

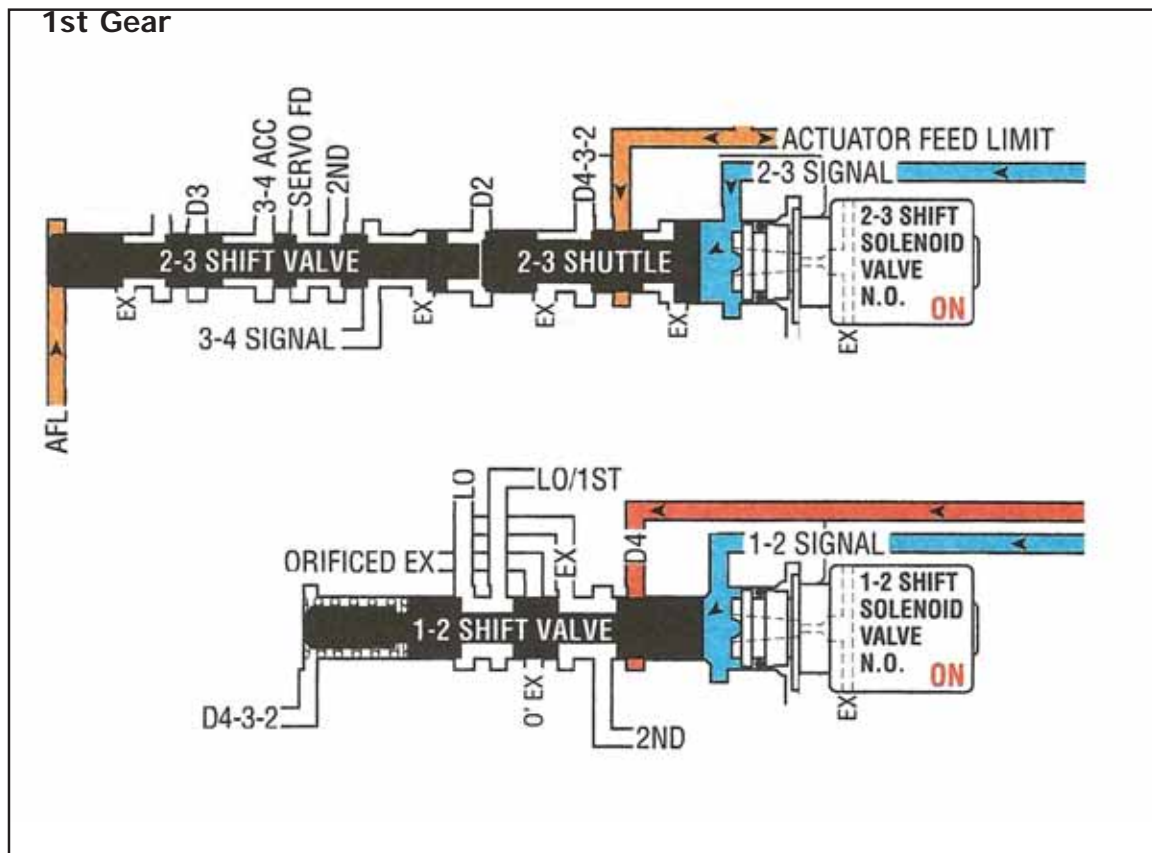
4L60E

No 2nd Gear, Shifts 1-3-4

Test drive the vehicle to verify the concern. Use a scan tool with a DVOM or signal monitor connected to the transmission. Verify the signal command from the PCM is correct. If the command is not verified at the transmission but the scan tool shows the PCM commanded the signal, check the wiring and/or replace the PCM. If the command was found at the transmission, follow the diagnostics given on the next pages.

In order for the transmission to have 3rd gear, the 1-2 shift valve must be in the 2nd gear position. The following oil circuit diagrams will explain the circuit and how to test the system in a quick and simple technique.

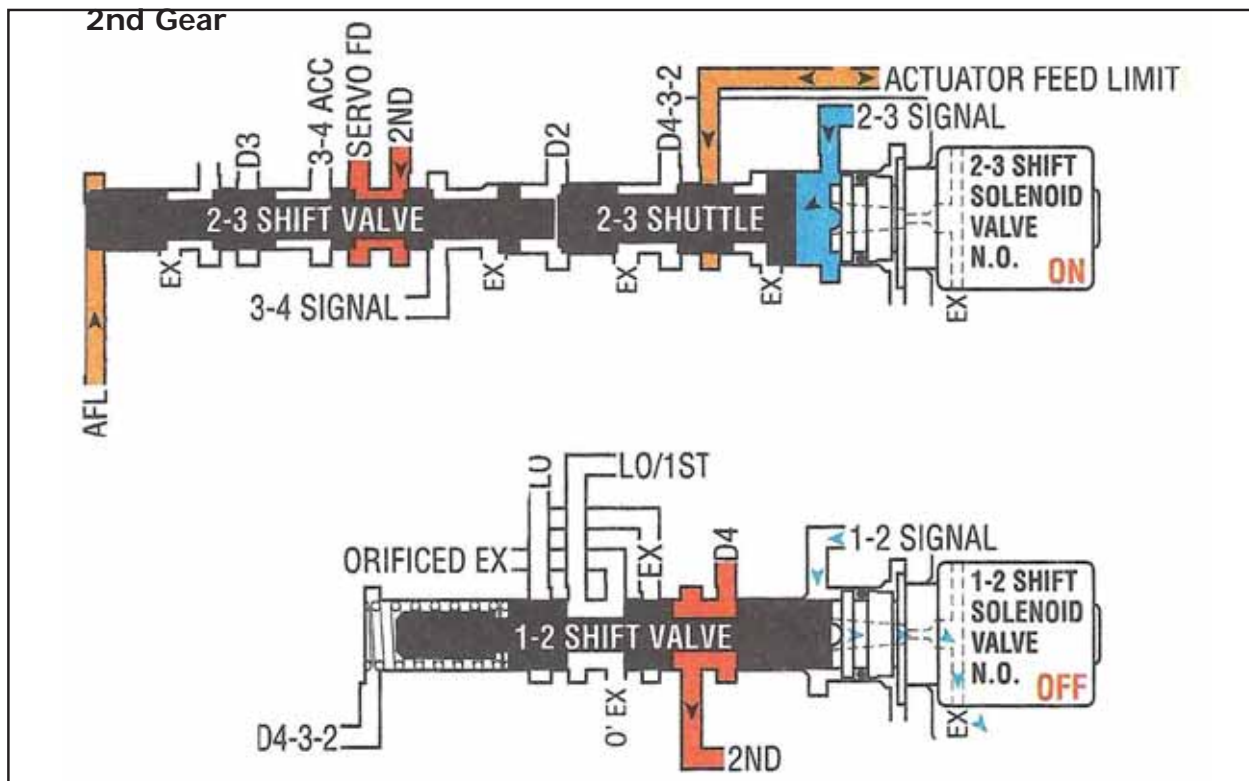
In 1st gear, shift solenoid "A" and "B" are "ON"-closed. With the shift solenoid "A" "ON"-closed, the 1-2 signal oil strokes the 1-2 shift valve against the spring in the 1st gear position.



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No 2nd Gear, Shifts 1-3-4 (continued)

When the transmission is commanded into second gear the ECM turns off shift solenoid “A”, this allows the 1-2 signal oil to exhaust. The 1-2 shift valve is stroked to the 2nd gear position by the 1-2 shift valve spring.



There are two possible solenoid related issues that could cause a no 2nd gear concern.

If solenoid “A” is mechanically malfunctioning, it may not be able to exhaust the 1-2 signal oil when the solenoid opens. This will keep the 1-2 shift valve in the 1st gear position causing no 2nd gear.

If there is too much signal oil entering the solenoid from an enlarged separator plate solenoid feed orifice or a cross leak into the circuit the result will be the same, no 2nd gear.

There are also some other issues that can cause this same symptom, such as too much servo clearance (pin too short), the band anchor point oversize or elongated. There could be sealing ring problems (cut ring, fallen out of place etc).

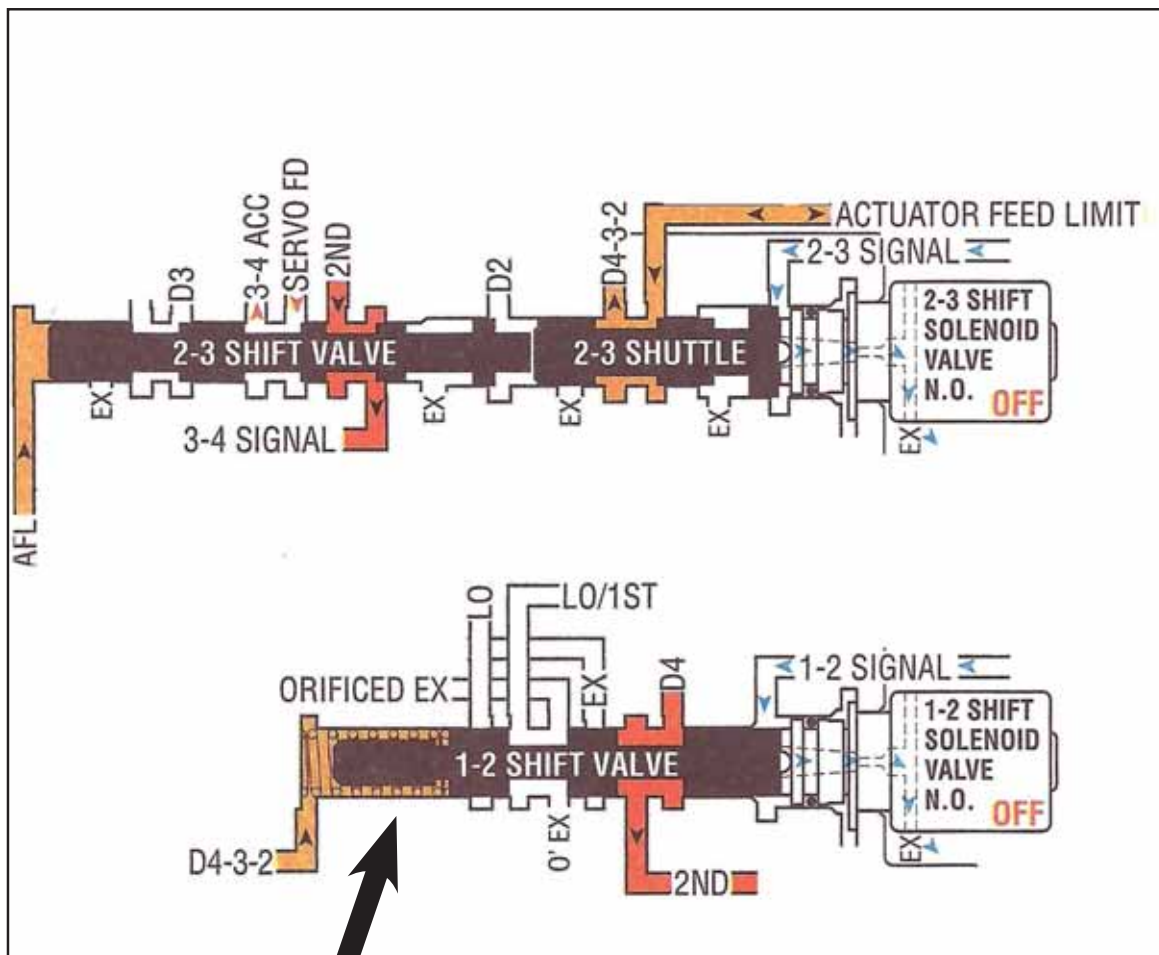
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No 2nd Gear, Shifts 1-3-4 (continued)

When commanded to 3rd gear, the 1-2 shift valve must be in the 2nd gear position in order for the transmission to achieve 2nd and 3rd gear. If the 1-2 shift valve is held in the 1st gear position which inhibits 2nd gear. Then how does the 1-2 valve get into the 2nd position to allow 3rd gear?

The 3rd gear oil schematic reveals that when the 2-3 valve opens, actuator feed oil is routed to the spring end of the 1-2 valve. This oil forces the 1-2 valve into the 2nd gear position, even if the 1-2 signal oil has not been exhausted by the solenoid.

3rd Gear



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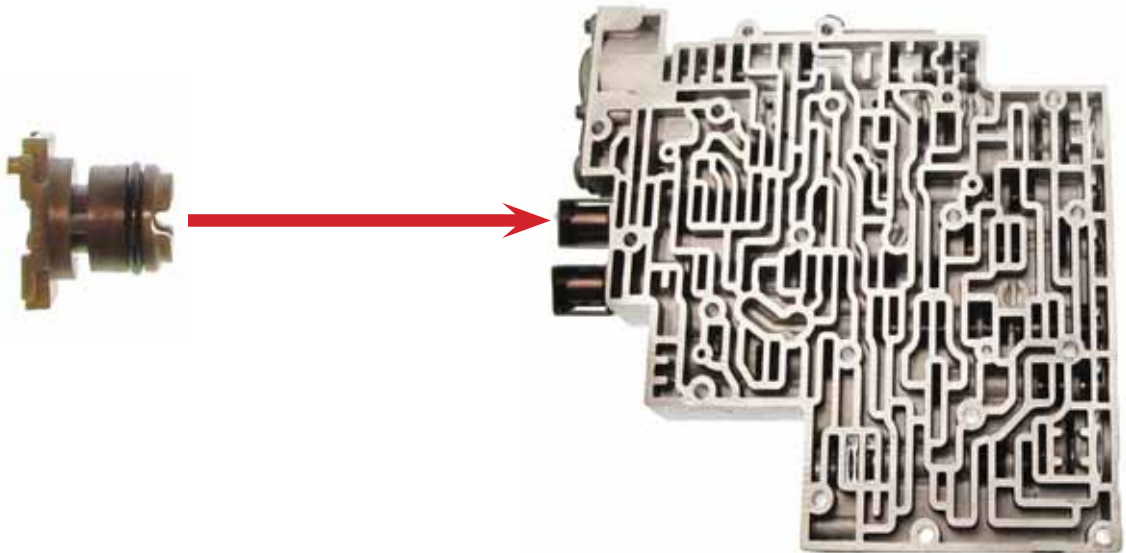
No 2nd Gear, Shifts 1-3-4 (continued)

This test will verify if the solenoid or oil flow into the solenoid is the cause of no 2nd. Modify an old solenoid as shown below.

Enlarge hole in solenoid snout with .096" bit



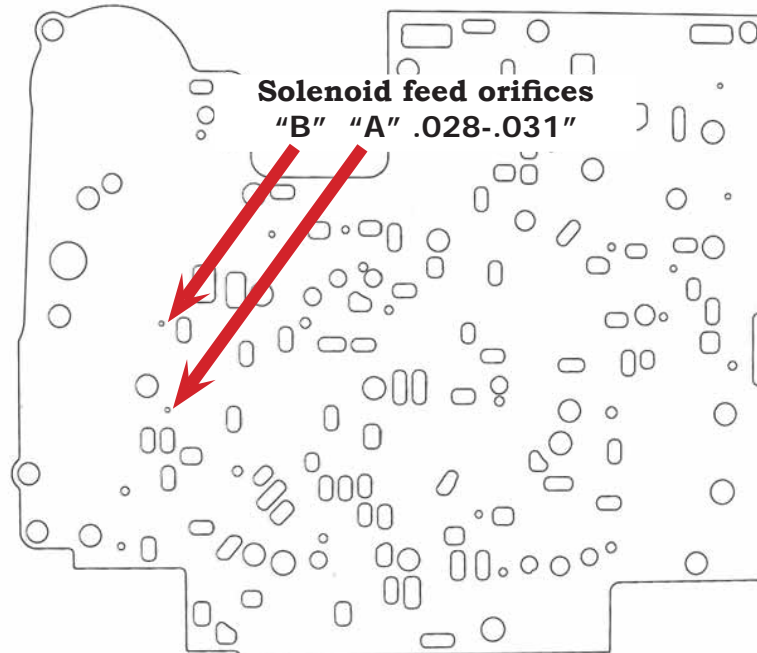
Install the modified solenoid snout and retainer clip into the “A” solenoid location. Leave internal harness plugged into the existing shift solenoid “A” so the ECM will not set a code and command both solenoids off (fail safe).



During the road test, the transmission should make 2nd gear starts in all forward positions. If transmission now has 2nd gear starts, there's no problem with the band or servo! This leaves either a defective shift solenoid “A” or a solenoid over feed problem. Corrective actions would be to: Install a new solenoid “A”, measure solenoid “A” feed hole diameter, double up on valve body gaskets and check the case for warpage.

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No 2nd Gear, Shifts 1-3-4 (continued)



If the transmission still has no 2nd with test snout installed. Inspect the servo pin length (too short), the band anchor hole for wear or an elongated anchor hole, a mismatch between 2nd gear piston and housing or the servo sealing rings are damaged or undersized.

