05JOY–01

ROAD TEST

1. PROBLEM SYMPTOM CONFIRMATION

(a) Based on the result of the customer problem analysis, try to reproduce the symptoms. If the problem is that the transaxle does not shift up, shift down, or the shift point is too high or too low, conduct the following road test referring to the automatic shift schedule and simulate the problem symptoms.

2. ROAD TEST

NOTICE:

Perform the test at the ATF (Automatic Transmission Fluid) temperature 50 to 80°C (122 to 176°F) in the normal operation.

(a) D position test:

Shift into the D position and fully depress the accelerator pedal and check the following points.

(1) Check up–shift operation.

Check that 1 → 2, 2 → 3, 3 → 4 and 4 → 5th up–shifts take place, and that the shift points conform to the automatic shift schedule (see page 03–42).

HINT:

5th Gear Up–shift Prohibition Control

- Engine coolant temperature is 68 °C (154 °F) or less and vehicle speed is at 70 km/h (43 mph) or less.
- ATF temperature is –2 °C (28 °F) or less.

4th Gear Up–shift Prohibition Control

- Engine coolant temperature is 65 °C (149 °F) or less and vehicle speed is at 55 km/h (34 mph) or less.

5th and 4th Gear Lock–up Prohibition Control

- Brake pedal is depressed.
- Accelerator pedal is released.
- Engine coolant temperature is 60 °C (140 °F) or less.

(2) Check for shift shock and slip.

Check for shock and slip at the 1 → 2, 2 → 3, 3 → 4 and 4 → 5th up–shifts.

(3) Check for abnormal noise and vibration.

Check for abnormal noise and vibration when up–shifting from 1 → 2, 2 → 3, 3 → 4 and 4 → 5 while driving with the shift lever in the D position, and check while driving in the lock–up condition.

HINT:

The check for the cause of abnormal noise and vibration must be done thoroughly as it could also be due to loss of balance in the differential, torque converter clutch, etc.

(4) Check kick–down operation.

Check vehicle speeds when the 2nd to 1st, 3rd to 2nd, 4th to 3rd, and 5th to 4th kick–downs take place while driving with the shift lever in the D position. Confirm that each speed is within the applicable vehicle speed range indicated in the automatic shift schedule (see page 03–42).

(5) Check abnormal shock and slip at kick–down.

(6) Check the lock–up mechanism.

- Drive in D position (5th gear), at a steady speed (lock–up ON).
- Lightly depress the accelerator pedal and check that the engine speed does not change abruptly.

HINT:

- There is no lock–up function in the 1st, 2nd and 3rd gear.
- 4th lock–up operates while uphill–downhill control is active in the D position.
- If there is a big jump in engine speed, there is no lock–up.

(b) 4 position (O/D OFF) test:

Shift into the 4 position and fully depress the accelerator pedal and check the following points.

(1) Check up–shift operation.

Check that the 1 → 2, 2 → 3 and 3 → 4 up–shift takes place and that the shift point conforms to the automatic shift schedule (see page 03–42).

HINT:

There is no 5th up–shift in the 4 position.

(2) Check engine braking.

While driving in the 4 position and 4th gear, release the accelerator pedal and check the engine braking effect.

(3) Check for abnormal noises during acceleration and deceleration, and for shock at up–shift and down–shift.

(c) 3 position test:

Shift into the 3 position and fully depress the accelerator pedal and check the following points.

(1) Check up–shift operation.

Check that the 1 → 2 and 2 → 3 up–shift takes place and that the shift point conforms to the automatic shift schedule (see page 03–42).

HINT:

There is no 4th up–shift and lock–up in the 3 position.

(2) Check engine braking.

While running in the 3 position and 3rd gear, release the accelerator pedal and check the engine braking effect.

(3) Check for abnormal noises during acceleration and deceleration, and for shock at up–shift and down–shift.

(d) 2 position test:

Shift into the 2 position and fully depress the accelerator pedal and check the following points.

(1) Check up–shift operation.

Check that the 1 → 2 up–shift takes place and that the shift point conforms to the automatic shift schedule (see page 03–42).

HINT:

There is no 3rd up–shift and lock–up in the 2 position.

(2) Check engine braking.

While running in the 2 position and 2nd gear, release the accelerator pedal and check the engine braking effect.

(3) Check for abnormal noises during acceleration and deceleration, and for shock at up–shift and down–shift.

(e) L position test:

Shift into the L position and fully depress the accelerator pedal and check the following points.

(1) Check no up–shift.

While running in the L position, check that there is no up–shift to 2nd gear.

HINT:

There is no lock–up in the L position.

(2) Check engine braking.

While running in the L position, release the accelerator pedal and check the engine braking effect.

(3) Check for abnormal noises during acceleration and deceleration.

(f) R position test:
Shift into the R position, lightly depress the accelerator pedal, and check that the vehicle moves backward without any abnormal noise or vibration.

CAUTION:
Before conducting this test ensure that the test area is free from people and obstruction.

(g) P position test:
Stop the vehicle on a grade (more than 5°) and after shifting into the P position, release the parking brake. Then, check that the parking lock pawl holds the vehicle in place.

(h) Uphill/downhill control function test:
(1) Check that the gear does not up–shift to the 4th or 5th gear while the vehicle is driving uphill.
(2) Check that the gear automatically down–shifts from the 5th to 4th or from the 4th to 3rd gear when brake is applied while the vehicle is driving downhill.