SIR

Specifications

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Inflatable Restraint Front End Discriminating Sensor Fasteners	8.0 N·m	71 lb in
Inflatable Restraint Sensing and Diagnostic Module Fasteners	12 N·m	106 lb in
Inflatable Restraint IP Module Fasteners	8.0 N·m	71 lb in

Scan Tool Data List

The scan tool used provides the following capabilities:

- Reads the data list.
- Reads current and history trouble codes.
- Clears the diagnostic trouble codes after a repair is completed.

Ensure that the scan tool contains the latest diagnostic information before attempting to communicate with the SIR system. In order to use the scan tool, connect the scan tool to the data link connector (DLC) and turn the ignition switch to the RUN position. The scan tool reads the serial data sent from the inflatable restraint sensing and diagnostic module (SDM) serial data output terminal 5 to the DLC terminal 9.

The SIR Scan Tool Data List contains all restraint related parameters that are available on the scan tool. The list is arranged in the order as they appear on the scan tool.

Use the SIR Scan Tool Data List only after the following items are determined:

- The Diagnostic System Check is completed.
- No diagnostic trouble codes (DTCs) are set.
- SIR Diagnostics indicates that the system is functioning properly.

Scan tool values from a properly operating system may be used for comparison with the SIR system you are diagnosing. The SIR Scan Tool Data List represents the typical values seen on a properly operating system.

Important: Ensure that the scan tool that you are using is functioning properly. Use of a malfunctioning scan tool can result in misdiagnosis and unnecessary parts replacement.

Only the parameters listed below are referenced in this service manual for use in diagnosis. If all values are within the typical range described below, refer to *Intermittents and Poor Connections*.

Scan Tool Parameter	Units Displayed	Typical Data Value
Ignition On, Engine Off, Inflatable Restraint IP Module Switch On (if equipped) and Driver Seat Belt Buckled		
Ignition	Volts	12 V
Lamp Driver	Internal/External	Internal
Driver Resistance	Ohms	2.6 Ω
Passenger Resistance	Ohms	2.2 Ω
Driver Senselo	Volts	4.1 V
Passenger Senselo	Volts	4.1 V
Driver VDIF	Millivolts	4–8 mV
Passenger VDIF	Millivolts	4–8 mV
Warning Lamp Control	On/Off	Off
Lamp Driver Feedback	Active/Inactive	Inactive
Warning Lamp ON	Hours	0–182 Hrs
Warning Lamp Cycles	Cycles	0–125 Cycles
Driver Seat Belt	Buckled/Unbuckled	Buckled
Pass Air Bag Enable	High/Low	High
Pass Air Bag Disable	High/Low	Low
Suppression Lamp Driver	On/Off	Off

Scan Tool Data Definitions

The SIR Scan Tool Data Definitions contains a brief description of all SIR related parameters available on the scan tool. The list is in the order that the list appears on the scan tool.

Ignition: The scan tool displays 0–25.5 volts. The Ignition represents the system voltage which is measured by the SDM at the ignition feed.

Lamp Driver: The scan tool displays Internal or External. The warning lamp control method for a hard wired lamp is Internal. The warning lamp control method for a serial data controlled lamp is External.

Driver Resistance: The scan tool displays 0–6.3 ohms. The SDM performs the resistance measurement test once each ignition cycle and verifies the Ignition Positive Voltage and the 23 VLR voltages are within the normal ranges. Then the SDM sources a constant current to the driver deployment loop. The SDM then measures the voltage drop across the deployment loop and converts the measured voltage value to a driver deployment loop resistance value.

Passenger Resistance: The scan tool displays 0–6.3 ohms. The SDM performs the resistance measurement test once each ignition cycle and verifies the Ignition Positive Voltage and 23 VLR voltages are within the normal ranges. Then the SDM sources a constant current to the passenger deployment loop. The SDM then measures the voltage drop across the deployment loop and converts the measured voltage value to a passenger deployment loop resistance value.

Driver Senselo: The scan tool displays 0–20 volts. The SDM measures the voltage of the driver low terminal voltage and displays the voltage as Driver Senselo

Passenger Senselo: The scan tool displays 0–20 volts. The SDM measures the voltage of the passenger low terminal voltage and displays the voltage as Passenger Senselo.

Driver VDIF: The scan tool displays 0–400 millivolts. The SDM measures the voltage difference between driver high and driver low and displays this voltage difference as Driver VDIF.

Passenger VDIF: The scan tool displays 0–400 millivolts. The SDM measures the voltage difference between passenger high and passenger low and displays this voltage difference as Passenger VDIF.

Warning Lamp Control: The scan tool displays ON or OFF. The warning lamp state commanded by the SDM.

Lamp Driver Feedback: The scan tool displays Active or Inactive. The warning lamp state detected by the SDM.

Warning Lamp ON: The scan tool displays 0–182 hours. The SDM measures the continuous warning lamp on time.

Warning Lamp Cycles: The scan tool displays 0–125 cycles. The ignition cycles of the current warning lamp state.

Driver Seatbelt: The scan tool displays Buckled or Unbuckled. The signal from the drivers seatbelt switch that the seatbelt is fastened.

Pass Air Bag Enable: The scan tool displays High or Low. When the inflatable restraint IP module IP enable/disable switch is in the passenger air bag ON position, the voltage should be high. When the IP switch is in the OFF position the voltage should be low.

Pass Air Bag Disable: The scan tool displays High or Low. When the inflatable restraint IP module IP enable/disable switch is in the passenger air bag ON position the voltage should be low. When the IP switch is in the OFF position the voltage should be high for a moment, then it goes low.

Suppression Lamp Driver: The scan tool displays ON or OFF. Based on the input of the PASS AIR BAG ENABLE circuit the SDM will operate the lamp driver in order to illuminate the passenger air bag off lamp in the IP switch assembly. When the IP switch is in the OFF position, and the ignition switch is turned to the RUN position, the scan tool should indicate OFF for a moment and then ON as the SDM operates the air bag off lamp.

GM SPO Group Numbers

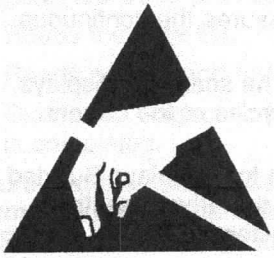
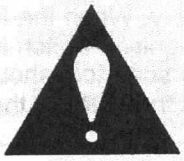
Application	GM SPO Group Number
Air Bag Warning Lamp	9.744
Inflatable Restraint Front End Discriminating Sensor	16.712
Inflatable Restraint IP Module	16.712
Inflatable Restraint IP Module Switch	16.712
Inflatable Restraint Sensing and Diagnostic Module	16.712
Inflatable Restraint Steering Wheel Module	16.712
Inflatable Restraint Steering Wheel Module Coil	16.712

Schematic and Routing Diagrams

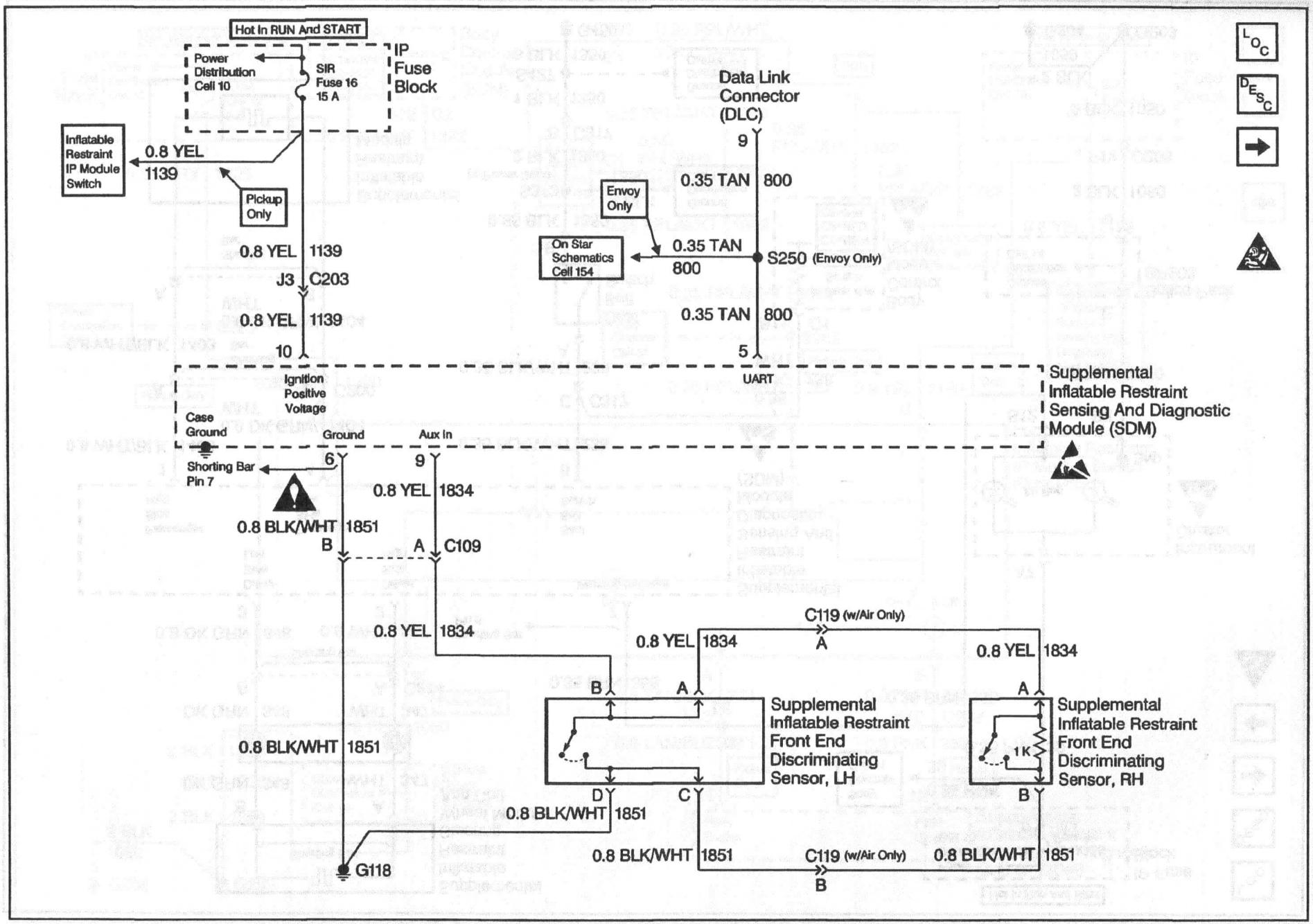
SIR Schematic References

Reference on Schematic	Section Number - Subsection Name
Body Control Module Cell 51	8 – Body Control Systems
Ground Distribution Cell 14	8 – Wiring Systems
Onstar Cell 154	8 – Cellular Communications
Power Distribution Cell 10	8 - Wiring Systems
Radio/Audio System Cell 150	8 - Entertainment

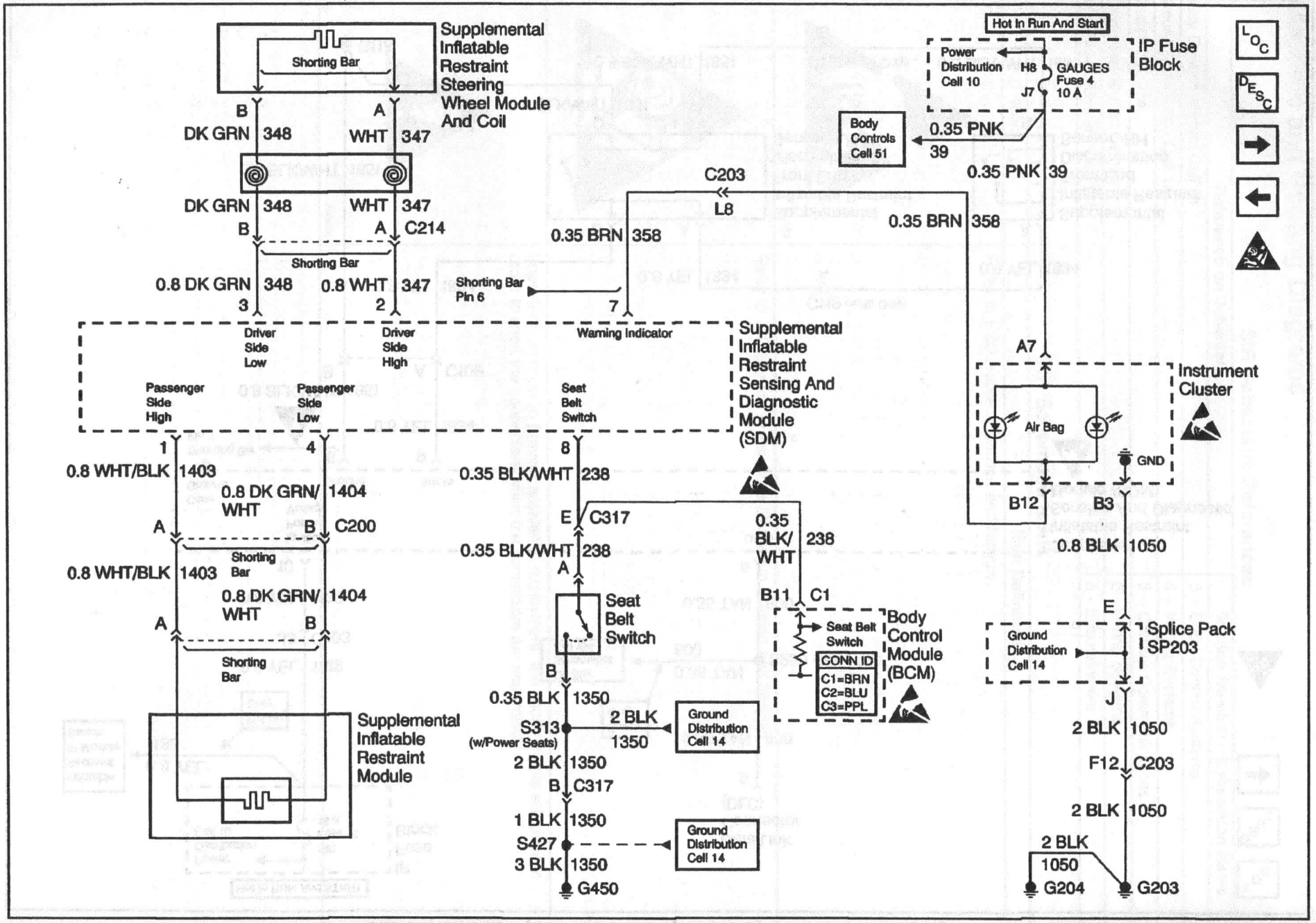
SIR Schematic Icons

Icon	Icon Definition
 19384	Refer to *ESD Notice* in Caution and Notices.
 19386	Refer to *SIR Service Precautions Caution* in Caution and Notices.
 296880	**Important:** In order to prevent accidental deployment, the shorting bars will close in order to short the connectors when the connectors are separated.

SIR Schematics (Cell 47: Power, Ground, DLC and Sensors)

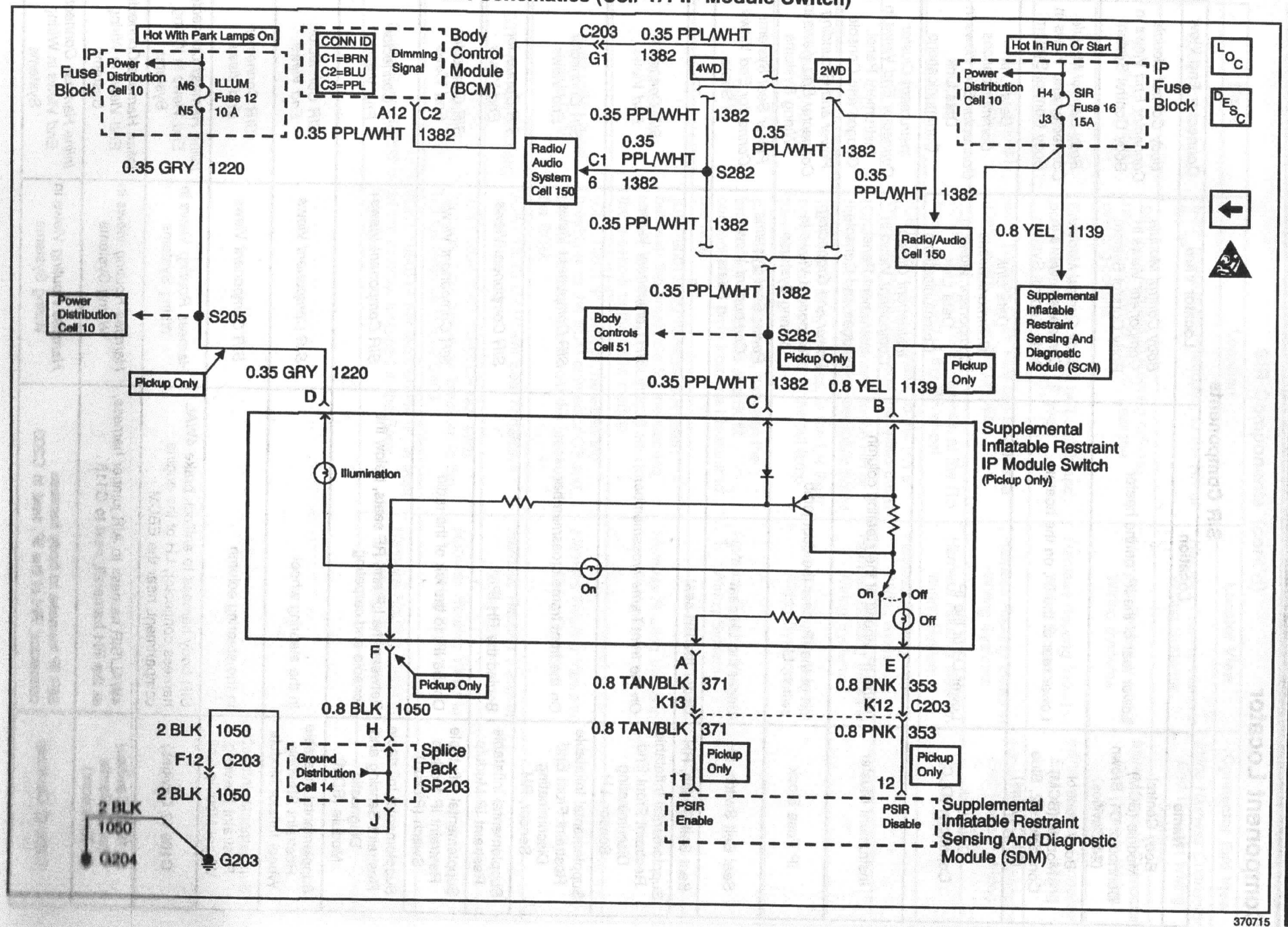


SIR Schematics (Cell 47: Seat Belt Switch, Steering Wheel and IP Module)



SIR Schematics (Cell 47: IP Module Switch)

SIR Schematics (Cell 47: IP Module Switch)



Component Locator

SIR Components

Name	Location	Locator View	Connector End View
Body Control Module (BCM) Connector C1, Brown (24 Cavities)	Lower rear of the IP, on the heater	*Body Control Module Component Views* in Body Control System	*Body Control Module Connector End Views* in Body Control System
Body Control Module (BCM) Connector C2, Blue (24 Cavities)	Lower rear of the IP, on the heater	*Body Control Module Component Views* in Body Control System	*Body Control Module Connector End Views* in Body Control System
Data Link Connector (DLC)	Lower LH of the IP	*Data Link Communications Component Views* in Data Link Communications	*Data Link Communications Connector End Views* in Data Link Communications
Instrument Cluster	In the IP, ahead of the steering column	*Instrument Cluster Component Views* in Instrument Panel, Gauges and Console	*Instrument Cluster Connector End Views* in Instrument Panel, Gauges and Console
IP Fuse Block	LH of the IP, near the door jamb switch, LF	*Power and Grounding Component Views* in Wiring Systems	*Power and Grounding Connector End Views* in Wiring Systems
Seat Belt Switch, LH	Under the LH seat	*Power Seat Systems Component Views* in Seats	*Power Seat Systems Connector End Views* in Seats
Seat Belt Switch, RH	Under the RH seat	—	—
Supplemental Inflatable Restraint Front End Discriminating Sensor, LH	On the front frame crossmember	*SIR Component Views*	*SIR Connector End Views*
Supplemental Inflatable Restraint Front End Discriminating Sensor, RH	On the front frame crossmember	*SIR Component Views*	*SIR Connector End Views*
Supplemental Inflatable Restraint IP Module	Behind the RH IP	*SIR Component Views*	*SIR Connector End Views*
Supplemental Inflatable Restraint IP Module Switch (Pickup)	On the IP, to the left of the radio	*SIR Component Views*	*SIR Connector End Views*
Supplemental Inflatable Restraint Sensing and Diagnostic Module (SDM)	Between the LF and RF seats, below the console and carpeting	*SIR Component Views*	*SIR Connector End Views*
Supplemental Inflatable Restraint Steering Wheel Inflator Module	In the steering wheel	*SIR Component Views*	*SIR Connector End Views*
Supplemental Inflatable Restraint Steering Wheel Module Coil	In the steering column	*SIR Component Views*	*SIR Connector End Views*
C109 (2 Cavities)	SIR body harness to antilock brake 4WAL harness connector, LH of the engine compartment, near the EBCM	*Harness Routing Views* in Wiring Systems	*Inline Harness Connector End Views* in Wiring Systems
C119 (2 Cavities) (w/ California Emissions)	4WAL/SIR harness to AIR jumper harness, at the RH framerail, next to G118	*Harness Routing Views* in Wiring Systems	*Inline Harness Connector End Views* in Wiring Systems
C200 (2 Cavities)	SIR IP harness to body harness connector, RH of the IP, next to C203	*Harness Routing Views* in Wiring Systems	*Inline Harness Connector End Views* in Wiring Systems

SIR Components (cont'd)

Name	Location	Locator View	Connector End View
C203 (116 Cavities)	Body harness to IP harness, to the RH of the IP	*Harness Routing Views* in Wiring Systems	*Inline Harness Connector End Views* in Wiring Systems
C214 (2 Cavities)	SIR body harness to steering column harness, in front of the IP, near the steering column	*Harness Routing Views* in Wiring Systems	*Inline Harness Connector End Views* in Wiring Systems
C317 (6 Cavities) (Pickup)	Body harness to LF seat belt switch and power seats, under the LF seat	*Harness Routing Views* in Wiring Systems	*Inline Harness Connector End Views* in Wiring Systems
C317 (6 Cavities) (Utility)	Body harness to LF seat belt switch and power seats, under the LF seat	*Harness Routing Views* in Wiring Systems	*Inline Harness Connector End Views* in Wiring Systems
G118	(CKT 1851) 4WAL/SIR harness, at the RH frame rail, forward of the RF wheel	*Harness Routing Views* in Wiring Systems	—
G203	(CKT 1050) Body harness, to the RH of the IP, between C203 and the splice packs	*Harness Routing Views* in Wiring Systems	—
G204	(CKT 1050) Body harness, to the RH of the IP, between C203 and the splice packs	*Harness Routing Views* in Wiring Systems	—
G450 (Utility)	(CKT 1350) Body harness, in the LH Rear body corner, near C403 to the tail lamp harness	*Harness Routing Views* in Wiring Systems	—
S205	(CKT 1220) IP harness, between the breakouts for the radio and BCM connector C3, 8 cm from the breakout to the radio	*Harness Routing Views* in Wiring Systems	—
S250 (Envoy)	(CKT 800) Body harness SIR insert, between the breakouts for the steering column and the SDM module, 6 cm from the breakout to the SDM module	*Harness Routing Views* in Wiring Systems	—
S282 (4WD Base Pickup Only)	(CKT 1382) IP harness, between the breakouts to the BCM connector C3 and the stereo radio, 6 cm from the breakout to the BCM	*Harness Routing Views* in Wiring Systems	—
S313 (w/ Power Seats)	(CKT 1350) LH Power Seat harness, 15 cm from C317	*Harness Routing Views* in Wiring Systems	—
S427 (Utility)	(CKT 1350, CKT 1450) LH rear body harness, 7 cm below the breakout to the left tail lamp connector C403	*Harness Routing Views* in Wiring Systems	—
Splice Pack SP203	(CKT 1050) IP harness, on the IP, in front of the ashtray, strapped to the Body Harness	*Harness Routing Views* in Wiring Systems	—