

# General Diagnostic Table

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

### 15.General Diagnostic Table

#### A: INSPECTION

Symptom	Problem parts
Starter does not operate when select lever is in "P" or "N" range. Starter rotates when select lever is in "R", "D", "3" or "2" range.	<ul style="list-style-type: none"> <li>• Inhibitor switch</li> <li>• Select cable</li> <li>• Select lever</li> <li>• Starter motor and harness</li> </ul>
Abnormal noise when select lever is in "P" or "N".	<ul style="list-style-type: none"> <li>• Strainer</li> <li>• Transfer duty solenoid</li> <li>• Oil pump</li> <li>• Drive plate</li> <li>• ATF level too high or too low</li> </ul>
Hissing noise occurs during standing start.	<ul style="list-style-type: none"> <li>• Strainer</li> <li>• ATF level too high or too low</li> </ul>
Noise occurs while driving in "D1".	<ul style="list-style-type: none"> <li>• Final gear</li> <li>• Planetary gear</li> <li>• Reduction gear</li> <li>• Differential gear oil level too high or too low</li> </ul>
Noise occurs while driving in "D2".	
Noise occurs while driving in "D3".	<ul style="list-style-type: none"> <li>• Final gear</li> <li>• Low &amp; reverse brake</li> <li>• Reduction gear</li> <li>• Differential gear oil level too high or too low</li> </ul>
Noise occurs while driving in "D4".	<ul style="list-style-type: none"> <li>• Final gear</li> <li>• Low &amp; reverse brake</li> <li>• Planetary gear</li> <li>• Reduction gear</li> <li>• Differential gear oil level too high or too low</li> </ul>
Engine stalls while shifting from "1" range to another.	<ul style="list-style-type: none"> <li>• Control valve</li> <li>• Lock-up damper</li> <li>• Engine performance</li> <li>• Input shaft</li> </ul>
Vehicle moves when select lever is in "N" range.	<ul style="list-style-type: none"> <li>• Select cable</li> <li>• Inhibitor switch</li> <li>• TCM</li> <li>• Low clutch</li> </ul>
Shock occurs when select lever is shifted from "N" to "D" range.	<ul style="list-style-type: none"> <li>• Accelerator pedal position sensor</li> <li>• ATF temperature sensor</li> <li>• Line pressure duty solenoid</li> <li>• Low clutch duty solenoid</li> <li>• Low clutch</li> <li>• TCM</li> <li>• Harness</li> <li>• Control valve</li> <li>• ATF deterioration</li> </ul>
Excessive time lag occurs when select lever is shifted from "N" to "D" range.	<ul style="list-style-type: none"> <li>• Control valve</li> <li>• Low clutch</li> <li>• Line pressure duty solenoid</li> <li>• Seal ring</li> <li>• Front gasket of transmission case</li> </ul>
Shock occurs when the select lever is moved from "N" to "R" range.	<ul style="list-style-type: none"> <li>• Accelerator pedal position sensor</li> <li>• ATF temperature sensor</li> <li>• Line pressure duty solenoid</li> <li>• TCM</li> <li>• Harness</li> <li>• Control valve</li> <li>• ATF deterioration</li> </ul>

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Excessive time lag occurs when the select lever is moved from "N" to "R" range.	<ul style="list-style-type: none"> <li>Control valve</li> <li>Low &amp; reverse clutch</li> <li>Reverse clutch</li> <li>Line pressure duty solenoid</li> <li>Seal ring</li> <li>Front gasket of transmission case</li> </ul>
Vehicle does not start in any shift range. (Engine stalls)	<ul style="list-style-type: none"> <li>Parking brake mechanism</li> <li>Planetary gear</li> </ul>
Vehicle does not start in any shift range. (Engine operates)	<ul style="list-style-type: none"> <li>Strainer</li> <li>Line pressure duty solenoid</li> <li>Control valve</li> <li>Drive pinion</li> <li>Hypoid gear</li> <li>Axle shaft</li> <li>Differential gear</li> <li>Oil pump</li> <li>Input shaft</li> <li>Output shaft</li> <li>Planetary gear</li> <li>Drive plate</li> <li>ATF level is too low</li> <li>Front gasket of transmission case</li> </ul>
Vehicle does not start in "R" range only. (Engine operates)	<ul style="list-style-type: none"> <li>Select cable</li> <li>Select lever</li> <li>Line pressure duty solenoid</li> <li>Control valve</li> <li>Low &amp; reverse clutch</li> <li>Reverse clutch</li> </ul>
Vehicle does not start in "R" range only. (Engine stalls)	<ul style="list-style-type: none"> <li>Low clutch</li> <li>2-4 brake</li> <li>Planetary gear</li> <li>Parking brake mechanism</li> </ul>
Vehicle does not start in only when in the "D", "3" range. (Engine operates)	<ul style="list-style-type: none"> <li>Low clutch</li> <li>One-way clutch</li> </ul>
Vehicle does not start in only in the "D", "3" or "2" range. (Engine operates)	Low clutch
Vehicle does not start in only in the "D", "3" or "2" range. (Engine stalls)	Reverse clutch
Vehicle does not start in "R" range only. (Engine operates)	Control valve
Acceleration during standing start is poor. (High rpm stall)	<ul style="list-style-type: none"> <li>Control valve</li> <li>Low clutch</li> <li>Reverse clutch</li> <li>ATF level is too low</li> <li>ATF deterioration</li> <li>Front gasket of transmission case</li> <li>Differential gear oil level too high or too low</li> </ul>
Acceleration during standing start is poor. (Low rpm stall)	<ul style="list-style-type: none"> <li>Oil pump</li> <li>Torque converter one-way clutch</li> <li>Engine performance</li> </ul>
Acceleration is poor when select lever is in the "D", "3" or "2" range. (Normal rpm stall)	<ul style="list-style-type: none"> <li>TCM</li> <li>Control valve</li> <li>High clutch</li> <li>2-4 brake</li> <li>Planetary gear</li> </ul>
Acceleration is poor when select lever is in "R" range. (Normal rpm stall)	<ul style="list-style-type: none"> <li>Control valve</li> <li>High clutch</li> <li>2-4 brake</li> <li>Planetary gear</li> </ul>

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No shift occurs from 1st to 2nd gear.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Rear vehicle speed sensor</li> <li>• Front vehicle speed sensor</li> <li>• Accelerator pedal position sensor</li> <li>• Control valve</li> <li>• 2-4 brake</li> </ul>
No shift occurs from 2nd to 3rd gear.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Control valve</li> <li>• High clutch</li> </ul>
No shift occurs from 3rd to 4th gear.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• ATF temperature sensor</li> <li>• Control valve</li> <li>• 2-4 brake</li> </ul>
Engine brake does not come into effect when the select lever is shifted to "3" range.	<ul style="list-style-type: none"> <li>• Inhibitor switch</li> <li>• TCM</li> <li>• Accelerator pedal position sensor</li> <li>• Control valve</li> </ul>
Engine brake is not effected when the select lever is in "3" or "2" range.	Control valve
Engine brake does not come into effect when the select lever is shifted to "1" range.	<ul style="list-style-type: none"> <li>• Control valve</li> <li>• Low &amp; reverse brake</li> </ul>
Shift characteristics are erroneous.	<ul style="list-style-type: none"> <li>• Inhibitor switch</li> <li>• TCM</li> <li>• Front vehicle speed sensor</li> <li>• Rear vehicle speed sensor</li> <li>• Accelerator pedal position sensor</li> <li>• Control valve</li> <li>• Ground</li> </ul>
No lock-up occurs.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Accelerator pedal position sensor</li> <li>• ATF temperature sensor</li> <li>• Control valve</li> <li>• Lock-up facing</li> <li>• Engine speed signal</li> </ul>
Parking brake does not function.	<ul style="list-style-type: none"> <li>• Select cable</li> <li>• Select lever</li> <li>• Parking mechanism</li> </ul>
Shift lever cannot be moved or is hard to move from "P" range.	
ATF spurts out.	ATF level too high
Differential oil spurts out.	Differential gear oil level too high
Differential oil level changes excessively.	<ul style="list-style-type: none"> <li>• Seal pipe</li> <li>• Double oil seal</li> </ul>
Odor is produced from ATF supply pipe.	<ul style="list-style-type: none"> <li>• High clutch</li> <li>• 2-4 brake</li> <li>• Low &amp; reverse clutch</li> <li>• Reverse clutch</li> <li>• Lock-up facing</li> <li>• ATF deterioration</li> </ul>
Shock occurs when shifting from 1st to 2nd gear.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Torque converter turbine speed sensor</li> <li>• Accelerator pedal position sensor</li> <li>• 2-4 brake duty solenoid</li> <li>• ATF temperature sensor</li> <li>• Line pressure duty solenoid</li> <li>• Control valve</li> <li>• 2-4 brake</li> <li>• ATF deterioration</li> <li>• Engine performance</li> <li>• Low &amp; reverse duty solenoid</li> </ul>

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Slippage occurs when shifting from 1st to 2nd gear.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Accelerator pedal position sensor</li> <li>• 2-4 brake duty solenoid</li> <li>• ATF temperature sensor</li> <li>• Line pressure duty solenoid</li> <li>• Control valve</li> <li>• 2-4 brake</li> </ul>
Shock occurs when shifting from 2nd to 3rd gear.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Torque converter turbine speed sensor</li> <li>• Accelerator pedal position sensor</li> <li>• 2-4 brake duty solenoid</li> <li>• ATF temperature sensor</li> <li>• Line pressure duty solenoid</li> <li>• Low &amp; reverse duty solenoid</li> <li>• Control valve</li> <li>• High clutch</li> <li>• 2-4 brake</li> <li>• ATF deterioration</li> <li>• Engine performance</li> <li>• High clutch duty solenoid</li> </ul>
Slippage occurs when shifting from 2nd to 3rd gear.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Accelerator pedal position sensor</li> <li>• 2-4 brake duty solenoid</li> <li>• ATF temperature sensor</li> <li>• Line pressure duty solenoid</li> <li>• Control valve</li> <li>• High clutch</li> <li>• 2-4 brake</li> <li>• Low &amp; reverse duty solenoid</li> </ul>
Shock occurs when shifting from 3rd to 4th gear.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Torque converter turbine speed sensor</li> <li>• Accelerator pedal position sensor</li> <li>• 2-4 brake duty solenoid</li> <li>• ATF temperature sensor</li> <li>• Line pressure duty solenoid</li> <li>• Control valve</li> <li>• Low clutch duty solenoid</li> <li>• 2-4 brake</li> <li>• ATF deterioration</li> <li>• Engine performance</li> </ul>
Slippage occurs when shifting from 3rd to 4th gear.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Accelerator pedal position sensor</li> <li>• 2-4 brake duty solenoid</li> <li>• ATF temperature sensor</li> <li>• Line pressure duty solenoid</li> <li>• Control valve</li> <li>• 2-4 brake</li> </ul>
Shock occurs when select lever is shifted from the "3" range to the "2" range.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Torque converter turbine speed sensor</li> <li>• Accelerator pedal position sensor</li> <li>• ATF temperature sensor</li> <li>• Line pressure duty solenoid</li> <li>• Control valve</li> <li>• 2-4 brake duty solenoid</li> <li>• 2-4 brake</li> <li>• ATF deterioration</li> <li>• High clutch duty solenoid</li> </ul>

# General Diagnostic Table

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

Symptom	Problem parts
Shock occurs when select lever is shifted from the "2" range to the "1" range.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Torque converter turbine speed sensor</li> <li>• Accelerator pedal position sensor</li> <li>• ATF temperature sensor</li> <li>• Line pressure duty solenoid</li> <li>• Control valve</li> <li>• Low &amp; reverse clutch</li> <li>• ATF deterioration</li> <li>• 2-4 brake duty solenoid</li> <li>• Low &amp; reverse brake duty solenoid</li> </ul>
Shock occurs when accelerator pedal is released from medium speed.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Accelerator pedal position sensor</li> <li>• ATF temperature sensor</li> <li>• Line pressure duty solenoid</li> <li>• Control valve</li> <li>• Lock-up damper</li> <li>• Engine performance</li> </ul>
Vibration occurs during straight-forward operation.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Lock-up duty solenoid</li> <li>• Lock-up facing</li> <li>• Lock-up damper</li> </ul>
Vibration occurs during turns. (Tight corner braking phenomenon)	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Front vehicle speed sensor</li> <li>• Rear vehicle speed sensor</li> <li>• Accelerator pedal position sensor</li> <li>• ATF temperature sensor</li> <li>• Transfer clutch</li> <li>• Transfer valve</li> <li>• Transfer duty solenoid</li> <li>• ATF deterioration</li> <li>• Harness</li> </ul>
Front wheel slippage occurs during standing starts.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• Front vehicle speed sensor</li> <li>• FWD switch</li> <li>• Accelerator pedal position sensor</li> <li>• ATF temperature sensor</li> <li>• Control valve</li> <li>• Transfer clutch</li> <li>• Transfer valve</li> <li>• Transfer pipe</li> <li>• Transfer duty solenoid</li> </ul>
It is not set in FWD mode.	<ul style="list-style-type: none"> <li>• TCM</li> <li>• FWD switch</li> <li>• Transfer clutch</li> <li>• Transfer valve</li> <li>• Transfer duty solenoid</li> </ul>
Select lever is hard to move.	<ul style="list-style-type: none"> <li>• Select cable</li> <li>• Select lever</li> <li>• Detent spring</li> <li>• Manual plate</li> </ul>
Select lever is excessively hard to move. (Unreasonable resistance)	<ul style="list-style-type: none"> <li>• Detent spring</li> <li>• Manual plate</li> </ul>
Select lever slips out of selected shift position during acceleration or while driving on rough terrain.	<ul style="list-style-type: none"> <li>• Select cable</li> <li>• Select lever</li> <li>• Detent spring</li> <li>• Manual plate</li> </ul>

# MANUAL TRANSMISSION AND DIFFERENTIAL

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