2007-2008 TRANSMISSION

Manual Transmission - Element

SPECIAL TOOLS

Ref. No.	Tool Number	Description	Qty
*①	07GAJ-PG20110	Mainshaft Holder	1
*②	07GAJ-PG20130	Mainshaft Base	1
③	07JAB-001020B	Holder Handle	1
④	07JAD-PH80101	Oil Seal Driver Attachment	1
⑤	07JAD-PL90100	Oil Seal Driver	1
⑥	07JAF-SJ80110	Installer Shaft, 14 x 165 mm	1
⑦	07JAF-SJ80120	Installer Nut, 14 mm	1
⑧	07KAF-PS30120	Bearing Installer Attachment	1
⑨	07LAF-PZ70110	Bearing Installer Attachment	1
⑩	07NAD-P20A100	Oil Seal Driver Attachment	1
⑪	07RAB-TB4010A or 07RAB-TB4010B	Companion Flange Holder	1
**⑫	07736-A01000B	Adjustable Bearing Puller, 20—40 mm	1
⑬	07746-0010200	Attachment, 37 x 40 mm	1
⑭	07746-0010300	Attachment, 42 x 47 mm	1
⑮	07746-0010600	Attachment, 72 x 75 mm	1
⑯	07746-0030100	Driver Handle	1
⑰	07746-0030300	Attachment, 30 mm I.D.	1
⑱	07746-0030400	Attachment, 35 mm I.D.	1
⑲	07749-0010000	Driver	1
⑳	07947-SD90101	Oil Seal Driver Attachment	1

* Part of Mainshaft Inspection Tool Set, 07GAJ-PG20102.
* * Must be used with commercially available 3/8 "-16 UNF Slide Hammer.

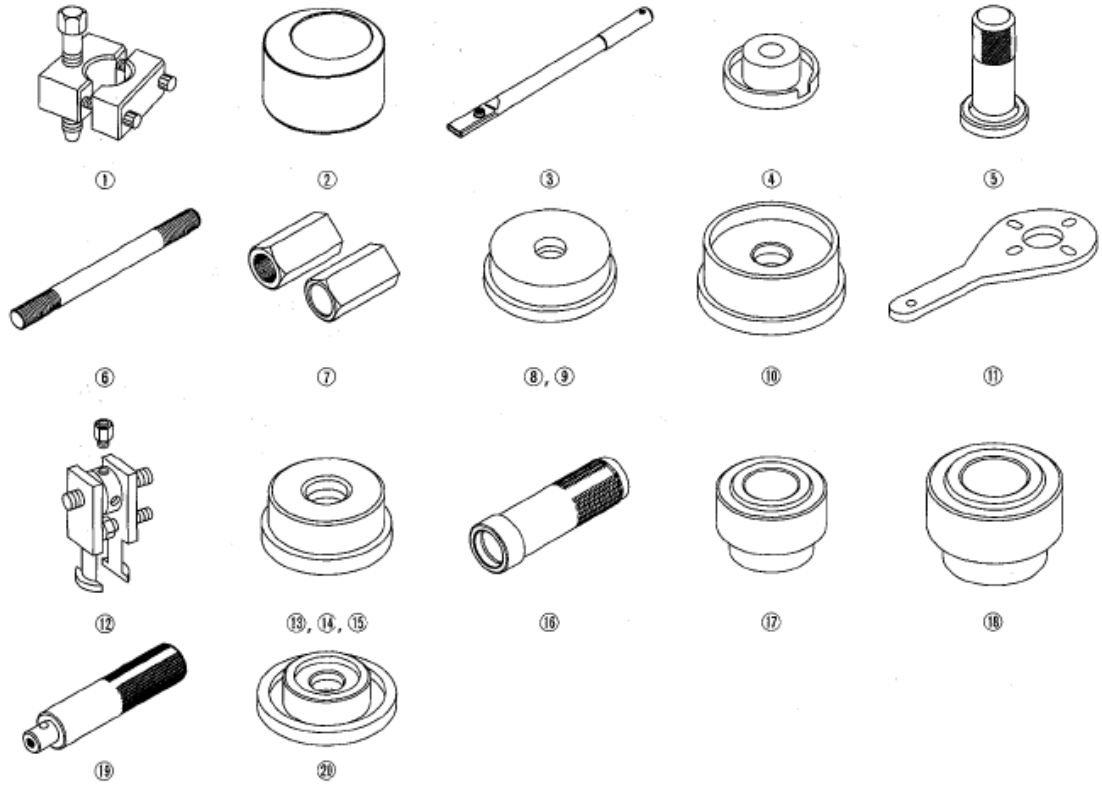


Fig. 1: Identifying Special Tools
Courtesy of AMERICAN HONDA MOTOR CO., INC.

TRANSMISSION FLUID INSPECTION AND REPLACEMENT

1. Raise the vehicle on a lift.
2. Remove the filler plug (A) and washer (B), check the condition of the fluid, and make sure it is at the proper level (C).

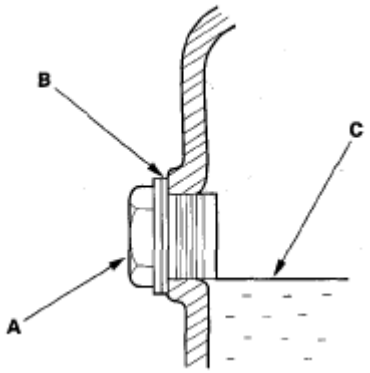


Fig. 2: Identifying Fluid Proper Level
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. If the fluid is dirty, remove the drain plug (A) and drain the fluid.

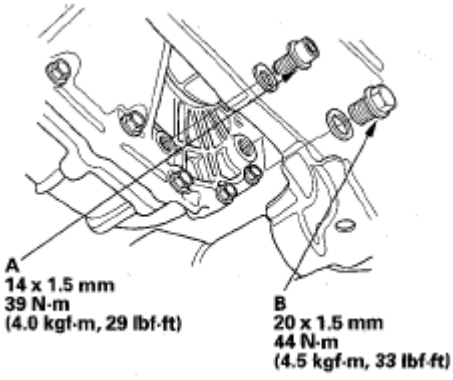


Fig. 3: Identifying Drain Plug And Drain Fluid With Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Reinstall the drain plug with a new washer, and refill the transmission fluid to the proper level.

Fluid Capacity

2WD: 1.9 L (2.0 US qt) at fluid change

2.15 L (2.3 US qt) at overhaul

4WD: 1.9 L (2.0 US qt) at fluid change

2.25 L (2.4 US qt) at overhaul

Always use Honda manual transmission fluid (MTF). Using engine oil can cause stiffer shifting because it does not contain the proper additives.

5. Reinstall the filler plug (B) with a new washer.

BACK-UP LIGHT SWITCH TEST

1. Disconnect the back-up light switch connector (A).

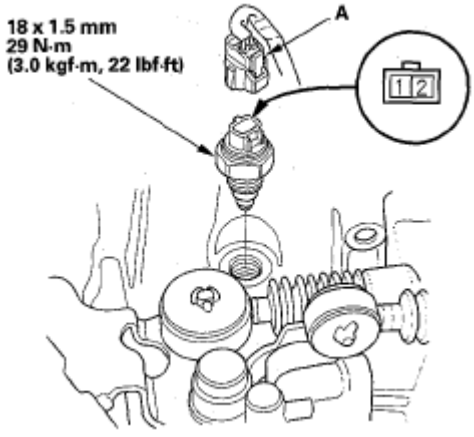


Fig. 4: Identifying Back-Up Light Switch Connector With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Check for continuity between the back-up light switch 2P connector terminals No. 1 and No. 2. There should be continuity when the shift lever is only in reverse.
3. If necessary, replace the back-up light switch. Apply liquid gasket (P/N 08718-0001) evenly to the threads of the transmission housing. Install the switch within 5 minutes of applying the liquid gasket. Tighten the back-up light switch to the specified torque.

NOTE:

- **If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.**
- **If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.**

TRANSMISSION REMOVAL

Special Tools Required

- Engine support hanger, A & Reds AAR-T-12566 *
- Engine hanger/adapter VSB02C000015 *
- Front subframe adapter VSB02C000016 *

*These special tools are available through the Honda Tool and Equipment Program 1-888-424-6857.

NOTE: Use fender covers to avoid damaging painted surfaces.

1. Make sure you have the anti-theft code for the audio unit.
2. Turn the steering wheel to the straight-ahead position, then remove the key from the ignition switch and lock the steering column.
3. Secure the hood in its vertical position (A).

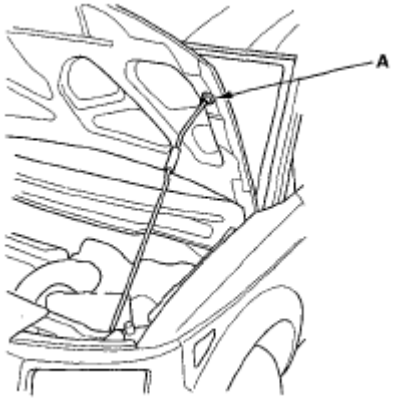


Fig. 5: Identifying Hood In Vertical Position
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Disconnect the negative cable from the battery, then disconnect the positive cable.
5. Remove the battery.
6. Remove the air cleaner assembly (see **AIR CLEANER REMOVAL/INSTALLATION**).
7. Remove the intake air duct (see step 5 in **ENGINE REMOVAL**).
8. Remove the battery base (see step 9 in **ENGINE REMOVAL**).
9. Remove the ground cable (A).

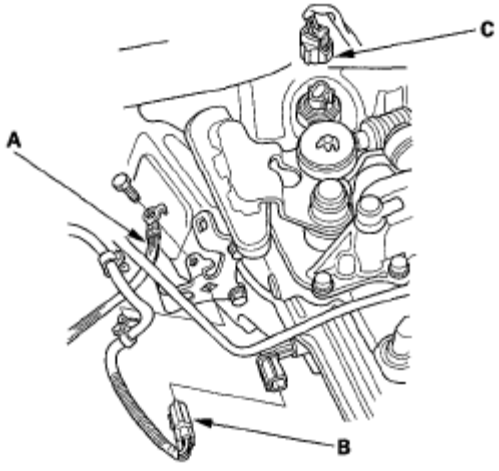


Fig. 6: Identifying Ground Cable
Courtesy of AMERICAN HONDA MOTOR CO., INC.

10. Disconnect the output shaft (countershaft) speed sensor connector (B) and back-up light switch connector (C).
11. Remove the cable bracket (A), then disconnect the shift cables (B) from the top of the transmission housing. Carefully remove both cables and the bracket together to avoid bending the cables.

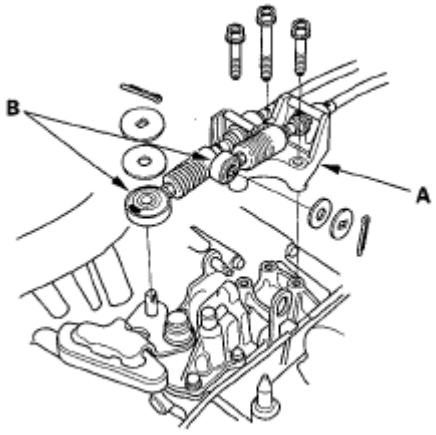


Fig. 7: Identifying Cable Bracket And Shift Cables
Courtesy of AMERICAN HONDA MOTOR CO., INC.

12. Carefully remove the slave cylinder (A) to avoid bending the clutch line (B).

NOTE: Do not press the clutch pedal after the slave cylinder has been removed.

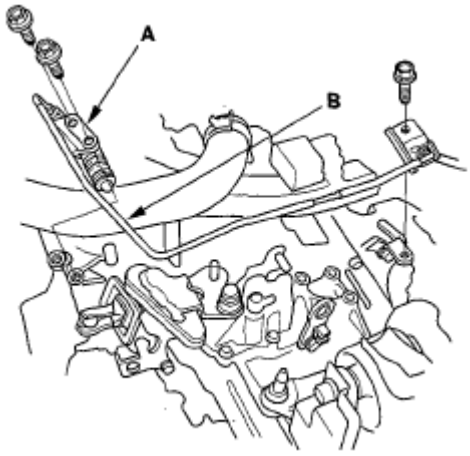


Fig. 8: Identifying Slave Cylinder And Clutch Line
Courtesy of AMERICAN HONDA MOTOR CO., INC.

13. Remove the two upper transmission mounting bolts (A).

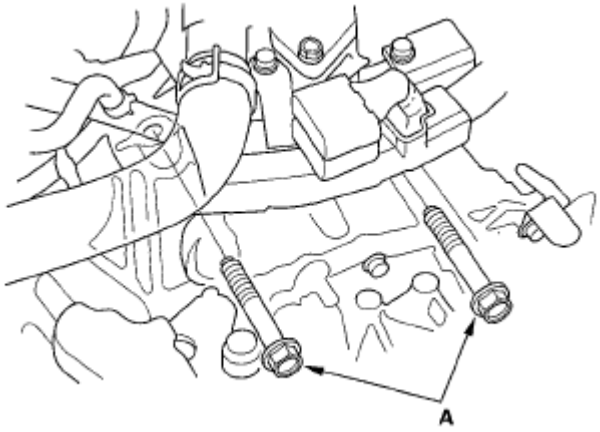


Fig. 9: Identifying Upper Transmission Mounting Bolts
Courtesy of AMERICAN HONDA MOTOR CO., INC.

14. Remove the purge joint pipe (A), then attach the engine hanger/adapter (A) to the threaded hole in the cylinder head.

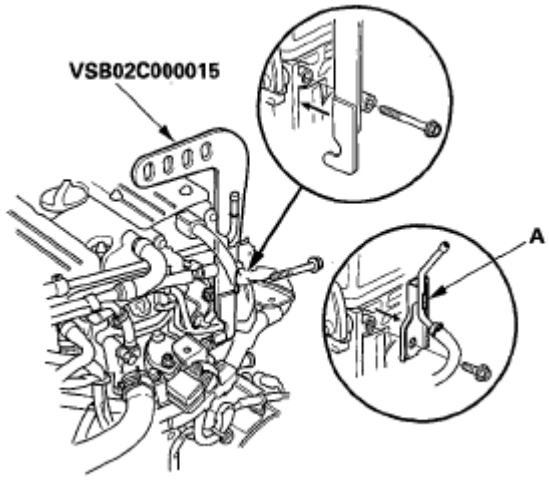


Fig. 10: Identifying Purge Joint Pipe And Engine Hanger/Adapter
Courtesy of AMERICAN HONDA MOTOR CO., INC.

15. Install the engine support hanger (A) to the vehicle, then attach the hook to the engine hanger/adapter (B). Tighten the wing nut (C) by hand to lift and support the engine.

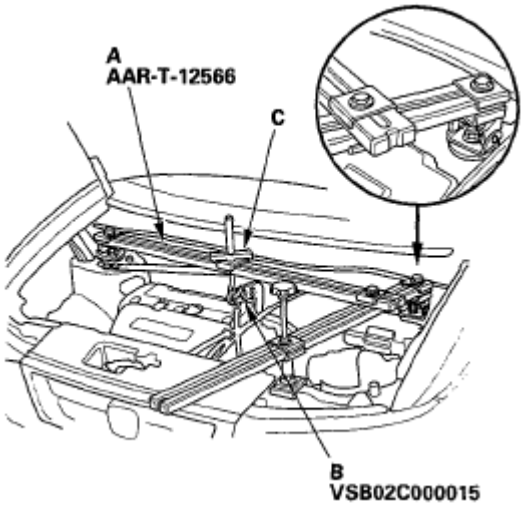


Fig. 11: Identifying Engine Support Hanger And Engine Hanger/Adapter
Courtesy of AMERICAN HONDA MOTOR CO., INC.

16. Remove the transmission mount bracket (A) and transmission mounting bolt (B).

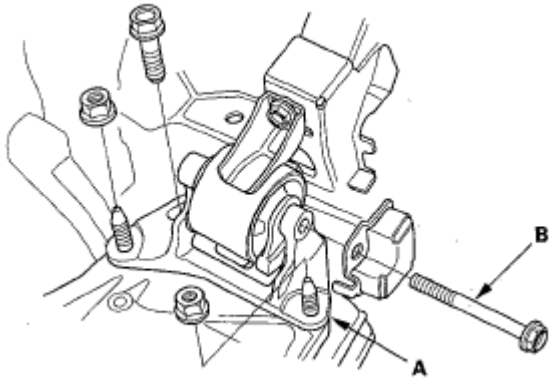


Fig. 12: Identifying Transmission Mount Bracket And Transmission Mounting Bolt
Courtesy of AMERICAN HONDA MOTOR CO., INC.

17. Raise the vehicle on the lift, and make sure it is securely supported.
18. Remove the splash shield (A).

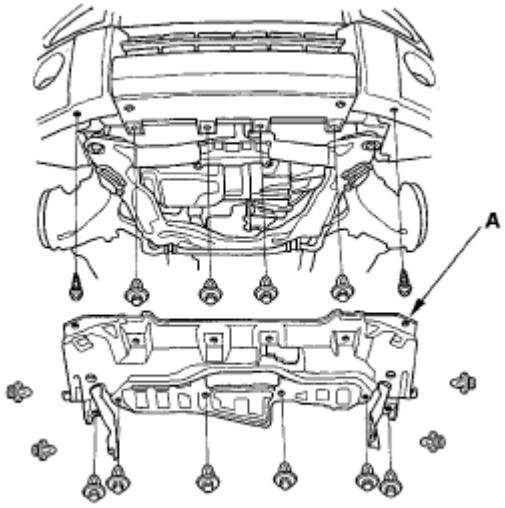


Fig. 13: Identifying Splash Shield
Courtesy of AMERICAN HONDA MOTOR CO., INC.

19. Drain the transmission fluid. Install the drain plug with a new washer (see **TRANSMISSION FLUID INSPECTION AND REPLACEMENT**).
20. Separate the front stabilizer link from the lower arm (see step 3 in **STABILIZER LINK REMOVAL/INSTALLATION**), and ball joint from the lower arm (see step 4 in **LOWER ARM REPLACEMENT**).
21. Remove the front driveshafts (see **DRIVESHAFT INSPECTION**). Coat all precision finished surfaces with new engine oil, then tie a plastic bags over the driveshaft ends.
22. Remove the intermediate shaft (see **INTERMEDIATE SHAFT REMOVAL**). Coat all precision finished surfaces with new engine oil, then tie a plastic bag over the intermediate shaft.
23. 4WD: Remove the propeller shaft (see **PROPELLER SHAFT REMOVAL**).
24. Remove the bolt (A) from the front engine mount bracket (B).

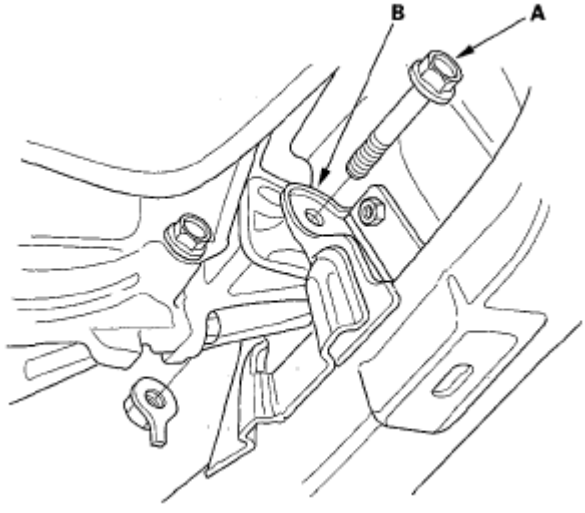


Fig. 14: Identifying Front Engine Mount Bracket And Bolt

Courtesy of AMERICAN HONDA MOTOR CO., INC.

25. Remove the three bolts securing the rear transmission mount.

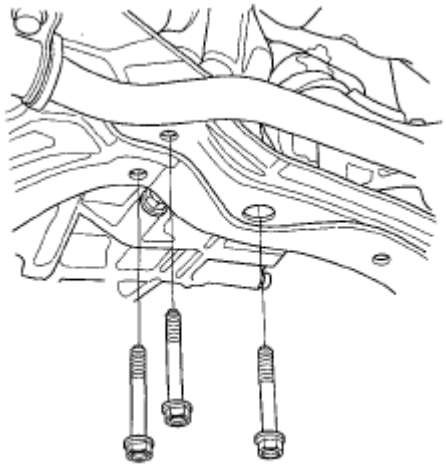


Fig. 15: Identifying Rear Transmission Mount And Bolts
Courtesy of AMERICAN HONDA MOTOR CO., INC.

26. Support the front subframe (A) with the front subframe adapter (B) and a jack (C).

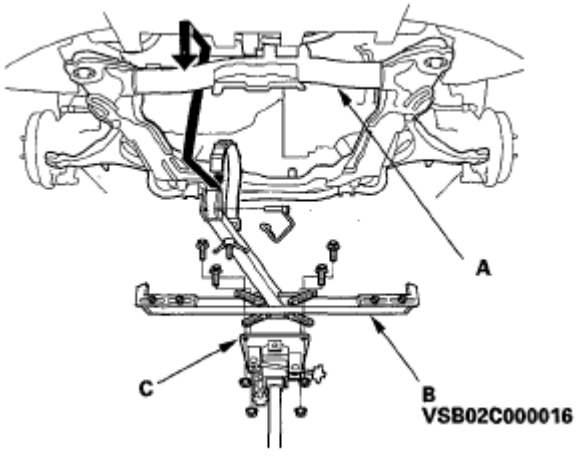


Fig. 16: Identifying Front Subframe, Front Subframe Adapter And Jack
Courtesy of AMERICAN HONDA MOTOR CO., INC.

27. Make reference marks (A) on the front subframe (B). Remove the mounting bolts (C), then remove the front subframe.

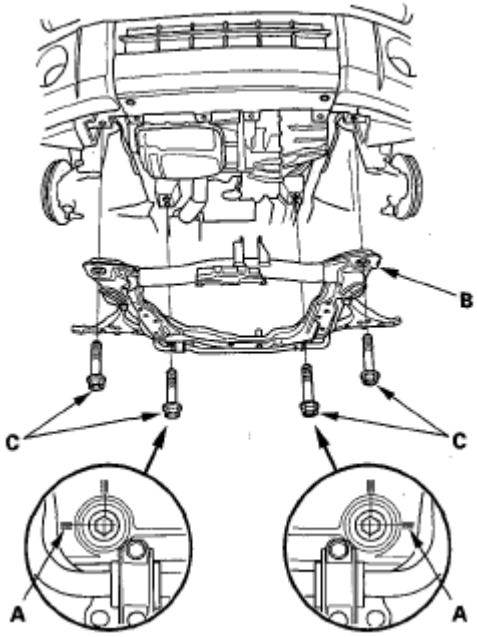


Fig. 17: Identifying Reference Marks On Front Subframe And Mounting Bolts
Courtesy of AMERICAN HONDA MOTOR CO., INC.

28. Remove the clutch cover (A).

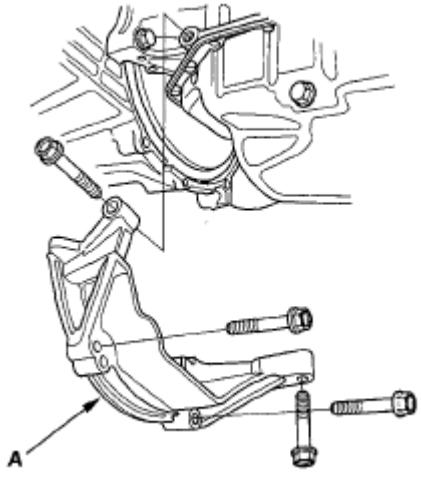


Fig. 18: Identifying Clutch Cover
Courtesy of AMERICAN HONDA MOTOR CO., INC.

29. Remove the front engine mount (A).

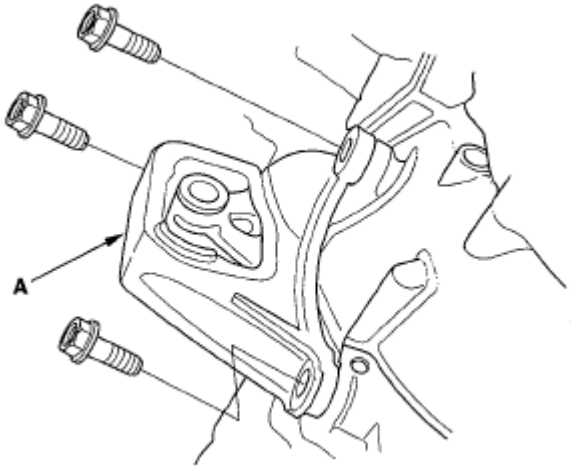


Fig. 19: Identifying Front Engine Mount
Courtesy of AMERICAN HONDA MOTOR CO., INC.

30. Support the transmission (A) with a transmission jack (B), then remove the four lower transmission mounting bolts (C).

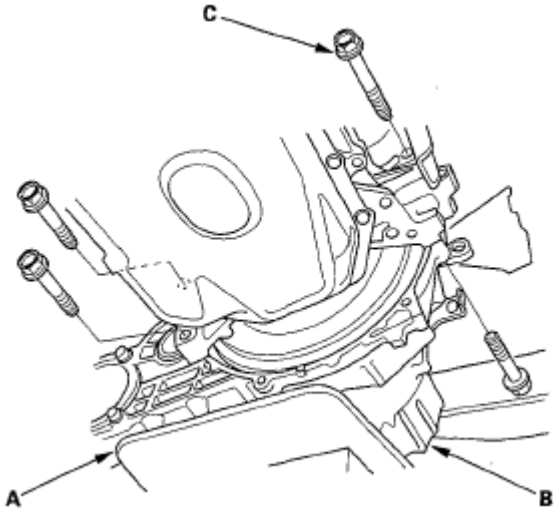


Fig. 20: Identifying Transmission, Transmission Jack And Lower Transmission Mounting Bolts
Courtesy of AMERICAN HONDA MOTOR CO., INC.

31. Pull the transmission away from the engine until the transmission mainshaft clears the clutch pressure plate.
32. Slowly lower the transmission about 150 mm (6 in.). Check once again that all hoses and electrical wiring are disconnected and free from the transmission, then lower it all the way.
33. Remove the rear transmission mount (A) and the rear transmission mount bracket (B).

4WD

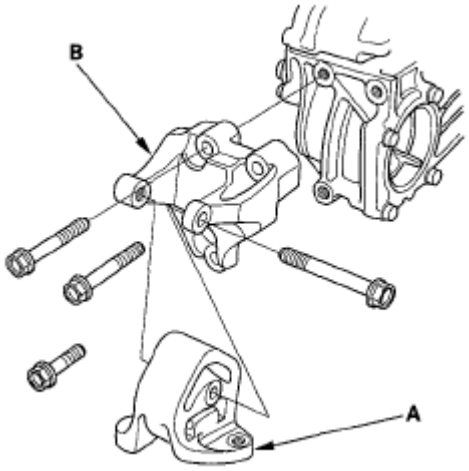


Fig. 21: Identifying Rear Transmission Mount And Rear Transmission Mount Bracket (4WD)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2WD

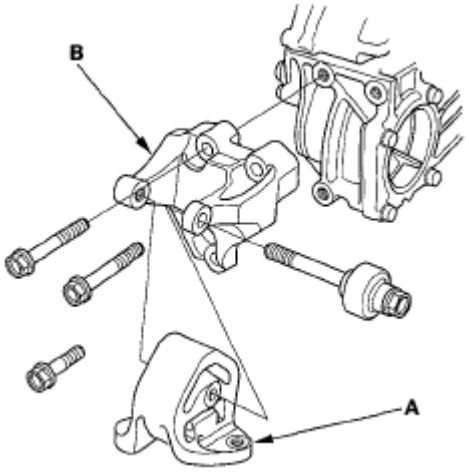


Fig. 22: Identifying Rear Transmission Mount And Rear Transmission Mount Bracket (2WD)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

34. Remove the release fork boot (A) from the clutch housing (B).

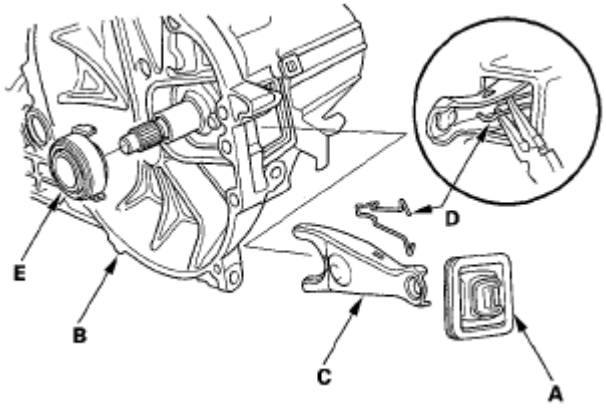


Fig. 23: Identifying Release Fork Boot And Clutch Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

35. Remove the release fork (C) from the clutch housing by squeezing the release fork set spring (D) with pliers. Remove the release bearing (E).

TRANSMISSION INSTALLATION

Special Tools Required

- Engine support hanger, A & Reds AAR-T-12566 *
- Engine hanger/adapter VSB02C000015 *
- Front subframe adapter VSB02C000016 *

*These special tools are available through the Honda Tool and Equipment Program 1-888-424-6857.

1. Make sure the two dowel pins (A) are installed in the clutch housing.

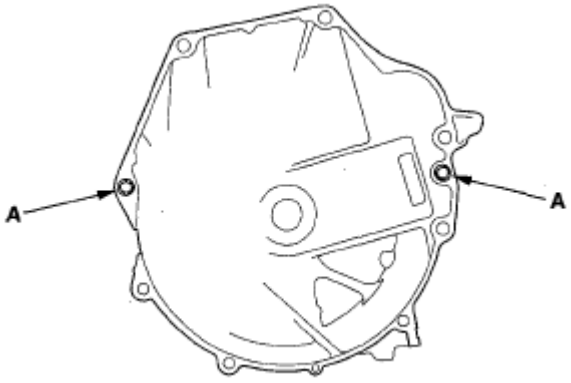


Fig. 24: Identifying Dowel Pins And Clutch Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Install the release fork, the release bearing, and the boot (see step 4 in **CLUTCH REPLACEMENT**).

3. Install the rear transmission mount bracket (A) and the rear transmission mount (B).

4WD

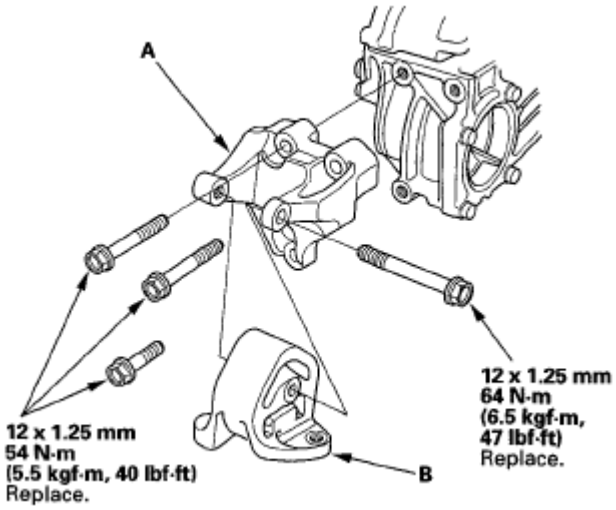


Fig. 25: Identifying Rear Transmission Mount Bracket And Rear Transmission Mount (4WD) With Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2WD

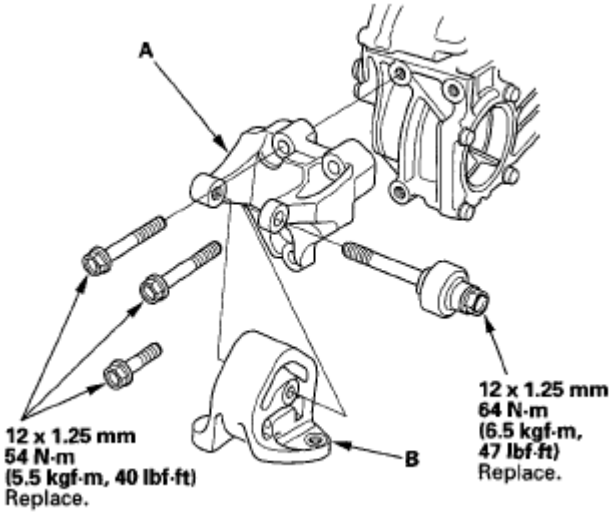


Fig. 26: Identifying Rear Transmission Mount Bracket And Rear Transmission Mount (2WD) With Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Place the transmission on the transmission jack, and raise it to the engine level.
5. Install the four lower transmission mounting bolts.

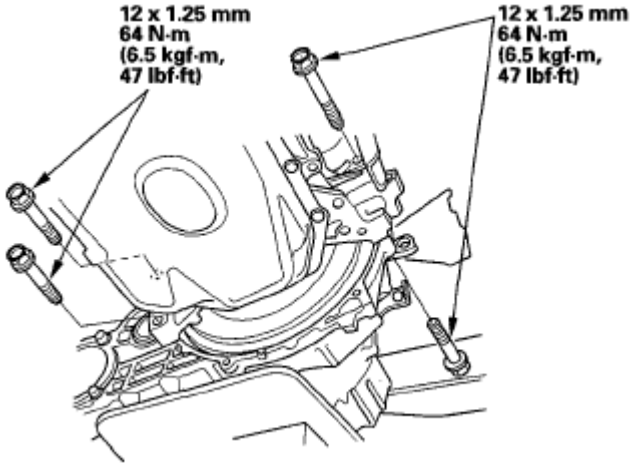


Fig. 27: Identifying Lower Transmission Mounting Bolts With Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Install the front engine mount (A).

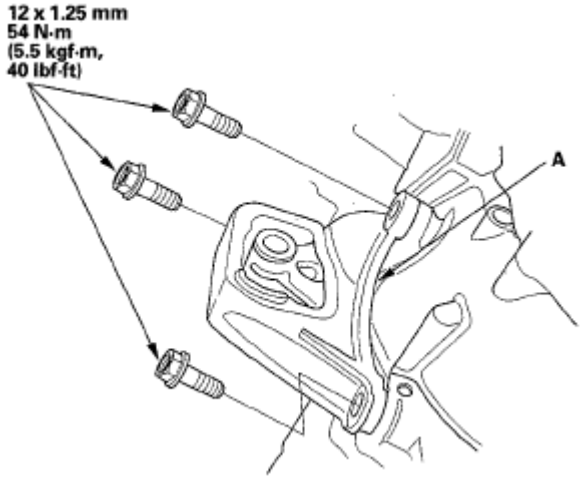


Fig. 28: Identifying Front Engine Mount With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. Install the clutch cover (A).

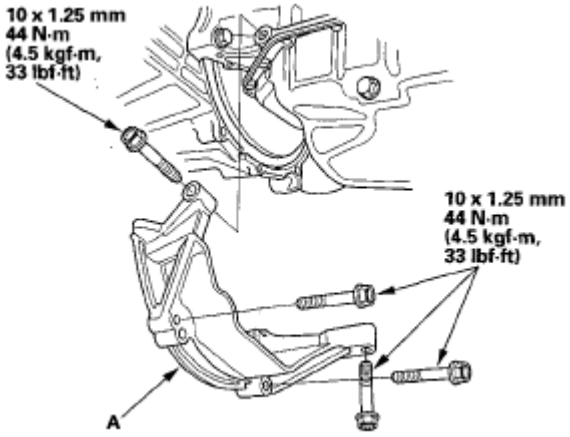


Fig. 29: Identifying Clutch Cover With Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

8. Lift and support the front subframe (A) with the front subframe adapter (B) and a jack(C).

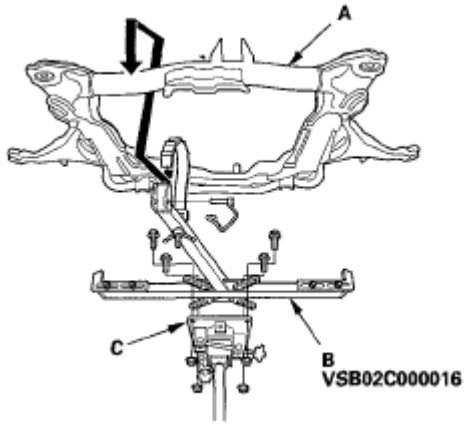


Fig. 30: Identifying Front Subframe, Front Subframe Adapter And Jack
Courtesy of AMERICAN HONDA MOTOR CO., INC.

9. Install the front subframe (A) in its original position by aligning it with the marks (B) you made in the removal procedure.

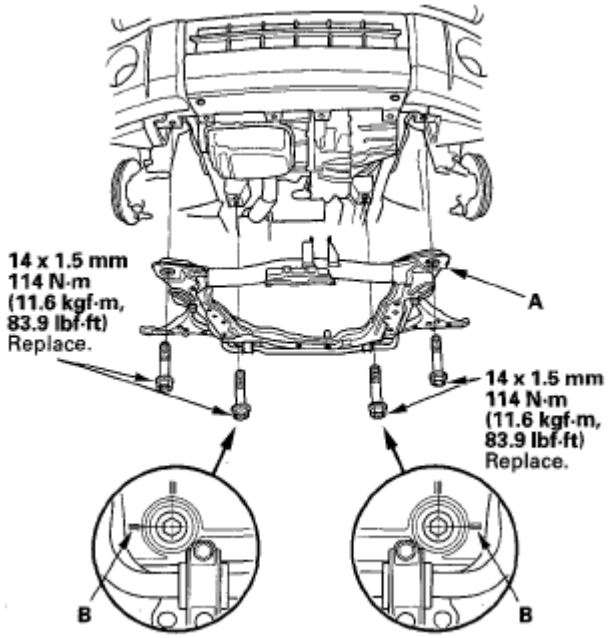


Fig. 31: Identifying Front Subframe With Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

10. Install the three bolts for the rear transmission mount.

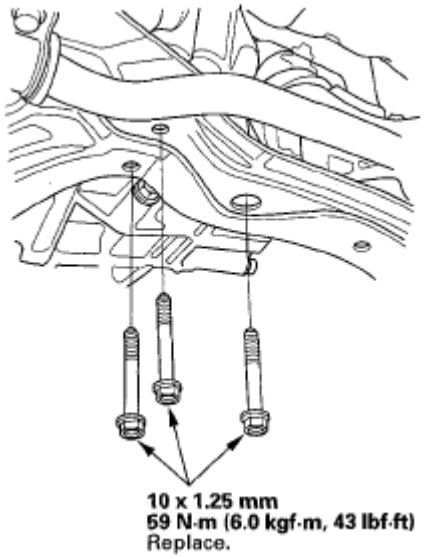


Fig. 32: Identifying Bolts For Rear Transmission Mount With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

11. Loosely install the front engine mount bracket bolt (A).

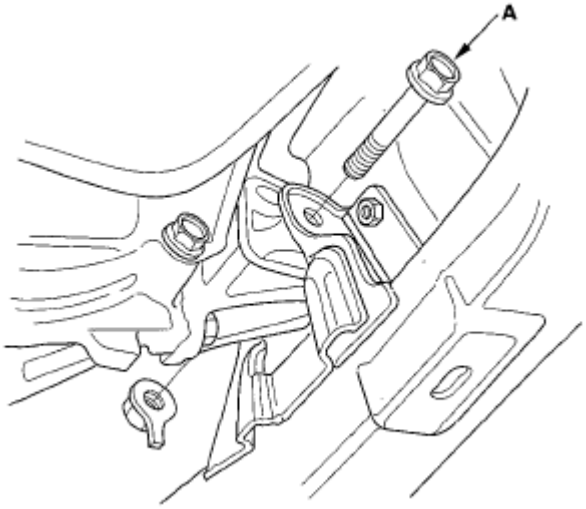


Fig. 33: Identifying Front Engine Mount Bracket Bolt
Courtesy of AMERICAN HONDA MOTOR CO., INC.

12. 4WD: Install the propeller shaft (see **PROPELLER SHAFT INSTALLATION**).
13. Install the intermediate shaft (see **INTERMEDIATE SHAFT INSTALLATION**).
14. Install the front driveshafts (see **FRONT DRIVESHAFT INSTALLATION**).
15. Connect the ball joint to the lower arm (see step 4 in **LOWER ARM REPLACEMENT**), and the front stabilizer link to the lower arm (see step 3 in **STABILIZER LINK REMOVAL/INSTALLATION**).
16. Lower the vehicle on the lift.
17. Install the transmission mount bracket (A) and the transmission mounting bolt (B).

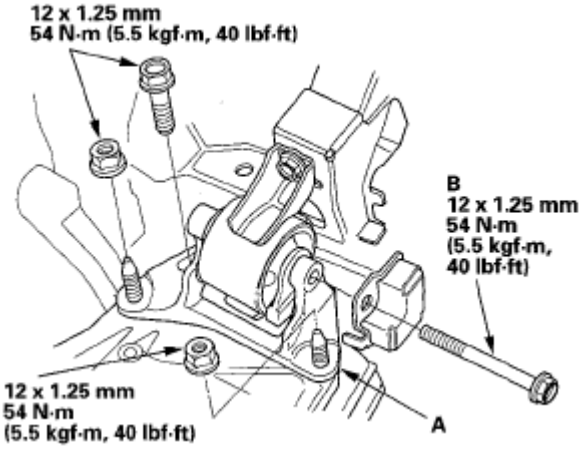


Fig. 34: Identifying Transmission Mount Bracket And Transmission Mounting Bolt With Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

18. Raise the vehicle on the lift.
19. Loosen the front engine mount bracket mounting bolt (A), then tighten the front engine mount bracket

mounting bolt.

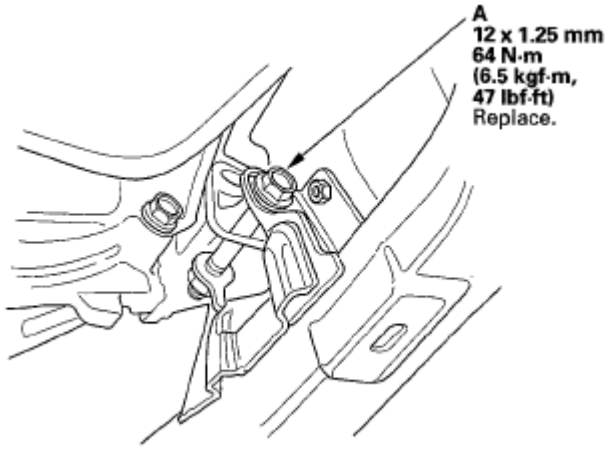


Fig. 35: Identifying Engine Mount Bracket Mounting Bolt With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

20. Refill the transmission with recommended transmission fluid (see **TRANSMISSION FLUID INSPECTION AND REPLACEMENT**).
21. Install the splash shield (A).

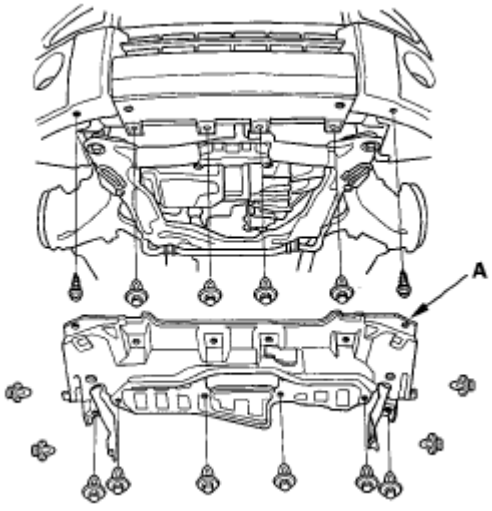


Fig. 36: Identifying Splash Shield
Courtesy of AMERICAN HONDA MOTOR CO., INC.

22. Lower the vehicle on the lift.
23. Install the two upper transmission mounting bolts.

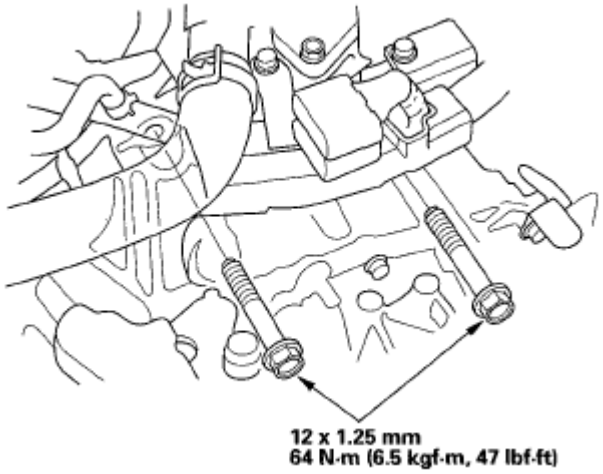


Fig. 37: Identifying Upper Transmission Mounting Bolts With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

24. Remove the engine support hanger and the engine hanger/adapter from the engine. Then install the purge joint pipe to the threaded hole in the cylinder head.
25. Apply super high temp urea grease (P/N 08798-9002) to the end of the cylinder rod. Install the slave cylinder (A). Be careful not to bend the clutch line (B).(

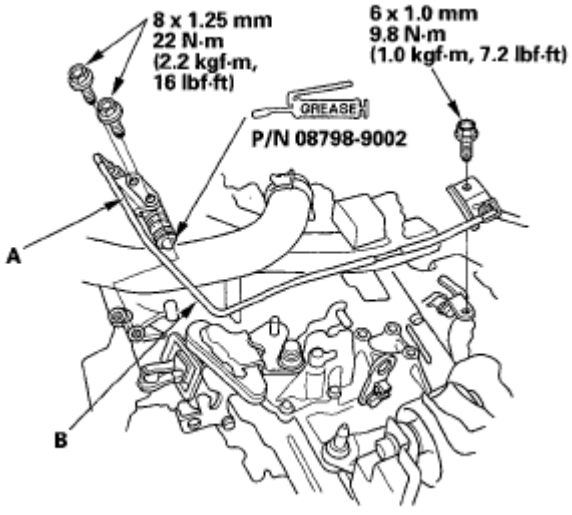


Fig. 38: Identifying Slave Cylinder And Clutch Line With Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

26. Install the cable bracket (A) and cables (B) to avoid bending the shift cables.

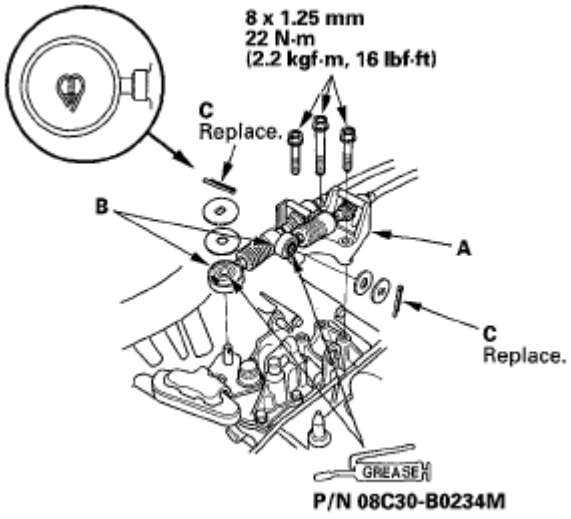


Fig. 39: Identifying Cable Bracket, Cables And Shift Cables With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

27. Apply a light coat of Honda silicone grease (P/N 08C30-B0234M) to the cable ends, and install new cotter pins (C) and bend them as shown.
28. Connect the output shaft (countershaft) speed sensor connector (A) and back-up light switch connector (B).

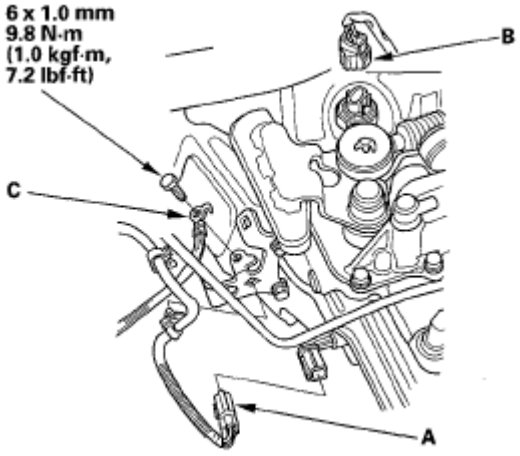


Fig. 40: Identifying Output Shaft Speed Sensor Connector And Back-Up Light Switch Connector With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

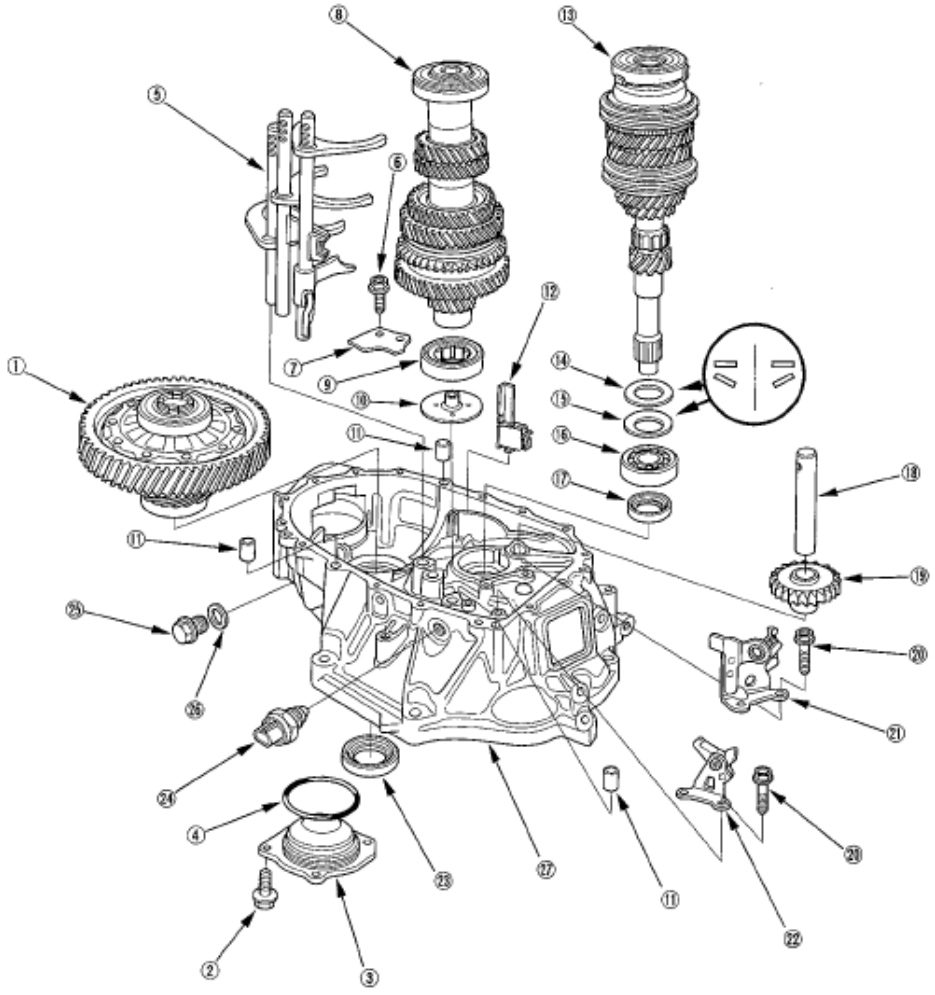
29. Install the ground cable (C).
30. Install the battery base (see step 50 in **ENGINE INSTALLATION**).
31. Install the intake air duct (see step 52 in **ENGINE INSTALLATION**).
32. Install the air cleaner assembly (see **AIR CLEANER REMOVAL/INSTALLATION**).
33. Install the battery. Clean the battery posts and cable terminals. Connect the positive cable to the battery

first, then connect the negative cable. Apply multipurpose grease to prevent corrosion.

34. Check the shift lever and clutch operation.
35. Check the front wheel alignment (see **WHEEL ALIGNMENT**).
36. Enter the anti-theft code for the audio unit, and set the clock.
37. Do the power window control unit reset procedure (see **RESETTING THE POWER WINDOW CONTROL UNIT**).
38. Test-drive the vehicle.

TRANSMISSION DISASSEMBLY

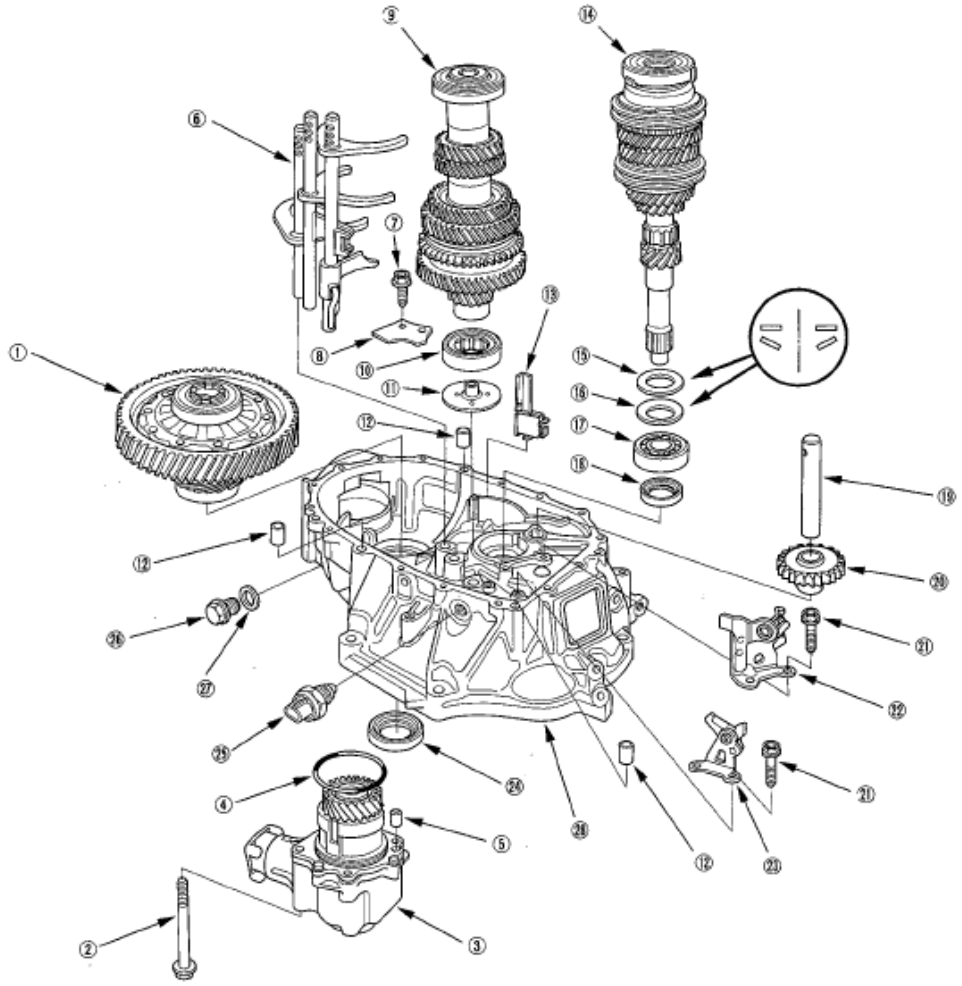
EXPLODED VIEW - CLUTCH HOUSING: 2WD



① DIFFERENTIAL ASSEMBLY
② 10 mm FLANGE BOLT
44 N·m (4.5 kgf·m, 33 lbf·ft)
③ SIDE COVER
④ O-RING
Replace.
⑤ SHIFT FORK ASSEMBLY
⑥ 6 mm FLANGE BOLT
12 N·m (1.2 kgf·m, 9 lbf·ft)
⑦ BEARING SET PLATE
⑧ COUNTERSHAFT ASSEMBLY
⑨ NEEDLE BEARING
⑩ OIL GUIDE PLATE C
⑪ 14 x 20 mm DOWEL PIN
⑫ MAGNET
⑬ MAINSHAFT ASSEMBLY
⑭ 28 mm WASHER
⑮ 28 mm SPRING WASHER
⑯ BALL BEARING
⑰ 28 x 43 x 7 mm OIL SEAL
Replace.
⑱ REVERSE GEAR SHAFT
⑲ REVERSE IDLER GEAR
⑳ 6 mm SPECIAL BOLT
15 N·m (1.5 kgf·m, 11 lbf·ft)
㉑ REVERSE SHIFT FORK
㉒ REVERSE LOCK CAM
㉓ 35 x 58 x 8 mm OIL SEAL
Replace.
㉔ BACK-UP LIGHT SWITCH
29 N·m (3.0 kgf·m, 22 lbf·ft)
㉕ 20 mm BOLT
44 N·m (4.5 kgf·m, 33 lbf·ft)
㉖ 20 mm WASHER
㉗ CLUTCH HOUSING

Fig. 41: Exploded View Of Clutch Housing (2WD) With Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

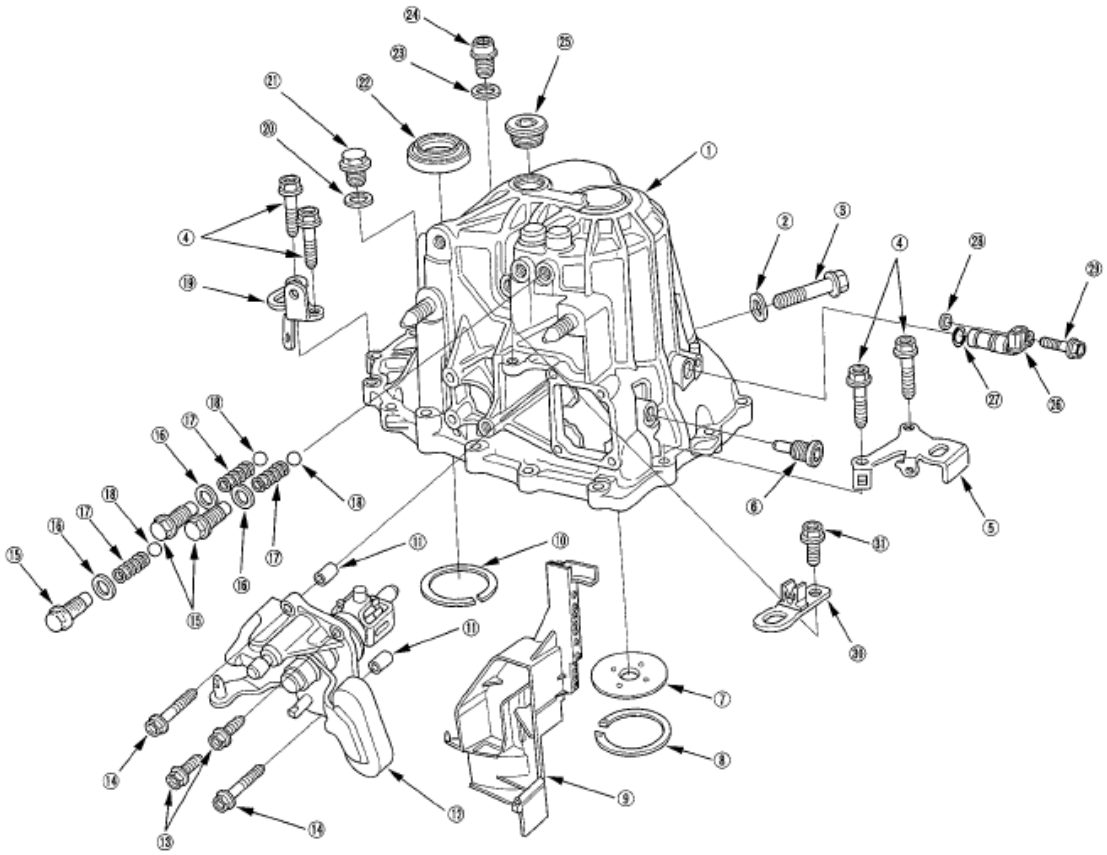
EXPLODED VIEW - CLUTCH HOUSING: 4WD



① DIFFERENTIAL ASSEMBLY
② 10 mm FLANGE BOLT
44 N·m (4.5 kgf·m, 33 lbf·ft)
③ TRANSFER ASSEMBLY
④ O-RING
Replace.
⑤ 10 x 20 mm DOWEL PIN
⑥ SHIFT FORK ASSEMBLY
⑦ 6 mm FLANGE BOLT
12 N·m (1.2 kgf·m, 9 lbf·ft)
⑧ BEARING SET PLATE
⑨ COUNTERSHAFT ASSEMBLY
⑩ NEEDLE BEARING
⑪ OIL GUIDE PLATE C
⑫ 14 x 20 mm DOWEL PIN
⑬ MAGNET
⑭ MAINSHAFT ASSEMBLY
⑮ 28 mm WASHER
⑯ 28 mm SPRING WASHER
⑰ BALL BEARING
⑱ 28 x 43 x 7 mm OIL SEAL
Replace.
⑲ REVERSE GEAR SHAFT
⑳ REVERSE IDLER GEAR
㉑ 6 mm SPECIAL BOLT
15 N·m (1.5 kgf·m, 11 lbf·ft)
㉒ REVERSE SHIFT FORK
㉓ REVERSE LOCK CAM
㉔ 35 x 58 x 8 mm OIL SEAL
Replace.
㉕ BACK-UP LIGHT SWITCH
29 N·m (3.0 kgf·m, 22 lbf·ft)
㉖ 20 mm BOLT
44 N·m (4.5 kgf·m, 33 lbf·ft)
㉗ 20 mm WASHER
㉘ CLUTCH HOUSING

Fig. 42: Exploded View Of Clutch Housing (4WD) With Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

EXPLODED VIEW - TRANSMISSION HOUSING



① TRANSMISSION HOUSING
② 10 mm WASHER
Replace.
③ 10 mm FLANGE BOLT
44 N·m (4.5 kgf·m, 33 lbf·ft)
④ 8 mm FLANGE BOLT
27 N·m (2.8 kgf·m, 20 lbf·ft)
⑤ TRANSMISSION HANGER A
⑥ INTERLOCK BOLT
39 N·m (4.0 kgf·m, 29 lbf·ft)
⑦ OIL GUIDE PLATE M
⑧ 72 mm SHIM
⑨ OIL GUTTER PLATE
⑩ 80 mm SHIM
⑪ 8 x 14 mm DOWEL PIN
⑫ CHANGE LEVER ASSEMBLY
⑬ 6 x 20 mm FLANGE BOLT
12 N·m (1.2 kgf·m, 8.7 lbf·ft)
⑭ 6 x 30 mm FLANGE BOLT
12 N·m (1.2 kgf·m, 8.7 lbf·ft)
⑮ DETENT BOLT
22 N·m (2.2 kgf·m, 16 lbf·ft)
⑯ 12 mm WASHER
Replace.
⑰ SPRING
⑱ STEEL BALL
⑲ TRANSMISSION HANGER B
⑳ 20 mm WASHER
Replace.
㉑ FILLER PLUG
44 N·m (4.5 kgf·m, 33 lbf·ft)
㉒ 40 x 56 x 8 mm OIL SEAL
Replace.
㉓ 14 mm WASHER
Replace.
㉔ DRAIN PLUG
39 N·m (4.0 kgf·m, 29 lbf·ft)
㉕ 32 mm SEALING CAP
34 N·m (3.5 kgf·m, 25 lbf·ft)
㉖ OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR
㉗ O-RING
Replace.
㉘ PLAIN WASHER
㉙ 6 mm FLANGE BOLT
12 N·m (1.2 kgf·m, 8.7 lbf·ft)
㉚ TRANSMISSION HANGER
㉛ 10 mm FLANGE BOLT
44 N·m (4.5 kgf·m, 33 lbf·ft)

Fig. 43: Exploded View Of Transmission Housing With Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

NOTE: Place the clutch housing on two pieces of wood thick enough to keep the mainshaft from hitting the workbench.

1. 2WD: Remove the side cover (A) and O-ring (B).

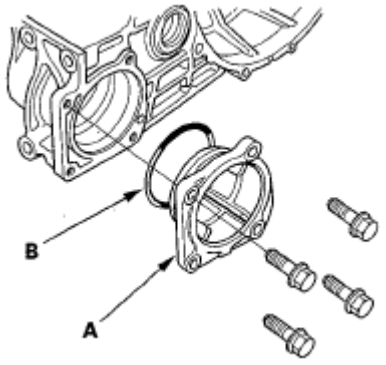


Fig. 44: Identifying Side Cover And O-Ring
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. 4WD: Remove the transfer assembly (A), O-ring (B), and 10 x 20 mm dowel pin (C).

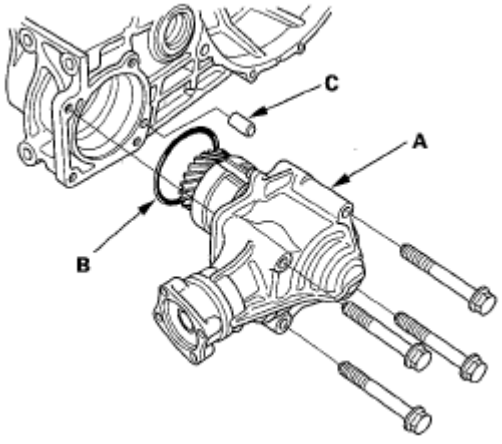


Fig. 45: Identifying Transfer Assembly, O-Ring And Dowel Pin
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Remove the detent bolts (A), springs, steel balls washers and, the back-up light switch (B), and the transmission hanger (C).

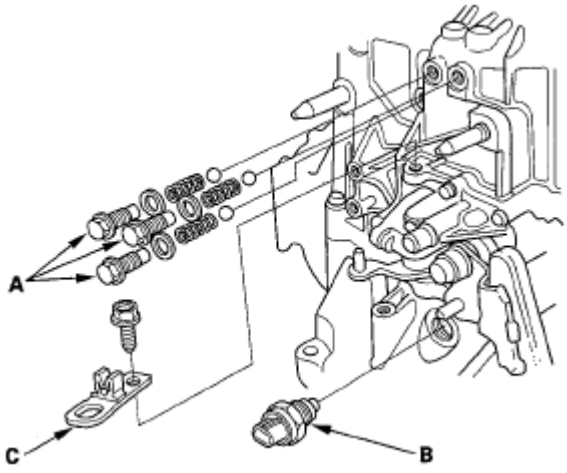


Fig. 46: Identifying Detent Bolts, Springs, Steel Balls Washers And Back-Up Light Switch
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Remove the 20 mm bolt (A) and 20 mm washer (B).

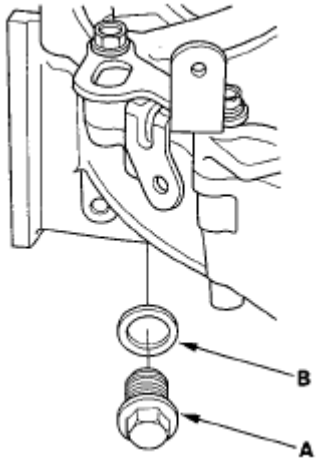


Fig. 47: Identifying Bolt And Washer
Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Remove the interlock bolt (A), then remove the change lever assembly (B) and 8 x 14 mm dowel pins (C).

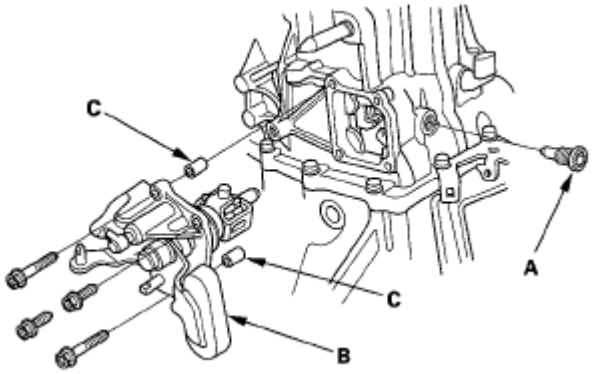


Fig. 48: Identifying Interlock Bolt, Lever Assembly And Dowel Pins
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Remove the drain plug (A), the filler plug (B), and the 10 mm flange bolt (C).

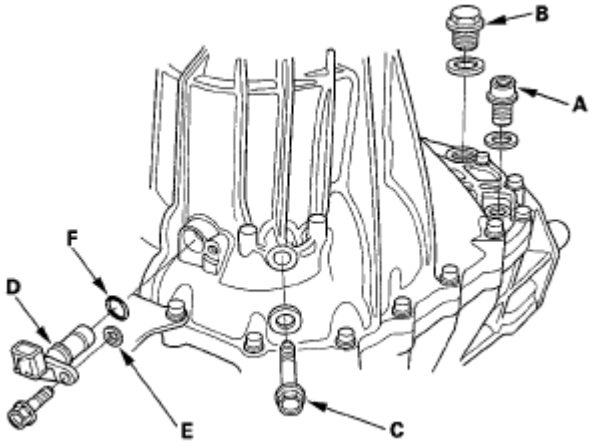


Fig. 49: Identifying Drain Plug, Filler Plug, And Flange Bolt
Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. Remove the output shaft (countershaft) speed sensor (D), the plain washer (E), and the O-ring (F).
8. Remove the 8 mm flange bolts in a crisscross pattern in several steps.

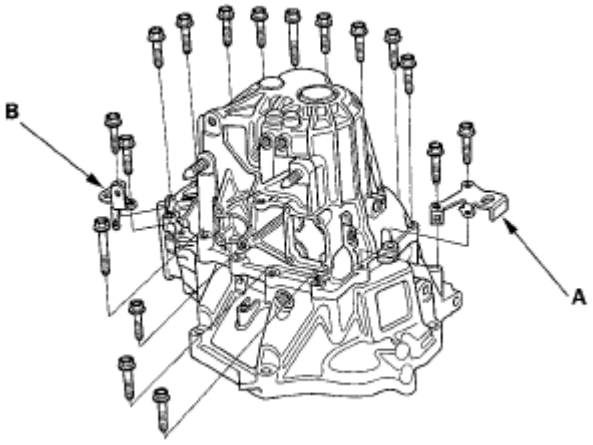


Fig. 50: Identifying Output Shaft Speed Sensor, Plain Washer, And O-Ring
Courtesy of AMERICAN HONDA MOTOR CO., INC.

9. Remove transmission hanger A and transmission hanger B.
10. Remove the 32 mm sealing cap (A).

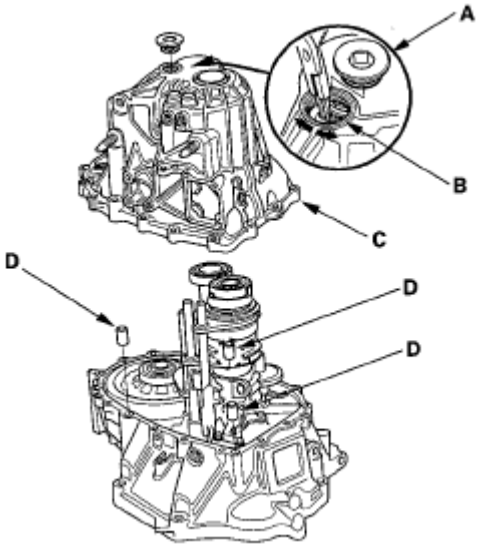


Fig. 51: Identifying Sealing Cap
Courtesy of AMERICAN HONDA MOTOR CO., INC.

11. Expand the 72 mm snap ring (B) on the countershaft ball bearing, and remove it from the groove with snap ring pliers.
12. Remove the transmission housing (C) and 14 x 20 mm dowel pins (D).
13. Remove the reverse lock cam (A).

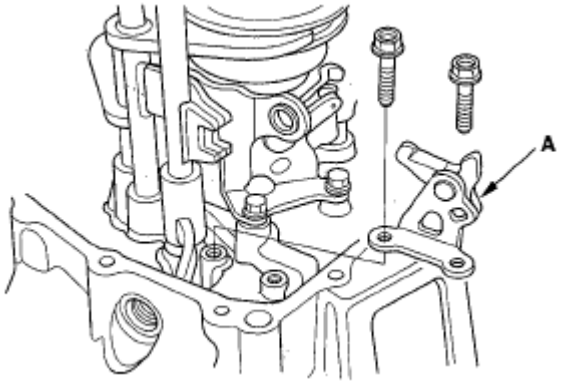


Fig. 52: Identifying Reverse Lock Cam
Courtesy of AMERICAN HONDA MOTOR CO., INC.

14. Remove the reverse idler gear (A) and reverse gear shaft (B).

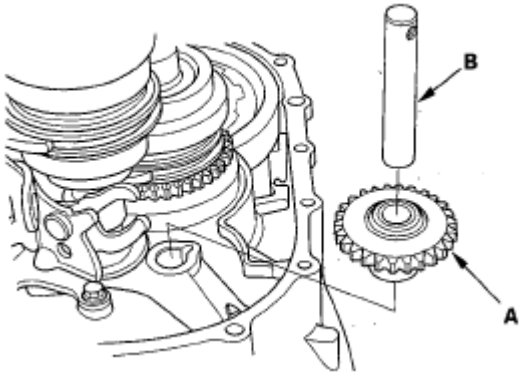


Fig. 53: Identifying Reverse Idler Gear And Reverse Gear Shaft
Courtesy of AMERICAN HONDA MOTOR CO., INC.

15. Remove the reverse shift fork (A).

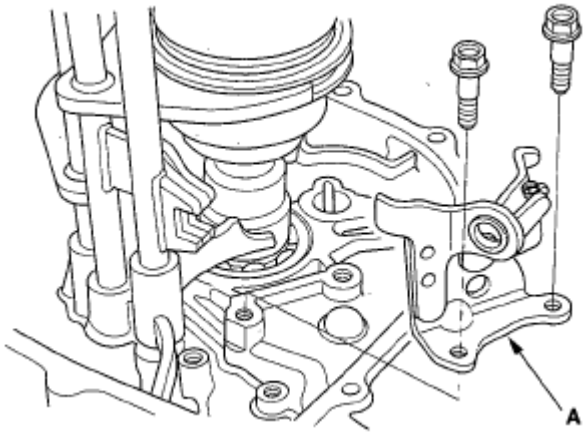


Fig. 54: Identifying Reverse Shift Fork

Courtesy of AMERICAN HONDA MOTOR CO., INC.

16. Apply tape to the mainshaft splines to protect the seal, then remove the mainshaft assembly (A) and countershaft assembly (B) with the shift fork assembly (C) from the clutch housing (D).

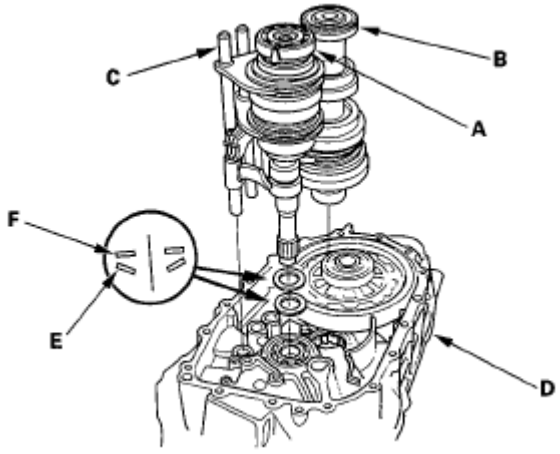


Fig. 55: Identifying Mainshaft Assembly, Countershaft Assembly, Shift Fork Assembly And Clutch Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

17. Remove the 28 mm spring washer (E) and 28 mm washer (F).
18. Remove the differential assembly (A) and magnet (B).

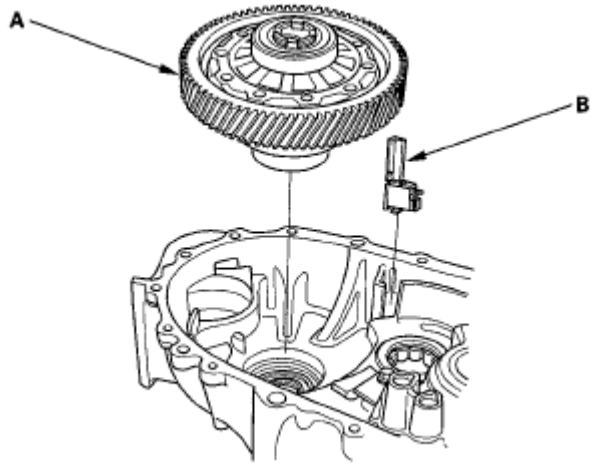


Fig. 56: Identifying Differential Assembly And Magnet
Courtesy of AMERICAN HONDA MOTOR CO., INC.

19. Remove the oil gutter plate (A), the 72 mm shim (B), and oil guide plate M.

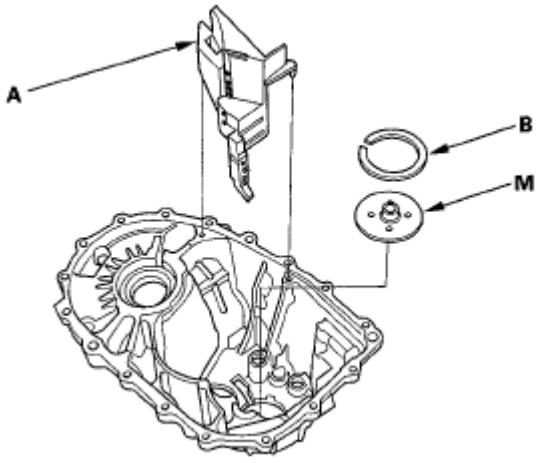


Fig. 57: Identifying Oil Gutter Plate And Oil Guide Plate
Courtesy of AMERICAN HONDA MOTOR CO., INC.

REVERSE SHIFT FORK CLEARANCE INSPECTION

1. Measure the clearance between the reverse idler gear (A) and the reverse shift fork (B) with a feeler gauge (C). If the clearance is more than the service limit, go to step 2.

   Standard: 0.20-0.59 mm (0.007-0.024 in.)

   Service Limit: 1.2 mm (0.047 in.)

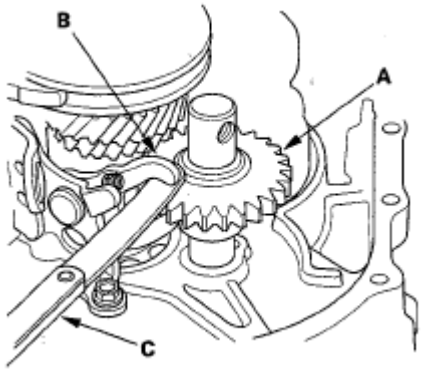


Fig. 58: Measuring Clearance Between Reverse Idler Gear And Reverse Shift Fork
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Measure the width of the reverse shift fork.
   - If the width is not within the standard, replace the reverse shift fork.
   - If the width is within the standard, replace the reverse idler gear.

   Standard: 13.4-13.7 mm (0.527-0.539 in.)

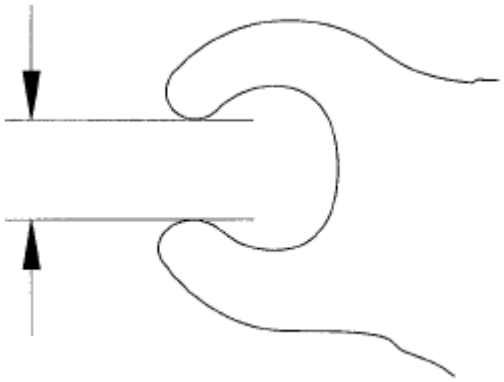


Fig. 59: Measuring Width Of Reverse Shift Fork
Courtesy of AMERICAN HONDA MOTOR CO., INC.

CHANGE LEVER CLEARANCE INSPECTION

1. Measure the clearance between change lever (A) and the select lever (B) with a feeler gauge (C). If the clearance is more than the service limit, go to step 2.

   Standard: 0.05-0.25 mm (0.002-0.010 in.)

   Service Limit: 0.5 mm (0.020 in.)

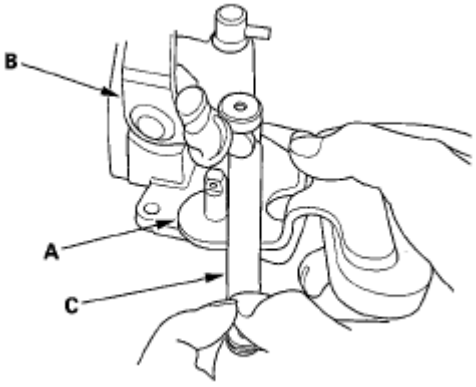


Fig. 60: Measuring Clearance Between Change Lever And Select Lever
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Measure the width of the select lever.
   - If the width is not within the standard, replace the change lever.
   - If the width is within the standard, replace the select lever.

   Standard: 15.00-15.10 mm (0.591-0.594 in.)

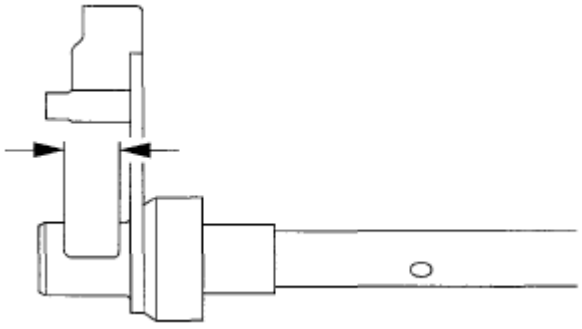


Fig. 61: Measuring Width Of Select Lever
Courtesy of AMERICAN HONDA MOTOR CO., INC.

CHANGE LEVER ASSEMBLY DISASSEMBLY/REASSEMBLY

Prior to reassembling, clean all parts in solvent, dry them, and apply manual transmission fluid (MTF) to the contact surfaces as shown.

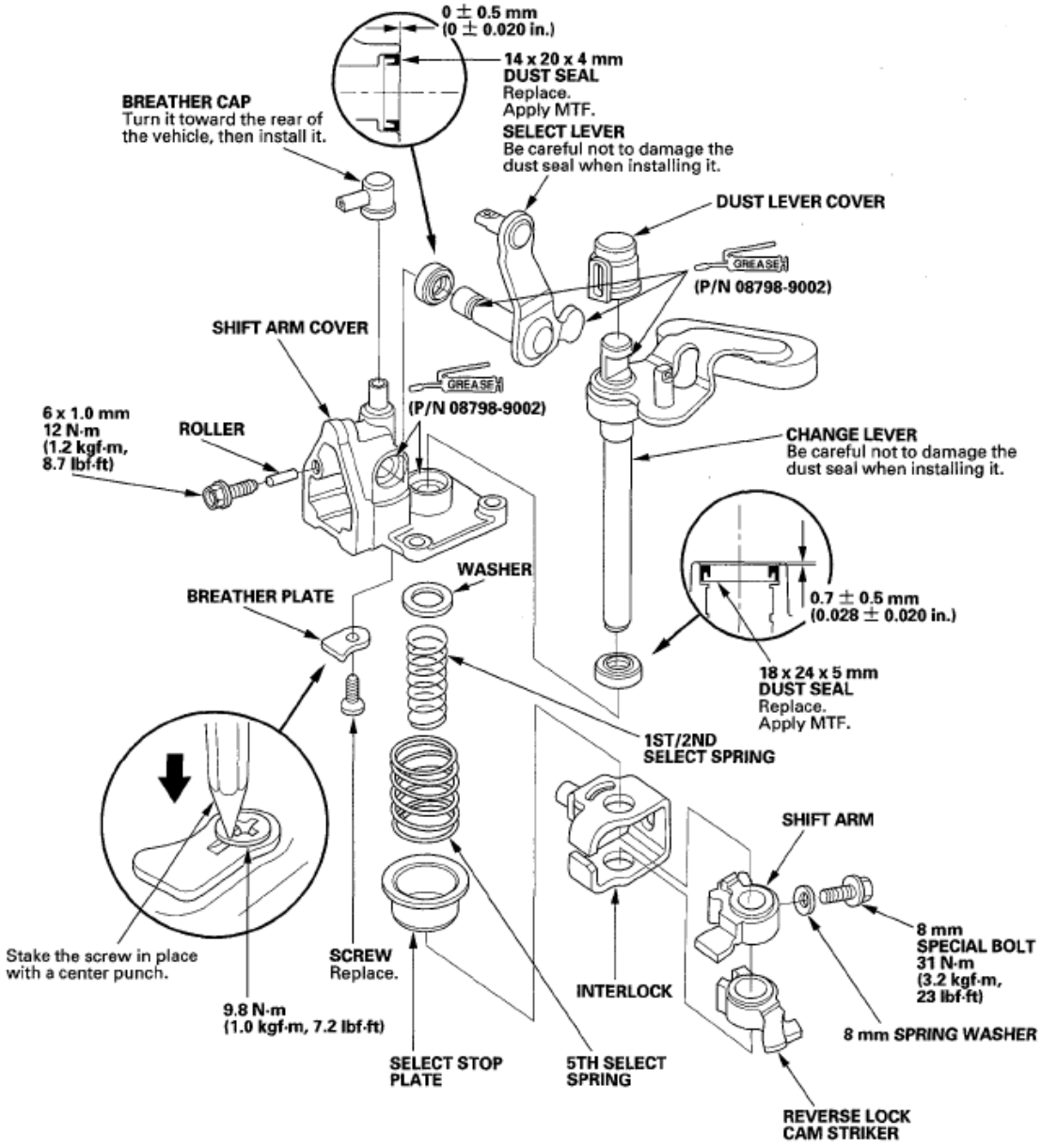


Fig. 62: Identifying Change Lever Assembly With Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

SHIFT FORK CLEARANCE INSPECTION

NOTE: The synchro sleeve and synchro hub should be replaced as a set.

1. Measure the clearance between each shift fork (A) and its matching synchro sleeve (B). If the clearance exceeds the service limit, go to step 2.

   Standard: 0.35-0.65 mm (0.014-0.026 in.)

Service Limit: 1.0 mm (0.039 in.)

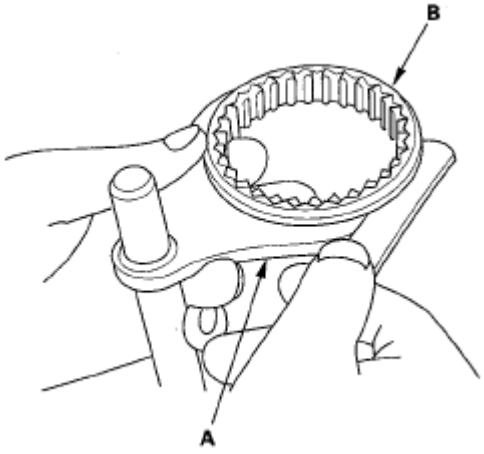


Fig. 63: Measuring Clearance Between Shift Fork And Matching Synchro Sleeve
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Measure the thickness of the shift fork fingers.
   - If the thickness is not within the standard, replace the shift fork.
   - If the thickness is within the standard, replace the synchro sleeve and hub as a set.

   Standard: 7.4-7.6 mm (0.29-0.30 in.)

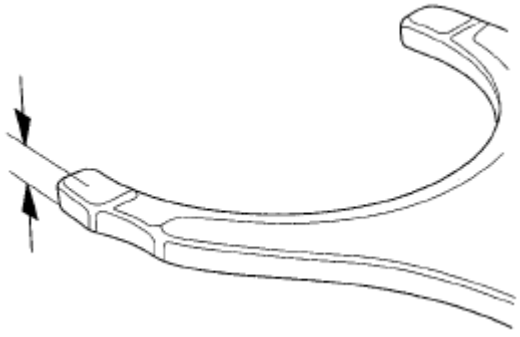


Fig. 64: Measuring Thickness Of Shift Fork
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Measure the clearance between the shift fork (A) and the shift arm (B). If the clearance exceeds the service limit, go to step 4.

   Standard: 0.2-0.5 mm (0.008-0.020 in.)

   Service Limit: 0.6 mm (0.023 in.)

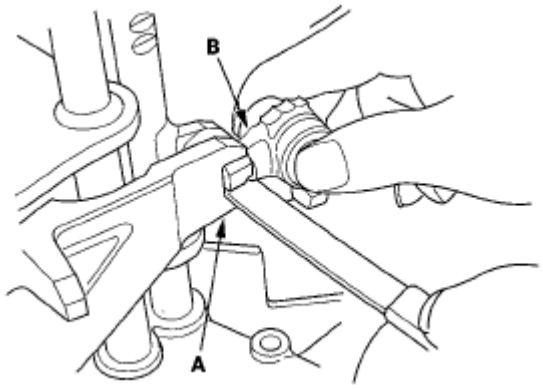


Fig. 65: Measuring Clearance Between Shift Fork And Shift Arm
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Measure the width of the shift arm.
   - If the width is not within the standard, replace the shift arm.
   - If the width is within the standard, replace the shift fork or the shift piece.

   Standard: 16.9-17.0 mm (0.665-0.669 in.)

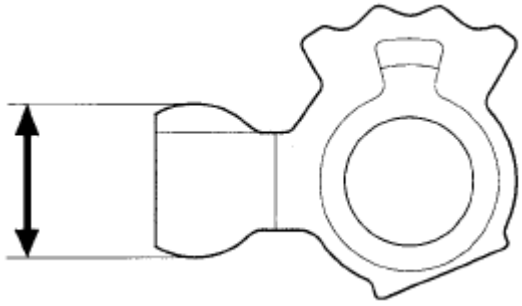


Fig. 66: Measuring Width Of Shift Arm
Courtesy of AMERICAN HONDA MOTOR CO., INC.

SHIFT FORK DISASSEMBLY/REASSEMBLY

Prior to reassembling, clean all parts in solvent, dry them, and apply manual transmission fluid (MTF) to all contact surfaces.

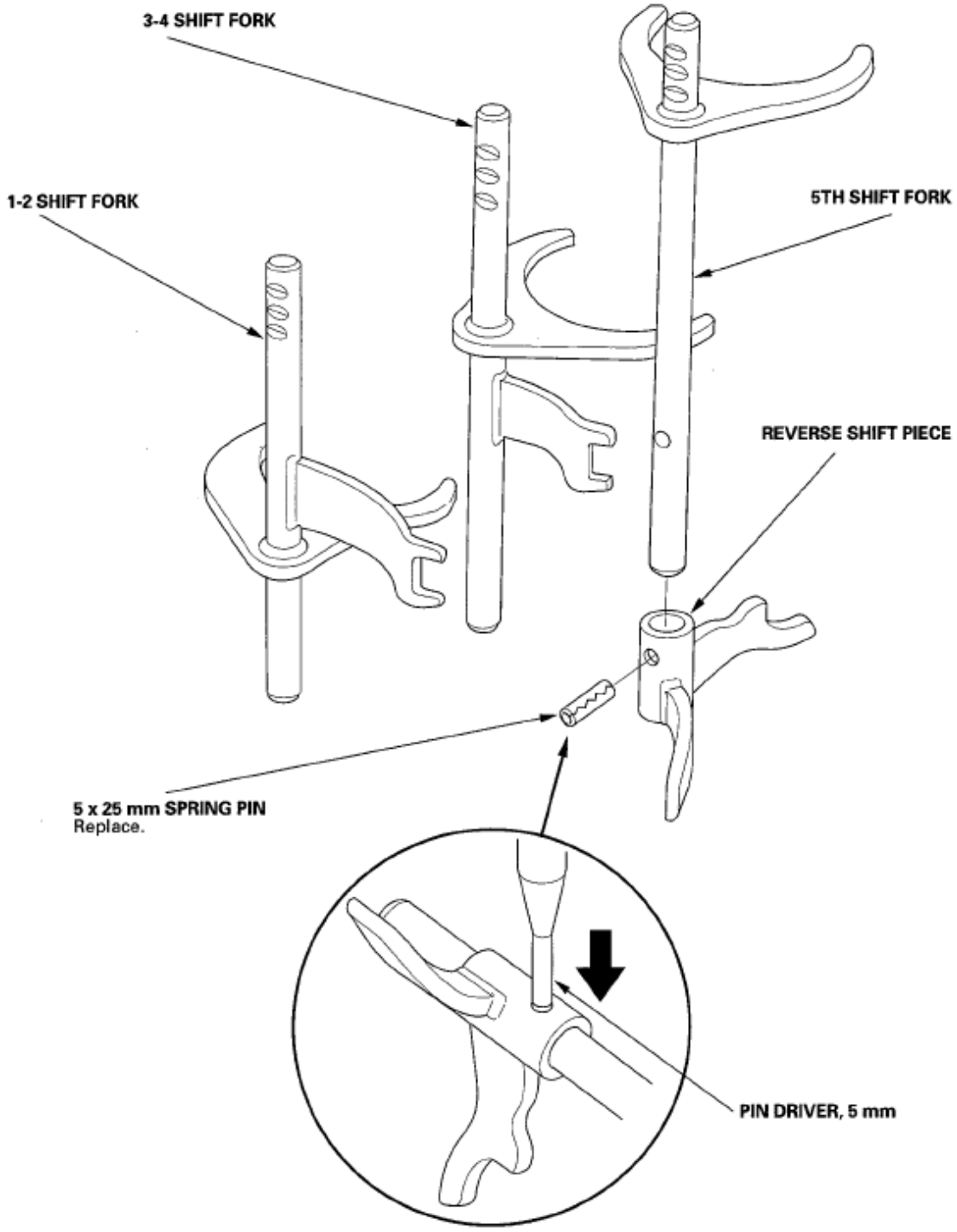


Fig. 67: Identifying Shift Fork Parts
Courtesy of AMERICAN HONDA MOTOR CO., INC.

MAINSHAFT ASSEMBLY CLEARANCE INSPECTION

NOTE: If replacement is required, always replace the synchro sleeve and synchro hub

as a set.

1. Support the bearing inner race with an appropriate sized socket (A), and push down on the mainshaft (B).

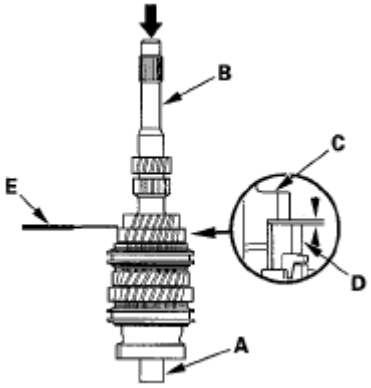


Fig. 68: Measuring Clearance Between 2nd Gear And 3rd Gear With Feeler Gauge
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Measure the clearance between 2nd gear (C) and 3rd gear (D) with a feeler gauge (E).
   - If the clearance is more than the service limit, go to step 3.
   - If the clearance is within the service limit, go to step 4.

   Standard: 0.06-0.16 mm (0.002-0.006 in.)

   Service Limit: 0.25 mm (0.010 in.)

3. Measure the thickness of 3rd gear.
   - If the thickness is less than the service limit, replace 3rd gear.
   - If the thickness is within the service limit, replace the 3rd/4th synchro hub and 3rd/4th synchro sleeve as a set.

   Standard: 23.92-23.97 mm (0.941-0.944 in.)

   Service Limit: 23.80 mm (0.937 in.)

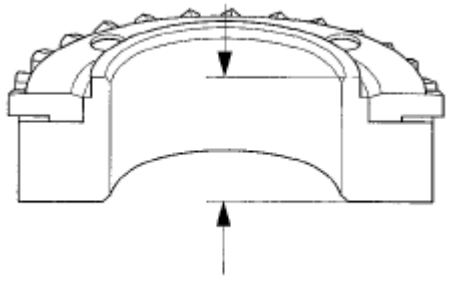


Fig. 69: Identifying Thickness Of 3rd Gear

Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Measure the clearance between 4th gear (A) and the distance collar (B) with a dial indicator (C).
   - If the clearance is more than the service limit, go to step 5.
   - If the clearance is within the service limit, go to step 7.

   Standard: 0.06-0.16 mm (0.002-0.006 in.)

   Service Limit: 0.25 mm (0.010 in.)

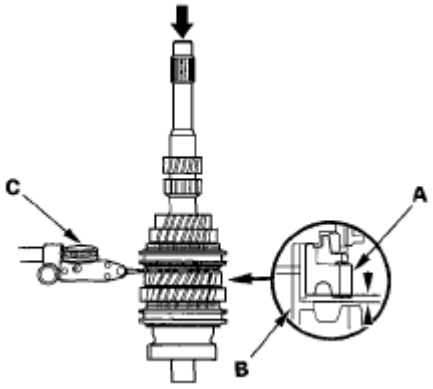


Fig. 70: Measuring Clearance Between 4th Gear And Distance Collar With Dial Indicator
Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Measure the length (1) of the distance collar as shown.
   - If the length (1) is not within the standard, replace the distance collar.
   - If the length (1) is within the standard, go to step 6.

   Standard: 24.03-24.08 mm (0.946-0.948 in.)

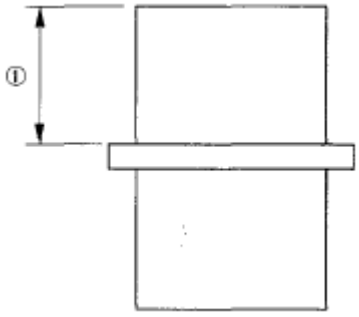


Fig. 71: Identifying Length Of Distance Collar
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Measure the thickness of 4th gear.
   - If the thickness is less than the service limit, replace 4th gear.

- If the thickness is within the service limit, replace the 3rd/4th synchro hub and 3rd/4th synchro sleeve as a set.

Standard: 23.92-23.97 mm (0.941-0.944 in.)

Service Limit: 23.80 mm (0.937 in.)

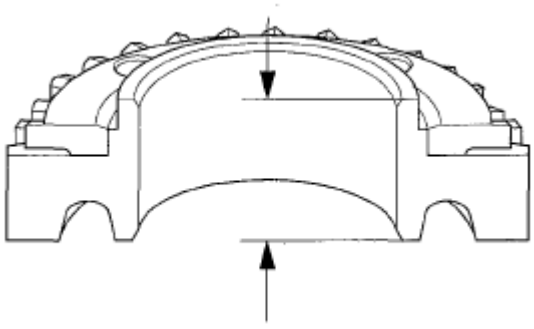


Fig. 72: Identifying Thickness Of 4Th Gear
Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. Measure the clearance between the distance collar (A) and 5th gear (B) with a dial indicator (C). If the clearance is more than the service limit, go to step 8.

Standard: 0.06-0.16 mm (0.002-0.006 in.)

Service Limit: 0.25 mm (0.010 in.)

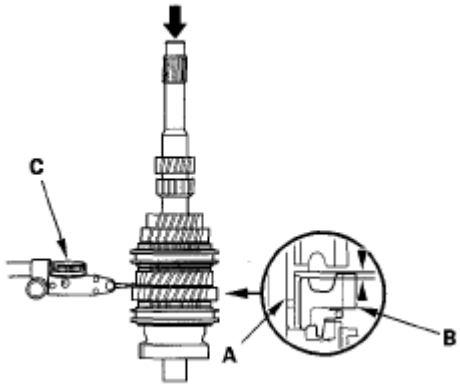


Fig. 73: Measuring Clearance Between Distance Collar And 5th Gear With Dial Indicator
Courtesy of AMERICAN HONDA MOTOR CO., INC.

8. Measure the length (2) of the distance collar as a set.
   - If the length (2) is not within the standard, replace the distance collar.
   - If the length (2) is within the standard, go to step 9.

Standard: 24.03-24.08 mm (0.946-0.948 in.)

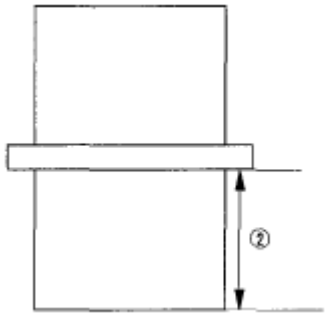


Fig. 74: Measuring Length Of Distance Collar
Courtesy of AMERICAN HONDA MOTOR CO., INC.

9. Measure the thickness of 5th gear.
   - If the thickness is less than the service limit, replace 5th gear.
   - If the thickness is within the service limit, replace the 5th synchro hub and 5th synchro sleeve as a set.

   Standard: 23.92-23.97 mm (0.941-0.944 in.)

   Service Limit: 23.80 mm (0.937 in.)

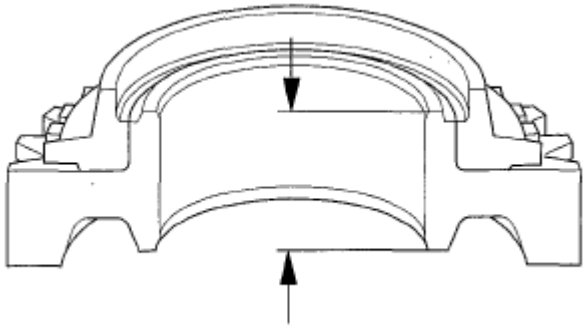


Fig. 75: Measuring Thickness Of 5th Gear
Courtesy of AMERICAN HONDA MOTOR CO., INC.

10. Measure the length of the MBS distance collar as shown. If the length is not within standard, replace the MBS distance collar.

    Standard: 23.95-24.05 mm (0.943-0.947 in.)

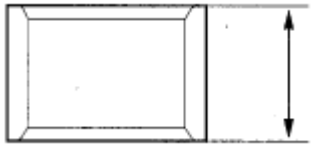


Fig. 76: Measuring Length Of MBS Distance Collar
Courtesy of AMERICAN HONDA MOTOR CO., INC.

MAINSHAFT DISASSEMBLY

1. Remove the angular ball bearing (A) and the tapered cone ring using a commercially available bearing separator (B) and a commercially available bearing puller (C). Make sure the bearing separator is under the tapered cone ring.

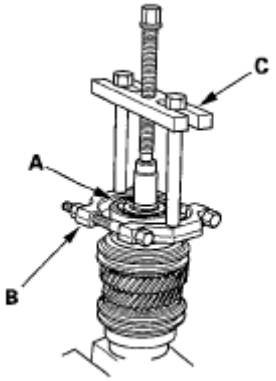


Fig. 77: Removing Angular Ball Bearing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Support 5th gear (A) on steel blocks, and press the mainshaft out of the 5th synchro hub (B).

NOTE: Do not use a jaw-type puller; it can damage the gear teeth.

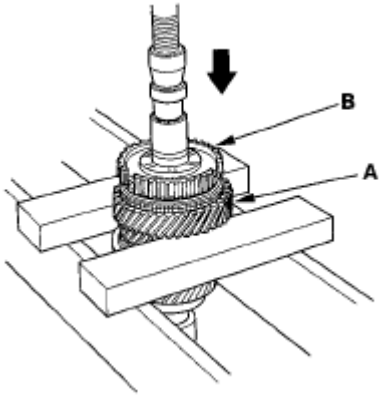


Fig. 78: Pressing Mainshaft Out Of 5th Synchro Hub
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Support 3rd gear (A) on steel blocks, and press the mainshaft out of the 3rd/4th synchro hub (B).

NOTE: Do not use a jaw-type puller; it can damage the gear teeth.

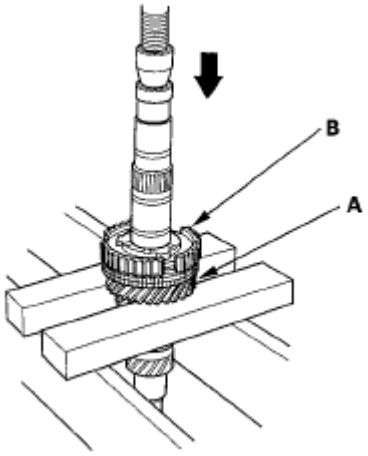


Fig. 79: Pressing Mainshaft Out Of 3rd/4th Synchro Hub
Courtesy of AMERICAN HONDA MOTOR CO., INC.

MAINSHAFT INSPECTION

1. Inspect the gear and bearing contact areas for wear and damage, then measure the mainshaft at points A, B, C, D, and E. If any part of the mainshaft is less than the service limit, replace it.

   Standard:

   A Ball Bearing Contact Area (Transmission Housing Side): 27.987-28.000 mm (1.1019-1.1024 in.)

   B Distance Collar Contact Area: 31.984-32.000 mm (1.2594-1.2598 in.)

   C Needle Bearing Contact Area: 38.984-39.000 mm (1.5348-1.5354 in.)

   D Ball Bearing Contact Area (Clutch Housing Side): 27.977-27.990 mm (1.1015-1.1020 in.)

   E Bushing Contact Area: 20.80-20.85 mm (0.8189-0.8209 in.)

   Service Limit:

A: 27.94 mm (1.100 in.)
B: 31.93 mm (1.257 in.)
C: 38.93 mm (1.533 in.)
D: 27.94 mm (1.100 in.)
E: 20.75 mm (0.817 in.)

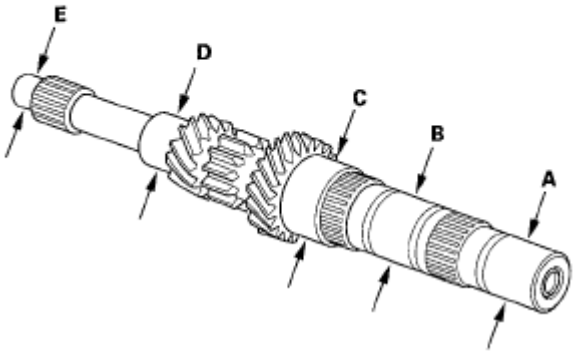


Fig. 80: Inspecting Mainshaft Gear And Bearing With Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Inspect the runout by supporting both ends of the mainshaft. Then rotate the mainshaft two complete turns while measuring with a dial gauge. If the runout is more than the service limit, replace the mainshaft.

   Standard: 0.02 mm (0.001 in.) max.

   Service Limit: 0.05 mm (0.002 in.)

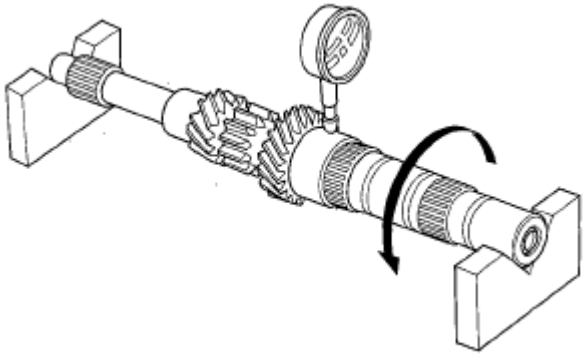


Fig. 81: Inspecting Runout With Supporting Ends Of Mainshaft
Courtesy of AMERICAN HONDA MOTOR CO., INC.

MAINSHAFT REASSEMBLY

EXPLODED VIEW

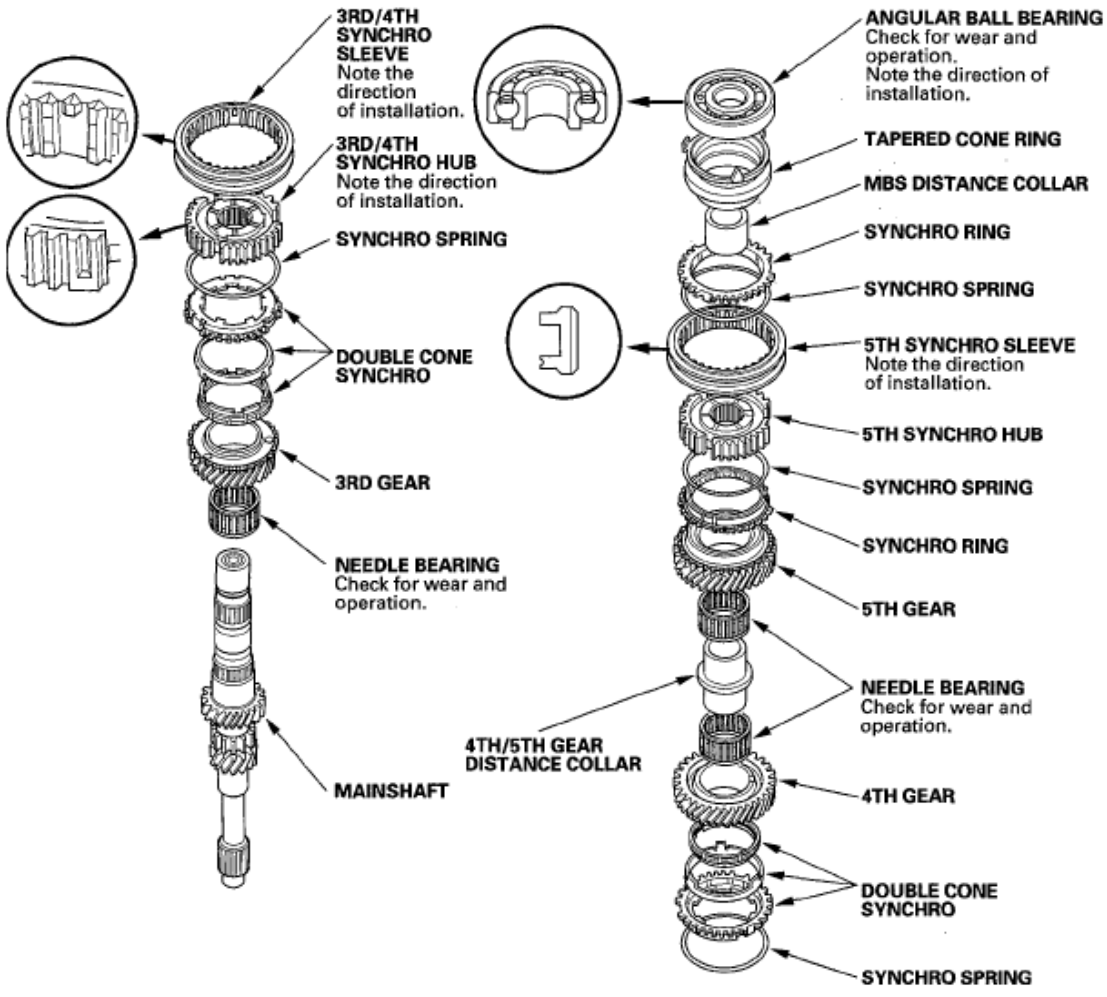


Fig. 82: Exploded View Of Mainshaft
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Special Tools Required

- Driver handle 07746-0030100
- Attachment, 30 mm I.D. 07746-0030300

NOTE: Refer to the EXPLODED VIEW, as needed, during this procedure.

1. Clean all parts in solvent, dry them, and apply manual transmission fluid (MTF) to all contact surfaces except the 3rd/4th and 5th synchro hubs.
2. Install the needle bearing and 3rd gear on the mainshaft.
3. Install the double cone synchro assembly (A) by aligning the synchro cone fingers (B) with the holes in 3rd gear (C), then install the synchro spring (D).

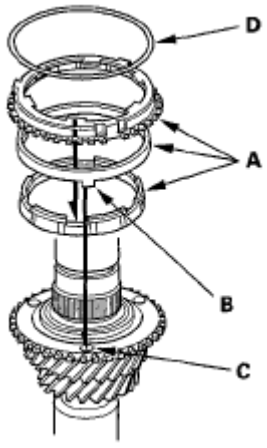


Fig. 83: Identifying Double Cone Synchro Assembly, Synchro Cone Fingers, 3rd Gear And Synchro Spring
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Install the 3rd/4th synchro hub (A) by aligning the synchro ring fingers (B) with the grooves in the 3rd/4th synchro hub (C).

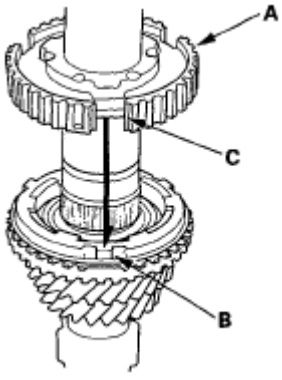


Fig. 84: Identifying 3rd/4th Synchro Hub, Synchro Ring Fingers And 3rd/4th Synchro Hub
Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Install the 3rd/4th synchro hub (A) using the 40 mm I.D. driver (B).

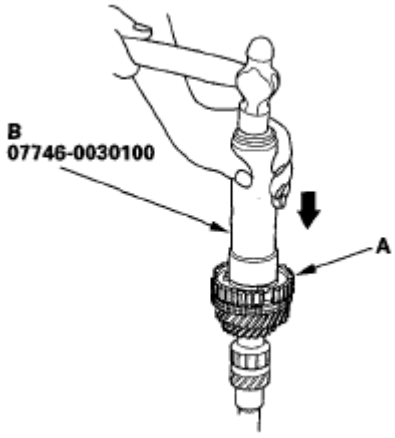


Fig. 85: Identifying 3rd/4th Synchro Hub
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Install the 3rd/4th synchro sleeve (A) by aligning the stops (B) of the 3rd/4th synchro sleeve and 3rd/4th synchro hub. After installing, check the operation of the 3rd/4th synchro hub set.

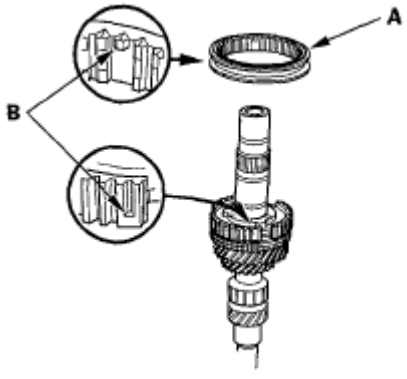


Fig. 86: Identifying 3rd/4th Synchro Sleeve And Stops
Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. Install the synchro spring (A).

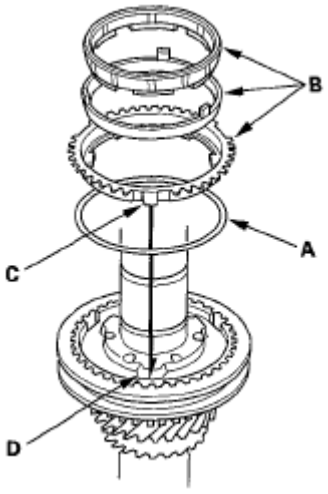


Fig. 87: Identifying Synchro Spring
Courtesy of AMERICAN HONDA MOTOR CO., INC.

8. Install the double cone synchro assembly (B) by aligning the synchro ring fingers (C) with the grooves in the 3rd/4th synchro hub (D).
9. Install 4th gear (A) by aligning the synchro cone fingers (B) with holes in 4th gear (C).

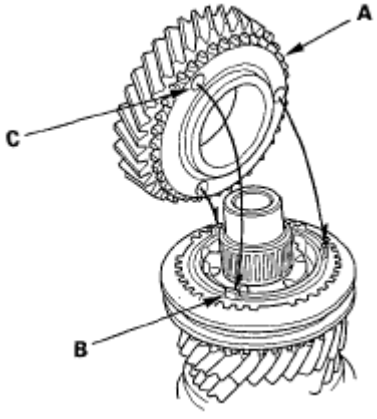


Fig. 88: Identifying 4th Gear, Synchro Cone Fingers And 4th Gear
Courtesy of AMERICAN HONDA MOTOR CO., INC.

10. Install the needle bearings, 4th/5th gear distance collar, 5th gear, and synchro spring and ring.
11. Install the 5th synchro hub (A) by aligning the synchro ring fingers (B) with the grooves in the 5th synchro hub.

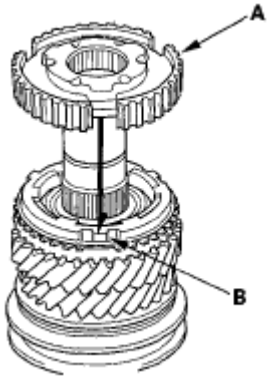


Fig. 89: Identifying 5th Synchro Hub, Synchro Ring Fingers Grooves And 5th Synchro Hub
Courtesy of AMERICAN HONDA MOTOR CO., INC.

12. Install the 5th synchro hub (A) using the 40 mm I.D. driver (B) and 30 mm I.D. attachment (C).

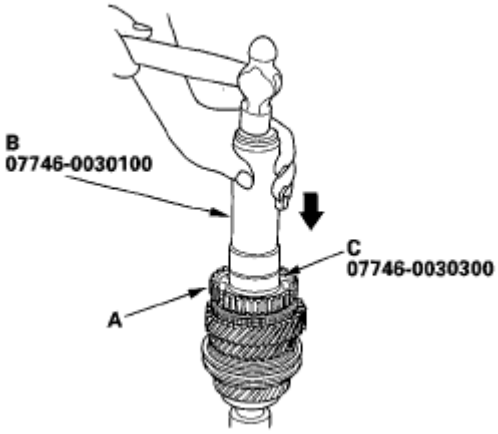


Fig. 90: Identifying 5th Synchro Hub
Courtesy of AMERICAN HONDA MOTOR CO., INC.

13. Install the 5th synchro sleeve.
14. Install the synchro spring (A).

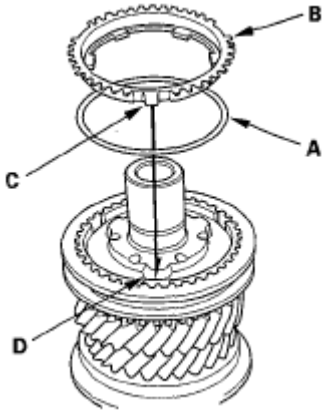


Fig. 91: Identifying Synchro Spring, Synchro Ring, Synchro Ring Fingers And 5th Synchro Hub
Courtesy of AMERICAN HONDA MOTOR CO., INC.

15. Install the synchro ring (B) by aligning the synchro ring fingers (C) with the grooves in the 5th synchro hub (D).
16. Install the MBS distance collar and the tapered cone ring.
17. Install the new angular ball bearing (A) using the 40 mm I.D. driver (B), 30 mm I.D. attachment (C), and a press (D).

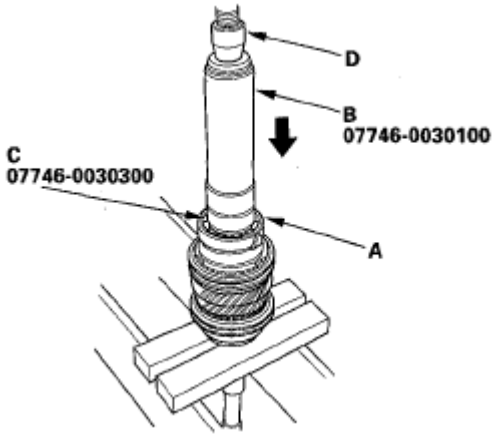


Fig. 92: Installing Angular Ball Bearing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

COUNTERSHAFT ASSEMBLY CLEARANCE INSPECTION

1. Measure the clearance between 1st gear (A) and the distance collar (B) with a feeler gauge (C). If the clearance is more than the service limit, go to step 2.

   Standard: 0.06-0.16 mm (0.002-0.006 in.)

   Service Limit: 0.25 mm (0.010 in.)

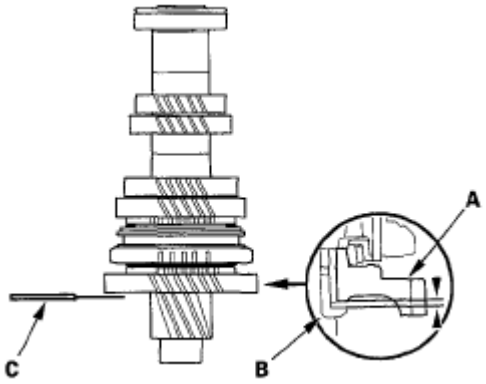


Fig. 93: Measuring Clearance Between 1st Gear And Distance Collar With Feeler Gauge
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Measure the length of the distance collar as shown.
   - If the length is not within the standard, replace the distance collar.
   - If the length is within the standard, go to step 3.

   Standard: 23.03-23.08 mm (0.907-0.909 in.)

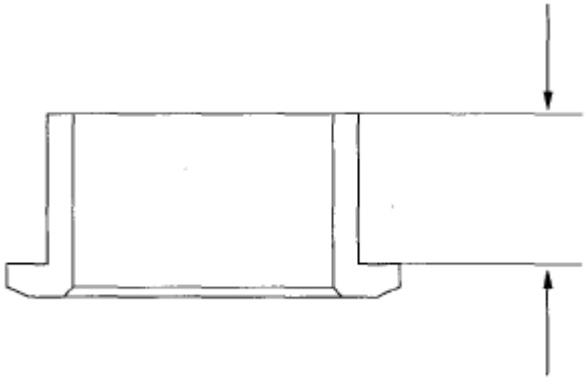


Fig. 94: Identifying Length Of Distance Collar
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Measure the thickness of 1st gear.
   - If the thickness is less than the service limit, replace 1st gear.
   - If the thickness is within the service limit, replace the 1st/2nd synchro hub and reverse gear as a set.

   Standard: 22.92-22.97 mm (0.902-0.904 in.)

   Service Limit: 22.87 mm (0.900 in.)

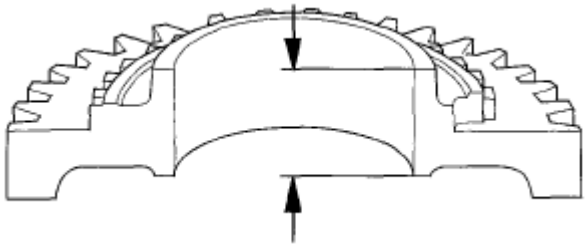


Fig. 95: Identifying Thickness Of 1st Gear
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Measure the clearance between 2nd gear (A) and 3rd gear (B) with a feeler gauge (C). If the clearance is more than the service limit, go to step 5.

   Standard: 0.06-0.16 mm (0.002-0.006 in.)

   Service Limit: 0.25 mm (0.010 in.)

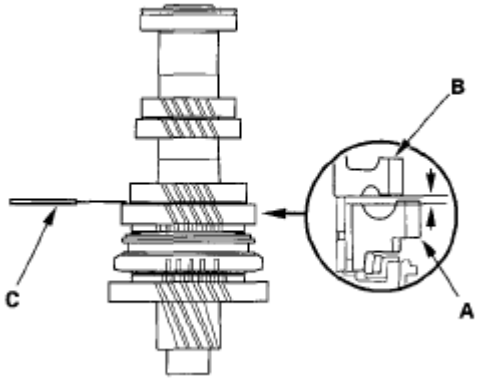


Fig. 96: Measuring Clearance Between 2nd Gear And 3rd Gear With Feeler Gauge
Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Measure the length of the distance collar.
   - If the length is not within the standard, replace the distance collar.
   - If the length is within the standard, go to step 6.

   Standard: 28.03-28.08 mm (1.104-1.106 in.)

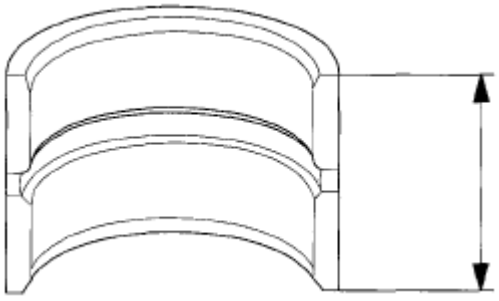


Fig. 97: Identifying Length Of Distance Collar
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Measure the thickness of 2nd gear.
   - If the thickness is less than the service limit, replace 2nd gear.
   - If the thickness is within the service limit, replace the 1st/2nd synchro hub and reverse gear as a set.

   Standard: 27.92-27.97 mm (1.099-1.101 in.)

   Service Limit: 27.87 mm (1.097 in.)

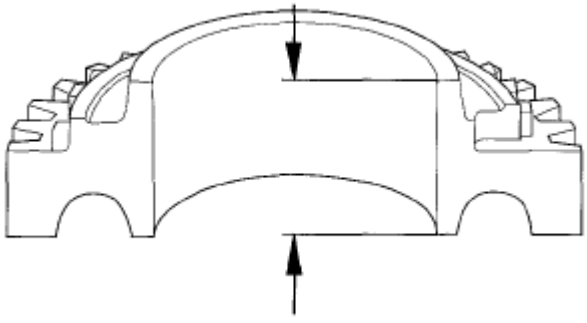


Fig. 98: Identifying Thickness Of 2nd Gear
Courtesy of AMERICAN HONDA MOTOR CO., INC.

COUNTERSHAFT DISASSEMBLY

1. Securely clamp the countershaft assembly in a bench vise with wood blocks.

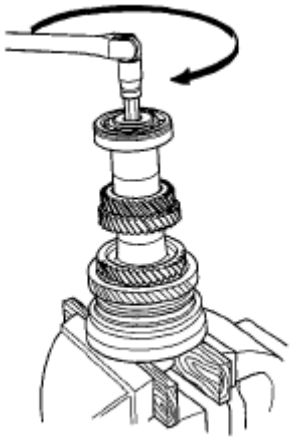


Fig. 99: Removing Countershaft Bolt
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Remove the special bolt (left-hand threads).
3. Support the ball bearing (A) on steel blocks (B), then use a press (C) and an attachment (D) to press the countershaft out of the ball bearing.

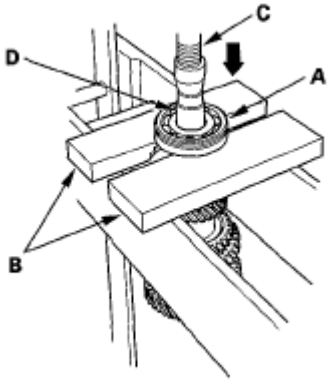


Fig. 100: Pressing Countershaft Ball Bearing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Remove the 35 mm shim and distance collar.
5. Support 4th gear (A) on steel blocks (B), then use a press (C) and an attachment (D) to press the countershaft (E) out of 5th gear (F).

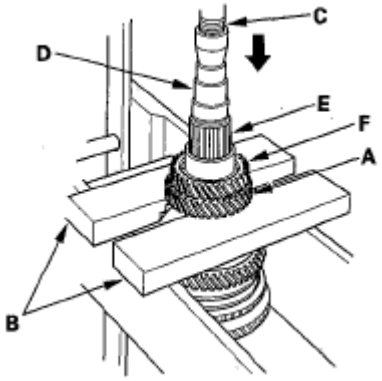


Fig. 101: Pressing Countershaft Of 5th Gear
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Support 2nd gear (A) on steel blocks (B), then use a press (C) and an attachment (D) to press the countershaft (E) out of 3rd gear (F).

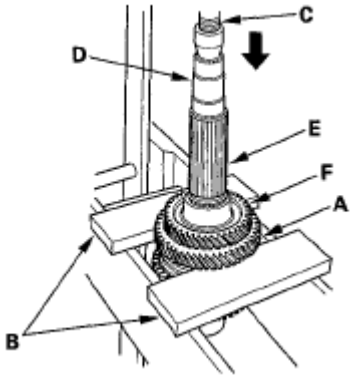


Fig. 102: Pressing Countershaft Out Of 3rd Gear
Courtesy of AMERICAN HONDA MOTOR CO., INC.

COUNTERSHAFT INSPECTION

1. Inspect the gear and bearing contact areas for wear and damage, then measure the countershaft at points A, B, and C. If any part of the countershaft is less than the service limit, replace it.

   Standard:

   A Ball Bearing Contact Area (Transmission Housing Side): 30.020-30.033 mm (1.1819-1.1824 in.)

   B Distance Collar Contact Area: 39.937-39.950 mm (1.5723-1.5728 in.)

   C Needle Bearing Contact Area (Clutch Housing Side): 35.000-35.015 mm (1.3780-1.3785 in.)

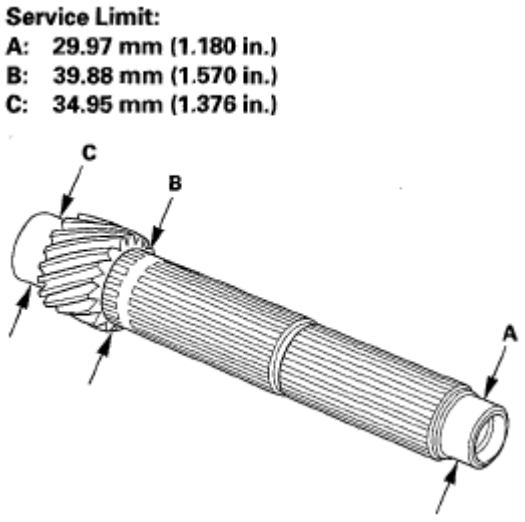


Fig. 103: Identifying Gear And Bearing Contact Areas For Wear And Damage With Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Inspect the runout by supporting both ends of the countershaft. Then rotate the countershaft two complete turns while measuring with a dial gauge. If the runout is more than the service limit, replace the countershaft.

   Standard: 0.02 mm (0.001 in.) max.

   Service Limit: 0.05 mm (0.002 in.)

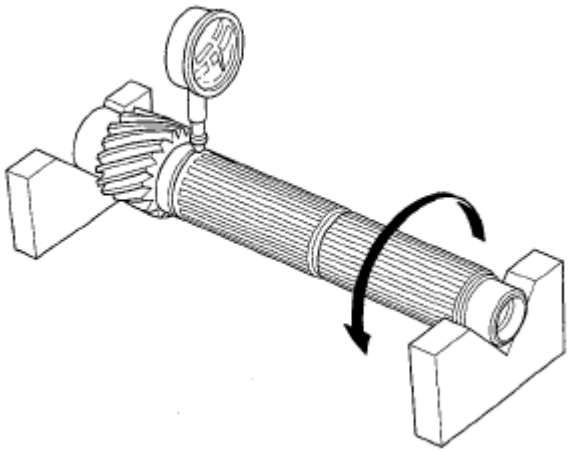


Fig. 104: Inspecting Runout With Supporting Both Ends Of Countershaft
Courtesy of AMERICAN HONDA MOTOR CO., INC.

COUNTERSHAFT REASSEMBLY

EXPLODED VIEW

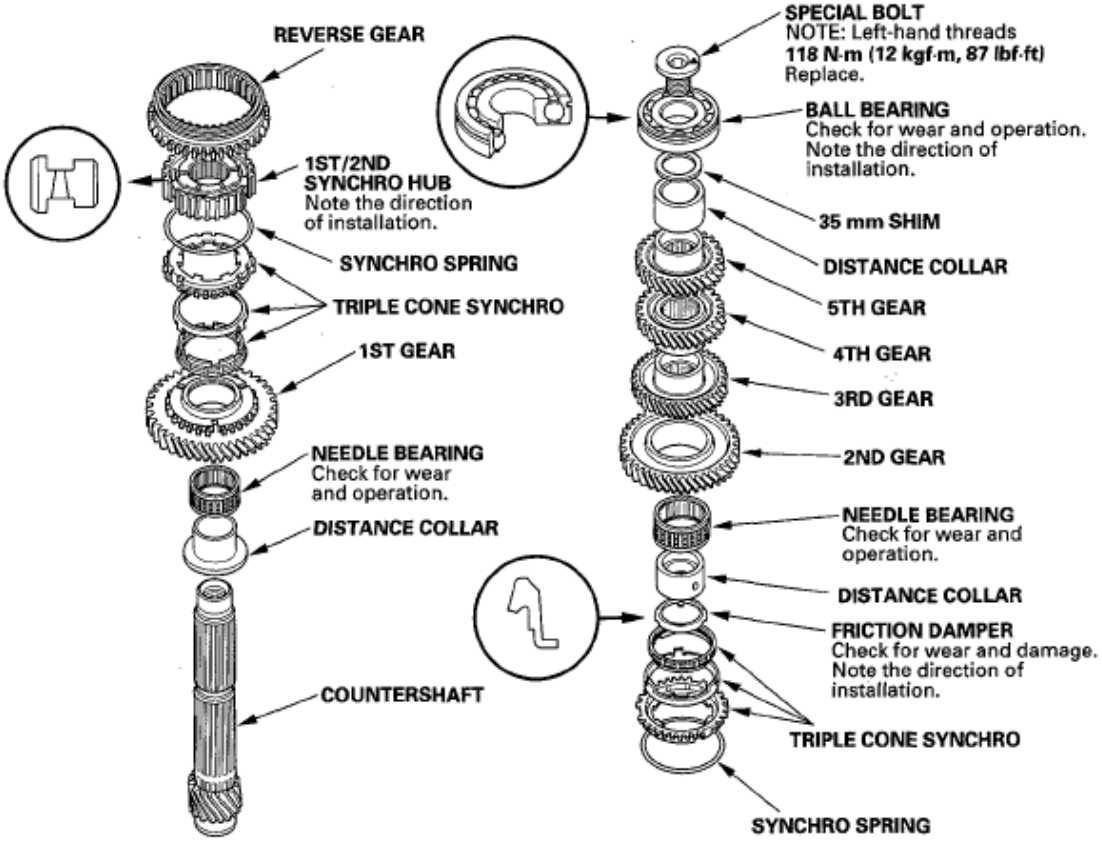


Fig. 105: Exploded View Of Countershaft
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Special Tools Required

- Driver handle 07746-0030100
- Attachment, 30 mm I.D. 07746-0030300

NOTE: Refer to the EXPLODED VIEW, as needed, during this procedure.

1. Clean all parts in solvent, dry them, and apply manual transmission fluid (MTF) to all contact surfaces.
2. Install the distance collar, needle bearing, and 1st gear onto the countershaft.
3. Install the triple cone synchro assembly (A) by aligning the synchro cone fingers (B) with the grooves in 1st gear (C), then install the synchro spring (D).

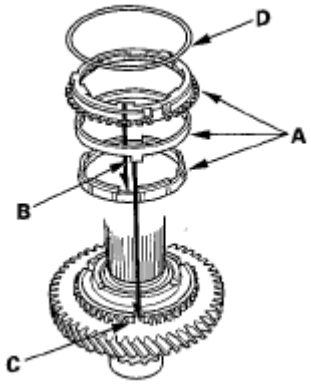


Fig. 106: Aligning Synchro Cone Fingers With Grooves In 1st Gear
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Install the 1st/2nd synchro hub (A) by aligning the synchro ring fingers (B) with the grooves in the 1st/2nd synchro hub (C).

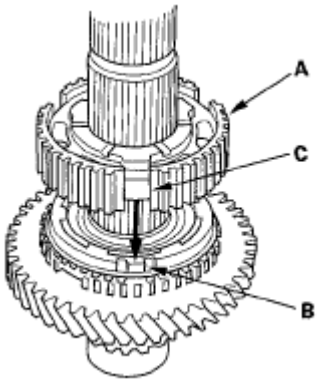


Fig. 107: Aligning Synchro Ring Fingers
Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Install the reverse gear.
6. Install the synchro spring (A).

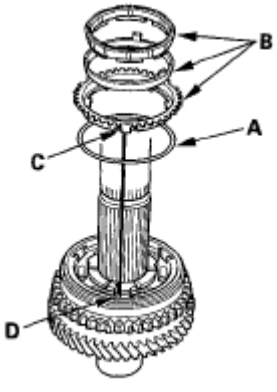


Fig. 108: Identifying Synchro Spring
Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. Install the triple cone synchro assembly (B) by aligning the synchro ring fingers (C) with the grooves in the 1st/2nd synchro hub (D).
8. Install the distance collar (A) and friction damper (B) by aligning the friction damper fingers (C) with the grooves in the 1st/2nd synchro hub (D).

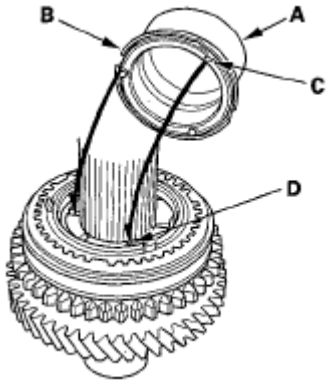


Fig. 109: Identifying Distance Collar, Friction Damper And Friction Damper Fingers
Courtesy of AMERICAN HONDA MOTOR CO., INC.

9. Install the needle bearing.
10. Install 2nd gear (A) by aligning the synchro cone fingers (B) with the grooves (C) in 2nd gear.

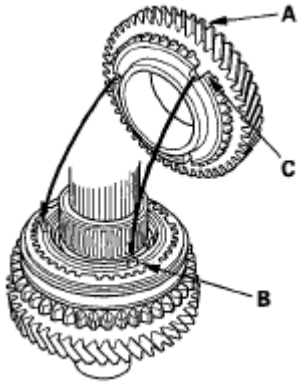


Fig. 110: Identifying Synchro Cone Fingers, Grooves And 2nd Gear
Courtesy of AMERICAN HONDA MOTOR CO., INC.

11. Support the countershaft (A) on steel blocks, then install 3rd gear (B) using the driver handle (C) and a press (D).

NOTE: Do not exceed the maximum pressure.

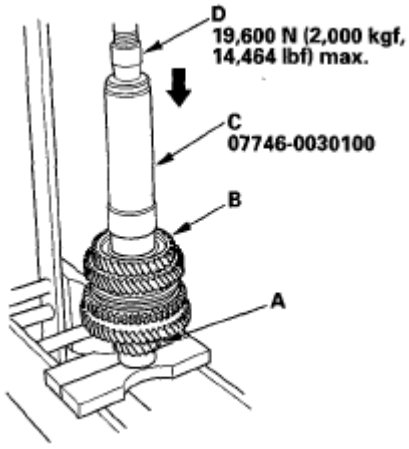


Fig. 111: Pressing 3rd Gear
Courtesy of AMERICAN HONDA MOTOR CO., INC.

12. Install 4th gear (A) using the driver handle (B) and a press (C).

NOTE: Do not exceed the maximum pressure.

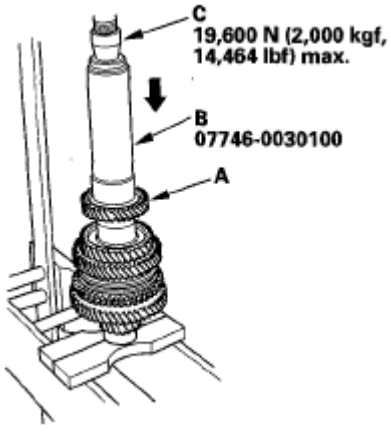


Fig. 112: Pressing 4th Gear
Courtesy of AMERICAN HONDA MOTOR CO., INC.

13. Install 5th gear (A) using the driver handle (B) and a press (C).

NOTE: Do not exceed the maximum pressure.

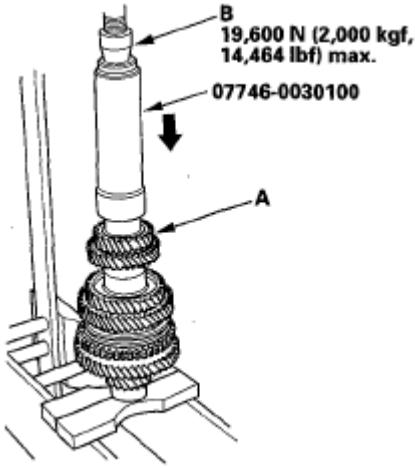


Fig. 113: Pressing 5th Gear
Courtesy of AMERICAN HONDA MOTOR CO., INC.

14. Install the distance collar (A), 35 mm shim, and old ball bearing (B) using the driver handle (C), 30 mm I.D. attachment (D), and a press (E).

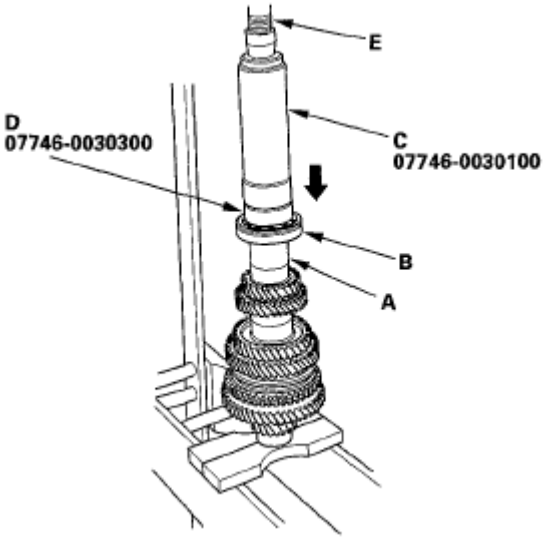


Fig. 114: Installing Distance Collar, Shim, Old Ball Bearing And Driver Handle
Courtesy of AMERICAN HONDA MOTOR CO., INC.

15. Measure the clearance between the old bearing (A) and the 35 mm shim (B) with a feeler gauge (C).

Standard: 0.04-0.10 mm (0.0016-0.0039 in.)

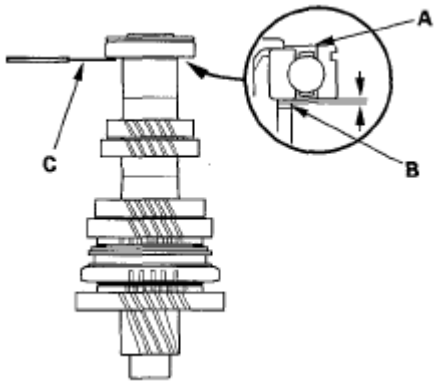


Fig. 115: Measuring Clearance Between Old Bearing And Shim
Courtesy of AMERICAN HONDA MOTOR CO., INC.

16. If the clearance is more than the standard, select a new shim from the following table. If the clearance measured in step 15 is within the standard, replace only the ball bearing.

35 mm Shim

SHIM THICKNESS CHART

	Part Number	Thickness
A	23981-PPP-000	0.87 mm (0.034 in.)
AA	23981-PPP-900	0.91 mm (0.036 in.)
B	23982-PPP-000	0.95 mm (0.037 in.)
AB	23982-PPP-900	0.99 mm (0.039 in.)
C	23983-PPP-000	1.03 mm (0.041 in.)
AC	23983-PPP-900	1.07 mm (0.042 in.)
D	23984-PPP-000	1.11 mm (0.044 in.)
AD	23984-PPP-900	1.15 mm (0.045 in.)
E	23985-PPP-000	1.19 mm (0.047 in.)
AE	23985-PPP-900	1.23 mm (0.048 in.)
F	23986-PPP-000	1.27 mm (0.050 in.)
AF	23986-PPP-900	1.31 mm (0.052 in.)
G	23987-PPP-000	1.35 mm (0.053 in.)
AG	23987-PPP-900	1.39 mm (0.055 in.)
H	23988-PPP-000	1.43 mm (0.056 in.)
AH	23988-PPP-900	1.47 mm (0.058 in.)
J	23989-PPP-000	1.51 mm (0.060 in.)
AJ	23989-PPP-900	1.55 mm (0.061 in.)
K	23990-PPP-000	1.59 mm (0.063 in.)
AK	23990-PPP-900	1.63 mm (0.064 in.)
L	23991-PPP-000	1.67 mm (0.066 in.)
AL	23991-PPP-900	1.71 mm (0.067 in.)

M	23992-PPP-000	1.75 mm (0.069 in.)
AM	23992-PPP-900	1.79 mm (0.070 in.)
N	23993-PPP-000	1.83 mm (0.072 in.)
AN	23993-PPP-900	1.87 mm (0.074 in.)
P	23994-PPP-000	1.91 mm (0.075 in.)
AP	23994-PPP-900	1.95 mm (0.077 in.)
Q	23995-PPP-000	1.99 mm (0.078 in.)

17. Support the ball bearing (A) on steel blocks (B), then use a press (C) and an attachment (D) to press the countershaft (E) out of the ball bearing.

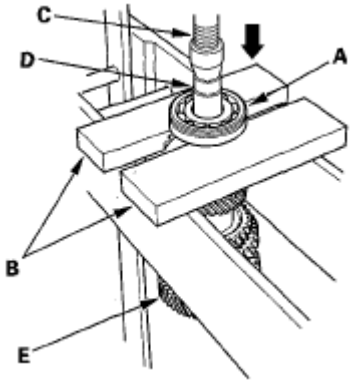


Fig. 116: Pressing Countershaft Out Of Ball Bearing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

18. If necessary, install the 35 mm shim selected in step 16.
19. Install the distance collar (A), 35 mm shim, and new ball bearing (B) using the driver handle (C), 30 mm I.D. attachment (D), and a press (E), then recheck the clearance.

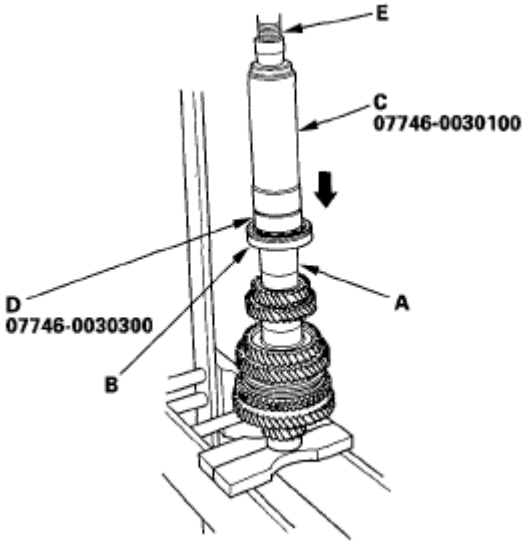


Fig. 117: Installing Distance Collar, Shim And Ball Bearing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

20. Securely clamp the countershaft assembly in a bench vise with wood blocks (A).

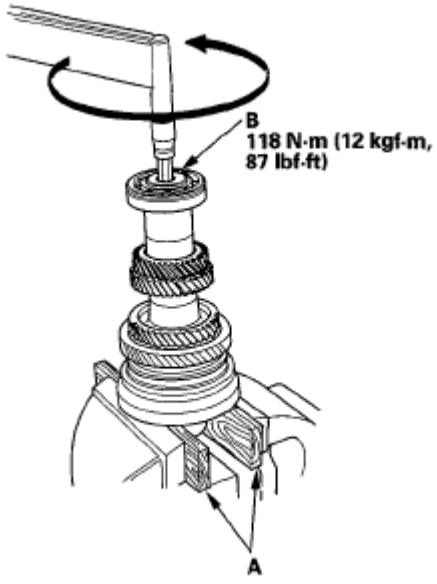


Fig. 118: Installing Countershaft Assembly With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

21. Apply MTF to the new special bolt (B), then tighten it (left-hand threads).

SYNCHRO SLEEVE AND HUB INSPECTION AND REASSEMBLY

1. Inspect gear teeth on all synchro hubs and synchro sleeves for wear (rounded off corners).
2. Install each synchro hub (A) in its mating synchro sleeve (B), and check for free movement. Make sure to match the three sets of longer teeth (C) (120 degrees apart) on the synchro sleeve with the three sets of deeper grooves (D) in the synchro hub.

NOTE:

- **If replacement is required, always replace the synchro sleeve and synchro hub as a set.**
- **Do not install the synchro sleeve with its longer teeth in the 1st/2nd synchro hub slots (E) because it will damage the spring ring.**

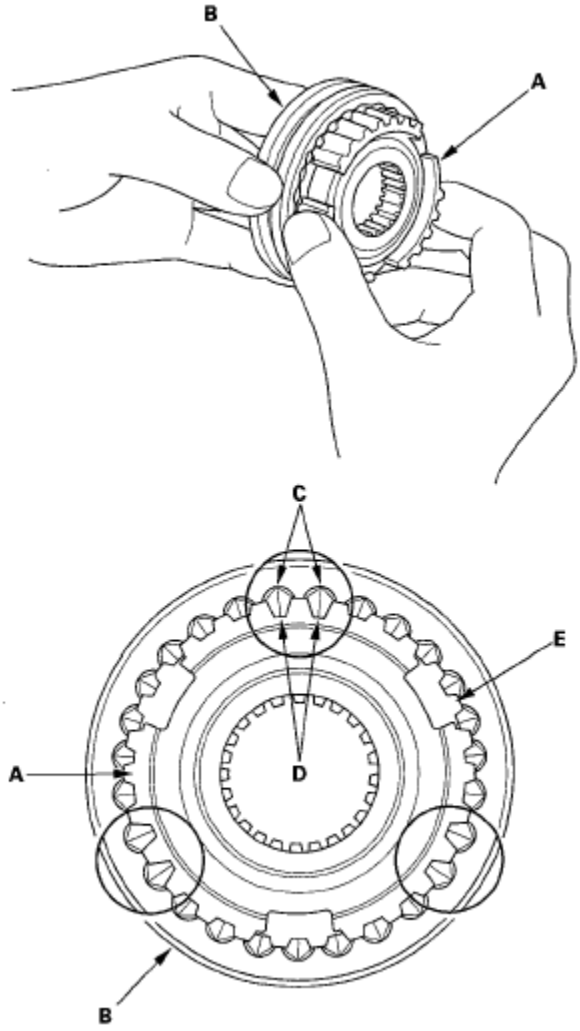


Fig. 119: Inspecting Gear Teeth On Synchro Hubs And Synchro Sleeves
Courtesy of AMERICAN HONDA MOTOR CO., INC.

SYNCHRO RING AND GEAR INSPECTION

1. Inspect the inside of each synchro ring (A) for wear. Inspect the teeth (B) on each synchro ring for wear (rounded off).

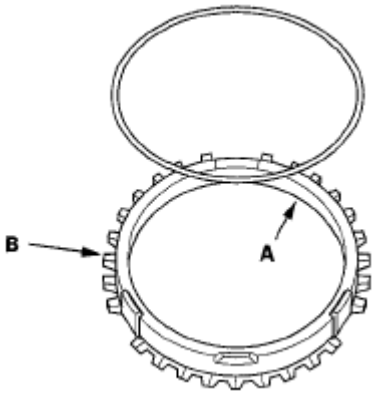


Fig. 120: Inspecting Synchro Ring For Wear
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Example of synchro ring teeth

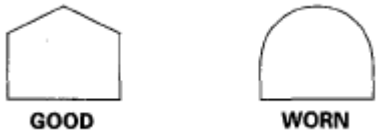


Fig. 121: Identifying Example Of Synchro Ring Teeth
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Inspect the teeth (A) on each synchro sleeve and matching teeth on each gear for wear (rounded off).

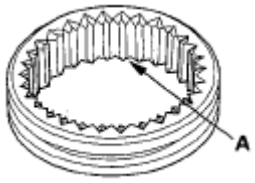


Fig. 122: Identifying Synchro Sleeve Teeth
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Example of synchro sleeve teeth and gear teeth

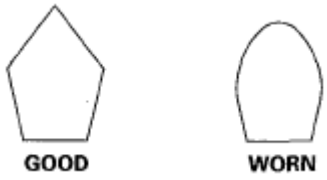


Fig. 123: Identifying Example Of Synchro Sleeve Teeth And Gear Teeth
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Inspect the thrust surface (A) on each gear hub for wear.

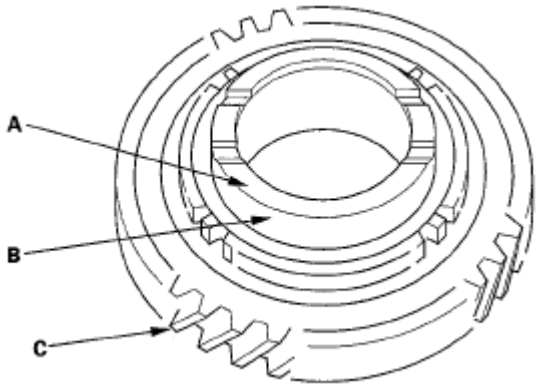


Fig. 124: Identifying Thrust Surface On Gear Hub
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Inspect the cone surface (B) on each gear hub for wear and roughness.
5. Inspect the teeth on all gears (C) for uneven wear, scoring, and cracks.
6. Coat the cone surface of each gear with manual transmission fluid (MTF), and place its synchro ring on it. Rotate the synchro ring, making sure that it does not slip.
7. Measure the clearance between each gear (A) and its synchro ring (B) all around the gear. Hold the synchro ring against the gear evenly while measuring the clearance. If the clearance is less than the service limit, replace the synchro ring and gear.

Synchro Ring-to-Gear Clearance

Standard: 0.70-1.49 mm (0.028-0.059 in.)

Service Limit: 0.4 mm (0.016 in.)

Double Cone Synchro and Triple Cone Synchro-to-Gear Clearance

Standard:

①: Outer Synchro Ring (B) to Synchro Cone (C)
0.70—1.19 mm (0.028—0.047 in.)
②: Synchro Cone (C) to Gear (A)
0.50—1.04 mm (0.020—0.041 in.)
③: Outer Synchro Ring (B) to Gear (A)
0.95—1.68 mm (0.037—0.066 in.)
Service Limit:
①: 0.3 mm (0.012 in.)
②: 0.3 mm (0.012 in.)
③: 0.6 mm (0.024 in.)

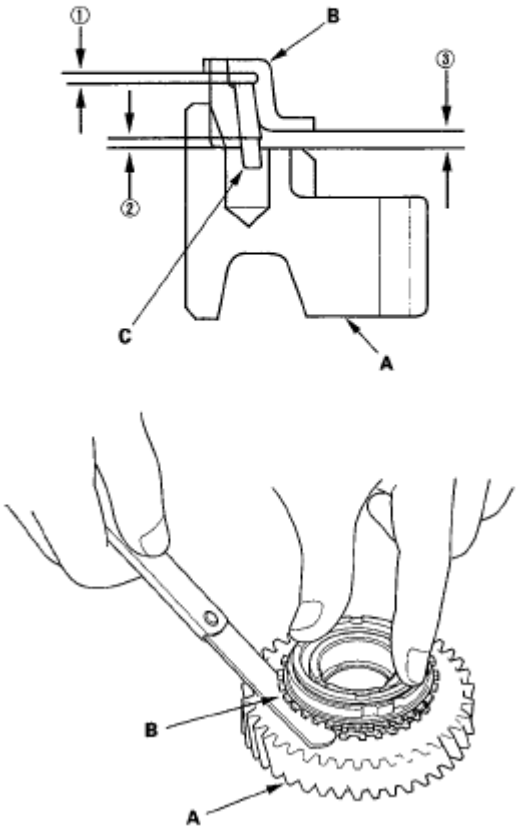


Fig. 125: Measuring Clearance Between Each Gear And Synchro Ring
Courtesy of AMERICAN HONDA MOTOR CO., INC.

MAINSHAFT BEARING AND OIL SEAL REPLACEMENT

Special Tools Required

- Oil seal driver 07JAD-PL90100
- Adjustable bearing puller, 20-40 mm 07736-A01000B
- Attachment, 42 x 47 mm 07746-0010300
- Driver 07749-0010000
- Slide hammer, 3/8 "-16 UNF commercially available

1. Remove the ball bearing (A) from the clutch housing (B) using the 20-40 mm adjustable bearing puller (C) and a commercially available 3/8 "-16 UNF slide hammer (D).

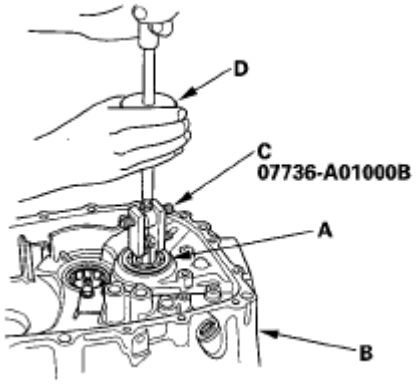


Fig. 126: Removing Ball Bearing Of Clutch Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Remove the 28 x 43 x 7 mm oil seal (A) from the transmission side. Be careful when removing the seal so the clutch housing is not damaged.

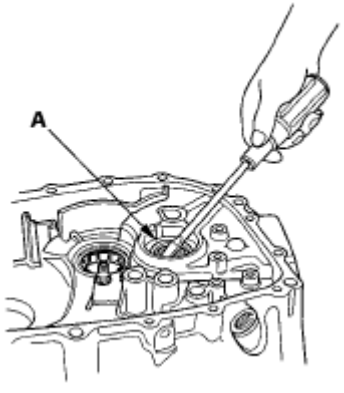


Fig. 127: Removing Oil Seal
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Drive in the new 28 x 43 x 7 mm oil seal from the transmission side using the 42 x 47 mm attachment (A) and driver (B).

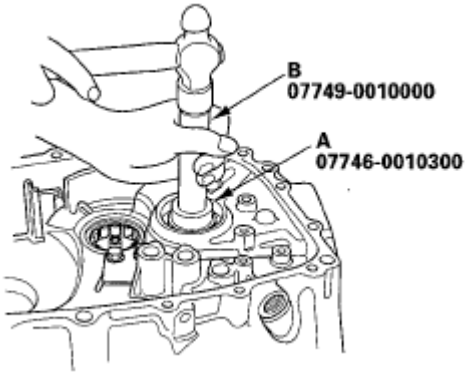


Fig. 128: Installing Oil Seal
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Drive in the new ball bearing (A) from the transmission side using the oil seal driver (B).

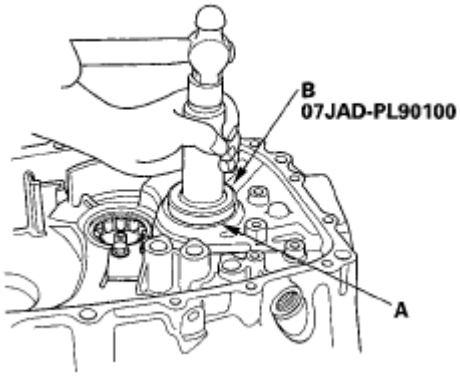


Fig. 129: Installing Ball Bearing Of Transmission Side
Courtesy of AMERICAN HONDA MOTOR CO., INC.

COUNTERSHAFT BEARING REPLACEMENT

Special Tools Required

- Oil seal driver 07JAD-PL90100
- Adjustable bearing puller, 20-40 mm 07736-A01000B
- Slide hammer, 3/8 "-16 UNF commercially available

1. Remove the bearing set plate (A) from the clutch housing (B).

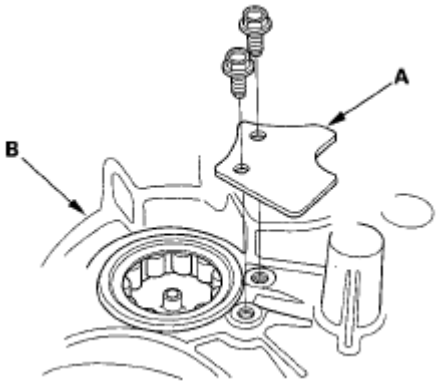


Fig. 130: Identifying Bearing Set Plate And Clutch Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Remove the needle bearing (A) using the 20-40 mm adjustable bearing puller (B) and a commercially available 3/8 "-16 UNF slide hammer (C), then remove the oil guide plate C (D).

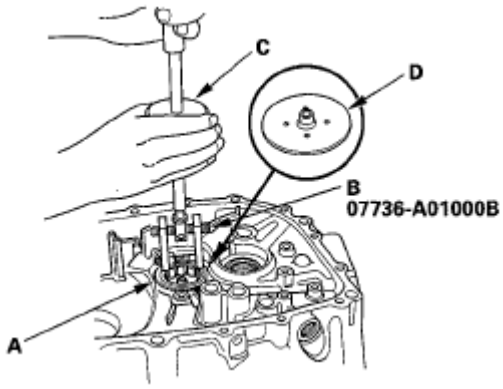


Fig. 131: Removing Needle Bearing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Position the oil guide plate C (A) and new needle bearing (B) in the bore of the clutch housing (C).

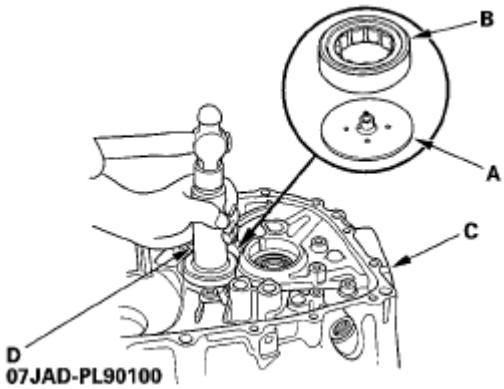


Fig. 132: Positioning Oil Guide Plate, Needle Bearing And Clutch Housing

Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Install the needle bearing using the oil seal driver (D).
5. Install the bearing set plate (A) with bolts (B).

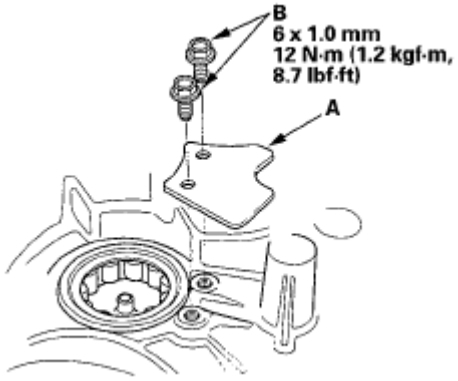


Fig. 133: Identifying Bearing Set Plate With Bolts With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

MAINSHAFT THRUST CLEARANCE ADJUSTMENT

Special Tools Required

- Mainshaft holder 07GAJ-PG20110
- Mainshaft base 07GAJ-PG20130

1. Remove the 72 mm shim (A) and oil guide plate M from the transmission housing (B).

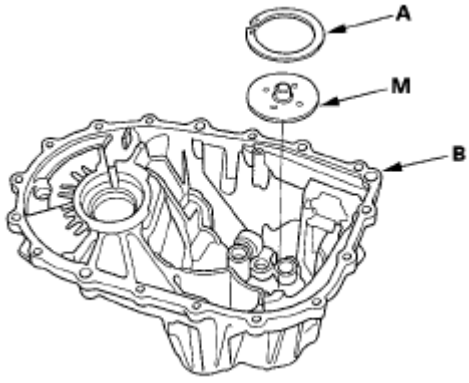


Fig. 134: Identifying Shim, Oil Guide Plate M And Transmission Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Thoroughly clean the 28 mm spring washer (A) and 28 mm washer (B) before installing them on the clutch housing side bail bearing (C).

NOTE: Install the spring washer in the direction shown.

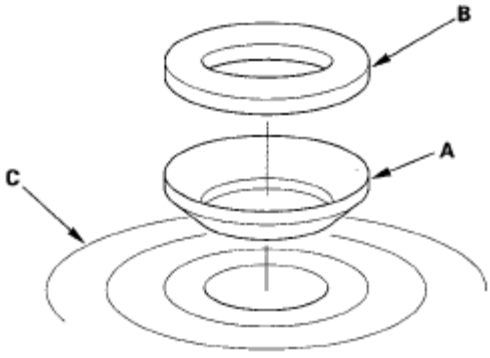


Fig. 135: Identifying Spring Washer, Washer And Clutch Housing Side Bail Bearing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Install the 3rd/4th synchro hub, the 4th/5th gear distance collar, the 5th synchro hub, the MBS distance collar, and the angular ball bearing on the mainshaft.

NOTE: Refer to the MAINSHAFT REASSEMBLY Exploded View (see MAINSHAFT REASSEMBLY).

4. Install the mainshaft in the clutch housing.
5. Place the transmission housing over the mainshaft and onto the clutch housing.
6. Tighten the clutch and transmission housings with several 8 mm bolts.

NOTE: It is not necessary to use sealing agent between the housings.

7. Lightly tap on the mainshaft with a plastic hammer.
8. Attach the mainshaft holder (A) and mainshaft base (B) to the mainshaft as follows:
   - Back out the mainshaft holder bolt (C), and loosen the two hex bolts (D).
   - Fit the holder over the mainshaft so its lip is towards the transmission.
   - Align the mainshaft holder lip around the groove at the inside of the mainshaft splines, then tighten the hex bolts.

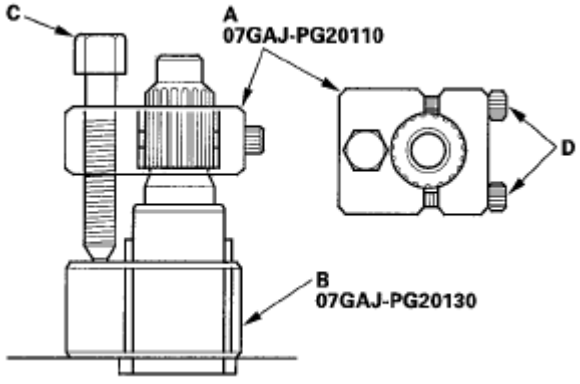


Fig. 136: Identifying Mainshaft Holder, Mainshaft Base, Mainshaft Holder Bolt And Hex Bolts
Courtesy of AMERICAN HONDA MOTOR CO., INC.

9. Fully seat the mainshaft by tapping its end with a plastic hammer.
10. Thread in the mainshaft holder bolt until it just contacts the wide surface of the mainshaft base.
11. Zero a dial gauge (A) on the end of the mainshaft.

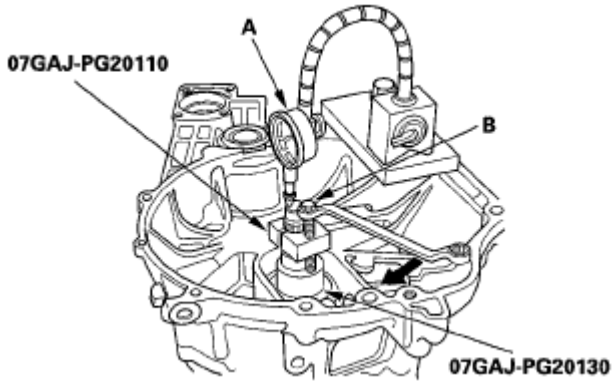


Fig. 137: Measuring Mainshaft End Play With Dial Gauge
Courtesy of AMERICAN HONDA MOTOR CO., INC.

12. Turn the mainshaft holder bolt (B) clockwise, stop turning when the dial gauge has reached its maximum movement. The reading on the dial gauge is the amount of mainshaft thrust clearance.

NOTE: Do not turn the mainshaft holder bolt more than 60 degrees after the needle of the dial gauge stops moving. Applying more pressure with the mainshaft holder bolt could damage the transmission.

13. If the reading is within the standard, the clearance is correct. If the reading is not within the standard, select the appropriate shim needed from the table, and recheck the thrust clearance.

Standard: 0.11-0.17 mm (0.004-0.007 in.)

(Example)

Measure reading: 1.93 mm (0.0759 in.)

Subtract the total clearance measurement from the middle of the clearance standard 0.14 mm (0.0056 in.)

1.93 - 0.14 = 1.79 mm (0.0704 in.)

Select the shim closest to the amount calculated, for example the 1.80 mm (0.0709 in.) shim.

14. With oil guide plate M and the appropriate size shim installed in the transmission housing, check the thrust clearance again to verify the clearance is within the standard.

72 mm Shim

SHIM THICKNESS CHART

	Part Number	Thickness
A	23931-P21-000	0.60 mm (0.024 in.)
B	23932-P21-000	0.63 mm (0.025 in.)
C	23933-P21-000	0.66 mm (0.026 in.)
D	23934-P21-000	0.69 mm (0.027 in.)
E	23935-P21-000	0.72 mm (0.028 in.)
F	23936-P21-000	0.75 mm (0.030 in.)
G	23937-P21-000	0.78 mm (0.031 in.)
H	23938-P21-000	0.81 mm (0.032 in.)
I	23939-P21-000	0.84 mm (0.033 in.)
J	23940-P21-000	0.87 mm (0.034 in.)
K	23941-P21-000	0.90 mm (0.035 in.)
L	23942-P21-000	0.93 mm (0.037 in.)
M	23943-P21-000	0.96 mm (0.038 in.)
N	23944-P21-000	0.99 mm (0.039 in.)
O	23945-P21-000	1.02 mm (0.040 in.)
P	23946-P21-000	1.05 mm (0.041 in.)
Q	23947-P21-000	1.08 mm (0.043 in.)
R	23948-P21-000	1.11 mm (0.044 in.)
S	23949-P21-000	1.14 mm (0.045 in.)
T	23950-P21-000	1.17 mm (0.046 in.)
U	23951-P21-000	1.20 mm (0.047 in.)
V	23952-P21-000	1.23 mm (0.048 in.)
W	23953-P21-000	1.26 mm (0.050 in.)
X	23954-P21-000	1.29 mm (0.051 in.)
Y	23955-P21-000	1.32 mm (0.052 in.)
Z	23956-P21-000	1.35 mm (0.053 in.)

AA	23957-P21-000	1.38 mm (0.054 in.)
AB	23958-P21-000	1.41 mm (0.056 in.)
AC	23959-P21-000	1.44 mm (0.057 in.)
AD	23960-P21-000	1.47 mm (0.058 in.)
AE	23961-P21-000	1.50 mm (0.059 in.)
AF	23962-P21-000	1.53 mm (0.060 in.)
AG	23963-P21-000	1.56 mm (0.061 in.)
AH	23964-P21-000	1.59 mm (0.063 in.)
AI	23965-P21-000	1.62 mm (0.064 in.)
AJ	23966-P21-000	1.65 mm (0.065 in.)
AK	23967-P21-000	1.68 mm (0.066 in.)
AL	23968-P21-000	1.71 mm (0.067 in.)
AM	23969-P21-000	1.74 mm (0.069 in.)
AN	23970-P21-000	1.77 mm (0.070 in.)
AO	23971-P21-000	1.80 mm (0.071 in.)
AP	23972-PPP-J000	1.83 mm (0.072 in.)
AQ	23973-PPP-J000	1.86 mm (0.073 in.)
AR	23974-PPP-J000	1.89 mm (0.074 in.)
AS	23975-PPP-J000	1.92 mm (0.075 in.)
AT	23976-PPP-J000	1.95 mm (0.076 in.)
AV	23977-PPP-J000	1.98 mm (0.077 in.)
AW	23978-PPP-J000	2.01 mm (0.079 in.)
AX	23979-PPP-J000	2.04 mm (0.080 in.)
AY	23980-PPP-J000	2.07 mm (0.081 in.)
AZ	23981-PPP-J000	2.10 mm (0.082 in.)
BA	23982-PPP-J000	2.13 mm (0.083 in.)
BB	23983-PPP-J000	2.16 mm (0.085 in.)
BC	23984-PPP-J000	2.19 mm (0.086 in.)
BD	23985-PPP-J000	2.22 mm (0.087 in.)
BE	23986-PPP-J000	2.25 mm (0.088 in.)

TRANSMISSION REASSEMBLY

NOTE: Prior to reassembling, clean all parts in solvent, dry them, and apply manual transmission fluid (MTF) to any contact surfaces.

1. Install the magnet (A) and differential assembly (B).

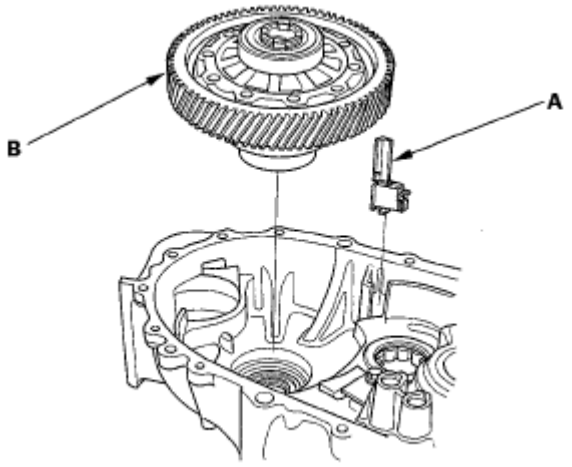


Fig. 138: Identifying Magnet And Differential Assembly
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Install the 28 mm spring washer (A) and 28 mm washer (B) over the ball bearing (C).

NOTE: Install the spring washer in the direction shown.

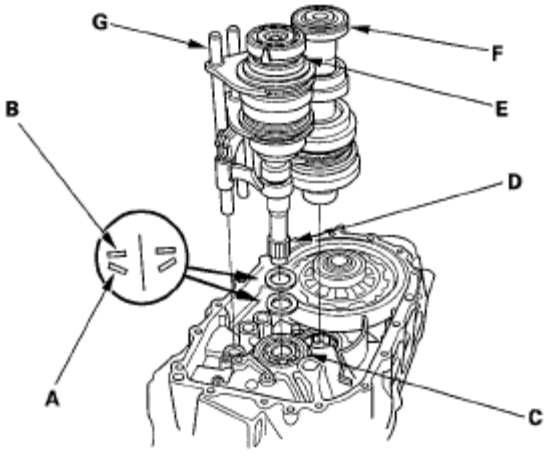


Fig. 139: Identifying Spring Washer, Washer And Ball Bearing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Apply vinyl tape to the mainshaft splines (D) to protect the seal. Install the mainshaft assembly (E) and countershaft assembly (F) into the shift fork assembly (G), as an assembly.
4. Install the reverse shift fork (A).

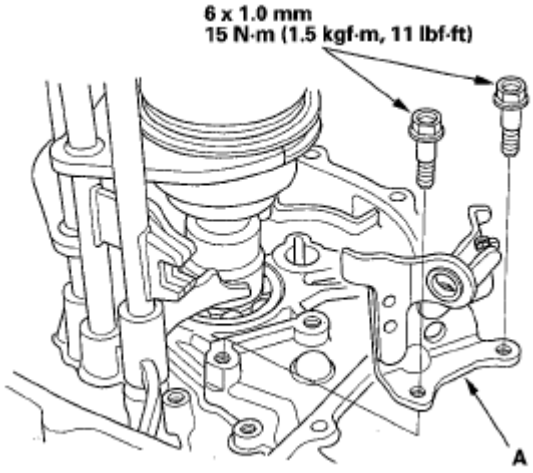


Fig. 140: Identifying Reverse Shift Fork With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Install the reverse idler gear (A) and reverse gear shaft (B) by aligning the mark (C) with the reverse gear shaft hole (D).

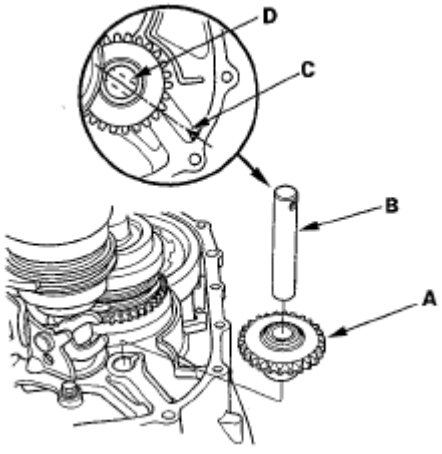


Fig. 141: Aligning Mark Of Reverse Gear Shaft Hole
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Install the reverse lock cam (A).

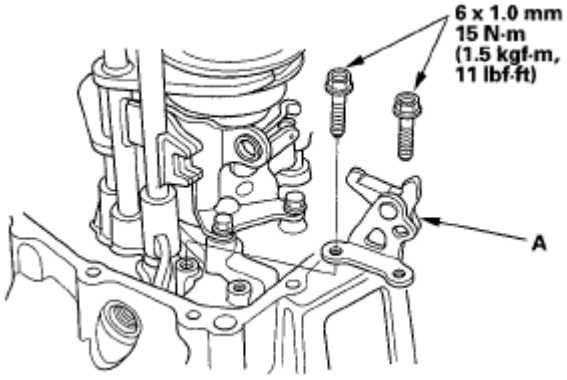


Fig. 142: Identifying Reverse Lock Cam With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. Select the proper size 72 mm shim (A) according to the measurements made during the Mainshaft Thrust Clearance Adjustment (see **MAINSHAFT THRUST CLEARANCE ADJUSTMENT**). Install the oil gutter plate (B), oil guide plate M, and 72 mm shim into the transmission housing (C).

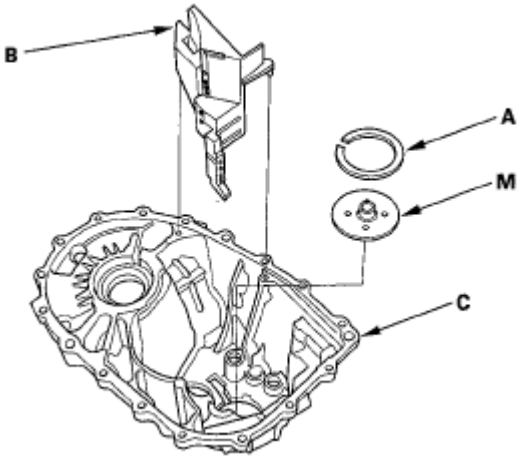


Fig. 143: Identifying Shim, Transmission Housing And Oil Gutter Plate
Courtesy of AMERICAN HONDA MOTOR CO., INC.

8. Clean any dirt and oil from the transmission housing sealing surface.
9. Apply liquid gasket, P/N 08718-0001 evenly to the mating surface of the transmission housing and the clutch housing. Install the component within 5 minutes of applying the liquid gasket.

NOTE:

- **If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.**
- **If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.**

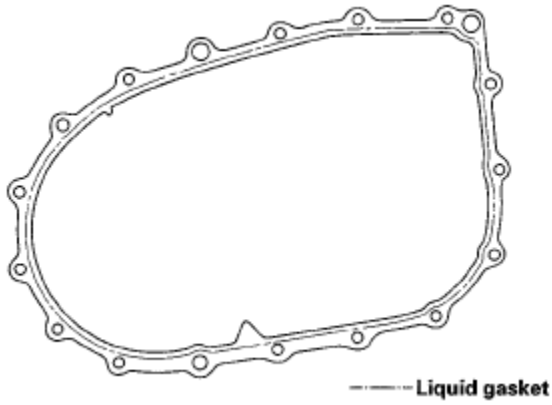


Fig. 144: Identifying Transmission Housing Gasket
Courtesy of AMERICAN HONDA MOTOR CO., INC.

10. Install the 14 x 20 mm dowel pins (A).

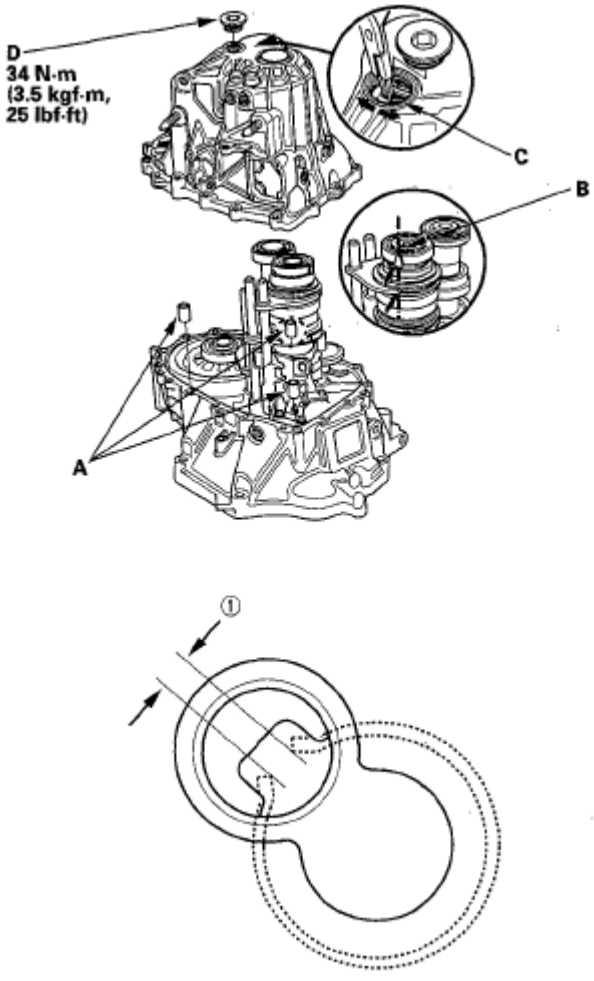


Fig. 145: Identifying Dowel Pins With Torque Specification

Courtesy of AMERICAN HONDA MOTOR CO., INC.

11. Set the tapered cone ring (B) as shown. Place the transmission housing over the clutch housing, being careful to line up the shafts.
12. Lower the transmission housing the rest of the way as you expand the 72 mm snap ring (C). Release the snap ring so it seats in the groove of the countershaft bearing.
13. Make sure the 72 mm snap ring is securely seated in the groove of the countershaft bearing.

    Dimension (1) as installed: 3.3-6.0 mm (0.13-0.24 in.)

14. Apply liquid gasket, P/N 08718-0001, evenly to the threads of the 32 mm searing cap (D) mating surface of the transmission housing.

    Install the component within 5 minutes of applying the liquid gasket.

NOTE:

- **If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.**
- **If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.**

15. Install transmission hangers A, B, and the 8 mm flange bolts, finger-tight.

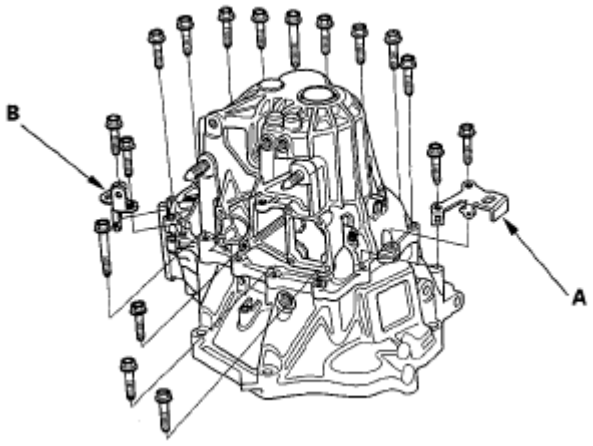


Fig. 146: Identifying Transmission Hangers And Flange Bolts
Courtesy of AMERICAN HONDA MOTOR CO., INC.

16. Tighten the 8 mm flange bolts in a crisscross pattern in several steps.

    Specified Torque: 8 x 1.25 mm 27 N.m (2.8 kgf.m, 20 lbf.ft)

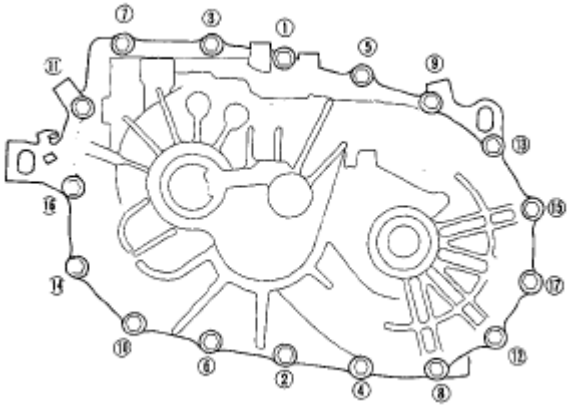


Fig. 147: Identifying Transmission Hangers Flange Bolt Tighten Sequence
Courtesy of AMERICAN HONDA MOTOR CO., INC.

17. Clean any dirt or oil from the change lever assembly sealing surface.
18. Apply liquid gasket, P/N 08718-0001, evenly to the mating surface of the change lever assembly and the transmission housing. Install the component within 5 minutes of applying the liquid gasket.

NOTE:

- **If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.**
- **If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.**
- **Allow it to cure at least 30 minutes after assembly before filling the transmission with MTF.**

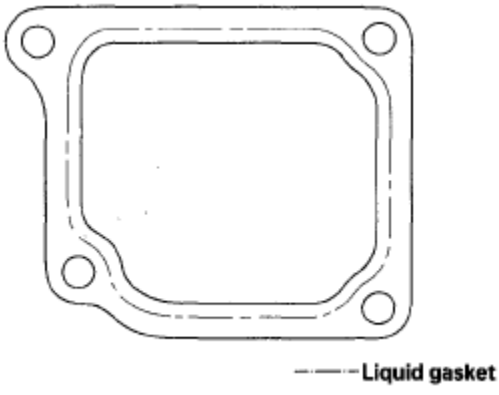


Fig. 148: Identifying Transmission Housing Gasket
Courtesy of AMERICAN HONDA MOTOR CO., INC.

19. Install the 8 x 14 mm dowel pins (A) and the change lever assembly (B).

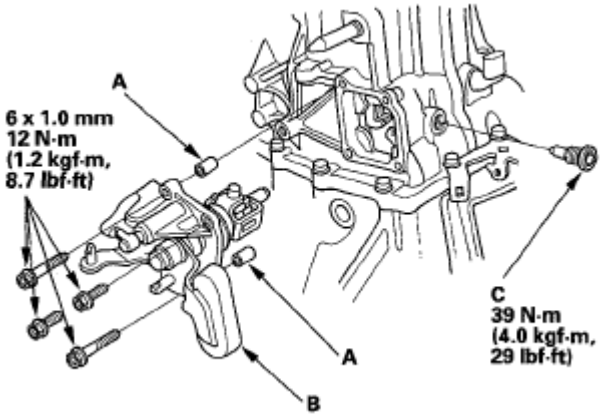


Fig. 149: Identifying Dowel Pins And Lever Assembly With Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

20. Apply liquid gasket, P/N 08718-0001, evenly to the mating surface of the threads of the inter lock bolt and the transmission housing. Install the component within 5 minutes of applying the liquid gasket.

NOTE:

- **If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.**
- **If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.**

21. Install the drain plug (A), and 10 mm flange bolt (B) with new washers. Install the filler plug (C) finger-tight.

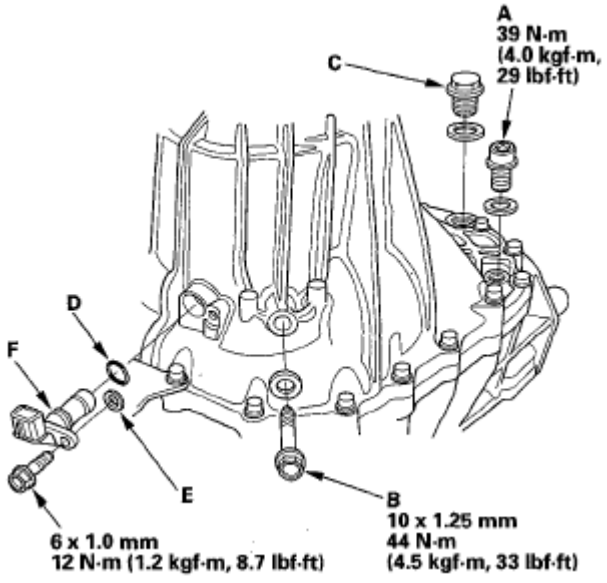


Fig. 150: Identifying Drain Plug, Flange Bolt And Washers With Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

22. Apply MTF to the new O-ring (D). Then install the new O-ring, the plain washer (E), and the output shaft (countershaft) speed sensor (F).
23. Install the detent bolts, springs, and steel balls (A) with new washers (B).

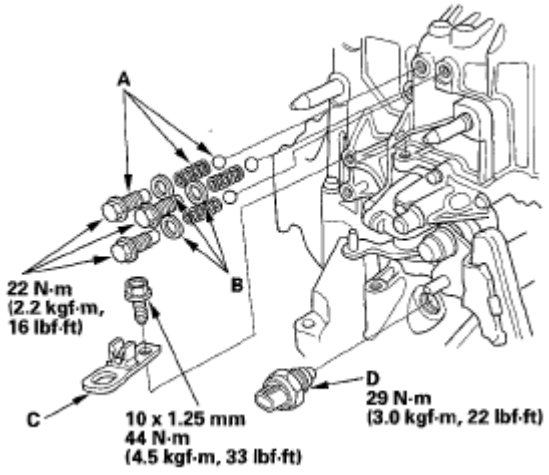


Fig. 151: Identifying Detent Bolts, Springs, Steel Balls And Washers With Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

24. Apply liquid gasket, P/N 08718-0001 evenly to the threads of the back-up light switch mating surface of the transmission housing. Install the component within 5 minutes of applying the liquid gasket.

NOTE:

- **If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.**
- **If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.**

25. Install the transmission hanger (C).
26. Install the 20 mm bolt (A) and 20 mm washer (B).

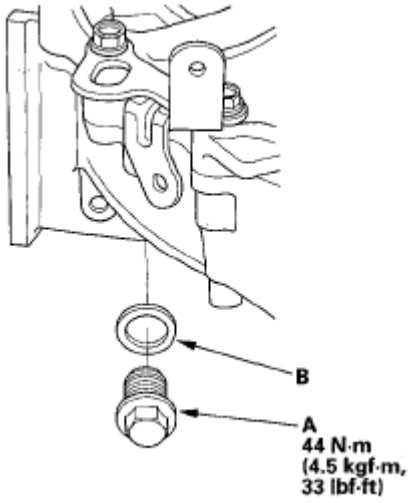


Fig. 152: Identifying Transmission Hanger, Bolt And Washer With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

27. 2WD: Apply MTF to the new O-ring (A). Then install the new O-ring and the side cover (B).

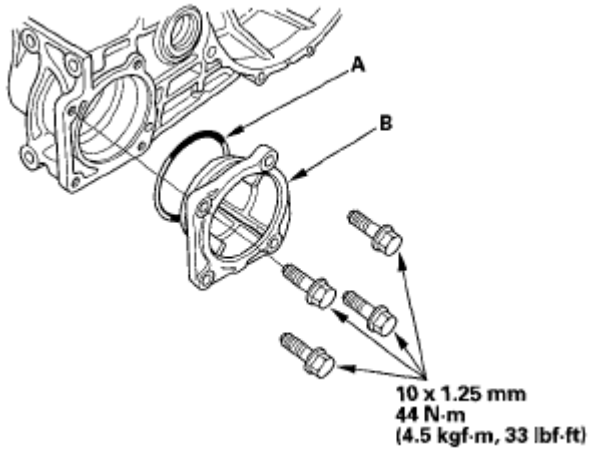


Fig. 153: Identifying O-Ring And Side Cover With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

28. 4WD: Apply MTF to the new O-ring (A). Then install the new O-ring, 10 x 20 mm dowel pin (B), and the transfer assembly (C).

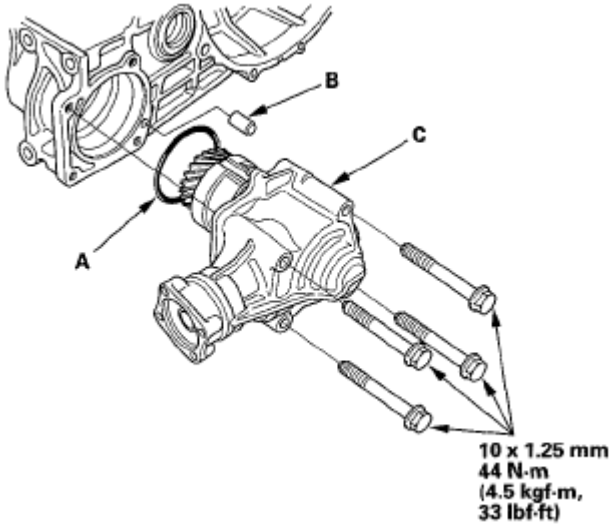


Fig. 154: Identifying O-Ring, Dowel Pin And Transfer Assembly With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

GEARSHIFT MECHANISM REPLACEMENT

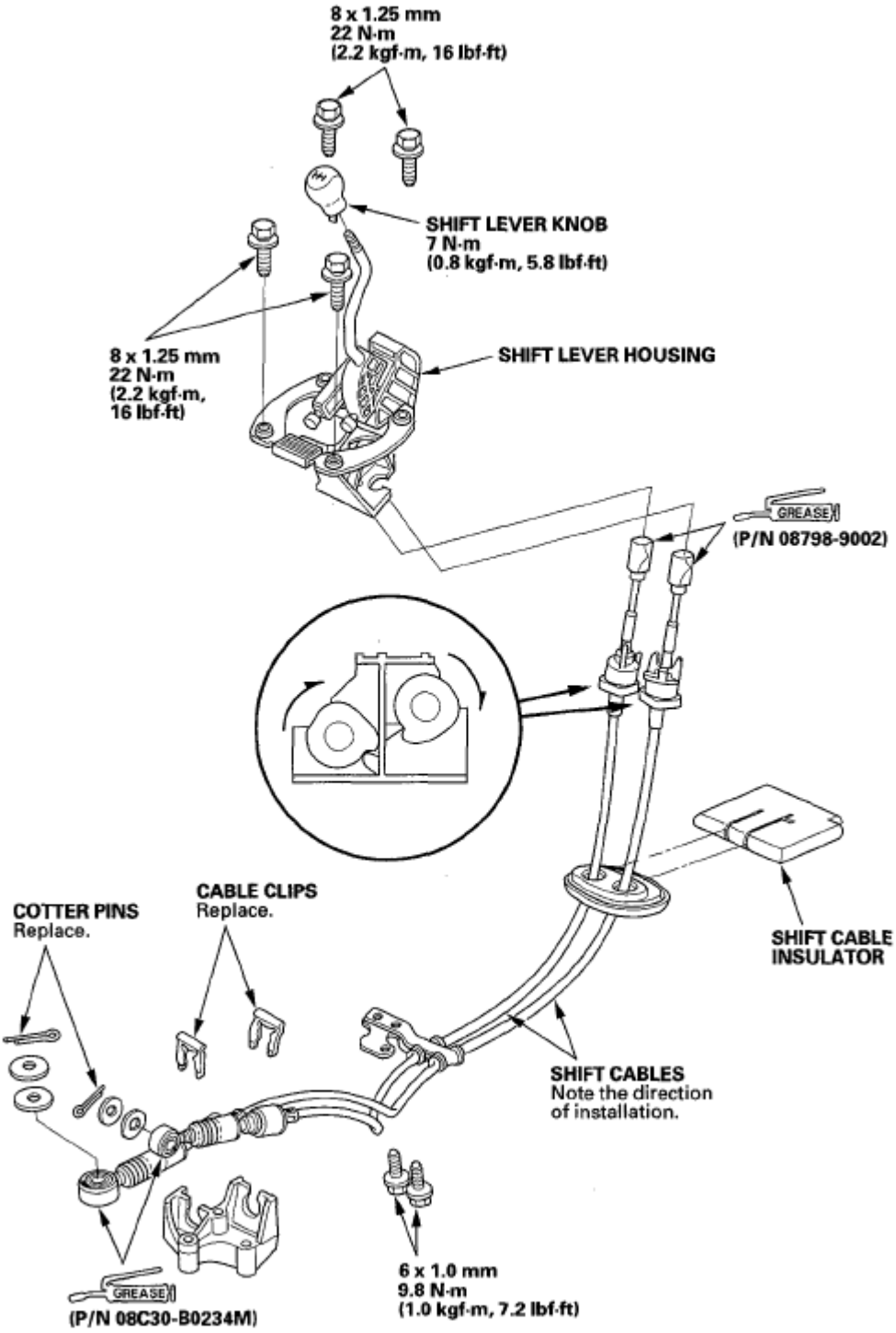


Fig. 155: Identifying Gearshift Components With Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

COMPONENT LOCATION INDEX

2WD

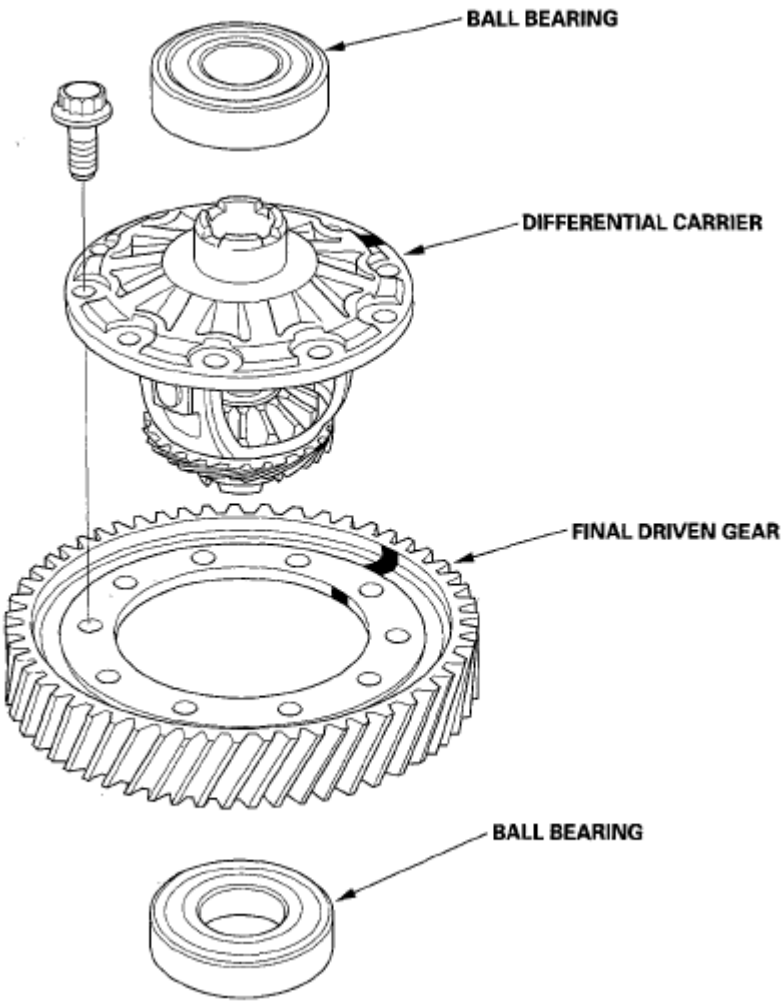


Fig. 156: Identifying M/T Differential Component Location (2WD)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4WD

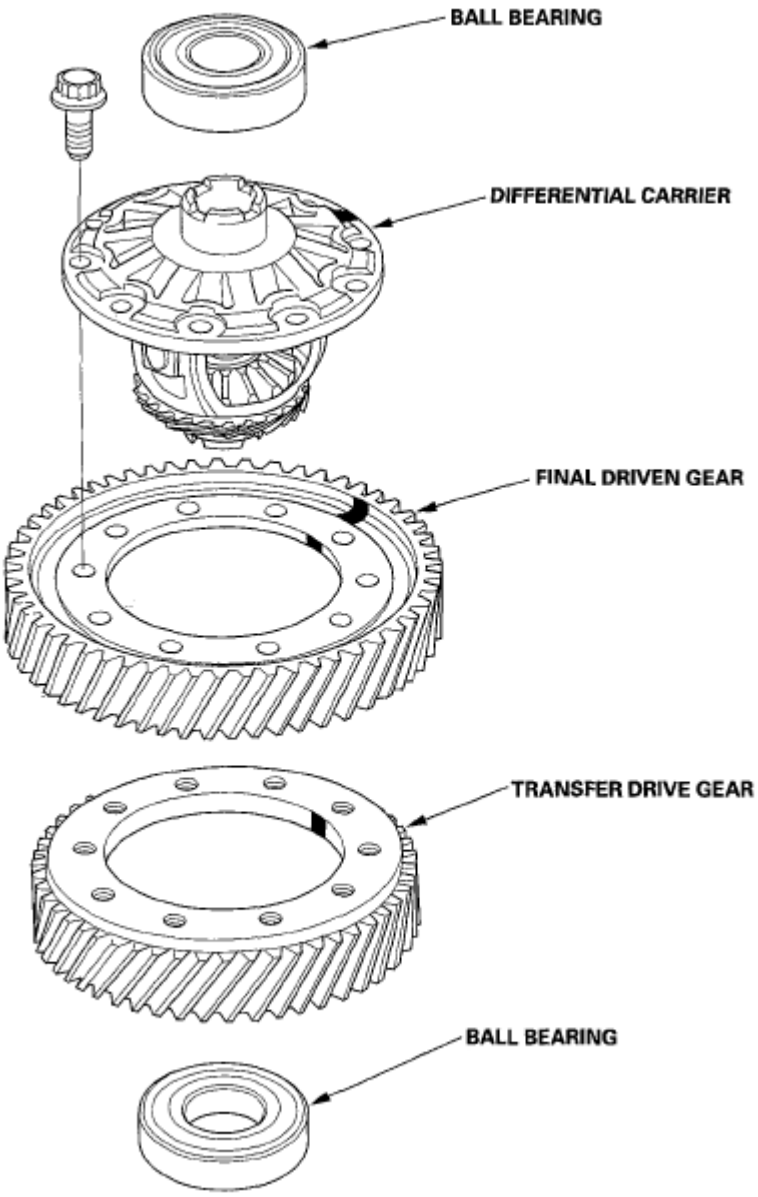


Fig. 157: Identifying M/T Differential Component Location (4WD)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

BACKLASH INSPECTION

1. Place the differential assembly on V-blocks (A), and install the intermediate shaft (B) and left driveshaft (C).

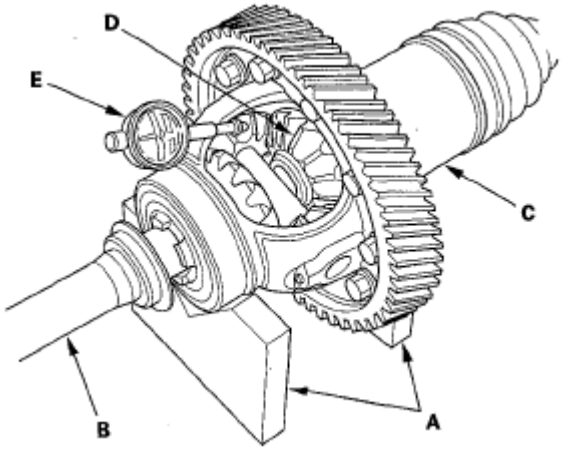


Fig. 158: Identifying Differential Assembly On V-Blocks, Intermediate Shaft And Left Driveshaft
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Measure the backlash of both pinion gears (D) with a dial indicator (E). If the backlash is not within the standard, replace the differential carrier.

   Standard (New): 0.05-0.15 mm (0.002-0.006 in.)

DIFFERENTIAL CARRIER, FINAL DRIVEN GEAR REPLACEMENT

2WD

1. Remove the bolts (left-hand threads) in a crisscross pattern in several steps, then remove the final driven gear (A) from the differential carrier (B).

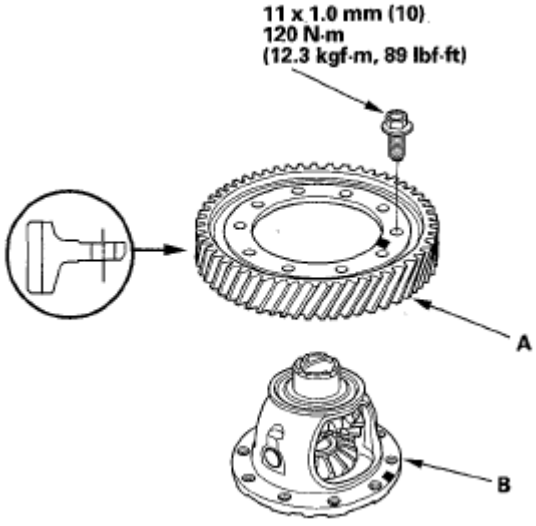


Fig. 159: Identifying Final Driven Gear And Differential Carrier With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Install the final driven gear with the chamfer on the inside diameter facing the carrier. Align the marks on the driven gear and the carrier. Tighten the bolts in a crisscross pattern in several steps.

DIFFERENTIAL CARRIER, FINAL DRIVEN GEAR, TRANSFER DRIVE GEAR REPLACEMENT

4WD

1. Remove the bolts (left-hand threads) in a crisscross pattern in several steps, then remove the transfer drive gear (A) and final driven gear (B) from the differential carrier (C).

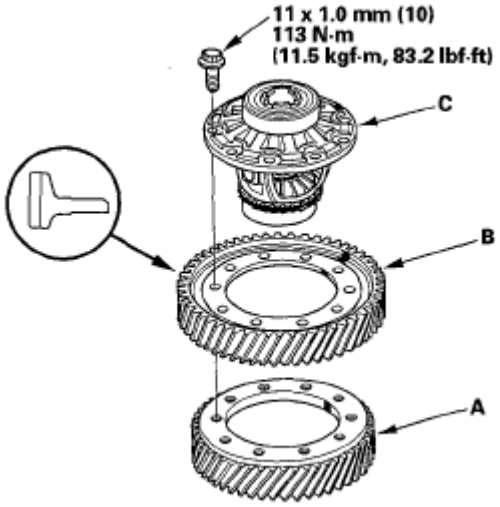


Fig. 160: Identifying Transfer Drive Gear, Final Driven Gear And Differential Carrier With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Install the final driven gear and transfer drive gear with the chamfer on the inside diameter facing the carrier. Align the marks on the driven gear, the transfer drive gear and the carrier. Tighten the bolts in a crisscross pattern in several steps.

CARRIER BEARING REPLACEMENT

Special Tools Required

Driver handle 07746-0030100

1. Check the carrier bearings for wear and rough rotation. If they rotate smoothly and their rollers show no signs of wear, the bearings are OK.
2. Remove the carrier bearings (A) with a commercially available bearing puller (B).

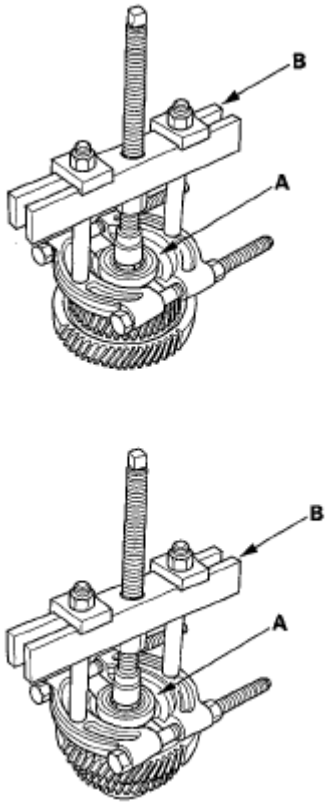


Fig. 161: Identifying Carrier Bearings And Bearing Puller
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Install the new bearings (A) with the driver handle (B) and a press. Press on each bearing until it bottoms. There should be no clearance between the bearings and the carrier.

NOTE: Place the seal (C) part of the bearing toward the outside of the differential, then install it.

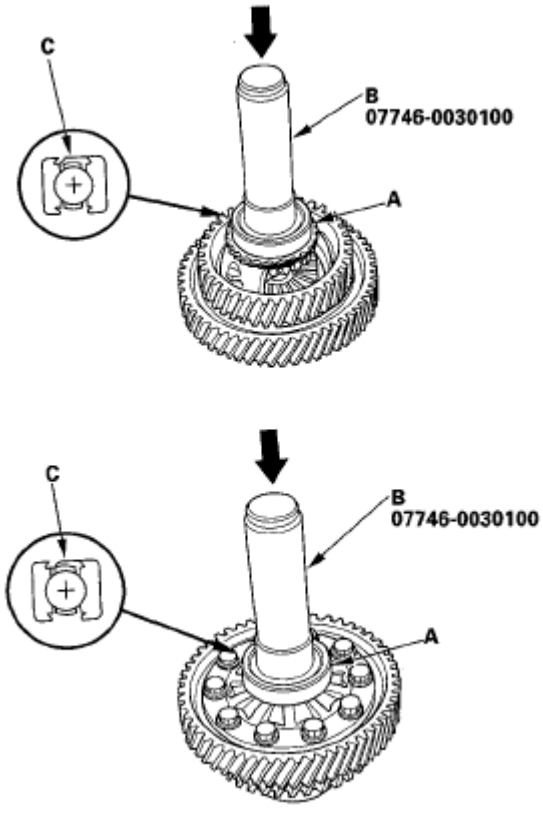


Fig. 162: Installing Bearings With Driver Handle
Courtesy of AMERICAN HONDA MOTOR CO., INC.

OIL SEAL REPLACEMENT

Special Tools Required

- Oil seal driver attachment 07NAD-P20A100
- Driver 07749-0010000

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

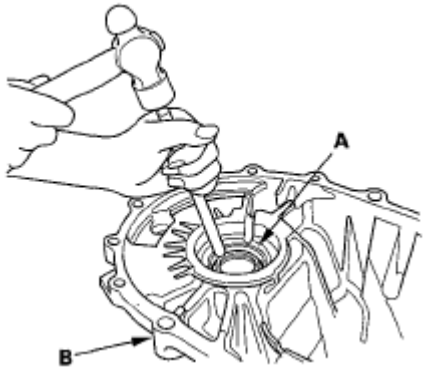


Fig. 163: Removing Oil Seal Of Transmission Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Remove the oil seal (A) from the clutch housing (B).

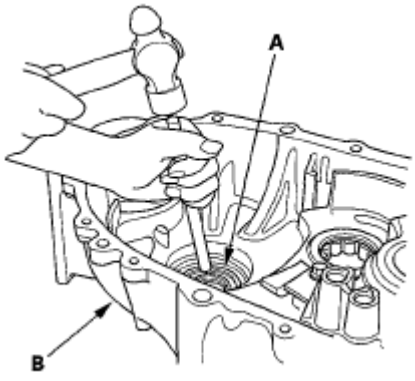


Fig. 164: Removing Oil Seal Of Clutch Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Install the new oil seal in the transmission housing with the oil seal driver attachment (A) and driver (B).

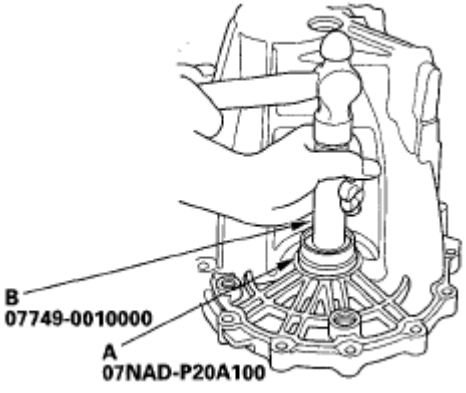


Fig. 165: Installing Oil Seal, Oil Seal Driver And Driver
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Install the new oil seal in the clutch housing with the oil seal driver attachment (A) and driver (B).

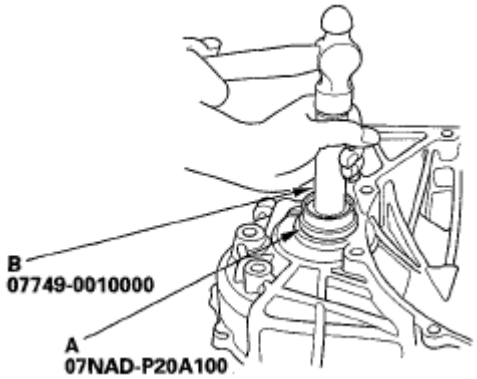


Fig. 166: Installing Oil Seal In Clutch Housing With Oil Seal Driver Attachment And Driver
Courtesy of AMERICAN HONDA MOTOR CO., INC.

DIFFERENTIAL THRUST CLEARANCE ADJUSTMENT

Special Tools Required

Driver handle 07746-0030100

1. If you removed the 80 mm shim (A) from the transmission housing (B), reinstall the same sized shim.

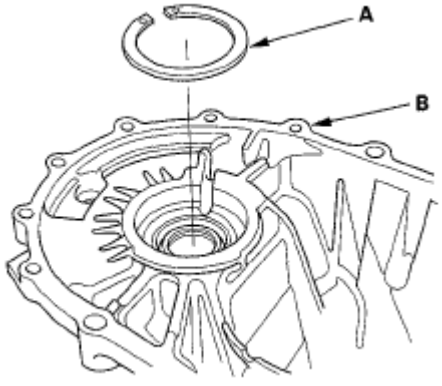


Fig. 167: Identifying Shim, Transmission Housing And Same Sized Shim
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Install the differential assembly (A) into the clutch housing (B).

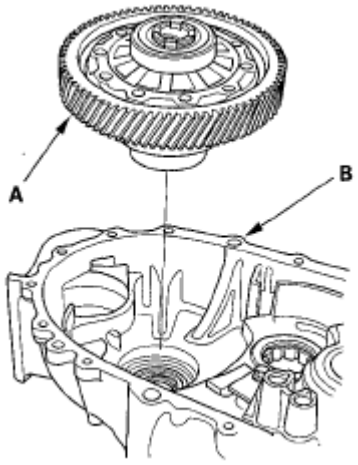


Fig. 168: Identifying Differential Assembly And Clutch Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Install the transmission housing onto the clutch housing, then tighten the 8 mm flange bolts in a crisscross pattern in several steps (see step 16).

   Specified Torque: 8 x 1.25 mm 27 N.m (2.8 kgf.m, 20 lbf.ft)

4. Use the driver handle (A) to bottom the differential assembly in the clutch housing (B).

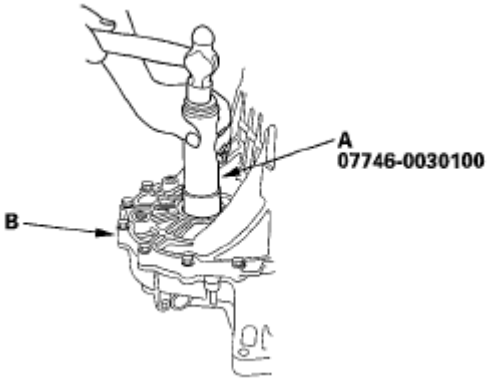


Fig. 169: Installing Differential Assembly In Clutch Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Measure the clearance between the 80 mm shim and the bearing outer race in the transmission housing.

   Standard: 0-0.10 mm (0-0.0039 in.)

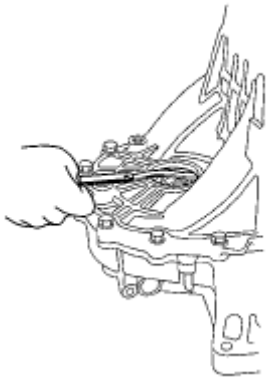


Fig. 170: Measuring Clearance Between Shim And Bearing Outer Race In Transmission Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. If the clearance is more than the standard, select a new 80 mm shim from the following table. If the clearance measured in step 5 is within the standard, go to step 9.

80 mm Shim

SHIM THICKNESS CHART

	Part Number	Thickness
A	41441-PL3-B00	1.0 mm (0.039 in.)
B	41442-PL3-B00	1.1 mm (0.043 in.)
C	41443-PL3-B00	1.2 mm (0.047 in.)
D	41444-PL3-B00	1.3 mm (0.051 in.)
E	41445-PL3-B00	1.4 mm (0.055 in.)
F	41446-PL3-B00	1.5 mm (0.059 in.)
G	41447-PL3-B00	1.6 mm (0.063 in.)
H	41448-PL3-B00	1.7 mm (0.067 in.)
J	41449-PL3-B00	1.8 mm (0.071 in.)
K	41450-PL3-B00	1.05 mm (0.041 in.)
L	4H51-PL3-B00	1.15 mm (0.045 in.)
M	41452-PL3-B00	1.25 mm (0.049 in.)
N	41453-PL3-B00	1.35 mm (0.053 in.)
P	41454-PL3-B00	1.45 mm (0.057 in.)
Q	41455-PL3-B00	1.55 mm (0.061 in.)
R	41456-PL3-B00	1.65 mm (0.065 in.)
S	41457-PL3-B00	1.75 mm (0.069 in.)

7. Remove the bolts and the transmission housing.
8. Replace the thrust shim selected in step 6, then recheck the clearance.
9. Reinstall the transmission housing.

BACKLASH INSPECTION ON VEHICLE

1. Raise the vehicle on a lift.
2. Shift to neutral.
3. Make a reference mark (A) across the No. 1 propeller shaft (B) and the transfer companion flange (C).

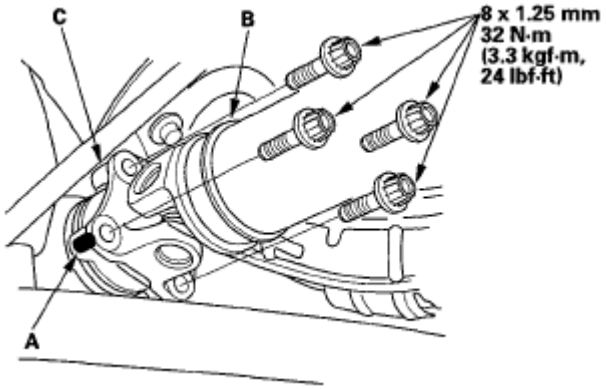


Fig. 171: Identifying Reference Mark No. 1 Propeller Shaft And Transfer Companion Flange With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Separate the propeller shaft from the transfer assembly.
5. Set a dial indicator (A) on the transfer companion flange (B), then measure the transfer gear backlash.

   Standard: 0.06-0.16 mm (0.002-0.006 in.)

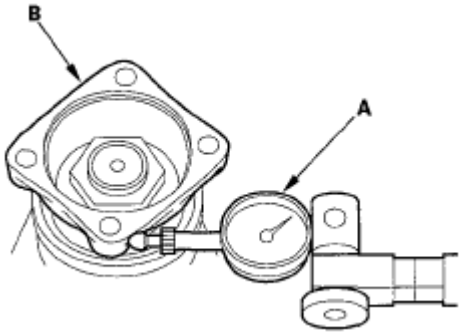


Fig. 172: Identifying Dial Indicator And Transfer Companion Flange
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. If the measurement is not within the standard, remove the transfer assembly (see **TRANSFER ASSEMBLY REMOVAL**) and inspect the transfer assembly (see **TRANSFER ASSEMBLY INSPECTION**).
7. Check for fluid leaks between the mating surfaces of the transfer assembly and transmission.
8. If there is a leak, remove the transfer assembly from the transmission (see **TRANSFER ASSEMBLY**

REMOVAL), and replace the O-ring. Also check for fluid leaks between the mating surfaces of the transfer housing and transfer holder. If there is a leak, remove the transfer holder, and replace the O-ring.

9. Check for leaks between the transfer companion flange and transfer oil seal.
10. If there is a leak, remove the transfer assembly from the transmission (see **TRANSFER ASSEMBLY REMOVAL**), and replace the transfer oil seal and O-ring on the transfer output shaft. If oil seal and O-ring replacement is required, you will need to check and adjust the transfer gear tooth contact, transfer gear backlash, the tapered roller bearing starting torque, and the total starting torque (see **35 MM THRUST SHIM SELECTION**).

TRANSFER ASSEMBLY REMOVAL

1. Raise the vehicle on a lift.
2. Drain the transmission fluid. Reinstall the drain plug with a new washer (see **TRANSMISSION FLUID INSPECTION AND REPLACEMENT**).
3. Make reference marks (A) across the No.1 propeller shaft (B) and the companion flange (C).

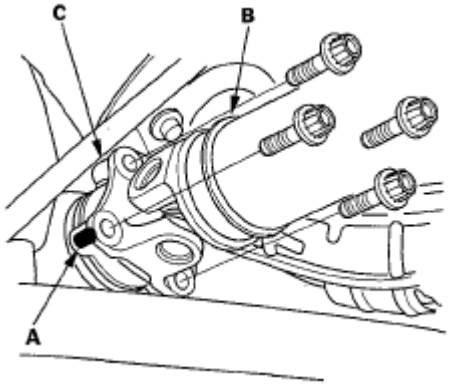


Fig. 173: Identifying Reference Marks Of No.1 Propeller Shaft And Companion Flange
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Separate the propeller shaft from the transfer assembly.
5. Remove the transfer assembly (A), 10 x 20 mm dowel pin (B), and O-ring (C).

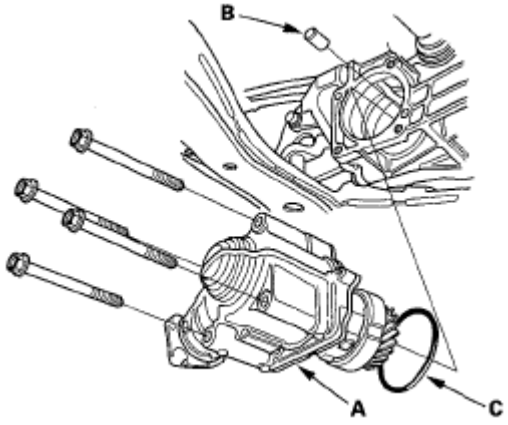


Fig. 174: Identifying Transfer Assembly, Dowel Pin And O-Ring
Courtesy of AMERICAN HONDA MOTOR CO., INC.

TRANSFER ASSEMBLY INSTALLATION

NOTE:

- **While installing the transfer assembly on the transmission, do not allow dust or other foreign particles to enter the transmission.**
- **Be careful not to damage the clutch housing with transfer gear.**

1. Apply manual transmission fluid (MTF) to the new O-ring (A). Then install it on the transfer assembly (B), then install the 10 x 20 mm dowel pin (C) on the transmission.

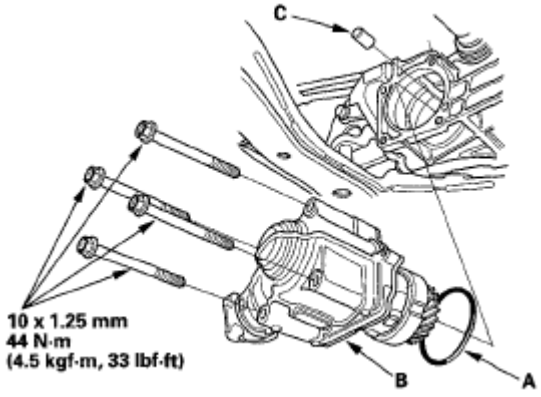


Fig. 175: Identifying O-Ring, Transfer Assembly And Dowel Pin With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Apply MTF to the transfer gear and transmission contact area, then install the transfer assembly on the transmission.
3. Install the propeller shaft (A) on the transfer assembly (B) by aligning the reference marks (C) you made.

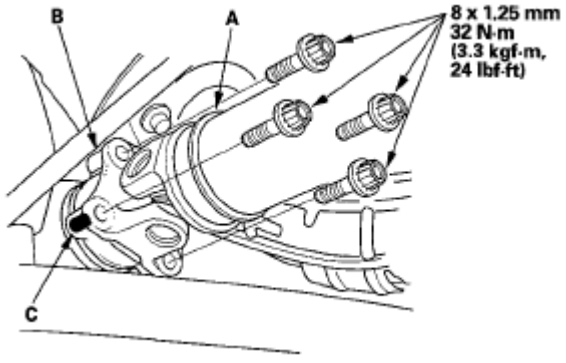


Fig. 176: Identifying Propeller Shaft On Transfer Assembly And Reference Marks With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Refill the transmission with recommended MTF (see **TRANSMISSION FLUID INSPECTION AND REPLACEMENT**).
5. Start the engine, and run it to normal operating temperature (the radiator fan comes on). Turn the engine off, and check the fluid level (see **TRANSMISSION FLUID INSPECTION AND REPLACEMENT**).
6. Test-drive the vehicle.

TRANSFER ASSEMBLY INSPECTION

TRANSFER GEAR (HYPOID GEAR) BACKLASH MEASUREMENT

1. Remove the transfer assembly (see **TRANSFER ASSEMBLY REMOVAL**).
2. Set a dial indicator (A) on the companion flange (B) as shown.

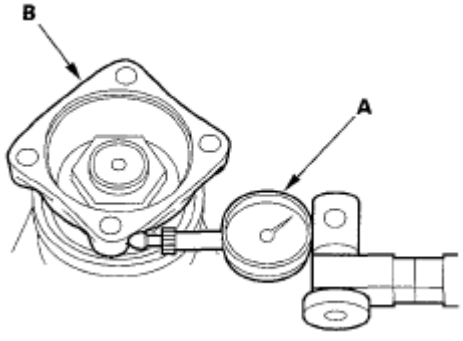


Fig. 177: Setting Dial Indicator On Companion Flange
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Measure the transfer gear backlash.

Standard: 0.06-0.16 mm (0.002-0.006 in.)

Total Starting Torque Measurement

4. Rotate the companion flange several times to seat the tapered roller bearings.
5. Securely clamp the transfer assembly in a bench vise with wood blocks.

Standard: 2.16-3.57 N.m (22.0-36.4 kgf.cm, 19.1-31.6 lbf.in)

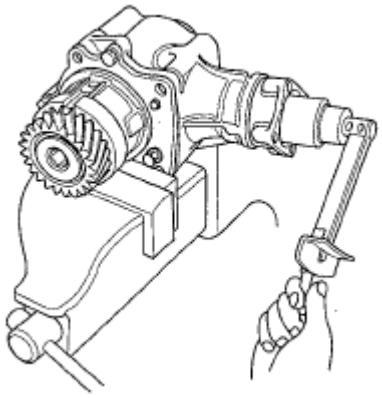


Fig. 178: Measuring Transfer Gear Backlash
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Measure the starting torque (companion flange side) using a beam-type torque wrench.

Transfer Drive Gear Tooth Contact Inspection

7. Remove the transfer assembly from the bench vise.
8. Remove the transfer holder assembly (A) from the transfer housing (B), then remove the dowel pin (C) and O-ring (D).

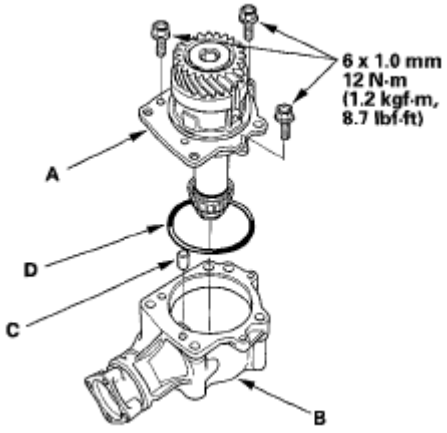


Fig. 179: Identifying Transfer Holder Assembly, Transfer Housing, Dowel Pin And O-Ring With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

9. Apply Prussian Blue to both sides of the transfer drive gear teeth lightly and evenly.

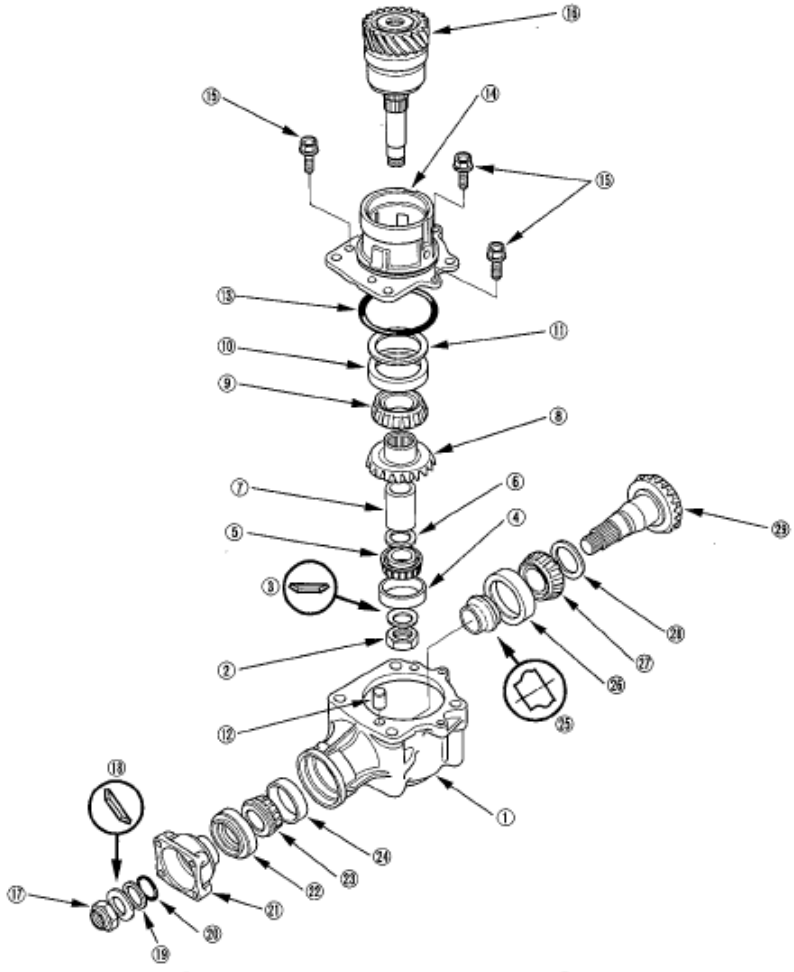
10. Install the transfer holder assembly to the transfer housing, then tighten the bolts. Do not install the O-ring.
11. Rotate the companion flange in both directions until the transfer gear rotates one full turn in both directions.
12. Remove the transfer holder, and check the transfer drive gear tooth contact pattern. The pattern should be centered on the gear tooth as shown.

Fig. 180: Identifying Gear Tooth
Courtesy of AMERICAN HONDA MOTOR CO., INC.

13. If the measurements are not within the standard or the tooth contact pattern is incorrect, disassemble the transfer assembly and repair it.

TRANSFER ASSEMBLY DISASSEMBLY

EXPLODED VIEW



① TRANSFER HOUSING
② 22 mm TRANSFER SHAFT LOCKNUT 118 N·m (12.0 kgf·m, 86.8 lbf·ft) Replace.
③ CONICAL SPRING WASHER Replace.
④ 57 mm TAPERED ROLLER BEARING OUTER RACE
⑤ 57 mm TAPERED ROLLER BEARING
⑥ 25 mm THRUST SHIM
⑦ TRANSFER COLLAR
⑧ TRANSFER DRIVE GEAR (HYPOID GEAR)
⑨ 76 mm TAPERED ROLLER BEARING
⑩ 76 mm TAPERED ROLLER BEARING OUTER RACE
⑪ 76 mm THRUST SHIM
⑫ DOWEL PIN
⑬ O-RING Replace.
⑭ TRANSFER HOLDER
⑮ 6 mm FRANGE BOLTS 12 N·m (1.2 kgf·m, 8.7 lbf·ft)
⑯ TRANSFER SHAFT ASSEMBLY
⑰ 22 mm TRANSFER OUTPUT SHAFT LOCKNUT 132—260 N·m (13.5—26.5 kgf·m, 97.6—192 lbf·ft) Replace.
⑱ CONICAL SPRING WASHER Replace.
⑲ BACK-UP RING
⑳ O-RING Replace.
㉑ COMPANION FLANGE
㉒ OIL SEAL Replace.
㉓ 50 mm TAPERED ROLLER BEARING
㉔ 50 mm TAPERED ROLLER BEARING OUTER RACE
㉕ TRANSFER SPACER Replace.
㉖ 62 mm TAPERED ROLLER BEARING OUTER RACE
㉗ 62 mm TAPERED ROLLER BEARING
㉘ 35 mm THRUST SHIM
㉙ TRANSFER OUTPUT SHAFT (HYPOID GEAR)

Fig. 181: Exploded View Of Transfer Assembly With Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Special Tools Required

- Holder handle 07JAB-001020B
- Companion flange holder 07RAB-TB4010A or 07RAB-TB4010B

1. Remove the transfer holder assembly (A) from the transfer housing (B), then remove the dowel pin (C)

and O-ring (D).

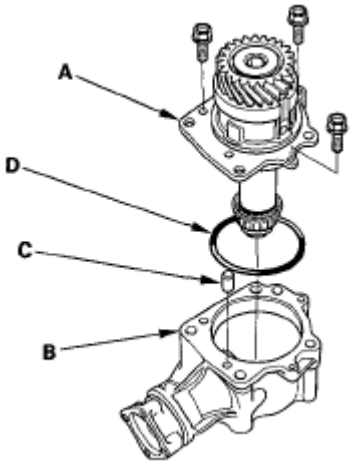


Fig. 182: Identifying Transfer Holder Assembly, Transfer Housing, Dowel Pin And O-Ring
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Cut the locking tab of the transfer output shaft locknut using a chisel. Keep all of the chiseled particles out of the transfer output shaft.

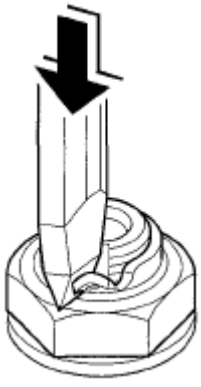


Fig. 183: Cutting Locking Tab Of Transfer Output Shaft Locknut With Chisel
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Securely clamp the transfer housing (A) in a beach vise (B) with wood blocks.

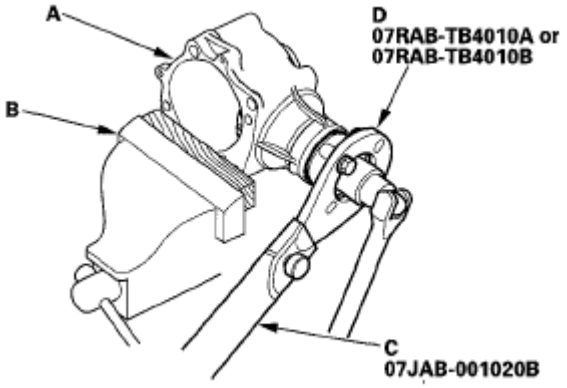


Fig. 184: Identifying Transfer Housing And Beach Vise
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Install the holder handle (C) and companion flange holder (D) on the companion flange, then loosen the transfer output shaft locknut.
5. Remove the holder handle and companion flange holder from the companion flange.
6. Remove the transfer output shaft locknut (A), conical spring washer (B), back-up ring (C), O-ring (D), and companion flange (E).

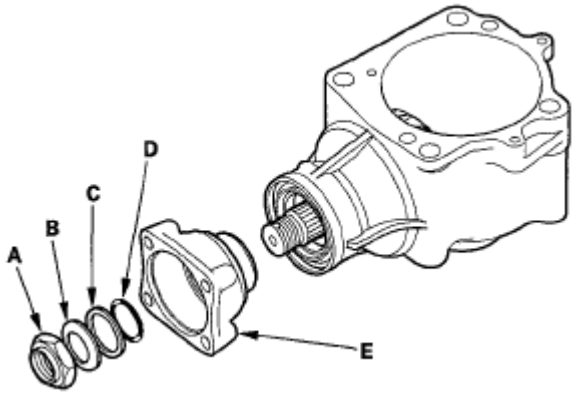


Fig. 185: Identifying Transfer Output Shaft Locknut, Conical Spring Washer, Back-Up Ring And O-Ring
Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. Remove the transfer output shaft (A), then remove the transfer spacer (B) from the transfer output shaft.

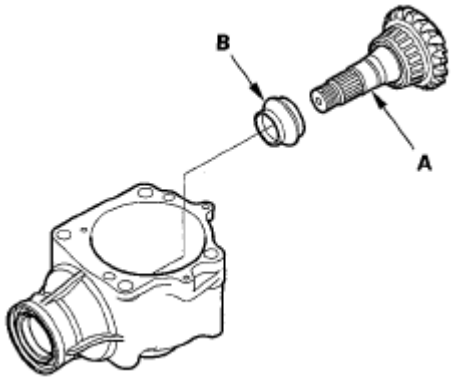


Fig. 186: Identifying Transfer Output Shaft And Transfer Spacer
Courtesy of AMERICAN HONDA MOTOR CO., INC.

8. Remove the oil seal (A) and the 50 mm tapered roller bearing (B) from the transfer housing (C).

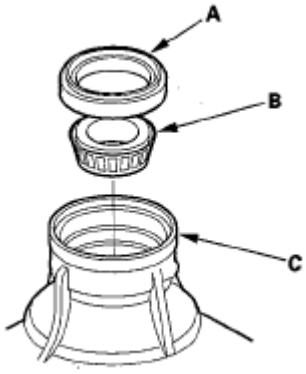


Fig. 187: Identifying Oil Seal, Roller Bearing And Transfer Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

TRANSFER HOLDER DISASSEMBLY

1. Cut the locking tab of the transfer shaft locknut using a chisel. Keep all of the chiseled particles out of the transfer shaft assembly.

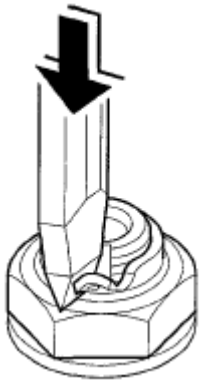


Fig. 188: Cutting Locking Tab Of Transfer Shaft Locknut With Chisel
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Hold the transfer shaft assembly (A) with a 14 mm hex wrench (B) clamped in a bench vise, then loosen the transfer shaft locknut.

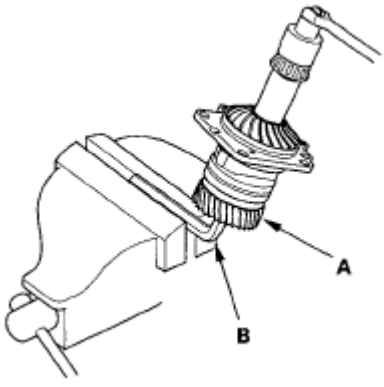


Fig. 189: Holding Transfer Shaft Assembly With Wrench
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Remove the transfer shaft locknut (A), conical spring washer (B), 57 mm tapered roller bearing (C), 25 mm thrust shim (D), transfer collar (E), transfer drive gear (F), and transfer shaft assembly (G) from the transfer holder (H).

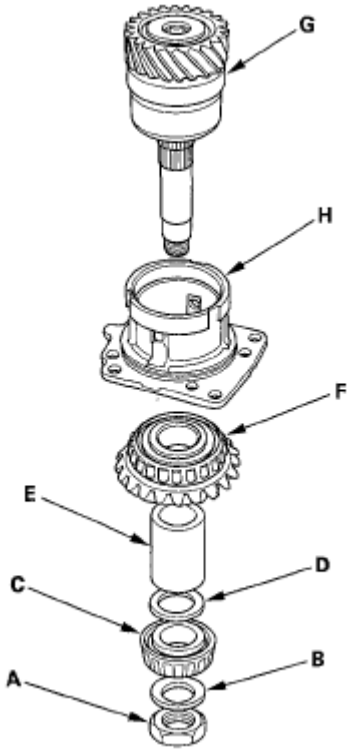


Fig. 190: Identifying Transfer Shaft Locknut, Conical Spring Washer, Tapered Roller Bearing And Thrust Shim
Courtesy of AMERICAN HONDA MOTOR CO., INC.

TRANSFER HOLDER TAPERED ROLLER BEARING OUTER RACE REMOVAL/INSTALLATION

Special Tools Required

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

NOTE: Coat all parts with manual transmission fluid (MTF) during reassembly.

1. Remove the 76 mm tapered roller bearing outer race (A) and 76 mm thrust shim (B) from the transfer holder.

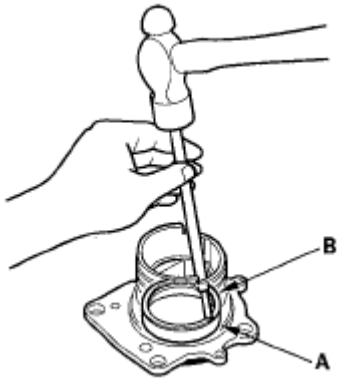


Fig. 191: Removing Tapered Roller Bearing Outer Race And Thrust Shim
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Install the 76 mm thrust shim (A) in the transfer holder.

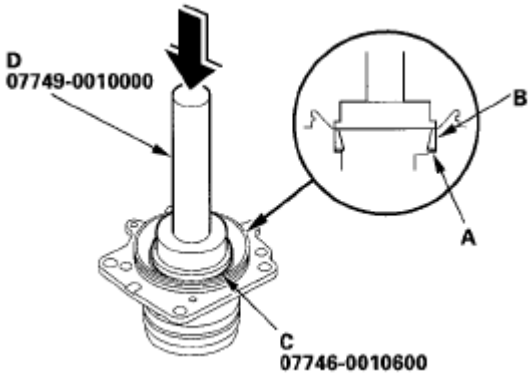


Fig. 192: Identifying Thrust Shim And Transfer Holder
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Install the 76 mm tapered roller bearing outer race (B) using the 72 x 75 mm attachment (C), driver (D), and a press in the direction shown.

TRANSFER DRIVE GEAR BEARING REPLACEMENT

Special Tools Required

- Attachment, 37 x 40 mm 07746-0010200
- Attachment, 42 x 47 mm 07746-0010300
- Driver 07749-0010000

NOTE: Coat all parts with manual transmission fluid (MTF) during reassembly.

1. Remove the 76 mm tapered roller bearing (A) from the transfer drive gear (B) using a commercially available bearing separator (C), the 37 x 40 mm attachment (D), driver (E), and a press.

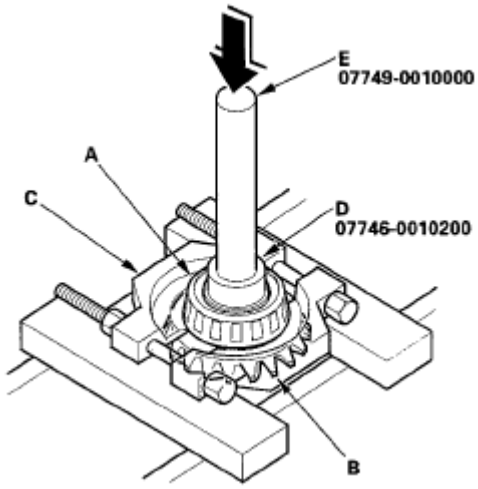


Fig. 193: Identifying Tapered Roller Bearing, Transfer Drive Gear, Bearing Separator And Driver
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Install the new 76 mm tapered roller bearing (A) on the transfer drive gear (B) using the 42 x 47 mm attachment (D), driver (E), and a press.

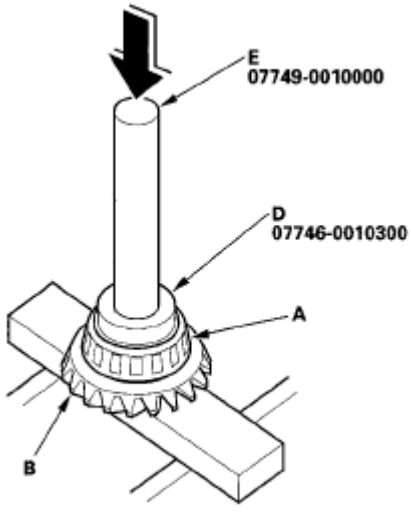


Fig. 194: Identifying Tapered Roller Bearing, Transfer Drive Gear And Driver
Courtesy of AMERICAN HONDA MOTOR CO., INC.

TRANSFER OUTPUT SHAFT BEARING REMOVAL/INSTALLATION

Special Tools Required

- Driver handle 07746-0030100
- Attachment, 35 mm I.D. 07746-0030400

NOTE: Coat all parts with manual transmission fluid (MTF) during reassembly.

1. Remove the 62 mm tapered roller bearing (A) from the transfer output shaft (B) using a commercially available bearing separator (C), an adapter (D), and a press.

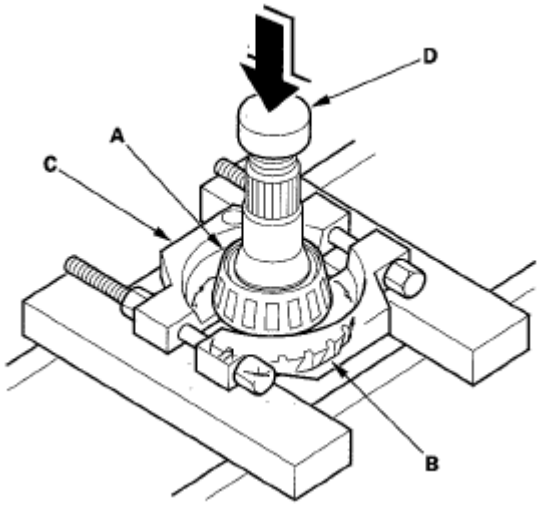


Fig. 195: Installing Adapter
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Install the new 62 mm tapered roller bearing (A) on the transfer output shaft (B) using the driver handle (C), 35 mm I.D. attachment (D), and a press.

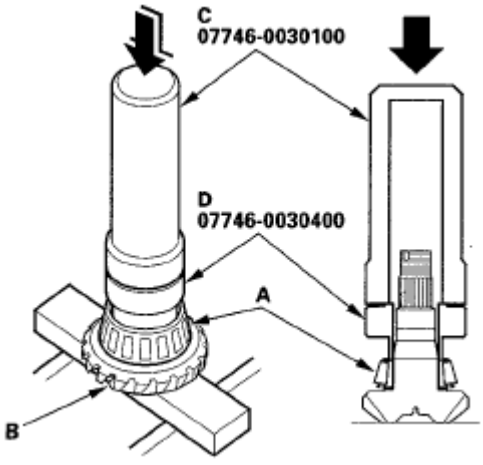


Fig. 196: Installing Tapered Roller Bearing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

TRANSFER HOUSING TAPERED ROLLER BEARING OUTER RACE REPLACEMENT

Special Tools Required

- Installer shaft, 14 x 165 mm 07JAF-SJ80110
- Installer nut, 14 mm 07JAF-SJ80120
- Bearing installer attachment 07KAF-PS30120
- Bearing installer attachment 07LAF-PZ70110
- Driver 07749-0010000
- Oil seal driver attachment 07947-SD90101

NOTE:

- **Coat all parts with manual transmission fluid (MTF) during reassembly.**
- **Replace the tapered roller bearing and the tapered roller bearing outer race as a set if either part is replaced.**

1. Remove the tapered roller bearing outer races from transfer housing by heating the housing to almost 212°F (100°C) using a heat gun.

NOTE: Do not heat the housing over 212°F (100°C).

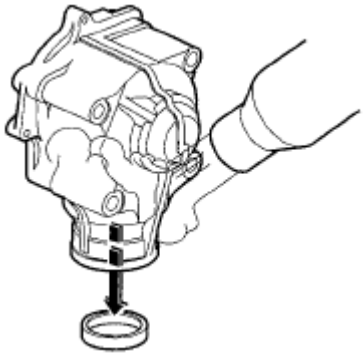


Fig. 197: Removing Tapered Roller Bearing Outer Races
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Bearing Outer Race Locations

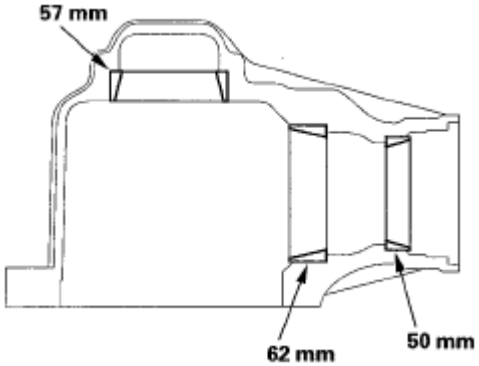


Fig. 198: Identifying Bearing Outer Race Locations
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Install the 57 mm tapered roller bearing outer race using the driver (A) and oil seal driver attachment (B) in the direction shown.

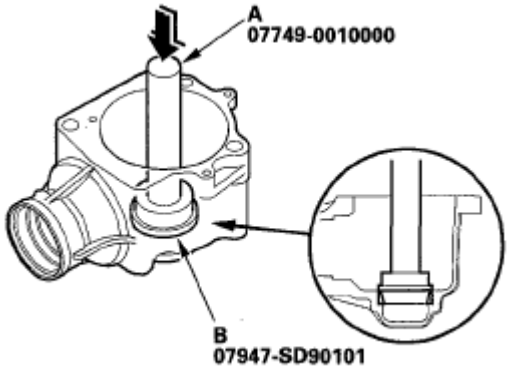


Fig. 199: Installing Tapered Roller Bearing Outer Race, Driver And Oil Seal Driver
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Install the 62 mm tapered roller bearing outer race and 50 mm tapered roller bearing outer race using the 14 x 165 mm installer shaft (A), 14 mm installer nut (B), bearing installer attachment (C), and (D) in the direction shown.

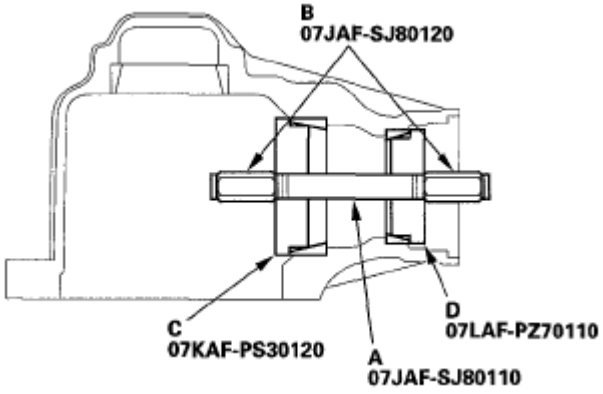


Fig. 200: Identifying Tapered Roller Bearing Outer Race, Installer Nut And Shaft
Courtesy of AMERICAN HONDA MOTOR CO., INC.

TRANSFER ASSEMBLY REASSEMBLY

Special Tools Required -

- Holder handle 07JAB-001020B
- Oil seal driver attachment 07JAD-PH80101

- Companion flange holder 07RAB-TB4010A or 07RAB-TB4010B
- Attachment, 72 x 75 mm 07746-0010600
- Driver handle 07746-0030100
- Attachment, 35 mm I.D. 07746-0030400
- Driver 07749-0010000

NOTE:

- **While reassembling the transfer assembly:**
  - **Check and adjust the transfer gear tooth contact.**
  - **Measure and adjust the transfer gear backlash.**
  - **Check and adjust the tapered roller bearing starting torque.**
- **Coat all parts with manual transmission fluid (MTF) during reassembly.**
- **Replace the tapered roller bearing and the tapered roller bearing outer race as a set if either part is replaced.**
- **Replace the transfer drive gear and the transfer output shaft as a set if either part is replaced.**

OUTLINE OF ASSEMBLY

1. Select the 35 mm thrust shim. Do this procedure if the transfer output shaft or the tapered roller bearing on the transfer output shaft is replaced.
2. Preassemble the parts to check and adjust transfer gear backlash and transfer gear tooth contact.
3. Disassemble the parts, then assemble the transfer output shaft and its related parts.
4. Measure and adjust the starting torque of the transfer driven gear shaft tapered roller bearing.
5. Assemble the transfer shaft assembly and its related parts.
6. Measure and adjust the total starting torque.

35 MM THRUST SHIM SELECTION

NOTE: Do not use more than one 35 mm thrust shim to adjust the transfer gear backlash.

1. Select the 35 mm thrust shim if the transfer output shaft is replaced. Calculate the thickness of the 35 mm thrust shim using the formula, and select the replacement 35 mm thrust shim from the table.

NOTE: The number on the transfer output shaft is shown in 1/100 mm.

$$\text{Formula: } X = \frac{A}{100} - \frac{B}{100} + C$$

Fig. 201: Shim Thickness Calculation
Courtesy of AMERICAN HONDA MOTOR CO., INC.

A: Number on the existing transfer output shaft

B: Number on the replacement transfer output shaft

C: Thickness of the existing 35 mm thrust shim

X: Thickness needed for the replacement 35 mm thrust shim

Example:

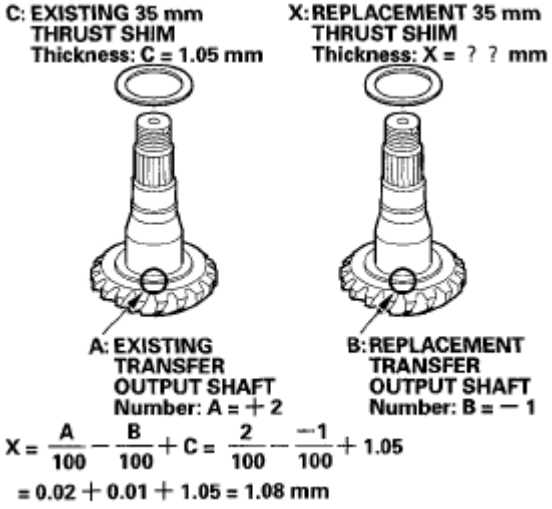


Fig. 202: Identifying Thrust Shim
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Select No. M 35 mm thrust shim of 1.08 mm (0.043 in) in this cause.

35 mm Thrust Shim

THRUST SHIM THICKNESS CHART

Shim No.	Part Number	Thickness
A	41361-PS3-000	0.72 mm (0.028 in.)
B	41362-PS3-000	0.75 mm (0.030 in.)
C	41363-PS3-000	0.78 mm (0.031 in.)
D	41364-PS3-000	0.81 mm (0.032 in.)
E	41365-PS3-000	0.84 mm (0.033 in.)
F	41366-PS3-000	0.87 mm (0.034 in.)
G	41367-PS3-000	0.90 mm (0.035 in.)
H	41368-PS3-000	0.93 mm (0.037 in.)
I	41369-PS3-000	0.96 mm (0.038 in.)
J	41370-PS3-000	0.99 mm (0.039 in.)
K	41371-PS3-000	1.02 mm (0.040 in.)

L	41372-PS3-000	1.05 mm (0.041 in.)
M	41373-PS3-000	1.08 mm (0.043 in.)
N	41374-PS3-000	1.11 mm (0.044 in.)

2. Select the 35 mm thrust shim if the tapered roller bearing on the transfer output shaft is replaced. Measure the thickness of the replacement bearing and the existing bearing, and calculate the difference of the bearing thickness. Adjust the thickness of the existing 35 mm thrust shim by the amount of the difference in bearing thickness, and select the replacement 35 mm thrust shim from the table.

Transfer Gear Backlash Inspection and Transfer Gear Tooth Contact Inspection

3. Install the 35 mm thrust shim (A) on the transfer output shaft (B), then install the 62 mm tapered roller bearing (C) using the driver handle (D), 35 mm I.D. attachment (E), and a press.

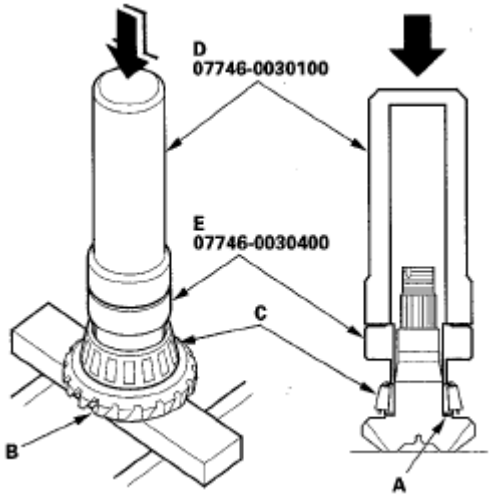


Fig. 203: Installing Thrust Shim, Transfer Output Shaft And Tapered Roller Bearing With Driver Handle
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Install the 50 mm tapered roller bearing (A) in the transfer housing.

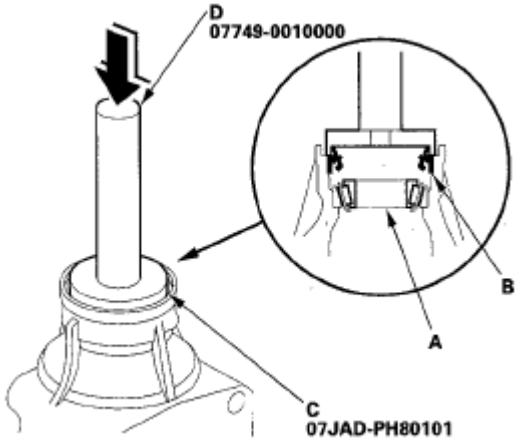


Fig. 204: Installing Tapered Roller Bearing In Transfer Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Install the new oil seal (B) in the transfer housing using the oil seal driver attachment (C) and driver (D).

NOTE: Install the oil seal in the direction shown.

6. Install the transfer output shaft (A) in the transfer housing (B).

NOTE: Do not install the transfer spacer in this step. A

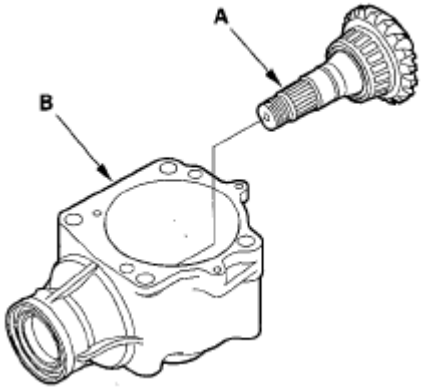


Fig. 205: Identifying Transfer Output Shaft In Transfer Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. Install the companion flange (A), new conical spring washer (B), and new locknut (C) on the transfer output shaft (D).

NOTE:

- **Do not install the O-ring and the back-up ring in this step.**
- **Install the conical spring washer in the direction shown.**
- **Coat the threads of the locknut and the shaft with manual**

transmission fluid (MTF) before installing the locknut.

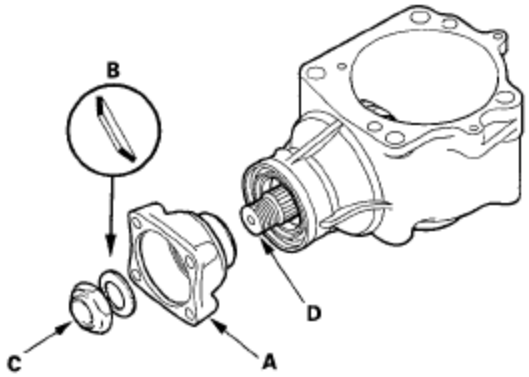


Fig. 206: Identifying Companion Flange, Conical Spring Washer And Locknut
Courtesy of AMERICAN HONDA MOTOR CO., INC.

8. Securely clamp the transfer housing (A) in a bench vise (B) with wood blocks. Then install the holder handle (C) and companion flange holder (D) on the companion flange.

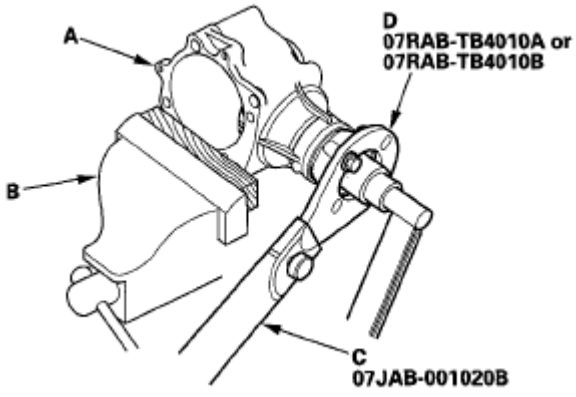


Fig. 207: Installing Holder Handle And Companion Flange Holder
Courtesy of AMERICAN HONDA MOTOR CO., INC.

9. Tighten the locknut while measuring the starting torque so the starting torque is within 0.98-1.39 N.m (10.0-14.2 kgf.cm, 8.7-12.3 lbf.in.).

NOTE: Do not stake the locknut in this step.

Starting Torque: 0.98-1.39 N.m (10.0-14.2 kgf.cm, 8.7-12.3 lbf.in.)

10. Install the transfer shaft assembly (A) in the transfer holder (B), then install the transfer drive gear (C), transfer collar (D), 25 mm thrust shim (E), 57 mm tapered roller bearing (F), new conical spring washer (G), and new transfer shaft locknut (H) on the transfer shaft assembly.

NOTE:

- **Coat the threads of the locknut and the shaft with MTF before installing the locknut.**
- **Install the conical spring washer in the direction shown.**

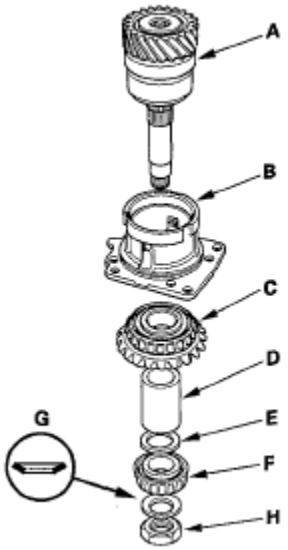


Fig. 208: Identifying Transfer Shaft Assembly, Transfer Holder And Transfer Drive Gear
Courtesy of AMERICAN HONDA MOTOR CO., INC.

11. Hold the transfer shaft assembly (A) with a 14 mm hex wrench (B) clamped in a bench vise, and tighten the transfer shaft locknut.

NOTE: Do not stake the locknut in this step.

Torque: 118 N.m (12.0 kgf.m, 86.8 lbf.ft)

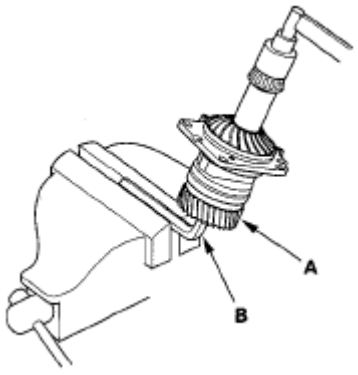


Fig. 209: Identifying Transfer Shaft Assembly And Hex Wrench
Courtesy of AMERICAN HONDA MOTOR CO., INC.

12. Apply Prussian Blue to both sides of the transfer drive gear teeth lightly and evenly.
13. Install the dowel pin (A) and transfer holder assembly (B) in the transfer housing (C).

NOTE: Do not install the O-ring in this step.

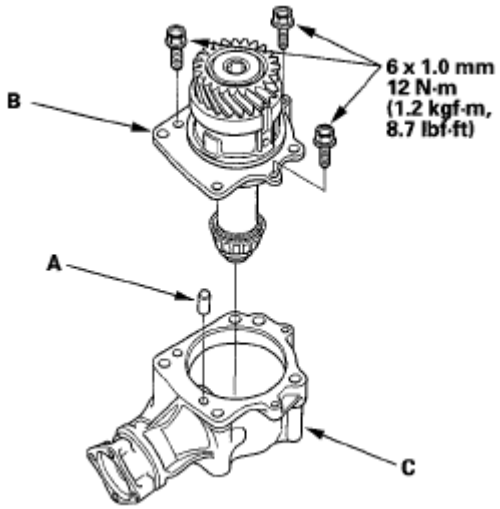


Fig. 210: Identifying Dowel Pin, Transfer Holder Assembly And Transfer Housing With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

14. Rotate the companion flange several times to seat the tapered roller bearings.
15. Set a dial indicator (A) on the companion flange (B), then measure the transfer gear backlash.

Standard: 0.06-0.16 mm (0.002-0.006 in.)

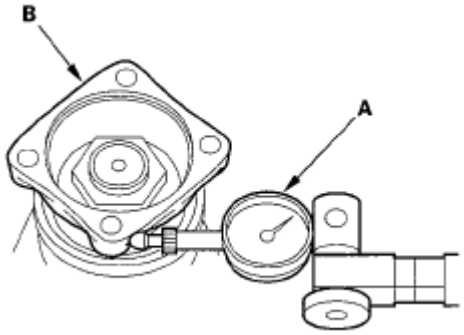


Fig. 211: Setting Dial Indicator On Companion Flange
Courtesy of AMERICAN HONDA MOTOR CO., INC.

16. Remove the transfer holder, and check the transfer drive gear tooth contact pattern.

CORRECT TOOTH CONTACT PATTERN

Fig. 212: Identifying Correct Tooth Contact Pattern
Courtesy of AMERICAN HONDA MOTOR CO., INC.

INCORRECT TOOTH CONTACT PATTERN

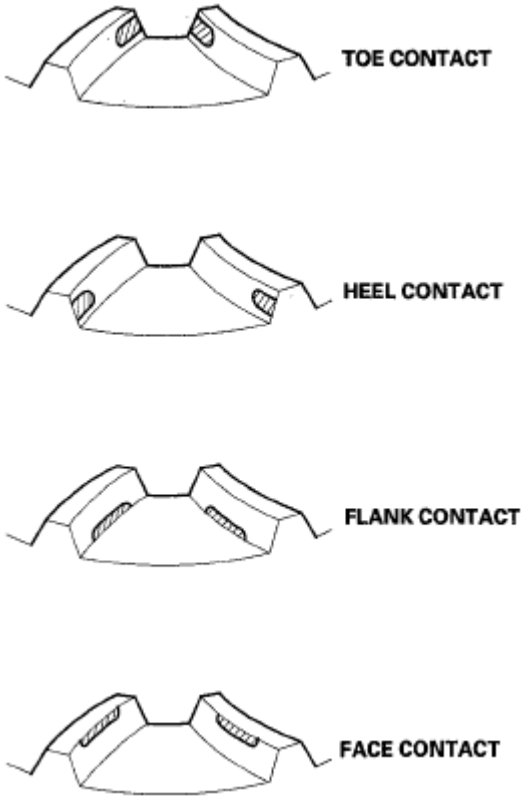


Fig. 213: Identifying Incorrect Tooth Contact Pattern
Courtesy of AMERICAN HONDA MOTOR CO., INC.

17. If the transfer drive gear tooth contact is incorrect, adjust the transfer gear tooth contact with a 25 mm or 35 mm thrust shim. If the gear tooth contact is correct, go to step 18.

NOTE: Do not use more than one of each thrust shim to adjust the transfer drive gear tooth contact.

- Toe Contact

  Use a thinner 35 mm thrust shim to move the transfer output shaft away from the transfer drive gear. Because this movement causes the transfer gear backlash to change, move the transfer drive gear toward the transfer output shaft to adjust the transfer gear backlash as follows:

- Reduce the thickness of the 25 mm thrust shim.
- Increase the thickness of the 76 mm thrust shim by the amount you reduced the thickness of the 25 mm thrust shim.

- Heel Contact

  Use a thicker 35 mm thrust shim to move the transfer output shaft toward the transfer drive gear. Because this movement causes the transfer gear backlash to change, move the transfer drive gear away from the transfer output shaft to adjust the transfer gear backlash as follows:

  - Increase the thickness of the 25 mm thrust shim.
  - Reduce the thickness of the 76 mm thrust shim by the amount you increased the thickness of the 25 mm thrust shim.

- Flank Contact

  Use a thicker 25 mm thrust shim to move the transfer drive gear away from the transfer output shaft. Flank contact must be adjusted within the limits of the transfer gear backlash. If the backlash exceeds the limits, adjust as described under Heel Contact.

- Face Contact

  Use a thinner 25 mm thrust shim to move the transfer drive gear toward the transfer output shaft. Face contact must be adjusted within the limits of the transfer gear backlash. If the backlash exceeds the limits, adjust as described under Toe Contact.

25 mm Thrust Shim

THRUST SHIM THICKNESS CHART

Shim No.	Part Number	Thickness
1.70	29411-P1C-000	1.70 mm (0.067 in.)
1.73	29412-P1C-000	1.73 mm (0.068 in.)
1.76	29413-P1C-000	1.76 mm (0.069 in.)
1.79	29414-P1C-000	1.79 mm (0.070 in.)
1.82	29415-P1C-000	1.82 mm (0.072 in.)
1.85	29416-P1C-000	1.85 mm (0.073 in.)
1.88	29417-P1C-000	1.88 mm (0.074 in.)
1.91	29418-P1C-000	1.91 mm (0.075 in.)
1.94	29419-P1C-000	1.94 mm (0.076 in.)
1.97	29420-P1C-000	1.97 mm (0.078 in.)
2.00	29421-P1C-000	2.00 mm (0.079 in.)
2.03	29422-P1C-000	2.03 mm (0.080 in.)
2.06	29423-P1C-000	2.06 mm (0.081 in.)
2.09	29424-P1C-000	2.09 mm (0.082 in.)
2.12	29425-P1C-000	2.12 mm (0.083 in.)

2.15	29426-P1C-000	2.15 mm (0.085 in.)
2.18	29427-P1C-000	2.18 mm (0.086 in.)
2.21	29428-P1C-000	2.21 mm (0.087 in.)
2.24	29429-P1C-000	2.24 mm (0.088 in.)

18. Measure the transfer gear backlash again.
19. Remove the transfer holder assembly (A) from the transfer housing (B).

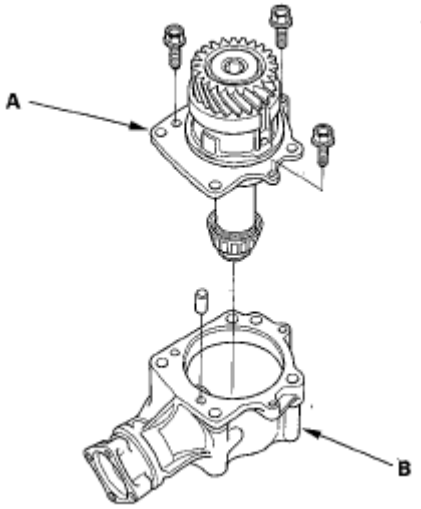


Fig. 214: Identifying Transfer Holder Assembly And Transfer Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

20. Securely clamp the transfer housing (A) in a bench vise (B) with wood blocks.

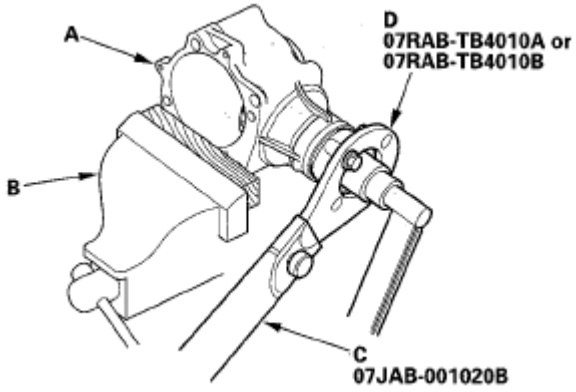


Fig. 215: Identifying Transfer Housing And Bench Vise
Courtesy of AMERICAN HONDA MOTOR CO., INC.

21. Install the holder handle (C) and companion flange holder (D) on the companion flange, then loosen the transfer output shaft locknut.
22. Remove the locknut (A), conical spring washer (B), and companion flange (C) from the transfer output

shaft (D).

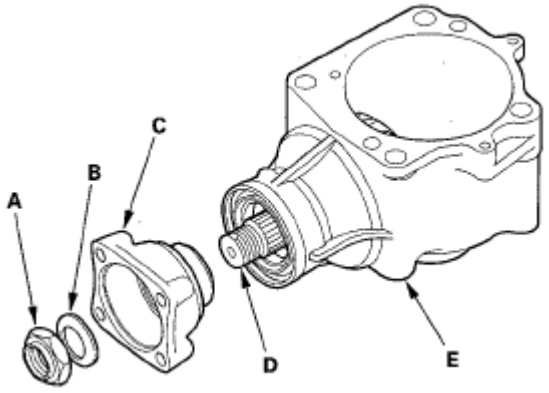


Fig. 216: Identifying Locknut, Conical Spring Washer, Companion Flange And Transfer Output Shaft
Courtesy of AMERICAN HONDA MOTOR CO., INC.

23. Remove the transfer output shaft from the transfer housing (E).
24. Install the new transfer spacer (A) on the transfer output shaft (B) in the direction shown, then install them in the transfer housing (C).

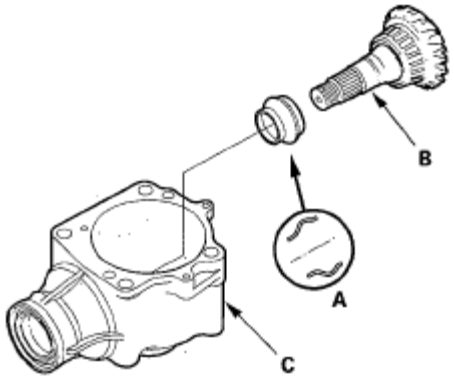


Fig. 217: Identifying Transfer Spacer On Transfer Output Shaft
Courtesy of AMERICAN HONDA MOTOR CO., INC.

25. Install the companion flange (A), new O-ring (B), back-up ring (C), conical spring washer (D), and locknut (E) on the transfer output shaft (F).

NOTE:

- **Coat the threads of the locknut, O-ring, and transfer output shaft with MTF before installing the locknut.**
- **Install the conical spring washer in the direction shown.**

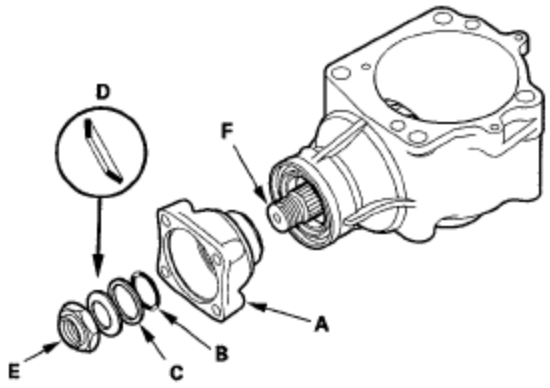


Fig. 218: Identifying Companion Flange, O-Ring, Back-Up Ring, Conical Spring Washer And Locknut
Courtesy of AMERICAN HONDA MOTOR CO., INC.

26. Securely clamp the transfer housing (A) in a bench vise (B) with wood blocks.

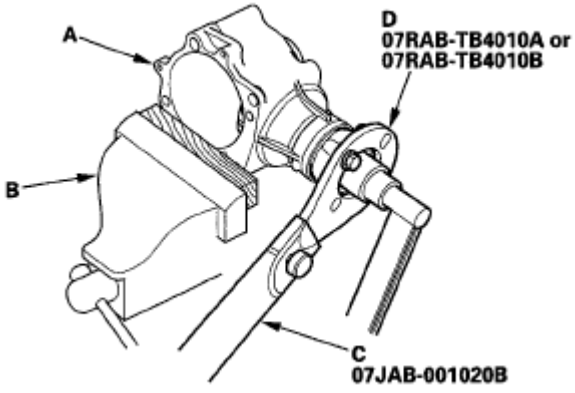


Fig. 219: Tightening Transfer Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

27. Install the holder handle (C) and companion flange holder (D) on the companion flange, then tighten the transfer output shaft locknut while measuring the starting torque of the transfer output shaft.

NOTE:

- **Rotate the companion flange several times to seat the tapered roller bearings, then measure the starting torque.**
- **If the starting torque exceeds 1.39 N.m (14.2 kgf.cm, 12.3 lbf.in.), replace the transfer spacer and reassemble the parts. Do not adjust the starting torque with the locknut loose.**
- **If the tightening torque exceeds 260 N.m (26.5 kgf.m, 192 lbf.ft), replace the transfer spacer and reassemble the parts.**
- **Write down the measurement of the starting torque, it is used to measure the total starting torque.**

Starting Torque: 0.98-1.39 N.m (10.0-14.2 kgf.cm, 8.7-12.3 lbf.in.)

Tightening Torque: 132-260 N.m (13.5-26.5 kgf.m, 97.6-192 lbf.ft)

28. Remove the holder handle and companion flange holder.
29. Stake the locknut into the transfer output shaft using a 3.5 mm punch.

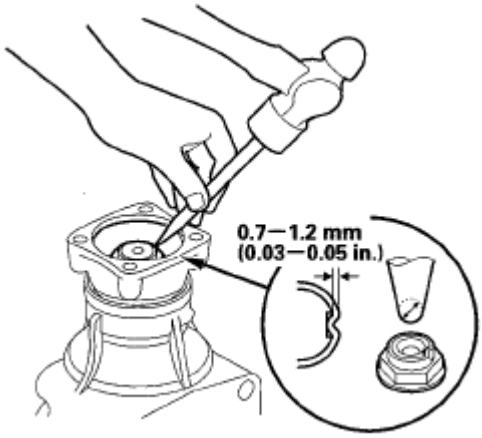


Fig. 220: Removing Holder Handle And Companion Flange Holder
Courtesy of AMERICAN HONDA MOTOR CO., INC.

30. Install the dowel pin (A) in the transfer housing (B), then install the transfer holder assembly (C).

NOTE: Do not install the O-ring in this step.

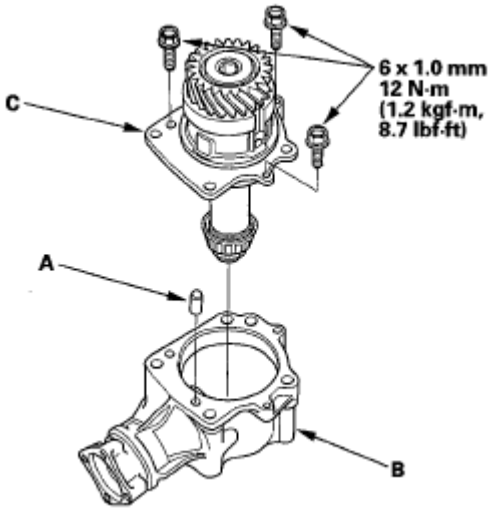


Fig. 221: Identifying Dowel Pin, Transfer Housing And Transfer Holder Assembly With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

31. Securely clamp the transfer housing (A) in a bench vise (B) with wood blocks. Then rotate the companion flange several times to seat the tapered roller bearings.

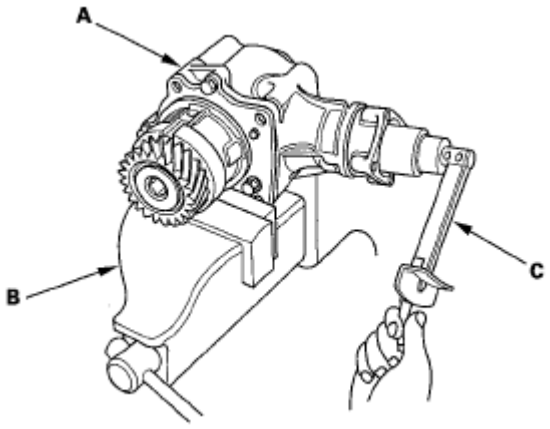


Fig. 222: Rotating Companion Flange To Tapered Roller Bearings
Courtesy of AMERICAN HONDA MOTOR CO., INC.

32. Measure the total starting torque using the torque wrench (C).

    Total Starting Torque: 1.30-2.47 N.m (13.3-25.2 kgf.cm, 11.5-21.9 lbf.in) + Transfer Driven Gear Shaft Starting Torque Value (written down in step 25).

33. Remove the transfer holder assembly from the transfer housing.
34. If the measurement is not within the standard, go to step 35.

    If the measurement is within the standard, go to step 47.

35. Hold the transfer shaft (A) with a 14 mm hex wrench (B) clamped in a bench vise then loosen the locknut.

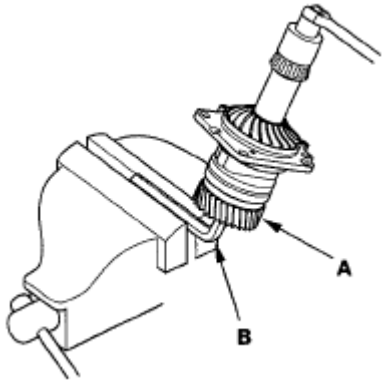


Fig. 223: Holding Transfer Shaft
Courtesy of AMERICAN HONDA MOTOR CO., INC.

36. Remove the locknut (A) and transfer shaft assembly (B) from the transfer holder (C).

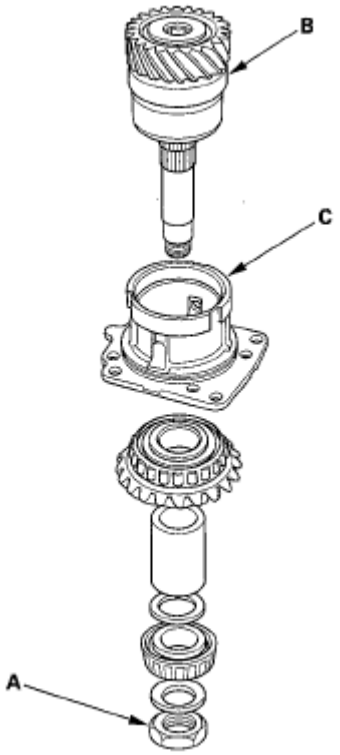


Fig. 224: Identifying Locknut, Transfer Shaft Assembly And Transfer Holder
Courtesy of AMERICAN HONDA MOTOR CO., INC.

37. Remove the 76 mm tapered roller bearing outer race (A) and 76 mm thrust shim (B) from the transfer holder (C).

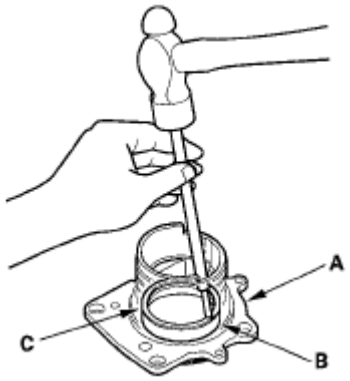


Fig. 225: Removing Tapered Roller Bearing Outer Race, Thrust Shim And Transfer Holder
Courtesy of AMERICAN HONDA MOTOR CO., INC.

38. Measure the thickness of the removed 76 mm thrust shim, and select a new 76 mm thrust shim.

76 mm Thrust Shim

THRUST SHIM THICKNESS CHART

Shim No.	Part Number	Thickness
A	41361-PPS-000	1.20 mm (0.047 in.)
B	41362-PPS-000	1.23 mm (0.048 in.)
C	41363-PPS-000	1.26 mm (0.049 in.)
D	41364-PPS-000	1.29 mm (0.050 in.)
E	41365-PPS-000	1.32 mm (0.052 in.)
F	41366-PPS-000	1.35 mm (0.053 in.)
G	41367-PPS-000	1.38 mm (0.054 in.)
H	41368-PPS-000	1.41 mm (0.055 in.)
J	41369-PPS-000	1.44 mm (0.057 in.)
K	41370-PPS-000	1.47 mm (0.058 in.)
L	41371-PPS-000	1.50 mm (0.059 in.)
M	41372-PPS-000	1.53 mm (0.060 in.)
N	41373-PPS-000	1.56 mm (0.061 in.)
P	41374-PPS-000	1.59 mm (0.062 in.)
R	41375-PPS-000	1.62 mm (0.064 in.)
S	41376-PPS-000	1.65 mm (0.065 in.)
T	41377-PPS-000	1.68 mm (0.066 in.)
U	41378-PPS-000	1.71 mm (0.067 in.)
W	41379-PPS-000	1.74 mm (0.068 in.)
X	41380-PPS-000	1.77 mm (0.070 in.)
Y	41381-PPS-000	1.80 mm (0.071 in.)
Z	41382-PPS-000	1.83 mm (0.072 in.)
AA	41383-PPS-000	1.86 mm (0.073 in.)
AB	41384-PPS-000	1.89 mm (0.074 in.)
AC	41385-PPS-000	1.92 mm (0.076 in.)
AD	41386-PPS-000	1.95 mm (0.077 in.)
AE	41387-PPS-000	1.98 mm (0.078 in.)
AF	41388-PPS-000	2.01 mm (0.079 in.)
AG	41389-PPS-000	2.04 mm (0.080 in.)
AH	41390-PPS-000	2.07 mm (0.081 in.)
AJ	41391-PPS-000	2.10 mm (0.083 in.)
AK	41392-PPS-000	2.13 mm (0.084 in.)
AL	41393-PPS-000	2.16 mm (0.085 in.)
AM	41394-PPS-000	2.19 mm (0.086 in.)
AN	41395-PPS-000	2.22 mm (0.087 in.)
AP	41396-PPS-000	2.25 mm (0.089 in.)
AR	41397-PPS-000	2.28 mm (0.090 in.)

AS	41398-PPS-000	2.31 mm (0.091 in.)
AT	41399-PPS-000	2.34 mm (0.092 in.)
AU	41400-PPS-000	2.37 mm (0.093 in.)
AW	41401-PPS-000	2.40 mm (0.094 in.)
AX	41402-PPS-000	2.43 mm (0.096 in.)
AY	41403-PPS-000	2.46 mm (0.097 in.)
AZ	41404-PPS-000	2.49 mm (0.098 in.)
BA	41405-PPS-000	2.52 mm (0.099 in.)
BB	41406-PPS-000	2.55 mm (0.100 in.)
BC	41407-PPS-000	2.58 mm (0.102 in.)
BD	41408-PPS-000	2.61 mm (0.103 in.)
BE	41409-PPS-000	2.64 mm (0.104 in.)
BF	41410-PPS-000	2.67 mm (0.105 in.)

39. Install the selected 76 mm thrust shim (A) in the transfer holder (B).

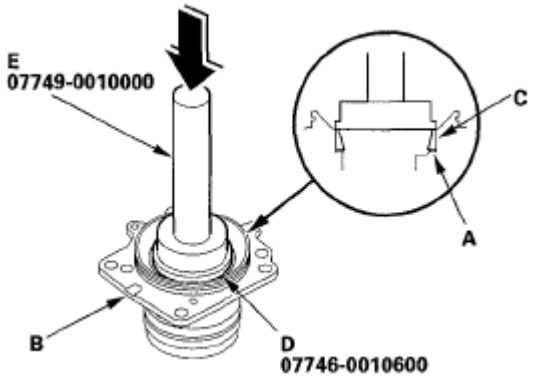


Fig. 226: Installing Thrust Shim In Transfer Holder
Courtesy of AMERICAN HONDA MOTOR CO., INC.

40. Install the 76 mm tapered roller bearing outer race (C) using the 72 x 75 mm attachment (D), driver (E), and a press in the direction shown.
41. Install the transfer shaft assembly (A), transfer drive gear (B), transfer collar (C), 25 mm thrust shim (D), 57 mm tapered roller bearing (E), conical spring washer (F), and transfer shaft locknut (G) in the transfer holder (H).

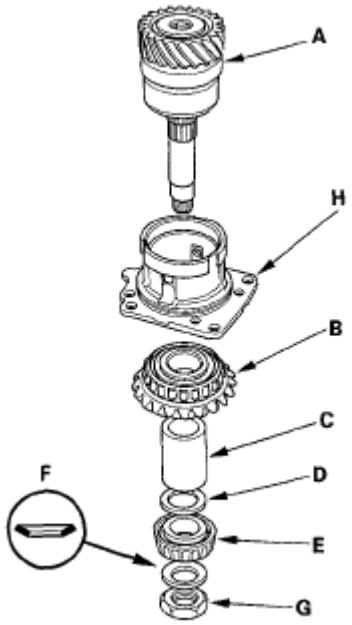


Fig. 227: Identifying Transfer Shaft Assembly
Courtesy of AMERICAN HONDA MOTOR CO., INC.

42. Hold the transfer shaft assembly (A) with a 14 mm hex wrench (B) clamped in a bench vise, then tighten the transfer shaft locknut.

NOTE: Do not stake the locknut in this step.

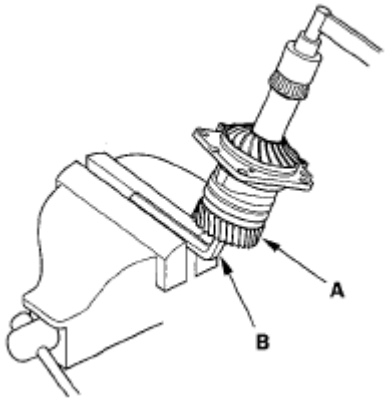


Fig. 228: Holding Transfer Shaft Assembly
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Tightening Torque: 118 N.m (12.0 kgf.m, 86.8 lbf.ft)

43. Install the dowel pin (A) in the transfer housing (B), then install the transfer holder assembly (C).

NOTE: Do not install the O-ring in the step.

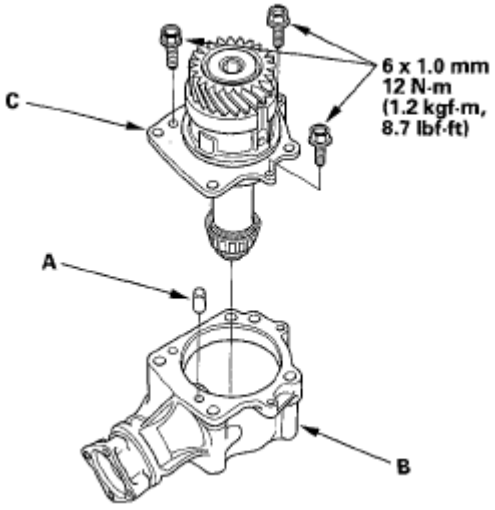


Fig. 229: Identifying Dowel Pin, Transfer Housing And Transfer Holder Assembly With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

44. Rotate the companion flange several times to seat the tapered roller bearings.
45. Recheck and make sure the total starting torque is within the standard.
46. Remove the transfer holder assembly from the transfer housing.
47. Stake the locknut on the transfer shaft using a 3.5 mm punch.

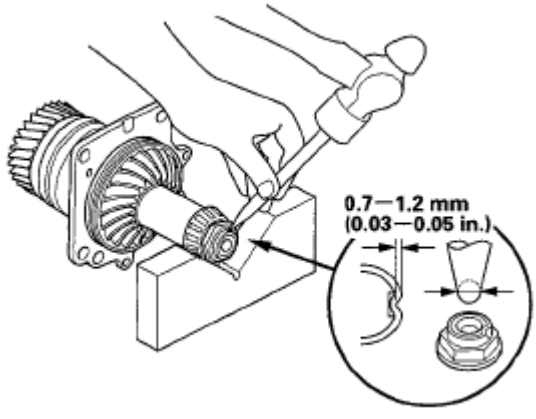


Fig. 230: Removing Transfer Holder Assembly Of Transfer Housing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

48. Coat the new O-ring (A) with MTF, install it on the transfer holder assembly (B), then install the dowel pin (C) and transfer holder assembly in the transfer housing (D).

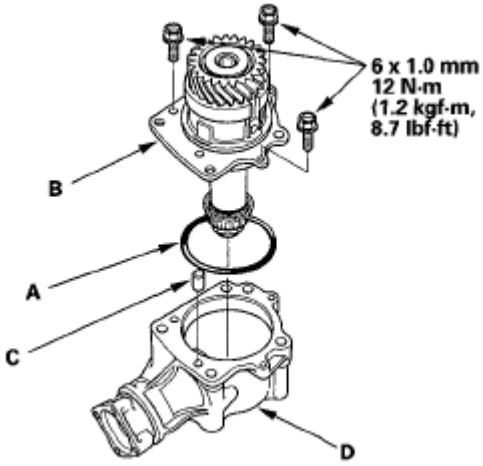


Fig. 231: Identifying O-Ring, MTF, Transfer Holder Assembly And Dowel Pin With Torque Specification
Courtesy of AMERICAN HONDA MOTOR CO., INC.

SUPPLEMENTAL RESTRAINT SYSTEM (SRS) (If automatic transmission maintenance is required)

The ELEMENT SRS includes a driver's airbag in the steering wheel hub, a passenger's airbag in the dashboard above the glove box, seat belt tensioners in the front seat belt retractors, seat belt buckle tensioners in the front seat belt buckles, side curtain airbags in the sides of the roof, and side airbags in the front seat-backs. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items require special precautions and tools, and should be done only by an authorized Honda dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal or side collision, all SRS service work should be done by an authorized Honda dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional deployment of the airbags and/or side airbags.
- Do not bump or impact the SRS unit, front impact sensors, or side impact sensors when the ignition switch is ON (II), or for at least 3 minutes after the ignition switch is turned OFF; otherwise, the system may fail in a collision, or the airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, front console, dashboard, dashboard lower panel, in the dashboard above the glove box, in the front seats, and around the floor. Do not use electrical test equipment on these circuits.