Symptom-to-Component Chart

Hydraulic System

Before troubleshooting a problem in the hydraulic system, check the self-diagnosis indicator light indication. If the light indicates a trouble code, perform the electrical troubleshooting according to the Electrical System Symptom-to-Component Chart. If the indicator light does not indicate a trouble code and a failure is not found during electrical troubleshooting, perform hydraulic troubleshooting using the chart.

SYMPTOM	Check these items on the PROBABLE CAUSE List	Check these items on the NOTES List
Engine runs but vehicle does not move in any gear.	1, 9, T2, A, B, Y, a, b, d	A, C, H, I, J, M, N, O, R, S
Vehicle moves in [2], but not in [D4], [D3] positions.	9, e, f, r, t	P, T
Vehicle moves in [D4], [D3] but not in [2] position.	9, g, h, t	D, P, T
Vehicle moves in [D4], [D3], [2], [1], but not in [R] position.	9, n, p	J, K, L, Q, T
Poor acceleration; flares on starting off in [D3] position:		
Stall speed high in [D4], [D3], [2], [1] positions.	1, 9, A, B, Y, AA	A, C, H, I, R
Stall speed high in [D4], [D3], [1] positions.	9, b, f, r	H, T
Stall speed high in [2] positions.	9, h, t	H, T
Stall speed is in specification.	2	T
Stall speed low.	T1, T3, T4, BB	
Engine idle vibration.	T2, T3, T4, A, BB	B, C
No shift.	3, 4, dd	J
Fails to shift in [D3] position; from 1st to 3rd gear.	H	D
Fails to shift in [D4] position; from 1st to 4th gear.	H, I	D
Erratic upshifting.		
1-2 upshift, 2-3 upshift, 3-4 upshift.	12, D	
1-2 upshift.	3, 12	D, K
2-3 upshift.	4, 12	D, K
3-4 upshift.	3, 12	D, F
Harsh 1-2 upshift.	7, 11, 12, E, F, G, J, Q, V, h, r, t	D, G, T
Harsh 2-3 upshift.	7, 11, 12, E, F, H, K, Q, i, t	D, T
Harsh 3-4 upshift.	7, 11, 12, E, F, I, K, L, R, Q, W, X, j	D, L, T
Harsh 2-1 downshift.	11, 12, G, V, f, r	D, G, T
Harsh 3-2 downshift.	11, 12, H, K, W, O	D, T
Harsh 4-3 downshift.	7, 11, 12, E, F, I, K, L, M, P, Q, S, X	D, L, T
Flares on 3-4 upshifting.	7, 11, 12, E, F, I, K, L, R, T, Q, X, J	E, L
Excessive shock on 2-3 upshifting.	7, 11, 12, E, F, K, O, Q, Z	E, L
Excessive shock on 3-4 upshifting.	7, 11, 12, E, F, I, L, P, Q, R, W, Z	E, L
Vehicle moves in [N] position.	2, f, h, i, j, q, aa, bb	A, C, T
Late shift from [N] position to [D4], [D3] positions.	B, U, f	D, E, H, L
Late shift from [N] position to [R] position.	B, G, p	D, E, H, L, T
Noise from transmission in all shift lever positions.	A, a, b, dd	I, U
Vehicle does not accelerate more than 31 mph (50 km/h).	T1	
Vibration in all shift lever positions.	T2	B
Shift lever does not operate smoothly.	8, 9, 10	F, H
Fails to shift; stuck in 4th gear.	3, 4, 7	
Transmission does not shift into [P] position.	9, 10, ee	H, V
Stall speed high; all clutch pressures are within specification.	AA	
Lock-up clutch does not disengage.	5, 6, 7, 12, T4, F, BB, CC, DD	E
Lock-up clutch does not operate smoothly.	5, 6, 7, 12, T4, F, AA, BB, CC, DD	E
Lock-up clutch does not engage.	5, 6, 7, 11, 12, T4, F, AA, BB, CC, DD	E
Vehicle moves in [D4], [D3], [2], but not in [1] position.	9, f, r	
No engine braking in [1] position.	b, f, m	
No engine braking in [2] position.	3, b, h, m, r	
Shift position indicator does not indicate any position.	8, 9, 10	F, H

PROBABLE CAUSE			
Electronic		**Hydraulic**	
1	Low ATF	A	ATF pump worn or binding
2	Excessive ATF	B	Regulator valve stuck or spring worn
3	Shift solenoid valve A defective	C	Shift fork stuck
4	Shift solenoid valve B defective	D	Modulator valve defective
5	Torque converter clutch (Lock-up control) solenoid valve A defective	E	Line pressure control valve defective
		F	Throttle valve defective
6	Torque converter clutch (Lock-up control) solenoid valve B defective	G	1-2 shift valve defective
		H	2-3 shift valve defective
7	A/T clutch pressure control solenoid valve defective	I	3-4 shift valve defective
8	Transmission range (A/T gear position) switch defective or out of adjustment	J	2nd accumulator defective
		K	3rd accumulator defective
9	Shift cable broken or out of adjustment	L	4th accumulator defective
10	Joint in shift cable and transmission or body worn	M	Shift timing valve defective
11	Mainshaft speed sensor defective	N	2nd check ball stuck
12	Countershaft speed sensor defective	O	3rd check ball stuck
Torque Converter		P	4th check ball stuck
T1	Torque converter one-way clutch defective	Q	Main orifice control valve defective
T2	Drive plate defective or transmission misassembled	R	3rd orifice control valve defective
T3	Engine output low	S	4-3 kick-down valve defective
T4	Lock-up clutch piston defective	T	Foreign material in main orifice
Transmission		U	Foreign material in 1st orifice
a	Mainshaft worn or damaged	V	Foreign material in 2nd orifice
b	Countershaft worn or damaged	W	Foreign material in 3rd orifice
d	Final gears, secondary gear and extension shaft worn or damaged	X	Foreign material in 4th orifice
		Y	ATF strainer clogged
e	1st gears worn or damaged (2 gears)	Z	Foreign material in separator plate orifice
f	1st clutch defective	AA	Torque converter check valve defective
g	2nd gears worn or damaged (2 gears)	BB	Lock-up shift valve defective
h	2nd clutch defective	CC	Lock-up control valve defective
i	3rd clutch defective	DD	Lock-up control valve defective
j	4th clutch defective		
m	1st-hold clutch defective		
n	Reverse gears worn or damaged		
p	Reverse clutch defective		
q	Clutch clearance incorrect		
r	1st gear one-way clutch worn or damaged		
t	2nd gear one-way clutch worn or damaged		
aa	Needle bearing seized up, worn or damaged		
bb	Thrust washer seized up, worn or damaged		
dd	Torque converter housing or transmission housing bearings worn or damaged		
ee	Park mechanism defective		

(cont'd)

Hydraulic System (cont'd)

The following symptom can be caused by improper repair or assembly.	Check these items.
Vehicle creeps in [N] position.	• Improper clutch clearance • Improper gear clearance
Vehicle does not move in [D4] or [D3] position.	One-way clutch installed upside down.
Transmission locks up in [P] position.	Improper clutch clearance.
Excessive drag in transmission.	• ATF pump binding and seizure • Improper alignment of ATF pump body and torque converter housing may cause ATF pump seizure. The symptom are mostly an rpm related ticking noise or a high pitched squeak. • Be very careful not to damage the torque converter housing when replacing the main ball bearing. You may also damage the ATF pump when you torque down the ATF pump body. This will result is ATF pump seizure if not detected. Use proper tools.
Excessive vibration, rpm related.	Torque converter not fully seated in ATF pump.
Main seal pops out.	• Main seal improperly installed. • Install the main seal flush with the torque converter housing. If you push the torque converter housing until it bottoms out, it will block the fluid return passage and result in damage.
Various shifting problems.	• Springs improperly installed • Valves improperly installed
Harsh upshifts.	Check valve balls not installed

NOTES	
A	Flush the ATP cooler and cooler line (see page 14-195 and 14-196).
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.
K	Improper alignment of ATP pump body and torque converter housing may cause ATP pump seizure. The symptoms are mostly an rpm-related ticking noise or a high pitched squeak.
L	If the ATP strainer is clogged with particles of steel or aluminum, inspect the ATP 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 Island 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.
0	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 vehicle 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 ATP pump when you torque down the ATP pump body. This will result is ATP pump seizure if not detected. Use the 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 fluid return passage and result in damage.
T	Harsh downshifts when coasting to a stop with zero throttle may be caused by the A/T clutch pressure control solenoid valve not working.
V	Adjusting the throttle valve body, throttle valve, and A/T clutch pressure control solenoid valve 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.