

SECTION 9A

AUDIO SYSTEMS

CAUTION: On vehicles equipped with Supplemental Inflatable Restraint (SIR), refer to CAUTIONS in Section 9J under "ON-VEHICLE SERVICE" and the SIR Component and Wiring Location view in Section 9J before performing service on or around SIR components or wiring. Failure to follow CAUTIONS could result in possible air bag deployment, personal injury, or otherwise unneeded SIR system repairs.

NOTICE: Always use the correct fastener in the correct location. When you replace a fastener, use ONLY the exact part number for that application. General Motors will call out those fasteners that require a replacement after removal. General Motors will also call out the fasteners that require thread lockers or thread sealant. UNLESS OTHERWISE SPECIFIED, do not use supplemental coatings (paints, greases, or other corrosion inhibitors) on threaded fasteners or fastener joint interfaces. Generally, such coatings adversely affect the fastener torque and joint clamping force, and may damage the fastener. When you install fasteners, use the correct tightening sequence and specifications. Following these instructions can help you avoid damage to parts and systems.

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AUDIO SYSTEMS

GENERAL DESCRIPTION

The radio receiver mounts in the instrument panel using snap-fit retainers. The receiver and amplifier are an integral design. No remote amplifier is used. The available radio systems are as follows:

1. UM7—AM/FM Stereo, Seek and Scan, Clock, 7 FM and 7 AM Preset Stations
2. UM6—AM/FM Stereo, Seek and Scan, Auto-Reverse Cassette, Clock, 7 FM and 7 AM Preset Stations
3. UL0—AM/FM Stereo, Seek and Scan, Auto-Reverse Cassette, Automatic Tone Control, Music Search, Clock, Preset Scan, Speed Compensated Volume, 12 FM Preset Stations, 6 AM Preset Stations
4. UN0—AM/FM Stereo, Seek and Scan, Compact Disc, Automatic Tone Control, Clock, Preset Scan, Speed Compensated Volume, 12 FM Preset Stations, 6 AM Preset Stations
5. UP0—Remote Cassette Tape Player

HANDLING ELECTROSTATIC DISCHARGE (ESD) SENSITIVE PARTS

Solid-state electrical components can be damaged by electrostatic discharge (ESD). Some will display a label, but many will not (Figure 1).

In order to avoid possibly damaging any components, observe the following:

1. Body movement produces an electrostatic charge. To discharge personal static electricity, touch a ground point (metal) on the vehicle. This should be done any time you:
 - Slide across the vehicle seat.
 - Sit down or get up.
 - Do any walking.
2. Do not touch exposed electric terminals on components with your finger or any tools. Remember, the connector that you are checking might be tied into

a circuit that could be damaged by electrostatic discharge.

3. When using a screwdriver or similar tool to disconnect a connector, never let the tool come in contact with or come between the exposed terminals.
4. Never jumper, ground, or use test equipment probes on any components or connectors unless specified in diagnosis. When using test equipment, always connect the ground lead first.
5. Do not remove the solid state component from its protective packaging until you are ready to install the part.
6. Always touch the solid state components package to a ground before opening. Solid state components can also be damaged if:
 - They are bumped or dropped.
 - They are laid on any metal work benches or components that operate electrically, such as a TV, radio, or oscilloscope.

DESCRIPTION OF OPERATION

AM/FM Stereo Radio (UM7 or UM6)

Power (PWR) and Volume Control

The radio power switch is integral with the volume control. If the radio is OFF, rotating the volume control to the right will turn the system ON. If the radio is ON, rotating the volume control to the left will turn the system OFF. The ignition lock cylinder must be in the ACCESSORY or RUN position for the radio to operate.

Band Switching (AM/FM)

Depressing the Tuning pushbutton will change the radio band between AM and FM.

When this pushbutton is depressed, the receiver will tune in the last frequency selected on the opposite band. The display will indicate the frequency and AM or FM mode.

Tuning (TUNE)

Rotating the TUNE pushbutton to the right will increase the AM or FM frequency.

Rotating it to the left will decrease the AM or FM frequency.

Volume (VOL)

Rotating the VOL pushbutton to the right will increase the volume. Rotating the VOL pushbutton to the left will decrease the volume.

Treble/Bass (TREB/BASS)

Slide the TREB lever up to increase the treble response. If the station is weak or noisy, slide the TREB lever down to reduce the noise.

Slide the BASS lever up to increase the bass response. Adjust the BASS lever to give a pleasing sound to your ear.

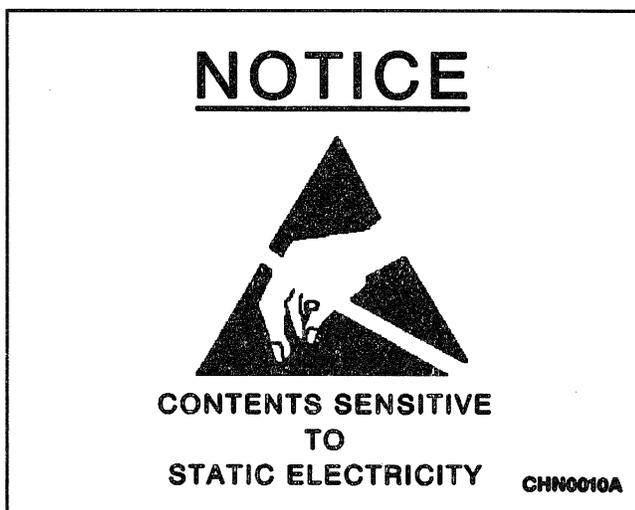


Figure 1—Electrostatic Discharge Label

Fade and Balance

The fade and balance function knobs adjust the relative volume between front and rear speakers and between left and right speakers, respectively.

Rotating the appropriate end of either knob adjusts the relative volume.

Set (SET) Pushbutton (UM7) or Set/Eject (SET/EJECT) Pushbutton (UM6)

Use the SET button in conjunction with the radio station preset pushbuttons to program radio frequencies into the memory locations. See "Radio Frequency Preset Pushbuttons" in this section for instructions on pre-setting radio stations. Radios equipped with cassette players combine the radio preset SET function with the cassette EJECT function.

Radio Frequency Preset Pushbuttons

Up to fourteen stations can be preset into the radio's memory.

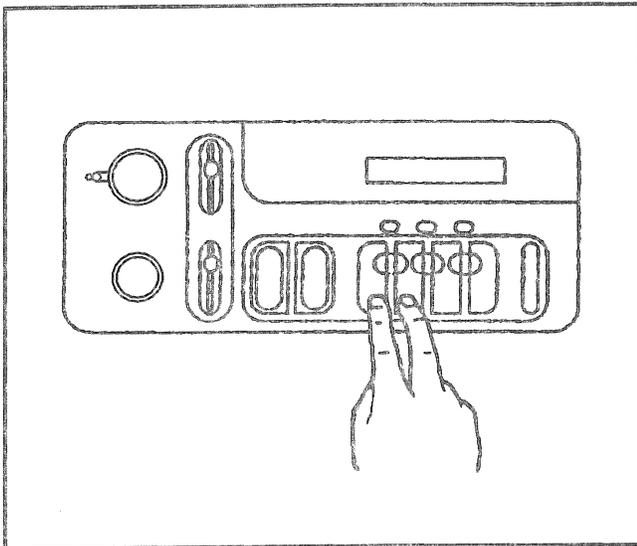


Figure 2—Pushbutton Pairing (1 of 3)

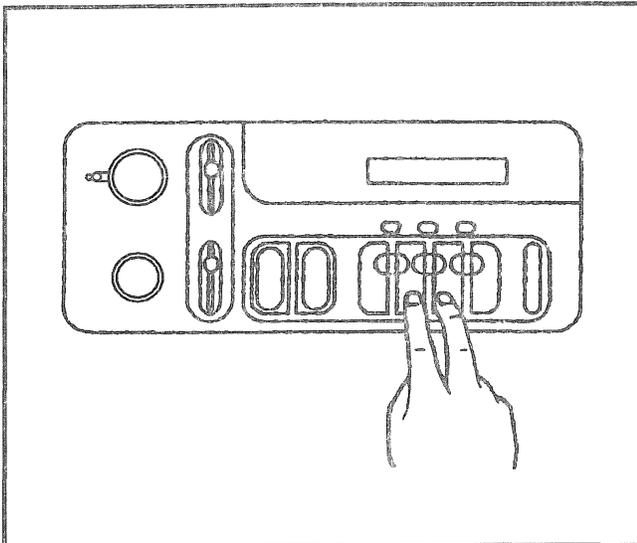


Figure 3—Pushbutton Pairing (2 of 3)

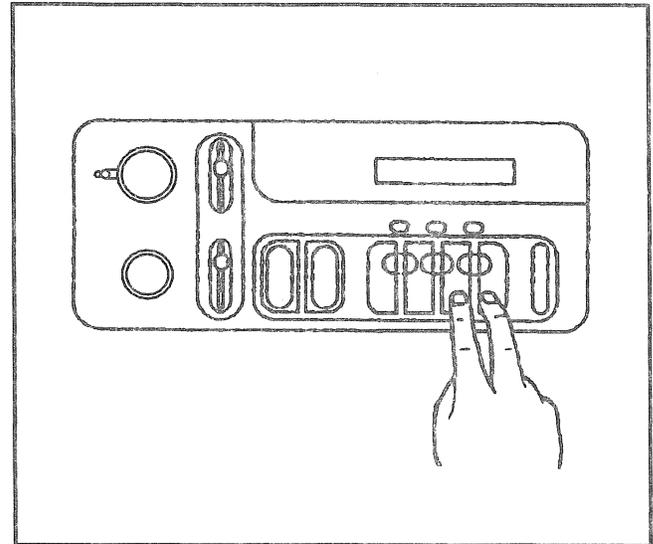


Figure 4—Pushbutton Pairing (3 of 3)

To preset 4 AM and 4 FM stations:

1. Tune in the desired station.
2. Press SET pushbutton. The SET indicator will light.
3. Press a station pushbutton. The SET indicator will go out. The radio will then tune in the selected station whenever that pushbutton is pressed.

If electrical power is interrupted (by a blown fuse, discharged battery, service procedure, etc.), the station(s) and time of day must be reset.

To preset 3 additional AM and 3 additional FM stations:

1. Tune in the desired station.
2. Press SET pushbutton. The SET indicator will light.
3. Press any two station pushbuttons at the same time (Figures 2 through 4). The station will return when the same two pushbuttons are pressed again.

Recall (RCL)

If the radio is ON, pressing the volume control will alternately cause the display to change from time of day (TOD) to radio frequency display.

Seek (SEEK)

The 2000 Series radio is capable of seeking stations in forward and reverse directions. Push the button marked with the UP arrow. The radio will seek to the next station higher in frequency that has sufficient signal strength to be listenable. Push the button marked with the DOWN arrow.

The radio will seek to the next station lower in frequency that has sufficient strength to be listenable.

Scan (SCAN) (UM7)

In the SCAN mode, each listenable station will be sampled for a few seconds. SCAN lights up in the display. SCAN is a two-button operation that requires the use of both SEEK pushbuttons

To enter the SCAN mode, press and hold the SEEK up pushbutton, then press the SEEK pushbutton. The receiver will continue scanning each listenable station until you press the VOL control or press both SEEK pushbuttons again.

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To SCAN down the dial, press and hold the pushbuttons in the opposite sequence.

Preset Scan (PSCAN) (UM7)

Any stations already stored on the preset pushbuttons can be sampled by the PSCAN mode. Press both SEEK pushbuttons. The display shows PSCAN. It will scan each of the station presets (both FM 1 and FM2) and stop for a few seconds or until you press either SEEK pushbutton or the RECALL knob again.

Loudness

These units contain an auto-loudness feature. This feature boosts low-frequency audio response to compensate for the inability of the ear to hear low-level, low-frequency tones. This compensation varies inversely with the volume control setting. That is, at low volume settings, the low frequencies are boosted much more than at high volume settings.

Clock

To set the clock:

1. Press the SET pushbutton.
2. Within 5 seconds, press and hold the SEEK up pushbutton until the correct minute appears on the display.
3. Press and hold the SEEK down pushbutton until the correct hour appears on the display.

Cassette Tape Player (UM6)

To play a cassette (UM6)

To play a tape, the ignition lock cylinder must be in ACCESSORY or RUN position and the receiver must be turned ON.

Tapes are end-loaded into these players. Insert the tape squarely through the door, exposed tape side of the cassette facing the right. When the tape is fully

inserted, the AM/FM portion of the radio will turn off and the tape will begin playing.

These tape players are built to work best with tapes that are 30 to 45 minutes long on each side. Tape longer than that are so thin, they may not work well in these players.

Once the tape is playing, use the upper and lower knobs for volume, balance, and fade just as with the radio. An arrow indicates which side of the tape is being played.

To fast forward the tape, press SEEK up. The tape will rapidly advance until you press the SEEK up pushbutton again.

To rewind the tape, press SEEK down. The tape will rewind rapidly until you press the SEEK down pushbutton again.

To go from one side of the tape to the other, press the upper knob.

To remove the tape or stop the tape and switch to radio, press the EJECT pushbutton.

AM/FM STEREO WITH INTEGRAL CASSETTE (UL0) OR COMPACT DISC (UN0)

To Operate the Radio

The ignition lock cylinder must be in the ACCESSORY or RUN position to operate the radio. Push the PWR knob to turn the radio on.

Volume (VOL)

Rotate the volume control to increase or decrease the volume. The faster the VOL knob is rotated, the quicker the radio goes to maximum volume. The knob is capable of rotating continuously.

Speed Control Volume (SCV)

These radios feature Speed Control Volume (SCV). The volume level automatically adjusts to compensate for road and wind noise as you drive. Adjust the volume to the listening level you want at any time. As you drive, the volume will change to match the noise present at any particular speed. The volume should always sound the same level to you as you drive.

Each detent on the SCV allows a little more compensation at a faster rate.

Band Switching (AM/FM)

Press the AM/FM pushbutton to toggle between AM, FM1, and FM2. The display indicates the current band.

Recall (RECALL)

Press the RECALL pushbutton to display the station when the radio is on and in the clock mode. When the ignition is off, press the RECALL pushbutton to recall the time of day. RECALL toggles between station and time of day.

Tuning

Press lightly on the TUNE control to release it from its recessed position. Rotate the TUNE knob to the right to increase frequency and to the left to decrease frequency. Push the control back in to store it while not tuning.

Seek (SEEK)

Press SEEK up or down to seek the next higher or lower station of sufficient strength and stop. Audio is muted during SEEK operation.

Scan (SCAN)

Press and hold SEEK for two (2) seconds. SCAN will appear on the display. Use SCAN to listen to stations for a few seconds. Press SEEK again to stop scanning.

Automatic Tone Control (ATC)

The Automatic Tone Control (ATC) feature tailors the equalization to the type of broadcast being received. Press AUTO TONE to step through the five preset equalization settings of CLASSIC, NEWS, ROCK, POP, or JAZZ. Note the graph and words in the display for each press of the pushbutton. One or more presses of the AUTO TONE pushbutton will bring up manual (MAN) and return the control of tone back to the TREB and BASS controls. Any time that a BASS or TREBLE control is rotated, tone is automatically set to MAN.

Bass

Depress the BASS control to remove it from its recessed position. Rotate the BASS control to the right to increase bass response. If less bass is desired, rotate the BASS control to the left. This control has a center detent position. Push the button back in to store it when not in use. Operation of this control will switch the radio's AUTO TONE feature to MAN.

Treble

Depress the TREB control to remove it from its recessed position; then pull it out to the fully extended position for TREB adjustments. Rotate the TREB control to the right to increase the treble response. If less treble is desired, rotate the TREB control to the left. This control has a center detent position. Push the button back in to store it when not in use. Operation of this control will switch the radio's AUTO TONE feature to MAN.

Station Presets

Six pushbuttons store stations in preset memory. You can set the pushbuttons for up to 18 stations (six AM, six FM1, and six FM2). To store a station in preset memory:

1. Tune in the desired station, using the TUNE knob or SEEK. 2. Press TONE to select the graph that best suits the type of station selected.
2. Press and hold one of the six pushbuttons until audio returns (approximately two seconds).

Whenever you press that pushbutton, the preset station will return. The AUTO TONE that you selected will also be automatically selected for that pushbutton.

Preset Scan (PSCAN)

Any stations already stored in preset memory can be sampled by the PSCAN mode. Press the PSCAN pushbutton. It will scan each of the presets and stop for a few seconds. The AUTO TONE setting stored for that station will be automatically chosen. The tuner will pause momentarily, then continue scanning until PSCAN or one of the preset pushbuttons is pressed again. PSCAN will appear in the display whenever the tuner is in the PSCAN mode. The channel number (P1-P6) will appear momentarily just before the frequency is displayed.

Balance (BAL)

Depress the BAL control to remove it from its recessed position. Rotate the balance to adjust the sound between the right and left speakers. This control features a center detent. Push the button back in to store it when not in use.

Fade (FADE)

Depress the FADE control to remove it from its recessed position. Rotate it to adjust the sound between the front and back speakers. This control features a center detent. Push the button back in to store it when not in use.

Clock

To set the clock, press and hold the HR or MIN pushbutton until it begins to change. There will be an initial two-second delay before the clock goes into the time-set mode. Release the pushbutton when the correct time is displayed. The clock may be set with the vehicle turned off.

Cassette Tape Player (UL0)**To play a cassette (UL0)**

Tapes may be played with the ignition ON or OFF. If the ignition is ON, but the radio is OFF, the tape will begin playing. A tape symbol, accompanied by tape direction arrows, is shown in the center of the graphic display whenever a tape is playing.

Tapes are end-loaded into these players. Insert the tape squarely through the door, exposed tape side of the cassette facing the right. When the tape is fully inserted, the AM/FM portion of the radio will turn Off and the tape will begin playing.

These tape players are built to work best with tapes that are 30 to 45 minutes long on each side. Tapes longer than that are so thin, they may not work well in these players.

The player automatically senses the tape cartridge for metal or CRO2 tape media and presets the pre-emphasis. For metal tapes, a metal tape indicator will be displayed. Any time a tape is inserted, the top side is selected for play first.

Once the tape is playing, use the volume, balance, fade, treble, and bass just as with the radio. An arrow indicates which side of the tape is being played.

Previous (PREV)

Press SEEK or PREV to search for the previous selection. A minimum three-second blank gap is required for proper operation. The tape direction arrow blinks during SEEK operation. Audio is muted during SEEK.

Program (PROG)

Press PROG to play the other side. Tape direction will reverse.

Next (NEXT)

Press SEEK or NEXT to search for the next selection. If you hold this pushbutton, or press it more than once, the disc will advance further. NEXT will appear in the display. Audio is muted during NEXT.

Reverse (REV)

To rewind the tape, press REV. The tape will rapidly reverse to the beginning of the tape or until you press the REV pushbutton. The radio will play the last-selected station during REV operation.

Dolby Noise Reduction®

Press the Dolby pushbutton to reduce inherent tape noise. The Dolby® symbol appears in the display.

Fast Forward (FWD)

To fast forward the tape, press FWD. The tape will rapidly advance to the end of the tape or until you press the FWD pushbutton again. The radio will play the last-selected station during FWD operation.

Tape/Auxiliary (TAPE/AUX)

To switch between tape and radio, after a tape has been

installed, press the AM/FM pushbuttons. The radio will play. To return to the tape, press TAPE AUX. The display will show the proper tape direction indicator.

Eject

To remove the tape, press EJECT. The radio will play. EJECT may be activated with either ignition ON or OFF. Cassettes may be loaded with the radio

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Tape Clean Indicator

UN0/UL0 (w/remote cassette) models have an indicator that appears every 50 hours or so of tape operation, as a reminder that the capstan and pinch roller need to be cleaned. This cleaning does not require that the tape player be removed from the vehicle. Refer to "Tape Player and Cassette Care" in this section.

Compact Disc Player (UN0)

To play a compact disc

Press the PWR knob to turn the system on. Inserting a disc will also turn the system on, if the ignition is on. Insert a disc partway into the slot, label side up. The player will pull it in. Wait a few seconds. The disc should begin play. CD and a CD symbol will appear in the display.

If the disc is very hot, or if you're driving on a very rough road, a disc may come out or just not play. When the disc player is too hot to play a disc, ERR will appear on the display. Press RECALL to cancel ERR.

When the disc player returns to normal temperature, the disc should play again. If the disc still won't play, check for:

- An upside down disc.
- Dirty, scratched, or wet disc.
- There is too much moisture in the air. If there is, wait about one hour and try again.

Recall

Press RECALL to see what track is playing. Press it again within five seconds to view elapsed time. Elapsed time is displayed in minutes and tenths of a second. Press RECALL again to return to time of day.

The track number appears when a new track starts to play.

Previous Track (PREV)

Press SEEK down or PREV to search for the previous selection. A minimum three-second blank gap is required for proper operation. The direction indicator blinks during SEEK operation. Audio is also muted during SEEK.

Random Playback (RDM)

The random playback (RDM) feature allows the tracks on the compact disc to be played in random order rather than in sequential 1, 2, 3.. order. To stop the random playback feature, press RDM. During random playback, a RANDOM indicator appears in the display.

Next Selection (NEXT)

Press SEEK up or NEXT to search for the next selection. If you hold this pushbutton, or press it more than once, the disc will advance further. NEXT will appear in the display. Audio is also muted during NEXT.

Reverse (REV)

Press and hold REV to return rapidly to a favorite passage. This is an audible search at a high rate of speed. Release REV to resume play at normal speed.

Forward (FWD)

Press and hold FWD to advance quickly within a track. This is an audible search at a high rate of speed. Release FWD to resume play at normal speed.

Band Switching (AM/FM)

While a compact disc is playing, pressing the AM/FM pushbutton will cancel CD operation and restore radio operation. The CD symbol will still be displayed, but the word CD will be replaced by FM1, FM2, or AM in the display. If the radio is turned off during compact disc playback, the disc stays in the player. It will resume playing at the point where it stopped.

Compact Disc/Auxiliary (CD/AUX)

The CD/AUX pushbutton toggles between CD play mode and radio operation. When a CD is inserted, it plays until the AM/FM pushbutton is pressed. Then, the CD will cease playback and the radio will play.

Ejecting a Compact Disc (EJECT)

Press EJECT. The disc will eject and the radio will play. The disc will start at track 1 when you reinsert it.

Theft Deterrent (THEFTLOCK)

These radios are equipped with THEFTLOCK theft deterrent which, when enabled, causes the unit to be inoperative should it be removed from the vehicle.

The theft deterrent is enabled (SECURE mode) by entering a user-selected code into the unit. This code must be re-keyed into the unit following any interruption of battery voltage to resume normal operations. When battery power is disconnected from a secured radio, the radio will not turn on and LOC will appear on the display. If the correct code is not entered, the unit will become inoperable and remain in the LOCKED mode. Any theft deterrent input mode may be exited by cycling either the radio power or ignition.

Activating Theftlock

1. Write down any number from 000 to 1999 and keep it in a safe place.
2. Turn the ignition to the ACC or the RUN position.
3. Turn the radio OFF.
4. Press the 1 and 4 pushbuttons together. Hold them down until "—" shows on the display.
You are now ready to enter your code. Do not wait more than 15 seconds between each step.
5. Press MIN. "000" will appear on the display.
6. Press the MIN pushbutton again to make the last two digits agree with your code.
7. Press the HR pushbutton to make the first one or two digits agree with your code.
8. Press the AM/FM pushbutton after you have confirmed that the code matches the one you wrote down. REP appears in the display, indicating that you need to repeat steps 5-7.
9. Press AM/FM. This time the display will show SEC. SEC means your radio is secure.

NOTE: With the ignition off, the THEFTLOCK indicator will flash.

To Unlock Theftlock After a Power Loss

Enter the user code as follows. Do not wait more than 15 seconds between steps.

1. Press MIN. "000" will appear on the display.
2. Press the MIN pushbutton again to make the last two digits agree with your code.
3. Press the HR pushbutton to make the first one or two digits agree with your code.

4. Press the AM/FM pushbutton after you have confirmed that the code matches the one you wrote down. SEC will appear in the display indicating that the radio is now operable.

Remote Cassette

To Play A Cassette

To load a tape with the ignition off, press **EJECT** or **RCL**, then insert the cassette. If the ignition is on, but the

radio is off, the tape will begin playing. Note the tape symbol shown in the center of the graphic display whenever a tape is inserted. When the tape is active, the tape symbol will be accompanied by a direction arrow indicating which side of the tape is being played.

Once the tape is playing, use **VOL**, **FADE**, **TREB** and **BASS** just as you did for radio. The player automatically senses

the cartridge for metal or CR02 and sets the pre-emphasis. For metal-biased tapes, the graphic display will denote metal bias with an indicator. Any time a tape is inserted, the top side is selected for play first.

Previous (PREV)

Press **SEEK** down or **PREV** to search for the previous selection. A minimum three second blank space is required for proper operation. If you hold this button, or press it more than once, the tape will advance further. The tape direction arrow blinks during **SEEK** operation. Audio is muted during **SEEK**.

Program (PROGRAM)

Press **PROG** to play the other side. This causes the tape direction to reverse.

Next (NEXT)

Press **SEEK** up or **NEXT** to search for the next selection. If you hold this button, or press it more than once, the cassette will advance further. Note the enunciator **NEXT** in the graphic display. Also note that audio is muted in this mode.

Reverse (REV)

To rapidly reverse the tape, press **REV** and the tape will rapidly reverse to the start of the side or until you press the **REV** button again. Radio plays last-selected station during **REV** operation.

Noise Reduction

Noise reduction is active at all times with a tape inserted in the remote cassette.

Forward (FWD)

To rapidly advance the tape, press **FWD** and the tape will rapidly advance to the end of the side or until you press the **FWD** button again. The radio plays the last-selected station during **FWD** operation.

Tape

To switch between tape and radio, after a tape has been inserted, press the **AM FM** buttons and the radio will play. To go back to the tape function, press **CD AUX**. Note the arrow next to the tape symbol in the display when in tape active mode.

Eject (EJECT)

To remove the tape, press the **EJECT** button. The radio will play. **EJECT** may be activated with either ignition or radio off. Cassettes may be loaded with the radio off. Press **EJECT** first to allow loading.

DIAGNOSIS

AUDIO SYSTEM DIAGNOSIS

For information on audio system diagnosis, refer to SECTION 8A.

ON-VEHICLE SERVICE

RADIO REPLACEMENT



Remove or Disconnect (Figure 5)

1. Negative battery cable. Refer to SECTION 6D1.
2. Instrument panel trim. Refer to SECTION 10A4.
3. Release radio retainers using a small screwdriver.
4. Radio by sliding forward.
5. Electrical connectors.
6. Antenna connection.



Install or Connect (Figure 5)

1. Antenna connection.
2. Electrical connectors.

3. Radio by sliding into the instrument panel.
 - Unit should snap into retainers when fully seated.
4. Instrument panel trim. Refer to SECTION 10A4.
5. Negative battery cable. Refer to SECTION 6D1.
 - Check component operation

REMOTE PLAYBACK DEVICE REPLACEMENT



Remove or Disconnect (Figure 5)

1. Negative battery cable. Refer to SECTION 6D1.
2. Instrument panel trim. Refer to SECTION 10A4.
3. Release retainers using a small screwdriver.
4. Electrical connectors.
5. Playback device.

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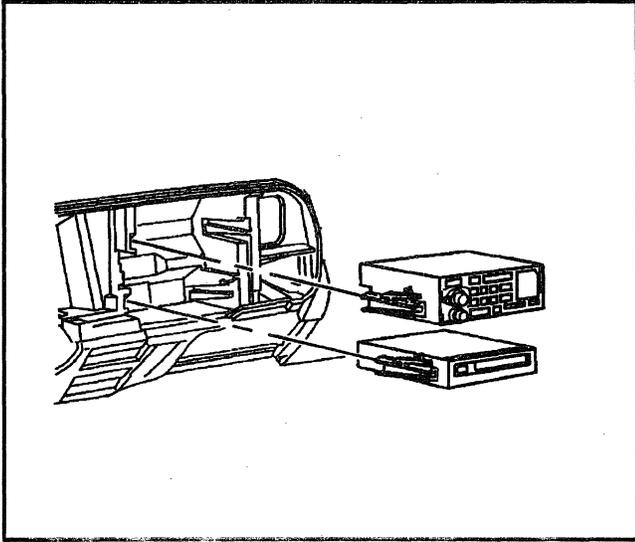


Figure 5—Radio Replacement



Install or Connect (Figure 5)

1. Electrical connectors.
2. Playback device.
 - Unit should snap into retainers when fully seated.
3. Accessory trim plate. Refer to SECTION 10A4.
4. Negative battery cable.
 - Check component operation.

TAPE PLAYER AND CASSETTE CARE

For the best operation of the cassette tape player, do not use cassette tapes that are longer than 90 minutes in playback time (45 minutes per side). Cassette tapes longer than 90 minutes may cause tape slippage or jamming.

Tape Head and Capstan Cleaning

There are two parts that are cleaned on a tape player: the head and the capstan. Since they can be reached through the tape door, leave the tape player in the vehi-

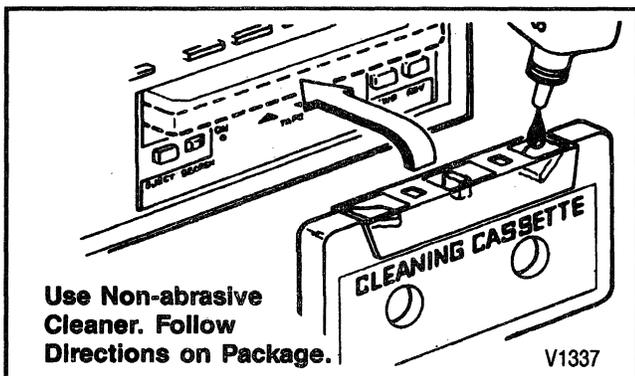


Figure 6—Using A Cleaning Cassette

cle. This service should be performed every 50 hours of operation.

To clean the head and capstan, use a cotton swab dipped in ordinary rubbing alcohol, or use a cleaning cassette.

As an alternate way to clean the head and capstan, a cleaning cassette kit may be purchased (Figure 6). Follow the instructions included with the kit to clean the tape player.

Do not contact the tape head with magnetized tools. If the head becomes magnetized, cassette sound quality will degrade.

No service is performed on tapes. Warranty of these tapes is handled by the cassette manufacturer, not by the dealer. Store test tapes in their original containers. Store cassettes away from extreme heat or direct sunlight.

Clean Tape Indicator Feature

The cassette and remote cassette units will remind the user to clean the cassette head. After 50 hours of cassette operation, CLN will appear briefly in the display when a cassette is inserted or when the power is cycled in cassette mode. The feature will be canceled and the timer reset when the eject button is pressed and held for approximately five seconds. When the feature has been canceled, — appears in the display.

COMPACT DISC PLAYER AND DISC CARE

No maintenance is required to the compact disc player. When a disc is not in the CD player, it should be stored in its protective container. Store discs away from extreme heat and direct sunlight.

For best results, apply the same care in storing and handling the compact disc as with conventional records. No further cleaning will be necessary if the compact disc is always held by the edges and is replaced in its case directly after playing. Should the compact disc

become soiled by fingerprints, dirt, or dust, it can be wiped (always in a straight line, from center to edge) with a clean and lint-free soft, dry cloth. No solvent or abrasive cleaner should ever be used on the disc.

AMPLIFIER



Remove or Disconnect (Figures 7 and 8)

1. Negative battery cable. Refer to SECTION 6D1.
2. Electrical connectors, as necessary.
3. Amplifier (24) from bracket (25).



Install or Connect (Figures 7 and 8)

1. Amplifier (24) to bracket (25).
2. Electrical connectors, as necessary.
3. Negative battery cable. Refer to SECTION 6D1.

- Check circuit operation.

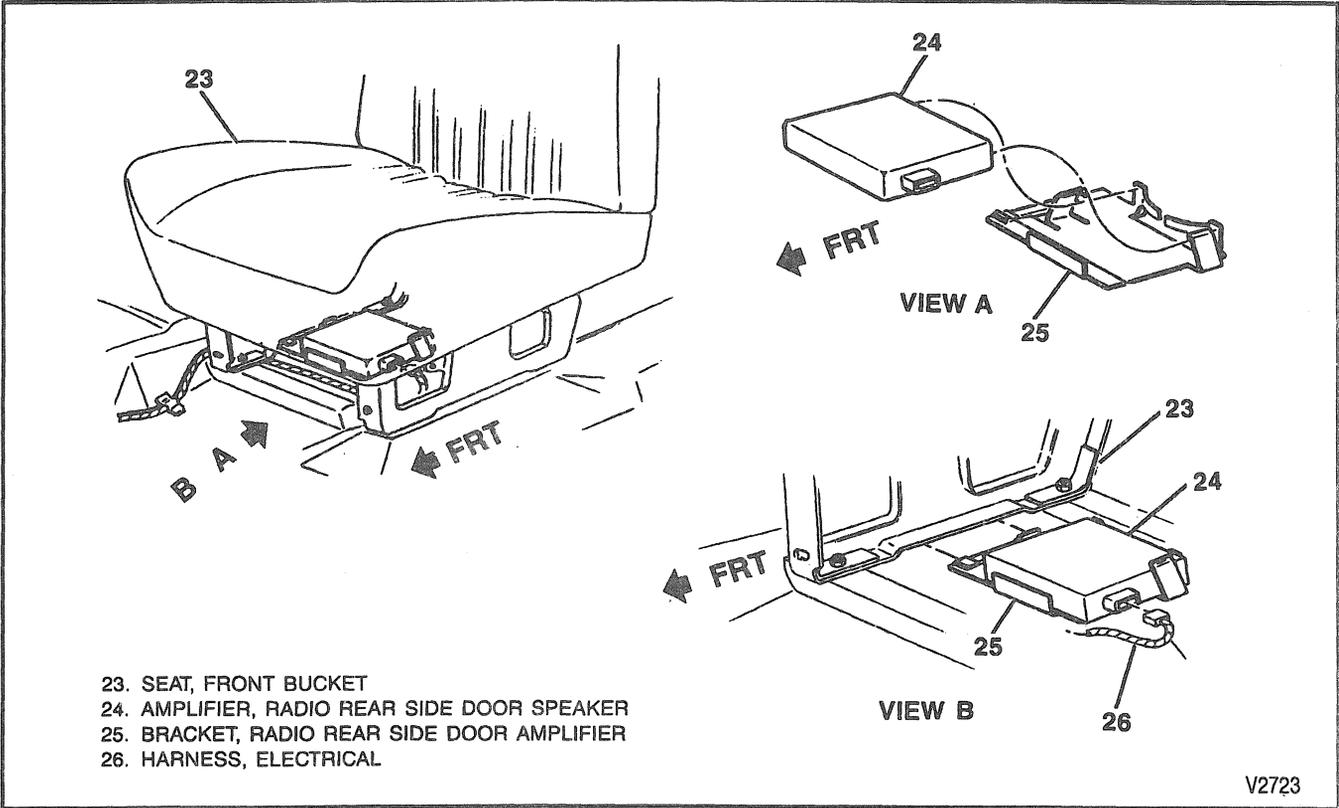


Figure 7—Amplifier Assembly (Front Bucket Seat-Suburban Models)

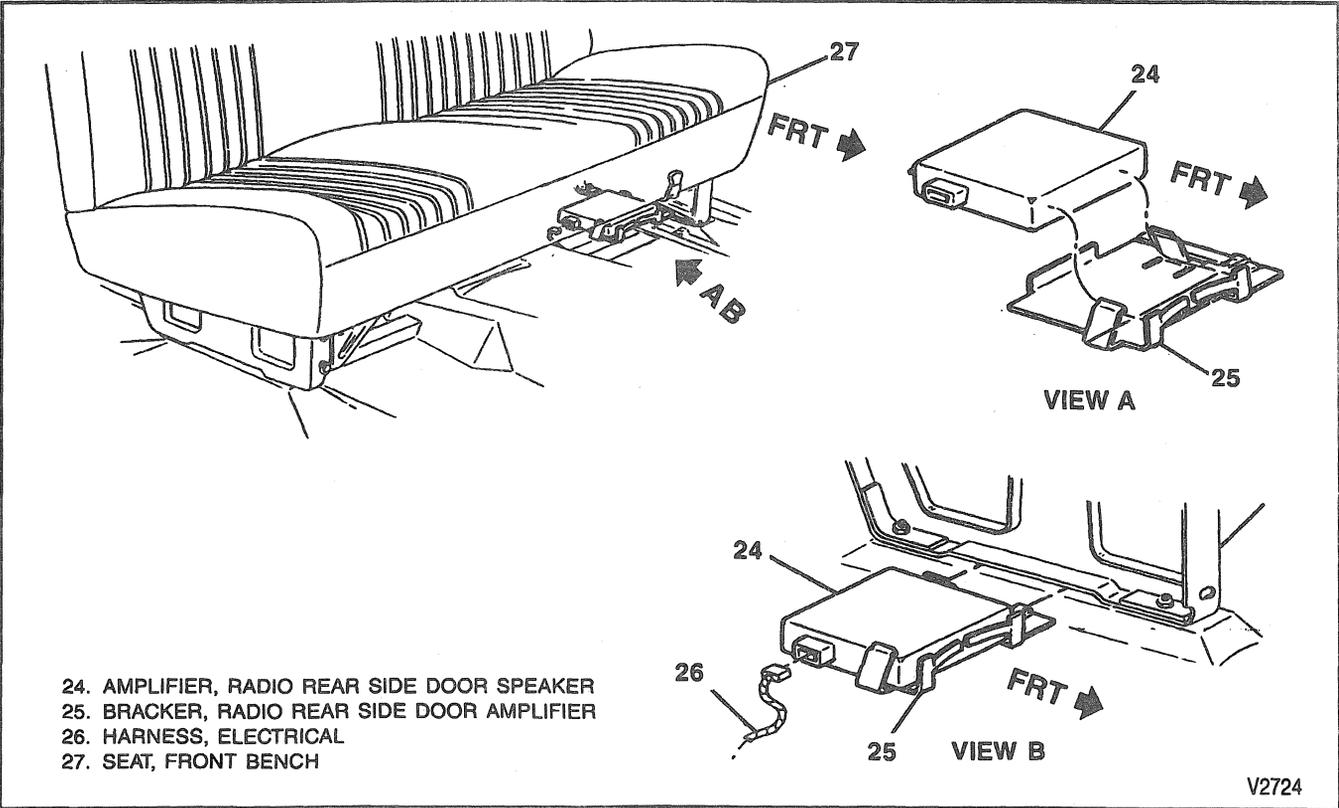


Figure 8—Amplifier Assembly (Front Bench Seat-Suburban Models)

9A-10 AUDIO SYSTEMS

SPEAKERS

Front Side Door Speakers

↔ Remove or Disconnect (Figure 9)

1. Trim panel. Refer to SECTION 10A4.
2. Screws.
3. Release speaker retainer using a small screwdriver.
4. Speaker.
5. Electrical connector.

↔ Install or Connect (Figure 10)

1. Electrical connector.
2. Speaker.
 - Speaker should snap into retainer when fully seated.
3. Screws.

⌚ Tighten

- Screws to 2 N.m (18 lb. in.).
4. Trim panel. Refer to SECTION 10A4.
 - Check component operation.

Front Door Armrest Speakers

↔ Remove or Disconnect (Figure 10)

1. Lift armrest speaker cover at the rear edge.
2. Slide cover back to disengage front retainer.
3. Electrical connector.
4. Speaker
 - Rotate speaker to release it.

↔ Install or Connect (Figure 10)

1. Speaker to the cover by rotating.
 - Speaker should snap into retainer when fully seated.
2. Electrical connector.
3. Slide cover into front slots.
4. Lower armrest speaker cover to engage retainers.

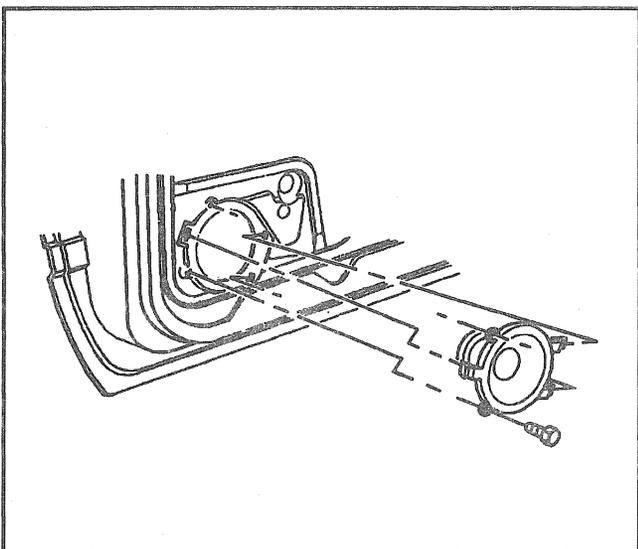


Figure 9—Front Speaker Assembly

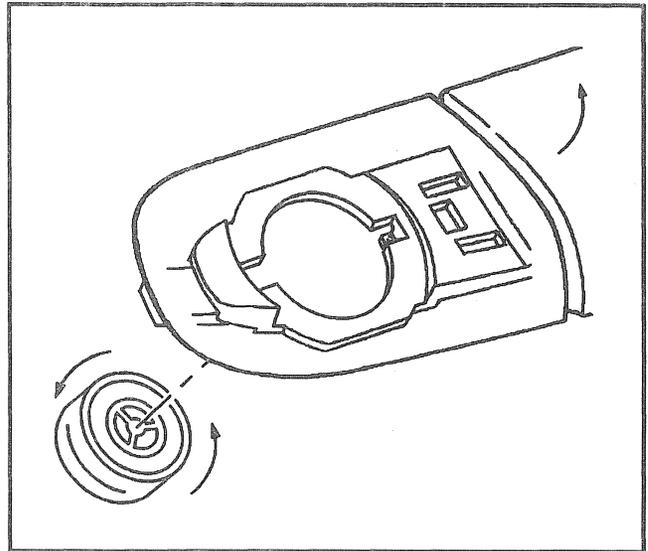


Figure 10—Armrest Speaker Replacement

Rear Speakers

↔ Remove or Disconnect (Figures 11 through 15)

1. Speaker grille or rear trim panel.
2. Screws.
3. Speaker.
4. Electrical connectors.

↔ Install or Connect (Figures 11 through 15)

1. Electrical connectors.
2. Speaker.
3. Screws.

⌚ Tighten

- Screws to 2 N.m (18 lb. in.).
4. Speaker grille or rear trim panel.
 - Check component operation.

Side Door Speakers

↔ Remove or Disconnect (Figure 16)

1. Speaker grille. Refer to SECTION 10A1.
2. Retainers.
3. Speaker.
4. Electrical connectors.

↔ Install or Connect (Figure 16)

1. Electrical connectors.
2. Speaker.
3. Retainers.
4. Speaker grille. Refer to SECTION 10A1.
 - Check component operation.

Rear Overhead Speakers

↔ Remove or Disconnect (Figure 17)

1. Speaker grille.

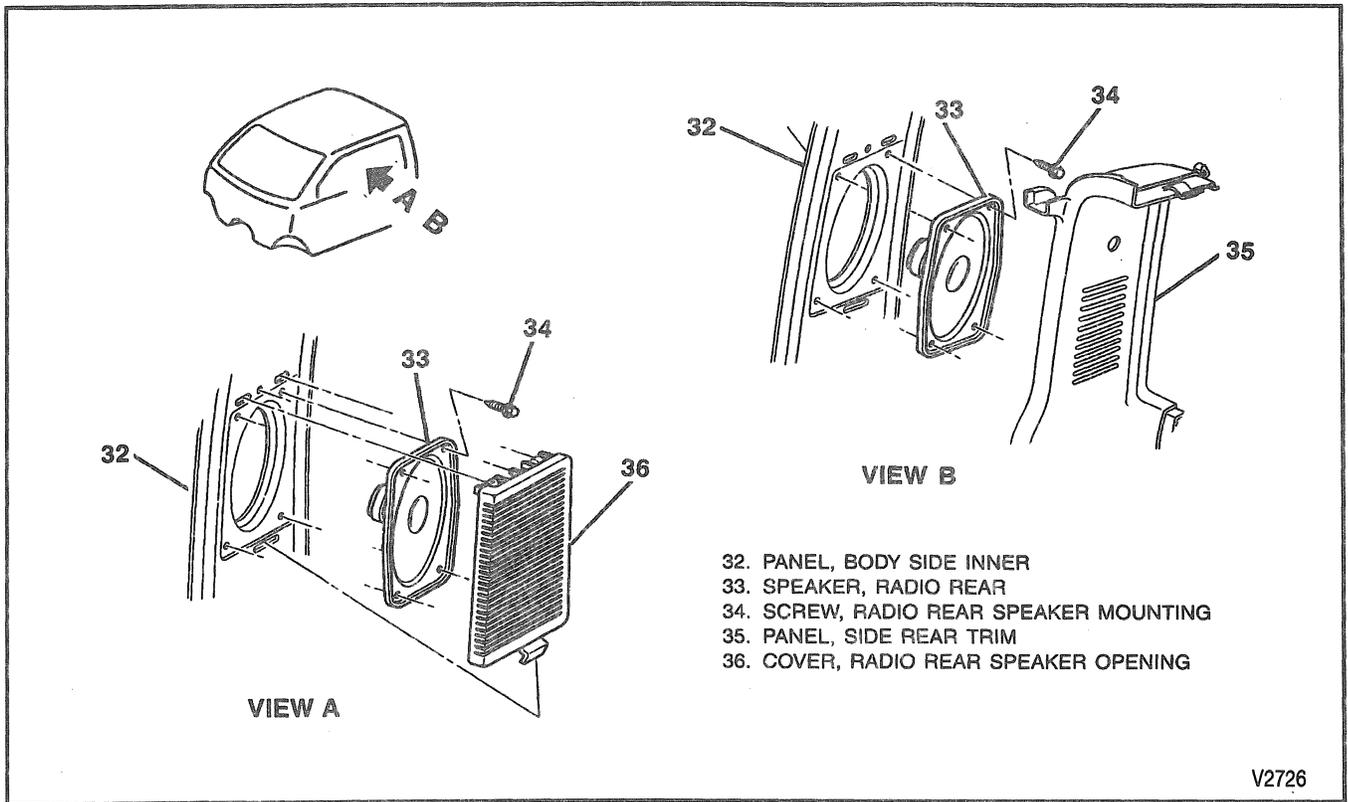


Figure 11—Rear Speaker Assembly (Pickup/Chassis-Cab Models)

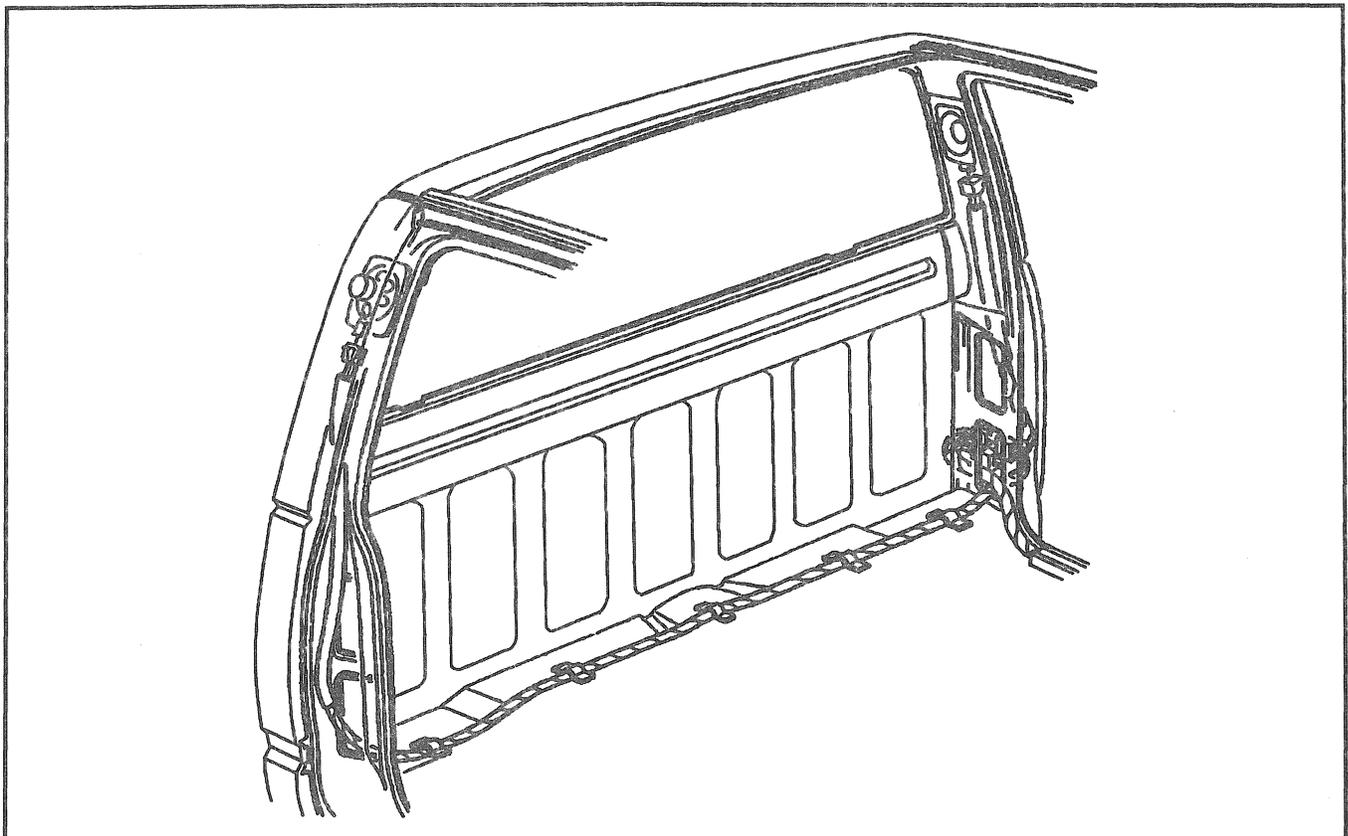


Figure 12—Rear Speaker Harness Routing (Pickup/Chassis-Cab Models)

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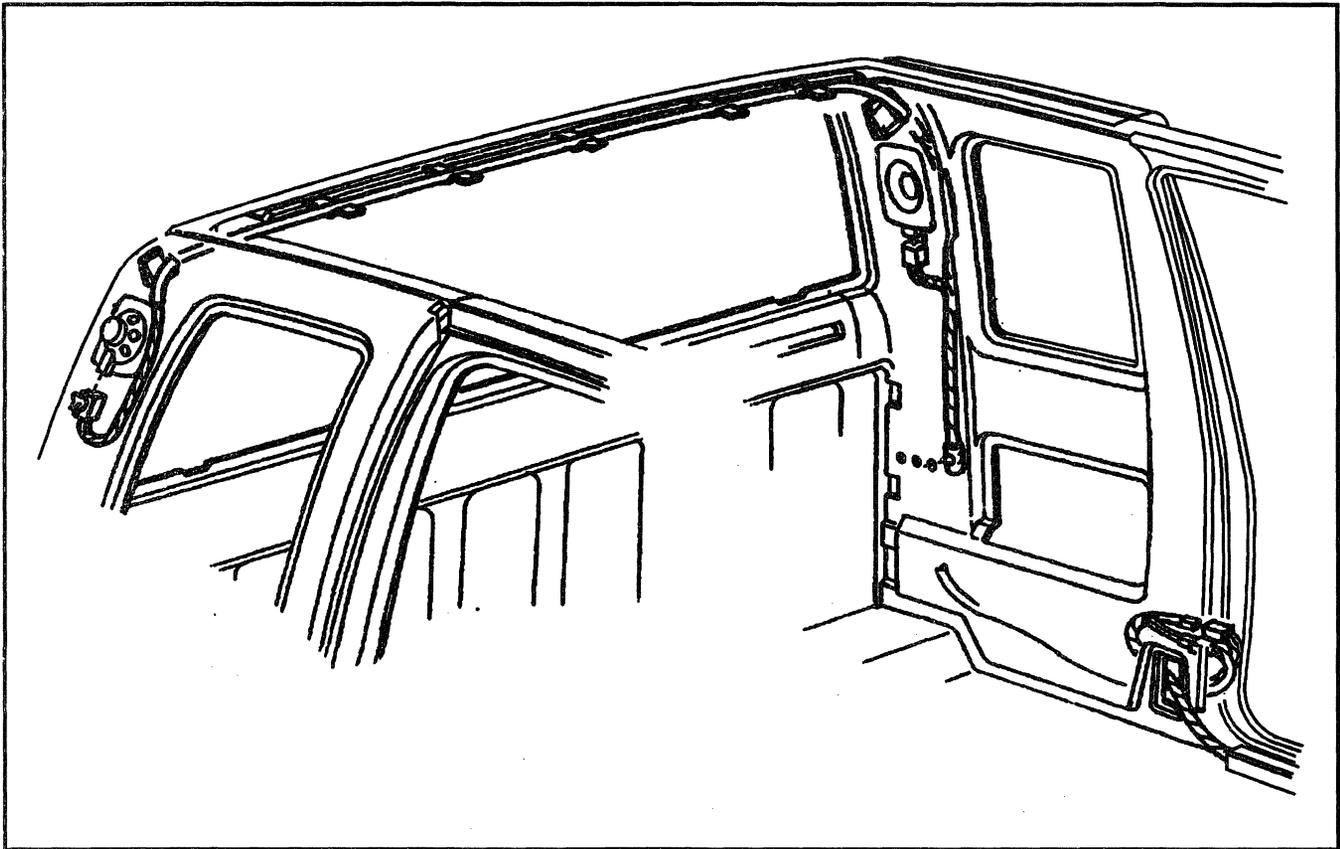


Figure 13—Rear Speaker Harness Routing (Extended Cab Models)

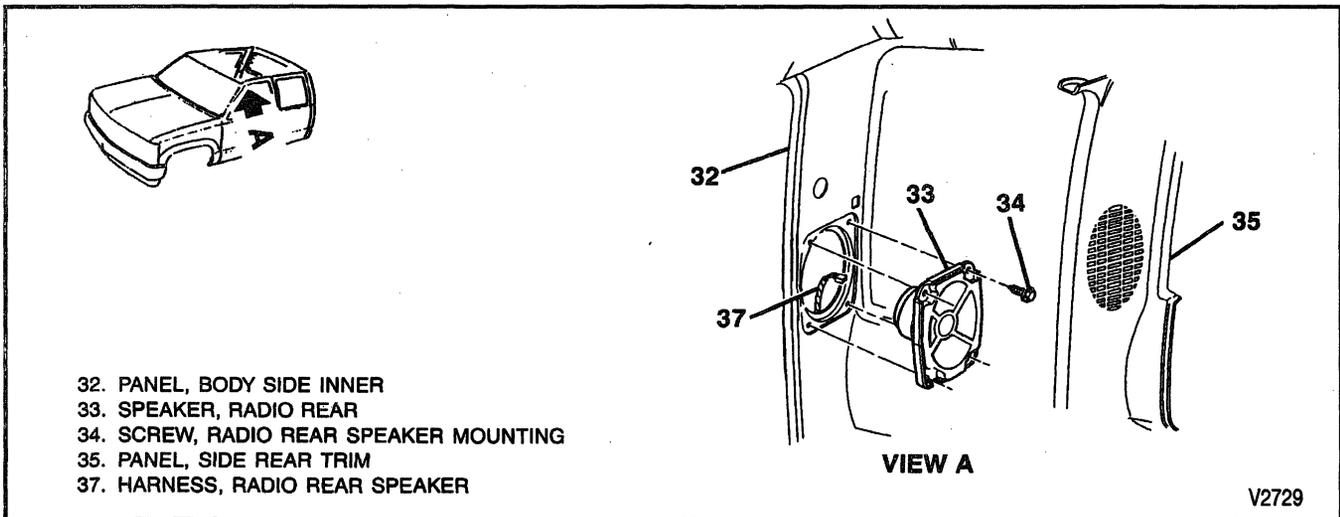


Figure 14—Rear Speaker Assembly (Extended Cab/Crew Cab Models)

2. Roof inner trim panel, if necessary. Refer to SECTION 10A4.
3. Screws.
4. Speaker from bracket.
5. Electrical connectors, as necessary.

 **Install or Connect (Figure 17)**

1. Electrical connectors, as necessary.

2. Speaker to bracket.
3. Screws.

 **Tighten**

- Screws to 2 N.m (18 lb. in.).
4. Roof inner trim panel, if necessary. Refer to SECTION 10A4.
 5. Speaker grille.
 - Check component operation.

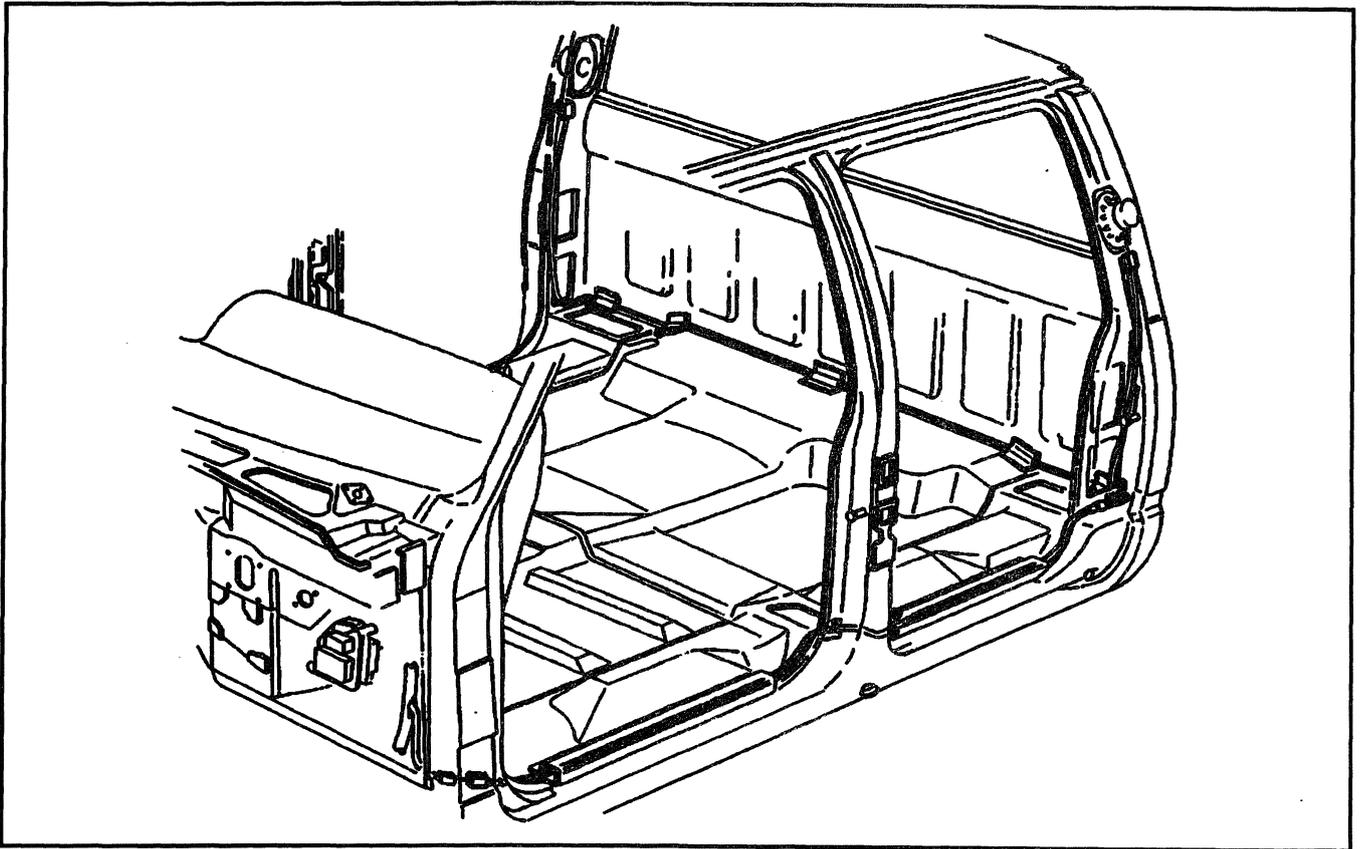


Figure 15—Rear Speaker Harness Routing (Crew Cab Models)

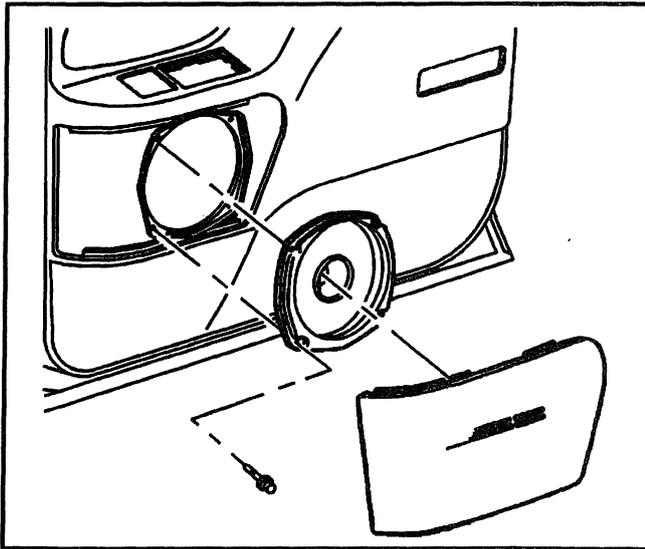


Figure 16—Rear Side Door Speaker Assembly (Suburban Models)

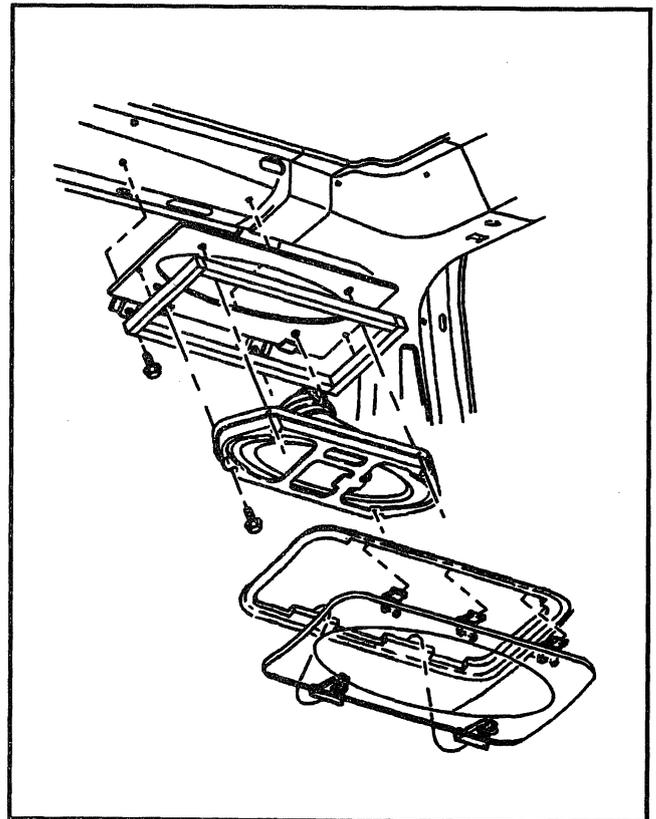


Figure 17—Rear Overhead Speaker Assembly (Suburban and Utility Models)

ANTENNAS

GENERAL DESCRIPTION

The fixed mast barbless antenna is designed to withstand most car washes without damage. It cannot be adjusted up or down. If the mast becomes slightly bent,

straighten it by hand. The antenna can be replaced if it becomes severely bent. Antennas must be kept clean for good performance.

DIAGNOSIS

Disconnect antenna from the extension cable and plug in a test antenna. Ground the antenna to the vehicle chassis. Keep hands off of the antenna. Test radio reception in an area away from electrical interference's such as tall buildings, metal structures, power lines, fluorescent lighting, and power tools. Tune to high and low ends of the dial on both AM and FM, checking weak and strong station reception. If reception is okay, the problem exists with the antenna and/or its lead-in cable. If reception is still poor, refer to "Diagnostic Charts" earlier in this section.

Testing for Good Ground of Antenna Mounting and Connections

Poor grounding at the antenna mounting or any connection in the antenna/lead-in system can result in seriously reduced radio performance. A poor ground can be a reason for excess ignition noise on AM or erratic audio. Also, make sure lead-in connectors are free of dirt and corrosion, and are tightly fastened.

Possible ground loss or high-resistance ground points are:

- Antenna upper mounting (loose screws, paint overspray, etc.).
- Lead-in cable connector at antenna (loose or internally corroded).
- Lead-in cable connector at radio (loose or internally corroded).
- Quick connect connector (corroded).
- Missing ground lead.

Measuring Resistance with Digital Volt-Ohmmeter

MEASURE RESISTANCE WITH DIGITAL VOLT-OHMMETER	
PROBES ON	INDICATION (OHMS)*
3 and 4	Less than 0.2
1 and 2	Less than 0.2
2 and 4	Infinite
1 and 3	Infinite
1 and 4	Infinite
2 and 3	Infinite
*WHILE MEASURING, WIGGLE LEAD-IN TIP AND CABLE; INDICATION SHOULD NOT VARY.	
T3226	

Usually, a broken center conductor of the lead-in cable will result in no AM and weak FM. In case of continued reception or noise complaints, always check the lead-in with an ohmmeter (Figure 18).

When checking resistance, wiggle the lead-in tip and cable. If the readings shown in the accompanying table are not obtained, some portion of the lead-in is intermittent. Replace the lead-in.

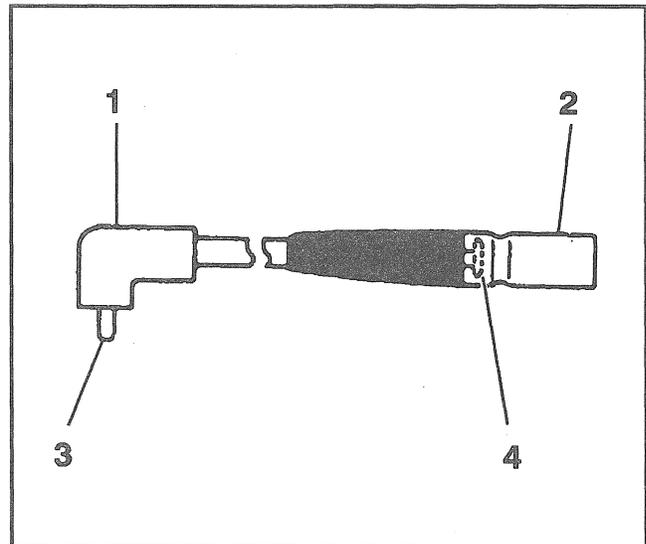


Figure 18—Lead-In Cable Diagnosis

ON-VEHICLE SERVICE

FIXED ANTENNA REPLACEMENT

↔ Remove or Disconnect (Figure 19)

1. Antenna mast.
2. Nut.
3. Bezel.
4. Antenna cable from extension cable.
5. Screws.
6. Antenna cable assembly.

→ Install or Connect (Figure 19)

1. Antenna cable assembly.
2. Screws.

Tighten

- Screws to 5 N.m (58 lb. in.).

3. Antenna cable to extension cable.
4. Bezel.
5. Nut.

Tighten

- Nut to 5 N.m (58 lb. in.).

6. Antenna mast.

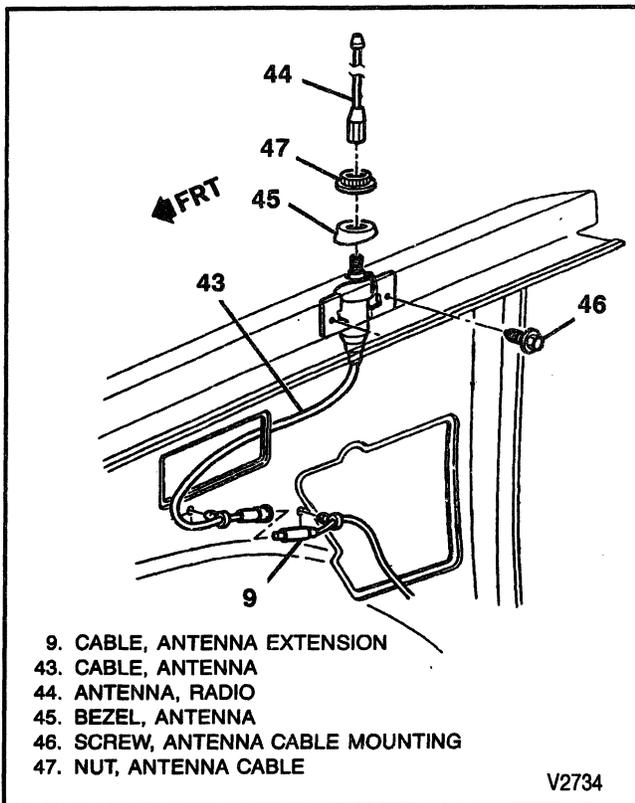


Figure 19—Antenna Assembly

LEAD-IN REPLACEMENT

↔ Remove or Disconnect (Figures 20 through 22)

1. Roll out instrument panel. Refer to SECTION 10A4.
2. Extension cable from radio (Figure 20).
3. Extension cable from HVAC duct (Figure 21).
4. Extension cable from antenna (Figure 22).

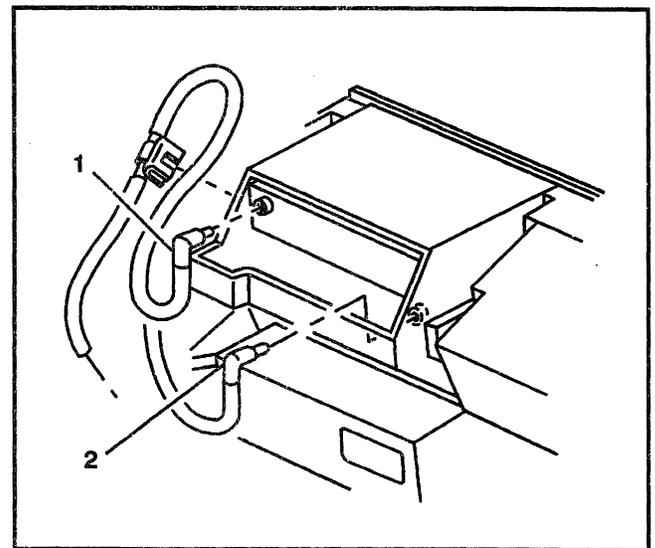


Figure 20—Antenna Extension Cable Routing to Radio

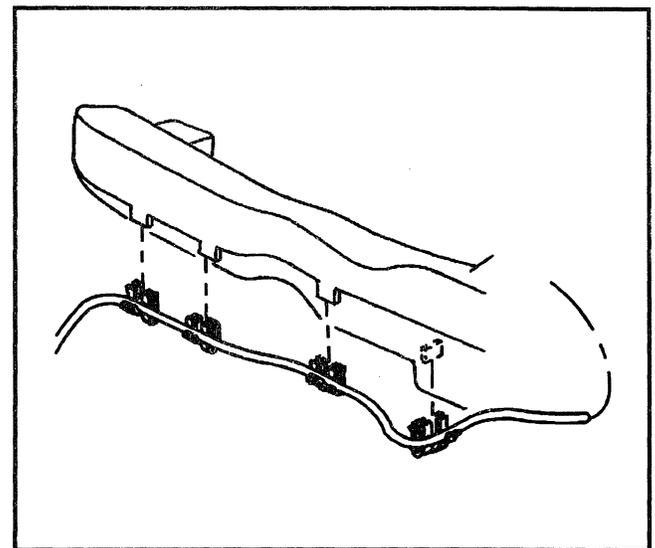


Figure 21—Antenna Extension Cable Routing to HVAC Duct

9A-16 AUDIO SYSTEMS

Install or Connect (Figures 20 through 22)

1. Extension cable to radio (Figure 20).
2. Extension cable to HVAC duct (Figure 21).
3. Extension cable to antenna (Figure 22).
4. Instrument panel. Refer to SECTION 10A4.

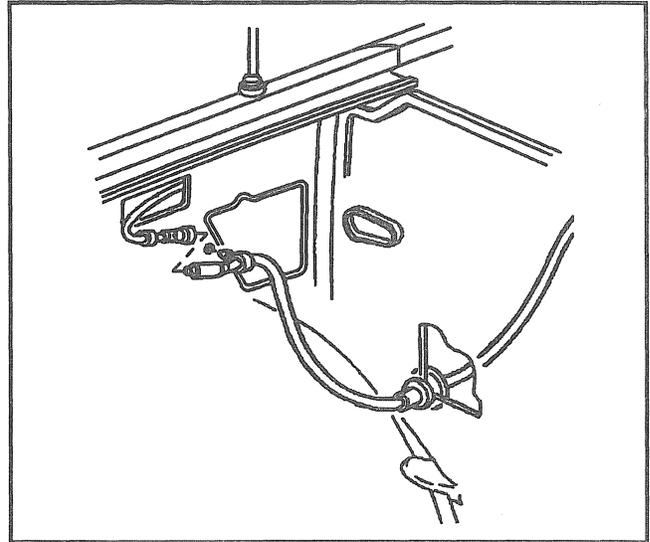


Figure 22—Antenna Extension Cable Routing to Antenna

FASTENER TIGHTENING SPECIFICATIONS

Item	N·m	Lb. FT.	Lb. In.
Antenna Cable Mounting Screw	5	—	58
Antenna Mounting Nut.....	5	—	58
Front Speaker Mounting Screw	2	—	18
Rear Overhead Speaker Mounting Screw.....	2	—	18
Rear Speaker Mounting Screw	2	—	18
			T3538

SECTION 9B

CRUISE CONTROL

CAUTION: On vehicles equipped with Supplemental Inflatable Restraint (SIR), refer to CAUTIONS in Section 9J under "ON-VEHICLE SERVICE" and the SIR Component and Wiring Location view in Section 9J before performing service on or around SIR components or wiring. Failure to follow CAUTIONS could result in possible air bag deployment, personal injury, or otherwise unneeded SIR system repairs.

NOTICE: *Always use the correct fastener in the correct location. When you replace a fastener, use ONLY the exact part number for that application. General Motors will call out those fasteners that require a replacement after removal. General Motors will also call out the fasteners that require thread lockers or thread sealant. UNLESS OTHERWISE SPECIFIED, do not use supplemental coatings (paints, greases, or other corrosion inhibitors) on threaded fasteners or fastener joint interfaces. Generally, such coatings adversely affect the fastener torque and joint clamping force, and may damage the fastener. When you install fasteners, use the correct tightening sequence and specifications. Following these instructions can help you avoid damage to parts and systems.*

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GENERAL DESCRIPTION

The Electro-Motor Cruise System maintains desired vehicle speed under normal driving conditions. The system has six modes: CRUISE, COAST, RESUME SPEED, ACCELERATE, TAP UP, and TAP DOWN.

Components of this system are the multifunction lever, cruise control module, vehicle speed sensor, vehicle speed sensor calibrator module, release switches, and electrical harness.

The module contains an electronic controller and an electric stepper motor. The controller monitors vehicle speed and operates the stepper motor. The motor moves a band and throttle cable to maintain the desired speed.

The module contains a low speed limit that prevents system engagement below a minimum speed, about 40 km/h (25 mph). The controller responds to signals from the multifunction lever located on the turn signal lever (Figure 1).

A release switch disengages the system. It mounts either to the brake or clutch pedal bracket. When the brake or clutch pedal is depressed, the cruise system is electrically disengaged. The throttle returns to idle position.

9B-2 CRUISE CONTROL

NOTICE: To keep the vehicle under control, and to prevent possible vehicle damage, it is not advisable to use the cruise control on slippery roads. Using the cruise control in conditions such as on winding roads or in traffic or varying volume is not recommended. When travelling down a steeply graded hill, the cruise control should be disengaged by pressing the brake or clutch pedal lightly. The transmission can then be shifted to a lower gear range to help control vehicle speed.

CRUISE CONTROL MODULE

The cruise control module assembly mounts to the engine side of the cowl. The assembly has an electronic controller and an electric stepper motor to vary the throttle with each cruise control mode. The module assembly is serviced by replacement only.

RELEASE SWITCHES

When the brake or clutch pedal is depressed, the release switch interrupts the voltage supplied to the cruise control circuit in the ECM. The engagement switch must be energized to return the cruise control to operation.

For replacement procedures, refer to SECTION 5A.

VEHICLE SPEED SENSOR

The vehicle speed sensor produces an AC signal. The frequency of this signal is proportional to transmission output shaft speed. On two wheel drive vehicles, the VSS mounts to the automatic/manual transmission assembly. On four wheel drive vehicles, the VSS mounts to the transfer case.

The AC signal produced by the VSS is amplified and converted to a digital signal by the VSS calibrator module assembly. The signal is supplied to the ECM, cruise control module, and speedometer by the VSS calibrator module. The VSS calibrator module produces the signal by opening and closing internal solid-state switches to ground.

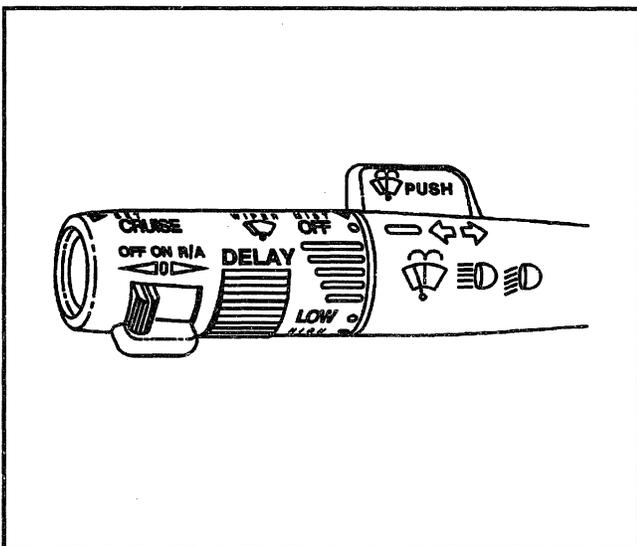


Figure 1—Multifunction Lever

The signal to the ECM, cruise control module, and speedometer assembly pulses at a rate of 4,000 times per mile. The ECM, cruise control module, and speedometer assembly internally convert the number of pulses per mile per second to determine vehicle speed.

For replacement procedure, refer to SECTION 7A14A, 7A17A, or 7B.

VEHICLE SPEED SENSOR CALIBRATOR MODULE

The vehicle speed sensor (VSS) calibrator module receives a signal from the VSS indicating the speed of the vehicle. This signal is processed by the module assembly and supplied to the ECM, cruise control module, and the speedometer assembly. It is located on the left side of the instrument panel, near the parking brake.

For replacement procedures, refer to SECTION 8C.

MULTIFUNCTION LEVER

ON/OFF

The "ON" and "OFF" position slide switch, located on the multifunction lever assembly, controls electrical power to the cruise control system. When the switch is OFF the system cannot be engaged. When the switch is ON the system may be engaged by either the SET or RESUME switch at any speed above approximately 40 km/h (25 mph).

SET/COAST Button Switch

The cruise control SET/COAST switch controls three functions:

- **The Set Function**--When the SET/COAST switch is depressed and then released, with vehicle speed above the low speed limit point, and the ON/OFF switch ON, the cruise speed will be set at the particular speed the vehicle was at when the button was released. Cruise speed will be within ± 1.6 km/h (1 mph) of the actual speed when engaged. The system will cruise until either the ON/OFF switch is moved to OFF, the ignition switch is turned off, and/or the SET/COAST button is pushed in fully and held. Pushing the brake or clutch pedal disengages the system, but the set speed is maintained in memory allowing a RESUME at a later time.
- **The Coast (Trim) Function**--When the SET/COAST button switch is fully depressed, the driver can raise or lower the control speed. To increase control speed, the driver would accelerate to a new speed, fully depress the switch, so the VCM releases previously set speed, and release the button. Upon releasing the button, a new speed is set. An increased control speed can also be more easily set by the RESUME/ACCEL switch as described later. To decrease cruise speed, the SET/COAST switch is held in the depressed position, disengaging the cruise system, allowing the throttle to return to the idle position. When the vehicle has slowed to the desired lower cruise speed, releasing the switch will cause the system to cruise at the new speed.

- **The "Tap Down" Function**--For this function to operate, the cruise must be engaged and operating. "Tapping down" means quickly pressing the SET/COAST button to the depressed position and quickly releasing it, or "tapping" the button. Do not hold the button in the depressed position or the system will revert to the "coast" mode. "Tap down" is a function in which cruise speed can be decreased by 1.6 km/h (1 mph) increments (one tap = 1 mph decrease). The system can "tap down" to a limited speed of 40 km/h (25 mph). Below this speed, cruise control will not operate.



Important

- The accelerator may be depressed at any time to override the cruise system. Release of the accelerator will return the vehicle to the previous set cruise speed.

RESUME/ACCEL Switch

The RESUME/ACCEL (R/A) switch controls three functions.

- **The Resume Function**--If the cruise system has been disengaged by depressing the brake or clutch

pedal, it may be reactivated by momentarily holding the RESUME/ACCEL switch. This will cause the vehicle to accelerate to the previously set speed and cruise at that speed. The resume function will not work if the cruise ON/OFF switch or the ignition switch has been cycled since the last time cruise was active or the vehicle speed is below the low speed lockout 40 km/h (25 mph).

- **The Accelerate Function**--By sliding the RESUME/ACCEL switch and holding it, the vehicle will accelerate until the switch is released. The ON/OFF switch must be on and the vehicle speed must be above the low speed lockout 40 km/h (25 mph) for this function to operate.
- **The "Tap Up" Function**--For this function to operate, the cruise must be engaged and operating. "Tapping up" means quickly pressing the slide switch toward the "R/A" position and quickly releasing it, or "tapping" the lever. Do not hold the lever in the "R/A" position or the system will revert to the "Accel" mode. "Tap up" is a function in which cruise speed can be increased by 1.6 km/h (1 mph) increments (one tap=1 mph increase). The system cannot "tap up" beyond 210 km/h (125 mph).

DIAGNOSIS OF THE CRUISE CONTROL

Before beginning diagnosis, make a visual inspection for the following and repair as needed:

PRELIMINARY INSPECTION

- Check "GAGES" 20 amp fuse.
- Check for bare, broken, or disconnected wires.
- Check for binding or misadjusted cable assembly.
- Check for damaged or mispositioned brake and/or clutch switches.

If preliminary inspection reveals no problem, follow the "Cruise Control Functional Check" in this section.

CRUISE SYSTEM FUNCTIONAL CHECK

Use this procedure to check the operating modes of the cruise control system. Always use this procedure after repair work has been completed on the cruise system. Steps 1-7 and 10 are used with automatic and manual transmission models. Steps 8 and 9 are for manual transmission models only.

1. Slide the turn signal lever cruise switch to the "ON" position.
2. **Check the Low Speed Inhibit:** Drive the vehicle at 32 km/h (20 mph). Depress "SET" push button and release. Cruise control must not engage.
3. **Check Set Speed:** Drive vehicle at steady speed of 89 km/h (55 mph). Depress "SET" push button completely and release. Cruise control should engage at approximately 89 km/h (55 mph).

4. **Check Brake Release:** Depress brake pedal. The cruise control must release throttle, allowing the vehicle speed to drop. The system must not re-engage when the brake is released.
5. **Check Resume Feature:** With the vehicle speed at approximately 72 km/h (45 mph), slide the cruise switch momentarily (less than 1 second) to the "R/A" position. The vehicle should accelerate to approximately 89 km/h (55 mph).
6. **Check Coast Feature:** Depress the "SET" push button and hold. Allow the vehicle speed to drop to 80 km/h (50 mph) and release push button. Cruise control should hold vehicle speed at approximately 80 km/h (50 mph).
7. **Check Accelerate Feature:** Slide the cruise switch to the "R/A" position and hold. The vehicle speed should begin to increase. Allow the speed to increase to 89 km/h (55 mph) and release switch. The cruise control should hold the vehicle at approximately 89 km/h (55 mph).
8. **Check Clutch Release:** Depress clutch pedal. The cruise control must release throttle, allowing the vehicle speed to drop. The system must not re-engage when the clutch pedal is released.
9. Slide the turn signal lever cruise switch to the "R/A" position momentarily to resume 89 km/h (55 mph).
10. **Check Off Switch:** Turn the turn signal lever cruise switch to the "OFF" position. This must disengage the cruise control system.

If preliminary inspection reveals no solution, refer to the "Driveability, Emissions, and Electrical Diagnosis Manual" for these models.

ON-VEHICLE SERVICE

CRUISE CONTROL CABLE

Remove or Disconnect (Figures 2 and 3)

1. Cable end fitting from cable stud (Refer to E in Figure 2).
2. Cable conduit from the cable bracket (Refer to D in Figure 2).
3. Cable conduit from the module housing (Refer to C in Figure 2).
4. Cable bead from the end of the ribbon (Refer to A in Figure 2).

Install or Connect (Figures 2 and 3)

1. Attach cable end to cruise motor ribbon end fitting (Refer to A in Figure 2).
2. Pull cruise cable engine end fitting until cable is taut (Refer to B in Figure 2).
3. Turn cruise cable engine end fitting to straighten ribbon. Ribbon must be flat and horizontal (Refer to B in Figure 2).
4. Slide cable conduit over ribbon and install tangs in cruise motor housing (Refer to C in Figure 2).
5. Install cable conduit in engine bracket. Press firmly until the tangs lock (Refer to D in Figure 2).
6. Install cable end fitting to TBI lever stud (Refer to E in Figure 2).
 - Make sure that throttle is closed on 7.4L engines.
7. Check for 0.0 to 5.0-mm (0.197-inch) clearance, or lash, in cruise cable. Turn adjuster screw, if required.

CRUISE CONTROL MODULE

Remove or Disconnect (Figure 4)

1. Negative battery cable. Refer to SECTION 6D1.
2. Cruise control cable. Refer to "Cruise Control Cable."
3. Electrical connector(s), as necessary.
4. Mounting screws.
5. Module.

Install or Connect (Figure 4)

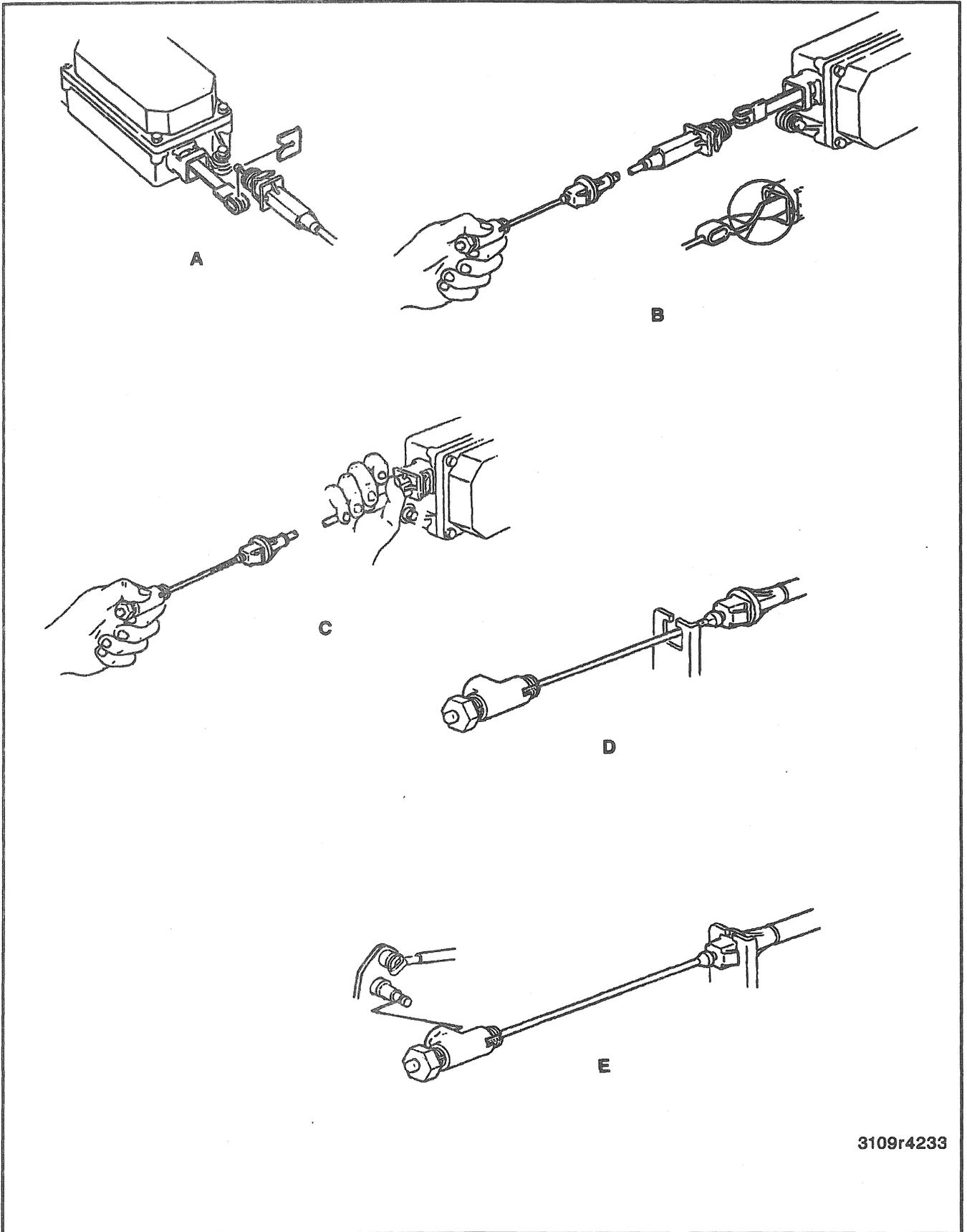
1. Module.
2. Mounting screws.

Tighten

- Screws to 5 N.m (44 lb. in.).
3. Electrical connector(s), as necessary.
 4. Cruise control cable. Refer to "Cruise Control Cable" in this section.
 5. Negative battery cable.
 - Check circuit operation.

ENGAGEMENT SWITCH

The cruise control engagement switch is part of the multifunction lever assembly and is not serviceable by itself. The multifunction lever and switch is serviced by replacement only. For replacement procedures, refer to SECTION 3F.



3109r4233

Figure 2—Cruise Control Cable

9B-6 CRUISE CONTROL

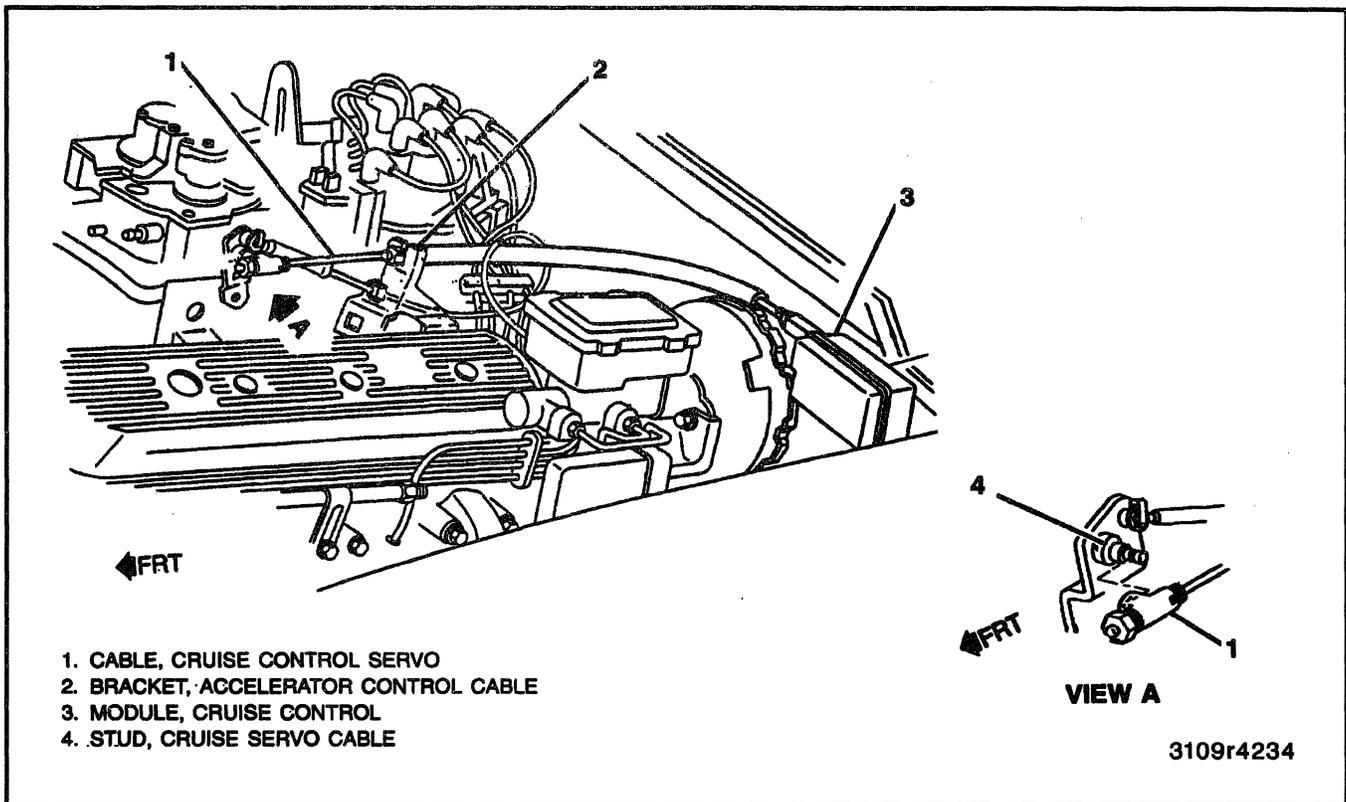


Figure 3—Cruise Control Cable Routing

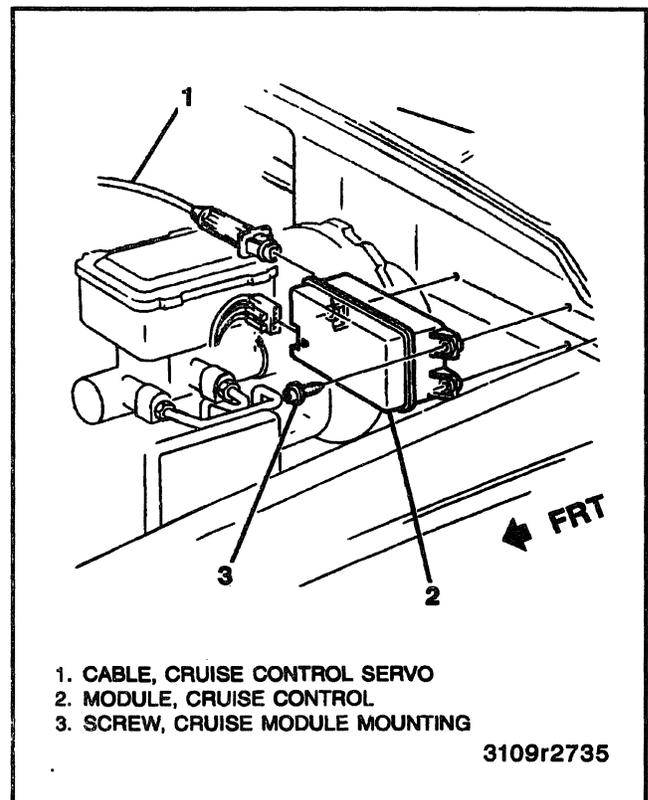


Figure 4—Cruise Control Module

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

ITEM	N·m	Lb. Ft.	Lb. In.
Cruise Control Module Mounting Screw	5	—	44 T3507

BLANK

SECTION 9E

ENGINE COOLANT HEATER

CAUTION: On vehicles equipped with Supplemental Inflatable Restraint (SIR), refer to CAUTIONS in Section 9J under "ON-VEHICLE SERVICE" and the SIR Component and Wiring Location view in Section 9J before performing service on or around SIR components or wiring. Failure to follow CAUTIONS could result in possible air bag deployment, personal injury, or otherwise unneeded SIR system repairs.

NOTICE: Always use the correct fastener in the correct location. When you replace a fastener, use ONLY the exact part number for that application. General Motors will call out those fasteners that require a replacement after removal. General Motors will also call out the fasteners that require thread lockers or thread sealant. UNLESS OTHERWISE SPECIFIED, do not use supplemental coatings (paints, greases, or other corrosion inhibitors) on threaded fasteners or fastener joint interfaces. Generally, such coatings adversely affect the fastener torque and joint clamping force, and may damage the fastener. When you install fasteners, use the correct tightening sequence and specifications. Following these instructions can help you avoid damage to parts and systems.

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GENERAL DESCRIPTION

The optional engine coolant heater (RPO K05) preheats engine coolant to aid cold weather starting. The engine coolant heater operates from a 110-volt AC power source and uses a heating element that is installed in the water jacket of the engine block. The heating ele-

ment warms the coolant as long as the heater cord is plugged into an AC power source.

The unit has a detachable electrical cord. If the heater fails to operate, check the cord, connections, and power supply before replacing the heating element.

ON-VEHICLE SERVICE

ENGINE COOLANT HEATER



Remove or Disconnect (Figures 1 through 5)

1. Engine coolant. Refer to SECTION 6B.
2. Coolant jacket plug.
 - If not originally equipped with an engine coolant heater, remove the coolant jacket plug. Carefully tap it near its outer edge, causing it to rotate out of the hole. Do not score the machined surface of the hole. Grasp with pliers and pull to remove.
3. Cord from engine coolant heater.

4. Loosen bolt.
5. Engine coolant heater.



Clean

- Core plug hole, removing any burrs, compound, paint, or rough spots.



Install or Connect (Figures 1 through 5)

1. Apply a coating of lubricant to the O-ring seal and the cleaned surface of plug opening in the block. Use a water spray resistant, high-temperature grease GM P/N 9985164 or equivalent.

9E-2 ENGINE COOLANT HEATER

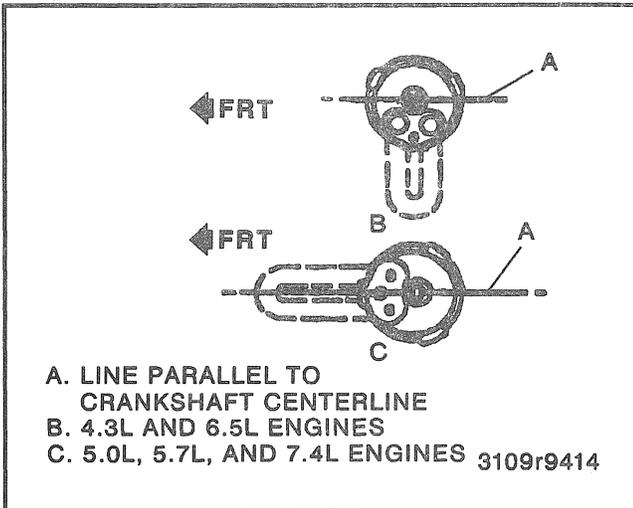


Figure 1—Engine Coolant Heater Element Positioning

2. The coolant heater and push tight to the block.

! Important

- Install the heater element in the correct direction to avoid element contact to the inside walls of the engine block as shown in Figure 1.

3. Tighten screw until both locking wings draw tight against inner wall of engine block.

Tighten

- Screw to 2 N.m (18 lb. in.).

4. Heater cord to the coolant heater and route heater cord (Figures 2 through 6).

! Important

- The heater cord must not touch the engine, hot pipes, manifold, or any moving parts.
5. Engine coolant. Refer to SECTION 6B.
- Check the system for leaks.

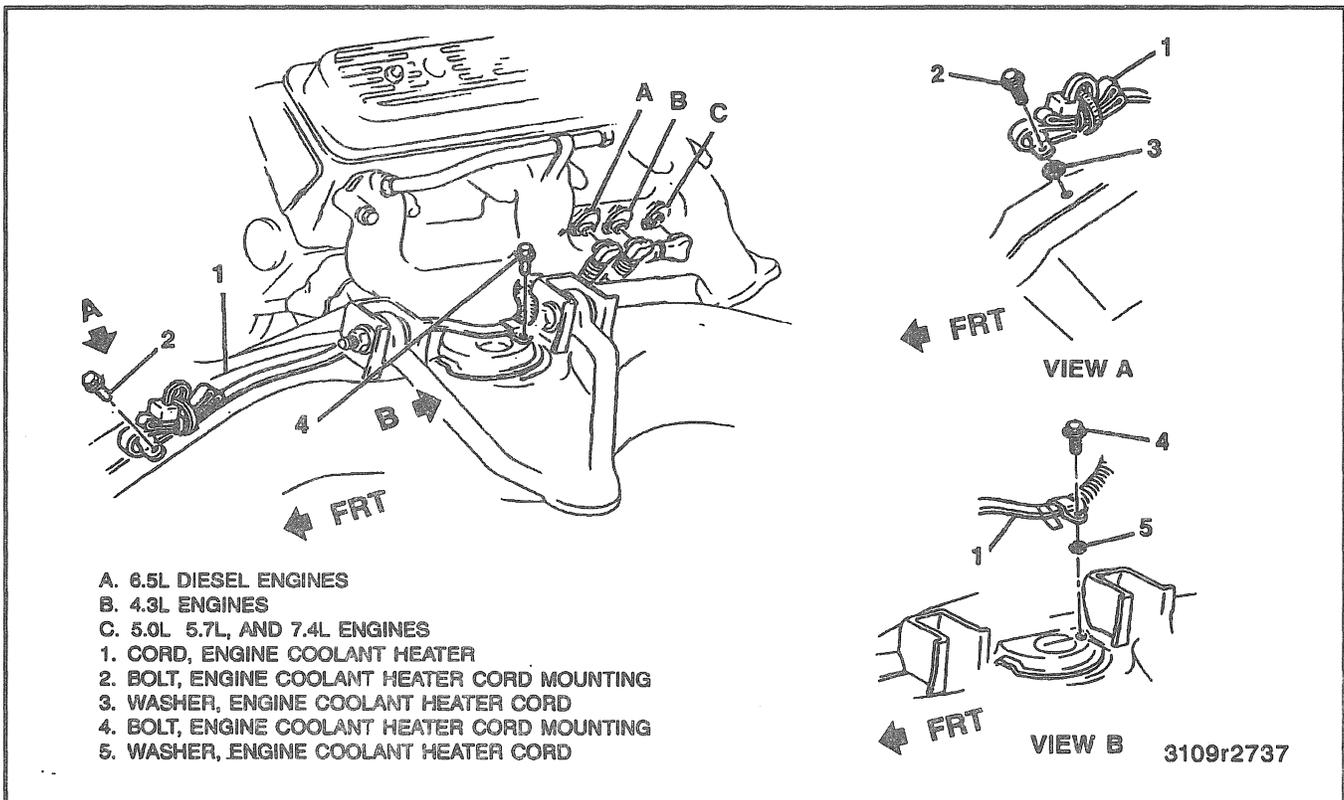
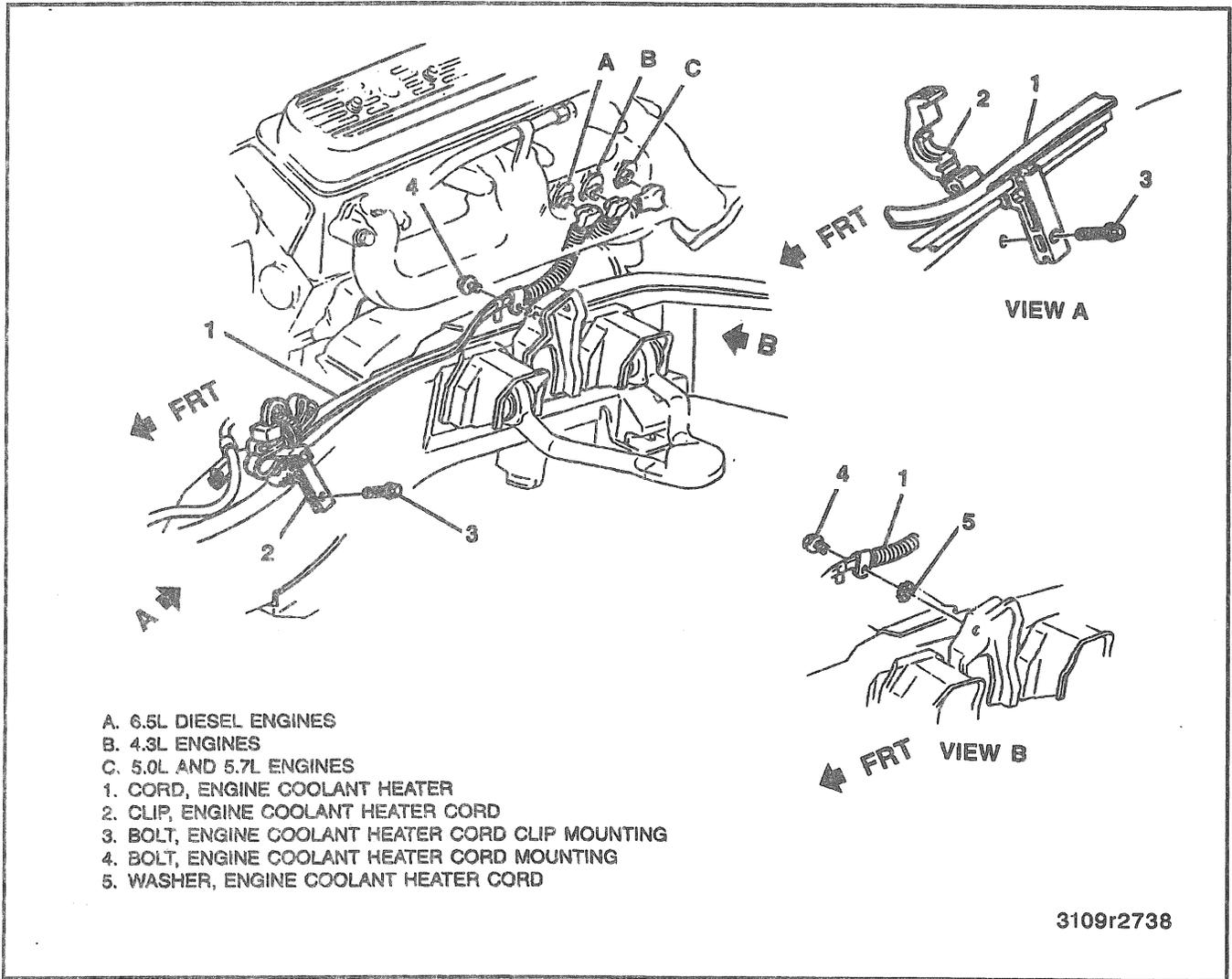


Figure 2—Engine Coolant Heater Cord Routing (Two-Wheel Drive Models)



- A. 6.5L DIESEL ENGINES
- B. 4.3L ENGINES
- C. 5.0L AND 5.7L ENGINES
- 1. CORD, ENGINE COOLANT HEATER
- 2. CLIP, ENGINE COOLANT HEATER CORD
- 3. BOLT, ENGINE COOLANT HEATER CORD CLIP MOUNTING
- 4. BOLT, ENGINE COOLANT HEATER CORD MOUNTING
- 5. WASHER, ENGINE COOLANT HEATER CORD

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Figure 3—Engine Coolant Heater Cord Routing (Four-Wheel Drive Models)

9E-4 ENGINE COOLANT HEATER

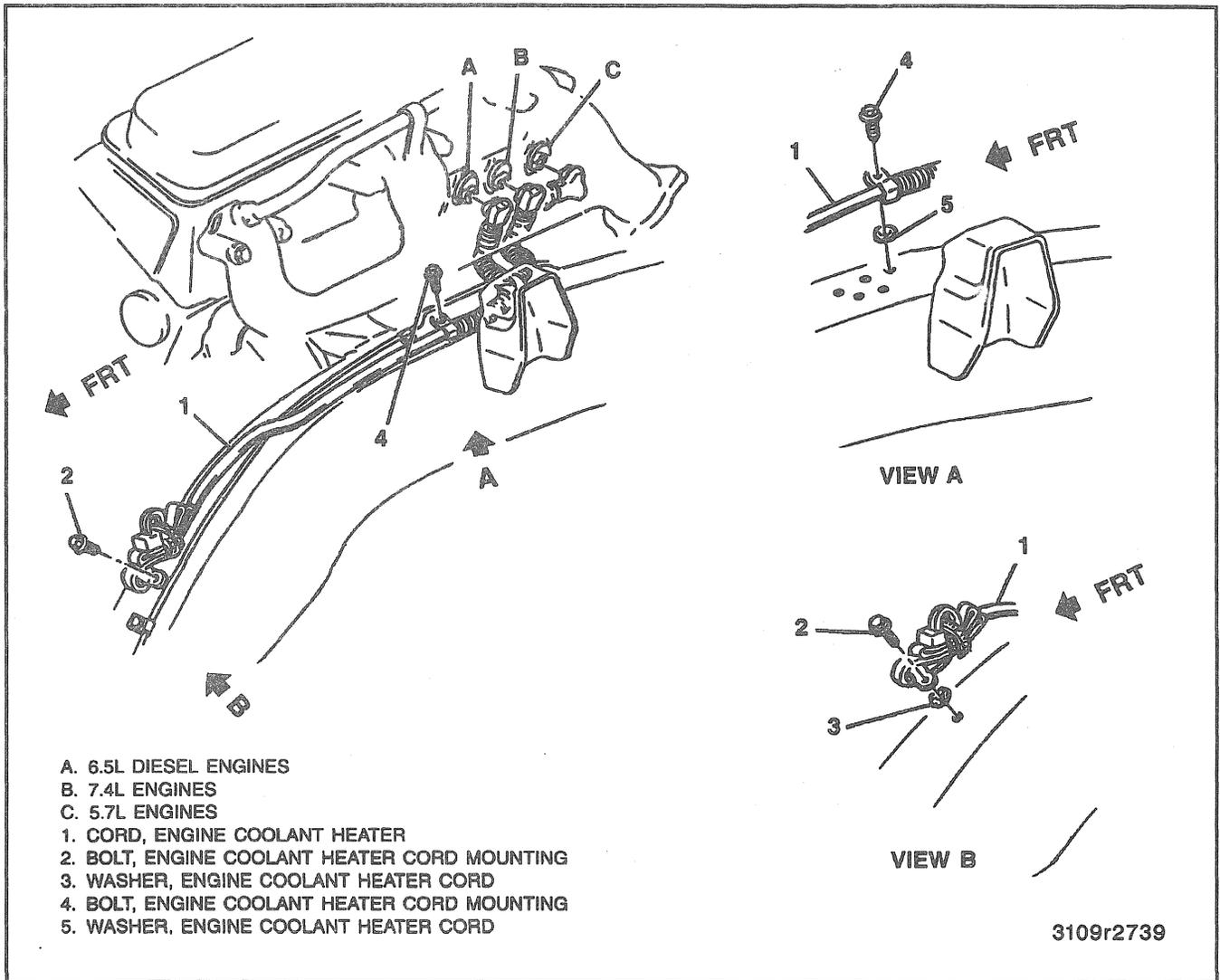


Figure 4—Engine Coolant Heater Cord Routing (Two-Wheel Drive - 1 Ton Models)

ENGINE COOLANT HEATER 9E-5

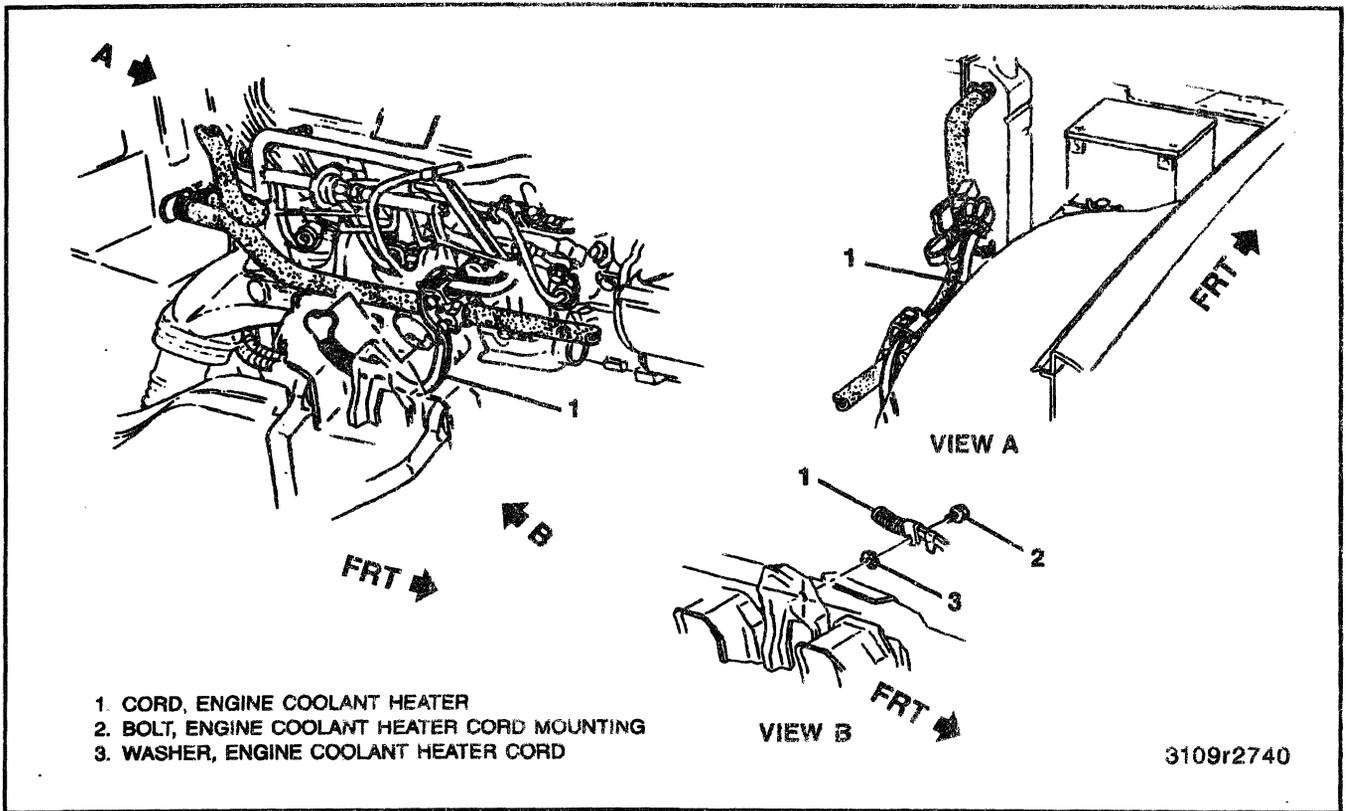


Figure 5—Engine Coolant Heater Cord Routing (Four-Wheel Drive Models with 7.4L Engine)

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Item	N-m	Lb. Ft.	Lb. In.
Engine Coolant Heater Mounting Screw.....	2	—	18
Engine Coolant Heater Cord Mounting Screw.....	8	—	71
			T3509

9E-6 ENGINE COOLANT HEATER

BLANK

SECTION 9F

LUGGAGE CARRIER

CAUTION: This vehicle is equipped with Supplemental Inflatable Restraint (SIR). Refer to CAUTIONS in Section 9J under "ON-VEHICLE SERVICE" and the SIR Component and Wiring Location view in Section 9J before performing service on or around SIR components or wiring. Failure to follow CAUTIONS could result in possible air bag deployment, personal injury, or otherwise unneeded SIR system repairs.

NOTICE: Always use the correct fastener in the correct location. When you replace a fastener, use ONLY the exact part number for that application. General Motors will call out those fasteners that require a replacement after removal. General Motors will also call out the fasteners that require thread lockers or thread sealant. UNLESS OTHERWISE SPECIFIED, do not use supplemental coatings (paints, greases, or other corrosion inhibitors) on threaded fasteners or fastener joint interfaces. Generally, such coatings adversely affect the fastener torque and joint clamping force, and may damage the fastener. When you install fasteners, use the correct tightening sequence and specifications. Following these instructions can help you avoid damage to parts and systems.

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GENERAL DESCRIPTION

The luggage carrier is available as a dealer-installed option. Skid strips and support mounting anchor nuts are installed at the factory. During predelivery operations, the dealer will complete the assembly installation.

The following procedures are for a previously installed luggage carrier.

ON-VEHICLE SERVICE

LUGGAGE CARRIER REPLACEMENT

 **Remove or Disconnect (Figures 1 through 4)**

1. Rubber side rail cap from the center rail support (Figure 4).
2. Screws from the center supports (Figure 4).
3. Screws from the end supports (Figure 4).
4. Luggage carrier from the roof (Figure 2).
5. Center rail supports (Figure 1).
6. Side and center rail support gaskets (Figure 2).

 **Disassemble (Figure 1)**

1. Remove screws from the side rail supports.

2. Side rail supports from the side rails.
3. Remove screws from the cross rails.
4. Cross rails from the sliders.
5. Screws from the sliders and the lock plates.
6. Sliders from the slots in the side rails.

 **Assemble**

1. Sliders into the slots in the side rails.
2. Screws into the sliders and the lock plates.

 **Tighten**

- Slider to the side rail screws to 2.8 N.m (25 lb. in.).
3. Cross rails onto the sliders.
 4. Screws to cross rails.

9F-2 LUGGAGE CARRIER

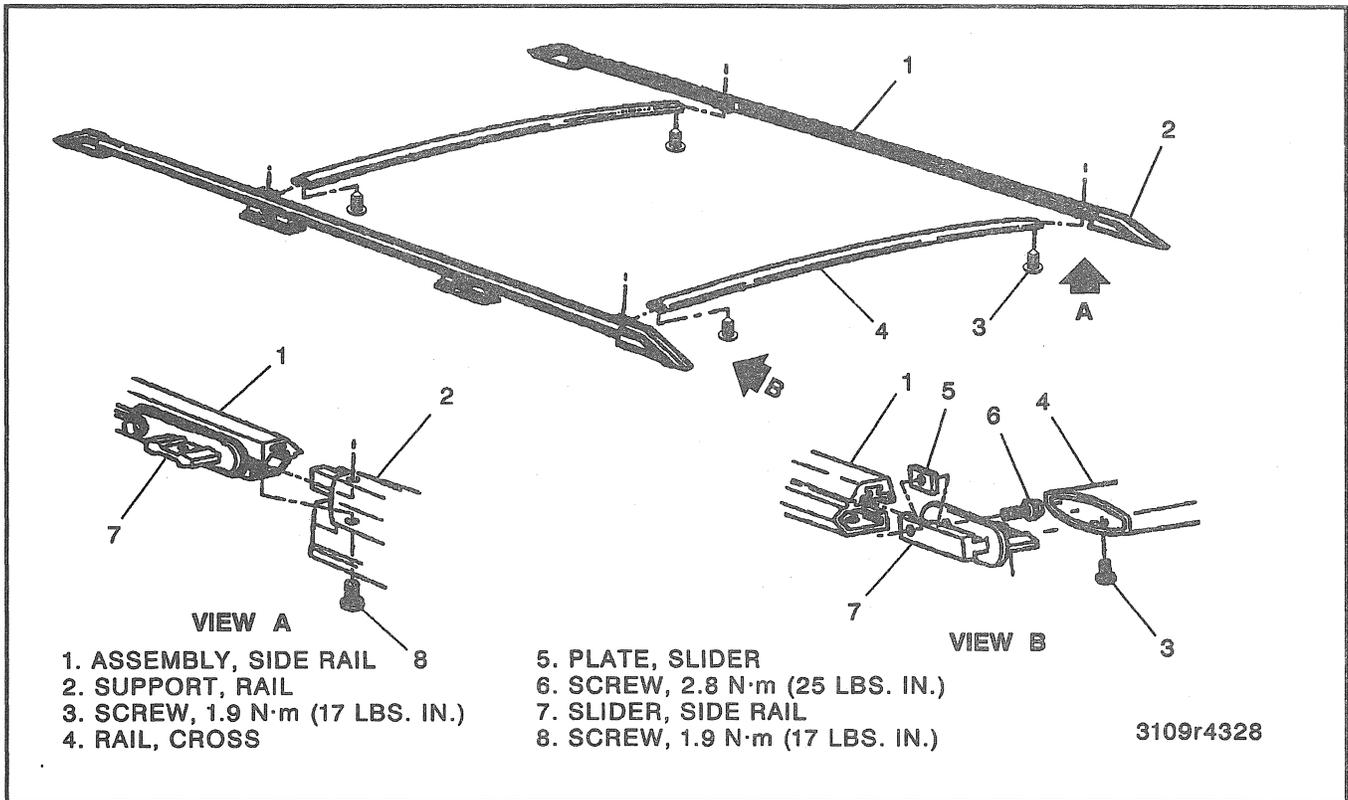


Figure 1—Luggage Carrier Components (Suburban Shown, 2 and 4 - Door Utility Similar)

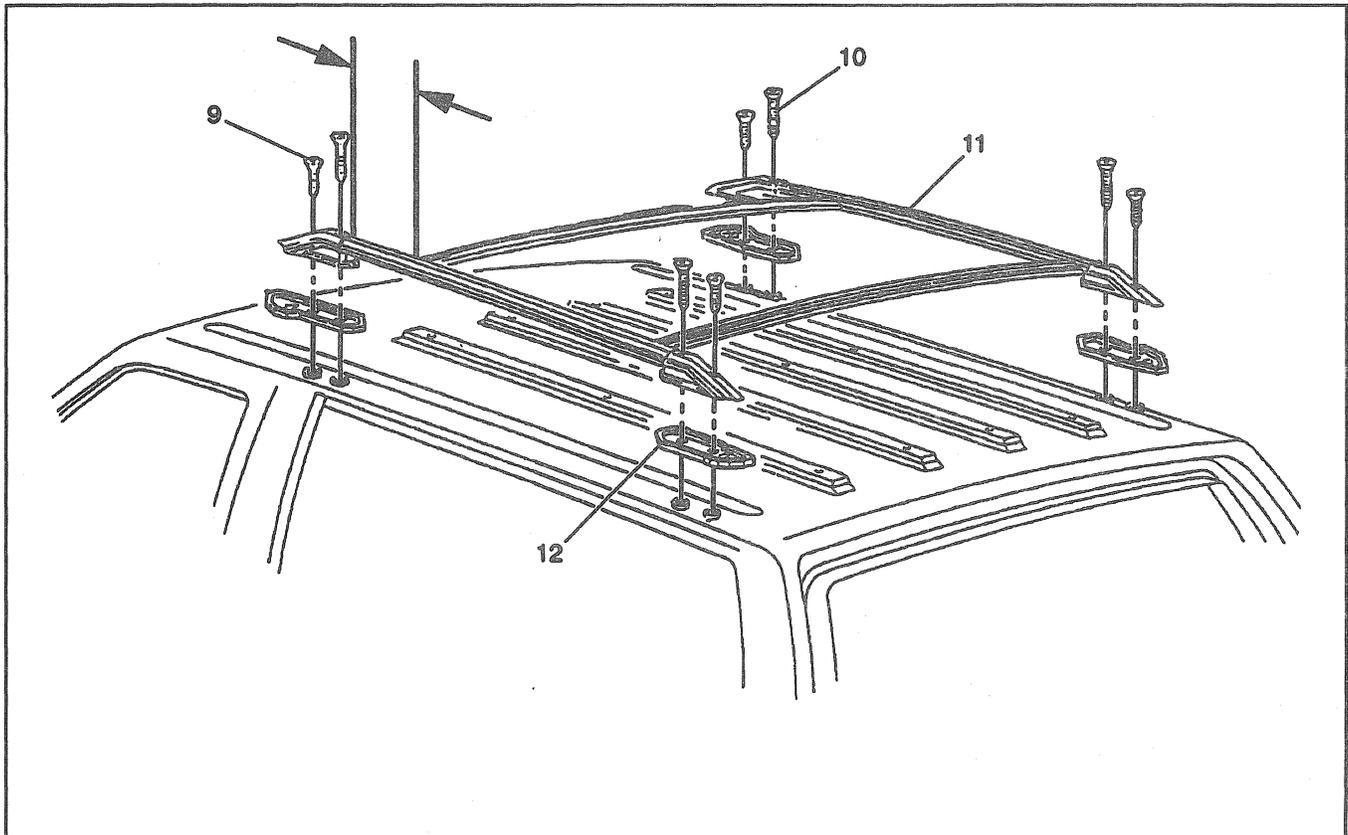


Figure 2—Luggage Carrier (2 - Door Utility)

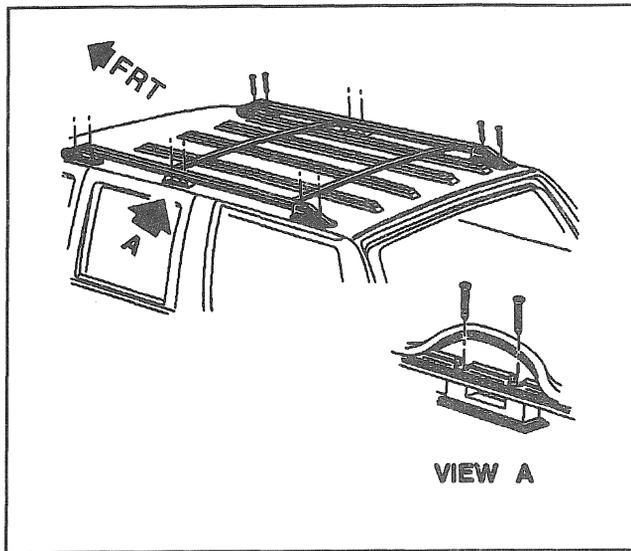


Figure 3—Luggage Carrier (4 - Door Utility)

 Tighten

- Cross rail screws to 2 N.m (18 lb. in.).

5. Side rail supports to the side rails.
6. Screws to the side rail supports.

 Tighten

- Side rail support screws to 2 N.m (18 lb. in.).

 Install or Connect (Figures 1 through 3)

1. Side and center rail support gaskets.
2. Center rail supports.
3. Luggage carrier onto the roof.
4. End support to the vehicle screws.

 Tighten

- End support screws to 2.8 N.m (25 lb. in.).
5. Screws into the center supports.

 Tighten

- Center support screws to 2.8 N.m (25 lb. in.).
6. Rubber side rail cap to the center rail support.

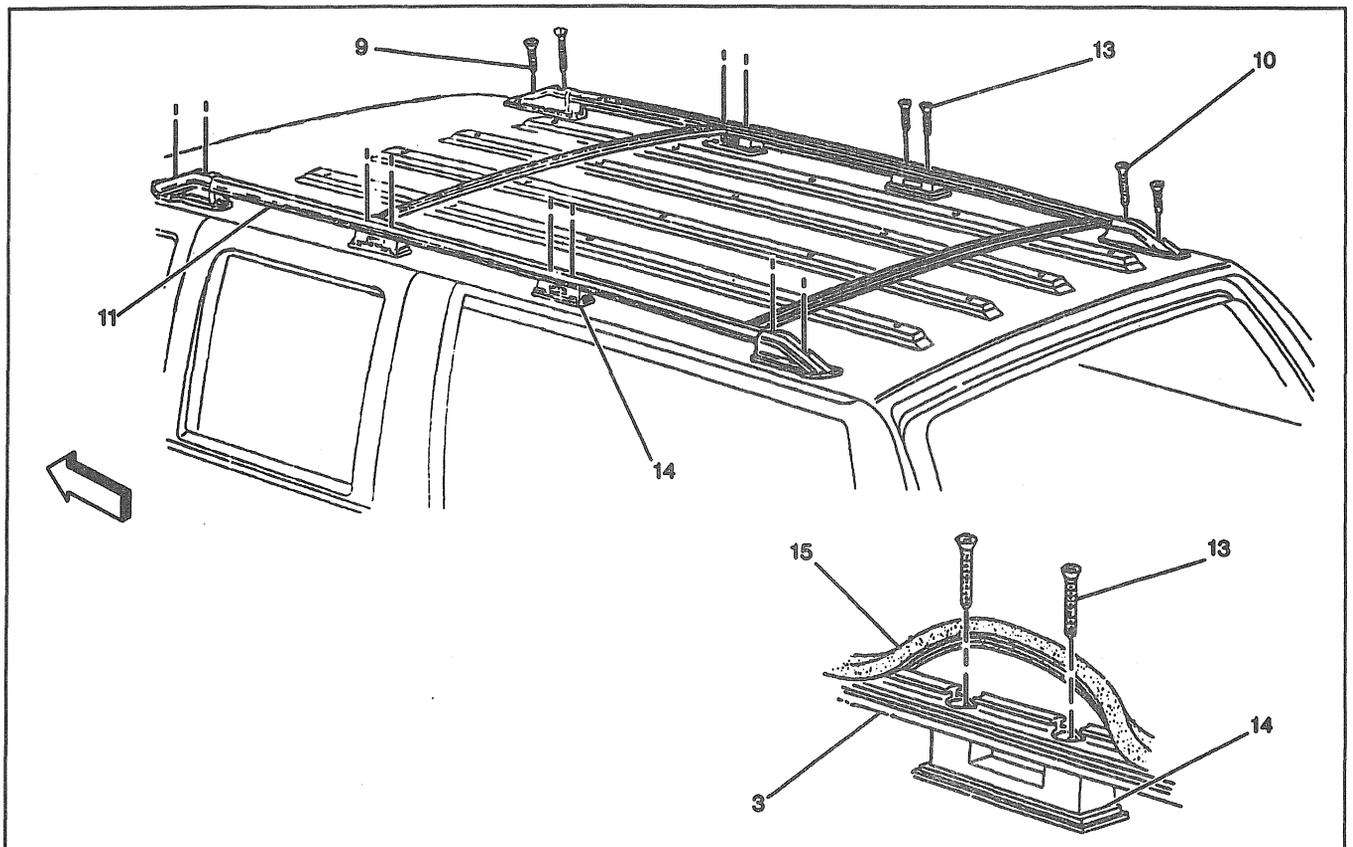


Figure 4—Luggage Carrier (Suburban)

9F-4 LUGGAGE CARRIER

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

ITEM	N-m	Lb. Ft.	Lb. In.
Cross Rail-To-Side Rail Slider Screw.....	2	—	18
Side Rail Support-To-Side Rail Screw	2	—	18
Side Rail-To-Body Mounting Screw.....	2.8	—	25
			T3508

SECTION 9G

RUNNING BOARDS

CAUTION: This vehicle is equipped with Supplemental Inflatable Restraint (SIR). Refer to CAUTIONS in Section 9J under "ON-VEHICLE SERVICE" and the SIR Component and Wiring Location view in Section 9J before performing service on or around SIR components or wiring. Failure to follow CAUTIONS could result in possible air bag deployment, personal injury, or otherwise unneeded SIR system repairs.

NOTICE: Always use the correct fastener in the correct location. When you replace a fastener, use ONLY the exact part number for that application. General Motors will call out those fasteners that require a replacement after removal. General Motors will also call out the fasteners that require thread lockers or thread sealant. UNLESS OTHERWISE SPECIFIED, do not use supplemental coatings (paints, greases, or other corrosion inhibitors) on threaded fasteners or fastener joint interfaces. Generally, such coatings adversely affect the fastener torque and joint clamping force, and may damage the fastener. When you install fasteners, use the correct tightening sequence and specifications. Following these instructions can help you avoid damage to parts and systems.

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GENERAL DESCRIPTION

The Running Boards are a dealer installed option that are mounted on factory installed brackets located under the truck.

The following procedures are for the complete replacement of a previously installed running board.

ON-VEHICLE SERVICE

RUNNING BOARD REPLACEMENT



Remove or Disconnect (Figure 1)

1. Bolts attaching running board end caps to body.
2. Nuts securing running board to T-bolts and brackets.
3. Running board from truck.



Disassemble (Figure 2)

1. Remove nuts securing running board extensions and mat to running board frame.
2. Remove extensions and mat from running board frame.



Assemble (Figure 2)

1. Install mat and extensions to running board frame.
2. Install nuts securing mat and extensions to running board frame.



Tighten

- Nuts to 1 N.m (9 lb. in.)



Install or Connect (Figure 1)

1. Running board assembly to truck.
2. Nuts securing running boards.



Tighten

- Nuts to 23 N.m (17 lb. ft.)

9G-2 RUNNING BOARDS

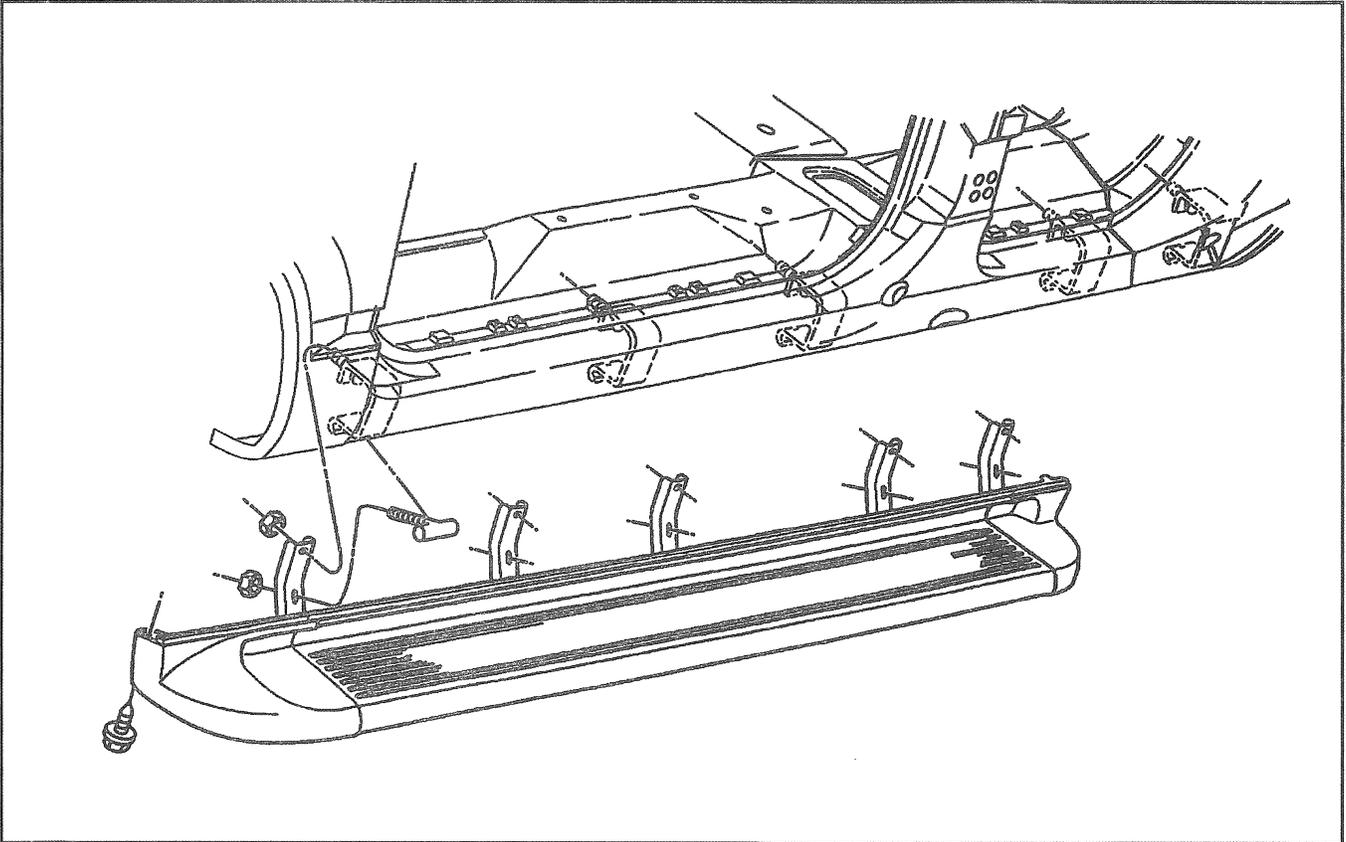


Figure 1—Running Board (Left side shown, Right side similar)

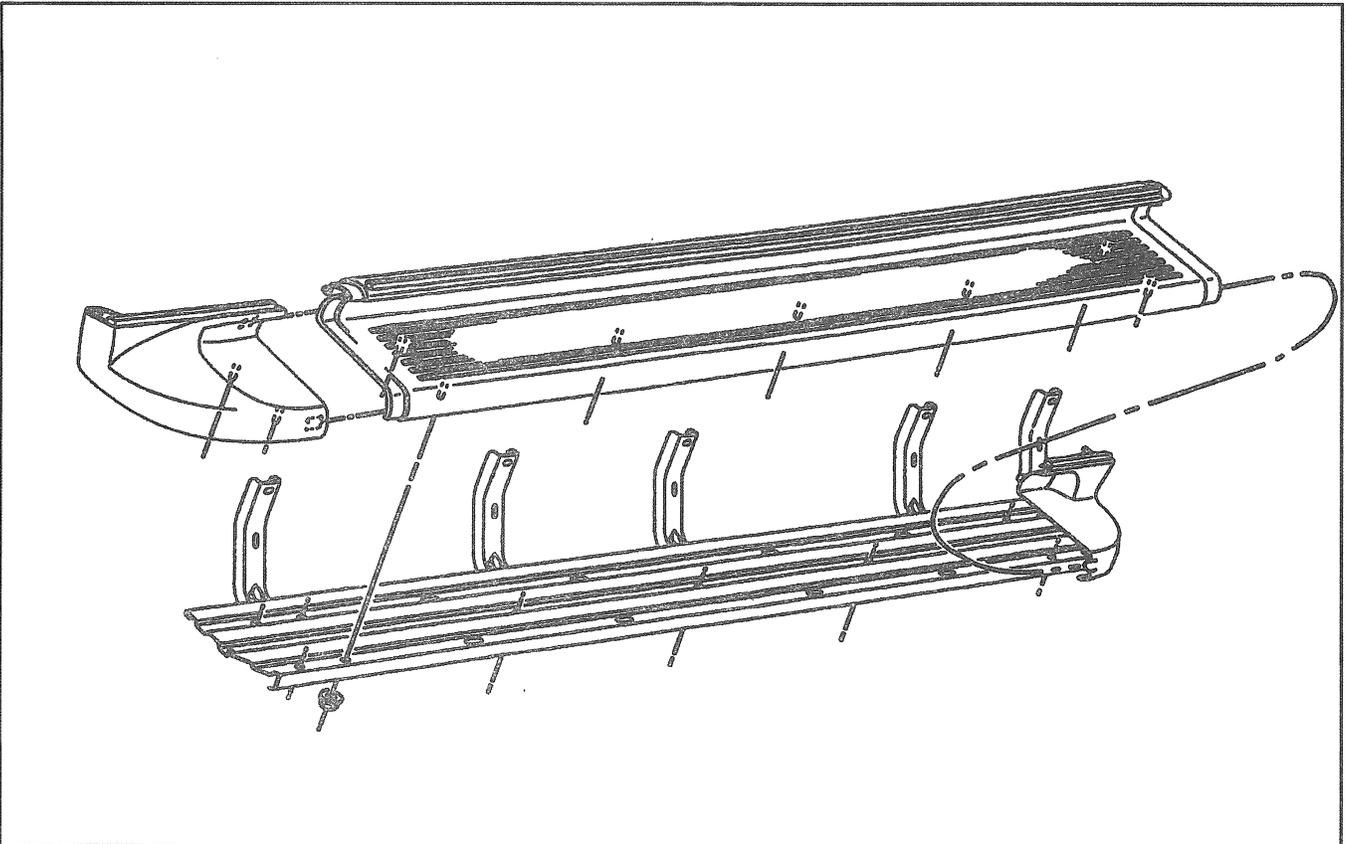


Figure 2—Running Board Components (Left side shown, Right side similar)

3. Bolts securing end caps to truck.



Tighten

- Bolts to 17 N.m (13 lb. ft.)

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Item	N·m	Lb. Ft.	Lb. In.
End Cap Bolts	17	13	—
Mat to Frame Nuts	1	—	9
Running Board Nuts	23	17	—
			T3550

9G-4 RUNNING BOARDS

BLANK

SECTION 9J

**SUPPLEMENTAL INFLATABLE
RESTRAINT (SIR) SYSTEM**

CAUTION: This vehicle is equipped with Supplemental Inflatable Restraint (SIR). Refer to CAUTIONS in this section under "ON-VEHICLE SERVICE" and the SIR Component and Wiring Location view in this section before performing service on or around SIR components or wiring. Failure to follow CAUTIONS could result in possible air bag deployment, personal injury, or otherwise unneeded SIR system repairs.

NOTICE: Always use the correct fastener in the proper location. When you replace a fastener, use ONLY the exact part number for that application. General Motors will call out those fasteners that require a replacement after removal. General Motors will also call out the fasteners that require thread lockers or thread sealant. UNLESS OTHERWISE SPECIFIED, do not use supplemental coatings (paints, greases, or other corrosion inhibitors) on threaded fasteners or fastener joint interfaces. Generally, such coatings adversely affect the fastener torque and joint clamping force, and may damage the fastener. When you install fasteners, use the correct sequence and tightening specifications. Following these instructions can help you avoid damage to parts and systems.

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GENERAL DESCRIPTION

RESTRAINT DEVICES

Figure 1

The Supplemental Inflatable Restraint (SIR) system helps supplement the protection offered by the driver's seat belt by deploying an air bag from the center of the steering wheel during certain frontal crashes. The air bag deploys when the vehicle is involved in a frontal

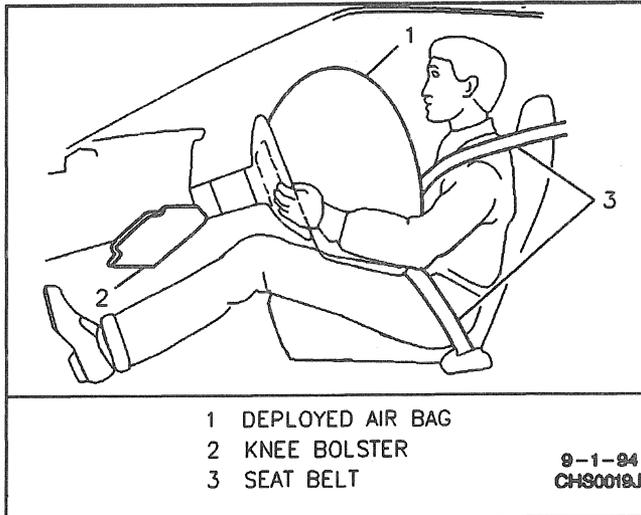


Figure 1—Restraint Devices

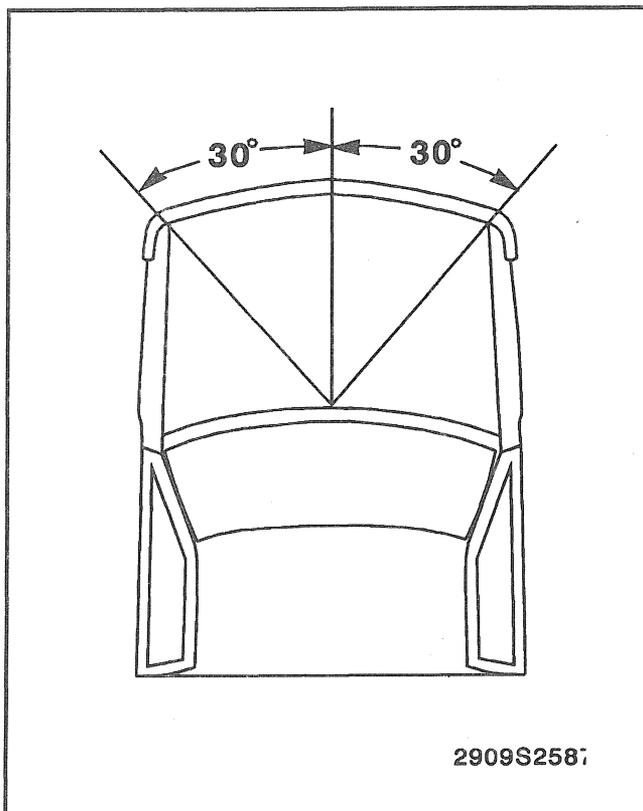


Figure 2—SIR System "Deployment Window"

crash of sufficient force up to 30 degrees off the centerline of the vehicle. To further absorb the crash energy there is a knee bolster located beneath the instrument panel in the driver's area and the steering column is collapsible.

SYSTEM DESCRIPTION

Figures 2 and 3

The main portions of the SIR system are the deployment loop and the Diagnostic Energy Reserve Module (DERM). The main function of the deployment loop is to supply current through the inflator module in the steering wheel, which will cause deployment of the air bag in the event of a frontal crash of sufficient force, up to 30 degrees off the centerline of the vehicle.

The arming sensor, SIR coil assembly, inflator module, and discriminating sensors make up the deployment loop. The arming sensor switches power to the inflator module on the high side (power side) of the

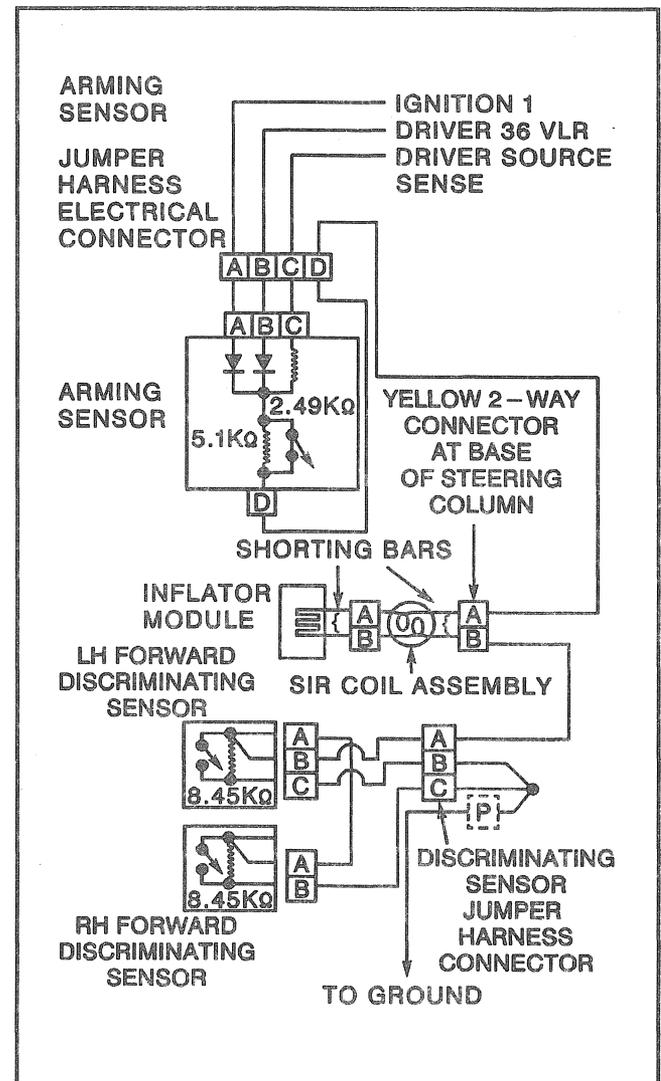


Figure 3—Deployment Loop

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deployment loop. Either of the discriminating sensors can supply ground to the inflator module on the low side (ground side) of the loop. The inflator module is only supplied sufficient current to deploy when the arming sensor and at least one of the two discriminating sensors are closed simultaneously.

A function of the DERM is to supply the deployment loop with a 36 Volt Loop Reserve (36 VLR) to ensure sufficient energy to deploy the air bag if the ignition feed to the arming sensor is lost during a frontal crash.

Another function of the DERM is electrical system diagnostics. The DERM monitors the deployment loop in conjunction with the resistors in the arming sensor and discriminating sensors. These resistors make it possible for the DERM to detect circuit and component malfunctions within the deployment loop. The DERM monitors the voltage drop across each component within the loop during normal, non-deployment conditions. If the monitored voltages fall outside of expected limits, the DERM will indicate a malfunction through the storage of a diagnostic trouble code and the illumination of the "AIR BAG" warning lamp.

COMPONENT DESCRIPTION

Figure 4

DERM

NOTICE: *Do not open the DERM case for any reason. Touching the connector pins or soldered components may cause electrostatic discharge damage. Repair of a malfunctioning DERM is by replacement only.*

The DERM is designed to perform the following functions in the SIR system:

1. Energy Reserve - The DERM maintains a 36 Volt Loop Reserve (36 VLR) energy supply to provide deployment energy when the battery voltage is low or lost in a frontal crash.
2. Malfunction Detection - The DERM performs diagnostic monitoring of SIR system electrical components.
3. Malfunction Recording - The DERM provides SIR system diagnostic trouble code information through a scan tool.
4. Driver Notification - The DERM warns the vehicle driver of SIR system malfunctions by controlling the "AIR BAG" warning lamp.
5. Frontal Crash Recording - The DERM records the SIR system status during a frontal crash.

The DERM is connected to the SIR wiring harness by a 24-way connector. This harness connector uses a shorting bar across certain terminals in the contact area. This shorting bar connects the "AIR BAG" warning lamp to ground when the DERM harness connector is disconnected. This will cause the "AIR BAG" warning lamp to come "ON" steady whenever the ignition switch is at the "RUN" or "START" positions with the DERM disconnected.

"AIR BAG" Warning Lamp

Ignition voltage is applied to the "AIR BAG" warning lamp when the ignition switch is at the "RUN" or "START" positions. The DERM controls the lamp by providing ground with a lamp driver. The "AIR BAG" warning lamp is used in the SIR system to do the following:

1. Verify lamp and DERM operation by flashing seven times when the ignition switch is first turned to "RUN" ("ON").
2. Warn the vehicle driver of SIR electrical system malfunctions which could potentially affect the operation of the SIR system. These malfunctions could result in non-deployment in case of a frontal crash or deployment for conditions less severe than intended.

The "AIR BAG" warning lamp is the key to driver notification of SIR system malfunctions. For proper lamp operation, refer to "SIR Diagnostic System Check" in this section.

Arming Sensor

The arming sensor is a protective switch located in the high side (power side) of the deployment loop. The arming sensor is calibrated to close at low level velocity changes (lower than the discriminating sensors). This ensures that the inflator module is connected directly to the "36 VLR" output of the DERM or "Ignition 1" voltage when either of the discriminating sensors closes.

The arming sensor consists of: a sensing element, normally open switch contacts, two diagnostic resistors, and two diodes. The sensing element closes the switch contacts when the velocity of the vehicle changes at a rate indicating a potential need for deployment.

The 5.1k Ω diagnostic resistor is connected in parallel with the switch contacts allowing a small amount of current to flow through the deployment loop during normal, non-deployment operation. This current flow results in voltage drops across each component within the deployment loop. The DERM monitors these voltage drops to detect circuit or component malfunctions. The 2.49k Ω diagnostic resistor is connected in parallel with the diodes allowing the DERM to monitor the voltage applied to the high side of the deployment loop. The two diodes in the arming sensor provide isolation between the "36 VLR" output of the DERM and "Ignition 1" voltage.

Discriminating Sensors

There are two discriminating sensors in the SIR system, the LH forward discriminating sensor and the RH forward discriminating sensor. The discriminating sensors are wired in parallel on the low side (ground side) of the deployment loop. These sensors are calibrated to close with velocity changes which are severe enough to warrant deployment.

The discriminating sensors consist of a sensing element, normally open switch contacts, and a diagnostic resistor. The sensing element closes the switch contacts when the vehicle velocity changes are severe enough to warrant deployment.

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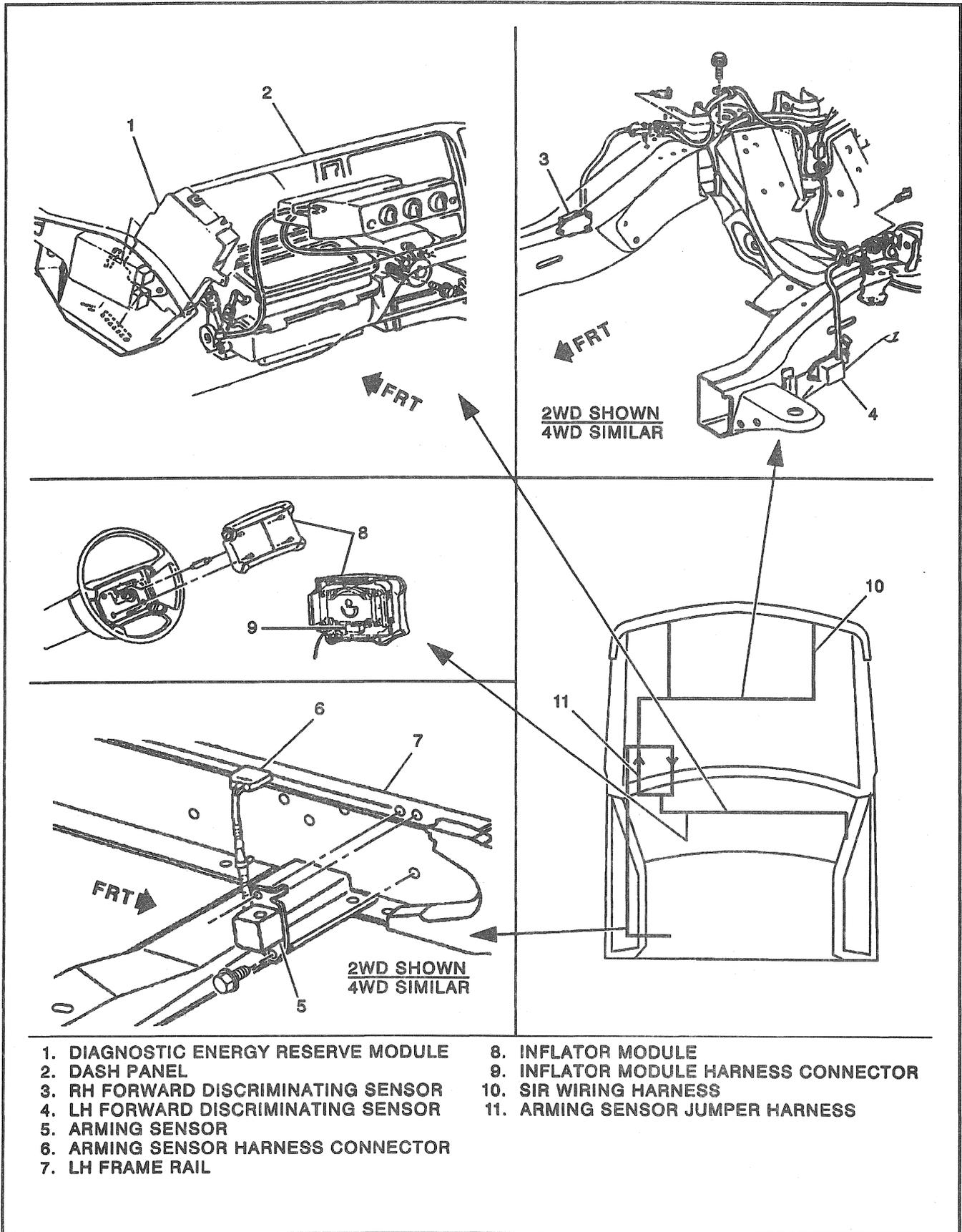


Figure 4—SIR Component and Wiring Location View

9J-6 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM

A diagnostic resistor is connected in parallel with the switch contacts within each of the discriminating sensors. These parallel resistors supply the ground path for the current passing through the deployment loop during normal, non-deployment operation. This current flow results in voltage drops across each component within the deployment loop. The DERM monitors these voltage drops to detect circuit or component malfunctions.

SIR Coil Assembly

Figure 5

The SIR coil assembly consists of two current-carrying coils. They are attached to the steering column and allow rotation of the steering wheel while maintaining continuous contact of the deployment loop to the inflator module.

There is a shorting bar on the yellow 2-way connector at the base of the steering column which connects the SIR coil to the SIR wiring harness. The shorting bar shorts the circuits to the SIR coil and inflator module when the yellow 2-way connector is disconnected. The circuit to the inflator module is shorted in this way to help prevent unwanted deployment of the air bag when servicing the steering column or other SIR components.

Inflator Module

Figure 6

The inflator module is located on the steering wheel hub. The inflator module consists of an inflatable bag and an inflator (a canister of gas-generating material and an initiating device). When the vehicle is in a frontal crash of sufficient force to close the arming sensor and at least one of the discriminating sensors simultaneously, current flows through the deployment loop. Sufficient current passing through the initiator ignites the material in the inflator module. The gas produced from this reaction rapidly inflates the air bag.

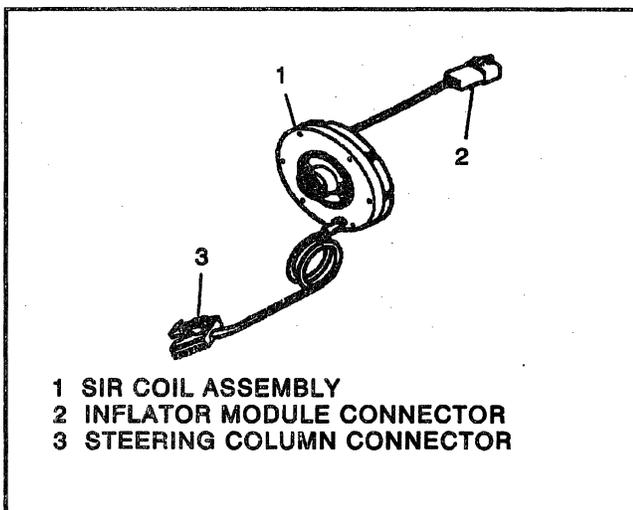


Figure 5—SIR Coil Assembly

There is a shorting bar on the inflator module side of the upper steering column connector which connects the SIR coil to the inflator module. The shorting bar shorts the inflator module circuit when the upper steering column connector is disconnected. The circuit to the inflator module is shorted in this way to help prevent unwanted deployment of the air bag when servicing the inflator module or steering column.

Steering Column

The steering column is energy absorbing and designed to compress in a frontal crash to decrease the chance of injury to the driver.

Knee Bolster

The knee bolster is used to absorb energy and control the driver's forward movement during a frontal crash by limiting leg movement.

DEFINITIONS:

AIR BAG - An inflatable cloth cushion designed to deploy in certain frontal crashes. It supplements the protection offered by the seat belts by distributing the impact load more evenly over the vehicle occupant's head and torso.

ARMING SENSOR JUMPER HARNESS ELECTRICAL CONNECTOR - A 4-way connector located on the top of the LH side wheelhouse. It connects the front of the dash wiring harness to the arming sensor jumper harness.

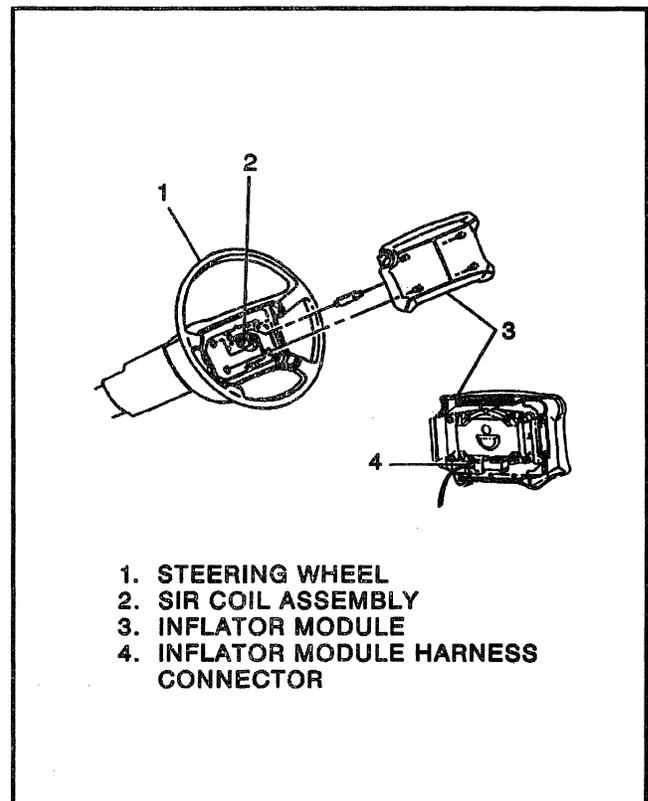


Figure 6—Inflator Module

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-7

ARMING SENSOR - A sensor on the high side (power side) of the deployment loop that is calibrated to supply voltage to the inflator module when the vehicle velocity changes are severe enough to warrant arming of the air bag in preparation for deployment.

B+ - Battery voltage, the voltage available at the battery at the time of the indicated measurement. With the ignition switch "ON" and the engine not running, system voltage will likely be between 11.5 and 12.5 volts. At idle the voltage may be 14 to 16 volts. The voltage could be as low as 10 volts during engine cranking.

BULB TEST - The DERM will cause the "AIR BAG" warning lamp to flash seven times and then go "OFF" whenever the ignition switch transitions to the "RUN" ("ON") position from any other ignition switch position and no malfunctions are detected.

CKT - Circuit.

"CONTINUOUS MONITORING" - Tests performed by the DERM on the SIR system every 100 milliseconds while "Ignition 1" voltage is in the normal operating voltage range at the DERM.

DATUM LINE - A base line parallel to the plane of the underbody or frame from which all vertical measurements originate.

DEPLOY - To inflate the air bag.

DEPLOYMENT LOOP - The circuits which supply current to the inflator module to deploy the air bag.

DERM - Diagnostic Energy Reserve Module which provides reserve energy to the deployment loop and performs diagnostic monitoring of all SIR system components.

DISCRIMINATING SENSOR JUMPER HARNESS CONNECTOR - A 4-way connector located on the top of the LH side wheelhouse. It connects the front of dash wiring harness to the forward sensor harness.

(DLC) DATA LINK CONNECTOR - Formerly "ALDL," a connector which is connected by wires to multiple on-board computers allowing communication with an off-board computer, such as a scan tool.

DRIVER CURRENT SOURCE - An output of the DERM which injects current into the driver inflator module circuit during the "Initiator Assembly Resistance Test."

(DTC) DIAGNOSTIC TROUBLE CODE - A numerical designator used by the DERM to indicate specific SIR system malfunctions.

DVM - Digital Volt Meter; J 39200.

HIGHER PRIORITY FAULT - Each diagnostic trouble code is assigned a priority based on the detectability with other DTCs present. The priority corresponds to the detectability of the malfunction ONLY, and does NOT relate to the criticality of the malfunction with respect to deployment or non-deployment under any given condition.

IGNITION CYCLE - The voltage at the DERM "Ignition 1" input, with ignition switch "ON," is within the normal operating voltage range for at least ten seconds before turning ignition switch "OFF."

IGNITION 1 - A battery voltage (B+) circuit which is only powered with the ignition switch in the "RUN" or "START" positions.

INFLATOR MODULE - An assembly located in the steering wheel hub consisting of an inflatable bag, inflator, and initiator.

INITIATOR - The electrical component inside the inflator module which, when sufficient current flows, sets off the chemical reaction that inflates the air bag.

"INITIATOR ASSEMBLY RESISTANCE TEST" - Tests performed once each ignition cycle when no malfunctions are detected during "Turn-ON" or "Continuous Monitoring." This test checks for the correct DERM configuration for the vehicle, shorts to "Ignition 1" in the deployment loop, high resistance or opens in the "Driver Side High" and "Driver Side Low" circuits, and measures the resistance of the inflator assembly consisting of: 1) Initiator, 2) SIR coil assembly, 3) Connectors and associated wiring.

LH FORWARD DISCRIMINATING SENSOR - A sensor on the low side (ground side) of the deployment loop that is calibrated to supply ground to the inflator module when the vehicle velocity changes are severe enough to warrant deployment of the air bag.

NORMAL OPERATING VOLTAGE RANGE - The voltage measured between the DERM "Ignition 1" terminal and "Ground" terminals is between 7.25 and 16 volts.

RH FORWARD DISCRIMINATING SENSOR - A sensor on the low side (ground side) of the deployment loop that is calibrated to supply ground to the inflator module when the vehicle velocity changes are severe enough to warrant deployment of the air bag.

SCAN TOOL - An off-board computer used to read diagnostic information from on-board computer via the data link connector (DLC).

SERIAL DATA - Information representing the status of the SIR system.

SIR - Supplemental Inflatable Restraint.

SIR COIL ASSEMBLY - An assembly of two current-carrying coils in the deployment loop that allows the rotation of the steering wheel while maintaining the continuous contact of the deployment loop to the inflator module.

SIR WIRING HARNESS - The wires and connectors that electrically connect the components in the SIR system.

SYSTEM VOLTAGE - Voltage available at the battery at the time of the indicated voltage measurement. With the ignition switch "ON" and engine not running, system voltage will likely be between 11.5 and 12.5 volts. At idle the voltage may be 14 to 16 volts. The voltage could be as low as 10 volts during engine cranking.

"10 MINUTE LOOP TEST" - Portions of the "Initiator Assembly Resistance Test" are repeated every ten minutes during an ignition cycle. This is the check for shorts to "Ignition 1" in the deployment loop.

"TURN-ON" - Test which the DERM performs on the SIR system once during each ignition cycle immediately after "Ignition 1" voltage is applied to the DERM and before "Continuous Monitoring."

36 VLR - The 36 volt loop reserve energy supply from the DERM which provides deployment power when battery voltage is low or lost in a frontal crash.

36 VLR DELAY - Charging of the 36 VLR power supply is inhibited briefly during "Turn-ON." This allows detection of certain malfunctions related to "Ignition 1" voltage which cannot be tested with 36 volts present.

DIAGNOSIS

CAUTION: To avoid deployment when troubleshooting the SIR system, do not use electrical test equipment such as a battery powered or ac powered voltmeter, ohmmeter, etc., or any type of electrical equipment other than that specified in this manual. Do not use a non-powered probe type tester. Instructions in this manual must be followed carefully, otherwise personal injury may result.

DIAGNOSTIC TROUBLE CODES

The "SIR Diagnostic System Check" must always be the starting point of any SIR system diagnosis. The "SIR Diagnostic System Check" checks for proper "AIR BAG" warning lamp operation and checks for SIR diagnostic trouble codes using the scan tool.

1. Current diagnostic trouble codes - Malfunctions that are presently being detected. Current diagnostic trouble codes are stored in RAM (Random Access Memory).
2. History diagnostic trouble codes - All malfunctions detected since the last time the history memory was cleared. History diagnostic trouble codes are stored in EEPROM (Electrically Erasable Programmable Read-Only Memory).

Scan Tool Diagnostics

A scan tool is used to read current and history diagnostic trouble codes and to clear all diagnostic trouble codes after a repair is completed. The scan tool may need to be updated to communicate with the SIR system through a replaceable cartridge before it can be used for SIR diagnostics. To use the scan tool, connect

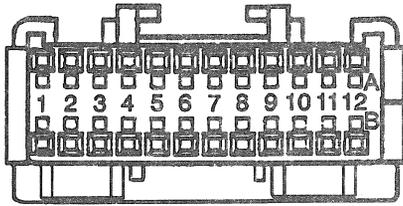
it to the data link connector and turn the ignition switch "ON." The scan tool reads serial data from the DERM "Serial Data" output terminal "A11" at the data link connector terminal "9."

A scan tool can also provide SIR system circuit values using the "Data List" function. These values are referred to in the diagnostic trouble code tables to aid in diagnosing certain SIR system malfunctions. For additional information, refer to the scan tool instruction manual.

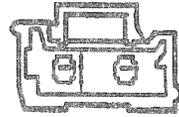
USE OF SPECIAL TOOLS

CAUTION: To avoid deployment when troubleshooting the SIR system, do not use electrical test equipment such as a battery powered or ac powered voltmeter, ohmmeter, etc., or any type of electrical equipment other than that specified in this manual. Do not use a non-powered probe type tester. Instructions in this manual must be followed carefully, otherwise personal injury may result.

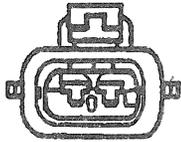
You should be familiar with the tools listed in this section under the heading "SIR SPECIAL TOOLS." You should be able to measure voltage and resistance. When measuring resistance in low ohmic circuits (< 5.0 Ω), the DVM must be zeroed first. You should be familiar with proper use of a scan tool such as the Tech 1 Diagnostic Computer TK-0 or the T-100, the SIR Driver/Passenger Load Tool J 38715-A, Connector Test Adapter Kit J 35616-A, and the DVM (Digital Multimeter) J 39200.



DERM



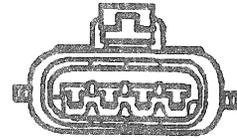
**YELLOW 2-WAY CONNECTOR AT
BASE OF STEERING COLUMN**



**RH FORWARD
DISCRIMINATING
SENSOR CONNECTOR**



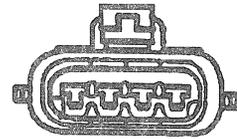
**LH FORWARD
DISCRIMINATING
SENSOR CONNECTOR**



**ARMING SENSOR
JUMPER HARNESS
ELECTRICAL
CONNECTOR**



**DISCRIMINATING SENSOR
JUMPER HARNESS
CONNECTOR**



**ARMING SENSOR
CONNECTOR**

ALL SIR SYSTEM CONNECTORS ARE YELLOW

Figure 7—SIR Connector Body Face Views

SIR DIAGNOSTIC SYSTEM CHECK

CAUTION: To avoid deployment when troubleshooting the SIR system, do not use electrical test equipment such as a battery powered or ac powered voltmeter, ohmmeter, etc., or any type of electrical equipment other than that specified in this manual. Do not use a non-powered probe type tester. Instructions in this manual must be followed carefully, otherwise personal injury may result.

The diagnostic procedures used in this section are designed to find and repair SIR system malfunctions. To get the best results, it is important to use the diagnostic tables and follow the sequence listed below:

- A. PERFORM THE "SIR DIAGNOSTIC SYSTEM CHECK." The "SIR Diagnostic System Check" must be the starting point of any SIR Diagnostics. The "SIR Diagnostic System Check" checks for proper "AIR BAG" warning lamp operation, the ability of the DERM to communicate through the data link connector, and whether SIR diagnostic trouble codes exist.
- B. REFER TO THE PROPER DIAGNOSTIC TABLE AS DIRECTED BY THE "SIR DIAGNOSTIC SYSTEM CHECK." The "SIR Diagnostic System Check" will lead you to the correct table to diagnose any SIR system malfunction. **Bypassing these procedures may result in extended diagnostic time, incorrect diagnosis, and incorrect parts replacement.**
- C. REPEAT THE "SIR DIAGNOSTIC SYSTEM CHECK" AFTER ANY REPAIR OR DIAGNOSTIC PROCEDURES HAVE BEEN PERFORMED. Performing the "SIR Diagnostic System Check" after all repair or diagnostic procedures will ensure that the repair has been made correctly and no other malfunctions exist.

CIRCUIT DESCRIPTION

When the ignition switch is first turned "RUN" ("ON"), system voltage is applied from the "AIR BAG" fuse to the DERM at the "Ignition 1" input, terminal "A10," and from the "GAUGES" fuse to the DERM at the "Redundant Indicator Ignition 1" input, terminal "B2." The DERM responds by flashing the "AIR BAG" warning lamp seven times while performing tests on the SIR system.

When the engine is being cranked, system voltage is applied from the "CRANK" fuse to the DERM at the

"Crank" input, terminal "B10." The DERM responds by grounding the "SIR Indicator" output, terminal "B1," until system voltage is removed from the "Crank" input. This results in the "AIR BAG" warning lamp being "ON" steady during cranking.

After cranking, the DERM will flash the "AIR BAG" warning lamp six times and perform tests on the SIR system.

NOTES ON SYSTEM CHECK TABLE:

1. The "AIR BAG" warning lamp should flash seven times after the ignition switch is first turned "ON."
2. The "AIR BAG" warning lamp should remain "ON" steady during cranking.
3. After cranking, the "AIR BAG" warning lamp should flash six times then go "OFF."
4. This test checks for the proper operation of the "Serial Data" line. This test will also determine whether history diagnostic trouble codes are stored and, if so, identify them.
5. This test checks for the DERM's ability to communicate through the Serial Data Line.
6. This test refers to the appropriate DTC Table for diagnosis of the history DTCs set to the memory in the DERM.
7. When the "AIR BAG" warning lamp flashes four times during "Bulb Test," this indicates a malfunction in the redundant lamp driver circuitry. These malfunctions are diagnosed by DTC 62 table.
8. Improper operation of the "AIR BAG" warning lamp is indicated. This test differentiates a warning lamp stays "ON" condition from a warning lamp does not come "ON" condition.
9. This test will identify the stored diagnostic trouble codes and whether they are current or history.
10. This test requests that you record all trouble codes on the repair order and then refers you to the appropriate DTC table for diagnosis of all DTCs.
11. This step refers you back to the beginning of the SIR DIAGNOSTIC SYSTEM CHECK to ensure the system is "OK" and functioning properly.

DIAGNOSTIC AIDS:

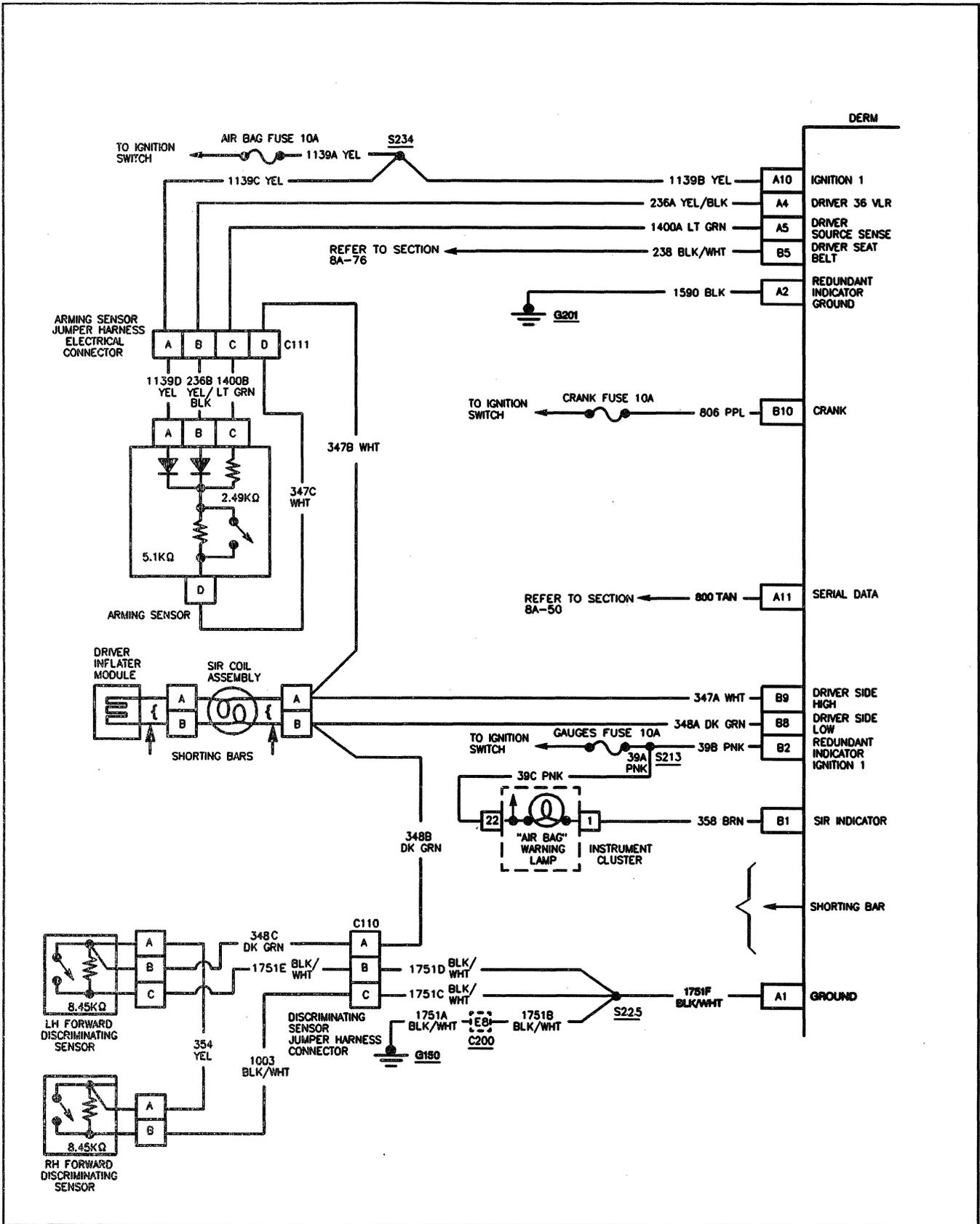
The order in which diagnostic trouble codes are diagnosed is very important. Failure to diagnose the diagnostic trouble codes in the order specified may result in extended diagnostic time, incorrect diagnosis, and incorrect parts replacement.

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-11

SIR DIAGNOSTIC SYSTEM CHECK

Step	Action	Yes	No
1	1. Note the "AIR BAG" warning lamp as the ignition switch is turned "ON". 2. Does the "AIR BAG" warning lamp flash seven times?	Go to Step 2	Go to Step 7
2	1. Note the "AIR BAG" warning lamp as the engine is started. 2. Does the "AIR BAG" warning lamp come "ON" steady during cranking?	Go to Step 3	Go to Table D
3	1. Note the "AIR BAG" warning lamp after starting. 2. Does the "AIR BAG" warning lamp flash six times, then go "OFF"?	Go to Step 4	Go to Step 9
4	1. Connect a scan tool to the Data Link Connector and follow directions given in the scan tool instruction manual. 2. Request the SIR Diagnostic Trouble Code display. 3. Is a (are) history Diagnostic Trouble Code(s) displayed?	Go to Step 6	Go to Step 5
5	1. Does the scan tool indicate no data received?	Refer to SECTION 8A-50	System OK
6	1. Record all the displayed Diagnostic Trouble Codes on the repair order specifying as history. 2. Ignition switch "OFF." 3. Refer to "Diagnostic Aids" for the indicated diagnostic trouble code. A history Diagnostic Trouble Code indicates the malfunction has been repaired (but DTCs were not cleared) or is intermittent. 4. Has the diagnosis been performed and DTCs cleared?	Go to Step 1	—
7	1. Does the "AIR BAG" warning lamp flash four times?	Go to DTC 62	Go to Step 8
8	1. Does the "AIR BAG" warning lamp come "ON" steady?	Go to Table B	Go to Table C
9	1. Connect a scan tool to the Data Link Connector and follow directions given in the scan tool instruction manual. 2. Request the SIR Diagnostic Trouble Code display. 3. Is a (are) current Diagnostic Trouble Code(s) displayed?	Go to Step 10	Go to Step 5
10	1. Record all the displayed Diagnostic Trouble Codes on the repair order specifying as current or history. 2. When DTC 51 is set, diagnose as directed by DTC 51 table. 3. Diagnose all the remaining current Diagnostic Trouble Codes from lowest to highest. 4. Has Current DTC diagnosis been performed and all current DTC(s) cleared?	Go to Step 11	—
11	1. Is a (are) history Diagnostic Trouble Code(s) recorded on the repair order?	Go to Step 6	Go to Step 1

9J-12 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM



**TABLE A
DERM INTEGRITY CHECK**

Circuit Description:

When the DERM recognizes "Ignition 1" voltage, applied to terminal "A10," is in the normal operating voltage range, the "AIR BAG" warning lamp is flashed 7 times to verify operation. At this time the DERM performs "Turn-ON" tests followed by "Continuous Monitoring" tests. When no malfunctions are detected, the DERM proceeds to the "Initiator Assembly Resistance Test." When a malfunction is detected, the DERM sets a current diagnostic trouble code and illuminates the "AIR BAG" warning lamp. The DERM will clear current diagnostic trouble codes and move them to a history file when the malfunction is no longer detected and/or the ignition switch is cycled, except for DTC 51. DTC 51 can only be cleared using a scan tool "Clear Codes" command.

Table Test Description:

Number(s) below refer to step number(s) on the diagnostic table.

1. The "SIR DIAGNOSTIC SYSTEM CHECK" must be the starting point for all diagnostics.

2. This test confirms a current malfunction. If no current malfunction is occurring (History DTC set), the "Diagnostic Aids" for the appropriate diagnostic trouble code should be referenced. The DERM should not be replaced for a history diagnostic trouble code, except when directed by the appropriate diagnostic table.
3. This test checks for a malfunction introduced into the SIR system during the diagnostic process. It is extremely unlikely that a malfunctioning DERM would cause a new malfunction to occur during the diagnostic process.
4. When all circuitry outside the DERM has been found to operate properly, as indicated by the appropriate diagnostic table, then and only then should the DERM be replaced.
5. The symptom or DTC is no longer occurring. The condition may be intermittent or inadvertently repaired during diagnosis of the SIR system. Refer to "INTERMITTENTS AND POOR CONNECTIONS" in SECTION 8A-4.

TABLE A - DERM INTEGRITY CHECK

THIS TABLE ASSUMES THAT THE "SIR DIAGNOSTIC SYSTEM CHECK" AND EITHER A SYMPTOM TABLE OR A DIAGNOSTIC TROUBLE CODE TABLE DIAGNOSIS HAVE BEEN PERFORMED. WHEN ALL CIRCUITRY OUTSIDE THE DERM HAS BEEN FOUND TO OPERATE PROPERLY, AS INDICATED BY THE APPROPRIATE DIAGNOSTIC TABLE, AND THE SYMPTOM OR DTC REMAINS CURRENT, THE FOLLOWING DIAGNOSTIC PROCEDURES MUST BE PERFORMED TO VERIFY THE NEED FOR DERM REPLACEMENT.

Step	Action	Yes	No
1	1. Were you sent here from a Symptom Table or a Diagnostic Trouble Code Table?	Go to Step 2	Go to "SIR Diagnostic System Check"
2	1. Ignition switch "OFF." 2. Reconnect all the SIR system components. 3. Ensure the ignition switch has been "OFF" for at least two minutes. 4. Note the "AIR BAG" warning lamp as ignition switch is turned "ON." 5. Does the "AIR BAG" warning lamp flash seven times and go "OFF"?	Go to Step 5	Go to Step 3
3	1. Using a scan tool, request the Diagnostic Trouble Code display. 2. Is the same symptom or DTC occurring as was when the "SIR Diagnostic Check" was first performed?	Go to Step 4	Go to indicated table
4	1. Clear the SIR Diagnostic Trouble Codes. 2. Turn the ignition switch "OFF" for at least two minutes. 3. Note the "AIR BAG" warning lamp as the ignition switch is turned "ON." 4. Does the "AIR BAG" warning lamp flash seven times and then go "OFF"?	System OK	Go to Step 6
5	1. The symptom or DTC is no longer occurring. 2. Clear the SIR Diagnostic Trouble Codes. 3. Have the SIR Diagnostic Trouble Codes been cleared?	Go to "SIR Diagnostic System Check"	—
6	1. Ignition switch "OFF".. 2. Replace the DERM. Refer to ON-VEHICLE SERVICE, DIAGNOSTIC ENERGY RESERVE MODULE (DERM). 3. Has the DERM been replaced?	Go to "SIR Diagnostic System Check"	—

9J-14 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM

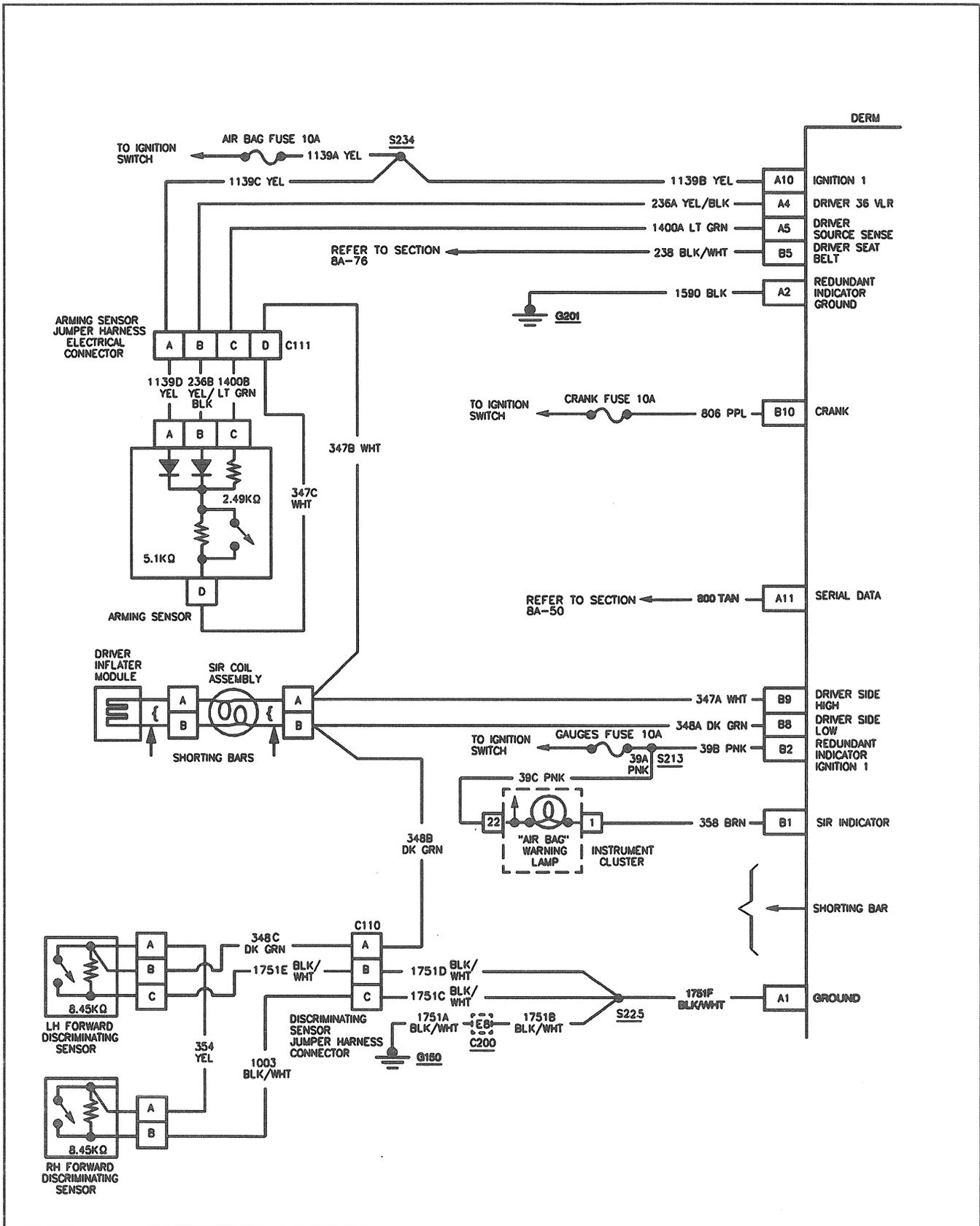


TABLE B

“AIR BAG” WARNING LAMP COMES “ON” STEADY

Circuit Description:

When the ignition switch is first turned to “RUN” (“ON”), “Ignition 1” voltage is applied from the “GAUGES” fuse to the “Redundant Indicator Ignition 1,” terminal “B2,” and to the “AIR BAG” warning lamp which is connected to “SIR Indicator,” terminal “B1.” The “AIR BAG” fuse applies system voltage to the “Ignition 1” input, terminal “A10.” The DERM responds by flashing the “AIR BAG” warning lamp 7 times. If “Ignition 1” is outside of the normal operating voltage range, the “AIR BAG” warning lamp will come “ON” solid with no DTCs set.

When the engine is being cranked, “Ignition 1” voltage is applied from the “CRANK” fuse to the DERM at the “Crank” input. The DERM responds by grounding the “SIR Indicator” output until “Ignition 1” voltage is removed from the “Crank” input. This results in the “AIR BAG” warning lamp being “ON” during cranking.

After cranking, the DERM will flash the “AIR BAG” warning lamp 6 times.

Table Test Description:

Number(s) below refer to step number(s) on the diagnostic table.

1. The “SIR DIAGNOSTIC SYSTEM CHECK” must be the starting point for all diagnostics.
2. An open “AIR BAG” fuse would cause the “AIR BAG” warning lamp to come “ON” steady.
3. A disconnected DERM harness connector will cause the warning lamp to come “ON” steady via the shorting bar from terminal “A1” to terminal “B1.”
9. This test checks for an open in the ground circuitry to the DERM.
11. This test checks for an open in the “Ignition 1” circuitry to the DERM.
12. This test checks for a short from the “SIR Indicator” circuit to ground.
14. This test checks for a short from the “Crank” input circuit to B+.
16. This test checks whether a short to ground caused “AIR BAG” fuse to open.
17. This test determines whether the short to ground is due to a malfunctioning arming sensor or a short in the wiring.

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TABLE B - "AIR BAG" WARNING LAMP COMES "ON" STEADY

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
1	1. Was the "SIR Diagnostic System Check" performed?	Go to Step 2	Go to "SIR Diagnostic System Check"
2	1. Ignition switch "OFF." 2. Remove and inspect the "AIR BAG" fuse. 3. Is the fuse good?	Go to Step 3	Go to Step 16
3	1. Inspect the DERM electrical harness connector connection to the DERM. 2. Is the connector securely connected to the DERM?	Go to Step 4	Go to Step 20
4	1. Disconnect the DERM. 2. Check for proper connection to the DERM harness connector at terminals "A1" and "A10." 3. Is the DERM harness connector damaged or corroded?	Go to Step 6	Go to Step 7
5	1. Check for proper connection to the DERM at terminals "A1" and "A10." 2. Are the DERM terminals damaged or corroded?	Go to Step 8	Go to Step 22
6	1. Repair the DERM electrical harness connector. 2. Has the connector been repaired?	Go to Step 5	—
7	1. Check for proper connection to the DERM at terminals "A1" and "A10." 2. Are the DERM terminals damaged or corroded?	Go to Step 8	Go to Step 9
8	1. Replace the DERM. Refer to ON-VEHICLE SERVICE, DIAGNOSTIC ENERGY RESERVE MODULE (DERM). 2. Has the DERM been replaced?	Go to Step 22	—
9	1. Measure resistance from DERM harness connector terminal "A1" to terminal "A2." 2. Is resistance 5.0Ω or less?	Go to Step 11	Go to Step 10
10	1. Repair open in CKT 1751A, B or F. 2. Has the open circuit been repaired?	Go to Step 22	—
11	1. Measure resistance from each terminal of the "AIR BAG" fuse holder to the DERM electrical harness connector terminal "A10." 2. Is either measurement 5.0Ω or less?	Go to Step 12	Go to Step 21
12	1. Install the "AIR BAG" fuse. 2. Disconnect the yellow 2-way electrical connector at the base of the steering column. 3. Connect the DERM harness connector to J 38715 SIR Driver/Passenger Load Tool. 4. Ignition switch "ON." 5. Does the "AIR BAG" warning lamp come "ON"?	Go to Step 13	Go to Step 14
13	1. Ignition switch "OFF." 2. Disconnect J 38715. 3. Repair the short from CKT 358 to ground. 4. Has the short circuit been repaired?	Go to Step 22	—

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-17

TABLE B - "AIR BAG" WARNING LAMP COMES "ON" STEADY

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
14	<ol style="list-style-type: none"> 1. Ignition switch "OFF." 2. Disconnect J 38715. 3. Ignition switch "ON." 4. Measure the voltage on the DERM electrical harness connector from terminal "B10" to terminal "A1" (ground). 5. Is the voltage 1 volt or less? 	Go to Table A	Go to Step 15
15	<ol style="list-style-type: none"> 1. Ignition switch "OFF." 2. Repair the short from CKT 806 to B+. 3. Has the short circuit been repaired? 	Go to Step 22	—
16	<ol style="list-style-type: none"> 1. Replace the "AIR BAG" fuse. 2. Ignition switch "ON." 3. Wait 10 seconds. 4. Ignition switch "OFF." 5. Remove and inspect the "AIR BAG" fuse. 6. Is the fuse good? 	Go to Step 22	Go to Step 17
17	<ol style="list-style-type: none"> 1. Disconnect the arming sensor. 2. Replace the "AIR BAG" fuse. 3. Ignition switch "ON." 4. Wait 10 seconds. 5. Ignition switch "OFF." 6. Remove and inspect the "AIR BAG" fuse. 7. Is the fuse good? 	Go to Step 18	Go to Step 19
18	<ol style="list-style-type: none"> 1. Replace the Arming Sensor. Refer to ON-VEHICLE SERVICE, ARMING SENSOR. 2. Has the sensor been replaced? 	Go to Step 22	—
19	<ol style="list-style-type: none"> 1. Repair the short to ground in CKT 1139. 2. Has the short circuit been repaired? 	Go to Step 22	—
20	<ol style="list-style-type: none"> 1. Properly connect the DERM electrical harness connector to the DERM. 2. Has the connector been properly connected to the DERM? 	Go to Step 22	—
21	<ol style="list-style-type: none"> 1. Repair the open in CKT 1139A or 1139B. 2. Has the open circuit been repaired? 	Go to Step 22	—
22	<ol style="list-style-type: none"> 1. Reconnect all the SIR system components. 2. Ensure the components are properly mounted. 3. Have all the SIR system components been reconnected and properly mounted? 	Go to Step 23	—
23	<ol style="list-style-type: none"> 1. Clear the SIR Diagnostic Trouble Codes. 2. Have the SIR Diagnostic Trouble Codes been cleared? 	Go to "SIR Diagnostic System Check"	—

9J-18 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM

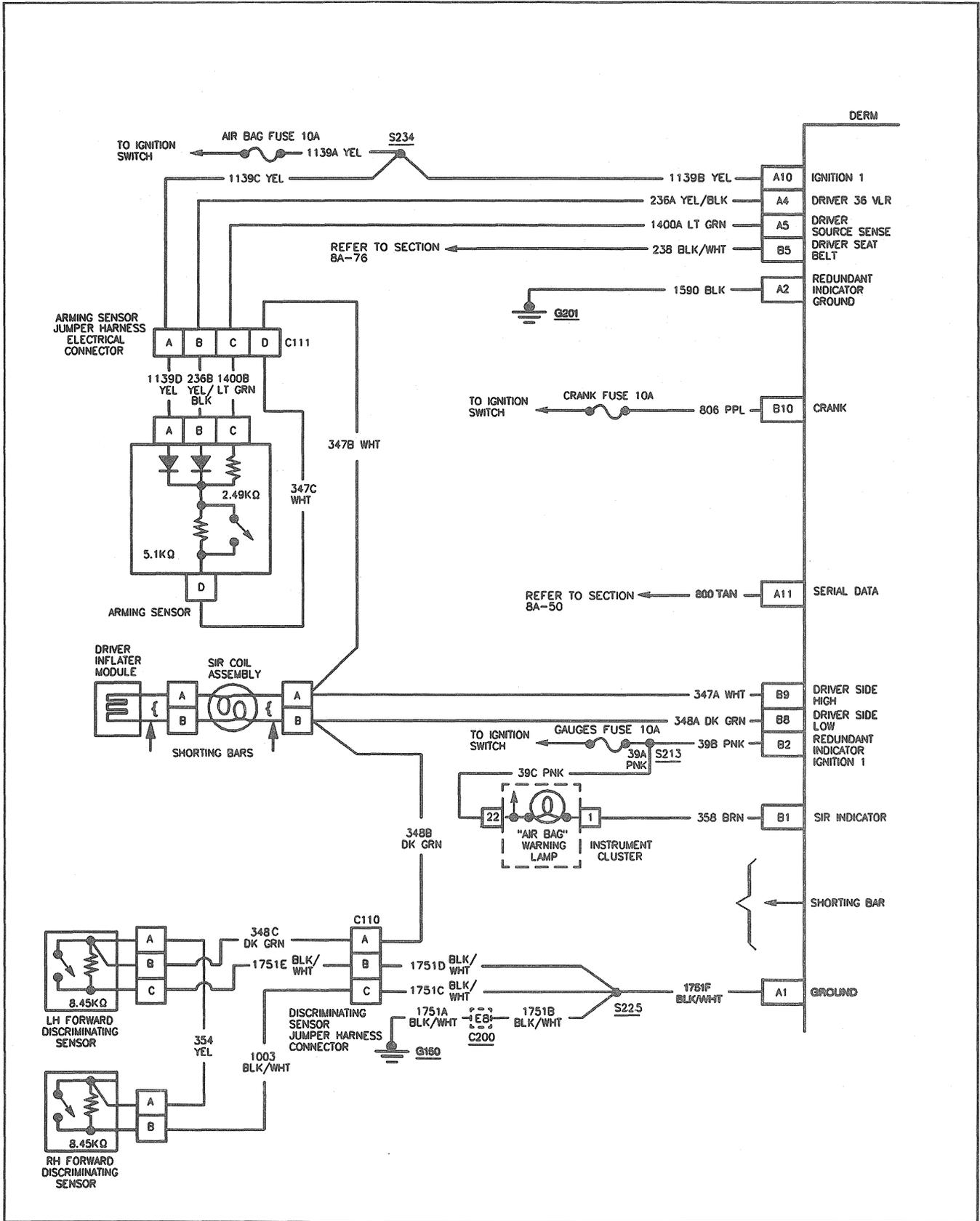


TABLE C

“AIR BAG” WARNING LAMP DOES NOT COME “ON”

Circuit Description:

When the ignition switch is first turned to “RUN” (“ON”), “Ignition 1” voltage is applied from the “GAUGES” fuse to “Redundant Indicator Ignition 1,” terminal “B2,” and to the “AIR BAG” warning lamp which is connected to the “SIR Indicator,” terminal “B1.” The “AIR BAG” fuse applies system voltage to the “Ignition 1” input, terminal “A10.” The DERM responds by flashing the “AIR BAG” warning lamp 7 times.

When the engine is being cranked, “Ignition 1” voltage is applied from the “CRANK” fuse to the DERM at the “Crank” input. The DERM responds by grounding the “SIR Indicator” output until “Ignition 1” voltage is removed from the “Crank” input. This results in the “AIR BAG” warning lamp being “ON” during cranking.

After cranking, the DERM will flash the “AIR BAG” warning lamp 6 times.

Table Test Description:

Number(s) below refer to step number(s) on the diagnostic table.

1. The “SIR DIAGNOSTIC SYSTEM CHECK” must be the starting point for all diagnostics.

2. This test determines whether the malfunction is in the DERM circuitry or in the instrument cluster power feed circuitry.
8. This test checks for an open in the “SIR Indicator” circuit, instrument cluster circuitry, and “AIR BAG” warning lamp bulb.
9. This test determines whether the malfunction is a short from the “SIR Indicator” circuit to B+.
16. This test checks whether the open is due to a bad bulb.
18. This test determines whether the malfunction is an open in the “SIR Indicator” circuit or an open in the instrument cluster.
21. This test checks whether power is available to the instrument cluster power feed circuit.
22. This test checks for a short from the instrument cluster power feed circuit to ground.
24. This test determines whether the short to ground is due to a short in the wiring or a malfunctioning DERM.
30. This test determines whether the malfunction is due to an open power feed circuit from the “GAUGES” fuse to the instrument cluster or an open power feed to the “GAUGES” fuse.

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TABLE C - "AIR BAG" WARNING LAMP DOES NOT COME "ON"

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
1	1. Was the "SIR Diagnostic System Check" performed?	Go to Step 2	Go to "SIR Diagnostic System Check"
2	1. Apply the parking brake. 2. Ignition switch "ON". 3. Does the "BRAKE" warning lamp come "ON"?	Go to Step 3	Go to Step 21
3	1. Ignition switch to "OFF". 2. Disconnect the DERM. 3. Check for proper connection to the DERM at terminal "B1." 4. Is the DERM electrical harness connector damaged or corroded?	Go to Step 4	Go to Step 6
4	1. Repair the DERM electrical harness connector. 2. Has the connector been repaired?	Go to Step 5	—
5	1. Check for proper connection to the DERM at terminal "B1." 2. Are the DERM terminals damaged or corroded?	Go to Step 7	Go to Step 33
6	1. Check for proper connection to the DERM at terminal "B1." 2. Are the DERM terminals damaged or corroded?	Go to Step 7	Go to Step 8
7	1. Replace the DERM. Refer to ON-VEHICLE SERVICE, DIAGNOSTIC ENERGY RESERVE MODULE (DERM). 2. Has the DERM been replaced?	Go to Step 33	—
8	1. Measure the resistance on the DERM electrical harness connector from terminal "B2" to terminal "B1." 2. Is the resistance 5.0Ω to 25Ω?	Go to Step 9	Go to Step 12
9	1. Disconnect the instrument cluster. 2. Connect the DERM electrical harness connector to J 38715 SIR Driver/Passenger Load Tool DERM connector. 3. Ignition switch "ON." 4. Measure the voltage from instrument cluster electrical harness connector terminal "1" to ground. 5. Is the voltage 1 volt or less?	Go to Step 10	Go to Step 11
10	1. Install the instrument cluster. 2. Has the instrument cluster been installed?	Go to Table A	—
11	1. Repair the short from CKT to 358 to B+. 2. Has the short circuit been repaired?	Go to Step 33	—
12	1. Remove the instrument cluster. 2. Check for proper connection to the instrument cluster at terminal "1." 3. Is the instrument cluster electrical harness connector damaged or corroded?	Go to Step 13	Go to Step 14
13	1. Repair the instrument cluster harness electrical connector. Refer to SECTION 8A-5. 2. Has the connector been repaired?	Go to Step 14	—
14	1. Check for proper connection to the instrument cluster at terminal "1." 2. Are the instrument cluster terminals damaged or corroded?	Go to Step 15	Go to Step 16

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-21

TABLE C - "AIR BAG" WARNING LAMP DOES NOT COME "ON"

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
15	1. Service or replace instrument cluster as needed. Refer to SECTION 8C. 2. Install the instrument cluster. 3. Has the instrument cluster been installed?	Go to Step 33	—
16	1. Remove and inspect the "AIR BAG" bulb. 2. Is the bulb good?	Go to Step 18	Go to Step 17
17	1. Replace the "AIR BAG" bulb. Refer to SECTION 8C. 2. Install the instrument cluster. 3. Has the instrument cluster been installed?	Go to Step 33	—
18	1. Install the "AIR BAG" bulb. 2. Measure the resistance from the instrument cluster electrical harness connector terminal "1" to the DERM electrical harness connector terminal "B1." 3. Is the resistance 5.0Ω or less?	Go to Step 19	Go to Step 20
19	1. Service the instrument cluster. Refer to SECTION 8C. 2. Install the instrument cluster. 3. Has the instrument cluster been installed?	Go to Step 33	—
20	1. Repair the open in CKT 358. 2. Has the open circuit been repaired?	Go to Step 33	—
21	1. Ignition switch "OFF." 2. Remove and inspect the "GAUGES" fuse. 3. Is the fuse good?	Go to Step 26	Go to Step 22
22	1. Replace the "GAUGES" fuse. 2. Ignition switch "ON." 3. Wait ten seconds. 4. Ignition switch "OFF." 5. Remove and inspect the "GAUGES" fuse. 6. Is the fuse good?	Go to Step 23	Go to Step 24
23	1. Install the "GAUGES" fuse. 2. Has the fuse been installed?	Go to Step 33	—
24	1. Disconnect the yellow 2-way electrical connector at the base of the steering column. 2. Disconnect the DERM. 3. Replace the "GAUGES" fuse. 4. Ignition switch "ON." 5. Wait 10 seconds. 6. Ignition switch "OFF." 7. Remove and inspect the "GAUGES" fuse. 8. Is the fuse good?	Go to Table A	Go to Step 25
25	1. Repair the short to ground in CKT 39 or the instrument cluster. 2. Has the short circuit been repaired?	Go to Step 33	—
26	1. Disconnect the instrument cluster. 2. Check for proper connection to the instrument cluster at terminal "22." 3. Is the instrument cluster electrical harness connector damaged or corroded?	Go to Step 27	Go to Step 28

9J-22 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM

TABLE C - "AIR BAG" WARNING LAMP DOES NOT COME "ON"

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
27	1. Repair the instrument cluster electrical harness connector. Refer to SECTION 8A-5. 2. Has the connector been repaired?	Go to Step 28	—
28	1. Check for proper connection to the instrument cluster at terminal "22." 2. Are the instrument cluster terminals damaged or corroded?	Go to Step 29	Go to Step 30
29	1. Service or replace the instrument cluster as needed. Refer to SECTION 8C. 2. Install the instrument cluster. 3. Has the instrument cluster been installed?	Go to Step 33	—
30	1. Measure the resistance from instrument cluster electrical harness connector terminal "22" to each terminal of the "GAUGES" fuse holder. 2. Is either measurement 5.0Ω or less?	Go to Step 32	Go to Step 31
31	1. Repair open in CKT 39 between the instrument cluster and the "GAUGES" fuse holder. 2. Has the open circuit been repaired?	Go to Step 33	—
32	1. Repair the open in power feed to the "GAUGES" fuse holder wire. 2. Has the open circuit been repaired?	Go to Step 33	—
33	1. Reconnect all the SIR system components. 2. Ensure the components are properly mounted. 3. Have all the SIR system components been reconnected and properly mounted?	Go to Step 34	—
34	1. Clear all the SIR Diagnostic Trouble Codes. 2. Have the SIR Diagnostic Trouble Codes been cleared?	Go to "SIR Diagnostic System Check"	—

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9J-24 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM

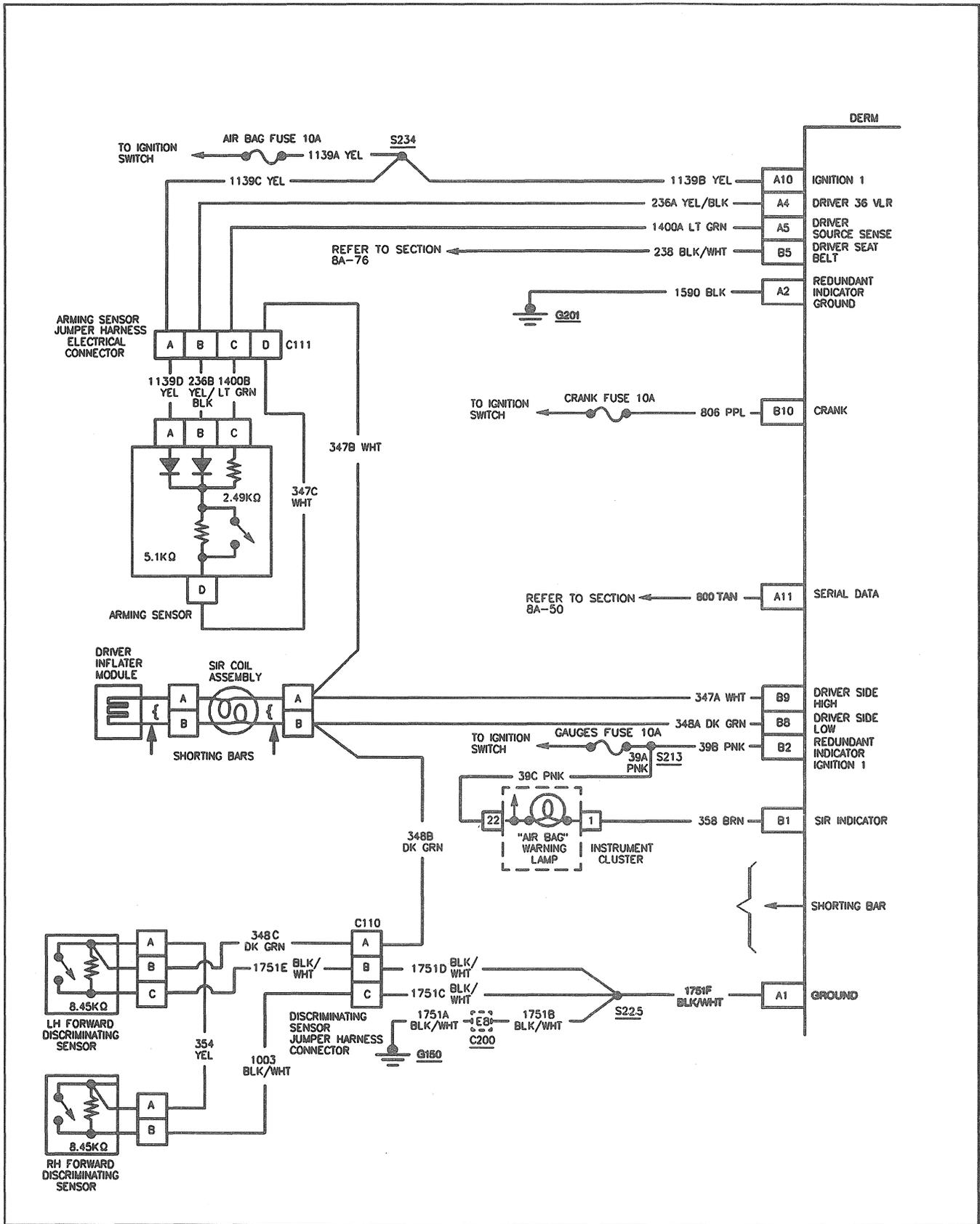


TABLE D

**“AIR BAG” WARNING LAMP DOES NOT COME “ON”
STEADY DURING CRANK**

Circuit Description:

When the ignition switch is first turned to “RUN” (“ON”), “Ignition 1” voltage is applied from the “GAUGES” fuse to “Redundant Indicator Ignition 1” terminal “B2,” and to the “AIR BAG” warning lamp which is connected to “SIR Indicator” terminal “B1.” The “AIR BAG” fuse applies system voltage to the “Ignition 1” input, terminal “A10.” The DERM responds by flashing the “AIR BAG” warning lamp 7 times.

When the engine is being cranked, “Ignition 1” voltage is applied from the “CRANK” fuse to the DERM at the “Crank” input. The DERM responds by grounding the “SIR Indicator” output until “Ignition 1” voltage is removed from the “Crank” input. This results in the “AIR BAG” warning lamp being “ON” during cranking.

After cranking, the DERM will flash the “AIR BAG” warning lamp 6 times.

Table Test Description:

Number(s) below refer to step number(s) on the diagnostic table.

1. The “SIR DIAGNOSTIC SYSTEM CHECK” must be the starting point for all diagnostics.
2. This test checks whether the malfunction is due to an open “CRANK” fuse.
8. This test checks for a proper signal to the “Crank” input during cranking.
9. This test determines whether the lack of a proper crank signal is due to an open “Crank” input circuit or an open power feed to the “CRANK” fuse.
12. This test checks whether the “CRANK” fuse is open due to a short to ground in the “CRANK” input circuit.
13. This test determines whether the short to ground is in the wiring harness.

9J-26 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM

TABLE D - "AIR BAG" WARNING LAMP DOES NOT COME "ON" STEADY DURING CRANK

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
1	1. Was the "SIR Diagnostic System Check" performed?	Go to Step 2	Go to "SIR Diagnostic System Check"
2	1. Ignition switch "OFF." 2. Remove and inspect the "CRANK" fuse. 3. Is the fuse good?	Go to Step 3	Go to Step 12
3	1. Install "CRANK" fuse. 2. Disconnect yellow 2-way connector located near the base of the steering column. 3. Disconnect the DERM. 4. Check for proper connection to the DERM at terminal "B10." 5. Is the DERM electrical harness connector damaged or corroded?	Go to Step 4	Go to Step 6
4	1. Repair the DERM electrical harness connector. 2. Has the connector been repaired?	Go to Step 5	—
5	1. Check for proper connection to the DERM at terminal "B10." 2. Are the DERM terminals damaged or corroded?	Go to Step 7	Go to Step 15
6	1. Check for proper connection to the DERM at terminal "B10." 2. Are the DERM terminals damaged or corroded?	Go to Step 7	Go to Step 8
7	1. Replace the DERM. Refer to ON-VEHICLE SERVICE, DIAGNOSTIC ENERGY RESERVE MODULE (DERM). 2. Has the DERM been replaced?	Go to Step 15	—
8	1. Install the "CRANK" fuse. 2. Disconnect the yellow 2-way electrical connector at the base of the steering column. 3. Measure the voltage on the DERM electrical harness connector from terminal "B10" to terminal "A1" (ground) while starting engine. 4. Is the voltage greater than 7.25 volts?	Go to Table A	Go to Step 9
9	1. Ignition switch "OFF." 2. Remove the "CRANK" fuse. 3. Measure the resistance from each terminal of the "CRANK" fuse holder to the DERM electrical harness connector terminal "B10." 4. Is either measurement 5.0Ω or less?	Go to Step 10	Go to Step 11
10	1. Repair the open in the power feed to the "CRANK" fuse. Refer to SECTION 8A-10. 2. Has the power feed been repaired?	Go to Step 15	—
11	1. Repair the open in CKT 806. 2. Has the open circuit been repaired?	Go to Step 15	—
12	1. Replace the "CRANK" fuse. 2. Start the engine. 3. Ignition switch "OFF." 4. Remove and inspect the "CRANK" fuse. 5. Is the fuse good?	Go to Step 15	Go to Step 13

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-27

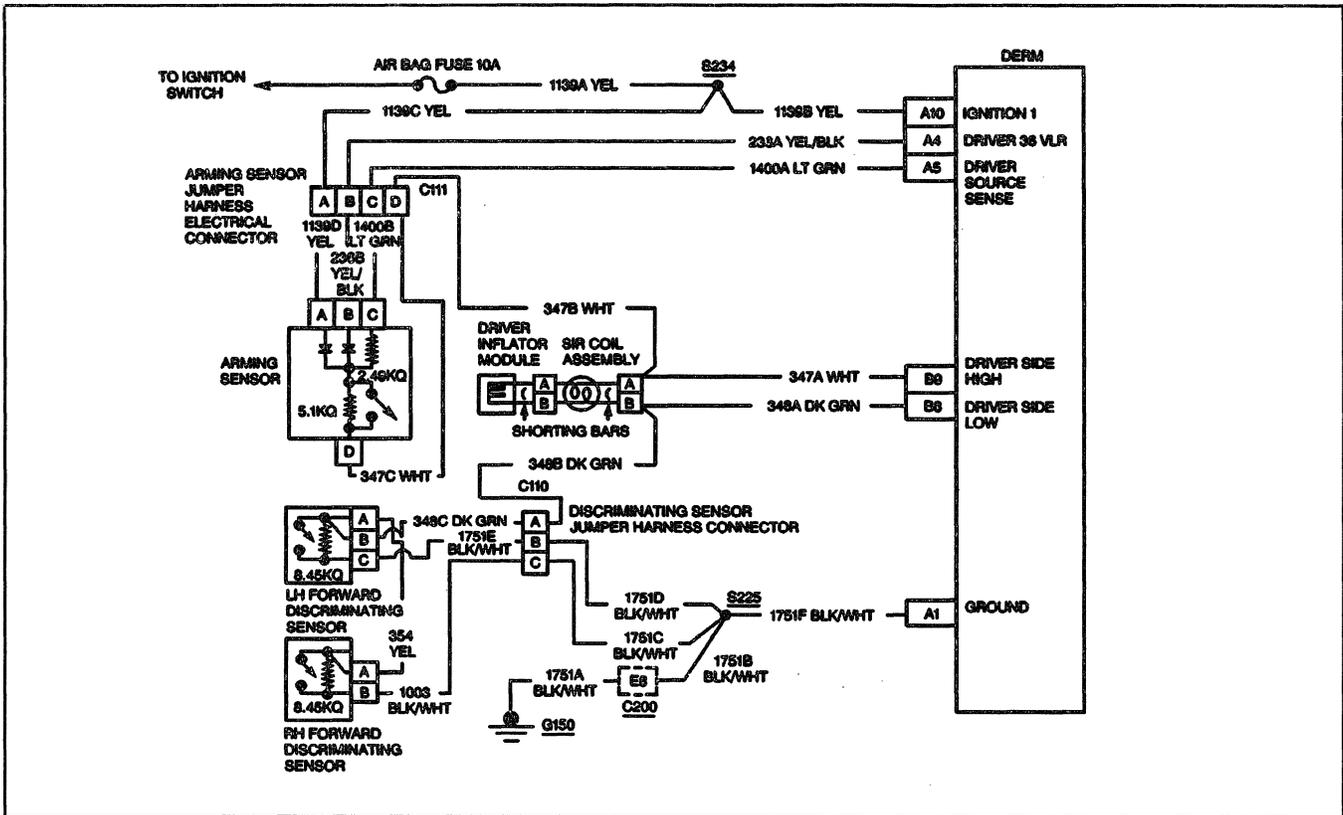
TABLE D - "AIR BAG" WARNING LAMP DOES NOT COME "ON" STEADY DURING CRANK

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
13	<ol style="list-style-type: none">1. Disconnect the yellow 2-way electrical connector at the base of the steering column.2. Disconnect the DERM.3. Replace the "CRANK" fuse.4. Start the engine.5. Ignition switch "OFF."6. Remove and inspect the "CRANK" fuse.7. Is the fuse good?	Go to Table A	Go to Step 14
14	<ol style="list-style-type: none">1. Repair the short from CKT 806 to ground.2. Has the short circuit been repaired?	Go to Step 15	—
15	<ol style="list-style-type: none">1. Reconnect all the SIR system components.2. Ensure the components are properly mounted.3. Have all the SIR system components been reconnected and properly mounted?	Go to Step 16	—
16	<ol style="list-style-type: none">1. Clear the SIR Diagnostic Trouble Codes.2. Have the SIR Diagnostic Trouble Codes been cleared?	Go to "SIR Diagnostic System Check"	—

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9J-28 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM



DTC 14

ARMING SENSOR DISCONNECTED

Circuit Description:

The DERM monitors the voltage at the "Driver Source Sense" terminal "A5," the "Driver Side High" terminal "B9" and the "Driver Side Low" terminal "B8" during the "Continuous Monitoring" tests. When all voltages are simultaneously below a specified value for 500 milliseconds, DTC 14 sets.

DTC Will Set When:

The voltages at terminals "A5," "B9" and "B8" of the DERM harness connector are simultaneously below a specified value for 500 milliseconds.

Action Taken:

DERM turns "ON" the "AIR BAG" warning lamp and sets a diagnostic trouble code.

DTC Will Clear When:

The voltage at terminal "A5," "B9" or "B8" of DERM harness connector is above specified value for 500 milliseconds.

DTC Table Test Description:

Number(s) below refer to step number(s) on the diagnostic table.

1. The "SIR DIAGNOSTIC SYSTEM CHECK" must be starting point for all diagnostics.
2. This test checks for a situation which prevents a proper connection at the arming sensor jumper harness electrical connector.
3. This test checks for a situation which prevents a proper connection of the arming sensor to the SIR wiring harness.

Diagnostic Aids:

It is highly unlikely that an intermittent condition has set this diagnostic trouble code as this would require a poor connection at terminals "A" and "B" or at terminals "C" and "D" of the arming sensor.

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-29

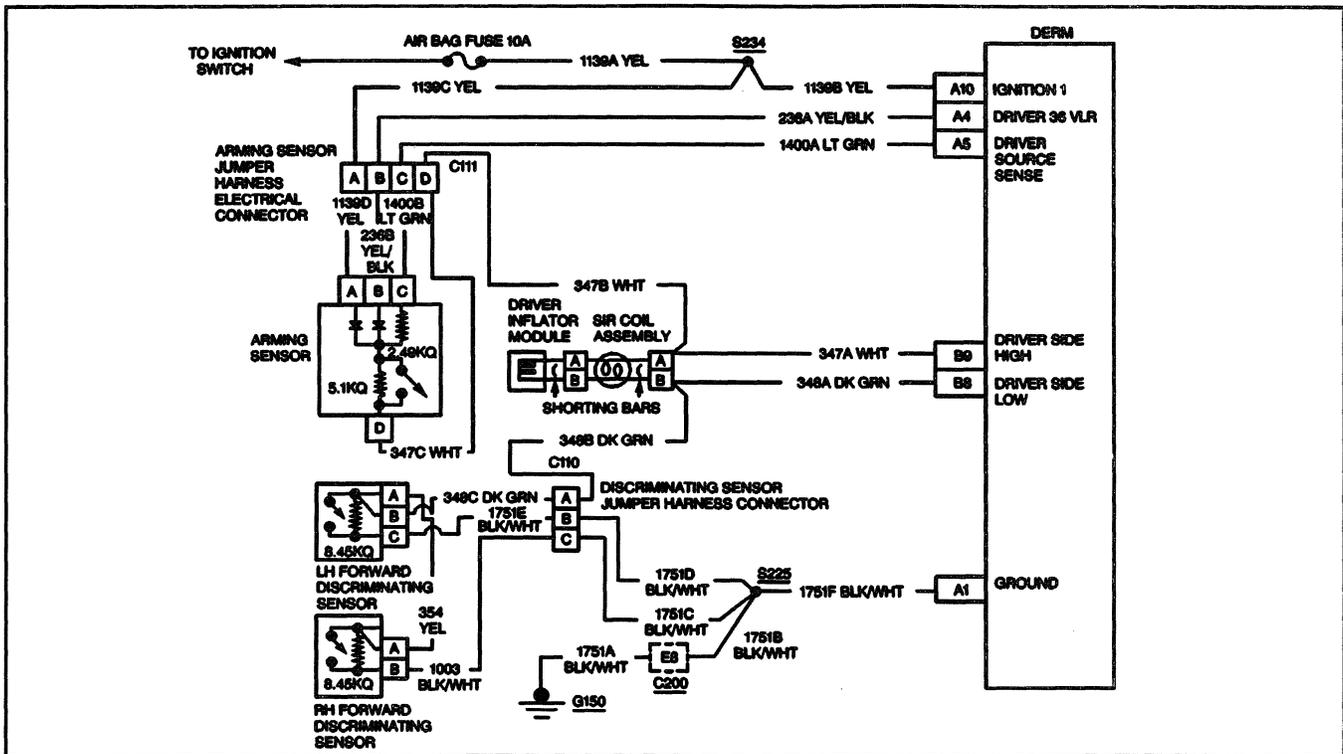
DTC 14 ARMING SENSOR DISCONNECTED

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
1	1. Was the "SIR Diagnostic System Check" performed?	Go to Step 2	Go to "SIR Diagnostic System Check"
2	1. Ignition switch "OFF." 2. Disconnect the yellow 2-way electrical connector at the base of the steering column. 3. Disconnect the Arming Sensor jumper harness electrical connector (C111) and reconnect. 4. Reconnect the yellow 2-way electrical connector at the base of the steering column. 5. Ignition switch "ON." 6. Is DTC 14 current?	Go to Step 3	Go to Step 4
3	1. Ignition switch "OFF." 2. Disconnect the yellow 2-way electrical connector at the base of the steering column. 3. Disconnect the Arming Sensor electrical harness connector from the Arming Sensor and reconnect. 4. Reconnect the yellow 2-way electrical connector at the base of the steering column. 5. Ignition switch "ON." 6. Is DTC 14 current?	Go to Table A	Go to Step 4
4	1. Clear the SIR Diagnostic Trouble Codes. 2. Have the SIR Diagnostic Trouble Codes been cleared?	Go to "SIR Diagnostic System Check"	—

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9J-30 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM



DTC 21

DRIVER INITIATOR CIRCUIT RESISTANCE HIGH

Circuit Description:

During the "Initiator Assembly Resistance Test," the DERM grounds the "Driver Side Low" terminal "B8" and turns "ON" the driver current source at the "Driver Side High" terminal "B9." This causes a known amount of current to flow through the driver initiator circuit. By monitoring the difference between the voltage at the "Driver Side High" terminal "B9" and the "Driver Side Low" terminal "B8," the DERM calculates the combined resistance of the driver inflator module, SIR coil assembly, harness wiring CKTs 347A and 348A, and connector terminal contact.

DTC Will Set When:

The combined resistance of the driver inflator module, SIR coil assembly, harness wiring CKTs 347A and 348A, and connector terminal contact is above a specified value. This test is run once each ignition cycle during the "Initiator Assembly Resistance Test" when: 1) No "higher priority faults" are detected during "Turn-ON," 2) No "higher priority faults" are detected during "Continuous Monitoring" for one second, 3) No "Crank" signal present, 4) "Ignition 1" voltage is above a specified value.

Action Taken:

DERM turns "ON" the "AIR BAG" warning lamp and sets a diagnostic trouble code.

DTC Will Clear When:

The ignition switch is turned "OFF."

DTC Table Test Description:

Number(s) below refer to step number(s) on the diagnostic table.

1. The "SIR DIAGNOSTIC SYSTEM CHECK" must be the starting point for all diagnostics.
7. This test checks for terminal deformation or contamination.
8. This test determines whether the malfunction is in the driver inflator module circuitry or in the DERM wiring harness circuitry.
9. This test determines whether the malfunction is in the driver inflator module or in the SIR coil assembly.
16. This test checks for high resistance in the "Driver Side Low" circuit.
18. This test checks for high resistance in the "Driver Side High" circuit.

Diagnostic Aids:

An intermittent condition is likely to be caused by a poor connection at: the yellow 2-way connector at base of steering column, DERM terminals "B8" or "B9," or the connection at the top of steering column to the driver inflator module. The test for this diagnostic trouble code is only run while the "AIR BAG" warning lamp is performing the bulb test. When a scan tool "Clear Codes" command is issued and the malfunction is still present, the DTC will not reappear until the next ignition cycle.

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-31

SIR DTC 21 DRIVER INITIATOR CIRCUIT RESISTANCE HIGH

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
1	1. Was the "SIR Diagnostic System Check" performed?	Go to Step 2	Go to "SIR Diagnostic System Check"
2	1. Ignition switch "OFF." 2. Disconnect the yellow 2-way electrical connector at the base of the steering column. 3. Check for proper connection at terminals "A" and "B" on the harness side of the 2-way electrical connector. 4. Are the terminals damaged or corroded?	Go to Step 3	Go to Step 5
3	1. Replace the yellow 2-way electrical connector at the base of the steering column. 2. Has the connector been replaced?	Go to Step 4	—
4	1. Check for proper connection at terminals "A" and "B" on the SIR coil assembly side of the 2-way connector. 2. Are the terminals damaged or corroded?	Go to Step 6	Go to Step 20
5	1. Check for proper connection at terminals "A" and "B" on the SIR coil assembly side of the 2-way connector. 2. Are the terminals damaged or corroded?	Go to Step 6	Go to Step 7
6	1. Replace the SIR coil assembly. Refer to SECTION 3F4 or 3F5. 2. Has the SIR coil assembly been replaced?	Go to Step 20	—
7	1. Reconnect the yellow 2-way electrical connector at the base of the steering column. 2. Ignition switch "ON." 3. Is DTC 21 current?	Go to Step 8	Go to Step 3
8	1. Ignition switch "OFF." 2. Disconnect the yellow 2-way electrical connector at the base of the steering column and connect harness side to J 38715 SIR Driver/Passenger Load Tool. 3. Ignition switch "ON." 4. Is DTC 21 current?	Go to Step 11	Go to Step 9
9	1. Ignition switch "OFF." 2. Remove the Inflator Module from the steering wheel. Refer to SECTION 3F. 3. Connect J 38715 to the SIR coil assembly connector on the steering column. 4. Reconnect yellow 2-way electrical connector at the base of the steering column. 5. Ignition switch "ON." 6. Is DTC 21 current?	Go to Step 6	Go to Step 10
10	1. Ignition switch "OFF." 2. Replace the Inflator Module. Refer to SECTION 3F. 3. Has the Inflator Module been replaced?	Go to Step 20	—

9J-32 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM

SIR DTC 21 DRIVER INITIATOR CIRCUIT RESISTANCE HIGH

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
11	<ol style="list-style-type: none">1. Ignition switch "OFF."2. Disconnect J 38715.3. Disconnect the DERM.4. Check for proper connection to the DERM at terminals "B8" and "B9."5. Is the DERM electrical harness connector damaged or corroded?	Go to Step 12	Go to Step 14
12	<ol style="list-style-type: none">1. Repair the DERM electrical harness connector.2. Has the connector been repaired?	Go to Step 13	—
13	<ol style="list-style-type: none">1. Check for proper connection to the DERM at terminals "B8" and "B9."2. Are the DERM terminals damaged or corroded?	Go to Step 15	Go to Step 20
14	<ol style="list-style-type: none">1. Check for proper connection to the DERM at terminals "B8" and "B9."2. Are the DERM terminals damaged or corroded?	Go to Step 15	Go to Step 16
15	<ol style="list-style-type: none">1. Ignition switch "OFF."2. Replace the DERM. Refer to ON-VEHICLE SERVICE, DIAGNOSTIC ENERGY RESERVE MODULE (DERM).3. Has the DERM been replaced?	Go to Step 20	—
16	<ol style="list-style-type: none">1. Measure the resistance from the DERM electrical harness connector terminal "B8" to the yellow 2-way electrical connector terminal "B."2. Is the resistance 1.0Ω or less?	Go to Step 18	Go to Step 17
17	<ol style="list-style-type: none">1. Repair the high resistance in CKT 348A.2. Has the high resistance been repaired?	Go to Step 20	—
18	<ol style="list-style-type: none">1. Measure the resistance from the DERM electrical harness connector terminal "B9" to the yellow 2-way electrical connector terminal "A."2. Is the resistance 1.0Ω or less?	Go to Table A	Go to Step 19
19	<ol style="list-style-type: none">1. Repair the high resistance in CKT 347A.2. Has the high resistance been repaired?	Go to Step 20	—
20	<ol style="list-style-type: none">1. Reconnect all the SIR system components.2. Ensure the components are properly mounted.3. Have all the SIR system components been reconnected and properly mounted?	Go to Step 21	—
21	<ol style="list-style-type: none">1. Clear the SIR Diagnostic Trouble Codes.2. Have the SIR Diagnostic Trouble Codes been cleared?	Go to "SIR Diagnostic System Check"	—

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SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-35

SIR DTC 22 — DRIVER INITIATOR CIRCUIT RESISTANCE LOW

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
1	1. Was the "SIR Diagnostic System Check" performed?	Go to Step 2	Go to "SIR Diagnostic System Check"
2	1. Ignition switch "OFF." 2. Disconnect the yellow 2-way electrical connector at the base of the steering column. 3. Reconnect the yellow 2-way electrical connector at the base of the steering column. 4. Ensure connector is properly seated and CPA is installed properly. 5. Ignition switch "ON." 6. Is DTC 22 current?	Go to Step 3	Go to Step 10
3	1. Ignition switch "OFF." 2. Disconnect the yellow 2-way electrical connector at the base of the steering column. 3. Connect J 38715 Driver/Passenger Load Tool to the harness side of the yellow 2-way electrical connector at the base of the steering column. 4. Ignition switch "ON." 5. Is DTC 22 current?	Go to Step 4	Go to Step 6
4	1. Ignition switch "OFF." 2. Disconnect J 38715 (DO NOT reconnect yellow 2-way connector at the base of the steering column). 3. Disconnect the DERM. 4. Measure the resistance on the DERM electrical harness connector from terminal "B8" to terminal "B9." 5. Does J 39200 display "OL" (infinite)?	Go to Table A	Go to Step 5
5	1. Repair the short from CKT 347A to CKT 348A. 2. Has the short circuit been repaired?	Go to Step 9	—
6	1. Ignition switch "OFF." 2. Disconnect J 38715. 3. Remove the Inflator Module from the steering wheel. Refer to SECTION 3F. 4. Connect J 38715 to the inflator module connector on the steering column and reconnect yellow 2-way connector at the base of the steering column. 5. Ignition switch "ON." 6. Is DTC 22 current?	Go to Step 7	Go to Step 8
7	1. Ignition switch "OFF." 2. Replace the SIR coil assembly. Refer to SECTION 3F4 or 3F5. 3. Has the SIR coil assembly been replaced?	Go to Step 9	—
8	1. Ignition switch "OFF." 2. Replace the Inflator Module. Refer to SECTION 3F. 3. Has the Inflator Module been replaced?	Go to Step 9	—

9J-36 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM

SIR DTC 22 — DRIVER INITIATOR CIRCUIT RESISTANCE LOW

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
9	<ol style="list-style-type: none">1. Reconnect all the SIR system components.2. Ensure the component are properly mounted.3. Have all the SIR system components been reconnected and properly mounted?	Go to Step 10	—
10	<ol style="list-style-type: none">1. Clear the SIR Diagnostic Trouble Codes.2. Have the SIR Diagnostic Trouble Codes been cleared?	Go to "SIR Diagnostic System Check"	—

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SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-39

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| <p>26. This test determines where the short from "Driver Side High" circuit to the "Driver Source Sense" circuit is located.</p> <p>29. This test checks for a partial short inside the arming sensor.</p> <p>32. This test checks for increased resistance of the discriminating sensor jumper harness (and) or the LH forward discriminating sensor.</p> <p>37. This test checks for increased resistance of the LH forward discriminating sensor.</p> <p>38. This test checks for increased resistance of the discriminating sensor jumper harness (and) or the RH forward discriminating sensor.</p> | <p>43. This test checks for increased resistance of the RH forward discriminating sensor.</p> |
|--|---|

Diagnostic Aids:

An intermittent condition is likely to be caused by backed out/shorted terminals on the arming sensor harness connector or arming sensor jumper harness electrical connector, poor connection at any of the discriminating sensor terminals, a short from CKT 236 to CKT 347 or CKT 348, a short from CKT 347 to CKT 1400, or an open or high resistance in CKT 348B.

SIR DTC 23 DRIVER INITIATOR CIRCUIT VOLTAGE HIGH

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
1	1. Was the "SIR Diagnostic System Check" performed?	Go to Step 2	Go to "SIR Diagnostic System Check"
2	1. Ignition switch "ON." 2. Using the Tech-1 SIR Data List function select "DRIVER LO." 3. Is the displayed voltage 30.0 volts or more?	Go to Step 3	Go to Step 21
3	1. Ignition switch "OFF." 2. Disconnect the yellow 2-way electrical connector at the base of the steering column. 3. Disconnect the Arming Sensor. 4. Disconnect the DERM. 5. Measure the resistance on the DERM electrical harness connector from terminal "A4" to terminal "B8." 6. Does J 39200 display "OL" (infinite)?	Go to Step 5	Go to Step 4
4	1. Repair the short from CKT 236 to CKT 348. 2. Has the short from CKT 236 to CKT 348 been repaired?	Go to Step 47	—
5	1. Measure the resistance on the DERM electrical harness connector from terminal "A4" to terminal "B9." 2. Does J 39200 display "OL" (infinite)?	Go to Step 9	Go to Step 6
6	1. Disconnect the Arming Sensor jumper harness electrical connector (C111). 2. Measure the resistance on the DERM electrical harness connector from terminal "A4" to terminal "B9." 3. Does J 39200 display "OL" (infinite)?	Go to Step 7	Go to Step 8
7	1. Repair the short from CKT 236B to CKT 347C. 2. Has the short from CKT 236B to CKT 347C been repaired?	Go to Step 47	—
8	1. Repair the short from CKT 236A to CKT 347A or 347B. 2. Has the short from CKT 236A to CKT 347A or 347B been repaired?	Go to Step 47	—
9	1. Disconnect the LH Forward Discriminating Sensor. 2. Check for proper connection on the LH Forward Discriminating Sensor electrical harness connector terminals. 3. Is the connector damaged or corroded?	Go to Step 11	Go to Step 10

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SIR DTC 23 DRIVER INITIATOR CIRCUIT VOLTAGE HIGH

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
10	<ol style="list-style-type: none">1. Check for proper connection at the LH Forward Discriminating Sensor terminals.2. Are the LH Forward Discriminating Sensor terminals damaged or corroded?	Go to Step 44	Go to Step 13
11	<ol style="list-style-type: none">1. Replace the LH Forward Discriminating Sensor electrical harness connector.2. Has the connector been replaced?	Go to Step 12	—
12	<ol style="list-style-type: none">1. Check for proper connection at the LH Forward Discriminating Sensor terminals.2. Are the LH Forward Discriminating Sensor terminals damaged or corroded?	Go to Step 44	Go to Step 47
13	<ol style="list-style-type: none">1. Measure the resistance from the harness side of the yellow 2-way electrical connector at the base of the steering column terminal "B" to the LH Forward Discriminating Sensor electrical harness connector terminal "B."2. Is the resistance 5.0Ω or less?	Go to Step 19	Go to Step 14
14	<ol style="list-style-type: none">1. Disconnect the Discriminating Sensor jumper harness electrical connector (C110).2. Check for proper connection at terminal "A" of the Discriminating Sensor jumper harness electrical connector.3. Is the connector damaged or corroded?	Go to Step 15	Go to Step 16
15	<ol style="list-style-type: none">1. Replace the Discriminating Sensor jumper harness electrical connector (C110).2. Has the connector been replaced?	Go to Step 47	—
16	<ol style="list-style-type: none">1. Measure the resistance of CKT 348B from the harness side of the yellow 2-way electrical connector at the base of the steering column terminal "B" to the Discriminating Sensor jumper harness electrical connector (C110) terminal "A."2. Is the resistance 5.0Ω or less?	Go to Step 17	Go to Step 18
17	<ol style="list-style-type: none">1. Repair the open in CKT 348C.2. Has the open circuit been repaired?	Go to Step 47	—
18	<ol style="list-style-type: none">1. Repair the open in CKT 348B.2. Has the open circuit been repaired?	Go to Step 47	—
19	<ol style="list-style-type: none">1. Measure the resistance on the LH Forward Discriminating Sensor from terminal "A" to terminal "B."2. Is the resistance 5.0Ω or less?	Go to Step 20	Go to Step 44
20	<ol style="list-style-type: none">1. Measure the resistance on the Arming Sensor from terminal "C" to terminal "D."2. Is the resistance 7.5kΩ or less?	Go to Step 46	Go to Table A
21	<ol style="list-style-type: none">1. Ignition switch "OFF."2. Disconnect the yellow 2-way electrical connector at the base of the steering column.3. Disconnect the Arming Sensor.4. Disconnect the DERM.5. Inspect the Arming Sensor electrical harness connector for backed out and/or shorted terminals.6. Is the Arming Sensor electrical harness connector damaged or shorted?	Go to Step 22	Go to Step 23

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-41

SIR DTC 23 DRIVER INITIATOR CIRCUIT VOLTAGE HIGH

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
22	1. Replace the Arming Sensor electrical harness connector. 2. Has the connector been replaced?	Go to Step 47	—
23	1. Measure the resistance on the Arming Sensor electrical harness connector from terminal "C" to terminal "D." 2. Does J 39200 display "OL" (infinite)?	Go to Step 29	Go to Step 24
24	1. Disconnect the Arming Sensor jumper harness electrical connector (C111). 2. Inspect the Arming Sensor jumper harness electrical connector (C111) for backed out and/or shorted terminals. 3. Is the connector damaged or shorted?	Go to Step 25	Go to Step 26
25	1. Replace the Arming Sensor jumper harness electrical connector (C111). 2. Has the connector been replaced?	Go to Step 47	—
26	1. Measure the resistance on the Arming Sensor jumper harness electrical connector (C111) (bulkhead side) from terminal "C" to terminal "D." 2. Does J 39200 display "OL" (infinite)?	Go to Step 28	Go to Step 27
27	1. Repair the short from CKT 347A or 347B to CKT 1400A. 2. Has the short circuit been repaired?	Go to Step 47	—
28	1. Repair the short from CKT 347C to CKT 1400B. 2. Has the short from CKT 347C to CKT 1400B been repaired?	Go to Step 47	—
29	1. Measure the resistance on the Arming Sensor from terminal "C" to terminal "D." 2. Is the resistance 7.5k Ω or less?	Go to Step 46	Go to Step 30
30	1. Disconnect the Discriminating Sensor jumper harness electrical connector (C110). 2. Inspect the Discriminating Sensor jumper harness electrical connector (C110). 3. Are the connector terminals damaged or corroded?	Go to Step 31	Go to Step 32
31	1. Replace the Discriminating Sensor jumper harness electrical connector (C110). 2. Has the connector been replaced?	Go to Step 47	—
32	1. Measure the resistance at the Discriminating Sensor jumper harness electrical connector (C110) (engine harness side) from terminal "A" to terminal "B." 2. Is the resistance 8.54k Ω or more?	Go to Step 33	Go to Step 38
33	1. Disconnect the LH Forward Discriminating Sensor. 2. Check for proper connection on the LH Forward Discriminating Sensor electrical harness connector terminals "A," "B" and "C." 3. Are the connector terminals damaged or corroded?	Go to Step 34	Go to Step 36
34	1. Replace the LH Forward Discriminating Sensor electrical harness connector. 2. Has the connector been replaced?	Go to Step 35	—
35	1. Check for proper connection on the LH Forward Discriminating Sensor connector terminals "A," "B" and "C." 2. Are the connector terminals damaged or corroded?	Go to Step 44	Go to Step 47

9J-42 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM

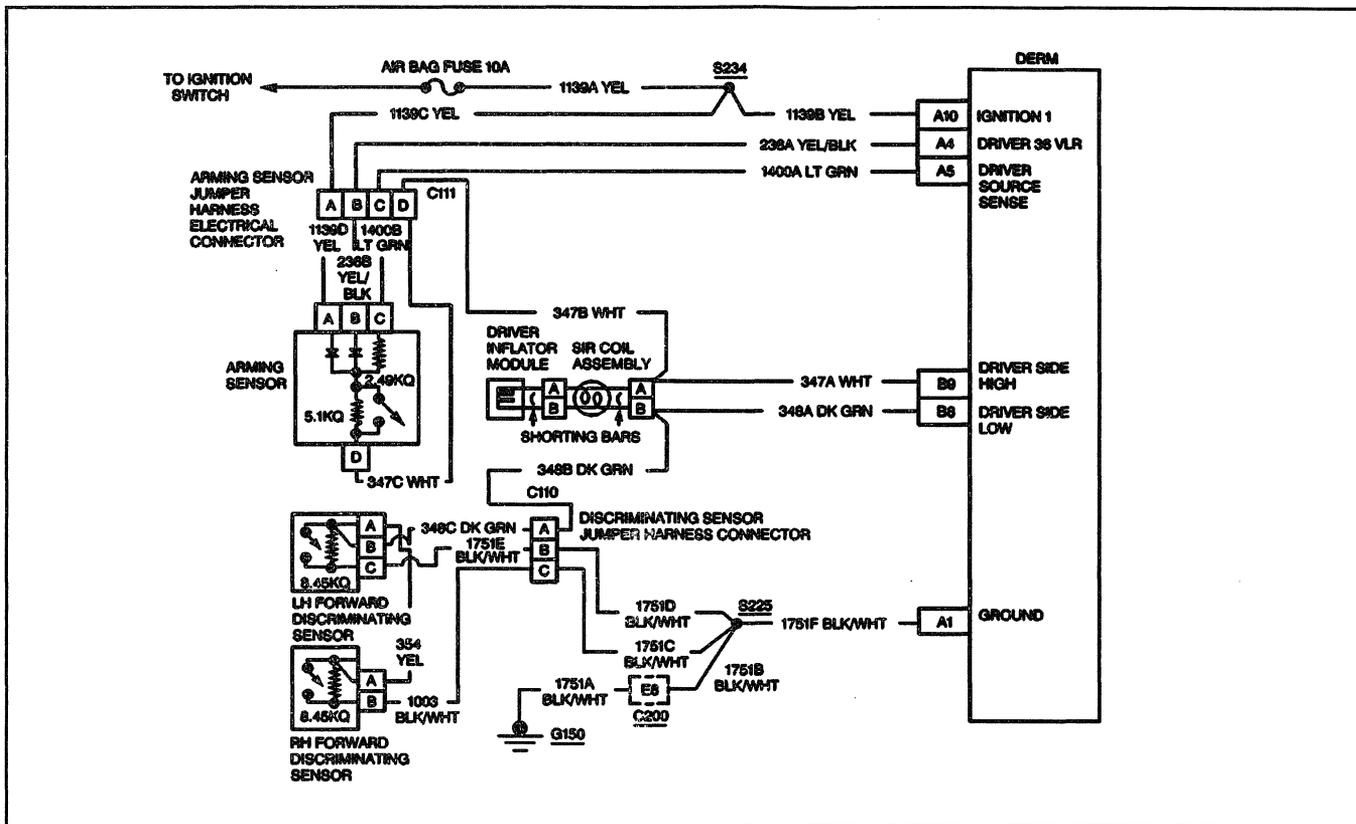
SIR DTC 23 DRIVER INITIATOR CIRCUIT VOLTAGE HIGH

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
36	1. Check for proper connection on the LH Forward Discriminating Sensor connector terminals "A," "B" and "C." 2. Are the connector terminals damaged or corroded?	Go to Step 44	Go to Step 37
37	1. Measure the resistance on the LH Forward Discriminating Sensor from terminal "A" to terminal "C." 2. Is the resistance 8.54k Ω or more?	Go to Step 44	Go to Step 38
38	1. Reconnect LH Forward Discriminating Sensor if disconnected. 2. Measure the resistance at the Discriminating Sensor jumper harness electrical connector (C110) (engine harness side) from terminal "A" to terminal "C." 3. Is the resistance 8.54k Ω or more?	Go to Step 39	Go to Table A
39	1. Disconnect the RH Forward Discriminating Sensor. 2. Check for proper connection to the RH Forward Discriminating Sensor electrical harness connector at terminals "A" and "B." 3. Are the connector terminals damaged or corroded?	Go to Step 40	Go to Step 42
40	1. Replace the RH Forward Discriminating Sensor electrical harness connector. 2. Has the connector been replaced?	Go to Step 41	—
41	1. Check for proper connection on the RH Forward Discriminating Sensor connector terminals "A" and "B." 2. Is the connector damaged or corroded?	Go to Step 45	Go to Step 47
42	1. Check for proper connection on the RH Forward Discriminating Sensor connector terminals "A" and "B." 2. Is the connector damaged or corroded?	Go to Step 45	Go to Step 43
43	1. Measure the resistance on the RH Forward Discriminating Sensor from terminal "A" to terminal "B." 2. Is the resistance 8.54k Ω or more?	Go to Step 45	Go to Table A
44	1. Replace the LH Forward Discriminating Sensor. Refer to ON-VEHICLE SERVICE, FORWARD DISCRIMINATING SENSOR (RH AND LH). 2. Has the sensor been replaced?	Go to Step 47	—
45	1. Replace the RH Forward Discriminating Sensor. Refer to ON-VEHICLE SERVICE, FORWARD DISCRIMINATING SENSOR (RH AND LH). 2. Has the sensor been replaced?	Go to Step 47	—
46	1. Replace the Arming Sensor. Refer to ON-VEHICLE SERVICE, ARMING SENSOR. 2. Has the sensor been replaced?	Go to Step 47	—
47	1. Reconnect all the SIR system components. 2. Ensure the components are properly mounted. 3. Have all the SIR system components been reconnected and properly mounted?	Go to Step 48	—
48	1. Clear the SIR Diagnostic Trouble Codes. 2. Have the SIR Diagnostic Trouble Codes been cleared?	Go to "SIR Diagnostic System Check"	—

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9J-44 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM



DTC 24

DRIVER INITIATOR CIRCUIT VOLTAGE LOW

Circuit Description:

During normal, non-deployment operation of the SIR system, a small amount of current flows through the driver deployment loop. The diagnostic resistors within the arming sensor and the discriminating sensors along with the resistance of the inflator module cause voltage drops within the deployment loop. The DERM monitors the voltage at "Driver Side Low" terminal "B8" to detect shorts or opens within the deployment loop. When the measured voltage at terminal "B8" is below a specified percentage of "Driver 36VLR" for 500 milliseconds, DTC 24 is set.

DTC Will Set When:

The voltage measured at "Driver Side Low" terminal "B8" is below a specified percentage of "Driver 36 VLR" for 500 milliseconds during "Continuous Monitoring."

Action Taken:

DERM turns "ON" the "AIR BAG" warning lamp and sets a diagnostic trouble code.

DTC Will Clear When:

The voltage measured at "Driver Side Low" terminal "B8" is within a specified percentage of "Driver 36 VLR" for 500 milliseconds during "Continuous Monitoring."

DTC Table Test Description:

Number(s) below refer to step number(s) on the diagnostic table.

1. The "SIR DIAGNOSTIC SYSTEM CHECK" must be the starting point for all diagnostics.
2. This test determines whether the malfunction is occurring in the steering column circuitry.
4. This test, essentially, determines whether the malfunction is due to a component or the wiring.
17. This test checks for increased resistance of the arming sensor.
18. This test checks for a partial short inside the LH forward discriminating sensor.
20. This test checks for a partial short inside the RH forward discriminating sensor.
24. This test checks for an open in CKT 347.
26. This test determines where the open in CKT 347 is located.

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-45

29. This test checks for a short from the "Driver Side High" circuit to ground.
31. This test checks for a short from the "Driver Side Low" circuit to ground.
33. This test checks for a short from the discriminating sensor interconnect circuit to ground.
35. This test checks for a short inside the RH forward discriminating sensor.
36. This test checks for a short inside the LH forward discriminating sensor.

Diagnostic Aids:

An intermittent condition is likely to be caused by a poor connection at DERM terminal "A4," arming sensor or arming sensor jumper harness electrical connector terminals "B" or "D," water intrusion in either discriminating sensor, an open in CKT 347B or CKT 347C, or a short to ground on CKT 347, CKT 348 or CKT 354. Refer to DTC 25 to diagnose a possible short to B+. When the malfunction occurs during an ignition cycle DTC 24 will set. If the malfunction is present at the beginning of the next ignition cycle DTC 25 will set and DTC 24 will be moved to a history file.

SIR DTC 24 — DRIVER INITIATOR CIRCUIT VOLTAGE LOW

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
1	1. Was the "SIR Diagnostic System Check" performed?	Go to Step 2	Go to "SIR Diagnostic System Check"
2	1. Ignition switch "OFF." 2. Disconnect the yellow 2-way electrical connector at the base of the steering column. 3. Connect J 38715 SIR Driver/Passenger Load Tool to harness side of yellow 2-way electrical connector. 4. Ignition switch "ON." 5. Is DTC 24 current?	Go to Step 4	Go to Step 3
3	1. Ignition switch "OFF." 2. Disconnect J 38715. 3. Remove the Inflator Module from the steering wheel. Refer to SECTION 3F. 4. Remove and inspect the SIR coil assembly. Refer to SECTION 3F4 or 3F5. 5. Determine and repair the cause of damage. 6. Replace the SIR coil assembly. Refer to SECTION 3F4 or 3F5. 7. Has the SIR coil assembly been replaced?	Go to Step 37	—
4	1. Using the Tech-1 SIR Data List function select "DRIVER LO." 2. Is the voltage displayed 1.0 volt or less?	Go to Step 22	Go to Step 5
5	1. Ignition switch "OFF." 2. Disconnect the DERM. 3. Check for proper connection to the DERM at terminal "A4." 4. Is the DERM electrical harness connector terminal "A4" damaged or corroded?	Go to Step 6	Go to Step 8
6	1. Repair the DERM electrical harness connector. 2. Has the connector been repaired?	Go to Step 7	—
7	1. Check for proper connection to the DERM at terminal "A4." 2. Are the DERM terminals damaged or corroded?	Go to Step 9	Go to Step 37
8	1. Check for proper connection to the DERM at terminal "A4." 2. Are the DERM terminals damaged or corroded?	Go to Step 9	Go to Step 10
9	1. Replace the DERM. Refer to ON-VEHICLE SERVICE, DIAGNOSTIC ENERGY RESERVE MODULE (DERM). 2. Has the DERM been replaced?	Go to Step 37	—

9J-46 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM

SIR DTC 24 — DRIVER INITIATOR CIRCUIT VOLTAGE LOW

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
10	1. Disconnect the Arming Sensor jumper harness electrical connector (C111). 2. Check the Arming Sensor jumper harness electrical connector (C111) for proper connection. 3. Is the connector (C111) damaged or corroded?	Go to Step 11	Go to Step 12
11	1. Replace the Arming Sensor jumper harness electrical connector (C111). 2. Has the connector been replaced?	Go to Step 37	—
12	1. Disconnect the Arming Sensor. 2. Check for proper connection to the Arming Sensor at terminals "B" and "D." 3. Is the Arming Sensor electrical harness connector damaged or corroded?	Go to Step 13	Go to Step 15
13	1. Replace the Arming Sensor electrical harness connector. 2. Has the connector been replaced?	Go to Step 14	—
14	1. Check for proper connection to the Arming Sensor at terminals "B" and "D." 2. Are the Arming Sensor terminals damaged or corroded?	Go to Step 16	Go to Step 37
15	1. Check for proper connection to the Arming Sensor at terminals "B" and "D." 2. Are the Arming Sensor terminals damaged or corroded?	Go to Step 16	Go to Step 17
16	1. Replace the Arming Sensor. Refer to ON-VEHICLE SERVICE, ARMING SENSOR. 2. Has the Arming Sensor been replaced?	Go to Step 37	—
17	1. Measure the resistance of the Arming Sensor from terminal "C" to terminal "D." 2. Is the resistance 7.67k Ω or more?	Go to Step 16	Go to Step 18
18	1. Disconnect the Discriminating Sensor jumper harness electrical connector (C110). 2. Measure resistance on Discriminating Sensor jumper harness electrical connector (C110) (engine harness side) from terminal "A" to terminal "B." 3. Is the resistance 8.36k Ω or less?	Go to Step 19	Go to Step 20
19	1. Replace the LH Forward Discriminating Sensor. Refer to ON-VEHICLE, FORWARD DISCRIMINATING SENSORS (RH AND LH). 2. Has the LH Forward Discriminating Sensor been replaced?	Go to Step 37	—
20	1. Measure the resistance on the Discriminating Sensor jumper harness electrical connector (C110) (engine harness side) from terminal "A" to terminal "C." 2. Is the resistance 8.36k Ω or less?	Go to Step 21	Go to Table A
21	1. Replace the RH Forward Discriminating Sensor. Refer to ON-VEHICLE SERVICE, FORWARD DISCRIMINATING SENSORS (RH AND LH). 2. Has the RH Forward Discriminating Sensor been replaced?	Go to Step 37	—

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SIR DTC 24 — DRIVER INITIATOR CIRCUIT VOLTAGE LOW

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
22	<ol style="list-style-type: none"> 1. Ignition switch "OFF." 2. Disconnect the DERM. 3. Disconnect the Arming Sensor. 4. Check for proper connection on the Arming Sensor electrical harness connector terminal "D." 5. Are the Arming Sensor electrical harness connector terminals damaged or corroded? 	Go to Step 13	Go to Step 23
23	<ol style="list-style-type: none"> 1. Check for proper connection on the Arming Sensor at terminal "D." 2. Are the Arming Sensor terminals damaged or corroded? 	Go to Step 16	Go to Step 24
24	<ol style="list-style-type: none"> 1. Disconnect J 38715 Driver/Passenger Load Tool. 2. Measure the resistance from the Arming Sensor electrical harness connector terminal "D" to harness side of the yellow 2-way connector at the base of the steering column terminal "A." 3. Is the resistance 5.0Ω or less? 	Go to Step 29	Go to Step 25
25	<ol style="list-style-type: none"> 1. Disconnect the Arming Sensor jumper harness electrical connector (C111). 2. Check for proper connection at Arming Sensor jumper harness electrical connector (C111). 3. Are the connector terminals damaged or corroded? 	Go to Step 11	Go to Step 26
26	<ol style="list-style-type: none"> 1. Measure the resistance of CKT 347B from the harness side of the yellow 2-way electrical connector at the base of the steering column terminal "A" to the bulk head side of the Arming Sensor jumper harness electrical connector (C111) terminal "D." 2. Is the resistance 5.0Ω or less? 	Go to Step 27	Go to Step 28
27	<ol style="list-style-type: none"> 1. Repair the open in CKT 347C. 2. Has the open circuit been repaired? 	Go to Step 37	—
28	<ol style="list-style-type: none"> 1. Repair open in CKT 347B. 2. Has the open circuit been repaired? 	Go to Step 37	—
29	<ol style="list-style-type: none"> 1. Measure the resistance on the DERM electrical harness connector from terminal "B9" to "A1" (ground). 2. Does J 39200 display "OL" (infinite)? 	Go to Step 31	Go to Step 30
30	<ol style="list-style-type: none"> 1. Repair the short from CKT 347 to ground. 2. Has the short to ground been repaired? 	Go to Step 37	—
31	<ol style="list-style-type: none"> 1. Disconnect the LH Forward Discriminating Sensor. 2. Measure the resistance on the DERM electrical harness connector from terminal "B8" to terminal "A1" (ground). 3. Does J 39200 display "OL" (infinite)? 	Go to Step 33	Go to Step 32
32	<ol style="list-style-type: none"> 1. Repair the short from CKT 348 to ground. 2. Has the short to ground been repaired? 	Go to Step 37	—
33	<ol style="list-style-type: none"> 1. Disconnect the RH Forward Discriminating Sensor. 2. Measure the resistance on the LH Forward Discriminating Sensor electrical harness connector from terminal "B" to terminal "C" (ground). 3. Does J 39200 display "OL" (infinite)? 	Go to Step 35	Go to Step 34
34	<ol style="list-style-type: none"> 1. Repair the short from CKT 354 to ground. 2. Has the short to ground been repaired? 	Go to Step 37	—

9J-48 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM

SIR DTC 24 — DRIVER INITIATOR CIRCUIT VOLTAGE LOW

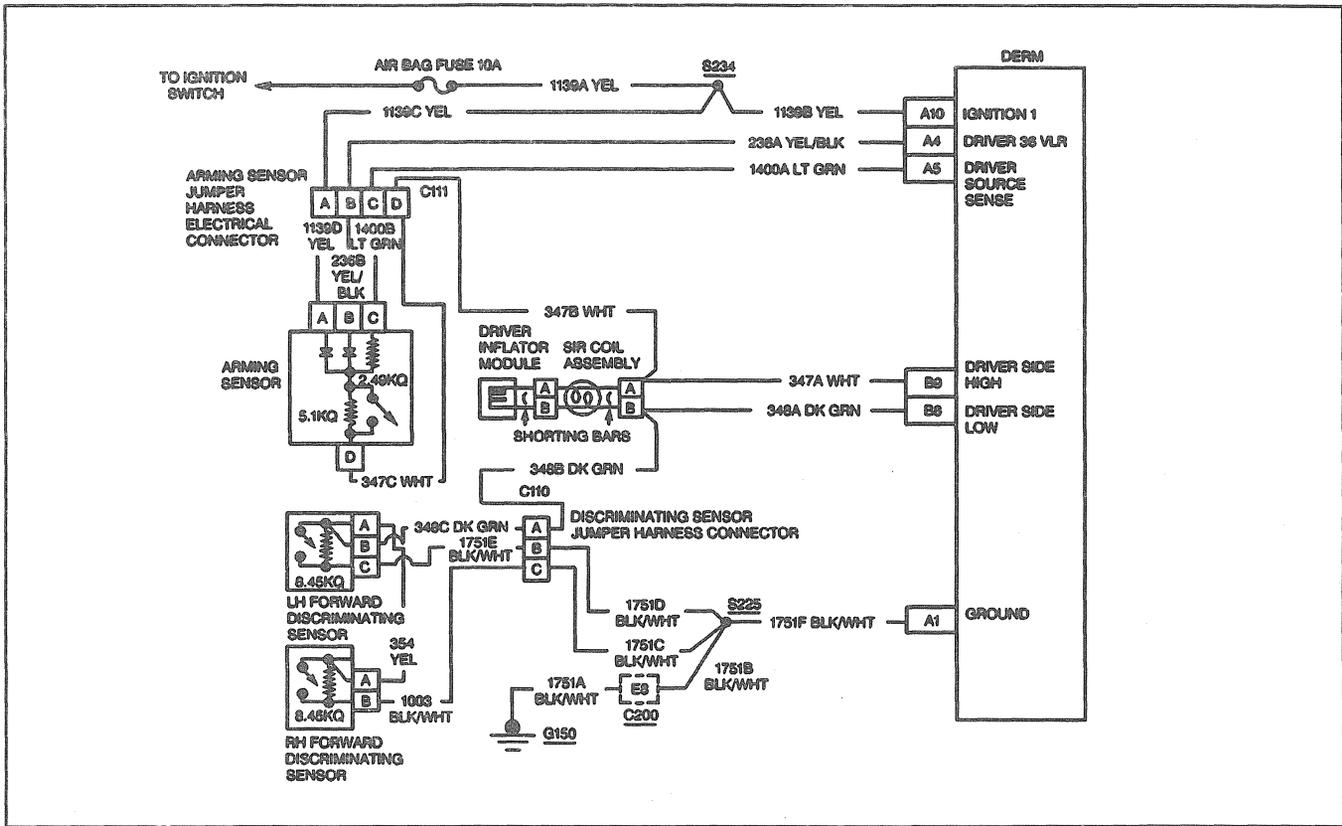
WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
35	<ol style="list-style-type: none">1. Reconnect the RH Forward Discriminating Sensor.2. Measure the resistance of the LH Forward Discriminating Sensor from terminal "A" to terminal "C."3. Is the resistance 8.36kΩ or less?	Go to Step 19	Go to Step 36
36	<ol style="list-style-type: none">1. Measure the resistance on the LH Forward Discriminating Sensor electrical harness connector from terminal "A" to terminal "C."2. Is resistance 8.36kΩ or less?	Go to Step 21	Go to Table A
37	<ol style="list-style-type: none">1. Reconnect all the SIR system components.2. Ensure the components are properly mounted.3. Have all the SIR system components been reconnected and properly mounted?	Go to Step 38	—
38	<ol style="list-style-type: none">1. Clear the SIR Diagnostic Trouble Codes.2. Have the SIR Diagnostic Trouble Codes been cleared?	Go to "SIR Diagnostic System Check"	—

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9J-50 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM



DTC 25

DRIVER INITIATOR CIRCUIT SHORT TO IGNITION

Circuit Description:

During the "Initiator Assembly Resistance Test," the DERM grounds the "Driver Side Low" terminal "B8" through an internal resistor and measures the voltage at "Driver Side Low." For a properly operating circuit, the voltage measurement during this test will be below a specified value. When the voltage measured at "Driver Side Low" is above a specified value, DTC 25 is set.

DTC Will Set When:

The voltage measured at "Driver Side Low" terminal "B8" is above a specified value while the DERM attempts to ground this terminal. This test is run during the "Initiator Assembly Resistance Test" and the "10 Minute Loop Test" when: 1) No "higher priority faults" are detected during "Turn-ON," 2) No "higher priority faults" are detected during "Continuous Monitoring" for one second, 3) No "Crank" signal present, 4) "Ignition 1" voltage is above a specified value.

Action Taken:

DERM turns "ON" the "AIR BAG" warning lamp and sets a diagnostic trouble code.

DTC Will Clear When:

The voltage measured at "Driver Side Low" terminal "B8" is below a specified value while the DERM grounds this terminal.

DTC Table Test Description:

Number(s) below refer to step number(s) on the diagnostic table.

1. The "SIR DIAGNOSTIC SYSTEM CHECK" must be the starting point for all diagnostics.
2. This test determines whether the malfunction is occurring in the steering column.
4. This test checks for a short from the "Driver Side High" circuit to B+.
6. This test checks for a short from the "Driver Side Low" circuit to B+.
8. This test checks for a short from the discriminating sensor interconnect circuit to B+.

Diagnostic Aids:

This diagnostic trouble code can only be set when the malfunction is present as the ignition switch is turned "ON." After the "Initiator Assembly Resistance Test" is completed, a short to B+ in the steering column, CKT 347, CKT 348 or CKT 354 will cause DTC 24 to set. When a scan tool "Clear Codes" command is issued and the malfunction is still present, the DTC will not reappear for ten minutes or until the next ignition cycle.

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-51

SIR DTC 25 — DRIVER INITIATOR CIRCUIT SHORT TO IGNITION

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
1	Was the "SIR Diagnostic System Check" performed?	Go to Step 2	Go to "SIR Diagnostic System Check"
2	<ol style="list-style-type: none"> 1. Ignition switch "OFF." 2. Disconnect the yellow 2-way electrical connector at the base of the steering column. 3. Connect J 38715 SIR Driver/Passenger Load Tool to the harness side of the yellow 2-way electrical connector at the base of the steering column. 4. Ignition switch "ON." 5. Is DTC 25 current? 	Go to Step 4	Go to Step 3
3	<ol style="list-style-type: none"> 1. Ignition switch "OFF." 2. Disconnect J 38715. 3. Remove the Inflator Module from the steering wheel. Refer to SECTION 3F. 4. Remove the SIR coil assembly. Refer to SECTION 3F4 or 3F5. 5. Inspect the SIR coil assembly for damage. 6. Determine the cause of the damage and repair. 7. Replace the SIR coil assembly. Refer to SECTION 3F4 or 3F5. 8. Has the SIR coil assembly been replaced? 	Go to Step 10	—
4	<ol style="list-style-type: none"> 1. Ignition switch "OFF." 2. Disconnect the DERM. 3. Disconnect the Arming Sensor. 4. Disconnect the LH Forward Discriminating Sensor. 5. Disconnect J 38715. 6. Ignition switch "ON." 7. Measure the voltage on the DERM electrical harness connector from terminal "B9" to terminal "A1" (ground). 8. Is the voltage 1.0 volt or less? 	Go to Step 6	Go to Step 5
5	<ol style="list-style-type: none"> 1. Ignition switch "OFF." 2. Repair the short from CKT 347 to B+. 3. Has the short circuit been repaired? 	Go to Step 10	—
6	<ol style="list-style-type: none"> 1. Measure the voltage on the DERM electrical harness connector from terminal "B8" to terminal "A1" (ground). 2. Is the voltage 1.0 volt or less? 	Go to Step 8	Go to Step 7
7	<ol style="list-style-type: none"> 1. Ignition switch "OFF." 2. Repair the short from CKT 348 to B+. 3. Has the short circuit been repaired? 	Go to Step 10	—
8	<ol style="list-style-type: none"> 1. Measure the voltage on the LH Forward Discriminating Sensor electrical harness connector from terminal "A" to terminal "C" (ground). 2. Is the voltage 1.0 volt or less? 	Go to Table A	Go to Step 9

9J-52 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM

SIR DTC 25 — DRIVER INITIATOR CIRCUIT SHORT TO IGNITION

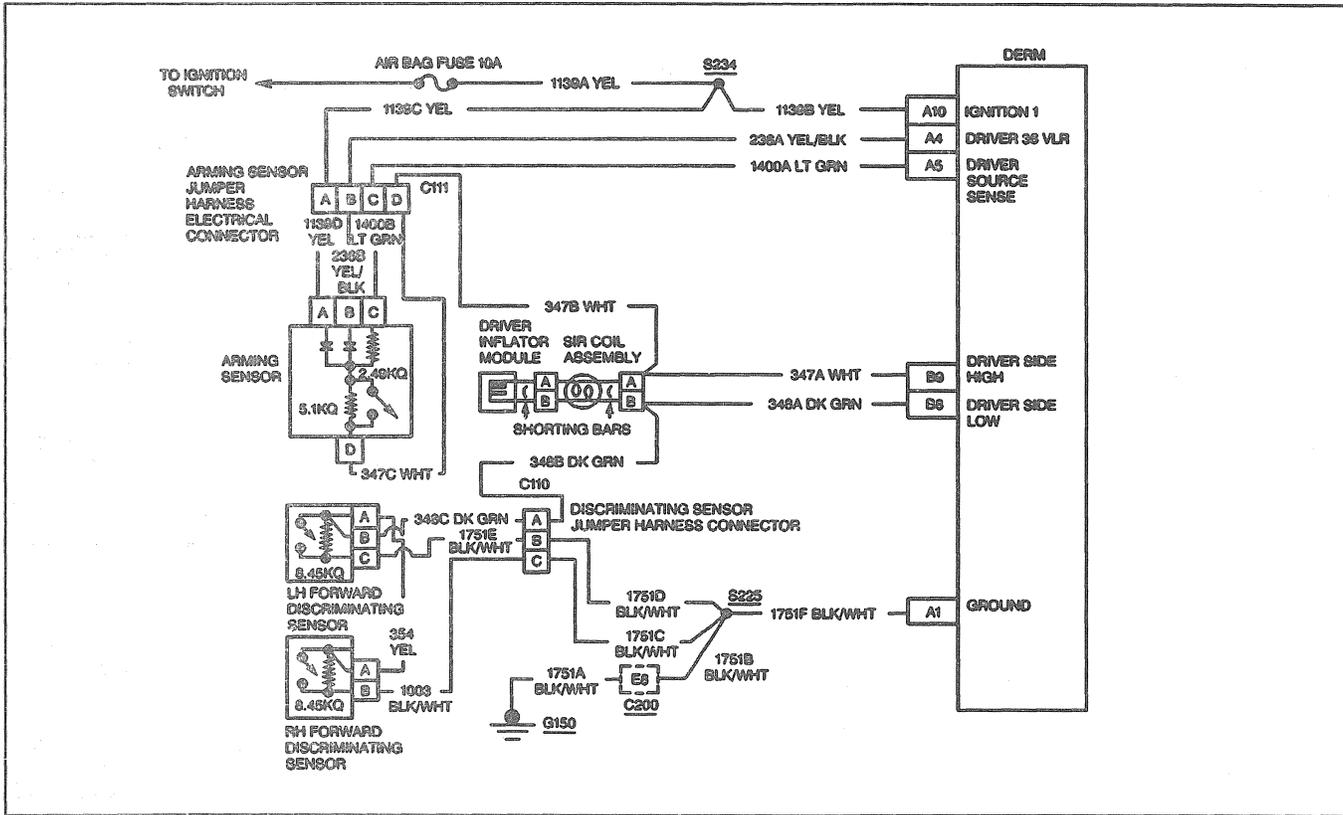
WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
9	1. Ignition switch "OFF." 2. Repair the short from CKT 354 to B+. 3. Has the short circuit been repaired?	Go to Step 10	—
10	1. Reconnect all the SIR system components. 2. Ensure the components are properly mounted. 3. Have all the SIR system components been reconnected and properly mounted?	Go to Step 11	—
11	1. Clear the SIR Diagnostic Trouble Codes. 2. Have the SIR Diagnostic Trouble Codes been cleared?	Go to "SIR Diagnostic System Check"	—

T3478

BLANK

9J-54 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM



DTC 26 DRIVER INITIATOR CIRCUIT OPEN

Circuit Description:

When there is an open in the driver inflator module or the SIR coil assembly, the resistance between "Driver Side High" terminal "B9" and "Driver Side Low" terminal "B8" increases. This causes a larger voltage drop from the "Driver Side High" to the "Driver Side Low" across a resistor inside the DERM which connects these two terminals together. The increase in the voltage difference between "Driver Side High" and "Driver Side Low" is detected by the DERM during the "Continuous Monitoring" tests and DTC 26 is set.

DTC Will Set When:

The voltage difference between "Driver Side High" terminal "B9" and "Driver Side Low" terminal "B8" is above or equal to a specified value for 500 milliseconds.

Action Taken:

DERM turns "ON" the "AIR BAG" warning lamp and sets a diagnostic trouble code.

DTC Will Clear When:

The voltage difference between "Driver Side High" terminal "B9" and "Driver Side Low" terminal "B8" is below a specified value for 500 milliseconds.

DTC Table Test Description:

Number(s) below refer to step number(s) on the diagnostic table.

1. The "SIR DIAGNOSTIC SYSTEM CHECK" must be the starting point for all diagnostics.
7. This test determines whether a steering column malfunction is occurring.
8. This test determines whether the malfunction is occurring in the inflator module or the SIR coil assembly.

Diagnostic Aids:

This diagnostic trouble code will only set when there is an improper connection of either the yellow 2-way connector at the base of the steering column or the yellow 2-way connector at the top of the steering column, an open SIR coil assembly or an open inflator module.

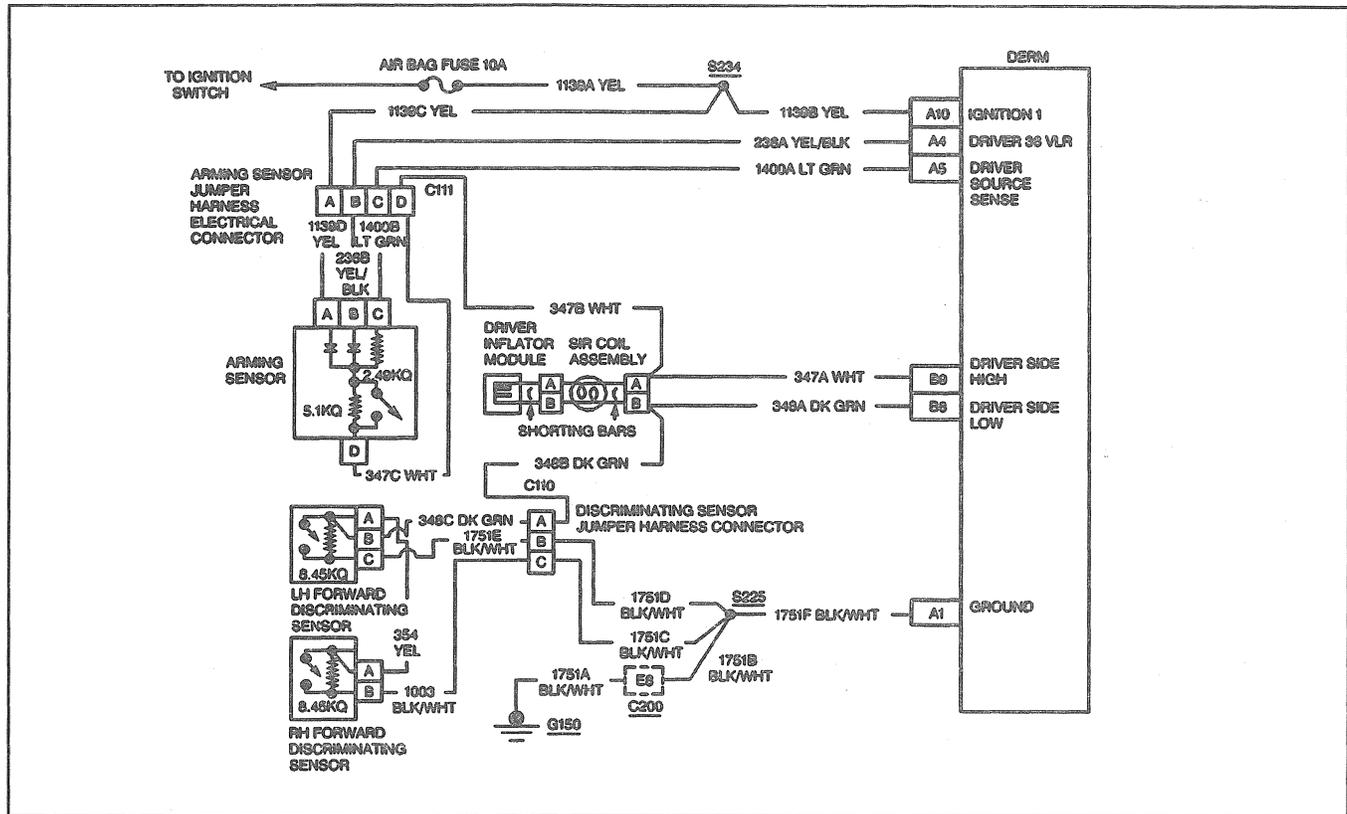
SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-55

SIR DTC 26 — DRIVER INITIATOR CIRCUIT OPEN

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
1	Was the "SIR Diagnostic System Check" performed?	Go to Step 2	Go to "SIR Diagnostic System Check"
2	<ol style="list-style-type: none"> 1. Ignition switch "OFF." 2. Disconnect the yellow 2-way electrical connector at the base of the steering column. 3. Check for proper connection on the SIR coil assembly electrical harness connector. 4. Are connector terminals damaged or corroded? 	Go to Step 6	Go to Step 4
3	<ol style="list-style-type: none"> 1. Ignition switch "OFF." 2. Replace the SIR coil assembly. Refer to SECTIONS 3F4 or 3F5. 3. Has the SIR Coil assembly been replaced? 	Go to Step 10	—
4	<ol style="list-style-type: none"> 1. Check for proper connection on the SIR coil assembly connector. 2. Is the connector damaged or corroded? 	Go to Step 3	Go to Step 7
5	<ol style="list-style-type: none"> 1. Check for proper connection on the SIR coil assembly connector. 2. Is the connector damaged or corroded? 	Go to Step 3	Go to Step 10
6	<ol style="list-style-type: none"> 1. Replace the SIR coil assembly electrical harness connector. 2. Has connector been replaced? 	Go to Step 5	—
7	<ol style="list-style-type: none"> 1. Connect J 38715 SIR Driver/Passenger Load Tool to the yellow 2-way electrical connector at the base of the steering column. 2. Ignition switch "ON." 3. Is DTC 26 current? 	Go to Table A	Go to Step 8
8	<ol style="list-style-type: none"> 1. Ignition switch "OFF." 2. Disconnect J 38715. 3. Remove the Inflator Module from the steering wheel. Refer to SECTION 3F. 4. Connect J 38715 to the Inflator Module electrical connector on the steering column. 5. Reconnect the yellow 2-way connector at the base of the steering column. 6. Ignition switch "ON." 7. Is DTC 26 current? 	Go to Step 3	Go to Step 9
9	<ol style="list-style-type: none"> 1. Ignition switch "OFF." 2. Replace the Inflator Module. Refer to SECTION 3F. 3. Has the Inflator Module been replaced? 	Go to Step 10	—
10	<ol style="list-style-type: none"> 1. Reconnect all the SIR system components. 2. Ensure the components are properly mounted. 3. Have all the SIR system components been reconnected and properly mounted? 	Go to Step 11	—
11	<ol style="list-style-type: none"> 1. Clear the SIR Diagnostic Trouble Codes. 2. Have the SIR Diagnostic Trouble Codes been cleared? 	Go to "SIR Diagnostic System Check"	—

9J-56 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM



DTC 28

CURRENT SINK OR SOURCE FAILURE

Circuit Description:

During the "Initiator Assembly Resistance Test," the DERM grounds the "Driver Side Low" terminal "B8" and turns "ON" the driver current source at the "Driver Side High" terminal "B9." During this test the DERM monitors voltage at "Driver Side Low" and the difference between "Driver Side High" and "Driver Side Low." When the measured values are outside the expected range DTC 28 is set.

DTC Will Set When:

The voltage measured at "Driver Side Low" is below a specified value while its initiator resistance is in range or when the voltage measured at "Driver Side Low" is above a specified value. This test is run once each ignition cycle during the "Initiator Assembly Resistance Test" when: 1) No "higher priority faults" are detected during "Turn-ON," 2) No "higher priority faults" are detected during "Continuous Monitoring" for one second, 3) No "Crank" signal present, 4) "Ignition 1" voltage is above a specified value.

Action Taken:

The DERM turns "ON" the "AIR BAG" warning lamp and sets a diagnostic trouble code.

DTC Will Clear When:

The ignition switch is turned "OFF."

Diagnostic Aids:

During the "Initiator Assembly Resistance Test," the DERM checks for proper resistance of CKT 347A, CKT 348A, the SIR coil assembly and the inflator module. This test is performed by causing a known amount of current through a known amount of resistance causing a known amount of voltage at "Driver Side Low." When the measured resistance is in range and the voltage at "Driver Side Low" is too high or too low, DTC 28 is set.

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-57

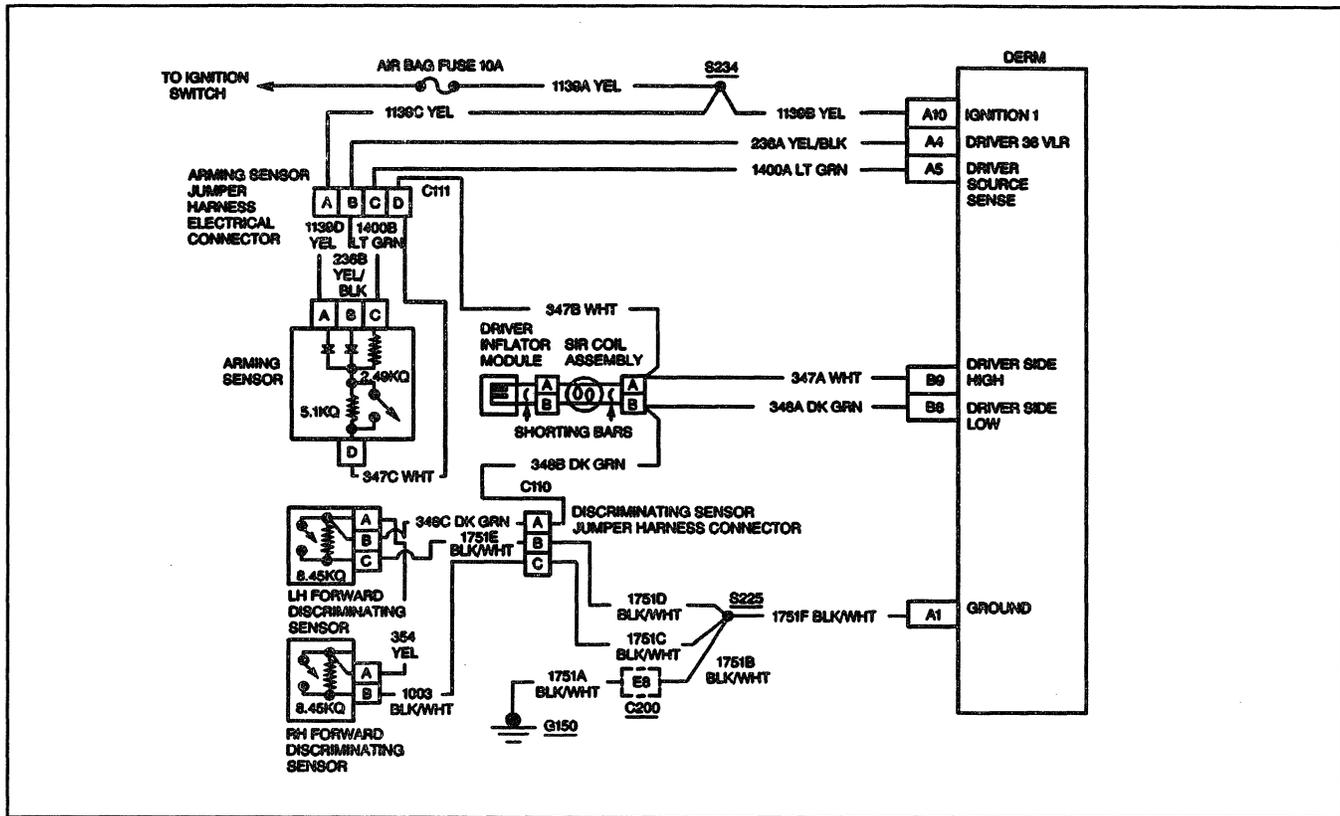
SIR DTC 28 — CURRENT SINK OR SOURCE FAILURE

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
1	1. Was the "SIR Diagnostic System Check" performed?	Go to Step 2	Go to "SIR Diagnostic System Check"
2	1. Replace the DERM. Refer to ON-VEHICLE SERVICE, DIAGNOSTIC ENERGY RESERVE MODULE (DERM). 2. Has the DERM been replaced?	Go to "SIR Diagnostic System Check"	—

T3312

9J-58 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM



DTC 31 DRIVER LOOP ENERGY RESERVE FEED OPEN

Circuit Description:

During the "Continuous Monitoring" tests, the DERM monitors the voltage at "Driver Source Sense" terminal "A5." When the circuit is operating normally the measured voltage will be slightly less than "Driver 36 VLR." If the "Driver 36 VLR" circuit opens the voltage measured at "Driver Source Sense" will decrease to slightly less than "Ignition 1" voltage. When the voltage measured at "Driver Source Sense" is within a specified range of "Ignition 1" for 500 milliseconds, DTC 31 is set.

DTC Will Set When:

The voltage measured at "Driver Source Sense" terminal "A5" is within a specified range of "Ignition 1" for 500 milliseconds during "Continuous Monitoring."

Action Taken:

DERM turns "ON" the "AIR BAG" warning lamp and sets a diagnostic trouble code.

DTC Will Clear When:

The voltage measured at "Driver Source Sense" terminal "A5" is outside the specified range of "Ignition 1" which sets the diagnostic trouble code, for 500 milliseconds.

DTC Table Test Description:

Number(s) below refer to step number(s) on the diagnostic table.

1. The "SIR DIAGNOSTIC SYSTEM CHECK" must be the starting point for all diagnostics.
12. This test checks for an open in the "Driver 36 VLR" circuit between the DERM and the arming sensor jumper harness electrical connector.
15. This test checks for an open in the "Driver 36 VLR" circuit between the arming sensor jumper harness connector and the arming sensor.
18. This test checks for high resistance in the "Driver Source Sense" circuit between the DERM and the arming sensor electrical harness connector.
21. This test checks for high resistance in the "Driver Source Sense" circuit between the DERM and the arming sensor jumper harness electrical connector.
24. This test checks for a short from the "Driver Source Sense" circuit to B+.

Diagnostic Aids:

An intermittent condition is likely to be caused by a poor connection at arming sensor or arming sensor jumper harness electrical connector terminal "B" or "C," poor connection at DERM terminal "A4" or "A5," an open in CKT 236 or CKT 1400, or an open inside the arming sensor.

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-59

SIR DTC 31 — DRIVER LOOP ENERGY RESERVE FEED OPEN

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
1	1. Was the "SIR Diagnostic System Check" performed?	Go to Step 2	Go to "SIR Diagnostic System Check"
2	1. Ignition switch "OFF." 2. Disconnect the yellow 2-way electrical connector at the base of the steering column. 3. Disconnect the Arming Sensor. 4. Check for proper connection to Arming Sensor at terminals "B" and "C." 5. Are the Arming Sensor electrical harness connector terminals damaged or corroded?	Go to Step 3	Go to Step 4
3	1. Replace the Arming Sensor electrical harness connector. 2. Has the connector been replaced?	Go to Step 5	—
4	1. Check for proper connection to the Arming Sensor at terminals "B" and "C." 2. Are the Arming Sensor terminals damaged or corroded?	Go to Step 6	Go to Step 7
5	1. Check for proper connection to the Arming Sensor at terminals "B" and "C." 2. Are the Arming Sensor terminals damaged or corroded?	Go to Step 6	Go to Step 27
6	1. Replace the Arming Sensor. Refer to ON-VEHICLE SERVICE, ARMING SENSOR. 2. Has the Arming Sensor been replaced?	Go to Step 27	—
7	1. Disconnect the DERM. 2. Check for proper connection to the DERM at terminals "A4" and "A5." 3. Are the DERM electrical harness connector terminals damaged or corroded?	Go to Step 8	Go to Step 9
8	1. Repair the DERM electrical harness connector. 2. Has the connector been repaired?	Go to Step 10	—
9	1. Check for proper connection to the DERM at terminals "A4" and "A5." 2. Are the DERM terminals damaged or corroded?	Go to Step 11	Go to Step 12
10	1. Check for proper connection to the DERM at terminals "A4" and "A5." 2. Are the DERM terminals damaged or corroded?	Go to Step 11	Go to Step 27
11	1. Replace the DERM. Refer to ON-VEHICLE SERVICE, DIAGNOSTIC ENERGY RESERVE MODULE (DERM). 2. Has the DERM been replaced?	Go to Step 27	—
12	1. Measure the resistance from the DERM electrical harness connector terminal "A4" to the Arming Sensor electrical harness connector terminal "B." 2. Is the resistance 5.0Ω or less?	Go to Step 18	Go to Step 13
13	1. Disconnect the Arming Sensor jumper harness electrical connector (C111). 2. Is the connector terminal "B" damaged or corroded?	Go to Step 14	Go to Step 15

9J-60 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM

SIR DTC 31 — DRIVER LOOP ENERGY RESERVE FEED OPEN

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
14	1. Replace the Arming Sensor jumper harness electrical connector (C111). 2. Has the connector been replaced?	Go to Step 27	—
15	1. Measure the resistance of CKT 236A from the DERM electrical harness connector terminal "A4" to the Arming Sensor jumper harness electrical connector (C111) terminal "B." 2. Is the resistance 5.0Ω or less?	Go to Step 16	Go to Step 17
16	1. Repair the open in CKT 236B. 2. Has the open circuit been repaired?	Go to Step 27	—
17	1. Repair the open in CKT 236A. 2. Has the open circuit been repaired?	Go to Step 27	—
18	1. Measure the resistance of CKT 1400 from the DERM electrical harness connector terminal "A5" to the Arming Sensor electrical harness connector terminal "C." 2. Is the resistance 5.0Ω or less?	Go to Step 24	Go to Step 19
19	1. Disconnect the Arming Sensor jumper harness electrical connector (C111). 2. Is the connector terminal "C" damaged or corroded?	Go to Step 20	Go to Step 21
20	1. Replace Arming Sensor jumper harness electrical connector (C111). 2. Has the connector been replaced?	Go to Step 27	—
21	1. Measure the resistance of CKT 1400A from the DERM electrical harness connector terminal "A5" to the Arming Sensor jumper harness electrical connector (C111) terminal "C." 2. Is the resistance 5.0Ω or less?	Go to Step 22	Go to Step 23
22	1. Repair the high resistance in CKT 1400B. 2. Has the high resistance been repaired?	Go to Step 27	—
23	1. Repair the high resistance in CKT 1400A. 2. Has the high resistance been repaired?	Go to Step 27	—
24	1. Ignition switch "ON." 2. Measure the voltage on the DERM electrical harness connector from terminal "A5" to terminal "A1" (ground). 3. Is the voltage 1 volt or less?	Go to Step 26	Go to Step 25
25	1. Ignition switch "OFF." 2. Repair the short from CKT 1400 to B+. 3. Has the short circuit been repaired?	Go to Step 27	—
26	1. Ignition switch "OFF." 2. Replace the Arming Sensor. Refer to ON-VEHICLE SERVICE, ARMING SENSOR. 3. Has the Arming Sensor been replaced?	Go to Table A	—

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-61

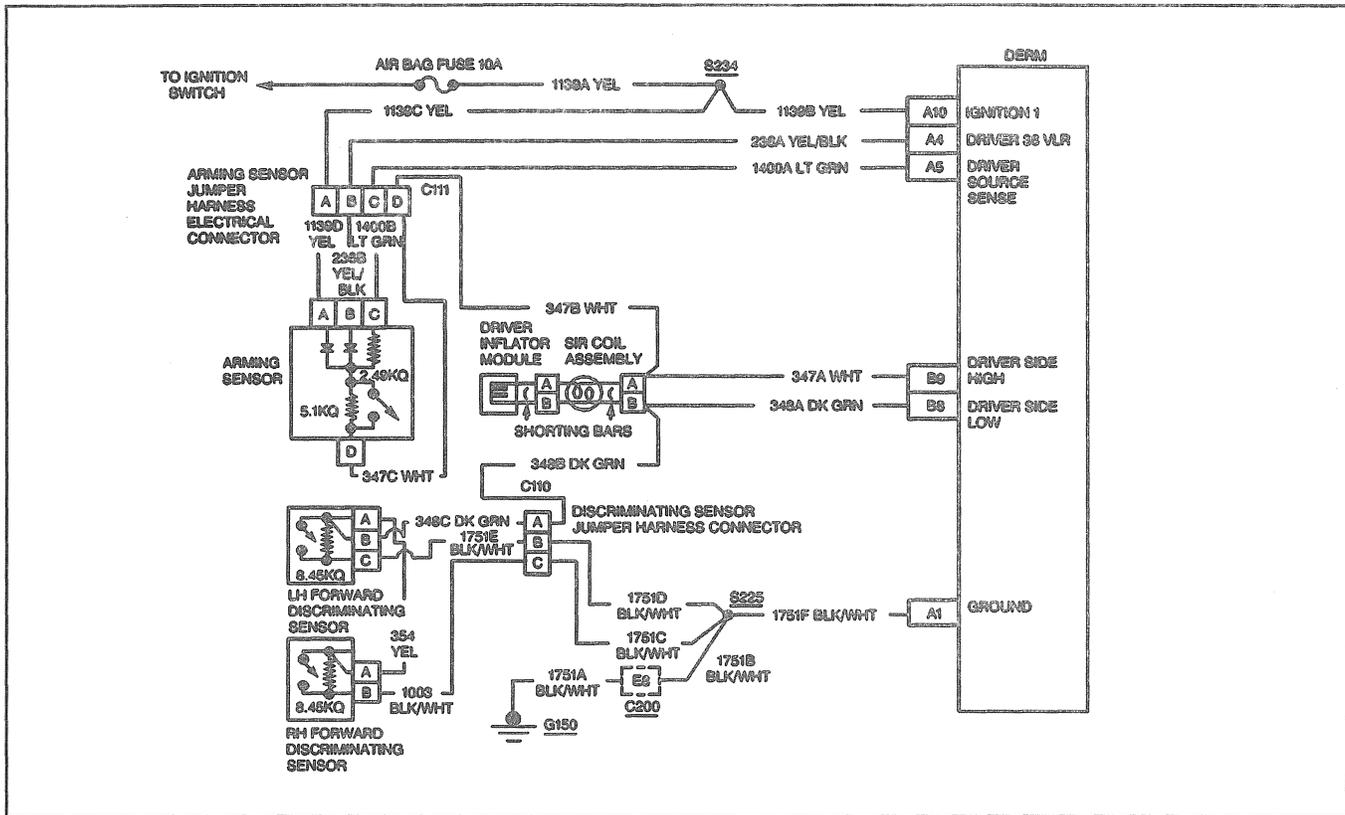
SIR DTC 31 — DRIVER LOOP ENERGY RESERVE FEED OPEN

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
27	<ol style="list-style-type: none">1. Reconnect all the SIR system components.2. Ensure the components are properly mounted.3. Have all the SIR system components been reconnected and properly mounted?	Go to Step 28	—
28	<ol style="list-style-type: none">1. Clear the SIR Diagnostic Trouble Codes.2. Have the SIR Diagnostic Trouble Codes been cleared?	Go to "SIR Diagnostic System Check"	—

T3480

9J-62 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM



DTC 34 ARMING SENSOR IGNITION FEED OPEN

Circuit Description:

During the "Turn-ON" tests, performed at the beginning of each ignition cycle, the DERM delays the charging of the "Driver 36 VLR" power supply. While the delay is active, the DERM measures the voltage at the "Driver 36 VLR" terminal "A4" and "Driver Source Sense" terminal "A5." When the voltage measured at the "Driver 36 VLR" power supply indicates it is in a discharged state and the voltage measured at "Driver Source Sense" is a specified amount below "Ignition 1" voltage, DTC 34 is set.

DTC Will Set When:

With the "Driver 36 VLR" power supply in a discharged state, the voltage measured at "Driver Source Sense" terminal "A5" is a specified amount below "Ignition 1" voltage and no "higher priority faults" are detected. This test is run once each ignition cycle during the "Turn-ON" tests while the "36 VLR Delay" is active.

Action Taken:

DERM turns "ON" the "AIR BAG" warning lamp and sets a diagnostic trouble code.

DTC Will Clear When:

With the "Driver 36 VLR" power supply in a discharged state, the voltage measured at "Driver Source Sense" terminal "A5" is within specified range of "Ignition 1" voltage. When neither the set nor clear conditions are met, the state of the diagnostic trouble code from the previous ignition cycle is used.

DTC Table Test Description:

Number(s) below refer to step number(s) on the diagnostic table.

1. The "SIR DIAGNOSTIC SYSTEM CHECK" must be the starting point for all diagnostics.
7. This test checks whether a malfunction is occurring.
13. This test checks for an open in the arming sensor ignition feed circuit.
16. This test locates the open in the arming sensor ignition feed circuit.
19. This test determines whether the malfunction is an open in the "Driver Source Sense" circuit or an open in the arming sensor.
22. This test locates the open in the "Driver Source Sense" circuit.

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-63

Diagnostic Aids:

An intermittent condition is likely to be caused by an improper connection at arming sensor or arming sensor jumper harness electrical connector terminal "A" or "C," improper connection at DERM terminal "A5," open ignition feed to the arming sensor, open "Driver Source Sense" circuit or a malfunctioning arming sensor igni-

tion diode. The test for this diagnostic trouble code is only run while the "AIR BAG" warning lamp is performing the bulb test. When a scan tool "Clear Codes" command is issued and the malfunction is still present, the DTC will not reappear until the ignition switch is turned "OFF" for at least two minutes with the entire SIR system connected and then the ignition switch is turned "ON."

SIR DTC 34 — ARMING SENSOR IGNITION FEED OPEN

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
1	Was the "SIR Diagnostic System Check" performed?	Go to Step 2	Go to "SIR Diagnostic System Check"
2	1. Ignition switch "OFF." 2. Disconnect the yellow 2-way electrical connector at the base of the steering column. 3. Disconnect the DERM and check for proper connection at terminal "A5." 4. Is the DERM electrical harness connector damaged or corroded?	Go to Step 3	Go to Step 4
3	1. Repair the DERM electrical harness connector. 2. Has the connector been repaired?	Go to Step 5	—
4	1. Check for proper connection to DERM at terminal "A5." 2. Are the DERM terminals damaged or corroded?	Go to Step 6	Go to Step 7
5	1. Check for proper connection to DERM at terminal "A5." 2. Are the DERM terminals damaged or corroded?	Go to Step 6	Go to Step 25
6	1. Replace the DERM. Refer to ON-VEHICLE SERVICE, DIAGNOSTIC ENERGY RESERVE MODULE (DERM). 2. Has the DERM been replaced?	Go to Step 25	—
7	1. Ignition switch "ON." 2. Measure the voltage on the DERM electrical harness connector from terminal "A5" to terminal "A1" (ground). 3. Does meter indicate system voltage?	Go to Table A	Go to Step 8
8	1. Ignition switch "OFF." 2. Disconnect the Arming Sensor and check for proper connection at terminals "A" and "C". 3. Is the Arming Sensor electrical harness connector damaged or corroded?	Go to Step 9	Go to Step 10
9	1. Replace the Arming Sensor electrical harness connector. 2. Has the connector been replaced?	Go to Step 11	—
10	1. Check for proper connection to the Arming Sensor at terminals "A" and "C." 2. Are the Arming Sensor terminals damaged or corroded?	Go to Step 12	Go to Step 13
11	1. Check for proper connection to the Arming Sensor at terminals "A" and "C." 2. Are the Arming Sensor terminals damaged or corroded?	Go to Step 12	Go to Step 25
12	1. Replace the Arming Sensor. Refer to ON-VEHICLE SERVICE, ARMING SENSOR. 2. Has the Arming Sensor been replaced?	Go to Step 25	—

9J-64 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM

SIR DTC 34 — ARMING SENSOR IGNITION FEED OPEN

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
13	<ol style="list-style-type: none">1. Ignition switch "ON."2. Measure the voltage from the Arming Sensor electrical harness connector terminal "A" to the DERM electrical harness connector terminal "A1" (ground).3. Does meter indicate system voltage?	Go to Step 19	Go to Step 14
14	<ol style="list-style-type: none">1. Ignition switch "OFF."2. Disconnect the Arming Sensor jumper harness electrical connector (C111).3. Check for proper connection of the Arming Sensor jumper harness electrical connector (C111).4. Are the connector terminals damaged or corroded?	Go to Step 15	Go to Step 16
15	<ol style="list-style-type: none">1. Replace the Arming Sensor jumper harness electrical connector (C111).2. Has the connector been replaced?	Go to Step 25	—
16	<ol style="list-style-type: none">1. Ignition switch "ON."2. Measure the voltage from the Arming Sensor jumper harness electrical connector (C111) (bulk head side of the harness) terminal "A" to the DERM electrical harness connector terminal "A1" (ground).3. Does meter indicate system voltage?	Go to Step 17	Go to Step 18
17	<ol style="list-style-type: none">1. Repair the open in CKT 1139D.2. Has the open circuit been repaired?	Go to Step 25	—
18	<ol style="list-style-type: none">1. Repair the open in CKT 1139C2. Has the open circuit been repaired?	Go to Step 25	—
19	<ol style="list-style-type: none">1. Ignition switch "OFF."2. Measure the resistance from the Arming Sensor harness electrical connector terminal "C" to the DERM electrical harness connector terminal "A5."3. Is the resistance 5.0Ω or less?	Go to Step 12	Go to Step 20
20	<ol style="list-style-type: none">1. Disconnect the Arming Sensor jumper harness electrical connector (C111).2. Check for proper connection of the Arming Sensor jumper harness electrical connector (C111).3. Is the connector terminal "C" damaged or corroded?	Go to Step 21	Go to Step 22
21	<ol style="list-style-type: none">1. Replace the Arming Sensor jumper harness electrical connector (C111).2. Has the connector been replaced?	Go to Step 25	—
22	<ol style="list-style-type: none">1. Ignition switch "OFF."2. Measure the resistance of CKT 1400A from the Arming Sensor jumper harness electrical connector (C111) terminal "C" to the DERM electrical harness connector terminal "A5."3. Is the resistance 5.0Ω or less?	Go to Step 23	Go to Step 24
23	<ol style="list-style-type: none">1. Repair the high resistance in CKT 1400B.2. Has the high resistance been repaired?	Go to Step 25	—

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-65

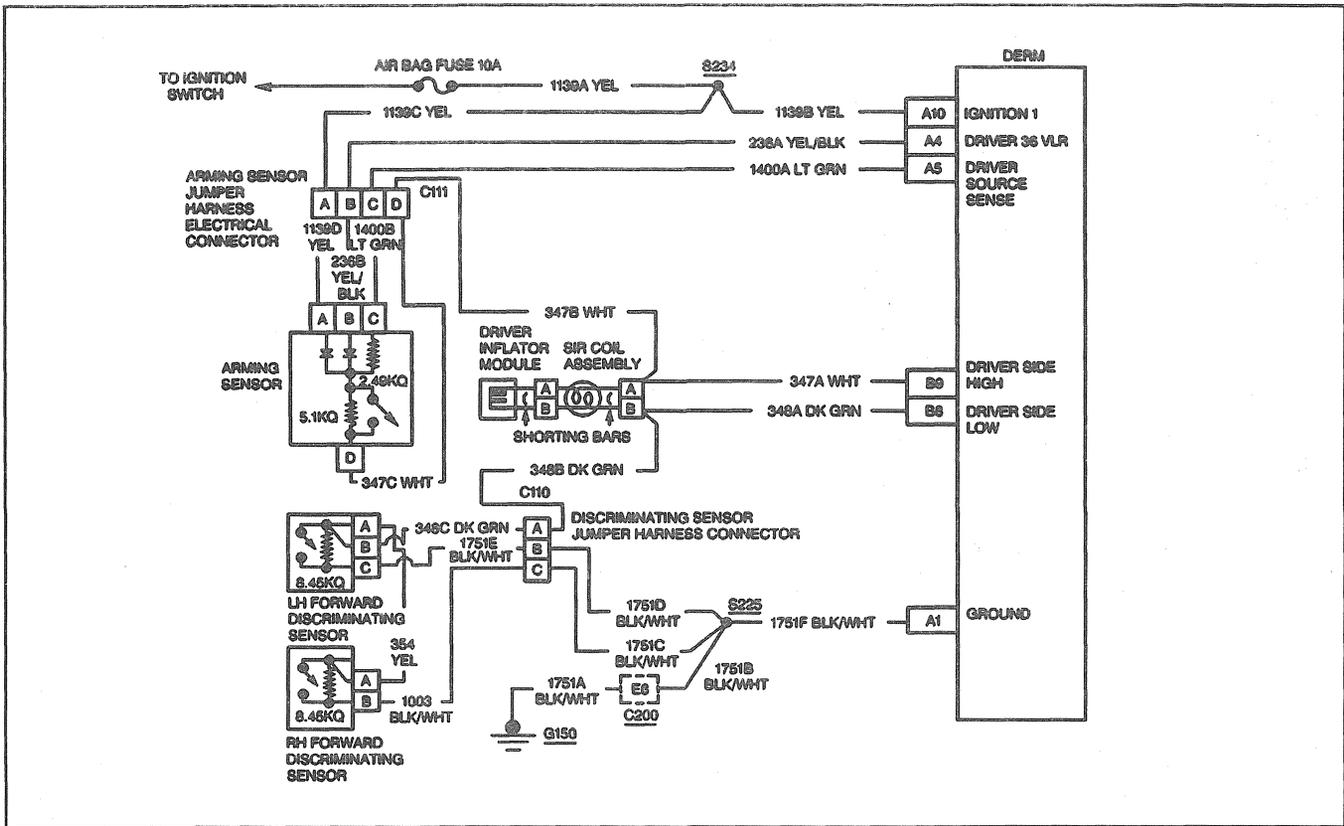
SIR DTC 34 — ARMING SENSOR IGNITION FEED OPEN

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
24	1. Repair the high resistance in CKT 1400A. 2. Has the high resistance been repaired?	Go to Step 25	—
25	1. Reconnect all the SIR system components. 2. Ensure the components are properly mounted. 3. Have all the SIR system components been reconnected and properly mounted?	Go to Step 26	—
26	1. Clear the SIR Diagnostic Trouble Codes. 2. Have the SIR Diagnostic Trouble Codes been cleared?	Go to "SIR Diagnostic System Check"	—

T3481

9J-66 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM



DTC 35 DISCRIMINATING SENSOR OPEN OR MISSING

Circuit Description:

During normal, non-deployment operation of the SIR system a small amount of current flows through the driver deployment loop. The diagnostic resistors within the arming sensor and the discriminating sensors along with the resistance of the inflator module cause voltage drops within the deployment loop. The DERM monitors the voltage at "Driver Side Low" terminal "B8" to detect shorts or opens within the deployment loop. When the measured voltage is within a specified percentage of "Driver 36 VLR" power supply for 500 milliseconds, DTC 35 is set.

DTC Will Set When:

The voltage measured at "Driver Side Low" terminal "B8" is within a specified percentage of the "Driver 36 VLR" power supply voltage for 500 milliseconds during "Continuous Monitoring."

Action Taken:

DERM turns "ON" the "AIR BAG" warning lamp and sets a diagnostic trouble code.

DTC Will Clear When:

The voltage measured at "Driver Side Low" terminal "B8" is above or below the percentage of "Driver 36 VLR" power supply voltage which sets DTC 35.

DTC Table Test Description:

Number(s) below refer to step number(s) on the diagnostic table.

1. The "SIR DIAGNOSTIC SYSTEM CHECK" must be the starting point for all diagnostics.
7. This test checks for increased resistance of the LH forward discriminating sensor.
8. This test checks for an open in the ground feed to the LH forward discriminating sensor.
11. This test locates the open in the ground feed to the LH forward discriminating sensor.
19. This test checks for increased resistance of the RH forward discriminating sensor.
21. This test checks for an open in the ground feed to the RH forward discriminating sensor.
24. This test locates the open in the ground feed to the RH forward discriminating sensor.
27. This test checks for an open in the discriminating sensor interconnect circuit.
29. This test checks for a malfunctioning arming sensor.

Diagnostic Aids:

An intermittent condition is likely to be an improper connection at any of the discriminating sensor terminals, an open in either ground feed to the discriminating sensors, an open discriminating sensor interconnect circuit, increased resistance of either discriminating sensor or decreased resistance of the arming sensor.

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-67

SIR DTC 35 — DISCRIMINATING SENSOR OPEN OR MISSING

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
1	1. Was the "SIR Diagnostic System Check" performed?	Go to Step 2	Go to "SIR Diagnostic System Check"
2	1. Disconnect the yellow 2-way connector at the base of the steering column. 2. Disconnect the LH Forward Discriminating Sensor. 3. Check for proper connection to the LH Forward Discriminating Sensor at terminals "A", "B", and "C". 4. Is the LH Forward Discriminating Sensor electrical harness connector damaged or corroded?	Go to Step 3	Go to Step 5
3	1. Replace LH Forward Discriminating Sensor electrical harness connector. 2. Has the connector been replaced?	Go to Step 4	—
4	1. Check for proper connection to the LH Forward Discriminating Sensor. 2. Are the LH Forward Discriminating Sensor terminals damaged or corroded?	Go to Step 6	Go to Step 31
5	1. Check for proper connection to the LH Forward Discriminating Sensor. 2. Are the LH Forward Discriminating Sensor terminals damaged or corroded?	Go to Step 6	Go to Step 7
6	1. Replace the LH Forward Discriminating Sensor. Refer to ON-VEHICLE SERVICE, FORWARD DISCRIMINATING SENSORS (RH AND LH). 2. Has the sensor been replaced?	Go to Step 31	—
7	1. Measure the resistance on the LH Forward Discriminating Sensor from terminal "A" to terminal "C." 2. Is the resistance 8.54k Ω or more?	Go to Step 6	Go to Step 8
8	1. Measure the resistance from the LH Forward Discriminating Sensor electrical harness connector terminal "C" to ground. 2. Is the resistance 5.0 Ω or less?	Go to Step 14	Go to Step 9
9	1. Disconnect the Discriminating Sensor jumper harness electrical connector (C110). 2. Check for proper connection of the Discriminating Sensor jumper harness electrical connector (C110). 3. Is the Discriminating Sensor jumper harness electrical connector damaged or corroded?	Go to Step 10	Go to Step 11
10	1. Replace the Discriminating Sensor jumper harness electrical connector (C110). 2. Has the connector been replaced?	Go to Step 31	—
11	1. Measure the resistance of CKT 1751E from the LH Forward Discriminating Sensor harness electrical connector terminal "C" to the Discriminating Sensor jumper harness connector (C110) terminal "B." 2. Is the resistance 5.0 Ω or less?	Go to Step 12	Go to Step 13
12	1. Repair the open in CKT 1751D. 2. Has the open circuit been repaired?	Go to Step 31	—
13	1. Repair the open in CKT 1751E. 2. Has the open circuit been repaired?	Go to Step 31	—

9J-68 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM

SIR DTC 35 — DISCRIMINATING SENSOR OPEN OR MISSING

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
14	<ol style="list-style-type: none"> 1. Disconnect the RH Forward Discriminating Sensor. 2. Check for proper connection to the RH Forward Discriminating Sensor at terminals "A" and "B." 3. Is the RH Forward Discriminating Sensor electrical harness connector damaged or corroded? 	Go to Step 15	Go to Step 17
15	<ol style="list-style-type: none"> 1. Replace the RH Forward Discriminating Sensor electrical harness connector. 2. Has the connector been replaced? 	Go to Step 16	—
16	<ol style="list-style-type: none"> 1. Check for proper connection to the RH Forward Discriminating Sensor. 2. Are the RH Forward Discriminating Sensor terminals damaged or corroded? 	Go to Step 18	Go to Step 31
17	<ol style="list-style-type: none"> 1. Check for proper connection to the RH Forward Discriminating Sensor. 2. Are the RH Forward Discriminating Sensor terminals damaged or corroded? 	Go to Step 18	Go to Step 19
18	<ol style="list-style-type: none"> 1. Replace the RH Forward Discriminating Sensor. Refer to ON-VEHICLE SERVICE, FORWARD DISCRIMINATING SENSORS (RH AND LH). 2. Has the sensor been replaced? 	Go to Step 31	—
19	<ol style="list-style-type: none"> 1. Measure the resistance on the RH Forward Discriminating Sensor electrical connector from terminal "A" to terminal "B." 2. Is the resistance 8.54kΩ or more? 	Go to Step 20	Go to Step 21
20	<ol style="list-style-type: none"> 1. Replace the RH Forward Discriminating Sensor. Refer to ON-VEHICLE SERVICE, FORWARD DISCRIMINATING SENSORS (RH AND LH). 2. Has the sensor been replaced? 	Go to Step 31	—
21	<ol style="list-style-type: none"> 1. Measure the resistance from the RH Forward Discriminating Sensor electrical harness connector terminal "B" to ground. 2. Is the resistance 5.0Ω or less? 	Go to Step 27	Go to Step 22
22	<ol style="list-style-type: none"> 1. Disconnect the Discriminating Sensor jumper harness electrical connector (C110). 2. Check for proper connection of the Discriminating Sensor jumper harness electrical connector (C110). 3. Is the Discriminating Sensor jumper harness electrical connector (C110) damaged or corroded? 	Go to Step 23	Go to Step 24
23	<ol style="list-style-type: none"> 1. Replace the Discriminating Sensor jumper harness electrical connector (C110). 2. Has the connector been replaced? 	Go to Step 31	—
24	<ol style="list-style-type: none"> 1. Measure the resistance of CKT 1003 from the RH Forward Discriminating Sensor electrical harness connector terminal "B" to the Discriminating Sensor jumper harness electrical connector terminal "C." 2. Is the resistance 5.0Ω or less? 	Go to Step 25	Go to Step 26
25	<ol style="list-style-type: none"> 1. Repair the open in CKT 1751C. 2. Has the open circuit been repaired? 	Go to Step 31	—
26	<ol style="list-style-type: none"> 1. Repair the open in CKT 1003. 2. Has the open circuit been repaired? 	Go to Step 31	—

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-69

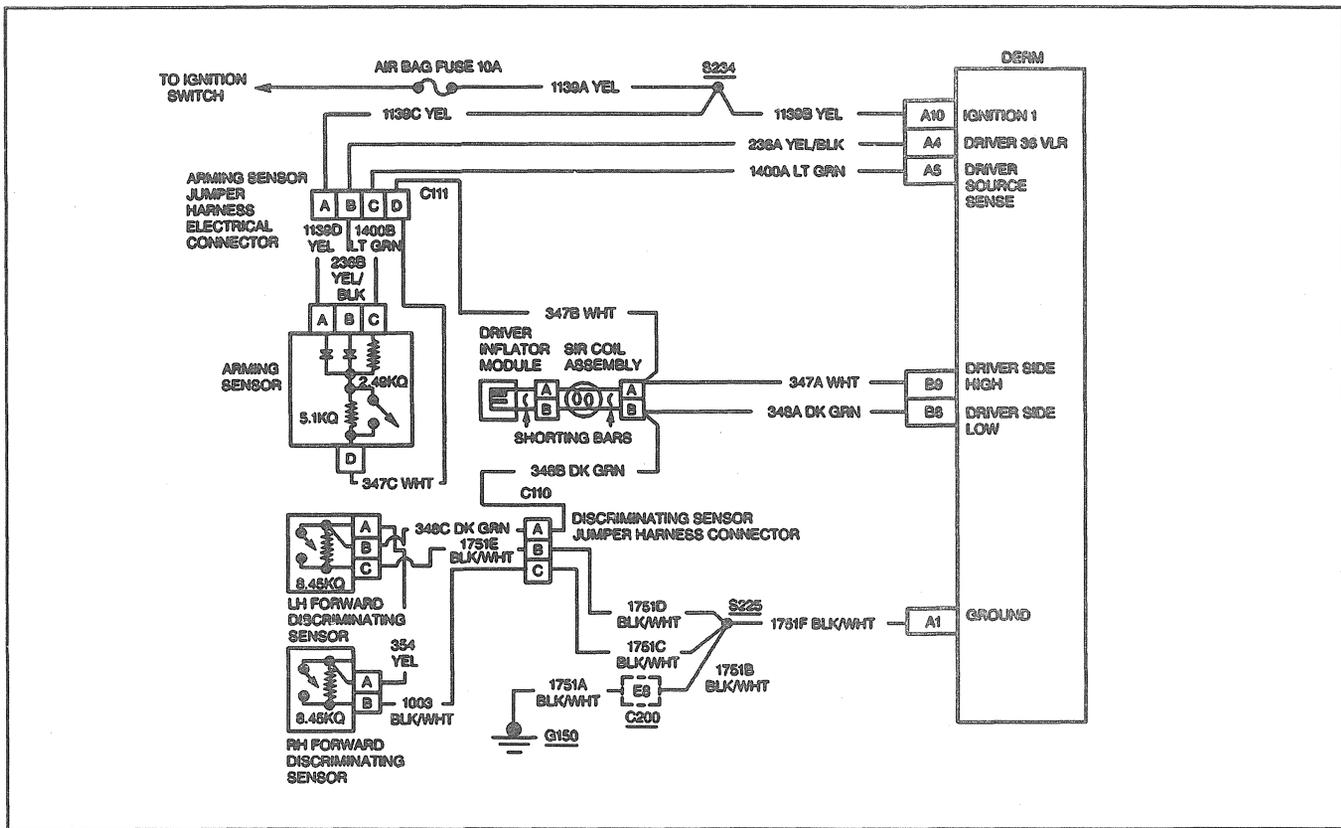
SIR DTC 35 — DISCRIMINATING SENSOR OPEN OR MISSING

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
27	<ol style="list-style-type: none">1. Measure the resistance of CKT 354 from the RH Forward Discriminating Sensor electrical harness connector terminal "A" to the LH Forward Discriminating Sensor electrical harness connector terminal "A."2. Is the resistance 5.0Ω or less?	Go to Step 29	Go to Step 28
28	<ol style="list-style-type: none">1. Repair the open in CKT 354.2. Has the open circuit been repaired?	Go to Step 31	—
29	<ol style="list-style-type: none">1. Disconnect the Arming Sensor.2. Measure the resistance on the Arming Sensor from terminal "C" to terminal "D."3. Is the resistance 7.5kΩ or less?	Go to Step 30	Go to Table A
30	<ol style="list-style-type: none">1. Replace the Arming Sensor. Refer to ON-VEHICLE SERVICE, ARMING SENSOR.2. Has the sensor been replaced?	Go to Step 31	—
31	<ol style="list-style-type: none">1. Reconnect all the SIR system components.2. Ensure the components are properly mounted.3. Have all the SIR system components been reconnected and properly mounted?	Go to Step 32	—
32	<ol style="list-style-type: none">1. Clear the SIR Diagnostic Trouble Codes.2. Have the SIR Diagnostic Trouble Codes been cleared?	Go to "SIR Diagnostic System Check"	—

T3482

9J-70 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM



DTC 42 LOOP ENERGY RESERVE VOLTAGE LOW

Circuit Description:

During the "Turn-ON" tests, performed at the beginning of each ignition cycle, the DERM delays charging of the "Driver 36 VLR" terminal "A4" power supply. After the delay has expired the "Driver 36 VLR" power supply is allowed to charge. The DERM monitors the "Driver 36 VLR" power supply to ensure it has charged to a voltage above a specified value within 10 seconds after "Ignition 1" voltage is first applied to the DERM. When the "Driver 36 VLR" power supply does not reach the specified voltage within the allowed time or, once reaching the specified voltage, falls below it for 500 milliseconds, DTC 42 is set.

DTC Will Set When:

The voltage measured at the "Driver 36 VLR" power supply does not exceed a specified value within 10 seconds after "Ignition 1" voltage is first applied to the DERM or, once having reached the specified value, falls below the specified value for 500 milliseconds during "Continuous Monitoring."

Action Taken:

DERM turns "ON" the "AIR BAG" warning lamp and sets a diagnostic trouble code.

DTC Will Clear When:

The voltage measured at "Driver 36 VLR" terminal "A4" is above a specified value for 500 milliseconds during "Continuous Monitoring."

DTC Table Test Description:

Number(s) below refer to step number(s) on the diagnostic table.

1. The "SIR DIAGNOSTIC SYSTEM CHECK" must be the starting point for all diagnostics.
2. This test checks whether the diagnostic trouble code has set falsely.
3. This test checks whether a malfunctioning arming sensor is preventing the "Driver 36 VLR" from charging. This test will cause DTC 14 (Arming Sensor Disconnected) to set.
5. This test checks whether a short to B+ is preventing the "Driver 36 VLR" from charging.
6. This test locates a short to B+ which is preventing the "Driver 36 VLR" from charging.
9. This test checks whether a short to ground is preventing the "Driver 36 VLR" from charging.
10. This test locates the short to ground which is preventing the "Driver 36 VLR" from charging.

Diagnostic Aids:

An intermittent condition is likely to be caused by a short from "Driver 36 VLR" to B+ or ground, or a short inside the arming sensor.

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-71

SIR DTC 42 — LOOP ENERGY RESERVE VOLTAGE LOW

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
1	1. Was the "SIR Diagnostic System Check" performed?	Go to Step 2	Go to "SIR Diagnostic System Check"
2	1. Ignition switch "ON." 2. Using the TECH 1 SIR Data List Function select "Driver 36 VLR." 3. Is the displayed voltage 32.5 volts or more?	Go to Table A	Go to Step 3
3	1. Record the displayed voltage on the repair order. 2. Ignition switch "OFF." 3. Disconnect the yellow two-way electrical connector at the base of the steering column. 4. Disconnect the Arming Sensor. 5. Ignition switch "ON." 6. Using the TECH 1 Data List Function select "Driver 36 VLR." 7. Is the displayed voltage about the same as the recorded voltage?	Go to Step 5	Go to Step 4
4	1. Ignition switch "OFF." 2. Replace the Arming Sensor. Refer to ON-VEHICLE SERVICE, ARMING SENSOR. 3. Has the sensor been replaced?	Go to Step 13	—
5	1. Using the TECH 1 SIR Data List Function select "Ignition." 2. Is the displayed voltage about the same as the recorded voltage?	Go to Step 6	Go to Step 9
6	1. Ignition switch "OFF." 2. Disconnect the Arming Sensor jumper harness electrical connector (C111). 3. Ignition switch "ON." 4. Using the TECH 1 SIR Data List Function select "Ignition." 5. Is the displayed voltage about the same as the recorded voltage?	Go to Step 7	Go to Step 8
7	1. Ignition switch "OFF." 2. Repair the short from CKT 236A to B+. 3. Has the short circuit been repaired?	Go to Step 13	—
8	1. Ignition switch "OFF." 2. Repair the short from CKT 236B to B+. 3. Has the short circuit been repaired?	Go to Step 13	—
9	1. Ignition switch "OFF." 2. Is the recorded voltage on the repair order 1.0 volt or less?	Go to Step 10	Go to Table A
10	1. Disconnect the Arming Sensor jumper harness electrical connector (C111). 2. Ignition switch "ON." 3. Using the TECH 1 SIR Data List Function select "Driver 36 VLR." 4. Does the scan tool display 1.0 volt or less?	Go to Step 11	Go to Step 12
11	1. Repair the short from CKT 236A to ground. 2. Has the short circuit been repaired?	Go to Step 13	—
12	1. Repair the short from CKT 236B to ground. 2. Has the short circuit been repaired?	Go to Step 13	—

9J-72 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM

SIR DTC 42 — LOOP ENERGY RESERVE VOLTAGE LOW

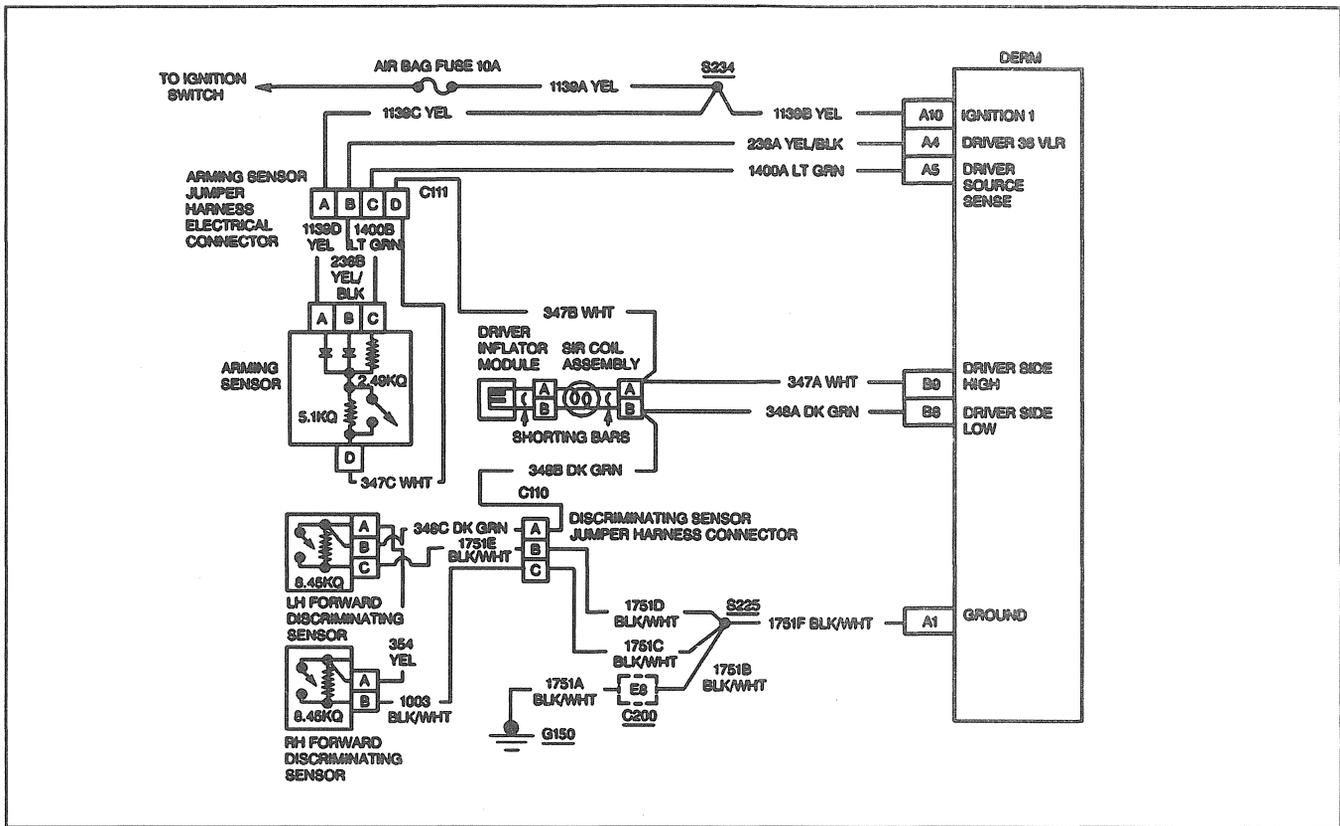
WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
13	<ol style="list-style-type: none">1. Reconnect all the SIR components.2. Ensure the components are properly mounted.3. Have all the SIR components been reconnected and properly mounted?	Go to Step 14	—
14	<ol style="list-style-type: none">1. Clear the SIR Diagnostic Trouble Codes.2. Have the SIR Diagnostic Trouble Codes been cleared?	Go to "SIR Diagnostic System Check"	—

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9J-74 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM



DTC 43 DRIVER SOURCE FEED LOW

Circuit Description:

During normal, non-deployment operation of the SIR system the DERM monitors the voltage supplied through the arming sensor to the high side of the driver deployment loop at the "Driver Source Sense" terminal "A5." This measured voltage will have a value approximately equal to "Driver 36 VLR." When the voltage measured at "Driver Side Low" terminal "B8" is in its normal operating range, indicating driver deployment loop integrity has been maintained, while simultaneously the voltage measured at "Driver Source Sense" terminal "A5" is a specified amount below "Driver 36 VLR" for 500 milliseconds, DTC 43 is set.

DTC Will Set When:

The voltage measured at "Driver Side Low" terminal "B8" is within a specified percentage of "Driver 36 VLR," while simultaneously the voltage measured at "Driver Source Sense" terminal "A5" is a specified amount below "Driver 36 VLR" for 500 milliseconds during "Continuous Monitoring."

Action Taken:

DERM turns "ON" the "AIR BAG" warning lamp and sets a diagnostic trouble code.

DTC Will Clear When:

The voltage measured at "Driver Side Low" terminal "B8" is within a specified percentage of "Driver 36 VLR"

while simultaneously the voltage measured at "Driver Source Sense" terminal "A5" is within a specified amount of "Driver 36 VLR" for 500 milliseconds during "Continuous Monitoring."

DTC Table Test Description:

Number(s) below refer to step number(s) on the diagnostic table.

1. The "SIR DIAGNOSTIC SYSTEM CHECK" must be the starting point for all diagnostics.
12. This test checks for an open in "Driver Source Sense" circuit.
15. This test locates the open in "Driver Source Sense" circuit.
18. This test checks for a short from the "Driver Source Sense" circuit to ground.
19. This test locates the short from the "Driver Source Sense" circuit to ground.
22. The test determines whether the malfunction is due to increased resistance across the "Driver Source Sense" resistor in the arming sensor.

Diagnostic Aids:

An intermittent condition is likely to be caused by a poor connection to the DERM at terminal "A5," a poor connection to the arming sensor or arming sensor jumper harness electrical connector at terminal "C," an open or short to ground in CKT 1400, or an open arming sensor.

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-75

SIR DTC 43 - DRIVER SOURCE FEED LOW

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
1	1. Was the "SIR Diagnostic System Check" performed?	Go to Step 2	Go to "SIR Diagnostic System Check"
2	1. Ignition switch "OFF." 2. Disconnect the yellow 2-way electrical connector at the base of the steering column. 3. Disconnect the DERM. 4. Check for proper connection to the DERM terminal "A5." 5. Is the DERM electrical harness connector damaged or corroded?	Go to Step 3	Go to Step 5
3	1. Repair the DERM electrical harness connector. 2. Has the connector been repaired?	Go to Step 4	—
4	1. Check for proper connection to the DERM at terminal "A5." 2. Are the DERM terminals damaged or corroded?	Go to Step 6	Go to Step 23
5	1. Check for proper connection to the DERM at terminal "A5." 2. Are the DERM terminals damaged or corroded?	Go to Step 6	Go to Step 7
6	1. Replace the DERM. Refer to ON-VEHICLE SERVICE, DIAGNOSTIC ENERGY RESERVE MODULE (DERM). 2. Has the DERM been replaced?	Go to Step 23	—
7	1. Disconnect the Arming Sensor. 2. Check for proper connection to the Arming Sensor at terminal "C." 3. Is the Arming Sensor electrical harness connector damaged or corroded?	Go to Step 8	Go to Step 10
8	1. Replace the Arming Sensor electrical harness connector. 2. Has the connector been replaced?	Go to Step 9	—
9	1. Check for proper connection to the Arming Sensor at terminal "C." 2. Are the Arming Sensor terminals damaged or corroded?	Go to Step 11	Go to Step 23
10	1. Check for proper connection to the Arming Sensor at terminal "C." 2. Are the Arming Sensor terminals damaged or corroded?	Go to Step 11	Go to Step 12
11	1. Replace the Arming Sensor. Refer to ON-VEHICLE SERVICE, ARMING SENSOR. 2. Has the sensor been replaced?	Go to Step 23	—
12	1. Measure the resistance from the DERM electrical harness connector terminal "A5" to the Arming Sensor electrical harness connector terminal "C." 2. Is the resistance 5.0Ω or less?	Go to Step 18	Go to Step 13
13	1. Disconnect the Arming Sensor jumper harness electrical connector (C111). 2. Check for proper connection at the Arming Sensor jumper harness electrical connector (C111). 3. Is the Arming Sensor jumper harness electrical connector (C111) terminal "C" damaged or corroded?	Go to Step 14	Go to Step 15
14	1. Replace the Arming Sensor jumper harness electrical connector (C111). 2. Has the connector been replaced?	Go to Step 23	—

9J-76 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM

SIR DTC 43 - DRIVER SOURCE FEED LOW

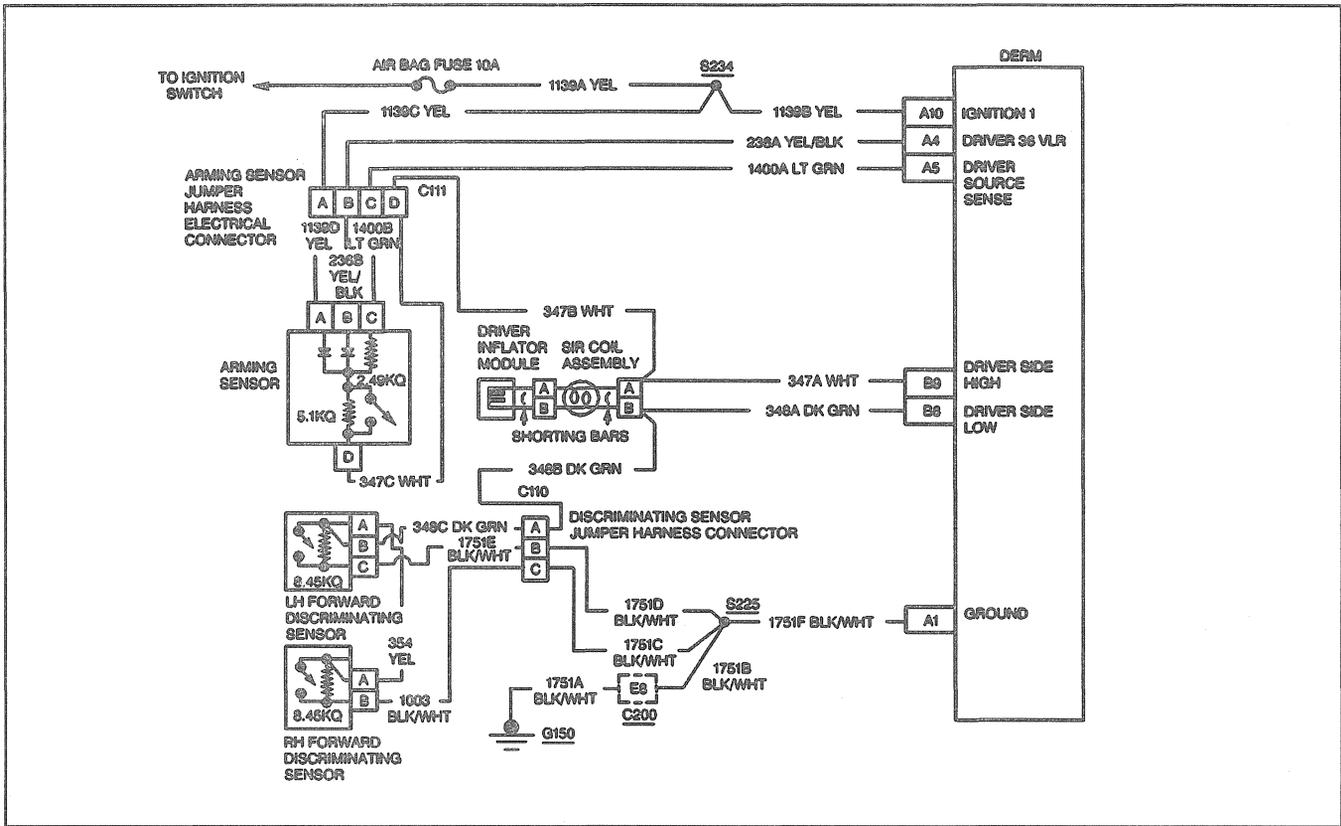
WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
15	<ol style="list-style-type: none">1. Measure the resistance of CKT 1400A from the DERM electrical harness connector terminal "A5" to the Arming Sensor jumper harness electrical connector terminal "C."2. Is the resistance 5.0Ω or less?	Go to Step 16	Go to Step 17
16	<ol style="list-style-type: none">1. Repair the open in CKT 1400B.2. Has the open circuit been repaired?	Go to Step 23	—
17	<ol style="list-style-type: none">1. Repair the open in CKT 1400A.2. Has the open circuit been repaired?	Go to Step 23	—
18	<ol style="list-style-type: none">1. Measure the resistance on the DERM electrical harness connector from terminal "A5" to terminal "A1" (ground).2. Does J 39200 Display "OL" (infinite)?	Go to Step 22	Go to Step 19
19	<ol style="list-style-type: none">1. Disconnect the Arming Sensor jumper harness electrical connector (C111).2. Measure the resistance on the DERM electrical harness connector from terminal "A5" to terminal "A1" (ground).3. Does J 39200 Display "OL" (infinite)?	Go to Step 20	Go to Step 21
20	<ol style="list-style-type: none">1. Repair the short in CKT 1400B to ground.2. Has the short circuit been repaired?	Go to Step 23	—
21	<ol style="list-style-type: none">1. Repair the short in CKT 1400A to ground.2. Has the short circuit been repaired?	Go to Step 23	—
22	<ol style="list-style-type: none">1. Measure the resistance of the Arming Sensor from terminal "C" to terminal "D."2. Is the resistance 7.67kΩ or more?	Go to Step 11	Go to Table A
23	<ol style="list-style-type: none">1. Reconnect all the SIR system components.2. Ensure the components are properly mounted.3. Have all the SIR system components been reconnected and properly mounted?	Go to Step 24	—
24	<ol style="list-style-type: none">1. Clear the SIR Diagnostic Trouble Codes.2. Have the SIR Diagnostic Trouble Codes been cleared?	Go to "SIR Diagnostic System Check"	—

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9J-78 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM



DTC 51

FRONTAL CRASH DETECTED

Circuit Description:

Closure of the arming sensor is detected when the voltage measured at "Driver Side High" terminal "B9" is within a specified amount of its deployment loop supply voltage. Closure of either discriminating sensor is detected when the voltage measured at "Driver Side Low" terminal "B8" is within a specified amount of ground potential. When both conditions are met simultaneously for not less than 250 microseconds "Crash Data" is recorded and DTC 51 is set.

DTC Will Set When:

Closure of the arming sensor and at least one of the discriminating sensors is detected simultaneously for not less than 250 microseconds.

Action Taken:

DERM turns "ON" the "AIR BAG" warning lamp, records "Crash Data," and sets a diagnostic trouble code.

DTC Will Clear When:

A scan tool "Clear Codes" command is received by the DERM.

DTC Table Test Description:

Number(s) below refer to step number(s) on the diagnostic table.

1. The "SIR DIAGNOSTIC SYSTEM CHECK" must be the starting point for all diagnostics.
2. When DTC 42 and DTC 51 are set simultaneously, perform DTC 42 diagnosis first.
3. If inflator module has not deployed, DTC 51 may have set falsely.
4. If DTC 51 has set with no signs of frontal impact, the diagnostic trouble code has set falsely.
5. When a frontal crash has occurred, it is necessary to perform the indicated procedures to ensure the SIR system is fully functional.
6. This test checks for a DERM malfunction setting the diagnostic trouble code.
7. This test checks for a DERM malfunction setting the diagnostic trouble code.
8. This test determines whether the diagnostic trouble code was set inadvertently during diagnosis or by a DERM malfunction.

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-79

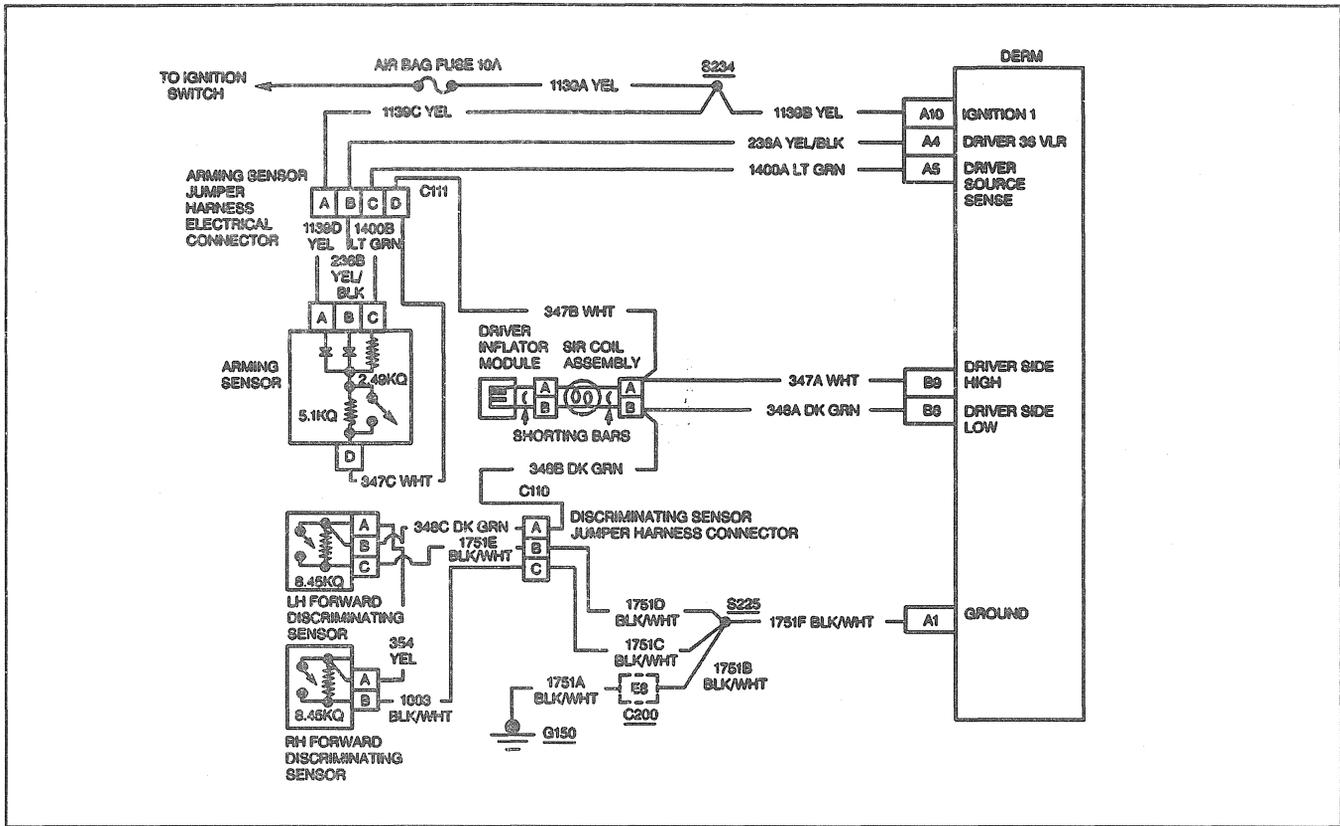
SIR DTC 51 — FRONTAL CRASH DETECTED

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
1	1. Was the "SIR Diagnostic System Check" performed?	Go to Step 2	Go to "SIR Diagnostic System Check"
2	1. Using the scan tool, request the SIR Diagnostic Trouble Code Display. 2. Is the DTC 42 current?	Go to DTC 42	Go to Step 3
3	1. Ignition switch "OFF." 2. Has the Inflator Module deployed?	Go to Step 5	Go to Step 4
4	1. Inspect the front of the vehicle and undercarriage for signs of impact. 2. Are there signs of impact?	Go to Step 5	Go to Step 6
5	1. Replace the components and perform inspections as directed in the "REPAIRS AND INSPECTIONS REQUIRED AFTER AN ACCIDENT" in this section. 2. Have the accident repairs been completed?	Go to Step 9	—
6	1. Ignition switch "ON." 2. Using the TECH 1 SIR Data List Function select "Deploy Command." 3. Is the deploy command "Active"?	Go to Table A	Go to Step 7
7	1. Ignition switch "ON." 2. Clear the SIR Diagnostic Trouble Codes. 3. Is DTC 51 set?	Go to Table A	Go to Step 8
8	1. Ignition switch "OFF." 2. Was DTC 51 set when the "SIR Diagnostic System Check" was first performed?	Go to Table A	Go to "SIR Diagnostic System Check"
9	1. Reconnect all the SIR system components. 2. Ensure the components are properly mounted. 3. Have all the SIR system components been reconnected and properly mounted?	Go to Step 10	—
10	1. Clear the SIR Diagnostic Trouble Codes. 2. Have the SIR Diagnostic Trouble Codes been cleared?	Go to "SIR Diagnostic System Check"	—

T3303

9J-80 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM



DTC 52

DATA AREA FULL

Circuit Description:

When there is a frontal crash of sufficient force to activate the arming sensor and at least one of the two discriminating sensors simultaneously, DTC 51 is set. At this time the DERM will record information regarding SIR system status and vehicle status in EEPROM. DTC 52 will set when the DERM has stored information regarding eight frontal crash events.

DTC Will Set When:

The DERM attempts to store frontal crash information and finds the EEPROM data area full.

Action Taken:

DERM turns "ON" the "AIR BAG" warning lamp and sets a diagnostic trouble code.

DTC Will Clear When:

The DERM receives a scan tool "Clear Codes" command. If, at the next ignition "ON" after receiving a "Clear Codes" command, the DERM detects the data area is full, a history diagnostic trouble code is set. This allows the "AIR BAG" warning lamp to illuminate should any additional malfunctions be detected.

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-81

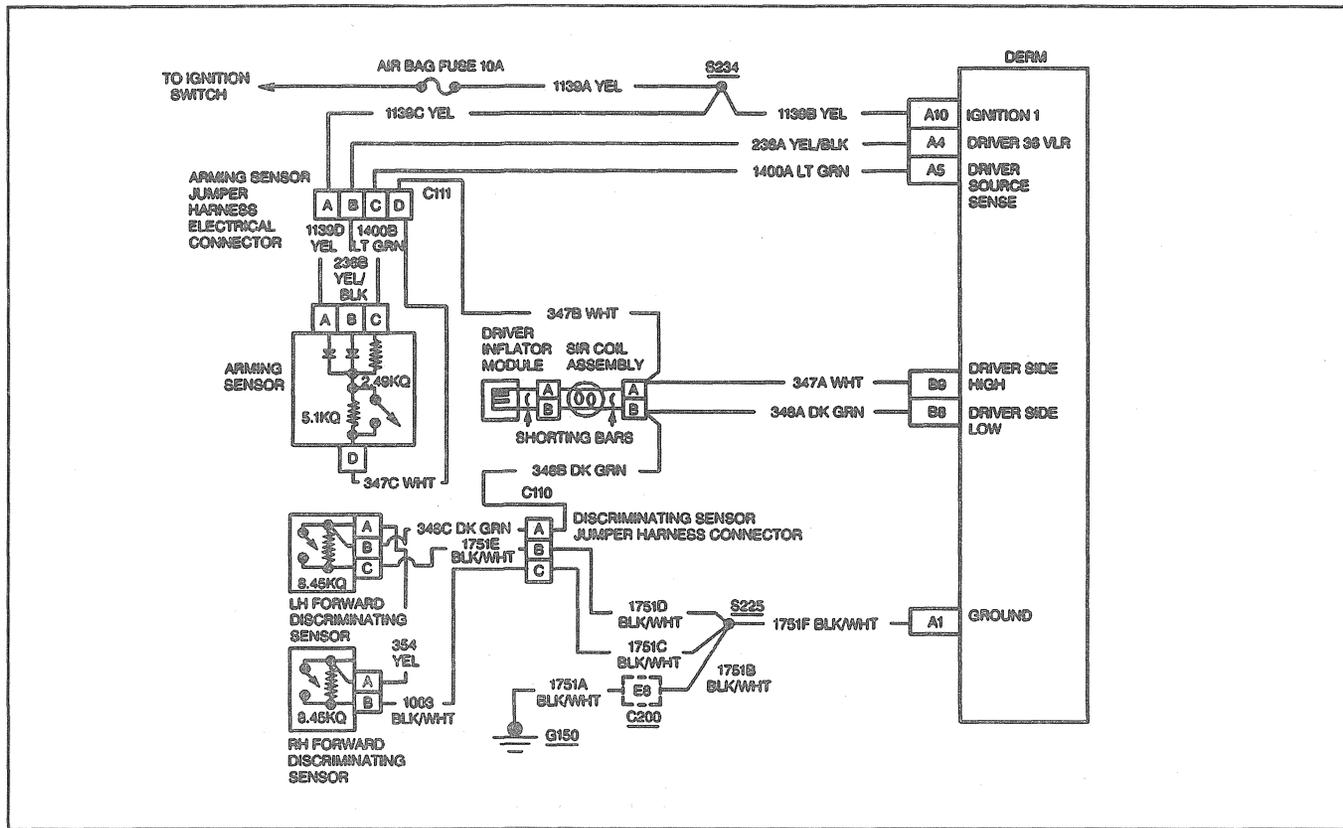
SIR DTC 52 — DATA AREA FULL

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
1	1. Was the "SIR Diagnostic System Check" performed?	Go to Step 2	Go to "SIR Diagnostic System Check"
2	1. Replace the DERM. Refer to ON-VEHICLE SERVICE, DIAGNOSTIC ENERGY RESERVE MODULE (DERM). 2. Has the DERM been replaced?	Go to "SIR Diagnostic System Check"	—

T3304

9J-82 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM



DTC 53

DERM DRIVER INITIATOR CIRCUITS HIGH RESISTANCE

Circuit Description:

During the "Initiator Assembly Resistance Test" the DERM grounds the "Driver Side Low" terminal "B8" and turns "ON" the driver current source at the "Driver Side High" terminal "B9." This causes a known amount of current to flow through the driver initiator circuit. By monitoring the difference between the voltage at the "Driver Side High" terminal "B9" and the "Driver Side Low" terminal "B8" the DERM calculates the combined resistance of the driver inflator module, SIR coil assembly, harness wiring CKTs 347A and 348A and connector terminal contact.

DTC Will Set When:

The voltage difference between "Driver Side High" terminal "B9" and "Driver Side Low" terminal "B8" is above a specified value and the voltage at "Driver Side Low" is within a specified range. This test is run once each ignition cycle during the "Initiator Assembly Resistance Test" when: 1) No "higher priority faults" are detected during "Turn-ON," 2) No "higher priority faults" are detected during "Continuous Monitoring" for one second, 3) No "Crank" signal present, 4) "Ignition 1" voltage is above a specified value.

Action Taken:

DERM turns "ON" the "AIR BAG" warning lamp and sets a diagnostic trouble code.

DTC Will Clear When:

The ignition switch is turned "OFF."

DTC Table Test Description:

Number(s) below refer to step number(s) on the diagnostic table.

1. The "SIR DIAGNOSTIC SYSTEM CHECK" must be the starting point of all diagnostics.
7. This test checks whether the malfunction is due to a high resistance or open in the "Driver Side Low" circuit.
9. This test checks whether the malfunction is due to a high resistance or open in the "Driver Side High" circuit.

Diagnostic Aids:

An intermittent condition is likely to be caused by a poor connection at DERM terminal "B8" or "B9," an open in CKT 347A or an open in CKT 348A. The test for this diagnostic trouble code is only run while the "AIR BAG" warning lamp is performing the bulb test. When a scan tool "Clear Codes" command is issued and the malfunction is still present, the DTC will not reappear until the next ignition cycle.

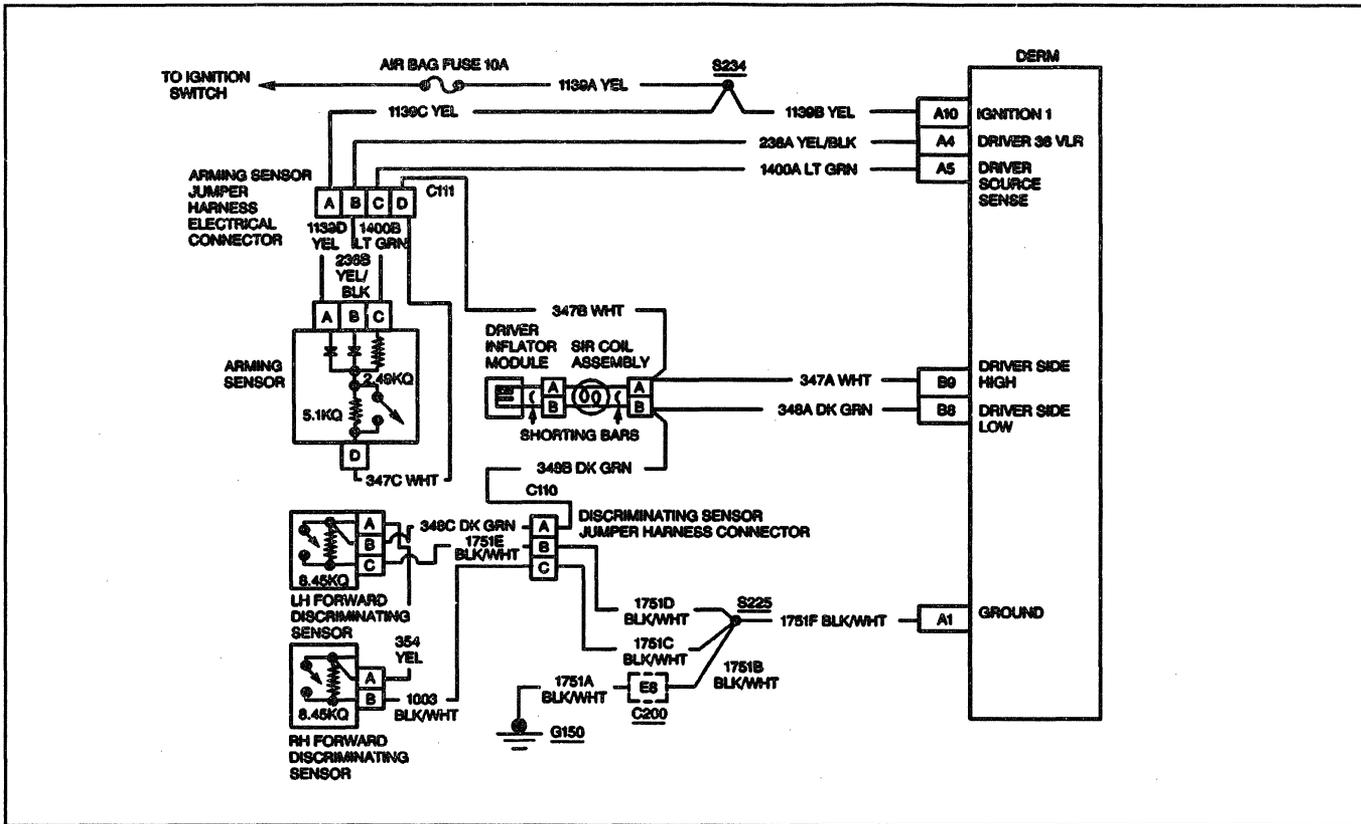
SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-83

SIR DTC 53 — DERM DRIVER INITIATOR CIRCUITS HIGH RESISTANCE

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
1	1. Was the "SIR Diagnostic System Check" performed?	Go to Step 2	Go to "SIR Diagnostic System Check"
2	1. Ignition switch "OFF." 2. Disconnect the yellow 2-way electrical connector at the base of the steering column. 3. Disconnect the DERM. 4. Check for proper connection to DERM at terminals "B8" and "B9." 5. Are the DERM electrical harness connector terminals damaged or corroded?	Go to Step 3	Go to Step 5
3	1. Repair the DERM electrical harness connector. 2. Has the connector been repaired?	Go to Step 4	—
4	1. Check for proper connection to the DERM at terminals "B8" and "B9." 2. Are the DERM terminals damaged or corroded?	Go to Step 6	Go to Step 11
5	1. Check for proper connection to the DERM at terminals "B8" and "B9." 2. Are the DERM terminals damaged or corroded?	Go to Step 6	Go to Step 7
6	1. Replace the DERM. Refer to ON-VEHICLE SERVICE, DIAGNOSTIC ENERGY RESERVE MODULE (DERM). 2. Has the DERM been replaced?	Go to Step 11	—
7	1. Measure the resistance from the DERM electrical harness connector terminal "B8" to the yellow 2-way electrical connector at the base of the steering column terminal "B." 2. Is the resistance 5.0 ohms or less?	Go to Step 9	Go to Step 8
8	1. Repair the open or high resistance in CKT 348A. 2. Has the open circuit been repaired?	Go to Step 11	—
9	1. Measure the resistance from the DERM electrical harness connector terminal "B9" to the yellow 2-way electrical connector at the base of the steering column terminal "A." 2. Is the resistance 5.0 ohms or less?	Go to Table A	Go to Step 10
10	1. Repair the open or high resistance in CKT 347A. 2. Has the open circuit been repaired?	Go to Step 11	—
11	1. Reconnect all the SIR system components. 2. Ensure the components are properly mounted. 3. Have all the SIR system components been reconnected and properly mounted?	Go to Step 12	—
12	1. Clear the SIR Diagnostic Trouble Codes. 2. Have the SIR Diagnostic Trouble Codes been cleared?	Go to "SIR Diagnostic System Check"	—

9J-84 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM



DTC 55

DERM INCOMPATIBILITY

Circuit Description:

When "Ignition 1" voltage is first applied to the DERM it will perform "Turn-ON" tests followed by "Continuous Monitoring" for one second. The DERM also monitors "Driver Side Low" terminal "B8" to ensure that voltage is being applied to the inflator module and monitors "Driver Source Sense" terminal "A5" to ensure that "Driver 36 VLR" is supplying voltage to the deployment loop. Ground is applied at terminal "B7" (passenger side low for a Driver/Passenger DERM) and the voltage is measured at "Driver Side Low" and at terminal "A6" (passenger source sense for a Driver/Passenger DERM). When grounding terminal "B7" grounds "Driver Side Low" or voltage is measured at terminal "A6," DTC 55 is set.

DTC Will Set When:

The conditions described above indicate a Driver/Passenger DERM has been installed in the vehicle. This test is run once each ignition cycle during the "Initiator Assembly Resistance Test" when: 1) No "higher priority faults" are detected during "Turn-ON," 2) No "higher priority faults" are detected during "Continuous Monitoring" for one second, 3) No "Crank" signal present, 4) "Ignition 1" voltage is above a specified value.

Action Taken:

DERM turns "ON" the "AIR BAG" warning lamp and sets a diagnostic trouble code.

DTC Will Clear When:

The ignition switch is turned "OFF."

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-85

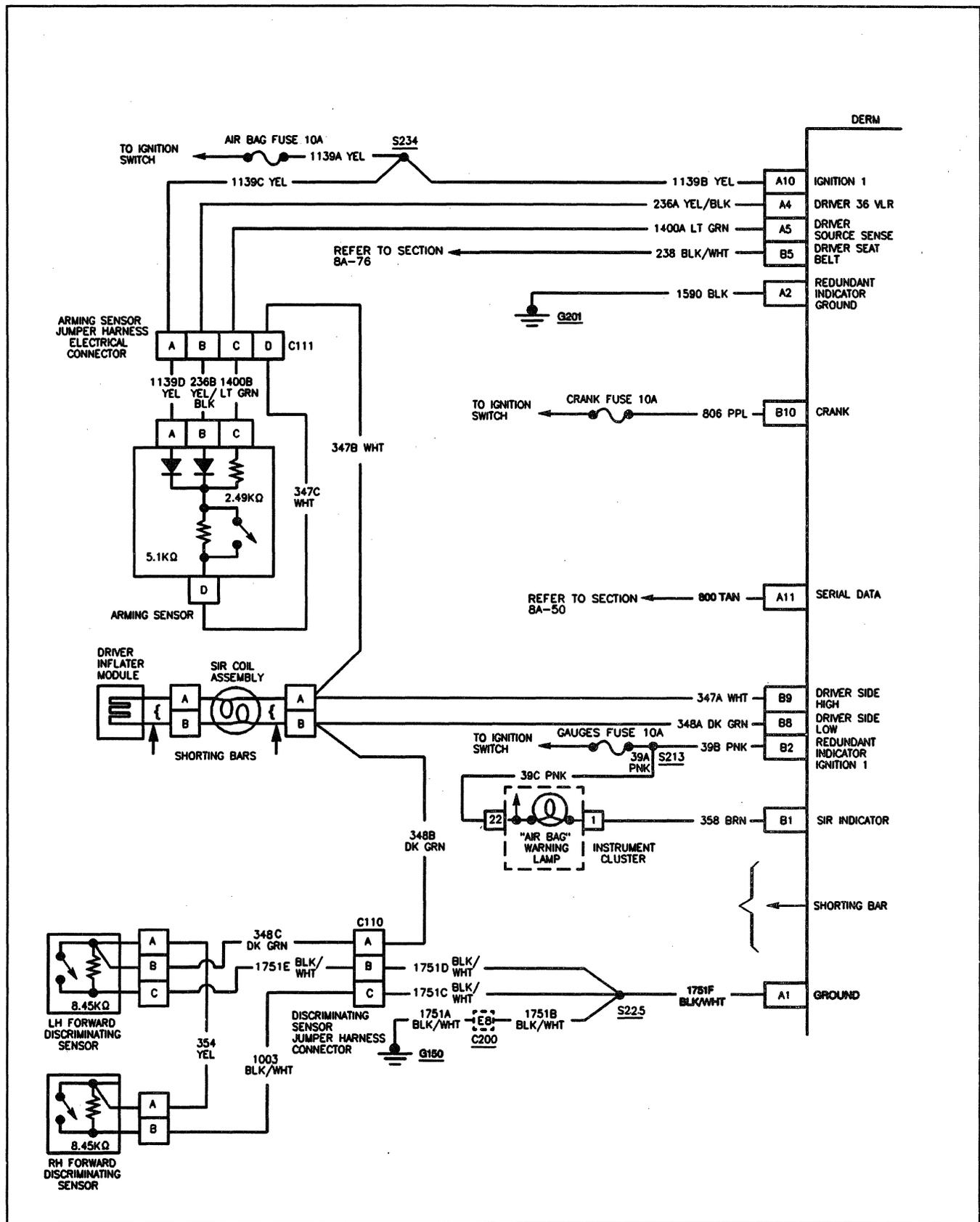
SIR DTC 55 — DERM INCOMPATIBILITY

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
1	1. Was the "SIR Diagnostic System Check" performed?	Go to Step 2	Go to "SIR Diagnostic System Check"
2	1. Replace the DERM. Refer to ON-VEHICLE SERVICE, DIAGNOSTIC ENERGY RESERVE MODULE (DERM). 2. Has the DERM been replaced?	Go to "SIR Diagnostic System Check"	—

T3305

9J-86 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM



DTC 61

SIR INDICATOR CIRCUIT FAILURE

Circuit Description:

When the ignition switch is first turned "ON" battery voltage is applied to the "AIR BAG" warning lamp and to the "Ignition 1" input terminal "A10." The DERM responds by flashing the "AIR BAG" warning lamp seven times alternating between the primary and redundant lamp drivers. The DERM monitors the primary lamp driver output by comparing the output state at "SIR Indicator" terminal "B1" to the microprocessor commanded state. When "Ignition 1" is above a specified value and the output state does not match the commanded state of the primary lamp driver for 400 milliseconds, DTC 61 is set.

DTC Will Set When:

"Ignition 1" voltage is above a specified value and the output state at the "SIR Indicator" terminal "B1" does not match the commanded state of the primary lamp driver for 400 milliseconds during "Continuous Monitoring."

Action Taken:

DERM attempts to turn "ON" the "AIR BAG" warning lamp using the redundant lamp driver and sets a diagnostic trouble code.

DTC Will Clear When:

The ignition switch is turned "OFF."

DTC Table Test Description:

Number(s) below refer to step number(s) on the diagnostic table.

1. The "SIR DIAGNOSTIC SYSTEM CHECK" must be the starting point for all diagnostics.
2. When the DERM is configured for a serial data controlled warning lamp (smart cluster) DTC 61 will set. Clearing SIR diagnostic trouble codes will reset the DERM allowing the lamp driver in the DERM to control the "AIR BAG" warning lamp.

Diagnostic Aids:

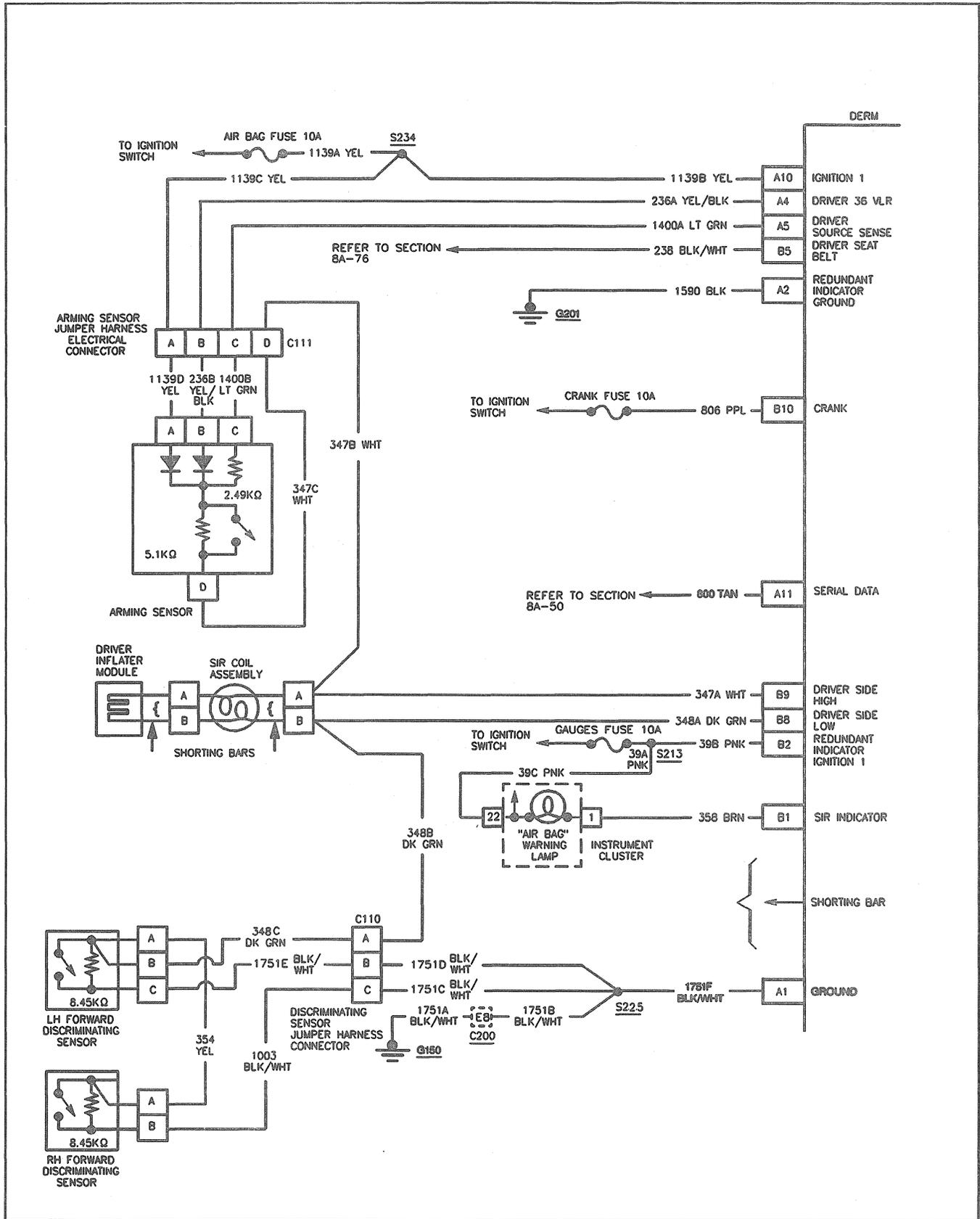
Refer to TABLE B and TABLE C to diagnose warning lamp circuit malfunctions.

SIR DTC 61 — SIR INDICATOR CIRCUIT FAILURE

MALFUNCTIONS WITHIN THE "AIR BAG" WARNING LAMP CIRCUITRY WILL SET THIS DIAGNOSTIC TROUBLE CODE. THESE MALFUNCTIONS ARE ADDRESSED IN THE "SIR DIAGNOSTIC SYSTEM CHECK" VIA TABLE B AND TABLE C. FAILURE TO PROPERLY PERFORM THE "SIR DIAGNOSTIC SYSTEM CHECK" MAY RESULT IN MISDIAGNOSIS OF A MALFUNCTIONING DERM.

Step	Action	Yes	No
1	1. Was the "SIR Diagnostic System Check" performed?	Go to Step 2	Go to "SIR Diagnostic System Check"
2	1. Ignition switch "ON." 2. Clear the SIR Diagnostic Trouble Codes. 3. Is DTC 61 set?	Go to Table A	Go to "SIR Diagnostic System Check"

9J-88 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM



DTC 62

REDUNDANT SIR INDICATOR CIRCUIT FAILURE

Circuit Description:

When the ignition switch is first turned "ON" battery voltage is applied to the "AIR BAG" warning lamp and to the "Ignition 1" input terminal "A10." The DERM responds by flashing the "AIR BAG" warning lamp seven times alternating between the primary and redundant lamp drivers. The DERM monitors the redundant lamp driver output by comparing the output state at "SIR Indicator" terminal "B1" to the microprocessor commanded state. When "Ignition 1" is above a specified value and the output state does not match the commanded state of the redundant lamp driver for 400 milliseconds, DTC 62 is set.

DTC Will Set When:

"Ignition 1" voltage is above a specified value and the output state at the "SIR Indicator" terminal "B1" does not match the commanded state of the redundant lamp driver for 400 milliseconds during "Continuous Monitoring."

Action Taken:

DERM attempts to turn "ON" the "AIR BAG" warning lamp using the primary lamp driver and sets a diagnostic trouble code.

DTC Will Clear When:

The ignition switch is turned "OFF."

DTC Table Test Description:

Number(s) below refer to step number(s) on the diagnostic table.

1. The "SIR DIAGNOSTIC SYSTEM CHECK" must be the starting point of all diagnostics.
8. This test checks for an open in the "Redundant Indicator Ground" circuit.
10. This test checks for an open in the "Redundant Indicator Ignition 1" circuit.

Diagnostic Aids:

An intermittent condition is likely to be caused by a poor connection to the DERM at terminal "A2" or "B2," an open in CKT 1590 or an open in CKT 39B.

SIR DTC 62 — REDUNDANT SIR INDICATOR CIRCUIT FAILURE

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
1	1. Was the "SIR Diagnostic System Check" performed?	Go to Step 2	Go to "SIR Diagnostic System Check"
2	1. Is DTC 61 also set?	Go to DTC 61	Go to Step 3
3	1. Ignition switch "OFF." 2. Disconnect the yellow 2-way electrical connector at the base of the steering column. 3. Disconnect the DERM. 4. Check for proper connection to the DERM at terminals "A2" and "B2." 5. Are the DERM electrical harness connector terminals damaged or corroded?	Go to Step 4	Go to Step 6
4	1. Repair the DERM electrical harness connector. 2. Has the connector been repaired?	Go to Step 5	—
5	1. Check for proper connection to the DERM at terminals "A2" and "B2." 2. Are the DERM terminals damaged or corroded?	Go to Step 7	Go to Step 12
6	1. Check for proper connection to the DERM at terminals "A2" and "B2." 2. Are the DERM terminals damaged or corroded?	Go to Step 7	Go to Step 8

9J-90 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM

SIR DTC 62 — REDUNDANT SIR INDICATOR CIRCUIT FAILURE

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
7	1. Replace the DERM. Refer to ON-VEHICLE SERVICE, DIAGNOSTIC ENERGY RESERVE MODULE (DERM). 2. Has the DERM been replaced?	Go to Step 12	—
8	1. Measure the resistance on the DERM electrical harness connector from terminal "A2" (ground) to terminal "A1" (ground). 2. Is the resistance 5.0 ohms or less?	Go to Step 10	Go to Step 9
9	1. Repair the open in CKT 1591. 2. Has the open circuit been repaired?	Go to Step 12	—
10	1. Ignition switch "ON." 2. Measure the voltage on the DERM electrical harness connector from terminal "B2" to terminal "A1" (ground). 3. Is the voltage 1 volt or less?	Go to Step 11	Go to Table A
11	1. Ignition switch "OFF." 2. Repair the open in CKT 39B. 3. Has the open circuit been repaired?	Go to Step 12	—
12	1. Reconnect all the SIR system components. 2. Ensure the components are properly mounted. 3. Have all the SIR system components been reconnected and properly mounted?	Go to Step 13	—
13	1. Clear the SIR Diagnostic Trouble Codes. 2. Have the SIR Diagnostic Trouble Codes been cleared?	Go to "SIR Diagnostic System Check"	—

T3485

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SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-93

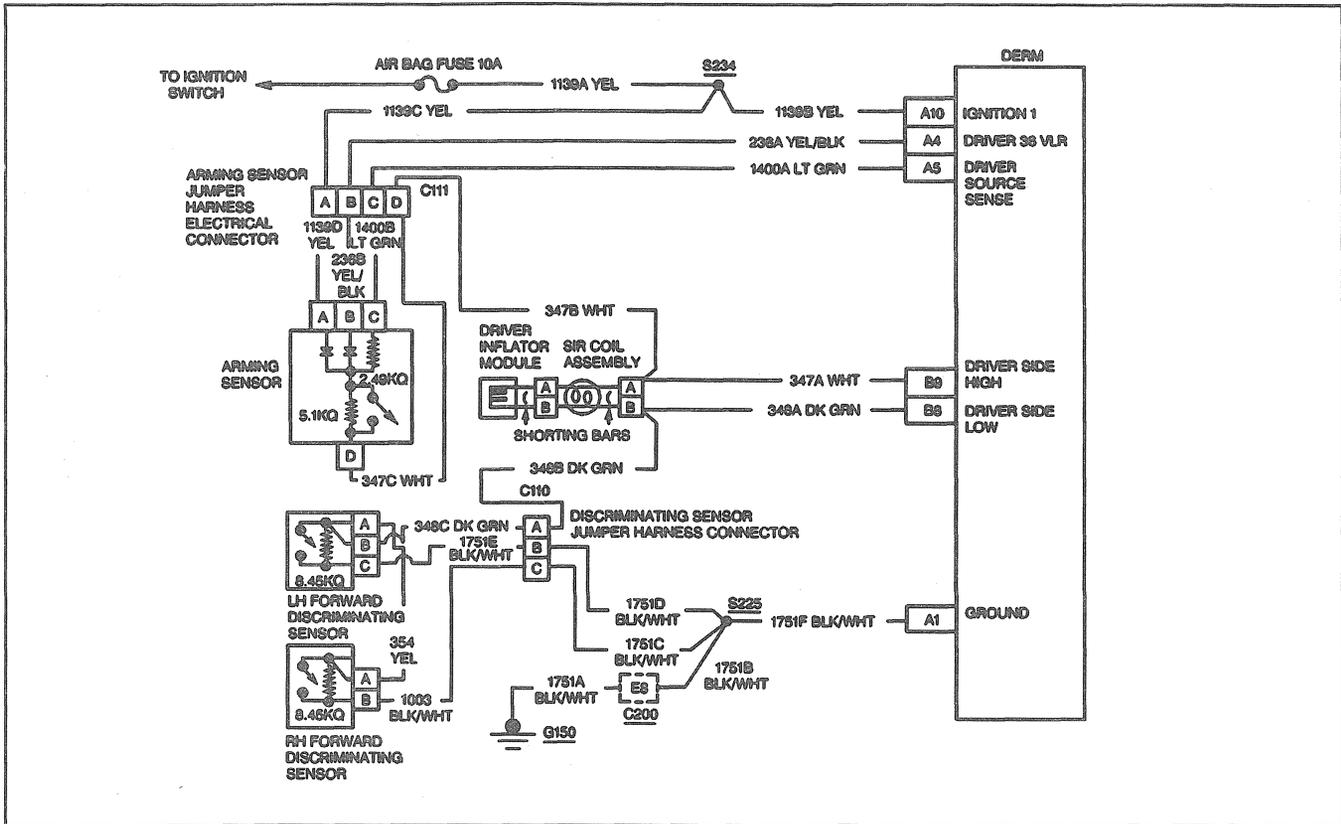
SIR DTC 71 & 75 — INTERNAL DERM FAULT

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
1	1. Was the "SIR Diagnostic System Check" performed?	Go to Step 2	Go to "SIR Diagnostic System Check"
2	1. Replace the DERM. Refer to ON-VEHICLE SERVICE, DIAGNOSTIC ENERGY RESERVE MODULE (DERM). 2. Has the DERM been replaced?	Go to "SIR Diagnostic System Check"	—

T3307

9J-94 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM



HISTORY DTC 83

DRIVER RESERVE DIODE SHORTED

Circuit Description:

During the "Turn-ON" tests, performed at the beginning of each ignition cycle, the DERM delays the charging of the "Driver 36 VLR" power supply. While the delay is active the DERM measures the voltage at the "Driver 36 VLR" terminal "A4," and "Driver Source Sense" terminal "A5." When the driver reserve diode is shorted "Ignition 1" voltage is measured at "Driver 36 VLR" from the forward biased driver ignition diode. When the voltage measured at "Driver 36 VLR" is within a specified range of "Ignition 1" voltage for eight consecutive "Turn-ON" tests History DTC 83 is set.

DTC Will Set When:

The voltage measured at "Driver 36 VLR" terminal "A4" is within a specified range of "Ignition 1" voltage for eight consecutive "Turn-ON" tests and no "higher priority faults" are detected. This test is run once each ignition during the "Turn-ON" test while the "36 VLR delay" is active.

Action Taken:

DERM sets a history diagnostic trouble code.

DTC Will Clear When:

The voltage measured at "Driver 36 VLR" terminal "A4" indicated that the power supply is in a discharged state (measured voltage equals zero) during "Turn-ON" tests.

DTC Table Test Description:

Number(s) below refer to step number(s) on the diagnostic table.

2. This test determines whether the malfunction is due to a shorted driver reserve diode within the arming sensor.

Diagnostic Aids:

This diagnostic trouble code will not set as a current DTC. Therefore follow the DTC table to diagnose this malfunction.

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-95

SIR DTC 83 - DRIVER RESERVE DIODE SHORTED

WHEN MEASUREMENTS ARE REQUESTED IN THIS TABLE, USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A AND REFER TO "WIRING REPAIR" IN THIS SECTION.

Step	Action	Yes	No
1	1. Was the "SIR Diagnostic System Check" performed?	Go to Step 2	Go to "SIR Diagnostic System Check"
2	1. Ignition switch "OFF." 2. Disconnect the yellow 2-way electrical connector at the base of the steering column and connect the harness side of the connector to SIR Driver/Passenger load tool J 38715. 3. Disconnect the DERM. 4. Ignition switch "ON." 5. Measure the voltage on the DERM electrical harness connector from terminal "A4" to terminal "A1" (ground). 6. Is the voltage 1 volt or less?	Go to Table A	Go to Step 3
3	1. Ignition switch "OFF." 2. Disconnect J 38715. 3. Replace the Arming Sensor. Refer to ON-VEHICLE SERVICE, ARMING SENSOR. 4. Has the sensor been replaced?	Go to Step 4	—
4	1. Reconnect all the SIR system components. 2. Ensure the components are properly mounted. 3. Have all the SIR system components been reconnected and properly mounted?	Go to Step 5	—
5	1. Clear the SIR Diagnostic Trouble Codes. 2. Have the SIR Diagnostic Trouble Codes been cleared?	Go to "SIR Diagnostic System Check"	—

T3487

ON-VEHICLE SERVICE

SERVICE PRECAUTIONS

CAUTION: When performing service on or around SIR components or SIR wiring, follow the procedures listed below to temporarily disable the SIR system. Failure to follow procedures could result in possible air bag deployment, personal injury or otherwise unneeded SIR system repairs.

The DERM can maintain sufficient voltage to cause a deployment for up to 2 minutes after the ignition switch is turned "OFF," the battery is disconnected, or the fuse powering the DERM is removed.

Many of the service procedures require removal of the "AIR BAG" fuse, and disconnection of the inflator module from the deployment loop to avoid an accidental deployment. If the inflator module is disconnected from the deployment loop as noted in the "Disabling the SIR System" procedure that follows, service can begin immediately without waiting for the 2 minute time period to expire.

Disabling the SIR System

↔ Remove or Disconnect (Figure 8)

- Turn the steering wheel so that the vehicle's wheels are pointing straight ahead.
- Turn the ignition switch to "LOCK" and remove key.

1. "AIR BAG" fuse from fuse block.
2. Knee bolster. Refer to SECTION 10A4.
3. Connector Position Assurance (CPA) and yellow 2-way connector at the base of the steering column.

! Important

- With the "AIR BAG" fuse removed and ignition switch "ON," the "AIR BAG" warning lamp will be "ON." This is normal operation and does not indicate an SIR system malfunction.

Enabling the SIR System

→← Install or Connect (Figure 8)

- Turn ignition switch to "LOCK" and remove key.
1. Yellow 2-way connector at the base of the steering column and Connector Position Assurance (CPA).
 2. Knee bolster. Refer to SECTION 10A4.

3. "AIR BAG" fuse to fuse block.

- Staying well away from the inflator module, turn ignition switch to "RUN" and verify that the "AIR BAG" warning lamp flashes seven times and then turns "OFF." If it does not operate as described, perform the "SIR Diagnostic System Check" in this section.

Handling/Installation/Diagnosis

1. Inflator modules should not be subjected to temperatures above 65°C (150°F).
2. Discriminating sensors, inflator modules, arming sensors, or DERMs should not be used if they have been dropped from a height of 91.4 centimeters (3 feet) or greater.
3. When a discriminating sensor or arming sensor is replaced, it MUST be oriented with the arrow on the sensor pointing toward the front of the vehicle. It is very important for the discriminating sensors and arming sensor to be located flat on the mounting surface, parallel to the vehicle datum line. It is important that the sensor mounting surface is free of any dirt or other foreign material.
4. Do not apply power to the SIR system unless all components are connected or a diagnostic table requests it, as this will set a diagnostic trouble code.
5. The "SIR Diagnostic System Check" must be the starting point of any SIR diagnostics. The "SIR Diagnostic System Check" will verify proper "AIR BAG" warning lamp operation and will lead you to the correct table to diagnose any SIR malfunctions. **Bypassing these procedures may result in extended diagnostic time, incorrect diagnosis, and incorrect parts replacements.**

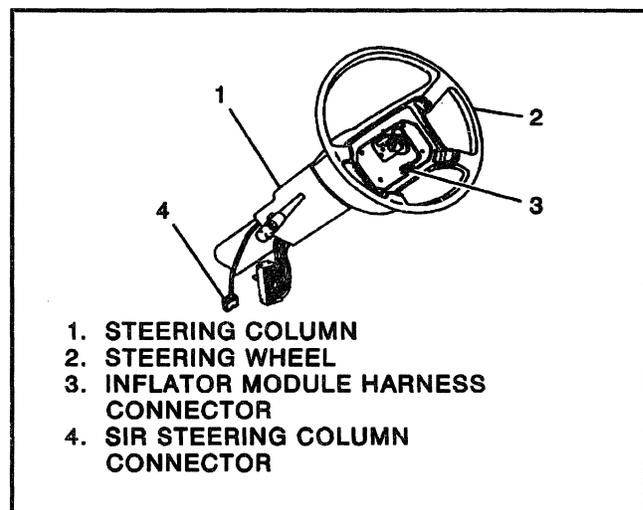


Figure 8—Yellow 2-Way SIR Connector

REPAIRS AND INSPECTIONS REQUIRED AFTER AN ACCIDENT

Important

- If any SIR system components are damaged, they must be replaced. If SIR component mounting points are damaged, they must be repaired or replaced.
- Never use SIR parts from another vehicle. This does not include remanufactured parts purchased from an authorized GM dealer; they may be used for SIR repairs.
- Do not attempt to service discriminating sensors, the arming sensor, the DERM, the SIR coil assembly, or the inflator module. Service of these items is by replacement only.
- Verify the part number of replacement inflator module. Some GM inflator modules look identical but contain different internal components.
- After a deployment has occurred, SIR diagnostic trouble codes must be cleared using a scan tool "Clear Codes" command. This must be done to cause the "AIR BAG" warning lamp to go "OFF."

CAUTION: Proper operation of the sensors and Supplemental Inflatable Restraint (SIR) system requires that any repairs to the vehicle structure return it to the original production configuration. Deployment requires, at a minimum, replacement of the sensors in the area of accident damage, the inflator module, and dimensional inspection of the steering column. Any visible damage to the DERM mounting bracket(s) requires replacement, sensors in the area of accident damage must be replaced, and the steering column must be dimensionally inspected, whether deployment occurred or not.

Accident With Deployment - Component Replacement and Inspections

Certain SIR components must be replaced or inspected for damage after a frontal crash involving air bag deployment. Those components are:

- Inflator module.
- Sensors, if in the area of accident damage.

Important

- Refer to "Sensor Replacement Guidelines" below for important information on sensor replacement in both deployment and non-deployment crashes.
- SIR coil assembly - Inspect wiring and connector for any signs of scorching, melting, or damage due to excessive heat. Replace if damaged. Refer to SECTION 3F4 or 3F5.

Accident With or Without Deployment - Component Inspections

Certain SIR and restraint system components must be inspected after any crash, whether the air bag deployed or not. Those components are:

- Steering column - Dimensionally inspect per "Checking Steering Column for Accident Damage" in SECTION 3F4 or 3F5.
- Sensors, if in the area of accident damage.

Important

- Refer to "Sensor Replacement Guidelines" below for important information on sensor replacement in both deployment and non-deployment crashes.
- Knee bolster and mounting points - Inspect for any distortion, bending, cracking, or other damage.
- I/P steering column reinforcement plate - Inspect for any distortion, bending, cracking, or other damage.
- I/P braces - Inspect for any distortion, bending, cracking, or other damage.
- Seat belts and mounting points - Refer to "Seat Belts" in SECTION 10A2.

Sensor Replacement Guidelines

SIR sensor replacement policy requires replacement of the sensors in the area of accident damage only.

The "area of accident damage" is defined as that area of the vehicle which is crushed, bent, or damaged in other ways. An example might be a significant front-end collision in which the forward portions of the vehicle have contacted another vehicle, tree, guardrail, etc. In this example, a sensor on the front of the vehicle, such as the radiator tie bar, would require replacement, since that portion of the vehicle was damaged in the accident.

Sensors in the area of accident damage should be replaced even if those sensors do not appear to be damaged. Do not attempt to determine whether a sensor is OK—ALWAYS replace it if it is in the area of accident damage.

Also, if a sensor is in an area of accident damage, but the SIR system has NOT been deployed, replace the sensor. The sensor bracket may be slightly bent, wiring may be damaged, etc., and the sensor might not work properly in another collision. Again, do not attempt to determine whether a sensor is OK—ALWAYS replace it if it is in the area of accident damage.

FORWARD DISCRIMINATING SENSORS (RH AND LH)

Caution should be used to ensure proper location of sensors to the mounting brackets. The keying of the sensors through the wiring harness connectors must not be modified for any reason.

9J-98 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM

CAUTION: During service procedures, be very careful when handling a sensor. Never strike or jar a sensor. Under some circumstances, it could cause deployment and result in personal injury or improper operation of the Supplemental Inflation Restraint (SIR) system. All sensors and mounting bracket bolts must be carefully torqued to assure proper operation. Never power up the SIR system when any sensor is not rigidly attached to vehicle, since the sensor could be activated when not attached and could result in deployment.

↔ Remove or Disconnect (Figures 9 and 10)

- Disable the SIR system. Refer to "Disabling the SIR System" in this section.
1. Sensor electrical connector from retainer, Connector Position Assurance (CPA) lock from connector, and disconnect connector.
 2. Sensor mounting bolts.
 3. Sensor from vehicle.

! Important

- The following procedures should be utilized in the event that sensor mounting holes or fasteners are damaged to the extent that the sensor can no longer be properly mounted.

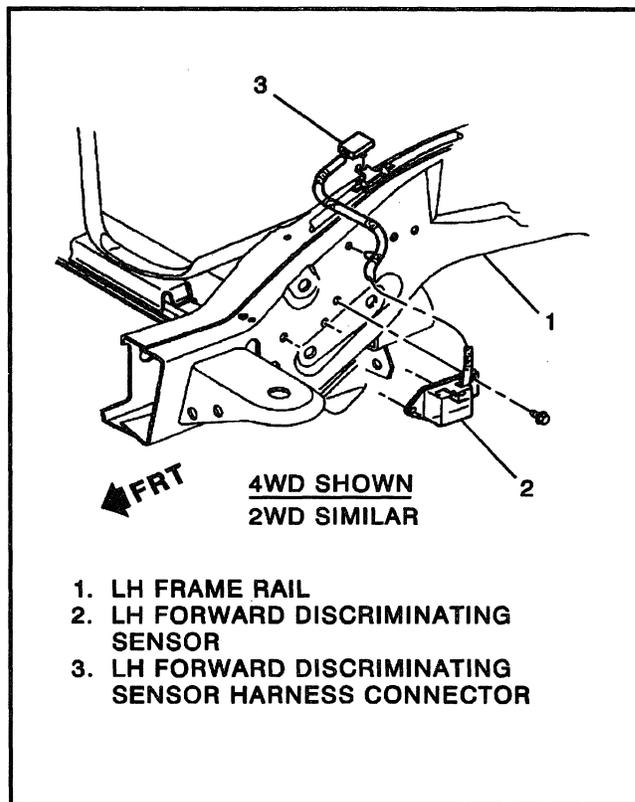


Figure 10—LH Forward Discriminating Sensor (4WD)

First Repair

1. Remove stripped fastener and discard.
2. Enlarge mounting holes to 9 mm (0.35 inch).
3. Attach sensor with M8 fastener (part #11515210), and hex nut (part #15672934).

⌚ Tighten

- Fastener to 14.5 N·m (10.7 lb. ft.)

Second Repair

1. Remove stripped fastener and discard.
2. Enlarge 9mm (0.35 inch) mounting holes in sensors to 11 mm (0.433 inch).
3. Enlarge hole in frame to 9.0 mm (0.35 inch).
4. Attach sensor with M10x1.5x16 fastener, (part #11515215).

⌚ Tighten

- Fastener to 14.5 N·m (10.7 lb. ft.)

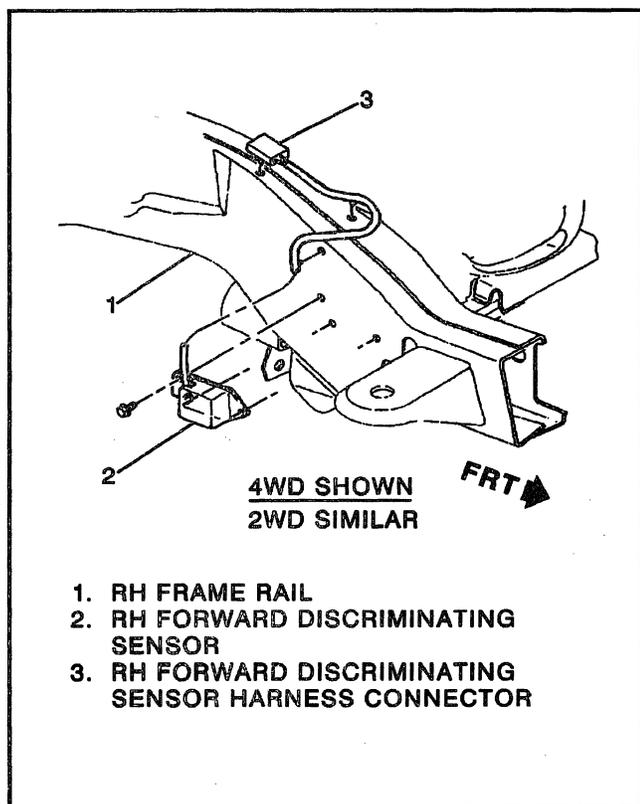


Figure 9—RH Forward Discriminating Sensors (4WD)

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-99

Install or Connect

NOTICE: Refer to "NOTICE" on page 9J-1.

1. Sensor to vehicle, ensure arrow is pointed toward the front of the vehicle.
2. Sensor mounting bolts.

Tighten

- Fastener to 14.5 N.m (10.7 lb. ft.)
3. Sensor harness to retainer.
 4. Reconnect sensor electrical connector, connector position assurance (CPA) lock, and connector to retainer.
- Enable the SIR system. Refer to "Enabling the SIR System" in this section.

ARMING SENSOR

CAUTION: During service procedures, be very careful when handling a sensor. Never strike or jar a sensor. Under some circumstances, it could cause deployment and result in personal injury or improper operation of the Supplemental Inflatable Restraint (SIR) system. All sensors and mounting bracket bolts must be carefully torqued to ensure proper operation. Never power up the SIR system when any sensor is not rigidly attached to vehicle, since the sensor could be activated when not attached and could result in deployment.

Remove or Disconnect (Figure 11)

- Disable the SIR system. Refer to "Disabling the SIR System" in this section.
1. Sensor electrical connector from retainer, connector position assurance (CPA) lock from connector, and disconnect connector.
 2. Sensor mounting bolts.
 3. Sensor from vehicle.

Important

- The following procedures should be utilized in the event that sensor mounting holes or fasteners are damaged to the extent that the sensor can no longer be properly mounted.

First Repair

1. Remove stripped fastener and discard.
2. Enlarge mounting holes to 9 mm (0.35 inch).
3. Attach sensor with M8 fastener (part #11515210), and hex nut (part # 15672934).

Tighten

- Fastener to 14.5 N.m (10.7 lb. ft.)

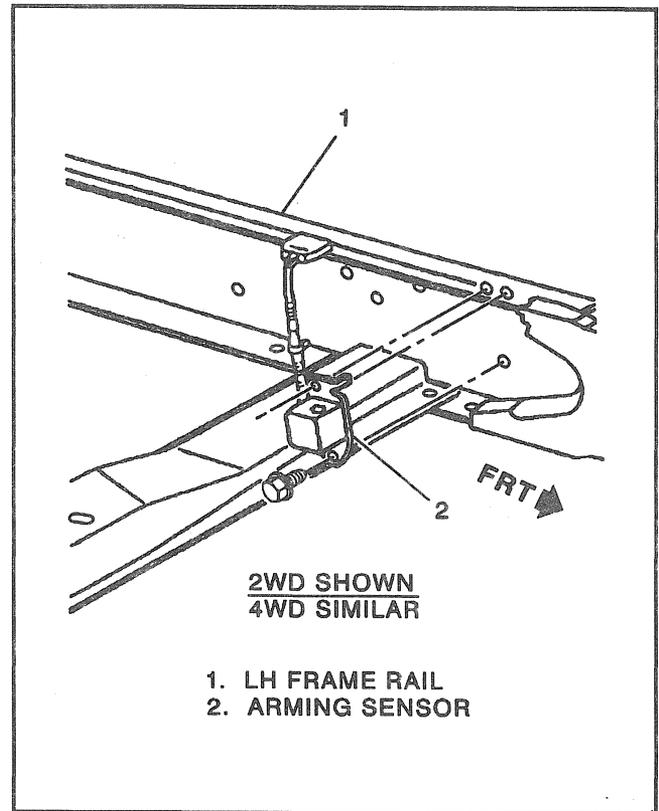


Figure 11—Arming Sensor (2WD)
Second Repair

1. Remove stripped fastener and discard.
2. Enlarge 9mm (0.35 inch) mounting holes in sensors to 11 mm (0.433 inch).
3. Enlarge hole in frame to 9.0 mm (0.35 inch).
4. Attach sensor with M10x1.5x16 fastener, (part #11515215).

Tighten

- Fastener to 14.5 N.m (10.7 lb. ft.)

Install or Connect

NOTICE: Refer to "NOTICE" on page 9J-1.

1. Sensor to vehicle, ensure arrow is pointed toward the front of the vehicle.
2. Sensor mounting bolts.

Tighten

- Fastener to 14.5 N.m (10.7 lb. ft.)
3. Sensor harness to retainer.
 4. Reconnect sensor electrical connector, connector position assurance (CPA) lock, and connector to retainer.
- Enable the SIR system. Refer to "Enabling the SIR System" in this section.

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DIAGNOSTIC ENERGY RESERVE MODULE (DERM)

NOTICE: Do not open the DERM case for any reason. Touching the connector pins or soldered components may cause electrostatic discharge damage. Repair of a malfunctioning DERM is by replacement only.



Remove or Disconnect (Figure 12)

- Disable the SIR system. Refer to "Disabling the SIR System" in this section.

1. DERM from mounting bracket.
2. Connector Position Assurance (CPA) lock and DERM electrical connector from DERM.



Install or Connect

1. DERM electrical connector to DERM and Connector Position Assurance (CPA) lock.

2. DERM to mounting bracket.

- Enable the SIR system. Refer to "Enabling the SIR System" in this section.

"AIR BAG" WARNING LAMP

Refer to "Indicator Lamps" in SECTION 8C.

INFLATOR MODULE

Refer to SECTION 3F.

SIR COIL ASSEMBLY

Refer to SECTION 3F4 or 3F5.

INFLATOR MODULE HANDLING/SHIPPING/SCRAPPING

Live (Undeployed) Inflator Module

Figure 13

Special care is necessary when handling and storing a live (undeployed) inflator module. The rapid gas generation produced during deployment of the air bag could cause the inflator module, or an object in front of the inflator module, to be thrown through the air in the unlikely event of an accidental deployment.

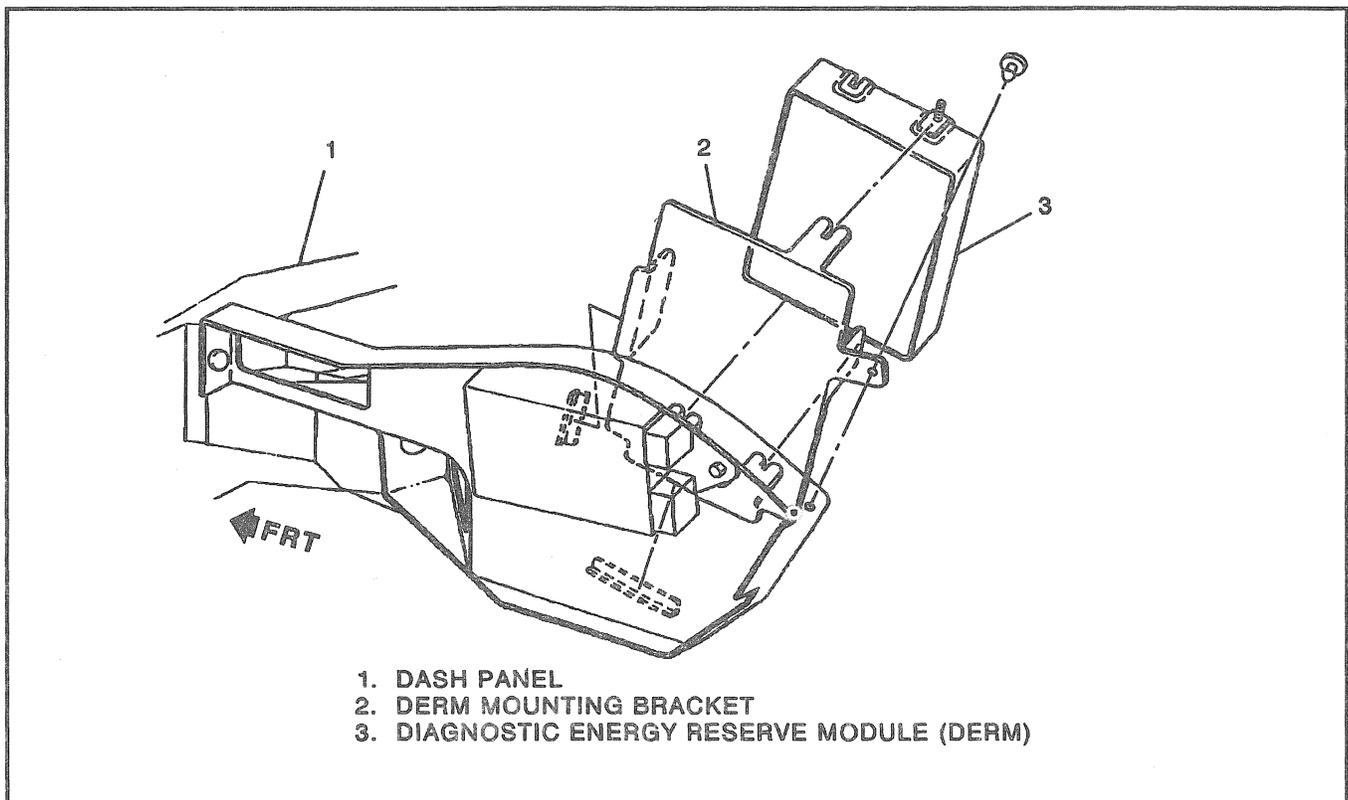


Figure 12—DERM Mounting

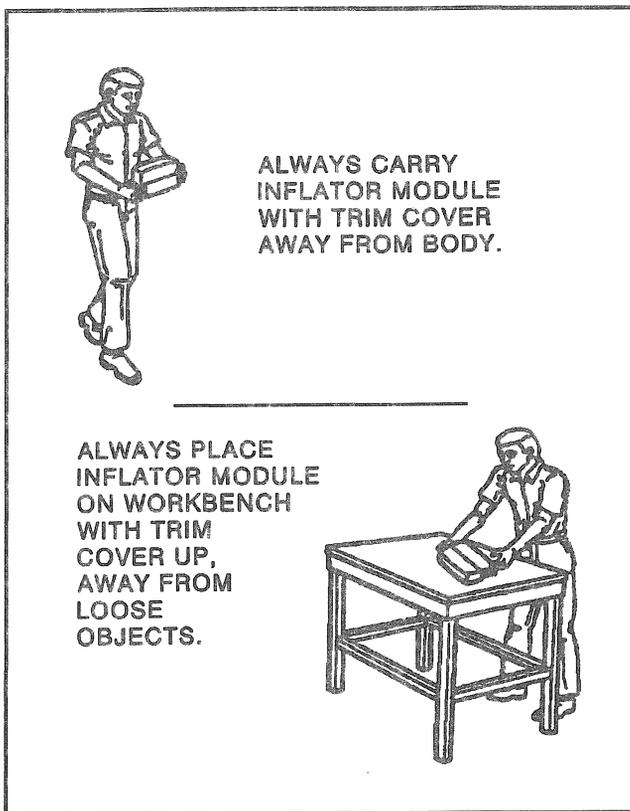


Figure 13—Proper Live Inflator Module Handling

CAUTION: When carrying a live inflator module, 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. Never carry the inflator module by the wires or connector on the underside of the module. When placing a live inflator module on a bench or other surface, always face the bag and trim cover up, 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.

Never rest a steering column assembly on the steering wheel with the inflator module face down and column vertical. Otherwise, personal injury may result.

Shipping Procedures For Live (Undeployed) Inflator Modules

Service personnel should refer to the latest Service Bulletins for proper SIR inflator module shipping procedures.

Inflator Module Scrapping Procedure

During the course of a vehicle's useful life, certain situations may arise which will necessitate the disposal of a live (undeployed) inflator module. This information covers proper procedures for disposing of a live inflator module.

Before a live inflator module can be disposed of, it must be deployed. Live inflator modules must not be disposed of through normal refuse channels.

CAUTION: Failure to follow proper Supplemental Inflatable Restraint (SIR) inflator module disposal procedures can result in air bag deployment which may cause personal injury. Undeployed inflator modules must not be disposed of through normal refuse channels. The undeployed inflator module contains substances that can cause severe illness or personal injury if the sealed container is damaged during disposal. Disposal in any manner inconsistent with proper procedures may be a violation of federal, state, and/or local laws.

If a vehicle is the subject of a Product Liability Report related to the SIR system and is subject to a Preliminary Investigation (GM-1241), DO NOT DEPLOY the inflator module and DO NOT ALTER the SIR system in any manner. Refer to the applicable service bulletin on SIR shipping procedures for details on handling SIR systems involved with GM-1241. If a vehicle is the subject of a campaign affecting inflator modules, DO NOT DEPLOY the inflator module. Follow instructions in the Campaign Service Bulletin for proper disposition of the inflator module.

If an inflator module is replaced under warranty, DO NOT DEPLOY the air bag. The inflator module may need to be returned, undeployed, to Inland Fisher Guide. Refer to procedures shown in the appropriate service bulletin regarding SIR shipping procedures.

In situations which require deployment of a live inflator module, deployment may be accomplished inside or outside the vehicle. The method employed depends upon the final disposition of the particular vehicle, as noted in "Deployment Outside Vehicle" and "Deployment Inside Vehicle" in this section.

Deployment Outside Vehicle

Figures 14 through 21

Deployment outside the vehicle is proper when the vehicle is to be returned to service. This includes, for example, situations in which the vehicle will be returned to useful service after a functionally or cosmetically deficient inflator module is replaced. Deployment and disposal of a malfunctioning inflator module is, of course, subject to any required retention period.

For deployment of a live (undeployed) inflator module outside the vehicle, the deployment procedure must be followed exactly. Always wear safety glasses during this deployment procedure until a deployed inflator module is scrapped or until an undeployed inflator module is shipped.

Before performing the procedures you should be familiar with servicing the SIR system and with proper handling of the inflator module. Procedures should be read fully before they are performed.

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CAUTION: SIR DEPLOYMENT HARNESS SHALL REMAIN SHORTED AND NOT BE CONNECTED TO A POWER SOURCE UNTIL THE AIR BAG IS TO BE DEPLOYED.

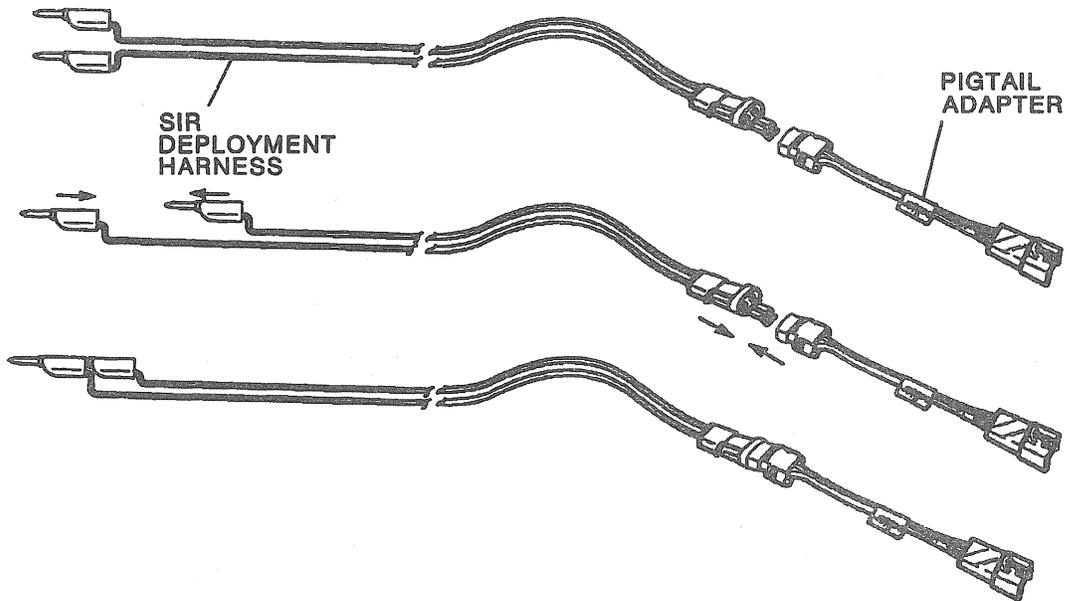


Figure 14—Shorting the SIR Deployment Harness Wires

VINYL TRIM COVER MUST FACE UP

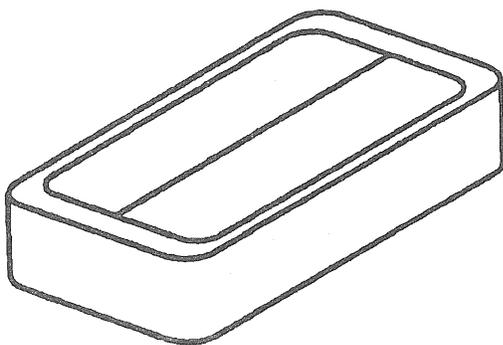


Figure 15—Proper Storage of Inflator Module

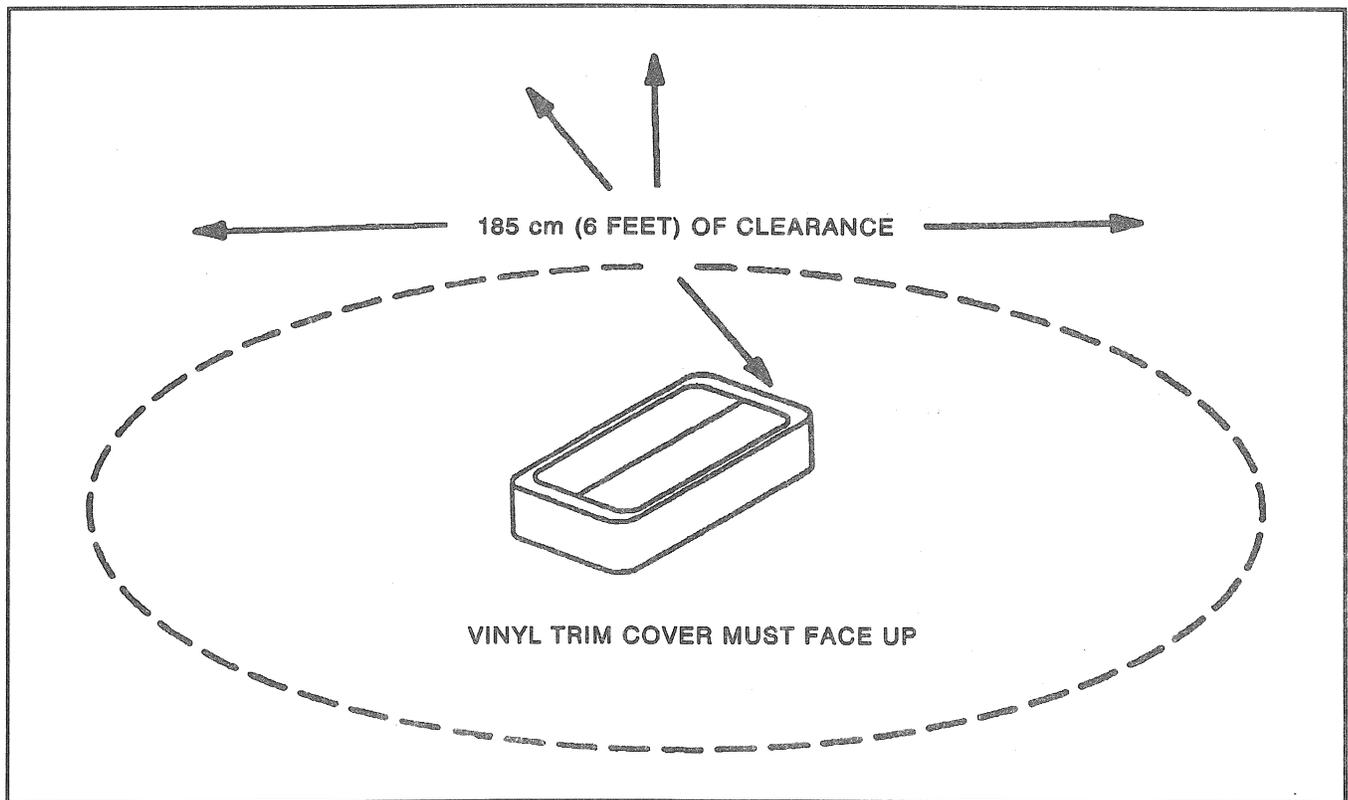


Figure 16—Provide Adequate Clearance for the Air Bag to Deploy

The following procedure requires use of J 38826 SIR Deployment Harness with appropriate pigtail adapter. Do not attempt procedure without J 38826 and adapter.

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 driver inflator module. Deployment harness shall remain shorted and not be connected to a power source until the air bag is to be deployed. The inflator module will immediately deploy the air bag when a power source is connected to it. Wear safety glasses throughout this entire deployment and disposal procedure.

1. Turn ignition switch to "LOCK," remove key, and put on safety glasses.
2. Inspect J 38826 SIR Deployment Harness and appropriate pigtail adapter for damage. If harness or pigtail adapter is damaged, discard and obtain a replacement.
3. Short the two SIR deployment harness leads together by fully seating one banana plug into the other. SIR deployment harness shall remain shorted and not be connected to a power source until the air bag is to be deployed (Figure 14).
4. Connect the appropriate pigtail adapter to the SIR deployment harness (Figure 14).
5. Remove inflator module from vehicle. Refer to SECTION 3F.

6. Remove horn lead from the back of the inflator module.
7. Remove all horn buttons and steering wheel control buttons from inflator module, if applicable.

CAUTION: When storing a live inflator module or when leaving a live inflator module unattended on a bench or other surface, always face the bag and trim cover 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.

8. Place the inflator module on a work bench or other surface away from all loose or flammable objects with its vinyl trim cover facing up, away from the surface (Figure 15).
9. Clear a space on the ground about 1.85 meters (six feet) in diameter where the inflator module 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 shop floor where there is no activity and sufficient ventilation is recommended. Ensure no loose or flammable objects are within the deployment area (Figure 16).
10. Place the inflator module, with its vinyl trim cover facing up, on the ground in the space just cleared (Figure 16).

9J-104 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM

11. Stretch the SIR deployment harness and pigtail adapter from the inflator module to its full length (Figure 17).
12. Place a power source near the shorted end of the SIR deployment harness. Recommended application: 12 volts minimum, 2 amps minimum. A vehicle battery is suggested.
13. Connect the inflator module to the pigtail adapter on the SIR deployment harness. Deployment harness shall remain shorted and not be connected to a power source until the air bag is to be deployed. The inflator module will immediately deploy the air bag when a power source is connected to it (Figure 18).



Important

- Ensure that the pigtail adapter is firmly seated into the inflator module connector. Failure to fully seat the connectors may leave the shorting bar located in the inflator module connector functioning (shorted) and may result in non-deployment of the inflator module.
14. Verify that the area around the inflator module is clear of all people and loose or flammable objects.
 15. Verify that the inflator module is resting with its vinyl trim cover facing up.
 16. Notify all people in the immediate area that you intend to deploy the inflator module. The deployment will be accompanied by a substantial report which may startle the uninformed.

17. Separate the two banana plugs on the SIR deployment harness (Figure 19).

NOTICE: *When the air bag deploys, the rapid gas expansion will create a substantial report. Notify all people in the immediate area that you intend to deploy the inflator module.*

NOTICE: *When the air bag deploys, the inflator module may jump about 30 cm (one foot) vertically. This is a normal reaction of the inflator module to the force of the rapid gas expansion inside the air bag.*

CAUTION: Deployment harness shall remain shorted and not be connected to a power source until the air bag is to be deployed. The inflator 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 in the inflator module deployment procedure. Failure to follow procedures in the order listed may result in personal injury.

18. Connect the SIR deployment harness wires to the power source to immediately deploy the inflator module. Recommended application: 12 volts minimum, 2 amps minimum. A vehicle battery is suggested (Figure 20).

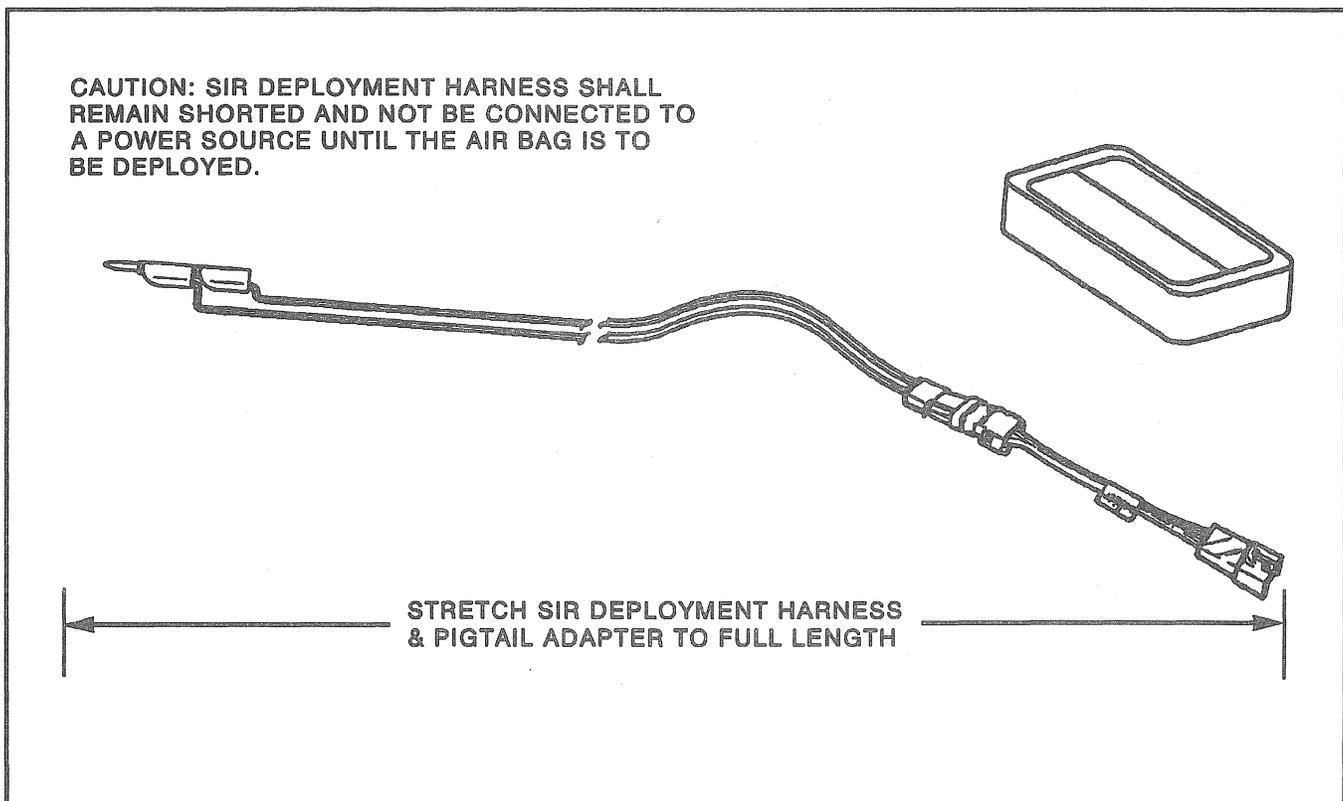


Figure 17—Stretching the SIR Deployment Harness and Pigtail Adapter

CAUTION: SIR DEPLOYMENT HARNESS SHALL REMAIN SHORTED AND NOT BE CONNECTED TO A POWER SOURCE UNTIL THE AIR BAG IS TO BE DEPLOYED.

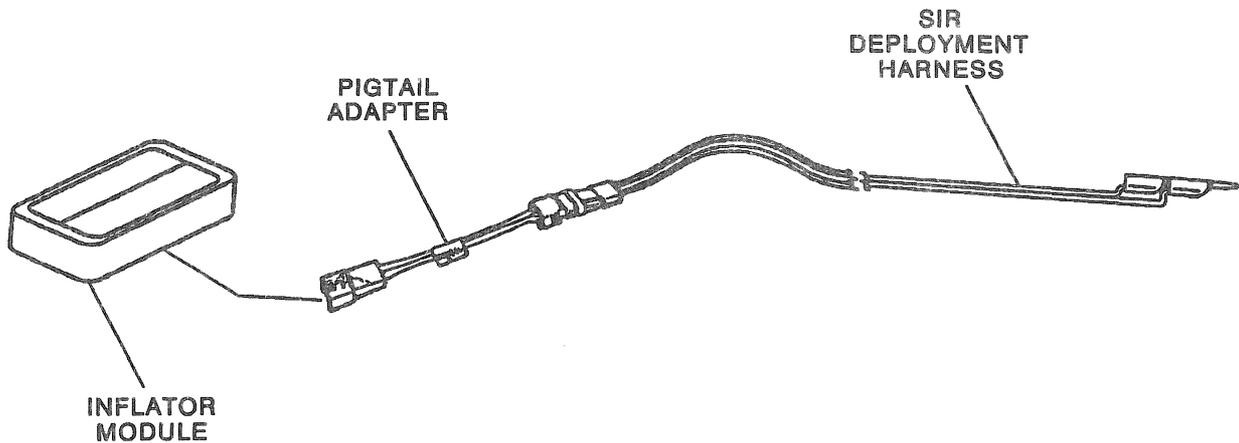


Figure 18—Connecting the SIR Deployment Harness to the Inflator Module

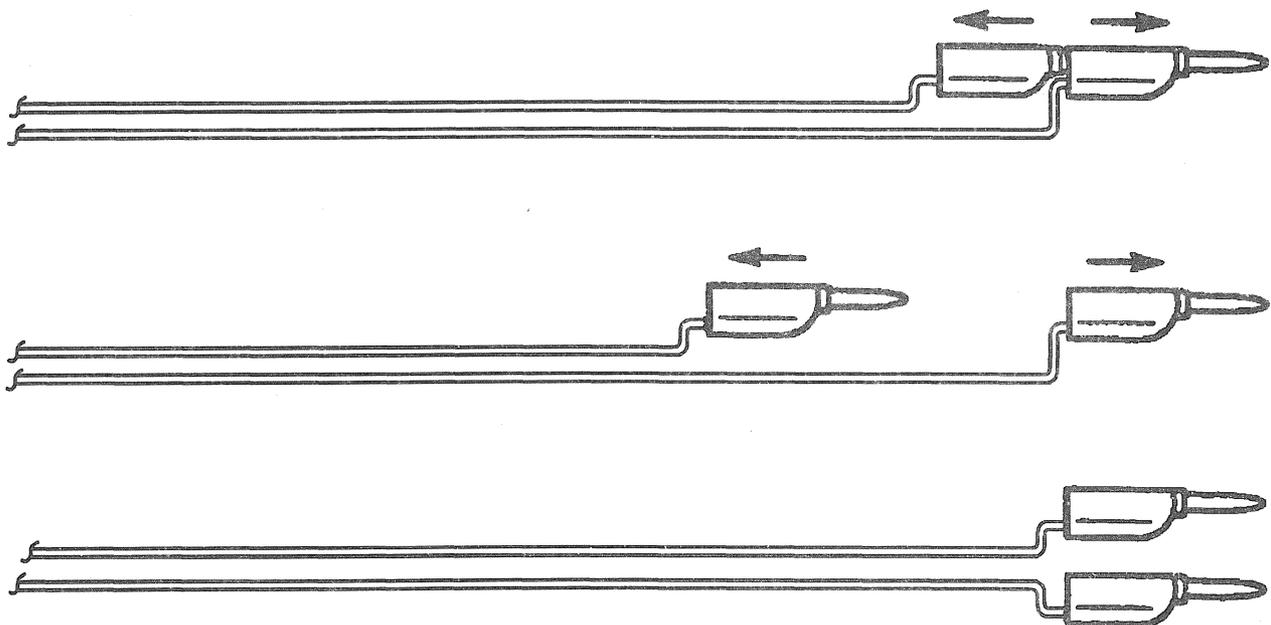


Figure 19—Separating the Two Shorted Banana Plugs

9J-106 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM

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

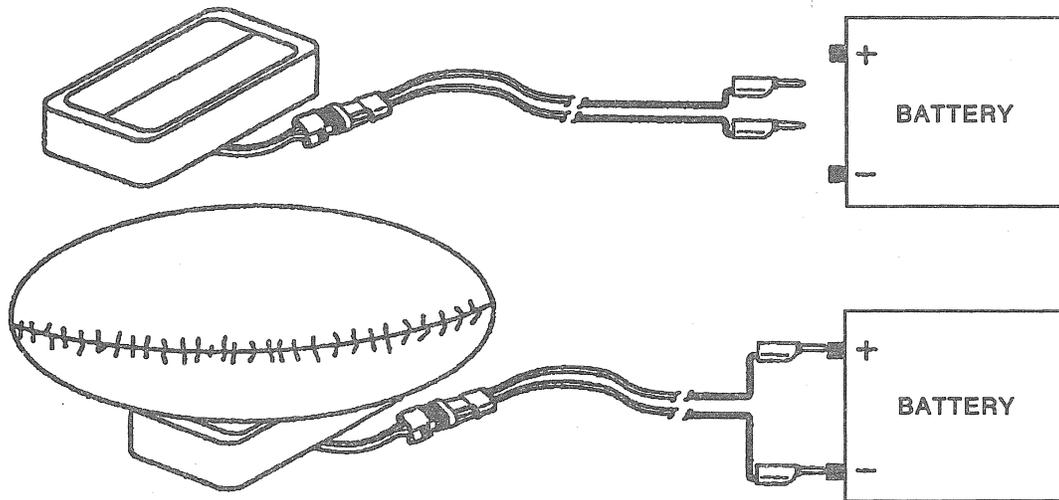


Figure 20—Connecting to a Power Source

19. Disconnect the SIR deployment harness from the power source.
20. Short the two SIR deployment harness leads together by fully seating one banana plug into the other (Figure 14).
21. In the unlikely event that the inflator module did not deploy after following these procedures, proceed immediately with Steps 26 through 29. If the inflator module did deploy, proceed with Steps 22 through 25.
22. Put on a pair of shop gloves to protect your hands from possible irritation and heat when handling the deployed inflator module.

After the inflator module has been deployed, the surface of the air bag may contain a powdery residue. This powder consists primarily of cornstarch (used to lubricate the bag as it inflates) and by-products of the chemical reaction. Sodium hydroxide dust (similar to lye soap) 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 inflator module. After deployment, the metal surfaces of the inflator module will be very hot. Allow the inflator module to cool before handling any metal portion of it. Do not place the deployed inflator module near any flammable objects. Failure to follow procedures may result in fire or personal injury.

After an inflator module has been deployed, the metal canister and surrounding areas of the inflator module will be very hot. Do not touch the metal areas of the inflator module for about ten minutes after deployment. If the deployed inflator module must be moved before it is cool, wear gloves and handle by the air bag or vinyl trim (Figure 21).

23. Disconnect the pigtail adapter from the inflator module as soon after deployment as possible. This will prevent damage to the pigtail adapter or SIR deployment harness due to possible contact with the hot inflator module canister. The pigtail adapter and SIR deployment harness are designed to be reused. They should, however, be inspected for damage after each deployment and replaced if necessary.
24. Dispose of the deployed inflator module through normal refuse channels after it has cooled for at least 10 minutes.
25. Wash your hands with mild soap and water afterward.

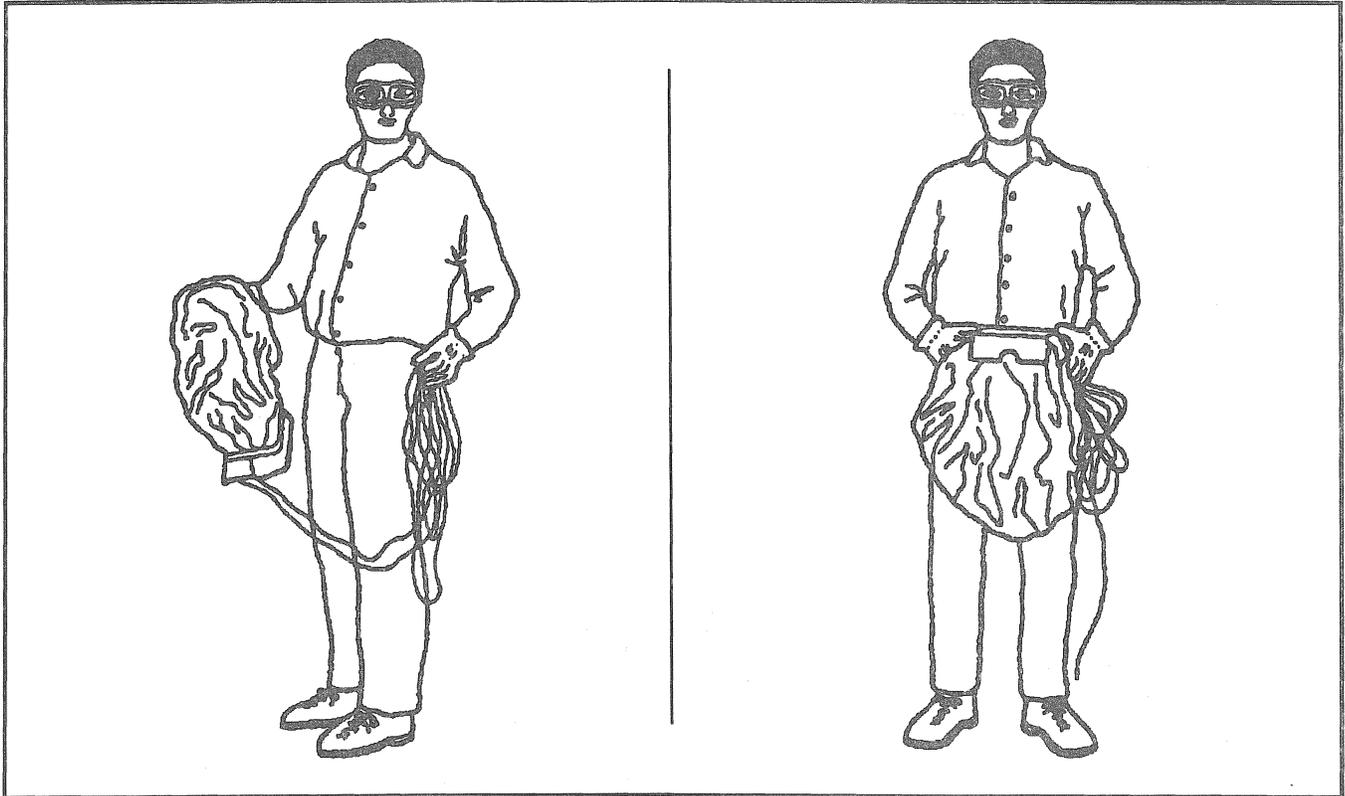


Figure 21—Handling a Hot, Deployed Inflator Module

NOTICE: *The remaining steps are to be followed in the unlikely event that the inflator module did not deploy after following these procedures.*

26. Ensure that the SIR deployment harness has been disconnected from the power source and that its two banana plugs have been shorted together by fully seating one banana plug into the other (Figure 14).
27. Disconnect the pigtail adapter from the inflator module.

CAUTION: When storing a live inflator module or when leaving a live inflator module unattended on a bench or other surface, always face the bag and trim cover 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.

28. Temporarily store the inflator module with its vinyl trim cover facing up, away from the surface upon which it rests.
29. Call the Technical Assistance group for further assistance.

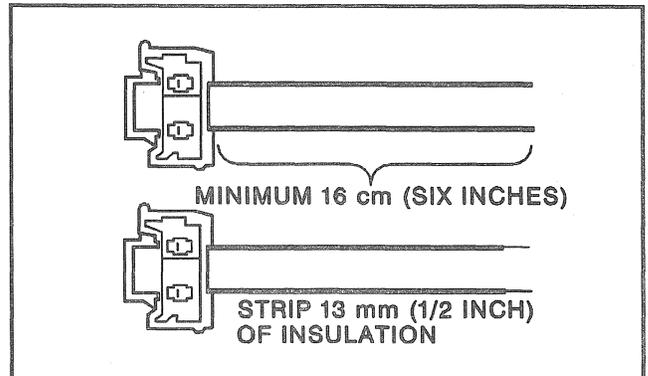


Figure 22—Cutting the Harness Connector Wires

Deployment Inside Vehicle (Vehicle Scrapping Procedure)

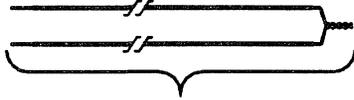
Figures 22 through 26

Deployment inside vehicle is proper when the vehicle is to be destroyed or salvaged for component parts. This includes, but is not limited to, the following situations:

- The vehicle has completed its useful life.
- The vehicle has been damaged beyond repair in a non-deployment type accident.
- The vehicle has been stripped or damaged beyond repair in a theft.
- The vehicle will be salvaged for component parts to be used on a vehicle with a different Vehicle Identification Number (VIN) as opposed to being rebuilt as the same VIN. Never use SIR components from

9J-108 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM

CAUTION: DEPLOYMENT WIRES SHALL REMAIN SHORTED AND NOT BE CONNECTED TO A POWER SOURCE UNTIL THE AIR BAG IS TO BE DEPLOYED.



**MINIMUM 460 cm (15 FT.)
SHORT THE TWO
DEPLOYMENT WIRES
TOGETHER**

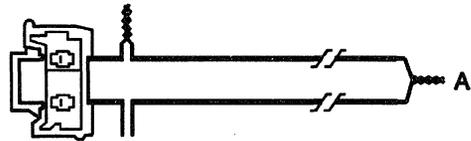
Figure 23—Shorting the Deployment Wires

another vehicle. This is done to ensure SIR system integrity since only new SIR system components, with the exception of remanufactured parts as noted below, may be used in servicing an SIR equipped vehicle. Remanufactured parts purchased from an authorized General Motors dealer may be used for SIR repairs.

CAUTION: Failure to follow proper SIR inflator module disposal procedures can result in air bag deployment which may cause personal injury. Undeployed inflator modules must not be disposed of through normal refuse channels. The undeployed inflator module contains substances that can cause severe illness or personal injury if the sealed container is damaged during disposal. Disposal in any manner inconsistent with proper procedures may be a violation of federal, state and/or local laws.

1. Turn ignition switch to "LOCK," remove key, and put on safety glasses.
2. Remove all loose objects from front seats.
3. Disconnect inflator module, yellow 2-way connector located at the base of the steering column.
4. Cut the inflator module yellow 2-way harness connector from the vehicle leaving at least 16 cm (six inches) of wire at the connector (Figure 22).
5. Strip 13 mm (1/2 inch) of insulation from each wire lead of the connector (Figure 22).
6. Cut two 4.6 meters (15 feet) deployment wires from from 0.8 mm² (18 gauge) or thicker multistrand wire. These wires will be used to fabricate the deployment harness.
7. Strip 13 mm (1/2 inch) of insulation from both ends of the wires cut in the previous step.
8. Short the wires by twisting together one end from each (Figure 23). Deployment wires shall remain shorted and not be connected to a power source until the air bag is to be deployed.

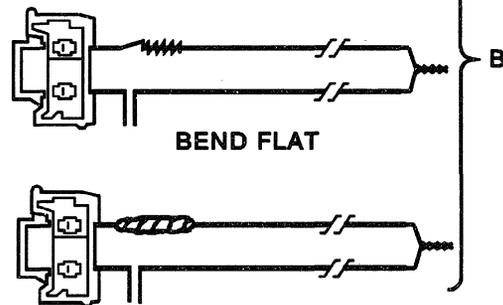
CAUTION: DEPLOYMENT WIRES SHALL REMAIN SHORTED AND NOT BE CONNECTED TO A POWER SOURCE UNTIL THE AIR BAG IS TO BE DEPLOYED.



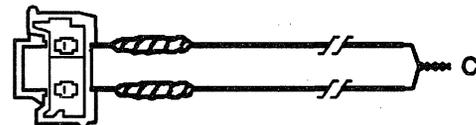
TWIST TOGETHER SECURELY



BEND FLAT



WRAP WITH TAPE



REPEAT PROCEDURE

Figure 24—Fabricating the Deployment Harness

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-109

CAUTION: Failure to follow procedures in the order listed could result in personal injury. Never connect deployment wires to any power source before connecting deployment wires to the inflator module leads. Deployment wires shall remain shorted and not be connected to a power source until the air bag is to be deployed. The inflator module will immediately deploy the air bag when a power source is connected to it. Wear safety glasses throughout this entire deployment and disposal procedure.

9. Twist together one connector wire lead to one deployment wire. The connection should be mechanically secure (Figure 24, view A).
10. Bend twisted connection made in the previous step flat and wrap tightly with electrical tape to insulate and secure (Figure 24, view B).
11. Twist together, bend and tape the remaining connector wire lead to the remaining deployment wire (Figure 24, view C).
12. Connect the deployment harness to the inflator module, yellow 2-way connector at the base of the steering column. Route deployment harness out the driver side of the vehicle (Figure 25).

CAUTION: Deployment wires shall remain shorted and not be connected to a power source until the air bag is to be deployed. The inflator module will immediately deploy the air bag when a power source is connected to it.

Connecting the deployment wires to the power source should always be the final step in the inflator module deployment procedure. Failure to follow procedures in the order listed could result in personal injury.

13. Verify that the inside of the vehicle is clear of all people and loose or flammable objects.
14. Stretch the deployment harness to its full length (Figure 25).

15. Notify all people in the immediate area that you intend to deploy the air bag. The deployment will be accompanied by a substantial report which may startle the uninformed.
16. Separate the two ends of the deployment harness wires (Figure 26).

CAUTION: Deployment wires shall remain shorted and not be connected to a power source until the air bag is to be deployed. The inflator module will immediately deploy the air bag when a power source is connected to it. Connecting the deployment wires to the power source should always be the final step in the inflator module deployment procedure. Failure to follow procedures in the order listed could result in personal injury.

NOTICE: *When the air bag deploys, the rapid gas expansion will create a substantial report. Notify all people in the immediate area that you intend to deploy the air bag.*

17. Connect the deployment harness wires to a power source to immediately deploy the inflator module. Recommended application: 12 volts minimum, 2 amps minimum. A vehicle battery is suggested (Figure 26).

After an inflator module has been deployed, the surface of the air bag may contain a powdery residue. This powder consists primarily of cornstarch (used to lubricate the bag as it inflates) and by-products of the chemical reaction. Sodium hydroxide dust (similar to lye soap) 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.

STRETCH DEPLOYMENT HARNESS TO ITS FULL LENGTH

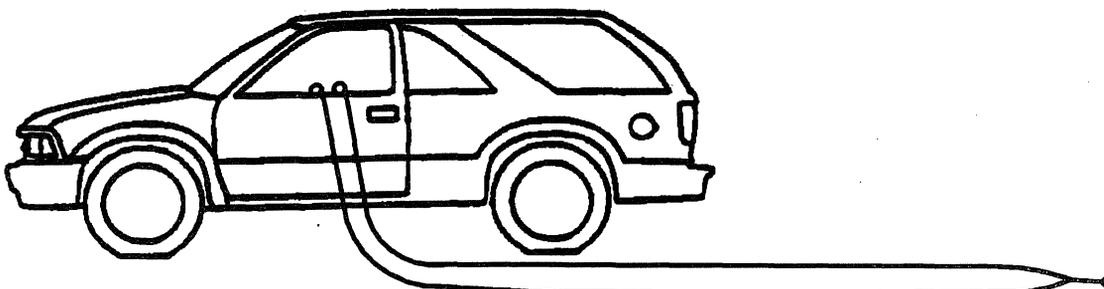


Figure 25—Prepare Deployment Harness for In-Vehicle Deployment

9J-110 SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM

CAUTION: Safety precautions must be observed when handling a deployed inflator module. After deployment, the metal surfaces of the inflator module will be very hot. Allow the inflator module to cool before handling any metal portion of it. Do not place the hot deployed inflator module near any flammable objects. Failure to follow procedures could result in fire or personal injury.

After an inflator module has been deployed, the metal canister and surrounding areas of the inflator module will be very hot. Do not touch the metal areas of the inflator module for about 10 minutes after deployment. If the deployed inflator module must be moved before it is cool, wear gloves and handle by the air bag or vinyl trim.

18. Short the deployment harness wires by twisting together one end from each (Figure 23).
19. Disconnect deployment harness from vehicle and discard.
20. In the unlikely event that the inflator module did not deploy after following these procedures, proceed immediately with Steps 22 through 24.
21. Vehicle may now be scrapped in the same manner as a non-SIR equipped vehicle.

NOTICE: *The remaining steps are to be followed in the unlikely event that the inflator module did not deploy after following these procedures.*

22. Remove the undeployed inflator module from the vehicle, refer to SECTION 3F.

CAUTION: When storing a live inflator module or when leaving a live inflator module unattended on a bench or other surface, always face the bag and trim cover up, 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 could result in personal injury.

23. Temporarily store the inflator module with the air bag opening facing up, away from the surface upon which it rests.
24. Call the Technical Assistance group for further assistance.

Deployed Inflator Module Handling

After the inflator module has been deployed, the surface of the air bag may contain a powdery residue. This powder consists primarily of cornstarch (used to lubricate the bag as it inflates) and by-products of the chemical reaction. Sodium hydroxide dust (similar to lye soap) 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 with many service procedures, you should wear gloves and safety glasses.

WIRING REPAIR

Special wiring repair procedures have been developed for use on the Supplemental Inflatable Restraint (SIR) system due to the sensitive nature of the circuitry. These specific procedures and instructions must be followed when working with SIR system wiring, and wiring components (such as connectors and terminals).

Terminal Repair Kit J 38125-A

Essential tool kit J 38125-A contains special "sealed splices" for use in repairing SIR system wiring. A special crimping tool, heat torch, and instruction manual for these splices are also included.

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 J 38125-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 SIR system terminals unless spe-

SEPARATE SHORTED ENDS OF DEPLOYMENT WIRES AND CONNECT TO POWER SOURCE

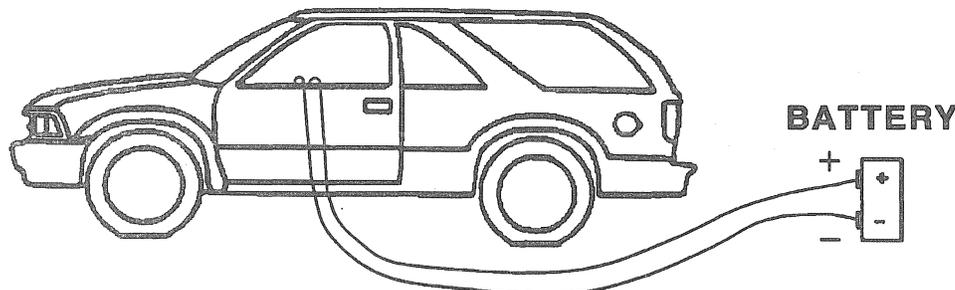


Figure 26—Separate Shorted Ends of Deployment Harness and Connect to Power Source

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM 9J-111

cifically indicated by the terminal package. The DERM terminal repair assembly pack is included in J 38125-A for SIR use.

SIR Connector (Plastic Body and Terminal Metal Pin) Repair

If any connector or terminal in the SIR wire harness (except pigtails) is damaged, the connector should be repaired using one of the connector repair assembly packs. These kits include an instruction sheet and the sealed splices which will be used to splice the new wires, connector, and terminals to the harness. The splice crimping tool, which is color keyed to match the splices from Terminal Repair Kit J 38125-A, must be used to apply these splices.

The terminals in the SIR system are made of a special metal to provide necessary contact integrity for the sensitive, low energy circuits. These terminals are only available in the connector repair assembly packs, do not substitute any other terminals for those in the assembly packs.

If individual terminals are damaged on the DERM connector, they should be repaired using the DERM terminal repair assembly pack. If individual terminals are damaged on any other SIR connection, the entire connection should be replaced using the appropriate connector repair assembly pack. It may be necessary to replace the entire SIR wiring harness.

SIR Wire Pigtail Repair

If the 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. Examples of "pigtail" components are the inflator module, the discriminating sensors and the SIR coil assembly. Absolutely no wire, connector, or terminal repairs are to be attempted on the inflator module, the discriminating sensors or the SIR coil assembly.

SIR Wire Repair

If any wire except the pigtail is damaged, the wire should be repaired by splicing in a new section of wire of the same gauge size (0.5, 0.8, 1mm², etc.). The sealed splices and splice crimping tool from Terminal Repair Kit J 38125-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 ripper" (available from sewing supply stores) to cut open the harness. The crimp and seal 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.

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 if you decide to cut more wire to change the location of a splice.

You may have to adjust splice locations to make certain that each splice is at least 40 mm (1.5 inches) away from other splices, harness branches, or connectors.

Step Three: Strip the Insulation

NOTICE: *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 on the schematic and convert the metric size to the equivalent AWG size or use an AWG 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 (0.3 inch) 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.

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 color coded (see following table).



Important

- Refer to SECTION 8A-47 to find wire size for the circuit being repaired. This information is necessary for choosing the correct splice sleeve to ensure circuit integrity will be maintained.

Color Splice Sleeve	Crimp Tool Nest Color	Wire Gage AWG/(Metric)
Salmon (yellow-pink)	Red	20, 18/(0.5, 0.8)
Blue	Blue	16, 14/(1.0, 2.0)
Yellow	Yellow	12, 10/(3.0, 5.0)

Using the J 38125-A Splice Crimp Tool (Figure 27), position the splice sleeve in the proper color 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 (Figure 28). 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 (Figure 28). The crimper handles will not open until the proper amount of pressure is applied to the splice sleeve. Repeat Steps 4 and 5 for the opposite end of the splice.

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Step Six: Shrink the Insulation Around the Splice

Using the heat torch apply heat where the barrel is crimped. Gradually move the heat barrel to the open end of the tubing, 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 (Figure 28).

SIR System Wire Splice Repair

If any of the original equipment splices (three wires or more) in the SIR wiring harness are damaged they should be repaired by applying a new splice (not sealed) from the Terminal Repair Kit J 38125-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.

Alternative Repair Methods

No alternative repair methods are available for the SIR system wiring and components.

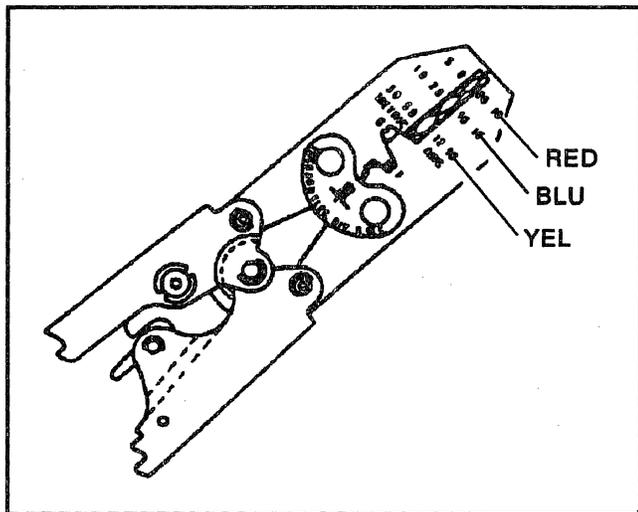


Figure 27—Splice Crimp Tool J 38125-A

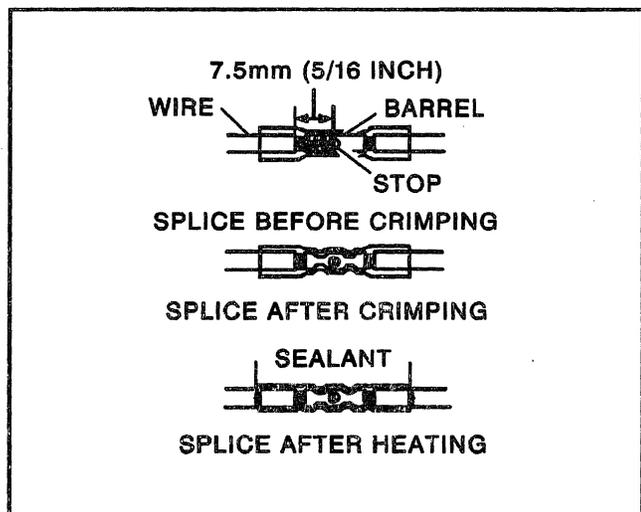


Figure 28—Seal Splice Sequence

Connector Position Assurance (CPA)

The Connector Position Assurance (CPA) is a small plastic insert that is inserted through the locking tabs of all of the SIR system connectors. The purpose of the CPA is to ensure the connector halves are securely connected and cannot vibrate apart. The CPA must be in place to ensure good contact between the SIR mating terminals.

Terminal Position Assurance (TPA)

The Terminal Position Assurance (TPA) insert is similar to the plastic "combs" used in PCM connectors. The function of the TPA is to keep the terminal securely seated in the connector body. The TPA is not to be removed from the connector body unless a terminal must be removed for replacement.

SPECIAL TOOLS

CAUTION: To avoid deployment when troubleshooting the SIR system, do not use electrical test equipment such as a battery powered or ac powered voltmeter, ohmmeter, etc., or any type of electrical equipment other than that specified in this manual. Do not use a non-powered probe type tester. Instructions in this manual must be followed carefully, otherwise personal injury may result.

SIR Driver/Passenger Load Tool

The SIR Driver/Passenger Load Tool J 38715-A is used only when called for in this section. Do not attempt to use the SIR Column Load Tool J 37808 as the connectors are incompatible. It is used as a diagnostic aid and safety device to prevent inadvertent inflator module deployment.

The load tool has four yellow connectors attached to its case. The three small connectors are electrically functional and serve as resistive load substitutions. The large dummy connector does not serve as a load substitution but merely takes the physical place of the DERM connector when needed.

No more than one connector is used at any time. One of the small connectors is used to substitute the load of the driver inflator module when it is connected at the top of the column to the SIR coil assembly. Another small connector is used to substitute the load of the driver inflator module and the SIR coil assembly when it is connected at the base of the column to the SIR wiring harness. The third small connector is used to substitute for the load of the passenger inflator module. Since this vehicle is not equipped with a passenger inflator module the lead marked "Passenger Inflator" should not be used. The large dummy connector separates the shorting bar in the DERM harness connector when it is connected to it in place of the DERM.

By substituting the resistance of the load tool when called for, a determination can be made as to whether an inflator circuit component is causing system malfunction and which component is causing the malfunction. The load tool should be used only when specifically called for in the diagnostic procedures.

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J 39200 DVM

The J 39200 DVM is the preferred DVM for use in SIR diagnosis and repair. However, J 34029-A may be used if J 39200 is not available. No other DVM's are approved for SIR diagnosis and repair.

Scan Tool

The Tech 1 is used to read and clear SIR system Diagnostic Trouble Codes (DTCs). The Tech 1 will also provide SIR system circuit values using the "Data List" function. Refer to the Tech 1 Operator's Manual for specific information on how to use the Tech 1.

Scan tools from other manufacturers may be used. Refer to the Instruction Manual for the tool for specific instructions.

J 35616-A Connector Test Adapter Kit

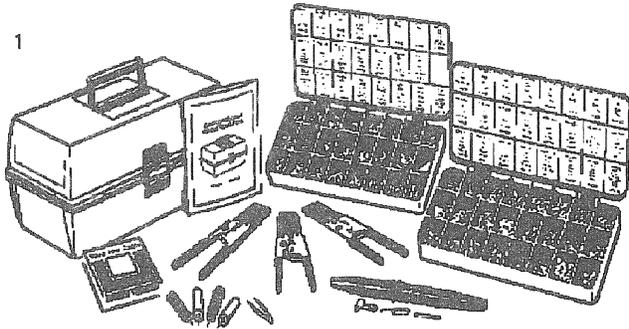
The J 35616-A Connector Test Adapter Kit must be used whenever a diagnostic procedure requests checking or probing a terminal. Using the appropriate adapter will ensure that no damage to the terminal will occur from the DVM probe, such as spreading or bending. The adapter will also give an idea of whether contact tension is sufficient, helping to find an open or intermittent open due to poor terminal contact.

SERVICE PARTS INFORMATION

PART NAME	SERVICE PARTS CATALOG REFERENCE NAME	SERVICE PARTS CATALOG GROUP
Arming Sensor	SENSOR, INFL RST ARMING	16.712
DERM	MODULE, INFL RST DIAGN ENGY RESV	16.712
Forward Discriminating Sensor	SENSOR, INFL RST F/END DIS-CRM	16.712
Inflator Module	MODULE, INFL RST STRG WHL (INFLATOR)	16.712
SIR Coil Assembly	COIL KIT, INFL RST STRG WHL MDL	16.712
Warning Lamp "AIR BAG"		9.744
		(Standard Parts Cat.)

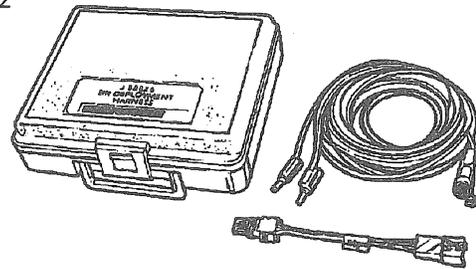
SPECIAL TOOLS

1



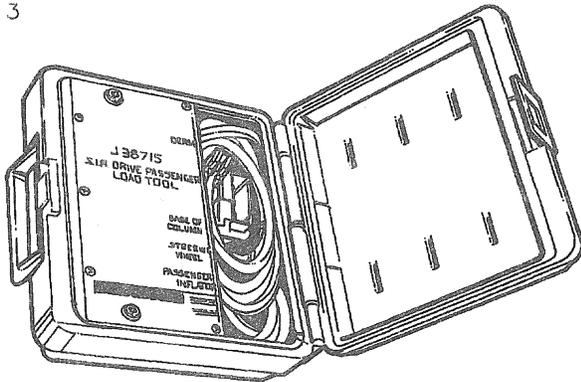
J 38125-A

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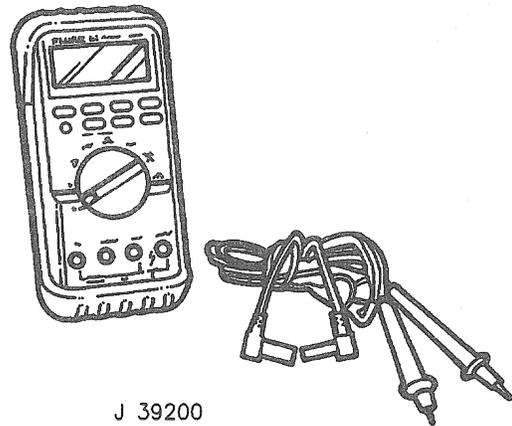
J 38826

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J 38715-A

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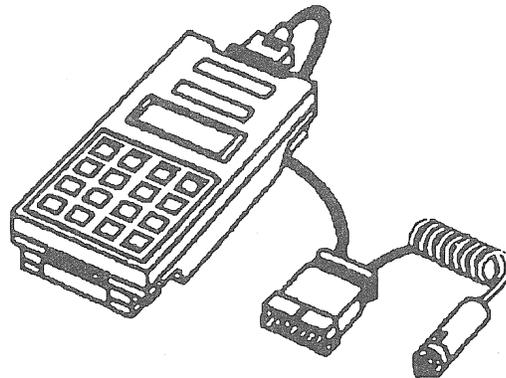
J 39200

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J 35616-A

6



- 1 TERMINAL REPAIR KIT
- 2 SIR DEPLOYMENT HARNESS
- 3 SIR DRIVER/PASSENGER LOAD TOOL (J 38715-A)

- 4 DIGITAL MULTIMETER
- 5 CONNECTOR TEST ADAPTER KIT
- 6 SCAN TOOL

SECTION 9K

REMOTE KEYLESS ENTRY

CAUTION: On vehicles equipped with Supplemental Inflatable Restraint (SIR), refer to CAUTIONS in Section 9J under "ON-VEHICLE SERVICE" and the SIR Component and Wiring Location view in Section 9J before performing service on or around SIR components or wiring. Failure to follow CAUTIONS could result in possible air bag deployment, personal injury, or otherwise unneeded SIR system repairs.

NOTICE: Always use the correct fastener in the correct location. When you replace a fastener, use ONLY the exact part number for that application. General Motors will call out those fasteners that require a replacement after removal. General Motors will also call out the fasteners that require thread lockers or thread sealant. UNLESS OTHERWISE SPECIFIED, do not use supplemental coatings (paints, greases, or other corrosion inhibitors) on threaded fasteners or fastener joint interfaces. Generally, such coatings adversely affect the fastener torque and joint clamping force, and may damage the fastener. When you install fasteners, use the correct tightening sequence and specifications. Following these instructions can help you avoid damage to parts and systems.

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Transmitter Battery Replacement.....	9K-2
Control Module Replacement.....	9K-2
Reprogramming Transmitter	9K-2

GENERAL DESCRIPTION

The remote keyless entry (RKE) system locks and unlocks all doors and releases the endgate window by means of remote control. A receiver module is located in the left-hand instrument panel, attached to the steering column support bracket. It is clipped in place and retained by two plastic retainers. The transmitter is hand-held and may be attached to a key ring (Figure 1). Three buttons control system operation. The transmitter emits a coded UHF radio signal, that is received by the keyless entry control module, if the transmitter is within approximately 10 meters (33 feet) of the vehicle. The system has no effect on the normal operation of the locks or rear window release. The transmitter is battery powered, water resistant, and supplied in pairs to each vehicle.

The control module is only capable of recognizing two transmitters per vehicle. Replacement transmitters may be obtained but must be matched to the control module. Refer to "Reprogramming Transmitter" in this section.

FUNCTIONAL OPERATION

To Unlock Doors

When the UNLOCK button is pressed on the transmitter, the signal is received by the keyless entry control module and will unlock the driver's door only.

When the UNLOCK button is pressed a second time within 1 to 5 seconds of the first, the remaining doors will unlock.

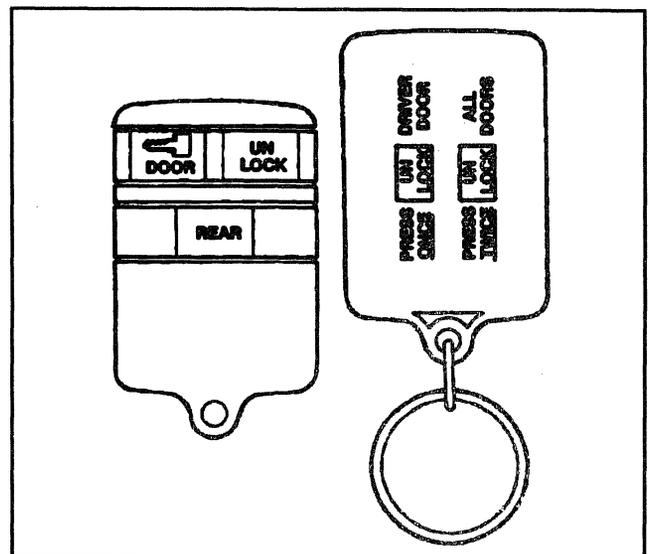


Figure 1—Remote Control Door Lock Transmitter

9K-2 REMOTE KEYLESS ENTRY

To Lock Doors

Press the DOOR button (key symbol) to lock all doors at once.

Rear Window Release

When the button marked REAR is depressed, the rear window unlocks from the endgate.

Note: On vehicles equipped with a manual transmission, the parking brake must be set.

DIAGNOSIS OF REMOTE KEYLESS ENTRY

Perform the following check to diagnose all transmitter operations, using two transmitters (if available):

1. Move the vehicle outside and as far away from metal objects as possible. The remote keyless entry system may not operate if there are metal objects between the transmitter and the vehicle.
2. Turn the ignition "OFF", lower the windows, and close the doors.
3. Stand at the rear bumper, aim the transmitter at the vehicle, and operate all functions on both transmitters (if available).
 - If a single function on one transmitter is inoperative, replace that transmitter.
 - If all functions on one or both transmitters are inoperative, reprogram both transmitters and repeat the diagnosis. Refer to "Reprogramming Transmitter" later in this section. If one transmitter will not program, replace the battery in that transmitter.

4. If all functions on both transmitters operate, stand 5 feet from the vehicle at several points around the vehicle and check the operation of both transmitters at each point.

- If one transmitter does not operate at some points where the other transmitter does operate, replace the battery of the transmitter that does not operate.
- If both transmitters operate 5 feet from the vehicle, the system is operating properly and no repairs should be attempted.

For additional diagnostic information on the remote keyless entry system, refer to the Driveability, Emissions, and Electrical Diagnosis Manual.

ON-VEHICLE SERVICE

TRANSMITTER BATTERY REPLACEMENT

←→ Remove or Disconnect

1. Top cover.
 - Insert a dime between the two halves of the transmitter near the key ring hole and twist.
2. Batteries.

→← Install or Connect

1. Batteries.
 - Use Duracell® DL2016 or equivalent batteries and install positive side down.
2. Top cover.
 - Align and snap together the top and bottom covers.
 - Check circuit operation.

CONTROL MODULE REPLACEMENT

←→ Remove or Disconnect (Figure 2)

1. Left hand instrument panel sound insulator. Refer to SECTION 10A4.
2. Electrical connectors.
3. Control module retainers.

4. Control module.

→← Install or Connect (Figure 2)

1. Control module.
2. Control module retainers.
3. Electrical connectors.
4. Left hand instrument panel sound insulator. Refer to SECTION 10A4.
 - Check circuit operation.

REPROGRAMMING TRANSMITTER

1. Ground pin G of the Data Link Connector (DLC).
 - Receiver will respond by locking and unlocking doors within 2 seconds.
2. Press any button of the first transmitter to be programmed.
3. The control module will respond by locking/unlocking doors and activating rear window release.
4. Press any button of the second transmitter to be programmed (if used).
5. The control module will respond by locking/unlocking doors and activating the rear window release.
6. Remove the ground applied to the reprogramming connector.
7. Transmitter operation is verified by locking and unlocking the doors and activating the rear window release.

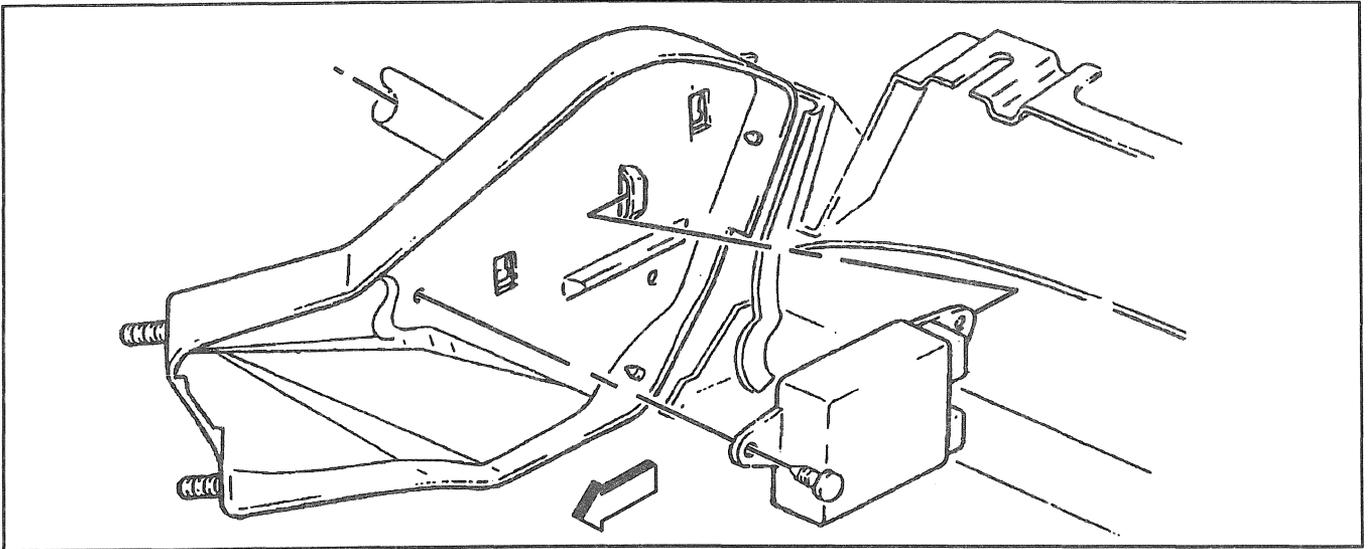


Figure 2—Control Module

9K-4 REMOTE KEYLESS ENTRY

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