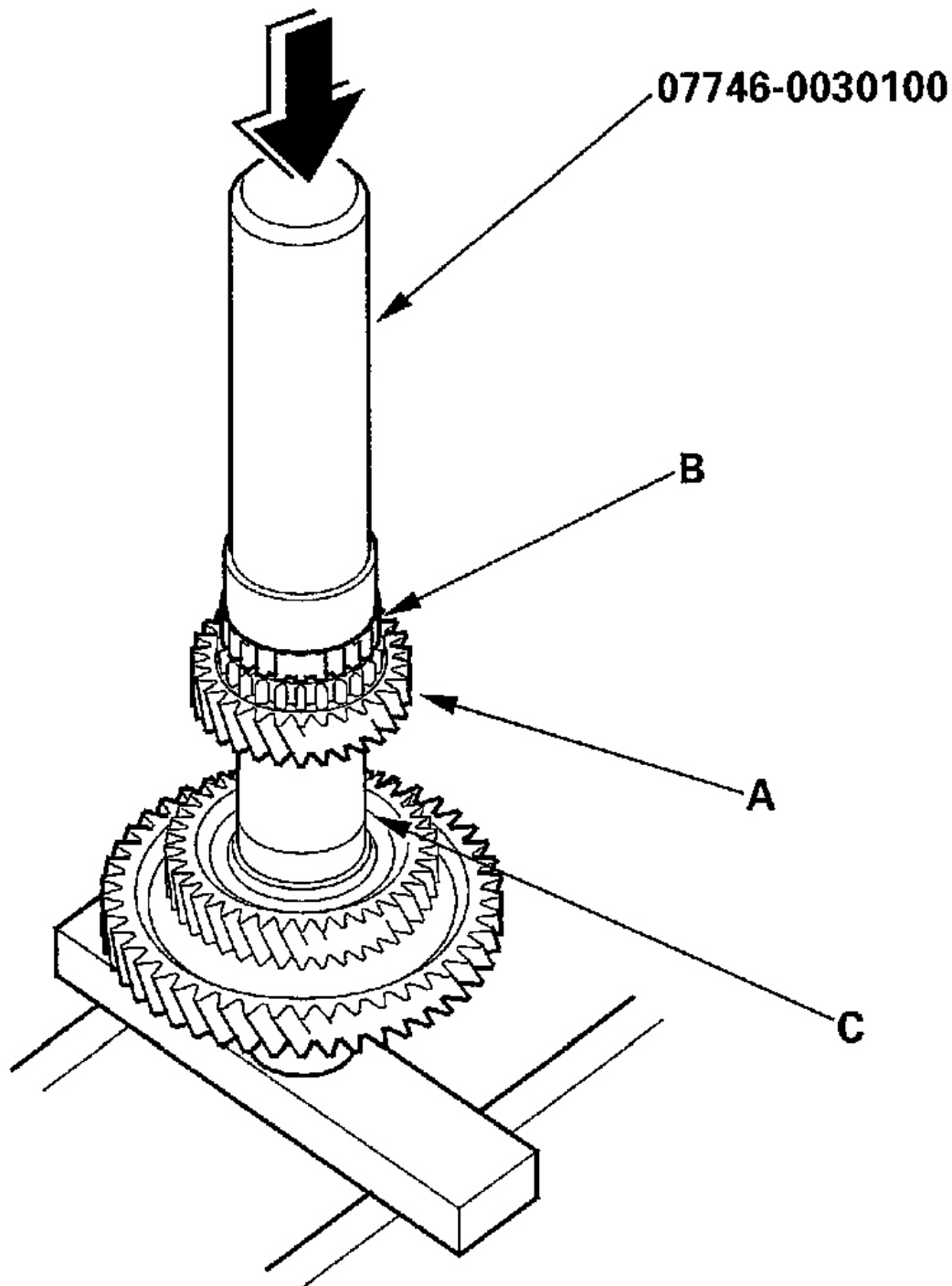


G01160570

Fig. 95: Pressing On Countershaft
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Stop pressing the countershaft when the 4th gear contacts the 1st gear (C).
5. Install the following parts on the countershaft:
 - '00-01 models:
 - Cotters, 31 mm
 - Distance collar
 - Snap ring
 - Needle bearing
 - 5th gear (A)
 - '02-03 models:
 - Cotters, 31 mm
 - Distance collar, 35 x 47 x 45.6 mm
 - Cotters, 31 mm
 - Distance collar, 35 x 47 x 7.8 mm
 - Snap ring
 - Needle bearing
 - 5th gear (A)
6. Slide the reverse selector hub (B) over the countershaft (C), and then press it into place with the special tool and a press.

NOTE: **Some reverse selector hubs are not press-fitted and can be installed without using the special tool and a press.**



G01160571

Fig. 96: Sliding Reverse Selector Hub Over The Countershaft

Courtesy of AMERICAN HONDA MOTOR CO., INC.

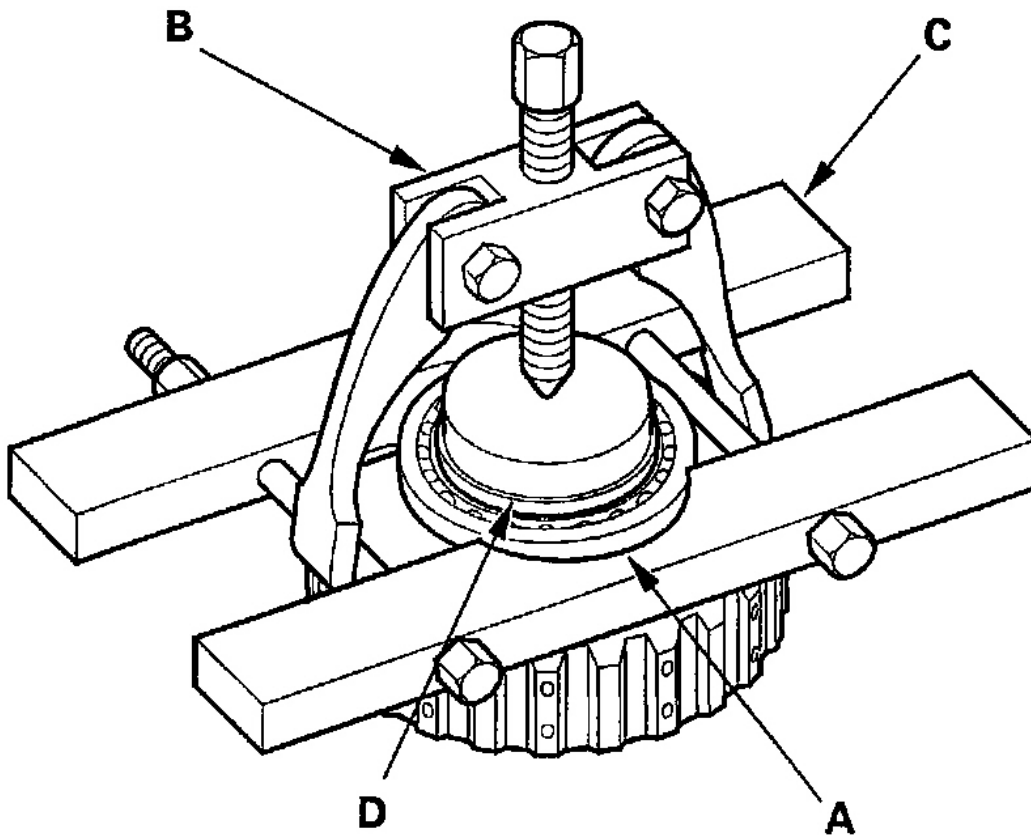
3RD CLUTCH BALL BEARING REPLACEMENT

Special Tools Required

- Driver 07749-0010000
- Attachment, 62 x 68 mm 07746-0010500

NOTE: Check the bearing for wear and rough movement. If the bearing is OK, removal is not necessary.

1. Remove the ball bearing (A) from the 3rd clutch with a commercially available bearing puller (B), bearing separator (C), and stepper adapter (D).



G01160572

Fig. 97: Removing Ball Bearing From 3rd Clutch
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Install the new bearing on the 3rd clutch with the special tools and a press.

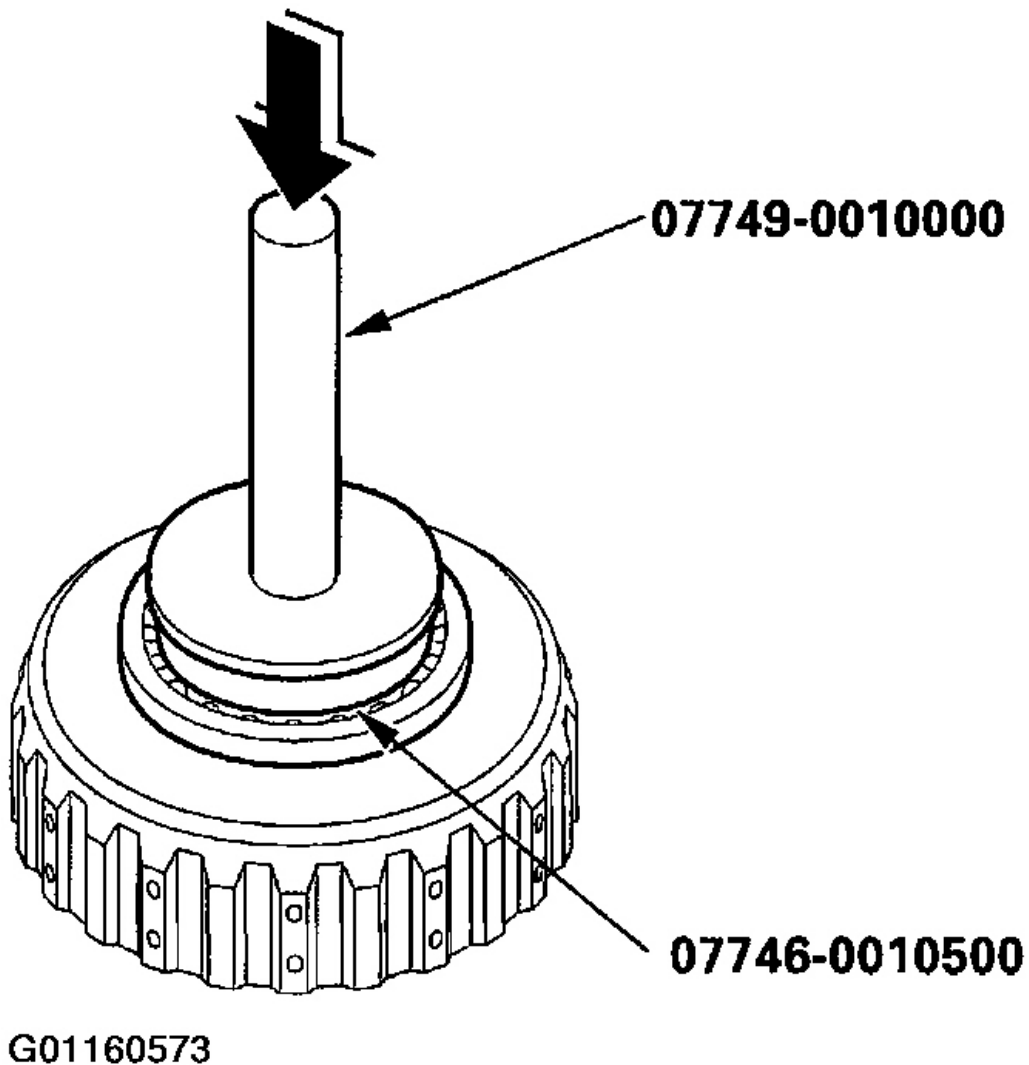
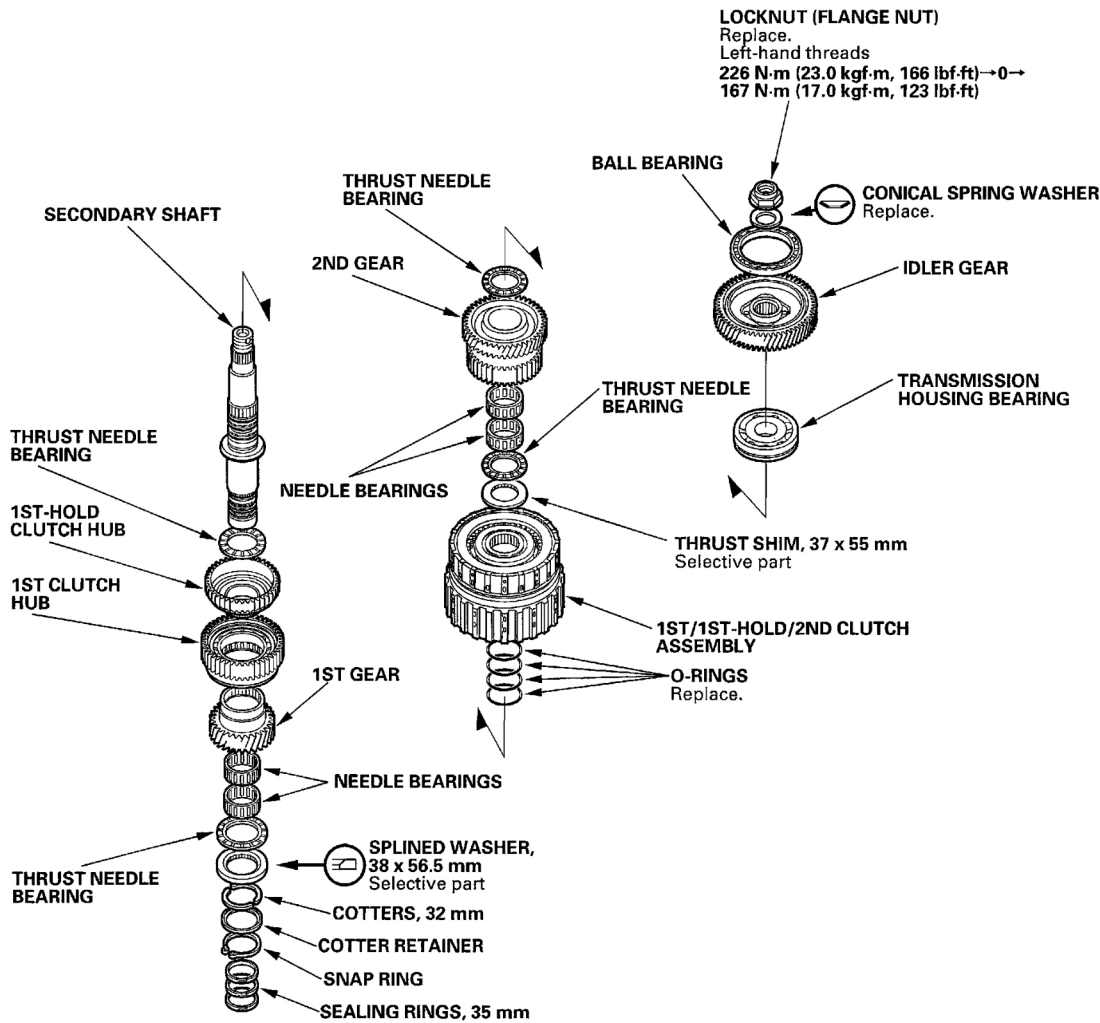


Fig. 98: Installing New Bearing On 3rd Clutch
Courtesy of AMERICAN HONDA MOTOR CO., INC.

SECONDARY SHAFT DISASSEMBLY, INSPECTION, AND REASSEMBLY



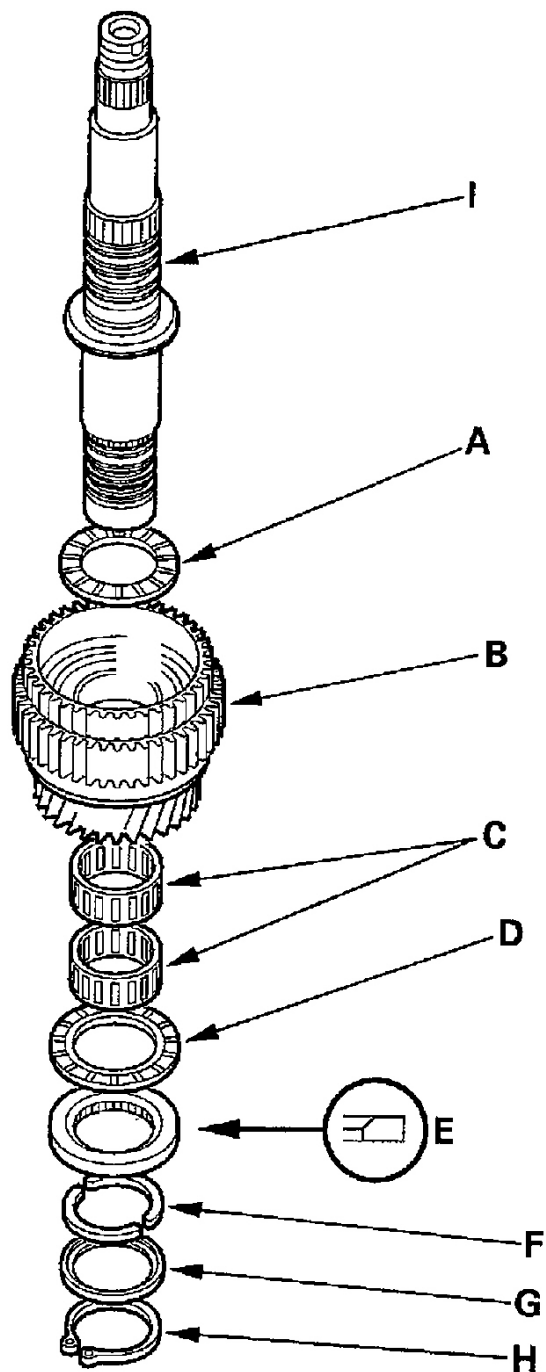
G01160574

Fig. 99: Identifying Secondary Shaft Disassembly & Reassembly
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

1. Remove the locknut, and disassemble the shaft and gears.
2. Inspect the thrust needle bearing and needle bearing for galling and rough movement.
3. Check the clearance of the secondary shaft assembly.
4. Check the splines for excessive wear and damage.
5. Check the shaft bearing surfaces for scoring and excessive wear.
6. Check the idler gear bearing for wear and rough movement. If the bearing is worn or damaged, replace it.
 See **Secondary Shaft Idler Gear Bearing Replacement**.
7. Before installing the O-rings, wrap the shaft splines with tape to prevent damage to the O-rings.
8. Lubricate all parts with ATF during reassembly.
9. Install the conical spring washer and splined washer in the direction shown.

SECONDARY SHAFT CLEARANCE INSPECTION

1. Remove the O-rings from the secondary shaft.
2. Assemble the thrust needle bearing (A), 1st gear assembly (B), needle bearings (C), thrust needle bearing (D), 38 x 56.5 mm splined washer (E), 32 mm cotters (F), cotter retainer (G), and snap ring (H) on the secondary shaft (I).



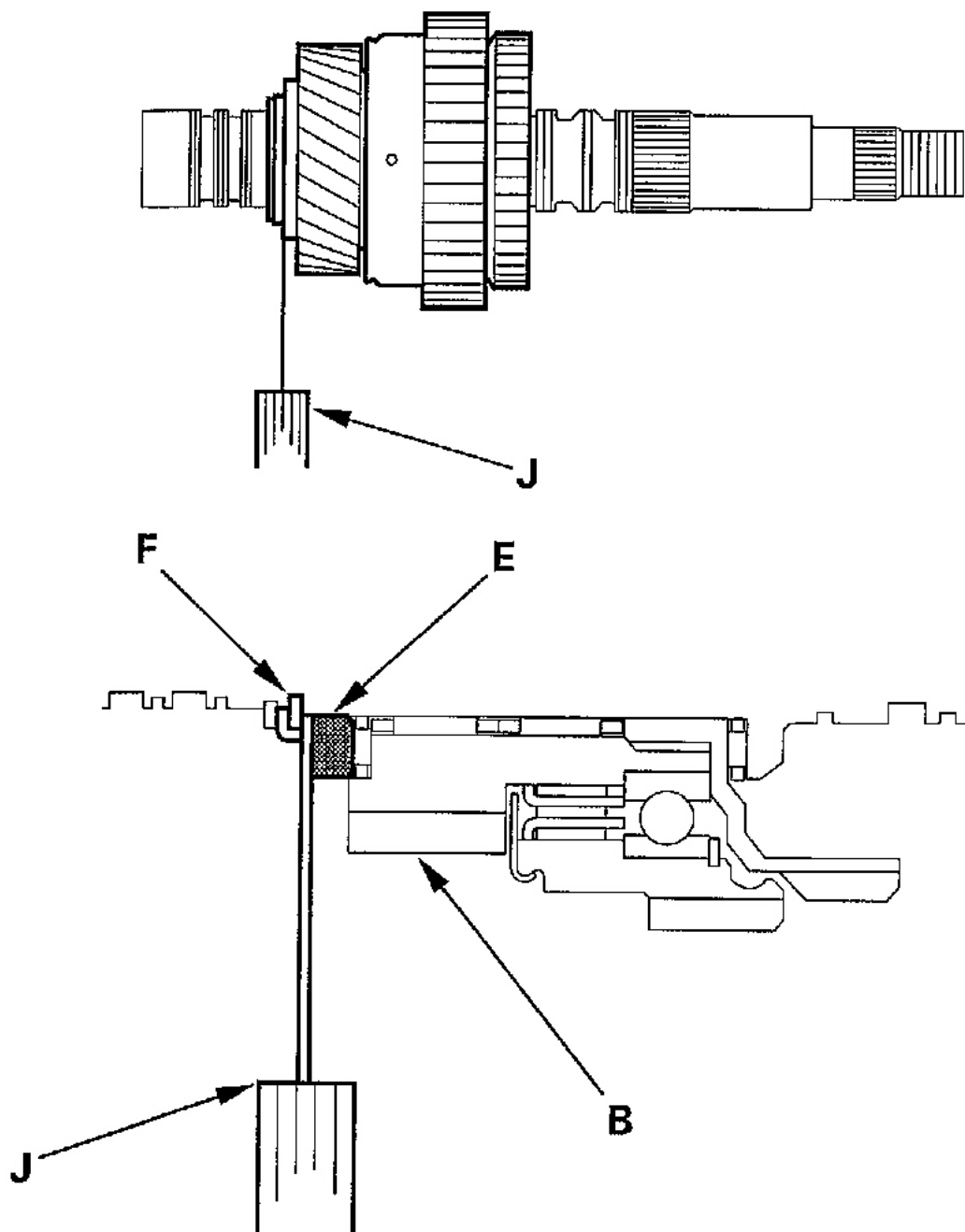
G01160575

Fig. 100: Assembling Thrust Needle Bearing, 1st Gear Assembly, Needle Bearings, Thrust Needle Bearing, 38 x 56.5 mm Splined Washer, 32 mm Cotters, Cotter Retainer & Snap Ring On Secondary Shaft

Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Measure the clearance between the 38 x 56.5 mm splined washer (E) and cotters (F) with a feeler gauge (J) in at least three places. Use the average as the actual clearance.

STANDARD: 0.07-0.15 mm (0.003-0.006 in.)



G01160576

Fig. 101: Measuring Clearance Between 38 x 56.5 mm Splined Washer & Cotter
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. If the measurement is out of standard, remove the splined washer, and measure its thickness.

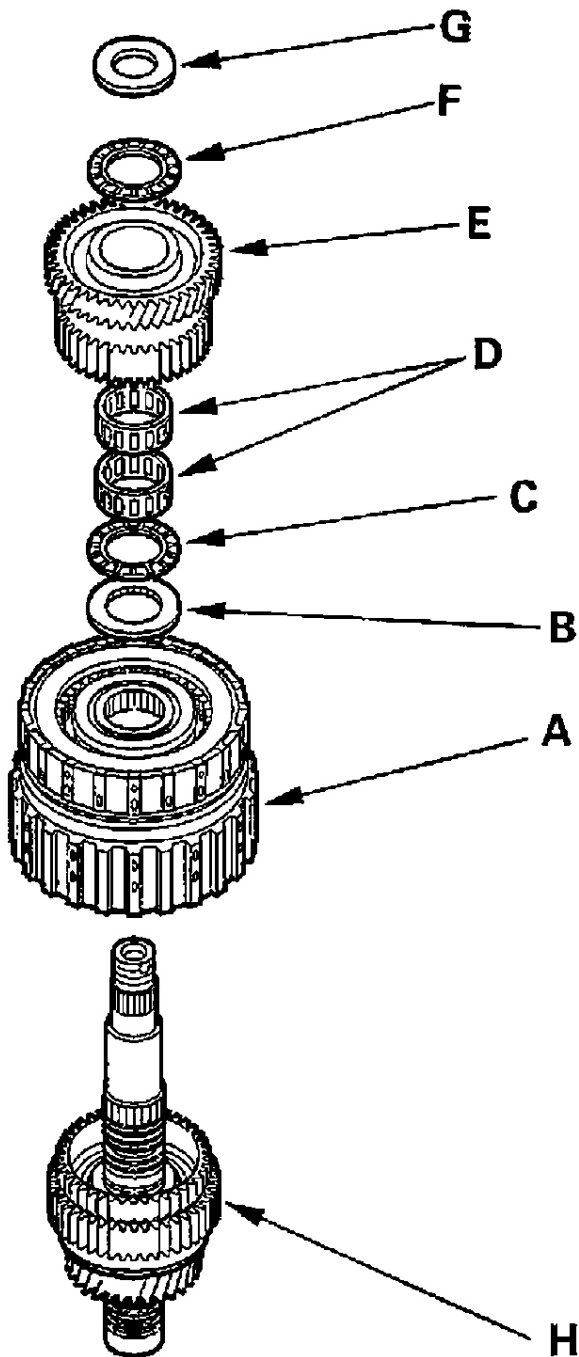
5. Select and install a new splined washer, then recheck the clearance.

No.	Part Number	Thickness
1	90502-P0Z-000	6.85 mm (0.270 in.)
2	90503-P0Z-000	6.90 mm (0.272 in.)
3	90504-P0Z-000	6.95 mm (0.274 in.)
4	90505-P0Z-000	7.00 mm (0.276 in.)
5	90506-P0Z-000	7.05 mm (0.278 in.)
6	90507-P0Z-000	7.10 mm (0.280 in.)

G01160577

Fig. 102: Identifying Splined Washer (38 x 56.5 mm)
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

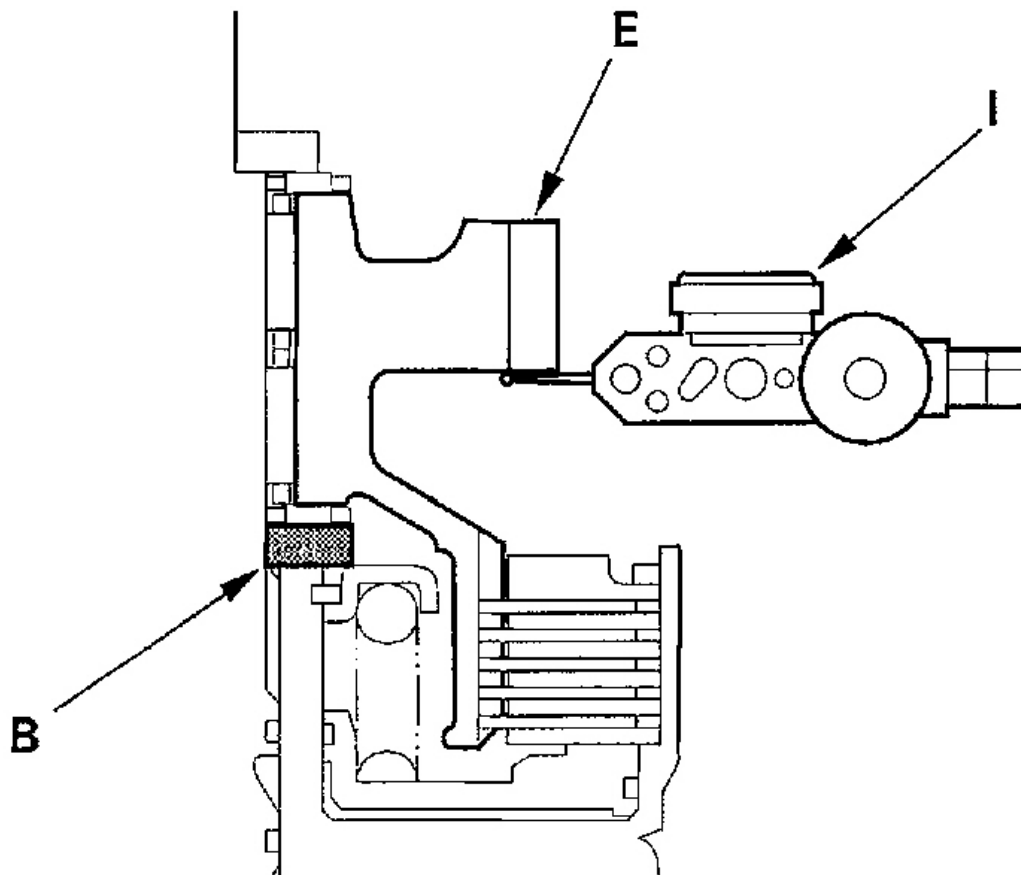
6. Remove the 27 x 47 x 5 mm thrust washer from the mainshaft.
7. Assemble the 1st/1st-hold/2nd clutch assembly (A), 37 x 55 mm thrust washer (B), thrust needle bearing (C), needle bearings (D), 2nd gear (E), thrust needle bearing (F), and 27 x 47 x 5 mm thrust washer (removed from mainshaft) (G) on the secondary shaft sub-assembly (H).



G01160578

Fig. 103: Assembling 1st/1st-Hold/2nd Clutch Assembly, 37 x 55 mm Thrust Washer, Thrust Needle Bearing, Needle Bearings, 2nd Gear, Thrust Needle Bearing & 27 x 47 x 5 mm Thrust Washer
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

8. Set the dial indicator (I) on the 2nd gear (E).



G01160579

Fig. 104: Setting Dial Indicator On 2nd Gear
Courtesy of AMERICAN HONDA MOTOR CO., INC.

9. Hold the 27 x 47 x 5 mm thrust washer (G) against the clutch assembly (A), and measure the 2nd gear axial clearance in at least three places while moving the 2nd gear (E). Use the average as the actual clearance.

STANDARD: 0.04-0.12 mm (0.002-0.005 in.)

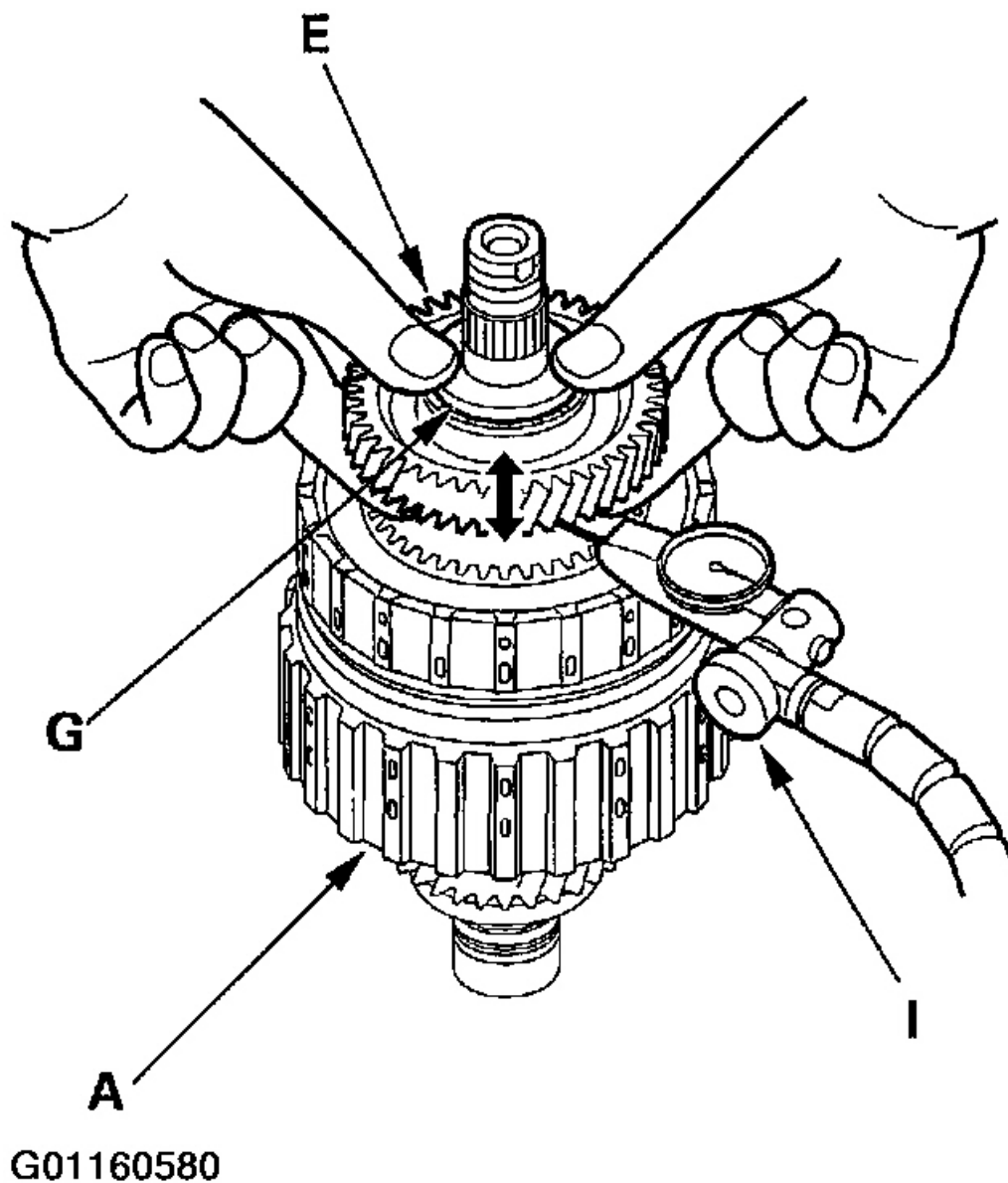


Fig. 105: Measuring 2nd Gear Axial Clearance
Courtesy of AMERICAN HONDA MOTOR CO., INC.

10. If the measurement is out of standard, remove the 37 x 55 mm thrust washer and measure its thickness.
11. Select and install a new thrust washer, then recheck the clearance.

No.	Part Number	Thickness
1	90406-P0Z-000	4.90 mm (0.193 in.)
2	90407-P0Z-000	4.95 mm (0.195 in.)
3	90408-P0Z-000	5.00 mm (0.197 in.)
4	90409-P0Z-000	5.05 mm (0.199 in.)
5	90410-P0Z-000	5.10 mm (0.201 in.)
6	90411-P0Z-000	5.15 mm (0.203 in.)
7	90412-P0Z-000	5.20 mm (0.205 in.)

G01160581

Fig. 106: Identifying Thrust Shim (37 x 55 mm)

Courtesy of AMERICAN HONDA MOTOR CO., INC.

12. Disassemble the shaft and gears.
13. Reinstall the 27 x 47 x 5 mm thrust washer on the mainshaft.

SECONDARY SHAFT IDLER GEAR BEARING REPLACEMENT**Special Tools Required**

- Driver 07749-0010000
 - Attachment, 78 x 90 mm 07GAD-SD40101
1. Check the bearing for wear, damage, and rough movement. If the bearing is worn or damaged, go to step 2.
 2. Place the secondary shaft idler gear in a vise with soft jaws.
 3. Remove the bearing (A) from the secondary shaft idler gear (B) with a puller (C).

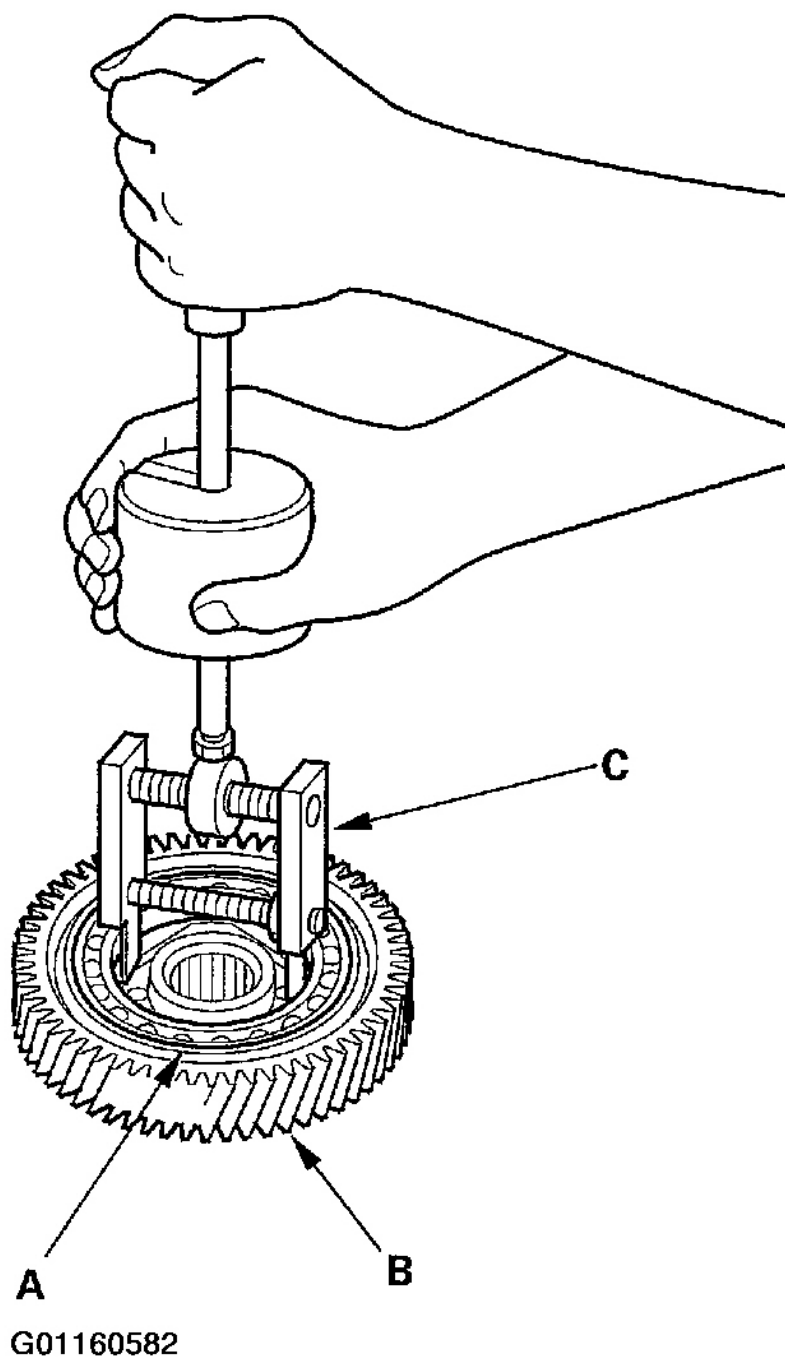


Fig. 107: Removing Bearing From Secondary Shaft Idler Gear
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Install the bearing on the secondary shaft idler gear with the special tools and a press.

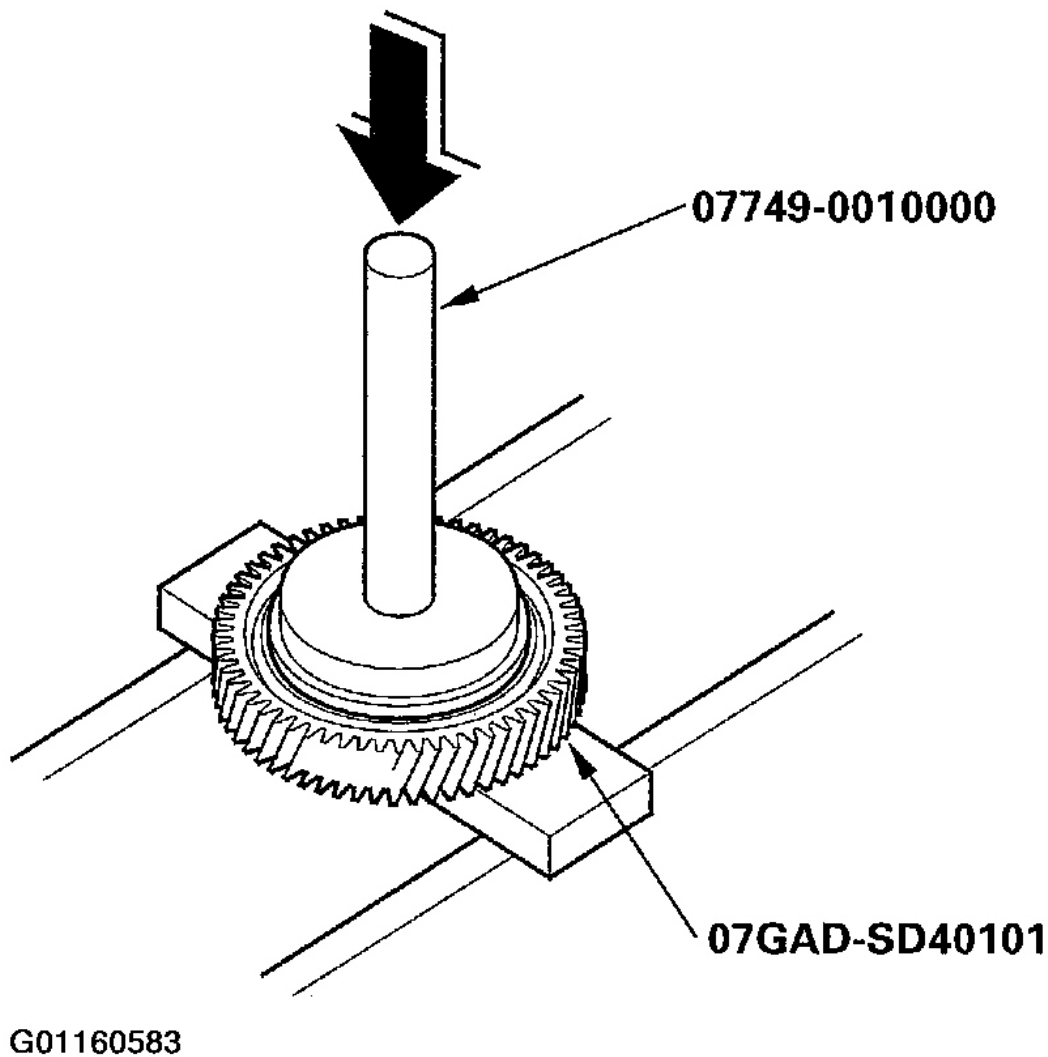


Fig. 108: Installing Bearing On Secondary Shaft Idler Gear
Courtesy of AMERICAN HONDA MOTOR CO., INC.

1ST GEAR ONE-WAY CLUTCH INSPECTION

1. Hold the 1st-hold clutch hub (A), and turn the 1st gear (B) in the direction shown to be sure it turns freely. Also make sure the 1st gear does not turn in the opposite direction.

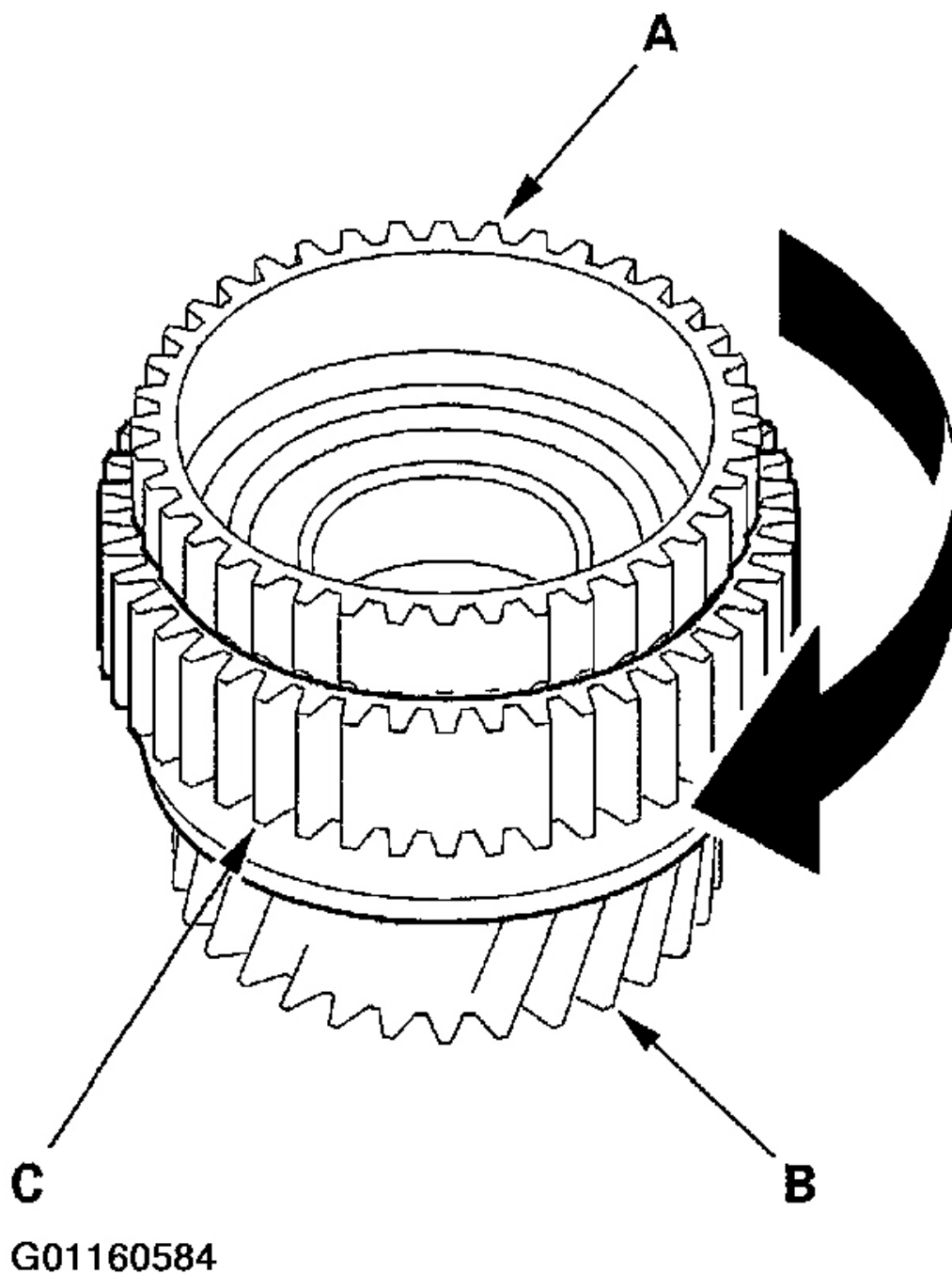


Fig. 109: Inspecting 1st Gear One-Way Clutch
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. If any problem occurs on the 1st gear one-way clutch, replace the 1st clutch hub (C). The 1st gear one-way clutch is not available separately from the 1st clutch hub.

1ST CLUTCH HUB REPLACEMENT

Special Tools Required

- Driver 07749-0010000
- Driver attachment 07947-6340500
- Attachment, 78 x 90 mm 07GAD-SD40101

1. Remove the 1st-hold clutch hub (A) from the 1st gear (B) with the special tools and a press.

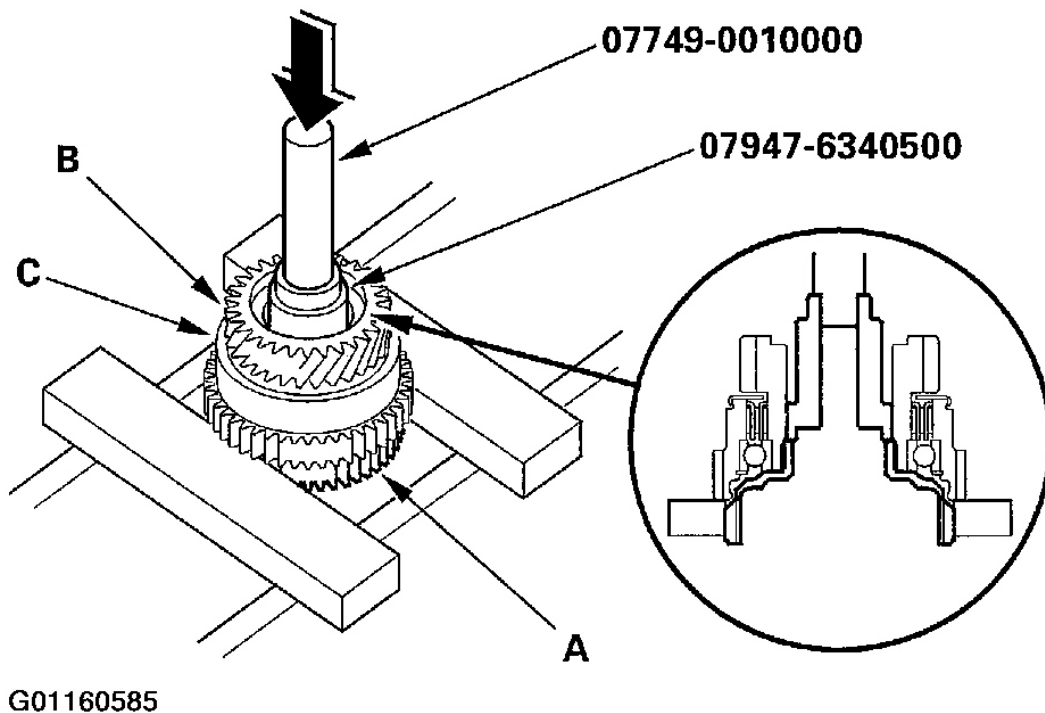
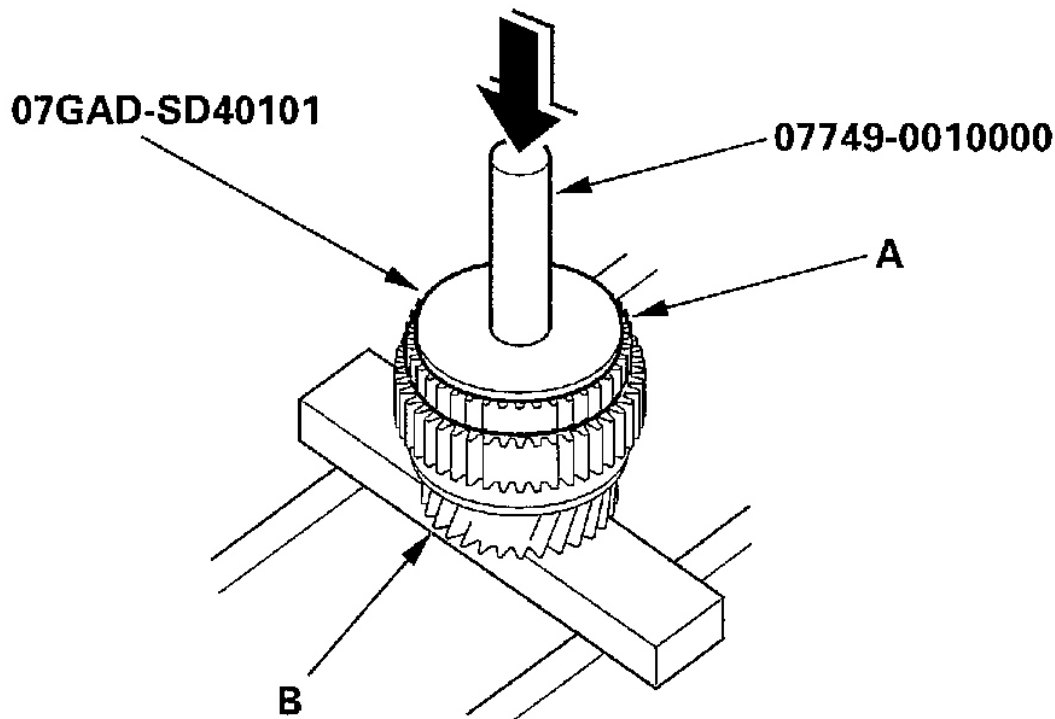


Fig. 110: Removing 1st-Hold Clutch Hub
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Remove the 1st clutch hub (C) from the 1st gear, then install the new 1st clutch hub in the 1st gear.
3. Install the 1st-hold clutch hub (A) in the 1st gear (B) with the special tools and a press.



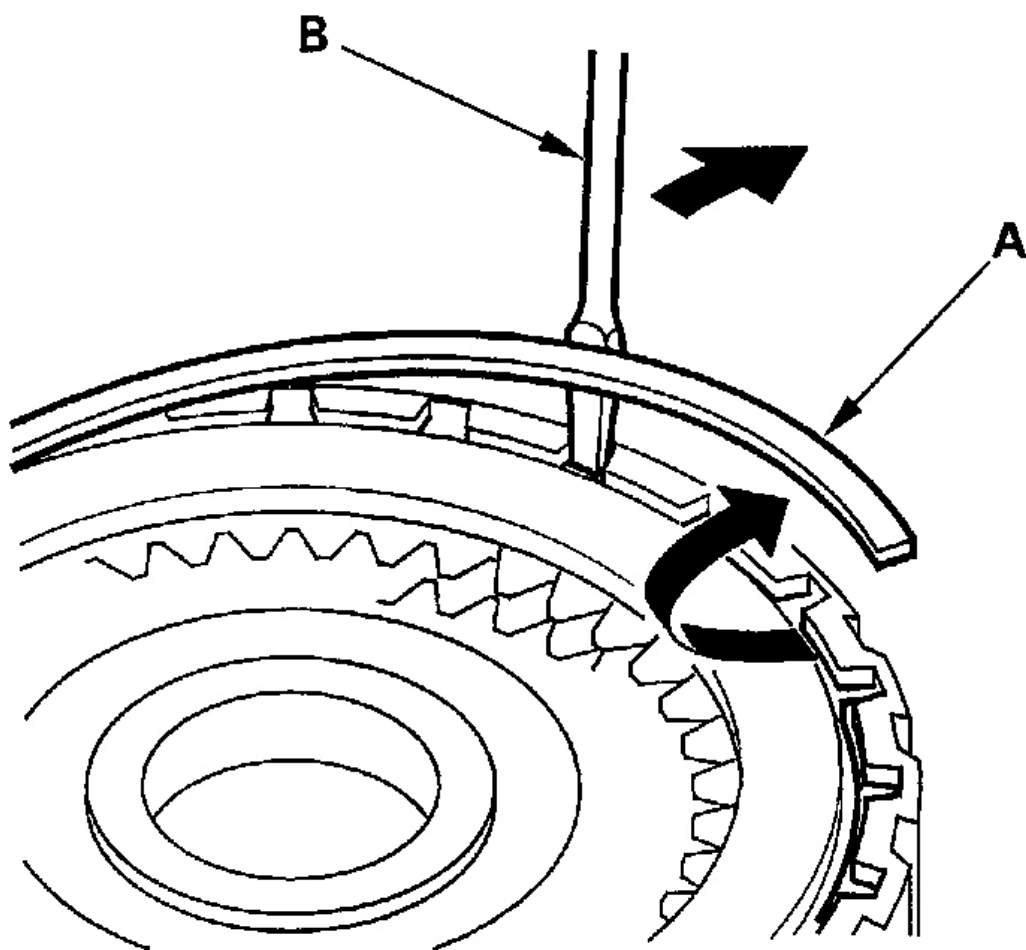
G01160586

Fig. 111: Installing 1st-Hold Clutch Hub In 1st Gear
Courtesy of AMERICAN HONDA MOTOR CO., INC.

CLUTCH DISASSEMBLY

Special Tools Required

- Clutch spring compressor attachment 07LAE-PX40100
 - Clutch spring compressor attachment 07HAE-PL50101
 - Clutch spring compressor bolt assembly 07GAE-PG40200 or 07GAE-PG4020A
1. Remove the snap ring (A), then remove the clutch end plate, the clutch discs, and the plates with a screwdriver (B).

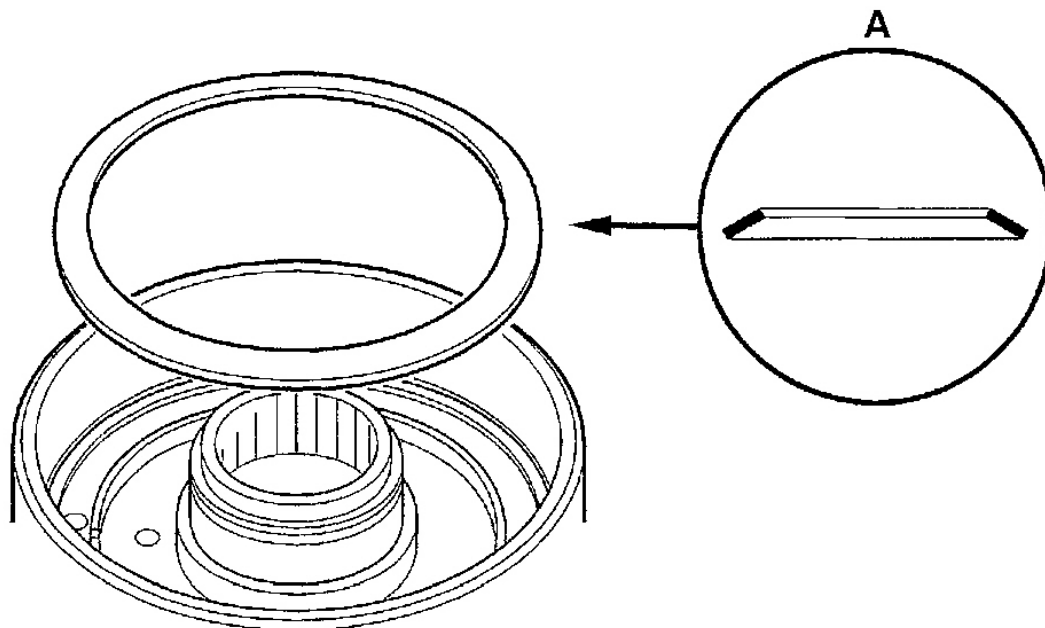


G01160587

Fig. 112: Removing Snap Ring, Clutch End Plate, Clutch Discs & Plates
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Remove the disc spring (A) from the 1st, 3rd, 4th and 5th clutches.

NOTE: The 2nd clutch and 1st-hold clutch do not have a disc spring.



G01160588

Fig. 113: Removing Disc Spring

Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Install the special tools on the 4th/5th clutch assembly and 1st clutch.

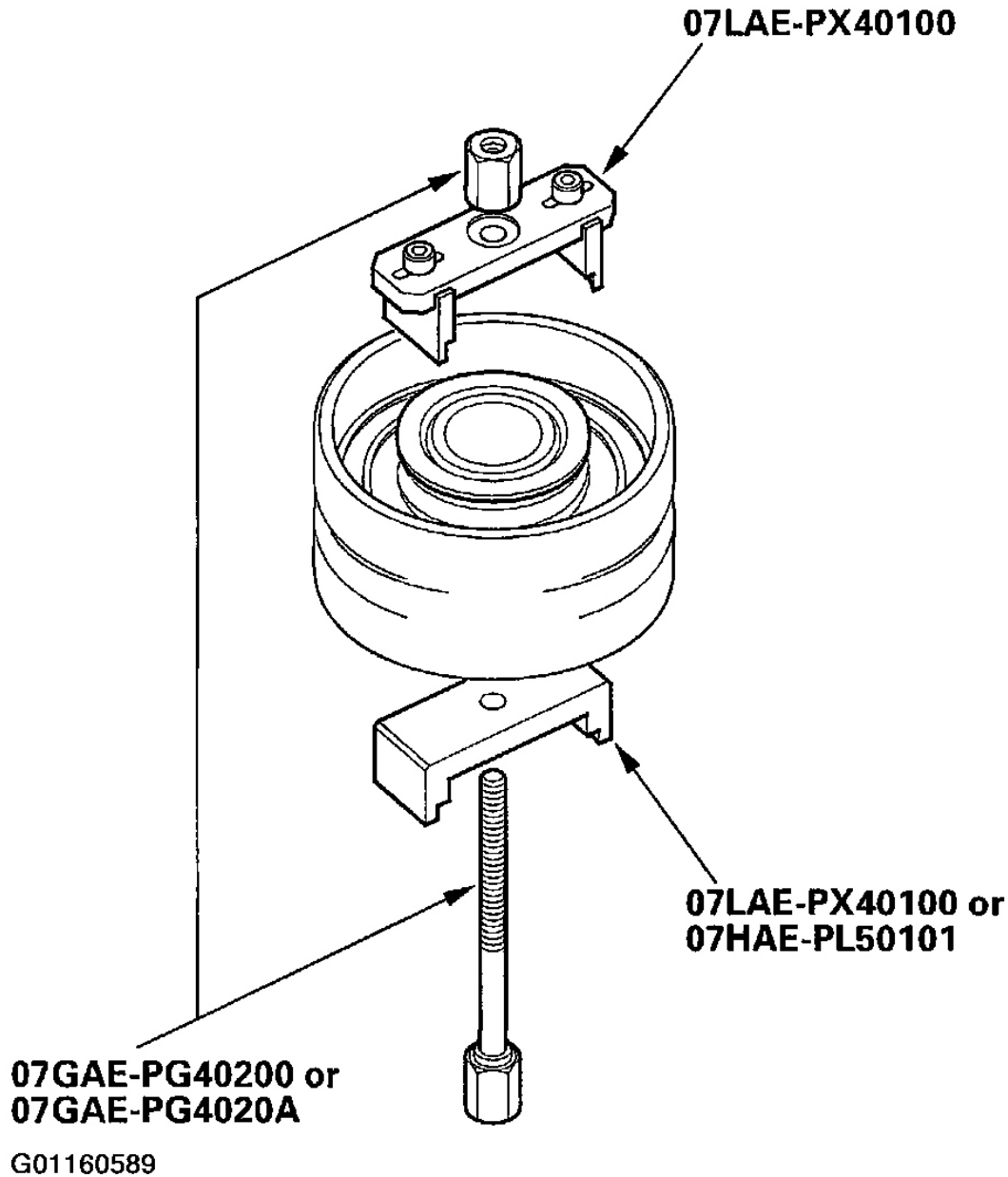
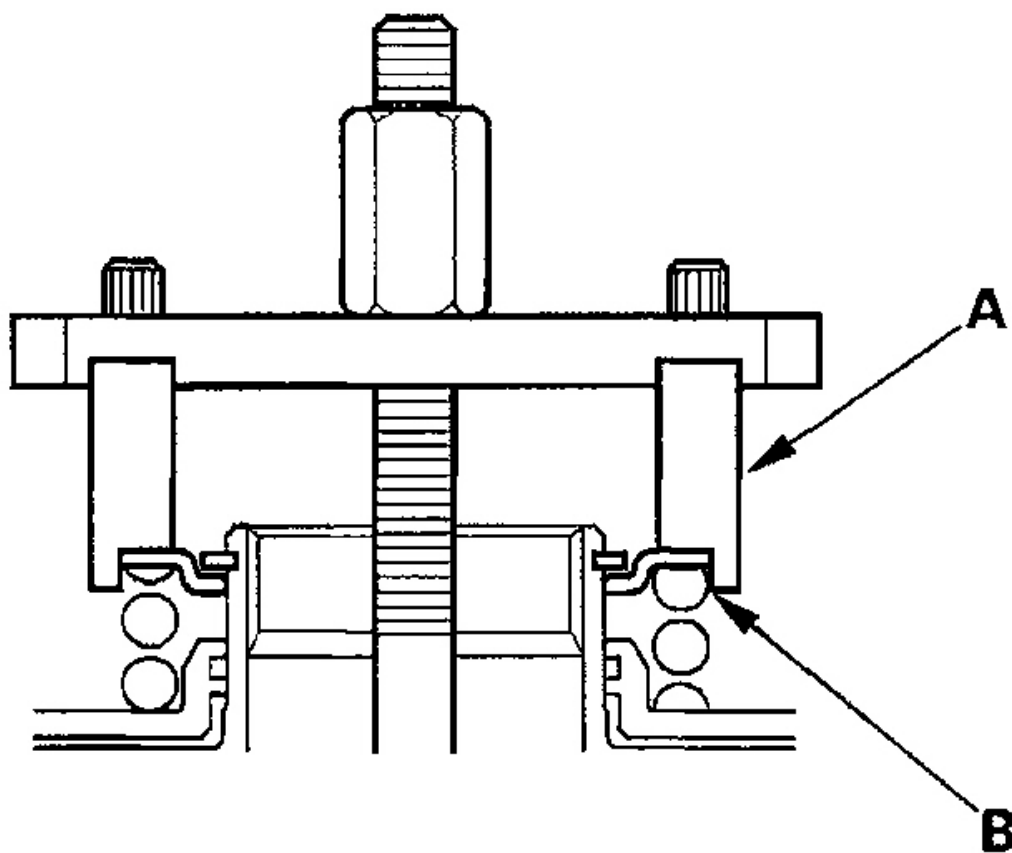


Fig. 114: Installing Special Tools On 4th/5th Clutch Assembly & 1st clutch
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Be sure the special tool (A) is adjusted to have full contact with the spring retainer (B) on the 4th, 5th and 1st clutches.

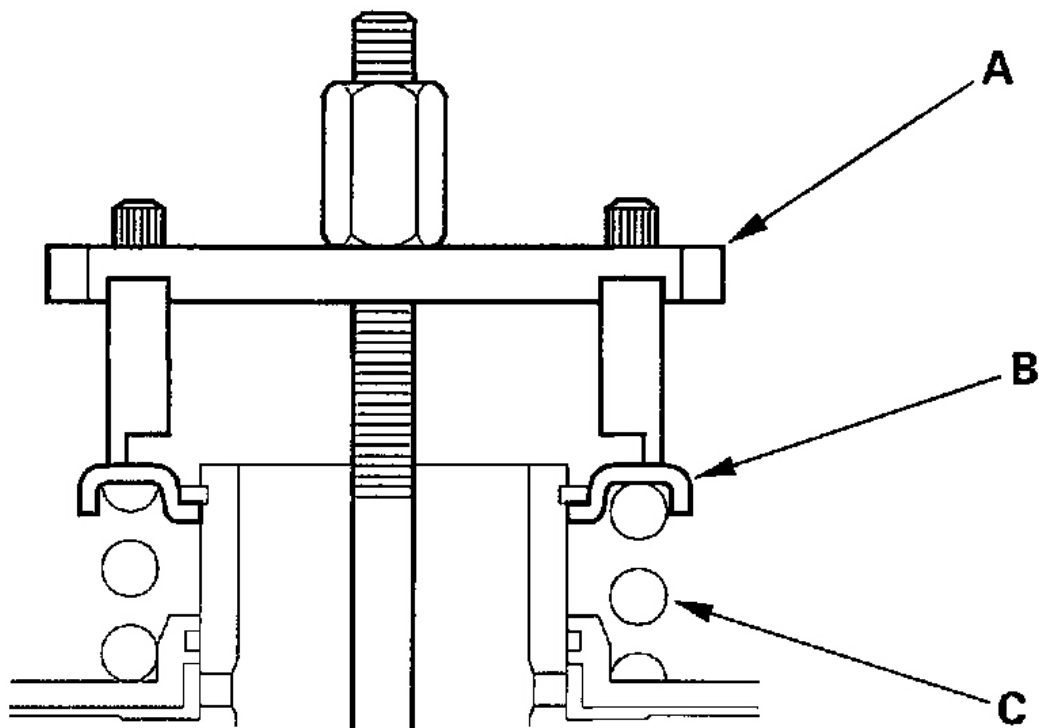


G01160590

Fig. 115: Adjusting Special Tool

Courtesy of AMERICAN HONDA MOTOR CO., INC.

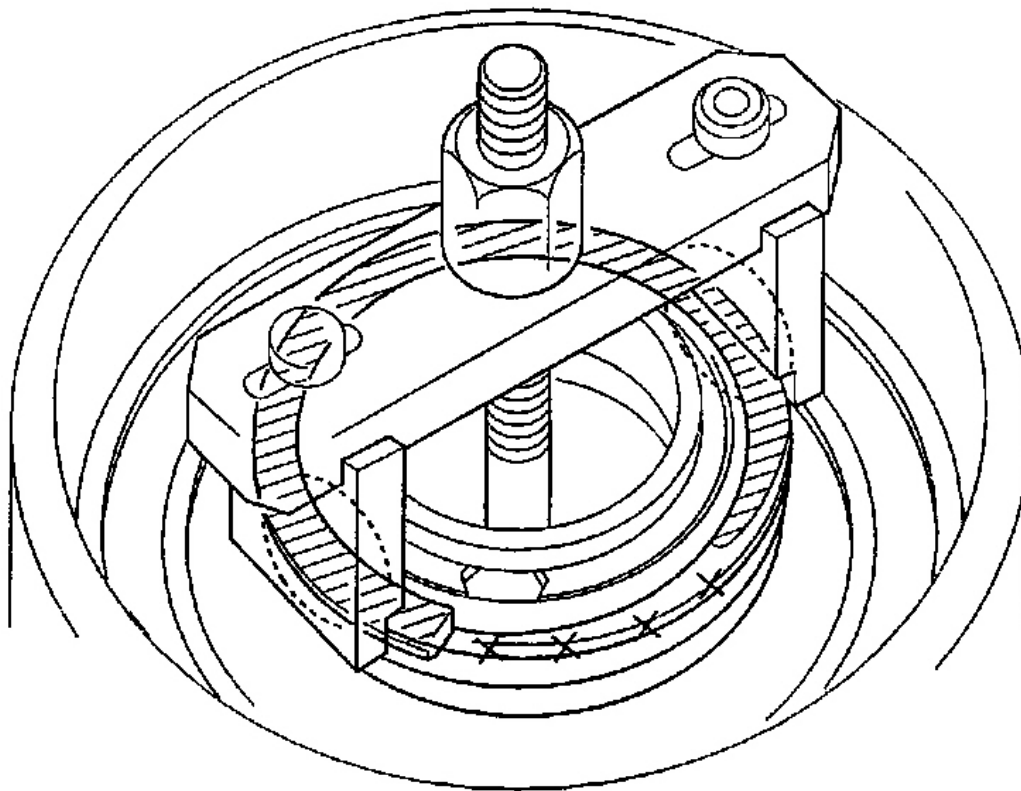
5. Set the special tool (A) on the spring retainer (B) of the 2nd and 3rd clutches so the tool works on the clutch return spring (C).



G01160591

Fig. 116: Setting Special Tool On Spring Retainer Of 2nd & 3rd Clutches
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. If either end of the special tool is set over an area of the spring retainer which is unsupported by the return spring, the retainer may be damaged.

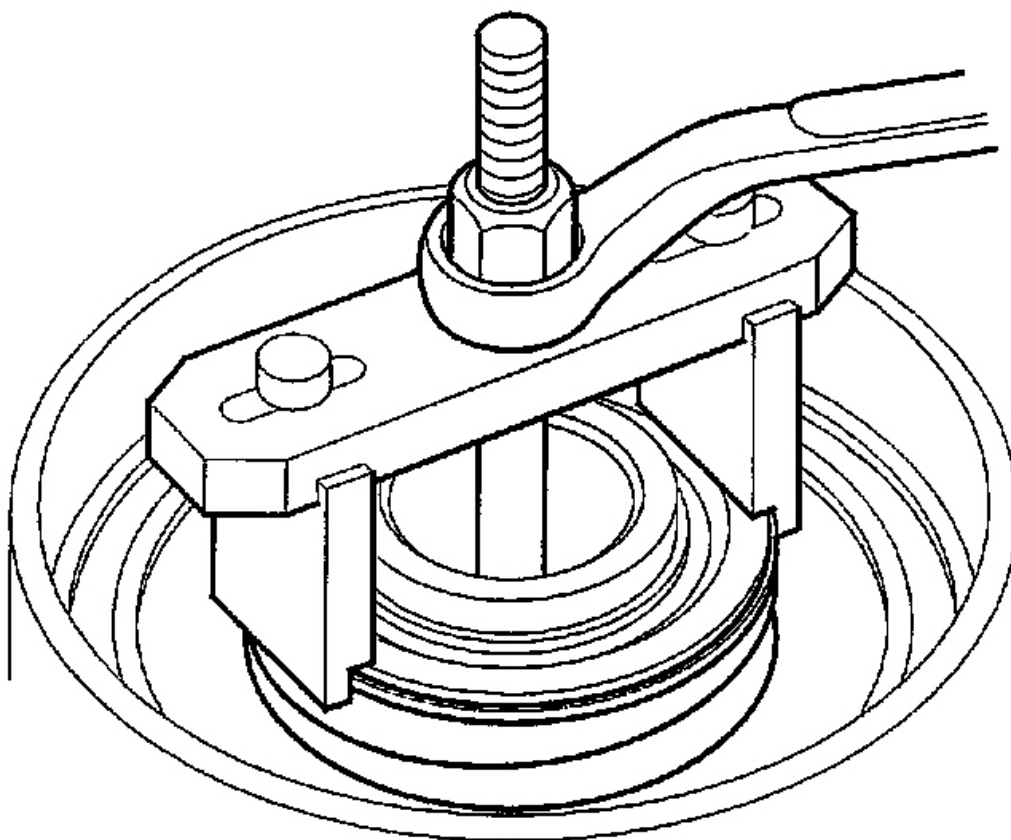


G01160592

Fig. 117: Compressor Installation

Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. Compress the spring until the snap ring can be removed.



G01160593

Fig. 118: Compressing Spring

Courtesy of AMERICAN HONDA MOTOR CO., INC.

8. Remove the snap ring (A). Then remove the special tool (B), spring retainer (C), and the return spring.

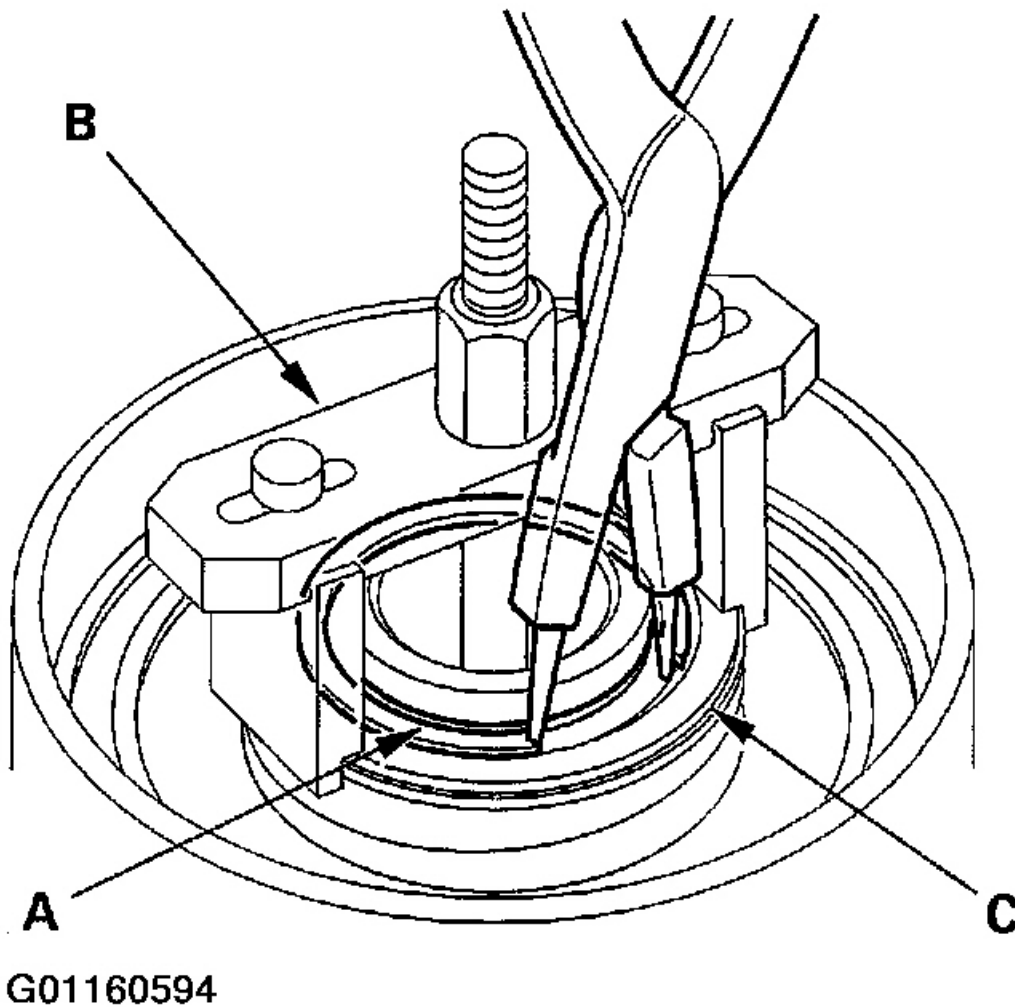
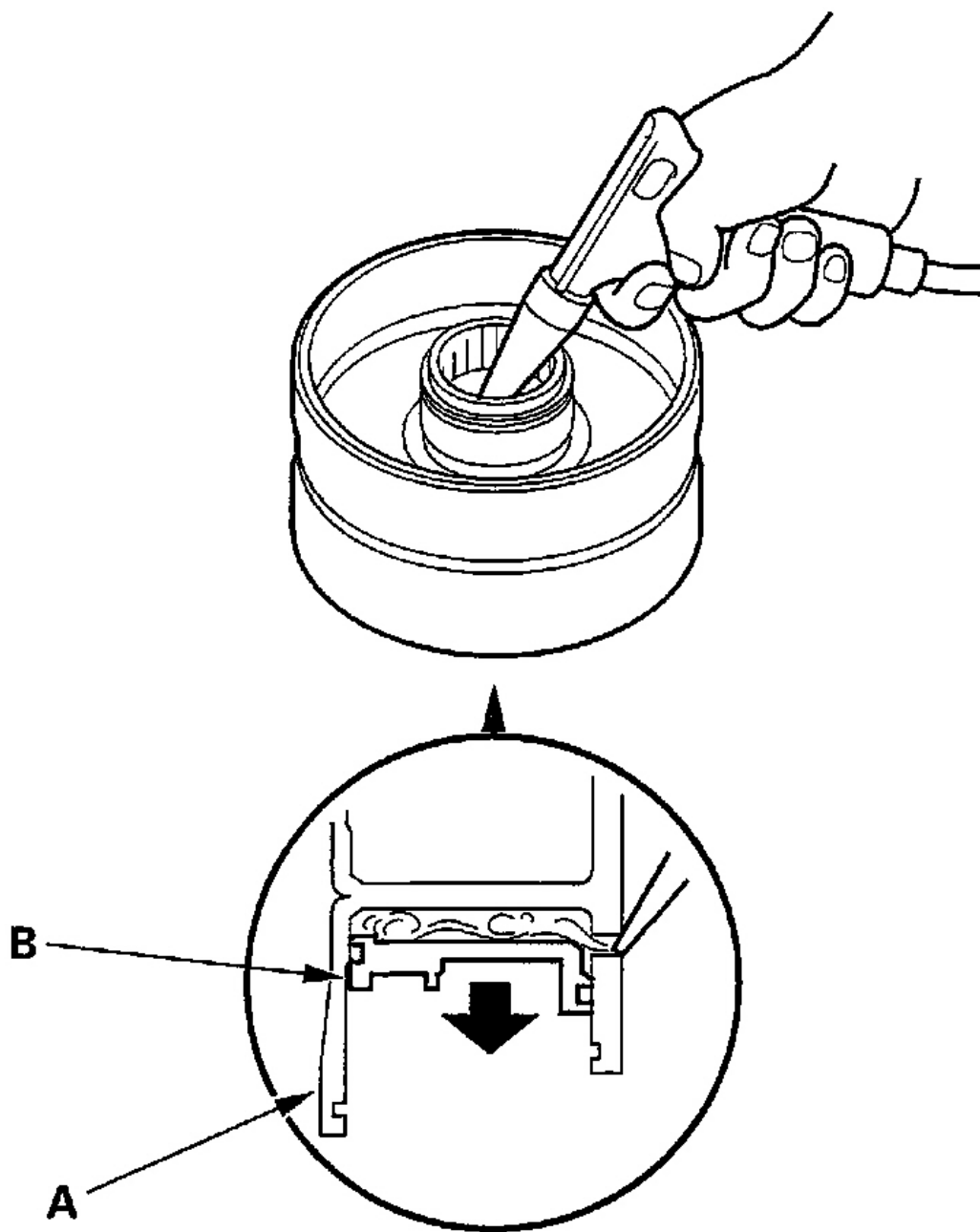


Fig. 119: Removing Snap Ring

Courtesy of AMERICAN HONDA MOTOR CO., INC.

9. Wrap a shop rag around the clutch drum (A), and apply air pressure to the fluid passage to remove the piston (B). Place a finger tip on the other end while applying air pressure.



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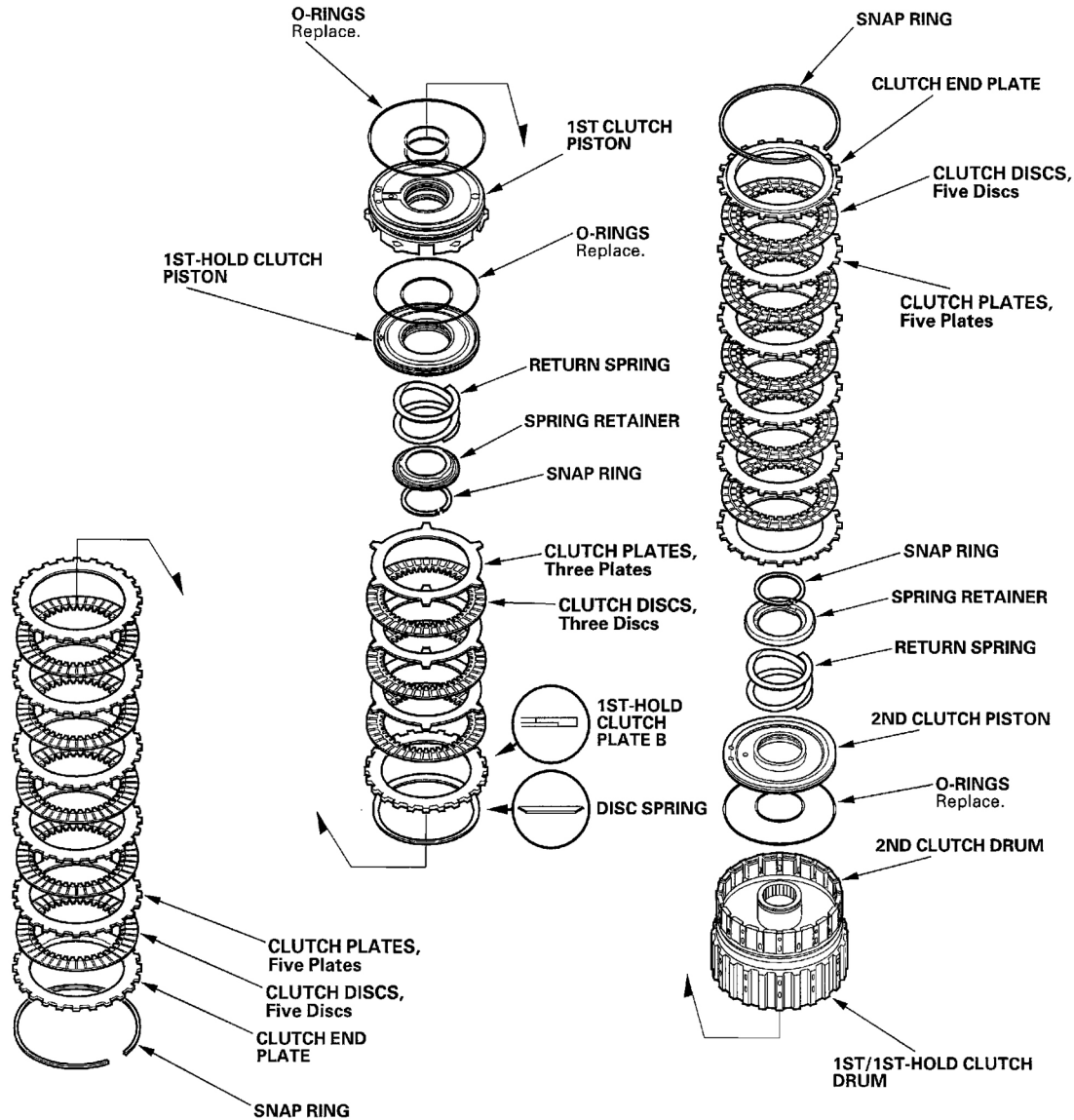
Fig. 120: Removing Piston

Courtesy of AMERICAN HONDA MOTOR CO., INC.

CLUTCH INSPECTION

1st/1st-hold/2nd Clutch-Premium Model

- Clutch disc standard thickness: 1.94 mm (0.076 in.)
- Clutch plate standard thickness: 1st clutch: 1.6 mm (0.063 in.)
- 2nd clutch: 1.6 mm (0.063 in.)
- 1st-hold clutch: 1.8 mm (0.071 in.)

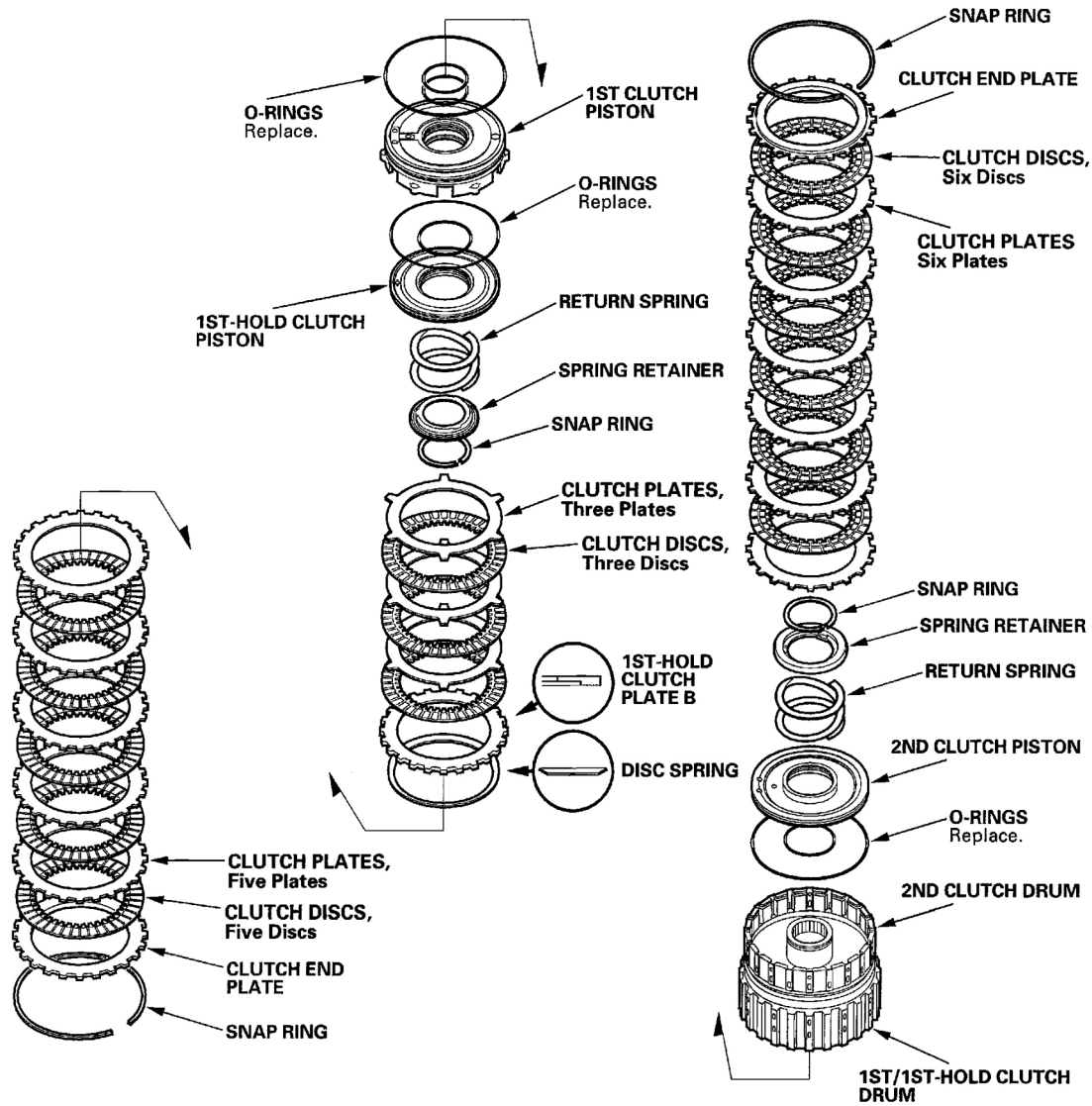


G01160596

Fig. 121: Inspecting 1st/1st-Hold/2nd Clutch-Premium Model
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

1st/1st-hold/2nd Clutch-Type S Model

- Clutch disc standard thickness: 1.94 mm (0.076 in.)
- Clutch plate standard thickness: 1st clutch: 1.6 mm (0.063 in.)
- 2nd clutch: 1.6 mm (0.063 in.)
- 1st-hold clutch: 1.8 mm (0.071 in.)

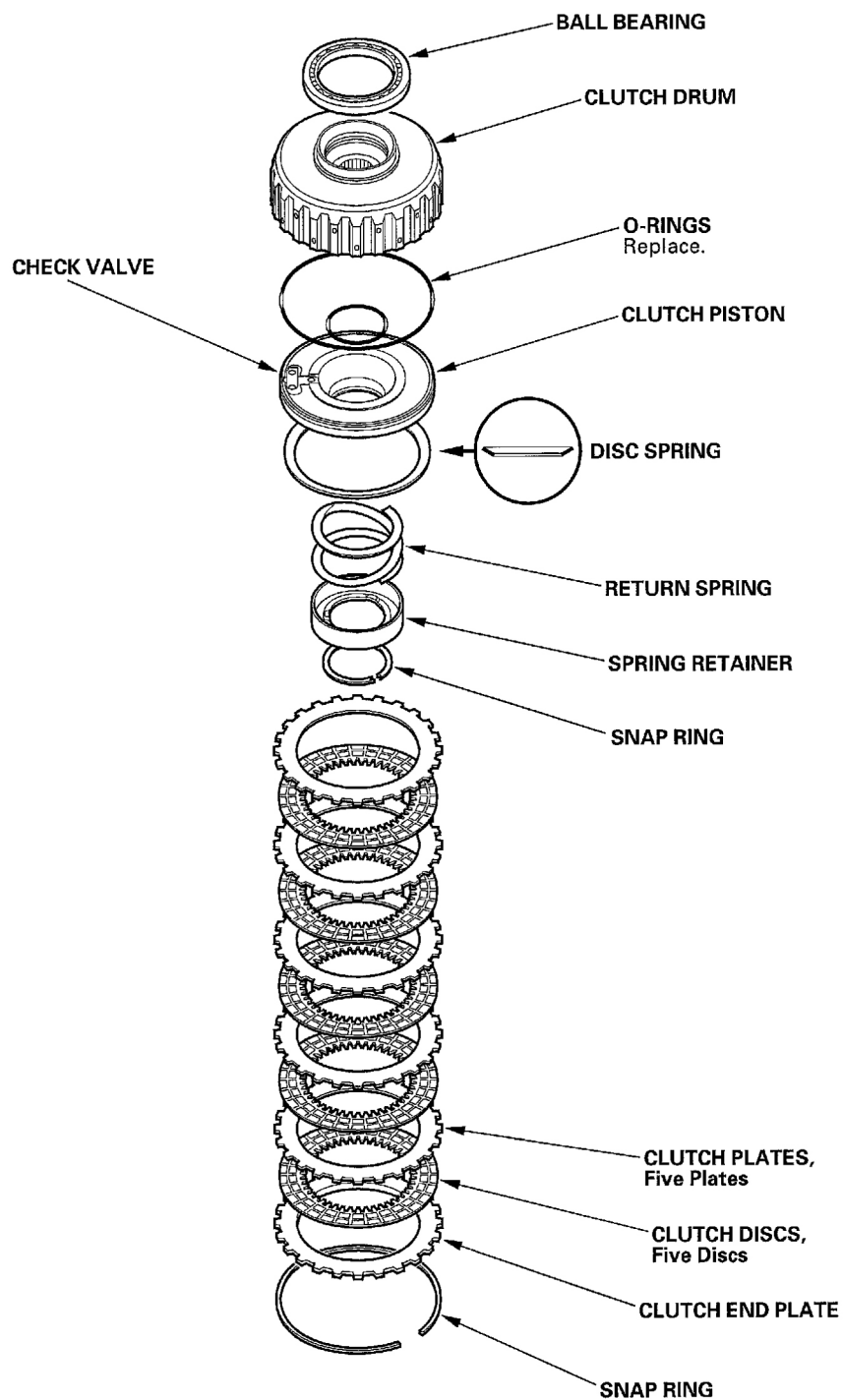


G01160597

Fig. 122: Inspecting 1st/1st-Hold/2nd Clutch-Type S Model
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

3rd Clutch

- Clutch disc standard thickness: 1.94 mm (0.076 in.)
- Clutch plate standard thickness: 2.3 mm (0.091 in.)

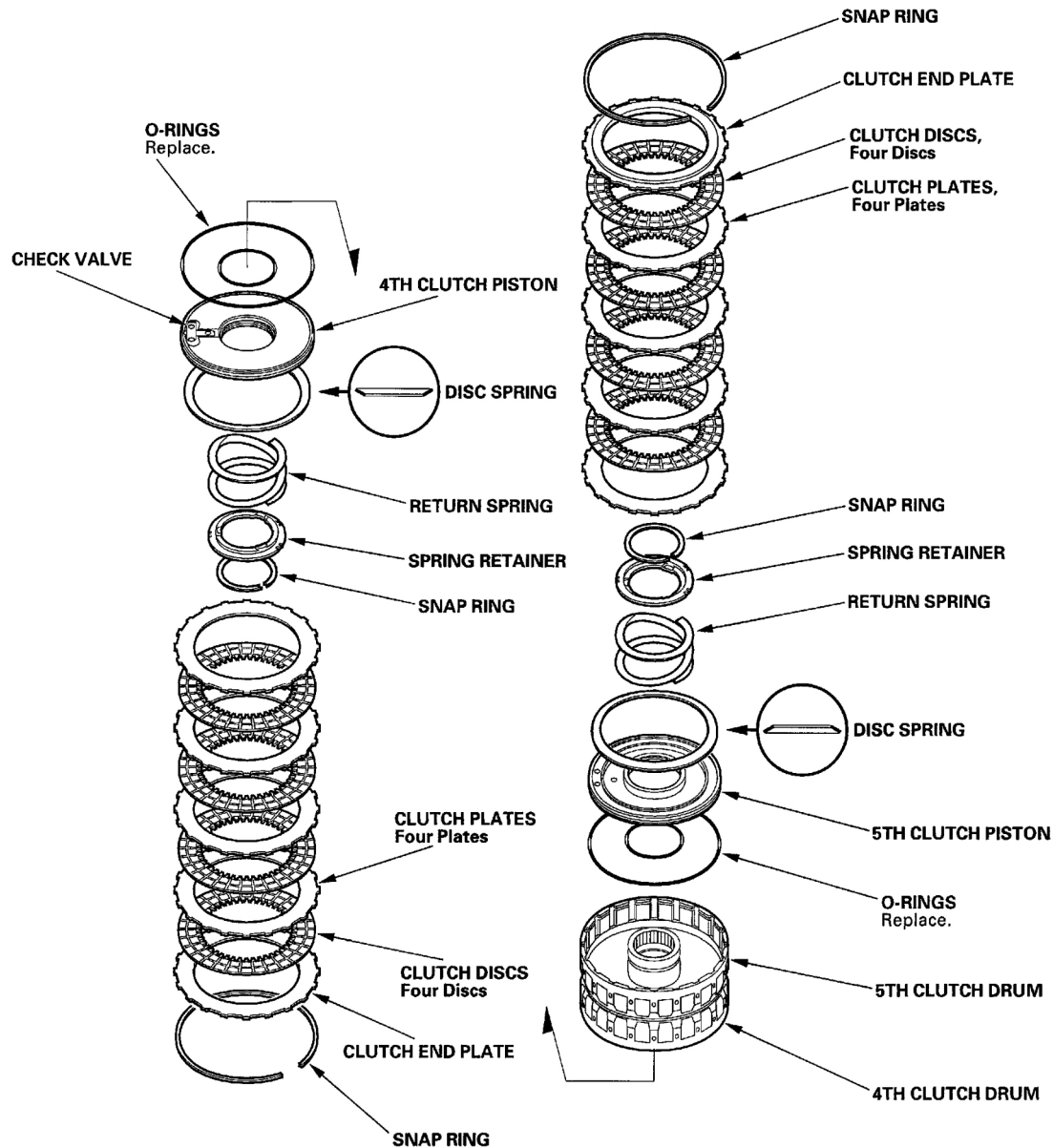


G01160598

Fig. 123: Inspecting 3rd Clutch
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

4th/5th Clutch

- Clutch disc standard thickness: 1.94 mm (0.076 in.)
- Clutch plate standard thickness: 4th clutch: 2.3 mm (0.091 in.)
- 5th clutch: 2.0 mm (0.079 in.)



G01160599

Fig. 124: Inspecting 4th/5th Clutch

Courtesy of AMERICAN HONDA MOTOR CO., INC.

CLUTCH REASSEMBLY

Special Tools Required

- Clutch spring compressor attachment 07LAE-PX40100
- Clutch spring compressor attachment 07HAE-PL50101
- Clutch spring compressor bolt assembly 07GAE-PG40200 or 07GAE-PG4020A
- Clutch compressor attachment 07ZAE-PRP0100

Note these items during reassembly:

- Clean all parts thoroughly in solvent or carburetor cleaner, and dry them with compressed air.
 - Blow out all passages.
 - Apply ATF to all parts before assembly.
1. Soak the clutch discs thoroughly in ATF for a minimum of 30 minutes.
 2. Inspect the check valve (A) on the clutch pistons (B). If the check valve is loose or stuck, replace the piston.

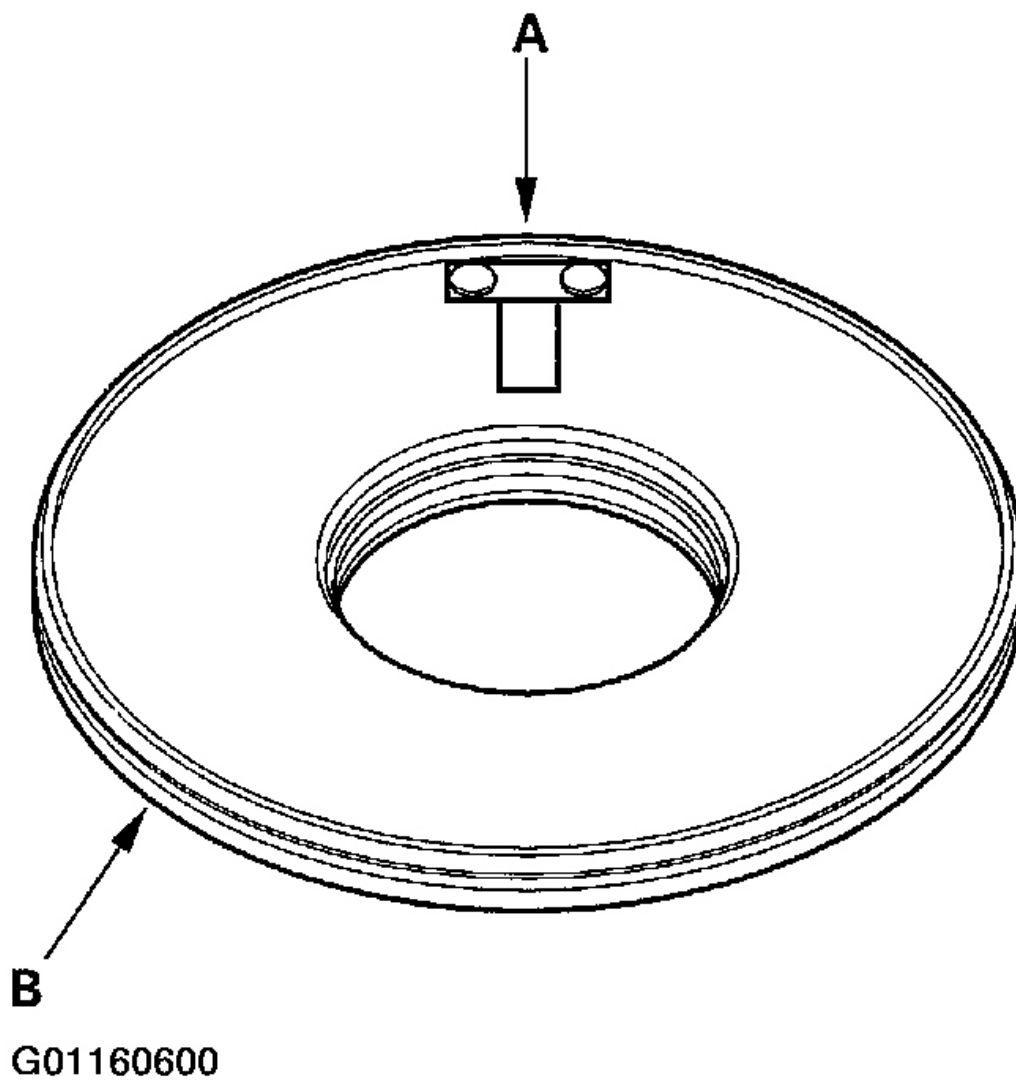
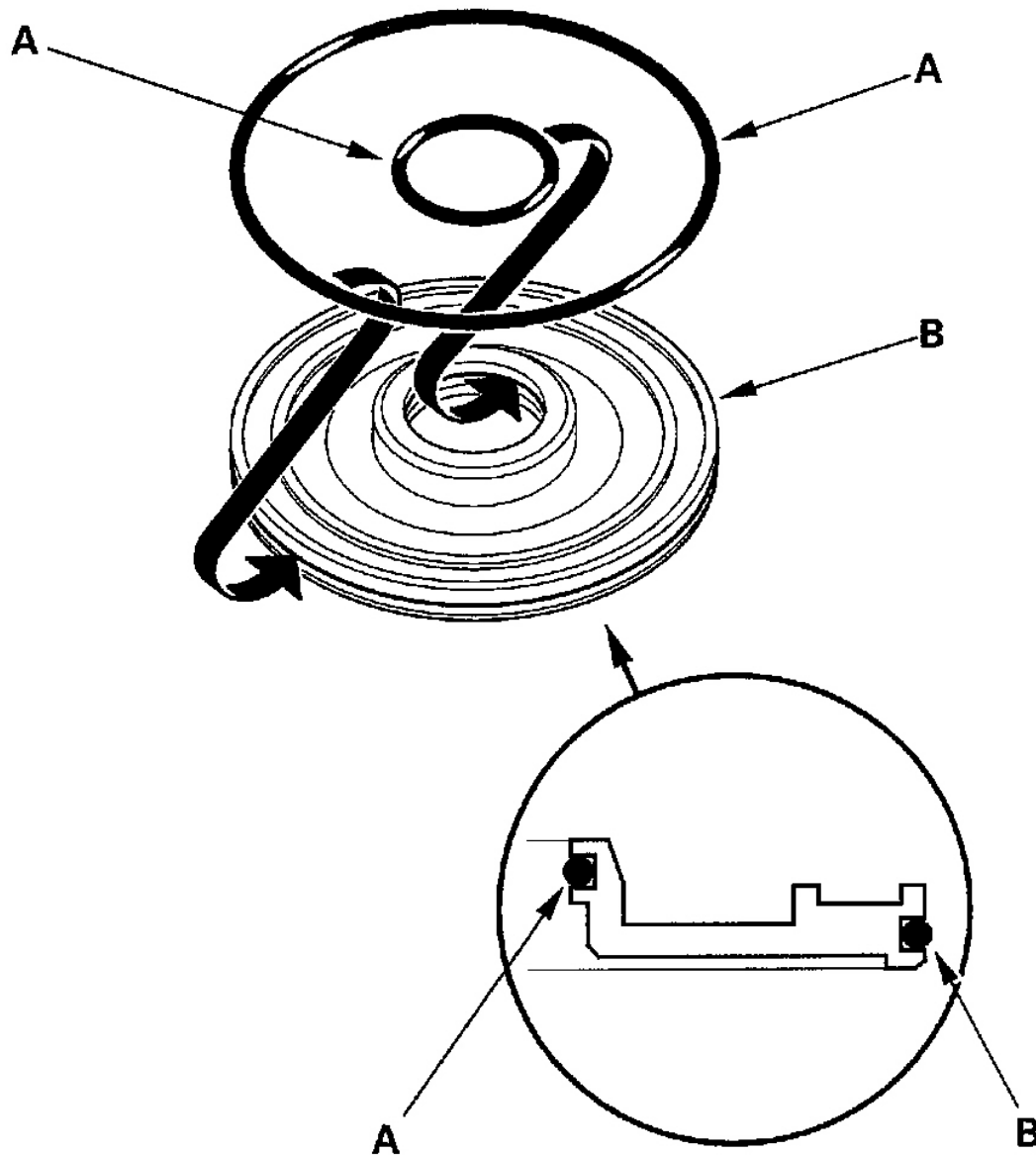


Fig. 125: Inspecting Check Valve

Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Install new O-rings (A) on the piston (B).



G01160601

Fig. 126: Installing New O-Rings

Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Install the piston (A) in the clutch drum (B). Apply pressure and rotate to ensure proper seating. Lubricate the piston O-ring with ATF before installing.

NOTE: Do not pinch the O-ring by installing the piston with too much force.

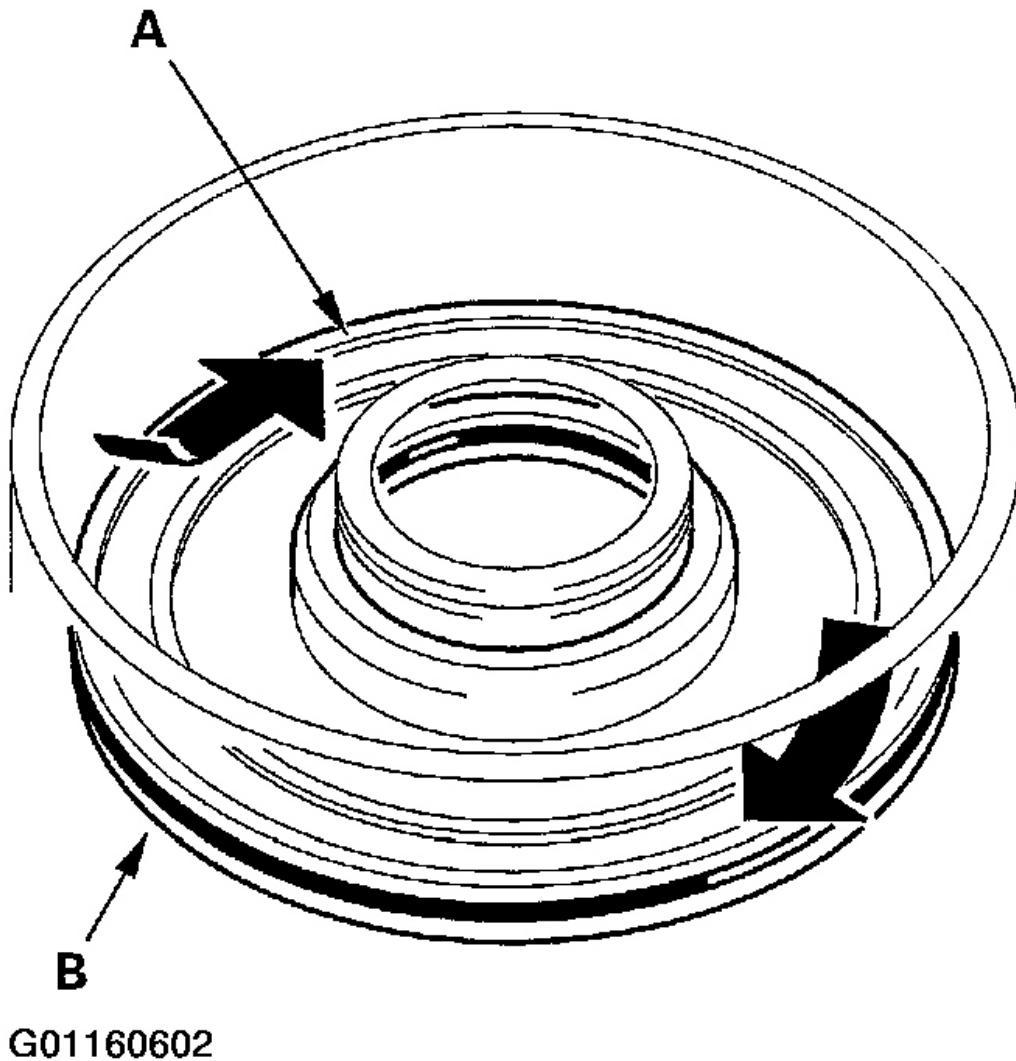


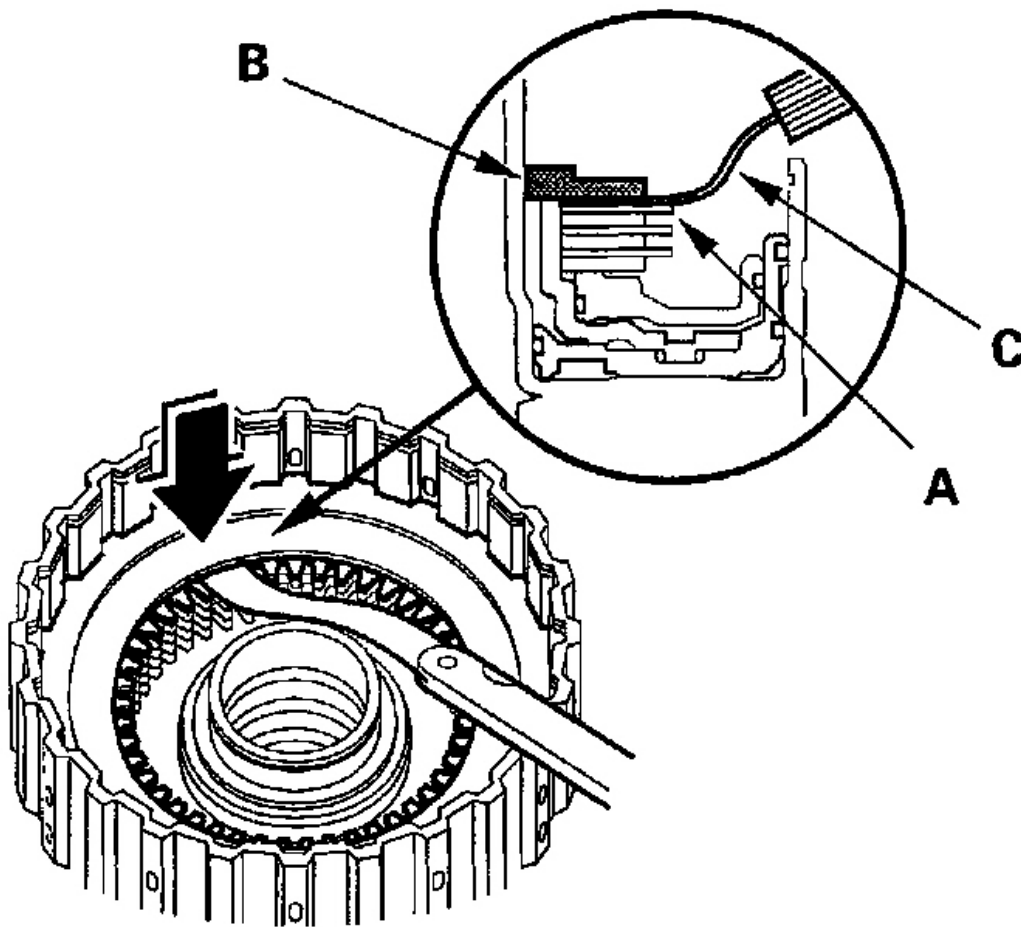
Fig. 127: Installing Piston In Clutch Drum

Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Check the 1st-hold clutch plate-to-top-disc clearance; starting with a clutch plate, alternately install the clutch plate and discs in the 1st-hold clutch drum, then install the 1st-hold clutch plate B.
6. Measure the 1st-hold clutch clearance between the 1st-hold clutch plate B and the top disc (A) with a feeler gauge (C) while pressing the 1st-hold clutch plate B down. Take measurements in at least three places, and use the average as the actual clearance.

1st-hold Clutch Plate B-to-Top-disc Clearance

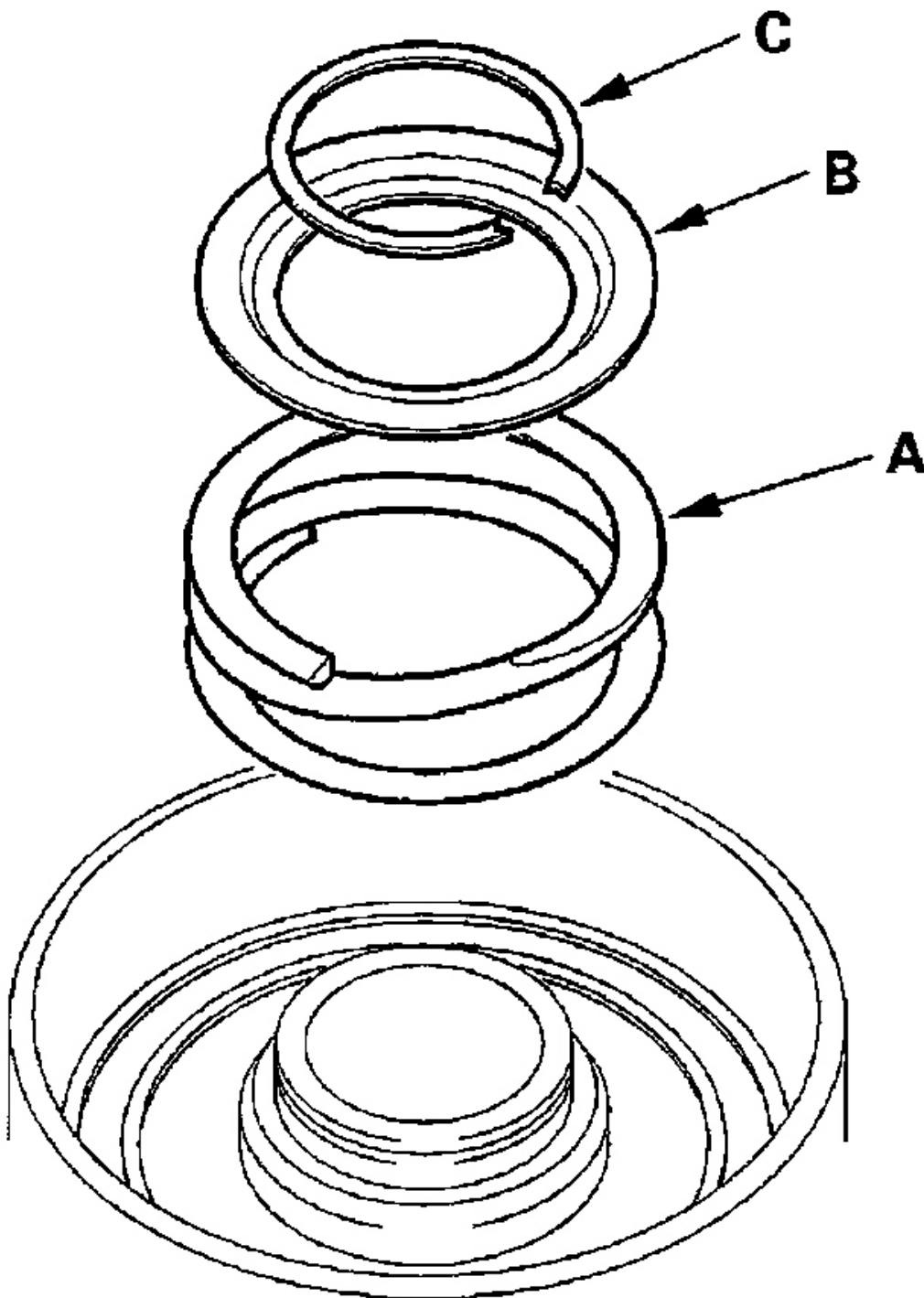
Service Limit: 0.5-0.9 mm (0.020-0.035 in.)



G01160603

Fig. 128: Measuring 1st-Hold Clutch Clearance Between 1st-Hold Clutch Plate B & Top Disc
Courtesy of AMERICAN HONDA MOTOR CO., INC.

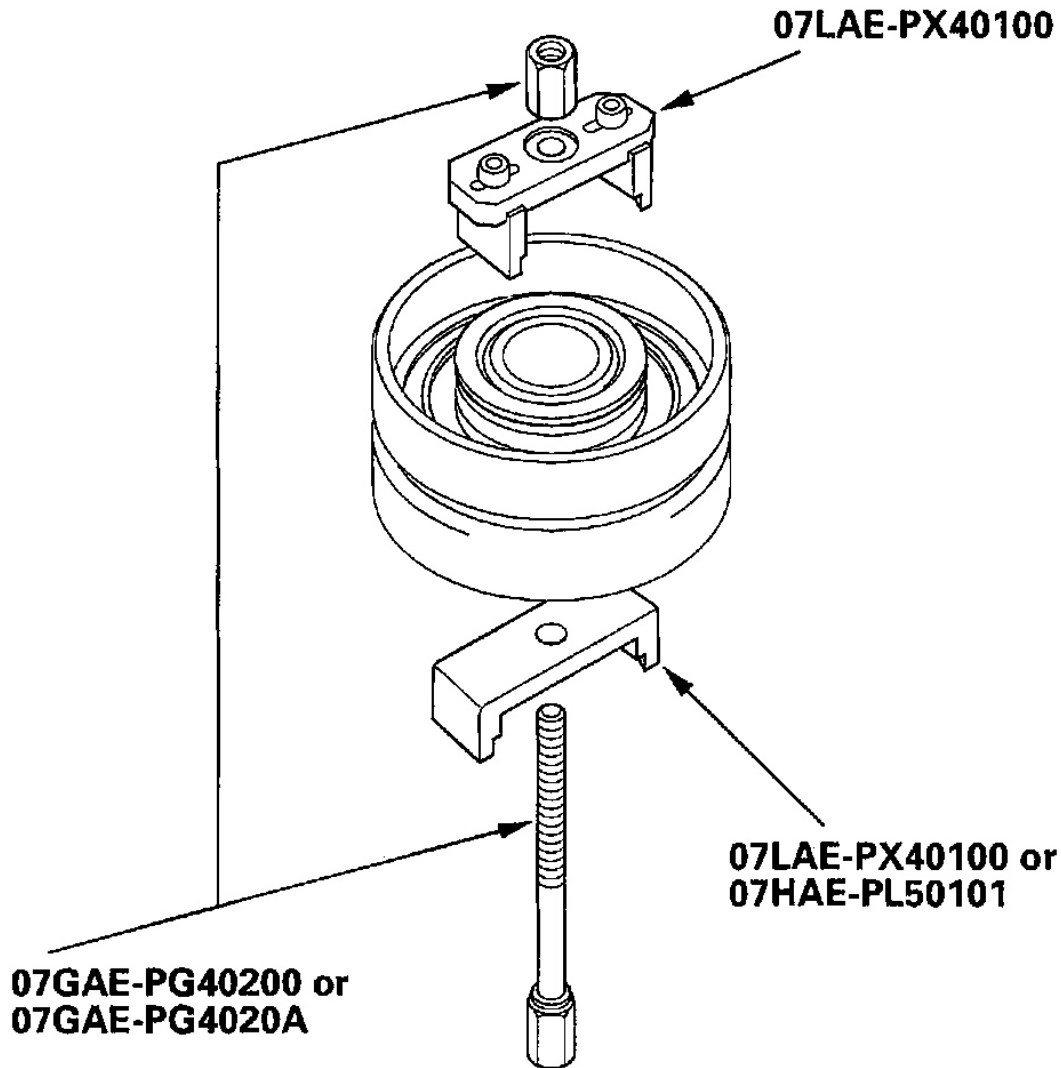
7. If the clearance is out of standard, replace the 1st-hold clutch plates and discs as a set, and recheck.
8. Install the return spring (A) and spring retainer (B), and position the snap ring (C) on the retainer.



G01160604

Fig. 129: Installing Return Spring, Spring Retainer & Position Snap Ring
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

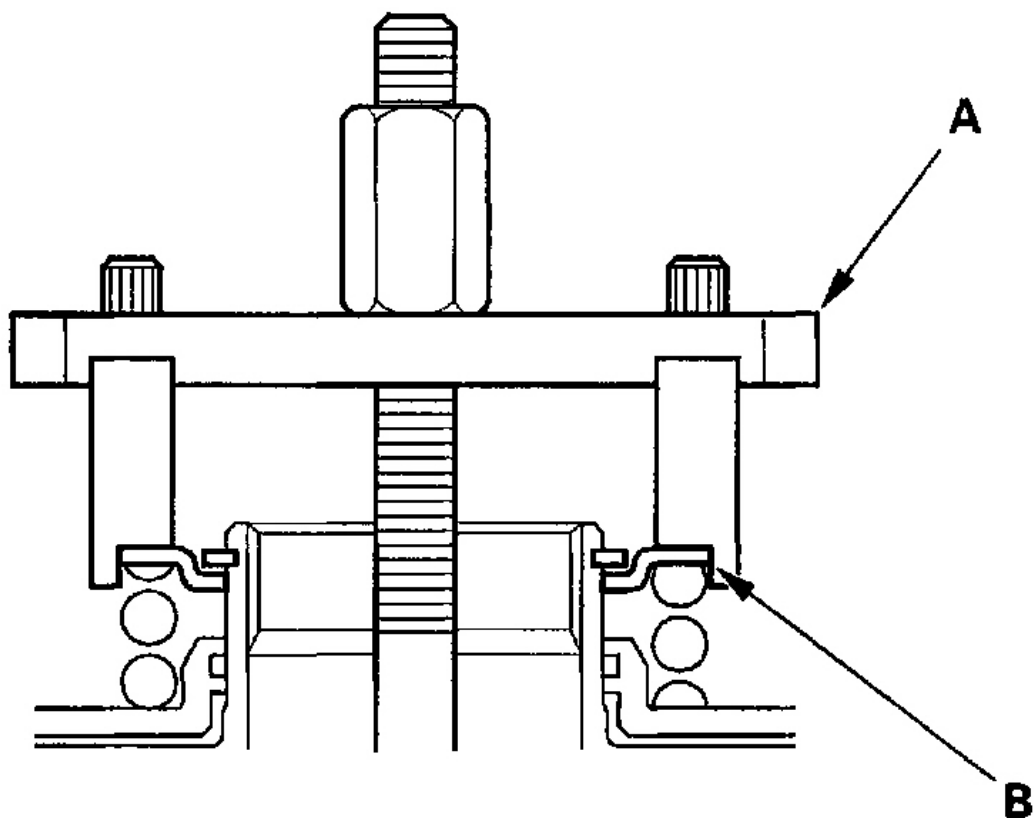
9. Install the special tools on the clutch assembly.



G01160605

Fig. 130: Installing Special Tools On Clutch Assembly
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

10. Be sure the special tool (A) is adjusted to have full contact with the spring retainer (B) on the 4th, 5th, and 1st clutches.

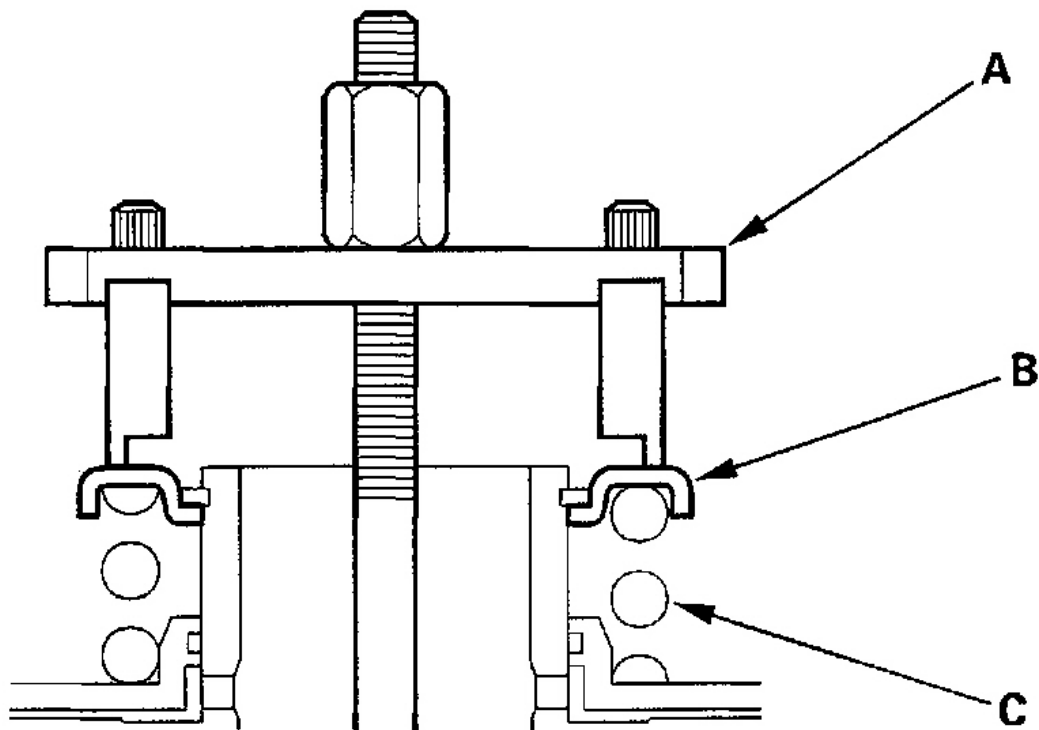


G01160606

Fig. 131: Adjusting Special Tool

Courtesy of AMERICAN HONDA MOTOR CO., INC.

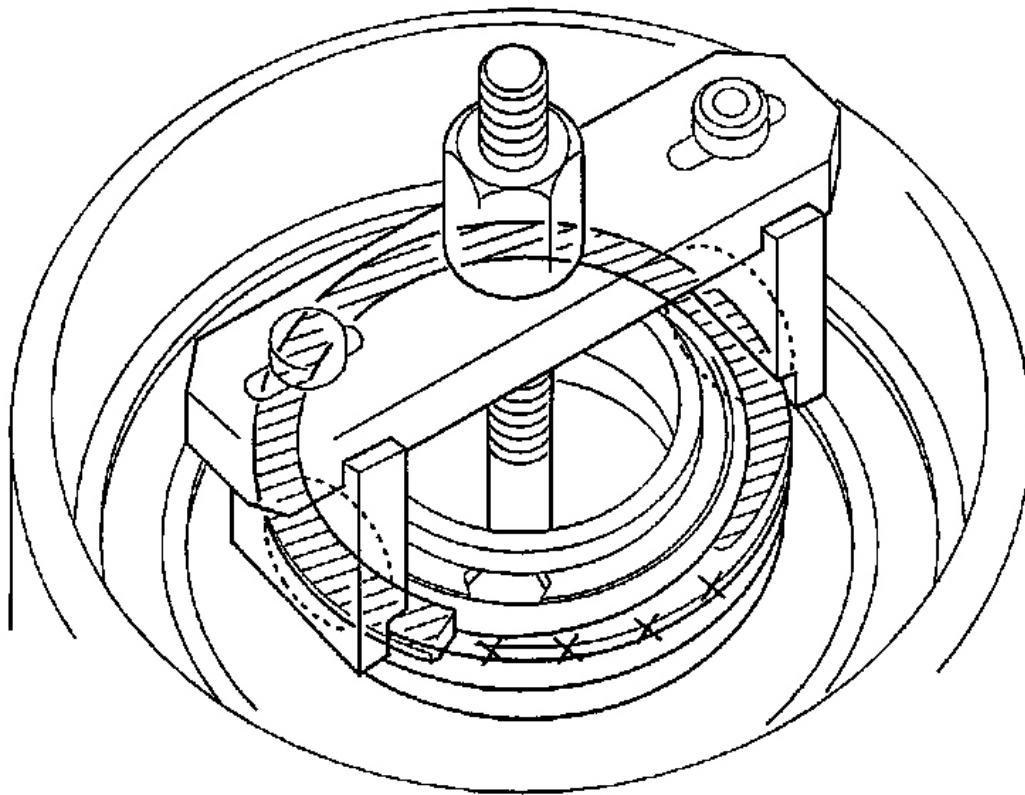
11. Set the special tool (A) on the spring retainer (B) of the 2nd and 3rd clutches so the tool works on the clutch return spring (C).



G01160607

Fig. 132: Setting Special Tool On The Spring Retainer Of The 2nd & 3rd Clutches
Courtesy of AMERICAN HONDA MOTOR CO., INC.

12. If either end of the special tool is set over an area of the spring retainer which is unsupported by the return spring, the retainer may be damaged.

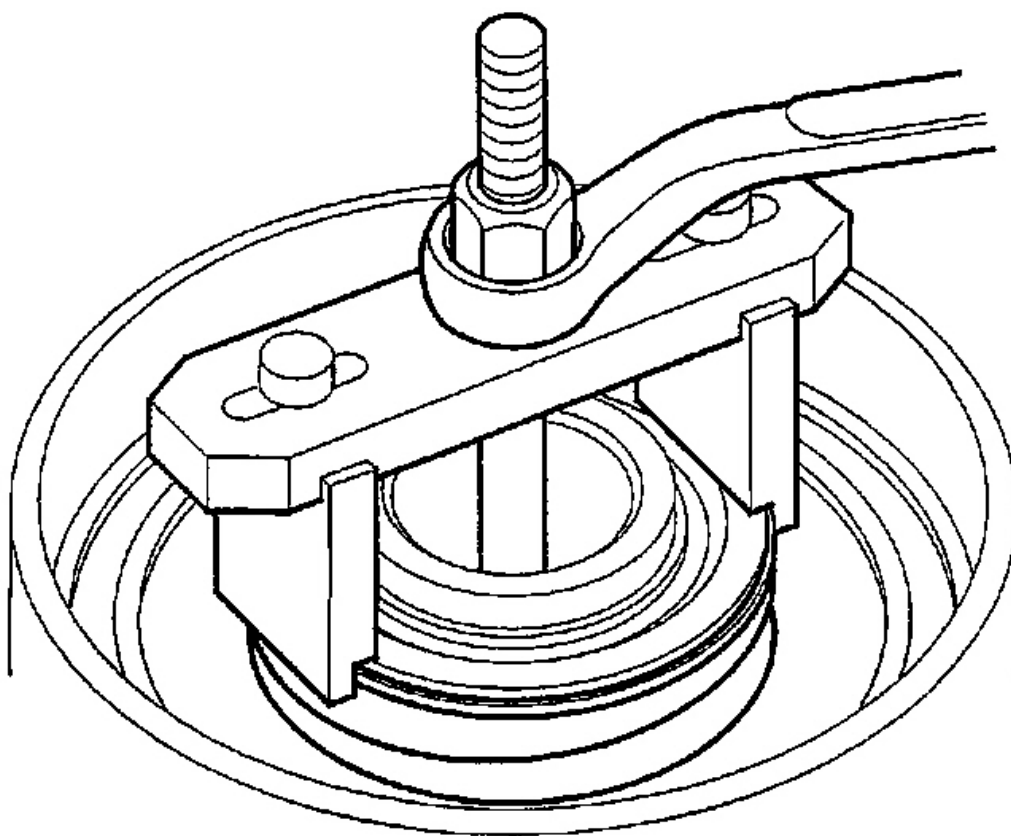


G01160608

Fig. 133: Installing Compressor

Courtesy of AMERICAN HONDA MOTOR CO., INC.

13. Compress the return spring.



G01160609

Fig. 134: Compressing Return Spring
Courtesy of AMERICAN HONDA MOTOR CO., INC.

14. Install the snap ring (A).

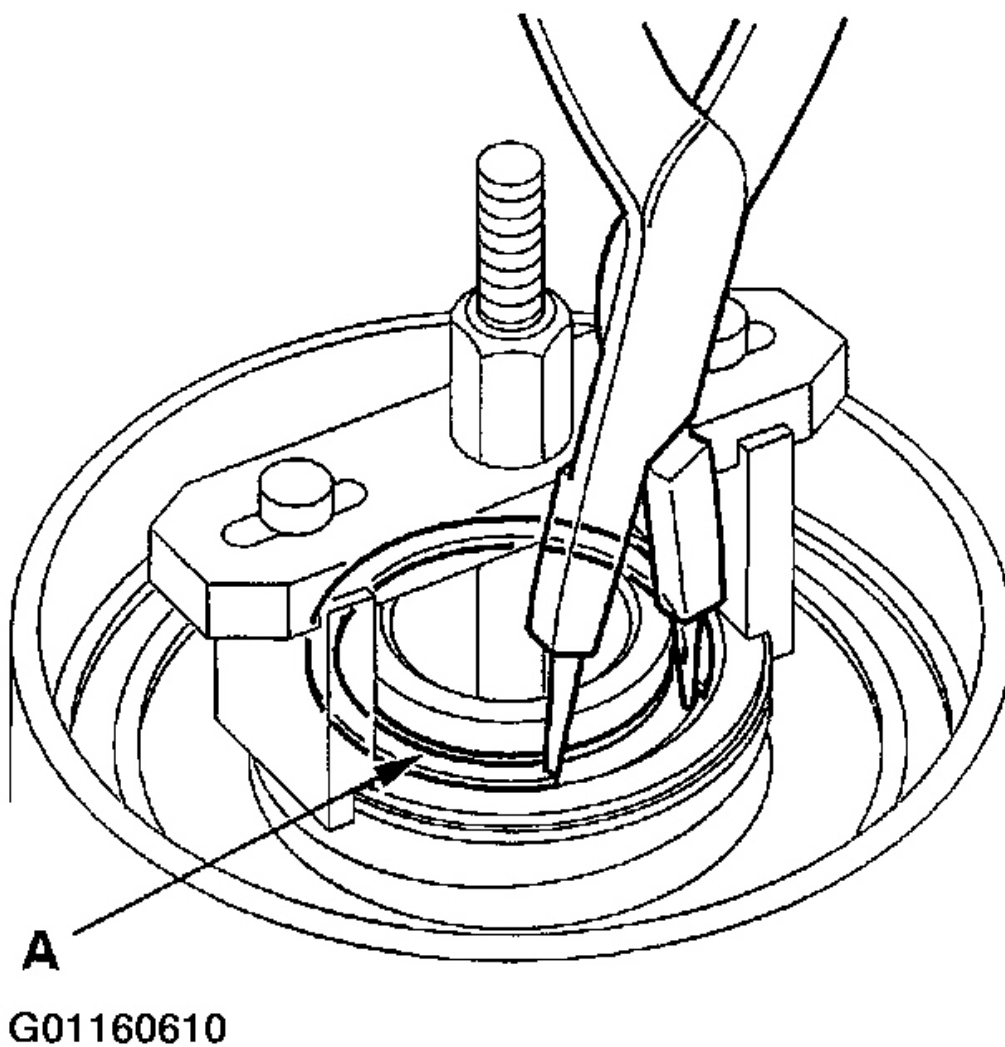
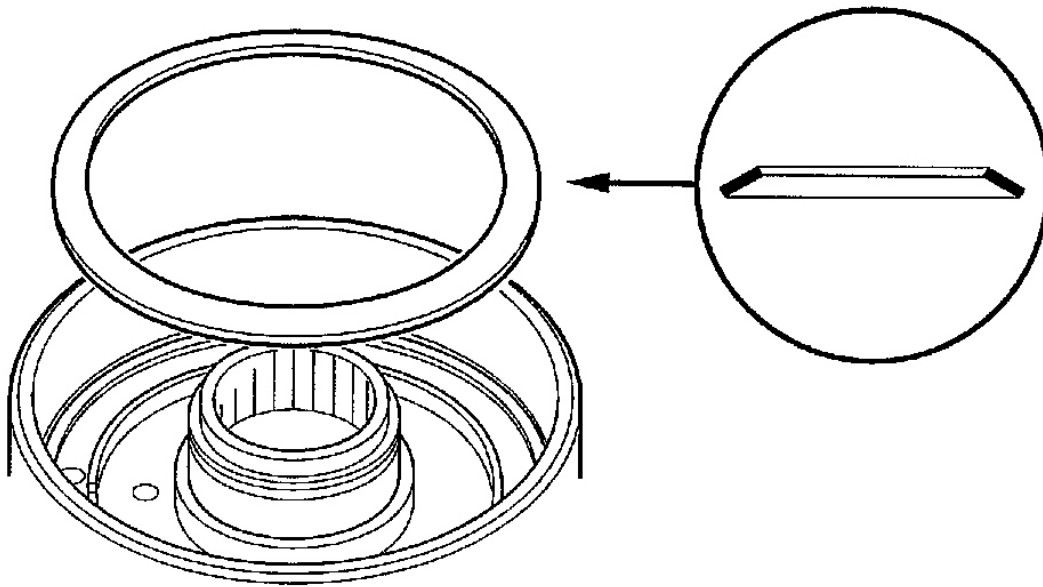


Fig. 135: Installing Snap Ring

Courtesy of AMERICAN HONDA MOTOR CO., INC.

15. Remove the special tools.
16. Install the disc spring in the 1st, 3rd, 4th, and 5th clutches in the direction shown.

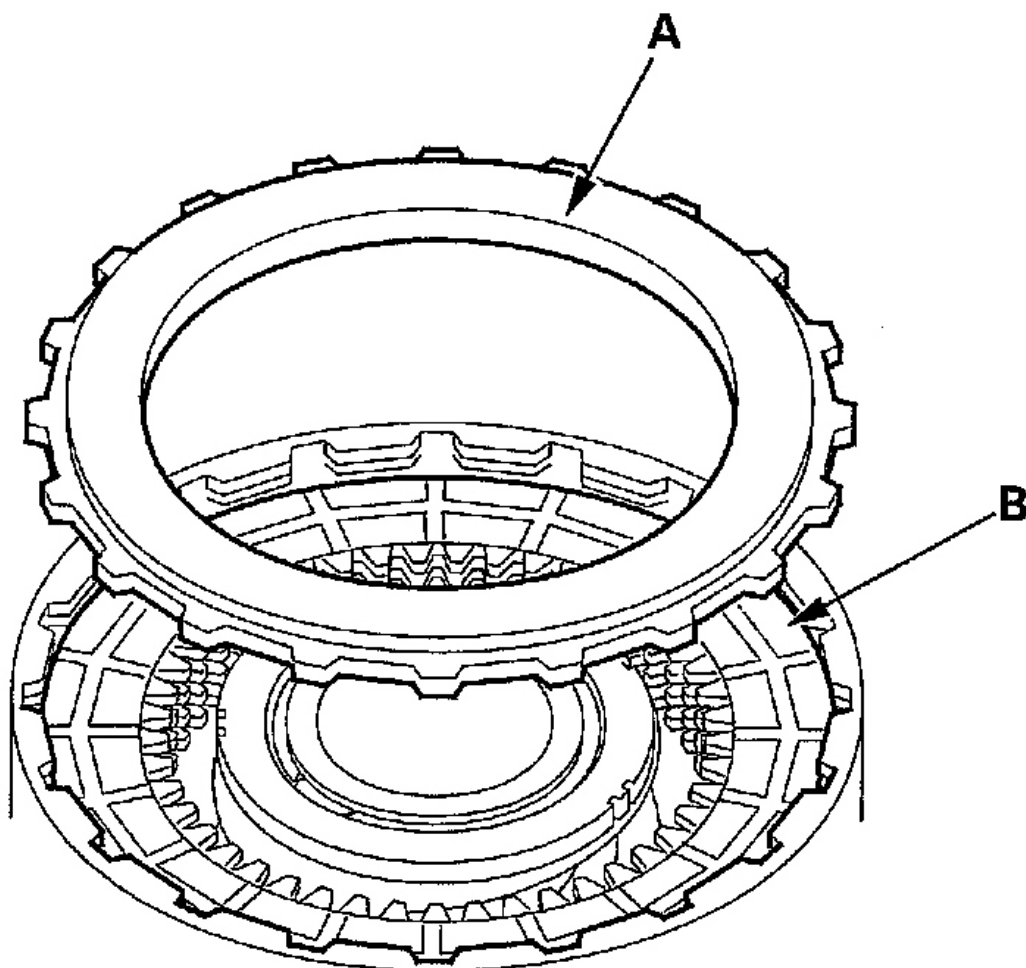
NOTE: The 2nd clutch and 1st-hold clutch do not have a disc spring.



G01160611

Fig. 136: Installing Disc Spring In The 1st, 3rd, 4th & 5th Clutches
Courtesy of AMERICAN HONDA MOTOR CO., INC.

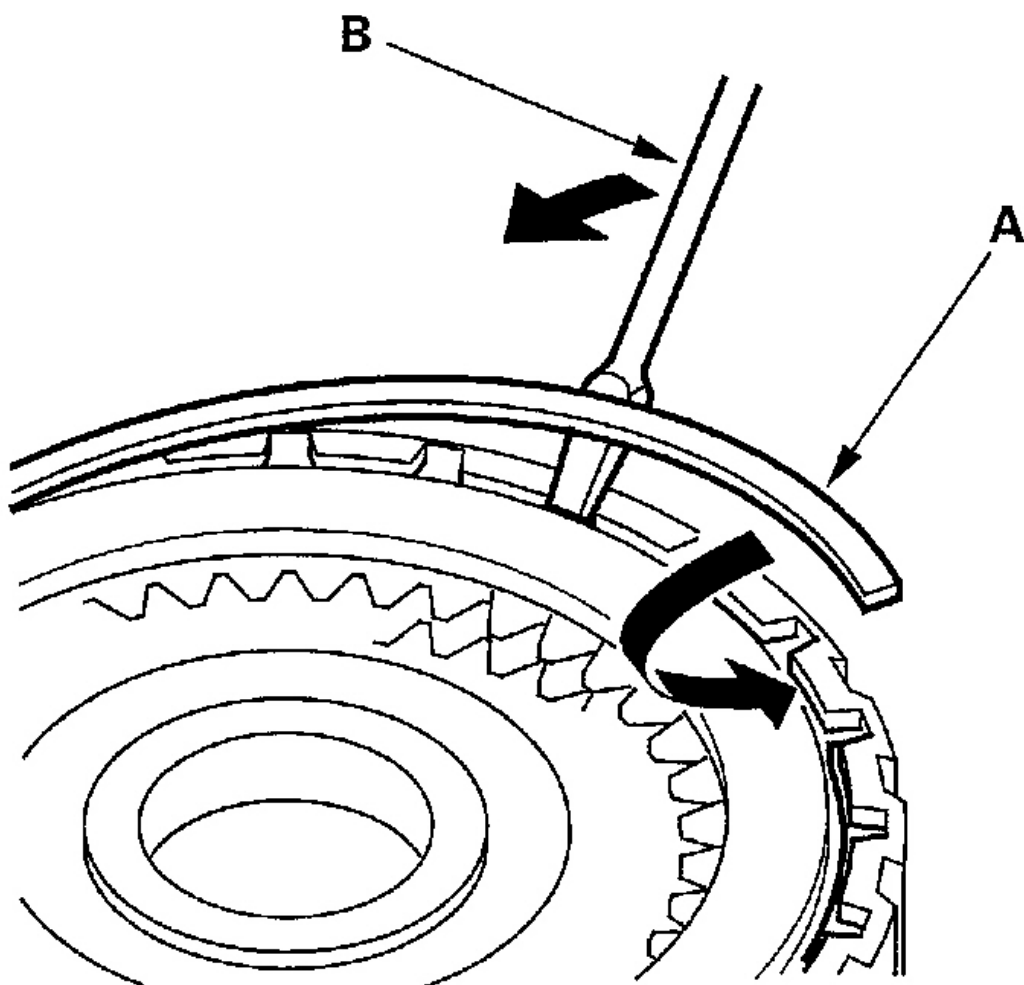
17. Make sure the inside of the clutch drum is free of dirt and other foreign particles.
18. Starting with a clutch plate, alternately install the clutch plates and discs. Install the clutch end plate (A) with the flat side toward the disc (B).



G01160612

Fig. 137: Installing Clutch Plates, Discs & Clutch End Plate
Courtesy of AMERICAN HONDA MOTOR CO., INC.

19. Install the snap ring (A) with a screwdriver (B).

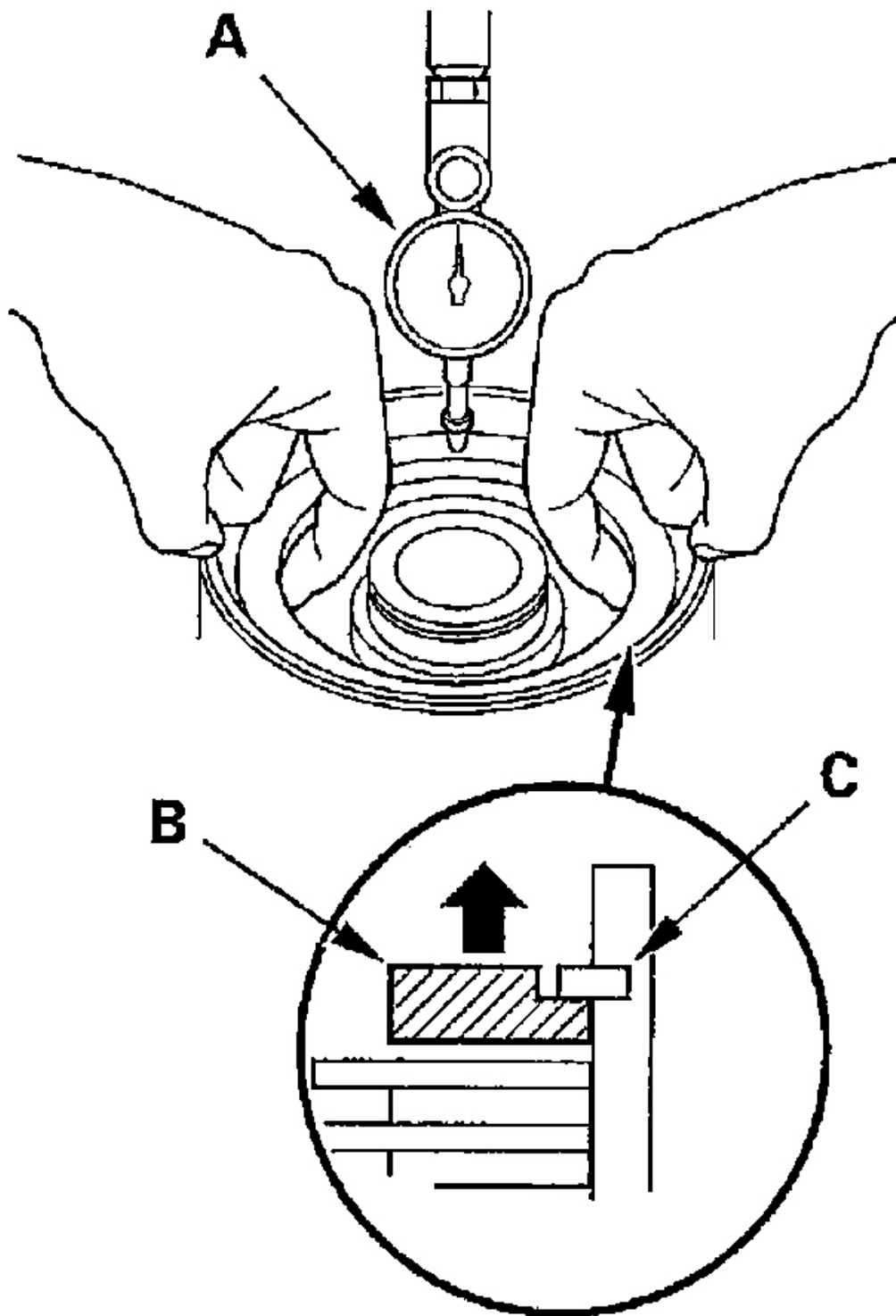


G01160613

Fig. 138: Installing Snap Ring

Courtesy of AMERICAN HONDA MOTOR CO., INC.

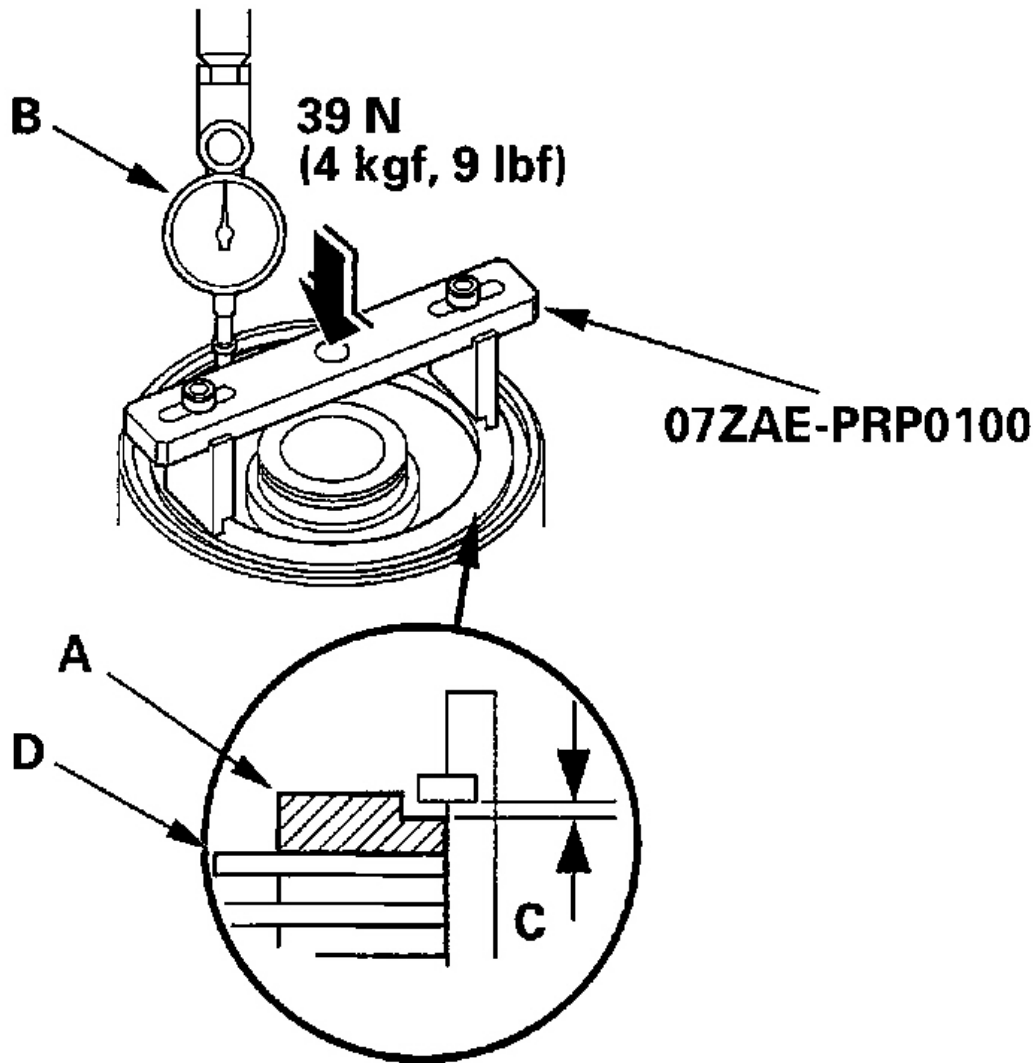
20. Set a dial indicator (A) on the clutch end plate (B).



G01160614

Fig. 139: Setting Dial Indicator On The Clutch End Plate
Courtesy of AMERICAN HONDA MOTOR CO., INC.

21. Zero the indicator with the clutch end plate lifted up to the snap ring (C).
22. Release the clutch end plate to lower clutch end plate, then put the special tool on the end plate (A).



G01160615

Fig. 140: Releasing Clutch End Plate
Courtesy of AMERICAN HONDA MOTOR CO., INC.

23. Press the special tool down with 39 N (4 kgf, 9 lbf) using a force gauge, and read the dial indicator (B).

The dial indicator reads the clearance (C) between the clutch end plate and top disc (D).

Take measurements in at least three places, and use the average as the actual clearance.

Clutch End Plate-to-Top Disc Clearance:

Service Limit:

- **1st Clutch: 1.1-1.3 mm (0.043-0.051 in.)**
- **2nd Clutch:**
 - **Premium model:**
0.7-0.9 mm (0.028-0.035 in.)
 - **Type-S model:**
0.85-1.05 mm (0.033-0.041 in.)
- **3rd Clutch: 0.7-0.9 mm (0.028-0.035 in.)**
- **4th Clutch: 0.55-0.75 mm (0.022-0.030 in.)**
- **5th Clutch: 0.55-0.75 mm (0.022-0.030 in.)**

24. If the clearance is not within the service limit, select a new clutch end plate from the following table.

NOTE: If the thickest clutch end plate is installed, but the clearance is still over the service limit, replace the clutch discs and plates as a set.

Mark	Part Number	Thickness
1	22551-P7W-003	3.1 mm (0.122 in.)
2	22552-P7W-003	3.2 mm (0.126 in.)
3	22553-P7W-003	3.3 mm (0.130 in.)
4	22554-P7W-003	3.4 mm (0.134 in.)
5	22555-P7W-003	3.5 mm (0.138 in.)
6	22556-P7W-003	3.6 mm (0.142 in.)
7	22557-P7W-003	3.7 mm (0.146 in.)
8	22558-P7W-003	3.8 mm (0.150 in.)
9	22559-P7W-003	3.9 mm (0.154 in.)

G01160617

Fig. 141: Identifying 1st Clutch End Plates

Courtesy of AMERICAN HONDA MOTOR CO., INC.

Mark	Part Number	Thickness
1	22551-PY4-003	2.1 mm (0.083 in.)
2	22552-PY4-003	2.2 mm (0.087 in.)
3	22553-PY4-003	2.3 mm (0.091 in.)
4	22554-PY4-003	2.4 mm (0.094 in.)
5	22555-PY4-003	2.5 mm (0.098 in.)
6	22556-PY4-003	2.6 mm (0.102 in.)
7	22557-PY4-003	2.7 mm (0.106 in.)
8	22558-PY4-003	2.8 mm (0.110 in.)
9	22559-PY4-003	2.9 mm (0.114 in.)

G01160618

Fig. 142: Identifying 2nd Clutch End Plates

Courtesy of AMERICAN HONDA MOTOR CO., INC.

Mark	Part Number	Thickness
1	22551-PX4-003	2.1 mm (0.083 in.)
2	22552-PX4-003	2.2 mm (0.087 in.)
3	22553-PX4-003	2.3 mm (0.091 in.)
4	22554-PX4-003	2.4 mm (0.094 in.)
5	22555-PX4-003	2.5 mm (0.098 in.)
6	22556-PX4-003	2.6 mm (0.102 in.)
7	22557-PX4-003	2.7 mm (0.106 in.)
8	22558-PX4-003	2.8 mm (0.110 in.)
9	22559-PX4-003	2.9 mm (0.114 in.)

G01160619

Fig. 143: Identifying 3rd Clutch End Plates

Courtesy of AMERICAN HONDA MOTOR CO., INC.

Mark	Part Number	Thickness
1	22561-P7T-003	2.1 mm (0.083 in.)
2	22562-P7T-003	2.2 mm (0.087 in.)
3	22563-P7T-003	2.3 mm (0.091 in.)
4	22564-P7T-003	2.4 mm (0.094 in.)
5	22565-P7T-003	2.5 mm (0.098 in.)
6	22566-P7T-003	2.6 mm (0.102 in.)
7	22567-P7T-003	2.7 mm (0.106 in.)
8	22568-P7T-003	2.8 mm (0.110 in.)
9	22569-P7T-003	2.9 mm (0.114 in.)

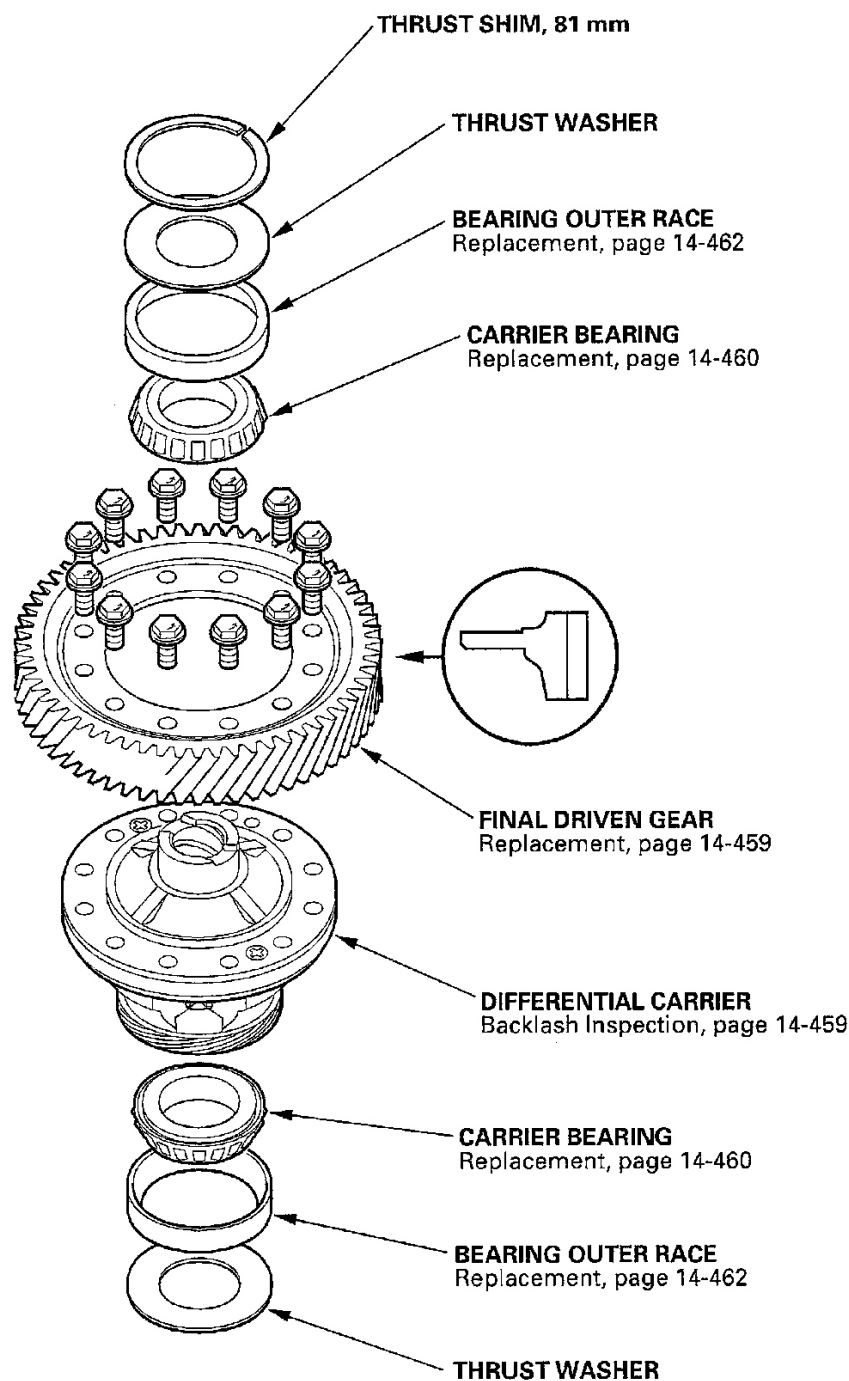
G01160620

Fig. 144: Identifying 4th & 5th Clutch End Plates

Courtesy of AMERICAN HONDA MOTOR CO., INC.

A/T DIFFERENTIAL

COMPONENT LOCATION INDEX

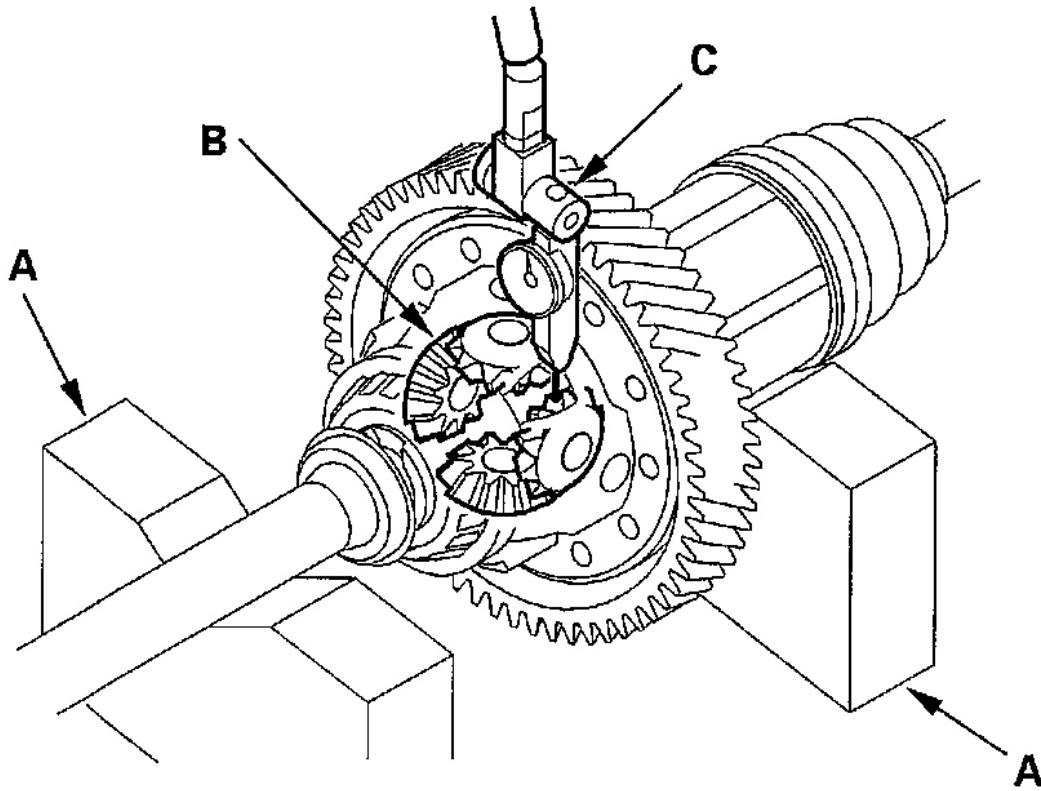


G01160654

Fig. 145: A/T Differential Component Location Index
Courtesy of AMERICAN HONDA MOTOR CO., INC.

BACKLASH INSPECTION

1. Install both axles, and place the differential assembly on V-blocks (A).



G01160655

Fig. 146: Placing Differential Assembly On V-Blocks
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Check the backlash of the pinion gears (B) with a dial indicator (C).

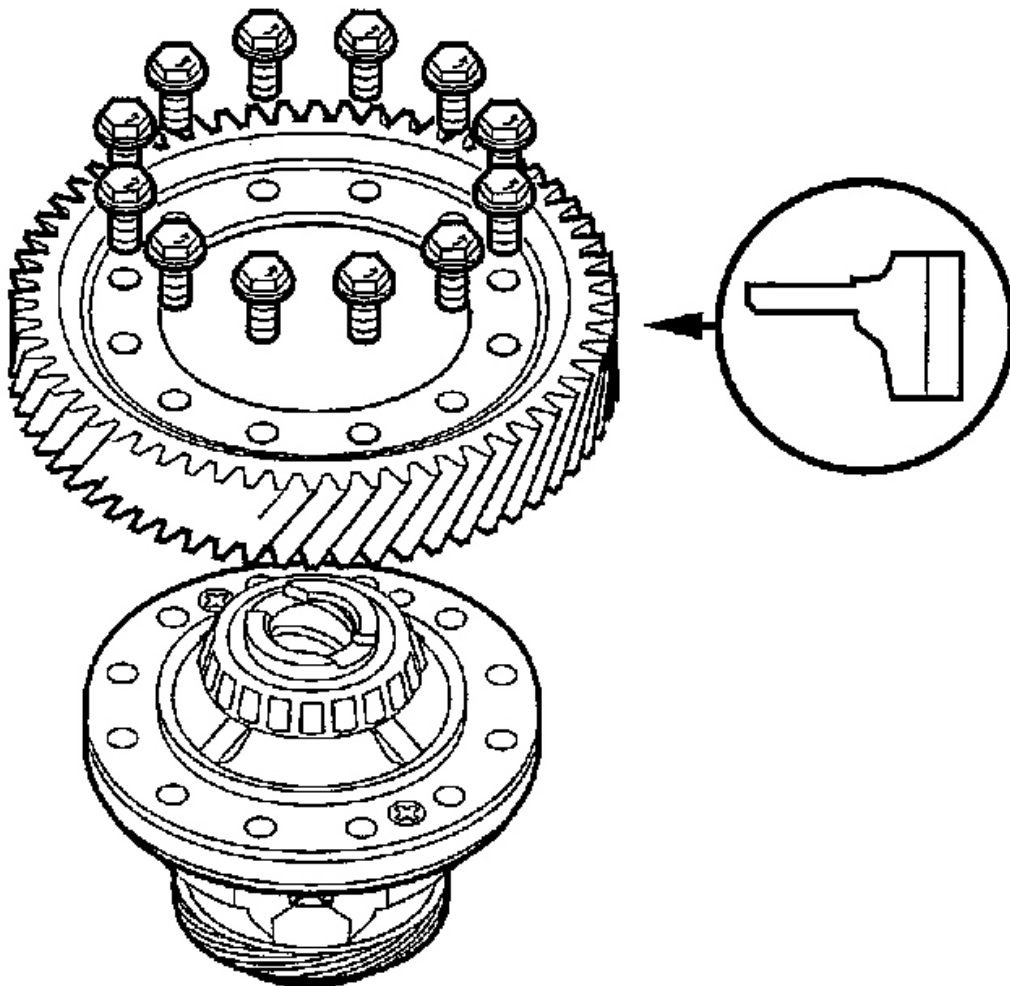
STANDARD: 0.175-0.275 mm (0.007-0.011 in.)

3. If the backlash is out of standard, replace the differential carrier.

FINAL DRIVEN GEAR/CARRIER REPLACEMENT

1. Remove the final driven gear from the differential carrier.

NOTE: The final driven gear bolts have left-hand threads.



G01160656

Fig. 147: Removing Final Driven Gear From Differential Carrier
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Install the final driven gear with the chamfered side on the inner bore facing the differential carrier.
3. Tighten the bolts to the specified torque in a crisscross pattern.

TORQUE: 101 N.m (10.3 kgf.m, 74.5 Ft.Lbs.)

CARRIER BEARING REPLACEMENT

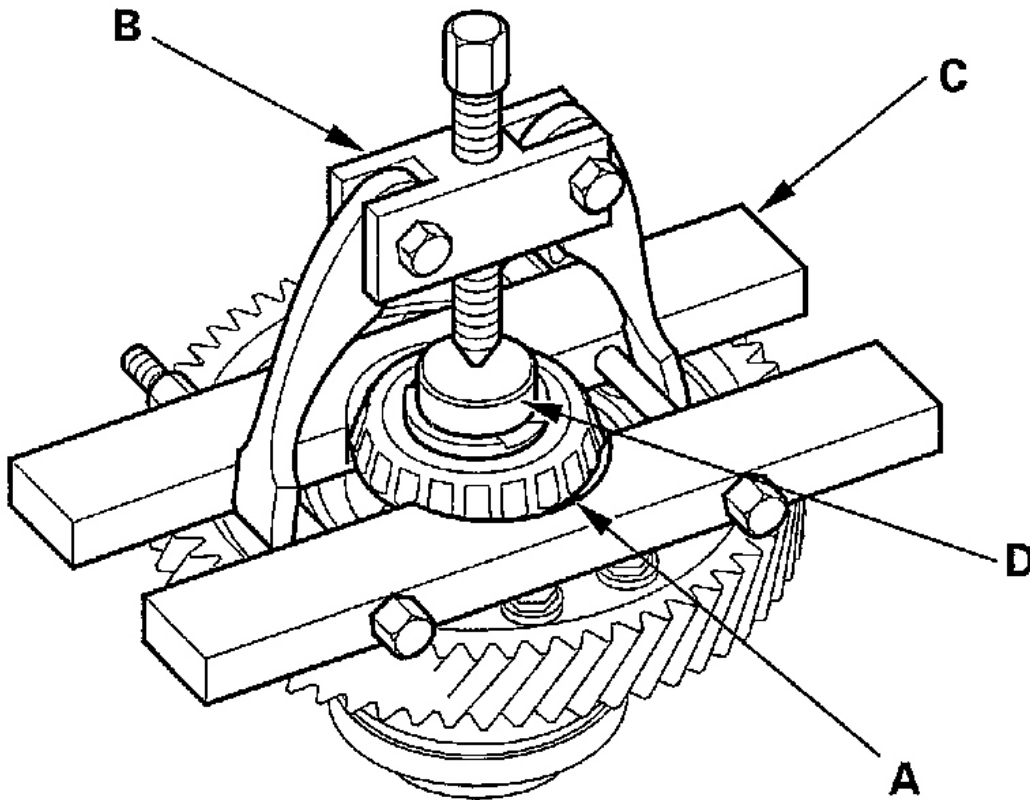
Special Tools Required

Attachment, 40 x 50 mm 07LAD-PW50601

NOTE:

- The bearing and outer race should be replaced as a set.
- Inspect and adjust the bearing preload whenever bearing is replaced.
- Check the bearing for wear and rough rotation. If the bearing is OK, removal is not necessary.

1. Remove the carrier bearing (A) with a commercially available bearing puller (B), bearing separator (C), and stepped adapter (D).



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Fig. 148: Removing Carrier Bearing

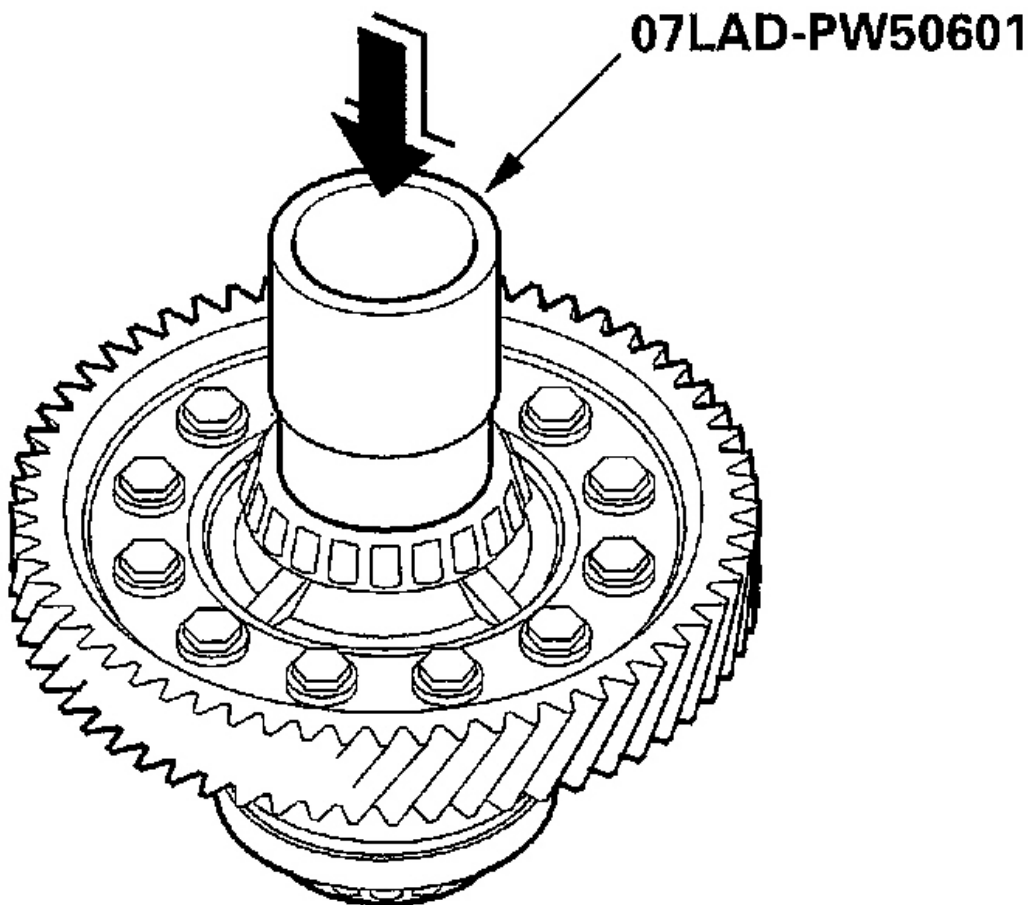
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Install the new carrier bearings with the special tool and a press.

NOTE:

- Press the bearing on until it bottom.

- Use the small end of the special tool to install the bearing.
- Press the bearing on securely so there is no clearance between the bearing and the differential carrier.



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Fig. 149: Installing New Carrier Bearings
Courtesy of AMERICAN HONDA MOTOR CO., INC.

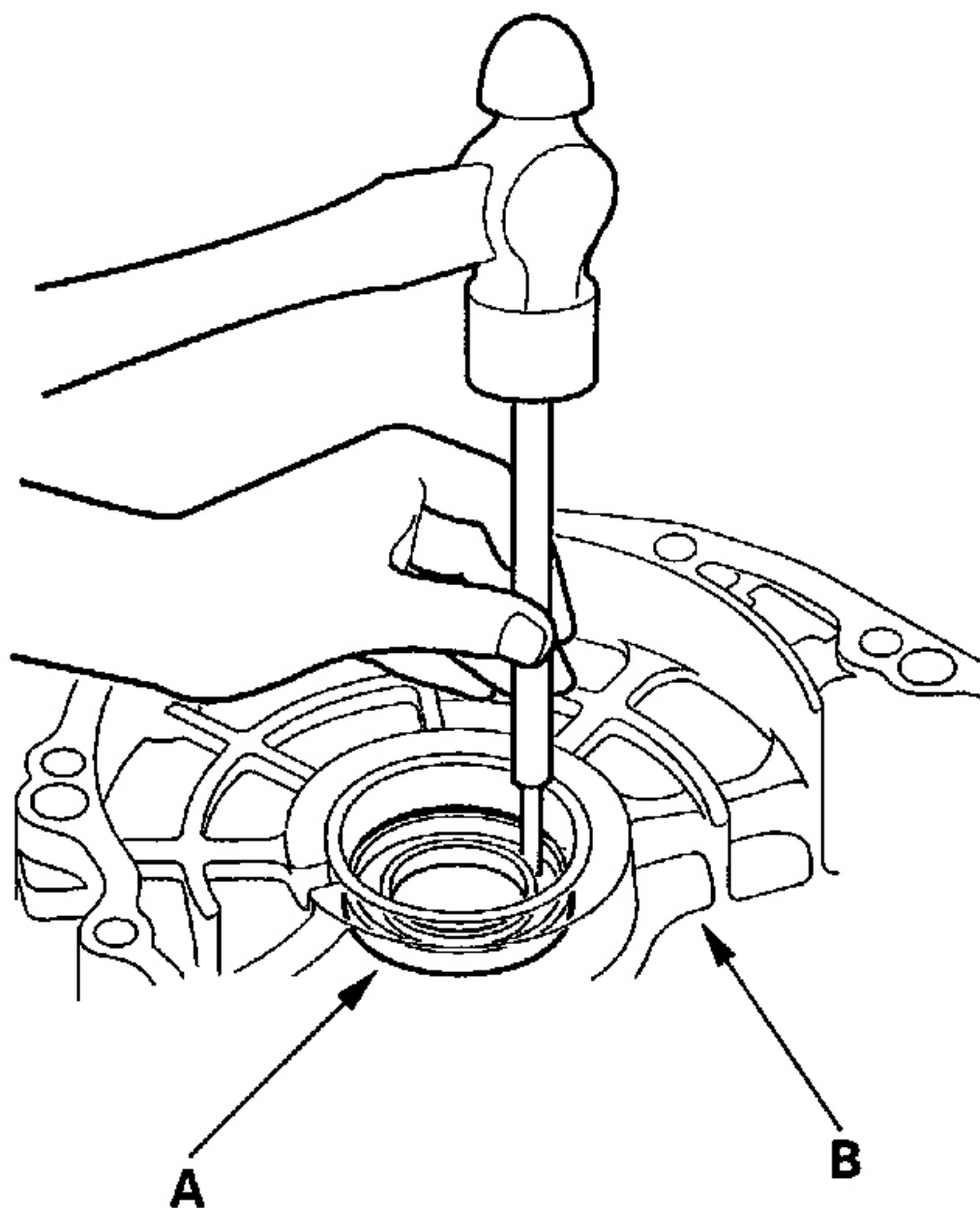
OIL SEAL REPLACEMENT

Special Tools Required

- Driver 07749-0010000
- Seal driver attachment 07GAD-PG40101 or 07GAD-PG40100

- Oil seal driver attachment 07JAD-PH80101

1. Remove the differential assembly.
2. Remove the oil seal (A) from the transmission housing (B).



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Fig. 150: Removing Oil Seal From Transmission Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Remove the oil seal (A) from the torque converter housing (B).

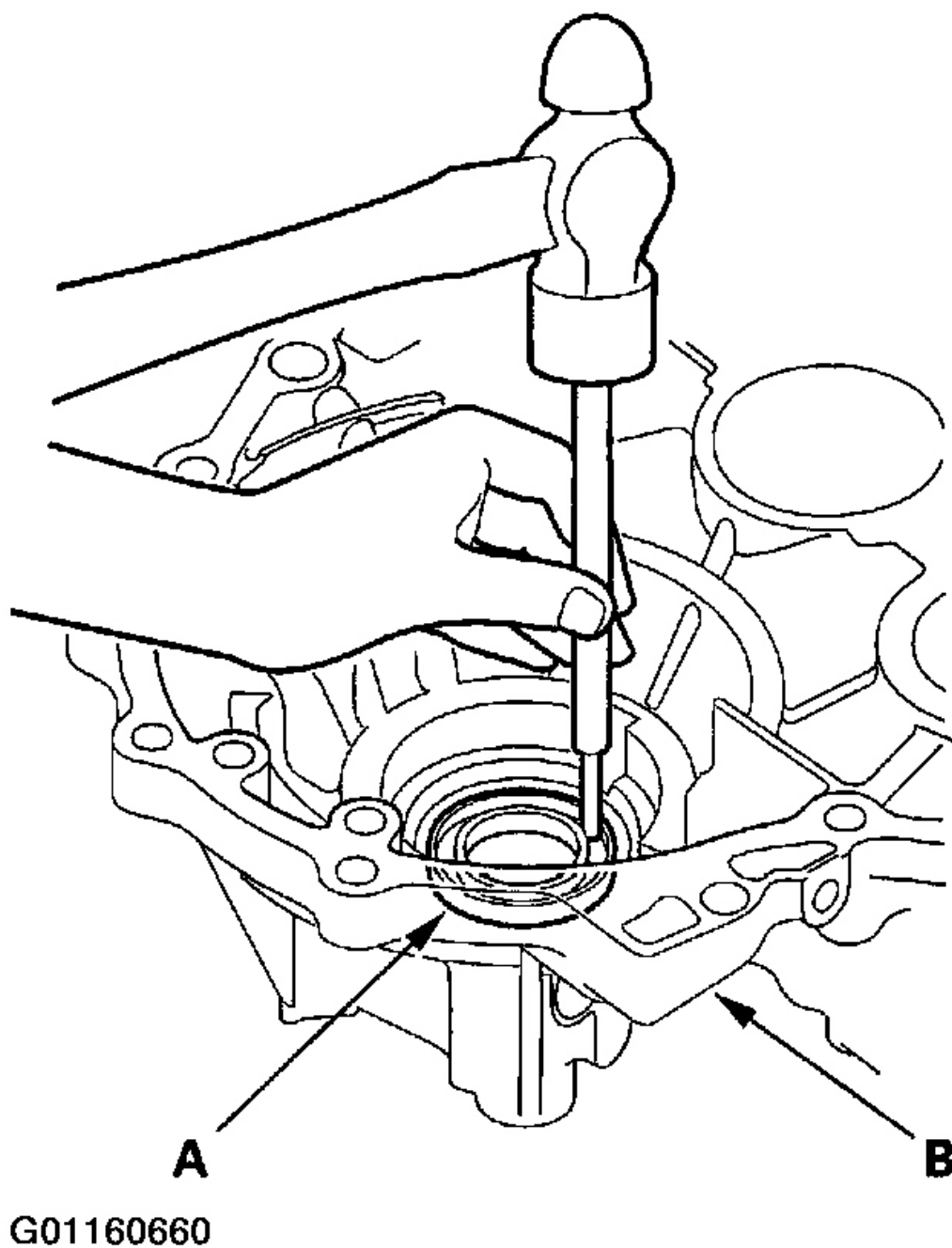


Fig. 151: Removing Oil Seal From Torque Converter Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Install the oil seal (A) in the transmission housing with the special tools.

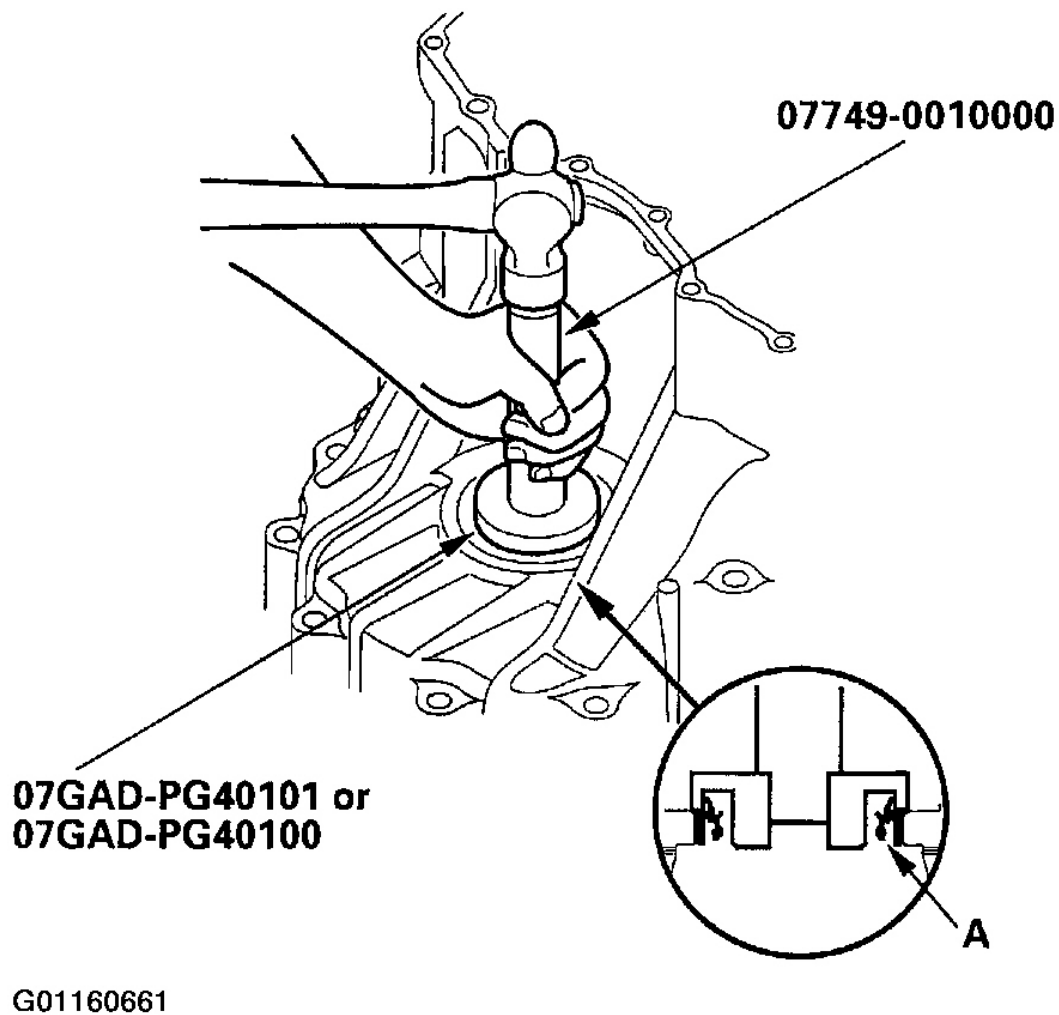
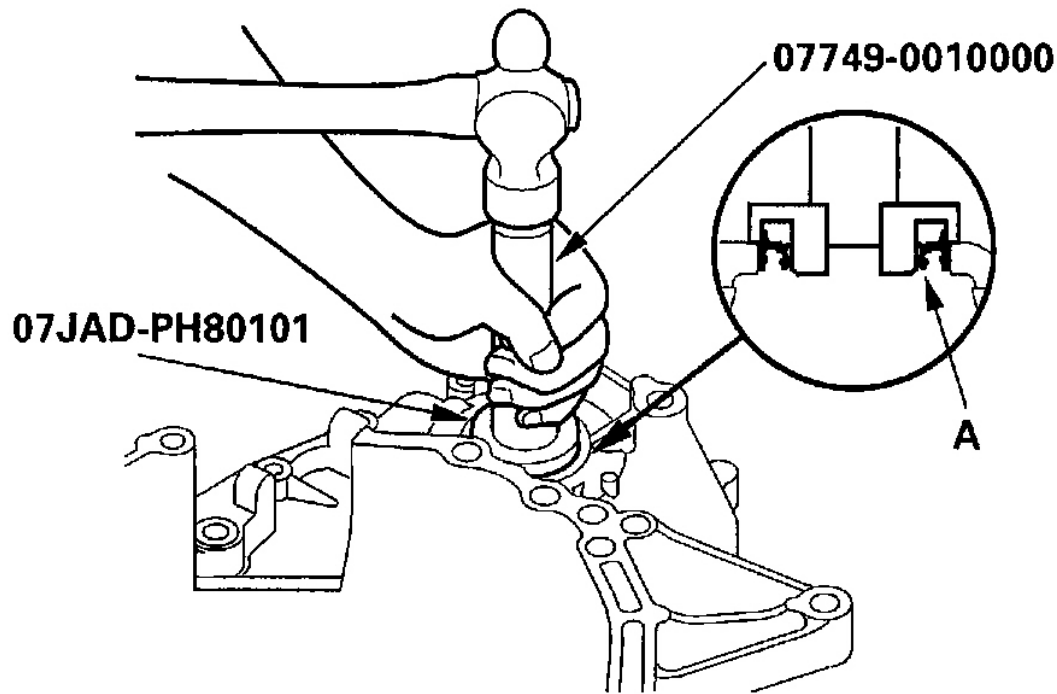


Fig. 152: Installing Oil Seal In Transmission Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Install the oil seal (A) in the torque converter housing with the special tools.



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Fig. 153: Installing Oil Seal In Torque Converter Housing
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

CARRIER BEARING OUTER RACE REPLACEMENT

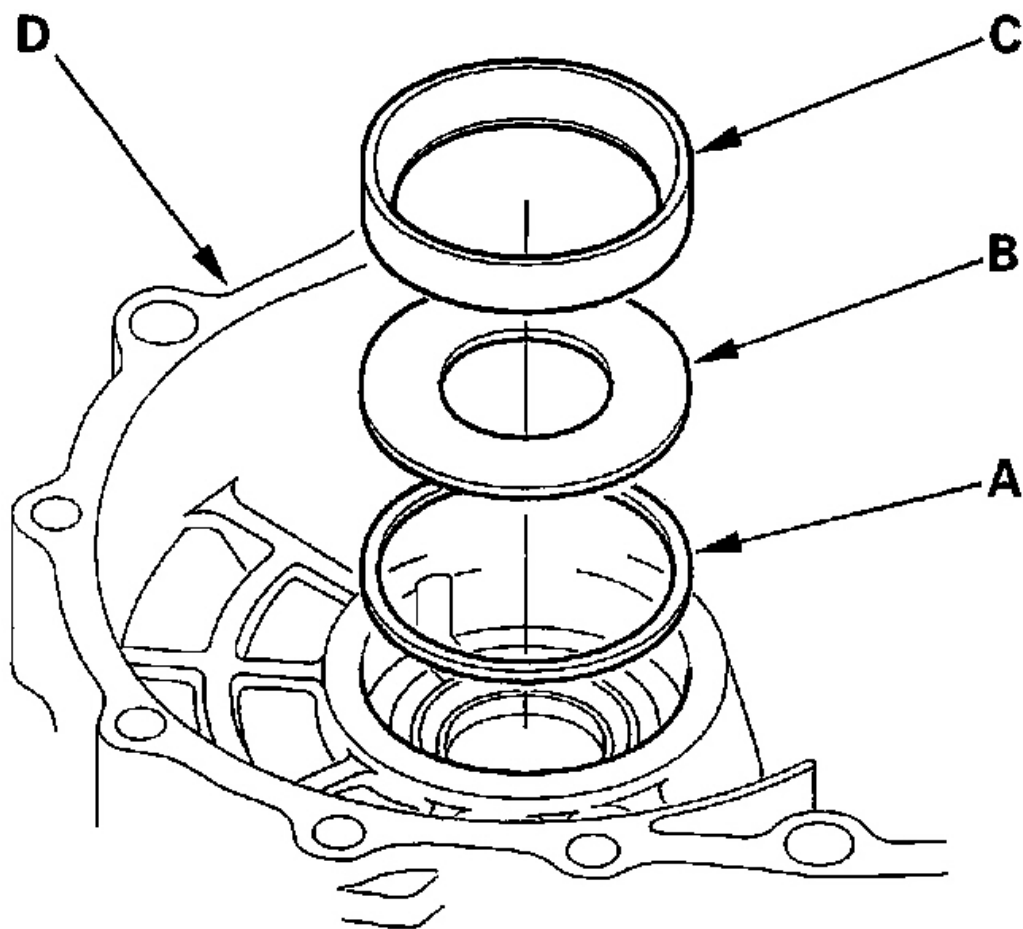
Special Tools Required

- Driver 07749-0010000
- Attachment, 78 x 80 mm 07NAD-PX40100

NOTE:

- Replace the bearing with a new one whenever the outer race is replaced.
- Do not use shim(s) on the torque converter housing side.
- Adjust preload after replacing the bearing and outer race.
- Coat all parts with ATF during installation.

1. Remove the bearing outer race from the transmission housing by heating the housing to about 212°F (100°C) with a heat gun. Do not heat the housing to more than 212°F (100°C).
2. Remove the bearing outer race from the torque converter housing.
3. Install the thrust shim (A), thrust washer (B), and outer race (C) in the transmission housing (D) with the special tools.



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Fig. 154: Installing Thrust Shim, Thrust Washer & Outer Race (1 of 2)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

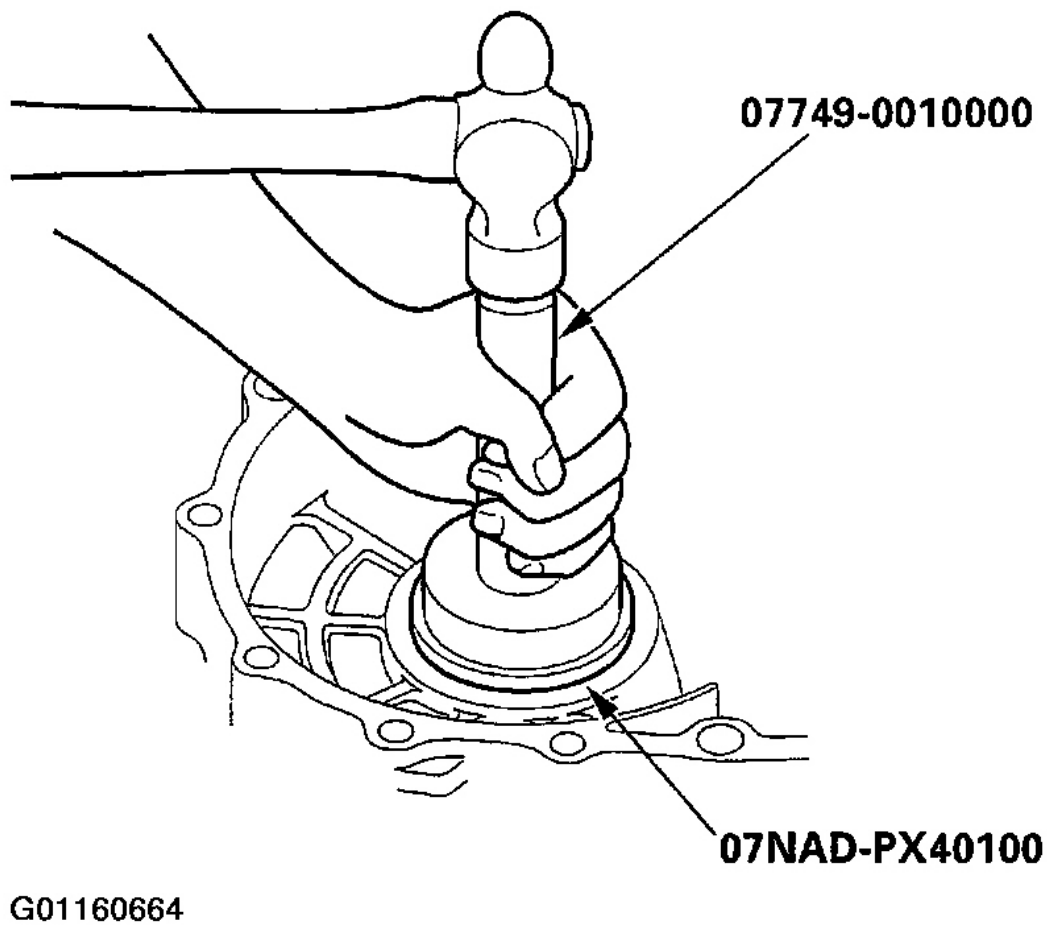
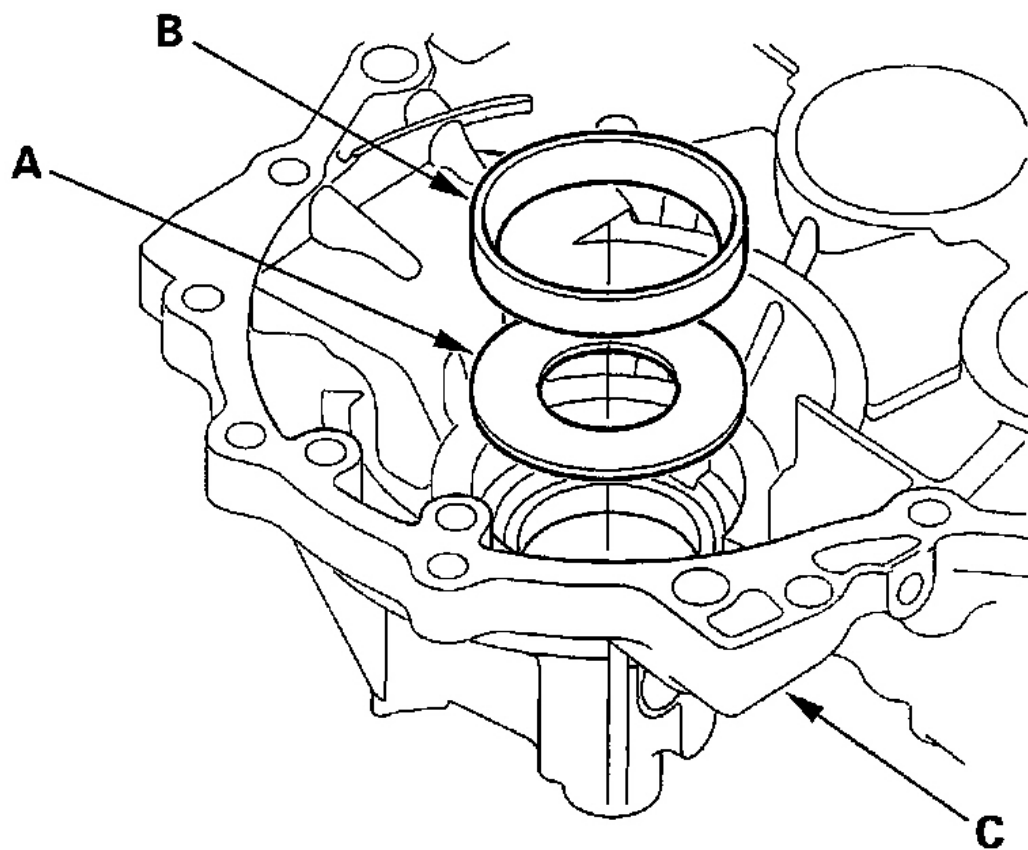


Fig. 155: Installing Thrust Shim, Thrust Washer & Outer Race (2 of 2)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Install the thrust washer (A) and outer race (B) in the torque converter housing (C), and use the special tools to make sure the outer race bottoms out in the housing.



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Fig. 156: Installing Thrust Washer & Outer Race (1 of 2)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

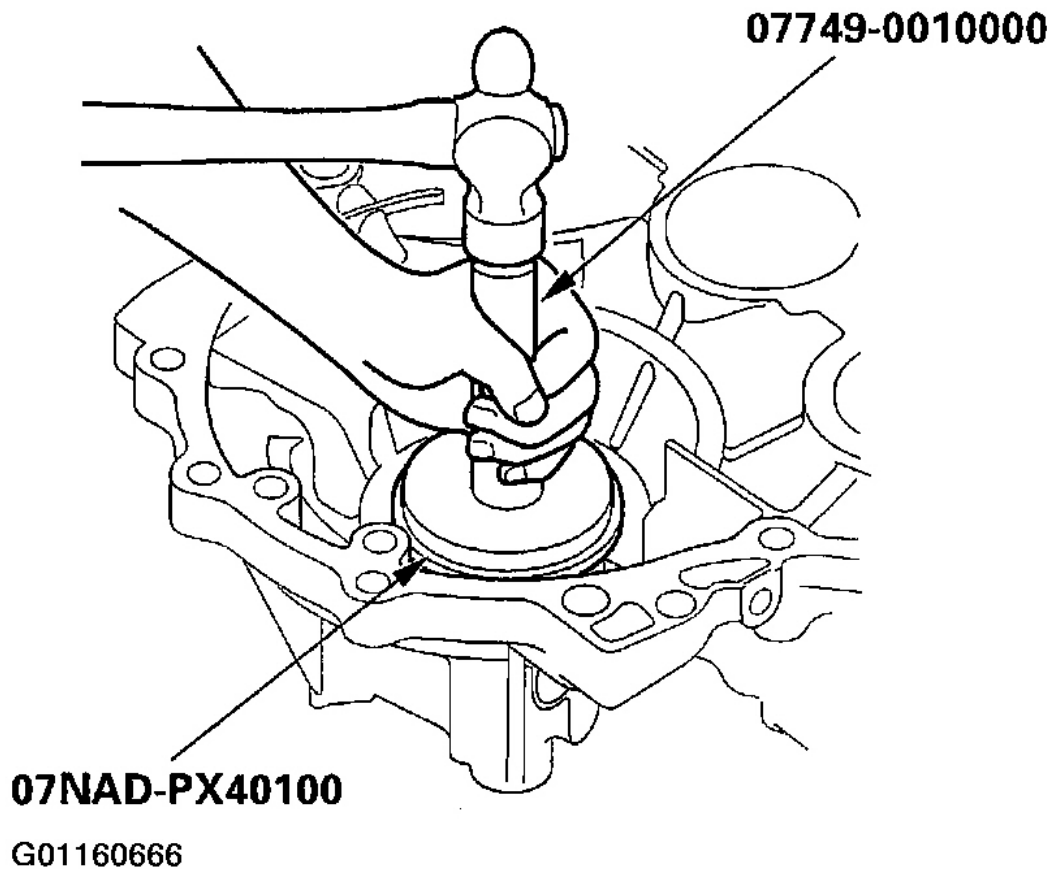


Fig. 157: Installing Thrust Washer & Outer Race (2 of 2)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

CARRIER BEARING PRELOAD INSPECTION

Special Tools Required

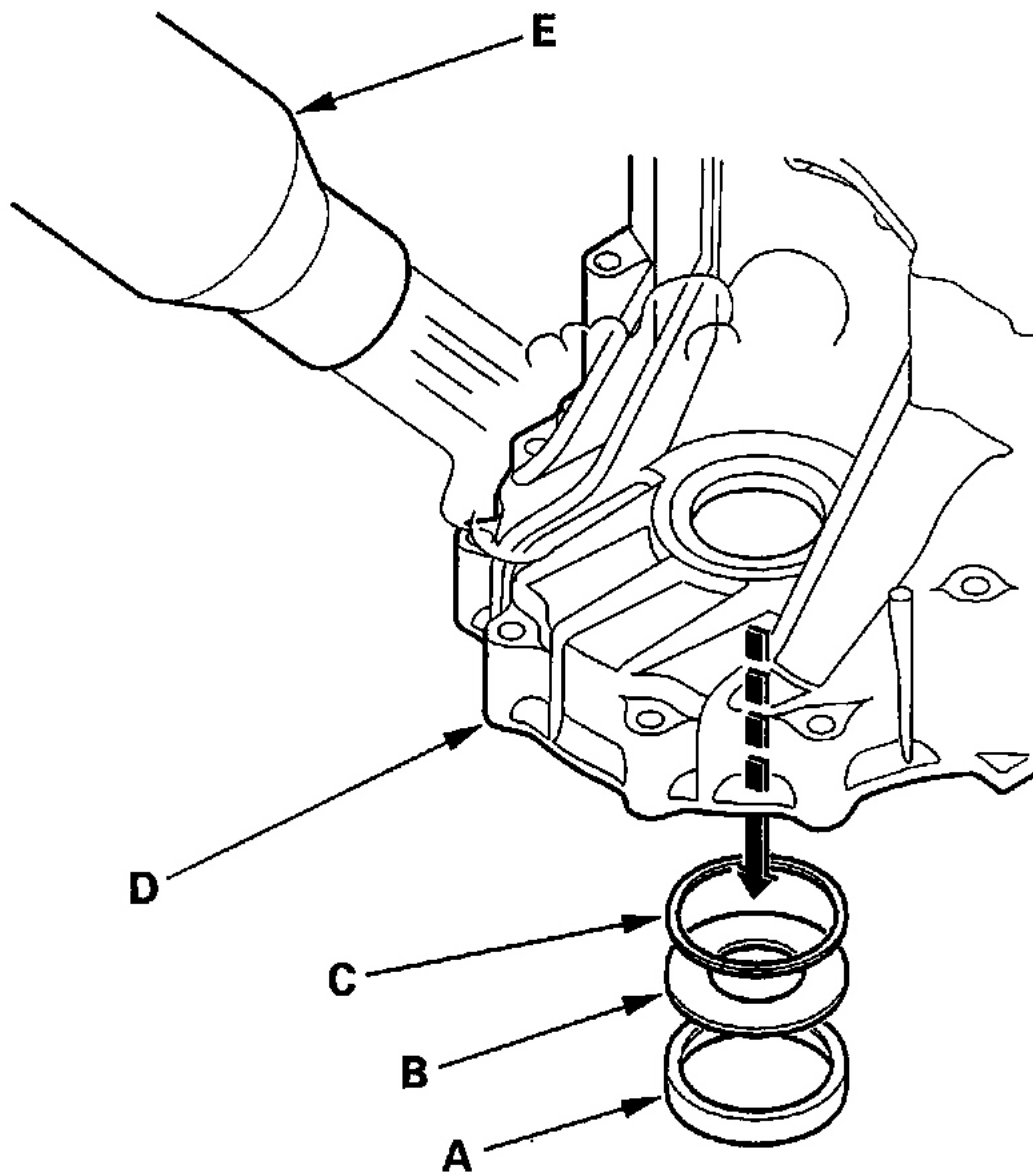
- Driver 07749-0010000
- Attachment, 78 x 80 mm 07NAD-PX40100
- Preload inspection tool 07XAJ-S0K0100

NOTE: If the transmission housing, torque converter housing, differential carrier, tapered roller bearing, outer race, or thrust shim were replaced, the bearing preload must be adjusted.

1. Remove the bearing outer race (A), thrust washer (B), and thrust shim (C) from the transmission housing (D) by heating the housing to about 212°F (100°C) with a heat gun (E). Do not heat the housing in excess

of 212°F (100°C).

NOTE: Let the transmission housing cool to room temperature before adjusting the bearing preload.



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Fig. 158: Removing Bearing Outer Race, Thrust Washer & Thrust Shim
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2002 Acura 3.2TL**2000-03 AUTOMATIC TRANSMISSION Overhaul - 3.2TL (B7VA)**

2. Replace the tapered roller bearing when the outer race is to be replaced.
3. Do not use a shim on the torque converter housing side.
4. Select the 2.60 mm (0.102 in.) thrust shim from the table below.

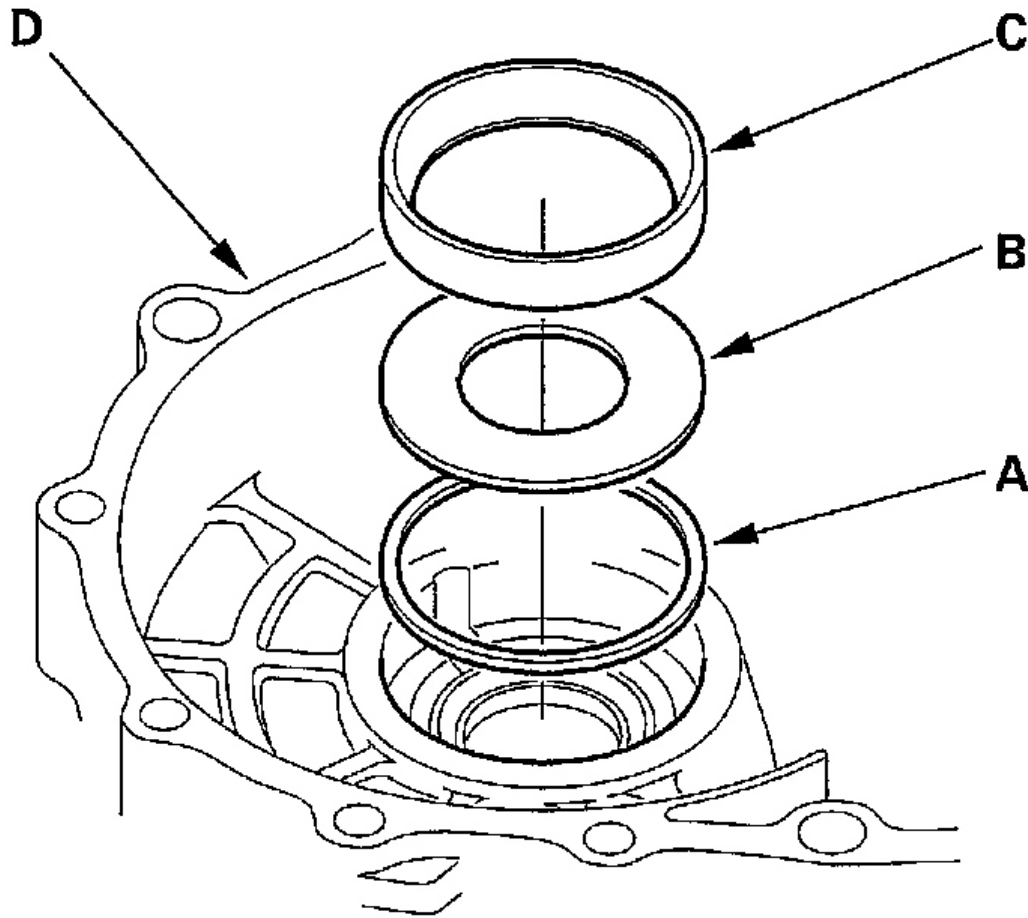
No.	Part Number	Thickness
A	41438-P7T-700	2.05 mm (0.081 in.)
AA	41438-PGH-000	2.075 mm (0.082 in.)
B	41439-P7T-700	2.10 mm (0.083 in.)
BB	41439-PGH-000	2.125 mm (0.084 in.)
C	41440-P7T-700	2.15 mm (0.085 in.)
CC	41440-PGH-000	2.175 mm (0.086 in.)
D	41441-P7T-000	2.20 mm (0.087 in.)
DD	41441-PGH-000	2.225 mm (0.088 in.)
E	41442-P7T-000	2.25 mm (0.089 in.)
EE	41442-PGH-000	2.275 mm (0.090 in.)
F	41443-P7T-000	2.30 mm (0.091 in.)
FF	41443-PGH-000	2.325 mm (0.092 in.)
G	41444-P7T-000	2.35 mm (0.093 in.)
GG	41444-PGH-000	2.375 mm (0.094 in.)
H	41445-P7T-000	2.40 mm (0.094 in.)
HH	41445-PGH-000	2.425 mm (0.095 in.)
I	41446-P7T-000	2.45 mm (0.096 in.)
II	41446-PGH-000	2.475 mm (0.097 in.)
J	41447-P7T-000	2.50 mm (0.098 in.)
JJ	41447-PGH-000	2.525 mm (0.099 in.)
K	41448-P7T-000	2.55 mm (0.100 in.)
KK	41448-PGH-000	2.575 mm (0.101 in.)
L	41449-P7T-000	2.60 mm (0.102 in.)
LL	41449-PGH-000	2.625 mm (0.103 in.)
M	41450-P7T-000	2.65 mm (0.104 in.)
MM	41450-PGH-000	2.675 mm (0.105 in.)
N	41451-P7T-000	2.70 mm (0.106 in.)
NN	41451-PGH-000	2.725 mm (0.107 in.)
O	41452-P7T-000	2.75 mm (0.108 in.)
OO	41452-PGH-000	2.775 mm (0.109 in.)
P	41453-P7T-000	2.80 mm (0.110 in.)
PP	41453-PGH-000	2.825 mm (0.111 in.)
Q	41454-P7T-000	2.85 mm (0.112 in.)
QQ	41454-PGH-000	2.875 mm (0.113 in.)
R	41455-P7T-000	2.90 mm (0.114 in.)
RR	41455-PGH-000	2.925 mm (0.115 in.)
S	41456-P7T-000	2.95 mm (0.116 in.)
SS	41456-PGH-000	2.975 mm (0.117 in.)
T	41457-P7T-000	3.00 mm (0.118 in.)
TT	41457-PGH-000	3.025 mm (0.119 in.)
U	41458-P7T-000	3.05 mm (0.120 in.)

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Fig. 159: Identifying Thrust Shim (81 mm)

Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Install the thrust shim (A), thrust washer (B), and bearing outer race (C) in the transmission housing (D).

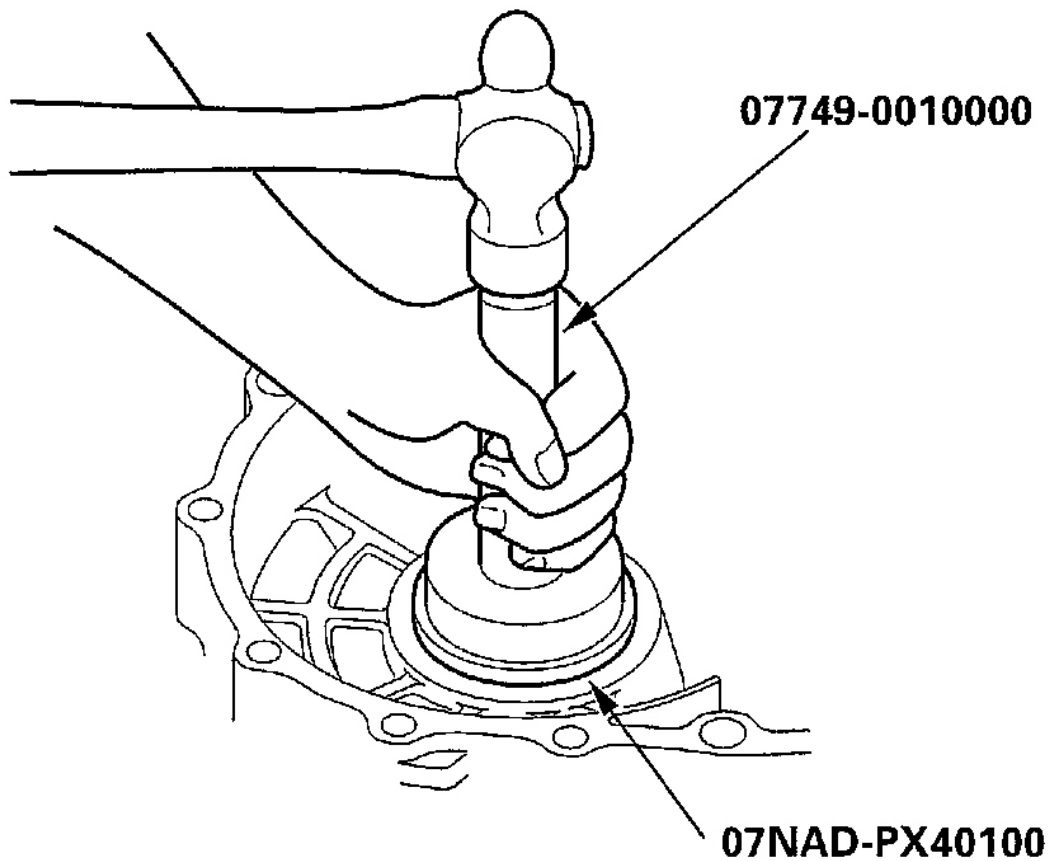


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Fig. 160: Installing Thrust Shim, Thrust Washer & Bearing Outer Race

Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Drive the outer race with the special tools, and install it securely in the transmission housing.
7. Check that there is no clearance between the thrust washer, outer race, shim, and transmission housing.



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Fig. 161: Checking Clearance Between Thrust Washer, Outer Race, Shim & Transmission Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

8. Install the differential assembly (A), gasket (B), and dowel pins (C) on the torque converter housing (D). Align the spring pin on the control shaft (E) with the transmission housing groove.

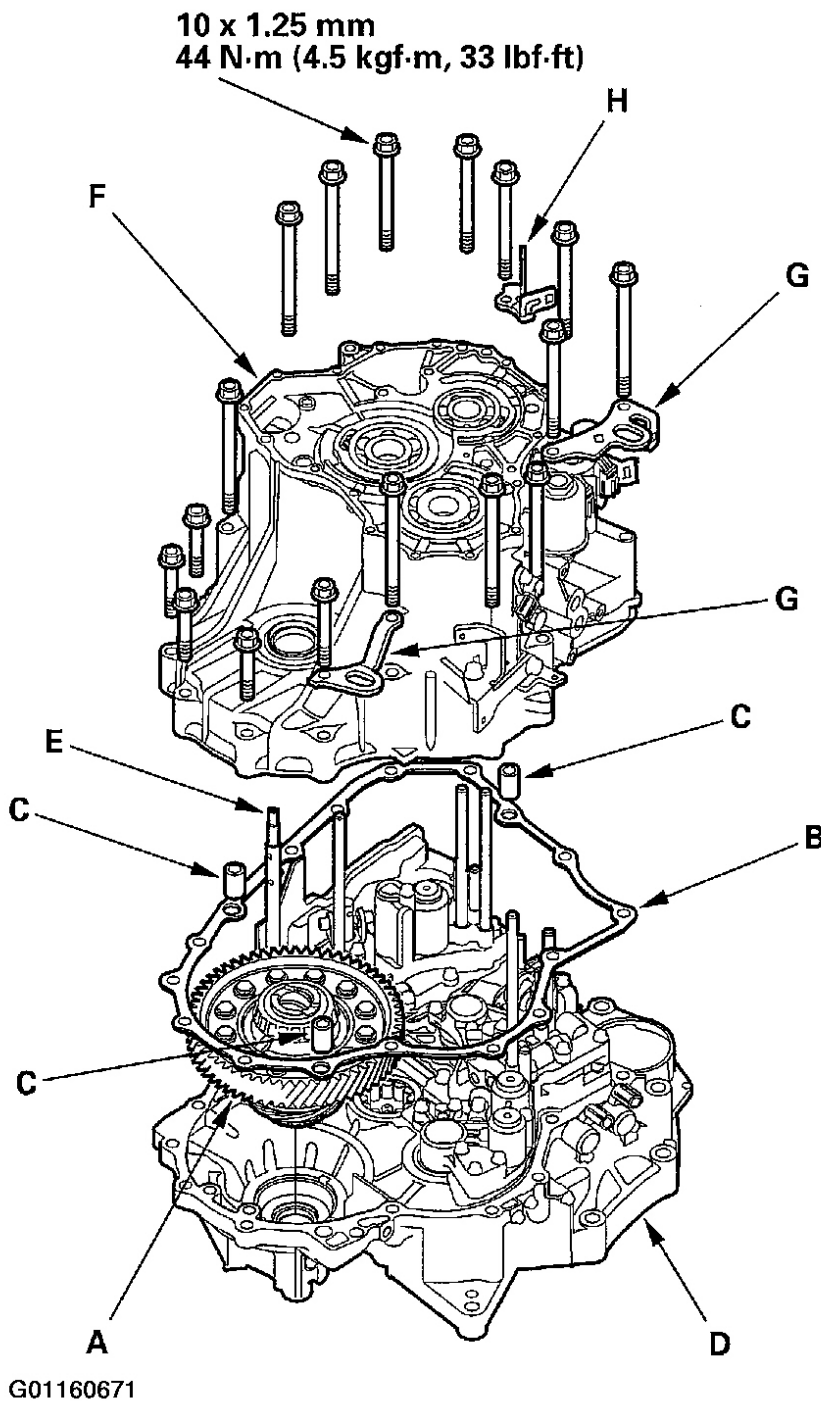


Fig. 162: Installing Differential Assembly, Gasket & Dowel Pins
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

9. Install the transmission housing (F) with the transmission hangers (G) and harness clamp bracket (H), then tighten the bolts.

10. Rotate the differential assembly in both directions to seat the bearings.
11. Measure the starting torque of the differential assembly with the special tools, a torque wrench (A) and a socket (B). Measure the starting torque at normal room temperature in both directions.

STANDARD:**New bearing: 2.7-3.9 N.m**

(28-40 kgf.cm, 24-35 lbf.in)

Reused bearings: 2.5-3.6 N.m

(25-37 kgf.cm, 22-32 lbf.in)

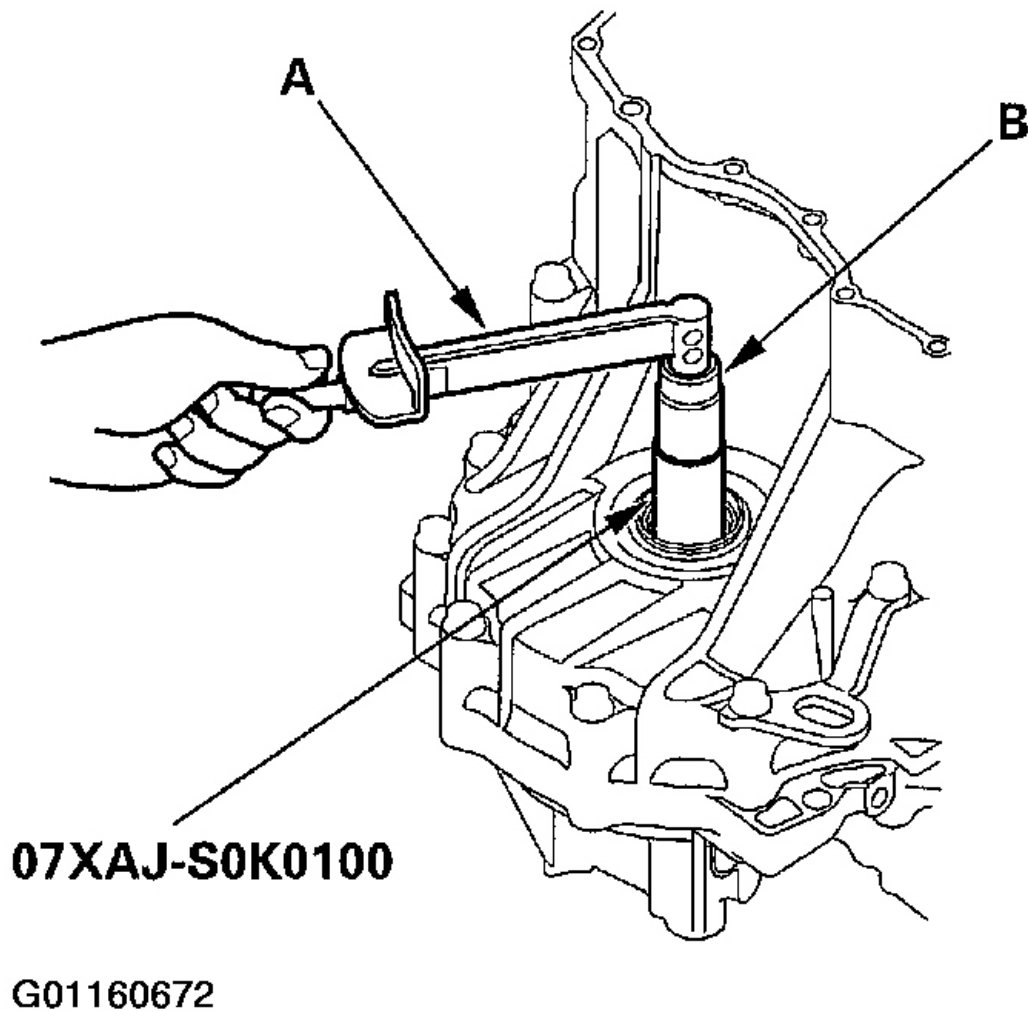


Fig. 163: Measuring Starting Torque Of The Differential Assembly
Courtesy of AMERICAN HONDA MOTOR CO., INC.

12. To increase the starting torque, increase the thickness of the shim. To decrease the starting torque, decrease the thickness of the shim. Changing the shim to the next size will increase or decrease starting torque about 0.3-0.4 N.m (3-4 kgf.cm, 3-3 lbf.in).