05HMP–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 transmission 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, 4 → 5 and 5 → 6th up–shifts take place, and that the shift points conform to the automatic shift schedule (see page 03–44).

HINT:

6th and 5th Gear Up–shift Prohibition Control

- Engine coolant temperature is 55°C (131°F) or less and vehicle speed is at 51 km/h (32 mph) or less.

4th Gear Up–shift Prohibition Control

- Engine coolant temperature is 47°C (117°F) or less and vehicle speed is at 49 km/h (30 mph) or less.

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, 4 → 5 and 5 → 6th 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, 4 → 5 and 5 → 6 while driving with the shift lever in the D position, and also 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, 5th to 4th, and 6th to 5th 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 03–44).

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

(6) Check the lock–up mechanism.

- Drive in the D position (4th, 5th or 6th 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 gears.
- If there is a big jump in engine speed, there is no lock–up.

(b) S position test

Shift to the S position, depress the accelerator pedal and check the following points:

(1) Check shift operation.

- While driving in the D position and 6th gear, shift into the S position and back to the D position. Check that the gear change 6 → 5 down–shift and 5 → 6 up–shift can be performed.
- With the shift lever in the S position (while the vehicle is stopped), shift into the "+" position to check that the shift position on the combination meter changes as follows: 1 → 2, 2 → 3, 3 → 4, 4 → 5 and 5 → 6.
- While driving in the 5(S) position and 4th gear (at a vehicle speed of approximately 55 to 65 km/h (34 to 40 mph)), shift into the "–" position and check if the 4th gear down–shift occurs and the engine brake performs properly.
- While driving in the 4(S) position and 4th gear (at a vehicle speed of approximately 30 to 40 km/h (19 to 25 mph)), shift into the "–" position and check if the 3rd gear down–shift occurs and the engine brake performs properly.
- While driving in the 3(S) position and 3rd gear (at a vehicle speed of approximately 20 to 30 km/h (12 to 19 mph)), shift into the "–" position and check if the 2nd gear down–shift occurs and the engine brake performs properly.
- While driving in the 2(S) position and 2nd gear (at a vehicle speed of approximately 10 to 20 km/h (6 to 12 mph)), shift into the "–" position and check if the 1st gear down–shift occurs and the engine brake performs properly.

HINT:

Manual shift (S position) is prohibited under either of the following conditions:

- Down–shifting may cause engine overrun.
- The driver continuously down–shifts. (Down–shifting to 1st gear may not be performed.)

(c) 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.

(d) 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.