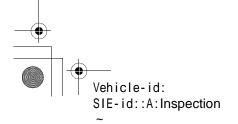


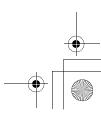


#### **16.Symptom Related Diagnostic** A: INSPECTION

Symptom	Problem parts
Starter does not rotate when select lever is in "P" or "N"; starter rotates when select lever is in "R", "D", "3" or "2".	<ul><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> <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.	Strainer     ATF level too high or too low
Noise occurs while driving in "D1".	Final gear
Noise occurs while driving in "D2".	<ul><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 "D3".	<ul> <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> <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 one range to another.	<ul><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".	TCM Low clutch
Shock occurs when select lever is moved from "N" to "D".	<ul><li>TCM</li><li>Harness</li><li>Control valve</li><li>ATF deterioration</li></ul>
Excessive time lag occurs when select lever is moved from "N" to "D".	<ul> <li>Control valve</li> <li>Low clutch</li> <li>Line pressure duty solenoid</li> <li>Seal ring</li> <li>Front gasket transmission case</li> </ul>
Shock occurs when select lever is moved from "N" to "R".	TCM Harness Control valve ATF deterioration
Excessive time lag occurs when select lever is moved from "N" to "R".	<ul> <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 transmission case</li> </ul>
Vehicle does not start in any shift range (engine stalls).	Parking brake mechanism     Planetary gear











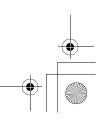


Symptom	Droblem parts
Symptom	Problem parts
Vehicle does not start in any shift range (engine revving up).	<ul> <li>Strainer</li> <li>Line pressure duty solenoid</li> <li>Control valve</li> <li>Drive pinion</li> <li>Hypoid gear</li> <li>Axle shaft</li> <li>Differential gear</li> <li>Oil pump</li> <li>Input shaft</li> <li>Output shaft</li> <li>Planetary gear</li> </ul>
Vehicle does not start in "R" range only (engine revving up).	Drive plate     ATF level too low     Front gasket transmission case     Select cable     Select lever     Control valve
Vehicle does not start in "R" range only (engine stalls).	<ul> <li>Low &amp; reverse clutch</li> <li>Reverse clutch</li> <li>Low clutch</li> <li>2-4 brake</li> <li>Planetary gear</li> <li>Parking brake mechanism</li> </ul>
Vehicle does not start in "D", "3" range only (engine revving up).	Low clutch     One-way clutch
Vehicle does not start in "D", "3" or "2" range only (engine revving up).	Low clutch
Vehicle does not start in "D", "3" or "2" range only (engine stalls).	Reverse clutch
Vehicle starts in "R" range only (engine revving up).	Control valve
Acceleration during standing starts is poor (high stall rpm).	Control valve Low clutch Reverse clutch ATF level too low Front gasket transmission case Differential gear oil level too high or too low
Acceleration during standing starts is poor (low stall rpm).	<ul><li>Oil pump</li><li>Torque converter one-way clutch</li><li>Engine performance</li></ul>
Acceleration is poor when select lever is in "D", "3" or "2" range (normal stall rpm).	<ul> <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" (normal stall rpm).	Control valve High clutch 2-4 brake Planetary gear
No shift occurs from 1st to 2nd gear.	<ul> <li>TCM</li> <li>Rear vehicle speed sensor</li> <li>Front vehicle speed sensor</li> <li>Throttle position sensor</li> <li>Shift solenoid 1</li> <li>Control valve</li> <li>2-4 brake</li> </ul>
No shift occurs from 2nd to 3rd gear.	<ul><li>TCM</li><li>Control valve</li><li>High clutch</li><li>Shift solenoid 2</li></ul>

Vehicle-id:

SIE-id::A:Inspection



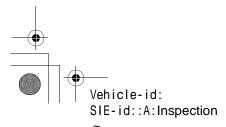




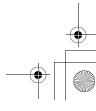




Symptom	Droblom parts
Symptom	Problem parts  • TCM
No shift occurs from 3rd to 4th gear.	<ul> <li>Shift solenoid 1</li> <li>ATF temperature sensor</li> <li>Control valve</li> <li>2-4 brake</li> </ul>
Engine brake is not effected when select lever is in "3" range.	Inhibitor switch TCM Throttle position sensor Control valve
Engine brake is not effected when select lever is in "3" or "2" range.	Control valve
Engine brake is not effected when select lever is in "1" range.	Control valve     Low & reverse brake
Shift characteristics are erroneous.	<ul> <li>Inhibitor switch</li> <li>TCM</li> <li>Front vehicle speed sensor</li> <li>Rear vehicle speed sensor</li> <li>Throttle position sensor</li> <li>Control valve</li> <li>Ground earth</li> </ul>
No lock-up occurs.	<ul> <li>TCM</li> <li>Throttle 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 is not effected.	Select cable
Shift lever cannot be moved or is hard to move from "P" range.	Select lever     Parking mechanism
ATF spurts out.	ATF level too high
Differential oil spurts out.	Differential gear oil too high
Differential oil level changes excessively.	Seal pipe     Double oil seal
Odor is produced from ATF supply pipe.	<ul> <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 from 1st to 2nd gear.	<ul> <li>TCM</li> <li>Throttle 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>2-4 brake timing solenoid</li> </ul>
Slippage occurs from 1st to 2nd gear.	<ul> <li>TCM</li> <li>Throttle 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>2-4 brake timing solenoid</li> <li>High clutch</li> </ul>

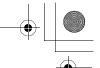






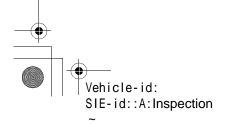






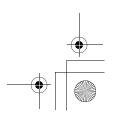


	No remittie introduced (Birteliee)
Symptom	Problem parts
	• TCM
	Throttle position sensor
	2-4 brake duty solenoid
	ATF temperature sensor
	Line pressure duty solenoid
Shock occurs from 2nd to 3rd gear.	Control valve
and the second s	High clutch
	• 2-4 brake
	ATF deterioration
	Engine performance
	2-4 brake timing solenoid
	<u>-</u>
	• TCM
	Throttle position sensor
	2-4 brake duty solenoid
	ATF temperature sensor
Slippage occurs from 2nd to 3rd gear.	Line pressure duty solenoid
	Control valve
	High clutch
	• 2-4 brake
	2-4 brake timing solenoid
	• TCM
	Throttle position sensor
	2-4 brake duty solenoid
	ATF temperature sensor
	Line pressure duty solenoid
	Control valve
Shock occurs from 3rd to 4th gear.	2-4 brake timing solenoid
	2-4 brake     2-4 brake
	ATF deterioration
	Engine performance     Laura dutab timing a plan side
	Low clutch timing solenoid
	Low clutch
	• TCM
	Throttle position sensor
	2-4 brake duty solenoid
Slippage occurs from 3rd to 4th gear.	ATF temperature sensor
Suppage occurs from Sig to 4th gear.	Line pressure duty solenoid
	Control valve
	• 2-4 brake
	2-4 brake timing solenoid
	• TCM
	Throttle position sensor
	ATF temperature sensor
	Line pressure duty solenoid
Shock occurs when select lever is moved from "3" to "2" range.	Control valve
Shook occurs which scient level is illoved from 5 to 2 fallye.	2-4 brake duty solenoid
	2-4 brake duty solenoid     2-4 brake
	ATF deterioration
	2-4 brake timing solenoid
	• TCM
	Throttle position sensor
Shock occurs when select lever is moved from "D" to "1" range.	ATF temperature sensor
	Line pressure duty solenoid
	Control valve
	ATF deterioration
	2-4 brake duty solenoid
	2-4 brake timing solenoid
1	Low clutch timing solenoid

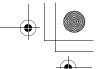






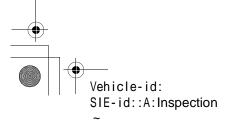








Cumptom	Droblem ports
Symptom	Problem parts  • TCM
Shock occurs when select lever is moved from "2" to "1" range.	<ul> <li>Throttle position sensor</li> <li>ATF temperature sensor</li> <li>Line pressure duty solenoid</li> <li>Control valve</li> <li>Low &amp; reverse clutch</li> <li>ATF deterioration</li> <li>2-4 brake duty solenoid</li> <li>2-4 brake timing solenoid</li> <li>Low clutch timing solenoid</li> </ul>
Shock occurs when accelerator pedal is released at medium speeds.	<ul> <li>TCM</li> <li>Throttle 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> <li>2-4 brake duty solenoid</li> <li>2-4 brake timing solenoid</li> <li>Low clutch timing solenoid</li> </ul>
Vibration occurs during straight-forward operation.	TCM Lock-up duty solenoid Lock-up facing Lock-up damper
Vibration occurs during turns (tight corner "braking" phenomenon).	<ul> <li>TCM</li> <li>Front vehicle speed sensor</li> <li>Rear vehicle speed sensor</li> <li>Throttle 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> <li>TCM</li> <li>Front vehicle speed sensor</li> <li>FWD switch</li> <li>Throttle 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>
Vehicle is not set in FWD mode.	TCM FWD switch Transfer clutch Transfer valve Transfer duty solenoid
Select lever is hard to move.	<ul><li>Select cable</li><li>Select lever</li><li>Detent spring</li><li>Manual plate</li></ul>
Select lever is too high to move (unreasonable resistance).	Detent spring     Manual plate
Select lever slips out of operation during acceleration or while driving on rough terrain.	Select cable     Select lever     Detent spring     Manual plate



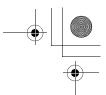




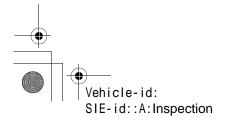






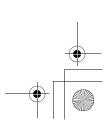


Symptom	Problem parts
System does not shift to SPORT shift mode.	SPORT shift mode switch
Engine brake is not effected in SPORT shift mode with 1st gear.	SPORT shift solenoid
	Control valve
	Low & reverse clutch

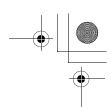




**AT-165** 







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