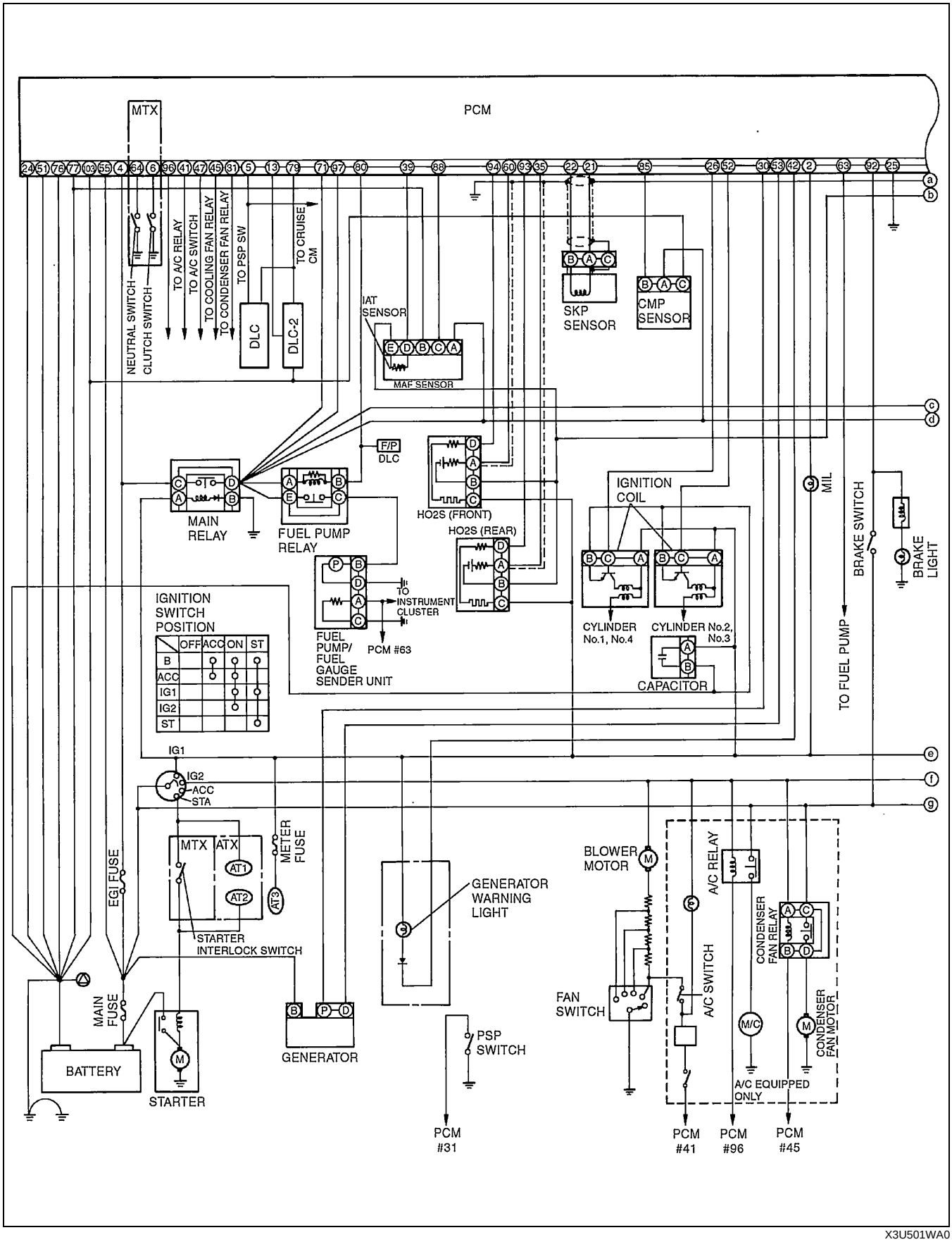
05–03 SYMPTOM TROUBLESHOOTING

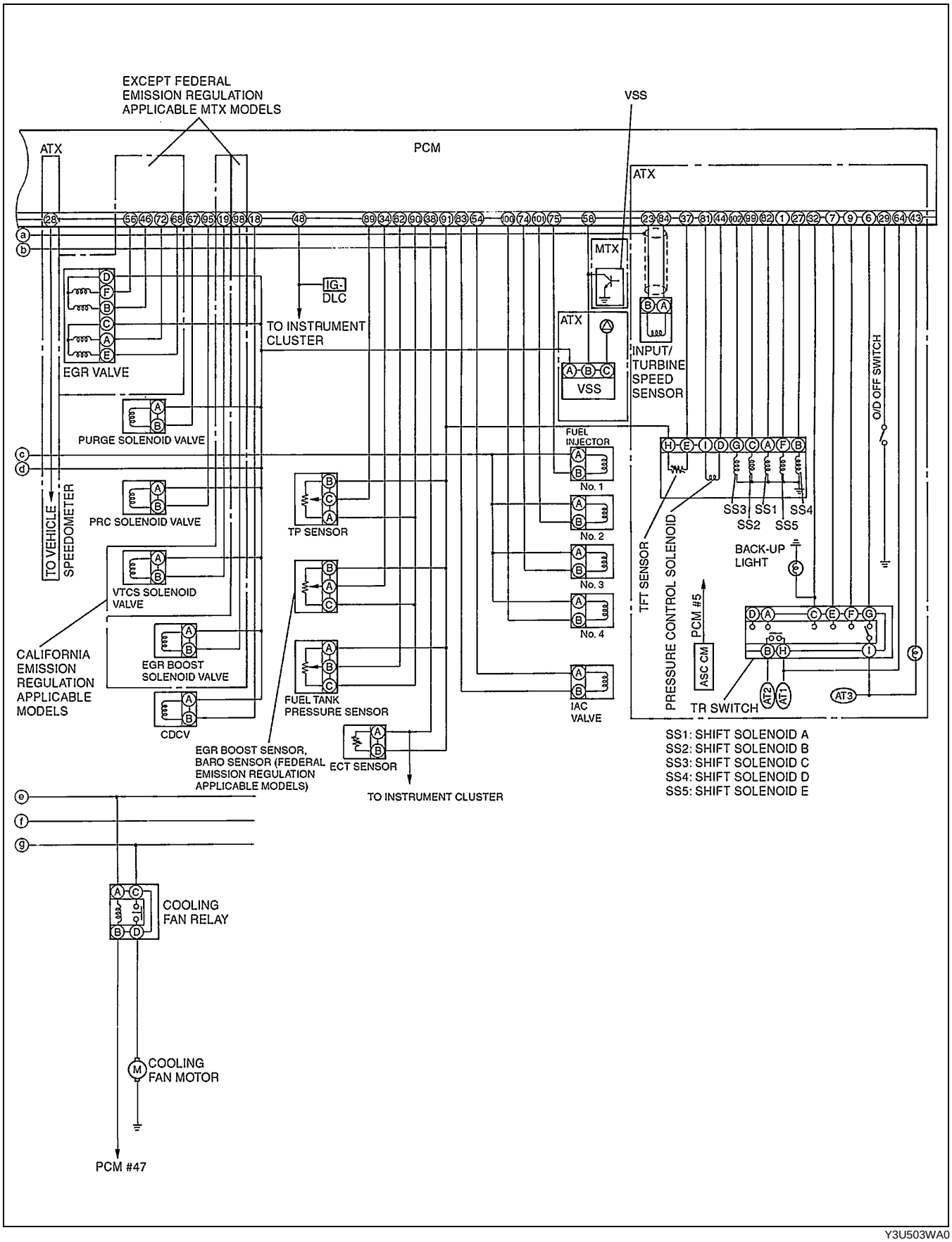
AUTOMATIC TRANSAXLE SYSTEM WIRING DIAGRAM

A3U050301030W01

ZM Engine

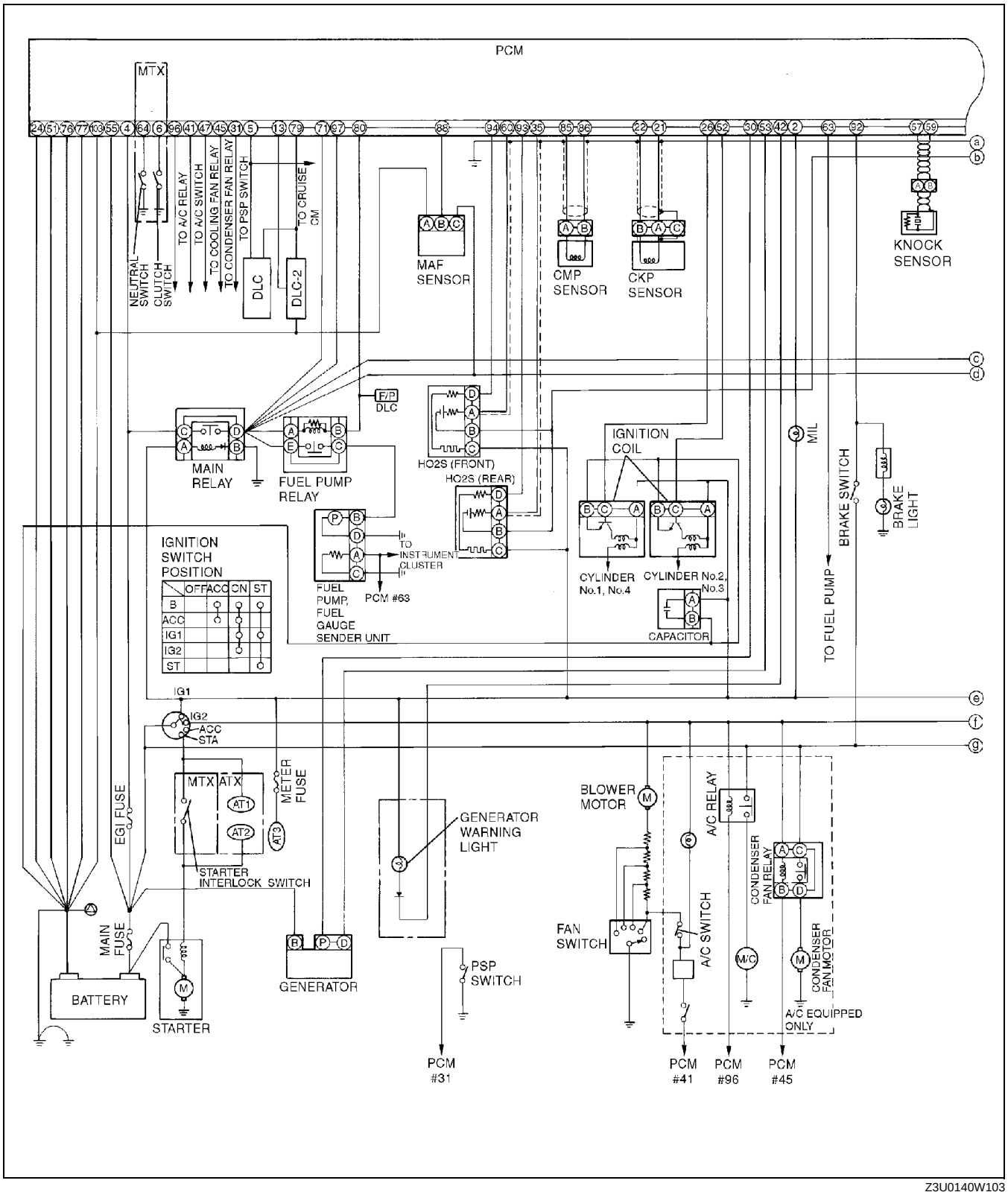


X3U501WA0

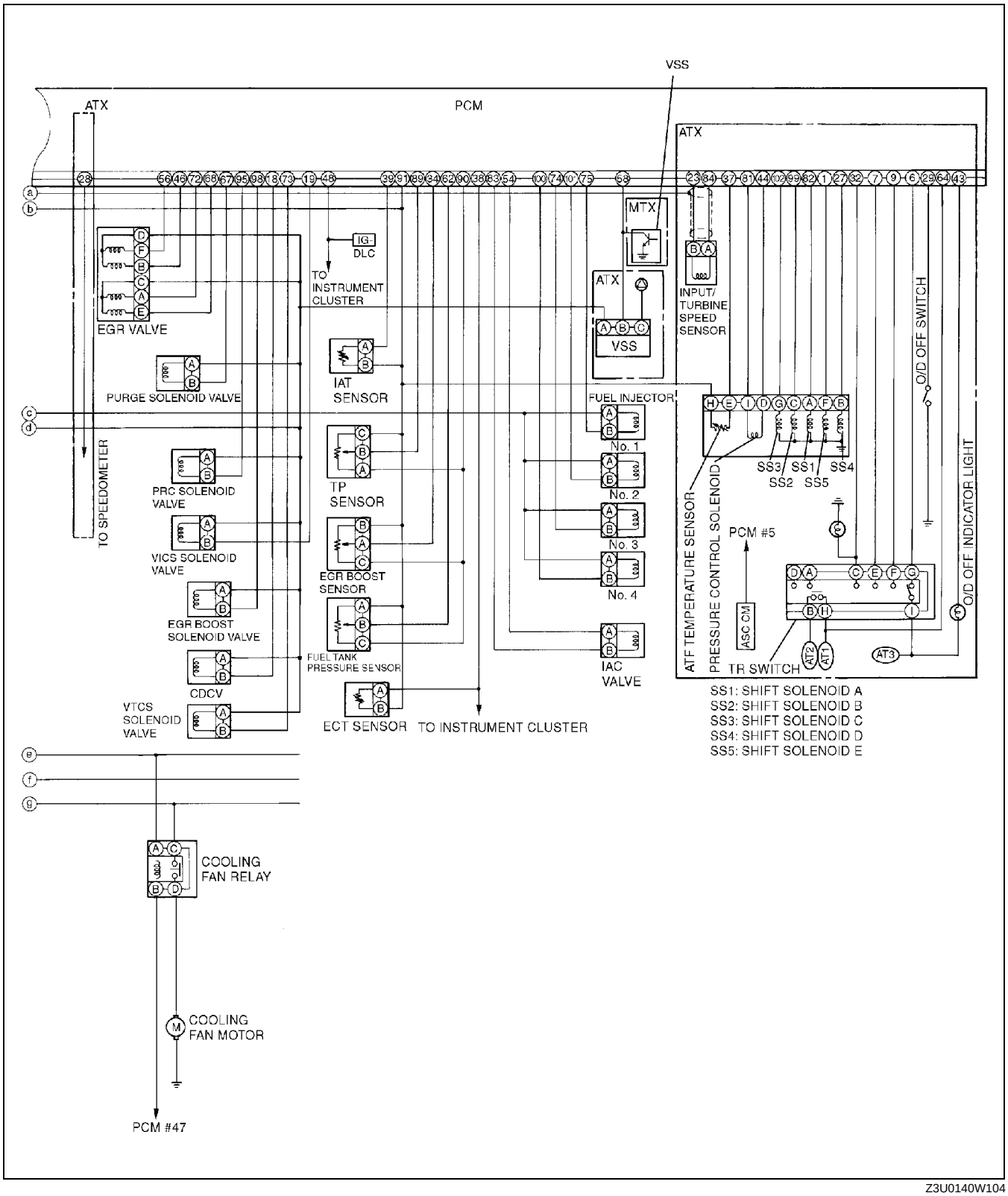

EXCEPT FEDERAL EMISSION REGULATION APPLICABLE MTX MODELS
VSS
ATX
PCM
ATX
MTX
IG-DLC
TO INSTRUMENT CLUSTER
ATX
VSS
INPUT/ TURBINE SPEED SENSOR
O/D OFF SWITCH
EGR VALVE
PURGE SOLENOID VALVE
FUEL INJECTOR
No. 1
No. 2
No. 3
No. 4
IAC VALVE
TO VEHICLE SPEEDOMETER
PRC SOLENOID VALVE
TP SENSOR
SS3 SS1 SS4
SS2 SS5
BACK-UP LIGHT
VTCS SOLENOID VALVE
TFT SENSOR
PRESSURE CONTROL SOLENOID
PCM #5
ASC CM
CALIFORNIA EMISSION REGULATION APPLICABLE MODELS
EGR BOOST SOLENOID VALVE
FUEL TANK PRESSURE SENSOR
TR SWITCH
CDCV
EGR BOOST SENSOR, BARO SENSOR (FEDERAL EMISSION REGULATION APPLICABLE MODELS)
ECT SENSOR
TO INSTRUMENT CLUSTER
SS1: SHIFT SOLENOID A
SS2: SHIFT SOLENOID B
SS3: SHIFT SOLENOID C
SS4: SHIFT SOLENOID D
SS5: SHIFT SOLENOID E
COOLING FAN RELAY
COOLING FAN MOTOR
PCM #47

Y3U503WA0

FS Engine



Z3U0140W103

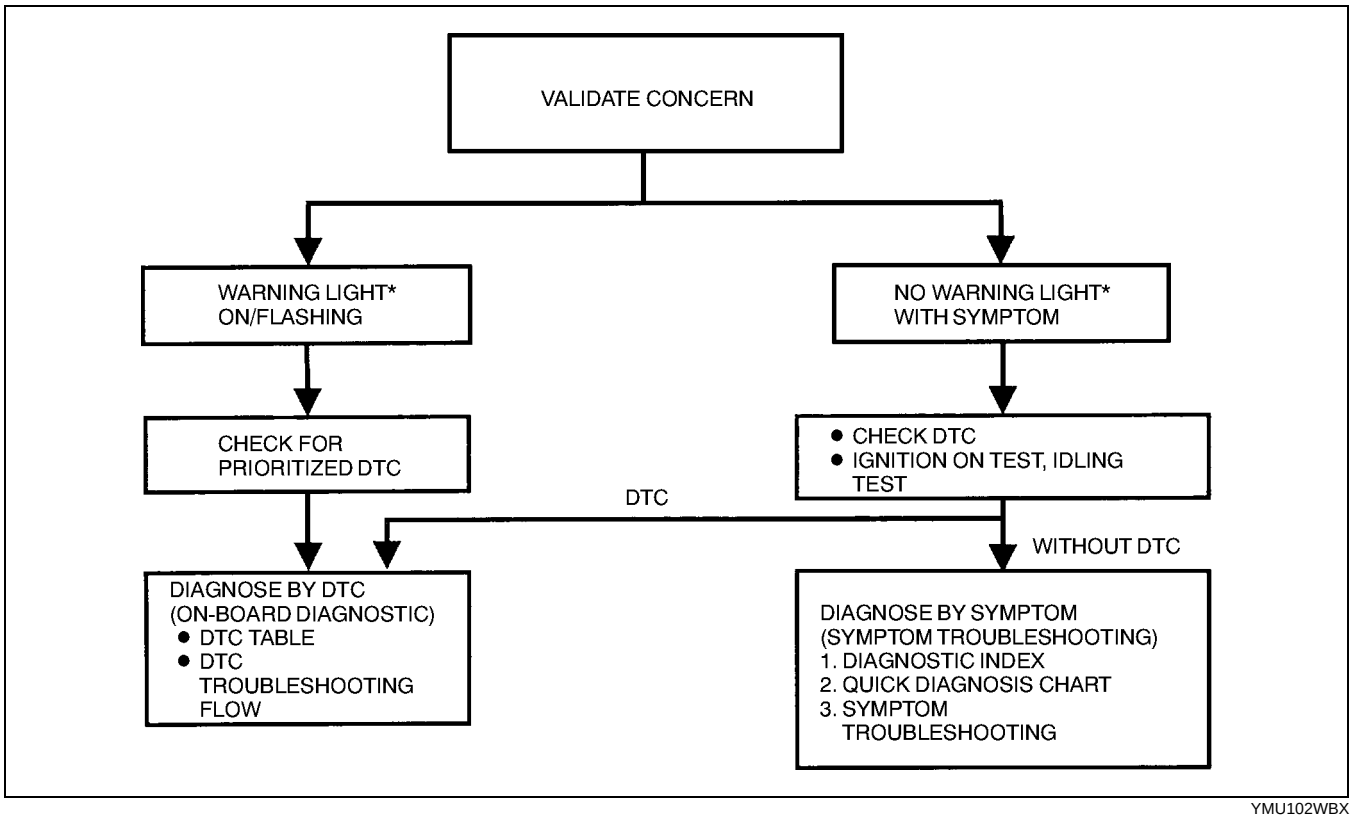


Z3U0140W104

FOREWORD

A3U050301030W02

- When the customer reports a vehicle malfunction, check the malfunction indicator light (MIL) indication, O/D OFF indicator light flashing, and PCM memory for diagnostic trouble code (DTC), then diagnose the malfunction according to following flowchart.
  - — If the DTC exists, diagnose the applicable DTC. (See 05–02–7 DTC TABLE.)
  - — If the DTC does not exist and the MIL does not illuminate and no O/D OFF indicator light flashes, diagnose the applicable symptom troubleshooting. (See 05–03–7 AUTOMATIC TRANSAXLE SYMPTOM TROUBLESHOOTING ITEM TABLE.)



YMU102WBX

* : Malfunction Indicator Light (MIL), O/D OFF indicator light

AUTOMATIC TRANSAXLE BASIC INSPECTION

A3U050301030W03

STEP	INSPECTION		ACTION
1	• Turn ignition switch on. • When selector lever is moved, is the selector illumination synchronized with the lever location? 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 and TR switch. Repair or replace defected areas. (See 05–18–2 SELECTOR LEVER INSPECTION.) (See 05–17–20 TRANSAXLE RANGE (TR) SWITCH INSPECTION.) If selector lever and TR switch are okay, go to next step.
2	• Inspect ATF color and condition. (See 05–17–17 AUTOMATIC TRANSAXLE FLUID (ATF) INSPECTION.) • Are ATF color and odor normal?	Yes	Go to next step.
		No	Repair or replace any defective parts according to inspection result. Flush automatic transaxle and cooler line as necessary.
3	• Perform the line pressure test. (See 05–17–12 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.
4	• Perform the stall test. (See 05–17–13 Stall Test.) • Is stall speed okay?	Yes	Go to next step.
		No	Repair or replace any defective parts according to inspection result.

STEP	INSPECTION		ACTION
5	• Inspect the value at the following PIDs using the WDS or equivalent. (See 01–40A–7 PCM INSPECTION [ZM].) (See 01–40B–7 PCM INSPECTION [FS].) — TP, and VSS PIDs • Is PID value okay?	Yes	Perform symptom troubleshooting and follow procedures.
		No	Repair or replace any defective parts according to inspection result.

AUTOMATIC TRANSAXLE SYMPTOM TROUBLESHOOTING ITEM TABLE

A3U050301030W04

- Use the chart below to verify the symptoms of the trouble in order to diagnose the appropriate area.

No.	TROUBLESHOOTING ITEM	DESCRIPTION	PAGE
1	• Vehicle does not move in D, 2, 1 ranges, or in R position	• Vehicle does not move when accelerator pedal is depressed.	(See 05–03–11 NO.1 VEHICLE DOES NOT MOVE IN D, 2, 1 RANGES, OR IN R POSITION.)
2	• Vehicle moves in N position	• Vehicle creeps in N position. • Vehicle creeps if brake pedal is not depressed in N position.	(See 05–03–11 NO.2 VEHICLE MOVES IN N POSITION.)
3	• Vehicle moves in P position, or parking gear does not disengage when P is disengaged	• Vehicle rolls when on a downward slope and tires do not lock in P position. • Tires are locked when P is disengaged. Vehicle does not move in D, 2, 1 ranges, and R position when accelerator pedal is depressed, and engine remains in stall condition.	(See 05–03–11 NO.3 VEHICLE MOVES IN P POSITION, OR PARKING GEAR DOES NOT DISENGAGE WHEN P IS DISENGAGED.)
4	• Excessive creep	• Vehicle accelerates in D, 2, 1 ranges, and R position without depressing accelerator pedal.	(See 05–03–11 NO.4 EXCESSIVE CREEP.)
5	• No creep at all	• Vehicle does not move in D, 2, 1 ranges, or R position when idling on flat paved road.	(See 05–03–12 NO.5 NO CREEP AT ALL.)
6	• Low maximum speed and poor acceleration	• Vehicle acceleration is poor at start. • Delayed acceleration when accelerator pedal is depressed while driving.	(See 05–03–12 NO.6 LOW MAXIMUM SPEED AND POOR ACCELERATION.)
7	• No shifting	• Single shift range only. • Sometimes it shifts correctly.	(See 05–03–13 NO.7 NO SHIFTING.)
8	• Does not shift to fourth gear (4GR)	• Vehicle does not upshift from 3GR to 4GR even though vehicle speed is increased. • Vehicle does not shift to 4GR even though accelerator pedal is released in D range at **60 km/h {37 mph}**.	(See 05–03–13 NO.8 DOES NOT SHIFT TO FOURTH GEAR (4GR).)
9	• Abnormal shifting	• Shift incorrectly (incorrect shift pattern).	(See 05–03–14 NO.9 ABNORMAL SHIFTING.)
10	• Frequent shifting	• Downshifting occurs immediately even when accelerator pedal is depressed slightly in D, 2, 1 ranges except O/D OFF mode.	(See 05–03–14 NO.10 FREQUENT SHIFTING.)
11	• Shift point is high or low	• Shift point is considerably different from automatic shift diagram. • Shift delayed when accelerating. • Shift occurs quickly when accelerating and engine speed does not increase.	(See 05–03–14 NO.11 SHIFT POINT IS HIGH OR LOW.)
12	• Torque converter clutch (TCC) non-operation	• TCC does not operate when vehicle reaches TCC operation range.	(See 05–03–15 NO.12 TORQUE CONVERTER CLUTCH (TCC) NON-OPERATION.)
13	• No kickdown	• Does not downshift when accelerator pedal is fully depressed within kickdown range.	(See 05–03–15 NO.13 NO KICKDOWN.)

No.	TROUBLESHOOTING ITEM	DESCRIPTION	PAGE
14	• Engine flares up or slips when upshifting or downshifting	• When accelerator pedal is depressed at start, engine speed increases normally but vehicle speed increase slowly. • When accelerator pedal is depressed while driving, engine speed increases but vehicle speed does not.	(See 05–03–16 NO.14 ENGINE FLARES UP OR SLIPS WHEN UPSHIFTING OR DOWNSHIFTING.)
15	• Engine flares up or slips when accelerating vehicle	• Engine flares up when accelerator pedal is depressed for upshifting. • Engine flares up suddenly when accelerator pedal is depressed for downshifting.	(See 05–03–16 NO.15 ENGINE FLARES UP OR SLIPS WHEN ACCELERATING VEHICLE.)
16	• Judder upon torque converter clutch (TCC) operation	• Vehicle jolts when TCC is engaged.	(See 05–03–16 NO.16 JUDDER UPON TORQUE CONVERTER CLUTCH (TCC) OPERATION.)
17	• Excessive shift shock from N to D or N to R position/range	• Strong shock is felt when shifting from N to D or N to R position/range at idle.	(See 05–03–17 NO.17 EXCESSIVE SHIFT SHOCK FROM N TO D OR N TO R POSITION/RANGE.)
18	• Excessive shift shock when upshifting and downshifting	• Excessive shift shock is felt when depressing accelerator pedal to accelerate at upshifting. During cruising, excessive shift shock is felt when depressing accelerator pedal at downshifting.	(See 05–03–17 NO.18 EXCESSIVE SHIFT SHOCK WHEN UPSHIFTING AND DOWNSHIFTING.)
19	• Excessive shift shock on torque converter clutch (TCC)	• Strong shock is felt when TCC is engaged.	(See 05–03–17 NO.19 EXCESSIVE SHIFT SHOCK ON TORQUE CONVERTER CLUTCH (TCC).)
20	• Noise occurs at idle when vehicle is stopped in all positions/ranges	• Transaxle is noisy in all positions and ranges when vehicle is idling.	(See 05–03–17 NO.20 NOISE OCCURS AT IDLE WHEN VEHICLE IS STOPPED IN ALL POSITIONS/RANGES.)
21	• Noise occurs at idle when vehicle is stopped in D, 2, 1 ranges, or in R position	• Transaxle is noisy in driving ranges when vehicle is idling.	(See 05–03–18 NO.21 NOISE OCCURS AT IDLE WHEN VEHICLE IS STOPPED IN D, 2, 1 RANGES, OR IN R POSITION.)
22	• No engine braking in O/D OFF mode	• Engine speed drops to idle but vehicle coasts when accelerator pedal is released during cruising at medium to high speeds. • Engine speed drops to idle but vehicle coasts when accelerator pedal is released when in 1 range at low vehicle speed.	(See 05–03–18 NO.22 NO ENGINE BRAKING IN O/D OFF MODE.)
23	• Transaxle overheats	• Burnt smell is emitted from transaxle. • Smoke is emitted from transaxle.	(See 05–03–19 NO.23 TRANSAXLE OVERHEATS.)
24	• Engine stalls when shifted to D, 2, 1 ranges, or in R position	• Engine stalls when shifting from N or P position to D, 2, 1 ranges or R position at idle.	(See 05–03–19 NO.24 ENGINE STALLS WHEN SHIFTED TO D, 2, 1 RANGES, OR IN R POSITION.)
25	• Engine stalls when driving at slow speed or stopping	• Engine stalls when brake pedal is depressed while driving at low speed or stopping.	(See 05–03–19 NO.25 ENGINE STALLS WHEN DRIVING AT SLOW SPEED OR STOPPING.)
26	• O/D OFF indicator light does not illuminate when O/D OFF switch is turned to on	• O/D OFF indicator light in dashboard does not illuminate when O/D OFF switch is turned on and ignition switch at on.	(See 05–03–20 NO.26 O/D OFF INDICATOR LIGHT DOES NOT ILLUMINATE WHEN O/D OFF SWITCH IS TURNED TO ON.)
27	• O/D OFF indicator light illuminates when O/D OFF switch is not turned to on	• O/D OFF indicator light in dashboard illuminates even though O/D OFF switch is turned off and ignition switch at on.	(See 05–03–20 NO.27 O/D OFF INDICATOR LIGHT ILLUMINATES WHEN O/D OFF SWITCH IS NOT TURNED TO ON.)

Quick Diagnosis Chart

No.	Item	Selector lever is misadjusted	Not within line pressure specification	Idle speed is misadjusted	Ignition timing is misadjusted	TR switch is misadjusted	Electrical system components										
							ATX outer parts										
							TP sensor		Input/turbine speed sensor		VSS		O/D OFF switch		ECT sensor		
							Signal is not inputed	Malfunction signal is inputed	Signal is not inputed	Malfunction signal is inputed	Signal is not inputed	Malfunction signal is inputed	Signal is not inputed	Malfunction signal is inputed	Signal is not inputed	Malfunction signal is inputed	Poor GND
1	Vehicle does not move in D, 2, 1 ranges, or in R position	×	×														
2	Vehicle moves in N position	×															
3	Vehicle moves in P position, or parking gear does not disengage when P is disengaged	×															
4	Excessive creep			×	×												
5	No creep at all		×				×	×	×	×	×	×					×
6	Low maximum speed and poor acceleration		×		×		×	×	×	×	×	×	×	×			×
7	No shifting						×	×	×	×	×	×	×	×			×
8	Does not shift to fourth gear (4GR)						×	×	×	×	×	×	×	×			×
9	Abnormal shifting	×	×			×	×	×	×	×	×	×					×
10	Frequent shifting						×	×	×	×	×	×					×
11	Shift point is high or low						×	×	×	×	×	×					×
12	Torque converter clutch (TCC) non-operation					×	×	×	×	×	×	×	×	×	×	×	×
13	No kickdown						×	×									×
14	Engine flares up or slips when upshifting or downshifting		×				×	×	×	×	×	×					×
15	Engine flares up or slips when accelerating vehicle		×				×	×	×	×	×	×					×
16	Judder upon torque converter clutch (TCC) operation		×				×	×	×	×	×	×					×
17	Excessive shift shock from N to D or N to R position/range		×	×			×	×	×	×	×	×					×
18	Excessive shift shock when upshifting and downshifting		×				×	×	×	×	×	×					×
19	Excessive shift shock on torque converter clutch (TCC)		×				×	×	×	×	×	×					×
20	Noise occurs at idle when vehicle is stopped in all positions/ranges																
21	Noise occurs at idle when vehicle is stopped in D, 2, 1 ranges, or in R position																
22	No engine braking in O/D OFF mode						×	×	×	×	×	×	×	×			×
23	Transaxle overheats		×														×
24	Engine stalls when shifted to D, 2, 1 ranges, or in R position			×													
25	Engine stalls when driving at slow speed or stopping			×													
26	O/D OFF indicator light does not illuminate when O/D OFF switch is turned to on												×	×			
27	O/D OFF indicator light illuminates when O/D OFF switch is not turned to on													×			
Item (Symptom / Cause of trouble / Inspection method)																	
Line pressure test			×														
Stall test																	
Time lag test																	
Diagnostic trouble code						×	×		×		×				×		

X3U501WAR

No.	Item	Signal is not inputed	Malfunction signal is inputed	Shift solenoid D malfunction	Shift solenoid E malfunction	Shift solenoid A malfunction	Shift solenoid B malfunction	Shift solenoid C malfunction	Pressure control solenoid malfunction	Control valve is not operating properly	Forward accumulator is not operating properly	Servo apply accumulator is not operating properly	Oil cooler is not operating properly	Slipping (Brake, clutch)	Burnt (Brake, clutch)	Torque converter is not operating properly	TCC burnt
		TFT sensor															
		Electrical system components								Hydraulic system components				Powertrain system			
		ATX outer parts															
1	Vehicle does not move in D, 2, 1 ranges, or in R position			×		×	×		×	×				×	×	×	
2	Vehicle moves in N position									×							
3	Vehicle moves in P position, or parking gear does not disengage when P is disengaged																
4	Excessive creep																
5	No creep at all		×	×	×	×	×	×	×	×				×	×	×	
6	Low maximum speed and poor acceleration	×	×	×	×	×	×	×	×	×				×	×	×	×
7	No shifting			×	×	×	×	×	×	×				×	×		
8	Does not shift to fourth gear	×	×	×	×	×	×	×		×				×	×		
9	Abnormal shifting			×	×	×	×	×		×	×	×		×	×		
10	Frequent shifting									×				×			
11	Shift point is high or low																
12	Torque converter clutch non-operation	×	×	×	×	×	×	×		×						×	×
13	No kickdown			×	×	×	×	×		×				×	×		
14	Engine flares up or slips when upshifting or downshifting		×	×	×	×	×	×	×	×				×	×		
15	Engine flares up or slips when accelerating vehicle		×						×	×				×	×		
16	Judder upon torque converter clutch operation									×						×	×
17	Excessive shift shock from N to D or N to R position/range		×				×		×	×	×	×		×	×		
18	Excessive shift shock when upshifting and downshifting	×	×	×	×	×	×	×	×	×	×	×		×	×		
19	Excessive shift shock on torque converter clutch		×			×				×						×	×
20	Noise occurs at idle when vehicle is stopped in all positions/ranges																
21	Noise occurs at idle when vehicle is stopped in D, 2, 1 ranges, or in R position																
22	No engine braking in O/D OFF mode									×				×	×		
23	Transaxle overheats	×	×							×			×				×
24	Engine stalls when shifted to D, 2, 1 ranges, or in R position									×						×	
25	Engine stalls when driving at slow speed or stopping									×						×	
26	O/D OFF indicator light does not illuminate when O/D OFF switch is turned to on																
27	O/D OFF indicator light illuminates when O/D OFF switch is not turned to on																
	Line pressure test									×				×	×		
	Stall test									×				×	×	×	
	Time lag test										×	×		×	×		
	Diagnostic trouble code	×		×	×	×	×	×	×								

Symptom / Cause of trouble / Inspection method / Item

X3U501WAS

NO.1 VEHICLE DOES NOT MOVE IN D, 2, 1 RANGES, OR IN R POSITION

A3U050301030W05

1	Vehicle does not move in D, 2, 1 ranges, or in R position
DESCRIPTION	• Vehicle does not move when accelerator pedal is depressed.
POSSIBLE CAUSE	• If the vehicle does not move in D, 2, 1 ranges or R position, basically, the malfunction is in the ATX. (Vehicle will move even with a malfunction in the PCM.) Since a malfunction in the sensor circuit or output circuit is the cause of the malfunction in the ATX, inspect the sensors, output circuit, and the related harnesses. a. Clutch slippage, worn (D, 2, 1 ranges - Forward clutch, R position - Reverse clutch, Low and reverse brake) • Line pressure low • Sensor GND malfunction • Shift solenoid D malfunction • Shift solenoid E malfunction • Shift solenoid A malfunction • Shift solenoid B malfunction • Pressure control solenoid malfunction • Body GND malfunction • Control valve body malfunction b. Selector lever malfunction c. Parking mechanism not operating properly d. Torque converter malfunction

NO.2 VEHICLE MOVES IN N POSITION

A3U050301030W06

2	Vehicle moves in N position
DESCRIPTION	• Vehicle creeps in N position. • Vehicle creeps if brake pedal is not depressed in N position.
POSSIBLE CAUSE	• If the vehicle moves in N position, basically, the malfunction is in the ATX. Since a malfunction in the sensor circuit or output circuit is the cause of the malfunction in the ATX, inspect the sensors, output circuit, and the related harnesses. a. Clutch burned (Forward clutch) • Control valve body malfunction b. Selector lever position disparity (Although the selector illumination shows N position, the hydraulic circuit shows D range or R position)

NO.3 VEHICLE MOVES IN P POSITION, OR PARKING GEAR DOES NOT DISENGAGE WHEN P IS DISENGAGED

A3U050301030W07

3	Vehicle moves in P position, or parking gear does not disengage when P is disengaged
DESCRIPTION	• Vehicle rolls when on a downward slope and tires do not lock in P position. • Tires are locked when P is disengaged. Vehicle does not move in D, 2, 1 ranges, and R position when accelerator pedal is depressed, and engine remains in stall condition.
POSSIBLE CAUSE	• Parking mechanism malfunction (May have effect on noise or shock from transaxle) • Improper adjustment of selector lever • If vehicle moves in N position, perform No.2 “Vehicle moves in N position”

NO.4 EXCESSIVE CREEP

A3U050301030W08

4	Excessive creep
DESCRIPTION	• Vehicle accelerates in D, 2, 1 ranges, and R position without depressing accelerator pedal.
POSSIBLE CAUSE	• Engine idle speed high (transaxle system is not cause of problem) • Go to symptom troubleshooting No.8 “Fast idle/runs on”. (See 01–03A–7 SYMPTOM DIAGNOSTIC INDEX [ZM].) (See 01–03B–7 SYMPTOM DIAGNOSTIC INDEX [FS].)

NO.5 NO CREEP AT ALL

A3U050301030W09

5	No creep at all
DESCRIPTION	• Vehicle does not move in D, 2, 1 ranges, or R position when idling on flat paved road.
POSSIBLE CAUSE	• Either the transaxle is stuck in 3GR or 4GR position, or there is clutch circuit slippage because the 3–4 clutch is stuck. a. Clutch burned • Line pressure low • Shift solenoid D malfunction • Shift solenoid A malfunction • Shift solenoid B malfunction • Pressure control solenoid malfunction • Body GND malfunction • Control valve body malfunction b. Transaxle fixed in 3GR (Operation of fail-safe function) • Short or open circuit in wiring • Poor connection of connector • Electronic parts of output and input system are malfunctioning c. Engine torque is not produced • Torque converter is malfunctioning

NO.6 LOW MAXIMUM SPEED AND POOR ACCELERATION

A3U050301030W10

6	Low maximum speed and poor acceleration
DESCRIPTION	• Vehicle acceleration is poor at start. • Delayed acceleration when accelerator pedal is depressed while driving.
POSSIBLE CAUSE	• If the clutch is stuck or does not stay in 3GR, the malfunction is in the engine circuit. a. Clutch slippage, burned • Line pressure low • TP sensor malfunction • VSS malfunction • Input/turbine speed sensor malfunction • Sensor GND malfunction • Shift solenoid D malfunction • Shift solenoid E malfunction • Shift solenoid A malfunction • Shift solenoid B malfunction • Shift solenoid C malfunction • Pressure control solenoid malfunction • Body GND malfunction • Control valve body malfunction b. Transaxle fixed in 3GR (Operation of fail-safe function) • Short or open circuit in wiring • Poor connection of connector • Electronic parts of output and input system are malfunctioning c. Insufficient starting torque (Suspected when in-gear condition, shift control and engine circuit are normal) • Torque converter is malfunctioning (Poor operation, sticking) d. Engagement of TCC operation range (Operation of fail-safe function) • TFT sensor malfunction (Short or open circuit)

Diagnostic procedure

STEP	INSPECTION		ACTION
1	• Go to symptom troubleshooting No.11 “Lack/loss of power”. (See 01–03A–7 SYMPTOM DIAGNOSTIC INDEX [ZM].) (See 01–03B–7 SYMPTOM DIAGNOSTIC INDEX [FS].) • Is engine control system okay?	Yes	Repeat basic inspection and repair or replace any defective parts according to inspection result. (See 05–03–6 AUTOMATIC TRANSAXLE BASIC INSPECTION.)
		No	Repair or replace any defective parts according to inspection results.

Note

- If malfunction remains, inspect related Service Bulletins and perform repair or diagnosis.
- If vehicle is repaired, troubleshooting is completed.
- If vehicle is not repaired or additional diagnostic information is not available, replace PCM.

NO.7 NO SHIFTING

A3U050301030W11

7	No shifting
DESCRIPTION	• Single shift range only. • Sometimes it shifts correctly.
POSSIBLE CAUSE	• When the gear position is fixed in 3GR due to the fail-safe operation, the malfunction is in the ATX. • Perform malfunction diagnosis according to No.6 “Low maximum speed and poor acceleration”. a. Clutch burned • Line pressure low • VSS malfunction • Input/turbine speed sensor malfunction • Sensor GND malfunction • Shift solenoid D malfunction • Shift solenoid E malfunction • Shift solenoid A malfunction • Shift solenoid B malfunction • Shift solenoid C malfunction • Pressure control solenoid malfunction • Body GND malfunction • Control valve body malfunction b. Transaxle fixed in 3GR (Operation in fail-safe function) • Short or open circuit in wiring • Poor connection of connector • Disconnected shift solenoid connector • Poor GND of shift solenoid

NO.8 DOES NOT SHIFT TO FOURTH GEAR (4GR)

A3U050301030W12

8	Does not shift to fourth gear (4GR)
DESCRIPTION	• Vehicle does not upshift from 3GR to 4GR even though vehicle speed is increased. • Vehicle does not shift to 4GR even though accelerator pedal is released in D range at **60 km/h {37 mph}**.
POSSIBLE CAUSE	• Basically, the TCC does not operate when the fail-safe is operating. Verify the DTC first. If the TCC operates when driving at high speeds only, the malfunction (improper adjustment) is in the O/D OFF switch circuit or TR switch circuit. **Caution** • **If the TCC is stuck, inspect it. In addition, inspect the oil cooler for foreign particles which may have mixed in with the ATF.** a. TCC slippage, burned • Line pressure low • TP sensor malfunction • ECT sensor malfunction • VSS malfunction • Input/turbine speed sensor malfunction • Sensor GND malfunction b. TFT sensor malfunction • Short or open circuit in wiring • Poor connection of connector • Sensor malfunction c. TR switch malfunction • Short or open circuit in wiring • Poor connection of connector • Sensor malfunction • Selector lever adjustment incorrect • TR switch adjustment incorrect d. Shift solenoid A, shift solenoid E malfunction • Short or open circuit in wiring • Poor connection of connector • Solenoid valve stuck e. O/D OFF switch malfunction f. Torque converter malfunction g. Control valve body malfunction

NO.9 ABNORMAL SHIFTING

A3U050301030W13

9	Abnormal shifting
DESCRIPTION	• Shift incorrectly (incorrect shift pattern).
POSSIBLE CAUSE	• There is a malfunction in the signal circuit which controls shifting (TP sensor, input/turbine speed sensor, VSS), the control valve is stuck, the accumulator (forward or servo apply) is stuck, or the clutch circuit is stuck. a. Clutch slippage, burned • Line pressure low • TP sensor malfunction or misadjustment • VSS malfunction • Input/turbine speed sensor malfunction • Sensor GND malfunction • Shift solenoid D malfunction • Shift solenoid E malfunction • Shift solenoid A malfunction • Shift solenoid B malfunction • Shift solenoid C malfunction • Body GND malfunction • Accelerator cable misadjustment • Control valve body malfunction

NO.10 FREQUENT SHIFTING

A3U050301030W14

10	Frequent shifting
DESCRIPTION	• Downshifting occurs immediately even when accelerator pedal is depressed slightly in D, 2, 1 ranges except O/D OFF mode.
POSSIBLE CAUSE	• The circuit which is the cause is basically the same as for No.9 “Abnormal shifting”. However, a malfunction of the input signal to the TP sensor, input/turbine speed sensor, VSS (including the sensor GND, sensor harness and connector), or clutch slippage (clutch stuck, low pressure in line) may also be the cause.

NO.11 SHIFT POINT IS HIGH OR LOW

A3U050301030W15

11	Shift point is high or low
DESCRIPTION	• Shift point is considerably different from automatic shift diagram. • Shift delays when accelerating. • Shift occurs quickly when accelerating and engine speed does not increase.
POSSIBLE CAUSE	• If the transaxle shift abnormal, there is a malfunction of the input signal to the TP sensor, input/turbine speed sensor, or VSS. • If the engine speed is high or low regardless that shifting is normal, inspect the tachometer. • Verify that the output signal of the TP sensor changes linearly.

NO.12 TORQUE CONVERTER CLUTCH (TCC) NON-OPERATION

A3U050301030W16

12	Torque converter clutch (TCC) non-operation
DESCRIPTION	• TCC does not operate when vehicle reaches TCC operation range.
POSSIBLE CAUSE	• Basically, the TCC does not operate when the fail-safe is operating. Verify the DTC first. If the TCC operates when driving at high speeds only, the malfunction (improper adjustment) is in the O/D OFF switch circuit or TR switch circuit. **Caution** • **If the TCC is stuck, inspect it. In addition, inspect the oil cooler for foreign particles which may have mixed in with the ATF.** a. TCC burned • TP sensor malfunction • TFT sensor malfunction • VSS malfunction • Input/turbine speed sensor malfunction • Sensor GND malfunction • Shift solenoid D malfunction (Sticking) • Shift solenoid E malfunction (Sticking) • Shift solenoid A malfunction (Sticking) • Shift solenoid B malfunction (Sticking) • Shift solenoid C malfunction (Sticking) • TCC hydraulic pressure system (Poor operation, sticking) b. TP sensor malfunction (Not operating linearly) c. Input/turbine speed sensor or VSS malfunction

Diagnostic procedure

STEP	INSPECTION		ACTION
1	• Remove torque converter. • Inspect torque converter. (See ATX Workshop Manual.) • Is torque converter okay?	Yes	Repeat basic inspection and repair or replace any defective parts according to inspection result. (See 05–03–6 AUTOMATIC TRANSAXLE BASIC INSPECTION.)
		No	Replace torque converter.

Note

- If malfunction remains, inspect related Service Bulletins and perform repair or diagnosis.
- If vehicle is repaired, troubleshooting is completed.
- If vehicle is not repaired or additional diagnostic information is not available, replace PCM.

NO.13 NO KICKDOWN

A3U050301030W17

13	No kickdown
DESCRIPTION	• Does not downshift when accelerator pedal is fully depressed within kickdown range.
POSSIBLE CAUSE	• If the transaxle does not downshift though shifting is normal, the malfunction is in the TP sensor circuit (including the sensor GND, sensor harness and connector).

NO.14 ENGINE FLARES UP OR SLIPS WHEN UPSHIFTING OR DOWNSHIFTING

A3U050301030W18

14	Engine flares up or slips when upshifting or downshifting
DESCRIPTION	• When accelerator pedal is depressed at start, engine speed increases normally but vehicle speed increase slowly. • When accelerator pedal is depressed while driving, engine speed increases but vehicle speed does not.
POSSIBLE CAUSE	• There is clutch slip because the clutch is stuck or the line pressure is low. a. Clutch stuck, slippage (forward clutch, 3–4 clutch, low and reverse brake, 2–4 brake band, one-way clutch) • Line pressure low • TP sensor malfunction or misadjustment • VSS malfunction • Input/turbine speed sensor malfunction • Sensor GND malfunction • Shift solenoid D malfunction • Shift solenoid E malfunction • Shift solenoid A malfunction • Shift solenoid B malfunction • Shift solenoid C malfunction • Pressure control solenoid malfunction • Body GND malfunction • Accelerator cable misadjustment • Control valve body malfunction b. Poor operation of mechanical pressure • Selector lever position disparity • TR switch position disparity

NO.15 ENGINE FLARES UP OR SLIPS WHEN ACCELERATING VEHICLE

A3U050301030W19

15	Engine flares up or slips when accelerating vehicle
DESCRIPTION	• Engine flares up when accelerator pedal is depressed for upshifting. • Engine flares up suddenly when accelerator pedal is depressed for downshifting.
POSSIBLE CAUSE	• The malfunction is basically the same as for No.14 “Engine flares up or slips when upshifting or downshifting”. — If conditions for No.14 worsen, the malfunction will develop to No.15.

NO.16 JUDDER UPON TORQUE CONVERTER CLUTCH (TCC) OPERATION

A3U050301030W20

16	Judder upon torque converter clutch (TCC) operation
DESCRIPTION	• Vehicle jolts when TCC is engaged.
POSSIBLE CAUSE	• Poor TCC engagement due to either slippage because the TCC is stuck or the line pressure is low. **Caution** • **If the TCC is stuck, inspect it. In addition, inspect the oil cooler for foreign particles which may have mixed in with the ATF.** a. TCC piston slippage, burned • Line pressure low • TP sensor malfunction or misadjustment • VSS malfunction • Input/turbine speed sensor malfunction • Shift solenoid A malfunction • Control valve body malfunction b. Torque converter malfunction

NO.17 EXCESSIVE SHIFT SHOCK FROM N TO D OR N TO R POSITION/RANGE

A3U050301030W21

17	Excessive shift shock from N to D or N to R position/range
DESCRIPTION	• Strong shock is felt when shifting from N to D or N to R position/range at idle.
POSSIBLE CAUSE	• Shift shock may worsen when the fail-safe is operating. If no DTC is output, the shift shock may worsen due to poor operation of the control valve body or sticking of the clutch. a. Clutch burned (N→D: Forward clutch, N→R: Reverse clutch or low and reverse brake) • Line pressure low • TP sensor malfunction • VSS malfunction • Input/turbine speed sensor malfunction • Accelerator cable misadjustment • Control valve body malfunction b. Poor hydraulic operation (Malfunction in range change) • Servo apply accumulator malfunction c. Idle speed high d. Poor tightening torque of engine mount and/or exhaust mount

NO.18 EXCESSIVE SHIFT SHOCK WHEN UPSHIFTING AND DOWNSHIFTING

A3U050301030W22

18	Excessive shift shock when upshifting and downshifting
DESCRIPTION	• Excessive shift shock is felt when depressing accelerator pedal to accelerate at upshifting. During cruising, excessive shift shock is felt when depressing accelerator pedal at downshifting.
POSSIBLE CAUSE	• Shift shock may worsen when the fail-safe is operating. The shift shock may also worsen if the TP sensor, input/turbine speed sensor, or VSS signal malfunctions. a. Clutch slippage, burned (2–4 brake band, 3–4 clutch) • Line pressure low, high • TP sensor malfunction • VSS malfunction • Input/turbine speed sensor malfunction • TFT sensor malfunction • Shift solenoid D malfunction • Shift solenoid E malfunction • Shift solenoid A malfunction • Shift solenoid B malfunction • Shift solenoid C malfunction • Pressure control solenoid malfunction • Accelerator cable misadjustment • Control valve body malfunction b. Poor hydraulic operation (Malfunction in range change) • Forward accumulator malfunction • Servo apply accumulator malfunction

NO.19 EXCESSIVE SHIFT SHOCK ON TORQUE CONVERTER CLUTCH (TCC)

A3U050301030W23

19	Excessive shift shock on torque converter clutch (TCC)
DESCRIPTION	• Strong shock is felt when TCC is engaged.
POSSIBLE CAUSE	• The troubleshooting flow is the same as for No.16 “Judder (Intense vibration) upon torque converter clutch (TCC) operation”.

NO.20 NOISE OCCURS AT IDLE WHEN VEHICLE IS STOPPED IN ALL POSITIONS/RANGES

A3U050301030W24

20	Noise occurs at idle when vehicle is stopped in all positions/ranges
DESCRIPTION	• Transaxle is noisy in all positions and ranges when vehicle is idling.
POSSIBLE CAUSE	• The malfunction is in the oil pump which causes a high-pitched noise to be emitted from the transaxle at idle. **Note** • If a noise is emitted during shifting only, the malfunction is in shift solenoid D, E or duty solenoid valves. • If a noise is emitted during shifting at certain gears only or during deceleration only, it is gear noise.

Diagnostic procedure

STEP	INSPECTION		ACTION
1	• Inspect engine condition. • Is there engine concern (i.e. rough idle)?	Yes	Go to appropriate symptom troubleshooting. (See 01–03A–7 SYMPTOM DIAGNOSTIC INDEX [ZM].) (See 01–03B–7 SYMPTOM DIAGNOSTIC INDEX [FS].)
		No	Repeat basic inspection and repair or replace any defective parts according to inspection result. (See 05–03–6 AUTOMATIC TRANSAXLE BASIC INSPECTION.)

Note
- If malfunction remains, inspect related Service Bulletins and perform repair or diagnosis.
- If vehicle is repaired, troubleshooting is completed.
- If vehicle is not repaired or additional diagnostic information is not available, replace PCM.

NO.21 NOISE OCCURS AT IDLE WHEN VEHICLE IS STOPPED IN D, 2, 1 RANGES, OR IN R POSITION

A3U050301030W25

21	Noise occurs at idle when vehicle is stopped in D, 2, 1 ranges, or in R position
DESCRIPTION	• Transaxle is noisy in driving ranges when vehicle is idling.
POSSIBLE CAUSE	• Although the malfunction is basically the same as No.20 “Noise occurs at idle when vehicle is stopped in all positions/ranges”, other causes may be selector lever or TR switch not adjusted properly.

NO.22 NO ENGINE BRAKING IN O/D OFF MODE

A3U050301030W26

22	No engine braking in O/D OFF mode
DESCRIPTION	• Engine speed drops to idle but vehicle coasts when accelerator pedal is released during cruising at medium to high speeds. • Engine speed drops to idle but vehicle coasts when accelerator pedal is released when in 1 range at low vehicle speed.
POSSIBLE CAUSE	a. Clutch slippage, or burned (low and reverse brake) • Line pressure low • VSS malfunction • Input/turbine speed sensor malfunction • TP sensor malfunction • Control valve body malfunction b. O/D OFF switch on but not recognized by PCM (short, or open circuit, poor operation) • O/D OFF switch signal malfunction

Diagnostic procedure

STEP	INSPECTION		ACTION
1	• Do following symptoms occur concurrently? • Engine flares up or slips during acceleration. • Engine flares up or slips when shifting.	Yes	Go to symptom troubleshooting No.14 “Engine flares up or slips when upshifting or downshifting” or No.15 “Engine flares up or slips when accelerating vehicle”.
		No	Repeat basic inspection and repair or replace any defective parts according to inspection result. (See 05–03–6 AUTOMATIC TRANSAXLE BASIC INSPECTION.)

Note
- If malfunction remains, inspect related Service Bulletins and perform repair or diagnosis.
- If vehicle is repaired, troubleshooting is completed.
- If vehicle is not repaired or additional diagnostic information is not available, replace PCM.

NO.23 TRANSAXLE OVERHEATS

A3U050301030W27

23	Transaxle overheats
DESCRIPTION	• Burnt smell is emitted from transaxle. • Smoke is emitted from transaxle.
POSSIBLE CAUSE	• The malfunction is restricted to hindrance of coolant at the oil cooler. In addition, overheating of the transaxle may be caused by a malfunction of the TFT sensor. a. Burned (TCC) • Control valve body malfunction • Accelerator cable misadjustment b. Oil cooler malfunction (Foreign material mixed in with ATF) c. TFT sensor malfunction d. Excessive amount of ATF e. Torque converter malfunction

Diagnostic procedure

STEP	INSPECTION		ACTION
1	• Inspect for bend, damage, corrosion or kinks of oil cooler pipes. • Are oil cooler pipes okay?	Yes	Go to next step.
		No	Replace any defective parts.
2	• Remove torque converter. • Inspect torque converter. (See ATX Workshop Manual.) • Is torque converter okay?	Yes	Repeat basic inspection and repair or replace any defective parts according to inspection result. (See 05–03–6 AUTOMATIC TRANSAXLE BASIC INSPECTION.)
		No	Replace torque converter.

Note
- If malfunction remains, inspect related Service Bulletins and perform repair or diagnosis.
- If vehicle is repaired, troubleshooting is completed.
- If vehicle is not repaired or additional diagnostic information is not available, replace PCM.

NO.24 ENGINE STALLS WHEN SHIFTED TO D, 2, 1 RANGES, OR IN R POSITION

A3U050301030W28

24	Engine stalls when shifted to D, 2, 1 ranges, or in R position
DESCRIPTION	• Engine stalls when shifting from N or P position to D, 2, 1 ranges or R position at idle.
POSSIBLE CAUSE	• The malfunction is on the engine control side (i.e. IAC system). Otherwise, the malfunction is in the input/turbine speed sensor (engine sometimes starts) or TCC circuit (engine always stalls).

Diagnostic procedure

STEP	INSPECTION		ACTION
1	• Go to symptom troubleshooting No.4 “Engine stalls”. (See 01–03A–7 SYMPTOM DIAGNOSTIC INDEX [ZM].) (See 01–03B–7 SYMPTOM DIAGNOSTIC INDEX [FS].) • Is engine control system okay?	Yes	Repeat basic inspection and repair or replace any defective parts according to inspection result. (See 05–03–6 AUTOMATIC TRANSAXLE BASIC INSPECTION.)
		No	Repair or replace any defective parts according to inspection results.

Note
- If malfunction remains, inspect related Service Bulletins and perform repair or diagnosis.
- If vehicle is repaired, troubleshooting is completed.
- If vehicle is not repaired or additional diagnostic information is not available, replace PCM.

NO.25 ENGINE STALLS WHEN DRIVING AT SLOW SPEED OR STOPPING

A3U050301030W29

25	Engine stalls when driving at slow speed or stopping
DESCRIPTION	• Engine stalls when brake pedal is depressed while driving at low speed or stopping.
POSSIBLE CAUSE	• The malfunction is on the engine control side (e.g. Fuel injection control and IAC system).

Diagnostic procedure

STEP	INSPECTION		ACTION
1	• Go to symptom troubleshooting No.9 “Low idle/stalls during deceleration”. (See 01–03A–7 SYMPTOM DIAGNOSTIC INDEX [ZM].) (See 01–03B–7 SYMPTOM DIAGNOSTIC INDEX [FS].) • Is engine control system okay?	Yes	Go to next step.
		No	Repair or replace any defective parts according to inspection results.
2	• Go to symptom troubleshooting No.4 “Engine Stalls”. (See 01–03A–7 SYMPTOM DIAGNOSTIC INDEX [ZM].) (See 01–03B–7 SYMPTOM DIAGNOSTIC INDEX [FS].) • Is engine control system okay?	Yes	Repeat basic inspection and repair or replace any defective parts according to inspection result. (See 05–03–6 AUTOMATIC TRANSAXLE BASIC INSPECTION.)
		No	Repair or replace any defective parts according to inspection results.

Note
- If malfunction remains, inspect related Service Bulletins and perform repair or diagnosis.
- If vehicle is repaired, troubleshooting is completed.
- If vehicle is not repaired or additional diagnostic information is not available, replace PCM.

NO.26 O/D OFF INDICATOR LIGHT DOES NOT ILLUMINATE WHEN O/D OFF SWITCH IS TURNED TO ON

A3U050301030W30

26	O/D OFF indicator light does not illuminate when O/D OFF switch is turned to ON
DESCRIPTION	• O/D OFF indicator light in instrument cluster does not illuminate when O/D OFF switch is turned on and ignition switch at on.
POSSIBLE CAUSE	• O/D OFF switch, O/D OFF indicator light or related wiring harness malfunction

NO.27 O/D OFF INDICATOR LIGHT ILLUMINATES WHEN O/D OFF SWITCH IS NOT TURNED TO ON

A3U050301030W31

27	O/D OFF indicator light illuminates when O/D OFF switch is not turned to ON
DESCRIPTION	• O/D OFF indicator light in instrument cluster illuminates even though O/D OFF switch is turned off and ignition switch at on.
POSSIBLE CAUSE	• O/D OFF switch or related wiring harness malfunction