

SEAT BELT, SRS AIRBAG

SECTION 9C SRS CONTROL SYSTEM

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SRS Control System

Precautions on Service Work

WARNING:

WHEN SERVICING SRS SYSTEM PARTS (SRS CONTROL UNIT, AIRBAG, HARNESS, ETC.) OR ITS CIRCUMFERENCE, STOP TEMPORARILY THE FUNCTION OF SRS ACCORDING TO THE PROCEDURE. FAILURE TO FOLLOW THE PROCEDURE MAY CAUSE INJURY DUE TO SRS AIRBAG DEPLOYMENT OR UNNECESSARY REPAIR.

Turn the starter switch to "LOCK" at first. Then, disconnect the battery or remove the fuse which sends power to SRS control unit. After that, do not perform the work at least 15 seconds since airbag may be deployed. In the service procedure, remove "SRS fuse" and detach SRS airbag from deployment circuit to prevent SRS airbag from unnecessary deploying. If removing SRS airbag from deployment circuit according to "Procedure to stop the function of SRS" in this topic, service work can be performed immediately without waiting for 15 seconds.

About tools

WARNING:

WHEN SERVICING SRS, DO NOT USE ELECTRICAL TEST EQUIPMENT EXCEPT ONES DESCRIBED IN THIS MANUAL TO AVOID DEPLOYMENT OF SRS AIRBAG. FAILURE TO FOLLOW THIS MANUAL MAY CAUSE INJURY DUE TO UNNECESSARY DEPLOYMENT OF SRS AIRBAG.

Familiarize yourself with use of Tech 2, SRS substitute load (5-8840-2421-0), Connector test adapter kit (5-8840-0385-0), DMM (digital multi-meter, 5-8840-0366-0), to be able to measure voltage and resistance.

Necessary repair and inspection after collision

- If the parts of this system are damaged, replacement is needed. If mounting portion of SRS parts are damaged, replacement is needed.
- Never use system parts of other vehicle.
- Do not disassemble or repair SRS control unit, SRS coil assembly or SRS airbag. These parts must be replaced with new ones.
- Confirm the part number to make sure that replacement SRS parts are legitimate.

WARNING:

DO NOT USE SRS AIRBAG OF OTHER VEHICLE OR MODEL. BE SURE TO CONFIRM THE PART NUMBER TO USE APPROPRIATE SRS AIRBAG.

Caution:

Always replace the SRS coil with combination switch assembly, since the SRS coil assembly is supplied as an item in the combination switch.

Caution:

After repair and replacement, set back the SRS airbag to the correct specification so that it is operated properly. It is necessary to replace SRS control unit and SRS airbag, and inspect the dimension of steering column. If the mounting bracket of SRS control unit are damaged clearly, replacement is needed. Besides, the dimension of steering column should be inspected regardless of SRS airbag deployment.

Replacement and Inspection of Parts After Collision with Deployment

If front collision with airbag deployment occurs, following system parts must be replaced. It is necessary to check whether SRS coil assembly is damaged.

- SRS airbag assembly
- SRS control unit
- Combination switch assembly (including SRS coil)

Caution:

Refer to "Replacement guideline for SRS control unit" described later for important information about replacement of SRS control unit after collisions with deployment and without.

- Inspect SRS coil assembly harness and connector for burn due to excessive heat, dissolution or damage. If damaged, replace it. Refer to "SRS System Assembly" in SRS section.

Inspection of Parts After Collision with or Without Deployment

The certain parts of this system and supplemental restraint system should be inspected regardless of SRS airbag deployment. The parts to be inspected are shown as follows.

- Steering column: inspect the dimension according to "Examination of damage for steering column" described in "SRS System Assembly" in SRS section.
- Steering support bracket: inspect for distortion, bent, crack or other damage.
- Instrument panel bracket: inspect for distortion, bent, crack or other damage.
- Seat belt and its mounting portion: refer to "Seat Belt" section.

Replacement Guideline for SRS Control unit

If collision with SRS airbag deployment occurs, replacement of SRS control unit is needed. If "SRS" warning lamp illuminates, perform SRS diagnosis according to "Function check: SRS system check".

Damaged Harness

If the SRS harness is damaged, it must be replaced.

Damaged SRS Connector (Case and Terminal)

If the connector or terminal of SRS harness (except lead wire) is damaged, replace it.

Damaged Lead wire of SRS Part

If the lead wire of parts for SRS airbag, combination switch assembly (including SRS coil assembly), etc. is damaged, replace all the parts (including lead wire).

Procedure to stop the function of SRS**Removal**

Turn the starter switch to "LOCK", and remove the key.

1. Disconnect the SRS fuse from the fuse box on the upper right portion of dashboard or disconnect terminal of battery.
2. Remove the 2-pole connector (yellow) located in the lower portion of steering column. (for SRS airbag)

Caution:

When removing SRS fuse and turn starter switch to ON, SRS warning lamp remains on. This is normal condition.

Procedure to Resume the Function of SRS**Installation****WARNING:**

DO NOT USE SRS AIRBAG OF OTHER VEHICLE OR MODEL. BE SURE TO CONFIRM THE PART NUMBER TO USE APPROPRIATE SRS AIRBAG.

Turn the starter switch to "LOCK", and remove the key.

1. Connect the 2-pole connector (yellow) located in the lower portion of steering column and confirm that it is connected securely.
2. Install the "SRS fuse" to fuse box on the upper right portion of dashboard.

Turn the starter switch to "ON", and confirm that the "SRS" warning lamp goes off after it blinks seven times. If the "SRS" warning lamp does not operate in that way, perform "Function check: SRS system check".

Precautions on Handling/Installation/Diagnosis

1. Do not expose SRS airbag to temperature of 93°C (199°F) or more.
2. If SRS airbag and SRS control unit are dropped down with some sort of reason, do not use them.
3. If disconnecting connectors related to SRS airbag and SRS control unit during repair, be sure to make sure that they are connected completely during re-assembly.
4. When replacing SRS control unit, install it to mounting surface correctly. Be sure to make sure there is no dust or other foreign matter on mounting surface of SRS control unit.
5. When installing SRS airbag parts, be sure to tighten with specified tightening torque.

6. Do not energize the system unless all SRS system parts are connected, or diagnosis chart requires doing so. If energizing the system, unnecessary diagnostic trouble code will be set in SRS control unit.
7. Never diagnose the circuit using other than specified tester.
8. At first, perform "SRS system check". "SRS system check" checks whether "SRS" warning lamp operates properly and proceeds to appropriate chart to judge the function fault of system. Failure to perform this procedure leads to longer diagnosis period, wrong diagnosis or replacement of wrong part.

About Terms**SRS airbag**

This is expansion-type cloth cushion designed to be deployed on frontal collision above a certain impact. SRS airbag reduces an impact on occupant's head and trunk and supplements the protection by seat belts.

B+

Battery voltage (B+)

Warning lamp bulb check

When no function fault is detected after starter switch is turned to "ON" position, "SRS" warning lamp blinks seven times and goes off.

"Constant diagnosis"

Fault diagnosis is constantly performed by SRS control unit as long as "Ignition A" voltage is within the range of specified operating voltage of the unit.

Diagnostic connector (16-pin)

This is a connector to communicate with Tech 2.

Deployment

This means expansion of airbag.

Deployment circuit

This is a circuit which sends current to SRS airbag assembly to deploy SRS airbag.

Diagnostic trouble code (DTC)

This is number used by SRS control unit to identify the trouble in SRS function. (Self-diagnosis code)

Current supply for driver's seat

This is output of SRS control unit to send current to driver's airbag assembly circuit during "Ignition device resistance test".

EEPROM

This is an electrically erasable programmable read only memory. This is a memory which can store contents without power on SRS control unit.

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Ignition device

This is electric ignition device to combust gas generating agent of inflator.

Specified operating voltage range

This is voltage range from 18 to 32 V measured between "Ignition A" terminal and "Ground" terminal of SRS control unit.

Tech 2

This is diagnostic equipment to read diagnostic information from SRS control unit via diagnostic connector.

SRS control unit

This supplies backup current to deployment circuit and deploy airbag if necessary. Also it diagnoses all the SRS parts.

Serial data

This is Tech 2 information which indicates SRS operating condition.

SRS

This means supplemental restraint system.

SRS coil assembly

This is device to maintain successive continuity on deployment circuit for SRS airbag and allow steering wheel to rotate.

SRS harness

These are harnesses and connectors to connect SRS parts electrically.

Initial diagnosis

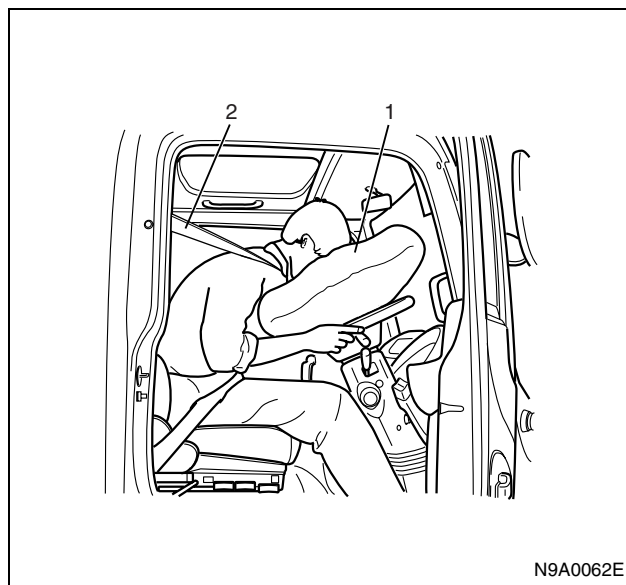
These are tests for SRS, performed by SRS control unit on the following conditions: after starter switch is "ON", immediately after "Ignition A" voltage is energized by SRS control unit, or before "Constant diagnosis". (performed within 6 seconds after starter switch is "ON")

Description of Function and Operation

SRS Airbag System

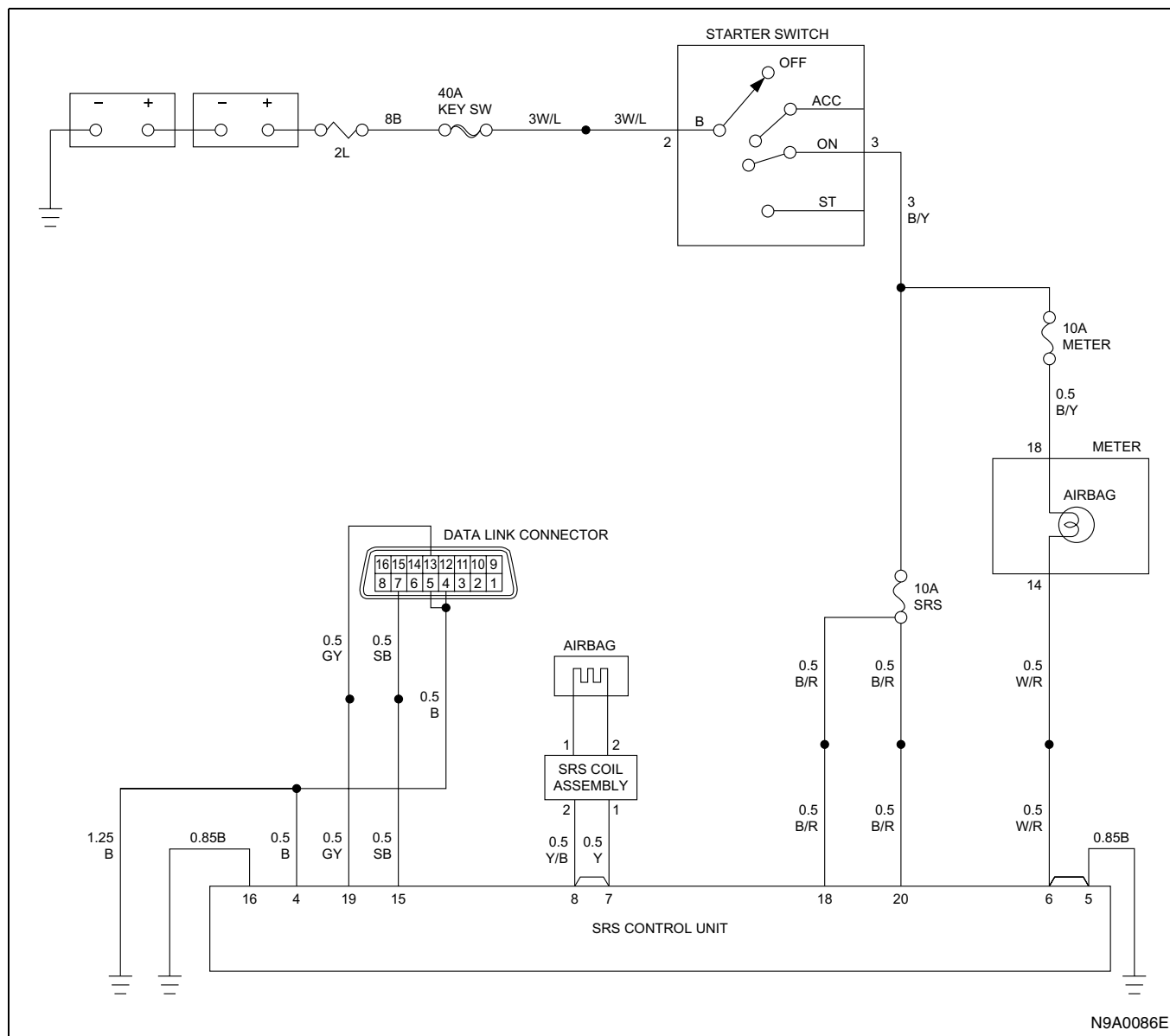
SRS airbag supplements the driver's seat belt protection by deploying airbag at the top center of the steering column.

SRS airbag deploys in case of front collision over certain degree of impact.



Legend

- 1. Deployed airbag
- 2. Seat belt



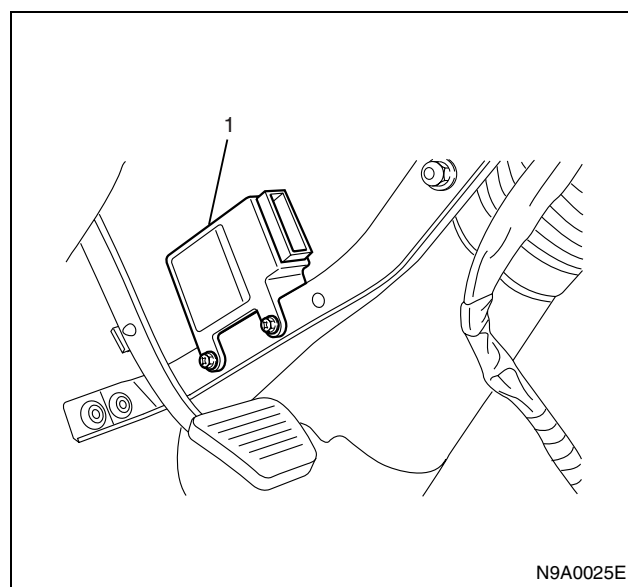
This system consists of SRS control unit, driver's SRS airbag, SRS coil assembly, exclusive wire harness, and "SRS" warning lamp in the meter and forms a deployment circuit.

A sensor is equipped to this circuit to convert the impact into an electrical signal in case of front collision over certain degree of impact. The electrical signal generated at this time will be processed in the SRS control unit to compare with the value stored in the memory.

When the generated signal exceeds the setting value, SRS control unit sends sufficient current to SRS airbag for deployment.

SRS Control Unit

WARNING:
DURING SERVICE WORK, BE CAREFUL NOT TO TAP OR SHAKE THE SRS CONTROL UNIT. ALSO, FAILURE TO INSTALL THE SRS CONTROL UNIT TO VEHICLE PROPERLY MAY LEAD TO MALFUNCTION OF THE UNIT WHEN THE STARTER SWITCH IS TURNED TO ON. THIS MAY RESULT IN INJURY DUE TO SUDDEN DEPLOYMENT OF SRS AIRBAG.



Legend

1. SRS control unit

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Following functions are included in the SRS control unit.

1. Energy back-up — SRS control unit builds up the energy necessary to deploy airbag when it lose the ignition voltage during front collision.
2. Front collision detection — SRS control unit monitors the impact and detects the front collision for which airbag must be deployed.
3. SRS airbag deployment — SRS control unit sends sufficient current to the SRS airbag assembly for airbag deployment, when it detects the front collision over certain degree of impact.
4. Function fault detection — SRS control unit diagnoses electrical parts of this system. It set the diagnostic trouble code once it detects function fault.
5. Front collision detection — SRS control unit records information regarding operating conditions of this system during the event of front collision.
6. Function fault diagnostics — SRS control unit displays diagnostic trouble codes (DTC) and operating conditions of the system using Tech 2.
7. Warning to the driver — SRS control unit warns driver of function fault of this system by turning “SRS” warning lamp on.

SRS control unit is connected to SRS harness with a 21-pole connector. This harness connector has shorting clip in the contact surface of particular terminal.

“SRS” Warning Lamp

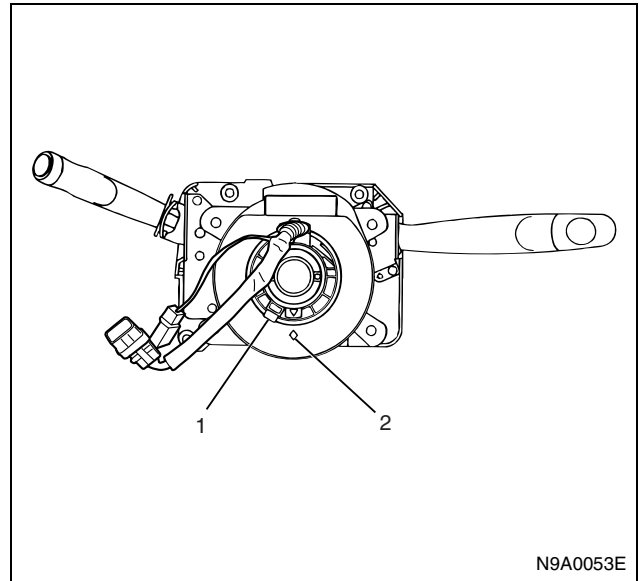


When the starter switch is turned “ON” or “START”, SRS control unit controls “SRS” warning lamp as follows.

1. When the starter switch is turned to “ON”, it checks “SRS” warning lamp and SRS control unit operations while blinking the “SRS” warning lamp seven times.
2. It warns the driver of function fault in the electrical system of this system. Those function faults may cause undeployment of SRS airbag in the event of front collision, or unnecessary deployment.

“SRS” warning lamp tells the driver of function fault of this system. Refer to “SRS system check” for proper operation of warning lamp.

SRS Coil Assembly



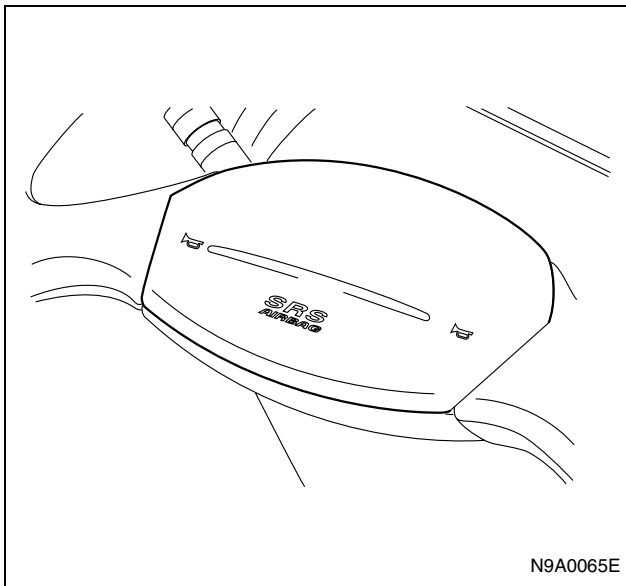
Legend

1. Lock pin
2. Neutral mark

SRS coil assembly is installed to the steering column. It maintains successive continuity on deployment circuit for SRS airbag while allowing steering wheel to rotate.

It has shorting clip in the 2-pole connector (yellow) to be connected to the SRS body harness located in the lower portion of steering column.

Upon removal of 2-pole connector (yellow), the shorting clip will short the SRS airbag. This prevents unnecessary deployment of SRS airbag when servicing the steering column or other SRS system parts.

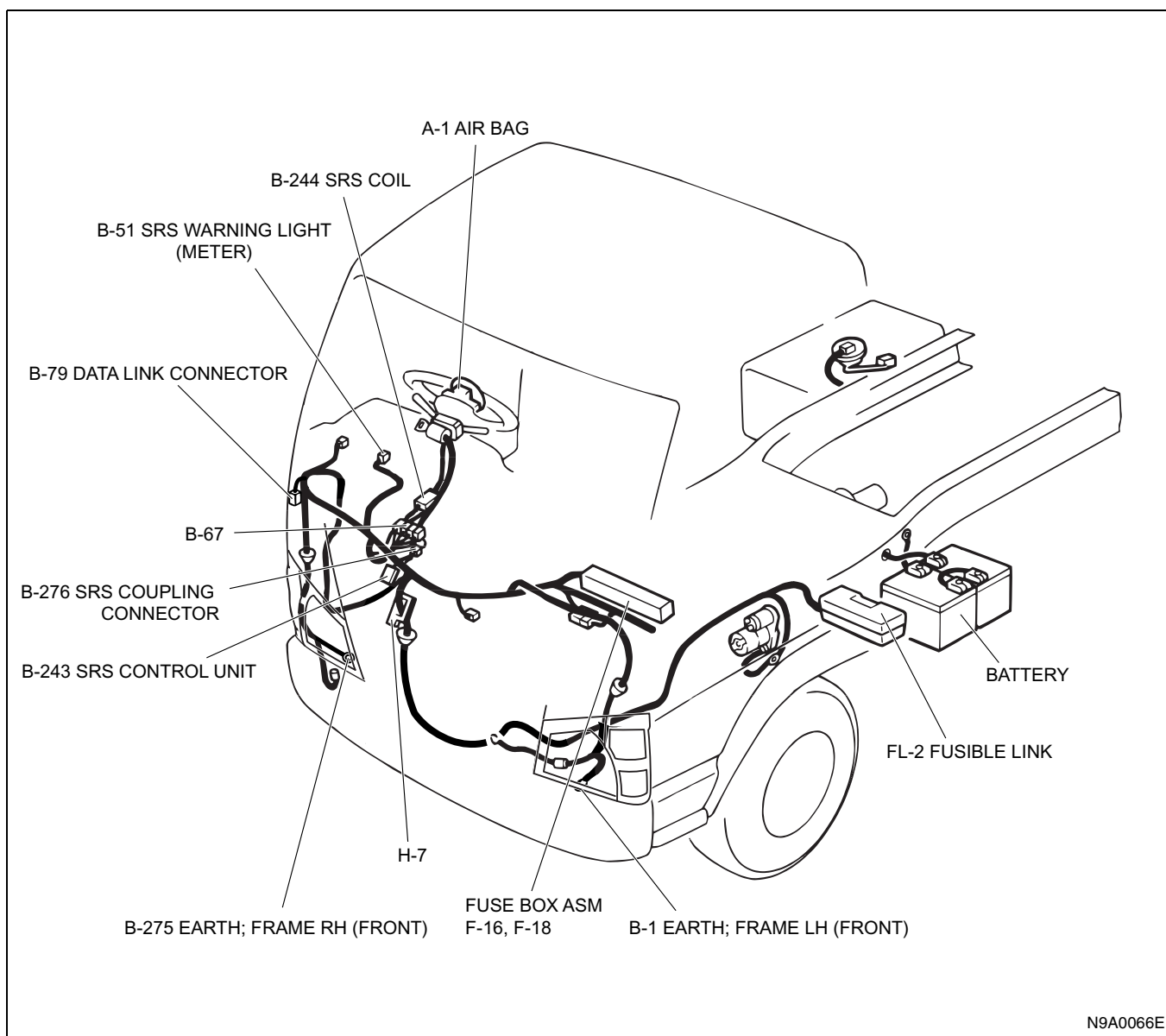
SRS airbag assembly

SRS airbag consists of the airbag and the inflator (a can with gas generator agent and a ignition device). SRS control unit sends current to the deployment circuit in the event of front collision over certain degree of impact. Passage of electric current in the inflator will light the gas generator agent in the SRS airbag.

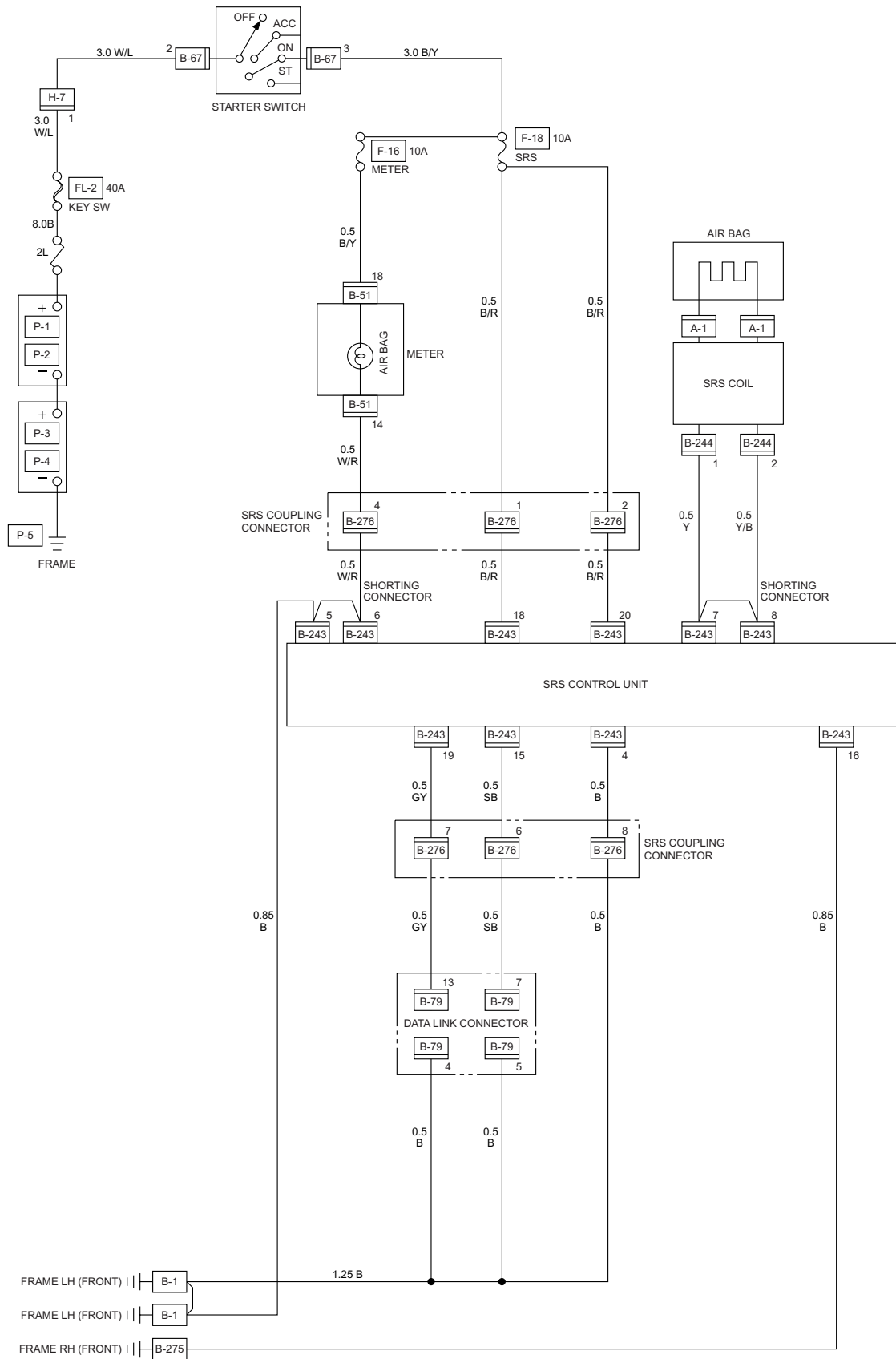
Gas generated in the reaction rapidly inflate the airbag. A shorting clip is equipped to the SRS airbag. Upon removal of SRS airbag connector, the shorting clip shorts the SRS airbag circuit.

The circuit to SRS airbag is shorted in this manner. This prevents unnecessary deployment of SRS airbag when servicing SRS airbag assembly, steering column or other SRS system parts.

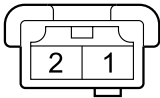
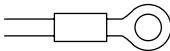
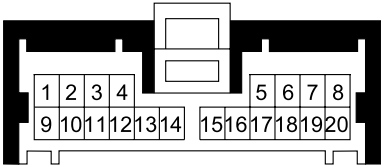
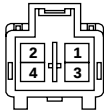
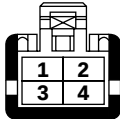
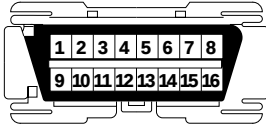
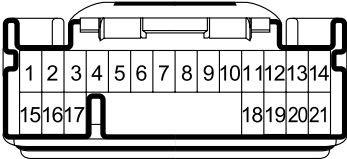
Part Location Diagram

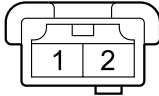
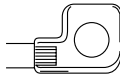
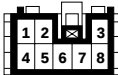
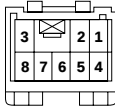
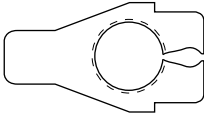
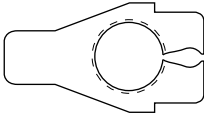


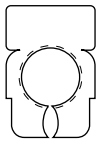
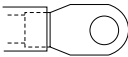
Circuit Diagram



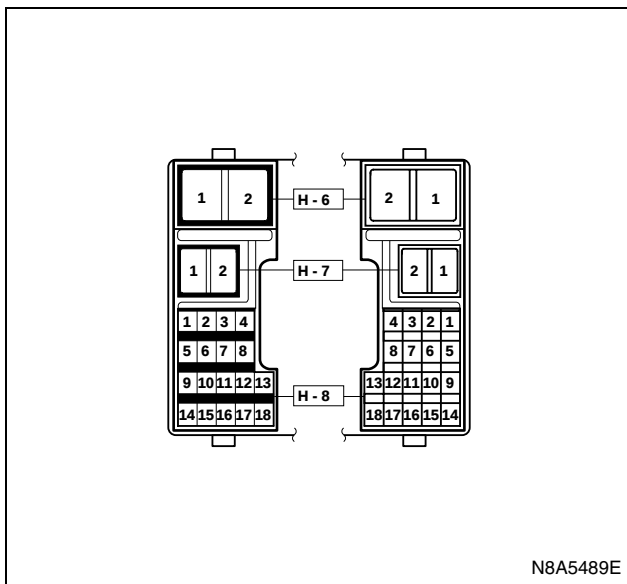
Connector List

No.	Connector Face
A-1	 002-045
A-1	 002-046
B-1	 000-001
B-51	 020-004
B-67	 004-002
B-67	 004-001
B-79	 016-005
B-243	 021-001

No.	Connector Face
B-244	 002-043
B-244	 002-044
B-275	 000-020
B-276	 008-009
B-276	 008-010
P-1	 000-004
P-2	 000-006
P-3	 000-006

No.	Connector Face
P-4	 000-004
P-5	 000-002

H-7



Procedure of Trouble Diagnosis

Diagnostic Trouble Code (Self-diagnosis Code)

At first, perform "SRS system check". "SRS system check" is to check whether "SRS" warning lamp operates properly and confirms SRS diagnostic trouble code (DTC) using warning lamp blinking or Tech 2.

1. Active diagnostic trouble code: Function fault currently detected. Active diagnostic trouble codes are stored in the RAM (Random Access Memory). (Code of current trouble)
2. History diagnostic trouble code: Function fault detected after history memory had been cleared last time. History diagnostic trouble codes are stored in the EEPROM. (Trouble code occurred in the past)

System Diagnostic Method

System diagnostic method is a standardized method to repair all the electric/electronic (E/E) systems. Diagnostic procedure is always used to solve the problem of E/E system and is a starting point when service is required. Procedure of diagnosis is described in the following steps:

1. Confirm a customer's complaint.
 - It is necessary for technicians to understand the normal operations of the systems to confirm a customer's complaint.
2. Perform pre-inspection.
 - Perform overall visual check.
 - Review service record.
 - Detect noise or abnormal odor.
 - Collect the diagnostic trouble code information for effective repair.
3. Check service information.
 - This includes video, news letter, etc.

If DTC is Stored

Perform service correctly according to the specified DTC chart.

If there is No DTC

Select symptom from the diagnostic chart according to symptom. Complete the service following diagnostic procedure. You may also perform inspection by referring function diagnosis.

If there is No Applicable Symptom

1. Confirm the complaint in detail.
2. Create diagnostic plan.
3. Use wiring diagram and principle of operation.

Ask for technical support when repair history is available for similar case. Connect technician's knowledge with the effective usage of available service information.

If there is Intermittent (Intermittent Trouble)

The trouble situation not occurring constantly is called intermittent (intermittent trouble). Perform the following steps to solve the intermittent trouble.

1. Check the DTC information and SRS data.
2. Evaluate symptom and situation explained by the customer.
3. Check the circuits or the electric system components using check sheet or other methods.

If the Trouble is not Detected

In this case, the vehicle is judged as it operates properly. The condition explained by the customer may be the normal condition. Confirm the customer's complaint comparing with the condition of the vehicle to that of another vehicle. That condition may mean an intermittent trouble. Confirm the complaint in the situation the customer explains before returning the vehicle to the customer.

1. Confirm the complaint again.

If the complaint can not be fully detected or identified, the vehicle must be diagnosed again. Confirm the complaint one more time. The complaint may be an intermittent trouble as defined in "If there is intermittent", but it may also be possible that the vehicle is normal.

2. Repair and confirm.

If the problem is confirmed, repair it. Confirm that the vehicle operates properly and the symptoms are corrected.

This includes road test or other procedures to confirm that the trouble is solved under following conditions:

- Confirm by testing in the situation that the customer described.
- If DTC is diagnosed, while monitoring Tech 2 data, reproduce the situation found when the DTC is set, and confirm the repair.

About Diagnostic Procedure**WARNING:**

WHEN SERVICING SRS, DO NOT USE ELECTRICAL TEST EQUIPMENT EXCEPT ONES DESCRIBED IN THIS MANUAL TO AVOID DEPLOYMENT OF SRS AIRBAG. FAILURE TO FOLLOW THIS MANUAL MAY CAUSE INJURY DUE TO UNNECESSARY DEPLOYMENT OF SRS AIRBAG.

The purpose of the diagnostic procedure in this topic is to find SRS problems and repair them. The procedures to find SRS problems quickly and repair effectively is described as follows. Failure to perform this procedure leads to longer diagnosis period, wrong diagnosis or replacement of wrong part.

1. Perform pre-inspection.

Always begin the diagnosis with the followings.

- Perform overall visual check. (Such as improper connection of terminal, wire, etc., trace of water (coffee, juice, etc.) contact with SRS control unit)
- Review service record.
- Detect noise or abnormal odor.

2. Perform “SRS system check”.

“SRS system check” includes whether “SRS” warning lamp operates properly and SRS diagnostic trouble code check using “warning lamp blinking” or “Tech 2”.

3. Refer to appropriate diagnostic chart according to the instruction of “SRS system check”.

Go on to the appropriate chart to diagnose SRS problems with “SRS system check”. Failure to perform this procedure leads to longer diagnosis period, wrong diagnosis or replacement of wrong part.

4. Repeat the “SRS system check” after performing repair and diagnostic procedure.

“SRS system check” after every repair or diagnostic procedure can confirm correct repair work and if other problem exists.

About Diagnostic Code

SRS control unit records troubles occurred in the past after the trouble code had been cleared last time.

1. Active code (trouble code occurring currently)

Troubles currently detected during this ignition cycle. Active codes are stored in the RAM (Random Access Memory).

2. History code (trouble code occurred in the past)

All troubles detected after history trouble memory had been cleared last time.

History codes are stored in EEPROM (Electrically Erasable Programmable Read Only Memory).

Necessary Basic Knowledge

Certain basic knowledge is required before using this topic of the service manual. Absence of this knowledge cause difficulty when using diagnostic procedure in this topic. Be cautious to protect from harmful or unnecessary deployment. Be sure to read and understand every caution on the caution label attached to SRS parts as well as the service manual.

Basic Electrical Circuit

Understand the basic electrical theory including serial and pararel circuits, and understand voltage drop in the series resistance. Understand the meaning of voltage, current (ampere), resistance (ohm), and what happens on the circuit by bare wire or short circuit. You must be able to read and understand wiring diagram.

How to Read Trouble Code

By connecting diagnosis connector, trouble records are displayed by blinking of warning lamp.

Also Tech 2 can read (and clear excluding some code) all codes (current and history codes).

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How to clear trouble code

Trouble codes can be cleared only with Tech 2. However, in case DTC 25, 51, 52, 53 or 71 occurs, memory clear cannot be performed. In this occasion, SRS control unit must be replaced.

“Lamp OFF function when replacing SRS control unit”

A function is installed to the system that the lamp will not turn off unless manually turned off using Tech 2 upon completion of all inspection when replacing SRS control unit. By communicating by following the instruction on the display panel in Tech 2, the lamp goes off.

This function allows to confirm if checks are completed. SRS control unit without this function is also available.

Inspection Standards for SRS airbag system repair

Description		Standard		Standard for parts replacement
		In case of collision	In case of trouble/periodical inspection	
SRS parts	SRS airbag	○	○	- SRS airbag had been deployed by collision. - Pad surface is scratched or cracked. - Connector is chapped or chipped. - Harness is disconnected or wire is exposed.
	SRS control unit	○	○	- SRS airbag had been deployed by collision. - SRS control unit body is chapped, cracked, or deformed. - Connector is chapped or chipped. - Result of trouble diagnosis in the service manual indicates to replace SRS control unit. - Water attached to connector adjacent area.
	SRS coil	○	○	- SRS airbag had been deployed. - Case body or bracket is chapped, cracked, or deformed. - Result of trouble diagnosis in the service manual indicates to replace parts.
	SRS harness	○	○	- Wiring harness in the SRS airbag circuit is open or wire is exposed. - Connector is chapped or chipped. - Result of trouble diagnosis in the service manual indicates to replace parts. - Wheel is out of round.
	Steering wheel	○		- Bracket is deformed. - New SRS airbag cannot be installed without strain. - When new SRS airbag is installed, pad interferes with steering wheel, or clearance is not uniform.

Description		Standard		Standard for parts replacement
		In case of collision	In case of trouble/ periodical inspection	
Relevant parts	Steering column	○		• Shaft and shaft support bracket are deformed. • Tilt operation cannot be performed smoothly.
	Instrument panel, crossbeam, cover, etc. Glove box Seat Seat belt Windshield glass	○		• Dent, bent, chapped, cracked, or deformed. • Replace the seat belt which were used in collision.
	Counterpart	○		• If it is dent, bent, chapped, cracked, or deformed, repair or replace with new one. • If installation is loose, tighten the to the specified torque.

Standard

In case of collision: In any case of collision regardless of SRS airbag deployment

In case of trouble: In case trouble code is detected with Tech 2 diagnosis when “SRS” warning lamp does not come on or remains on.

List of Function Checks

Item to be checked	Contents of inspection
SRS system check	Inspection to identify defective point of SRS control system (inspection procedure)
SRS control unit function check (Chart A)	Inspection to identify function fault of SRS control unit (inspection procedure)
“SRS” warning lamp turns on continuously (Chart B)	Check when “SRS” warning lamp turns on continuously when starter switch is turned ON.
“SRS” warning lamp does not come on (Chart C)	Check when “SRS” warning lamp does not come on when starter switch is turned ON.

SRS System Check

Outline

The purpose of the diagnostic procedure in this topic is to find SRS function faults and repair them. For best results, it is important to use diagnostic chart and follow the order indicated as follows.

A. Perform “SRS system check”.

Always begin with “SRS system check” for SRS diagnosis.

“SRS system check” includes whether “SRS” warning lamp operates properly, and whether SRS control unit can communicate via “serial data” line, and if SRS diagnostic trouble code exists.

B. Refer to appropriate diagnostic chart according to the instruction of “SRS system check”.

Go on to the appropriate chart to diagnose SRS function fault with “SRS system check”. Failure to perform this procedure leads to longer diagnosis period, wrong diagnosis or replacement of wrong part.

C. Repeat “SRS system check” after performing repair and diagnostic procedure.

“SRS system check” after every repair or diagnostic procedure can confirm correct repair work and if other function fault exists.

Description of Circuit

Once the starter switch is turned to "ON", ignition voltage is applied from "SRS fuse" to "Ignition A" input terminal "20" and "Ignition B" input terminal "18" of SRS control unit. SRS control unit executes tests related to SRS, and "SRS" warning lamp responds by blinking seven times.

Cautions at Each Step of "SRS System Check"

(Numbers below indicate step numbers in the system check.)

1. Turn the starter switch to "ON", and check that the "SRS" warning lamp blinks seven times.
2. Check that the "SRS" warning lamp goes off after it blinks seven times.
3. This test is to check whether "serial data" line operates properly. Also, it detects whether history trouble codes are stored, and confirms the code if stored.

4. This test is to check whether "serial data" line operates properly. Also, it confirms the stored history trouble codes, and confirms whether those are current code or history code.

Point of Diagnosis

Order is very important to diagnose diagnostic trouble code. Be sure to diagnose in the specified order. Failure to do so leads to longer diagnosis period, wrong diagnosis or replacement of wrong part.

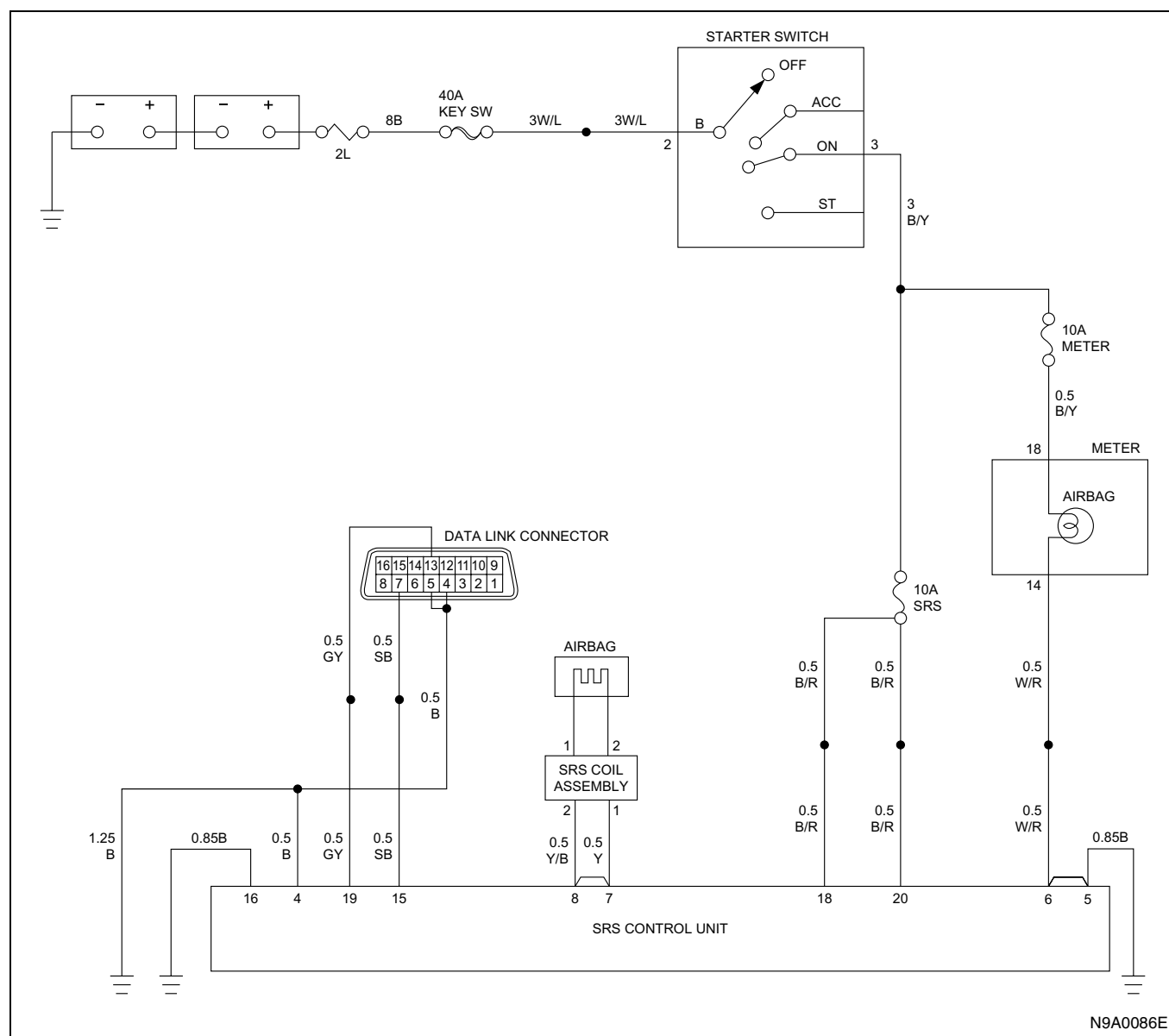
Diagnostic Aid

The intermittent "SRS" warning lamp illumination may be caused by poor contact, worn wire insulation or disconnection in insulation. Check for following conditions:

- Check for improper connection of the SRS control unit harness and the connector, lock breakage, deformation or damage of the terminal, poor contact between the terminal and the wire, and damaged harness.

Step	Action	Value	YES	NO
1	Turn the starter switch to "ON", and check the "SRS" warning lamp operation. Does the "SRS" warning lamp blink seven times?	—	Go to Step2	Go to Chart C "SRS" warning lamp does not come on.
2	Check the "SRS" warning lamp operation after it blinks seven times. Does the "SRS" warning lamp go off?	—	Go to Step3	Go to Step4
3	1. Turn the starter switch to OFF. 2. Connect the Tech 2 with diagnosis connector, and follow the instruction on Tech 2 manual. 3. Turn the starter switch to ON. 4. Request SRS diagnostic trouble code display, and record all the history trouble code in the repair order with taking notes that it is recorded in this manner. Is the diagnostic trouble code displayed?	—	Turn the starter switch to OFF. Refer to "Point of diagnosis" of other specific DTC for all the history code. History DTC indicates that the function fault has been corrected or it is intermittent.	SRS is in function, and there is no function fault. Further diagnosis is not necessary.

Step	Action	Value	YES	NO
4	1. Turn the starter switch to OFF. 2. Connect the Tech 2 to the diagnosis connector. 3. Turn the starter switch to ON. 4. Confirm the diagnostic trouble code (DTC) using Tech 2, and record all the DTC in the repair order with taking notes that it is current code or history code if it appears. Is the diagnostic trouble code (DTC) displayed?	—	If DTC 51 is displayed, go to DTC 51 chart. If DTC 53 is displayed, go to DTC 53 chart. If DTC 25 is displayed, go to DTC 25 chart. If DTC 71 is displayed, go to DTC 71 chart. Diagnose rest of the current DTC in the order from lower level. Refer to "Point of diagnosis" of the specific DTC, if only history codes exist.	Go to Chart B "SRS" warning lamp turns on continuously.

Chart A SRS Control Unit Function Check**Outline****Description of Circuit**

If either of the "Ignition A" voltage applied to terminal "20" or "Ignition B" voltage applied to terminal "18" exceeds 10V, the airbag SRS control unit recognizes it and "SRS" warning lamp blinks seven times to confirm operation. At this point, SRS control unit performs "Initial diagnosis" and "Constant diagnosis" subsequently. Once function fault is detected, SRS control unit set the current diagnostic trouble code and turn "SRS" warning lamp to ON.

When SRS control unit does not detect any more function fault except DTC 25, 51, 53, 71, it clears the current diagnostic trouble code moving them to the EEPROM. Trouble codes cannot be cleared but with "Clear code" command of Tech 2, except following DTCs. In addition, "Clear code" command cannot clear DTCs 25, 51, 53, and 71.

Description of Chart Test

Numbers below indicate step numbers in the diagnostic chart.

1. This test is to confirm current function fault. Refer to "Point of diagnosis" of appropriate DTC, if there is no current function fault (history DTC is set). Do not replace the SRS control unit because of history diagnostic trouble code.
2. Confirm diagnostic trouble code using Tech 2.
3. This test is to check function fault occurred in the SRS control unit during diagnosis. Function fault of SRS control unit hardly cause new function fault during diagnosis.

4. Replace the SRS control unit only when all circuits except SRS control unit are confirmed to be functioning properly. Failure to do so may cause inerasable code stored in the SRS control unit and it may requires replacement again.

Point of Diagnosis

Order is very important to diagnose diagnostic trouble code. Be sure to diagnose in the specified order. Failure to do so leads to longer diagnosis period, wrong diagnosis or replacement of wrong part.

WARNING:

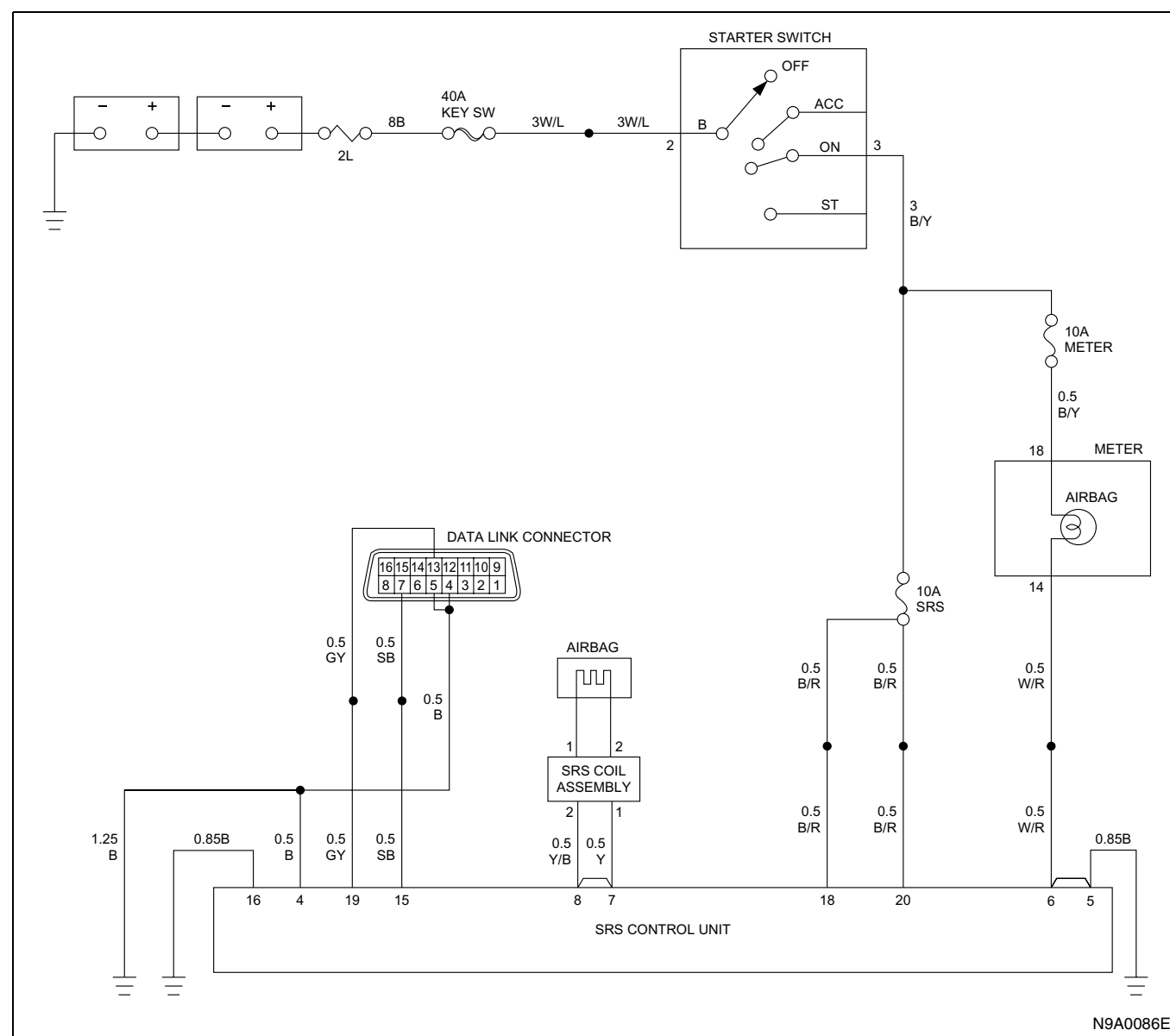
DURING SERVICE WORK, BE CAREFUL NOT TO TAP OR SHAKE THE SRS CONTROL UNIT. ALSO, FAILURE TO INSTALL THE SRS CONTROL UNIT TO VEHICLE PROPERLY MAY LEAD TO MALFUNCTION OF THE UNIT WHEN THE STARTER SWITCH IS TURNED TO ON. THIS MAY RESULT IN INJURY DUE TO SUDDEN DEPLOYMENT OF SRS AIRBAG.

Step	Action	Value	YES	NO
1	1. This chart is based on the assumption that "SRS system check" diagnosis has been performed. Perform the following procedure when the chart shows and proves that all circuits except SRS control unit are confirmed to be functioning properly, and DTC remains stored as current code. 2. Perform the diagnostic procedure to check if the SRS control unit has to be replaced. 3. Turn the starter switch to OFF. 4. Connect all the system components, and make sure those are installed properly. 5. Make sure that the starter switch is "OFF" at least for 15 seconds. 6. Turn the starter switch to "ON", and check the "SRS" warning lamp operation. Does the "SRS" warning lamp go off after it blinks seven times?	—	Go to Step3	Go to Step2
2	Request diagnostic trouble code display using Tech 2. Is there any other DTC than that appeared at the "SRS system check" in the beginning?	—	Turn the starter switch to OFF. Go to appropriate chart according to the function fault indicated.	Go to Step3
3	1. Clear the SRS DTC. 2. Turn the starter switch to OFF at least for 15 seconds. Turn the starter switch to "ON", and check the "SRS" warning lamp blinking operation. Does the "SRS" warning lamp go off after it blinks seven times?	—	System is in function, and there is no function fault. Further diagnosis is not necessary.	Turn the starter switch to OFF. Go to Step4

Step	Action	Value	YES	NO
4	1. Replace the SRS control unit. 2. Connect all the SRS components, and check that those are installed properly. 3. Connect the Tech 2, and check if “Event data clear prohibition” flag is displayed. 4. If not, put the flag up. Is this step completed?	—	Check the repair.	Go to Step4

Chart B “SRS” Warning Lamp Turns on Continuously

Outline



Description of Circuit

Turn the starter switch to “ON”. Battery voltage is applied to “SRS” warning lamp and the “SRS” warning lamp comes ON.

“SRS fuse” can apply system voltage to the “Ignition” input terminal “20” and “18”. After “SRS” warning lamp

blinks seven times, SRS control unit calls warning lamp drive circuit in the SRS control unit to turn the “SRS” warning lamp off, if there is no current DTC.
If the “Ignition” voltage is less than 10V, “SRS” warning lamp turns on continuously, and no DTC is set.

Description of Chart test

Numbers below indicate step numbers in the diagnostic chart.

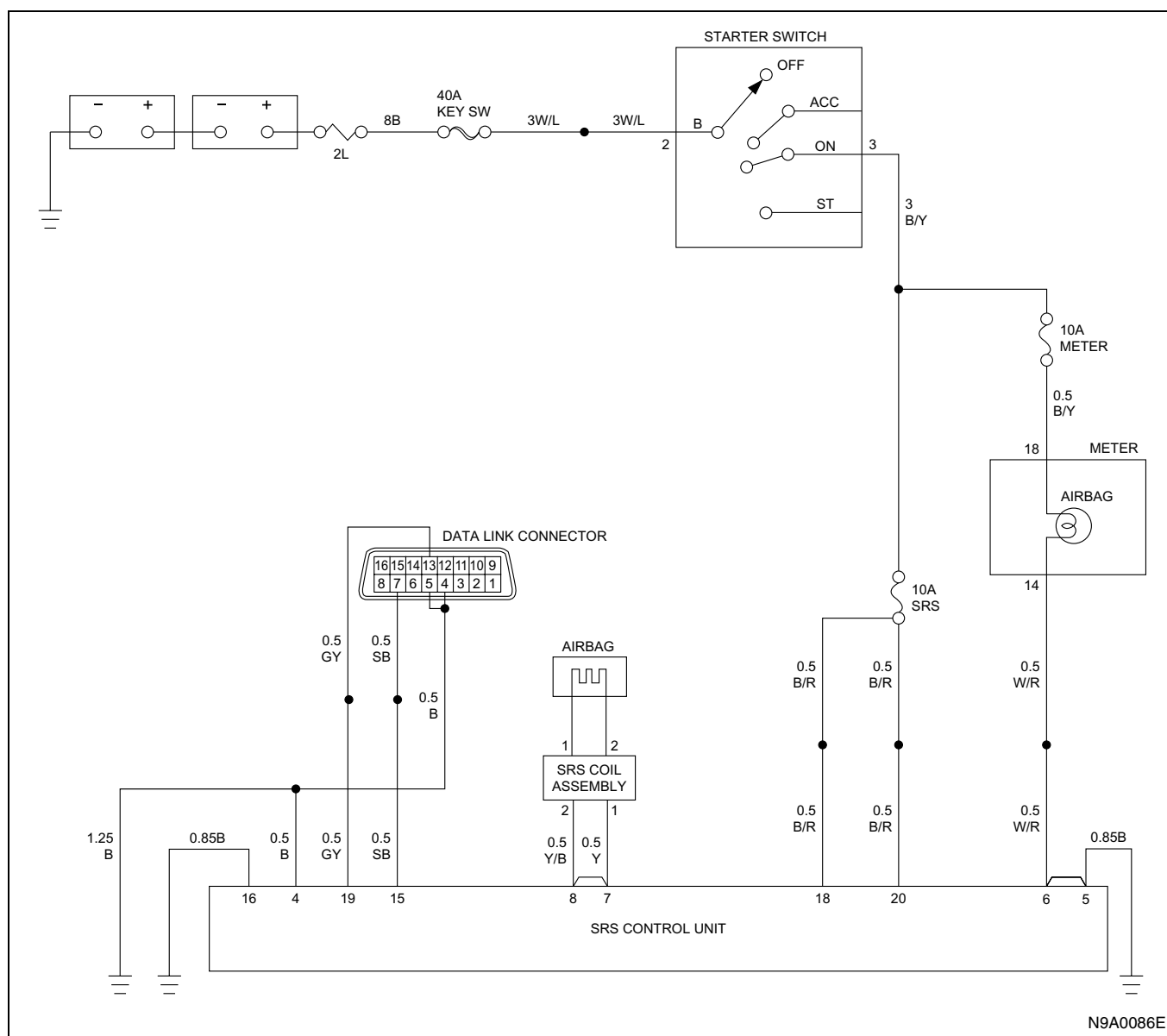
1. This test is to check if power is provided to the SRS control unit feeder circuit.

2. This test is to check if the "Ignition" and ground circuit is normal against the SRS control unit.

3. This test is to check if the location of function fault is in the SRS control unit.

4. This test is to check ground short circuit from the SRS control unit feeder circuit.

Step	Action	Value	YES	NO
1	1. Turn the starter switch to OFF. 2. Remove the "SRS fuse" of SRS airbag to inspect. Is the fuse normal?	—	Go to Step2	Go to Step4
2	1. Turn the starter switch to OFF. 2. Disconnect the SRS control unit harness connector. 3. Remove the 2-pole connector (yellow) located in the lower portion of steering column. 4. Turn the starter switch to ON. 5. Measure the voltage between the SRS control unit harness connector terminals "20" and "16". Is the voltage 18V?	—	Go to Step3	Go to Step5
3	1. Turn the starter switch to OFF. 2. Connect all the parts. 3. Connect the Tech 2, and turn the starter switch to ON. 4. Check if "Event data clear prohibition" flag is displayed. Is the flag displayed?	—	Put the "Event data clear prohibition" flag up. Go to Step7	Go to Chart A SRS control unit function check.
4	1. Replace the "SRS fuse". 2. Turn the starter switch to ON, and wait for 10 seconds. Then, turn the starter switch to OFF. 3. Remove the "SRS fuse" to inspect. Is the fuse normal?	—	Install the fuse and Go to Step7.	Go to Step6
5	1. The power supply circuit of SRS control unit or ground circuit is open. 2. Find the cause. 3. Replace the SRS harness, if it has problem. Is this step completed?	—	Go to Step7	Go to Step5
6	1. The power supply circuit of SRS control unit is shorted. 2. Find the cause. 3. Replace the SRS harness, if it has problem. Is this step completed?	—	Go to Step4	Go to Step6
7	Reconnect all the parts, and check that those are installed properly. Is this step completed?	—	Check the repair.	Go to Step7

Chart C “SRS” warning lamp does not come on**Outline****Description of Circuit**

Turn the starter switch to “ON”. Battery voltage is applied to “SRS” warning lamp and the “SRS” warning lamp comes ON.

“SRS fuse” can apply system voltage to the “Ignition” input terminal “20” and “18”.

After “SRS” warning lamp blinks seven times, SRS control unit calls warning lamp drive circuit in the SRS control unit to turn the “SRS” warning lamp off, if there is no current DTC.

If the “Ignition” voltage is less than 10V, “SRS” warning lamp turns on continuously, and no DTC is set.

Description of Chart test

Numbers below indicate step numbers in the diagnostic chart.

1. This test is to check if power is provided to the SRS warning lamp feeder circuit.

2. This test is to check if SRS control unit operates improperly to prevent the “SRS” warning lamp from coming on.

3. This test is to check if the circuit between warning lamp and SRS control unit is shorted to ground.

4. This test is to check if “SRS” warning lamp circuit is normal.

5. This test is to check ground short circuit from the SRS warning lamp feeder circuit.

Step	Action	Value	YES	NO
1	Turn the starter switch to ON. Do warning lamps other than "SRS" operate properly?	—	Go to Step2	Go to Step3
2	1. Turn the starter switch to OFF. 2. Remove the SRS control unit connector. 3. Turn the starter switch to ON. Does the "SRS" warning lamp come on?	—	Replace the SRS control unit.Go to Step5	Go to Step4
3	Replace the meter assembly. Is this step completed?	—	Go to Step5	Go to Step3
4	1. Either of the "SRS" warning lamp power supply circuit or "SRS" warning lamp is open. 2. Find the cause. Is this step completed?	—	Go to Step5	Go to Step4
5	Connect all the SRS parts, and check that those are installed properly. Is this step completed?	—	Check the repair.	Go to Step5

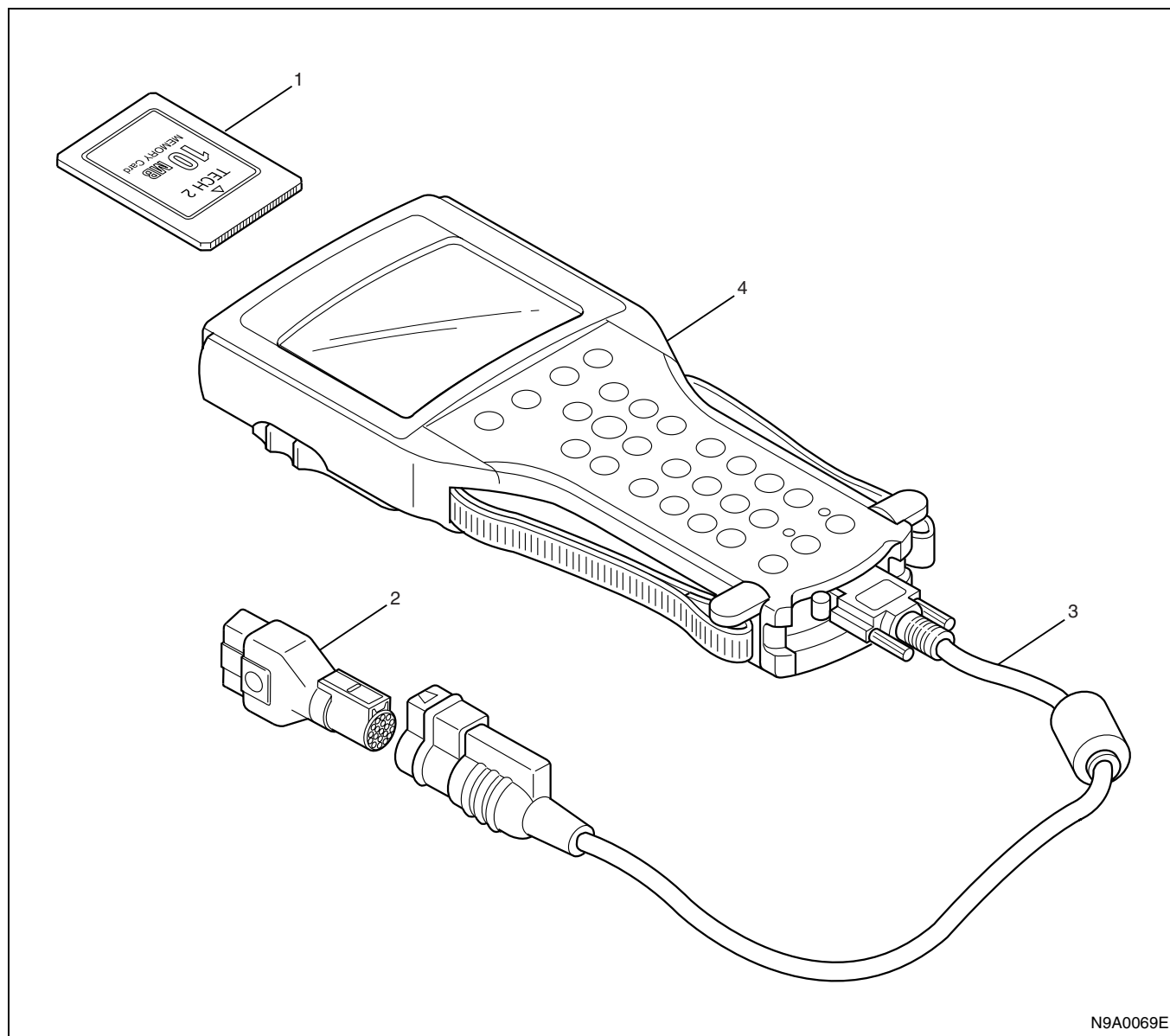
Trouble Diagnosis with Scan Tool

Tech 2

Tech 2 is a useful tool to diagnose electric fault and system check of the airbag system.

Though it is possible to diagnose the fault without Tech 2, using the Tech 2 allows you to diagnose quickly.

Tech 2 is small and light tester. It can communicate with the SRS control unit to perform various types of diagnosis and tests by connecting the self-diagnosis connector equipped to the vehicle.



N9A0069E

Legend

- | | |
|----------------------|--------------|
| 1. PCMCIA card | 3. DLC cable |
| 2. SAE 16/19 adapter | 4. Tech 2 |

Feature of Tech 2

Caution:

- Tech 2 (4) is a 12-V power supply system. Do not use 24-V power supply. If the vehicle system is

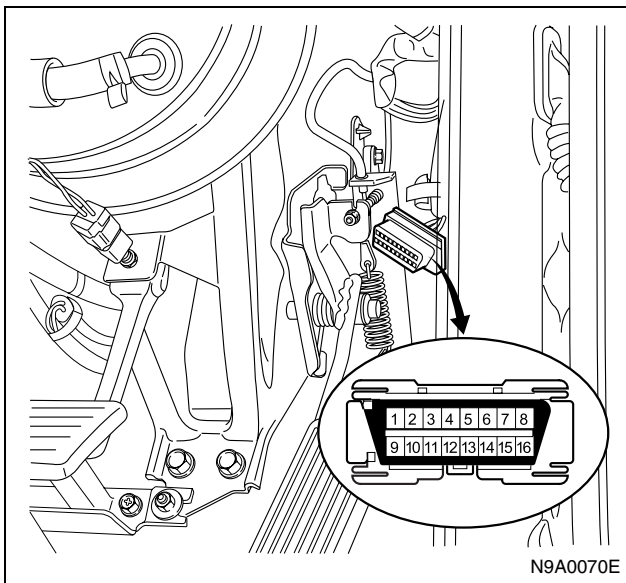
equipped with a 24-V power supply, use a 12-V battery with an adapter for power distribution.

- Never use cigarette lighter socket.

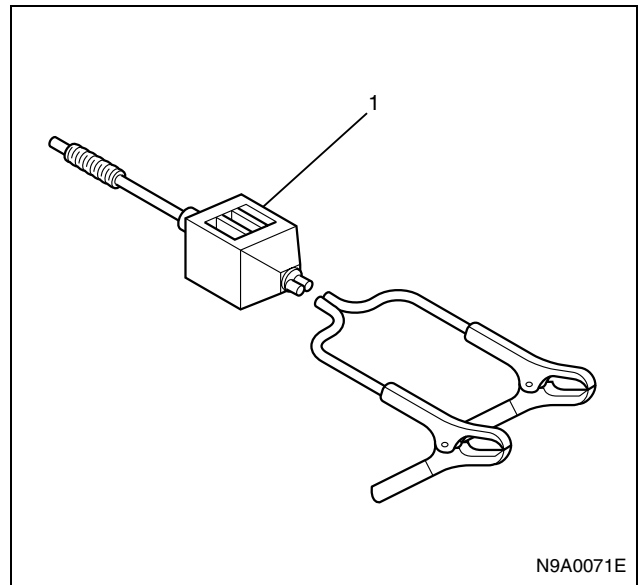
- Set the PCMCIA card (1) to Tech 2, and attach the VCI (Vehicle Communication Interface) (2)(3) to connect to the DLC in the vehicle.
- Turn the power switch off before installing/removing the PCMCIA card.
- Tech 2 has a capacity of equivalent to two snapshots.
- PCMCIA card is sensitive to magnetic and electrostatic. Handle it with care.
- Tech 2 can plot a graph of snapshots.
- Pressing the EXIT key can bring back to the main menu anytime.
- Open the application menu and press the "F1:Clear DTC Info" or the DTC clear to clear diagnosis trouble codes (DTCs).

How to Connect Tech 2

1. Insert the PCMCIA card to the Tech 2 body.
2. Install the SAE 16/19 adapter to the DLC cable.
3. Install the DLC cable to the Tech 2 body.
4. Make sure that the ignition key is OFF.
5. Connect the SAE-16/19 adapter of the Tech 2 to the self-diagnosis connector (black) in the body side.



Connect an adapter cable between the Tech 2 and 12-V battery.



Legend

1. 3A-fuse

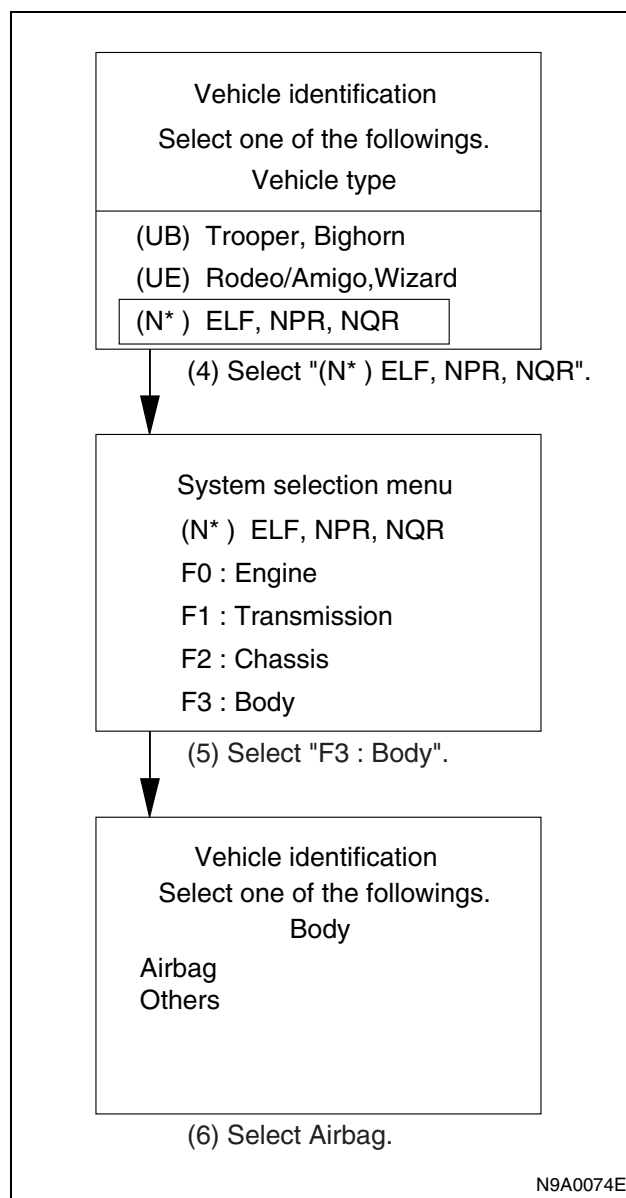
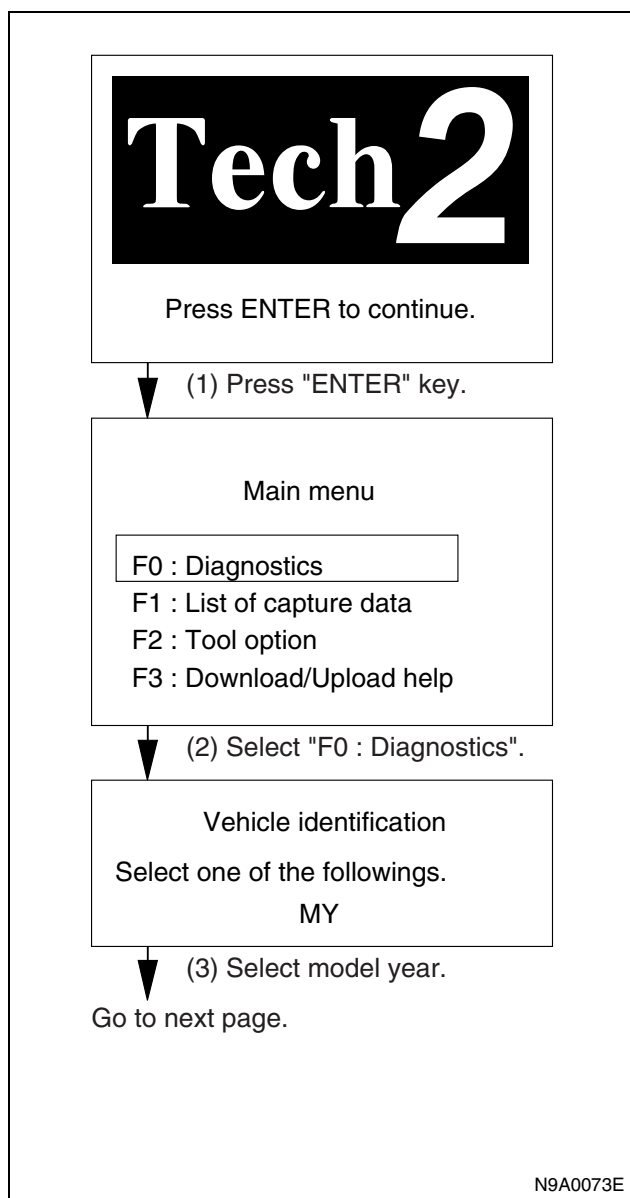
6. Turn the ignition switch to "ON" and press the "PWR" key of the Tech 2.
7. Check the display of the Tech 2.



Caution:

Make sure that no power is supplied to the Tech 2 when installing/removing the PCMCIA card.

Operation Procedure



Menu

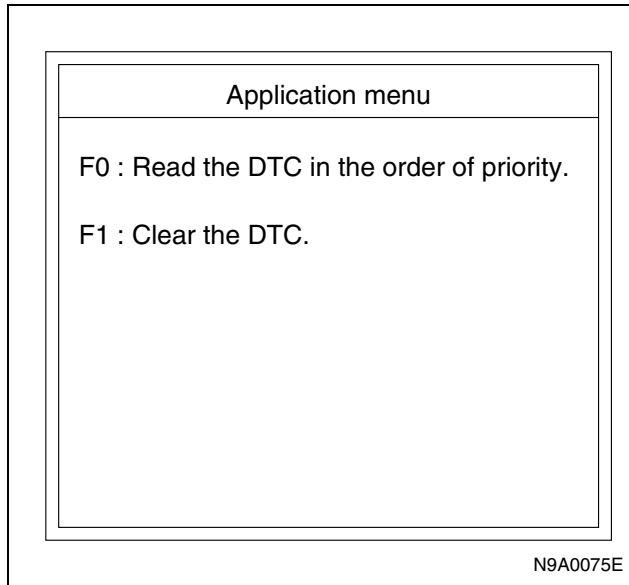
- The following chart shows the functions used by the current Tech 2 software.

F0: Diagnostic trouble code F0: Read the DTC in the order of priority. F1: Clear the DTC.
F1: Data display
F2: Snapshot
F3: Programming F0: Event data clear prohibition

DTC (Diagnostic Trouble Code) Mode

Two options are available for Tech 2 DTC mode. After selecting the DTC, the following menu is displayed.

- DTC Info (DTC information)
- Clear Info (DTC clear)



Data Display

Move the connector or harness by hand. If the display changes from fix to release, connection of connector is faulty, pin tip length is uneven, or open or short circuit in the harness exists where you have moved. Therefore, repair is necessary. When asterisk mark (*) is displayed in place of numeric display; Problem of Tech 2.

If asterisk mark (*) is found any of the data, PCMCIA card must be version upgraded.

Snapshot (Graph Plotting)

- The snapshot can record the data list menu and plot a graph.
- Utilizing this mode, reproduce and record the conditions claimed by the customer to identify the engine data fault.
- The stored data can be replayed with a domestic power supply.

Programming

- Before replacing SRS control unit, be sure to check/save the vehicle information. After replacement, input it.

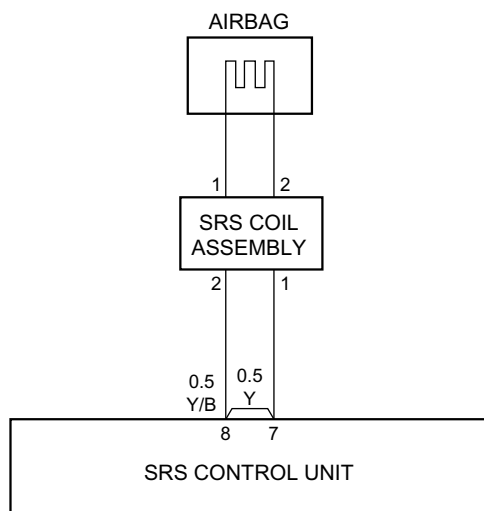
List of Diagnostic Trouble Code

Trouble code No.	Item to be detected	"SRS" warning lamp ON
14	Connector is half-connected	ON
21	Resistance of SRS airbag deployment circuit is large	ON
22	Resistance of SRS airbag deployment circuit is small	ON
24	SRS airbag deployment circuit is shorted to ground	ON
25	SRS airbag deployment circuit is shorted to ignition voltage	ON
26	SRS airbag deployment circuit is open	ON
51	SRS airbag deployment current had output	ON
53	Specific trouble when SRS airbag deployment current had output	ON
54	Deployment output by onboard deployment system communication	
55	Vehicle type error	ON
61	Warning lamp circuit trouble	ON
63	Power supply voltage failure	ON
71	SRS control unit internal trouble	ON

Caution:

- Trouble codes No. 21, 25, 71 cannot be cleared.
- Code No. 12 indicates that the system is normal.

Step	Action	Value	YES	NO
1	Has the "SRS system check" been performed?	—	Go to Step2	Go to "SRS system check".
2	1. Turn the starter switch to OFF. 2. Check if the connector of the SRS control unit is connected securely. Is the connector of the SRS control unit connected securely?	—	Go to Step3	Insert the SRS control unit connector securely.Go to Step4
3	Temporarily disconnect the SRS control unit connector, and check the half-connection detection terminal for faulty such as bent and dirt. Is there any fault?	—	Replace either of the SRS control unit or SRS harness whichever is faulty.Go to Step4	Go to Chart A SRS control unit function check.
4	1. Reconnect all the parts, and check that those are installed properly. 2. Clear the DTC. Is this step completed?	—	Check the repair.	Go to Step4

DTC: 21 Resistance of SRS Airbag Deployment Circuit is Large**Outline**

N9A0076E

Description of Circuit

Turn the starter switch to "ON". SRS control unit performs the tests to diagnose critical function fault inside the SRS control unit. Upon completion of the tests, when the results are pass, "Ignition" voltage and deployment circuit voltage will be measured to check they are within the normal range. Then, the SRS control unit performs "Resistance measurement test". SRS control unit flows a minimal known amount of current between the terminals "7" and "8", and measures the voltage difference between the two, and then calculates the combined resistance in the SRS airbag, SRS coil assembly, SRS airbag deployment circuit, and connector terminal contact point.

Condition when DTC is Set

When combined resistance of SRS airbag, SRS coil assembly, SRS airbag deployment circuit, and connector terminal contact point exceeds the specified value. This test is performed constantly after elapse of six seconds from the "Ignition" voltage exceeds 10V.

Action to be Taken

SRS control unit turns the "SRS" warning lamp ON and set the DTC 21.

Condition when DTC is Cleared

When the resistance goes back to less than specified value.

Description of DTC Chart Test

Numbers below indicate step numbers in the diagnostic chart.

2. This test is to check if the location of function fault is in the SRS control unit.
3. This test is to check if the 2-pole connector (yellow) located in the lower portion of steering column is properly connected.
4. This test is to check the 2-pole connector (yellow) terminal located in the lower portion of steering column for secure contact and/or corrosion.
5. This test is to check if the location of function fault is up to the 2-pole connector (yellow) located in the lower portion of steering column.
6. This test is to check the function fault is caused by high resistance value in the wiring.
7. This test is to check if the location of function fault is in the SRS coil assembly or SRS airbag.

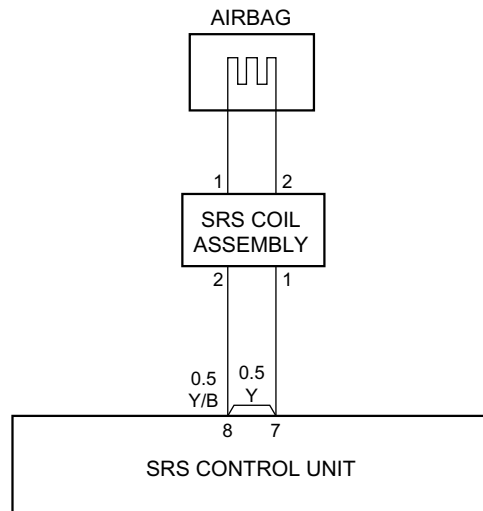
Point of Diagnosis

In the situations that the trouble display appears intermittently, it may be caused by improper connection between 2-pole connector terminals "1" and "2" of SRS coil located in the lower portion of steering column, between 2-pole connector terminals "1" and "2" of SRS airbag located in the upper portion of steering column, between SRS control unit terminals "7" and "8", or between the wire and terminal in SRS airbag deployment circuit.

Step	Action	Value	YES	NO
1	Has the "SRS system check" been performed?	—	Go to Step2	Go to "SRS system check".
2	1. When measurement is required in this chart, use 5-8840-0366-0 DMM and appropriate terminal adapter in 5-8840-0385-0 Connector test adapter kit. 2. Using the data list function of Tech 2, read the resistance in airbag deployment circuit and record it. Does the resistance in airbag deployment circuit exceed specified value?	7.2Ω	Go to Step3	Go to Chart A SRS control unit function check.
3	1. Turn the starter switch to OFF. 2. Check the 2-pole connector (yellow) of SRS coil located in the lower portion of steering column for proper connection. Is the 2-pole connector connected properly?	—	Go to Step4	Connect the 2-pole connector of SRS coil assembly properly. Go to Step8
4	1. Remove the 2-pole connector (yellow) of SRS coil located in the lower portion of steering column for inspection. 2. If it is normal, reconnect the 2-pole connector of SRS coil assembly properly. 3. Turn the starter switch to ON. Is DTC 21 detected as current trouble?	—	Go to Step5	Go to Step8
5	1. Turn the starter switch to OFF. 2. Remove the 2-pole connector (yellow) of SRS coil assembly located in the lower portion of steering column. 3. Connect the 5-8840-2421-0 SRS substitute load and an appropriate terminal adapter in the 5-8840-0385-0 Connector test adapter kit to the SRS harness side connector which connects to SRS coil assembly. 4. Turn the starter switch to ON. Is DTC 21 detected as current trouble?	—	Go to Step6	Go to Step7

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Step	Action	Value	YES	NO
6	1. Turn the starter switch to OFF. 2. Resistance of all circuit in the driver's airbag deployment circuit is increasing. 3. Inspect the SRS airbag deployment circuit and SRS control unit connector terminals "7" and "8", and use high-resolution resistance meter mode of DMM to detect the cause. Is the trouble detected?	—	Replace the SRS harness. Go to Step8	Go to Chart A SRS control unit function check.
7	1. Turn the starter switch to OFF. 2. Remove the 5-8840-2421-0 SRS substitute load from SRS coil assembly harness connector. 3. Connect the 5-8840-2421-0 SRS substitute load to the upper portion of steering column. 4. Reconnect the SRS coil assembly harness connector to the lower portion of steering column. 5. Turn the starter switch to ON. Is DTC 21 detected as current trouble?	—	Turn the starter switch to OFF. Replace the SRS coil assembly by referring to "SRS Coil Assembly" in SRS section. Go to Step8	Turn the starter switch to OFF. Replace the SRS airbag. Go to Step8
8	1. Reconnect all the parts, and check that those are installed properly. 2. Clear the DTC. Is this step completed?	—	Check the repair.	Go to Step8

DTC: 22 Resistance of SRS Airbag Deployment Circuit is Small**Outline**

N9A0076E

Description of Circuit

Turn the starter switch to "ON". SRS control unit performs the tests to diagnose critical function fault in the SRS control unit. Upon completion of the tests, when the results are pass, "Ignition" voltage and deployment circuit voltage will be measured to check they are within the normal range. Then, the SRS control unit performs "Resistance measurement test". SRS control unit flows a minimal known amount of current between the terminals "7" and "8", and monitors the voltage difference between the two, and then calculates the combined resistance in the SRS airbag, SRS coil assembly, SRS airbag deployment circuit, and connector terminal contact point.

Condition when DTC is Set

When combined resistance of SRS airbag, SRS coil assembly, SRS airbag deployment circuit, and connector terminal contact point is less than the specified value. This test is performed constantly after elapse of six seconds from the "Ignition" voltage exceeds 10V.

Action to be Taken

Airbag SRS control unit turns the "SRS" warning lamp ON and set the DTC 22.

Condition when DTC is Cleared

When the resistance goes back to more than the specified value.

Description of DTC Chart Test

Numbers below indicate step numbers in the diagnostic chart.

2. This test is to check if the location of function fault is in the SRS control unit.
3. This test is to check if the 2-pole connector (yellow) located in the lower portion of steering column is properly connected.
4. This test is to check if the shorting clip of 2-pole connector (yellow) operates properly.
5. This test is to check if the location of function fault is up to the 2-pole connector (yellow) located in the lower portion of steering column.
6. This test is to check the function fault is caused by low resistance value in the wiring.
7. This test is to check if the location of function fault is in the SRS coil assembly or SRS airbag.

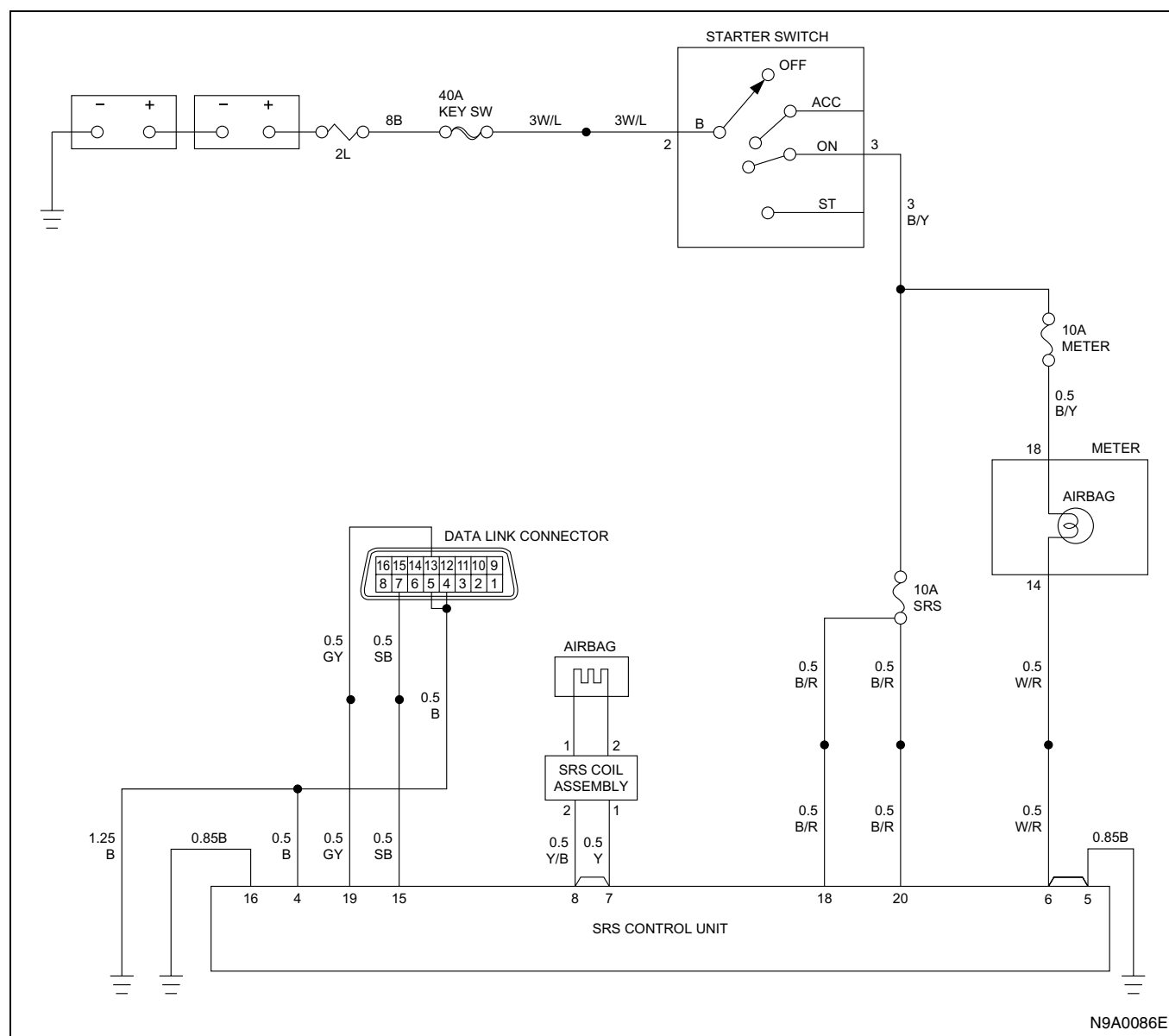
Point of Diagnosis

In the situations that the trouble appears intermittently, it may be caused by short circuit in the SRS airbag deployment circuit, or function fault in the SRS airbag or in the shorting clip of SRS coil assembly which requires parts replacement.

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Step	Action	Value	YES	NO
1	Has the "SRS system check" been performed?	—	Go to Step2	Go to "SRS system check".
2	- When measurement is required in this chart, use 5-8840-0366-0 DMM and appropriate terminal adapter in 5-8840-0385-0 Connector test adapter kit. - Using the data list function of Tech 2, read the resistance in SRS airbag deployment circuit and record it. Is the resistance in airbag deployment circuit less than the specified value?	2.1Ω	Go to Step3	Go to Chart A SRS control unit function check.
3	- Turn the starter switch to OFF. - Check the 2-pole connector (yellow) of SRS coil assembly located in the lower portion of steering column for proper connection. Is the 2-pole connector connected properly?	—	Go to Step4	Connect the 2-pole connector of SRS coil assembly properly.Go to Step8
4	- Remove the 2-pole connector (yellow) of SRS coil assembly located in the lower portion of steering column for inspection. - If it is normal, reconnect the 2-pole connector of SRS coil assembly properly. - Turn the starter switch to ON. Is DTC 22 detected as current trouble?	—	Go to Step5	Go to Step8
5	- Turn the starter switch to OFF. - Remove the 2-pole connector (yellow) of SRS coil assembly located in the lower portion of steering column. - Connect the 5-8840-2421-0 SRS substitute load and an appropriate terminal adapter in 5-8840-0385-0 Connector test adapter kit to the SRS harness side connector which connects to SRS coil assembly. - Turn the starter switch to ON. Is DTC 22 detected as current trouble?	—	Go to Step6	Go to Step7
6	- Turn the starter switch to OFF. - Resistance of all circuit in the SRS airbag deployment circuit is decreasing. - Inspect the SRS airbag deployment circuit and SRS control unit connector terminals "7" and "8", and use high-resolution resistance meter mode of 5-8840-0366-0 DMM to detect the cause. Is the trouble detected?	—	Replace the SRS harness.Go to Step8	Go to Chart A SRS control unit function check.

Step	Action	Value	YES	NO
7	1. Turn the starter switch to OFF. 2. Remove the 5-8840-2421-0 SRS substitute load from SRS coil assembly harness connector. 3. Connect the 5-8840-2421-0 SRS substitute load to the upper portion of steering column. 4. Reconnect the SRS coil assembly harness connector to the lower portion of steering column. 5. Turn the starter switch to ON. Is DTC 22 detected as current trouble?	—	Turn the starter switch to OFF. Replace the SRS coil assembly by referring to "SRS Coil Assembly" in SRS section. Go to Step8	Turn the starter switch to OFF. Replace the SRS airbag. Go to Step8
8	1. Reconnect all the parts, and check that those are installed properly. 2. Clear the DTC. Is this step completed?	—	Check the repair.	Go to Step8

DTC: 24 SRS Airbag Deployment Circuit is Shorted to Ground**Outline****Description of Circuit**

Turn the starter switch to "ON". SRS control unit performs the tests to diagnose critical function fault in the SRS control unit. Upon completion of the tests, when the results are pass, "Ignition" voltage and deployment circuit voltage will be measured to check they are within the normal range. SRS control unit detects ground short circuit in the SRS airbag circuit by monitoring the voltage of "Airbag low" terminal "8".

Condition when DTC is Set

When "Ignition" is within the normal operational voltage. If the voltage of "Airbag low" is less than the specified value, the DTC 24 is set.

Action to be Taken

SRS control unit turns the "SRS" warning lamp ON and set the DTC 24.

Condition when DTC is Cleared

When the voltage of "Airbag low" terminal goes back to more than the specified value.

Description of DTC Chart Test

Numbers below indicate step numbers in the diagnostic chart.

2. This test is to check if the location of function fault is up to the 2-pole connector (yellow) located in the lower portion of steering column.

3. This test is to check if the location of function fault is in the SRS airbag deployment circuit.

4. This test is to check if the location of function fault is in the SRS airbag deployment circuit.

5. This test is to check if the location of function fault is in the SRS coil assembly or SRS airbag.

Point of Diagnosis

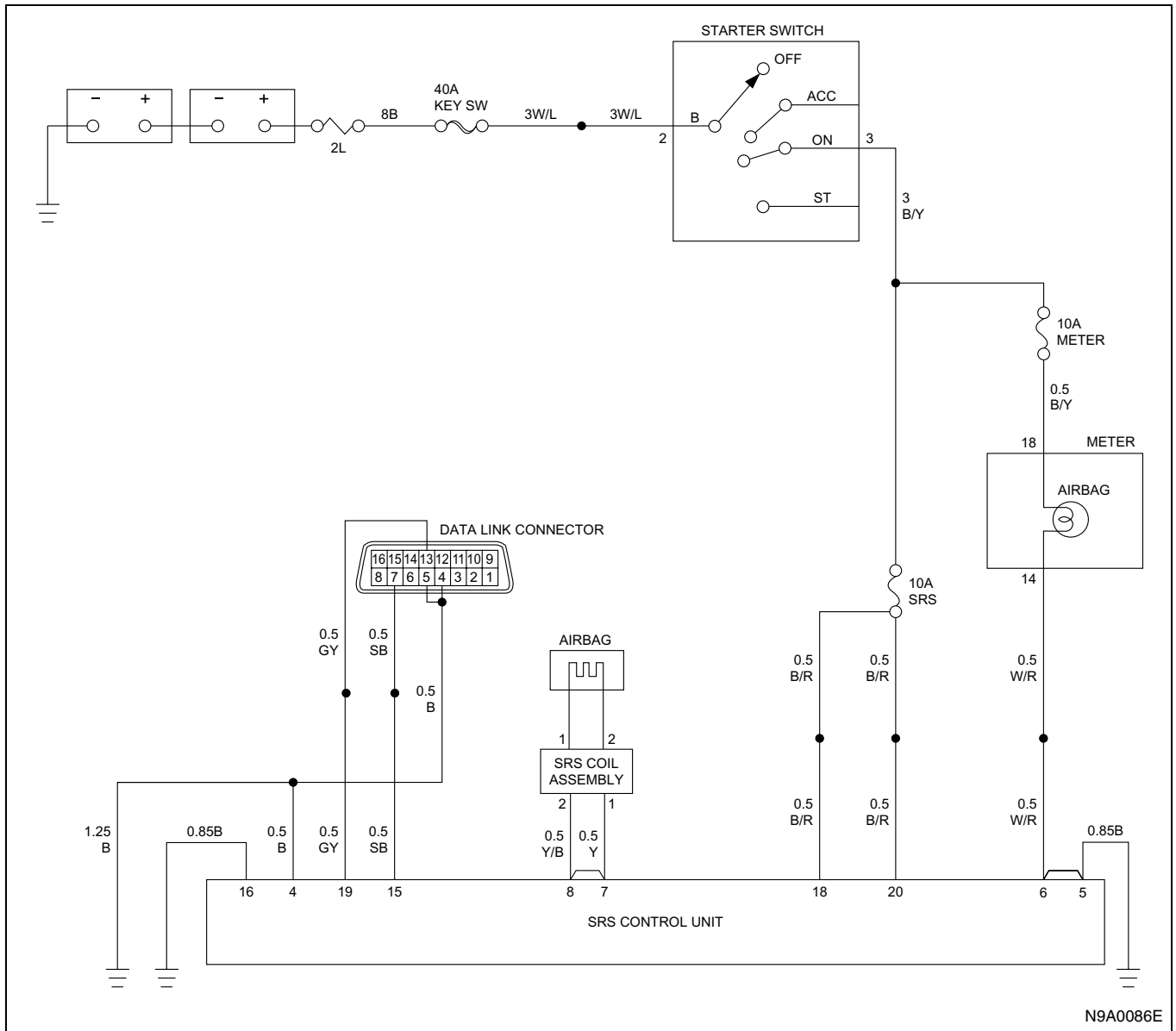
In the situations that the trouble appears intermittently, it may be caused by ground short circuit in the SRS airbag circuit.

Carefully check the SRS airbag deployment circuit for wire breakage or exposed wire.

Step	Action	Value	YES	NO
1	Has the "SRS system check" been performed?	—	Go to Step2	Go to "SRS system check".
2	1. When measurement is required in this chart, use 5-8840-0366-0 DMM and appropriate terminal adapter in 5-8840-0385-0 Connector test adapter kit. 2. Turn the starter switch to OFF. 3. Remove the 2-pole connector (yellow) of SRS coil assembly located in the lower portion of steering column. 4. Connect the 5-8840-2421-0 SRS substitute load to SRS harness side connector which connects to SRS coil assembly. 5. Turn the starter switch to ON. Is DTC 24 detected as current trouble?	—	Go to Step3	Go to Step5
3	1. Turn the starter switch to OFF. 2. Remove the SRS control unit. 3. Remove the 5-8840-2421-0 SRS substitute load. 4. Measure the resistance between the SRS control unit harness connector terminals "7" and "5" (ground). Does the 5-8840-0366-0 DMM indicate "OL" (infinity)?	—	Go to Step4	Replace the SRS harness.Go to Step6
4	Measure the resistance between the SRS control unit harness connector terminals "8" and "5" (ground). Does the 5-8840-0366-0 DMM indicate "OL" (infinity)?	—	Go to Chart A SRS control unit function check.	Replace the SRS harness.Go to Step6

9C-38 SRS CONTROL SYSTEM

Step	Action	Value	YES	NO
5	1. Turn the starter switch to OFF. 2. Remove the 5-8840-2421-0 SRS substitute load from SRS coil assembly harness connector. 3. Connect the 5-8840-2421-0 SRS substitute load and an appropriate terminal adapter in the 5-8840-0385-0 Connector test adapter kit to the SRS airbag harness connector located in the upper portion of steering column. 4. Reconnect the SRS coil assembly harness connector to the lower portion of steering column. 5. Turn the starter switch to ON. Is DTC 24 detected as current trouble?	—	Turn the starter switch to OFF. Replace the SRS coil assembly by referring to "SRS Coil Assembly" in SRS section. Go to Step6	Turn the starter switch to OFF. Replace the SRS airbag. Go to Step6
6	1. Reconnect all the parts, and check that those are installed properly. 2. Clear the DTC. Is this step completed?	—	Check the repair.	Go to Step6

DTC: 25 SRS Airbag Deployment Circuit is Shorted to Ignition Voltage**Outline****Description of Circuit**

Turn the starter switch to "ON". SRS control unit performs the tests to diagnose critical function fault in the SRS control unit. Upon completion of the tests, when the results are pass, "Ignition" voltage and deployment circuit voltage will be measured to check they are within the normal range. SRS control unit detects battery voltage short circuit in the SRS airbag circuit by monitoring the voltage of "Airbag low" terminal "8".

Condition when DTC is Set

When "Ignition" is within the normal operational voltage but the voltage of "Airbag low" exceeds the specified value, the DTC 25 is set.

Action to be Taken

SRS control unit turns the "SRS" warning lamp ON and set the DTC 25.

Condition when DTC is Cleared

When this function fault disappears after SRS control unit replacement.

Description of DTC Chart Test

Numbers below indicate step numbers in the diagnostic chart.

2. This test is to check if the location of function fault is in the SRS airbag deployment circuit.

3. This test is to check if the location of function fault is in the SRS airbag deployment circuit.

4. This test is to check if the location of function fault is in the SRS coil.

5. This test is to check if the location of function fault is in the SRS coil assembly or SRS airbag.

Point of Diagnosis

In the situations that the trouble appears intermittently, it may be caused by battery voltage short circuit in the SRS airbag circuit.

Carefully check the SRS airbag deployment circuit for wire breakage or exposed wire. If the lead wire and SRS coil assembly of SRS airbag are damaged, the part must be replaced. To prevent the replaced SRS control unit from damage, carefully check the SRS airbag deployment circuit including SRS coil assembly and SRS airbag.

Caution:

When this DTC is set, all the SRS system parts (SRS control unit, airbag, etc.) must be replaced. In addition, This DTC cannot be cleared. Be sure to disconnect the battery cable before replacement, otherwise it will result malfunction of replaced SRS system parts or cause battery short circuit.

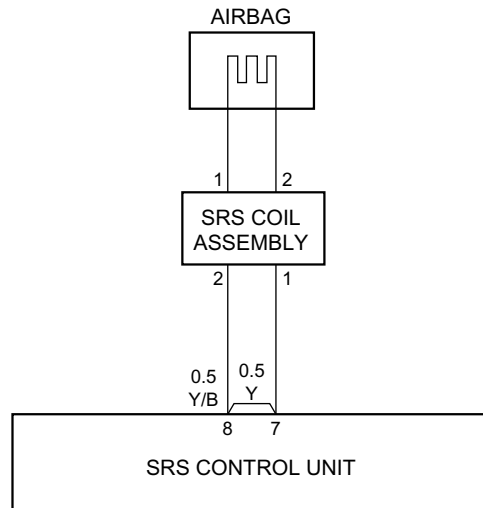
Step	Action	Value	YES	NO
1	Has the "SRS system check" been performed?	—	Go to Step2	Go to "SRS system check".
2	1. When measurement is required in this chart, use 5-8840-0366-0 DMM. 2. Turn the starter switch to OFF. 3. Remove the 2-pole connector (yellow) of SRS coil assembly located in the lower portion of steering column. 4. Remove the SRS control unit. 5. Measure the resistance between the SRS control unit harness connector terminals "8" and "20" (ignition). Does the 5-8840-0366-0 DMM indicate "OL" (infinity)?	—	Go to Step3	Replace the SRS harness. Go to Step6
3	Measure the resistance between the SRS control unit harness connector terminals "7" and "20" (ignition). Does the 5-8840-0366-0 DMM indicate "OL" (infinity)?	—	Go to Step4	Replace the SRS harness. Go to Step6
4	1. Turn the starter switch to OFF. 2. Remove the 2-pole connector (yellow) of SRS airbag harness located in the upper portion of steering column. 3. Reconnect the SRS coil assembly harness connector to the lower portion of steering column. 4. Measure the resistance between the SRS control unit harness connector terminals "8" and "20" (ignition). Does the 5-8840-0366-0 DMM indicate "OL" (infinity)?	—	Go to Step5	Replace the coil assembly. Go to Step7

Step	Action	Value	YES	NO
5	Measure the resistance between the SRS control unit harness connector terminals "7" and "20" (ignition). Does the 5-8840-0366-0 DMM indicate "OL" (infinity)?	—	Replace the driver's airbag assembly. Go to Step6	Replace the coil assembly. Go to Step6
6	Reconnect all the parts, and check that those are installed properly. Are all the parts installed properly?	—	Turn the starter switch to OFF. Replace the SRS control unit. Go to Step7	Go to Step6
7	1. Reconnect all the parts, and check that those are installed properly. 2. Clear the DTC. Is this step completed?	—	Check the repair.	Go to Step7

Step	Action	Value	YES	NO
1	Has the "SRS system check" been performed?	—	Go to Step2	Go to "SRS system check".
2	1. When measurement is required in this chart, use 5-8840-0366-0 DMM and appropriate terminal adapter in 5-8840-0385-0 Connector test adapter kit. 2. Turn the starter switch to OFF. 3. Check the 2-pole connector (yellow) of SRS coil assembly located in the lower portion of steering column for proper connection. Is the 2-pole connector (yellow) connected properly?	—	Go to Step3	Connect the 2-pole connector of SRS coil assembly properly.Go to Step6
3	1. Remove the 2-pole connector (yellow) of SRS coil assembly located in the lower portion of steering column for inspection. 2. If it is normal, reconnect the 2-pole connector of SRS coil assembly properly. 3. Turn the starter switch to ON. Is DTC 26 detected as current trouble?	—	Go to Step4	Go to Step7
4	1. Turn the starter switch to OFF. 2. Remove the 2-pole connector (yellow) of SRS coil assembly located in the lower portion of steering column. 3. Connect the 5-8840-2421-0 SRS substitute load and an appropriate terminal adapter in 5-8840-0385-0 Connector test adapter kit to the SRS harness side connector which connects to SRS coil assembly. 4. Turn the starter switch to ON. Is DTC 26 detected as current trouble?	—	Go to Step5	Go to Step6
5	1. Turn the starter switch to OFF. 2. Driver's airbag deployment circuit is open. 3. Inspect the SRS airbag deployment circuit and SRS control unit connector terminals "7" and "8", and use high-resolution resistance meter mode of DMM to detect the cause. Is the trouble detected?	—	Replace the SRS harness.Go to Step7	Go to Chart A SRS control unit function check.

9C-44 SRS CONTROL SYSTEM

Step	Action	Value	YES	NO
6	1. Turn the starter switch to OFF. 2. Remove the 5-8840-2421-0 SRS substitute load from SRS coil assembly harness connector. 3. Connect the 5-8840-2421-0 SRS substitute load to the upper portion of steering column. 4. Reconnect the SRS coil assembly harness connector to the lower portion of steering column. 5. Turn the starter switch to ON. Is DTC 26 detected as current trouble?	—	Turn the starter switch to OFF. Replace the SRS coil assembly by referring to "SRS Coil Assembly" in SRS section. Go to Step7	Turn the starter switch to OFF. Replace the SRS airbag. Go to Step7
7	1. Reconnect all the parts, and check that those are installed properly. 2. Clear the DTC. Is this step completed?	—	Repeat the "SRS system check".	Go to Step7

DTC: 51 SRS Airbag Deployment Current Had Output**Outline**

N9A0076E

Description of Circuit

A sensor is equipped to this circuit to convert the impact applied to SRS control unit into an electrical signal. The electrical signal generated at this time will be processed in the SRS control unit to compare with the value stored in the memory. When the generated signal exceeds the setting value, SRS control unit sends current to the SRS airbag assembly for deployment, and set the DTC 51.

Condition when DTC is Set

When the control unit detects the front collision over certain degree of impact.

Action to be Taken

SRS control unit turns the "SRS" warning lamp ON, record the "collision data", and set the DTC 51.

Condition when DTC is Cleared

When SRS control unit is replaced.

Description of DTC Chart Test

Numbers below indicate step numbers in the diagnostic chart.

2. In case the DTC 51 appears even when the collision did not result in SRS airbag assembly deployment, the DTC 51 may have been set erroneously.

3. In case the DTC 51 appears without any deformation caused by front collision, the DTC may have been set erroneously.

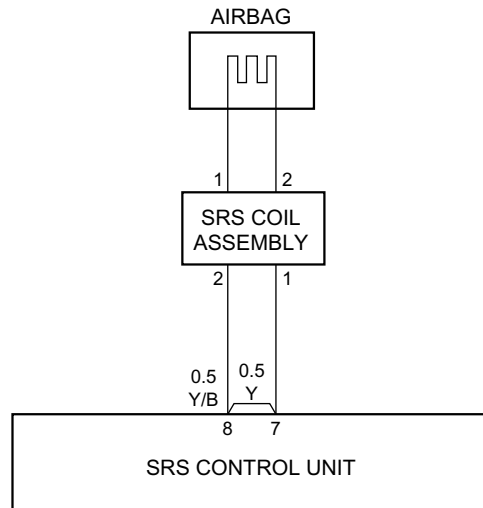
WARNING:

DURING SERVICE WORK, BE CAREFUL NOT TO TAP OR SHAKE THE SRS CONTROL UNIT. ALSO, FAILURE TO INSTALL THE SRS CONTROL UNIT TO VEHICLE PROPERLY MAY LEAD TO MALFUNCTION OF THE UNIT WHEN THE STARTER SWITCH IS TURNED TO ON. THIS MAY RESULT IN INJURY DUE TO SUDDEN DEPLOYMENT OF SRS AIRBAG.

Step	Action	Value	YES	NO
1	Has the "SRS system check" been performed?	—	Go to Step2	Go to "SRS system check".

9C-46 SRS CONTROL SYSTEM

Step	Action	Value	YES	NO
2	Turn the starter switch to OFF. Is the airbag assembly deployed?	—	Inspect according to “repair and inspection required after collision” in this section. Clear the DTC. Perform “SRS system check”.	Go to Step3
3	Check front area of the vehicle for deformation caused by front collision. Is any deformation found?	—	Replace the parts, and inspect according to “repair and inspection required after collision” in this section. Clear the DTC. Perform “SRS system check”.	Turn the starter switch to OFF. Replace the SRS control unit. Reconnect all the SRS system parts, and check that those are installed properly. Perform “SRS system check”.

DTC: 53 Specific Trouble when SRS Airbag Deployment Current Had Output**Outline**

N9A0076E

Description of Circuit

A sensor is equipped to this circuit to convert the impact applied to SRS control unit into an electrical signal. The electrical signal generated at this time will be processed in the SRS control unit to compare with the value stored in the memory. When the generated signal exceeds the setting value, SRS control unit sends current to the airbag assembly for deployment, and set the DTC 53 and 51.

Condition when DTC is Set

When the SRS control unit detects the front collision over certain degree of impact.

Action to be Taken

SRS control unit turns the "SRS" warning lamp ON, record the "collision data", and set the DTC.

Condition when DTC is Cleared

When SRS control unit is replaced.

Description of DTC Chart Test

Numbers below indicate step numbers in the diagnostic chart.

2. In case the DTC 53 appears even when the collision did not result in SRS airbag assembly deployment, the DTC 53 may have been set erroneously.

3. In case the DTC 53 appears without any deformation caused by front collision, the DTC may have been set erroneously.

Point of Diagnosis

When the DTC 53 is set, more than one DTC is added to be set. The function faults which set the DTCs (except DTC 71) must be corrected before new SRS control unit installation, in order to prevent the DTCs to be set again.

WARNING:

DURING SERVICE WORK, BE CAREFUL NOT TO TAP OR SHAKE THE SRS CONTROL UNIT. ALSO, FAILURE TO INSTALL THE SRS CONTROL UNIT TO VEHICLE PROPERLY MAY LEAD TO MALFUNCTION OF THE UNIT WHEN THE STARTER SWITCH IS TURNED TO ON. THIS MAY RESULT IN INJURY DUE TO SUDDEN DEPLOYMENT OF SRS AIRBAG.

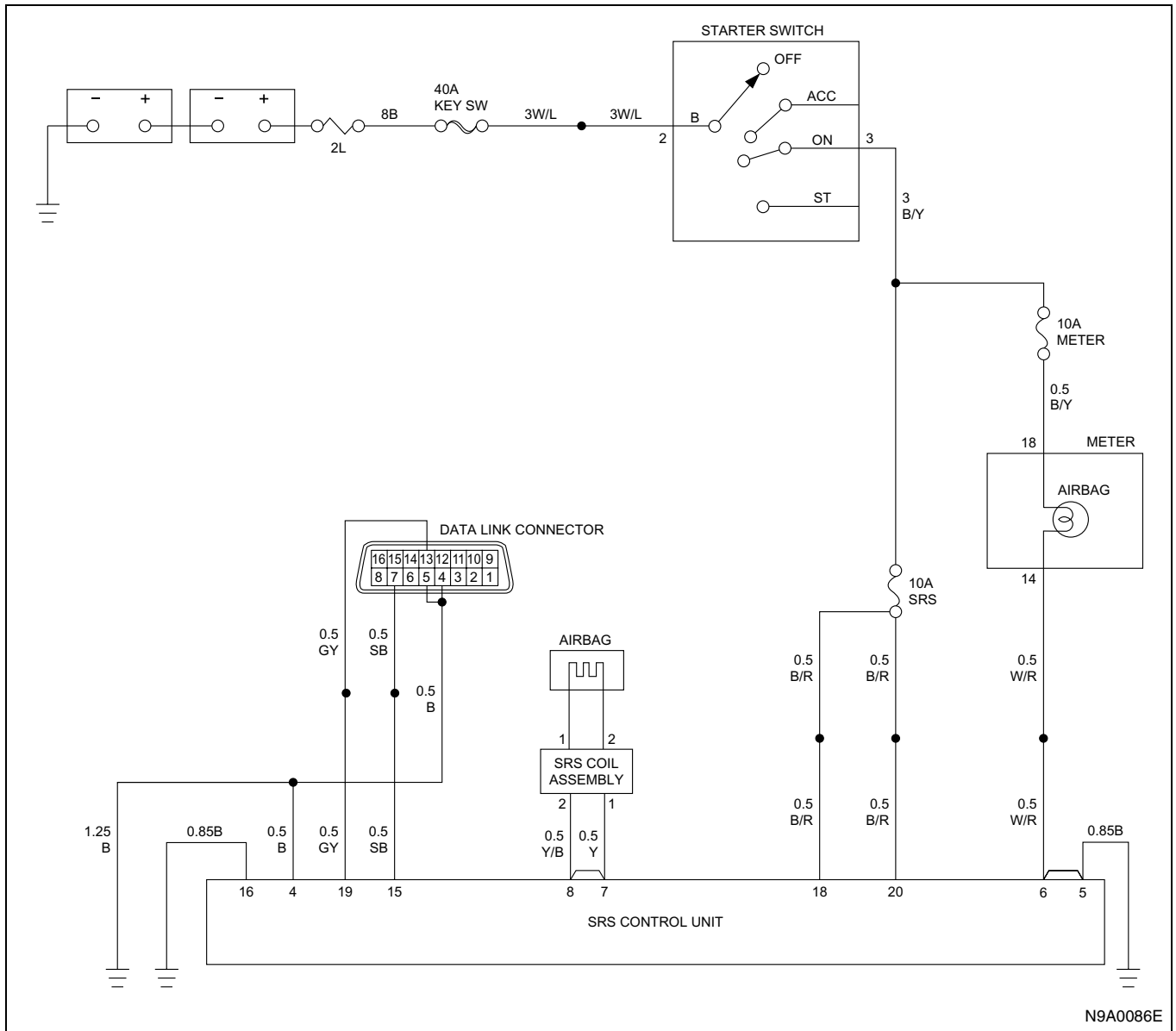
9C-48 SRS CONTROL SYSTEM

Step	Action	Value	YES	NO
1	Has the "SRS system check" been performed?	—	Go to Step2	Go to "SRS system check".
2	Turn the starter switch to OFF. Is the airbag assembly deployed?	—	Inspect according to "repair and inspection required after collision" in this section. Clear the DTC. Perform "SRS system check".	Go to Step3
3	Check front area of the vehicle for deformation caused by front collision. Is any deformation found?	—	Replace the parts, and inspect according to "repair and inspection required after collision" in this section. Clear the DTC. Perform "SRS system check".	Turn the starter switch to OFF. Replace the SRS control unit. Reconnect all the SRS system parts, and check that those are installed properly. Perform "SRS system check".

Step	Action	Value	YES	NO
1	Has the “SRS system check” been performed?	—	Go to Step2	Go to “SRS system check”.
2	Is the DTC 54 detected?	—	Go to Step3	Go to Step1

9C-50 SRS CONTROL SYSTEM

Step	Action	Value	YES	NO
3	Replace the SRS system parts. Is the procedure completed?	—	Check the repair.	—

DTC: 55 Vehicle Type Error**Outline****Description of Circuit**

DTC 55 is set when unmatched SRS control unit or SRS harness installation is suspected.

Turn the starter switch to "ON". SRS control unit reads the condition of vehicle type identification terminals 3, 4, 13, 14 for judgment.

Condition when DTC is Set

It is correct when the terminal 4 only is connected to ground. If the harness is proper, the DTC is set when unmatched SRS control unit is installed. Also, if the SRS control unit is proper, the DTC is set when unmatched harness is installed.

Action to be Taken

SRS control unit turns the "SRS" warning lamp blinking and set the DTC 55.

However, when both of SRS control unit and SRS harness are faulty, the DTC may not be set.

Condition when DTC is Cleared

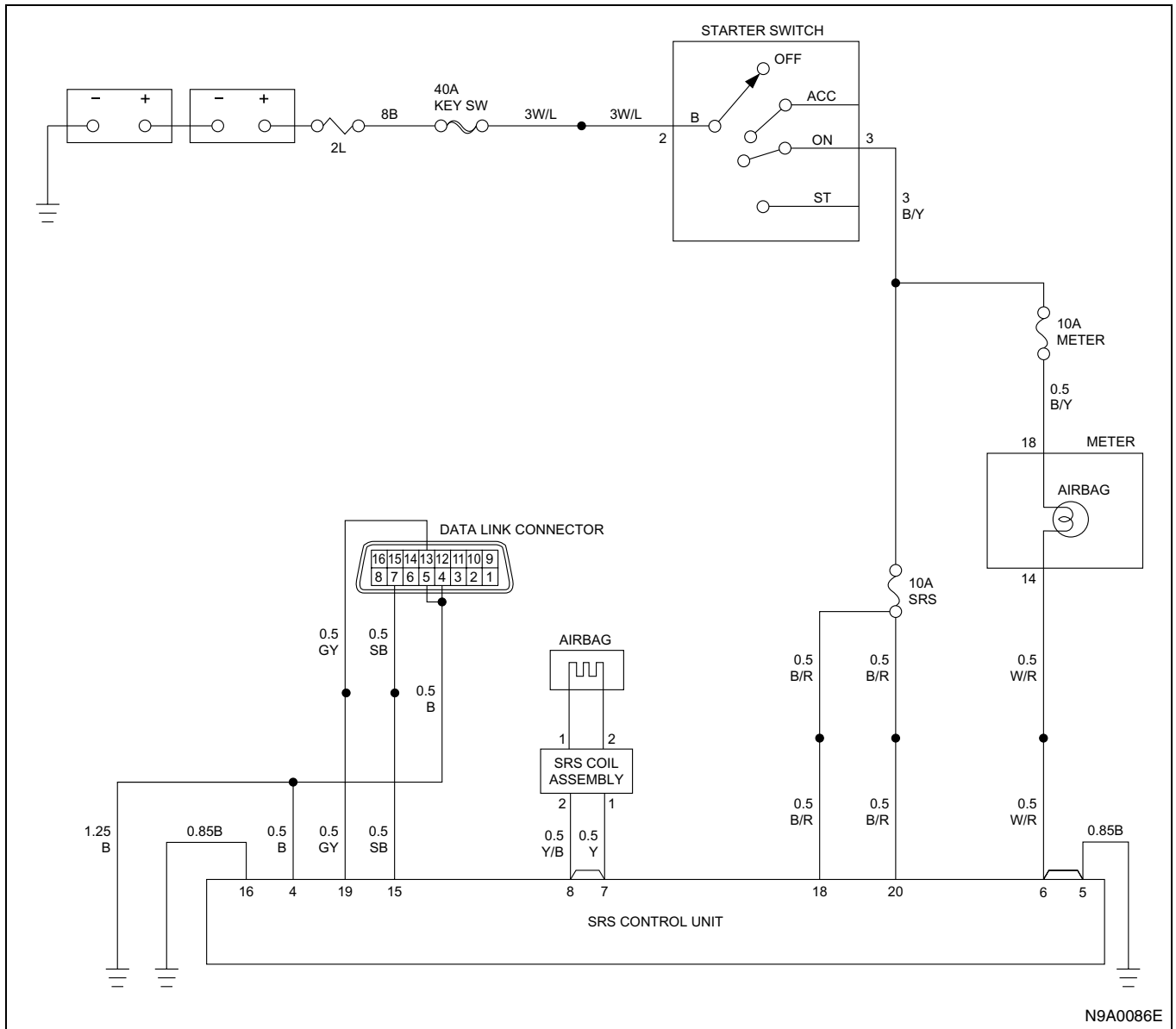
When turning the starter switch to OFF with correct matching of SRS control unit and SRS harness.

Point of Diagnosis

It is correct when the terminal 4 only is connected to ground. At first, make sure the SRS harness A3, A4, A13, A14 have no terminal.

9C-52 SRS CONTROL SYSTEM

Step	Action	Value	YES	NO
1	Has the "SRS system check" been performed?	—	Go to Step2	Go to "SRS system check".
2	1. Turn the starter switch to OFF. 2. Remove the harness connector from SRS control unit. 3. Make sure the "3", "4", "13", "14" of harness connector are in proper condition. Are the "3", "4", "13", and "14" proper?	—	Replace the SRS control unit. Perform "SRS system check".	Replace the SRS harness. Perform "SRS system check".

DTC: 61 Warning lamp circuit trouble**Outline****Description of Circuit**

Turn the ignition switch to "ON". Battery voltage is applied to the "SRS" warning lamp and the "Ignition 1" input terminals "18" and "20".

SRS control unit responds by blinking "SRS" warning lamp seven times. SRS control unit monitors lamp driver output by comparing output condition of the "SRS warning lamp" terminal "6" with the condition ordered to the microprocessor.

When the "Ignition 1" is within the specified range, and the output condition does not match with the condition ordered by the lamp driver, the DTC 61 is set.

Condition when DTC is Set

1. When no voltage is applied to the SRS control unit terminal "6" due to open circuit in the meter, burnt out bulb, or broken harness.

2. When the SRS warning lamp does not go off although the SRS control unit ordered to do so. This test is performed within 6 seconds after starter switch is "ON".

Action to be Taken

SRS control unit sets the DTC 61, and the "SRS" warning lamp comes ON if its power source and ground line are normal.

Condition when DTC is Cleared

When turning the starter switch to OFF.

Description of Chart Test

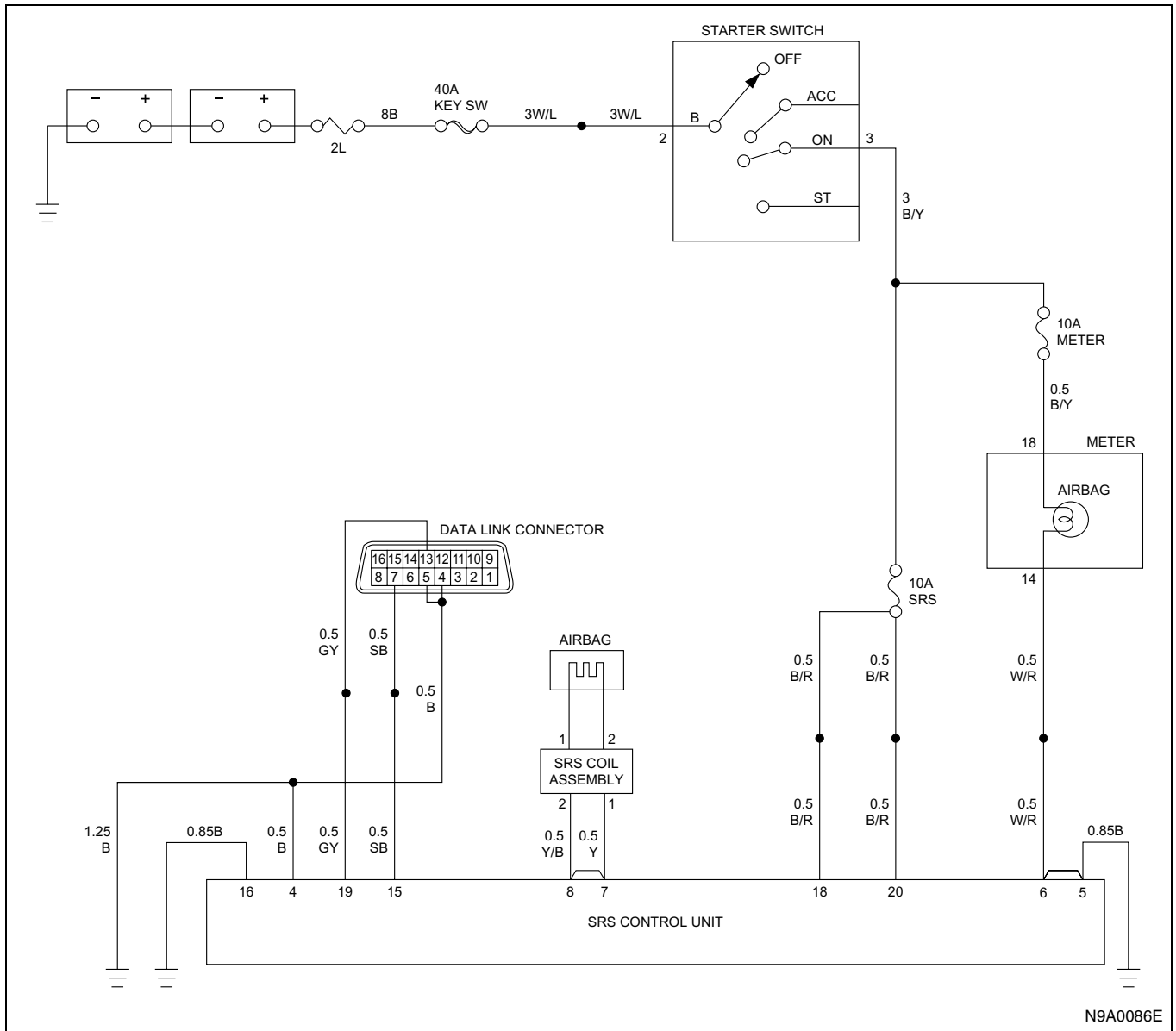
2. Make sure the harness is not broken.
3. Detect if the warning lamp is faulty, and if the SRS control unit is faulty.

9C-54 SRS CONTROL SYSTEM

Point of diagnosis

Warning lamp comes on regardless of SRS control unit directly, and turns off when the SRS control unit sends current. Therefore, the warning lamp comes on even when the SRS control unit fuse is blown out if there is no other trouble.

Step	Action	Value	YES	NO
1	Has the "SRS system check" been performed?	—	Go to Step2	Go to "SRS system check".
2	Turn the starter switch to OFF. Do warning lamps other than "SRS" operate properly?	—	Go to Step4	Go to Step3
3	Replace the meter assembly. Is this step completed?	—	Go to Step5	Go to Step3
4	1. Wiring is open between SRS control unit and SRS warning lamp, or it is shorted with body, or "SRS" warning lamp is blown out. 2. Find the trouble location. 3. Replace the SRS harness, if it has problem. Has the cause been detected and repaired?	—	Go to Step5	Go to Step4
5	1. Reconnect all the parts, and check that those are installed properly. 2. Clear the DTC. Is this step completed?	—	Check the repair.	Go to Step5

DTC: 63 Power Supply Voltage Failure**Outline****Description of Circuit**

Turn the starter switch to "ON". SRS control unit checks if the ignition voltage is in proper range.

Condition when DTC is Set

When ignition voltage is within or 10V to 18V for 30 seconds continuously.

Action to be Taken

SRS control unit turns the "SRS" warning lamp ON and set the DTC 63.

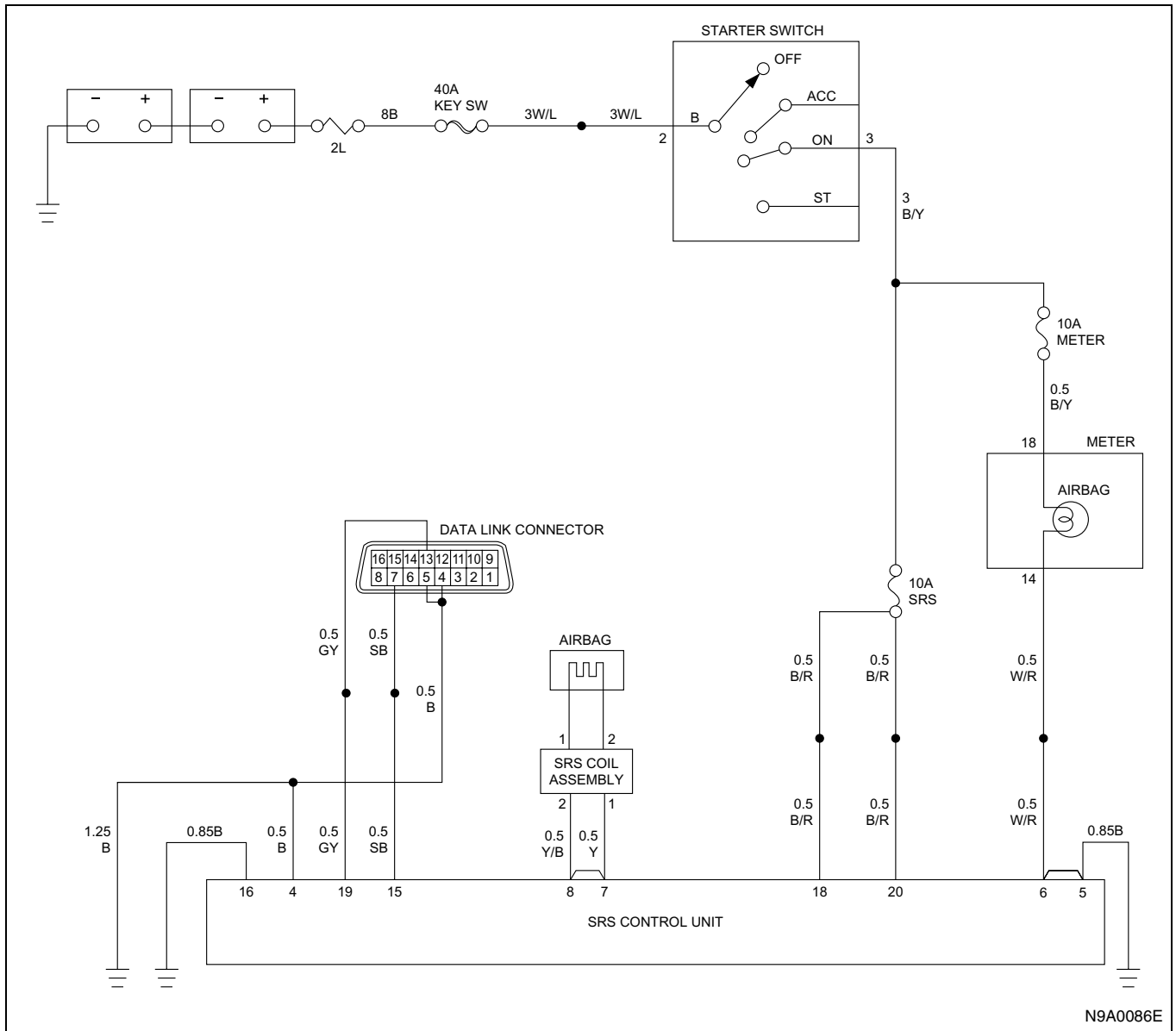
Condition when DTC is Cleared

When ignition voltage goes back to more than 18V.

Step	Action	Value	YES	NO
1	Has the "SRS system check" been performed?	—	Go to Step2	Go to "SRS system check".
2	Read the ignition voltage using Tech 2. Is the ignition voltage less than 18V?	—	Go to Step3	Go to Chart A SRS control unit function check.

9C-56 SRS CONTROL SYSTEM

Step	Action	Value	YES	NO
3	1. Turn the starter switch to OFF. 2. Check the battery voltage, specific gravity, and power supply system circuit. Correct if faulty. Is this step completed?	—	Go to Step4	Go to Step3
4	1. Reconnect all the parts, and check that those are installed properly. 2. Clear the DTC. Is this step completed?	—	Check the repair.	Go to Step4

DTC: 71 SRS Control Unit Internal Trouble**Outline****Description of Circuit**

DTC 71 indicates possibility of function fault inside the SRS control unit.

Condition when DTC is Set

When the function fault is detected inside the SRS control unit.

Action to be Taken

SRS control unit turns the "SRS" warning lamp ON and set the DTC.

Condition when DTC is Cleared

This DTC code cannot be cleared. Replace the SRS control unit.

WARNING:

DURING SERVICE WORK, BE CAREFUL NOT TO TAP OR SHAKE THE SRS CONTROL UNIT. ALSO, FAILURE TO INSTALL THE SRS CONTROL UNIT TO VEHICLE PROPERLY MAY LEAD TO MALFUNCTION OF THE UNIT WHEN THE STARTER SWITCH IS TURNED TO ON. THIS MAY RESULT IN INJURY DUE TO SUDDEN DEPLOYMENT OF SRS AIRBAG.

Caution:

When this DTC is set, all the SRS system parts (SRS control unit, airbag, etc.) must be replaced. In addition, This DTC cannot be cleared. Be sure to disconnect the battery cable before replacement, otherwise it will result malfunction of replaced SRS system parts or cause battery short circuit.

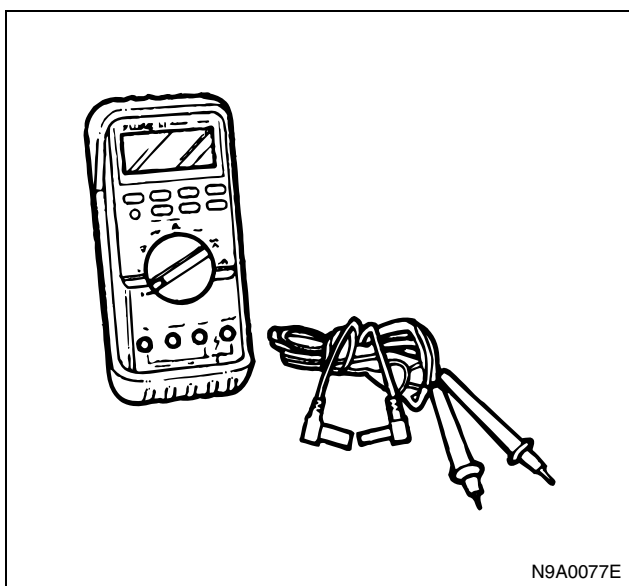
Step	Action	Value	YES	NO
1	Has the "SRS system check" been performed?	—	Go to Step2	Go to "SRS system check".
2	Are DTCs 25, 51, 53 also set as current code or history code (See notes mentioned above)?	—	If DTC 25 is set, go to DTC 25 chart. If DTC 51 is set, go to DTC 51 chart. If DTC 53 is set, go to DTC 53 chart.	Turn the starter switch to OFF. Replace the SRS control unit. Perform "SRS system check".

Special Tool

5-8840-0366-0 DMM (digital multi-meter)

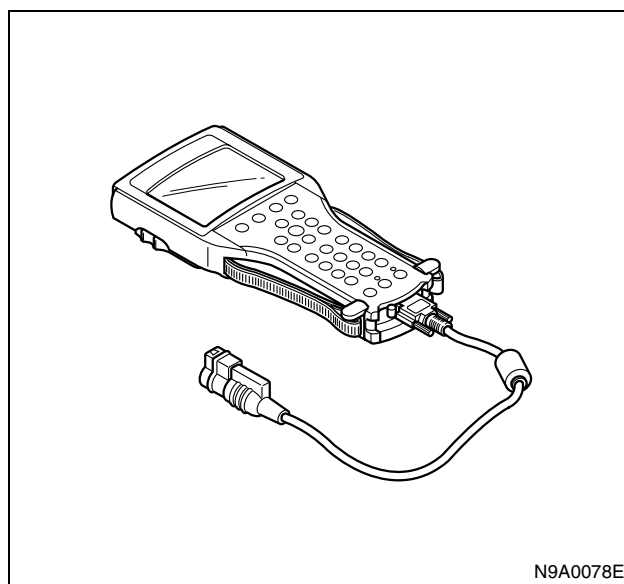
5-8840-0366-0 DMM is preferable for use of SRS diagnostics and repair. Use of other DMM is not authorized for SRS diagnostic and repair.

Use of other DMM may lead SRS parts deployment.



Tech 2

Use Tech 2 to read and clear SRS diagnostic trouble code.



5-8840-2421-0 SRS substitute load

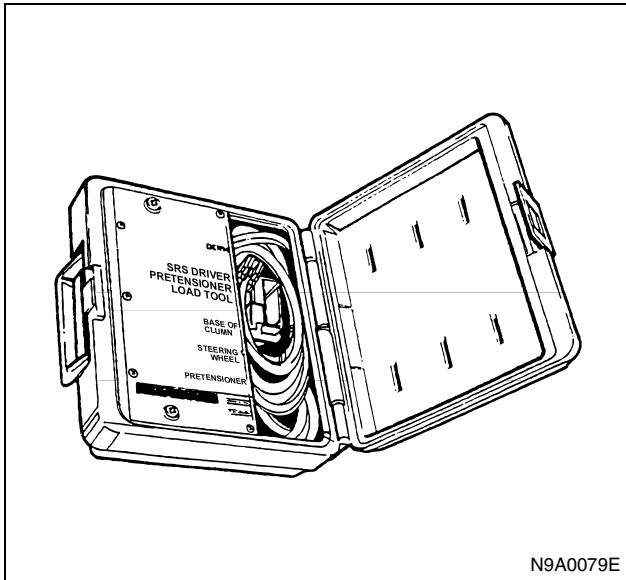
This tool is used for diagnostic aid and for safety device to prevent unnecessary SRS airbag deployment. Three yellow connectors are provided to the SRS substitute load case.

These small three connectors work as substitute for resistance load device electrically.

One of the small connector substitutes the load of SRS coil assembly by connecting to the SRS coil assembly located in the upper portion of steering column. Another small connector substitutes the load of driver's airbag assembly by connecting to the SRS harness connector located in the lower portion of steering column.

Use of substitute load in place of inflator circuit resistance when necessary enables to judge if the parts in the inflator circuit cause the system function fault, and also enables to detect which part causes the function fault.

Substitute load must be used only when it is necessary in the diagnostic procedure.

**5-8840-0385-0 Connector test adapter kit**

Connector test adapter kit is necessary whenever terminal inspection or detail inspection is requested in the diagnostic procedure. Use appropriate adapter to prevent terminals from damage such as bending by DMM probe. It is also useful to find poor contact caused by insufficient pressure by checking if sufficient pressure is applied to the terminal.



