

DTC P0731 [FN4A-EL]

B3E050219090W14

| DTC P0731 | Gear 1 incorrect (incorrect gear ratio detected) |
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| DETECTION CONDITION | <p>• The PCM monitors the revolution ratio of the forward clutch drum revolution to differential gear case revolution when the following monitoring conditions are met. If the revolution ratio is below 2.16, the PCM determines that there is a malfunction.</p> <p>Monitoring condition:</p> <ul style="list-style-type: none"> - ATF temperature 20 °C {68 °F} or more - Driving in 1GR in D or M range - Engine running - Turbine speed within 225-4,987 rpm - Throttle opening angle 2.66% or more - Differential gear case (output) revolution speed 35 rpm or more. - None of the following present: DTC P0500, P0706, P0707, P0708, P0712, P0713, P0715, P0751, P0752, P0753, P0756, P0757, P0758, P0761, P0762, P0763, P0766, P0767, P0768, P0771, P0772, P0773 <p>Diagnostic support note:</p> <ul style="list-style-type: none"> • This is a continuous monitor (CCM). • The MIL does not illuminate. • The AT warning light illuminates if the PCM detects the above malfunction condition during the first drive cycle. • FREEZE FRAME DATA is not available. • A PENDING CODE is not available. • The DTC is stored in the PCM memory. |
| POSSIBLE CAUSE | <ul style="list-style-type: none"> • ATF level low • Deteriorated ATF • Shift solenoid A stuck • Pressure control solenoid stuck • Line pressure low • One-way clutch slipping • Forward clutch slipping • Control valve stuck • Oil pump malfunction • PCM malfunction |

Diagnostic procedure

| STEP | INSPECTION | ACTION |
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| 1 | VERIFY RELATED REPAIR INFORMATION AVAILABILITY | |
| | <ul style="list-style-type: none"> • Verify related Service Bulletins and/or on-line repair information availability. • Is any related repair information available? | <p>Yes Perform repair or diagnosis according to the available repair information.</p> <p>No Go to the next step.</p> |
| 2 | INSPECT ATF CONDITION | |
| | <ul style="list-style-type: none"> • Inspect the ATF condition. (See AUTOMATIC TRANSAXLE FLUID (ATF) INSPECTION.) • Is it normal? | <p>Yes Go to the next step.</p> <p>No Replace the transaxle, then go to Step 8.</p> |
| | INSPECT ATF LEVEL | <p>Yes Go to the next step.</p> |

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| 3 | <ul style="list-style-type: none"> Start the engine. Warm up the ATX. Is the ATF level within the specification? (See AUTOMATIC TRANSAXLE FLUID (ATF) INSPECTION.) | No | Add ATF to the specified level, then go to Step 8. |
| 4 | INSPECT SHIFT SOLENOID VALVE A <ul style="list-style-type: none"> Perform operation inspection. (See SOLENOID VALVE INSPECTION.) Verify the click sound of shift solenoid A when applying B+ to transaxle terminal A. Was a click heard from solenoids? | Yes | Go to the next step. |
| | | No | Replace the solenoid that you could not hear a click sound, then go to Step 8. (See SOLENOID VALVE REMOVAL/INSTALLATION.) |
| 5 | INSPECT LINE PRESSURE <ul style="list-style-type: none"> Start the engine. Measure the line pressures. <p>Specification</p> <p>Idle: 330-470 kPa {3.4-4.7 kgf/cm², 48-68 psi}</p> <p>Stall:</p> <p>1,090-1,250 kPa {11.2-12.7 kgf/cm², 159-181 psi} (Z6)</p> <p>1,160-1,320 kPa {11.8-13.5 kgf/cm², 168-191 psi} (LF)</p> <ul style="list-style-type: none"> Are the line pressures within the specifications? (See Line Pressure Test.) | Yes | Go to the next step. |
| | | No | All ranges: Replace the oil pump, then go to Step 8. Any ranges: Replace the control valve body, then go to Step 8. (See CONTROL VALVE BODY REMOVAL.) (See CONTROL VALVE BODY INSTALLATION.) |
| 6 | INSPECT STALL SPEED <ul style="list-style-type: none"> Measure the stall speed in D range. (See Stall Test.) <p>Specification</p> <p>2,100-2,700 rpm (Z6)</p> <p>2,000-2,600 rpm (LF)</p> <ul style="list-style-type: none"> Is the stall speed within the specification? | Yes | Go to the next step. |
| | | No | Replace the automatic transaxle, then go to Step 8. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION [Z6].) (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION [LF].) |
| 7 | INSPECT FREQUENCY OF INPUT/TURBINE SPEED SENSOR WHEN DRIVING VEHICLE <ul style="list-style-type: none"> Turn the ignition switch to the LOCK position. Connect the WDS or equivalent. Start the engine. Measure the frequency of input/turbine speed sensor while driving vehicle under the following conditions: <p>- Vehicle speed (VSS PID): 20 km/h</p> | Yes | Go to the next step. |
| | | No | Replace the control valve body, then go to the next step. (See CONTROL VALVE BODY REMOVAL.) |

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| | <p>{12 mph}</p> <ul style="list-style-type: none"> - Drive in the D range, 1GR - Throttle opening angle (TP PID): approx. 25% <p>• Was the frequency of the input/turbine speed sensor at approx. 1,100 Hz?</p> | | (See CONTROL VALVE BODY INSTALLATION.) |
| 8 | <p>VERIFY REPAIR OF DTC P0731</p> <ul style="list-style-type: none"> • Make sure to reconnect all the disconnected connectors. • Clear the DTC using the WDS or equivalent. • Start the engine. • Warm up the transaxle. • Drive the vehicle under the following conditions at least 4 times for more than 1 s: <ul style="list-style-type: none"> - ATF temperature: 20 °C {68 °F} or more - Drive in the D range, 1GR - Throttle opening angle (TP PID): 5.67% or more - Vehicle speed (VSS PID): 4 km/h {3 mph} or more <p>• Are any DTCs present?</p> | Yes | <p>Replace the PCM, then go to the next step. (See PCM REMOVAL/INSTALLATION [ZJ, Z6].) (See PCM REMOVAL/INSTALLATION [LF].)</p> |
| | | No | Go to the next step. |
| 9 | <p>VERIFY AFTER REPAIR PROCEDURE</p> <ul style="list-style-type: none"> • Perform the "After Repair Procedure". (See AFTER REPAIR PROCEDURE [FN4A-EL].) • Are any DTCs present? | Yes | Go to the applicable DTC inspection. |
| | | No | DTC troubleshooting completed. |