

SECTION 12M - SUPPLEMENTAL RESTRAINT SYSTEM (VERSION 6.2)

CAUTION:

This vehicle will be equipped with a Supplemental Restraint System (SRS). A SRS will consist of either seat belt pre-tensioners and a driver's side air bag, or seat belt pre-tensioners and a driver's and front passenger's side air bags. Refer to CAUTIONS, Section 12M, before performing any service operation on, or around any SRS components, the steering mechanism or wiring. Failure to follow the CAUTIONS could result in SRS deployment, resulting in possible personal injury or unnecessary SRS system repairs.

CAUTION:

This vehicle may be equipped with LPG (Liquefied Petroleum Gas). In the interests of safety, the LPG fuel system should be isolated by turning 'OFF' the manual service valve and then draining the LPG service lines, before any service work is carried out on the vehicle. Refer to the LPG leaflet included with the Owner's Handbook for details or LPG Section 2 for more specific servicing information.

1. GENERAL INFORMATION

The Supplemental Restraint System (SRS) with driver's and front passenger's air bags, is standard fitment to VT Series Acclaim, Berlina and Calais models. Driver's air bag only, is standard equipment on all other VT Series Models.

The fitment of front passenger's air bags is available on other VT Series Models, refer to Holden's Sales Information for option availability.

The SRS is intended as a supplement to the protection offered by the driver and front passenger seat belts by deploying an air bag from the centre of the steering wheel and (when fitted) a passenger's side air bag from the top left hand side of the instrument panel pad assembly during certain frontal crashes. Seat belt pre-tensioners are also activated.

Deployment of the air bag/s and seat belt pre-tensioners is automatic, making the SRS a passive restraint. The driver does not control the operation or activation of the system. The system operates if the vehicle is involved in certain frontal (or near frontal) impacts. The frontal impact would normally be within a 60 degree window, occurring up to 30 degrees off the centre line of the vehicle, refer to Fig. 12M-2. The SRS has the ability to command the deployment of the seat belt pre-tensioners only or the deployment of all restraint devices. Activation is not designed to occur in rollovers, side impacts, or rear impacts, where air bag inflation would not provide any driver/front passenger protection benefit.

The following pre-conditions determine the operation of the SRS system:

NOTE:

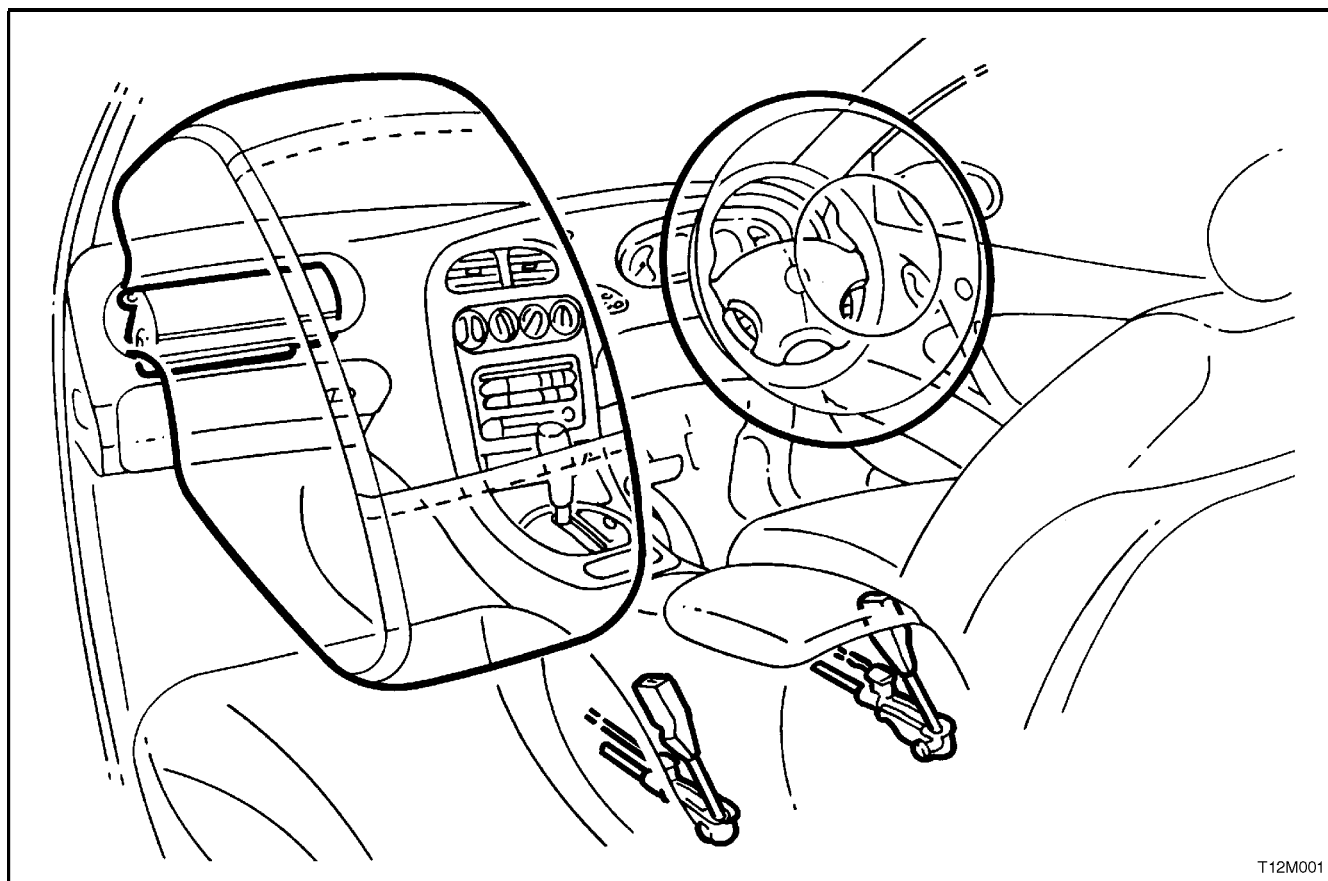
The figures quoted below are the minimum required for the SRS to deploy and are the equivalent of a head on contact between the vehicle and a barrier or other immovable object.

In most accident scenarios, the vehicle speed required to activate the pre-tensioners and air bags would be much greater than these values.

	<u>Pre-tensioner</u>	<u>Air Bag/s</u>
No Deployment	15 km/h*	20 km/h**
Complete Deployment	20 km/h*	28 km/h**
Inflation/Tension Time	5 m/sec	30 m/sec
Max. Displacement Free Moving Mass	3.0 cm	12.5 cm

* If the vehicle is travelling below 15 km/h and is involved in a frontal (or near frontal) collision, the seat belt pre-tensioner will not deploy, between 15 and 20 km/h, the pre-tensioner may or may not deploy, and over 20 km/h, the pre-tensioners will deploy.

** If the vehicle is travelling below 20 km/h and is involved in a frontal (or near frontal) collision, the air bag/s will not deploy, between 20 and 28 km/h, the air bag/s may or may not deploy, and over 28 km/h, the air bag/s will deploy.



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Figure 12M-1

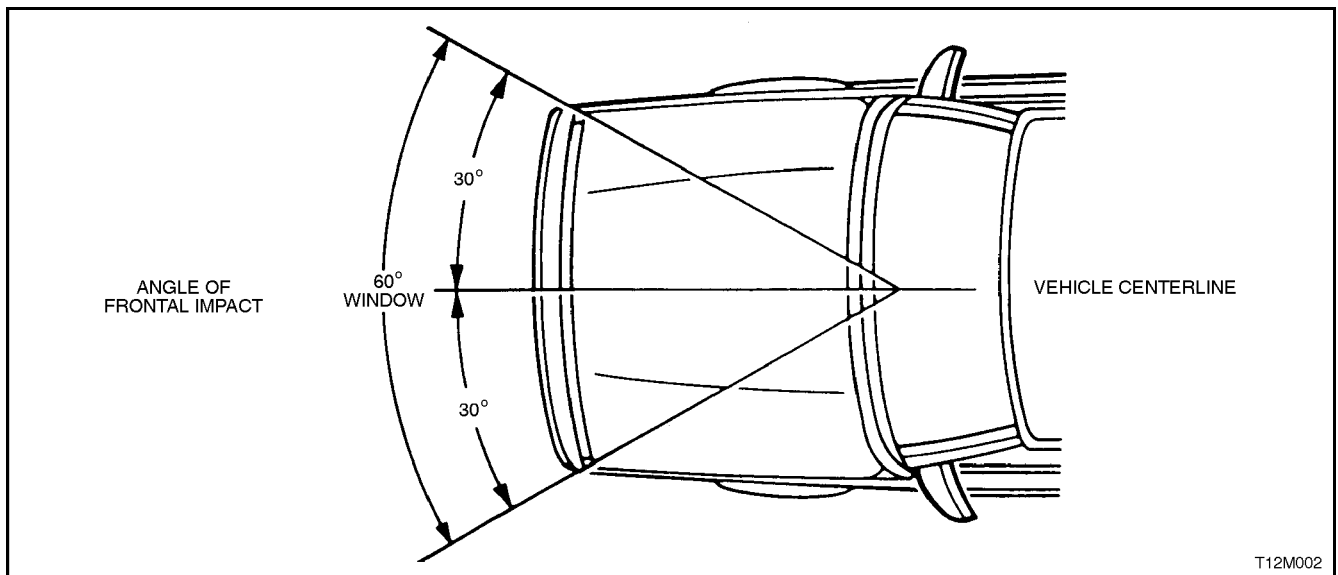


Figure 12M-2

For deployment to occur, numerous factors must be taken into account. For instance, the crush area of the other vehicle (if involved in the crash), its mass and speed would all contribute to raising or lowering the force required for deployment to occur as designed. Also, the angle of impact force may not be within the 60 degree window for SRS deployment to occur, although the physical damage to the vehicle may appear that it was.

The sensors that control the air bag and seat belt pre-tensioner deployment are incorporated in the Sensing and Diagnostic Module (SDM), located beneath the centre console.

Regular maintenance of SRS is not required. If at anytime the SRS warning lamp comes on whilst driving or does not come on when the vehicle is started, there is a system fault and this must be rectified as soon as possible.

The TECH 2 diagnostic scan tool is programmed to assist with VT electrical diagnosis and problem solving, including SRS.

TECH 2 connects to the SRS serial data communication information via the Data Link Connector (DLC), attached to the instrument panel lower right hand trim, to the right of the steering column. For additional information on DLC location and system diagnosis, refer to [3. DIAGNOSTICS](#) in this Section. For additional and more comprehensive information regarding TECH 2, refer to [Section 0C TECH 2](#).

IMPORTANT:

Accessory type or after market bull bars or such devices not approved by Holden's and fitted to a vehicle with SRS may adversely affect the vehicles desired threshold characteristics for SRS deployment.

On vehicles with front passenger's air bag, accessory type or after market type dash panel carpet covers, or the like MUST NOT be installed, as this will greatly inhibit the performance of the air bag and front passenger's safety in the event of an air bag deployment.

Fitting of accessories such as drink holders, cassette racks additional mirrors, etc. are not permitted in the immediate deployment area of the front passenger's air bag as these may be ripped off and propelled towards the vehicle's occupants when the air bag is deployed.

Figure 12M-3, below, illustrates the locations within the passenger compartment of the SRS components.

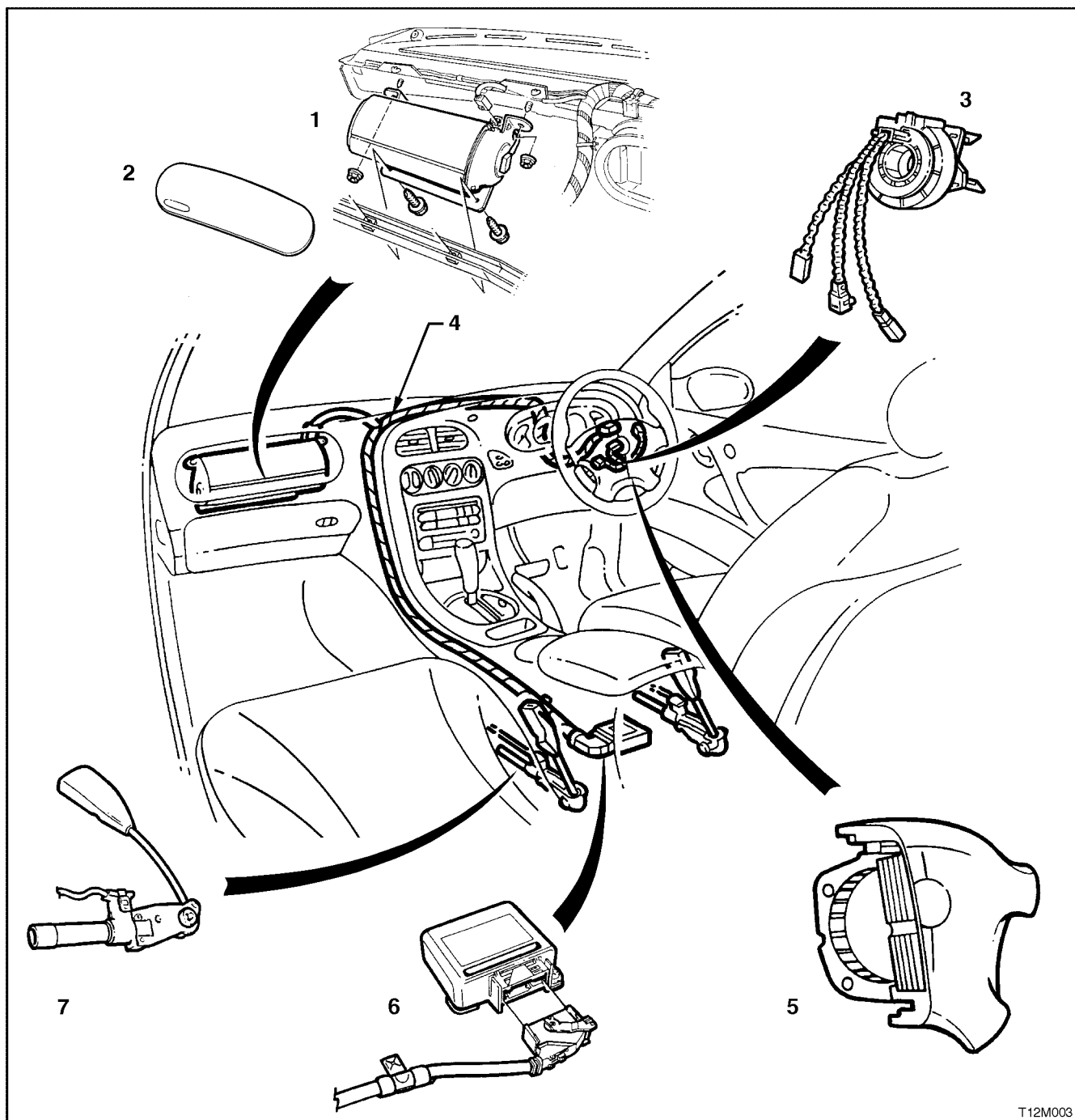


Figure 12M-3

1. Front passenger's side air bag inflator assembly.
2. Passenger Air Bag (PAB) door.
3. Clock spring coil assembly.
4. SRS wiring harness (part of main wiring harness).
5. Horn bar and driver's side air bag inflator module.
6. Sensing and Diagnostic Module (SDM).
7. Seat belt pre-tensioner assembly.

The SRS system operates the air bag inflator module/s in four stages (refer to Figs. 12M-4 and 12M-5) to protect the driver and front seat passenger (if front passenger side air bag is installed) during a crash.

NOTE:

If air bags are deployed, they will both deploy simultaneously.

1. **Before Deployment:** The SRS is in a state of readiness, unless the Sensing and Diagnostic Module (SDM) detects a fault and alerts the vehicle driver via the SRS warning lamp in the instrument cluster warning lamp panel.
2. **Fully Deployed:** The air bag/s are inflated and the SDM records the data related to the SRS conditions and operation.
3. **During Restraint:** The force of the crash causes the head and upper torso of the front passenger and/or driver to move forward into the inflated air bag/s.
4. **End of Crash:** The air bag/s deflate within several seconds after deployment.

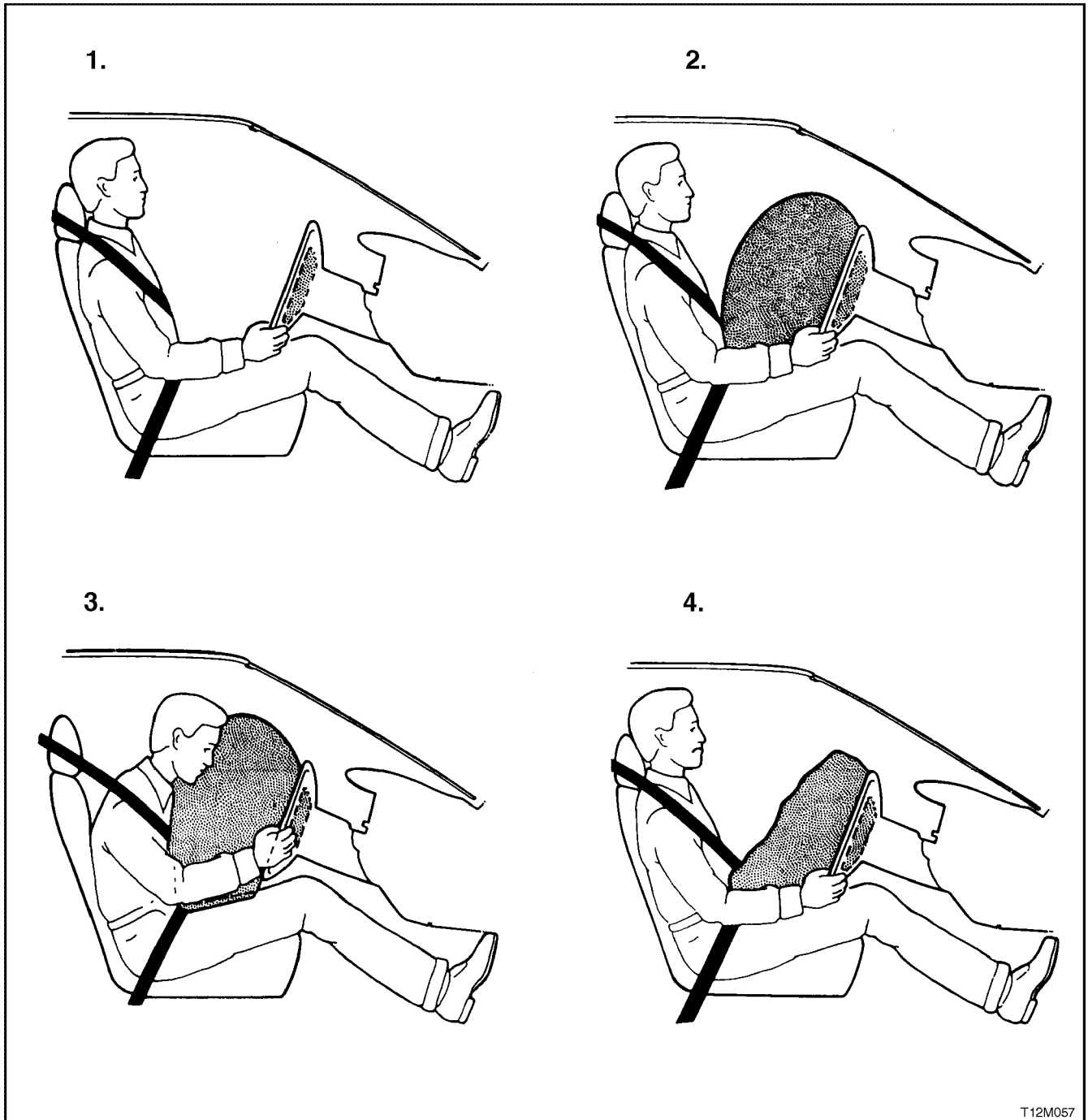
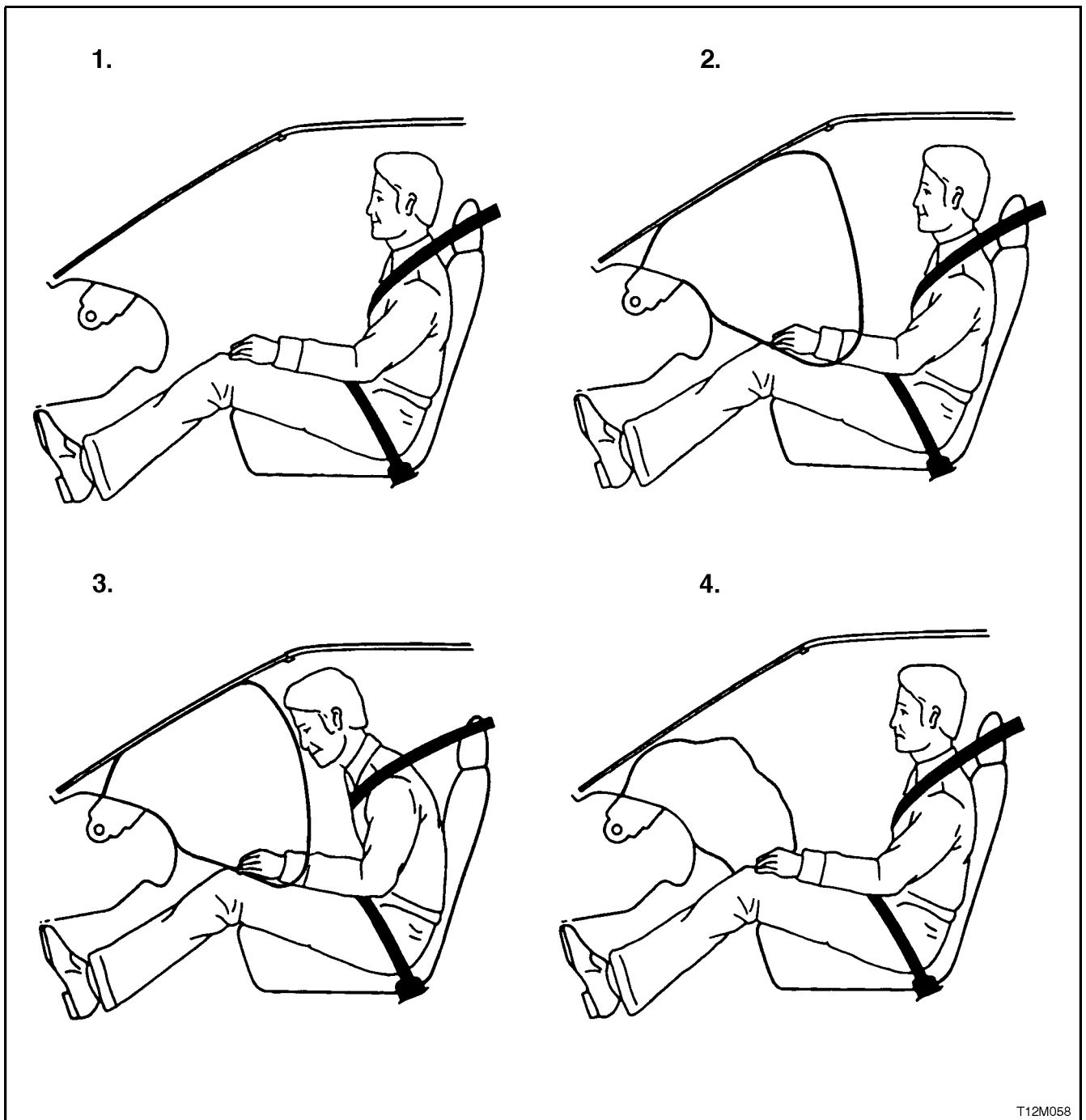


Figure 12M-4

- | | |
|----------------------|---------------------|
| 1. Before deployment | 3. During restraint |
| 2. Fully deployed | 4. End of crash |



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Figure 12M-5

- | | |
|----------------------|---------------------|
| 1. Before deployment | 3. During restraint |
| 2. Fully deployed | 4. End of crash |

1.1 SYSTEM COMPONENTS

SENSING AND DIAGNOSTIC MODULE

The Sensing and Diagnostic Module (SDM), which is mounted under the centre console assembly, consists of an electronic acceleration sensor system, electronic control system, energy storage devices, self diagnostics, fault memory and crash event recording facility.

The primary function of the SDM, as part of the SRS, is to sense crash events and discriminate between non-deployment and required deployment events.

The SDM is a centralised, self contained crash sensing and triggering system that requires no additional external sensing inputs. The SDM also performs continual tests on the pre-tensioners and air bag circuits for the front seat belt pre-tensioners, the driver's air bag and (if fitted) front passenger's air bag.

In the case of a deployment event, the function of the sensing system is to initiate the pre-tensioners or pre-tensioners and air bag/s in a timely manner in order to protect the vehicle occupant/s. Secondary to this, the SDM can diagnose system faults which may prevent air bag deployment or increase the probability of an inadvertent deployment and warn the driver in the case of a system fault.

The SDM is designed for a one time deployment use only, and must be replaced after a deployment. If deployment occurs and the SDM is not replaced, the SRS warning lamp in the instrument cluster will be continually illuminated.

Integrated in the SDM are two piezoelectric sensors (crash sensor) that constantly monitor the acceleration data of the vehicle. Microprocessors within the SDM compare the signals from these two sensors to a set of values stored in the processor memory. If the processed values exceed their set of stored values, the SDM provides an AC output signal to ignite the pyrotechnic gas generators in the pre-tensioners or the pre-tensioners and air bag/s.

An energy reserve (capacitor) in the SDM stores sufficient energy to activate the air bag/s in the event of the electrical system being damaged by the impact.

The electronic diagnostic facility within the SDM constantly monitors the electrical circuits and the firing circuit. Faults that occur in the system are stored in the memory and the SRS warning lamp in the instrument cluster warning lamp panel will be switched on.

The SDM performs the following functions:

It continuously monitors the SRS electrical circuits.

It controls the SRS warning lamp in the instrument cluster to alert the vehicle driver of a detected system fault.

It has an energy reserve that provides back-up power (in case the vehicle system power lost during a crash) to operate the air bag inflator module/s.

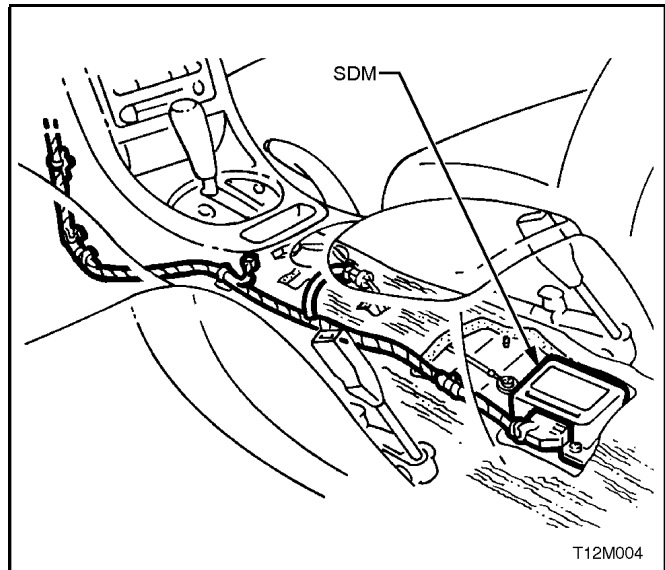


Figure 12M-6

NOTE:

Due to the presence of energy storage devices within the SDM, servicing of any SRS component should not be attempted within 10 seconds after disabling the system.

During deployment, it records and stores SRS and crash event information:

- Diagnostic Trouble Codes (DTCs) for detected faults.
- SRS warning lamp operation data.

It communicates diagnostic information through the Data Link Connector (DLC) for the following purposes:

- System checks at the vehicle assembly plant.
- Service diagnosis (using TECH 2).
- Transmitting of crash event recording data for post Crash analysis.

For details on connecting TECH 2 to the DLC, refer to **3.4 TECH 2 DIAGNOSTICS** in this Section, or for more detailed information regarding TECH 2, refer to **Section 0C TECH 2**.

Additionally, in the event of SRS deployment, the SDM will send serial data via the auxiliary serial data bus (circuit 1220) to advise various vehicle systems to take appropriate shutdown action.

The PCM monitors this serial data and performs a vehicle shutdown once the appropriate data is identified and the vehicle speed is zero for more than 10 seconds.

The BCM also monitors this serial data and performs the following actions once the appropriate data is identified and the vehicle speed is zero for more than 10 seconds:

Turn the dome lamp on continuously.

Unlock all doors.

For VT Series Models, two different and non interchangeable SDMs are released:

- 3-Loop system - for pre-tensioners and driver's air bag only.
- 4-Loop system - for pre-tensioners, driver's air bag and front passenger's air bags.

To identify the different SDMs, refer to the identification label on the top of the SDM. Figure 12M-7 shows the identification label for the 4 loop system.

NOTE:

Always refer to the latest VT spare parts microfiche/Part Finder information for the latest part numbers when ordering SRS components.

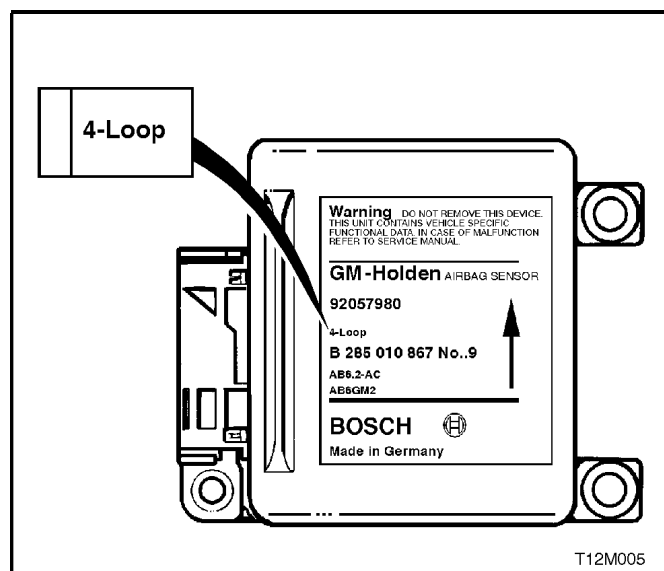


Figure 12M-7

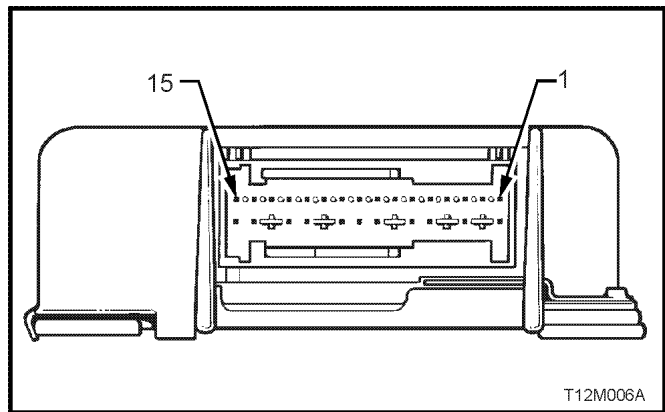


Figure 12M-8

SDM Terminal Assignments

TERMINAL NO.	FUNCTION
1	Left hand pre-tensioner, plus
2	Left hand pre-tensioner, minus
3	Right hand pre-tensioner, plus
4	Right hand pre-tensioner, minus
5	Ignition
6	Not used
7	Not used
8	Earth
9	Serial data
10	Driver's air bag, plus
11	Driver's air bag, minus
12	Not Used
13	Front passenger's air bag, plus
14	Front passenger's air bag, minus
15	Not Used

SRS WARNING LAMP

The SRS warning lamp is located in the instrument cluster warning, refer to Fig. 12M-9.

The SRS warning lamp is controlled by the SDM, via the serial data circuit and will illuminate to warn the driver that the system has been disabled or there is a fault in the system.

The SRS warning lamp will illuminate when :

The ignition is switched ON, the SRS warning lamp will be illuminated for approximately 5 seconds to indicate the system start-up sequence. During this period the SDM performs a system wiring and self check. If no system faults are detected, the SRS warning lamp will be switched OFF.

If communication is lost between the SDM and the instruments (for example SDM wiring harness YB190 disconnected or no BCM poll) the SRS warning lamp will be illuminated when the ignition is first switched ON, it will then be turned OFF for approximately 2 seconds and then commanded ON constantly until the fault is remedied (communication resumed) (No DTC will be set).

If battery voltage is below 9 volts or above 20 volts the SRS warning lamp will be illuminated and remain illuminated until the problem is resolved (No DTC will be set).

If the SRS is deployed, the SRS warning lamp will be illuminated until the problem is resolved (No DTC will be set).

If one or more current or history Diagnostic Trouble Codes (DTC's) are detected when the ignition is switched ON, the SRS warning lamp will illuminate and remain illuminated until the DTC is cleared. Additionally, 3 seconds after the ignition is switched ON, an audible warning chime will sound.

During an ignition cycle, if the SDM detects a current DTC, the SRS warning lamp will be illuminated. If during this cycle, the current DTC fault condition clears, a history DTC will be logged in the SDM and the SRS warning lamp will still remain illuminated.

When TECH 2 is communicating with the SDM, the SRS warning lamp will be illuminated and the SRS will be disabled.

For all DTC details, refer to **3 DIAGNOSTICS** in this Section.

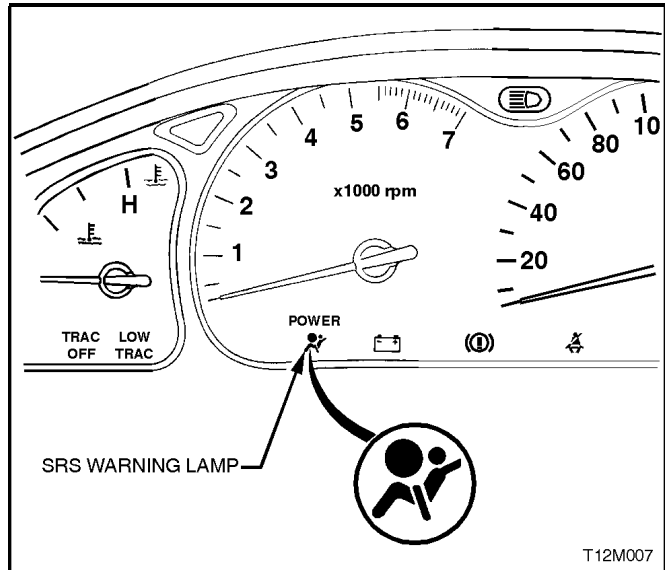


Figure 12M-9

HORN BAR AND AIR BAG INFLATOR MODULE ASSEMBLY

The horn pad is incorporated into the air bag inflator module.

The horn bar (which is incorporated into the air bag inflator module) and air bag inflator module assembly contain the following parts:

- A trim cover with seams for separation during inflation.
- A horn contact which is attached to the underside of the trim cover.
- A cloth cushion mounted to the base plate and folded.
- An electro-chemical module.
- A base plate, fastened to the steering wheel with four tamper proof Torx screws

IMPORTANT:

THE HORN BAR AND AIR BAG MODULE ASSEMBLY COMPONENTS ARE NOT REPAIRABLE.

UNDER NO CIRCUMSTANCES ARE THE COMPONENTS OF THE HORN BAR AND AIR BAG MODULE ASSEMBLY TO BE DISASSEMBLED. THE ASSEMBLY CONTAINS A PYROTECHNIC GAS GENERATOR AND THE AIR BAG FOLD IS CRITICAL TO AIR BAG PERFORMANCE AND DRIVER SAFETY.

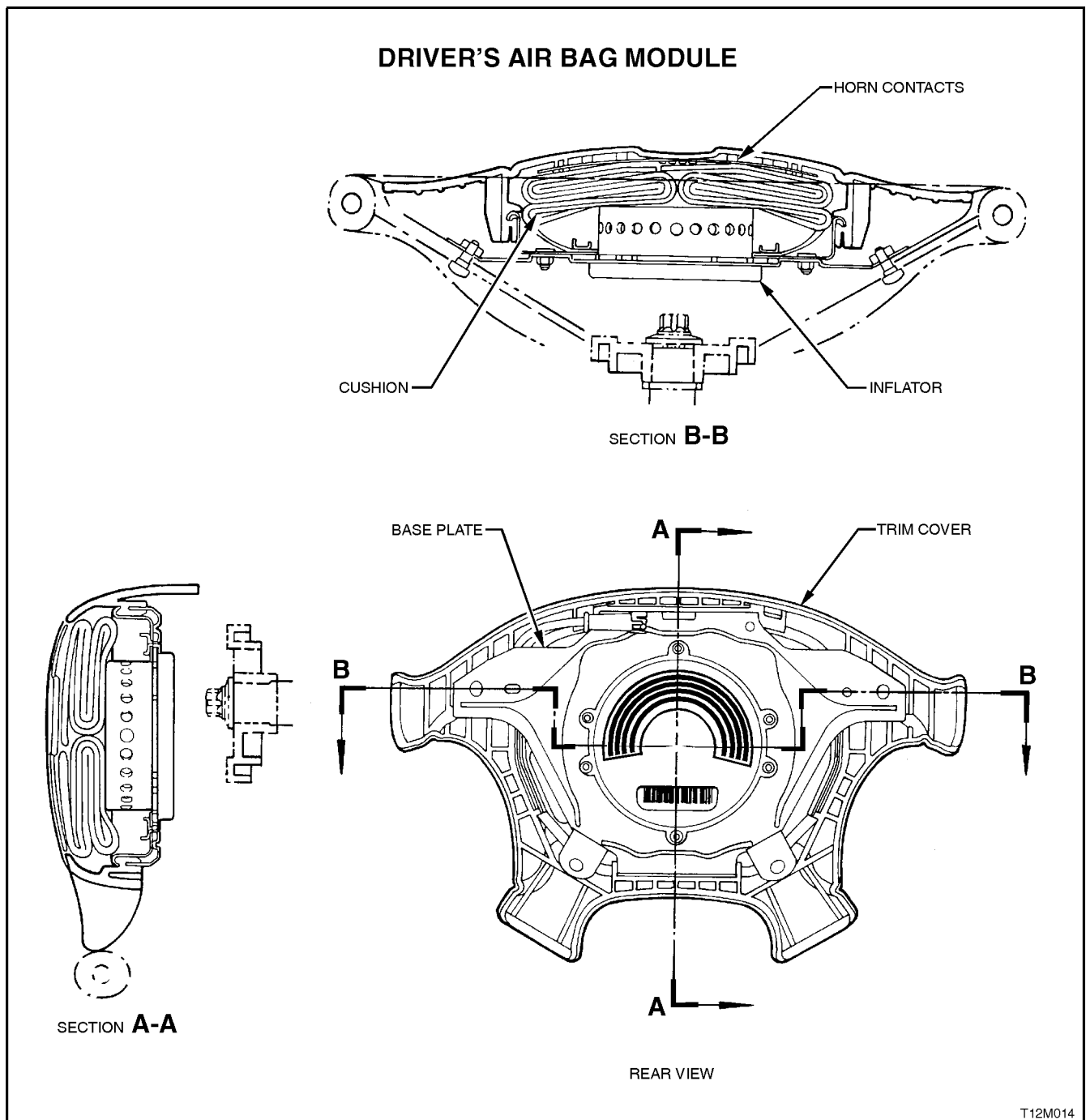


Figure 12M-10

The air bag inflator module (inflator) contains several components (refer to Fig. 12M-11 which shows a typical inflator assembly):

An Electro Explosive Device (EED), with:

- An electrical heating element (called an initiator).

- A small amount of Lead Styphnate covered with a mixture of Titanium Hydride and Potassium Perchlorate.

- An enhancer pack with approximately 3 grams of Baron Potassium Nitrate.

A propellant based on Sodium Azide.

During deployment, the air bag inflator module operates in the following sequence:

The EED initiator receives current from the SDM and begins the chemical reaction by igniting the Lead Styphnate and the mixture of Titanium Hydride and Potassium Perchlorate.

The EED ignites the Baron Potassium Nitrate in the enhancer pack.

The enhancer's pack chemical reaction causes the Sodium Azide propellant to rapidly produce Nitrogen gas.

The Nitrogen gas pushes the air bag, which separates the steering wheel horn bar trim cover and inflates.

As the air bag inflates, some of the Nitrogen begins to exit into the passenger compartment through vent holes of a calibrated size. (Allowing the gas to escape in this manner allows for deflation and also enhances the cushioning effect).

After deployment, the surface of the cushion may contain a powdery residue. This powder consists primarily of corn starch (used to lubricate the cushion) and by-products of the chemical reaction. Sodium Hydroxide dust is produced as a by-product of the deployment reaction.

The Sodium Hydroxide then quickly reacts with atmospheric moisture and is converted to Sodium Carbonate and Sodium Bicarbonate (baking soda). Therefore, it is unlikely that Sodium Hydroxide will be present after deployment. As a precaution however, gloves and safety glasses are recommended when handling a deployed air bag to prevent any possible irritation of the skin or eyes.

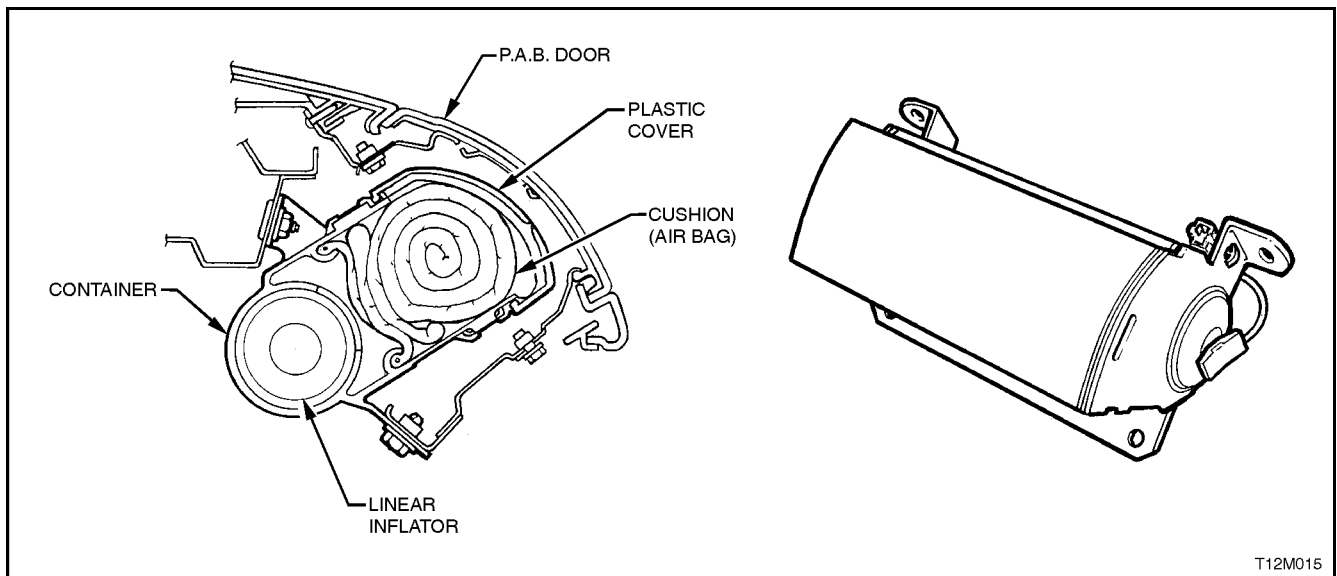


Figure 12M-11

FRONT PASSENGER'S INFLATOR MODULE ASSEMBLY

The front passenger inflator module assembly contains the following parts:

- A container, fastened to the dash panel with stud nuts and bolts.

- A cloth cushion mounted in the container and folded.

- A protective plastic cover over the cushion and hinged to the container to allow the cushion to expand during inflation.

- An electro-chemical module.

The front passenger's air bag deploys through a cut out in the instrument panel pad assembly substrate and a Passenger Air bag (PAB) door. The PAB door assembly is a skin and foam laminate over an injection moulded plastic insert with a sheet metal hinge heat staked to the rear surface. This assembly is then attached, using four screws, to the instrument panel pad assembly.

WARNING:

COMPONENTS OF THE FRONT PASSENGER'S SIDE AIR BAG INFLATOR MODULE ARE NOT REPAIRABLE. UNDER NO CIRCUMSTANCES ARE THE COMPONENTS OF THE FRONT PASSENGER'S AIR BAG INFLATOR MODULE TO BE DISASSEMBLED. THE AIR BAG INFLATOR MODULE CONTAINS A PYROTECHNIC GAS GENERATOR AND THE AIR BAG FOLD IS CRITICAL TO AIR BAG PERFORMANCE AND FRONT PASSENGER SAFETY.

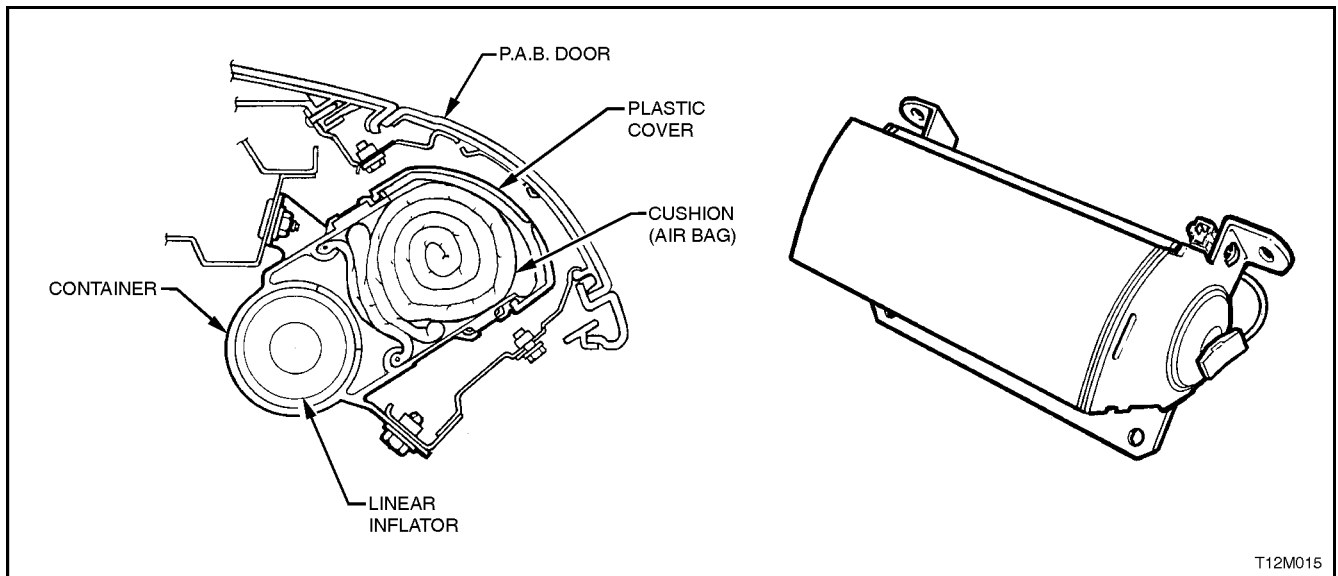


Figure 12M-12

The linear inflator contains several components (refer to Fig. 12M-13 which shows a typical inflator assembly):

- An Electro Explosive Device (EED), with:

- An electrical heating element (called an initiator) and a fuse.

- A small amount of Lead Styphnate covered with a mixture of Titanium Hydride and Potassium Perchlorate.

- An enhancer pack with Boron Potassium Nitrate.

- A propellant based on Sodium Azide.

During deployment, the front passenger's air bag inflator module operates in three stages:

The EED initiator receives current from the SDM and begins the chemical reaction by igniting the Boron Potassium Nitrate in the enhancer pack.

The enhancer pack's chemical reaction causes the Sodium Azide propellant to rapidly produce Nitrogen gas.

The Nitrogen gas pushes the air bag, which separates the protective cover, pushes the hinged PAB door and inflates.

As the air bag inflates, some of the Nitrogen begins to exit into the passenger compartment through vent holes of a calibrated size.

Internal tethering controls the fill and placement of the air bag, to maximise the benefits to the front passenger.

In some deployment conditions, the windshield may be broken by the opening of the Passenger Air bag Door when the air bag deploys.

As with the drivers' side air bag, the surface of the front passenger's air bag may contain a powdery residue after deployment. This powder consists primarily of corn starch (used to lubricate the cushion as it inflates) and by-products of the chemical reaction. Sodium Hydroxide dust is produced as a by-product of the deployment reaction.

The Sodium Hydroxide then quickly reacts with atmospheric moisture and is converted to Sodium Carbonate and Sodium Bicarbonate (baking soda). Therefore, it is unlikely that Sodium Hydroxide will be present after deployment. As a precaution however, gloves and safety glasses are recommended when handling a deployed air bag to prevent any possible irritation of the skin or eyes.

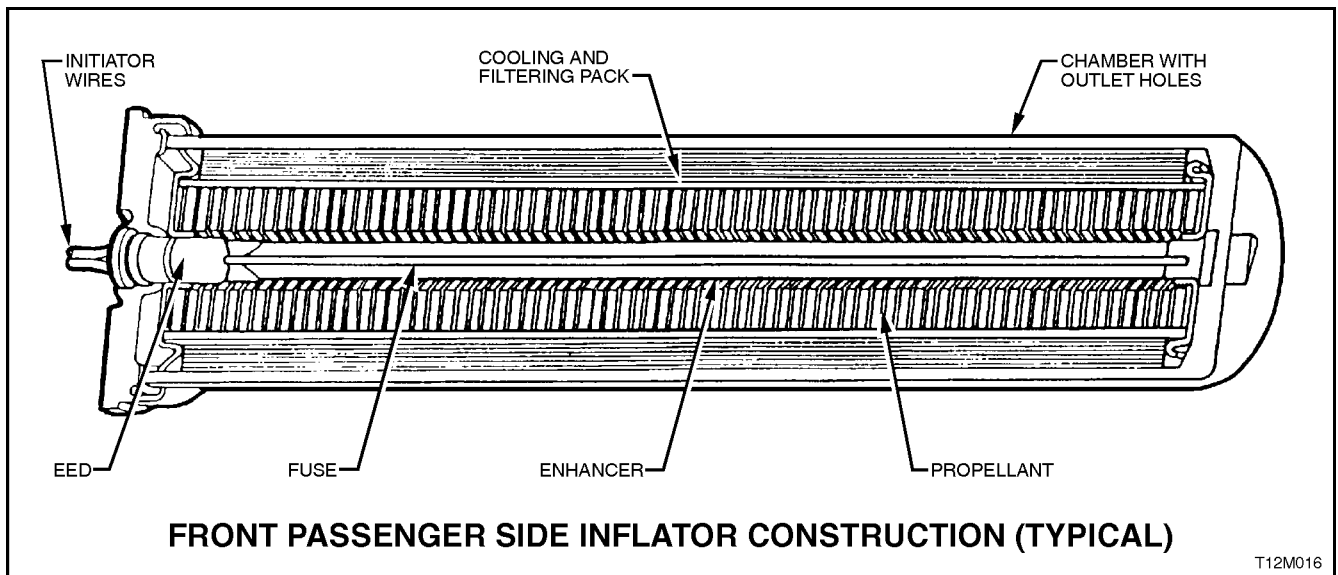


Figure 12M-13

CLOCK SPRING COIL ASSEMBLY

The clock spring coil assembly has the following parts:

1. A pigtail wiring harness that connects to the air bag inflator module at the top of the steering column (connector YB147).
2. A lower wiring harness connector which is incorporated with the clock spring coil outer housing assembly.
3. A rotating inner hub which engages with the rear of the steering wheel.
4. A ribbon wire assembly that provides an unbroken connection between the SDM and air bag inflator module as the steering wheel is rotated during vehicle operation.
5. The coil assembly also has pigtail wiring harnesses and wires in the ribbon wire assembly for the horn contacts in the steering wheel horn bar and, if fitted, the remote audio controls (not shown).

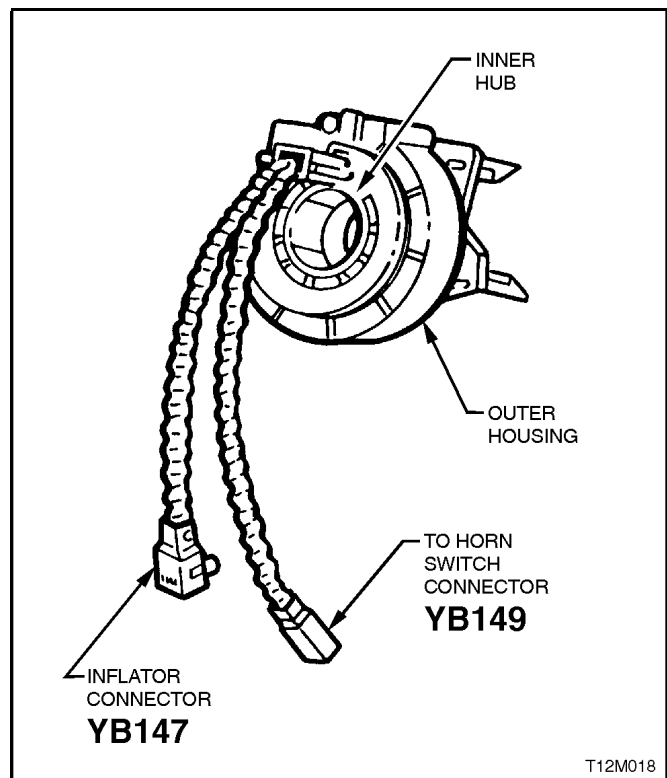


Figure 12M-14

The coil assembly operates in the following manner:

When the steering wheel is in the straight-ahead position, the inner hub and outer housing are aligned to provide approximately 2.5 turns of the steering wheel in either direction.

When the steering wheel is turned in a clockwise direction (right turn), the inner hub winds the ribbon wire as it rotates with the steering wheel.

When the steering wheel is turned in an anti-clockwise direction (left turn), the inner hub unwinds the ribbon wire as it rotates with the steering wheel.

SEAT BELT PRE-TENSIONERS

The driver and front seat passenger seat belts are equipped with a pyrotechnical seat belt pre-tensioner. The purpose of these pre-tensioners is in the case of a frontal collision, to remove all webbing slack from the seat belt before the occupant has moved, relative to the vehicle.

The seat belt pre-tensioners have a gas generator complete with an igniter connected to a cylinder. Inside the cylinder is a piston connected to a cable, the other end of which is connected to the belt buckle assembly.

When an ignition signal from the SDM is sent to the igniter, the gas generator is activated driving the piston down the cylinder. This action tightens the cable around a roller which pulls the buckle towards the seat taking up the slack in the seat belt. The tensioner can take up about 9 cm of slack. The outer plastic tube on the buckle assembly is destroyed during activation. The piston is prevented from moving back up the cylinder by a series of locking balls once the piston has taken up all the slack in the seat belt.

Figure 12M-15 shows the pre-tensioner assembly before and after the pre-tensioner has been fired.

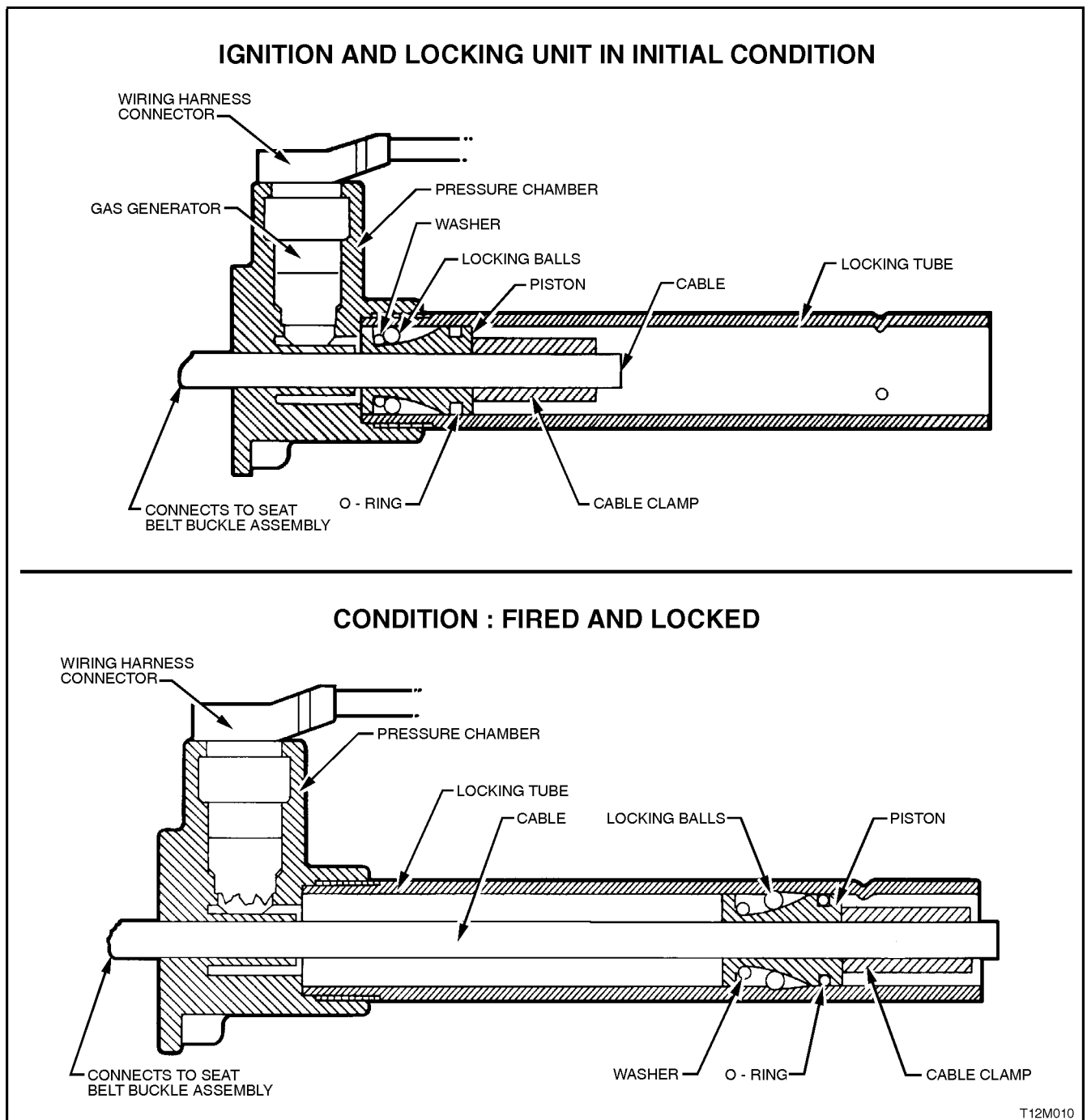


Figure 12M-15

SRS FUSE

The SDM is supplied voltage from the ignition switch, via fuse F26, located in the passenger compartment fuse panel.

Access to this fuse panel is by grasping the top edge of each side of the instrument panel right hand cover with the finger tips and pulling the top edge out, to free the retaining lugs from the clips.

NOTE:

Fuse F13 (instrument fuse), located in the passenger compartment fuse panel, is also used for the SRS warning lamp circuit.

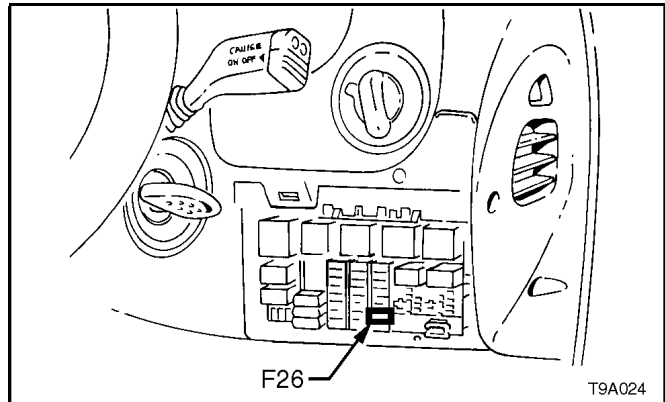


Figure 12M-16

WIRING HARNESS

The SRS wiring harness is incorporated with the main wiring harness and contains the necessary wiring to interconnect the various system components.

There is no specific wiring harness for vehicles without a passenger side air bag, rather, the additional wire for this connection is taped back to the SRS wiring harness.

Although the SRS harness is incorporated with the main wiring harness, it can still be identified by the yellow PVC tubing or yellow tape covering the harness wiring. The majority of the specific SRS wiring harness connectors are either coloured yellow or have a yellow retaining clip or slide to identify them as SRS connectors. One exception to this is the wiring harness connector YB190 for the SDM, which is coloured orange.

The connectors on the SRS wiring harness which interface with the igniters have an in-built capacitor which is connected in series with the trigger circuit. The purpose of the capacitor is to prevent unintentional triggering of the SRS by blocking any Direct Current (DC) in the circuit.

Figure 12M-17 illustrates the SRS wiring harness connector with an in-built capacitor. The connector consists of:

1. Capacitor.
2. A "Service Hole" to aid in diagnosis of the system.
- 3 & 4. Terminals.

Special wiring repair procedures have been developed for use on the SRS due to the sensitive nature of the circuitry. The procedures described in **2.8 SRS WIRING REPAIR** in this Section is the only recommended and approved SRS wiring repair method. **No alternative repair methods are to be used.**

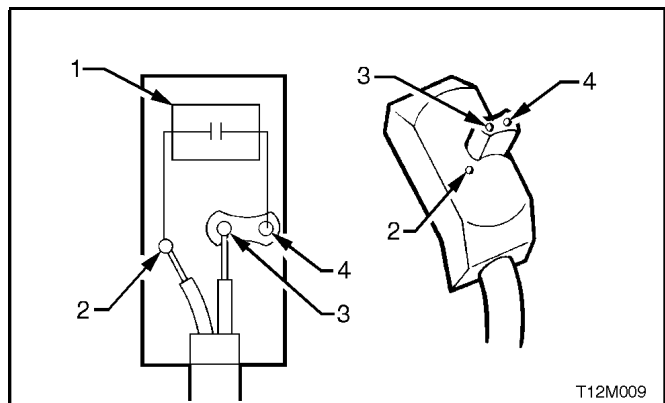


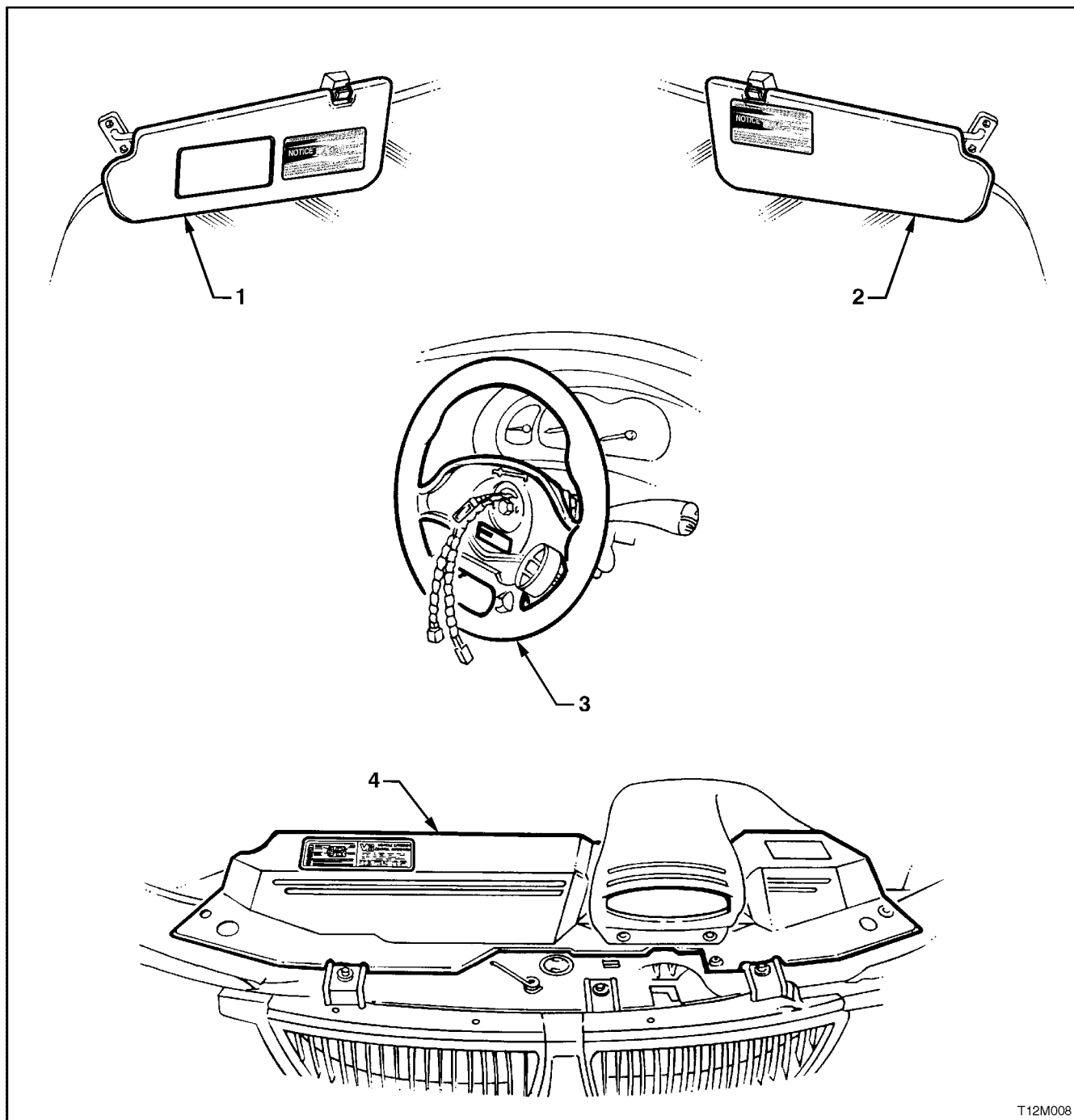
Figure 12M-17

WARNING LABELS

In order to provide adequate warning of the SRS operation and service requirement to the vehicle's owner or driver and service technicians, SRS warning labels are located on the driver's side sun visor, front passenger's side sun visor (vehicles with front passenger's air bag), in the engine compartment (engine cooling fan shroud), and on the steering wheel hub, refer to Fig. 12M-18.

IMPORTANT:

If at any time the engine cooling fan shroud, driver's or front passenger's sun visor or steering wheel is replaced, ensure that the appropriate warning label is applied to the replacement part.



T12M008

Figure 12M-18

1. Passenger's side sun visor.
2. Driver's side sun visor.
3. Steering wheel (horn bar and air bag inflator removed)
4. Engine cooling fan shroud.

2. SERVICE OPERATIONS

2.1 SAFETY PRECAUTIONS

1. Do not use a fast battery charger for starting the vehicle.
2. Never disconnect the battery from the vehicle's electrical system while the engine is running.
3. Disconnect the battery from the vehicle's electrical system before fast battery charging.
4. Never disconnect or connect the SDM connector with the ignition turned on.
5. After an accident, the individual SRS components must be replaced if the following circumstances apply:
 - a. Deformation of the SDM. (If the floor pan is deformed where the SDM is mounted, it must be repaired).
 - b. Pre-tensioners, horn bar and air bag inflator module, front passenger's air bag inflator module that have not been triggered, but are damaged.
 - c. Pre-tensioners, horn bar and air bag inflator module, front passenger's air bag inflator module or SDM assemblies that have been triggered.

In an accident which was severe enough to deploy the pre-tensioners but not severe enough to deploy air bag/s; any seat belt worn in the accident, the pre-tensioners and the front seat guide rail and adjuster assemblies must be replaced.

If the horn bar and air bag inflator module or front passenger's air bag inflator module have also deployed; the steering column, clock spring coil, steering wheel, instrument panel pad, front passenger air bag inflator support rail assembly, PAB door assembly and instrument panel pad name plate badge.

NOTE:

DAMAGED OR DEFECTIVE COMPONENTS OF THE SYSTEM MUST NOT BE REPAIRED, BUT MUST ALWAYS BE REPLACED.

7. When fasteners are removed, always reinstall them in the same location from which they were removed. If a fastener needs to be replaced, use a fastener with the correct part number for that application. If a fastener with the correct part number is not available, a fastener of equal size and strength (or stronger) may be used. Fasteners that should not be reused, and those requiring thread locking compound will be identified in this Section. The correct torque value must be used when installing fasteners that require it. If these conditions are not adhered to, parts or system damage could result.
8. The windshield plays an active part during the deployment of the front passenger's air bag. The strength of the windshield and its urethane adhesive is critical to ensure that the front seat passenger is correctly protected during deployment. Replacement windshield glass and adhesives complying to Holden's specifications may only be used.

Only use the correct urethane adhesive when installing a windshield to maintain original installation integrity. Failure to use the correct product will result in poor retention of the glass. For vehicles with front passenger side air bag, the windshield must be replaced properly so that occupant protection provided by the SRS is maintained.

9. Sensing and Diagnostic Module.

Take care when handling the SDM. Never strike or jar the module or body structure adjacent to the module in a manner which could cause deployment of the pre-tensioner's or air bag/s.

10. Undeployed air bag inflator module.

When carrying a live (undeployed) air bag inflator module, ensure that it is pointed away from you. In case of an accidental deployment, the air bag will then deploy with minimal chance of injury.

When placing a live air bag inflator module on a bench or other surface, always face the assembly up, away from the surface. This is necessary in order to provide free space for the air bag to expand, in case of accidental deployment. Also, never place anything on top of air bag inflator module.

Never carry the driver's air bag inflator module by the horn bar contact wires on the underside of the assembly. If still connected, never carry the pre-tensioner's or the front passenger's inflator module by its wiring harness lead.

Do not apply power to the module except as specified in this Section.

Do not attempt to make any repairs to the module/s. A damaged or defective horn bar and air bag inflator module or front passenger's air bag inflator module assembly must be replaced.

Do not weld, solder, braze, hammer, machine, drill, or otherwise heat seat belt pre-tensioners or air bag inflator modules.

11. Deployed air bag inflator module/s.

Always wear gloves and safety glasses when handling a deployed pre-tensioner, horn bar and air bag inflator module or front passenger air bag inflator module. The surface of these components may contain chemicals (eg. Sodium Hydroxide) as a result of the gas generated during combustion. This can irritate your skin. Wash hands with mild soap and water afterwards.

12. Steering column.

During any service operation that requires removal and reinstallation of a steering column fitted with an air bag inflator module, always carry the steering column with two hands and with the steering wheel away from your body. Never carry the column by one hand or with steering wheel toward you.

Never set a steering column on the floor with the steering wheel toward the floor.

NOTE:

During any service operation that requires removal of a steering column, ensure that the steering shaft is locked to the column to prevent any possibility of allowing the steering shaft to rotate and possibly damaging the clock spring coil ribbon wire. For details of locking the steering shaft to the column, refer to [Section 9A, STEERING](#).

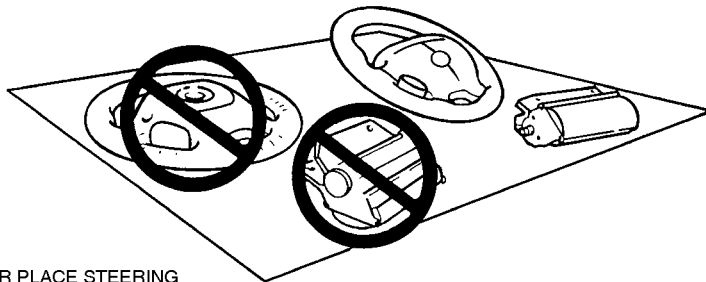
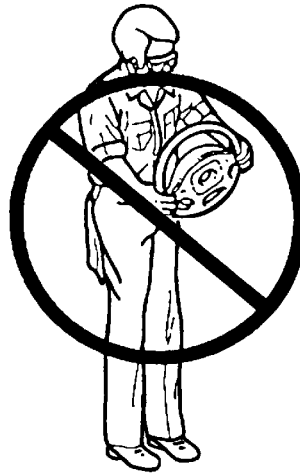
CAUTION:

When performing service on or around SRS components or wiring, follow the procedures listed in this Section to temporarily disable the SRS. Failure to follow these procedures could result in possible SRS deployment, personal injury or otherwise unnecessary SRS repairs.

7. 7. Disconnecting the battery WILL NOT immediately deactivate the SRS. A residual energy reserve in the SDM is incorporated to enable the pre-tensioners and air bag/s to deploy in the event of a battery failure. The SDM has the power to deploy the air SRS for up to 10 seconds after the battery has been disconnected or the ignition turned off.
8. 8. The SDM can maintain sufficient voltage to cause a deployment for up to 10 seconds after the ignition switch is turned OFF or the battery is disconnected. Many of the service operations require disconnection of the battery to avoid an accidental deployment of the pre-tensioners or air bag/s.
9. 9. When carrying out steering gear removal and reinstallation procedures, remove the ignition key from the ignition lock and ensure that the steering column is locked. If this operation is not carried out and the steering wheel is spun while the steering gear is removed, the clock spring coil will be destroyed. This will result in the SDM setting a DTC and non-deployment of the driver's air bag.

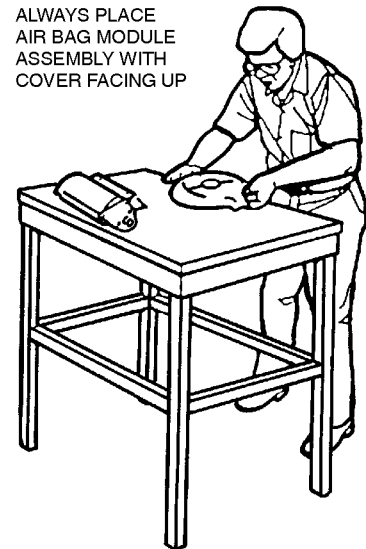


CARRY AIR BAG MODULE
ASSEMBLY WITH COVER
POINTED AWAY

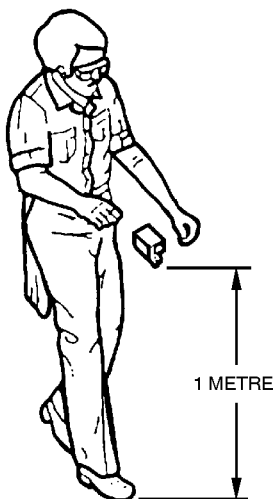


NEVER PLACE STEERING
COLUMN ON FLOOR
WITH WHEEL TO FLOOR

NEVER PLACE AIR BAG MODULE
ASSEMBLY ON FLOOR WITH
AIR BAG COVER TO FLOOR



ALWAYS PLACE
AIR BAG MODULE
ASSEMBLY WITH
COVER FACING UP



IF SDM IS DROPPED FROM
A HEIGHT OF GREATER
THAN 1 METRE OR SHOWS
ANY SIGNS OF DAMAGE,
REPLACE SDM.



DO NOT ATTEMPT ANY
REPAIRS TO MODULE,
PRE-TENSIONER OR SDM,
OR APPLY ELECTRICAL
POWER EXCEPT AS
SPECIFIED

T12M037

Figure 12M-19

2.2 SYSTEM DISABLING AND ENABLING PROCEDURE

DISABLING THE SRS

NOTE:

This disabling procedure applies only to VT Series Models which have an AC firing SRS. Conventional SRS with DC firing such as VS Series Models have a more complex disabling procedure. Always refer to the appropriate Section for SRS disabling and enabling procedures.

Disconnect both the battery earth and power leads and wait at least 10 seconds before performing any work on the vehicle.

CAUTION:

The SDM can maintain sufficient voltage to cause SRS deployment for up to 10 seconds after the ignition switch is turned OFF or the battery is disconnected.

ENABLING THE SRS

NOTE:

Ensure all wiring harness connectors are connected before reconnecting the battery leads.

1. Reconnect both the battery power and earth leads.
2. Switch ignition on, and observe the SRS warning lamp in the instrument cluster. The warning lamp should be illuminated for approximately 5 seconds. During this period the SDM performs a wiring and self check.
If no system faults are detected, the SRS warning lamp will be switched off. If the warning lamp remains illuminated and an audible alarm chimes, or the warning lamp illuminates 2 seconds after it was originally switched off, an SRS fault is present. Refer to **3 DIAGNOSTICS** in this Section to rectify fault.

2.3 HORN BAR AND AIR BAG MODULE ASSEMBLY

If conducting the following operation on an air bag that has deployed, ensure that you are wearing safety glasses and gloves to protect your eyes and hands from possible irritation when handling the deployed horn bar and air bag inflator module assembly.

After the horn bar and air bag inflator module assembly has been deployed, the surface of the air bag may contain a powdery residue. This powder consists primarily of corn starch (used to lubricate the bag as it inflates) and by-products of the chemical reaction. Sodium hydroxide dust is produced as a by-product of the deployment reaction. The sodium hydroxide then quickly reacts with atmospheric moisture and is converted to sodium carbonate and sodium bicarbonate (baking soda). Therefore, it is unlikely that sodium hydroxide will be present after deployment. As a precaution, however, gloves and safety glasses are recommended to prevent any possible irritation of the skin or eyes.

REMOVE

1. Disable the SRS, refer to **2.2 SYSTEM DISABLING AND ENABLING PROCEDURE** in this Section.
2. Using a number T30H Torx bit (1), commercially available or Tool No. ETX30H and a suitable holder such as Tool No. J25359-8, loosen and remove four screws (2) from the rear of steering wheel securing the horn bar and air bag inflator module assembly to the steering wheel.

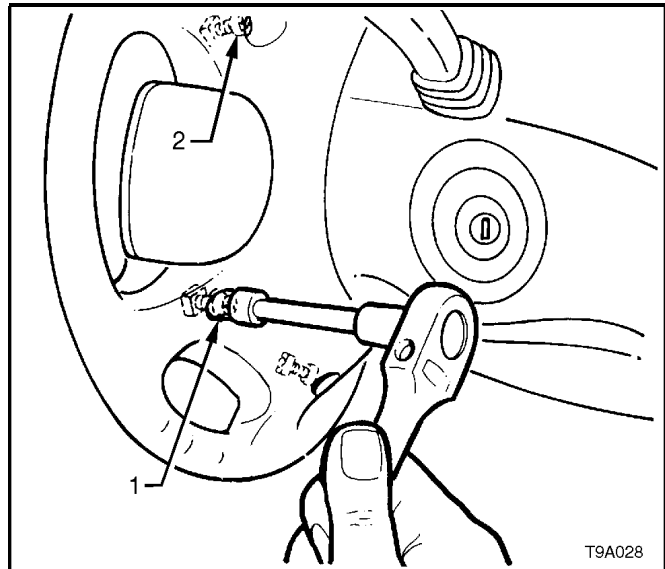


Figure 12M-20

3. Lift up horn bar and air bag inflator module assembly (1) from the steering wheel, remove the yellow clock spring to inflator assembly connection (2) and disconnect wiring harness connectors (3 and 4) from rear of assembly, refer to Fig 12M-21.

NOTE:

If removing a horn bar and air bag inflator module assembly from a steering wheel fitted with stereo controls (as shown), take extreme care when disconnecting the left hand horn pad connector (3) from the stereo control wiring connector otherwise damage to the stereo control wiring could result.

Remove horn bar and air bag inflator module assembly.

CAUTION:

When carrying a live (undeployed) horn bar and air bag inflator module assembly, make sure the bag opening in the horn bar is pointed away from you. Never carry the horn bar and air bag inflator module assembly by the horn bar wires or connectors on the underside of the assembly. In case of an accidental deployment, the bag will then deploy with minimal chance of injury.

When placing a live horn bar and air bag inflator module assembly on a bench or other surface, always face the bag and horn bar up, away from the surface. Never rest the horn bar and air bag inflator module assembly with the horn bar face down. This is necessary so that a free space is provided to allow the air bag to expand in the unlikely event of accidental deployment. Otherwise, personal injury may result.

REINSTALL

1. Lift horn bar and air bag inflator module assembly up to steering wheel and reconnect all wiring harness connectors to rear of assembly.
2. Seat horn bar and air bag inflator module assembly on steering wheel, ensuring wiring is not exposed or trapped between air bag inflator module and steering wheel hub.
3. Using number T30H Torx bit. Tool No. ETX30H and suitable holder such as Tool No. J25359-8, install and tighten four screws into rear of steering wheel to secure horn bar and air bag inflator module assembly to the steering wheel. Tighten screws to the correct torque specification.

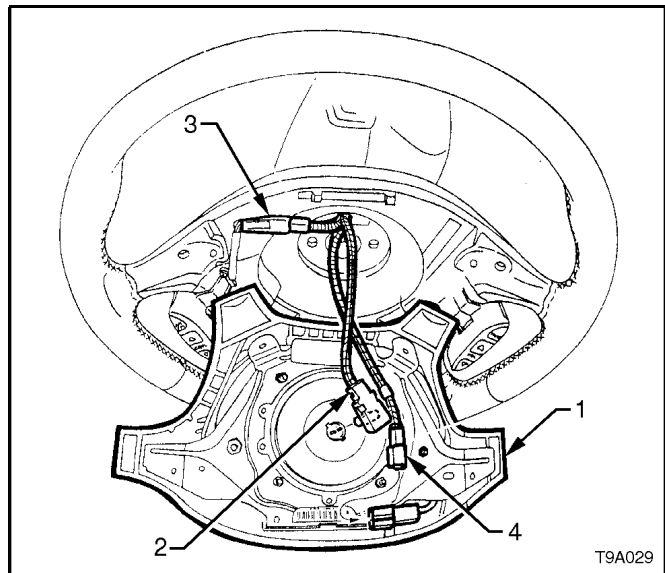


Figure 12M-21

HORN BAR AND AIR BAG MODULE
ASSEMBLY TO STEERING WHEEL
SECURING SCREW
TORQUE SPECIFICATION

10 - 14 Nm

4. Enable the SRS, refer to **2.2 SYSTEM DISABLING AND ENABLING PROCEDURE** in this Section.
5. Switch ignition on, and observe the SRS warning lamp in the instrument cluster. The warning lamp should be illuminated for approximately 5 seconds. During this period of time the SDM performs a wiring and self check.

If no system faults are detected, the SRS warning lamp will be switched off. If the warning lamp remains illuminated and an audible alarm chimes, or the warning lamp illuminates 2 seconds after it was originally switched off, an SRS fault is present. Refer to **3 DIAGNOSTICS** in this Section to rectify fault.

HORN BAR AND AIR BAG MODULE ASSEMBLY SCRAPPING PROCEDURE

During the course of a vehicle's useful life, certain situations may arise which will necessitate the disposal of a live (undeployed) horn bar and air bag inflator module assembly. The following information covers proper procedures for deploying a live assembly.

CAUTION:

Failure to follow proper Supplemental Restraint System (SRS) horn bar and air bag inflator module assembly disposal procedures can result in air bag deployment which may cause personal injury. The undeployed air bag inflator module contains substances that can cause severe illness or personal injury if the sealed container is damaged during disposal.

In situations which require deployment of a live horn bar and air bag inflator module assembly, deployment may only be accomplished outside the vehicle. The horn bar and air bag inflator module assembly needs to be removed so the SRS wiring harness with the capacitor built into the connector can be removed. Intentional deployment of the horn bar and air bag inflator module can not be accomplished using a 12 volt DC supply with the capacitor in the SRS circuit.

Horn Bar and Air Bag Module Deployment Outside Vehicle

There may be some circumstances that require the deployment of a horn bar and air bag inflator module assembly before a vehicle is to be returned to service. For example, situations in which the vehicle will be returned to an owner after a functionally or cosmetically malfunctioning horn bar and air bag inflator module assembly is replaced. Deployment and disposal of a malfunctioning air bag inflator module is, of course, subject to any required retention period.

For deployment of a live (undeployed) horn bar and air bag inflator module assembly outside the vehicle, the deployment procedure must be followed exactly. Always wear safety glasses during the deployment procedure until the assembly is removed. Before performing the procedure you should be familiar with servicing the SRS and with proper handling of the horn bar and air bag inflator module assembly.

The following must be read fully and understood before performing the actual procedure.

The following procedure requires use of J38826-1 SRS deployment harness with adaptor E1992. Do not attempt procedure without J38826-1 and E1992.

CAUTION:

Failure to follow procedures in the order listed may result in personal injury. Never connect deployment harness to any power source before connecting deployment harness to the horn bar and air bag inflator module assembly. The deployment harness must remain shorted and not be connected to a power source until the horn bar and air bag inflator module assembly is ready to be deployed. The module will immediately deploy the air bag when a power source is connected to it. Wear safety glasses and gloves throughout this entire deployment and disposal procedure.

1. Turn ignition switch OFF and put on safety glasses.
2. Inspect J38826-1 SRS deployment harness and adaptor, E1992 for damage. If harness or adaptor is damaged, discard and obtain a replacement.
3. Short two SRS deployment harness leads together by fully seating one banana plug into the other. SRS deployment harness **MUST** remain shorted and **NOT** connected to a power source until the air bag is to be deployed.
4. Connect the appropriate pigtail adaptor to the SRS deployment harness.

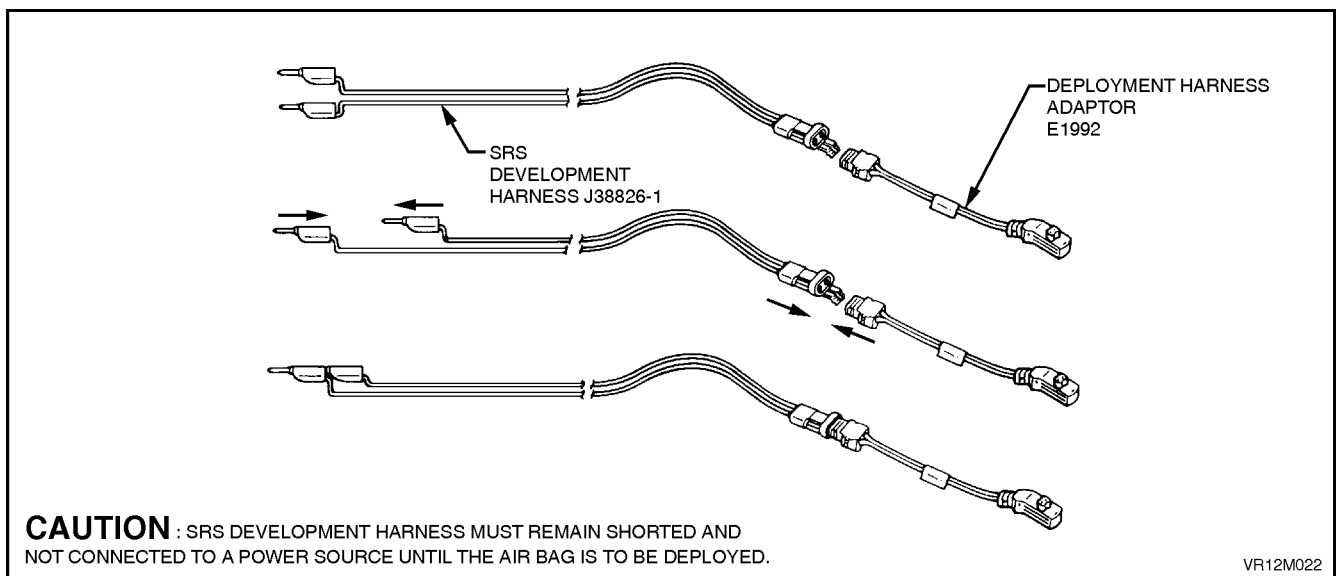


Figure 12M-22

5. Remove horn bar and air bag inflator module assembly from vehicle, refer to **2.3 HORN BAR AND AIR BAG MODULE ASSEMBLY** in this Section.

CAUTION:

When storing a live horn bar and air bag inflator module assembly or when leaving a live assembly unattended on a bench or other surface, always face the assembly with the horn bar up and away from the surface. This is necessary so that a free space is provided to allow the air bag to expand in the unlikely event of accidental deployment. Failure to follow procedures may result in personal injury.

6. Place the assembly on a work bench or other surface away from all loose or flammable objects with its horn bar facing up, away from the surface.
7. Clear a space on the ground about 2 metres in diameter where the assembly is to be deployed. A paved, outdoor location where there is no activity is preferred. If an outdoor location is not available, a space on the workshop floor where there is no activity and sufficient ventilation is recommended. Ensure no loose or flammable objects are within the deployment area.
8. Place the assembly, with its **horn bar facing up**, on the ground in the space just cleared.
9. Stretch the SRS deployment harness and adaptor from the horn bar and air bag inflator module assembly to its full length.

Place a power source near the shorted end of the SRS deployment harness. Recommend application: 12 volts minimum, 2 amps minimum (a vehicle battery is suggested).

Connect the horn bar and air bag inflator module assembly to the adaptor E1992 on the SRS deployment harness.

CAUTION:

The deployment harness **MUST** remain shorted and **NOT** connected to a power source until the air bag is to be deployed. The module will immediately deploy the air bag when a power source is connected to it.

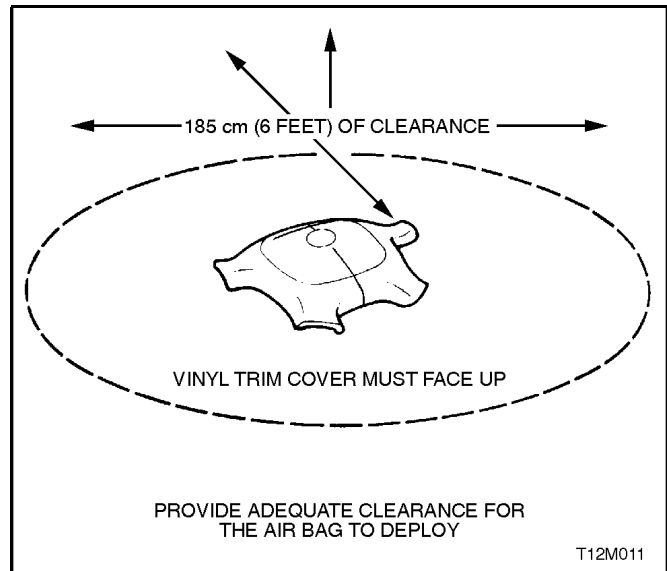


Figure 12M-23

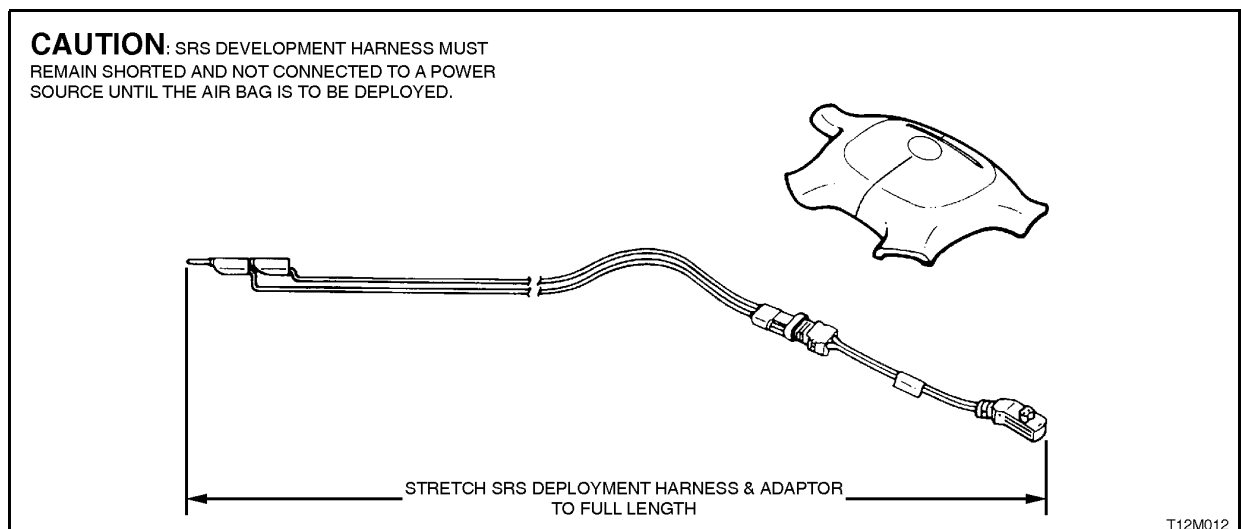


Figure 12M-24

12. Verify that the area around the horn bar and air bag inflator module assembly is clear of all people and loose or flammable objects.
13. Verify that the horn bar and air bag inflator module assembly is resting with horn bar facing up.
14. Notify all people in the immediate area that you intend to deploy the horn bar and air bag inflator module assembly. The deployment will be accompanied by an explosion which may startle the uninformed.
15. Separate the two banana plugs on the SRS deployment harness.

NOTE:

1. When the air bag deploys, the rapid gas expansion will create an explosion. Notify all people in the immediate area that you intend to deploy the module.

NOTE:

2. When the air bag deploys, the assembly may jump about 30 cm vertically. This is a normal reaction of the module to the force of the rapid gas expansion inside the air bag.

CAUTION:

The deployment harness **MUST** remain shorted and **NOT** connected to a power source until the air bag is to be deployed. The module will immediately deploy the air bag when a power source is connected to it. Connecting the deployment harness to the power source should always be the last step prior to deployment of the air bag. Failure to follow procedures in the order listed may result in personal injury.

16. Connect SRS deployment harness leads to the power source to immediately deploy the horn bar and air bag inflator module assembly.

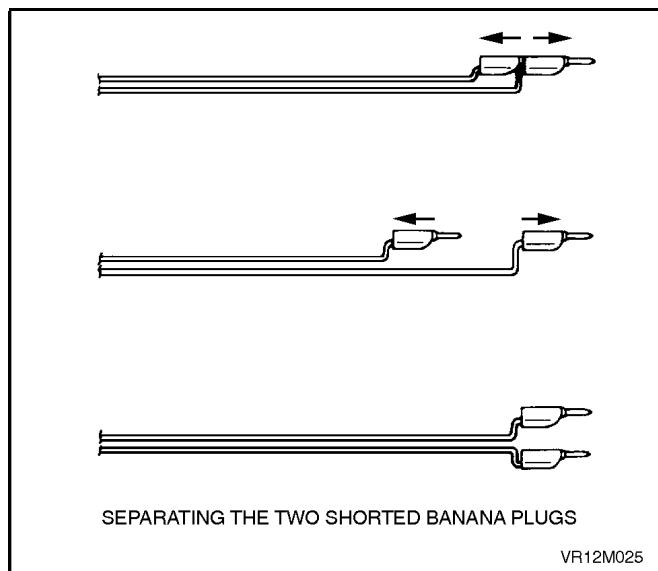
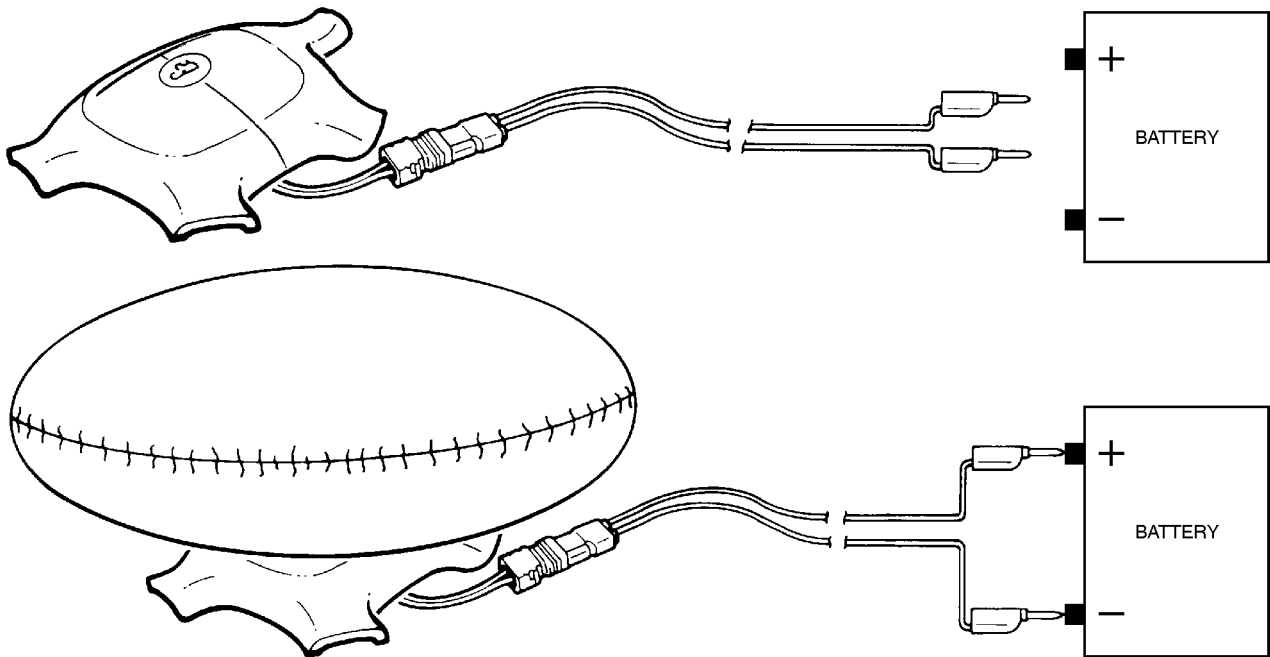


Figure 12M-25

CAUTION: THE INFLATOR MODULE WILL IMMEDIATELY DEPLOY THE AIR BAG WHEN A POWER SOURCE IS CONNECTED TO IT.

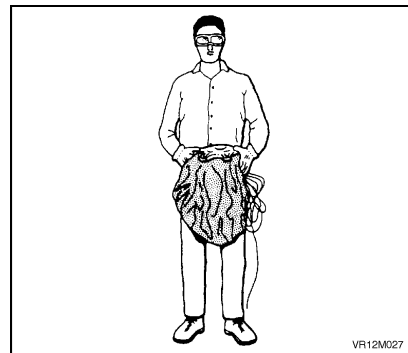


VR12M026

Figure 12M-26

17. Disconnect the SRS deployment harness from the power source.
18. Short the two SRS deployment harness leads together by fully seating one banana plug into the other.
19. Ensure that you are wearing safety glasses and gloves to protect your eyes and hands from possible irritation and heat when handling the deployed horn bar and air bag inflator module assembly.

After the horn bar and air bag inflator module assembly has been deployed, the surface of the air bag may contain a powdery residue. This powder consists primarily of corn starch (used to lubricate the bag as it inflates) and by-products of the chemical reaction. Sodium hydroxide dust is produced as a by-product of the deployment reaction. The sodium hydroxide then quickly reacts with the atmospheric moisture and is converted to sodium carbonate and sodium bicarbonate (baking soda). Therefore, it is unlikely that sodium hydroxide will be present after deployment. As a precaution, however, gloves and safety glasses are recommended to prevent any possible irritation of the skin or eyes.



VR12M027

Figure 12M-27

CAUTION:

Safety precautions must be observed when handling a deployed horn bar and air bag inflator module assembly. After deployment, the metal surfaces of the module will be very hot. Do not touch these metal areas of the module for about 10 minutes after deployment. Do not place the deployed horn bar and air bag inflator module assembly near any flammable objects. If the deployed horn bar and air bag inflator module assembly must be moved before it has cooled, wear gloves and handle by the air bag or the horn bar.

20. Disconnect the adaptor E1992 from the module as soon as possible after deployment. This will prevent damage to the adaptor or SRS deployment harness due to possible contact with the hot module canister. The adaptor and SRS deployment harness are designed to be reused. They should, however, be inspected for damage after each deployment and replaced if necessary.
21. Dispose of the deployed horn bar and module assembly through normal refuse channels after it has cooled for at least 10 minutes.
22. Wash your hands with mild soap and water afterward.

Deployed Air bag Module Handling

After the module has been deployed, the surface of the air bag may contain a powdery residue. This powder consists primarily of corn starch (used to lubricate the bag as it inflates) and by products of the chemical reaction. Sodium hydroxide dust is produced as a by product of the deployment reaction. The sodium hydroxide then quickly reacts with atmospheric moisture and is converted to sodium carbonate and sodium bicarbonate (baking soda). Therefore, it is unlikely that sodium hydroxide will be present after deployment. As a precaution, however, gloves and safety glasses are recommended to prevent any possible irritation of the skin or eyes.

2.4 FRONT PASSENGER'S AIR BAG MODULE ASSEMBLY

If conducting the following operation on an air bag that has deployed, ensure that you are wearing safety glasses and gloves to protect your eyes and hands from possible irritation when handling the deployed air bag inflator module assembly.

After the air bag inflator module assembly has been deployed, the surface of the air bag may contain a powdery residue. This powder consists primarily of corn starch (used to lubricate the bag as it inflates) and by products of the chemical reaction. Sodium hydroxide dust is produced as a by-product of the deployment reaction. The sodium hydroxide then quickly reacts with the atmospheric moisture and is converted to sodium carbonate and sodium bicarbonate (baking soda). Therefore, it is unlikely that sodium hydroxide will be present after deployment. As a precaution, however, gloves and safety glasses are recommended to prevent any possible irritation of the skin or eyes.

REMOVE

1. Disable the SRS, refer to **2.2 SYSTEM DISABLING AND ENABLING PROCEDURE** in this Section.
2. Remove instrument panel pad assembly, refer to **Section 1A3 INSTRUMENT PANEL AND CONSOLE**.
3. Disconnect the passenger's air bag module wiring harness connector, YB200 (1) from air bag module assembly.

NOTE:

Do not disconnect the passenger's air bag wiring harness connector YB208.

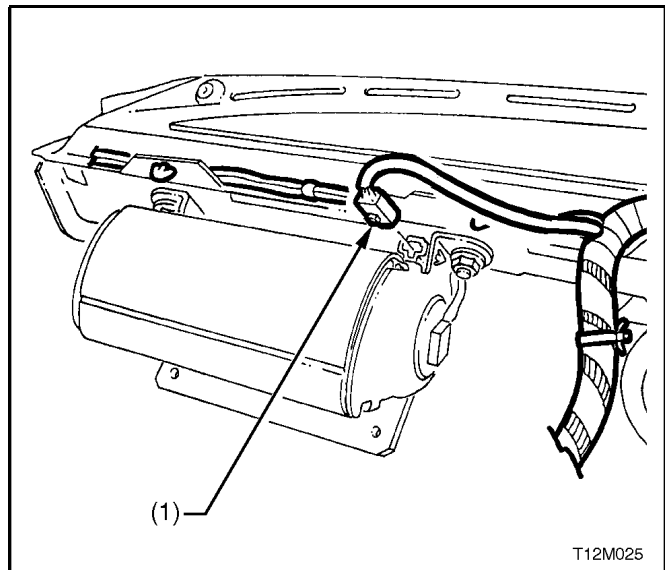


Figure 12M-28

4. Remove passenger's air bag inflator module assembly to dash panel attaching nuts (1) and remove module assembly.

CAUTION:

When carrying a live (undeployed) front passenger's air bag inflator module assembly, make sure the bag opening is pointed away from you. In case of an accidental deployment, the bag will then deploy with minimal chance of injury. When placing a live front passenger's air bag inflator module assembly on a bench or other surface, always face with the air bag up, away from the surface. Never rest the air bag inflator module assembly with the air bag face down. This is necessary so that a free space is provided to allow the air bag to expand in the unlikely event of accidental deployment. Otherwise, personal injury may result.

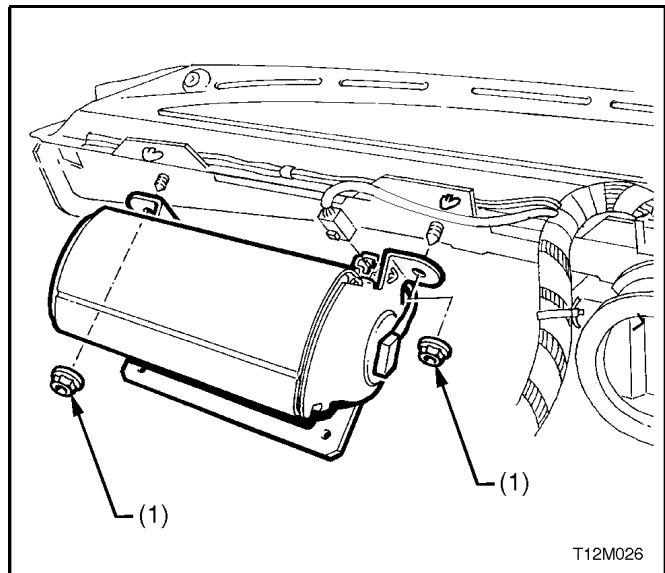


Figure 12M-29

REINSTALL

1. Assemble front passenger's air bag inflator module onto position, over the dash panel upper two mounting studs.
2. Install air bag inflator module to dash panel attaching nuts and tighten to the correct torque specification.

FRONT PASSENGER'S AIR BAG MODULE TO DASH PANEL ATTACHING NUT TORQUE SPECIFICATION	15 - 25 Nm
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3. Reinstall instrument panel pad assembly, refer to [Section 1A3 INSTRUMENT PANEL AND CONSOLE](#).
4. Enable the SRS, refer to [2.2 SYSTEM DISABLING AND ENABLING PROCEDURE](#) in this Section.
5. Switch ignition on, and observe the SRS warning lamp in the instrument cluster. The warning lamp should be illuminated for approximately 5 seconds.
During this period the SDM performs a wiring and self check.
If no system faults are detected, the SRS warning lamp will be switched off. If the warning lamp remains illuminated and an audible alarm chimes, or the warning lamp illuminates 2 seconds after it was originally switched off, an SRS fault is present. Refer to [3 DIAGNOSTICS](#) in this Section to rectify fault.

FRONT PASSENGER'S AIR BAG MODULE ASSEMBLY SCRAPPING PROCEDURE

During the course of a vehicle's useful life, certain situations may arise which will necessitate the disposal of a live (undeployed) air bag inflator module assembly. The following information covers proper procedures for deploying a live front passenger's air bag inflator module assembly.

CAUTION:

Failure to follow proper Supplemental Restraint System (SRS) air bag inflator module assembly disposal procedures can result in air bag deployment which may cause personal injury. The undeployed air bag inflator module contains substances that can cause severe illness or personal injury if the sealed container is damaged during disposal.

In situations which require deployment of a live front passenger's air bag inflator module assembly, deployment may only be accomplished outside the vehicle. The passenger's air bag inflator module assembly needs to be removed so the SRS wiring harness with the capacitor built into the connector can be removed. Intentional deployment of the passenger's air bag inflator module can not be accomplished using a 12 volt DC supply with the capacitor in the SRS circuit.

Front Passenger's Air bag Module Deployment Outside Vehicle

There may be some circumstance that require the deployment of the front passenger's air bag inflator module assembly before a vehicle is to be returned to service. For example, situations in which the vehicle will be returned to an owner after a functionally or cosmetically deficient front passenger's air bag inflator module assembly is replaced. Deployment and disposal of a malfunctioning air bag inflator module is, of course, subject to any required retention period.

For deployment of a live (undeployed) front passenger's air bag inflator module assembly outside the vehicle, the deployment procedure must be followed exactly. ALWAYS wear safety glasses during the deployment procedure until the assembly is removed. Before performing the procedure you should be familiar with servicing the SRS and with proper handling of the front passenger's air bag inflator module assembly.

The following must be read fully and understood before performing the actual procedure.

The following procedure requires use of J38826-1 SRS deployment harness with adaptor E1992. Do not attempt procedure without J38826-1 and E1992.

NOTE:

Adaptor E1992 was previously released as the deployment harness adaptor for the horn bar and air bag module only. On VT Series Models, this harness adaptor is to be used for the deployment of all SRS components. If the previously released passenger's side air bag module, J38826-2 is used for deployment, the procedure will not work as the SRS wiring harness capacitor would remain in the deployment circuit. If the SRS wiring harness capacitor remains in the circuit, deployment using a 12 volt DC power supply is not possible.

CAUTION:

Failure to follow procedures in the order listed may result in personal injury. Never connect deployment harness to any power source before connecting deployment harness to the front passenger's air bag inflator module assembly. The deployment harness must remain shorted and not be connected to a power source until the front passenger's air bag inflator module assembly is ready to be deployed. The module will immediately deploy the air bag when a power source is connected to it. Wear safety glasses and gloves throughout this entire deployment and disposal procedure.

1. Turn ignition switch OFF and put on safety glasses.
2. Inspect J38826-1 SRS deployment harness and adaptor E1992 for damage. If harness or adaptor is damaged, discard and obtain a replacement.
3. Short two SRS deployment harness leads together by fully seating one banana plug into the other. SRS deployment harness MUST remain shorted and NOT connected to a power source until the air bag is to be deployed.
4. Connect the appropriate pigtail adaptor to the SRS deployment harness.

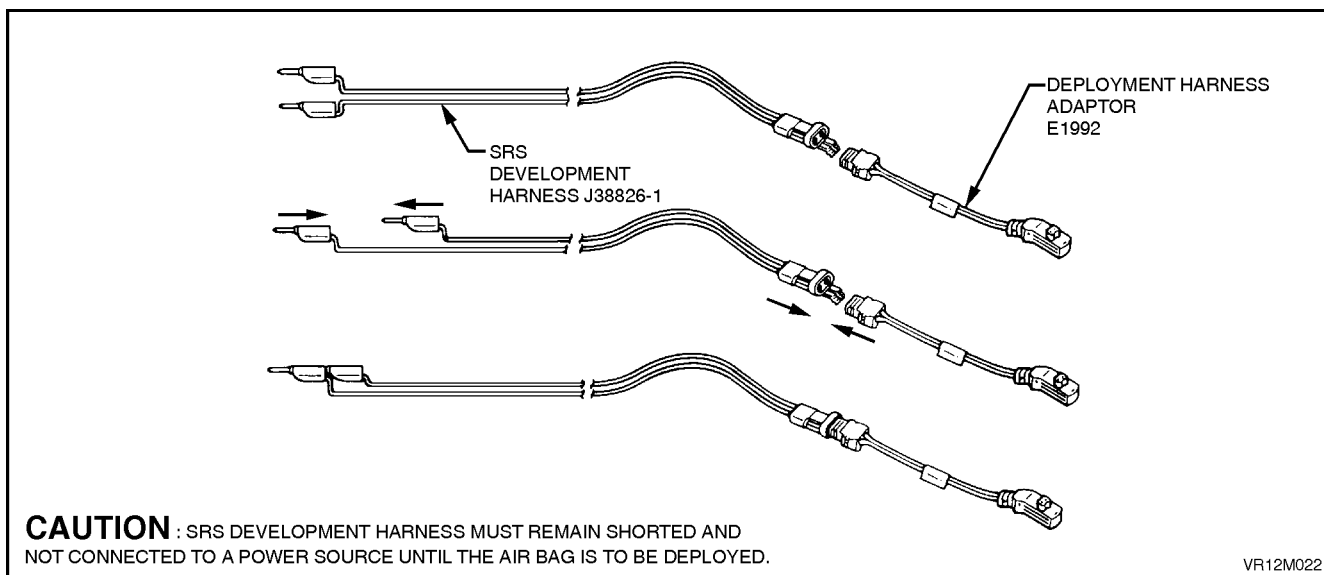


Figure 12M-30

5. Remove the front passenger's air bag inflator module assembly from vehicle, refer to **2.4 FRONT PASSENGER'S AIR BAG MODULE ASSEMBLY** in this Section.

CAUTION:

When storing a live front passenger's side air bag inflator module assembly or when leaving a live assembly unattended on a bench or other surface, always face the assembly with the air bag up and away from the surface. This is necessary so that a free space is provided to allow the air bag to expand in the unlikely event of accidental deployment. Failure to follow procedures may result in personal injury.

6. Using a 2 metre long square steel tube with suitable sized and positioned holes, bolt the tubing to the lower bracket of the air bag inflator module assembly as shown in Fig. 12M-31.
7. Position two wheel and tyre assemblies on each end of the tubing as shown in Fig. 12M-32.

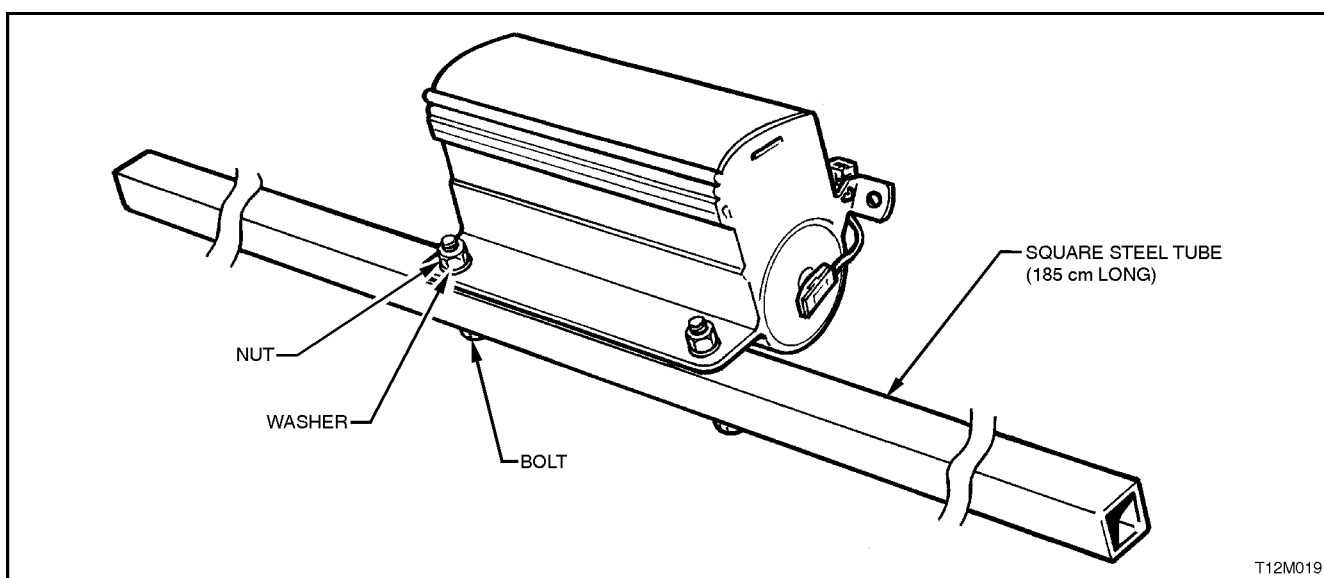


Figure 12M-31

8. Clear a space on the ground about 2 metres in diameter where the assembly is to be deployed. A paved, outdoor location where there is no activity is preferred. If an outdoor location is not available, a space on the workshop floor where there is no activity and sufficient ventilation is recommended. Ensure no loose or flammable objects are within the deployment area.
9. Ensure the front passenger's air bag inflator module assembly is positioned with its air bag facing up.
10. Stretch the SRS deployment harness and adaptor from the front passenger's air bag inflator module assembly to its full length.
Place a power source near the shorted end of the SRS deployment harness. Recommended application: 12 volts minimum, 2 amps minimum (a vehicle battery is suggested).
Connect adaptor E1992 and SRS deployment harness lead J38826-1 to the front passenger's air bag inflator module assembly.

CAUTION:

The deployment harness **MUST** remain shorted and **NOT** connected to a power source until the air bag is to be deployed. The module will immediately deploy the air bag when a power source is connected to it.

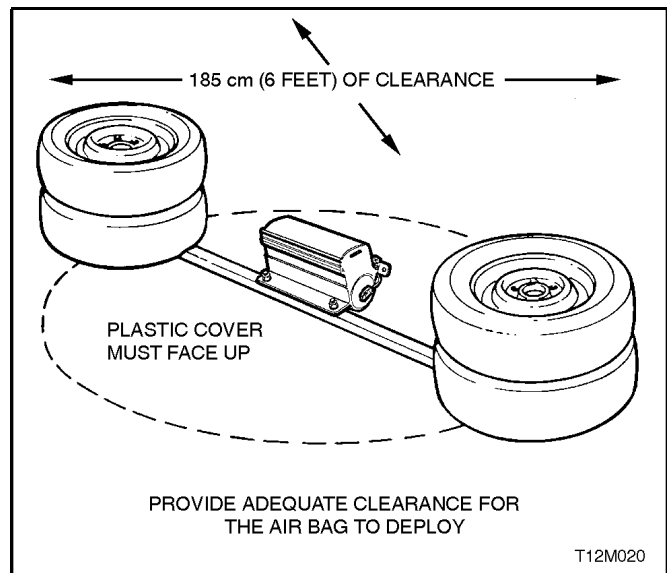


Figure 12M-32

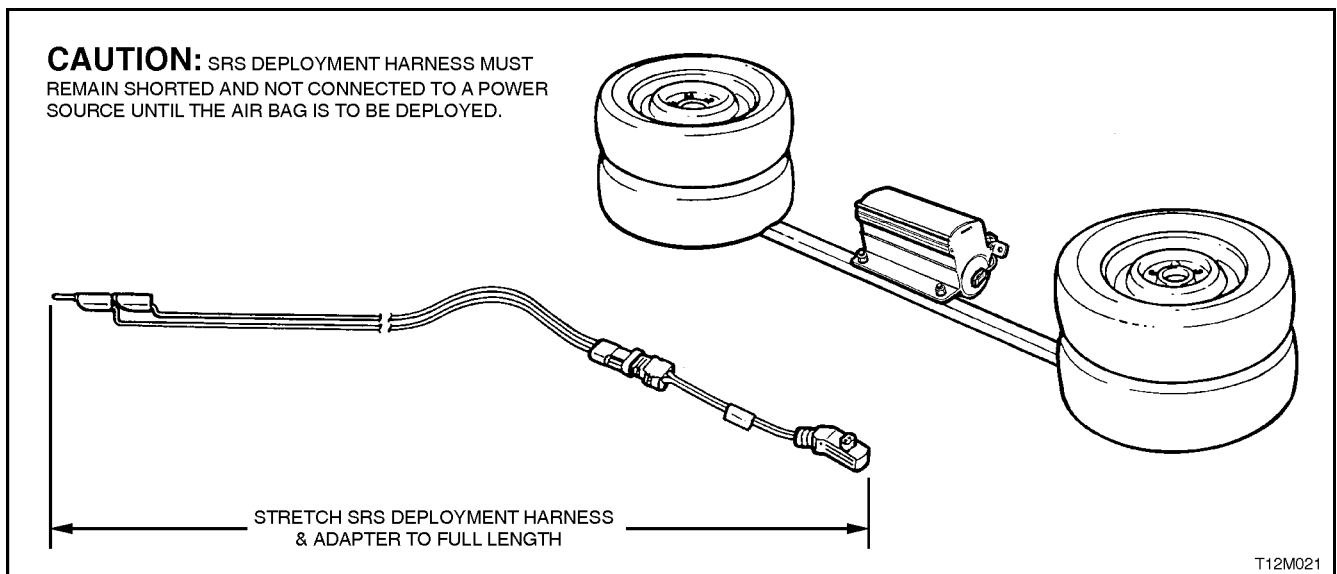


Figure 12M-33

12. Verify that the area around the front passenger's air bag inflator module assembly is clear of all people and loose or flammable objects.
13. Verify that the passenger's air bag inflator module assembly is resting with air bag facing up.
14. Notify all people in the immediate area that you intend to deploy the air bag inflator module assembly. The deployment will be accompanied by an explosion which may startle the uninformed.

15. Separate the two banana plugs on the SRS deployment harness.

NOTE:

1. When the air bag deploys, the rapid gas expansion will create an explosion. Notify all people in the immediate area that you intend to deploy the module.

NOTE:

2. When the air bag deploys, the assembly may jump vertically. This is a normal reaction of the module to the force of the rapid gas expansion inside the air bag.

CAUTION:

The deployment harness **MUST** remain shorted and **NOT** connected to a power source until the air bag is to be deployed. The module will immediately deploy the air bag when a power source is connected to it. Connecting the deployment harness to the power source should always be the last step prior to deployment of the air bag. Failure to follow procedures in the order listed may result in personal injury.

16. Connect SRS deployment harness leads to the power source to immediately deploy the front passenger's air bag inflator module assembly.

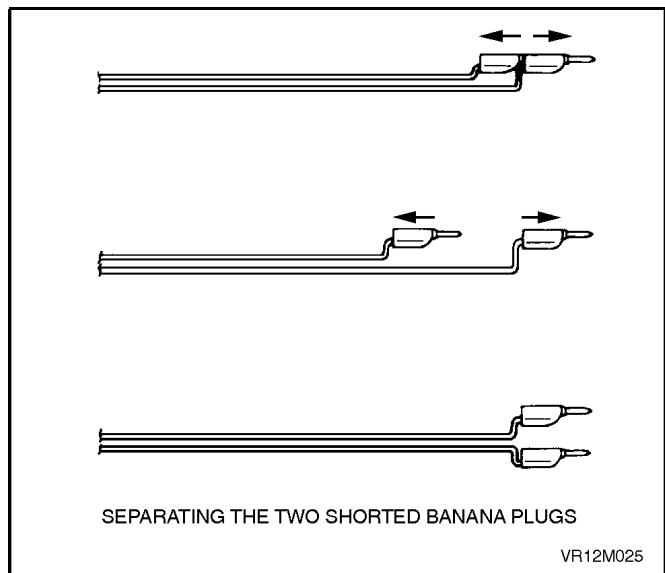


Figure 12M-34

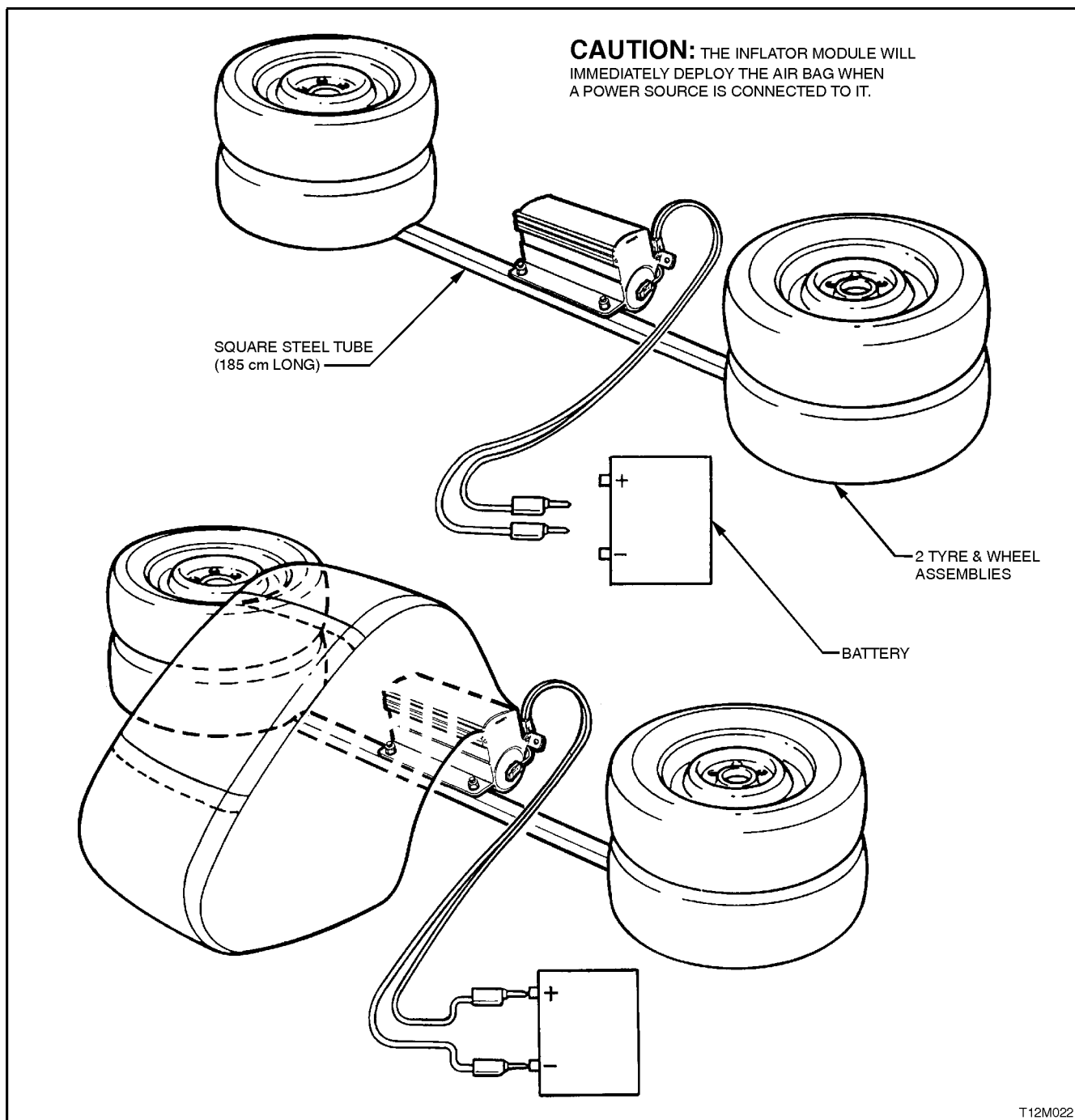


Figure 12M-35

17. Disconnect the SRS deployment harness from the power source.
18. Short the two SRS deployment harness leads together by fully seating one banana plug into the other.

19. Ensure that you are wearing safety glasses and gloves to protect your eyes and hands from possible irritation and heat when handling the deployed horn bar and air bag inflator module assembly.

After the air bag inflator module assembly has been deployed, the surface of the air bag may contain a powdery residue. This powder consists primarily of corn starch (used to lubricate the bag as it inflates) and by-products of the chemical reaction. Sodium hydroxide dust is produced as a by-product of the deployment reaction. The sodium hydroxide then quickly reacts with the atmospheric moisture and is converted to sodium carbonate and sodium bicarbonate (baking soda). Therefore, it is unlikely that sodium hydroxide will be present after deployment. As a precaution, however, gloves and safety glasses are recommended to prevent any possible irritation of the skin or eyes.

CAUTION:

Safety precautions must be observed when handling a deployed horn bar and air bag inflator module assembly. After deployment, the metal surfaces of the module will be very hot. Do not touch these metal areas of the module for about 10 minutes after deployment. Do not place the deployed horn bar and air bag inflator module assembly near any flammable objects. If the deployed horn bar and air bag inflator module assembly must be moved before it has cooled, wear gloves and handle by the air bag or the horn bar.

20. Disconnect the adaptor E1992 from the module as soon as possible after deployment. This will prevent damage to the adaptor or SRS deployment harness due to possible contact with the hot module canister. The adaptor and SRS deployment harness are designed to be reused. They should, however, be inspected for damage after each deployment and replaced if necessary.
21. Dispose of the deployed air bag assembly through normal refuse channels after it has cooled for at least 10 minutes.
22. Wash your hands with mild soap and water afterward.

Deployed Module Handling

After the module has been deployed, the surface of the air bag may contain a powdery residue. This powder consists primarily of corn starch (used to lubricate the bag as it inflates) and by-products of the chemical reaction. Sodium hydroxide dust is produced as a by-product of the deployment reaction. The sodium hydroxide then quickly reacts with atmospheric moisture and is converted to sodium carbonate and sodium bicarbonate (baking soda). Therefore, it is unlikely that sodium hydroxide will be present after deployment. As a precaution, however, gloves and safety glasses are recommended to prevent any possible irritation of the skin or eyes.



Figure 12M-36

2.5 SEAT BELT BUCKLE AND PRE-TENSIONER ASSEMBLY

REMOVE AND REINSTALL

As the seat belt pre-tensioner assembly is part of the front seat belt buckle assembly, refer to **Section 1A7 SEAT AND SEAT BELT ASSEMBLIES** for all Service Operations related to the removal and reinstallation of pre-tensioner assembly.

PRE-TENSIONER ASSEMBLY SCRAPPING PROCEDURE

During the course of a vehicle's useful life, certain situations may arise which will necessitate the disposal of a live (undeployed) pre-tensioner assembly. The following information covers proper procedures for deploying a live pre-tensioner assembly.

CAUTION:

Failure to follow proper Supplemental Restraint System (SRS) pre-tensioner assembly disposal procedures can result in pre-tensioner deployment which may cause personal injury.

In situations which require deployment of a live pre-tensioner assembly, deployment may only be accomplished outside the vehicle. The pre-tensioner needs to be removed and the SRS wiring harness with the capacitor built into the connector removed. Intentional deployment of the pre-tensioner assembly can not be accomplished using a 12 volt DC supply with the capacitor in the SRS circuit.

Pre-tensioner Assembly Deployment Outside Vehicle

For deployment of a live (undeployed) pre-tensioner assembly outside the vehicle, the deployment procedure must be followed exactly. ALWAYS wear safety glasses during this deployment procedure. Before performing the procedure you should be familiar with servicing the SRS and with proper handling of the pre-tensioner assembly.

The following must be read fully and understood before performing the actual procedure.

The following procedure requires use of J38826-1 SRS deployment harness with adaptor E1992. Do not attempt procedure without J38826-1 and E1992.

NOTE:

Adaptor E1992 was previously released as the deployment harness adaptor for the horn bar and air bag module only. On VT Series Models, this harness adaptor is to be used for the deployment of all SRS components.

CAUTION:

Failure to follow procedures in the order listed may result in personal injury. Never connect deployment harness to any power source before connecting deployment harness to the pre-tensioner assembly. The deployment harness must remain shorted and not be connected to a power source until the pre-tensioner assembly is ready to be deployed. The pre-tensioner will deploy immediately a power source is connected to it. Wear safety glasses and gloves throughout this entire deployment and disposal procedure.

1. Turn ignition switch OFF and put on safety glasses.
2. Inspect J38826-1 SRS deployment harness and adaptor E1992 for damage. If harness or adaptor is damaged, discard and obtain a replacement.
3. Short two SRS deployment harness leads together by fully seating one banana plug into the other. SRS deployment harness MUST remain shorted and NOT connected to a power source until the pre-tensioner is to be deployed.
4. Connect the deployment harness adaptor (E1992) to the SRS deployment harness (J38826-1).

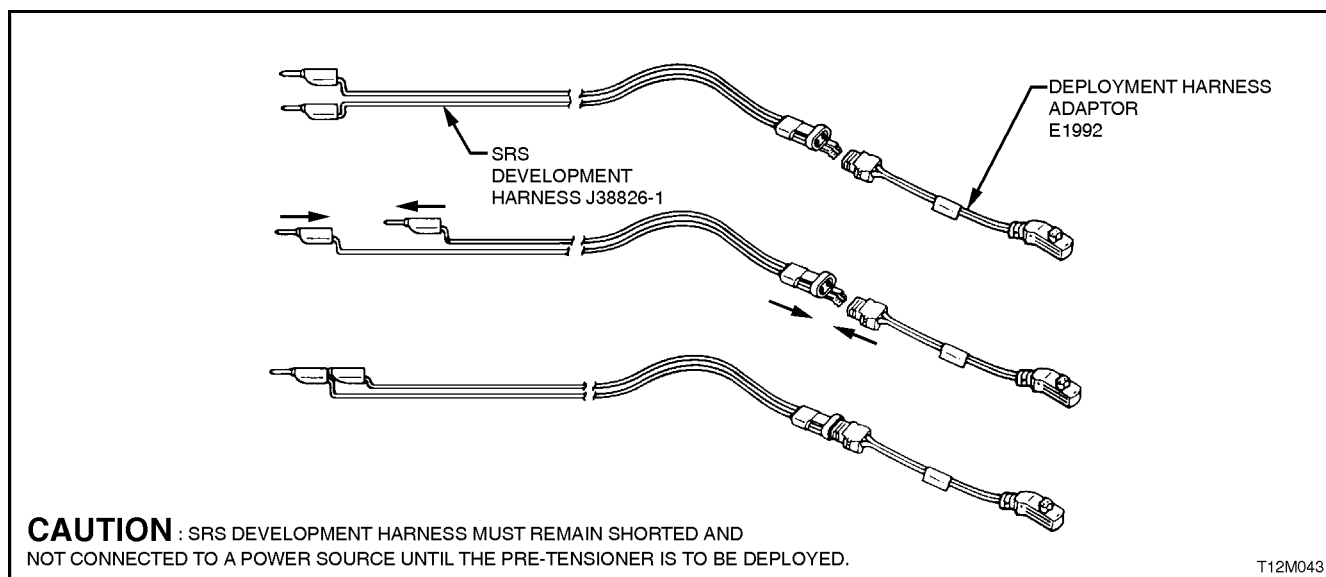


Figure 12M-37

5. Remove the appropriate pre-tensioner assembly from the vehicle, refer to **Section 1A7 SEAT AND SEAT BELT ASSEMBLY**.

NOTE:

Leave pre-tensioner to seat assembly retaining bolt installed in the pre-tensioner once removed from the seat assembly.

6. Clear a space on the ground about 2 metres in diameter where the pre-tensioner assembly is to be deployed. A paved, outdoor location where there is no activity is preferred. If an outdoor location is not available, a space on the workshop floor where there is no activity and sufficient ventilation is recommended. Ensure no loose or flammable objects are within the deployment area.
7. Stretch the SRS deployment harness and adaptor from the pre-tensioner assembly to its full length.
8. Connect adaptor E1992 and SRS deployment harness lead J38826-1 to the pre-tensioner assembly.

CAUTION:

The deployment harness **MUST** remain shorted and **NOT** connected to a power source until the pre-tensioner assembly is to be deployed. The pre-tensioner assembly will immediately deploy when a power source is connected to it.

9. Position a wheel and tyre assembly over the pre-tensioner assembly, refer to Fig. 12M-39.

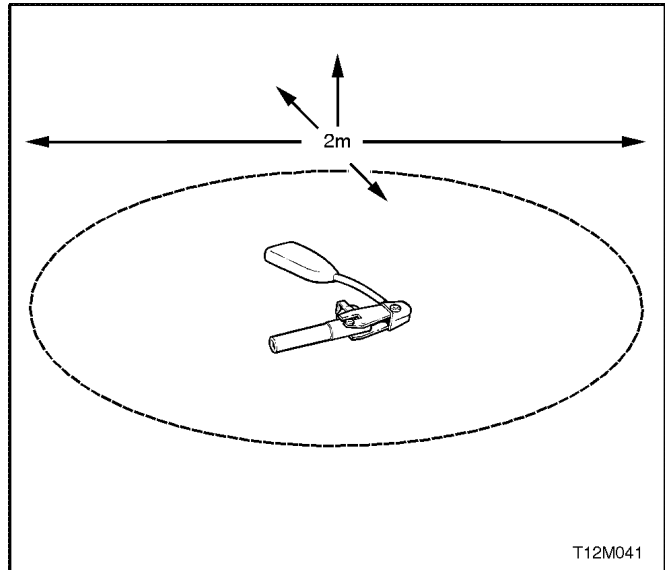


Figure 12M-38

CAUTION: SRS DEPLOYMENT HARNESS MUST REMAIN SHORTED AND NOT CONNECTED TO A POWER SOURCE UNTILL THE PRE -TENSIONER IS TO BE DEPLOYED.

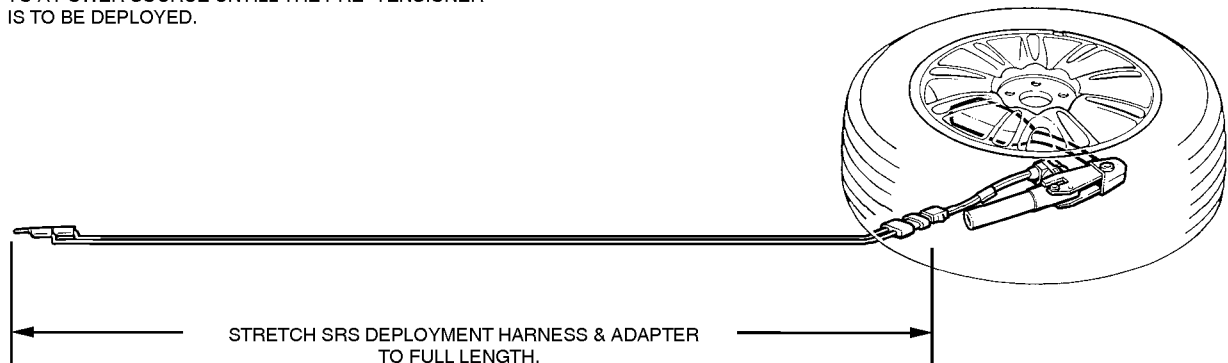


Figure 12M-39

10. Place a power source near the shorted end of the SRS deployment harness. Recommended application: 12 volts minimum, 2 amps minimum (a vehicle battery is suggested).
11. Verify that the area around the pre-tensioner assembly is clear of all people and loose or flammable objects.

12. Notify all people in the immediate area that you intend to deploy the pre-tensioner assembly. The deployment will be accompanied by an explosion which may startle the uninformed.
15. Separate the two banana plugs on the SRS deployment harness.

NOTE:

When the pre-tensioner deploys, the rapid gas expansion will create an explosion. Notify all people in the immediate area that you intend to deploy the pre-tensioner.

CAUTION:

The deployment harness **MUST** remain shorted and **NOT** connected to a power source until the pre-tensioner is to be deployed. The pre-tensioner will immediately deploy when a power source is connected to it. Connecting the deployment harness to the power source should always be the last step prior to deployment of the pre-tensioner. Failure to follow procedures in the order listed may result in personal injury.

16. Connect SRS deployment harness leads to the power source to immediately deploy the pre-tensioner assembly.
17. Disconnect the SRS deployment harness from the power source.
18. Short the two SRS deployment harness leads together by fully seating one banana plug into the other.
19. To prevent damage to the adaptor or SRS deployment harness, disconnect the adaptor E1992 from the pre-tensioner as soon as possible after deployment. The adaptor and SRS deployment harness are designed to be reused. They should, however, be inspected for damage after each deployment and replaced if necessary.
20. Dispose of the deployed pre-tensioner assembly through normal refuse channels.

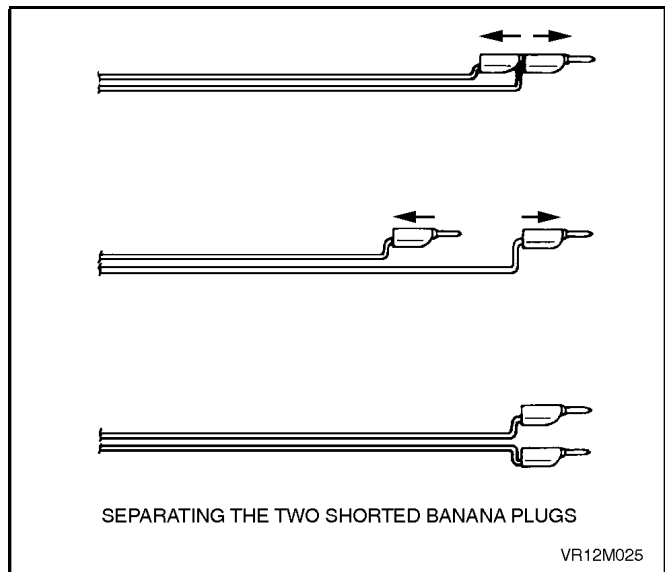


Figure 12M-40

2.6 CLOCK SPRING COIL

IMPORTANT:

Absolutely no wire, connector or terminal repairs are to be attempted on the clock spring coil. If the clock spring coil is damaged in any way, REPLACE IT.

REMOVE

1. Disable the SRS, refer to **2.2 SYSTEM DISABLING AND ENABLING PROCEDURE** in this Section.
2. Remove horn bar and air bag inflator module, refer to **2.3 HORN BAR AND AIR BAG MODULE ASSEMBLY** in this Section.
3. Ensure the front wheels and the steering wheel are in the straight ahead position and remove keys from ignition switch.

NOTE 1: This is important to ensure that clock spring coil is locked when the steering wheel is removed to prevent the steering shaft from being rotated.

4. To aid the installation of the steering wheel to its original position, scribe an aligning mark on the steering wheel centre section and steering shaft. A felt tipped pen could also be used.

NOTE 2:

Do not use a centre punch for this operation.

5. Using a commercially available Torx E20 socket, remove the steering wheel retaining bolt.
6. Remove the steering wheel from the steering shaft splines and feed the clock spring coil wiring and connectors through the steering wheel aperture.

NOTE 3:

When the steering wheel is removed, check that the green coloured tang has engaged the inner clock spring coil member to lock it in the centralised position.

NOTE 4:

With the increased diameter of the steering shaft and the angle of the locating bevel, it is not usually necessary to require a puller to remove the steering wheel. However, if a puller is required, refer to **Section 9A STEERING**.

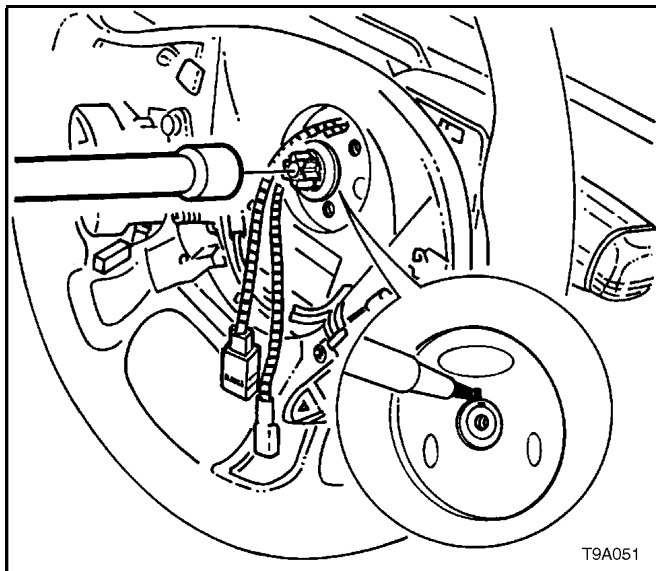


Figure 12M-41

7. Lower instrument panel right hand cover assembly (fuse panel cover) by grasping the top edge on either side of the steering column with the finger tips and pulling the top edge out, to free the retaining lugs from the clips.
8. Release steering column height adjuster, completely lower steering column and leave lever in the release position.
9. Remove the upper steering column cover by applying a small amount of pressure on the lower steering column cover (pushing towards instrument cluster) while lifting the upper cover upwards and rearwards.
10. Remove screw (1) securing the lower cover to the steering column.
11. Push the lower steering column cover up towards the top of the steering column (arrow) to release the two retaining tangs (2) on the steering column, refer to Fig. 12M-42.
12. While feeding the remote coded key reader outer surround from the lower cover, remove the lower steering column cover.
13. Disengage the two top locking tangs on the clock spring coil assembly by lifting first in direction (1) then pulling the clock spring coil assembly in direction (2), refer to Fig. 12M-43. Repeat for the lower two tangs, then remove clock spring coil assembly from the steering column.

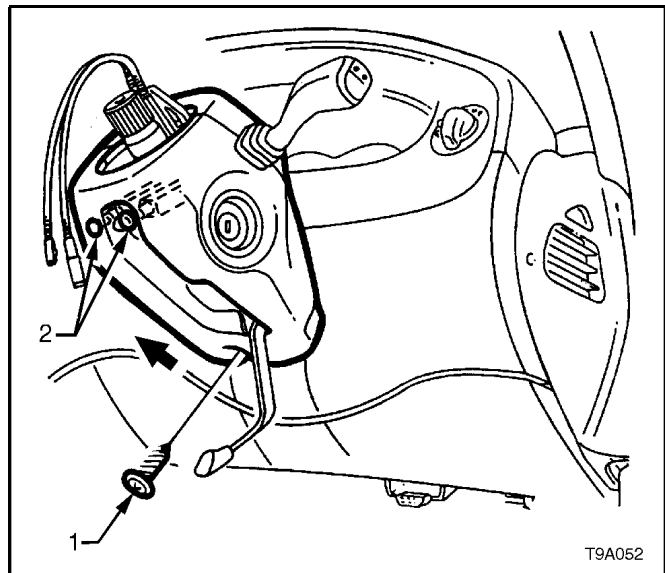


Figure 12M-42

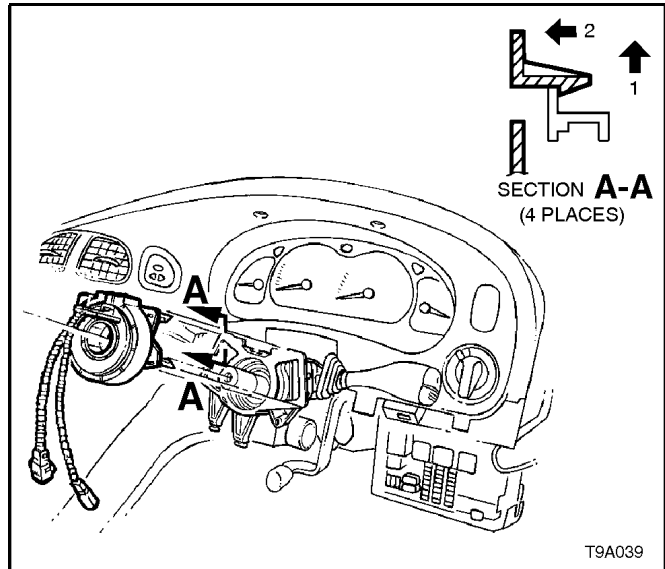


Figure 12M-43

CENTRING THE CLOCK SPRING COIL

NOTE:

The following procedure must be followed when reusing a clock spring coil that has been removed from a steering column without the steering wheel or clock spring coil being centred.

1. Ensure that steering gear is in centralised position before installing the clock spring coil assembly, otherwise irreparable damage to the clock spring coil may result. Refer to [Section 9A STEERING](#) for details on centralising the steering gear.
2. Hold the clock spring coil outer housing by one hand while holding each of the two locking lugs inward with the other hand, refer to Fig. 12M-44.

Rotate the inner member of the clock spring coil in a clockwise direction until a mechanical stop is felt.

While still holding the two locking lugs as before, rotate the inner member of the clock spring coil in an anti-clockwise direction for approximately 2.5 turns, until the green indexing tab (1) is seen in the upper window of the clockspring coil assembly.

Release the locking lugs and the inner rotor of the clock spring coil assembly should now be locked to the outer member with the clock spring coil in the centralised position.

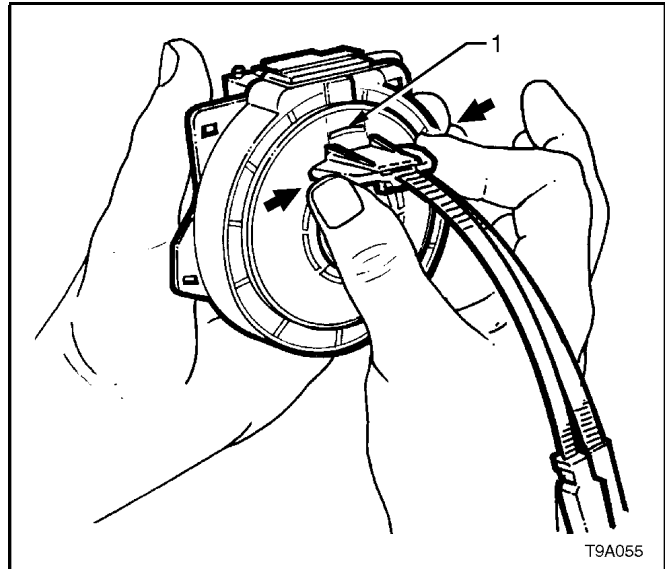


Figure 12M-44

REINSTALL

Installation of the clock spring coil is the reverse of removal procedures, noting the following points:

1. Ensure that steering gear is in centralised position before installing the clock spring coil assembly, otherwise irreversible damage to the clock spring coil may result. Refer to **Section 9A STEERING** for details on centralising the steering gear.
2. With the clock spring coil assembly locked in the centralised position, install clock spring coil assembly over the end of steering column, indexing the lower locating pins on the clock spring coil with the matching holes in the switch housing.

NOTE:

If the clock spring coil assembly was removed without being centred, refer to the previous service procedure; **CENTRING THE CLOCK SPRING COIL** in this Section.

3. Push the clock spring coil assembly onto the switch housing until the four locking tangs fully engage.
4. Install the steering wheel to steering shaft, aligning marks made prior to removal and ensuring the drive tang of the clock spring coil is aligned with the steering wheel aperture.

NOTE:

This action automatically releases the clock spring coil centralising lock.

5. After cleaning the threadlock residue from the bolt threads, apply Loctite 242 or equivalent, to Holden Specification HN 1256 Class 2, Type 2 to bolt threads. Install and tighten steering wheel retaining bolt to the correct torque specification using a commercially available Torx E20 socket.

STEERING WHEEL RETAINING BOLT TORQUE SPECIFICATION	40 - 50 Nm
---	---------------

6. Reinstall horn bar and air bag inflator module, refer to **2.3 HORN BAR AND AIR BAG MODULE ASSEMBLY** in this Section.
7. Enable the SRS, refer to **2.2 SYSTEM DISABLING AND ENABLING PROCEDURE** in this Section.
8. Switch ignition on, and observe the SRS warning lamp in the instrument cluster. The warning lamp should be illuminated for approximately 5 seconds. During this period of time the SDM performs a wiring and self check.

If no system faults are detected, the SRS warning lamp will be switched off. If the warning lamp remains illuminated and an audible alarm chimes, or the warning lamp illuminates 2 seconds after it was originally switched off, an SRS fault is present. Refer to **3 DIAGNOSTICS** in this Section to rectify fault.

2.7 SENSING AND DIAGNOSTIC MODULE (SDM)

REMOVE

1. Disable the SRS, refer to **2.2 SYSTEM DISABLING AND ENABLING PROCEDURE** in this Section.
2. Remove the centre console assembly, refer to **Section 1A3 INSTRUMENT PANEL AND CONSOLE**.
3. Lift up SRS wiring harness connector locking lever and pull harness connector out of SDM.

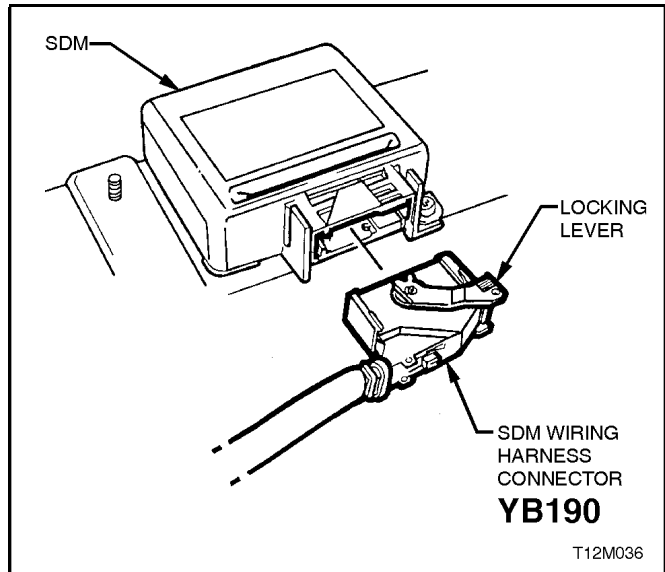


Figure 12M-45

4. Using a number T30H Torx bit, Tool No. ETX30H and suitable holder such as Tool No. J25359-8, loosen and remove SDM to floor attaching screws.
5. Remove SDM.

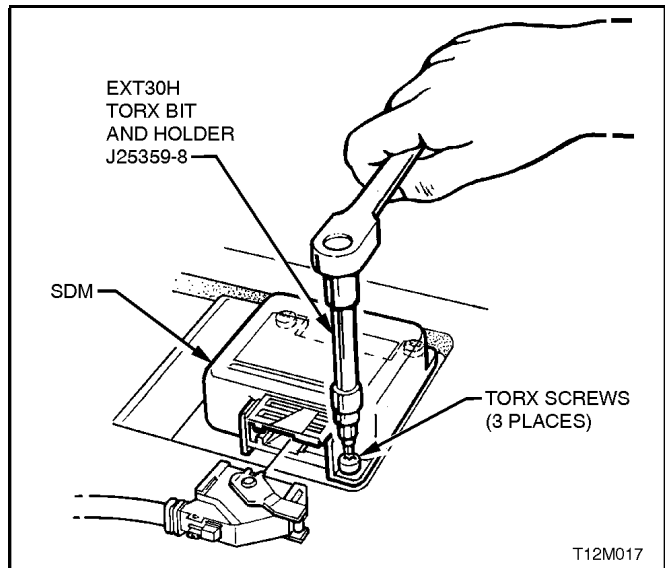


Figure 12M-46

REINSTALL

Installation of the SDM is the reverse of removal procedures, noting the following points:

1. Ensure that the directional arrow on the SDM identification label is pointing towards the front of the vehicle.
2. Using a number T30H Torx bit, Tool No. ETX30H and suitable holder such as Tool No. J25359-8, tighten SDM to floor attaching screws to the correct torque specification.

NOTE:

The main earth connection for the SDM is via the attaching screws to the floor. These screws must make good contact with the floor and not be overtightened.

SENSING AND DIAGNOSTIC MODULE TO FLOOR ATTACHING SCREW TORQUE SPECIFICATION	7 - 11 Nm
---	-----------

3. Connect the SRS wiring harness connector, ensuring that connector is fully seated into SDM module and the locking lever is locked down.
4. Enable the SRS, refer to **2.2 SYSTEM DISABLING AND ENABLING PROCEDURE** in this Section.
5. Switch ignition on, and observe the SRS warning lamp in the instrument cluster. The warning lamp should be illuminated for approximately 5 seconds. During this period the SDM performs a wiring and self check.

If no system faults are detected, the SRS warning lamp will be switched off. If the warning lamp remains illuminated and an audible alarm chimes, or the warning lamp illuminates 2 seconds after it was originally switched off, an SRS fault is present. Refer to **3 DIAGNOSTICS** in this Section to rectify fault.

2.8 SRS WIRING REPAIR

Special wiring repair procedures have been developed for use on the Supplemental Restraint System (SRS) due to the sensitive nature of the circuitry. These specific procedures and instructions must be followed when working with SRS wiring, and wiring components (such as connectors and terminals). Terminal Repair Kit, Tool No. J38125-A contains special 'sealed splices' for use in repairing SRS wiring.

A special crimping tool, heat torch, and instruction manual for these splices are also included in the kit.

Two critical features of the sealed splices are a special heat shrink sleeve with sealing adhesive to produce an environmentally sealed splice and a cross hatched (knurled) core crimp to provide necessary contact integrity for the sensitive, low energy circuits.

Terminal Repair Kit J38125-A also serves as a generic terminal repair kit. The kit contains a large sampling of common GM electrical terminals and the correct tools to attach them to wires and remove them from connectors. The terminals in the kit are **NOT** to be used to replace damaged terminals in the SRS wiring.

THE FOLLOWING PROCEDURES FOR REPAIRING SRS WIRING IS THE ONLY RECOMMENDED AND APPROVED REPAIR METHOD. NO ALTERNATIVE REPAIR METHODS ARE TO BE USED.

SRS WIRE PIGTAIL REPAIR

Ensure to read and understand the instruction repair manual before conducting SRS wiring repairs using this kit.

If a wiring pigtail (a wire or wires attached directly to the device, not by a connector) is damaged, the entire component (with pigtail) must be replaced.

An examples of a 'pigtail' component is the clock spring coil. Absolutely no wire, connector or terminal repairs are to be attempted on the clock spring coil. **REPLACE THE COMPONENT.**

SRS WIRING REPAIR

NOTE:

Before conducting SRS wiring repair, disable the SRS, refer to [2.2 SYSTEM DISABLING AND ENABLING PROCEDURE](#) in this Section.

If any wiring, except the pigtail, is damaged, the wiring should be repaired by splicing in a new section of wire of the same gauge size (0.5, 0.8, 1.0, etc.). The splices and Splice Crimping Tool from Terminal Repair Kit J38125-A must be used for these repairs.

The following wiring repair procedures must be used to ensure the integrity of the sealed splice application.

Step One: Open the Harness

If the harness is taped, remove the tape. To avoid wire insulation damage use a sewing 'seam splitter' (available from sewing supply stores) to cut open the main wiring harness (for additional details of seam splitter, refer to [Section 12P WIRING DIAGRAMS](#)). The crimp and sealed splice sleeves may be used on all types of insulation except tefzel and coaxial and may only be used to form a one-to-one splice.

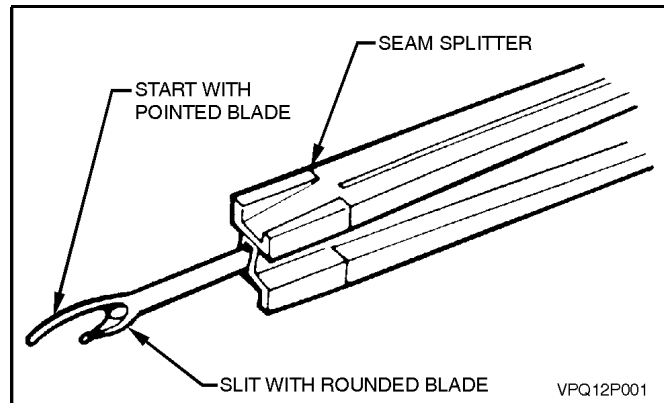


Figure 12M-47

Step Two: Cut the Wire

Begin by cutting as little wire off the harness as possible. You may need the extra length of wire later. You may decide to cut more wire to change the location of a splice. You may have to adjust splice locations to be certain that each splice is at least 40 mm away from other splices, harness branches, or connectors.

NOTE:

Do not nick or cut any copper strands as this could limit the current-carrying capabilities of the wire.

Step Three: Strip the Insulation

NOTE:

The following procedures must be followed in the order listed. If wire strands are damaged, the procedure must be repeated until a clean strip with all wire strands intact is obtained.

If it is necessary to add a length of wire to the existing harness, be certain to use the same size as the original wire.

To find the correct wire size either find the wire size on the SRS wiring diagram or measure wire size with a wire gauge.

If unsure about the wire size, begin with the largest opening in the wire stripper and work down until achieving a clean strip of the insulation. Strip approximately 7.5 mm of insulation from each wire to be spliced. Be careful to avoid nicking or cutting any of the strands. Check the stripped wire for nicks or cut strands. If the wire is damaged, repeat this procedure after removing the damaged section.

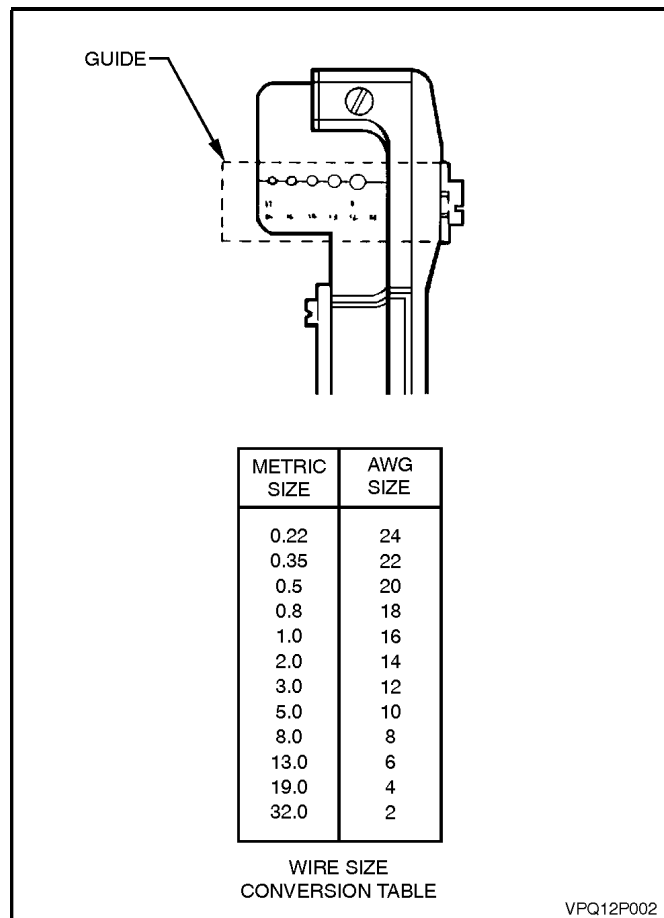


Figure 12M-48

Step Four: Select and Position the Splice Sleeve

Select the proper sealed splice sleeve according to wire size. The splice sleeves and tool nests are colour coded (refer to following chart).

WIRE SIZE (mm)						
	0.5	0.8	1.0	2.0	3.0	5.0
SPLICE CRIMP PART No IN KIT.						
12089189	SALMON	SALMON				
12089190			BLUE	BLUE		
12089191					YELLOW	YELLOW

Using the Splice Crimp Tool (part of kit J38125-A), position the splice sleeve in the proper colour nest of the hand crimp tool. Place the splice sleeve in the nest so that the crimp falls midway between the end of the barrel and the stop.

The sleeve has a stop in the middle of the barrel to prevent the wire from going further. Close the hand crimper handles slightly to hold the splice sleeve firmly in the proper nest.

Step Five: Insert Wires Into Splice Sleeve and Crimp

Insert the wire into the splice sleeve until it hits the barrel stop and close the handles of the Crimp Tool tightly until the crimper handles open when released. The crimper handles will not open until the proper amount of pressure is applied to the splice sleeve.

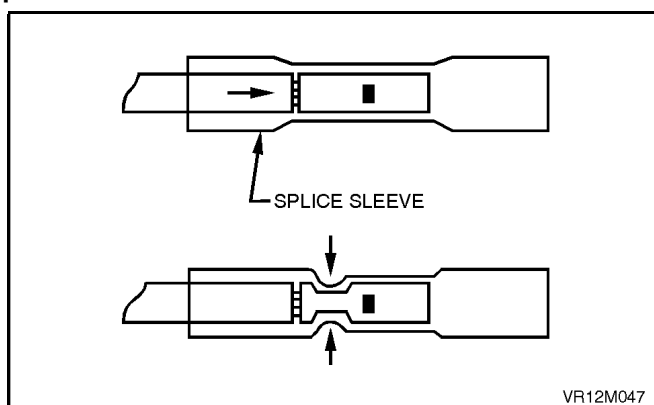


Figure 12M-49

Gently tug both ends of the wire to ensure that crimp is secure.

Repeat Steps 4 and 5 for opposite end of the splice.

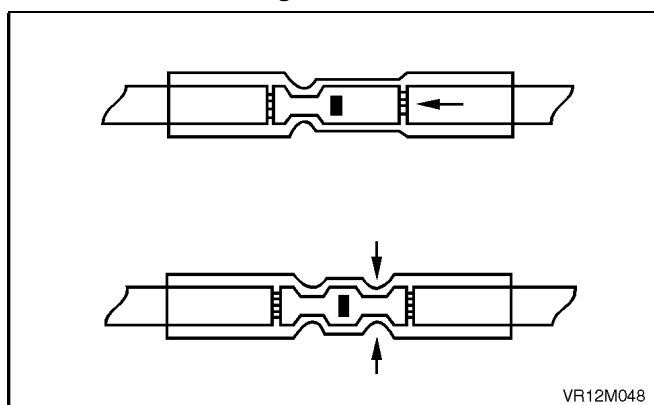


Figure 12M-50

Step Six: Shrink the Insulation around the Splice

Bring the ultratorch (part of J38125-A) to operating temperature.

Using the torch, apply heat where the barrel is crimped.

Gradually move the heat barrel from the centre toward each end of the tubing, softening and shrinking the tubing completely as the heat is moved along the insulation. A small amount of sealant will come out of the end of the tubing when sufficient shrinking is achieved. Allow the splice sleeve to cool.

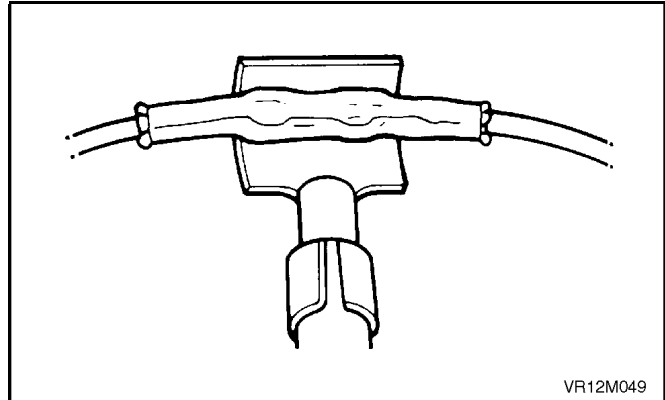


Figure 12M-51

Step Seven: Close the Harness

Ensure that SRS has been disabled.

Using a multimeter, check continuity of repaired wiring. If wiring is OK, tape the harness wires.

NOTE:

Only check wiring continuity from the SDM wiring harness connector (YB190) using Tool No. KM-609-20 and a multimeter. If KM-609-20 is not used, damage to the SDM connector terminals **will** result.

SRS WIRING SPLICE REPAIR

If any of the original equipment splices (three wires or more) in the SRS wiring are damaged they should be repaired by applying a new splice (not sealed) from the Terminal Repair Kit J38125-A. Carefully follow the instructions included in the kit for proper splice clip application. Cloth duct tape may be substituted for splice tape if necessary.

2.9 SRS WARNING LAMP BULB

REPLACE

The SRS warning lamp is located in the instrument cluster. For bulb replacement procedures, refer to [Section 12C INSTRUMENT, WIPERS/WASHERS AND HORN](#).

2.10 REPAIRS AND INSPECTIONS REQUIRED AFTER AN ACCIDENT

If any SRS components are damaged, they must be replaced. If SRS component mounting points are damaged, they must be repaired or replaced.

Never use SRS components from another vehicle.

CAUTION:

Proper operation of the SRS requires that any repairs to the vehicle structure must return it to its original production configuration.

The steering column must be dimensionally inspected, whether deployment occurred or not, refer to [Section 9A STEERING](#), Checking Steering Column for Accident Damage.

If a vehicle is involved in an accident which was severe enough to deploy the pre-tensioners but not severe enough to deploy air bag/s, the following components must be replaced:

- Any seat belt worn in the accident.
- Seat belt pre-tensioners.
- Front seat guide rail and adjuster assembly (provided seat was occupied in accident).
- Sensing and Diagnostic Module.

If a vehicle is involved in an accident where the seat belt pre-tensioners and the air bag/s are deployed, the following components must be replaced:

- Any seat belt worn in the accident.
- Seat belt pre-tensioners.
- Front seat guide rail and adjuster assemblies (provided seat was occupied in accident).
- Horn bar and air bag inflator module assembly.
- Sensing and Diagnostic Module.
- Clock spring coil.
- Steering column.
- Steering wheel.
- The front passenger's air bag inflator module (vehicles with front passenger's air bag).
- The instrument panel pad and PAB door assembly (vehicles with front Passenger's air bag).
- Instrument panel pad name plate (vehicles with front passenger's air bag).
- Front passenger air bag inflator support rail assembly (vehicles with front passenger's air bag).

3. DIAGNOSTICS

3.1 BASIC KNOWLEDGE REQUIRED

Before attempting to diagnose the Supplemental Restraint System (SRS) you must have a good understanding of electrical system basics and the use of circuit testing tools. Without this basic knowledge it will be difficult to use the diagnostic procedures detailed in this Section.

Some electrical basics, as well as basic troubleshooting procedures and hints as the use of circuit testing tools are covered in **Section 12P, WIRING DIAGRAMS**.

Basic Electrical Circuits - You should understand the basic theory of electricity, series and parallel circuits, and voltage drops across series resistors. You should know the meaning of voltage (volts), current (amps), and resistance (ohms). You should understand what happens in a circuit with an open or shorted wire (shorted either to voltage or earth). You should also be able to read and understand a wiring diagram.

Additionally, a knowledge of AC theory including; inductance, capacitance and impedance would be useful.

Use of Circuit Testing Tools - You should know how to use a jumper lead to test circuits. You should be familiar with the use of a high input impedance (10 Meg ohm) digital type multimeter such as Tool No. J39200 or equivalent and be able to measure voltage, current, and resistance. You should be familiar with the proper use of the TECH 2 Diagnostic Scan Tool.

3.2 PRELIMINARY SYSTEM DIAGNOSIS

When investigating any complaint of an SRS problem or malfunction, always begin diagnosis with a circuit check, refer to 3.6 DIAGNOSTIC CHARTS, **CHART A - DIAGNOSTIC CIRCUIT CHECK** in this Section.

The diagnostic circuit check is a preliminary procedure that checks to ensure the SDM is communicating on the serial data line as well as helping to identify the problem and directing the reader to the appropriate diagnostic chart in this Section.

3.3 SRS SELF DIAGNOSTICS

The SRS has a self diagnostic facility that can detect and isolate SRS problems or failures. When a problem or failure is detected, the Sensing and Diagnostic Module (SDM) sets a fault code that represents that particular problem or failure. All of the fault codes will cause the SRS warning lamp to be illuminated and depending on the fault, the SDM may disable the SRS.

If present, diagnosable system faults are detected by the SDM during an initialisation process when the ignition is first turned on. Upon first detection of an external system fault condition, the SDM records the failure and is classed as an 'Intermittent Failure'. If the fault condition is maintained to meet the failure duration conditions described in the diagnostic charts in this Section for the individual system problem, the fault then becomes a current Diagnostic Trouble Code (DTC). If the fault duration conditions are not met, the intermittent fault is cleared from the SDM.

Current DTC's are permanently stored in the SDM's memory in the sequence of occurrence. When the fault conditions are no longer met, the DTC will retain its sequence of occurrence, but the DTC will become a History DTC.

DTC storage in the SDM of history DTC's is limited to the first DTC logged for each of the four loops, ie. if a DTC 13 (Driver's air bag circuit short to earth) was logged in history, and the SDM sensed a short to battery + in the driver's air bag circuit, DTC 15 would be held as a current DTC during the particular ignition cycle, but would not become a history DTC and therefore removed from the SDM's memory when the ignition is switched off.

CURRENT DTC'S

Current DTC's when detected are stored in the SDM's RAM during the current ignition cycle and then maintained in an EEPROM. Current DTC's are set or cleared based on the condition of the SRS during ignition on or continuous monitoring of the current ignition cycle.

NOTE:

A current DTC can be identified on the TECH 2 display by the word 'Current' between the DTC number and the DTC description. The word 'History' between the DTC number and the DTC description indicates that the DTC displayed is a history DTC.

Additionally, the display will advise whether the DTC (both current or history) has been set on the current ignition cycle by displaying the word 'frozen', in brackets next to the word current or history. A precondition for this additional display is that the DTC must be present for longer than 10 seconds.

Current DTC's will be reset to History DTC's upon the next diagnostic test sequence that the fault conditions are not met. Current DTC's can be cleared (changed to history DTC) by removing the fault conditions.

Using TECH 2 to clear current DTC's will clear the DTC's, but if the fault conditions still exist, the current DTC's will set again.

DTC's stored in the SDM memory can only be displayed using the TECH 2 diagnostic scan tool

The TECH 2 communicates with Sensing and Diagnostic Module (SDM) serial data via the Data Link Connector (DLC), which is attached to the instrument panel lower right hand trim, to the right of the steering column (refer to [3.4 TECH 2 DIAGNOSTICS](#) in this Section).

HISTORY DTC'S

History DTC's are set upon the clearing of a current DTC fault condition. History DTC's are maintained by the SDM over multiple ignition cycles in the EEPROM. The SDM can only clear history DTC's from its EEPROM by a clear DTC's serial data message via TECH 2.

CLEARING FAULT CODES

Once any system fault has been rectified, any fault codes stored in the Sensing and Diagnostic Module's memory can be erased by using TECH 2 "Clear DTC's" selection, refer to [3.4 TECH 2 DIAGNOSTICS](#) in this Section.

IMPORTANT:

Once DTC's have been cleared, be sure to verify proper system operation and absence of any fault codes when clearing procedure is completed.

3.4 TECH 2 DIAGNOSTICS

TECH 2, with the appropriate software, cables and adaptors, when connected to the Data Link Connector (DLC) is capable of reading SRS serial data. The DLC is connected to the instrument panel lower right hand trim, to the right of the steering column.

For additional general information on connecting and operating TECH 2, refer to [Section 0C TECH 2](#).

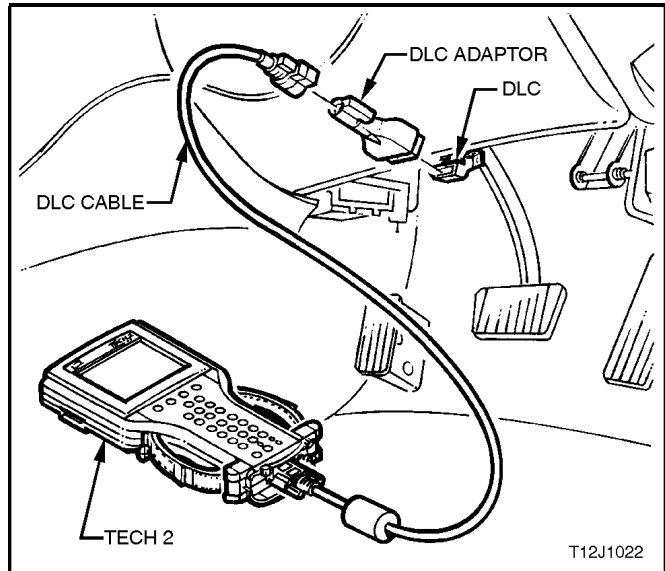


Figure 12M-52

TECH 2 has four test modes for diagnosing the SRS. The four test modes are as follows:

Mode F0: Normal Mode

In this mode, the TECH 2 monitors the communication between control modules on the serial data line. The information displayed on the TECH 2 screen in this mode is what the SDM is communicating to the other modules via the serial data line.

Mode F1: Diagnostic Trouble Codes

If F1: Diagnostic Trouble Codes is selected, a selection list is displayed which contains:

F0: Read DTC Information - Once this mode is selected, both current and history Diagnostic Trouble Codes (DTC's) stored in the control modules memory may be displayed. Additionally, the display will advise whether the DTC (both current or history) has been set on the current ignition cycle by displaying the word 'frozen', in brackets next to the word current or history. A precondition for this additional display is that the DTC must be present for longer than 10 seconds.

F1: Clear DTC Information - once this mode is selected, DTC's stored in the control module memory may be cleared.

Mode F2: Data Display

In this test mode, TECH 2 displays the status of inputs and outputs of the SRS.

Mode F3: Snapshot

In this test mode, the TECH 2 captures SRS data before and after a forced manual trigger.

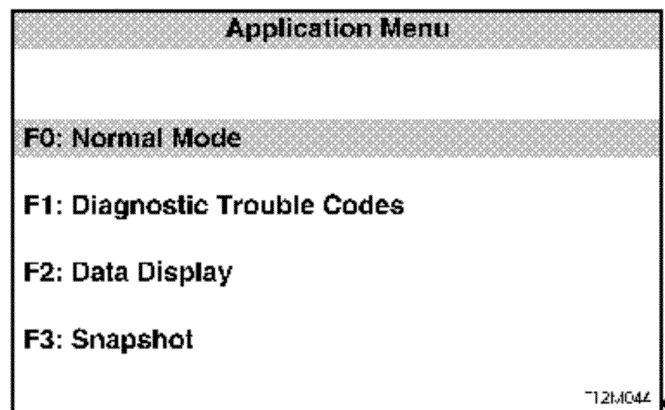


Figure 12M-53

3.5 TECH 2 TEST MODES AND DISPLAYS FOR SRS DIAGNOSIS

As a prerequisite to this diagnostic section is for the user to be familiar with the proper use of TECH 2, the following illustrate only the major TECH 2 screen displays and provide a brief explanation of their function for diagnosing the SRS. If additional information is required on the operation of TECH 2, reference should be made to either **Section 0C TECH 2** or the TECH 2 Operators Manual.

System Select Menu

With TECH 2 connected to the DLC, the F0: Diagnostics selected from the Main Menu, the correct Model Year and Vehicle Type must be selected for access to the System Select Menu.

Select F3: Body.

This mode contains all functions to test, diagnose, monitor and program the vehicles body systems including the SRS as well as providing the opportunity to check all DTC's that may be set in the vehicle.

Body Application Menu

Once F3: Body has been selected from the System Select Menu, SRS can be selected.

Select SRS.

NOTE:

If information regarding DTC's set for the vehicle is required, select DTC Check and press enter to continue. To return to the SRS mode option from the DTC Check mode option screen display, simply press the EXIT key on TECH 2.

Once the SRS has been selected, the following two System Identification screens will appear which require action.

System Identification

Turn the ignition ON (as requested) and press CONFIRM soft key to continue.

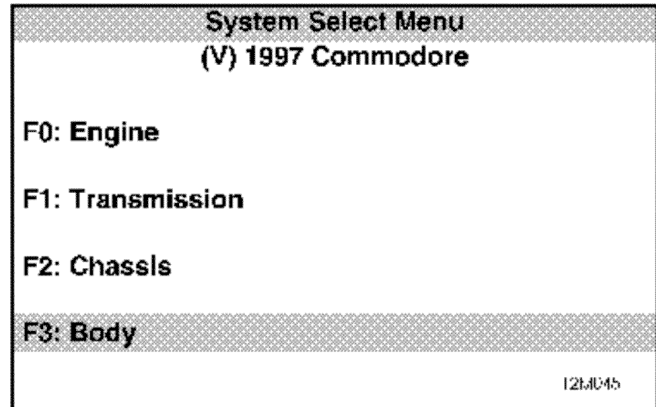


Figure 12L-54

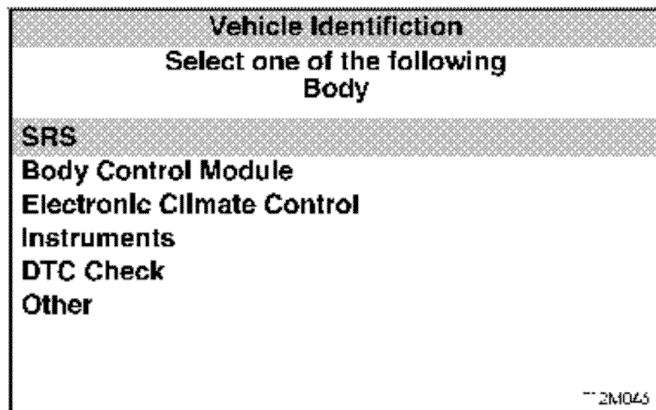


Figure 12L-55

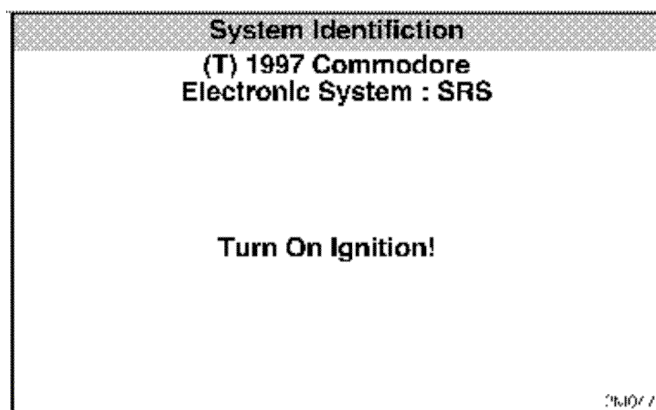


Figure 12L-56

The System Identification screen will then display the control module part number and production date. Press the CONFIRM soft key to continue to the SRS Application Menu.

NOTE:

There are different control modules for SRS which are depended on the system configuration (3 loops for pre-tensioners and driver's air bag only, and 4 loops for pre-tensioners and driver's and passenger's air bags) in the system. Always refer to the latest Holden spare parts microfiche / CD for the correct part number information.

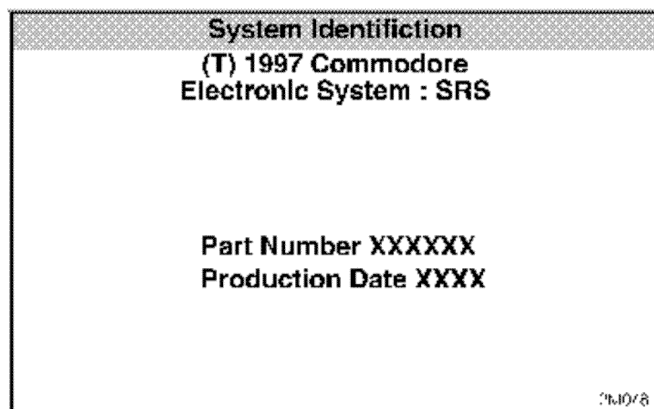


Figure 12L-57

Application Menu

The following functions will now be available:

F0: Normal Mode

F1: Diagnostic Trouble Codes

F2: Data Display

F3: Snapshot

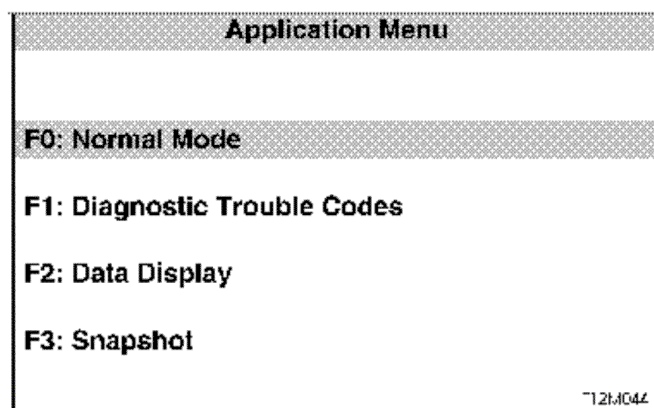


Figure 12L-58

F0: Normal Mode

In the F0: Normal Mode, information that the SDM is communicating to other control modules, via the serial data line, is displayed.

For example: As displayed opposite, the SRS warning lamp status is ON. This means the SDM is communicating with the instruments requesting the SRS warning lamp to be displayed.

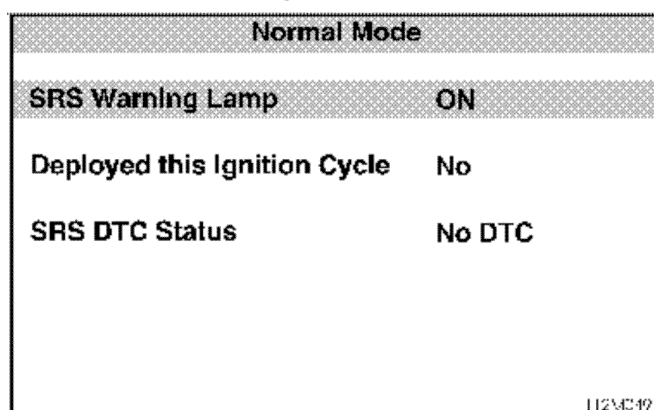


Figure 12L-59

F1: Diagnostic Trouble Codes

If F1: Diagnostic Trouble Codes is selected, a selection list is displayed which contains:

F0: Read DTC Information - If this mode is selected, a listing of all (if any) DTC's that have been set by the SDM will be displayed. Information displayed with the DTC number/s that have been set is; a short description of what the DTC is, whether it is a current or history code, and, if the DTC has been set for more than 10 seconds on the current ignition cycle, the word 'frozen' will be displayed in brackets next to the word current or history.

NOTE:

If any DTC's are set, reference should be made to the relevant diagnostic charts in this section.

F1: Clear DTC Information - DTC's can be cleared in this mode by simply selecting F1: CLEAR DTC INFORMATION, pressing the ENTER button on TECH 2 and confirming the action as instructed by TECH 2.

The following table sets out all the possible diagnostic trouble codes as indicated by TECH 2.

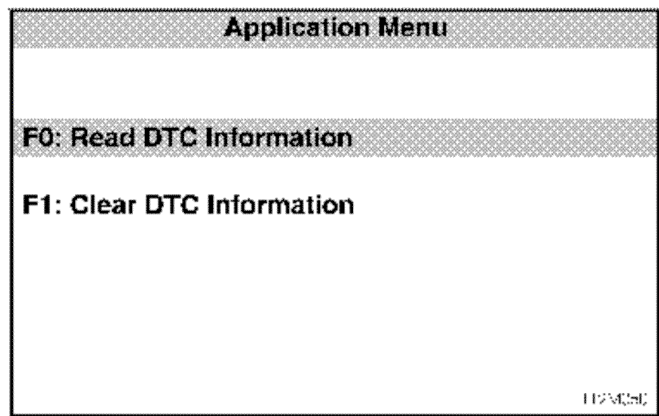


Figure 12L-60

DTC	CODE DESCRIPTION
13	Driver's air bag, circuit short to earth
14	Driver's belt pre-tensioner, circuit short to earth
15	Driver's air bag, circuit short to battery
16	Driver's pre-tensioner, circuit short to battery
23	Passenger's air bag, circuit short to earth
24	Passenger's pre-tensioner, circuit short to earth
25	Passenger's air bag, circuit short to battery
26	Passenger's pre-tensioner, circuit short to battery
31	Driver's air bag, open circuit, loop capacitance too low
32	Driver's air bag, short circuit, loop capacitance too high
33	Passenger's air bag, open circuit, loop capacitance too low
34	Passenger's air bag, short circuit, loop capacitance too high
35	Driver's pre-tensioner, open circuit, loop capacitance too low
36	Driver's pre-tensioner, short circuit, loop capacitance too high
37	Passenger's pre-tensioner, open circuit, loop capacitance too low
38	Passenger's pre-tensioner, short circuit, loop capacitance too high
53	Configuration mismatch: too little or too many loops in SRS (3 loops in a 4 loop system or 4 loops in a 3 loop system)
55	Internal SDM fault

F2: Data Display

In this test mode, TECH 2 displays the status of inputs and outputs of the SRS.

The following table lists each item contained in the data stream together with a brief description of its meaning.

DATA STREAM / SCREEN DISPLAY	DESCRIPTION
Battery Voltage	Displays current battery voltage (approximately 12 Volts).
Driver Air bag Loop Resistance	Displays the resistance in the driver's air bag (loop 1) circuit. The resistance should be approximately 2 ohms. If the resistance of this circuit is less than 1 ohm or greater than 8 ohms, a DTC will be set. (ohms)
Driver Air bag Loop Capacitance	Displays the capacitance in the driver's air bag (loop 1) circuit. The capacitance should be approximately 470 nF. If the capacitance reading is outside $\pm 14\%$ of this specification, a DTC will be set. (nF)
Driver Pre-tensioner Loop Resistance	Displays the resistance in the driver's pre-tensioner (loop 4) circuit. The resistance should be approximately 2 ohms. If the resistance of this circuit is less than 1 ohm or greater than 8 ohms, a DTC will be set. (ohms)
Driver Pre-tensioner Loop Capacitance	Displays the capacitance in the driver's pre-tensioner (loop 4) circuit. The capacitance should be approximately 470 nF. If the capacitance reading is outside $\pm 14\%$ of this specification, a DTC will be set. (nF)
Passenger Air bag Loop Resistance	Displays the resistance in the passenger's air bag (loop 2) circuit. The resistance should be approximately 2 ohms. If the resistance of this circuit is less than 1 ohm or greater than 8 ohms, a DTC will be set. (ohms)
Passenger Air bag Loop Capacitance	Displays the capacitance in the passenger's air bag (loop 2) circuit. The capacitance should be approximately 470 nF. If the capacitance reading is outside $\pm 14\%$ of this specification, a DTC will be set. (nF)
Passenger Pre-tensioner Loop Resistance	Displays the resistance in the passenger's pre-tensioner (loop 3) circuit. The resistance should be approximately 2 ohms. If the resistance of this circuit is less than 1 ohm or greater than 8 ohms, a DTC will be set. (ohms)
Passenger Pre-tensioner Loop Capacitance	Displays the capacitance in the passenger's pre-tensioner (loop 3) circuit. The capacitance should be approximately 470 nF. If the capacitance reading is outside $\pm 14\%$ of this specification, a DTC will be set. (nF)
SRS Lamp	Displays the current state of the SDM's internal SRS warning lamp driver. (on / off)
DTC Status	Will display 'No DTC' or 'DTC's Set' to indicate if any system faults (DTC's) are detected by the SDM. (No DTC's / DTC's set)
Driver Air Bag Loop	Display indicates whether the SDM has been programmed for the driver's air bag loop circuit (enabled / disabled).
Driver Pre-tensioner Loop	Display indicates whether the SDM has been programmed for the driver's pre-tensioner loop circuit (enabled / disabled).
Passenger Air Bag Loop	Display indicates whether the SDM has been programmed for the passenger's air bag loop circuit (enabled / disabled).
Passenger Pre-tensioner Loop	Display indicates whether the SDM has been programmed for the passenger's pre-tensioner loop circuit (enabled / disabled).

DATA STREAM / SCREEN DISPLAY	DESCRIPTION
Lamp Check	Display indicates the status of the SRS warning lamp during the lamp check (first 5 seconds after the ignition is switched on). (on / off)
Battery Voltage (after 3 sec)	Displays the vehicle system input voltage to the SDM. If voltage is below 9 volts or above 20 volts for more than 3 seconds, the SRS warning lamp is switched on. (<9 Volts / okay / >20 Volts)
Air Bag and Pre-tensioner Deployed	Display indicates whether the SDM has triggered an air bag and pre-tensioner deployment. If the SDM has triggered a deployment of the SRS, the SDM must be replaced. (yes / no)
Pre-tensioner Deployed	Display indicates whether the SDM has triggered a pre-tensioner deployment only. If the SDM has triggered a deployment of the SRS, the SDM must be replaced. (yes / no)
Energy Reserve	Display indicates if the status of the energy reserve. If the battery voltage falls below 7.5 volts, the energy reserve will be switched on. (on / off)
Serial Data From Instrument	Display indicates whether the instrument configuration of the SRS is correct. The instruments must be programmed for the SRS configuration of the vehicle; pre-tensioners only, pre-tensioners and drivers air bag, or pre-tensioners and drivers and passengers air bag. (yes / no)
BCM Poll	Display indicates whether the SDM is receiving a request (a poll via the serial data line) from the BCM for its status of deployment and malfunction data. (Received / Not Received)

Mode F3: Snapshot

In this test mode, the TECH 2 captures SRS data before and after a forced manual trigger.

3.6 DIAGNOSTIC CHARTS

INTRODUCTION

The following diagnostic charts are designed to provide fast and efficient fault location of the SRS. The diagnostic charts contain: a 'diagnostic chart', pertinent information, circuit diagrams, and where necessary, the steps are explained by the corresponding numbered paragraphs.

The following figure (Fig. 12M-61) illustrates the terminal layout of the various connectors used in the system. This illustration should be used in conjunction with the diagnostic chart circuit diagrams when checking circuit faults if the connector diagram is not included in the chart.

When carrying out wiring checks as directed to by the diagnostic charts, rather than probe terminals and connectors with incorrect sized multimeter connections, use the adaptors contained in connector test adaptor kit KM-609 and test lead set KM-609-20 in conjunction with SRS Diagnostic Test Kit SD28280. This will prevent any possibility of spreading or damaging wiring harness terminals and later on causing a system intermittent failure.

Figure 12M-62 illustrates the correct use and installation of the various components of the SRS Diagnostic Test Kit SD28280 and test lead set KM-609-20.

IMPORTANT:

UNDER NO CIRCUMSTANCES IS 12 VOLTS TO BE APPLIED TO THE DUMMY LOAD; SD28280B, AS THIS WILL DAMAGE THE INTERNAL RESISTOR IN THE LOAD, RENDERING THE DUMMY LOAD USELESS FOR ANY FURTHER DIAGNOSTIC WORK.

ENSURE THAT AT THE COMPLETION OF ANY DIAGNOSTIC PROCEDURE, ALL DIAGNOSTIC TOOLS ARE REMOVED AND ALL SRS COMPONENTS ARE CORRECTLY RECONNECTED.

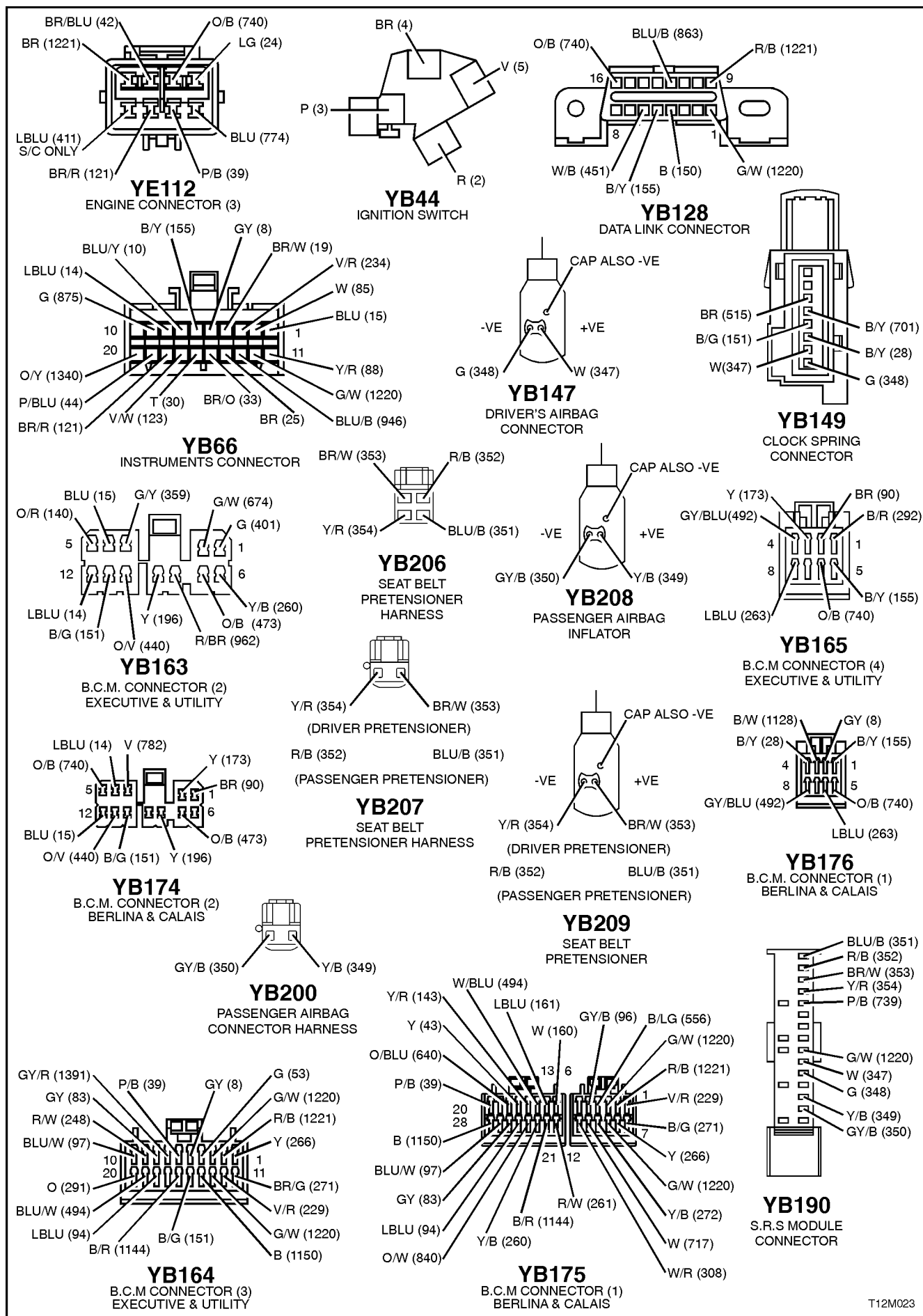


Figure 12M-61

T12M023

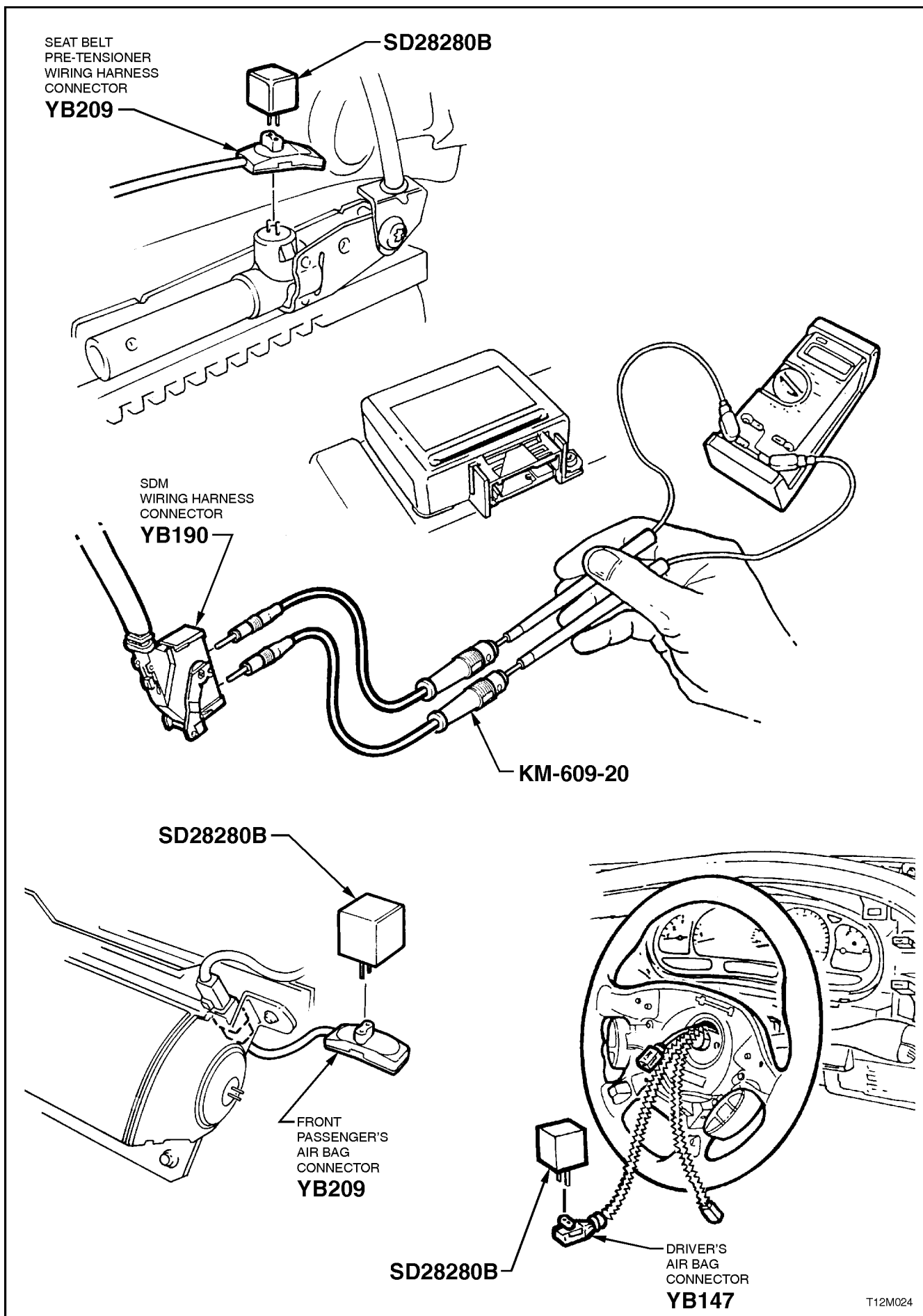


Figure 12M-62

CHART A - DIAGNOSTIC CIRCUIT CHECK

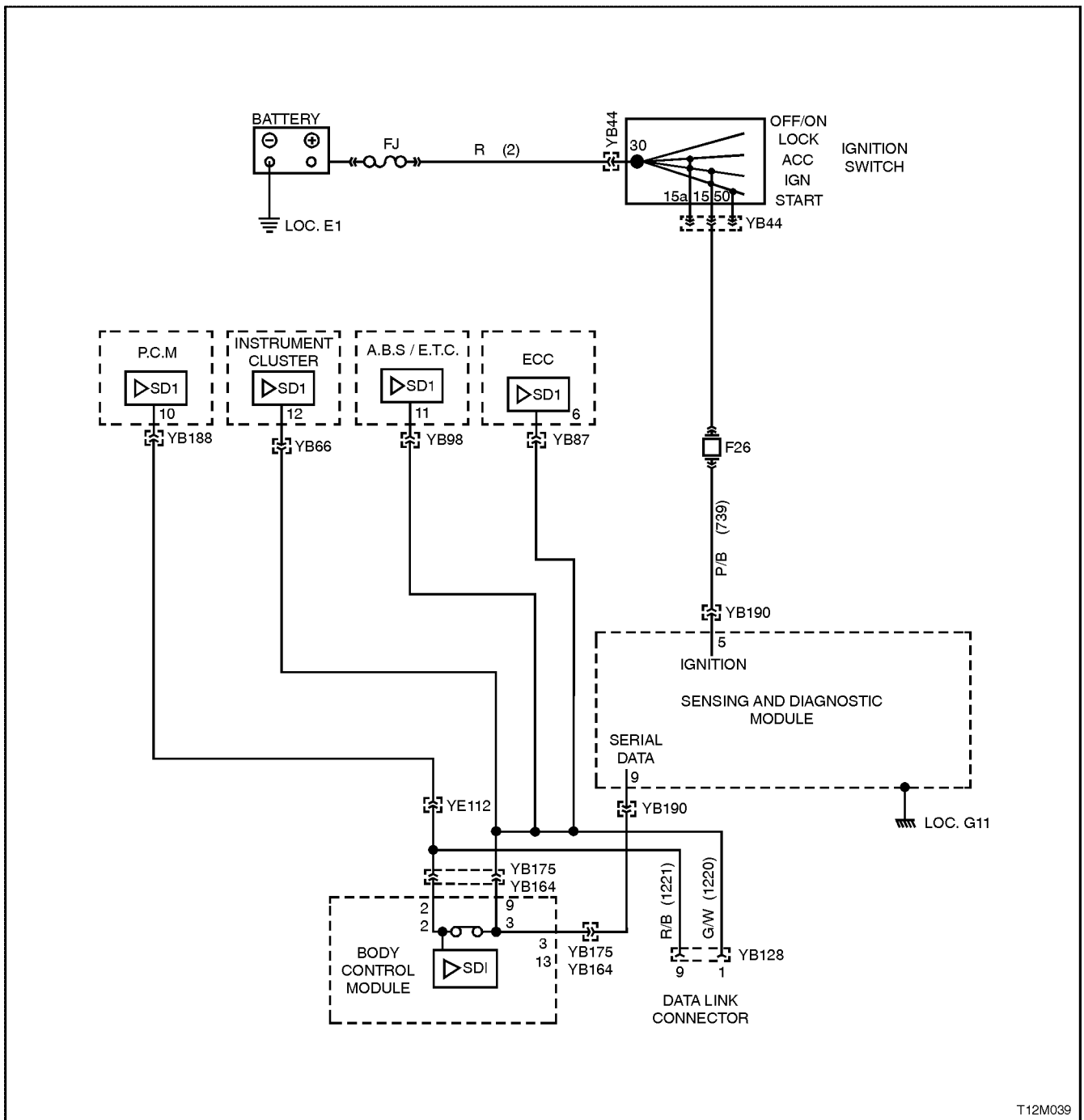


Figure 12M-63

CIRCUIT DESCRIPTION

When investigating any complaint of an SRS problem or malfunction, always begin diagnosis with the following diagnostic circuit check. This check is a preliminary procedure that checks to ensure the SDM is communicating on the serial data line as well as helping to identify a problem or malfunction and directing the reader to the appropriate diagnostic chart in this Section.

With TECH 2 connected to the DLC and the ignition switched on, TECH 2 should display serial data communication. If TECH 2 does not display serial data, the serial data circuit may be open or shorted.

There are several other control modules that are connected to the serial data line (PCM, BCM, ABS/ASR, ECC, instruments and SDM). ANY one of these control modules could cause a fault on the serial data line. This fault could result in TECH 2 not being able to display serial data.

TEST DESCRIPTION:

The numbers below refer to step numbers in diagnostic chart 'A'

- 1-2. This test is a functional check of the SRS warning lamp during a system self check.
3. Checks to see if TECH 2 can communicate with the SDM.
4. Uses TECH 2 to check for DTC's.
5. Determines if there is a fault in the serial data circuit (1221) between the BCM and PCM by starting the engine. If serial data was lost while the engine was running, the engine will restart but there will be a one second delay.
6. Checks fuse F26 and circuit 739 for short to earth.
7. Checks for power to SDM.
8. Checks earth connection at SDM.
9. Checks for continuity in circuit 1220 between SDM and BCM to determine if SDM is faulty.
10. Checks if fault is with BCM or open in circuit 1220 between BCM and SDM.

NOTES ON DIAGNOSTIC CHART:

1. Refer to [3.4 TECH 2 DIAGNOSTICS](#) in this Section for connecting and using TECH 2.
2. Refer to [Section 12P WIRING DIAGRAMS](#) for procedures on checking wiring faults.
3. To ensure none of the other control modules on the serial data circuit are causing this voltage problem, unplug each control module, one at a time, to isolate the short to voltage.

STEP	ACTION	VALUE	YES	NO
1.	<ul style="list-style-type: none"> Turn ignition ON while monitoring the SRS warning lamp in the instrument cluster. Does the SRS warning lamp illuminate? 		Go to Step 2.	Go to CHART B - 'SRS' WARNING LAMP INOPERATIVE, in this Section.
2.	<ul style="list-style-type: none"> After five seconds of the ignition being switched ON, does the SRS warning lamp turn OFF? 		Fault not present.	Go to Step 3
3.	<ul style="list-style-type: none"> Connect TECH 2 to DLC (refer to NOTE 1 above). Select Body / SRS / Turn ignition ON. Does TECH 2 display System Identification (ie. SDM part number)? 		Go to Step 4.	Go to Step 5.
4.	<ul style="list-style-type: none"> With TECH 2 connected, select Body / SRS / Diagnostic Trouble Codes / Read DTC Information. Are there any DTC's set? 		Check and repair fault causing DTC to set, refer to relevant diagnostic chart in this Section.	Go to CHART C 'SRS' WARNING LAMP ILLUMINATED (NO DTC'S STORED), in this Section.
5.	<ul style="list-style-type: none"> Will the engine crank and start immediately the key is turned from off to start (no delay)? 		Go to Step 6.	Go to PCM diagnostics in Section 6C1 POWERTRAIN MANAGEMENT - V6 ENGINE or Section 6C2 POWERTRAIN MANAGEMENT - V8 ENGINE.

STEP	ACTION	VALUE	YES	NO
6.	<ul style="list-style-type: none"> Check SDM fuse F26 in instrument panel compartment. Is fuse OK? 		Go to Step 7.	Check and repair short to earth in circuit 739. Replace fuse F26. Recheck and verify repair.
7.	<ul style="list-style-type: none"> Turn Ignition ON. Disconnect SDM connector YB190. Using SRS test lead set KM-609-20, measure voltage between the SDM connector YB190, terminal 5, circuit 739 (Pink/Black wire) and earth (refer to NOTE 2 above). Is voltage as specified? 	Battery +	Go to Step 8.	Check and repair open in circuit 739. Recheck and verify repair.
8.	<ul style="list-style-type: none"> Turn ignition OFF. Check for continuity between SDM earth (location G11) and a known good earth (refer to NOTE 2 above). Does continuity exist? 		Go to Step 9.	Repair earth as necessary. Recheck and verify repair.
9.	<ul style="list-style-type: none"> Disconnect SDM connector YB190. Check for continuity in circuit 1220 (Green/White wire) between BCM and SDM by back probing BCM connector YB164, terminal 3 (Low Series BCM) or YB175, terminal 9 (High Series BCM) and using SRS test lead set KM-609-20, probe SDM connector YB190, terminal 9 (refer to NOTE 2 above). <p>NOTE: Use SRS test lead set KM-609-20 to probe terminals on connector YB190.</p> <ul style="list-style-type: none"> Does continuity exist? 		Replace SDM, refer to 2.7 SENSING AND DIAGNOSTIC MODULE (SDM) in this Section. Recheck circuit to verify repair.	Go to Step 10.

STEP	ACTION	VALUE	YES	NO
10.	<ul style="list-style-type: none"> Disconnect BCM connector YB164 (Low Series BCM) or YB175 (Hight Series BCM). With SDM connector YB190 disconnected, check for continuity between BCM connector YB164, terminal 13 or YB175, terminal 3 and SDM connector YB190, terminal 9 (refer to NOTE 2 above). <p>NOTE: Use SRS test lead set KM-609-20 to probe terminals on connector YB190.</p> <ul style="list-style-type: none"> Does continuity exist? 		Replace BCM, refer to Section 12J-1 LOW SERIES BCM or Section 12J-2 HIGH SERIES BCM.	Repair open in circuit 1220 between SDM and BCM. Recheck and verify repair.
WHEN ALL DIAGNOSIS AND REPAIRS ARE COMPLETED, ENSURE ALL SRS COMPONENTS ARE RECONNECTED, CLEAR ALL DTC'S, ENABLE THE SRS AND VERIFY CORRECT OPERATION				

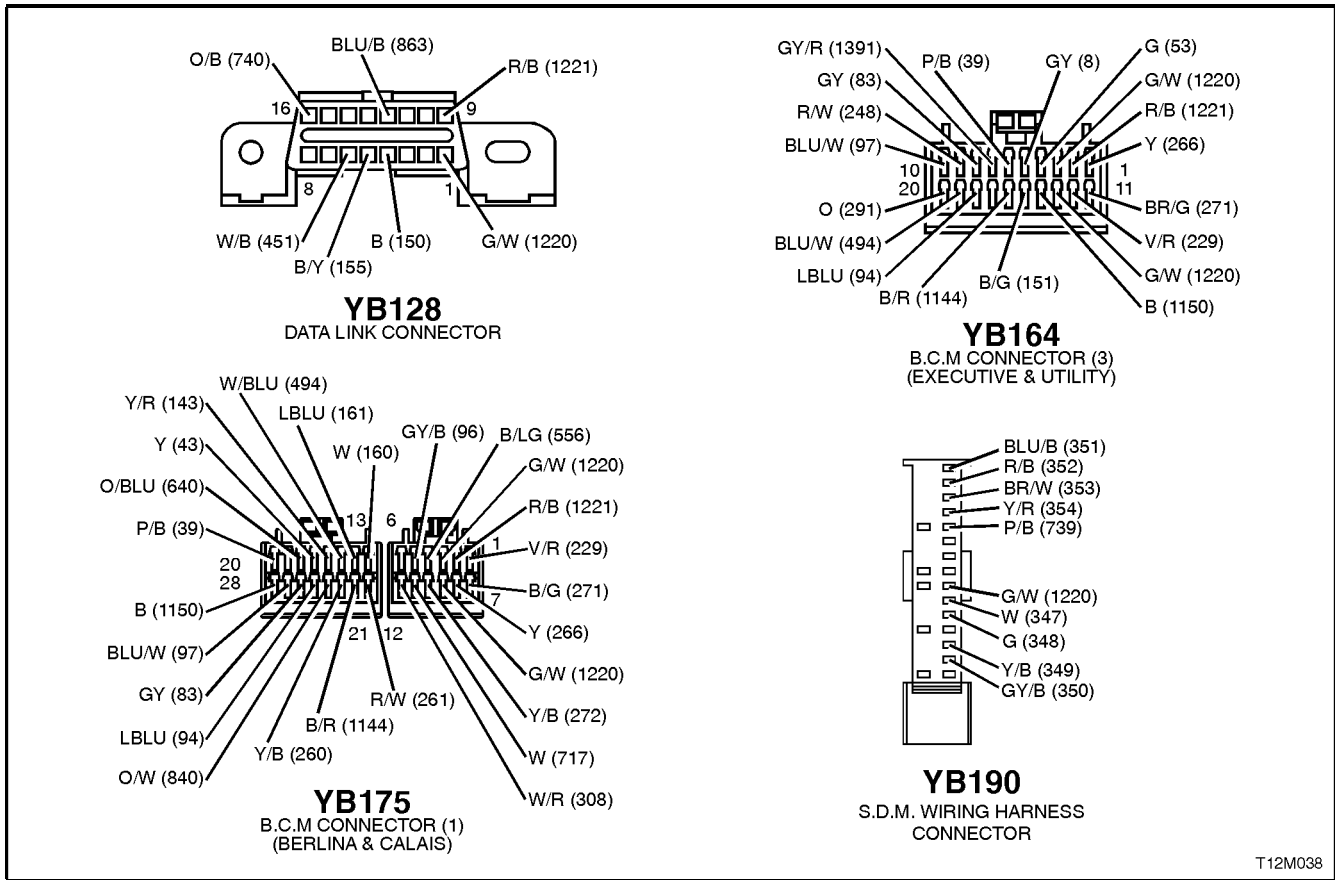


Figure 12M-64

CHART B - SRS WARNING LAMP INOPERATIVE

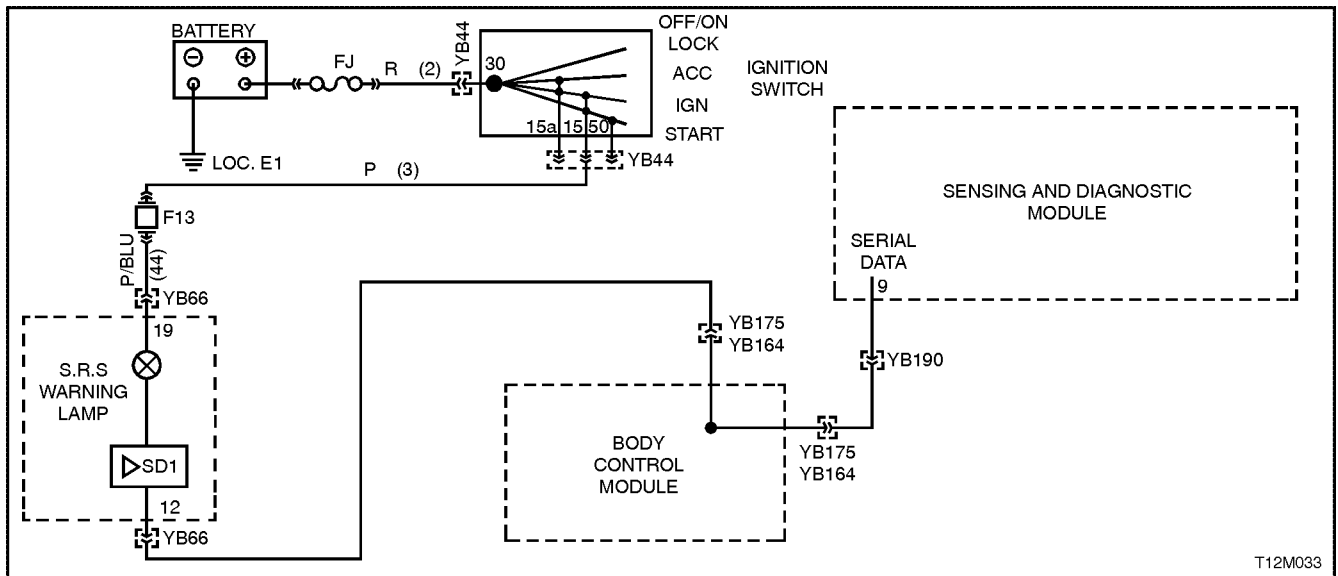


Figure 12M-65

CIRCUIT DESCRIPTION

Battery voltage is supplied to the SRS warning lamp with the ignition switch in the IGN or START positions through fuse F13 (located in the passenger compartment fuse panel). To illuminate the lamp, the SDM sends a serial data message to the instrument cluster, requesting the SRS lamp to illuminate.

The SRS warning lamp will be illuminated when:

The ignition is switched ON (system wiring and self check) and if no faults are detected, the SRS warning lamp will be turned OFF.

If communication is lost between the SDM and the instrument cluster.

If the instrument cluster has not been programmed for 3 or 4 loop system (configuration problem).

If battery voltage is below 9 volts or above 20 volts.

If the SRS is deployed.

If one or more current or history Diagnostic Trouble Codes (DTC's) are detected when the ignition is switched ON.

During an ignition cycle, if the SDM detects a current DTC, the SRS warning lamp will be illuminated.

If the energy reserve in the SDM is switched ON (battery voltage less than 7.5 volts). When TECH 2 is communicating with the SDM.

TEST DESCRIPTION:

The numbers below refer to step numbers in diagnostic chart B.

1. This test checks for any DTC's that may cause the SRS warning lamp to be inoperative.
2. This test determines if the SDM is faulty by using TECH 2 to drive the warning lamp on.
3. This is a simple test to determine if power is being supplied to the instrument cluster warning lamps (the SRS and ABS warning lamps share a common power source).
4. This step determines if the warning lamp bulb or socket is defective.
5. This test checks for a faulty voltage supply to the warning lamp

NOTES ON DIAGNOSTIC CHART:

1. Refer to **3.4 TECH 2 DIAGNOSTICS** in this Section for connecting and using TECH 2.
2. Refer to **Section 12P WIRING DIAGRAMS** for procedures on checking wiring faults.

STEP	ACTION	VALUE	YES	NO
1.	<ul style="list-style-type: none"> Install TECH 2 to DLC and select Body / SRS / Diagnostic Trouble Codes / Read DTC Information (refer to NOTE 1 above). Are any DTC's set? 		Repair conditions which set DTC's. Recheck and verify repair.	Go to Step 2.
2.	<ul style="list-style-type: none"> With TECH 2 still connected, select Body / Instruments / Miscellaneous Tests / Lamps and command the SRS warning lamp ON.(refer to NOTE 1 above). Does SRS warning lamp illuminate? 		Replace SDM, refer to 2.7 SENSING & DIAGNOSTIC MODULE (SDM) in this Section. Recheck circuit to verify repair.	Go to Step 3.
3.	<ul style="list-style-type: none"> Disconnect TECH 2 from DLC. Turn ignition on whilst observing ABS warning lamp. Does ABS warning lamp illuminate for approximately 5 seconds then turn OFF? 		Go to Step 4.	Go to Step 5.
4.	<ul style="list-style-type: none"> Remove instrument cluster, refer to Section 12C INSTRUMENTS, WIPERS/WASHERS AND HORN. Remove SRS warning lamp bulb and socket from instrument cluster and check warning lamp bulb condition. Is bulb and socket OK? 		Replace instrument cluster, refer to Section 12C INSTRUMENTS, WIPERS / WASHERS AND HORNS.	Replace SRS warning lamp bulb and/or socket. Recheck and verify repair.
5.	<ul style="list-style-type: none"> Remove instrument cluster, refer to Section 12C INSTRUMENTS, WIPERS/WASHERS AND HORN. Switch ignition on and measure voltage between connector YB66, terminal 19, circuit 44 (Pink/Blue wire) and earth (refer to NOTE 2 above). Is voltage as specified? 	Battery +	Fault not present. Check all system wiring harness connectors and terminals. Repair as necessary and recheck system to verify repair.	Check fusible link FJ and fuse F13. Check wiring between ignition switch and instrument cluster connector YB66. Check ignition switch contacts. Recheck circuit to verify repair.
WHEN ALL DIAGNOSIS AND REPAIRS ARE COMPLETED, ENSURE ALL SRS COMPONENTS ARE RECONNECTED, CLEAR ALL DTC'S, ENABLE THE SRS AND VERIFY CORRECT OPERATION				

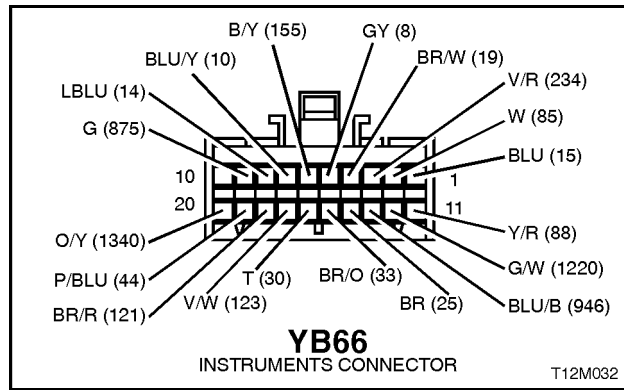


Figure 12L-66

CHART C - SRS WARNING LAMP ILLUMINATED (NO DTC'S STORED)

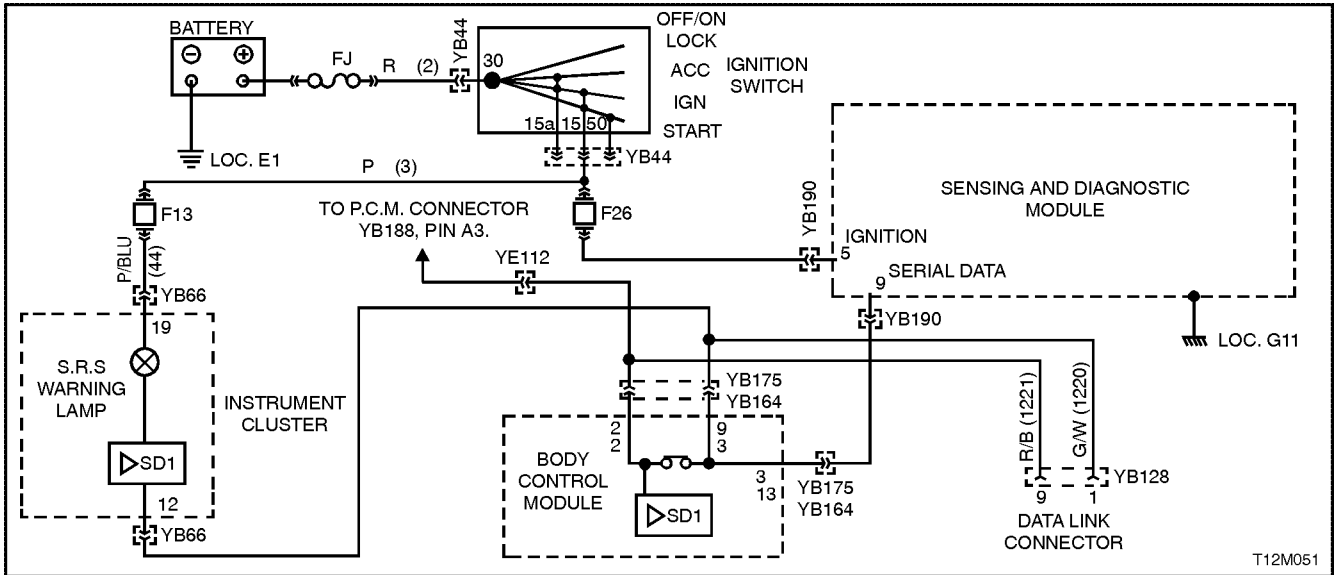


Figure 12M-67

CIRCUIT DESCRIPTION

Battery voltage is supplied to the SRS warning lamp with the ignition switch in the IGN or START positions through fuse F13 (located in the passenger compartment fuse panel). To illuminate the lamp, the SDM sends a serial data message to the instrument cluster (circuit 1220), requesting the SRS lamp to illuminate.

When the ignition is switched ON, the SRS warning lamp should illuminate for approximately five seconds to indicate the system start up sequence / system wiring and self check. If no system faults are detected, the SRS warning lamp will be switched OFF.

If a fault is detected (either during this system check or during the ignition cycle), the SRS warning lamp will either remain ON until the fault is remedied or if a DTC is set, until it is cleared. If a fault is remedied during an ignition cycle, unless the fault caused a DTC to set, the SRS warning lamp will turn OFF immediately.

The SRS SDM will send a serial data message to the instrument cluster requesting the lamp be illuminated if it detects any of the following: If the instrument cluster has not been programmed correctly for a 3 or 4 loop system (configuration problem). If battery voltage is below 9 volts or above 20 volts. If the energy reserve in the SDM is switched ON (battery voltage less than 7.5 volts). If the SRS is deployed. If the SDM does not receive a poll from the BCM. If one or more current or history DTC's are detected when the ignition is switched ON. During an ignition cycle, if the SDM detects a current DTC, the SRS warning lamp will be illuminated. When TECH 2 is communicating with the SDM.

The SRS warning lamp will also be illuminated if communication is lost (no serial data) between the SDM and the instrument cluster.

TEST DESCRIPTION:

The numbers below refer to step numbers in diagnostic chart 'B'

1. Ensures the Diagnostic Circuit Check was performed which determines if there is a serial data communication fault and checks if any DTC's are set.
2. Checks if fault is current or intermittent.
3. Using TECH 2, this step checks if the instruments have been configured correctly (3 loop or 4 loop system).
4. Using TECH 2, this step checks the voltage supply to the SDM. If battery voltage to the SDM falls below 9 volts or above 20 volts for more than 3 seconds, the SRS warning lamp is switched on.
5. Checks generator output.
6. Determines if the ignition input voltage at the SDM is approximately the same as what the generator output voltage was during Step 5.
7. Checks SDM earth connection.
8. Using TECH 2, this step checks if the energy reserve has been switched on. If the voltage supply to the SDM falls below 7.5 volts, the energy reserve in the SDM is switched on.
9. Using TECH 2, this step checks if the SDM has deployed the SRS.

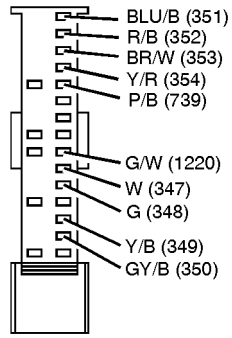
NOTES ON DIAGNOSTIC CHART:

1. Refer to **3.4 TECH 2 DIAGNOSTICS** in this Section for connecting and using TECH 2.
2. Refer to **Section 12P WIRING DIAGRAMS** for procedures on checking wiring faults.
3. Fault Intermittent; connect TECH 2 to DLC, select F3 Body / SRS / DATA DISPLAY and monitor the following to see if TECH 2 display changes state while wiggling circuit wires and/or road testing vehicle:
BATTERY VOLTAGE (AFTER 3 SEC)
AIR BAG & PRE-TENSIONER DEPLOYED
PRE-TENSIONER DEPLOYED
ENERGY RESERVE
CONFIGURATION FROM INSTRUMENTS
BCM POLL
Repair fault as necessary, recheck circuit to verify repair.
4. Refer to **Section 6D1-1 CHARGING SYSTEM - V6 ENGINE** or **Section 6D2-1 CHARGING SYSTEM - V8 ENGINE** for generator testing details.
5. If the vehicle is involved in an accident in which the SRS was deployed (even if only pre-tensioners were deployed) refer to **2.10 REPAIRS AND INSPECTION REQUIRED AFTER AN ACCIDENT** for information on system components that need to be replaced.

STEP	ACTION	VALUE	YES	NO
1.	· Was the Diagnostic Circuit Check performed?		Go to Step 2.	Go to CHART A - DIAGNOSTIC CIRCUIT CHECK in this Section.
2.	· Turn ignition ON. · Does SRS warning lamp remain illuminated after 5 seconds?		Go to Step 3.	Fault intermittent, refer to NOTE 3 above.
3.	· Connect TECH 2 to DLC and select Body / SRS / Data Display and scroll to SERIAL DATA FROM INSTRUMENTS (refer to NOTE 1 above).		Go to Step 4.	Program instruments, refer to Section 12C INSTRUMENTS, WIPERS / WASHERS AND HORNS.
4.	· Does TECH 2 display configuration from instruments is CORRECT? · With TECH 2 connected, and Body / SRS / Data Display selected, scroll to BATTERY VOLTAGE (AFTER 3 SEC). · Does TECH 2 display battery voltage (after 3 sec) is OKAY?		Go to Step 8.	Go to Step 5.
5.	· Carry out checks of generator output (refer to NOTE 4 above). · Is generator output OK?		Go to Step 6.	Repair generator as necessary. Recheck and verify repair.

STEP	ACTION	VALUE	YES	NO
6.	<ul style="list-style-type: none"> Disconnect SDM connector YB190. Start engine, turn headlamps ON and raise engine idle speed to approximately 2500 RPM. Using Tool KM-609-20, check voltage between SDM wiring harness connector YB190, terminal 5, circuit 739 and a known good earth (refer to NOTE 2 above). Is the voltage measured approximately the same as measured during Step 5 (generator output tests)? 		Go to Step 7.	Check and repair circuit 739 as necessary. Recheck and verify repair.
7.	<ul style="list-style-type: none"> Check for continuity between earth location G11 (at SDM) and SDM (refer to NOTE 2 above). Is the earth circuit OK? 		Replace SDM, refer to 2.7 SENSING & DIAGNOSTIC MODULE (SDM) in this Section. Recheck circuit to verify repair	Check and repair earth as necessary. Recheck and verify repair.
8.	<ul style="list-style-type: none"> With TECH 2 connected, and Body / SRS / Data Display selected, scroll to ENERGY RESERVE. Does TECH 2 display energy reserve OFF? 		Go to Step 9.	Go to Step 5.
9.	<ul style="list-style-type: none"> With TECH 2 connected, and Body / SRS / Data Display selected, scroll to AIR BAG & PRE-TENSIONER DEPLOYED and PRE-TENSIONER DEPLOYED. Does TECH 2 display either Air bag & pre-tensioner deployed YES or pre-tensioner deployed YES? 		Replace SDM, refer to 2.7 SENSING AND DIAGNOSTIC MODULE (SDM) in this Section. (see NOTE 5 above). Recheck circuit to verify repair.	Refer to BCM Air Bag Deployment vehicle shutdown diagnostics in Section 12J-1 LOW SERIES BCM or Section 12J-2 HIGH SERIES BCM.
WHEN ALL DIAGNOSIS AND REPAIRS ARE COMPLETED, ENSURE ALL SRS COMPONENTS ARE RECONNECTED, CLEAR ALL DTC'S, ENABLE THE SRS AND VERIFY CORRECT OPERATION				

YB190 S.D.M. WIRING HARNESS CONNECTOR



T12M052

Figure 12L-68

DTC 13 - DRIVER'S AIR BAG, CIRCUIT SHORT TO EARTH

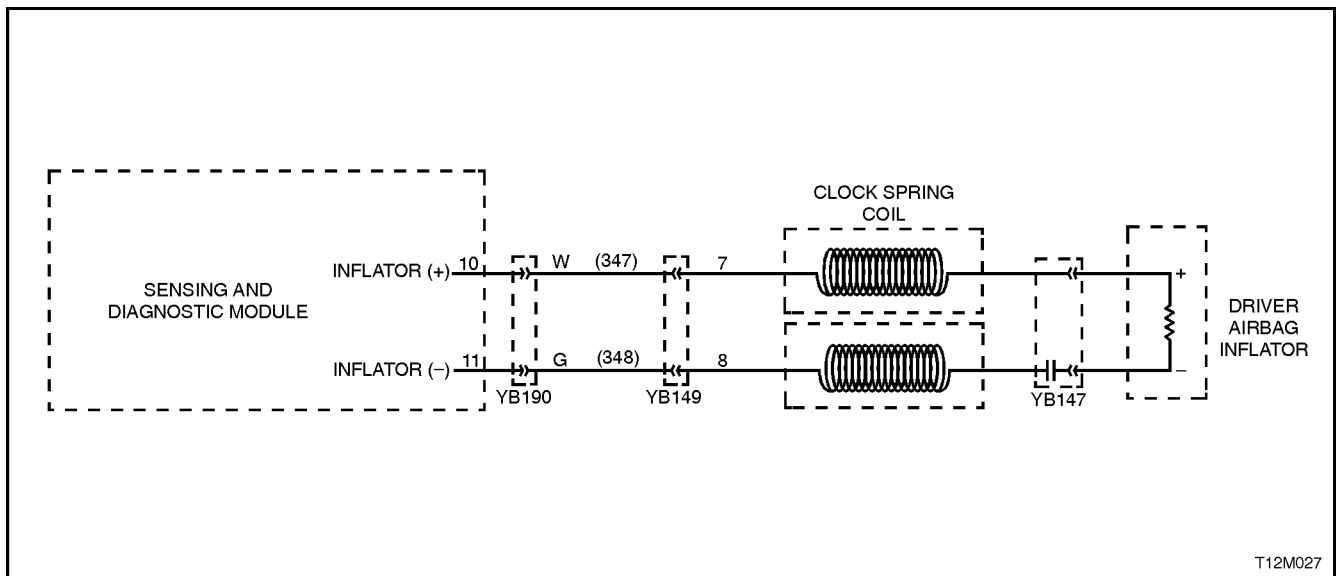


Figure 12M-69

CIRCUIT DESCRIPTION

At ignition on, and on a constant monitoring cycle of every 300 milliseconds during the ignition cycle, the SDM performs a system self check. If the SDM detects a resistance to earth of less than 4 kohms in either the positive or negative inflator circuit for more than 10 seconds, a current (frozen) DTC 13 will set.

DTC 13 will set If circuits 347 (Driver's air bag positive side) and/or 348 (driver's air bag negative side) are shorted to earth.

When DTC 13 sets, the SDM illuminates the SRS warning lamp and sets a 'current' DTC 13. Should the fault conditions detected by the SDM clear during the same ignition cycle, the current code will clear and become a 'history' DTC 13. The SRS warning lamp will remain on for the remainder of the ignition cycle.

If a DTC 13 is set, the SRS warning lamp is illuminated on each ignition cycle, even if the DTC is set as a history DTC, until the fault conditions for setting DTC 13 are rectified and the DTC (current or history) can then be cleared from the SDM via TECH 2.

If DTC 13 is set, the SRS, including the driver's air bag, will still be operational.

TEST DESCRIPTION:

Number/s below refer to Step numbers in the following diagnostic chart.

2. TECH 2 in this mode should display approximately 2.2 ohms if the driver's air bag loop circuit is OK.
3. & 4. If screen display changes during a wiring 'wiggle' test, a fault with the wiring is at that location.
5. Tool SD28280B is a dummy load taking the place of the horn bar and driver's air bag inflator module. If TECH 2 displays the correct resistance of the dummy load, the system fault is in the horn bar and driver's air bag inflator module assembly.

This test checks the wiring between the SDM wiring harness connector YB190, terminal 10 and the horn bar and driver's air bag inflator module connector YB147 for faults.

This test checks the wiring between the SDM wiring harness connector YB190, terminal 11 and the horn bar and driver's air bag inflator module connector YB147 for faults.

NOTES ON DIAGNOSTIC CHART

1. For all wiring harness checking procedures, refer to [Section 12P WIRING DIAGRAMS](#).
2. Refer to [2.8 SRS WIRING REPAIR](#) in this Section before conducting any SRS wiring harness repairs.
3. Refer to [Section 12N FUSES & WIRING HARNESSES](#) for SRS wiring harness routing.

Resistance cannot be measured between the two terminals in connector YB147 as the in-built capacitor blocks measurement. Therefore, a 'service hole' is incorporated into the connector for fault tracing. Refer to 1.1 SYSTEM COMPONENTS, [WIRING HARNESS](#) in this Section for more details on this type of connector.

TECH 2 screen display only needs to change status to indicate a short to earth in the SRS wiring harness. The actual DTC may not be displayed and in some instances an incorrect DTC may be displayed. If any DTC other than DTC 13 is displayed during this test, unless they become Frozen DTC's no action needs to be taken other than repairing the short to earth in the driver's air bag circuit. If another DTC becomes frozen, other than DTC 13, refer to the relevant diagnostic chart in this Section.

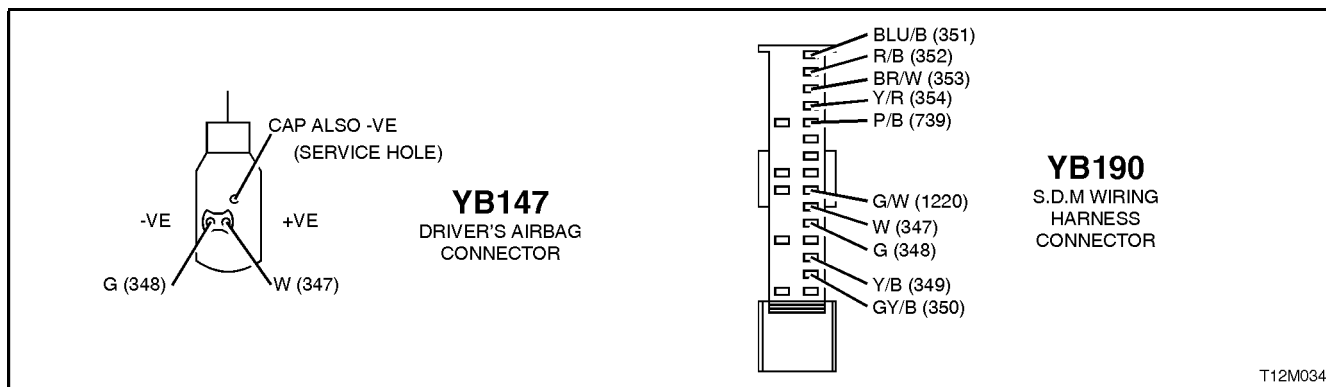


Figure 12M-70

STEP	ACTION	VALUE	YES	NO
1.	<ul style="list-style-type: none"> Connect TECH 2 to DLC. Select Body / SRS / Diagnostic Trouble Codes / Read DTC Information. Does TECH 2 display DTC 13 as a Current DTC? 		Go to Step 2.	Go to Step 3.
2.	<ul style="list-style-type: none"> With TECH 2 still connected, select Body / SRS / Data Display and scroll to DRIVER AIR BAG LOOP RESISTANCE. Does TECH 2 display approximately '2.2 OHMS'? 		Go to Step 3.	Go to Step 5.
3.	<ul style="list-style-type: none"> Remove steering column upper and lower cover. With TECH 2 still connected, select Diagnostic Trouble Codes / Clear DTC information and clear all (if any) DTC's. Select Diagnostic Trouble Codes / Read DTC Information, 'wiggle' SRS wiring harness at all locations between the SDM and the clock spring coil and monitor TECH 2 screen display. Does TECH 2 screen display change status from No Diagnostic Trouble Codes, refer to NOTE 5 above ? 		Go to Step 4.	Fault not present. Check all system wiring harness connectors, and terminals. Clear DTC and recheck system.

STEP	ACTION	VALUE	YES	NO
4.	<ul style="list-style-type: none"> Inspect wiring at point where TECH 2 screen display changes. If necessary split open wiring harness. Is fault identifiable? 		<p>Make repairs as necessary (refer to NOTE 2 above).</p> <p>Clear DTC and recheck system to verify repair.</p>	<p>Replace SRS wiring harness (refer to NOTE 3 above).</p> <p>Clear DTC and recheck system to verify repair.</p>
5.	<ul style="list-style-type: none"> Disable the SRS, refer to 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Remove horn bar and driver's air bag inflator module, refer to 2.3 HORN BAR AND AIR BAG MODULE ASSEMBLY in this Section. Connect Tool No. SD28280B to SRS wiring harness connector YB147. With TECH 2 still connected, select Body / SRS / Data Display and scroll to DRIVER AIR BAG LOOP RESISTANCE. Does TECH 2 display approximately '3.0 OHMS'? 		<p>Replace horn bar and driver's air bag inflator module assembly, refer to 2.3 HORN BAR AND AIR BAG MODULE ASSEMBLY in this Section.</p> <p>Clear DTC and recheck system to verify repair.</p>	Go to Step 6.

STEP	ACTION	VALUE	YES	NO
6.	<ul style="list-style-type: none"> Disconnect SDM wiring harness connector YB190 from the SDM. Remove Tool SD28280B from YB147. Using Tool KM-609-20, check wiring between SDM wiring harness connector YB190, terminals 10 and driver's air bag inflator module connector YB147, circuits 347 (White wire) for short to earth (refer to NOTE 1 above). Is all OK? 		Go to Step 7.	<p>Make repairs as necessary (refer to NOTE 2 above).</p> <p>Clear DTC and recheck system to verify repair.</p>
7.	<ul style="list-style-type: none"> With SDM wiring harness connector YB190 disconnected from the SDM and using Tool KM-609-20, check wiring between SDM wiring harness connector YB190, terminal 11 and driver's air bag inflator module connector YB147, circuit 348 (Green wire) for a short to earth (refer to NOTES 1 and 4 above). Is all OK? 		Replace SDM, refer to 2.7 SENSING AND DIAGNOSTIC MODULE in this Section. Recheck circuit to verify repair.	<p>Make repairs as necessary (refer to NOTE 2 above).</p> <p>Clear DTC and recheck system to verify repair.</p>
WHEN ALL DIAGNOSIS AND REPAIRS ARE COMPLETED, ENSURE ALL SRS COMPONENTS ARE RECONNECTED, CLEAR ALL DTC'S, ENABLE THE SRS AND VERIFY CORRECT OPERATION				

DTC 14 - DRIVER'S PRE-TENSIONER, CIRCUIT SHORT TO EARTH

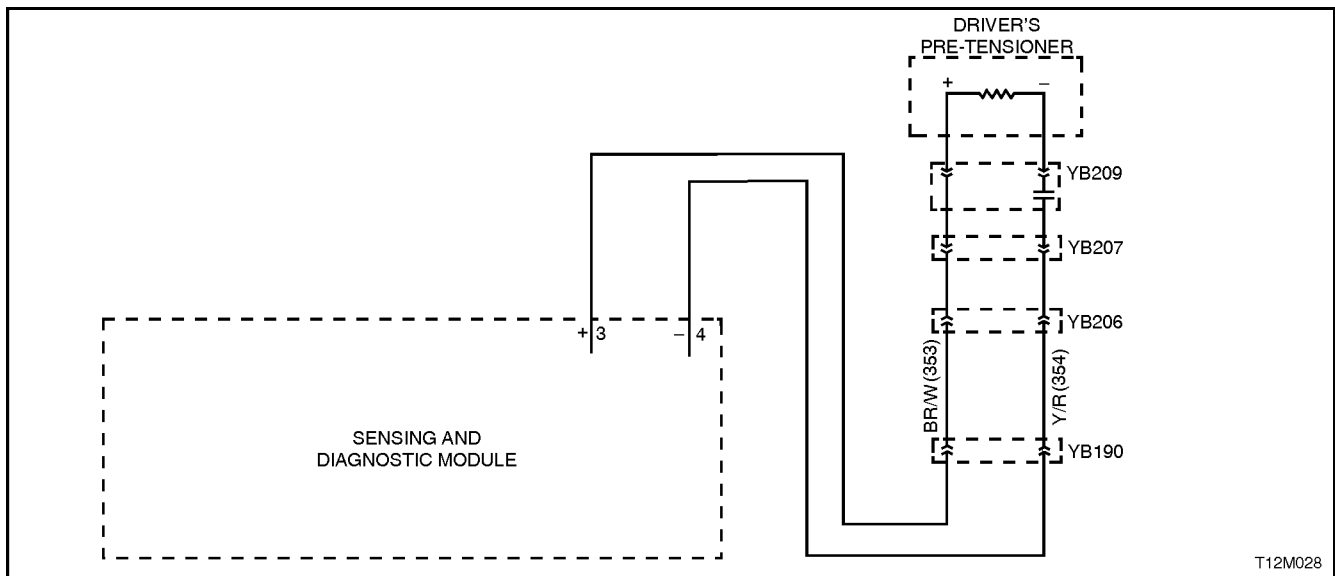


Figure 12M-71

CIRCUIT DESCRIPTION

At ignition on, and on a constant monitoring cycle of every 300 milliseconds during the ignition cycle, the SDM performs a system self check. If the SDM detects a resistance to earth of less than 4 kohms in either the positive or negative circuit for more than 10 seconds, a current (frozen) DTC 14 will set.

DTC 14 will set if circuits 353 (driver's pre-tensioner positive side) and/or 354 (driver's pre-tensioner negative side) are shorted to earth.

When DTC 14 sets, the SDM illuminates the SRS warning lamp and sets a current DTC 14. Should the fault conditions detected by the SDM clear during the same ignition cycle, the current code will clear and become a history DTC 14. The SRS warning lamp will remain on for the remainder of the ignition cycle.

If a DTC 14 is set, the SRS warning lamp is illuminated on each ignition cycle, even if the DTC is set as a history DTC, until the fault conditions for setting DTC 14 are rectified and the DTC (current or history) can then be cleared from the SDM via TECH 2.

If DTC 14 is set, the SRS, including the driver's pre-tensioner, will still be operational.

TEST DESCRIPTION

Number/s below refer to step numbers in the following diagnostic chart.

2. TECH 2 in this mode should display approximately 2.2 ohms if the driver's pre-tensioner loop circuit is OK.
3. & 4. If screen display changes during a wiring 'wiggle' test, a fault with the wiring is at that location.
5. Tool SD28280B is a dummy load taking the place of the pre-tensioner assembly. If TECH 2 displays the correct resistance of the dummy load, the system fault is in the pre-tensioner assembly.
6. This test checks the wiring between the SDM wiring harness connector YB190, terminal 3 and the driver's pre-tensioner connector YB209 for faults.
7. This test checks the wiring between the SDM wiring harness connector YB190, terminal 4 and the driver's pre-tensioner connector YB209 for faults.

NOTES ON DIAGNOSTIC CHART

1. For all wiring harness checking procedures, refer to [Section 12P WIRING DIAGRAMS](#).
2. Refer to [2.8 SRS WIRING REPAIR](#) in this Section before conducting any SRS wiring harness repairs.
3. Refer to [Section 12N, FUSES & WIRING HARNESES](#) for SRS wiring harness routing.

Resistance cannot be measured between the two terminals in connector YB209 as the in-built capacitor blocks measurement. Therefore, a 'service hole' is incorporated into the connector for fault tracing. Refer to 1.1 SYTSEM COMPONENTS, [WIRING HARNESS](#) in this Section for more details on this type of connector.

TECH 2 screen display only needs to change status to indicate a short to earth in the SRS wiring harness. The actual DTC may not be displayed and in some instances an incorrect DTC may be displayed. If any DTC other than DTC 14 is displayed during this test, unless they become Frozen DTC's no action needs to be taken other than repairing the short to earth in the driver's pre-tensioner circuit. If another DTC becomes frozen, other than DTC 14, refer to the relevant diagnostic chart in this Section.

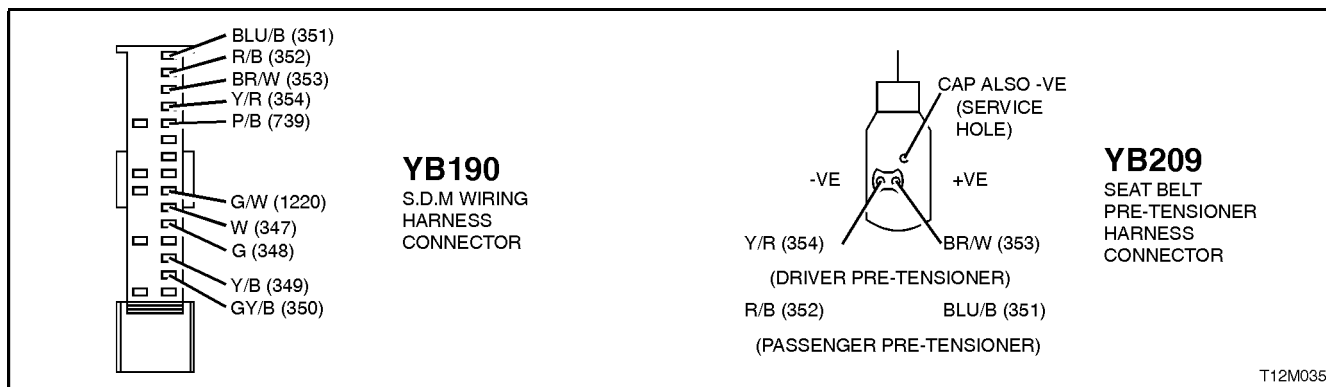


Figure 12M-72

STEP	ACTION	VALUE	YES	NO
1.	<ul style="list-style-type: none"> Connect TECH 2 to DLC. Select Body / SRS / Diagnostic Trouble Codes / Read DTC Information. Does TECH 2 display DTC 14 as a Current DTC? 		Go to Step 2.	Go to Step 3.
2.	<ul style="list-style-type: none"> With TECH 2 still connected to DLC, select Body / SRS / Data Display and scroll to 'DRIVER'S PRE-TENSIONER LOOP RESISTANCE'. Does TECH 2 display approximately '2.2 OHMS'? 		Go to Step 3.	Go to Step 5.
3.	<ul style="list-style-type: none"> With TECH 2 still connected, select Diagnostic Trouble Codes / Clear DTC information and clear all (if any) DTC's. Select Diagnostic Trouble Codes / Read DTC Information, 'wiggle' SRS wiring harness at all locations between the SDM and the pre-tensioner while monitoring TECH 2 screen display. Does TECH 2 screen display change status from No Diagnostic Trouble Codes, refer to NOTE 5 above ? 		Go to Step 4.	Fault not present. Check all system wiring harness connectors, and terminals. Clear DTC and recheck system.

STEP	ACTION	VALUE	YES	NO
4.	<ul style="list-style-type: none"> Inspect wiring at point where TECH 2 screen display changes. If necessary split open wiring harness. Is fault identifiable? 		<p>Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.</p>	<p>Replace SRS wiring harness (refer to NOTE 3 above). Clear DTC and recheck system to verify repair.</p>
5.	<ul style="list-style-type: none"> Disable the SRS, refer to 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Disconnect driver's pre-tensioner wiring harness connector YB209 from pre-tensioner. Connect Tool No. SD28280B to SRS wiring harness connector YB209. With TECH 2 still connected, select Body / SRS / Data Display and scroll to 'DRIVER'S PRE-TENSIONER LOOP RESISTANCE'. Does TECH 2 display approximately '3.0 OHMS'? 		<p>Replace driver's pre-tensioner assembly, refer to Section 1A7 SEAT AND SEAT BELT ASSEMBLIES. Clear DTC and recheck system to verify repair.</p>	Go to Step 6.

STEP	ACTION	VALUE	YES	NO
6.	<ul style="list-style-type: none"> Disconnect SDM wiring harness connector YB190 from the SDM. Remove Tool SD28280B from YB209. Using Tool KM-609-20, check wiring between SDM wiring harness connector YB190, terminals 3 and driver's pre-tensioner connector YB209, circuit 353 (Brown/White wire) for short to earth (refer to NOTE 1 above). Is all OK? 		Go to Step 7.	<p>Make repairs as necessary (refer to NOTE 2 above).</p> <p>Clear DTC and recheck system to verify repair.</p>
7.	<ul style="list-style-type: none"> With SDM wiring harness connector YB190 disconnected from the SDM and using Tool KM-609-20, check wiring between SDM wiring harness connector YB190, terminal 4 and driver's pre-tensioner connector YB209, circuit 354 (Yellow/Red wire) for a short to earth (refer to NOTES 1 and 4 above). Is all OK? 		Replace SDM, refer to 2.7 SENSING AND DIAGNOSTIC MODULE in this Section. Recheck circuit to verify repair.	<p>Make repairs as necessary (refer to NOTE 2 above).</p> <p>Clear DTC and recheck system to verify repair.</p>
WHEN ALL DIAGNOSIS AND REPAIRS ARE COMPLETED, ENSURE ALL SRS COMPONENTS ARE RECONNECTED, CLEAR ALL DTC'S, ENABLE THE SRS AND VERIFY CORRECT OPERATION				

DTC 15 - DRIVER'S AIR BAG, CIRCUIT SHORT TO BATTERY

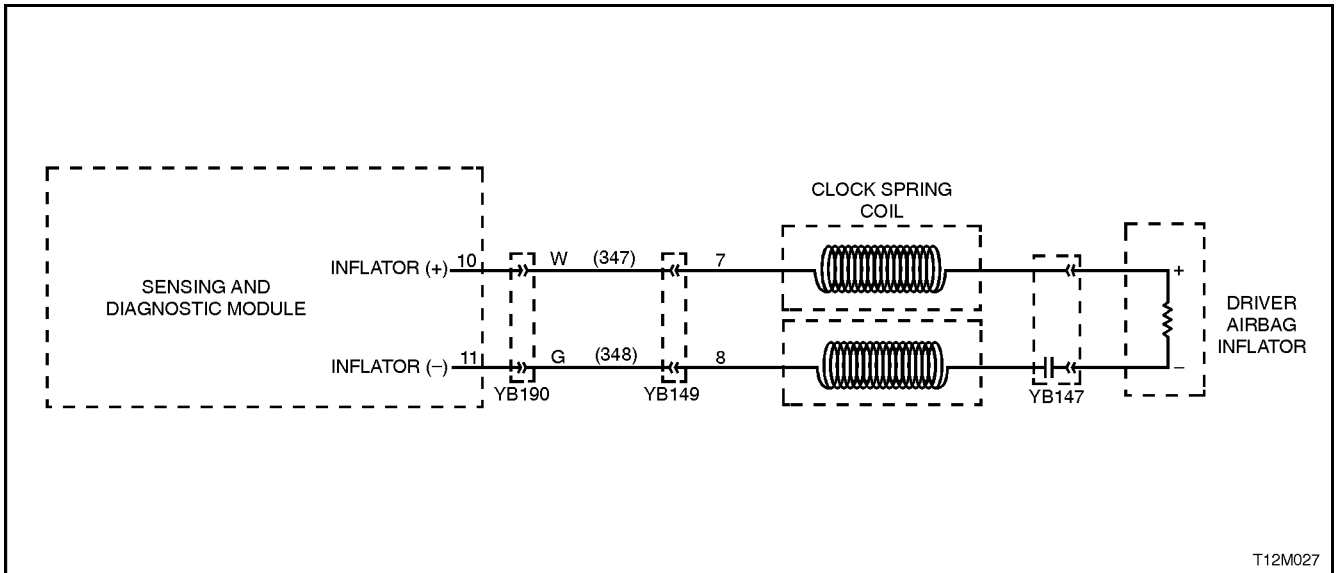


Figure 12M-73

CIRCUIT DESCRIPTION

At ignition on, and on a constant monitoring cycle of every 300 milliseconds during the ignition cycle, the SDM performs a system self check. If the SDM detects a resistance to battery supply is less than 30 kohms in either the positive and/or negative circuit for more than 10 seconds, a current (frozen) DTC 15 will set.

DTC 15 will set if circuits 347 (driver's air bag positive side) and/or 348 (driver's air bag negative side) are shorted to battery +.

When DTC 15 sets, the SDM illuminates the SRS warning lamp and sets a current DTC 15. Should the fault conditions detected by the SDM clear during the same ignition cycle, the current code will clear and become a history DTC 15. The SRS warning lamp will remain on for the remainder of the ignition cycle.

If a DTC 15 is set, the SRS warning lamp is illuminated on each ignition cycle, even if the DTC is set as a history DTC, until the fault conditions for setting DTC 15 are rectified and the DTC (current or history) can then be cleared from the SDM via TECH 2.

If DTC 15 is set, the SRS, including the driver's air bag, will still be operational.

NOTES ON DIAGNOSTIC CHART

1. For all wiring harness checking procedures, refer to **Section 12P WIRING DIAGRAMS**
2. Refer to **2.8 SRS WIRING REPAIR** in this Section before conducting any SRS wiring harness repairs.
3. Resistance cannot be measured between the two terminals in connector YB147 as the in-built capacitor blocks measurement. Therefore, a 'service hole' is incorporated into the connector for fault tracing. Refer 1.1 SYTSEM COMPONENTS, **WIRING HARNESS** in this Section for more details on this type of connector.

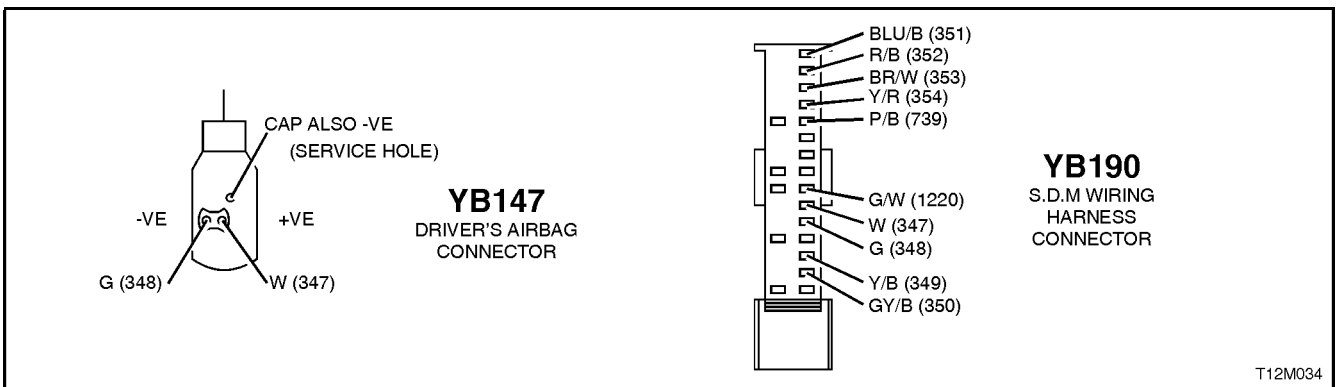


Figure 12M-74

STEP	ACTION	VALUE	YES	NO
1.	<ul style="list-style-type: none"> Disable the SRS, refer to 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Remove horn bar and driver's air bag inflator module, refer to 2.3 HORN BAR AND AIR BAG MODULE ASSEMBLY in this Section. Disconnect SDM wiring harness connector YB190 from the SDM. Reconnect battery. Using Tool KM-609-20, check wiring between SDM wiring harness connector YB190, terminals 10 and 11 and driver's air bag connector YB147, circuits 347 (White wire) and 348 (Green wire) for short to battery + (refer to NOTES 1 and 3 above). Is all OK? 		Replace SDM, refer to 2.7 SENSING AND DIAGNOSTIC MODULE in this Section. Recheck circuit to verify repair.	Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.
WHEN ALL DIAGNOSIS AND REPAIRS ARE COMPLETED, ENSURE ALL SRS COMPONENTS ARE RECONNECTED, CLEAR ALL DTC'S, ENABLE THE SRS AND VERIFY CORRECT OPERATION				

DTC 16 - DRIVER'S PRE-TENSIONER, CIRCUIT SHORT TO BATTERY

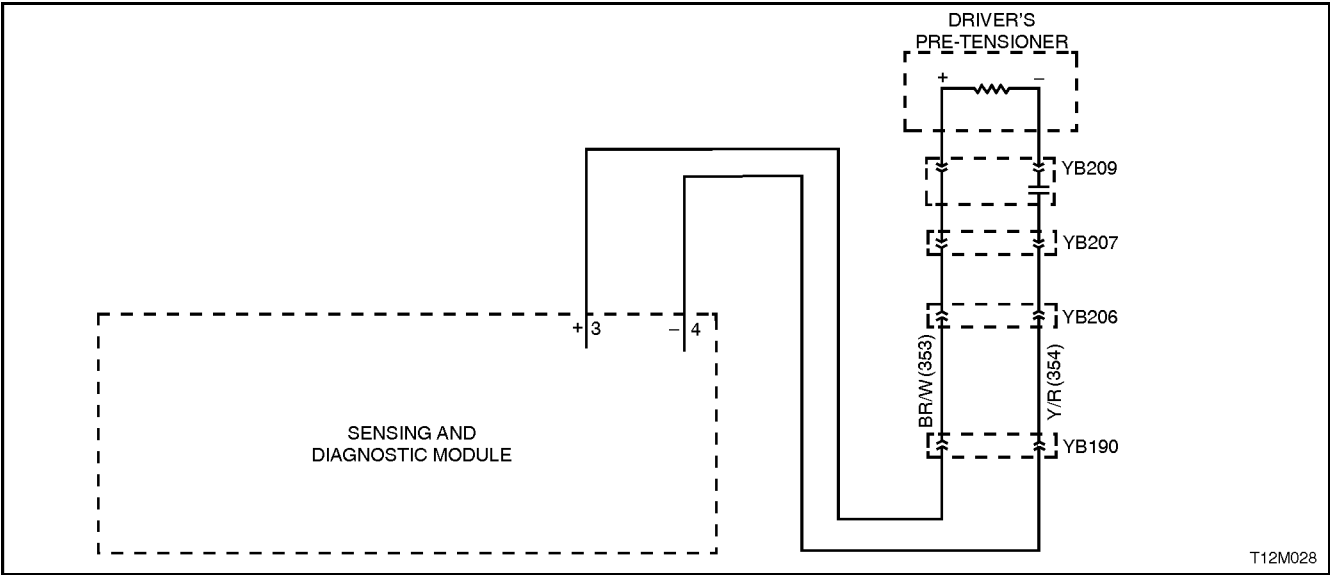


Figure 12M-75

CIRCUIT DESCRIPTION

At ignition on, and on a constant monitoring cycle of every 300 milliseconds during the ignition cycle, the SDM performs a system self check. If the SDM detects a resistance to battery supply is less than 30 kohms in either the positive and/or negative circuit for more than 10 seconds, a current (frozen) DTC 16 will set.

DTC 16 will set if circuits 353 (driver's pre-tensioner positive side) and/or 354 (driver's pre-tensioner negative side) are shorted to battery +.

When DTC 16 sets, the SDM illuminates the SRS warning lamp and sets a current DTC 16. Should the fault conditions detected by the SDM clear during the same ignition cycle, the current code will clear and become a history DTC 16. The SRS warning lamp will remain on for the remainder of the ignition cycle.

If a DTC 16 is set, the SRS warning lamp is illuminated on each ignition cycle, even if the DTC is set as a history DTC, until the fault conditions for setting DTC 16 are rectified and the DTC (current or history) can then be cleared from the SDM via TECH 2.

If DTC 16 is set, the SRS, including the driver's pre-tensioner, will still be operational.

NOTES ON DIAGNOSTIC CHART

1. For all wiring harness checking procedures, refer to [Section 12P WIRING DIAGRAMS](#).
2. Refer to [2.8 SRS WIRING REPAIR](#) in this Section before conducting any SRS wiring harness repairs.
3. Resistance cannot be measured between the two terminals in connector YB209 as the in-built capacitor blocks measurement. Therefore, a 'service hole' is incorporated into the connector for fault tracing. Refer to 1.1 SYTSEM COMPONENTS, [WIRING HARNESS](#) in this Section for more details on this type of connector.

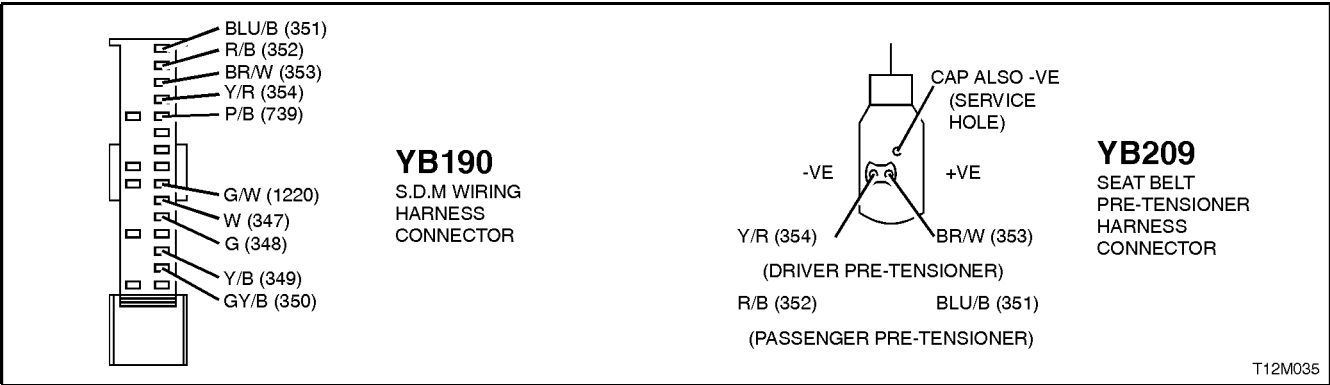


Figure 12M-76

STEP	ACTION	VALUE	YES	NO
1.	<ul style="list-style-type: none"> Disable the SRS, refer to 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Disconnect driver's pre-tensioner wiring harness connector YB209 from pre-tensioner. Disconnect SDM wiring harness connector YB190 from the SDM. Reconnect battery. Using Tool KM-609-20, check wiring between SDM wiring harness connector YB190, terminals 3 and 4 and driver's pre-tensioner connector YB209, circuits 353 (Brown/White wire) and 354 (Yellow/Red wire) for short to battery + (refer to NOTES 1 and 3 above). Is all OK? 		Replace SDM, refer to 2.7 SENSING AND DIAGNOSTIC MODULE in this Section. Recheck circuit to verify repair.	Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.
WHEN ALL DIAGNOSIS AND REPAIRS ARE COMPLETED, ENSURE ALL SRS COMPONENTS ARE RECONNECTED, CLEAR ALL DTC'S, ENABLE THE SRS AND VERIFY CORRECT OPERATION				

DTC 23 - PASSENGER'S AIR BAG, CIRCUIT SHORT TO EARTH

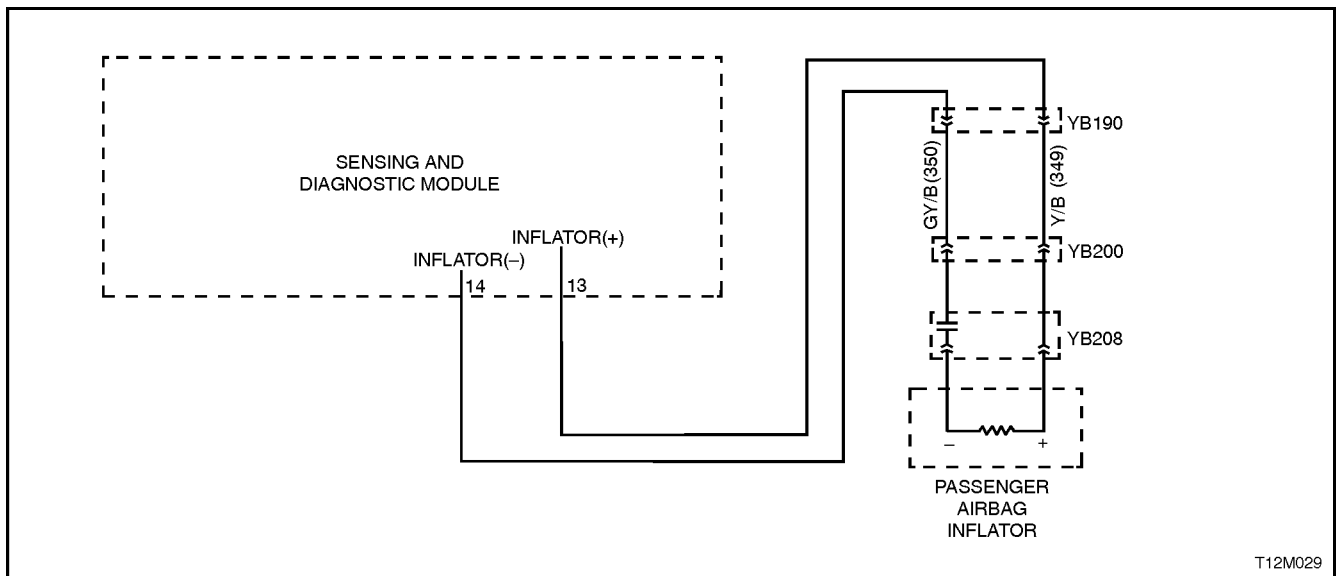


Figure 12M-77

CIRCUIT DESCRIPTION

At ignition on, and on a constant monitoring cycle of every 300 milliseconds during the ignition cycle, the SDM performs a system self check. If the SDM detects a resistance to earth of less than 4 kohms in either the positive or negative inflator circuit for more than 10 seconds, a current (frozen) DTC 23 will set.

DTC 23 will set if circuits 349 (pass. air bag positive side) and/or 350 (Pass. air bag negative side) are shorted to earth.

When DTC 23 sets, the SDM illuminates the SRS warning lamp and sets a current DTC 23. Should the fault conditions detected by the SDM clear during the same ignition cycle, the current code will clear and become a history DTC 23. The SRS warning lamp will remain on for the remainder of the ignition cycle.

If a DTC 23 is set, the SRS warning lamp is illuminated on each ignition cycle, even if the DTC is set as a history DTC, until the fault conditions for setting DTC 23 are rectified and the DTC (current or history) can then be cleared from the SDM via TECH 2.

If DTC 23 is set, the SRS, including the passenger's air bag, will still be operational.

TEST DESCRIPTION

Number/s below refer to Step numbers in the following diagnostic chart.

1. Uses TECH 2 to check if DTC 23 is current or history.
2. TECH 2 in this mode should display approximately 2.2 ohms if the passenger's air bag loop circuit is OK.
3. & 4. If screen display changes during a wiring 'wiggle' test, a fault with the wiring is at that location.
5. Tool SD28280B is a dummy load taking the place of the passenger's air bag inflator module. If TECH 2 displays the correct resistance of the dummy load, the system fault is in the passenger's air bag inflator module assembly.

This test checks the wiring between the SDM wiring harness connector YB190, terminal 13 and the passenger's air bag inflator module connector YB208 for faults.

This test checks the wiring between the SDM wiring harness connector YB190, terminal 14 and the passenger's air bag inflator module connector YB208 for faults.

NOTES ON DIAGNOSTIC CHART

1. For all wiring harness checking procedures, refer to [Section 12P WIRING DIAGRAMS](#).
2. Refer to [2.8 WIRING REPAIR](#) in this Section before conducting any SRS wiring harness repairs.
3. Refer to Section [12N FUSES & WIRING HARNESSES](#) for SRS wiring harness routing.

Resistance cannot be measured between the two terminals in connector YB208 as the in-built capacitor blocks measurement. Therefore, a 'service hole' is incorporated into the connector for fault tracing. Refer to 1.1 SYTSEM COMPONENTS, [WIRING HARNESS](#) in this Section for more details on this type of connector.

TECH 2 screen display only needs to change status to indicate a short to earth in the SRS wiring harness. The actual DTC may not be displayed and in some instances an incorrect DTC may be displayed. If any DTC other than DTC 23 is displayed during this test, unless they become Frozen DTC's no action needs to be taken other than repairing the short to earth in the passenger's air bag circuit. If another DTC becomes frozen, other than DTC 23, refer to the relevant diagnostic chart in this Section.

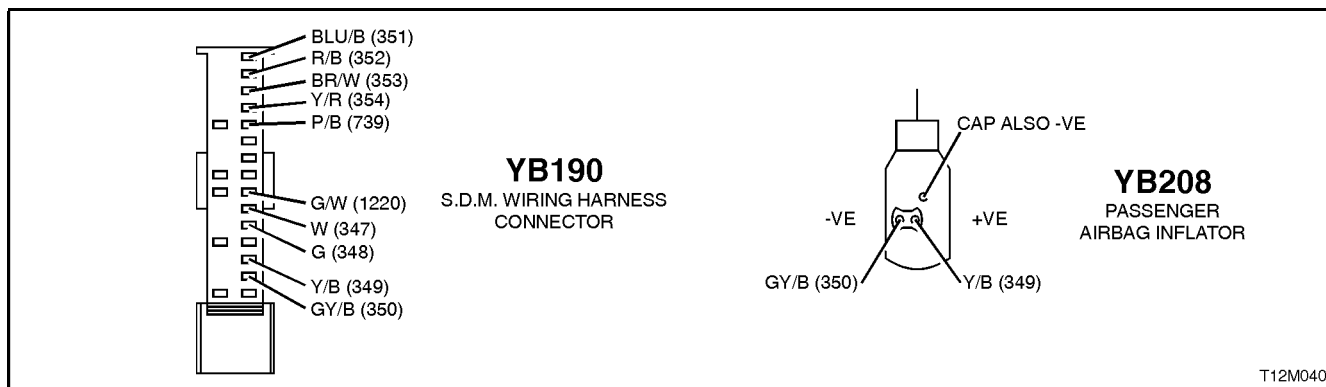


Figure 12M-78

STEP	ACTION	VALUE	YES	NO
1.	<ul style="list-style-type: none"> Connect TECH 2 to DLC. Select Body / SRS / Diagnostic Trouble Codes / Read DTC Information. Does TECH 2 display DTC 23 as a Current DTC? 		Go to Step 2.	Go to Step 3.
2.	<ul style="list-style-type: none"> With TECH 2 still connected to DLC, select Body / SRS / Data Display and scroll to PASSENGER'S AIR BAG LOOP RESISTANCE'. Does TECH 2 display approximately '2.2 OHMS'? 		Go to Step 3.	Go to Step 5.

STEP	ACTION	VALUE	YES	NO
3.	<ul style="list-style-type: none"> Remove instrument panel compartment to gain access to passenger's air bag, refer to Section 1A3 INSTRUMENT PANEL AND CONSOLE. With TECH 2 still connected, select Diagnostic Trouble Codes / Clear DTC information and clear all (if any) DTC's. Select Diagnostic Trouble Codes / Read DTC Information, 'wiggle' SRS wiring harness at all locations between the SDM and the passenger's air bag wiring harness connector YB208, while monitoring TECH 2 screen display. Does TECH 2 screen display change status from No Diagnostic Trouble Codes, refer to NOTE 5 above ? 		Go to Step 4.	<p>Fault not present. Check all system wiring harness connectors, and terminals.</p> <p>Clear DTC and recheck system.</p>
4.	<ul style="list-style-type: none"> Inspect wiring at point where TECH 2 screen display changes. If necessary split open wiring harness. Is fault identifiable? 		<p>Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.</p>	<p>Replace SRS wiring harness (refer to NOTE 3 above). Clear DTC and recheck system to verify repair.</p>

STEP	ACTION	VALUE	YES	NO
5.	<ul style="list-style-type: none"> Disable the SRS, refer to 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Disconnect passenger's air bag inflator module wiring harness connector YB208. Connect Tool No. SD28280B to SRS wiring harness connector YB208. With TECH 2 still connected, select Body / SRS / Data Display and scroll to PASSENGER'S AIR BAG LOOP RESISTANCE'. Does TECH 2 display approximately '3.0 OHMS'? 		<p>Replace passenger's air bag inflator module assembly, refer to 2.4 FRONT PASSENGER'S AIR BAG MODULE ASSEMBLY in this Section.</p> <p>Clear DTC and recheck system to verify repair.</p>	Go to Step 6.

STEP	ACTION	VALUE	YES	NO
6.	<ul style="list-style-type: none"> Disconnect SDM wiring harness connector YB190 from the SDM. Remove Tool SD28280B from YB208. Using Tool KM-609-20, check wiring between SDM wiring harness connector YB190, terminals 13 and passenger's air bag inflator module connector YB208, circuit 349 (Yellow/Black wire) for short to earth (refer to NOTE 1 above). Is all OK? 		Go to Step 7.	Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.
7.	<ul style="list-style-type: none"> With SDM wiring harness connector YB190 disconnected from the SDM and using Tool KM-609-20, check wiring between SDM wiring harness connector YB190, terminal 14 and passenger's air bag inflator module connector YB208, circuit 350 (Grey/Black wire) for a short to earth (refer to NOTES 1 and 4 above). Is all OK? 		Replace SDM, refer to 2.7 SENSING AND DIAGNOSTIC MODULE in this Section. Recheck circuit to verify repair.	Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.
WHEN ALL DIAGNOSIS AND REPAIRS ARE COMPLETED, ENSURE ALL SRS COMPONENTS ARE RECONNECTED, CLEAR ALL DTC'S, ENABLE THE SRS AND VERIFY CORRECT OPERATION				

DTC 24 - PASSENGER'S PRE-TENSIONER, CIRCUIT SHORT TO EARTH

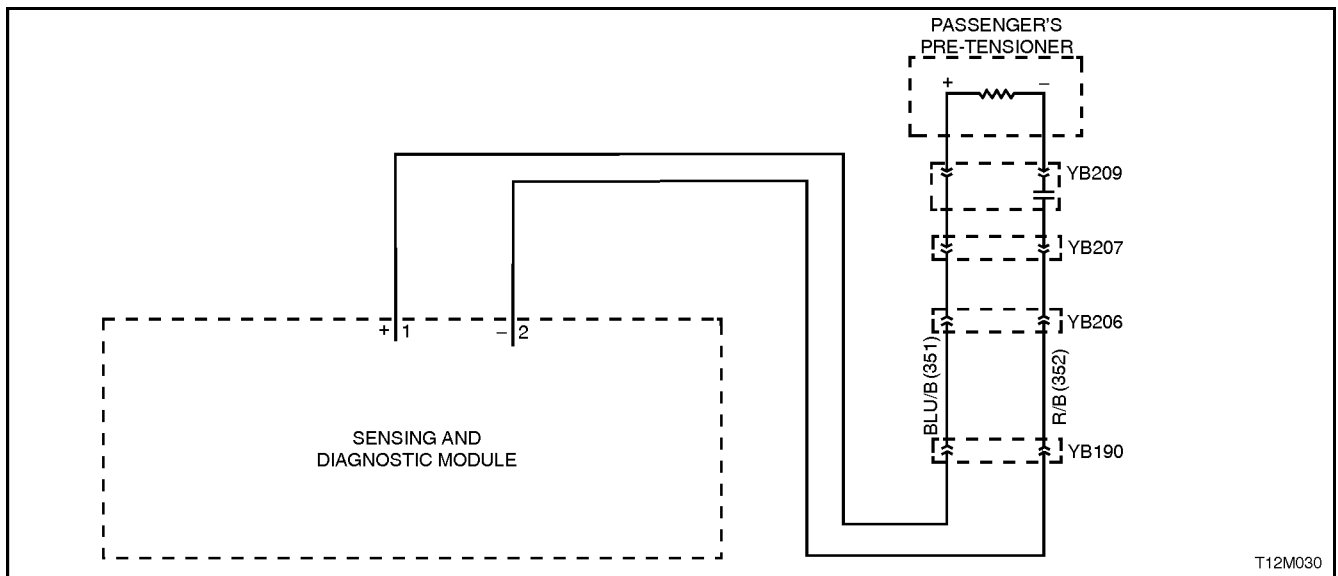


Figure 12M-79

CIRCUIT DESCRIPTION

At ignition on, and on a constant monitoring cycle of every 300 milliseconds during the ignition cycle, the SDM performs a system self check. If the SDM detects a resistance to earth of less than 4 kohms in either the positive or negative circuit for more than 10 seconds, a current (frozen) DTC 24 will set.

DTC 24 will set if circuits 351 (pass. pre-tensioner positive side) and/or 352 (pass. pre-tensioner negative side) are shorted to earth.

When DTC 24 sets, the SDM illuminates the SRS warning lamp and sets a current DTC 24. Should the fault conditions detected by the SDM clear during the same ignition cycle, the current code will clear and become a history DTC 24. The SRS warning lamp will remain on for the remainder of the ignition cycle.

If a DTC 24 is set, the SRS warning lamp is illuminated on each ignition cycle, even if the DTC is set as a history DTC, until the fault conditions for setting DTC 24 are rectified and the DTC (current or history) can then be cleared from the SDM via TECH 2.

If DTC 24 is set, the SRS, including the passenger's pre-tensioner, will still be operational.

TEST DESCRIPTION

Number/s below refer to step numbers in the following diagnostic chart.

2. TECH 2 in this mode should display approximately 2.2 ohms if the driver's pre-tensioner loop circuit is OK.
3. & 4. If screen display changes during a wiring 'wiggle' test, a fault with the wiring is at that location.
5. Tool SD28280B is a dummy load taking the place of the pre-tensioner assembly. If TECH 2 displays the correct resistance of the dummy load, the system fault is in the pre-tensioner assembly.
6. This test checks the wiring between the SDM wiring harness connector YB190, terminal 1 and the passenger's pre-tensioner connector YB209 for faults.
7. This test checks the wiring between the SDM wiring harness connector YB190, terminal 2 and the passenger's pre-tensioner connector YB209 for faults.

NOTES ON DIAGNOSTIC CHART

1. For all wiring harness checking procedures, refer to **Section 12P WIRING DIAGRAMS**.
2. Refer to SRS **2.8 WIRING REPAIR** in this Section before conducting any SRS wiring harness repairs.
3. Refer **Section 12N FUSES & WIRING HARNESSSES** for SRS wiring harness routing.

Resistance cannot be measured between the two terminals in connector YB209 as the in-built capacitor blocks measurement. Therefore, a 'service hole' is incorporated into the connector for fault tracing. Refer to 1.1 SYTSEM COMPONENTS, **WIRING HARNESS** in this Section for more details on this type of connector.

TECH 2 screen display only needs to change status to indicate a short to earth in the SRS wiring harness. The actual DTC may not be displayed and in some instances an incorrect DTC may be displayed. If any DTC other than DTC 24 is displayed during this test, unless they become Frozen DTC's no action needs to be taken other than repairing the short to earth in the passenger's pre-tensioner circuit. If another DTC becomes frozen, other than DTC 24, refer to the relevant diagnostic chart in this Section.

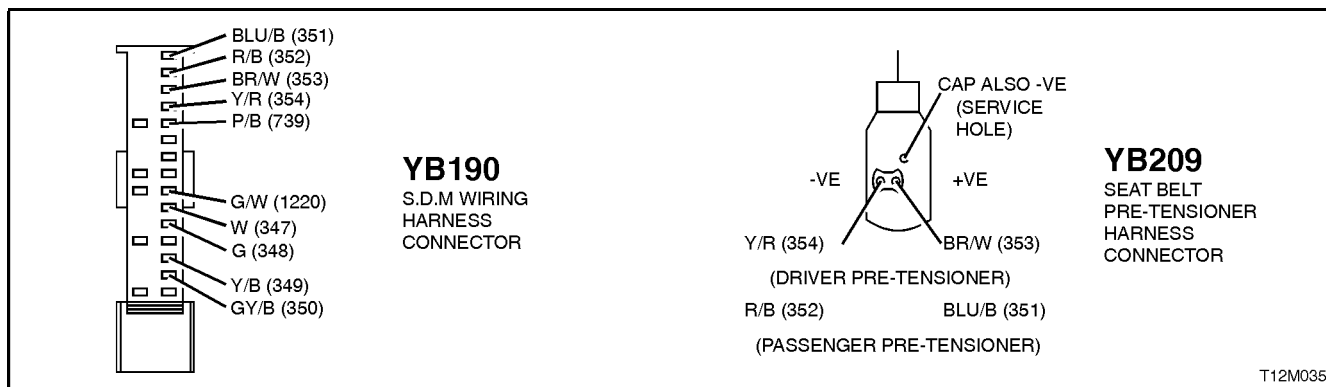


Figure 12M-80

STEP	ACTION	VALUE	YES	NO
1.	<ul style="list-style-type: none"> Connect TECH 2 to DLC. Select Body / SRS / Diagnostic Trouble Codes / Read DTC Information. Does TECH 2 display DTC 24 as a Current DTC? 		Go to Step 2.	Go to Step 3.
2.	<ul style="list-style-type: none"> With TECH 2 still connected, select Body / SRS / Data Display and scroll to 'PASSENGER'S PRE-TENSIONER LOOP RESISTANCE'. Does TECH 2 display approximately '2.2 OHMS'? 		Go to Step 3.	Go to Step 5.
3.	<ul style="list-style-type: none"> With TECH 2 still connected, select Diagnostic Trouble Codes / Clear DTC information and clear all (if any) DTC's. Select Diagnostic Trouble Codes / Read DTC Information, 'wiggle' SRS wiring harness at all locations between the SDM and the passenger's pre-tensioner wiring harness connector YB209, while monitoring TECH 2 screen display. Does TECH 2 screen display change status from No Diagnostic Trouble Codes, refer to NOTE 5 above ? 		Go to Step 4.	Fault not present. Check all system wiring harness connectors, and terminals. Clear DTC and recheck system.

STEP	ACTION	VALUE	YES	NO
4.	<ul style="list-style-type: none"> Inspect wiring at point where TECH 2 screen display changes. If necessary split open wiring harness. Is fault identifiable? 		<p>Make repairs as necessary (refer to NOTE 2 above).</p> <p>Clear DTC and recheck system to verify repair.</p>	<p>Replace SRS wiring harness (refer to NOTE 3 above).</p> <p>Clear DTC and recheck system to verify repair.</p>
5.	<ul style="list-style-type: none"> Disable the SRS, refer to 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Disconnect passenger's pre-tensioner wiring harness connector YB209 from pre-tensioner. Connect Tool No. SD28280B to SRS wiring harness connector YB209. With TECH 2 still connected, select Body / SRS / Data Display and scroll to 'PASSENGER'S PRE-TENSIONER LOOP RESISTANCE'. Does TECH 2 display approximately '3.0 OHMS'? 		<p>Replace passenger's pre-tensioner assembly, refer to Section 1A7 SEAT AND SEAT BELT ASSEMBLIES.</p> <p>Clear DTC and recheck system to verify repair.</p>	Go to Step 6.

STEP	ACTION	VALUE	YES	NO
6.	<ul style="list-style-type: none"> Disconnect SDM wiring harness connector YB190 from the SDM. Remove Tool SD28280B from YB209. Using Tool KM-609-20, check wiring between SDM wiring harness connector YB190, terminals 1 and passenger's pretensioner connector YB209, circuit 351 (Blue/Brown wire) for short to earth (refer to NOTE 1 above). Is all OK? 		Go to Step 7.	Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.
7.	<ul style="list-style-type: none"> With SDM wiring harness connector YB190 disconnected from the SDM and using Tool KM-609-20, check wiring between SDM wiring harness connector YB190, terminal 2 and passenger's pretensioner connector YB209, circuit 352 (Red/Black wire) for a short to earth (refer to NOTES 1 and 4 above). Is all OK? 		Replace SDM, refer to 2.7 SENSING AND DIAGNOSTIC MODULE in this Section. Recheck circuit to verify repair.	Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.
WHEN ALL DIAGNOSIS AND REPAIRS ARE COMPLETED, ENSURE ALL SRS COMPONENTS ARE RECONNECTED, CLEAR ALL DTC'S, ENABLE THE SRS AND VERIFY CORRECT OPERATION				

DTC 25 - PASSENGER'S AIR BAG, CIRCUIT SHORT TO BATTERY

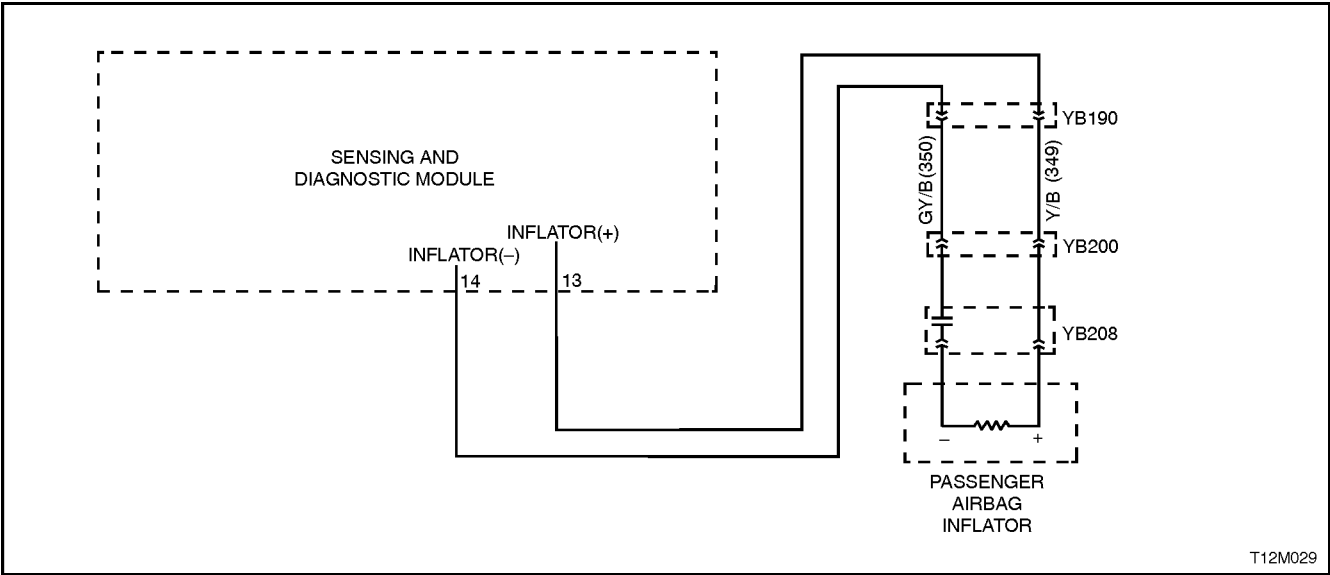


Figure 12M-81

CIRCUIT DESCRIPTION

At ignition on, and on a constant monitoring cycle of every 300 milliseconds during the ignition cycle, the SDM performs a system self check.

If the SDM detects a resistance to battery supply is less than 30 kohms in either the positive and/or negative circuit for more than 10 seconds, a current (frozen) DTC 25 will set.

DTC 25 will set if circuits 349 (passenger's air bag positive side) and/or 350 (passenger's air bag negative side) are shorted to battery +.

When DTC 25 sets, the SDM illuminates the SRS warning lamp and sets a current DTC 25. Should the fault conditions detected by the SDM clear during the same ignition cycle, the current code will clear and become a history DTC 25. The SRS warning lamp will remain on for the remainder of the ignition cycle.

If a DTC 25 is set, the SRS warning lamp is illuminated on each ignition cycle, even if the DTC is set as a history DTC, until the fault conditions for setting DTC 25 are rectified and the DTC (current or history) can then be cleared from the SDM via TECH 2.

If DTC 25 is set, the SRS, including the passenger's air bag, will still be operational.

NOTES ON DIAGNOSTIC CHART

- For all wiring harness checking procedures, refer to [Section 12P WIRING DIAGRAMS](#).
 - Refer to [2.8 SRS WIRING REPAIR](#) in this Section before conducting any SRS wiring harness repairs.
- Resistance cannot be measured between the two terminals in connector YB208, as the inbuilt capacitor blocks measurement. Therefore, a 'service hole' is incorporated into the connector for fault tracing. Refer to 1.1 SYTSEM COMPONENTS, [WIRING HARNESS](#) in this Section for more details on this type of connector.

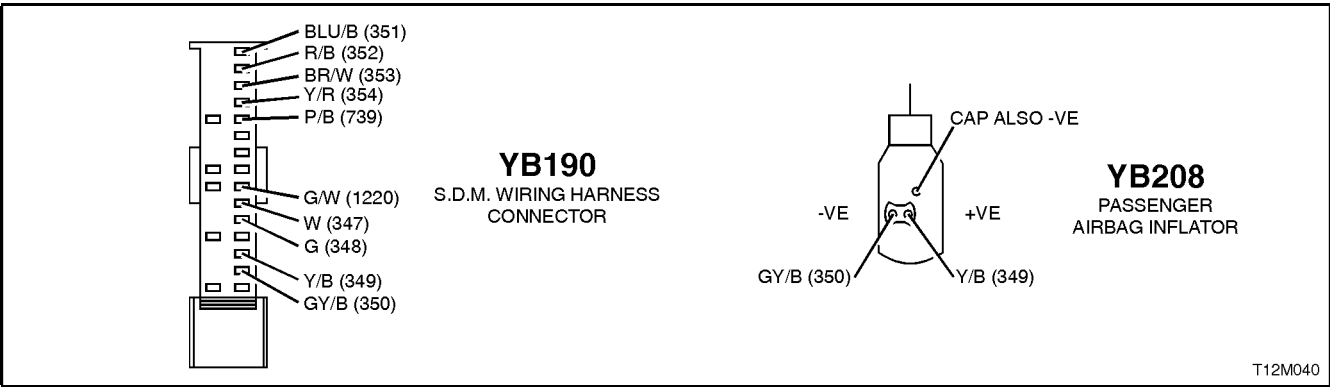


Figure 12M-82

STEP	ACTION	VALUE	YES	NO
1.	<ul style="list-style-type: none"> Disable the SRS, refer to 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Disconnect passenger's air bag inflator module wiring harness connector YB208. Disconnect SDM wiring harness connector YB190 from the SDM. Reconnect battery. Using Tool KM-609-20, check wiring between SDM wiring harness connector YB190, terminals 13 and 14 and passenger's air bag connector YB208, circuits 349 (Yellow/Black wire) and 350 (Grey/Black wire) for short to battery + (refer to NOTES 1 and 3 above). Is all OK? 		Replace SDM, refer to 2.7 SENSING AND DIAGNOSTIC MODULE in this Section. Recheck circuit to verify repair.	Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.
WHEN ALL DIAGNOSIS AND REPAIRS ARE COMPLETED, ENSURE ALL SRS COMPONENTS ARE RECONNECTED, CLEAR ALL DTC'S, ENABLE THE SRS AND VERIFY CORRECT OPERATION				

DTC 26 - PASSENGER'S PRE-TENSIONER, CIRCUIT SHORT TO BATTERY

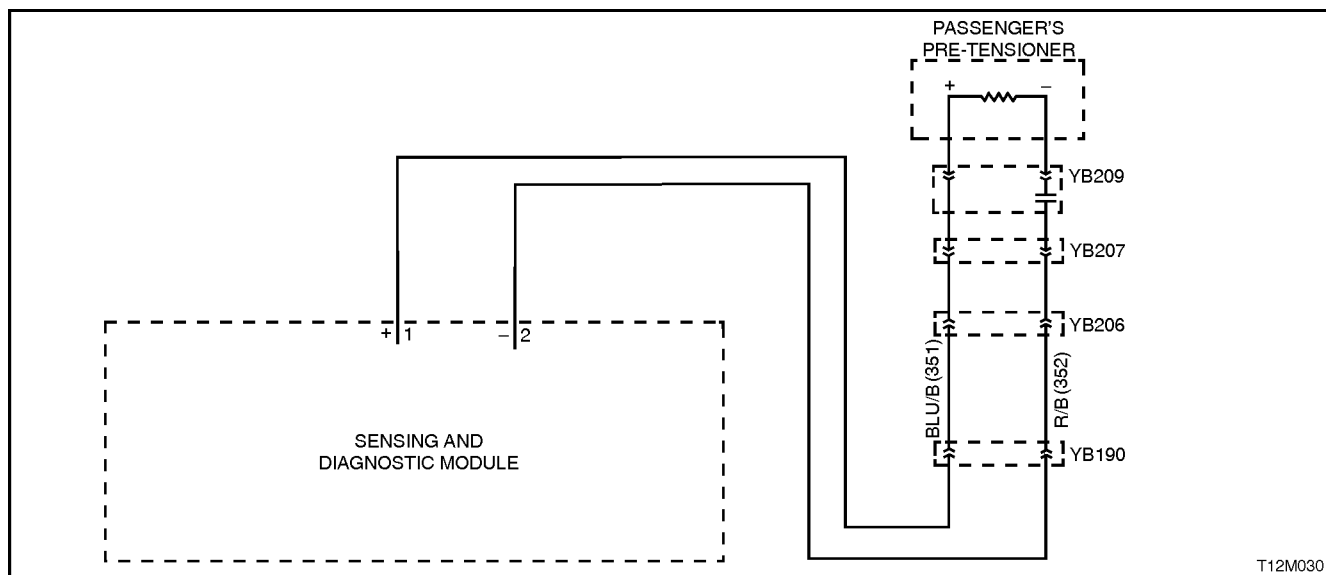


Figure 12M-83

CIRCUIT DESCRIPTION

At ignition on, and on a constant monitoring cycle of every 300 milliseconds during the ignition cycle, the SDM performs a system self check.

If the SDM detects a resistance to battery supply is less than 30 kohms in either the positive and/or negative circuit for more than 10 seconds, a current (frozen) DTC 26 will set.

DTC 26 will set if circuits 351 (passenger's pre-tensioner positive side) and/or 352 (passenger's pre-tensioner negative side) are shorted to battery +.

When DTC 26 sets, the SDM illuminates the SRS warning lamp and sets a current DTC 26. Should the fault conditions detected by the SDM clear during the same ignition cycle, the current code will clear and become a history DTC 26. The SRS warning lamp will remain on for the remainder of the ignition cycle.

If a DTC 26 is set, the SRS warning lamp is illuminated on each ignition cycle, even if the DTC is set as a history DTC, until the fault conditions for setting DTC 26 are rectified and the DTC (current or history) can then be cleared from the SDM via TECH 2.

If DTC 26 is set, the SRS, including the passenger's pre-tensioner, will still be operational.

NOTES ON DIAGNOSTIC CHART

1. For all wiring harness checking procedures, refer to [Section 12P WIRING DIAGRAMS](#).
2. Refer to [2.8 SRS WIRING REPAIR](#) in this Section before conducting any SRS wiring harness repairs.
3. Resistance cannot be measured between the two terminals in connector YB209, as the in-built capacitor blocks measurement. Therefore, a 'service hole' is incorporated into the connector for fault tracing. Refer to 1.1 SYTSEM COMPONENTS, [WIRING HARNESS](#) in this Section for more details on this type of connector.

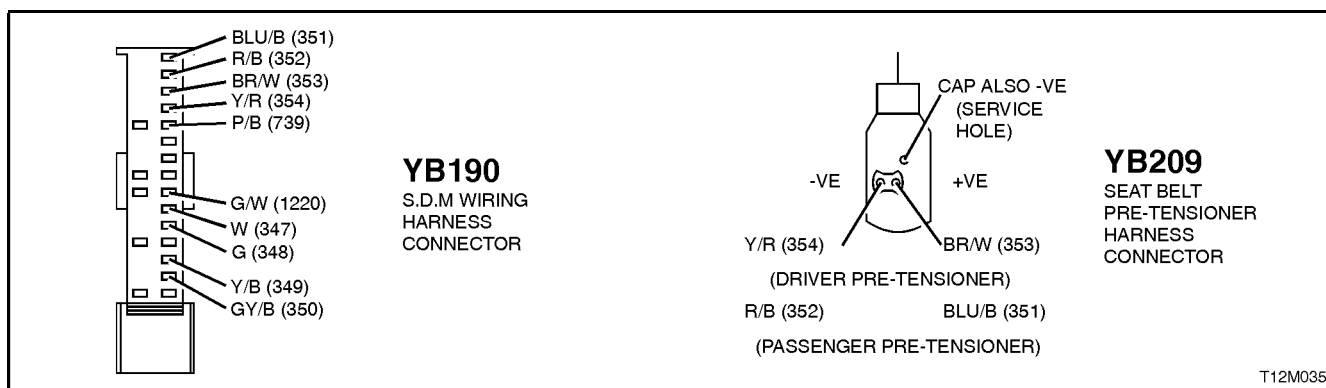


Figure 12M-84

STEP	ACTION	VALUE	YES	NO
1.	<ul style="list-style-type: none"> Disable the SRS, refer to 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Disconnect the SRS wiring harness connector YB209 from the passenger's pre-tensioner assembly. Disconnect SDM wiring harness connector YB190 from the SDM. Reconnect battery. Using Tool KM-609-20, check wiring between SDM wiring harness connector YB190, terminals 1 and 2 and passenger's pre-tensioner connector YB209, circuits 351 (Blue/Black wire) and 352 (Red/Black wire) for short to battery + (refer to NOTES 1 and 3 above). Is all OK? 		Replace SDM, refer to 2.7 SENSING AND DIAGNOSTIC MODULE in this Section. Recheck circuit to verify repair.	Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.
WHEN ALL DIAGNOSIS AND REPAIRS ARE COMPLETED, ENSURE ALL SRS COMPONENTS ARE RECONNECTED, CLEAR ALL DTC'S, ENABLE THE SRS AND VERIFY CORRECT OPERATION				

DTC 31 - DRIVERS AIR BAG OPEN CIRCUIT, LOOP CAPACITANCE TOO LOW

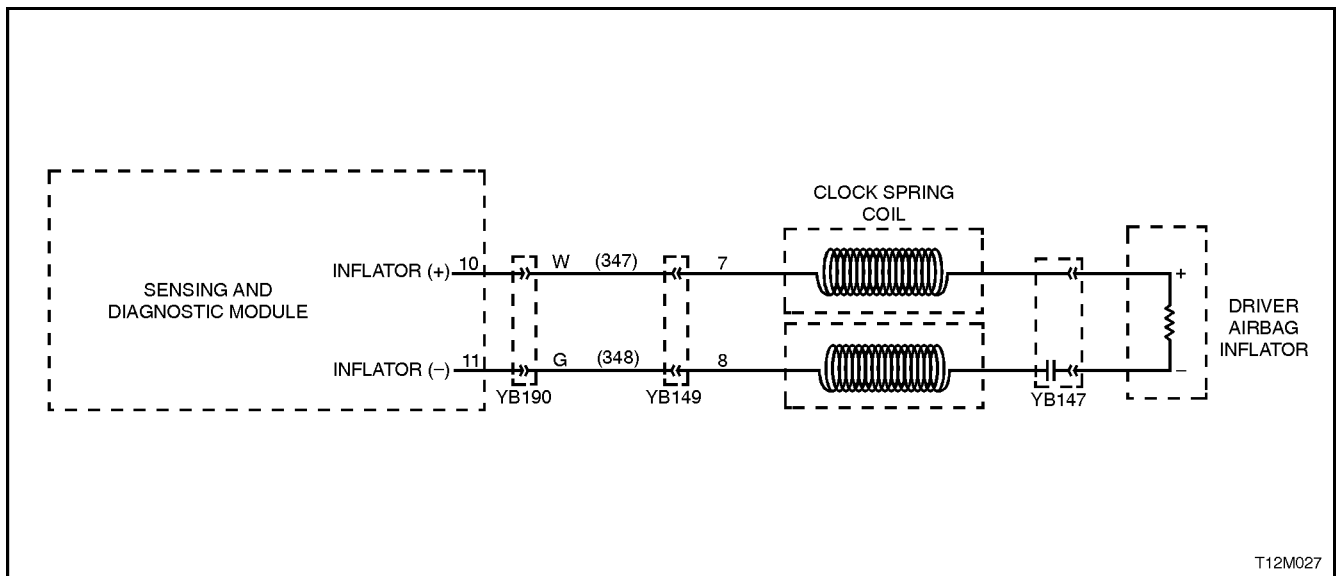


Figure 12M-85

CIRCUIT DESCRIPTION

At ignition on, and on a constant monitoring cycle of every 300 milliseconds during the ignition cycle, the SDM performs a system self check.

If the SDM detects a resistance in the driver's air bag circuit that is too high (greater than 8 ohm) or the capacitance too low (less than 404 nF) for longer than 10 seconds, a current (frozen) DTC 31 will set.

DTC 31 will set if circuits 347 or 348, (including the horn bar and air bag assembly and the clock spring coil) are open circuited.

When DTC 31 sets, the SDM illuminates the SRS warning lamp and sets a current DTC 31. Should the fault conditions detected by the SDM clear during the same ignition cycle, the current code will clear and become a history DTC 31. The SRS warning lamp will remain on for the remainder of the ignition cycle.

If a DTC 31 is set, the SRS warning lamp is illuminated on each ignition cycle, even if the DTC is set as a history DTC, until the fault conditions for setting DTC 31 are rectified and the DTC (current or history) can then be cleared from the SDM via TECH 2.

If DTC 31 is set, dependent on where the fault is, the driver's air bag may not operate.

TEST DESCRIPTION

Number/s below refer to step numbers in the following diagnostic chart.

Uses TECH 2 to check if DTC 31 is current or history.

Checks for intermittent fault by monitoring TECH 2 screen. If screen display changes during a wiring 'wiggle' test, a fault with the wiring is at that location.

Tool SD28280B is a dummy load taking the place of the driver's horn bar and air bag assembly. If DTC 31 becomes a history DTC with dummy load connected, the system fault is in the driver's horn bar and air bag assembly.

Checks if open circuit is in the clock spring coil. If the clock spring coil is disconnected from the system, and terminals 7 & 8 in connector YB149 bridged together, DTC 31 will become a history DTC if the clock spring coil is faulty.

Checks circuit 347 for open circuit.

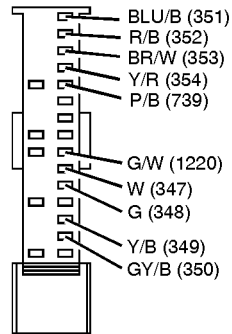
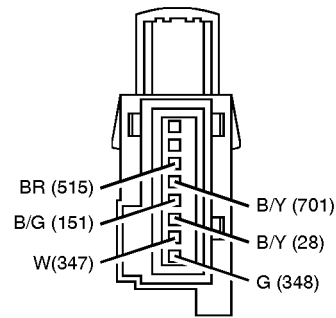
Checks circuit 348 for open circuit.

NOTES ON DIAGNOSTIC CHART

1. For all wiring harness checking procedures, refer to [Section 12P WIRING DIAGRAMS](#).

Refer to [2.8 SRS WIRING REPAIR](#) in this Section before conducting any SRS wiring harness repairs.

TECH 2 screen display only needs to change status to indicate an open circuit. The actual DTC may not be displayed and in some instances an incorrect DTC may be displayed. If any DTC other than DTC 31 is displayed during this test, unless they become Frozen DTC's no action needs to be taken other than repairing the open in the driver's air bag circuit. If another DTC becomes frozen, other than DTC 31, refer to the relevant diagnostic chart in this Section.

YB190 S.D.M. WIRING HARNESS CONNECTOR**YB149** CLOCK SPRING CONNECTOR

T12M053

Figure 12M-86

STEP	ACTION	VALUE	YES	NO
1.	<ul style="list-style-type: none"> Install TECH 2 to DLC Select Body / SRS / Diagnostic Trouble Codes / Read DTC Information Is DTC 31 current? 		Go to Step 3.	Go to Step 2.
2.	<ul style="list-style-type: none"> Remove steering column upper and lower cover. With TECH 2 still connected, select Diagnostic Trouble Codes / Clear DTC information and clear all (if any) DTC's. Select Diagnostic Trouble Codes / Read DTC Information, 'wiggle' SRS wiring harness at all locations between the SDM and the clock spring coil while monitoring the TECH 2 screen display. Does TECH 2 screen display change status from No Diagnostic Trouble Codes, refer to NOTE 3 above ? 		<p>Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.</p>	<p>Fault not present. Check all system wiring harness connectors, and terminals. Clear DTC and recheck system.</p>

STEP	ACTION	VALUE	YES	NO
3.	<ul style="list-style-type: none"> Disable the SRS, refer to 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Remove horn bar and driver's air bag inflator module, refer to 2.3 HORN BAR AND AIR BAG MODULE ASSEMBLY in this Section. Connect Tool No. SD28280B to SRS wiring harness connector YB147. Reconnect battery. Connect TECH 2 to DLC. Select Body / SRS / Diagnostic Trouble Codes / Read DTC Information. Is DTC 31 still current? 		Go to Step 4.	<p>Replace horn bar and driver's air bag inflator module assembly, refer to 2.3 HORN BAR AND AIR BAG MODULE ASSEMBLY in this Section.</p> <p>Clear DTC and recheck system to verify repair.</p>
4.	<ul style="list-style-type: none"> Disable the SRS, refer to 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Disconnect SRS wiring harness connector YB149 from clock spring coil assembly. Reconnect battery. Using a suitable jumper wire from KM-609, bridge connector YB149, terminals 7 and 8 together. With TECH 2 still connected, select Body / SRS / Diagnostic Trouble Codes / Read DTC Information Does DTC 31 become history? 		<p>Replace clock spring coil assembly, refer to 2.6 CLOCK SPRING COIL in this Section. Clear all DTC's and recheck system to verify repair.</p>	Go to Step 5

STEP	ACTION	VALUE	YES	NO
5.	<ul style="list-style-type: none"> Disable the SRS, refer to 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Disconnect SDM wiring harness connector YB190 from the SDM. Using Tool KM-609-20, check wiring between SDM wiring harness connector YB190, terminals 10 and clock spring coil connector YB149, terminal 7, circuits 347 (White wire) for open (refer to NOTE 1 above). Is all OK? 		Go to Step 6.	Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.
6.	<ul style="list-style-type: none"> With SDM wiring harness connector YB190 disconnected from the SDM and using Tool KM-609-20, check wiring between SDM wiring harness connector YB190, terminal 11 and clock spring coil connector YB149, terminal 8, circuits 348 (Green wire) for open (refer to NOTE 1 above). Is all OK? 		Replace SDM, refer to 2.7 SENSING AND DIAGNOSTIC MODULE in this Section. Recheck circuit to verify repair.	Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.
WHEN ALL DIAGNOSIS AND REPAIRS ARE COMPLETED, ENSURE ALL SRS COMPONENTS ARE RECONNECTED, CLEAR ALL DTC'S, ENABLE THE SRS AND VERIFY CORRECT OPERATION				

DTC 32 - DRIVERS AIR BAG, SHORT CIRCUIT, LOOP CAPACITANCE TOO HIGH

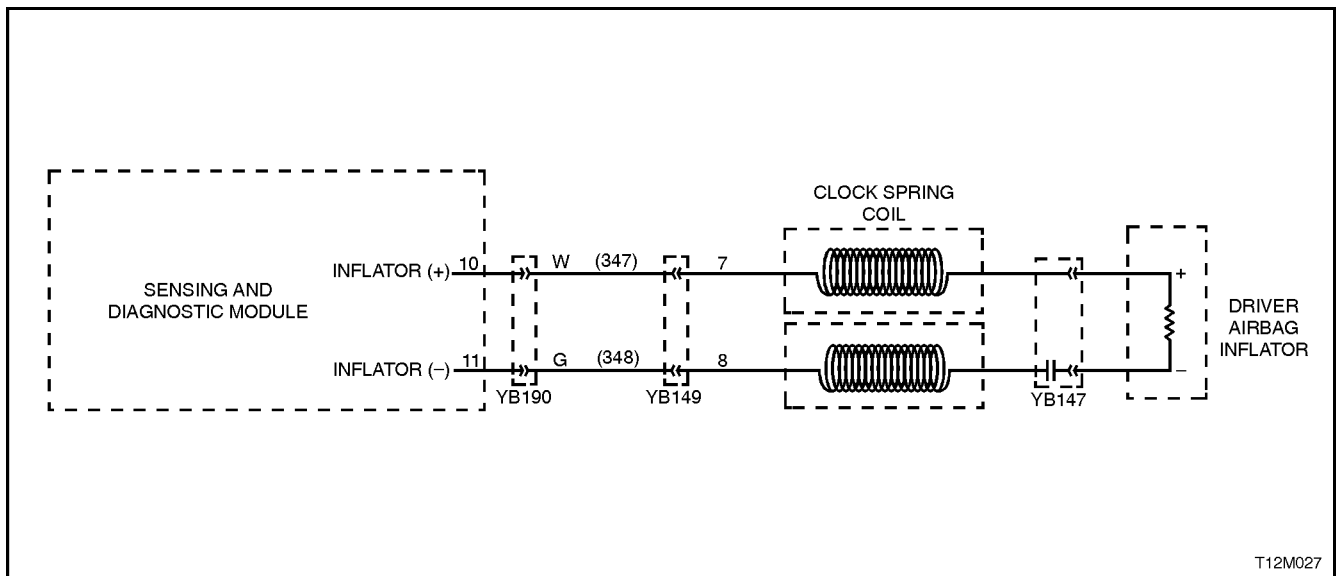


Figure 12M-87

CIRCUIT DESCRIPTION

At ignition on, and on a constant monitoring cycle of every 300 milliseconds during the ignition cycle, the SDM performs a system self check.

If the SDM detects a resistance in the driver's air bag circuit that is too low (less than 1 ohm) or the capacitance too high (greater than 535 nF) for longer than 10 seconds, a current (frozen) DTC 32 will set.

DTC 32 will set if circuits 347 or 348, (including the horn bar and air bag assembly and the clock spring coil) are shorted to earth.

When DTC 32 sets, the SDM illuminates the SRS warning lamp and sets a current DTC 32. Should the fault conditions detected by the SDM clear during the same ignition cycle, the current code will clear and become a history DTC 32. The SRS warning lamp will remain on for the remainder of the ignition cycle.

If a DTC 32 is set, the SRS warning lamp is illuminated on each ignition cycle, even if the DTC is set as a history DTC, until the fault conditions for setting DTC 32 are rectified and the DTC (current or history) can then be cleared from the SDM via TECH 2.

If DTC 32 is set, dependent on where the fault is, the driver's air bag may not operate.

TEST DESCRIPTION

Number/s below refer to step numbers in the following diagnostic chart.

Uses TECH 2 to check if DTC 32 is current or history.

Checks for intermittent fault by monitoring TECH 2 screen. If screen display changes during a wiring 'wiggle' test, a fault with the wiring is at that location.

Tool SD28280B is a dummy load taking the place of the driver's horn bar and air bag assembly. If DTC 32 becomes a history DTC with dummy load connected, the system fault is in the driver's horn bar and air bag assembly.

Checks if short circuit is in the clock spring coil. If the clock spring coil is disconnected from the system, a DTC 31 (open circuit) will set and DTC 31 will become history. If DTC 31 sets and DTC 32 becomes history, the clock spring coil is faulty.

Checks circuit 347 for short circuit.

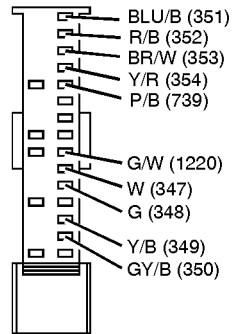
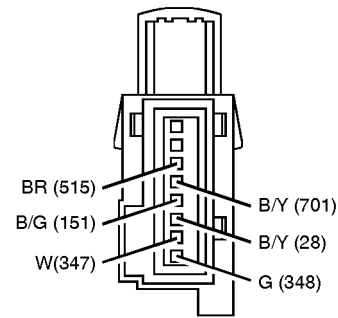
Checks circuit 348 for short circuit.

NOTES ON DIAGNOSTIC CHART

1. For all wiring harness checking procedures, refer to [Section 12P WIRING DIAGRAMS](#).

Refer to [2.8 SRS WIRING REPAIR](#) in this Section before conducting any SRS wiring harness repairs.

TECH 2 screen display only needs to change status to indicate a short circuit. The actual DTC may not be displayed and in some instances an incorrect DTC may be displayed. If any DTC other than DTC 32 is displayed during this test, unless they become Frozen DTC's no action needs to be taken other than repairing the short in the driver's air bag circuit. If another DTC becomes frozen, other than DTC 32, refer to the relevant diagnostic chart in this Section.

YB190 S.D.M. WIRING HARNESS CONNECTOR**YB149** CLOCK SPRING CONNECTOR

T12M053

Figure 12M-88

STEP	ACTION	VALUE	YES	NO
1.	<ul style="list-style-type: none"> Install TECH 2 to DLC Select Body / SRS / Diagnostic Trouble Codes / Read DTC Information Is DTC 32 current? 		Go to Step 3.	Go to Step 2.
2.	<ul style="list-style-type: none"> Remove steering column upper and lower cover. With TECH 2 still connected, select Diagnostic Trouble Codes / Clear DTC information and clear all (if any) DTC's. Select Diagnostic Trouble Codes / Read DTC Information, 'wiggle' SRS wiring harness at all locations between the SDM and the clock spring coil while monitoring the TECH 2 screen display. Does TECH 2 screen display change status from No Diagnostic Trouble Codes, refer to NOTE 3 above ? 		<p>Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.</p>	<p>Fault not present. Check all system wiring harness connectors, and terminals. Clear DTC and recheck system.</p>

STEP	ACTION	VALUE	YES	NO
3.	<ul style="list-style-type: none"> Disable the SRS, refer to 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Remove horn bar and driver's air bag inflator module, refer to 2.3 HORN BAR AND AIR BAG MODULE ASSEMBLY in this Section. Connect Tool No. SD28280B to SRS wiring harness connector YB147. Reconnect battery. Connect TECH 2 to DLC. Select Body / SRS / Diagnostic Trouble Codes / Read DTC Information. Is DTC 32 still current? 		Go to Step 4.	<p>Replace horn bar and driver's air bag inflator module assembly, refer to 2.3 HORN BAR AND AIR BAG MODULE ASSEMBLY in this Section.</p> <p>Clear DTC and recheck system to verify repair.</p>
4.	<ul style="list-style-type: none"> Disable the SRS, refer to 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Disconnect SRS wiring harness connector YB149 from clock spring coil assembly. Reconnect battery. With TECH 2 still connected, select Body / SRS / Diagnostic Trouble Codes / Read DTC Information Is DTC 31 current and DTC 32 history? 		<p>Replace clock spring coil assembly, refer to 2.6 CLOCK SPRING COIL in this Section. Clear all DTC's and recheck system to verify repair.</p>	Go to Step 5

STEP	ACTION	VALUE	YES	NO
5.	<ul style="list-style-type: none"> Disable the SRS, refer to 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Disconnect SDM wiring harness connector YB190 from the SDM. Using Tool KM-609-20, check wiring between SDM wiring harness connector YB190, terminals 10 and clock spring coil connector YB149, terminal 7, circuits 347 (White wire) for short (refer to NOTE 1 above). Is all OK? 		Go to Step 6.	<p>Make repairs as necessary (refer to NOTE 2 above).</p> <p>Clear DTC and recheck system to verify repair.</p>
6.	<ul style="list-style-type: none"> With SDM wiring harness connector YB190 disconnected from the SDM and using Tool KM-609-20, check wiring between SDM wiring harness connector YB190, terminal 11 and clock spring coil connector YB149, terminal 8, circuits 348 (Green wire) for short (refer to NOTE 1 above). Is all OK? 		Replace SDM, refer to 2.7 SENSING AND DIAGNOSTIC MODULE in this Section. Recheck circuit to verify repair.	<p>Make repairs as necessary (refer to NOTE 2 above).</p> <p>Clear DTC and recheck system to verify repair.</p>
WHEN ALL DIAGNOSIS AND REPAIRS ARE COMPLETED, ENSURE ALL SRS COMPONENTS ARE RECONNECTED, CLEAR ALL DTC'S, ENABLE THE SRS AND VERIFY CORRECT OPERATION				

DTC 33 - PASSENGER'S AIR BAG OPEN CIRCUIT, LOOP CAPACITANCE TOO LOW

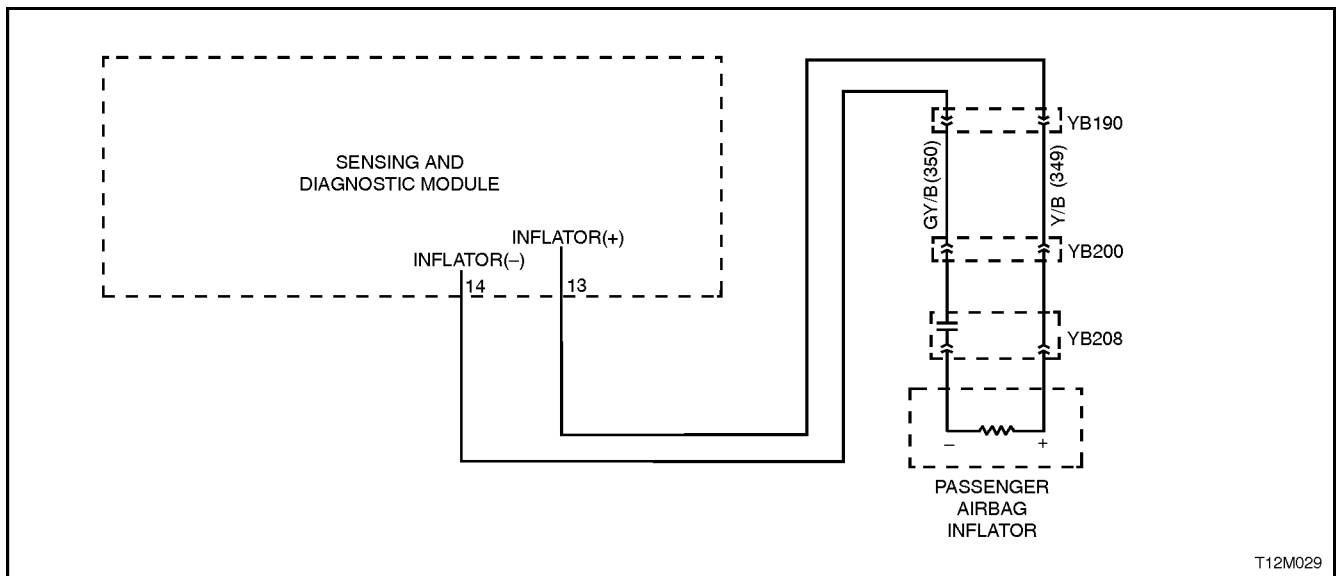


Figure 12M-89

CIRCUIT DESCRIPTION

At ignition on, and on a constant monitoring cycle of every 300 milliseconds during the ignition cycle, the SDM performs a system self check.

If the SDM detects a resistance in the passenger's air bag circuit that is too high (greater than 8 ohm) or the capacitance too low (less than 404 nF) for longer than 10 seconds, a current (frozen) DTC 33 will set.

DTC 33 will set if circuits 349 or 350 (including the passenger's air bag inflator module) are open circuit.

When DTC 33 sets, the SDM illuminates the SRS warning lamp and sets a current DTC 33. Should the fault conditions detected by the SDM clear during the same ignition cycle, the current code will clear and become a history DTC 33. The SRS warning lamp will remain on for the remainder of the ignition cycle.

If a DTC 33 is set, the SRS warning lamp is illuminated on each ignition cycle, even if the DTC is set as a history DTC, until the fault conditions for setting DTC 33 are rectified and the DTC (current or history) can then be cleared from the SDM via TECH 2.

If DTC 33 is set, dependent on where the fault is, the passenger's air bag may not operate.

TEST DESCRIPTION

Number/s below refer to step numbers in the following diagnostic chart.

Uses TECH 2 to check if DTC 33 is current or history.

Checks for intermittent fault by monitoring TECH 2 screen. If screen display changes during a wiring 'wiggle' test, a fault with the wiring is at that location.

Tool SD28280B is a dummy load taking the place of the passenger's air bag inflator module. If DTC 33 becomes a history DTC with dummy load connected, the system fault is in the passenger's air bag inflator module.

Checks if open circuit is in the SRS connector harness. If connector YB200 is disconnected and it's terminal's are bridged together, DTC 33 will become a history DTC if this connector harness is faulty.

Checks circuit 349 for open circuit.

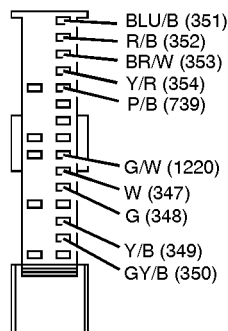
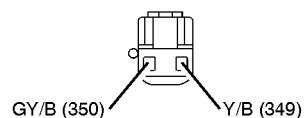
Checks circuit 350 for open circuit.

NOTES ON DIAGNOSTIC CHART

1. For all wiring harness checking procedures, refer to [Section 12P WIRING DIAGRAMS](#).

Refer to [2.8 SRS WIRING REPAIR](#) in this Section before conducting any SRS wiring harness repairs.

TECH 2 screen display only needs to change status to indicate an open circuit. The actual DTC may not be displayed and in some instances an incorrect DTC may be displayed. If any DTC other than DTC 33 is displayed during this test, unless they become Frozen DTC's no action needs to be taken other than repairing the open in the passenger's air bag circuit. If another DTC becomes frozen, other than DTC 33, refer to the relevant diagnostic chart in this Section.

YB190 S.D.M. WIRING HARNESS CONNECTOR**YB200** PASSENGER AIRBAG CONNECTOR HARNESS

T12M054

Figure 12M-90

STEP	ACTION	VALUE	YES	NO
1.	<ul style="list-style-type: none"> Install TECH 2 to DLC Select Body / SRS / Diagnostic Trouble Codes / Read DTC Information Is DTC 33 current? 		Go to Step 3.	Go to Step 2.
2.	<ul style="list-style-type: none"> Remove instrument panel compartment to gain access to passenger's air bag, refer to Section 1A3 INSTRUMENT PANEL AND CONSOLE. With TECH 2 still connected, select Diagnostic Trouble Codes / Clear DTC information and clear all (if any) DTC's. Select Diagnostic Trouble Codes / Read DTC Information, 'wiggle' SRS wiring harness at all locations between the SDM and the passenger's air bag wiring harness connector YB208, while monitoring TECH 2 screen display. Does TECH 2 screen display change status from No Diagnostic Trouble Codes, refer to NOTE 3 above ? 		<p>Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.</p>	<p>Fault not present. Check all system wiring harness connectors, and terminals. Clear DTC and recheck system.</p>

STEP	ACTION	VALUE	YES	NO
3.	<ul style="list-style-type: none"> Disable the SRS, refer to 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Disconnect the passenger's air bag inflator module wiring harness connector YB208. Connect Tool No. SD28280B to SRS wiring harness connector YB208. Reconnect battery. Connect TECH 2 to DLC. Select Body / SRS / Diagnostic Trouble Codes / Read DTC Information Is DTC 33 still current? 		Go to Step 4.	<p>Replace passenger's air bag inflator module assembly, refer to 2.4 FRONT PASSENGER'S AIR BAG MODULE ASSEMBLY in this Section.</p> <p>Clear DTC and recheck system to verify repair.</p>
4.	<ul style="list-style-type: none"> Disable the SRS, refer to 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Disconnect SRS wiring harness connector YB200 from passenger's air bag inflator module connector harness. Reconnect battery. Using a suitable jumper wire from KM-609, bridge terminals in connector YB200 together. With TECH 2 still connected, select Body / SRS / Diagnostic Trouble Codes / Read DTC Information Does DTC 33 become history? 		Replace SRS connector harness (harness between passenger air bag inflator module and connector YB200). Clear all DTC's and recheck system to verify repair.	Go to Step 5

STEP	ACTION	VALUE	YES	NO
5.	<ul style="list-style-type: none"> Disable the SRS, refer to 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Disconnect SDM wiring harness connector YB190 from the SDM. Using Tool KM-609-20, check wiring between SDM wiring harness connector YB190, terminals 13 and SRS wiring harness connector YB200, circuit 349 (Yellow/Black wire) for open (refer to NOTE 1 above). Is all OK? 		Go to Step 6.	Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.
6.	<ul style="list-style-type: none"> With SDM wiring harness connector YB190 disconnected from the SDM and using Tool KM-609-20, check wiring between SDM wiring harness connector YB190, terminal 14 and SRS wiring harness connector YB200, circuit 350 (Grey / Black wire) for open (refer to NOTE 1 above). Is all OK? 		Replace SDM, refer to 2.7 SENSING AND DIAGNOSTIC MODULE in this Section. Recheck circuit to verify repair.	Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.
WHEN ALL DIAGNOSIS AND REPAIRS ARE COMPLETED, ENSURE ALL SRS COMPONENTS ARE RECONNECTED, CLEAR ALL DTC'S, ENABLE THE SRS AND VERIFY CORRECT OPERATION				

DTC 34 - PASSENGER'S AIR BAG SHORT CIRCUIT, LOOP CAPACITANCE TOO HIGH

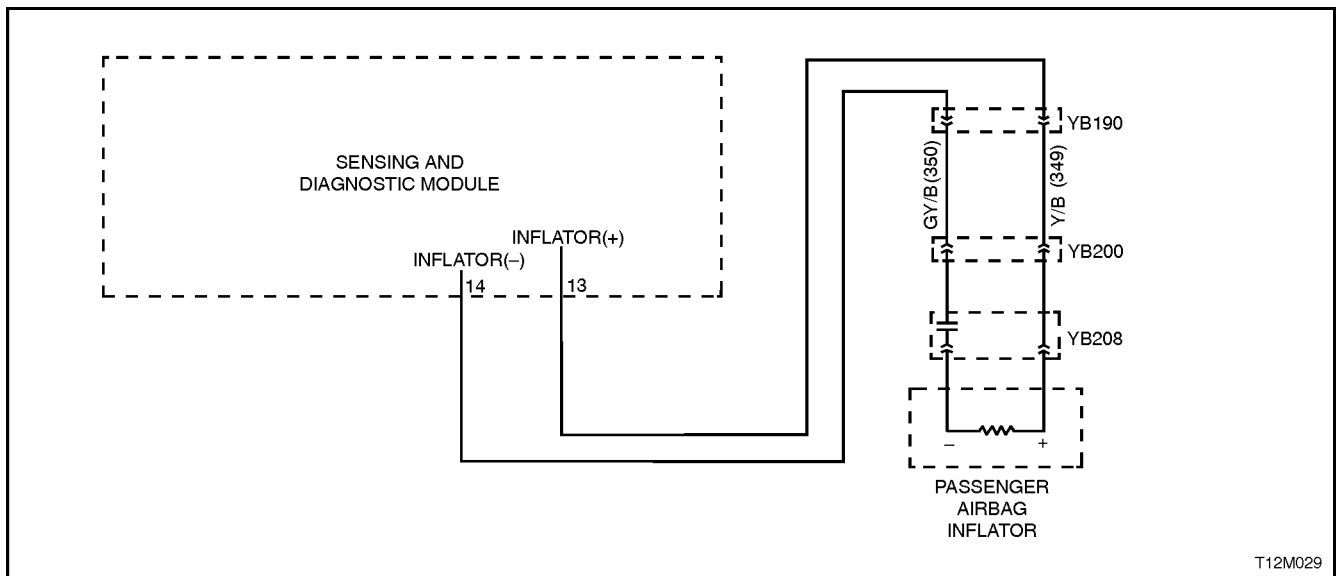


Figure 12M-91

CIRCUIT DESCRIPTION

At ignition on, and on a constant monitoring cycle of every 300 milliseconds during the ignition cycle, the SDM performs a system self check.

If the SDM detects a resistance in the passenger's air bag circuit that is too low (less than 1 ohm) or the capacitance too high (greater than 535 nF) for longer than 10 seconds, a current (frozen) DTC 34 will set.

DTC 34 will set if circuits 349 or 350, (including the passenger's air bag inflator module assembly) are shorted to earth.

When DTC 34 sets, the SDM illuminates the SRS warning lamp and sets a current DTC 34. Should the fault conditions detected by the SDM clear during the same ignition cycle, the current code will clear and become a history DTC 34. The SRS warning lamp will remain on for the remainder of the ignition cycle.

If a DTC 34 is set, the SRS warning lamp is illuminated on each ignition cycle, even if the DTC is set as a history DTC, until the fault conditions for setting DTC 34 are rectified and the DTC (current or history) can then be cleared from the SDM via TECH 2.

If DTC 34 is set, dependent on where the fault is, the passenger's air bag may not operate.

TEST DESCRIPTION

Number/s below refer to step numbers in the following diagnostic chart.

1. Uses TECH 2 to check if DTC 34 is current or history.
2. Checks for intermittent fault by monitoring TECH 2 screen. If screen display changes during a wiring 'wiggle' test, a fault with the wiring is at that location.
3. Tool SD28280B is a dummy load taking the place of the passenger's air bag inflator module. If DTC 34 becomes a history DTC with dummy load connected, the system fault is in the passenger's air bag inflator module.
3. Checks circuit 349 and 350 for short to earth.

NOTES ON DIAGNOSTIC CHART

1. For all wiring harness checking procedures, refer to [Section 12P WIRING DIAGRAMS](#).
2. Refer to [2.8 SRS WIRING REPAIR](#) in this Section before conducting any SRS wiring harness repairs.
3. Resistance cannot be measured between the two terminals in connector YB208, as the in-built capacitor blocks measurement. Therefore, a 'service hole' is incorporated into the connector for fault tracing. Refer to 1.1 SYTSEM COMPONENTS, [WIRING HARNESS](#) in this Section for more details on this type of connector.
4. TECH 2 screen display only needs to change status to indicate a short circuit. The actual DTC may not be displayed and in some instances an incorrect DTC may be displayed. If any DTC other than DTC 34 is displayed during this test, unless they become Frozen DTC's no action needs to be taken other than repairing the short in the passenger's air bag circuit. If another DTC becomes frozen, other than DTC 34, refer to the relevant diagnostic chart in this Section.

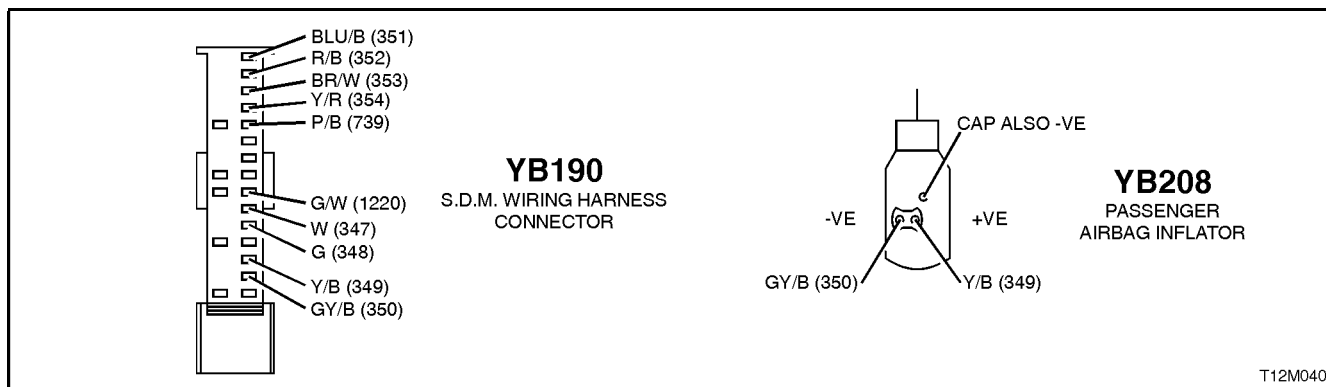


Figure 12M-92

STEP	ACTION	VALUE	YES	NO
1.	<ul style="list-style-type: none"> Install TECH 2 to DLC Select Body / SRS / Diagnostic Trouble Codes / Read DTC Information Is DTC 34 current? 		Go to Step 3.	Go to Step 2.
2.	<ul style="list-style-type: none"> Remove instrument panel compartment to gain access to passenger's air bag, refer to Section 1A3 INSTRUMENT PANEL AND CONSOLE. With TECH 2 still connected, select Diagnostic Trouble Codes / Clear DTC information and clear all (if any) DTC's. Select Diagnostic Trouble Codes / Read DTC Information, 'wiggle' SRS wiring harness at all locations between the SDM and the passenger's air bag wiring harness connector YB208, while monitoring TECH 2 screen display. Does TECH 2 screen display change status from No Diagnostic Trouble Codes, refer to NOTE 4 above ? 		<p>Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.</p>	<p>Fault not present. Check all system wiring harness connectors, and terminals. Clear DTC and recheck system.</p>

STEP	ACTION	VALUE	YES	NO
3.	<ul style="list-style-type: none"> Disable the SRS, refer to 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Disconnect the passenger's air bag inflator module wiring harness connector YB208. Connect Tool No. SD28280B to SRS wiring harness connector YB208. Reconnect battery. Connect TECH 2 to DLC. Select Body / SRS / Diagnostic Trouble Codes / Read DTC Information. Is DTC 34 still current? 		Go to Step 4.	<p>Replace passenger's air bag inflator module assembly, refer to 2.4 FRONT PASSENGER'S AIR BAG MODULE ASSEMBLY in this Section.</p> <p>Clear DTC and recheck system to verify repair.</p>
4.	<ul style="list-style-type: none"> Disable the SRS, refer to 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Disconnect SDM wiring harness connector YB190 from the SDM. Using Tool KM-609-20, check wiring between SDM wiring harness connector YB190, terminals 13 and 14 and passenger's air bag inflator module connector YB208, circuits 349 (Yellow/Black wire) and 350 (Grey/Black wire) for short to earth (refer to NOTES 1 and 3 above). Is all OK? 		Replace SDM, refer to 2.7 SENSING AND DIAGNOSTIC MODULE in this Section. Recheck circuit to verify repair.	<p>Make repairs as necessary (refer to NOTE 2 above).</p> <p>Clear DTC and recheck system to verify repair.</p>
WHEN ALL DIAGNOSIS AND REPAIRS ARE COMPLETED, ENSURE ALL SRS COMPONENTS ARE RECONNECTED, CLEAR ALL DTC'S, ENABLE THE SRS AND VERIFY CORRECT OPERATION				

DTC 35 - DRIVER'S PRE-TENSIONER OPEN CIRCUIT, LOOP CAPACITANCE TOO LOW

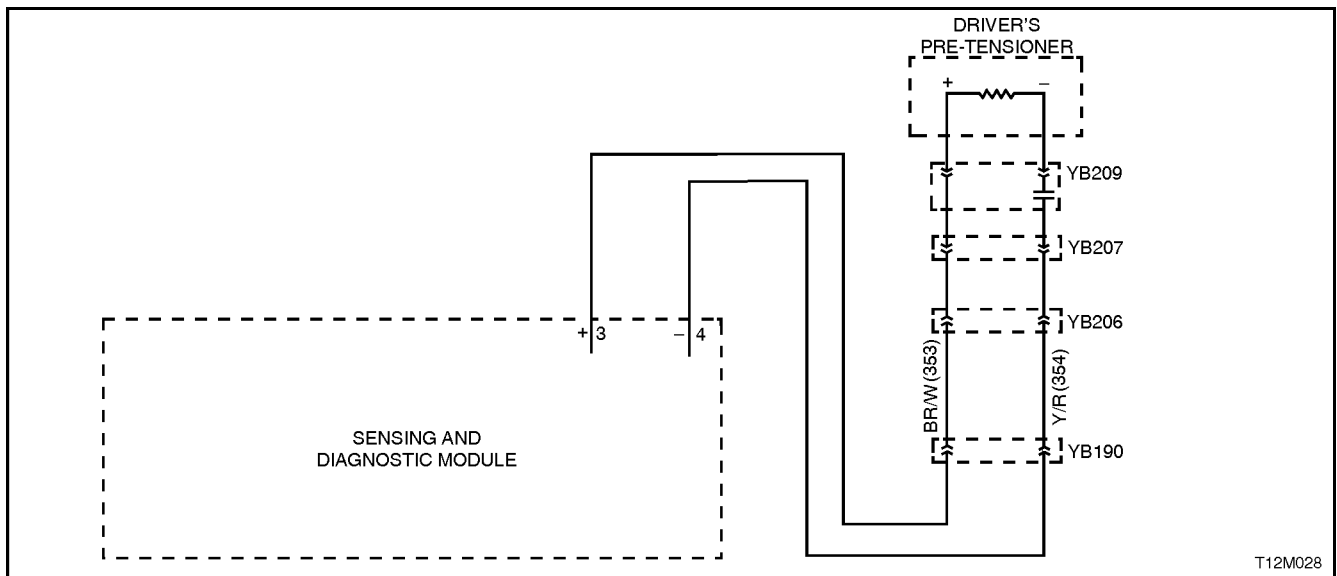


Figure 12M-93

CIRCUIT DESCRIPTION

At ignition on, and on a constant monitoring cycle of every 300 milliseconds during the ignition cycle, the SDM performs a system self check.

If the SDM detects a resistance in the driver's pre-tensioner circuit that is too high (greater than 8 ohm) or the capacitance too low (less than 404 nF) for longer than 10 seconds, a current frozen DTC 35 will set.

DTC 35 will set if circuits 353 or 354 (including the driver's pre-tensioner assembly) are open circuit.

When DTC 35 sets, the SDM illuminates the SRS warning lamp and sets a current DTC 35. Should the fault conditions detected by the SDM clear during the same ignition cycle, the current code will clear and become a history DTC 35. The SRS warning lamp will remain on for the remainder of the ignition cycle.

If a DTC 35 is set, the SRS warning lamp is illuminated on each ignition cycle, even if the DTC is set as a history DTC, until the fault conditions for setting DTC 35 are rectified and the DTC (current or history) can then be cleared from the SDM via TECH 2.

If DTC 35 is set, dependent on where the fault is, the driver's pre-tensioner may not operate.

TEST DESCRIPTION

Number/s below refer to step numbers in the following diagnostic chart.

Uses TECH 2 to check if DTC 35 is current or history.

Checks for intermittent fault by monitoring TECH 2 screen. If screen display changes during a wiring 'wiggle' test, a fault with the wiring is at that location.

Tool SD28280B is a dummy load taking the place of the driver's pre-tensioner assembly. If DTC 35 becomes a history DTC with dummy load connected, the system fault is in the driver's pre-tensioner assembly.

Checks if open circuit is in the SRS connector harness. If connector YB207 is disconnected and it's terminal's are bridged together, DTC 35 will become a history DTC if this connector harness is faulty.

Checks circuit 353 for open circuit.

Checks circuit 354 for open circuit.

NOTES ON DIAGNOSTIC CHART

1. For all wiring harness checking procedures, refer to [Section 12P WIRING DIAGRAMS](#).

Refer to [2.8 SRS WIRING REPAIR](#) in this Section before conducting any SRS wiring harness repairs.

TECH 2 screen display only needs to change status to indicate a open circuit. The actual DTC may not be displayed and in some instances an incorrect DTC may be displayed. If any DTC other than DTC 35 is displayed during this test, unless they become Frozen DTC's no action needs to be taken other than repairing the open in the driver's pre-tensioner circuit. If another DTC becomes frozen, other than DTC 35, refer to the relevant diagnostic chart in this Section.

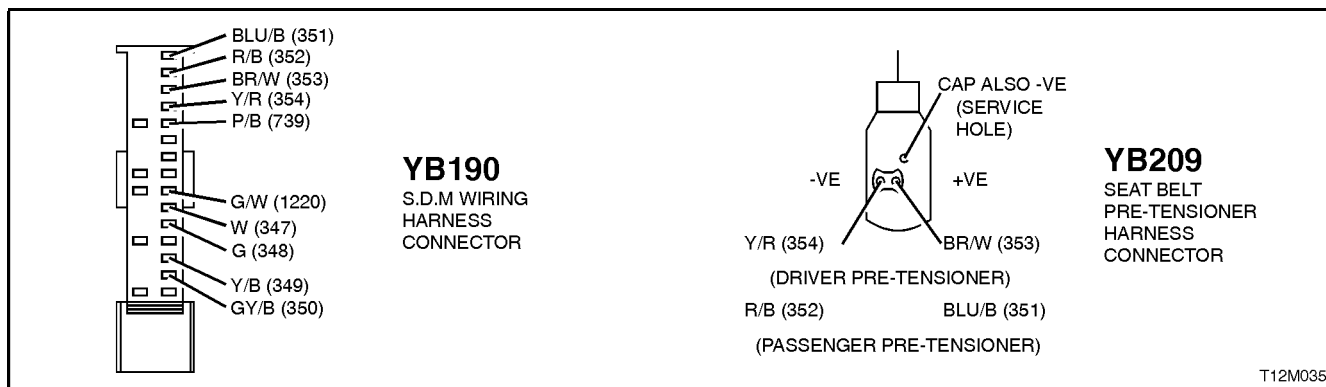


Figure 12M-94

STEP	ACTION	VALUE	YES	NO
1.	<ul style="list-style-type: none"> Connect TECH 2 to DLC Select Body / SRS / Diagnostic Trouble Codes / Read DTC Information Is DTC 35 current? 		Go to Step 3.	Go to Step 2.
2.	<ul style="list-style-type: none"> With TECH 2 still connected, select Diagnostic Trouble Codes / Clear DTC information and clear all (if any) DTC's. Select Diagnostic Trouble Codes / Read DTC Information, 'wiggle' SRS wiring harness at all locations between the SDM and the driver's pre-tensioner wiring harness connector YB209, while monitoring TECH 2 screen display. Does TECH 2 screen display change status from No Diagnostic Trouble Codes, refer to NOTE 3 above ? 		Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.	Fault not present. Check all system wiring harness connectors, and terminals. Clear DTC and recheck system.

STEP	ACTION	VALUE	YES	NO
3.	<ul style="list-style-type: none"> Disable the SRS, refer 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Disconnect the driver's pre-tensioner wiring harness connector YB209. Connect Tool No. SD28280B to SRS wiring harness connector YB209. Reconnect battery. Connect TECH 2 to DLC. Select Body / SRS / Diagnostic Trouble Codes / Read DTC Information. Is DTC 35 still current? 		Go to Step 4.	Replace driver's pre-tensioner assembly, refer Section 1A7 SEAT AND SEAT BELT ASSEMBLIES. Clear DTC and recheck system to verify repair.
4.	<ul style="list-style-type: none"> Disable the SRS, refer 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Disconnect SRS wiring harness connector YB207 (located next to driver's seat) from driver's pre-tensioner connector harness. Reconnect battery. Using a suitable jumper wire from KM-609, bridge terminals in connector YB207 together. With TECH 2 still connected, select Body / SRS / Diagnostic Trouble Codes / Read DTC Information. Does DTC 35 become history? 		Replace SRS connector harness (harness between driver's pre-tensioner and connector YB207). Clear all DTC's and recheck system to verify repair.	Go to Step 5.

STEP	ACTION	VALUE	YES	NO
5.	<ul style="list-style-type: none"> Disable the SRS, refer 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Disconnect SDM wiring harness connector YB190 from the SDM. Using Tool KM-609-20, check wiring between SDM wiring harness connector YB190, terminals 3 and SRS wiring harness connector YB207, circuit 353 (Brown/White wire) for open (refer to NOTE 1 above). Is all OK? 		Go to Step 6.	Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.
6.	<ul style="list-style-type: none"> With SDM wiring harness connector YB190 disconnected from the SDM and using Tool KM-609-20, check wiring between SDM wiring harness connector YB190, terminal 4 and SRS wiring harness connector YB207, circuit 354 (Yellow / Red wire) for open (refer to NOTE 1 above). Is all OK? 		Replace SDM, refer 2.7 SENSING AND DIAGNOSTIC MODULE in this Section. Recheck circuit to verify repair.	Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.
WHEN ALL DIAGNOSIS AND REPAIRS ARE COMPLETED, ENSURE ALL SRS COMPONENTS ARE RECONNECTED, CLEAR ALL DTC'S, ENABLE THE SRS AND VERIFY CORRECT OPERATION				

DTC 36 - DRIVER'S PRE-TENSIONER SHORT CIRCUIT, LOOP CAPACITANCE TOO HIGH

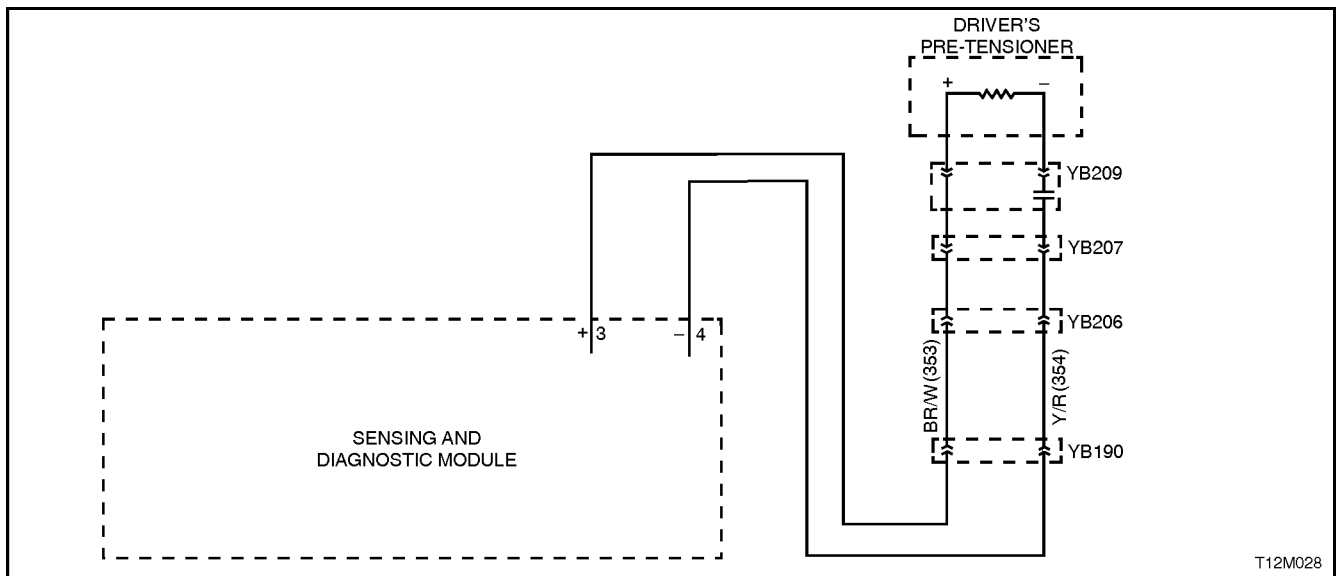


Figure 12M-95

CIRCUIT DESCRIPTION

At ignition on, and on a constant monitoring cycle of every 300 milliseconds during the ignition cycle, the SDM performs a system self check.

If the SDM detects a resistance in the driver's belt pre-tensioner circuit that is too low (less than 1 ohm) or the capacitance too high (greater than 535 nF) for longer than 10 seconds, a current frozen DTC 36 will set.

DTC 36 will set if circuits 353 or 354, (including the belt pre-tensioner assembly) are shorted to earth.

When DTC 36 sets, the SDM illuminates the SRS warning lamp and sets a current DTC 36. Should the fault conditions detected by the SDM clear during the same ignition cycle, the current code will clear and become a history DTC 36. The SRS warning lamp will remain on for the remainder of the ignition cycle.

If a DTC 36 is set, the SRS warning lamp is illuminated on each ignition cycle, even if the DTC is set as a history DTC, until the fault conditions for setting DTC 36 are rectified and the DTC (current or history) can then be cleared from the SDM via TECH 2.

If DTC 36 is set, dependent on where the fault is, the driver's belt pre-tensioner may not operate.

TEST DESCRIPTION

Number/s below refer to step numbers in the following diagnostic chart.

1. Uses TECH 2 to check if DTC 36 is current or history.
2. Checks for intermittent fault by monitoring TECH 2 screen. If screen display changes during a wiring 'wiggle' test, a fault with the wiring is at that location.
3. Tool SD28280B is a dummy load taking the place of the driver's pre-tensioner assembly. If DTC 36 becomes a history DTC with dummy load connected, the system fault is in the driver's pre-tensioner assembly.
4. Checks circuit 353 and 354 for short to earth.

NOTES ON DIAGNOSTIC CHART

1. For all wiring harness checking procedures, refer to [Section 12P WIRING DIAGRAMS](#).
2. Refer to [2.8 SRS WIRING REPAIR](#) in this Section before conducting any SRS wiring harness repairs.
3. Resistance cannot be measured between the two terminals in connector YB208, as the inbuilt capacitor blocks measurement. Therefore, a 'service hole' is incorporated into the connector for fault tracing. Refer [1.1 SYTSEM COMPONENTS, WIRING HARNESS](#) in this Section for more details on this type of connector.
4. TECH 2 screen display only needs to change status to indicate a short circuit. The actual DTC may not be displayed and in some instances an incorrect DTC may be displayed. If any DTC other than DTC 36 is displayed during this test, unless they become Frozen DTC's no action needs to be taken other than repairing the short in the driver's pre-tensioner circuit. If another DTC becomes frozen, other than DTC 36, refer to the relevant diagnostic chart in this Section.

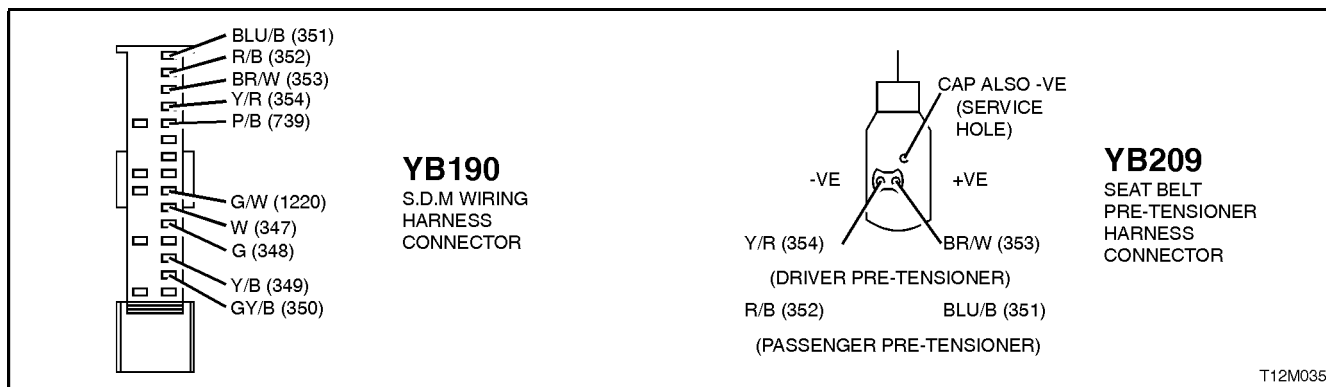


Figure 12M-96

STEP	ACTION	VALUE	YES	NO
1.	<ul style="list-style-type: none"> Connect TECH 2 to DLC Select Body / SRS / Diagnostic Trouble Codes / Read DTC Information. Is DTC 36 current? 		Go to Step 3.	Go to Step 2.
2.	<ul style="list-style-type: none"> With TECH 2 still connected, select Diagnostic Trouble Codes / Clear DTC information and clear all (if any) DTC's. Select Diagnostic Trouble Codes / Read DTC Information, 'wiggle' SRS wiring harness at all locations between the SDM and the driver's pre-tensioner wiring harness connector YB209, while monitoring TECH 2 screen display. Does TECH 2 screen display change status from No Diagnostic Trouble Codes, refer to NOTE 4 above ? 		<p>Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.</p>	<p>Fault not present. Check all system wiring harness connectors, and terminals. Clear DTC and recheck system.</p>

STEP	ACTION	VALUE	YES	NO
3.	<ul style="list-style-type: none"> Disable the SRS, refer to 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Disconnect the driver's pre-tensioner wiring harness connector YB209. Connect Tool No. SD28280B to SRS wiring harness connector YB209. Reconnect battery. Connect TECH 2 to DLC. Select Body / SRS / Diagnostic Trouble Codes / Read DTC Information. Is DTC 36 still current? 		Go to Step 4.	Replace driver's pre-tensioner assembly, refer to Section 1A7 SEAT AND SEAT BELT ASSEMBLIES. Clear DTC and recheck system to verify repair.
4.	<ul style="list-style-type: none"> Disable the SRS, refer to 2.2 DISABLING AND ENABLING PROCEDURE In this Section. Disconnect SDM wiring harness connector YB190 from the SDM. Using Tool KM-609-20, check wiring between SDM wiring harness connector YB190, terminals 3 and 4 and driver's pre-tensioner connector YB209, circuits 353 (Brown/White wire) and 354 (Yellow/Red wire) for short to earth (refer to NOTE 1 and 3 above). Is all OK? 		Replace SDM, refer to 2.7 SENSING AND DIAGNOSTIC MODULE in this Section. Recheck circuit to verify repair.	Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.
WHEN ALL DIAGNOSIS AND REPAIRS ARE COMPLETED, ENSURE ALL SRS COMPONENTS ARE RECONNECTED, CLEAR ALL DTC'S, ENABLE THE SRS AND VERIFY CORRECT OPERATION				

DTC 37 - PASSENGER'S PRE-TENSIONER OPEN CIRCUIT, LOOP CAPACITANCE TOO LOW

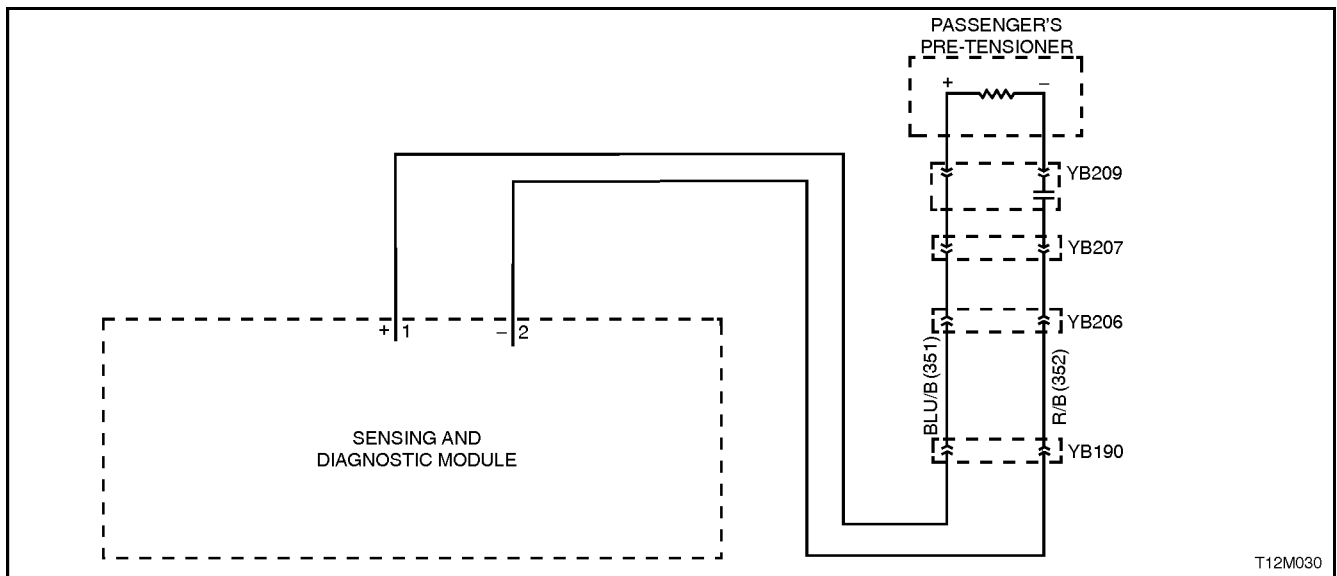


Figure 12M-97

CIRCUIT DESCRIPTION

At ignition on, and on a constant monitoring cycle of every 300 milliseconds during the ignition cycle, the SDM performs a system self check.

If the SDM detects a resistance in the passenger's pre-tensioner circuit that is too high (greater than 8 ohm) or the capacitance too low (less than 404 nF) for longer than 10 seconds, a current (frozen) DTC 37 will set.

DTC 37 will set if circuits 351 or 352 (including the passenger's pre-tensioner assembly) are open circuit.

When DTC 37 sets, the SDM illuminates the SRS warning lamp and sets a current DTC 37. Should the fault conditions detected by the SDM clear during the same ignition cycle, the current code will clear and become a history DTC 37. The SRS warning lamp will remain on for the remainder of the ignition cycle.

If a DTC 37 is set, the SRS warning lamp is illuminated on each ignition cycle, even if the DTC is set as a history DTC, until the fault conditions for setting DTC 37 are rectified and the DTC (current or history) can then be cleared from the SDM via TECH 2.

If DTC 37 is set, dependent on where the fault is, the passenger's pre-tensioner may not operate.

TEST DESCRIPTION

Number/s below refer to step numbers in the following diagnostic chart.

1. Uses TECH 2 to check if DTC 37 is current or history.
2. Checks for intermittent fault by monitoring TECH 2 screen. If screen display changes during a wiring 'wiggle' test, a fault with the wiring is at that location.
3. Tool SD28280B is a dummy load taking the place of the passenger's pre-tensioner assembly. If DTC 37 becomes a history DTC with dummy load connected, the system fault is in the passenger's pre-tensioner assembly.
4. Checks if open circuit is in the SRS connector harness. If connector YB207 is disconnected and it's terminal's are bridged together, DTC 37 will become a history DTC if this connector harness is faulty.
5. Checks circuit 351 for open circuit.
6. Checks circuit 352 for open circuit.

NOTES ON DIAGNOSTIC CHART

1. For all wiring harness checking procedures, refer to [Section 12P WIRING DIAGRAMS](#).
2. Refer to [2.8 SRS WIRING REPAIR](#) in this Section before conducting any SRS wiring harness repairs.
3. TECH 2 screen display only needs to change status to indicate an open circuit. The actual DTC may not be displayed and in some instances an incorrect DTC may be displayed. If any DTC other than DTC 37 is displayed during this test, unless they become Frozen DTC's no action needs to be taken other than repairing the open in the passenger's pre-tensioner circuit. If another DTC becomes frozen, other than DTC 37, refer to the relevant diagnostic chart in this Section.

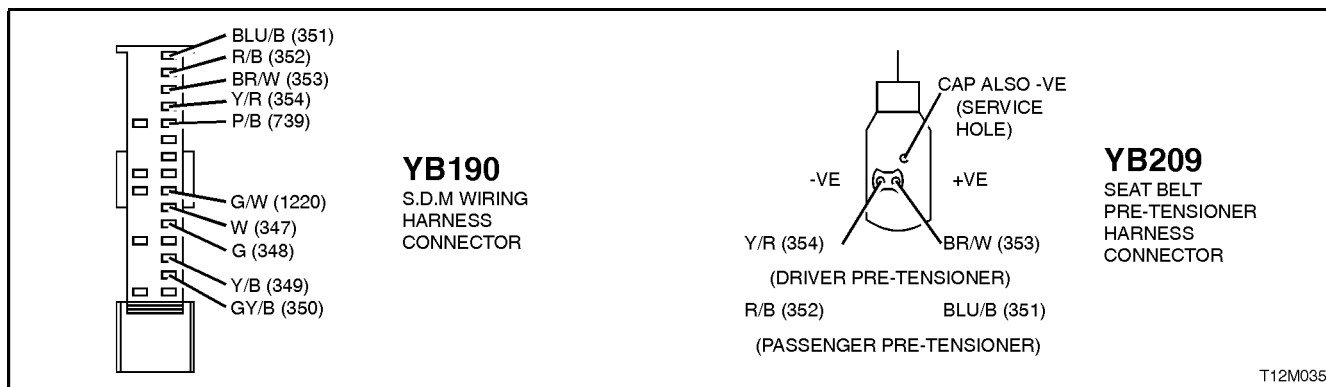


Figure 12M-98

STEP	ACTION	VALUE	YES	NO
1.	<ul style="list-style-type: none"> Connect TECH 2 to DLC Select Body / SRS / Diagnostic Trouble Codes / Read DTC Information. Is DTC 37 current? 		Go to Step 3.	Go to Step 2.
2.	<ul style="list-style-type: none"> With TECH 2 still connected, select Diagnostic Trouble Codes / Clear DTC information and clear all (if any) DTC's. Select Diagnostic Trouble Codes / Read DTC Information, 'wiggle' SRS wiring harness at all locations between the SDM and the passenger's pre-tensioner wiring harness connector YB209, while monitoring TECH 2 screen display. Does TECH 2 screen display change status from No Diagnostic Trouble Codes, refer to NOTE 3 above ? 		<p>Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.</p>	<p>Fault not present. Check all system wiring harness connectors, and terminals. Clear DTC and recheck system.</p>

STEP	ACTION	VALUE	YES	NO
3.	<ul style="list-style-type: none"> Disable the SRS, refer to 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Disconnect the passenger's pre-tensioner wiring harness connector YB209. Connect Tool No. SD28280B to SRS wiring harness connector YB209. Reconnect battery. Connect TECH 2 to DLC. Select Body / SRS / Diagnostic Trouble Codes / Read DTC Information. Is DTC 37 still current? 		Go to Step 4.	Replace passenger's pre-tensioner assembly, refer to Section 1A7 SEAT AND SEAT BELT ASSEMBLIES. Clear DTC and recheck system to verify repair.
4.	<ul style="list-style-type: none"> Disable the SRS, refer to 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Disconnect SRS wiring harness connector YB207 (located next to driver's seat) from passenger's pre-tensioner connector harness. Reconnect battery. Using a suitable jumper wire from KM-609, bridge terminals in connector YB207 together. With TECH 2 still connected, select Body / SRS / Diagnostic Trouble Codes / Read DTC Information. Does DTC 37 become history? 		Replace SRS connector harness (harness between driver's pre-tensioner and connector YB207). Clear all DTC's and recheck system to verify repair.	Go to Step 5

STEP	ACTION	VALUE	YES	NO
5.	<ul style="list-style-type: none"> Disable the SRS, refer to 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Disconnect SDM wiring harness connector YB190 from the SDM. Using Tool KM-609-20, check wiring between SDM wiring harness connector YB190, terminals 1 and SRS wiring harness connector YB207, circuit 351 (Blue/Black wire) for open (refer to NOTE 1 above). Is all OK? 		Go to Step 6.	Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.
6.	<ul style="list-style-type: none"> With SDM wiring harness connector YB190 disconnected from the SDM and using Tool KM-609-20, check wiring between SDM wiring harness connector YB190, terminal 2 and SRS wiring harness connector YB207, circuit 352 (Red/Black wire) for open (refer to NOTE 1 above). Is all OK? 		Replace SDM, refer to 2.7 SENSING AND DIAGNOSTIC MODULE in this Section. Recheck circuit to verify repair.	Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.
WHEN ALL DIAGNOSIS AND REPAIRS ARE COMPLETED, ENSURE ALL SRS COMPONENTS ARE RECONNECTED, CLEAR ALL DTC'S, ENABLE THE SRS AND VERIFY CORRECT OPERATION				

DTC 38 - PASSENGER'S PRE-TENSIONER SHORT CIRCUIT, LOOP CAPACITANCE TOO HIGH

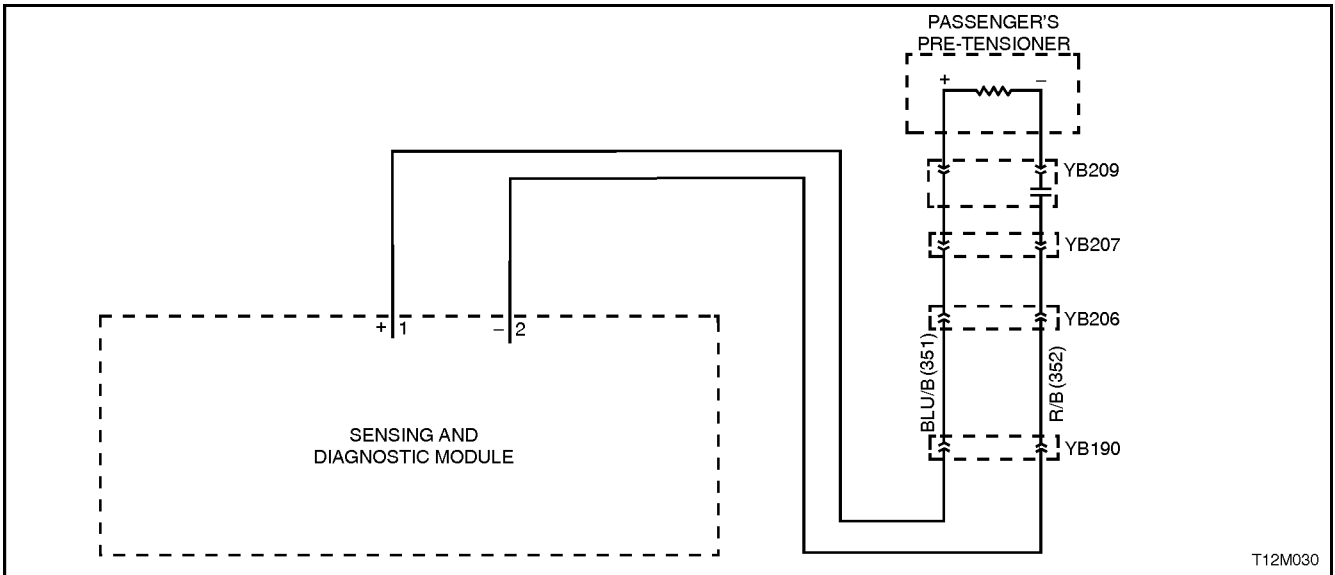


Figure 12M-99

CIRCUIT DESCRIPTION

At ignition on, and on a constant monitoring cycle of every 300 milliseconds during the ignition cycle, the SDM performs a system self check.

If the SDM detects a resistance in the passenger's belt pre-tensioner circuit that is too low (less than 1 ohm) or the capacitance too high (greater than 535 nF) for longer than 10 seconds, a current (frozen) DTC 38 will set.

DTC 38 will set if circuits 351 or 352, (including the belt pre-tensioner assembly) are shorted to earth.

When DTC 38 sets, the SDM illuminates the SRS warning lamp and sets a current DTC 38. Should the fault conditions detected by the SDM clear during the same ignition cycle, the current code will clear and become a history DTC 38. The SRS warning lamp will remain on for the remainder of the ignition cycle.

If a DTC 38 is set, the SRS warning lamp is illuminated on each ignition cycle, even if the DTC is set as a history DTC, until the fault conditions for setting DTC 38 are rectified and the DTC (current or history) can then be cleared from the SDM via TECH 2.

If DTC 38 is set, dependent on where the fault is, the passenger's belt pre-tensioner may not operate.

TEST DESCRIPTION

Number/s below refer to step numbers in the following diagnostic chart.

1. Uses TECH 2 to check if DTC 38 is current or history.
2. Checks for intermittent fault by monitoring TECH 2 screen. If screen display changes during a wiring 'wiggle' test, a fault with the wiring is at that location.
3. Tool SD28280B is a dummy load taking the place of the passenger's pre-tensioner assembly. If DTC 38 becomes a history DTC with dummy load connected, the system fault is in the passenger's pre-tensioner assembly.
4. Checks circuit 351 and 352 for short to earth.

NOTES ON DIAGNOSTIC CHART

1. For all wiring harness checking procedures, refer to **Section 12P WIRING DIAGRAMS**.
2. Refer to **2.8 SRS WIRING REPAIR** in this Section before conducting any SRS wiring harness repairs.
3. Resistance cannot be measured between the two terminals in connector YB208, as the in-built capacitor blocks measurement. Therefore, a 'service hole' is incorporated into the connector for fault tracing. Refer to 1.1 SYSTEM COMPONENTS, **WIRING HARNESS** in this Section for more details on this type of connector.
4. TECH 2 screen display only needs to change status to indicate a short circuit. The actual DTC may not be displayed and in some instances an incorrect DTC may be displayed. If any DTC other than DTC 38 is displayed during this test, unless they become Frozen DTC's no action needs to be taken other than repairing the short in the passenger's pre-tensioner circuit. If another DTC becomes frozen, other than DTC 38, refer to the relevant diagnostic chart in this Section.

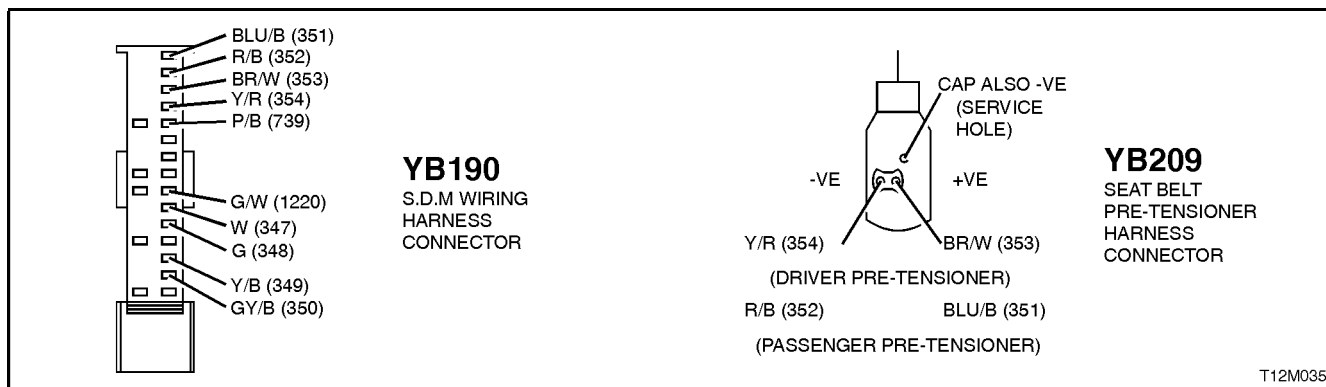


Figure 12M-100

STEP	ACTION	VALUE	YES	NO
1.	<ul style="list-style-type: none"> Connect TECH 2 to DLC Select Body / SRS / Diagnostic Trouble Codes / Read DTC Information. Is DTC 38 current? 		Go to Step 3.	Go to Step 2.
2.	<ul style="list-style-type: none"> With TECH 2 still connected, select Diagnostic Trouble Codes / Clear DTC information and clear all (if any) DTC's. Select Diagnostic Trouble Codes / Read DTC Information, 'wiggle' SRS wiring harness at all locations between the SDM and the passenger's pre-tensioner wiring harness connector YB209, while monitoring TECH 2 screen display. Does TECH 2 screen display change status from No Diagnostic Trouble Codes, refer to NOTE 3 above ? 		<p>Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.</p>	<p>Fault not present. Check all system wiring harness connectors, and terminals. Clear DTC and recheck system.</p>

STEP	ACTION	VALUE	YES	NO
3.	<ul style="list-style-type: none"> Disable the SRS, refer to 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Disconnect the passenger's pre-tensioner wiring harness connector YB209. Connect Tool No. SD28280B to SRS wiring harness connector YB209. Reconnect battery. Connect TECH 2 to DLC. Select Body / SRS / Diagnostic Trouble Codes / Read DTC Information. Is DTC 38 still current? 		Go to Step 4.	Replace passenger's pre-tensioner assembly, refer to Section 1A7 SEAT AND SEAT BELT ASSEMBLIES. Clear DTC and recheck system to verify repair.
4.	<ul style="list-style-type: none"> Disable the SRS, refer to 2.2 DISABLING AND ENABLING PROCEDURE in this Section. Disconnect SDM wiring harness connector YB190 from the SDM. Using Tool KM-609-20, check wiring between SDM wiring harness connector YB190, terminals 1 and 2 and passenger's pre-tensioner connector YB209, circuits 351 (Blue/Black wire) and 352 (Red/Black wire) for short to earth (refer to NOTES 1 and 3 above). Is all OK? 		Replace SDM, refer to 2.7 SENSING AND DIAGNOSTIC MODULE in this Section. Recheck circuit to verify repair.	Make repairs as necessary (refer to NOTE 2 above). Clear DTC and recheck system to verify repair.
WHEN ALL DIAGNOSIS AND REPAIRS ARE COMPLETED, ENSURE ALL SRS COMPONENTS ARE RECONNECTED, CLEAR ALL DTC'S, ENABLE THE SRS AND VERIFY CORRECT OPERATION				

DTC 53 - CONFIGURATION MISMATCH: TOO LITTLE OR TOO MANY LOOPS IN SRS

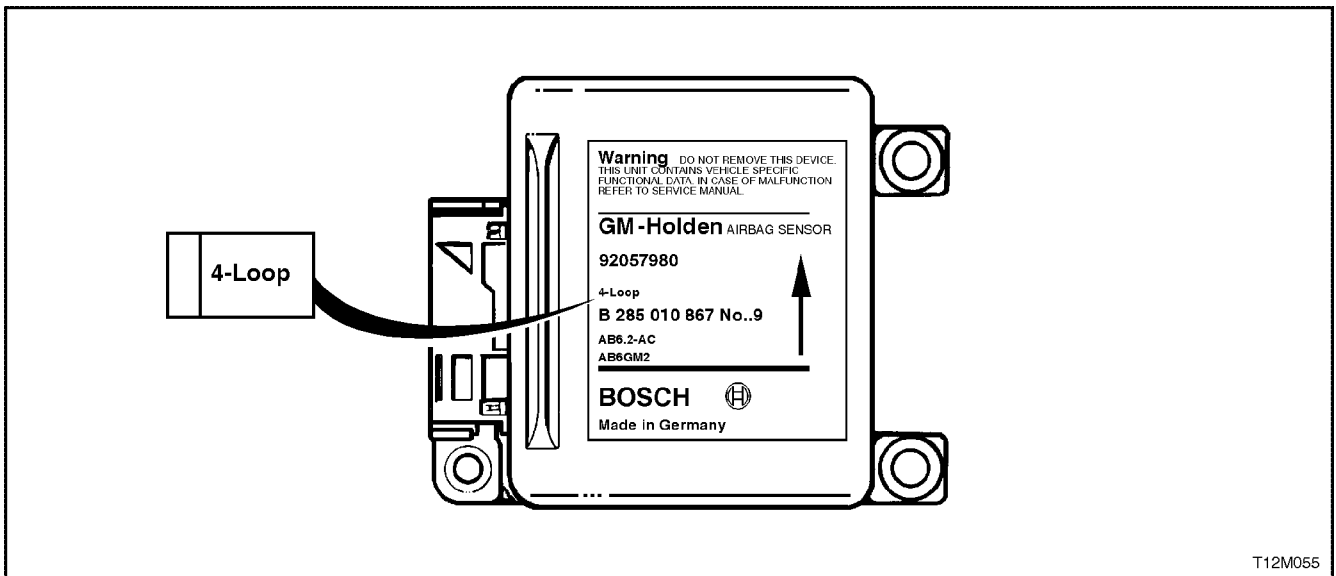


Figure 12M-101

CIRCUIT DESCRIPTION

The SDM will set a DTC 53 because it has been internally configured for a three loop system (vehicles with pre-tensioners and driver's air bag only) or a four loop system (vehicles with pre-tensioners, driver's air bag and front passenger's air bags) but at the same time has detected a mismatch with the actual vehicle configuration.

To identify the different SDMs, refer to the identification label on the top of the SDM. Figure 12M-101 shows the identification label for the 4 loop system.

NOTE:

Always refer to the latest VT spare parts microfiche/Part Finder information for the latest part numbers when ordering SRS components.

TECH 2 is capable of displaying the SDM part number; connect TECH 2 to DLC, select Diagnosis / Body / SRS / Turn Ignition ON and the system identification screen will display the SDM part number.

As an aid to the technician to diagnose the source of the mismatch, always check for other DTC set in the system first. Faults setting other DTC's should be rectified first, all DTC's cleared from the SDM and system retested to determine if DTC 53 will set again. If DTC sets again, install the correct SDM.

DTC 55 - INTERNAL SDM FAULT

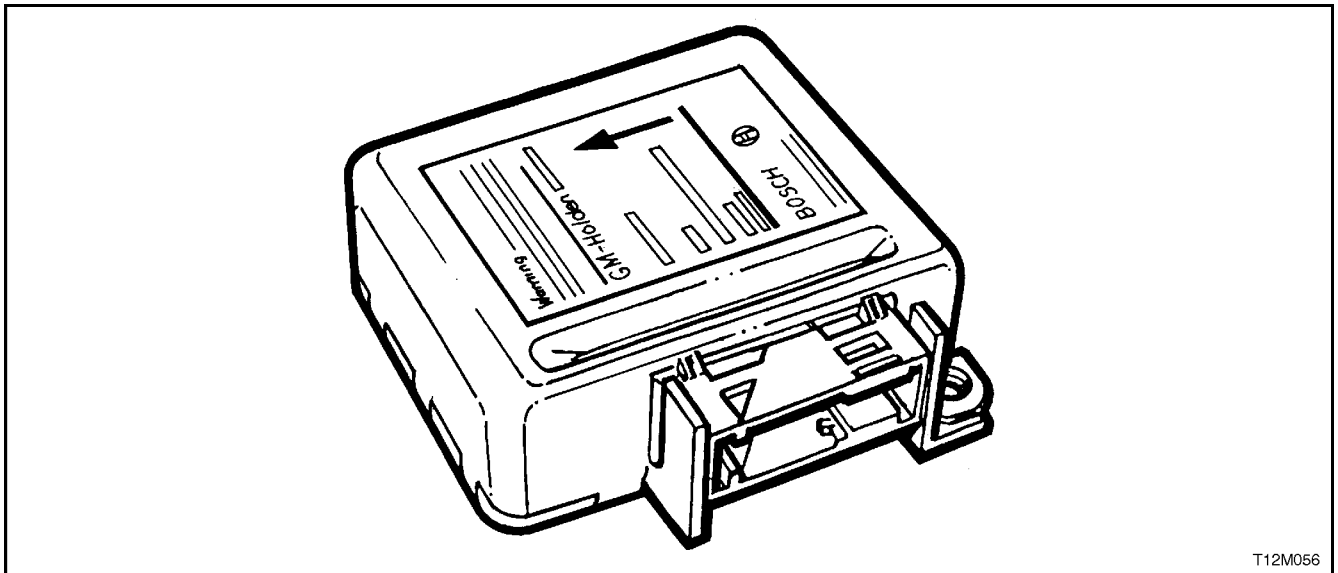


Figure 12M-102

CIRCUIT DESCRIPTION

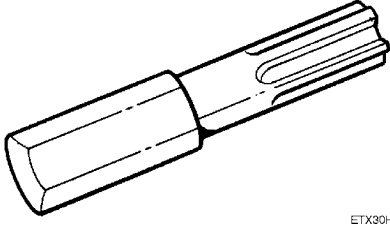
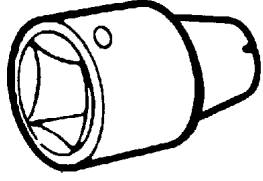

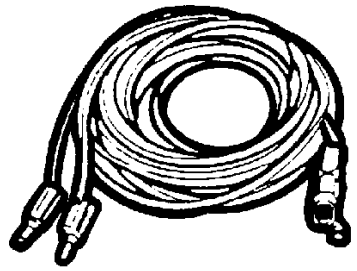
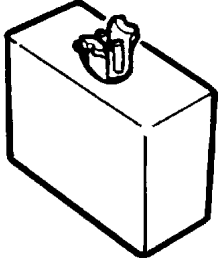
At ignition on, and on a constant monitoring cycle of every 300 milliseconds during the ignition cycle, the SDM performs a system self check. If the SMD detects a fault in itself, a DTC 55 will be set and the SRS warning lamp will be illuminated continuously with the ignition on.

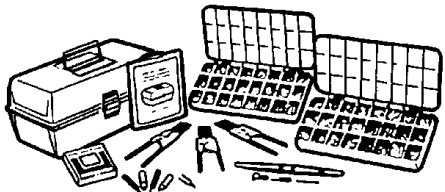
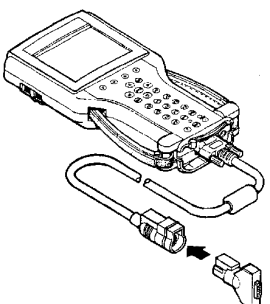
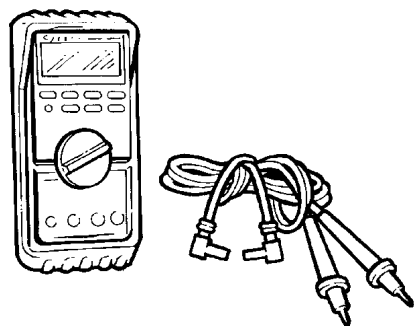
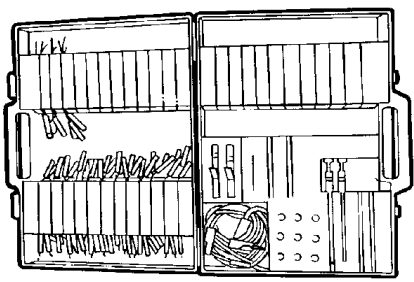
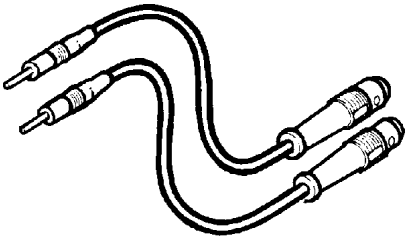
If DTC 55 is set, the SRS may not operate and must be replaced.

4. TORQUE WRENCH SPECIFICATIONS

	Nm
Front passenger's air bag inflator module assembly to dash panel attaching nuts	15 - 25
Horn bar and air bag inflator module assembly to steering wheel securing screws	10 - 14
Seat Belt Buckle and Pre-tensioner Asm. Retaining Bolt	45
Sensing and Diagnostic Module to floor attaching screws	7 - 11
Steering wheel retaining bolt	40 - 50

5. SPECIAL TOOLS

TOOL NO. REF IN TEXT	TOOL DESCRIPTION	COMMENTS
ETX30H	T30H TORX BIT  ETX30H	USE IN CONJUNCTION WITH J25359-8, (OR ETX55HLD) TORX BIT HOLDER USED FOR REMOVING SDM TO FLOOR ATTACHING SCREWS AND HORN BAR AND AIR BAG INFLATOR MODULE ASSEMBLY TO STEERING WHEEL SECURING SCREWS
J25359-8	TORX BIT HOLDER  J253598	PREVIOUSLY RELEASED FOR V CAR
E1992	DEPLOYMENT HARNESS ADAPTOR  E1	PREVIOUSLY RELEASED USED IN CONJUNCTION WITH DEPLOYMENT HARNESS J38826-1 FOR DEPLOYING SRS COMPONENTS WHEN REMOVED FROM THE VEHICLE
J38826-1	DEPLOYMENT HARNES  J388261	PREVIOUSLY RELEASED USED IN CONJUNCTION WITH DEPLOYMENT HARNESS ADAPTOR E1992 FOR DEPLOYING SRS COMPONENTS WHEN REMOVED FROM THE VEHICLE
SD28280B	DUMMY LOAD  SD28280B	PREVIOUSLY RELEASED AS PART OF SRS DIAGNOSTIC KIT SD28280. TOOLS AVAILABLE FROM: EINSTEIN TECHNOLOGY 14 FARMILLO COURT FERNTREE GULLY, VICTORIA AUSTRALIA 3156 TELEPHONE NO. (03) 97528663

J38125-A	<p>TERMINAL REPAIR KIT</p>  <p>J38125A</p>	<p>PREVIOUSLY RELEASED.</p> <p>MUST BE USED WHEN REPAIRING SRS WIRING, REFER TO 2.8 SRS WIRING REPAIR IN THIS SECTION.</p>
TECH 2	<p>DIAGNOSTIC SCAN TOOL</p>  <p>TECH2</p>	<p>PREVIOUSLY RELEASED</p>
J39200	<p>DIGITAL MULTIMETER</p> 	<p>TOOL NO. J39200 PREVIOUSLY RELEASED, OR USE COMMERCIALLY AVAILABLE EQUIVALENT. MUST HAVE 10 MEG OHM INPUT IMPEDANCE AND BE CAPABLE OF READING CAPACITANCE</p>
KM-609	<p>ELECTRONIC KIT</p> 	<p>USED IN CONJUNCTION WITH A MULTIMETER FOR MEASURING VOLTAGES AND RESISTANCE'S WITHOUT DAMAGING WIRING HARNESS CONNECTORS</p>
KM-609-20	<p>SRS TEST LEAD SET</p>  <p>KM-609-20</p>	<p>MANDATORY TOOL, USED FOR PROBING SDM CONNECTOR YB190 (ALSO AVAILABLE AS PART OF KM-609 ELECTRONIC KIT</p>