HONDA
PX4B

INDEX

The Automatic Transmission is a combination of a 3-element torque converter and a triple-shaft electronically controlled automatic transmission which provides 4 speeds forward and 1 speed 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 assembled in a single unit.
They are connected to the engine crankshaft so they turn together as a unit 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, and the secondary shaft. The mainshaft is in line with the engine crankshaft.
The mainshaft includes the clutches for 3rd and 4th, and gears for 3rd, 4th, Reverse and Idler (Reverse gear is integral with 4th gear).
The countershaft includes the 1st-hold clutch and gears for 2nd, 3rd, 4th, Reverse, 1st and Idler.
The secondary shaft includes 1st and 2nd clutches, and gears for 2nd, 1st and Idler.
The 4th and reverse gears can be locked to the countershaft at its center, providing 4th gear or Reverse, depending on which way the selector is moved.
The gears on the mainshaft are in constant mesh with those on the countershaft and the secondary shaft. When certain combinations of gears in the transmission are engaged by the clutches, power is transmitted from the mainshaft to the countershaft to provide [D4], [D3], [2], [1] and [R].

Electronic Control

The electronic control system consists of an A/T control unit, sensors, and 4 solenoid valves. Shifting and lockup are electronically controlled for comfortable driving under all conditions.
The A/T control unit is located below the dashboard, behind the right side kick panel on the passenger's side on 1992 Prelude. On 1990-92 Accord the A/T control unit is located on the front passenger floor beside the engine control unit (PGM-FI ECU). The A/T control unit is closest to the passenger door.

Hydraulic Control

The valve assembly includes the main valve body, secondary valve body, servo valve body, regulator valve body and throttle valve body. They are bolted to the torque converter housing as an assembly.
The main valve body contains the manual valve, 1-2 shift valve, 2-3 shift valve, cooler relief valve, lockup shift valve, lockup control valve, 3-2 kick-down valve, modulator valve, CPC valve and oil pump gears.

The secondary valve body includes the 4th exhaust valve, 3rd kick-down valve, 3-4 shift valve, servo control valve, orifice control valve and the 2nd orifice control valve.
The 1st/2nd accumulator body contains the 1st & 2nd accumulators.

The servo valve body contains the 1st-hold,3rd, and 4th accumulator pistons and servo valves. The regulator valve body contains the regulator valve, T/C check valve, and the lockout timing valve. The throttle body contains the throttle B valve and relief valve. Fluid from the regulator passes through the manual valve the the various control valves

The clutches receive oil from their respective feed pipes or internal hydraulic circuit.

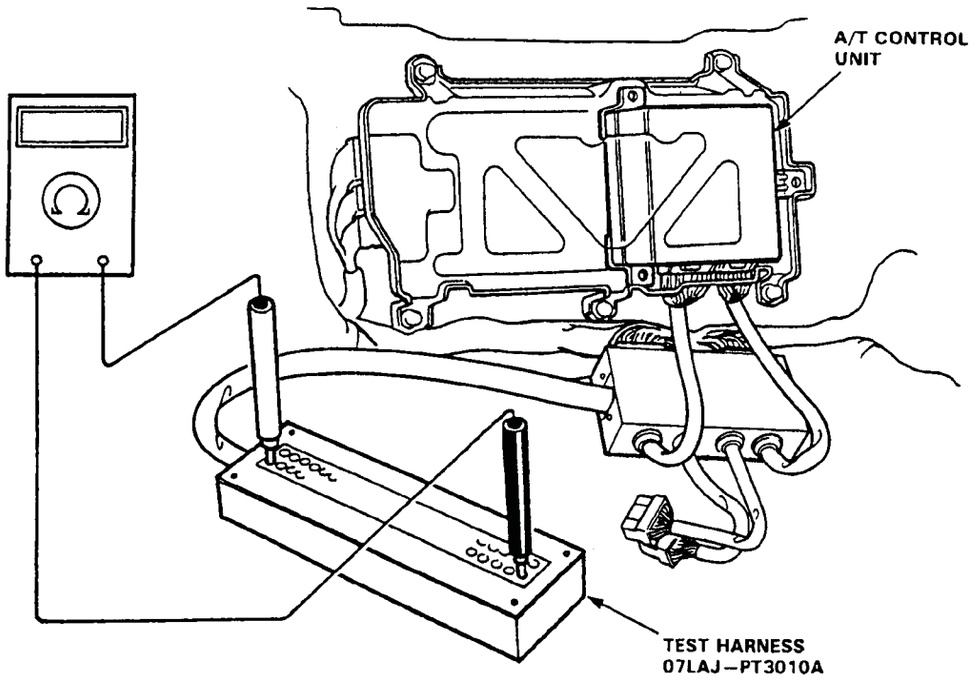
Shift Control Mechanism

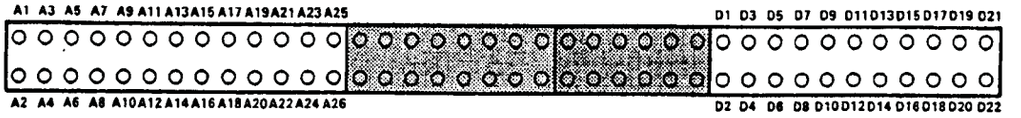
Input from various sensors located throughout the car determines which shift control solenoid valve the A/T control unit will activate. Activating a shift control solenoid valve changes modulator pressure, causing a shift valve to move. This pressurizes a line to one of the clutches, engaging that clutch and its corresponding gear.

Lockup Mechanism

In [D4], in 2nd, 3rd and 4th, (and [D3] in 3rd,1992 Prelude) fluid is drained from the front of the torque converter through an oil passage, causing the lockup 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 hydraulic control, the A/T control unit optimizes the timing of the lockup mechanism.
The lockup valves control the range of lockup according to lockup control solenoid valves A and B, and throttle valve B. When lockup control solenoid valves A and B activate, modulator pressure changes. Lockup control solenoid valves A and B are mounted on the torque converter housing, and are controlled by the A/T control unit.

ACCORD A/T CONTROL UNIT SHOWN (PRELUDE A/T CONTROL UNIT IN PASSENGER SIDE KICK PANNEL)





Terminal Locations

NOTE:

- Only the A and D sections of the Test Harness are used for A/T troubleshooting.
- Unless otherwise noted, use only the Digital Multimeter, KS-AHM-32-003, for testing.

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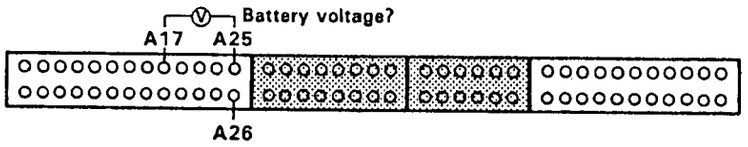
Shift to other than [D4] position.

Measure the voltage between the A17 and A25/A26 terminals.



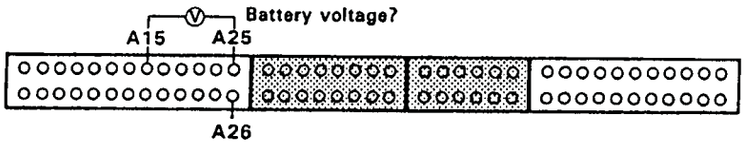
Is there battery voltage?

NO — Check for short in the wire between the A17 terminal and the shift position console switch. If wire is OK, check for loose A/T control unit connectors. If necessary, substitute a known-good A/T control unit and recheck.

YES

Shift to other than [D3] position.

Measure the voltage between the A15 and A25/A26 terminals.



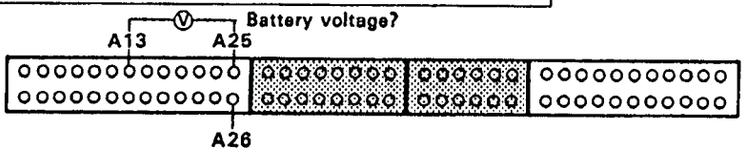
Is there battery voltage?

NO — Check for short in the wire between the A15 terminal and the shift position console switch or shift position indicator. If wire is OK, check for loose A/T control unit connectors. If necessary, substitute a known-good A/T control unit and recheck.

YES

Shift to other than [2] position.

Measure the voltage between the A13 and A25/A26 terminals.



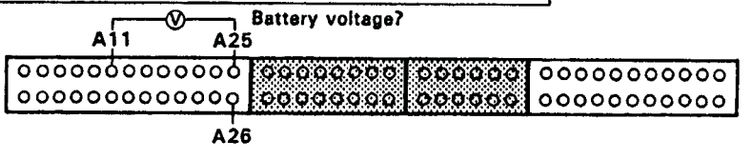
Is there battery voltage?

NO — Check for short in the wire between the A13 terminal and the shift position console switch or shift position indicator. If wire is OK, check for loose A/T control unit connectors. If necessary, substitute a known-good A/T control unit and recheck.

YES

Shift to other than [1] position.

Measure the voltage between the A11 and A25/A26 terminals.



Is there battery voltage?

NO — Check for short in the wire between the A11 terminal and the shift position console switch or shift position indicator. If wire is OK, check for loose A/T control unit connectors. If necessary, substitute a known-good A/T control unit and recheck.

YES

Check for loose A/T control unit connectors. If necessary, substitute a known-good A/T control unit and recheck.

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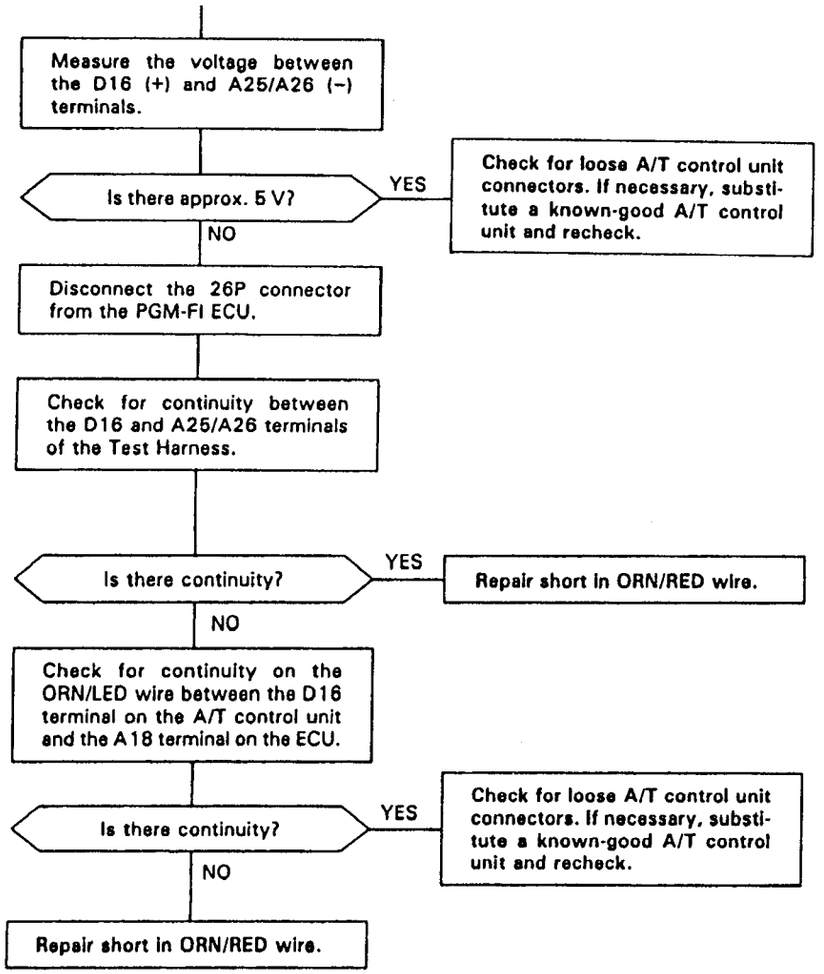
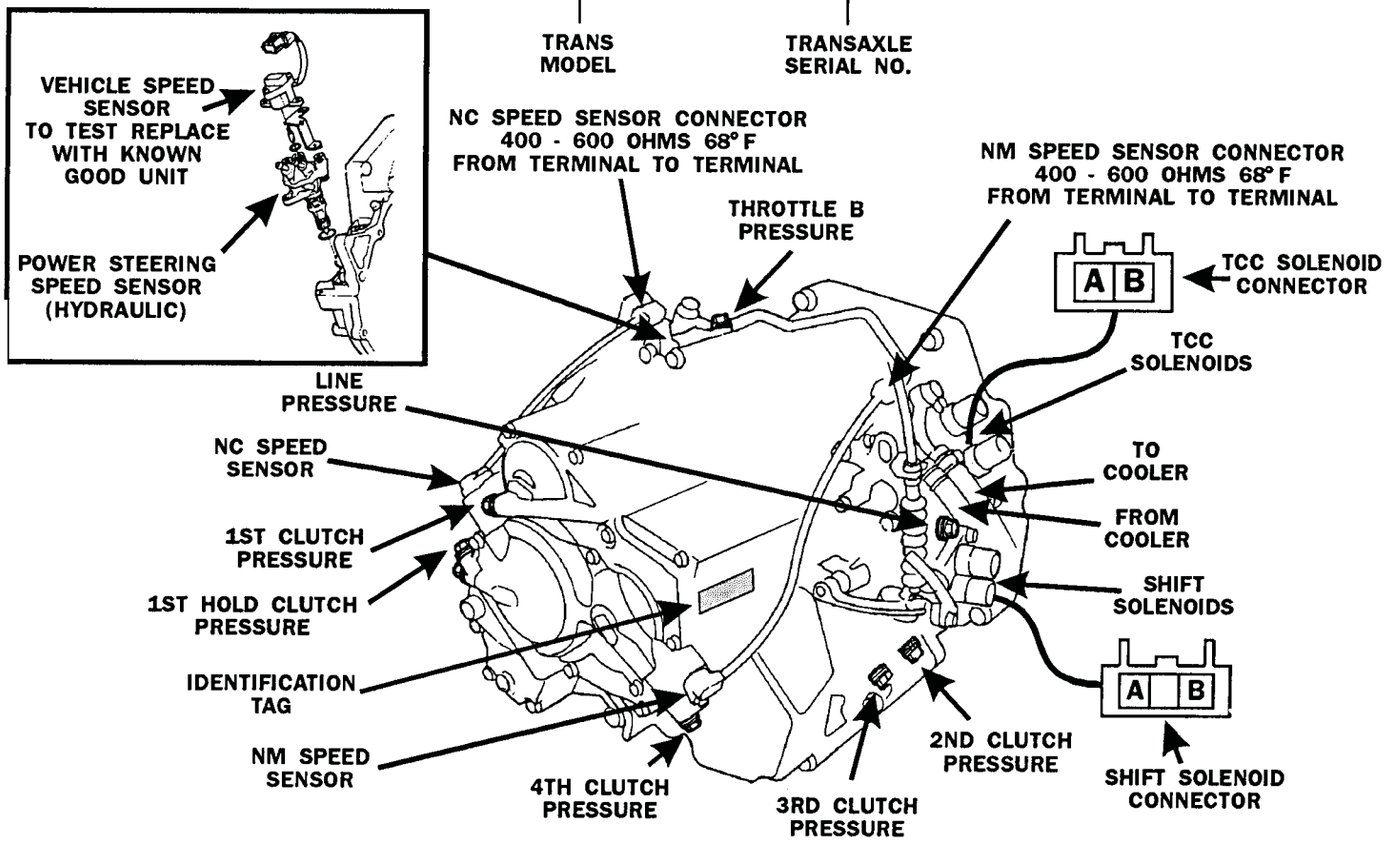


IDENTIFICATION TAG

APX4-0000000

TRANS MODEL

TRANSAXLE SERIAL NO.



TO ENERGIZE N.C. SHIFT SOLENOIDS APPLY 12 VOLTS

GEAR	SOLENOID A	SOLENOID B
1		ON
2	ON	ON
3	ON	
4		

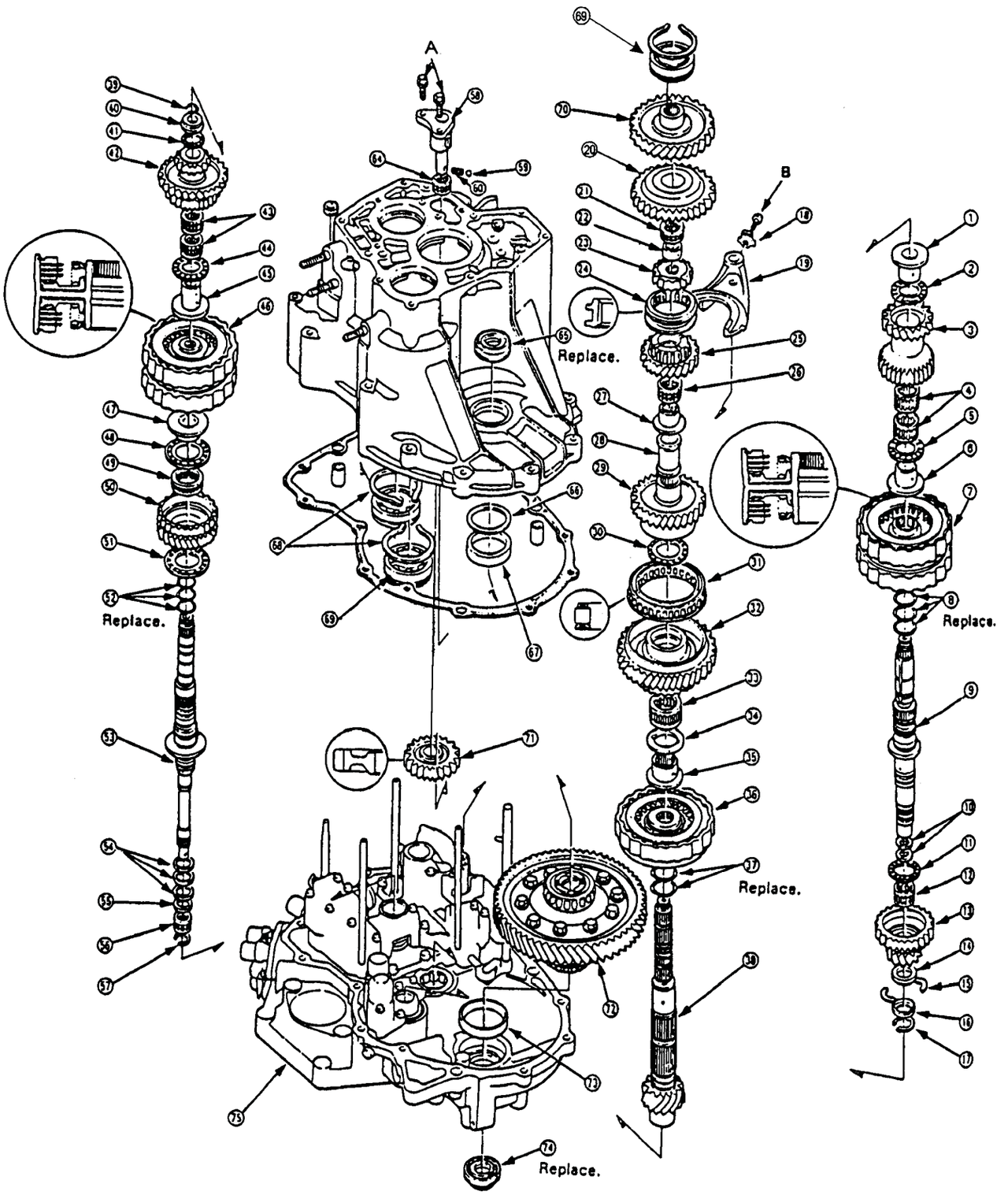
TO APPLY TCC ENERGIZE BOTH N.C. TCC SOLENOIDS WITH 12 VOLTS

12 - 24 OHMS
N.C. SHIFT SOLENOID A TO GROUND
N.C. SHIFT SOLENOID B TO GROUND

12 - 24 OHMS
N.C. TCC SOLENOID A TO GROUND
N.C. TCC SOLENOID B TO GROUND

PRESSURE PORT FITTINGS SIZE 8X1.25 METRIC

1990-91

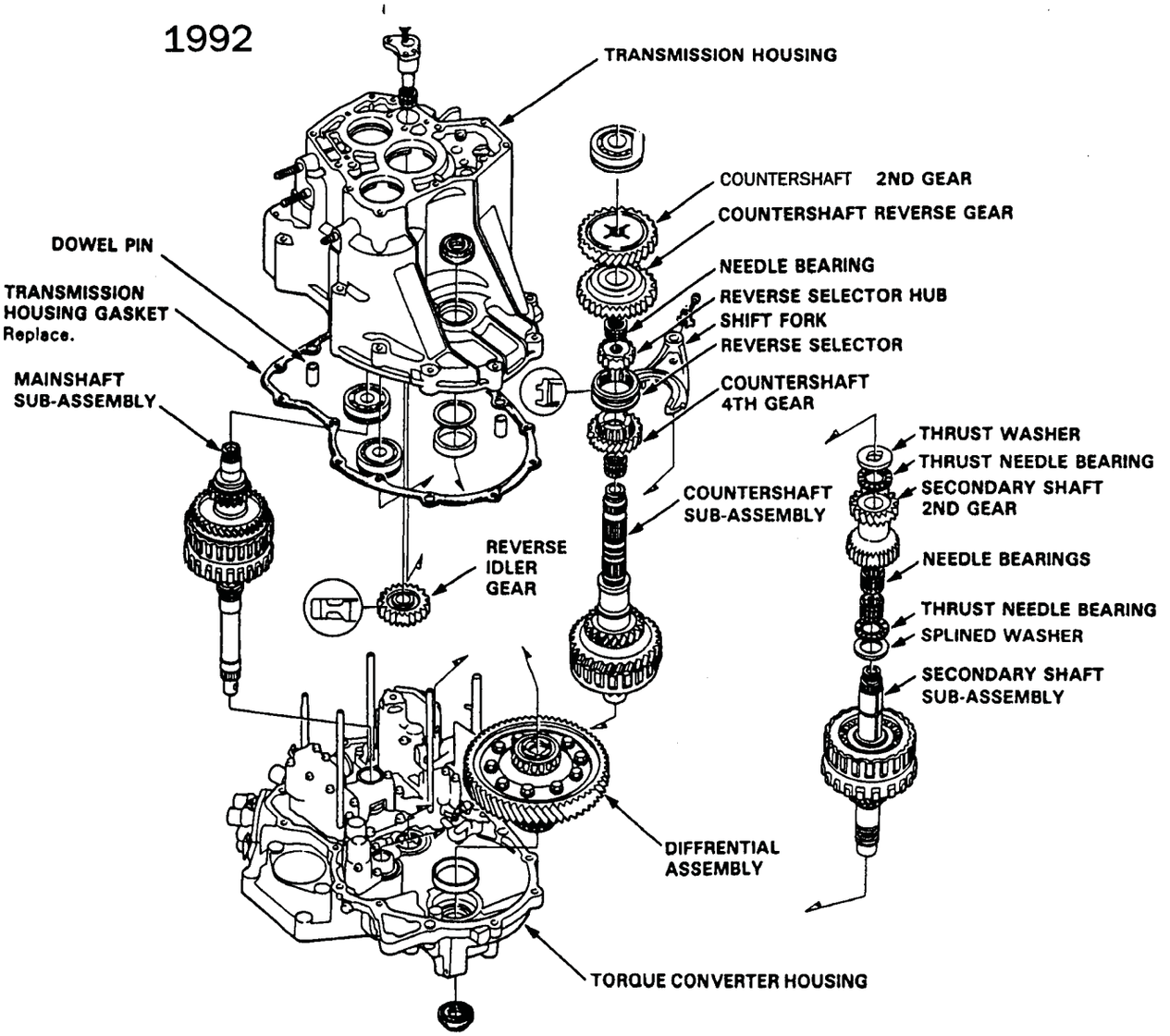


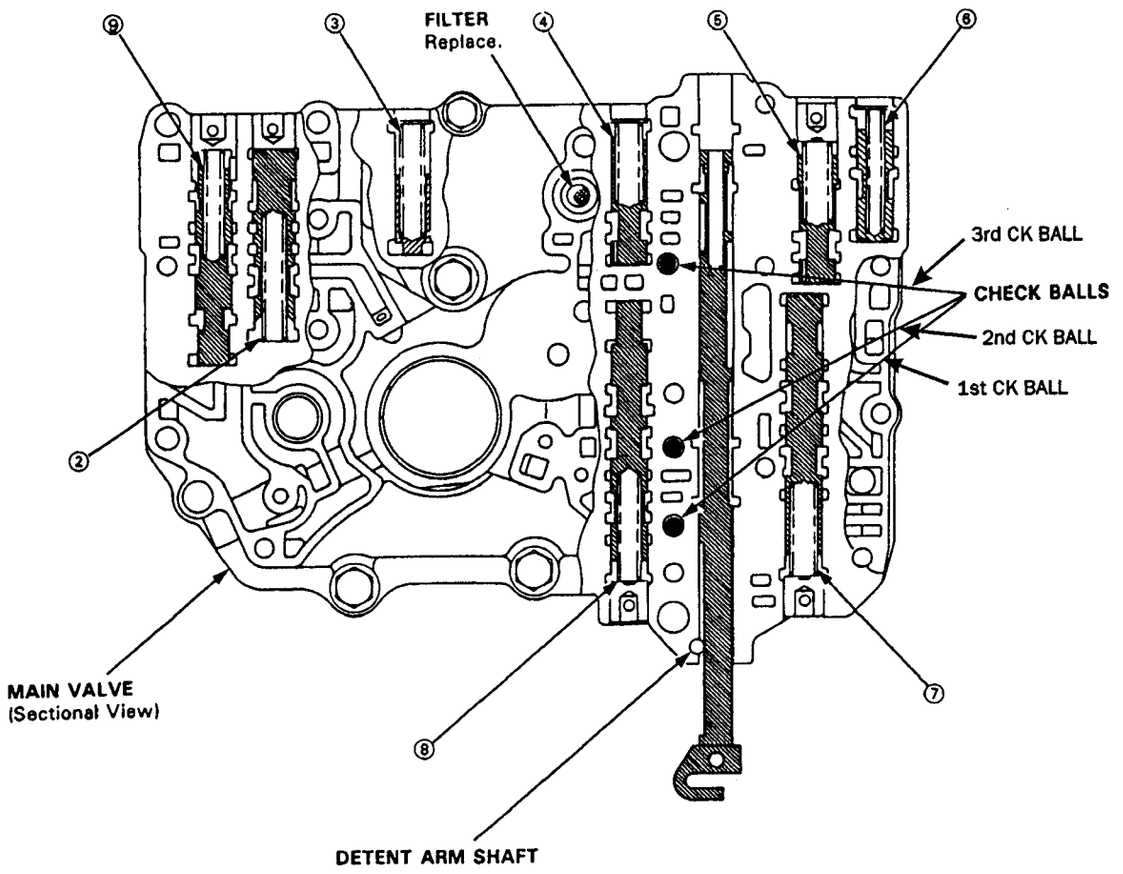
① ATF STRAINER
② MAGNET
③ OIL FEED PIPE
④ OIL FEED PIPE
⑤ 4TH ACCUMULATOR COVER
⑥ O-RING Replace.
⑦ LOCK WASHER Replace.
⑧ SERVO DETENT BASE
⑨ DOWEL PIN
⑩ SERVO BODY
⑪ SERVO SEPARATOR PLATE
⑫ CHECK BALL
⑬ SECONDARY VALVE BODY
⑭ SECONDARY SEPARATOR PLATE
⑮ ACCUMULATOR BODY COVER
⑯ 1ST ACCUMULATOR CHOKE
⑰ STEEL BALL
⑱ 1ST/2ND ACCUMULATOR BODY
⑲ THROTTLE VALVE BODY
⑳ THROTTLE SEPARATOR PLATE
㉑ DOWEL PIN
㉒ THROTTLE CONTROL SHAFT
㉓ E RING Replace.
㉔ FILTER Replace.
㉕ REGULATOR VALVE BODY
㉖ O-RING Replace.
㉗ STATOR SHAFT
㉘ STOPPER SHAFT
㉙ TORQUE CONVERTE CHECK VALVE
㉚ TORQUE CONVERTER CHECK VALVE SPRING
㉛ OIL FEED PIPE
㉜ CHECK BALL
㉝ FILTER Replace.
㉞ DOWEL PIN
㉟ OIL FEED PIPE
㊱ MAIN VALVE BODY
㊲ OIL PUMP DRIVEN GEAR SHAFT
㊳ OIL PUMP DRIVE GEAR
㊴ OIL PUMP DRIVEN GEAR
㊵ CONTROL SHAFT
㊶ DETENT SPRING
㊷ DETENT ARM
㊸ DETENT ARM SHAFT
㊹ DOWEL PIN
㊺ MAIN SEPARATOR PLATE
㊻ COUNTERSHAFT NEEDLE BEARING
㊼ OIL GUIDE PLATE Replace.
㊽ SECONDARY SHAFT BALL BEARING
㊾ OIL GUIDE PLATE Replace.
㊿ OIL SEAL Replace.
(55) SHIFT CONTROL SOLENOID FILTER/GASKET Replace.
(56) SHIFT CONTROL SOLENOID VALVE ASSEMBLY
(57) LOCK-UP CONTROL SOLENOID VALVE ASSEMBLY
(58) CONENCTOR HOLDER
(59) LOCK-UP CONTROL SOLENOID FILTER/GASKET Replace.
(60) TORQUE CONVERTER HOUSING
(61) MAINSHAFT BALL BEARING
(62) OIL SEAL Replace.

TORQUE SPECIFICATIONS

Ref No.	Torque Value	Bolt Size	Remarks
A	12 N·m (1.2 kg-m, 9 lb-ft)	6 × 1.0 mm	
C	18 N·m (1.8 kg-m, 13 lb-ft)	8 × 1.25 mm	

REMOVAL-TRANSMISSION HOUSING





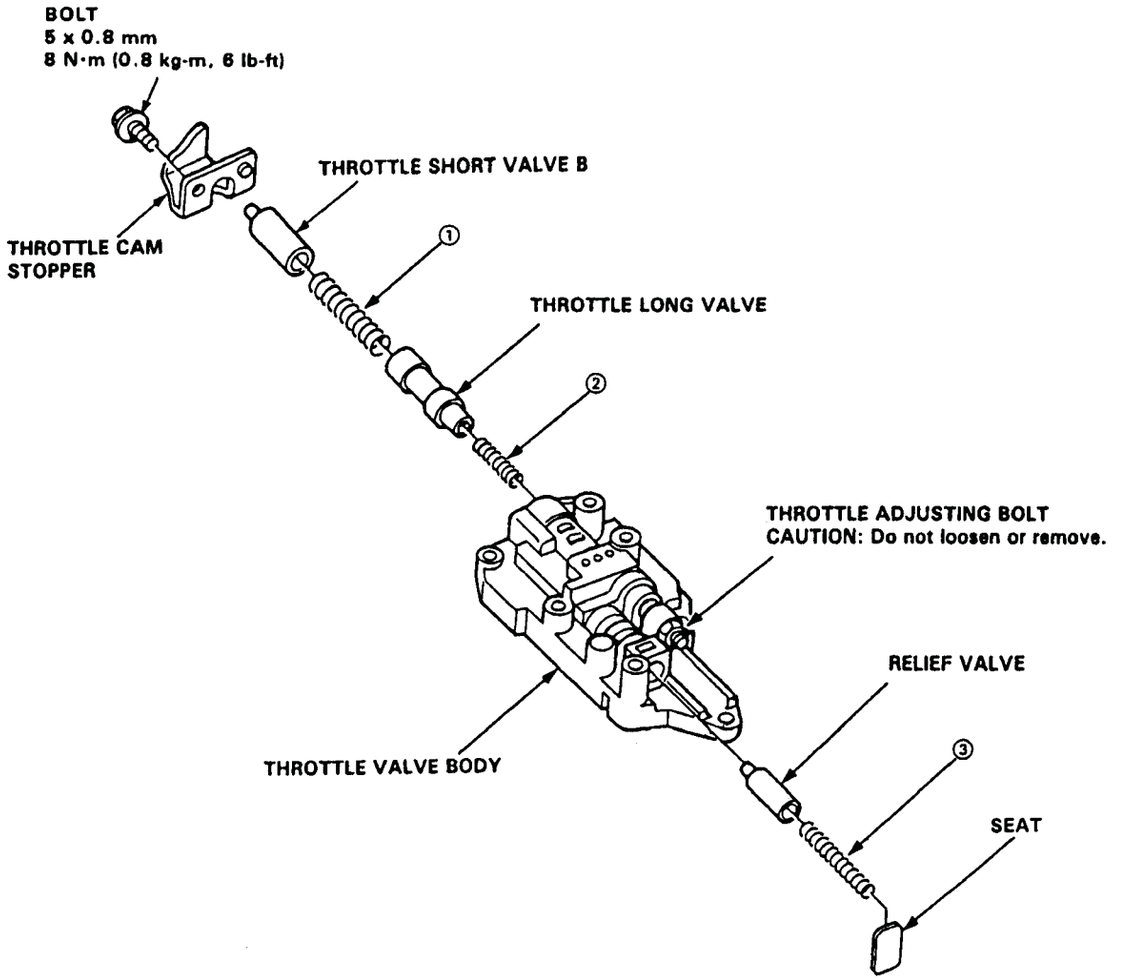
SPRING SPECIFICATIONS

Unit of length: mm (in)

No.	SPRINGS	STANDARD (NEW)			
		WIRE DIA.	O.D.	FREE LENGTH	No. of COILS
②	Lock-up shift valve spring	0.9 (0.035)	7.6 (0.299)	73.7 (2.902)	32.0
③	Cooler relief valve spring	1.1 (0.043)	8.4 (0.331)	46.8 (1.843)	17.0
④	Modulator valve spring	1.4 (0.055)	9.4 (0.370)	33.0 (1.299)	10.5
⑤	CPC valve spring	1.4 (0.055)	9.4 (0.370)	33.0 (1.299)	10.5
⑥	2nd kick-down valve spring	1.2 (0.047)	7.1 (0.280)	46.9 (1.846)	20.6
⑦	1−2 shift valve spring	1.0 (0.039)	8.6 (0.339)	41.3 (1.626)	16.9
⑧	2−3 shift valve spring	0.9 (0.035)	7.6 (0.299)	57.0 (2.244)	26.8
⑨	Lock-up control valve spring 1990-91	0.8 (0.031)	6.6 (0.260)	41.0 (1.614)	25.0
	Lock-up control valve spring 1992	0.7 (0.028)	6.6 (0.260)	38.0 (1.496)	14.1

THROTTLE VALVE BODY

NOTE:
- Clean all parts thoroughly in solvent or carburetor cleaner, and dry with compressed air. Blow out all passages.
- Check all valves for free movement
- Coat all parts with ATF before assembly.
- Replace the valve body as an assembly if any parts are worn or damaged.



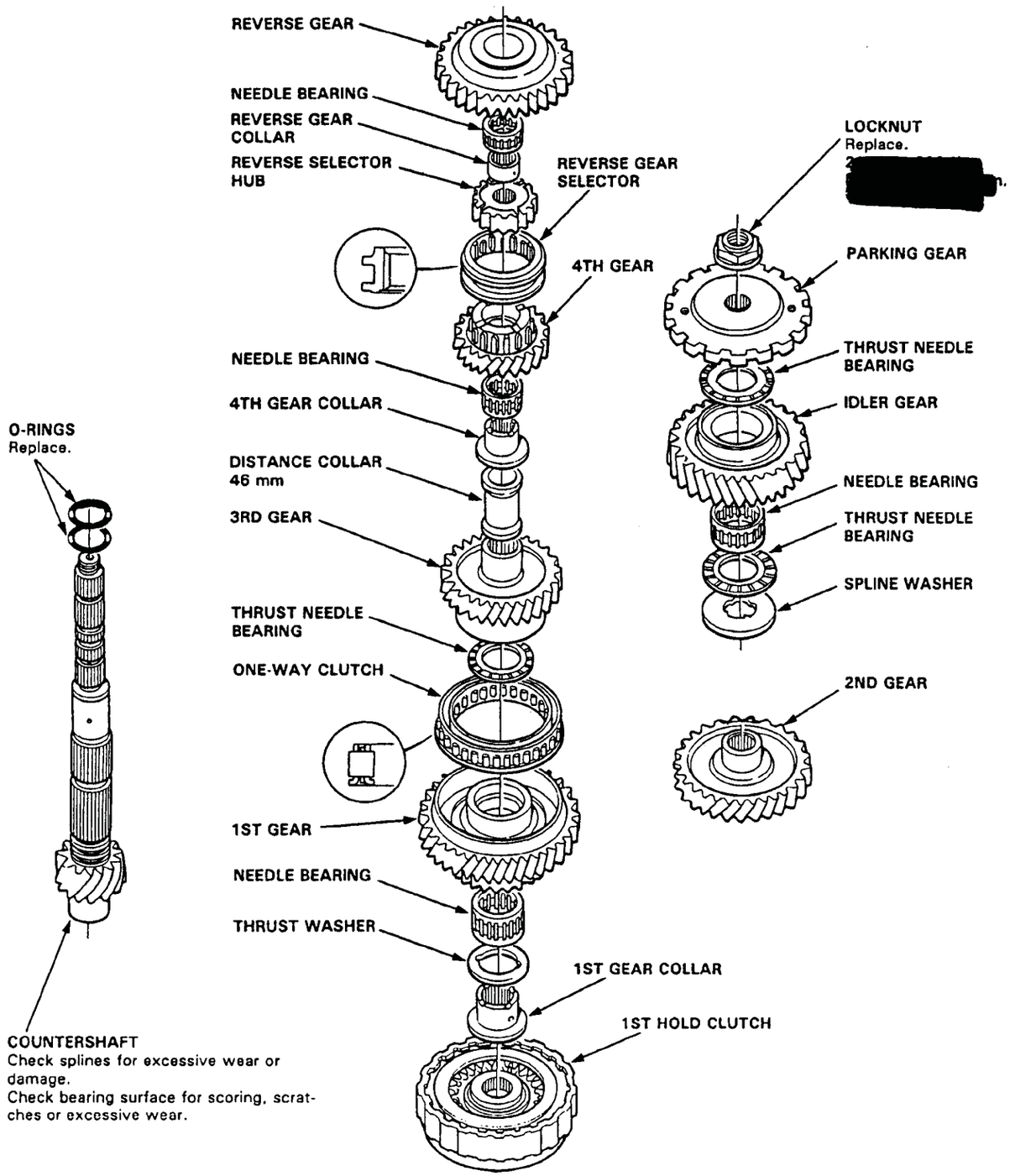
SPRING SPECIFICATIONS

Unit of length: mm (in)

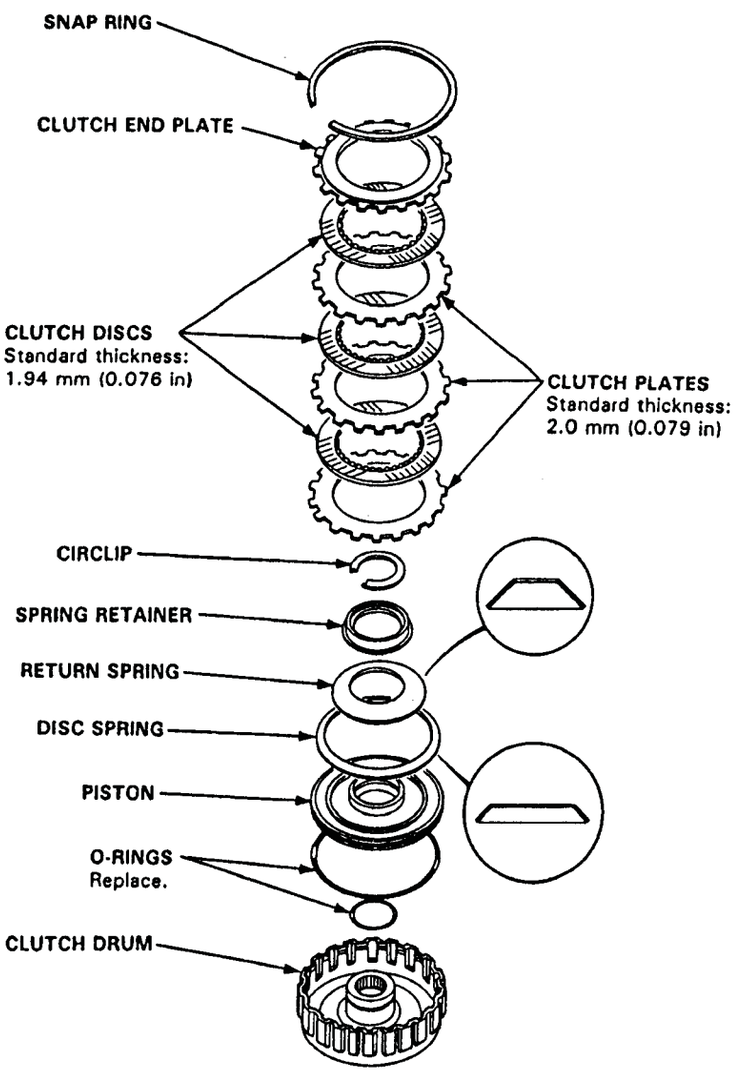
No.	SPRINGS	STANDARD (NEW)			
		WIRE DIA.	O.D.	FREE LENGTH	No. of COILS
①	Throttle valve B spring	1.4 (0.055)	8.5 (0.335)	41.5 (1.634)	10.5
		1.4 (0.055)	8.5 (0.335)	41.5 (1.634)	11.2
		1.4 (0.055)	8.5 (0.335)	41.6 (1.638)	12.4
②	Throttle valve B adjusting spring	0.8 (0.031)	6.2 (0.244)	30.0 (1.181)	8.0
③	Relief valve spring	1.0 (0.039)	8.4 (0.331)	39.1 (1.539)	15.1

COUNTERSHAFT

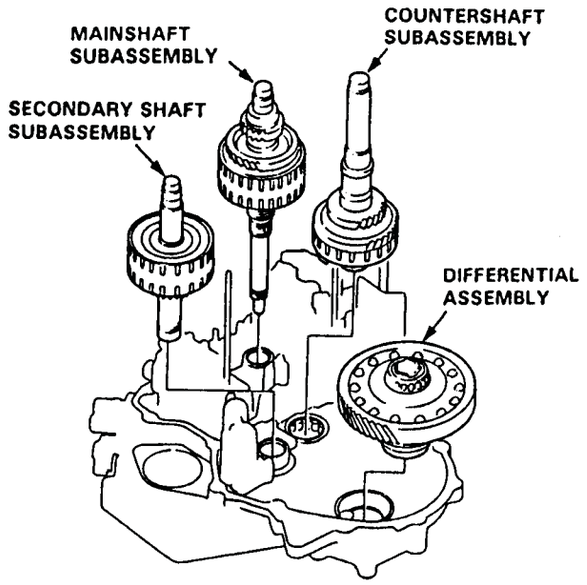
1990-91



1st HOLD CLUTCH

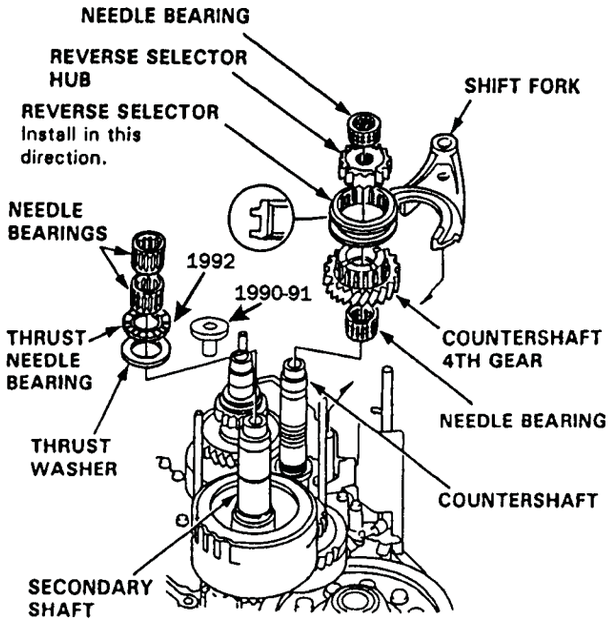


17. Install the differential assembly, countershaft subassembly, mainshaft subassembly, and secondary shaft subassembly in the torque converter housing.

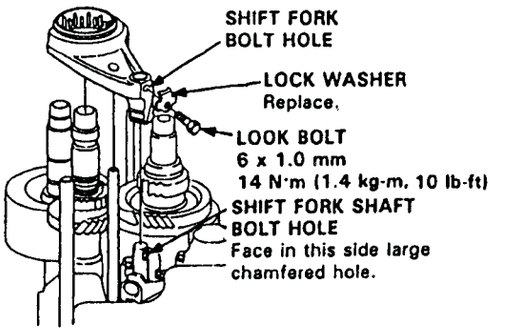


18. Install the splined washer, thrust needle bearing and needle bearings on the secondary shaft.

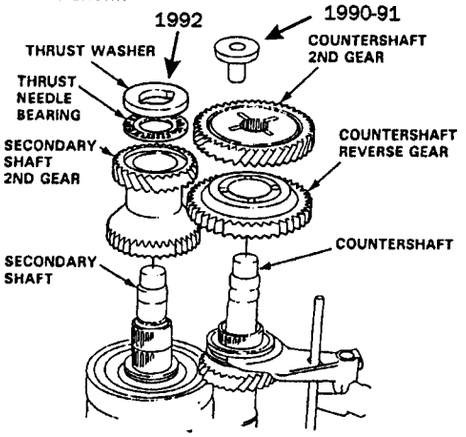
19. Install the needle bearings, reverse selector hub, countershaft 4th gear, and reverse selector with the shift fork on the countershaft.



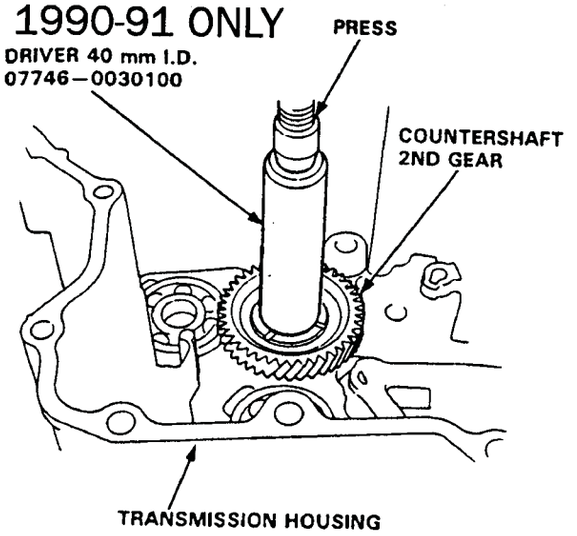
20. Turn the shift fork so the large chamered hole is facing the fork bolt hole. Then install the shift fork and torque the lock bolt. Bend the lock tab against the bolt head.



21. Install the secondary shaft 2nd gear, thrust needle bearing and thrust washer on the secondary shaft. Install the countershaft reverse gear and 2nd gear on countershaft as shown



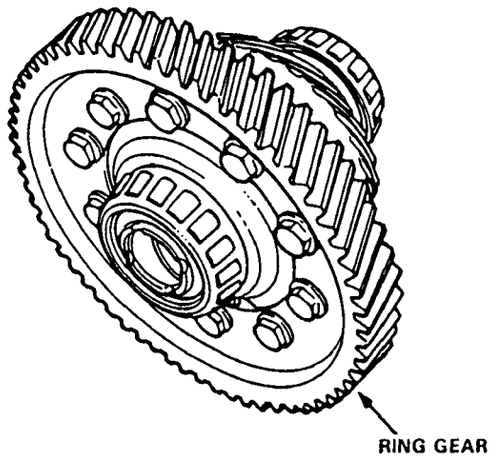
1. Press the countershaft 2nd gear into the transmission housing, using the special tool.



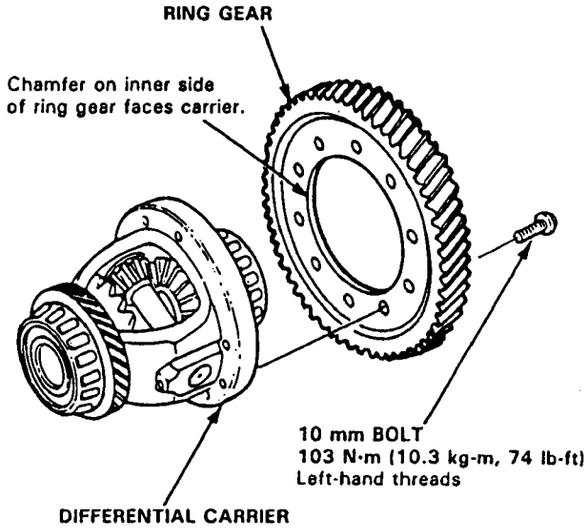
Differential Carrier/Ring Gear Replacement

1. Remove the ring gear from the differential carrier.

   CAUTION: The ring gear bolts have left-hand threads.

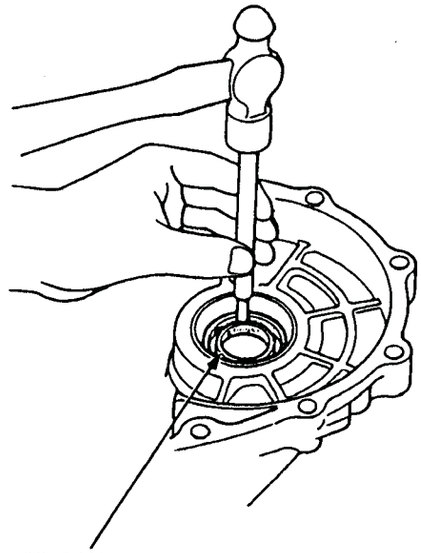


2. Install the ring gear on the differential carrier, then torque the bolts to 103 N·m (10.3 kg-m, 74 lb-ft).



Oil Seal Removal

1. Remove the differential assembly.
2. Remove the oil seal from the transmission housing.



3. Remove the oil seal from the torque converter housing.