

Hydraulic System

Symptom-to-Component Chart

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, 42, 43	K, L, R, S
Car moves in [2] position but not in [D₄] or [D₃] position.	1, 8, 23, 29, 44, 48	C, M, O
Car moves in [D₄] , [D₃] , [1] and [R] positions but not in [2] position.	1, 9, 30, 48, 49	C, L, Q
Car moves in [D₄] , [D₃] , [2] and [1] positions but not in [R] position.	1, 39, 40	C, L
Car moves in [N] position.	1, 8, 9, 10, 11, 46, 47	C, D
Excessive idle vibration.	5, 6, 17, 36	B, K, L
Slips in all gears.	6, 7, 16	C, L
No engine braking in [1] position.	8, 12	C, D, L
No engine braking in [2] position.	9, 12, 48	C, D, L
Slips in 1st gear.	8, 29, 44, 48	C, N, O
Slips in 2nd gear.	9, 20, 23, 30, 48, 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.	34, 39, 40	C
Flares on 1—2 upshift.	2, 3, 15, 19, 30, 48	E, L, V
Flares on 2—3 upshift.	2, 3, 15, 20, 31, 44, 48	E, L, V
Flares on 3—4 upshift.	2, 3, 15, 21, 25, 32, 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, 3, 4, 15, 23, 26, 27, 47	A, E, H, I, L, V
Harsh shift (1—2).	2, 9	C, D, V
Harsh shift (2—3).	2, 10, 23, 26	C, D, H, L, V
Harsh shift (3—4).	2, 11, 23, 25	C, D, I, L, V
Harsh kick-down shifts.	2, 3, 23, 26, 27	L, V, Q
Harsh kick-down shift (2—1).	8, 25, 48	O
Harsh downshift at closed throttle.	15	E, T
Harsh shift when manually shifting to [1] position.	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 [R] position.	6, 7, 39, 40	K, L, Q
Loud popping noise when taking off in [R] position.	39, 40	L, Q
Ratcheting noise when shifting from [R] to [P] position or from [R] to [N] position.	39, 40	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).	42	L, Q
Transmission will not shift into 4th gear in [D₄] position.	1, 21, 25, 32	L
Lock-up clutch does not lock-up smoothly.	17, 36, 37	L
Lock-up clutch does not operate properly.	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.	Shift cable broken/out of adjustment.
2.	Throttle valve body/throttle valve misadjusted.
3.	Linear solenoid defective/damaged.
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 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.	3 – 4 orifice control valve stuck.
26.	4 – 3 shift timing 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.	Reverse accumulator defective.
35.	Lock-up timing valve stuck.
36.	Lock-up shift valve stuck.
37.	Lock-up control valve stuck.
38.	Shift fork bent.
39.	Reverse gears worn/damaged (3 gears).
40.	Reverse clutch worn.
41.	3rd gears worn/damaged (2 gears)
42.	Final gears or secondary gears worn/damaged
43.	Extension shaft worn.
44.	Feedpipe 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)

Hydraulic System

Symptom-to-Component Chart (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 [N] position.	R1, R2	
Car does not move in [D4] or [D3] position.	R4	
Excessive drag in transmission.	R6	R, K
Excessive vibration, rpm related.	R7	
Noise with wheels moving only.	R1	
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.	Valve springs improperly installed.
R10.	Valves improperly installed.
R11.	Ball check valves not installed.
R12.	Shift fork bolt not installed.



NOTES	
A.	See flushing procedure, page 14-168 and 169.
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 valve for free movement.
E.	If throttle valve 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 4 – 3 shift timing valve is stuck, inspect the 2nd and 3rd clutch packs for wear.
I.	If the 3 – 4 orifice control valve is stuck, 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 oil pump body and torque converter case may cause oil pump seizure. The symptoms are mostly an rpm-related ticking noise or a high pitched squeak.
L.	If the ATF strainer is clogged with particles of steel or aluminum, inspect the oil pump. If OK and no cause for the contamination is found, replace the torque converter.
M.	If the 1st clutch feedpipe guide in the rear cover is scored by the mainshaft, inspect the ball bearing for excessive movement in the transmission housing. If OK, replace the rear 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 2nd feedpipe are loose or damaged. If the 1st feedpipe is damaged or out of round, replace it. If the 2nd feedpipe is damaged or out of round, replace the rear cover.
O.	A worn or damaged one-way (sprag) clutch is mostly a result of shifting the transmission in D₃ or D₄ position while the wheels rotate in reverse, such as rocking the car in snow.
P.	Inspect the frame for collision damage.
Q.	Inspect the reverse clutch for damage or wear. Inspect bottom of 3rd clutch for swirl marks. Replace reverse clutch if worn or damaged. If transmission makes clicking, grinding or whirring noise, also replace mainshaft reverse gear, reverse idler gear, and countershaft reverse gear. If bottom of 3rd clutch is swirled and transmission makes gear noise, replace the countershaft.
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 oil pump 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.	Adjusting the throttle valve body, throttle valve, and linear solenoid 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.