

BCLA, MCLA

Automatic Transmission

Automatic Transmission

Special Tools	14-2
General Troubleshooting Information	14-3
DTC Troubleshooting Index	14-8
Symptom Troubleshooting Index	14-11
System Description	14-22
DTC Troubleshooting	14-72
Road Test	14-159
Stall Speed Test	14-161
Pressure Tests	14-162
Shift Solenoid Valves Test	14-164
Shift Solenoid Valves Replacement	14-166
A/T Clutch Pressure Control Solenoid Valves	
Solenoid Valve A Test	14-168
Solenoid Valve A Replacement	14-169
Solenoid Valve B Test	14-170
Solenoid Valve B Replacement	14-171
Solenoid Valve C Test	14-170
Solenoid Valve C Replacement	14-171
Mainshaft Speed Sensor Replacement	14-172
Countershaft Speed Sensor Replacement ...	14-172
2nd Clutch Transmission Fluid Pressure Switch Replacement	14-173
3rd Clutch Transmission Fluid Pressure Switch Replacement	14-174
ATF Temperature Sensor Test and Replacement	14-175
ATF Level Check	14-178
ATF Replacement	14-179
Transmission Removal	14-180
Drive Plate Removal and Installation	14-189
Transmission Installation	14-190
ATF Cooler Hoses Replacement	14-199
Shift Lever Removal	14-200
Shift Lever Installation	14-201
Shift Lever Disassembly and Reassembly ...	14-203
Shift Cable Replacement	14-205
Shift Cable Adjustment	14-208

A/T Gear Position Indicator

Component Location Index	14-211
Circuit Diagram	14-212
A/T Gear Position Indicator Circuit Troubleshooting	14-213
Transmission Range Switch Test	14-214
Transmission Range Switch Replacement	14-216

A/T Interlock System

Component Location Index	14-218
Circuit Diagram	14-219
Shift Lock System Circuit Troubleshooting	14-220
* Key Interlock System Troubleshooting	14-221
* Key Interlock Solenoid Test	14-222
Shift Lock Solenoid Test	14-223
Shift Lock Solenoid Replacement	14-224
Park Pin Switch Test	14-225
Park Pin Switch Replacement	14-225

Transmission End Cover

End Cover Removal	14-226
Park Lever Stop Inspection and Adjustment	14-228
Idler Gear Shaft Bearing Replacement	14-228
Control Shaft Oil Seal Replacement	14-229
Control Shaft Bearing Replacement	14-229
ATF Feed Pipes Replacement	14-230
End Cover Installation	14-284

Transmission Housing

Housing and Shaft Assemblies Removal	14-231
Bearing Removal	14-233
Bearing Installation	14-234
Reverse Idler Gear Removal and Installation	14-235
Shaft Assemblies and Housing Installation	14-279

Valve Body

Valve Bodies and ATF Strainer Removal	14-236
Valve Body Repair	14-238
Valve Body Valve Installation	14-239
Main Valve Body Disassembly, Inspection, and Reassembly	14-240
ATF Pump Inspection	14-241
Regulator Valve Body Disassembly, Inspection, and Reassembly	14-242
Servo Body Disassembly, Inspection, and Reassembly	14-243
Shift Solenoid Valves Removal and Installation	14-244
Valve Bodies and ATF Strainer Installation	14-277

Torque Converter Housing

Mainshaft Bearing and Oil Seal Replacement	14-245
Countershaft Bearing Replacement	14-246
Secondary Shaft Bearing Replacement	14-247
Control Shaft Oil Seal Replacement	14-248

Shafts and Clutches

Mainshaft Disassembly, Inspection, and Reassembly	14-249
Mainshaft 5th Gear Clearance Inspection ...	14-250
Countershaft Disassembly, Inspection, and Reassembly	14-252
Reverse Selector Hub and 3rd Gear Removal	14-253
Installation	14-254
Secondary Shaft Disassembly, Inspection, and Reassembly	14-255
Secondary Shaft Ball Bearing, Idler Gear Removal and Installation	14-256
Secondary Shaft 2nd Gear Clearance Inspection	14-257
Secondary Shaft 1st Gear Clearance Inspection	14-259
Idler Gear Shaft Removal and Installation ...	14-261
Idler Gear/Idler Gear Shaft Replacement	14-262
Clutch Disassembly	14-263
Clutch Inspection	14-267
Clutch Waved-plate Phase Difference Inspection	14-268
Clutch Clearance Inspection	14-269
Clutch Reassembly	14-272

A/T Differential

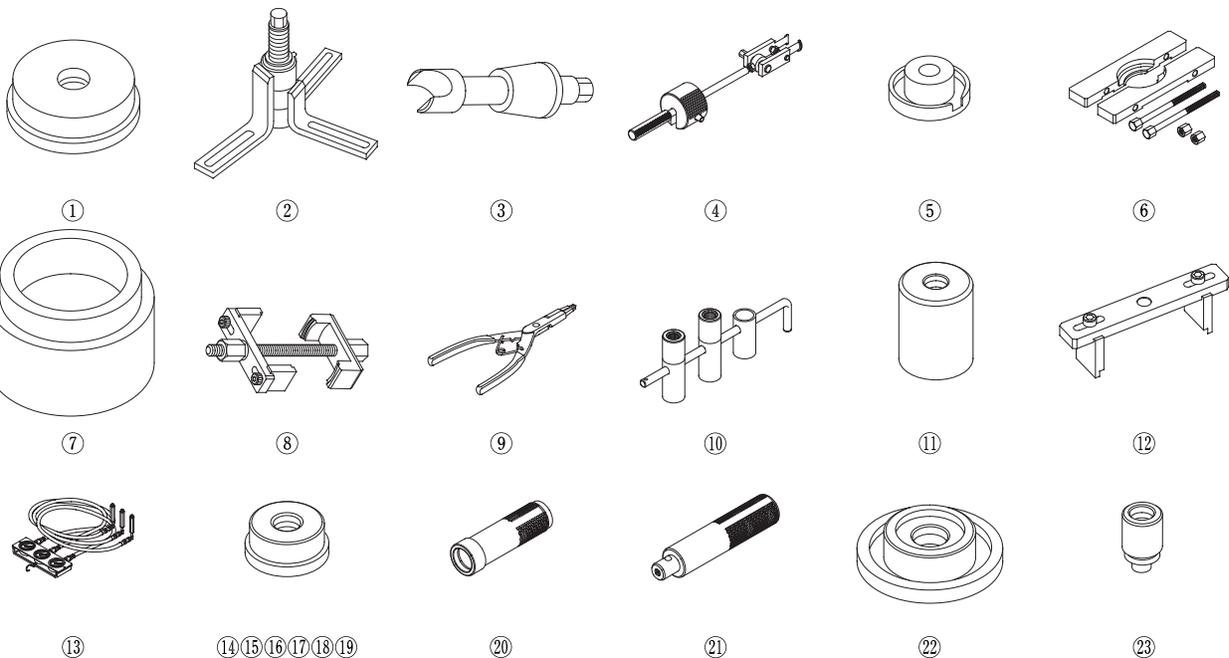
Component Location Index	14-289
Backlash Inspection	14-289
Carrier Bearing Replacement	14-290
Differential Carrier, Final Driven Gear Replacement	14-290
Oil Seal Replacement	14-291
Carrier Bearing Outer Race Replacement	14-292
Carrier Bearing Preload Inspection	14-294

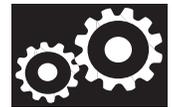


Automatic Transmission

Special Tools

Ref.No.	Tool Number	Description	Qty
①	07GAD-SD40101	Driver Attachment, 78 x 90 mm	1
②	07HAC-PK40102	Housing Puller	1
③	07HAJ-PK40201	Preload Inspection Tool	1
④	07JAC-PH80000	Adjustable Bearing Remover Set	1
④-1	07JAC-PH80100	Bearing Remover Attachment	1
④-2	07JAC-PH80200	Remover Handle Assembly	1
④-3	07741-0010201	Remover Weight	1
⑤	07JAD-PH80101	Oil Seal Driver Attachment	1
⑥	07KAF-PS30200	Bearing Separator	1
⑦	07LAD-PW50601	Attachment, 40 x 50 mm	1
⑧	07LAE-PX40000	Clutch Spring Compressor Set	1
⑧-1	07LAE-PX40100	Clutch Spring Compressor Attachment	1
⑧-2	07HAE-PL50101	Clutch Spring Compressor Attachment	1
⑧-3	07GAE-PG40200	Clutch Spring Compressor Bolt Assembly	1
⑨	07LGC-0010100	Snap Ring Pliers	1
⑩	07PAB-0010000	Mainshaft Holder Set	1
⑪	07QAD-P0A0100	Driver Attachment, 42mm I.D.	1
⑫	07ZAE-PRP0100	Clutch Compressor Attachment	1
⑬	07406-0020004	A/T Oil Pressure Gauge Set	1
⑭	07746-0010100	Driver Attachment, 32 x 35 mm	1
⑮	07746-0010300	Driver Attachment, 42 x 47 mm	1
⑯	07746-0010400	Driver Attachment, 52 x 55 mm	1
⑰	07746-0010500	Driver Attachment, 62 x 68 mm	1
⑱	07746-0010600	Driver Attachment, 72 x 75 mm	1
⑲	07746-0010800	Driver Attachment, 22 x 24 mm	1
⑳	07746-0030100	Driver 40 mm I.D.	1
㉑	07749-0010000	Handle Driver	1
㉒	07947-SD90101	Oil Seal Driver Attachment	1
㉓	07947-ZV00100	Oil Seal Driver Attachment	1

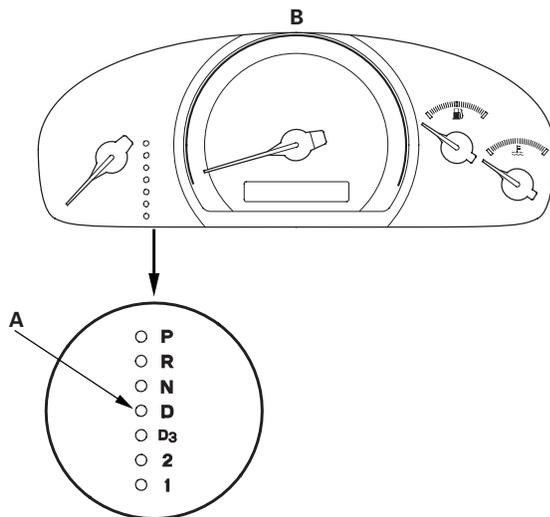




General Troubleshooting Information

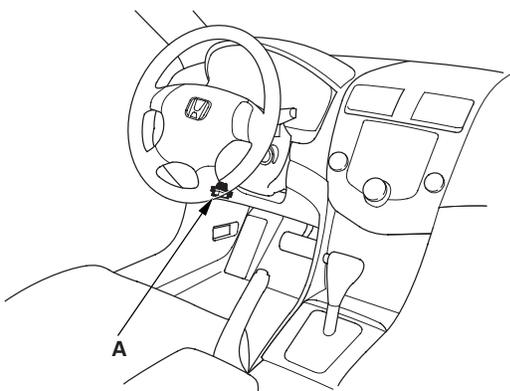
How to Check for DTCs with the Honda PGM Tester or Honda Diagnostic System

When the powertrain control module (PCM) senses an abnormality in the input or output systems, the **D** indicator (A) in the gauge assembly (B) will usually blink.



When the data link connector (DLC) (A) (located under the left end of the dash) is connected to the Honda PGM Tester or Honda diagnostic system (HDS), it will indicate the diagnostic trouble code (DTC) when the ignition switch is turned ON (II).

NOTE: The illustration shows LHD model; RHD model is symmetrical.



If the **D** indicator or malfunction indicator lamp (MIL) has been reported on, or if a driveability problem is suspected, follow this procedure:

1. Connect the Honda PGM Tester or HDS to the DLC. (See the Honda PGM Tester or HDS user's manual for specific instructions.)
2. Turn the ignition switch ON (II), select A/T system and observe the DTC in the DTCs MENU on the tester screen.
3. Record all fuel and emissions DTCs, A/T DTCs, and freeze data.
4. If there is a fuel and emissions DTC, first check the fuel and emissions system as indicated by the DTC (except for DTC P0700, DTC P0700 means there is one or more A/T DTCs, and no problems were detected in the fuel and emissions circuit of the PCM).
5. Clear the DTC and data in the CLEAR MENU.
6. Drive the vehicle for several minutes under the same conditions as those indicated by the freeze data, and then recheck for a DTC. If the A/T DTC returns, go to the DTC troubleshooting Index. If the DTC does not return, there was an intermittent problem within the circuit. Make sure all pins and terminals in the circuit are tight.

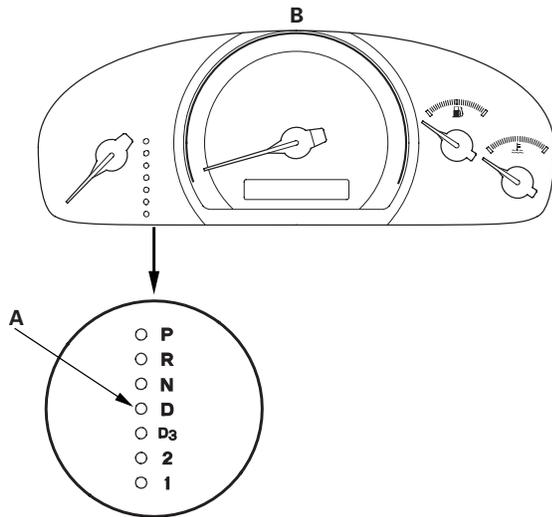
(cont'd)

Automatic Transmission

General Troubleshooting Information (cont'd)

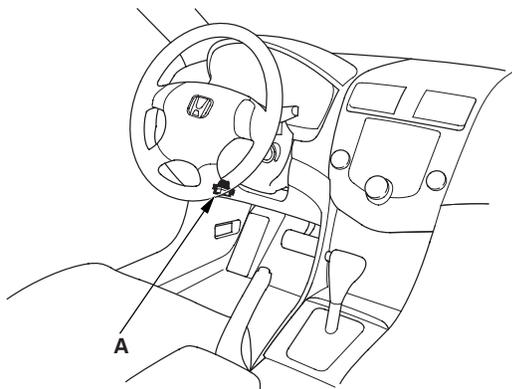
How to Check for DTCs with the SCS Mode (retrieving the flash codes)

When the PCM senses an abnormality in the input or output system, the **D** indicator (A) in the gauge assembly (B) will usually blink.



When the **D** indicator has been reported on, connect the Honda PGM Tester or HDS to the DLC (A) (located under the left end of the dash). Turn the ignition switch ON (II), select SCS mode, then the **D** indicator will indicate the DTC.

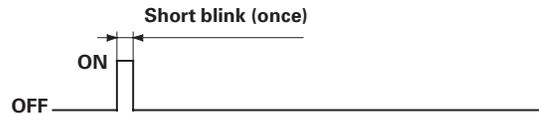
NOTE: The illustration shows LHD model; RHD model is symmetrical.



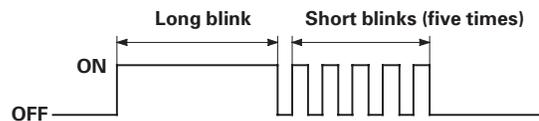
If the **D** indicator and the MIL come on at the same time, or if a driveability problem is suspected, follow this procedure:

1. Connect the Honda PGM Tester or HDS to the DLC. (See the Honda PGM Tester or HDS user's manual for specific instructions.)
2. Turn the ignition switch ON (II), select SCS mode, then observe the **D** indicator in the gauge assembly. Code 1 through 9 are indicated by individual short blinks. Code 10 and above are indicated by a series of long and short blinks. One long blink equals 10 short blinks. Add the long and short blinks together to determine the code.

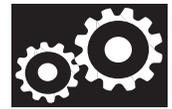
Example: DTC 1-1



Example: DTC 15-5



3. Record all fuel and emissions DTCs and A/T DTCs.
4. If there is a fuel and emissions DTC, first check the fuel and emissions system as indicated by the DTC (except DTC 70, DTC 70 means there is one or more A/T DTCs, and no problems were detected in the fuel and emissions circuit of the PCM).
5. Clear the DTC and data in the CLEAR MENU.
6. Drive the vehicle for several minutes under the same conditions as those indicated by the freeze data, and then recheck for DTC. If the A/T DTC returns, go to the DTC Troubleshooting Index. If the DTC does not return, there was an intermittent problem within the circuit. Make sure all pins and terminals in the circuit are tight.

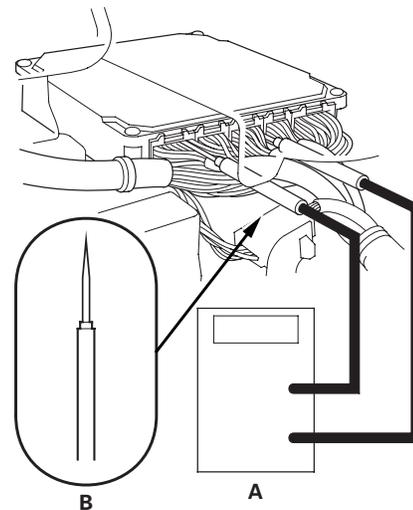


Clear A/T DTCs, and PCM Reset Procedures

1. Make sure you have the anti-theft code for the radio, then write down the radio station presets.
2. Turn the ignition switch OFF.
3. Connect the Honda PGM Tester or HDS to the DLC.
4. Turn the ignition switch ON (II).
5. Select the A/T system, then CLEAR on the tester screen.
6. Clear the DTC(s) or reset the PCM in CLEAR MENU.

How to Troubleshoot Circuits at the PCM

1. Pull back the carpet, and remove the passenger's console side trim (see page 20-85).
2. Inspect the circuit on the PCM, according to the DTC troubleshooting with a digital multimeter (A) and tapered tip probe (B) as shown.



3. If you cannot get to the wire side of the connector or the wire side is sealed, disconnect the connector and use the tester probe to probe the connectors from the terminal side. Do not force the probe into the connector.

(cont'd)

Automatic Transmission

General Troubleshooting Information (cont'd)

PCM Updating and Substitution for Testing

Special Tools Required

Honda Interface Module (HIM) EQS05A35570

Use this procedure when you have to substitute a known-good PCM in a troubleshooting procedure. Update the PCM only if the PCM does not already have the latest software loaded.

Do not turn the ignition switch OFF while updating the PCM. If you turn the ignition switch OFF, the PCM can be damaged.

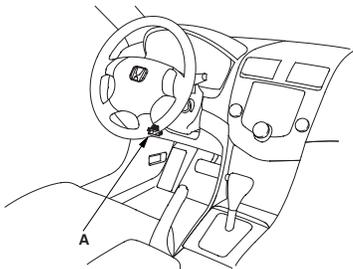
How to Update the PCM

NOTE:

- To ensure the latest program is installed, update a PCM whenever the PCM is substituted or replaced.
- You cannot update a PCM with the program it already has. It will only accept a new program.
- Before you update the PCM, make sure the vehicle's battery is fully charged.
- To prevent PCM damage, do not operate any electrical system; audio system, brakes, air conditioning, power windows, moonroof, and door locks, during the update.
- If you need to diagnose the Honda interface module (HIM) because the HIM's red (# 3) light came on or was flashing during the update, leave the ignition switch in the ON (II) position when you disconnect the HIM from the DLC. This will prevent PCM damage.

1. Turn the ignition switch ON (II). Do not start the engine.
2. Connect the Honda interface module (HIM) to the DLC (A) located under the left end of the dash.

NOTE: The illustration shows LHD model; RHD model is symmetrical.



3. Update the PCM according to the procedures described on the HIM label. If the software in the PCM is the latest, replace the PCM.

How to Substitute the PCM

1. Connect the Honda PGM Tester or HDS to the DLC.
2. Turn the ignition switch OFF.
3. Jump the SCS line with the Honda PGM Tester or HDS.
4. Remove the PCM, and install a known-good PCM.
5. Rewrite the immobilizer code with the PCM replacement procedure in the Honda PGM Tester or HDS; this will allow you to start the engine.
6. After completing your test, reinstall the original PCM and rewrite the immobilizer code with the PCM replacement procedure in the Honda PGM Tester or HDS again.



How to Remove and Install the PCM

1. Pull back the carpet, and remove the driver's and passenger's console side trims (see page 20-85).
2. Connect the Honda PGM Tester or HDS to the DLC.
3. Turn the ignition switch OFF.
4. Jump the SCS line with the PGM Tester or HDS.
5. Disconnect PCM connectors.
6. Remove the two bolts, and remove the PCM.
7. Install the PCM in the reverse order of the removal.

How to End a Troubleshooting Session

This procedure must be done after any troubleshooting.

1. Turn the ignition switch OFF.
2. Connect the Honda PGM Tester or HDS to the DLC.
3. Turn the ignition switch ON (II).
4. Select the A/T system, then CLEAR on the tester screen.
5. Clear the DTC(s) or reset the PCM in CLEAR MENU.
6. Turn the ignition switch ON (II).
7. Enter the radio code, reset the preset stations, and set the clock.
8. Start the engine in the **P** or **N** position, and warm it up to normal operating temperature (the radiator fan comes on). Do the PCM idle learn procedure (see page 11-193).
9. Do the power window control unit reset procedure (see page 22-219).
10. To verify that the problem is repaired, test-drive the vehicle for several minutes at speeds over 30 mph (50 km/h) or in freeze data range.

Automatic Transmission

DTC Troubleshooting Index

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

DTC ^{*(1)}	 Indicator	MIL 	Detection Item	Page
P0705 (5-2) ^{*(2)}	Blinks	ON	Transmission range switch (multiple shift-position input)	(see page 14-72)
P0706 (6-2) ^{*(2)}	OFF	ON	Transmission range switch (open)	(see page 14-77)
P0711 (28-5) ^{*(2)}	Blinks	OFF	ATF temperature sensor (range/performance)	(see page 14-80)
P0712 (28-3) ^{*(2)}	Blinks	OFF	ATF temperature sensor (short)	(see page 14-81)
P0713 (28-4) ^{*(2)}	Blinks	OFF	ATF temperature sensor (open)	(see page 14-82)
P0716 (15-5) ^{*(2)}	Blinks	ON	Mainshaft speed sensor (range/performance)	(see page 14-83)
P0717 (15-3) ^{*(2)}	Blinks	ON	Mainshaft speed sensor (no signal input)	(see page 14-87)
P0718 (15-6) ^{*(2)}	Blinks	ON	Mainshaft speed sensor (intermittent failure)	(see page 14-91)
P0721 (9-5) ^{*(2)}	Blinks	ON	Countershaft speed sensor (range/performance)	(see page 14-93)
P0722 (9-3) ^{*(2)}	Blinks	ON	Countershaft speed sensor (no signal input)	(see page 14-95)
P0723 (9-6) ^{*(2)}	Blinks	ON	Countershaft speed sensor (intermittent failure)	(see page 14-99)
P0747 (76-4)	Blinks	ON	A/T clutch pressure control solenoid valve A stuck ON	(see page 14-101)
P0752 (70-4)	Blinks	ON	Shift solenoid valve A stuck ON	(see page 14-102)
P0756 (71-3)	Blinks	ON	Shift solenoid valve B stuck OFF	(see page 14-103)
P0757 (71-4)	Blinks	ON	Shift solenoid valve B stuck ON	(see page 14-104)
P0761 (72-3)	Blinks	ON	Shift solenoid valve C stuck OFF	(see page 14-105)

NOTE:

- * (1): The DTC in parentheses is the Honda code that you will see when you use the PGM Tester or the HDS. The first number(s) before the - (hyphen) is the flash code the  indicator indicates when the data link connector is connected to the Honda PGM Tester, or the HDS, and the tester in SCS mode.
- * (2): This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.



NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

DTC ^{*(1)}	 Indicator	MIL 	Detection Item	Page
P0771 (74-3)	Blinks	ON	Shift solenoid valve E stuck OFF	(see page 14-106)
P0776 (77-3)	Blinks	ON	A/T clutch pressure control solenoid valve B stuck OFF	(see page 14-107)
P0777 (77-4)	Blinks	ON	A/T clutch pressure control solenoid valve B stuck ON	(see page 14-108)
P0780 (45-1)	Blinks	ON	Shift control system	(see page 14-109)
P0796 (78-3)	Blinks	ON	A/T clutch pressure control solenoid valve C stuck OFF	(see page 14-110)
P0797 (78-4)	Blinks	ON	A/T clutch pressure control solenoid valve C stuck ON	(see page 14-111)
P0812 (62-2) ^{*(2)}	Blinks	OFF	Transmission range switch ATP RVS switch	(see page 14-112)
P0842 (25-3) ^{*(2)}	Blinks	ON	2nd clutch transmission fluid pressure switch (short or stuck ON)	(see page 14-114)
P0843 (25-4) ^{*(2)}	Blinks	ON	2nd clutch transmission fluid pressure switch (open or stuck OFF)	(see page 14-116)
P0847 (26-3) ^{*(2)}	Blinks	OFF	3rd clutch transmission fluid pressure switch (short or stuck ON)	(see page 14-118)
P0848 (26-4) ^{*(2)}	Blinks	OFF	3rd clutch transmission fluid pressure switch (open or stuck OFF)	(see page 14-120)
P0962 (16-3) ^{*(2)}	Blinks	ON	A/T clutch pressure control solenoid valve A (open/short)	(see page 14-122)
P0963 (16-4) ^{*(2)}	Blinks	ON	A/T clutch pressure control solenoid valve A	(see page 14-124)
P0966 (23-3) ^{*(2)}	Blinks	ON	A/T clutch pressure control solenoid valve B (open/short)	(see page 14-126)
P0967 (23-4) ^{*(2)}	Blinks	ON	A/T clutch pressure control solenoid valve B	(see page 14-128)
P0970 (29-3) ^{*(2)}	Blinks	ON	A/T clutch pressure control solenoid valve C (open/short)	(see page 14-130)
P0971 (29-4) ^{*(2)}	Blinks	ON	A/T clutch pressure control solenoid valve C	(see page 14-132)
P0973 (7-3) ^{*(2)}	Blinks	ON	Shift solenoid valve A (short)	(see page 14-134)

NOTE:

- * (1): The DTC in parentheses is the Honda code that you will see when you use the PGM Tester or the HDS. The first number(s) before the - (hyphen) is the flash code the  indicator indicates when the data link connector is connected to the Honda PGM Tester, or the HDS, and the tester in SCS mode.
- * (2): This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

(cont'd)

Automatic Transmission

DTC Troubleshooting Index (cont'd)

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

DTC ^{*(1)}	 Indicator	MIL 	Detection Item	Page
P0974 (7-4) ^{*(2)}	Blinks	ON	Shift solenoid valve A (open)	(see page 14-136)
P0976 (8-3) ^{*(2)}	Blinks	ON	Shift solenoid valve B (short)	(see page 14-138)
P0977 (8-4) ^{*(2)}	Blinks	ON	Shift solenoid valve B (open)	(see page 14-140)
P0979 (22-3) ^{*(2)}	Blinks	ON	Shift solenoid valve C (short)	(see page 14-142)
P0980 (22-4) ^{*(2)}	Blinks	ON	Shift solenoid valve C (open)	(see page 14-144)
P0982 (60-3) ^{*(2)}	Blinks	ON	Shift solenoid valve D (short)	(see page 14-146)
P0983 (60-4) ^{*(2)}	Blinks	ON	Shift solenoid valve D (open)	(see page 14-148)
P0985 (61-3) ^{*(2)}	Blinks	ON	Shift solenoid valve E (short)	(see page 14-150)
P0986 (61-4) ^{*(2)}	Blinks	ON	Shift solenoid valve E (open)	(see page 14-152)
P1730 (45-2)	Blinks	ON	Shift control system <ul style="list-style-type: none"> • Shift solenoid valves A or D stuck OFF • Shift solenoid valve B stuck ON • Shift valves A, B, or D stuck 	(see page 14-154)
P1731 (45-3)	Blinks	ON	Shift control system <ul style="list-style-type: none"> • Shift solenoid valve E stuck ON • Shift valve E stuck • A/T clutch pressure control solenoid valve A stuck OFF • CPC valve A stuck 	(see page 14-155)
P1732 (45-4)	Blinks	ON	Shift control system <ul style="list-style-type: none"> • Shift solenoid valves B or C stuck ON • Shift valves B or C stuck 	(see page 14-156)
P1733 (45-5)	Blinks	ON	Shift control system <ul style="list-style-type: none"> • Shift solenoid valve D stuck ON • Shift valve D stuck • A/T clutch pressure control solenoid valve C stuck OFF • CPC valve C stuck 	(see page 14-157)
P1734 (45-6)	Blinks	ON	Shift control system <ul style="list-style-type: none"> • Shift solenoid valves B or C stuck OFF • Shift valves B or C stuck 	(see page 14-158)

NOTE:

- * (1): The DTC in parentheses is the Honda code that you will see when you use the PGM Tester or the HDS. The first number(s) before the - (hyphen) is the flash code the  indicator indicates when the data link connector is connected to the Honda PGM Tester, or the HDS, and the tester is in SCS mode.
- * (2): This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.



Symptom Troubleshooting Index

These symptoms DO NOT trigger diagnostic trouble codes (DTCs) or cause the **D** indicator to blink. If the malfunction indicator lamp (MIL) was reported ON or the **D** indicator has been blinking, check for DTCs. If the vehicle has one of the symptoms in the following chart, check the probable cause(s) for it, in the sequence listed, until you find the problem.

Symptom	Probable cause(s)	Notes
Shift lever cannot be moved from P position while you're pushing on the brake pedal	A problem in the shift lock system (interlock system)	Check the interlock system - shift lock system circuit (see page 14-220).
Ignition switch cannot be moved from ACC (I) position to LOCK (0) position (key is pushed in, shift lever in P position)	A problem in the key interlock system (interlock system)	Check the interlock system - key interlock system circuit (see page 14-221).

(cont'd)

Automatic Transmission

Symptom Troubleshooting Index (cont'd)

Symptom	Probable cause(s)	Notes
Engine runs, but vehicle does not move in any gear	<ol style="list-style-type: none"> 1. Low ATF level 2. Shift cable broken or out of adjustment 3. Joint in shift cable and transmission or body worn 4. ATF pump worn or binding 5. Regulator valve stuck or spring worn 6. ATF strainer clogged 7. Mainshaft worn or damaged 8. Final gears worn or damaged 9. Transmission-to-engine assembly error 10. Axle disengaged 	<ul style="list-style-type: none"> • Check the ATF level and check the ATF cooler lines for leakage and loose connections. If necessary, flush the ATF cooler lines. • Check for a loose shift cable at the shift lever and the transmission control shaft. • Improper alignment of ATF pump and torque converter housing may cause ATF pump seizure. The symptoms are mostly an rpm-related ticking noise or a high pitched squeak. • Measure line pressure. • Be careful not to damage the torque converter housing when replacing the main ball bearing. You may also damage the ATF pump when you torque down the main valve body. This will result in ATF pump seizure if not detected. Use the proper tools. • Install the main seal flush with the torque converter housing. If you push it into the torque converter housing until it bottoms out, it will block the fluid return passage and result in damage. • Check if the ATF strainer is clogged. If the ATF strainer is clogged with particles of steel or aluminum, inspect the ATF pump. If the ATF pump is OK, find the damaged components that caused the debris, and replace the torque converter. • Inspect the differential pinion gears for wear. If the differential pinion gears are worn, replace the differential assembly, replace the ATF strainer, thoroughly clean the transmission, and flush the torque converter, cooler, and lines.
Vehicle moves in 2 or R , but not in the D , D_s or 1 position	<ol style="list-style-type: none"> 1. 1st accumulator defective 2. 1st gears worn or damaged 3. 1st clutch defective 	<ul style="list-style-type: none"> • Check the 1st clutch pressure. • Inspect the clutch piston and O-rings. Check the spring retainer and retainer seal for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs are worn or damaged, replace them as a set. Inspect clutch waved-plate height. If the height is out of tolerance, replace the waved-plate. If they are OK, adjust the clearance with the clutch end plate. • Inspect the 1st clutch feed pipe. If the 1st clutch feed pipe is scored, replace it and the O-ring under the feed pipe guide. • Replace the secondary shaft if the bushing for the 1st clutch feed pipe is loose or damaged.



Symptom	Probable cause(s)	Notes
Vehicle moves in D , D₃ , 1 , R , but not in the 2 position	<ol style="list-style-type: none"> 1. 2nd accumulator defective 2. 2nd gears worn or damaged 3. 2nd clutch defective 	<ul style="list-style-type: none"> • Check the 2nd clutch pressure. • Inspect the clutch piston and O-rings. Check the spring retainer and retainer seal for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs are worn or damaged, replace them as a set. Inspect clutch waved-plate height. If the height is out of tolerance, replace the waved-plate. If they are OK, adjust the clearance with the clutch end plate.
Vehicle moves in D , D₃ , 2 , 1 , but not in the R position	<ol style="list-style-type: none"> 1. Shift solenoid valve E defective 2. Shift fork shaft stuck 3. Shift valve E defective 4. 4th/reverse accumulator defective 5. 4th clutch defective 6. Reverse gears worn or damaged 	<ul style="list-style-type: none"> • Check the D indicator, and check for loose connectors. Inspect the shift solenoid valve E for seizure, and O-rings for wear and damage. • Check for a missing shift fork bolt on the shift fork shaft. • Check the 4th clutch pressure. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs are worn or damaged, replace them as a set. Inspect clutch waved-plate height. If the height is out of tolerance, replace the waved-plate. If they are OK, adjust the clearance with the clutch end plate. • Inspect the reverse selector gear teeth chamfers, and inspect the engagement teeth chamfers of the countershaft 4th and reverse gear. Replace the reverse gears and the reverse selector if they are worn or damaged. If the transmission makes a clicking, grinding, or whirring noise, also replace the mainshaft 4th gear, reverse idler gear, and countershaft 4th gear.
Poor acceleration; flares on starting off in the D , D₃ and R , positions: Stall speed high in 2 and 1 positions, and in the D and D₃ positions in 1st and 2nd gears	<ol style="list-style-type: none"> 1. Low ATF level 2. Shift cable broken or out of adjustment 3. ATF pump worn or binding 4. Regulator valve stuck or spring worn 5. ATF strainer clogged 6. Torque converter check valve defective 	<ul style="list-style-type: none"> • Check the ATF level and check the ATF cooler lines for leakage and loose connections. If necessary, flush the ATF cooler lines. • Check for a loose shift cable at the shift lever and the transmission control shaft. • Improper alignment of ATF pump and torque converter housing may cause ATF pump seizure. The symptoms are mostly an rpm-related ticking noise or a high pitched squeak. • Check if the ATF strainer is clogged. If the ATF strainer is clogged with particles of steel or aluminum, inspect the ATF pump. If the ATF pump is OK, find the damaged components that caused the debris, and replace the torque converter.

(cont'd)

Automatic Transmission

Symptom Troubleshooting Index (cont'd)

Symptom	Probable cause(s)	Notes
Poor acceleration; flares on starting off in the D , D₃ and R positions: Stall speed high when starting off in the 2 position	2nd clutch defective	<ul style="list-style-type: none"> • Check the 2nd clutch pressure. • Inspect the clutch piston, and O-rings. Check the spring retainer and retainer seal for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs are worn or damaged, replace them as a set. Inspect clutch waved-plate height. If the height is out of tolerance, replace the waved-plate. If they are OK, adjust the clearance with the clutch end plate.
Poor acceleration; flares on starting off in the D , D₃ and R positions: Stall speed high in the R position	<ol style="list-style-type: none"> 1. Shift cable broken or out of adjustment 2. 4th clutch defective 	<ul style="list-style-type: none"> • Check for a loose shift cable at the shift lever and the transmission control shaft. • Check the 4th clutch pressure in the D and R positions. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs are worn or damaged, replace them as a set. Inspect clutch waved-plate height. If the height is out of tolerance, replace the waved-plate. If they are OK, adjust the clearance with the clutch end plate.
Poor acceleration; Stall speed low in the 2 and 1 positions, and in the D and D₃ positions in 1st and 2nd gears	<ol style="list-style-type: none"> 1. Shift solenoid valve E defective 2. Torque converter one-way clutch defective 3. Engine output low 4. Torque converter clutch piston defective 5. Lock-up shift valve defective 6. Restricted ATF cooler 	<ul style="list-style-type: none"> • Check the D indicator, and check for loose connectors. Inspect the shift solenoid valve E for seizure, and O-ring for wear and damage. • Replace the torque converter. • Check the ATF cooler system for restriction.
Poor acceleration; Stall speed low in the R position	<ol style="list-style-type: none"> 1. Engine output low 2. Torque converter clutch piston defective 3. Lock-up shift valve defective 	<ul style="list-style-type: none"> • Replace the torque converter.



Symptom	Probable cause(s)	Notes
Engine idle vibration	<ol style="list-style-type: none"> 1. Low ATF level 2. Shift solenoid valve E defective 3. Drive plate defective or transmission misassembled 4. Engine output low 5. Torque converter clutch piston defective 6. ATF pump worn or binding 7. Lock-up shift valve defective 8. Misadjusted engine and transmission mounts 	<ul style="list-style-type: none"> • Check the ATF level and check the ATF cooler lines for leakage and loose connections. If necessary, flush the ATF cooler lines. • Improper alignment of ATF pump and torque converter housing may cause ATF pump seizure. The symptoms are mostly an rpm-related ticking noise or a high pitched squeak. • Inspect the ATF strainer for clogging with particles of steel or aluminum. If the ATF strainer is clogged, replace it, and flush the torque converter, cooler, and lines. • Check the D indicator, and check for loose connectors. Inspect the shift solenoid valve E for seizure, and O-rings for wear and damage. • Check for a misinstalled/damaged drive plate. • Set idle rpm in gear to the specified idle speed. If still no good, adjust the engine and transmission mounts as outlined in the engine section of this shop manual. • Replace the torque converter.
Vehicle moves in the N position	<ol style="list-style-type: none"> 1. Excessive ATF 2. Foreign material in separator plate orifice 3. Relief valve defective 4. 1st clutch defective 5. 2nd clutch defective 6. 3rd clutch defective 7. 4th clutch defective 8. 5th clutch defective 9. Clutch end plate-to-top disc clearance incorrect 10. Needle bearing seized up, worn, or damaged 11. Thrust washer seized up, worn, or damaged 	<ul style="list-style-type: none"> • Check the ATF level, and drain the ATF if it is over-filled. • Check the 1st, 2nd, 3rd, 4th, and 5th clutch pressures. • Check if the ATF strainer is clogged. If the ATF strainer is clogged with particles of steel or aluminum, inspect the ATF pump. If the ATF pump is OK, find the damaged components that caused the debris, and replace the torque converter. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer and retainer seal (1st, 2nd and 3rd) for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs are worn or damaged, replace them as a set. Inspect clutch waved-plate height. If the height is out of tolerance, replace the waved-plate. If they are OK, adjust the clearance with the clutch end plate. • Inspect the 1st clutch feed pipe. If the 1st clutch feed pipe is scored, replace the end cover. • Inspect the 3rd clutch feed pipe. If the 3rd clutch feed pipe is scored, replace it and O-ring under the feed pipe guide. • Replace the secondary shaft if the bushing for the 1st or 3rd clutch feed pipe is loose or damaged. • Inspect the 5th clutch feed pipe. If the 5th clutch feed pipe is scored, replace it and the O-ring under the feed pipe guide. • Replace the mainshaft if the bushing for the 5th clutch feed pipe is loose or damaged.

(cont'd)

Automatic Transmission

Symptom Troubleshooting Index (cont'd)

Symptom	Probable cause(s)	Notes
Late shift from the N position to the D and D₃ positions, or excessive shock when shifted into the D and D₃ positions	<ol style="list-style-type: none"> 1. Shift solenoid valve E defective 2. A/T clutch pressure control solenoid valve A defective 3. A/T clutch pressure control solenoid valve B defective 4. A/T clutch pressure control solenoid valve C defective 5. Shift cable broken or out of adjustment 6. Joint in shift cable and transmission or body worn 7. Mainshaft speed sensor defective 8. Countershaft speed sensor defective 9. ATF temperature sensor defective 10. Foreign material in separator plate orifice 11. Servo control valve defective 12. 1st accumulator defective 13. 1st check ball stuck 14. Lock-up shift valve defective 15. 1st clutch defective 	<ul style="list-style-type: none"> • Check the D indicator, and check for loose connectors. Inspect the solenoid valve filter/gasket and O-rings for wear and damage, and inspect the solenoid valves for seizure. • Check the mainshaft speed sensor and countershaft speed sensor installation. • Check for a loose shift cable at the shift lever and the transmission control shaft. • Check the 1st clutch pressure. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer and retainer seal for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs are worn or damaged, replace them as a set. Inspect clutch waved-plate height. If the height is out of tolerance, replace the waved-plate. If they are OK, adjust the clearance with the clutch end plate. • Inspect the 1st clutch feed pipe. If the 1st clutch feed pipe is scored, replace the end cover. • Replace the secondary shaft if the bushing for the 1st clutch feed pipe is loose or damaged.
Late shift from the N position to the R position, or excessive shock when shifted into the R position	<ol style="list-style-type: none"> 1. Shift solenoid valve E defective 2. A/T clutch pressure control solenoid valve A defective 3. Shift cable broken or out of adjustment 4. Joint in shift cable and transmission or body worn 5. Mainshaft speed sensor defective 6. Countershaft speed sensor defective 7. ATF temperature sensor defective 8. Shift fork shaft stuck 9. Foreign material in separator plate orifice 10. Shift valve E defective 11. 4th/reverse accumulator defective 12. Lock-up shift valve defective 13. 4th clutch defective 	<ul style="list-style-type: none"> • Check the D indicator, and check for loose connectors. Inspect the solenoid valve filter/gasket and O-rings for wear and damage, and inspect the solenoid valves for seizure. • Check the mainshaft speed sensor and countershaft speed sensor installation. • Check for a loose shift cable at the shift lever and the transmission control shaft. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs are worn or damaged, replace them as a set. Inspect clutch waved-plate height. If the height is out of tolerance, replace the waved-plate. If they are OK, adjust the clearance with the clutch end plate. • Check for a missing shift fork bolt on the shift fork shaft. • Check the 4th clutch pressure. • Inspect the servo valve and O-ring.



Symptom	Probable cause(s)	Notes
No shift	<ol style="list-style-type: none"> 1. Mainshaft speed sensor defective 2. Countershaft speed sensor defective 	Check the D , and check for loose connectors. Check the mainshaft and countershaft speed sensor installation.
Excessive shock or flares on all upshifts and downshifts	<ol style="list-style-type: none"> 1. A/T clutch pressure control solenoid valve B defective 2. A/T clutch pressure control solenoid valve C defective 3. Mainshaft speed sensor defective 4. Countershaft speed sensor defective 5. ATF temperature sensor defective 6. Foreign material in separator plate orifice 	<ul style="list-style-type: none"> • Check the D indicator, and check for loose connectors. Inspect the solenoid valve filter/gasket and O-rings for wear and damage, and inspect the solenoid valves for seizure. • Check the mainshaft speed sensor and countershaft speed sensor installation.
Excessive shock or flares on 1-2 upshift or 2-1 downshift	<ol style="list-style-type: none"> 1. Shift solenoid valve E defective 2. A/T clutch pressure control solenoid valve A defective 3. A/T clutch pressure control solenoid valve B defective 4. A/T clutch pressure control solenoid valve C defective 5. 2nd clutch transmission fluid pressure switch defective 6. Foreign material in separator plate orifice 7. 1st accumulator defective 8. 2nd accumulator defective 9. 1st check ball stuck 10. 2nd check ball stuck 11. Lock-up shift valve defective 12. 1st clutch defective 13. 2nd clutch defective 	<ul style="list-style-type: none"> • Check the D indicator, and check for loose connectors. Inspect the solenoid valve filter/gasket and O-rings for wear and damage, and inspect the solenoid valves for seizure. • Check the 1st and 2nd clutch pressures. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer and retainer seal for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs are worn or damaged, replace them as a set. Inspect clutch waved-plate height. If the height is out of tolerance, replace the waved-plate. If they are OK, adjust the clearance with the clutch end plate. • Inspect the 1st clutch feed pipe. If the 1st clutch feed pipe is scored, replace the end cover. • Replace the secondary shaft if the bushing for the 1st clutch feed pipe is loose or damaged.

(cont'd)

Automatic Transmission

Symptom Troubleshooting Index (cont'd)

Symptom	Probable cause(s)	Notes
Excessive shock or flares on 2-3 upshift or 3-2 downshift	<ol style="list-style-type: none"> 1. A/T clutch pressure control solenoid valve B defective 2. A/T clutch pressure control solenoid valve C defective 3. 3rd clutch transmission fluid pressure switch defective 4. Foreign material in separator plate orifice 5. 2nd accumulator defective 6. 3rd accumulator defective 7. 2nd check ball stuck 8. 2nd clutch defective 9. 3rd clutch defective 	<ul style="list-style-type: none"> • Check the D indicator, and check for loose connectors. Inspect the solenoid valve filter/gasket for wear and damage, and inspect the solenoid valves for seizure. • Check the 2nd and 3rd clutch pressures. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer and retainer seal for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs are worn or damaged, replace them as a set. Inspect clutch waved-plate height. If the height is out of tolerance, replace the waved-plate. If they are OK, adjust the clearance with the clutch end plate. • Inspect the 3rd clutch feed pipe. If the 3rd clutch feed pipe is scored, replace it and the O-ring under the feed pipe guide. • Replace the secondary shaft if the bushing for the 3rd clutch feed pipe is loose or damaged.
Excessive shock or flares on 3-4 upshift or 4-3 downshift	<ol style="list-style-type: none"> 1. A/T clutch pressure control solenoid valve B defective 2. A/T clutch pressure control solenoid valve C defective 3. Foreign material in separator plate orifice 4. 3rd accumulator defective 5. 4th accumulator defective 6. 3rd clutch defective 7. 4th clutch defective 	<ul style="list-style-type: none"> • Check the D indicator, and check for loose connectors. Inspect the solenoid valve filter/gasket and O-rings for wear and damage, and inspect the solenoid valves for seizure. • Check the 3rd and 4th clutch pressures. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer and retainer seal (3rd) for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs are worn or damaged, replace them as a set. Inspect clutch waved-plate height. If the height is out of tolerance, replace the waved-plate. If they are OK, adjust the clearance with the clutch end plate. • Inspect the 3rd clutch feed pipe. If the 3rd clutch feed pipe is scored, replace it and the O-ring under the feed pipe guide. • Replace the secondary shaft if the bushing for the 3rd clutch feed pipe is loose or damaged.



Symptom	Probable cause(s)	Notes
Excessive shock or flares on 4-5 upshift or 5-4 downshift	<ol style="list-style-type: none"> 1. A/T clutch pressure control solenoid valve B defective 2. A/T clutch pressure control solenoid valve C defective 3. Foreign material in separator plate orifice 4. 4th accumulator defective 5. 5th accumulator defective 6. 4th clutch defective 7. 5th clutch defective 	<ul style="list-style-type: none"> • Check the D indicator, and check for loose connectors. Inspect the solenoid valve filter/gasket and O-rings for wear and damage, and inspect the solenoid valves for seizure. • Check the 4th and 5th clutch pressures. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clutch end-plate-to-top-disc clearance. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage. If the discs are worn or damaged, replace them as a set. Inspect clutch waved-plate height. If the height is out of tolerance, replace the waved-plate. If they are OK, adjust the clearance with the clutch end plate. • Inspect the 5th clutch feed pipe. If the 5th clutch feed pipe is scored, replace it and the O-ring under the feed pipe guide. • Replace the mainshaft if the bushing for the 5th clutch feed pipe is loose or damaged.
Noise from transmission in all shift lever positions	<ol style="list-style-type: none"> 1. ATF pump worn or binding 2. Mainshaft bearing, countershaft bearing, or secondary shaft bearing defective 	<ul style="list-style-type: none"> • Improper alignment of ATF pump and torque converter housing may cause ATF pump seizure. The symptoms are mostly an rpm-related ticking noise or a high pitched squeak. • Be careful not to damage the torque converter housing when replacing the main ball bearing. You may also damage the ATF pump when you torque down the main valve body. This will result in ATF pump seizure if not detected. Use the proper tools. • Install the main seal flush with the torque converter housing. If you push it into the torque converter housing until it bottoms out, it will block the fluid return passage and result in damage. • Inspect the ATF strainer for clogging with particles of steel or aluminum. If the ATF strainer is clogged, replace it, and flush the torque converter, cooler, and lines. • Inspect the mainshaft, countershaft and secondary shaft for wear or damage.
Vehicle does not accelerate more than 31 mph (50 km/h)	Torque converter one-way clutch defective	<ul style="list-style-type: none"> • Replace the torque converter. • Check the ATF cooler system for restriction.
Vibration in all shift lever positions	Drive plate defective or transmission misassembled	<ul style="list-style-type: none"> • Check for a misinstalled/damaged drive plate. • Set idle rpm in gear to the specified idle speed. If still no good, adjust the engine and transmission mounts as outlined in the engine section of this shop manual.

(cont'd)

Automatic Transmission

Symptom Troubleshooting Index (cont'd)

Symptom	Probable cause(s)	Notes
Shift lever does not operate smoothly	<ol style="list-style-type: none"> 1. Transmission range switch defective or out of adjustment 2. Shift cable broken or out of adjustment 3. Joint in shift cable and transmission or body worn 	<ul style="list-style-type: none"> • Check the D indicator, and check for loose connectors. Inspect the transmission range switch for operation. • Check for a loose shift cable at the shift lever and the transmission control shaft.
Transmission does not shift into P position	<ol style="list-style-type: none"> 1. Shift cable broken or out of adjustment 2. Joint in shift cable and transmission or body worn 3. Park mechanism defective 	<ul style="list-style-type: none"> • Check for a loose shift cable at the shift lever and the transmission control shaft. • Check the park pawl spring installation and the park lever spring installation. If installation is incorrect, install the spring correctly. Make sure that the park lever stop is not installed upside down. Check the distance between the park pawl shaft and park lever roller pin. If the distance is out of tolerance, adjust the distance with the park lever stop.
Lock-up clutch does not disengage	<ol style="list-style-type: none"> 1. Shift solenoid valve E defective 2. A/T clutch pressure control solenoid valve A defective 3. Torque converter clutch piston defective 4. Lock-up shift valve defective 5. Lock-up control valve defective 	<ul style="list-style-type: none"> • Check the D indicator, and check for loose connectors. Inspect the solenoid valve filter/gasket for wear and damage, and inspect the solenoid valves for seizure. • Replace the torque converter.
Lock-up clutch operates unstable	<ol style="list-style-type: none"> 1. Shift solenoid valve E defective 2. A/T clutch pressure control solenoid valve A defective 3. Torque converter clutch piston defective 4. Torque converter check valve defective 5. Lock-up shift valve defective 6. Lock-up control valve defective 	<ul style="list-style-type: none"> • Check the D indicator, and check for loose connectors. Inspect the solenoid valve filter/gasket for wear and damage, and inspect the solenoid valves for seizure. • Replace the torque converter.



Symptom	Probable cause(s)	Notes
Lock-up clutch does not engage	<ol style="list-style-type: none"> 1. Shift solenoid valve E defective 2. A/T clutch pressure control solenoid valve A defective 3. Mainshaft speed sensor defective 4. Countershaft speed sensor defective 5. Torque converter clutch piston defective 6. Torque converter check valve defective 7. Lock-up shift valve defective 8. Lock-up control valve defective 	<ul style="list-style-type: none"> • Check the D indicator, and check for loose connectors. Inspect the solenoid valve filter/gasket for wear and damage, and inspect the solenoid valves for seizure. • Replace the torque converter. • Check the mainshaft speed sensor and countershaft speed sensor installation.
A/T gear position indicator does not indicate shift lever positions	<ol style="list-style-type: none"> 1. Transmission range switch defective or out of adjustment 2. Shift cable broken or out of adjustment 3. Joint in shift cable and transmission or body worn 	<ul style="list-style-type: none"> • Check the D indicator, and check for loose connectors. Inspect the transmission range switch operation. • Check for a loose shift cable at the shift lever and the transmission control shaft.
Speedometer and odometer do not operate	Countershaft speed sensor defective	<ul style="list-style-type: none"> • Check the D indicator, and check for loose connectors. Inspect the transmission range switch operation. • Check the countershaft speed sensor installation.
Transmission shifts up during low-rev engine speed condition; engine cannot rev up to high speed	Engine rocker arms defective	Check the engine rocker arms as described in the engine section of this shop manual.

Automatic Transmission

System Description

General Operation

The automatic transmission is a combination of a 3-element torque converter and triple-shaft electronically controlled unit which provides 5 speeds forward and 1 reverse. The entire unit is positioned in line with the engine.

Torque Converter, Gears, and Clutches

The torque converter consists of a pump, turbine, and stator assembly in a single unit. The converter housing (pump) is connected to the engine crankshaft and turns as the engine turns. Around the outside of the torque converter is a ring gear which meshes with the starter pinion when the engine is being started. The entire torque converter assembly serves as a flywheel while transmitting power to the transmission mainshaft, the transmission has three parallel shafts; the mainshaft, the countershaft, the secondary shaft. The mainshaft is in line with the engine crankshaft, and includes the 4th and 5th clutches, and gears for 5th, 4th, reverse, and idler. The mainshaft reverse gear is integral with the mainshaft 4th gear. The countershaft includes the gears for 1st, 2nd, 3rd, 4th, 5th, reverse, park, and the final drive. The final drive gear is integral with the countershaft. The countershaft 4th gear and the countershaft reverse gear can be locked to the countershaft providing 4th or reverse gear, depending on which way the selector is moved. The secondary shaft includes the 1st, 2nd, and 3rd clutches, and gears for 1st, 2nd, 3rd, and idler. The idler shaft is located between the mainshaft and secondary shaft, and the idler gear transmits power between the mainshaft and the secondary shaft. The gears on the mainshaft and the secondary shaft are in constant mesh with those on the countershaft. When certain combinations of gears in the transmission are engaged by the clutches, power is transmitted through the mainshaft then to the secondary shaft, and/or to the countershaft to provide drive.

Electronic Control

The electronic control system consists of the powertrain control module (PCM), sensors, and solenoid valves. Shifting and lock-up are electronically controlled for comfortable driving under all conditions. The PCM is located below the dashboard, under the front lower panel behind the center console.

Hydraulic Control

The valve bodies include the main valve body, the regulator valve body, and the servo body. They are bolted to the torque converter housing. The main valve body contains the manual valve, the shift valves A, B, C, and E, the relief valve, the lock-up control valve, the cooler check valve, the servo control valve, and the ATF pump gears. The regulator valve body contains the regulator valve, the torque converter check valve, lock-up shift valve, and the 1st and 3rd accumulators. The servo body contains the servo valve, shift valve D, accumulators for 2nd, 4th, and 5th, and shift solenoid valves for A, B, C, D, and E. Fluid from the regulator passes through the manual valve to the various control valves. The 1st, 3rd, 5th clutches receive fluid from their respective feed pipes, and the 2nd and the 4th clutches receive fluid from the internal hydraulic circuit.

Shift Control Mechanism

The PCM controls shifts via the shift solenoid valves A, B, C, D, and E, and the A/T clutch pressure control solenoid valves A, B, and C, while receiving input signals from various sensors and switches located throughout the vehicle. The shift solenoid valves shift the positions of the shift valves to switch the port leading hydraulic pressure to the clutch. The A/T clutch pressure control solenoid valves A, B, and C regulate their respective pressure, and pressurize the clutches to engage it and its corresponding gear. The pressures of the A/T clutch pressure control solenoid valves also apply to the shift valves to switch the port.

Lock-up Mechanism

The lock-up mechanism operates in **D** position (2nd, 3rd, 4th and 5th), and in **D₃** position (2nd and 3rd). The pressurized fluid is drained from the back of the torque converter through a fluid passage, causing the torque converter clutch piston to be held against the torque converter cover. As this takes place, the mainshaft rotates at the same speed as the engine crankshaft. Together with the hydraulic control, the PCM optimizes the timing and volume of the lock-up mechanism. When the shift solenoid valve E is turned on by the PCM, shift solenoid valve E pressure switches the lock-up shift valve on and off. The A/T clutch pressure control solenoid valve A and the lock-up control valve control the volume of the lock-up conditions.



Gear Selection

The shift lever has seven positions: **P** PARK, **R** REVERSE, **N** NEUTRAL, **D** 1st through 5th gear ranges, **D₃** 1st through 3rd gear ranges, **2** 2nd gear, and **1** 1st gear.

Position	Description
P PARK	Front wheels locked; park pawl engaged with park gear on countershaft. All clutches are released.
R REVERSE	Reverse; reverse selector engaged with countershaft reverse gear and 4th clutch engaged.
N NEUTRAL	All clutches are released.
D DRIVE (1st through 5th)	General driving; starts off in 1st, shifts automatically to 2nd, 3rd, 4th, then 5th, depending on vehicle speed and throttle position. Downshifts through 4th, 3rd, 2nd, and 1st on deceleration to stop. The lock-up mechanism operates in 2nd, 3rd, 4th, and 5th gear.
D₃ DRIVE (1st through 3rd)	Used for rapid acceleration at highway speeds and general driving; up-hill and down-hill driving; starts off in 1st, shifts automatically to 2nd, then 3rd, depending on vehicle speed and throttle position. Downshifts through 2nd to 1st on deceleration to stop. The lock-up mechanism operates in 2nd and 3rd gear.
2 SECOND	Used for engine braking or better traction starting off on loose or slippery surfaces; stays in 2nd gear; does not shift up or down.
1 FIRST	Used for engine braking; stays in 1st gear; does not shift up.

Starting is possible only in the **P** and **N** positions because of a slide-type neutral-safety switch.

Automatic Transaxle (A/T) Gear Position Indicator

The A/T gear position indicator in the instrument panel shows which position has been selected without having to look down at the shift lever.

(cont'd)

Automatic Transmission

System Description (cont'd)

Clutches and Gears

The 5-speed automatic transmission uses hydraulically-actuated clutches to engage or disengage the transmission gears. When hydraulic pressure is introduced into the clutch drum, the clutch piston moves. This presses the friction discs and steel plates together, locking them so they don't slip. Power is then transmitted through the engaged clutch pack to its hub-mounted gear. Likewise, when the hydraulic pressure is bled from the clutch pack, the piston releases the friction discs and steel plates, and they are free to slide past each other. This allows the gear to spin independently on its shaft, transmitting no power.

1st Clutch

The 1st clutch engages/disengages 1st gear, and is located at the middle of the secondary shaft. The 1st clutch is joined back-to-back to the 3rd clutch. The 1st clutch is supplied hydraulic pressure by its ATF feed pipe within the secondary shaft.

2nd Clutch

The 2nd clutch engages/disengages 2nd gear, and is located at the end of the secondary shaft, opposite the end cover. The 2nd clutch is supplied hydraulic pressure by a circuit connected to the internal hydraulic circuit.

3rd Clutch

The 3rd clutch engages/disengages 3rd gear, and is located at the middle of the secondary shaft. The 3rd clutch is joined back-to-back to the 1st clutch. The 3rd clutch is supplied hydraulic pressure by its ATF feed pipe within the secondary shaft.

4th Clutch

The 4th clutch engages/disengages 4th gear, as well as reverse gear, and is located at the middle of the mainshaft. The 4th clutch is joined back-to-back to the 5th clutch. The 4th clutch is supplied hydraulic pressure by its ATF feed pipe within the mainshaft.

5th Clutch

The 5th clutch engages/disengages 5th gear, and is located at the middle of the mainshaft. The 5th clutch is joined back-to-back to the 4th clutch. The 5th clutch is supplied hydraulic pressure by its ATF feed pipe within the mainshaft.

Gear operation

Gears on the mainshaft:

- 4th gear engages/disengages with the mainshaft by the 4th clutch.
- 5th gear engages/disengages with the mainshaft by the 5th clutch.
- Reverse gear engages/disengages with the mainshaft by the 4th clutch.
- Idler gear is splined with the mainshaft, and rotates with the mainshaft.

Gears on the countershaft:

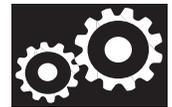
- Final drive gear is integral with the countershaft.
- 1st, 2nd, 3rd, 5th, and park gears are splined with the countershaft, and rotate with the countershaft.
- 4th gear and reverse gear rotate freely from the countershaft. The reverse selector engages 4th gear and reverse gear with the reverse selector hub. The reverse selector hub is splined to the countershaft so that the 4th gear and reverse gear engage with the countershaft.

Gears on the secondary shaft:

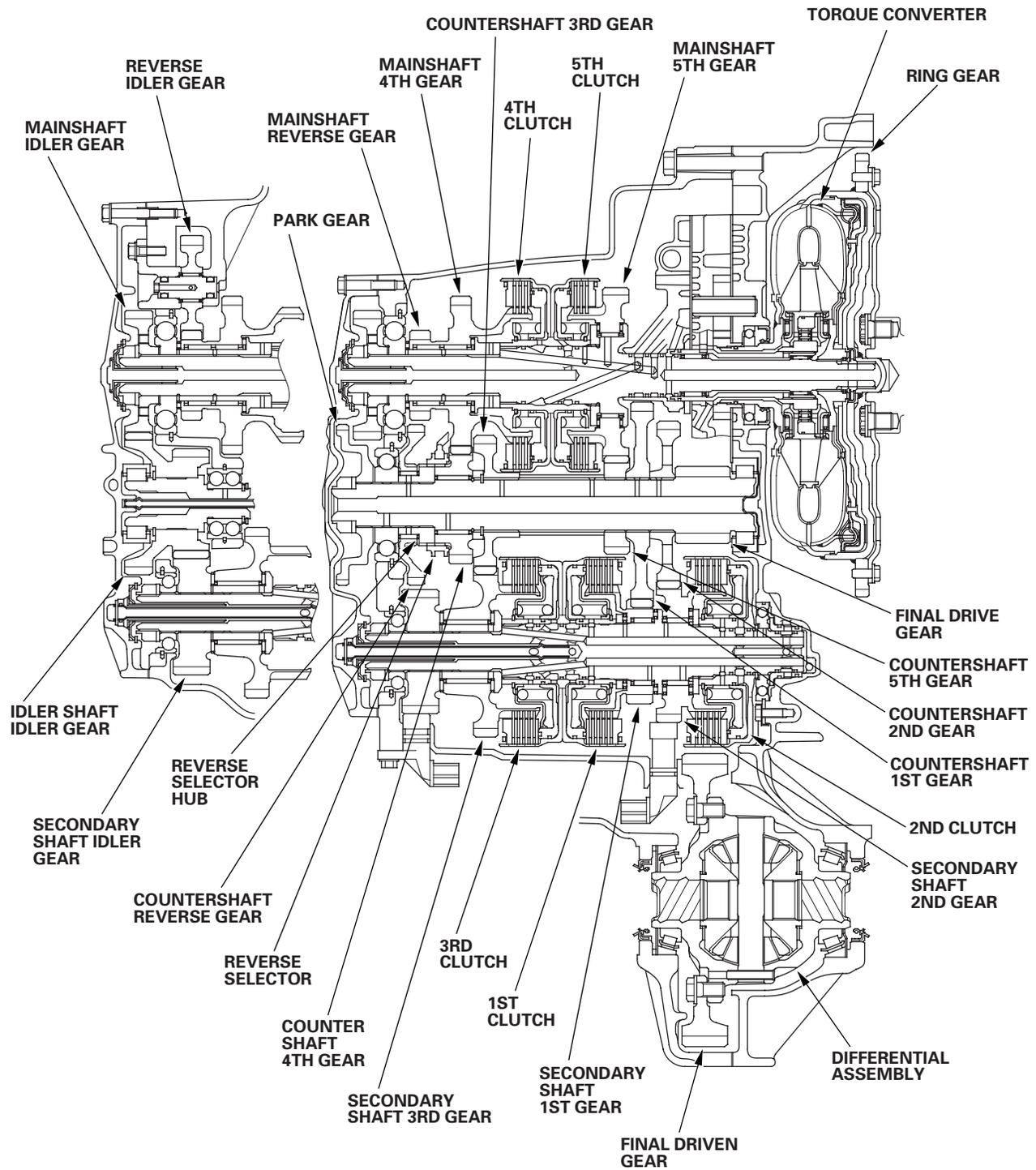
- 1st gear engages/disengages with the secondary shaft by the 1st clutch.
- 2nd gear engages/disengages with the secondary shaft by the 2nd clutch.
- 3rd gear engages/disengages with the secondary shaft by the 3rd clutch.
- Idler gear is splined with the secondary shaft, and rotates with the secondary shaft.

The idler gear on the idler shaft transmits power between the mainshaft and the secondary shaft.

The reverse idler gear transmits power from the mainshaft reverse gear to the countershaft reverse gear, and changes rotation direction of the countershaft to reverse.



Transmission Cutaway View



(cont'd)

Automatic Transmission

System Description (cont'd)

Power Flow (cont'd)

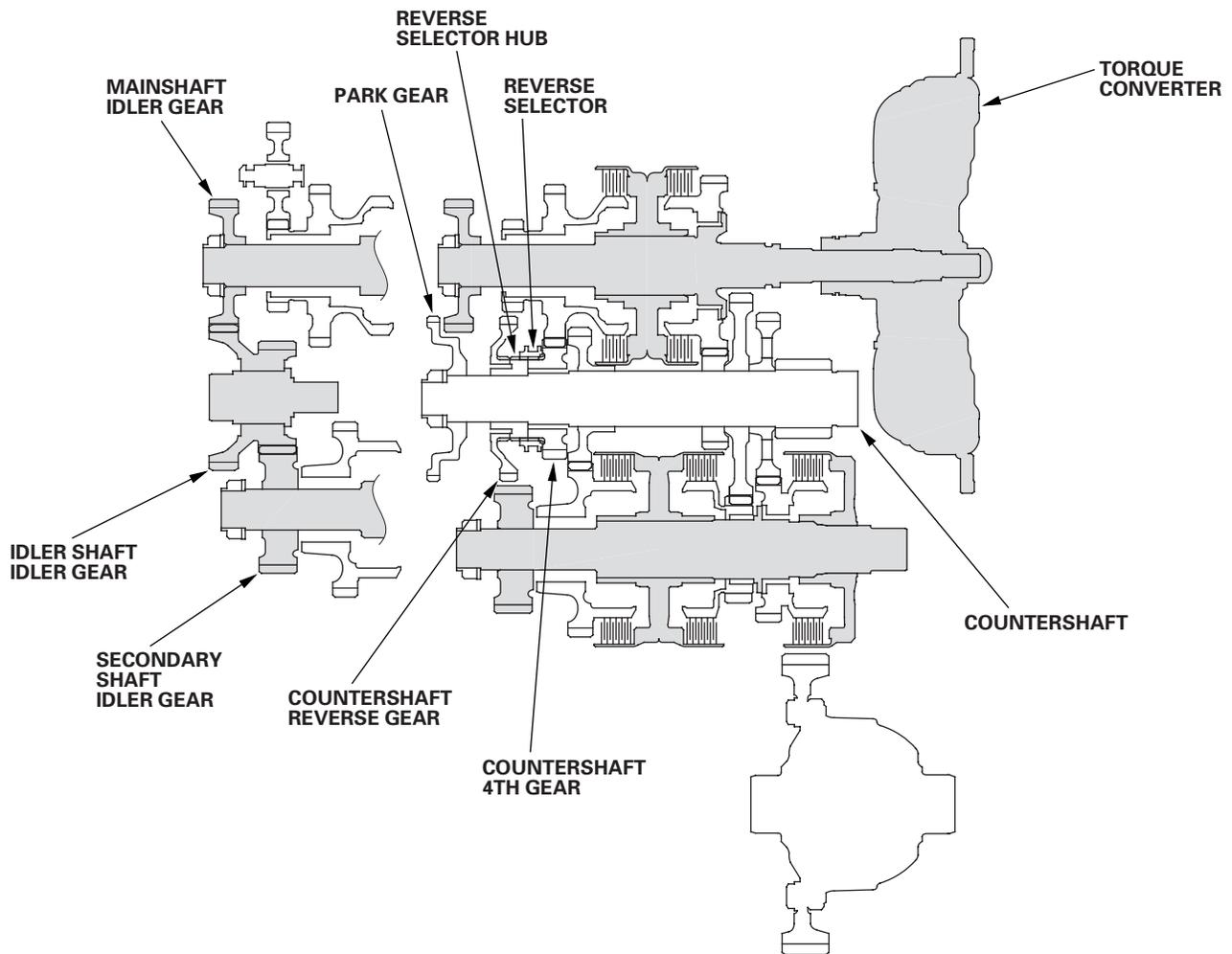
P Position

Hydraulic pressure is not applied to the clutches. Power is not transmitted to the countershaft. The countershaft is locked by the park pawl interlocking the park gear.

N Position

Engine power transmitted from the torque converter drives the mainshaft idler gear, the idler shaft idler gear, and the secondary shaft idler gear, but hydraulic pressure is not applied to the clutches. Power is not transmitted to the countershaft. In this position, the position of the reverse selector differs according to whether the shift lever shifted from the **D** or **P** position:

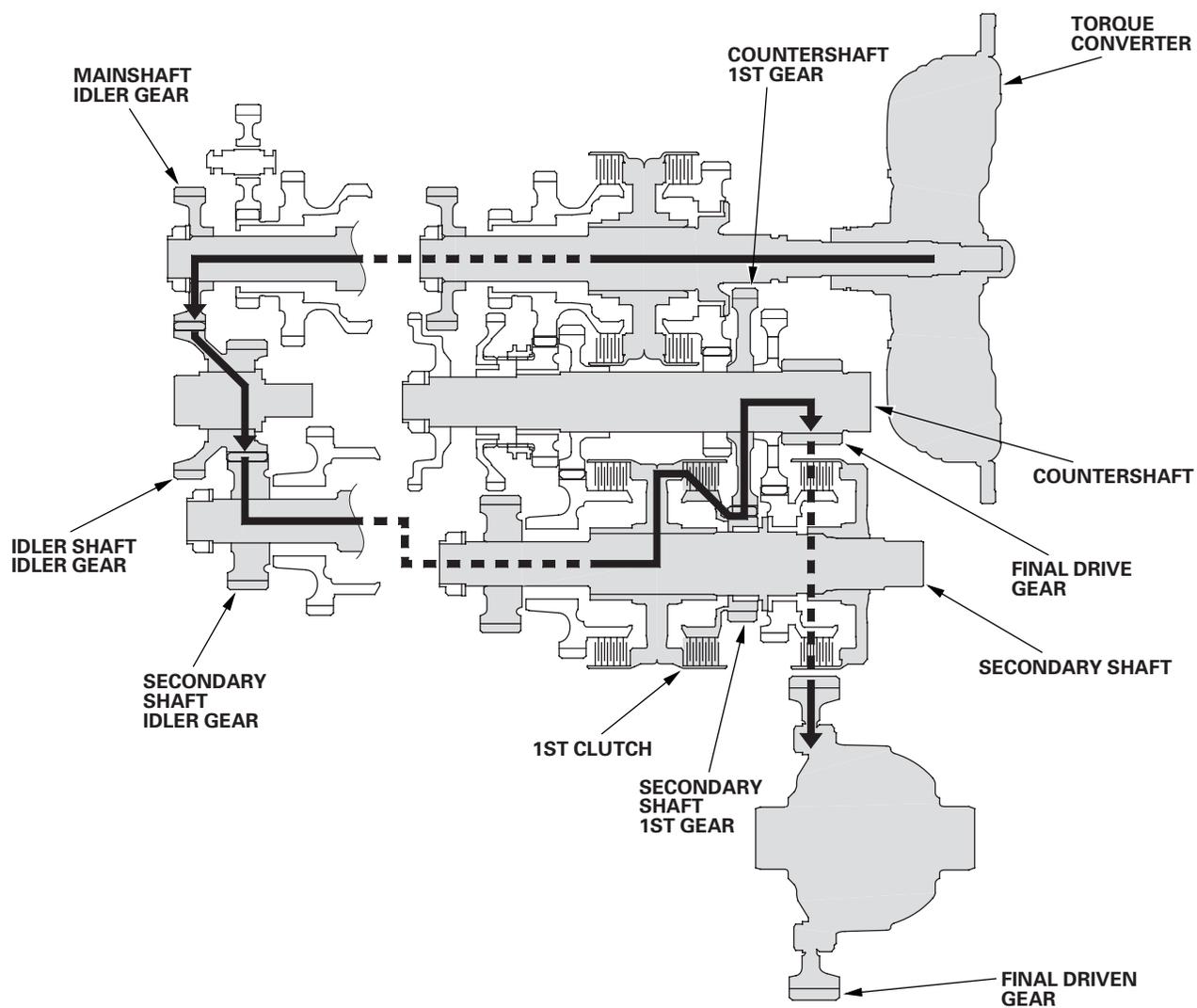
- When shifted from the **D** position, the reverse selector engages with the countershaft 4th gear and the reverse selector hub, and the 4th gear engages with the countershaft.
- When shifted from the **R** position, the reverse selector engages with the countershaft reverse gear and the reverse selector hub, and the reverse gear engages with the countershaft.





1st Gear

- Hydraulic pressure is applied to the 1st clutch, then the 1st clutch engages the secondary shaft 1st gear with the secondary shaft.
- The mainshaft idler gear drives the secondary shaft via the idler shaft idler gear and the secondary shaft idler gear.
- The secondary shaft 1st gear drives the countershaft 1st gear and the countershaft.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.



(cont'd)

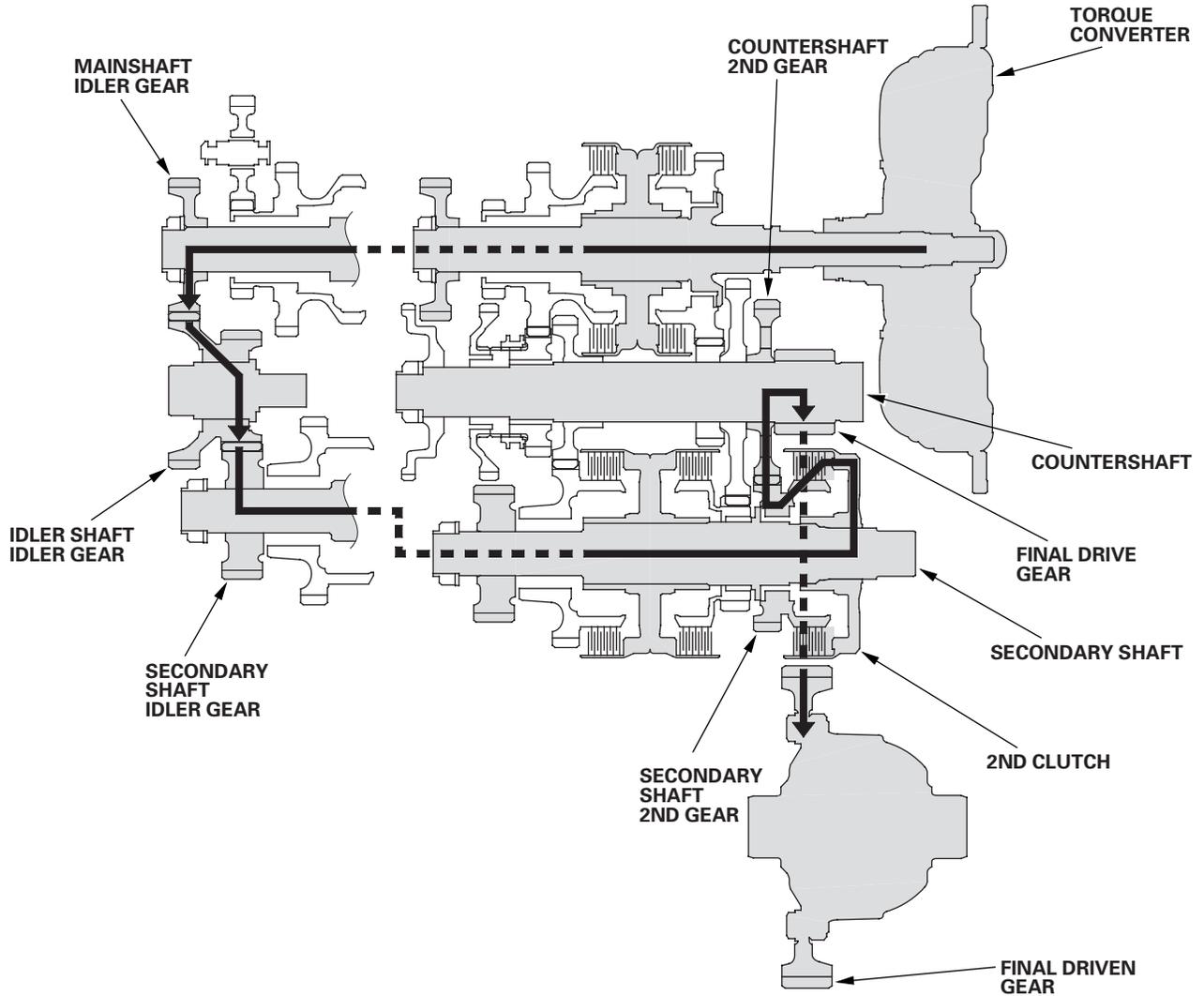
Automatic Transmission

System Description (cont'd)

Power Flow (cont'd)

2nd Gear

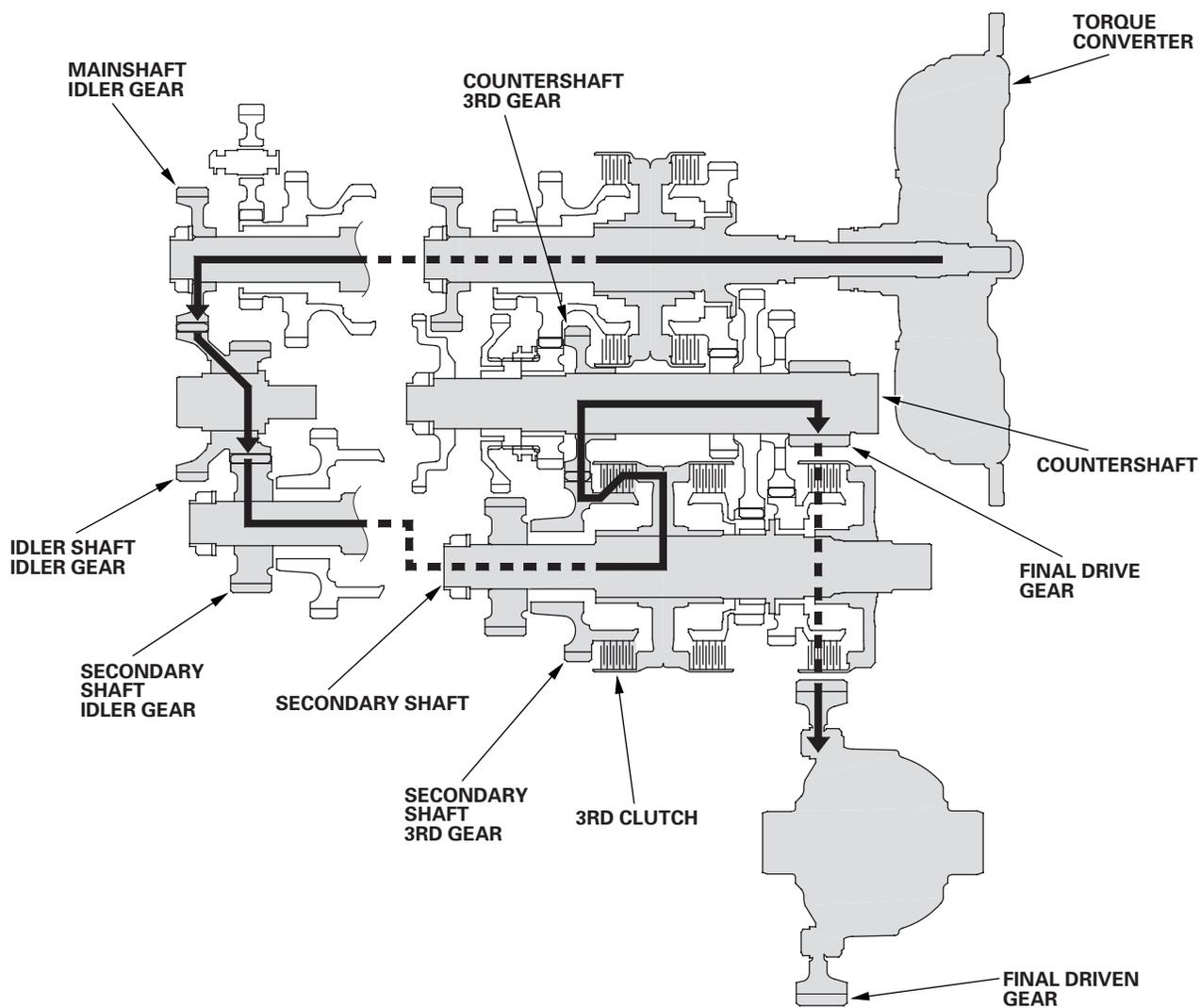
- Hydraulic pressure is applied to the 2nd clutch, then the 2nd clutch engages the secondary shaft 2nd gear with the secondary shaft.
- The mainshaft idler gear drives the secondary shaft via the idler shaft idler gear and the secondary shaft idler gear.
- The secondary shaft 2nd gear drives the countershaft 2nd gear and the countershaft.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.





3rd Gear

- Hydraulic pressure is applied to the 3rd clutch, then the 3rd clutch engages the secondary shaft 3rd gear with the secondary shaft.
- The mainshaft idler gear drives the secondary shaft via the idler shaft idler gear and secondary shaft idler gear.
- The secondary shaft 3rd gear drives the countershaft 3rd gear and the countershaft.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.



(cont'd)

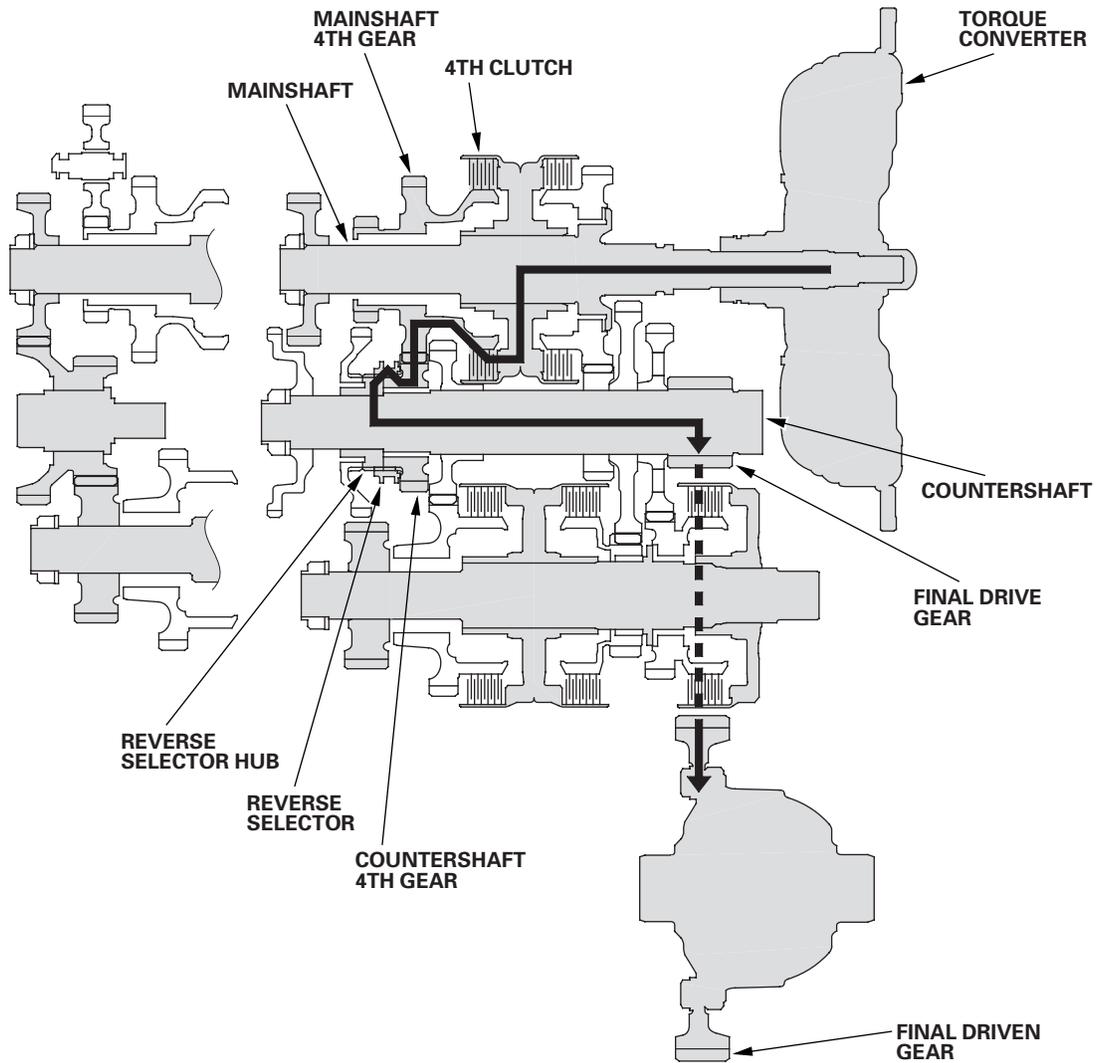
Automatic Transmission

System Description (cont'd)

Power Flow (cont'd)

4th Gear

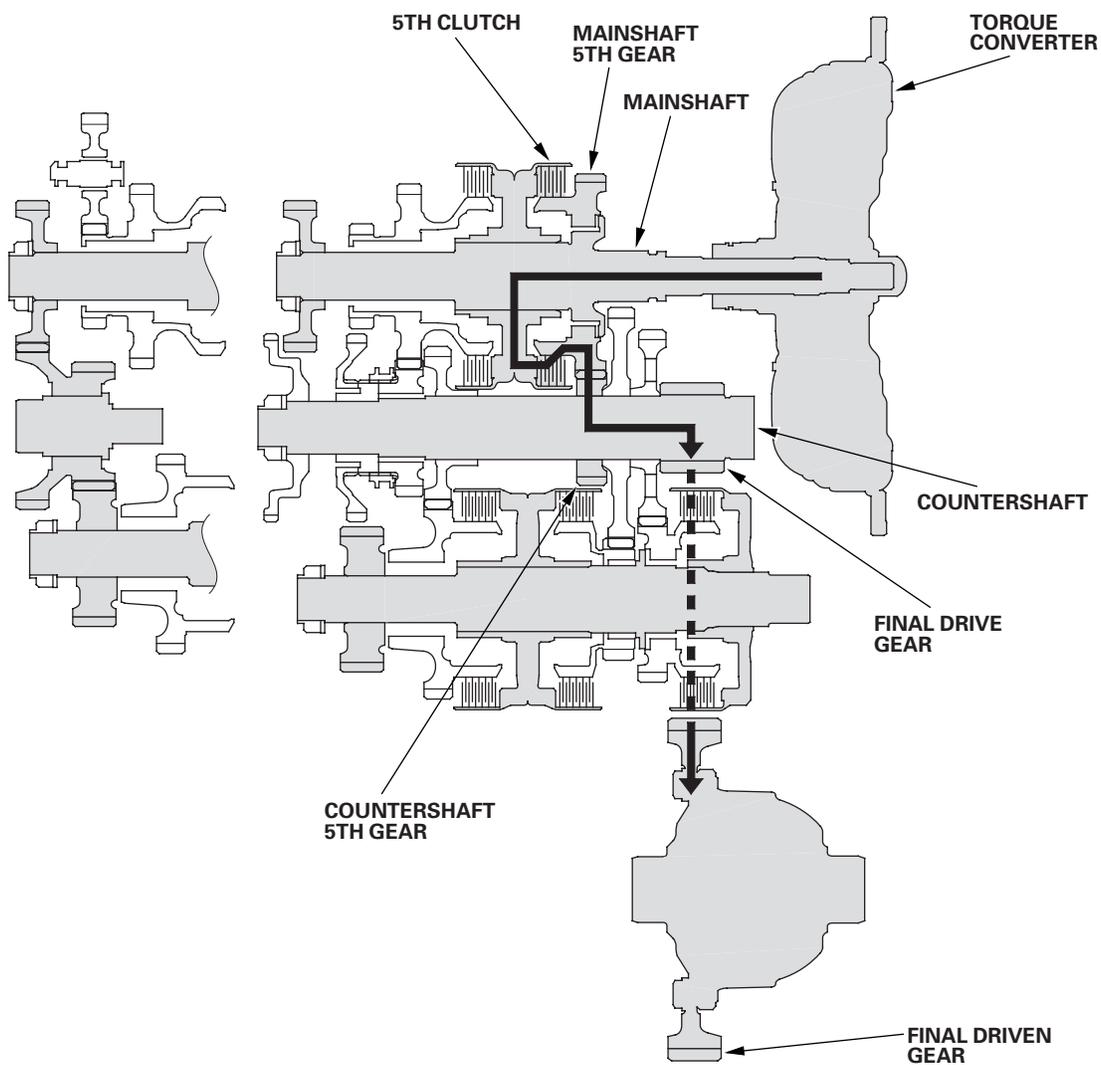
- Hydraulic pressure is applied to the servo valve to engage the reverse selector with the countershaft 4th gear and reverse selector hub while the shift lever is in forward range (**D**, **D₃**, **2** and **1** positions).
- Hydraulic pressure is also applied to the 4th clutch, then the 4th clutch engages the mainshaft 4th gear with the mainshaft.
- The mainshaft 4th gear drives the countershaft 4th gear and countershaft.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.





5th Gear

- Hydraulic pressure is applied to the 5th clutch, then the 5th clutch engages the mainshaft 5th gear with the mainshaft.
- The mainshaft 5th gear drives the countershaft 5th gear and the countershaft.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.



(cont'd)

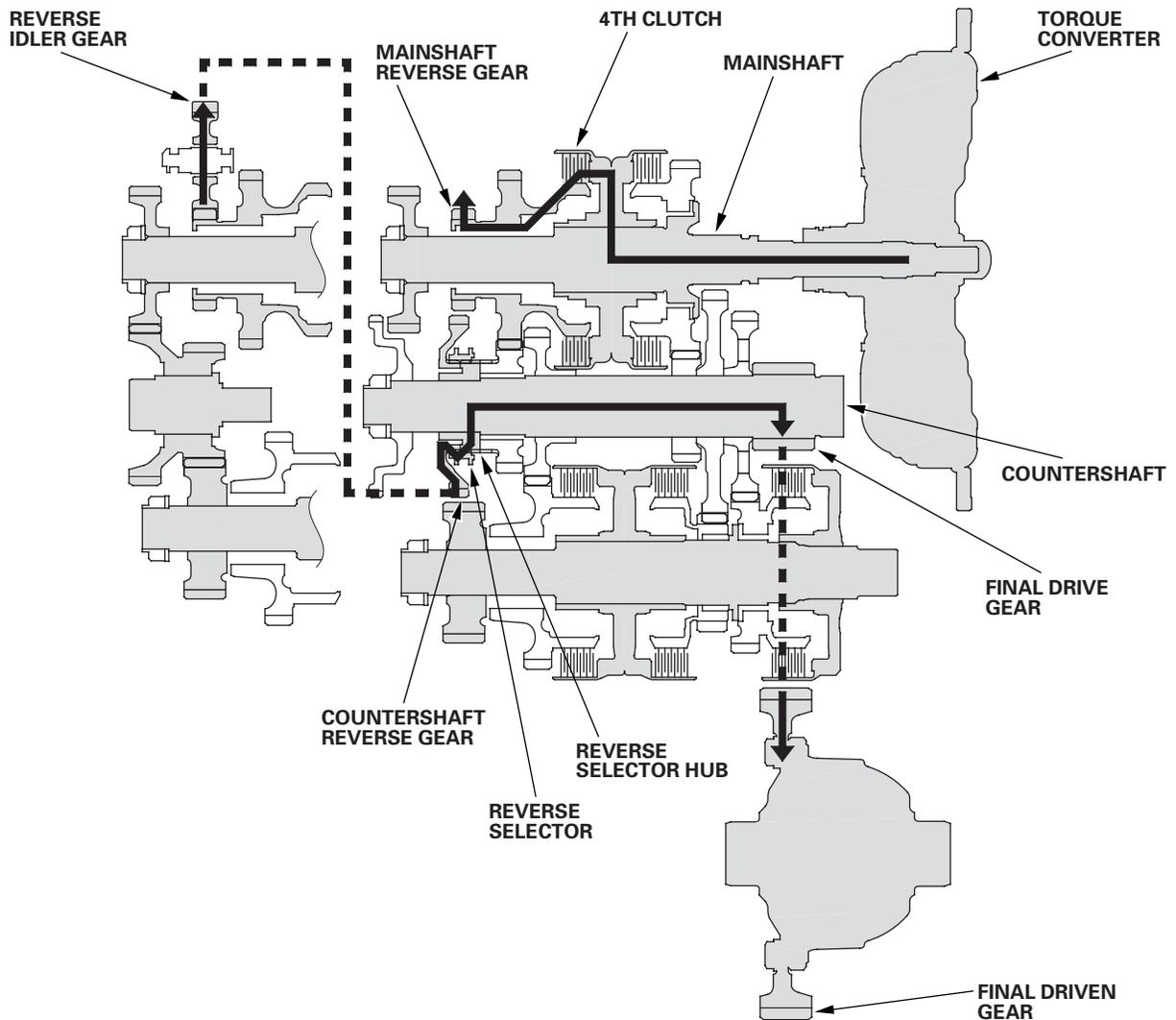
Automatic Transmission

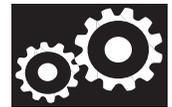
System Description (cont'd)

Power Flow (cont'd)

R Position

- Hydraulic pressure is applied to the servo valve to engage the reverse selector with the countershaft reverse gear and reverse selector hub while the shift lever is in the **R** position.
- Hydraulic pressure is also applied to the 4th clutch, then the 4th clutch engages the mainshaft reverse gear with the mainshaft.
- The mainshaft reverse gear drives the countershaft reverse gear via the reverse idler gear.
- The rotation direction of the countershaft reverse gear is changed by the reverse idler gear.
- The countershaft reverse gear drives the countershaft via the reverse selector which drives the reverse selector hub.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.





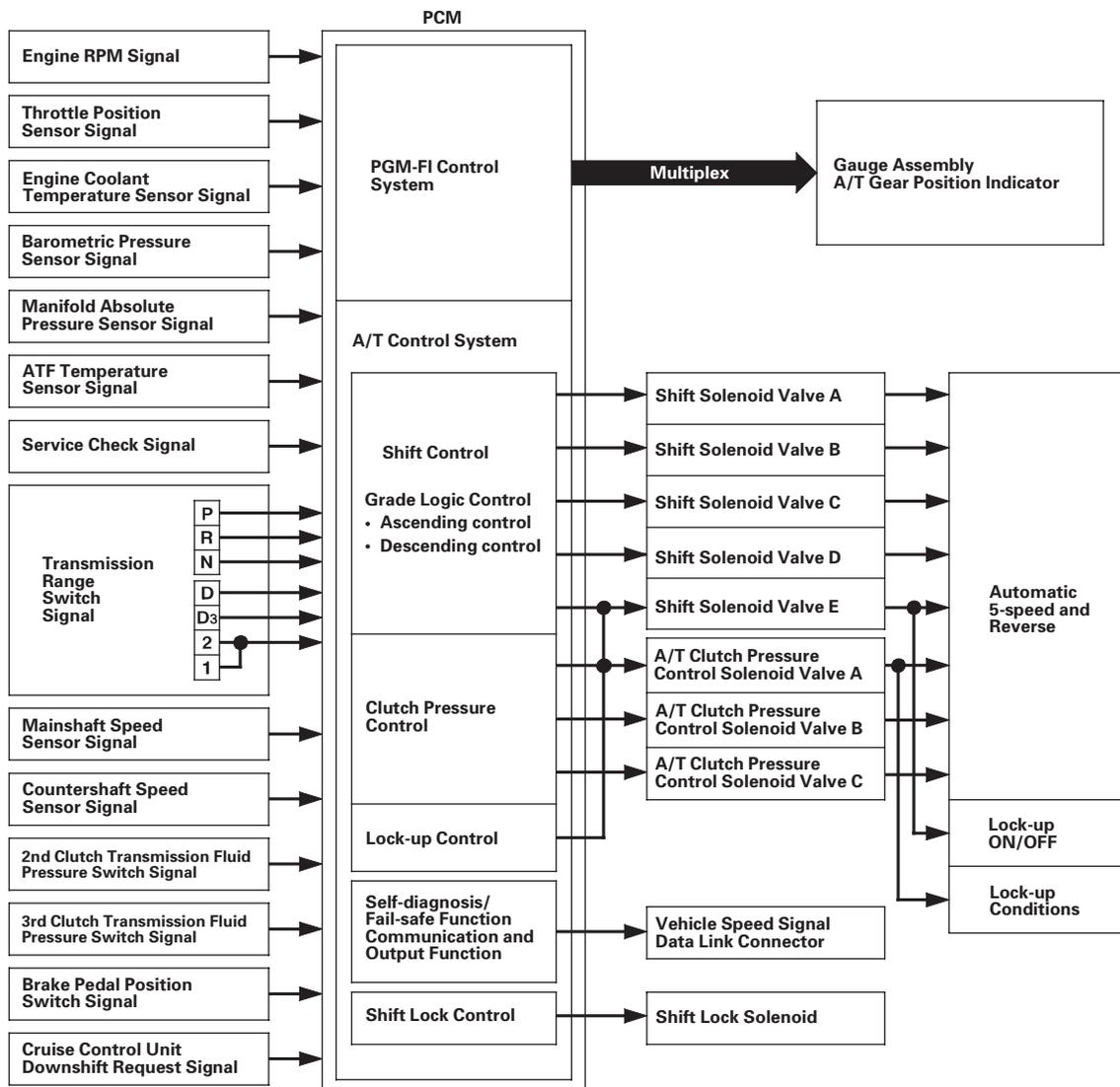
Electronic Control System

Functional Diagram

The electronic control system consists of the powertrain control module (PCM), sensors, and solenoid valves. Shifting and lock-up are electronically controlled for comfortable driving under all conditions.

The PCM receives input signals from the sensors, switches, and other control units, performs processing data, and outputs signals for the engine control system and A/T control system. The A/T control system includes shift control, grade logic control, clutch pressure control, and lock-up control is stored in the PCM.

The PCM switches the shift solenoid valves and the A/T clutch pressure control solenoid valves to control shifting transmission gears and lock-up torque converter clutch.



(cont'd)

Automatic Transmission

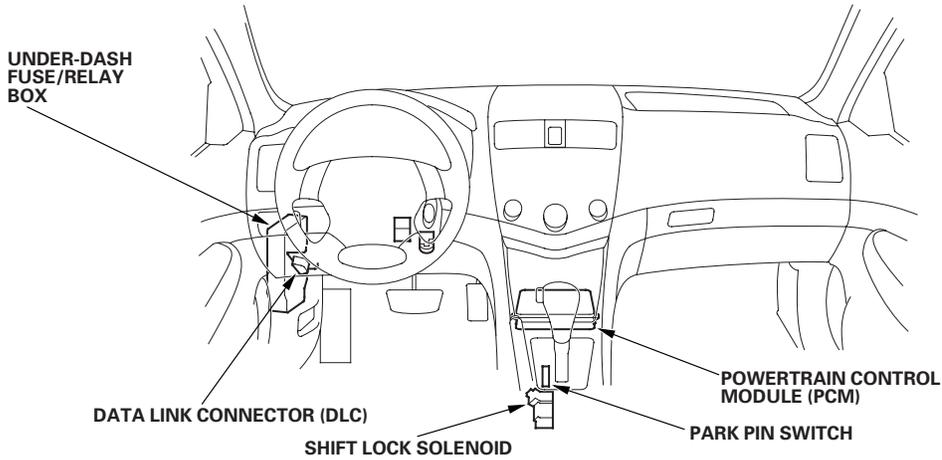
System Description (cont'd)

Electronic Control System (cont'd)

Electronic Controls Location

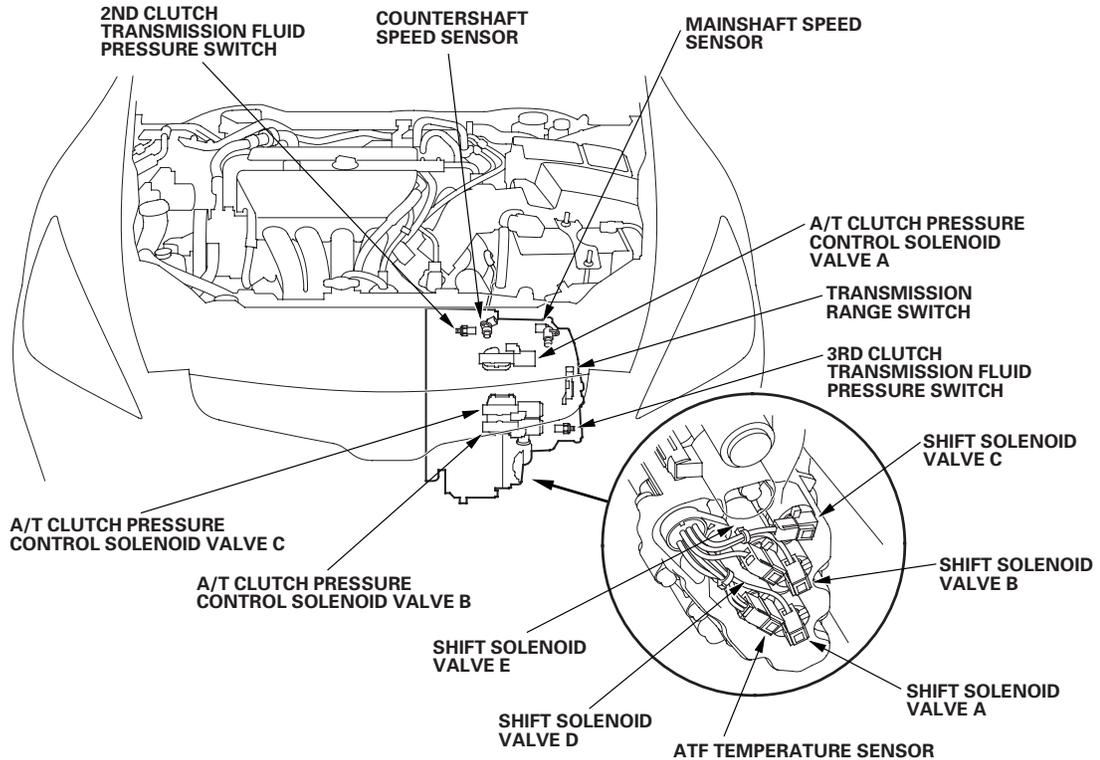
NOTE: The illustration shows LHD model; RHD model is symmetrical.

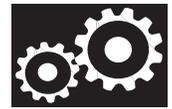
Cabin



NOTE: The illustration shows LHD model; RHD model is symmetrical.

Engine Compartment

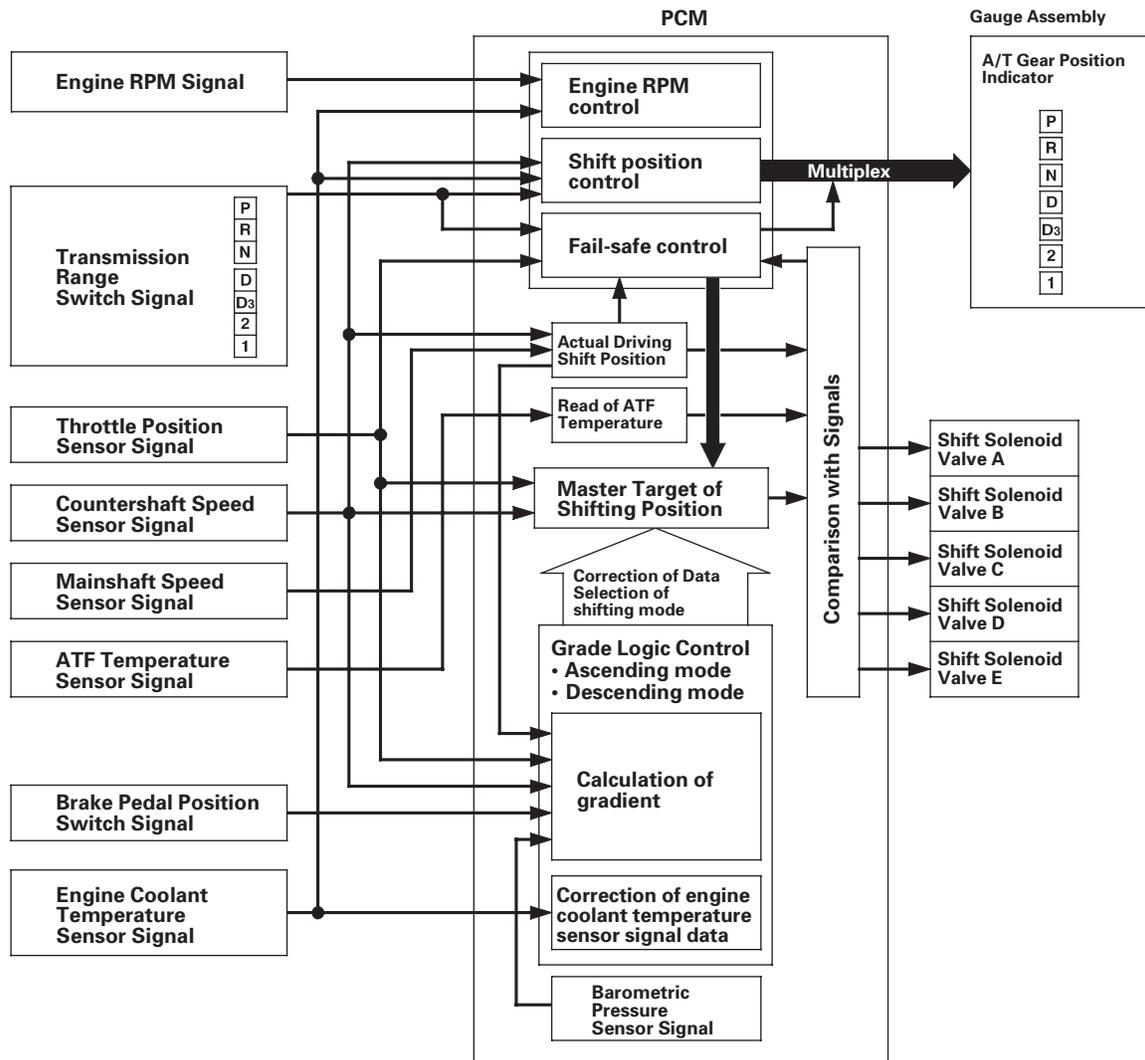




Shift Control

The PCM instantly determines which gear should be selected by various signals sent from sensors and switches, and it actuates the shift solenoid valves A, B, C, D, and E to control shifting.

Also, a Grade Logic Control System has been adopted to control shifting in **D** and **D₃** positions. The PCM compares actual driving conditions with memorized driving conditions, based on the input from the throttle position sensor, the engine coolant temperature sensor, the barometric pressure sensor, the brake pedal position switch signal, and the shift lever position signal, to control shifting while the vehicle is ascending or descending a slope.



(cont'd)

Automatic Transmission

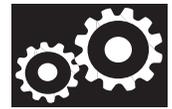
System Description (cont'd)

Electronic Control System (cont'd)

The PCM turns on and off the shift solenoid valves A, B, C, D, and E to control transmission gear shifting. The combination of driving signals to shift solenoid valves A, B, C, D, and E are shown in table below.

Position	Gear position	Shift solenoid valves				
		A	B	C	D	E
D, D_s	Shifting from N position	OFF	ON	ON	OFF	OFF
	Stays in 1st	ON	ON	ON	OFF	OFF
	Shifting gears between 1st and 2nd	OFF	ON	ON	OFF	OFF
	Stays in 2nd	OFF	ON	OFF	ON	OFF
	Shifting gears between 2nd and 3rd	OFF	ON	ON	ON	OFF
	Stays in 3rd	OFF	OFF	ON	OFF	OFF
D	Shifting gears between 3rd and 4th	OFF	OFF	OFF	OFF	OFF
	Stays in 4th	ON	OFF	OFF	OFF	OFF
	Shifting gears between 4th and 5th	ON	OFF	OFF	ON	OFF
	Stays in 5th	ON	OFF	ON	ON	OFF
2	2nd gear	OFF	ON	OFF	ON	OFF
1	1st gear	ON	ON	ON	OFF	OFF
R	Shifting from P and N position	OFF	ON	OFF	OFF	ON
	Stays in reverse	ON	ON	OFF	OFF	ON
	Reverse inhibit	OFF	OFF	ON	OFF	OFF
P	Park	OFF	ON	OFF	OFF	ON
N	Neutral	OFF	ON	ON	OFF	OFF

NOTE: For a description of the reverse inhibit mode, refer to page 14-64.

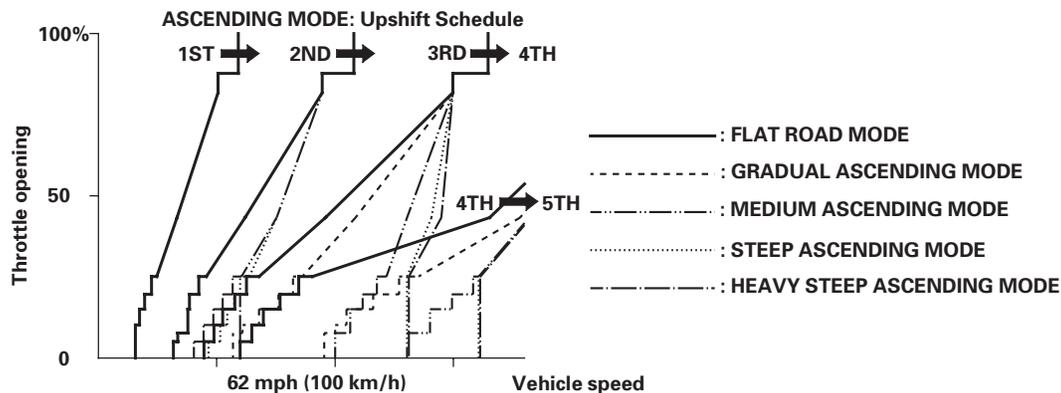


Grade Logic Control

Ascending Control

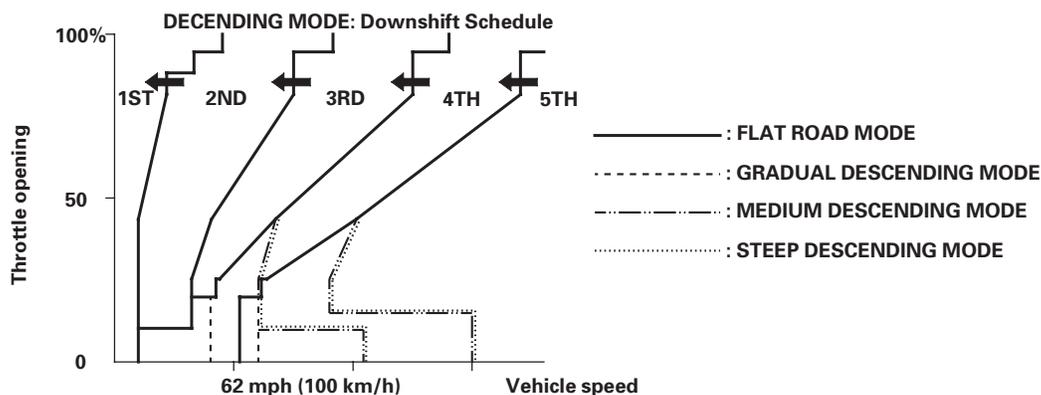
When the PCM determines that the vehicle is climbing a hill in **D** and **D_s** positions, the system extends the engagement area of 2nd, 3rd, and 4th gears to prevent the transmission from frequently shifting between 2nd and 3rd gears, between 3rd and 4th gears, and between 4th and 5th gears, so the vehicle can run smooth and have more power when needed.

Shift schedules stored in the PCM between 2nd and 3rd gears, between 3rd and 4th gears, and between 4th and 5th gears, enable it to automatically select the most suitable gear according to the magnitude of a gradient.



Descending Control

When the PCM determines that the vehicle is going down a hill in **D** and **D_s** positions, the shift-up speed from 4th to 5th gear, from 3rd to 4th gear, and from 2nd to 3rd gear (when the throttle is closed) becomes faster than the set speed for flat road driving to widen the 4th gear, 3rd gear, and 2nd gear driving area. This, in combination with engine braking from the deceleration lock-up, achieves smooth driving when the vehicle is descending. There are three descending modes with different 4th gear driving areas, 3rd gear driving areas, and 2nd gear driving areas according to the magnitude of a gradient stored in the PCM. When the vehicle is in 5th gear or 4th gear, and you are decelerating when you are applying the brakes on a steep hill, the transmission will downshift to lower gear. When you accelerate, the transmission will then return to a higher gear.



(cont'd)

Automatic Transmission

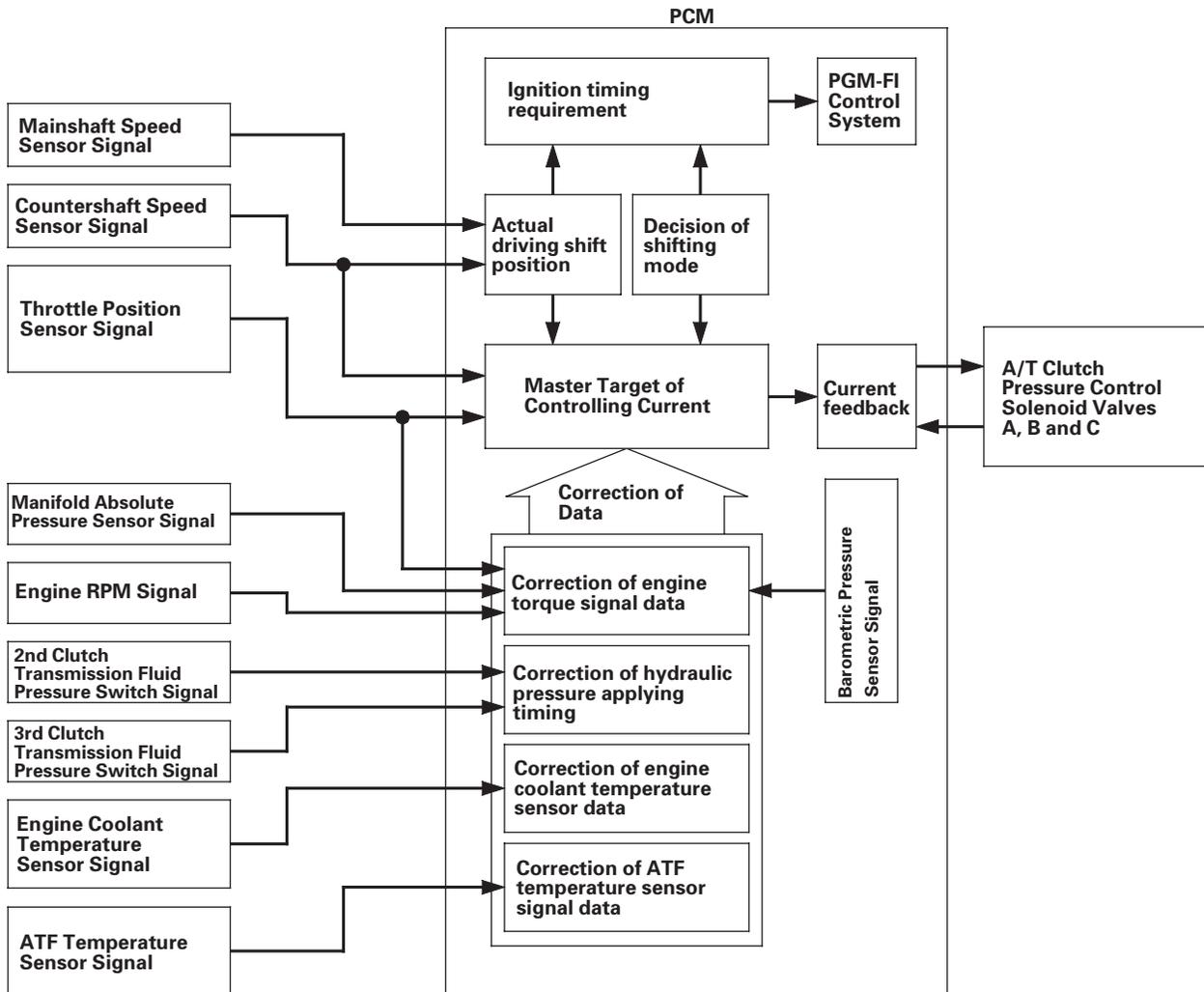
System Description (cont'd)

Electronic Control System (cont'd)

Clutch Pressure Control

The PCM actuates the A/T clutch pressure control solenoid valves A, B and C to control the clutch pressure. When shifting between lower and higher gears, the clutch pressure regulated by the A/T clutch pressure control solenoid valves A, B, and C engage and disengage the clutch smoothly.

The PCM receives input signals from the various sensors and switches, performs data processing, and outputs a current to the A/T clutch pressure control solenoid valves A, B, and C.



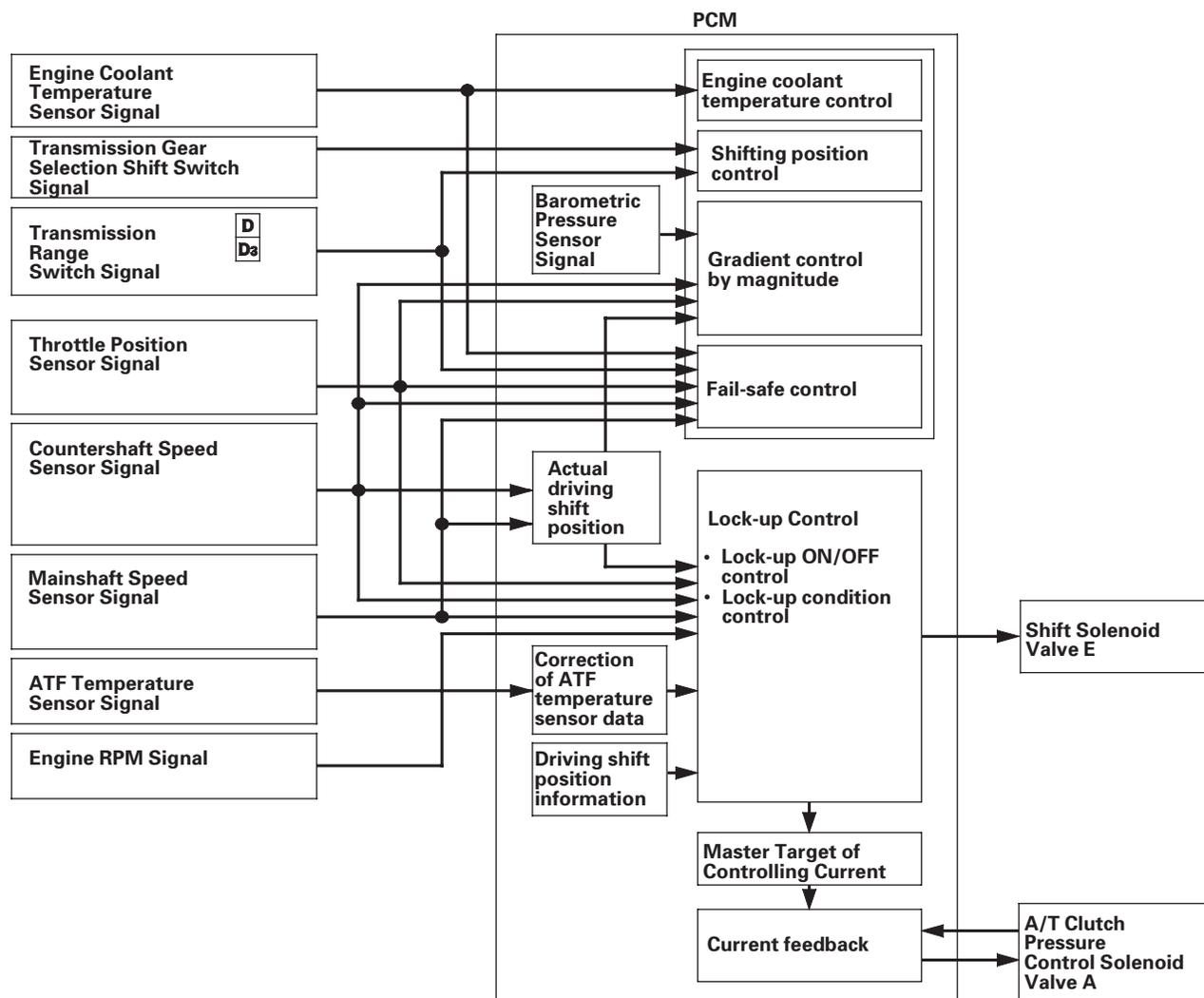


Lock-up Control

The shift solenoid valve E controls the hydraulic pressure to switch the lock-up shift valve and lock-up ON and OFF. The PCM actuates the shift solenoid valve E and the A/T clutch pressure control solenoid valve A to control the torque converter clutch lock-up. When the shift solenoid valve E is turned ON, the lock-up condition starts.

The A/T clutch pressure control solenoid valve A regulates and apply the hydraulic pressure to the lock-up control valve to control the amount of the lock-up.

The lock-up mechanism operates in 2nd, 3rd, 4th, and 5th gears in **D** position, and 2nd and 3rd gears in **D₃** position.



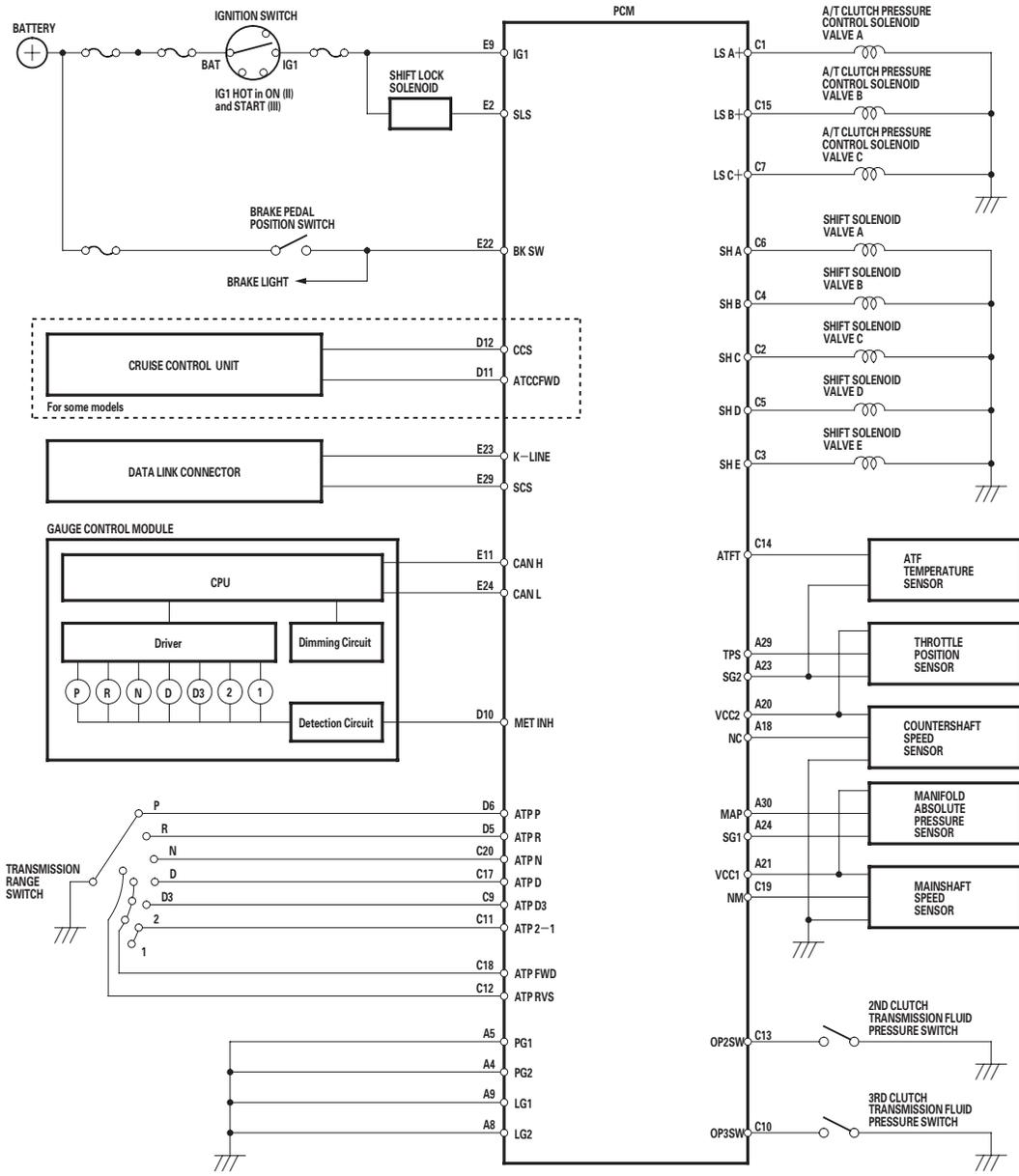
(cont'd)

Automatic Transmission

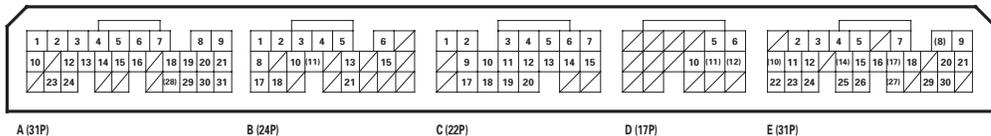
System Description (cont'd)

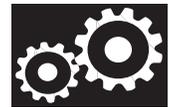
Electronic Control System (cont'd)

PCM Electrical Connections



PCM Connector Terminal Locations

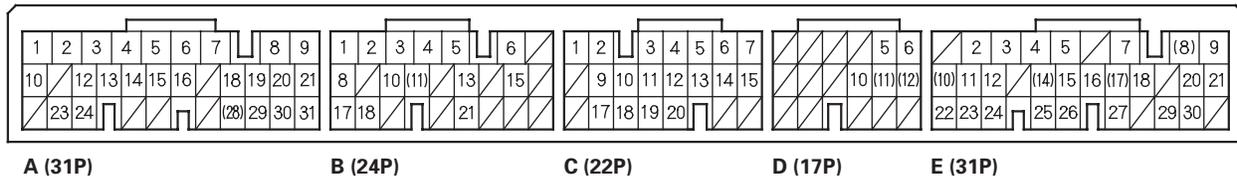




PCM Inputs and Outputs

The PCM terminal voltage and measuring conditions are shown for the connector terminals that are related to the A/T control system. The other terminal voltage and measuring conditions are described in section 11.

PCM Connector Terminal Locations



PCM CONNECTOR A (31P)

Terminal Number	Wire Color	Signal	Description	Measuring Conditions/Terminal Voltage
A2	YEL/BLK	IGP2	Power supply circuit from main relay	With ignition switch ON (II): Battery voltage With ignition switch OFF: 0 V
A3	YEL/BLK	IGP1	Power supply circuit from main relay	With ignition switch ON (II): Battery voltage With ignition switch OFF: 0 V
A4	BLK	PG2	Ground	Less than 1.0 V at all times
A5	BLK	PG1	Ground	Less than 1.0 V at all times
A8	BRN/YEL	LG2	Ground	Less than 1.0 V at all times
A9	BRN/YEL	LG1	Ground	Less than 1.0 V at all times
A18	BLK/BLU	NC	Countershaft speed sensor signal input	With ignition switch ON (II): 0 V or about 5 V While driving: About 2.5 V
A20	YEL/BLU	VCC2	Power supply circuit for sensors	With ignition switch ON (II): About 5 V With ignition switch OFF: 0 V
A21	YEL/RED	VCC1	Power supply circuit for sensors	With ignition switch ON (II): About 5 V With ignition switch OFF: 0 V
A23	GRN/YEL	SG2	Sensor ground	Less than 1.0 V at all times
A24	GRN/WHT	SG1	Sensor ground	Less than 1.0 V at all times

(cont'd)

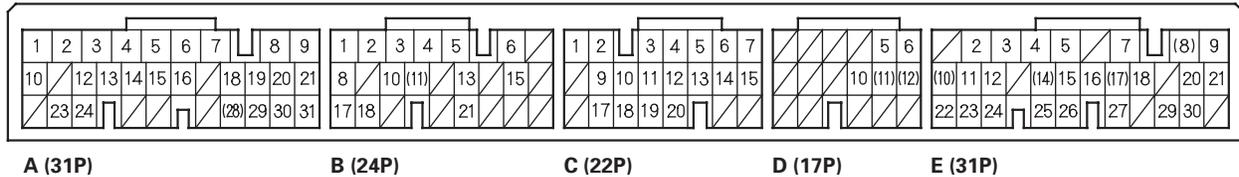
Automatic Transmission

System Description (cont'd)

Electronic Control System (cont'd)

PCM Inputs and Outputs (cont'd)

PCM Connector Terminal Locations



PCM CONNECTOR C (22P)

Terminal Number	Wire Color	Signal	Description	Measuring Condition/Terminal Voltage
C1	RED/BLK	LS A	A/T clutch pressure control solenoid valve A power supply positive electrode	With ignition switch ON (II): Pulsing signal
C2	GRN	SH C	Shift solenoid valve C control	Battery voltage in these positions: <ul style="list-style-type: none"> • N and 1 • 1st, 3rd, and 5th gears in D and D₃ • Reverse inhibit in R 0 V in these positions: <ul style="list-style-type: none"> • P, R, and 2 • 2nd and 4th gears in D and D₃
C3	YEL	SH E	Shift solenoid valve E control	Battery voltage in these positions: <ul style="list-style-type: none"> • P and R 0 V in these positions: <ul style="list-style-type: none"> • Reverse inhibit in R • N, D, D₃, 2, and 1
C4	GRN/WHT	SH B	Shift solenoid valve B control	Battery voltage in these positions: <ul style="list-style-type: none"> • P, R, N, 2, and 1 • 1st and 2nd gears in D and D₃ 0 V in these positions: <ul style="list-style-type: none"> • Reverse inhibit in R • 3rd, 4th, and 5th gears in D and D₃
C5	GRN/RED	SH D	Shift solenoid valve D control	Battery voltage in these positions: <ul style="list-style-type: none"> • 2 • 2nd and 5th gears in D and D₃ 0 V in these positions: <ul style="list-style-type: none"> • Reverse inhibit in R • P, R, N, and 1 • 1st, 3rd, and 4th gears in D and D₃
C6	BLU/BLK	SH A	Shift solenoid valve A control	Battery voltage in these positions: <ul style="list-style-type: none"> • R and 1 • 1st, 4th, and 5th gears in D and D₃ 0 V in these positions: <ul style="list-style-type: none"> • Reverse inhibit in R • P, N, and 2 • 2nd and 3rd gears in D and D₃
C7	BLU/YEL	LS C	A/T clutch pressure control solenoid valve C power supply electrode	With ignition switch ON (II): Pulsing signal



PCM CONNECTOR C (22P)

Terminal Number	Wire Color	Signal	Description	Measuring Condition/Terminal Voltage
C9	RED	ATP D3	Transmission range switch D₃ position signal input	In the D₃ position: 0 V In other than the D₃ position: Battery voltage
C10	BLU/WHT	OP3SW	3rd clutch transmission fluid pressure switch signal input	With ignition switch ON (II): About 5 V With 3rd clutch pressure: 0 V
C11	GRN/RED	ATP 2-1	Transmission range switch 2 and 1 position signals input	In the 2 and 1 positions: 0 V In other than the 2 and 1 positions: Battery voltage
C12	RED/WHT	ATP RVS	Transmission range switch RVS (R position) signal input	In R position: 0 V In other than the R position: Battery voltage
C13	BLU/RED	OP2SW	2nd clutch transmission fluid pressure switch signal input	With ignition switch ON (II): About 5 V With 2nd clutch pressure: 0 V
C14	RED/YEL	ATFT	ATF temperature sensor signal input	With ignition switch ON (II): 0.2 V 4.8 V With ignition switch OFF: 0 V
C15	BRN/WHT	LS B	A/T clutch pressure control solenoid valve B power supply electrode	With ignition switch ON (II): Pulsing signal
C17	YEL/GRN	ATP D	Transmission range switch D position signal input	In the D position: 0 V In other than the D position: Battery voltage
C18	BLU/YEL	ATP FWD	Transmission range switch D , D₃ , and 2 position signals input	In the D , D₃ , and 2 positions: 0 V In other than the D , D₃ , and 2 positions: Battery voltage
C19	WHT/RED	NM	Mainshaft speed sensor signal input	With ignition switch ON (II): 0 V or about 5 V With engine at idling in N position: About 2.5 V
C20	RED/BLK	ATP N	Transmission range switch N position signal input	In the N position: 0 V In other than the N position: Battery voltage

(cont'd)

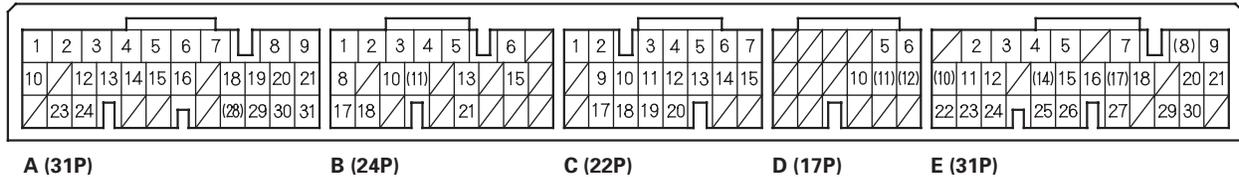
Automatic Transmission

System Description (cont'd)

Electronic Control System (cont'd)

PCM Inputs and Outputs (cont'd)

PCM Connector Terminal Locations



PCM CONNECTOR D (17P)

Terminal Number	Wire Color	Signal	Description	Measuring Conditions/Terminal Voltage
D5	WHT	ATP R	Transmission range switch R position input	In the R position: 0 V In other than the R position: Battery voltage
D6	BLU/RED	ATP P	Transmission range switch P position input	In the P position: 0 V In other than the P position: Battery voltage
D10	GRN	METINH	A/T gear position indicator control signal output	With ignition switch ON (II): Battery voltage
D11	PNK	ATCCFWD	Transmission range switch D and D₂ position signals output to cruise control unit	In the D and D₂ positions: 0 V In other than the D and D₂ position: Battery voltage
D12	BLU/BLK	CCS	Downshift signal input from cruise control unit	When cruise control is used: Pulsing signal

PCM CONNECTOR E (31P)

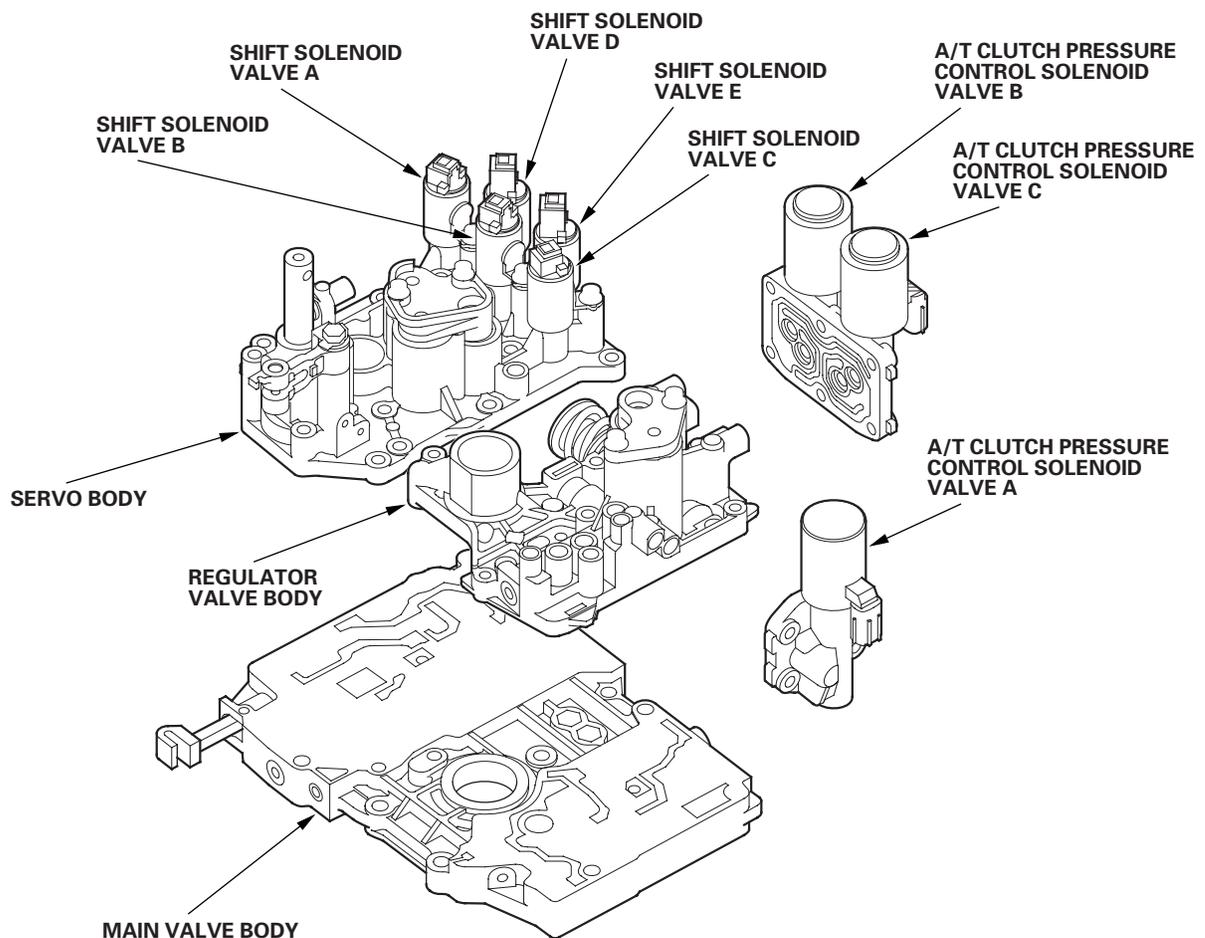
Terminal Number	Wire Color	Signal	Description	Measuring Conditions/Terminal Voltage
E2	YEL/BLK	SLS	Shift lock solenoid control (ground side)	With ignition switch ON (II), in the P position, brake pedal pressed, and accelerator released: 0 V
E9	BLK/YEL	IG1	Power supply circuit for solenoid valves	With ignition switch ON (II): Battery voltage With ignition switch OFF: 0 V
E11	WHT	CAN H	F-CAN communication with network	With ignition switch ON (II): Pulsing signal
E22	WHT/BLK	BKSW	Brake pedal position switch signal input	Brake pedal pressed: Battery voltage Brake pedal released: 0 V
E23	BLU	K-LINE	Communication line PCM-to-DLC	With ignition switch ON (II): Battery voltage
E24	RED	CAN L	F-CAN communication with network	With ignition switch ON (II): Pulsing signal
E29	BRN	SCS	Detects service check signal	With the SCS shorted with the PGM tester or the HDS: About 0 V With the SCS open: About 5 V



Hydraulic Controls

Valve Bodies

The valve body includes the main valve body, the regulator valve body, and the servo body. The ATF pump is driven by splines on the left end of the torque converter which is attached to the engine. Fluid flows through the regulator valve to maintain specified pressure through the main valve body to the manual valve, directing pressure to the shift valves and to each of the clutches via the solenoid valves. The shift solenoid valves A, B, C, D, and E are bolted on the servo body. The A/T clutch pressure control solenoid valves A, B, and C are mounted on the outside of the transmission housing.



(cont'd)

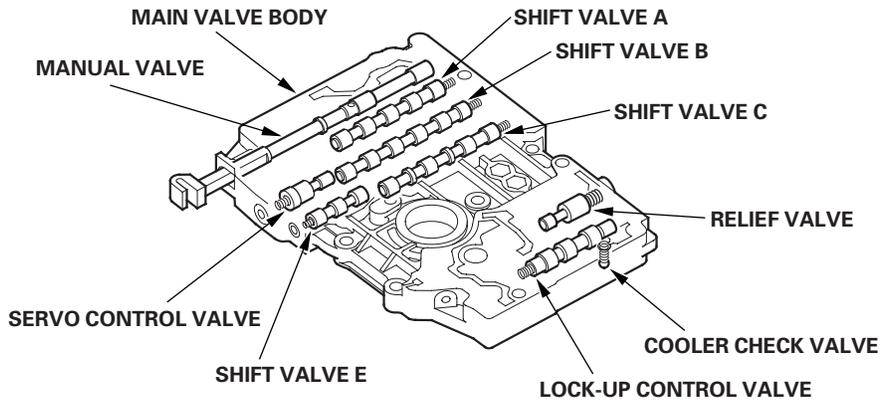
Automatic Transmission

System Description (cont'd)

Hydraulic Controls (cont'd)

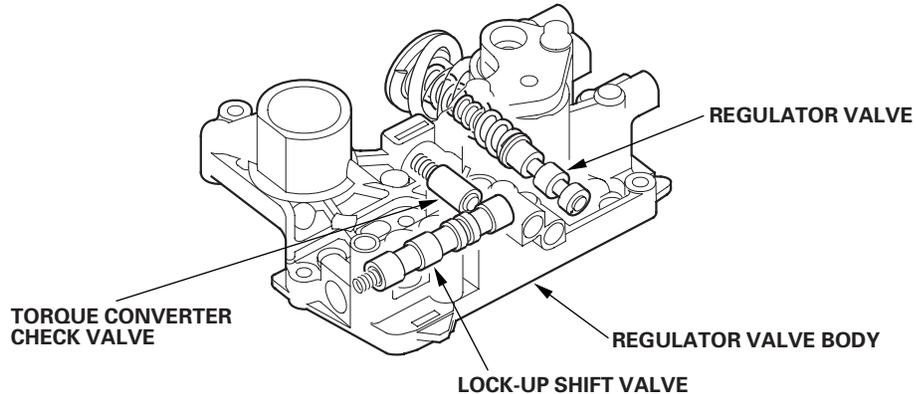
Main Valve Body

The main valve body contains the manual valve, the shift valves A, B, C, and E, the relief valve, the lock-up control valve, the cooler check valve, the servo control valve, and the ATF pump gears. The primary function of the main valve body is to switch fluid pressure on and off and to control hydraulic pressure going to the hydraulic control system.



Regulator Valve Body

The regulator valve body contains the regulator valve, the torque converter check valve, lock-up shift valve, and the 1st and 3rd accumulators.

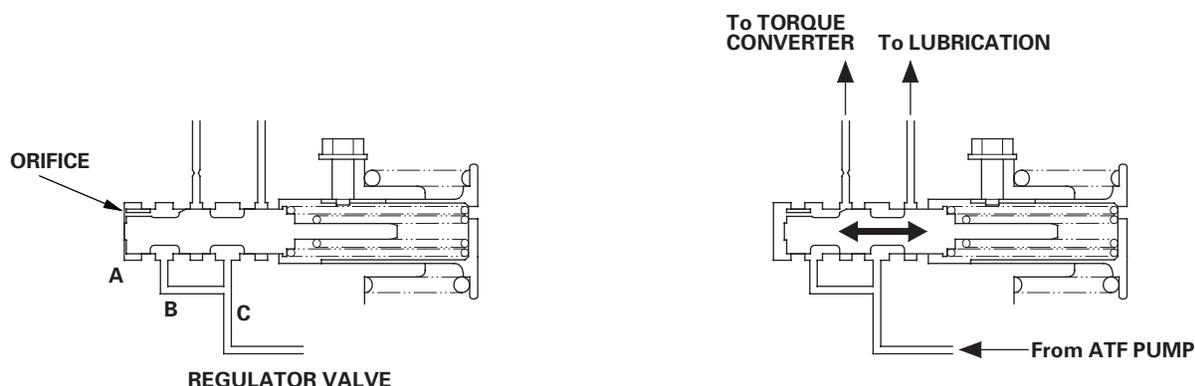




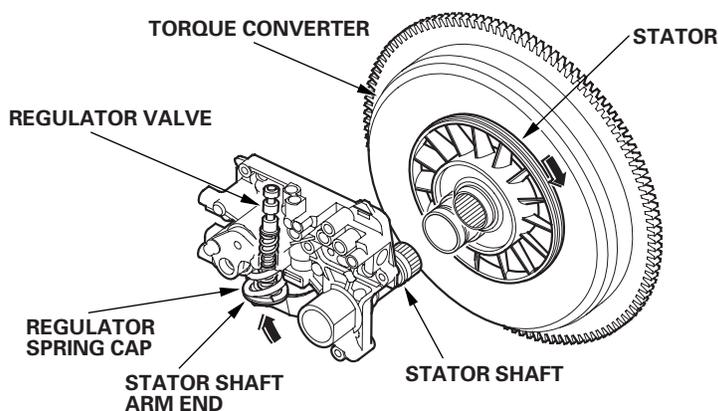
Regulator Valve

The regulator valve maintains a constant hydraulic pressure from the ATF pump to the hydraulic control system, while also furnishing fluid to the lubrication system and torque converter. The fluid from the ATF pump flows through B and C. Fluid entering from B flows through the valve orifice to the A cavity. This pressure of the A cavity pushes the regulator valve to the right side, and this movement of the regulator valve uncovers the fluid port to the torque converter and the relief valve. The fluid flows out to the torque converter and the relief valve, and the regulator valve moves to the left side. According to the level of the hydraulic pressure through B, the position of the regulator valve changes, and the amount of fluid from C through torque converter also changes. This operation is continued, maintaining the line pressure.

NOTE: When used, "left" or "right" indicates direction on the illustration below.



Increases in hydraulic pressure according to torque are performed by the regulator valve using stator torque reaction. The stator shaft is splined with the stator in the torque converter, and its arm end contacts the regulator spring cap. When the vehicle is accelerating or climbing (Torque Converter Range), stator torque reaction acts on the stator shaft, and the stator arm pushes the regulator spring cap in the direction of the arrow in proportion to the reaction. The stator reaction spring compresses, and the regulator valve moves to increase the line pressure which is regulated by the regulator valve. The line pressure reaches its maximum when the stator torque reaction reaches its maximum.



(cont'd)

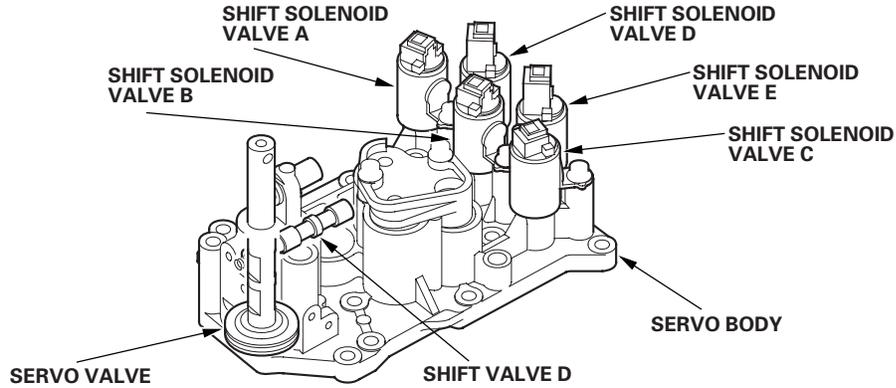
Automatic Transmission

System Description (cont'd)

Hydraulic Controls (cont'd)

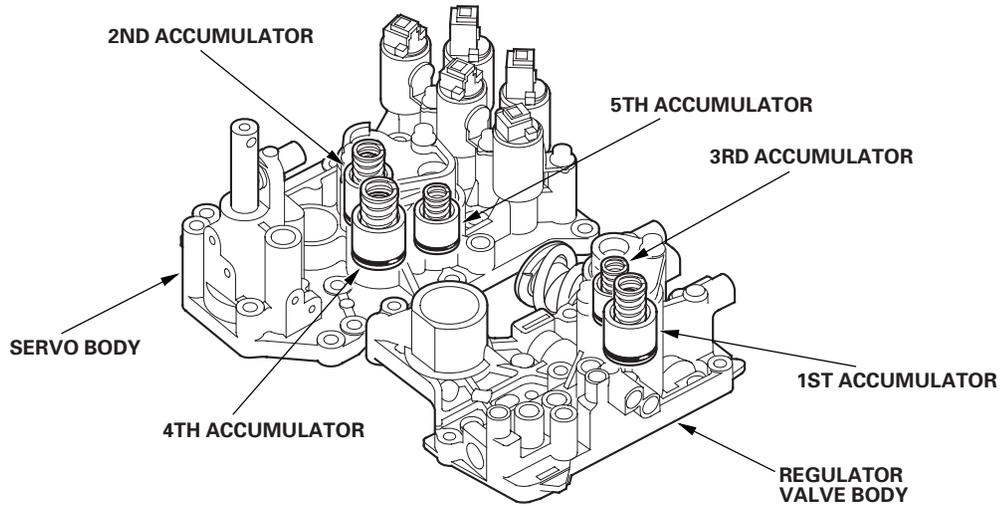
Servo Body

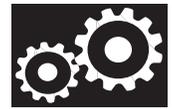
The servo body contains the servo valve, the shift valve D, accumulators for 2nd, 4th, and 5th, and shift solenoid valves for A, B, C, D, and E.



Accumulator

The accumulators are located in the regulator valve body and the servo body. The regulator valve body contains the 1st and 3rd accumulators, and the servo body contains the 2nd, 4th, and 5th accumulators.





Hydraulic Flow

Distribution of Hydraulic Pressure

As the engine turns, the ATF pump starts to operate. Automatic transmission fluid (ATF) is drawn through the ATF strainer (filter) and discharged into the hydraulic circuit. Then, ATF flowing from the ATF pump becomes line pressure that's regulated by the regulator valve. Torque converter pressure from the regulator valve enters the torque converter through the lock-up shift valve, and it is discharged from the torque converter. The torque converter check valve prevents torque converter pressure from rising.

The PCM controls the shift solenoid valves ON and OFF. The shift valve intercepts line pressure from the ATF pump via the manual valve when the shift solenoid valve is OFF. When the shift solenoid valve is turned ON, line pressure changes to shift solenoid valve pressure at the shift solenoid valve, then the solenoid valve pressure flows to the shift valve. Applying shift solenoid pressure to the shift valves moves the position of the shift valve, and switches the port of the hydraulic circuit. The PCM also controls A/T clutch pressure control solenoid valves A, B, and C. The A/T clutch pressure control solenoid valves regulate hydraulic pressure, and apply the pressure to the clutches for engaging smoothly. The clutches are received optimum clutch pressure which is regulated by the A/T clutch pressure control solenoid valves for comfortable driving and shifting under all conditions.

Hydraulic pressure at the port is as follows:

PORT NO.	DESCRIPTION OF PRESSURE	PORT NO.	DESCRIPTION OF PRESSURE
1	LINE	SB	SHIFT SOLENOID VALVE B
3	LINE	SC	SHIFT SOLENOID VALVE C
3'	LINE	SD	SHIFT SOLENOID VALVE D
4	LINE	SE	SHIFT SOLENOID VALVE E
4'	LINE	10	1ST CLUTCH
4''	LINE	20	2ND CLUTCH
7	LINE	30	3RD CLUTCH
1A	LINE or A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A	40	4TH CLUTCH
1B	LINE	50	5TH CLUTCH
3A	LINE	55	A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A
3B	LINE	55'	A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A
3C	LINE	56	A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B
5A	LINE	57	A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C
5B	LINE	90	TORQUE CONVERTER
5C	LINE	91	TORQUE CONVERTER
5D	LINE	92	TORQUE CONVERTER
5E	LINE or A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B	93	ATF COOLER
5F	LINE or A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A or B	94	TORQUE CONVERTER
5G	A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B	95	LUBRICATION
5H	A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C	96	TORQUE CONVERTER
5J	A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C	97	TORQUE CONVERTER
5K	A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C	99	SUCTION
5L	A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C	X	DRAIN
5N	A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C	HX	HIGH POSITION DRAIN
SA	SHIFT SOLENOID VALVE A	AX	AIR DRAIN

(cont'd)

Automatic Transmission

System Description (cont'd)

Hydraulic Flow (cont'd)

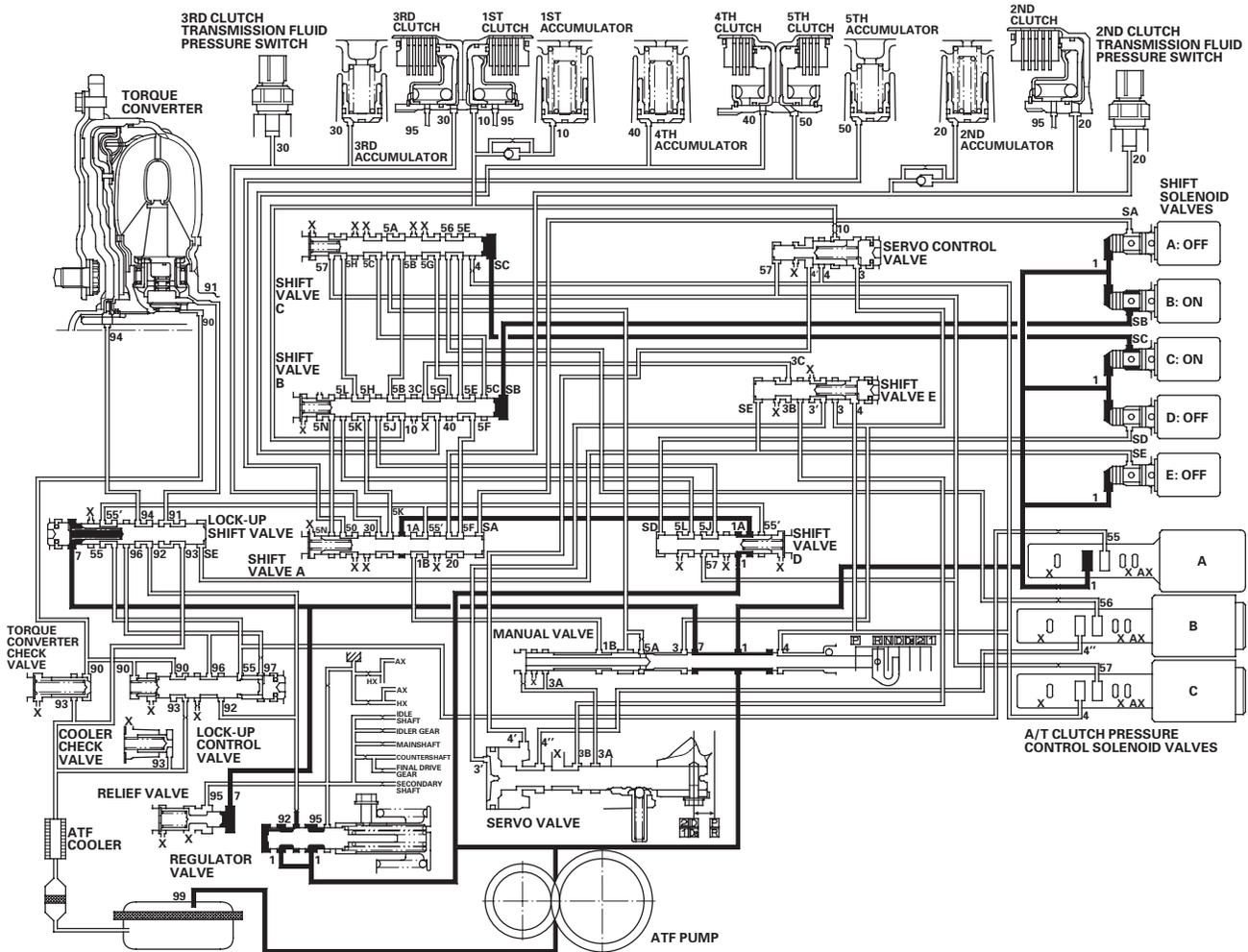
Position

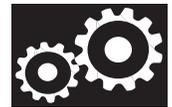
The PCM controls the shift solenoid valves. The conditions of the shift solenoid valves and positions of the shift valves are as follows:

- Shift solenoid valve A: OFF, and shift valve A keeps in right side
- Shift solenoid valve B: ON, and shift valve B moves to left side
- Shift solenoid valve C: ON, and shift valve C moves to left side
- Shift solenoid valve D: OFF, and shift valve D keeps in left side
- Shift solenoid valve E: OFF, and shift valve E keeps in left side

Line pressure (1) flows to the shift solenoid valves and the A/T clutch pressure control solenoid valve A. Under this condition, hydraulic pressure is not applied to the clutches.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.

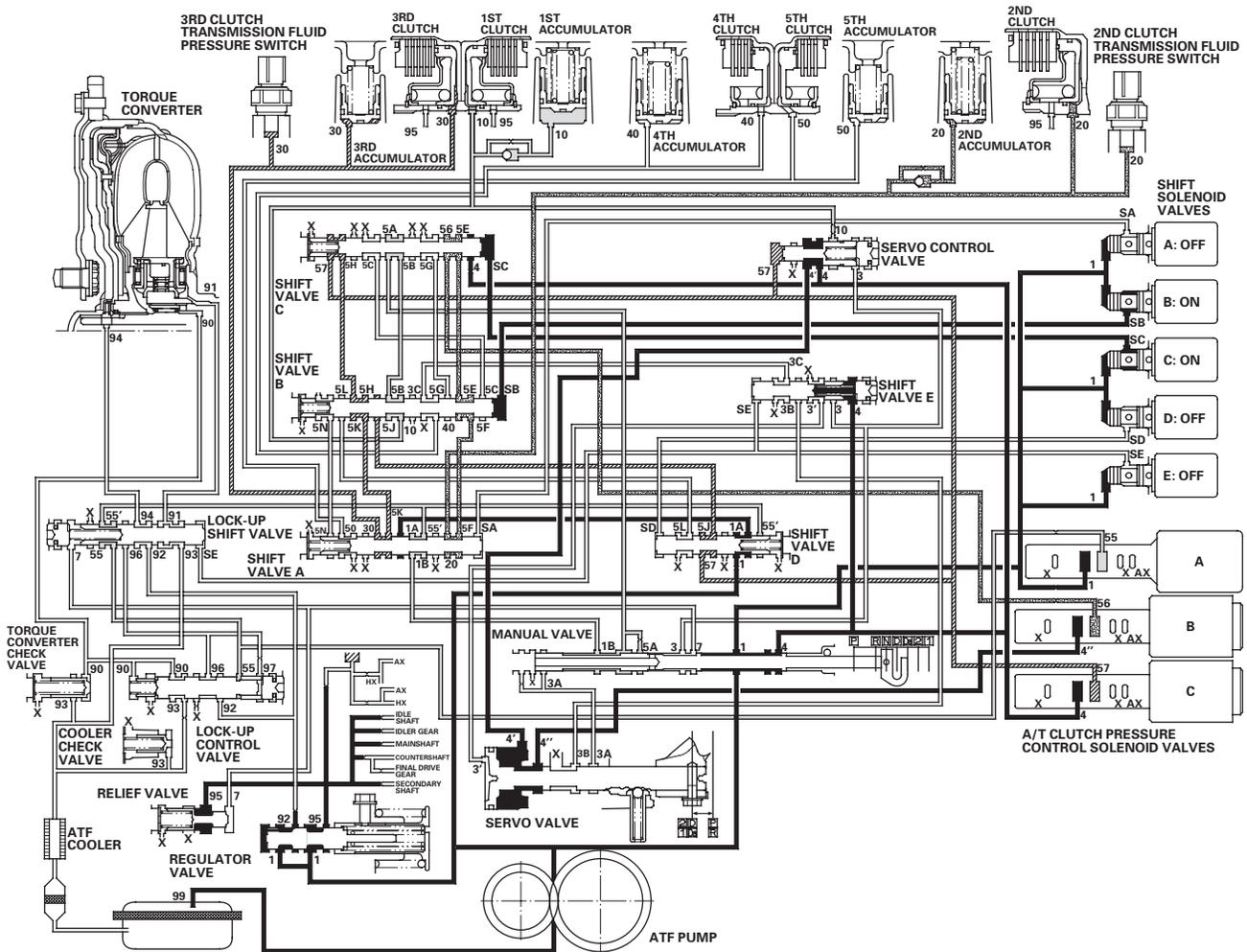




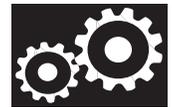
D Position: 1st gear shifting from N position

Shift solenoid valves remain the same as in the **N** position, when shifting to the **D** position from **N**. The manual valve is moved to the **D** position, and switches the port of line pressure (4) leading to the A/T clutch pressure control solenoid valves. Hydraulic pressure line to the 1st clutch from the A/T clutch pressure control solenoid valve A is created as shift solenoid valve A is OFF, B and C keep ON. A/T clutch pressure control solenoid valve A pressure (55) changes to 1st clutch pressure (10) at the shift valve B, and flows to the 1st clutch. The 1st clutch is engaged gently when shifting to the **D** position from **N**.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.



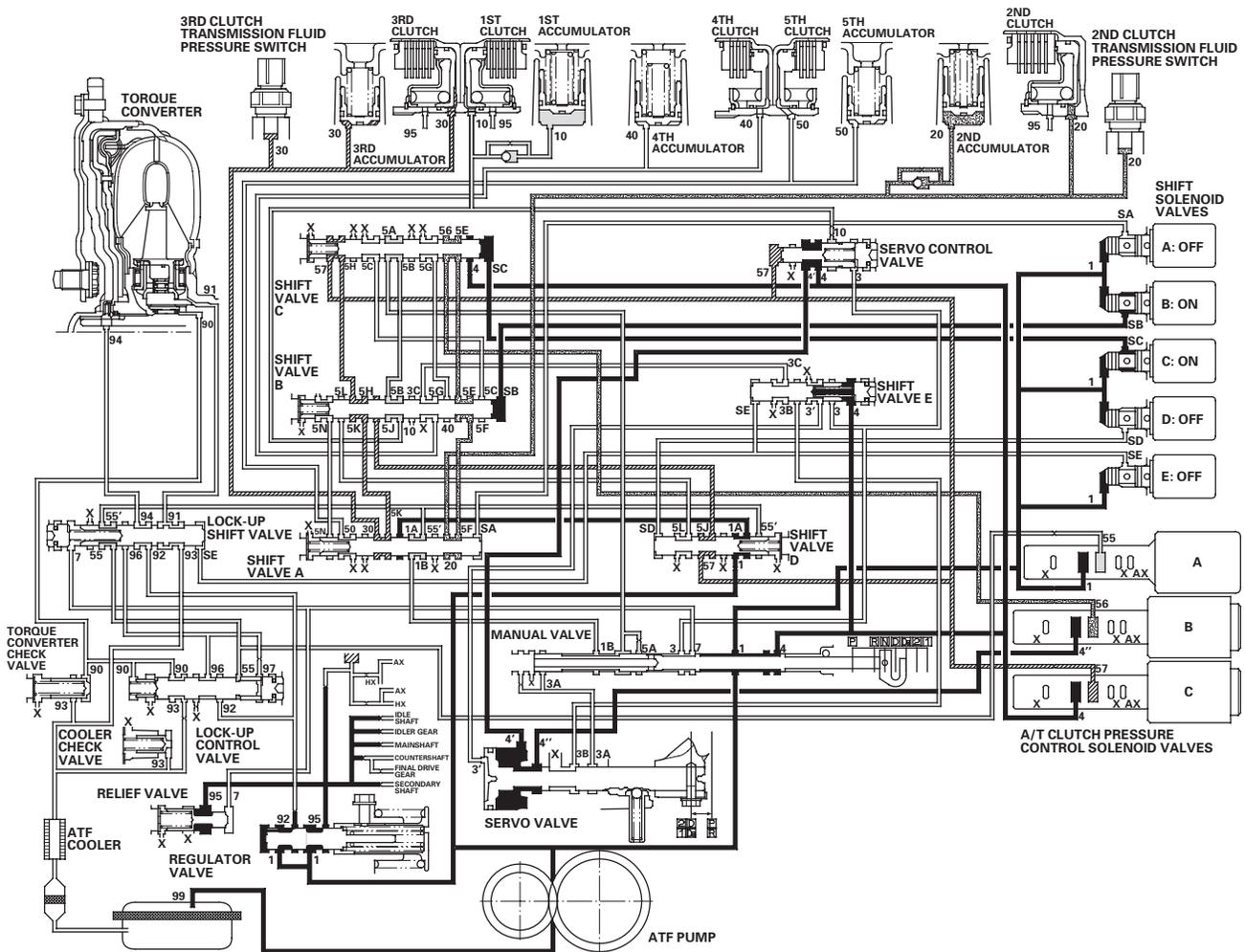
(cont'd)



D Position: Shifting between 1st gear and 2nd gear

As the speed of the vehicle reaches the prescribed value, the PCM turns shift solenoid valve A OFF, and keeps B and C ON, and D and E OFF. Shift solenoid valve A pressure (SA) in the right side of the shift valve A is released. The shift valve A is moved to the right side to uncover the ports of A/T clutch pressure control solenoid valves pressures leading to the 1st and 2nd clutches. The PCM controls the A/T clutch pressure control solenoid valves to regulate hydraulic pressure. A/T clutch pressure control solenoid valve A pressure (55) changes to 1st clutch pressure (10) at the shift valve B, and A/T clutch pressure control solenoid valve B pressure (56) changes to 2nd clutch pressure (20) at the shift valve A. The 1st and 2nd clutches are engaged gently.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.



(cont'd)

Automatic Transmission

System Description (cont'd)

Hydraulic Flow (cont'd)

Position: Driving in 2nd gear

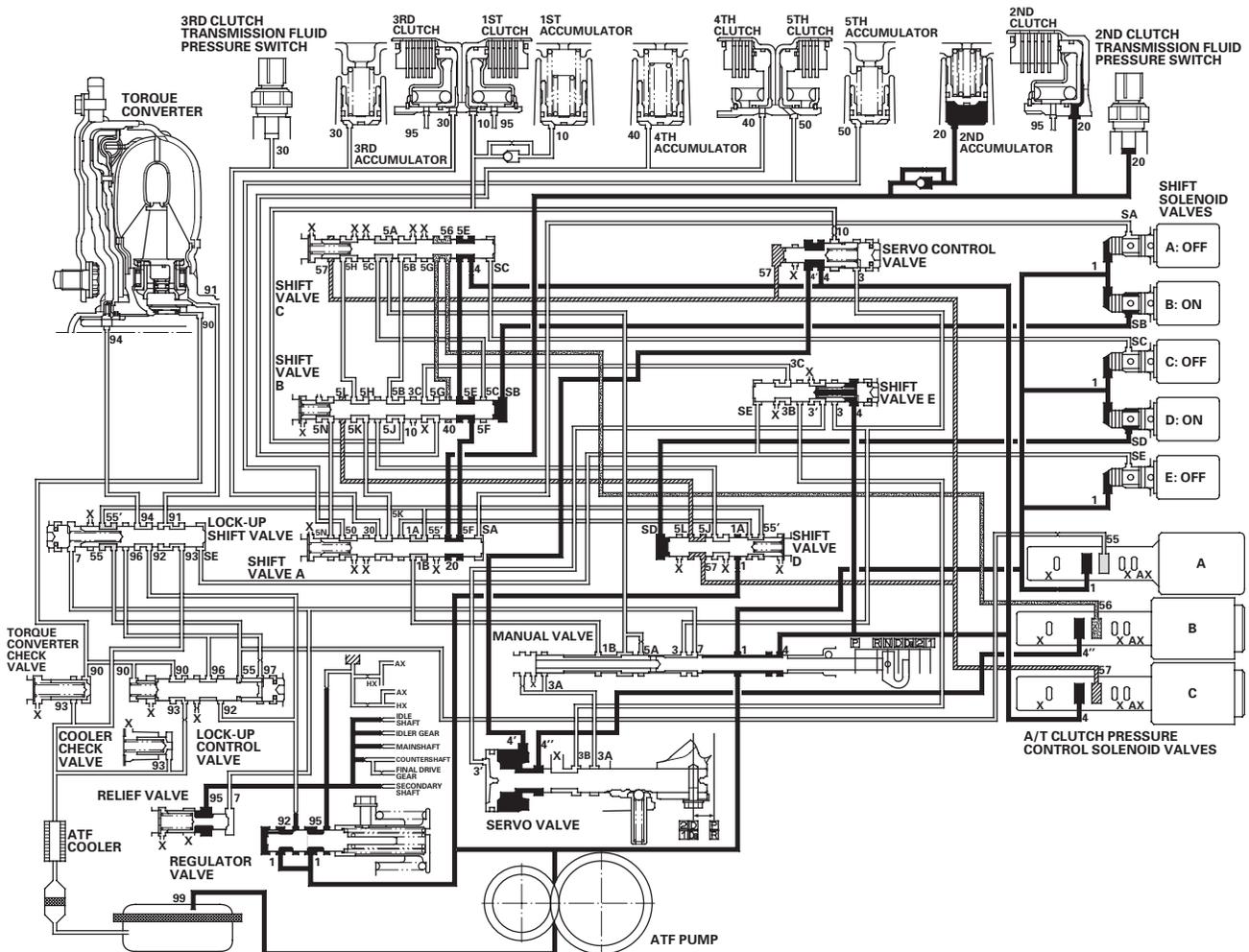
The PCM turns shift solenoid valves C OFF, D ON, and keeps A and E OFF, and B ON. Shift solenoid valve C pressure (SC) in the right side of the shift valve C is released. The shift valve C is moved to the right side to switch the ports. This movement covers A/T clutch pressure control solenoid valves pressures to stop at the shift valves C and A, and uncover the port of line pressure leading to the 2nd clutch.

Fluid flows to 2nd clutch by way of:

Line pressure (1) Manual valve Line pressure (4) Shift valve C Line pressure (5E) Shift valve B Line pressure (5F) Shift valve A 2nd clutch pressure (20) 2nd clutch

The 2nd clutch pressure (20) is applied to the 2nd clutch, and the 2nd clutch is engaged securely.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.

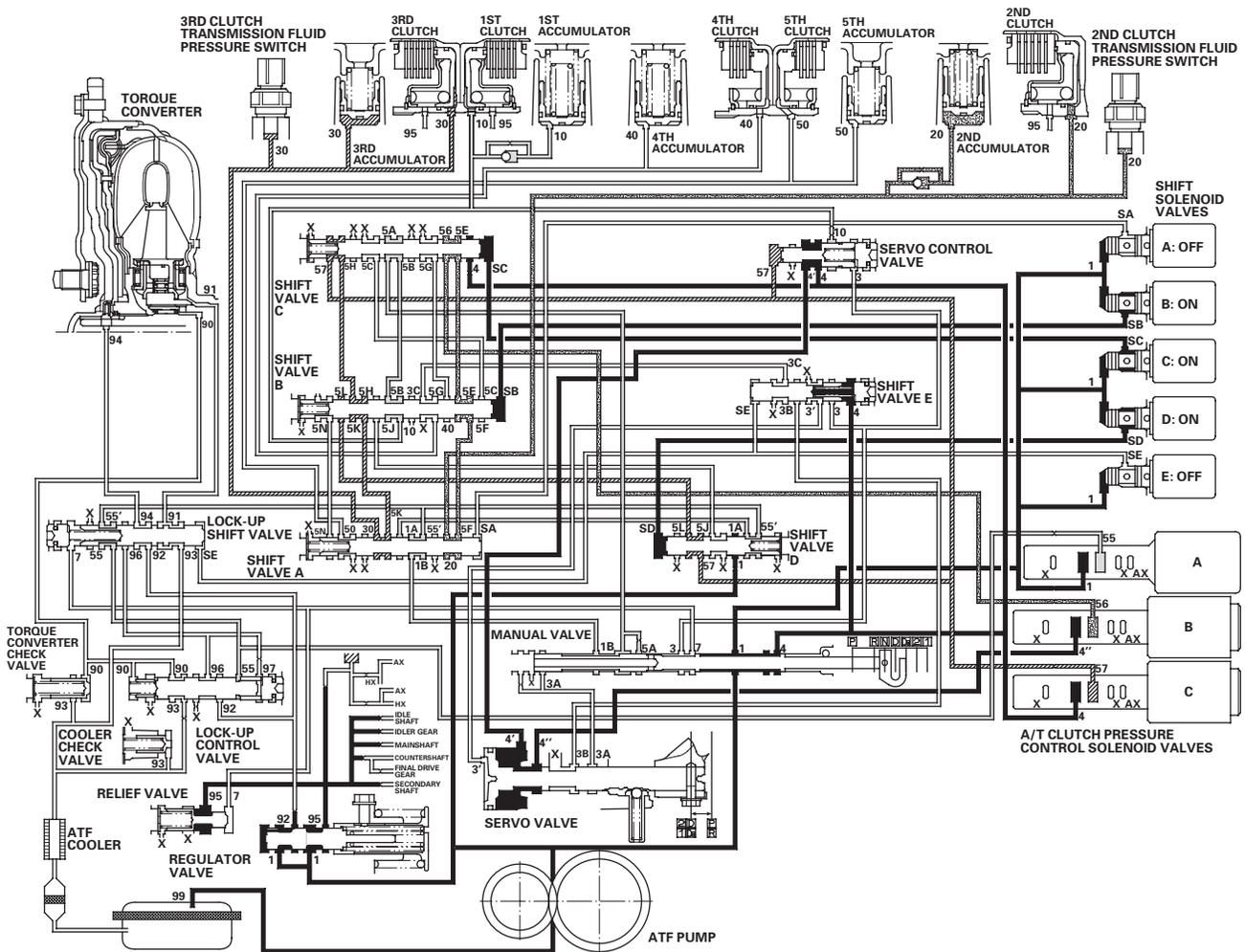




D Position: Shifting between 2nd gear and 3rd gear

As the speed of the vehicle reaches the prescribed value, the PCM turns shift solenoid valves C ON, and keeps A and E OFF, and B and D ON. Shift solenoid valve C pressure (SC) is applied to the right side of the shift valve C. The shift valve C is moved to the left side to uncover the ports of A/T clutch pressure control solenoid valves pressures leading to the 2nd and 3rd clutches. The PCM controls the A/T clutch pressure control solenoid valves to regulate hydraulic pressure. A/T clutch pressure control solenoid valve B pressure (56) changes to 2nd clutch pressure (20) at the shift valve A, and A/T clutch pressure control solenoid valve C pressure (57) changes to 3rd clutch pressure (30) at the shift valve A. The 2nd and 3rd clutches are engaged gently.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.



(cont'd)

Automatic Transmission

System Description (cont'd)

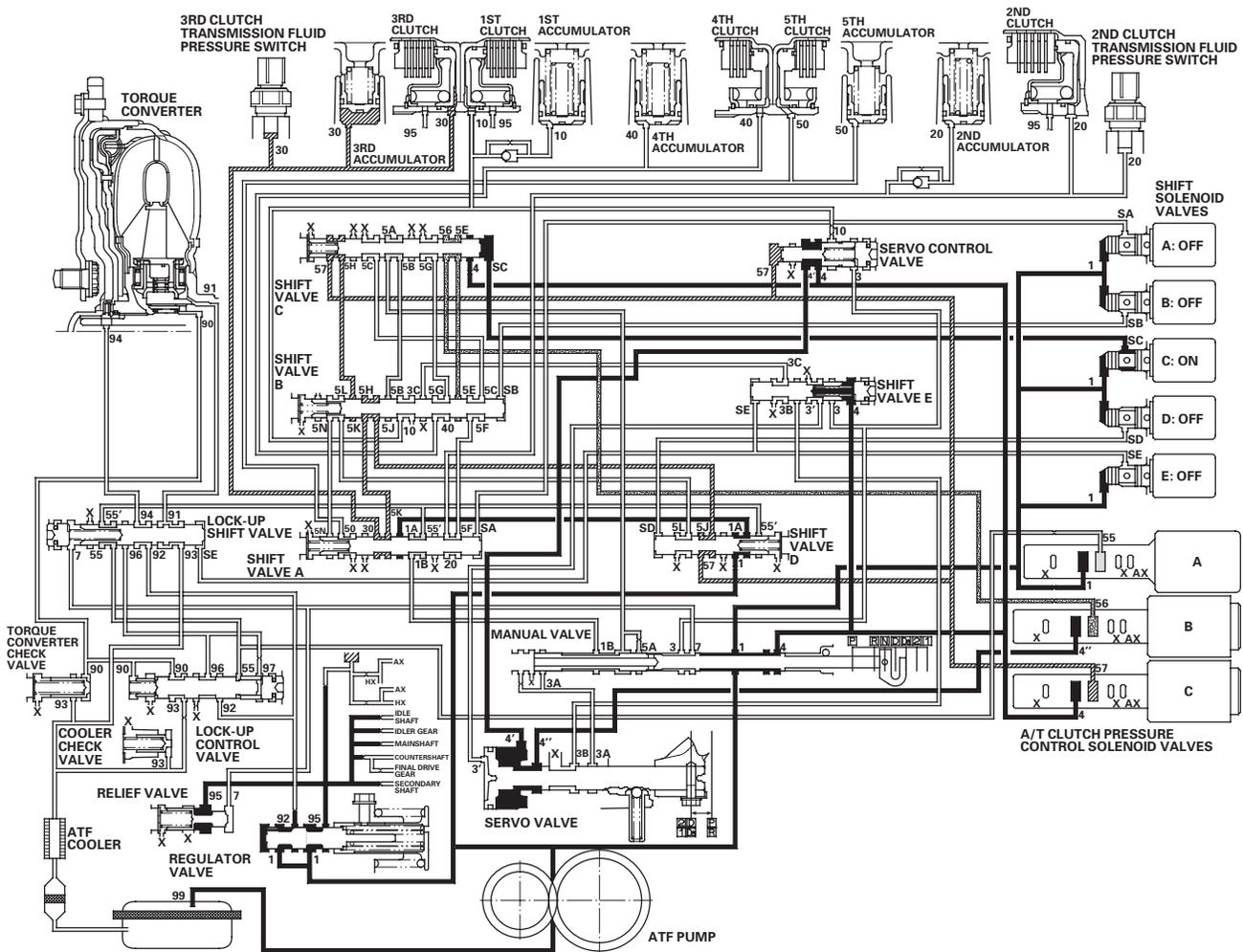
Hydraulic Flow (cont'd)

Position: Driving in 3rd gear

The PCM turns shift solenoid valves B and D OFF, and keeps A and E OFF, and C ON. Shift solenoid valve B pressure (SB) in the right side of the shift valve B is released, and the shift valve B is moved to the right side. Shift solenoid valve D pressure (SD) in the left side of the shift valve D is released, and the shift valve D is moved to the left side. These valves movement switches the port of A/T clutch pressure control solenoid valve C pressure leading to the 3rd clutch.

A/T clutch pressure control solenoid valve C pressure (57) changes to (5J) at the shift solenoid valve D and to (5K) at the shift valve B, and becomes 3rd clutch pressure (30) at the shift valve A. The 3rd clutch pressure (30) is applied to the 3rd clutch, and the 3rd clutch is engaged securely.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.

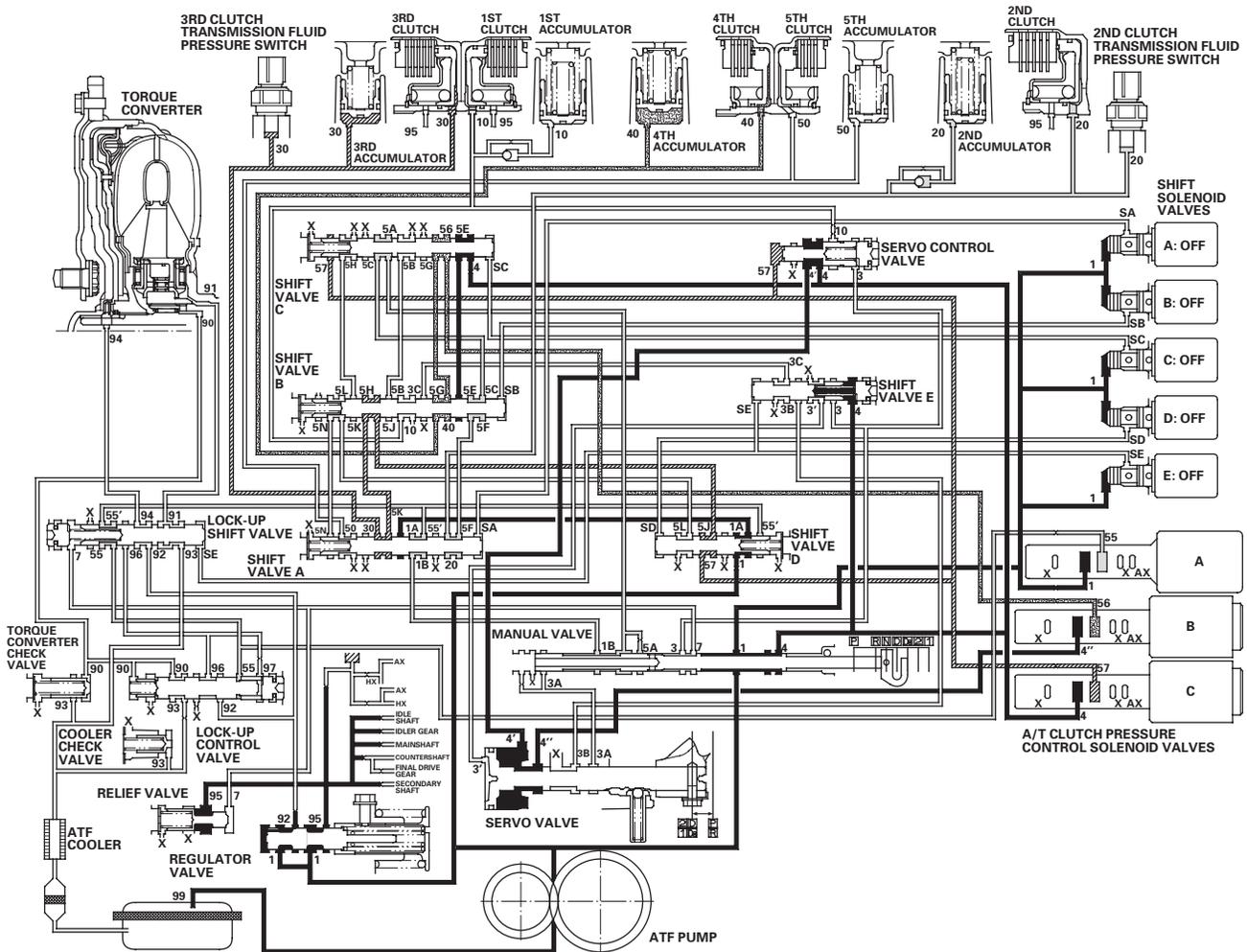




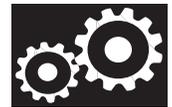
D Position: Shifting between 3rd gear and 4th gear

As the speed of the vehicle reaches the prescribed value, the PCM turns shift solenoid valves C OFF, and keeps A, B, D and E OFF. Shift solenoid valve C pressure (SC) in the right side of the shift valve C is released. The shift valve C is moved to the right side to uncover the ports of A/T clutch pressure control solenoid valves B and C pressures leading to the 3rd and 4th clutches. The PCM controls the A/T clutch pressure control solenoid valves to regulate hydraulic pressure. A/T clutch pressure control solenoid valve B pressure changes to 3rd clutch pressure (30) at the shift valve A, and A/T clutch pressure control solenoid valve B pressure (56) changes to 4th clutch pressure (40) at the shift valve B. The 3rd and 4th clutches are engaged gently.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.



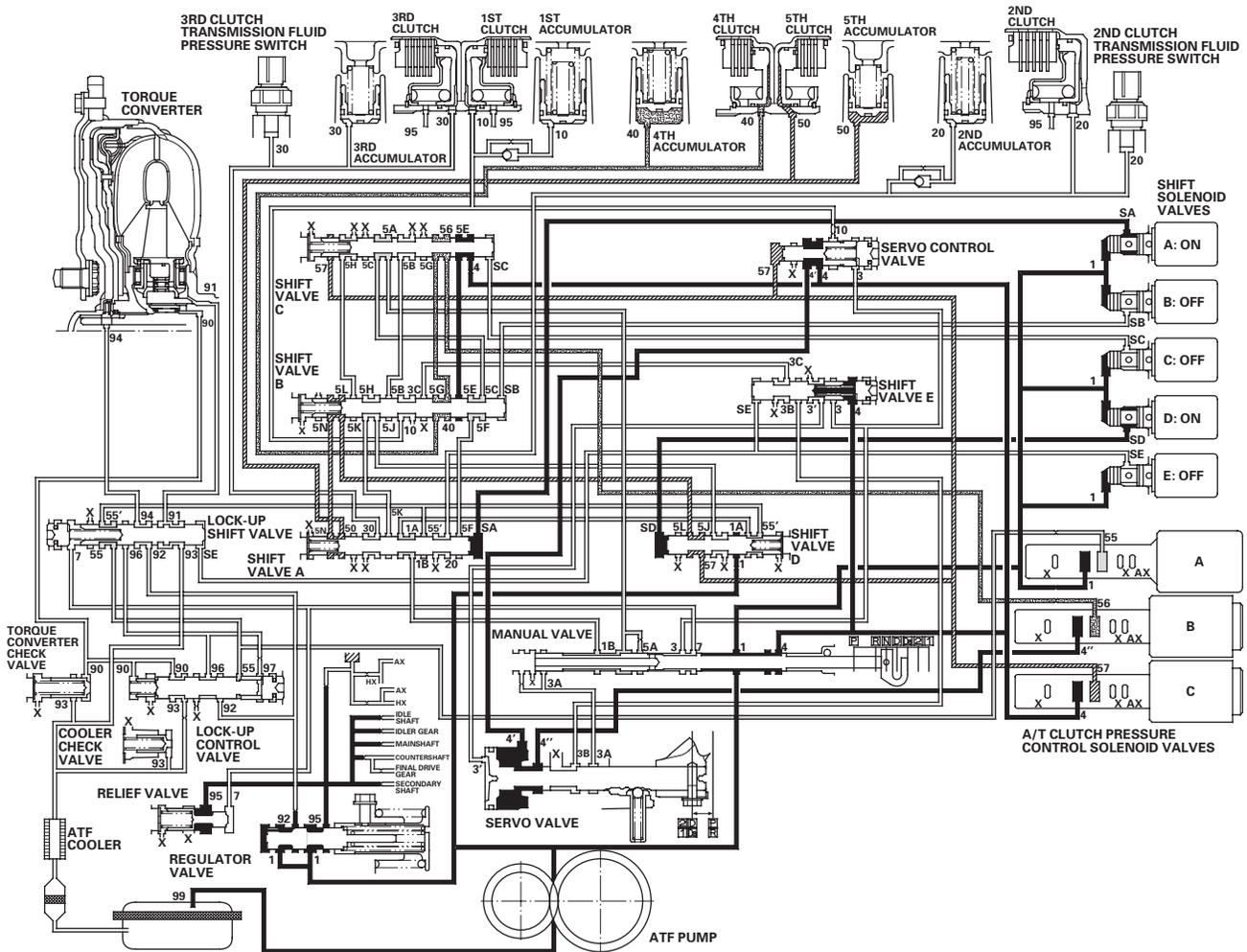
(cont'd)



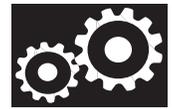
D Position: Shifting between 4th gear and 5th gear

As the speed of the vehicle reaches the prescribed value, the PCM turns shift solenoid valves D ON, and keeps A ON, and B, C and E OFF. Shift solenoid valve D pressure (SD) is applied to the left side of the shift valve D. The shift valve D is moved to the right side to uncover the port of A/T clutch pressure control solenoid valve C pressure to the 5th clutch. A/T clutch pressure control solenoid valve B pressure (56) changes to 4th clutch pressure (40) at the shift valve B. A/T clutch pressure control solenoid valve C pressure (57) changes to (5L) at the shift valve D and to (5N) at the shift valve B, and becomes 5th clutch pressure (50) at the shift valve A. The 4th and 5th clutches are engaged gently.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.



(cont'd)



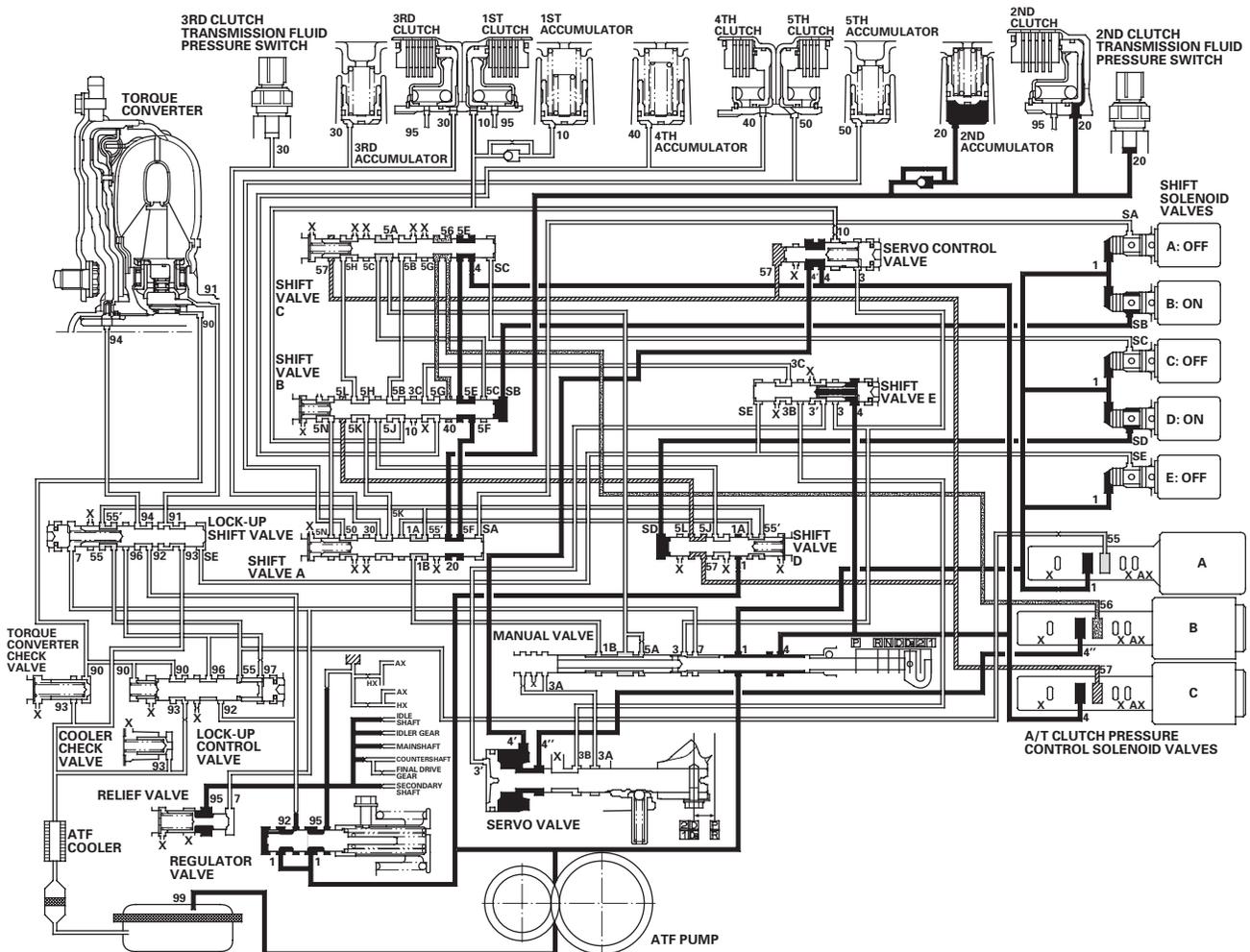
2 Position

The PCM controls the shift solenoid valves. The conditions of the shift solenoid valves and positions of the shift valves are as follows:

- Shift solenoid valve A: OFF, and shift valve A keeps in right side
- Shift solenoid valve B: ON, and shift valve B moves to left side
- Shift solenoid valve C: OFF, and shift valve C keeps in right side
- Shift solenoid valve D: OFF, and shift valve D moves to right side
- Shift solenoid valve E: OFF, and shift valve E keeps in left side

Line pressure (1) changes to line pressure (4) at the manual valve, and flows to the shift valve C. Line pressure (4) flows to the shift valve A via the shift valve B, and becomes the 2nd clutch pressure (20). The 2nd clutch pressure (20) is applied to the 2nd clutch, and the 2nd clutch is engaged.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.



(cont'd)

Automatic Transmission

System Description (cont'd)

Hydraulic Flow (cont'd)

1 Position

The PCM controls the shift solenoid valves. The conditions of the shift solenoid valves and positions of the shift valves are as follows:

- Shift solenoid valve A: ON, and shift valve A moves to left side
- Shift solenoid valve B: ON, and shift valve B moves to left side
- Shift solenoid valve C: ON, and shift valve C moves to left side
- Shift solenoid valve D: OFF, and shift valve D keeps in left side
- Shift solenoid valve E: OFF, and shift valve E keeps in left side

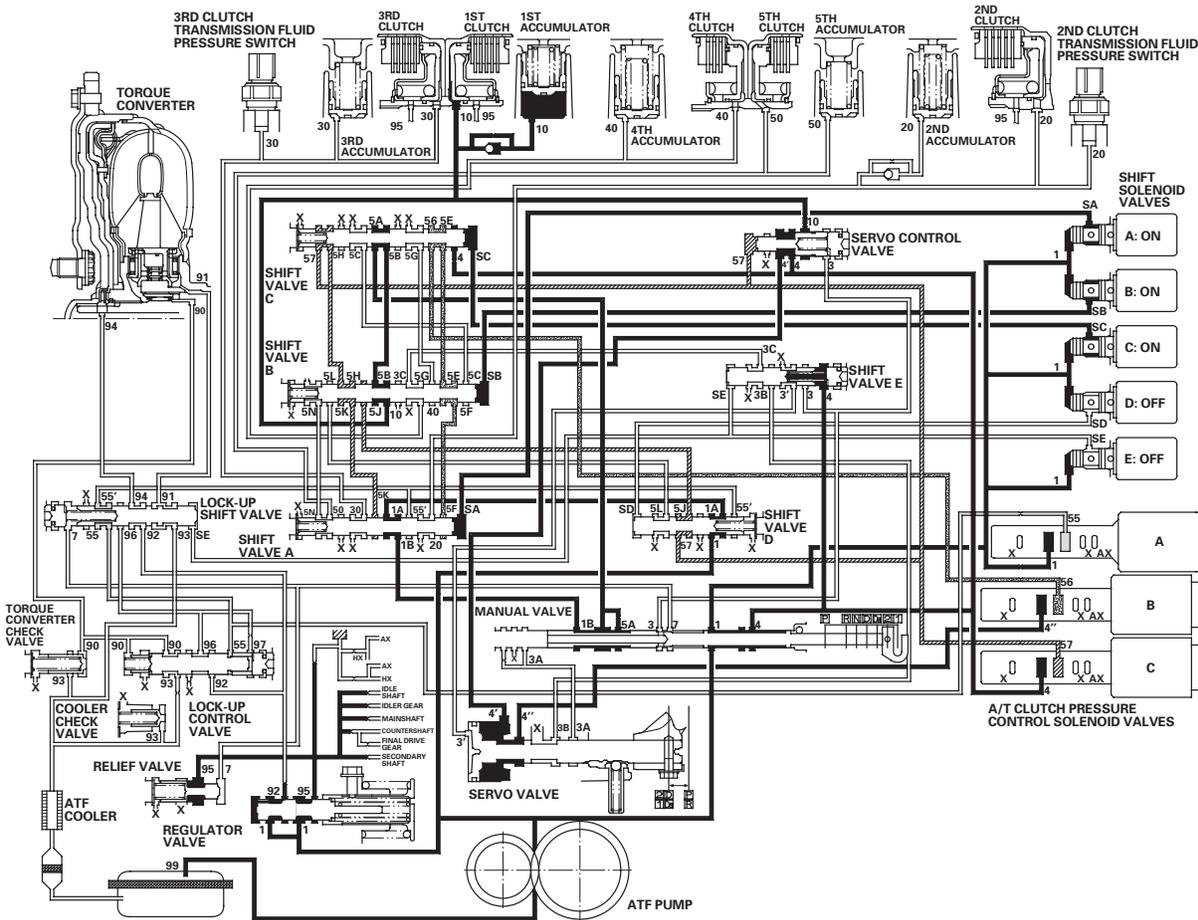
Line pressure (1) becomes the 1st clutch pressure (10) at the shift valve B.

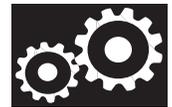
Fluid flows to 1st clutch by way of:

Line Pressure (1) → Shift Valve D → Line Pressure (1A) → Shift Valve A → Line Pressure (1B) → Manual Valve → Line Pressure (5A) → Shift Valve C → Line Pressure (5B) → Shift Valve B → 1st Clutch Pressure (10) → 1st Clutch

The 1st clutch pressure (10) is applied to the 1st clutch, and the 1st clutch is engaged.

When used, "left" or "right" indicates direction on the hydraulic circuit.

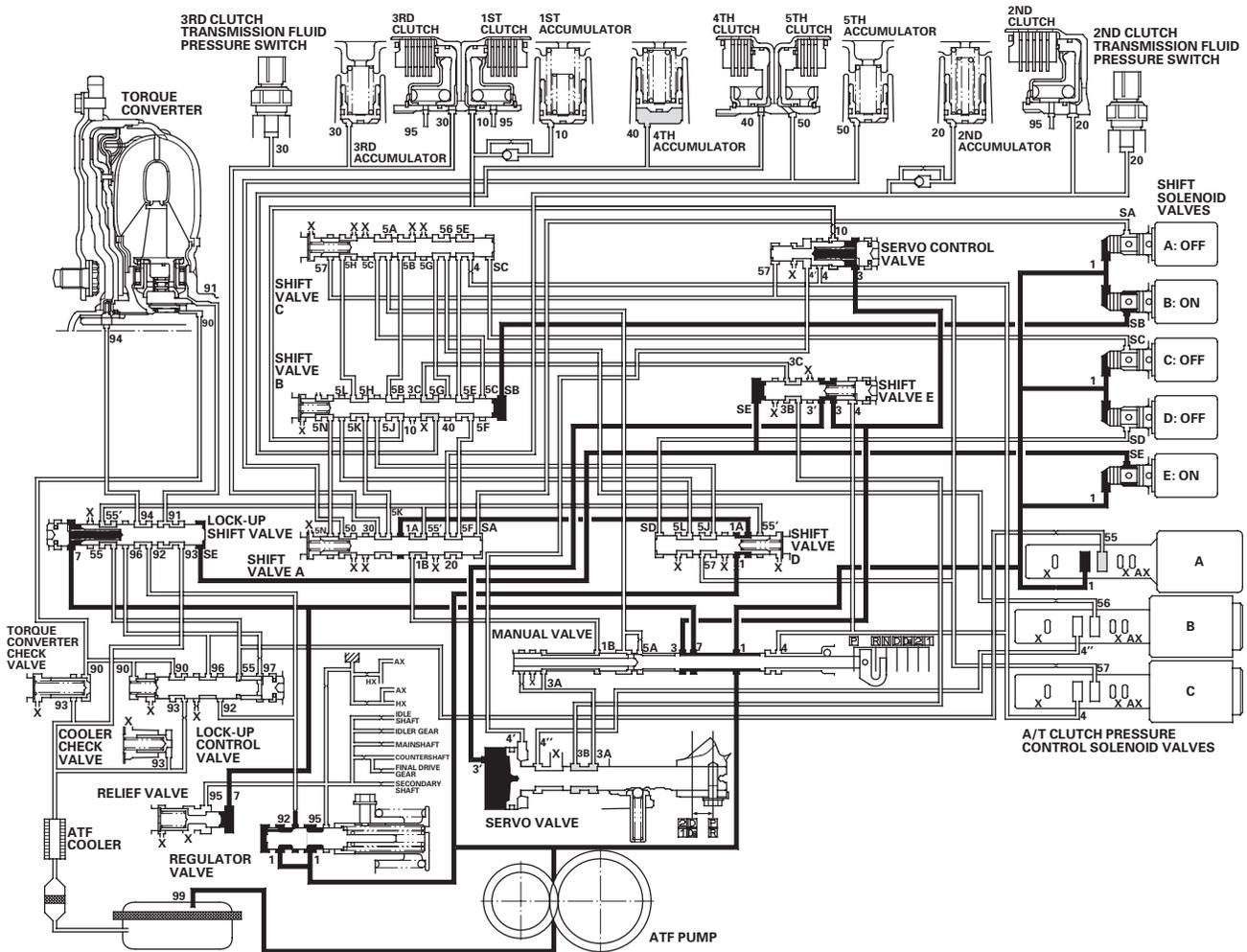




R Position: Shifting to R position from P or N position

When shifting in the **R** position, the PCM turns shift solenoid valves B and E ON, and A, C, and D OFF. Shift solenoid valve B pressure (SB) is applied to the right side of the shift valve B, and the shift valve B is moved to left side. Shift solenoid valve E pressure (SE) is applied to the left side of the shift valve E, and the shift valve E is moved to the right side. Line pressure (1) changes to (3) at the manual valve, and flows to the servo valve via the shift valve E. The servo valve is moved to reverse range position. Movement of the shift valves B and E, and servo valve creates 4th clutch pressure line between the 4th clutch and the A/T clutch pressure control solenoid valve A. The 4th clutch pressure (40) is applied to the 4th clutch, and the 4th clutch is engaged gently.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.



(cont'd)

Automatic Transmission

System Description (cont'd)

Hydraulic Flow (cont'd)

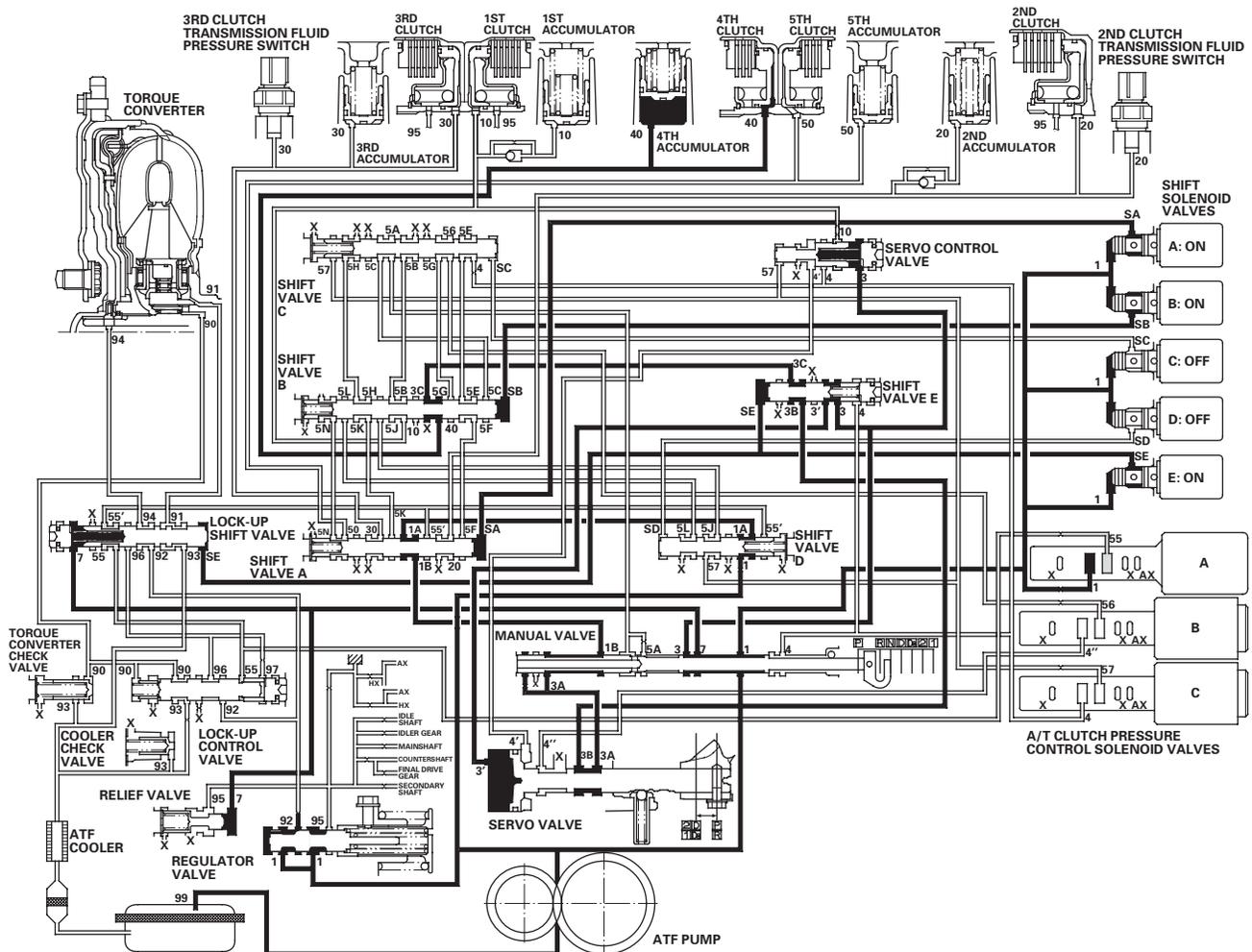
R Position: Driving in reverse gear

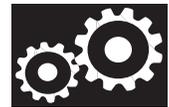
After starting off in reverse gear, the PCM turns shift solenoid valves A ON, and keeps B and E ON, and C and D OFF. Shift solenoid valve A pressure (SA) is applied to the right side of the shift valve A to cover the port of A/T clutch pressure control solenoid valve A pressure, and to uncover the port of line pressure leading to the 4th clutch creating full line pressure. The 4th clutch is engaged securely with line pressure.

Reverse Inhibitor Control

While the vehicle is moving forward, the PCM keeps shift solenoid valve E remaining OFF. The shift valve E covers the port of line pressure (3') leading to the servo valve reverse position. The servo valve cannot be shifted to reverse position, and hydraulic pressure is not applied to the 4th clutch from servo valve for reverse; as a result, power is not transmitted to the reverse direction.

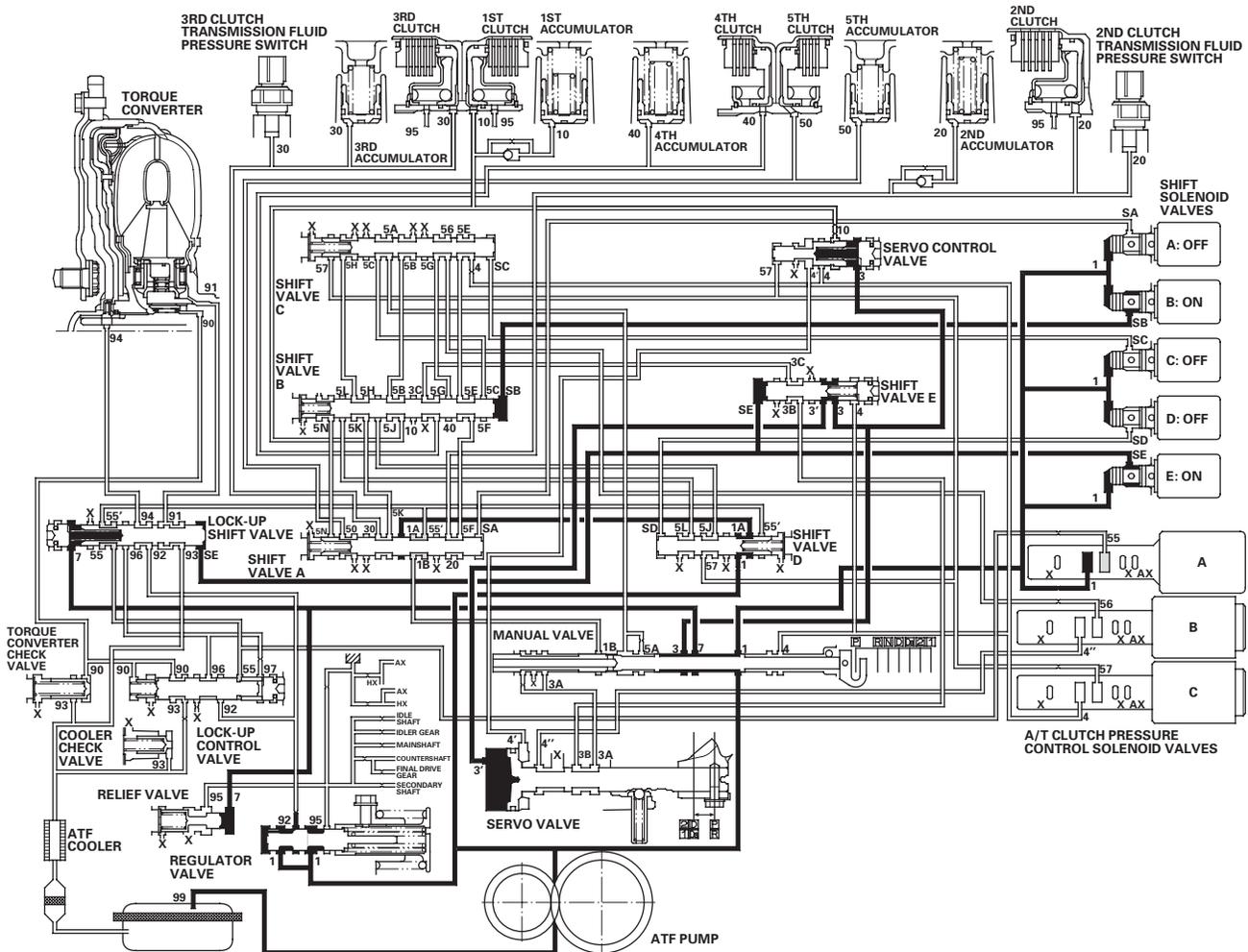
NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.





Position

Shift solenoid valves B and E are turned ON, and A, C, and D OFF by the PCM. Line pressure (1) flows to the shift solenoid valves and the A/T clutch pressure control solenoid valve A. Line pressure (3) changes to (3') at the shift valve E, and flows to the servo valve. The servo valve is moved to reverse/park position. Hydraulic pressure is not applied to the clutches.



(cont'd)

Automatic Transmission

System Description (cont'd)

Lock-up System

The lock-up mechanism of the torque converter clutch operates in **D** position (2nd, 3rd, 4th and 5th), and in **D₃** position (2nd and 3rd). The pressurized fluid is drained from the back of the torque converter through a fluid passage, causing the torque converter clutch piston to be held against the torque converter cover. As this takes place, the mainshaft rotates at the same speed as the engine crankshaft. Together with the hydraulic control, the PCM optimizes the timing and volume of the lock-up mechanism. When the shift solenoid valve E is turned on by the PCM, shift solenoid valve E pressure switches the lock-up shift valve lock-up on and off. The A/T clutch pressure control solenoid valve A and the lock-up control valve control the amount of the lock-up conditions.

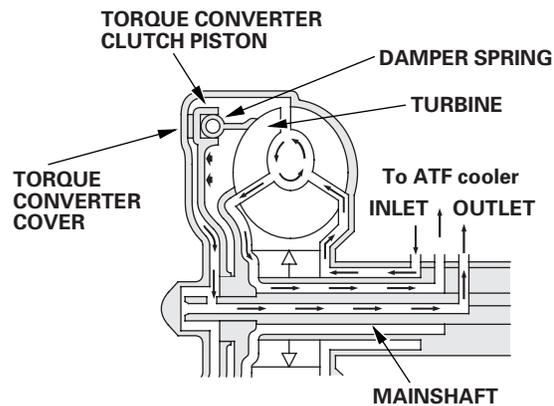
Torque Converter Clutch Lock-up ON (Engaging Torque Converter Clutch)

Fluid in the chamber between the torque converter cover and the torque converter clutch piston is drained off, and fluid entered from the chamber between the pump and stator exerts pressure through the torque converter clutch piston against the torque converter cover. The torque converter clutch piston engages with the torque converter cover; the torque converter clutch lock-up is ON, and the mainshaft rotates at the same speed as the engine.

Power flow

The power flows by way of:

- Engine
- Drive plate
- Torque converter cover
- Torque converter clutch piston
- Damper spring
- Turbine
- Mainshaft

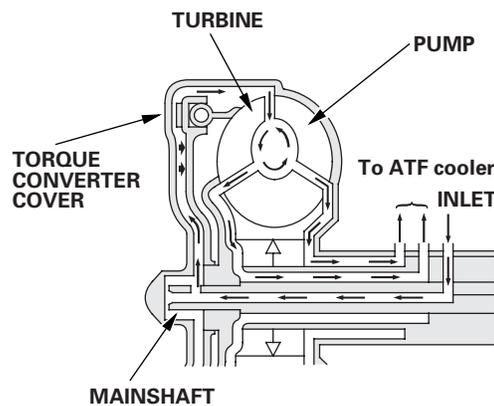


Torque Converter Clutch Lock-up OFF (Disengaging Torque Converter Clutch)

Fluid entered from the chamber between the torque converter cover and the torque converter clutch piston passes through the torque converter and goes out from the chambers between the turbine and the stator, and between the pump and the stator. As a result, the torque converter clutch piston moves away from the torque converter, and the torque converter clutch lock-up is released; torque converter clutch lock-up is OFF.

Power flow

- Engine
- Drive plate
- Torque converter cover
- Pump
- Turbine
- Mainshaft

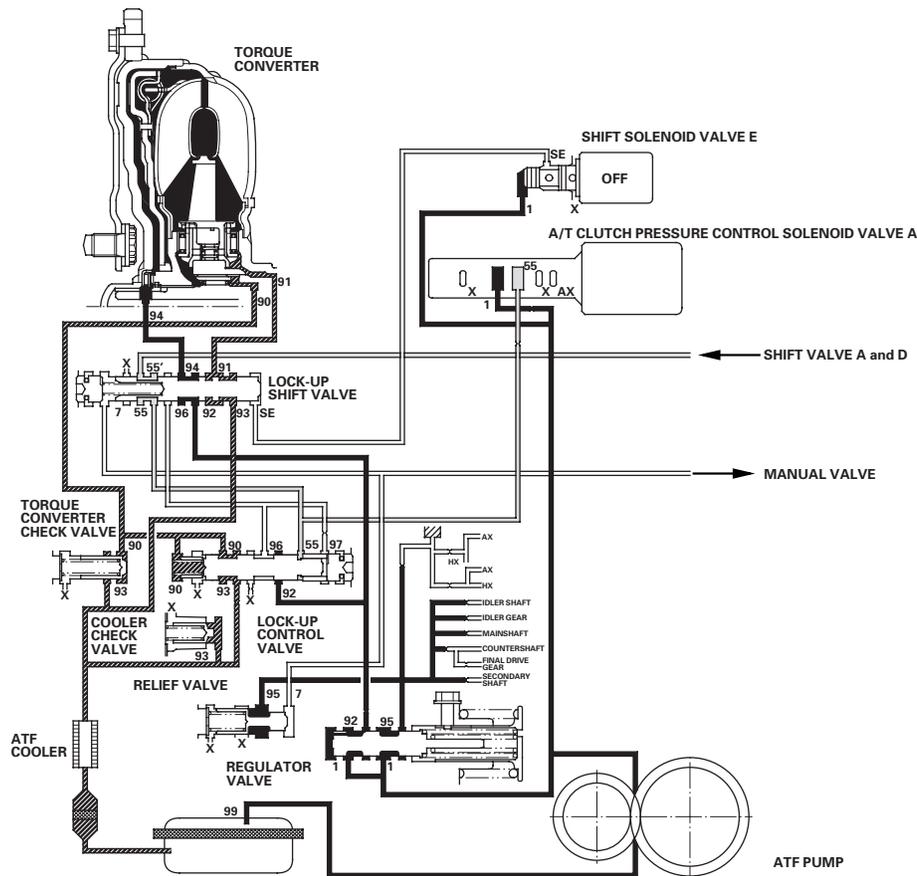




No Lock-up

Shift solenoid valve E is turned OFF by the PCM, and shift solenoid valve E pressure (SE) is not applied to the lock-up shift valve. The lock-up shift valve stays to the right to uncover the torque converter pressure ports leading to the left side of the torque converter and releasing pressure from the right side of the torque converter. Torque converter pressure (92) changes to (94) at the lock-up shift valve, and enters into the left side of the torque converter to disengage the torque converter clutch. The torque converter clutch piston keeps away from the torque converter cover, the torque converter clutch lock-up is OFF.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.



(cont'd)

Automatic Transmission

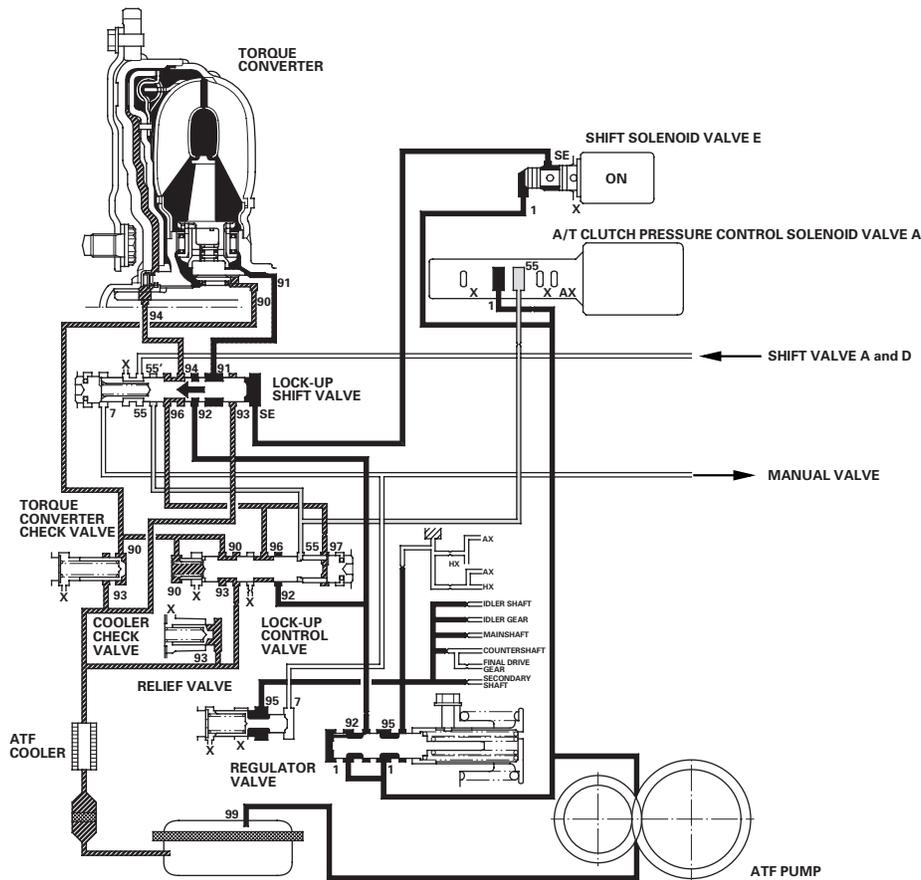
System Description (cont'd)

Lock-up System (cont'd)

Partial Lock-up

As the speed of the vehicle reaches the prescribed value, shift solenoid valve E is turned ON by the PCM, and shift solenoid valve E pressure (SE) is applied to the right side of the lock-up shift valve. The lock-up shift valve is moved to the left side to switch the torque converter pressure (91) port which goes to the right side of the torque converter, and the port of torque converter pressure (94) releasing from the left side of the torque converter. Torque converter pressure (91) flows to the right side of the torque converter to engage the torque converter clutch. The PCM also controls the A/T clutch pressure control solenoid valve A to regulate A/T clutch pressure control solenoid valve A pressure (55) applied to the lock-up shift valve and lock-up control valve. The position of the lock-up control valve depends on A/T clutch pressure control solenoid valve A pressure (55) and torque converter pressure released from the torque converter. The lock-up control valve controls the amount of the torque converter clutch lock-up until fluid between the clutch piston and torque converter cover is released fully; the torque converter clutch is in partial lock-up condition.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.

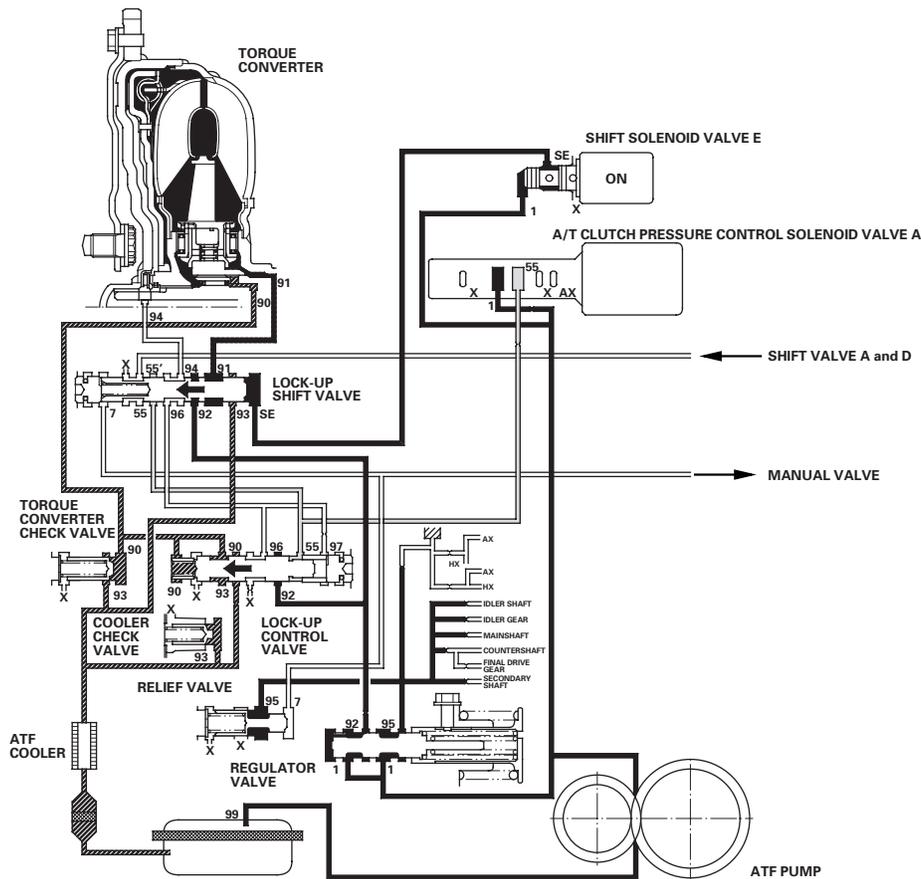




Full Lock-up

When the vehicle speed increases, the PCM sends a signal to A/T clutch pressure control solenoid valve A to increase A/T clutch pressure control solenoid valve A pressure (55), and the lock-up control valve is moved to the left by the increased pressure. Then torque converter pressure (94) from the left side of the torque converter is completely released at the lock-up control valve, and torque converter pressure (91) engages the torque converter clutch securely; the torque converter clutch is in full lock-up condition.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.

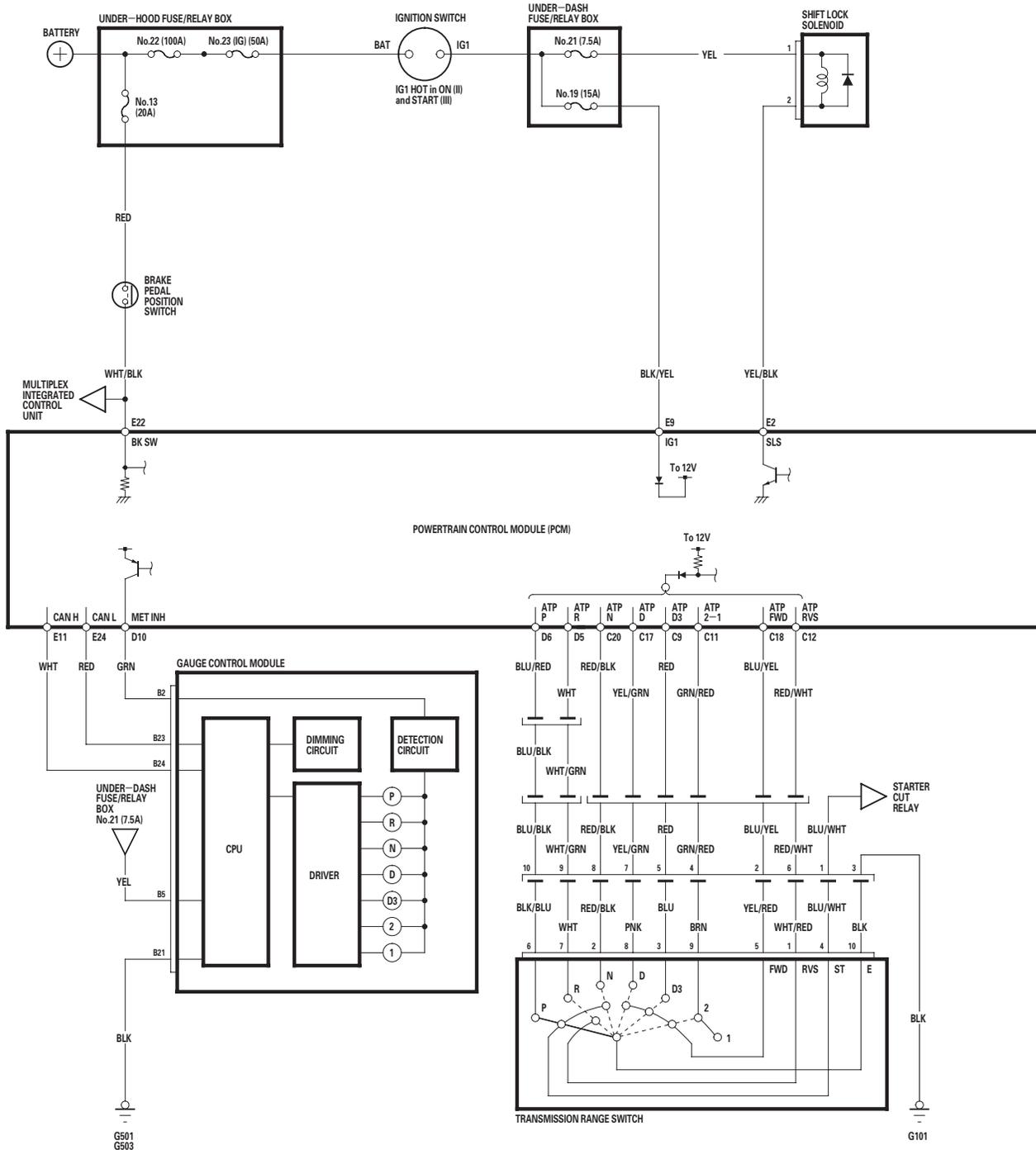


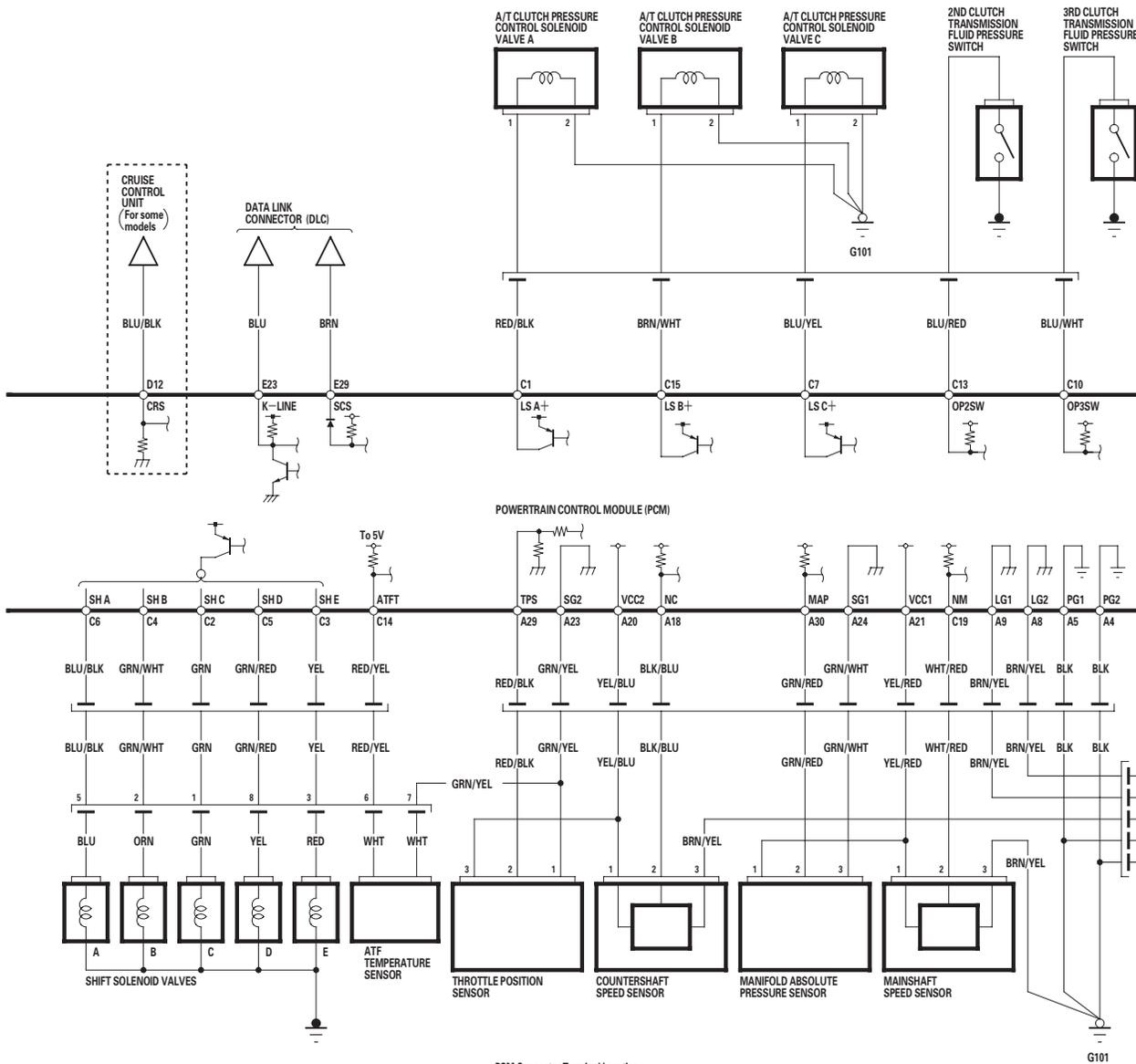
(cont'd)

Automatic Transmission

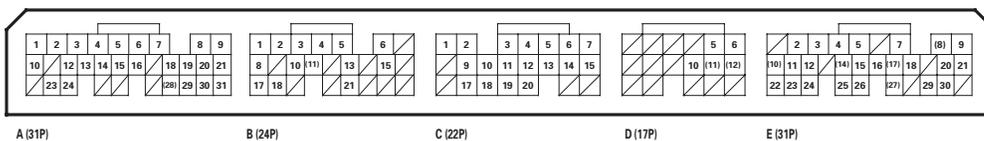
System Description (cont'd)

Circuit Diagram-PCM A/T Control System





PCM Connector Terminal Locations



Automatic Transmission

DTC Troubleshooting

DTC P0705: Short in Transmission Range Switch Circuit (Multiple Shift-position Input)

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

- Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
- Move the shift lever to each position slowly, and check the OBD STATUS in DTCs MENU for a pass/fail test of code P0705.

Did the result fail?

YES Go to step 3.

NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 1 and recheck. ■

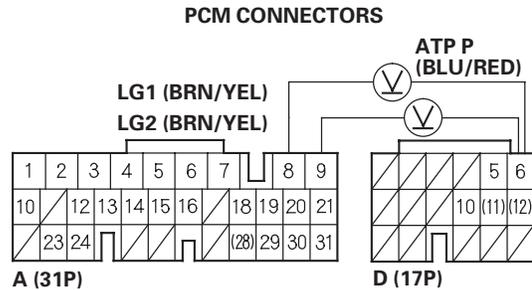
- Inspect the transmission range switch (see page 14-214).

Is the switch OK?

YES Go to step 4.

NO Replace the transmission range switch. Recheck for a pass/fail test of code P0705 by performing step 1 and 2 after replacing the switch. If the test result is failed, recheck the transmission range switch. ■

- Shift to all positions other than **P**.
- Measure the voltage between PCM connector terminals D6 and A8 or A9.

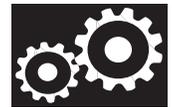


Wire side of female terminals

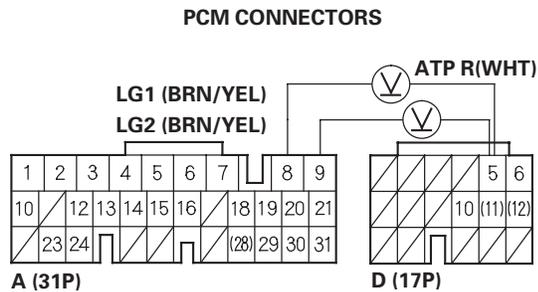
Is there battery voltage?

YES Go to step 6.

NO Check for a short in the wire between PCM connector terminal D6 and the transmission range switch, and check for an open in the wires between ground G101 and PCM connector terminals A8 and A9. If the wires are OK, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■



6. Shift to all positions other than **R**.
7. Measure the voltage between PCM connector terminals D5 and A8 or A9.

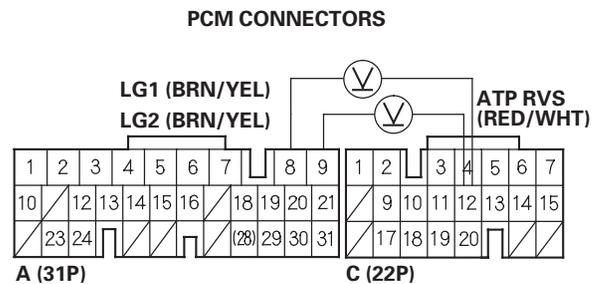


Is there battery voltage?

YES Go to step 8.

NO Check for a short in the wire between PCM connector terminal D5 and the transmission range switch. If the wire is OK, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

8. Measure the voltage between PCM connector terminals C12 and A8 or A9.



Is there battery voltage?

YES Go to step 9.

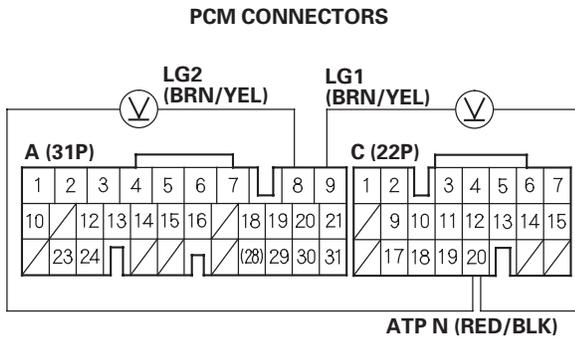
NO Check for a short in the wire between PCM connector terminal C12 and the transmission range switch. If the wire is OK, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

9. Shift to all positions other than **N**.
10. Measure the voltage between PCM connector terminals C20 and A8 or A9.



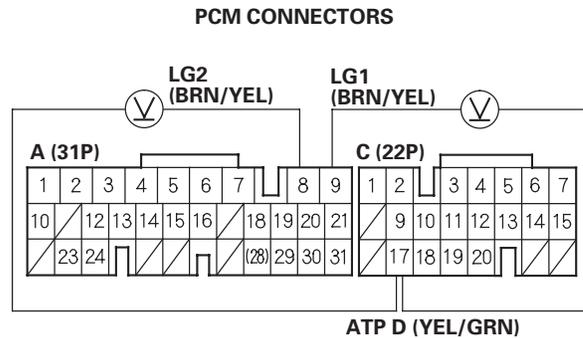
Wire side of female terminals

Is there battery voltage?

YES Go to step 11.

NO Check for a short in the wire between PCM connector terminal C20 and the transmission range switch. If the wire is OK, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

11. Shift to all positions other than **D**.
12. Measure the voltage between PCM connector terminals C17 and A8 or A9.



Wire side of female terminals

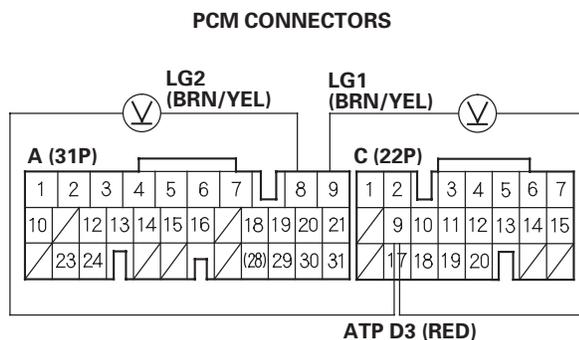
Is there battery voltage?

YES Go to step 13.

NO Check for a short in the wire between PCM connector terminal C17 and the transmission range switch. If the wire is OK, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■



13. Shift to all positions other than **D**.
14. Measure the voltage between PCM connector terminals C9 and A8 or A9.



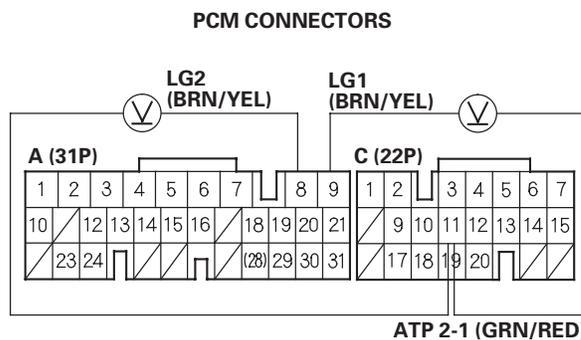
Wire side of female terminals

Is there battery voltage?

YES Go to step 15.

NO Check for a short in the wire between PCM connector terminal C9 and the transmission range switch. If the wire is OK, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

15. Shift to all positions other than **2** and **1**.
16. Measure the voltage between PCM connector terminals C11 and A8 or A9.



Wire side of female terminals

Is there battery voltage?

YES Go to step 17.

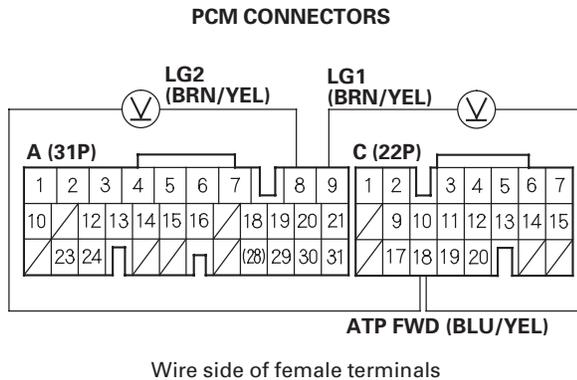
NO Check for a short in the wire between PCM connector terminal C11 and the transmission range switch. If the wire is OK, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

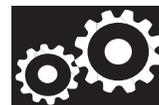
17. Shift to all positions other than **D**, **D₃**, and **2**.
18. Measure the voltage between PCM connector terminals C18 and A8 or A9.



Is there battery voltage?

YES The PCM has failed; replace it. ■

NO Check for a short in the wire between PCM connector terminal C18 and the transmission range switch. If the wire is OK, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■



DTC P0706: Open in Transmission Range Switch Circuit

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
2. Move the shift lever to each position, and check the OBD STATUS in DTCs MENU for a pass/fail test of code P0706.

Did the result fail?

YES Go to step 3.

NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 1 and recheck. ■

3. Inspect the transmission range switch (see page 14-214).

Is the switch OK?

YES Inspect the end of the selector control shaft (see step 6 on page 14-215), and go to step 4.

NO Replace the transmission range switch. Recheck for a pass/fail test of code P0706 by performing step 1 and 2 after replacing the switch. If the test result is failed, check the transmission range switch. ■

4. Install the transmission range switch correctly, and adjust the shift cable (see page 14-208).
5. Clear the DTC in CLEAR MENU.

6. Move the shift lever to each position, and check the OBD STATUS in DTCs MENU for a pass/fail test of code P0706.

Did the result fail?

YES Go to step 7.

NO The problem has been corrected. If the tester tells you NOT COMPLETE, return to step 5 and recheck. ■

7. Shift the shift lever into the **D** position, and verify the ATP FWD and ATP D inputs with the PGM Tester or HDS in the A/T data list.

Is ATP FWD and ATP D ON?

YES Go to step 8.

NO Go to step 14.

8. Shift to the **D3** position, and verify the ATP FWD and ATP D3 inputs with the PGM Tester or HDS in the A/T data list.

Is ATP FWD and ATP D3 ON?

YES Go to step 9.

NO Go to step 14.

9. Shift to the **2** position, and verify the ATP FWD and ATP 2-1 signals with the PGM Tester or HDS in the A/T data list.

Is ATP FWD and ATP 2-1 ON?

YES Go to step 10.

NO Go to step 14.

10. Clear the DTC in CLEAR MENU, and turn the ignition switch OFF.

11. Raise the front of the vehicle, make sure it is securely supported, and allow the front wheels to rotate freely.

12. Start the engine, drive the vehicle in the **D** position until the vehicle speed reaches 35 mph (56 km/h), then slow down and stop the wheels.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

13. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0706.

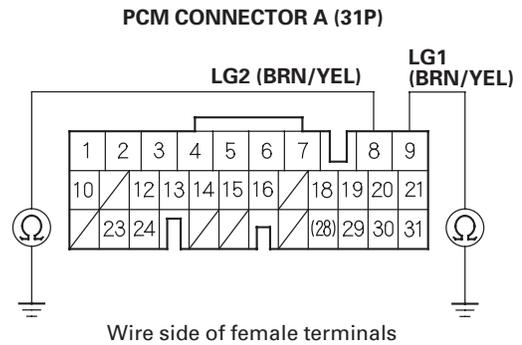
Did the result fail?

YES Go to step 14.

NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 13 and recheck. ■

14. Turn the ignition switch OFF.

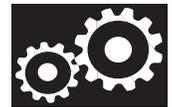
15. Check for continuity between PCM connector terminals A8 and body ground, and between A9 and body ground.



Is there continuity?

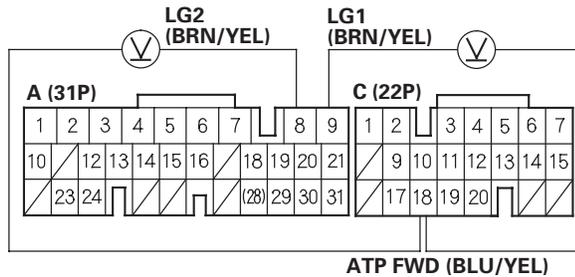
YES Go to step 16.

NO Repair open in the wire between PCM connector terminal A8 and ground (G101), and between A9 and ground (G101), and repair poor ground (G101). ■



16. Turn the ignition switch ON (II).
17. Shift the shift lever into the **D**, **D₃**, or **2** position.
18. Measure the voltage between PCM connector terminals C18 and A8 or A9.

PCM CONNECTORS



Wire side of female terminals

Is there voltage?

YES Repair open in the wire between PCM connector terminal C18, C17, C9, or C11 and the transmission range switch or between the transmission range switch connector terminal No. 10 and ground (G101). ■

NO Update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0711: Problem in ATF Temperature Sensor Circuit

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Check the ATF temperature with the Honda PGM Tester or HDS.

Does the ATF temperature exceed the outside-air temperature?

YES Record the ATF temperature. Leave the engine off for more than 30 minutes, and go to step 2.

NO Record the ATF temperature. Test the stall speed RPM (see page 14-161) three times. Go to step 2 after stall speed testing.

2. Check the ATF temperature with the PGM Tester or HDS.

Did the ATF temperature change?

YES Leave the engine off for more than 30 minutes, and go to step 3.

NO Faulty ATF temperature sensor, replace it. After replacing the sensor, go to step 5, and check that the repair has been completed.

3. Check the ECT SENSOR with the Honda PGM Tester or HDS.

Is the ECT SENSOR equal to the outside-air temperature?

YES Go to step 4.

NO Leave the engine off for more than 30 minutes, and return to step 3 and recheck.

4. Check the ATF temperature with the Honda PGM Tester or HDS.

Is the ATF temperature almost equal to ECT SENSOR?

YES Intermittent failure, the system is OK at this time. ■

NO Faulty ATF temperature sensor, replace it. After replacing the sensor, go to step 5, and check that the repair has been completed.

5. Clear the DTC in CLEAR MENUE with the Honda PGM Tester or HDS.

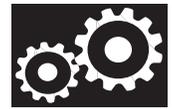
6. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.

7. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0711.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■



DTC P0712: Short in ATF Temperature Sensor Circuit

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Check ATF temperature sensor voltage with the Honda PGM Tester or HDS in the A/T data list.

Is ATF temperature sensor voltage 0.16 V or less?

YES Go to step 2.

NO Intermittent failure, the system is OK at this time. ■

2. Disconnect the shift solenoid harness connector at the shift solenoid valve cover.

3. Check ATF temperature sensor voltage with the Honda PGM Tester or HDS.

Is ATF temperature sensor voltage 0.16 V or less?

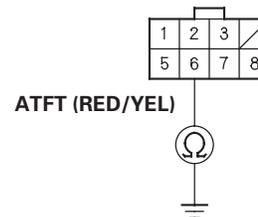
YES Go to step 4.

NO Faulty ATF temperature sensor, replace it. After replacing the sensor, go to step 8, and check that the repair has been completed. ■

4. Turn the ignition switch OFF.
5. Jump the SCS line with the Honda PGM Tester or HDS.
6. Disconnect PCM connector C (22P).

7. Check for continuity between the No. 6 terminal of the shift solenoid harness connector and body ground.

SHIFT SOLENOID HARNESS CONNECTOR



Wire side of female terminals

Is there continuity?

YES Repair short to ground in the wire between PCM connector terminal C14 and the shift solenoid harness connector. ■

NO Check for a short to ground in the shift solenoid harness wire in the transmission (see page 14-144). If the wire is OK, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

8. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
9. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
10. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0712.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0713: Open in ATF Temperature Sensor Circuit

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

- Check ATF temperature sensor voltage with the Honda PGM Tester or HDS in the A/T data list.

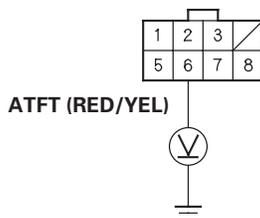
Does ATF temperature sensor voltage exceed 4.84 V?

YES Go to step 2.

NO Intermittent failure, the system is OK at this time. ■

- Turn the ignition switch OFF.
- Disconnect the shift solenoid harness connector.
- Turn the ignition switch ON (II).
- Measure the voltage between the No. 6 terminal of the shift solenoid harness connector and body ground.

SHIFT SOLENOID HARNESS CONNECTOR



Wire side of female terminals

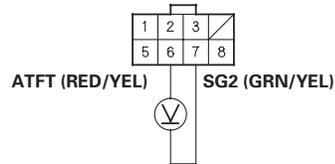
Is there about 5 V?

YES Go to step 6.

NO Go to step 7.

- Measure the voltage between the No. 6 and No. 7 terminals of the shift solenoid harness connector.

SHIFT SOLENOID HARNESS CONNECTOR



Wire side of female terminals

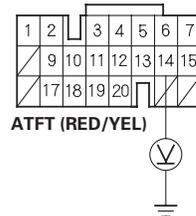
Is there about 5 V?

YES Check the ATF temperature sensor and shift solenoid harness in the transmission housing (see page 14-175). ■

NO Repair open in the wire between PCM connector terminal A23 and the shift solenoid harness connector. ■

- Measure the voltage between PCM connector terminal C14 and body ground.

PCM CONNECTOR C (22P)



Wire side of female terminals

Is there about 5 V?

YES Repair open in the wire between PCM connector terminal C14 and the shift solenoid harness connector. ■

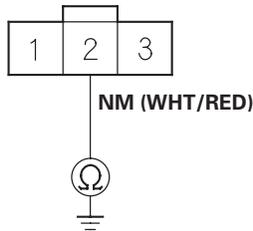
NO Check for loose or poor connections at PCM connector terminal C14. If the connections are OK, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

13. Turn the ignition switch OFF.
14. Disconnect PCM connector C (22P).
15. Check for continuity between the No. 2 terminal of the mainshaft speed sensor connector and body ground.

MAINSHAFT SPEED SENSOR CONNECTOR



Wire side of female terminals

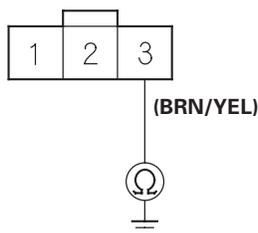
Is there continuity?

YES Repair short to ground in the wire between PCM connector terminal C19 and mainshaft speed sensor connector. ■

NO Go to step 16.

16. Check for continuity between the No. 3 terminal of the mainshaft speed sensor connector and body ground.

MAINSHAFT SPEED SENSOR CONNECTOR



Wire side of female terminals

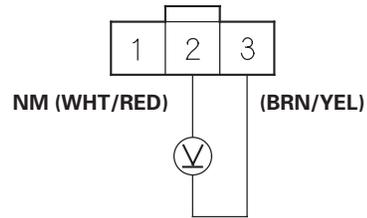
Is there continuity?

YES Go to step 17.

NO Repair open in the wire between the mainshaft speed sensor connector and ground (G101). ■

17. Connect PCM connector C (22P).
18. Turn the ignition switch ON (II).
19. Measure the voltage between the No. 2 and No. 3 terminals of the mainshaft speed sensor connector.

MAINSHAFT SPEED SENSOR CONNECTOR



Wire side of female terminals

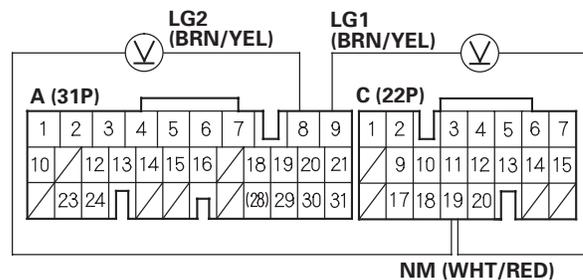
Is there about 5 V?

YES Go to step 20.

NO Go to step 32.

20. Connect the mainshaft speed sensor connector.
21. Measure the voltage between PCM connector terminals C19 and A8 or A9.

PCM CONNECTORS

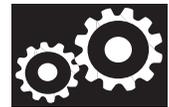


Wire side of female terminals

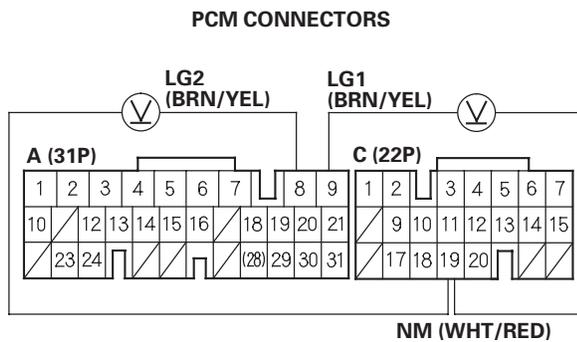
Is the voltage 0 V or about 5 V?

YES Go to step 22.

NO Replace the mainshaft speed sensor. After replacing the sensor, go to step 24, and check that the repair has been completed.



22. Shift to the **P** position. Start the engine, and let it idle.
23. With the engine idling, measure the voltage between PCM connector terminals C19 and A8 or A9.



Is there 1.5 V 3.5 V?

YES Update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

NO Replace the mainshaft speed sensor. After replacing the sensor, go to step 24, and check that the repair has been completed.

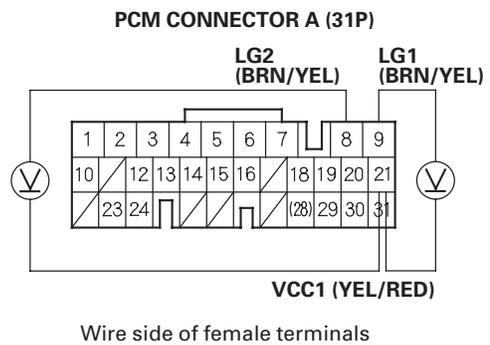
24. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
25. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
26. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0716.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

27. Measure the voltage between PCM connector terminals A21 and A8 or A9.



Is there 4.75 V 5.25 V?

YES Repair open in the wire between PCM connector terminal A21 and the mainshaft speed sensor connector. ■

NO Go to step 28.

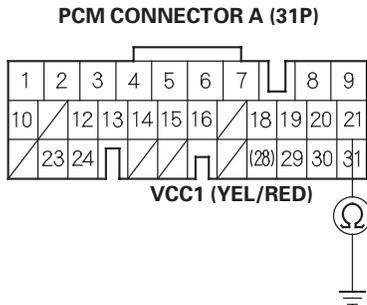
28. Turn the ignition switch OFF.
29. Jump the SCS line with the Honda PGM Tester or HDS.
30. Disconnect PCM connector A (31P).

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

31. Check for continuity between PCM connector terminal A21 and body ground.



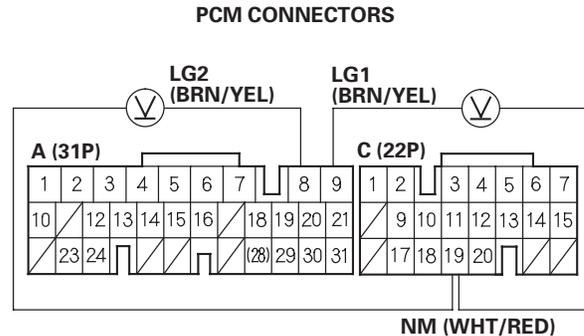
Wire side of female terminals

Is there continuity?

YES Repair short to ground in the wire between PCM connector terminal A21 and the mainshaft speed sensor connector. ■

NO Check for loose or poor connections at PCM connector terminal A21. If the connections are OK, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

32. Measure the voltage between PCM connector terminals C19 and A8 or A9.



Wire side of female terminals

Is there about 5 V?

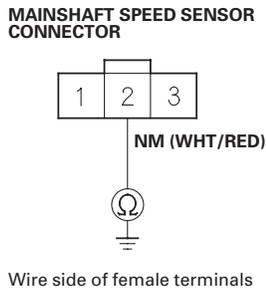
YES Repair open in the wire between PCM connector terminal C19 and the mainshaft speed sensor connector. ■

NO Check for loose or poor connections at PCM connector terminal C19. If the connections are OK, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

13. Turn the ignition switch OFF.
14. Jump the SCS line with the Honda PGM Tester or HDS.
15. Disconnect PCM connector C (22P).
16. Check for continuity between the No. 2 terminal of the mainshaft speed sensor connector and body ground.

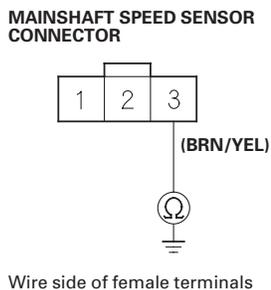


Is there continuity?

YES Repair short to ground in the wire between PCM connector terminal C19 and mainshaft speed sensor connector. ■

NO Go to step 17.

17. Check for continuity between the No. 3 terminal of the mainshaft speed sensor connector and body ground.

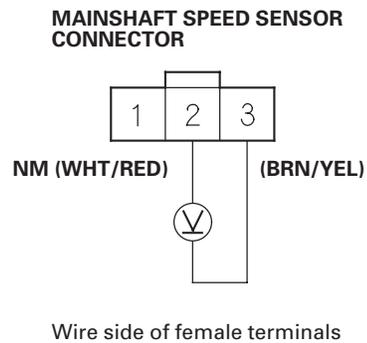


Is there continuity?

YES Go to step 18.

NO Repair open in the wire between the mainshaft speed sensor connector and ground (G101). ■

18. Reconnect PCM connectors C (22P), then turn the ignition switch ON (II).
19. Measure the voltage between the No. 2 and No. 3 terminals of the mainshaft speed sensor connector.

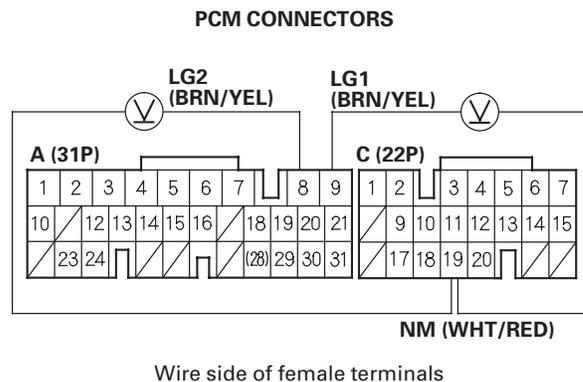


Is there about 5 V?

YES Go to step 20.

NO Go to step 32.

20. Connect the mainshaft speed sensor connector.
21. Measure the voltage between PCM connector terminals C19 and A8 or A9.



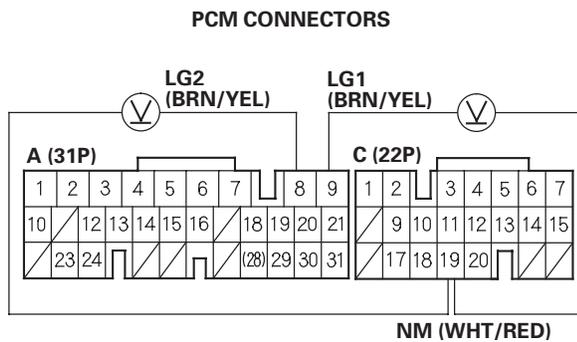
Is the voltage 0 V or about 5 V?

YES Go to step 22.

NO Replace the mainshaft speed sensor. After replacing the sensor, go to step 24, and check that the repair has been completed.



22. Shift to the **P** position. Start the engine, and let it idle.
23. With the engine idling, measure the voltage between PCM connector terminals C19 and A8 or A9.



Is there 1.5 V 3.5 V?

YES Update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

NO Replace the mainshaft speed sensor. After replacing the sensor, go to step 24, and check that the repair has been completed.

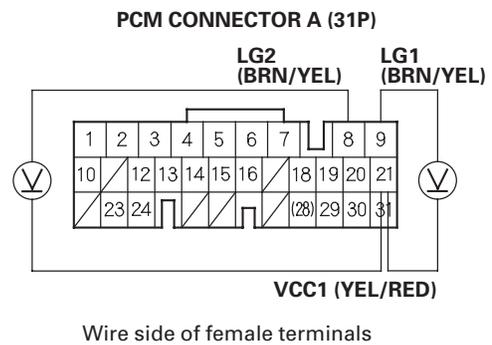
24. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
25. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
26. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0717.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

27. Measure the voltage between PCM connector terminals A21 and A8 or A9.



Is there 4.75 V 5.25 V?

YES Repair open in the wire between PCM connector terminal A21 and the mainshaft speed sensor connector. ■

NO Go to step 28.

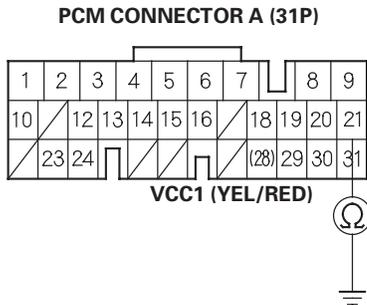
28. Turn the ignition switch OFF.
29. Jump the SCS line with the Honda PGM Tester or HDS.
30. Disconnect PCM connector A (31P).

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

31. Check for continuity between PCM connector terminal A21 and body ground.



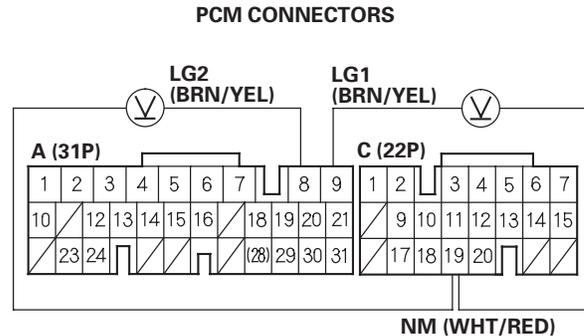
Wire side of female terminals

Is there continuity?

YES Repair short to ground in the wire between PCM connector terminal A21 and the mainshaft speed sensor connector. ■

NO Check for loose or poor connections at PCM connector terminal A21. If the connections are OK, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

32. Measure the voltage between PCM connector terminals C19 and A8 or A9.



Wire side of female terminals

Is there about 5 V?

YES Repair open in the wire between PCM connector terminal C19 and the mainshaft speed sensor connector. ■

NO Check for loose or poor connections at PCM connector terminal C19. If the connections are OK, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■



DTC P0718: Mainshaft Speed Sensor Intermittent Failure

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

- Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
- Test-drive the vehicle for 10 minutes under the same conditions as those indicated by the freeze data, and check the OBD STATUS in DTCs MENU for a pass/fail test of code P0718.

Did the result fail?

YES Go to step 3.

NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 2 and recheck. ■

- Turn the ignition switch OFF.
- Disconnect the mainshaft speed sensor connector, and inspect the connector and connector terminals to be sure they are making good contact.

Are the connector terminals OK?

YES Go to step 5.

NO Repair the connector terminals, then go to step 5.

- Connect the mainshaft speed sensor connector.
- Test-drive the vehicle for several minutes, and check the OBD STATUS in DTCs MENU for a pass/fail test of code P0718.

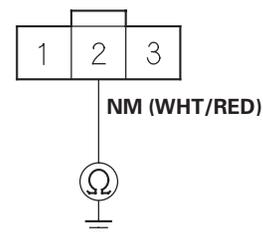
Did the result fail?

YES Go to step 7.

NO The problem has been corrected. If the tester tells you NOT COMPLETE, return to step 6 and recheck. ■

- Turn the ignition switch OFF.
- Jump the SCS line with the Honda PGM Tester or HDS.
- Disconnect PCM connector C (22P).
- Disconnect the mainshaft speed sensor connector.
- Check for continuity between the No. 2 terminal of the mainshaft speed sensor connector and body ground.

MAINSHAFT SPEED SENSOR CONNECTOR



Wire side of female terminals

Is there continuity?

YES Repair short to ground in the wire between PCM connector terminal C19 and the mainshaft speed sensor connector. ■

NO Go to step 12.

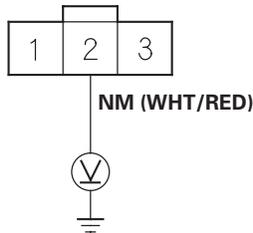
(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

12. Reconnect PCM connector C (22P).
13. Turn the ignition switch ON (II).
14. Measure the voltage between the No. 2 terminal of the mainshaft speed sensor connector and body ground.

MAINSHAFT SPEED SENSOR CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES Replace the mainshaft speed sensor. After replacing the sensor, go to step 15, and check that the repair has been completed.

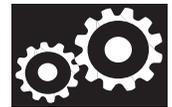
NO Check for loose or poor connections at PCM connector terminal C19 or an open in the wire between PCM connector terminal C19 and the mainshaft speed sensor connector. If the wire is OK, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

15. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
16. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
17. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0718.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■



DTC P0721: Problem in Countershaft Speed Sensor Circuit

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
2. Raise the front of the vehicle, make sure it is securely supported, and allow the front wheels to rotate freely.
3. Start the engine, drive the vehicle in the **D** position, and hold the vehicle at speeds over 30 mph (48 km/h) for more than 10 seconds. Slow down and stop the wheels.
4. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0721.

Did the result fail?

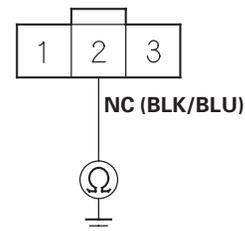
YES Go to step 5.

NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 3 and recheck. ■

5. Turn the ignition switch OFF.
6. Jump the SCS line with the Honda PGM Tester or HDS.
7. Disconnect the countershaft speed sensor connector, and PCM connector A (31P).

8. Check for continuity between the No. 2 terminal of the countershaft speed sensor connector and body ground.

COUNTERSHAFT SPEED SENSOR CONNECTOR



Wire side of female terminals

Is there continuity?

YES Repair short to ground in the wire between PCM connector terminal A18 and the countershaft speed sensor connector. ■

NO Go to step 9.

9. Connect PCM connector A (31P).
10. Turn the ignition switch ON (II).

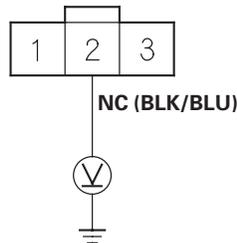
(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

11. Measure the voltage between the No. 2 terminal of the countershaft speed sensor connector and body ground.

COUNTERSHAFT SPEED SENSOR CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES Replace the countershaft speed sensor. After replacing the sensor, go to step 12, and check that the repair has been completed.

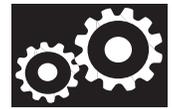
NO Check for loose or poor connections at PCM connector terminal A18 or an open in the wire between PCM connector terminal A18 and the countershaft speed sensor connector. If the wire is OK, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

12. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
13. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
14. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0721.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■



DTC P0722: Problem in Countershaft Speed Sensor Circuit (No Signal Input)

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

- Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
- Raise the front of the vehicle, make sure it is securely supported, and allow the front wheels to rotate freely.
- Start the engine, drive the vehicle in the **D** position, and hold the vehicle at speeds over 30 mph (48 km/h) for more than 10 seconds.
- Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0722.

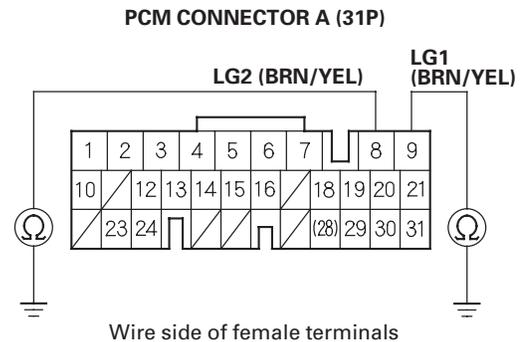
Did the result fail?

YES Go to step 5.

NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 3 and recheck. ■

- Turn the ignition switch OFF.
- Jump the SCS line with the Honda PGM Tester or HDS.
- Disconnect PCM connector A (31P) and countershaft speed sensor connector.

- Check for continuity between PCM connector terminals A8 and body ground, and between A9 and body ground.



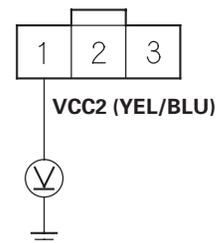
Is there continuity?

YES Go to step 9.

NO Repair open in the wires between PCM connector terminals A8 and ground (G101), between A9 and ground (G101), and repair poor ground (G101). ■

- Connect PCM connector A (31P).
- Turn the ignition switch ON (II).
- Measure the voltage between No. 1 terminal of the countershaft speed sensor connector and body ground.

COUNTERSHAFT SPEED SENSOR CONNECTOR



Is there about 5 V?

YES Go to step 12.

NO Go to step 27.

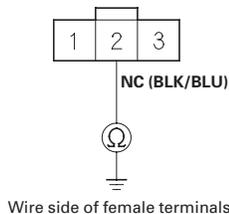
(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

12. Turn the ignition switch OFF.
13. Jump the SCS line with the Honda PGM Tester or HDS.
14. Disconnect PCM connector A (31P).
15. Check for continuity between the No. 2 terminal of the countershaft speed sensor connector and body ground.

COUNTERSHAFT SPEED SENSOR CONNECTOR



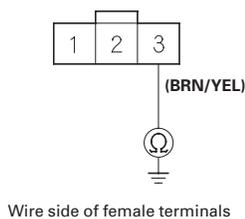
Is there continuity?

YES Repair short to ground in the wire between PCM connector terminal A18 and countershaft speed sensor connector. ■

NO Go to step 16.

16. Check for continuity between the No. 3 terminal of the countershaft speed sensor connector and body ground.

COUNTERSHAFT SPEED SENSOR CONNECTOR



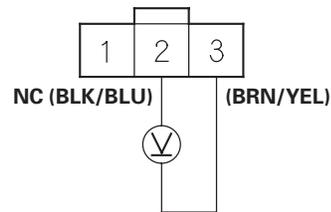
Is there continuity?

YES Go to step 17.

NO Repair open in the wire between the countershaft speed sensor connector and ground (G101). ■

17. Reconnect PCM connector A (31P).
18. Turn the ignition switch ON (II).
19. Measure the voltage between the No. 2 and No. 3 terminals of the countershaft speed sensor connector.

COUNTERSHAFT SPEED SENSOR CONNECTOR



Wire side of female terminals

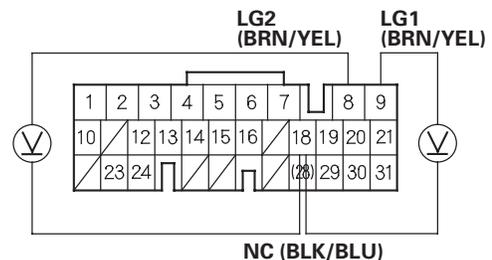
Is there about 5 V?

YES Go to step 20.

NO Go to step 32.

20. Connect the countershaft speed sensor connector.
21. Measure the voltage between PCM connector terminals A18 and A8 or A9.

PCM CONNECTOR A (31P)

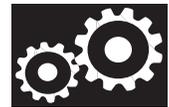


Wire side of female terminals

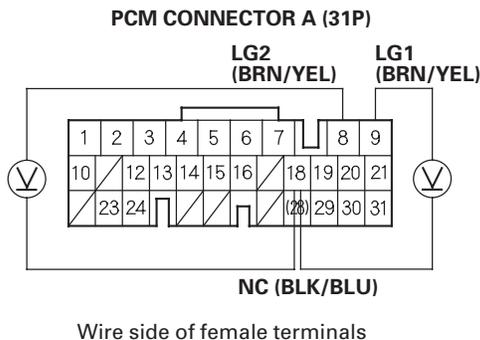
Is the voltage 0 V or about 5 V?

YES Go to step 22.

NO Replace the countershaft speed sensor. After replacing the sensor, go to step 24, and check that the repair has been completed.



22. Shift to the **P** position. Start the engine, and let it idle.
23. Shift to the **D** position, and measure the voltage between PCM connector terminals A18 and A8 or A9.



Is there 1.5 V 3.5 V?

YES Update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

NO Replace the countershaft speed sensor. After replacing the sensor, go to step 24, and check that the repair has been completed.

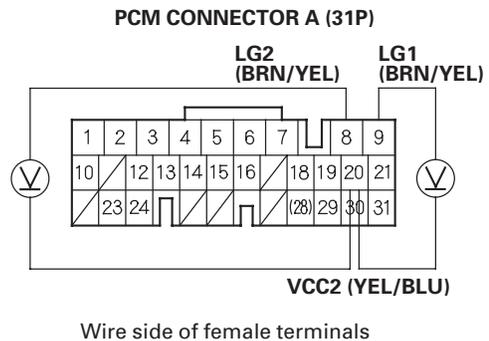
24. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
25. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
26. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0722.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

27. Measure the voltage between PCM connector terminals A20 and A8 or A9.



Is there 4.75 V 5.25 V?

YES Repair open in the wire between PCM connector terminal A20 and the countershaft speed sensor connector. ■

NO Go to step 28.

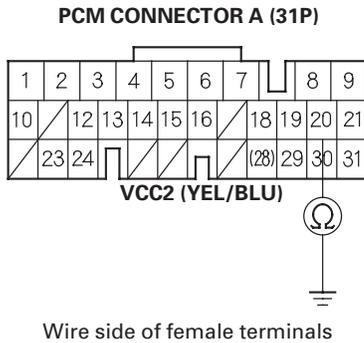
28. Turn the ignition switch OFF.
29. Jump the SCS line with the Honda PGM Tester or HDS.
30. Disconnect PCM connector A (31P).

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

31. Check for continuity between PCM connector terminal A20 and body ground.

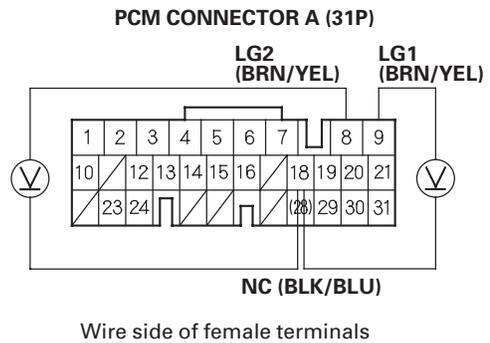


Is there continuity?

YES Repair short to ground in the wire between PCM connector terminal A20 and the countershaft speed sensor connector. ■

NO Check for loose or poor connections at PCM connector terminal A20. If the connections are OK, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

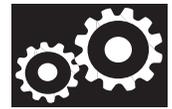
32. Measure the voltage between PCM connector terminals A18 and A8 or A9.



Is there about 5 V?

YES Repair open in the wire between PCM connector terminal A18 and the countershaft speed sensor connector. ■

NO Check for loose or poor connections at PCM connector terminal A18. If the connections are OK, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■



DTC P0723: Countershaft Speed Sensor Intermittent Failure

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

- Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
- Test-drive the vehicle for 10 minutes under the same conditions as those indicated by the freeze data, and check the OBD STATUS in DTCs MENU for a pass/fail test of code P0723.

Did the result fail?

YES Go to step 3.

NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 2 and recheck. ■

- Turn the ignition switch OFF.
 - Disconnect the countershaft speed sensor connector, and inspect the connector and connector terminals to be sure they are making good contact.
- Are the connector terminals OK?*
- YES** Go to step 5.
- NO** Repair the connector terminals, then go to step 5.
- Connect the countershaft speed sensor connector.
 - Test-drive the vehicle for several minutes, and check the OBD STATUS in DTCs MENU for a pass/fail test of code P0723.

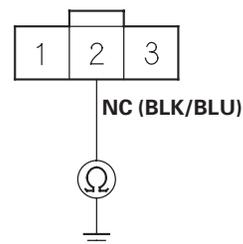
Did the result fail?

YES Go to step 7.

NO The problem has been corrected. If the tester tells you NOT COMPLETE, return to step 6 and recheck. ■

- Turn the ignition switch OFF.
- Jump the SCS line with the Honda PGM Tester or HDS.
- Disconnect PCM connector A (31P).
- Disconnect the countershaft speed sensor connector.
- Check for continuity between the No. 2 terminal of the countershaft speed sensor connector and body ground.

COUNTERSHAFT SPEED SENSOR CONNECTOR



Wire side of female terminals

Is there continuity?

YES Repair short to ground in the wire between PCM connector terminal A18 and the mainshaft speed sensor connector. ■

NO Go to step 12.

- Connect PCM connector A (31P).
- Turn the ignition switch ON (II).

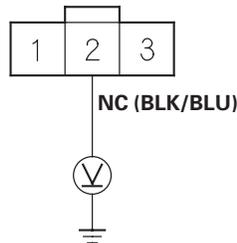
(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

14. Measure the voltage between the No. 2 terminal of the countershaft speed sensor connector and body ground.

COUNTERSHAFT SPEED SENSOR CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES Replace the countershaft speed sensor. After replacing the sensor, go to step 15, and check that the repair has been completed.

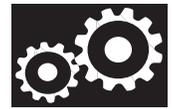
NO Check for an open in the wire between PCM connector terminal A18 and the countershaft speed sensor connector. If the wire is OK, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

15. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
16. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
17. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0723.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■



DTC P0797: A/T Clutch Pressure Control Solenoid Valve C Stuck ON

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Check to be sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Check for deterioration in the quality of ATF.
Has the ATF deteriorated?
YES Replace ATF (see page 14-179), and test-drive the vehicle under the same conditions as those indicated by the freeze data, then recheck.
NO Go to step 4.
4. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
5. Select LINEAR SOL TEST in MISC. TEST MENU, then carry out LINEAR SOL C TEST in LINEAR SOL TEST MENU.
Is the system OK?
YES Intermittent failure, the system is OK at this time. ■
NO Go to step 6.
6. Inspect the A/T clutch pressure control solenoid valve C (see page 14-168).
Does the A/T clutch pressure control solenoid valve C work properly?
YES Shift valves B and C may be stuck, repair hydraulic system related with shift valves B and C, or replace the transmission. ■
NO Replace the A/T clutch pressure control solenoid valve C (see page 14-169). After replacing the solenoid valve, go to step 7, and check that the repair has been completed.
7. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.

8. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
9. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0797.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0752: Shift Solenoid Valve A Stuck ON

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Check to be sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Check for deterioration in the quality of ATF.

Has the ATF deteriorated?

YES Replace ATF (see page 14-179), and test-drive the vehicle under the same conditions as those indicated by the freeze data, then recheck.

NO Go to step 4.

4. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
5. Select SHIFT SOL TEST in MISC. TEST MENU, then carry out A/T SHIFT SOL A test in SHIFT SOL TEST MENU with the Honda PGM Tester or HDS.

Is a clicking sound heard?

YES Go to step 6.

NO Faulty shift solenoid valve A, replace it (see page 14-166). After replacing the shift solenoid valve, go to step 8, and check that the repair has been completed.

6. Test-drive the vehicle in the **D** position in all five gears at speeds over 10 mph (16 km/h) for 20 seconds.
7. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0752.

Did the result fail?

YES Repair shift valve A, or replace the transmission. ■

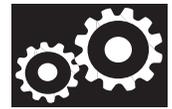
NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 6 and recheck. ■

8. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
9. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
10. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0752.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■



DTC P0756: Shift Solenoid Valve B Stuck OFF

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Check to be sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Check for deterioration in the quality of ATF.

Has the ATF deteriorated?

YES Replace ATF (see page 14-179), and test-drive the vehicle under the same conditions as those indicated by the freeze data, then recheck.

NO Go to step 4.

4. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
5. Select SHIFT SOL TEST in MISC. TEST MENU, then carry out A/T SHIFT SOL B test in SHIFT SOL TEST MENU with the Honda PGM Tester or HDS.

Is a clicking sound heard?

YES Go to step 6.

NO Faulty shift solenoid valve B, replace it (see page 14-166). After replacing the shift solenoid valve, go to step 8, and check that the repair has been completed.

6. Test-drive the vehicle in the **D** position in all five gears at speeds over 10 mph (16 km/h) for 20 seconds.
7. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0756.

Did the result fail?

YES Repair shift valve B, or replace the transmission. ■

NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 6 and recheck. ■

8. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
9. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
10. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0756.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0757: Shift Solenoid Valve B Stuck ON

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Check to be sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Check for deterioration in the quality of ATF.

Has the ATF deteriorated?

YES Replace ATF (see page 14-179), and test-drive the vehicle under the same conditions as those indicated by the freeze data, then recheck.

NO Go to step 4.

4. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
5. Select SHIFT SOL TEST in MISC. TEST MENU, then carry out A/T SHIFT SOL B test in SHIFT SOL TEST MENU with the Honda PGM Tester or HDS.

Is a clicking sound heard?

YES Go to step 4.

NO Faulty shift solenoid valve B, replace it (see page 14-166). After replacing the shift solenoid valve, go to step 8, and check that the repair has been completed.

6. Test-drive the vehicle in the **D** position in all five gears at speeds over 10 mph (16 km/h) for 20 seconds.
7. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0757.

Did the result fail?

YES Repair shift valve B, or replace the transmission. ■

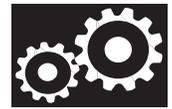
NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 6 and recheck. ■

8. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
9. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
10. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0757.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■



DTC P0761: Shift Solenoid Valve C Stuck OFF

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Check to be sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Check for deterioration in the quality of ATF.

Has the ATF deteriorated?

YES Replace ATF (see page 14-179), and test-drive the vehicle under the same conditions as those indicated by the freeze data, then recheck.

NO Go to step 4.

4. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
5. Select SHIFT SOL TEST in MISC. TEST MENU, then carry out A/T SHIFT SOL C test in SHIFT SOL TEST MENU with the Honda PGM Tester or HDS.

Is a clicking sound heard?

YES Go to step 6.

NO Faulty shift solenoid valve C, replace it (see page 14-166). After replacing the shift solenoid valve, go to step 8, and check that the repair has been completed.

6. Test-drive the vehicle in the **D** position in all five gears at speeds over 10 mph (16 km/h) for 20 seconds.
7. Check the OBD STATUS in DTCs MENU for a pass/fail Test of code P0761.

Did the result fail?

YES Repair shift valve C, or replace the transmission. ■

NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 6 and recheck. ■

8. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
9. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
10. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0761.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0771: Shift Solenoid Valve E Stuck OFF

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Check to be sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Check for deterioration in the quality of ATF.

Has the ATF deteriorated?

YES Replace ATF (see page 14-179), and test-drive the vehicle under the same conditions as those indicated by the freeze data, then recheck.

NO Go to step 4.

4. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
5. Select SHIFT SOL TEST in MISC. TEST MENU, then carry out A/T SHIFT SOL E test in SHIFT SOL TEST MENU with the Honda PGM Tester or HDS.

Is a clicking sound heard?

YES Go to step 6.

NO Faulty shift solenoid valve E, replace it (see page 14-166). After replacing the shift solenoid valve, go to step 8, and check that the repair has been completed.

6. Test-drive the vehicle in the **D** position in all five gears at speeds over 10 mph (16 km/h) for 20 seconds.
7. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0771.

Did the result fail?

YES Repair shift valve E, or replace the transmission. ■

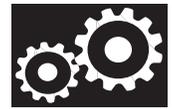
NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 6 and recheck. ■

8. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
9. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
10. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0771.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■



DTC P0776: A/T Clutch Pressure Control Solenoid Valve B Stuck OFF

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Check to be sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Check for deterioration in the quality of ATF.
Has the ATF deteriorated?
YES Replace ATF (see page 14-179), and test-drive the vehicle under the same conditions as those indicated by the freeze data, then recheck.
NO Go to step 4.
4. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
5. Select LINEAR SOL TEST in MISC. TEST MENU, then carry out LINEAR SOL B TEST in LINEAR SOL TEST MENU.
Is the system OK?
YES Intermittent failure, the system is OK at this time. ■
NO Go to step 6.
6. Inspect the A/T clutch pressure control solenoid valve B (see page 14-170).
Does the A/T clutch pressure control solenoid valve B work properly?
YES Shift valve B may be stuck, repair hydraulic system related with shift valve B, or replace the transmission. ■
NO Replace the A/T clutch pressure control solenoid valve B (see page 14-171). After replacing the solenoid valve, go to step 7, and check that the repair has been completed.
7. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.

8. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
9. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0776.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0777: A/T Clutch Pressure Control Solenoid Valve B Stuck ON

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Check to be sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Check for deterioration in the quality of ATF.
Has the ATF deteriorated?
YES Replace ATF (see page 14-179), and test-drive the vehicle under the same conditions as those indicated by the freeze data, then recheck.
NO Go to step 4.
4. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
5. Select LINEAR SOL TEST in MISC. TEST MENU, then carry out LINEAR SOL B TEST in LINEAR SOL TEST MENU.

Is the system OK?

YES Intermittent failure, the system is OK at this time. ■

NO Go to step 6.

6. Inspect the A/T clutch pressure control solenoid valve B (see page 14-170).

Does the A/T clutch pressure control solenoid valve B work properly?

YES Shift valve B may be stuck, repair hydraulic system related with shift valve B, or replace the transmission. ■

NO Replace the A/T clutch pressure control solenoid valve B (see page 14-171). After replacing the solenoid valve, go to step 7, and check that the repair has been completed.

7. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.

8. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
9. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0777.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■



DTC P0780: Shift Control System

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

1. Check for other DTCs indicated simultaneous with the code P0780.

NOTE: P0780 means there is one or more A/T DTCs about the shift control system.

Is there other DTCs?

YES Go to step 2.

NO Update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

2. Perform the troubleshooting flowchart for the indicated codes:

- P1730: (see page 14-154).
- P1731: (see page 14-155).
- P1732: (see page 14-156).
- P1733: (see page 14-157).
- P1734: (see page 14-158).

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0796: A/T Clutch Pressure Control Solenoid Valve C Stuck OFF

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Check to be sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Check for deterioration in the quality of ATF.
Has the ATF deteriorated?
YES Replace ATF (see page 14-179), and test-drive the vehicle under the same conditions as those indicated by the freeze data, then recheck.
NO Go to step 4.
4. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
5. Select LINEAR SOL TEST in MISC. TEST MENU, then carry out LINEAR SOL C TEST in LINEAR SOL TEST MENU.
Is the system OK?
YES Intermittent failure, the system is OK at this time. ■
NO Go to step 6.
6. Inspect the A/T clutch pressure control solenoid valve C (see page 14-170).
Does the A/T clutch pressure control solenoid valve C work properly?
YES Shift valves B and C may be stuck, repair hydraulic system related with shift valves B and C, or replace the transmission. ■
NO Replace the A/T clutch pressure control solenoid valve C (see page 14-171). After replacing the solenoid valve, go to step 7, and check that the repair has been completed.
7. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.

8. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
9. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0796.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■



DTC P0797: A/T Clutch Pressure Control Solenoid Valve C Stuck ON

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Check to be sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Check for deterioration in the quality of ATF.
Has the ATF deteriorated?
YES Replace ATF (see page 14-179), and test-drive the vehicle under the same conditions as those indicated by the freeze data, then recheck.
NO Go to step 4.
4. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
5. Select LINEAR SOL TEST in MISC. TEST MENU, then carry out LINEAR SOL C TEST in LINEAR SOL TEST MENU.

Is the system OK?

YES Intermittent failure, the system is OK at this time. ■

NO Go to step 6.

6. Inspect the A/T clutch pressure control solenoid valve C (see page 14-170).

Does the A/T clutch pressure control solenoid valve C work properly?

YES Shift valves B and C may be stuck, repair hydraulic system related with shift valves B and C, or replace the transmission. ■

NO Replace the A/T clutch pressure control solenoid valve C (see page 14-171). After replacing the solenoid valve, go to step 7, and check that the repair has been completed.

7. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.

8. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.

9. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0797.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0812: Open in Transmission Range Switch ATP RVS Switch Circuit

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch ON (II).
2. Shift the shift lever into the **R** position, and verify the A/T R SWITCH signal with the PGM Tester or HDS in the A/T data list.

Is the A/T R SWITCH ON?

YES Go to step 3.

NO Inspect the end of the selector control shaft (see step 6 on page 14-215), adjust the shift cable (see page 14-208), then recheck. ■

3. Check the REVERSE SWITCH signal with the PGM Tester or HDS.

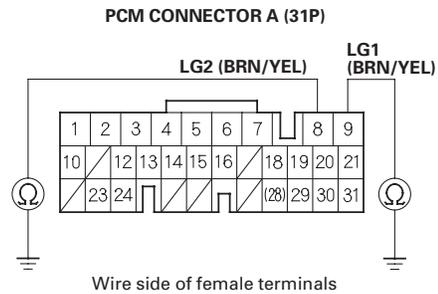
Is the REVERSE SWITCH ON?

YES Intermittent failure, the system is OK at this time. ■

NO Go to step 4.

4. Turn the ignition switch OFF.

5. Check for continuity between PCM connector terminals A8 and body ground, and between A9 and body ground.

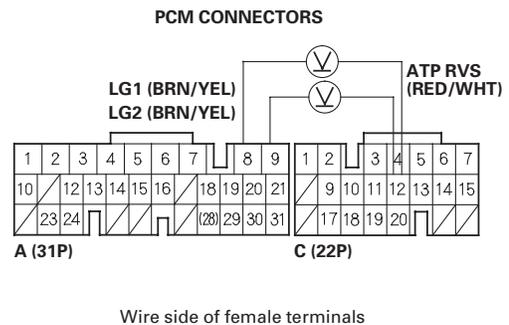


Is there continuity?

YES Go to step 6.

NO Repair open in the wires between PCM connector terminals A8, A9, and ground (G101), and repair poor ground (G101). ■

6. Turn the ignition switch ON (II).
7. Shift to the **R** position.
8. Measure the voltage between PCM connector terminals C12 and A8 or A9.



Is there voltage?

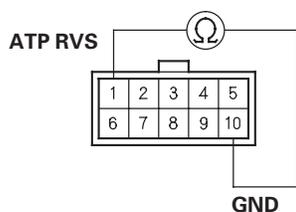
YES Go to step 9.

NO Check for loose or poor connections at PCM connector terminal C12. If the connections are OK, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■



9. Turn the ignition switch OFF.
10. Disconnect the transmission range switch connector.
11. Check for continuity between the No. 1 and No. 10 terminals at the transmission range switch. The shift position must be **R**.

TRANSMISSION RANGE SWITCH CONNECTOR



Terminal side of male terminals

Is there continuity?

YES Repair open in the wire between PCM connector terminal C12 and the transmission range switch. ■

NO Replace the transmission range switch. After replacing the switch, go to step 12, and check that the repair has been completed.

12. Clear the DTC in CLEAR MENU with Honda PGM Tester or HDS.
13. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
14. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0812.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0842: Short in 2nd Clutch Transmission Fluid Pressure Switch Circuit, or 2nd Clutch Transmission Fluid Pressure Switch Stuck ON

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

- Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
- Check the 2nd PRES SWITCH signal with the Honda PGM Tester or HDS in the A/T data list when not in 2nd gear.

Is the 2nd PRES SWITCH OFF?

YES Go to step 3.

NO Go to step 5.

- Start the engine, and warm it up to normal operating temperature (the radiator fan comes on). Drive the vehicle in 2nd gear in the **2** position for about 5 seconds, then shift to the **D** position, and drive in 4th gear for about 5 seconds. Slow down and stop the wheels.
- Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0842.

Did the result fail?

YES Go to step 5.

NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 3 and recheck. ■

- Turn the ignition switch OFF.
- Disconnect the 2nd clutch transmission fluid pressure switch connector.
- Turn the ignition switch ON (II).

- Check the 2nd PRES SWITCH signal with the Honda PGM Tester or HDS in the A/T data list.

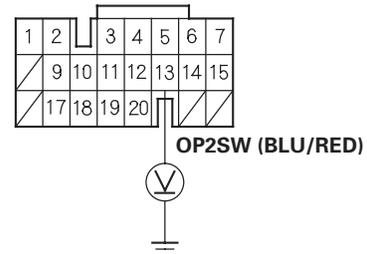
Is the 2nd PRES SWITCH OFF?

YES Replace the 2nd clutch transmission fluid pressure switch. After replacing the switch, go to step 13, and check that the repair has been completed.

NO Go to step 9.

- Turn the ignition switch OFF.
- Jump the SCS line with the Honda PGM Tester or HDS.
- Disconnect PCM connector C (22P).
- Check for continuity between PCM connector terminal C13 and body ground.

PCM CONNECTOR C (22P)



Wire side of female terminals

Is there continuity?

YES Repair short to ground in the wire between PCM connector terminal C13 and the 2nd clutch transmission fluid pressure switch. ■

NO Update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■



-
13. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
 14. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
 15. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0842.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0843: Open in 2nd Clutch Transmission Fluid Pressure Switch Circuit, or 2nd Clutch Transmission Fluid Pressure Switch Stuck OFF

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
2. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on). Shift into the **[2]** position while pressing the brake pedal, and verify that the SHIFT MAP NUMBER indicates 2nd with the Honda PGM Tester or HDS in the A/T data list.
3. Check the 2nd PRES SWITCH signal with the Honda PGM Tester or HDS in the A/T data list.

Is the 2nd PRES SWITCH ON?

YES Go to step 4.

NO Go to step 6.

4. Drive the vehicle in 2nd gear in the **[2]** position for about 5 seconds, then shift to the **[D]** position, and drive in 4th gear for about 5 seconds. Slow down and stop the wheels.
5. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0843.

Did the result fail?

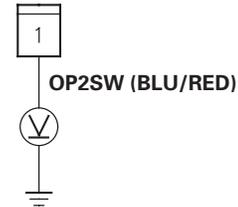
YES Go to step 6.

NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 4 and recheck. ■

6. Turn the ignition switch OFF.
7. Disconnect the 2nd clutch transmission fluid pressure switch connector.
8. Turn the ignition switch ON (II).

9. Measure the voltage between the 2nd clutch transmission fluid pressure switch connector terminal and body ground.

2ND CLUTCH TRANSMISSION FLUID PRESSURE SWITCH CONNECTOR

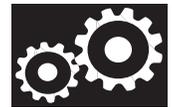


Wire side of female terminals

Is there about 5 V?

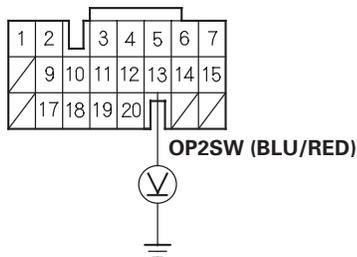
YES Replace the 2nd clutch transmission fluid pressure switch. After replacing the switch, go to step 11, and check that the repair has been completed.

NO Go to step 10.



10. Measure the voltage between PCM connector terminal C13 and body ground.

PCM CONNECTOR C (22P)



Wire side of female terminals

Is there about 5 V?

YES Repair open in the wire between PCM connector terminal C13 and the 2nd clutch transmission fluid pressure switch. ■

NO Check for loose or poor connections at PCM connector terminal C13. If the connections are OK, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

11. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
12. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
13. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0843.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0847: Short in 3rd Clutch Transmission Fluid Pressure Switch Circuit, or 3rd Clutch Transmission Fluid Pressure Switch Stuck ON

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

- Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
- Check the 3rd PRES SWITCH signal with the Honda PGM Tester or HDS in the A/T data list when not in 3rd gear.

Is the 3rd PRES SWITCH ON?

YES Go to step 3.

NO Go to step 5.

- Start the engine, and warm it up to normal operating temperature (the radiator fan comes on). Drive the vehicle in 3rd gear in the **D₃** position for about 5 seconds, then shift to the **D₁** position, and drive in 4th gear for about 5 seconds. Slow down and stop the wheels.
- Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0847.

Did the result fail?

YES Go to step 5.

NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 3 and recheck. ■

- Turn the ignition switch OFF.
- Disconnect the 3rd clutch transmission fluid pressure switch connector.
- Turn the ignition switch ON (II).

- Check the 3rd PRES SWITCH signal with the Honda PGM Tester or HDS in the A/T data list.

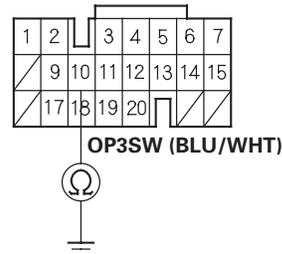
Is the 3rd PRES SWITCH OFF?

YES Replace the 3rd clutch transmission fluid pressure switch. After replacing the switch, go to step 13, and check that the repair has been completed.

NO Go to step 9.

- Turn the ignition switch OFF.
- Jump the SCS line with the Honda PGM Tester or HDS.
- Disconnect PCM connector C (22P).
- Check for continuity between PCM connector terminal C10 and body ground.

PCM CONNECTOR C (22P)



Wire side of female terminals

Is there continuity?

YES Repair short to ground in the wire between PCM connector terminal C10 and the 3rd clutch transmission fluid pressure switch. ■

NO Update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■



-
13. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
 14. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
 15. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0847.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0848: Open in 3rd Clutch Transmission Fluid Pressure Switch Circuit, or 3rd Clutch Transmission Fluid Pressure Switch Stuck OFF

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

- Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
- Start the engine, and warm it up to normal operating temperature (the radiator fan comes on). Drive the vehicle in the 3rd gear in the **D₃** position, and verify that the SHIFT MAP NUMBER indicates 3rd with the Honda PGM Tester or HDS in the A/T data list.
- Check the 3rd PRES SWITCH signal with the Honda PGM Tester or HDS in the A/T data list.

Is the 3rd PRES SWITCH ON?

YES Go to step 4.

NO Go to step 6.

- Drive the vehicle in 3rd gear in the **D₃** position for about 5 seconds, then shift to **D** position, and drive in 4th gear for about 5 seconds. Slow down and stop the wheels.
- Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0848.

Did the result fail?

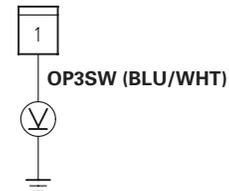
YES Go to step 6.

NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 4 and recheck. ■

- Turn the ignition switch OFF.
- Disconnect the 3rd clutch transmission fluid pressure switch connector.
- Turn the ignition switch ON (II).

- Measure the voltage between the 3rd clutch transmission fluid pressure switch connector terminal and body ground.

3RD CLUTCH TRANSMISSION FLUID PRESSURE SWITCH CONNECTOR



Wire side of female terminals

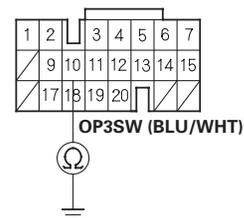
Is there about 5 V?

YES Replace the 3rd clutch transmission fluid pressure switch. After replacing the switch, go to step 11, and check that the repair has been completed.

NO Go to step 10.

- Measure the voltage between PCM connector terminal C10 and body ground.

PCM CONNECTOR C (22P)

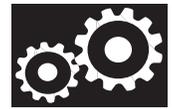


Wire side of female terminals

Is there about 5 V?

YES Repair open in the wire between PCM connector terminal C10 and the 3rd clutch transmission fluid pressure switch. ■

NO Check for loose or poor connections at PCM connector terminal C10. If the connections are OK, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■



-
11. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
 12. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
 13. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0848.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0962: Problem in A/T Clutch Pressure Control Solenoid Valve A Circuit

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.

2. Check that DTC P0962 recurs.

Is DTC P0962 indicated?

YES Go to step 6.

NO Go to step 3.

3. Select P CTRL SOL CONTROL in MISC. TEST MENU, then select P. CONTROL SOL A in P CTRL SOL CTRL MENU with the Honda PGM Tester or HDS.

4. Drive the A/T clutch pressure control solenoid valve A with 1.0 A in SOL A CONTROL menu.

5. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0962.

Did the result fail?

YES Go to step 6.

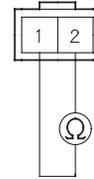
NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 3 and recheck. ■

6. Turn the ignition switch OFF.

7. Disconnect the A/T clutch pressure control solenoid valve A connector.

8. Measure A/T clutch pressure control solenoid valve A resistance at the solenoid connector.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A CONNECTOR



Terminal side of male terminals

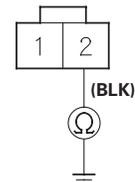
Is there $3 \pm 10 \Omega$?

YES Go to step 9.

NO Replace the A/T clutch pressure control solenoid valve A (see page 14-169). After replacing the solenoid valve, go to step 12, and check that the repair has been completed.

9. Check for continuity between the No. 2 terminal of the A/T clutch pressure control solenoid valve A connector and body ground.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A CONNECTOR



Wire side of female terminals

Is there continuity?

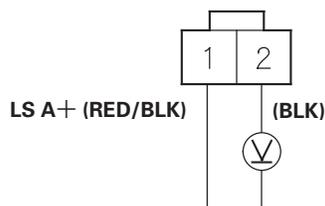
YES Go to step 10.

NO Repair open in the wire between the A/T clutch pressure control solenoid valve A and ground (G101), or repair poor ground (G101). ■



10. Turn the ignition switch ON (II).
11. Measure the voltage between terminals of the A/T clutch pressure control solenoid valve A connector.

**A/T CLUTCH PRESSURE CONTROL
SOLENOID VALVE A CONNECTOR**



Wire side of female terminals

Is there about 11 V as the ignition switch is turned to the ON (II) position?

YES Update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

NO Repair open or short in the wire between PCM connector terminal C1 and A/T clutch pressure control solenoid valve A. ■

12. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
13. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
14. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0962.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0963: Problem in A/T Clutch Pressure Control Solenoid Valve A

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

- Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
- Check that DTC P0963 recurs.

Is DTC P0963 indicated?

YES Go to step 6.

NO Go to step 3.

- Select P CTRL SOL CONTROL in MISC. TEST MENU, then select P. CONTROL SOL A in P CTRL SOL CTRL MENU with the Honda PGM Tester or HDS.
- Drive the A/T clutch pressure control solenoid valve A with 0.2 A in SOL A CONTROL menu.
- Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0963.

Did the result fail?

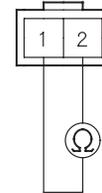
YES Go to step 6.

NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 3 and recheck. ■

- Turn the ignition switch OFF.
- Disconnect the A/T clutch pressure control solenoid valve A connector.

- Measure A/T clutch pressure control solenoid valve A resistance at the solenoid connector.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A CONNECTOR



Terminal side of male terminals

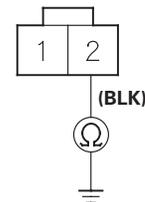
Is there about 3 10 Ω ?

YES Go to step 9.

NO Replace the A/T clutch pressure control solenoid valve A (see page 14-169). After replacing the solenoid valve, go to step 10, and check that the repair has been completed.

- Check for continuity between the No. 2 terminal of the A/T clutch pressure control solenoid valve A connector and body ground.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A CONNECTOR



Wire side of female terminals

Is there continuity?

YES Update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

NO Repair open in the wire between the A/T clutch pressure control solenoid valve A and ground (G101), or repair poor ground (G101). ■



-
10. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
 11. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
 12. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0963.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0966: Problem in A/T Clutch Pressure Control Solenoid Valve B Circuit

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

- Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
- Check that DTC P0966 recurs.

Is DTC P0966 indicated?

YES Go to step 6.

NO Go to step 3.

- Select P CTRL SOL CONTROL in MISC. TEST MENU, then select P. CONTROL SOL B in P CTRL SOL CTRL MENU with the Honda PGM Tester or HDS.
- Drive the A/T clutch pressure control solenoid valve B with 1.0 A in SOL B CONTROL menu.
- Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0966.

Did the result fail?

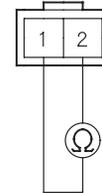
YES Go to step 6.

NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 3 and recheck. ■

- Turn the ignition switch OFF.
- Disconnect the A/T clutch pressure control solenoid valve B connector.

- Measure A/T clutch pressure control solenoid valve B resistance at the solenoid connector.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B CONNECTOR



Terminal side of male terminals

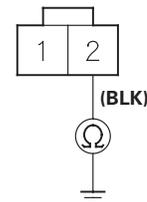
Is there 3 10 Ω ?

YES Go to step 9.

NO Replace the A/T clutch pressure control solenoid valve B (see page 14-171). After replacing the solenoid valve, go to step 12, and check that the repair has been completed.

- Check for continuity between the No. 2 terminal of the A/T clutch pressure control solenoid valve B connector and body ground.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B CONNECTOR

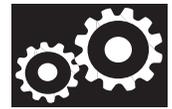


Wire side of female terminals

Is there continuity?

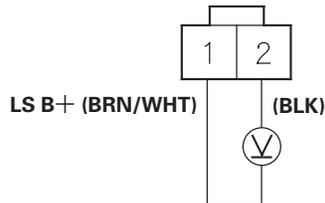
YES Go to step 10.

NO Repair open in the wire between the A/T clutch pressure control solenoid valve B and ground (G101), or repair poor ground (G101). ■



10. Turn the ignition switch ON (II).
11. Measure the voltage between terminals of the A/T clutch pressure control solenoid valve B connector.

**A/T CLUTCH PRESSURE CONTROL
SOLENOID VALVE B CONNECTOR**



Wire side of female terminals

Is there about 11 V as the ignition switch is turned to the ON (II) position?

YES Update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

NO Repair open or short in the wire between PCM connector terminal C15 and A/T clutch pressure control solenoid valve B. ■

12. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
13. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
14. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0966.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0967: Problem in A/T Clutch Pressure Control Solenoid Valve B

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

- Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
- Check that DTC P0967 recurs.

Is DTC P0967 indicated?

YES Go to step 6.

NO Go to step 3.

- Select P CTRL SOL CONTROL in MISC. TEST MENU, then select P. CONTROL SOL B in P CTRL SOL CTRL MENU with the Honda PGM Tester or HDS.
- Drive the A/T clutch pressure control solenoid valve B with 0.2 A in SOL B CONTROL menu.
- Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0967.

Did the result fail?

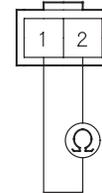
YES Go to step 6.

NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 3 and recheck. ■

- Turn the ignition switch OFF.
- Disconnect the A/T clutch pressure control solenoid valve B connector.

- Measure A/T clutch pressure control solenoid valve B resistance at the solenoid connector.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B CONNECTOR



Terminal side of male terminals

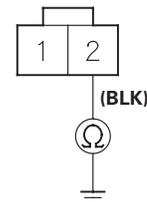
Is there $3 \pm 10 \Omega$?

YES Go to step 9.

NO Replace the A/T clutch pressure control solenoid valve B (see page 14-171). After replacing the solenoid valve, go to step 10, and check that the repair has been completed.

- Check for continuity between the No. 2 terminal of the A/T clutch pressure control solenoid valve B connector and body ground.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B CONNECTOR



Wire side of female terminals

Is there continuity?

YES Update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

NO Repair open in the wire between the A/T clutch pressure control solenoid valve B and ground (G101), or repair poor ground (G101). ■



-
10. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
 11. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
 12. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0967.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0970: Problem in A/T Clutch Pressure Control Solenoid Valve C Circuit

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.

2. Check that DTC P0970 recurs.

Is DTC P0970 indicated?

YES Go to step 6.

NO Go to step 3.

3. Select P CTRL SOL CONTROL in MISC. TEST MENU, then select P. CONTROL SOL C in P CTRL SOL CTRL MENU with the Honda PGM Tester or HDS.

4. Drive the A/T clutch pressure control solenoid valve C with 1.0 A in SOL C CONTROL menu.

5. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0970.

Did the result fail?

YES Go to step 6.

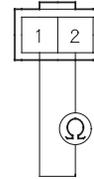
NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 3 and recheck. ■

6. Turn the ignition switch OFF.

7. Disconnect the A/T clutch pressure control solenoid valve C connector.

8. Measure A/T clutch pressure control solenoid valve C resistance at the solenoid connector.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C CONNECTOR



Terminal side of male terminals

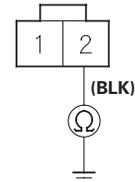
Is there $3\ 10\ \Omega$?

YES Go to step 9.

NO Replace the A/T clutch pressure control solenoid valve C (see page 14-171). After replacing the solenoid valve, go to step 12, and check that the repair has been completed.

9. Check for continuity between the No. 2 terminal of the A/T clutch pressure control solenoid valve C connector and body ground.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C CONNECTOR



Wire side of female terminals

Is there continuity?

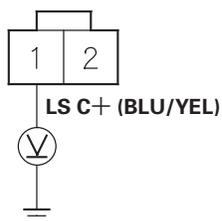
YES Go to step 10.

NO Repair open in the wire between the A/T clutch pressure control solenoid valve C and ground (G101), or repair poor ground (G101). ■



10. Turn the ignition switch ON (II).
11. Measure the voltage between terminals of the A/T clutch pressure control solenoid valve C connector.

**A/T CLUTCH PRESSURE CONTROL
SOLENOID VALVE C CONNECTOR**



Wire side of female terminals

Is there about 11 V as the ignition switch is turned to the ON (II) position?

YES Update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

NO Repair open or short in the wire between PCM connector terminal C7 and A/T clutch pressure control solenoid valve C.

12. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
13. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
14. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0970.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0971: Problem in A/T Clutch Pressure Control Solenoid Valve C

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

- Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
- Check that DTC P0971 recurs.

Is DTC P0971 indicated?

YES Go to step 6.

NO Go to step 3.

- Select P CTRL SOL CONTROL in MISC. TEST MENU, then select P. CONTROL SOL C in P CTRL SOL CTRL MENU with the Honda PGM Tester or HDS.
- Drive the A/T clutch pressure control solenoid valve C with 0.2 A in SOL C CONTROL menu.
- Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0971.

Did the result fail?

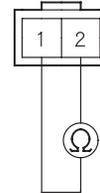
YES Go to step 6.

NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 3 and recheck. ■

- Turn the ignition switch OFF.
- Disconnect the A/T clutch pressure control solenoid valve C connector.

- Measure A/T clutch pressure control solenoid valve C resistance at the solenoid connector.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C CONNECTOR



Terminal side of male terminals

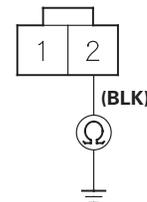
Is there 3 10 Ω ?

YES Go to step 9.

NO Replace the A/T clutch pressure control solenoid valve C (see page 14-171). After replacing the solenoid valve, go to step 10, and check that the repair has been completed.

- Check for continuity between the No. 2 terminal of the A/T clutch pressure control solenoid valve C connector and body ground.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C CONNECTOR

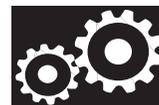


Wire side of female terminals

Is there continuity?

YES Update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

NO Repair open in the wire between the A/T clutch pressure control solenoid valve C and ground (G101), or repair poor ground (G101). ■



-
10. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
 11. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
 12. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0971.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0973: Short in Shift Solenoid Valve A Circuit

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.

2. Check that DTC P0973 recurs.

Is DTC P0973 indicated?

YES Go to step 5.

NO Go to step 3.

3. Select SHIFT SOL TEST in MISC. TEST MENU, then carry out A/T SHIFT SOL A test in SHIFT SOL TEST MENU with the Honda PGM tester or HDS.

4. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0973.

Did the result fail?

YES Go to step 5.

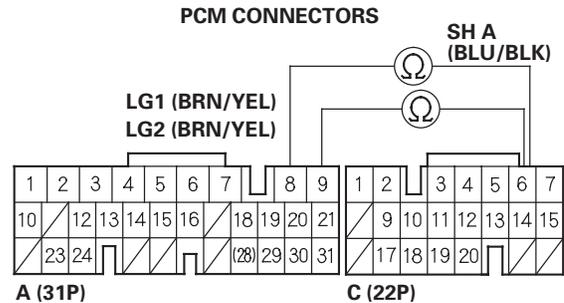
NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 3 and recheck. ■

5. Turn the ignition switch OFF.

6. Jump the SCS line with the Honda PGM Tester or HDS.

7. Disconnect PCM connectors A (31P) and C (22P).

8. Measure the resistance between PCM connector terminals C6 and A8 or A9.



Wire side of female terminals

Is there less than 12 Ω ?

YES Go to step 9.

NO Update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6). then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0974: Open in Shift Solenoid Valve A Circuit

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.

2. Check that DTC P0974 recurs.

Is DTC P0974 indicated?

YES Go to step 5.

NO Go to step 3.

3. Select SHIFT SOL TEST in MISC. TEST MENU, then carry out A/T SHIFT SOL A test in SHIFT SOL TEST MENU with the Honda PGM Tester or HDS.

4. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0974.

Did the result fail?

YES Go to step 5.

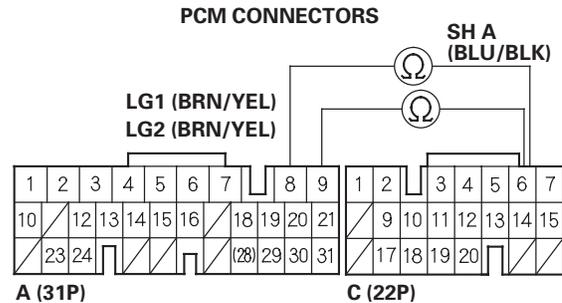
NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 3 and recheck. ■

5. Turn the ignition switch OFF.

6. Jump the SCS line with the Honda PGM Tester or HDS.

7. Disconnect PCM connectors A (31P) and C (22P).

8. Measure the resistance between PCM connector terminals C6 and A8 or A9.



Is there 12 25 Ω ?

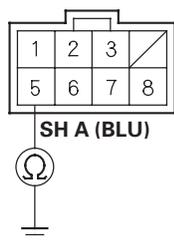
YES Check for loose or poor connections at PCM connector terminal C6. If the connections are OK, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

NO Go to step 9.



9. Disconnect the shift solenoid harness connector at the transmission housing.
10. Measure the resistance between the No. 5 terminal of the shift solenoid harness connector and body ground.

SHIFT SOLENOID HARNESS CONNECTOR



Terminal side of male terminals

Is there 12 – 25 Ω ?

YES Repair open in the wire between PCM connector and the shift solenoid harness connector. ■

NO Check shift solenoid valve A, and check for an open in the shift solenoid harness in the transmission (see page 14-164). If shift solenoid valve A is replaced, go to step 11, and check that the repair has been completed.

11. Clear the DTC in CLEAR MENU with the Honda PGM tester or HDS.
12. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
13. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0974.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0976: Short in Shift Solenoid Valve B Circuit

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.

2. Check that DTC P0976 recurs.

Is DTC P0976 indicated?

YES Go to step 5.

NO Go to step 3.

3. Select SHIFT SOL TEST in MISC. TEST MENU, then carry out A/T SHIFT SOL B test in SHIFT SOL TEST MENU with the Honda PGM Tester or HDS.

4. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0976.

Did the result fail?

YES Go to step 5.

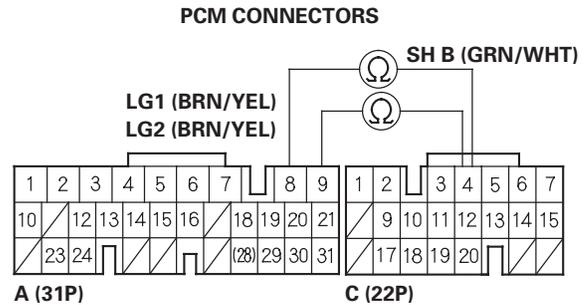
NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 3 and recheck. ■

5. Turn the ignition switch OFF.

6. Jump the SCS line with the Honda PGM Tester or HDS.

7. Disconnect PCM connectors A (31P) and C (22P).

8. Measure the resistance between PCM connector terminals C4 and A8 or A9.

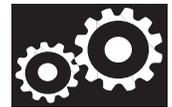


Wire side of female terminals

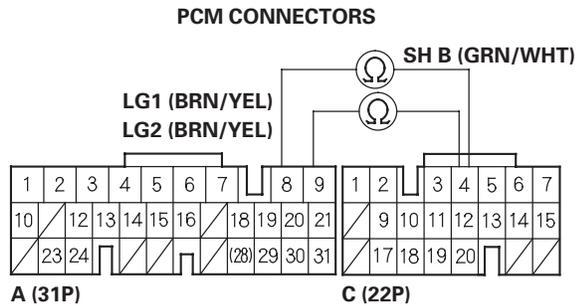
Is there less than 12 Ω ?

YES Go to step 9.

NO Update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■



9. Disconnect the shift solenoid harness connector at the transmission housing.
10. Check for continuity between PCM connector terminals C4 and A8 or A9.



Is there continuity?

YES Repair short to ground in the wire between PCM connector terminal C4 and the shift solenoid harness connector. ■

NO Check shift solenoid valve B (see page 14-164). If shift solenoid valve B is replaced, go to step 11, and check that the repair has been completed.

11. Clear the DTC in CLEAR MENU with the Honda PGM tester or HDS.
12. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
13. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0976.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0977: Open in Shift Solenoid Valve B Circuit

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC in CLEAR MENU with the Honda PGM tester or HDS.

2. Check that DTC P0977 recurs.

Is DTC P0977 indicated?

YES Go to step 5.

NO Go to step 3.

3. Select SHIFT SOL TEST in MISC. TEST MENU, then carry out A/T SHIFT SOL B test in SHIFT SOL TEST MENU with the Honda PGM tester or HDS.

4. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0977.

Did the result fail?

YES Go to step 5.

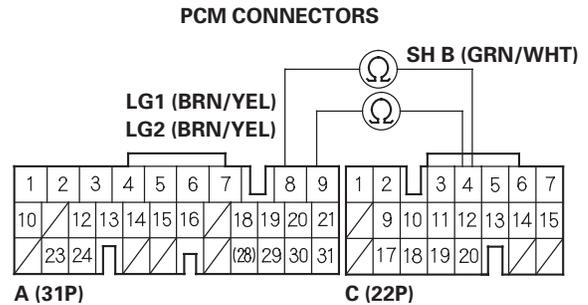
NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 3 and recheck. ■

5. Turn the ignition switch OFF.

6. Jump the SCS line with the Honda PGM tester or HDS.

7. Disconnect PCM connectors A (31P) and C (22P).

8. Measure the resistance between PCM connector terminals C4 and A8 or A9.

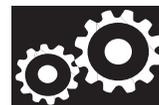


Wire side of female terminals

Is there 12 25 Ω ?

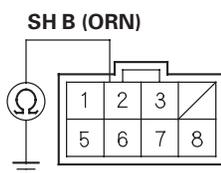
YES Check for loose or poor connections at PCM connector terminal C4. If the connections are OK, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

NO Go to step 9.



9. Disconnect the shift solenoid harness connector at the transmission housing.
10. Measure the resistance between the No. 2 terminal of the shift solenoid harness connector and body ground.

SHIFT SOLENOID HARNESS CONNECTOR



Terminal side of male terminals

Is there 12 - 25 Ω ?

YES Repair open in the wire between PCM connector and the shift solenoid harness connector. ■

NO Check shift solenoid valve B, and check for an open in the shift solenoid harness in the transmission (see page 14-164). If shift solenoid valve B is replaced, go to step 11, and check that the repair has been completed.

11. Clear the DTC in CLEAR MENU with the Honda PGM tester or HDS.
12. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
13. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0977.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0979: Short in Shift Solenoid Valve C Circuit

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.

2. Check that DTC P0979 recurs.

Is DTC P0979 indicated?

YES Go to step 5.

NO Go to step 3.

3. Select SHIFT SOL TEST in MISC. TEST MENU, then carry out A/T SHIFT SOL C test in SHIFT SOL TEST MENU with the Honda PGM Tester or HDS.

4. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0979.

Did the result fail?

YES Go to step 5.

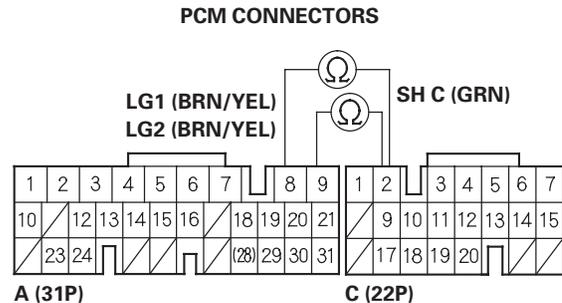
NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 3 and recheck. ■

5. Turn the ignition switch OFF.

6. Jump the SCS line with the Honda PGM Tester or HDS.

7. Disconnect PCM connectors A (31P) and C (22P).

8. Measure the resistance between PCM connector terminals C2 and A8 or A9.



Wire side of female terminals

Is there less than 12 Ω ?

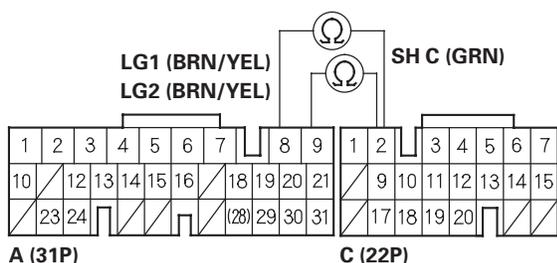
YES Go to step 9.

NO Update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■



9. Disconnect the shift solenoid harness connector at the transmission housing.
10. Check for continuity between PCM connector terminals C2 and A8 or A9.

PCM CONNECTORS



Wire side of female terminals

Is there continuity?

YES Repair short to ground in the wire between PCM connector terminal C2 and the shift solenoid harness connector. ■

NO Check shift solenoid valve C (see page 14-164). If shift solenoid valve C is replaced, go to step 11, and check that the repair has been completed.

11. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
12. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
13. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0979.

Did the result pass?

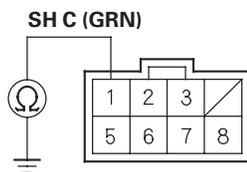
YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■



9. Disconnect the shift solenoid harness connector at the transmission housing.
10. Measure the resistance between the No. 1 terminal of the shift solenoid harness connector and body ground.

SHIFT SOLENOID HARNESS CONNECTOR



Terminal side of male terminals

Is there 12 - 25 Ω ?

YES Repair open in the wire between PCM connector and the shift solenoid harness connector. ■

NO Check shift solenoid valve C, and check for an open in the shift solenoid harness in the transmission (see page 14-164). If shift solenoid valve C is replaced, go to step 11, and check that the repair has been completed.

11. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
12. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
13. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0980.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0982: Short in Shift Solenoid Valve D Circuit

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.

2. Check that DTC P0982 recurs.

Is DTC P0982 indicated?

YES Go to step 5.

NO Go to step 3.

3. Select SHIFT SOL TEST in MISC. TEST MENU, then carry out A/T SHIFT SOL D test in SHIFT SOL TEST MENU with the Honda PGM Tester or HDS.

4. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0982.

Did the result fail?

YES Go to step 5.

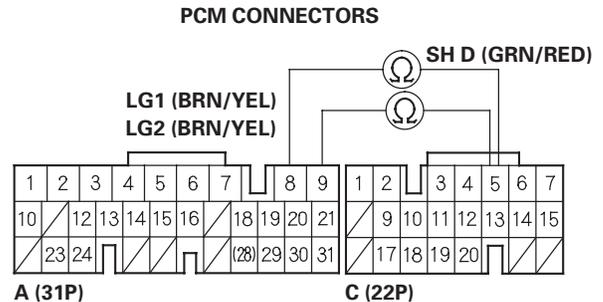
NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 3 and recheck. ■

5. Turn the ignition switch OFF.

6. Jump the SCS line with the Honda PGM Tester or HDS.

7. Disconnect PCM connectors A (31P) and C (22P).

8. Measure the resistance between PCM connector terminals C5 and A8 or A9.



Wire side of female terminals

Is there less than 12 Ω ?

YES Go to step 9.

NO Update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0983: Open in Shift Solenoid Valve D Circuit

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.

2. Check that DTC P0983 recurs.

Is DTC P0983 indicated?

YES Go to step 5.

NO Go to step 3.

3. Select SHIFT SOL TEST in MISC. TEST MENU, then carry out A/T SHIFT SOL D test in SHIFT SOL TEST MENU with the Honda PGM Tester or HDS.

4. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0983.

Did the result fail?

YES Go to step 5.

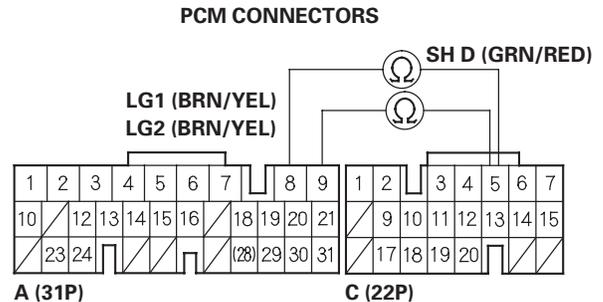
NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 3 and recheck. ■

5. Turn the ignition switch OFF.

6. Jump the SCS line with the Honda PGM Tester or HDS.

7. Disconnect PCM connectors A (31P) and C (22P).

8. Measure the resistance between PCM connector terminals C5 and A8 or A9.



Wire side of female terminals

Is there 12 25 Ω ?

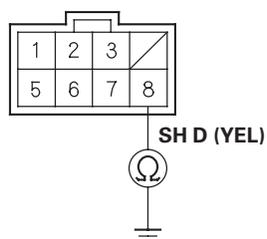
YES Check for loose or poor connections at PCM connector terminal C5. If the connection are OK, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

NO Go to step 9.



9. Disconnect the shift solenoid harness connector at the transmission housing.
10. Measure the resistance between the No. 8 terminal of the shift solenoid harness connector and body ground.

SHIFT SOLENOID HARNESS CONNECTOR



Terminal side of male terminals

Is there 12 - 25 Ω ?

YES Repair open in the wire between PCM connector and the shift solenoid harness connector. ■

NO Check shift solenoid valve D, and check for an open in the shift solenoid harness in the transmission (see page 14-164). If shift solenoid valve D is replaced, go to step 11, and check that the repair has been completed.

11. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
12. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
13. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0983.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0985: Short in Shift Solenoid Valve E Circuit

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.

2. Check that DTC P0985 recurs.

Is DTC P0985 indicated?

YES Go to step 5.

NO Go to step 3.

3. Select SHIFT SOL TEST in MISC. TEST MENU, then carry out A/T SHIFT SOL E test in SHIFT SOL TEST MENU with the Honda PGM Tester or HDS.

4. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0985.

Did the result fail?

YES Go to step 5.

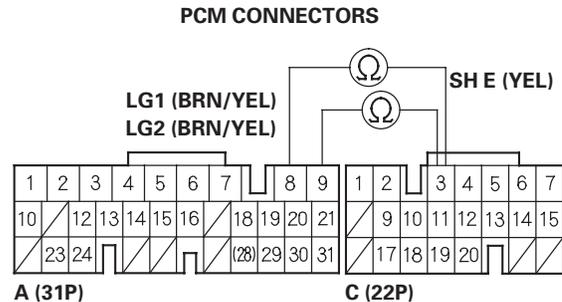
NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 3 and recheck. ■

5. Turn the ignition switch OFF.

6. Jump the SCS line with the Honda PGM Tester or HDS.

7. Disconnect PCM connectors A (31P) and C (22P).

8. Measure the resistance between PCM connector terminals C3 and A8 or A9.

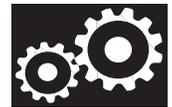


Wire side of female terminals

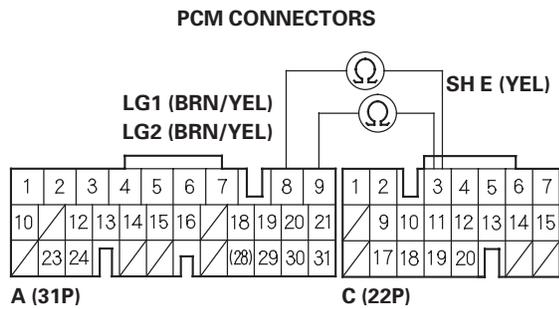
Is there less than 12 Ω ?

YES Go to step 9.

NO Update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■



9. Disconnect the shift solenoid harness connector at the transmission housing.
10. Check for continuity between PCM connector terminals C3 and A8 or A9.



Wire side of female terminals

Is there continuity?

YES Repair short to ground in the wire between PCM connector terminal C3 and the shift solenoid harness connector. ■

NO Check shift solenoid valve E (see page 14-164). If shift solenoid valve E is replaced, go to step 11, and check that the repair has been completed.

11. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
12. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
13. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0985.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0986: Open in Shift Solenoid Valve E Circuit

NOTE:

- Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.

2. Check that DTC P0986 recurs.

Is DTC P0986 indicated?

YES Go to step 5.

NO Go to step 3.

3. Select SHIFT SOL TEST in MISC. TEST MENU, then carry out A/T SHIFT SOL E test in SHIFT SOL TEST MENU with the Honda PGM Tester or HDS.

4. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0983.

Did the result fail?

YES Go to step 5.

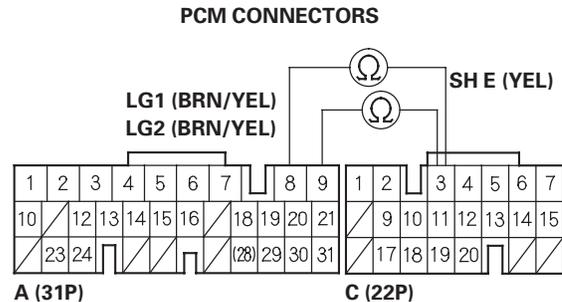
NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 3 and recheck. ■

5. Turn the ignition switch OFF.

6. Jump the SCS line with the Honda PGM Tester or HDS.

7. Disconnect PCM connectors A (31P) and C (22P).

8. Measure the resistance between PCM connector terminals C3 and A8 or A9.



Wire side of female terminals

Is there 12 25 Ω ?

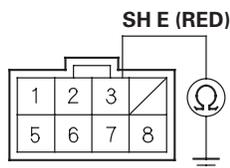
YES Check for loose or poor connections at PCM connector terminal C3. If the connections are OK, update the PCM if it does not have the latest software, or substitute a known-good PCM (see page 14-6), then recheck. If the symptom/indication goes away with a known-good PCM, replace the original PCM. ■

NO Go to step 9.



9. Disconnect the shift solenoid harness connector at the transmission housing.
10. Check for continuity between the No. 3 terminal of the shift solenoid harness connector and body ground.

SHIFT SOLENOID HARNESS CONNECTOR



Terminal side of male terminals

Is there 12 25 Ω ?

YES Repair open in the wire between PCM connector and the shift solenoid harness connector. ■

NO Check shift solenoid valve E, and check for an open in the shift solenoid harness in the transmission (see page 14-164). If shift solenoid valve E is replaced, go step 11, and check that the repair has been completed.

11. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
12. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
13. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P0986.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P1730: Problem in Shift Control System:

- Shift Solenoid Valves A and D Stuck OFF
- Shift Solenoid Valve B Stuck ON
- Shift Valves A, B, and D Stuck

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Check to be sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Check for deterioration in the quality of ATF.

Has the ATF deteriorated?

YES Replace ATF (see page 14-179), and test-drive the vehicle under the same conditions as those indicated by the freeze data, then recheck.

NO Go to step 4.

4. Clear the DTC in CLEAR MENU with the Honda PGM tester or HDS.
5. Select SHIFT SOL TEST in MISC. TEST MENU, then carry out A/T SHIFT SOL A test in SHIFT SOL TEST MENU with the Honda PGM Tester or HDS.

Is a clicking sound heard?

YES Go to step 6.

NO Faulty shift solenoid valve A, replace it (see page 14-166). After replacing the shift solenoid valve, go step 11, and check that the repair has been completed.

6. Select SHIFT SOL TEST in MISC. TEST MENU, then carry out A/T SHIFT SOL B test in SHIFT SOL TEST MENU with the Honda PGM Tester or HDS.

Is a clicking sound heard?

YES Go to step 7.

NO Faulty shift solenoid valve B, replace it (see page 14-166). After replacing the shift solenoid valve, go step 11, and check that the repair has been completed.

7. Select SHIFT SOL TEST in MISC. TEST MENU, then carry out A/T SHIFT SOL D test in SHIFT SOL TEST MENU with the Honda PGM Tester or HDS.

Is a clicking sound heard?

YES Go to step 8.

NO Faulty shift solenoid valve D, replace it (see page 14-166). After replacing the shift solenoid valve, go step 11, and check that the repair has been completed.

8. Test-drive the vehicle in the **D** position in all five gears at speeds over 10 mph (16 km/h) for 20 seconds, then slow down and stop the vehicle.
9. Retest-drive the vehicle in the **D** position in all five gears at 10 mph (16 km/h) for 20 seconds.
10. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P1730.

Did the result fail?

YES Repair shift valves A, B and D, or replace the transmission. ■

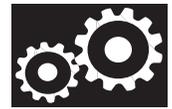
NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 8 and recheck. ■

11. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
12. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
13. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P1730.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■



DTC P1731: Problem in Shift Control System:

- Shift Solenoid Valve E Stuck ON
- Shift Valve E Stuck
- A/T Clutch Pressure Control Solenoid Valve A Stuck OFF

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Check to be sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Check for deterioration in the quality of ATF.

Has the ATF deteriorated?

YES Replace ATF (see page 14-179), and test-drive the vehicle under the same conditions as those indicated by the freeze data, then recheck.

NO Go to step 4.

4. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
5. Select SHIFT SOL TEST in MISC. TEST MENU, then carry out A/T SHIFT SOL E test in SHIFT SOL TEST MENU with the Honda PGM Tester or HDS.

Is a clicking sound heard?

YES Go to step 6.

NO Faulty shift solenoid valve E, replace it (see page 14-166). After replacing the solenoid valve, go to step 8, and check that the repair has been completed.

6. Select LINEAR SOL TEST in MISC. TEST MENU, then carry out LINEAR SOL A TEST in LINEAR SOL TEST MENU.

Is the system OK?

YES Intermittent failure, the system is OK at this time. ■

NO Go to step 7.

7. Inspect the A/T clutch pressure control solenoid valve A (see page 14-168).

Does the A/T clutch pressure control solenoid valve A work properly?

YES Shift valve E may be stuck, repair hydraulic system related with shift valve E, or replace the transmission. ■

NO Replace A/T clutch pressure control solenoid valve A (see page 14-169). After replacing the solenoid valve, go to step 8, and check that the repair has been completed.

8. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
9. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
10. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P1731.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P1732: Problem in Shift Control System:

- Shift Solenoid Valves B and C Stuck ON
- Shift Valves B and C Stuck

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Check to be sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Check for deterioration in the quality of ATF.

Has the ATF deteriorated?

YES Replace ATF (see page 14-179), and test-drive the vehicle under the same conditions as those indicated by the freeze data, then recheck.

NO Go to step 4.

4. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
5. Select SHIFT SOL TEST in MISC. TEST MENU, then carry out A/T SHIFT SOL B test in SHIFT SOL TEST MENU with the Honda PGM Tester or HDS.

Is a clicking sound heard?

YES Go to step 6.

NO Faulty shift solenoid valve B, replace it (see page 14-166). After replacing the shift solenoid valve, go to step 10, and check that the repair has been completed.

6. Select SHIFT SOL TEST in MISC. TEST MENU, then carry out A/T SHIFT SOL C test in SHIFT SOL TEST MENU with the Honda PGM Tester or HDS.

Is a clicking sound heard?

YES Go to step 7.

NO Faulty shift solenoid valve C, replace it (see page 14-166). After replacing the shift solenoid valve, go step 10, and check that the repair has been completed.

7. Test-drive the vehicle in the **D** position in all five gears at speeds over 10 mph (16 km/h) for 20 seconds, then slow down and stop the vehicle.
8. Retest-drive the vehicle in the **D** position in all five gears at 10 mph (16 km/h) for 20 seconds.
9. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P1732.

Did the result fail?

YES Repair shift valves B and C, or replace the transmission. ■

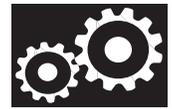
NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 6 and recheck. ■

10. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
11. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
12. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P1732.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■



DTC P1733: Problem in Shift Control System:

- Shift Solenoid Valve D Stuck ON
- Shift Valve D Stuck
- A/T Clutch Pressure Control Solenoid Valve C Stuck OFF

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Check to be sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Check for deterioration in the quality of ATF.

Has the ATF deteriorated?

YES Replace ATF (see page 14-179), and test-drive the vehicle under the same conditions as those indicated by the freeze data, then recheck.

NO Go to step 4.

4. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
5. Select SHIFT SOL TEST in MISC. TEST MENU, then carry out A/T SHIFT SOL D test in SHIFT SOL TEST MENU with the Honda PGM Tester or HDS.

Is a clicking sound heard?

YES Go to step 6.

NO Faulty shift solenoid valve D, replace it (see page 14-166). After replacing the solenoid valve, go to step 11, and check that the repair has been completed.

6. Select LINEAR SOL TEST in MISC. TEST MENU, then carry out LINEAR SOL C TEST in LINEAR SOL TEST MENU.

Is the system OK?

YES Go to step 7.

NO Go to step 10.

7. Test-drive the vehicle in the **D** position in all five gears at speeds over 10 mph (16 km/h) for 20 seconds, then slow down and stop the wheels.
8. Retest-drive the vehicle in the **D** position in all five gears at 10 mph (16 km/h) for 20 seconds.
9. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P1733.

Did the result fail?

YES Repair shift valve D, or replace the transmission. ■

NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 7 and recheck. ■

10. Inspect A/T clutch pressure control solenoid valve C (see page 14-170).

Does A/T clutch pressure control solenoid valve C work properly?

YES Shift valves B and C may be stuck, repair hydraulic system related with shift valves B and C, or replace the transmission. ■

NO Replace A/T clutch pressure control solenoid valve C (see page 14-171). After replacing the solenoid valve, go to step 11, and check that the repair has been completed.

11. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
12. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
13. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P1733.

Did the result pass?

YES The problem has been corrected. ■

NO Return to step 1 and recheck. ■

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P1734: Problem in Shift Control System:

- Shift Solenoid Valves B and C Stuck ON
- Shift Valves B and C Stuck

NOTE: Record all freeze data and review General Troubleshooting Information (see page 14-3) before you troubleshoot.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Check to be sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Check for deterioration in the quality of ATF.

Has the ATF deteriorated?

YES Replace ATF (see page 14-179), and test-drive the vehicle under the same conditions as those indicated by the freeze data, then recheck.

NO Go to step 4.

4. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
5. Select SHIFT SOL TEST in MISC. TEST MENU, then carry out A/T SHIFT SOL B test in SHIFT SOL TEST MENU with the Honda PGM Tester or HDS.

Is a clicking sound heard?

YES Go to step 6.

NO Faulty shift solenoid valve B, replace it (see page 14-166). After replacing the solenoid valve, go to step 10, and check that the repair has been completed.

6. Select SHIFT SOL TEST in MISC. TEST MENU, then carry out A/T SHIFT SOL C test in SHIFT SOL TEST MENU with the Honda PGM Tester or HDS.

Is a clicking sound heard?

YES Go to step 6.

NO Faulty shift solenoid valve C, replace it (see page 14-166). After replacing the solenoid valve, go to step 10, and check that the repair has been completed.

7. Test-drive the vehicle in the **D** position in all five gears at speeds over 10 mph (16 km/h) for 20 seconds, then slow down and stop the vehicle.
8. Retest-drive the vehicle in the **D** position in all five gears at 10 mph (16 km/h) for 20 seconds.
9. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P1734.

Did the result fail?

YES Repair shift valves B and C, or replace the transmission. ■

NO Intermittent failure, the system is OK at this time. If the tester tells you NOT COMPLETE, return to step 7 and recheck. ■

10. Clear the DTC in CLEAR MENU with the Honda PGM Tester or HDS.
11. Test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data.
12. Check the OBD STATUS in DTCs MENU for a pass/fail test of code P1734.

Did the result pass?

YES The problem has been corrected. ■

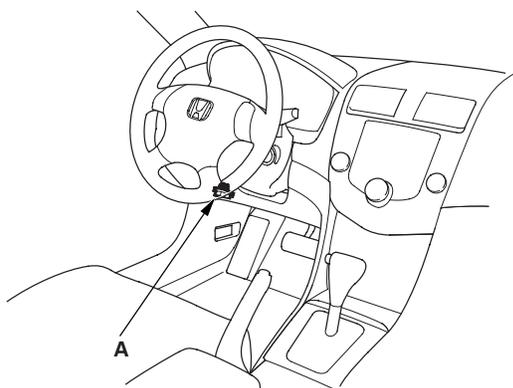
NO Return to step 1 and recheck. ■



Road Test

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Apply the parking brake, and block both rear wheels. Start the engine, then shift to the **D** position while pressing the brake pedal. Press the accelerator pedal, and release it suddenly. The engine should not stall.
3. Repeat step 2 in the **D₃**, **2**, **1**, and **R** positions.
4. Connect the Honda PGM Tester or HDS to the DLC (A), and go to the A/T data list.

NOTE: The illustration shows LHD model; RHD model is symmetrical.



5. Test-drive the vehicle on a flat road in the **D** position. Check for abnormal noise and clutch slippage. While driving, check that the shift points occur at the proper speeds by monitoring the throttle position sensor voltage with the PGM Tester and comparing your shift point speeds and voltage to those in the table. (The throttle position sensor voltage represents the throttle opening.)

Upshift: **D** Position

Throttle position sensor voltage: 0.8 V		
1st 2nd	9	12 mph (14 19 km/h)
2nd 3rd	20	23 mph (32 37 km/h)
3rd 4th	29	33 mph (47 53 km/h)
4th 5th	39	44 mph (63 71 km/h)
Lock-up ON	48	55 mph (77 89 km/h)
Throttle position sensor voltage: 2.25 V		
1st 2nd	20	24 mph (32 39 km/h)
2nd 3rd	37	42 mph (60 68 km/h)
3rd 4th	58	64 mph (93 103 km/h)
4th 5th	103	113 mph (166 182 km/h)
Lock-up ON	108	119 mph (174 192 km/h)
Fully-opened throttle Throttle position sensor voltage: 4.5 V		
1st 2nd	34	39 mph (55 63 km/h)
2nd 3rd	64	72 mph (103 116 km/h)
3rd 4th	100	111 mph (161 179 km/h)
4th 5th		
Lock-up ON		

(cont'd)

Automatic Transmission

Road Test (cont'd)

Downshift: **D** Position

Throttle position sensor voltage: 0.8 V	
Lock-up OFF	47 53 mph (76 85 km/h)
5th 4th	30 35 mph (48 56 km/h)
4th 3rd	19 22 mph (31 35 km/h)
3rd 1st	5 8 mph (8 13 km/h)
Throttle position sensor voltage: 2.25 V	
Lock-up OFF	66 75 mph (106 121 km/h)
Fully-opened throttle Throttle position sensor voltage: 4.5 V	
Lock-up OFF	108 118 mph (174 190 km/h)
5th 4th	116 128 mph (187 206 km/h)
4th 3rd	85 95 mph (137 153 km/h)
3rd 2nd	54 61 mph (87 98 km/h)
2nd 1st	26 31 mph (42 50 km/h)

6. Accelerate to about 35 mph (57 km/h) so the transmission is in 4th or 5th, then shift from the **D** position to the **2** position. The vehicle should immediately begin to slow down from engine braking.

7. Check for abnormal noise and clutch slippage in the following positions.

1 (1st Gear) Position

Accelerate from a stop at full throttle. Check that there is no abnormal noise or clutch slippage. Upshifts should not occur with the shift lever in this position.

2 (2nd Gear) Position

Accelerate from a stop at full throttle. Check that there is no abnormal noise or clutch slippage. Upshifts and downshifts should not occur with the shift lever in this position.

R (Reverse) Position

Accelerate from a stop at full throttle, and check for abnormal noise and clutch slippage.

8. Test in **P** (Park) Position.

Park the vehicle on a slope (about 16°), apply the brake, and shift into the **P** position. Release the brake; the vehicle should not move.

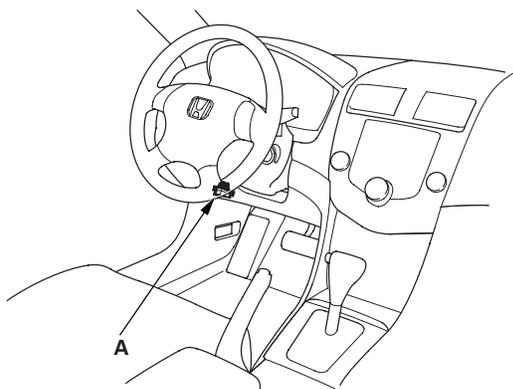
NOTE: Always use the brake to hold the vehicle, when stopped on an incline in gear. Depending on the grade of the incline, the vehicle could roll backwards if the brake is released.



Stall Speed Test

1. Engage the parking brake, and block all four wheels.
2. Connect the Honda PGM Tester or HDS to the DLC (A), and go to the A/T data list.

NOTE: The illustration shows LHD model; RHD model is symmetrical.



3. Make sure the A/C switch is OFF.
4. After the engine has warmed up to normal operating temperature (the radiator fan comes on), shift to the **2** position.
5. Fully press the brake pedal and accelerator pedal for 6 to 8 seconds, and note engine speed. Do not move the shift lever while raising engine speed.
6. Allow 2 minutes for cooling, then repeat the test in the **D**, **1** and **R** positions.

NOTE:

- Do not test stall speed for more than 10 seconds at a time.
- Stall speed tests should be used for diagnostic purposes only.
- Stall speed should be the same in **D**, **2**, **1** and **R** positions.
- Do not test stall speed with the A/T pressure gauges installed.

Stall Speed rpm:

Specification: 2,400 rpm (min⁻¹)
Service Limit: 2,250 2,550 rpm (min⁻¹)

7. If the measurements are out of the service limit, problems and probable causes are listed in the table below:

Problem	Probable causes
Stall speed rpm high in the D , 2 , 1 and R positions	<ul style="list-style-type: none"> • Low fluid level • ATF pump output low • Clogged ATF strainer • Regulator valve stuck • Slipping clutch
Stall speed rpm high in the 1 position	Slippage of 1st clutch
Stall speed rpm high in the 2 position	Slippage of 2nd clutch
Stall speed rpm high in the R position	Slippage 4th clutch
Stall speed rpm low in the D , 2 , 1 and R positions	<ul style="list-style-type: none"> • Engine output low • Engine throttle valve closed • Torque converter one-way clutch slipping

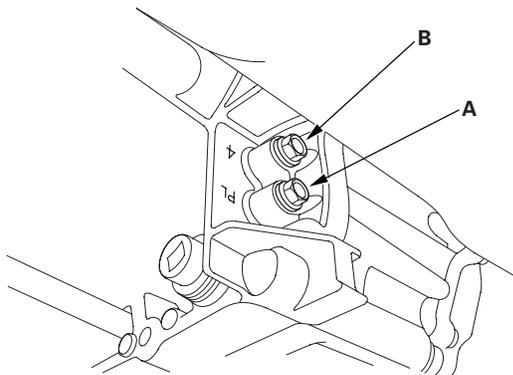
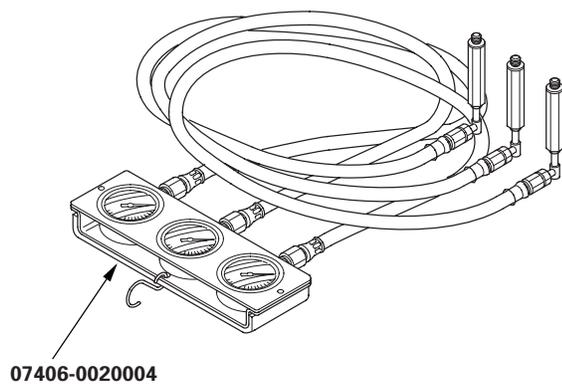
Automatic Transmission

Pressure Tests

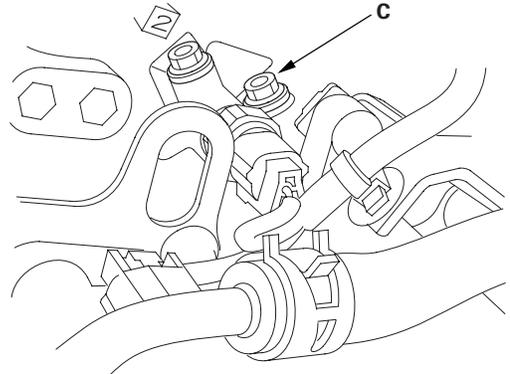
Special Tools Required

A/T oil pressure gauge set 07406-0020004

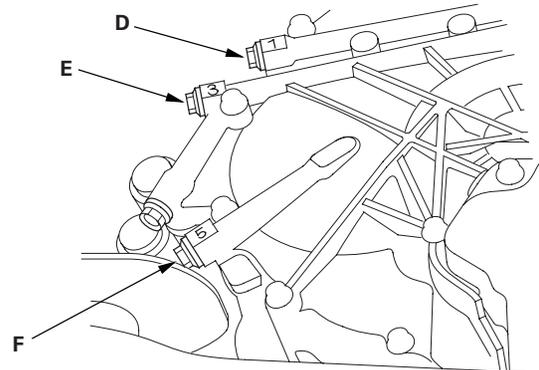
1. Before testing, be sure the transmission fluid is filled to the proper level.
2. Lift the vehicle up on a lift or apply the parking brake, block rear wheels, and raise the front of the vehicle. Make sure it is securely supported.
3. Allow the front wheels to rotate freely.
4. Warm up the engine (the radiator fan comes on), then stop it and connect the Honda PGM Tester or HDS to the DLC.
5. Connect the oil pressure gauges to the line pressure inspection hole (A) and 4th clutch pressure inspection hole (B). Do not allow dust or other foreign particles to enter the holes while connecting the gauges.



6. Remove the intake air duct and air cleaner housing, and connect the oil pressure gauges to the 2nd clutch pressure inspection hole (C). Then temporarily install the air cleaner housing and intake air duct.



7. Connect the oil pressure gauge to the 1st clutch pressure inspection hole (D), 3rd clutch pressure inspection hole (E), and 5th clutch pressure inspection hole (F).



8. Start the engine, and run it at 2,000 rpm (min^{-1}) in the **P** or **N** position.



9. Measure line pressure at the line pressure inspection hole (A).

NOTE: Higher pressure may be indicated if measurements are made in shift lever position other than **N** or **P**.

Pressure	Fluid Pressure	
	Standard	Service Limit
Line (A)	900 960 kPa (9.2 9.8 kgf/cm ² , 130 140 psi)	850 kPa (8.7 kgf/cm ² , 120 psi)

10. Shift to the **1** position, and measure 1st clutch pressure at the 1st clutch pressure inspection hole (D) while holding engine speed at 2,000 rpm (min⁻¹).
11. Shift to the **2** position, and measure 2nd clutch pressure at the 2nd clutch pressure inspection hole (C) while holding engine speed at 2,000 rpm (min⁻¹).
12. Shift to the **D** position, and measure the 3rd clutch pressure at the 3rd clutch inspection hole (E) while holding engine speed at 2,000 rpm (min⁻¹).
13. Shift to the **D** position, measure 4th clutch pressure at the 4th clutch pressure inspection hole (B) while driving in the 4th gear, and measure 5th clutch pressure at the 5th clutch pressure inspection hole (F).
14. Bring the engine back to an idle, then apply the brake to stop the wheels from rotating.
15. Shift to the **R** position. Raise the engine rpm to 2,000 rpm (min⁻¹), and measure 4th clutch pressure at the 4th clutch pressure inspection hole (B).

Pressure	Fluid Pressure	
	Standard	Service Limit
1st clutch (D)	890 970 kPa (9.1 9.9 kgf/cm ² , 130 140 psi)	840 kPa (8.6 kgf/cm ² , 120 psi)
2nd clutch (C)		
3rd clutch (D)		
4th clutch (B)		
5th clutch (F)		

16. If the measurements are out of service limit, problems and probable causes are listed in the table below:

Problem	Probable causes
No or low line pressure	<ul style="list-style-type: none"> • Torque converter • ATF pump • Regulator valve • Torque converter check valve • Low fluid level • Clogged ATF strainer
No or low 1st clutch pressure	<ul style="list-style-type: none"> • 1st clutch • O-rings
No or low 2nd clutch pressure	<ul style="list-style-type: none"> • 2nd clutch • O-rings
No or low 3rd clutch pressure	<ul style="list-style-type: none"> • 3rd clutch • O-rings
No or low 4th clutch pressure	<ul style="list-style-type: none"> • 4th clutch • O-rings
No or low 5th clutch pressure	<ul style="list-style-type: none"> • 5th clutch • O-rings
No or low 4th clutch pressure in the R position	<ul style="list-style-type: none"> • Servo valve • 4th clutch • O-rings

17. Install the sealing bolts with the new sealing washers, and tighten the bolts to the specified torque. Do not reuse old sealing washers.

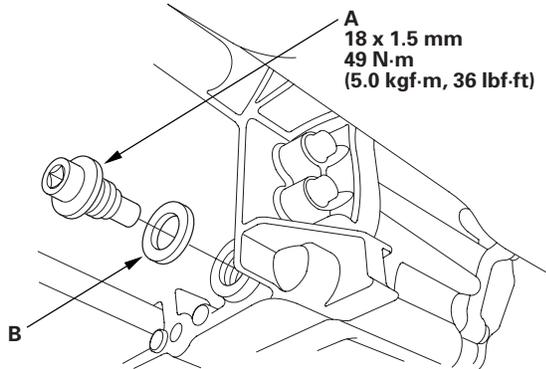
Torque: 18 N·m (1.8 kgf·m, 13 lbf·ft)

18. Install the air cleaner housing and intake air duct.

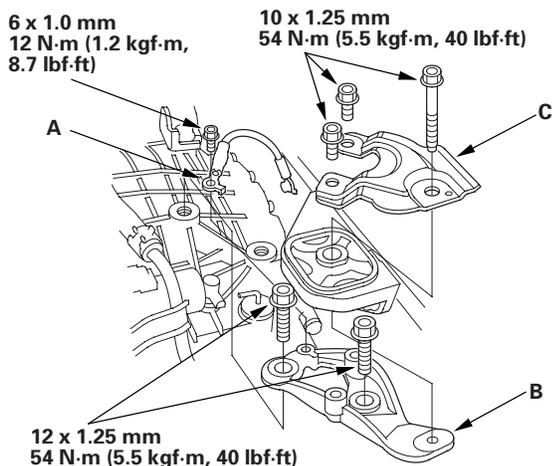
Automatic Transmission

Shift Solenoid Valves Test

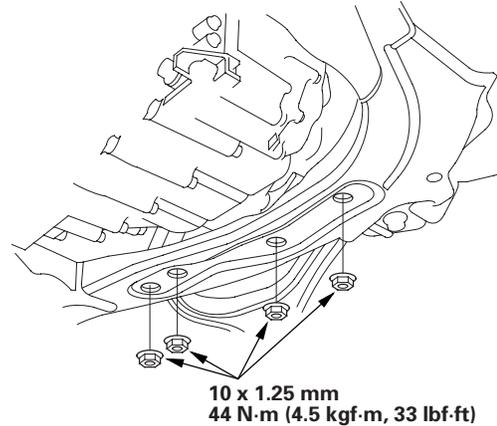
1. Remove the splash shield.
2. Remove the drain plug (A), and drain the automatic transmission fluid (ATF). Then reinstall the drain plug with a new sealing washer (B).



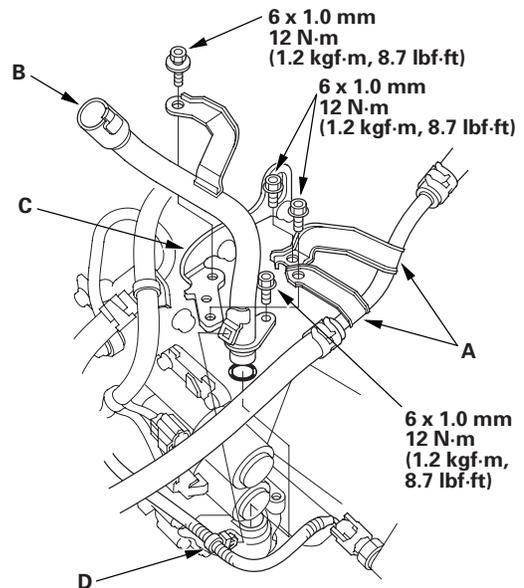
3. Disconnect the battery negative terminal, then disconnect the battery positive terminal.
4. Remove the battery hold-down bracket, then remove the battery cover, battery, and battery tray.
5. Remove the intake air duct and air cleaner housing.
6. Loosen the two bolts securing the battery base from under the vehicle, and remove the two bolts securing the battery base in the engine compartment, then remove the battery base.
7. Remove the ground cable (A), transmission upper mount bracket (B), and bracket plate (C).



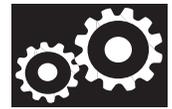
8. Place a transmission jack under the transmission, and remove the transmission lower mount nuts.



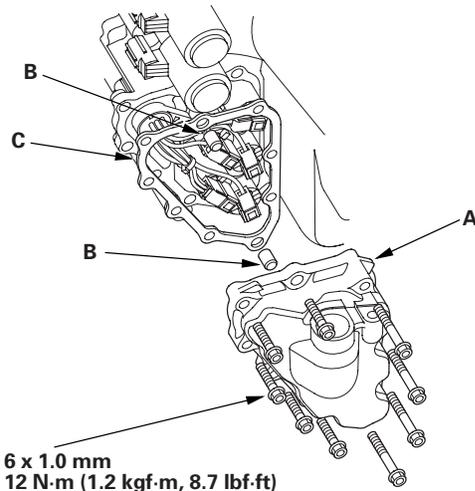
9. Lift the transmission up to create clearance between the transmission and front subframe with the jack.
10. Remove the ATF dipstick, and remove the bolts securing the ATF cooler inlet line brackets (A) and ATF dipstick guide pipe (B) from the transmission hanger (C).



11. Remove the harness clamp (D), then remove the ATF dipstick guide pipe.

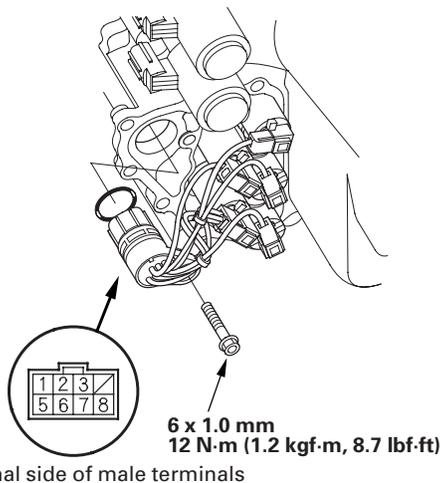


12. Disconnect the shift solenoid harness connector.



13. Remove the shift solenoid valve cover (A), dowel pins (B), and gasket (C).

14. Remove the shift solenoid harness connector.



Terminal side of male terminals

15. Measure shift solenoid valves resistance between shift solenoid harness connector terminals below and body ground:

- No. 1 (GRN): shift solenoid valve C
- No. 2 (ORN): shift solenoid valve B
- No. 3 (RED): shift solenoid valve E
- No. 5 (BLU): shift solenoid valve A
- No. 8 (YEL): shift solenoid valve D

Standard: 12 25 Ω

16. If the resistance is out of standard, disconnect the shift solenoid valve connector, and measure its resistance at the solenoid valve connector. Replace the shift solenoid valve if the resistance is out of standard.

17. Connect the battery positive terminal to the shift solenoid harness connector terminals, and connect the battery negative terminal to body ground individually. A clicking sound should be heard.

18. If no sound is heard, connect the battery positive terminal to the shift solenoid valve connector terminal, and check for a clicking sound. Replace the shift solenoid valve if no clicking sound is heard.

19. Replace the shift solenoid harness if the test results are OK.

20. Install a new O-ring on the shift solenoid harness connector, and install the connector in the transmission housing.

21. Install the shift solenoid valve cover, dowel pins and a new gasket.

22. Install the new O-ring on the ATF dipstick guide pipe, and install the ATF dipstick guide pipe, then install the harness clamp on the ATF dipstick guide pipe.

23. Secure the ATF cooler line brackets on the transmission hanger with the bolts.

24. Check the connector for rust, dirt, or oil, then connect the connector securely.

25. Install the transmission lower mount nuts.

26. Install the transmission upper mount bracket, bracket plate, and ground cable, then remove the transmission jack.

27. Refill the transmission with ATF (see page 14-179).

28. Install the battery base, then install the air cleaner housing and intake air duct.

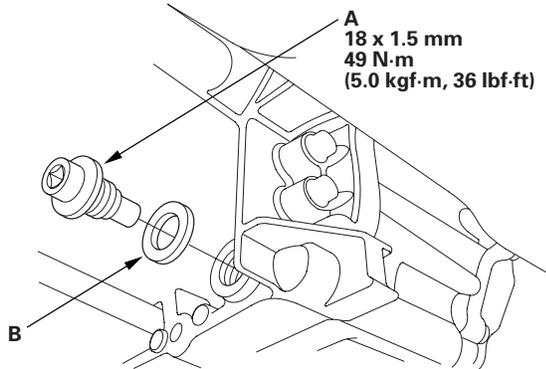
29. Install the battery tray, battery, and battery cover, then secure the battery with its hold-down bracket. Connect the battery terminals.

30. Install the splash shield.

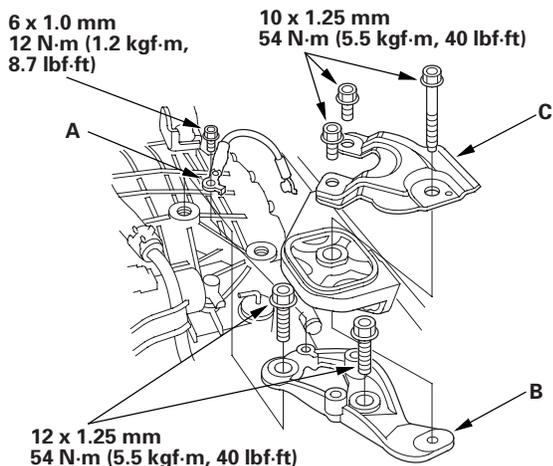
Automatic Transmission

Shift Solenoid Valves Replacement

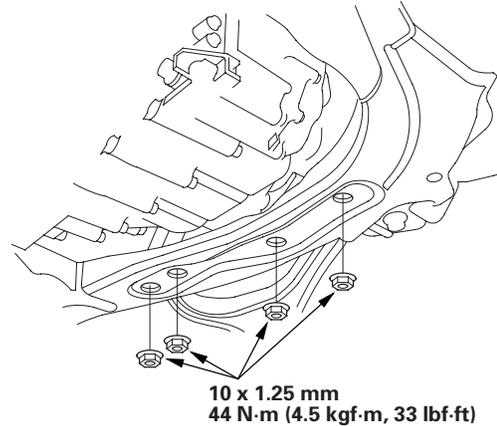
1. Remove the splash shield.
2. Remove the drain plug (A), and drain the automatic transmission fluid (ATF). Then reinstall the drain plug with a new sealing washer (B).



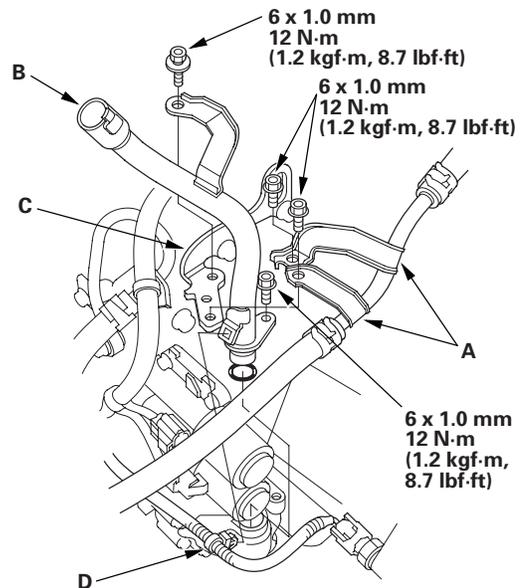
3. Disconnect the battery negative terminal, then disconnect the battery positive terminal.
4. Remove the battery hold-down bracket, then remove the battery cover, battery, and battery tray.
5. Remove the intake air duct and air cleaner housing.
6. Loosen the two bolts securing the battery base from under the vehicle, and remove the two bolts securing the battery base in the engine compartment, then remove the battery base.
7. Remove the ground cable (A), transmission upper mount bracket (B), and bracket plate (C).



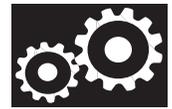
8. Place the transmission jack under the transmission, and remove the transmission lower mount nuts.



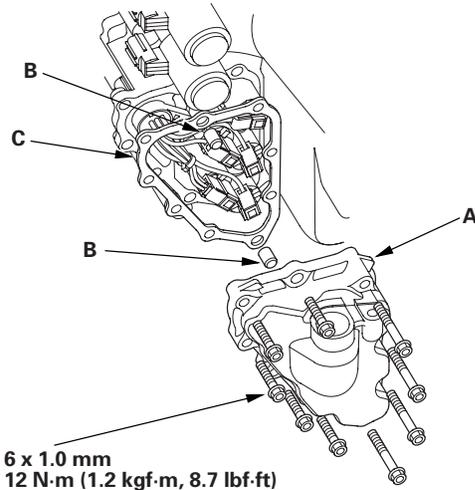
9. Lift the transmission up to create clearance between the transmission and front subframe with the jack.
10. Remove the ATF dipstick, and remove the bolts securing the ATF cooler inlet line brackets (A) and ATF dipstick guide pipe (B) from the transmission hanger (C).



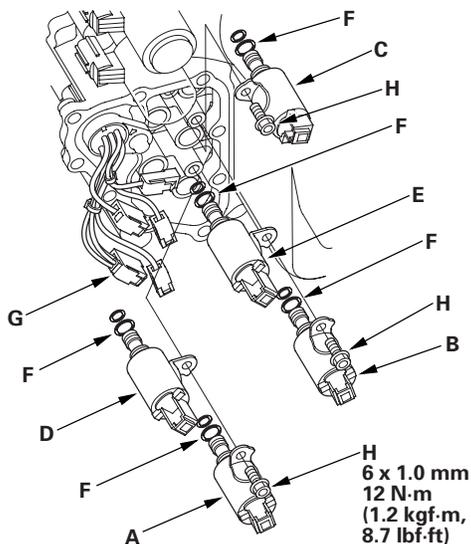
11. Remove the harness clamp (D), then remove the ATF dipstick guide pipe.



12. Remove the shift solenoid valve cover (A), dowel pins (B), and gasket (C).



13. Disconnect the shift solenoid valve connectors, remove the solenoid mounting bolts (H), then hold the solenoid valve body and remove the shift solenoid valves. Do not hold the connector to remove the shift solenoid valve.



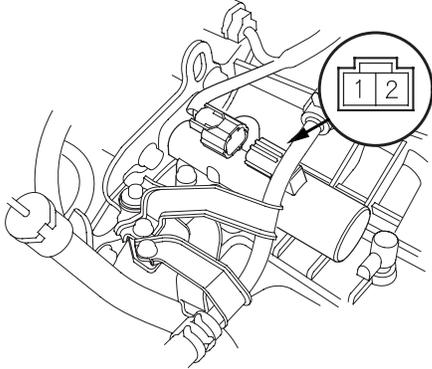
14. Install the new O-rings (two O-rings per solenoid valve) (F) on the replacement solenoid valve.

15. Install the shift solenoid valves C, D, and E. While holding the shift solenoid valve body, be sure to install the solenoid valves until their mounting brackets contact the servo body.
16. Install the shift solenoid valves A and B. While holding the shift solenoid valve body, be sure to install the solenoid valves until their mounting brackets contact the bracket of the installed solenoid. Install the solenoid mounting bolts (H) and tighten them. Do not install the solenoid valves A and B before installing the shift solenoid valves D and E. If solenoid valves A and B are installed before solenoid valves D and E, it may damage the hydraulic control system.
17. Connect the shift solenoid valve D connector (G) with the ATF temperature sensor.
18. Connect the solenoid valve A connector (BLU wire), solenoid valve B connector (ORN wire), solenoid valve C connector (GRN wire), and solenoid valve E connector (RED wire).
19. Install the shift solenoid valve cover, dowel pins and a new gasket.
20. Install the new O-ring on the ATF dipstick guide pipe, and install the ATF dipstick guide pipe, then install the harness clamp on the ATF dipstick guide pipe.
21. Secure the ATF cooler line brackets on the transmission hanger with the bolts.
22. Install the transmission lower mount nuts.
23. Install the transmission upper mount bracket, bracket plate, and ground cable, then remove the transmission jack.
24. Refill the transmission with ATF (see page 14-179).
25. Install the battery base, then install the air cleaner housing and intake air duct.
26. Install the battery tray, battery, and battery cover, then secure the battery with its hold-down bracket. Connect the battery terminals.
27. Install the splash shield.

Automatic Transmission

A/T Clutch Pressure Control Solenoid Valve A Test

1. Remove the intake air duct.
2. Disconnect the A/T clutch pressure control solenoid valve A connector.

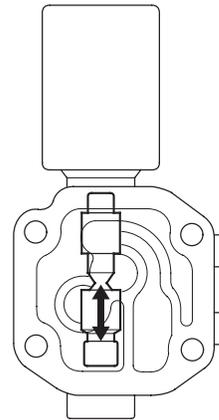


3. Measure A/T clutch pressure control solenoid valve A resistance at the solenoid valve A connector.

STANDARD: 3 10 Ω

4. If the resistance is out of standard, replace the A/T clutch pressure control solenoid valve A.
5. Connect the battery positive terminal to the No. 1 terminal of the A/T clutch pressure control solenoid valve A connector, and connect the battery negative terminal to the No. 2 terminal. A clicking sound should be heard.
6. If no sound is heard, remove the A/T clutch pressure control solenoid valve A.

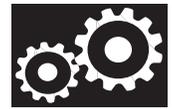
7. Check the fluid passage of the A/T clutch pressure control solenoid valve for dust or dirt.
8. Connect the No. 1 terminal of the A/T clutch pressure control solenoid valve A connector to the battery positive terminal, and connect the No. 2 terminal to the battery negative terminal. Make sure the A/T clutch pressure control solenoid valve moves.



9. Disconnect one of the battery terminals and check for valve movement.

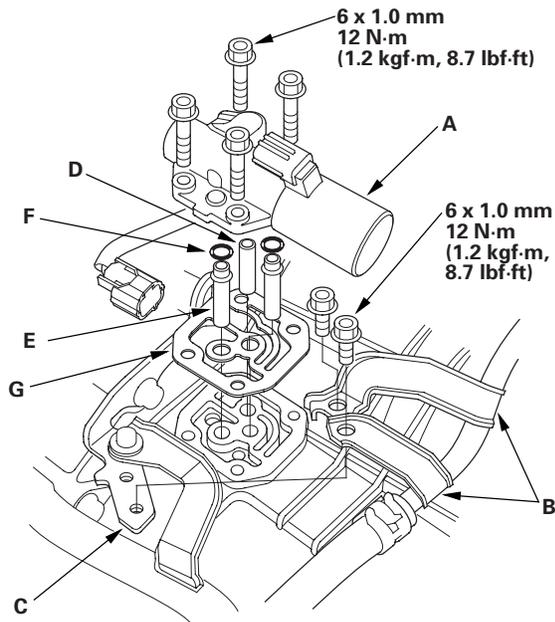
NOTE: You can see valve movement through the fluid passage in the mounting surface of the A/T clutch pressure control solenoid valve A body.

10. If the valve binds or moves sluggishly, or if the solenoid valve does not operate, replace the A/T clutch pressure control solenoid valve A.



A/T Clutch Pressure Control Solenoid Valve A Replacement

1. Remove the intake air duct.
2. Disconnect the A/T clutch pressure control solenoid valve A connector.
3. Remove the bolts securing the ATF cooler inlet line brackets (B) from the transmission hanger (C).

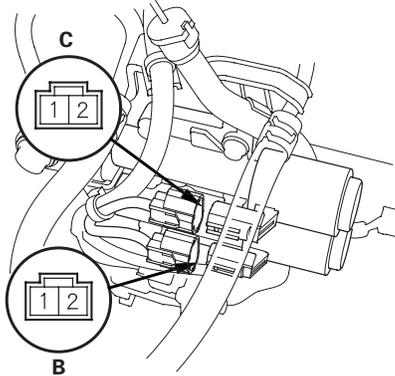


4. Remove the mounting bolts and the A/T clutch pressure control solenoid valve A.
5. Remove the ATF pipe (D), ATF joint pipes (E), O-rings (F), and gasket (G).
6. Clean the mounting surface and fluid passages of the A/T clutch pressure control solenoid valve A and transmission housing.
7. Install the new gasket on the transmission housing, and install the ATF pipe and ATF joint pipes.
8. Install the new O-rings over the ATF joint pipes.
9. Install the new A/T clutch pressure control solenoid valve A.
10. Secure the ATF cooler inlet line brackets with the bolts on the transmission hanger.
11. Check the A/T clutch pressure control solenoid valve A connector for rust, dirt, or oil, then connect the connector securely.
12. Install the intake air duct.

Automatic Transmission

A/T Clutch Pressure Control Solenoid Valves B and C Test

1. Disconnect the A/T clutch pressure control solenoid valves B and C connectors.

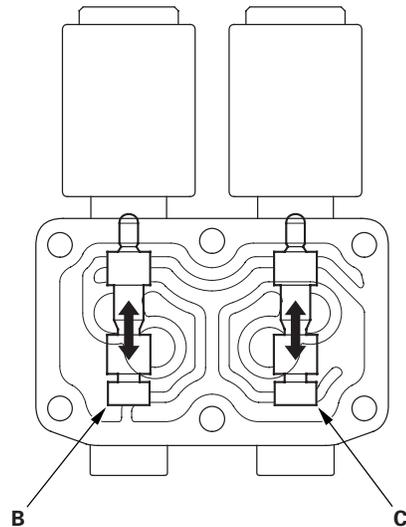


2. Measure A/T clutch pressure control solenoid valve B resistance at the solenoid valve B connector, and measure A/T clutch pressure control solenoid valve C resistance at the solenoid valve C connector.

STANDARD: 3 10 Ω

3. If the resistance of either A/T clutch pressure control solenoid valve is out of standard, replace the A/T clutch pressure control solenoid valves B and C.
4. Connect the battery positive terminal to the No. 1 terminal of the A/T clutch pressure control solenoid valves B and C connectors, and connect the battery negative terminal to the No. 2 terminal. A clicking sound should be heard.
5. If no sound is heard, remove the A/T clutch pressure control solenoid valves B and C.

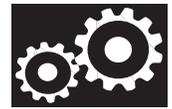
6. Check the fluid passage of the A/T clutch pressure control solenoid valve for dust or dirt.
7. Connect the No. 1 terminal of the A/T clutch pressure control solenoid valves B and C connectors to the battery positive terminal, and connect the No. 2 terminal to the battery negative terminal. Make sure the A/T clutch pressure control solenoid valves B and C move.



8. Disconnect one of the battery terminals, and check valve movement.

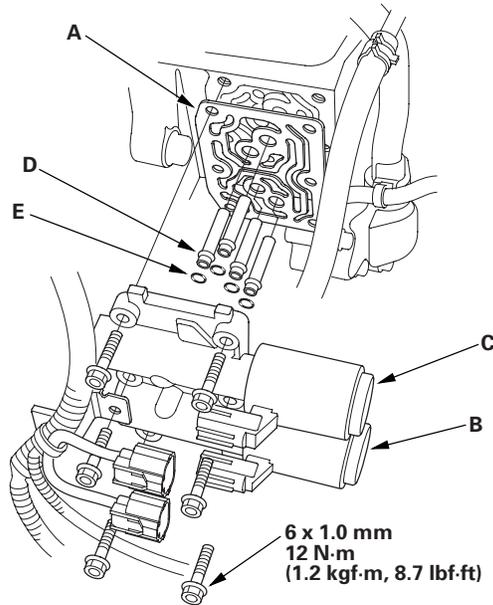
NOTE: You can see valve movement through the fluid passage in the mounting surface of the A/T clutch pressure control solenoid valves B and C body.

9. If either valve binds or moves sluggishly, or if the solenoid valve does not operate, replace the A/T clutch pressure control solenoid valves B and C.



A/T Clutch Pressure Control Solenoid Valves B and C Replacement

1. Disconnect the A/T clutch pressure control solenoid valves B and C connectors.
2. Remove the A/T clutch pressure control solenoid valves B and C.

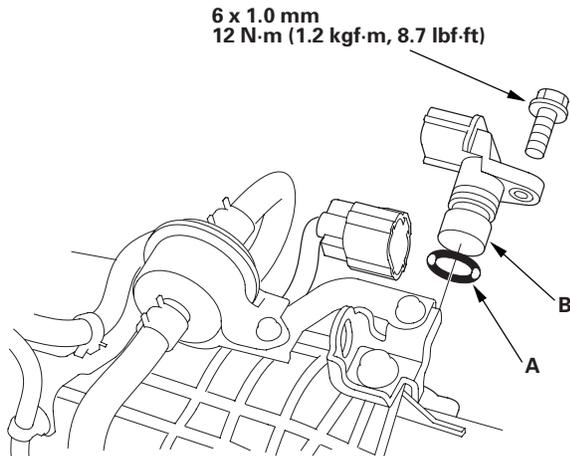


3. Remove the ATF joint pipes (D), O-rings (E), and gasket (A).
4. Clean the mounting surface and fluid passages of the A/T clutch pressure control solenoid valves B and C and transmission housing.
5. Install the new gasket on the transmission housing, and install the ATF joint pipes.
6. Install new O-rings over the ATF joint pipes.
7. Install new A/T clutch pressure control solenoid valves B and C.
8. Check A/T clutch pressure control solenoid valves B and C connectors for rust, dirt, or oil, then connect the connectors securely.

Automatic Transmission

Mainshaft Speed Sensor Replacement

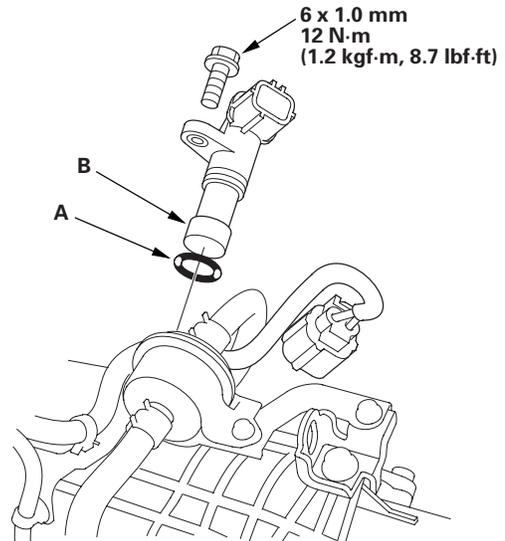
1. Remove the intake air duct and air cleaner housing.
2. Disconnect the mainshaft speed sensor connector, and remove the mainshaft speed sensor.



3. Install the new O-ring (A) on the new mainshaft speed sensor (B), then install the mainshaft speed sensor in the transmission housing.
4. Check the connector for rust, dirt, or oil, then connect the connector securely.
5. Install the intake air duct and air cleaner housing.

Countershaft Speed Sensor Replacement

1. Disconnect the countershaft speed sensor connector, and remove the countershaft speed sensor.

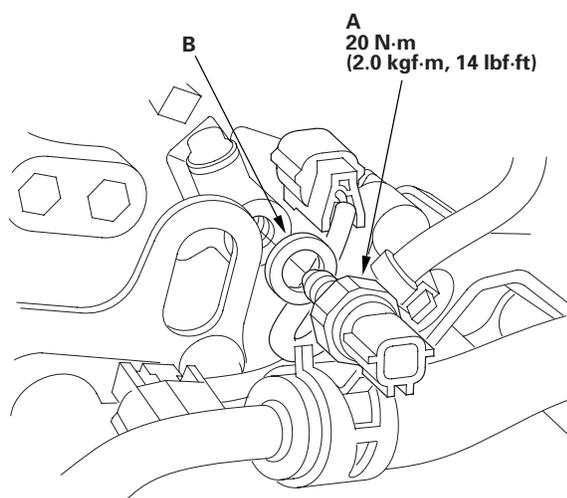


2. Install the new O-ring (A) on the new countershaft speed sensor (B), then install the countershaft speed sensor in the transmission housing.
3. Check the connector for rust, dirt, or oil, then connect the connector securely.



2nd Clutch Transmission Fluid Pressure Switch Replacement

1. Remove the intake air duct.
2. Disconnect the connector from the 2nd clutch transmission fluid pressure switch (A), and remove the switch.

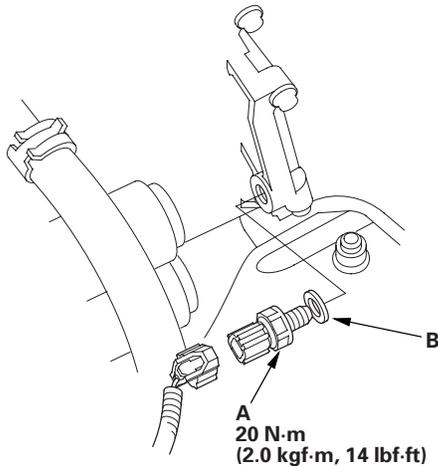


3. Make sure there is no water, oil, dust, or foreign particles inside the connector.
4. Install the new 2nd clutch transmission fluid pressure switch with a new sealing washer (B), and tighten the switch to the specified torque.
5. Connect the connector securely.
6. Install the intake air duct.

Automatic Transmission

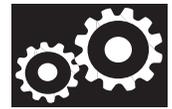
3rd Clutch Transmission Fluid Pressure Switch Replacement

1. Disconnect the battery negative terminal, then disconnect the battery positive terminal.
2. Remove the battery hold-down bracket, then remove the battery cover, battery, and battery tray.
3. Remove the intake air duct and air cleaner housing.
4. Loosen the two bolts securing the battery base from under the vehicle, and remove the two bolts securing the battery base in the engine compartment, then remove the battery base.
5. Disconnect the connector from the 3rd clutch transmission fluid pressure switch (A), then remove the switch.



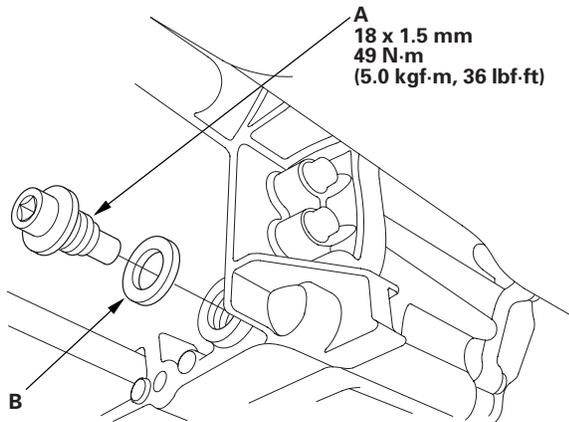
6. Make sure there is no water, oil, dust, or foreign particles inside the connector.

7. Install the 3rd clutch new transmission fluid pressure switch with a new sealing washer (B), and tighten the switch to the specified torque.
8. Connect the connector securely.
9. Install the battery base, then install the air cleaner housing and intake air duct.
10. Install the battery tray, battery, and battery cover, then secure the battery with its hold-down bracket. Connect the battery terminals.



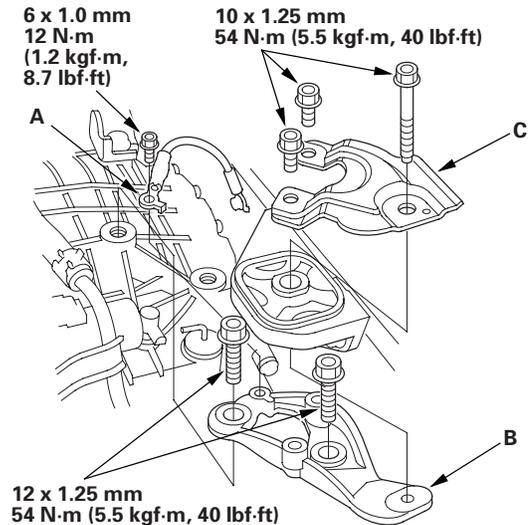
ATF Temperature Sensor Test and Replacement

1. Remove the splash shield.
2. Remove the drain plug (A), and drain the automatic transmission fluid (ATF). Then reinstall the drain plug with a new sealing washer (B).

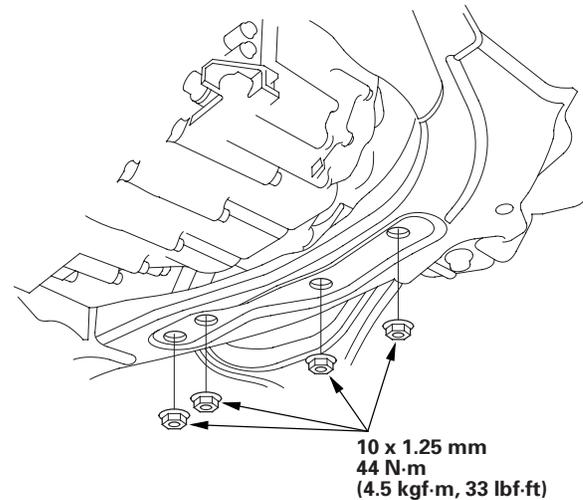


3. Disconnect the battery negative terminal, then disconnect the battery positive terminal.
4. Remove the battery hold-down bracket, then remove the battery cover, battery, and battery tray.
5. Remove the intake air duct and air cleaner housing.
6. Loosen the two bolts securing the battery base from under the vehicle, and remove the two bolts securing the battery base in the engine compartment, then remove the battery base.

7. Remove the ground cable (A), transmission upper mount bracket (B), and bracket plate (C).



8. Place the transmission jack under the transmission, and remove the transmission lower mount nuts.



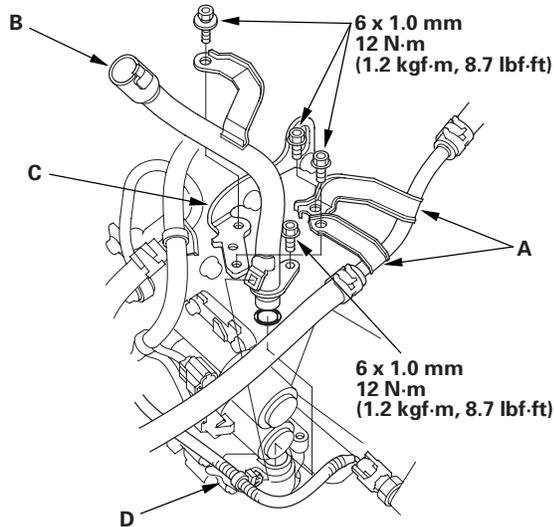
9. Lift the transmission up to create clearance between the transmission and front subframe with the jack.

(cont'd)

Automatic Transmission

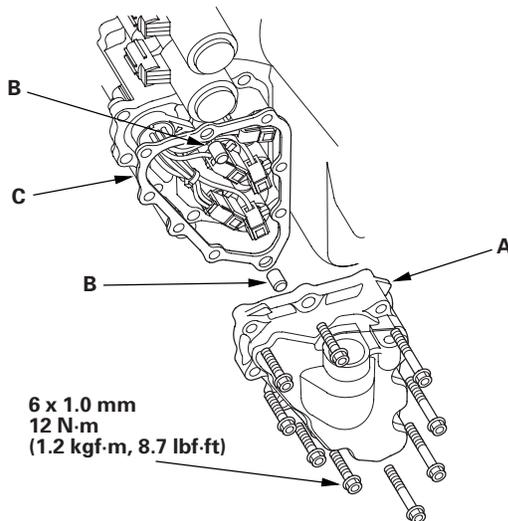
ATF Temperature Sensor Test and Replacement (cont'd)

10. Remove the ATF dipstick, and remove the bolts securing the ATF cooler inlet line brackets (A) and ATF dipstick guide pipe (B) from the transmission hanger (C).



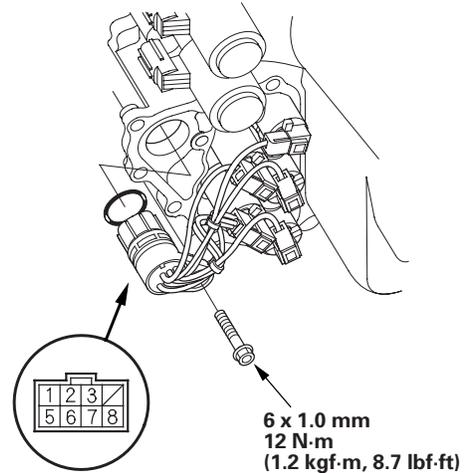
11. Remove the harness clamp (D), then remove the ATF dipstick guide pipe.

12. Disconnect the shift solenoid harness connector.



13. Remove the shift solenoid valve cover (A), dowel pins (B), and gasket (C).

14. Remove the shift solenoid harness connector.

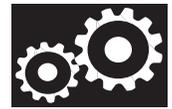


15. Measure ATF temperature sensor resistance between shift solenoid harness connector terminals No. 6 and No. 7.

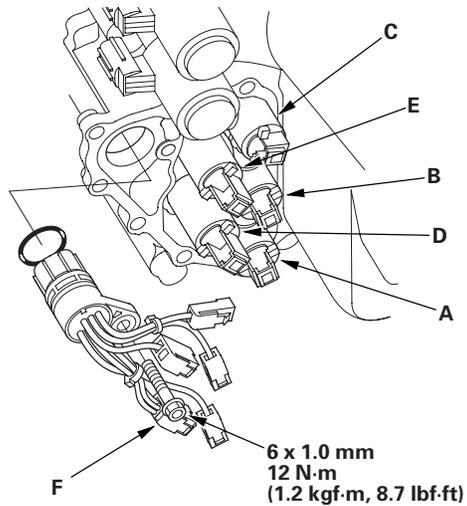
STANDARD: 50 Ω 25 k Ω

16. If the resistance is out of standard, replace the ATF temperature sensor and solenoid harness; go to step 17. The ATF temperature sensor is not available separately from the solenoid harness. If the measurement is within the standard, install the removed parts; go to step 20.

17. Disconnect the connectors from the shift solenoid valves.



18. Connect the shift solenoid valve D connector with the ATF temperature sensor (F) on the shift solenoid harness.



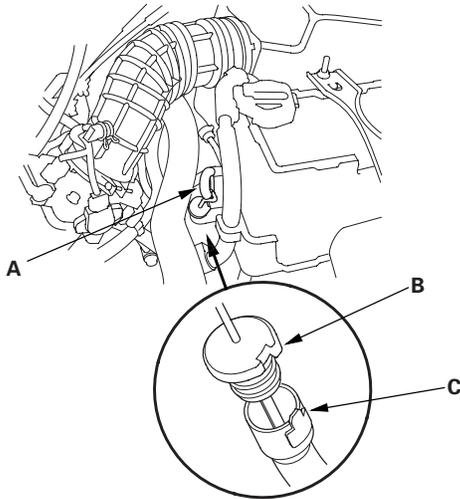
19. Connect the solenoid valve A connector (BLU wire), solenoid valve B connector (ORN wire), solenoid valve C connector (GRN wire), and solenoid valve E connector (RED wire).
20. Install the new O-ring on the shift solenoid harness connector, and install the connector in the transmission housing.
21. Install the shift solenoid valve cover, dowel pins and a new gasket.
22. Install the new O-ring on the ATF dipstick guide pipe, and install the ATF dipstick guide pipe, then install the harness clamp on the ATF dipstick guide pipe.
23. Secure the ATF cooler line brackets on the transmission hanger with the bolts.
24. Check the connector for rust, dirt, or oil, then connect the connector securely.
25. Install the transmission lower mount nuts.
26. Install the transmission upper mount bracket, bracket plate, and ground cable, then remove the transmission jack.
27. Refill the transmission with ATF (see page 14-179).
28. Install the battery base, then install the air cleaner housing and intake air duct.
29. Install the battery tray, battery, and battery cover, then secure the battery with its hold-down bracket. Connect the battery terminals.
30. Install the splash shield.

Automatic Transmission

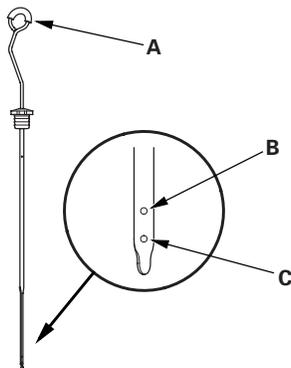
ATF Level Check

NOTE: Keep all foreign particles out of the transmission.

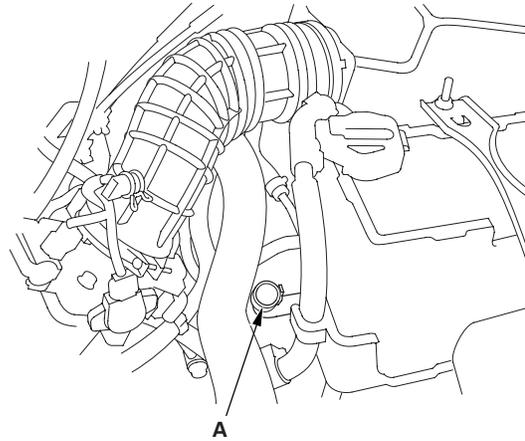
1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Park the vehicle on level ground, and turn the engine off.
3. Remove the dipstick (yellow loop) (A) from the ATF dipstick guide pipe, and wipe it with a clean cloth.



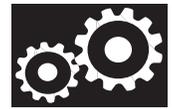
4. Insert the dipstick aligning the cap (B) with the guide tab (C).
5. Remove the dipstick (A) and check the fluid level. It should be between upper mark (B) and lower mark (C).



6. If the level is below the lower mark, check for fluid leaks at the transmission, hose and line joints, and cooler lines. If the level is an excess, drain the ATF to proper level.
7. Pour the recommended fluid into the opening (A) of the dipstick guide pipe to bring it to upper mark. Always use genuine Honda ATF-Z1 automatic transmission fluid (ATF). Using a non-Honda ATF can affect shift quality.



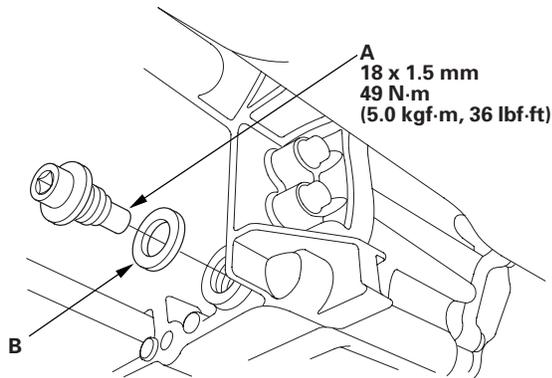
8. Insert the dipstick back into the dipstick guide pipe with aligning the cap with the guide tab on the guide pipe.



ATF Replacement

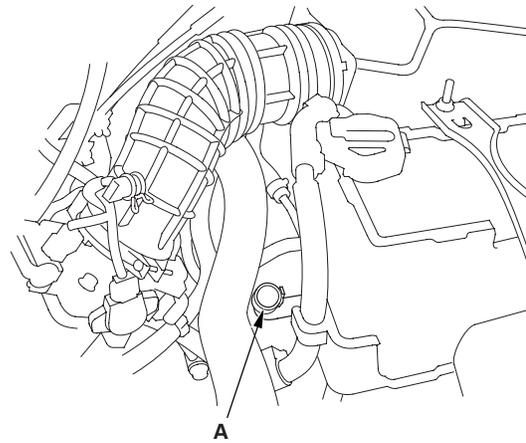
NOTE: Keep all foreign particles out of the transmission.

1. Bring the transmission up to normal operating temperature (the radiator fan comes on).
2. Park the vehicle on level ground, and turn the engine off.
3. Remove the drain plug (A), and drain the automatic transmission fluid (ATF). Then reinstall the drain plug with a new sealing washer (B).

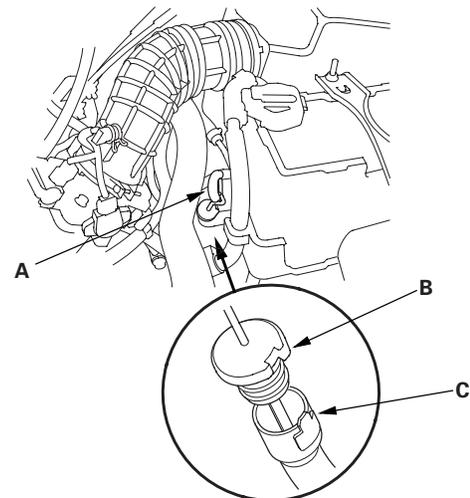


4. Remove the dipstick, and refill transmission with the recommended fluid amount through the opening of the dipstick guide pipe until the level reaches the upper mark on the dipstick. Always use genuine Honda ATF-Z1 automatic transmission fluid (ATF). Using a non-Honda ATF can affect shift quality.

Automatic Transmission Fluid Capacity:
2.8 L (3.0 US qt, 2.5 Imp qt) at change
6.5 L (6.9 US qt, 5.7 Imp qt) at overhaul



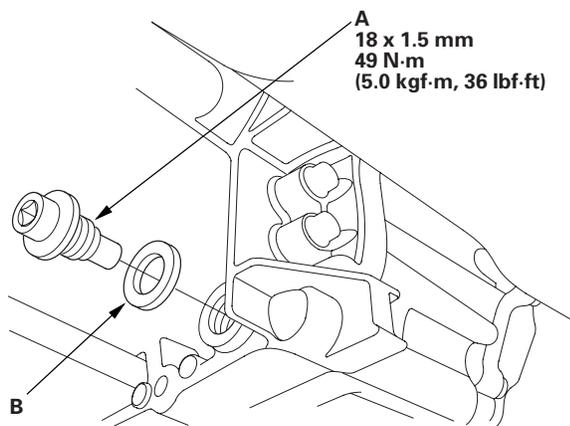
5. Insert the dipstick (A) into the dipstick guide pipe aligning the cap (B) with the guide tab (C).



Automatic Transmission

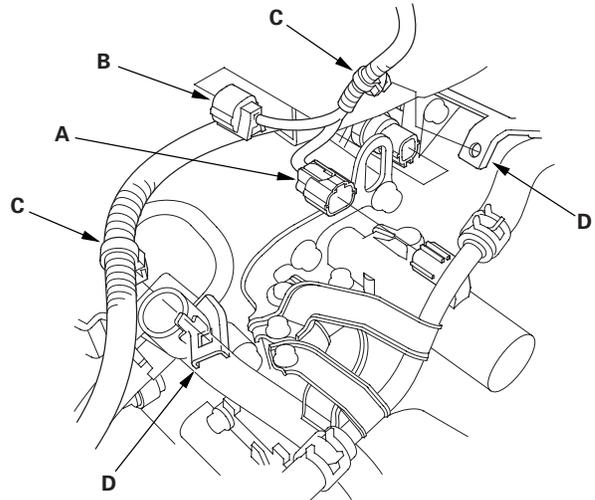
Transmission Removal

1. Before disconnecting the battery, make sure you have the anti-theft code for the radio (and navigation system), then write down the frequencies for the radio's preset stations.
2. Raise the vehicle, and make sure it is supported securely.
3. Remove the splash shield.
4. Remove the drain plug (A), and drain the automatic transmission fluid (ATF).

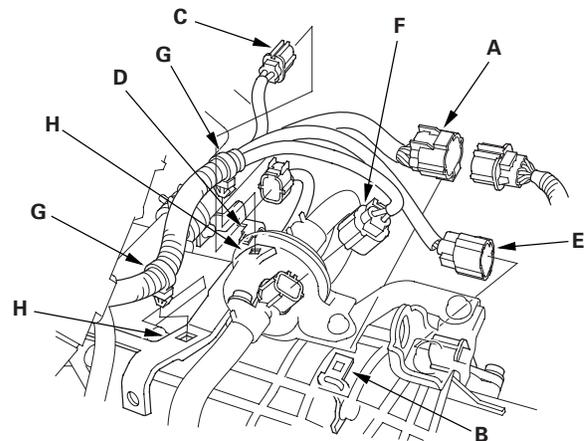


5. Reinstall the drain plug with a new sealing washer (B).
6. Disconnect the battery negative terminal, then disconnect the battery positive terminal.
7. Remove the battery hold-down bracket, then remove the battery cover, battery, and battery tray.
8. Remove the intake air duct and air cleaner housing.
9. Loosen the two bolts securing the battery base from under the vehicle, and remove the two bolts securing the battery base in the engine compartment, then remove the battery base.

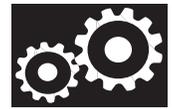
10. Disconnect the A/T clutch pressure control solenoid valve A connector, and 2nd clutch transmission fluid pressure switch connector (B), and remove the harness clamps (C) from the clamp brackets (D).



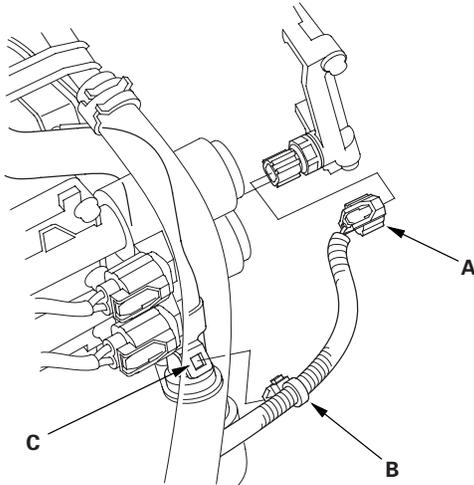
11. Remove the transmission range switch connector (A) from its bracket (B), then disconnect it.



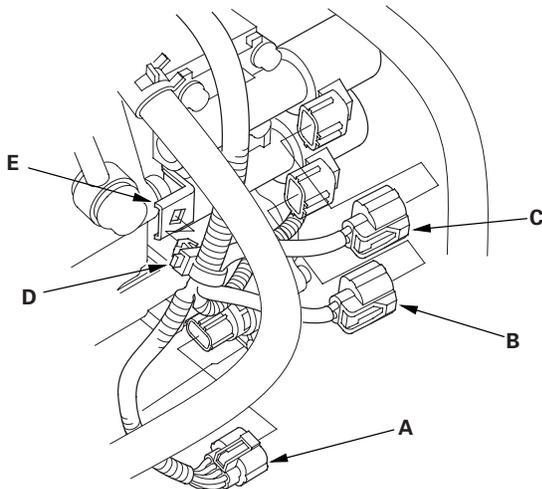
12. Remove the AF sensor connector (C) from its bracket (D), then disconnect it.
13. Disconnect the mainshaft speed sensor connector (E) and countershaft speed sensor connector (F), and remove the harness clamps (G) from the clamp brackets (H).



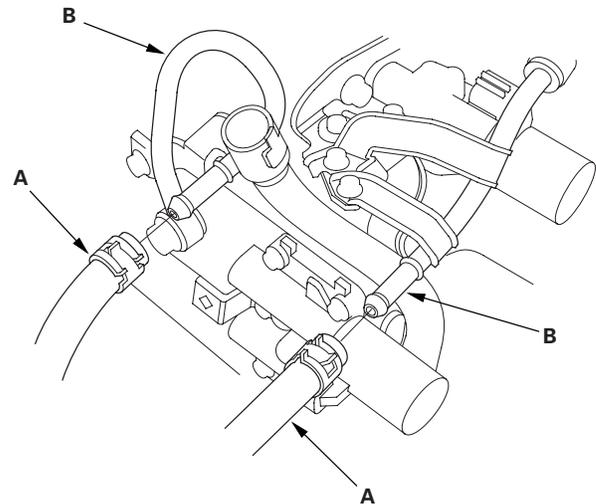
14. Disconnect the 3rd clutch transmission fluid pressure switch connector (A), and remove the harness clamp (B) from the clamp bracket (C).



15. Disconnect the shift solenoid harness connector (A), A/T clutch pressure control solenoid valve B connector, and solenoid valve C connector, and remove the harness clamp (D) from the clamp bracket (E).

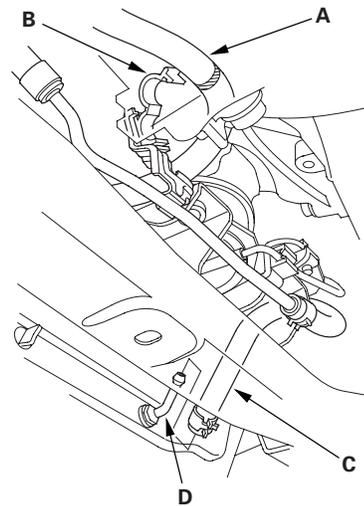


16. Remove the ATF cooler hoses (A) from the ATF cooler lines (B). Turn the ends of the ATF cooler hoses up to prevent ATF from flowing out, then plug the ATF cooler hoses and lines.



17. Check for any signs of leakage at the hose joints.

18. Remove the ATF cooler hose (A) from the hose clamp (B).



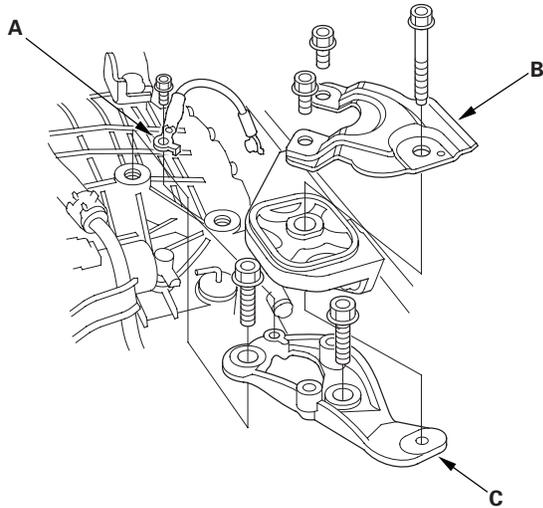
19. Disconnect the ATF cooler hose (C) from the ATF cooler line (D), then plug the hose end.

(cont'd)

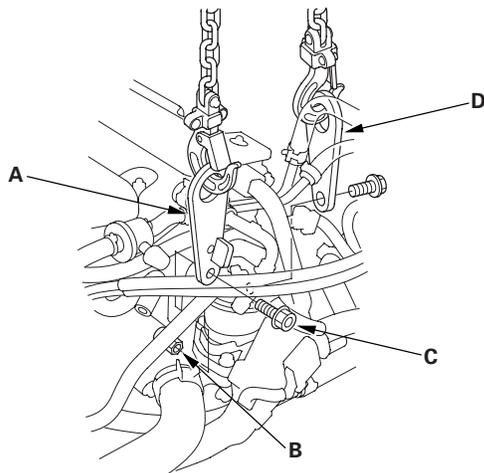
Automatic Transmission

Transmission Removal (cont'd)

20. Remove the ground cable (A), transmission upper mount bracket plate (B), and transmission upper mount bracket (C).

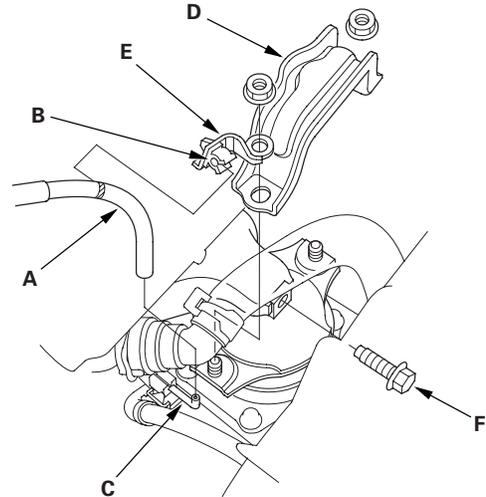


21. Attach the hanger plate (A) to the stud nut (B) on the ERG passage with 8 1.25 16 mm bolt (C). Use only the 8 1.25 mm and 16 mm in length of the threads bolt. If you use other than 16 mm threads-length bolt, it may damage the engine cylinder head.



22. Attach the hanger plate (D) to the threaded hole in the back of the cylinder head. Attach the hoist to the hanger plates, and lift and support the engine. Do not attach the hoist to the engine directly, always use the hanger plates.

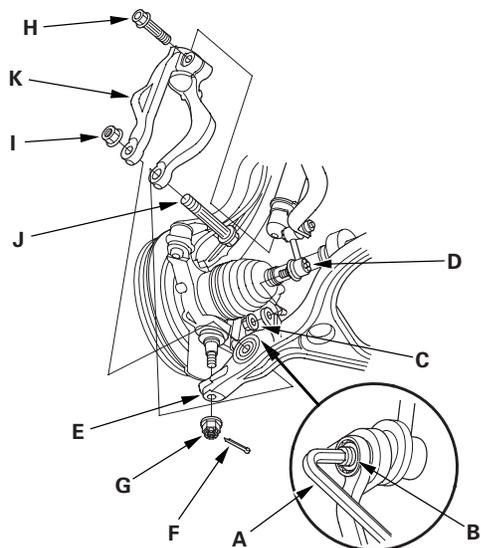
23. Remove the vacuum hose (A) from its clamp (B), then disconnect the hose from the vacuum line (C).



24. Remove the front mount stop (D) and clamp bracket (E), and remove the front mount bolt (F).

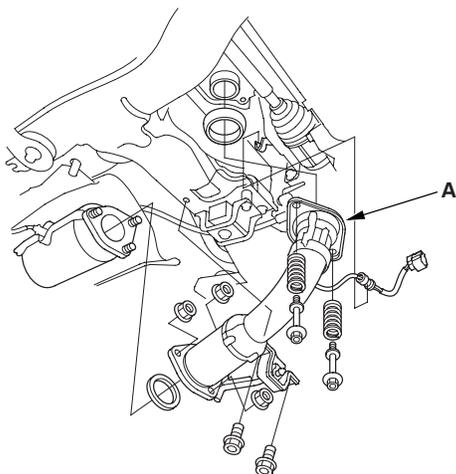


25. Insert a 6 mm Allen wrench (A) in the top of the ball joint pin (B), and remove the nuts (C), then separate the stabilizer link (D) from the lower arms (E).



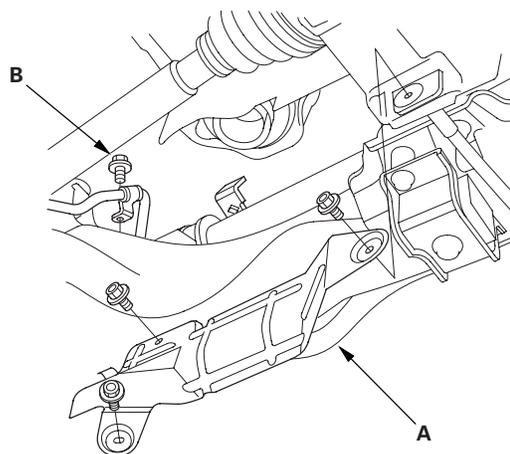
26. Remove the cotter pins (F), castle nuts (G), damper pinch bolt (H), self-locking nut (I), bolt (J), and damper forks (K), then separate the ball joints from the lower arms (see page 18-21).

27. Remove the exhaust pipe A and its mount.

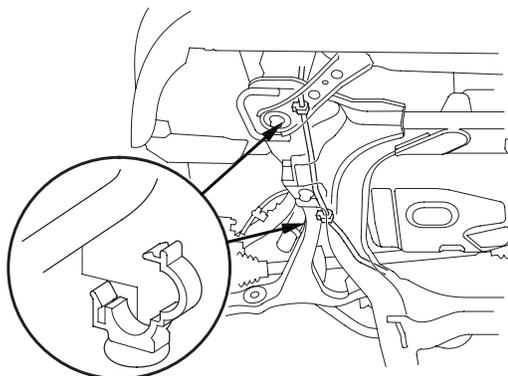


28. Remove the steering gearbox heat shield (A), and remove the bolt (B) securing the power steering fluid line bracket.

NOTE: The illustration shows LHD model; RHD model is similar.



29. Remove the power steering fluid line from its clamps on the front subframe.

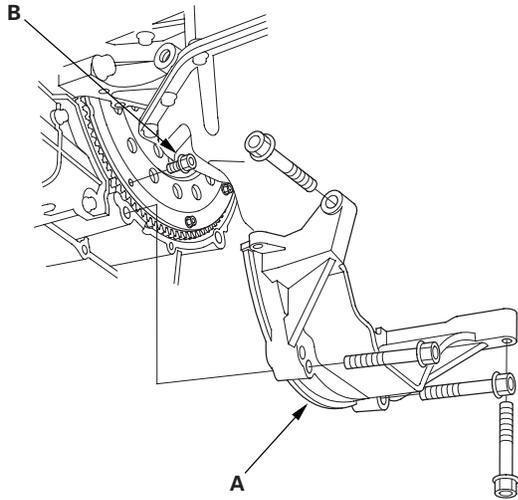


(cont'd)

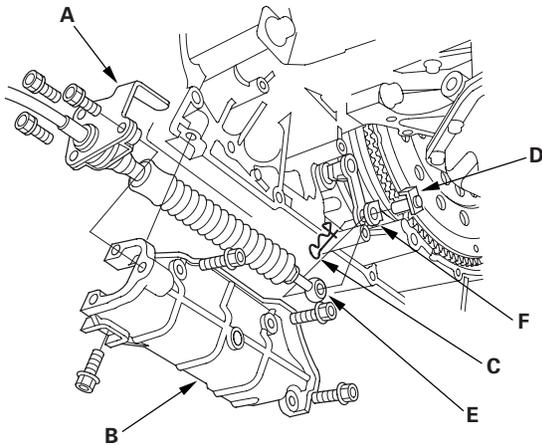
Automatic Transmission

Transmission Removal (cont'd)

30. Remove the engine stiffener (A), and remove the drive plate bolts (B) while rotating the crankshaft pulley.

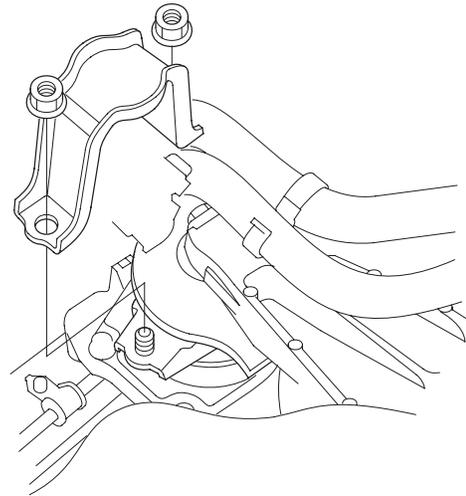


31. Remove the three bolts securing the shift cable holder (A), then remove the shift cable cover (B).



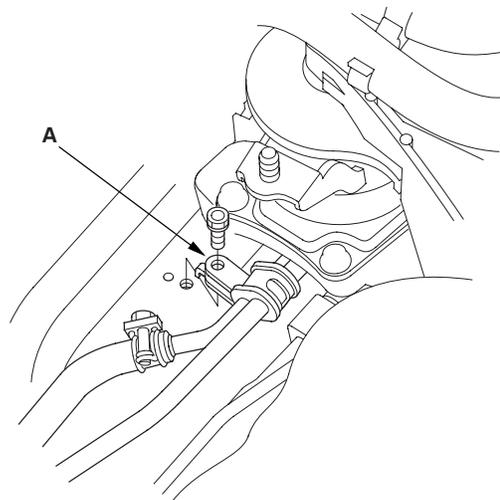
32. Remove the spring clip (C) and control pin (D), then separate the shift cable (E) from the control lever (F). Do not bend the shift cable excessively.

33. Remove the rear mount stop.



34. Remove the power steering fluid line bracket (A) from the front subframe.

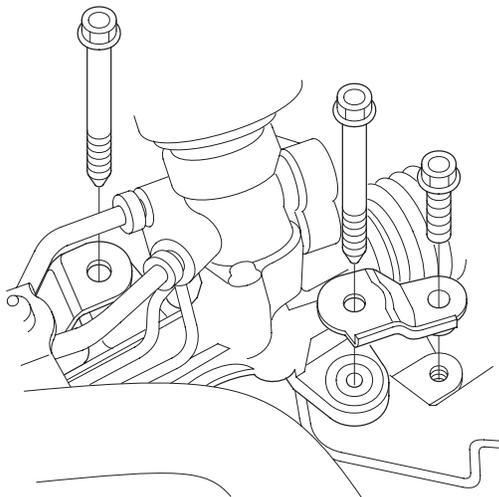
NOTE: The illustration shows LHD model; RHD model is similar.





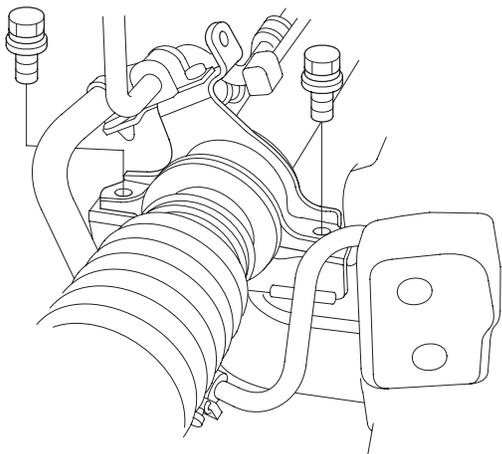
35. Remove the steering gear box mounting bolts and stiffener.

NOTE: The illustration shows LHD model; RHD model is similar.

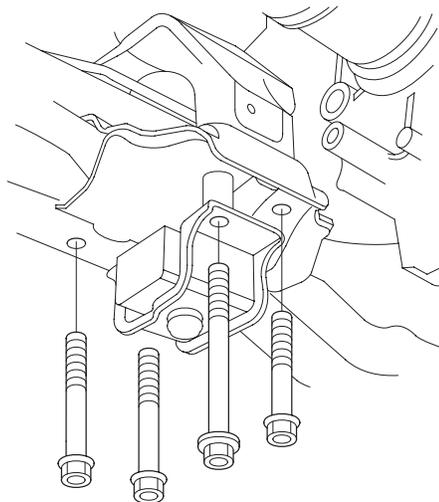


36. Remove the steering gearbox mounting bracket bolts.

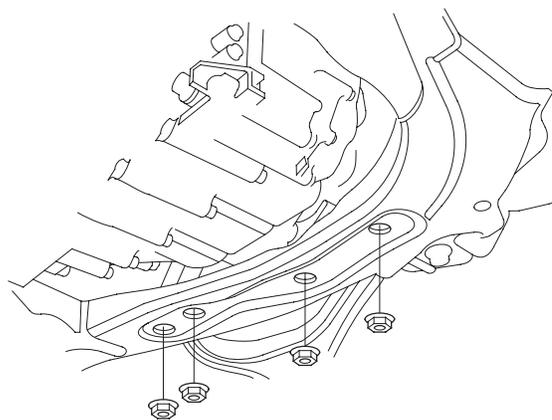
NOTE: The illustration shows LHD model; RHD model is similar.



37. Remove the rear mount base bracket bolts.



38. Remove the transmission lower mounts nuts.

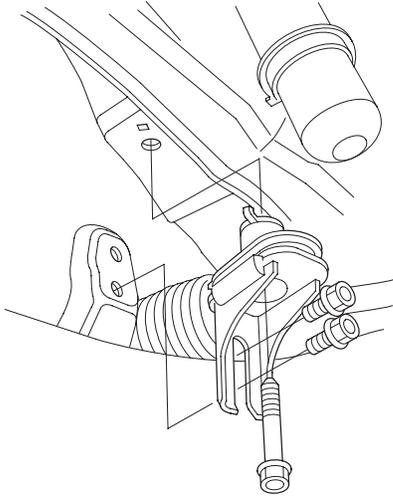


(cont'd)

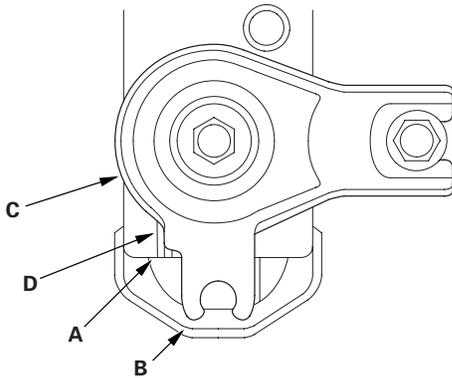
Automatic Transmission

Transmission Removal (cont'd)

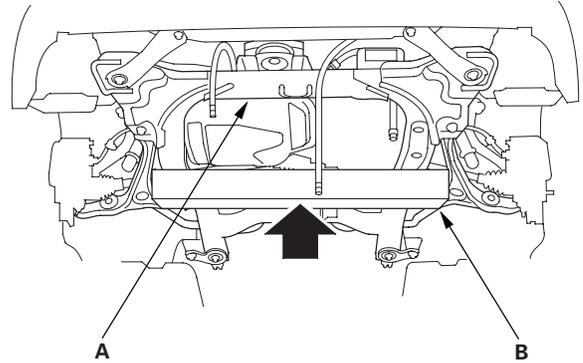
39. Remove the both mid-mounts.



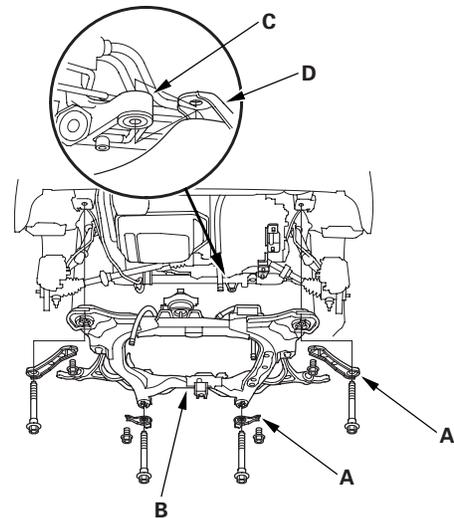
40. Make the appropriate reference lines (A) at both ends of the subframe (B) that line up with the edge (C) of the stiffeners (D).



41. Support the subframe (A) with a 4 4 40 in. piece of wood (B) and a jack.



42. Remove the four bolts securing the stiffeners (A), and four bolts securing the front subframe (B).

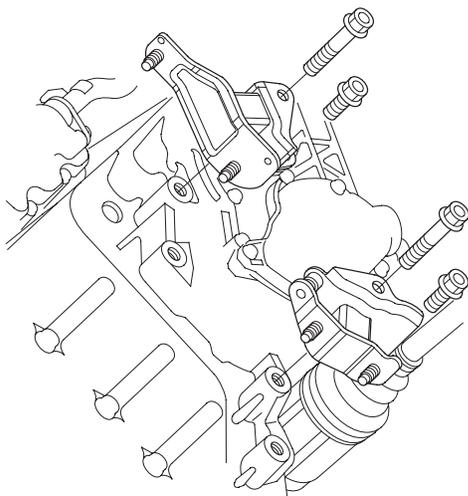


43. Lower the front subframe by sliding the steering gearbox (C) out to clear the gearbox mounting bracket (D) on the subframe.

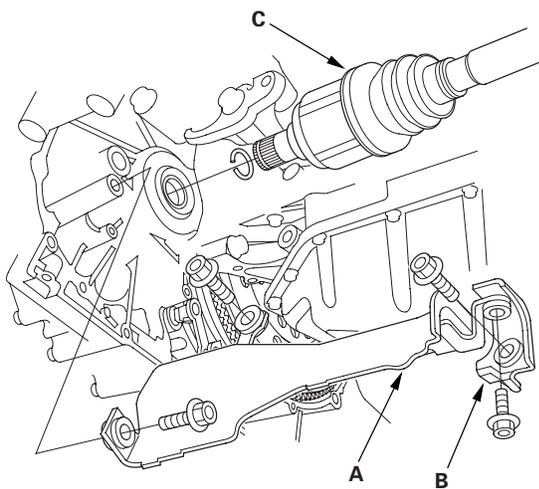
44. Hang the steering gearbox to the body with a rope.



45. Remove the transmission lower mounts.

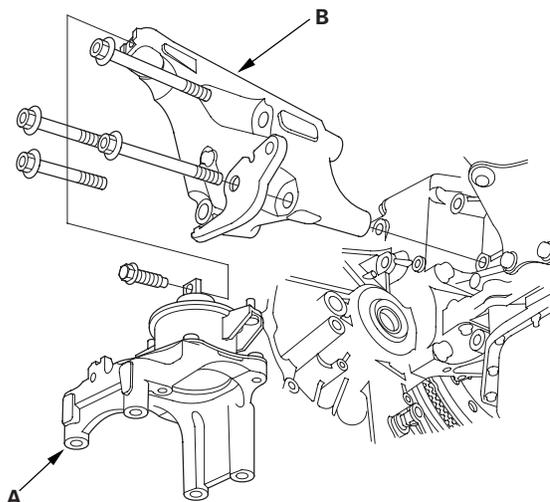


46. Remove the driveshaft boot cover (A) and bracket (B).



47. Pry out the driveshafts (C), and remove them from the differential (see page 16-6).

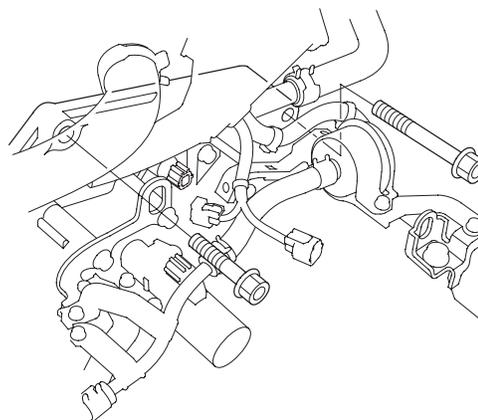
48. Remove the rear mount/base bracket (A).



49. Remove the rear mount bracket (B).

50. Place a jack under the transmission.

51. Remove the transmission housing mounting bolts.

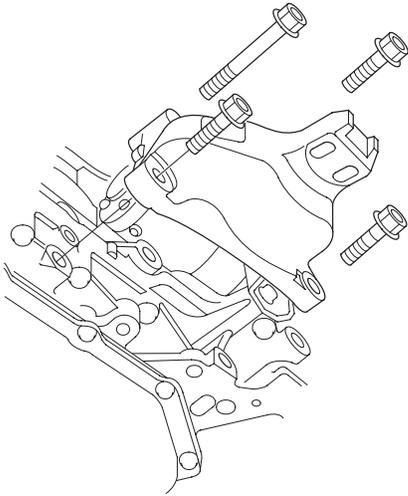


(cont'd)

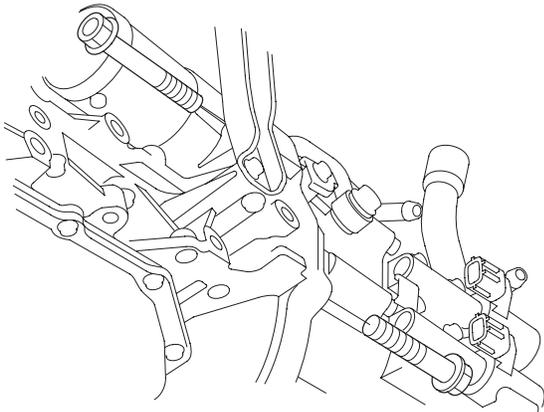
Automatic Transmission

Transmission Removal (cont'd)

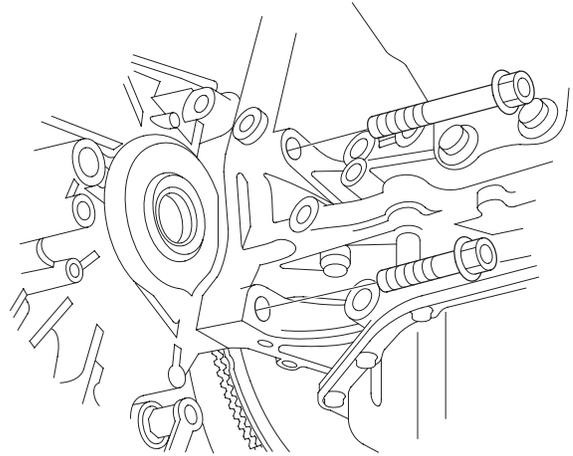
52. Remove the front mount bracket.



53. Remove the transmission housing mounting bolts.

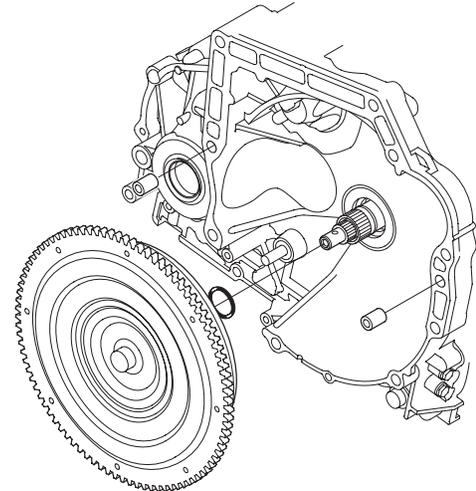


54. Remove the transmission housing mounting bolts.



55. Slide the transmission away from the engine to remove it from the vehicle.

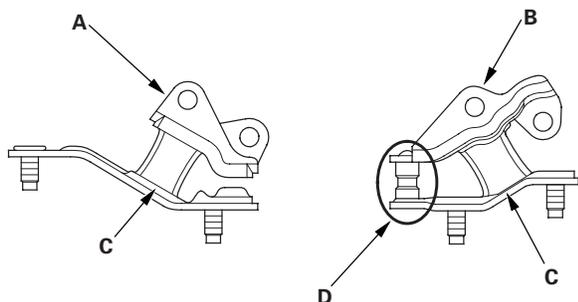
56. Remove the torque converter.



57. Inspect the drive plate, and replace it if it's damaged.

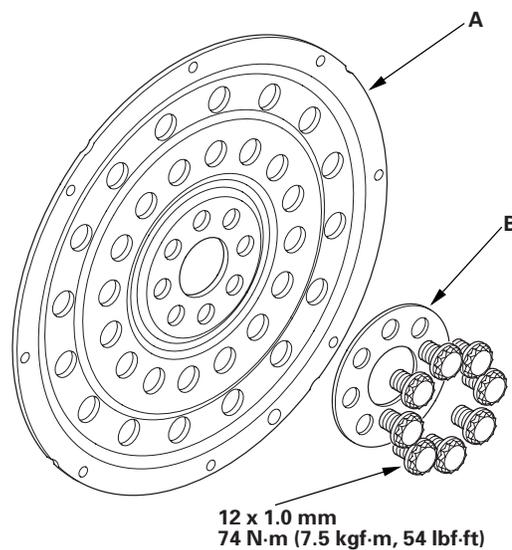


58. Check the transmission lower front mount (A) and lower rear mount (B). If the mount rubber (C) is worn or damaged, replace the mount. It is no need to replace the lower rear mount if its sub-mount rubber (D) has ruptured or cracks, reuse it.



Drive Plate Removal and Installation

1. Remove the drive plate (A) and washer (B) from the engine crankshaft.

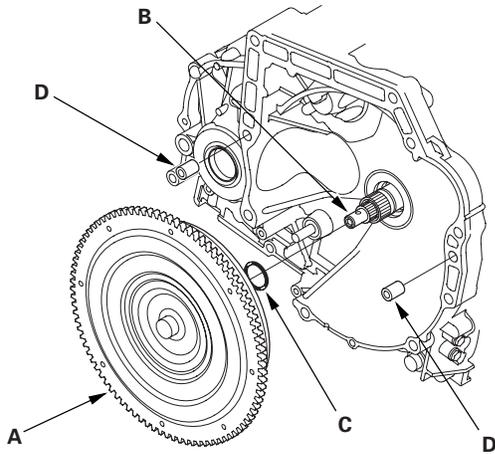


2. Install the drive plate and washer on the engine crankshaft, and tighten the eight bolts in a crisscross pattern in two or more steps.

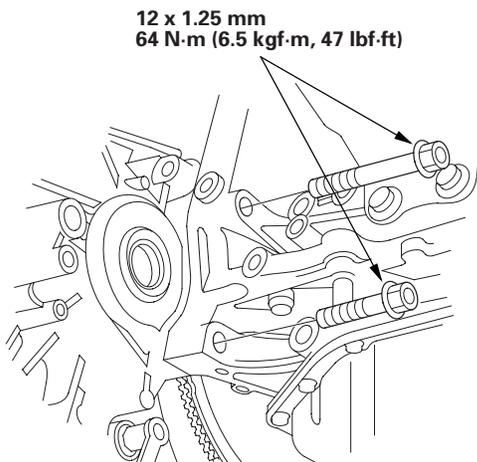
Automatic Transmission

Transmission Installation

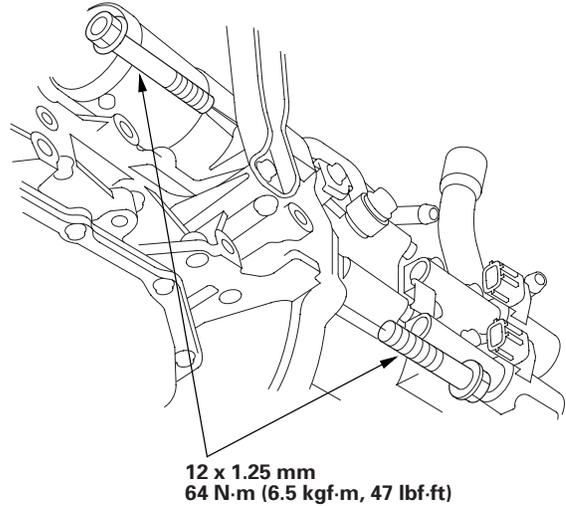
1. Flush the ATF cooler.
2. Install the torque converter assembly (A) on the mainshaft (B) with the new O-ring (C).



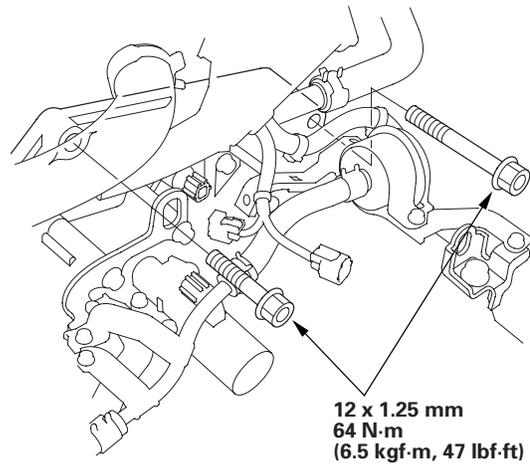
3. Install the 14 x 20 mm dowel pins (D) in the torque converter housing.
4. Place the transmission on the jack, and raise the transmission to the engine level.
5. Attach the transmission to the engine, then install the transmission housing mounting bolts.



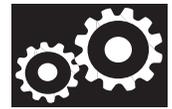
6. Install the transmission housing mounting bolts.



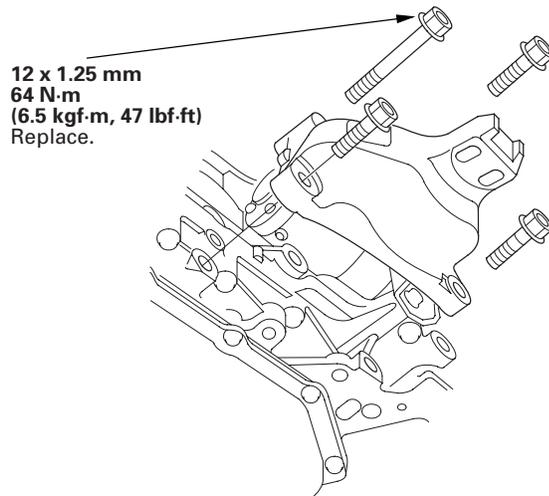
7. Install the transmission housing mounting bolts.



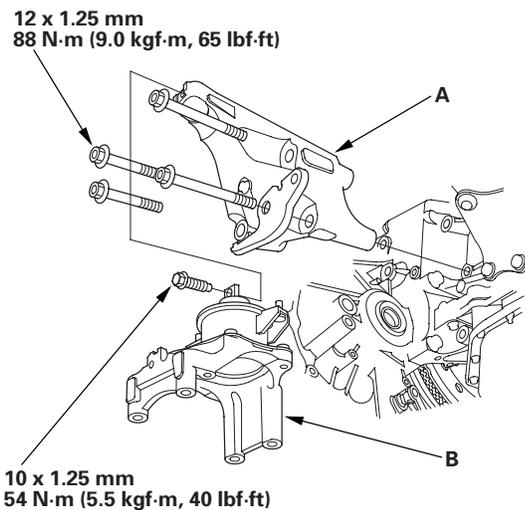
8. Remove the jack from the transmission.



9. Install the front mount bracket with the new bolts.

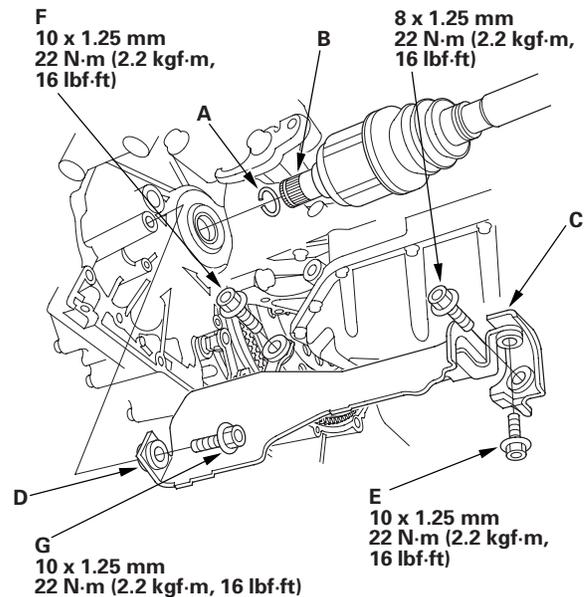


10. Install the rear mount bracket (A).



11. Install the rear mount/base bracket (B).

12. Install the new set rings (A) on the right and left driveshafts (B).



13. Install the right and left driveshafts (see page 16-21). While installing the driveshafts in the differential, be sure not to allow dust or other foreign particles to enter the transmission.

NOTE:

- Clean the areas where the driveshafts contact the transmission (differential) with solvent or carburetor cleaner, and dry with compressed air.
- Turn the right and left steering knuckle fully outward, and slide the driveshafts into the differential until you feel its set ring engages the side gear.

14. Install the driveshaft boot cover bracket (C).

15. Install the driveshaft boot cover (D), but do not tighten the bolts.

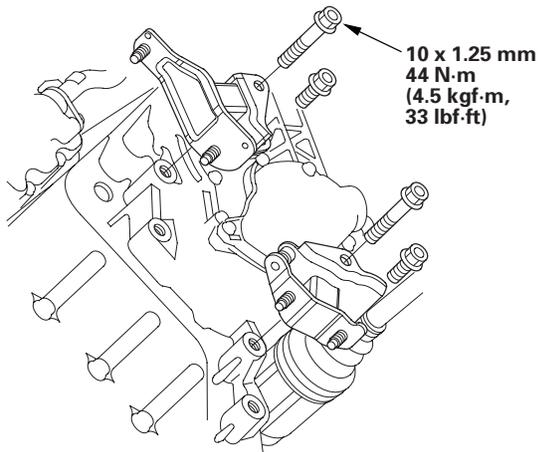
16. Tighten the upper right bolt (E) on the cover first, then upper left bolt (F), and lastly the lower left bolt (G).

(cont'd)

Automatic Transmission

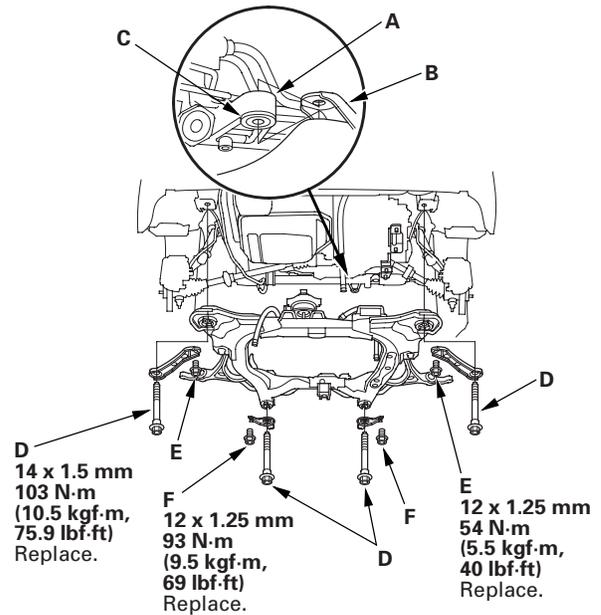
Transmission Installation (cont'd)

17. Install the transmission lower mounts.



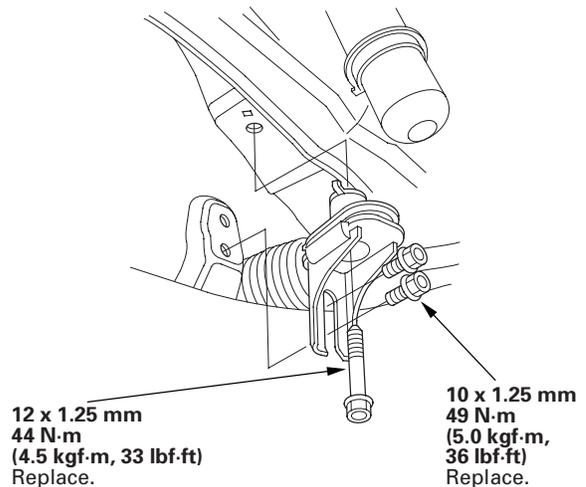
18. Support the front subframe with a wood piece and a jack, and lift it up to body.

19. Slide the steering gearbox (A) in the gearbox mounting bracket (B). Apply a neutral detergent (diluted with water) to the steering gearbox bushing (C) surfaces upper and lower. If you don't apply a neutral detergent to the bushing surfaces, the gearbox bushing will be damaged when installing the subframe.



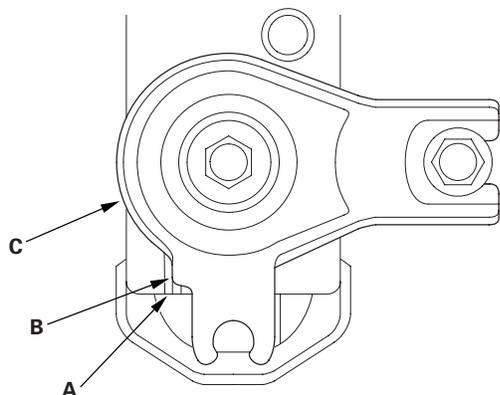
20. Loosely install the new subframe mounting bolts (D), stiffener mounting bolts (E), and new stiffener mounting bolts (F).

21. Loosely install both of the new mid-mounts mounting bolts.

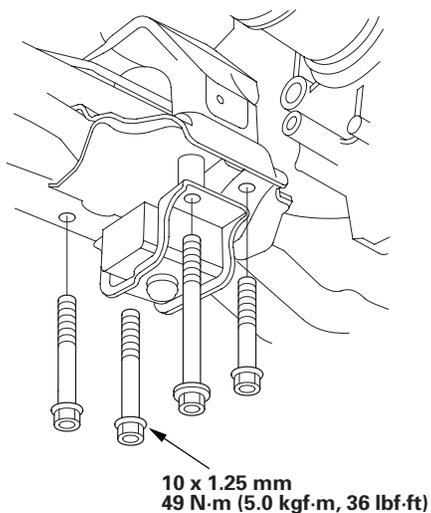




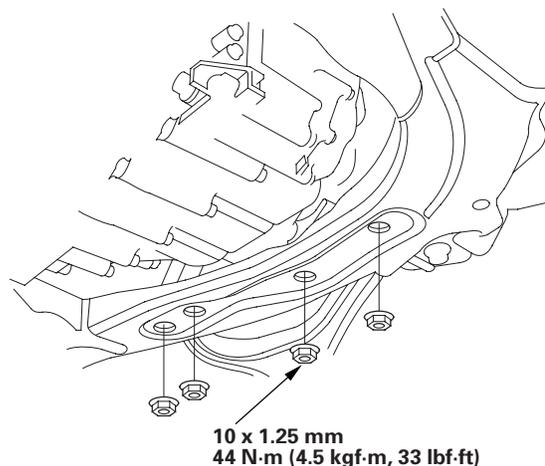
22. Align the reference marks (A) with edge (B) of both rear stiffeners (C), and tighten the rear subframe mounting bolts, then front bolts, and tighten the stiffener bolts to the specified torque.



23. Tighten the mid-mount mounting bolts.
24. Install the rear mount base bracket bolts.

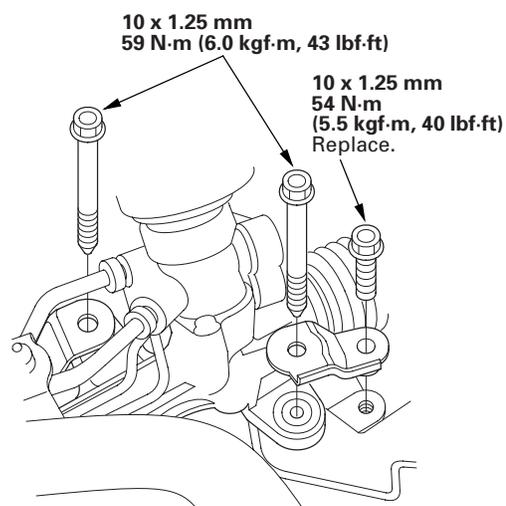


25. Install the transmission lower mounts nuts.



26. Install the steering gearbox mounting bolts, and install new stiffener bolt.

NOTE: The illustration shows LHD model; RHD model is similar.



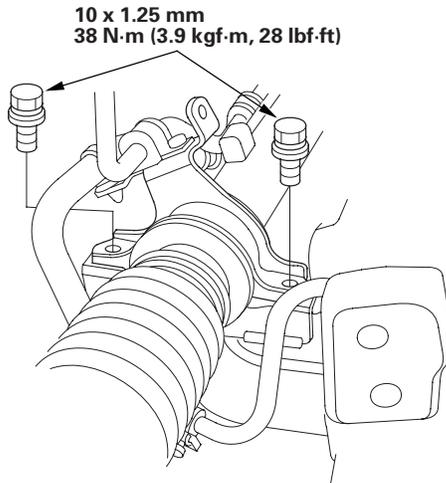
(cont'd)

Automatic Transmission

Transmission Installation (cont'd)

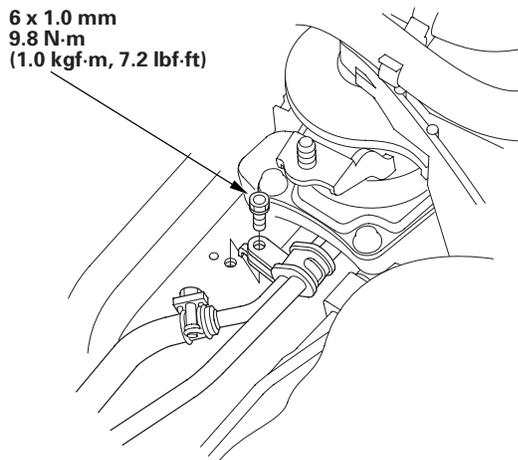
27. Install the steering gearbox mounting bracket bolts.

NOTE: The illustration shows LHD model; RHD model is similar.



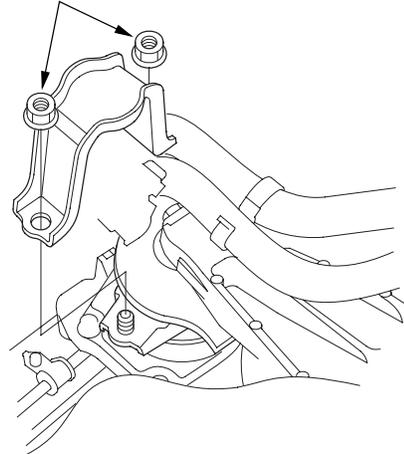
28. Secure the power steering fluid line bracket on the subframe with the bolt.

NOTE: The illustration shows LHD model; RHD model is similar.



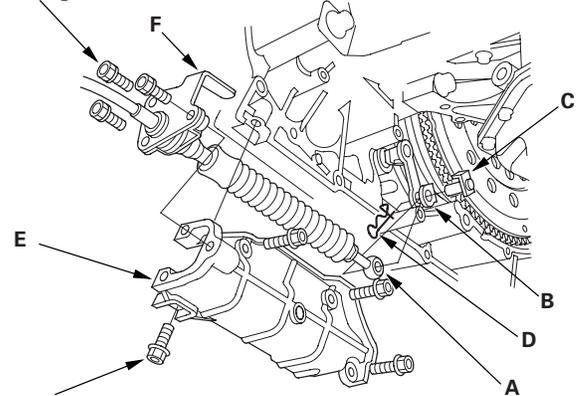
29. Install the rear mount stop.

12 x 1.25 mm
69 N·m (7.0 kgf·m, 51 lbf·ft)



30. Attach the shift cable end (A) to the control lever (B), then insert the control pin (C) into the control lever hole through the shift cable end, and secure the control pin with the spring clip (D). Do not bend the shift cable excessively.

6 x 1.0 mm
9.8 N·m
(1.0 kgf·m, 7.2 lbf·ft)

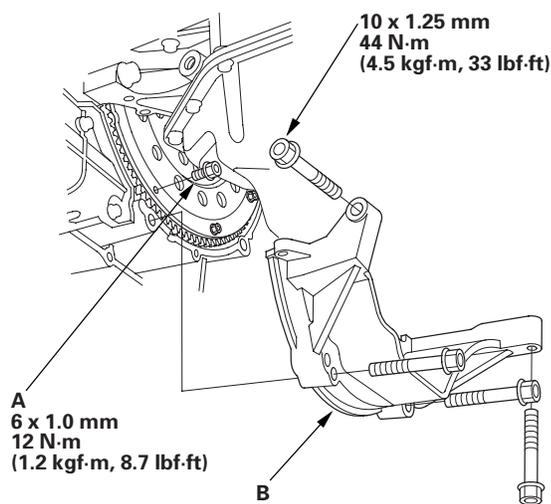


6 x 1.0 mm
12 N·m (1.2 kgf·m, 8.7 lbf·ft)

31. Install the shift cable cover (E), then secure the shift cable holder (F) to the shift cable cover with the three bolts.

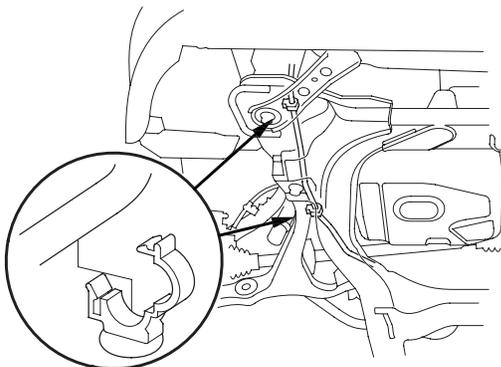


32. Attach the torque converter to the drive plate with eight bolts (A). Rotate the crankshaft pulley as necessary to tighten the bolts to 1/2 of the specified torque, then to the final torque, in a crisscross pattern. After tightening the last bolt, check that the crankshaft rotates freely.



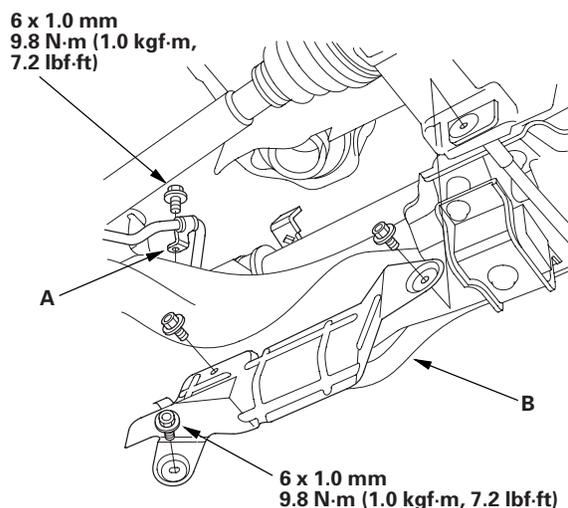
33. Install the engine stiffener (B).

34. Secure the power steering fluid line with the clamps.

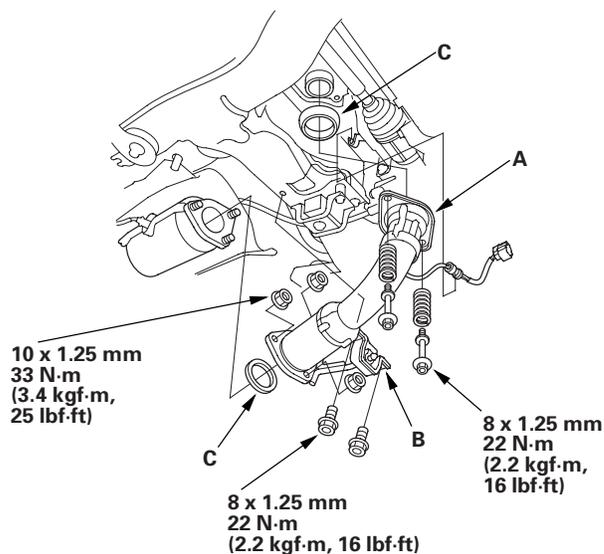


35. Secure the power steering fluid line bracket (A) with the bolt, and install the steering gearbox heat shield (B).

NOTE: The illustration shows LHD model; RHD model is similar.



36. Install the exhaust pipe A, its mount (B), and new gaskets (C).

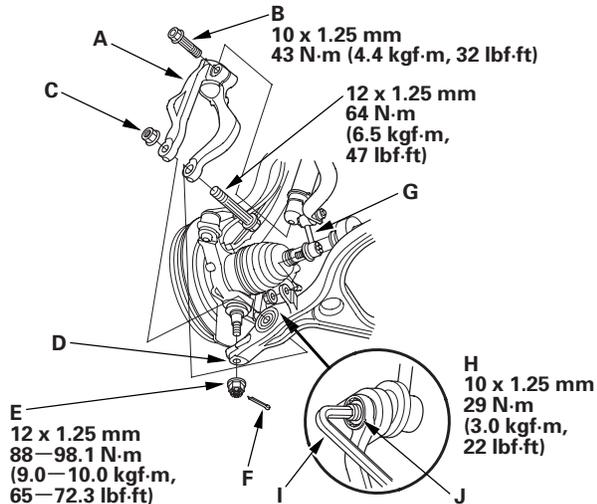


(cont'd)

Automatic Transmission

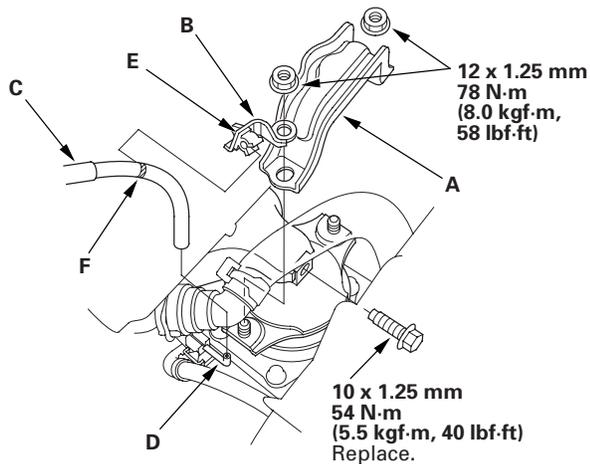
Transmission Installation (cont'd)

37. Install the damper forks (A) with damper pinch bolts (B) and new self-locking nuts (C), then install the ball joints on the lower arms (D) with the castle nuts (E) and new cotter pins (F).



38. Install the stabilizer links (G) to the lower arms, and install the nuts (H). Insert a 6 mm Allen wrench (I) in the ball joint pin (J), and tighten the nuts.

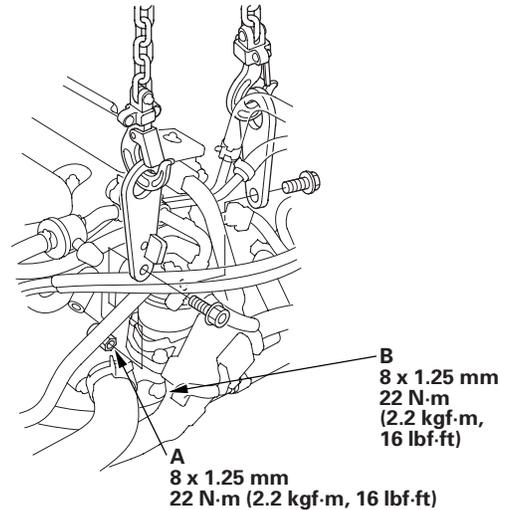
39. Install the new front mount bolt.



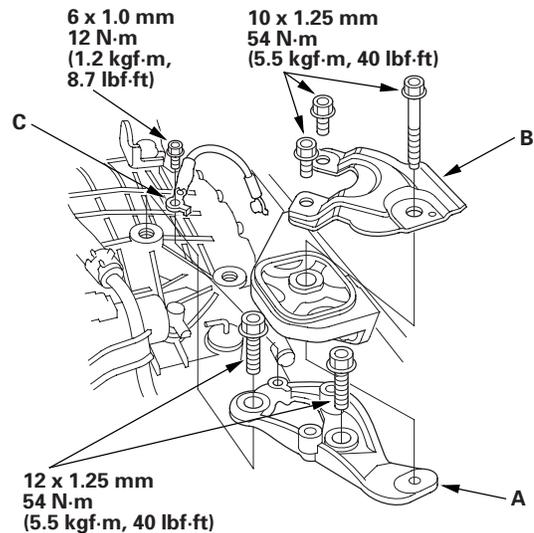
40. Install the front mount stop (A) and vacuum hose clamp bracket (B).

41. Connect the vacuum hose (C) to the vacuum line (D), then install the hose on its clamp (E) at the mark (F).

42. Hold the sud nut (A) with a wrench, and remove the hanger paltes and bolts. Tighten the EGR passage mounting bolts (three bolts) (B) and stud nut to the specified torque.

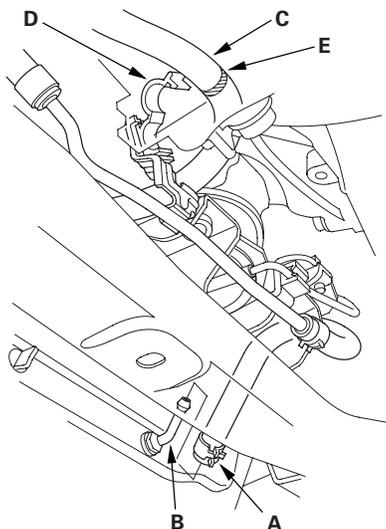


43. Install the transmission upper mount bracket (A), transmission upper mount bracket plate (B), and ground cable (C).



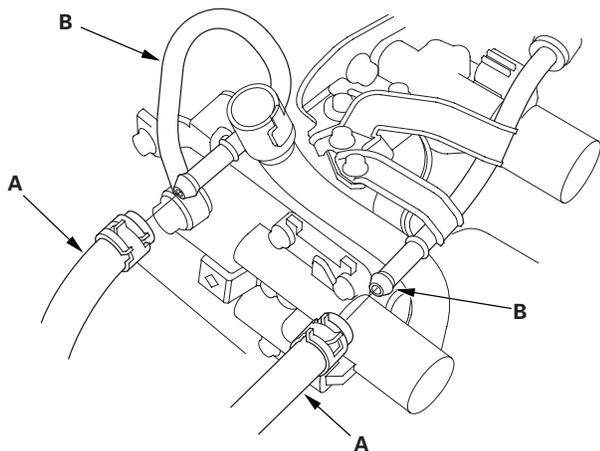


44. Connect the ATF cooler hose (A) to the ATF cooler line (B), and secure it with the clip (see page 14-199).

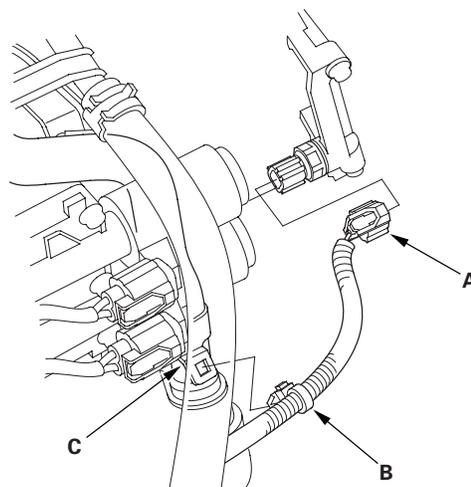


45. Install the ATF cooler hose (C) on the clamp (D) at the mark (E).

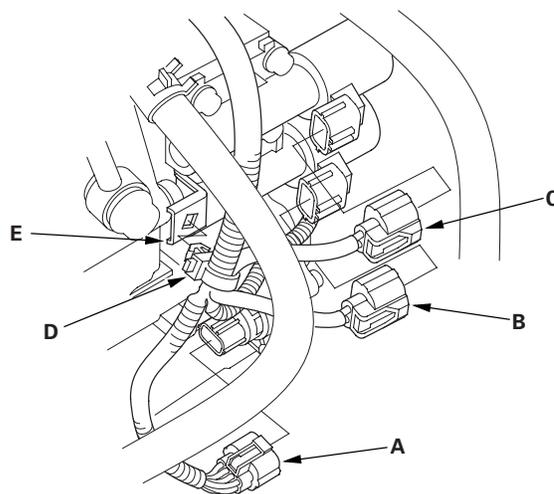
46. Connect the ATF cooler hoses (A) to the ATF cooler lines (B), and secure the hoses with the clips (see page 14-199).



47. Connect the 3rd clutch transmission fluid pressure switch connector (A), and install the harness clamp (B) on the clamp bracket (C).



48. Connect the shift solenoid harness connector (A), A/T clutch pressure control solenoid valve B connector, and solenoid valve C connector, and install the harness clamp (D) on the clamp bracket (E).

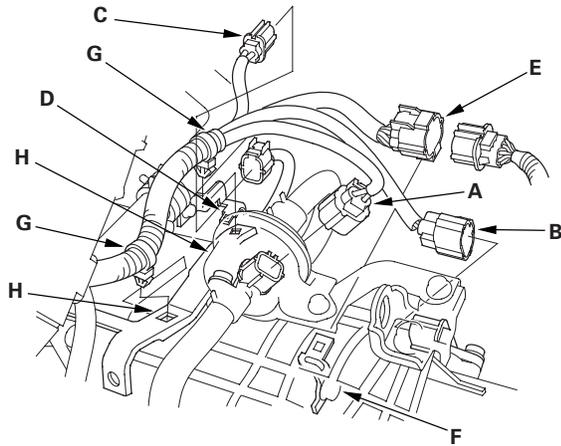


(cont'd)

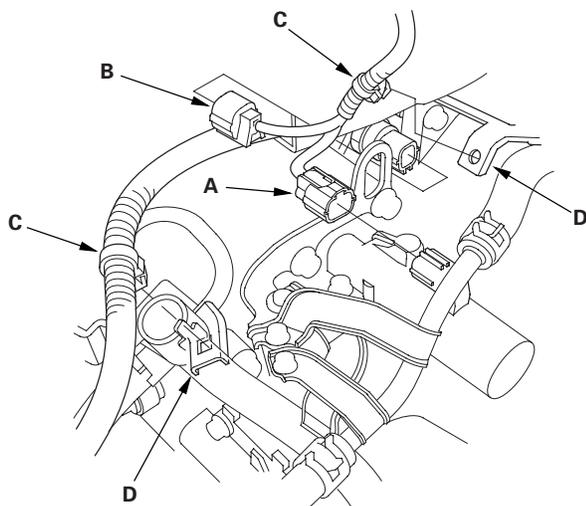
Automatic Transmission

Transmission Installation (cont'd)

49. Connect the countershaft speed sensor connector (A) and mainshaft speed sensor connector (B).



50. Connect the AF sensor connector (C), then install it on its bracket (D).
51. Connect the transmission range switch connector (E), then install it on its bracket (F).
52. Install the harness clamps (G) on the harness clamp brackets (H).
53. Install the A/T clutch pressure control solenoid valve A connector and 2nd clutch transmission fluid pressure switch connector (B), and install the harness clamps (C) on the harness clamp brackets (D).

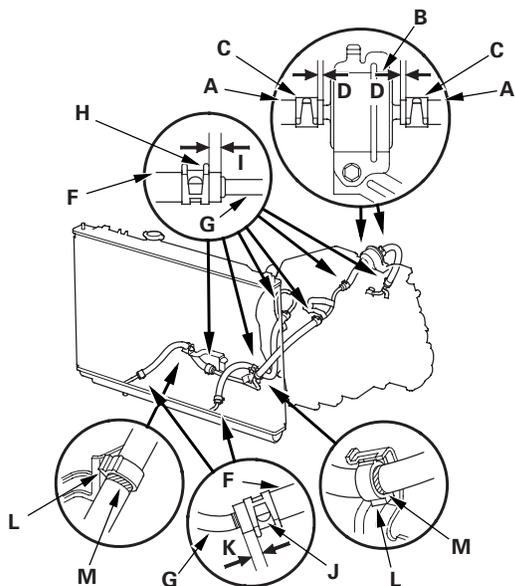


54. Refill the transmission with ATF (see page 14-179).
55. Install the battery base.
56. Install the air cleaner housing and intake air duct.
57. Install the battery tray, battery, and battery cover, then secure the battery with its hold-down bracket.
58. Connect the battery terminals.
59. Set the parking brake. Start the engine, and shift the transmission through all gears three times.
60. Check the shift lever operation, A/T gear position indicator operation, and shift cable adjustment.
61. Check and adjust the front wheel alignment (see page 18-6).
62. Install the splash shield.
63. Start the engine in the **P** or **N** position, and warm it up to normal operating temperature (the radiator fan comes on). Do the PCM idle learn procedure (see page 11-193).
64. Turn off the engine, and check the ATF level (see page 14-178).
65. Do the power window control unit reset procedure (see page 22-219).
66. Perform the road test (see page 14-159).
67. Enter the anti-theft code for the radio (and navigation system), then enter the radio station presets, and set the clock.



ATF Cooler Hoses Replacement

1. Slide the ATF cooler hoses (A) on the ATF filter (B) until they are 5–6 mm (0.20–0.24 in.) away from the filter housing.
2. Secure the hoses with the clip (C) at 10–12 mm (0.4–0.5 in.) (D) from the filter housing.



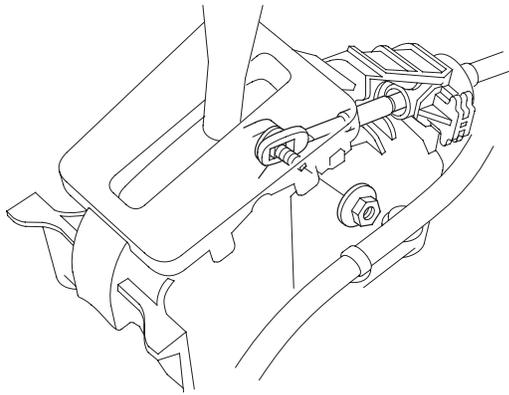
3. Slide the ATF cooler hoses (F) over the ATF cooler lines (G).
4. Secure the hoses with the clips (H) at 5–6 mm (0.2–0.24 in.) (I) from the hose ends, and secure the hoses at the ATF cooler with the clips (J) at 2–4 mm (0.1–0.2 in.) (K) from the hose ends.
5. Install the hoses on the clamps (L) at the marks (M).

Automatic Transmission

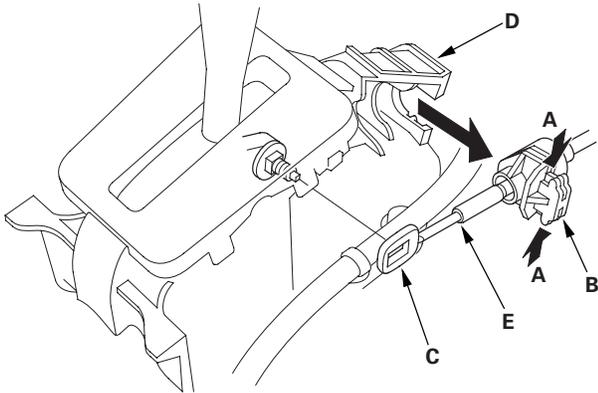
Shift Lever Removal

NOTE: The illustration shows LHD model; RHD model is similar.

1. Remove the center console and rear console (see page 20-85).
2. Shift the transmission into the **R** position.
3. Remove the nut securing the shift cable end.

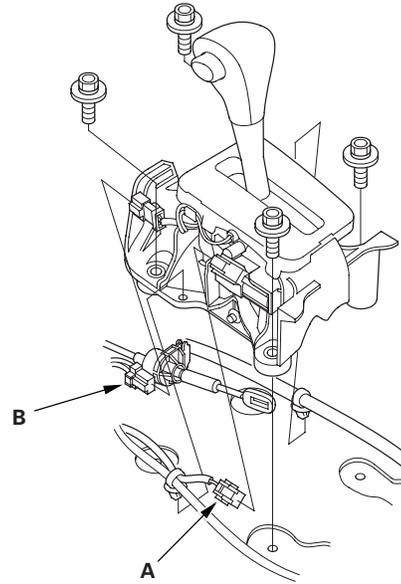


4. Press the holder lock release (A), and pull out the socket holder (B) on the shift cable (C) of the shift lever bracket base (D). Do not remove the shift cable by pulling the shift cable guide (E).

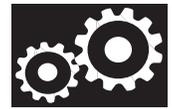


5. Disconnect shift lock solenoid connector (A) and park pin switch connector (B).

NOTE: The illustration shows a type A shift lever; the type B shift lever is similar.



6. Remove the shift lever assembly.



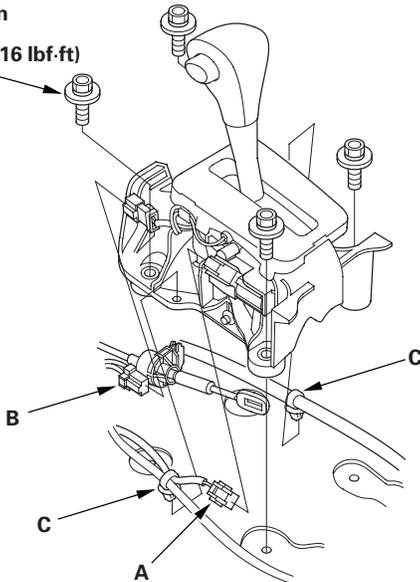
Shift Lever Installation

NOTE: The illustration shows LHD model; RHD model is similar.

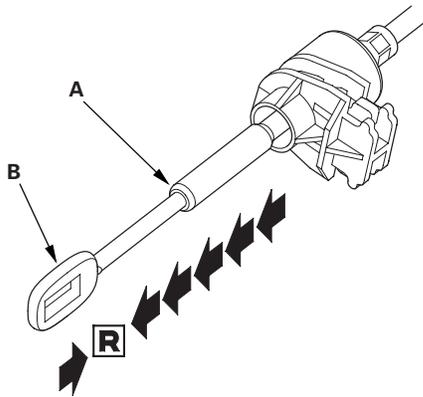
1. Install the shift lever assembly.

NOTE: The illustration shows a type A shift lever; the type B shift lever is similar.

8 x 1.25 mm
22 N·m
(2.2 kgf·m, 16 lbf·ft)



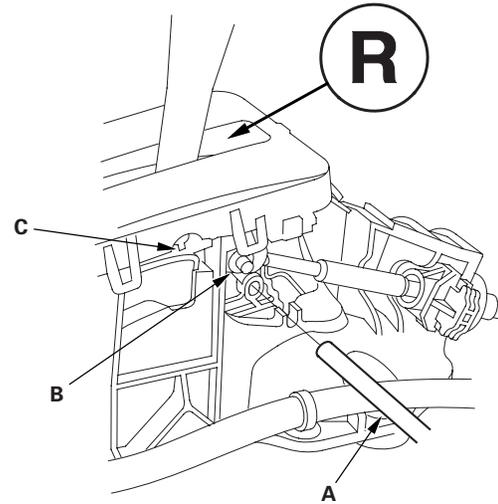
2. Connect the shift lock solenoid connector (A) and park pin switch connector (B), and install the harness clamps (C) on the shift lever bracket base.
3. Turn the ignition switch ON (II), and verify that the **R** position indicator comes on.
4. If necessary, push the shift cable until it stops, then release it. Pull the shift cable back one step so that the shift position is in **R**. Do not hold the shift cable guide (A) to adjust the shift cable (B).



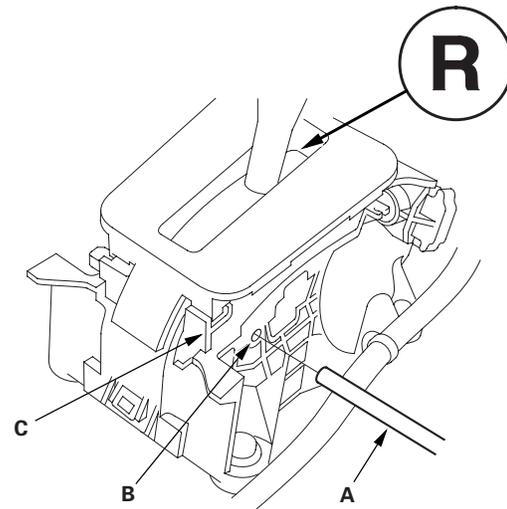
5. Turn the ignition switch OFF.

6. Insert a 6.0 mm (0.24 in.) pin (A) through the positioning hole (B) on the shift lever bracket base and into the positioning hole (C) on the shift lever. The shift lever is secured in the **R** position.

Type A Shift Lever:



Type B Shift Lever:

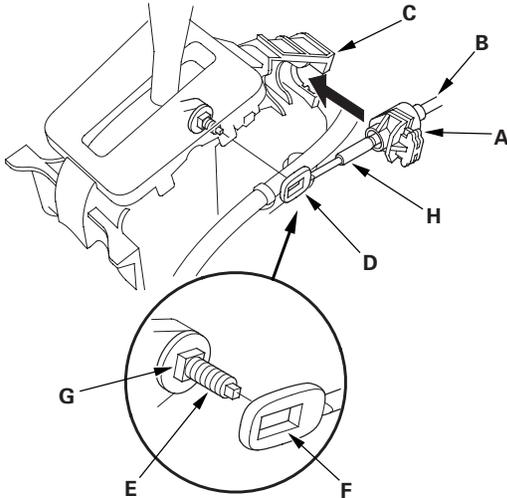


(cont'd)

Automatic Transmission

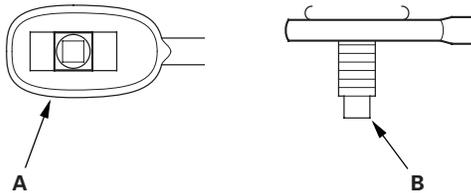
Shift Lever Installation (cont'd)

7. Align the socket holder (A) on the shift cable (B) with the slot in the bracket base (C), then slide the holder into the base. Install the shift cable end (D) over the mounting stud (E) by aligning its square hole (F) with the square fitting (G) at the bottom of the stud. Push the holder until it snaps securely in place. Do not install the shift cable by holding the shift cable guide (H).

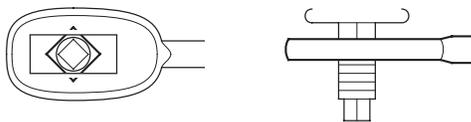


8. Verify that the shift cable end (A) is properly installed on the mounting stud (B).

Properly Installed:

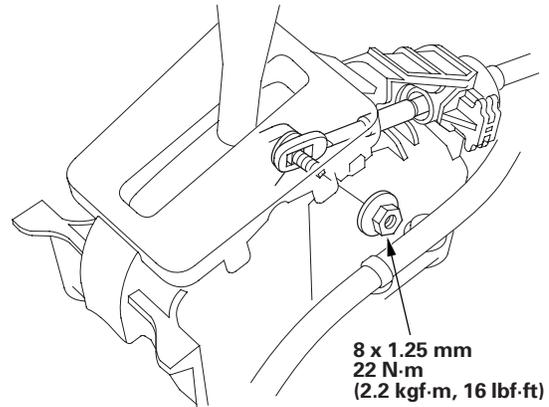


Improperly Installed:

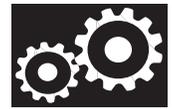


Cable end rides on the bottom of the mounting stud.

9. If improperly installed, remove the shift cable from the bracket base, and reinstall the shift cable. Do not install the shift cable end on the mounting stud while the shift cable is on the bracket base.
10. Install and tighten the nut.



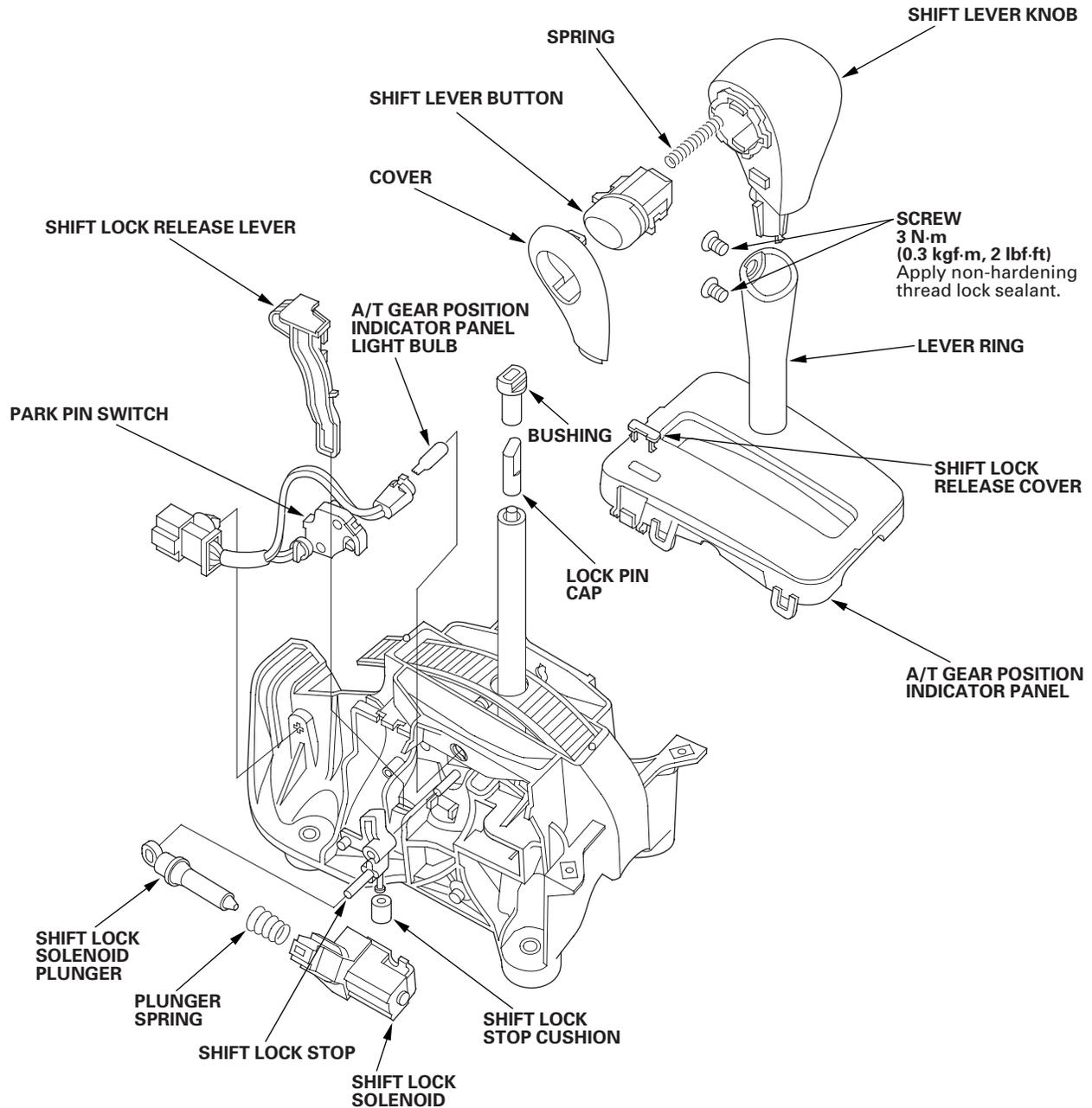
11. Remove the 6.0 mm (0.24 in.) pin that was installed to hold the shift lever.
12. Move the shift lever to each position, and verify that the A/T gear position indicator follows the transmission range switch.
13. Push the shift lock release, and verify that the shift lever releases.
14. Reinstall the center console and rear console (see page 20-85).



Shift Lever Disassembly/Reassembly

Type A Shift Lever:

NOTE: The illustration shows LHD model; RHD model is similar.



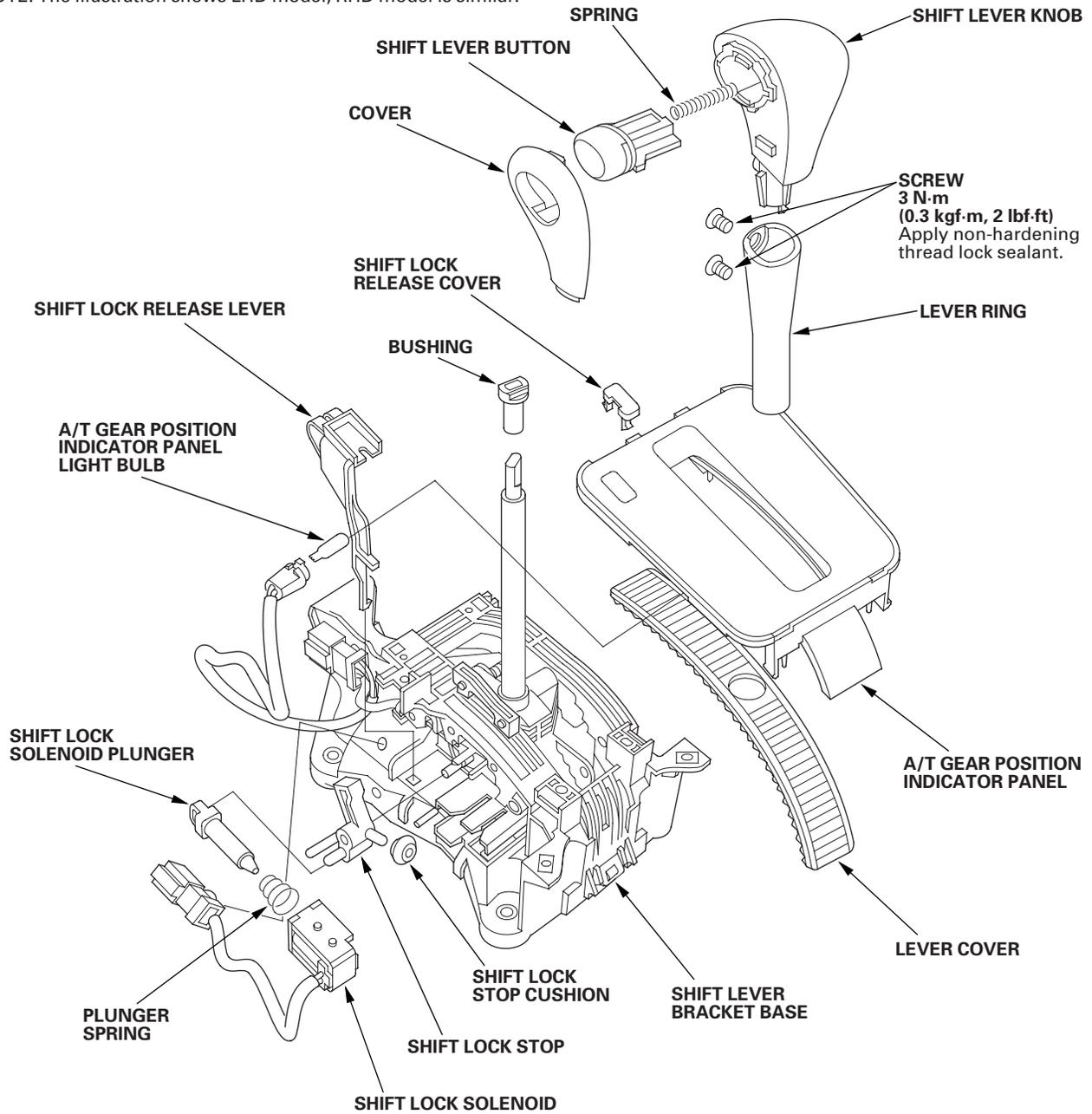
(cont'd)

Automatic Transmission

Shift Lever Disassembly/Reassembly (cont'd)

Type B Shift Lever:

NOTE: The illustration shows LHD model; RHD model is similar.

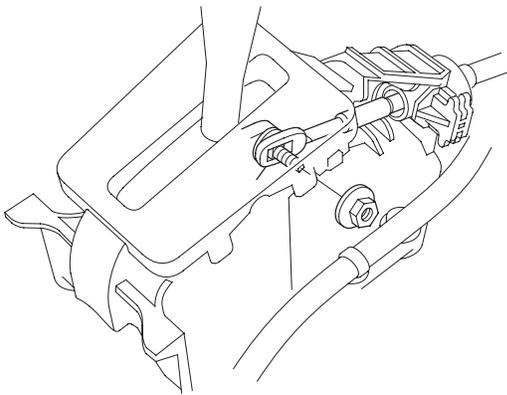




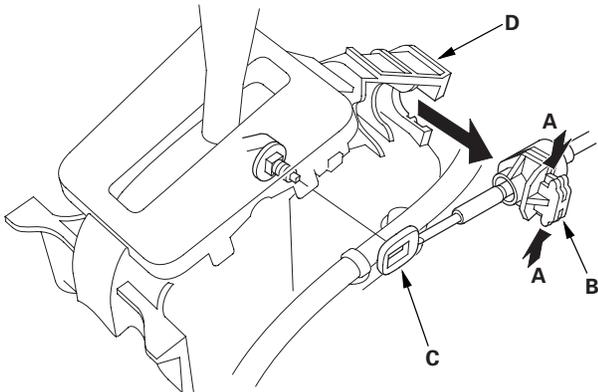
Shift Cable Replacement

NOTE: The illustration shows LHD model; RHD model is similar.

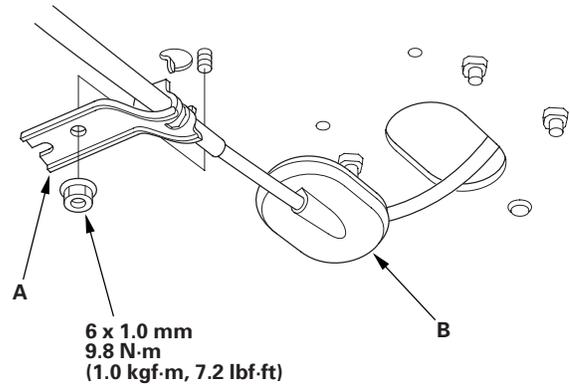
1. Raise the vehicle, and make sure it is securely supported.
2. Remove the center console and rear console (see page 20-85).
3. Shift the transmission into the **R** position.
4. Remove the nut securing the shift cable end.



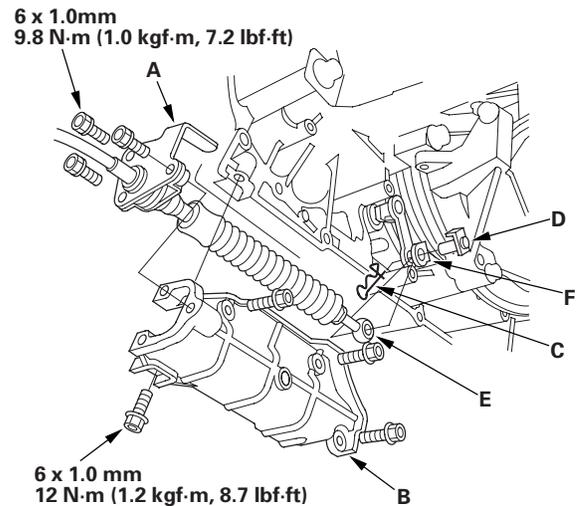
5. Press the holder lock release (A), and pull out the socket holder (B) on the shift cable (C) of the shift lever bracket base (D).



6. Remove the heat shield under the shift cable grommet.
7. Remove the shift cable bracket (A) and grommet (B).



8. Remove the three bolts securing the shift cable holder (A), then remove the shift cable cover (B).



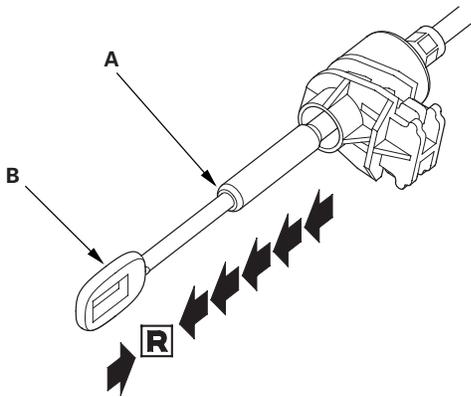
9. Remove the spring clip (C) and control pin (D), then separate the shift cable (E) from the control lever (F).

(cont'd)

Automatic Transmission

Shift Cable Replacement (cont'd)

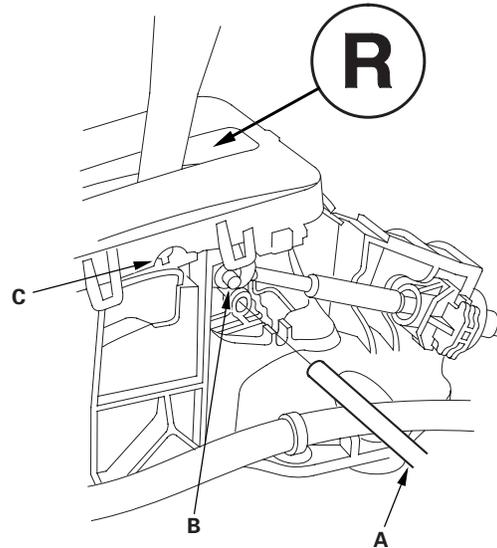
10. Insert the new shift cable through the grommet hole. Do not bend the shift cable excessively.
11. Install the shift cable bracket on the body, then install the grommet.
12. Verify that the transmission is in the **R** position at the control lever.
13. Attach the shift cable end to the control lever, then insert the control pin into the control lever through the shift cable end, and secure the control pin with the spring clip.
14. Install the shift cable cover, then secure the shift cable holder to the shift cable cover with the two bolts.
15. Install the heat shield.
16. Turn the ignition switch ON (II), and verify that the **R** position indicator comes on.
17. If necessary, push the shift cable until it stops, then release it. Pull the shift cable back one step so that the shift position is in **R**. Do not hold the shift cable guide (A) to adjust the shift cable (B).



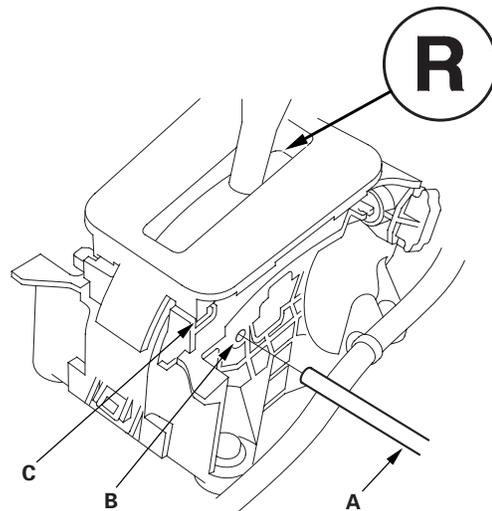
18. Turn the ignition switch OFF.

19. Insert a 6.0 mm (0.24 in.) pin (A) through the positioning hole (B) on the shift lever bracket base and into the positioning hole (C) on the shift lever. The shift lever is secured in the **R** position.

Type A Shift Lever:

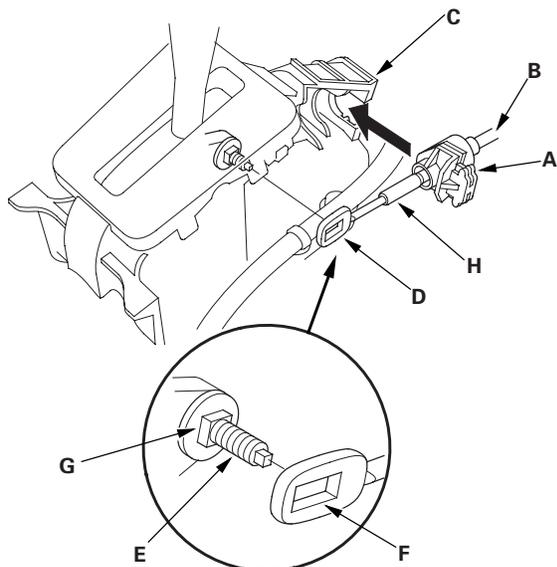


Type B Shift Lever:



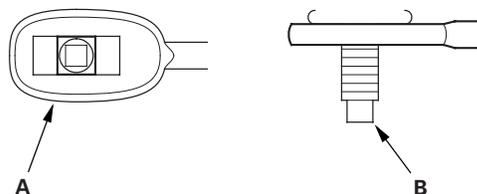


20. Align the socket holder (A) on the shift cable (B) with the slot in the bracket base (C), then slide the holder into base. Install the shift cable end (D) over the mounting stud (E) by aligning its square hole (F) with the square fitting (G) at the bottom of the stud. Push the holder until it snaps securely in place. Do not install the shift cable by holding the shift cable guide (H).

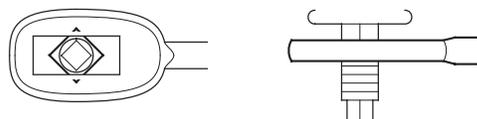


21. Verify that the shift cable end (A) is properly installed on the mounting stud (B).

Properly Installed:



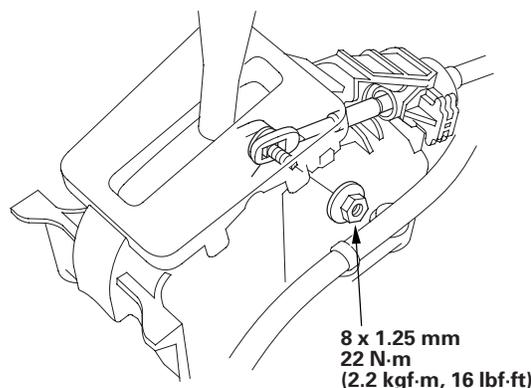
Improperly Installed:



Cable end rides on the bottom of the mounting stud.

22. If improperly installed, remove the shift cable from the bracket base, and reinstall the shift cable. Do not install the shift cable end on the mounting stud while the shift cable is on the bracket base.

23. Install and tighten the nut.



24. Remove the 6.0 mm (0.24 in.) pin that was installed to hold the shift lever.

25. Move the shift lever to each position, and verify that the A/T gear position indicator follows the transmission range switch.

26. Allow the front wheels to rotate freely.

27. Start the engine, and check the shift lever operation in all gears.

28. Push the shift lock release, and verify that the shift lever releases.

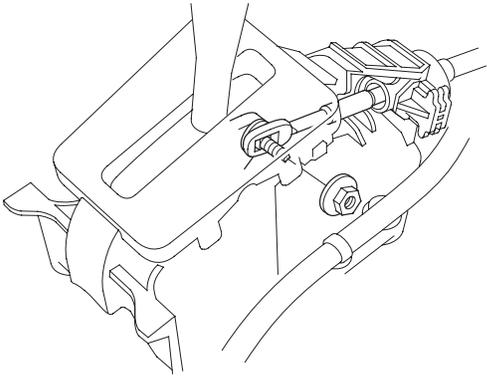
29. Reinstall the center console and rear console (see page 20-85).

Automatic Transmission

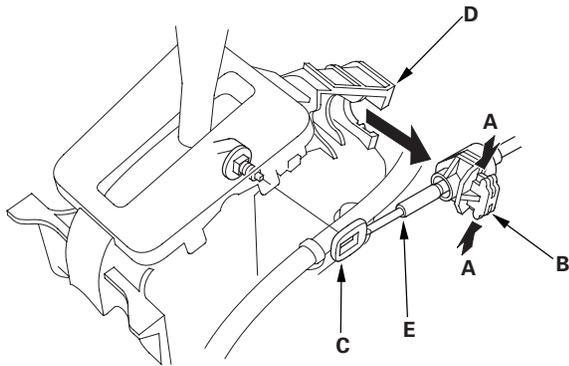
Shift Cable Adjustment

NOTE: The illustration shows LHD model; RHD model is similar.

1. Remove the center console and rear console (see page 20-85).
2. Shift the transmission into the **R** position.
3. Remove the nut securing the shift cable end.

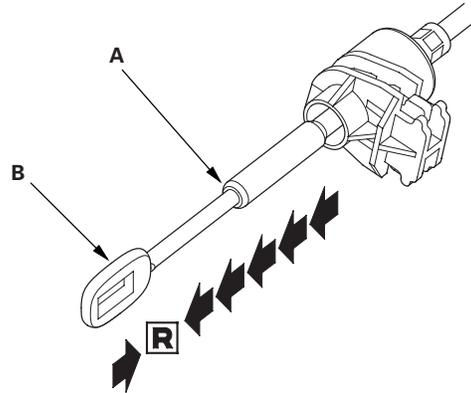


4. Press the holder lock release (A), and pull out the socket holder (B) on the shift cable (C) of the shift lever bracket base (D). Do not remove the shift cable by pulling the shift cable guide (E).

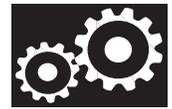


5. Install the heat shield.

6. Push the shift cable until it stops, then release it. Pull the shift cable back one step so that the shift position is in **R**. Do not hold the shift cable guide (A) to adjust the shift cable (B).

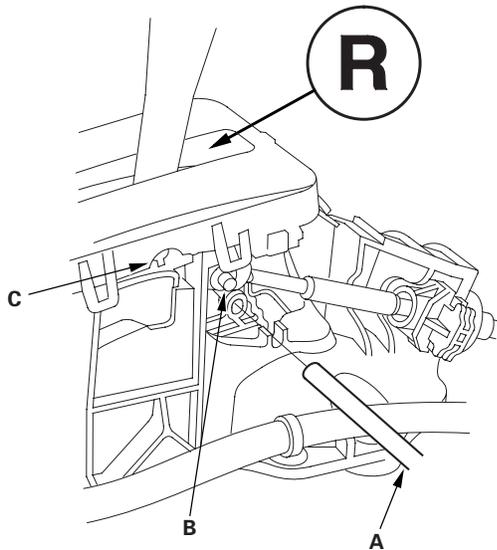


7. Turn the ignition switch ON (II), and verify that the **R** position indicator comes on.
8. Turn the ignition switch OFF.

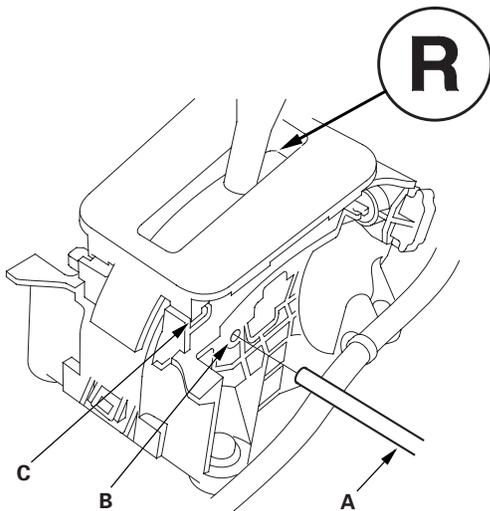


9. Insert a 6.0 mm (0.24 in.) pin (A) through the positioning hole (B) on the shift lever bracket base and into the positioning hole (C) on the shift lever. The shift lever is secured in the **R** position.

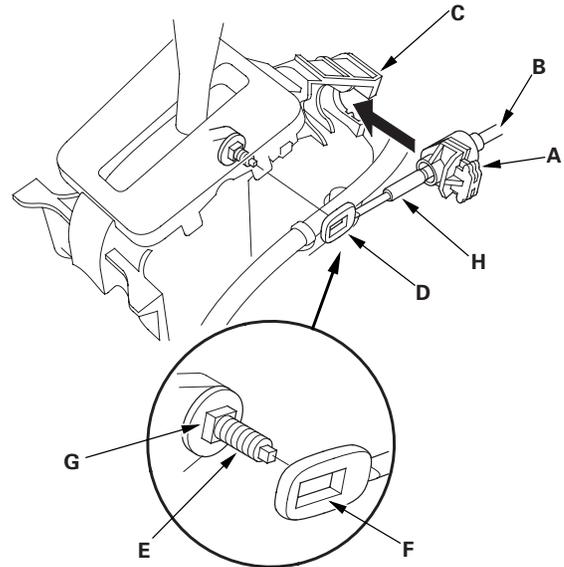
Type A Shift Lever:



Type B Shift Lever:

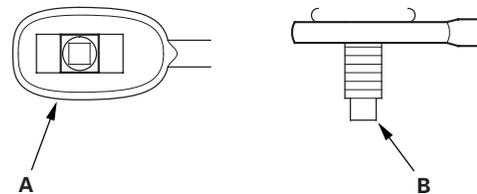


10. Align the socket holder (A) on the shift cable (B) with the slot in the bracket base (C), then slide the holder into base. Install the shift cable end (D) over the mounting stud (E) by aligning its square hole (F) with the square fitting (G) at the bottom of the stud. Push the holder until it snaps securely in place. Do not install the shift cable by holding the shift cable guide (H).

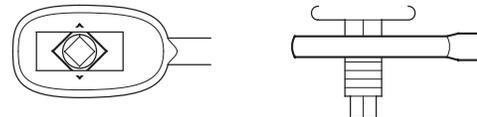


11. Verify that the shift cable end (A) is properly installed on the mounting stud (B).

Properly Installed:



Improperly Installed:



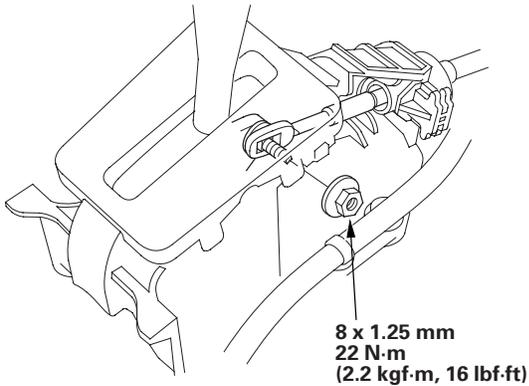
Cable end rides on the bottom of the mounting stud.

(cont'd)

Automatic Transmission

Shift Cable Adjustment (cont'd)

12. If improperly installed, remove the shift cable from the bracket base, and reinstall the shift cable. Do not install the shift cable end on the mounting stud while the shift cable is on the bracket base.
13. Install and tighten the nut.



14. Remove the 6.0 mm (0.24 in.) pin that was installed to hold the shift lever.
15. Move the shift lever to each position, and verify that the A/T gear position indicator follows the transmission range switch.
16. Push the shift lock release, and verify that the shift lever releases.
17. Reinstall the center console and rear console (see page 20-85).

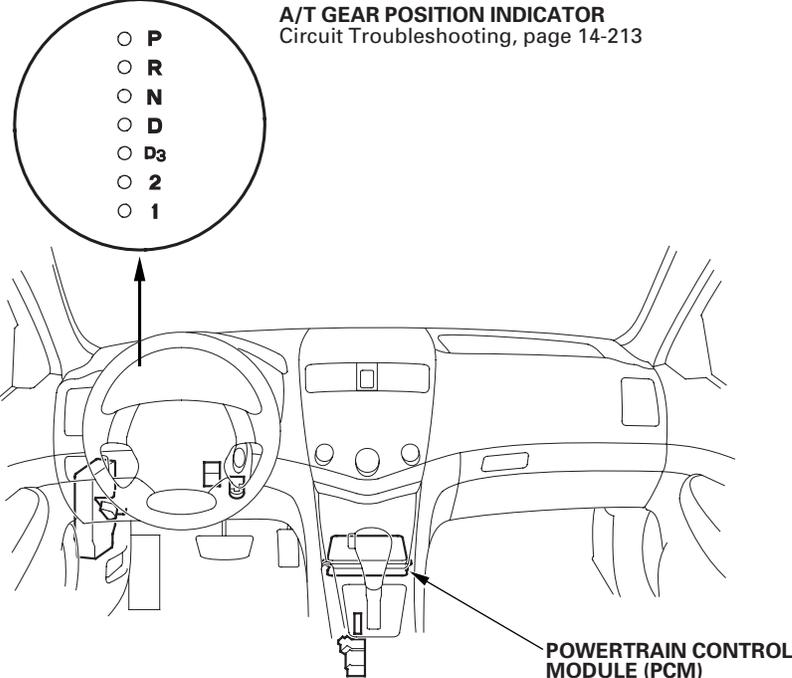


A/T Gear Position Indicator

Component Location Index

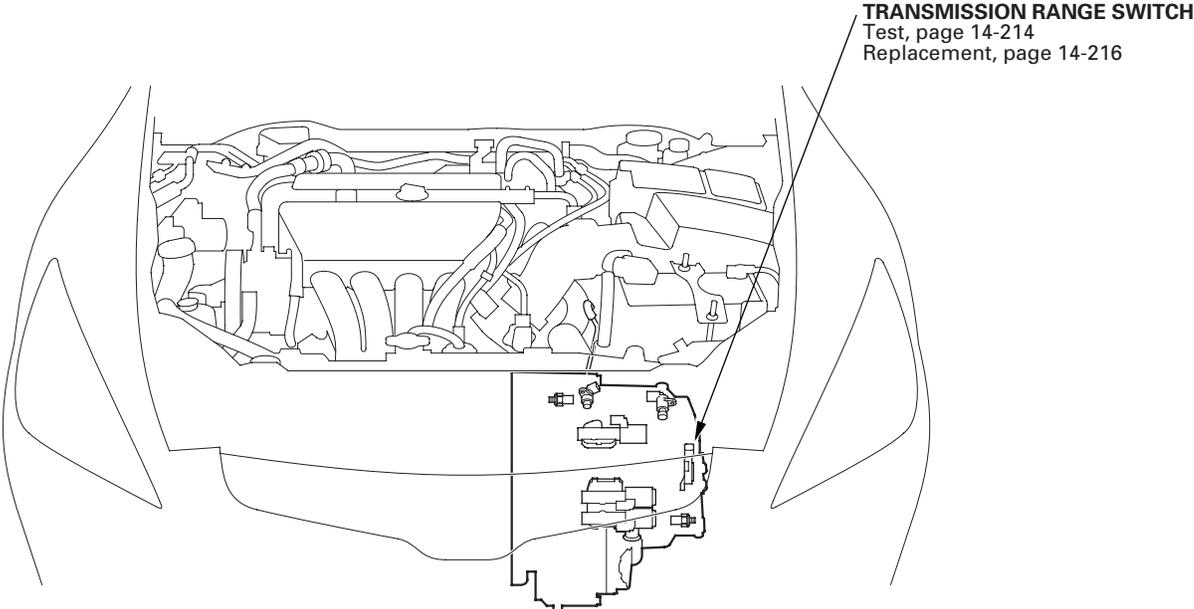
Cabin

NOTE: The illustration shows LHD model; RHD model is symmetrical.



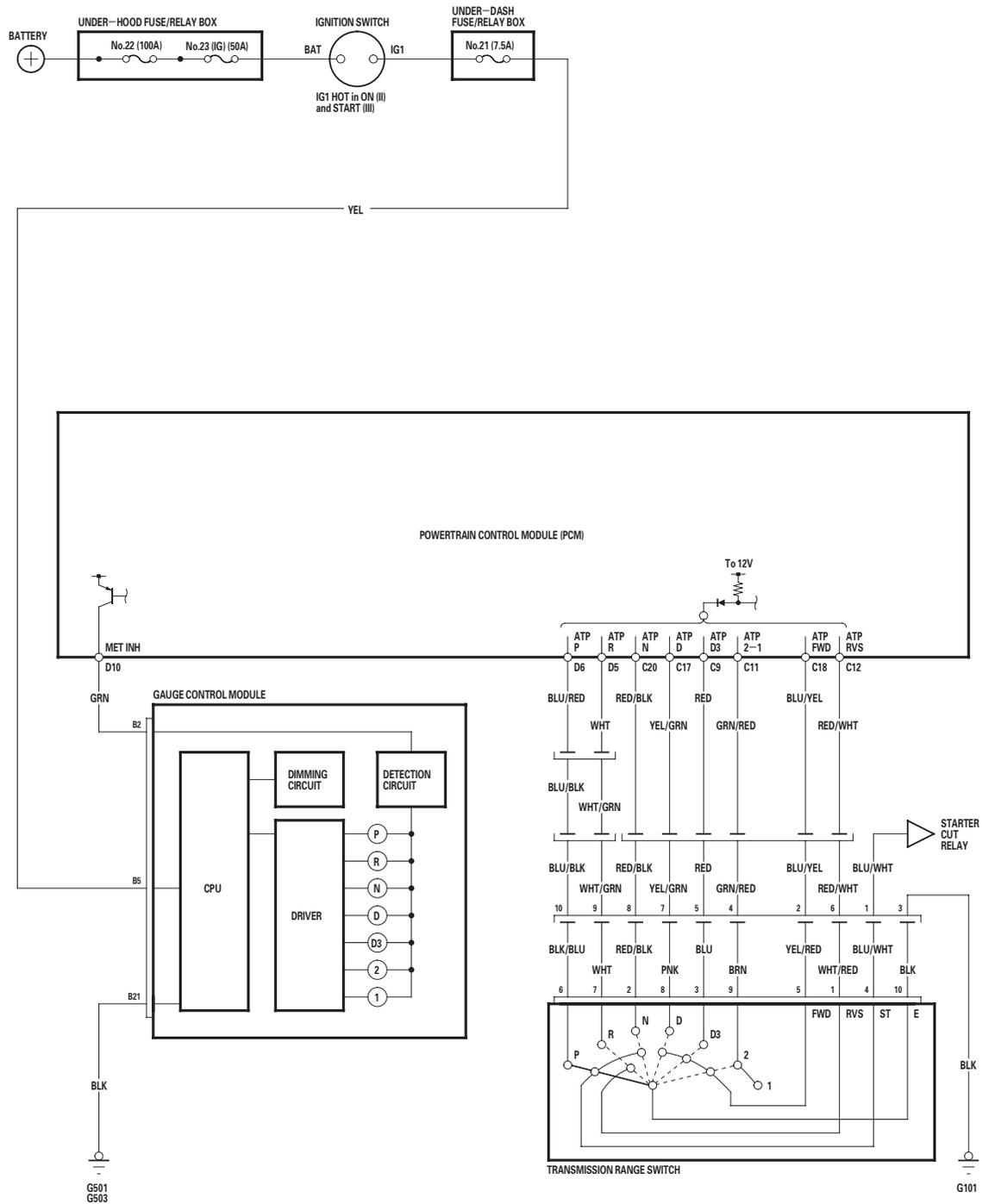
Engine Compartment

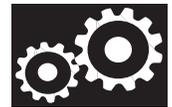
NOTE: The illustration shows LHD model; RHD model is similar.



A/T Gear Position Indicator

Circuit Diagram



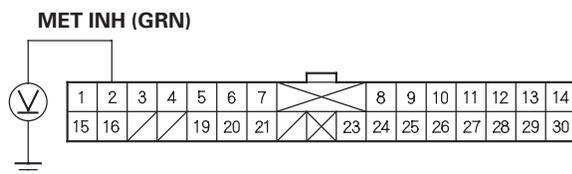


A/T Gear Position Indicator Circuit Troubleshooting

Symptom: A/T gear position indicator does not indicate the shift lever position, the **D** indicator does not blink, and no transmission range switch DTCs are indicated.

1. Turn the ignition switch ON (II).
2. Measure the voltage between gauge assembly connector terminal B2 and body ground. The shift lever can be in any position.

GAUGE ASSEMBLY CONNECTOR B (30P)



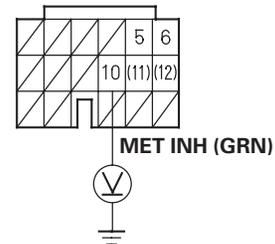
Is there battery voltage?

YES Faulty A/T gear position indicator in the gauge assembly, replace the gauge assembly. ■

NO Go to step 3.

3. Measure the voltage between PCM connector terminal D10 and body ground.

PCM CONNECTOR D (17P)



Is there battery voltage?

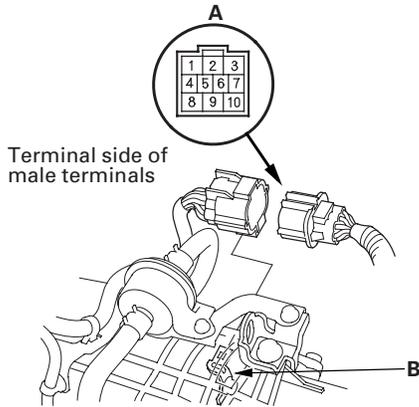
YES Repair open or short in the wire between PCM connector terminal D10 and the gauge assembly connector terminal B2. ■

NO Check for loose terminal fit in the PCM connectors. If necessary, substitute a known-good PCM and recheck. ■

A/T Gear Position Indicator

Transmission Range Switch Test

1. Remove the transmission range switch harness connector (A) from the connector bracket (B), then disconnect the connector.



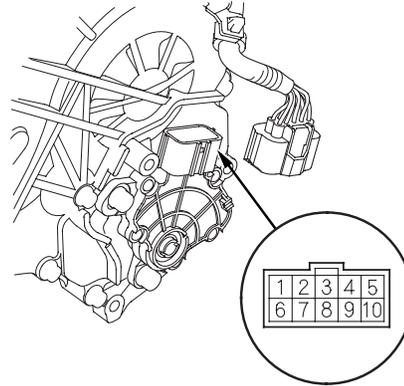
Connector Terminal Specification

Terminal	Signal	Terminal	Signal
1	ATP NP (ST)	6	ATP RVS
2	ATP FWD	7	D
3	Ground (E)	8	N
4	ATP 2 1	9	R
5	D₃	10	P

2. Check for continuity between terminals at the harness connector. There should be continuity between the terminals in the following table for each switch position.

Position	Connector Terminal									
	1	2	3	4	5	6	7	8	9	10
P	○		○							○
R			○	○	○	○	○	○	○	
N	○	○	○	○	○	○	○	○	○	
D		○	○	○	○	○	○			
D₃		○	○	○	○					
2		○	○	○						
1			○	○						

3. If there is no continuity between any terminals, remove the transmission range switch cover, and disconnect the connector at the switch.

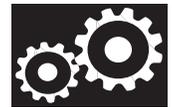


Connector Terminal Specification

Terminal	Signal	Terminal	Signal
1	ATP RVS	6	P
2	N	7	R
3	D₃	8	D
4	ATP NP (ST)	9	ATP 2 1
5	ATP FWD	10	Ground (E)

4. Check for continuity between terminals at the switch connector. There should be continuity between the terminals in the following table for each switch position.

Position	Connector Terminal									
	1	2	3	4	5	6	7	8	9	10
P				○		○				○
R	○						○			○
N		○	○	○	○	○	○	○	○	○
D					○		○			○
D₃			○	○	○					○
2					○				○	○
1									○	○



5. If the transmission range switch continuity check is OK, replace the faulty transmission range switch harness.
6. If there is no continuity between any terminals, remove the transmission range switch, and check the end of the selector control shaft (A).

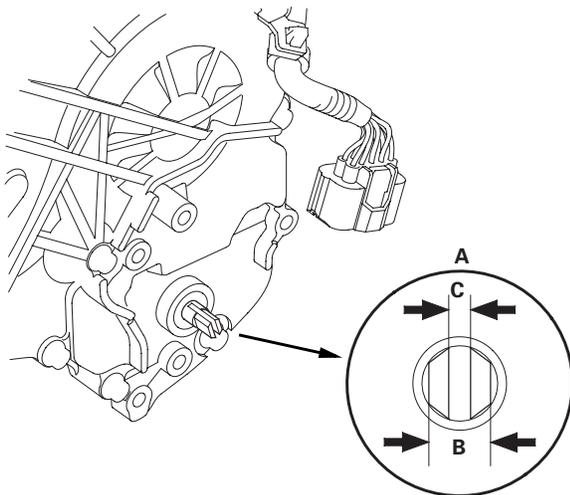
Standard:

Control Shaft Width (B):

6.1 6.2 mm (0.240 0.244 in.)

Control Shaft End Gap (C):

1.8 2.0 mm (0.07 0.08 in.)

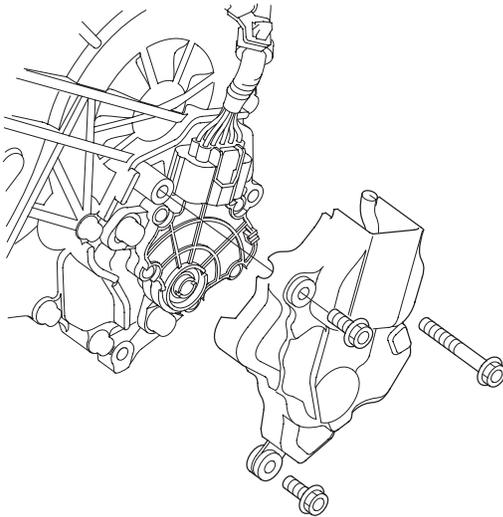


7. The measurement of the control shaft end is within the standard, replace the transmission range switch. If the measurement is out of the standard, repair the control shaft end, and recheck the transmission range switch continuity.

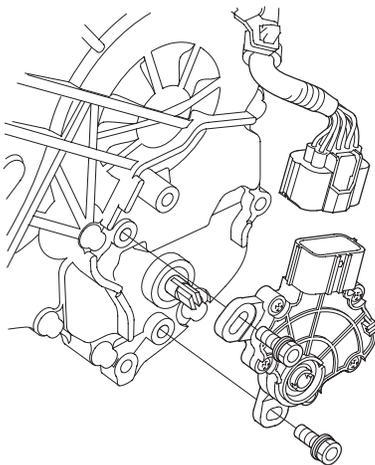
A/T Gear Position Indicator

Transmission Range Switch Replacement

1. Raise the vehicle, and make sure it is securely supported.
2. Shift to the **N** position.
3. Remove the transmission range switch cover.



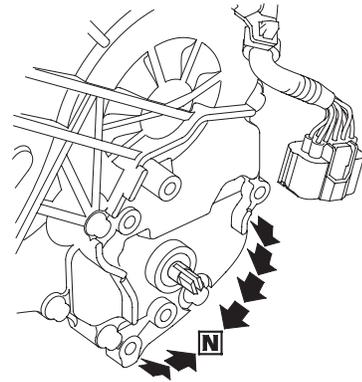
4. Disconnect the transmission range switch connector.



5. Remove the transmission range switch, and replace the new switch.

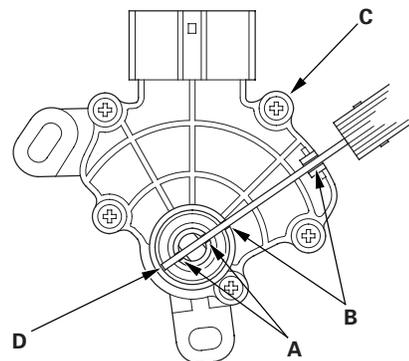
6. Make sure the control shaft is in the **N** position. If necessary, move the shift lever to the **N** position.

NOTE: Do not use the control shaft to adjust the shift position. If the control shaft tips are squeezed together it will cause a faulty signal or position due to play between the control shaft and the switch.



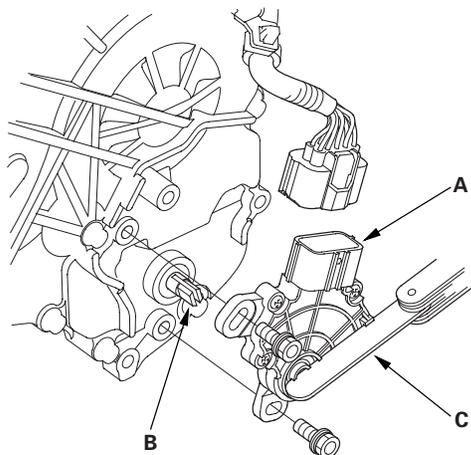
7. Align the cutouts (A) on the rotary-frame with the neutral positioning cutouts (B) on the transmission range switch (C), then put a 2.0 mm (0.08 in.) feeler gauge blade (D) in the cutouts to hold the switch in the **N** position.

NOTE: Be sure to use a 2.0 mm (0.08 in.) blade or equivalent to hold the switch in the **N** position.

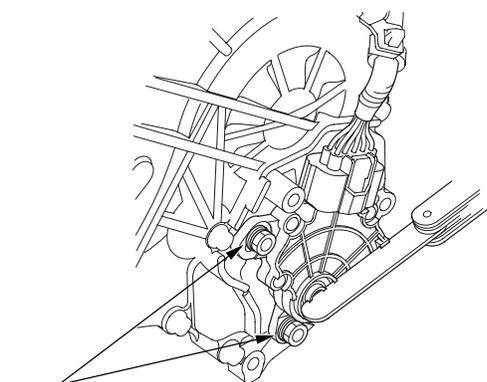




8. Install the transmission range switch (A) gently on the control shaft (B) with holding it in the **N** position with the 2.0 mm (0.08 in.) blade (C).

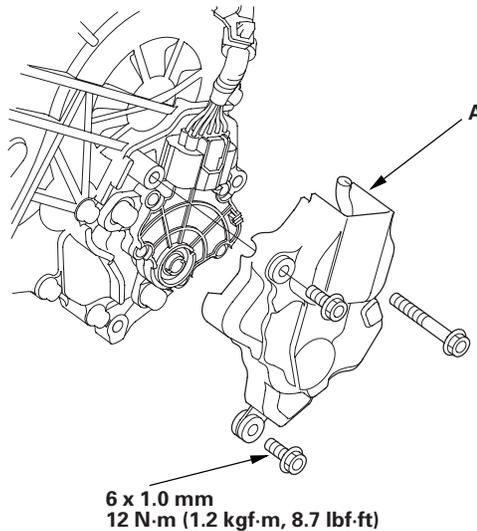


9. Tighten the bolts on the transmission range switch while you continue to hold the **N** position. Do not move the transmission range switch when tightening the bolts. Remove the feeler gauge.



6 x 1.0 mm
12 N·m (1.2 kgf·m, 8.7 lbf·ft)

10. Connect the connector securely, then install the transmission range switch cover (A).

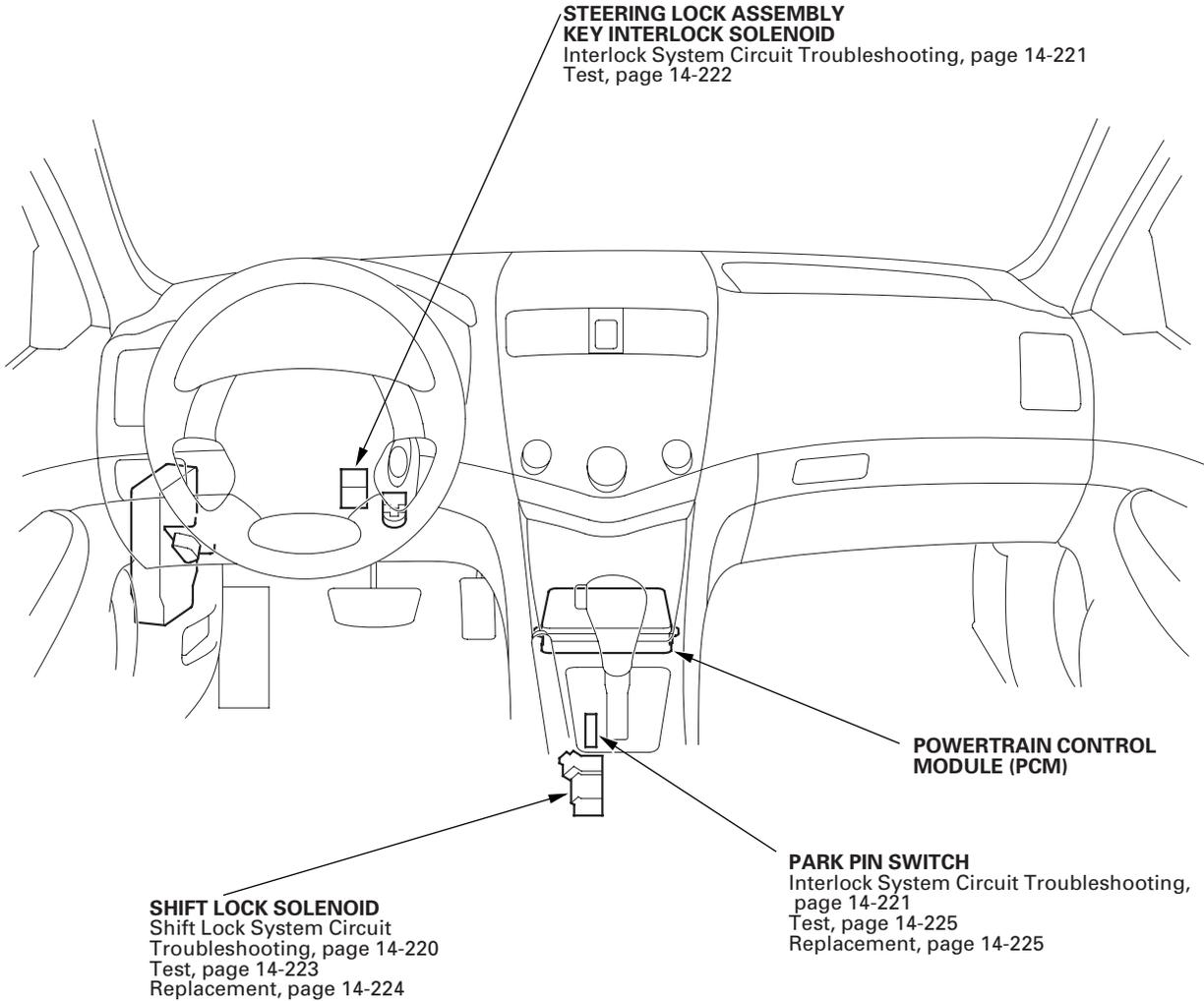


11. Turn the ignition switch ON (II). Move the shift lever through all positions, and check the transmission range switch synchronization with the A/T gear position indicator.
12. Check that the engine will start in the **P** and **N** positions, and will not start in any other shift lever position.
13. Check that the back-up lights come on when the shift lever is in the **R** position.
14. Allow the front wheels to rotate freely, then start the engine, and check the shift lever operation.

A/T Interlock System

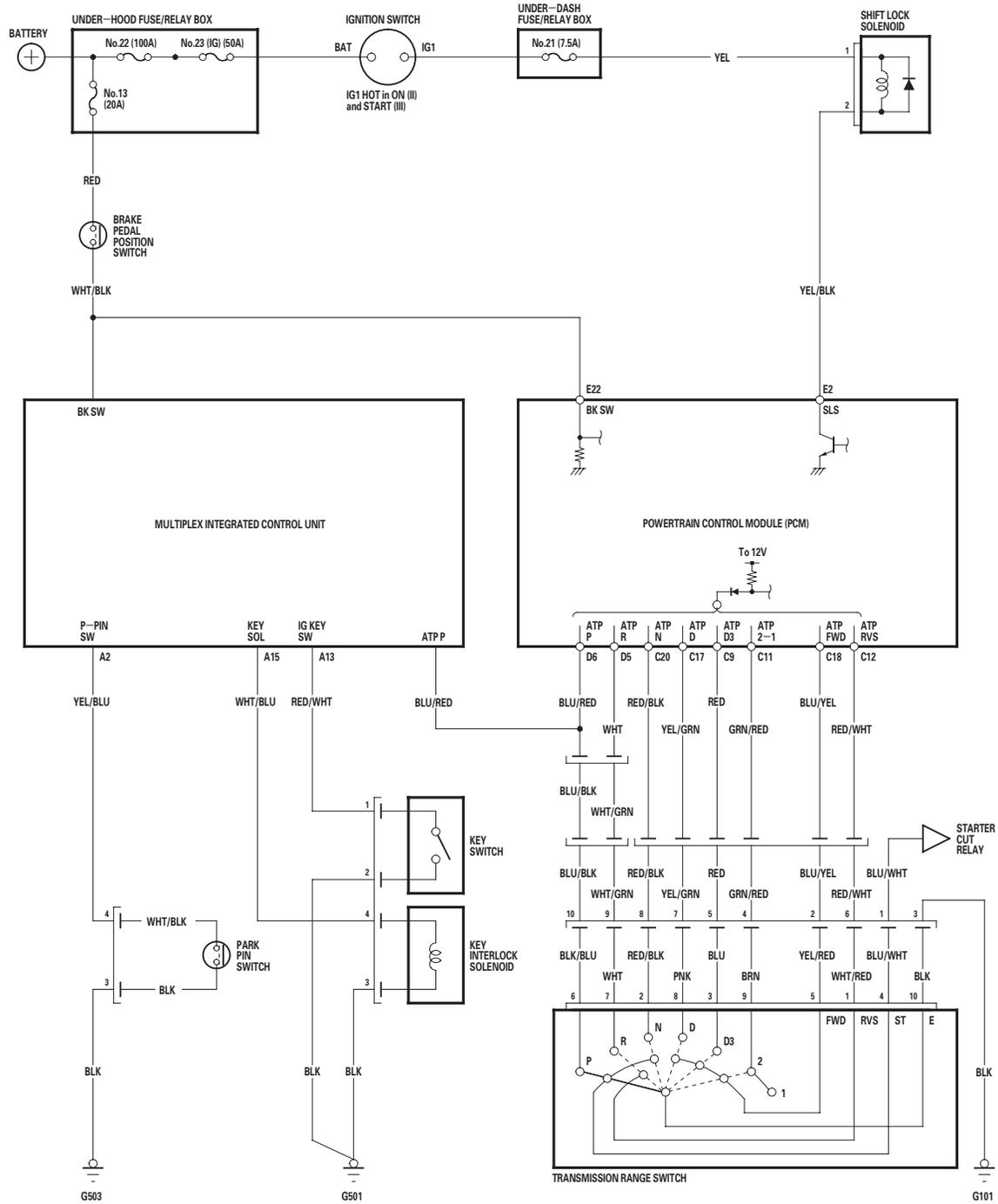
Component Location Index

NOTE: The illustration shows LHD model; RHD model is symmetrical.





Circuit Diagram



A/T Interlock System

Shift Lock System Circuit Troubleshooting

1. Press the brake pedal.

Are the brake lights ON?

YES Go to step 2.

NO Repair faulty brake light circuit. ■

2. Connect the PGM tester or the HDS. Check engine speed and throttle position in the A/T data list.

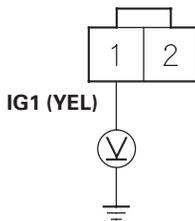
Is the engine speed at idle, and TPS about 0.5 V?

YES Go to step 3.

NO Repair engine speed or throttle position input. ■

3. Remove the center console and rear console (see page 20-85).
4. Disconnect the shift lock solenoid connector.
5. Turn the ignition switch ON (II).
6. Measure the voltage between No. 1 terminal of the shift lock solenoid connector and body ground.

SHIFT LOCK SOLENOID CONNECTOR



Wire side of female terminals

Is there battery voltage?

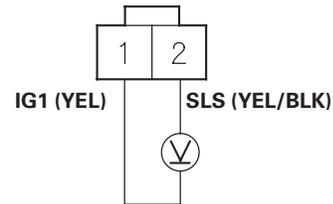
YES Go to step 6.

NO Check for blown No. 21 fuse in the under-dash fuse/relay box. If the fuse is OK, repair open in the wire between the shift lock solenoid connector and the under-dash fuse/relay box. ■

7. Shift the shift lever into the **P** position, and press the brake pedal.

8. Measure the voltage between shift lock solenoid connector terminals while pressing the brake pedal.

SHIFT LOCK SOLENOID CONNECTOR

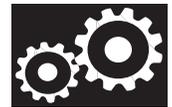


Wire side of female terminals

Is there battery voltage?

YES Check the shift lock mechanism. If the mechanism is OK, replace the shift lock solenoid. ■

NO Check for an open in the wire between PCM connector terminal E2 and shift lock solenoid connector. If the wire is OK, substitute a known-good PCM and recheck. ■



Key Interlock System Circuit Troubleshooting

SRS components are located in this area. Review the SRS components locations, precautions (see page 23-13), and procedures in the SRS section before performing repairs or service (see page 23-14).

1. Turn the ignition switch to ACC (I). The shift lever must be in the **P** position.
2. Disconnect the steering lock assembly connector.
3. Check if the ignition key can be moved to LOCK (0) position, and remove the key from the cylinder.

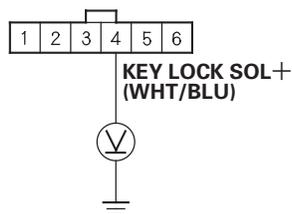
Is the ignition key able to move to the LOCK (0) position, and then removed?

YES Go to step 4.

NO Replace the ignition key cylinder/steering lock assembly (see page 17-37). ■

4. Turn the ignition switch to ACC (I) or ON (II), and shift to the **N** position.
5. Check for the voltage between the No. 4 terminal of the steering lock assembly connector and body ground.

STEERING LOCK ASSEMBLY CONNECTOR



Wire side of female terminals

Is there battery voltage?

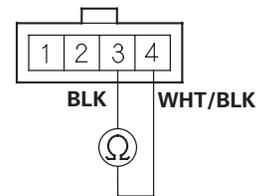
YES Go to step 6.

NO Check for an open in with WHT/BLU wire between the MICU and the steering lock assembly connector. If the wire is OK, substitute a known-good multiplex integrated control unit and recheck. ■

6. Turn the ignition switch to ACC (I), and shift to the **P** position.

7. Remove the center console and rear console (see page 20-85).
8. Disconnect the park pin switch connector.
9. Check for continuity between the No. 3 and No. 4 terminals of the park pin switch connector while pushing the button of the shift lever in, and when released.

PARK PIN SWITCH CONNECTOR



Terminal side of male terminals

Is there continuity when pushing the button in, and no continuity when it's released?

YES Check for an open in the wire between the multiplex integrated control unit and the park pin switch connector. If the wire is OK, replace the multiplex integrated control unit. ■

NO Replace the park pin switch. ■

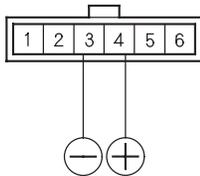
A/T Interlock System

Key Interlock Solenoid Test

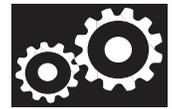
SRS components are located in this area. Review the SRS components locations, precautions (see page 23-13), and procedures in the SRS section before performing repairs or service (see page 23-14).

1. Remove the driver's dashboard lower cover and lower steering column cover.
2. Disconnect steering lock assembly connector.
3. Insert the ignition key in the key cylinder, then turn the ignition key to ACC (I).
4. Connect the battery positive terminal to steering lock assembly connector terminal No. 4, and connect the battery negative terminal to No. 3 terminal. Make sure that the ignition key cannot be turned to LOCK (0) position. Release the battery terminals, and make sure that the key can be turned to LOCK (0) position and removed from the cylinder.
5. If the key interlock solenoid works improperly, replace the ignition key cylinder/steering lock assembly (see page 17-37).

STEERING LOCK ASSEMBLY CONNECTOR



Terminal side of male terminals

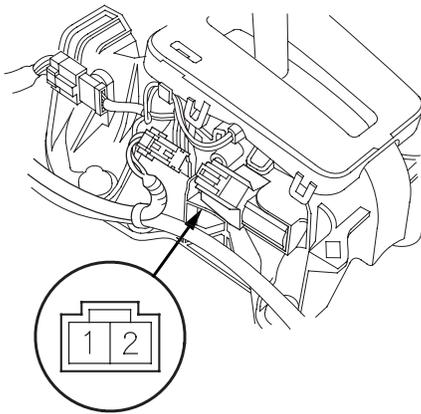


Shift Lock Solenoid Test

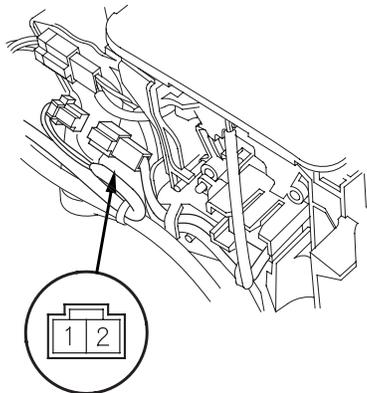
NOTE: The illustration shows LHD model; RHD model is similar.

1. Remove the center console and rear console (see page 20-85).
2. Disconnect the shift lock solenoid connector.

Type A Shift Lever:



Type B Shift Lever:



Terminal side of male terminals

3. Connect the battery positive terminal to shift lock solenoid connector terminal No. 1, and connect the battery negative terminal to terminal No. 2.

4. Check that the shift lever can be moved from the **P** position. Release the battery terminals from the shift lock solenoid connector. Move the shift lever back to the **P** position, and make sure it locks.

NOTE: Do not connect power to terminal No. 2 or you will damage the diode inside the solenoid.

5. Check that the shift lock releases when the shift lock release is pushed, and check that it locks when the shift lock release is released.
6. If the shift lock solenoid does not work properly, replace it.

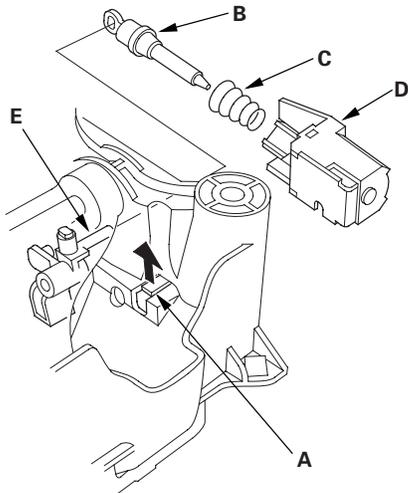
A/T Interlock System

Shift Lock Solenoid Replacement

Type A Shift Lever

NOTE: The illustration shows LHD model; RHD model is similar.

1. Remove the shift lever assembly (see page 14-200).
2. Release the lock tab (A) securing the shift lock solenoid at the bottom of the shift lever assembly, and remove the shift lock solenoid.

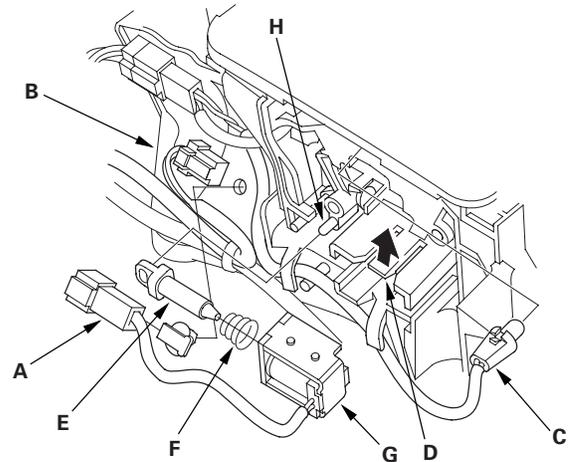


3. Install the shift lock solenoid plunger (B) and plunger spring (C) in the new shift lock solenoid (D).
4. Install the new shift lock solenoid by aligning the joint of the shift lock solenoid plunger with the tip of the shift lock stop (E).
5. Install the shift lever assembly (see page 14-201).

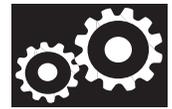
Type B Shift Lever

NOTE: The illustration shows LHD model; RHD model is similar.

1. Remove the center console and rear console (see page 20-85).
2. Disconnect the shift lock solenoid connector (A), and remove it from the shift lever bracket base (B).



3. Remove the A/T gear position indicator panel light bulb socket (C).
4. Release the lock tab (D) securing the shift lock solenoid, and remove the shift lock solenoid.
5. Install the shift lock plunger (E) and plunger spring (F) in the new shift lock solenoid (G).
6. Install the new shift lock solenoid by aligning the joint of the shift lock solenoid plunger with the tip of the shift lock stop (H).
7. Install the A/T gear position indicator panel light bulb socket.
8. Install the shift lock solenoid connector on the shift lever bracket base, then connect the connector.
9. Install the center console and rear console (see page 20-85).

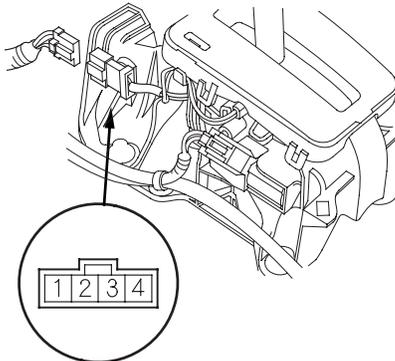


Park Pin Switch Test

NOTE: The illustration shows LHD model; RHD model is similar.

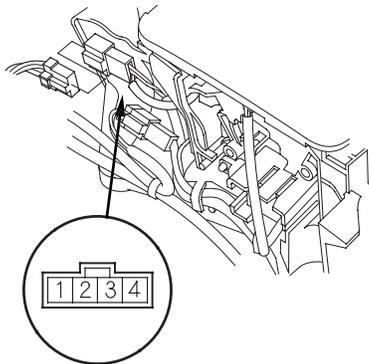
1. Remove the center console and rear console (see page 20-85).
2. Disconnect the park pin switch connector.

Type A Shift Lever:



Terminal side of male terminals

Type B Shift Lever:



Terminal side of male terminals

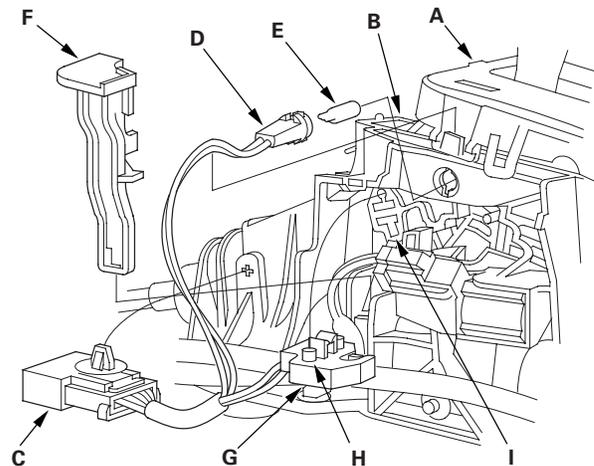
3. Shift the shift lever into the **P** position and release the shift lever button, then check for continuity between connector terminals No. 3 and No. 4. There should be no continuity.
4. Shift out of the **P** position or press the shift lever button while in **P** position, and check for continuity between terminals No. 3 and No. 4. There should be continuity.
5. If the park pin switch is faulty, replace it (type A shift lever) or replace the shift lever bracket base (type B shift lever). The park pin switch of the type B shift lever is not available separately.

Park Pin Switch Replacement

NOTE:

- The park pin switch replacement is applied for the type A shift lever: the type B shift lever park pin switch is not available separately.
- The illustration shows LHD model; RHD model is similar.

1. Remove the center console and rear console (see page 20-85).
2. Remove the A/T gear position indicator panel (A) from the shift lever bracket base (B).



3. Disconnect the park pin switch connector (C), then remove it from the bracket base.
4. Remove the A/T gear position indicator panel light bulb socket (D), then remove the bulb (E) from the socket.
5. Remove the shift lock release lever (F).
6. Remove the park pin switch, and install the new switch (G) by aligning the tabs (H) with the slots (I).
7. Install the shift lock release lever.
8. Install the bulb in the socket, then install the socket in the bracket base.
9. Install the indicator panel on the bracket base.
10. Install the park pin switch connector on the bracket base, then connect the connector.
11. Install the center console and rear console (see page 20-85).

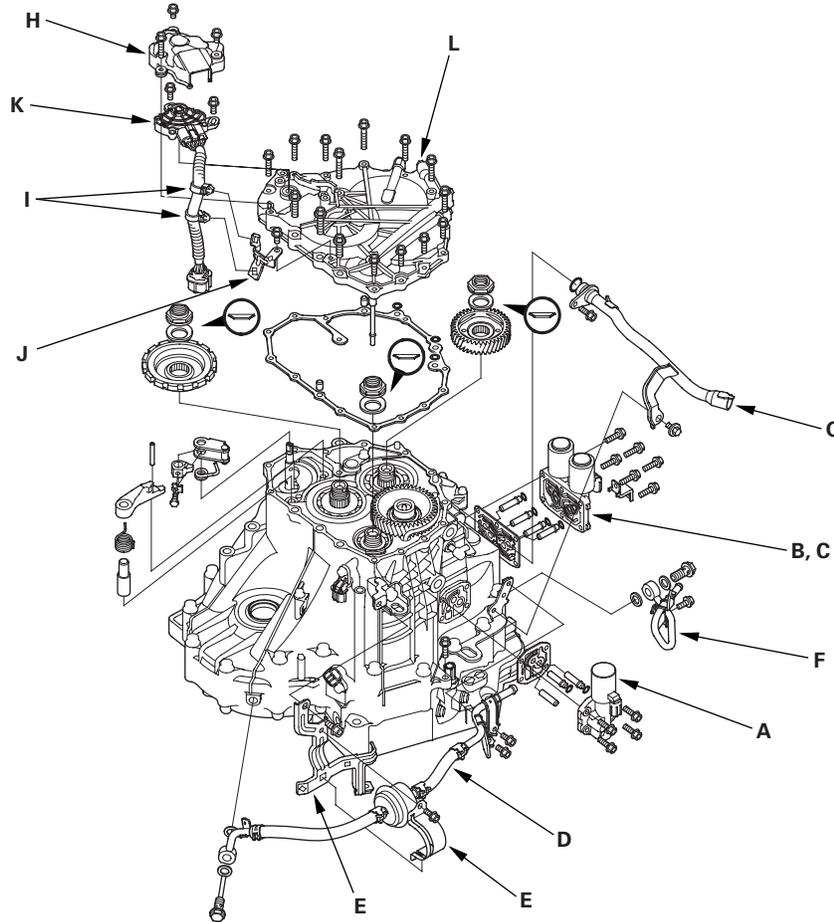
Transmission End Cover

End Cover Removal

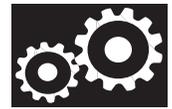
Special Tools Required

Mainshaft holder set 07PAB-0010000

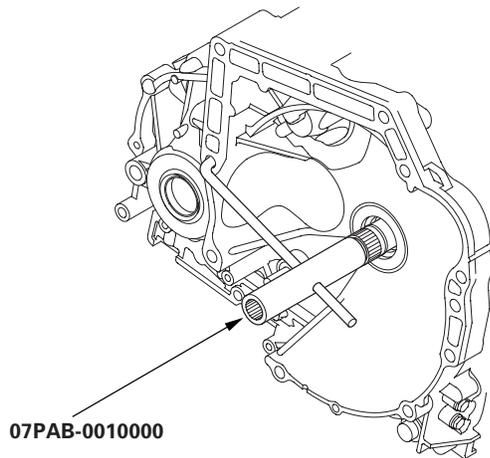
1. Remove the two bolts securing the ATF cooler inlet line brackets, ATF filter bracket bolt, line bolt, and remove the ATF cooler line/ATF filter (D) and filter brackets (E).



2. Remove the ATF cooler outlet line (F).
3. Remove the dipstick guide pipe (G).
4. Remove the A/T clutch pressure control solenoid valve A, ATF joint pipes, ATF pipe, and gasket.
5. Remove the A/T clutch pressure control solenoid valves B and C, ATF joint pipes, and gasket.
6. Remove the transmission range switch cover (H).
7. Remove the transmission range switch harness clamps (I) from the clamp bracket (J), then remove the transmission range switch (K).
8. Remove the end cover (L), dowel pins, O-rings, and end cover gasket.



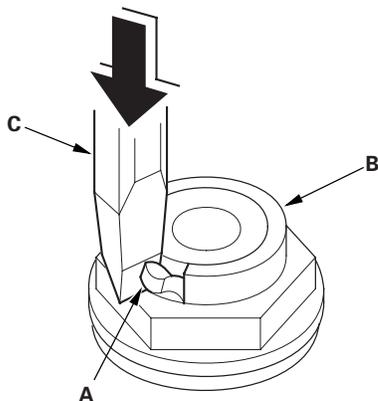
9. Slip the special tool onto the mainshaft.



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

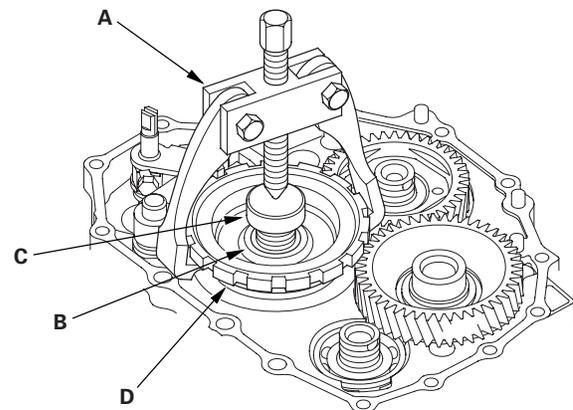
NOTE:

- Countershaft and secondary shaft locknuts have left-hand threads.
- Keep all of the chiseled particles out of the transmission.
- Clean the old mainshaft and countershaft locknuts; they are used to install the press fit idler gear on the mainshaft, and park gear on the countershaft.

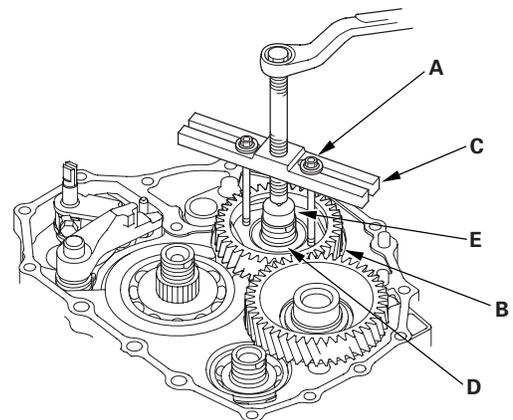


12. Remove the special tool from the mainshaft.

13. Set a two-jaw (or three-jaw) puller (A) on the countershaft (B) by putting a spacer (C) between the puller and countershaft, then remove the park gear (D).



14. Install a 6 x 1.0 mm bolts (A) on the mainshaft idler gear (B). Set a puller (C) on the mainshaft (D) with putting a spacer (E) between the puller and mainshaft, then remove the mainshaft idler gear.



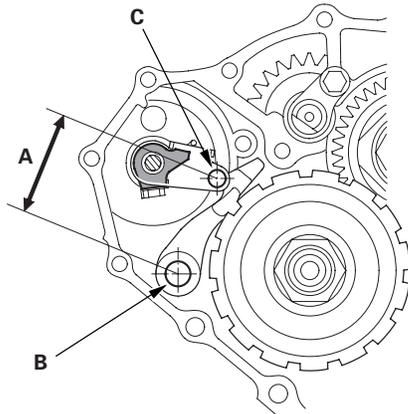
15. Remove the park pawl, park pawl spring, park pawl shaft, and stop shaft.
16. Remove the park lever from the control shaft.

Transmission End Cover

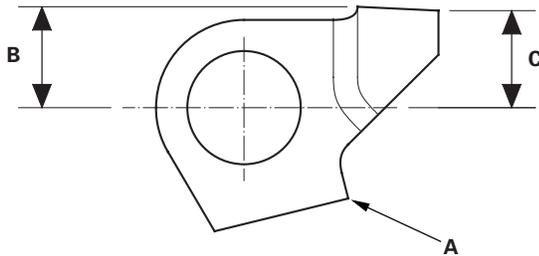
Park Lever Stop Inspection and Adjustment

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

STANDARD: 57.7 58.7 mm (2.27 2.31 in.)



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



PARK LEVER STOP

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

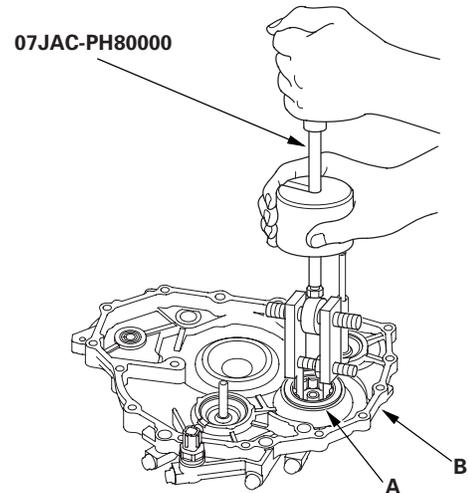
4. After replacing the park lever stop, make sure the distance is within tolerance.

Idler Gear Shaft Bearing Replacement

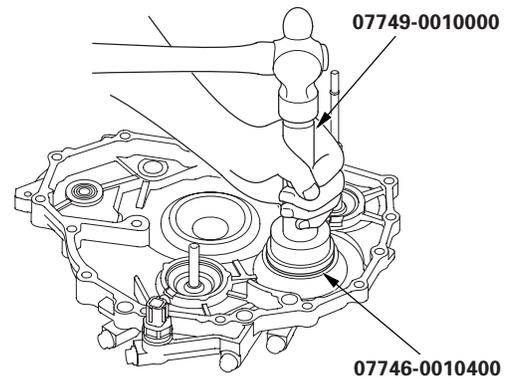
Special Tools Required

- Adjustable bearing remover set
07JAC-PH80000
- Handle driver 07749-0010000
- Driver attachment, 52 x 55 mm 07746-0010400

1. Remove the idler gear shaft bearing (A) from the end cover (B) with the special tool.



2. Install the new bearing in the end cover with the special tools.



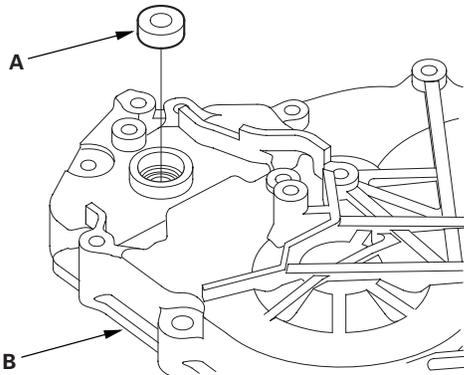


Control Shaft Oil Seal Replacement

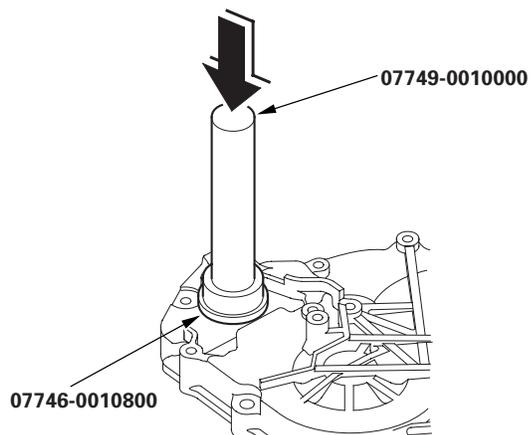
Special Tools Required

- Handle driver 07749-0010000
- Driver attachment, 22 x 24 mm 07746-0010800

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



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

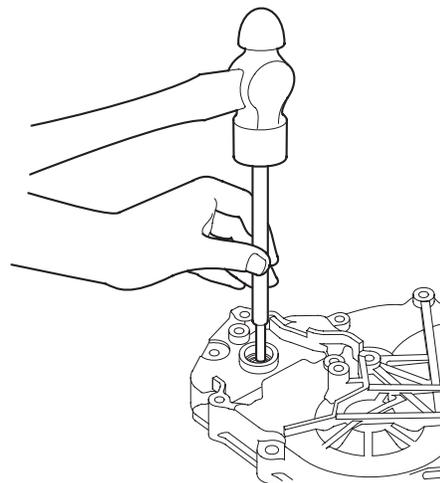


Control Shaft Bearing Replacement

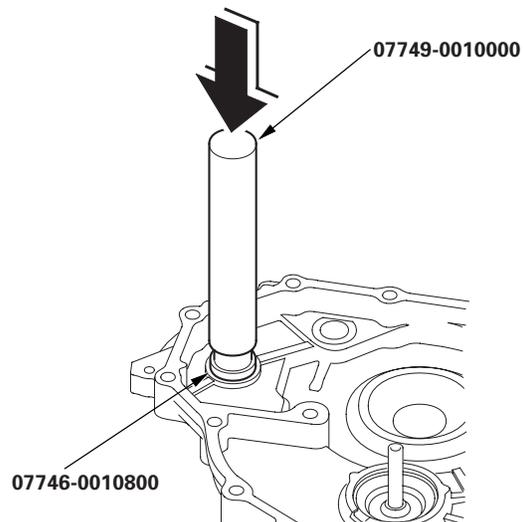
Special Tools Required

- Handle driver 07749-0010000
- Driver attachment, 22 x 24 mm 07746-0010800

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



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



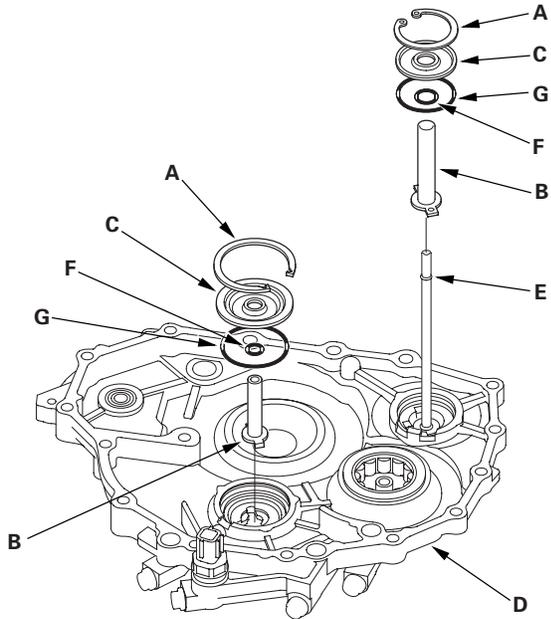
3. Install the new oil seal.

Transmission End Cover

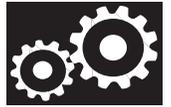
ATF Feed Pipes Replacement

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

NOTE: Replace the end cover, if the 1st clutch ATF feed pipe (E) replacement is required.



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

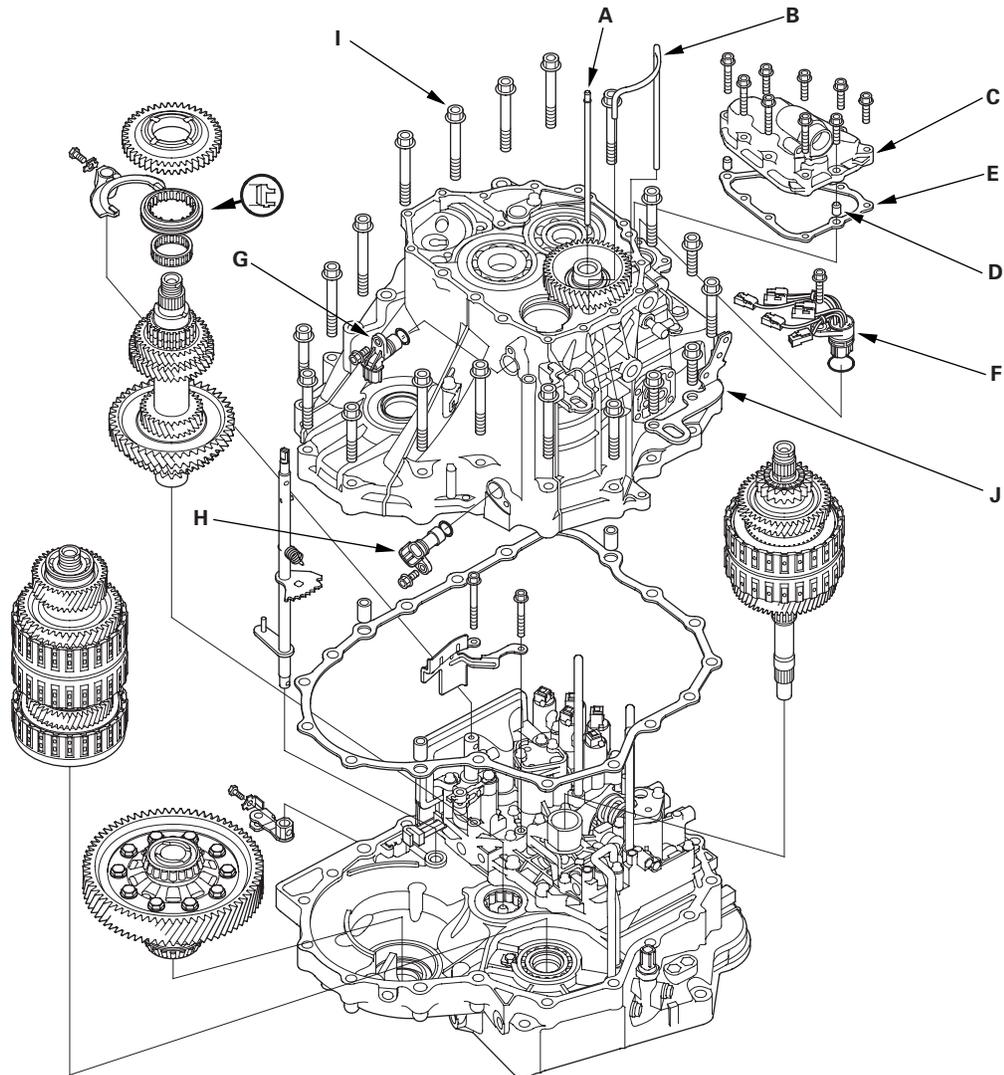


Housing and Shaft Assemblies Removal

Special Tools Required

- Housing puller 07HAC-PK40102
- Snap ring pliers 07LGC-0010100

1. Remove the ATF feed pipe (A) from the idler gear shaft, and the ATF lubrication pipe (B) from the transmission housing.



2. Remove the shift solenoid valve cover (C), dowel pins (D), and gasket (E).
3. Disconnect the connectors from the shift solenoid valves, and remove the solenoid harness connector (F).
4. Remove the mainshaft speed sensor (G) and countershaft speed sensor (H).
5. Remove the transmission housing mounting bolts (19 bolts) (I) and transmission hanger (J).

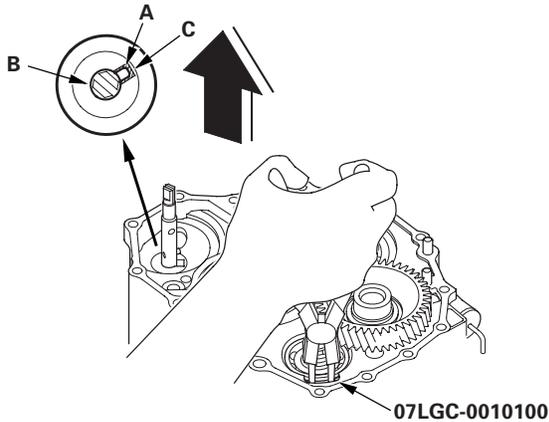
(cont'd)

Transmission Housing

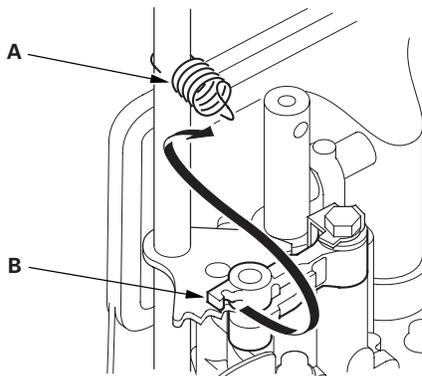
Housing and Shaft Assemblies Removal (cont'd)

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

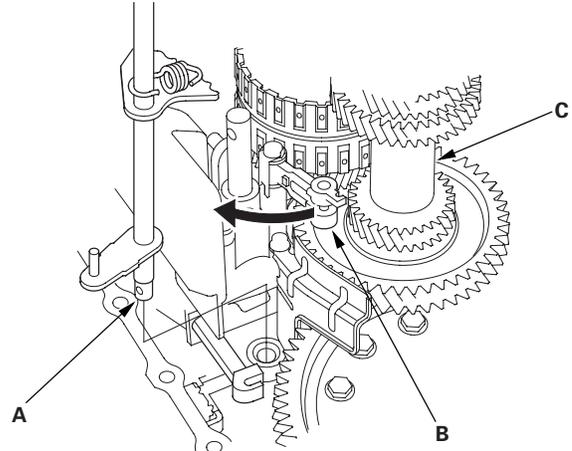
NOTE: Do not squeeze the end of the control shaft tips together when turning the shaft.



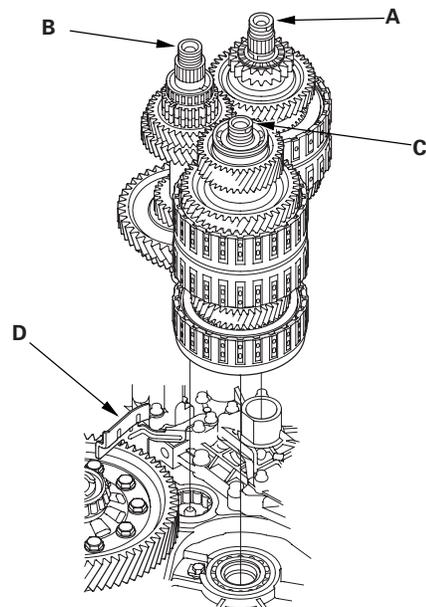
- While expanding the snap ring of the secondary shaft bearing using the snap ring pliers, lift the transmission housing. Release the snap ring pliers and remove the transmission housing.
- Remove the countershaft shaft reverse gear and needle bearing.
- Remove the lock bolt securing the shift fork, then remove the shift fork with the reverse selector together.
- Remove the control lever from the control shaft.
- Unlock the detent spring (A) from the detent arm (B).



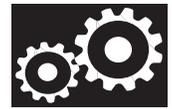
- Remove the control shaft (A) from the torque converter housing.



- Turn the detent arm (B) away from the countershaft (C).
- Remove the mainshaft sub-assembly (A), countershaft sub-assembly (B) and secondary shaft sub-assembly (C) together. Do not bump the countershaft on the baffle plate (D).



- Remove the baffle plate.
- Remove the differential assembly.



Bearing Removal

Special Tools Required

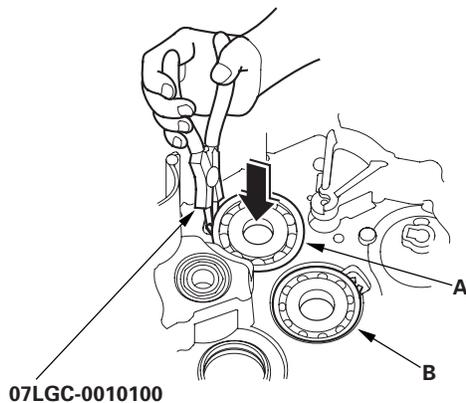
- Driver attachment, 78 x 90 mm 07GAD-SD40101
- Handle driver 07749-0010000
- Driver attachment, 42 x 47 mm 07746-0010300
- Snap ring pliers 07LGC-0010100

1. Remove the idler gear shaft when removing the mainshaft bearing and idler gear shaft bearing.

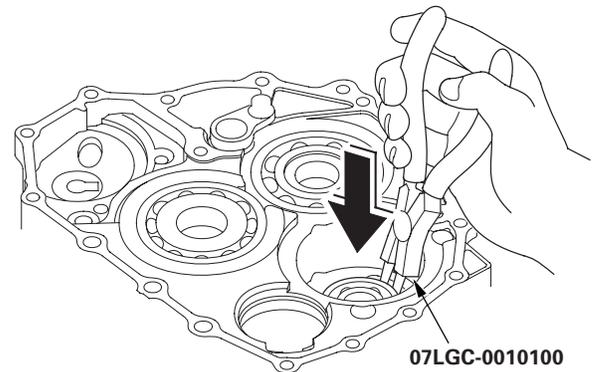
NOTE: If you are only removing the countershaft bearing, idler gear shaft removal is not needed.

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

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



3. Expand the snap ring of the idler gear shaft bearing with the snap ring pliers, then push the bearing out.



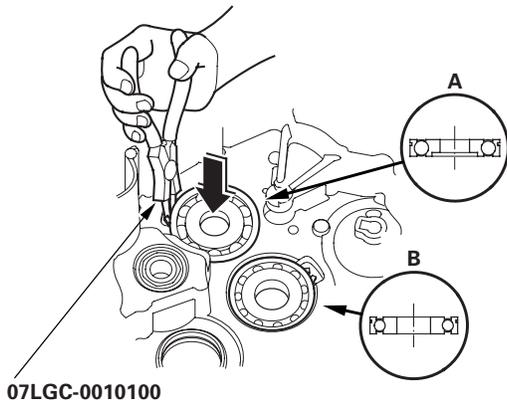
Transmission Housing

Bearing Installation

Special Tools Required

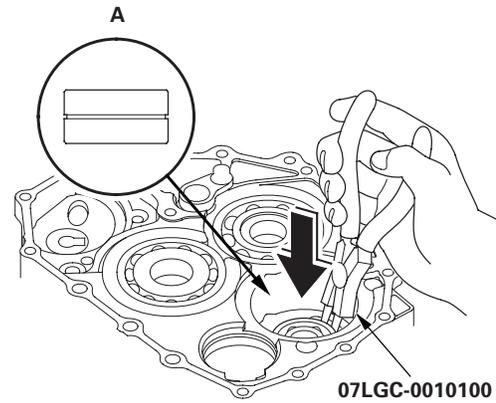
- Driver attachment, 78 x 90 mm 07GAD-SD40101
- Handle driver 07749-0010000
- Driver attachment, 42 x 47 mm 07746-0010300
- Snap ring pliers 07LGC-0010100

1. Install the bearings in the direction shown.
2. Expand each snap ring with the snap ring pliers, and install the mainshaft bearing (A) and countershaft bearing (B) part-way into the housing.

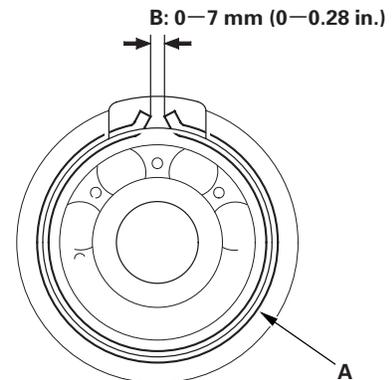


3. Release the pliers, then push the bearing down into the housing until the snap ring snaps in place around it.

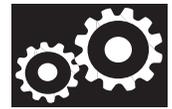
4. Expand the snap ring of the idler gear shaft (A) with the snap ring pliers, and install the bearing part-way into the housing.



5. Release the pliers, then push the bearing down into the housing until the snap ring snaps in place around it.
6. After installing the bearings verify that the snap rings (A) are seated in the bearing and housing grooves, and that the ring end gaps (B) are correct.



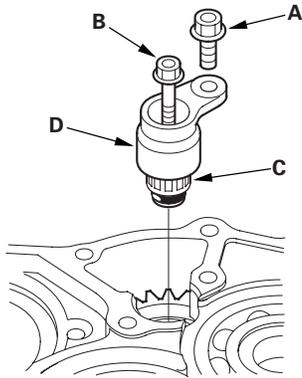
7. Install the idler shaft.



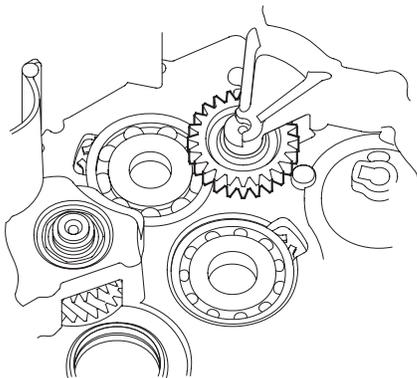
Reverse Idler Gear Removal and Installation

Removal

1. Remove the bolt (A) securing the reverse idler gear shaft holder.

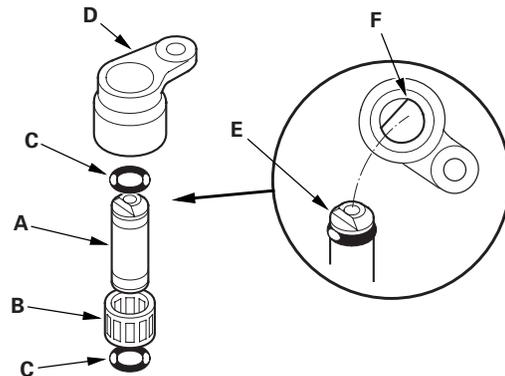


2. Install a 5 x 0.8 mm bolt (B) in the reverse idler gear shaft, and pull it to remove the reverse idler gear shaft (C) and gear shaft holder (D) together.
3. Remove the reverse idler gear.

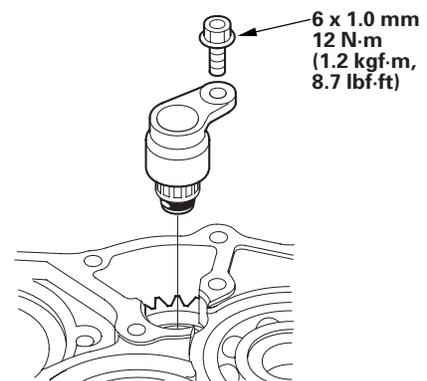


Installation

1. Install the reverse idler gear in the transmission housing.
2. Lightly coat the reverse idler gear shaft (A), needle bearing (B), and new O-rings (C) with lithium grease.



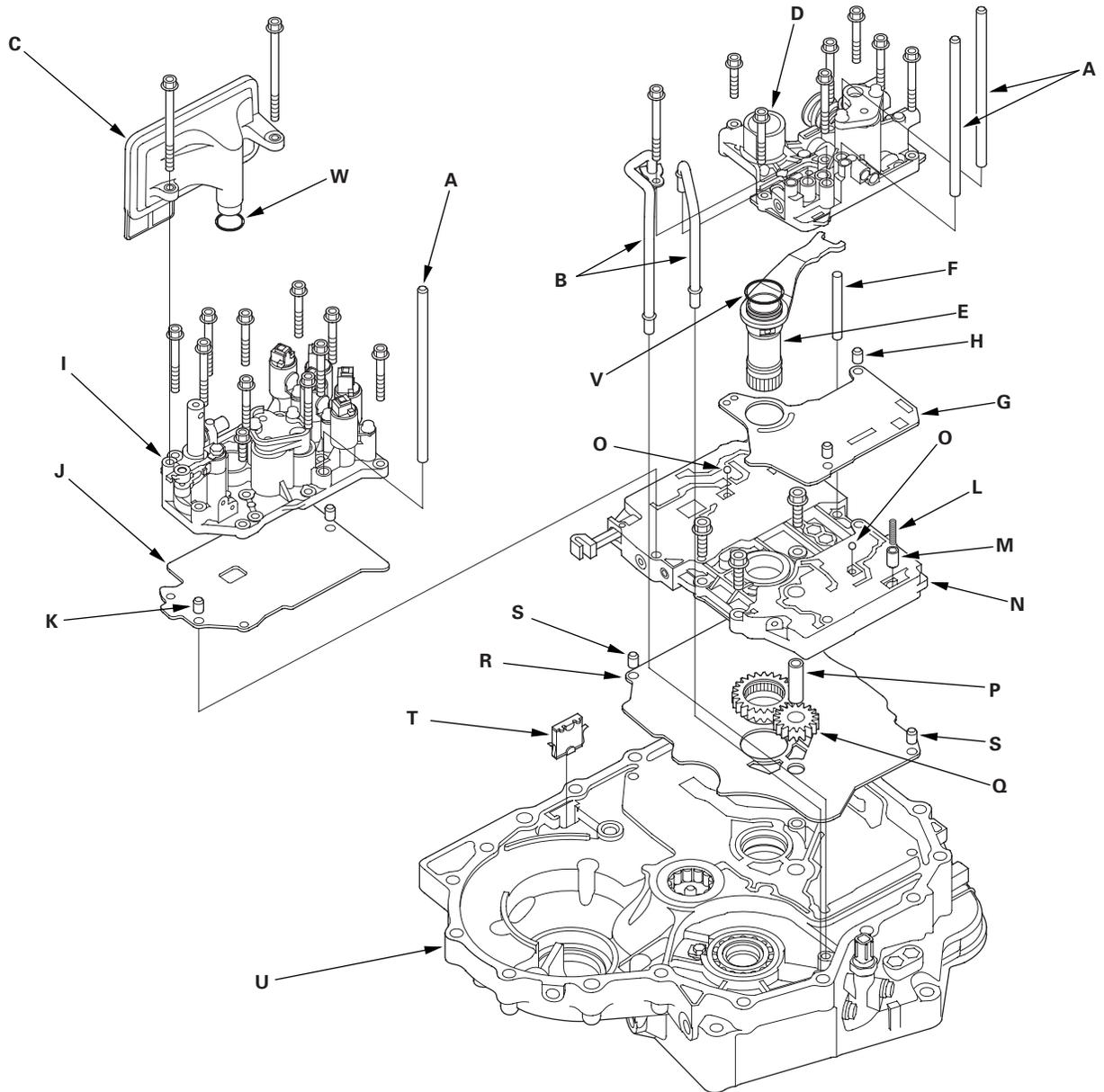
3. Assemble the new O-rings and needle bearing on the reverse idler gear shaft, then install the reverse idler gear shaft in the reverse idler gear shaft holder (D). Align the D-shaped cut out (E) of the shaft with the D-shaped area (F) of the holder.
4. Install the reverse idler gear shaft/holder assembly on the transmission housing.



Valve Body

Valve Bodies and ATF Strainer Removal

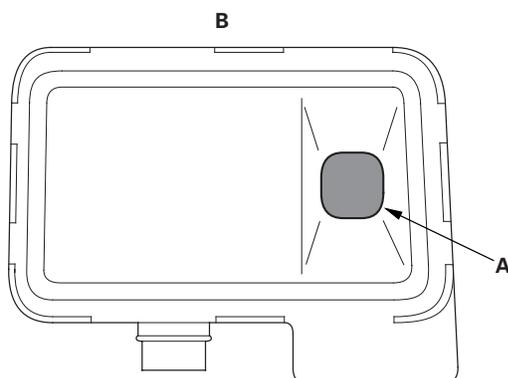
1. Remove the ATF feed pipes (A) and ATF joint pipes (B).



2. Remove the ATF strainer (C).
3. Remove the regulator valve body (D) (seven bolts).
4. Remove the stator shaft (E) and stator shaft stop (F), then remove the regulator separator plate (G) and two dowel pins (H).
5. Remove the servo body (I) (11 bolts), then remove the separator plate (J) and two dowel pins (K).



6. Remove the cooler check valve spring (L) and valve (M), then remove the main valve body (N) (three bolts). Do not let the check balls (O) fall out.
7. Remove the ATF pump driven gear shaft (P), then remove the ATF pump gears (Q).
8. Remove the main separator plate (R) and two dowel pins (S).
9. Remove the ATF magnet (T), clean and reinstall it in the torque converter housing (U).
10. Clean the inlet opening (A) of the ATF strainer (B) thoroughly with compressed air, then check that it is in good condition and that the inlet opening is not clogged.



11. Test the ATF strainer by pouring clean ATF through the inlet opening, and replace it if it is clogged or damaged.
12. Remove the O-rings (V) (W) from the stator shaft and ATF strainer. Install the new ones when installing the valve bodies.

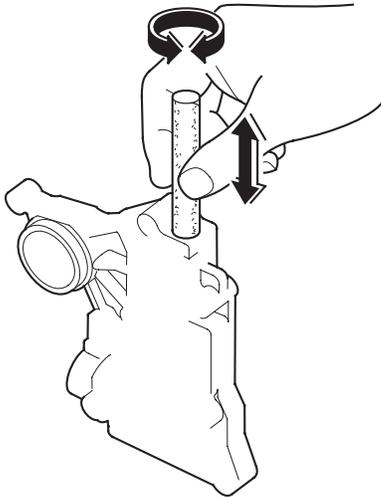
Valve Body

Valve Body Repair

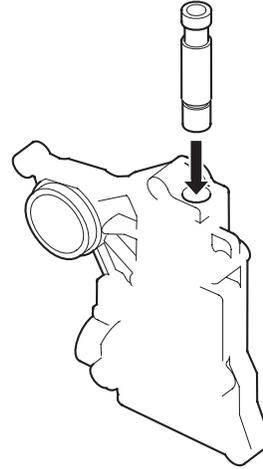
NOTE: This repair is only necessary if one or more of the valves in a valve body do not slide smoothly in their bores. Use this procedure to free the valves.

1. Soak a sheet of # 600 abrasive paper in ATF for about 30 minutes.
2. Carefully tap the valve body so the sticking valve drops out of its bore. It may be necessary to use a small screwdriver to pry the valve free. Be careful not to scratch the bore with the screwdriver.
3. Inspect the valve for any scuff marks. Use the ATF-soaked # 600 paper to polish off any burrs that are on the valve, then wash the valve in solvent and dry it with compressed air.
4. Roll up half a sheet of ATF-soaked # 600 paper and insert it in the valve bore of the sticking valve. Twist the paper slightly, so that it unrolls and fits the bore tightly, then polish the bore by twisting the paper as you push it in and out.

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



5. Remove the # 600 paper. Thoroughly wash the entire valve body in solvent, then dry it with compressed air.
6. Coat the valve with ATF, then drop it into its bore. It should drop to the bottom of the bore under its own weight. If not, repeat step 4, then retest. If the valve still sticks, replace the valve body.

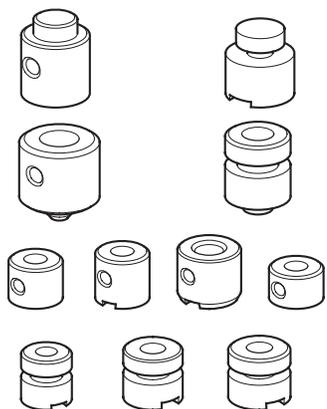


7. Remove the valve, and thoroughly clean it and the valve body with solvent. Dry all parts with compressed air, then reassemble using ATF as a lubricant.

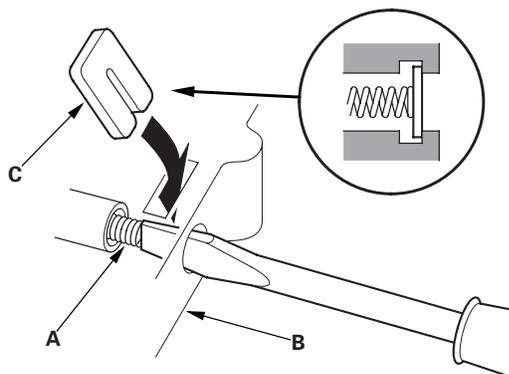


Valve Body Valve Installation

1. Coat all parts with ATF before assembly.
2. Install the valves and springs in the sequence shown for the main valve body (see page 14-240), regulator valve body (see page 14-242), and servo body (see page 14-243). Refer to the following valve cap illustrations, and install each valve cap so the end shown facing up will be facing the outside of the valve body.



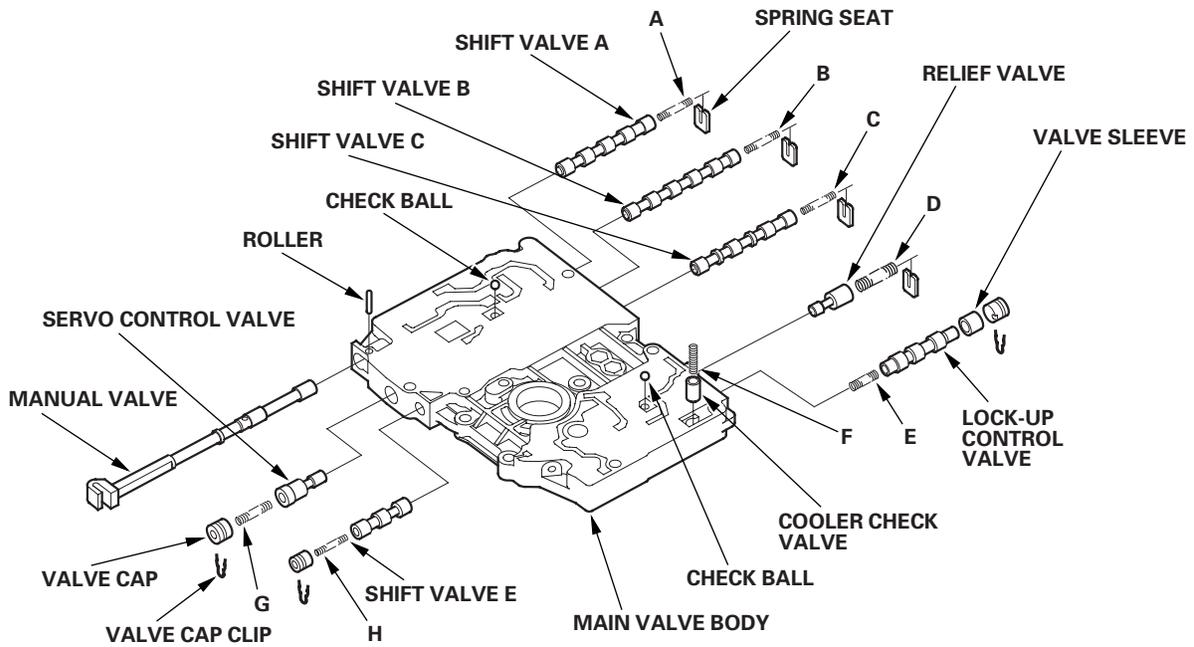
3. Install all the springs and seats. Insert the spring (A) in the valve, then install the valve in the valve body (B). Push the spring in with a screwdriver, then install the spring seat (C).



Valve Body

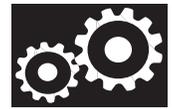
Main Valve Body Disassembly, Inspection, and Reassembly

1. Clean all parts thoroughly in solvent or carburetor cleaner, and dry them with compressed air. Blow out all passages.
2. Do not use a magnet to remove the check balls, it may magnetize the balls.
3. Inspect the valve body for scoring and damage.
4. Check all valves for free movement. If any fail to slide freely, refer to valve body repair (see page 14-238).
5. Coat all parts with ATF during assembly.



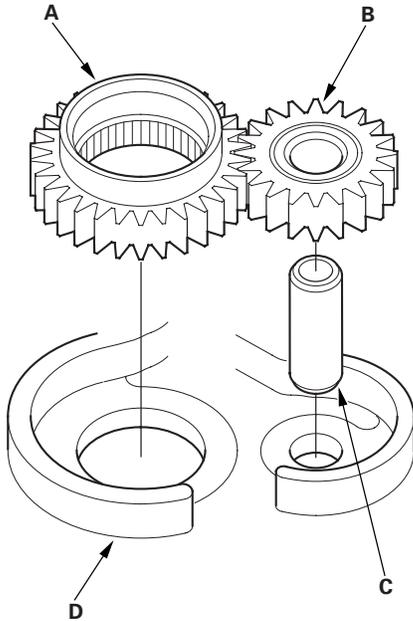
SPRING SPECIFICATIONS

Springs		Standard (New)-Unit: mm (in.)			
		Wire Diameter	O.D.	Free Length	No. of Coils
A	Shift valve A spring	0.8 (0.031)	5.6 (0.220)	28.1 (1.106)	15.9
B	Shift valve B spring	0.8 (0.031)	5.6 (0.220)	28.1 (1.106)	15.9
C	Shift valve C spring	0.8 (0.031)	5.6 (0.220)	28.1 (1.106)	15.9
D	Relief valve spring	1.0 (0.039)	9.6 (0.378)	34.1 (1.343)	10.2
E	Lock-up control valve spring	0.65 (0.026)	7.1 (0.280)	23.1 (0.909)	12.7
F	Cooler check valve spring	0.9 (0.035)	6.6 (0.260)	26.5 (1.043)	12.6
G	Servo control valve spring	0.7 (0.028)	6.6 (0.260)	35.7 (1.406)	17.2
H	Shift valve E spring	0.8 (0.031)	5.6 (0.220)	28.1 (1.106)	15.9



ATF Pump Inspection

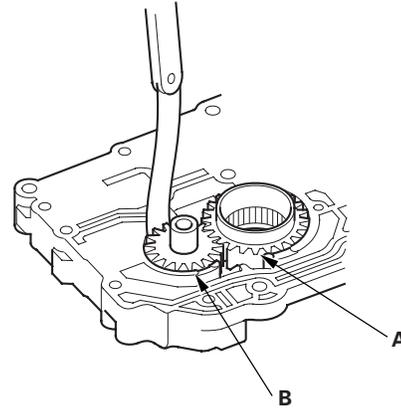
1. Install the ATF pump drive gear (A), driven gear (B), and ATF pump driven gear shaft (C) in the main valve body (D). Lubricate all parts with ATF, and install the ATF pump driven gear with its grooved and chamfered side facing up.



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

ATF Pump Gears Side (Radial) Clearance: Standard (New):

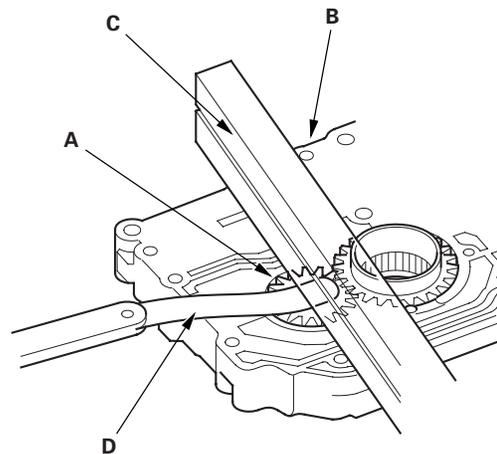
ATF Pump Drive Gear	0.210	0.265 mm	(0.0083	0.0104 in.)
ATF Pump Driven Gear	0.070	0.125 mm	(0.0028	0.0049 in.)



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

ATF Pump Drive/Driven Gear Thrust (Axial) Clearance:

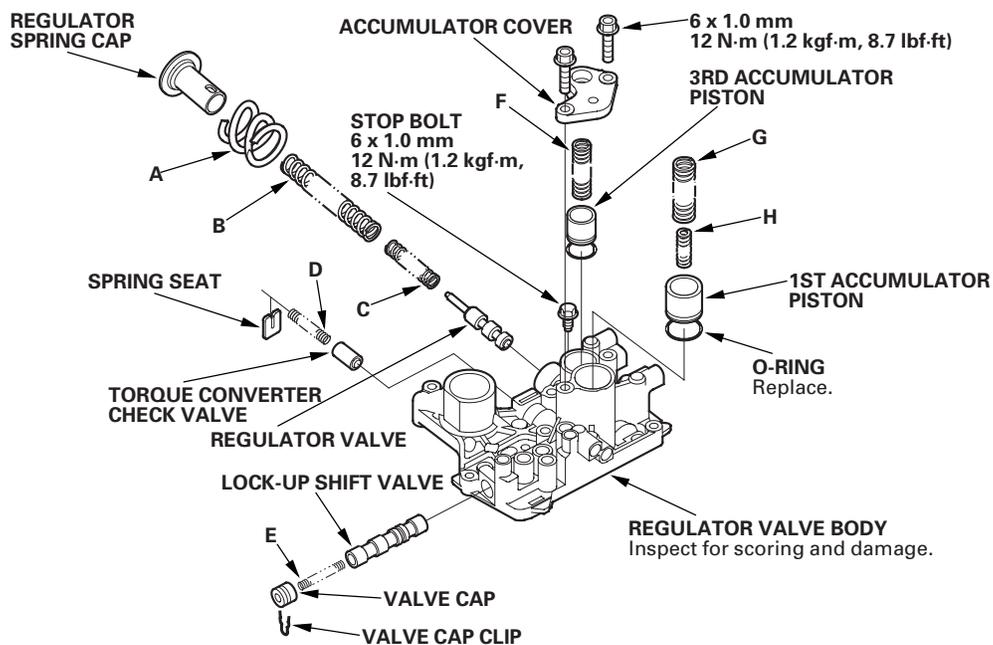
Standard (New):	0.03	0.05 mm	(0.001	0.002 in.)
Service Limit:	0.07	mm	(0.003 in.)	



Valve Body

Regulator Valve Body Disassembly, Inspection, and Reassembly

1. Clean all parts thoroughly in solvent or carburetor cleaner, and dry them with compressed air. Blow out all passages.
2. Check all valves for free movement. If any fail to slide freely, refer to valve body repair (see page 14-238).
3. Hold the regulator spring cap in place while removing the stop bolt. The regulator spring cap is spring loaded. Once the stop bolt is removed, release the spring cap slowly so it does not pop out.
4. Coat all parts with ATF during assembly.
5. When reassembling the valve body, align the hole in the regulator spring cap with the hole in the valve body, then press the spring cap into the valve body, and tighten the stop bolt.



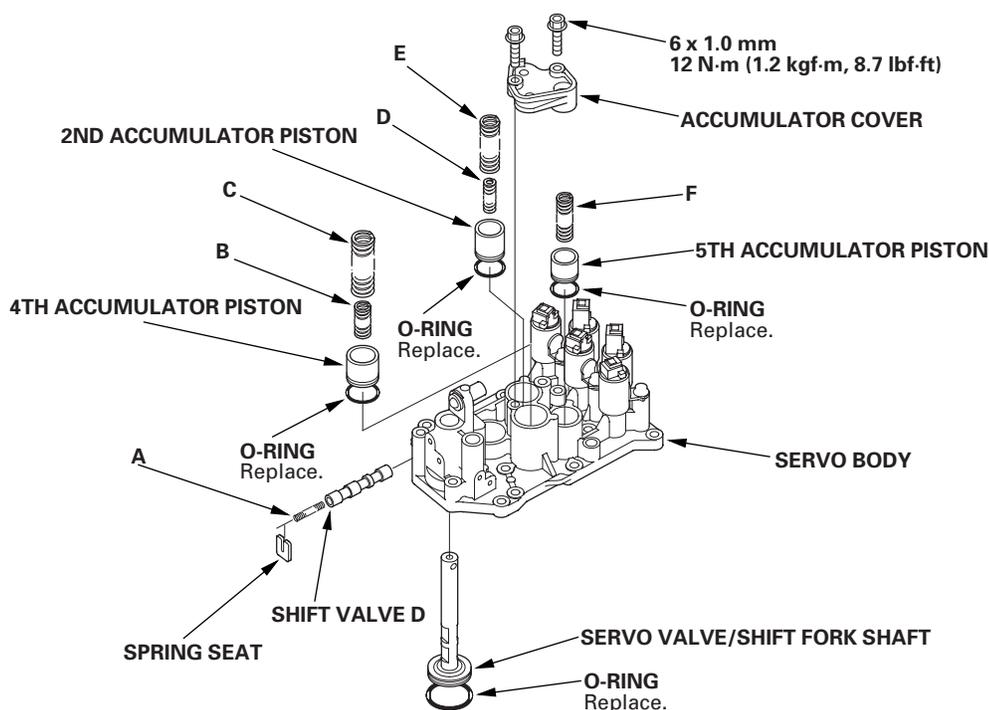
SPRING SPECIFICATIONS

Spring		Standard (New)-Unit: mm (in.)			
		Wire Diameter	O.D.	Free Length	No. of Coils
A	Stator reaction spring	4.5 (0.177)	35.4 (1.394)	30.3 (1.193)	1.92
B	Regulator valve spring A	1.9 (0.075)	14.7 (0.579)	80.6 (3.173)	16.1
C	Regulator valve spring B	1.6 (0.063)	9.2 (0.362)	44.0 (1.732)	12.5
D	Torque converter check valve spring	1.2 (0.047)	8.6 (0.339)	33.8 (1.331)	12.2
E	Lock-up shift valve spring	1.0 (0.039)	6.6 (0.260)	35.5 (1.398)	18.2
F	3rd accumulator spring	2.5 (0.098)	14.6 (0.575)	29.9 (1.177)	4.9
G	1st accumulator spring A	2.4 (0.094)	18.6 (0.732)	49.0 (1.929)	7.1
H	1st accumulator spring B	2.3 (0.091)	12.2 (0.480)	31.5 (1.240)	6.6



Servo Body Disassembly, Inspection, and Reassembly

1. Clean all parts thoroughly in solvent or carburetor cleaner, and dry them with compressed air. Blow out all passages.
2. Inspect the valve body for scoring and damage.
3. Check the shift valve D for free movement. If any fail to slide freely, refer to valve body repair (see page 14-238).
4. When removing and installing the shift solenoid valves, refer to shift solenoid valves removal and installation (see page 14-244).
5. Coat all parts with ATF during assembly.
6. Replace the O-rings with new ones.



SPRING SPECIFICATIONS

Spring		Standard (New)-Unit: mm (in.)			
		Wire Diameter	O.D.	Free Length	No. of Coils
A	Shift valve D spring	0.8 (0.031)	5.6 (0.220)	28.1 (1.106)	15.9
B	4th accumulator spring B	2.3 (0.091)	12.2 (0.480)	31.5 (1.240)	6.6
C	4th accumulator spring A	2.4 (0.094)	18.6 (0.732)	49.0 (1.929)	7.1
D	2nd accumulator spring B	2.0 (0.079)	10.6 (0.417)	34.0 (1.339)	8.0
E	2nd accumulator spring A	2.2 (0.087)	16.6 (0.654)	48.2 (1.898)	8.5
F	5th accumulator spring	2.5 (0.098)	14.6 (0.575)	29.9 (1.177)	4.9

Valve Body

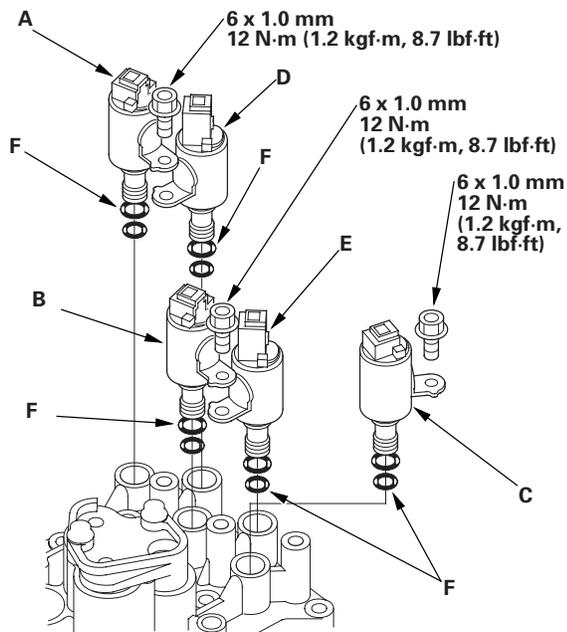
Shift Solenoid Valves Removal and Installation

NOTE:

- Do not hold the shift solenoid connector to remove and to install the shift solenoid valves. Hold the shift solenoid valve body.
- Do not install the shift solenoid valve A before installing the shift solenoid valve D, and do not install shift solenoid valve B before solenoid valve E. If solenoid valves A and B are installed before solenoid valves D and E, it may damage the hydraulic control system.

1. Remove the shift solenoid valves by holding the solenoid valve body.
2. Install new O-rings (F) on each shift solenoid valves.

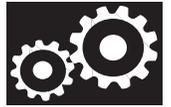
NOTE: The new shift solenoid valve is equipped with new O-rings. If you install a new shift solenoid valve, there is no need to replace its O-rings.



3. Install shift solenoid valve D by holding the shift solenoid valve body; be sure to install mounting bracket contacts the servo body.
4. Install shift solenoid valve A by holding the shift solenoid valve body; be sure to install mounting bracket contacts the bracket on shift solenoid valve D.

5. Install shift solenoid valve E by holding the shift solenoid valve body; be sure to install mounting bracket contacts the servo body.
6. Install shift solenoid valve B by holding the shift solenoid valve body; be sure to install mounting bracket contacts the bracket on shift solenoid valve E.
7. Install shift solenoid valve C by holding the shift solenoid valve body; be sure to install mounting bracket contacts the servo body.

Torque Converter Housing

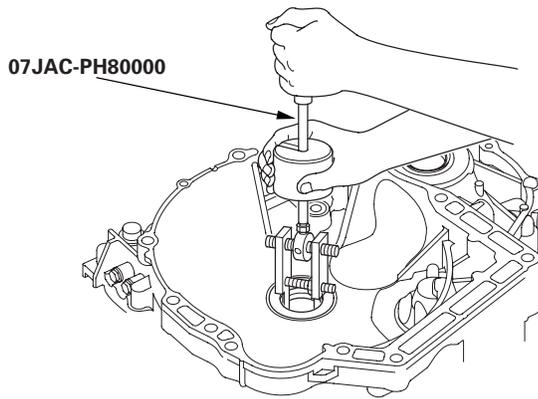


Mainshaft Bearing and Oil Seal Replacement

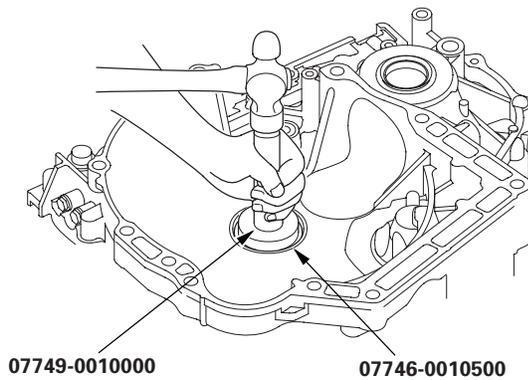
Special Tools Required

- Adjustable bearing remover set
07JAC-PH80000
- Handle driver 07749-0010000
- Driver attachment, 62 x 68 mm 07746-0010500
- Driver attachment, 72 x 75 mm 07746-0010600

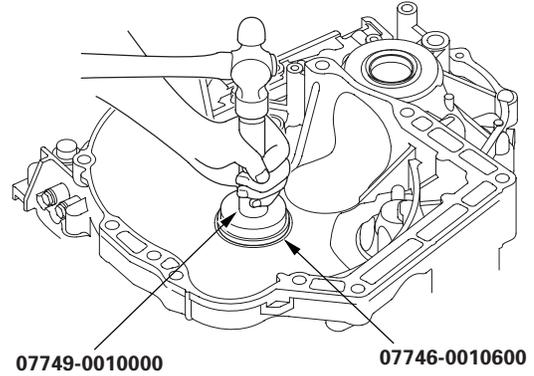
1. Remove the mainshaft bearing and oil seal with the special tool.



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



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



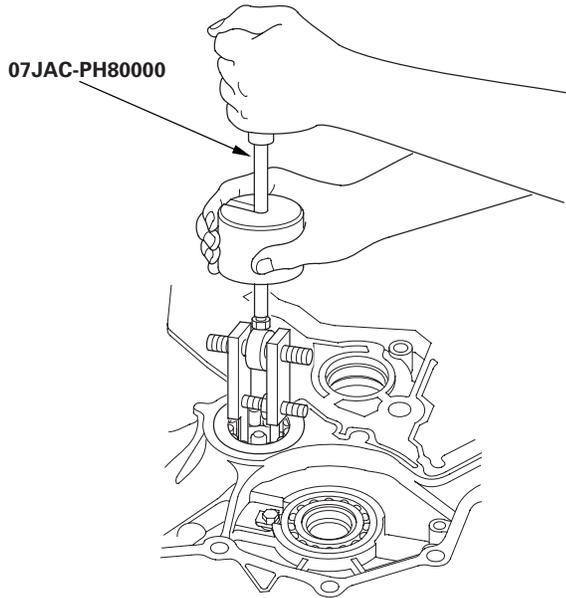
Torque Converter Housing

Countershaft Bearing Replacement

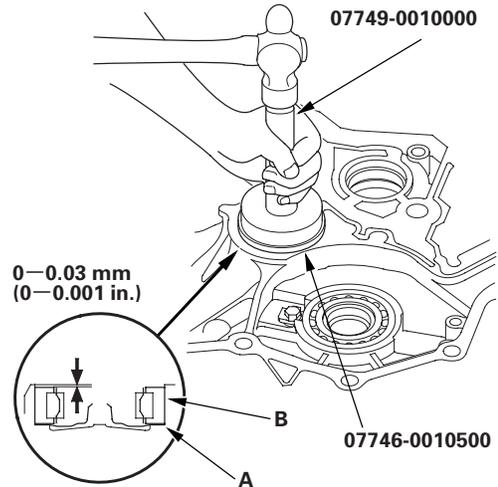
Special Tools Required

- Adjustable bearing remover set
07JAC-PH80000
- Handle driver 07749-0010000
- Driver attachment, 62 x 68 mm 07746-0010500

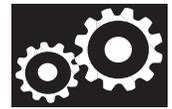
1. Remove the countershaft bearing with the special tool.



2. Install the ATF guide plate (A).



3. Install the new countershaft bearing (B) in the housing with the special tools.

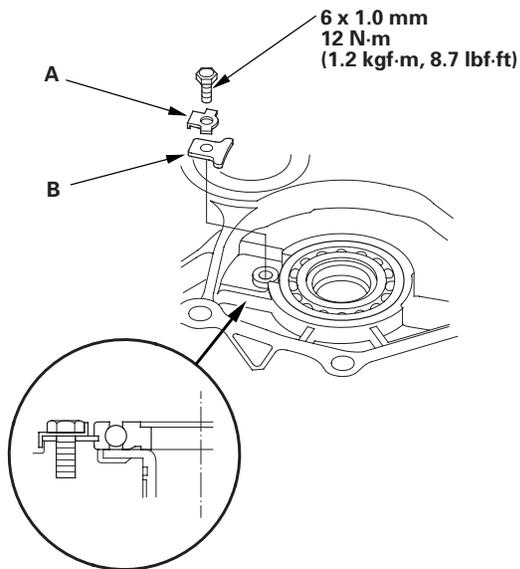


Secondary Shaft Bearing Replacement

Special Tools Required

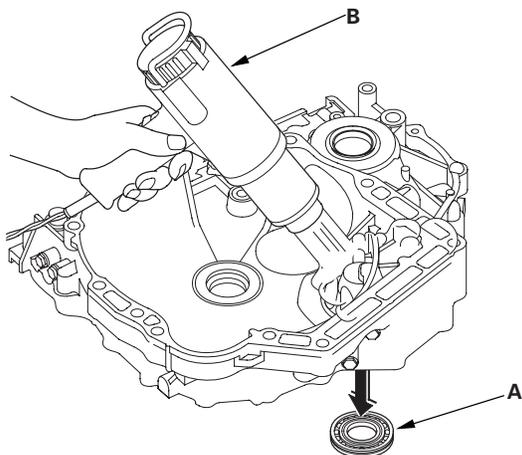
- Handle driver 07749-0010000
- Driver attachment, 62 x 68 mm 07746-0010500

1. Remove the bolt, then remove the lock washer (A) and bearing set plate (B).

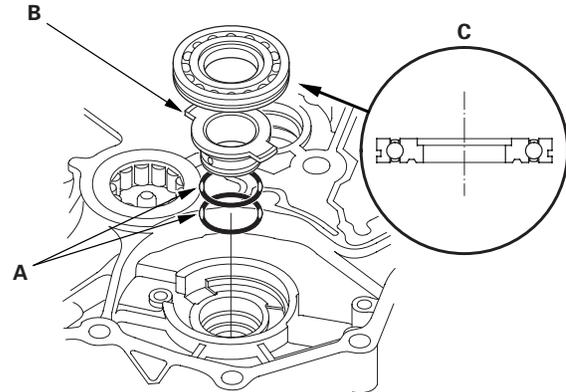


2. Remove the secondary shaft bearing (A) by heating the housing to about 100°C (212°F) with a heat gun (B). Do not heat the housing in excess of 100°C (212°F).

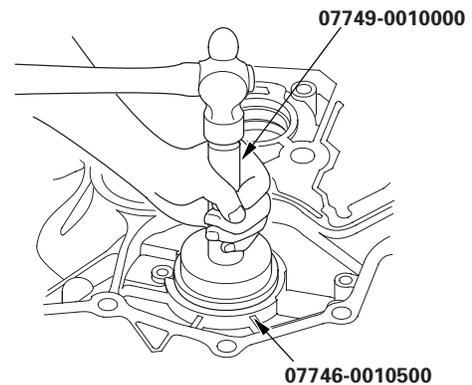
NOTE: Let the housing cool to normal temperature before installing the bearing.



3. Install the new O-rings (A) on the ATF guide collar (B), then install the ATF guide collar in the housing.



4. Install the new secondary shaft bearing (C) in the direction shown.
5. Drive the secondary shaft bearing with the special tools, and install it securely in the housing.



6. Check that the bearing groove aligns with the housing surface, then install the bearing set plate with aligning the bearing groove.
7. Install the new lock washer and bolt, then bend the lock tab of the lock washer against the bolt head.

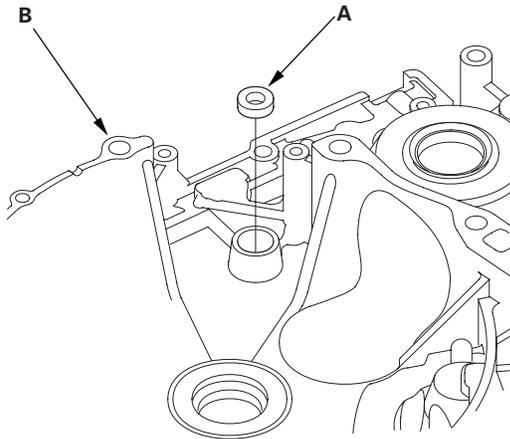
Torque Converter Housing

Control Shaft Oil Seal Replacement

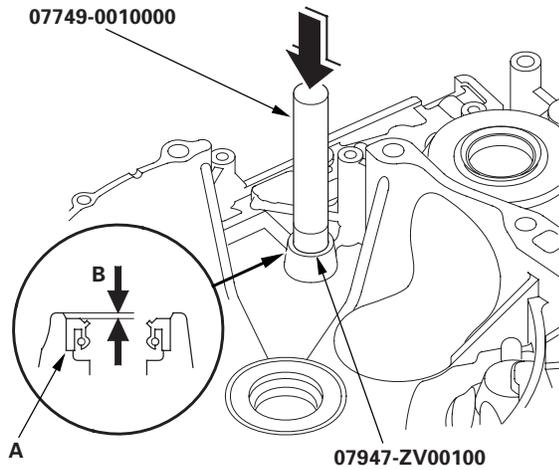
Special Tools Required

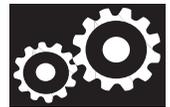
- Handle driver 07749-0010000
- Oil seal driver attachment 07947-ZV00100

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



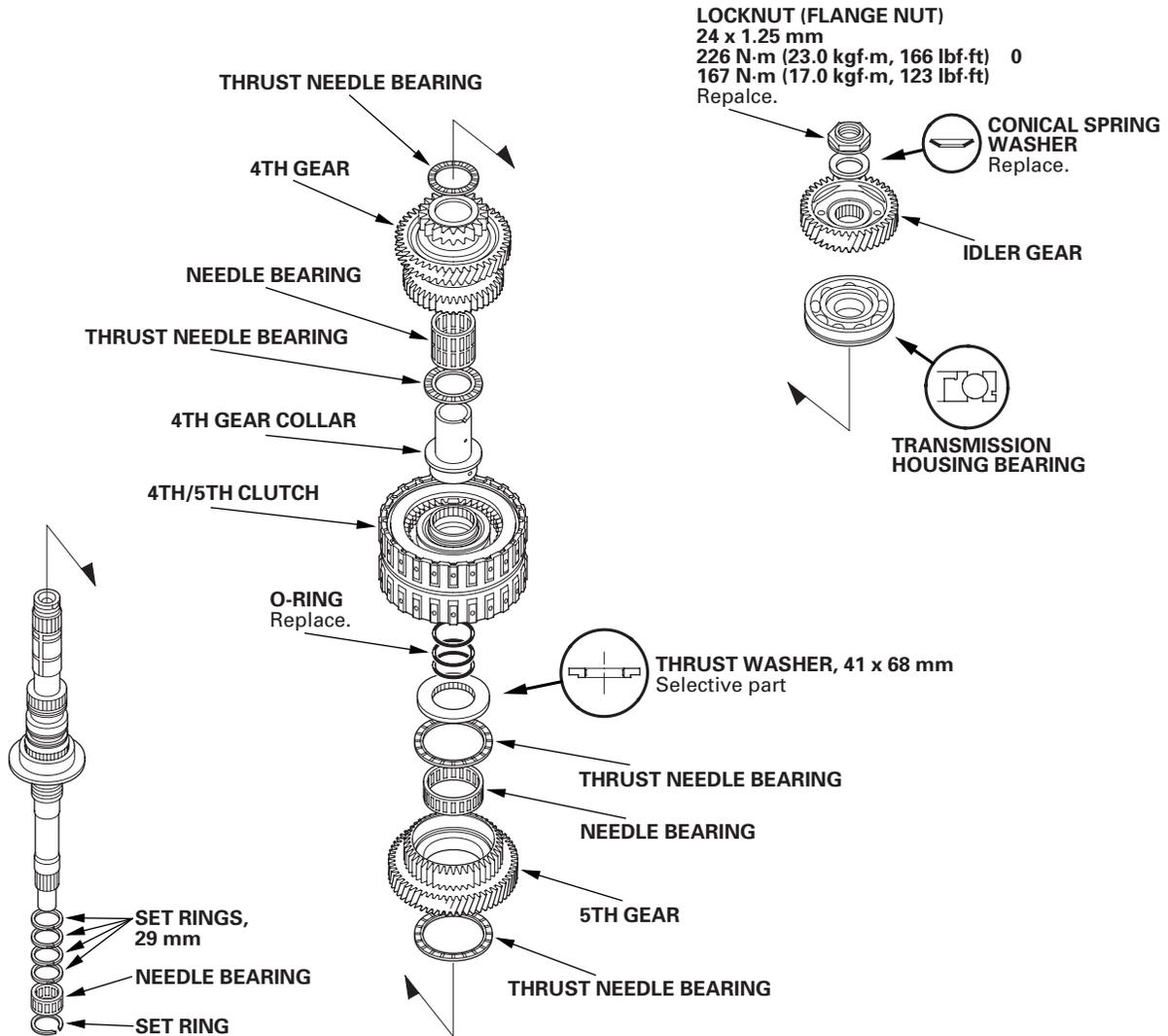
2. Install the new oil seal (A) in the torque converter housing in depth (B) of 0.5 1.5 mm (0.02 0.06 in.) below the housing surface with the special tools.





Mainshaft Disassembly, Inspection, and Reassembly

1. Inspect the thrust needle bearing and the needle bearing for galling and rough movement.

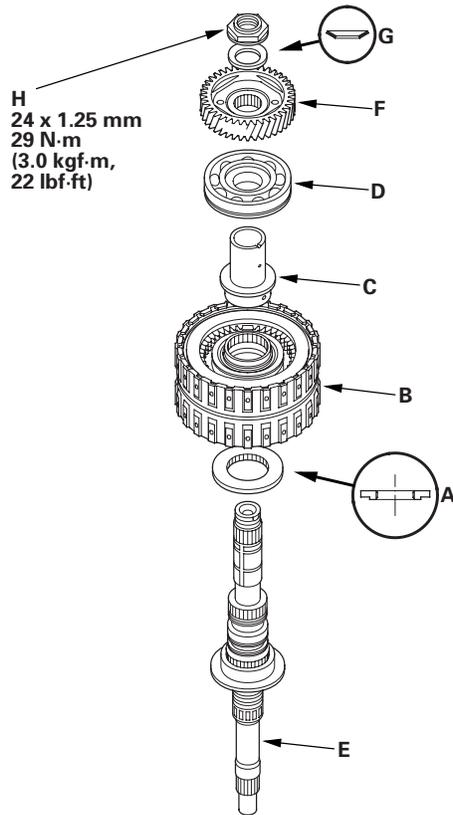


2. Inspect the splines for excessive wear and damage.
3. Check shaft bearing surface for scoring and excessive wear.
4. Before installing the O-rings, wrap the shaft splines with tape to prevent O-ring damage.
5. Lubricate all parts with ATF during assembly.
6. Install the conical spring washer, 41 x 68 mm thrust washer in the direction shown.
7. Replace the locknut and conical spring washer with new ones when assembling the transmission.
8. Check the clearance of the 5th gear (see page 14-250).

Shafts and Clutches

Mainshaft 5th Gear Clearance Inspection

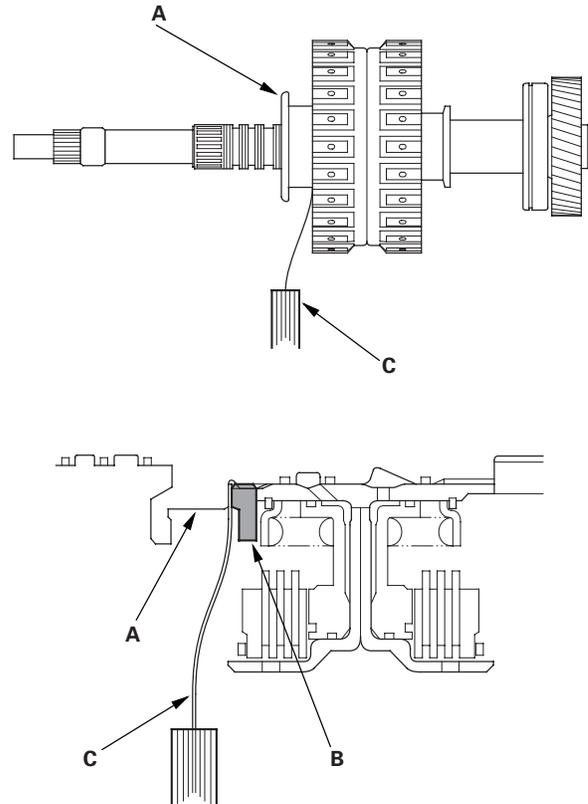
1. Remove the mainshaft transmission housing bearing (see page 14-233).
2. Assemble 41 x 68 mm thrust washer (A), 4th/5th clutch (B), 4th gear collar (C), and transmission housing bearing (D) on the mainshaft (E). Do not install the O-rings during inspection.



3. Install the idler gear (F) on the mainshaft by a press, then install the conical spring washer (G) and locknut (H).
4. Tighten the locknut to 29 N·m (3.0 kgf·m, 22 lbf·ft).

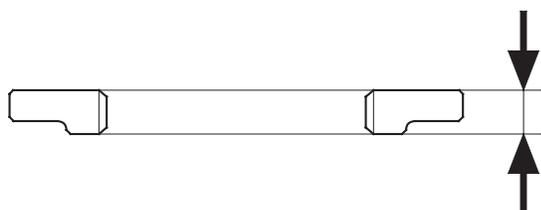
5. Measure the clearance between the mainshaft flange (A) and 41 x 68 mm thrust washer (B) with a feeler gauge (C), in at least three places. Use the average as the actual clearance.

STANDARD: 0.03 0.11 mm (0.001 0.004 in.)





6. If the clearance is out of standard, remove the 41 x 68 mm thrust washer and measure its thickness.



7. Select and install a new thrust washer, then recheck.

THRUST WASHER, 41 x 68 mm

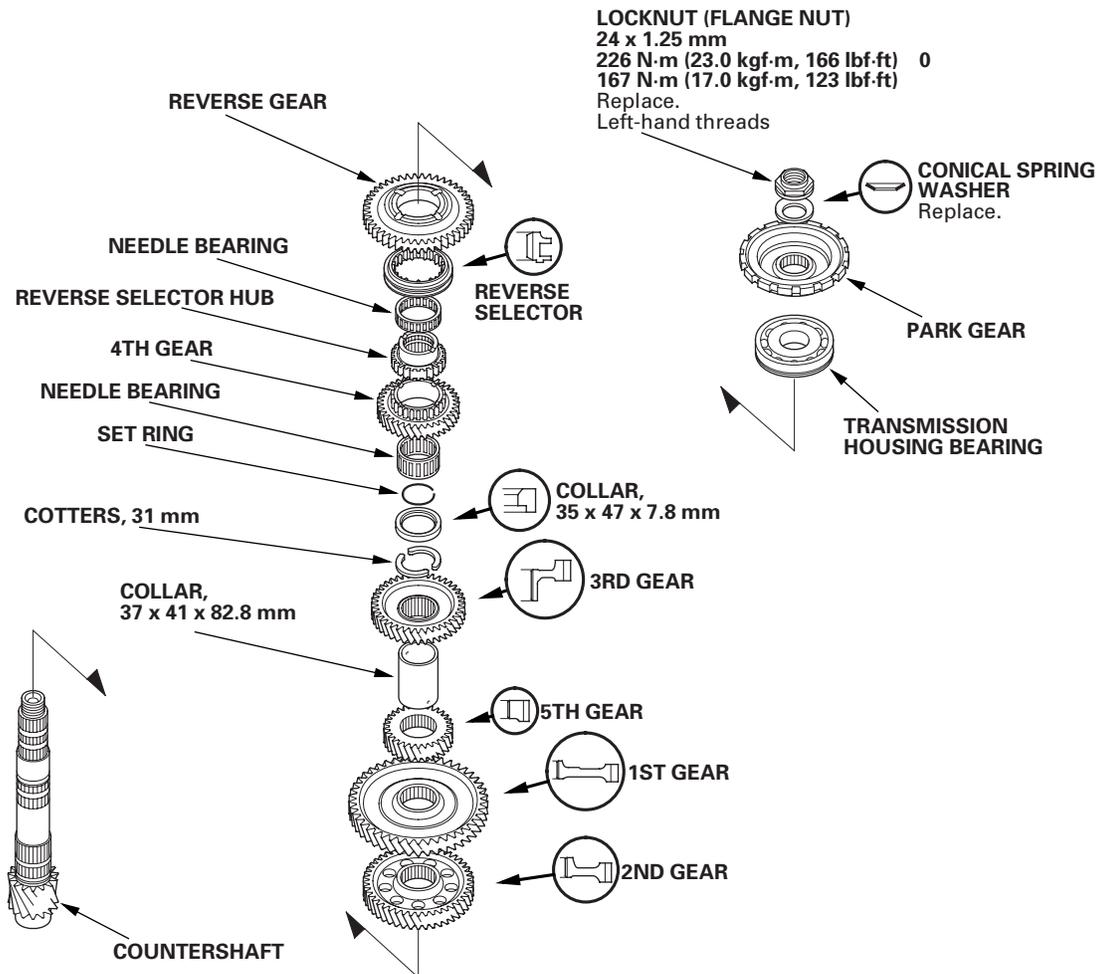
No.	Part Number	Thickness
1	90414-PRP-000	6.35 mm (0.250 in.)
2	90415-PRP-000	6.40 mm (0.252 in.)
3	90416-PRP-000	6.45 mm (0.254 in.)
4	90417-PRP-000	6.50 mm (0.256 in.)
5	90418-PRP-000	6.55 mm (0.258 in.)
6	90419-PRP-000	6.60 mm (0.260 in.)

8. After replacing the thrust washer, make sure the clearance is within standard.
9. Disassemble the shaft and gears.
10. Reinstall the bearing in the transmission housing (see page 14-234).

Shafts and Clutches

Countershaft Disassembly, Inspection, and Reassembly

1. Inspect the thrust needle bearing and the needle bearing for galling and rough movement.



2. Inspect the splines for excessive wear and damage.
3. Check shaft bearing surface for scoring and excessive wear.
4. Lubricate all parts with ATF during assembly.
5. Install the conical spring washer, reverse selector, 35 x 47 x 7.8 mm collar, and all gears in the direction shown.
6. Replace the locknut and conical spring washer with new ones when assembling the transmission. The countershaft locknut has left-hand threads.
7. Some reverse selector hubs, and the 3rd gear are press-fitted to the countershaft; special tools are needed to remove them (see page 14-253) and to install them (see page 14-254).



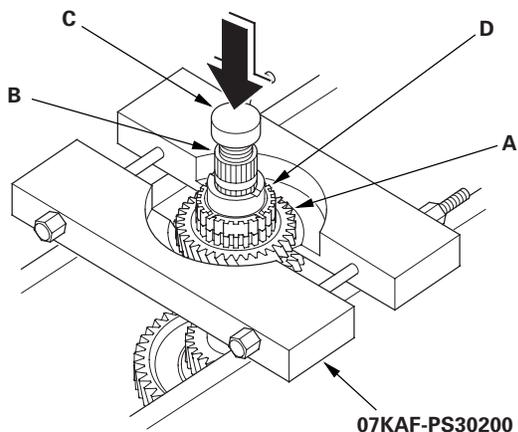
Reverse Selector Hub and 3rd Gear Removal

Special Tools Required

Bearing separator 07KAF-PS30200

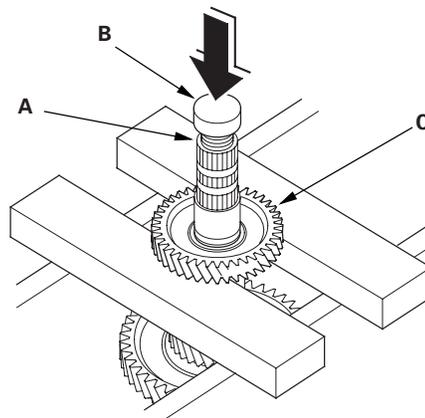
1. Install the special tool on the 4th gear (A). Set a press on the countershaft (B) with putting a spacer (C) between the press and countershaft, and remove the reverse selector hub (D).

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



2. Remove the needle bearing, set ring, 35 x 47 x 7.8 mm collar, and cotters.

3. Set the press on the countershaft (A) with putting a spacer (B) between the press and countershaft, and remove the 3rd gear (C).



4. Remove the 37 x 41 x 82.8 mm collar, 5th gear, 1st gear, and 2nd gear.

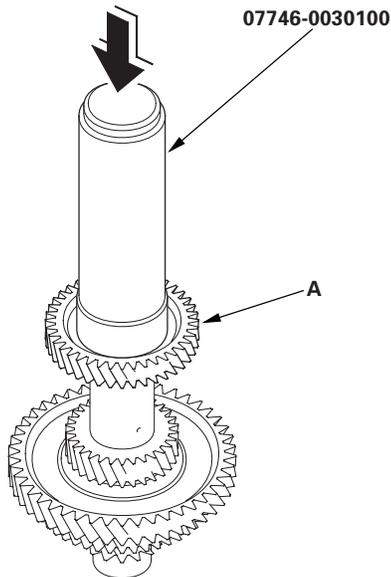
Shafts and Clutches

Reverse Selector Hub and 3rd Gear Installation

Special Tools Required

Driver 40 mm I.D. 07746-0030100

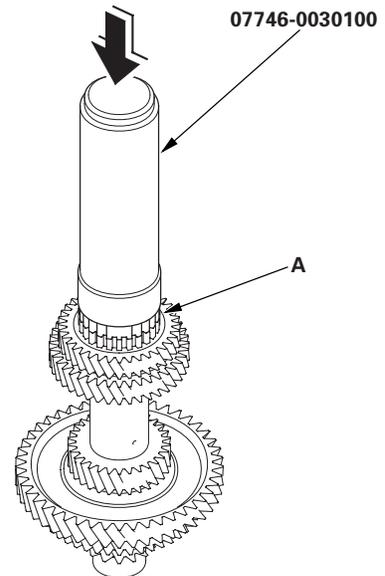
1. Install the 2nd gear, 1st gear, 5th gear, and 37 x 41 x 82.8 mm collar on the countershaft.
2. Slide the 3rd gear (A) over the countershaft, and press it in place with the special tool and a press.

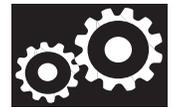


3. Install the cotters, 35 x 47 x 7.8 mm collar, set ring, needle bearing, and 4th gear.

4. Slide the reverse selector hub (A) over the countershaft, then press it in place with the special tool and a press.

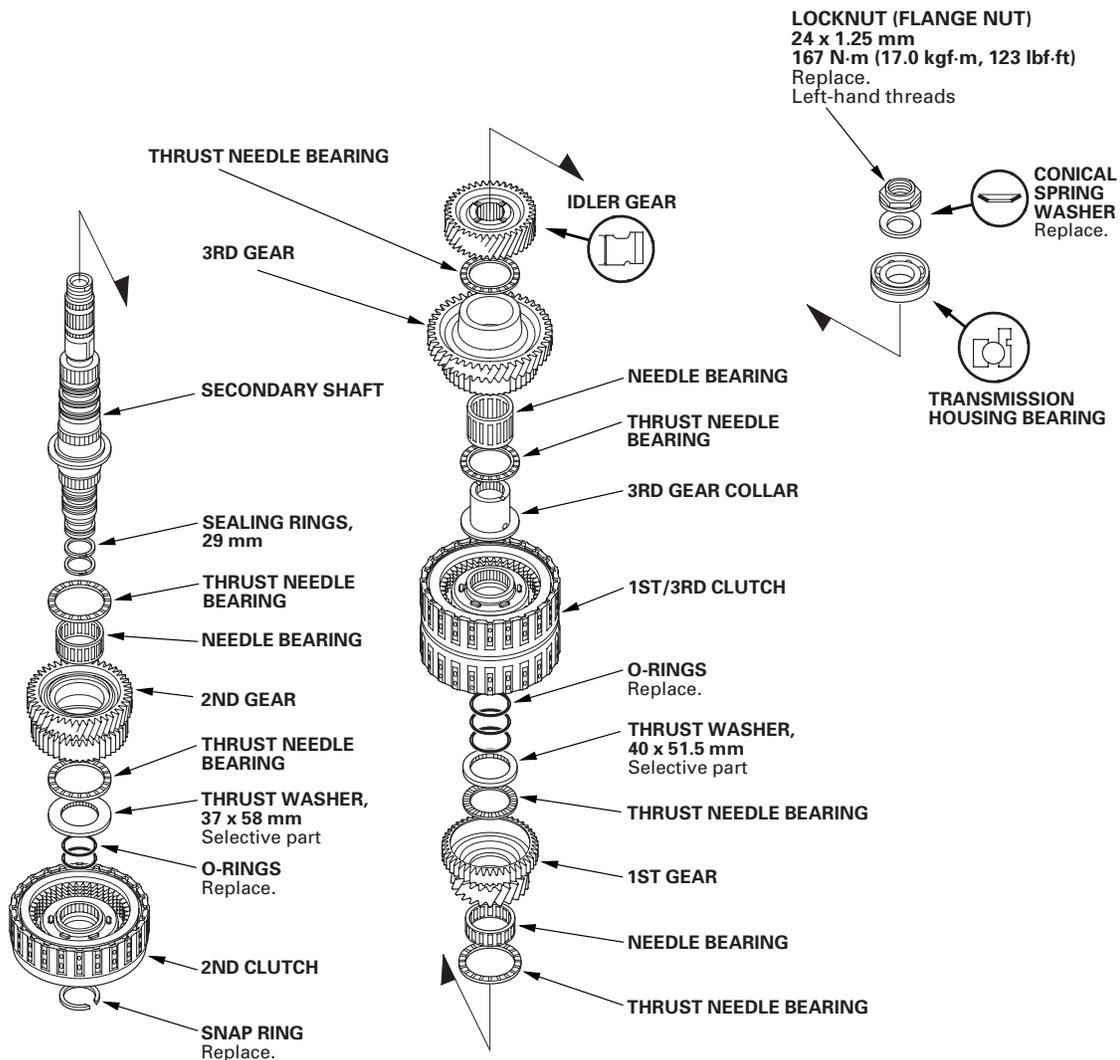
NOTE: Some reverse selector hubs are not press-fitted and can be installed without using the special tool and a press.





Secondary Shaft Disassembly, Inspection, and Reassembly

1. Inspect the thrust needle bearing and the needle bearing for galling and rough movement.



2. Inspect the splines for excessive wear and damage.
3. Check shaft bearing surface for scoring and excessive wear.
4. Before installing the O-rings, wrap the shaft splines with tape to prevent O-ring damage.
5. Lubricate all parts with ATF during assembly.
6. Install the conical spring washer, idler gear in the direction shown.
7. Replace the locknut and conical spring washer with new ones when assembling the transmission. The locknut has left-hand threads.
8. Check the clearance of the 2nd gear (see page 14-257) and 1st gear (see page 14-259).

Shafts and Clutches

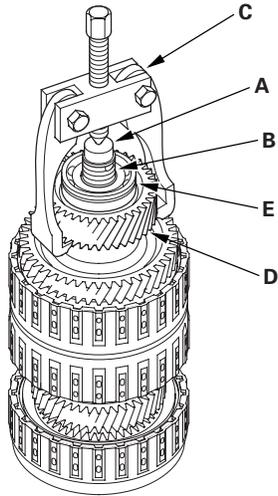
Secondary Shaft Ball Bearing, Idler Gear Removal and Installation

Special Tools Required

Driver attachment, 42 mm I.D. 07QAD-P0A0100

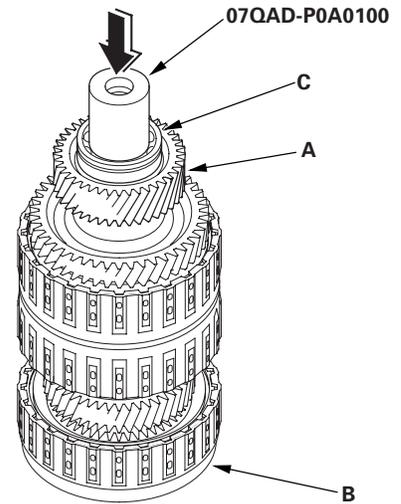
Removal

Place a shaft protector (A) on the secondary shaft (B), and set the puller (C) under the idler gear (D), then remove the idler gear and ball bearing (E).



Installation

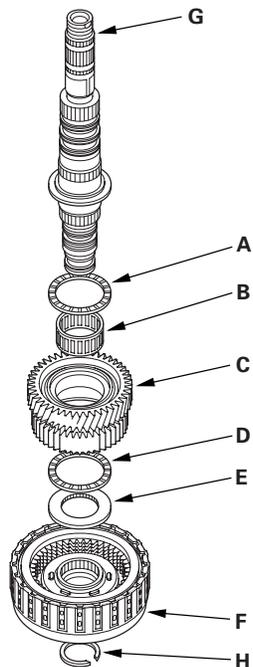
Install the idler gear (A) on the secondary shaft (B), and install the ball bearing (C) over the idler gear with the special tool and a press.





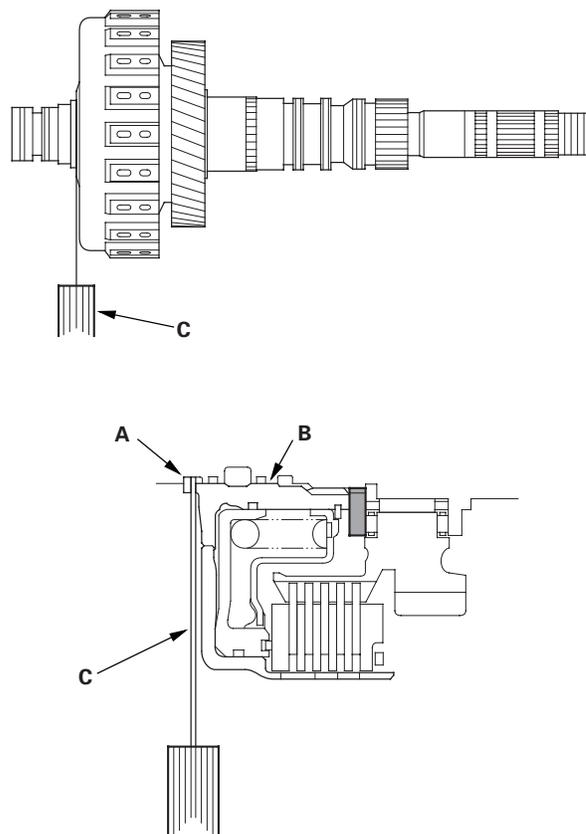
Secondary Shaft 2nd Gear Clearance Inspection

1. Install the thrust needle bearing (A), needle bearing (B), 2nd gear (C), thrust needle bearing (D), 37 x 58 mm thrust washer (E), and 2nd clutch (F) on the secondary shaft (G), then secure them with the snap ring (H).



2. Measure the clearance between the snap ring (A) and the 2nd clutch guide (B) with a feeler gauge (C), in at least three places. Use the average as the actual clearance.

STANDARD: 0.04 0.12 mm (0.002 0.005 in.)



(cont'd)

Shafts and Clutches

Secondary Shaft 2nd Gear Clearance Inspection (cont'd)

3. If the clearance is out of standard, remove the 37 x 58 mm thrust washer and measure its thickness.
4. Select and install a new thrust washer, then recheck.

THRUST WASHER, 37 x 58 mm

No.	Part Number	Thickness
1	90511-PRP-010	3.900 mm (0.154 in.)
2	90512-PRP-010	3.925 mm (0.155 in.)
3	90513-PRP-010	3.950 mm (0.156 in.)
4	90514-PRP-010	3.975 mm (0.156 in.)
5	90515-PRP-010	4.000 mm (0.157 in.)
6	90516-PRP-010	4.025 mm (0.158 in.)
7	90517-PRP-010	4.050 mm (0.159 in.)
8	90518-PRP-010	4.075 mm (0.160 in.)
9	90519-PRP-010	4.100 mm (0.161 in.)
10	90520-PRP-010	4.125 mm (0.162 in.)
11	90521-PRP-010	4.150 mm (0.163 in.)
12	90522-PRP-010	4.175 mm (0.164 in.)
13	90523-PRP-000	4.200 mm (0.165 in.)
14	90524-PRP-000	4.225 mm (0.166 in.)
15	90525-PRP-000	4.250 mm (0.167 in.)
16	90526-PRP-000	4.275 mm (0.168 in.)
17	90527-PRP-000	4.300 mm (0.169 in.)
18	90528-PRP-000	4.325 mm (0.170 in.)
19	90529-PRP-000	4.350 mm (0.171 in.)
20	90530-PRP-000	4.375 mm (0.172 in.)

5. After replacing the thrust washer, make sure the clearance is within standard.
6. Disassemble the shaft and gears.

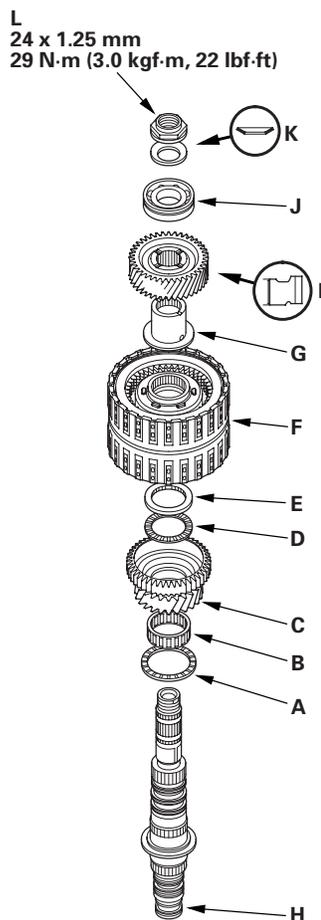


Secondary Shaft 1st Gear Clearance Inspection

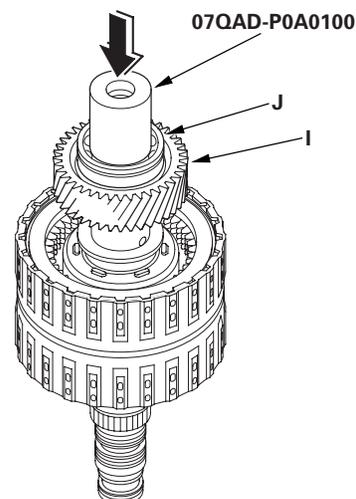
Special Tools Required

Driver attachment, 42 mm I.D. 07QAD-P0A0100

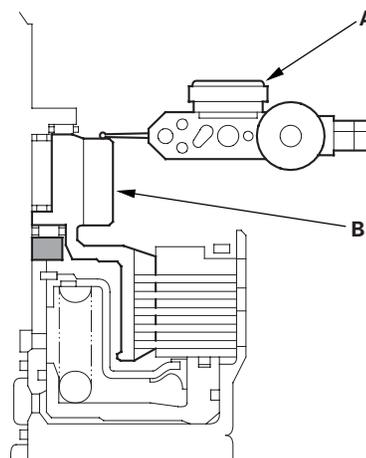
1. Install the thrust needle bearing (A), needle bearing (B), 1st gear (C), thrust needle bearing (D), 40 x 51.5 mm thrust washer (E), 1st/3rd clutch (F), and 3rd gear collar (G) on the secondary shaft (H).



2. Install the idler gear (I), then install the ball bearing (J) on the idler gear with the special tool and a press.



3. Install the conical spring washer (K) and locknut (L), then tighten the locknut to 29 N·m (3.0 kgf·m, 22 lbf·ft).
4. Turn the secondary shaft assembly upside down, and set the dial indicator (A) on the 1st gear (B).



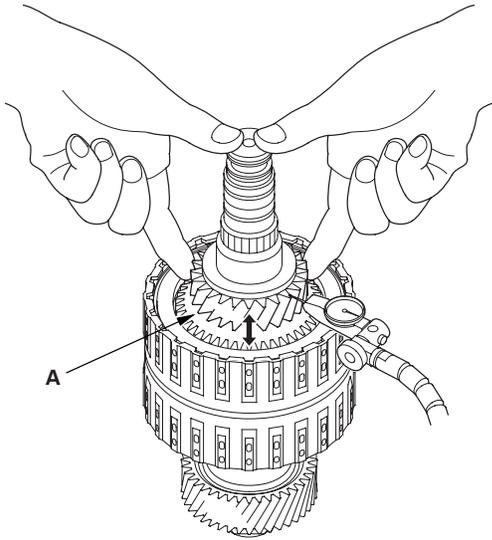
(cont'd)

Shafts and Clutches

Secondary Shaft 1st Gear Clearance Inspection (cont'd)

5. Hold the secondary shaft, and measure the 1st gear axial clearance in at least three places while moving the 1st gear (A). Use the average as the actual clearance.

STANDARD: 0.04 0.12 mm (0.002 0.005 in.)



6. If the clearance is out of standard, remove the 40 x 51.5 mm thrust washer and measure its thickness.
7. Select and install a new thrust washer, then recheck.

THRUST WASHER, 40 x 51.5 mm

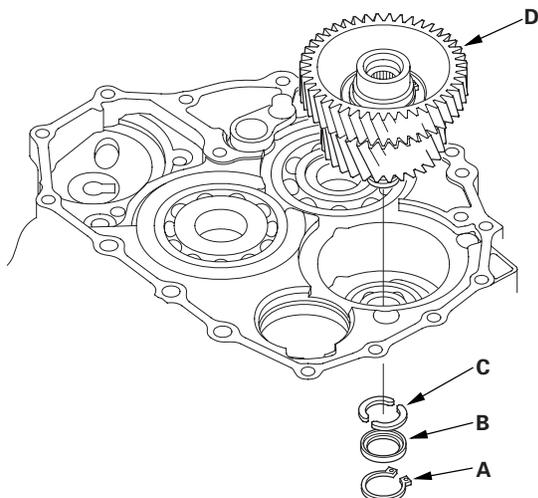
No.	Part Number	Thickness
1	90503-PRP-000	4.80 mm (0.189 in.)
2	90504-PRP-000	4.85 mm (0.191 in.)
3	90505-PRP-000	4.90 mm (0.193 in.)
4	90506-PRP-000	4.95 mm (0.195 in.)
5	90507-PRP-000	5.00 mm (0.197 in.)
6	90508-PRP-000	5.05 mm (0.199 in.)

8. After replacing the thrust washer, make sure the clearance is within standard.
9. Disassemble the shaft and gears.



Idler Gear Shaft Removal and Installation

1. Remove the snap ring (A), cotter retainer (B), and cotter keys (C). Do not distort the snap ring.



2. Remove the idler gear shaft/idler gear assembly (D) from the transmission housing.
3. Check the snap rings and cotter retainer for wear and damage. Replace them if they are worn, distorted, or damaged.
4. Install the idler gear and shaft in the reverse order of removal.

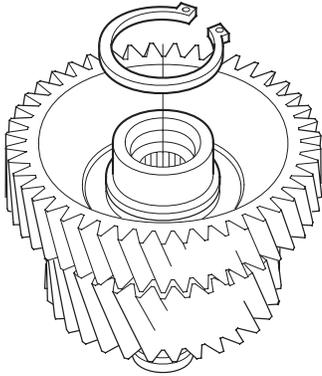
Shafts and Clutches

Idler Gear/Idler Gear Shaft Replacement

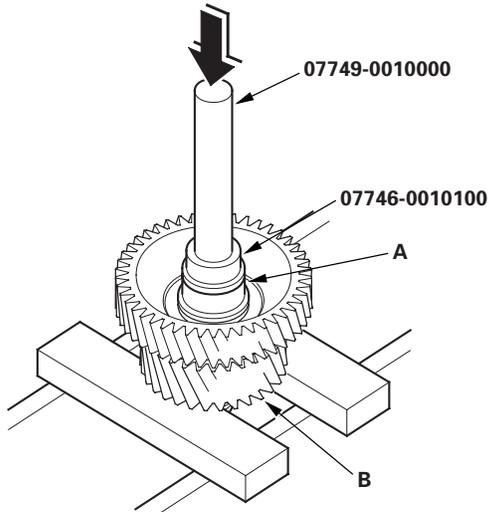
Special Tools Required

- Handle driver 07749-0010000
- Driver attachment, 32 x 35 mm 07746-0010100

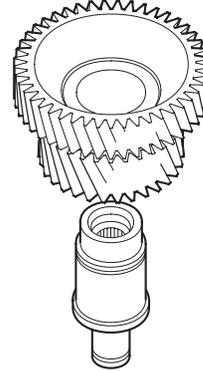
1. Remove the snap ring from the idler gear/idler shaft assembly.



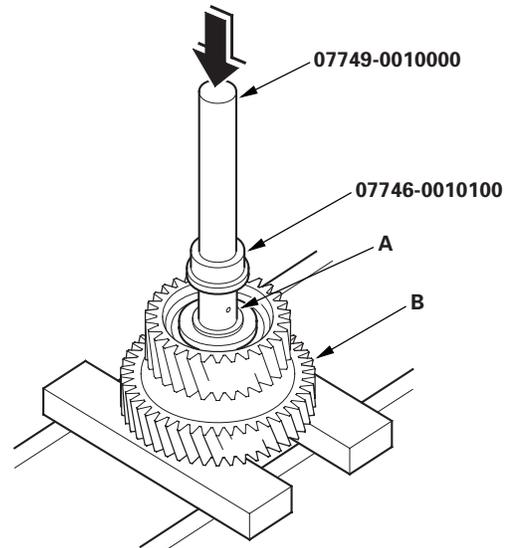
2. Remove the idler gear shaft (A) from the idler gear (B) with the special tools and a press.



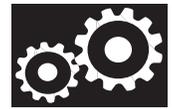
3. Replace the idler gear or idler gear shaft, and attach the idler gear shaft to the idler gear.



4. Install the idler gear shaft (A) in the idler gear (B) with the special tools and a press.



5. Install the snap ring.

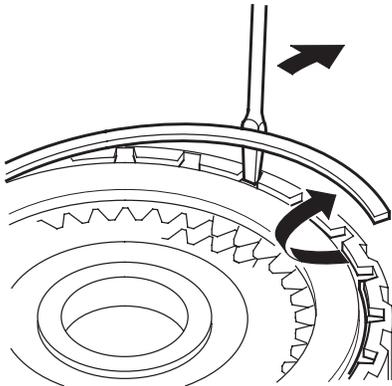


Clutch Disassembly

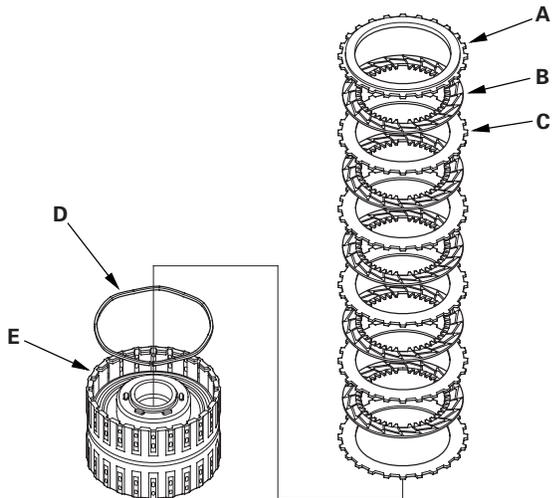
Special Tools Required

- Clutch spring compressor set 07LAE-PX40000
- Clutch spring compressor attachment 07LAE-PX40100
- Clutch spring compressor attachment 07HAE-PL50101
- Clutch spring compressor bolt assembly 07GAE-PG40200
- Snap ring pliers 07LGC-0010100

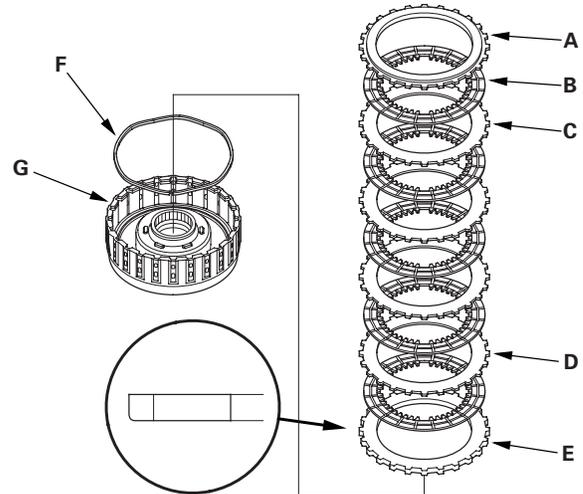
1. Remove the snap ring with a screwdriver.



2. Remove the clutch end plate (A), clutch discs (5) (B), clutch waved-plates (5) (C), and waved spring (D) from the 1st clutch drum (E).

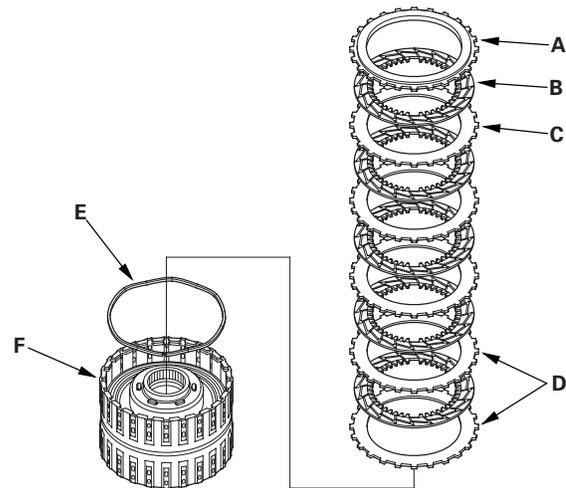


3. Remove the clutch end plate (A), clutch discs (5) (B), clutch waved-plates (3) (C), 2.0mm-thick flat plate (D), 4.0mm-thick plate (E), and waved spring (F) from the 2nd clutch drum (G).



4. Make a reference mark on 2.0mm-thick flat-plate (D).

5. Remove the clutch end plate (A), clutch discs (5) (B), clutch waved-plates (3) (C), clutch flat-plates (2) (D), and waved spring (E) from the 3rd clutch drum (F).



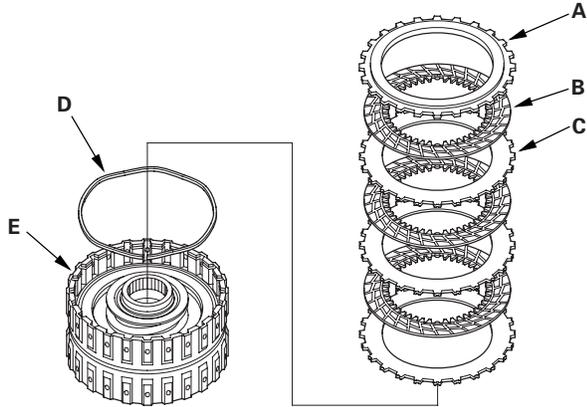
6. Make reference marks on the clutch flat-plates (D).

(cont'd)

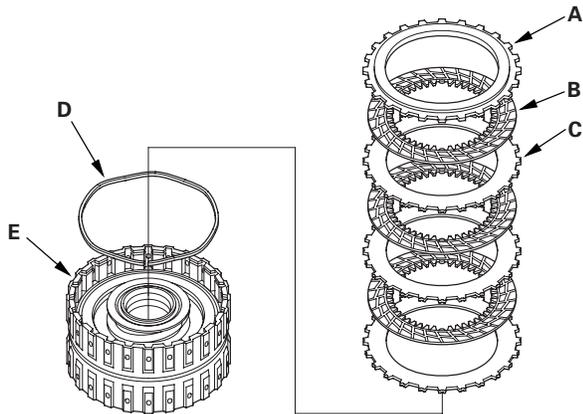
Shafts and Clutches

Clutch Disassembly (cont'd)

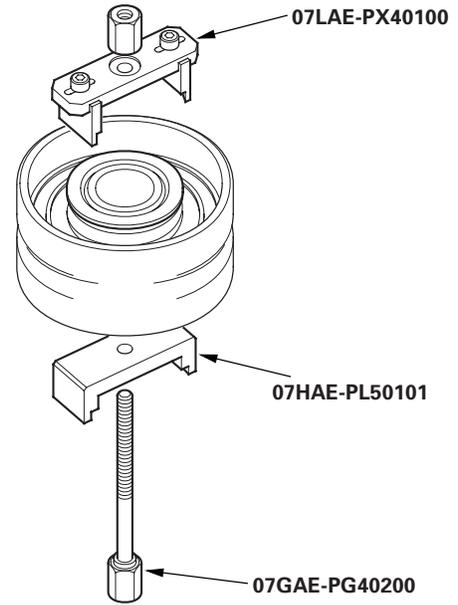
7. Remove the clutch end plate (A), clutch discs (3) (B), clutch waved-plates (3) (C), and waved spring (D) from the 4th clutch drum (E).



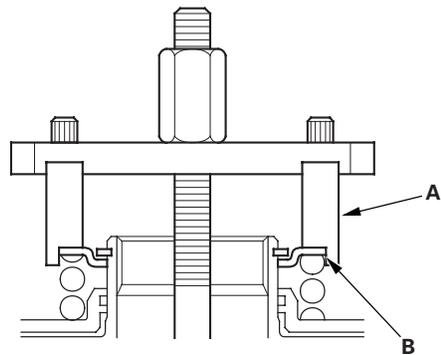
8. Remove the clutch end plate (A), clutch discs (3) (B), clutch waved-plates (3) (C), and waved spring (D) from the 5th clutch drum (E).



9. Install the special tools.

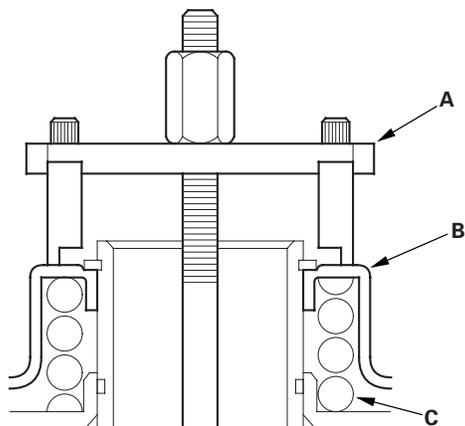


10. Be sure the special tool (A) is adjusted to have full contact with the spring retainer (B) on the 4th and 5th clutches.

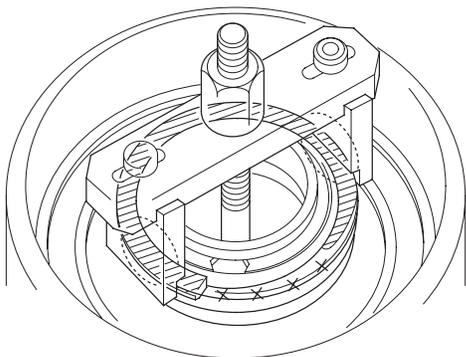




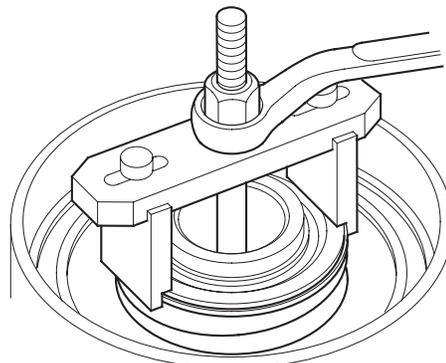
11. Set the special tool (A) on the spring retainer (B) of the 1st, 2nd, and 3rd clutches in such a way that the special tool works on the clutch return spring (C).



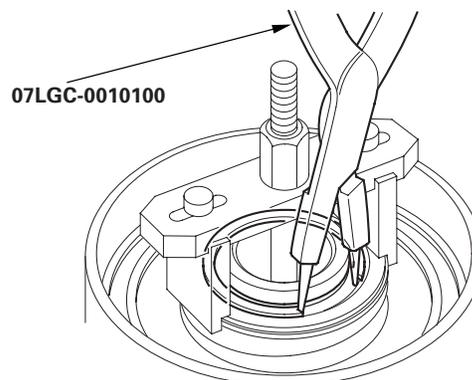
12. If either end of the special tool is set over an area of the spring retainer which is unsupported by the return spring, the retainer may be damaged.



13. Compress the return spring until the snap ring can be removed.



14. Remove the snap ring with snap ring pliers.



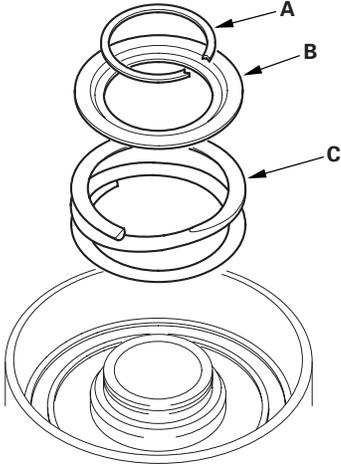
15. Remove the special tools.

(cont'd)

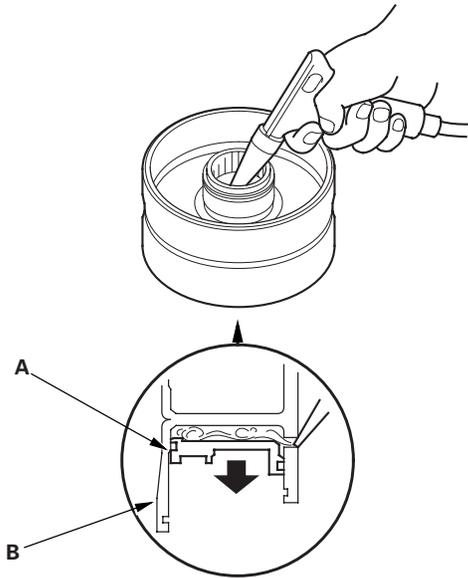
Shafts and Clutches

Clutch Disassembly (cont'd)

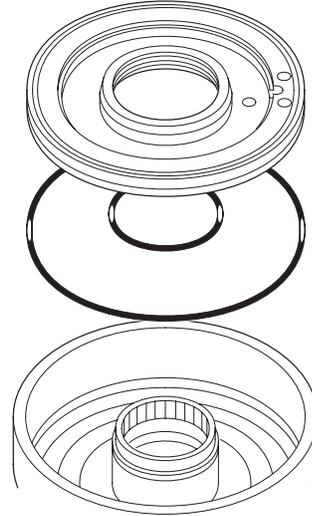
16. Remove the snap ring (A), spring retainer (B), and return spring (C).



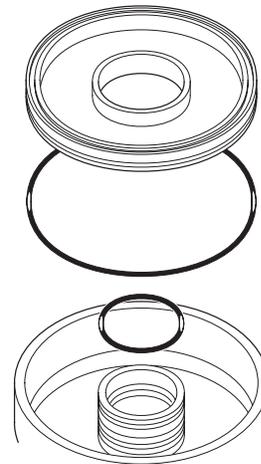
17. Wrap a shop rag around the clutch drum (A), and apply air pressure to the fluid passage to remove the piston (B). Place a finger tip on the other passage while applying air pressure.



18. Remove the piston, then remove the O-rings from the 4th and 5th clutch pistons.



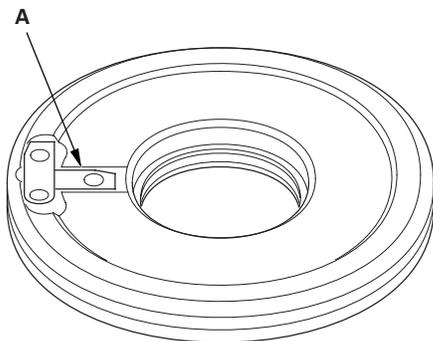
19. Remove the piston, then remove the O-ring from the 1st, 2nd and 3rd clutch drum, and remove the O-ring from each clutch piston.



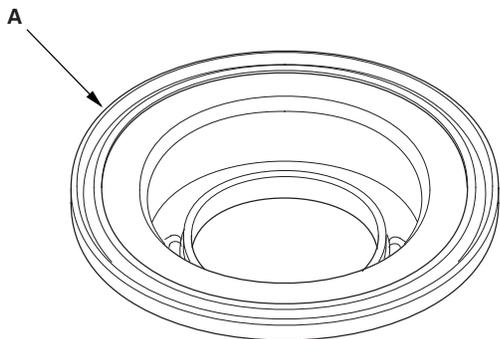


Clutch Inspection

1. Inspect the 4th and 5th clutch pistons and clutch piston check valves (A).



2. If the clutch piston check valve is loose or damaged, replace the clutch piston.
3. Check the spring retainer for wear and damage.
4. Check the oil seal (A) on the spring retainer of the 1st, 2nd, and 3rd clutches for wear, damage, and peeling.



5. If the oil seal is worn, damaged, or peeling, replace the spring retainer.

6. Inspect the clutch discs, clutch-plates, and clutch end plate for wear, damage, and discoloration.

Standard Thickness

Clutch Discs: 1.94 mm (0.076 in.)

Clutch Plates:

1st clutch (waved-plates): 1.6 mm (0.063 in.)

2nd clutch: Waved-plates: 2.0 mm (0.079 in.)

Flat-plate: 2.0 mm (0.079 in.)

4.0 mm-thick plate: 4.0 mm (0.157 in.)

3rd clutch: Waved-plates: 1.6 mm (0.063 in.)

Flat-plates: 1.6 mm (0.063 in.)

4th clutch (waved-plates): 2.3 mm (0.091 in.)

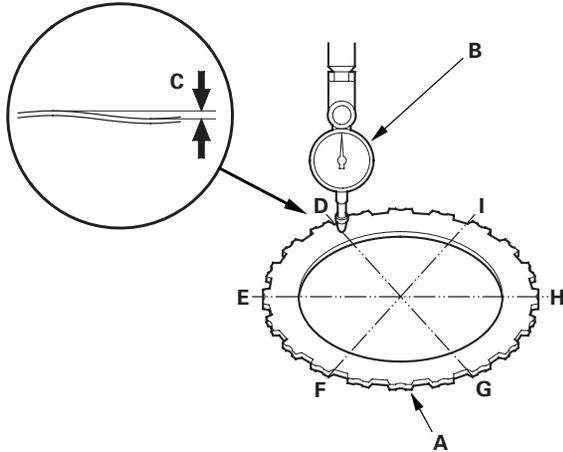
5th clutch (waved-plates): 2.3 mm (0.091 in.)

7. If the clutch discs are worn or damaged, replace them as a set. If the clutch discs are replaced, inspect the clutch end-plate-to-top-disc clearance.
8. If any plate is worn, damaged, or discolored, replace the damaged plate with the new plate, and inspect the other waved-plates for a phase difference. If the clutch plate is replaced, inspect the clutch end-plate-to-top-disc clearance.
9. If the clutch end plate is worn, damaged, or discolored, inspect the clutch end-plate-to-top-disc clearance, then replace the clutch end plate.

Shafts and Clutches

Clutch Waved-plate Phase Difference Inspection

1. Place the clutch waved-plate (A) on a surface plate, and set a dial indicator (B) on the waved-plate.



2. Find the bottom (D) of a phase difference of the waved-plate, zero the dial indicator and make a reference mark on the bottom of the waved-plate.
3. Rotate the waved-plate about 60-degrees apart from the bottom while holding the waved-plate by its circumference. The dial indicator should be at the top (E) of a phase difference. Do not rotate the waved-plate while holding its surface, always rotate it with holding its circumference.
4. Read the dial indicator. The dial indicator reads the phase difference (C) of the waved-plate between bottom and top.

Standard: 0.05 mm (0.002 in.) minimum

5. Rotate the waved-plate about 60-degrees. The dial indicator should be at the bottom of a phase difference (F and H), and zero the dial indicator.
6. Measure the phase difference at the other two tops (G and I) of the waved-plate by following steps 3 thru 5.
7. If the two values of the three measurements are within the standard, the waved-plate is OK. If the two values of the three measurements are out of the standard, replace the waved-plate.

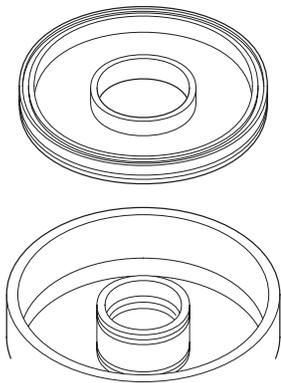


Clutch Clearance Inspection

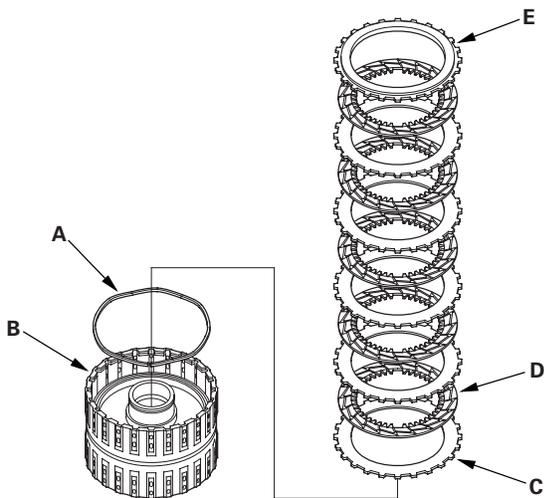
Special Tools Required

Clutch compressor attachment 07ZAE-PRP0100

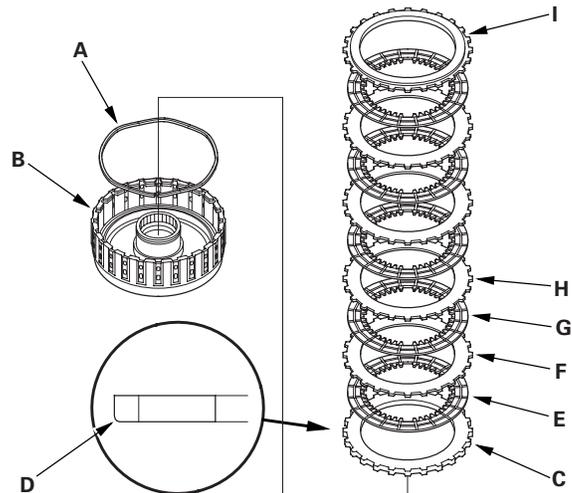
1. Inspect the clutch piston, discs, plates, and end plate for wear and damage (see page 14-267), and inspect clutch waved-plate phase difference (see page 14-268), if necessary.
2. Install the clutch piston in the clutch drum. Do not install the O-rings during inspection.



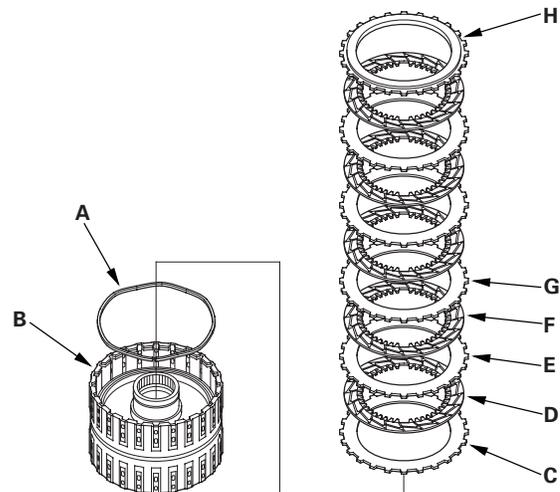
3. Install the waved spring (A) in the 1st clutch drum (B). Starting with the clutch waved-plate, alternately install the clutch plate (5) (C) and discs (5) (D), then install the clutch-end-plate (E) with the flat side toward the disc.



4. Install the waved spring (A) in the 2nd clutch drum (B). Install the 4.0 mm-thick plate (C) with the shear droop side (D) toward the inside of the drum, clutch disc (E), and 2.0 mm-thick flat-plate (F), then starting with the disc, alternately install the discs (4) (G) and waved-plates (3) (H), then install the clutch-end-plate (I) with the flat side toward the disc.



5. Install the waved spring (A) in the 3rd clutch drum (B). Install the clutch flat-plate (C), clutch disc (D), and clutch flat-plate (E). Starting with the clutch disc, alternately install the clutch discs (4) (F) and clutch waved-plates (3) (G), then install the clutch-end-plate (H) with the flat side toward the disc.

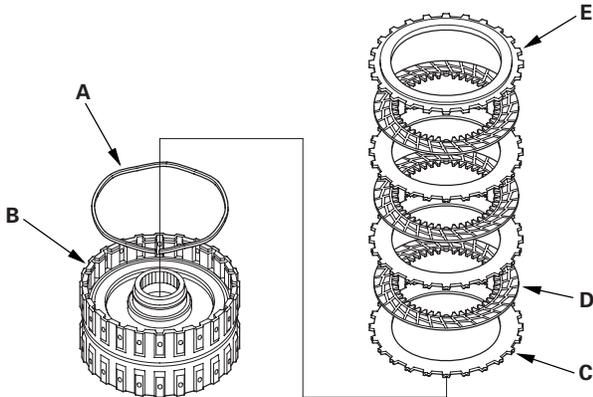


(cont'd)

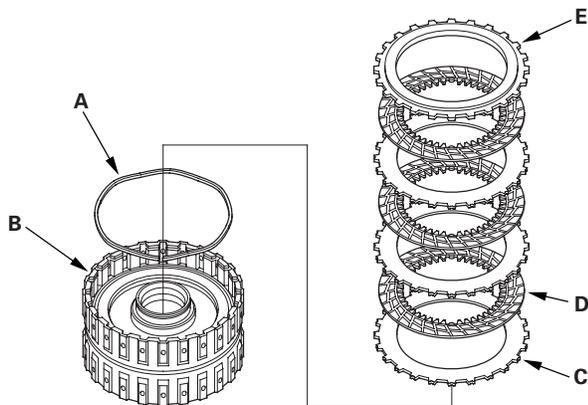
Shafts and Clutches

Clutch Clearance Inspection (cont'd)

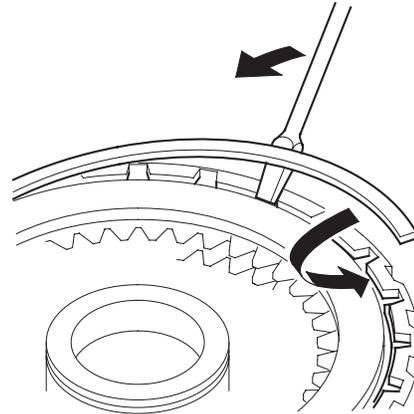
6. Install the waved spring (A) in the 4th clutch drum (B). Starting with the clutch waved-plate, alternately install the clutch plate (3) (C) and discs (3) (D), then install the clutch end plate (E) with the flat side toward the disc.



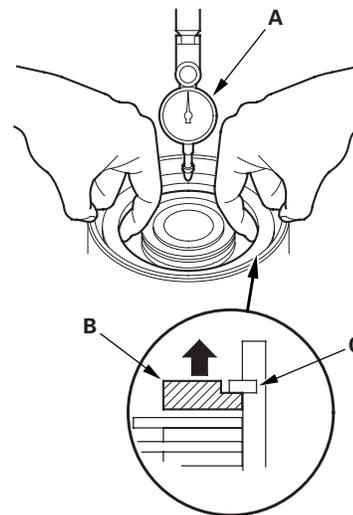
7. Install the waved spring (A) in the 5th clutch drum (B). Starting with the clutch waved-plate, alternately install the clutch plate (3) (C) and discs (3) (D), then install the clutch end plate (E) with the flat side toward the disc.



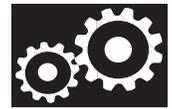
8. Install the snap ring with a screwdriver.



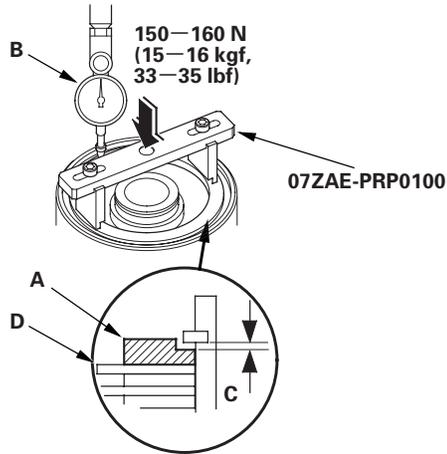
9. Set a dial indicator (A) on the clutch end plate (B).



10. Zero the dial indicator with the clutch end plate lifted up to the snap ring (C).



11. Release the clutch end plate to lower the clutch end plate, then put the special tool on the end plate (A).



12. Press the special tool down with 150 160 N (15 16 kgf, 33 35 lbf) using a force gauge, and read the dial indicator (B). The dial indicator reads the clearance (C) between the clutch end plate and top disc (D). Take measurements in at least three places, and use the average as the actual clearance.

**Clutch End Plate-to-Top Disc Clearance:
Service Limit:**

1st Clutch:	1.28	1.48 mm (0.050 0.058 in.)
2nd Clutch:	0.88	1.08 mm (0.035 0.043 in.)
3rd Clutch:	0.93	1.13 mm (0.037 0.044 in.)
4th Clutch:	0.73	0.93 mm (0.029 0.037 in.)
5th Clutch:	0.73	0.93 mm (0.029 0.037 in.)

13. If the clearance is out of the service limit, select a new clutch end plate from the following table.



1ST, 2ND and 3RD CLUTCH END PLATES

Plate No.	Part Number	Thickness
1	22551-RCL-003	2.6 mm (0.102 in.)
2	22552-RCL-003	2.7 mm (0.106 in.)
3	22553-RCL-003	2.8 mm (0.110 in.)
4	22554-RCL-003	2.9 mm (0.114 in.)
5	22555-RCL-003	3.0 mm (0.118 in.)
6	22556-RCL-003	3.1 mm (0.122 in.)
7	22557-RCL-003	3.2 mm (0.126 in.)
8	22558-RCL-003	3.3 mm (0.130 in.)
9	22559-RCL-003	3.4 mm (0.134 in.)

4TH and 5TH CLUTCH END PLATES

Plate No.	Part Number	Thickness
1	22581-RCL-003	2.1 mm (0.083 in.)
2	22582-RCL-003	2.2 mm (0.087 in.)
3	22583-RCL-003	2.3 mm (0.091 in.)
4	22584-RCL-003	2.4 mm (0.095 in.)
5	22585-RCL-003	2.5 mm (0.098 in.)
6	22586-RCL-003	2.6 mm (0.102 in.)
7	22587-RCL-003	2.7 mm (0.106 in.)
8	22588-RCL-003	2.8 mm (0.110 in.)
9	22589-RCL-003	2.9 mm (0.114 in.)

14. Install the new clutch end plate, then recheck the clearance.

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

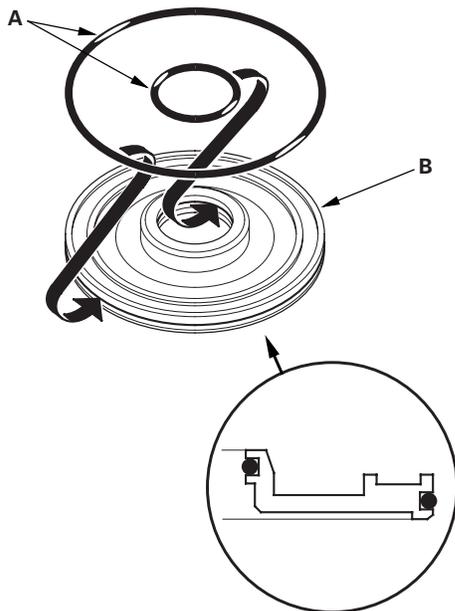
Shafts and Clutches

Clutch Reassembly

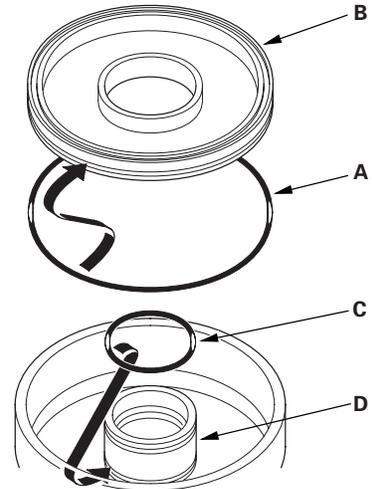
Special Tools Required

- Clutch spring compressor set 07LAE-PX40000
- Clutch spring compressor attachment 07LAE-PX40100
- Clutch spring compressor attachment 07HAE-PL50101
- Clutch spring compressor bolt assembly 07GAE-PG40200
- Snap ring pliers 07LGC-0010100

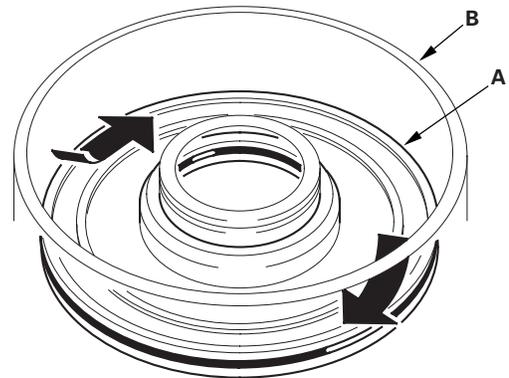
1. Soak the clutch discs thoroughly in ATF for a minimum of 30 minutes.
2. Install the new O-rings (A) on the 4th and 5th clutch piston (B).



3. Install the new O-ring (A) in the 1st, 2nd, and 3rd clutch pistons (B), and install the new O-ring (C) on the clutch drums (D).

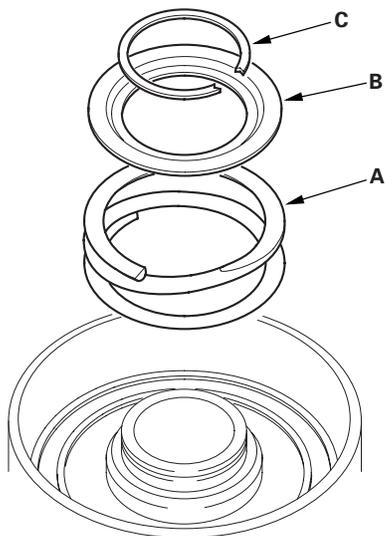


4. Install the clutch piston (A) in the clutch drum (B). Apply pressure and rotate to ensure proper seating. Lubricate the piston O-ring with ATF before installing. Do not pinch the O-ring by installing the piston with too much force.

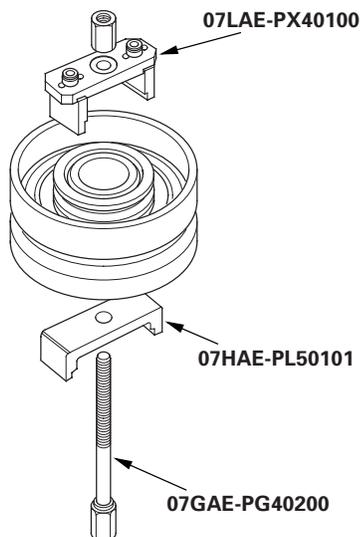




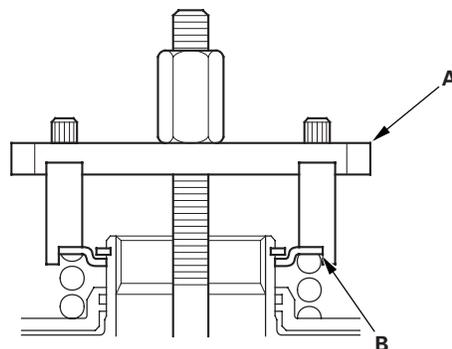
5. Install the return spring (A) and spring retainer (B), and position the snap ring (C) on the retainer.



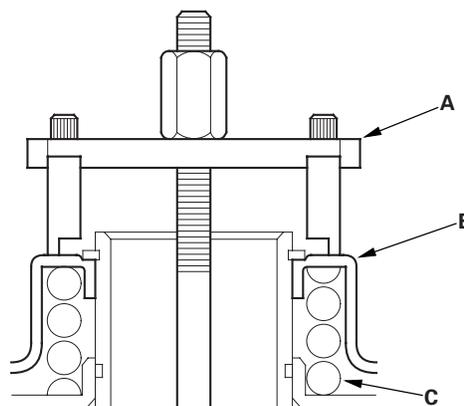
6. Install the special tools.



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



8. Set the special tool (A) on the spring retainer (B) of the 1st, 2nd, and 3rd clutches in such a way that the special tool compresses the clutch return spring (C).

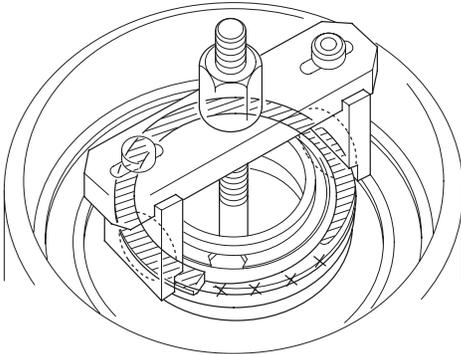


(cont'd)

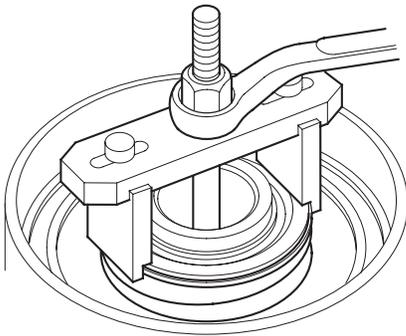
Shafts and Clutches

Clutch Reassembly (cont'd)

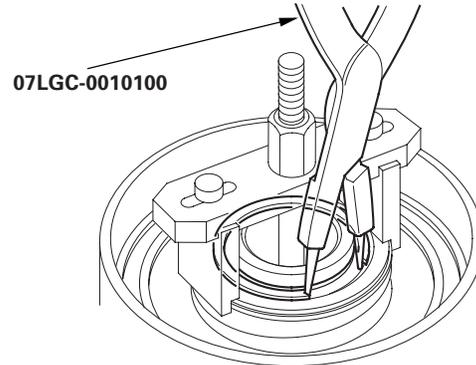
9. If either end of the special tool is set over an area of the spring retainer which is unsupported by the return spring, the retainer may be damaged.



10. Compress the return spring.

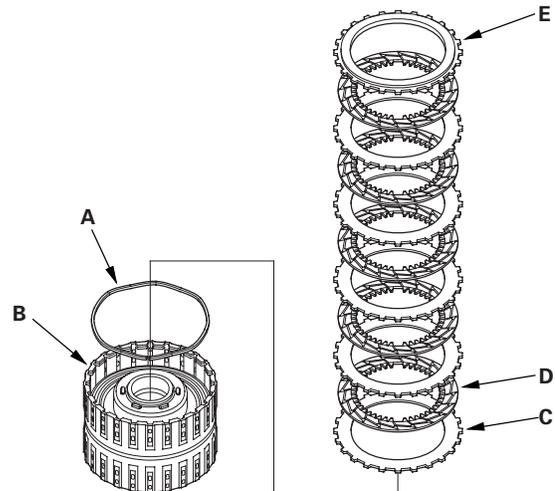


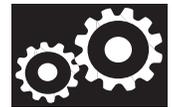
11. Install the snap ring with snap ring pliers.



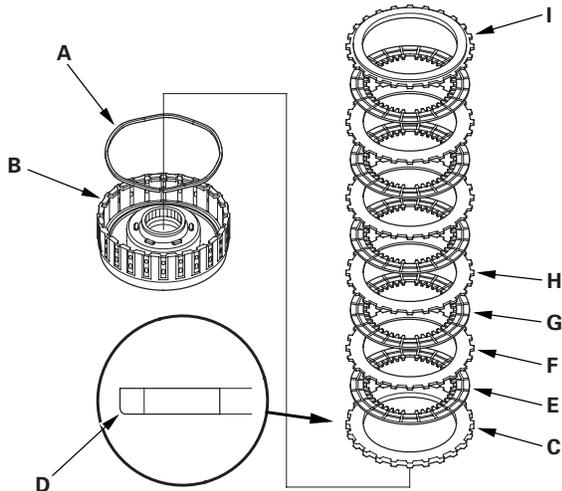
12. Remove the special tools.

13. Install the waved spring (A) in the 1st clutch drum (B). Starting with the clutch waved-plate, alternately install the clutch plate (5) (C) and discs (5) (D), then install the clutch-end-plate (E) with the flat side toward the disc.

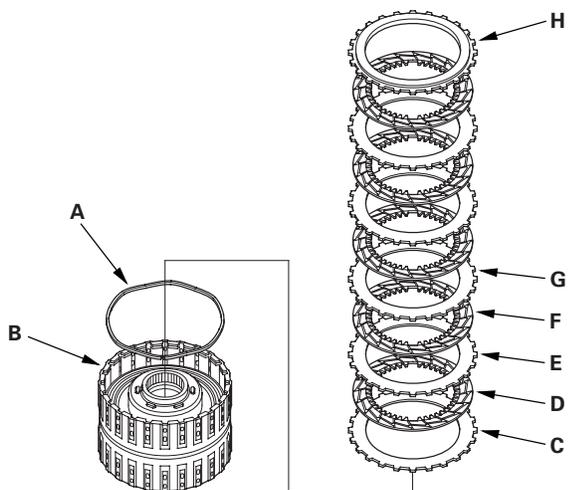




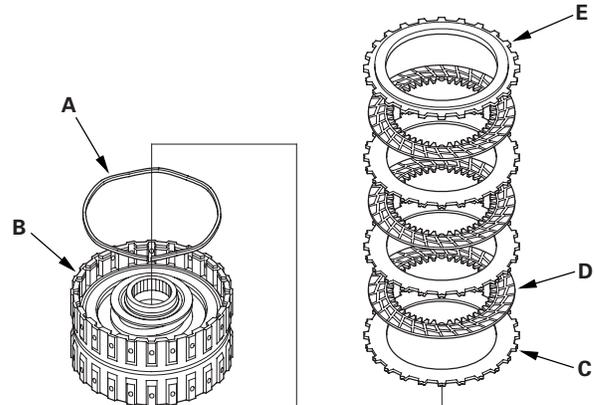
14. Install the waved spring (A) in the 2nd clutch drum (B). Install the 4.0 mm-thick plate (C) with the shear droop side (D) toward the inside of the drum, clutch disc (E), and 2.0 mm-thick flat-plate (F), then starting with the disc, alternately install the discs (4) (G) and waved-plates (3) (H), then install the clutch-end-plate (I) with the flat side toward the disc.



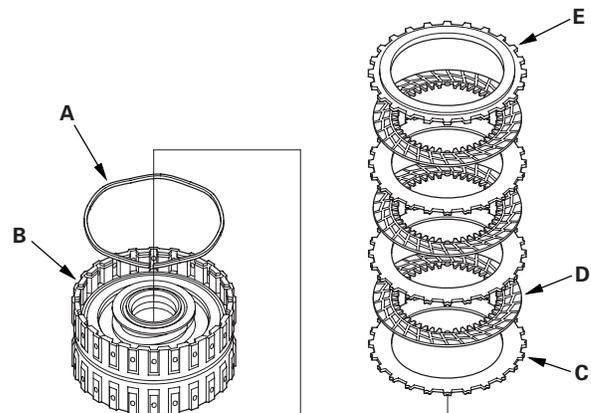
15. Install the waved spring (A) in the 3rd clutch drum (B). Install the clutch flat-plate (C), clutch disc (D), and clutch flat-plate (E). Starting with the clutch disc, alternately install the clutch discs (4) (F) and clutch waved-plates (3) (G), then install the clutch-end-plate (H) with the flat side toward the disc.



16. Install the waved spring (A) in the 4th clutch drum (B). Starting with the clutch waved-plate, alternately install the clutch plate (3) (C) and discs (3) (D), then install the clutch end plate (E) with the flat side toward the disc.



17. Install the waved spring (A) in the 5th clutch drum (B). Starting with the clutch waved-plate, alternately install the clutch plates (3) (C) and discs (3) (D), then install the clutch end plate (E) with the flat side toward the disc.

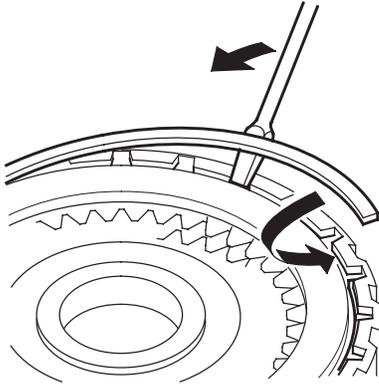


(cont'd)

Shafts and Clutches

Clutch Reassembly (cont'd)

18. Install the snap ring with a screwdriver.



19. Check that the clutch piston moves by applying air pressure into fluid passage.

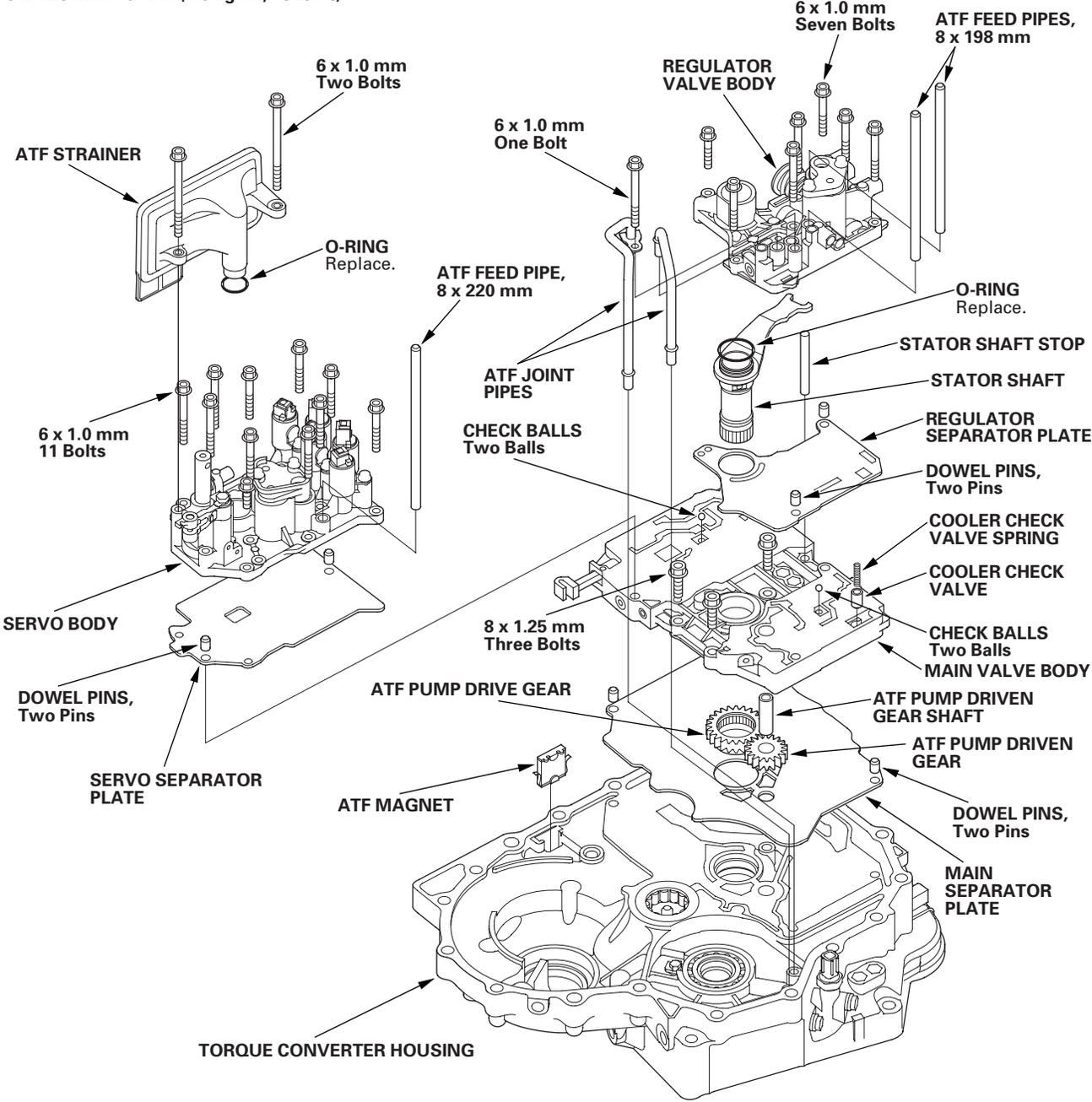


Valve Body

Valve Bodies and ATF Strainer Installation

Exploded View

Torque Specifications:
 6 x 1.0 mm: 12 N·m (1.2 kgf·m, 8.7 lbf·ft)
 8 x 1.25 mm: 18 N·m (1.8 kgf·m, 13 lbf·ft)



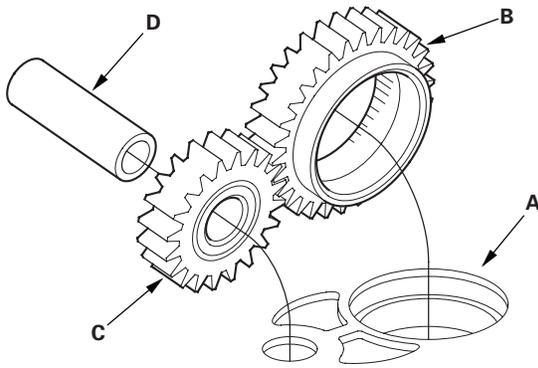
(cont'd)

Valve Body

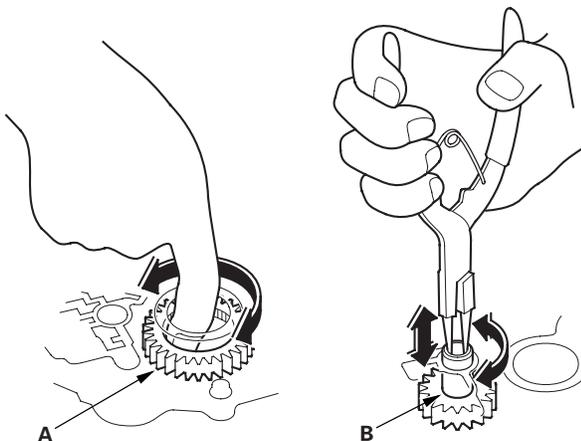
Valve Bodies and ATF Strainer Installation (cont'd)

NOTE: Refer to the exploded view as needed during the following procedures.

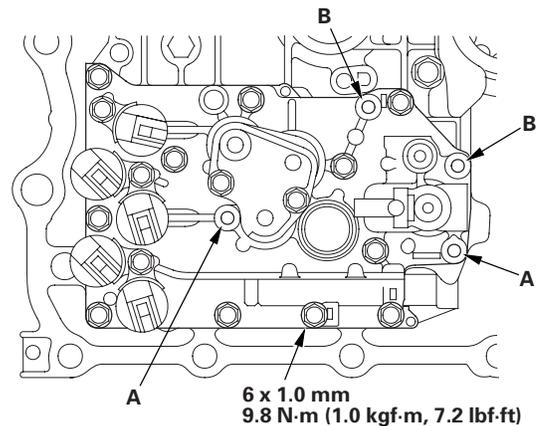
1. Make sure that the ATF magnet is cleaned and installed in the torque converter housing.
2. Install the main separator plate (A) and two dowel pins on the torque converter housing. Then install the ATF pump drive gear (B), driven gear (C), and ATF pump driven gear shaft (D). Install the ATF pump driven gear with its grooved and chamfered side facing down.



3. Install the main valve body.
4. Make sure the ATF pump drive gear (A) rotates smoothly in the normal operating direction, and the ATF pump driven gear shaft (B) moves smoothly in the axial and normal operating direction.



5. If the ATF pump drive gear and ATF pump driven gear shaft do not move smoothly, loosen the main valve body bolts. Realign the ATF pump driven gear shaft, and retighten the bolts to the specified torque, then recheck. Failure to align the ATF pump driven gear shaft correctly will result in a seized ATF pump drive gear or ATF pump driven gear shaft.
6. Make sure that the two check balls and the cooler check valve are in the main valve body, then install the cooler check valve spring in the cooler check valve.
7. Install the servo separator plate and two dowel pins on the main valve body.
8. Install the servo body (11 bolts). Install the ATF strainer with the two bolts in the bolt holes (A) in step 12, and install the baffle plate with the two bolts in the bolt holes (B) in step 2 in shaft assemblies and housing installation.



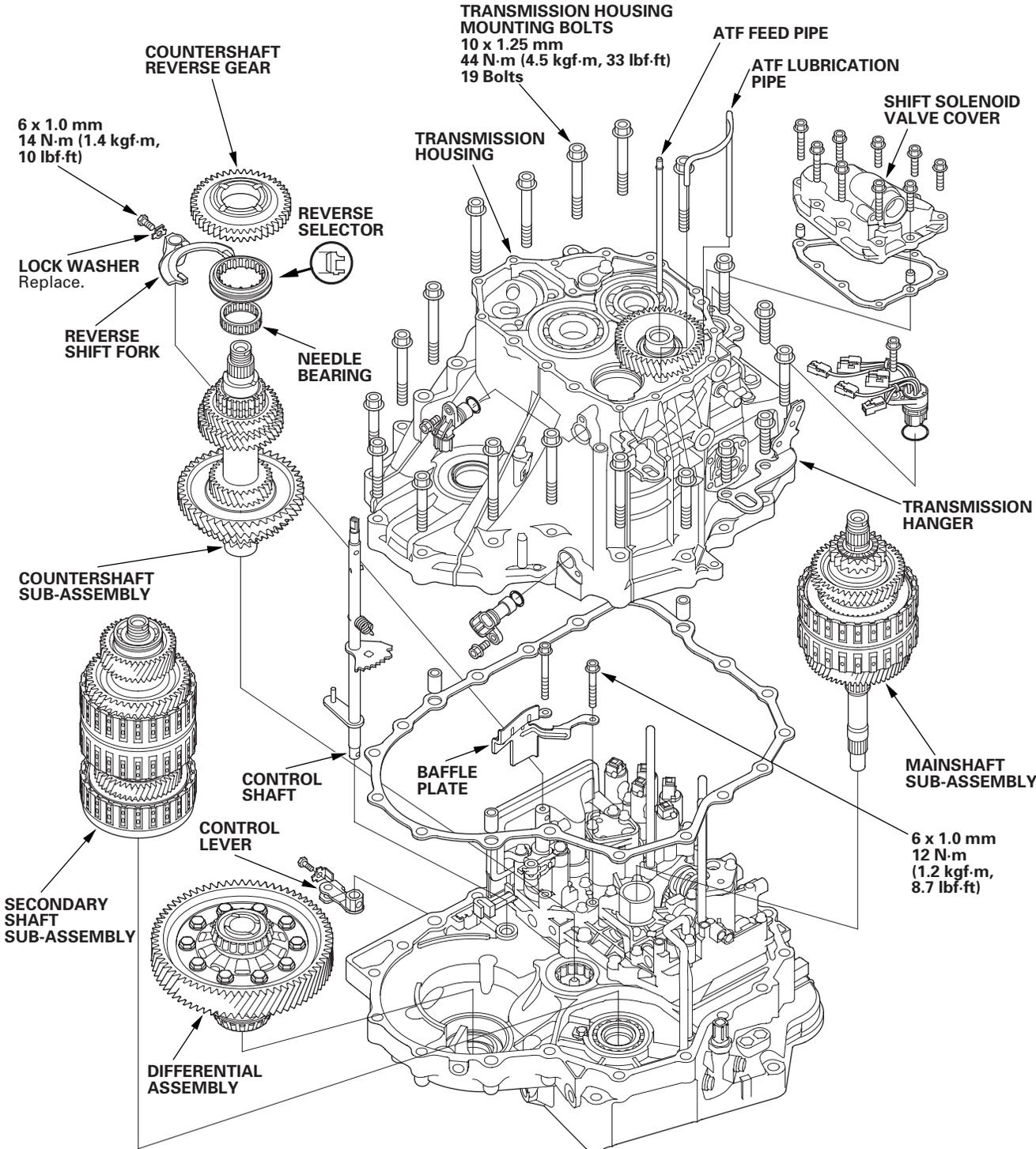
9. Install the regulator separator plate and two dowel pins on the main valve body.
10. Install the new O-ring on the stator shaft, and install the stator shaft and stator shaft stop.
11. Install the regulator valve body (seven bolts).
12. Install the new O-ring on the ATF strainer, and install the ATF strainer (two bolts).
13. Install the ATF joint pipes (one bolt).
14. Install the ATF feed pipes in the regulator valve body and servo body.



Transmission Housing

Shaft Assemblies and Housing Installation

Exploded View



(cont'd)

Transmission Housing

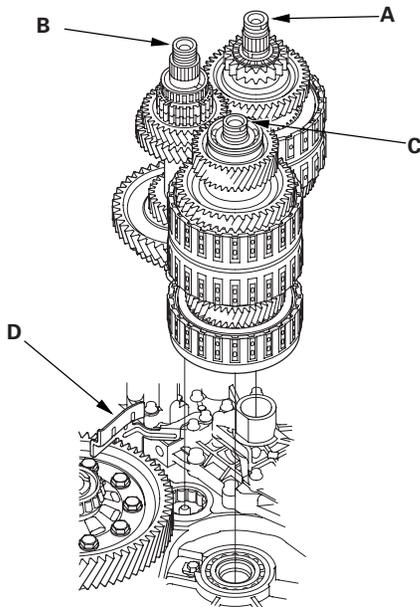
Shaft Assemblies and Housing Installation (cont'd)

Special Tools Required

Snap ring pliers 07LGC-0010100

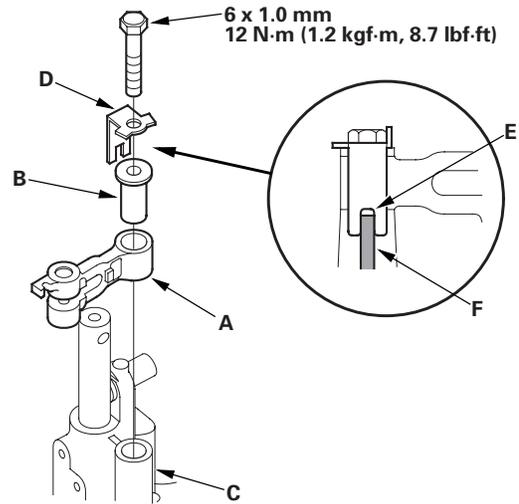
NOTE: Refer to the exploded view as needed during the following procedure.

1. Install the differential assembly in the torque converter housing.
2. Install the baffle plate on the servo body.
3. Assemble the mainshaft, countershaft, and secondary shaft.
4. Join the mainshaft sub-assembly (A), countershaft sub-assembly (B), and secondary shaft sub-assembly (C) together, and install them in the torque converter housing. Do not bump the countershaft on the baffle plate (D).



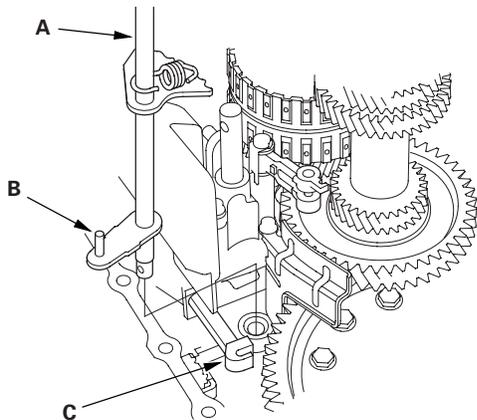
5. Make sure if the countershaft and differential are clear of the baffle plate (D).

6. If the detent arm was removed, install the detent arm (A) with arm collar (B) on the servo body (C), and install the new lock washer (D) by aligning its cutout (E) with the projection (F) of the servo body. Install and tighten the bolt, then bend the lock tab of the lock washer against the bolt head.

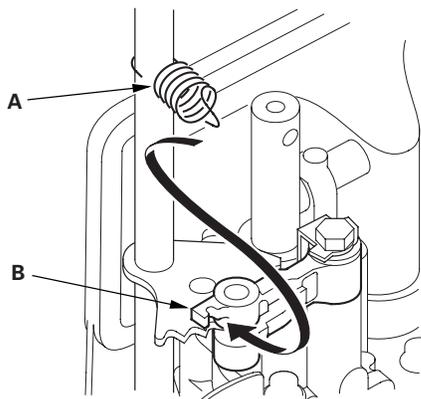




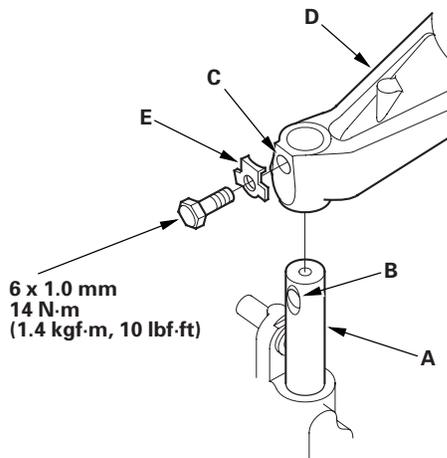
7. Install the control shaft (A) in the torque converter housing aligning the manual valve lever pin (B) on the control shaft with the guide of the manual valve (C). Pull the manual valve gently when aligning the manual valve with the control shaft.



8. Hook the detent arm spring (A) to the detent arm (B).



9. Turn the shift fork shaft (A) so the large chamfered hole (B) is facing the fork bolt hole (C) of the shift fork (D).



10. Install the shift fork and reverse selector together on the shift fork shaft and countershaft. Secure the shift fork to the shift fork shaft with the lock bolt and a new lock washer (E), then bend the lock tab of the lock washer against the bolt head.
11. Install the needle bearing and countershaft reverse gear on the countershaft.
12. Install the reverse idler gear in the transmission housing (see page 14-235).
13. Install the idler gear shaft (see page 14-261), if it was removed.
14. Install the three dowel pins and a new gasket on the torque converter housing.

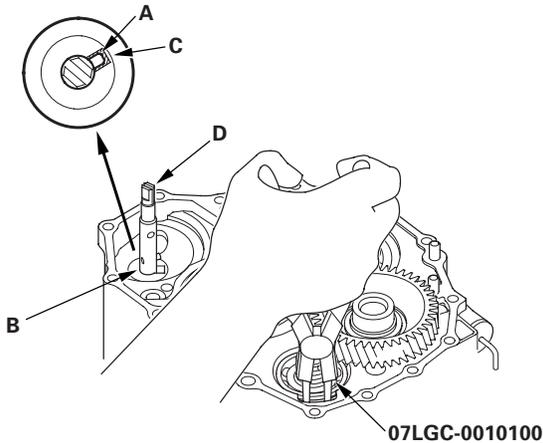
(cont'd)

Transmission Housing

Shaft Assemblies and Housing Installation (cont'd)

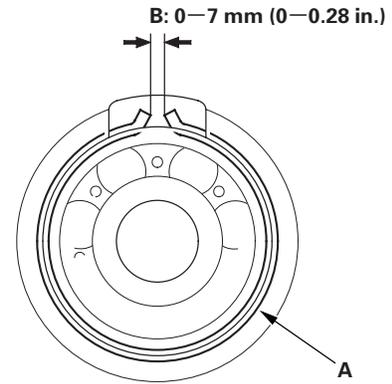
- Align the spring pin (A) on the control shaft (B) with the transmission housing groove (C) by turning the control shaft.

NOTE: Do not squeeze the end (D) of the control shaft tips together when turning the shaft. If the tips are squeezed together, it will cause a faulty shift position signal or position due to the play between the control shaft and the switch.

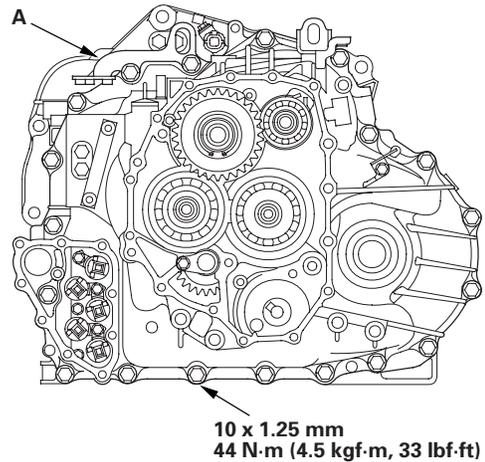


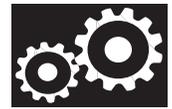
- Place the transmission housing on the torque converter housing. Do not install the mainshaft and countershaft speed sensors before installing the transmission housing on the torque converter housing.
- While expanding the snap ring of the secondary shaft bearing using the snap ring pliers, push the transmission housing down to start the secondary shaft bearing through the snap ring. Then release the pliers, and push down the housing until it bottoms and the snap ring snaps in place in the secondary shaft bearing snap ring groove.

- Verify that the secondary shaft bearing snap ring (A) is seated in the bearing and housing groove, and that the ring end gap (B) is correct.

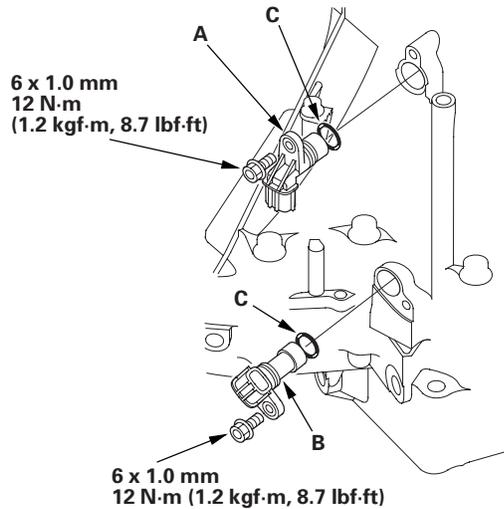


- Install the transmission housing mounting bolts along with the transmission hanger (A) and, tighten the 19 bolts in two or three steps in a criss-cross pattern.

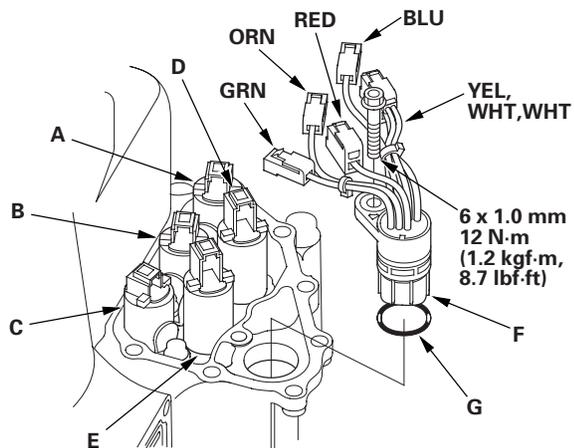




20. Install the mainshaft speed sensor (A) and countershaft speed sensor (B) with new O-rings (C).

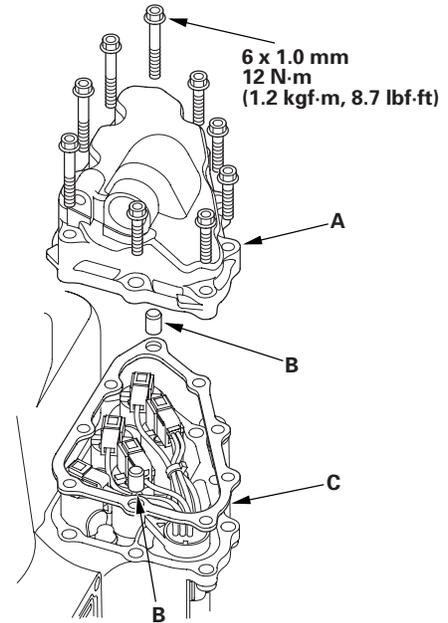


21. Install the shift solenoid harness connector (F) in the transmission housing with the new O-ring (G).



22. Connect the connector (YEL, WHT, and WHT wires) to the shift solenoid valve D.
23. Connect the connectors to the respective valves:
- BLU wire to shift solenoid valve A.
 - ORN wire to shift solenoid valve B.
 - GRN wire to shift solenoid valve C.
 - RED wire to shift solenoid valve E.

24. Install the shift solenoid valve cover (A) with the two dowel pins (B) and the new gasket (C).



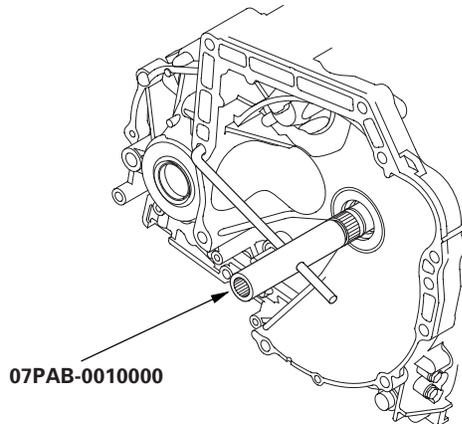
Transmission End Cover

End Cover Installation

Special Tool Required

Mainshaft holder set 07PAB-0010000

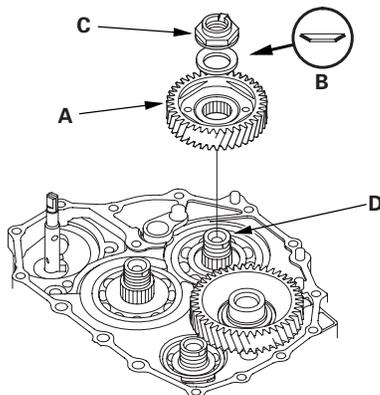
1. Install the special tool onto the mainshaft.



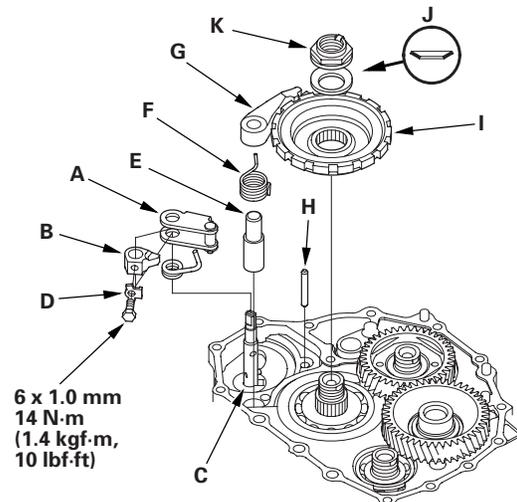
2. Lubricate the following parts with ATF:
 - Splines and threads of the mainshaft.
 - Splines of the mainshaft idler gear.
 - Old conical spring washer and old locknut.
3. Install the mainshaft idler gear (A), old conical spring washer (B), and old locknut (C) on the mainshaft (D), and tighten the locknut to 226 N·m (23.0 kgf·m, 166 lbf·ft).

NOTE:

- Do not tap the idler gear to install.
- Use a torque wrench to tighten the locknut. Do not use an impact wrench.



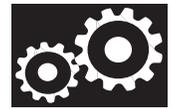
4. Install the park lever (A) and park lever stop (B) on the control shaft (C), then install the lock bolt with the new lock washer (D). Do not bend the lock tab of the lock washer until step 18.



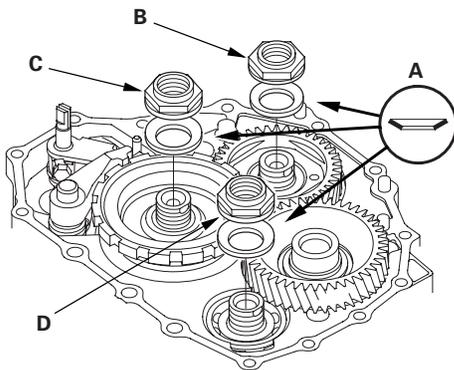
5. Install the park pawl shaft (E), park pawl spring (F), park pawl (G), and stop shaft (H) on the transmission housing.
6. Lubricate the following parts with ATF:
 - Threads and splines of the countershaft.
 - Old conical spring washer and old locknut.
 - Areas where the park gear contacts the conical spring washer.
7. Install the park gear (I), old conical spring washer (J), and old locknut (K) on the countershaft.
8. Lift the park pawl up, and engage it with the park gear, then tighten the locknut to 226 N·m (23.0 kgf·m, 166 lbf·ft).

NOTE:

- Do not tap the park gear to install.
 - Use a torque wrench to tighten the locknut. Do not use an impact wrench.
 - Countershaft locknut has left-hand threads.
9. Remove the locknuts and conical spring washers from the mainshaft and countershaft.



10. Lubricate the threads of the shafts, the new locknuts and the new conical spring washers with ATF.
11. Install the new conical spring washers (A) with facing stamped mark side up in the direction shown, and install the new mainshaft locknut (B), the new countershaft locknut (C), and the new secondary shaft locknut (D).

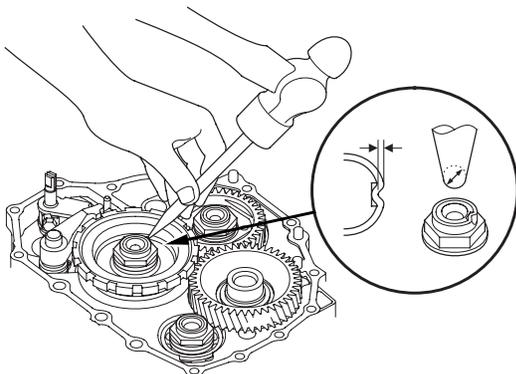


12. Tighten the locknuts to 167 N·m (17.0 kgf·m, 123 lbf·ft).

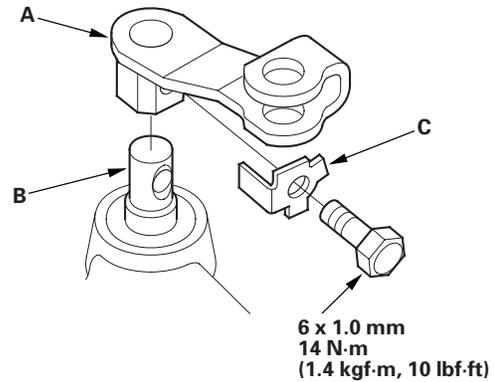
NOTE:

- Be sure to install the conical spring washers in the direction shown.
- Use a torque wrench to tighten the locknut. Do not use an impact wrench.
- Countershaft and secondary shaft locknuts have left-hand threads.

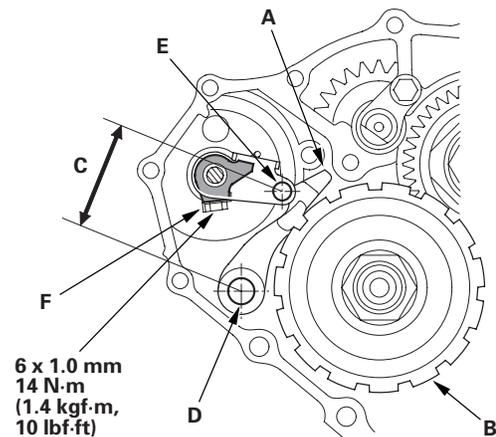
13. Remove the special tool from the mainshaft.
14. Stake the locknuts into the shafts with a punch.



15. Install the control level (A) on the control shaft (B), and install the bolt with the new lock washer (C), then bend the lock tab of the lock washer against the bolt head.



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



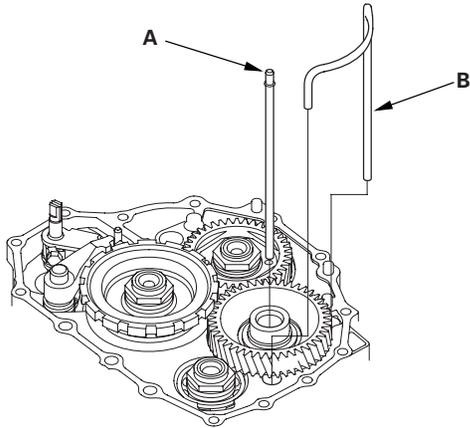
17. If the park pawl does not engage fully, check the distance (C) between the pawl shaft (D) and the park lever roller pin (E) (see page 14-228).
18. Tighten the lock bolt, and bend the lock tab of the lock washer (F) against the bolt head.

(cont'd)

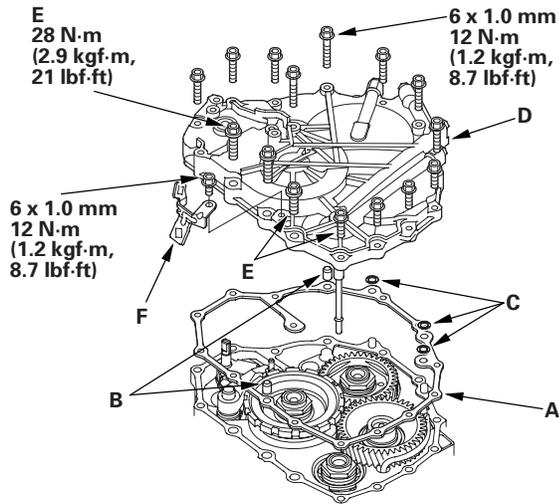
Transmission End Cover

End Cover Installation (cont'd)

19. Install the ATF feed pipe (A) into the idler gear shaft, and install the ATF lubrication pipe (B) into the transmission housing.



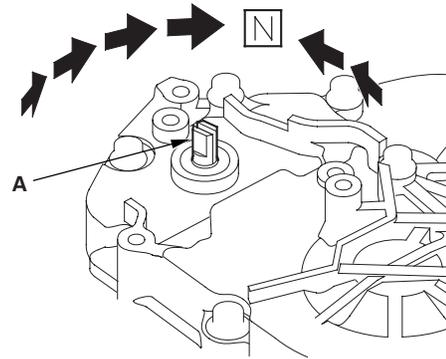
20. Install the new gasket (A) on the transmission housing, and install the two dowel pins (B) and new O-rings (C) over the top of the ATF feed pipes.



21. Install the end cover (D), and tighten the three special bolts (E) and the 6 x 1.0 mm bolts (12 bolts).
22. Install the harness clamp bracket (F) on the end cover.

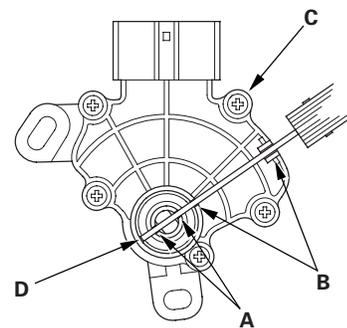
23. Set the control shaft (A) to the **N** position by turning the control lever on the torque converter side.

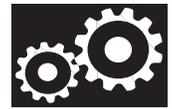
NOTE: Do not squeeze the end of the control shaft tips together when turning the shaft. If the tips are squeezed together it will cause a faulty shift position signal or position due to the play between the control shaft and the switch.



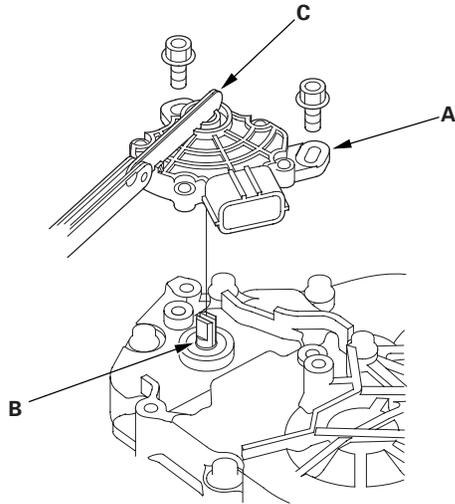
24. Align the cutouts (A) on the rotary-frame with the neutral positioning cutouts (B) on the transmission range switch (C), then put a 2.0 mm (0.08 in.) feeler gauge blade (D) in the cutouts to hold in the **N** position.

NOTE: Be sure to use a 2.0 mm (0.08 in.) blade or equivalent to hold the switch in the **N** position.

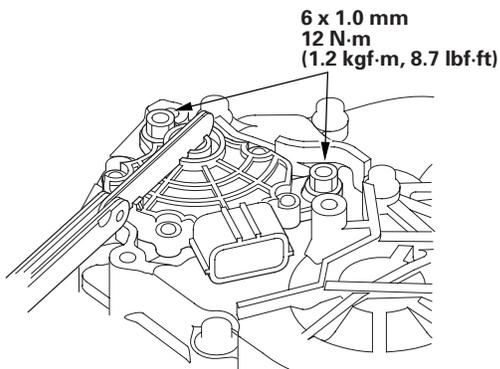




25. Install the transmission range switch (A) gently on the control shaft (B) while holding it in the **N** position with the 2.0 mm (0.08 in.) blade (C).

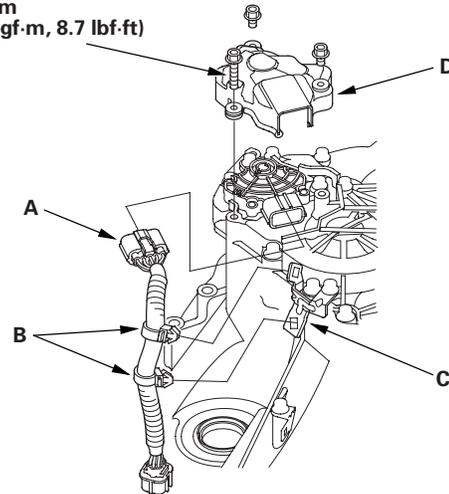


26. Tighten the bolts on the transmission range switch while you continue to hold it in the **N** position. Do not move the transmission range switch when tightening the bolts. Remove the feeler gauge.



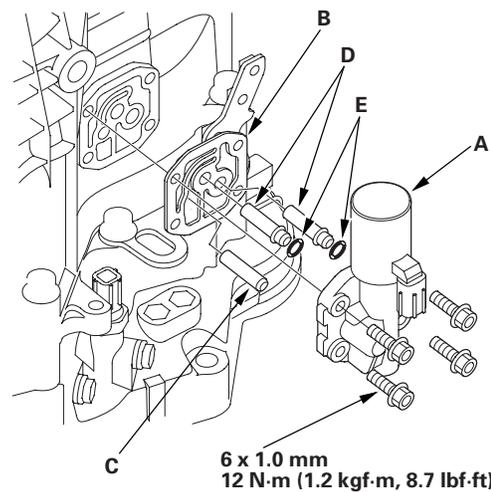
27. Connect the transmission range switch connector (A) securely, then install the harness clamps (B) on the clamp bracket (C).

6 x 1.0 mm
12 N·m
(1.2 kgf·m, 8.7 lbf·ft)



28. Install the transmission range switch cover (D).

29. Install the new gasket (B) on the transmission housing, and install the ATF pipe (C) and ATF joint pipes (D).



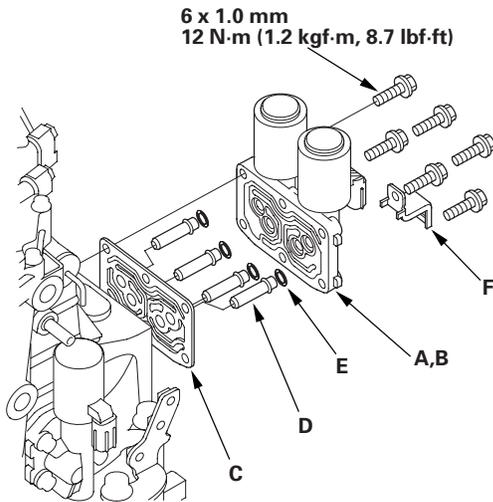
30. Install the new O-rings (E) over the ATF joint pipes, and install the A/T clutch pressure control solenoid valve A.

(cont'd)

Transmission End Cover

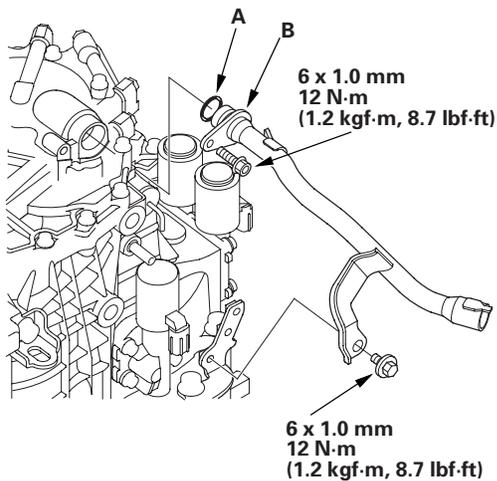
End Cover Installation (cont'd)

31. Install the new gasket (C) and ATF joint pipes (D) on the transmission housing, and install the new O-rings (E) over the ATF joint pipes.

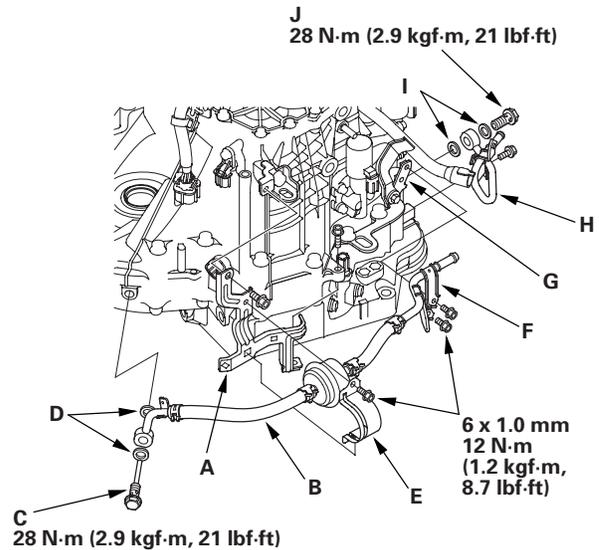


32. Install the A/T clutch pressure control solenoid valves A and B, and harness clamp bracket (F).

33. Install the new O-ring (A) on the dipstick guide pipe (B), then install the dipstick guide pipe.



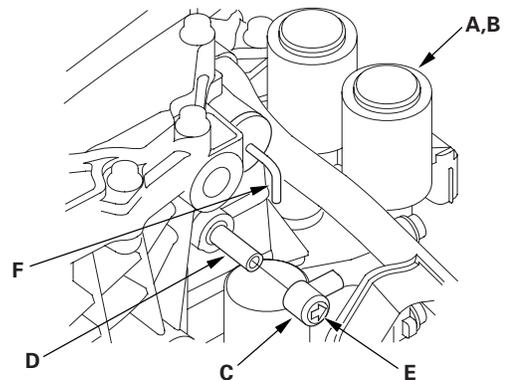
34. Install the ATF filter bracket (A) on the transmission housing, then install the ATF cooler line/ATF filter (B) with the line bolt (C) new sealing washers (D). Secure the ATF filter with its bracket (E).



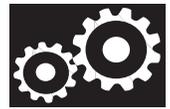
35. Secure the line brackets (F) with two bolts on the transmission hanger (G).

36. Install the ATF cooler outlet line (H) with the line bolt (I) and new sealing washers (J).

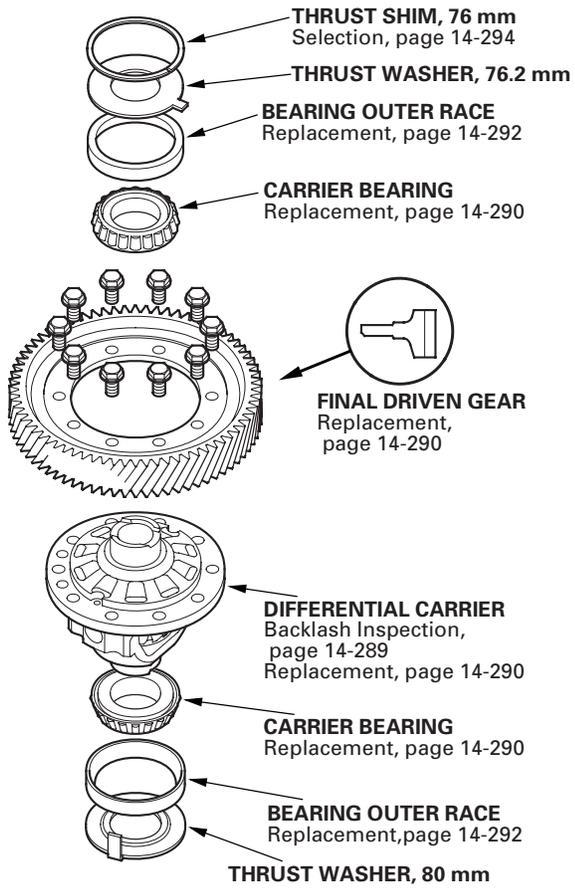
37. Install the breather cap (C) on the breather pipe (D) so its arrow (E) points to the A/T clutch pressure control solenoid valves A and B.



38. Install the filler cap with pointing its handle (F) in the direction shown.

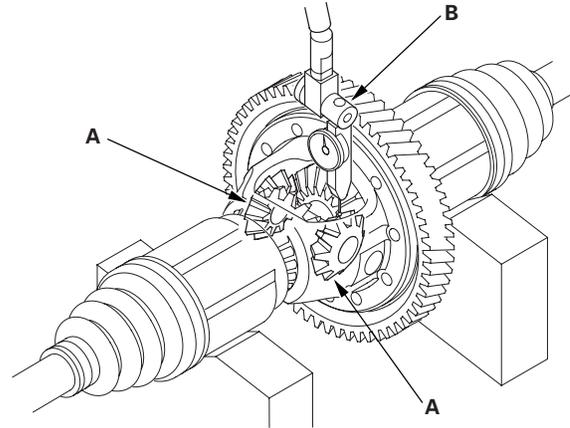


Component Location Index



Backlash Inspection

1. Install the driveshafts on the differential, then place the axles on V-blocks.



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

STANDARD: 0.05 0.15 mm (0.002 0.006 in.)

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

A/T Differential

Carrier Bearing Replacement

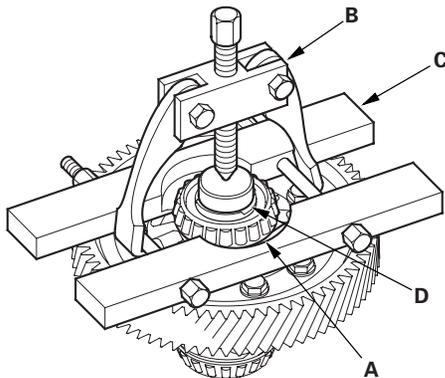
Special Tools Required

Attachment, 40 x 50 mm 07LAD-PW50601

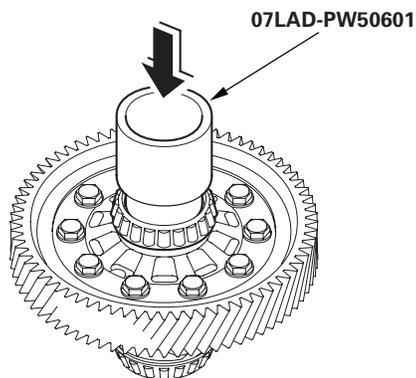
NOTE:

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

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



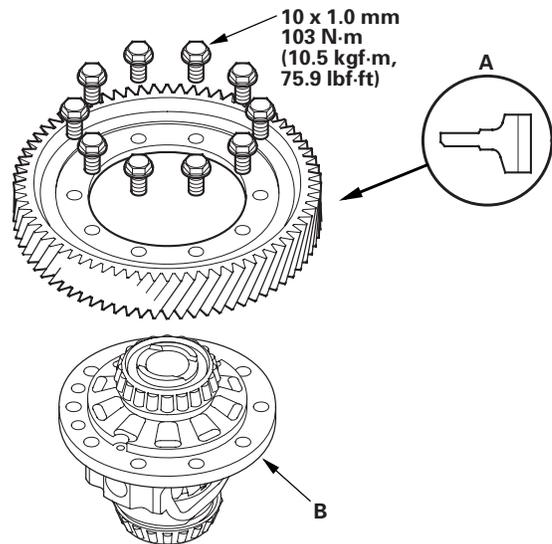
2. Install the new bearings with the special tool using the small end and a press until it bottoms. Press the bearing on securely so there is no clearance between the bearing and the differential carrier.



Differential Carrier/Final Driven Gear Replacement

1. Remove the final driven gear from the differential carrier, and replace the differential carrier or final driven gear.
2. Install the final driven gear (A) in the direction shown on the differential carrier (B).

NOTE: Differential carrier bolts have left-hand threads.



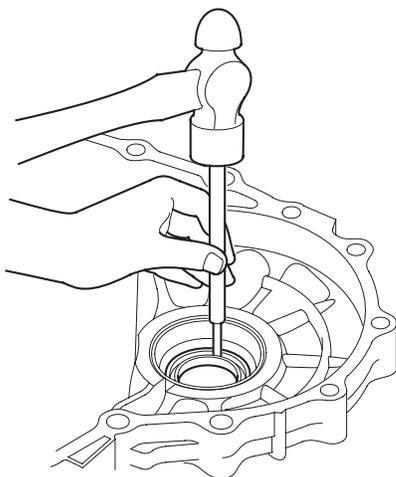


Oil Seal Replacement

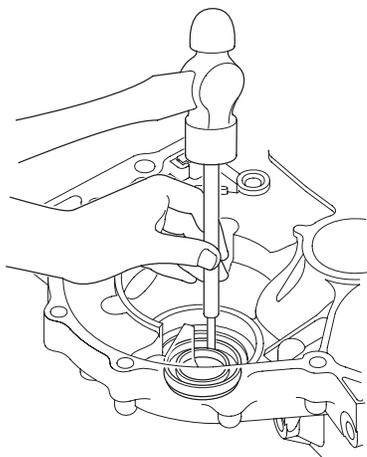
Special Tools Required

- Handle driver 07749-0010000
- Oil seal driver attachment 07947-SD90101
- Oil seal driver attachment 07JAD-PH80101

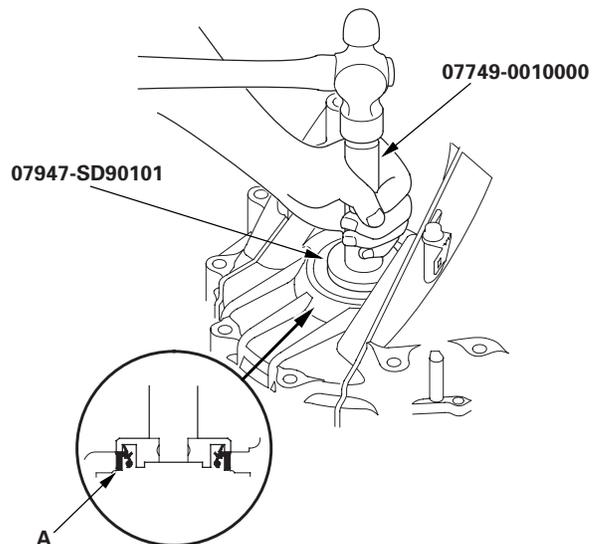
1. Remove the oil seal from the transmission housing.



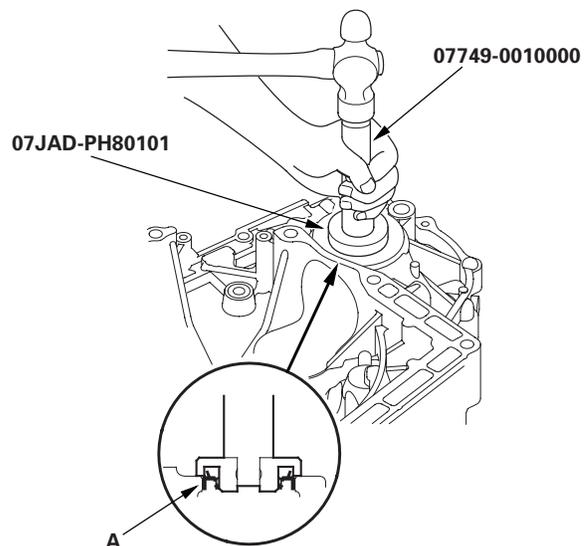
2. Remove the oil seal from the torque converter housing.



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



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



A/T Differential

Carrier Bearing Outer Race Replacement

Special Tools Required

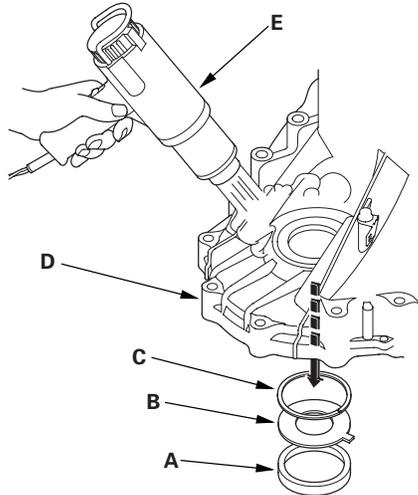
- Handle driver 07749-0010000
- Driver attachment, 78 x 90 mm 07GAD-SD40101
- Driver attachment, 72 x 75 mm 07746-0010600

NOTE:

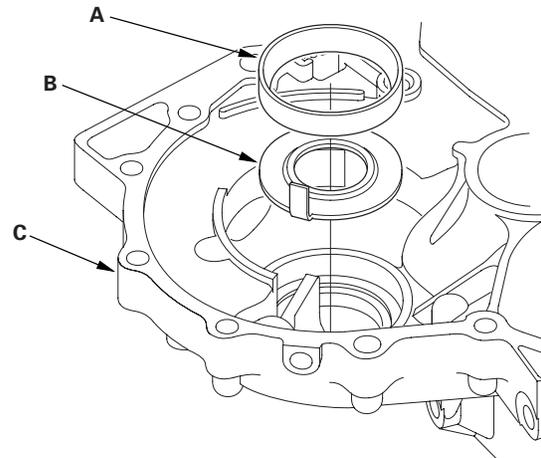
- The bearing and bearing outer race should be replaced as a set.
- Replace the bearing with a new one whenever the outer race is replaced.
- Do not use the thrust shim on the torque converter housing.
- Adjust bearing preload after replacing the bearing and outer race.
- Cost all parts with ATF during installation.

1. Remove the bearing outer race (A), 76.2 mm thrust washer (B), and 76 mm thrust shim (C) from the transmission housing (D) by heating the housing to about 100°C (212°F) with heat gun (E). Do not heat the housing in excess of 100°C (212°F).

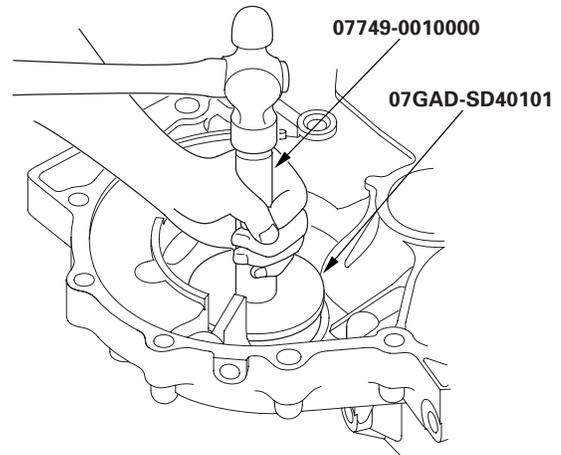
NOTE: Let the transmission housing cool to room temperature before installing the bearing outer race.



2. Remove the bearing outer race (A) and 80 mm thrust washer (B) from the torque converter housing (C).

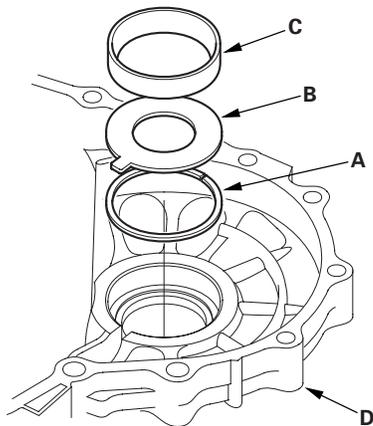


3. Install the 80 mm thrust washer and the new bearing outer race in the torque converter housing.
4. Drive the bearing outer race to install securely in the housing with the special tools.

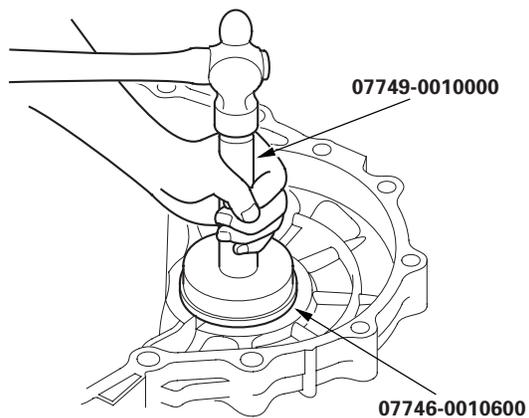




5. Install the 76 mm thrust shim (A), 76.2 mm thrust washer (B), and the new bearing outer race (C) in the transmission housing (D).



6. Drive the bearing outer race in securely so there is no clearance between the outer race, thrust washer, shim and housing with the special tools.



A/T Differential

Carrier Bearing Preload Inspection

Special Tools Required

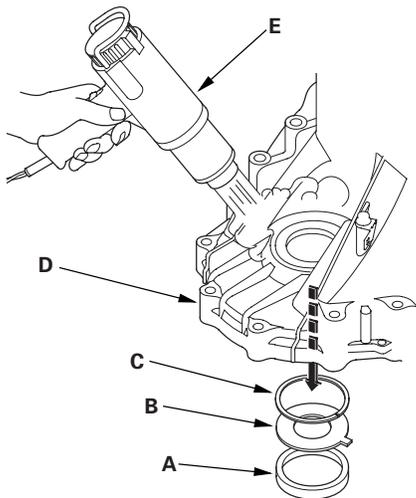
- Handle driver 07749-0010000
- Driver attachment, 72 x 75 mm 07746-0010600
- Preload inspection tool 07HAJ-PK40201

NOTE:

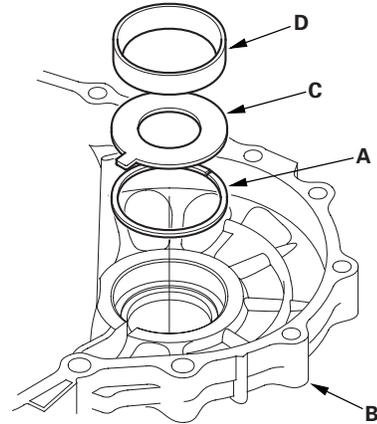
- If the transmission housing, torque converter housing, differential carrier, carrier bearing and outer race, or thrust shim were replaced, the bearing preload must be adjusted.
- Coat all parts with ATF during installation.
- Do not use the thrust shim in the torque converter housing.

1. Remove the bearing outer race (A), 76.2 mm thrust washer (B), and 76 mm thrust shim (C) from the transmission housing (D) by heating the housing to about 100°C (212°F) with heat gun (E). Do not heat the housing in excess of 100°C (212°F).

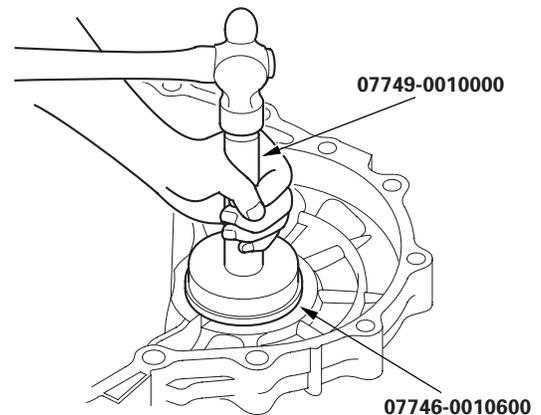
NOTE: Let the transmission housing cool to room temperature before adjusting the bearing preload.

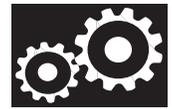


2. Install the 76 mm thrust shim of 2.6 mm (0.102 in.) in thickness (P/N 41449-PK4-000) (A) in the transmission housing (B).

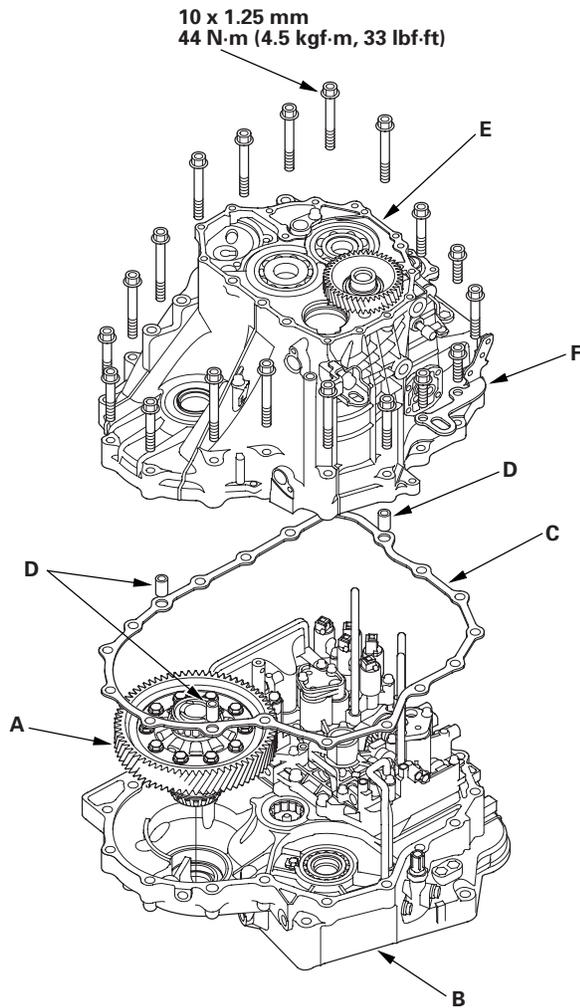


3. Install the 76.2 mm thrust washer (C) and the bearing outer race (D) in the transmission housing.
4. Drive the bearing outer race in securely so there is no clearance between the outer race, thrust washer, shim and housing with the special tools.





5. Install the differential assembly (A) in the torque converter housing (B), and install the gasket (C) and dowel pins (D) on the housing.

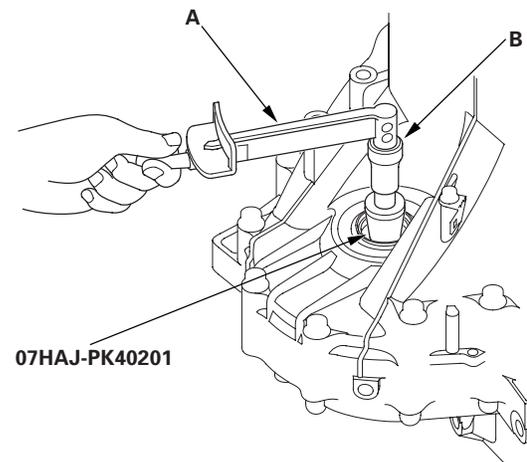


6. Install the transmission housing (E) and the transmission hanger (F), then tighten the bolts.

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

STANDARD:

New Bearing	2.7	3.9 N·m	(28	40 kgf·cm,	24	35 lbf·in.)
Reused Bearing	2.5	3.6 N·m	(25	37 kgf·cm,	22	32 lbf·in.)



(cont'd)

A/T Differential

Carrier Bearing Preload Inspection (cont'd)

9. If the measurement is out of standard, remove the thrust shim and select the thrust shim from table below. Install the new thrust shim and recheck. To increase the starting torque, increase the thickness of the thrust shim. To decrease the starting torque, decrease the thickness of the shim. Changing the shim to the next size will increase or decrease starting torque about 0.3 0.4 N·m (3 4 kgf·cm, 2 3 lbf·in).

THRUST SHIM, 76 mm

No.	Part Number	Thickness
S	41438-PX4-700	2.05 mm (0.080 in.)
T	41439-PX4-700	2.10 mm (0.082 in.)
U	41440-PX4-700	2.15 mm (0.084 in.)
A	41441-PK4-000	2.20 mm (0.086 in.)
B	41442-PK4-000	2.25 mm (0.088 in.)
C	41443-PK4-000	2.30 mm (0.090 in.)
D	41444-PK4-000	2.35 mm (0.092 in.)
E	41445-PK4-000	2.40 mm (0.094 in.)
F	41446-PK4-000	2.45 mm (0.096 in.)
G	41447-PK4-000	2.50 mm (0.098 in.)
H	41448-PK4-000	2.55 mm (0.099 in.)
I	41449-PK4-000	2.60 mm (0.101 in.)
J	41450-PK4-000	2.65 mm (0.103 in.)
K	41451-PK4-000	2.70 mm (0.105 in.)
L	41452-PK4-000	2.75 mm (0.107 in.)
M	41453-PK4-000	2.80 mm (0.109 in.)
N	41454-PK4-000	2.85 mm (0.111 in.)
O	41455-PK4-000	2.90 mm (0.113 in.)
P	41456-PK4-000	2.95 mm (0.115 in.)
Q	41457-PK4-000	3.00 mm (0.117 in.)
R	41458-PK4-000	3.05 mm (0.119 in.)
0A	41428-PRP-000	1.55 mm (0.061 in.)
0B	41429-PRP-000	1.60 mm (0.063 in.)
0C	41430-PRP-000	1.65 mm (0.065 in.)
0D	41431-PRP-000	1.70 mm (0.067 in.)
0E	41432-PRP-000	1.75 mm (0.069 in.)
0F	41433-PRP-000	1.80 mm (0.071 in.)
0G	41434-PRP-000	1.85 mm (0.073 in.)
0H	41435-PRP-000	1.90 mm (0.075 in.)
0I	41436-PRP-000	1.95 mm (0.077 in.)
0J	41437-PRP-000	2.00 mm (0.079 in.)

(cont'd)

THRUST SHIM, 76 mm (cont'd)

No.	Part Number	Thickness
A	41428-PAX-000	1.575 mm (0.062 in.)
B	41429-PAX-000	1.625 mm (0.064 in.)
C	41430-PAX-000	1.675 mm (0.066 in.)
D	41431-PAX-000	1.725 mm (0.068 in.)
E	41432-PAX-000	1.775 mm (0.070 in.)
F	41433-PAX-000	1.825 mm (0.072 in.)
G	41434-PAX-000	1.875 mm (0.074 in.)
H	41435-PAX-000	1.925 mm (0.076 in.)
I	41436-PAX-000	1.975 mm (0.078 in.)
J	41437-PAX-000	2.025 mm (0.080 in.)
K	41438-PAX-000	2.075 mm (0.082 in.)
L	41439-PAX-000	2.125 mm (0.084 in.)
M	41440-PAX-000	2.175 mm (0.086 in.)
N	41441-PAX-000	2.225 mm (0.088 in.)
O	41442-PAX-000	2.275 mm (0.090 in.)
P	41443-PAX-000	2.325 mm (0.092 in.)
Q	41444-PAX-000	2.375 mm (0.094 in.)
R	41445-PAX-000	2.425 mm (0.095 in.)
S	41446-PAX-000	2.475 mm (0.097 in.)
T	41447-PAX-000	2.525 mm (0.099 in.)
U	41448-PAX-000	2.575 mm (0.101 in.)
V	41449-PAX-000	2.625 mm (0.103 in.)
W	41450-PAX-000	2.675 mm (0.105 in.)
X	41451-PAX-000	2.725 mm (0.107 in.)
Y	41452-PAX-000	2.775 mm (0.109 in.)
Z	41453-PAX-000	2.825 mm (0.111 in.)
0A	41454-PAX-000	2.875 mm (0.113 in.)
0B	41455-PAX-000	2.925 mm (0.115 in.)
0C	41456-PAX-000	2.975 mm (0.117 in.)
0D	41457-PAX-000	3.025 mm (0.119 in.)