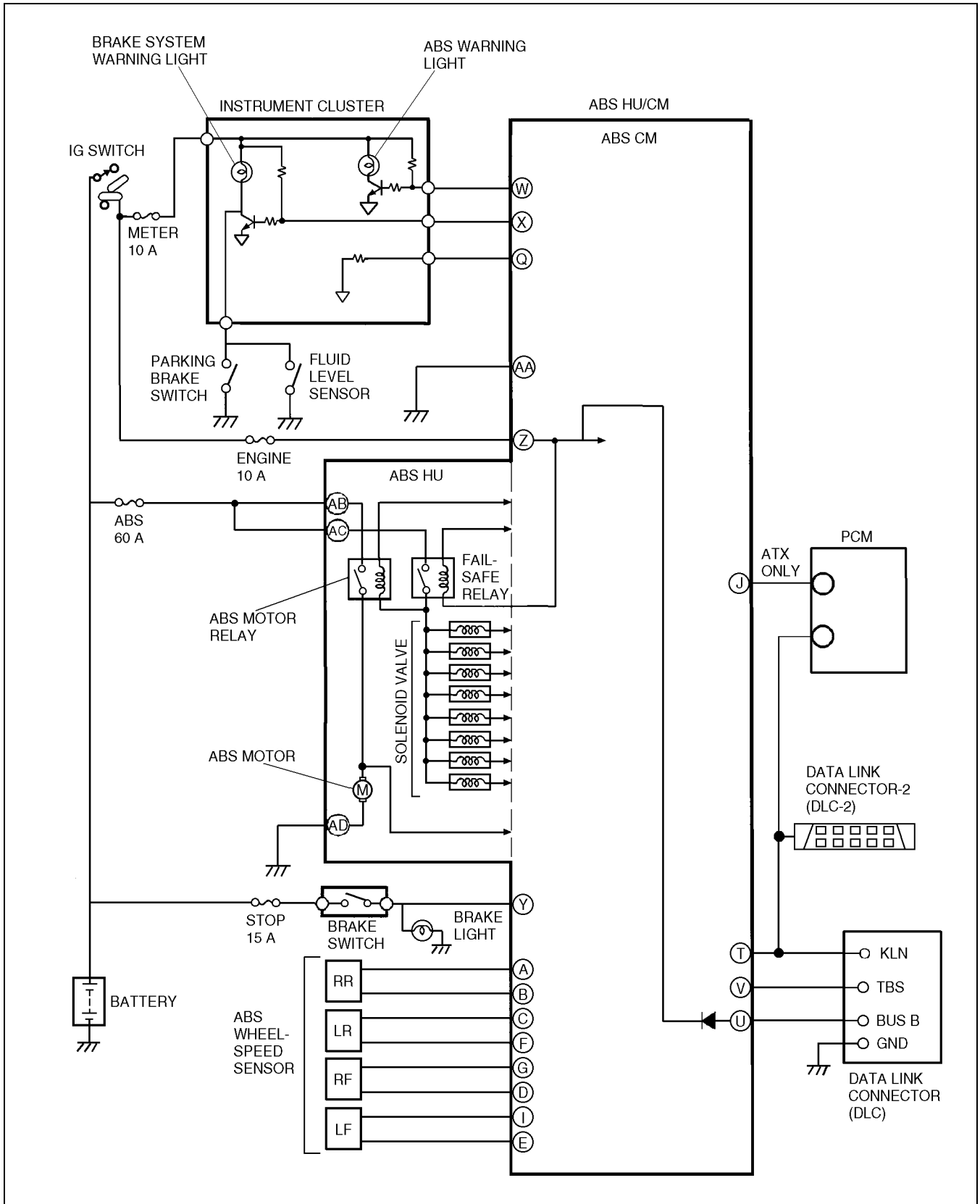

04-03 SYMPTOM TROUBLESHOOTING

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SYMPTOM TROUBLESHOOTING

ABS SYSTEM DIAGRAM

A3U040343000W01



A3U0402W001

SYMPTOM TROUBLESHOOTING

FOREWORD

A3U040343000W02

- Before performing the steps in Symptom Troubleshooting, perform the On-board Diagnostic Test. To check the DTC, follow the OBD TEST steps.

ABS

A3U040343000W03

Foreword

- Before performing the steps in Symptom Troubleshooting, perform the On-board Diagnostic Inspection. To check the DTC, follow the DTC Inspection steps.

Precaution

When inspecting or servicing the ABS, note the following points:

1. The ABS warning light and/or BRAKE system warning light illuminate even when the system is normal.

Warning lights that may illuminate	Cases in which the light may illuminate	Condition in which the light will go out	ABS and EBD control
<ul style="list-style-type: none"> • ABS warning light • BRAKE system warning light (*1) 	Under any of the following conditions: <ul style="list-style-type: none"> • When the front wheels are jacked up, stuck, or placed on a chassis roller, and only the front wheel ABS wheel speed sensors are spun for more than 20 seconds. Parking brake is not fully released while driving. Brake drag. Sudden acceleration/ deceleration. Left/ right or front/ rear tires are different. (Size, radius, tire pressure, or wear is other than that listed on tire label.)	After turning ignition switch OFF, vehicle is driven at speed greater than 10 km/h {6.2 mph} and normal operation is confirmed.	<ul style="list-style-type: none"> • ABS: Cuts control. • EBD: <ol style="list-style-type: none"> 1. Cuts control, in cases where the light may illuminate, only when ABS HU/CM detects that a wheel speed sensor determines that more than 2 rear wheels are malfunctioning. 2. Operates control, if wheel speed sensor determines that more than 3 wheels are functioning correctly.
<ul style="list-style-type: none"> • ABS warning light 	Battery voltage at ABS HU/CM ignition terminal Z drops below about 9 to 10 V. (*2)	Battery voltage rises above about 10 V.	ABS: Operates control. EBD: Operates control.
<ul style="list-style-type: none"> • ABS warning light • BRAKE system warning light 	Battery voltage at ABS HU/CM ignition terminal Z drops below about 9 to 10 V. (*2)	Battery voltage rises above about 10 V. (Only BRAKE system warning light goes out.) Battery voltage rises above about 10 V. (Both warning lights go out)	ABS: Operates control. EBD: Operates control.

04-03

*1 : In cases where the light may illuminate, only when ABS HU/CM detects that a rear wheel's speed sensor is malfunctioning.

*2 : If battery voltage drops **below about 9 to 10 V** while vehicle speed is **greater than 6 km/h {3.7 mph}**, ABS HU/CM records **DTC B1318 (DTC 63)**.

2. Precautions during servicing of ABS

The ABS is composed of electrical and mechanical parts. It is necessary to categorize malfunctions as being either electrical or hydraulic when performing troubleshooting.

(1) Malfunctions in electrical system

- The ABS hydraulic unit and control module (ABS HU/CM) has an on-board diagnostic function. With this function, the ABS warning light and/or BRAKE system warning light will come on when there is a problem in the electrical system. Also, past and present malfunctions are recorded in the ABS HU/CM. This function can find malfunctions that do not occur during periodic inspections. Turn the ignition switch on by connecting the **SST** (WDS or equivalent) to the DLC-2 inside the Passenger compartment. **Approximately 5 seconds** later the stored malfunctions will be displayed in order of occurrence. To find out the causes of ABS malfunctions, use these on-board diagnostic results.
- If a malfunction occurred in the past but is now normal, the cause is likely a temporary poor connection of the harness. The ABS HU/CM usually operates normally. Be careful when searching for the cause of malfunction.
- After repair, it is necessary to erase the DTC from the ABS HU/CM memory. Also, if the ABS related parts have been replaced, verify that the no DTC has been displayed after repairs.

SYMPTOM TROUBLESHOOTING

- After repairing the ABS wheel-speed sensor or ABS sensor rotor, or after replacing the ABS HU/CM (ABS motor or ABS motor relay or solenoid valve), the ABS warning light may not go off even when the ignition switch is turned on. In this case, drive the vehicle at a speed of **more than 10 km/h {6.2 mph}**, make sure the ABS warning light goes off, and then erase the DTC.
 - When repairing, if the ABS related connectors are disconnected and the ignition switch is turned on, the ABS HU/CM will mistakenly detect a fault and record it as a malfunction.
 - To protect the ABS HU/CM, make sure the ignition is off before connecting or disconnecting the ABS HU/CM connector.
 - To protect the terminal, use the **SST** (49 G066 001) when connecting the tester lead to the ABS HU/CM connector.
- (2) Malfunctions in hydraulic system
- Symptoms in a hydraulic system malfunction are similar to those in a conventional brake malfunction. However, it is necessary to determine if the malfunction is in an ABS component or the conventional brake system.
 - The ABS hydraulic unit contains delicate mechanical parts. If foreign materials get into the component, the ABS may fail to operate. Also, it will likely become extremely difficult to find the location of the malfunction in the event that the brakes operate but the ABS does not. Make sure foreign materials do not get inside when servicing the ABS (e.g. brake fluid replacement, pipe removal).

SYMPTOM TROUBLESHOOTING

A3U040343000W04

ABS Symptom Troubleshooting

- Verify the symptom, and perform troubleshooting according to the appropriate number.

No.	TROUBLESHOOTING ITEM	DESCRIPTION	PAGE
1	Neither ABS warning light nor BRAKE system warning light illuminate	Neither ABS warning light nor BRAKE system warning light illuminate with ignition switch on.	(See 04-03-5 NO.1 NEITHER ABS WARNING LIGHT NOR BRAKE SYSTEM WARNING LIGHT ILLUMINATE)
2	ABS warning light does not illuminate	ABS warning light does not illuminate with ignition switch on.	(See 04-03-6 NO.2 ABS WARNING LIGHT DOES NOT ILLUMINATE)
3	BRAKE system warning light does not illuminate	BRAKE system warning light does not illuminate with ignition switch on.	(See 04-03-7 NO.3 BRAKE SYSTEM WARNING LIGHT DOES NOT ILLUMINATE)
4	ABS warning light and BRAKE system warning light stay ON	Both ABS warning light BRAKE system warning light stay on more than 4 seconds with ignition switch on.	(See 04-03-8 NO.4 ABS WARNING LIGHT AND BRAKE SYSTEM WARNING LIGHT STAY ON)
5	ABS warning light stays ON	ABS warning light stays on more than 4 seconds with ignition switch on.	(See 04-03-10 NO.5 ABS WARNING LIGHT STAYS ON)
6	BRAKE system warning light stays ON	BRAKE system warning light stays on more than 4 seconds with ignition switch on. (Parking brake is released)	(See 04-03-12 NO.6 BRAKE SYSTEM WARNING LIGHT STAYS ON)
7	BRAKE system malfunction	There is a malfunction in system even though ABS warning light and BRAKE system warning light does not illuminate.	(See 04-03-13 NO.7 BRAKE SYSTEM MALFUNCTION)

SYMPTOM TROUBLESHOOTING

Quick Diagnosis Chart Vehicles with ABS

× : Applicable

Possible factor																
Troubleshooting item		ABS HU/CM	Instrument cluster	ABS warning light circuit	BRAKE system warning light circuit	Battery	Brake fluid	Brake fluid level sensor	Parking brake switch	Charging system	ABS HU/CM power supply (terminal Z)	ABS HU/CM GND 1 (terminal AA)	Instrument cluster power supply (terminal 1J)	Instrument cluster GND (terminal 1D)	Conventional brakes	Brake pipe routing
1	Neither ABS warning light nor BRAKE system warning light illuminate		×										×	×		
2	ABS warning light does not illuminate	×	×	×												
3	BRAKE system warning light does not illuminate	×	×		×											
4	ABS warning light and BRAKE system warning light stay ON	×	×	×	×	×				×	×	×				
5	ABS warning light stays ON	×	×	×		×				×						
6	BRAKE system warning light stays ON	×	×		×		×	×	×							
7	BRAKE system malfunction	×													×	×

04-03

Y3U403WA1

NO.1 NEITHER ABS WARNING LIGHT NOR BRAKE SYSTEM WARNING LIGHT ILLUMINATE

A3U040343000W05

- When performing an asterisked (*) troubleshooting inspection, shake the wiring harness and connectors while performing the inspection to discover whether poor contact points are the cause of any intermittent malfunctions. If there is a problem, check to make sure connectors, terminals and wiring harness are connected correctly and undamaged.

1	Neither ABS warning light nor BRAKE system warning light illuminate
DESCRIPTION	<ul style="list-style-type: none"> Neither ABS warning light nor BRAKE system warning light illuminate with ignition switch on.
POSSIBLE CAUSE	<ul style="list-style-type: none"> Warning light circuit and indicator light circuits open circuit or shorted to ground.
<p>INSTRUMENT CLUSTER CONNECTOR (18-PIN)</p> <p>(VIEW FROM HARNESS SIDE)</p>	

Diagnostic procedure

STEP	INSPECTION		ACTION
1	CHECK TO SEE WHETHER MALFUNCTION IS IN WARNING LIGHTS' COMMON POWER SUPPLY OR OTHER WARNING LIGHTS AND INDICATOR LIGHTS <ul style="list-style-type: none"> Do other warning and indicator lights illuminate when IG switch is turned ON? 	Yes	Replace instrument cluster (open circuit in instrument cluster).
		No	Go to next step.

SYMPTOM TROUBLESHOOTING

STEP	INSPECTION	ACTION	
2	CHECK TO SEE WHETHER MALFUNCTION IS IN WARNING LIGHTS' COMMON GROUND OR TURN SIGNAL INDICATOR LIGHT <ul style="list-style-type: none"> • Turn ignition switch ON. • Turn signal switch ON. • Does turn signal indicator light in instrument cluster illuminate? 	Yes	Replace instrument cluster (open circuit in instrument cluster).
		No	Go to next step.
3	INSPECT INSTRUMENT CLUSTER POWER SUPPLY FUSE <ul style="list-style-type: none"> • Is instrument cluster ignition power supply fuse okay? 	Yes	Go to next step.
		No	Check for a short to ground on blown fuse's circuit. Repair or replace as necessary. Install appropriate amperage fuse.
*4	INSPECT WIRING HARNESS BETWEEN INSTRUMENT CLUSTER POWER SUPPLY AND INSTRUMENT CLUSTER FOR CONTINUITY <ul style="list-style-type: none"> • Turn ignition switch ON. • Measure voltage at instrument cluster connector (18-pin) terminal 1J. • Is voltage approximately 12V? 	Yes	Go to next step
		No	Repair wiring harness between fuse block and instrument cluster.
*5	CHECK TO SEE WHETHER MALFUNCTION (LACK OF CONTINUITY) IS IN WIRING HARNESS (BETWEEN INSTRUMENT CLUSTER AND GROUND) OR INSTRUMENT CLUSTER <ul style="list-style-type: none"> • Turn ignition switch to LOCK. • Disconnect instrument cluster connector. • Is there continuity between instrument cluster connector (18-pin) terminal 1D and ground? 	Yes	Replace instrument cluster (open circuit in instrument cluster).
		No	Repair wiring harness between instrument cluster and ground.

NO.2 ABS WARNING LIGHT DOES NOT ILLUMINATE

A3U040343000W06

- When performing an asterisked (*) troubleshooting inspection, shake the wiring harness and connectors while performing the inspection to discover whether poor contact points are the cause of any intermittent malfunctions. If there is a problem, check to make sure connectors, terminals and wiring harness are connected correctly and undamaged.

2	ABS warning light does not illuminate
DESCRIPTION	<ul style="list-style-type: none"> • ABS warning light does not illuminate with ignition switch on.
POSSIBLE CAUSE	<ul style="list-style-type: none"> • ABS warning light circuit open circuit or shorted to ground.
<p>INSTRUMENT CLUSTER CONNECTOR (16-PIN)</p> <p>(VIEW FROM HARNESS SIDE)</p>	

Diagnostic procedure

STEP	INSPECTION	ACTION	
1	CHECK FOR SHORT TO GROUND IN ABS HU/CM <ul style="list-style-type: none"> • Disconnect ABS HU/CM connector and turn ignition switch on. • Does ABS warning light illuminate? 	Yes	Replace ABS HU/CM (short to ground in ABS HU/CM).
		No	Go to next step.
2	INSPECT ABS WARNING LIGHT BULB <ul style="list-style-type: none"> • Remove instrument cluster. • Inspect ABS warning light bulb. • Is it okay? 	Yes	Go to next step.
		No	Replace ABS warning light bulb.

SYMPTOM TROUBLESHOOTING

STEP	INSPECTION	ACTION	
*3	CHECK TO SEE WHETHER MALFUNCTION IS IN WIRING HARNESS (SHORT TO GROUND BETWEEN INSTRUMENT CLUSTER AND ABS HU/CM) OR INSTRUMENT CLUSTER (OPEN CIRCUIT OR SHORT TO GROUND) <ul style="list-style-type: none"> Is there continuity between instrument cluster connector (16-pin) terminal 2B and ground? 	Yes	Repair wiring harness between instrument cluster and ABS HU/CM.
		No	Replace instrument cluster (open circuit or short to ground in ABS HU/CM).

NO.3 BRAKE SYSTEM WARNING LIGHT DOES NOT ILLUMINATE

A3U040343000W07

04-03

- When performing an asterisked (*) troubleshooting inspection, shake the wiring harness and connectors while performing the inspection to discover whether poor contact points are the cause of any intermittent malfunctions. If there is a problem, check to make sure connectors, terminals and wiring harness are connected correctly and undamaged.

3	BRAKE system warning light does not illuminate
DESCRIPTION	<ul style="list-style-type: none"> BRAKE system warning light does not illuminate with ignition switch on.
POSSIBLE CAUSE	<ul style="list-style-type: none"> Open circuit or short to ground in BRAKE system warning light circuit.
<p>INSTRUMENT CLUSTER CONNECTOR (18-PIN)</p> <p>(VIEW FROM HARNESS SIDE)</p>	

Diagnostic procedure

STEP	INSPECTION	ACTION	
1	CHECK FOR SHORT TO GROUND IN ABS HU/CM <ul style="list-style-type: none"> Disconnect ABS HU/CM connector and turn ignition switch on. Does BRAKE system warning light illuminate? 	Yes	Replace ABS HU/CM (short to ground in ABS HU/CM).
		No	Go to next step.
2	INSPECT BRAKE SYSTEM WARNING LIGHT BULB <ul style="list-style-type: none"> Remove instrument cluster. Inspect BRAKE system warning light bulb. Is it okay? 	Yes	Go to next step.
		No	Replace BRAKE system warning light bulb.
*3	CHECK TO SEE WHETHER MALFUNCTION IS IN WIRING HARNESS (SHORT TO GROUND BETWEEN INSTRUMENT CLUSTER AND ABS HU/CM) OR INSTRUMENT CLUSTER (OPEN OR SHORT TO GROUND) <ul style="list-style-type: none"> Is there continuity between instrument cluster connector (18-pin) terminal 1G and ground? 	Yes	Repair wiring harness between instrument cluster and ABS HU/CM.
		No	Replace instrument cluster (open circuit or short to ground in ABS HU/CM).

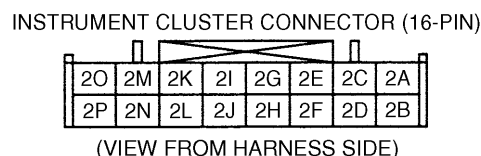
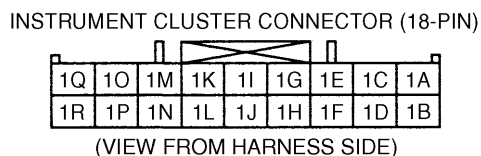
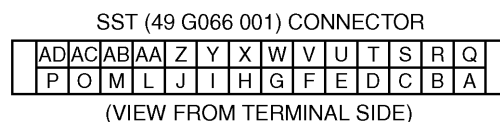
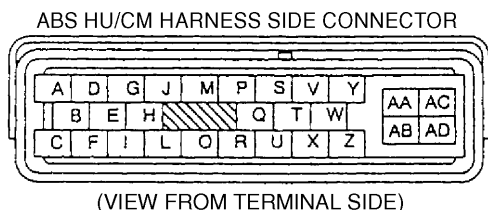
SYMPTOM TROUBLESHOOTING

A3U040343000W08

NO.4 ABS WARNING LIGHT AND BRAKE SYSTEM WARNING LIGHT STAY ON

- When performing an asterisked (*) troubleshooting inspection, shake the wiring harness and connectors while performing the inspection to discover whether poor contact points are the cause of any intermittent malfunctions. If there is a problem, check to make sure connectors, terminals and wiring harness are connected correctly and undamaged.

4	ABS warning light and BRAKE system warning light stay ON
DESCRIPTION	<ul style="list-style-type: none"> Both ABS warning light and BRAKE system warning light stay on more than 4 seconds with ignition switch on.
POSSIBLE CAUSE	<ul style="list-style-type: none"> ABS HU/CM detects ABS proportioning system malfunction ABS HU/CM detects low voltage in power supply (ABS HU/CM ignition terminal Z voltage is below about 8 to 9 V) ABS HU/CM does not operate Both warning light circuits (ABS and BRAKE system) open circuit or shorted to ground



Diagnostic procedure

STEP	INSPECTION	ACTION	
1	INSPECT ABS HU/CM POWER SUPPLY FUSE <ul style="list-style-type: none"> Is ABS HU/CM ignition power supply fuse okay? 	Yes	Go to next step.
		No	Check for a short to ground on blown fuse's circuit. Repair or replace as necessary. Install appropriate amperage fuse.
2	INSPECT WIRING HARNESS BETWEEN ABS CM AND DLC-2 FOR CONTINUITY OR SHORTS <ul style="list-style-type: none"> Perform DTC inspection. Is error message displayed regarding communication between ABS HU/CM and WDS or equivalent? 	Yes	If a communication error message is displayed even after inspecting according to procedures displayed on the WDS or equivalent, go to Step 8.
		No	Go to next step.
3	CHECK FOR DTCS IN ABS HU/CM <ul style="list-style-type: none"> Have DTCS been recorded in memory? 	Yes	Perform inspection using appropriate DTC.
		No	Go to next step.
4	INSPECT PID/DATA IN ABS HU/CM <ul style="list-style-type: none"> Inspect the following items using WDS or equivalent. <ul style="list-style-type: none"> — ABS_LAMP (ABS warning light) — BRAKE_LMP (BRAKE system warning light) — ABS_VOLT (power supply voltage) Is ABS_LAMP and BRAKE_LMP ON after more than 4 seconds with ignition switch on? 	Yes	Go to Step 7.
		No	Go to next step.
5	CHECK FOR OPEN CIRCUITS IN ABS HU/CM <ul style="list-style-type: none"> Disconnect ABS HU/CM. Connect the SST (49 G066 001) (vehicle harness side only). Use the SST connector to ground the warning light terminal (ABS: terminal W, BRAKE system: terminal X) to body ground. Do both ABS warning light and BRAKE system warning light go out with ignition switch on? 	Yes	Replace ABS HU/CM (open circuit in ABS HU/CM).
		No	Go to next step.

SYMPTOM TROUBLESHOOTING

STEP	INSPECTION	ACTION	
*6	CHECK TO SEE WHETHER MALFUNCTION IS IN WIRING HARNESS (LACK OF CONTINUITY BETWEEN INSTRUMENT CLUSTER AND ABS HU/CM) OR INSTRUMENT CLUSTER (OPEN CIRCUIT OR SHORT TO GROUND) <ul style="list-style-type: none"> • Disconnect instrument cluster connector. • Is there continuity between following ABS HU/CM connector terminals and instrument cluster connector terminals? <ul style="list-style-type: none"> — Terminal W and terminal 2B (16-pin) — Terminal X and terminal 1G (18-pin) 	Yes	Replace instrument cluster (open circuit or short to ground in instrument cluster).
		No	Repair wiring harness between ABS HU/CM (ABS: terminal W, BRAKE system: terminal X) and instrument cluster.
7	INSPECT ABS HU/CM IGNITION POWER SUPPLY SYSTEM (TERMINAL Z) <ul style="list-style-type: none"> • Check the voltage for PID/DATA monitor ABS_VOLT item. • Specification: above 10 V • Is voltage within specification? 	Yes	Replace ABS HU/CM (open circuit or short in ground circuit in ABS HU/CM).
		No	Go to next step.
8	INSPECT BATTERY <ul style="list-style-type: none"> • Is battery voltage normal? 	Yes	Go to next step.
		No	Inspect battery and charging system.
9	INSPECT CHARGING SYSTEM <ul style="list-style-type: none"> • Is battery voltage normal with electrical load (A/C, headlights, etc.) on and engine idling? 	Yes	Go to next step.
		No	Inspect charging system (drive belt tension, generator, etc.).
10	VERIFY THAT ABS HU/CM CONNECTOR IS CONNECTED WITH ABS HU/CM <ul style="list-style-type: none"> • Is ABS HU/CM securely connected? 	Yes	Go to Step 12.
		No	Connect ABS HU/CM connector securely, then go to next step.
11	CONFIRM THAT MALFUNCTION SYMPTOM DO NOT REOCCUR AFTER ABS HU/CM IS CONNECTED <ul style="list-style-type: none"> • Do both ABS warning light and BRAKE system warning lights go out after more than 4 seconds with ignition switch on? 	Yes	Temporary poor connection in ABS HU/CM connector. Inspect connector and terminal.
		No	Go to next step.
12	VERIFY THAT ABS HU/CM CONNECTOR TERMINALS Z AND AA ARE CONNECTED <ul style="list-style-type: none"> • Does malfunction symptom happen again when ABS HU/CM connector terminals Z and AA are shaken while the ignition switch is ON? 	Yes	Connect ABS HU/CM connector terminals Z and AA securely, then go to next step.
		No	Go to Step 14.
13	CONFIRM THAT MALFUNCTION SYMPTOM DO NOT REOCCUR AFTER ABS HU/CM CONNECTOR TERMINALS Z AND AA ARE CONNECTED <ul style="list-style-type: none"> • Do both ABS warning light and BRAKE system warning lights go out after more than 4 seconds with ignition switch on? 	Yes	Temporary poor connection at terminal. Inspect ABS HU/CM connector and terminal.
		No	Go to next step.
*14	INSPECT WIRING HARNESS BETWEEN ABS HU/CM POWER SUPPLY AND ABS HU/CM FOR CONTINUITY <ul style="list-style-type: none"> • Disconnect ABS HU/CM connector. Connect the SST (49 G066 001) (vehicle harness side only). • Is voltage approximately 12 V at SST connector terminal Z? 	Yes	Go to next step.
		No	Repair wiring harness between fuse block and ABS HU/CM.
*15	INSPECT WIRING HARNESS BETWEEN ABS HU/CM AND GROUND FOR CONTINUITY <ul style="list-style-type: none"> • Turn ignition switch to LOCK. • Is there continuity between SST connector terminal AA and ground? 	Yes	If a communication error message is displayed on WDS or equivalent in Step 1 inspection, go to next step. If a communication error message is not displayed on WDS or equivalent in Step 1 inspection, troubleshooting is completed.
		No	Repair wiring harness between ABS HU/CM and ground.
*16	INSPECT WIRING HARNESS BETWEEN ABS HU/CM AND DLC-2 FOR CONTINUITY <ul style="list-style-type: none"> • Is there continuity between SST connector terminal T and DLC-2? 	Yes	Go to next step.
		No	Repair wiring harness between ABS HU/CM and DLC-2.

SYMPTOM TROUBLESHOOTING

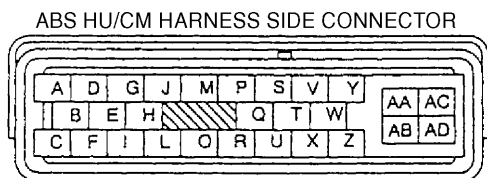
STEP	INSPECTION	ACTION	
*17	INSPECT WIRING HARNESS BETWEEN ABS HU/CM AND DLC-2 FOR SHORT TO B+ <ul style="list-style-type: none"> Is voltage approximately 12 V at SST connector terminal T? 	Yes	Repair wiring harness between ABS HU/CM and DLC-2.
		No	Go to next step.
*18	INSPECT WIRING HARNESS BETWEEN ABS HU/CM AND DLC-2 FOR SHORT TO GROUND <ul style="list-style-type: none"> Is there continuity between SST connector terminal T and ground? 	Yes	Repair wiring harness between ABS HU/CM and DLC-2.
		No	Replace ABS HU/CM (communication circuit malfunction in ABS HU/CM).

NO.5 ABS WARNING LIGHT STAYS ON

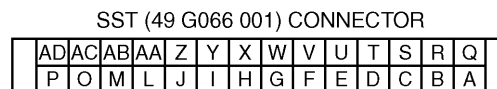
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- When performing an asterisked (*) troubleshooting inspection, shake the wiring harness and connectors while performing the inspection to discover whether poor contact points are the cause of any intermittent malfunctions. If there is a problem, check to make sure connectors, terminals and wiring harness are connected correctly and undamaged.

5	ABS warning light stays ON
DESCRIPTION	<ul style="list-style-type: none"> ABS warning light stays on more than 4 seconds with ignition switch on.
POSSIBLE CAUSE	<ul style="list-style-type: none"> ABS HU/CM detects ABS system malfunction ABS HU/CM detects low voltage in power supply (ABS HU/CM ignition terminal Z voltage is below about 8 to 9 V) Warning light circuit open or shorted to ground

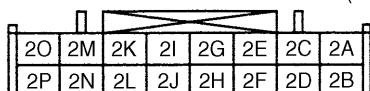


(VIEW FROM TERMINAL SIDE)



(VIEW FROM TERMINAL SIDE)

INSTRUMENT CLUSTER CONNECTOR (16-PIN)



(VIEW FROM HARNESS SIDE)

Diagnostic procedure

STEP	INSPECTION	ACTION	
1	INSPECT WIRING HARNESS BETWEEN ABS HU/CM AND DLC-2 FOR CONTINUITY AND SHORTS <ul style="list-style-type: none"> Perform DTC inspection. Is error message displayed regarding communication between ABS HU/CM and WDS or equivalent? 	Yes	If the communication error message is displayed even after inspecting according to procedures displayed on the WDS or equivalent, go to Step 8.
		No	Go to next step.
2	CHECK FOR DTCS IN ABS HU/CM <ul style="list-style-type: none"> Have DTCs been recorded in memory? 	Yes	Perform inspection using appropriate DTC.
		No	Go to next step.
3	INSPECT PID/DATA IN ABS HU/CM <ul style="list-style-type: none"> Inspect the following items using WDS or equivalent. — ABS_LAMP (ABS warning light) Is ABS_LAMP ON after more than 4 seconds with ignition switch on? 	Yes	Go to Step 8.
		No	Go to next step.
4	VERIFY THAT ABS HU/CM CONNECTOR TERMINAL W IS CONNECTED <ul style="list-style-type: none"> Does malfunction symptom happen again when ABS HU/CM connector terminal W is shaken while the ignition switch is ON? 	Yes	Connect ABS HU/CM connector terminal W securely, then go to next step.
		No	Go to Step 6.

SYMPTOM TROUBLESHOOTING

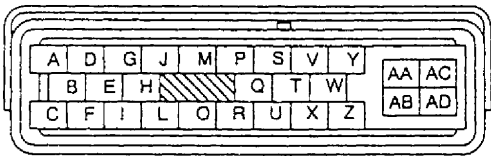
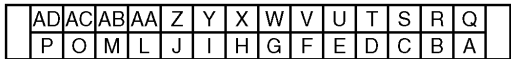
STEP	INSPECTION	ACTION	
5	CONFIRM THAT MALFUNCTION SYMPTOM DO NOT REOCCUR AFTER ABS HU/CM CONNECTOR TERMINAL W IS CONNECTED <ul style="list-style-type: none"> Do ABS warning light go out after more than 4 seconds with ignition switch on? 	Yes	Temporary poor connection at terminal. Inspect ABS HU/CM connector and terminal.
		No	Go to next step.
6	CHECK FOR OPEN CIRCUITS IN ABS HU/CM <ul style="list-style-type: none"> Disconnect ABS HU/CM. Connect the SST (49 G066 001) (vehicle harness side only). Use the SST connector to ground ABS warning light terminal W to body ground. Does ABS warning light go out with ignition switch on? 	Yes	Replace ABS HU/CM (open circuit in ABS HU/CM).
		No	Go to next step.
*7	CHECK TO SEE WHETHER MALFUNCTION IS IN WIRING HARNESS (LACK OF CONTINUITY BETWEEN INSTRUMENT CLUSTER AND ABS HU/CM) OR INSTRUMENT CLUSTER (OPEN CIRCUIT OR SHORT TO GROUND) <ul style="list-style-type: none"> Disconnect instrument cluster. Is there continuity between following SST connector terminal W and instrument cluster connector (16-pin) terminal 2B? 	Yes	Replace instrument cluster (open circuit or ground to short in instrument cluster).
		No	Repair wiring harness between ABS HU/CM (terminal W) and instrument cluster.
8	INSPECT ABS HU/CM IGNITION POWER SUPPLY SYSTEM (TERMINAL Z) <ul style="list-style-type: none"> Check the voltage for PID/DATA monitor ABS_VOLT item. Specification: above 10V Is voltage within specification? 	Yes	Replace ABS HU/CM (open circuit or short in ground circuit in ABS HU/CM).
		No	Go to next step.
9	INSPECT BATTERY <ul style="list-style-type: none"> Is battery voltage normal? 	Yes	Go to next step
		No	Inspect battery and charging system
10	INSPECT CHARGING SYSTEM <ul style="list-style-type: none"> Is battery voltage normal with electrical load (A/C, headlights, etc) on and engine idling? 	Yes	Go to next step
		No	Inspect charging system (drive belt tension, generator, etc).
*11	INSPECT WIRING HARNESS BETWEEN ABS HU/CM POWER SUPPLY AND ABS HU/CM FOR CONTINUITY <ul style="list-style-type: none"> Disconnect ABS HU/CM. Connect SST (49 G066 001) (vehicle harness side only). Is voltage approximately 12V at SST connector terminal Z? 	Yes	Go to next step.
		No	Repair wiring harness between fuse block and ABS HU/CM
*12	INSPECT WIRING HARNESS BETWEEN ABS HU/CM AND GROUND FOR CONTINUITY <ul style="list-style-type: none"> Turn ignition switch to LOCK Is there continuity between SST connector terminal AA and ground? 	Yes	If a communication error message is displayed on WDS or equivalent in Step 1 inspection, go to next step. If a communication error message is not displayed on WDS or equivalent in Step 1 inspection, trouble shooting is completed.
		No	Repair wiring harness between ABS HU/CM and ground.
*13	INSPECT WIRING HARNESS BETWEEN ABS HU/CM AND DLC-2 FOR CONTINUITY <ul style="list-style-type: none"> Disconnect ABS HU/CM. Connect the SST (49 G066 001) (vehicle harness side only). Is there continuity between SST connector terminal T and DLC-2? 	Yes	Go to next step.
		No	Repair wiring harness between ABS HU/CM and DLC-2.
*14	INSPECT WIRING HARNESS BETWEEN ABS HU/CM AND DLC-2 FOR SHORT TO B+ <ul style="list-style-type: none"> Is voltage approximately 12 V at SST connector terminal T? 	Yes	Repair wiring harness between ABS HU/CM and DLC-2.
		No	Go to next step.
*15	INSPECT WIRING HARNESS BETWEEN ABS HU/CM AND DLC-2 FOR SHORT TO GROUND <ul style="list-style-type: none"> Is there continuity between SST connector terminal T and ground? 	Yes	Repair wiring harness between ABS HU/CM and DLC-2.
		No	Replace ABS HU/CM (communication circuit malfunction in ABS HU/CM).

SYMPTOM TROUBLESHOOTING

A3U040343000W10

NO.6 BRAKE SYSTEM WARNING LIGHT STAYS ON

- When performing an asterisked (*) troubleshooting inspection, shake the wiring harness and connectors while performing the inspection to discover whether poor contact points are the cause of any intermittent malfunctions. If there is a problem, check to make sure connectors, terminals and wiring harness are connected correctly and undamaged.

6	BRAKE system warning light stays ON
DESCRIPTION	<ul style="list-style-type: none"> Brake system warning light stays on more than 4 seconds with ignition switch on. (Parking brake is released.)
POSSIBLE CAUSE	<ul style="list-style-type: none"> Warning light circuit open or shorted to ground in ABS HU/CM Short to ground in circuit in parking brake switch and/or brake fluid level sensor
<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>ABS HU/CM HARNESS SIDE CONNECTOR</p>  <p>(VIEW FROM TERMINAL SIDE)</p> </div> <div style="text-align: center;"> <p>SST (49 G066 001) CONNECTOR</p>  <p>(VIEW FROM TERMINAL SIDE)</p> </div> </div>	

Diagnostic procedure

STEP	INSPECTION	ACTION	
1	INSPECT BRAKE FLUID LEVEL <ul style="list-style-type: none"> Is brake fluid level okay? 	Yes	Go to next step.
		No	Add brake fluid.
2	INSPECT WIRING HARNESS BETWEEN ABS HU/CM AND DLC-2 FOR CONTINUITY AND SHORTS <ul style="list-style-type: none"> Inspect the following items using WDS or equivalent. <ul style="list-style-type: none"> — BRAKE_LMP (BRAKE system warning light) Is error message displayed regarding communication between ABS HU/CM and WDS or equivalent? 	Yes	If a communication error message is displayed even after inspecting according to procedures displayed on the WDS or equivalent, go to Step 8.
		No	Go to next step.
3	INSPECT PID/DATA IN ABS HU/CM <ul style="list-style-type: none"> Inspect BRAKE_LMP (BRAKE system warning light) using WDS or equivalent. Is BRAKE_LMP is ON after more than 4 seconds with ignition switch on? 	Yes	Replace ABS HU/CM (open circuit or short to ground in ABS HU/CM).
		No	Go to next step.
4	VERIFY THAT ABS HU/CM CONNECTOR TERMINAL X IS CONNECTED <ul style="list-style-type: none"> Does malfunction symptom happen again when ABS HU/CM connector terminal X is shaken while the ignition switch is ON?. 	Yes	Connect ABS HU/CM connector terminal X securely, then go to next step.
		No	Go to Step 6.
5	CONFIRM THAT MALFUNCTION SYMPTOMS DO NOT RECCUR AFTER ABS HU/CM CONNECTOR TERMINAL X IS CONNECTED <ul style="list-style-type: none"> Does BRAKE system warning light go out after more than 4 seconds with ignition switch on? 	Yes	Temporary poor connection at terminal. Inspect ABS HU/CM connector and terminal.
		No	Go to next step.
*6	CHECK FOR OPEN CIRCUITS IN ABS HU/CM <ul style="list-style-type: none"> Disconnect ABS HU/CM. Connect the SST (49 G066 001) (vehicle harness side only). Use the SST connector to ground BRAKE system warning light terminal X to body ground. Does BRAKE system warning light go out with ignition switch on? 	Yes	Replace ABS HU/CM (open circuit in ABS HU/CM).
		No	Go to next step.

SYMPTOM TROUBLESHOOTING

STEP	INSPECTION	ACTION	
7	CHECK TO SEE WHETHER MALFUNCTION IS IN PARKING BRAKE SWITCH OR BRAKE FLUID LEVEL SENSOR, OR IN SOME OTHER PART <ul style="list-style-type: none"> Disconnect the following in order: <ol style="list-style-type: none"> Parking brake switch connector Brake fluid level sensor connector Does BRAKE system warning light go out with ignition switch on? 	Yes	Replace parking brake switch and/or brake fluid level sensor (shorted on some internal part).
		No	Perform the following inspections. Repair if necessary. <ul style="list-style-type: none"> Open circuit in wiring harness between ABS HU/CM (terminal X) and instrument cluster (BRAKE system warning light) Short to ground in wiring harness between instrument cluster (BRAKE system warning light) and parking brake switch. Short to ground in wiring harness between instrument cluster (BRAKE system warning light) and brake fluid level sensor. If above inspections are okay, replace instrument cluster (open or ground to short in instrument cluster).
*8	INSPECT WIRING HARNESS BETWEEN ABS HU/CM AND DLC-2 FOR CONTINUITY <ul style="list-style-type: none"> Disconnect ABS HU/CM. Connect the SST (49 G066 001) (vehicle harness side only). Is there continuity between SST connector terminal T and DLC-2? 	Yes	Go to next step.
		No	Repair wiring harness between ABS HU/CM and DLC-2.
*9	INSPECT WIRING HARNESS BETWEEN ABS HU/CM AND DLC-2 FOR SHORT TO B+ <ul style="list-style-type: none"> Is voltage approximately 12 V at SST connector terminal T? 	Yes	Repair wiring harness between ABS HU/CM and DLC-2.
		No	Go to next step.
*10	INSPECT WIRING HARNESS BETWEEN ABS HU/CM AND DLC-2 FOR SHORT TO GROUND <ul style="list-style-type: none"> Is there continuity between SST connector terminal T and ground? 	Yes	Repair wiring harness between ABS HU/CM and DLC-2.
		No	Replace ABS HU/CM (communication circuit malfunction in ABS HU/CM).

04-03

NO.7 BRAKE SYSTEM MALFUNCTION

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7	BRAKE system malfunction
DESCRIPTION	<ul style="list-style-type: none"> There is a malfunction in system even though ABS warning light and BRAKE system warning light does not illuminate.
POSSIBLE CAUSE	<ul style="list-style-type: none"> There is a mechanical malfunction in system

Diagnostic procedure

STEP	INSPECTION	ACTION	
1	CHECK FOR DTCS IN ABS HU/CM <ul style="list-style-type: none"> Have DTCS been recorded in memory? 	Yes	Perform inspection using appropriate DTC.
		No	Go to next step.
2	INSPECT ABS HYDRAULIC UNIT <ul style="list-style-type: none"> Perform "ABS hydraulic unit system inspection". Is system okay? 	Yes	Inspect conventional brake system.
		No	If wheels do not rotate: <ul style="list-style-type: none"> Replace ABS HU/CM. If wheels rotate but order in which wheels rotate is incorrect: <ul style="list-style-type: none"> Inspect brake pipe passage to ABS HU/CM.