

# Symptom-to-Component Chart

## Hydraulic System

SYMPTOM	Check these items on the PROBABLE CAUSE LIST	Check these items on the NOTES CHART
Engine runs, but car does not move in any gear.	1, 6, 7, 16	K, L, R, S
Car moves in <b>R</b> , <b>2</b> and <b>3</b> , but not in <b>D</b> or <b>1</b> .	8, 29, 44, 48	C, M, O
Car moves in <b>D</b> , <b>2</b> , <b>1</b> , <b>R</b> but not in <b>3</b> .	10, 31	C, L
Car moves in <b>D</b> , <b>3</b> , <b>1</b> , <b>R</b> but not in <b>2</b> .	9, 30, 49	C, L
Car moves in <b>D</b> , <b>3</b> , <b>2</b> , <b>1</b> but not in <b>R</b> .	1, 11, 22, 34, 38, 39, 40	C, L, Q
Car moves in <b>N</b> .	1, 8, 9, 10, 11, 46, 47	C, D
Excessive idle vibration.	5, 17	B, K, L
Slips in all gears.	6, 7, 16	C, L
No engine braking in <b>1</b> position.	12	C, D, L
Slips in 1st gear.	8, 29, 44, 48	C, N, O
Slips in 2nd gear.	9, 20, 23, 30, 49	C, L
Slips in 3rd gear.	10, 21, 23, 31, 44	C, L
Slips in 4th gear.	11, 23, 32	C, L
Slips in reverse gear.	11, 32, 34	C
Flares on 1-2 upshift.	3, 15	E, L, V
Flares on 2-3 upshift.	3, 15, 24, 44	E, L, V
Flares on 3-4 upshift.	3, 15, 25, 44	E, L, V
No upshift transmission stays in 1st gear.	14, 19, 23	G, L
No downshift to 1st gear.	12, 19	G, L
Late upshift.	14	L, V
Erratic shifting.	14, 26	V
Harsh shift (up and down shifting).	2, 4, 15, 23, 24, 27, 47	A, E, H, I, L, V
Harsh shift (1-2).	2, 9	C, D, V
Harsh shift (2-3).	2, 10, 23, 24	C, D, H, L, V
Harsh shift (3-4).	2, 11, 23, 25	C, D, I, L, V
Harsh kick-down shifts.	2, 23, 27, 28	L, V, Q
Harsh kick-down shift (2 - 1).	48	O
Harsh downshift at closed throttle.	15	E, T
Harsh shift when manually shifting to <b>1</b> .	33	L
Axle(s) slips out of transmission on turns.	43, 50	L, P, Q
Axle(s) stuck in transmission.	43	L, Q
Ratcheting noise when shifting into <b>R</b> .	6, 7, 38, 39, 40	K, L, Q
Loud popping noise when taking off in <b>R</b> .	38, 39, 40	L, Q
Ratcheting noise when shifting from <b>R</b> to <b>P</b> or from <b>R</b> to <b>N</b> .	38, 39, 40, 45	L, Q
Noise from transmission in all selector lever positions.	6, 17	K, L, Q
Noise from transmission only when wheels are rolling.	39, 42	L, Q
Gear whine, rpm related (pitch changes with shifts).	8, 41	K, L, Q
Gear whine, speed related (pitch changes with speed).	38, 42	L, Q
Transmission will not shift into 4th gear in <b>D</b> .	1, 11, 21, 28, 32	L
Lock-up clutch does not lock-up smoothly.	17, 36, 37	L
Lock-up clutch does not operate properly.	1, 2, 3, 15, 18, 35, 36, 37	E, L, V
Transmission has multitude of problems shifting. At disassembly, large particles of metal are found on magnet.	43	L, Q



PROBABLE CAUSE	
1.	Linear solenoid shim misadjusted.
2.	Linear solenoid shim too thin.
3.	Linear solenoid shim too thick.
4.	Wrong type ATF.
5.	Idle rpm too low/high.
6.	Oil pump worn or binding.
7.	Pressure regulator stuck.
8.	1st clutch defective.
9.	2nd clutch defective.
10.	3rd clutch defective.
11.	4th clutch defective.
12.	1st-hold clutch defective.
14.	Modulator valve stuck.
15.	Throttle valve B stuck.
16.	ATF strainer clogged.
17.	Torque converter defective.
18.	Torque converter check valve stuck.
19.	1-2 shift valve stuck.
20.	2-3 shift valve stuck.
21.	3-4 shift valve stuck.
22.	Servo control valve stuck.
23.	Clutch pressure control valve stuck.
24.	2nd orifice control valve stuck.
25.	3rd orifice control valve stuck.
26.	3-2 kick-down valve stuck.
27.	4-3 kick-down valve stuck.
28.	4th exhaust valve stuck.
29.	1st accumulator defective.
30.	2nd accumulator defective.
31.	3rd accumulator defective.
32.	4th accumulator defective.
33.	1st-hold accumulator defective.
34.	Servo valve stuck.
35.	Lock-up clutch timing valve stuck.
36.	Lock-up clutch shift valve stuck.
37.	Lock-up clutch control valve stuck.
38.	Shift fork bent.
39.	Reverse gears worn/damaged (3 gears).
40.	Reverse selector worn.
41.	3rd gears worn/damaged (3 gears)
42.	Final gears worn/damaged (2 gears)
43.	Differential clutch worn.
44.	Feed pipe O-ring broken.
45.	4th gears worn/damaged (2 gears).
46.	Gear clearance incorrect.
47.	Clutch clearance incorrect.
48.	One-way (sprag) clutch defective.
49.	Sealing rings/guide worn.
50.	Axle-inboard joint clip missing.

(cont'd)

# Symptom-to-Component Chart

## Hydraulic System (cont'd)

The following symptoms can be caused by improper repair or assembly.	Check these items on the PROBABLE CAUSE DUE TO IMPROPER REPAIR	Items on the NOTES CHART
Car creeps in <b>[N]</b> .	R1, R2	
Car does not move in <b>[D]</b> .	R4	
Transmission locks up in <b>[R]</b> .	R3, R12	
Excessive drag in transmission.	R6	R, K
Excessive vibration, rpm related.	R7	
Noise with wheels moving only.	R5	
Main seal pops out.	R8	S
Various shifting problems.	R9, R10	
Harsh upshifts.	R11	

PROBABLE CAUSE DUE TO IMPROPER REPAIR	
R1.	Improper clutch clearance.
R2.	Improper gear clearance.
R3.	Parking brake lever installed upside down.
R4.	One-way (sprag) clutch installed upside down.
R5.	Reverse hub installed upside down.
R6.	Oil pump binding.
R7.	Torque converter not fully seated in oil pump.
R8.	Main seal improperly installed.
R9.	Springs improperly installed.
R10.	Valves improperly installed.
R11.	Ball check valves not installed.
R12.	Shift fork bolt not installed.

NOTES	
B.	Set idle rpm in gear to specified idle speed. If still no good, adjust motor mounts as outlined in engine section of service manual.
C.	If the large clutch piston O-ring is broken, inspect the piston groove for rough machining.
D.	If the clutch pack is seized or is excessively worn, inspect the other clutches for wear and check the orifice control valves and throttle valves for free movement.
E.	If throttle valve B is stuck, inspect the clutches for wear.
G.	If the 1-2 shift valve is stuck closed, the transmission will not upshift. If stuck open the transmission has no 1st gear.
H.	If the 2nd orifice control valve is stuck, inspect the 2nd and 3rd clutch packs for wear.
I.	If the 3rd orifice control valve is struck, inspect the 3rd and 4th clutch packs for wear.
J.	If the clutch pressure control valve is stuck closed, the transmission will not shift out of 1st gear.
K.	Improper alignment of main valve body and torque converter housing may cause oil pump seizure. The symptoms are mostly an rpm-related ticking noise or a high pitched squeak.



NOTES	
L.	If the ATF strainer is clogged with particles of steel or aluminum, inspect the oil pump and differential clutch and planetary gear assembly. If all are OK and no cause for the contamination is found, replace the torque converter.
M.	If the 1st clutch feedpipe guide in the end cover is scored by the mainshaft, inspect the ball bearing for excessive movement in the transmission housing. If OK, replace the end cover as it is dented. The O-ring under the guide is probably worn.
N.	Replace the mainshaft if the bushings for the 1st and 4th feedpipe are loose or damaged. If the 1st feedpipe is damaged or out of round, replace it. If the 4th feedpipe is damaged or out of round, replace the end cover.
O.	A worn or damaged one-way (sprag) clutch is mostly a result of shifting the transmission in <b>D</b> while the wheels rotate in reverse, such as rocking the car in snow.
P.	Inspect the frame for collision damage.
Q.	Inspect for damage or wear: 1. Reverse selector gear teeth chamfers. 2. Engagement teeth chamfers of countershaft 4th and reverse gear. 3. Shift fork for scuff marks in center. 4. Differential clutch or planetary gear assembly for wear. 5. Bottom of 3rd clutch for swirl marks. Replace items 1, 2, 3 and 4 if worn or damaged. If transmission makes clicking, grinding or whirring noise, also replace mainshaft 4th gear and reverse idler gear and countershaft 4th gear in addition to 1, 2, 3 or 4. If differential clutch or planetary gear assembly is worn, overhaul differential assembly and replace ATF strainer and thoroughly clean transmission, flush torque converter, cooler and lines. If bottom of 3rd clutch is swirled and transmission makes gear noise, replace the countershaft and ring gear.
R.	Be very careful not to damage the torque converter housing when replacing the main ball bearing. You may also damage the oil pump when you torque down the main valve body. This will result in oil pump seizure if not detected. Use proper tools.
S.	Install the main seal flush with the torque converter housing. If you push it into the torque converter housing until it bottoms out, it will block the oil return passage and result in damage.
T.	Harsh downshifts when coasting to a stop with zero throttle may be caused by the linear solenoid not working.
U.	Check if servo valve stopper cap is installed. If it was not installed, the check valve may have been pushed out by hydraulic pressure causing a leak (internal) affecting all forward gears.
V.	Linear solenoid shim selection is essential for proper operation of the transmission. Not only does it affect the shift quality if misadjusted, but also the lock-up clutch operation. A thick shim will result in throttle pressure being too low for the amount of engine torque input into the transmission and may cause clutch slippage. A thin shim will result in too high throttle pressures which may cause harsh shifts, erratic shifts and torque converter hunting.