

1988-90 AUTOMATIC TRANSMISSIONS**L5 Diagnosis & Overhaul****APPLICATION****TRANSMISSION APPLICATION**

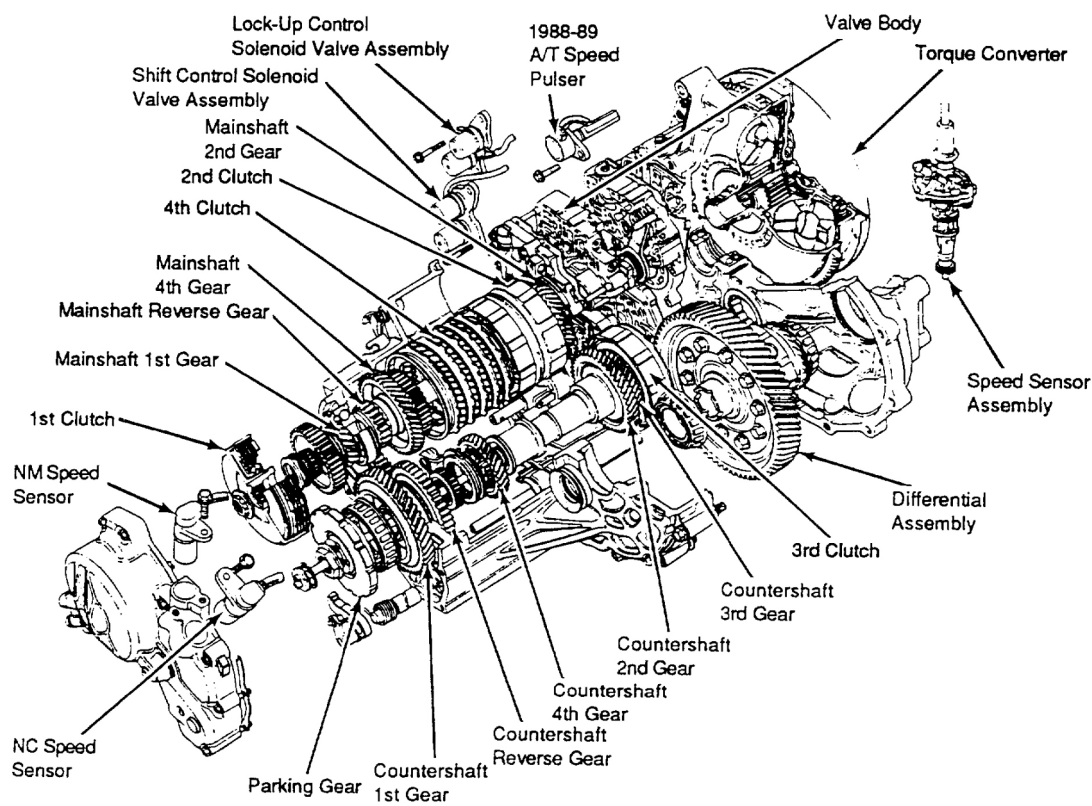
Application	Transmission Model
Legend Coupe & Sedan	L5

IDENTIFICATION

Transmission identification is stamped on a metal pad on top of transmission. First 2 characters indicate transaxle model.

DESCRIPTION

Automatic Transmission (A/T) consists of a 3-element torque converter and dual-shaft electronically controlled transmission which provides 4 forward speeds and one reverse speed. Torque converter consists of a pump, turbine and stator, assembled in a single unit. Valve assembly includes the following valve bodies; main, secondary, servo, regulator and lock-up. An Automatic Transmission Control Unit (ATCU), located under passenger seat, is used to control transmission shifts. An "S" (or "S4") selector switch is used to modify shift points under part throttle acceleration. This allows A/T to remain in lower ranges for longer periods of time, such as when climbing hills. ATCU receives input from ignition switch, throttle angle sensor, coolant temperature sensor, speed pulser, ignition coil, brake light switch, shift position switch, "S4" switch, A/T speed sensors (NC sensor and NM sensor) and Programmed-Fuel Injection Electronic Control Module (PGM-FI ECU). Input from various sensors located throughout vehicle determines which shift control solenoid valve ATCU will activate. For exploded view of transmission and component locations, see **Fig. 1 -Fig. 3** .



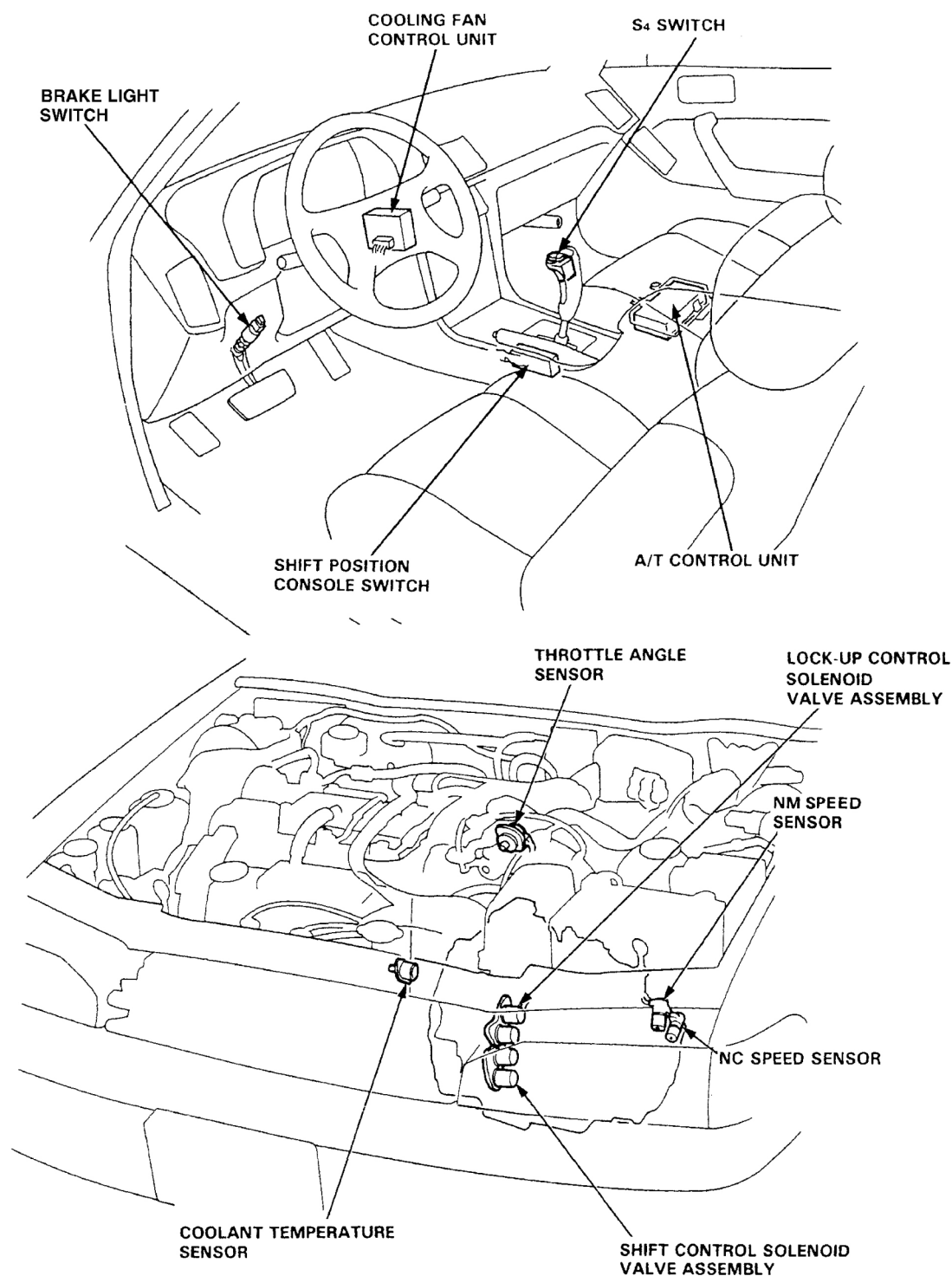
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Fig. 1: Exploded View Of L5 Transmission

Courtesy of AMERICAN HONDA MOTOR CO., INC.

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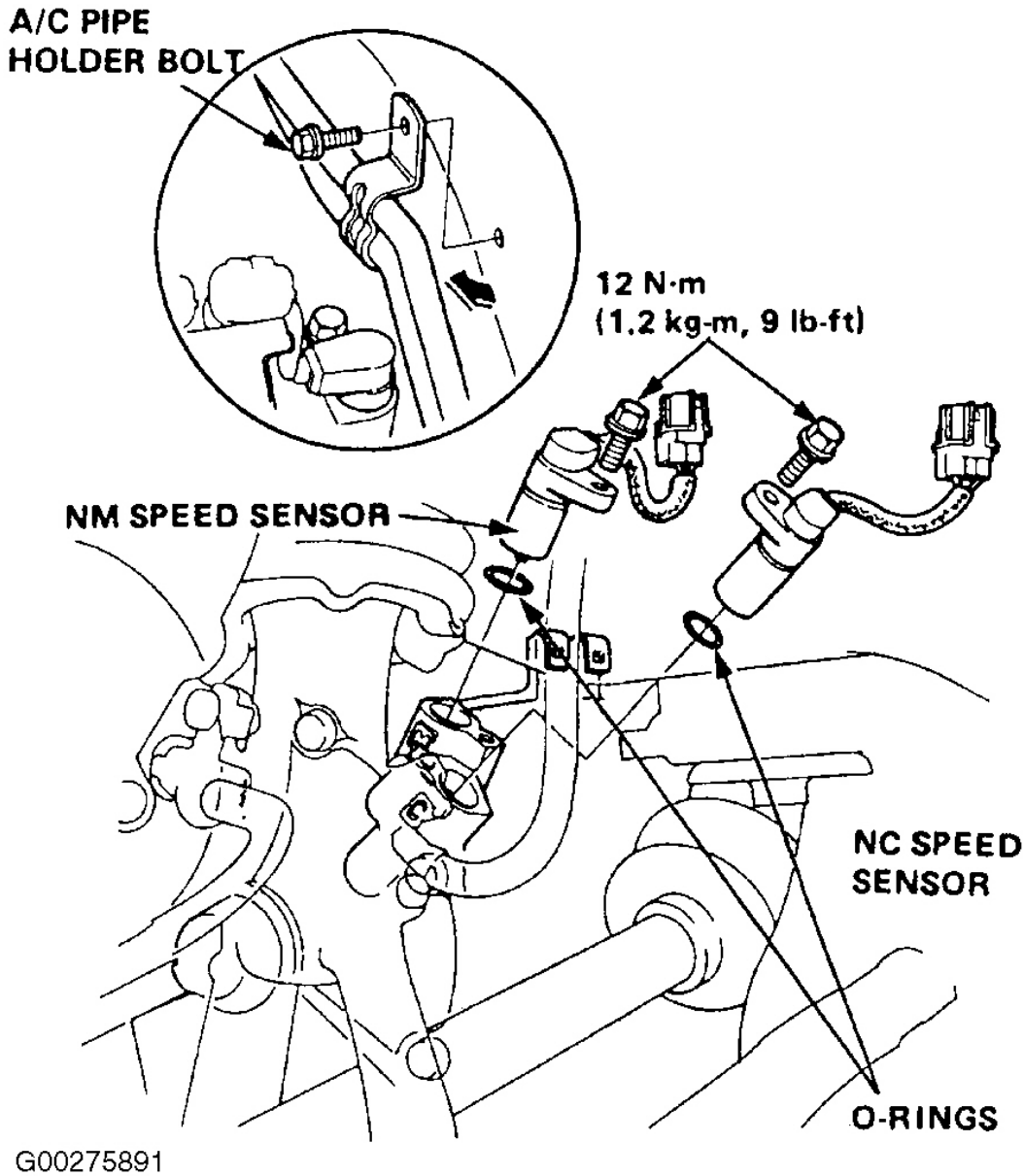
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Fig. 2: Component Locations (1 Of 2)

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**Fig. 3: Component Locations (2 Of 2)**

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CONVERTER LOCK-UP CLUTCH

In gear selector positions "S" or "D" and in 2nd, 3rd or 4th gear, pressurized fluid from torque converter is directed to the lock-up solenoid piston which locks the transmission mainshaft to the engine crankshaft. This operational mode is controlled by "S4" switch located on selector console. Electronic control unit controls operation of lock-up solenoid. Lock-up shift valve body controls range of lock-up according to lock-up control

solenoid valves "A" and "B" and throttle valve "B". When lock-up control solenoid valves "A" and "B" activate, modulator pressure changes. Lockup control solenoid valves "A" and "B" are mounted on torque converter housing and are controlled by ATCU.

GEAR SHIFT SELECTOR

Gear selector is not linked mechanically to transmission. It controls electrical switches which are connected to ATCU. The ATCU controls operation within selected range.

"P" (Park)

Front wheels locked; parking pawl engaged with parking gear on countershaft. All clutches released. A slide-type starter inhibitor switch enables the engine to be started in this position.

"R" (Reverse)

Reverse selector engaged with countershaft reverse gear and 4th gear clutch locked.

"N" (Neutral)

All clutches are released. A slide-type starter inhibitor switch enables the engine to be started in this position.

"D" (Drive)

General driving; starts off in 1st, shifts automatically to 2nd, 3rd and 4th, depending on vehicle speed and throttle position. Downshifts through 3rd, 2nd and 1st on deceleration to stop. Lock-up mechanism comes into operation in 2nd, 3rd and 4th when transmission is in "D" and "S4".

"S" (Sports)

For rapid acceleration at highway speeds and general driving; starts off in 1st, shifts automatically to 2nd, 3rd ("S3") and 4th ("S4") depending on vehicle speed and throttle position. Downshifts through lower gears on deceleration to stop.

"2" (Second)

For engine braking or better traction starting off on loose or slippery surfaces; stays in 2nd gear, does not shift up or down.

ELECTRONIC SELF-DIAGNOSIS

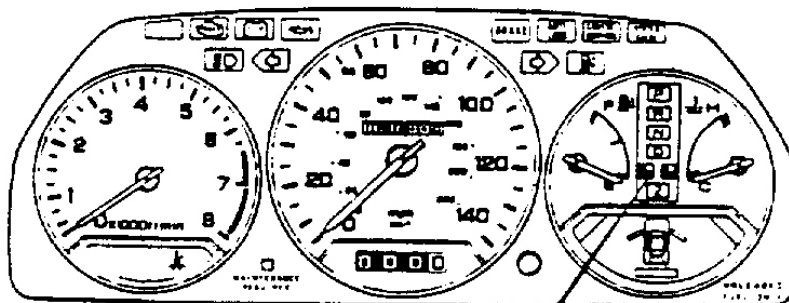
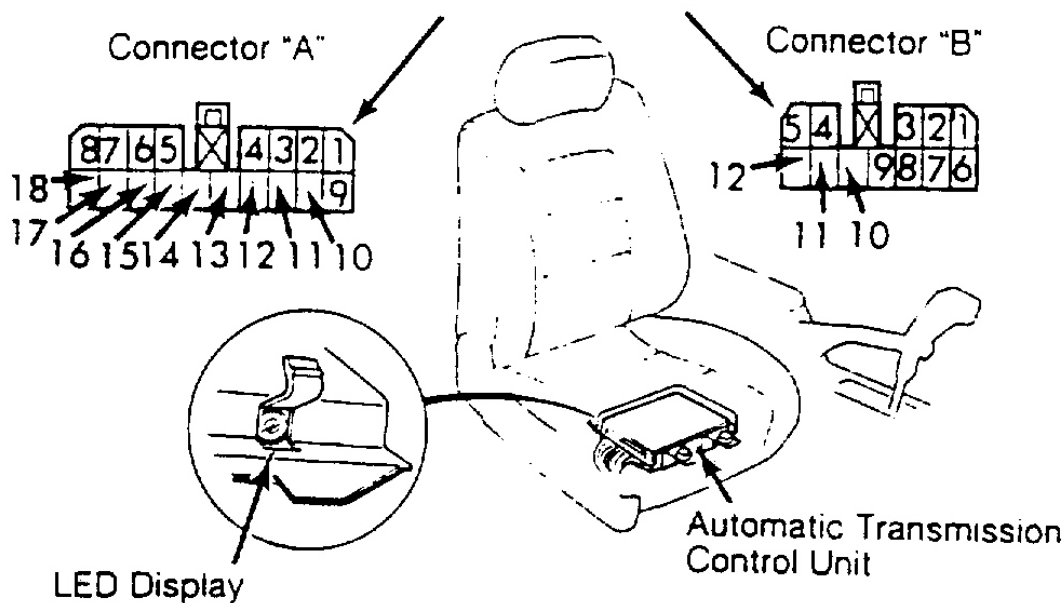
ATCU has built in self-diagnosis function. If a problem within system is present, "S3" indicator light and LED display (on control unit) will blink. See **Fig. 4**. Counting the number of blinks will give fault code. When ignition is turned to ON position, "S3" indicator light will come on for about 2 seconds, regardless of whether there is a fault or not. This will verify proper operation of "S3" indicator bulb. "S3" indicator light will also come on when in "S3" mode. **DO NOT** confuse these with a system fault. If a system fault is present, "S3" indicator light will come on and blink. "S3" indicator light will continue to blink until ignition is turned OFF. When ignition is turned ON again, "S3" indicator light will not blink original fault code. Check LED on control

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unit for a stored code. If no LED code is stored on 1988-89 L5, check alternator sense fuse in relay box under hood and for open circuit in **Yellow /Blue** wire between alternator sense fuse and ATCU terminal No. B12. See **Fig. 4** . If no LED code is stored on 1990 L5, check clock fuse in dash fuse box or ILLUMI fuse (40A) in under-hood relay box. Check for open circuit in **White/Yellow** wire between clock fuse (7.5A) and ATCU A17 terminal. See **Fig. 4** . To clear stored codes on 1988-89 L5, disconnect alternator sense fuse (7.5 amp), in relay box under the hood, for more than 10 seconds. To clear stored codes on 1990 L5, disconnect clock fuse (7.5A) in dash fuse box for more than 10 seconds.

1988-89 TERMINAL LOCATIONS



S₃ Indicator Light

1990 TERMINAL LOCATIONS

	A12	A11		A9		A7	A6	A5	A4	A3	A2	A1
	A25	A24	A23	A22	A21	A20	A19	A18	A17	A16	A15	A14

		B9	B8	B7	B6	B5	B4	B3	B2	
B22					B17		B15	B14	B13	

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Fig. 4: Locating Self Diagnostic Indicator Lamps & Terminal

Courtesy of AMERICAN HONDA MOTOR CO., INC.

LUBRICATION & ADJUSTMENTS

NOTE: See appropriate TRANSMISSION SERVICING - A/T article in the AUTOMATIC TRANS SERVICING section.

ON-VEHICLE SERVICE**DRIVE AXLE SHAFTS**

NOTE: See AXLE SHAFTS article in the DRIVE AXLES section.

TROUBLE SHOOTING

Prior to starting any testing or diagnostics on transmission, ensure that basic electrical connections are proper and transmission fluid level is correct.

NOTE: When attempting to diagnose possible transmission malfunction, always verify that electronic operation is properly functioning before checking hydraulic operation. See Hydraulic Trouble Shooting Tables and Trouble Shooting Reference Tables.

ELECTRONIC TROUBLE SHOOTING

No. LED Blinks	Light "S3"	System/Symptom	Probable Cause
0	OFF	S3 indicator light does not come on w/ignition switch ON (S3 indicator light should come on for about 2 sec.), won't shift (stuck in 4th)	Loose or poor power line-to-control unit or dis-connected control unit ground wire, Open/short S3 indicator light wire & blown S3 indicator light bulb.
0	OFF	S4 won't engage	Open or short S4 switch & faulty S4 switch.
0	OFF	Fails to shift from 2nd to 1st gear when brake pedal released with shift lever in "S" or "D" range	Open or short in brake light switch wire.
1	Blinks	Lock-up clutch won't engage or disengage, frequent engine stalls	Disconnected lock-up control solenoid valve "A" coupler, short/open in valve "A" wire or faulty lock-up control solenoid valve "A".
2	Blinks	Lock-up clutch does not engage	Disconnected lock-up control solenoid valve "B" coupler, short/open in valve "B" wire or

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			faulty lock-up control solenoid valve "B".
3	Blinks or OFF	(2) Lock-up clutch does not engage	Disconnected TPS coupler, short/open in TPS wire or faulty TPS sensor.
4	Blinks	Lock-up clutch does not engage	Disconnected speed sensor coupler, short/open in speed sensor wire or faulty speed sensor.
5	Blinks	Will only perform 2-4 shift & lock-up clutch will not engage	Shorted shift position console switch wire or faulty shift position console switch.
6	OFF	(2) Will only perform 2-4 shift, lock-up clutch won't engage or alternately engages & disengage	Disconnected shift position console switch coupler, open in shift position console switch wire or faulty shift position console switch.
7	Blinks	Fails to shift between 1-4, 2-4, or 2-3 gears only or fails to shift (stuck in 4th gear)	Disconnected shift control solenoid valve "A" coupler, short/open in shift control solenoid valve "A" wire or faulty shift control solenoid valve "A".
8	Blinks	Fails to shift (stuck in 1st or 4th gear)	Disconnected shift control solenoid valve "B" coupler, short/open in shift control solenoid valve "B" wire or faulty shift control solenoid valve "B".
9	Blinks	Lock-up clutch does not engage	(1) Disconnected NC speed sensor coupler, short/open in NC speed sensor wire or faulty NC speed sensor, Disconnected A/T speed pulser, open or short in A/T speed pulser wire or faulty A/T speed pulser.
10	Blinks	Lock-up clutch does not engage	Disconnected coolant temp. sensor coupler, short/open in coolant temp. sensor wire or faulty coolant temp. sensor.
11	OFF	(2) Lock-up clutch does not engage	Disconnected ignition coil coupler, short/open in ignition coil wire or faulty ignition coil.
12	OFF	Lock-up clutch does not disengage	Short in cooling fan control unit wire & faulty cooling fan control unit.
14	OFF	(1) Transmission jerks hard when shifting	Short/open in FAS wire/ trouble in the PGM-FI unit.

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15	OFF	Transmission jerks hard when shifting	(1) Disconnected NM speed sensor coupler, short/open in NM speed sensor wire or faulty NM speed sensor.
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(1) Applies to 1990 models only.

(2) If symptoms for Codes 3, 6, or 11 are described and LED is not blinking, it is necessary to recreate the symptom by test driving, and checking LED with ignition still ON. If LED displays codes other than those listed above or stays lit continuously, control unit is faulty. S3 indicator light and Check Engine warning light may come on simultaneously on 1990 L5. Check PGM-FI system according to number of blinks on the PGM-FI ECU self-diagnosing indicator. Reset memory by removing Back Up fuse in underhood relay box for more than 10 seconds. Drive vehicle for several minutes at speed over 30 MPH, recheck lights.

HYDRAULIC TROUBLE SHOOTING

Problem or Symptom	Reference No.
Engine runs but car does not move in any gear	1, 3, 4, 5, 7, 8, 9, 39
Car moves in "2", but not in "S" or "D"	8, 10, 11, 12, 58
Car moves in "S" or "D", but not in "2"	8, 13, 14
Car moves in "S", "D" or "2", but not in "R"	5, 7, 15, 36
Poor acceleration, engine races when starting off in "S"	
Stall RPM high in "S", "D" and "2"	1, 3, 4, 8, 44, 47
Stall RPM high in "2"	8, 10, 12
Stall RPM normal	16
Stall RPM low	17, 18, 35, 50, 51
Excessive idle vibration	3, 35, 39, 50, 51
Shift-up speed is too fast or slow	57
Jumps from 1st to 3rd in "S"	57
Jumps from 1st to 4th in "D"	54, 57
Shift-up point too early/late	
1st to 2nd, 2nd to 3rd, 3rd to 4th	57
1st to 2nd	22, 53, 57
2nd to 3rd	23, 54, 57
3rd to 4th	24, 53, 57
Harsh upshift from 1st to 2nd	14, 19, 23
Harsh upshift from 2nd to 3rd	19, 24, 26, 33
Harsh upshift from 3rd to 4th	19, 25, 34, 35
Harsh downshift from 2nd to 1st	19, 23, 26, 40
Harsh downshift from 3rd to 2nd	19, 24, 30, 41
Harsh downshift from 4th to 3rd	19, 25, 42
Engines races when shifting from 2nd to 3rd	19, 24, 26, 27, 31, 33
Engines races when shifting from 3rd to 4th (Shift point OK)	19, 25, 30, 34
Excessive shock when shifting from 2nd to 3rd	19, 24, 29, 41, 48

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Excessive shock when shifting from 3rd to 4th (Shift point OK)	19, 30, 42, 48
Car creeps forward in "N" (shift cable adjusted properly)	12, 14, 16, 33, 36, 37, 38
Excessive time lag from "N" to "S"/"D" (shift cable adjusted properly)	12, 28
Excessive time lag from "N" to "R" (shift cable adjusted properly)	5, 21, 34
Abnormal noise in all gears, "N" & "P"	3, 6, 43
Engine accelerates up to 31 MPH, but no more	16
Vibration in all gears	39
Harsh to shift	8, 45
Car has only 4th gear	57
Transmission has no parking	8, 45
Stall RPM is high but clutch pressure OK in all positions	47
Harsh lock-up clutch disengagement	18, 19, 49, 50, 51, 52, 55, 56, 57
Engine stalls easily, No power sound in low middle speed, Excessive shock while shifting, Lock-up clutch hunts ON-Off	18, 19, 51, 55, 56, 57
Tachometer needle swings large arc while driving, Car shakes back and forth while driving, Lock-up clutch does not engage	18, 19, 47, 50, 51, 55, 57

TROUBLE SHOOTING

Reference No.	Possible Cause
1	ATF level too low
2	ATF level too high
3	Oil pump seized, gear damaged, foreign matter stuck in gear
4	Regulator valve stuck or spring weak/damaged
5	Servo shaft stuck
6	3rd gears worn/damaged
7	Mainshaft damaged
8	Control cable misadjusted, cut or damaged
9	Final gear worn/damaged
10	Countershaft and one-way clutch seized/damaged
11	1st gears worn/damaged
**	Clutch piston stuck
**	Foreign material stuck in clutch check valve
**	Clutch "O" ring worn/damaged
**	Clutch disc worn
**	Clutch feed pipe/"O" ring worn/damaged
13	2nd gears worn/damaged
14	2nd clutch faulty
**	Clutch piston stuck
**	Foreign material stuck in clutch check valve
**	Clutch "O" ring worn/damaged

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**	Clutch disc worn
**	Clutch seal ring seized/damaged
15	Reverse gears worn/damaged
16	Torque converter one-way clutch seized
17	Carburetor throttle cable misadjusted
18	Transmission throttle control cable misadjusted
19	Throttle valve "B" faulty
20	1-2 shift valve faulty
21	2-3 shift valve faulty
22	3-4 shift valve faulty
23	2nd accumulator faulty
24	3rd accumulator faulty
25	4th accumulator faulty
26	2nd orifice control valve faulty
27	Foreign material in main orifice
28	Foreign material in 1st orifice
29	Foreign material in 2nd orifice
30	3rd orifice control valve faulty
31	Foreign material in 3rd orifice
32	Foreign material in 4th orifice
33	3rd clutch faulty
34	4th clutch faulty
**	Clutch piston stuck
**	Foreign material stuck in clutch check valve
**	Clutch "O" ring worn/damaged
**	Clutch disc worn
**	Clutch feed pipe/"O" ring worn/damaged
35	Engine power low
36	Needle bearing seized
37	Washers/collars seized
38	Clutch clearance incorrect
39	Drive plate faulty or transmission assembly
**	improperly installed
40	2nd check ball stuck
41	3rd check ball stuck
42	4th check ball stuck
43	Mainshaft/countershaft ball bearing damaged
44	Oil filter clogged
45	Body/case wire cable joint damaged
46	Modulator valve faulty
47	Torque converter check valve faulty
48	

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	Foreign material in separator orifice
49	Lock-up timing valve "B" faulty
50	Lock-up shift valve faulty
51	Lock-up piston in torque converter faulty
52	Lock-up control valve faulty
53	Shift control solenoid valve "A" faulty
54	Shift control solenoid valve "B" faulty
55	Lock-up control solenoid valve "A" faulty
56	Lock-up control solenoid valve "B" faulty
57	Control unit system faulty

HYDRAULIC TROUBLE SHOOTING

Problem or Symptom	Reference No.
Engine runs but car does not move in any gear	1, 2, 3, 6, 7, 8, 39, 44
Car moves in "2", but not in "S" or "D"	7, 9, 10, 11
Car moves in "S" or "D", but not in "2"	7, 12, 13
Car moves in "S", "D" or "2", but not in "R"	4, 7, 14, 23, 36, 59
Poor acceleration, engine races when starting off in "S"	
Stall RPM high in "S", "D" and "2"	1, 2, 3, 7, 44, 47
Stall RPM high in "S" & "D"	7, 9, 11
Stall RPM high in "2"	7, 13
Stall RPM normal	16
Stall RPM low	17, 35, 50, 51
Excessive idle vibration	2, 35, 39, 50, 51
No upshift	46, 57
Jumps from 1st to 3rd in "S"	57
Jumps from 1st to 4th in "D"	54, 57
Shift-up point too early/late	
1st to 2nd, 2nd to 3rd, 3rd to 4th	57
1st to 2nd	23, 53, 57
2nd to 3rd	24, 54, 57
3rd to 4th	25, 53, 57
Harsh upshift from 1st to 2nd	13, 18, 19, 20, 23, 29
Harsh upshift from 2nd to 3rd	18, 19, 21, 23, 24, 26, 29, 30, 33
Harsh upshift from 3rd to 4th	19, 22, 24, 18, 25, 30, 31, 32, 34
Harsh downshift from 2nd to 1st	18, 19, 20, 23, 26, 29, 40, 62
Harsh downshift from 3rd to 2nd	18, 19, 21, 23, 24, 31, 41, 61
Harsh downshift from 4th to 3rd	18, 19, 22, 24, 25, 32,

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	42, 58, 60
Engines races when shifting from 2nd to 3rd	18, 19, 21, 23, 24, 26, 27, 31, 33
Engines races when shifting from 3rd to 4th (Shift point OK)	18, 19, 22, 24, 25, 27, 30, 32, 34
Excessive shock when shifting from 2nd to 3rd	18, 19, 23, 24, 29, 41, 48
Excessive shock when shifting from 3rd to 4th (Shift point OK)	18, 19, 24, 25, 30, 31, 42, 48
Car creeps forward in "N" (shift cable adjusted properly)	11, 13, 33, 34, 36, 37, 38
Excessive time lag from "N" to "S"/"D" (shift cable adjusted properly)	11, 28
Excessive time lag from "N" to "R" (shift cable adjusted properly)	4, 20, 34, 59,
Abnormal noise in all gears, "N" & "P"	2, 5, 43
Engine accelerates up to 31 MPH, but no more	16
Vibration in all gears	39
Harsh to shift	7, 45
Car has only 4th gear	57
Transmission has no parking	7, 45
Stall RPM is high but clutch pressure OK in all positions	47
Lock-up clutch disengagement	18, 19, 49, 50, 51, 52, 55, 56, 57
Engine stalls easily, No power sound in low middle speed, Noise-vibration in low-middle speed, Excessive shock while shifting, Lock-up clutch hunts ON-Off	18, 19, 51, 55, 56, 57
Engine RPM goes up and down while holding throttle steady, Car surges back and forth while driving, Lock-up clutch does not engage	18, 19, 47, 49, 50, 51, 55, 57

TROUBLE SHOOTING

Reference No.	Possible Cause
1	ATF level too low
2	Oil pump seized, gear damaged, foreign matter stuck in gear
3	Regulator valve stuck or spring weak/damaged
4	Servo shaft stuck
5	3rd gears worn/damaged
6	Mainshaft damaged
7	Shift cable misadjusted or cut; end pin disconnected
8	Final gear worn/damaged
9	Countershaft and one-way clutch seized/damaged
10	1st gears worm/damaged
11	1st clutch faulty
**	Clutch piston stuck
**	Foreign matter stuck in clutch check valve

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**	Clutch "O" ring worn/damaged
**	Clutch disc worn
**	Clutch feed pipe/"O" ring worn/damaged
12	2nd gears worn/damaged
13	2nd clutch faulty
**	Clutch piston stuck
**	Foreign matter stuck in clutch check valve
**	Clutch "O" ring worn/damaged
**	Clutch disc worn
**	Clutch seal ring seized/damaged
14	Reverse gears worn/damaged
15	ATF level too high
16	Torque converter one-way clutch seized
17	Engine throttle cable misadjusted
18	Intake manifold vacuum tube broken
19	Throttle valve "B" faulty
20	1-2 shift valve faulty
21	2-3 shift valve faulty
22	3-4 shift valve faulty
23	2nd accumulator faulty
24	3rd accumulator faulty
25	4th accumulator faulty
26	2nd orifice control valve faulty
27	Foreign material in main orifice
28	Foreign material in 1st orifice
29	Foreign material in 2nd orifice
30	3rd orifice control valve faulty
31	Foreign material in 3rd orifice
32	Foreign material in 4th orifice
33	3rd clutch faulty
**	Clutch piston stuck
**	Foreign material stuck in clutch check valve
**	Clutch "O" ring worn/damaged
**	Clutch disc worn
**	Clutch feed pipe/"O" ring worn/damaged
34	4th clutch faulty
**	Clutch piston stuck
**	Foreign material stuck in clutch check valve
**	Clutch "O" ring worn/damaged
**	Clutch disc worn
**	Clutch feed pipe/"O" ring worn/damaged
35	

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	Engine power low
36	Needle bearing seized
37	Thrust washer seized
38	Clutch clearance incorrect
39	Drive plate faulty or trans. assembly improperly installed
40	2nd check ball stuck
41	3rd check ball stuck
42	4th check ball stuck
43	Mainshaft/countershaft bearing damaged
44	Oil filter clogged
45	Body/case shift cable joint damaged
46	Modulator valve faulty
47	Torque converter check valve faulty
48	Foreign material in separator orifice
49	Lock-up timing valve "B" faulty
50	Lock-up shift valve faulty
51	Lock-up piston in torque converter faulty
52	Lock-up control valve faulty
53	Shift control solenoid valve "A" faulty
54	Shift control solenoid valve "B" faulty
55	Lock-up control solenoid valve "A" faulty
56	Lock-up control solenoid valve "B" faulty
57	Automatic transmission control unit faulty
58	4th exhaust valve faulty
59	Servo control valve faulty
60	4-3 kick-down valve faulty
61	3-2 kick-down valve faulty
62	2-1 orifice control valve faulty

TESTING (ELECTRONIC)

ELECTRICAL COMPONENT TESTS

A/T Speed Pulser (1988-89 L5)

1. Disconnect speed pulser connector. Connect an ohmmeter across connector terminals. With front end raised, rotate front wheels. A pulse signal should be evident as speed pulser circuit makes and breaks continuity.
2. With speed pulser removed, it may be checked by passing a magnet next to pulser. Circuit should have continuity with magnet close to pulser and circuit should be open when magnet is pulled away from pulser. See **Fig. 5**.

Lock-Up Control Solenoid Valve "A" & "B"

1. Solenoid valves are serviced and replaced as an assembly. Disconnect solenoid electrical connector. Measure resistance between individual connector contacts and ground. Resistance should be 14-30 ohms. See **Fig. 6**.
2. Replace solenoid assembly if either resistance value is beyond specification. Test solenoid operation by connecting 12 volts to connector terminals. A clicking sound should be heard each time a connection is made.
3. If a solenoid does not operate, check continuity between solenoid connector and ground. Replace solenoid assembly if continuity exists between connector and ground.

CONVERTER LOCK-UP SOLENOID APPLICATION

Solenoid Condition	Solenoid "A"	Solenoid "B"
OFF	OFF	OFF
Slight On	ON	OFF
Half On	ON	ON
Full On	ON	ON
Deceleration	ON	Cycling

Shift Control Solenoid "A" & "B"

1. Disconnect solenoid electrical connector. Measure resistance between individual connector contacts and ground. Resistance should be 14-30 ohms. See **Fig. 7**.
2. Replace solenoid assembly if either resistance value is beyond specification. Test solenoid operation by connecting 12 volts to connector terminals. A clicking sound should be heard each time a connection is made.

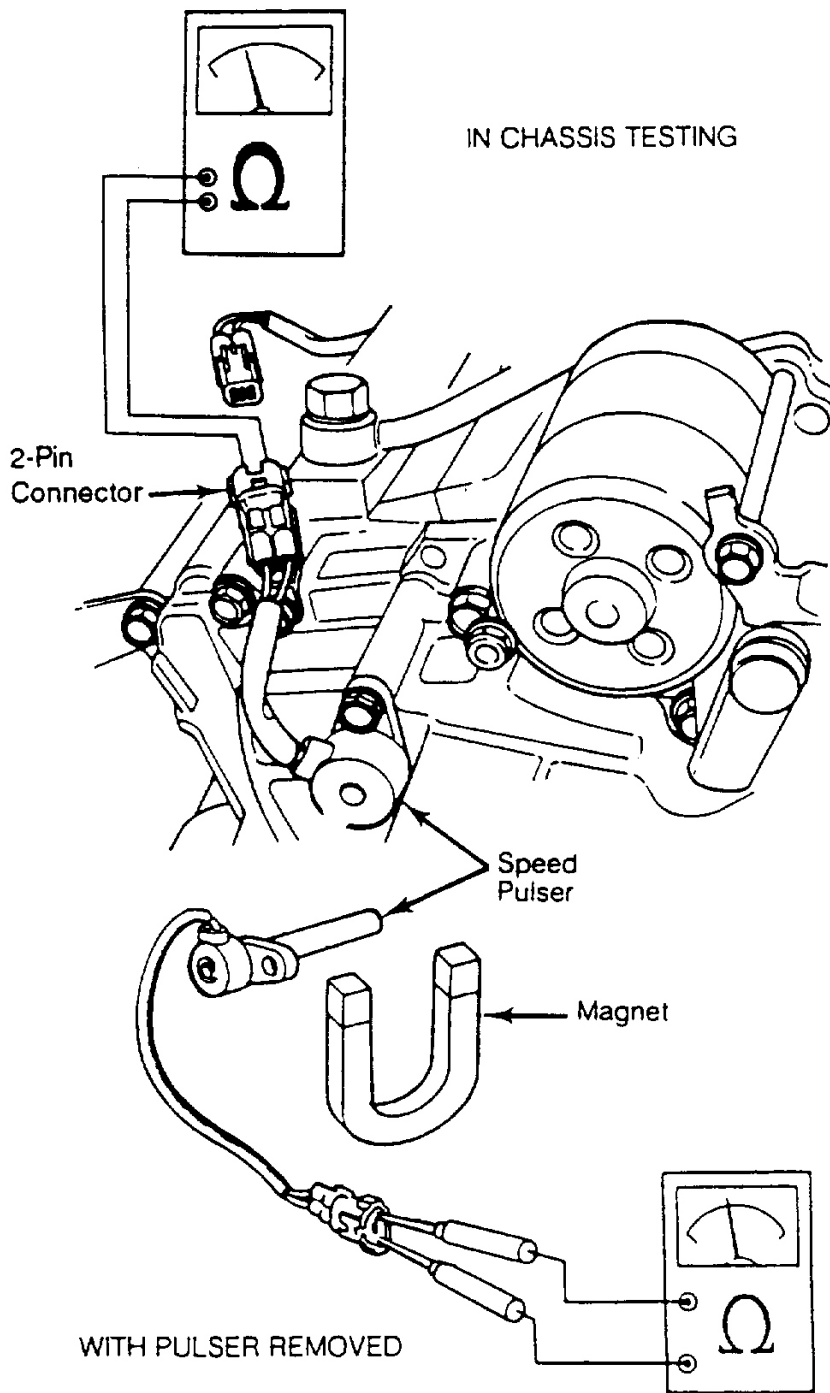
SELECTOR SOLENOID APPLICATION

Selector Position	Solenoid "A"	Solenoid "B"
1st (D, S3, S4)	OFF	ON
2nd (D, S3, S4)	ON	ON
3rd (D, S3, S4)	ON	OFF
4th (D, S4)	OFF	OFF

3. If solenoid does not operate, check continuity between solenoid connector and ground. Replace solenoid if continuity exists between connector and ground.

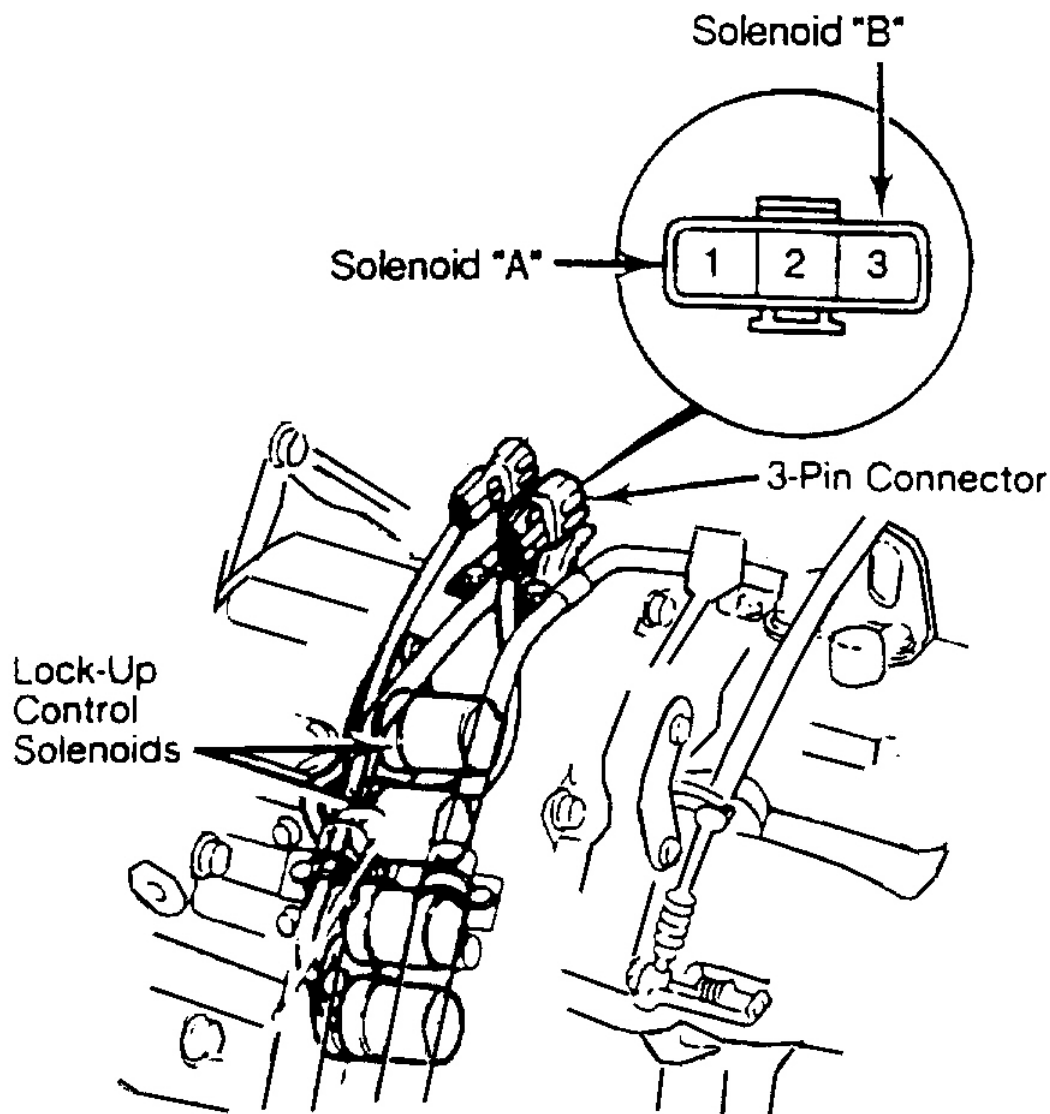
"S4" Switch

Remove center console. Disconnect and remove "S4" switch. Check continuity of switch circuits. See **Fig. 8**



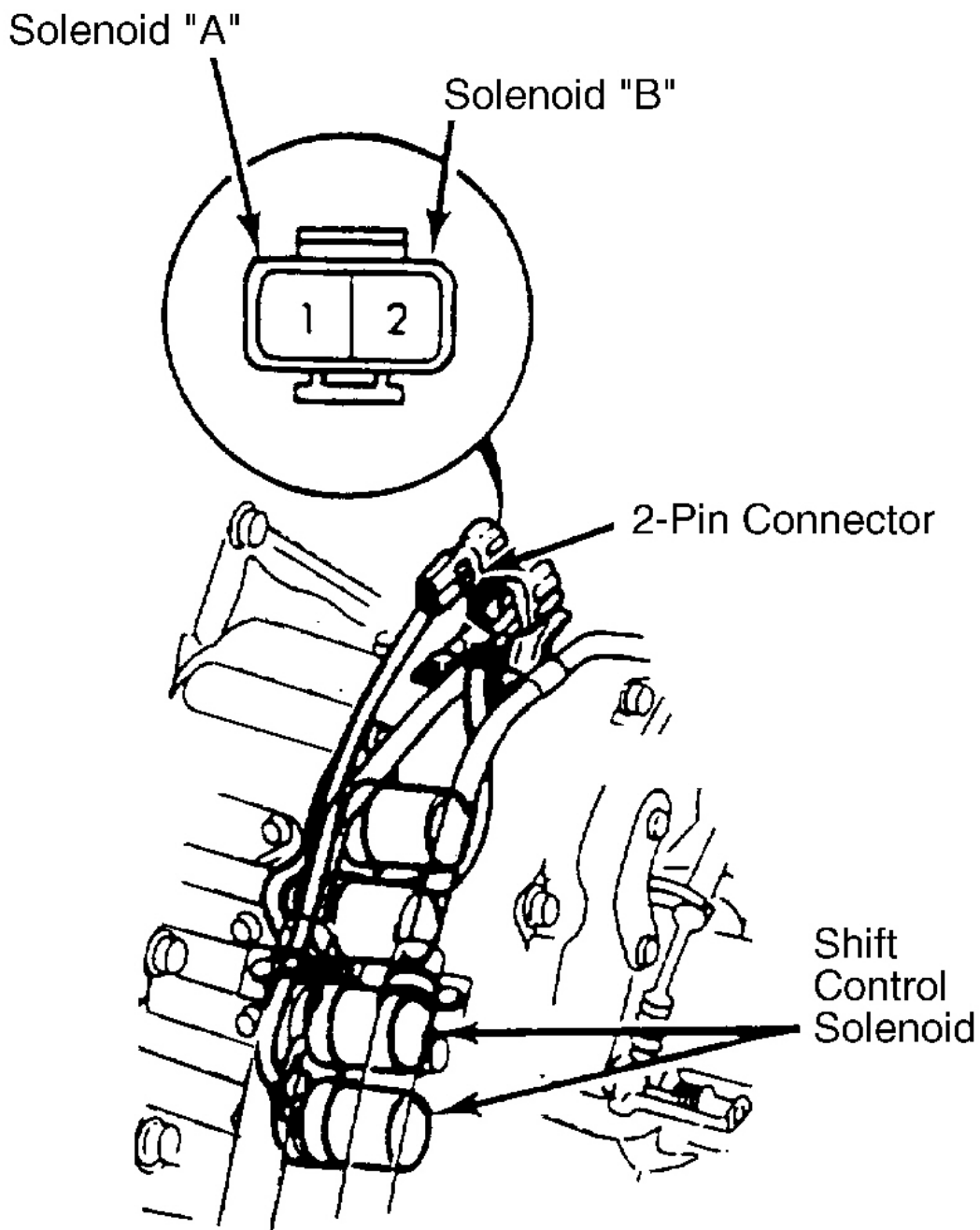
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Fig. 5: Testing A/T Speed Pulser (1988-89 L5)
 Courtesy of AMERICAN HONDA MOTOR CO., INC.



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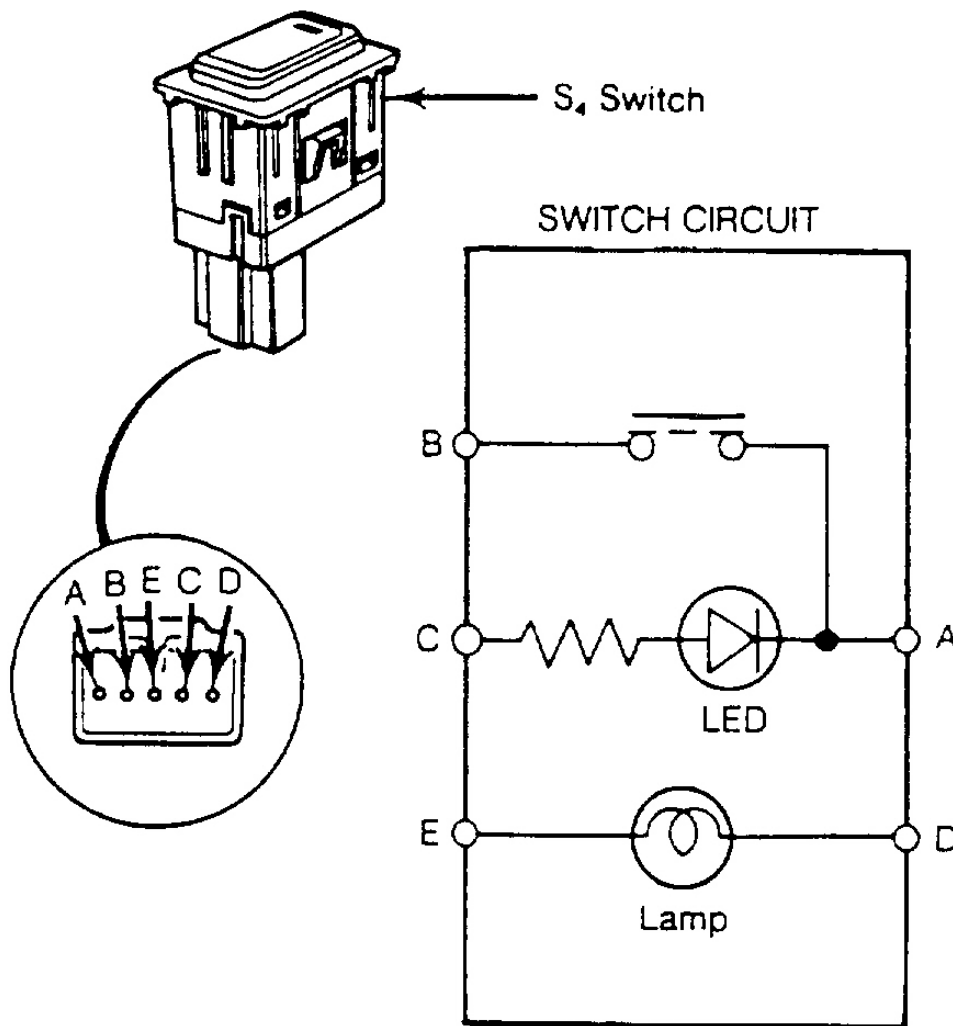
Fig. 6: Testing Lock-Up Control Solenoids
Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 7: Testing Shift Control Solenoids
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Terminal	B	A	C	D		E
Position						
Press	○	○		○	○	○
				○	○	○



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Fig. 8: Testing S4 Switch

Courtesy of AMERICAN HONDA MOTOR CO., INC.

ELECTRICAL CIRCUIT TESTING

The following circuit tests should be used to find and test faults in electronic circuits.

"S3" Indicator Light Does Not Come On When Ignition is ON (1988-89 L5)

1. Disconnect 12-Pin connector from ATCU and check for continuity between terminal B1 (MD6Brown/**Black** wire) and vehicle ground and between terminal B6 (MD6Brown/**Black**) and vehicle ground.
2. If there is no continuity, repair open in MD6Brown/**Black** wire between terminal B1 and G4 and/or between B6 and G4. If there is continuity, turn ignition ON and measure voltage between terminals B2 (**Yellow** /**Black** wire) and B1 (MD6Brown/**Black** wire) and between terminals B7 (**Yellow** /**Black** wire) and B1.
3. If battery voltage is not present, repair open or short in **Yellow** /**Black** wire between terminals B2 and B7 and PGM-FI main relay. If battery voltage is present, turn ignition OFF and connect 12-Pin connector to ATCU.
4. Turn ignition ON and ensure battery voltage is present for 2 seconds between terminals B11 (**Red** wire) and B1 MD6Brown/**Black** wire).
5. If battery voltage is present, check for open or short in **Red** wires between terminal B11 and gauge assembly. If wire is okay, check "S3" injector light bulb and safety indicator circuit.
6. If battery voltage is not present, check for loose ATCU connectors. If needed, substitute a known good ATCU and recheck.

"S3" Indicator Light Does Not Come On When Ignition Is ON (1990 L5)

1. Shift to "D" or "S" and depress the "S4" switch. If "S3" indicator light comes on, check for loose control unit connectors. If necessary, substitute a known good control unit and recheck.
2. If "S3" indicator light does not come on, turn ignition switch OFF. Disconnect 26-Pin and 22-Pin connectors from control unit. Check for continuity between B13 (**Green**) and A11 (MD6Brown/**Black**) terminals.
3. If there is no continuity, check for continuity on **Green** wire between B13 terminal and "S4" switch. If there is no continuity, repair open in **Green** wire between B13 terminal and "S4" switch. If there is continuity, check for continuity on **Black** wire between "S4" switch and G401. If there is continuity, replace "S4" switch. If there is no continuity, repair open in **Black** wire between "S4" switch and G401.
4. If there is continuity, reconnect connectors to control unit. Turn ignition switch ON, check for voltage on **Red** wire at gauge assembly.
5. If there is no voltage, disconnect 26-Pin and 22-Pin connectors from control unit. Check for continuity between A23 (**Red**) terminal and gauge assembly. If there is continuity, check for loose control unit connectors. If necessary, substitute a known good control unit and recheck. If there is no continuity, repair open in **Red** wire between A23 terminal and gauge assembly.
6. If there is voltage, check for continuity on **Black** wire from gauge assembly to body ground. If there is no continuity, repair open in **Black** wire between gauge assembly and G401. If there is continuity, replace shift position indicator.

"S3" Indicator Light Is ON Steady Whenever Ignition Is ON (1990 L5)

1. Turn ignition switch OFF. Disconnect 26-Pin and 22-Pin connectors from control unit. Check for continuity between B13 (**Green**) terminal and body ground.

2. If there is continuity, disconnect 2-Pin connector from "S4" switch. Check for continuity between B13 (**Green**) and body ground. If there is continuity, repair short in **Green** wire between B13 terminal and "S4" switch. If there is no continuity, replace "S4" switch.

NOTE: For additional electrical circuit information, see WIRING DIAGRAMS .

3. If there is no continuity, turn ignition switch ON and measure voltage between A23 (**Red**) terminal and body ground. If there is no voltage, replace ATCU. If there is voltage, measure voltage between **Red** wire at gauge assembly to body ground. If there is no voltage, replace faulty shift position indicator. If there is voltage, repair short to power source on **Red** wire between A23 terminal and gauge assembly.

"S4" Will Not Engage (1988-89 L5)

1. Disconnect 18-Pin and 12-Pin connectors from ATCU and check for continuity between terminals A13 (**Green** wire) and B1 (MD6Brown/**Black** wire).
2. If there is continuity, check for short in **Green** wire between terminal A13 and "S4" switch. If wire is okay, problem exists in switch.
3. If there is no continuity, check for continuity between terminals A13 (**Green** wire) and B1 (MD6Brown/**Black** wire) while pressing "S4" switch.
4. If there is no continuity, check for open in **Green** wire between terminal A13 and "S4" switch. If wire is okay, "S4" switch is defective. If there is continuity check for loose ATCU connectors. If needed, substitute a known good ATCU and recheck.

Fails To Shift From 2nd to 1st Gear When Releasing Brake Pedal With Shift Lever In "S" or "D" (1988-89 L5)

1. Depress brake pedal and check that brake lights illuminate. If lights do not illuminate, repair brake light circuit.
2. If brake lights illuminate, unplug 18-Pin and 12-Pin connectors from ATCU and depress brake pedal. Measure voltage between terminals A12 (**Green** /White wire) and B1 (MD6Brown/**Black** wire).
3. If there is no battery voltage, repair open in **Green** /White wire between terminal A12 and brake light switch. If there is battery voltage, check for loose ATCU connectors. If needed, substitute a known good ATCU and recheck.

Inspection of A/C Signal (1990 L5)

1. Start engine, turn blower switch ON, push A/C switch ON. If A/C compressor clutch does not engage. See Fig. 34 and Fig. 35 .
2. If A/C compressor clutch engages, stop engine and disconnect 26-Pin connector from control unit. Start engine, measure voltage between A16 (**Red** /**Blue**) and A1 (MD6Brown/**Black**) terminal with brake pedal pushed.
3. If there is no battery voltage, repair open in **Red** /**Blue** wire between A16 terminal and A/C clutch relay. If there is battery voltage, A/C signal is okay.

Inspection Brake Light Signal (1990 L5)

1. Ensure brake lights come on when brake pedal is pushed. If brake lights are not on, repair faulty brake

light circuit.

2. If brake lights are on, disconnect 26-Pin and 22-Pin connectors from control unit. Measure voltage between B22 (**Green** /White) and A1 (MD6Brown/**Black**) terminal with brake pedal pushed. If there is no battery voltage, repair open in (**Green** /White) wire between B22 terminal and brake light switch. If there is battery voltage, brake light signal is okay.

"S3" Indicator Light Is On Steady Whenever Ignition Switch Is ON (1990 LS)

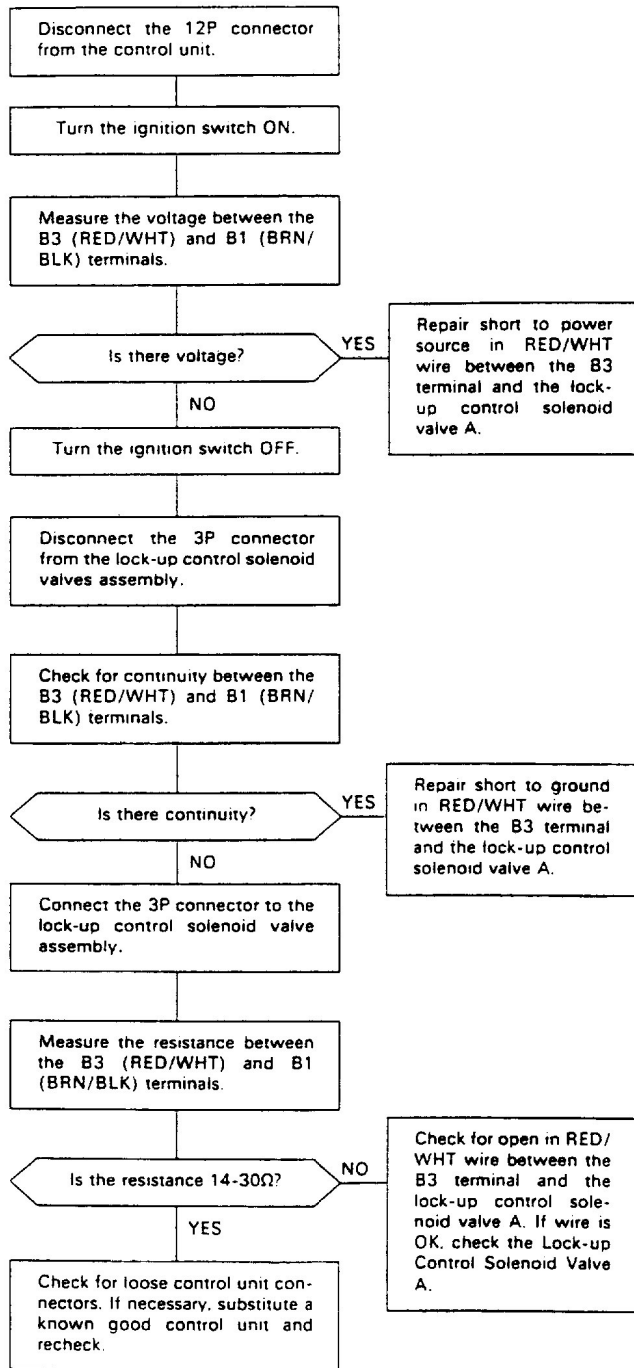
1. Turn ignition switch OFF. Disconnect 26-Pin and 22-Pin connectors from control unit. Check for continuity between B13 (**Green**) terminal and body ground.
2. If there is continuity, disconnect 2-Pin connector from "S4" switch. Check for continuity between B13 (**Green**) and body ground. If there is continuity, repair short in **Green** wire between B13 terminal and "S4" switch. If there is no continuity, replace "S4" switch.
3. If there is no continuity, turn ignition switch ON, measure voltage between A23 (**Red**) terminal and body ground. If there is no voltage, replace ATCU. If there is voltage, measure voltage between **Red** wire at gauge assembly body ground. If there is no voltage, replace faulty shift position indicator. If there is voltage, repair short to power source on **Red** wire between A23 terminal and gauge assembly.

"S4" Will Not Engage (1988-89 L5)

1. Disconnect 18-Pin and 12-Pin connectors from ATCU and check for continuity between terminals A13 (**Green** wire) and B1 (MD6Brown/**Black** wire).
2. If there is continuity, check for short in **Green** wire between terminal A13 and "S4" switch. If wire is okay, problem exists in switch.
3. If there is no continuity, check for continuity between terminals A13 (**Green** wire) and B1 (MD6Brown/**Black** wire) while pressing "S4" switch .
4. If there is no continuity, Check for open in **Green** wire between terminal A13 and "S4" switch. If wire is okay, "S4" switch is defective. If there is continuity check for loose ATCU connectors. If needed, substitute a known good ATCU and recheck.

LED DIAGNOSTICS FLOW CHARTS (1988-89)

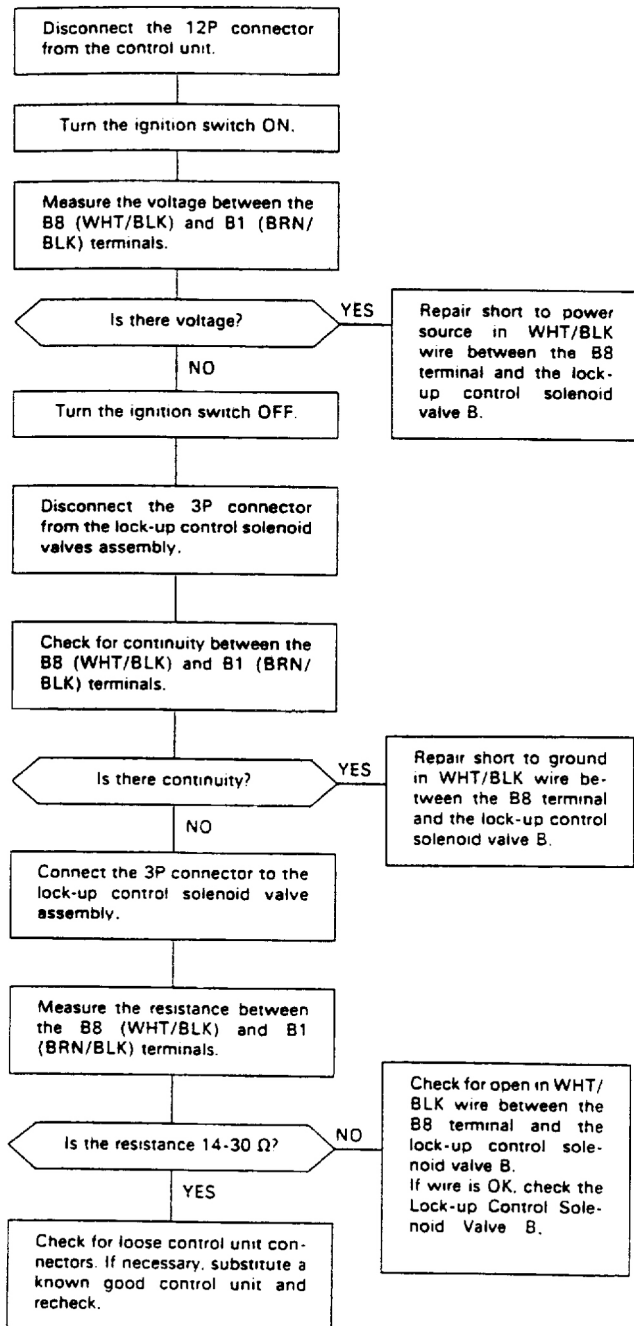
NOTE: In the following Diagnostic Flow Chart Figures, 12P, 3P, 18P, etc. refers to the number of pins a connector has.

LED BLINKS ONCE

G96A16253

Fig. 9: Led Blinks Once

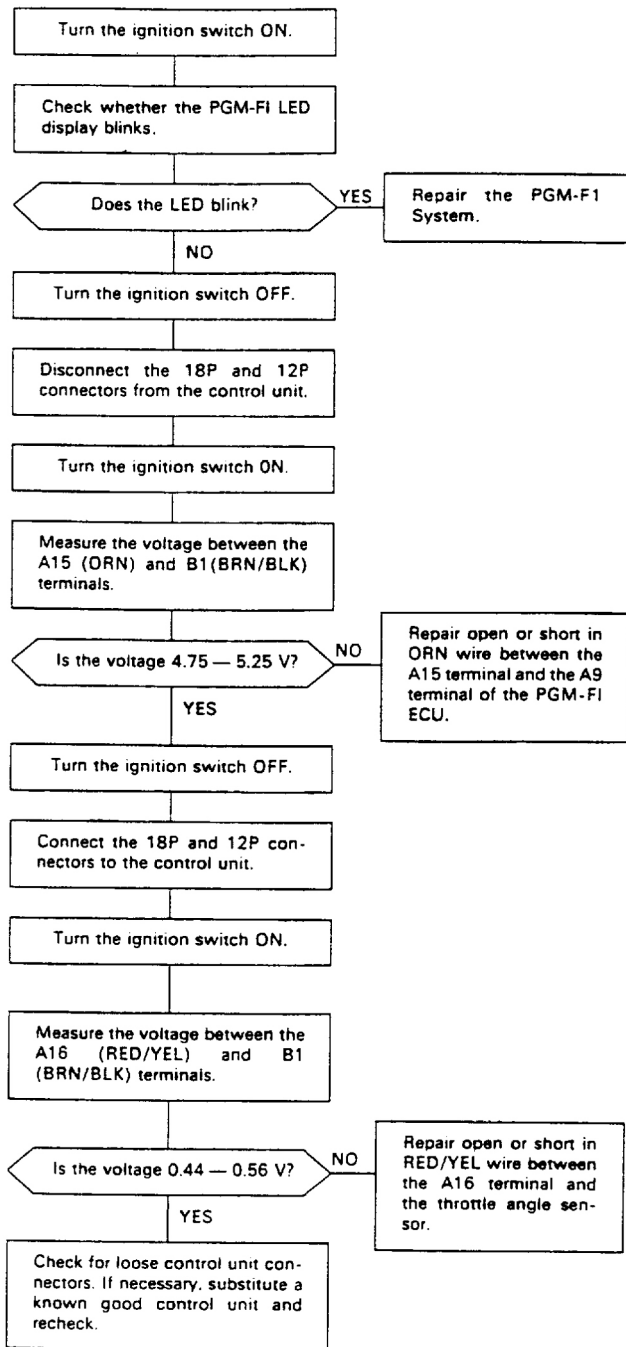
Courtesy of AMERICAN HONDA MOTORS CO., INC.

LED BLINKS TWICE

G96B16254

Fig. 10: Led Blinks Twice

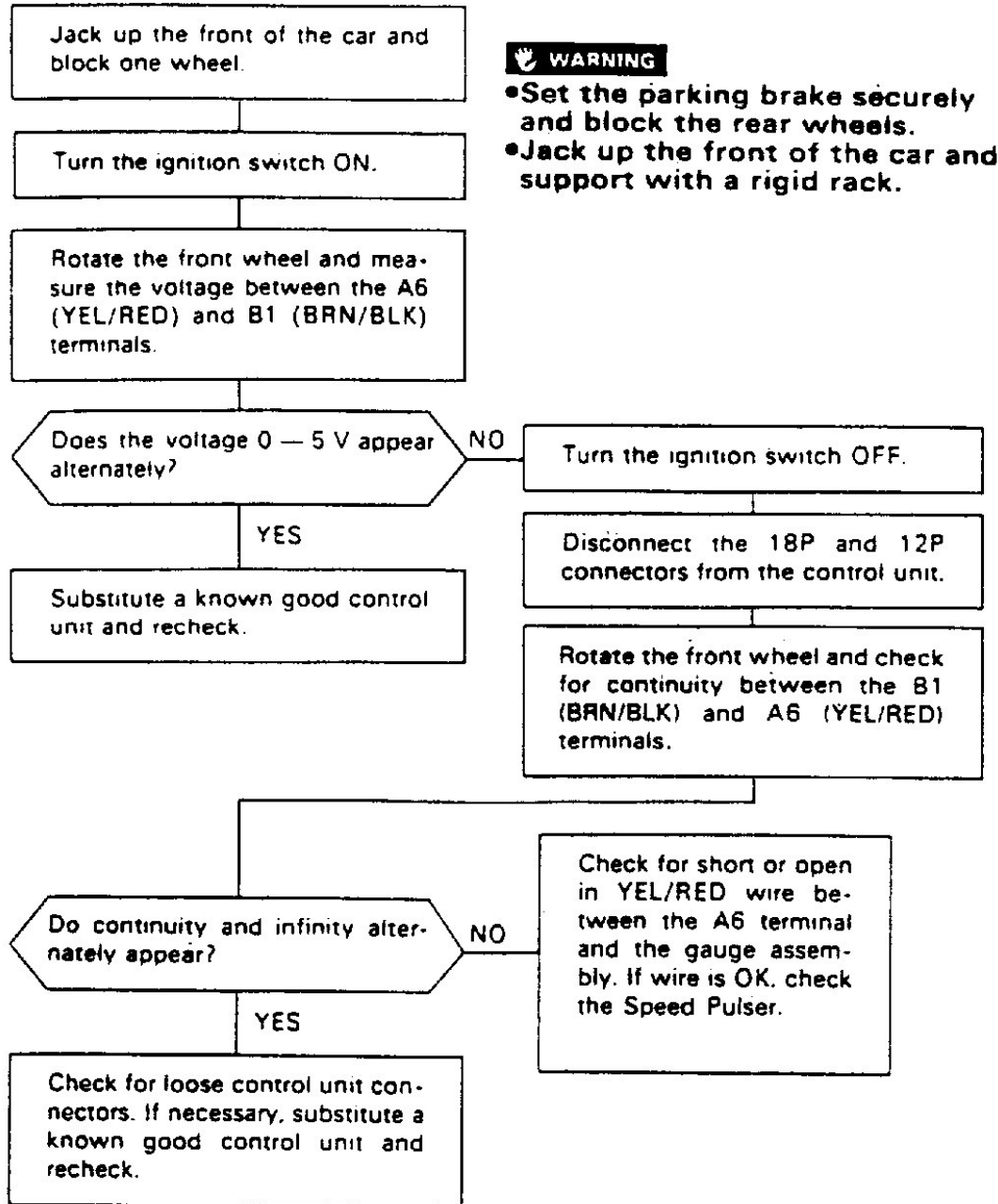
Courtesy of AMERICAN HONDA MOTORS CO., INC.

LED BLINKS 3 TIMES

G96C16255

Fig. 11: Led Blinks 3 Times

Courtesy of AMERICAN HONDA MOTORS CO., INC.

LED BLINKS 4 TIMES**WARNING**

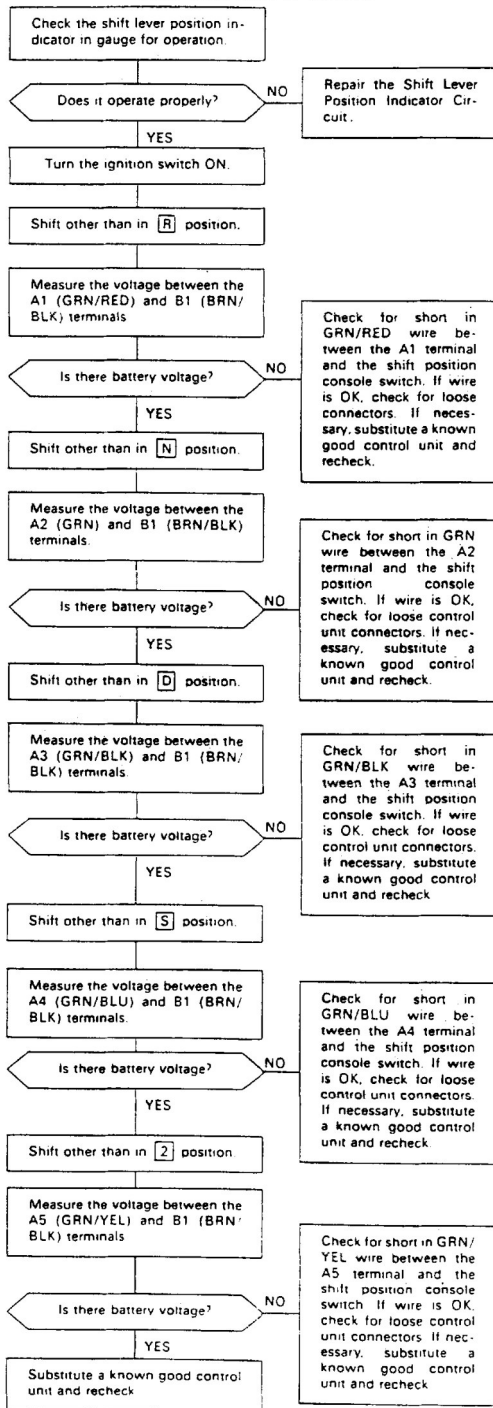
- Set the parking brake securely and block the rear wheels.
- Jack up the front of the car and support with a rigid rack.

G96D16256

Fig. 12: Led Blinks 4 Times

Courtesy of AMERICAN HONDA MOTORS CO., INC.

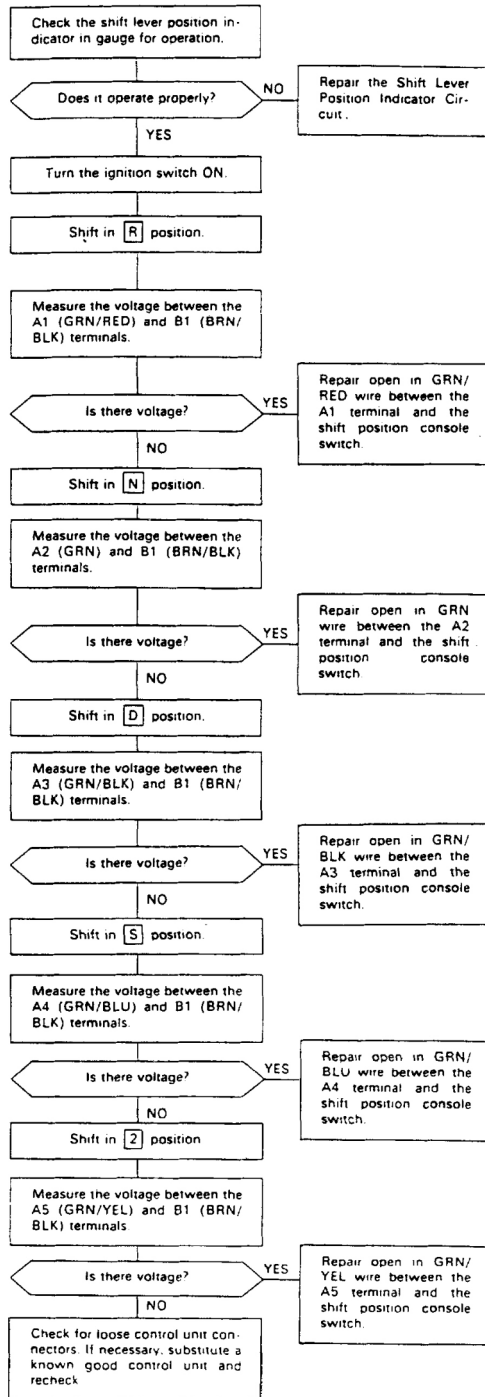
LED BLINKS 5 TIMES



G96E16257

Fig. 13: Led Blinks 5 Times

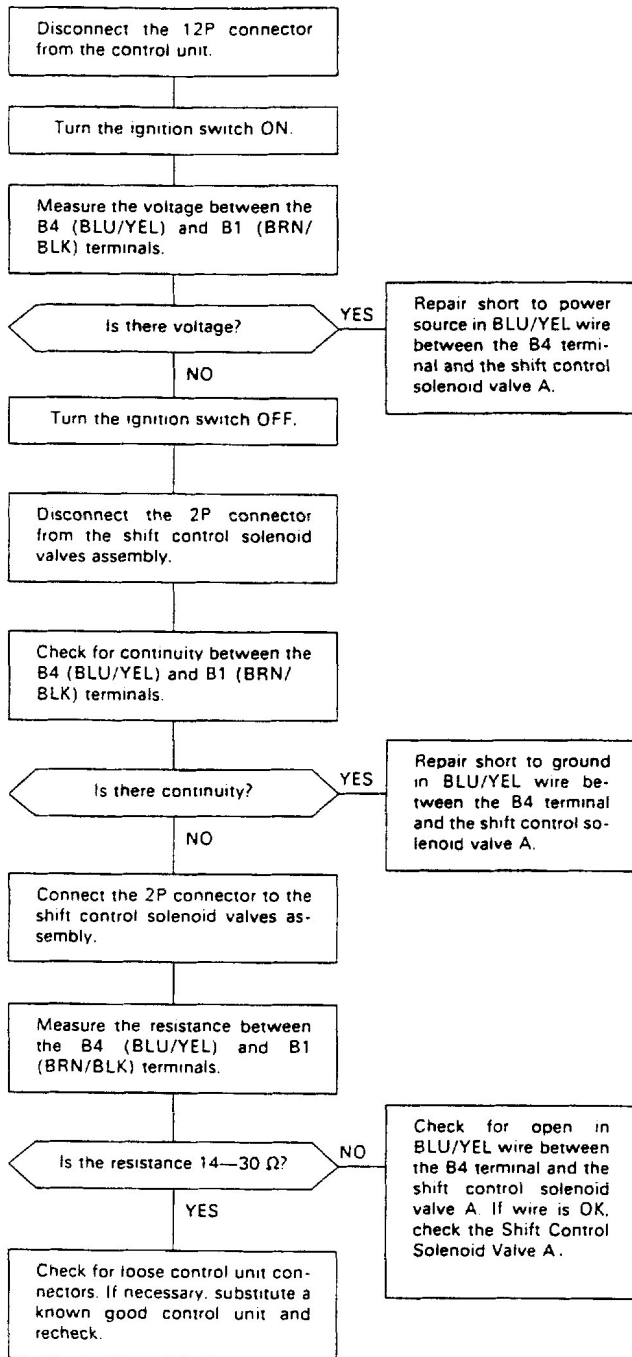
Courtesy of AMERICAN HONDA MOTORS CO., INC.

LED BLINKS 6 TIMES

G96F16258

Fig. 14: Led Blinks 6 Times

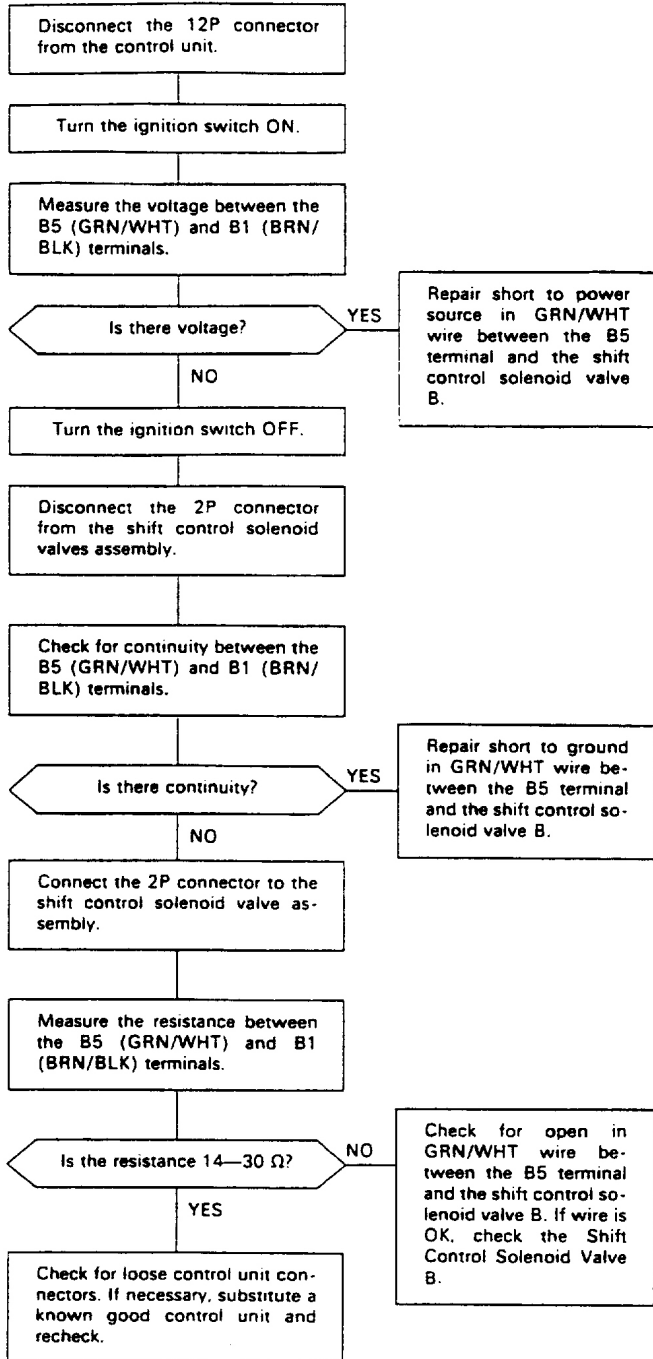
Courtesy of AMERICAN HONDA MOTORS CO., INC.

LED BLINKS 7 TIMES

G96G16259

Fig. 15: Led Blinks 7 Times

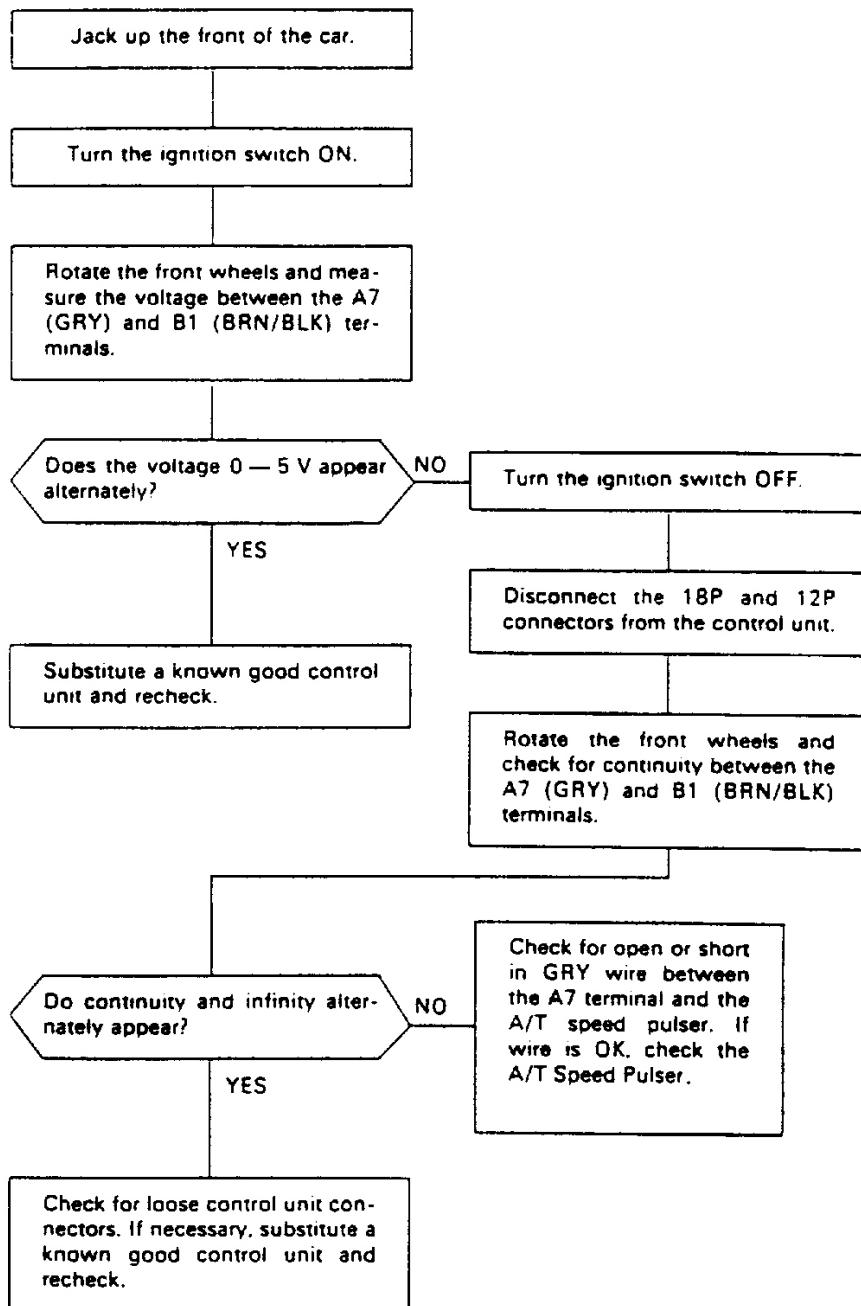
Courtesy of AMERICAN HONDA MOTORS CO., INC.

LED BLINKS 8 TIMES

G96J16260

Fig. 16: Led Blinks 8 Times

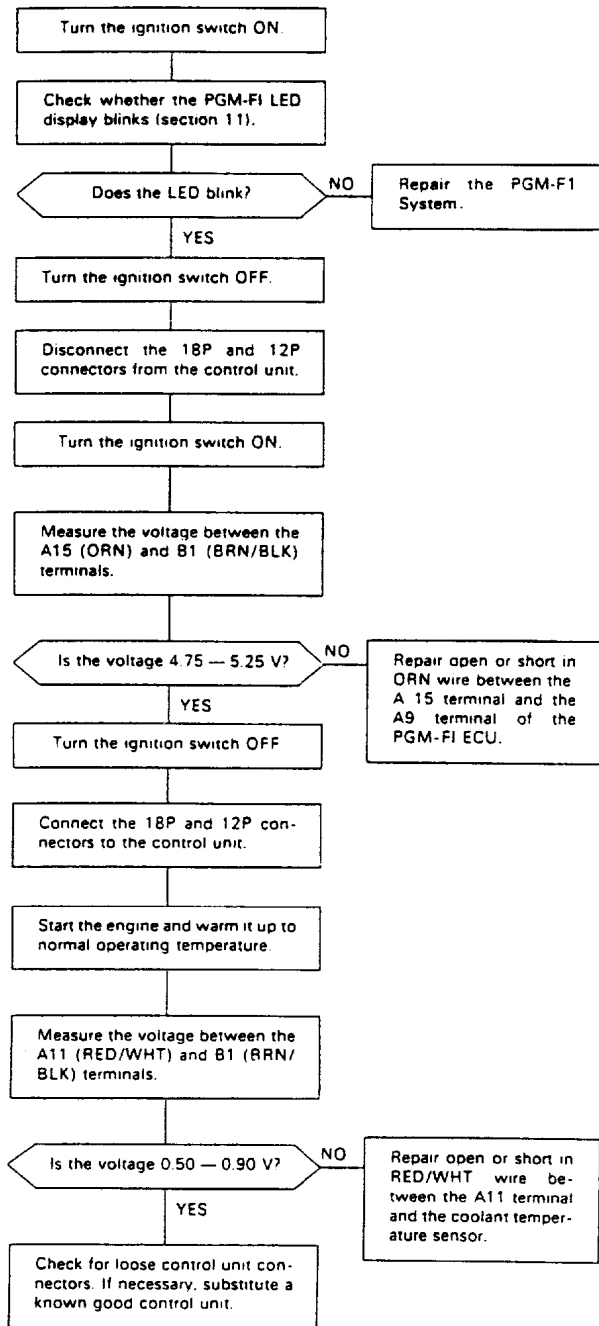
Courtesy of AMERICAN HONDA MOTORS CO., INC.

LED BLINKS 9 TIMES

G96A16261

Fig. 17: Led Blinks 9 Times

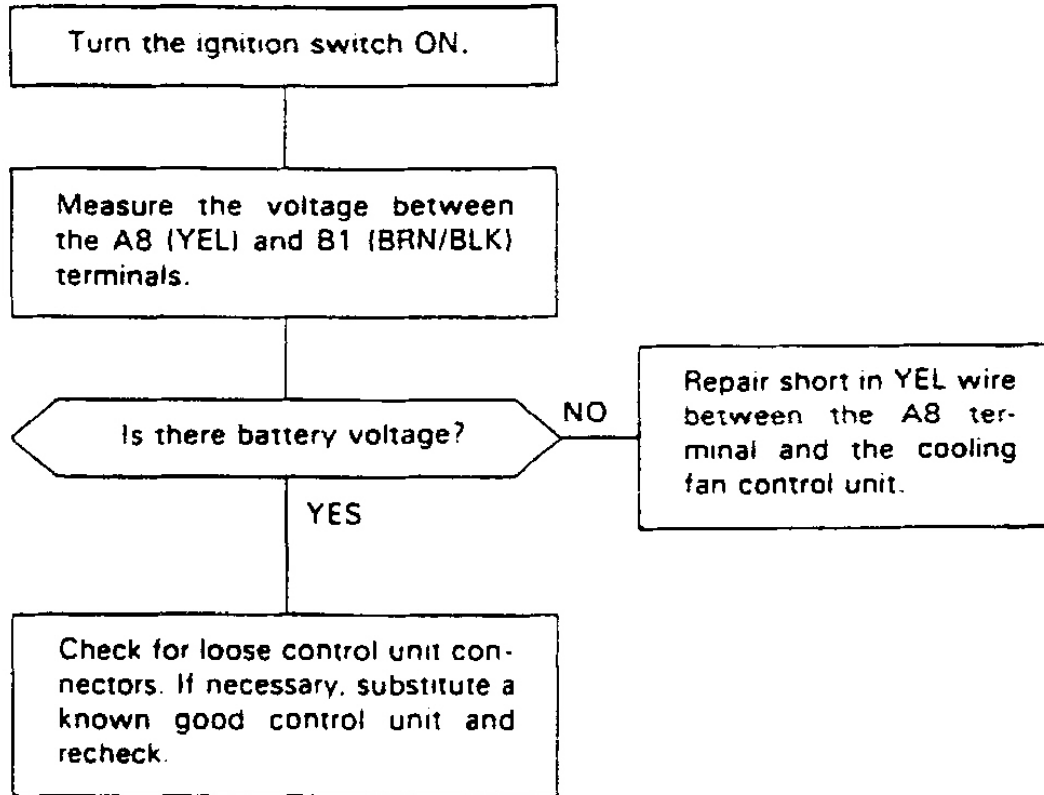
Courtesy of AMERICAN HONDA MOTORS CO., INC.

LED BLINKS 10 TIMES

G96B16262

Fig. 18: Led Blinks 10 Times

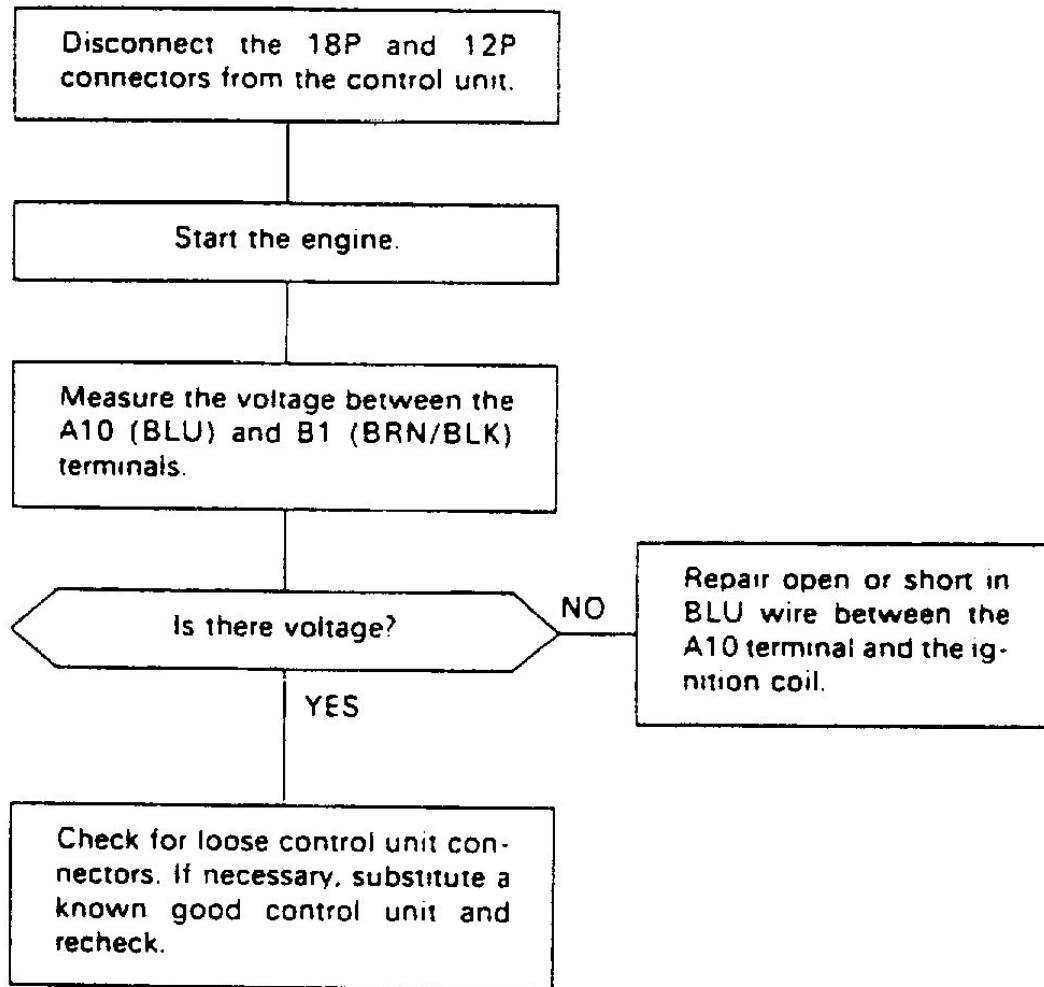
Courtesy of AMERICAN HONDA MOTORS CO., INC.

LED BLINKS 11 TIMES

G96C16263

Fig. 19: Led Blinks 11 Times

Courtesy of AMERICAN HONDA MOTORS CO., INC.

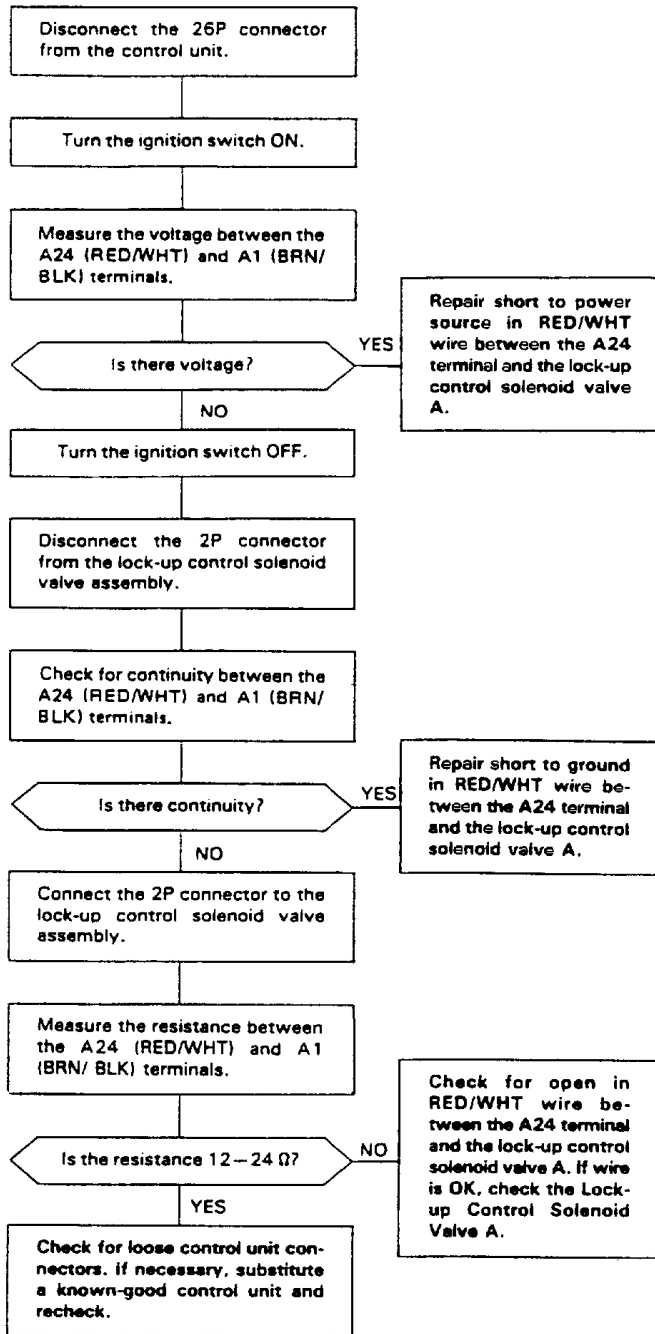
LED BLINKS 12 TIMES

G96D16264

Fig. 20: Led Blinks 12 Times

Courtesy of AMERICAN HONDA MOTORS CO., INC.

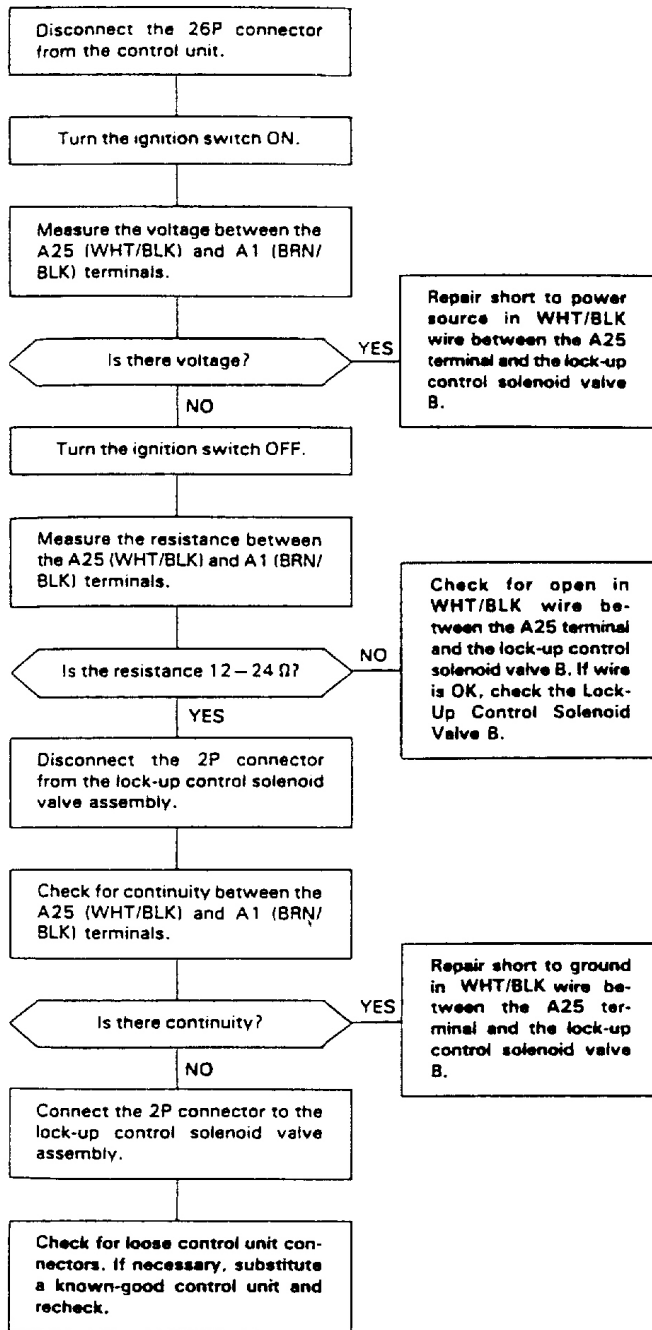
LED DIAGNOSTICS FLOW CHARTS (1990)

LED BLINKS ONCE

G96E16265

Fig. 21: Led Blinks Once

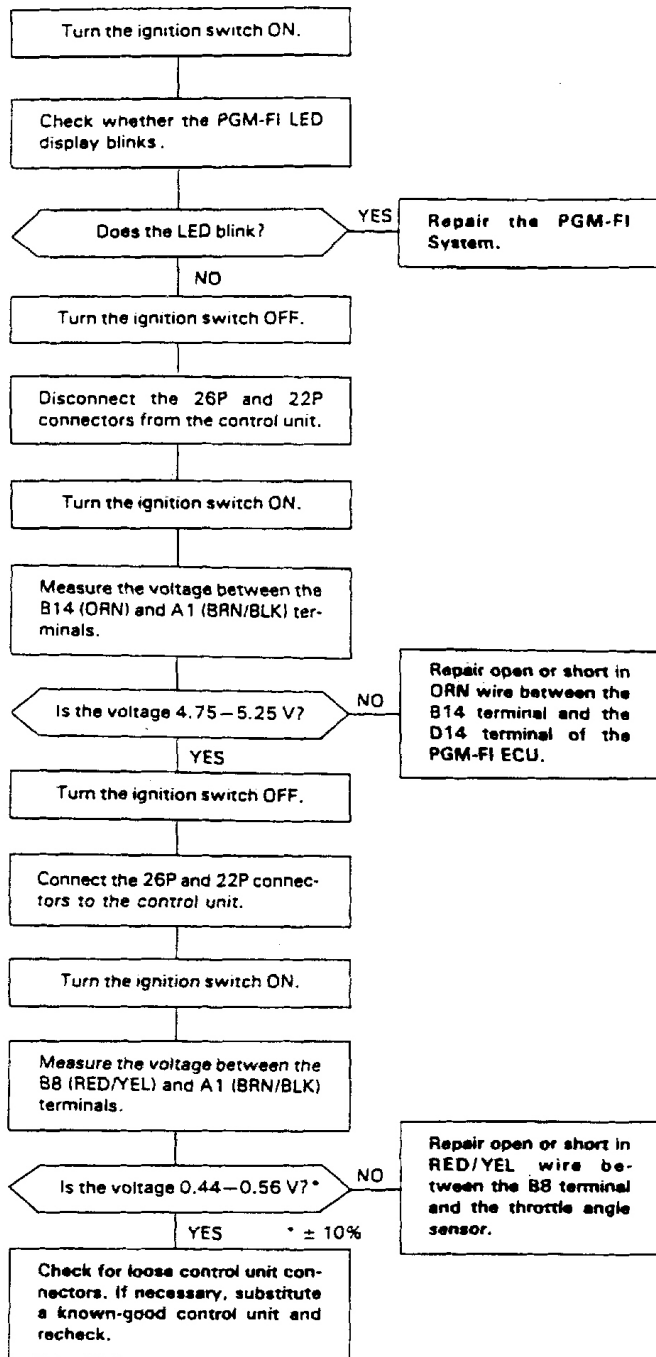
Courtesy of AMERICAN HONDA MOTORS CO., INC.

LED BLINKS TWICE

G96F16266

Fig. 22: Led Blinks Twice

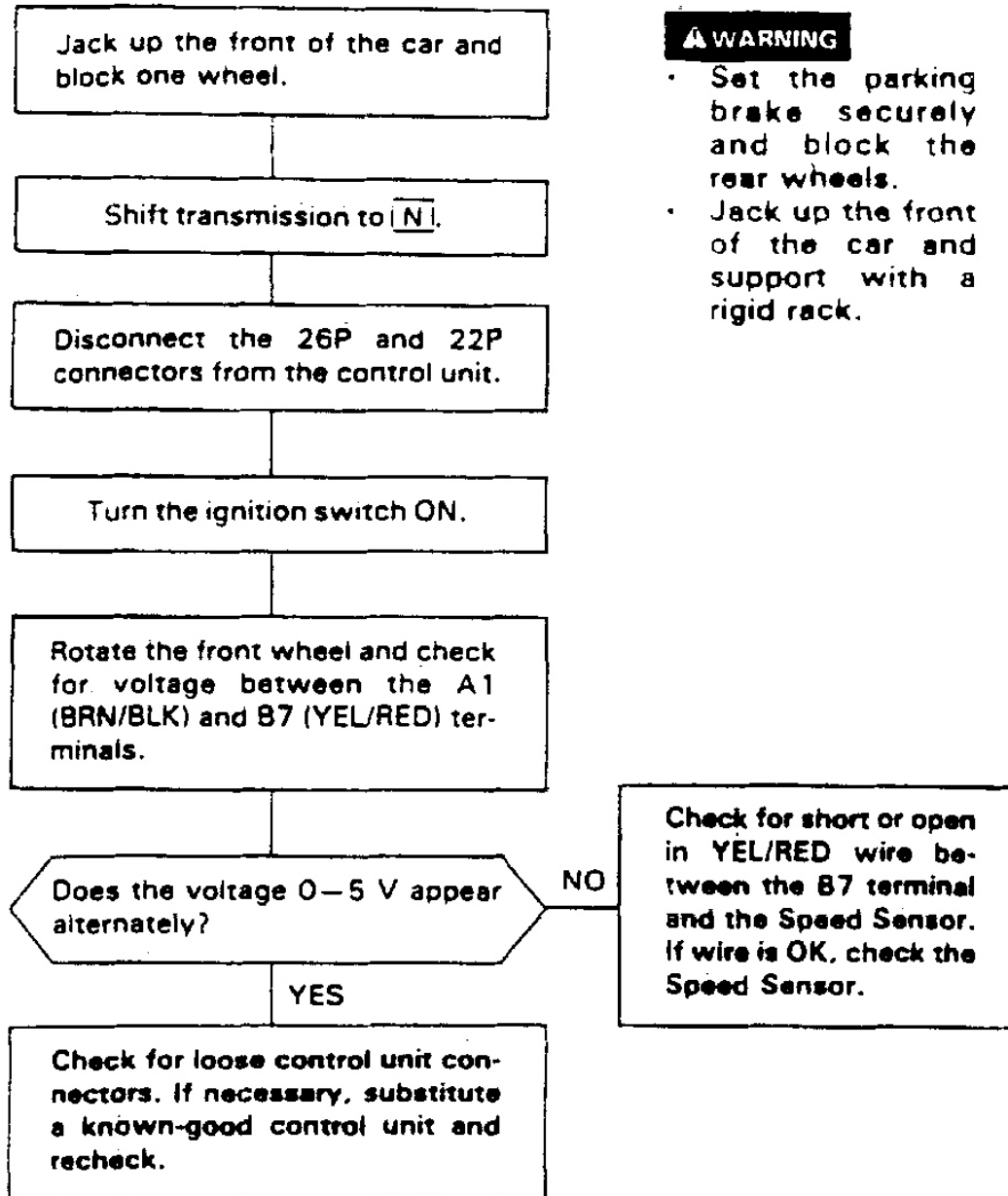
Courtesy of AMERICAN HONDA MOTORS CO., INC.

LED BLINKS 3 TIMES

G96G16267

Fig. 23: Led Blinks 3 Times

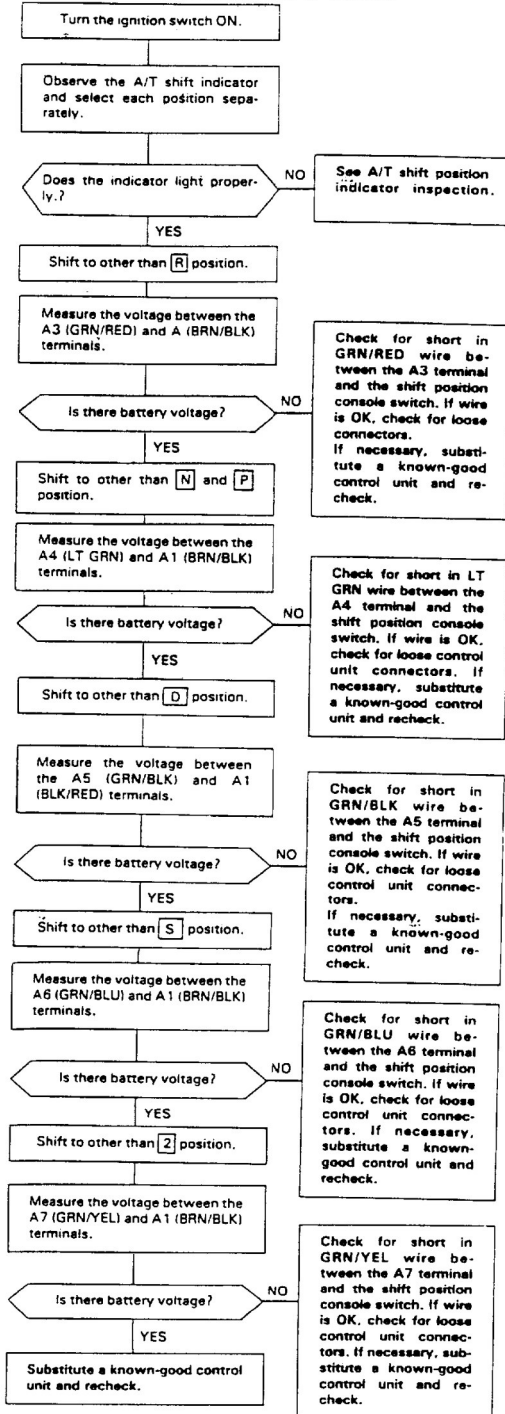
Courtesy of AMERICAN HONDA MOTORS CO., INC.

LED BLINKS 4 TIMES

G96H16268

Fig. 24: Led Blinks 4 Times

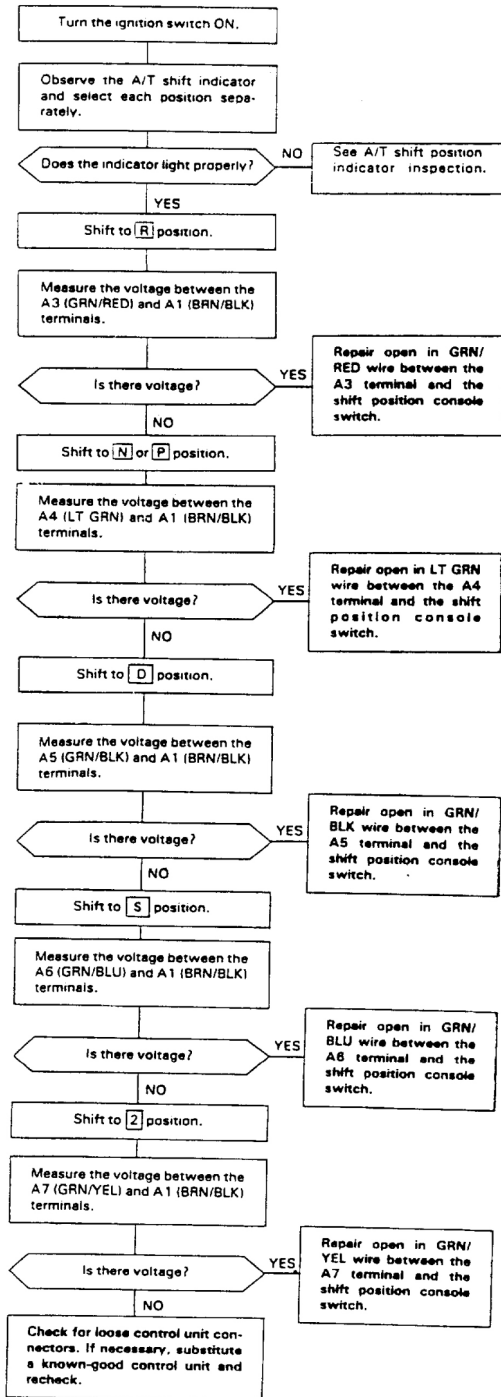
Courtesy of AMERICAN HONDA MOTORS CO., INC.

LED BLINKS 5 TIMES

G96116269

Fig. 25: Led Blinks 5 Times

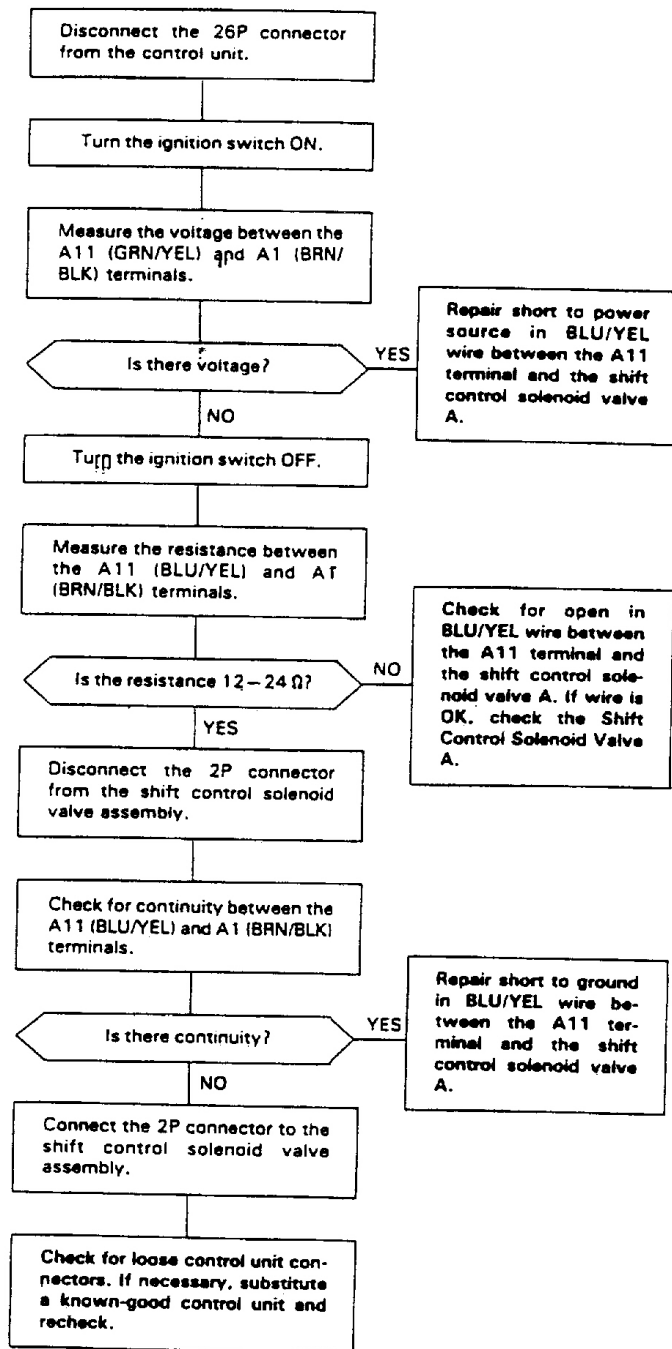
Courtesy of AMERICAN HONDA MOTORS CO., INC.

LED BLINKS 6 TIMES

G96B16270

Fig. 26: Led Blinks 6 Times

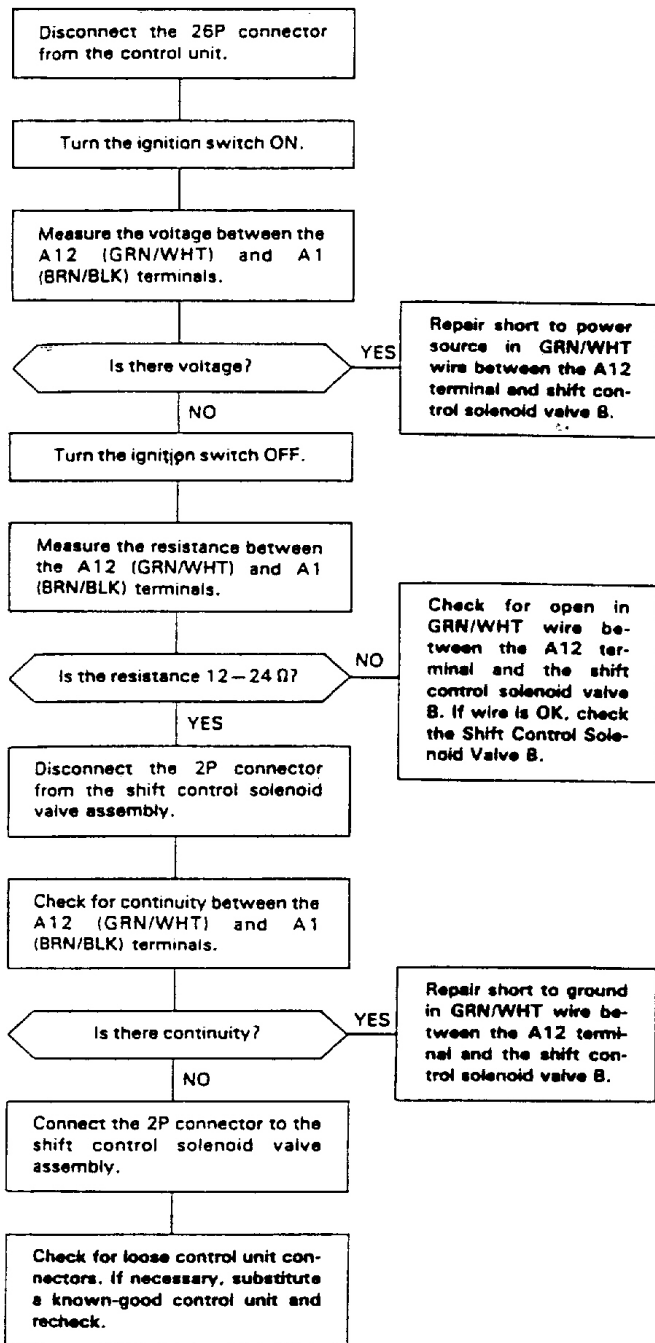
Courtesy of AMERICAN HONDA MOTORS CO., INC.

LED BLINKS 7 TIMES

G96C16271

Fig. 27: Led Blinks 7 Times

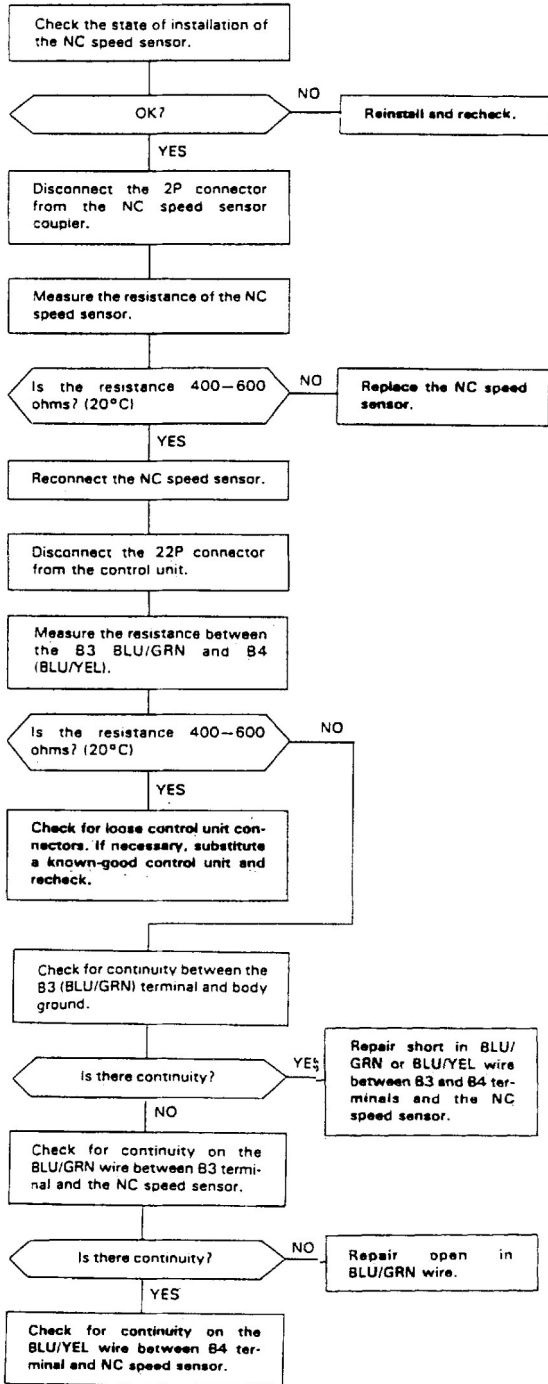
Courtesy of AMERICAN HONDA MOTORS CO., INC.

LED BLINKS 8 TIMES

G96D16272

Fig. 28: Led Blinks 8 Times

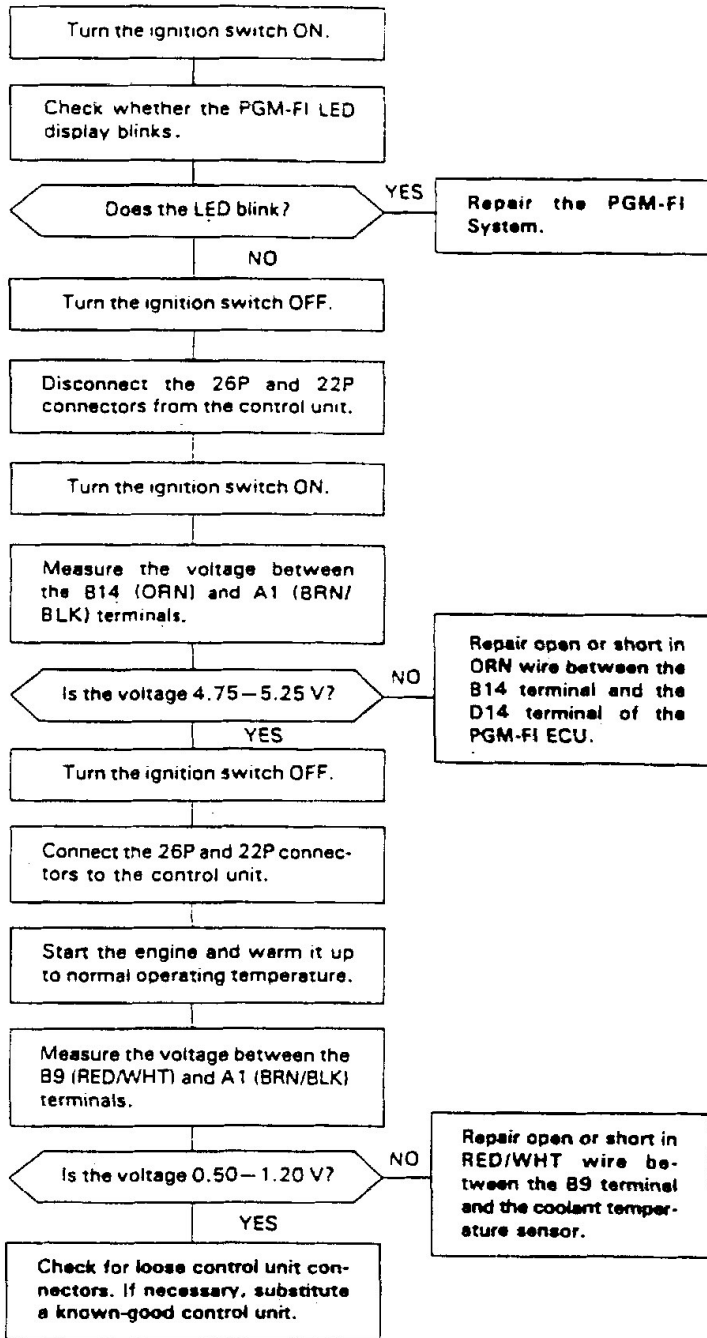
Courtesy of AMERICAN HONDA MOTORS CO., INC.

LED BLINKS 9 TIMES

G96E16273

Fig. 29: Led Blinks 9 Times

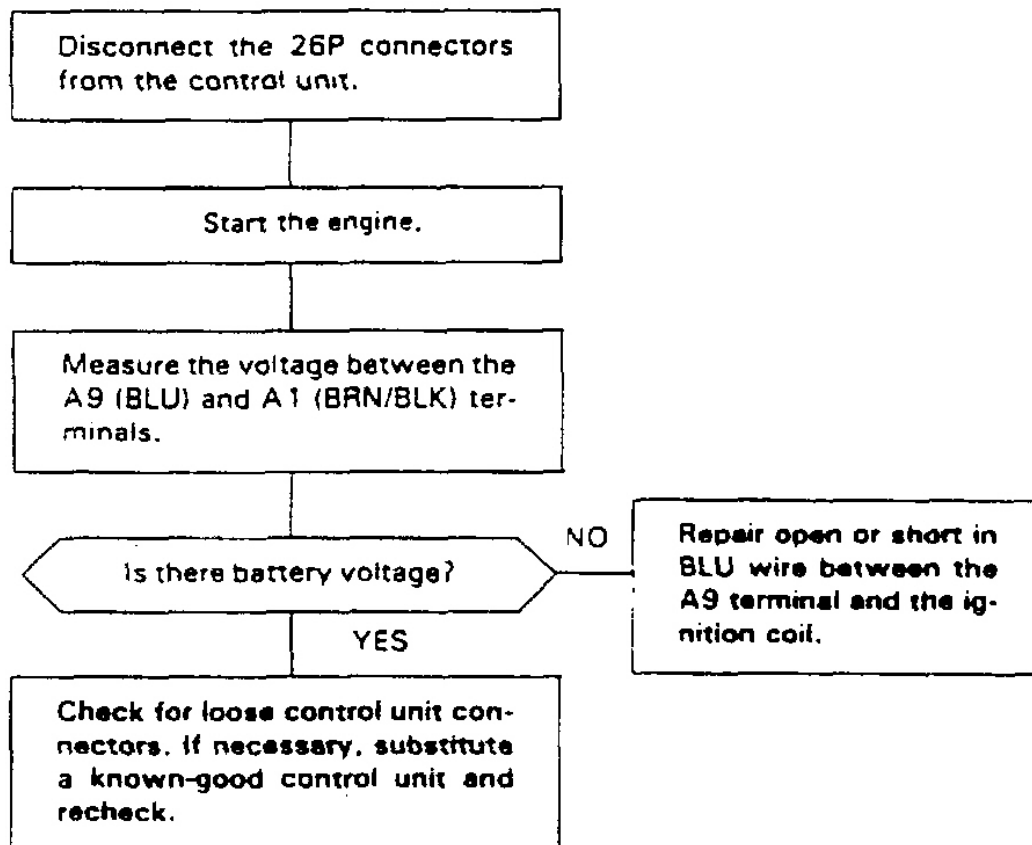
Courtesy of AMERICAN HONDA MOTORS CO., INC.

LED BLINKS 10 TIMES

G96F16274

Fig. 30: Led Blinks 10 Times

Courtesy of AMERICAN HONDA MOTORS CO., INC.

LED BLINKS 11 TIMES

G96G16275

Fig. 31: Led Blinks 11 Times

Courtesy of AMERICAN HONDA MOTORS CO., INC.

LED BLINKS 14 TIMES

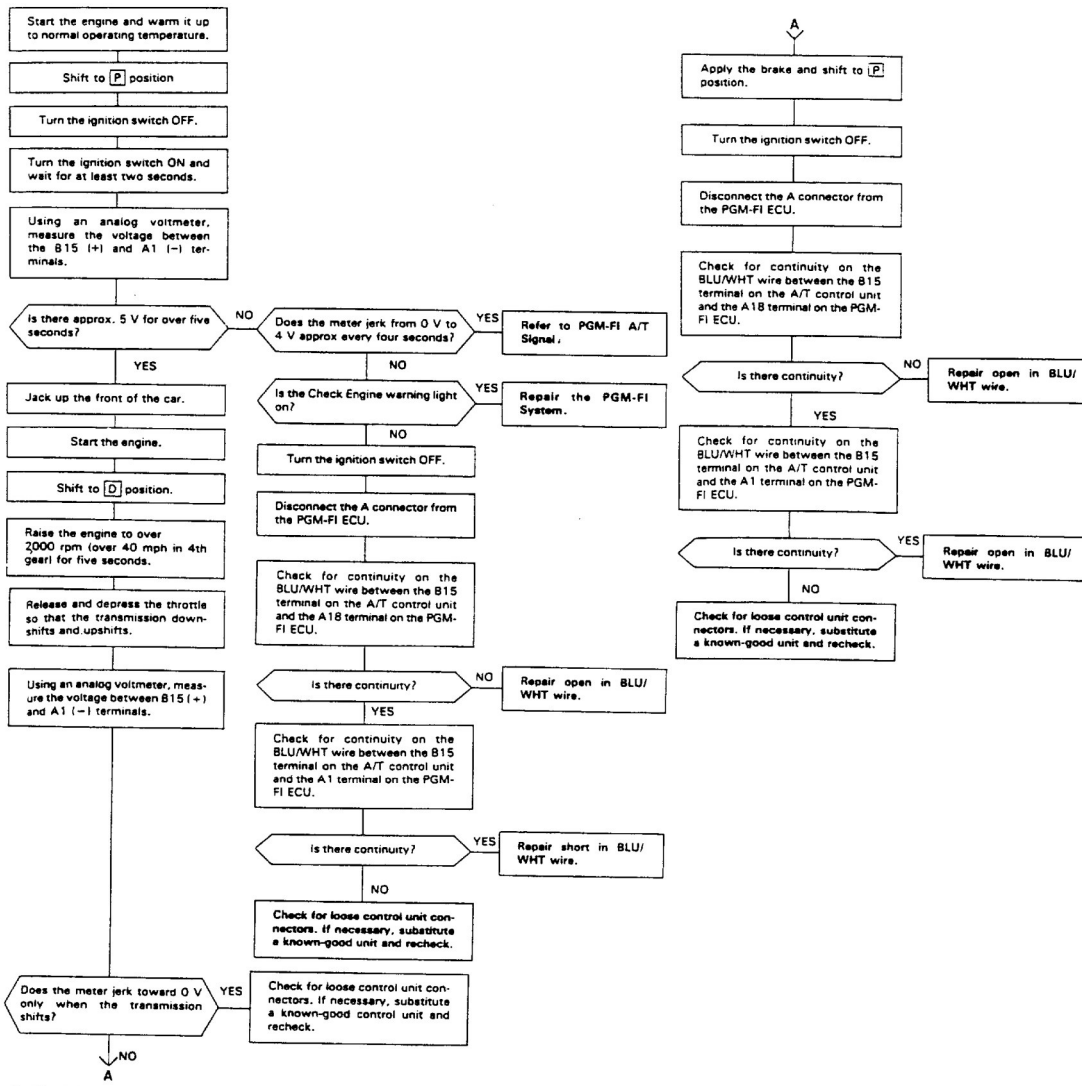
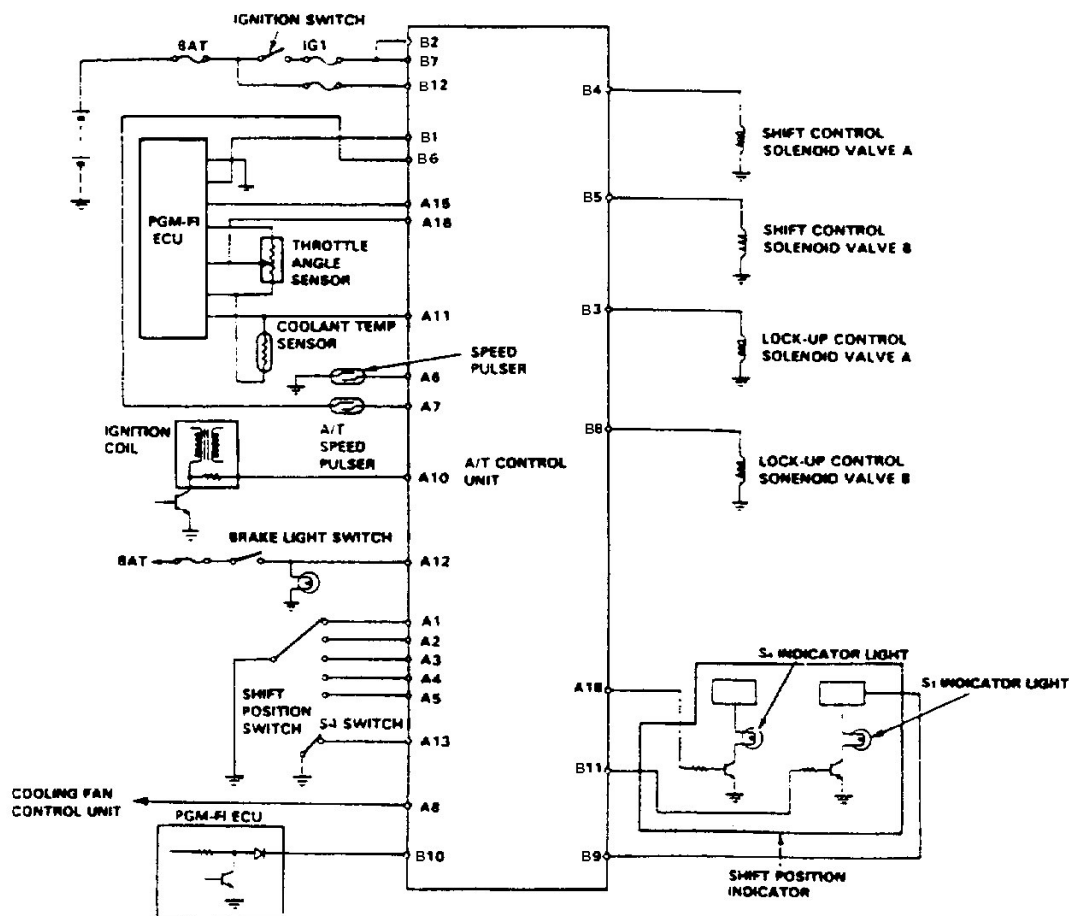


Fig. 32: Led Blinks 14 Times
 Courtesy of AMERICAN HONDA MOTORS CO., INC.

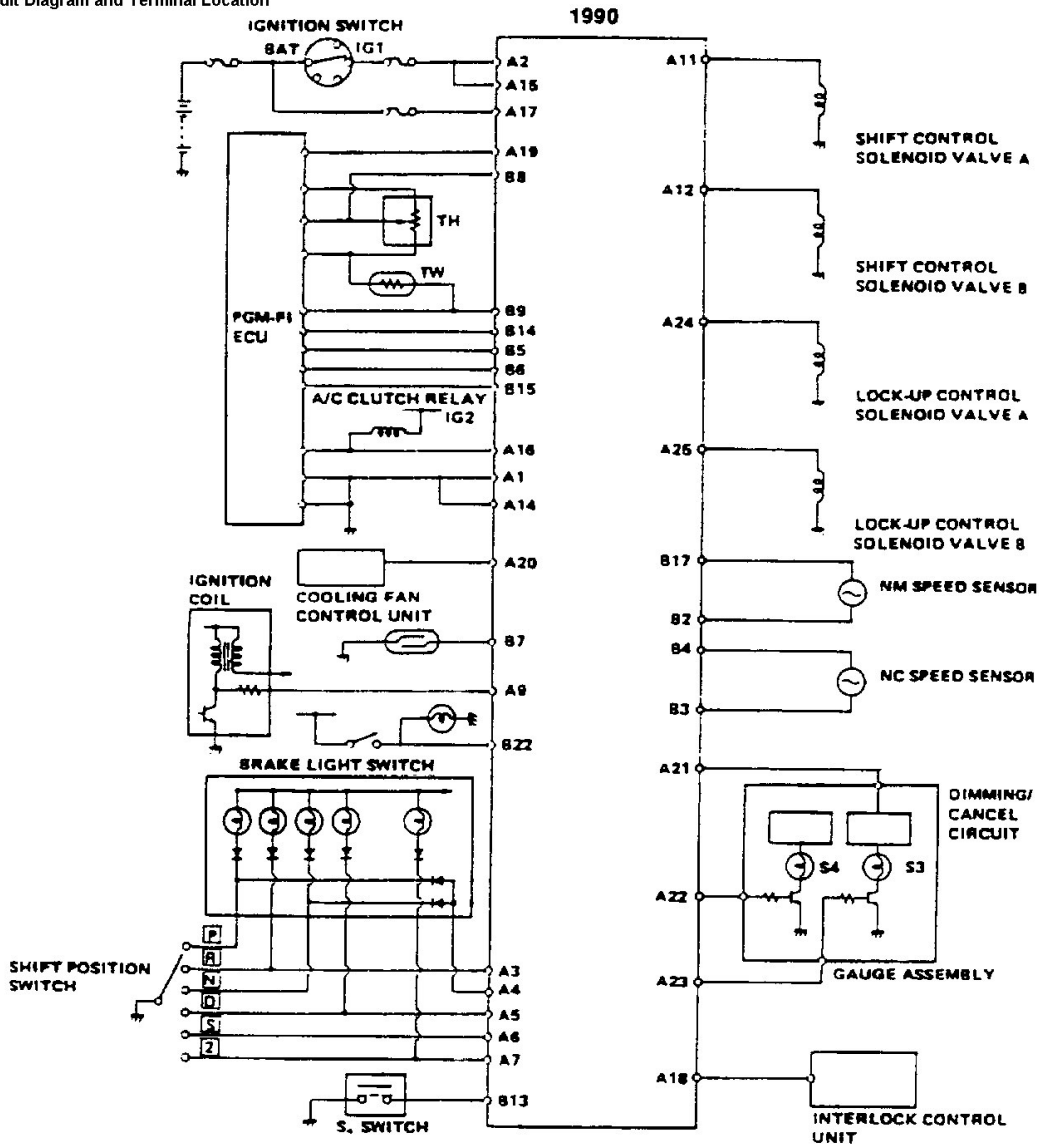


G96J16278

Fig. 34: ATCU Wiring Schematic (1988-1989)

Courtesy of AMERICAN HONDA MOTORS CO., INC.

Circuit Diagram and Terminal Location



G96A16279

Fig. 35: ATCU Wiring Schematic (1990)
Courtesy of AMERICAN HONDA MOTORS CO., INC.

Fails To Shift From 2nd To 1st Gear When Releasing Brake Pedal With Shift Lever In "S" Or "D" (1988-89.5)

1. Depress brake pedal and ensure brake lights illuminate. If lights do not illuminate, repair brake light circuit.
2. If brake lights illuminate, unplug 18-Pin and 12-Pin connectors from ATCU and depress brake pedal. Measure voltage between terminals A12 (**Green** /White wire) and B1 (MD6Brown/**Black** wire).
3. If there is no battery voltage, repair open in **Green** /White wire between terminal A12 and brake light

switch. If there is battery voltage, check for loose ATCU connectors. If needed, substitute a known good ATCU and recheck.

ROAD TEST

"D" & "S" Range

1. Warm engine to operating temperature. Apply parking brake and block rear wheels. Shift transmission selector to "D" while depressing brake pedal.
2. Depress accelerator and release abruptly. Engine should not stall. Ensure shift points occur at proper speeds. Refer to appropriate TRANSMISSION SHIFT POINT TEST TABLE under **PRESSURE TESTING**.
3. Check for abnormal noise and clutch slippage. Apply parking brake and block rear wheels. Shift selector to "S" while depressing brake pedal. Depress and release accelerator pedal abruptly. Engine should not stall.

"2" (2nd Gear) Range

Accelerate from stop at full throttle. Ensure no abnormal noise or clutch slippage occurs. Upshifts and downshifts should not occur with gear selector in this range.

"R" (Reverse) Range

Accelerate from stop at full throttle. Ensure no abnormal noise or clutch slippage occurs.

"P" (Park) Range

Park vehicle on incline (about 16 degrees). Apply parking brake and shift selector in "P". Release brake and check for vehicle movement. Movement should not occur.

PRESSURE TESTING

CAUTION: Prior to testing, ensure transmission fluid level is correct. Also, before installing pressure gauge test equipment, ensure correct inspection hole is used with corresponding pressure measurement. Incorrect diagnosis could result if not performed properly. See **Fig. 36**.

With engine OFF, attach hoses from pressure testing Gauge Set (0740600200003) or equivalent to transmission. Torque hose fittings to 13 ft. lbs. (18 N.m). **DO NOT** reuse aluminum washers.

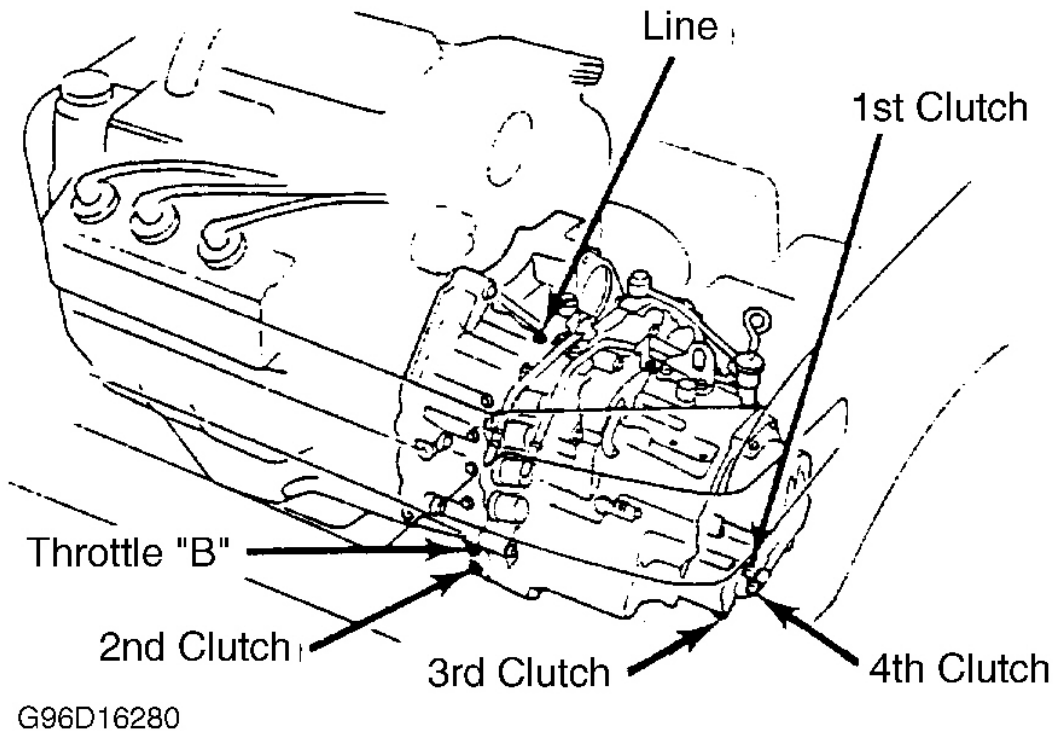


Fig. 36: Locating Transmission Pressure Inspection Hole
 Courtesy of AMERICAN HONDA MOTORS CO., INC.

CAUTION: In the following tests **DO NOT** shift from "D" or "S" to "2" at speeds over 62.5 mph; you may damage the transmission.

TRANSMISSION SHIFT POINT TEST

Upshift "D"	1st-2nd	2nd-3rd	3rd-4th	L/C ON
1/12 throttle Coasting downhill from a stop	9-12	15.5-19	23-27.5	38-42
7/16 throttle Acceleration from a stop	16.5-20.5	30-35.5	41-47	56-60
Full-throttle Acceleration from a stop	35-40.5	62-68.5	96-107	89-93

TRANSMISSION SHIFT POINT TEST

"S" (with S4, switch in operation)	1st-2nd	2nd-3rd	3rd-4th	L/C ON
1/12 throttle Coasting downhill from a stop	12-15	20.5-24	29-33.5	38-42

1990 Acura Legend

1988-90 AUTOMATIC TRANSMISSIONS L5 Diagnosis & Overhaul

7/16 throttle Acceleration from a stop	21.5-26.5	38-43.5	58-64	65-69
Full-throttle Acceleration from a stop	35-40.4	62-68.5	96-107	92-96

TRANSMISSION SHIFT POINT TEST

Downshift "D"	L/C OFF	4th-3rd	3rd-2nd	2nd-1st
1/12 throttle Coasting or braking to a stop	35-39	9.5-13	-	4.5-8
7/16 throttle When car is slowed by increased grade, wind, etc.	48-52	-	-	-
Full-throttle When car is slowed by increase grade, wind, etc.	86-90	85-95.5	48-55	25-30.5

TRANSMISSION SHIFT POINT TEST

"S" (with S4 switch in operation)	L/C OFF	4th-3rd	3rd-2nd	2nd-1st
1/12 throttle Coasting or braking to a stop	35-39	11.5-16	-	4.5-8
7/16 throttle When car is slowed by increased grade, wind, etc.	52-56	-	-	-
Full-throttle When car is slowed by increased grade, wind, etc.	89-93	88-98.5	55-62	28-33.5

Line Pressure Measurement

Make line pressure measurement after setting parking brake securely and running engine at 2000 RPM. See **LINE PRESSURE MEASUREMENT** table.

Clutch Pressure Measurement

When making clutch pressure measurement, set parking brake and block rear wheels. Raise front of vehicle and support safely. Run engine at 2000 RPM. See **CLUTCH PRESSURE MEASUREMENT TABLE** .

Throttle "B" Pressure Measurement

When making throttle "B" pressure measurement, set parking brake and block rear wheels. Run engine at 1000 RPM. Disconnect throttle control cable from throttle lever and set control lever in full throttle position. See **THROTTLE "B" PRESSURE MEASUREMENT** table.

Low/High Pressure Measurement

1. When making Low/High pressure test, set parking brake and block rear wheels securely. Raise car and support safely. Attach gauge set to appropriate pressure test port. See specifications in the **LOW/HIGH PRESSURE MEASUREMENT** table.
2. Remove cable end of throttle control lever. Warm engine to operating temperature (cooling fan comes on).

1990 Acura Legend

1988-90 AUTOMATIC TRANSMISSIONS L5 Diagnosis & Overhaul

3. With engine idling, move selector lever to D3 or D4. Slowly move throttle linkage to increase engine RPM until pressure is indicated on appropriate gauge. Release throttle linkage, allow engine to return to idle and record pressure reading.
4. Repeat step 3 for each clutch pressure being inspected.
5. With engine idling, lift throttle control lever approximately 1/2 of its possible travel and increase engine RPM until pressure is indicated on appropriate gauge. Record highest pressure reading obtained.
6. Repeat step 5 for each clutch being inspected.

LINE PRESSURE MEASUREMENT

Pressure	Selector	Symptom	Probable Cause	Standard Pressure psi (kPa)	Limit Pressure psi (kPa)
Line	"N" or "P"	No, or low line pressure	Torque converter, oil pump pressure regulator, torque converter check valve, oil pump	114-121 (785-834)	107 (735)

CLUTCH PRESSURE MEASUREMENT

Pressure	Selector	Symptom	Cause	Standard Pressure psi (kPa)	Limit Pressure psi (kPa)
1st Clutch	"S" or "D"	No, or low 1st pressure	1st Clutch	114-121 (785-834)	107 (735)
2nd Clutch	"2"	No, or low 2nd pressure	2nd Clutch	71 (490) Throttle Closed 121 (834) 3/8+ Throttle	64 (441) Throttle Closed 107 (735) 3/8+ Throttle
3rd Clutch	"S" ("S4" Switch Off)	No, or low 3rd pressure	3rd Clutch	71 (490) Throttle Closed 121 (834) 3/8+ Throttle	64 (441) Throttle Closed 107 (735) 3/8+ Throttle
4th Clutch	"S" (w/S4 Switch in operation or "D")	No, or low 4th pressure	4th Clutch	71 (490) Throttle Closed 121 (834) 3/8+ Throttle	64 (441) Throttle Closed 107 (735) 3/8+ Throttle
4th Clutch	"R"	No, or low 4th pressure	Servo valve or 4th Clutch	114-121 (785-834)	107 (735)

THROTTLE "B" PRESSURE MEASUREMENT

Pressure	Selector	Symptom	Probable Cause	Standard Pressure psi (kPa)	Limit Pressure psi (kPa)
Throttle "B"	"S" or "D"	No, or low Throttle "B" pressure	Throttle Valve "B"	114-121 (785-834)	107 (735)

LOW/HIGH PRESSURE MEASUREMENT

1990 Acura Legend

1988-90 AUTOMATIC TRANSMISSIONS L5 Diagnosis & Overhaul

Pressure	Selector	Symptom	Cause	Standard Pressure psi (kPa)	Limit Pressure psi (kPa)
2nd Clutch	"2"	No, or low 2nd pressure	2nd Clutch	71-121 (490- 834) Varies W/Throttle	64 (441) W/ Lever Released 107 (735) WOT
3rd Clutch	"S" or "D"	No, or low 3rd pressure	3rd Clutch	71-121 (490- 834) Varies W/Throttle	64-(441) W/ Lever Released 107 (735) WOT
4th Clutch	"S" (W/ "S4" Sw. Operating or "D"	No, or low 4th pressure	4th Clutch	71-121 (490- 834) Varies W/Throttle	64-(441) W/ Lever Released 107 (735) WOT

STALL SPEED

CAUTION: DO NOT test stall speed for greater than 10 seconds at a time. DO NOT shift selector while raising engine RPM. Ensure pressure testing equipment is removed before performing stall speed test. Failure to adhere to this caution will result in transmission damage.

1. Apply parking brake and block front wheels. Connect safety chains to both front hooks and attach, with minimum slack, to a strong stationary object.
2. Connect tachometer and start engine. Run engine until normal operating temperature is reached and place selector in "2". Fully depress brake pedal and accelerator for 6 to 8 seconds and note engine RPM.
3. Allow 2 minutes for transmission to return to normal operating temperature and repeat procedure with selector in "D", "S" and "R".
4. Stall speed service limit is 2150-2450 RPM. Specification is 2300 RPM. Stall speed must be the same for "D", "S", "2" and "R", and within specification. See **STALL SPEED DIAGNOSIS** table for identifying probable cause of problem.

NOTE: Stall speed test is performed only for identifying cause of problem.

STALL SPEED DIAGNOSIS

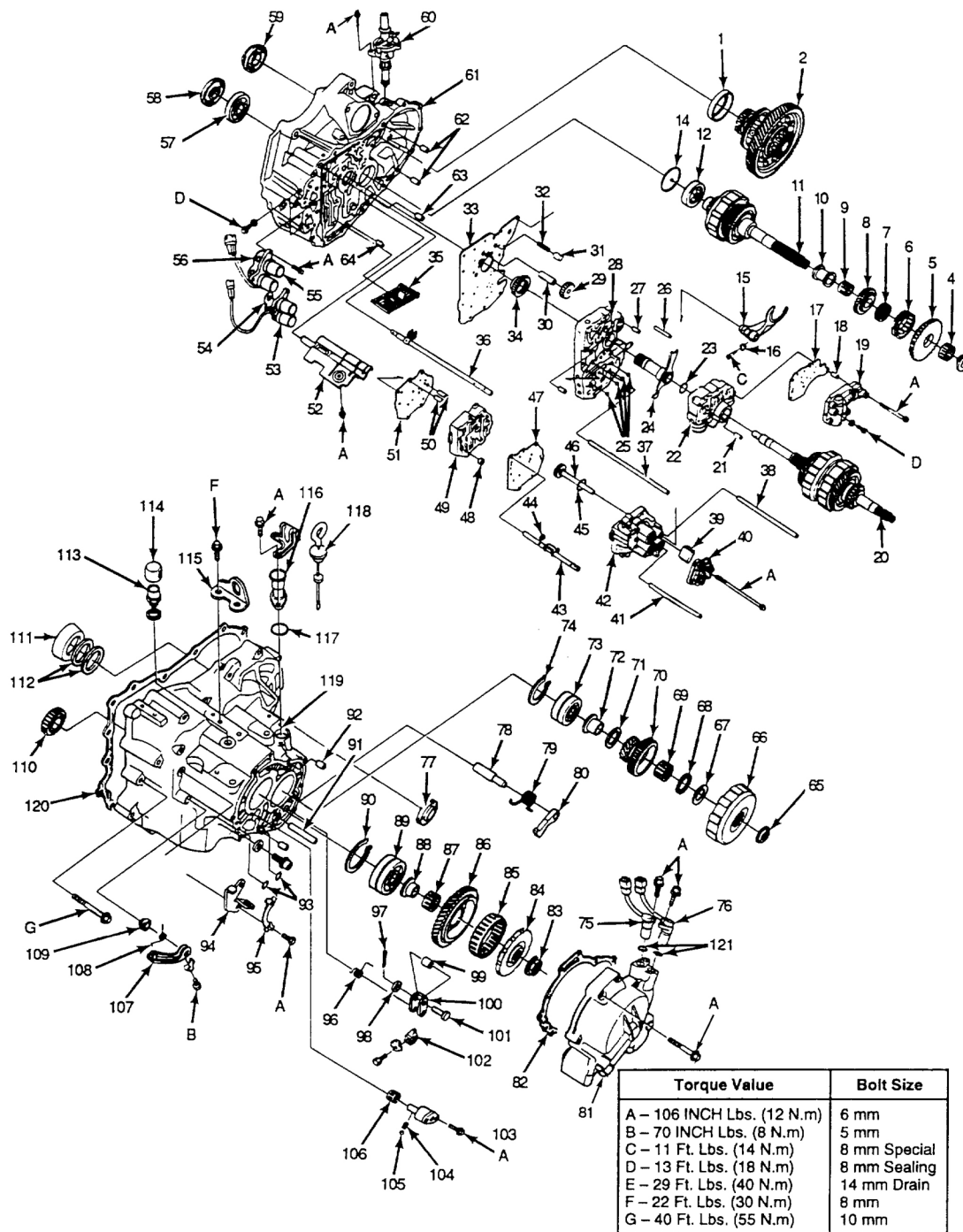
Stall RPM	Probable Cause
High in "D", "S", "2", "R"	Low fluid or oil pump output, Clogged oil strainer, Pressure reg. valve, stuck closed, Slipping clutch
"R"	4th clutch slippage
"2"	2nd clutch slippage
"D", "S"	Slippage of 1st clutch or 1st gear one-way clutch
Low In "D", "S", "2", "R"	Engine output low, Torque converter one-way clutch slipping

REMOVAL & INSTALLATION

NOTE: See appropriate **TRANSMISSION REMOVAL & INSTALLATION - A/T** article in the **AUTOMATIC TRANS SERVICING** section.

TRANSAXLE DISASSEMBLY

For transaxle disassembly. See **Fig. 37** and **Fig. 38** . When removing transmission housing, use Housing Puller (07GAC-PG40101). Install puller over countershaft using 3 bolts and tighten securely. Screw puller bolt against end of countershaft until housing is broken loose. See individual component under **COMPONENT DISASSEMBLY & REASSEMBLY** section for further information.



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Fig. 37: Exploded View of Transaxle Assembly (1 of 2)
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

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1988-90 AUTOMATIC TRANSMISSIONS L5 Diagnosis & Overhaul

- | | | |
|-------------------------------------|---|--------------------------------------|
| 1. Differential Bearing Outer Race | 42. Servo Valve Body | 82. Gasket |
| 2. Differential Assembly | 43. Throttle Control Shaft | 83. Lock Nut |
| 3. Reverse Gear Collar | 44. "E" Clip | 84. Parking Gear |
| 4. Needle Bearing | 45. "O" Ring | 85. One-Way Clutch Assembly |
| 5. Countershaft Reverse Gear | 46. Shift Fork Shaft | 86. Countershaft 1st Gear |
| 6. Reverse Gear Selector | 47. Servo Separator Plate | 87. Needle Bearing |
| 7. Selector Hub | 48. Filter | 88. 1st Gear Collar |
| 8. Countershaft 4th Gear | 49. Secondary Valve Body Assembly | 89. Ball Bearing |
| 9. Needle Bearing | 50. Dowel Pin | 90. Snap Ring |
| 10. Spacer Collar | 51. Secondary Separator Plate | 91. Stop Pin |
| 11. Countershaft | 52. Baffle Plate | 92. Dowel Pin |
| 12. Needle Bearing | 53. Shift Control Solenoid A/B Valve Assembly | 93. "O" Ring |
| 14. Oil Guide Plate | 54. Shift Control Solenoid Base Gasket | 94. Throttle Cable Assembly |
| 15. Reverse Shift Fork | 55. L/C Control Solenoid A/B Valve Assembly | 95. Lock Plate |
| 16. Lock Washer | 56. L/C Control Solenoid Base Gasket | 96. Parking Brake Spring |
| 17. L/C Shift Valve Separator Plate | 57. Ball Bearing 16008 | 97. Cotter Pin |
| 18. Dowel Pin | 58. Oil Seal | 98. Washer |
| 19. L/C Shift Valve Body | 59. Oil Seal | 99. Parking Brake Roller |
| 20. Mainshaft | 60. Speed Sensor Assembly | 100. Parking Shift Arm |
| 21. Dowel Pin | 61. Torque Converter Housing | 101. Roller Pin |
| 22. Regulator Valve Body | 62. Dowel Pin | 102. Parking Brake Stopper |
| 23. "O" Ring | 63. Dowel Pin | 103. Idle Shaft Holder |
| 24. Stator Shaft Arm | 64. Dowel Pin | 104. Idle Shaft Spring |
| 25. Steel Ball | 65. Lock Nut | 105. Steel Ball |
| 26. Stop Pin | 66. 1st Clutch Assembly | 106. Needle Bearing |
| 27. Dowel Pin | 67. Thrust Washer | 107. Throttle Control Lever |
| 28. Main Valve Body | 68. Thrust Needle Bearing | 108. Throttle Control Shaft Spring |
| 29. Pump Driven Gear | 69. Needle Bearing | 109. Oil Seal |
| 30. Pump Gear Shaft | 70. Mainshaft 1st Gear | 110. Reverse Idler Gear |
| 31. Torque Converter Check Valve | 71. Thrust Washer | 111. Differential Bearing Outer Race |
| 32. Check Valve Spring | 72. Collar | 112. Differential Thrust Shim |
| 33. Main Valve Body Separator Plate | 73. Ball Bearing | 113. Breather Joint |
| 34. Pump Drive Gear | 74. Snap Ring | 114. Breather Cap |
| 35. Filter Screen | 75. NM Speed Sensor | 115. Transmission Hook |
| 36. Control Shaft | 76. NC Speed Sensor | 116. Dipstick Holder |
| 37. 1st Clutch Pipe | 77. Oil Seal | 117. "O" Ring |
| 38. 3rd Clutch Pipe | 78. Parking Pawl Shaft | 118. Dipstick |
| 39. Transmission Magnet | 79. Parking Pawl Spring | 119. Transmission Housing |
| 40. Servo Cover | 80. Parking Pawl | 120. Transmission Gasket |
| 41. 4th Clutch Pipe | 81. End Cover | 121. "O" Rings |

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Fig. 38: Legend of Exploded View of Transaxle Assembly (2 of 2)
Courtesy of AMERICAN HONDA MOTOR CO., INC.

COMPONENT DISASSEMBLY & REASSEMBLY

ONE-WAY CLUTCH/PARKING GEAR

Disassembly

Separate countershaft 1st gear from parking gear by turning parking gear in clockwise direction. Remove one-way clutch by prying up using screwdriver.

CAUTION: DO NOT pry on 3 copper friction strips. If strip is broken or damaged, clutch will not operate properly.

Cleaning and Inspection

Inspect parking gear and countershaft 1st gear for wear or scoring. Inspect one-way clutch for damage or faulty movement.

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Reassembly

After parts are assembled, hold countershaft 1st gear and turn parking gear in clockwise direction to ensure that it rotates freely.

VALVE BODIES

Disassembly

Accumulator cover is spring loaded. To prevent possibility of stripping threads from converter housing, press down on accumulator cover while removing bolts in a crisscross pattern. Follow this procedure for installation as well. **DO NOT** use a magnet to remove steel balls. Balls may become magnetized and result in improper transmission. Note installed position of all valves and springs for reassembly reference.

Cleaning and Inspection

NOTE: Before using No. 600 abrasive paper, ensure that it has been soaked in ATF for about 30 minutes.

1. Thoroughly clean all parts in solvent or carburetor cleaner. Dry using compressed air and blow out all passages. Replace valve body as an assembly if any parts are worn or damaged.
2. Check that all valves remove freely. If valves do not move freely polish off burrs or rough areas using ATF soaked No. 600 abrasive paper. Rewash entire valve body and parts thoroughly if polishing was needed.
3. Ensure that all springs meet specifications. Refer to the appropriate SPRING FREE LENGTH table. Coat all parts in ATF before reassembly.

SPRING FREE LENGTH (1988)

Spring Identification	Free Length In. (mm)
Cooler Check Valve Spring	1.41 (35.7)
CPC Valve Spring "A" & "B"	1.28 (32.4)
Idle Shaft Spring "A"	.57 (14.6)
Idle Shaft Spring "B"	.81 (20.7)
L/C Control Spring	
Standard	1.56 (39.5)
Option 1	1.58 (40.2)
Option 2	1.61 (41.0)
L/C Shift Spring	2.01 (51.0)
L/C Timing Spring "B"	1.60 (40.7)
Low Accumulator Ball Spring	.55 (14.0)
Low Accumulator Spring "A"	2.30 (58.5)
Low Accumulator Spring "B"	1.57 (40.0)
Low Clutch Return Spring	1.22 (31.0)
Modulator Valve Spring	1.20 (30.6)

1990 Acura Legend**1988-90 AUTOMATIC TRANSMISSIONS L5 Diagnosis & Overhaul**

Modulator Valve Spring "A" & "B"	1.30 (33.0)
Regulator Valve Spring "A"	3.41 (86.5)
Regulator Valve Spring "B"	1.73 (44.0)
Relief Valve Spring	2.05 (52.0)
Servo Orifice Control Valve Spring	1.41 (35.9)
Stator Reaction Spring	1.19 (30.3)
Throttle Control Valve Adjuster Spring "A"	1.18 (30.0)
Throttle Control Valve Spring "A"	.85 (21.6)
Throttle Control Valve Spring "B"	1.63 (41.3)
Top Accumulator Spring	3.40 (86.4)
Torque Converter Check Valve Spring	1.43 (36.4)
2nd Accumulator Spring	3.14 (79.7)
2nd Clutch Return Spring	1.22 (31.0)
2nd Orifice Control Valve Spring	1.52 (38.5)
3rd Accumulator Spring	3.26 (82.8)
4th Orifice Control Spring	1.09 (27.6)
1-2 Shift Spring	1.59 (40.4)
1-2 Shift Ball Spring	.50 (12.7)
2-1 Orifice Control Spring	1.63 (41.5)
2-3 Shift Spring	1.56 (39.6)
3-2 Kick Down Valve Spring	1.59 (40.5)
3-4 Shift Spring	1.90 (48.3)
4-3 Kick Down Valve Spring	1.27 (32.2)

SPRING FREE LENGTH (1989-90)

Spring Identification	Free Length In. (mm)
Cooler Check Valve Spring	1.41 (35.7)
CPC Valve Spring "A", "B" (CPC Valve)	1.28 (32.4)
CPC Valve Spring "A", "B" (Modulator valve)	1.30 (33.0)
Idle Shaft Spring "A"	.57 (14.6)
Idle Shaft Spring "B"	.81 (20.7)
L/C Control Spring	
Standard	1.56 (39.5)
Option 1	1.58 (40.2)
Option 2	1.61 (41.0)
L/C Shift Spring	2.01 (51.0)
L/C Timing Spring "B"	1.60 (40.7)
Low Accumulator Ball Spring	.55 (14.0)
Low Accumulator Spring "A"	2.30 (58.5)
Low Accumulator Spring "B"	1.57 (40.0)
Low Clutch Return Spring	1.22 (31.0)

1990 Acura Legend**1988-90 AUTOMATIC TRANSMISSIONS L5 Diagnosis & Overhaul**

Modulator Valve Spring	1.20 (30.6)
Regulator Valve Spring "A"	3.41 (86.5)
Regulator Valve Spring "B"	1.73 (44.0)
Relief Valve Spring	2.05 (52.0)
Servo Detent Spring	.58 (14.8)
Stator Reaction Spring	1.19 (30.3)
Torque Converter Check Valve Spring	1.43 (36.4)
2nd Orifice Control Valve Spring	1.52 (38.5)
4th Orifice Control Spring	1.09 (27.6)
Servo Control Valve Spring	1.70 (43.2)
Servo Orifice Control Valve Spring	1.41 (35.9)
Throttle Control Valve Adjuster Spring "A"	1.18 (30.0)
Top Accumulator Spring	3.22 (81.7)
Throttle Control Valve Spring "B"	1.63 (41.3)
2nd Accumulator Spring	3.14 (79.7)
2nd Clutch Return Spring	1.22 (31.0)
3rd Accumulator Spring	3.26 (82.8)
1-2 Shift Spring	1.59 (40.4)
2-1 Orifice Control Spring	1.63 (41.5)
2-3 Shift Spring	1.56 (39.6)
3-2 Kick Down Valve Spring	1.59 (40.5)
3-4 Shift Spring	1.90 (48.3)
4-3 Kick Down Valve Spring	1.27 (32.2)

Reinstall (Main & Secondary Valve bodies)

1. Install 3-4 shift valve and shift valve spring with cap. Secure in place using roller (or roll pin). Install 1-2 and 2-3 shift valves in main valve body in same manner as for 3-4 shift valve.
2. Install manual valve, 6 x 16 mm rollers and spring. Set relief spring in relief valve and install in main valve body.
3. Install spring using screwdriver and install check valve cap with cutout (slot) aligned with screwdriver.
4. Install orifice control valve in main and secondary valve bodies in same manner described in step 3). See **Fig. 39 -Fig. 42** .

Reassembly (Regulator Valve Body)

1. Install pressure regulator valve and regulator valve springs "A" and "B". Install reaction spring, spring seat and retainer.
2. Align hole in retainer with hole in valve body. Press retainer into valve body and tighten lock bolt. See **Fig. 43** .

Reassembly (Lock-Up Shift Valve Body)

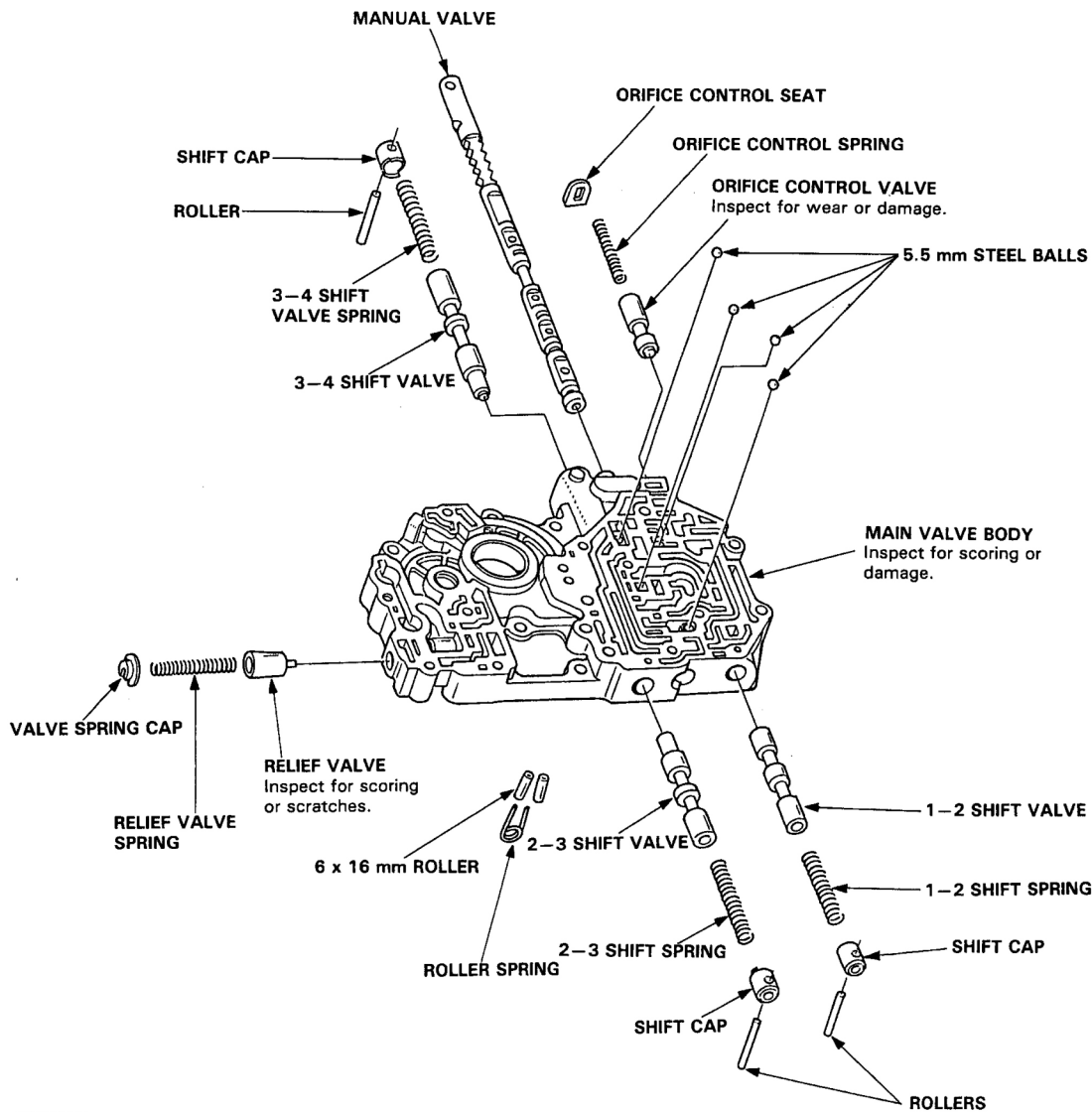
For exploded view of component, see **Fig. 44** .

Reassembly (Servo Valve Body)

For exploded view of component, see **Fig. 45** .

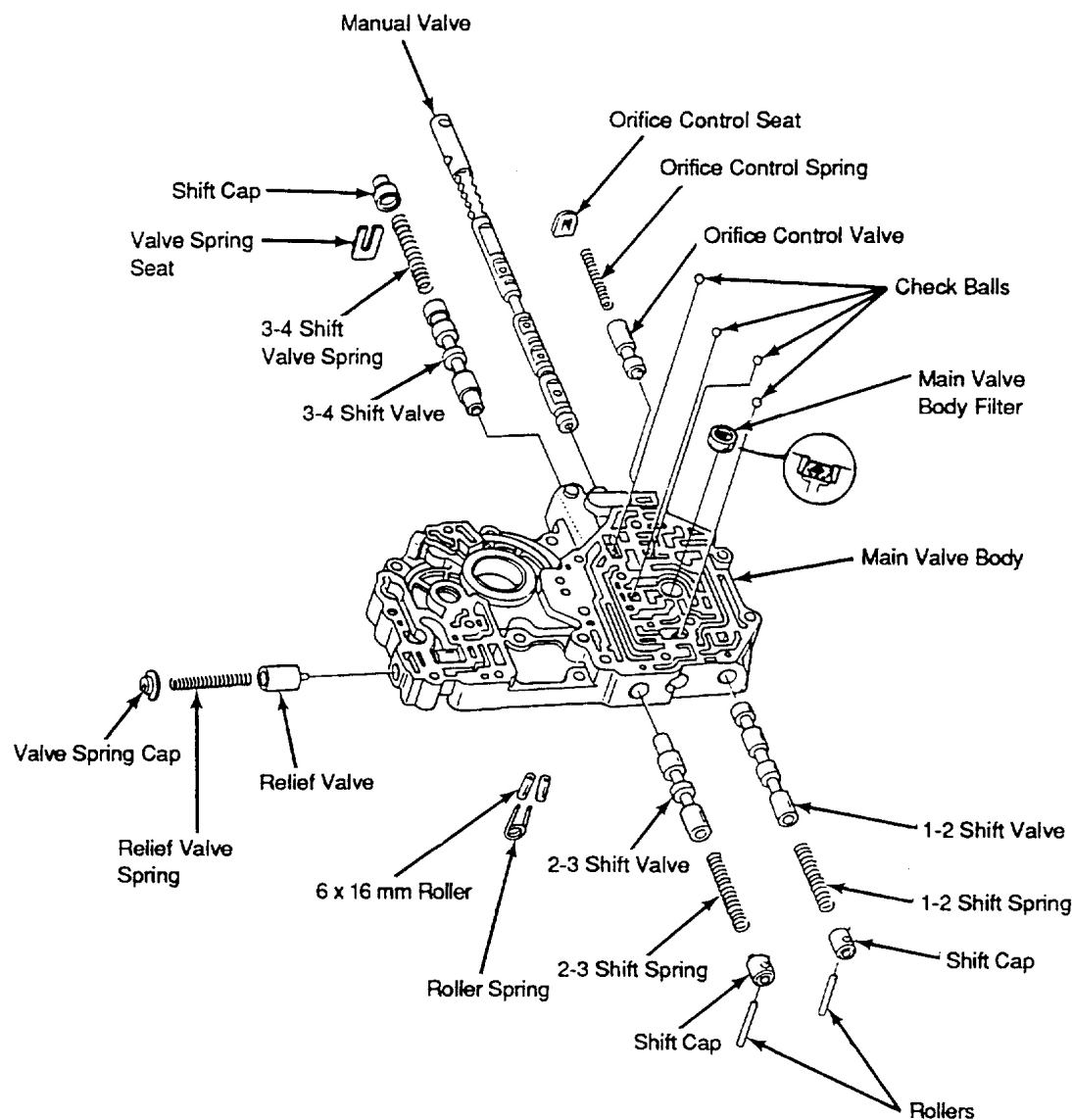
Reassembly (1st Accumulator)

For exploded view of component, see **Fig. 46** .



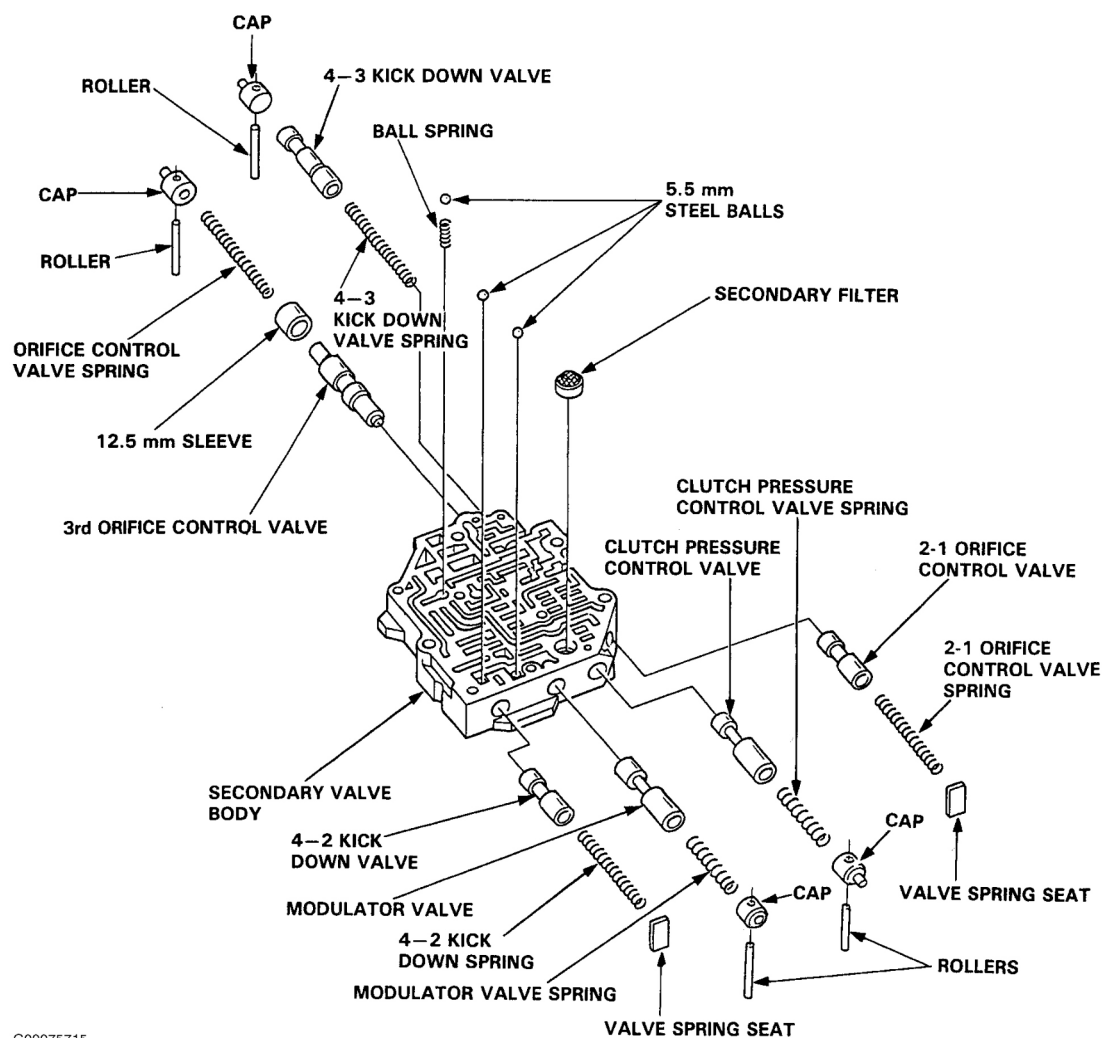
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Fig. 39: Exploded View Of Main Valve Body (1988)
Courtesy of AMERICAN HONDA MOTOR CO., INC.



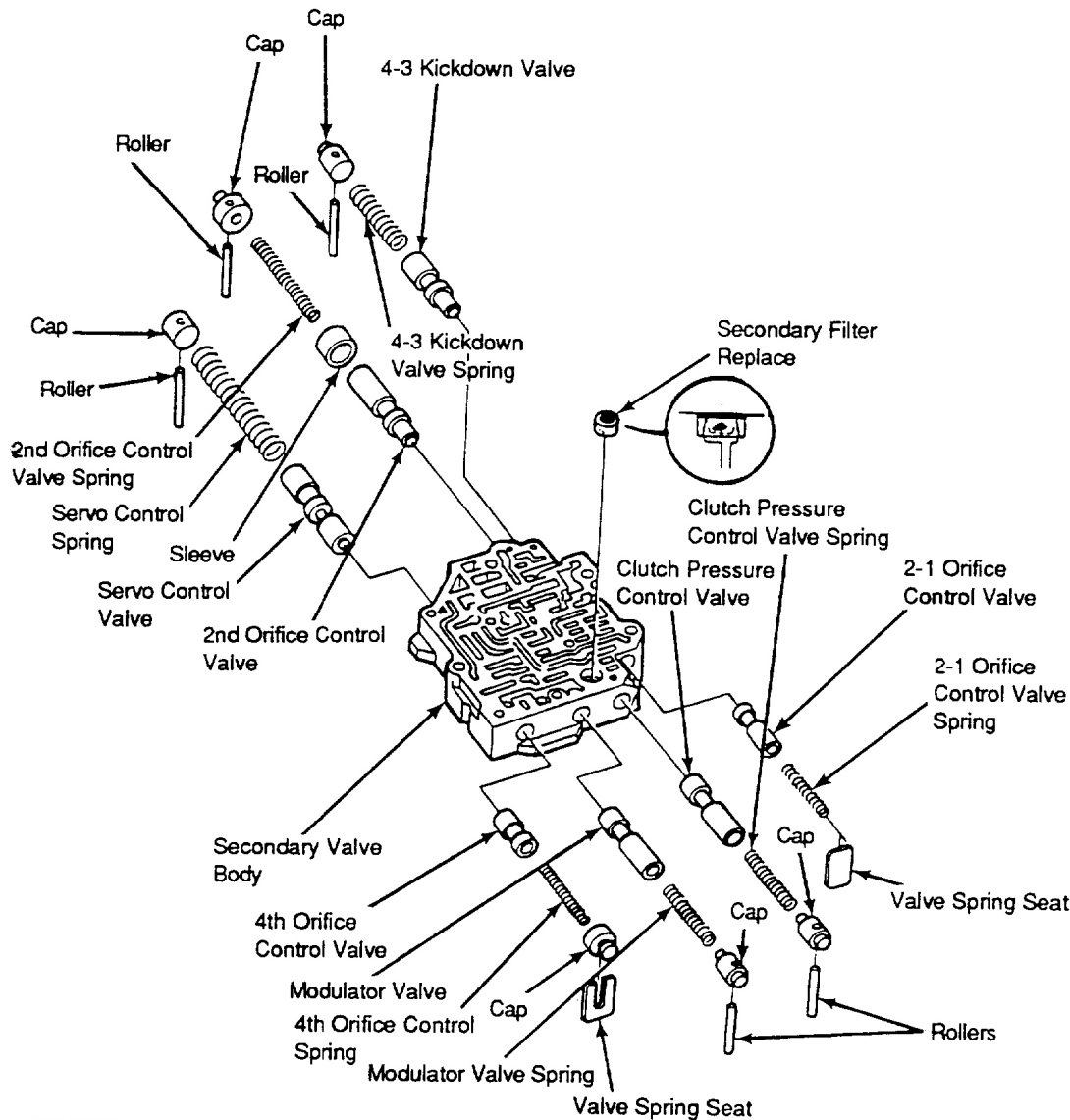
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Fig. 40: Exploded View of Main Valve Body (1989-90)
 Courtesy of AMERICAN HONDA MOTOR CO., INC.



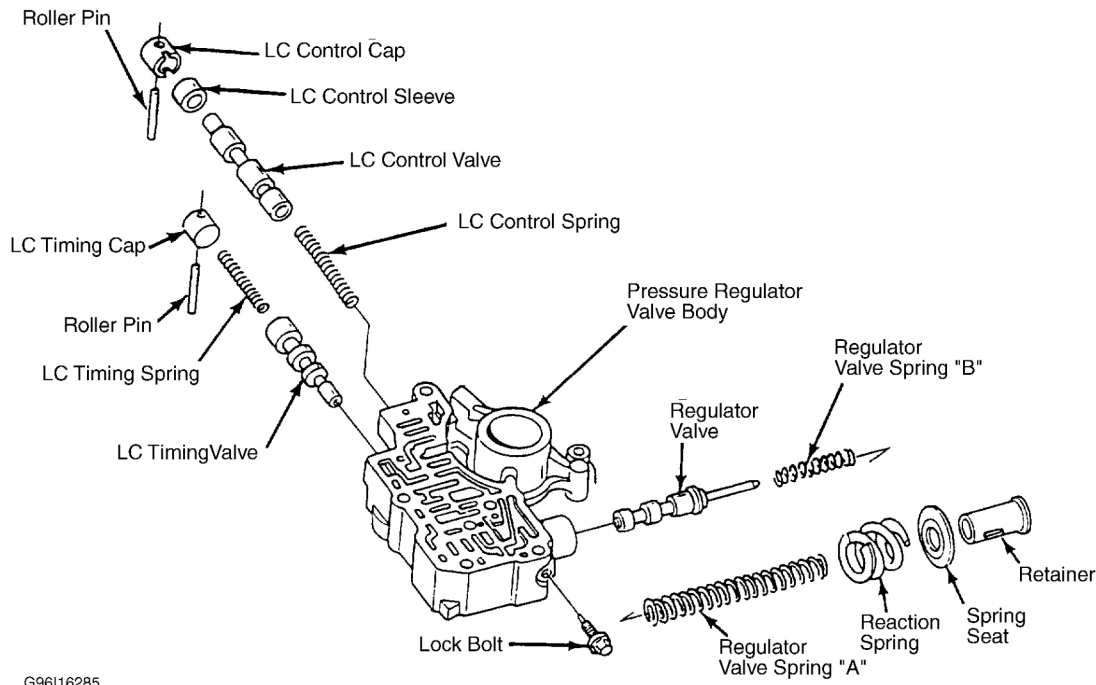
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Fig. 41: Exploded View Of Secondary Valve Body (1988)
 Courtesy of AMERICAN HONDA MOTOR CO., INC.



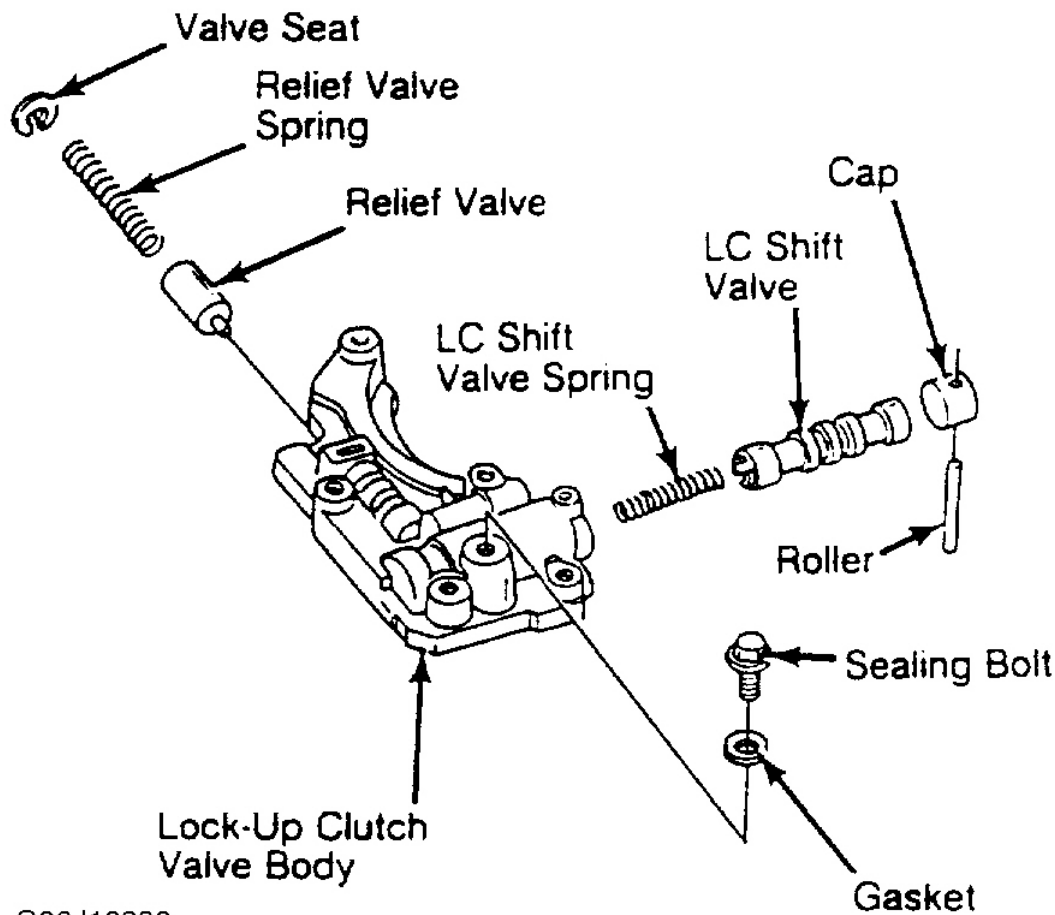
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Fig. 42: Exploded View of Secondary Valve Body (1989-90)
 Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 43: Exploded View of Regulator Valve
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

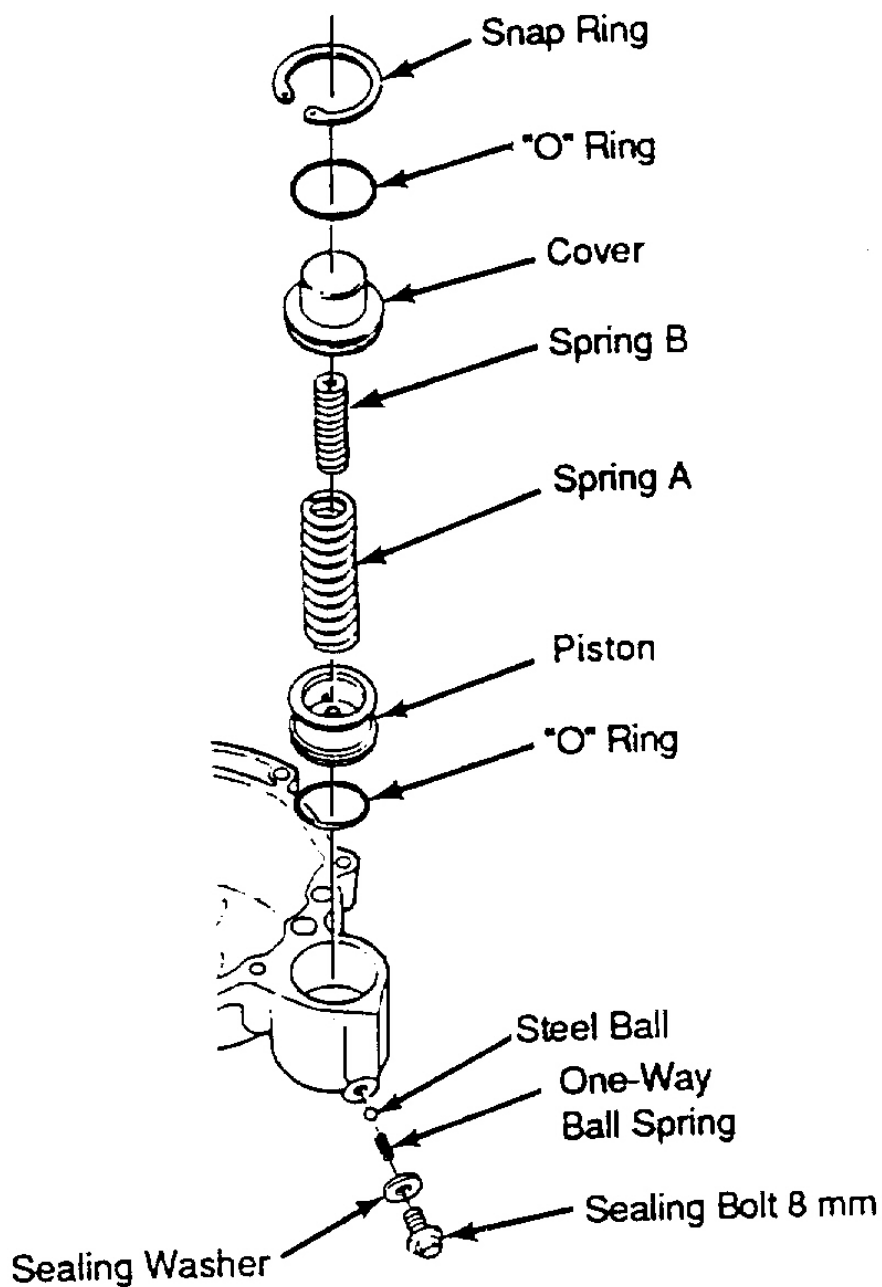


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Fig. 44: Exploded View of Lock-up Shift Valve
 Courtesy of AMERICAN HONDA MOTOR CO., INC.



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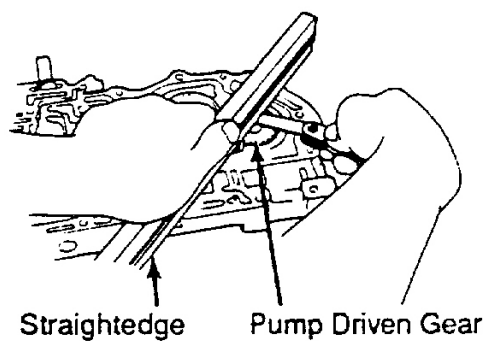
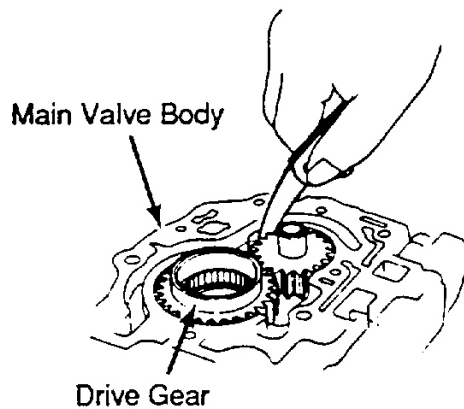
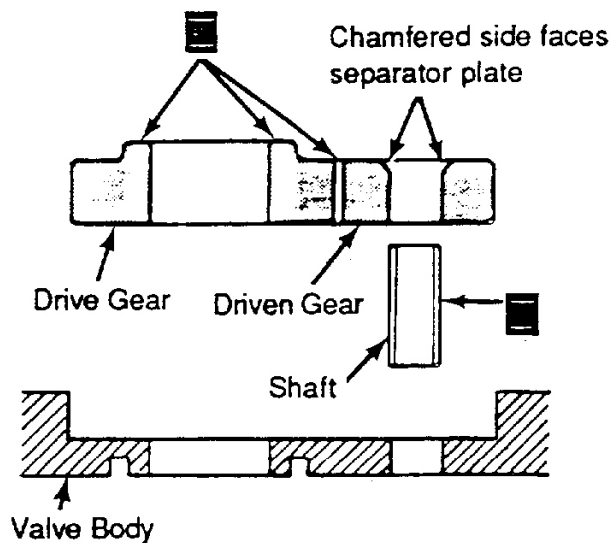
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Fig. 46: Exploded View of 1st Accumulator
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

OIL PUMP

Cleaning Inspection

1. Install pump gears and shaft in main valve body. Install oil pump shaft and measure side clearance of drive and driven gears.
2. Standard pump side (radial) drive gear clearance should be .0083-.0104" (.210-.265 mm). Driven gear (radius) clearance should be .0014-.0025" (.035-.063 mm). Inspect teeth for wear or damage.
3. Measure thrust clearance of driven gear-to-valve body. Standard clearance should be .001-.002" (.03-.05 mm). Service limit is .0028" (.070 mm). See **Fig. 47** .



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Fig. 47: Measuring Oil Pump Clearances
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

MAINSHAFT & COUNTERSHAFT

Disassembly

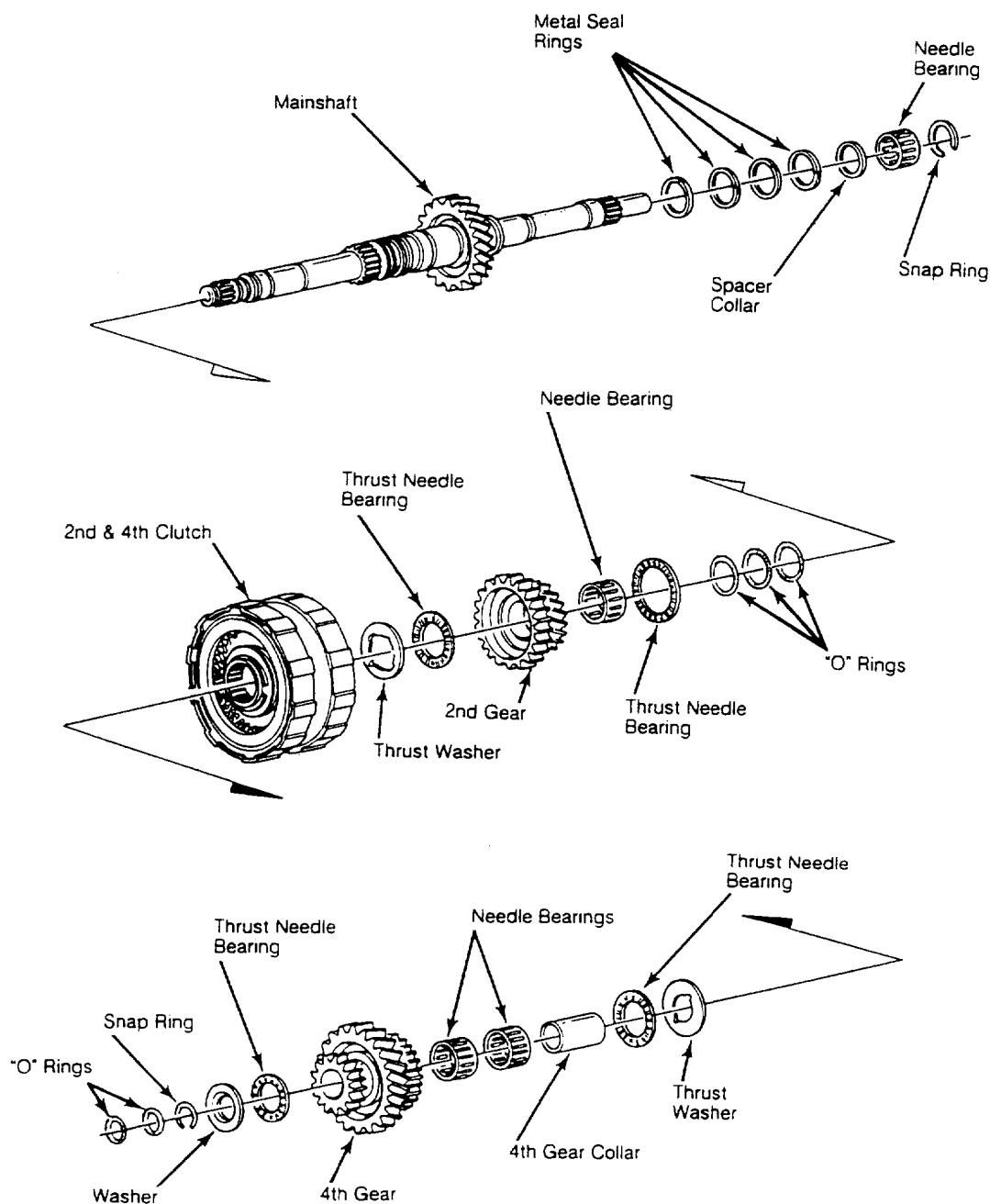
For exploded view of component, see **Fig. 48** and **Fig. 49** .

Cleaning & Inspection

1. Check all splines for excessive wear or damage. Also check bearing surfaces for scoring, scratches or excessive wear. Replace metal seal rings.
2. Check needle bearings for galling and rough movement. Replace all "O" rings.

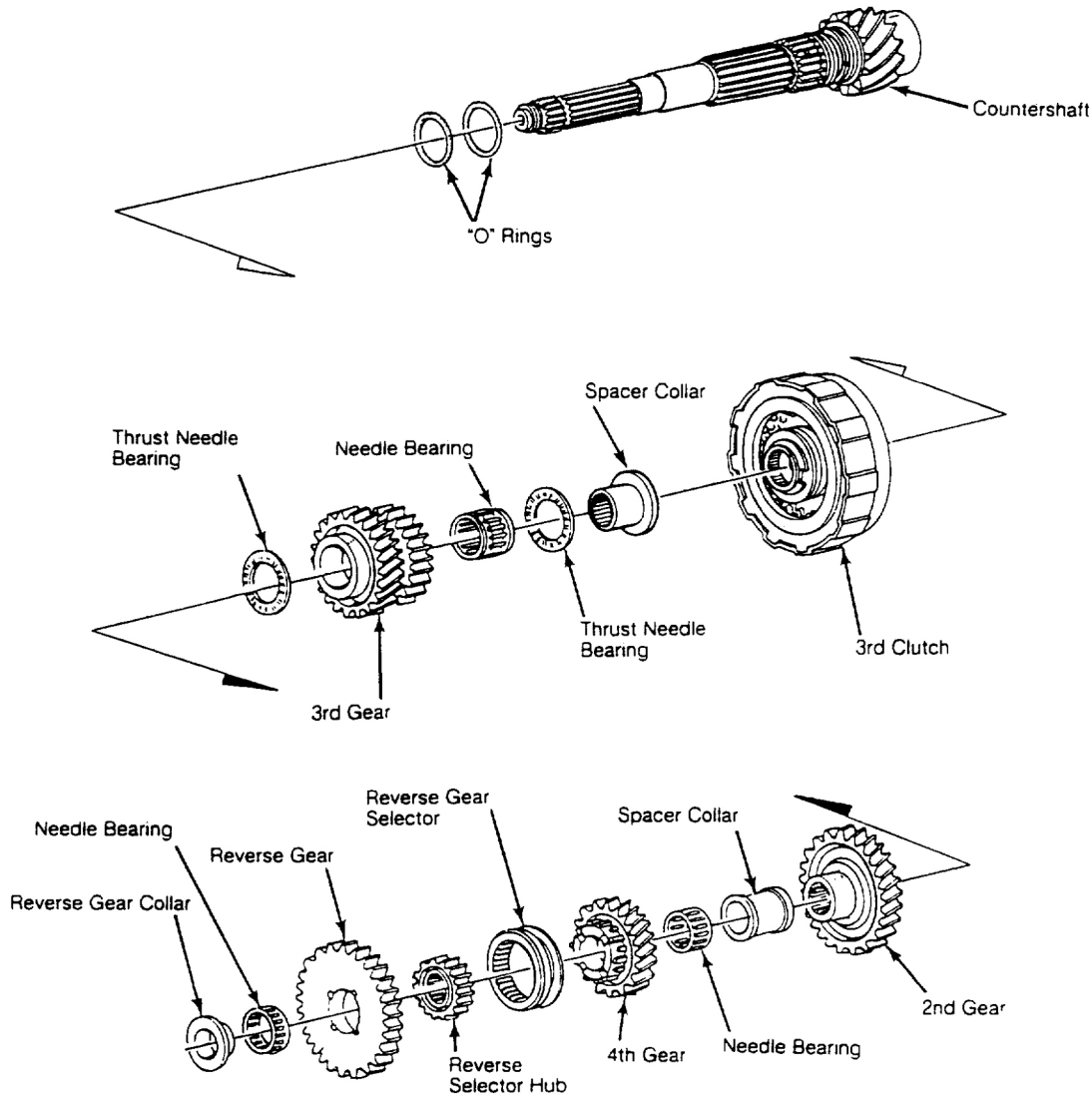
Reassembly

Lubricate all part with ATF prior to reassembly. Install thrust needle bearings with unrolled edge of bearing retainer facing washer.



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Fig. 48: Exploded View of Mainshaft
 Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 49: Exploded View of Countershaft
Courtesy of AMERICAN HONDA MOTOR CO., INC.

CLEARANCE MEASUREMENTS

1. Measure spacer collar height. See **Fig. 50** . Standard measurement should be 1.120-1.124" (28.45-28.55 mm). Replace if measurement is less than 1.118" (28.40 mm).
2. Remove both mainshaft and countershaft bearings from transmission housing. Assemble mainshaft and countershaft, including bearings. See **Fig. 48** and **Fig. 49** .

NOTE: Countershaft lock nut has LEFT-HAND threads.

3. Torque mainshaft and countershaft lock nuts to 22 ft. lbs. (30 N.m). Measure clearance between shoulder

on selector hub and shoulder on 4th gear countershaft.

4. Standard clearance on countershaft should be .003-.006" (.07-.15 mm). See **Fig. 51** . If clearance exceeds limit, measure thickness of spacer collar and select replacement which gives correct clearance. Replacement collars are available in sizes from 1.868-1.965" (47.45-49.90 mm) in .002" (.05 mm) increments.
5. Ensure that all measurements are correct before changing thrust washers. Recheck after making adjustments.
6. On mainshaft, measure clearance between shoulder of 2nd gear and main 3rd gear. See **Fig. 51** . Standard (new) mainshaft 2nd gear clearance should be .003-.006" (.07-.15 mm).
7. If clearance exceeds service limit, measure thickness of 2nd clutch thrust washer (36.5 mm ID) and select replacement which gives correct clearance. Replacement washers are available in sizes from .157-.173" (4.00-4.40 mm) in .002 (.05 mm) increments.

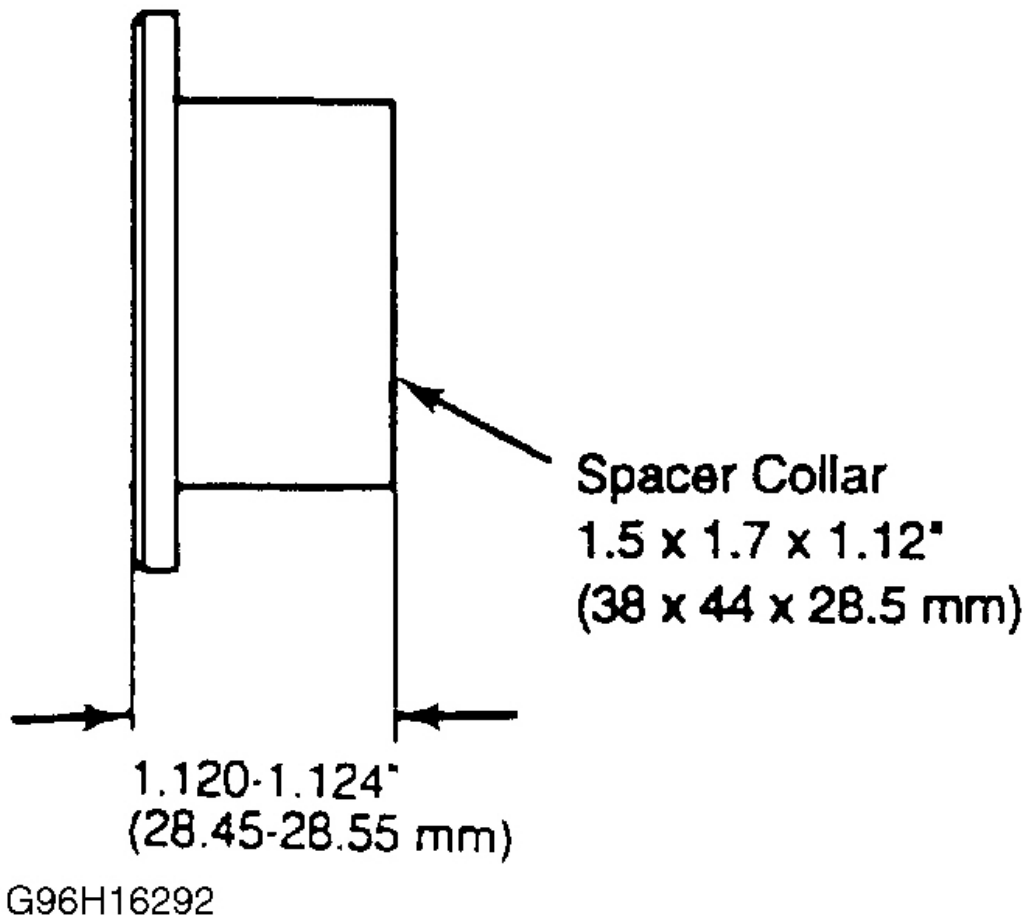
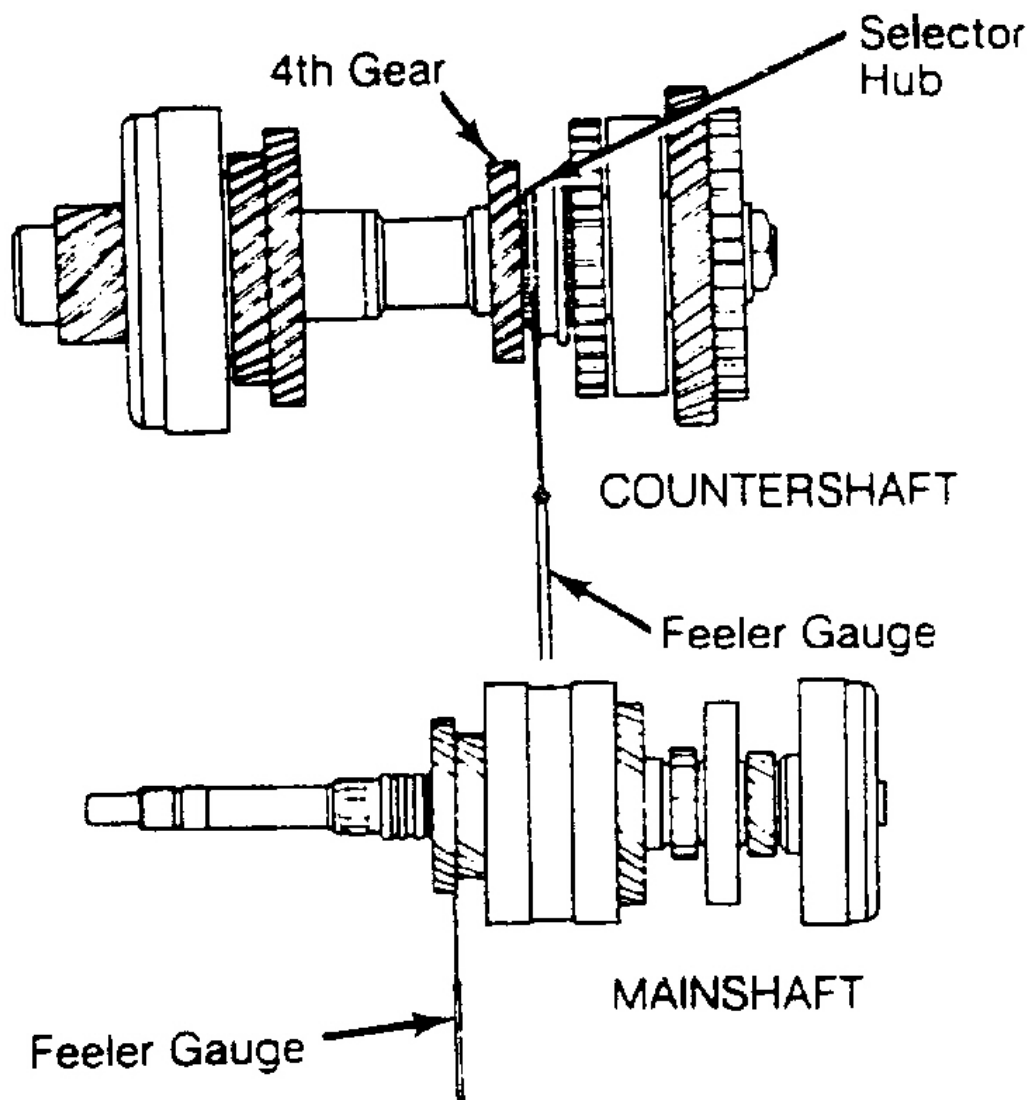


Fig. 50: Locating Spacer Collar Measuring Points
Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 51: Locating Countershaft & Mainshaft Measuring Points
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

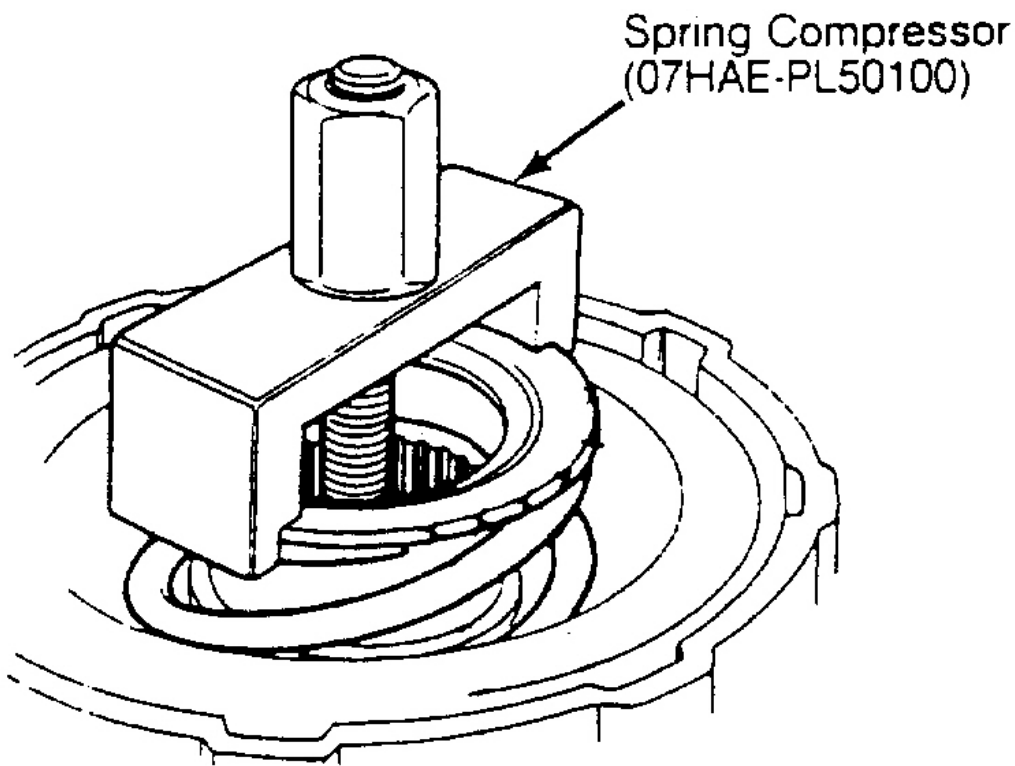
CLUTCH

Disassembly

1. On 1st and 3rd, 2nd, and 4th clutch, remove snap ring, end plate, clutch discs and plates. Remove clutch piston plate. Using Spring Compressor (07HAE-PL50100), compress clutch return spring. See **Fig. 52**.

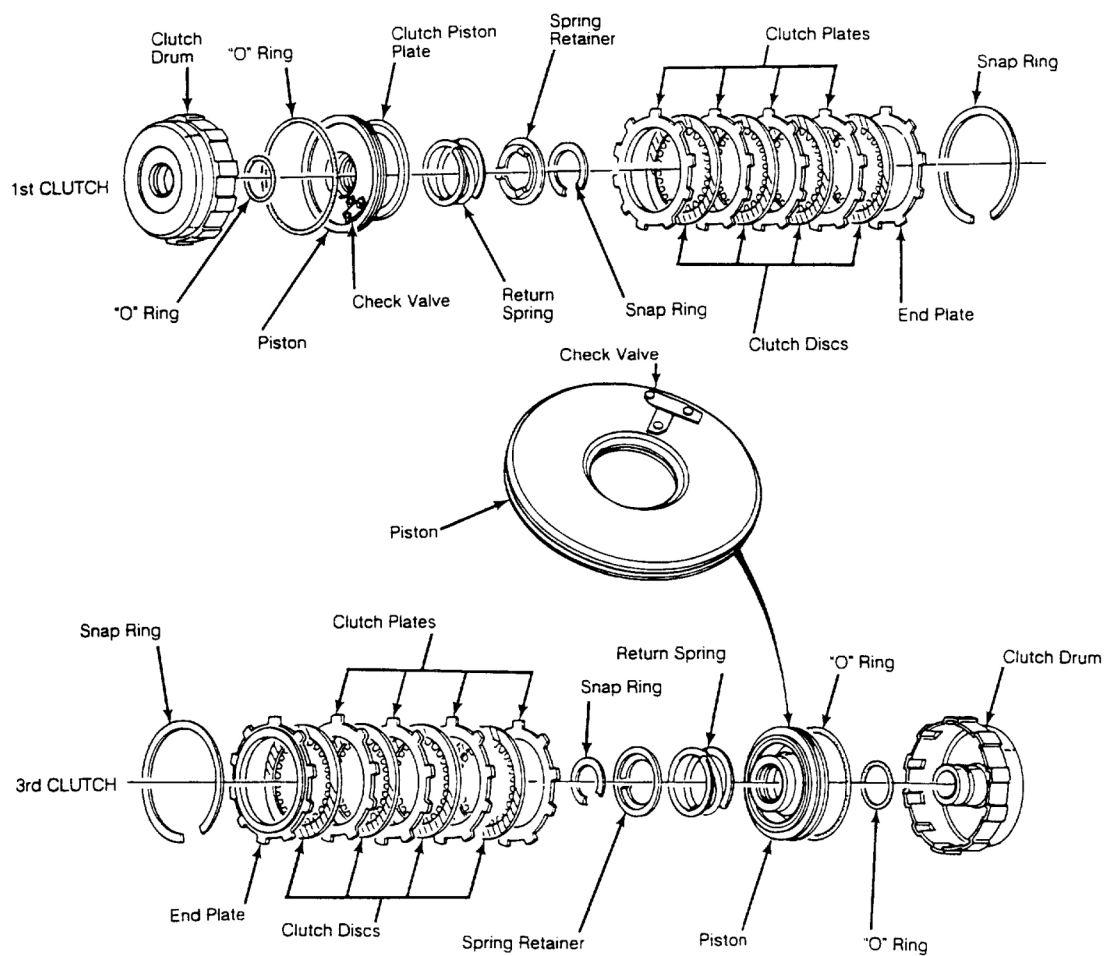
CAUTION: If either end of compressor attachment is set over an area of retainer which is unsupported by spring, retainer may be damaged.

2. On 1st and 3rd clutch, assemble spring compressor on clutch drum and compress clutch return spring. Follow same procedure for 2nd and 4th clutch.
3. Remove snap ring, spring compressor, spring retainer and spring. With clutch drum wrapped in shop towel, apply compressed air to oil passage to remove piston. Place finger tip on other end while applying air pressure. See [Fig. 53](#) and [Fig. 54](#).



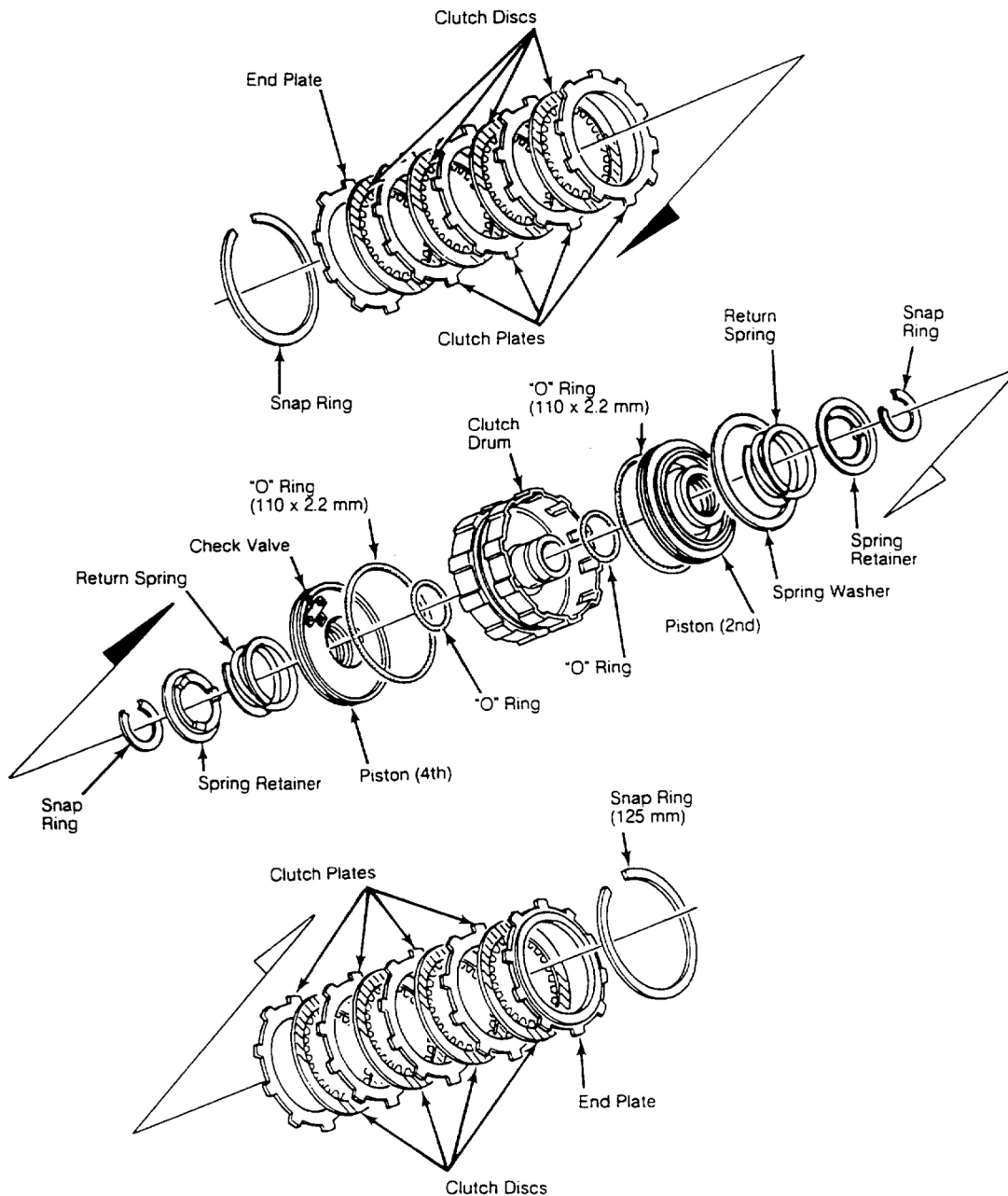
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Fig. 52: Positioning Clutch Spring Compressor
Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 53: Exploded View of 1st & 3rd Clutch Assemblies
 Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 54: Exploded View of 2nd & 4th Clutch Assemblies
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

Cleaning & Inspection

Clean all parts thoroughly using solvent and dry using compressed air. Ensure that all passages are blown out. Lubricate all parts with ATF before reassembly. Use new "O" ring on clutch pistons.

CAUTION: Before installing plates and discs, ensure that inside of clutch drum is free of dirt or other foreign matters. DO NOT pinch "O" ring by forcing piston installation.

Reassembly

1. Ensure that clutch discs are thoroughly soaked in ATF for a minimum of 30 minutes before installation. During reassembly ensure that piston plate and spring washer are installed correctly. See **Fig. 55** .

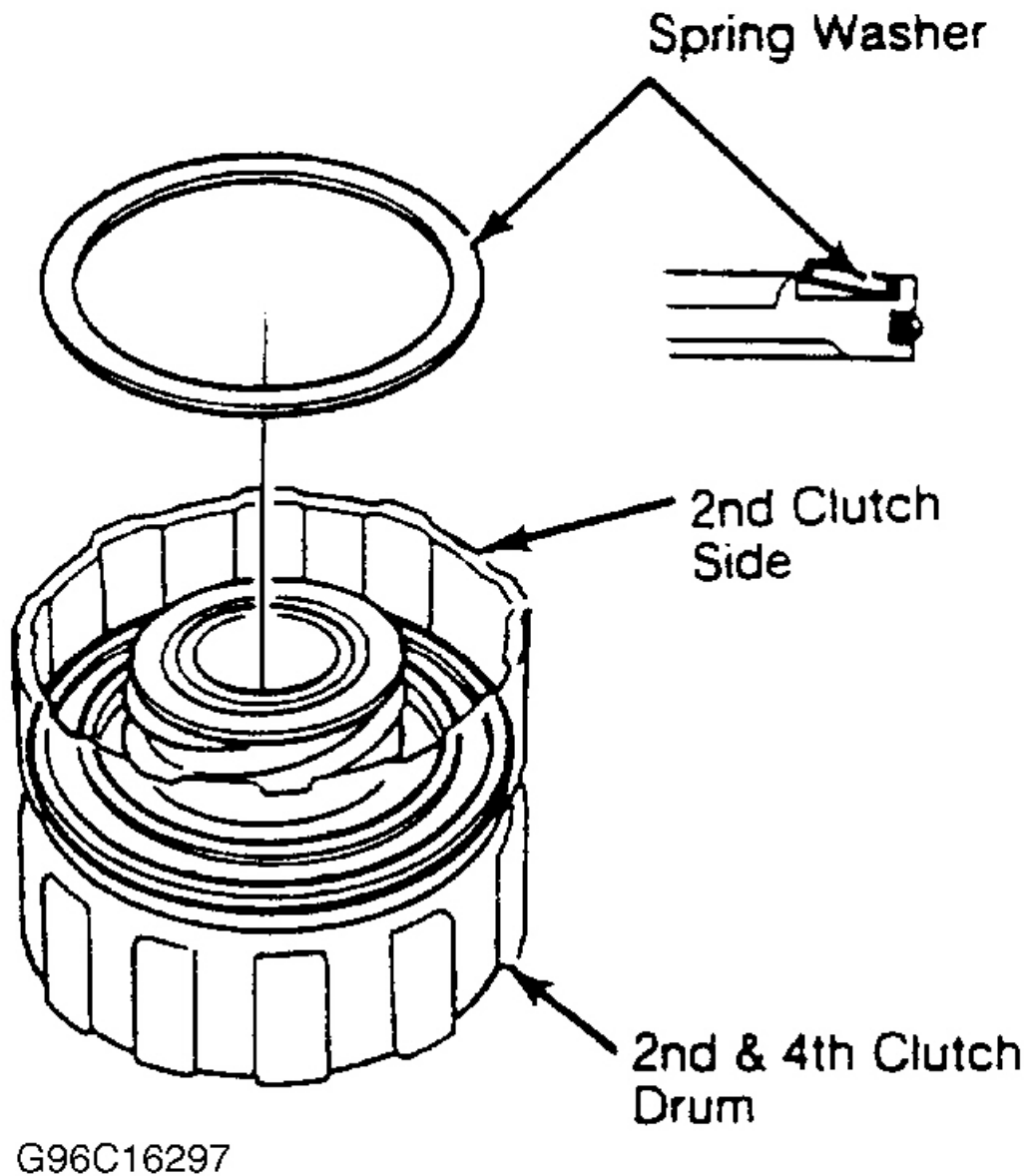


Fig. 55: Installing Spring Washer

Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Reverse disassembly to continue with reassembly. Starting with clutch plate, alternately install clutch plates and discs.
3. Install clutch end plate with flat side toward disc. Install 125 mm snap ring. Check engagement by blowing air into oil passage in clutch drum hub. Remove air pressure and ensure that clutch releases.
4. Measure clearance between clutch end plate and top disc with a dial indicator. Zero dial indicator with

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clutch end plate lowered and lift it up to snap ring. Distance that the clutch end plate moves is clearance between the clutch end plate and top disc. Measure at 3 locations.

END PLATE-TO-TOP DISC CLEARANCE

Gear Position	Service Limit Position In. (mm)
1st	026-.033 (.65-.85)
2nd, 3rd & 4th	016-.024 (.40-.60)

5. If clearance is not within service limits, select a new clutch end plate from **CLUTCH END PLATE SPECIFICATIONS** table.

NOTE: If thickest clutch end plate is installed but clearance still exceeds specification, replace clutch discs and clutch plates.

CLUTCH END PLATE SPECIFICATIONS

Part No.	Plate No.	Thickness In. (mm)
All Clutches		
22551-PF4-000	1	.082 (2.10)
22552-PF4-000	2	.086 (2.20)
22553-PF4-000	3	.090 (2.30)
22554-PF4-000	4	.094 (2.40)
22555-PF4-000	5	.098 (2.50)
22556-PF4-000	6	.102 (2.60)
22557-PF4-000	7	.106 (2.70)
22558-PF4-000	7	.110 (2.80)
22559-PF4-000	7	.114 (2.90)
22560-PF4-000	7	.118 (3.00)
1st Clutch Only		
22561-PF4-000	7	.122 (3.10)
22562-PF4-000	7	.126 (3.20)
22563-PF4-000	7	.130 (3.30)
22564-PF4-000	7	.134 (3.40)

BEARINGS

Disassembly & Reassembly

For exploded view of components, see **Fig. 56**.

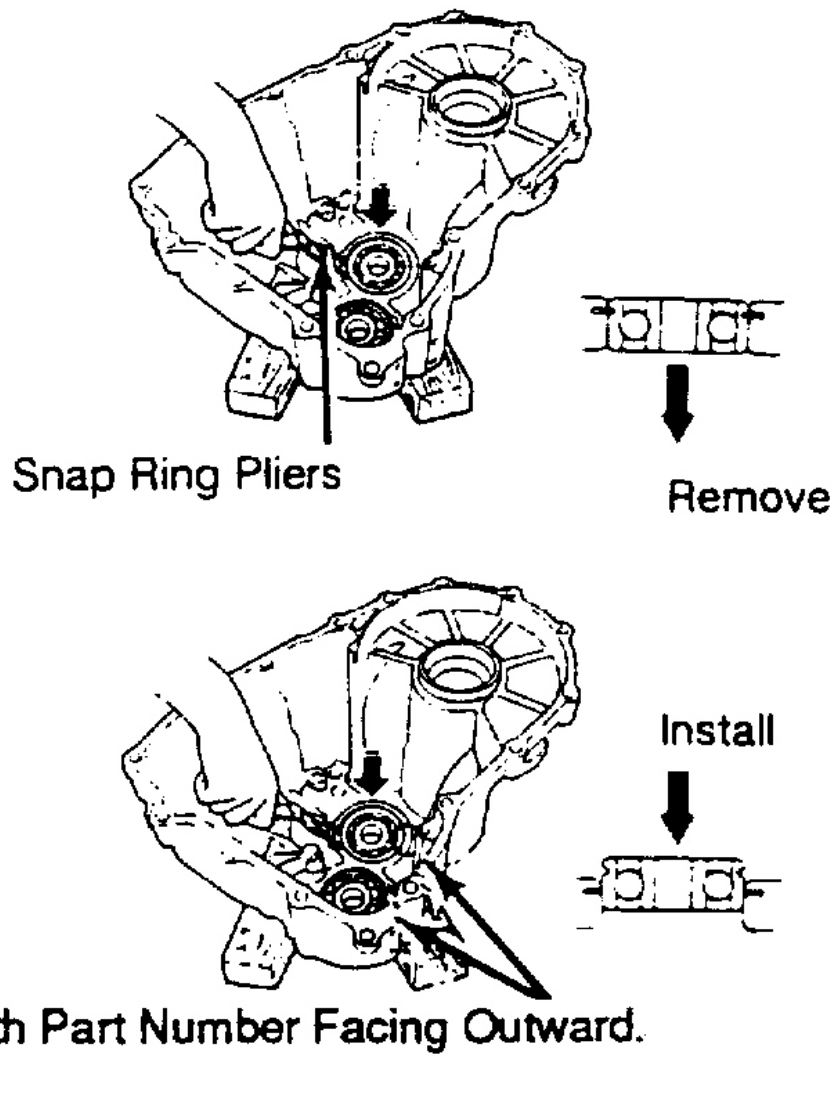


Fig. 56: Removing & Installing Bearing
Courtesy of AMERICAN HONDA MOTOR CO., INC.

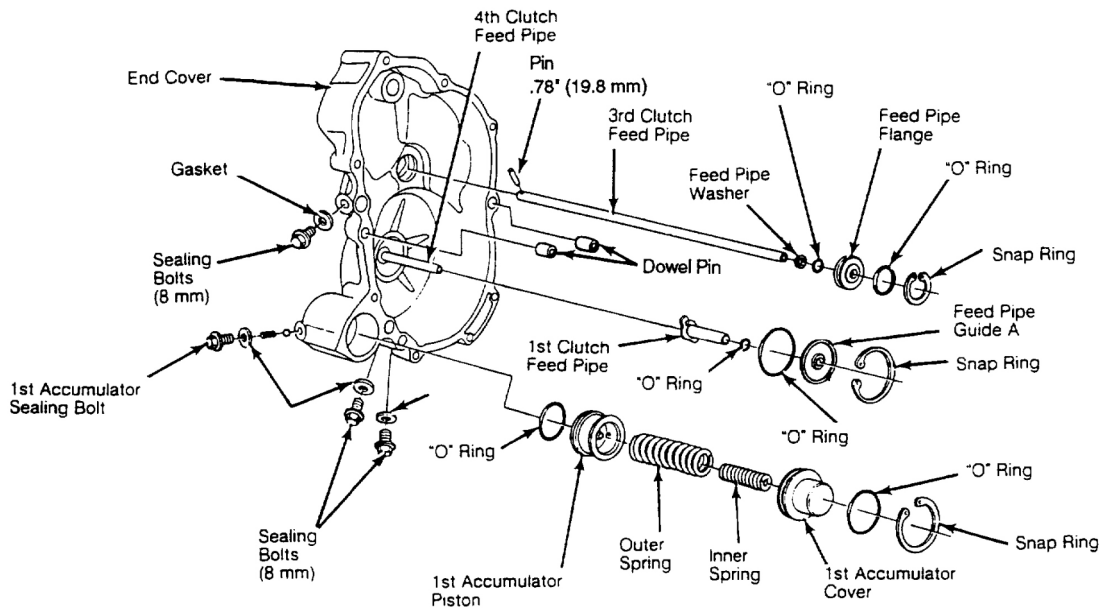
REVERSE IDLER GEAR

Install reverse idler gear with chamfered side facing torque converter housing. Always use new washer when reinstalling.

END COVER

Disassembly

For exploded view of components, see **Fig. 57** .



G96E16299

Fig. 57: Exploded View Of End Cover
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Cleaning & Inspection

Remove and install parts carefully to avoid damage. After cleaning ensure that all parts are coated with ATF.

Reassembly

1. Seat new "O" ring in groove of 1st accumulator and slide accumulator piston into right side transmission cover.
2. Install outer spring, inner spring, additional new "O" ring and accumulator cover. Install 38 mm snap ring.
3. With feed pipe assembled, align lugs on collars with slot end cover. Install snap ring.
4. Install feed pipes in end cover, aligning lugs of 1st clutch feed pipe with grooves of end cover. Install snap ring.

TRANSMISSION REASSEMBLY

DIFFERENTIAL

Disassembly

1. Remove ring gear and inspect teeth for wear or damage. Ring gear bolts have LEFT-HAND threads. Drive out spring pin using 5 mm pin punch.

2. Remove pinion shaft, pinion gears and washers, thrust washers and side gears.

Cleaning & Inspection

Wash all parts thoroughly in solvent and dry using compressed air. Inspect all parts for wear or damage and replace any that are found to be defective.

Reassembly

1. Install side gears with thrust washers in differential carrier. Insert pinion shaft and align spring pin holes in one end with matching hole in carrier.
2. Drive in spring pin using 5 mm pin punch. Recheck backlash of both pinion gears. Standard clearance should be .003-.006" (.08-.15 mm).
3. If still out of tolerance, replace both pinion gears and recheck backlash. If tolerance is still not met, replace side gears and recheck backlash. If proper backlash still cannot be obtained, replace carrier assembly.
4. Install ring gear and torque bolts to 77 ft. lbs. (105 N.m). Bolts (10 mm) are LEFT-HAND thread. Ensure transmission and torque converter oil seals have been replaced.

Backlash Inspection

1. Place differential assembly on "V" blocks and install both axles. Check backlash of both side gears. Standard clearance should be .003-.006" (.08-.15 mm).
2. If out of tolerance, disassemble differential and select new optional pinion washers ranging in size from .028-.041" (.70-1.05 mm) in increments of .002" (.05 mm.)

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

Taper Roller Bearing Preload Adjustment

1. Remove bearing outer race and thrust shim from transmission housing by prying or remove outer race from transmission housing by heating housing to about 212° F (100° C) using dryer.

CAUTION: DO NOT heat case in excess of 212° F (100° C). Replace thrust shim with new one if it is pried out. Replace bearing when outer race is to be replaced. DO NOT use shim on torque converter housing side.

2. Allow transmission housing to cool to room temperature before adjusting bearing preload. Thrust shims are available in sizes from .035-.053" (.90-1.35 mm) in increments of .002" (.05 mm).
3. Select 2 thrust shims that measure in total thickness of (2.15 mm). **DO NOT** use more than 2 shims to adjust bearing preload. When adjusting preload using one shim, start with .08" (2.15 mm) shim.
4. After installing shims, install outer race in transmission housing. Install outer race squarely in transmission housing. Ensure that there is no clearance between outer race, shim and transmission housing.

5. With mainshaft and countershaft removed, assemble differential assembly and torque the torque converter housing and transmission housing bolts to 33 ft. lbs. (45 N.m). Rotate differential assembly in both directions to seat bearings.
6. Using Preload Inspection Tool (07GAJ-PG20200) and torque wrench, measure starting torque differential assembly. See **Fig. 58**. Starting torque for new bearings should be 24-35 INCH lbs. (2.7-4.0 N.m) or 22-32 INCH lbs. (2.5-3.6 N.m) for used bearings.

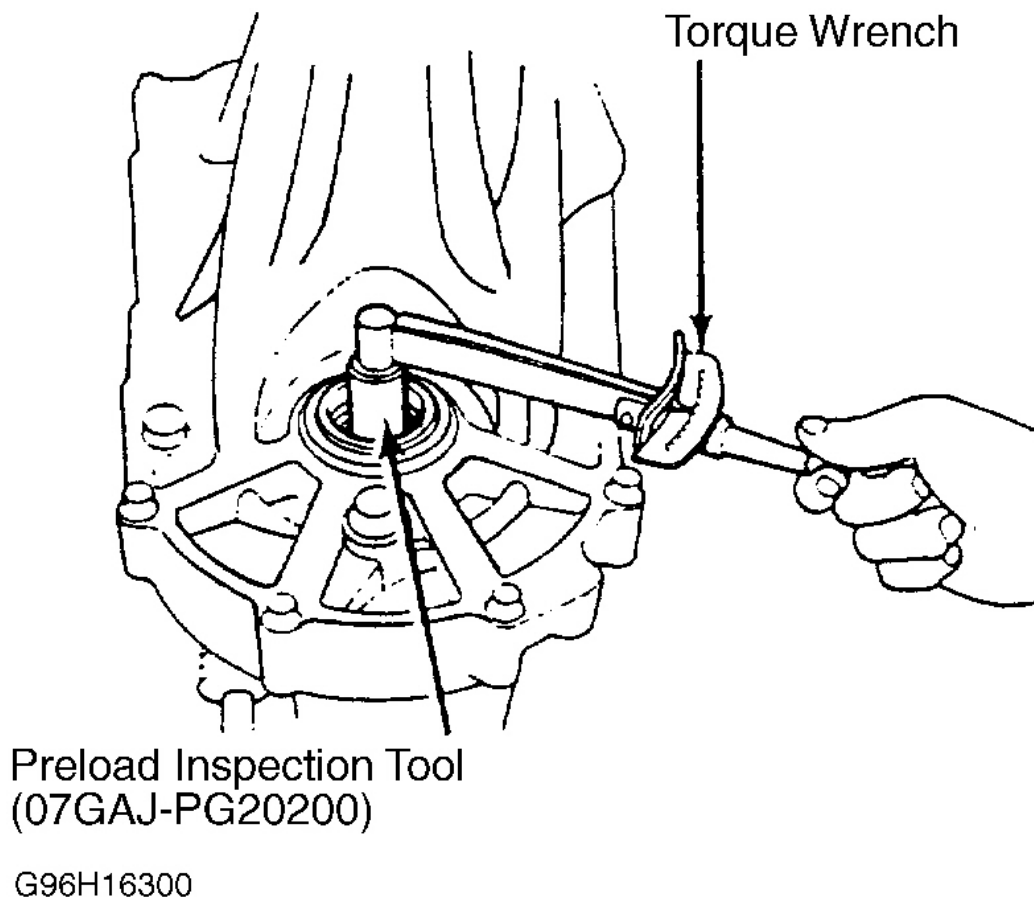


Fig. 58: Checking Differential Starting Torque
Courtesy of AMERICAN HONDA MOTOR CO., INC.

NOTE: Measure preload at normal room temperature in both directions. If out of specification, select 2 shims which will give correct preload and repeat steps 1 and 6). Also note that changing one of the shims to next size will increase or decrease preload about 3-4 INCH lbs. (.3-4 N.m).

7. To increase starting torque, increase thickness of shims. To decrease starting torque, decrease thickness of

shims. Try to keep sizes of 2 shims as close as possible.

Bearing Outer Race Replacement

Remove bearing outer race from torque converter housing. Replace bearing whenever race is replaced. **DO NOT** use shims on torque converter side of housing. Always adjust preload after replacing bearing outer race and bearing.

TRANSMISSION

1. Install differential assembly. If torque converter housing, transmission housing and/or differential side bearings were replaced, differential taper roller bearing preload must be checked.
2. Assemble manual valve lever on control shaft and install in torque converter housing. Install control lever and new lock plate on other end of shaft. Torque bolt to 106 INCH lbs.(12 N.m) and bend tab over against bolt head.
3. Install new filter screen on torque converter housing. Ensure that filter screen support is facing in. Install main separator plate and dowel pin on torque converter housing.
4. Install oil pump gears and shaft. Loosely tighten check valve on main valve body assembly and check valve spring on torque converter housing.

NOTE: **Ensure that oil pump driven gear is installed with chamfered side facing down.**

5. Install main valve body on torque converter housing and loosely tighten 5 bolts in sequence. See **Fig. 59** . Once all bolts have been loosely tightened, securely tighten bolts in sequence. Torque bolts 1 and 2 to 13 ft. lbs. (17.5 N.m) and 3, 4 and 5 to 9 ft. lbs. (12 N.m).
6. Ensure that pump drive gear rotates smoothly in normal operating direction and pump shaft moves smoothly in axial and in normal operating directions.

CAUTION: If pump gear and pump shaft do not move freely, loosen valve body bolts, realign shaft and retorque to specification. Failure to align pump shaft correctly will result in seized pump gear or pump shaft.

7. Install 4 steel balls in main valve body oil passages. Install stator shaft arm, stop pin and dowel pins. Install regulator valve body assembly on main valve body assembly. Torque regulator bolt to 106 INCH lbs. (12 N.m).
8. Install lock-up shift valve separator plate using 2 dowel pins and lock pins. Install lock-up shift valve body assembly using 5 bolts, torque bolts to 106 INCH lbs. (12 N.m). Install secondary separator plate and secondary valve body assembly on main valve body assembly.
9. Install secondary filter in secondary valve body assembly. Secondary valve body assembly is not fixed on main valve body assembly. **DO NOT** remove assembly during or after installing steel balls and spring.
10. Install separator plate and dowel pins and install throttle control shaft. Install shift fork shaft and servo return spring on servo valve body assembly and install assembly on secondary valve body assembly.
11. Ensure that stopper shaft is installed correctly. Install accumulator springs and cover. Torque to 106 INCH lbs. (12 N.m) in crisscross pattern.

NOTE: Before installing bolts, press down on accumulator cover to prevent the possibility of stripping threads.

12. Place rollers on each side of manual valve stem and attach valve to lever using pin. Secure using cotter pin. Install 1st, 3rd and 4th clutch feed pipes.
13. Set countershaft and mainshaft in place as an assembly. **DO NOT** tap on shafts with hammer to drive in place.

NOTE: Install reverse gear selector with flat face up. Install reverse gear selector hub with groove facing up.

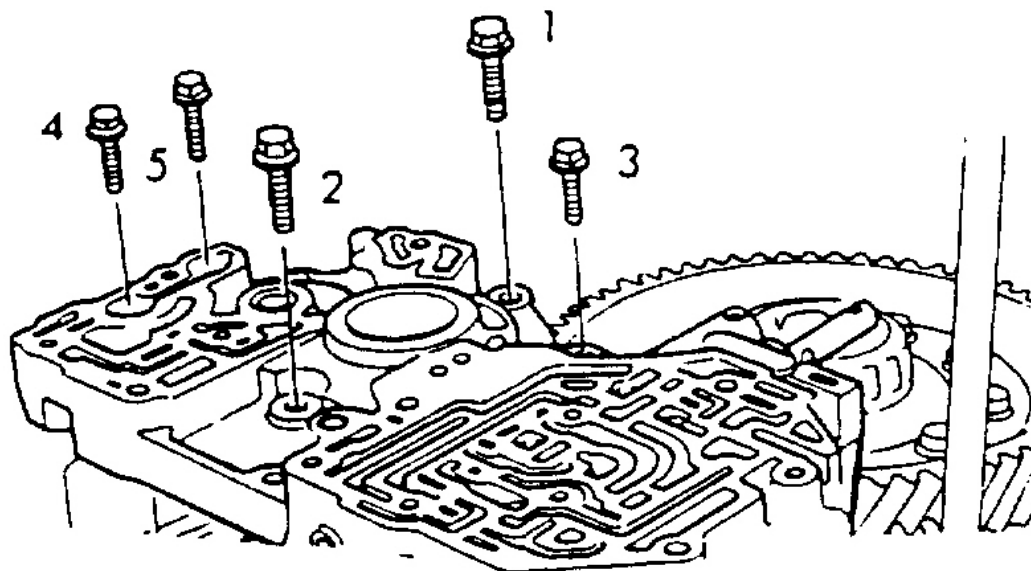
14. Install spacer collar, needle bearing, countershaft 4th gear, reverse shaft fork, reverse gear selector and reverse selector hub.
15. Install reverse shift fork over servo valve stem. Align hole in stem with hole in fork. See **Fig. 60** . Install bolt and new lock plate. Torque bolt to 10 ft. lbs. (14 N.m). Bend lock tab against bolt head.
16. Install countershaft reverse gear, needle bearing and reverse gear collar. Install baffle plate and suction pipe. Install new gasket and 3 dowel pins in torque converter housing.

NOTE: Dowel pins are different lengths. Ensure proper installation.

17. Place transmission housing on torque converter housing. Ensure main valve control shaft lines up with hole in housing. Also ensure reverse idler gear meshes with mainshaft and countershaft or housing will not mate properly.
18. Torque bolts to 41 ft. lbs.. (55 N.m) in sequence, in 2 or more steps. See **Fig. 61** . Install throttle control lever and spring on throttle control shaft. Install bolt and new lock plate. Torque bolt to 53 INCH lbs. (6 N.m). Bend lock tab against bolt head. Install parking brake roller, roller pin and washer on parking shift arm and secure using new cotter pin.
19. Install parking spring, parking shift arm and parking lever on shift shaft. Torque bolt to 10 ft. lbs. (14 N.m). Bend lock tab against bolt head. Install countershaft 1st gear and needle bearing on countershaft.
20. Install 1st gear collar and new "O" rings on mainshaft. Install parking gear and countershaft using parking Gear Installer (07HAF-PL50100). Lock nut has LEFT-HAND threads.
21. Install stop pin, parking pawl shaft, parking pawl and pawl release spring. Ensure that hook end of spring is placed in hole of transmission housing, not in parking pawl.
22. Ensure release spring places clockwise tension on parking pawl, forcing it away from parking gear. Shift into "P" and install mainshaft holder.
23. Install and torque new countershaft lock nut to 103 ft. lbs. (140 N.m). Lock nut has LEFT-HAND threads. Using a .138" (3.50 mm) punch, stake lock nut flange at 2 places into gear grooves. See **Fig. 62** .
24. Install 31 x 36 x 18.5 mm needle bearing and thrust washer on mainshaft. Install 1st gear, thrust needle bearing and thrust washer on mainshaft. Install 1st clutch assembly on mainshaft.
25. Attach mainshaft holder from underside of torque converter case. Tighten new mainshaft lock nut. Stake lock nut flange into groove of 1st clutch. Install gasket, dowel pins and "O" rings on transmission housing.
26. Install end cover and torque 10 bolts to 106 INCH lbs. (12 N.m). Install transmission oil cooler pipes on transmission housing using new sealing washers. Install speed sensor. Install torque converter with new

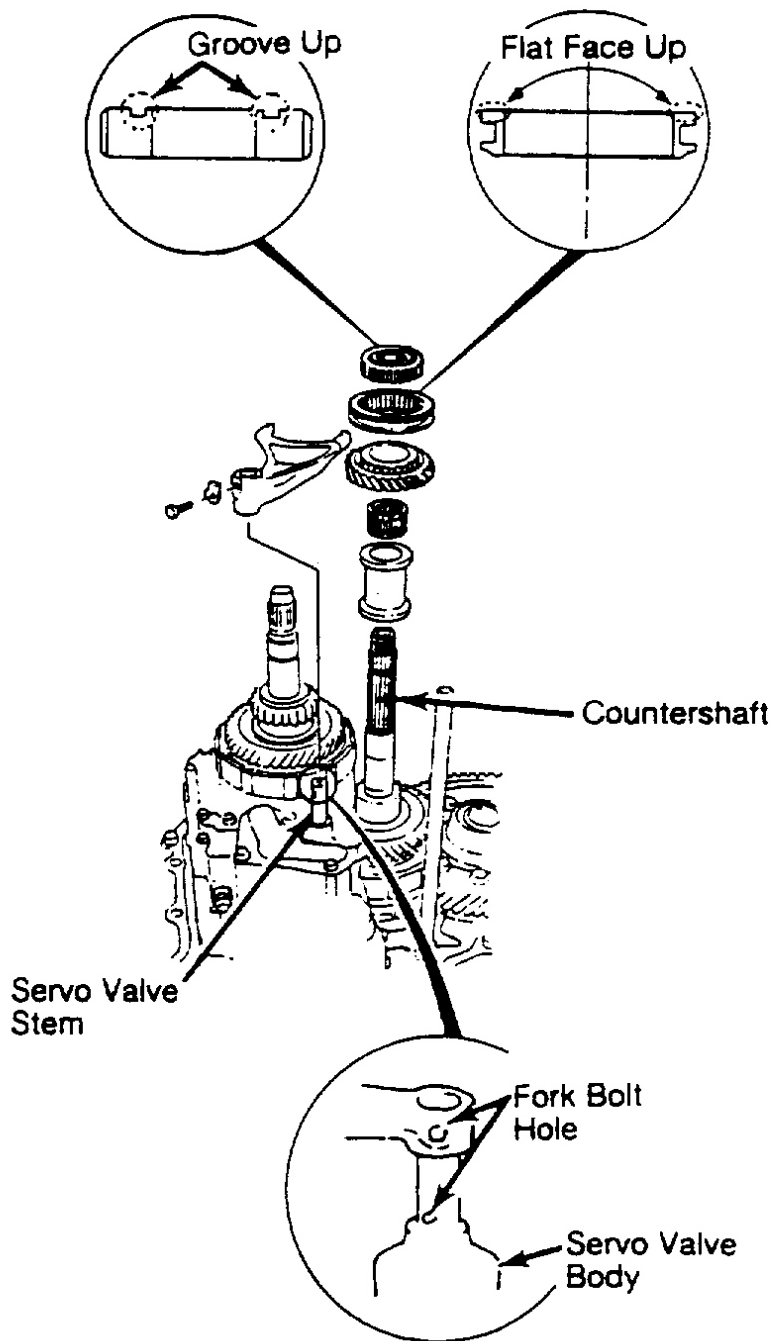
"O" ring.

27. When disassembling or reassembling torque converter, ensure that bolts are tightened (or loosened) in crisscross pattern. Inspect drive plate for cracks and replace "O" ring.



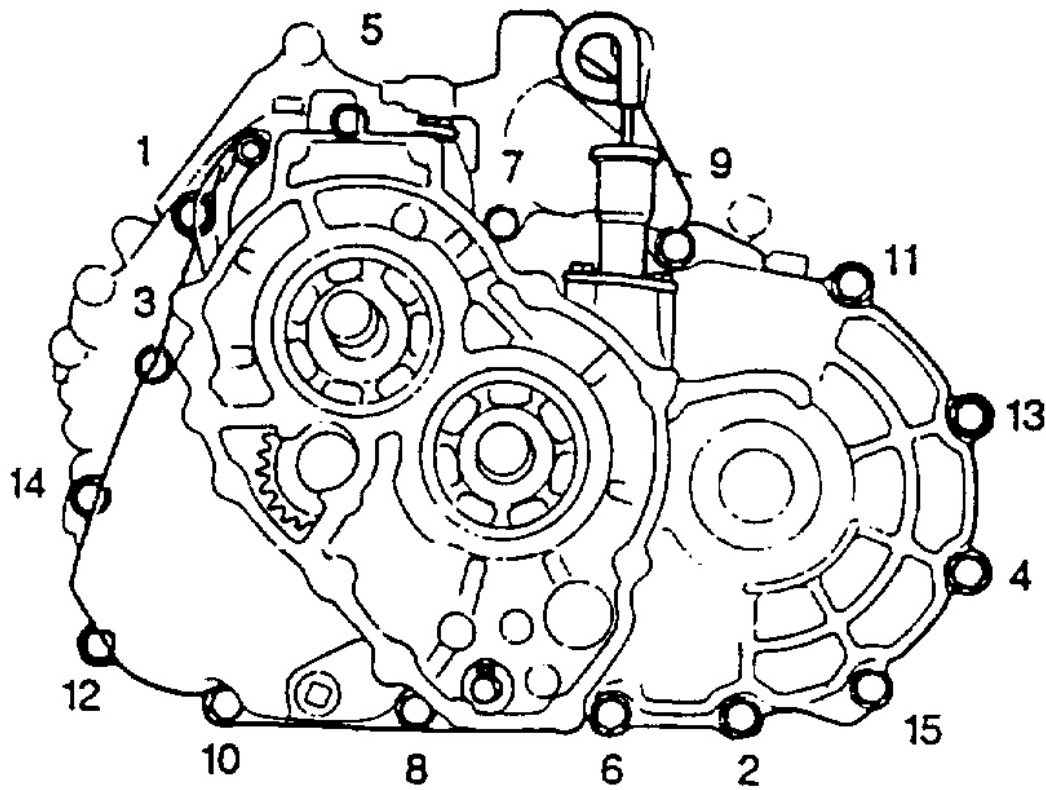
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Fig. 59: Tightening Sequence Of Main Valve Body
Courtesy of AMERICAN HONDA MOTOR CO., INC.



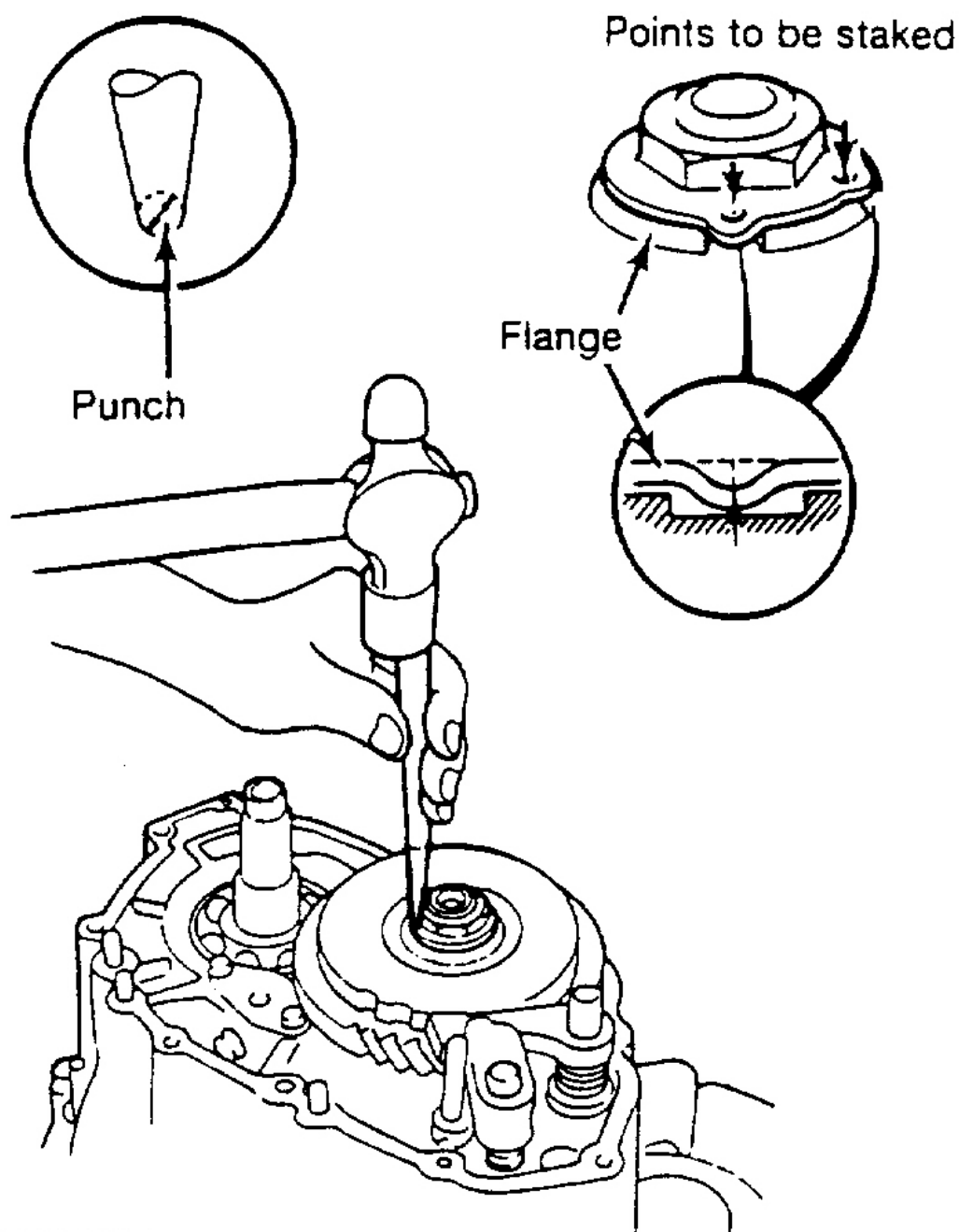
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Fig. 60: Exploded View Of Fork & Stem Hole Alignment
 Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 61: Tightening Sequence Of Transmission Housing Bolts
 Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 62: Installing Lock Nut Flange

Courtesy of AMERICAN HONDA MOTOR CO., INC.

TORQUE SPECIFICATIONS

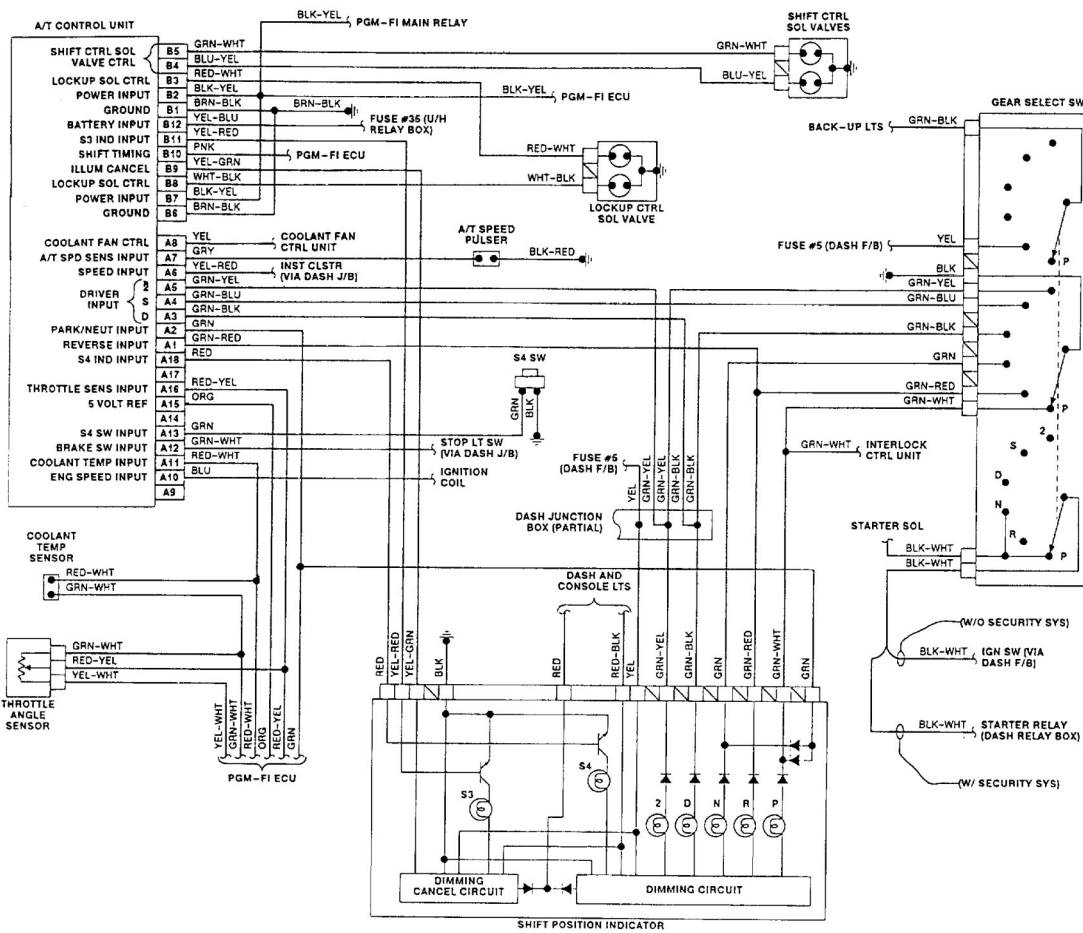
1990 Acura Legend**1988-90 AUTOMATIC TRANSMISSIONS L5 Diagnosis & Overhaul****TORQUE SPECIFICATIONS**

Application	Ft. Lbs. (N.m)
Center Stopper Bracket Bolts	29 (39)
Countershaft Lock Nut	103 (140)
Drain Bolt	29 (39)
Intermediate Shaft Bracket (Lower)	16 (22)
Intermediate Shaft Bracket (Upper)	29 (39)
L/C Valve Body Sealing Bolt	13 (18)
Mainshaft Lock Nut	70 (95)
Main Valve Body Bolts	
Number 1 & 2	16 (22)
Number 3, 4 & 5	9 (12)
Reverse Idler Shaft Holder Bolt	20 (27)
Reverse Shift Fork Bolt	10 (14)
Ring Gear Bolt	77 (105)
Torque Converter Case Mounting Bolts	29 (39)
Transmission Housing Mounting Bolts	41 (55)
Transmission to Engine Bolts	55 (74)
Transmission Hook Bolt	20 (27)
Washer to Drive Plate Bolt	54 (73)
	INCH Lbs. (N.m)
Accumulator Cover Bolt	106 (12)
A/T Speed Pulser Bolt	106 (12)
Baffle Plate Bolt	106 (12)
Control Lever Bolt	106 (12)
Dipstick Holder Bolt	106 (12)
Drive Plate-to-Converter Bolts	106 (12)
End Cover Bolt	106 (12)
L/C Shift Valve Body Bolt	06 (12)
Lock Plate Bolt	106 (12)
Parking Brake Stopper Bolt	106 (12)
Regulator Valve Body Lock Bolt	106 (12)
Reverse Idler Shaft Attaching Bolt	106 (12)
Servo Valve Body Bolt	106 (12)
Shift Control Solenoid Valve Assembly Bolts	106 (12)
Speed Pulser Rotor Bolt	106 (12)
Throttle Control Lever Bolt	53 (6)

WIRING DIAGRAMS

1990 Acura Legend

1988-90 AUTOMATIC TRANSMISSIONS L5 Diagnosis & Overhaul

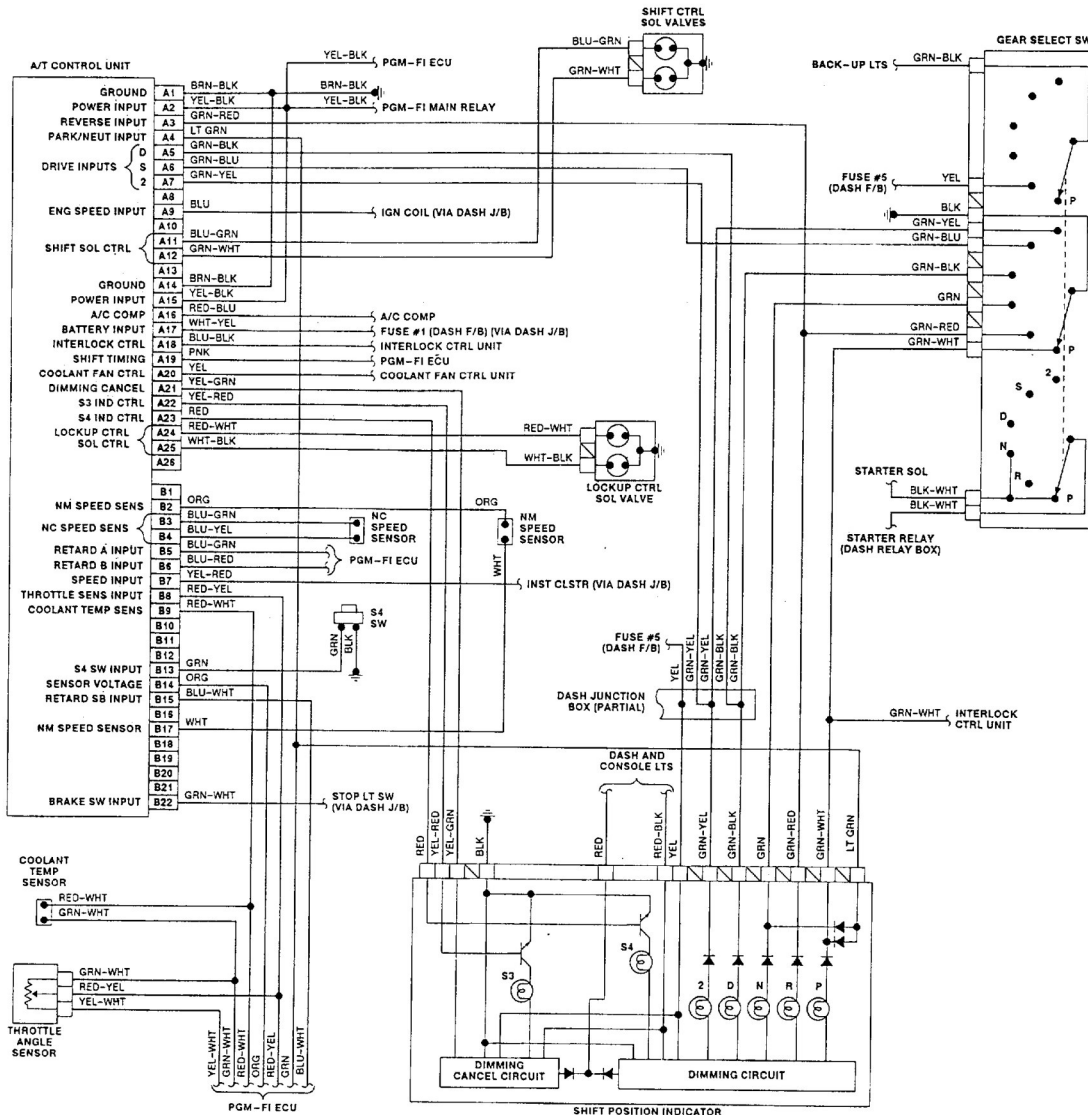


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Fig. 63: L5 Transmission Wiring Diagram (1988-89)

1990 Acura Legend

1988-90 AUTOMATIC TRANSMISSIONS L5 Diagnosis & Overhaul



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Fig. 64: L5 Transmission Wiring Diagram (1990)

OIL CIRCUIT DIAGRAMS



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Fig. 66: Oil Circuit Diagram - "2" Position



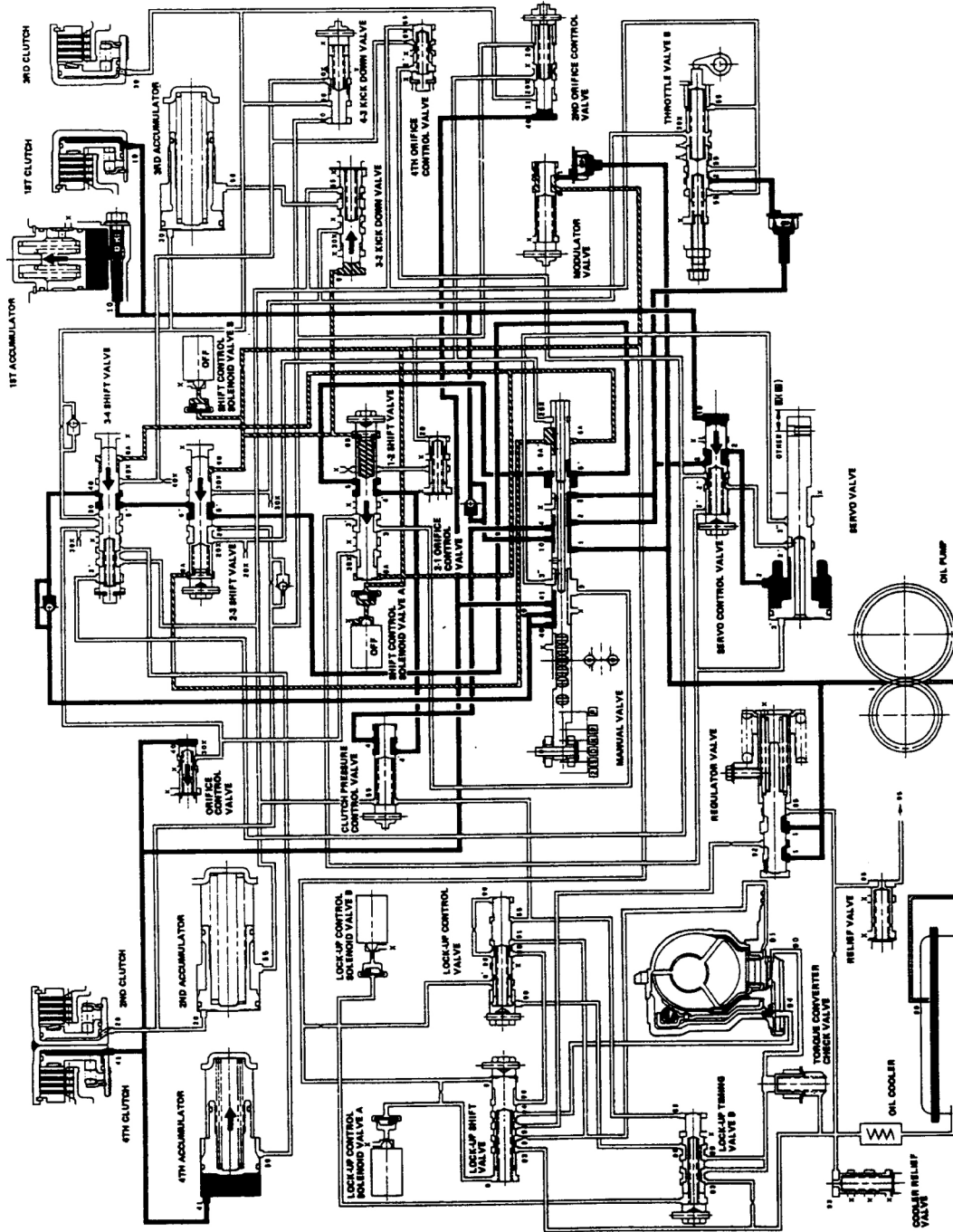
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Fig. 68: Oil Circuit Diagram - 2nd Gear, "S" or "D" Position



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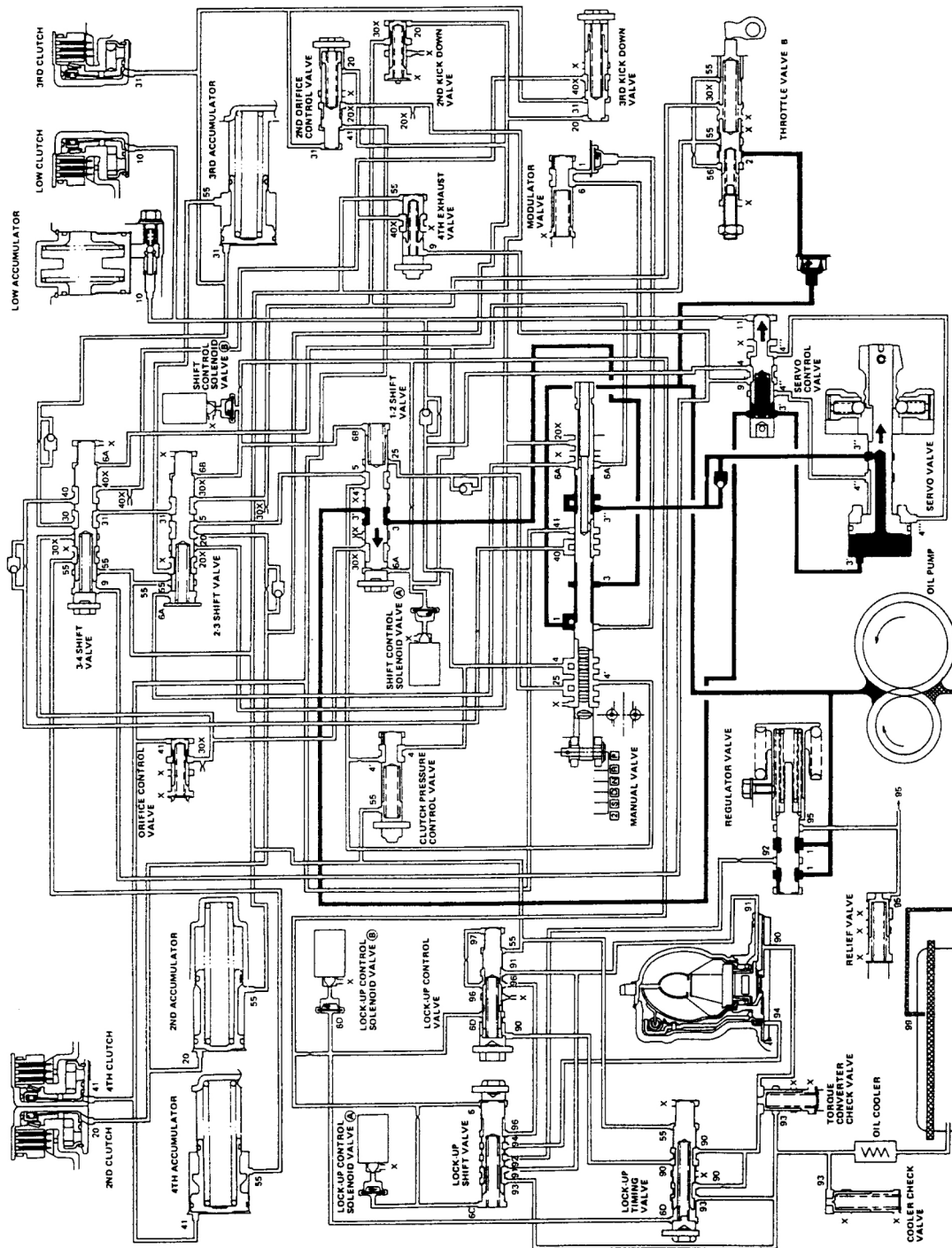


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Fig. 70: Oil Circuit Diagram - 4th Gear, "S" or "D" Position



Fig. 71: Oil Circuit Diagram - "R" Position



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Fig. 72: Oil Circuit Diagram - "P" Position