GENERAL INFORMATION

00
SECTION

GENERAL INFORMATION 00-00

00–00 GENERAL INFORMATION

HOW TO USE THIS MANUAL

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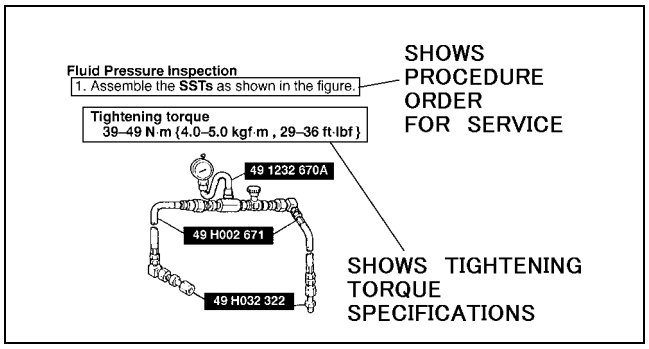
Range of Topics

- This manual contains procedures for performing all required service operations. The procedures are divided into the following five basic operations:
  - — Removal/Installation
  - — Disassembly/Assembly
  - — Replacement
  - — Inspection
  - — Adjustment
- Simple operations which can be performed easily just by looking at the vehicle (i.e., removal/installation of parts, jacking, vehicle lifting, cleaning of parts, and visual inspection) have been omitted.

Service Procedure
Inspection, adjustment

- Inspection and adjustment procedures are divided into steps. Important points regarding the location and contents of the procedures are explained in detail and shown in the illustrations.



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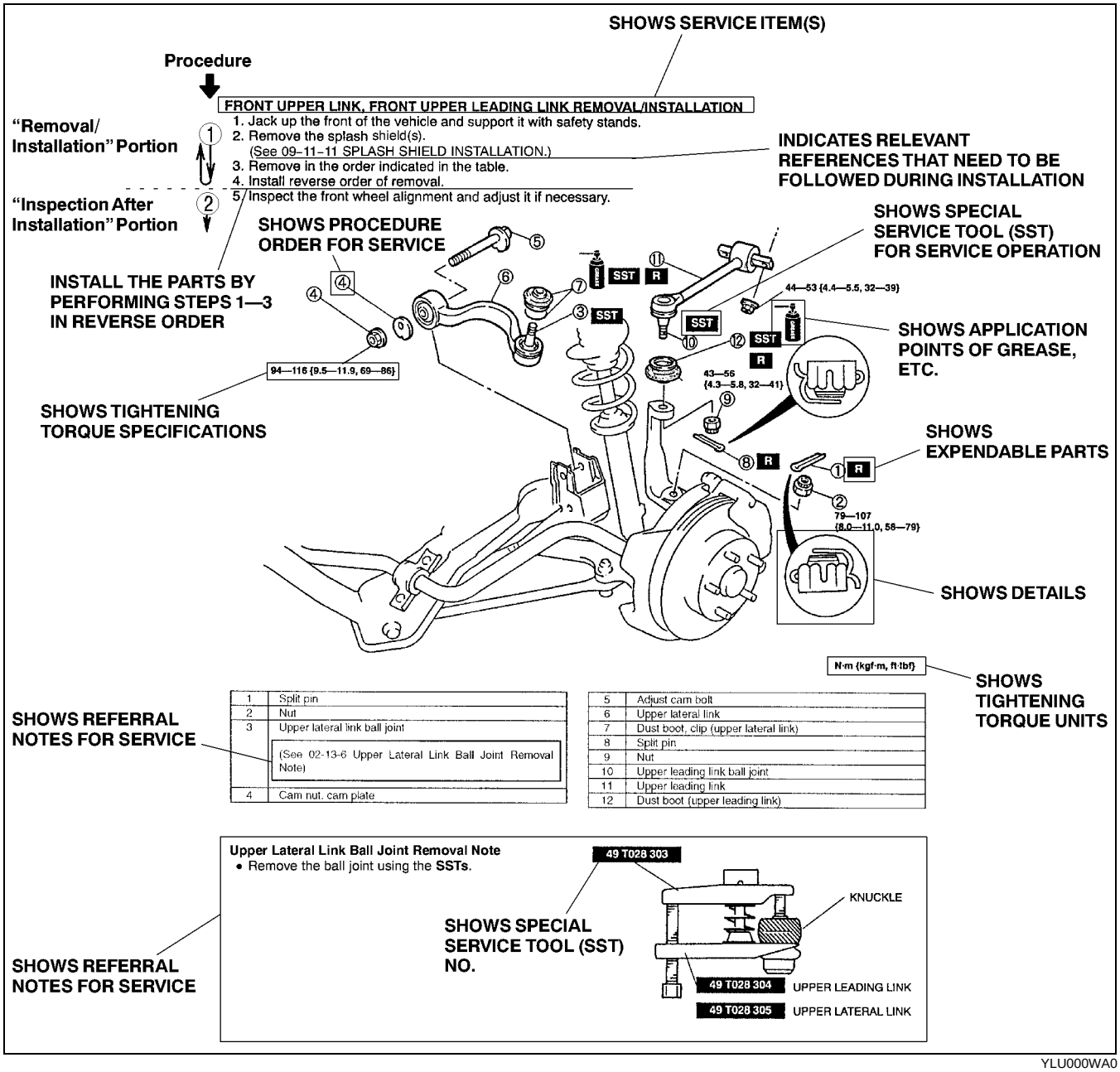
Repair procedure

1. Most repair operations begin with an overview illustration. It identifies the components, shows how the parts fit together, and describes visual part inspection. However, only removal/installation procedures that need to be performed methodically have written instructions.
2. Expendable parts, tightening torques, and symbols for oil, grease, and sealant are shown in the overview illustration. In addition, symbols indicating parts requiring the use of special service tools or equivalent are also shown.
3. Procedure steps are numbered and the part that is the main point of that procedure is shown in the illustration with the corresponding number. Occasionally, there are important points or additional information concerning a procedure. Refer to this information when servicing the related part.



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Symbols

- There are eight symbols indicating oil, grease, fluids, sealant, ane the use of **SST** or equivalent. use. These symbols show application points or use of these materials during service.

Symbol	Meaning	Kind
	Apply oil	New appropriate engine oil or gear oil

Symbol	Meaning	Kind
	Apply brake fluid	New appropriate brake fluid
	Apply automatic transaxle/ transmission fluid	New appropriate automatic transaxle/ transmission fluid
	Apply grease	Appropriate grease
	Apply sealant	Appropriate sealant
	Apply petroleum jelly	Appropriate petroleum jelly
	Replace part	O-ring, gasket, etc.
	Use SST or equivalent	Appropriate tools

Advisory Messages
- You'll find several **Warnings**, **Cautions**, **Notes**, **Specifications** and **Upper and Lower Limits** in this manual.

Warning
- A Warning indicates a situation in which serious injury or death could result if the warning is ignored.

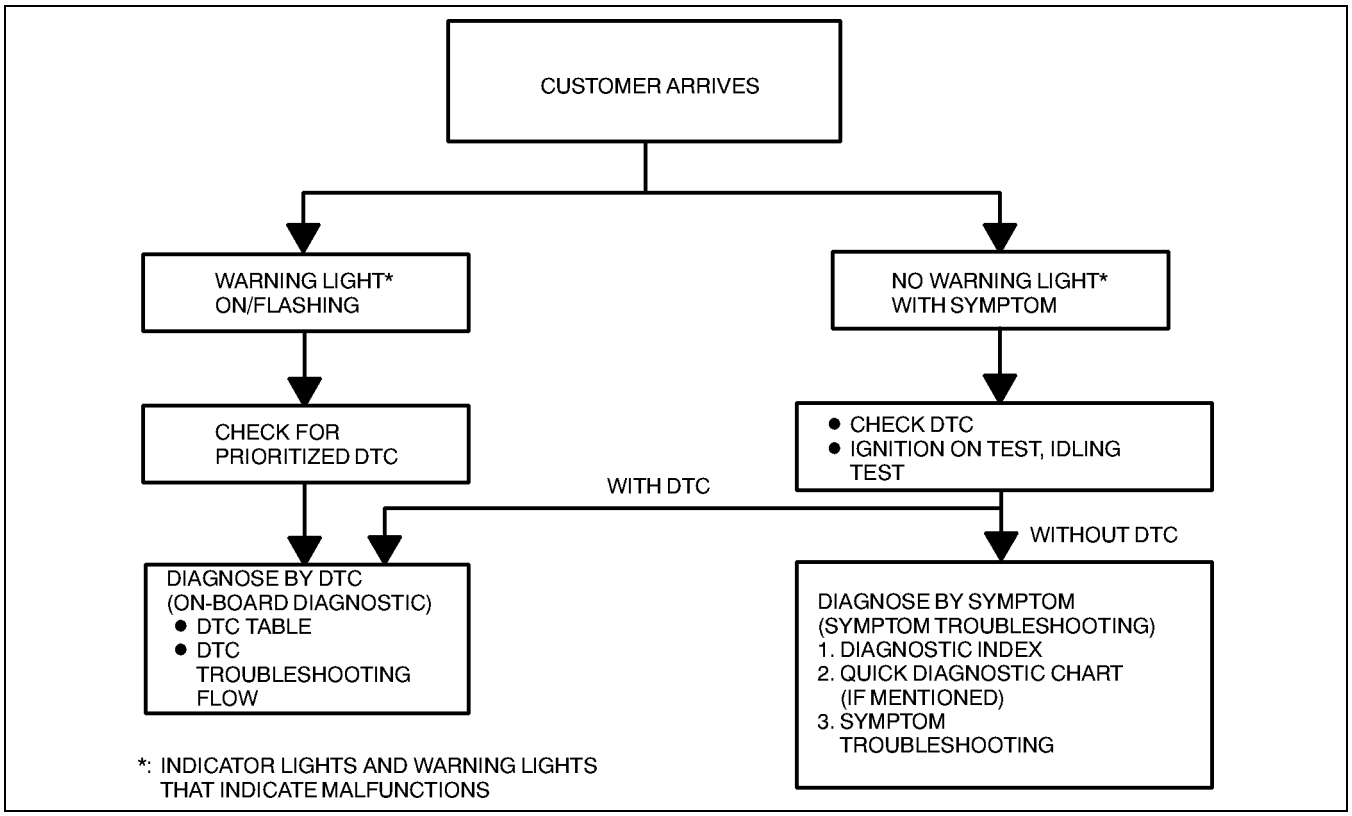
Caution
- A Caution indicates a situation in which damage to the vehicle or parts could result if the caution is ignored.

Note
- A Note provides added information that will help you to complete a particular procedure.

Specification
- The values indicate the allowable range when performing inspections or adjustments.

Upper and lower limits
- The values indicate the upper and lower limits that must not be exceeded when performing inspections or adjustments.

Troubleshooting Procedure
Basic flow of troubleshooting



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DTC troubleshooting flow (on-board diagnostic)

- Diagnostic trouble codes (DTCs) are important hints for repairing malfunctions that are difficult to simulate. Perform the specific DTC diagnostic inspection to quickly and accurately diagnose the malfunction.
- The on-board diagnostic function is used during inspection. When a DTC is shown specifying the cause of a malfunction, continue the diagnostic inspection according to the items indicated by the on-board diagnostic function.

Diagnostic index

- The diagnostic index lists the symptoms of specific malfunctions. Select the symptoms related or most closely relating to the malfunction.

Quick diagnosis chart (If mentioned)

- The quick diagnosis chart lists diagnosis and inspection procedures to be performed specifically relating to the cause of the malfunction.

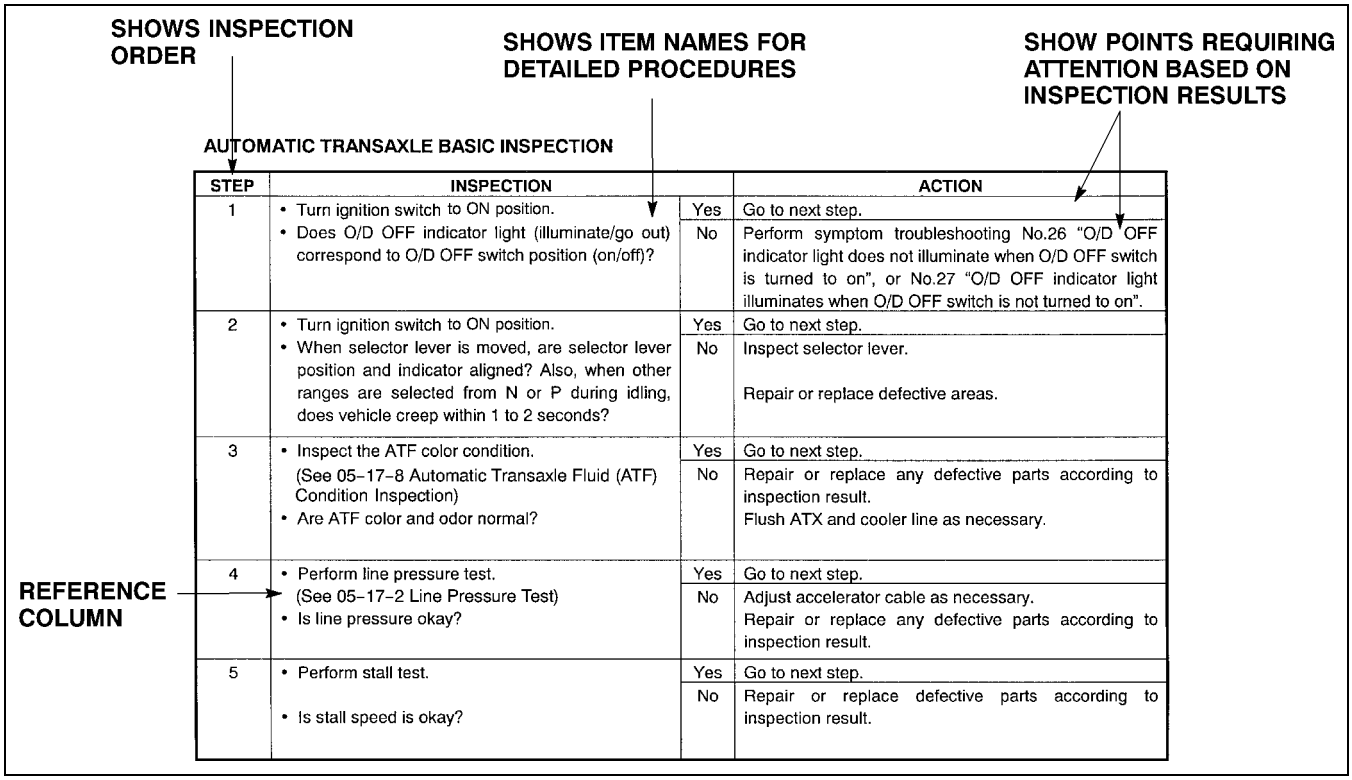
Symptom troubleshooting

- Symptom troubleshooting quickly determines the location of the malfunction according to symptom type.

Procedures for Use

Using the basic inspection (section 05)

- Perform the basic inspection procedure before symptom troubleshooting.
- Perform each step in the order shown.
- The reference column lists the location of the detailed procedure for each basic inspection.
- Although inspections and adjustments are performed according to the reference column procedures, if the cause of the malfunction is discovered during basic inspection, continue the procedures as indicated in the remarks column.



AUTOMATIC TRANSAXLE BASIC INSPECTION

STEP	INSPECTION		ACTION
1	• Turn ignition switch to ON position. • Does O/D OFF indicator light (illuminate/go out) correspond to O/D OFF switch position (on/off)?	Yes	Go to next step.
		No	Perform symptom troubleshooting No.26 "O/D OFF indicator light does not illuminate when O/D OFF switch is turned to on", or No.27 "O/D OFF indicator light illuminates when O/D OFF switch is not turned to on".
2	• Turn ignition switch to ON position. • When selector lever is moved, are selector lever position and indicator aligned? Also, when other ranges are selected from N or P during idling, does vehicle creep within 1 to 2 seconds?	Yes	Go to next step.
		No	Inspect selector lever. Repair or replace defective areas.
3	• Inspect the ATF color condition. (See 05–17–8 Automatic Transaxle Fluid (ATF) Condition Inspection) • Are ATF color and odor normal?	Yes	Go to next step.
		No	Repair or replace any defective parts according to inspection result. Flush ATX and cooler line as necessary.
4	• Perform line pressure test. (See 05–17–2 Line Pressure Test) • Is line pressure okay?	Yes	Go to next step.
		No	Adjust accelerator cable as necessary. Repair or replace any defective parts according to inspection result.
5	• Perform stall test. • Is stall speed is okay?	Yes	Go to next step.
		No	Repair or replace defective parts according to inspection result.

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Using the DTC troubleshooting flow

- DTC troubleshooting flow shows diagnostic procedures, inspection methods, and proper action to take for each DTC.

TROUBLE CONDITION

DETECTION CONDITION describes the condition under which the DTC is detected.

DTC P0103

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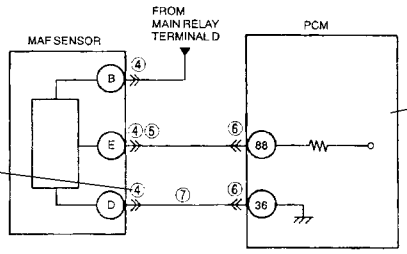
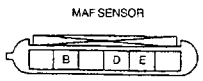
DTC P0103	MAF circuit high input
DETECTION CONDITION	PCM monitors input voltage from TP sensor after ignition key is turned on. If input voltage at PCM terminal 68 is above 8.25 V, PCM determines that TP circuit has a malfunction. **Diagnostic support note** • This is a continuous monitor (CCM). • MIL illuminates if PCM detects the above malfunction condition during first drive cycle. Therefore, PENDING CODE is not available. • FREEZE FRAME DATA is available. • DTC is stored in the PCM memory.
POSSIBLE CAUSE	• MAF sensor malfunction • Connector or terminal malfunction • Open circuit in wiring between MAF sensor terminal D and PCM terminal 36 • Open circuit in MAF sensor ground circuit

POSSIBLE CAUSE describes possible point(s) of malfunction.

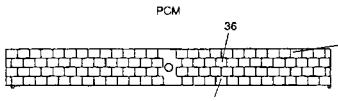


Indicates the circuit to be inspected (section 01 and 05)

Indicates the inspection step No. to be performed (section 01 and 05)



HARNESS SIDE CONNECTOR (VIEW FROM TERMINAL SIDE)



HARNESS SIDE CONNECTOR (VIEW FROM HARNESS SIDE)

Indicates the connector related to the inspection

STEP shows the order of troubleshooting

Diagnostic procedure

STEP	INSPECTION		ACTION
1	**VERIFY FREEZE FRAME DATA HAS BEEN RECORDED** • Has FREEZE FRAME DATA been recorded?	Yes	Go to next step.
		No	Record FREEZE FRAME DATA on repair order, then go to next step.
2	**VERIFY RELATED REPAIR INFORMATION AVAILABILITY** • Are related Service Bulletins and/or on-line repair information available?	Yes	Perform repair or diagnosis according to available repair information. If vehicle is not repaired, then go to next step.
		No	Go to next step.
3	**VERIFY CURRENT INPUT SIGNAL STATUS IS CONCERN INTERMITTENT OR CONSTANT** • Connect NGS tester to DLC-2. • Start engine. • Access MAF V PID using NGS tester. • Is MAF V PID within 0.2 – 8.3 V?	Yes	Intermittent concern is existing. Go to INTERMITTENT CONCERNS TROUBLESHOOTING procedure. (See 01-03-33 INTERMITTENT CONCERN TROUBLESHOOTING)
		No	Go to next step.
4	**INSPECT POOR CONNECTION OF MAF SENSOR CONNECTOR** • Turn ignition key to OFF. • Disconnect MAF sensor connector. • Check for poor connection (damaged, pulled-out terminals, corrosion etc.). • Are there any malfunctions?	Yes	Repair or replace terminals, then go to Step 8.

ACTION describes the appropriate action to take as according to the result (Yes/No).

Reference item(s) to perform ACTION

INSPECTION describes the method to quickly determine the failed part(s).

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Using the diagnostic index

- The symptoms of the malfunctions are listed in the diagnostic index for symptom troubleshooting.
- The exact malfunction symptoms can be selected by following the index.

NO.	TROUBLESHOOTING ITEM		DESCRIPTION	PAGE
1	Melts main or other fuse			(See 01-03-6 MELT NO.1 MAIN OR OTHER FUSE)
2	MIL comes on		MIL is illuminated incorrectly.	(See 01-03-7 NO.2 MIL COMES ON)
3	Will not crank		Starter does not work.	(See 01-03-8 NO.3 WILL NOT CRANK)
4	Hard start/long crank/erratic crank		Starter cranks engine at normal speed but engine requires excessive cranking time before starting.	(See 01-03-9 NO.4 HARD START/LONG CRANK/ERRATIC CRANK)
5	Engine stalls	After start/at idle	Engine stops unexpectedly at idel and/or after start.	(See 01-03-11 NO.5 ENGINE STALLS-AFTER START/AT IDLE)
6	Cranks normally but will not start		Starter cranks engine at normal speed but engine will not run.	(See 01-03-15 NO.5 CRANKS NORMALY BUT WILL NOT START)
7	Slow rerun to idle		Engine takes more time than normal to return to idle speed.	(See 01-03-19 NO.7 SLOW RERUN TO IDLE)
8	Engine runs rough/rolling idle		Engine speed fluctuates between specified idle speed and lower speed and engine shakes excessively.	(See 01-03-20 NO.8 ENGINE RUNS ROUGH/ROLLING IDLE)
9	Fast idle/runs on		Engine speed continues at fast idle after warm-up. Engine runs after ignition switch is turned off.	(See 01-03-23 NO.9 FAST IDLE/RUNS ON)
10	Low idle/stalls during deceleration		Engine stops unexpectedly at beginning of deceleration or recovery from deceleration.	(01-03-24 NO.10 LOW IDLE/STALLS DURING DECELERATION)

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Using the quick diagnosis chart

- The chart lists the relation between the symptom and the cause of the malfunction.
- The chart is effective in quickly narrowing down the relation between symptom and cause of the malfunction. It also specifies the area of the common cause when multiple malfunction symptoms occur.
- The appropriate diagnostic inspection relating to malfunction cause as specified by the symptoms can be selected by looking down the diagnostic inspection column of the chart.

② PARTS WHICH MAY BE THE CAUSE OF PROBLEMS

SYMPTOM QUICK DIAGNOSTIC CHART

PART WHICH MAY BE THE SYMPTOM

① CHOOSE THE ACTUAL SYMPTOM

	Troubleshooting item / Possible factor		Starter motor malfunction (Mechanical or electrical)	Starter circuit including ignition switch open	Improper engine oil level	Low or dead battery	Charging system malfunction	Improper engine compression	Improper valve timing	Hydrolocked engine	Improper engine oil viscosity	Improper dipstick	Base engine malfunction	Drive plate or flywheel seized	Improper tension or damaged drive belts	Improper engine coolant level	Water and anti-freeze mixture improperly	Cooling system malfunction (Radiator, hoses, overflow system, thermostat, etc.)	Cooling fan system malfunction	Engine or transaxle mounts improperly installed	Cooling fan or condenser fan seat improperly	Accelerator cable free play mis-adjustment	Fuel quality
1	Melts main or other fuse																						
2	MIL comes on																						
3	Will not crank		×	×		×	×			×			×										
4	Hard start / long crank / erratic start / erratic crank																						×
5	Engine stalls	After start / at idle						×	×	×													×
6	Cranks normally but will not start							×	×	×													×
7	Slow return to idle																		×				
8	Engine runs rough / rolling idle							×	×														×
9	Fast idle / runs on																					×	
10	Low idle / stalls during deceleration																						
11	Engine stalls / quits	Acceleration / cruise						×	×														×
	Engine runs rough	Acceleration / cruise						×	×														×
	Misses	Acceleration / cruise						×	×														×
	Buck / jerk	Acceleration / cruise / deceleration						×	×														×
	Hesitation / stumble	Acceleration						×	×														×
	Surges	Acceleration / cruise						×	×														×
12	Lack / loss of power	Acceleration / cruise						×	×														×
13	Knocking / pinging	Acceleration / cruise						×										×					
14	Poor fuel economy							×	×							×		×	×				×
15	Emissions compliance							×	×				×					×					
16	High oil consumption/leakage										×	×	×										
17	Cooling system concerns	Overheating													×	×	×	×	×				
18	Cooling system concerns	Runs cold																×	×				
19	Exhaust smoke												×					×					
20	Fuel odor (in engine compartment)																						
21	Engine noise			×									×		×								
22	Vibration concerns (engine)														×					×	×		
23	A/C does not work sufficiently																						
24	A/C always on / A/C compressor runs continuously																						
25	A/C does not cut off under wide open throttle conditions																						
26	Exhaust sulphur smell																						×
27	Fuel refill concerns																						
28	Fuel filling shut off issues																						
29	Intermittent concerns					×																	
30	Constant voltage																						
31	Spark plug condition							×			×		×				×						×
32	Automatic transaxle concerns	Upshift / downshift / engagement	(See 05-01 AUTOMATIC TRANSAXLE SYMPTOM TROUBLESOOTING)																				

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Using the symptom troubleshooting

- Symptom troubleshooting shows diagnostic procedures, inspection methods, and proper action to take for each trouble symptom.

DESCRIPTION describes what kind of TROUBLE SYMPTOM.

TROUBLE SYMPTOM

14	Engine flares up or slips when upshifting or down shifting
DESCRIPTION	• When accelerator pedal is depressed for driveway, engine speed increase but vehicle speed increase slowly. • When accelerator is depressed while driving, engine speed increases but vehicle not.
POSSIBLE CAUSE	• There is clutch slip because clutch is stuck or line pressure is low. — Clutch stuck, slippage (forward clutch, 3-4 clutch, 2-4 brake band, one-way clutch 1, one-way clutch 2) • Line pressure low • Malfunction or mis-adjustment of TP sensor • Malfunction of VSS • Malfunction of input/turbine speed sensor • Malfunction of sensor ground • Malfunction of shift solenoid A, B or C • Malfunction of TCC solenoid valve • Malfunction of body ground • Malfunction of throttle cable • Malfunction of throttle valve body — Poor operating of mechanical pressure • Selector lever position disparity • TR switch position disparity
	Note • Before following troubleshooting steps, make sure that Automatic Transaxle On-board Diagnostic and Automatic Transaxle Basic Inspection are conducted.

POSSIBLE CAUSE describes possible point of malfunction.

STEP shows the order of troubleshooting.

Diagnostic procedure

STEP	INSPECTION		ACTION
1	• Is line pressure okay?	Yes	Go to next step.
		No	Repair or replace any defective parts according to inspection results.
2	• Is shift point okay? (See 05-17-5 ROAD TEST)	Yes	Go to next step.
		No	Go to symptom troubleshooting No.9 "Abnormal shift".
3	• Stop engine and turn ignition switch on. • Connect NGS tester to DLC-2. • Simulate SHIFT A, SHIFT B and SHIFT C PIDs for ON. • Is operating sound of shift solenoids heard?	Yes	• Overhaul control valve body and repair or replace any defective parts. (See ATX Workshop Manual GF4A-EL (9999-95-GF4A-00)) • If problem remains, replace or overhaul transaxle and repair or replace defective parts. (See 05-17-15 AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION)
		No	• Inspect for bend, damage, corrosion or loose connection if shift solenoid A, B, or C terminal on ATX. • Inspect for shift solenoid mechanical stuck. (See 05-17-14 Inspection of Operation) • If shift solenoids are okay, inspect for open or short circuit between PCM connector terminal A, B or C.
4	• Verify test results. — If okay, return to diagnostic index to service any additional symptoms. — If malfunction remains, inspect related Service Bulletins and/or On-line Repair Information and perform repair or diagnosis. — If vehicle is repaired, troubleshooting completed. — If vehicle is not repaired or additional diagnostic information is not available, replace or reprogram PCM.		

Reference item(s) for additional information to perform INSPECTION

INSPECTION describes the method to quickly determine the failed part.

ACTION describes the appropriate action to take as according to the result (Yes/No) of INSPECTION.

How to perform ACTION is described in the relative material shown.

Reference item(s) to perform ACTION

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