SRS AIRBAG

GENERAL DESCRIPTION

The 1991 CELICA for USA specifications is equipped with an SRS (Supplemental Restraint System) airbag.

Failure to carry out service operations in the correct sequence could cause the airbag system to unexpectedly deploy during servicing, possibly leading to a serious accident.

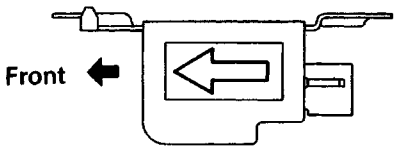
Further, if a mistake is made in servicing the airbag system, it is possible the airbag may fail to operate when required.

Before performing servicing (including removal or installation of parts, inspection or replacement), be sure to read the following items carefully, then follow the correct procedure described in the repair manual.

1. Malfunction symptoms of the airbag system are difficult to confirm, so the diagnostic codes become the most important source of information when troubleshooting.
   When troubleshooting the airbag system, always inspect the diagnostic codes before disconnecting the battery (See page AB–24).
2. Work must be started after approx. 20 seconds or longer from the time the ignition switch is turned to the LOCK position and the negative (–) terminal cable is disconnected from the battery. (The airbag system is equipped with a back–up power source so that if work is started within 20 seconds of disconnecting the negative H terminal cable of the battery, the airbag may be deployed.)
   When the negative I–) terminal cable is disconnected from the battery, memory of the clock and audio systems will be cancelled. So before starting work, make a record of the contents memorized by the audio memory system. Then when work is finished, reset the audio system as before and adjust the clock.
   To avoid erasing the memory of each memory system, never use a back–up power supply from outside the vehicle.
3. Even in cases of a minor collision where the airbag does not deploy, the front airbag sensors and the steering wheel pad should be inspected (See page AB–1 1).
4. Never use airbag parts from another vehicle. When replacing parts, replace them with new parts.
5. Before repairs, remove the airbag sensors if shocks are likely to be applied to the sensors during repairs.
6. The center airbag sensor assembly contains mercury.
   After performing replacement, do not destroy the old part. When scrapping the vehicle or replacing the center airbag sensor assembly itself, remove the center airbag sensor assembly and dispose of it as toxic waste.
7. Never disassemble and repair the front airbag sensors, center airbag sensor assembly or steering wheel pad in order to reuse it.
8. If the front airbag sensors, center airbag sensor assembly or steering wheel pad have been dropped, or if there are cracks, dents or other defects in the case, bracket or connector, replace them with new ones.
9. Do not expose the front airbag sensors, center airbag sensor assembly or steering wheel pad directly to hot air or flames.
10. Use a volt/ohmmeter with high impedance 00 kΩIV minimum) for troubleshooting of the electrical circuit.
11. Information labels are attached to the periphery of the airbag components. Follow the instructions on the notices.
12. After work on the airbag system is completed, perform the airbag warning light check (See page AB–29).

FRONT AIRBAG SENSOR

1. Never reuse the front airbag sensors involved in a collision when the airbag has deployed. (Replace both the left and right airbag sensors.)
2. Install the front airbag sensor with the arrow on the sensor facing toward the front of the vehicle.
3. The front airbag sensor set bolts have been anti–rust treated.
   When the sensor is removed, always replace the set bolts
   with new ones.
4. The front airbag sensor is equipped with an electrical connection check mechanism. Be sure to lock this mechanism securely when connecting the connector. If the connector is not securely locked, a malfunction code will be detected by the diagnosis system (See page AB–9).

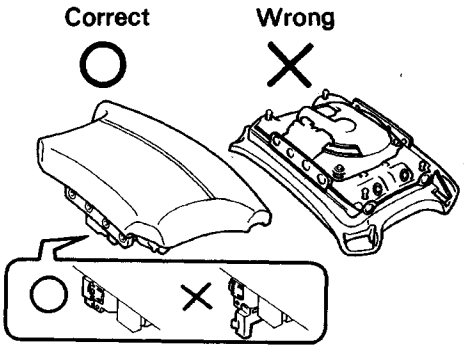


AB0018

SPIRAL CABLE (in COMBINATION SWITCH)

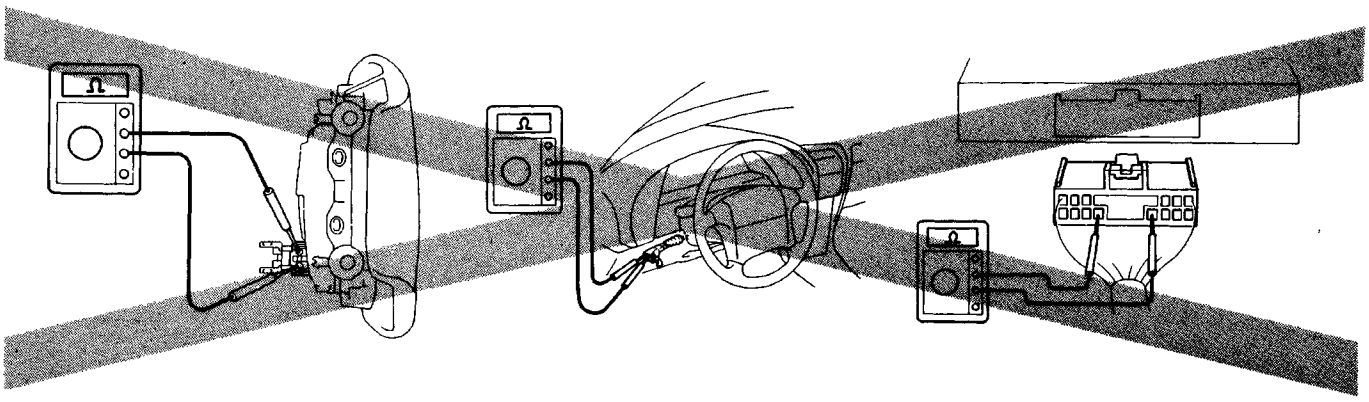
The steering wheel must be fitted correctly to the steering column with the spiral cable at the neutral position, otherwise cable disconnection and other troubles may result. Refer to page. AB–16 of this manual concerning correct steering wheel installation.

STEERING WHEEL PAD (with AIRBAG)



AB0128

1. **When removing the steering wheel pad or handling a new steering wheel pad, it should be placed with the pad top surface facing up.**
   In this case, the twin–lock type connector lock lever should be in the locked state and care should be taken to place it so the connector will not be damaged. And do not store a steering wheel pad on top of another one. (Storing the pad with its metallic surface up may lead to a serious accident if the airbag inflates for some reason.)
2. **Never measure the resistance of the airbag squib.**
   (This may cause the airbag to deploy, which is very dangerous.)


AB0014 AB0179 AB0110

3. Grease should not be applied to the steering wheel pad and the pad should not be cleaned with detergents of any kind.
4. Store the steering wheel pad where the ambient temperature remains below 93˚C (200˚F), without high humidity and away from electrical noise.
5. When using electric welding, first disconnect the airbag connector (yellow color and 2 pins) under the steering column near the combination switch connector before starting work.
6. When disposing of a vehicle or the steering wheel pad alone, the airbag should be deployed using an SST before disposal (See page AB–82). Perform the operation in a place away from electrical noise.

CENTER AIRBAG SENSOR ASSEMBLY

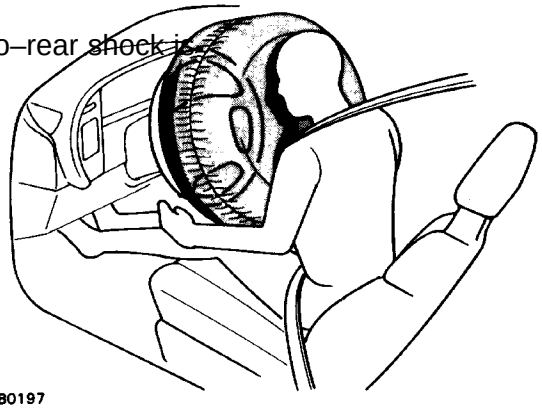
The connector to the center airbag sensor assembly should be connected or disconnected with the sensor mounted on the floor. If the connector is connected or disconnected while the center airbag sensor assembly is not mounted to the floor, it could cause undesired ignition of the airbag system.

WIRE HARNESS AND CONNECTOR

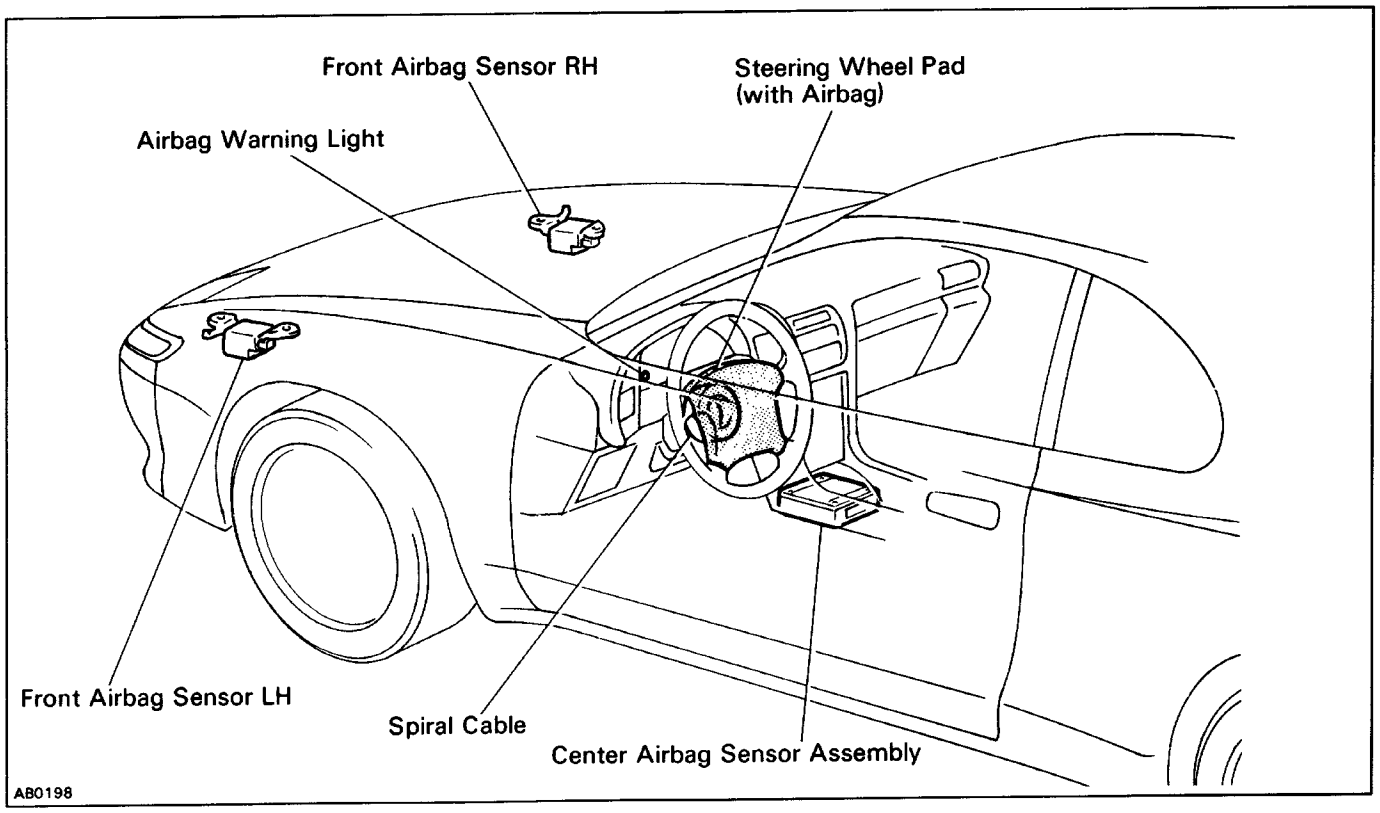
The airbag system wire harness is integrated with the cowl wire harness assembly. The wires for the airbag wire harness are encased in a yellow corrugated tube. All the connectors for the system are also a standard yellow color. If the airbag system wire harness becomes disconnected or the connector becomes broken due to an accident, etc., repair or replace it as shown on page AB–21.

DESCRIPTION

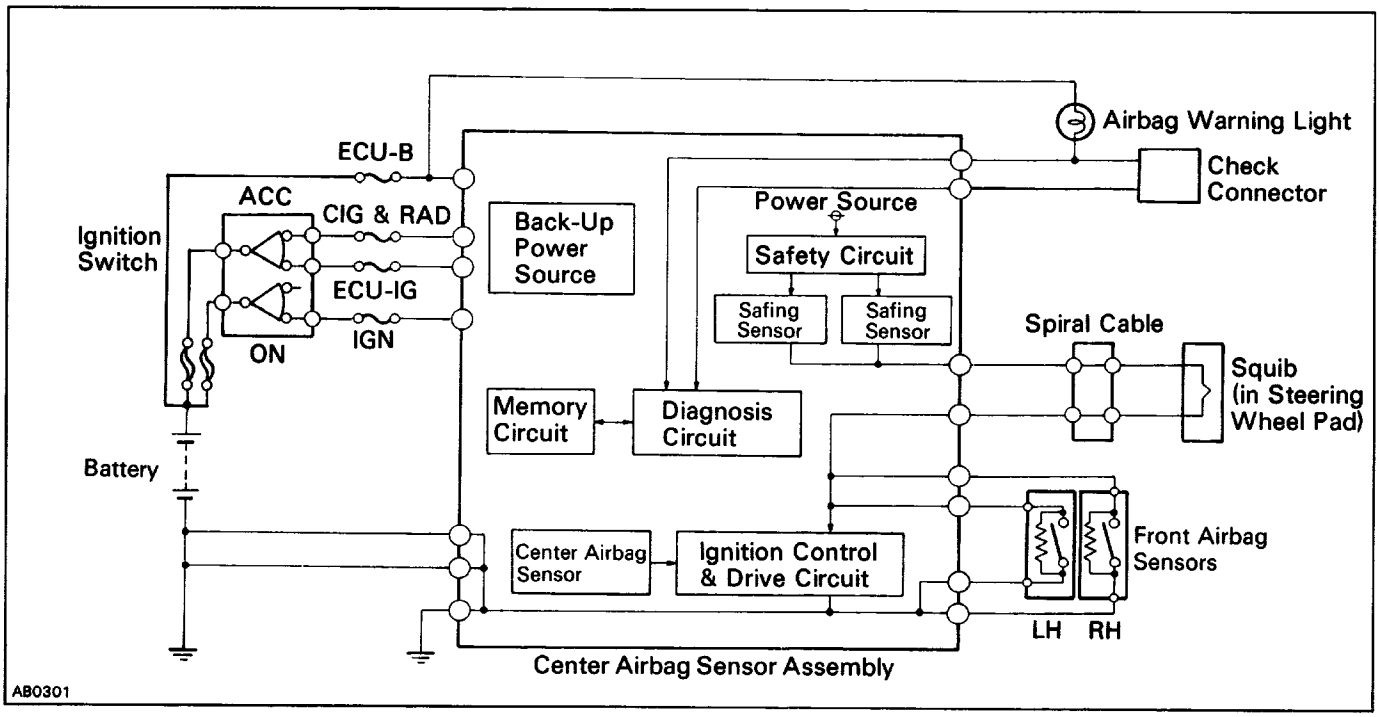
The SRS (Supplemental Restraint System) airbag, together with the seat belt, is designed to help protect the driver. In a collision, the airbag sensors detect the shock, and if the front to–rear shock is greater than a specified value, an airbag stored in the steering wheel pad is inflated instantaneously to help reduce the shock to the driver.



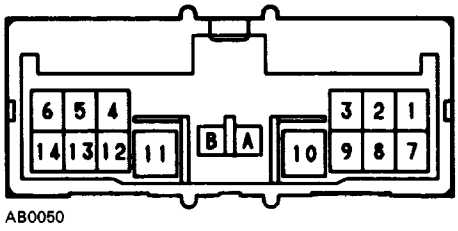
LOCATION OF COMPONENTS



WIRING DIAGRAM



CENTER AIRBAG SENSOR ASSEMBLY CONNECTOR



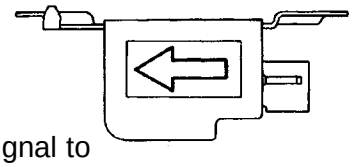
No.	Symbol	Terminal Name	No.	Symbol	Terminal Name
1	IG_1	Power Source (ECU–IG Fuse)	8	E_2	Ground
2	– SR	R H Front Airbag Sensor–	9	LA	Airbag Warning Light
3	+ SR	R H Front Airbag Sensor +	10	D^-	Squib–
4	+ SL	LH Front Airbag Sensor +	11	D^+	Squib +
5	– SL	LH Front Airbag Sensor–	12	Tc	Diagnosis
6	+ B	Battery (ECU–B Fuse)	13	E_1	Ground
7	IG_2	Power Source (I G N Fuse)	14	Acc	Power Source (CIG & RAD Fuse)
A	–	Electrical Connection Check Mechanism	B	–	Electrical Connection Check Mechanism

OPERATION

FUNCTION OF COMPONENTS

1. FRONT AIRBAG SENSOR

A front airbag sensor is mounted inside each of the front fenders. The sensor unit is a mechanical type. When the sensor detects deceleration force above a predetermined limit in a collision, the contacts in the sensor make contact, sending a signal to the center airbag sensor assembly.

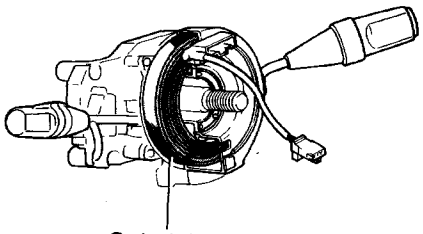


AB0018

The sensor cannot be disassembled.

2. SPIRAL CABLE (in COMBINATION SWITCH)

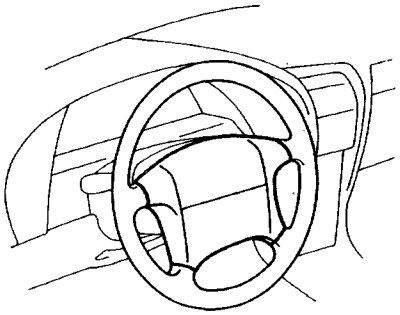
A spiral cable is used as an electrical joint from the vehicle body side to the steering wheel.



AB0250

3. STEERING WHEEL PAD (with AIRBAG)

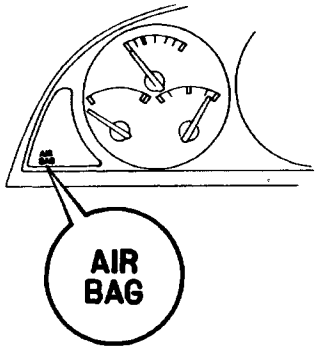
The inflator and bag of the airbag system are stored in the steering wheel pad and cannot be disassembled.
The inflator contains a squib, igniter charge, gas generant, etc., and inflates the bag in case of a frontal collision.



AB0149

4. AIRBAG WARNING LIGHT

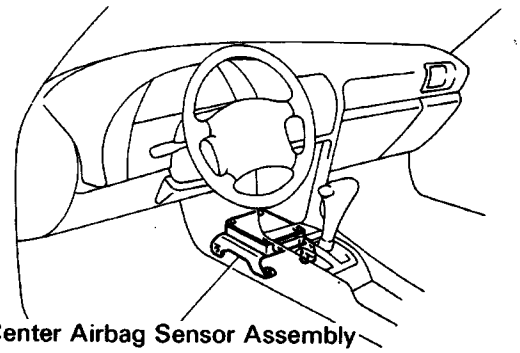
The airbag warning light is located on the combination meter. It goes on to alert the driver of trouble in the system when a malfunction is detected in the center airbag sensor assembly self–diagnosis. In normal operating condition when the ignition switch is turned to the ACC or 0 N position, the light goes on for about 6 seconds and then goes off.



AB0199

5. CENTER AIRBAG SENSOR ASSEMBLY

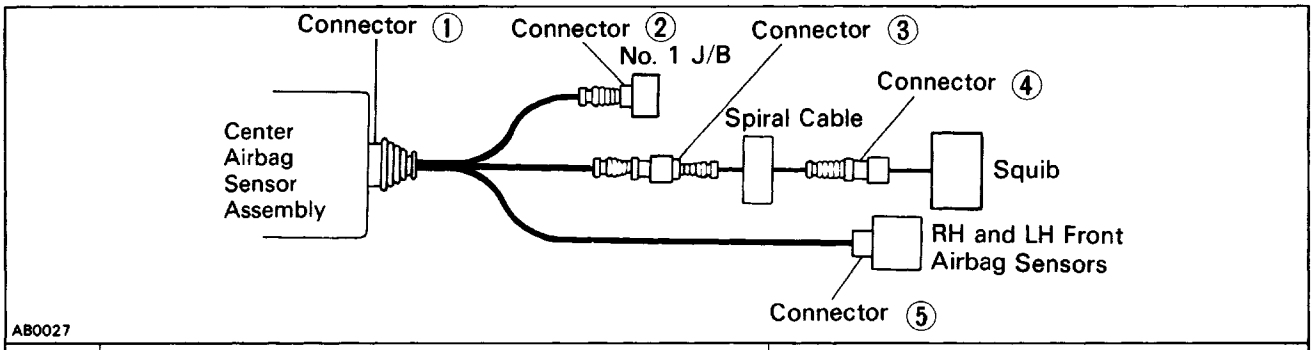
The center airbag sensor assembly is mounted on the floor inside the center cluster. The center airbag sensor assembly consists of a center airbag sensor, safing sensors, ignition control and drive circuit, diagnosis circuit, etc. It receives signals from the airbag sensors, judges whether the airbag must be activated or not and diagnoses system malfunctions.



AB0180

6. AIRBAG CONNECTORS

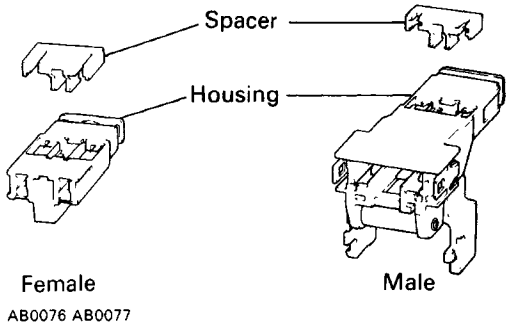
All connectors in the airbag system are colored yellow. Connectors having special functions and specifically designed for airbags are used in the locations shown below to ensure high reliability. These connectors use durable gold–plated terminals.



No.	Item	Application
(1)	Terminal Twin–Lock Mechanism	Connectors “1”, “2”, “3”, “4”, “5”
(2)	Airbag Activation Prevention Mechanism	Connectors “1”, “3”, “4”
(3)	Electrical Connection Check Mechanism	Connectors “1”, “5”
(4)	Connector Twin–Lock Mechanism	Connectors “2”, “3”, “4”

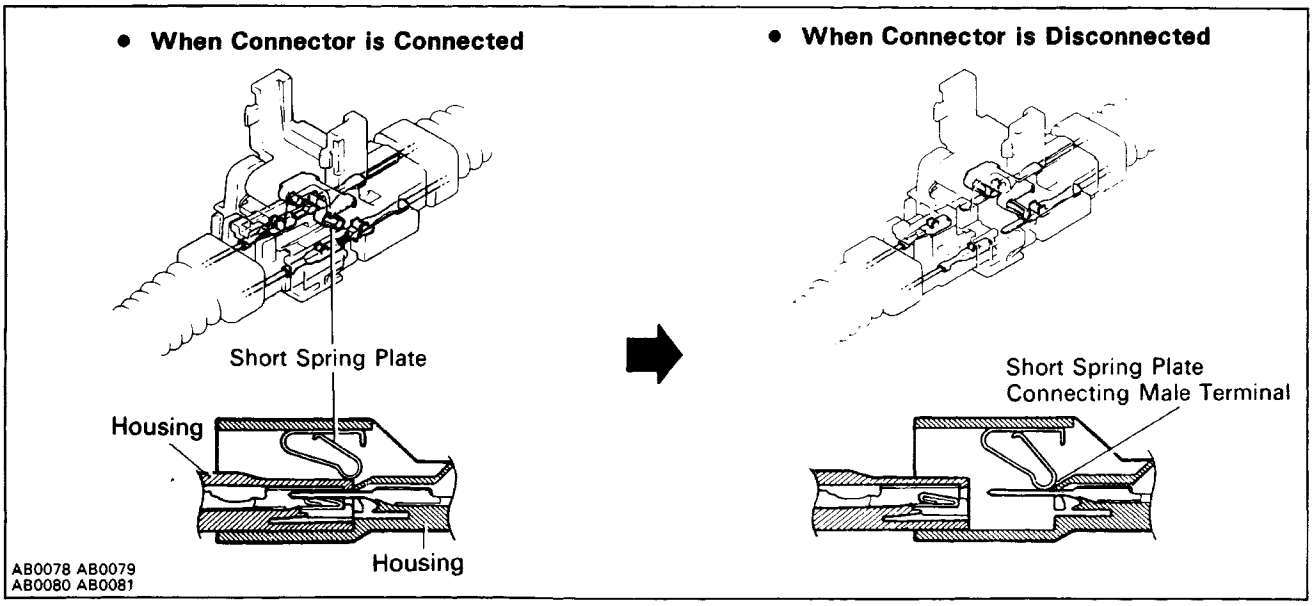
(1) Terminal Twin–Lock Mechanism

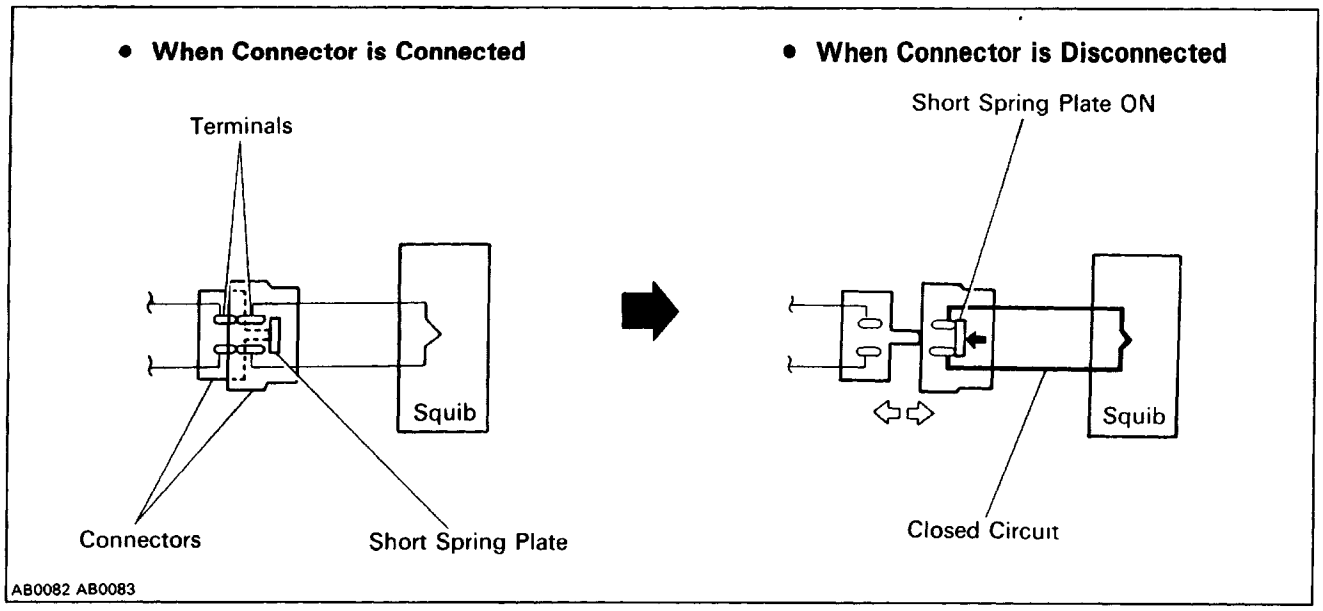
Each connector has a two–piece construction consisting of a housing and a spacer. This design secures the locking of the terminal by two locking devices (the spacer and the lance) to prevent terminals from coming out.



(2) Airbag Activation Prevention Mechanism

Each connector contains a short spring plate. When the connector is disconnected, the short spring plate automatically connects the power source and grounding terminals of the squib.

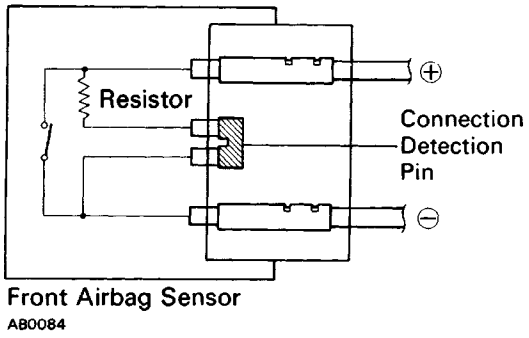


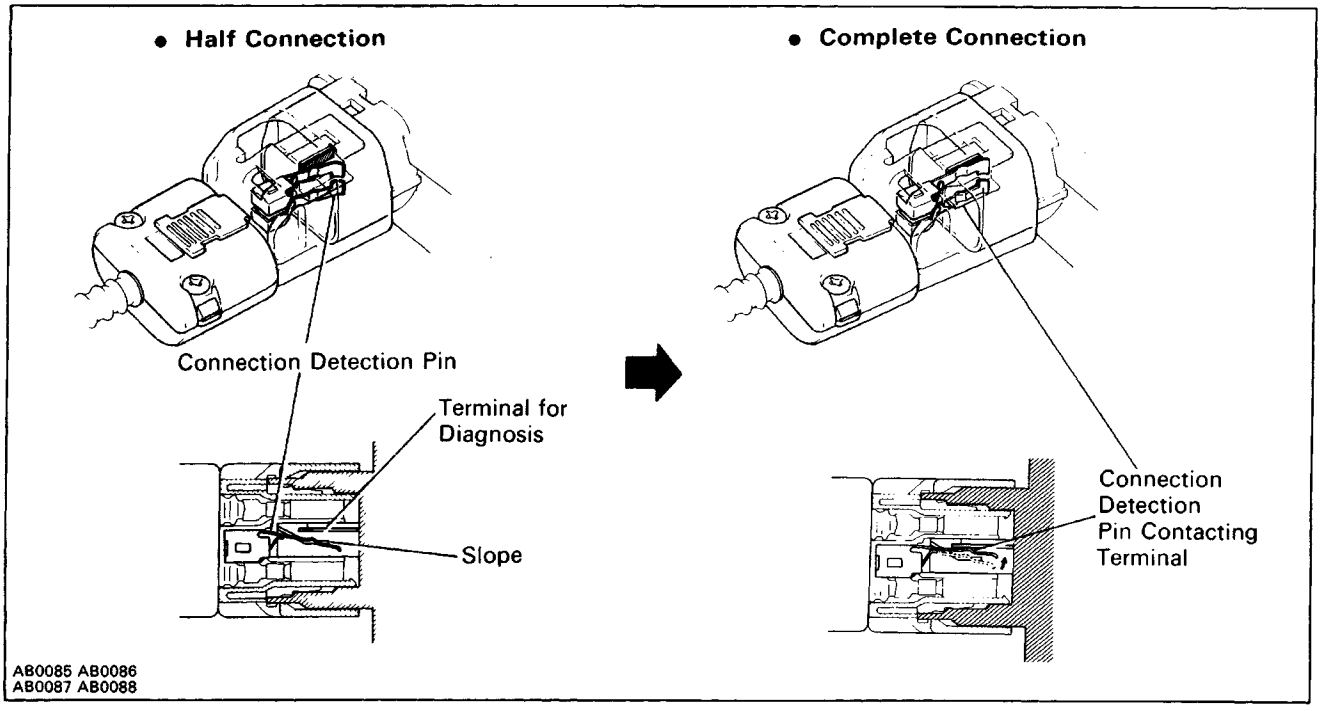


HINT: The illustration shows connectors “3” and “4“ Connector “1” has a short spring plate on the female terminal side, but the operating principle is the same.

(3) Electrical Connection Check Mechanism

This mechanism is designed to electrically check if connectors are connected correctly and completely. The electrical connection check mechanism is designed so that the connection detection pin connects with the diagnosis terminals when the connector housing lock is in the locked condition.



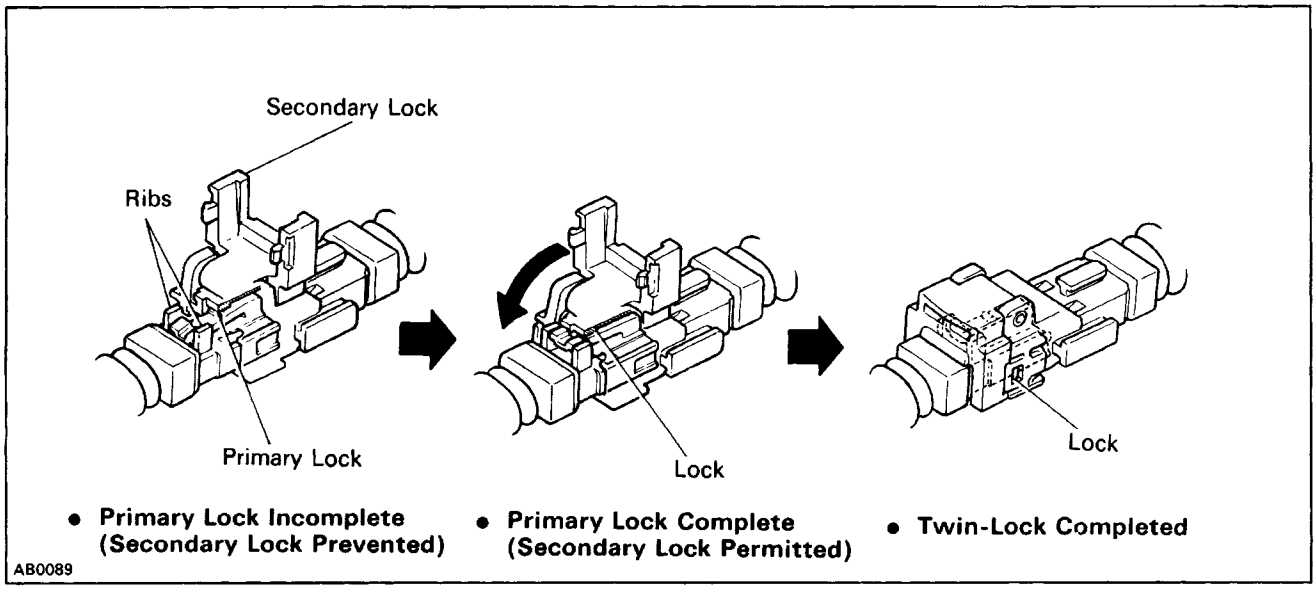


HINT: The illustration shows connector *. Connector¿¿ also has the same operating principle.

(4) Connector Twin–Lock Mechanism

with this mechanism connectors (male and female connectors) are locked by two locking devices to increase connection reliability.

If the primary lock is incomplete, ribs interfere and prevent the secondary lock.



When the vehicle is involved in a frontal collision in the hatched area (Fig. 1) and the shock is larger than a predetermined level, the airbag is activated automatically. Safing sensors are designed to go on at a smaller deceleration rate than the front and center airbag sensors. As illustrated in Fig. 2 below, ignition is caused when current flows to the squib, which happens when a safing sensor and a front airbag sensor and/or the center airbag sensor go on simultaneously.

When a deceleration force acts on the sensors, it causes the squib to ignite. Gas is then generated, increasing the pressure inside the bag rapidly. The inflated bag breaks open the steering wheel pad. Bag inflation then ends, and the gas is discharged through discharge holes provided behind the bag. The bag becomes deflated as a result.

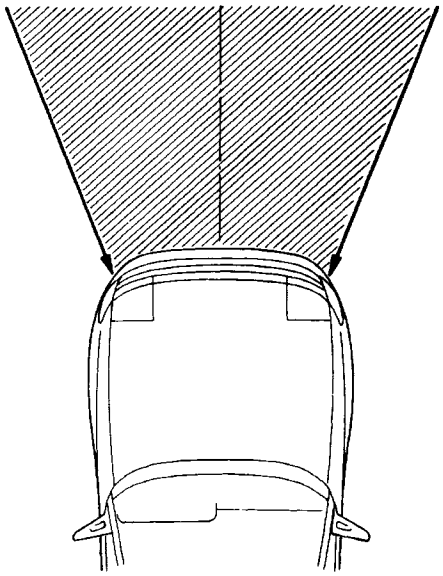


Fig. 1

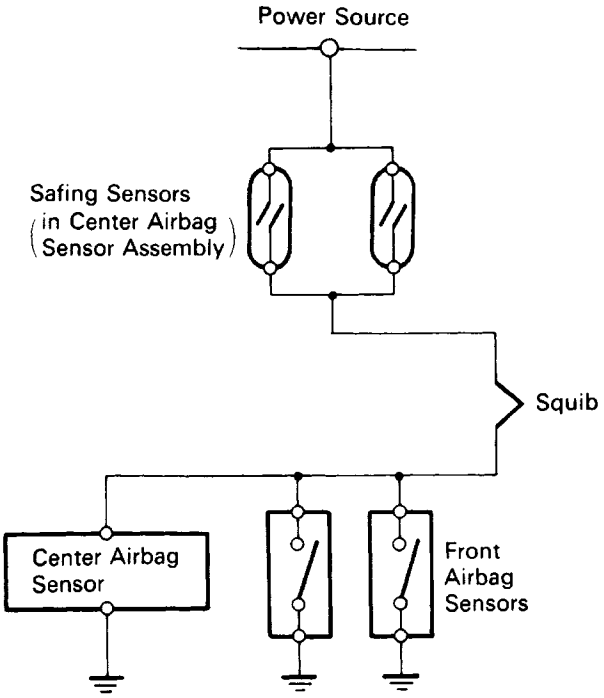


Fig 2

INSPECTION ITEMS AND REPLACEMENT REQUIREMENTS

If a vehicle is brought in for an airbag system inspection, or if a vehicle which has been involved in a collision is inspected, perform the inspection in accordance with the following procedure. If any problems are discovered, replace the affected part with a new one.

Steering Wheel Pad (with Airbag), Steering Wheel and Spiral Cable

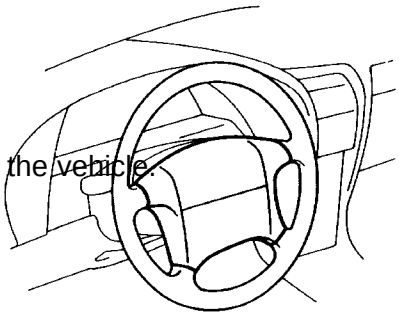
INSPECTION ITEMS

1. VEHICLES NOT INVOLVED IN A COLLISION

(a) Perform a diagnostic system check (See page AB–29).

(b) Perform a visual check which includes the following items with the steering wheel pad (with airbag) installed in the vehicle.

- Check for cuts, minute cracks or marked discol oration of the steering wheel pad top surface and grooved portion.


AB0149

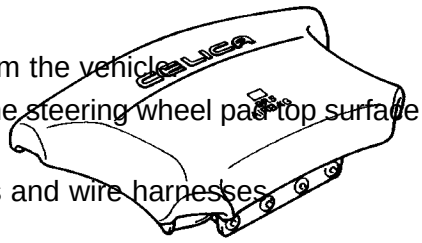
2. VEHICLES INVOLVED IN A COLLISION

(IF THE AIRBAG IS NOT DEPLOYED)

(a) Perform a diagnostic system check (See page AB–29).

(b) Perform a visual check which includes the following items with the steering wheel pad (with airbag) removed from the vehicle.

- Check for cuts or cracks in, or marked discoloration of the steering wheel pad top surface and grooved portion.
- Check for cuts and cracks in, or chipping of connectors and wire harnesses.
- Check for deformation of the horn button contact plate of the steering wheel.

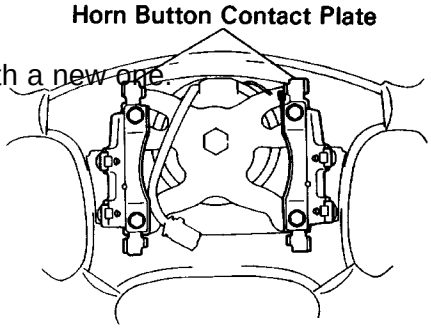


AB0207

HINT:

- If the horn button contact plate of the steering wheel is deformed, never repair it. Always replace the steering wheel with a new one.
- There should be no interference between the steering wheel pad and the steering wheel, and the clearance should be uniform all the way around when the new steering wheel pad is installed on the steering wheel.

CAUTION: For removal and installation of the steer ing wheel pad, see page AB–15, "REMOVAL AND IN– STALLATION" and be sure to follow the correct proce dure.



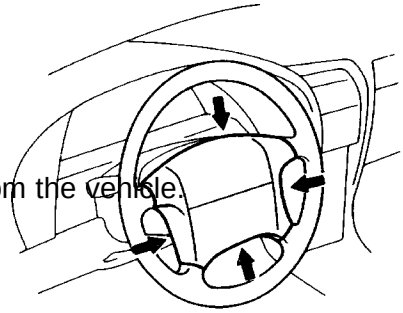
AB0202

(IF THE AIRBAG IS DEPLOYED)

(a) Perform a diagnostic system check (See page AB–29).

(b) Perform a visual check which includes the following items with the steering wheel pad (with airbag) removed from the vehicle.

- Check for deformation of the horn button contact plate of the steering wheel.
- Check for damage to the spiral cable connector and wire harness.


AB0149

HINT;

- If the horn button contact plate of the steering wheel is deformed, never repair it. Always replace the steering wheel with a new one.
- . There should be no interference between the steering wheel pad and the steering wheel, and the clearance should be uniform all the way around when the new steering wheel pad is installed on the steering wheel.

REPLACEMENT REQUIREMENTS

In the following cases, replace the steering wheel pad, steering wheel or spiral cable.

CAUTION: For replacement of the steering wheel pad, see page AB–15, "REMOVAL AND INSTALLATION" and be sure to follow the correct procedure.

- If the airbag has been deployed.
- If the steering wheel pad or spiral cable has been found to be faulty in troubleshooting.
- If the steering wheel pad, steering wheel or spiral cable has been found to be faulty during the check in item 1.–(b) or 2.–(b).
- If the steering wheel pad has been dropped.

Front Airbag Sensor

INSPECTION ITEMS

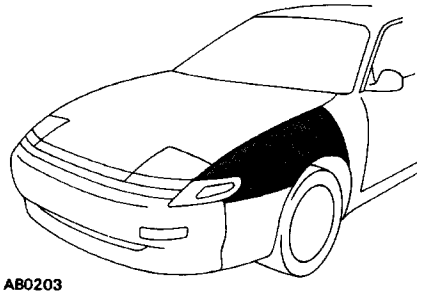
1. VEHICLES NOT INVOLVED IN A COLLISION

- Perform a diagnostic system check (See page AB–29).

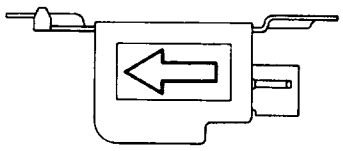
2. VEHICLES INVOLVED IN A COLLISION

(a) Perform a diagnostic system check (See page AB–29).

(b) If the front fender of the car or its periphery is damaged, perform visual check for damage to the front airbag sensor, which includes the following items even if the airbag was not deployed:


AB0203

- Bracket deformation.
- Peeling of paint from the bracket.
- Cracks, dents or chips in the case.
- Cracks and dents in, or chipping and scratches of the connector.
- Peeling off of the label or damage to the series number.


AB0018

Also refer to the body dimension drawings on page BO–73 and check the dimensions and mounting surface angle of the body area where the front airbag sensors are mounted.
(The airbag may malfunction, or may not work, if the mounting angle or dimensions of the sensor mount are not correct.)

REPLACEMENT REQUIREMENTS

In the following cases, replace the front airbag sensor.

NOTICE; For replacement of the front airbag sensor, seepage AB–17, ”REMOVAL AND INSTAL–LATION”.

- If the airbag has been deployed in a collision.
  (Replace both the left and right airbag sensors.)
- If the front airbag sensor has been found to be faulty in troubleshooting.
- If the front airbag sensor has been found to be faulty during the check in item 2.–(b).
- If the front airbag sensor has been dropped.

Center Airbag Sensor Assembly

INSPECTION ITEMS

1. VEHICLES NOT INVOLVED IN A COLLISION

- Perform a diagnostic system check (See page AB–29).

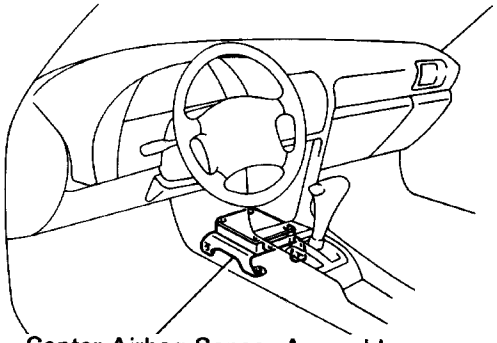
2. VEHICLES INVOLVED IN A COLLISION

(IF THE AIRBAG IS NOT DEPLOYED)

- Perform a diagnostic system check (See page AB–29).

(IF THE AIRBAG IS DEPLOYED)

(a) Perform a diagnostic system check (See page AB–29).



(b) Check the following items in the center airbag sensor assembly:

- Deformation of the bracket or case.
- Vinyl seat broken.
- Damage to the connector.

NOTICE: If the center airbag sensor assembly interferes with any other parts, perform a check after repairs.

REPLACEMENT REQUIREMENTS

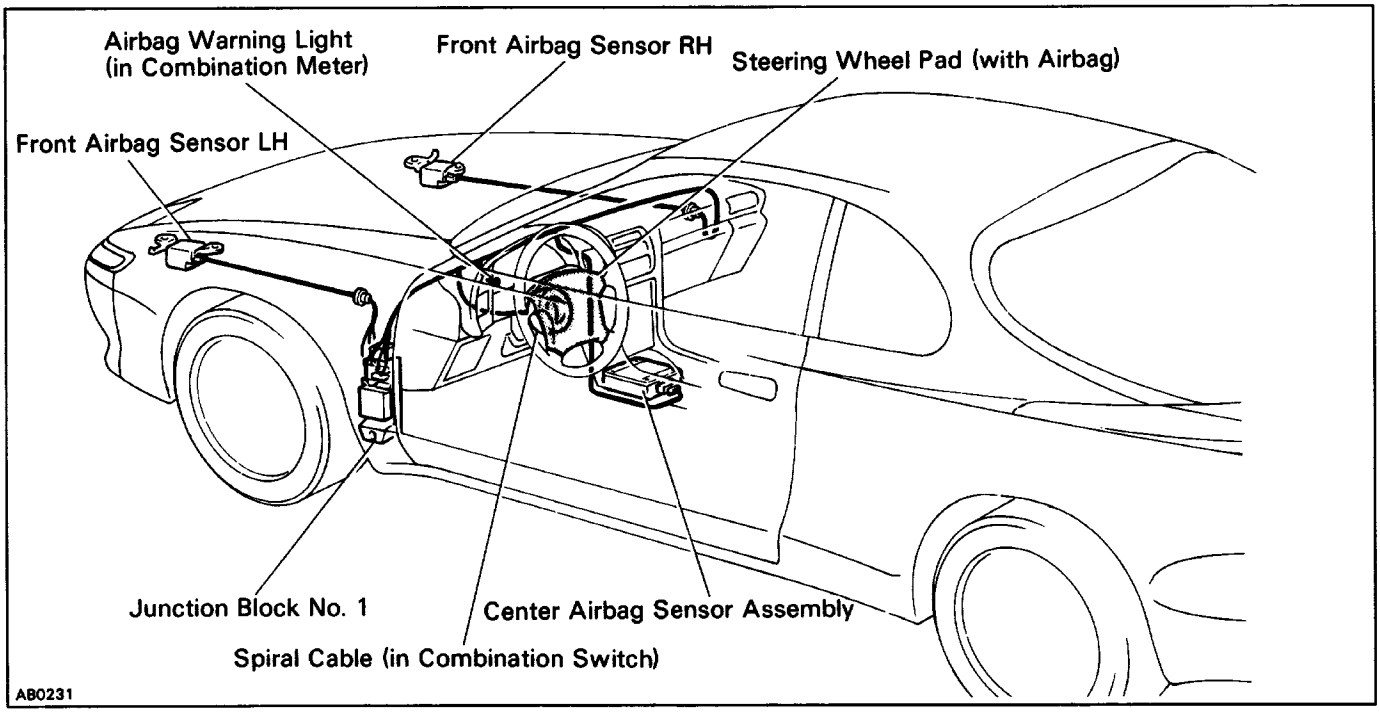
In the following cases, replace the center airbag sensor assembly.

NOTICE: For replacement of the center airbag sensor assembly, see page AB–19, ”REMOVAL AND INSTALLATION”.

- If the center airbag sensor assembly has been found to be faulty in troubleshooting.
- If the center airbag sensor assembly has been found to be faulty during the check in item 2. –(b) .
- If the center airbag sensor assembly has been dropped.

Wire Harness and Connector

HINT: The airbag system wire harness is integrated with the cowl wire harness assembly. The wires for the airbag wire harness are encased in a yellow corrugated tube and all the connectors in the system are a standard yellow color.



INSPECTION ITEMS

1. VEHICLES NOT INVOLVED IN A COLLISION

- Perform a diagnostic system check (See page AB–29).

2. VEHICLES INVOLVED IN A COLLISION

(a) Perform a diagnostic system check (See page AB–29).

(b) If there is a break in any of the wires in the airbag system wire harness, or if conductors are exposed.

(c) If the airbag system wire harness connectors are cracked or chipped.

REPLACEMENT REQUIREMENTS

In the following cases, replace the wire harness or connector.

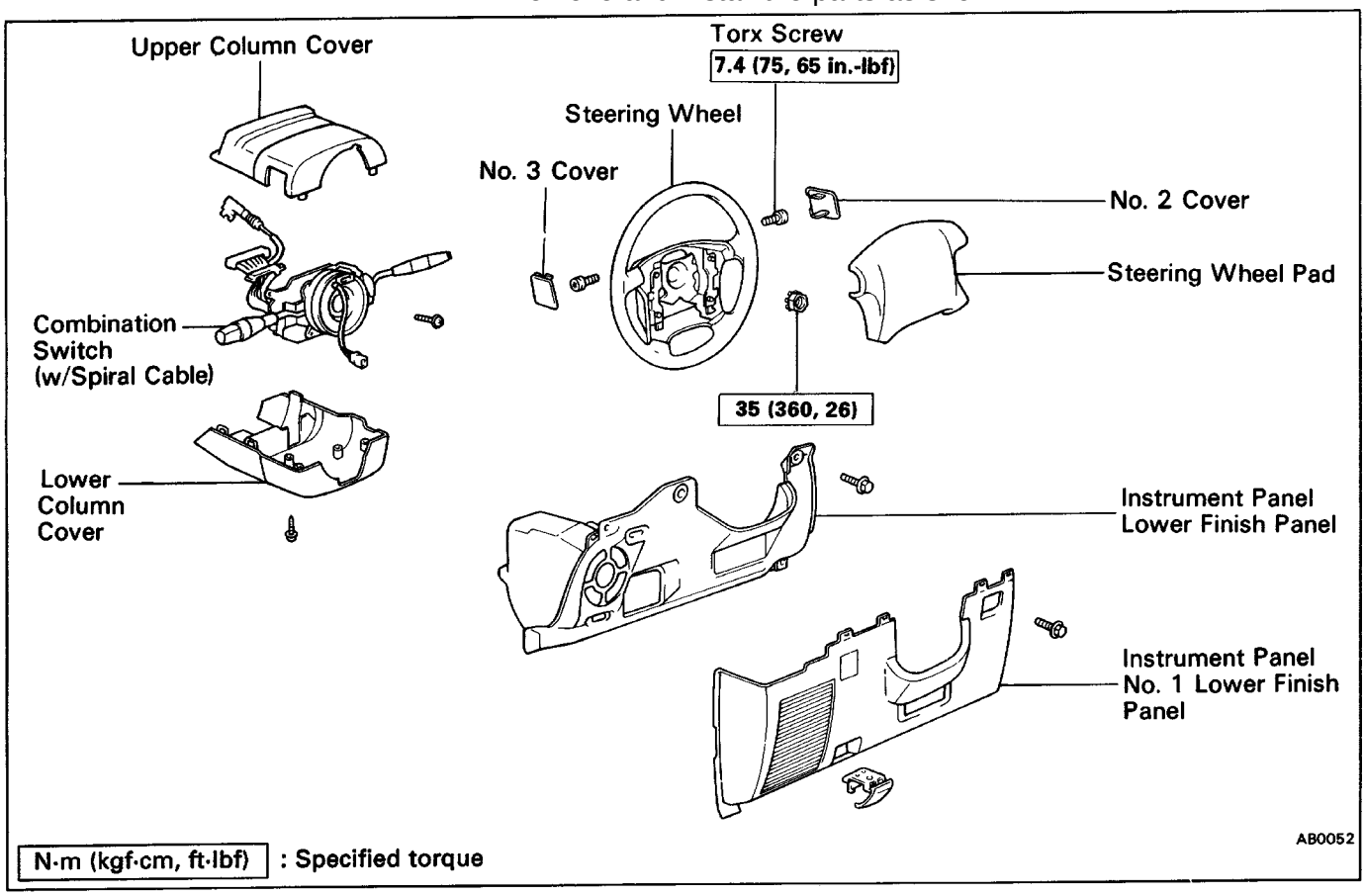
- . If any part of the airbag system wire harness or any connector has been found to be faulty in troubleshooting.
- If any part of the airbag system wire harness or any connector has been found to be faulty during the check in item 2.–(b) or (e).

NOTICE: If the wire harness used in the airbag system is damaged, replace the whole wire harness assembly.

When the connector to the front airbag sensors can be repaired alone (when there is no damage tc the wire harness), use the repair wire specially designed for the purpose (See page AB–21).

REMOVAL AND INSTALLATION OF COMPONENT PARTS
Steering Wheel Pad and Spiral Cable

Remove and install the parts as shown.

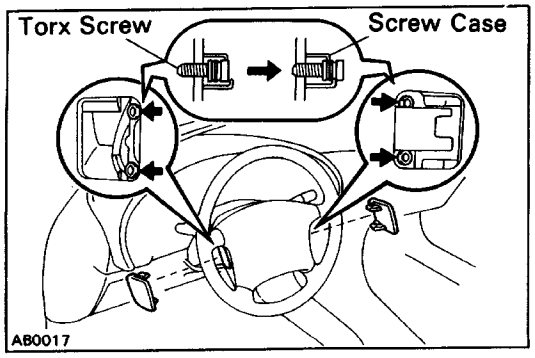


(MAIN POINTS OF REMOVAL AND INSTALLATION)

CAUTION: Work must be started after approx. 20 seconds or longer from the time the ignition switch is turned to the LOCK position and the negative 1–) terminal cable is disconnected from the battery (See page AB–2).

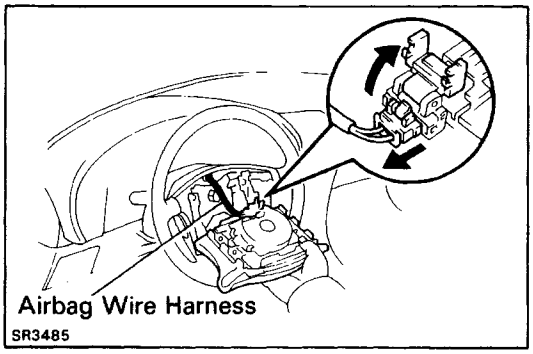
NOTICE:

- If the wiring connector of the airbag system is disconnected with the ignition switch at ON or ACC, diagnostic codes will be recorded.
- Never use airbag parts from another vehicle. When replacing parts, replace with new parts.

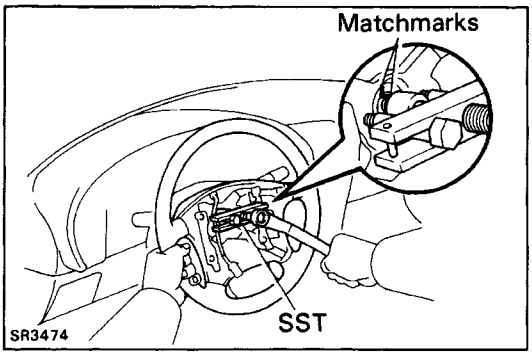


1. REMOVE STEERING WHEEL PAD

(a) Remove negative terminal (–) from the battery.
(b) Place the front wheels facing straight ahead.
(c) Using a torx wrench, loosen the four screws.
Torx wrench: T30 (Part No. 09042–00010 or locally manufactured tool)
(d) Loosen the torx screws until the groove along the screw circumference catches on the screw case.

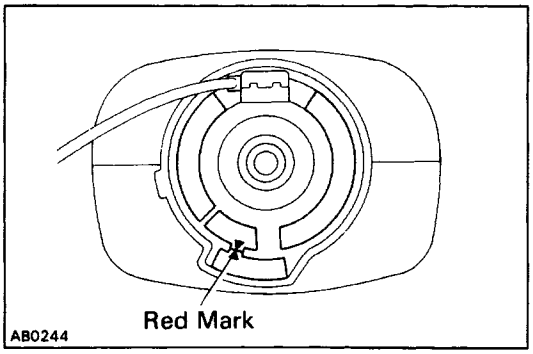


(e) Pull the wheel pad out from the steering wheel and disconnect the airbag connector.
NOTICE: When removing the wheel pad, take care not to pull the airbag wire harness.
CAUTION:
- When storing the wheel pad, keep the upper surface of the pad facing upward (See pages AB–3, 4).
- Never disassemble the wheel pad.

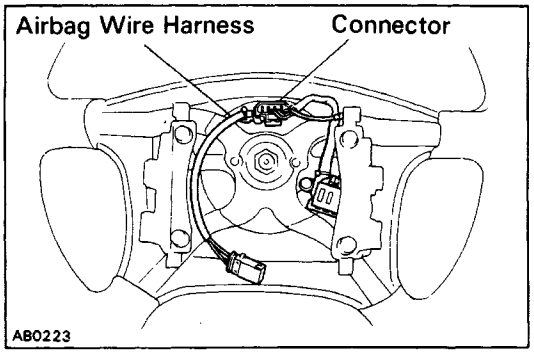


2. REMOVE STEERING WHEEL
(a) Disconnect the connector.
(b) Remove the set nut.
(c) Place matchmarks on the steering wheel and main shaft.
(d) Using SST, remove the steering wheel.
SST 09213–31021

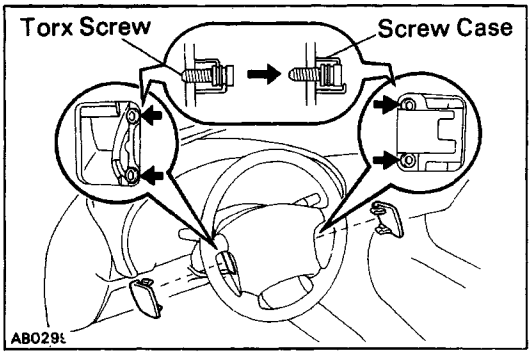
3. REMOVE AND INSTALL SPIRAL CABLE FROM/TO COMBINATION SWITCH
(See page BE–31)
NOTICE: Do not disassemble the spiral cable or apply oil to it.



4. CENTER SPIRAL CABLE
(a) Check that the front wheels are facing straight ahead.
(b) Turn the spiral cable counterclockwise by hand until it becomes harder to turn the cable.
(c) Then rotate the spiral cable clockwise about 2 1 /2 turns to align the red mark.
HINT: The spiral cable will rotate about 2 1 /2 turns to either left or right of the center.



5. INSTALL STEERING WHEEL
(a) Align matchmarks on the steering wheel and main shaft, and install the steering wheel to the main shaft.
(b) Install and torque the set nut.
Torque: 35 N–m (360 kgf–cm, 26 ft–lbf)
(c) Connect the connector.

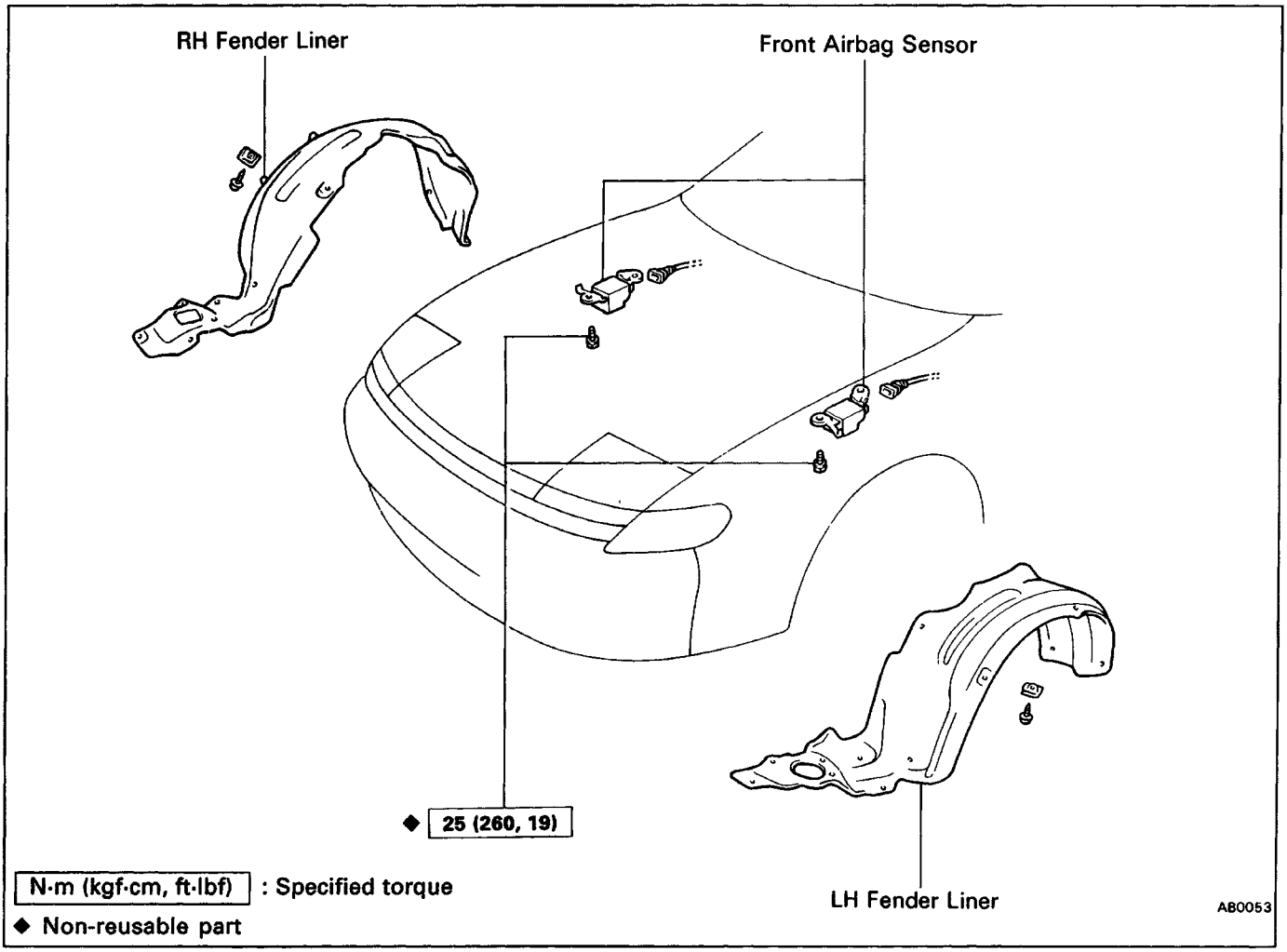


6. INSTALL STEERING WHEEL PAD
(a) Connect the airbag connector.
(b) Install the wheel pad after confirming that the circumference groove of the torx screws is caught on the screw case.
(c) Using a torx wrench, tighten the four screws.
Torque: 7.4 N–m (75 kgf–cm, 65 in.–lbf)
NOTICE:
- **Make sure the wheel pad is installed to the specified torque.**
- **If the wheel pad has been dropped, or there are cracks, dents or other defects in the case or connector, replace the wheel pad with a new one.**
- **When installing the wheel pad, take care that the wirings do not interfere with other parts and are not pinched between other parts.**

7. CHECK STEERING WHEEL CENTER POINT

Front Airbag Sensor

Remove and install the parts as shown.

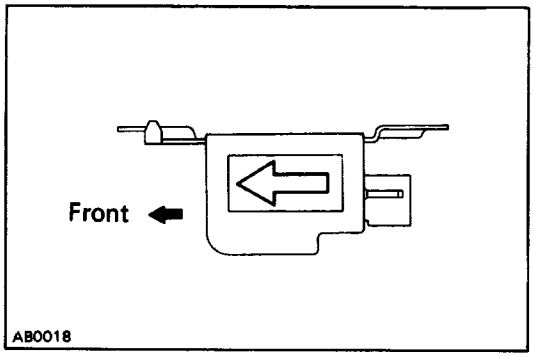


(MAIN POINTS OF REMOVAL AND INSTALLATION)

CAUTION: Work must be started after approx. 20 seconds or longer from the time the ignition switch is turned to the LOCK position and the negative (–) terminal cable is disconnected from the battery (See page AB–2).

NOTICE:

- If the wiring connector of the airbag system is disconnected with the ignition switch at ON or ACC, diagnostic codes will be recorded.
- Never use airbag parts from another vehicle. When replacing parts, replace with new parts.
- Never reuse the sensor involved in a collision when the airbag has deployed.
- Never repair a sensor in order to reuse it.



INSTALL FRONT AIRBAG SENSOR

Install the sensor with the arrow on the sensor facing toward the front of the vehicle.

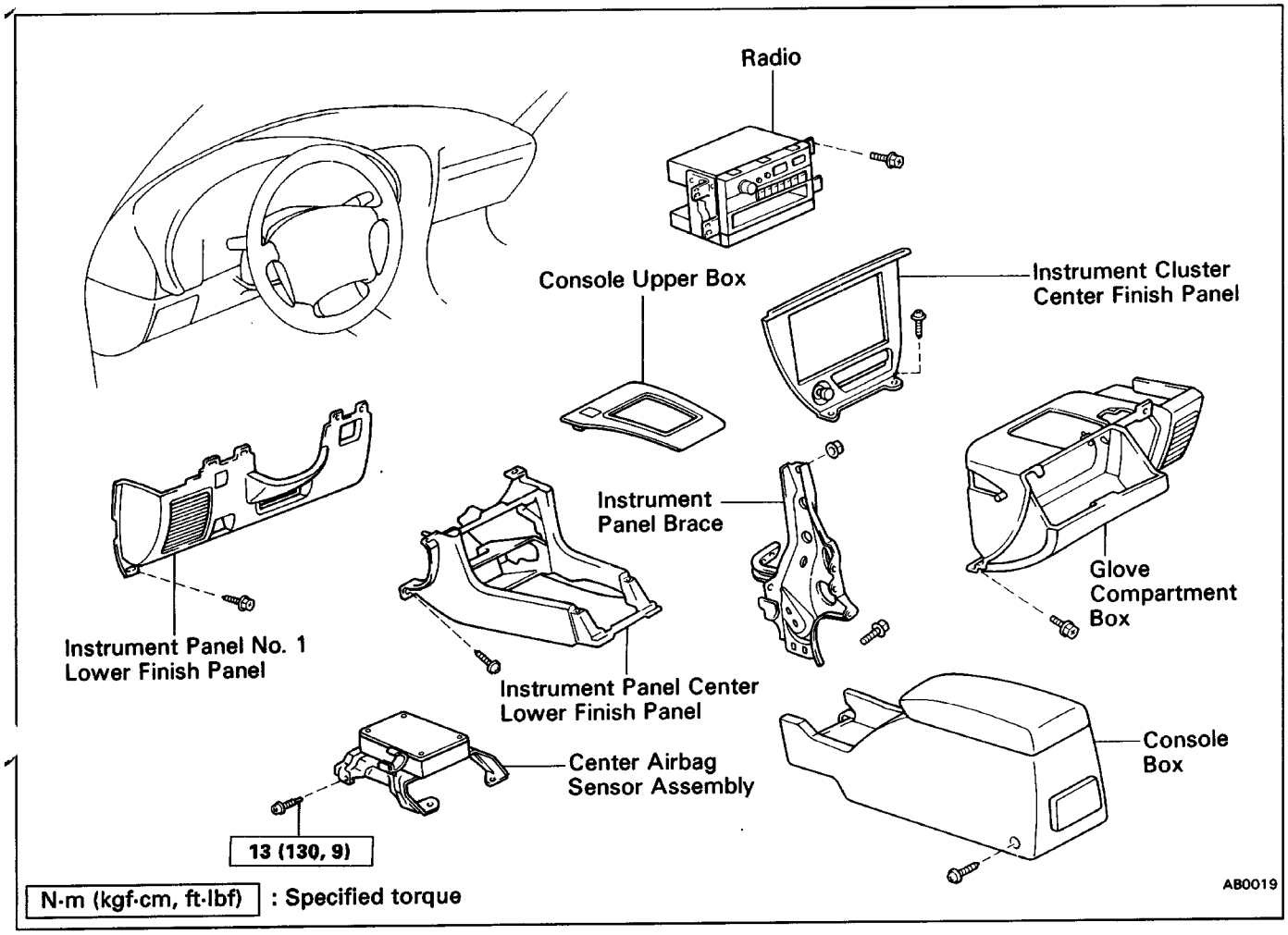
Torque: 25 N–m (260 kgf–cm, 19 ft–lbf)

NOTICE:

- **Make sure the sensor is installed to the specified torque.**
- **If the sensor has been dropped, or there are cracks, dents or other defects in the case, bracket or connector, replace the sensor with a new one.**
- **The sensor set bolts have been anti–rust treated. When the sensor is removed, always replace the set bolts with new ones.**
- **After installation, shake the sensor to check that there is no looseness.**
- **The front sensor is equipped with an electrical connection check mechanism. Be sure to lock this mechanism securely when connecting the connector. If the connector is not securely locked, a malfunction code will be detected by the diagnosis system.**
- **Check that the dimensions of the body where the front airbag sensor is installed match those in the body dimension drawings on page BO–73.**
  (The airbag may malfunction, or may not work, if the mounting angle or dimensions of the sensor mount are not correct.)

Center Airbag Sensor Assembly

Remove and install the parts as shown.

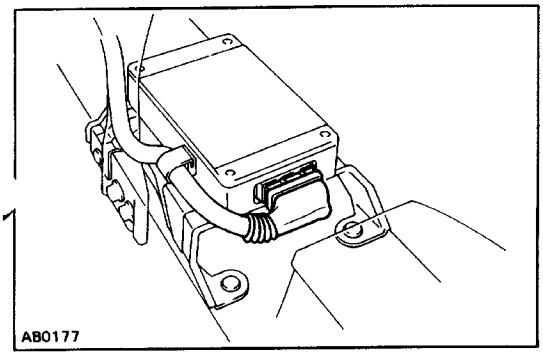


(MAIN POINTS OF REMOVAL AND INSTALLATION)

CAUTION: Work must be started after approx. 20 seconds or longer from the time the ignition switch is turned to the LOCK position and the negative H terminal cable is disconnected from the battery (See page AB–2).

NOTICE:

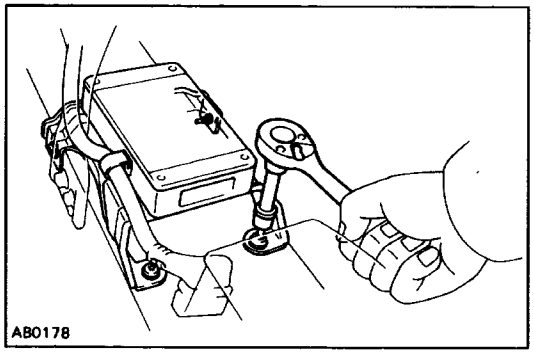
- **Do not open the cover or the case of the ECU and various computers unless absolutely necessary. (If the IC terminals are touched, the IC may be destroyed by static electricity.)**
- **Never use airbag parts from another vehicle. When replacing parts, replace with new parts.**
- **Never repair a sensor in order to reuse it.**



REMOVE AND INSTALL CENTER AIRBAG SENSOR ASSEMBLY

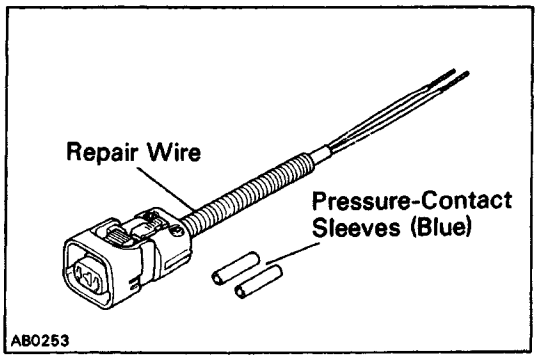
(a) Disconnect and connect the connector.

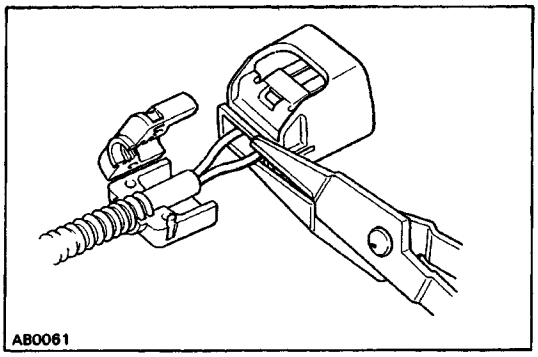
NOTICE: Removal and installation of the connector is done with the sensor assembly installed.

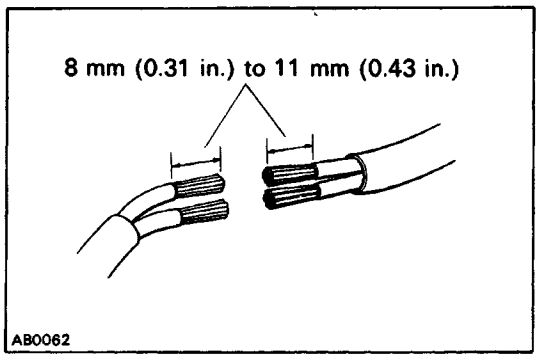


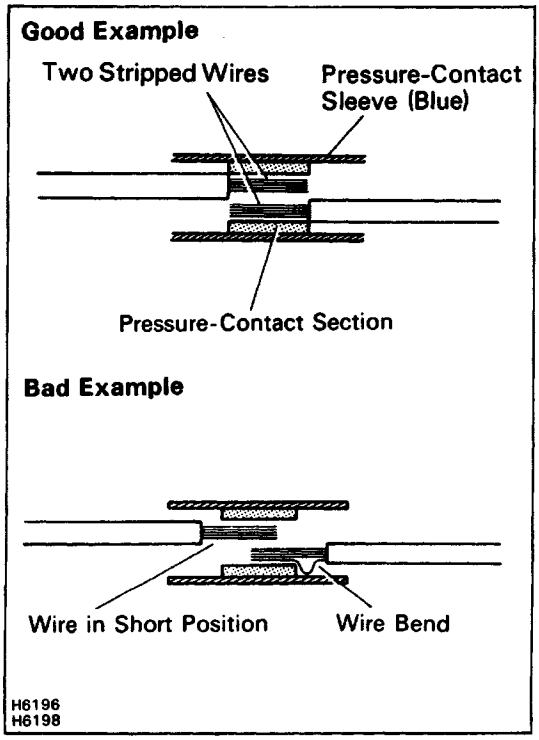
(b) Using a torx wrench, loosen and tighten the four screws.
Torx wrench: T40 (Part No. 09042–00020 or locally manufactured tool)
Torque: 13 N–m (130 kgf–cm, 9 ft–lbf)
NOTICE:

- Make sure the sensor assembly is installed to the specified torque.
- If the sensor assembly has been dropped, or there are cracks, dents or other defects in the case, bracket or connector, replace the sensor assembly with a new one.
- When installing the sensor assembly, take care that the airbag wirings do not interfere with other parts and are not pinched between other parts.
- After installation, shake the sensor assembly to check that there is no looseness.









REPLACEMENT OF REPAIR WIRE FOR FRONT AIRBAG SENSOR

Repair wire with two pressure–contact sleeves (Part No. 82988–50010) has been prepared for exclusive use in repair–ing connector damage etc. caused by frontal collision of the vehicle.

When repairing the front airbag sensor connector on the wire harness side, always use the special repair wire.

NOTICE: Do not replace the connector housing or terminal only.

REPLACEMENT OF AIRBAG REPAIR WIRE

CAUTION: Work must be started after approx. 20 seconds or longer from the time the ignition switch is turned to the "LOCK" position and the negative (–) terminal cable is disconnected from the battery.

1. DISCONNECT WIRE HARNESS AT VEHICLE SIDE

(a) Remove the cover at the rear of the connector housing and ex-pose the wire harness.

(b) Cut the wire harness behind the connector housing.

HINT: The operation is performed more easily if the wire harness is left as long as possible.

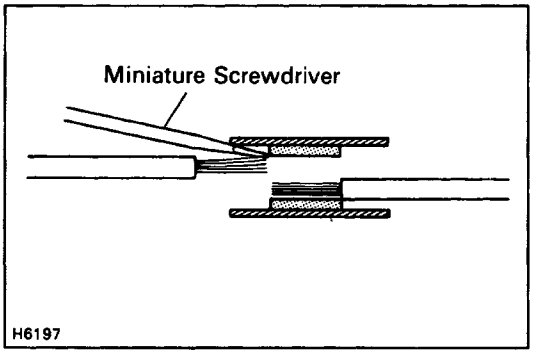
2. CONNECT FRONT AIRBAG SENSOR WIRE HARNESS AT VEHICLE SIDE AND REPAIR WIRE

(a) Start stripping at least 8 mm (0.31 in.) to 11 mm (0.43 in.) away from the end of the existing harness at vehicle side and also from the end of the repair wire.

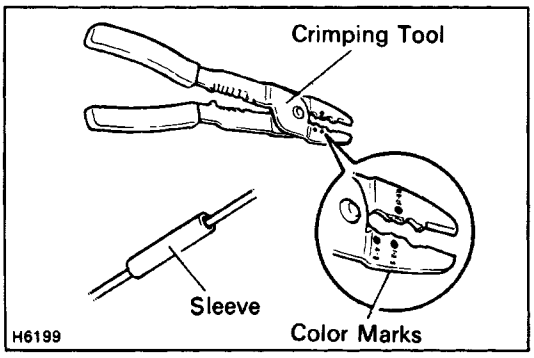
NOTICE: Take care not to damage the wire when stripping the wire harness lead. After finishing the operation, visually inspect the wire. If there is any damage, perform the operation again.

(b) Overlap the two stripped wire ends inside of the pressure–contact sleeve as illustrated on the left.

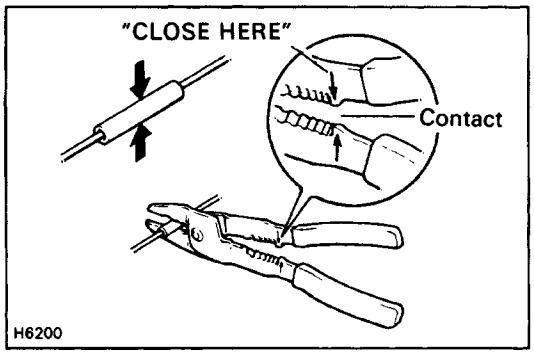
HINT: The blue pressure–contact sleeve (Part No. 82999–12020) is available as a solitary spare part.



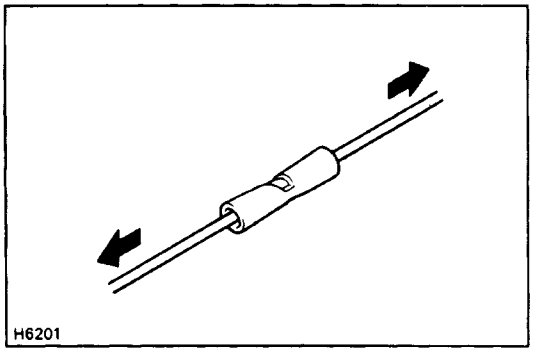
HINT: You might find it easier if you use a miniature screwdriver as a guide as you insert wires into the sleeve.



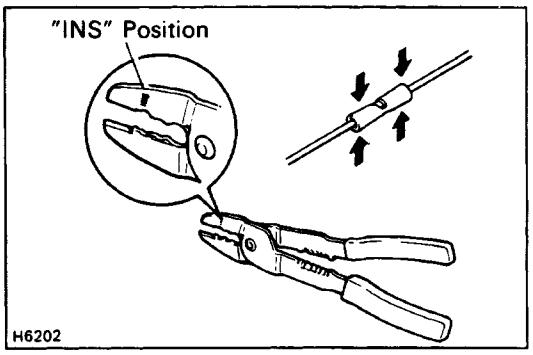
(c) The crimping tool (AMP Part No. 169060) has color marks on it. Place the sleeve in the correct section of the tool according to the color of the sleeve itself.
HINT: As the crimping tool, AMP ”Part No. 169060” is convenient to use.



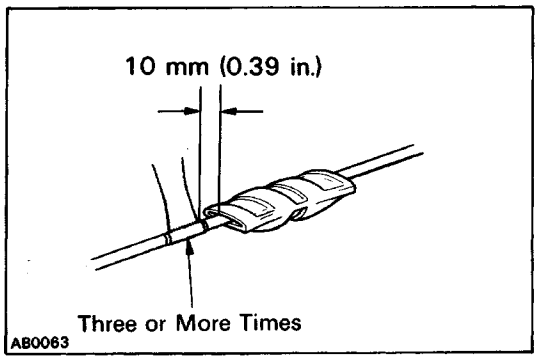
(d) With the center of the sleeve correctly placed between the crimping jaws, squeeze the crimping tool until either end comes into contact at the section marked by ”CLOSE HERE”.
HINT: Check to see that the sleeve and wires are still in the correct position before closing the crimping tool ends with steady pressure.



(e) Pull the joined wires to either end. Make sure that they are joined firmly by the sleeve.
NOTICE: If the joined wires come loose the splice is defective, so replace the sleeve and repeat the procedure.



(f) Crimp both ends of the sleeve with the crimping tool at the ”INS” position.



3. PROTECT JOINED SECTION

Wrap silicon tape around the joins to protect them from water.

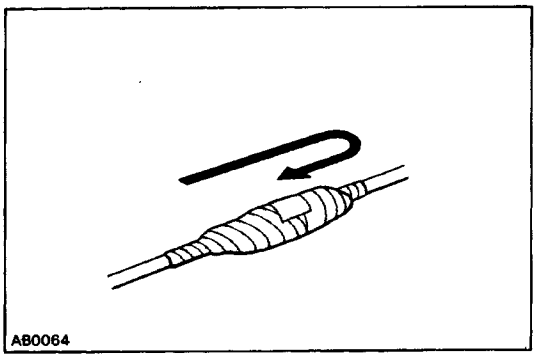
HINT:

- Before starting the operation, thoroughly wipe dirt and grease off the sections to be joined.
- If the adhesive surfaces of two tapes come in contact they will stick together and will not come apart, so .do not remove the backing film except when using the tape.
- Do not let oil and dust, ect. get on the tape surface.

(a) Ready about 100 mm (3.94 in.) of silicon tape (Part No. 08231–00045) and peel off the film.

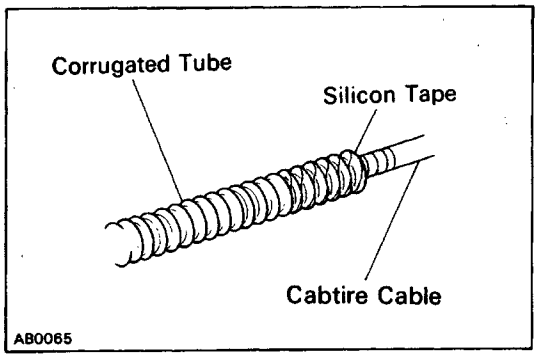
(b) Stretch the silicon tape until its width is reduced by half.

(c) About 10 mm (0.39 in.) from the end of the pressure–contact sleeve, wrap the silicon tape around the sleeve three or more times while stretching the tape.

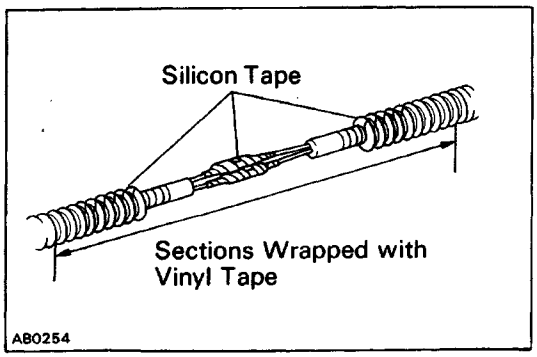


(d) Wrap the remaining part of sleeve with half of the tape overlapping at each turn.

(e) Firmly wrap the tape two times or more about 10 mm (0.39 in.) from the other end of the pressure–contact sleeve, then wrap the tape back towards the start again and firmly finish winding the tape around the center of the sleeve.



(f) Fix the corrugated tube to the cabtire cable using silicon tape.



(g) After applying the silicon tape, apply vinyl tape on the corrugated tube of repair wire side over to the corrugated tube of vehicle wire harness side.

TROUBLESHOOTING

How To Proceed With Troubleshooting

Malfunction symptoms of the airbag system are difficult to confirm, so the diagnostic codes become the most important source of information when troubleshooting.

Perform troubleshooting of the airbag system in accordance with the following procedure:

HINT: Do not disconnect the battery negative (–) terminal cable until step 3 , Diagnostic Code Check and Recording, has been completed.

1 CUSTOMER PROBLEM ANALYSIS

Using the CUSTOMER PROBLEM ANALYSIS CHECK SHEET (See page AB–28) for reference, ask the customer in as much detail as possible about the problem.

2 WARNING LIGHT CHECK

Check the airbag warning light. If the light remains on, a malfunction is stored in the center airbag sensor assembly, so proceed to step 3 . If the airbag warning light is not on, a malfunction has occurred in the airbag warning light circuit, so perform troubleshooting for code 22.

HINT: Code 22 is recorded when a malfunction occurs in the airbag warning light system.

If an open malfunction occurs in the airbag warning light system, the airbag warning light does not light up, so that until the malfunction is repaired, the diagnostic codes (including code 22) cannot be confirmed.

3 DIAGNOSTIC CODE CHECK AND RECORDING

Check the diagnostic codes and make a note of any malfunction codes which are output. If a normal code is output, an abnormality in the power source circuit may have occurred, so perform troubleshooting for source voltage in step 8 .

If code 22 is output, skip steps 4 and 5 and proceed to step 7 .

4 CLEARING OF MALFUNCTION CODE (EXCEPT CODE 41)

Clear the malfunction code.

HINT: The malfunction code output in step 3 indicates that a malfunction has occurred in the circuit designated by the malfunction code, but does not indicate whether the malfunction is still occurring or whether it was in the past.

Accordingly, it is necessary to find out the present condition of the malfunction occurrence by clearing the malfunction code and performing the diagnostic code check again. If this operation is neglected and troubleshooting is performed using only the malfunction code confirmed in step 3 , isolating the problem component becomes difficult and invites mistaken diagnosis.

5 DIAGNOSTIC CODE CHECK AND RECORDING **6 SYMPTOM SIMULATION**

After repeating ignition switch ON–OFF operation (ON: wait 20 secs., OFF: wait 20 secs.) 5 times, check the diagnostic code. If any code other than code 41 is output, the malfunction is still occurring, so proceed to step 7 .

If code 41 only is output, the following three cases are possible:

- intermittent trouble occurred previously, but it is now normal.
- |The problem has been corrected, but clearing of code 41 has been forgotten.
- There is a malfunction in the circuit for code 41.

Focusing on the circuit of the malfunction code stored in step 3 , use the simulation method in step 6 in order to simulate the malfunction. If the malfunction occurs, proceed to step 7 ; if not, proceed to step 12 .

NOTICE: When connecting the battery after clearing the malfunction code, always do it with the ignition switch in LOCK position.
When the battery has been reconnected, turn the ignition switch to ACC or ON position–after at least 2 seconds have elapsed.
If the battery is reconnected with the ignition switch in ACC or ON position, or the ignition switch is turned to ACC or ON within 2 seconds of connecting the battery, it is possible that the diagnosis system will not operate normally.

HINT: Determine the malfunction in the airbag system in step 6 by whether or not a malfunction code other than code 41 is output.

7 DIAGNOSTIC CODE CHART

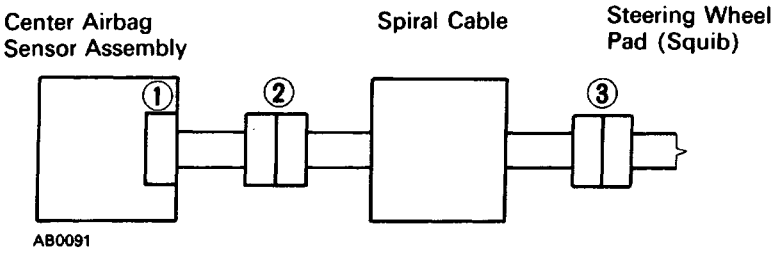
Proceed to the appropriate flow chart in step 8 in accordance with the malfunction code found in step 5 or 6 .

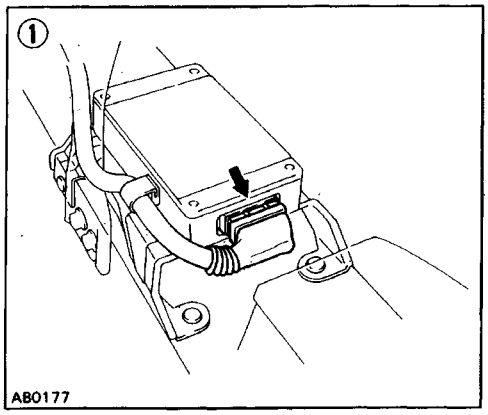
8 CIRCUIT INSPECTION 9 REPAIR

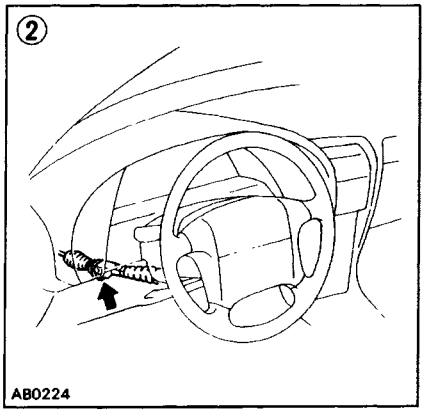
. Find out if the problem lies in a sensor, actuator or wire harness and connector, and repair the problem. After the problem part is repaired, reinstall the disassembled parts. Do not start work until at least 20 seconds after the ignition switch is turned to the LOCK position and the negative (–) terminal cable is disconnected.

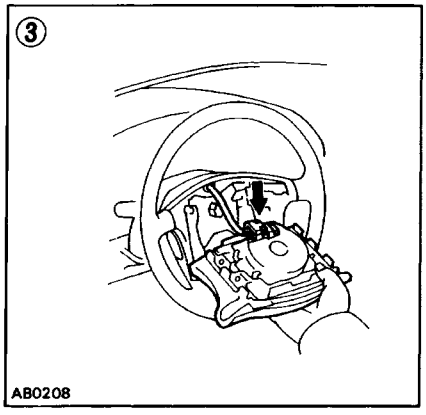
CAUTION: If incorrect procedure is used, a malfunction may occur in the system or there is the danger that the airbag may be accidentally activated during the repair operation. Carefully read the GENERAL DESCRIPTION (See page AB–2) and the cautions for each operation, and perform repairs in the correct order using the correct methods.

HINT: The following illustration for the CIRCUIT INSPECTION shows each connector for the circuit from the center airbag sensor assembly to the steering wheel pad (squib).









10 CLEARING OF MALFUNCTION CODE (EXCEPT CODE 41)

When all the malfunction codes found in steps 5 and 6 have been repaired, clear the malfunction codes.

11 DIAGNOSTIC CODE CHECK

After repeating ignition switch ON–OFF operation (ON: wait 20 secs., OFF: wait 20 secs.) 5 times, check the diagnostic codes. If only code 41 is displayed, proceed to step 12 . If a code other than 41 is displayed, return to step 7 and troubleshoot the displayed malfunction code.

NOTICE: When connecting the battery after clearing the malfunction code, always do it with the ignition switch in LOCK position.

When the battery has been reconnected, turn the ignition switch to ACC or ON position after at least 2 seconds have elapsed.

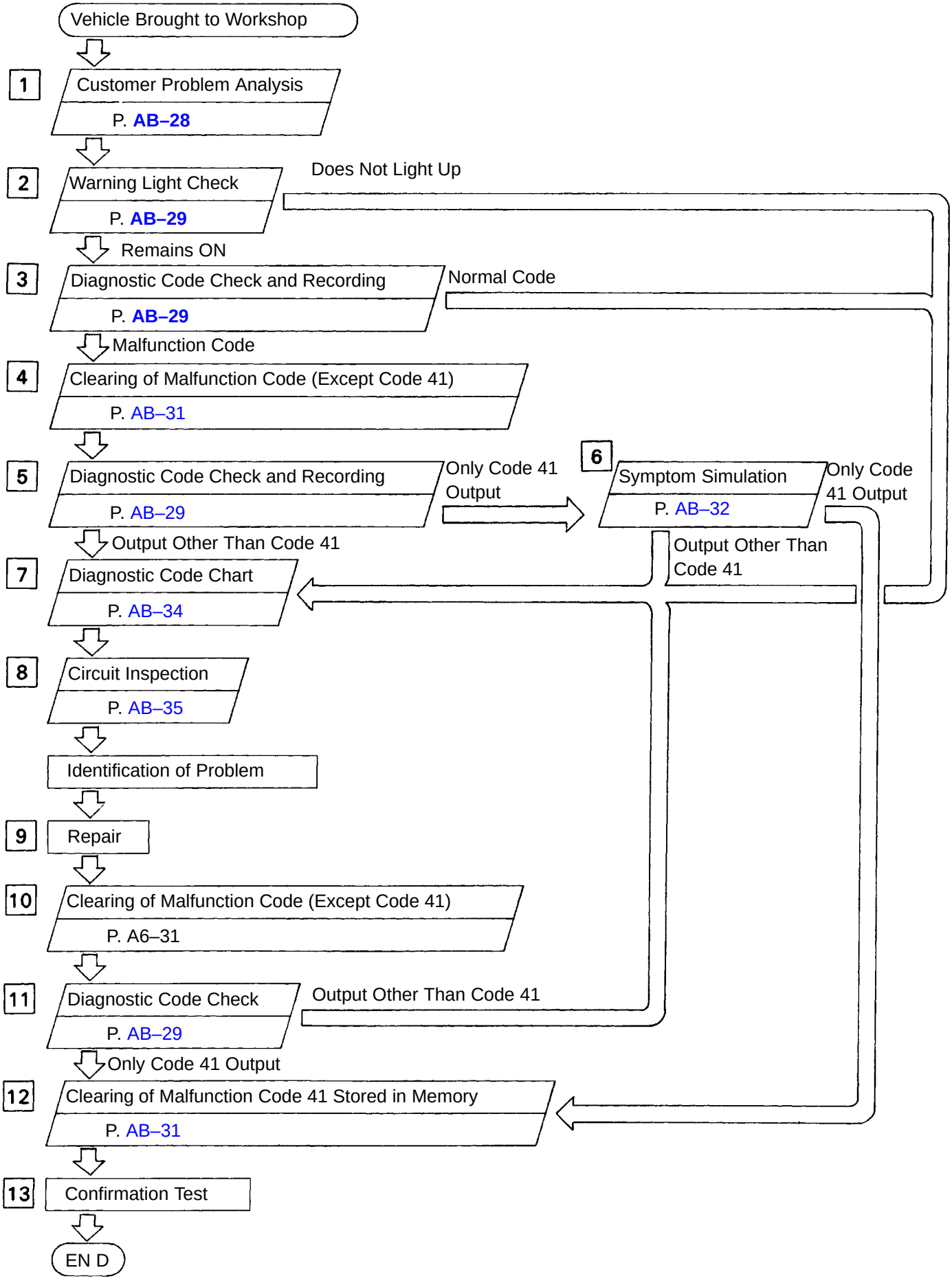
If the battery is reconnected with the ignition switch in ACC or ON position, or the ignition switch is turned to ACC or ON within 2 seconds of connecting the battery, it is possible that the diagnosis system will not operate normally.

12 CLEARING OF MALFUNCTION CODE 41 STORED IN MEMORY

Clear malfunction code 41 stored in memory. This operation is not necessary only in case that the power source voltage returns to normal.

13 CONFIRMATION TEST

Check the warning light again and confirm that all the malfunctions have been repaired. If the warning light indicates an abnormality, repeat the operation again from step 2 . If code 41 is output at step 3 , skip steps 4 and 5 and proceed to step 7 .


Vehicle Brought to Workshop
1
Customer Problem Analysis
P. AB–28
2
Warning Light Check
P. AB–29
Does Not Light Up
Remains ON
3
Diagnostic Code Check and Recording
P. AB–29
Normal Code
Malfunction Code
4
Clearing of Malfunction Code (Except Code 41)
P. AB–31
5
Diagnostic Code Check and Recording
P. AB–29
Only Code 41 Output
6
Symptom Simulation
P. AB–32
Only Code 41 Output
Output Other Than Code 41
Output Other Than Code 41
7
Diagnostic Code Chart
P. AB–34
8
Circuit Inspection
P. AB–35
Identification of Problem
9
Repair
10
Clearing of Malfunction Code (Except Code 41)
P. A6–31
11
Diagnostic Code Check
P. AB–29
Output Other Than Code 41
Only Code 41 Output
12
Clearing of Malfunction Code 41 Stored in Memory
P. AB–31
13
Confirmation Test
EN D

Customer Problem Analysis Check Sheet

SRS AIRBAG System Check Sheet

Inspector's Name :

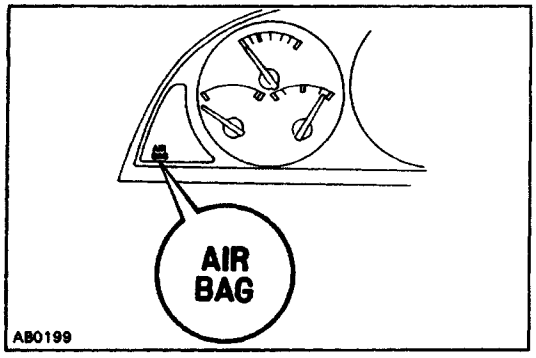
Customer's Name		Registration No.	
		Registration Year	/ /
		Frame No.	
Date Vehicle Brought In	/ /	Odometer Reading	Miles

Date of Problem Occurrence		/ /
Conditions at Time of Problem Occurrence	Weather	☐ Fine ☐ Cloudy ☐ Rainy ☐ Snowy ☐ Various/Other
	Outdoor Temperature	☐ Hot ☐ Warm ☐ Cool ☐ Cold (Approx. °C (°F))
	Vehicle Operation	☐ Starting ☐ Idling ☐ Driving [☐ Constant speed ☐ Acceleration ☐ Deceleration ☐ Other ( )]
	Condition of road	

Details of Problem	
Vehicle Inspection, Repair History Prior to Occurrence of Malfunction (Including Airbag System)	

(Diagnosis System Inspection)

Airbag Warning Light Inspection	1st Time	☐ Remains On ☐ Sometimes Lights Up ☐ Does Not Light Up
	2nd Time	☐ Remains On ☐ Sometimes Lights Up ☐ Does Not Light Up
Diagnostic Code Inspection	1st Time	☐ Normal Code ☐ Malfunction Code [Code.]
	2nd Time	☐ Normal Code ☐ Malfunction Code [Code.]



Diagnosis Inspection

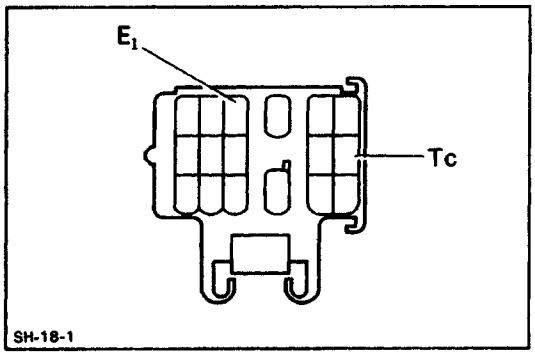
AIRBAG WARNING LIGHT CHECK

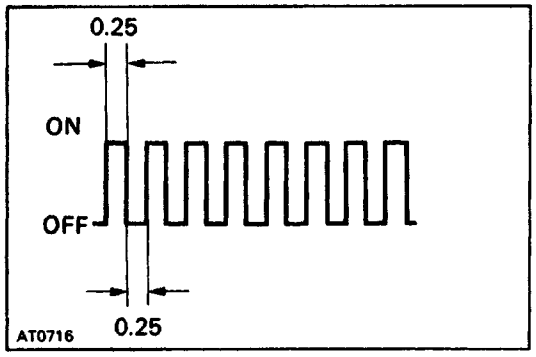
(a) Turn the ignition switch to ACC or ON and check that the airbag warning light lights up.

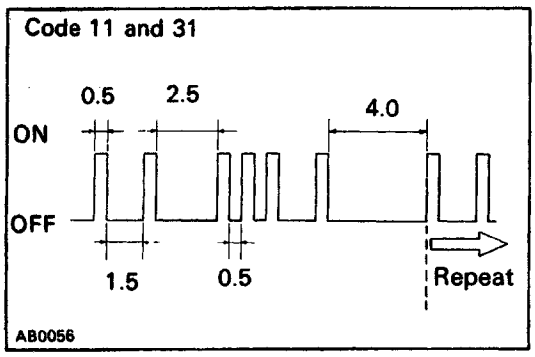
(b) Check that the airbag warning light goes out after approx. 6 seconds.

HINT:

- When the ignition switch is at ACC or ON and the airbag warning light remains on, the center airbag sensor assembly has detected a malfunction code.
- If, after approx. 6 seconds have elapsed, the airbag warning light sometimes lights up or the airbag warning light lights up even when the ignition switch is OFF, a short in the airbag warning light circuit can be considered likely.
  Proceed to "Airbag warning light system (always lit up)" on page AB–75.







DIAGNOSTIC CODE CHECK

1. OUTPUT DIAGNOSTIC CODE

(a) Turn the ignition switch to ACC or ON position and wait approx. 20 seconds.

(b) Using SST, connect terminals Tc and E, of the check connector.
SST 09843–18020

NOTICE: Never make a mistake with the terminal connection position as this will cause a malfunction.

2. READ DIAGNOSTIC CODE

Read the diagnostic code as indicated by the number of times the airbag warning light blinks.

- **Normal code indication**
  The light will blink 2 times per second.
- **Malfunction code indication**
  In the even of a malfunction, the light will blink.
  The first number of the code No. will equal the first digit of a 2–digit diagnostic code, and after a 1.5 second pause, the 2nd number of the code No. will equal the 2nd digit. If there are two or more codes, there will be a 2.5 second pause between each.
  After all the codes have been output, there will be a 4.0 second pause and they will all be repeated.

HINT:

- I n the event of a number of trouble codes, indication will begin from the smaller numbered code to the larger.
- If a diagnostic code is not output or is continuously output, proceed to the Tc terminal circuit inspection on page AB–77.

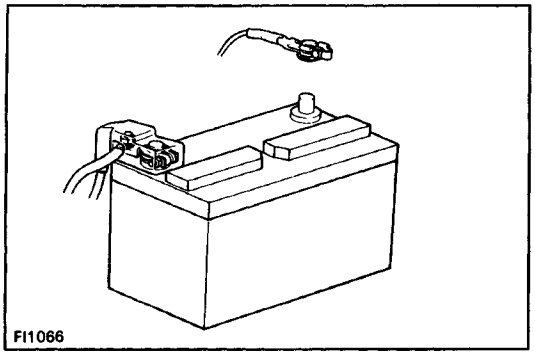
DIAGNOSTIC CODES

Code No.	Blink Pattern	Diagnosis	Trouble Area	AIRBAG Warning Light
(Normal)	 FI1401	• System normal	–	OFF
		• Source voltage drop	• Battery • Center airbag sensor assembly	ON
11	 AB0057	• Short in squib circuit or front airbag sensor circuit (to ground)	• Steering wheel pad (squib) • Front airbag sensor • Spiral cable • Center airbag sensor assembly • Wire harness	ON
12	 FI1389	• Short in squib circuit or front airbag sensor circuit (to + B)	• Steering wheel pad (squib) • Front airbag sensor • Spiral cable • Center airbag sensor assembly • Wire harness	ON
13	 FI1390	• Short in squib circuit (between D+ wire harness and 0–wire harness)	• Steering wheel pad (squib) • Spiral cable • Center airbag sensor assembly • Wire harness	ON
14	 FI1391	9 Open in squib circuit	• Steering wheel pad (squib) • Spiral cable • Center airbag sensor assembly • Wire harness	ON
15	 AB0058	• Open in front airbag sensor circuit	• Front airbag sensor • Center airbag sensor assembly • Wire harness	ON
22	 FI1392	• Airbag warning light system malfunction	• Airbag warning light • Center airbag sensor assembly • Wire harness	ON
31	 FI1394	• Center airbag sensor assembly malfunction	• Center airbag sensor assembly	ON
41	 FI1396	• Malfunction stored in memory	• (Center airbag sensor assembly)	ON

HINT:

- When the airbag warning light remains lit up and the diagnostic code is the normal code, this means a source voltage drop.
  This malfunction is not stored in memory by the center airbag sensor assembly and if the power source voltage returns to normal, after approx. 10 seconds the airbag warning light will automatically go out.
- Code 22 is recorded when a malfunction occurs in the airbag warning light system.
  If an open malfunction occurs in the airbag warning light system, the airbag warning light does not light up, so that until the malfunction is repaired, the diagnostic codes (including code 22) cannot be confirmed.
- When a malfunction occurs in the airbag system, malfunction codes 11 to 31 are output. After repairing the malfunction indicated by malfunction codes 11 to 31, codes 11 to 31 are cleared from the memory, but code 41 is output instead.
  Once the malfunction has been detected, the airbag warning light will remain lit up until code 41 is cleared, even though the malfunction has been repaired.
- when two or more codes are indicated, the lowest numbered code will appear first.
- If a code not listed on the chart is displayed, then the center airbag sensor assembly is faulty.

CLEARING OF DIAGNOSTIC CODE



1. CLEARING OF MALFUNCTION CODE (EXCEPT CODE 41)

Remove the battery negative terminal or ECU–13 fuse for 10 seconds or more with the ignition switch OFF.

NOTICE: When connecting the battery after cancelling the malfunction code, always do it with the ignition switch in LOCK position. If the battery is connected with the ignition switch in ACC or ON position, there are cases when the diagnosis system does not operate normally.

HINT:

- Code 41 cannot be cleared by this method.
- The lower the temperature, the longer the battery negative terminal must be left off.
- Other memory systems (clock, audio system) will also be cancelled out (See page AB–2).

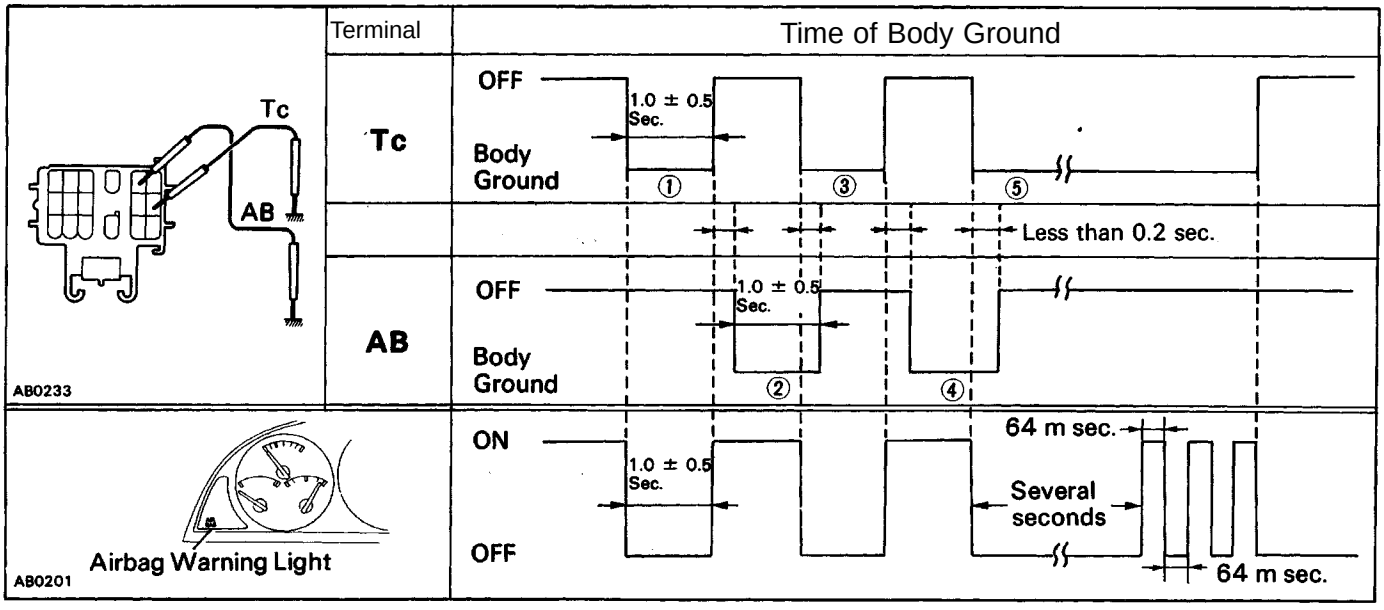
2. CLEARING OF MALFUNCTION CODE 41 STORED IN MEMORY

(a) Connect service wires to terminals Te and AB of the check connector.

(b) Turn the ignition switch ACC or ON and wait approx. 6 seconds.

(c) Starting with the Te terminal, apply body ground alternately to terminal Te and terminal AB twice each in cycles of 1.0 + 0.5 seconds.
Finally, keep applying body ground to terminal Tc.

HINT: When alternating between body ground of terminals Tc and AB release one from body ground while applying it to the other terminal. The time interval in between must be within the following conditions. If it is out of the conditions, code 41 will not be cleared.

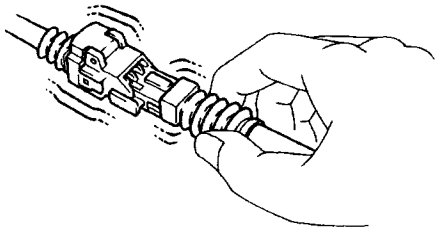


(d) After several seconds, when the airbag warning light starts to blink in a 64 msec. cycle, cancellation is completed.
HINT: This method clears not only code 41, but also other malfunction codes all at once.
Except when instructed by the troubleshooting procedure, use this method only when the repair procedure is completed (See page AB–24).

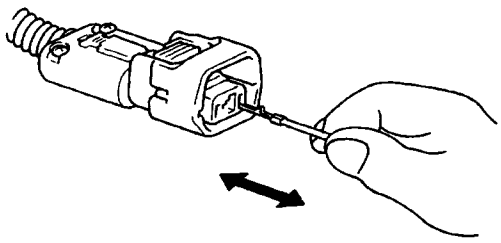
Symptom Simulation

”Intermittent troubles or problems” are the malfunctions about which the customer has a complaint, but which do not occur and can not be confirmed in the workshop. The intermittent problems also include complaints about the airbag warning light going on and off erratically.
The self–diagnostic system stores the circuit of the intermittent problem in memory even if the ignition switch is turned off.
And, for accurate diagnosis of the problems, ask the customer to obtain information as much as possible
following the customer problem analysis check sheet (See page AB–28), and try to reproduce the intermittent problem.
The problem simulation methods described below are the effective ways for this nature of problem to produce the problem conditions by applying vibration, heat, and humidity.

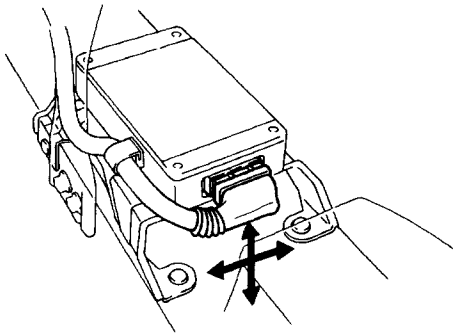
1 VIBRATION METHOD: When vibration seems to be the major cause.


AB0245

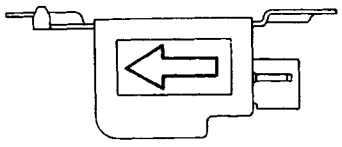
CONNECTORS
Slightly shake the connector vertically and horizontally.


K9464

(Inspection of connectors)
(a) Does the wire harness connecting with its corresponding part have insufficient slack?
(b) Are the terminals dirty?
(c) Are the terminals making loose contact due to terminals spread?


AB0177

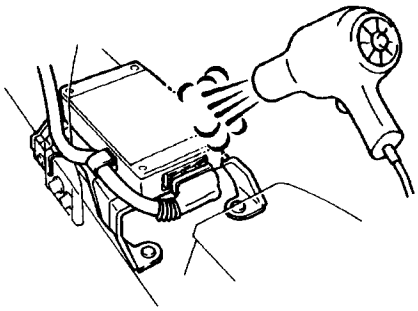
WIRE HARNESS
Slightly shake the wire harness vertically and horizontally. The connector joint, fulcrum of the vibration, and body through portion are the major areas to be checked
thoroughly.


AB0018

PARTS AND SENSORS
Apply vibration slightly by a finger to the part or sensor considered to be the problem cause and check if the malfunction will occur.

CAUTION: Do not apply vibration to the center airbag sensor.

2 **HEAT METHOD: When the problem seems to occur when the suspect area is heated.**


AB0247

Heat the component that is likely the cause of the malfunction with a hair dryer or similar object. Check to see if the malfunction will occur.

NOTICE:

- **Do not heat to more than ^0˚C (140˚F) (Temperature limit that the component can be touched with a hand.).**
- **Do not apply heat directly to part in the ECU.**

3 **WATER SPRINKLING METHOD: When the malfunction seems to occur on a rainy day or in a high–humidity condition.**


AB0246

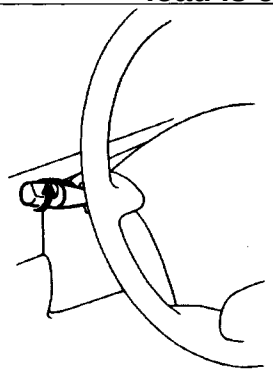
Sprinkle water onto the vehicle and check to see if the malfunction will occur.

NOTICE: Never apply water directly onto the electronic components.

HINT:

- If a vehicle is subject to water leakage, the leaked water may contaminate the ECU. When testing a vehicle with a water leakage problem, special caution must be paid.

4 **OTHER: When a malfunction seems to occur when electrical load is excessive.**


AB0234

Turn on all electrical loads including the heater blower, headlights, rear window defogger, etc. and check to see if the malfunction will occur.

Diagnostic Code Chart

If a malfunction code is displayed during the diagnostic code check, check the circuit listed for that code in the table below (Proceed to the page given for that circuit).

Code No.	Diagnosis	Page
(Normal) *1	• Source voltage drop	AB–35
11	• Short in squib circuit or front airbag sensor circuit (to ground)	AB–37
12	• Short in squib circuit or front airbag sensor circuit (to + B)	AB–43
13	• Short in squib circuit (between D+ wire harness and D–wire harness)	AB–48
14	• Open in squib circuit	AB–55
15	• Open in front airbag sensor circuit	AB–60
22 *2	• Airbag warning light system malfunction	AB–65
31	• Center airbag sensor assembly malfunction	AB–71
41 *3	• Malfunction stored in memory	AB–73

HINT:

*1 When the airbag warning light remains lit up and the diagnostic code is the normal code, this means a source voltage drop.

*2 Code 22 is recorded when a malfunction occurs in the airbag warning light system.

If an open malfunction occurs in the airbag warning light system, the airbag warning light does not light up, so that until the malfunction is repaired, the diagnostic codes (including code 22) cannot be confirmed.

*3 When a malfunction occurs in the airbag system, malfunction codes 11 to 31 are output. After repairing the malfunction indicated by malfunction codes 11 to 31, codes 11 to 31 are cleared from the memory, but code 41 is output instead.

Once the malfunction has been detected, the airbag warning light will remain lit up until code 41 is cleared, even though the malfunction has been repaired.

Problem Symptom Chart

Proceed with troubleshooting of each circuit in the table below.

Problem Symptom	Inspection Item	Page
• With the ignition switch at ACC or ON, the airbag warning light sometimes light up after approx. 6 seconds have elapsed. • Airbag warning light lights up even when ignition switch is in the LOCK position.	• Airbag warning light system (Always lit up)	AB–75
• Diagnostic code not displayed. • Diagnostic code continuously displayed.	• Te terminal circuit	AB–77

Circuit Inspection

Diag. Code (Normal) Source Voltage Drop

CIRCUIT DESCRIPTION

The airbag system is equipped with a voltage–increase circuit (DC–DC converter) in the center airbag sensor assembly in case the source voltage drops.
When the battery voltage drops, the voltage–increase circuit (DC–DC converter) functions to increase the voltage of the airbag system to normal voltage.
The diagnosis system malfunction display for this circuit is different to other circuits–when the airbag warning light remains lit up and the diagnostic code is a normal code, source voltage drop is indicated.
Malfunction in this circuit is not recorded in the center airbag sensor assembly, and approx. 10 seconds after the source voltage returns to normal, the airbag warning light automatically goes off.

Code No.	Diagnosis
(Normal)	Source voltage drop.

DIAGNOSTIC CHART

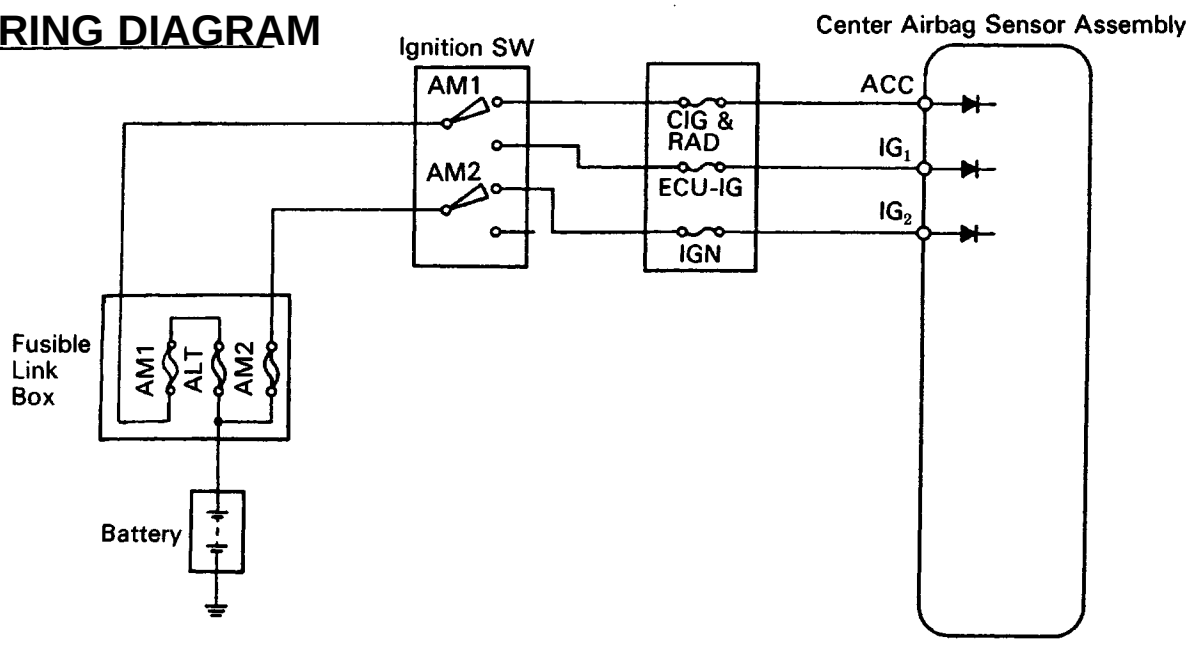
1 Preparation.

2 Does airbag warning light turn off after approx. 10 seconds?

No → Check diagnostic code, and if a malfunction code is output, perform troubleshooting according to malfunction code. If a normal code is output, replace center airbag sensor assembly.

Yes → Check battery and charging system (See page CH–2).

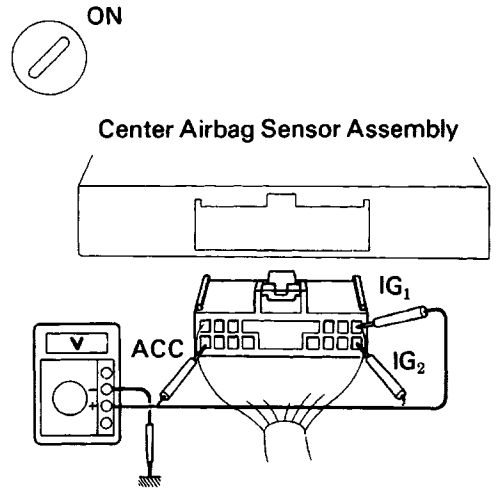
WIRING DIAGRAM



INSPECTION PROCEDURE

P Preparation C Check

1 Preparation.



P (1) Turn ignition switch LOCK.
(2) Disconnect center airbag sensor assembly connector.
(3) Turn ignition switch ON. But do not start engine.
(4) Measure voltage at IG1, IG2 or ACC on connector wire harness side of center airbag sensor assembly and operate electric system (defogger, wiper, headlight, heater blower, etc.) .
Voltage: 6v–11.5V at IG1, IG2 and ACC.
(5) Turn electric system switch OFF.
(6) Turn ignition switch LOCK.
(7) Remove voltmeter and connect center airbag sensor assembly connector.

2 Does airbag warning light turn off after approx. 10 seconds?



P Turn ignition switch ON.

C Operate electric system checked in 1 (4) and check that airbag warning light goes off after approx. 10 seconds.

YES

NO → **Check diagnostic code, and if a malfunction code is output, perform troubleshooting according to malfunction code. If a normal code is output, replace center airbag sensor assembly.**

Check battery and charging system (See page CH–2).

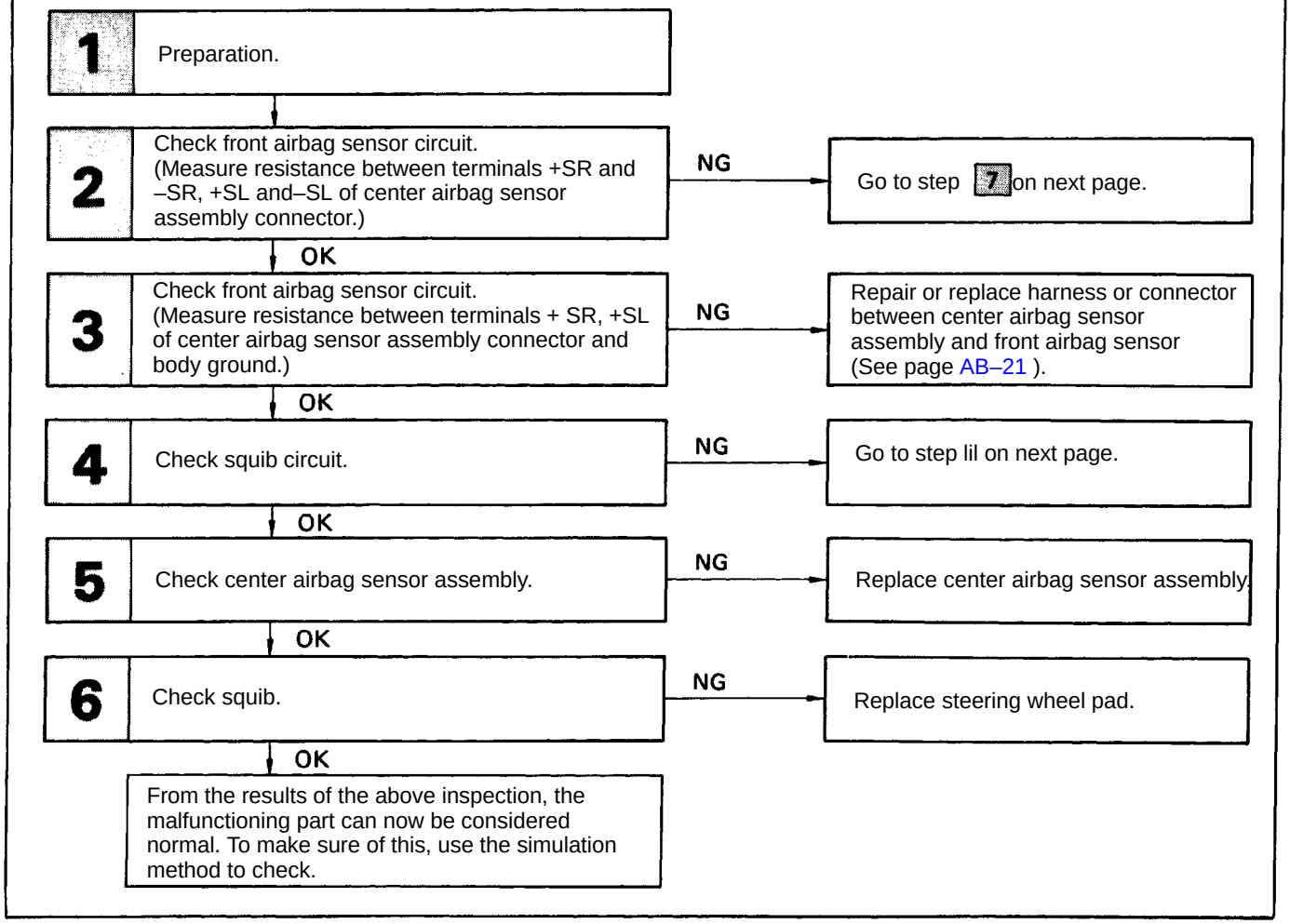
Diag.Code 11 Short in Squib Circuit or Front Airbag Sensor Circuit (to Ground)

CIRCUIT DESCRIPTION

The squib circuit consists of the center airbag sensor assembly, spiral cable and the steering wheel pad (squib). It causes the airbag to deploy when the airbag deployment conditions are satisfied.
The front airbag sensor detects the deceleration force in a frontal collision and is located in the front fender on the left and right sides.
For details of the function of each component, see FUNCTION OF COMPONENTS on page AB–7.
Diagnostic code 11 is recorded when occurrence of ground short is detected in the squib circuit or front airbag sensor circuit.

Code No.	Diagnosis
11	–Short circuit in squib wire harness (to ground). –Squib malfunction. –Short circuit in front airbag sensor +S wire harness (to ground). –Front airbag sensor malfunction. –Short circuit between +S wire harness and–S wire harness of front airbag sensor. –Spiral cable malfunction. –Center airbag sensor assembly malfunction.

DIAGNOSTIC CHART



DIAGNOSTIC CHART (Cont'd)

7 Check front airbag sensor.

NG → Replace front airbag sensor.

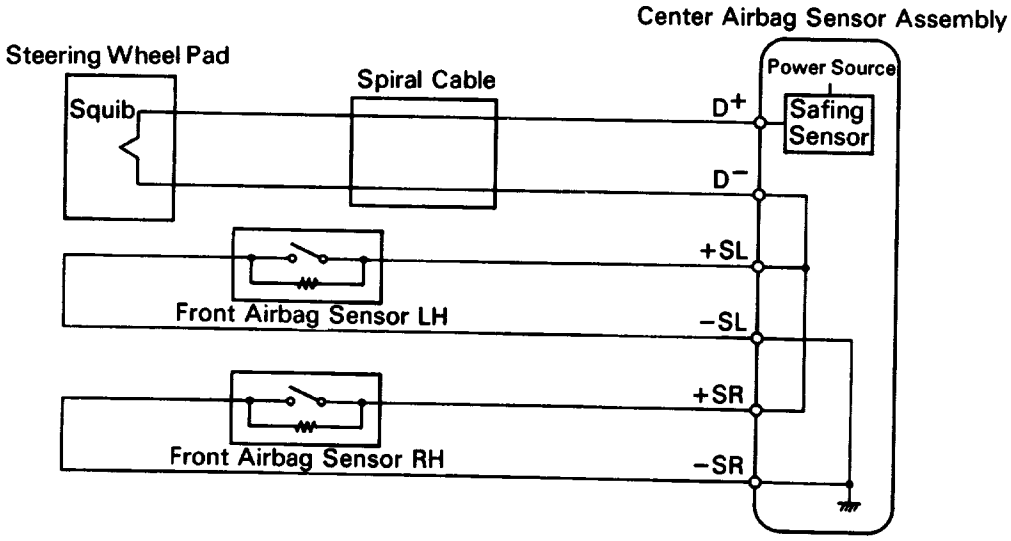
OK → Repair or replace harness or connector between center airbag sensor assembly and front airbag sensor (See page AB–21).

8 Check spiral cable.

NG → Repair or replace spiral cable.

OK → Repair or replace harness or connector between center airbag sensor assembly and spiral cable.

WIRING DIAGRAM

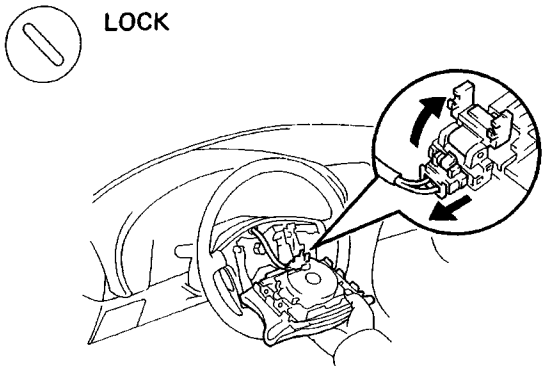


AB0190

INSPECTION PROCEDURE

P Preparation C Check

1 Preparation.



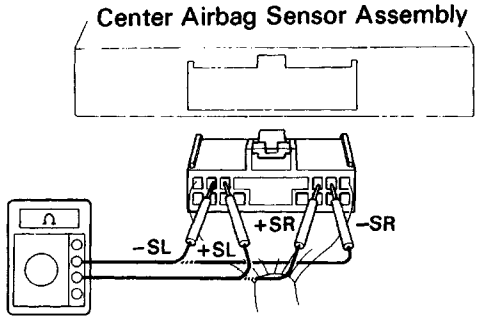
AB0117
SR3485

P (1) Disconnect battery negative (–) terminal cable, and wait at least 20 seconds.
(2) Remove steering wheel pad (See page AB–1 5).

Caution

When storing steering wheel pad, keep upper surface of the pad facing upward.

2 Check front airbag sensor circuit. (Measure resistance between terminals +SR and–SR, +SL and–SL of center airbag sensor assembly connector.)



AB0032

P Disconnect center airbag sensor assembly connector.

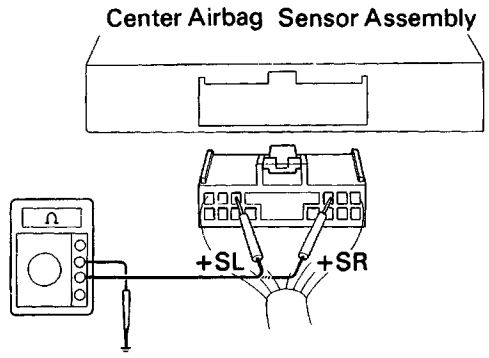
C Measure resistance between terminals +SR and –SR, +S L and–SL of harness side connector of center airbag sensor assembly.

OK **Resistance: 755 SΩ–885Ω**

OK

NG Go to step 7 .

3 Check front airbag sensor circuit. (Measure resistance between terminals +SR, +SL of center airbag sensor assembly connector and body ground.)



AB0033

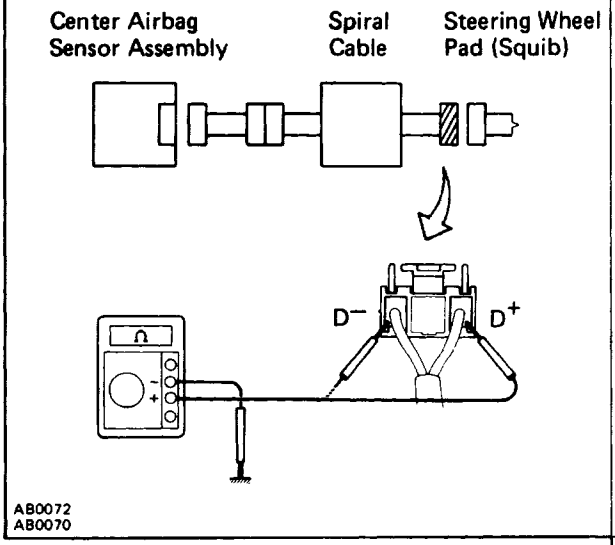
C Measure resistance between terminals +SR, +SL of harness side connector of center airbag sensor assembly and body ground.

OK **Resistance: ∞ Ω**

OK

NG **Repair or replace harness or connector between center airbag sensor assembly and front airbag sensor (See page AB–21)**

4 Check squib circuit.



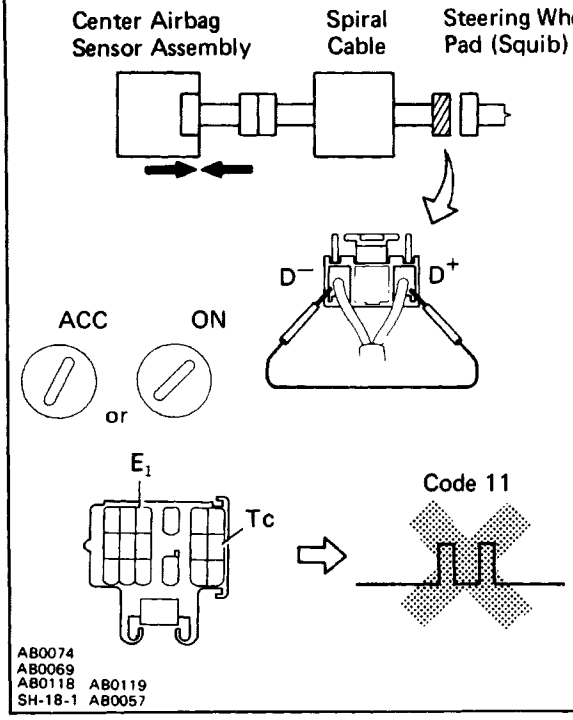
C Measure resistance between D+, D–on spiral cable side of connector between spiral cable and steering wheel pad and body ground.

OK **Resistance:** ∞ Ω

OK

NG 〉 **Go to step 8 .**

5 Check center airbag sensor assembly.



P (1) Connect connector to center–airbag sensor assembly.
(2) Using a service wire, connect D+ and D–on spiral cable side of connector between spiral cable and steering wheel pad.
(3) Connect negative (–) terminal cable to battery, and wait at least 2 seconds.

C (1) Turn ignition switch ACC or ON and wail at least 20 seconds.
(2) Using SST, connect terminals Tc and E, o1 check connector.
SST 09843–18020

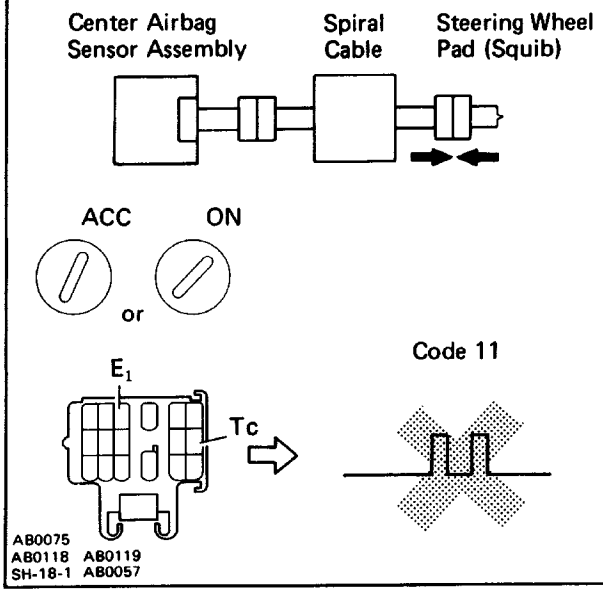
OK (3) Check diagnostic code.

Hint **Diagnostic code 11 is not output.**
Codes other than code 11 may be output at thi; time, but this is not relevant to this check.

OK

NG 〉 **Replace center airbag sensor assembly.**

6 Check squib.



P (1) Turn ignition switch LOCK.
(2) Disconnect battery negative (–) terminal cable, and wait at least 20 seconds.
(3) Connect steering wheel pad (squib) connector.
(4) Connect negative H terminal cable to battery, and wait at least 2 seconds.

C (1) Turn ignition switch ACC or ON, and wait at least 20 seconds.
(2) Using SST, connect terminals Tc and E 1 of check connector.
SST 09843–18020
(3) Check diagnostic code.

OK **Diagnostic code 11 is not, output.**

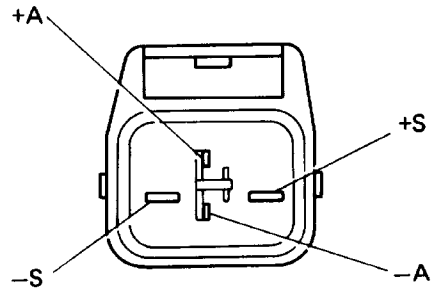
Hint Codes other than code 11 may be output at this time, but this is not relevant to this check.

OK

NG **Replace steering wheel pad.**

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

7 Check front airbag sensor.



P Disconnect front airbag sensor connector.

C Measure resistance between each terminal of front airbag sensor.

OK

Terminal	Resistance
⊕ S – ⊕ A	755 Ω – 885 Ω
⊕ S – ⊖ S	∞
⊖ S – ⊖ A	Less than 1 Ω

Notice

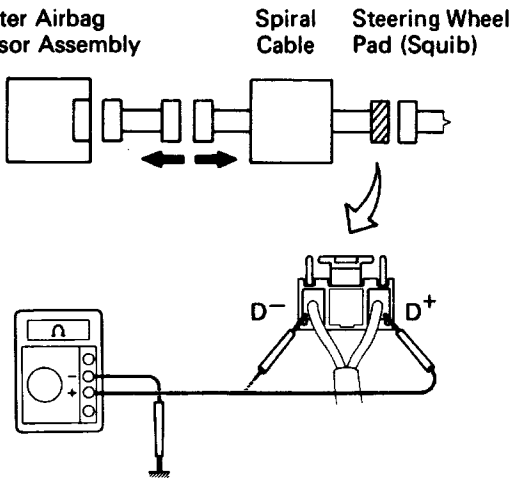
. Do not touch ohmmeter probes strongly against terminals of front airbag sensor.
. Make sure the front airbag sensor connector is properly connected.

OK

NG **Replace front airbag sensor.**

Repair or replace harness or connector between center airbag sensor assembly and front airbag sensor (See page AB–21).

8 Check spiral cable.



AB0071
AB0070

P Disconnect connector between center airbag sensor assembly and spiral cable.

C Measure resistance between D+, D–on spiral cable side of connector between spiral cable and steering wheel pad and body ground.

OK **Resistance:** ∞ Ω

OK

NG **Repair or replace spiral cable.**

Repair or replace harness or connector between center airbag sensor assembly and spiral cable.

Diag . Code 12 Short in Squib Circuit or Front Airbag Sensor Circuit (to +B)

CIRCUIT DESCRIPTION

The squib circuit consists of the center airbag sensor assembly, spiral cable and the steering wheel pad (squib). It causes the airbag to deploy when the airbag deployment conditions are satisfied.
The front airbag sensor detects the deceleration force in a frontal collision and is located in the front fender on the left and right sides.
For details of the function of each component, see FUNCTION OF COMPONENTS on page AB–7.
Diagnostic code 12 is recorded when a +B short is detected in the squib circuit or the front airbag sensor circuit.

Code No.	Diagnosis
12	. Short circuit in squib wire harness (to +B). . Squib malfunction. . Short circuit in front airbag sensor +S wire harness (to +B). . Open circuit in RH and LH front airbag sensor harness. . Spiral cable malfunction. . Center airbag sensor assembly malfunction.

DIAGNOSTIC CHART

1 Preparation.

↓

2 Check front airbag sensor circuit. (Measure resistance between terminals +S R and–SR, +S L and–SL of center airbag sensor assembly connector.)
NG → Go to Code 15(See page AB–60).

OK ↓

3 Check front airbag sensor circuit. (Measure voltage between terminal +S R or +SL of center airbag sensor assembly connector–and body ground.)
NG → Repair or replace harness or connector between center airbag sensor assembly and front airbag sensor (See page AB–21).

OK ↓

4 Check squib circuit.
NG → G o to step 7 .

OK ↓

5 Check center airbag sensor assembly.
NG → Replace center airbag sensor assembly.

OK ↓

6 Check squib.
NG → Replace steering wheel pad.

OK ↓

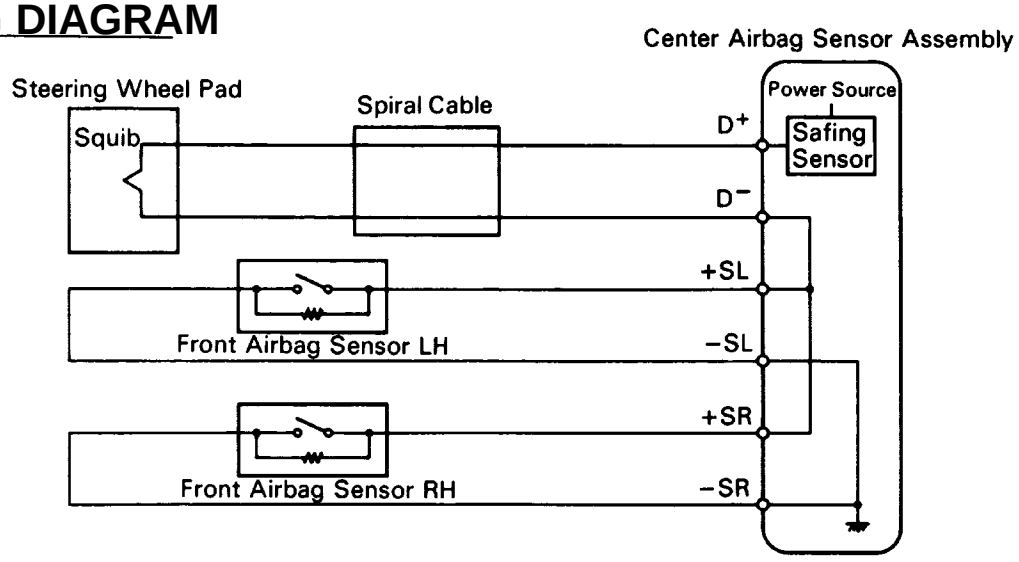
From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

7 Check spiral cable.
NG → Repair or replace spiral cable.

OK ↓

Repair or replace harness or connector between center airbag sensor assembly and spiral cable.

WIRING DIAGRAM

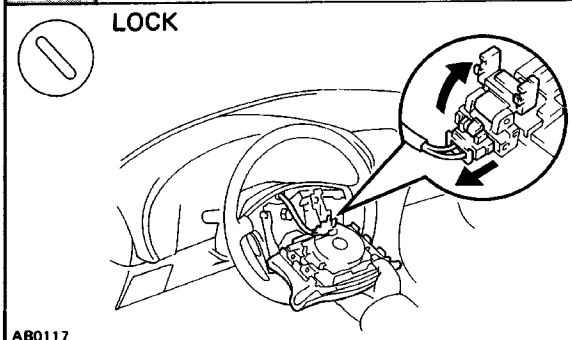


AB0190

INSPECTION PROCEDURE

P Preparation C Check

1 Preparation.

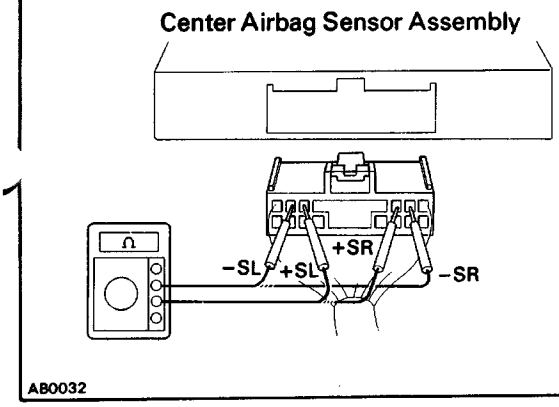


P (1) Disconnect battery negative (–) terminal cable, and wait at least 20 seconds.
(2) Remove steering wheel pad (See page AB–15).

Caution

When storing steering wheel pad, keep upper surface of the pad facing upward.

2 Check front airbag sensor circuit. (Measure resistance between terminals +SR and–SR, +SL and–SL of center airbag sensor assembly connector.)



P Disconnect center airbag sensor assembly connector.

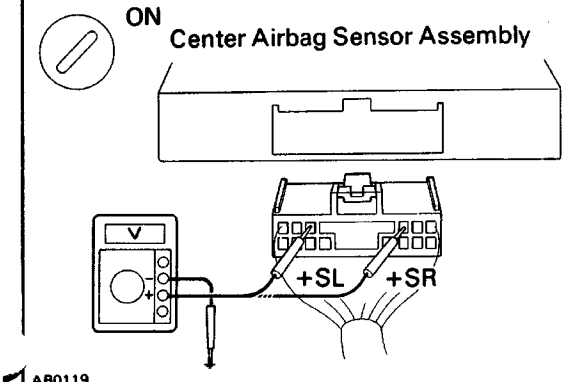
C Measure resistance between terminals +SR and –SR, +S L and–SL of harness side connector of center airbag sensor assembly.

OK Resistance: 755Ω–885Ω

OK

NG **Go to Code 15 (See page AB–60).**

3 Check front airbag sensor circuit. (Measure voltage between terminal +SR or +SL of center airbag sensor assembly connector and body ground.)



P (1) Connect negative (–) terminal cable to battery.
(2) Turn ignition switch ON.

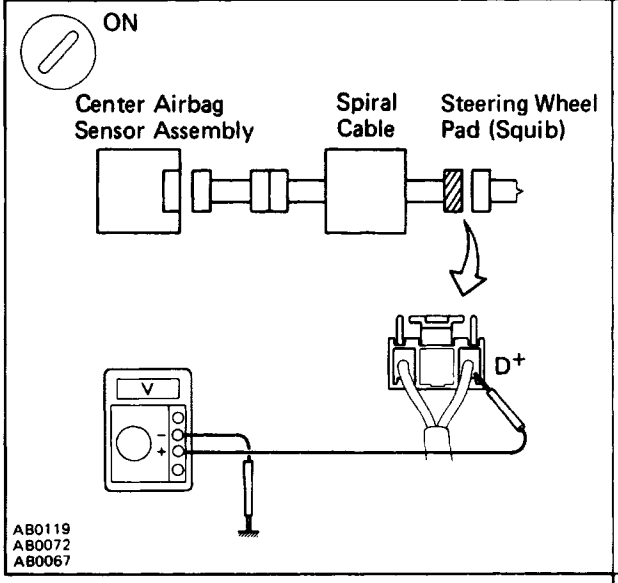
C Measure voltage between terminals +S R or +S L of harness side connector of center airbag sensor assembly and body ground.

OK **Voltage: 0 V**

OK

NG **Repair or replace harness or connector between center airbag sensor assembly and front airbag sensor (See page AB–21).**

4 Check squib circuit.



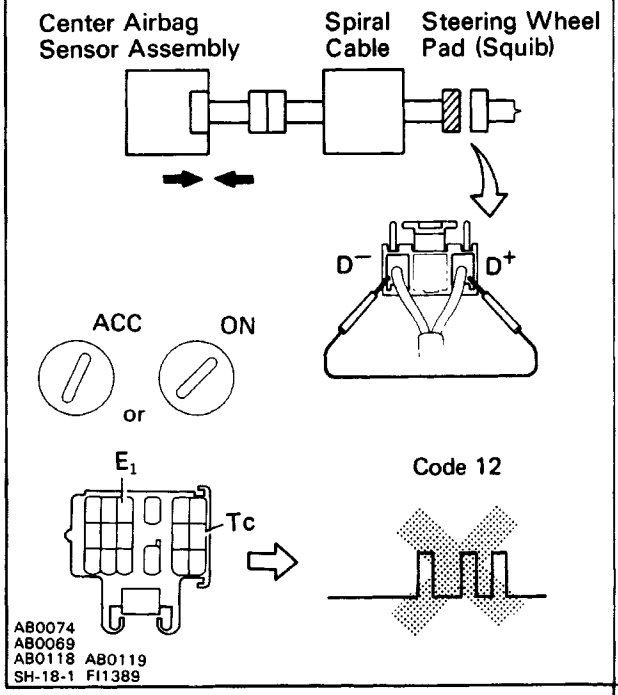
C Measure voltage at D+ on spiral cable side of connector between spiral cable and steering wheel pad.

OK **Voltage: 0 V**

OK

NG > **G o to step 7 .**

5 Check center airbag sensor assembly.



P
(1) Turn ignition switch LOCK.
(2) Disconnect negative (–) terminal cable from battery.
(3) Connect connector to center airbag sensor assembly.
(4) Using a service wire, connect D+ and D–on spiral cable side of connector between spiral cable and steering wheel pad.
(5) Connect negative (–) terminal cable to battery, and wait at least 2 seconds.

C
(1) Turn ignition switch ACC or ON, and wait at least 20 seconds.
(2) Using SST, connect terminals Tc and E 1 of check connector.
SST 09843–18020
(3) Check diagnostic code.

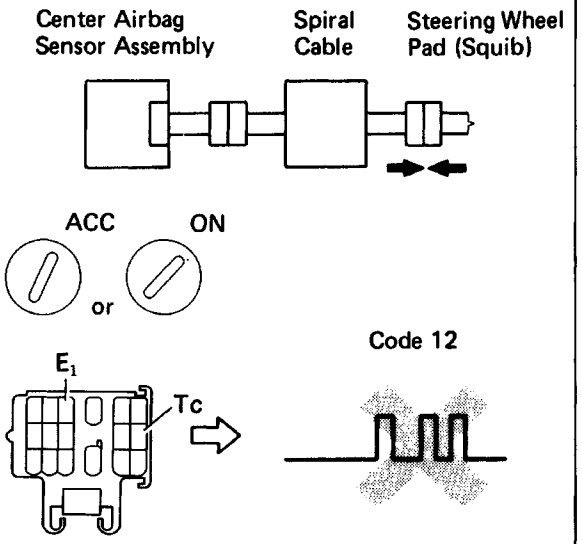
OK **Diagnostic code 12 is not output.**

Hint Codes other than code 12 may be output at this time, but this is not relevant to this check.

OK

NG > **Replace center airbag sensor assembly.**

6 Check squib.



P (1) Turn ignition switch LOCK.
(2) Disconnect battery negative (–) terminal cable, and wait at least 20 seconds.
(3) Connect steering wheel pad (squib) connector.
(4) Connect negative (–) terminal cable to battery, and wait at least 2 seconds.

C (1) Turn ignition switch ACC or ON, and wait at least 20 seconds.
(2) Using SST, connect terminals Tc and E, of check connector.
SST 09843–18020
(3) Check diagnostic code.

OK **Diagnostic code 12 is not output.**

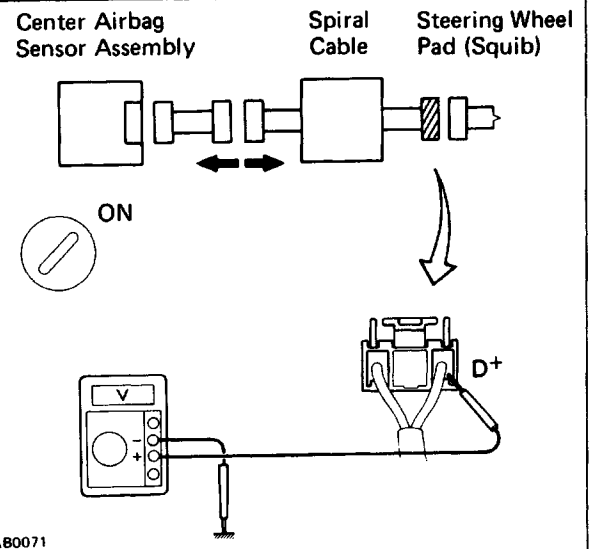
Hint Codes other than code 12 may be output at this time, but this is not relevant to this check.

OK

NG → **Replace steering wheel pad.**

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

7 Check spiral cable.



P (1) Turn ignition switch LOCK.
2) Disconnect connector between center airbag sensor assembly and spiral cable.
(3) Turn ignition switch ON.

C Measure voltage at D+ on spiral cable side of connector between spiral cable and steering wheel pad.

OK **Voltage: 0 V**

OK

NG → **Repair or replace spiral cable.**

Repair or replace harness or connector between center airbag sensor assembly and spiral cable.

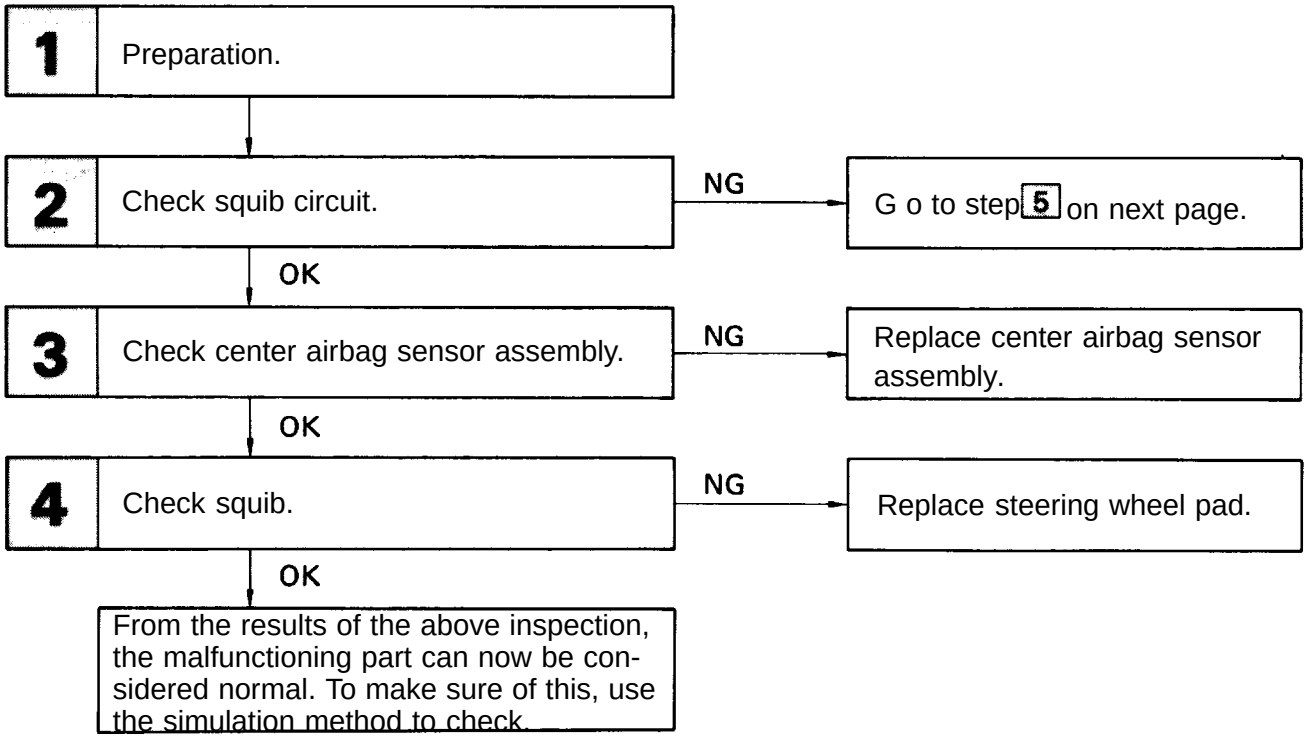
Diag. Code 13 Short in Squib Circuit (Between D+ Wire Harness and D–Wire Harness)

CIRCUIT DESCRIPTION

The squib circuit consists of the center airbag sensor assembly, spiral cable and the steering wheel pad (squib). It causes the airbag to deploy when the airbag deployment conditions are satisfied or details of the function of each component, see FUNCTION OF COMPONENTS on page AB–7
Diagnostic code 13 is recorded when a short is detected in the D+ wire harness and D–wire harness of the squib circuit.

Code. No.	Diagnosis
13	. Short circuit between D+ wire harness and D–wire harness of squib. . Squib malfunction. . Spiral cable malfunction. . Center airbag sensor assembly malfunction.

DIAGNOSTIC CHART



DIAGNOSTIC CHART (Cont'd)

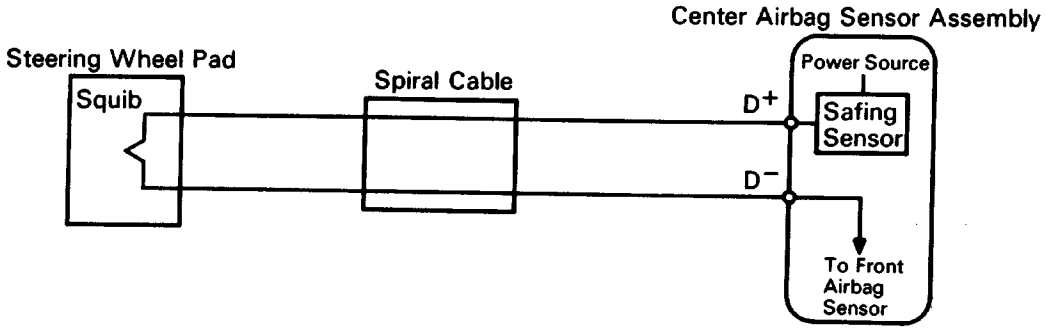
5 Check spiral cable.
- NG → Repair or replace spiral cable.
- OK ↓

6 Check harness between center–airbag sensor assembly and spiral cable.
- NG → Repair or replace harness or connector between center air-bag sensor assembly and spiral cable.
- OK ↓

7 Check center airbag sensor assembly.
- NG → Replace center airbag sensor assembly.
- OK ↓

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

WIRING DIAGRAM

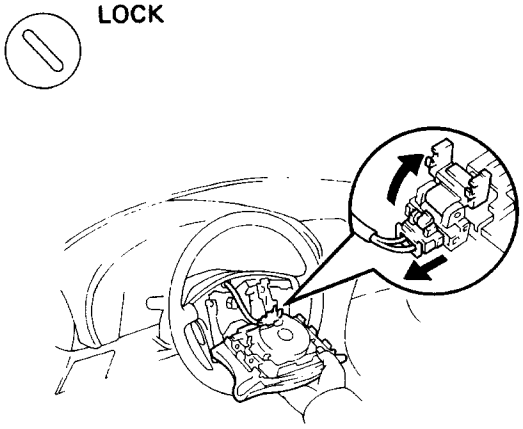


AB0191

INSPECTION PROCEDURE

P Preparation C Check

1 Preparation.



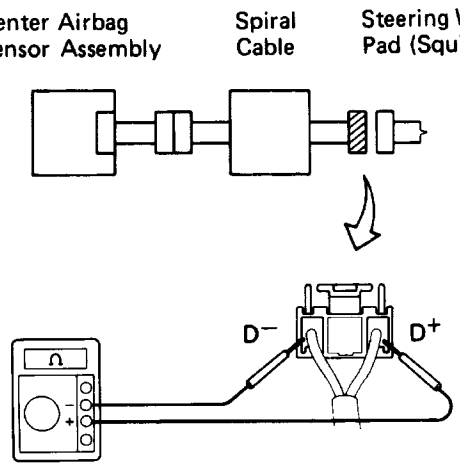
AB0117
SR3485

P (1) Disconnect battery negative (–) terminal cable, and wait at least 20 seconds.
(2) Remove steering wheel pad (See page AB–1 5).

Caution

When storing steering wheel pad, keep upper surface of the pad facing upward.

2 Check squib circuit.



AB0074
AB0068

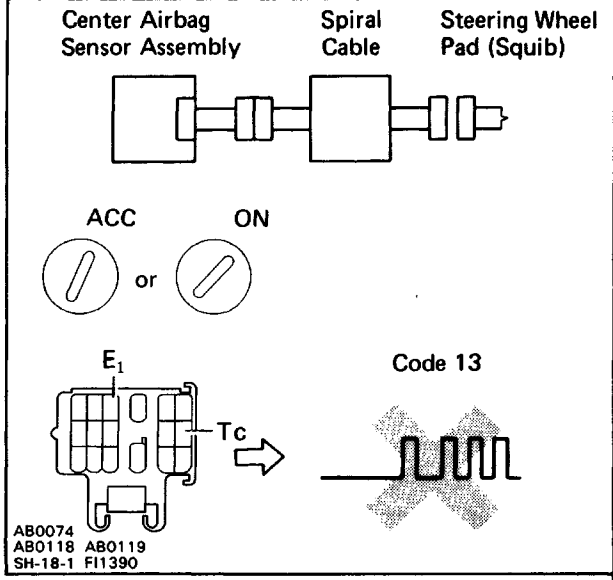
C Measure resistance between D+ and D–on spiral cable side of connector between spiral cable and steering wheel pad.

OK **Resistance: 1 kΩ or more**

OK

NG Go to step 5

3 Check center airbag sensor assembly.



P
(1) Connect negative (–) terminal cable to battery.
(2) Clear malfunction code 41 stored in memory (See page AB–31).

C
(1) Turn ignition switch LOCK, and wait at least 2 seconds.
(2) Turn ignition switch ACC or ON, and wait at least 20 seconds:
(3) Using SST, connect terminals Tc and E 1 of check connector.
SST 09843–18020
(4) Check diagnostic code.

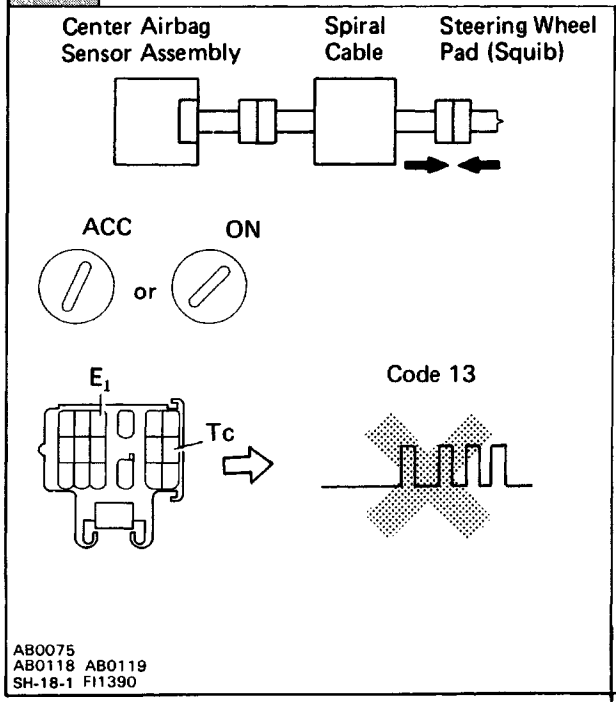
OK **Diagnostic code 13 is not output.**

Hint Codes other than code 13 may be output at this time, but this is not relevant to this check.

OK

NG **Replace center airbag sensor assembly.**

4 Check squib.



P
(1) Turn ignition switch LOCK.
(2) Disconnect battery negative (–) terminal cable, and wait at least 20 seconds.
(3) Connect steering wheel pad (squib) connector.
(4) Connect negative (–) terminal cable to battery.
(5) Clear malfunction code 41 stored in memory (See page AB–31).

C
(1) Turn ignition switch LOCK, and wait at least 2 seconds.
(2) Turn ignition switch ACC or ON, and wait at least 20 seconds.
(3) Using SST, connect terminals Tc and E, of check connector.
SST 09843–18020
(4) Check diagnostic code.

OK **Diagnostic code 13 is not output.**

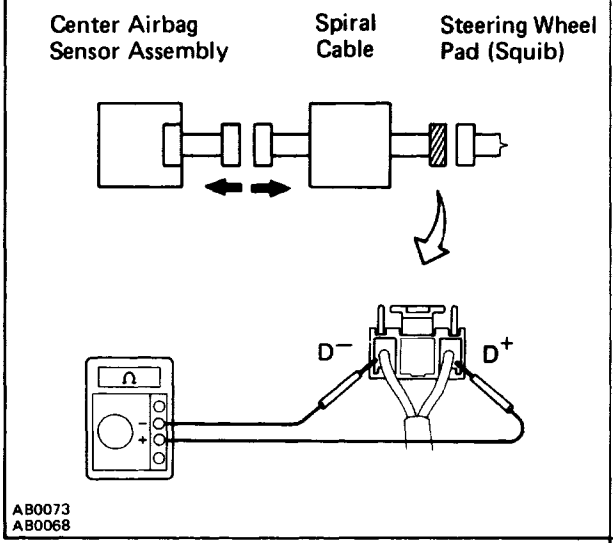
Hint Codes other than code 13 may be output at this time, but this is not relevant to this check.

OK

NG **Replace steering wheel pad.**

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

5 Check spiral cable.



AB0073
AB0068

P (1) Disconnect connector between center airbag sensor assembly and spiral cable.
(2) Release airbag activation prevention mechanism on center airbag sensor assembly side of spiral cable connector (See page AB–54).

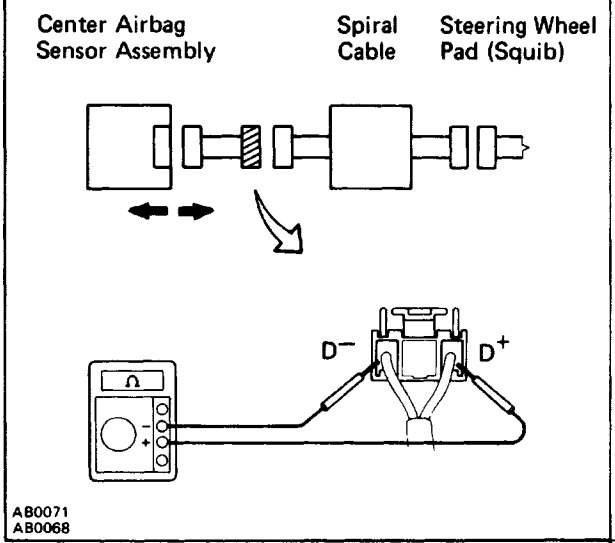
C Measure resistance between D+ and D–on spiral cable side of connector between spiral cable and steering wheel pad.

OK **Resistance:** ∞ Ω

OK

NG **Repair or replace spiral cable.**

6 Check harness between center airbag sensor assembly and spiral cable .



AB0071
AB0068

P (1) Disconnect center airbag sensor assembly connector.
(2) Release airbag activation prevention mechanism on center airbag sensor assembly connector (See page AB–54).

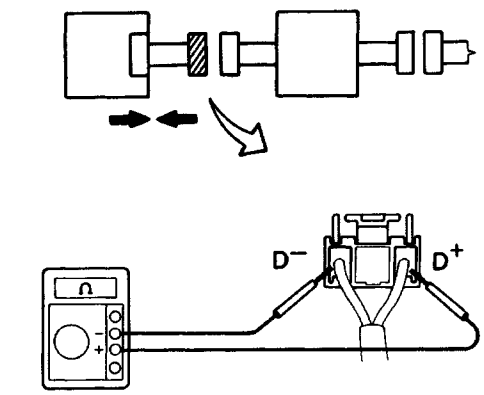
C Measure resistance between D+ and D–on center airbag sensor assembly side of connector between center airbag sensor assembly and spiral cable.

OK **Resistance: ooΩ**

OK

NG **Repair or replace harness or connector between center airbag sensor assembly and spiral cable.**

7 Check center airbag sensor assembly.



AB0073
AB0068

P Connect center airbag sensor assembly connector.

C Measure resistance between D+ and D–on center airbag sensor assembly side of connector between center airbag sensor assembly and spiral cable.

OK **Resistance: 1 kΩ or more**

OK

NG **Replace center airbag sensor assembly.**

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

RELEASE METHOD OF AIRBAG ACTIVATION PREVENTION MECHANISM

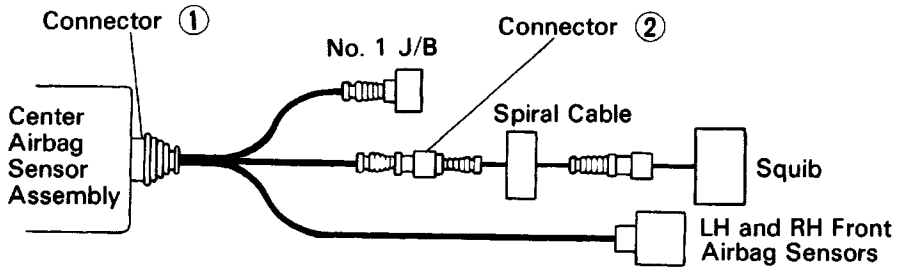
An airbag activation prevention mechanism is built into the connector for the squib circuit of the airbag system. When release of the airbag activation prevention mechanism is directed in the troubleshooting procedure, as shown in the illustration of the connectors (1) and (1) below, insert paper which is the* same thickness as the male terminal, between the terminal and the short spring.

CAUTION:

- **NEVER RELEASE the airbag activation prevention mechanism on the steering wheel pad connector.**

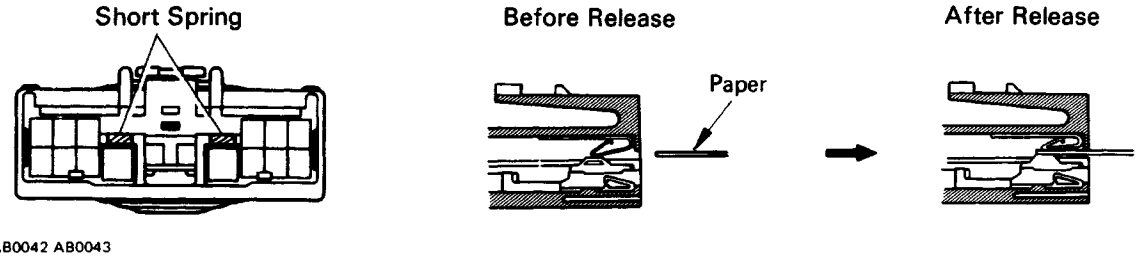
NOTICE:

- **Do not release the airbag activation prevention mechanism unless specifically directed by the troubleshooting procedure.**
- **If the paper inserted is too thick the terminal and short spring may be damaged, so always use paper the same thickness as the male terminal.**



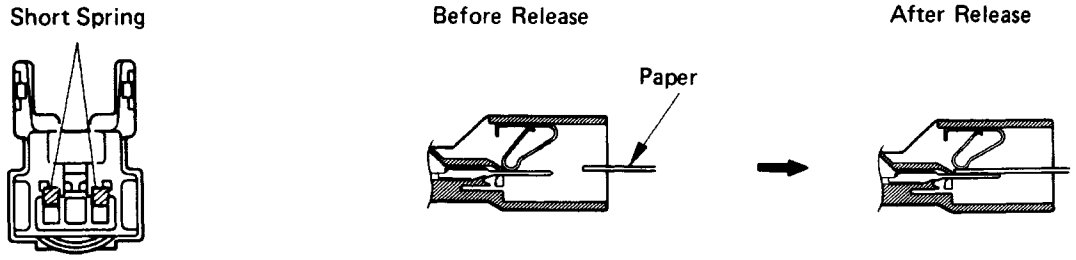
AB0027

Center Airbag Sensor Assembly Connector (Connector ①)



AB0131 AB0042 AB0043

Spiral Cable Connector (Connector ②)



AB0130 AB0045 AB0046

Diag . Code 14 Open in Squib Circuit

CIRCUIT DESCRIPTION

The squib circuit consists of the center airbag sensor assembly, spiral cable and the steering wheel pad (squib). It causes the airbag to deploy when the airbag deployment conditions are satisfied.
For details of the function of each component, see FUNCTION OF COMPONENTS on page AB–7.
Diagnostic code 14 is recorded when an open is detected in the squib circuit.

Code. No.	Diagnosis
14	. Open circuit in D^+ wire harness or D^- wire harness of squib. . Squib malfunction. . Spiral–cable malfunction. . Center airbag sensor assembly malfunction.

DIAGNOSTIC CHART

1 Preparation.

2 Check squib circuit.
- OK → Go to step 5 .
- NG

3 Check spiral cable.
- NG → Repair or replace spiral cable.
- OK

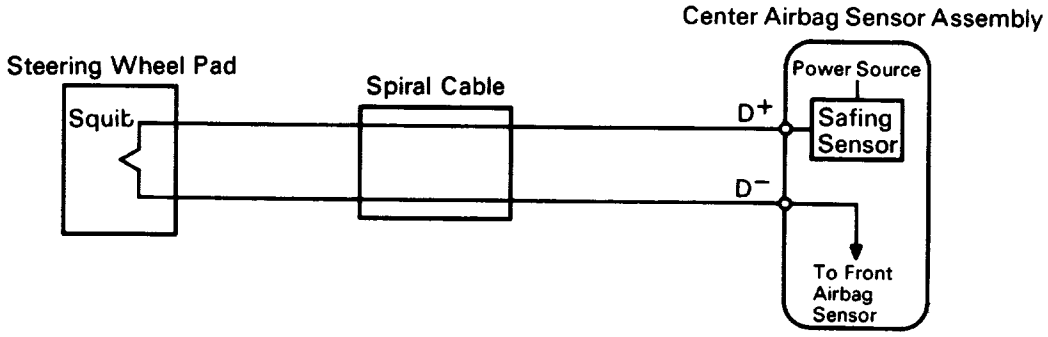
4 Check harness between center airbag sensor assembly and spiral cable.
- NG → Repair or replace harness or connector between center airbag sensor assembly and spiral cable.
- OK

5 Check center airbag sensor assembly.
- NG → Replace center airbag sensor assembly.
- OK

6 Check squib.
- NG → Replace steering wheel pad.
- OK

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

WIRING DIAGRAM

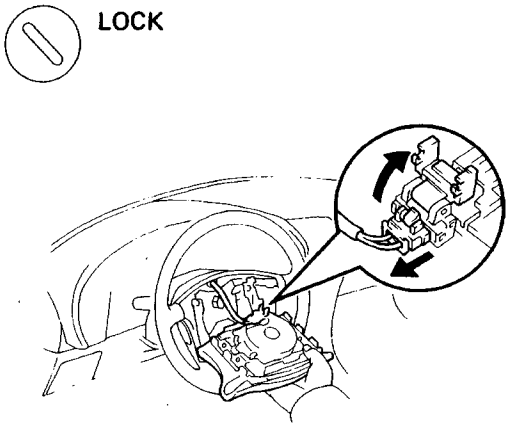


A80191

INSPECTION PROCEDURE

P Preparation C Chec k

1 Preparation.



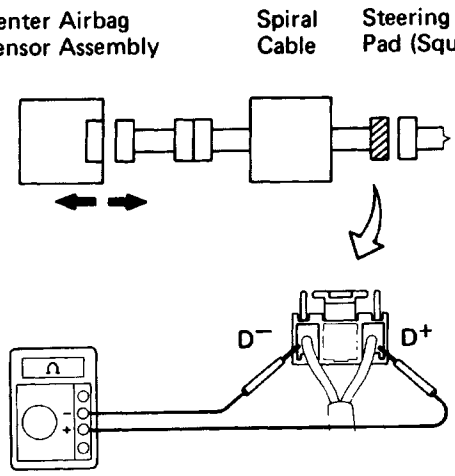
AB0117
SR3485

P (1) Disconnect battery negative (–) terminal cable, and wait at least 20 seconds.
(2) Remove steering wheel pad
(See page AB–15).

Caution

When storing steering wheel pad, keep upper surface of the pad facing upward.

2 Check squib circuit.



AB0072
AB0068

P Disconnect center airbag sensor assembly connector.

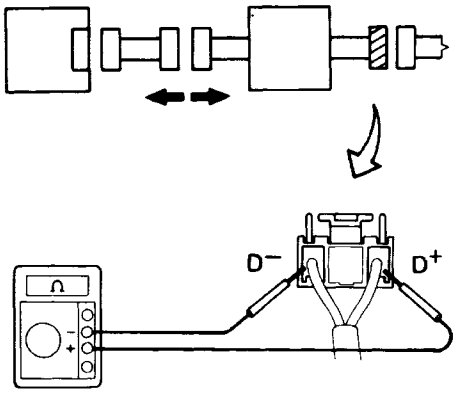
C Measure resistance between D+ and D–on spiral cable side of connector between spiral cable and steering wheel pad.

OK **Resistance: Less than 1Ω**

NG

OK → **Go to step 5.**

3 Check spiral cable.



AB0071
AB0068

P Disconnect connector between center airbag sensor assembly and spiral cable.

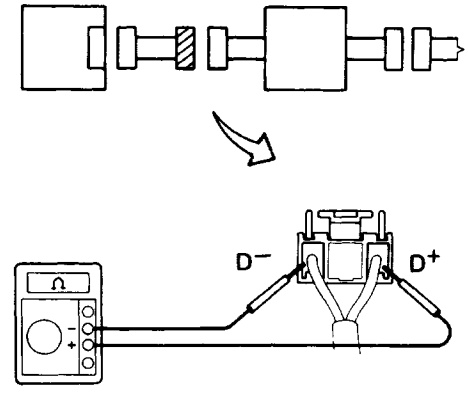
C Measure resistance between D+ and D–on spiral cable side of connector between spiral cable and steering wheel pad.

OK **Resistance: Less than 1 2**

OK

NG **Repair or replace spiral cable.**

4 Check harness between center airbag sensor assembly and spiral cable.



AB0071
AB0068

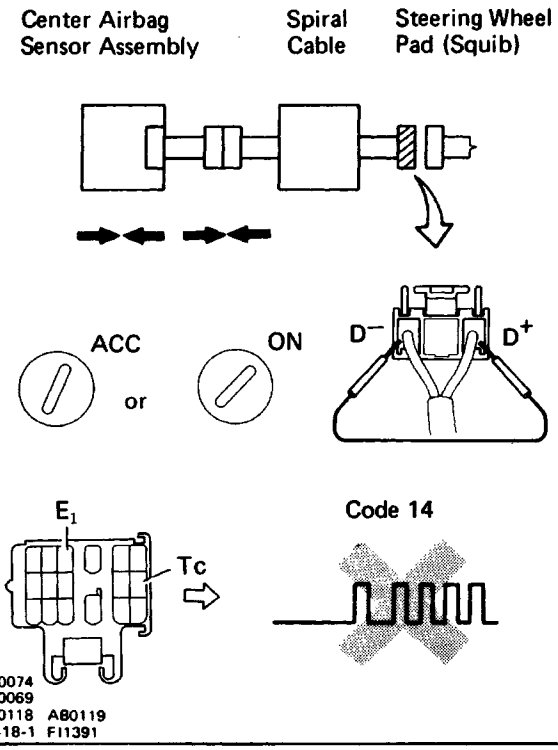
C Measure resistance between D+ and D–on center airbag sensor assembly side of connector between center airbag sensor assembly and spiral cable.

OK **Resistance: Less than 1Ω**

OK

NG **Repair or replace harness or connector between center airbag sensor assembly and spiral cable.**

5 Check center airbag sensor assembly.



P (1) Connect connector to center airbag sensor assembly.
(2) Connect connector between center airbag sensor assembly and spiral cable.
(3) Using a service wire, connect D+ and D–on spiral cable side of connector between spiral cable and steering wheel pad.
(4) Connect negative (–) terminal cable to battery, and wait at least 2 seconds.

C (1) Turn ignition switch ACC or ON, and wait at least 20 seconds.
(2) Using SST, connect terminals Tc and E, of check connector.
SST 09843–18020
(3) Check diagnostic code.

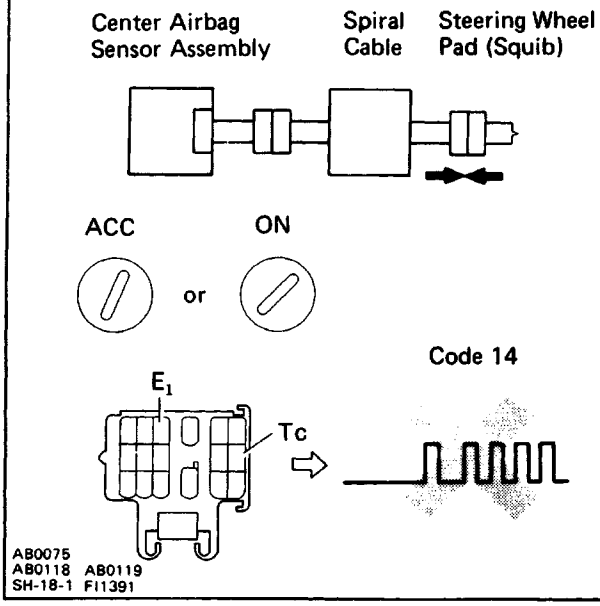
OK **Diagnostic code 14 is not output.**

Hint Codes other than code 14 may be output at this time, but this is not relevant to this check.

OK

NG → **Replace center airbag sensor assembly.**

6 Check squib .



P (1) Turn ignition switch LOCK.
(2) Disconnect battery negative H terminal cable, and wait at least 20 seconds.
(3) Connect steering wheel pad (squib) connector.
(4) Connect negative (–) terminal cable to battery, and wait at least 2 seconds.

C (1) Turn ignition switch ACC or ON, and wait at least 20 seconds.
(2) Using SST, connect terminals Tc and E 1 of check connector.
SST 09843–18020
(3) Check diagnostic code.

OK **Diagnostic code 14 is not output.**

Hint Codes other than code 14 may be output at this time, but this is not relevant to this check.

OK

NG → **Replace steering wheel pad.**

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

Diag . Code 15 Open in Front Airbag Sensor Circuit

CIRCUIT DESCRIPTION

The front airbag sensor detects the deceleration force in a frontal collision and is located in the front fender on the left and right sides.
For details of the function of each component, see FUNCTION OF COMPONENTS on page AB–7.
Diagnostic code 15 is recorded when an open is detected in the front airbag sensor circuit.

NOTICE: The front airbag sensor connector is equipped with an electrical connection check mechanism for the purpose of detecting an open in the front airbag sensor (See page AB–9). This mechanism is constructed so that when the terminals of the front airbag sensor have been connected (when the connector housing rock is in the locked condition), the connection detection pin on the wire harness side connects with the terminals for diagnosis use on the sensor side. If the connector is not properly connected, the diagnosis system may detect only a malfunction code, even though the airbag system is functioning normally.
When connecting the front airbag sensor connector, make sure it is connected properly. If diagnostic code 15 is displayed after the front airbag sensor connector has been connected, check again that it is properly connected.

Code No.	Diagnosis
15	. Open circuit in +S wire harness or–S wire harness of front airbag sensor. . Front airbag sensor malfunction.' . Malfunction of electrical connection check mechanism of front airbag sensor. . Center airbag sensor assembly malfunction.

DIAGNOSTIC CHART

1 Preparation.

2 Check front airbag sensor circuit (Measure resistance between terminals +SR and–SR, +SL and–SL of center airbag sensor assembly connector).
- NG → Go to step 4.
- OK →

3 Check center airbag sensor assembly.
- NG → Replace center airbag sensor assembly.
- OK →

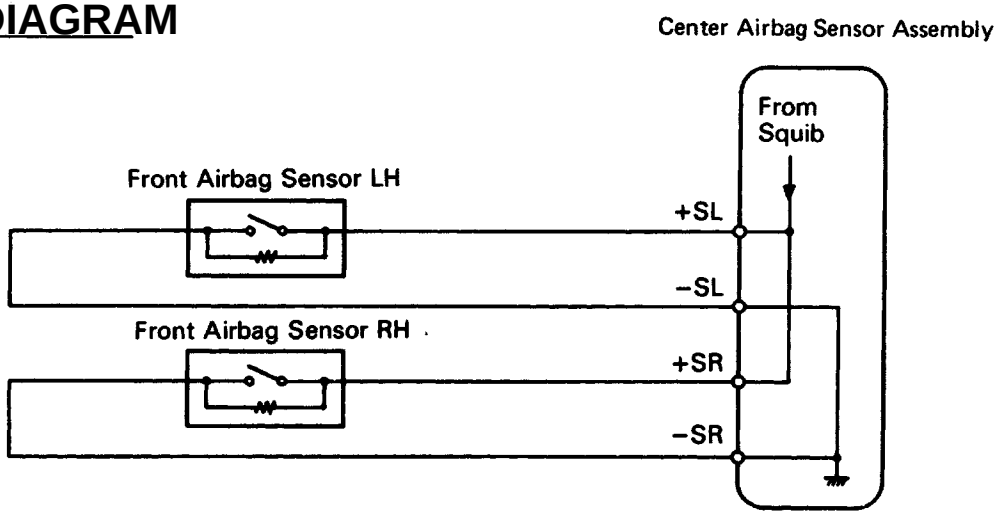
From the results of the above inspection, the malfunctioning part can now be considered normal. o make sure of this, use the simulation method to check.

4 Check front airbag sensor.
- NG → Replace front airbag sensor.
- OK →

5 Check harness between center airbag sensor assembly and front airbag sensor.
- NG → Repair or replace harness or connector between center airbag sensor assembly and front airbag sensor (See page AB–21).
- OK →

Replace front airbag sensor connector (See page AB–21).

WIRING DIAGRAM



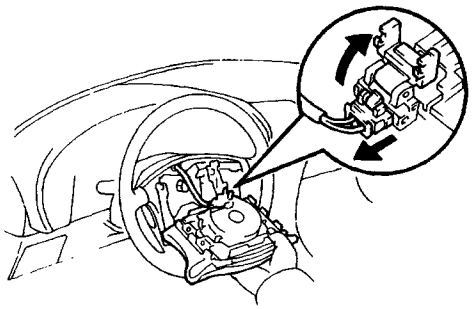
AB0192

INSPECTION PROCEDURE

P Preparation C Check

1 Preparation.





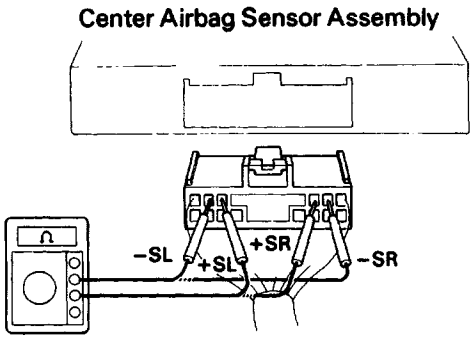
AB0117
SR3485

P (1) Disconnect battery negative (–) terminal cable, and wait at least 20 seconds.
(2) Remove steering wheel pad (See page AB–15).

Caution

When storing steering wheel pad, keep upper surface of pad facing upward.

2 Check front airbag sensor circuit (Measure resistance between terminals + SR and–SR, +SL and–SL of center airbag sensor assembly connector.).



AB0032

P Disconnect center airbag sensor assembly connector.

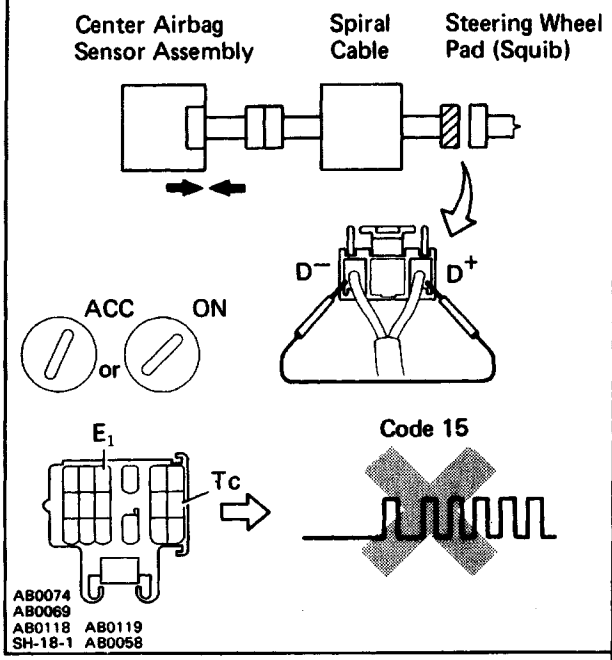
C Measure resistance between terminals +S R and –SR, +SL and–SL of harness side connector of center airbag sensor assembly.

OK **Resistance: 755 fl–885Ω**

OK

NG Go to step 4 .

3 Check center airbag sensor assembly .



P (1) Connect connector to center airbag sensor assembly.
(2) Using a service wire, connect D+ and D–on spiral cable side of connector between spiral cable and steering wheel pad.
(3) Connect negative (–) terminal cable to battery, and wait at least 2 seconds.

C (1) Turn ignition switch ACC or ON, and wait at least 20 seconds.
(2) Using SST, connect terminals Te and E, of check connector.
SST 09843–18020
(3) Check diagnostic code.

OK **Diagnostic code 15 is not output.**

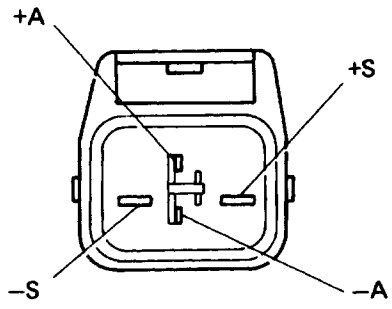
Hint
Codes other than code 15 may be output at this time, but this is not relevant to this check.

OK

NG **Replace center airbag sensor assembly.**

From the results of the above inspection, the malfunctioning part can now be considered normal. To make sure of this, use the simulation method to check.

4 Check front airbag sensor.



P Disconnect front airbag sensor connector.

C Measure resistance between each terminal of front airbag sensor.

OK

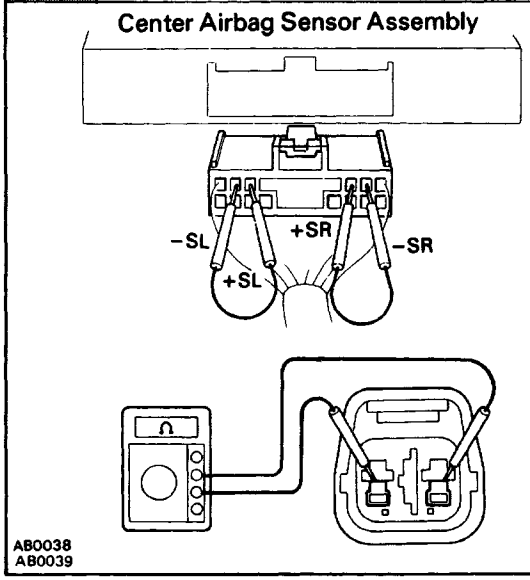
Terminal	Resistance
⊕S – ⊕A	755 Ω – 885 Ω
⊕S – ⊖S	∞
⊖S – ⊖A	Less than 1 Ω

Notice
.Do not touch ohmmeter probes strongly against terminals of front airbag sensor.
.Make sure the front airbag sensor connector is properly connected.

OK

NG **Replace front airbag sensor.**

5 **Check harness between center airbag sensor assembly and front airbag sensor.**



P (1) Disconnect center airbag sensor assembly connector.
(2) Using service wires, connect +S R and–SR, +SL and–SL on the wire harness side of the center airbag sensor assembly connector.

C Measure resistance between terminals +SR and –SR, +SL and–SL of harness side connector of front airbag sensor.

OK **Resistance: Less than 10**

Notice
- **Lightly touch ohmmeter probes at position shown in illustration.**
- **Make sure the front airbag sensor connector is properly connected.**

OK

NG **Repair or replace harness or connector between center airbag sensor assembly and front airbag sensor (See page AB–21).**

Replace front airbag sensor connector (See page AB–21).

Diag . Code 22 Airbag Warning Light System Malfunction

CIRCUIT DESCRIPTION

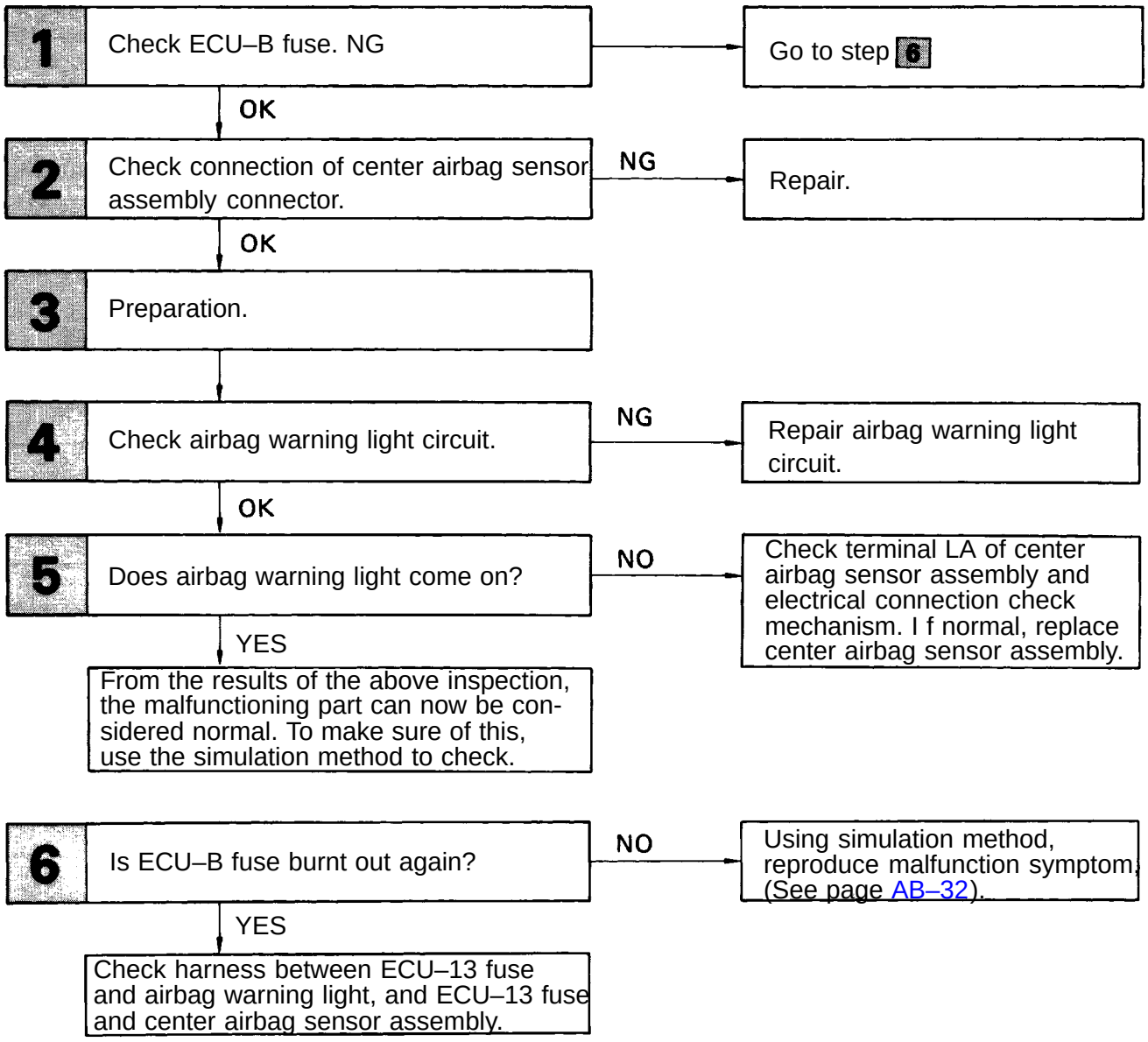
The airbag warning light is located on the combination meter.
When the airbag system is normal, the airbag warning light lights up for approx. 6 seconds after the ignition switch is turned from LOCK position to ACC or ON position, and then turns off automatically.
If there is a malfunction in the airbag system, the airbag warning light lights up to inform the driver of the abnormality.
When terminals Tc and E1 of the check connector are connected, the diagnostic code is displayed by the blinking of the airbag warning light.
The airbag warning light circuit is equipped with an electrical connection check mechanism which detects when the connector to the center airbag sensor assembly is not properly connected.
If the connector to the center airbag sensor assembly is not properly connected, the airbag warning light will not light up.
Diagnostic code 22 is recorded when a malfunction occurs in the airbag warning light system.
If an OPEN malfunction occurs in the airbag warning light system, the airbag warning light does not light up, so that until the malfunction is repaired, the diagnostic codes (including code 22) cannot be conf irmed.

Code No.	Diagnosis
22	. Open circuit in airbag warning light system. . Center airbag sensor assembly malfunction.

DIAGNOSTIC CHART

Troubleshooting for this system is different for when the airbag warning light does not light up and for when diagnostic code 22 is output. Confirm the problem symptoms first before selecting the appropriate troubleshooting procedure.

HINT: If airbag warning light does not light up, perform the following troubleshooting:



DIAGNOSTIC CHART

HINT: I f diagnostic code 22 is output, perform the following troubleshooting:

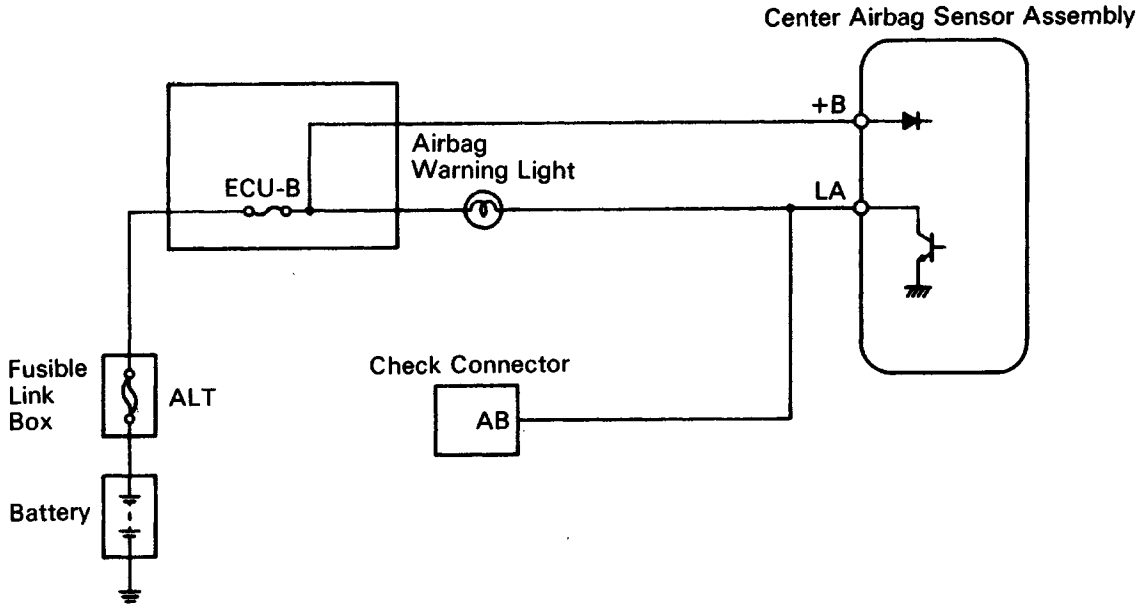
1 Is diagnostic code 22 output again?

→ Using simulation method, reproduce malfunction symptoms (See page AB–32).

YES

Replace center airbag sensor assembly.

WIRING DIAGRAM



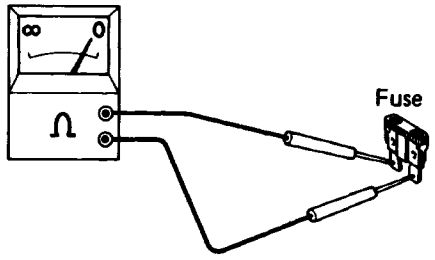
AB0240

INSPECTION PROCEDURE

P Preparation C Check

HINT: If airbag warning light does not light up, perform the following troubleshooting:

1 Check ECU 6 fuse.



P Remove ECU–B fuse.

C Check continuity of ECU–B fuse.
Continuity.

OK Fuse may be burnt out even i f i t appears to be OK during visual inspection.

Hint If fuse is OK, install it.

OK

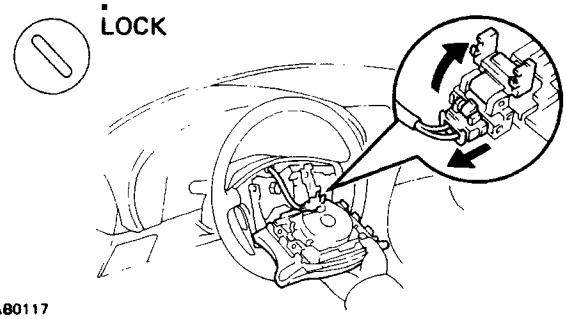
NG **Go to step 6 .**

2 Check connection of center airbag sensor assembly connector.

OK

NG **Repair.**

3 Preparation

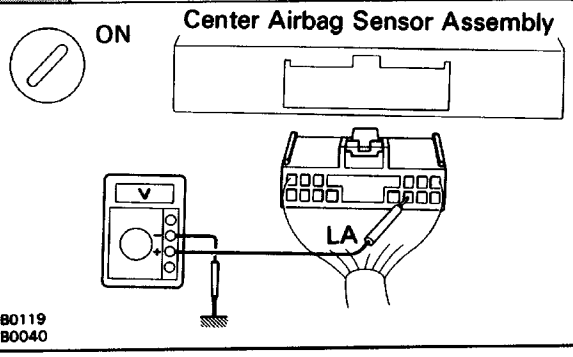


P (1) Disconnect battery negative (–) terminal cable, and wait at least 20 seconds.
(2) Remove steering wheel pad
(See page AB–15).

Caution

When storing steering wheel pad, keep upper surface of pad facing upward.

4 Check airbag warning light circuit.



P (1) Disconnect center airbag sensor assembly connector.
(2) Connect negative (–) terminal cable to battery.
(3) Turn ignition switch ACC or ON.

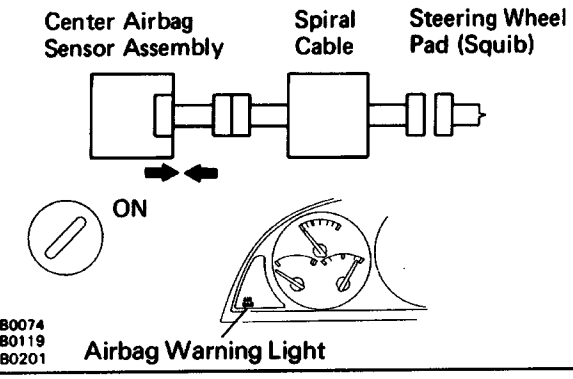
C Measure voltage LA terminal of harness side connector of center airbag sensor assembly.

OK **Voltage: Battery voltage.**

OK

NG **Repair airbag warning light circuit.**

5 Does airbag warning light come on ?



P (1) Disconnect negative (–) terminal cable from battery.
(2) Connect center airbag sensor assembly connector.
(3) Connect negative (–) terminal cable to battery.
(4) Turn ignition switch ACC or ON.

C Check operation of airbag warning light.

YES

NO **Check terminal LA of center airbag sensor assembly and electrical connection check mechanism. If normal, replace center airbag sensor assembly.**

From the results of the above inspection, the malfunctioning part can now be considered normal To make sure of this, use the simulation method to check.

6 Is new ECU–B fuse burnt out again ?

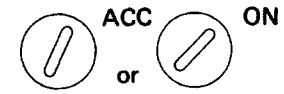
YES

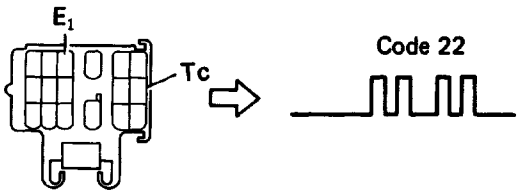
NO **Using simulation method, reproduce malfunction symptoms (See page AB–32).**

Check harness between ECU–13 fuse and airbag warning light, and ECU–13 fuse and center airbag sensor assembly.

HINT: I f diagnostic code 22 is output, perform the following troubleshooting:

1 Is diagnostic code 22 output again?





AB0118 AB0119
SH-18-1 FI1392

P C
Clear malfunction code 41 stored in memory (See page AB–31).
(1) Turn ignition switch LOCK, and wait at least 2 seconds.
(2) Turn ignition switch ACC or ON, and wait at least 20 seconds.
(3) Using SST, connect terminals Te and E 1 of check connector.
SST 09843–18020
(4) Check diagnostic code.

YES

NO → **Using simulation method, reproduce malfunction symptoms (See page AB–32).**

Replace center airbag sensor assembly.

Diag. Code 31 Center Airbag Sensor Assembly Malfunction

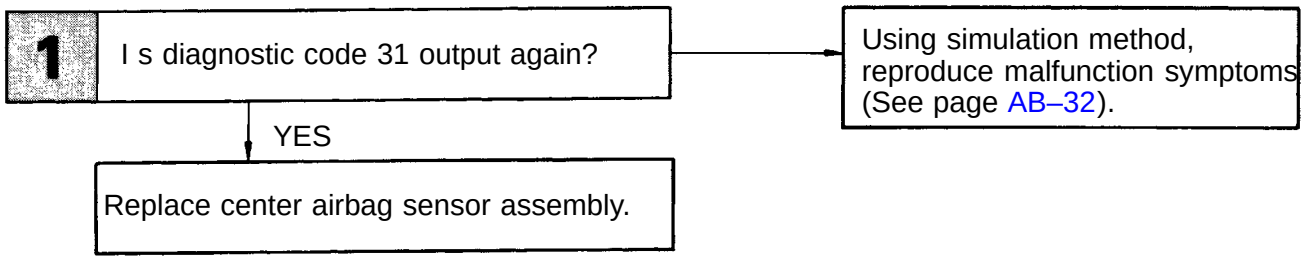
CIRCUIT DESCRIPTION

The center airbag sensor assembly consists of a center airbag sensor, safing sensors, ignition control and drive circuit, diagnosis circuit, etc.
It receives signals from the airbag sensors, judges whether or not the airbag must be activated, and diagnoses system malfunction.
Diagnostic code 31 is recorded when occurrence of a malfunction in the center airbag sensor assembly is detected.

Code No.	Diagnosis
31	. Center airbag sensor assembly malfunction.

DIAGNOSTIC CHART

HINT: When a malfunction code other than code 31 is displayed at the same time, first repair the malfunction indicated by the malfunction code other than code 31.

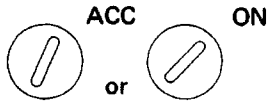


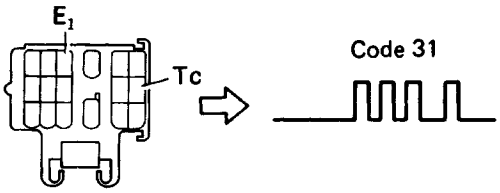
INSPECTION PROCEDURE

HINT: When a malfunction code other than code 31 is displayed at the same time, first repair the malfunction indicated by the malfunction code other than code 31.

P Preparation C Check

1 Is diagnostic code 31 output again ?





AB0118 AB0119
SH-18-1 FI1394

P Clear malfunction code 41 stored in memory (See page AB–31).

C
(1) Turn ignition switch LOCK, and wait at least 20 seconds.
(2) Turn ignition switch ACC or ON, and wait at least 20 seconds.
(3) Repeat operation in step (1) and (2) at least 5 times.
(4) Using SST, connect terminals Tc and E1 of check connector.
SST 09843–18020
(5) Check diagnostic code.

YES

NO → **Using simulation method, reproduce malfunction symptoms (See page AB–32).**

Replace center airbag sensor assembly.

Diag . Code 41 Malfunction Stored in Memory

CIRCUIT DESCRIPTION

If a malfunction occurs in the airbag system, malfunction codes 11 to 31 may be output, and when the battery is disconnected after the malfunction is repaired, malfunction codes 11 to 31 will be cleared, but code 41 will be output instead.
So long as the cancellation operation for a malfunction recorded in memory (See page AB–3 1) is not performed, code 41 recorded in the center airbag sensor assembly and the airbag warning light remains lit up.

Code No.	Diagnosis
41	. Malfunction recorded in memory. . Center airbag sensor assembly malfunction.

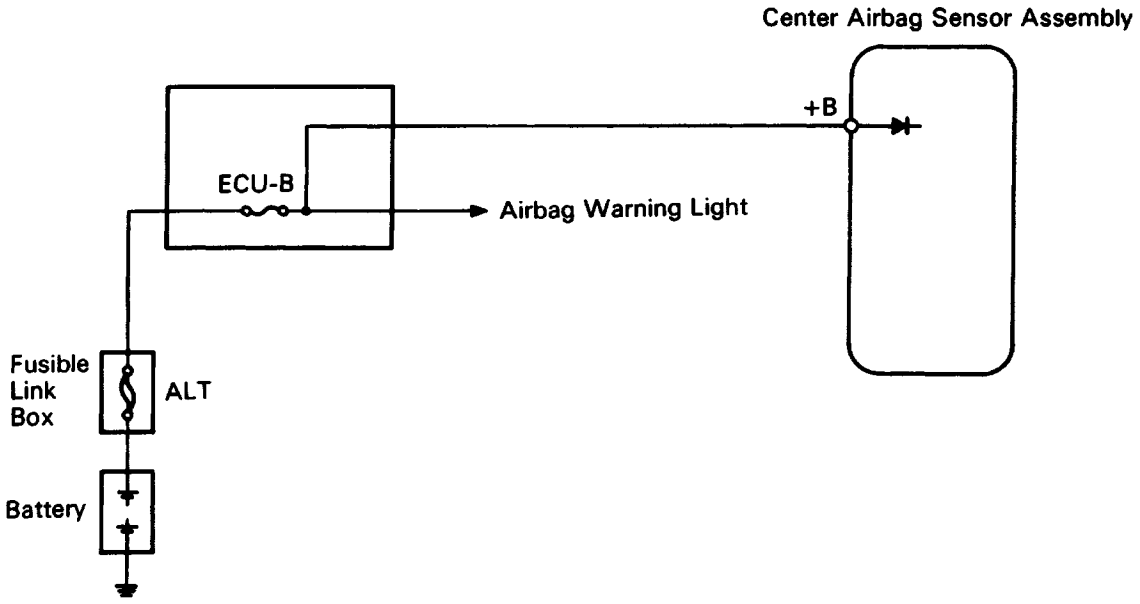
DIAGNOSTIC CHART

1 Check operation of airbag warning light.
- OK → System is normal.
- NG →

2 Is diagnostic code 41 output again?
- YES → Check harness between ECU–B fuse and center airbag sensor assembly. I f normal, replace center airbag sensor assembly.
- NO →

Perform troubleshooting according to malfunction code output.

WIRING DIAGRAM

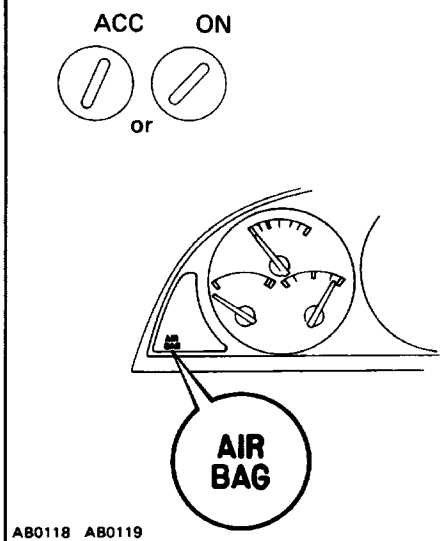


AB0194

INSPECTION PROCEDURE

P Preparation C Check

1 Check operation of airbag warning light.



AB0118 AB0119
AB0199

P Clear malfunction code 41 stored in memory (See page AB–31).

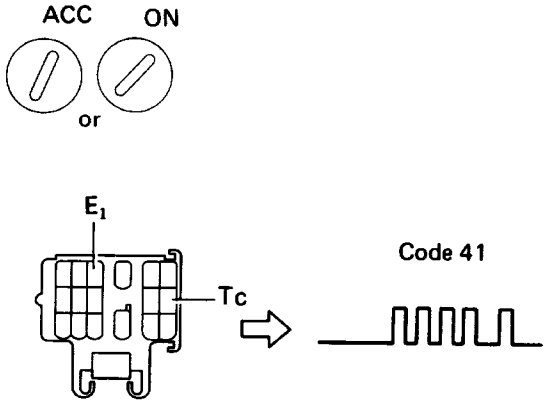
C
(1) Turn ignition switch LOCK, and wait at least 2 seconds.
(2) Turn ignition switch ACC or ON, and wait at least 20 seconds.
(3) Check operation of airbag warning light.

OK **Airbag warning light turns off.**

NG

OK **System is normal.**

2 Is diagnostic code 41 output again ?



AB0118 AB0119
SH-18-1 FI1396

C
(1) Turn ignition switch ACC or ON, and wait at least 20 seconds.
(2) Using SST, connect terminals Te and E, of check connector.
SST 09843–18020
(3) Check diagnostic code.

NO

YES **Check harness between ECU–B fuse and center airbag sensor assembly. If normal, replace center airbag sensor assembly.**

Perform troubleshooting according to malfunction code output.

Airbag Warning Light System (Always Lit Up)

CIRCUIT DESCRIPTION

The airbag warning light is located on the combination meter.
When the airbag system is normal, the airbag warning light lights up for approx. 6 seconds after the ignition switch is turned from LOCK position to ACC or ON position, and then turns off automatically.
If there is a malfunction in the airbag system, the airbag warning light lights up to inform the driver of the abnormality.
When terminals Tc and E1 of the check connector are connected, the diagnostic code is displayed by the blinking of the airbag warning light.

DIAGNOSTIC CHART

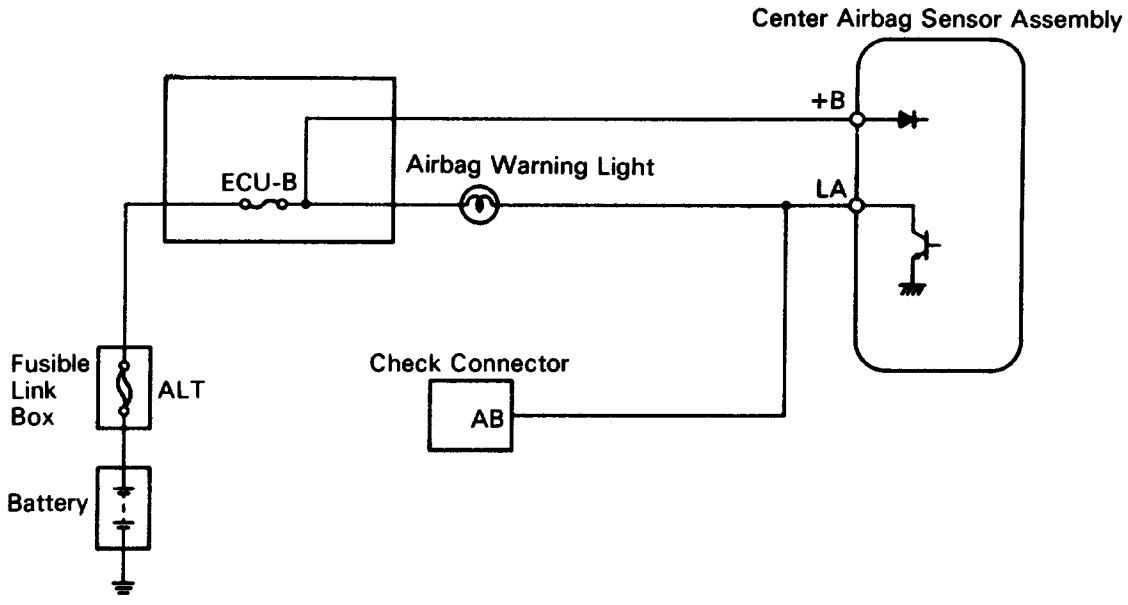
1 Does airbag warning light turn off?

NO → Check airbag warning light circuit or terminal AB circuit of check connector.

YES

Replace center airbag sensor assembly.

WIRING DIAGRAM

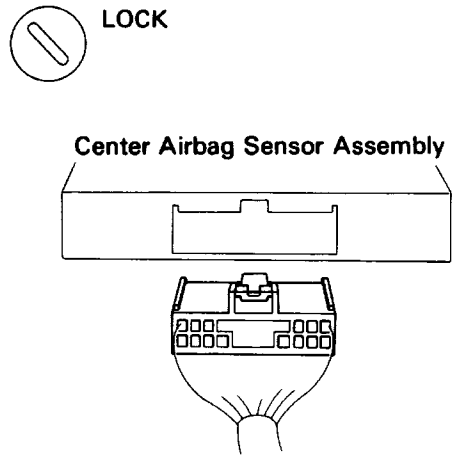


AB0240

INSPECTION PROCEDURE

P Preparation C Check

1 Does airbag warning light turn off ?



AB0117
AB0041

P (1) Turn ignition switch LOCK.
(2) Disconnect negative (–) terminal cable from battery.
(3) Disconnect center airbag sensor assembly connector.
(4) Connect negative (–) terminal cable to battery.

C Check operation of airbag warning light.

YES

Replace center airbag sensor assembly.

NO

Check airbag warning light circuit or terminal AB circuit of check connector.

Tc Terminal Circuit

CIRCUIT DESCRIPTION

By connecting terminals Tc and E1 of the check connector, the center airbag sensor assembly is set in the diagnostic code output mode. The diagnostic codes are displayed by the blinking of the airbag warning light.

DIAGNOSTIC CHART

Troubleshooting for this system is different depending on whether the diagnostic code is not displayed or is continuously displayed. Confirm the problem symptoms first before selecting the appropriate troubleshooting procedure.

HINT: If the diagnostic code is not displayed, perform the following troubleshooting:

Check voltage between terminals Tc and OK

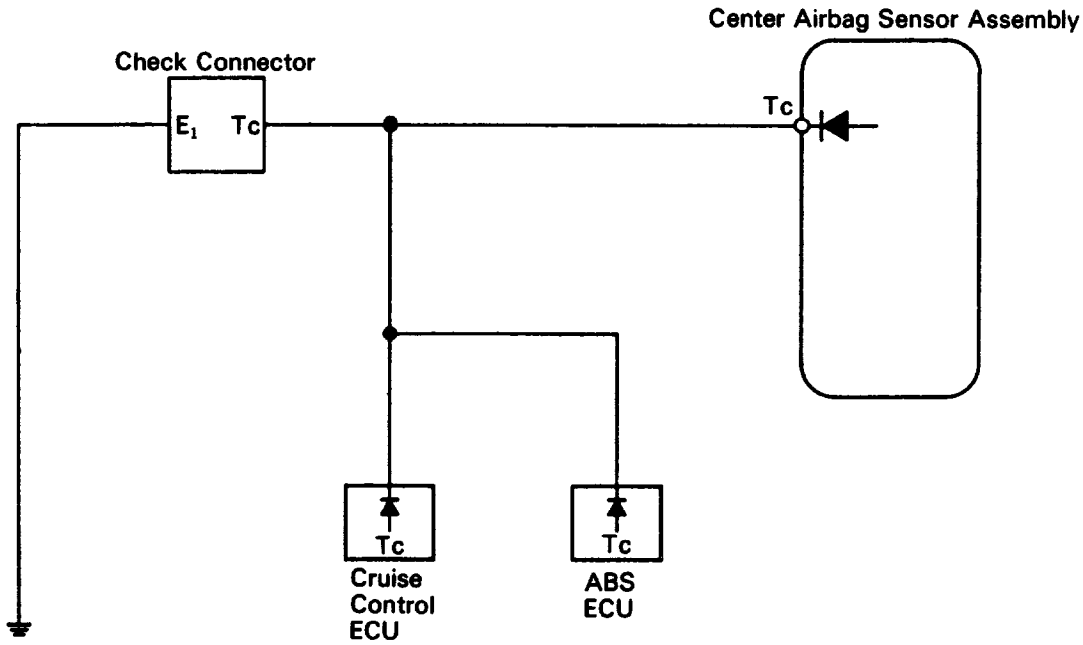
1	Check voltage between terminals Tc and E1 of check connector.		G o to step 3 .
	NG		
2	Check voltage between terminal Tc of check connector and body ground.	OK	Check harness between terminal E1 of check connector and body ground.
	NG		
3	Check center airbag sensor assembly.	OK	Check harness between center airbag sensor assembly and check connector.
	NG		
	Replace center airbag sensor assembly.		

HINT: If the diagnostic code is continuously displayed, perform the following troubleshooting:

1	Check resistance between terminal Tc of center airbag sensor assembly and body ground. .	Replace center airbag sensor assembly.
	NG	
	Repair or replace harness or connector.	

DIAGNOSTIC CHART

WIRING DIAGRAM



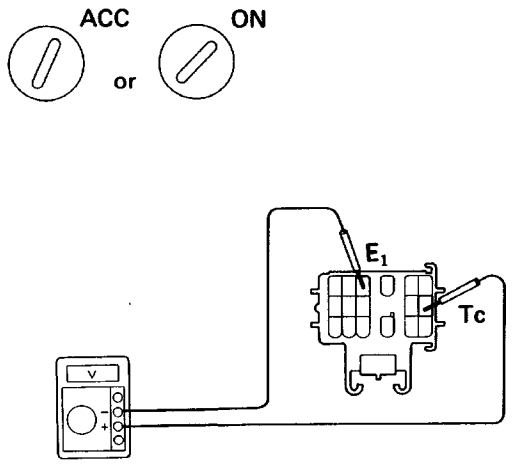
AB0241

INSPECTION PROCEDURE

P Preparation C Check

HINT: If the diagnostic code is not displayed, perform the following troubleshooting:

1 Check voltage between terminals Te and E, of check connector.



P Turn ignition switch ACC or ON.

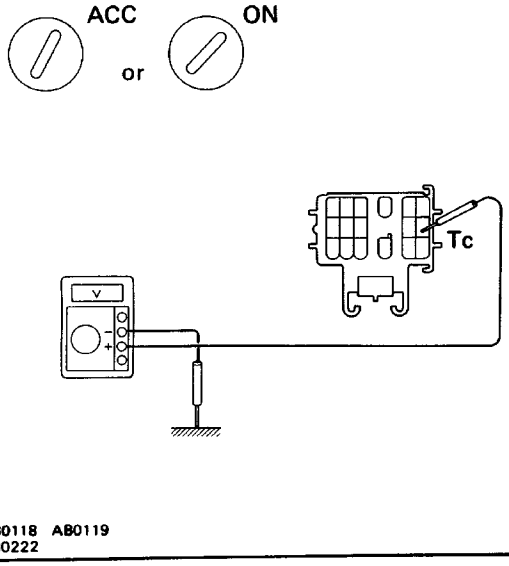
C Measure voltage between terminals Te and E, of check connector.

OK **Voltage: Battery voltage**

NG

OK ⟩ **Go to step 3.**

2 Check voltage between terminal Te of check connector and body ground.



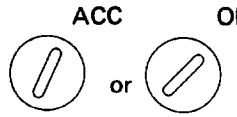
C Measure voltage between terminal Tc of check connector and body ground.

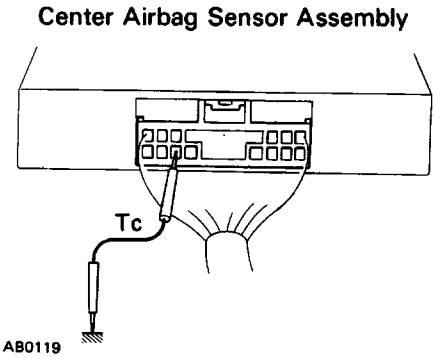
OK **Voltage: Battery voltage**

NG

OK ⟩ **Check harness between terminal E1 of check connector and body ground.**

3 Check center airbag sensor assembly.





AB0118 AB0119
AB0186

P Using a service wire, connect terminal Tc of center airbag sensor assembly connector to body ground.

C Check operation of airbag warning light.

OK **Airbag warning light comes on.**

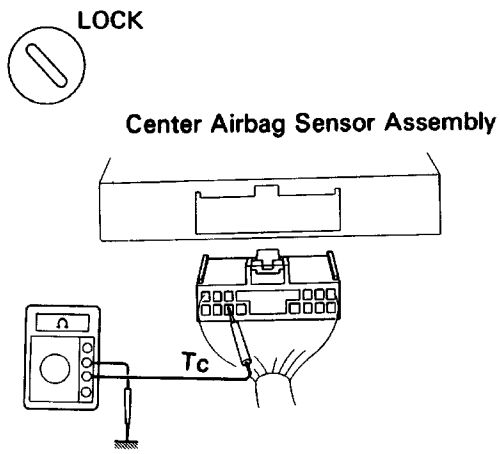
NG

OK **Check harness between center airbag sensor assembly and check connector.**

Replace center airbag sensor assembly.

HINT: If the diagnostic code is continuously displayed, perform the following troubleshooting:

1 Check resistance between terminal Te of center airbag sensor assembly and body ground.



P (1) Turn ignition switch LOCK.
(2) Disconnect center airbag sensor assembly connector

C Check resistance between terminal Tc of center airbag sensor assembly and body ground.

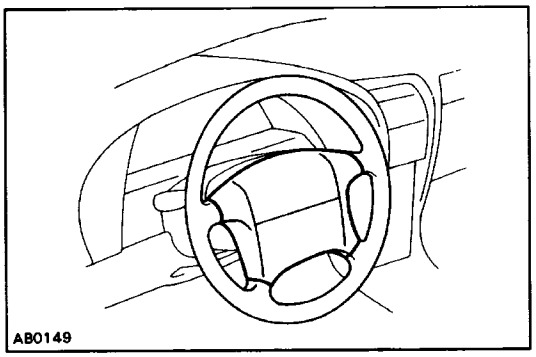
OK **Resistance: ∞ Ω**

NG

Repair or replace harness or connector.

OK

Replace center airbag sensor assembly.



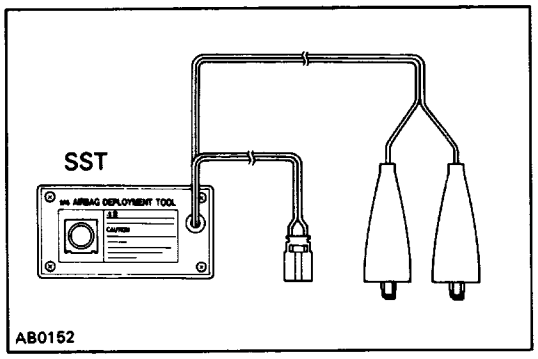
DISPOSAL OF STEERING WHEEL PAD (WITH AIRBAG)

When scrapping vehicles equipped with an airbag system or disposing of a steering wheel pad (with airbag), always first deploy the airbag in accordance with the procedure described below.

If any abnormality occurs with the airbag deployment, contact the SERVICE DEPT. of TOYOTA MOTOR SALES, U.S.A., INC..

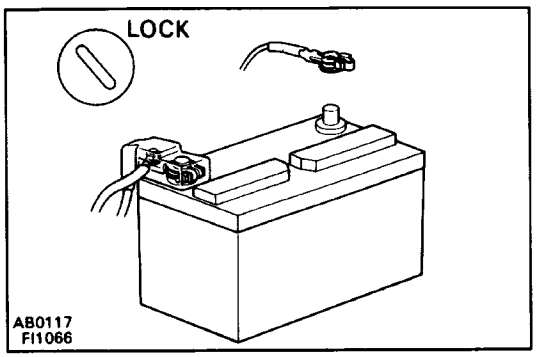
Never dispose of a steering wheel pad which has an undeployed airbag.

When disposing of a steering wheel pad with an airbag deployed in a collision, follow the same procedure given under "AIRBAG DEPLOYMENT PROCEDURE (WHEN SCRAPPING THE VEHICLE), part 5, DISPOSAL OF STEERING WHEEL PAD (WITH AIRBAG) "(See page AB–84).



PRECAUTIONS FOR AIRBAG DEPLOYMENT

1. **The airbag produces a sizeable exploding sound when it deploys, so perform the operation out–of–doors and where it will not create a nuisance to nearby residents.**
2. **When deploying the airbag, always use the specified SST: SRS AIRBAG DEPLOYMENT TOOL (SST 09082–00700). Perform the operation in a place away from electrical noise.**
3. **When deploying an airbag, perform the operation from at least 10 m (33 ft) away from the steering wheel pad.**
4. **The steering wheel pad is very hot when the airbag is deployed, so leave it alone for at least 30 minutes after deployment.**
5. **Use gloves and safety glasses when handling a steering wheel pad with deployed airbag.**
6. **Always wash your hands with water after completing the operation.**
7. **Do not apply water, etc. to a steering wheel pad with deployed airbag.**

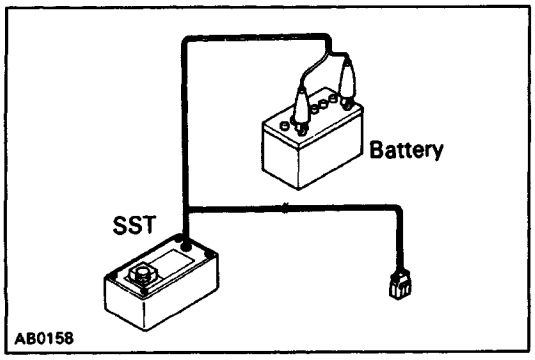


AIRBAG DEPLOYMENT PROCEDURE (WHEN SCRAPPING VEHICLE)

HINT: Have a battery ready as the power source to deploy the airbag.

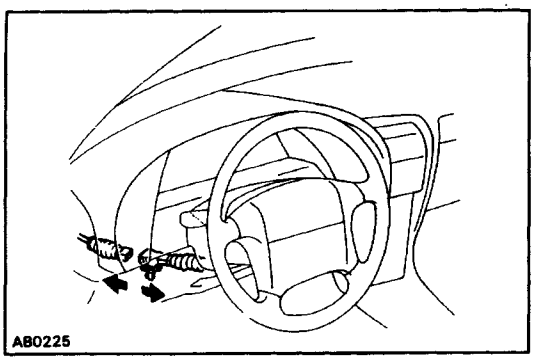
1. **DISCONNECT NEGATIVE (–) TERMINAL CABLE FROM BATTERY**

   CAUTION: Work must be started after approx. 2C seconds or longer from the time the ignition switch is turned to the LOCK position and the negative (–) terminal cable is disconnected from the battery (See page AB–2).



2. CONFIRM FUNCTIONING OF SST (See page AB–88)

SST 09082–00700

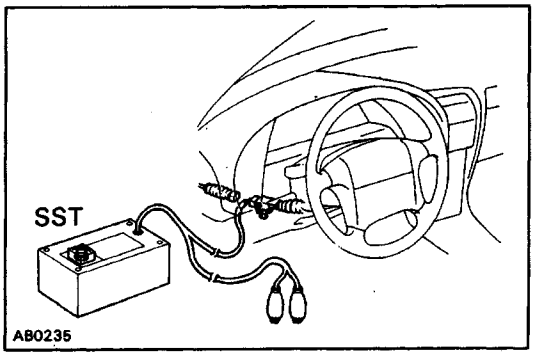


3. INSTALL SST

CAUTION: Check that there is no looseness in the steering wheel and steering wheel pad.

(a) Remove the instrument panel lower finish panel.

(b) Disconnect the airbag connector of the spiral cable.



(c) Connect the SST connector to the airbag connector of the spiral cable.

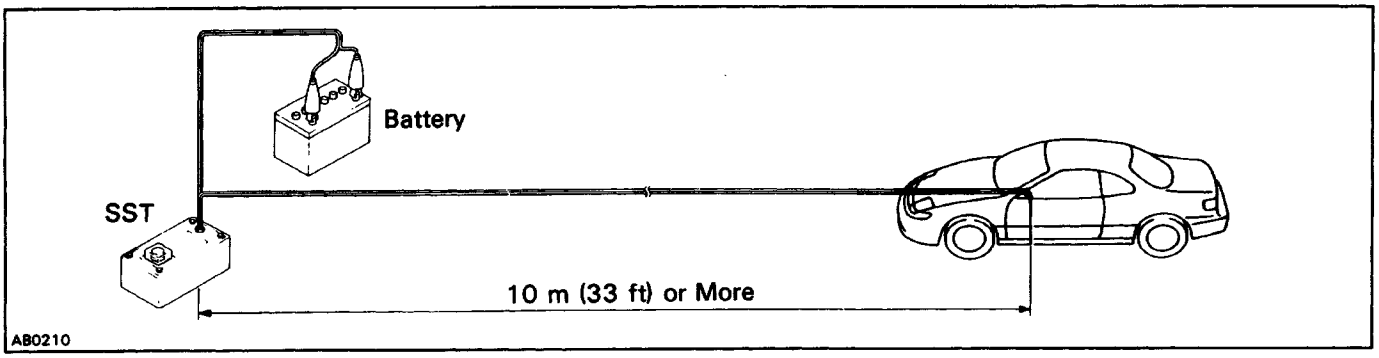
SST 09082–00700

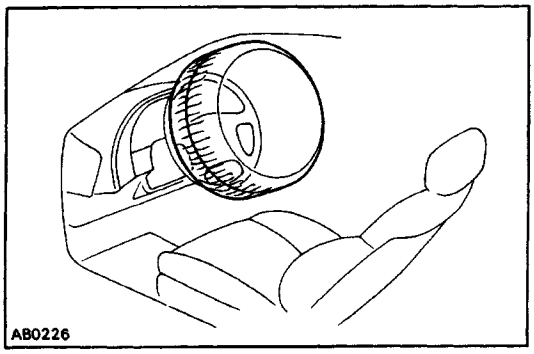
(d) Move the SST to at least 10 m (33 ft) from the front of the vehicle.

(e) Close all the doors and windows of the vehicle.

NOTICE: Take care not to damage the SST wire harness.

(f) Connect the SST red clip to the battery positive (+) terminal and the black clip to the battery negative (–) terminal.





4. DEPLOY AIRBAG

(a) Confirm that no–one is inside the vehicle or within 10 m (33 ft) of the vehicle.

(b) Press the SST activation switch and deploy the airbag.

HINT: The airbag deploys simultaneously as the LED of the SST activation switch lights up.

5. DISPOSAL OF STEERING WHEEL PAD (WITH AIRBAG)

CAUTION:

- **The steering wheel pad is very hot when the airbag is deployed, so leave it alone for at least 30 minutes after deployment.**
- **Use gloves and safety glasses when handling a steering wheel pad with deployed airbag.**
- **Do not apply water, etc. to a steering wheel pad with deployed airbag.**
- **Always wash your hands with water after completing the operation.**

(a) When scrapping a vehicle, deploy the airbag and scrap the vehicle with the steering wheel pad still installed.

(b) When moving a vehicle for scrapping which has a steering wheel pad with deployed airbag, use gloves and safety glasses.

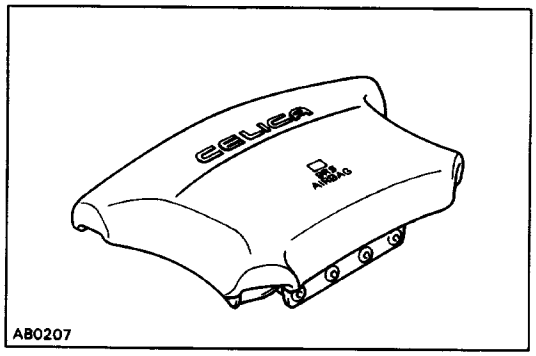
AIRBAG DEPLOYMENT PROCEDURE (PROCEDURE FOR DISPOSAL OF STEERING WHEEL PAD ONLY)

When disposing of the steering wheel pad (with airbag) only, never use the customer's vehicle to deploy the airbag.

Remove the steering wheel pad from the vehicle and be sure to follow the procedure given below when deploying the airbag.

HINT:

- . Have a battery ready as the power source to deploy the airbag.

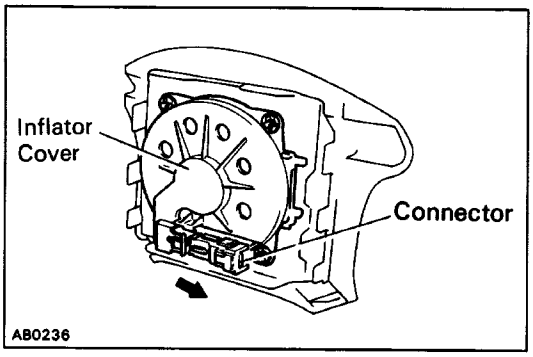


AB0207

1. REMOVE STEERING WHEEL PAD (SEE PAGE AB–15)

CAUTION:

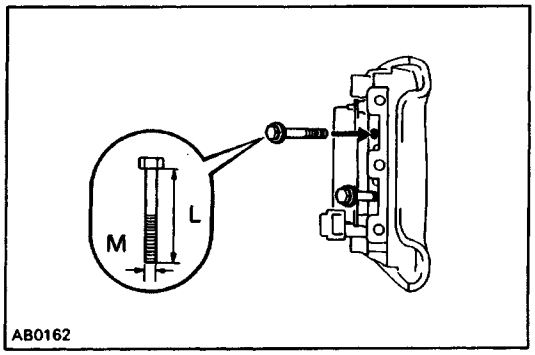
- **When removing the steering wheel pad (with airbag), work must be started after approx. 20 seconds or longer from the time the ignition switch is turned to the LOCK position and the negative (–) terminal cable is disconnected from the battery.**
- **When storing the steering wheel pad, keep the upper surface of the pad facing upward.**

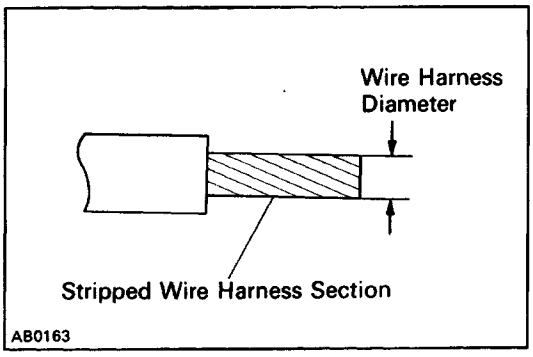


AB0236

2. REMOVE STEERING WHEEL PAD CONNECTOR

Remove the connector on the steering wheel pad rear surface from the inflator cover.





3. FIX STEERING WHEEL PAD TO DISC WHEEL WITH TIRE

(a) Install bolts with washers in the four bolt holes in the steering wheel pad.

Bolt: l 35.0 mm (1.378 in.)
M 6.0 mm
Pitch 1.0 mm

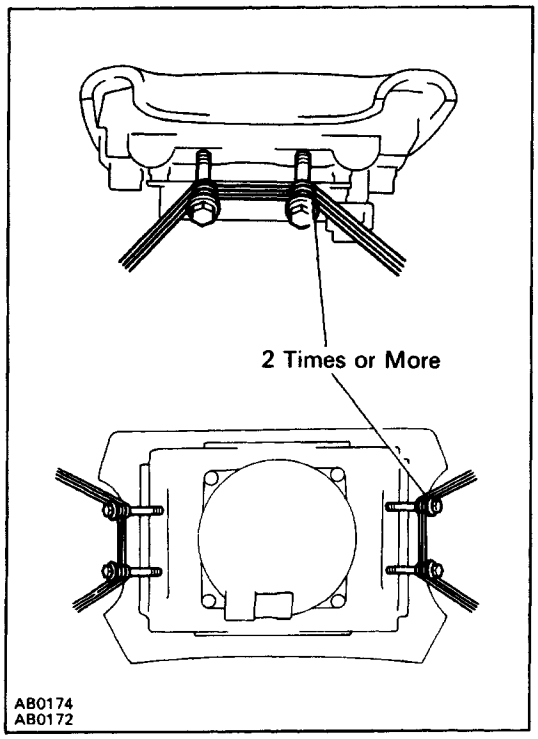
NOTICE: Tighten the bolts by hand until the bolts become difficult to turn.
Do not tighten the bolts too much.

(b) Using a service–purpose wire harness for vehicle, tie down the steering wheel pad to the disc wheel.
Wire harness: Stripped wire harness section 1.25 mm2 or more (0.002 in.2 or more)

HINT: To calculate the square of the stripped wire harness section–

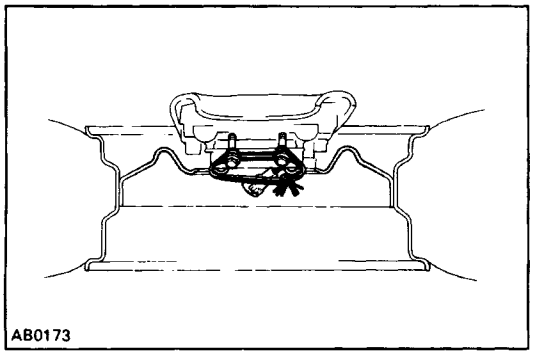
$$\text{Square} = \frac{3'14 \times (\text{Diameter})2}{4}$$

CAUTION: If a wire harness which is too thin or some other thing is used to tie down the steering wheel pad, it may be snapped by the shock when the airbag is deployed, this is highly dangerous.
Always use a wire harness for vehicle use which is at least 1.25 mm' (0.002 in.').



(1) Using 3 wire harnesses, wrap the wire harnesses at least 2 times each around the bolts installed on the left and right sides of the steering wheel pad.

CAUTION: Tightly wind the wire harness around the bolts so that there is no slack.
If there is slackness in the wire harness, the steering wheel pad may come loose due to the shock when the airbag is deployed, this is highly dangerous.

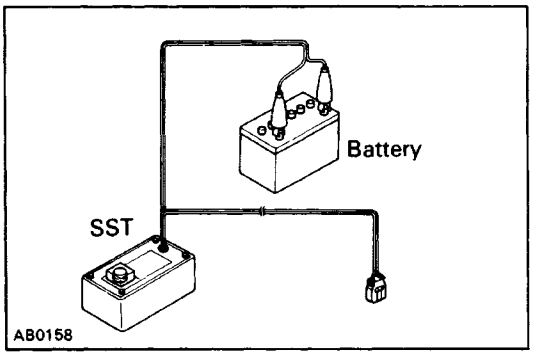


(2) Face the upper surface of the steering wheel pad upward. Separately tie the left and right sides of the steering wheel pad to the disc wheel through the hub nut holes.
Position the steering wheel pad connector so that it hangs downward through a hub hole in the disc wheel.

CAUTION:

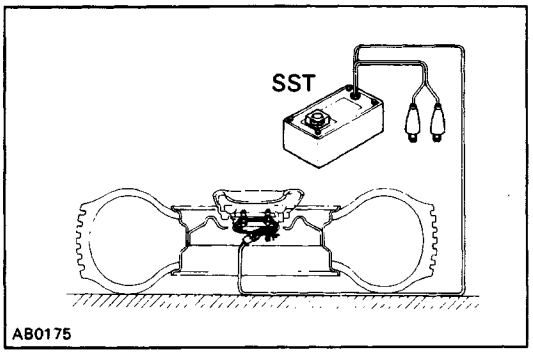
- **Always tie down the steering wheel pad with the pad side facing upward. It is very dangerous if the steering wheel pad is tied down with the metal surface facing upward, as the wire harness will be cut by the shock of the airbag deploying and the steering wheel pad will be thrown into the air.**
- **Make sure that the wire harness is tight.**
  It is very dangerous if looseness in the wire harness results in the steering wheel pad coming free through the shock of the airbag deploying.

NOTICE: The disc wheel will be marked by airbag deployment, so use a redundant disc wheel.



4. CONFIRM FUNCTIONING OF SST (SEE PAGE AB–88)

SST 09082–00700



5. INSTALL SST

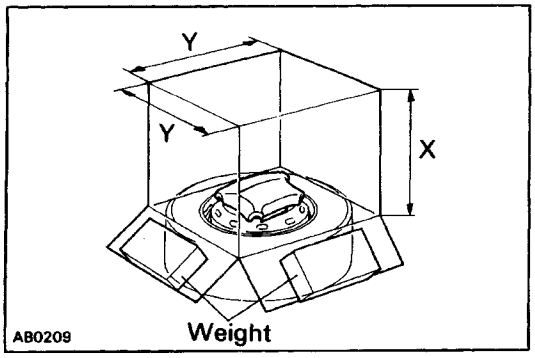
CAUTION: Place the disc wheel on level ground.

(a) Connect the SST connector to the steering wheel pad connector.

SST 09082–00700

NOTICE: To avoid damaging the SST connector and wire harness, do not lock the secondary lock of the twin lock. Also, provide some slack for the SST wire harness inside the disc wheel.

(b) Move the SST to at least 10 m (33 ft) away from the steering wheel pad tied down on the disc wheel.



6. COVER STEERING WHEEL PAD WITH CARDBOARD BOX OR TIRES

(Covering Method Using Cardboard Box)

Cover the steering wheel pad with the cardboard box and weigh the cardboard box down in four places with a at least 196 N (20 kgf, 44 lbf).

Size of cardboard box: Must exceed the following dimensions–

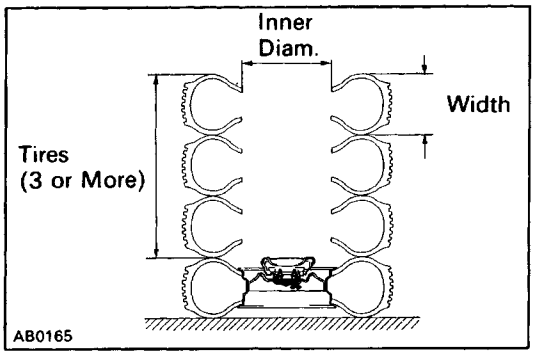
X = 460 mm (18.11 in.)

When dimension "*" of the cardboard box exceeds the diameter of the disc wheel with tire the steering wheel pad is tied to–

X = 460 (18.11 in.) + width of tire

* = 650 mm (25.59 in.)

NOTICE: If a cardboard box smaller than the size specified is used, the cardboard box will be broken by the shock of the airbag deployment.



(Covering Method Using Tires)

Place at least three tires without disc wheel on top of the disc wheel with tire to which the steering wheel pad is tied.

Tire size: Must exceed the following dimensions–

Width 185 mm (7.28 in.)

Inner diam. 360 mm (14.17 in.)

CAUTION: Do not use tires with disc wheels.

NOTICE: The tires may be marked by the airbag deployment, so use redundent tires.

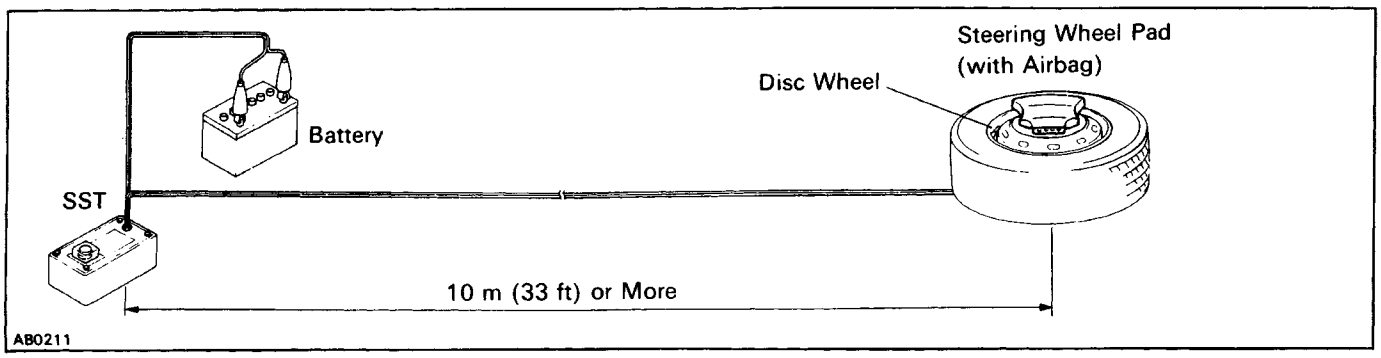
7. AIRBAG DEPLOYMENT

(a) Connect the SST red clip to the battery positive¿+) terminal and the black clip to the battery negative¿–) terminal.

(b) Confirm that no–one is within 10 m (33 ft) of the disc wheel the steering wheel pad is tied to.

(c) Press the SST activation switch and deploy the airbag.

HINT: The airbag deploys simultaneously as the LED of the SST activation switch lights up.



8. DISPOSAL OF STEERING WHEEL PAD (WITH AIRBAG)

CAUTION:

- **The steering wheel pad is very hot when the airbag is deployed, so leave it alone for at least 30 minutes after deployment.**
- **Use gloves and safety glasses when handling a steering wheel pad with deployed airbag.**
- **Do not apply water, etc. to a steering wheel pad with deployed airbag.**
- **Always wash your hands with water after completing the operation.**

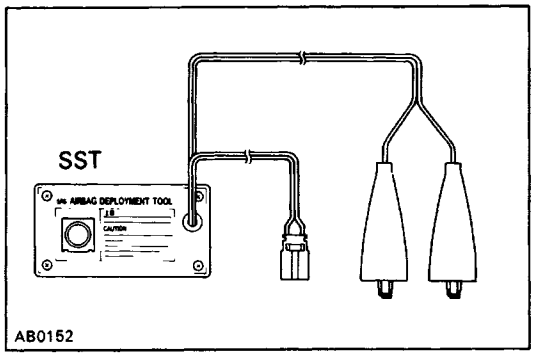
(a) Remove the steering wheel pad from the disc wheel.

(b) Place the steering wheel pad in a vinyl bag, tie the end tightly and dispose of it the same way as other general parts.


AB0166

CONFIRM FUNCTIONING OF SST

When deploying the airbag, always use the specified SST:
SRS AIRBAG DEPLOYMENT TOOL.
SST 09082–00700

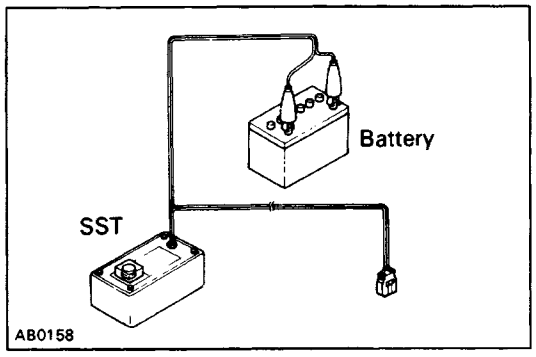


AB0152

1. CONNECT SST TO BATTERY

Connect the red clip of the SST to the battery positive (+) terminal and the black clip to the battery negative (–) terminal.

HINT: Do not connect the yellow connector which connects with the airbag system.

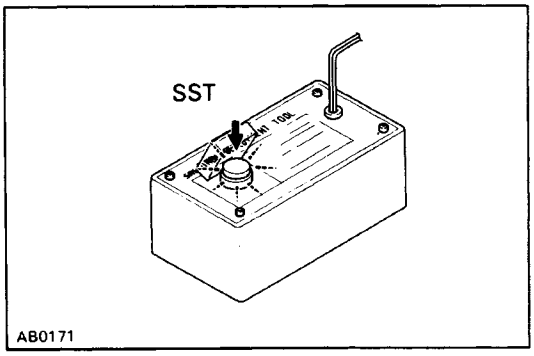


AB0158

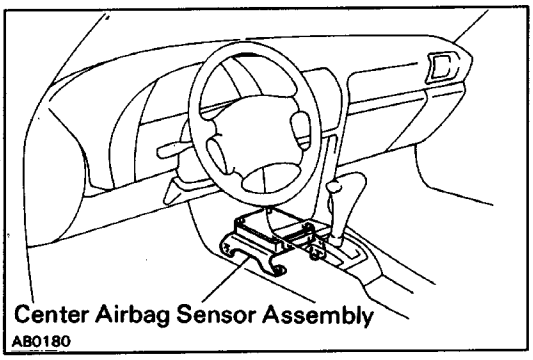
2. CONFIRM FUNCTIONING OF SST

Press the SST activation switch, and confirm the LED of the SST activation switch lights up.

CAUTION: If the LED lights up when the activation switch is not being pressed, SST malfunction is probable, so definitely do not use the SST.



AB0171



DISPOSAL OF CENTER AIRBAG SENSOR ASSEMBLY

The center airbag sensor assembly contains mercury. After performing replacement, do not destroy the old part. When scrapping the vehicle or replacing the center airbag sensor assembly itself, remove the center airbag sensor assembly and dispose of it as toxic waste.