MAZDA G4A-HL
NO 3-4 UPSHIFT

COMPLAINT: The transaxle does not make a shift into overdrive at any speed.

CAUSE: There are several possibilities for a no 3-4 shift. Perform the following diagnostic routines to determine the root cause of the complaint.

DIAGNOSTIC PROCEDURE:

1. Unplug the overdrive cancel solenoid and drive the vehicle. If a 3-4 shift occurs, there is an external electrical problem which is causing the solenoid to remain energized canceling overdrive. Refer to Figures 1, 2, 3 and 4 to check the possible switches that could cause this concern. If the transmission does not shift into fourth with the solenoid unplugged, go to the next step.

2. Place a pressure gauge on the governor pressure tap (See Figure 5). Drive the vehicle on the road or on the rack and view governor pressure. Governor pressure should be relatively close to road speed. If governor pressure is not correct, replace the governor. If changing the governor does not correct the condition, the governor pressure circuit will need to be investigated. If governor pressure is good, go to the next step.

3. Remove the valve body and inspect the OD cancel solenoid with air (See Figure 6). This solenoid is a normally closed solenoid. When it is not energized, it blocks or holds pressure. When energized, it allows pressure to be vented away through the exhaust hole on the side of the solenoid. Replace the solenoid if necessary. If the solenoid checks good, go to the last step.

4. Locate the 3-4 shift valve line-up in the main valve body as shown in Figure 7. It is common for the 3-4 shift plug to over travel and get stuck in the bore. This prevents the 3-4 shift valve from fully stroking causing the no 3-4 shift complaint. To fix this concern, acquire a slide seal ***(not the O ring)*** from a 700R4 or 2004R pump. Cut a piece off that will fit into the 3-4 shift valve spring pocket as shown in Figure 7. This added shim which is approximately .093" thick will prevent the 3-4 shift plug from over traveling causing the no 3-4 shift complaint. Nor will it increase spring tension to cause a later 3-4 shift.

5. On assembly of the 3-4 shift valve, be sure to place the I.D. markings inwards on the 3-4 shift sleeve as shown in Figure 7.

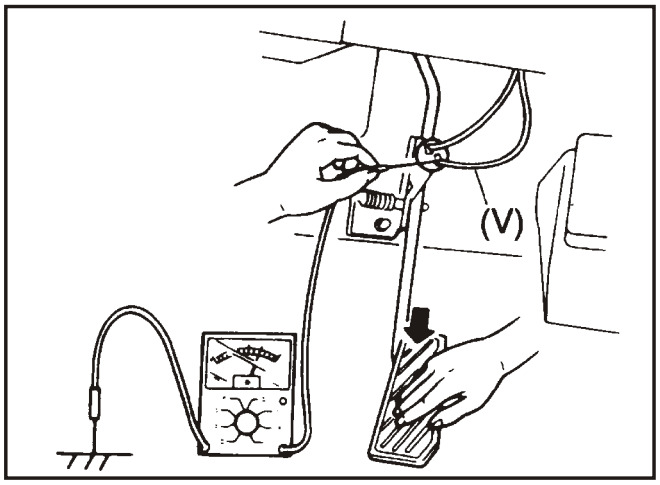

Figure 1

KICKDOWN SWITCH
Inspection of Terminal Voltage

1. Turn the ignition switch ON.
2. Check the voltage at terminal marked (V) with a volt meter.
3. Approximately 12 volts should be seen at 7/8 throttle to wide open throttle. From closed throttle to 7/8 throttle, less than 1.5 volts should be seen.
4. If not correct, check the wiring harness, switch, or adjust the switch position.

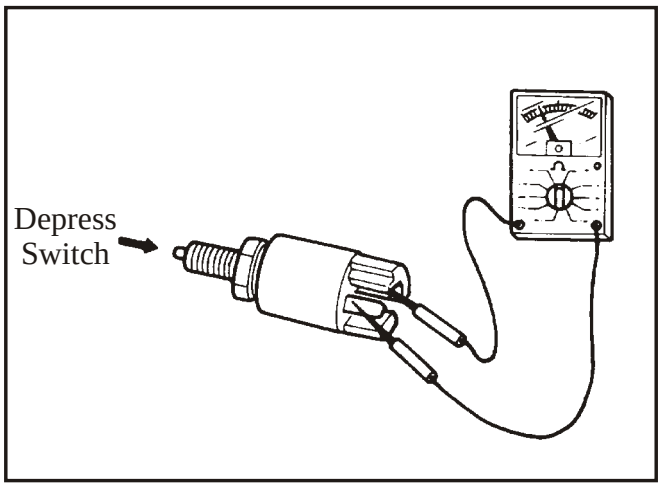

Figure 2

KICKDOWN SWITCH
Inspection of Continuity

1. Disconnect the kick-down switch connector.
2. Check for continuity of the switch with an ohmmeter.
3. With the switch pushed in, continuity should be seen. With the switch released, an open should be seen.
4. If not correct, replace the switch.

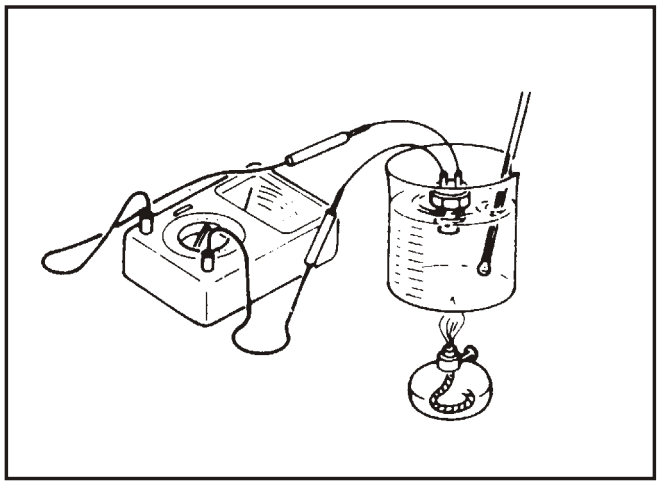

Figure 3

WATER TEMPERATURE SWITCH
Inspection

1. Remove the water temperature switch.
2. Place the switch in water with a thermometer and heat up the water gradually.
3. Check for continuity of the switch with an ohmmeter.
4. Continuity should be seen when the switch is 149°F or less. When the switch is 162°F or higher, an open should be seen.
5. If not correct, replace the switch.

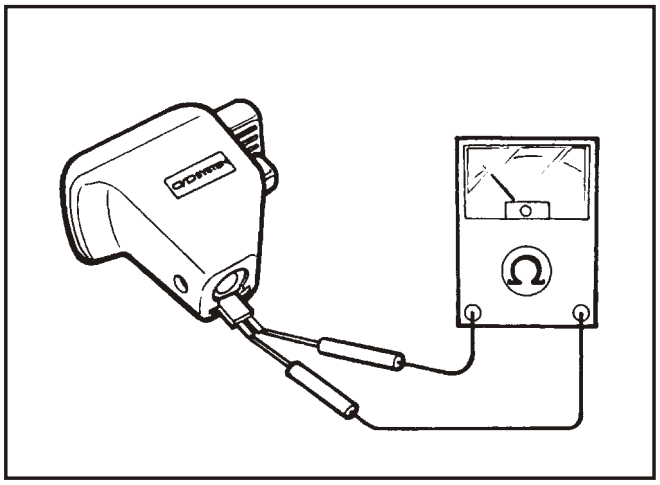

Figure 4

OD CANCEL SWITCH
Inspection of Continuity

1. Remove the selector lever knob.
2. Check the continuity of the terminals using an ohmmeter.
3. Continuity should be seen when the switch is released and an open should be seen when it is depressed.
4. If not correct, replace the switch.

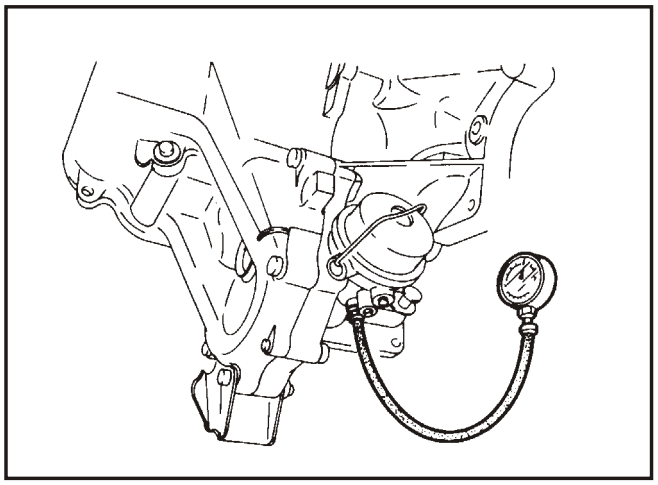

Figure 5

GOVERNOR PRESSURE TEST

1. Install a pressure gauge onto the governor pressure fitting.
2. Drive the vehicle on the road or on the rack and view governor pressure. Governor pressure should be relatively close to road speed..
3. If governor pressure is not correct, replace the governor.
4. If changing the governor does not correct the condition, the governor pressure circuit will need to be investigated.

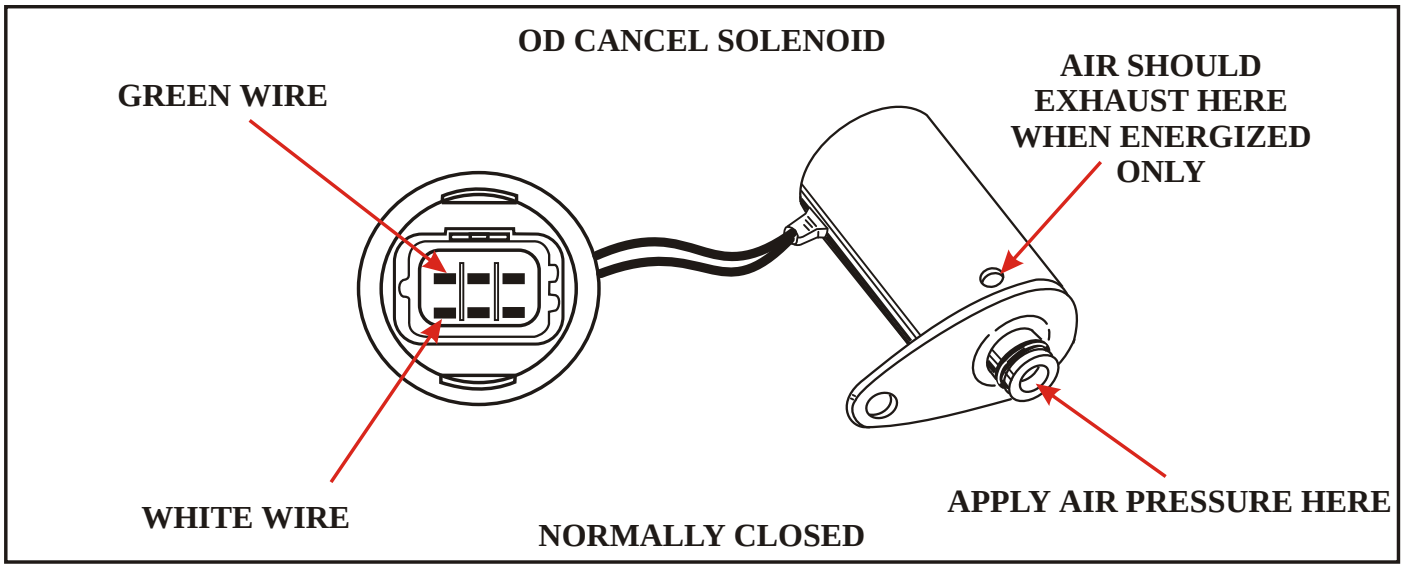

Figure 6

G4A-HL MAIN VALVE BODY

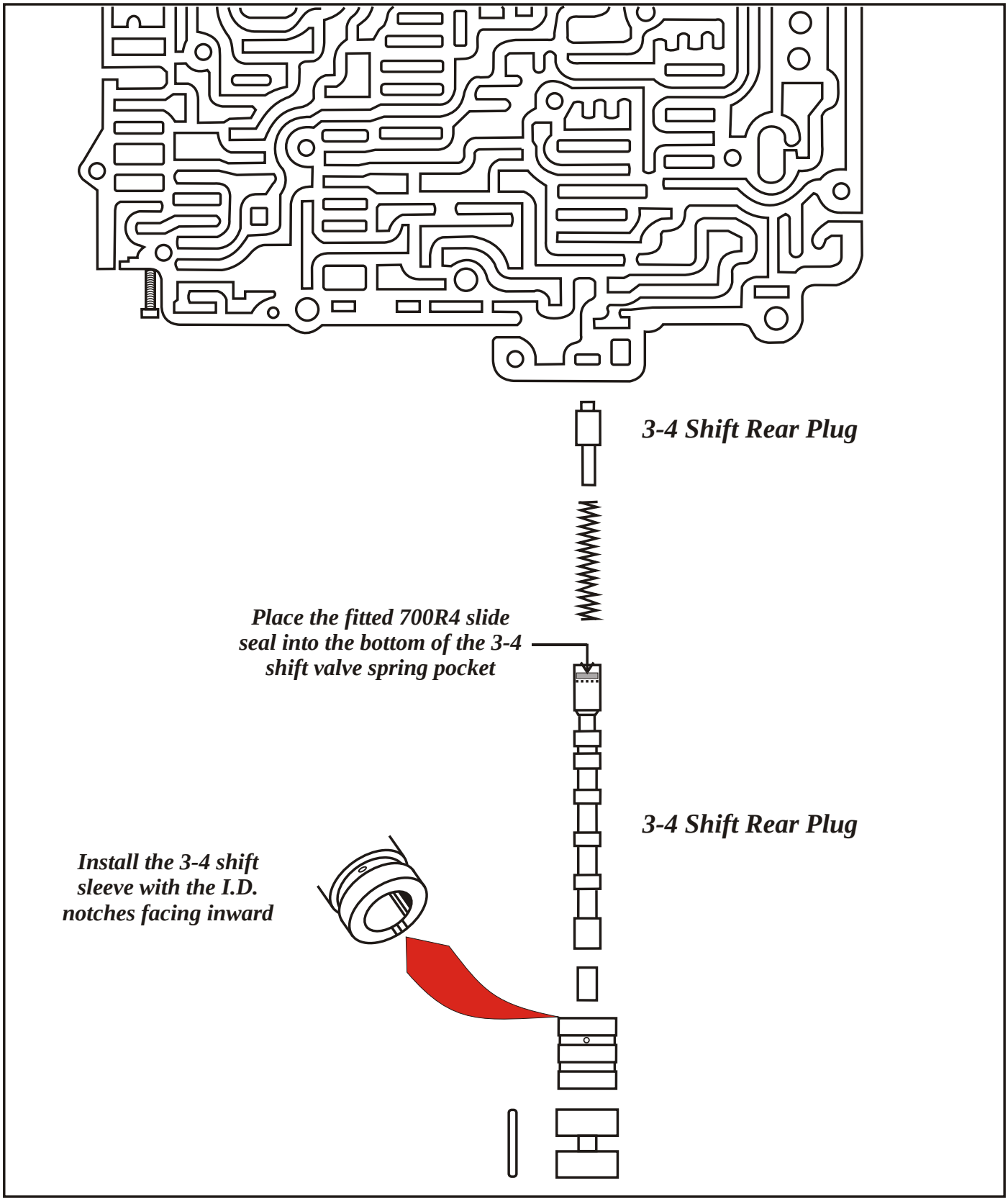

Figure 7