

TROUBLESHOOTING

HOW TO PROCEED WITH TROUBLESHOOTING

For troubleshooting using a volt/ohm meter, see page [AT-34](#) ~ 36.

For troubleshooting using both volt/ohm meter and ECT checker, see page [AT-37](#) ~ 38.

HOW TO PROCEED WITH TROUBLESHOOTING USING VOLT/OHM METER

[1] CUSTOMER PROBLEM ANALYSIS

Using the customer problem analysis check sheet for reference, ask the customer in as much detail as possible about the problem.

[2] CHECK AND CLEAR THE DIAGNOSTIC CODES (PRECHECK)

Before confirming the problem symptom, first check the diagnostic code if there are any malfunction codes stored in memory. When there are malfunction codes, make a note of them, then clear them and proceed to "[3] Problem Symptom Confirmation".

[3] PROBLEM SYMPTOM CONFIRMATION, [4] SYMPTOM SIMULATION

Confirm the problem symptoms. If the problem does not reappear, be sure to simulate the problem by mainly checking the circuits indicated by the diagnostic code in step 2, using "Problem Simulation method".

[5] DIAGNOSTIC CODE CHECK

Check the diagnostic codes. Check if there is abnormality in the sensors or the wire harness.

If a malfunction code is output, proceed to "[6] Diagnostic Code Chart".

If the normal code is output, proceed to "[7] Matrix Chart of Problem Symptoms".

Be sure to proceed to "[6] Diagnostic Code Chart" after the steps [2] and [3] are completed.

If troubleshooting is attempted only by following the malfunction code stored in the memory is output, errors could be made in the diagnosis.

[6] DIAGNOSTIC CODE CHART

If a malfunction code is confirmed in the diagnostic code check, proceed to the inspection procedure indicated by the matrix chart for each diagnostic code.

[7] PRELIMINARY CHECK

Carry out a preliminary check of the transmission oil level, throttle cable adjustment, etc.

[8] SHIFT POSITION SIGNAL CHECK

Carry out the shift position signal check when the transmission gears do not upshift, downshift, or lockup. This is to check the signal output condition from the ECU to each solenoid. If the results are NG, then it is likely that the trouble is in the electrical system (particularly in the sensors or the ECU). Proceed to Part 1 (Electrical System) under [11] "Matrix Chart of Problem Symptoms". If all the circuits specified in Part 1 are OK, check the ECU and replace it.

[9] MECHANICAL SYSTEM TEST

(Stall Test, Time Lag Test, Line Pressure Test, Accumulator Back Pressure Test)

If the malfunction is found in the stall test, time lag test, line pressure test or accumulator back pressure test, check the parts indicated in the respective tests. If the problem is that "shift shock is large", perform the accumulator back pressure test.

[10] MANUAL SHIFTING TEST

If the results of the manual driving test are NG, it is likely that the trouble is in the mechanical system or hydraulic system. Proceed to Part 2 (Mechanical System) under the Matrix Chart of Problem Symptoms.

[11] MATRIX CHART OF PROBLEM SYMPTOMS

If the normal code is confirmed in the diagnostic code check, perform inspection according to the inspection order in the matrix chart of problem symptoms. Perform diagnosis of each circuit or part in the order shown in the Matrix Chart. The Matrix Chart contains 3 chapters, Electronically Controlled Circuits in Chapter 1, On-vehicle Inspection in Chapter 2 and Off-vehicle Inspection in Chapter 3. If all the circuits indicated in Chapter 1 are normal, proceed to Chapter 2. If all the parts indicated in Chapter 2 are normal, proceed to Chapter 3. If all the circuits and parts in Chapter 1–Chapter 3 are normal and the trouble still occurs, check and replace the ECU.

[12] CIRCUIT INSPECTION

Perform diagnosis of each circuit in accordance with the inspection order confirmed in [6] and [11]. Judge whether the cause of the problem is in the sensor, actuators, wire harness and connectors, or the ECU. In some cases, the Flow Chart instructs that a throttle signal check, brake signal check or kick down signal check (in test mode) be performed. These are diagnosis functions used to check if signals are being input correctly to the ECU.

[13] PART INSPECTION

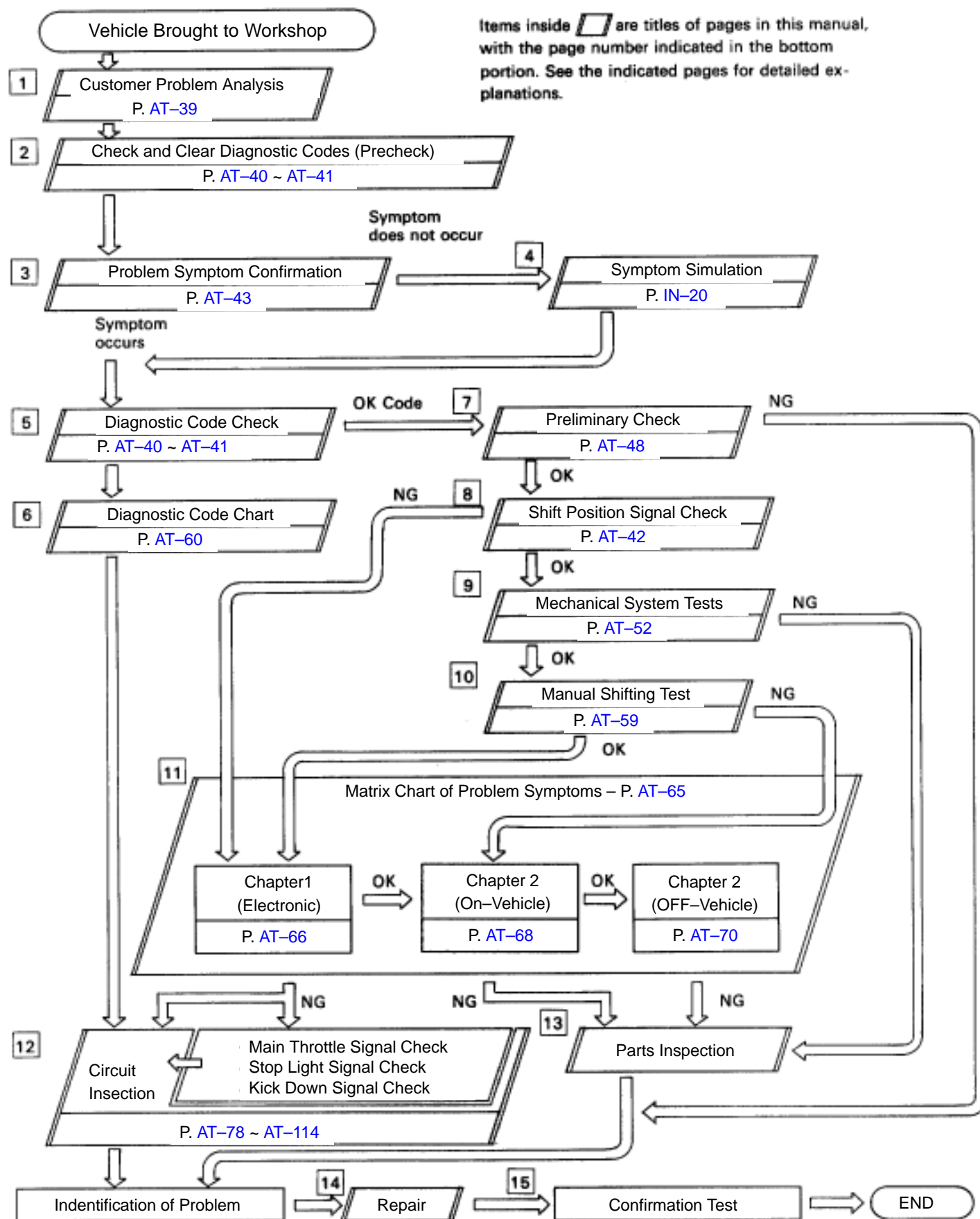
Check the individual parts of the mechanical system and hydraulic system in the order of the numbers indicated in the Matrix Chart.

[14] REPAIRS

After the cause of the problem is located, perform repairs by following the inspection and replacement procedures in this manual.

[15] CONFIRMATION TEST

After completing repairs, confirm not only that the malfunction is eliminated, but also conduct a test drive, etc., to make sure the entire ECT system is operating correctly.



HOW TO PROCEED WITH TROUBLESHOOTING USING VOLT/OHM METER AND ECT CHECKER

For the explanation of steps [1] ~ [7] and [9] ~ [15], see the explanation of steps with the same title on page [AT-34](#).

[8] CIRCUIT INSPECTION BY CHECKER

Connect ECT checker to the vehicle and check all the circuits which can be inspected using the checker. If the malfunctioning circuit can be detected using the checker, proceed to [11] Matrix chart of Problem Symptoms–Part 2 (on Vehicle) or [12] Circuit Inspection by Volt/ohm meter and perform troubleshooting. For instructions on how to connect the checker to the vehicle and how to use the checker, please refer to the Instruction Manual for ECT checker.

