

# ENGINE CONTROLS 6.5L (396 CID) V8 DIESEL VIN P 8A-25-1

## COMPONENT LOCATION

Page — Figure

Barometric Pressure Sensor	Upper LH side of cowl	25-20	4
Battery	At front of vehicle	Not Shown	
Battery Junction Block	RH rear engine compartment at cowl	25-20	1
Clutch Pedal Position Switch	On clutch pedal support bracket	Not Shown	
Crank Sensor	Inside electronic injection pump	Not Shown	
DLC	Under LH side of I/P	25-22	6
Fuel Pump Oil Pressure Switch	Upper rear of engine	25-18	2
Fuel Pump Relay	RH upper cowl	25-21	5
Fuel Pump and Sender	In fuel tank	Not Shown	
EGR Solenoid (Pulse Width)	LH rear top of engine	25-19	3
EGR Vent Solenoid	LH rear top of engine	25-19	3
Electronic Accelerator Pedal			
Actuator	Top of accelerator bracket	Not Shown	
Electronic Injection Pump	Top front of engine	Not Shown	
Engine Coolant Temperature			
Sensor	RH rear front of engine	25-19	3
Fuel Heater	Top rear of engine	25-17	1
Fuse Block	Under LH side of I/P	25-22	6
Glow Plug Controller	RH rear top of engine	25-19	3
Intake Manifold Air Temperature			
Sensor	At front of engine	Not Shown	
I/P Cluster	LH side of I/P	Not Shown	
MAP Sensor	LH rear engine compartment at cowl	Not Shown	
Powertrain Control Module (PCM)	Under RH end of I/P	25-23	8
TCC/Brake Switch	On brake pedal support bracket	Not Shown	
TP Sensor	Top RH side of engine	Not Shown	
Transfer Case Switch	Side of transfer case	Not Shown	

## CONNECTORS:

C100	At bulkhead connector	25-20	4
C101	At bulkhead connector	Not Shown	
C106A	LH side of cowl near bulkhead connector	25-20	4
C160	Center rear of engine	Not Shown	
C160A	Top front of engine	Not Shown	
C174	Top front of engine	Not Shown	
C200	Under RH side of I/P, near blower motor	25-23	8

## GROMMETS:

P101	RH lower cowl (engine compartment)	25-20	4
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## GROUND:

G106	Top RH rear of engine	25-17	1
G108	Top RH rear of engine	25-17	1

## SPLICES:

S100	At RH battery	Not Shown	
S108	Upper RH side of engine	25-17	1
S109	Upper LH side of engine	25-17	1
S113	Engine compartment	25-18	2
S118	Rear of engine	25-18	2
S136	Rear of engine compartment, near center	25-18	2
S137	Near fuel pump relay	25-20	4
S145	At glow plug controller	25-19	3
S146	At glow plug controller	25-19	3
S153	Near battery junction block	25-21	5

## **8A-25-2 ENGINE CONTROLS 6.5L (396 CID) V8 DIESEL VIN P**

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### **COMPONENT LOCATION**

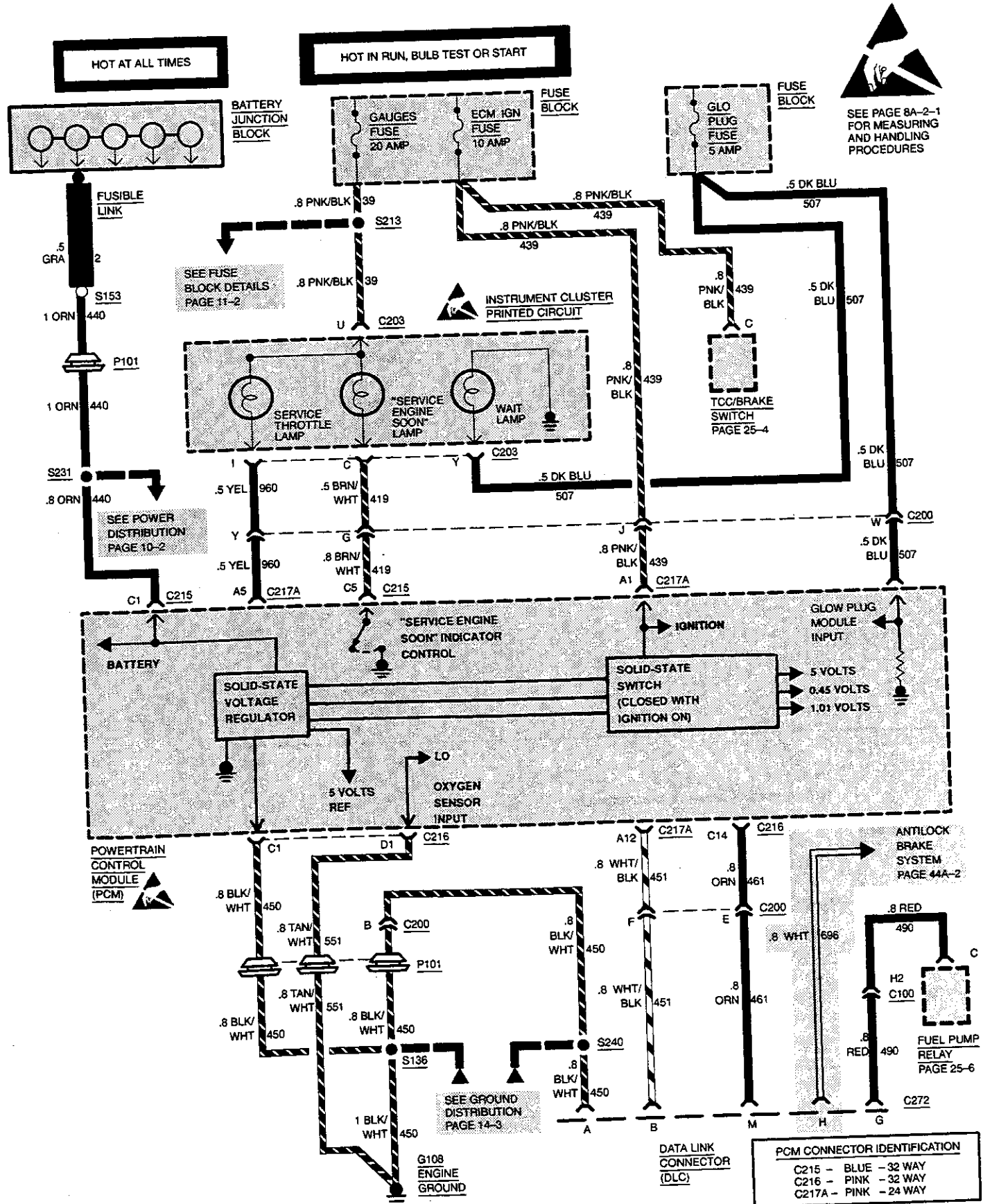
**Page — Figure**

#### **SPLICES (CONTINUED):**

S161	At battery junction block	25-21	5
S190A	Engine harness near cowl, LH rear engine compartment	Not Shown	
S207	Under LH side of I/P	25-22	6
S213	Under LH side of I/P	25-22	6
S222	Near PCM, under RH side of I/P	25-23	8
S223	Near PCM, under RH side of I/P	25-23	8
S231	Engine harness, near PCM	25-23	8
S238	Engine harness, near PCM	25-23	8
S288A	Near PCM, under RH side of I/P	Not Shown	
S290 (Suburban, Yukon)	Under LH side of I/P	25-23	8

# ENGINE CONTROLS 6.5L (396 CID) V8 DIESEL VIN P 8A-25-3

## W/MANUAL OR AUTOMATIC TRANSMISSION



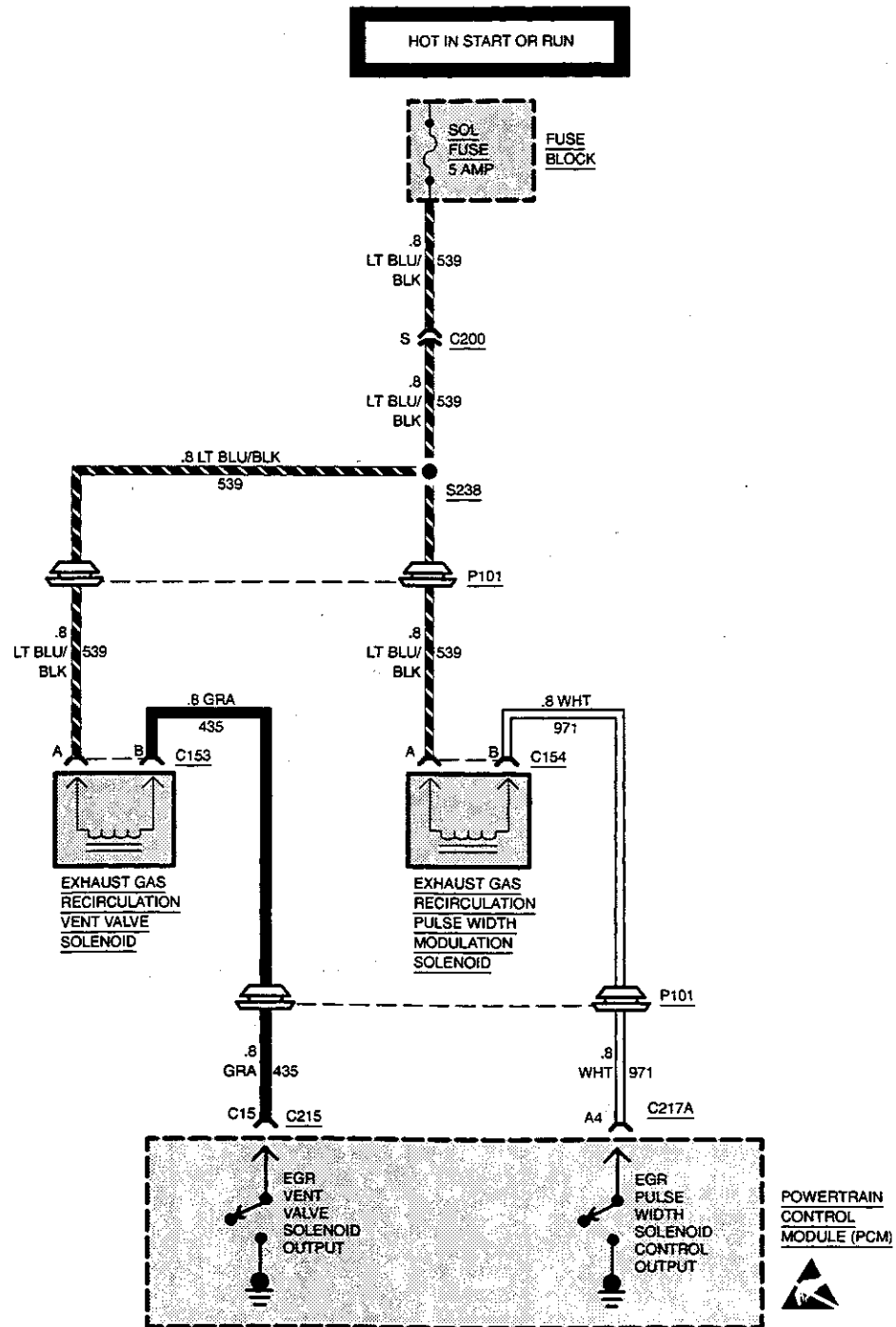




# ENGINE CONTROLS 6.5L (396 CID) V8 DIESEL VIN P 8A-25-5 W/MANUAL OR AUTOMATIC TRANSMISSION



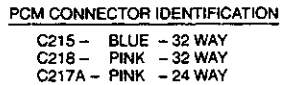
SEE 8A-2-1  
FOR MEASURING  
AND HANDLING  
PROCEDURES



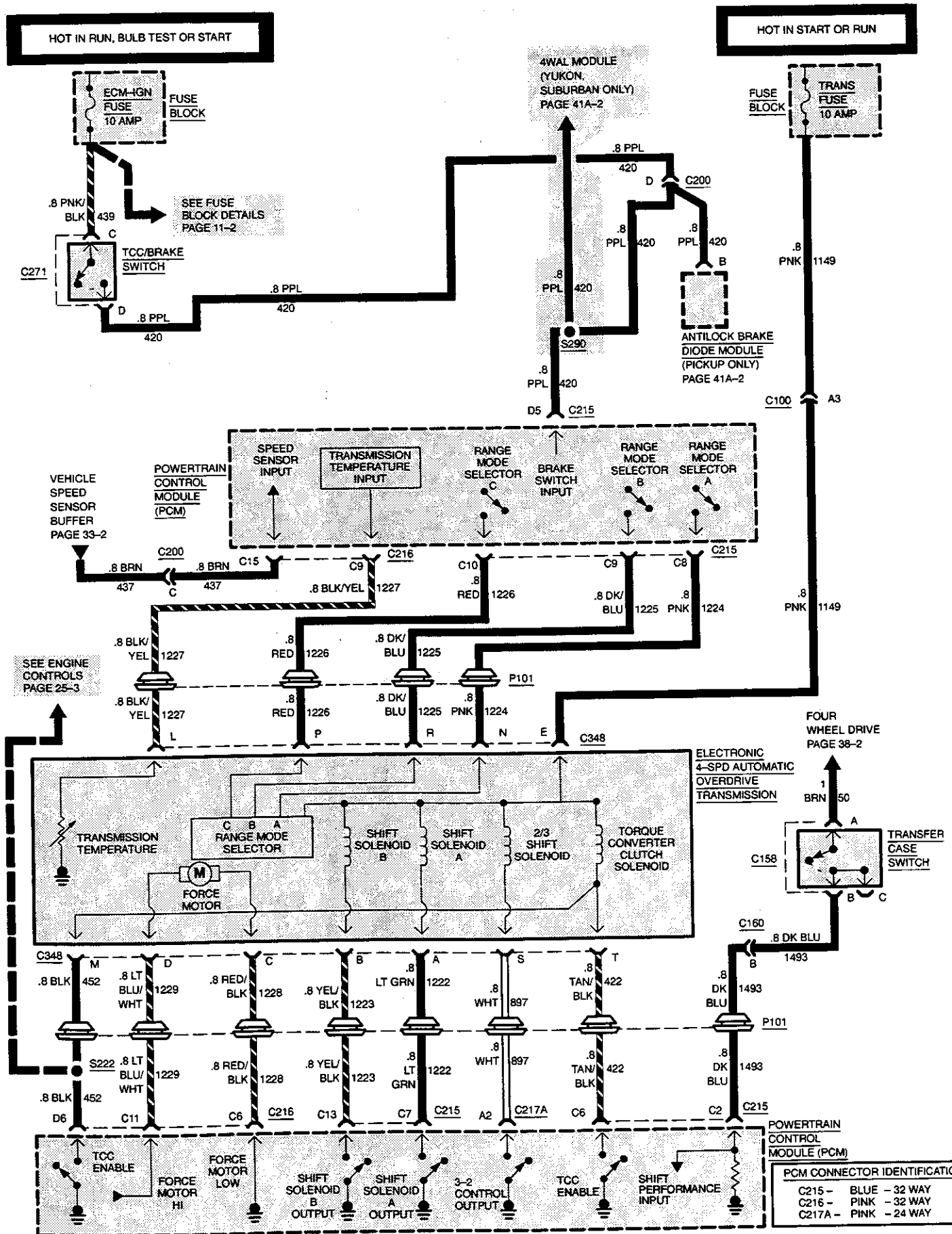
## PCM CONNECTOR IDENTIFICATION

C215 - BLUE - 32 WAY  
C216 - PINK - 32 WAY  
C217A - PINK - 24 WAY

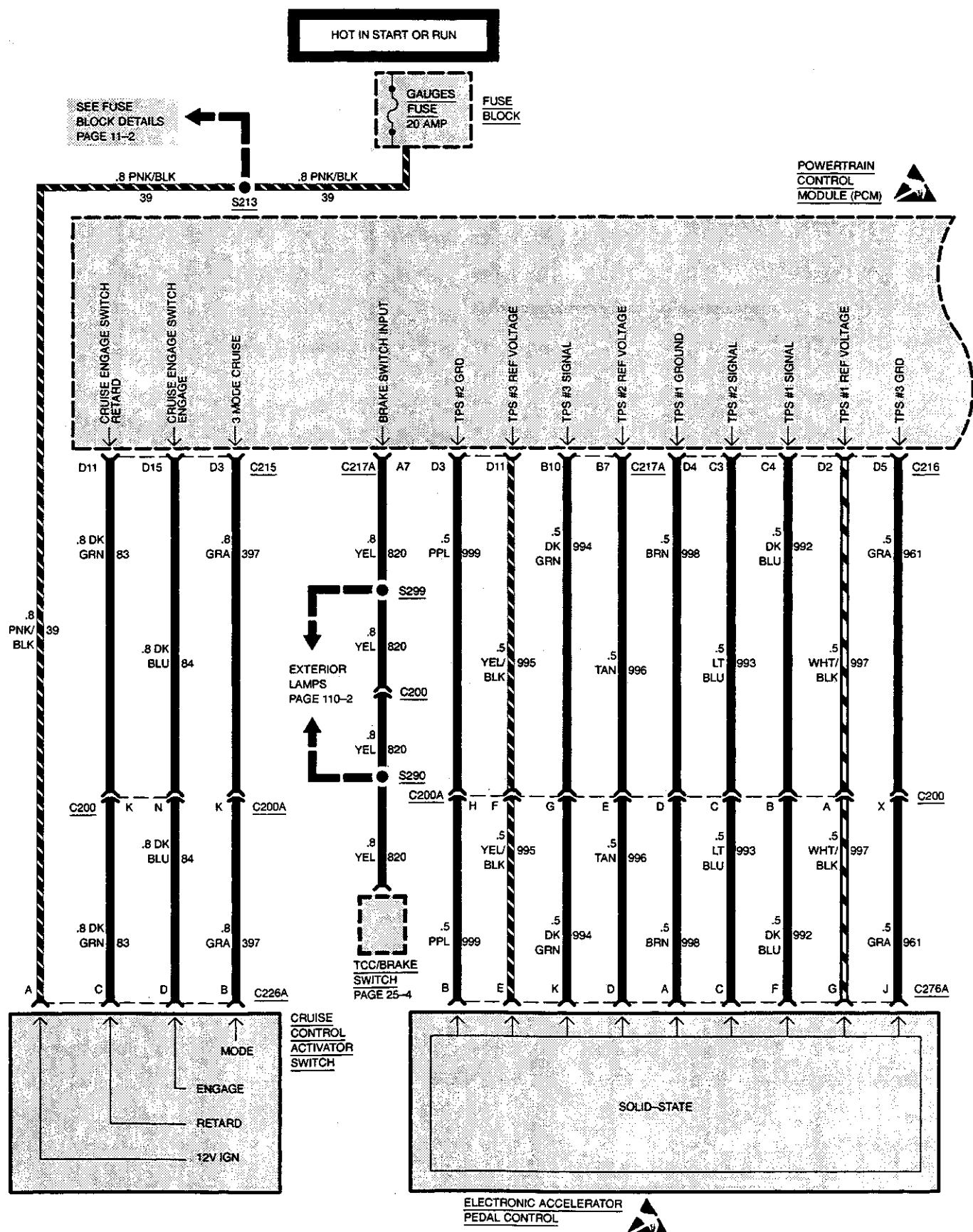
**(FUEL PUMP CONTROLS)**



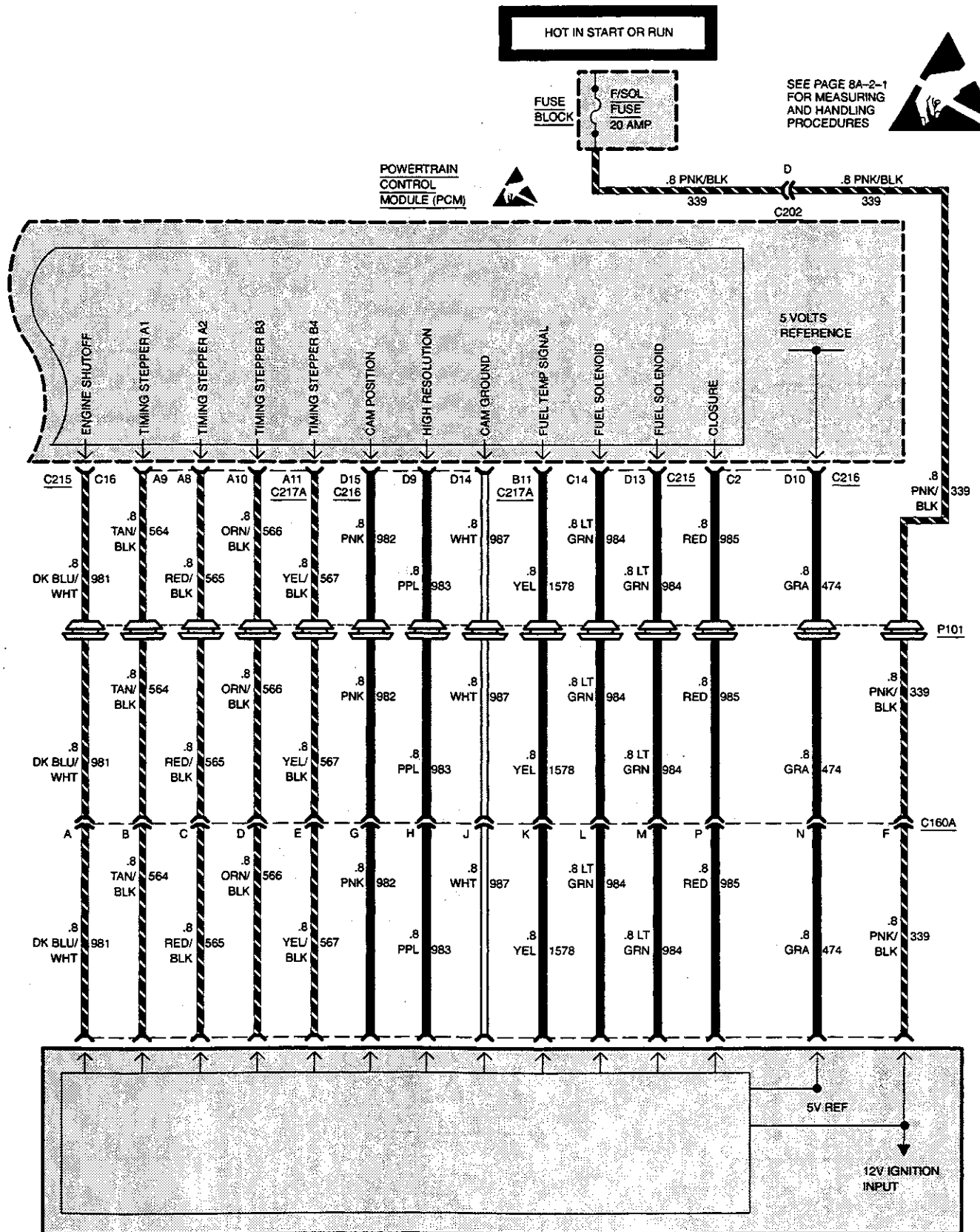
# ENGINE CONTROLS 6.5L (396 CID) V8 DIESEL VIN P 8A-25-7 (W/AUTOMATIC TRANSMISSION)



**8A-25-8 ENGINE CONTROLS 6.5L (396 CID) V8 DIESEL VIN P**



# ENGINE CONTROLS 6.5L (396 CID) V8 DIESEL VIN P 8A-25-9



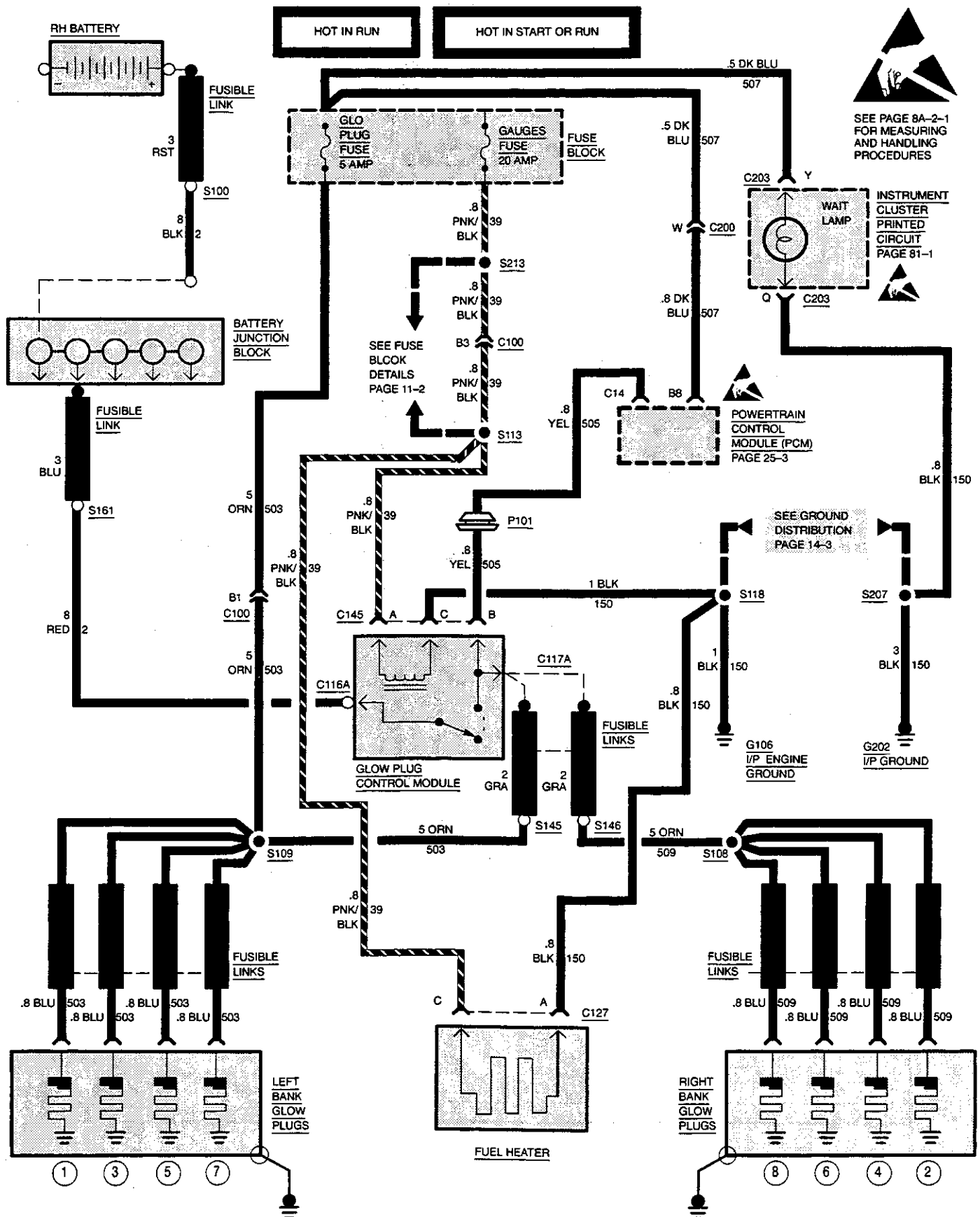
ELECTRONIC  
INJECTION PUMP

PCM CONNECTOR IDENTIFICATION

C215	BLUE	32 WAY
C216	PINK	32 WAY
C217A	PINK	24 WAY

# 8A-25-10 ENGINE CONTROLS 6.5L (396 CID) V8 DIESEL VIN P

## GLOW PLUG SYSTEM



## ENGINE CONTROLS 6.5L (396 CID) V8 DIESEL VIN P 8A-25-11

### POWERTRAIN CONTROL MODULE — 6.5L DIESEL ENGINE

CIRCUIT NO.	WIRE SIZE	COLOR	CAVITY	DESCRIPTION
440	.8	ORN	C1	12V + BATTERY
*1493	.8	DK BLU	C2	4WD INPUT
			C3	NOT USED
			C4	NOT USED
419	.8	BRN/WHT	C5	"SERVICE ENGINE SOON" LAMP OUTPUT
▲422	.8	TAN/BLK	C6	TORQUE CONVERTER CLUTCH
*1222	.8	LT GRN	C7	TRANS SHIFT SOLENOID A
*1224	.8	PNK	C8	TRANS RANGE MODE A
*1225	.8	DK BLU	C9	TRANS RANGE MODE B
*1226	.8	RED	C10	TRANS RANGE MODE C
			C11	NOT USED
			C12	NOT USED
*1223	.8	YEL/BLK	C13	TRANS SHIFT SOLENOID B
984	.8	LT GRN	C14	FUEL SOLENOID
435	.8	GRA	C15	EGR SOLENOID
981	.8	DK BLU/WHT	C16	FUEL SHUTOFF
			D1	NOT USED
997	.5	WHT/BLK	D2	REFERENCE VOLTAGE TPS 1
397	.8	GRA	D3	3 MODE ELECTRONIC CRUISE CONTROL
			D4	NOT USED
420	.8	PPL	D5	BRAKE SWITCH INPUT
			D6	NOT USED
			D7	NOT USED
834	.5	BRN	D8	EBS CONTROL SIGNAL
			D9	NOT USED
			D10	NOT USED
83	.8	DK GRN	D11	CRUISE CONTROL SWITCH — RETARD
			D12	NOT USED
984	.8	LT GRN	D13	FUEL SOLENOID
			D14	NOT USED
84	.8	DK BLU	D15	CRUISE CONTROL SWITCH — ENGAGE
			D16	NOT USED

\* W/AUTO TRANS ONLY

▲ W/M30 AUTO TRANS

## 8A-25-12 ENGINE CONTROLS 6.5L (396 CID) V8 DIESEL VIN P

### POWERTRAIN CONTROL MODULE — 6.5L DIESEL ENGINE

CIRCUIT NO.	WIRE SIZE	COLOR	CAVITY	DESCRIPTION
450	.8	BLK/WHT	C1	SYSTEM GROUND
985	.8	RED	C2	CLOSURE SIGNAL
993	.5	LT BLU	C3	TPS 2 SIGNAL
992	.5	DK BLU	C4	TPS 1 SIGNAL
433	.8	GRA/BLK	C5	BAROMETRIC PRESSURE SENSOR INPUT
*1228	.8	RED/BLK	C6	TRANS FORCE MOTOR HIGH
432	.8	LT GRN	C7	MANIFOLD ABSOLUTE PRESSURE SENSOR INPUT
410	.8	YEL	C8	COOLANT TEMPERATURE
*1227	.8	BLK/YEL	C9	TRANS TEMPERATURE INPUT
416	.8	GRA	C10	+5 VOLT REFERENCE
*1229	.8	LT BLU/WHT	C11	TRANS FORCE MOTOR LOW
			C12	NOT USED
505	.8	YEL	C13	GLOW PLUG RELAY
1061	.8	ORN/BLK	C14	SERIAL DATA
437	.8	BRN	C15	VEHICLE SPEED SENSOR INPUT
			C16	NOT USED
551	.8	TAN/WHT	D1	ENGINE GROUND
950	.8	LT GRN	D2	CLOSURE GROUND
999	.5	PPL	D3	TPS 2 GROUND
998	.5	BRN	D4	TPS 1 GROUND
961	.5	GRA	D5	TPS 3 GROUND
452	.8	BLK	D6	TRANS TEMPERATURE/PRESSURE REFERENCE LOW
			D7	NOT USED
1586	.8	BRN/WHT	D8	2000 PULSE VEHICLE SPEED INPUT
983	.8	PPL	D9	TPS 2 SIGNAL
474	.8	GRA	D10	+5 VOLT REFERENCE
995	.5	YEL/BLK	D11	REFERENCE VOLTAGE TPS 3
			D12	NOT USED
643	.8	DK BLU/WHT	D13	CRANK SENSOR
987	.8	WHT	D14	CAM POSITION SENSOR GROUND
982	.8	PNK	D15	CAM POSITION SENSOR
			D16	NOT USED

\* W/AUTO TRANS ONLY



## ENGINE CONTROLS 6.5L (396 CID) V8 DIESEL VIN P 8A-25-13

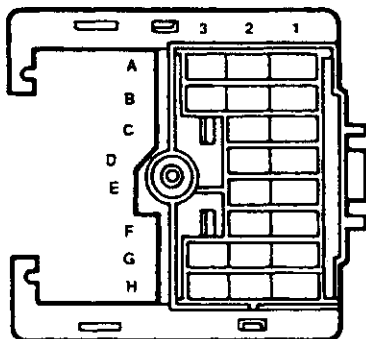
### POWERTRAIN CONTROL MODULE — 6.5L DIESEL ENGINE

CIRCUIT NO.	WIRE SIZE	COLOR	CAVITY	DESCRIPTION
439	.8	PNK/BLK	A1	12V IGNITION (FUSED)
▲897	.8	WHT	A2	3/2 SHIFT CONTROL OUTPUT
			A3	NOT USED
971	.8	WHT	A4	EGR VENT SOLENOID
960	.5	YEL	A5	"SERVICE THROTTLE" LAMP OUTPUT
			A6	NOT USED
820	.8	YEL	A7	CHMSL INPUT
565	.8	RED/BLK	A8	TIMING STEPPER A2
564	.8	TAN/BLK	A9	TIMING STEPPER A1
566	.8	ORN/BLK	A10	TIMING STEPPER B3
567	.8	YEL/BLK	A11	TIMING STEPPER B4
451	.8	WHT/BLK	A12	DIAGNOSTIC ENABLE
			B1	NOT USED
			B2	NOT USED
			B3	NOT USED
59		DK GRN	B4	A/C ON INPUT
			B5	NOT USED
			B6	NOT USED
996	.5	TAN	B7	REFERENCE VOLTAGE TPS 2
507	.5	DK BLU	B8	GLOW PLUG "WAIT" LAMP OUTPUT
			B9	NOT USED
994	.5	DK GRN	B10	TPS 3 SIGNAL INPUT
1578	.8	YEL	B11	FUEL TEMPERATURE INPUT
472	.8	TAN	B12	INTAKE MANIFOLD AIR TEMPERATURE

▲ W/M30 AUTO TRANS ONLY

# 8A-25-14 ENGINE CONTROLS 6.5L (396 CID) V8 DIESEL VIN P

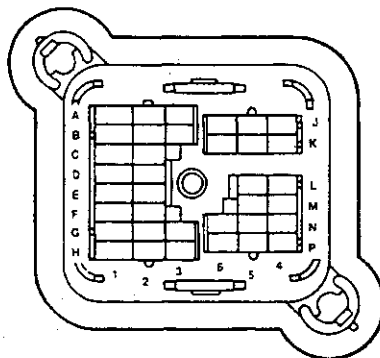
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GRAY  
Metri-Pack

**C100**  
Bulkhead Connector – Eng

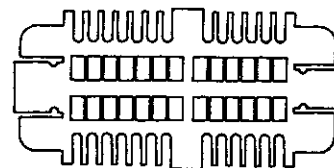
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GRAY  
Metri-Pack

**C100**  
Bulkhead Connector – I/P

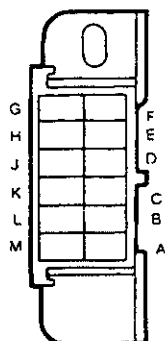
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BLACK  
Bow Series

**C203**  
I/P Cluster

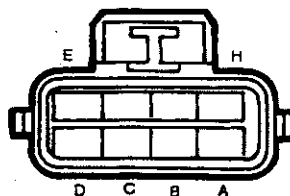
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BLACK  
Metri-Pack 480

**C272**  
Data Link Connector

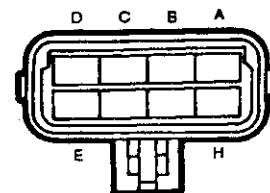
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BLACK  
Metri-Pack 150

**C161A**  
In-Line PCM to Engine

12047931



BLACK  
Metri-Pack 150

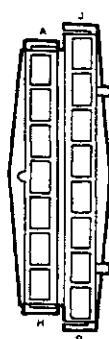
**C161A**  
In-Line Engine to PCM

12041254



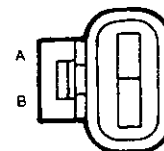
**C200**  
In-Line I/P to Bulkhead

12020213



**C200**  
In-Line Bulkhead to I/P

12084247

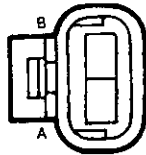


GRAY  
Metri-Pack 150

**C195A**  
Intake Manifold Air Temperature  
Sensor

# ENGINE CONTROLS 6.5L (396 CID) V8 DIESEL VIN P 8A-25-15

12078084



**BLACK**  
Metri-Pack 150  
**C143**  
Coolant Temperature Sensor

12020403



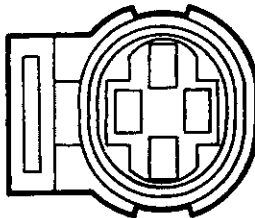
**BLACK**  
**C100A**  
MAP Sensor

12020403



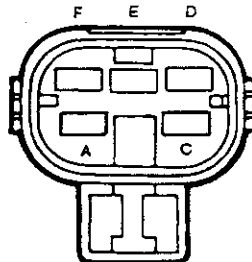
**BLACK**  
**C156**  
Barometric Pressure Sensor

12065401



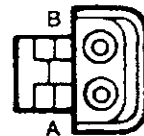
**GRAY**  
Metri-Pack 150  
**C167**  
Fuel Pump Oil Pressure Switch

12052287



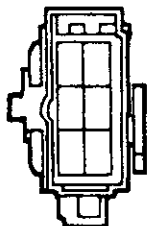
**BLACK**  
Metri-Pack  
**C132**  
Fuel Pump Relay

12015792



**BLACK**  
Weather Pack  
**C106A**  
In-Line Fuse to Fuel Pump and Sender

12020099



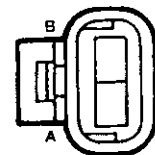
**C102**  
In-Line Fuel Pump to Bulkhead

12033709



**BLACK**  
Metri-Pack 280  
**C271**  
TCC/Brake Switch

12078084



**BLACK**  
Metri-Pack 150  
**C365**  
Transmission Speed Sensor

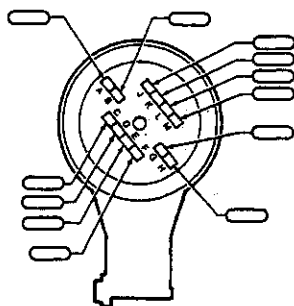
## 8A-25-16 ENGINE CONTROLS 6.5L (396 CID) V8 DIESEL VIN P

12015792



**BLACK**  
Weather Pack  
**C155A**  
Transfer Case Switch

12084690



**C348**  
Transmission

12066681



**BLACK**  
Metri-Pack 630  
**C130**  
Fuel Pump In-Line Fuse

12034417



**C227A**  
Clutch Pedal Position Switch

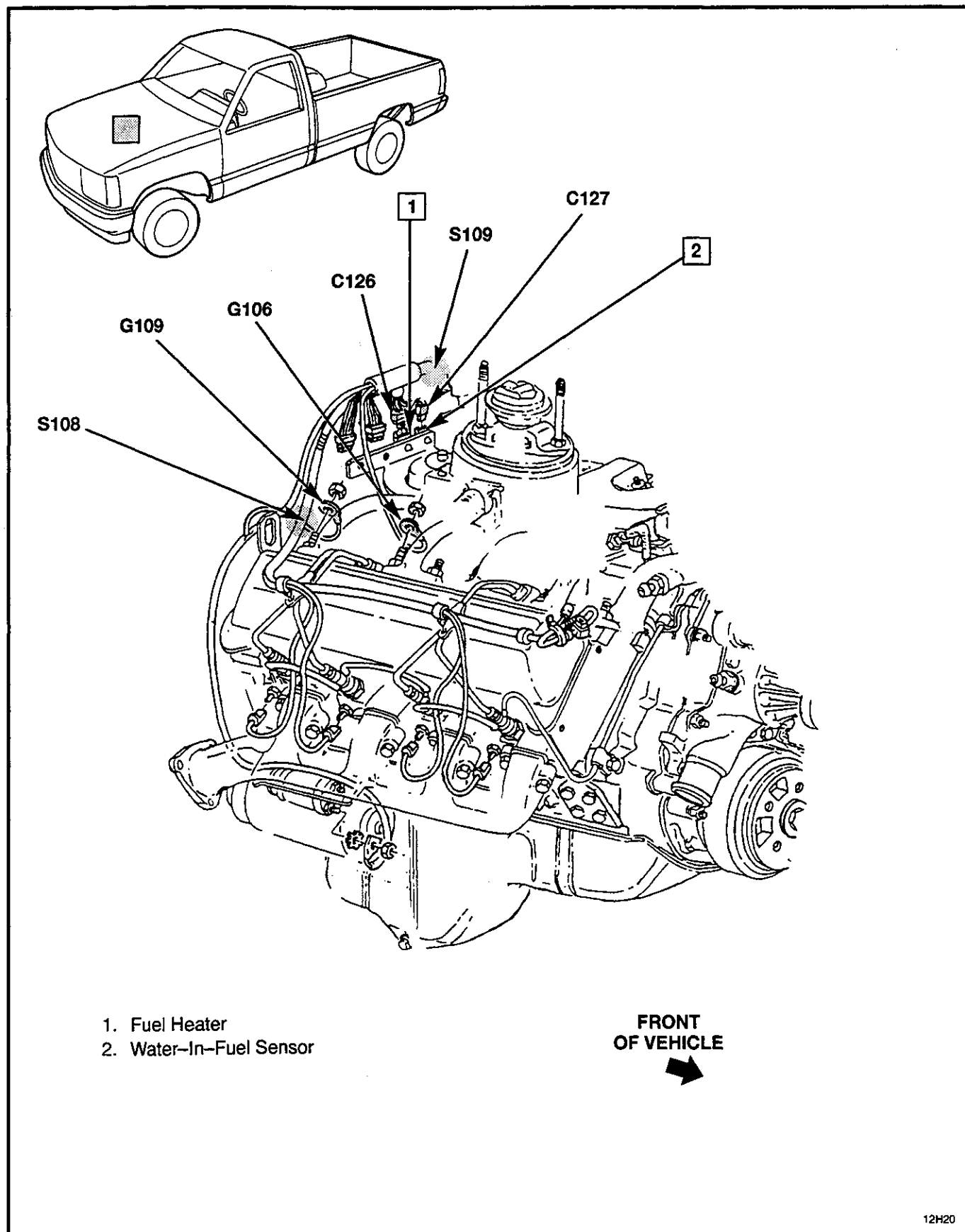


Figure 1 — 6.5L Diesel Engine Wiring, RH Side

# 8A-25-18 ENGINE CONTROLS 6.5L (396 CID) V8 DIESEL VIN P

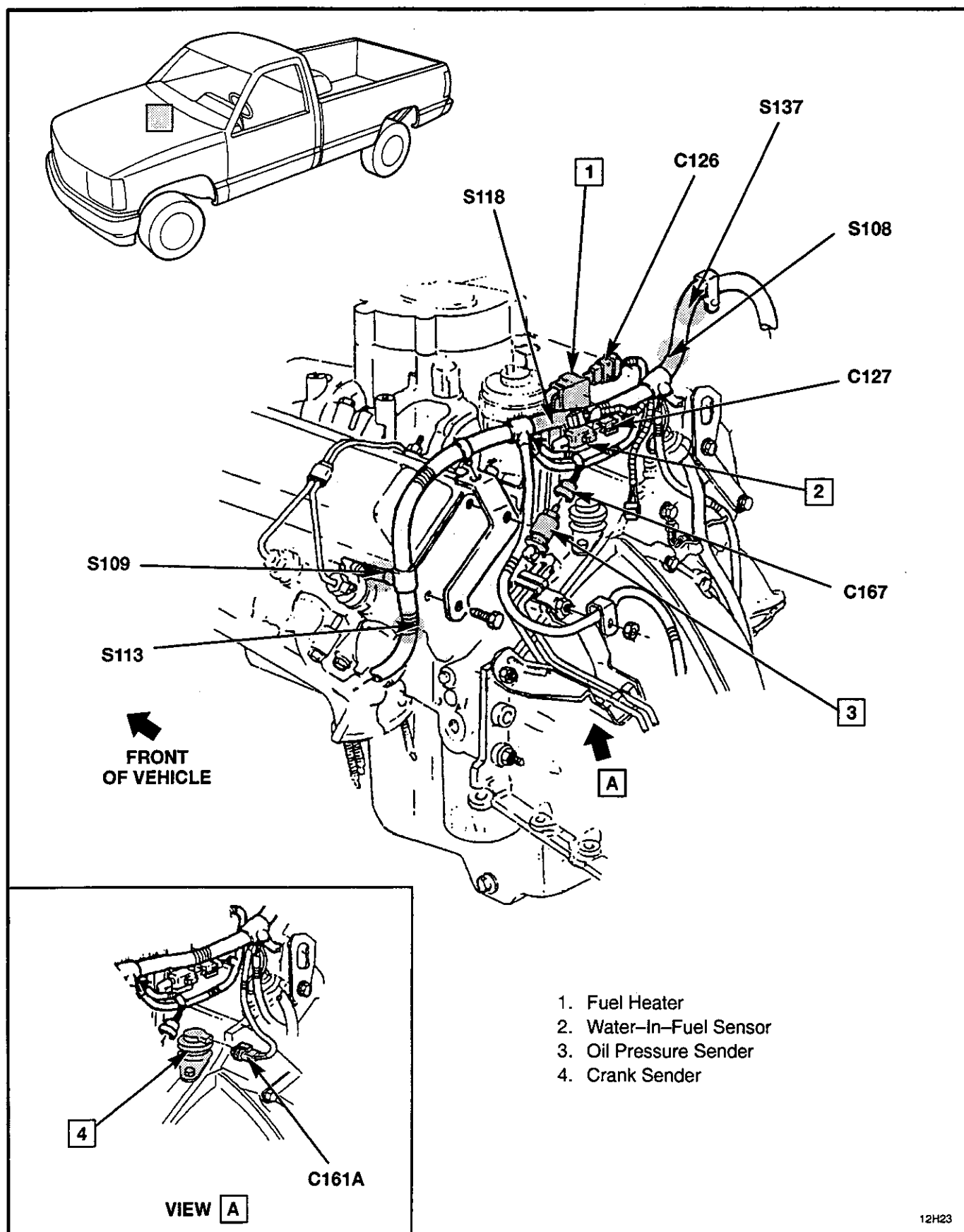


Figure 2 — 6.5L Diesel Engine Wiring, Rear

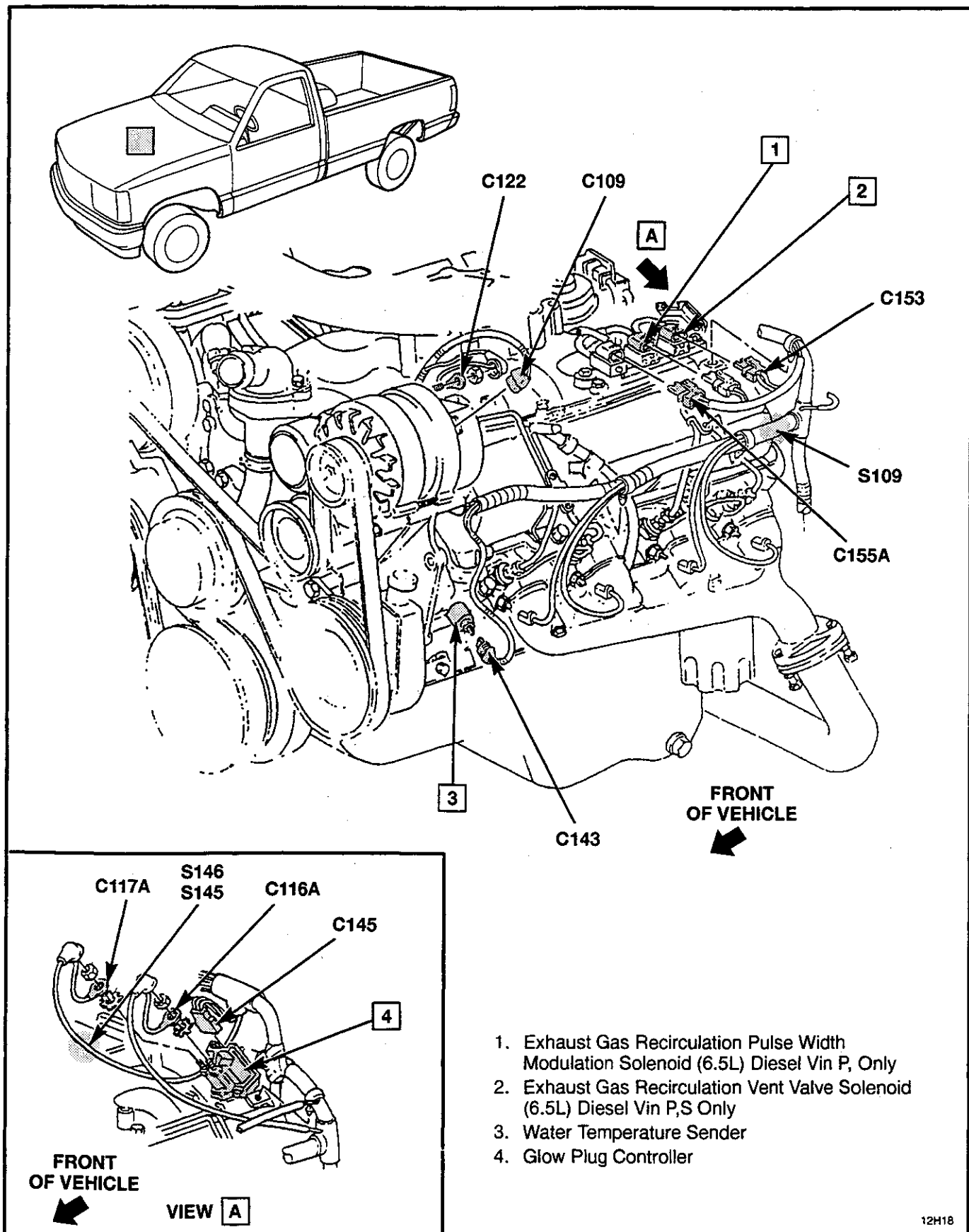


Figure 3 — 6.5L Diesel Engine Wiring, LH Side

# 8A-25-20 ENGINE CONTROLS 6.5L (396 CID) V8 DIESEL VIN P

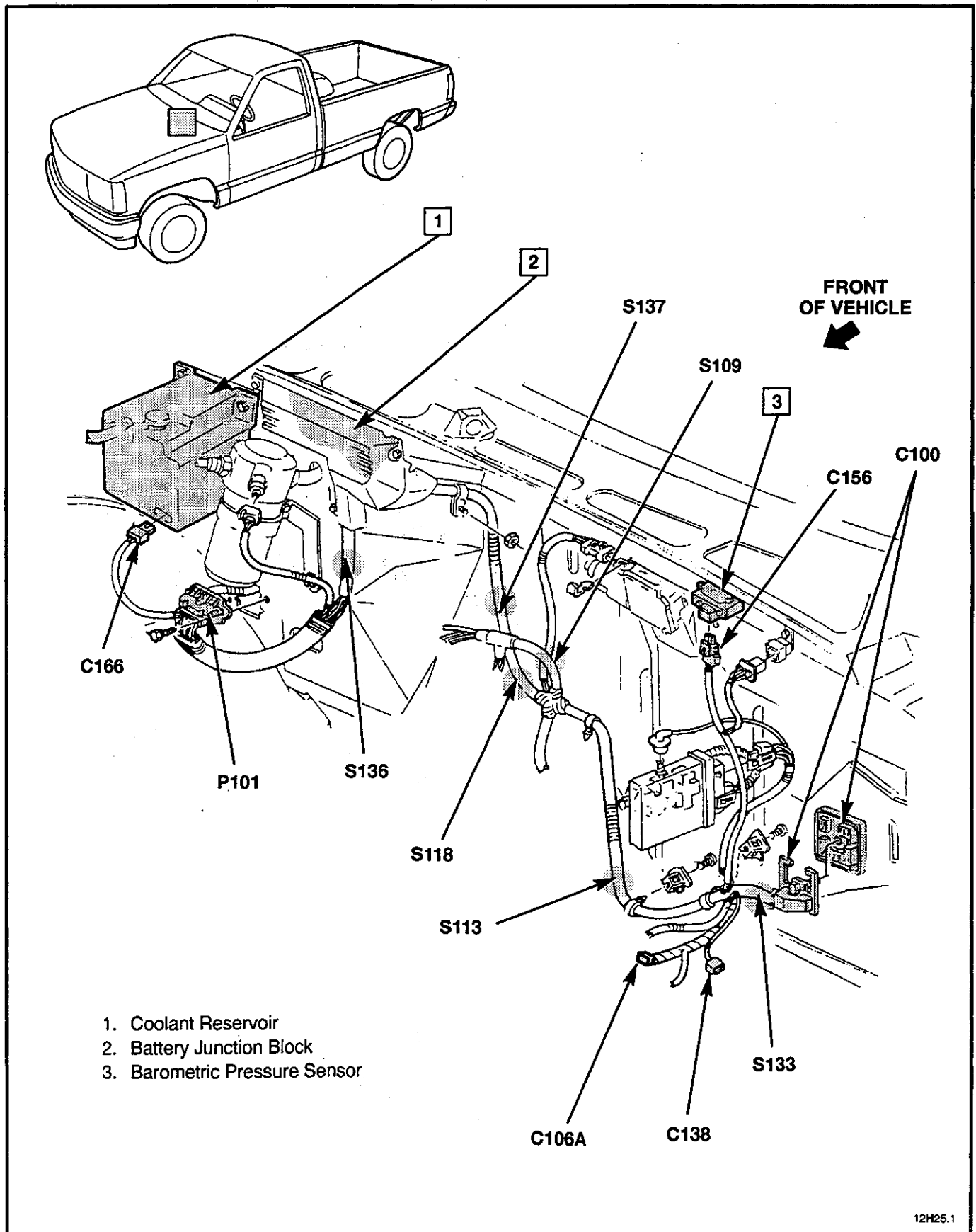
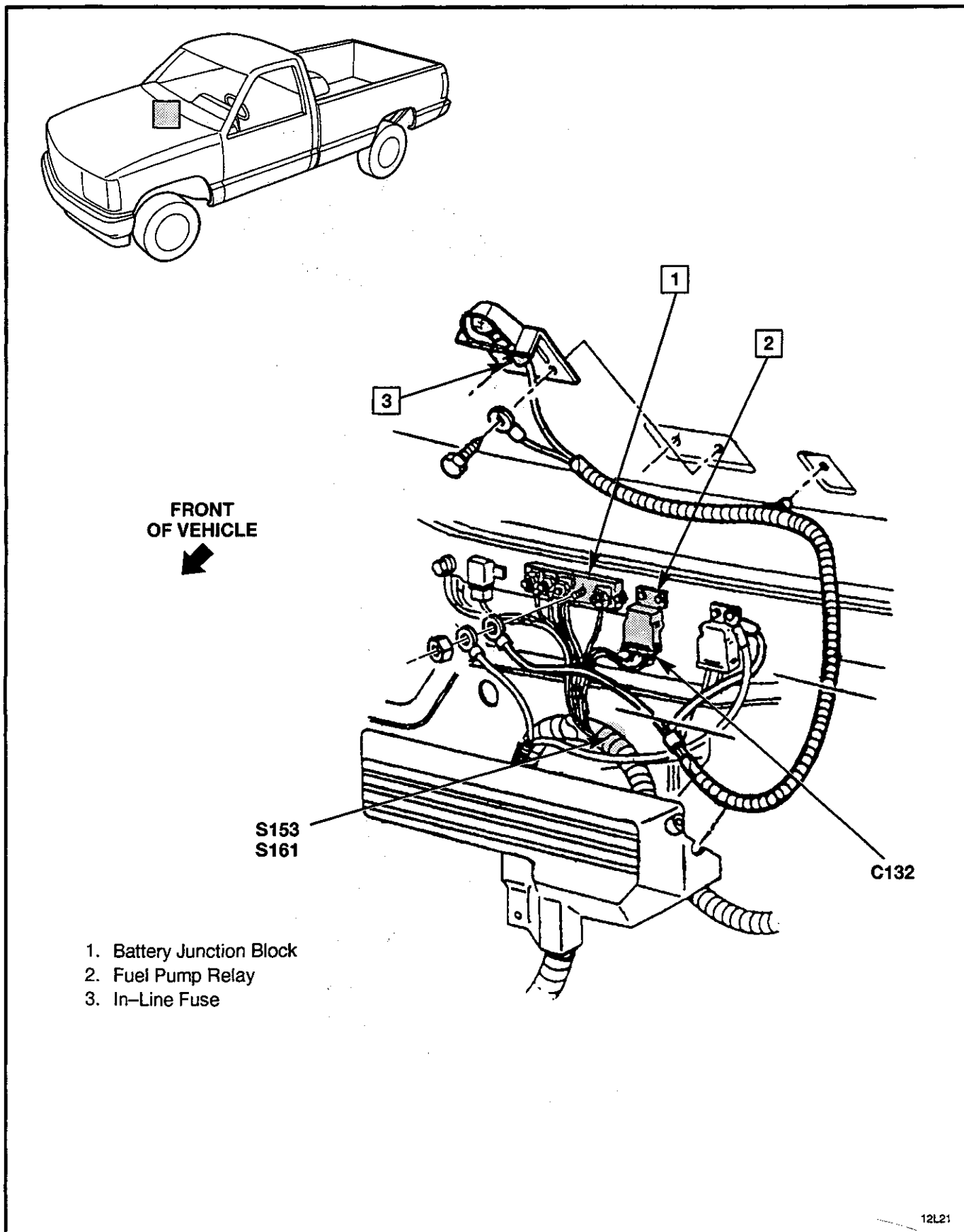


Figure 4 — Cowl Wiring, (6.5L) Diesel Engine





# 8A-25-22 ENGINE CONTROLS 6.5L (396 CID) V8 DIESEL VIN P

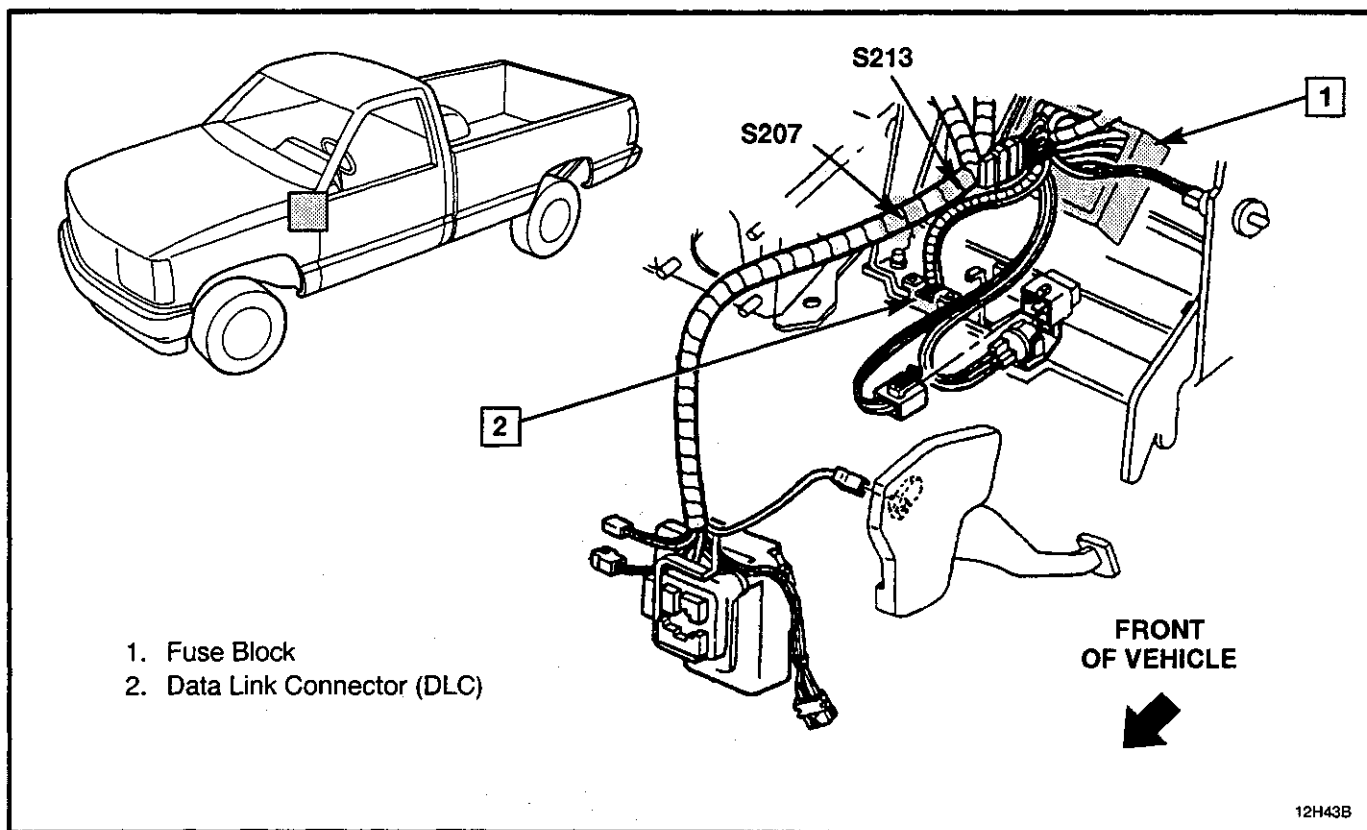


Figure 6 — Instrument Panel, LH Side

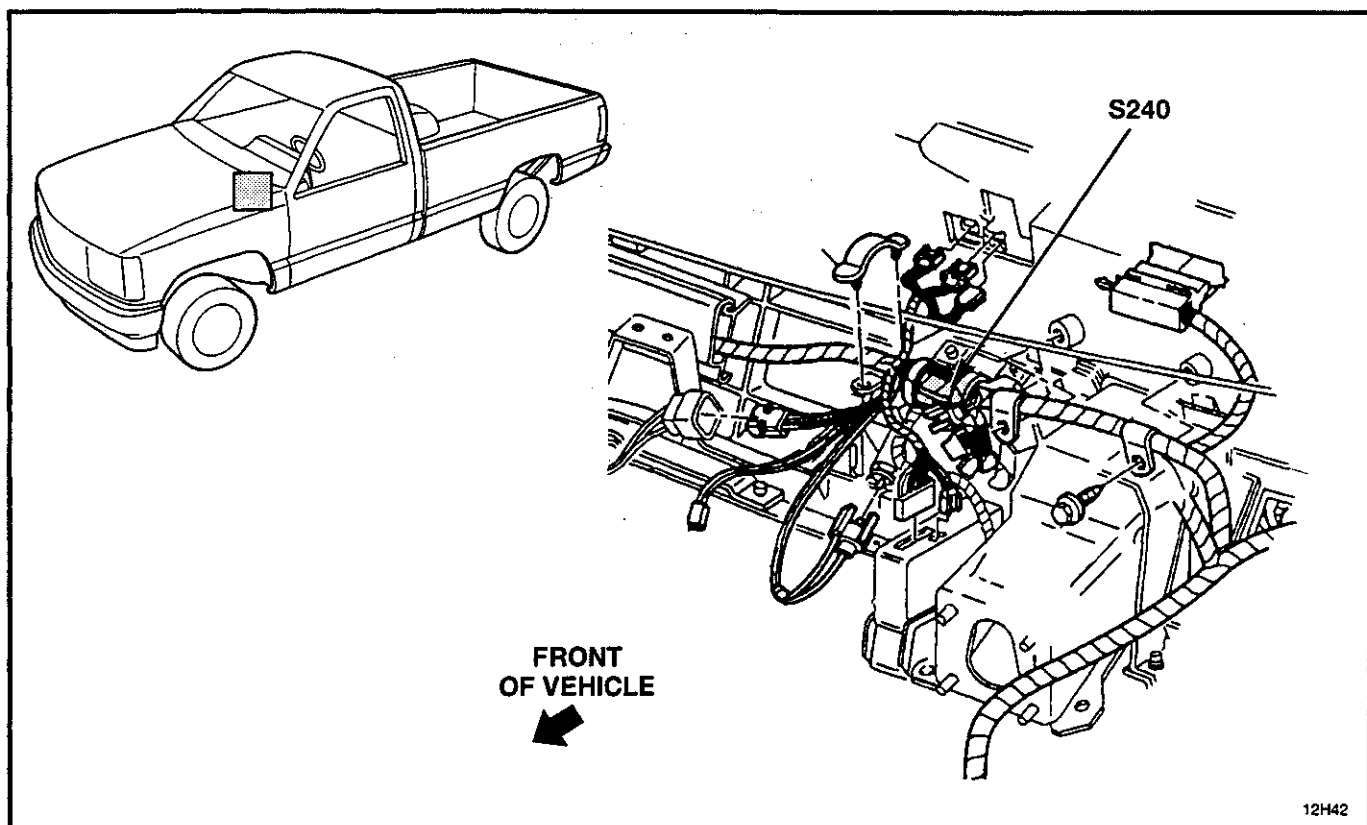


Figure 7 — Instrument Panel Wiring, RH Side

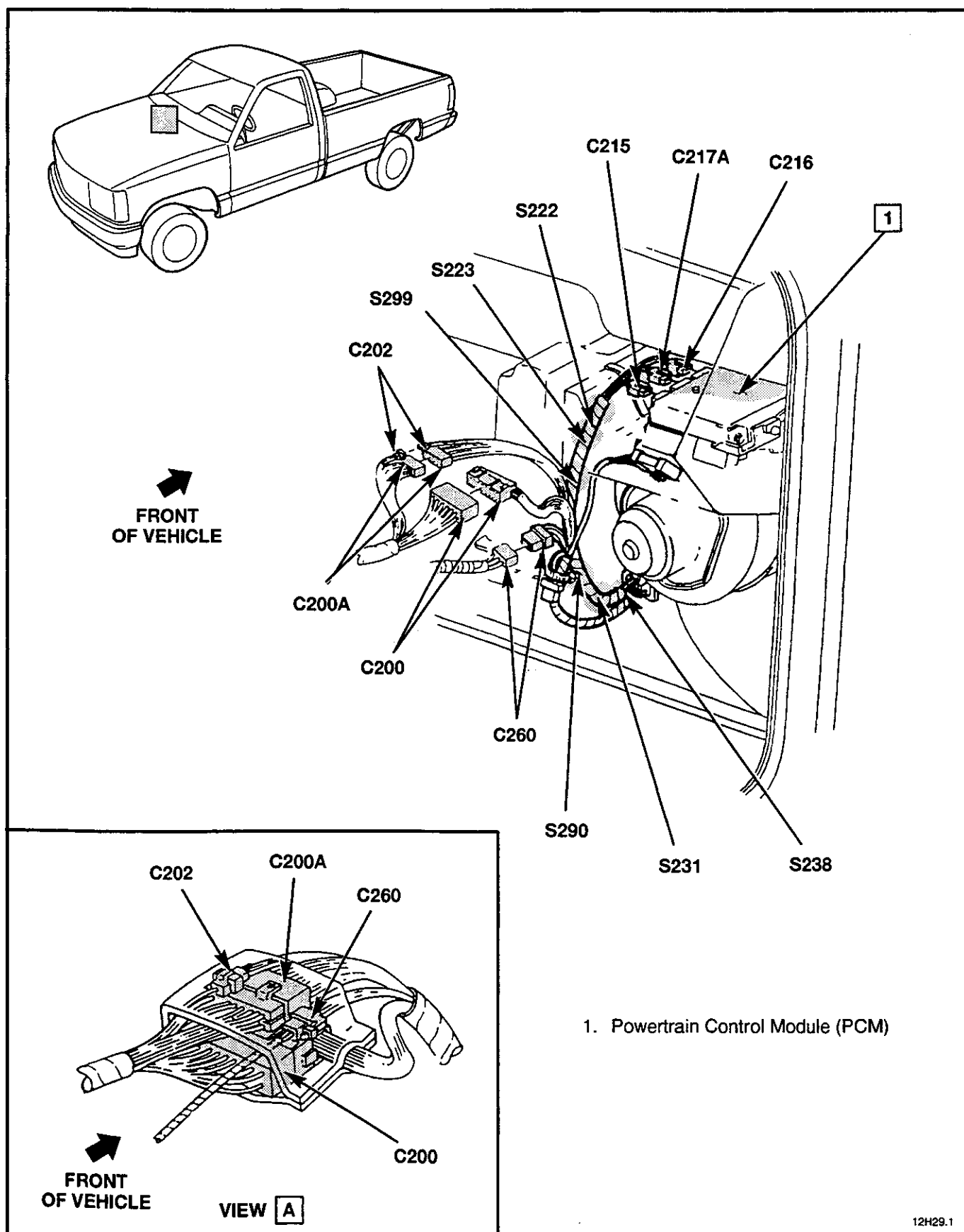


Figure 8 — PCM Wiring, Diesel Engines

**8A-25-24 ENGINE CONTROLS 6.5L (396 CID) V8 DIESEL VIN P**

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# ENGINE CONTROLS 6.5L (396 CID) HD V8 DIESEL VIN S 8A-26-1

## COMPONENT LOCATION

## Page — Figure

Barometric Pressure Sensor	Upper LH side of cowl	26-21	4
Battery	At front of vehicle	Not Shown	
Battery Junction Block	RH rear engine compartment at cowl	26-21	4
Clutch Pedal Position Switch	On clutch pedal support bracket	Not Shown	
Crank Sensor	Inside electronic injection pump	Not Shown	
DLC	Under LH side of I/P	26-23	6
Fuel Pump Oil Pressure Switch	Upper rear of engine	26-19	2
Fuel Pump Relay	RH upper cowl	26-22	5
Fuel Pump and Sender	In fuel tank	Not Shown	
EGR Solenoid (Pulse Width)	LH rear top of engine	26-20	3
EGR Vent Solenoid	LH rear top of engine	26-20	3
Electronic Accelerator Pedal			
Actuator	Top of accelerator bracket	Not Shown	
Electronic Injection Pump	Top front of engine	Not Shown	
Engine Coolant Temperature			
Sensor	RH rear front of engine	26-20	3
Fuel Heater	Top rear of engine	26-18	1
Fuse Block	Under LH side of I/P	26-23	6
Glow Plug Controller	RH rear top of engine	26-20	3
Intake Manifold Air Temperature			
Sensor	At front of engine	Not Shown	
I/P Cluster	LH side of I/P	Not Shown	
MAP Sensor	LH rear engine compartment at cowl	Not Shown	
Powertrain Control Module (PCM)	Under RH end of I/P	26-24	8
TCC/Brake Switch	On brake pedal support bracket	Not Shown	
TP Sensor	Top RH side of engine	Not Shown	
Transfer Case Switch	Side of transfer case	Not Shown	

## CONNECTORS:

C100	At bulkhead connector	26-21	4
C101	At bulkhead connector	Not Shown	
C106A	LH side of cowl near bulkhead connector	Not Shown	
C160	Center rear of engine	Not Shown	
C160A	Top front of engine	Not Shown	
C161A	Top front of engine	Not Shown	
C174	Top front of engine	26-24	8
C200	Under RH side of I/P, near blower motor	Not Shown	

## GROMMETS:

P101	RH lower cowl (engine compartment)	26-21	4
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## GROUND:

G106	Rear of RH cylinder head	26-18	1
G108	Top RH rear of engine	Not Shown	

## SPLICES:

S100	At RH battery	Not Shown	
S108	Upper RH side of engine	26-18	1
S109	Upper LH side of engine	26-18	1
S113	Engine compartment	26-19	2
S118	Rear of engine	26-19	2
S136	Rear of engine compartment, near center	26-21	4
S137	Near fuel pump relay	26-19	2
S145	At glow plug controller	26-20	3
S146	At glow plug controller	26-20	3

## **8A-26-2 ENGINE CONTROLS 6.5L (396 CID) HD V8 DIESEL VIN S**

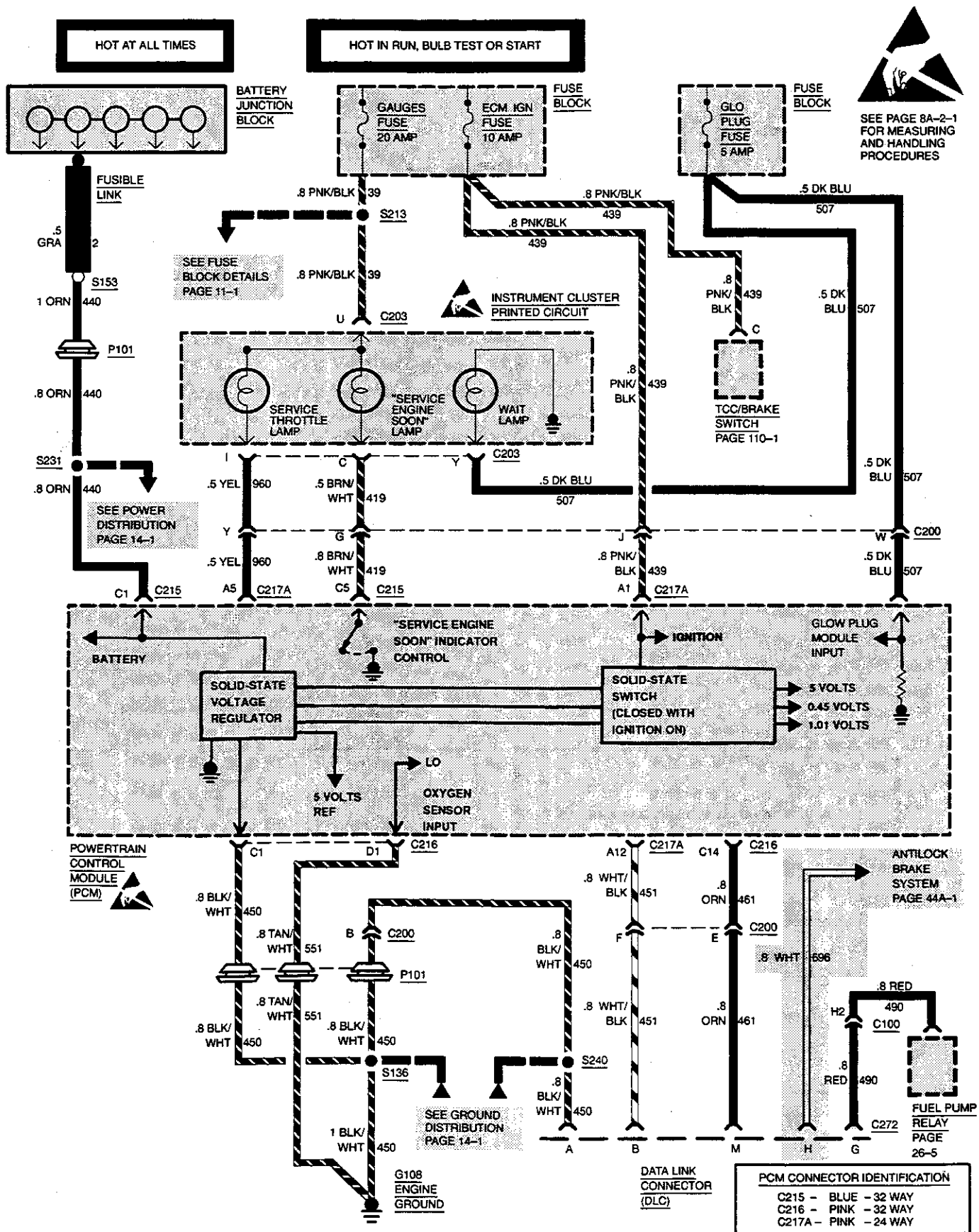
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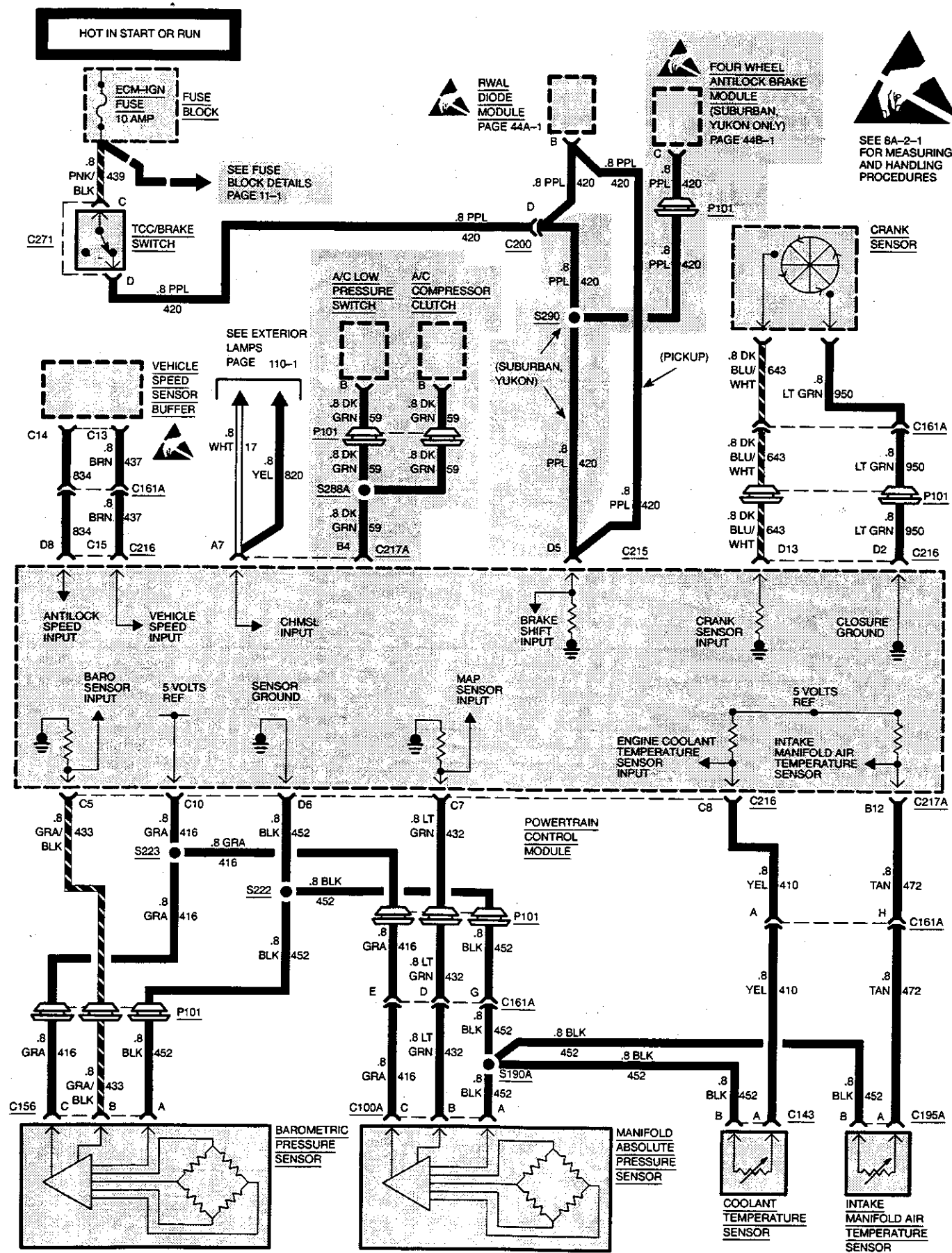
### **COMPONENT LOCATION (CONTINUED)**

### **Page — Figure**

S153	Near battery junction block	26-22	5
S161	At battery junction block	26-22	5
S190A	Engine harness near cowl, LH rear engine compartment at	Not Shown	
S207	Under LH side of I/P	26-23	6
S213	Under LH side of I/P	26-23	6
S222	Under RH side of I/P, near PCM	26-24	8
S223	Near PCM, under RH side of I/P	26-24	8
S231	Engine harness, near PCM	26-24	8
S238	Engine harness, near PCM	26-24	8
S240	Behind LH side of I/P	26-23	7
S243	Engine harness, near P101	Not Shown	
S288A	Near PCM, under RH side of I/P	Not Shown	
S290 (Suburban, Yukon)	Under LH side of I/P	Not Shown	

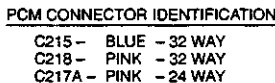
# ENGINE CONTROLS 6.5L (396 CID) HD V8 DIESEL VIN S 8A-26-3 (W/HD AUTOMATIC TRANSMISSION)



**W/HD AUTOMATIC TRANSMISSION**



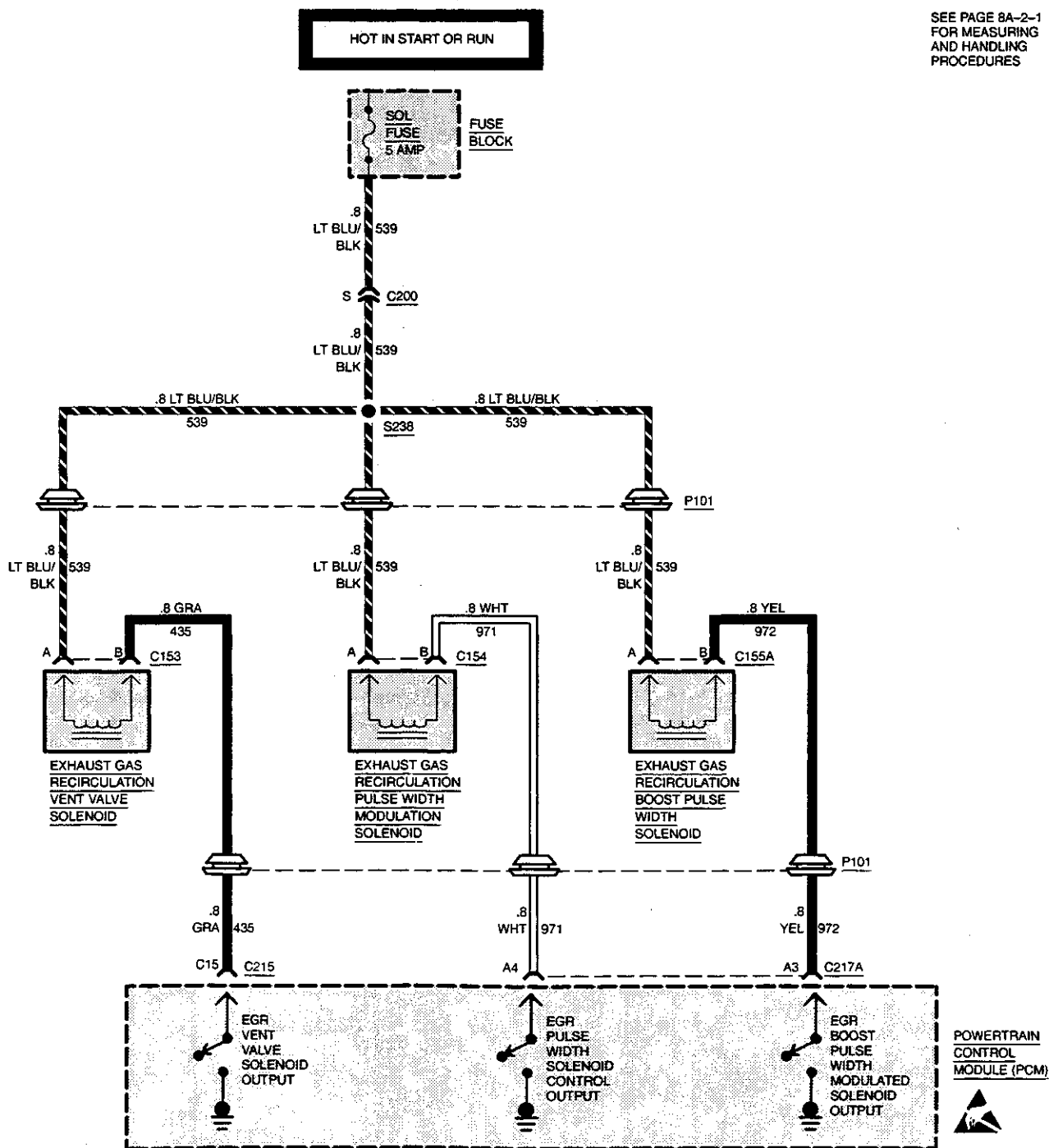
**(FUEL PUMP CONTROLS)**



# 8A-26-6 ENGINE CONTROLS 6.5L (396 CID) HD V8 DIESEL VIN S W/HD AUTOMATIC TRANSMISSION



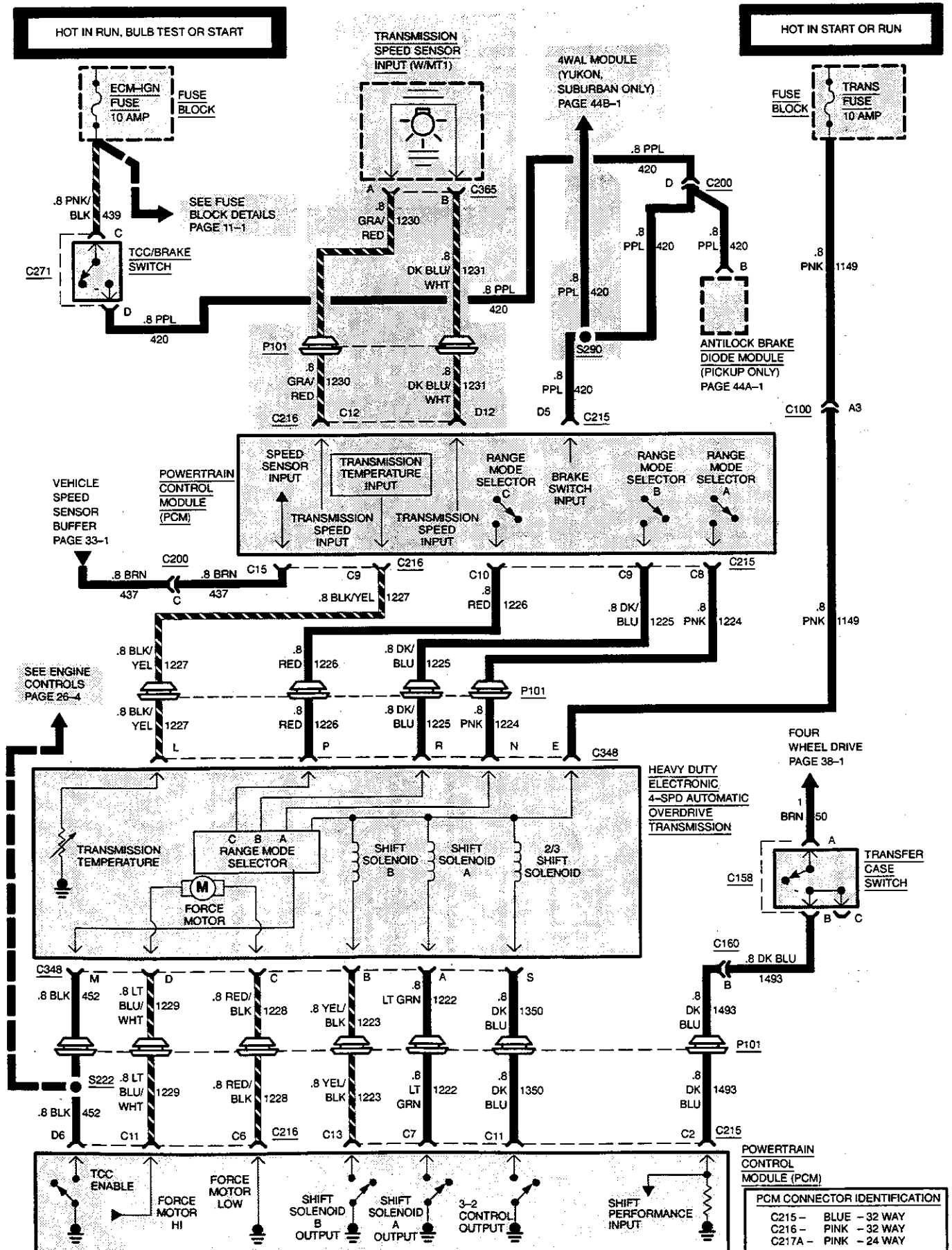
SEE PAGE 8A-2-1  
FOR MEASURING  
AND HANDLING  
PROCEDURES



## PCM CONNECTOR IDENTIFICATION

C215 - BLUE - 32 WAY  
C218 - PINK - 32 WAY  
C217A - PINK - 24 WAY

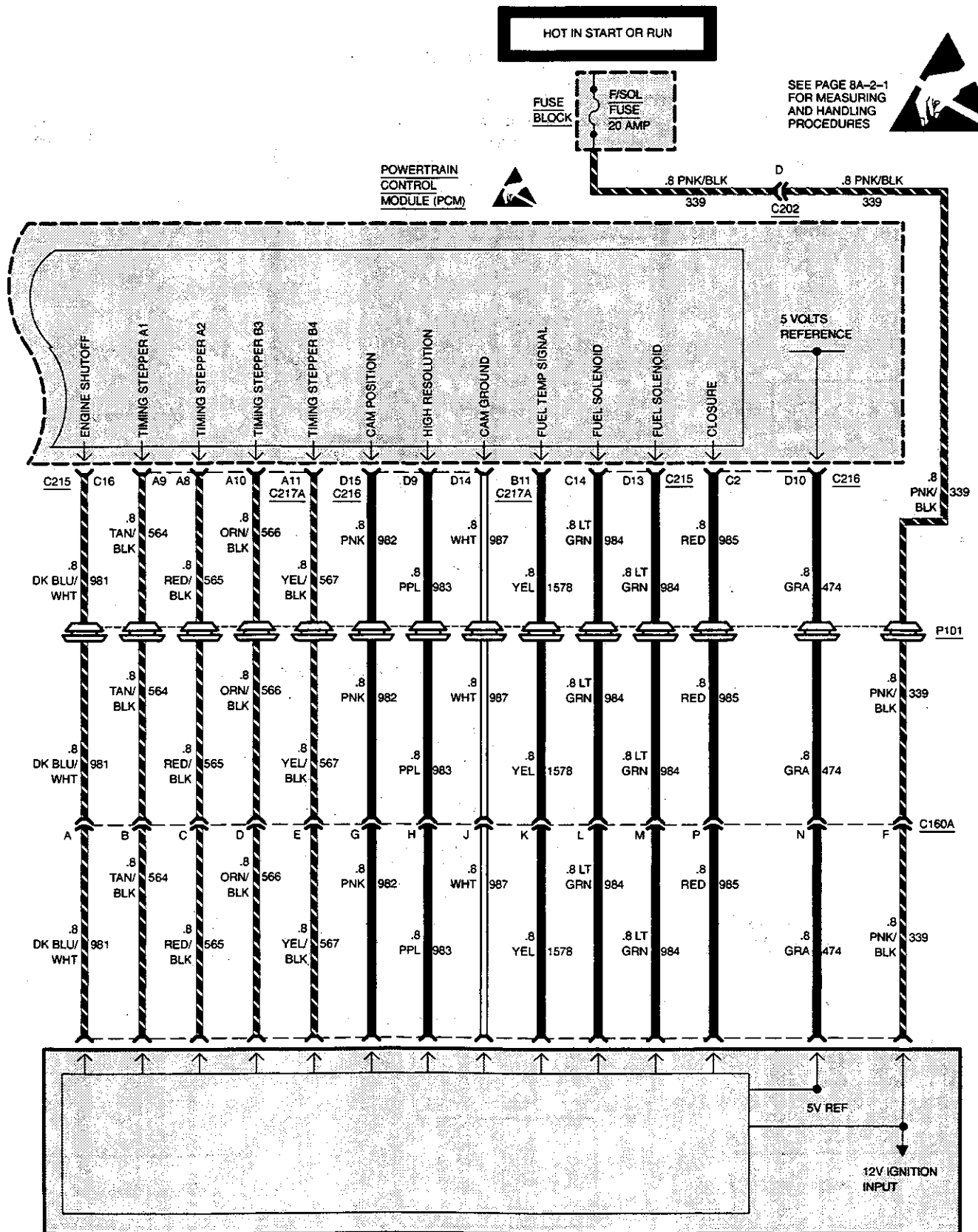
# ENGINE CONTROLS 6.5L (396 CID) HD V8 DIESEL VIN S 8A-26-7 (W/HD AUTOMATIC TRANSMISSION)



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# ENGINE CONTROLS 6.5L (396 CID) HD V8 DIESEL VIN S 8A-26-9

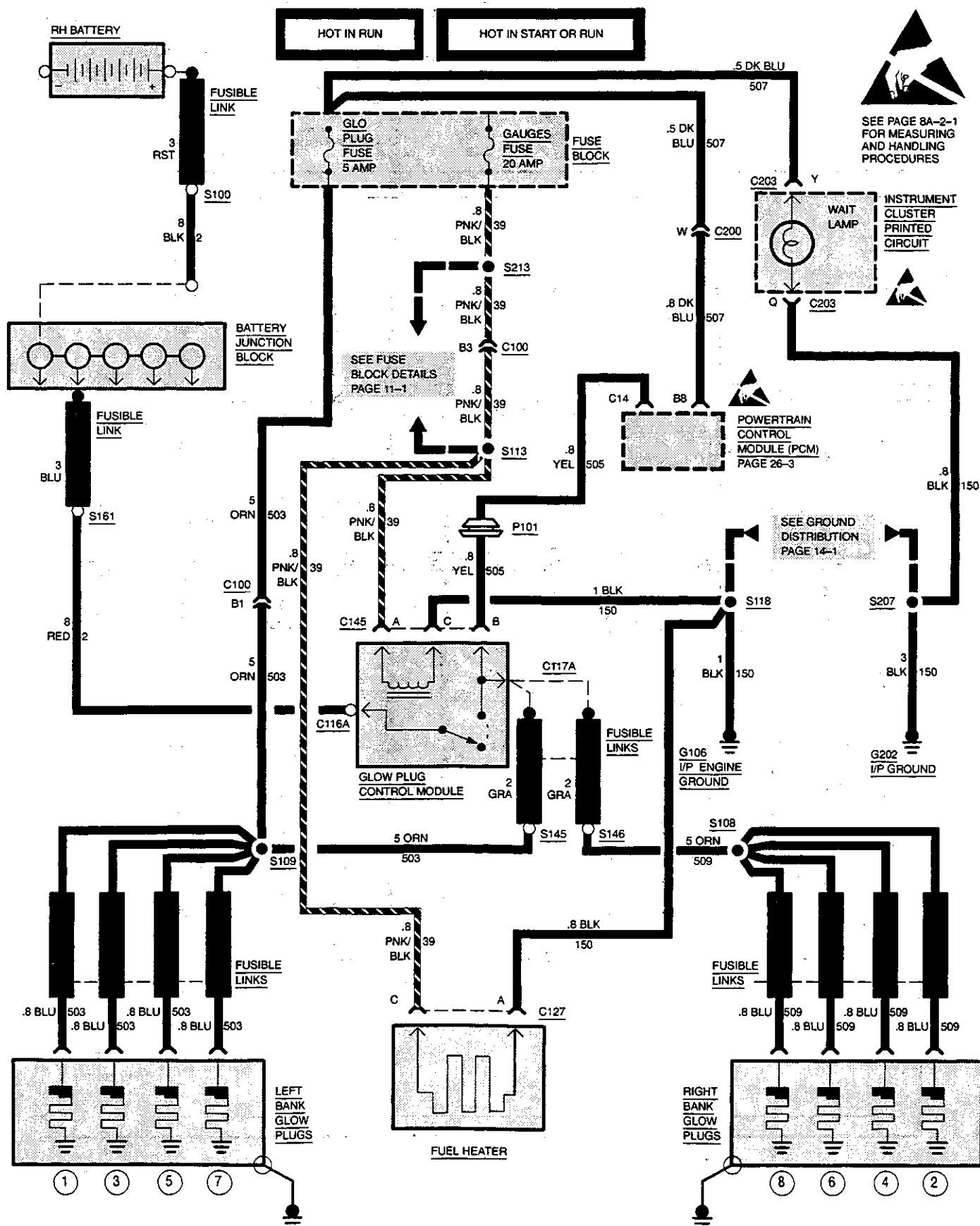


ELECTRONIC  
INJECTION PUMP

## PCM CONNECTOR IDENTIFICATION

C215 - BLUE - 32 WAY  
C216 - PINK - 32 WAY  
C217A - PINK - 24 WAY

## GLOW PLUG SYSTEM



## ENGINE CONTROLS 6.5L (396 CID) HD V8 DIESEL VIN S 8A-26-11

### POWERTRAIN CONTROL MODULE — 6.5L TURBO DIESEL ENGINE (32-PIN BLUE)

CIRCUIT NO.	WIRE SIZE	COLOR	CAVITY	DESCRIPTION
440	.8	ORN	C1	12V + BATTERY
1493	.8	DK BLU	C2	4WD INPUT
			C3	NOT USED
			C4	NOT USED
419	.8	BRN/WHT	C5	"SERVICE ENGINE SOON" LAMP OUTPUT
			C6	NOT USED
1222	.8	LT GRN	C7	TRANS SHIFT SOLENOID A
1224	.8	PNK	C8	TRANS RANGE MODE A
1225	.8	DK BLU	C9	TRANS RANGE MODE B
1226	.8	RED	C10	TRANS RANGE MODE C
1350	.8	DK BLU	C11	3/2 SHIFT CONTROL
			C12	NOT USED
1223	.8	YEL/BLK	C13	TRANS SHIFT SOLENOID B
984	.8	LT GRN	C14	FUEL SOLENOID
435	.8	GRA	C15	EGR SOLENOID
981	.8	DK BLU/WHT	C16	FUEL SHUTOFF
			D1	NOT USED
997	.5	WHT/BLK	D2	REFERENCE VOLTAGE TPS 1
397	.8	GRA	D3	3 MODE ELECTRONIC CRUISE CONTROL
			D4	NOT USED
420	.8	PPL	D5	BRAKE SWITCH INPUT
			D6	NOT USED
			D7	NOT USED
834	.5	BRN	D8	EBS CONTROL SIGNAL
			D9	NOT USED
			D10	NOT USED
83	.8	DK GRN	D11	CRUISE CONTROL SWITCH — RETARD
			D12	NOT USED
984	.8	LT GRN	D13	FUEL SOLENOID
			D14	NOT USED
84	.8	DK BLU	D15	CRUISE CONTROL SWITCH — ENGAGE
			D16	NOT USED

## 8A-26-12 ENGINE CONTROLS 6.5L (396 CID) HD V8 DIESEL VIN S

### POWERTRAIN CONTROL MODULE — 6.5L TURBO DIESEL ENGINE (32-PIN PINK)

CIRCUIT NO.	WIRE SIZE	COLOR	CAVITY	DESCRIPTION
450	.8	BLK/WHT	C1	SYSTEM GROUND
985	.8	RED	C2	CLOSURE SIGNAL
993	.5	LT BLU	C3	TPS 2 SIGNAL
992	.5	DK BLU	C4	TPS 1 SIGNAL
433	.8	GRA/BLK	C5	BAROMETRIC PRESSURE SENSOR INPUT
1228	.8	RED/BLK	C6	TRANS FORCE MOTOR HIGH
432	.8	LT GRN	C7	MANIFOLD ABSOLUTE PRESSURE SENSOR INPUT
410	.8	YEL	C8	COOLANT TEMPERATURE
1227	.8	BLK/YEL	C9	TRANS TEMPERATURE INPUT
416	.8	GRA	C10	+5 VOLT REFERENCE
1229	.8	LT BLU/WHT	C11	TRANS FORCE MOTOR LOW
1230	.8	GRA/RED	C12	TRANS SPEED SENSOR INPUT
505	.8	YEL	C13	GLOW PLUG RELAY
1061	.8	ORN/BLK	C14	SERIAL DATA
437	.8	BRN	C15	VEHICLE SPEED SENSOR INPUT
			C16	NOT USED
551	.8	TAN/WHT	D1	ENGINE GROUND
950	.8	LT GRN	D2	CLOSURE GROUND
999	.5	PPL	D3	TPS 2 GROUND
998	.5	BRN	D4	TPS 1 GROUND
961	.5	GRA	D5	TPS 3 GROUND
452	.8	BLK	D6	TRANS TEMPERATURE/PRESSURE REFERENCE LOW
			D7	NOT USED
1586	.8	BRN/WHT	D8	2000 PULSE VEHICLE SPEED INPUT
983	.8	PPL	D9	TPS 2 SIGNAL
474	.8	GRA	D10	+5 VOLT REFERENCE
995	.5	YEL/BLK	D11	REFERENCE VOLTAGE TPS 3
1231	.8	DK BLU/WHT	D12	TRANS SPEED SENSOR INPUT
643	.8	DK BLU/WHT	D13	CRANK SENSOR
987	.8	WHT	D14	CAM POSITION SENSOR GROUND
982	.8	PNK	D15	CAM POSITION SENSOR
			D16	NOT USED



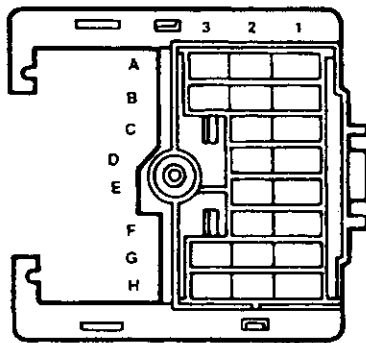
## ENGINE CONTROLS 6.5L (396 CID) HD V8 DIESEL VIN S 8A-26-13

### POWERTRAIN CONTROL MODULE — 6.5L TURBO DIESEL ENGINE (32-PIN PINK)

CIRCUIT NO.	WIRE SIZE	COLOR	CAVITY	DESCRIPTION
439	.8	PNK/BLK	A1	12V IGNITION (FUSED)
			A2	NOT USED
			A3	NOT USED
971	.8	WHT	A4	EGR VENT SOLENOID
960	.5	YEL	A5	"SERVICE THROTTLE" LAMP OUTPUT
			A6	NOT USED
820	.8	YEL	A7	CHMSL INPUT
565	.8	RED/BLK	A8	TIMING STEPPER A2
564	.8	TAN/BLK	A9	TIMING STEPPER A1
566	.8	ORN/BLK	A10	TIMING STEPPER B3
567	.8	YEL/BLK	A11	TIMING STEPPER B4
451	.8	WHT/BLK	A12	DIAGNOSTIC ENABLE
			B1	NOT USED
			B2	NOT USED
			B3	NOT USED
59		DK GRN	B4	A/C ON INPUT
			B5	NOT USED
			B6	NOT USED
996	.5	TAN	B7	REFERENCE VOLTAGE TPS 2
507	.5	DK BLU	B8	GLOW PLUG "WAIT" LAMP OUTPUT
			B9	NOT USED
994	.5	DK GRN	B10	TPS 3 SIGNAL INPUT
1578	.8	YEL	B11	FUEL TEMPERATURE INPUT
472	.8	TAN	B12	INTAKE MANIFOLD AIR TEMPERATURE

# 8A-26-14 ENGINE CONTROLS 6.5L (396 CID) HD V8 DIESEL VIN S

12020183



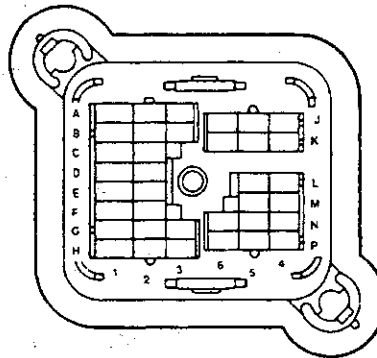
GRAY

Metri-Pack

C100

Bulkhead Connector – Eng

12020184



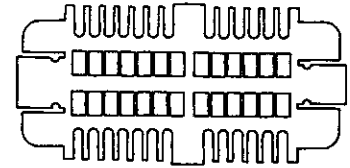
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Metri-Pack

C100

Bulkhead Connector – I/P

12089908



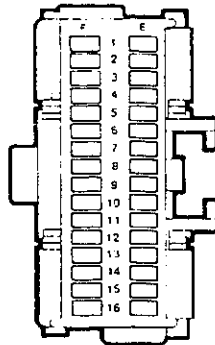
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Bow Series

C203

I/P Cluster

12110115



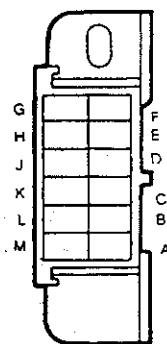
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Metri-Pack 280

C216

PCM

12020043



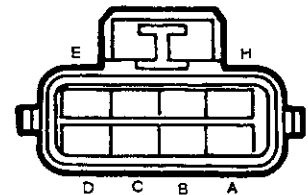
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Metri-Pack 480

C272

Data Link Connector

12047937



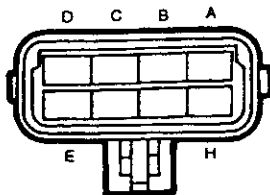
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Metri-Pack 150

C161A

In-Line PCM to Engine

12047931



BLACK

Metri-Pack 150

C161A

In-Line Engine to PCM

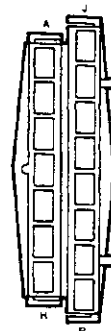
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C200

In-Line I/P to Bulkhead

12020213

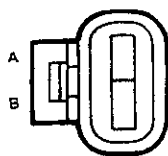


C200

In-Line Bulkhead to I/P

# ENGINE CONTROLS 6.5L (396 CID) HD V8 DIESEL VIN S 8A-26-15

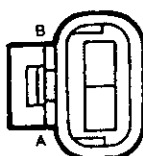
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GRAY  
Metri-Pack 150

**C195A**  
Intake Manifold Air Temperature  
Sensor

12078084



BLACK  
Metri-Pack 150

**C143**  
Coolant Temperature Sensor

12020403



BLACK

**C100A**  
MAP Sensor

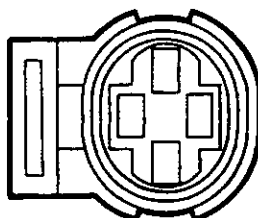
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BLACK

**C156**  
Barometric Pressure Sensor

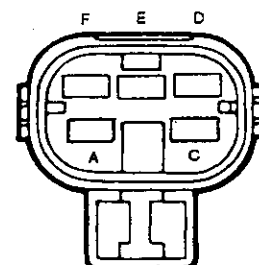
12065401



GRAY  
Metri-Pack 150

**C167**  
Fuel Pump Oil Pressure Switch

12052287



BLACK  
Metri-Pack

**C132**  
Fuel Pump Relay

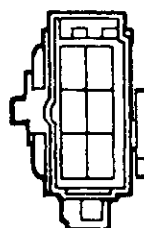
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BLACK  
Weather Pack

**C106A**  
In-Line Fuse to Fuel Pump and  
Sender

12020099



**C102**  
In-Line Fuel Pump to Bulkhead

12033709

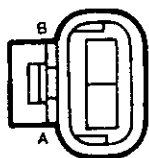


BLACK  
Metri-Pack 280

**C271**  
TCC/Brake Switch

# 8A-26-16 ENGINE CONTROLS 6.5L (396 CID) HD V8 DIESEL VIN S

12078084



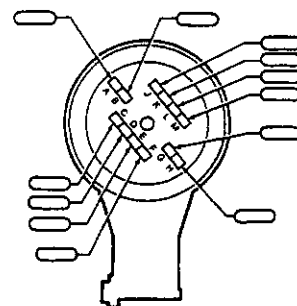
**BLACK**  
Metri-Pack 150  
**C365**  
Transmission Speed Sensor

12015792



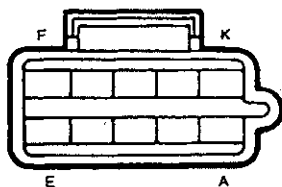
**BLACK**  
Weather Pack  
**C155A**  
Transfer Case Switch

12084690



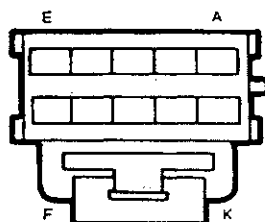
**C348**  
Transmission

12064770



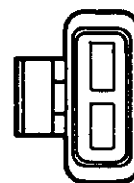
**NATURAL**  
Metri-Pack 150  
**C200A**  
In-Line Electronic Accelerator  
Pedal Control to PCM

12064769



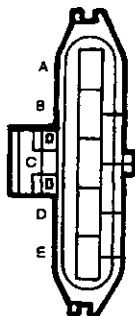
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**C200A**  
In-Line PCM to Electronic  
Accelerator Pedal Control

12066681



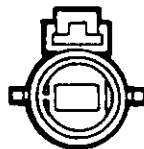
**BLACK**  
Metri-Pack 630  
**C130**  
Fuel Pump In-Line Fuse

12015982



**C145**  
Glow Plug Control Module

12065172



**BLACK**  
Metri-Pack 280  
**C160**  
In-Line Transfer Case Switch to  
PCM

12065171



**BLACK**  
Metri-Pack 280  
**C160**  
In-Line PCM to Transfer Case  
Switch

**ENGINE CONTROLS 6.5L (396 CID) HD V8 DIESEL VIN S 8A-26-17**

**12020600**



**BLACK**  
Metri-Pack 280  
**C365**  
**Transmission Speed Sensor**

# 8A-26-18 ENGINE CONTROLS 6.5L (396 CID) HD V8 DIESEL VIN S

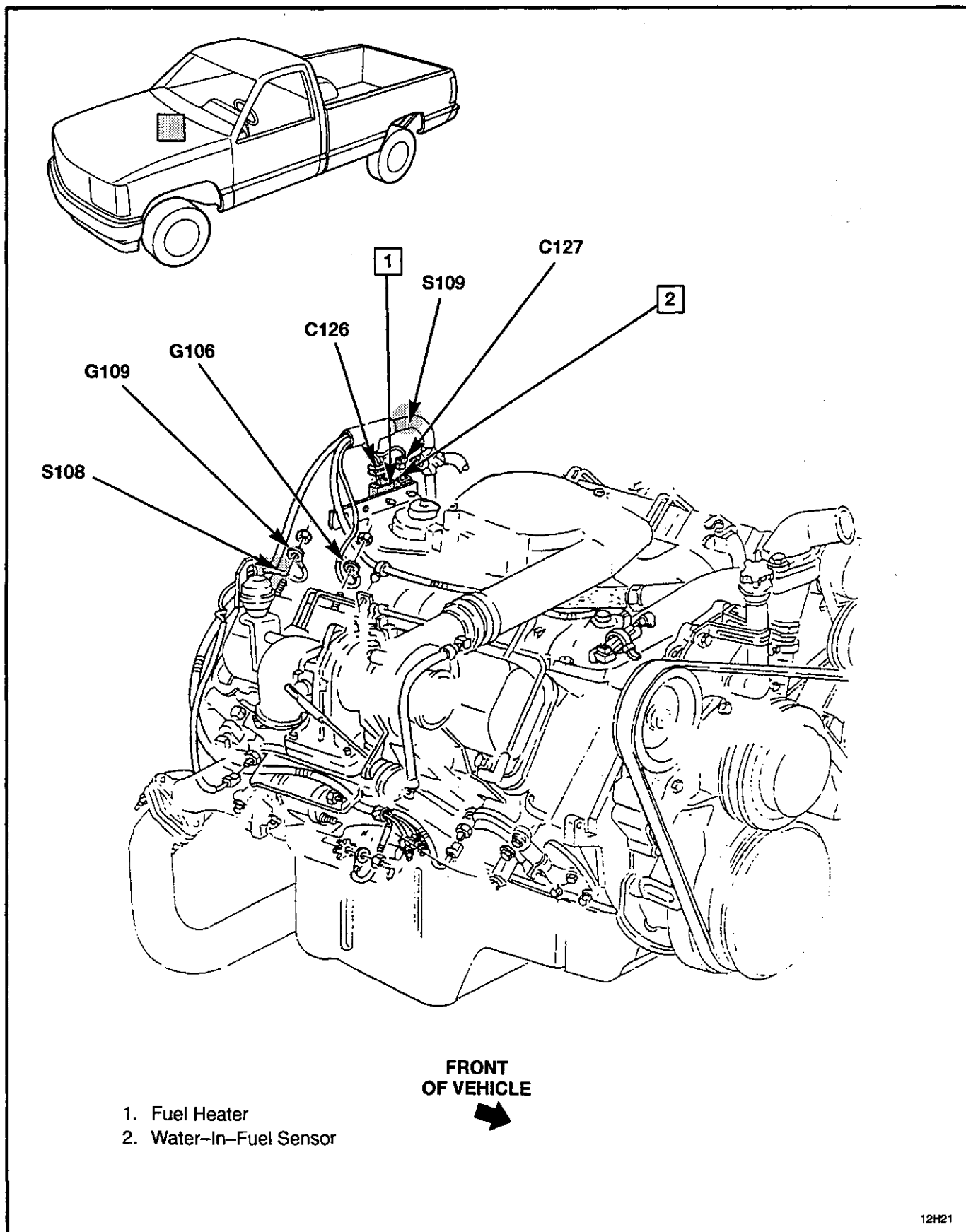


Figure 1 — Turbo Diesel Engine Wiring, RH Side

# ENGINE CONTROLS 6.5L (396 CID) HD V8 DIESEL VIN S 8A-26-19

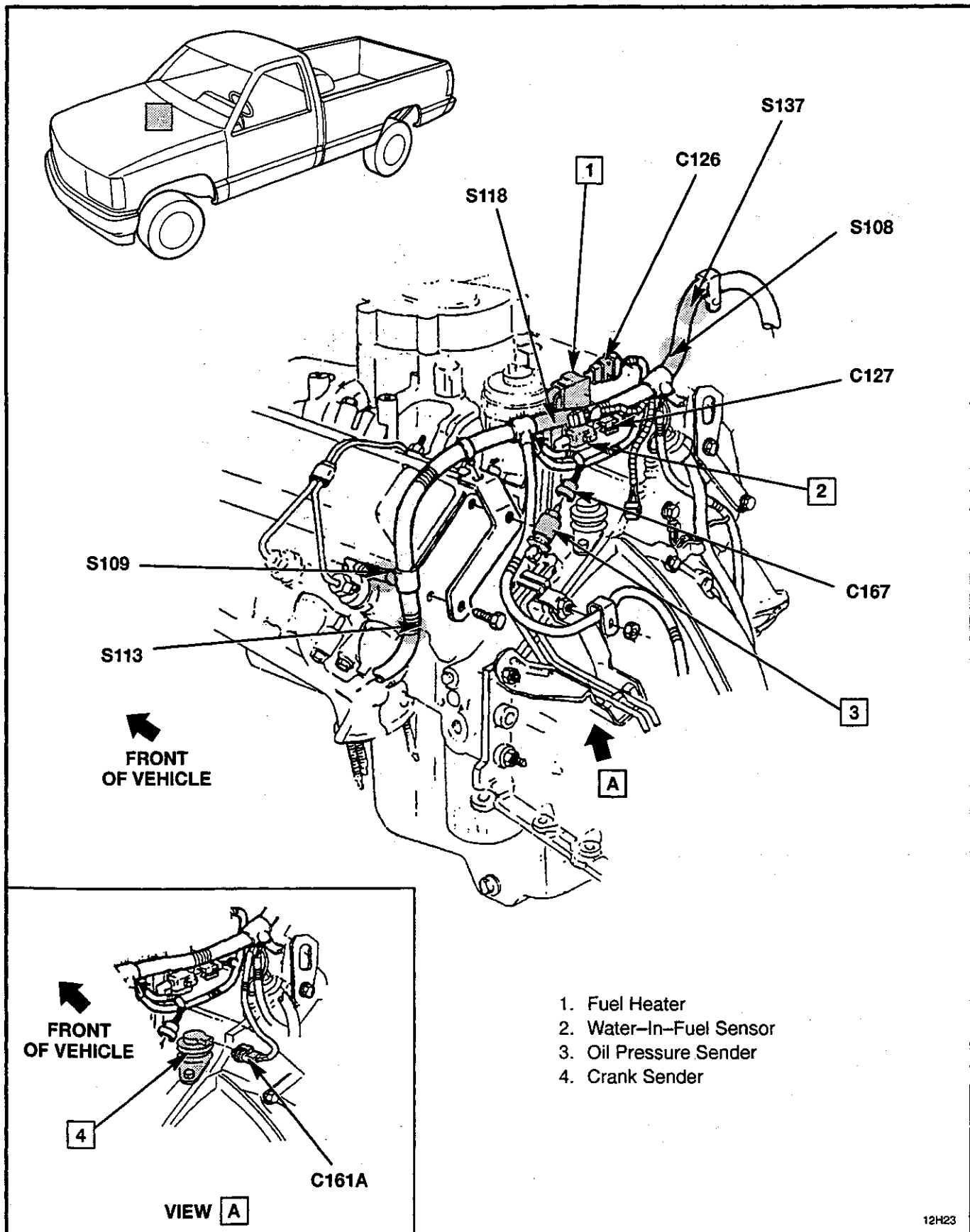


Figure 2 — 6.5L Diesel Engine Wiring, Rear

# 8A-26-20 ENGINE CONTROLS 6.5L (396 CID) HD V8 DIESEL VIN S

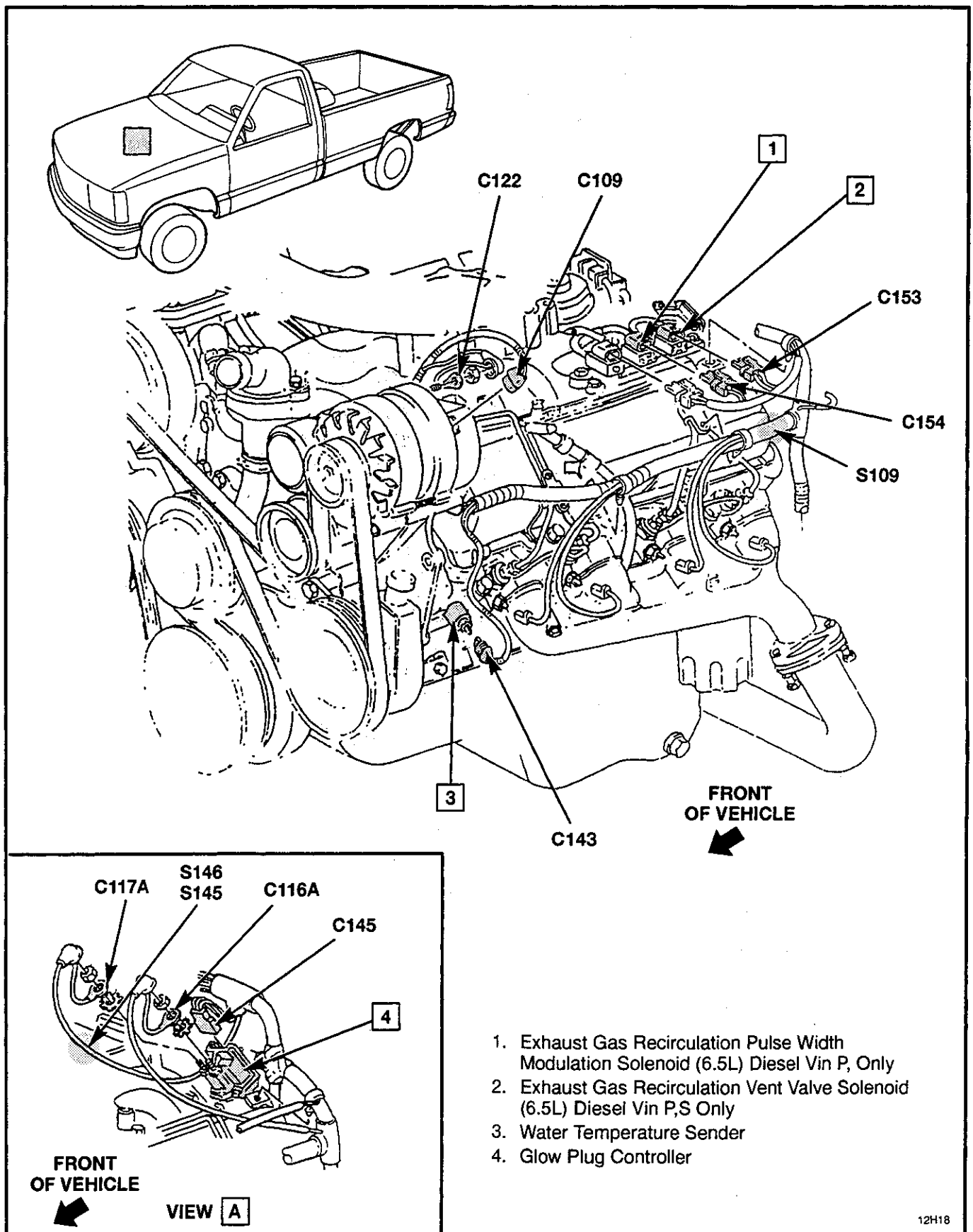


Figure 3 — 6.5L Diesel Engine Wiring, LH Side



# ENGINE CONTROLS 6.5L (396 CID) HD V8 DIESEL VIN S 8A-26-21

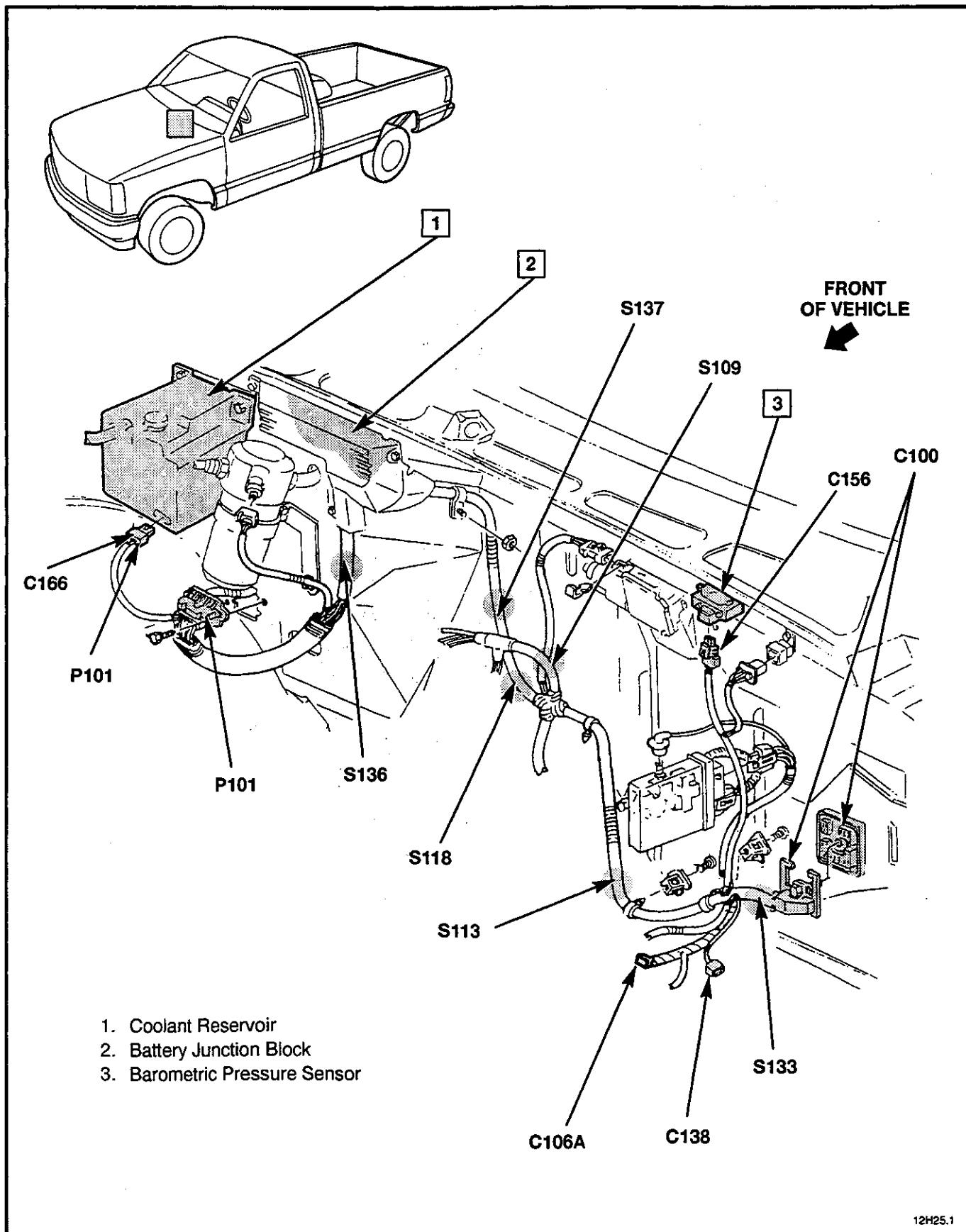


Figure 4 — Cowl Wiring, (6.5L) Diesel Engine

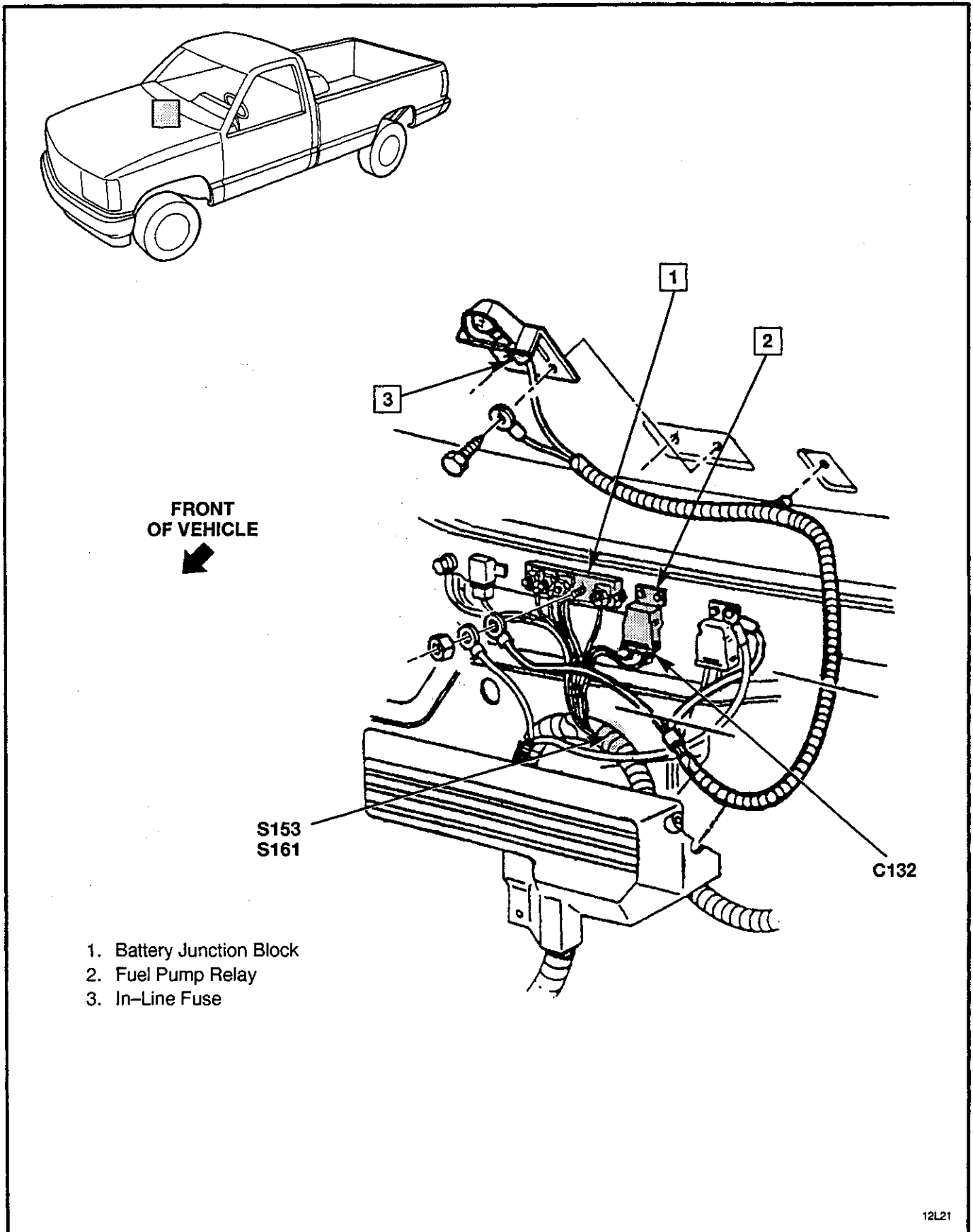


Figure 5 — Battery Junction Block Wiring

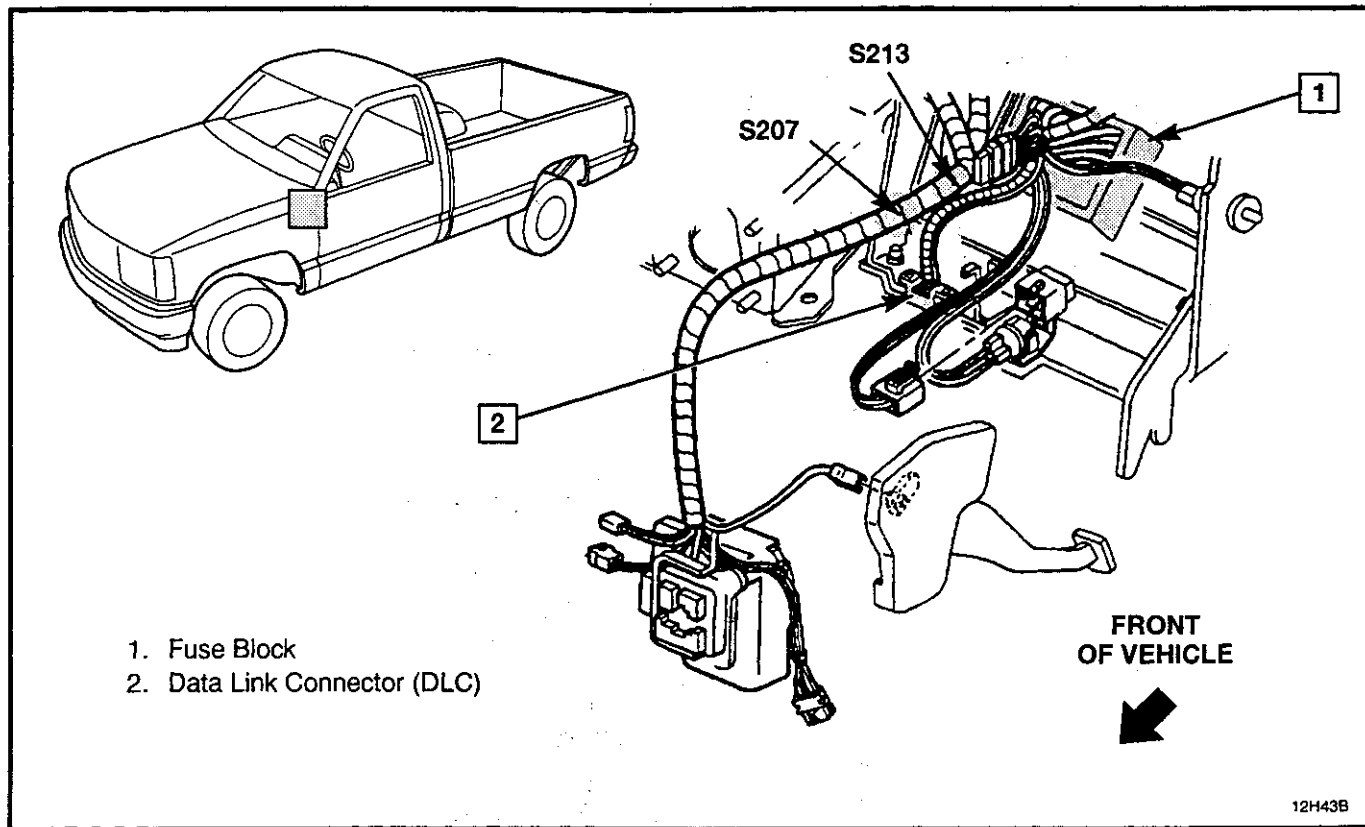


Figure 6 — Instrument Panel, LH Side

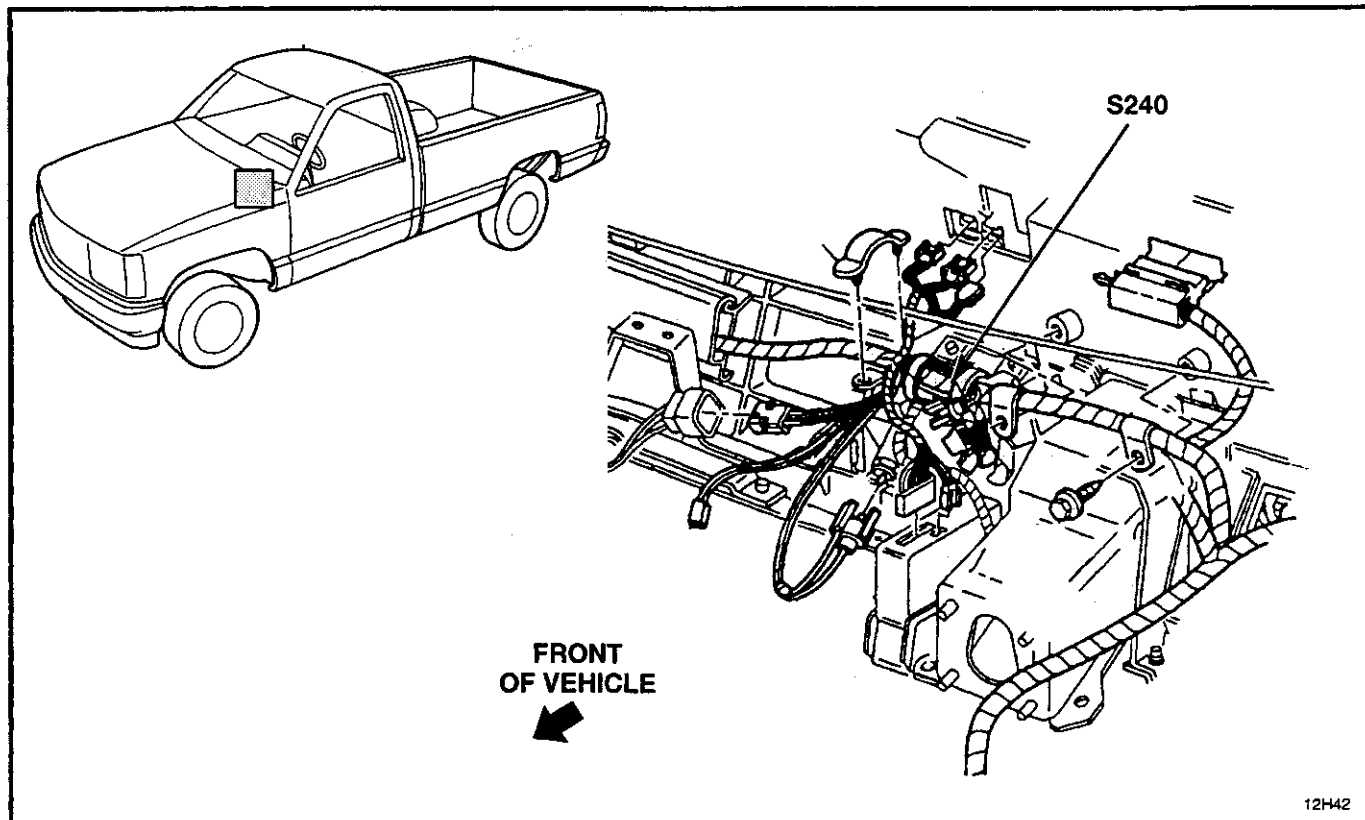


Figure 7 — Instrument Panel Wiring, RH Side

# 26-24 ENGINE CONTROLS 6.5L (396 CID) HD V8 DIESEL VIN S

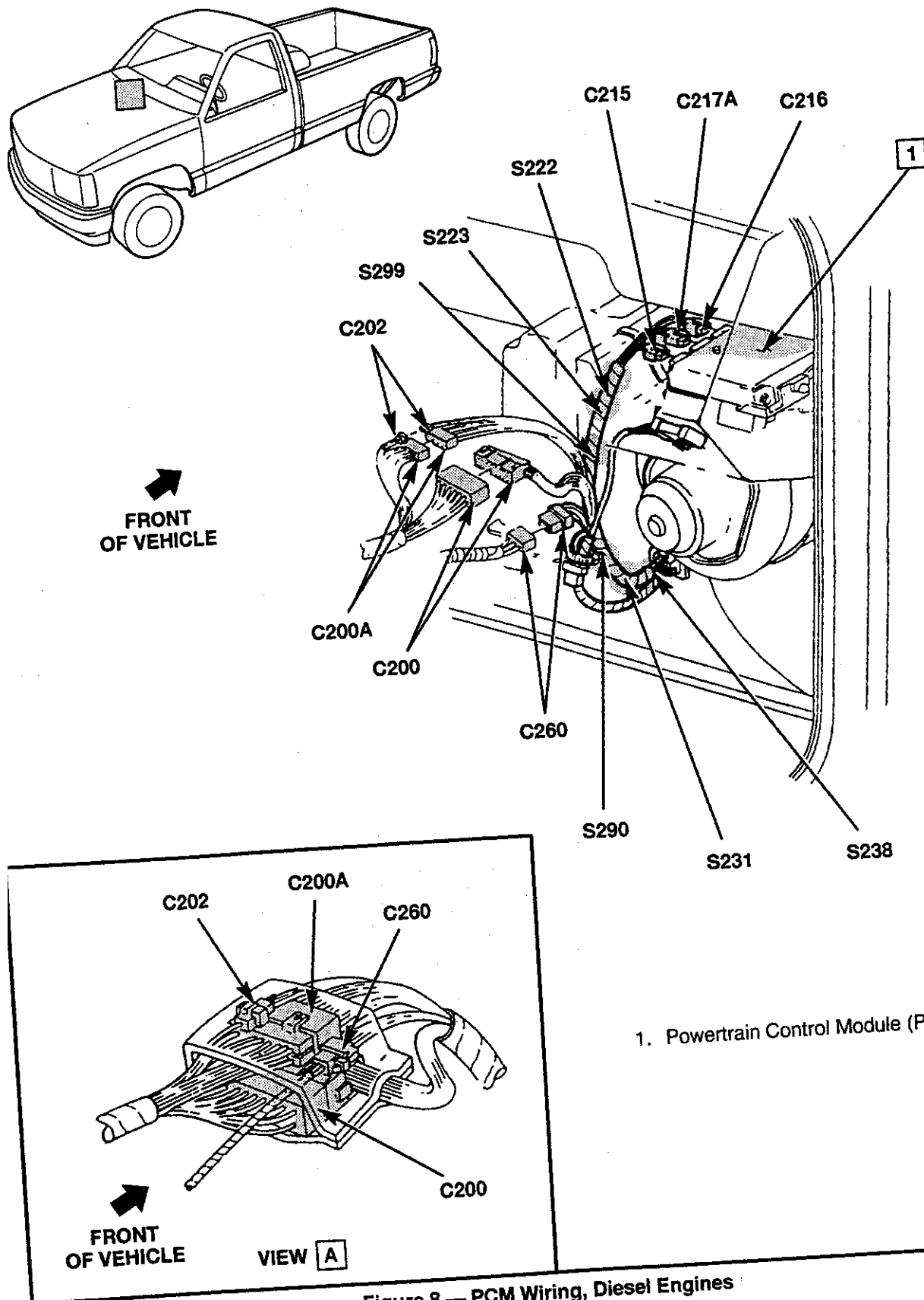


Figure 8 — PCM Wiring, Diesel Engines

# ENGINE CONTROLS 6.5L (396 CID) V8 TURBO DIESEL VIN F 8A-27-1

## COMPONENT LOCATION

## Page — Figure

Barometric Pressure Sensor	Upper LH side of cowl	Not Shown	
Battery	LH front of engine compartment	27-20	4
Battery Junction Block	RH rear engine compartment at cowl	27-20	4
Clutch Pedal Position Switch	On clutch pedal support bracket	Not Shown	
DLC	Under LH side of I/P	27-22	6
Fuel Pump Oil Pressure Switch	Upper rear of engine	27-18	2
Fuel Pump Relay	RH upper cowl	27-21	5
Fuel Pump and Sender	In fuel tank	Not Shown	
EGR Solenoid (Pulse Width)	LH rear top of engine	27-19	3
Electronic Accelerator Pedal			
Actuator	Top of accelerator bracket	Not Shown	
Electronic Injection Pump	Top front of engine	Not Shown	
Engine Coolant Temperature			
Sensor	LH front of engine	27-19	3
Fuel Heater	Top rear of engine	27-17	1
Fuse Block	Under LH side of I/P	27-22	6
Glow Plug Controller	LH rear top of engine	27-19	3
Intake Manifold Air Temperature			
Sensor	Front of engine	Not Shown	
I/P Cluster	LH side of I/P	Not Shown	
MAP Sensor	LH rear engine compartment at cowl	Not Shown	
Powertrain Control Module (PCM)	Under RH end of I/P	27-23	8
TCC/Brake Switch	On brake pedal support bracket	Not Shown	
TP Sensor	Top RH side of engine	Not Shown	

## CONNECTORS:

C100	At bulkhead connector	27-20	4
C101	At bulkhead connector	Not Shown	
C106A	LH side of cowl near bulkhead connector	27-20	4
C160A	Top front of engine	Not Shown	
C161A	Top front of engine	Not Shown	
C174	Top front of engine	Not Shown	
C200	Under RH side of I/P, near blower motor	27-23	8

## GROMMETS:

P101	RH lower cowl (engine compartment)	27-20	4
------	------------------------------------	-------	---

## GROUNDINGS:

G106	Top RH rear of engine	27-17	1
G108	Top RH rear of engine	Not Shown	

## SPLICES:

S108	Upper RH side of engine	27-17	1
S109	Upper LH side of engine	27-17	1
S113	Engine compartment	27-18	2
S118	Rear of engine	27-18	2
S136	Rear of engine compartment, near center	27-18	2
S137	Near fuel pump relay	27-20	4
S145	At glow plug controller	27-19	3
S146	At glow plug controller	27-19	3
S153	Near battery junction block	27-21	5
S161	At battery junction block	27-21	5
S190A	Engine harness near cowl, LH rear engine compartment	Not Shown	
S207	Under LH side of I/P	27-22	6
S213	Under LH side of I/P	27-22	6

## **8A-27-2 ENGINE CONTROLS HD 6.5L (396 CID) V8 TURBO DIESEL VIN F**

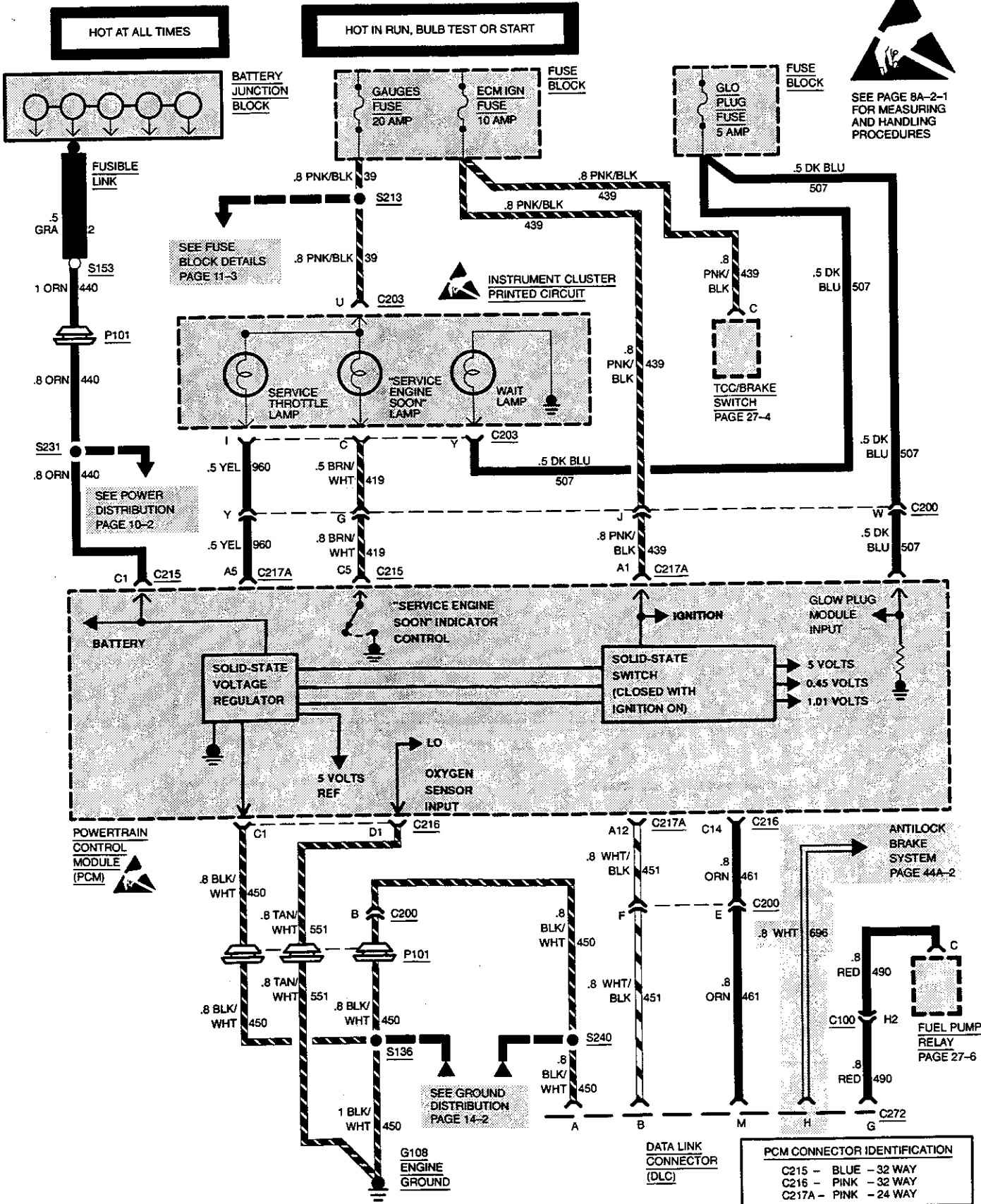
### **COMPONENT LOCATION**

**Page — Figure**

### **SPLICES (CONTINUED):**

S222	Under RH side of I/P, near PCM	27-23	8
S223	Near PCM, under RH side of I/P	27-23	8
S231	Engine harness, near PCM	27-23	8
S238	Engine harness, near PCM	27-23	8
S240	Behind LH side of I/P	27-22	7
S288A	Near PCM, under RH side of I/P	Not Shown	
S290 (Suburban, Yukon)	Under RH side of I/P, near PCM	27-23	8

**ENGINE CONTROLS 6.5L TURBO DIESEL V8 VIN F L65 8A-27-3**  
**W/MANUAL TRANSMISSION OR HD AUTOMATIC TRANSMISSION**



**W/MANUAL OR HD AUTOMATIC TRANSMISSION**



SEE PAGE 8A-2-1  
FOR MEASURING  
AND HANDLING  
PROCEDURES

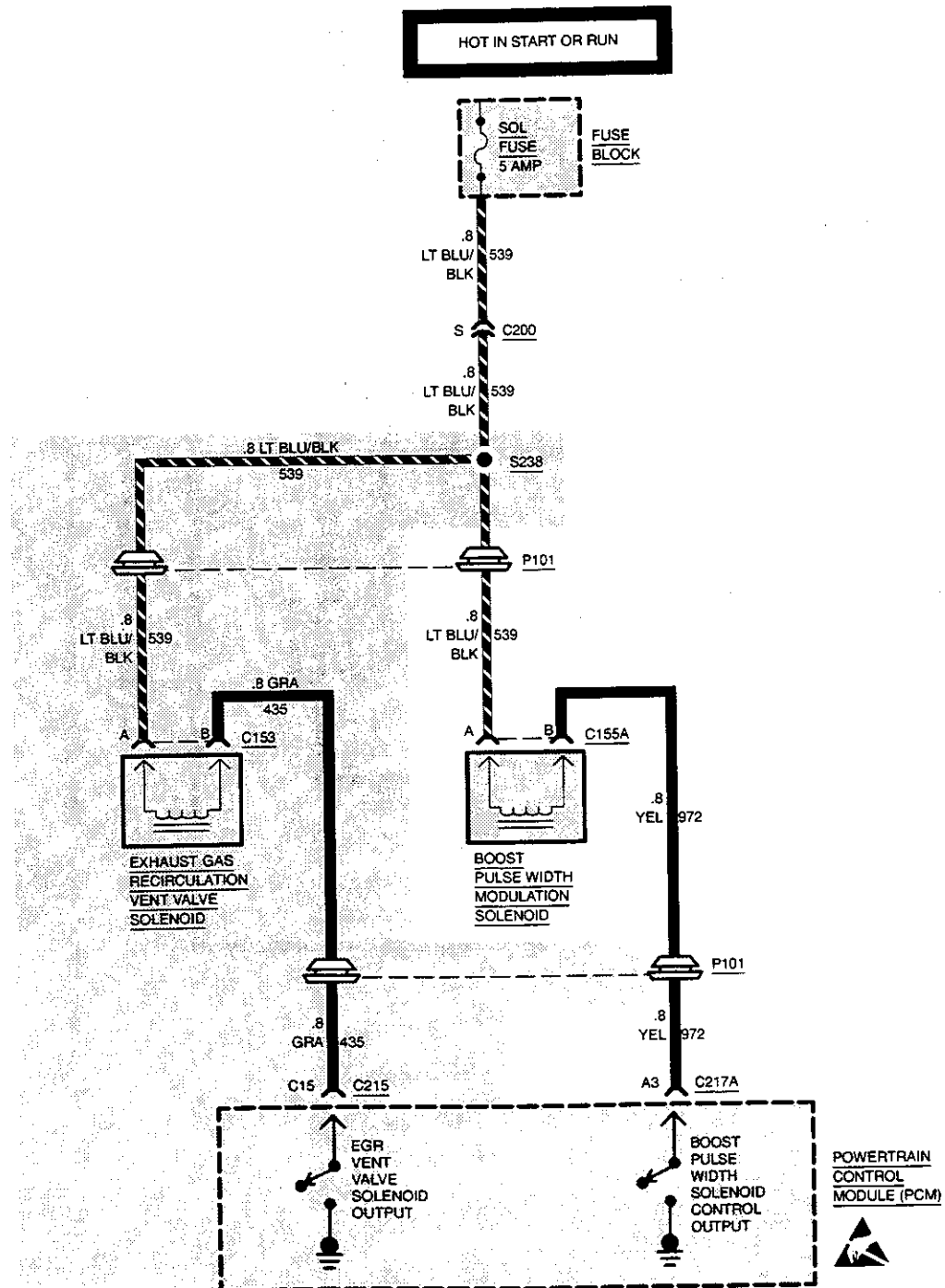


# ENGINE CONTROLS 6.5L TURBO DIESEL V8 VIN F L65 8A-27-5

## W/MANUAL OR HD AUTOMATIC TRANSMISSION

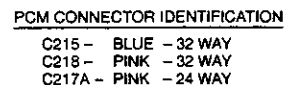


SEE PAGE 8A-2-1  
FOR MEASURING  
AND HANDLING  
PROCEDURES

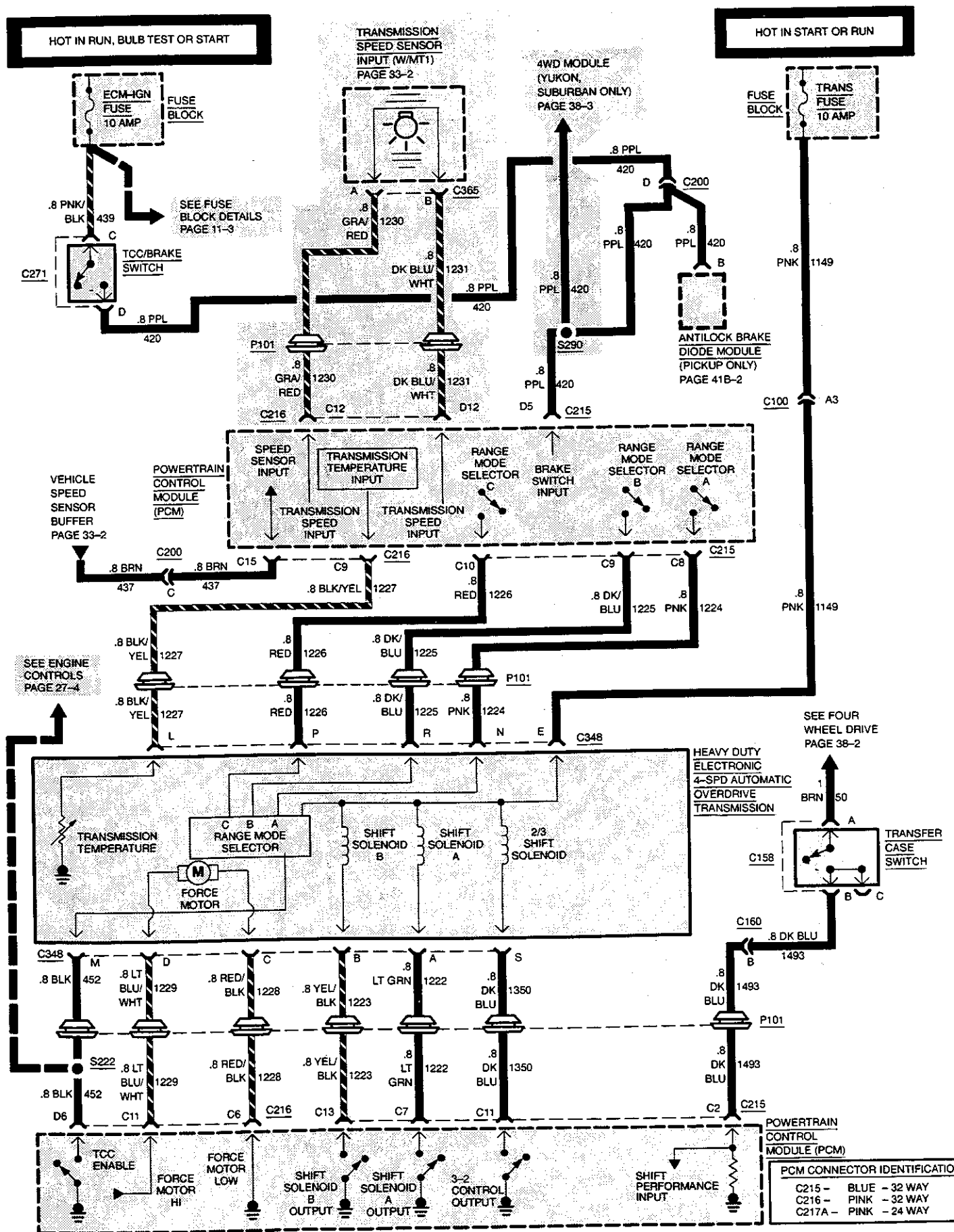


**PCM CONNECTOR IDENTIFICATION**  
C215 - BLUE - 32 WAY  
C218 - PINK - 24 WAY  
C217A - PINK - 32 WAY

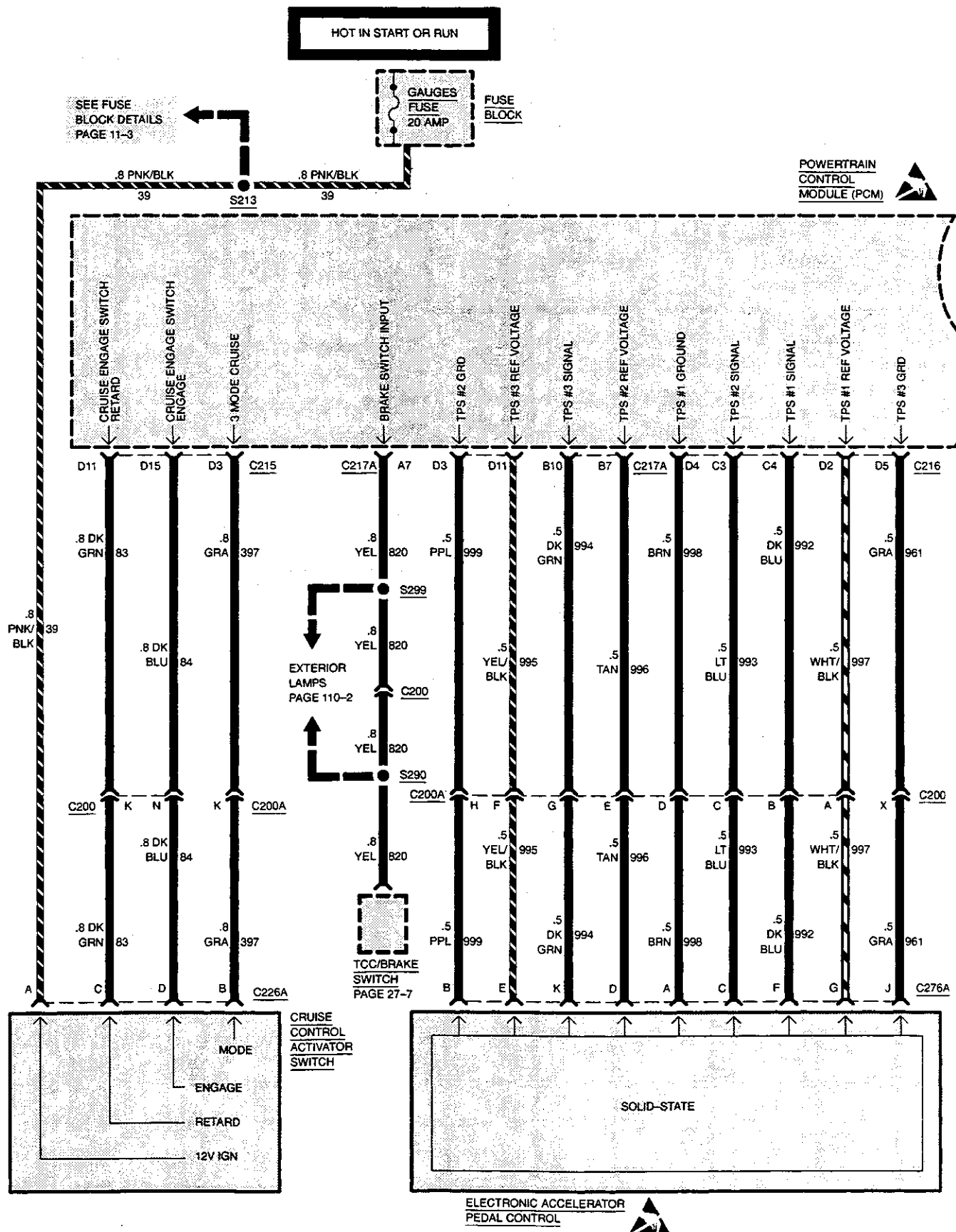
## FUEL PUMP CONTROLS



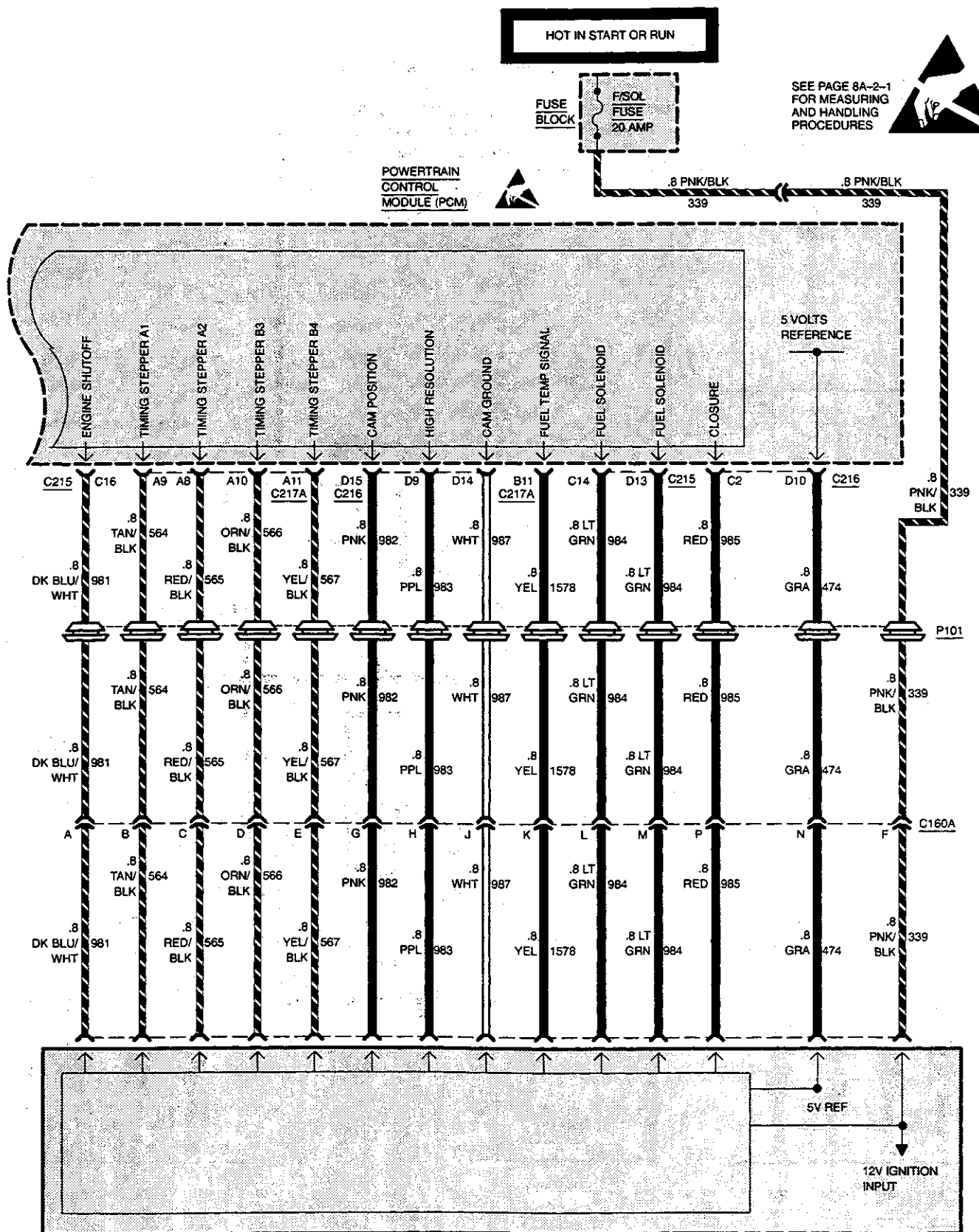
**W/HD AUTOMATIC TRANSMISSION**



**8A-27-8 ENGINE CONTROLS HD 6.5L TURBO DIESEL V8 VIN F**



# ENGINE CONTROLS 6.5L TURBO DIESEL V8 VIN F L65 8A-27-9

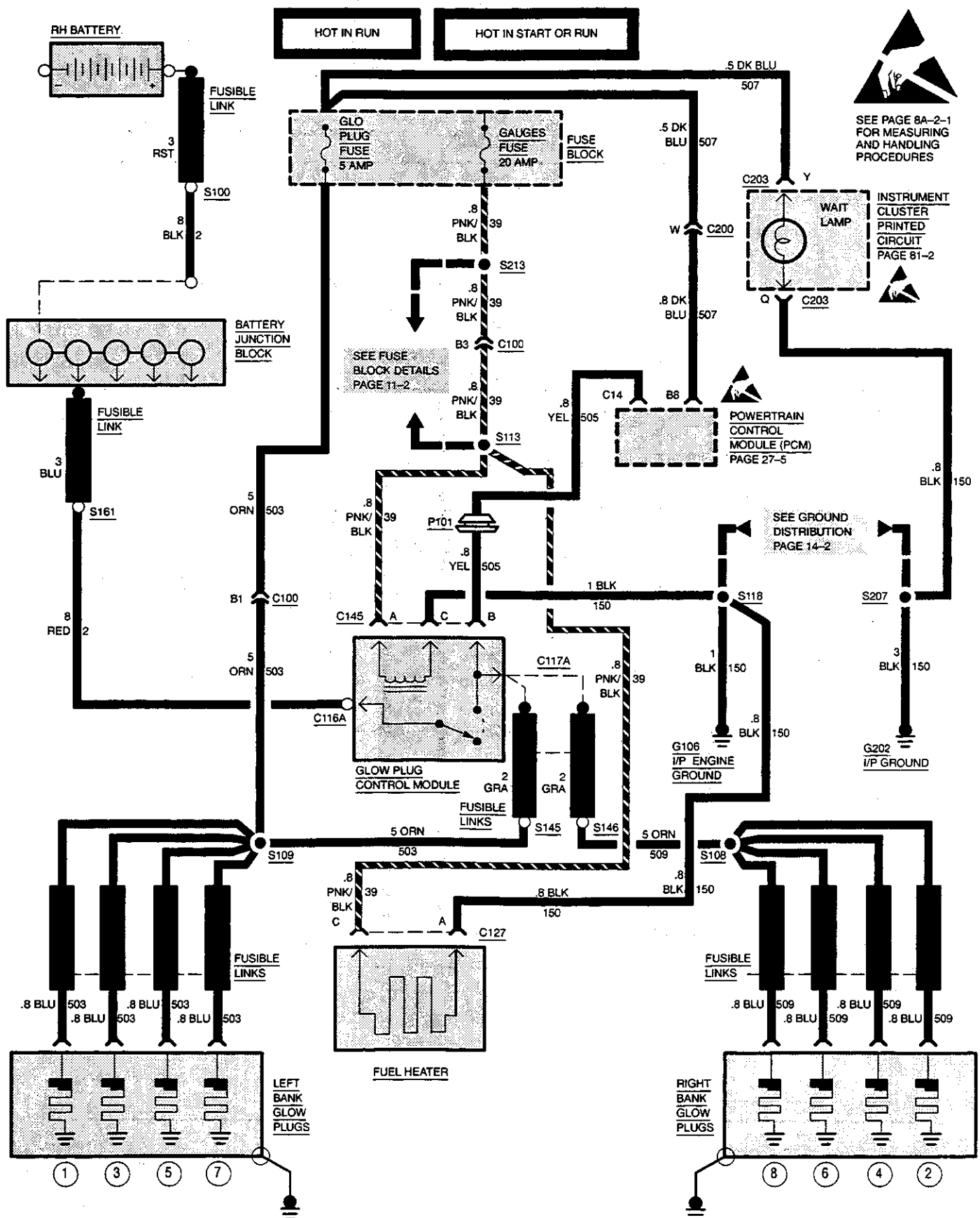


ELECTRONIC  
INJECTION PUMP

PCM CONNECTOR IDENTIFICATION		
C215 -	BLUE -	32 WAY
C216 -	PINK -	32 WAY
C217A -	PINK -	24 WAY

# 8A-27-10 ENGINE CONTROLS HD 6.5L TURBO DIESEL V8 VIN F

## GLOW PLUG SYSTEM



## ENGINE CONTROLS 6.5L TURBO DIESEL V8 VIN F 8A-27-11

### POWERTRAIN CONTROL MODULE — HD 6.5L TURBO DIESEL ENGINE (32-PIN BLUE)

CIRCUIT NO.	WIRE SIZE	COLOR	CAVITY	DESCRIPTION
440	.8	ORN	C1	12V + BATTERY
*1493	.8	DK BLU	C2	4WD INPUT
			C3	NOT USED
			C4	NOT USED
419	.8	BRN/WHT	C5	"SERVICE ENGINE SOON" LAMP OUTPUT
			C6	NOT USED
*1222	.8	LT GRN	C7	TRANS SHIFT SOLENOID A
*1224	.8	PNK	C8	TRANS RANGE MODE A
*1225	.8	DK BLU	C9	TRANS RANGE MODE B
*1226	.8	RED	C10	TRANS RANGE MODE C
1350	.8	DK BLU	C11	3/2 SHIFT CONTROL
			C12	NOT USED
*1223	.8	YEL/BLK	C13	TRANS SHIFT SOLENOID B
984	.8	LT GRN	C14	FUEL SOLENOID
435	.8	GRA	C15	EGR SOLENOID
981	.8	DK BLU/WHT	C16	FUEL SHUTOFF
			D1	NOT USED
997	.5	WHT/BLK	D2	REFERENCE VOLTAGE TPS 1
397	.8	GRA	D3	3 MODE ELECTRONIC CRUISE CONTROL
			D4	NOT USED
420	.8	PPL	D5	BRAKE SWITCH INPUT
			D6	NOT USED
			D7	NOT USED
834	.5	BRN	D8	EBS CONTROL SIGNAL
			D9	NOT USED
			D10	NOT USED
83	.8	DK GRN	D11	CRUISE CONTROL SWITCH — RETARD
			D12	NOT USED
984	.8	LT GRN	D13	FUEL SOLENOID
			D14	NOT USED
84	.8	DK BLU	D15	CRUISE CONTROL SWITCH — ENGAGE
			D16	NOT USED

\* W/AUTO TRANS ONLY

## 8A-27-12 ENGINE CONTROLS 6.5L TURBO DIESEL V8 VIN F

### POWERTRAIN CONTROL MODULE — HD 6.5L TURBO DIESEL ENGINE (32-PIN PINK)

CIRCUIT NO.	WIRE SIZE	COLOR	CAVITY	DESCRIPTION
450	.8	BLK/WHT	C1	SYSTEM GROUND
985	.8	RED	C2	CLOSURE SIGNAL
993	.5	LT BLU	C3	TPS 2 SIGNAL
992	.5	DK BLU	C4	TPS 1 SIGNAL
433	.8	GRA/BLK	C5	BAROMETRIC PRESSURE SENSOR INPUT
*1228	.8	RED/BLK	C6	TRANS FORCE MOTOR HIGH
432	.8	LT GRN	C7	MANIFOLD ABSOLUTE PRESSURE SENSOR INPUT
410	.8	YEL	C8	COOLANT TEMPERATURE
*1227	.8	BLK/YEL	C9	TRANS TEMPERATURE INPUT
416	.8	GRA	C10	+5 VOLT REFERENCE
*1229	.8	LT BLU/WHT	C11	TRANS FORCE MOTOR LOW
1230	.8	GRA/RED	C12	TRANS SPEED SENSOR INPUT
505	.8	YEL	C13	GLOW PLUG RELAY
1061	.8	ORN/BLK	C14	SERIAL DATA
437	.8	BRN	C15	VEHICLE SPEED SENSOR INPUT
			C16	NOT USED
551	.8	TAN/WHT	D1	ENGINE GROUND
950	.8	LT GRN	D2	CLOSURE GROUND
999	.5	PPL	D3	TPS 2 GROUND
998	.5	BRN	D4	TPS 1 GROUND
961	.5	GRA	D5	TPS 3 GROUND
452	.8	BLK	D6	TRANS TEMPERATURE/PRESSURE REFERENCE LOW
			D7	NOT USED
1586	.8	BRN/WHT	D8	2000 PULSE VEHICLE SPEED INPUT
983	.8	PPL	D9	TPS 2 SIGNAL
474	.8	GRA	D10	+5 VOLT REFERENCE
995	.5	YEL/BLK	D11	REFERENCE VOLTAGE TPS 3
1231	.8	DK BLU/WHT	D12	TRANS SPEED SENSOR INPUT
643	.8	DK BLU/WHT	D13	CRANK SENSOR
987	.8	WHT	D14	CAM POSITION SENSOR GROUND
982	.8	PNK	D15	CAM POSITION SENSOR
			D16	NOT USED

\* W/AUTO TRANS ONLY



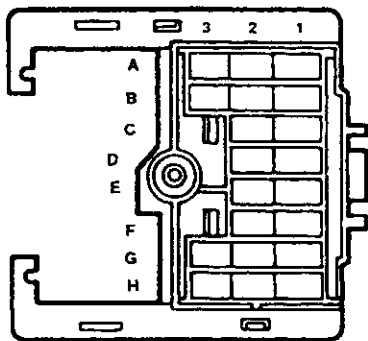
## ENGINE CONTROLS 6.5L TURBO DIESEL V8 VIN F 8A-27-13

**POWERTRAIN CONTROL MODULE — HD 6.5L TURBO DIESEL ENGINE (32-PIN PINK)**

CIRCUIT NO.	WIRE SIZE	COLOR	CAVITY	DESCRIPTION
439	.8	PNK/BLK	A1	12V IGNITION (FUSED)
			A2	NOT USED
			A3	NOT USED
971	.8	WHT	A4	EGR VENT SOLENOID
960	.5	YEL	A5	"SERVICE THROTTLE" LAMP OUTPUT
			A6	NOT USED
820	.8	YEL	A7	CHMSL INPUT
565	.8	RED/BLK	A8	TIMING STEPPER A2
564	.8	TAN/BLK	A9	TIMING STEPPER A1
566	.8	ORN/BLK	A10	TIMING STEPPER B3
567	.8	YEL/BLK	A11	TIMING STEPPER B4
451	.8	WHT/BLK	A12	DIAGNOSTIC ENABLE
			B1	NOT USED
			B2	NOT USED
			B3	NOT USED
59		DK GRN	B4	A/C ON INPUT
			B5	NOT USED
			B6	NOT USED
996	.5	TAN	B7	REFERENCE VOLTAGE TPS 2
507	.5	DK BLU	B8	GLOW PLUG "WAIT" LAMP OUTPUT
			B9	NOT USED
994	.5	DK GRN	B10	TPS 3 SIGNAL INPUT
1578	.8	YEL	B11	FUEL TEMPERATURE INPUT
472	.8	TAN	B12	INTAKE MANIFOLD AIR TEMPERATURE

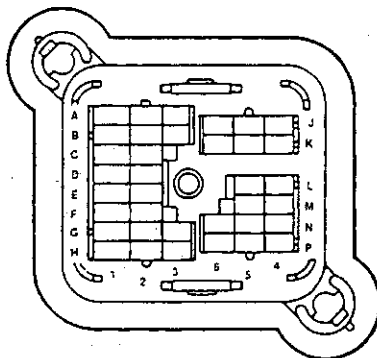
# 8A-27-14 ENGINE CONTROLS 6.5L TURBO DIESEL V8 VIN F

12020183



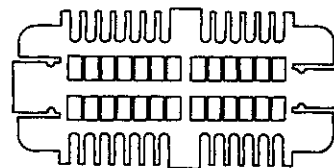
**GRAY**  
Metri-Pack  
**C100**  
Bulkhead Connector – Eng

12020184



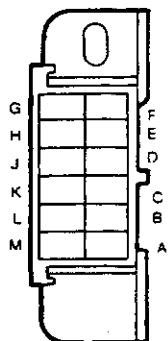
**GRAY**  
Metri-Pack  
**C100**  
Bulkhead Connector – I/P

12089908



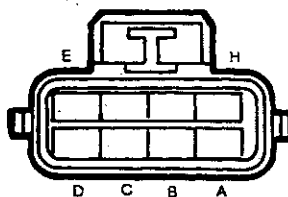
**BLACK**  
Bow Series  
**C203**  
I/P Cluster

12020043



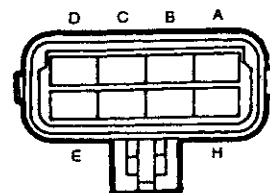
**BLACK**  
Metri-Pack 480  
**C272**  
Data Link Connector

12047937



**BLACK**  
Metri-Pack 150  
**C161A**  
In-Line PCM to Engine

12047931



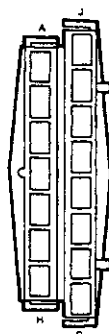
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Metri-Pack 150  
**C161A**  
In-Line Engine to PCM

12041254



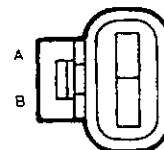
**C200**  
In-Line I/P to Bulkhead

12020213



**C200**  
In-Line Bulkhead to I/P

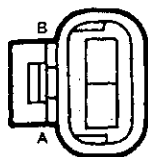
12084247



**GRAY**  
Metri-Pack 150  
**C195A**  
Intake Manifold Air Temperature  
Sensor

# ENGINE CONTROLS 6.5L TURBO DIESEL V8 VIN F 8A-27-15

12078084



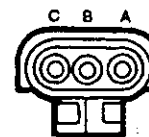
**BLACK**  
Metri-Pack 150  
**C143**  
Coolant Temperature Sensor

12020403



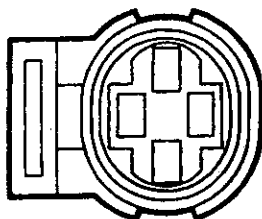
**BLACK**  
**C100A**  
MAP Sensor

12020403



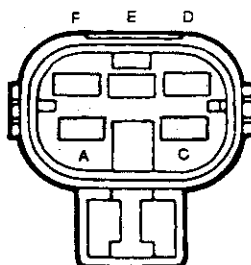
**BLACK**  
**C156**  
Barometric Pressure Sensor

12065401



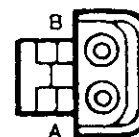
**GRAY**  
Metri-Pack 150  
**C167**  
Fuel Pump Oil Pressure Switch

12052287



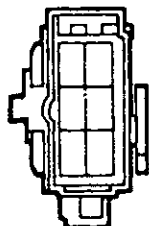
**BLACK**  
Metri-Pack  
**C132**  
Fuel Pump Relay

12015792



**BLACK**  
Weather Pack  
**C106A**  
In-Line Fuse to Fuel Pump and Sender

12020099



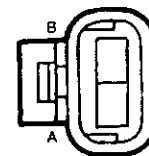
**C102**  
In-Line Fuel Pump to Bulkhead

12033709



**BLACK**  
Metri-Pack 280  
**C271**  
TCC/Brake Switch

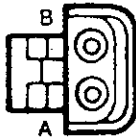
12078084



**BLACK**  
Metri-Pack 150  
**C365**  
Transmission Speed Sensor

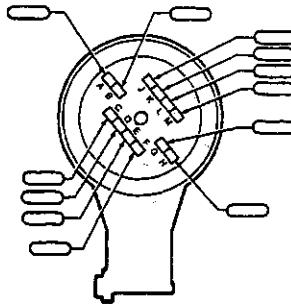
# 8A-27-16 ENGINE CONTROLS 6.5L TURBO DIESEL V8 VIN F

12015792



**BLACK**  
Weather Pack  
**C155A**  
Transfer Case Switch

12084690



**C348**  
Transmission

12066681



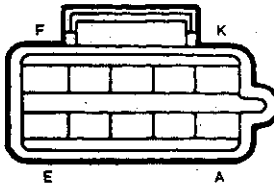
**BLACK**  
Metri-Pack 630  
**C130**  
Fuel Pump In-Line Fuse

12034417



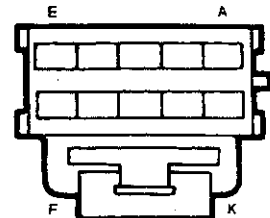
**C227A**  
Clutch Pedal Position Switch

12064770



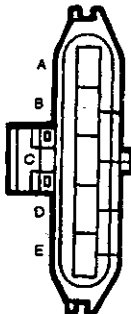
**NATURAL**  
Metri-Pack 150  
**C200A**  
In-Line Electronic Accelerator  
Pedal Control to PCM

12064769



**NATURAL**  
Metri-Pack 150  
**C200A**  
Inline PCM to Electronic  
Accelerator Pedal Control

12015982



**C145**  
Glow Plug Control Module

# ENGINE CONTROLS 6.5L TURBO DIESEL V8 VIN F 8A-27-17

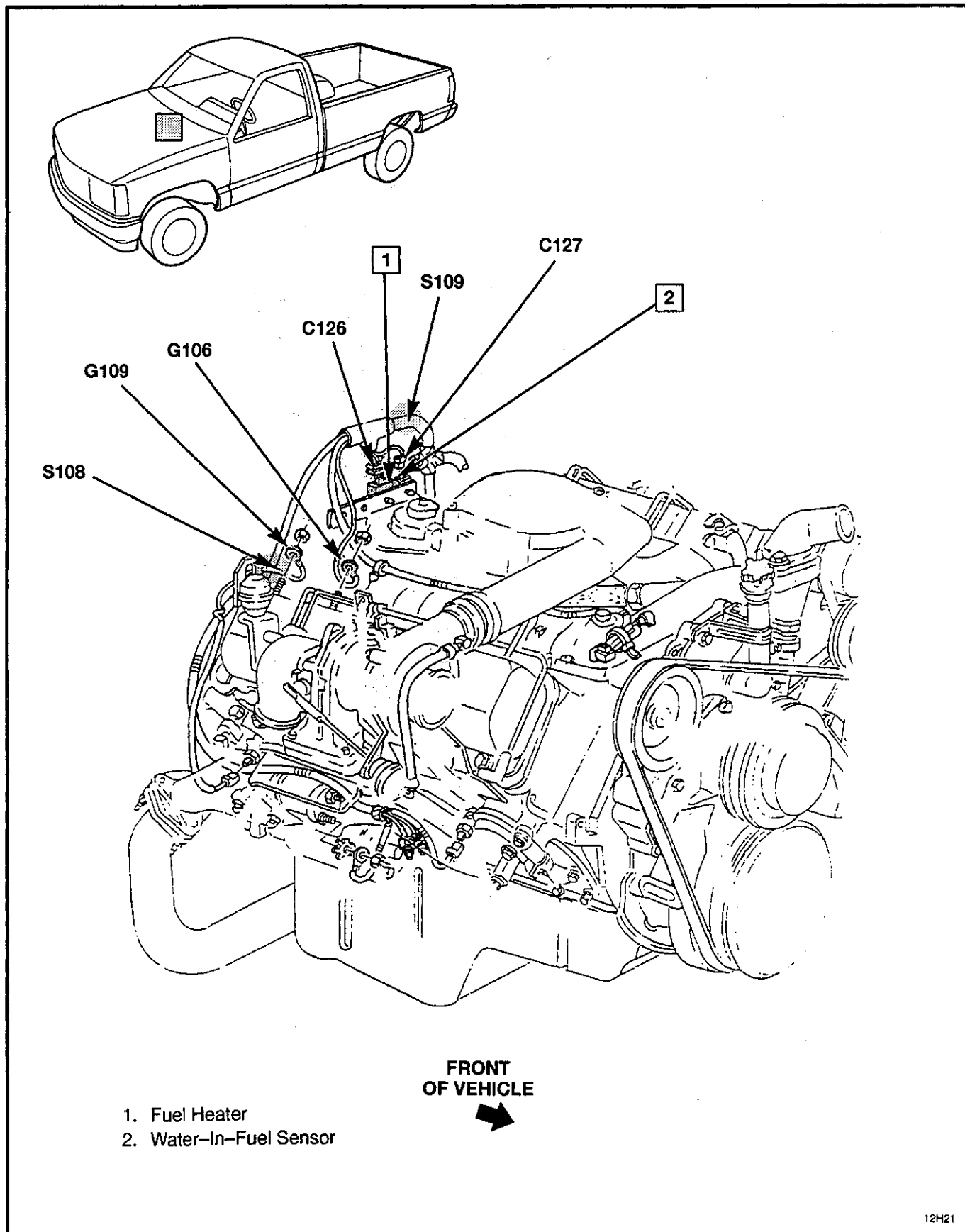


Figure 1 — Turbo Diesel Engine Wiring, RH Side

# 8A-27-18 ENGINE CONTROLS 6.5L TURBO DIESEL V8 VIN F

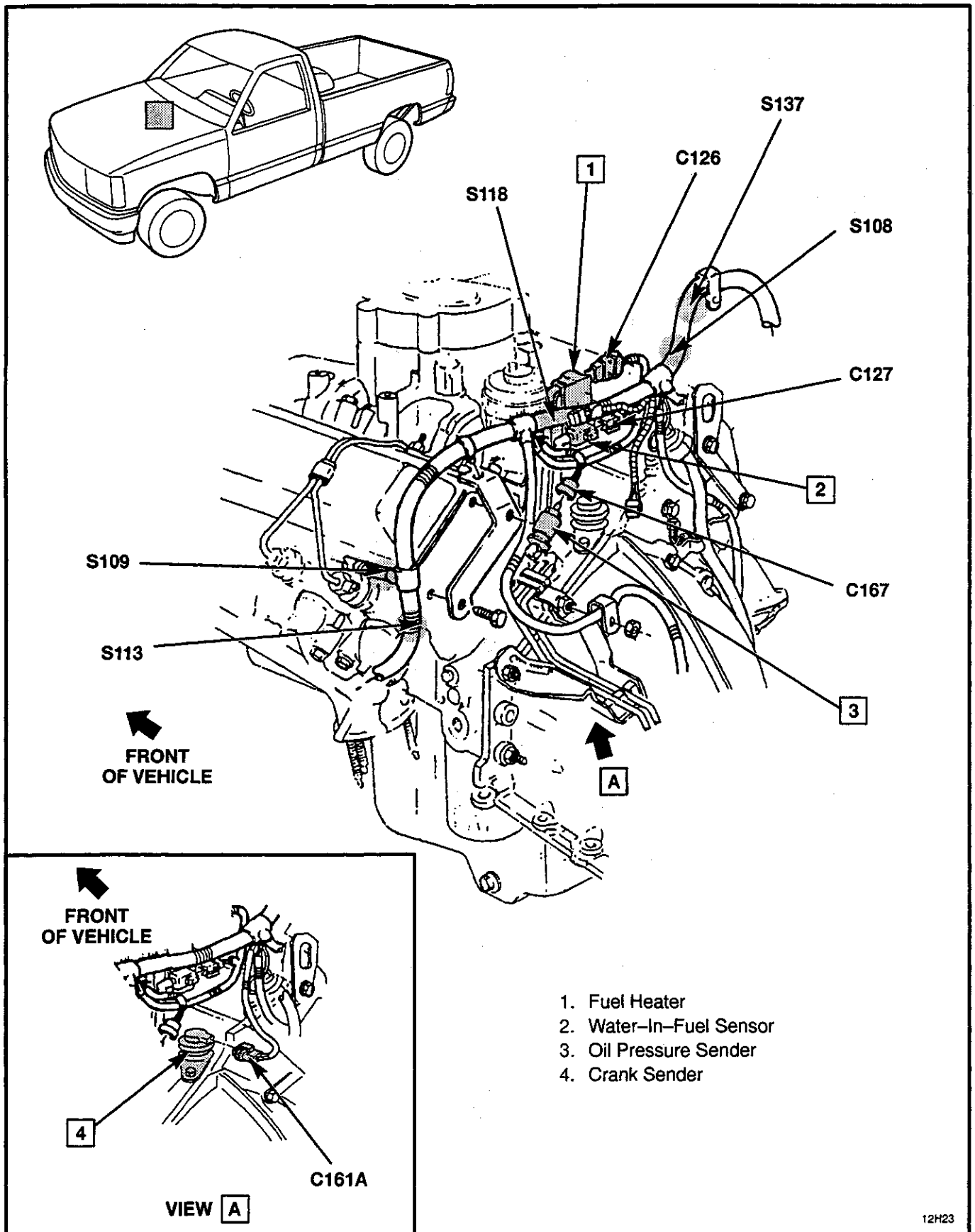


Figure 2 — 6.5L Diesel Engine Wiring, Rear

# ENGINE CONTROLS 6.5L TURBO DIESEL V8 VIN F 8A-27-19

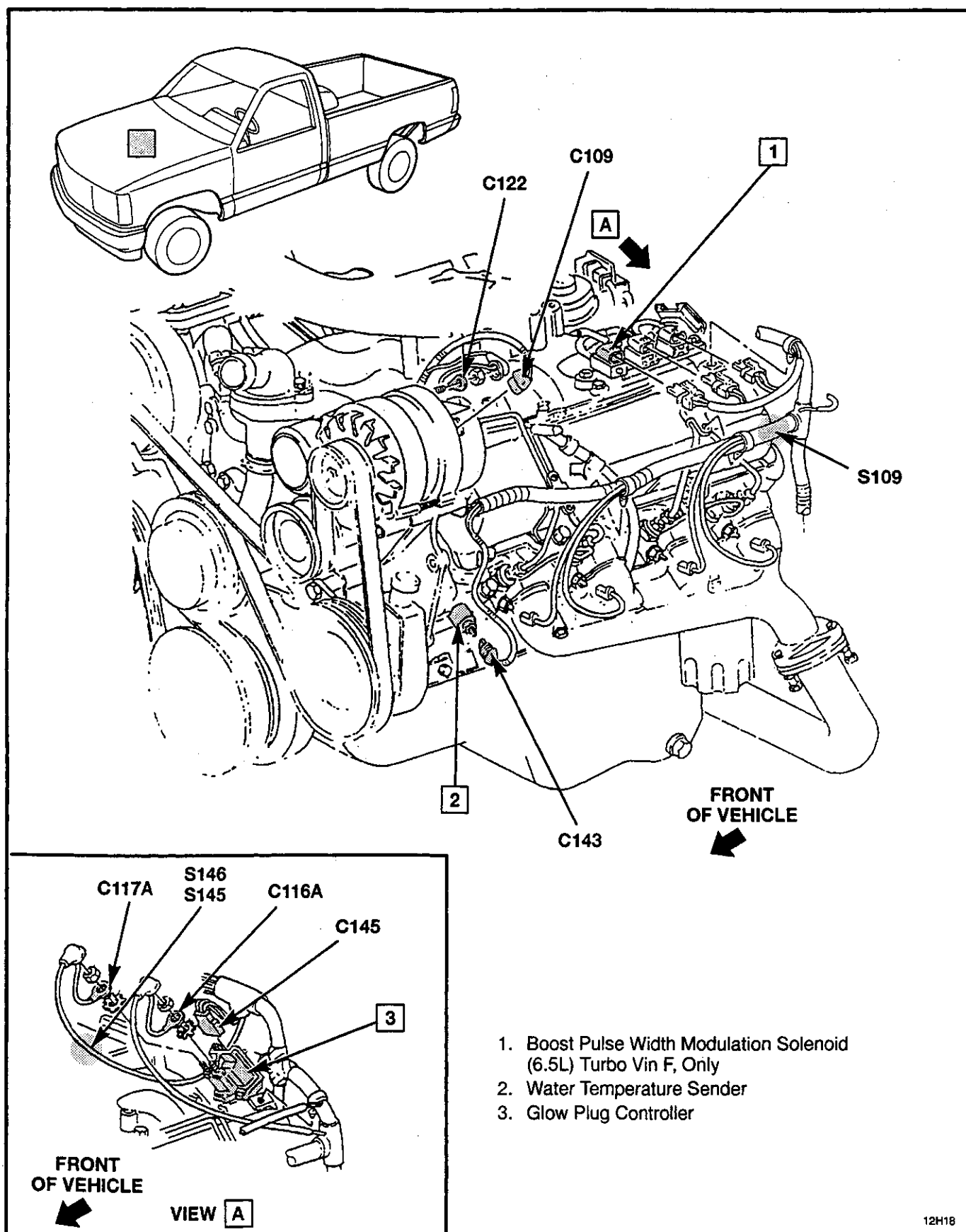


Figure 3 — 6.5L Diesel Engine Wiring, LH Side

# 8A-27-20 ENGINE CONTROLS 6.5L TURBO DIESEL V8 VIN F

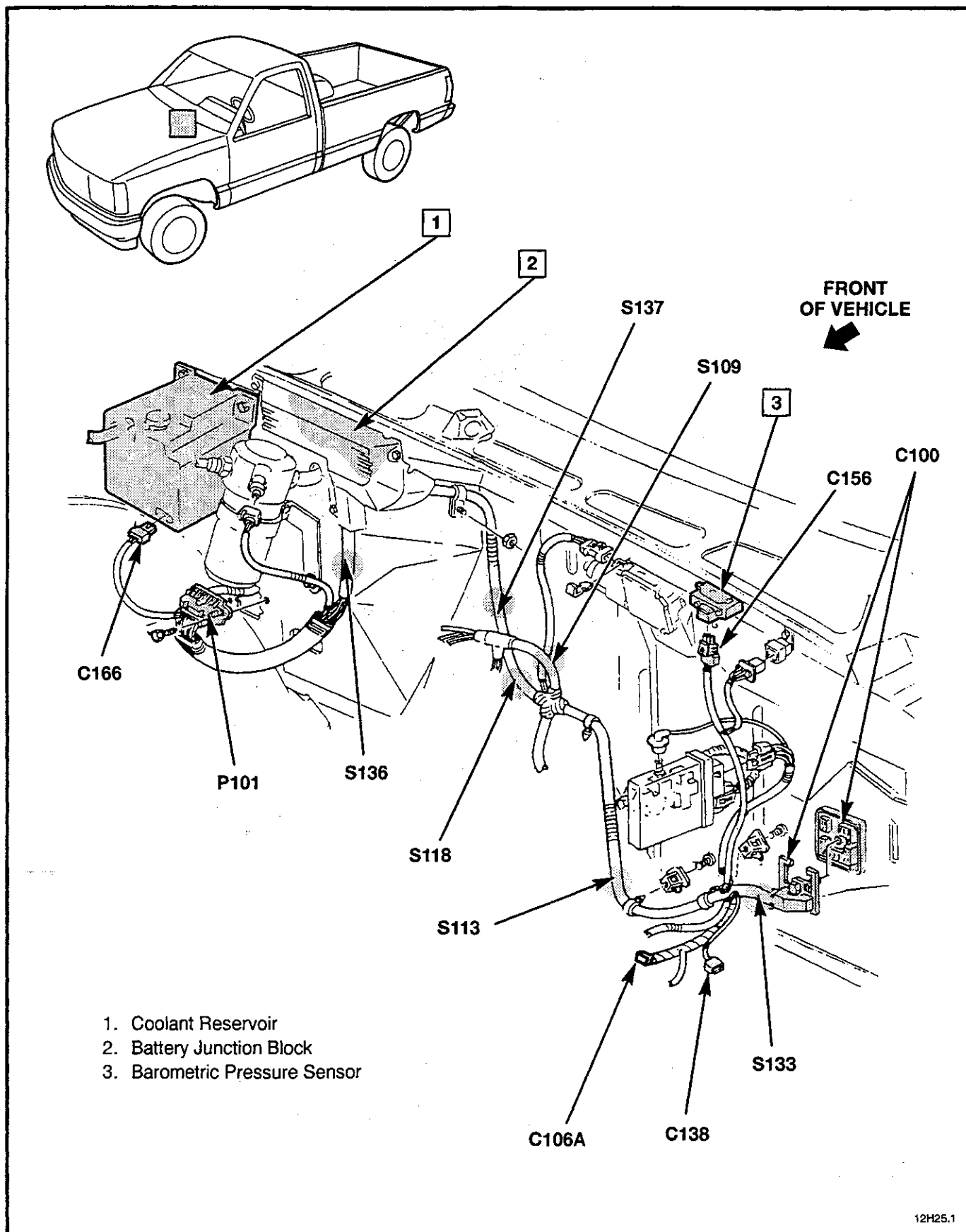


Figure 4 — Cowl Wiring, (6.5L) Diesel Engine



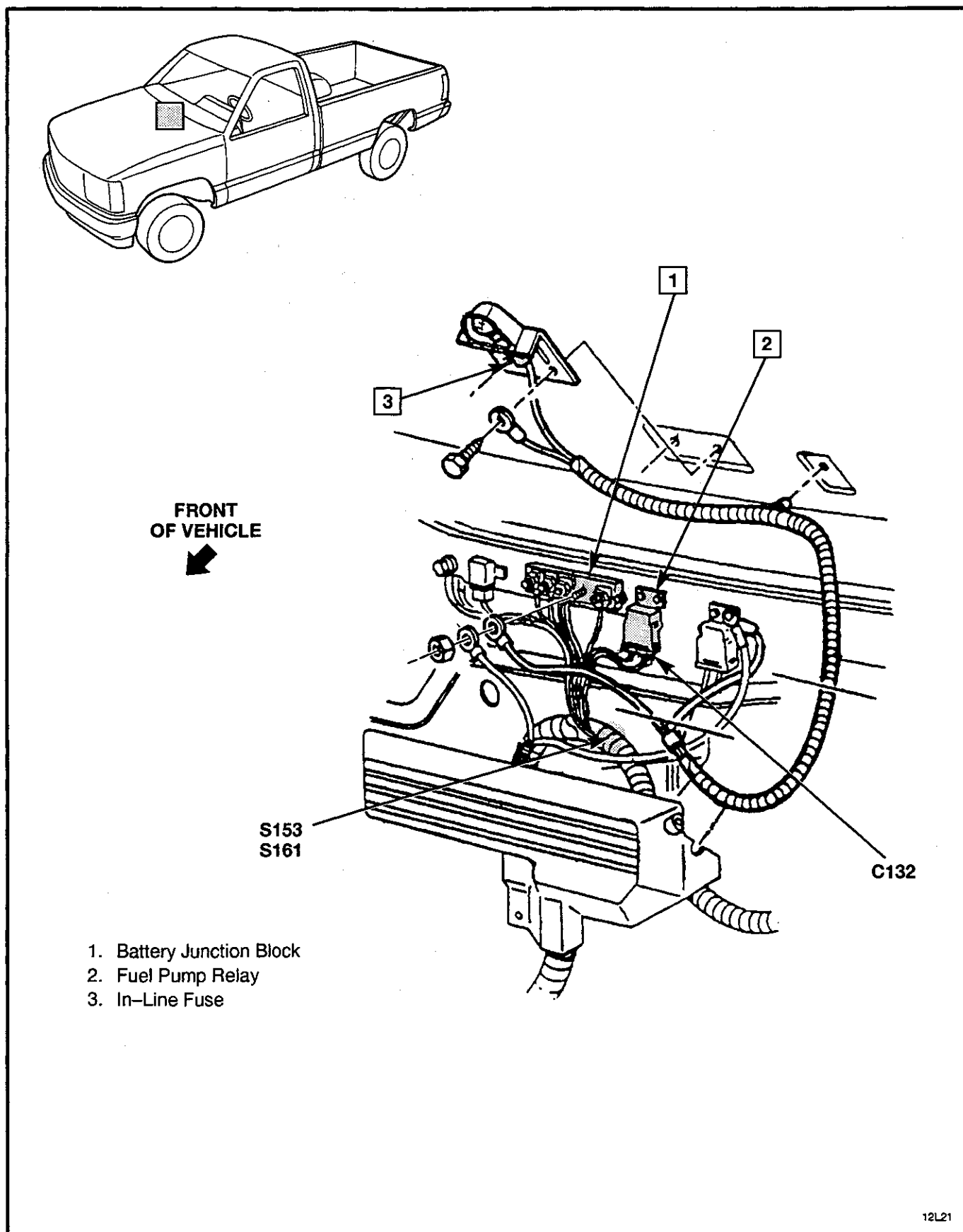


Figure 5 — Battery Junction Block Wiring

## 8A-27-22 ENGINE CONTROLS 6.5L TURBO DIESEL V8 VIN F

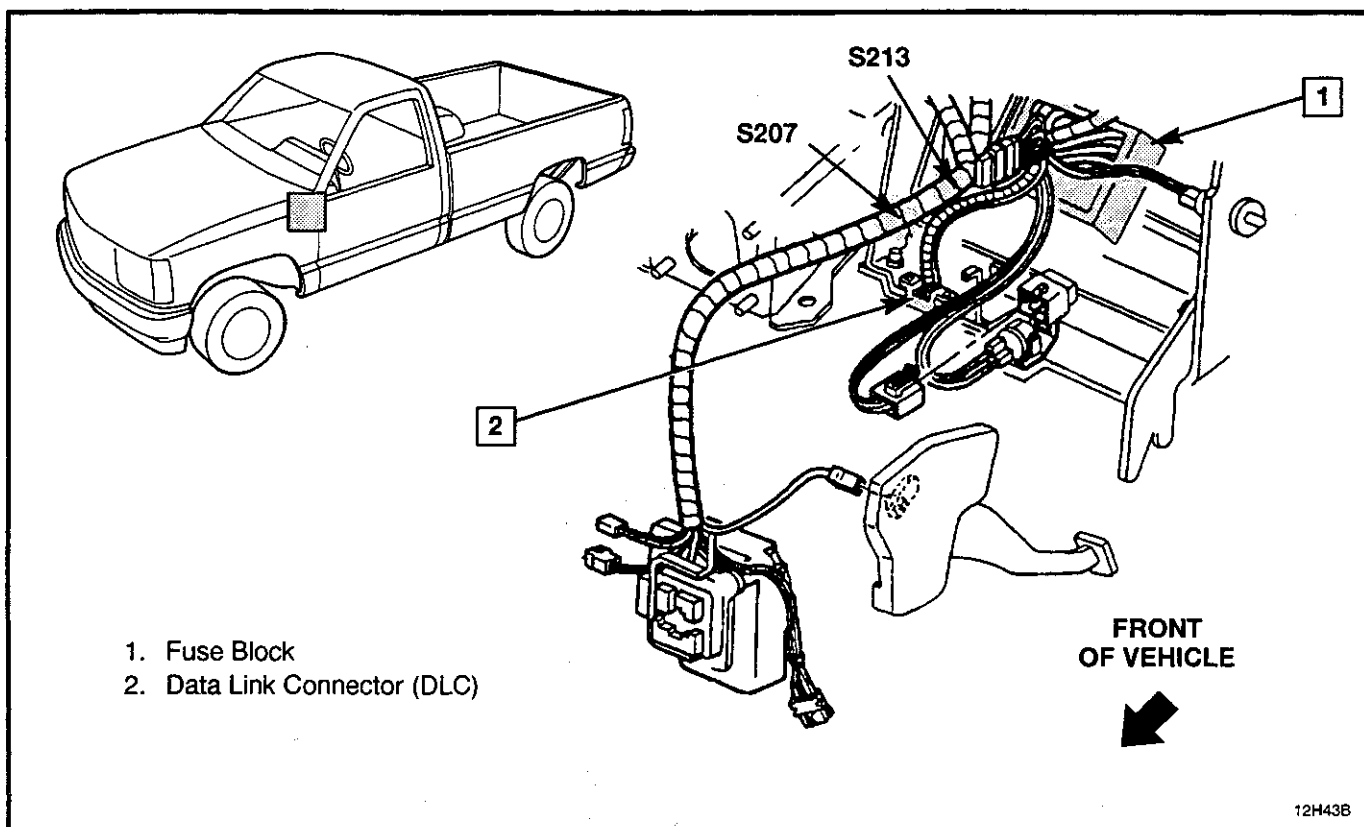


Figure 6 — Instrument Panel, LH Side

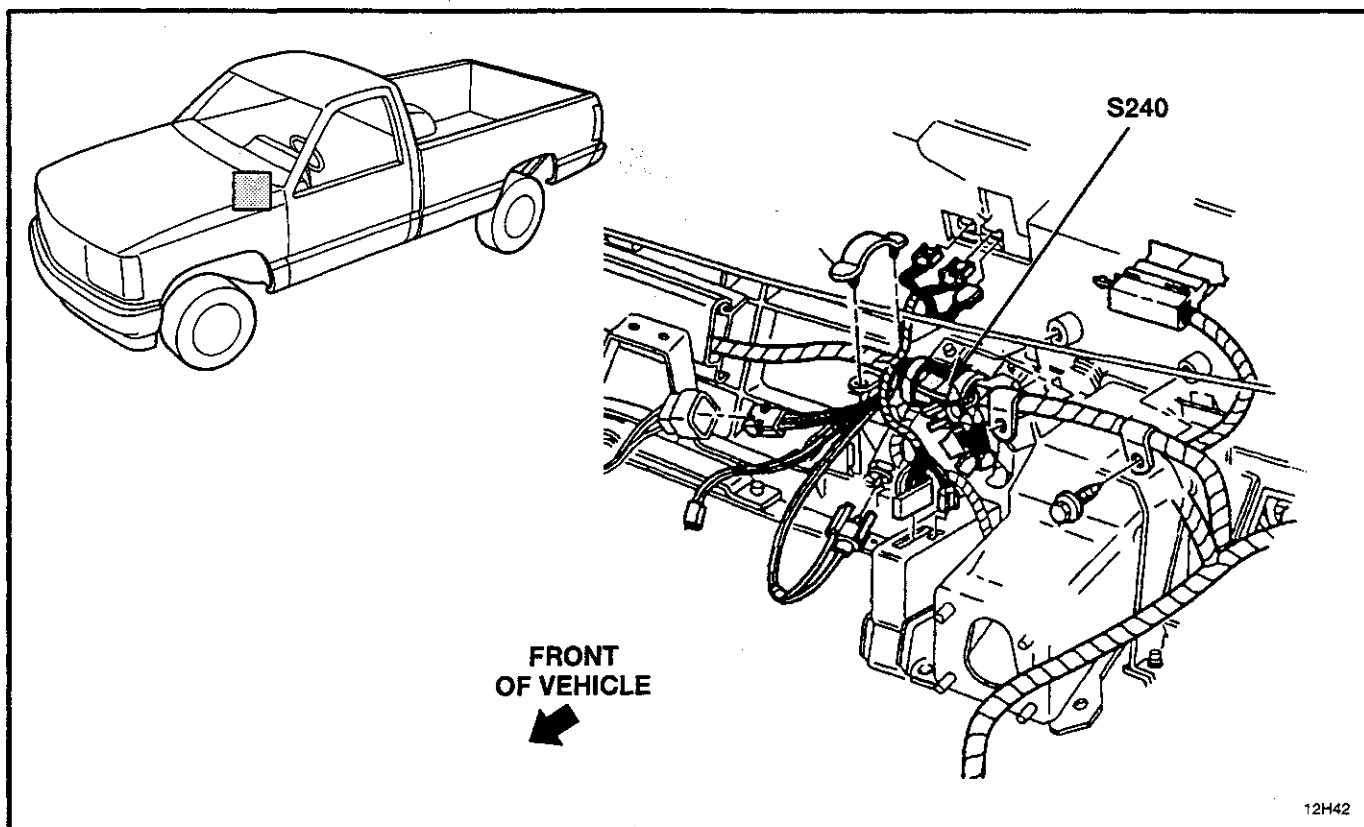
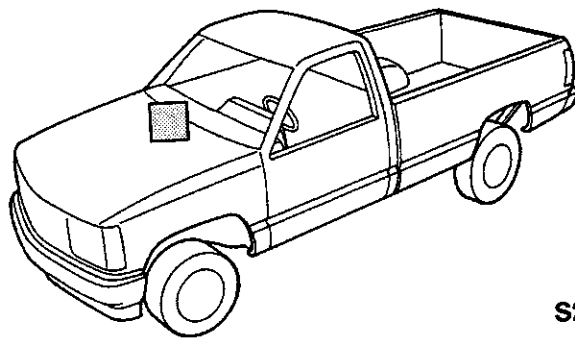
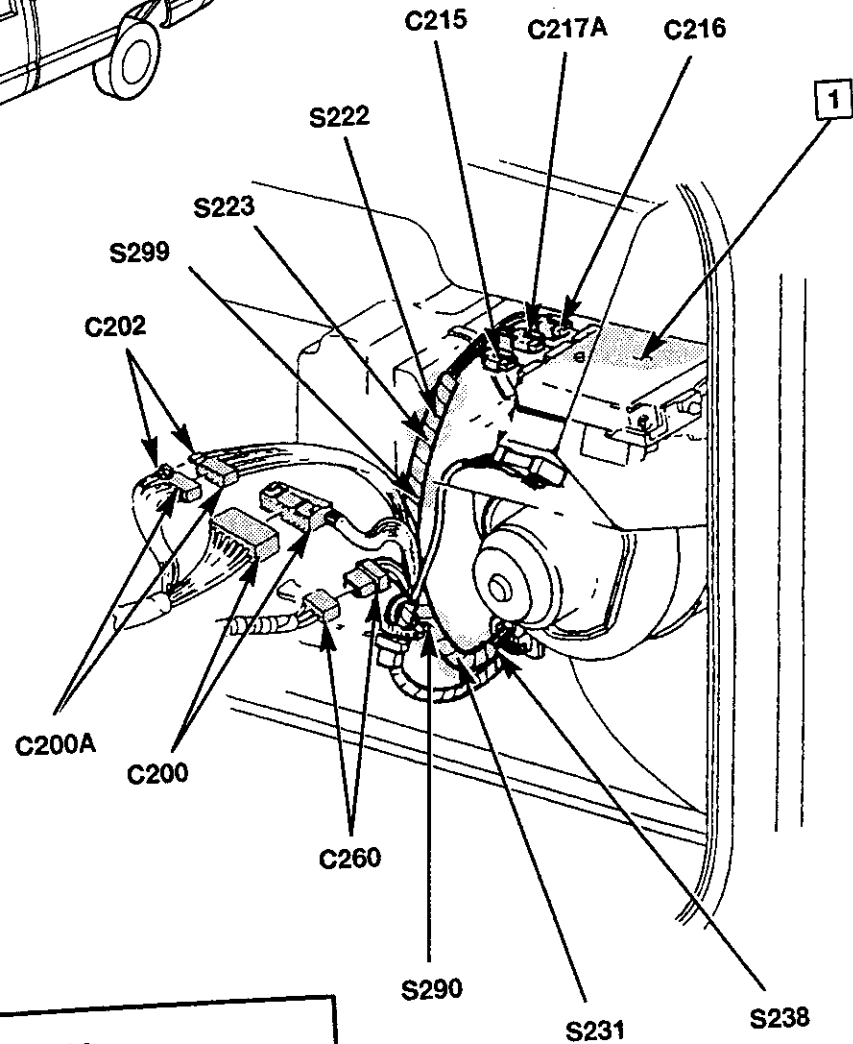


Figure 7 — Instrument Panel Wiring, RH Side

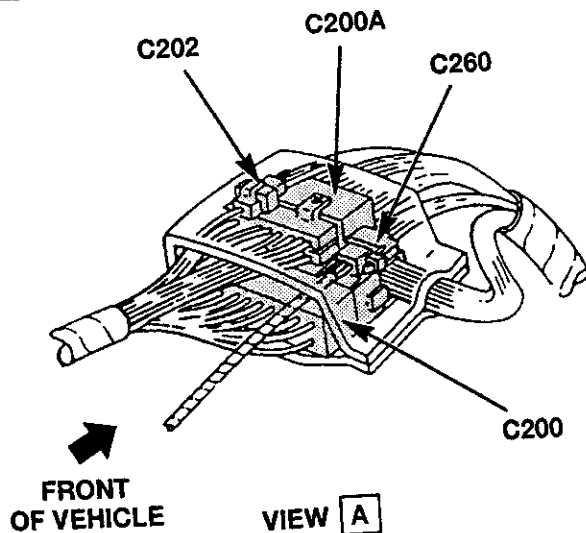
# ENGINE CONTROLS 6.5L TURBO DIESEL V8 VIN F 8A-27-23



FRONT  
OF VEHICLE



1. Powertrain Control Module (PCM)



FRONT  
OF VEHICLE

VIEW A

Figure 8 — PCM Wiring, Diesel Engines

**8A-27-24 ENGINE CONTROLS 6.5L TURBO DIESEL V8 VIN F**

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**BLANK**

### CIRCUIT OPERATION

#### STARTER

When the Ignition Switch is moved to the START position, battery voltage is supplied to the Starter Solenoid through the PPL (6) wire. On manual transmission vehicles, the clutch pedal must be depressed. Both solenoid windings are energized. The circuit through the Pull-In Winding is completed to ground through the Starter Motor. The windings work together magnetically to pull in and hold in the Plunger. The Plunger moves the Shift Lever. This action causes the Starter Drive Assembly to rotate as it engages the Flywheel ring gear on the engine. At the same time, the Plunger also closes the solenoid switch contacts in the Starter Solenoid. Full battery voltage is supplied directly to the Starter Motor and it cranks the engine.

As soon as the Solenoid Switch contacts close, voltage is no longer supplied through the Pull-In Windings, since battery voltage is supplied to both ends of the windings. The Hold-In Winding remains energized, and its magnetic field is strong enough to hold the Plunger, Shift Lever and Drive Assembly Solenoid Switch contacts in place to continue cranking the engine.

When the Ignition Switch is released from the START position, battery voltage is removed from the PPL (6) wire and the junction of the two windings. Voltage is supplied from the Motor contacts through both windings to ground at the end of the Hold-In Windings. However, the voltage supplied to the Pull-In Winding is now opposing the voltage supplied when the winding was first energized. The magnetic fields of the Pull-In and Hold-In Windings now oppose one another. This action of the windings, with the help of the Return Spring, causes the Starter Drive Assembly to disengage and Solenoid Switch contacts to open simultaneously. As soon as the contacts open, the starter circuit is turned off.

#### CHARGING

The Generator provides voltage to operate the vehicle's electrical system and to charge its Battery. A magnetic field is created when current flows through the Rotor. This field rotates as the Rotor is driven by the engine, creating an AC voltage in the Stator windings. The AC voltage is converted to DC by the rectifier bridge and is supplied to the electrical system at the Battery terminal.

This Generator's regulator uses digital techniques to supply the Rotor current and thereby controlling the output voltage. The Rotor current is proportional to the width of the electrical pulses supplied to it by the Regulator. When the Ignition Switch is placed in RUN, narrow width pulses are supplied to the Rotor, creating a weak magnetic field. When the engine is started, the Regulator senses Generator rotation by detecting AC voltage at the Stator through an internal wire. Once the engine is running, the Regulator varies the field current by controlling the pulse width. This regulates the Generator output voltage for proper battery charging and electrical system operation.

The digital regulator controls the VOLTS Indicator lamp with a solid-state lamp driver. The lamp driver turns on the lamp whenever undervoltage, overvoltage or a stopped Generator is detected.

## 8A-30-2 START AND CHARGE

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### COMPONENT LOCATION

### Page — Figure

Battery Junction Block .....	RH rear of engine compartment, at cowl .....	30-10	2
Battery, LH .....	LH front of engine compartment .....	Not Shown	
Battery, RH .....	RH front of engine compartment .....	Not Shown	
Clutch Start Switch .....	At top of clutch pedal .....	30-11	4
Generator .....	LH top front of engine .....	30-9	1
Ignition Switch .....	Under I/P, on steering column .....	30-12	5
I/P Cluster .....	LH side of I/P .....	Not Shown	
Starter Motor .....	RH lower rear side of engine .....	30-9	1

### CONNECTORS:

C100 .....	At bulkhead connector .....	30-12	6
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### GROUNDING:

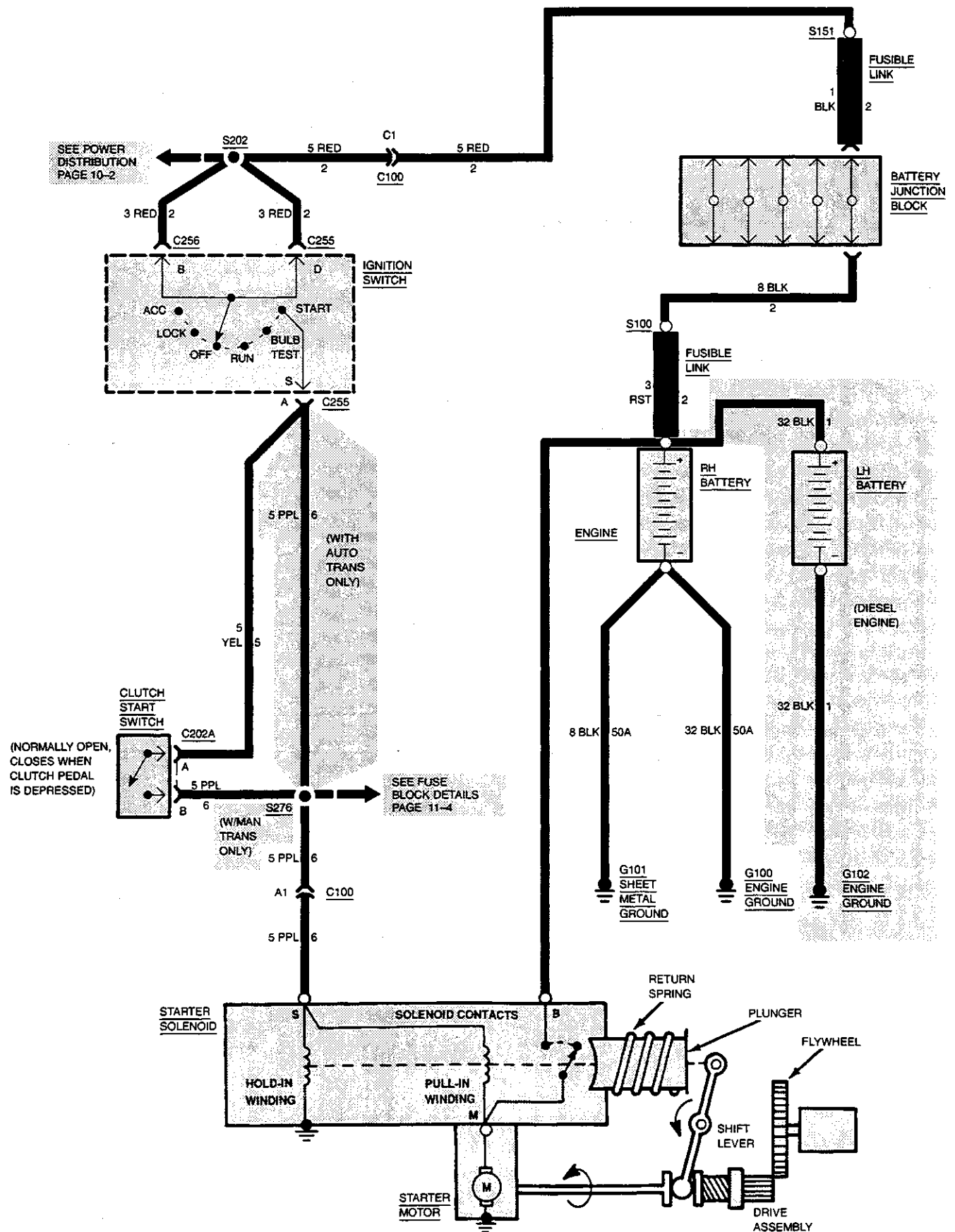
G100 .....	RH front of engine .....	30-10	2
G101 .....	RH inner fender, near battery .....	Not Shown	
G102 (Diesel) .....	LH front top of engine .....	30-11	3

### SPLICES:

S100 .....	Positive battery cable, near battery .....	30-10	2
S151 .....	Center of cowl, below battery junction block .....	30-13	7
S155 .....	Center of cowl, below battery junction block .....	30-13	7
S202 .....	Under LH side of I/P .....	30-12	5
S213 .....	Under LH side of I/P .....	Not Shown	
S276 .....	Under LH side of I/P .....	30-12	6



# 8A-30-4 START AND CHARGE





**DIAGNOSIS — START AND CHARGE**

**PRELIMINARY CHECKS:**

1. Check condition of GAUGES and CRNK Fuse(s). If fuse(s) is blown, locate and repair source of overload. Replace fuse(s).
2. Check condition of ACC-BATT circuit breaker. If circuit breaker is tripped, locate and repair source of overload. If circuit breaker will not reset, replace circuit breaker.

**ENGINE DOES NOT CRANK AND STARTER SOLENOID DOES NOT CLICK**

TEST	RESULT	ACTION
1. Place transmission in PARK (auto) or depress clutch pedal for man trans. Connect voltmeter from PPL (6) wire at starter solenoid to ground. Place ignition switch in START position.	Battery voltage.	GO to step 2.
	No voltage.	GO to step 3 for man trans. GO to step 5 for auto trans.
2. Connect voltmeter from PPL (6) wire to starter mounting bolts.	Battery voltage.	REPLACE starter solenoid.
	Less than battery voltage.	CLEAN starter motor mounting bolts, starter motor and mounting surface.
3. Disconnect clutch switch connector C202A. Connect voltmeter from YEL (5) wire at clutch pedal position switch connector C202A to ground. Ignition switch must be in START position.	Battery voltage.	GO to step 4.
	No voltage.	GO to step 5.
4. Depress clutch and put transmission in Neutral. Apply parking brake. Connect fused jumper from YEL (5) to PPL (6) at clutch pedal position switch connector C202. Place ignition switch in START position.	Engine cranks.	REPLACE clutch pedal position switch.
	Engine does not crank.	LOCATE and REPAIR open in PPL (6) wire from clutch pedal position switch to starter solenoid.
5. With ignition switch OFF, connect voltmeter from RED (2) terminal at ignition switch connector C256 to ground. Repeat step except connect from RED (2) terminal at ignition switch connector C255 to ground.	Battery voltage.	REPLACE ignition switch.
	No voltage.	LOCATE and REPAIR open in RED (2) wires and fusible link at junction block.

## 8A-30-6 START AND CHARGE

### STARTER SOLENOID CLICKS, ENGINE DOES NOT CRANK OR CRANKS SLOWLY

TEST	RESULT	ACTION
1. Connect voltmeter to positive and negative battery terminals. Place ignition switch in START.	Voltage reading greater than 9.5 volts after 15 seconds cranking.	GO to step 2.
	Voltage less than 9.5 volts after 15 seconds cranking.	PERFORM a Battery Load Test. Refer to Section 6D in the 1994 C/K Service Manual.
2. Connect voltmeter from negative battery terminal to engine block.	Less than .5 volts.	GO to step 3.
	More than .5 volts.	REPLACE negative battery cable.
3. Connect voltmeter from positive battery terminal to starter solenoid terminal at BLK (50A) wire.	Less than .5 volts.	REPAIR starter motor.
	More than .5 volts.	REPLACE positive battery cable.

### VOLTS INDICATOR DOES NOT LIGHT WITH IGNITION SWITCH IN RUN AND ENGINE STOPPED

TEST	RESULT	ACTION
1. Disconnect generator connector C109. Place ignition switch in RUN position. Connect fused jumper from BRN (25) wire at generator connector C109 to ground.	VOLTS indicator lights.	REPAIR generator.
	VOLTS indicator does not light.	CHECK condition of VOLTS indicator bulb. If good, LOCATE and REPAIR open in BRN (25) wire from generator connector C109 to I/P cluster.

### VOLTS INDICATOR STAYS ON WHEN ENGINE IS RUNNING

TEST	RESULT	ACTION
1. Disconnect generator connector C109.	VOLTS indicator does not light.	REPAIR generator.
	VOLTS indicator remains lit.	LOCATE and REPAIR short to ground in BRN (25) wire from generator connector C109 to I/P cluster.

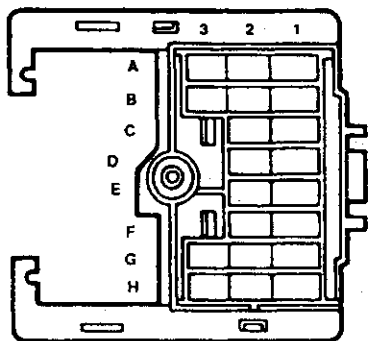
## START AND CHARGE 8A-30-7

### BATTERY IS UNDERCHARGED OR OVERCHARGED

TEST	RESULT	ACTION
1. Disconnect generator connector C109. Place ignition switch in RUN position. Connect voltmeter from BRN (25) wire at generator connector C109 to ground.	Battery voltage.	GO to step 2.
	No voltage.	CHECK condition of VOLTS indicator bulb. If good, LOCATE and REPAIR open in BRN (25) wire from generator connector C109 to I/P cluster.
2. Connect voltmeter from RED (2) wire at generator to ground.	Battery voltage.	GO to step 3.
	No voltage.	LOCATE and REPAIR open in RED (2) wire and fusible link from generator connector C122 to junction block.
3. Reconnect generator connector C109 . Have all accessories turned off and engine running at fast idle. Connect voltmeter from battery terminal C122 on generator to ground.	Reading 13-16 volts.	PERFORM Generator Bench Test. Refer to Section 6D in the 1994 C/K Service Manual.
	Reading of less than or greater than 13-16 volts.	REPAIR generator.

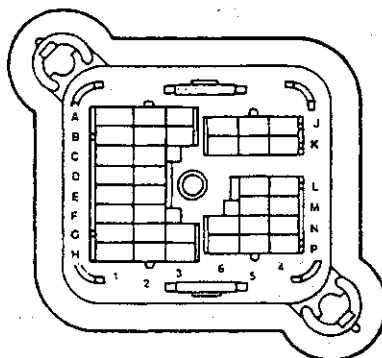
## 8A-30-8 START AND CHARGE

12020183



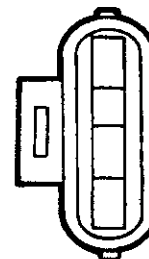
**GRAY**  
Metri-Pack  
**C100**  
Bulkhead Connector – Eng

12020184



**GRAY**  
Metri-Pack  
**C100**  
Bulkhead Connector – I/P

12129068



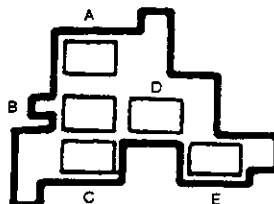
**BLACK**  
Metri-Pack 150  
**C109**  
Generator

12034417



**C202A**  
Clutch Pedal Position Switch

12010966



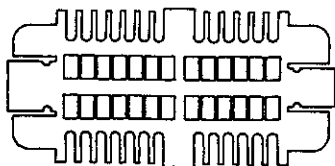
**BLUE**  
56 Series  
**C255**  
Ignition Switch

06294641



**BLACK**  
56 Series  
**C256**  
Ignition Switch

12089908



**BLACK**  
Bow Series  
**C203**  
I/P Cluster

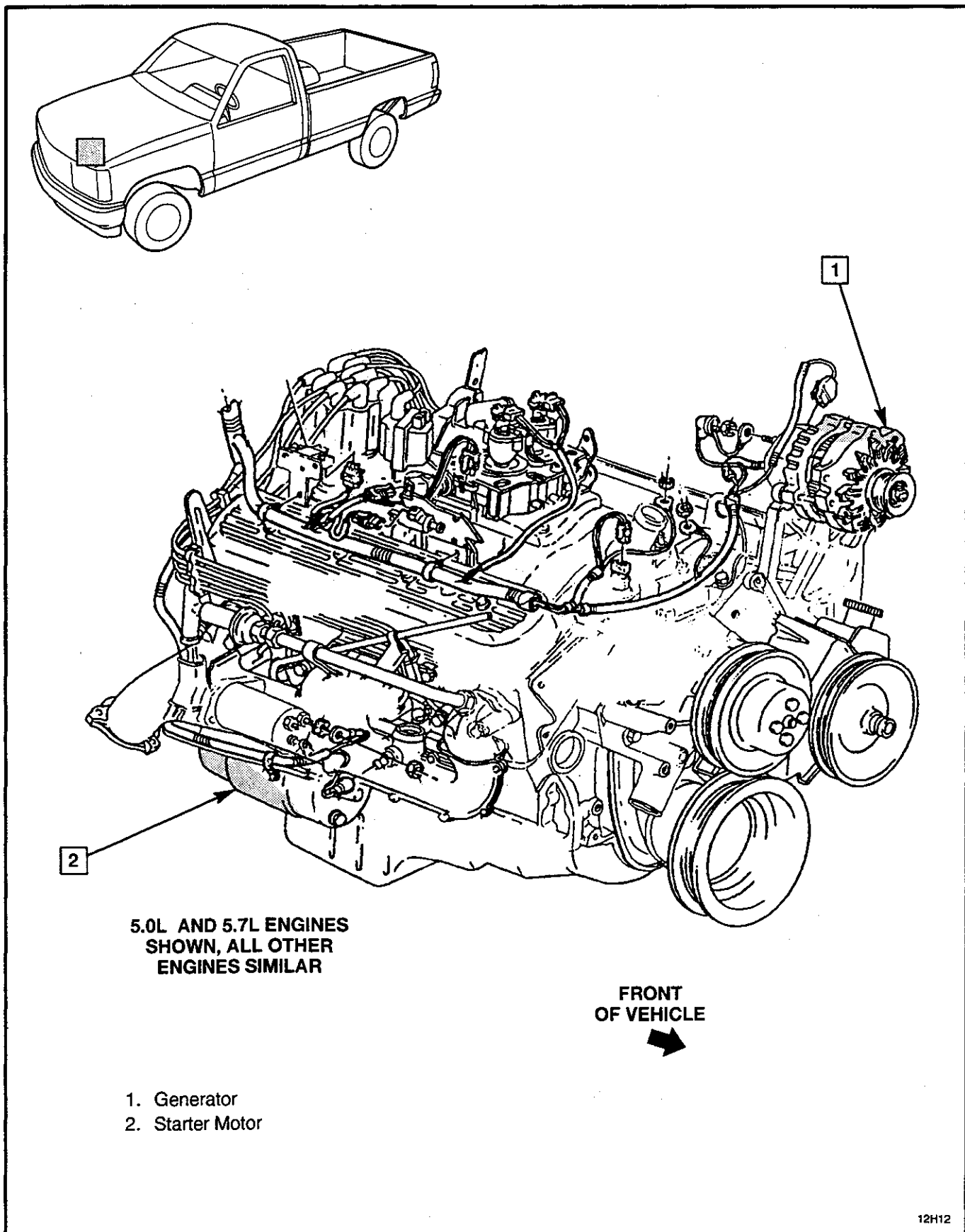


Figure 1 — RH Side of Engine, 5.0L (305 CID) and 5.7L (350 CID) V8 — Gasoline Engines

1. Battery Junction Block  
2. Battery

FRONT OF VEHICLE

VIEW A

12A2

### Figure 2 — Battery Wiring, Gasoline Engines

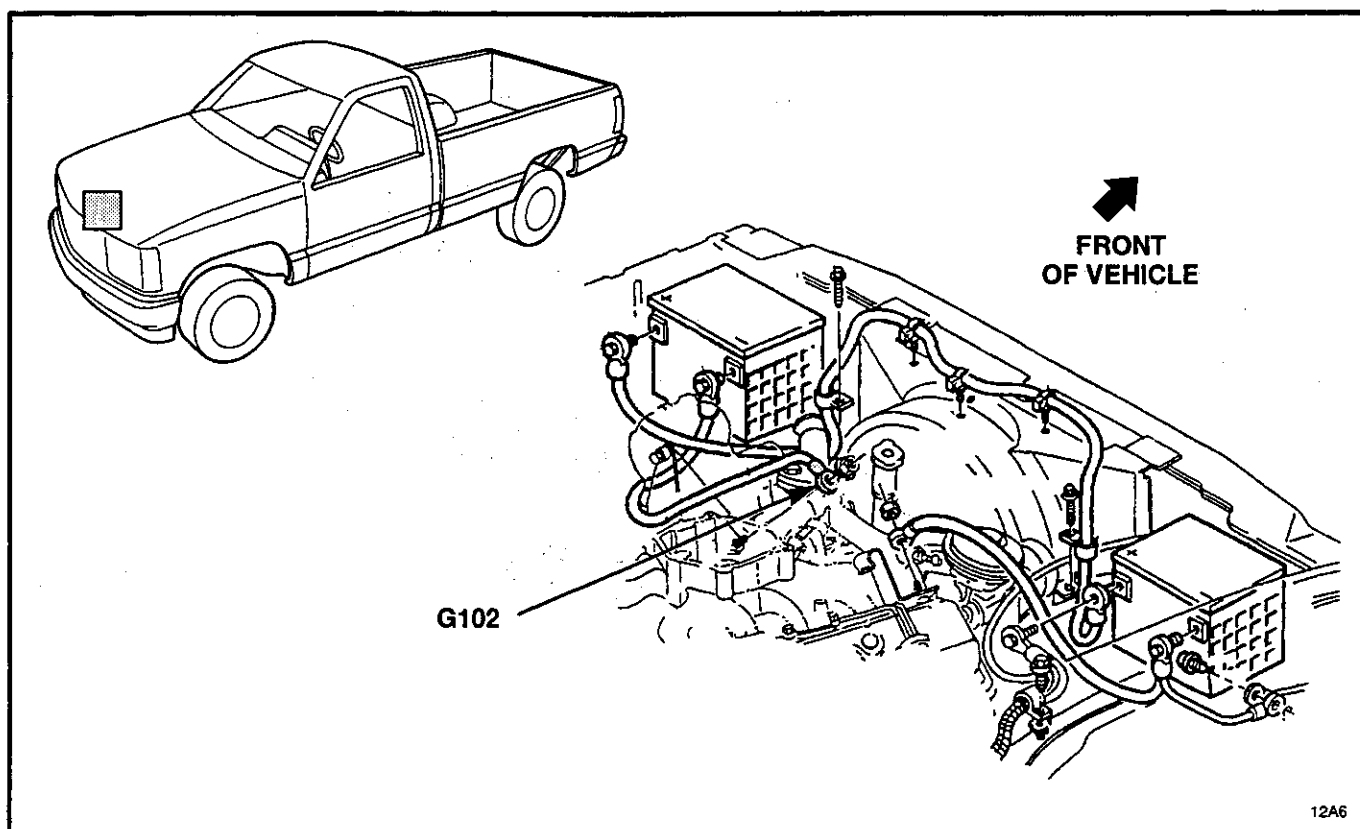


Figure 3 — Battery Cables, Diesel

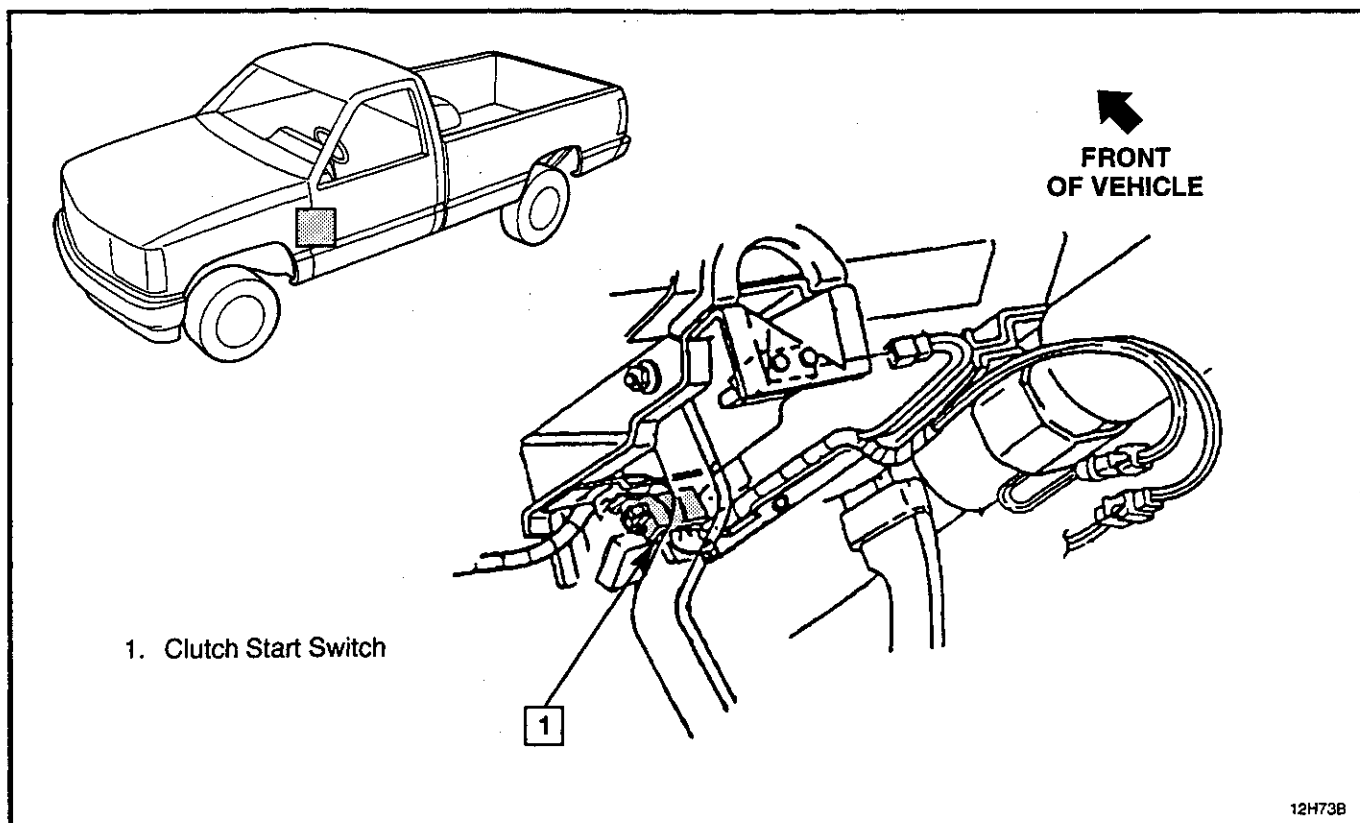


Figure 4 — Cruise Control Wiring

## 8A-30-12 START AND CHARGE

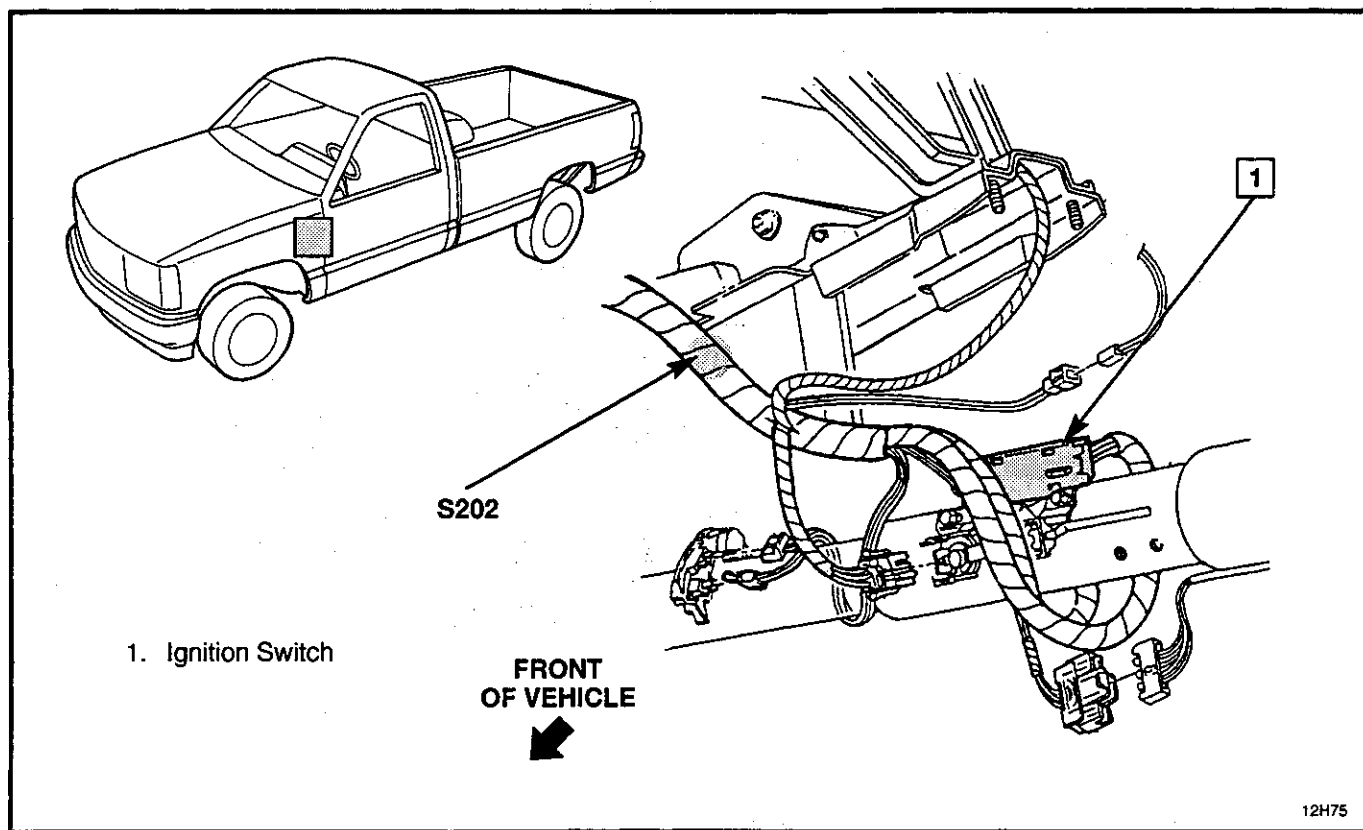


Figure 5 — LH Side of Steering Column Wiring

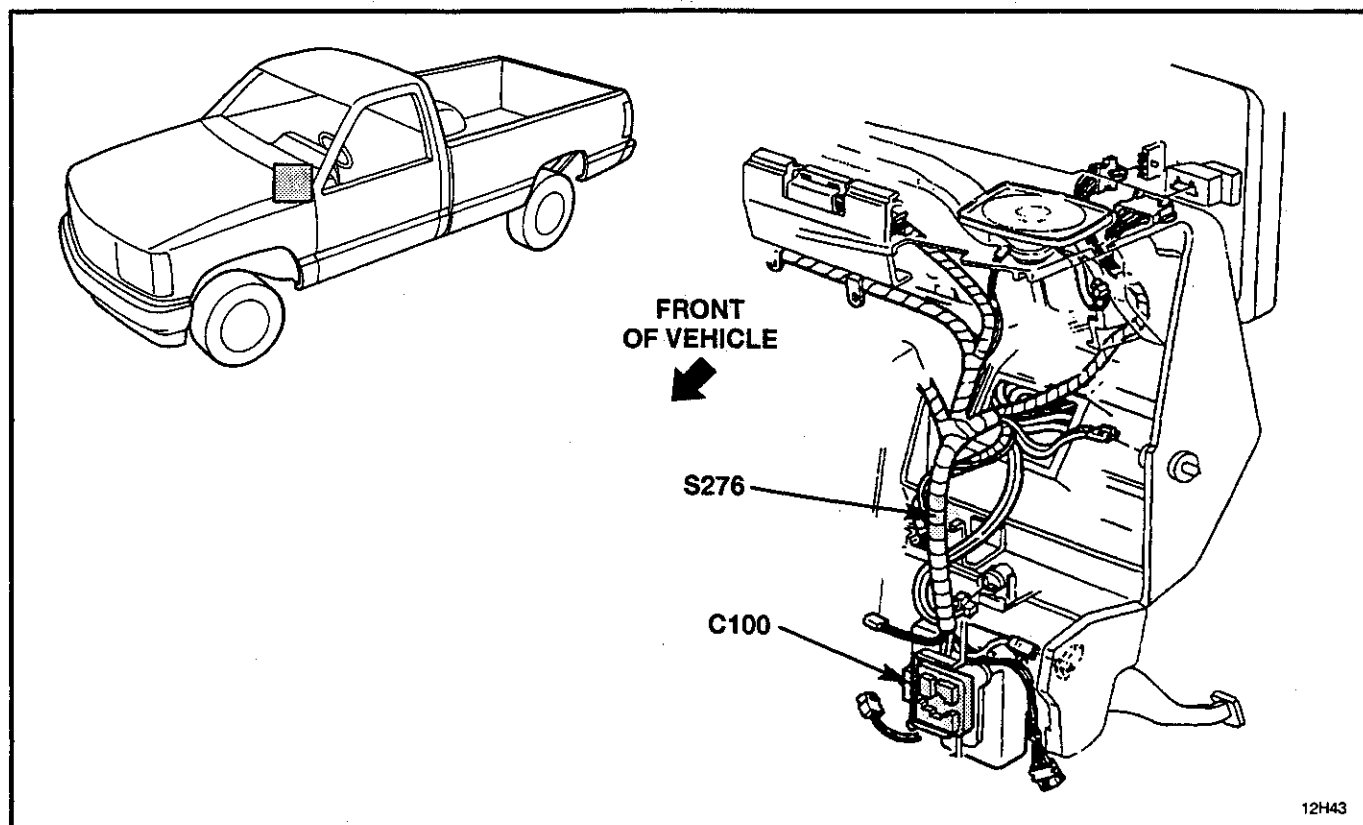


Figure 6 — LH Side of Instrument Panel



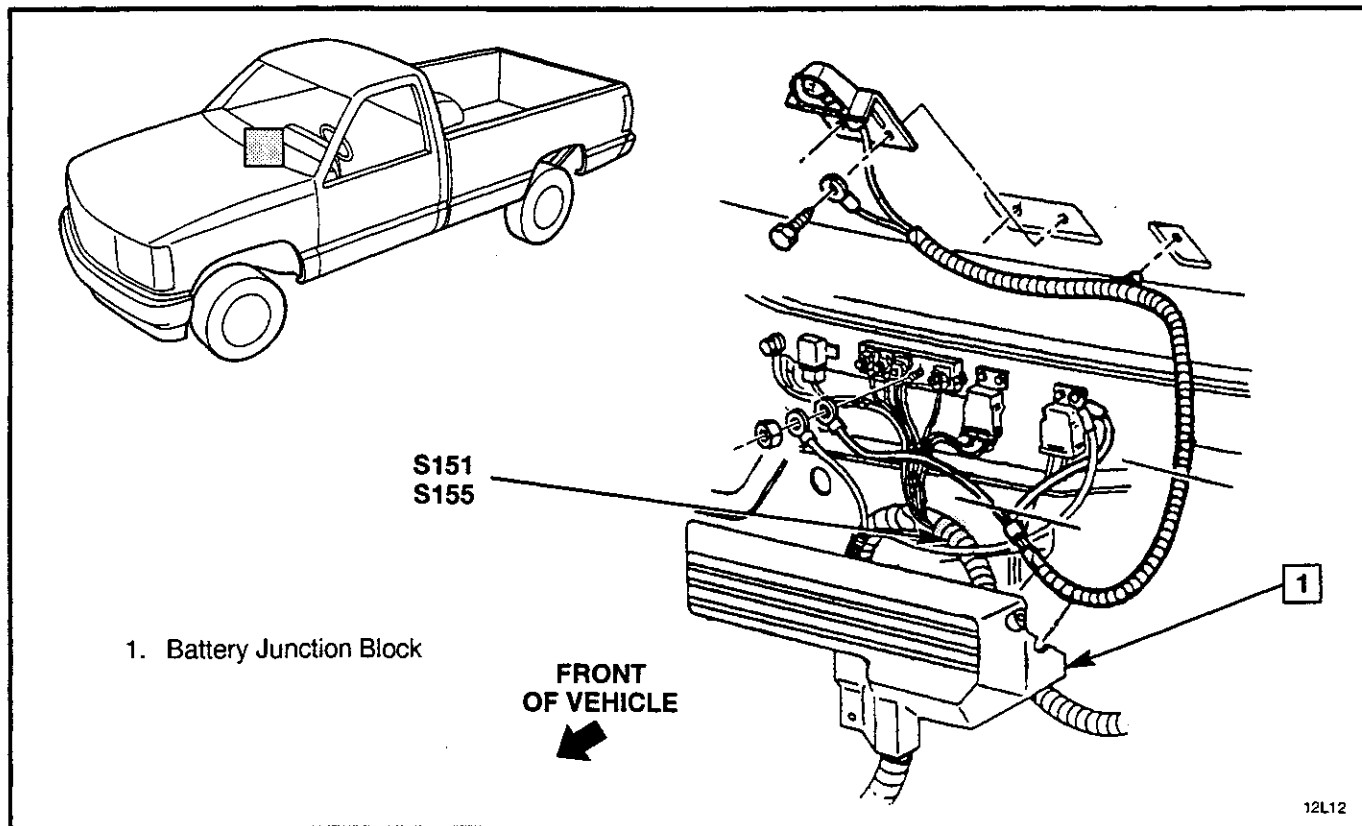


Figure 7 — Underhood Lamp Wiring

**8A-30-14 START AND CHARGE**

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**BLANK**

## AUXILIARY COOLING FAN 8A-31-1

### CIRCUIT OPERATION

Battery voltage is supplied to the Auxiliary Cooling Fan Control Relay by the RED (2) wire at all times and by the PNK/BLK (39) wire when the Ignition Switch is in RUN or START. When the Auxiliary Cooling Fan Control Temperature Switch closes at 107°C (225°F), the A/C high

pressure switch closes or the A/C Controller is activated, circuit 37 is grounded and the Auxiliary Cooling Fan Control Relay energizes. Battery voltage is supplied across the Auxiliary Cooling Fan Control Motor and the Auxiliary Cooling Fan operates.

### COMPONENT LOCATION

#### Page — Figure

A/C High Pressure Switch	RH front engine compartment	31-6	2
Auxiliary Cooling Fan	In front of radiator	31-8	4
Auxiliary Cooling Fan Relay	LH rear side of engine compartment	Not Shown	
Auxiliary Cooling Fan Temperature Switch	RH cylinder head	31-10	8
Battery Junction Block	RH rear engine compartment, at cowl	31-9	6
Fuse Block	Lower LH side of I/P	31-7	3

### CONNECTORS:

C100	At bulkhead connector	Not Shown	
C138	LH rear engine compartment, near bulkhead connector	31-10	8
C260	Near A/C blower motor case	31-9	7

### DIODES:

D190	Engine harness, rear of engine compartment, near junction block	Not Shown	
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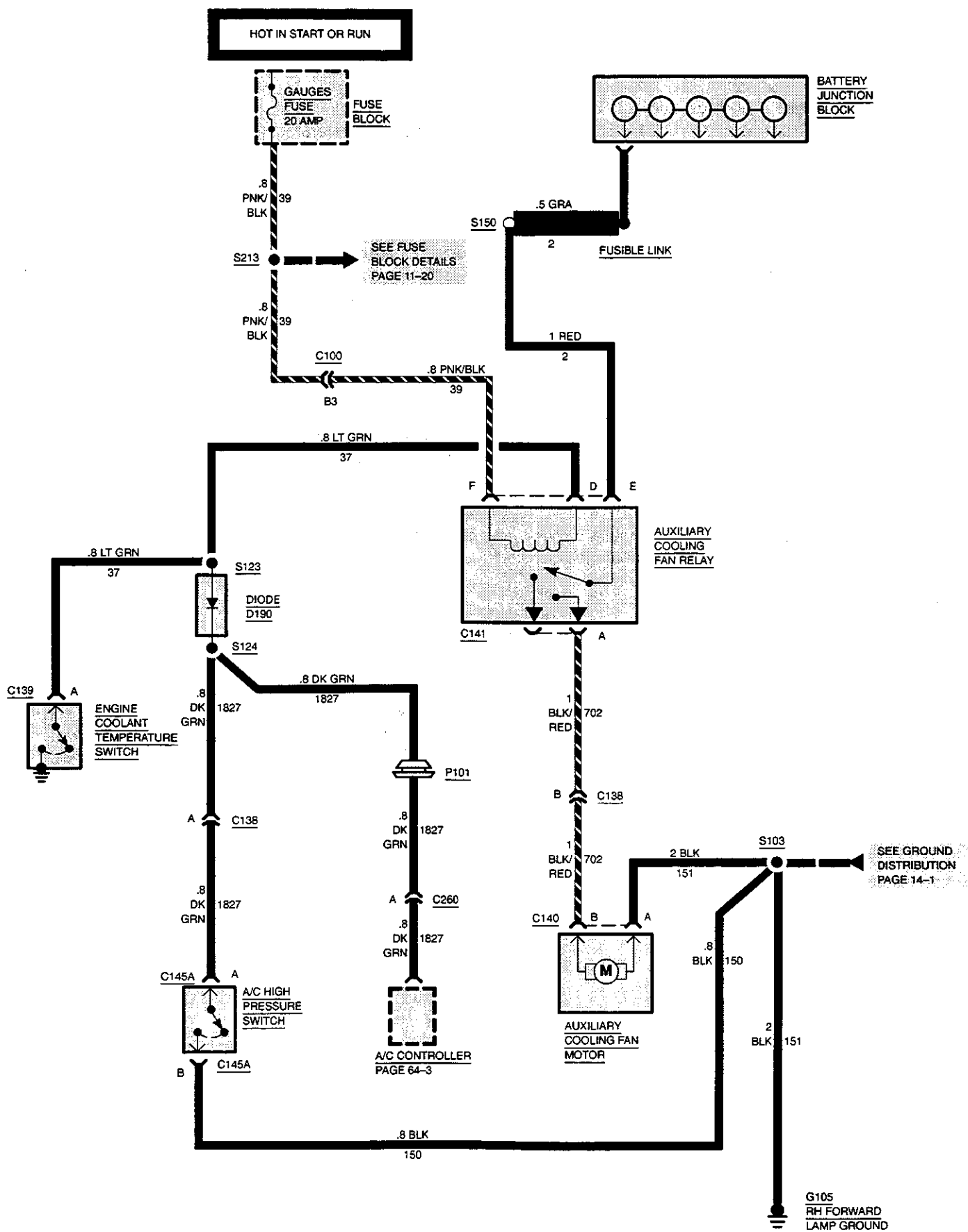
### GROUNDING:

G105	RH inner fender, near battery	Not Shown	
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### SPLICES:

S103	RH side of engine compartment, near headlamp	31-8	5
S123	Rear of engine compartment, near junction block	Not Shown	
S124	Rear of engine compartment, near junction block	Not Shown	
S150	Center of cowl, below battery junction block	31-6	1
S213	Under LH side of I/P	31-7	3

## 8A-31-2 AUXILIARY COOLING FAN



**DIAGNOSIS — AUXILIARY COOLING FAN**

**PRELIMINARY CHECKS:**

1. Check condition of GAUGES Fuse. If fuse is blown, locate and repair source of overload. Replace fuse.

**AUXILIARY COOLING FAN RUNS CONTINUOUSLY**

TEST	RESULT	ACTION
1. Place ignition switch in RUN position and with engine coolant temperature below 107°C (225°F), disconnect auxiliary cooling fan control temperature switch connector C139.	Cooling fan runs.	GO to step 2.
	Cooling fan does not run.	REPLACE cooling auxiliary cooling fan control temperature switch.
2. Disconnect auxiliary cooling fan control relay connector C141. Connect test lamp from PNK/BLK (39) to LT GRN (37) wires at auxiliary cooling fan control relay connector C141.	Test lamp lights.	CHECK for short in LT GRN (37) wire from auxiliary cooling fan control relay connector C141 to auxiliary cooling fan control temperature switch connector C139.
	Test lamp does not light.	REPLACE auxiliary cooling fan control relay.

**AUXILIARY COOLING FAN DOES NOT OPERATE**

TEST	RESULT	ACTION
1. Disconnect auxiliary cooling fan control temperature switch connector C139. Connect fused jumper from LT GRN (37) wire at auxiliary cooling fan control temperature switch connector C140 to ground.	Cooling fan does not run.	GO to step 2.
	Cooling fan runs.	REPLACE auxiliary cooling fan control temperature switch.
2. Disconnect auxiliary cooling fan control relay connector C141. Connect test lamp from PNK/BLK (39) wire at auxiliary cooling fan control relay connector C141 to ground.	Test lamp lights.	GO to step 3.
	Test lamp does not light.	LOCATE and REPAIR open in PNK/BLK (39) wire from auxiliary cooling fan control relay connector C141 to splice S115 or from splice S115 to fuse block.
3. Connect fused jumper from LT GRN (37) wire at auxiliary cooling fan control temperature switch connector C139 to ground. Connect test lamp from PNK/BLK (39) wire to LT GRN (37) wire at auxiliary cooling fan control relay connector C141.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	LOCATE and REPAIR open in LT GRN (37) wire between fan control temperature switch connector C139 and fan control relay connector C141.

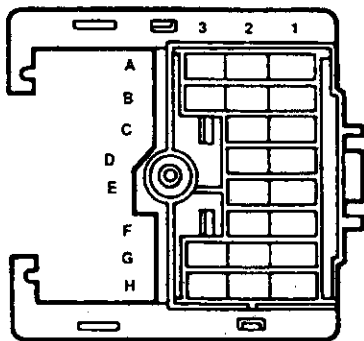
## 8A-31-4 AUXILIARY COOLING FAN

### AUXILIARY COOLING FAN DOES NOT OPERATE (CONTINUED)

TEST	RESULT	ACTION
4. Connect test lamp from RED (2) wire at auxiliary cooling fan control relay connector C141 to ground.	Test lamp lights.	GO to step 5.
	Test lamp does not light.	LOCATE and REPAIR open in RED (2) wire between auxiliary cooling fan control relay connector C141 and battery junction block.
5. Connect 30 amp, fused jumper from RED (2) wire to BLK/RED (702) at the auxiliary cooling fan control relay connector C141.	Cooling fan does not run.	GO to step 6.
	Cooling fan runs.	REPLACE auxiliary cooling fan control relay.
6. Leave 30 amp, fused jumper connected. Disconnect auxiliary cooling fan connector C140. Connect test lamp from BLK/RED (702) at auxiliary cooling fan connector C140 to ground.	Test lamp lights.	GO to step 7.
	Test lamp does not light.	LOCATE and REPAIR open in BLK/RED (702) wire from auxiliary cooling fan connector C140 to auxiliary cooling fan control relay connector C141.
7. Connect test lamp from BLK/RED (702) to BLK (151) wires at auxiliary cooling fan control connector C140.	Test lamp lights.	REPLACE auxiliary cooling fan.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (151) wire from auxiliary cooling fan connector C140 to ground terminal G105.

# AUXILIARY COOLING FAN 8A-31-5

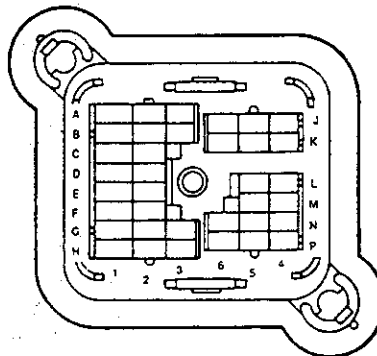
12020183



GRAY  
Metri-Pack

**C100**  
Bulkhead Connector – Eng

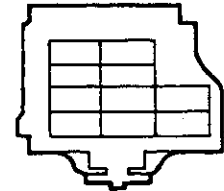
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GRAY  
Metri-Pack

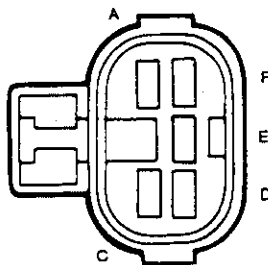
**C100**  
Bulkhead Connector – I/P

12020100



**C102**  
Bulkhead – Forward Lamps

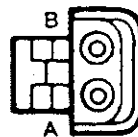
12065169



MED. GRAY  
Metri-Pack

**C141**  
Cooling Fan Relay

12015792



BLACK  
Weather Pack

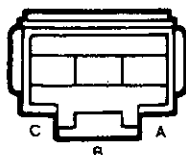
**C140**  
Cooling Fan

12089501



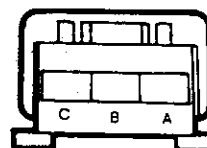
**C131**  
Cooling Fan Temperature Switch

12020398



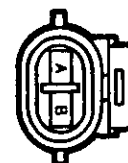
BLACK  
Metri-Pack 180  
**C260**  
In-Line I/P to Engine

12020397



BLACK  
Metri-Pack 280  
**C260**  
In-Line Engine to I/P

12052643



RED  
Metri-Pack 150  
**C145A**  
A/C High Pressure Switch

## 8A-31-6 AUXILIARY COOLING FAN

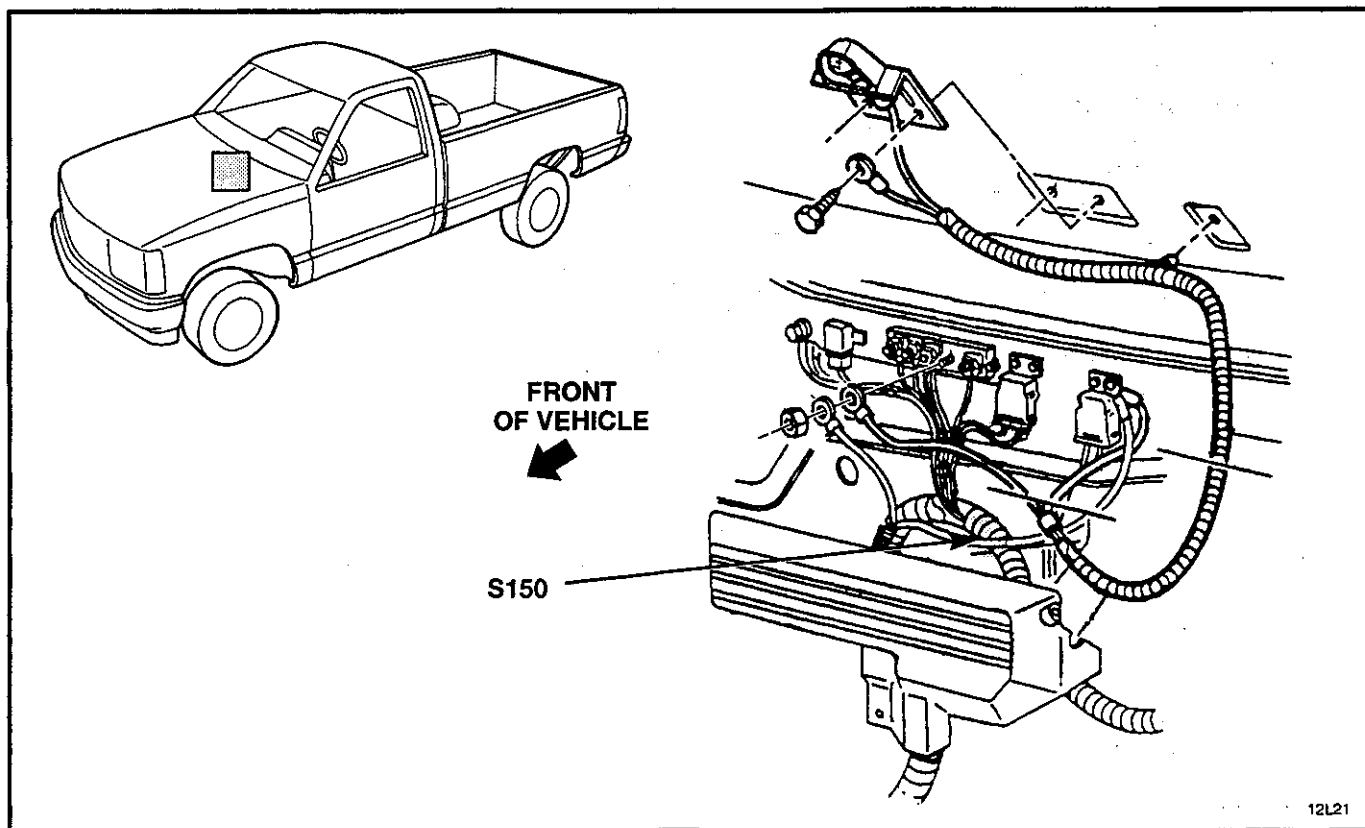


Figure 1 — Battery Junction Block Wiring

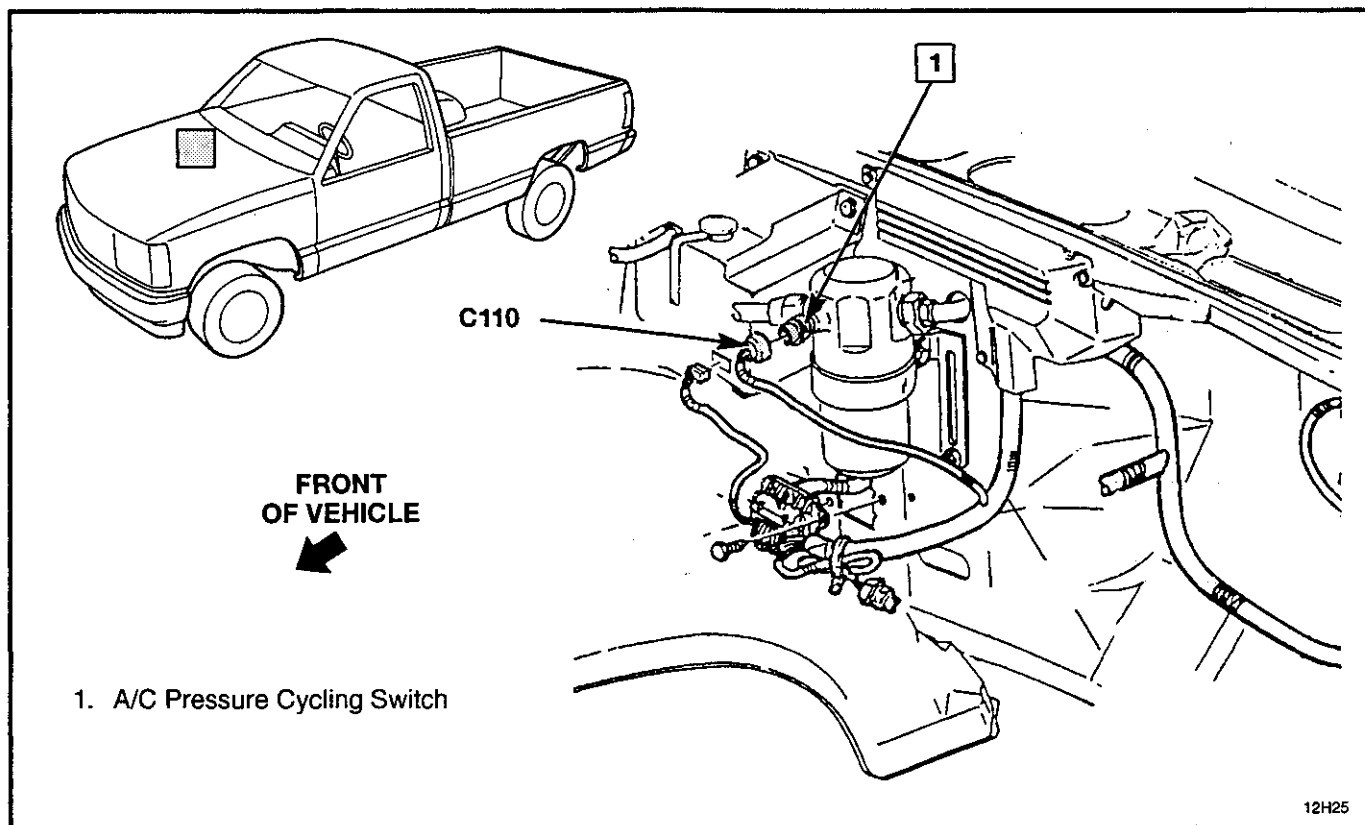


Figure 2 — Cowl Wiring



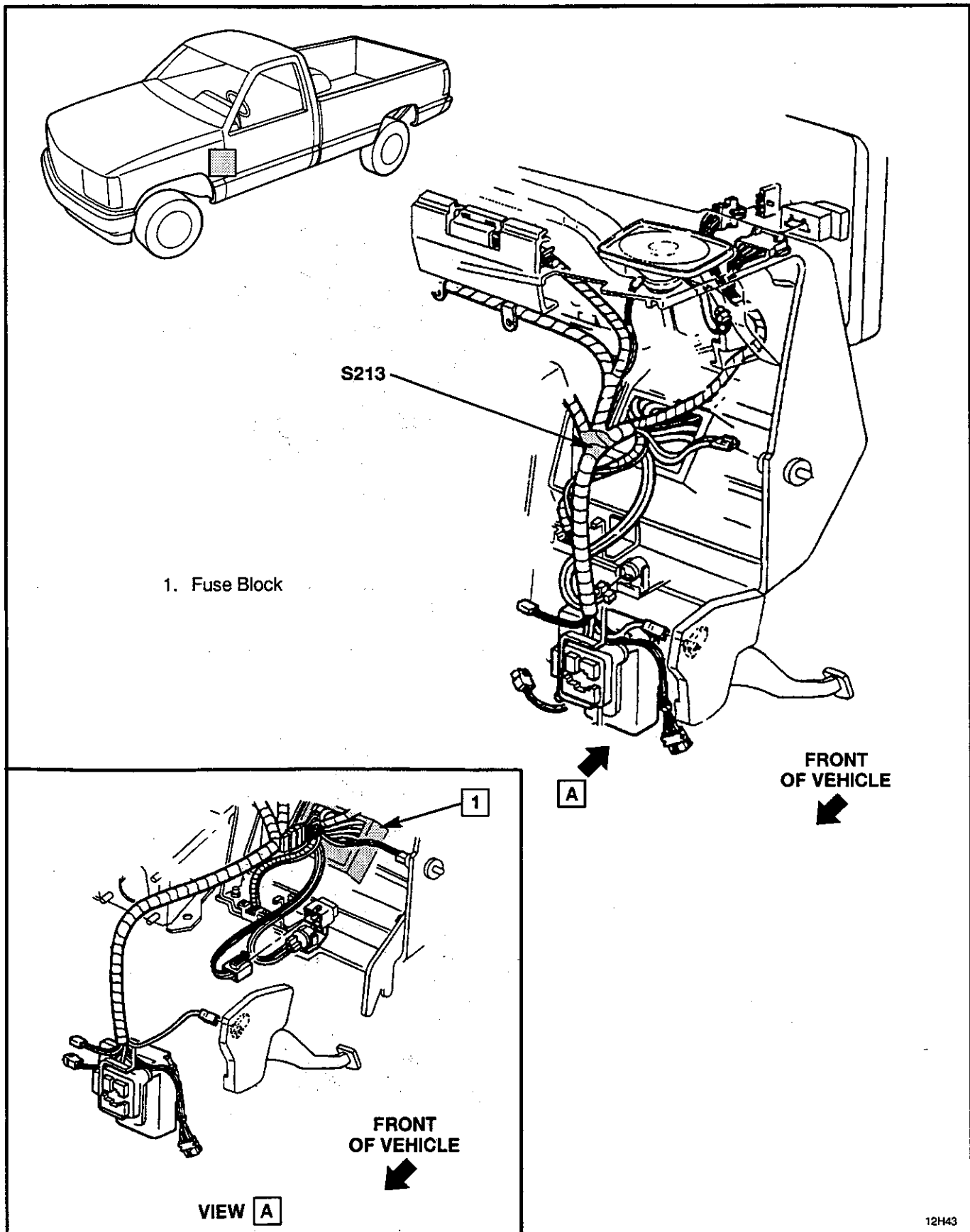


Figure 3 — LH Side of Instrument Panel

## 8A-31-8 AUXILIARY COOLING FAN

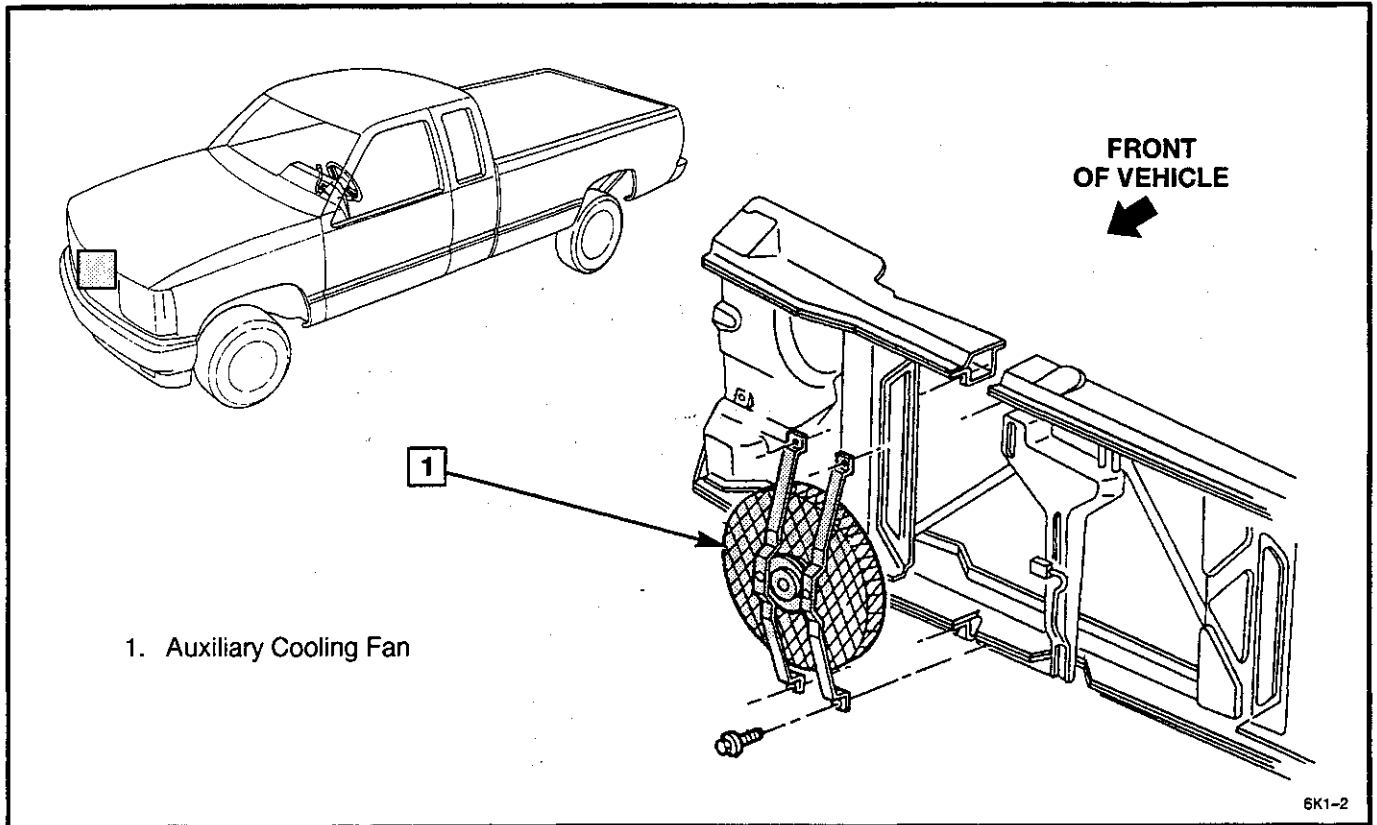


Figure 4 — Auxiliary Cooling Fan

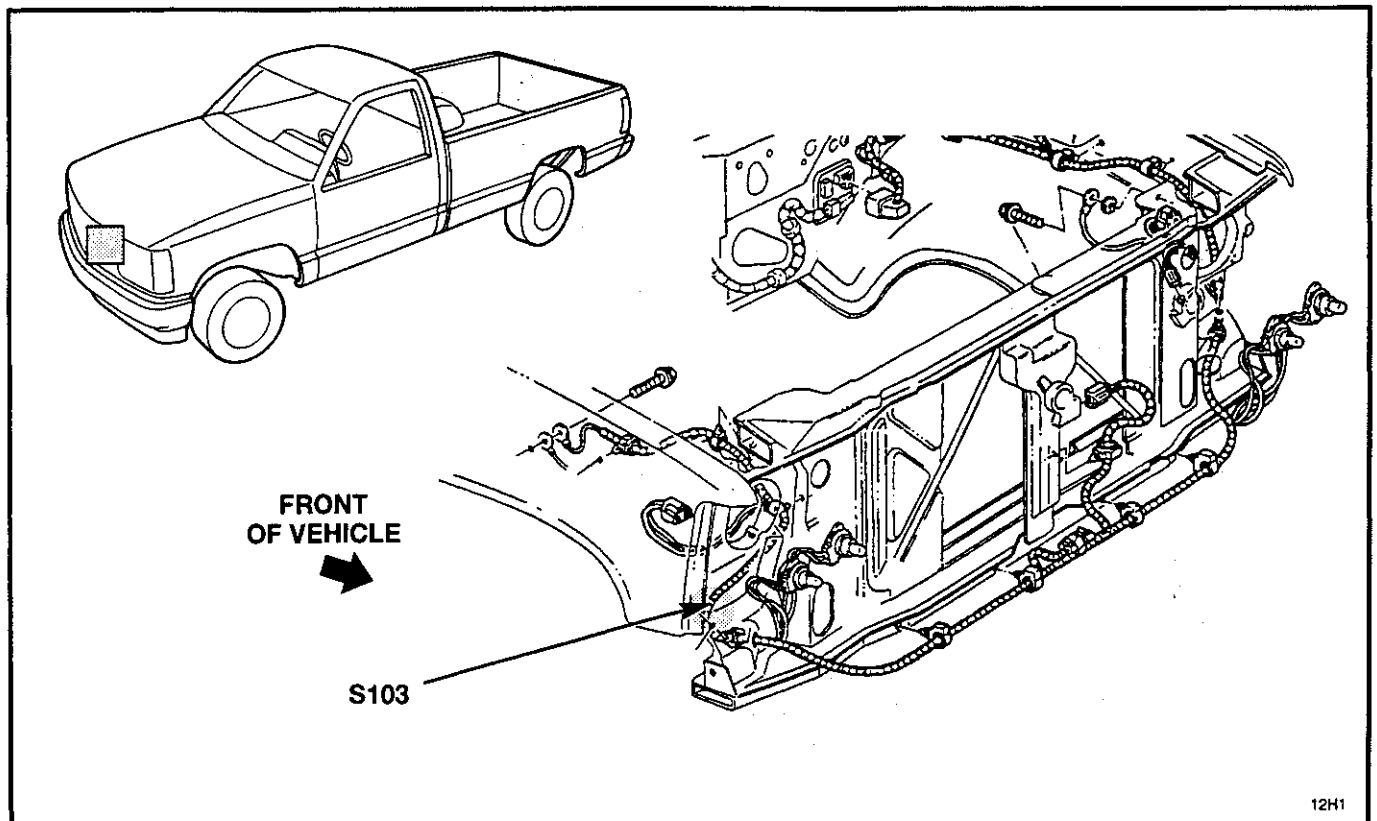


Figure 5 — Forward Lamp Harness, Dual Headlamps — 2 Door Pickup

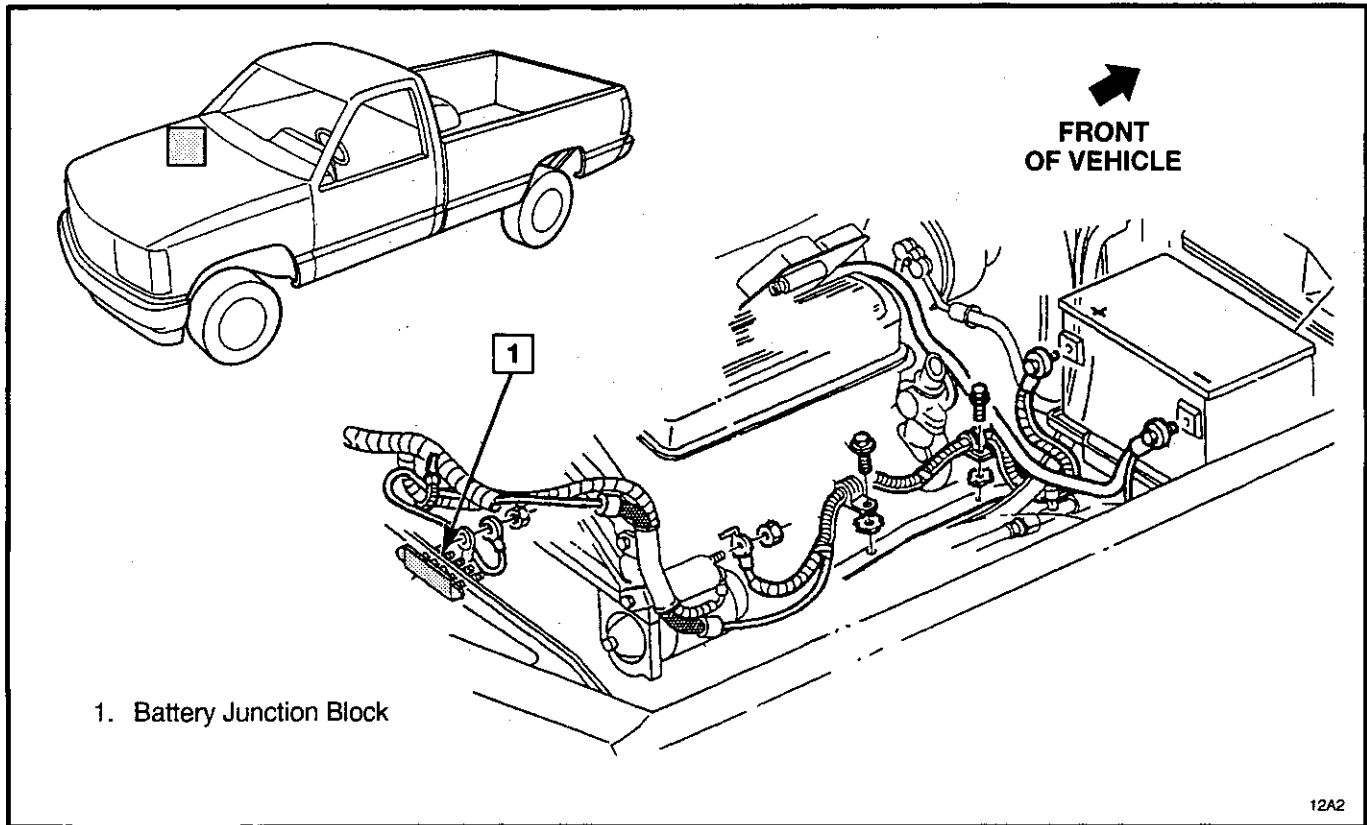


Figure 6 — Battery Wiring, Gasoline Engines

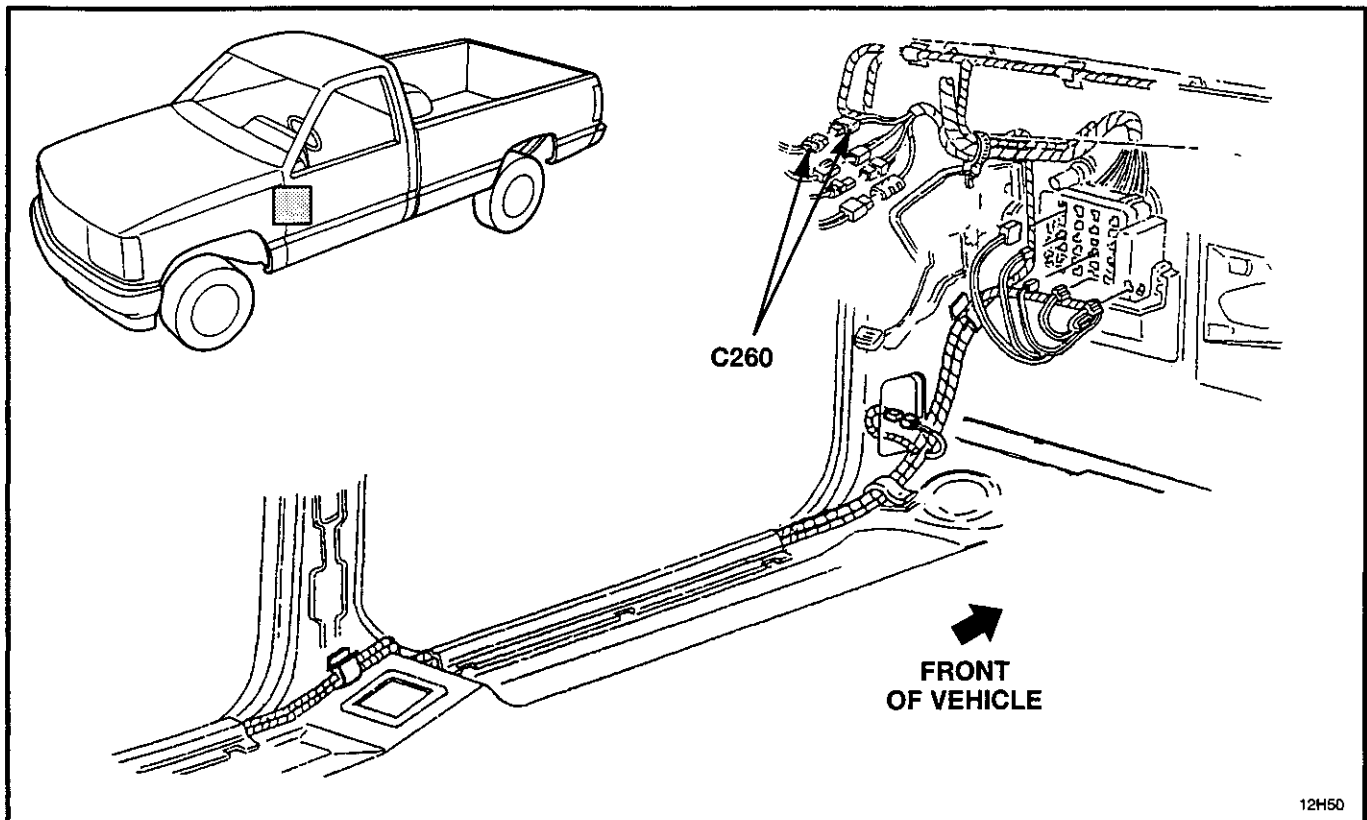


Figure 7 — Body Wiring Harness, Front

## 8A-31-10 AUXILIARY COOLING FAN

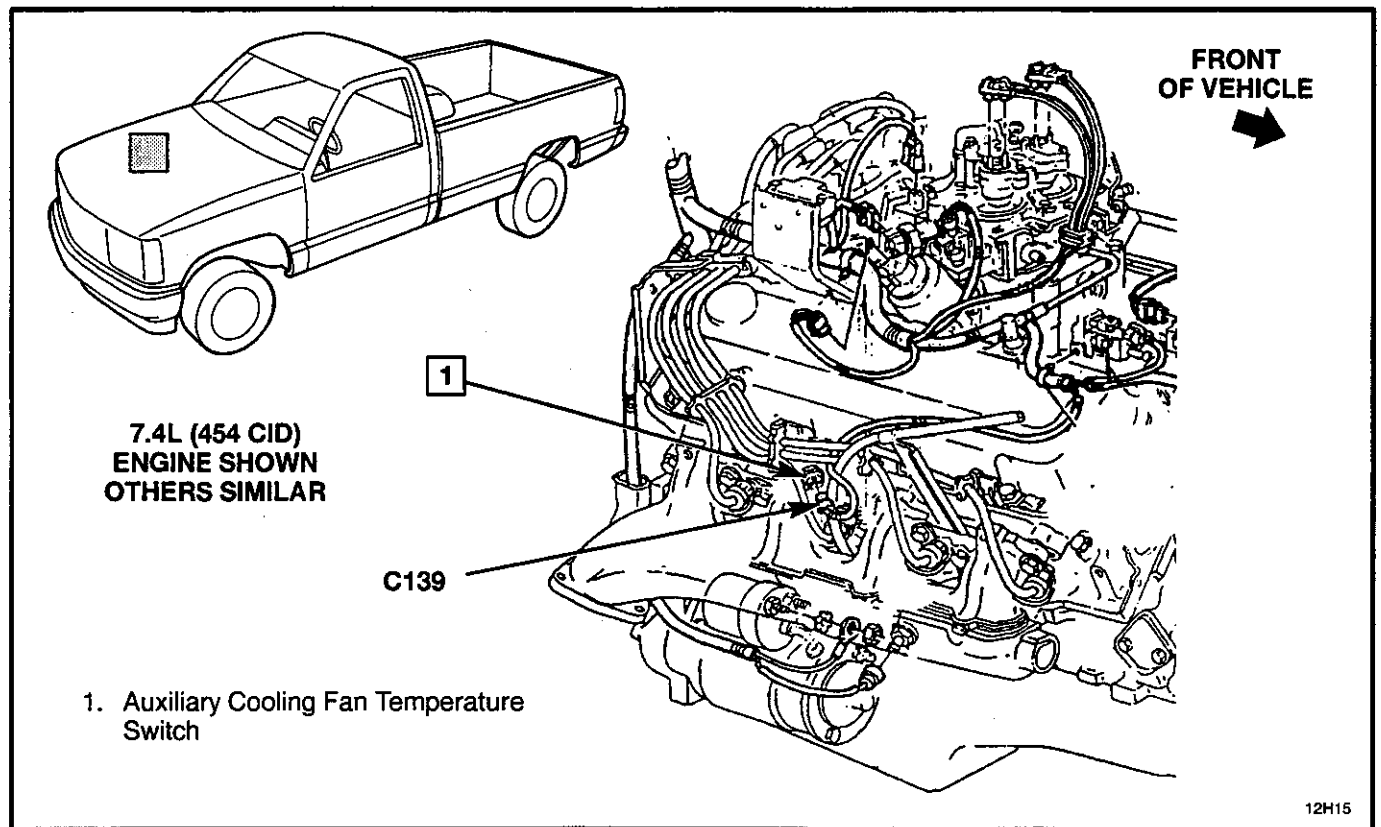


Figure 8 — Auxiliary Cooling Fan Switch

## **CIRCUIT OPERATION**

The Speedometer/Odometer is electronic and does not require a speedometer cable. The speedometer receives a vehicle speed signal from the Vehicle Speed Sensor Buffer. The Vehicle Speed Sensor Buffer receives an AC voltage signal from the transmission mounted Vehicle Speed Sensor (VSS).

The VSS generates a signal that indicates the speed of the vehicle. The signal is processed by the solid-state Vehicle Speed Sensor Buffer to supply inputs to the Powertrain Control Module (PCM), the Cruise Control Module and the Speedometer.

The VSS is mounted in the transmission. A toothed rotor rotates near a coil, producing voltage pulses in the coil.

The rotor that is attached to the transmission turns four times faster than a standard speedometer cable. The coil near the rotor generates 40 pulses per revolution.

The frequency of the AC voltage coming from this coil depends on the vehicle speed. As the speed increases, so does the number of voltage pulses per second.

The Vehicle Speed Sensor Buffer takes the voltage pulses from the sensor and uses them to close three solid-state output switches. Each output terminal is switched to ground at a rate that is proportional to the speed of the vehicle. The Speedometer is switched by the primary rate of the VSS. The PCM and the Cruise Control use a lower frequency. Their input switches are operated by a circuit that divides the sensor frequency by two.

Different Vehicle Speed Sensor Buffers are used to match the vehicle final drive ratio to the components.

## **COMPONENT LOCATION**

### **Page — Figure**

Convenience Center .....	Under LH side of I/P .....	33-12	8
Fuse Block .....	Lower LH side of I/P .....	33-8	2
Vehicle Speed Sensor (VSS) .....	LH rear side of transmission .....	33-9	4
Vehicle Speed Sensor Buffer .....	Under RH end of I/P .....	Not Shown	

## **CONNECTORS:**

C100 .....	At bulkhead connector .....	Not Shown	
C200 .....	Under RH side of I/P, near blower motor .....	33-13	10

## **GROMMETS:**

P101 .....	RH lower cowl in engine compartment .....	33-13	10
P102 .....	LH cowl, above convenience center .....	33-8	3

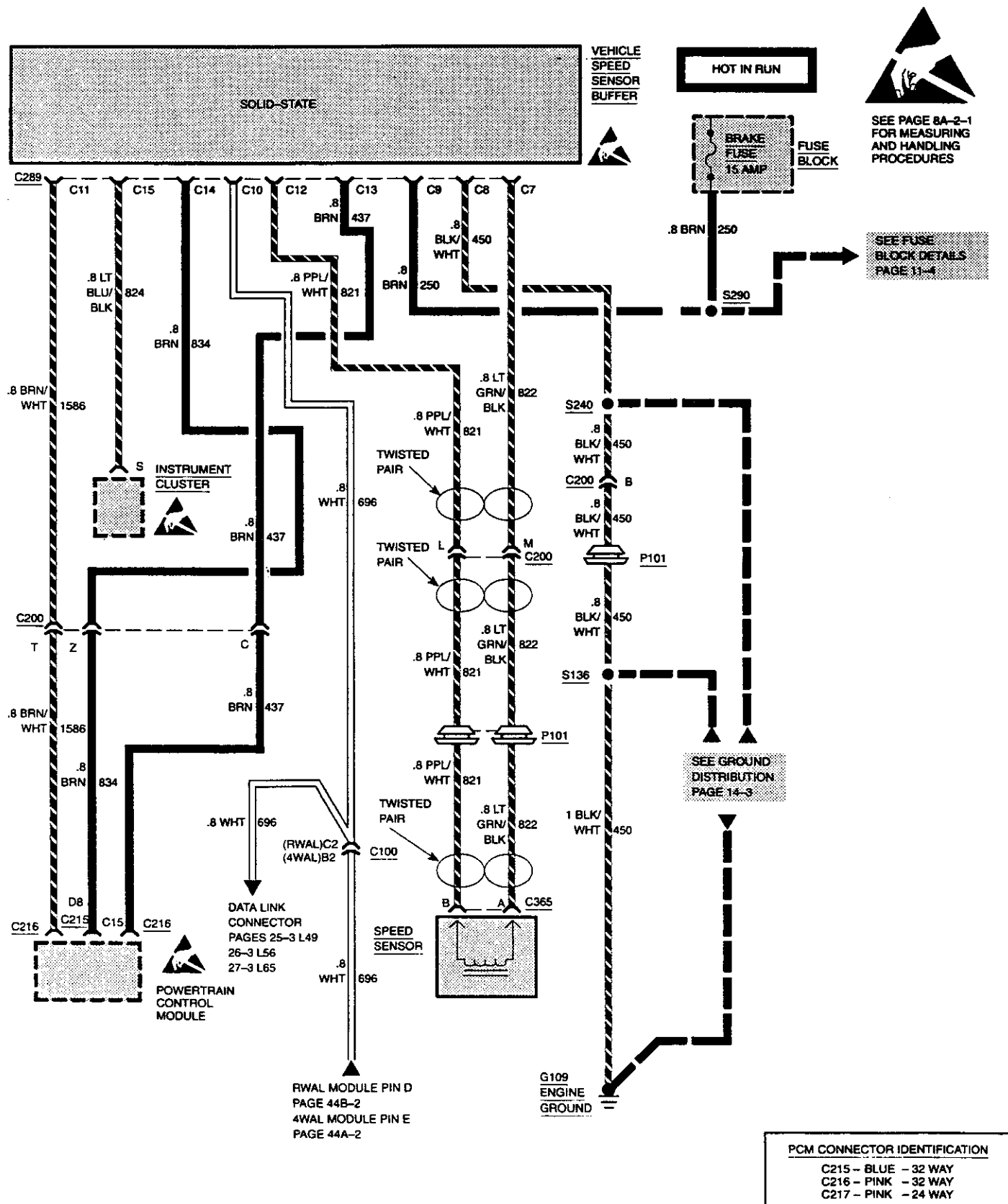
## **GROUNDING:**

G109 (Gasoline) .....	Top front center of engine .....	33-10	6
G109 (Diesel) .....	Rear of RH cylinder head .....	33-9	5

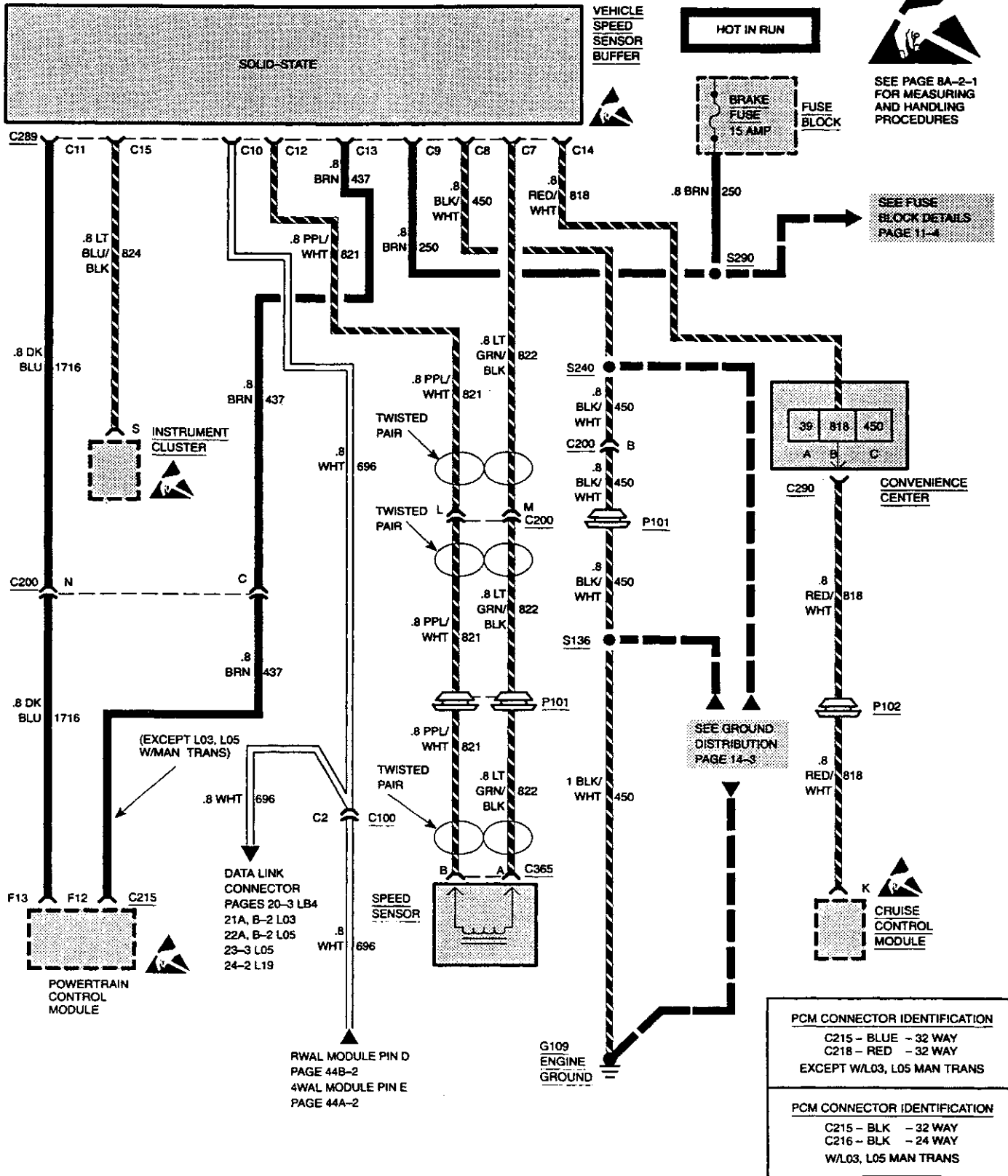
## **SPLICES:**

S136 .....	Rear of engine compartment, near center .....	33-11	7
S240 .....	Behind LH side of I/P .....	33-7	1
S290 .....	Under LH side of I/P .....	33-13	9

## **8A-33-2 VEHICLE SPEED SENSOR BUFFER**



## GASOLINE ENGINES



## 8A-33-4 VEHICLE SPEED SENSOR BUFFER

### DIAGNOSIS — VEHICLE SPEED SENSOR

#### PRELIMINARY CHECKS:

1. Check condition of BRAKE Fuse. If fuse is blown, locate and repair source of overload.
2. Replace fuse.

**CAUTION: THE FOLLOWING TEST REQUIRES THAT YOU FREE-ROLL THE REAR WHEELS OF THE VEHICLE ON THE HOIST. BE SURE THE WHEELS ARE FREE OF OBSTRUCTIONS AND THAT YOU AND OTHERS STAY CLEAR OF THE WHEELS AT ALL TIMES. FAILURE TO DO SO MAY RESULT IN INJURY OR DEATH. DO NOT BRING WHEEL SPEED ABOVE 70 MPH.**

#### SPEEDOMETER AND ODOMETERS DO NOT OPERATE

TEST	RESULT	ACTION
1. Raise vehicle on hoist. Disconnect speed sensor connector C365. Connect AC voltmeter across speed sensor terminals while rolling wheels in high gear.	Battery voltage.	GO to step 2.
	No voltage.	REPLACE VSS.
2. Connect AC voltmeter, check for voltage across PPL/WHT (821) and LT GRN/BLK (822) wires at vehicle speed sensor buffer connector C289. NOTE: Wheels must be rolling in high gear.	Battery voltage.	GO to step 3.
	No voltage.	LOCATE and REPAIR open in PPL/WHT (821) and/or LT GRN/BLK (822) wires from speed sensor connector C365 to vehicle speed sensor buffer connector C289.
3. Disconnect I/P connector C203 and the connector from the vehicle speed sensor buffer C289. Connect ohmmeter from LT BLU/BLK (824) at cluster connector C203 to LT BLU/BLK (824) at vehicle speed sensor buffer connector C289.	More than 0 ohms.	LOCATE and REPAIR open in LT BLU/BLK (824) wire between I/P connector C203 and vehicle speed sensor buffer connector C289.
	0 ohms.	REFER to vehicle speed sensor buffer diagnosis in Section 8C of the 1994 C/K Service Manual.

#### CRUISE CONTROL DOES NOT OPERATE PROPERLY

TEST	RESULT	ACTION
1. Place ignition switch in RUN position and disconnect Vehicle Speed Sensor Buffer connector C289. Connect voltmeter from BRN (250) wire at Vehicle Speed Sensor Buffer connector C289 to ground.	Battery voltage.	GO to step 2.
	No voltage.	LOCATE and REPAIR open in BRN (250) wire.
2. Connect voltmeter from BRN (250) wire to BLK/WHT (450) wire at Vehicle Speed Sensor Buffer connector C289.	Battery voltage.	GO to step 3.
	No voltage.	LOCATE and REPAIR open in BLK/WHT (450) wire from Vehicle Speed Sensor Buffer connector C289 to ground G109.



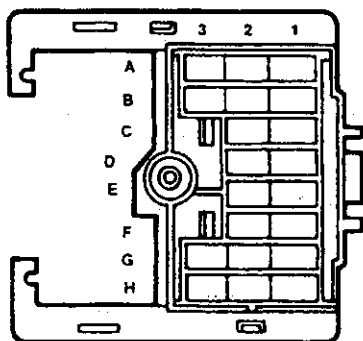
## VEHICLE SPEED SENSOR BUFFER 8A-33-5

### CRUISE CONTROL DOES NOT OPERATE PROPERLY (CONTINUED)

TEST	RESULT	ACTION
3. Properly support vehicle so drive wheels are off the ground. Have engine running and gear selector in DRIVE. Connect A/C voltmeter from PPL/WHT (821) wire to LT GRN/BLK (822) at Vehicle Speed Sensor Buffer connector C289.	A/C voltage reading.	GO to step 4.
	No voltage.	CHECK for open in PPL/WHT (821) and LT GRN/BLK (822) wires. If wires are good, REPLACE speed sensor.
4. Connect Vehicle Speed Sensor Buffer connector C289. Connect A/C voltmeter from RED/WHT (818) wire at Vehicle Speed Sensor Buffer connector C279 to BLK/WHT (450) wire at Vehicle Speed Sensor Buffer connector C289.	A/C voltage reading.	LOCATE and REPAIR open in RED/WHT (818) wire from Vehicle Speed Sensor Buffer connector C279 to cruise control module connector C178.
	No voltage.	REPLACE Vehicle Speed Sensor Buffer.

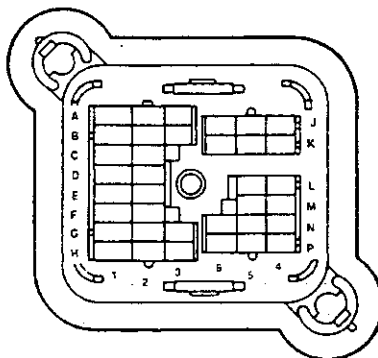
## 8A-33-6 VEHICLE SPEED SENSOR BUFFER

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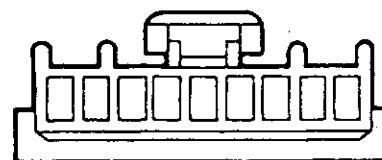
**GRAY**  
Metri-Pack  
**C100**  
Bulkhead Connector – Eng

12020184



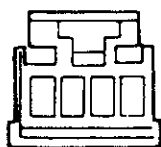
**GRAY**  
Metri-Pack  
**C100**  
Bulkhead Connector – I/P

12066130



**NATURAL**  
Micro-Pack 100  
**C229**  
Vehicle Speed Sensor Buffer

12066189



**NATURAL**  
Micro-Pack 100  
**C289**  
Vehicle Speed Sensor Buffer

12033698



**C290**  
Cruise Control Connector to  
Convenience Center

12020600



**BLACK**  
Metri-Pack 280  
**C365**  
Vehicle Speed Sensor

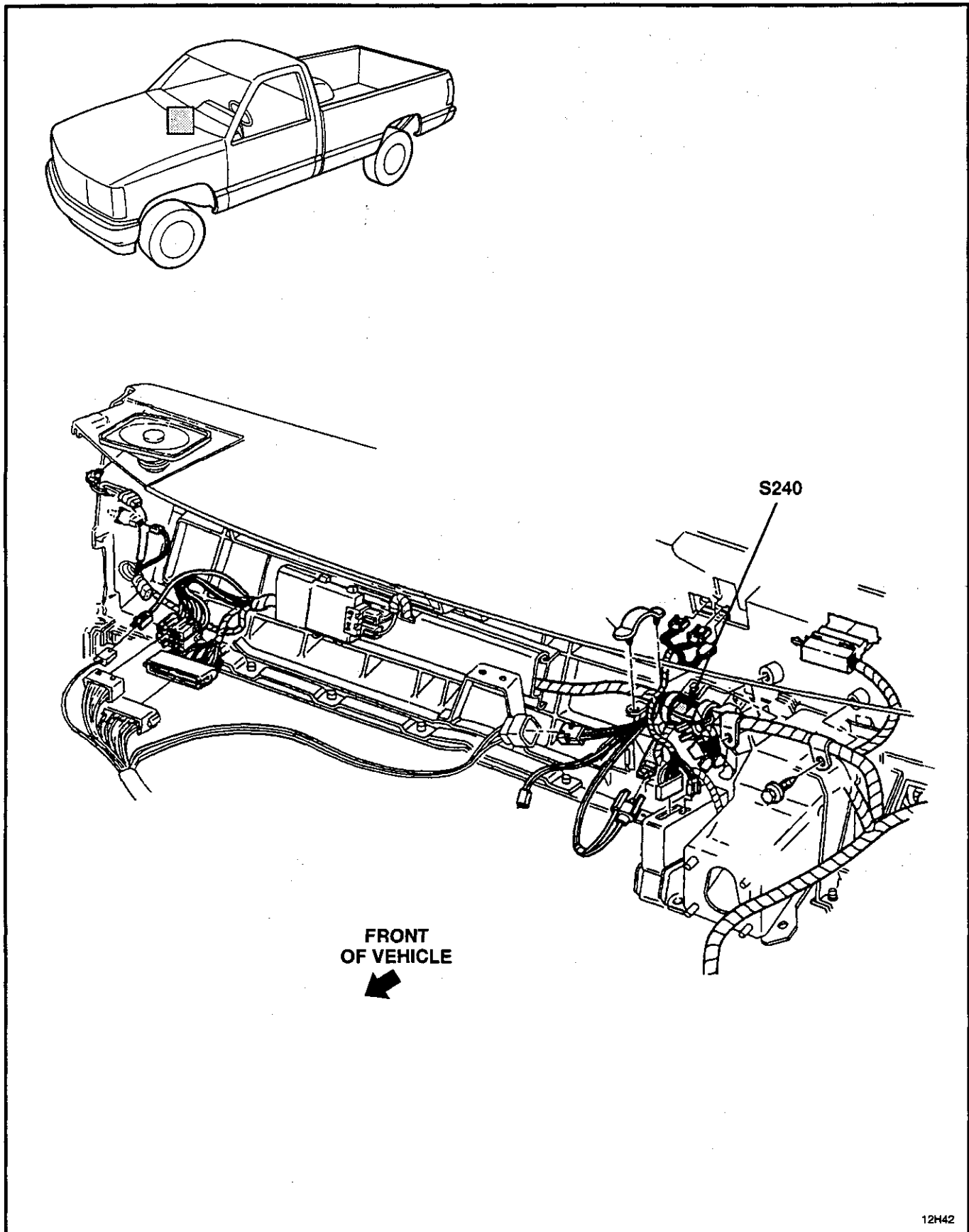


Figure 1 — Instrument Panel Wiring, RH Side

## 8A-33-8 VEHICLE SPEED SENSOR BUFFER

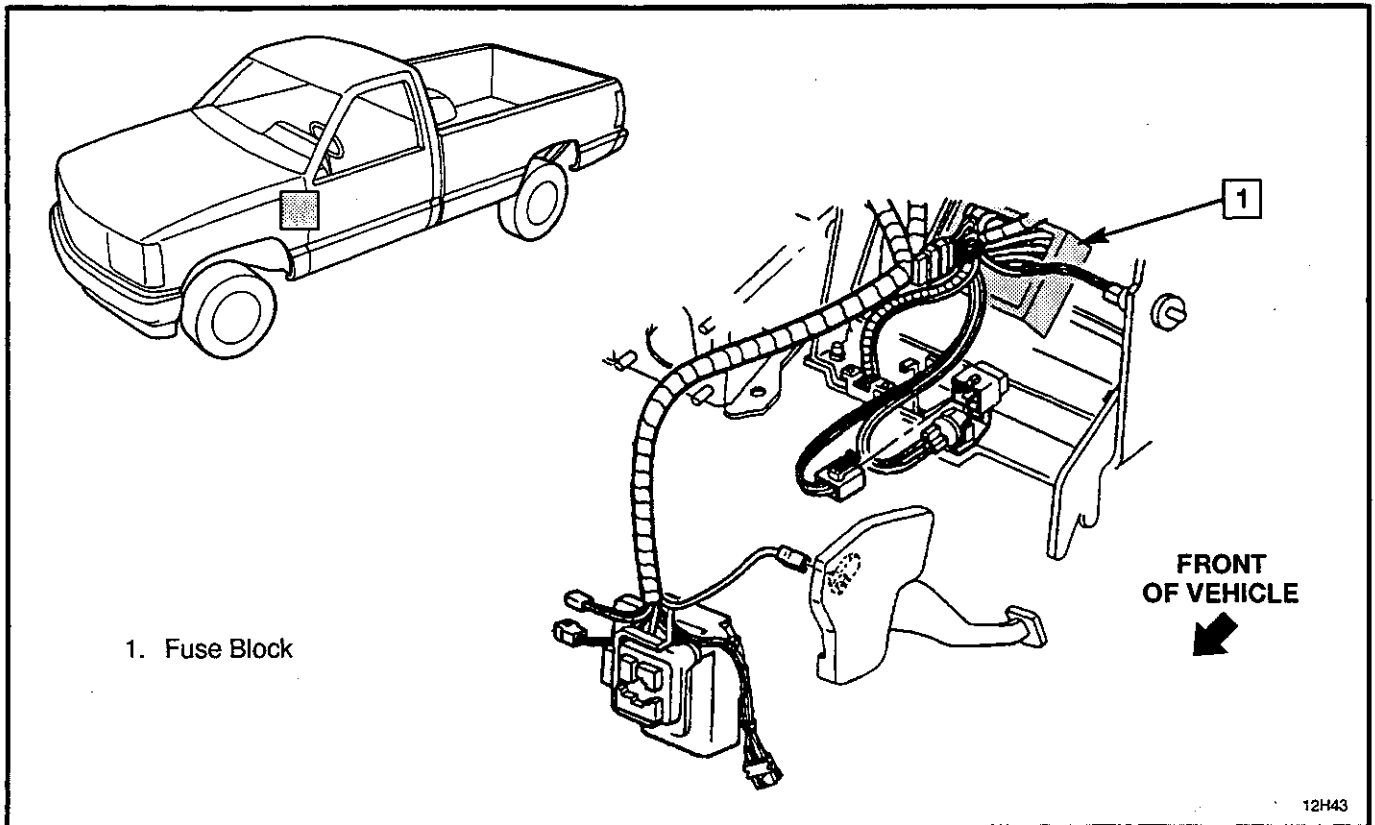


Figure 2 — Instrument Panel Wiring, LH Side

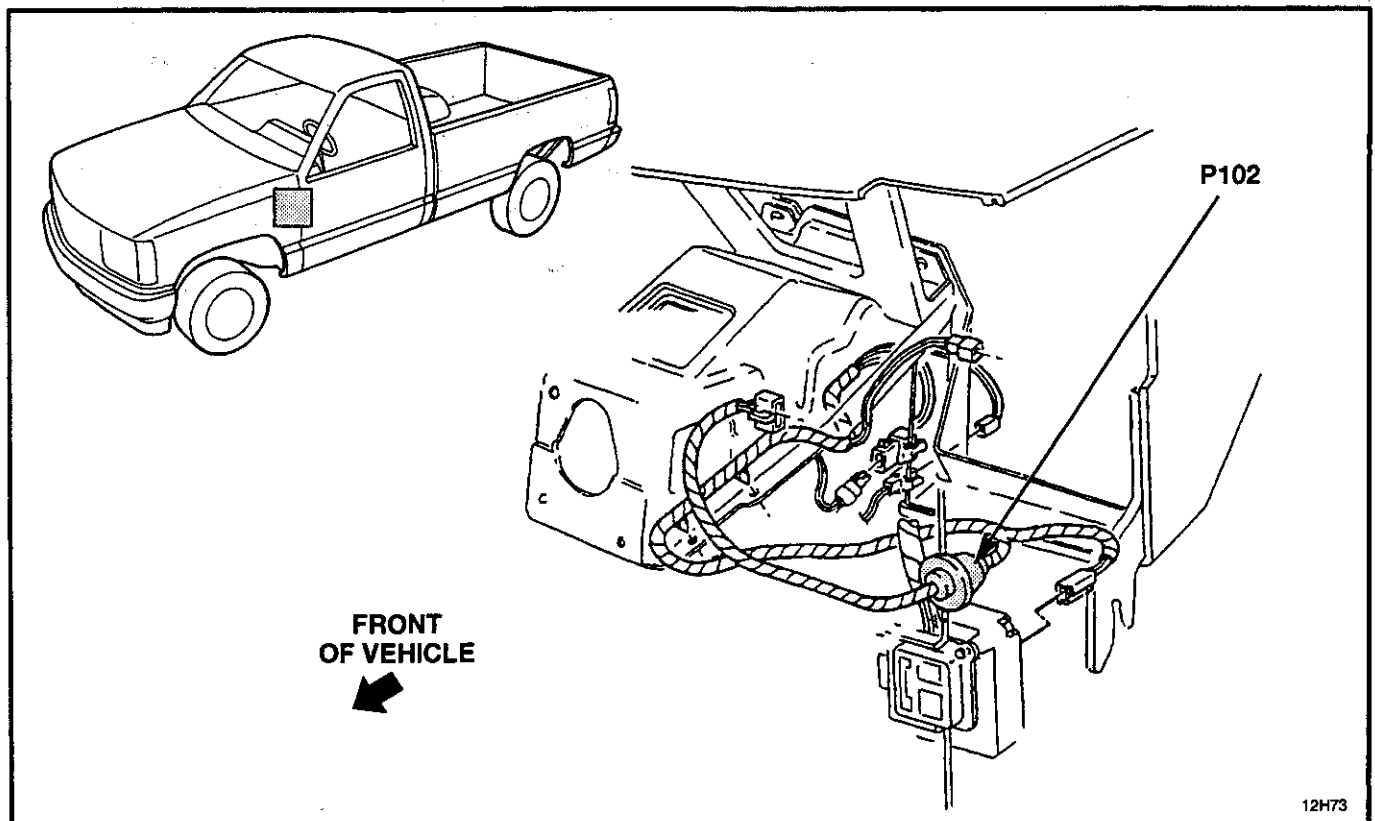
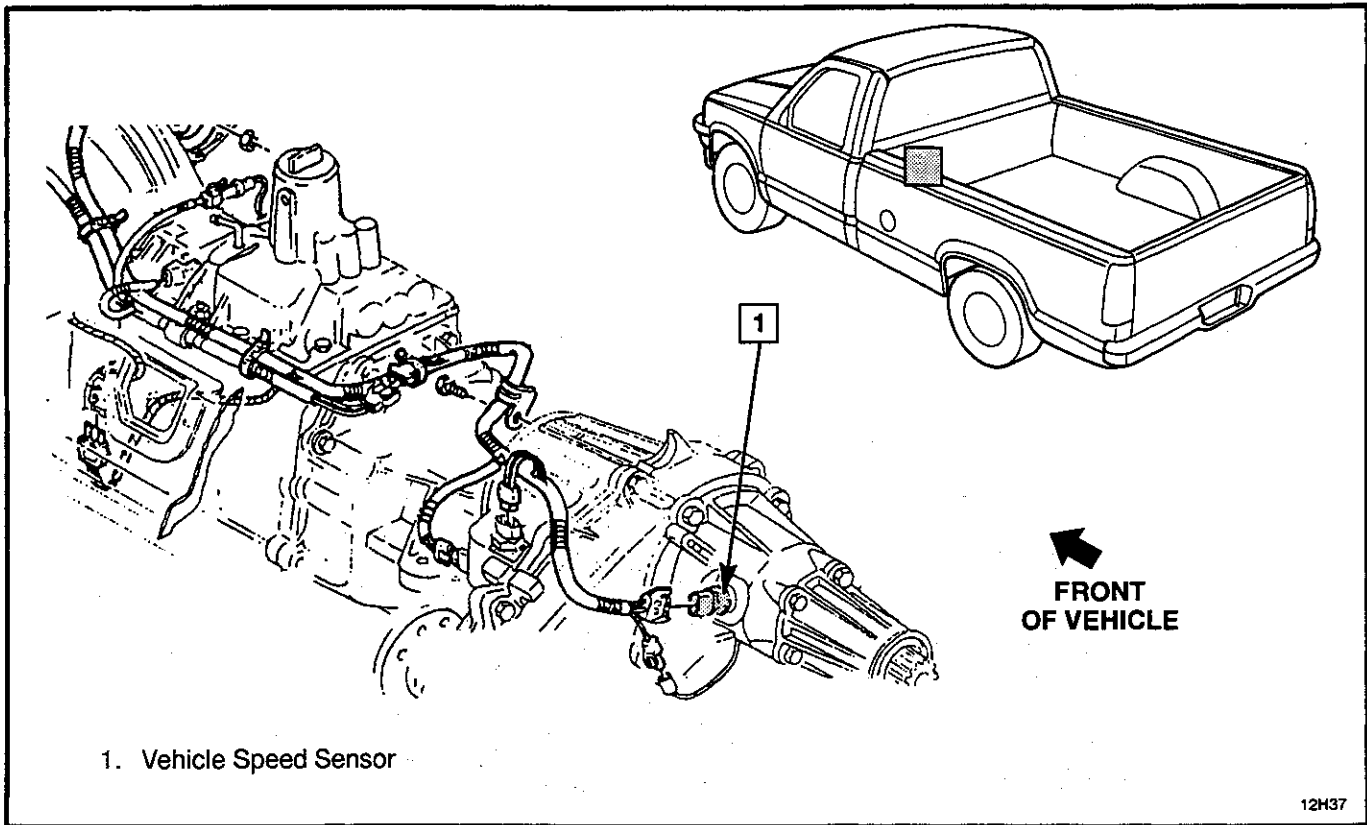
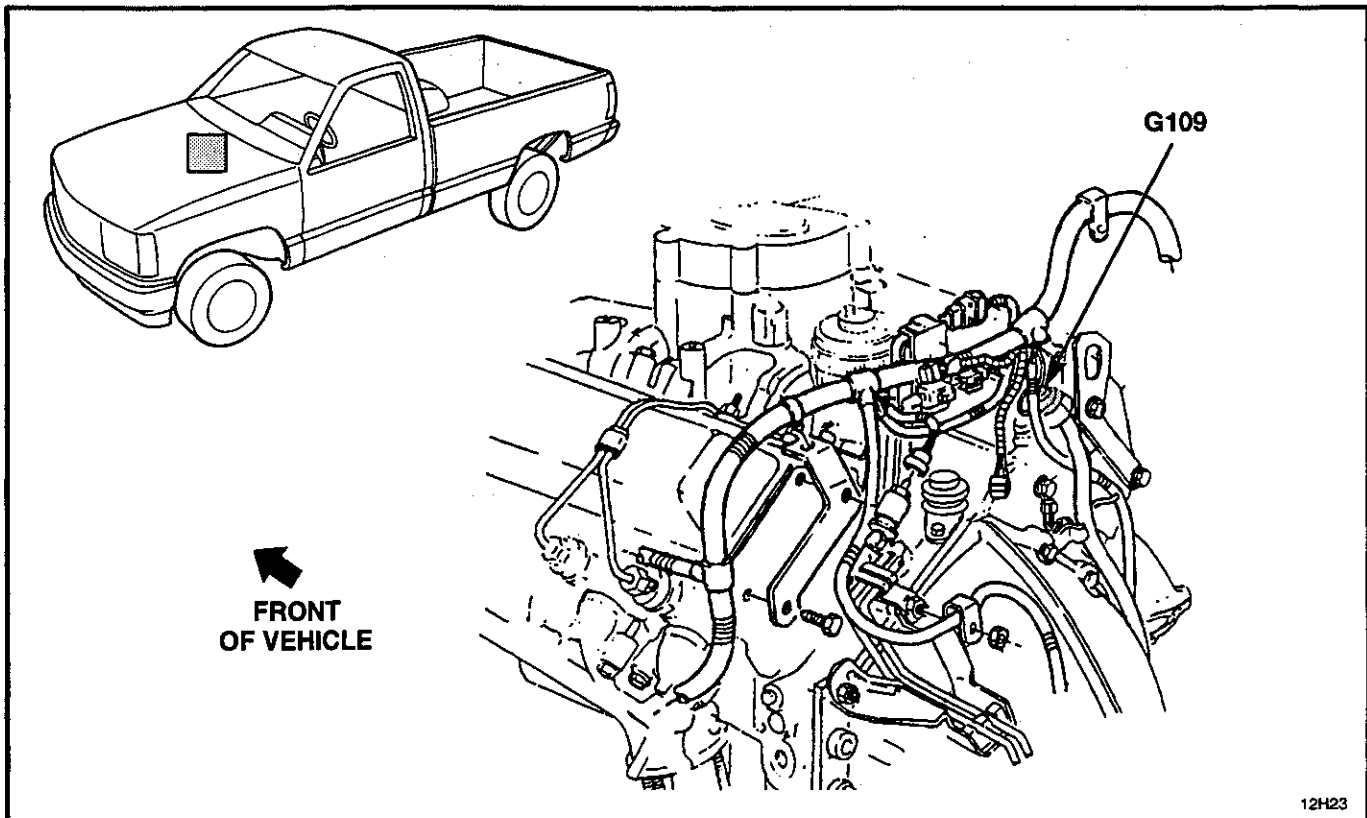


Figure 3 — Cruise Control Wiring



**Figure 4 — Transmission Wiring, 5-Speed W/Overdrive**



**Figure 5 — Engine Wiring, Rear W/6.2L HD VIN J and 6.5L Turbo VIN F**

8A-33-10 VEHICLE SPEED SENSOR BUFFER

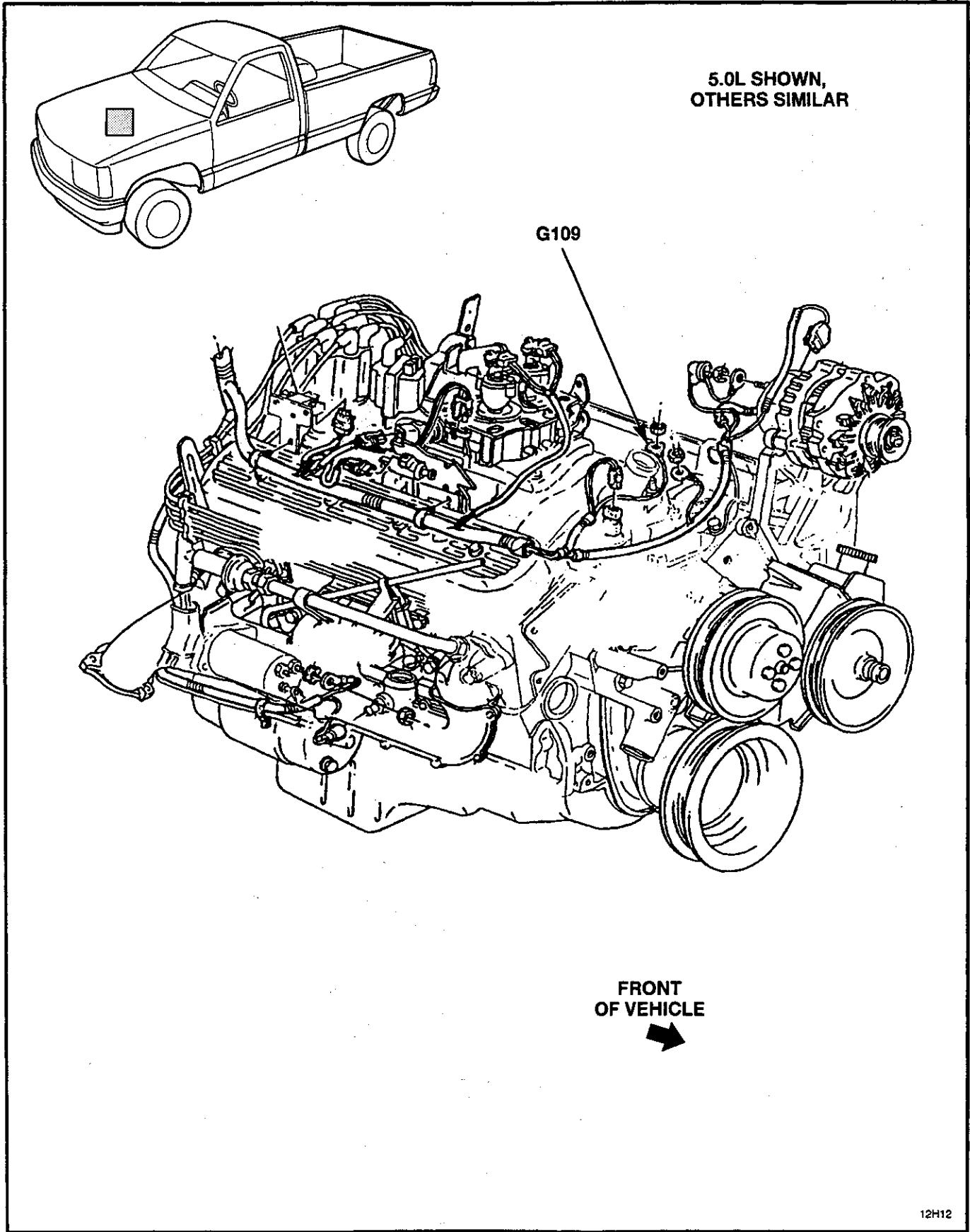


Figure 6 — Engine Wiring

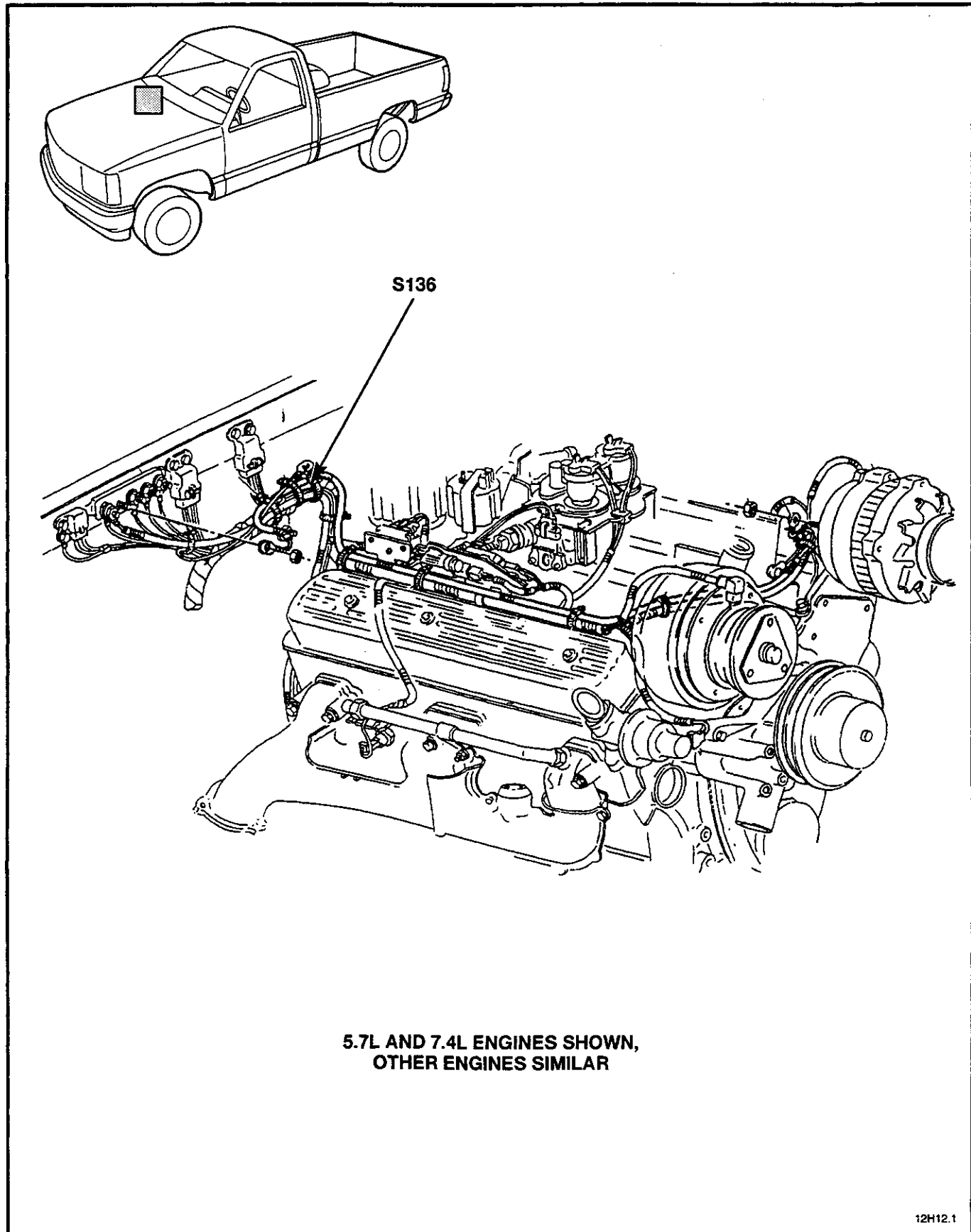


Figure 7 — Generator Wiring

## 8A-33-12 VEHICLE SPEED SENSOR BUFFER

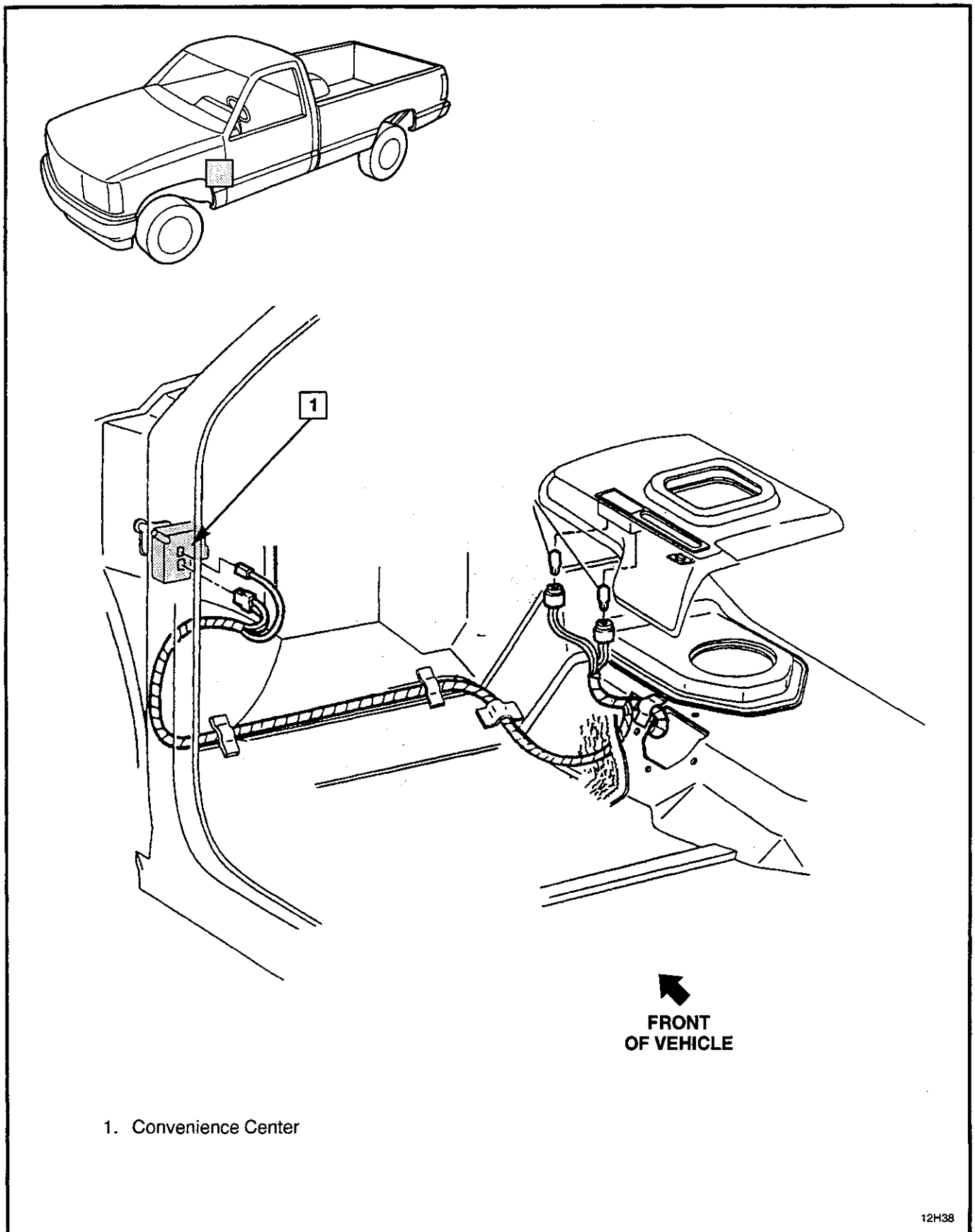


Figure 8 — Four-Wheel Drive Wiring



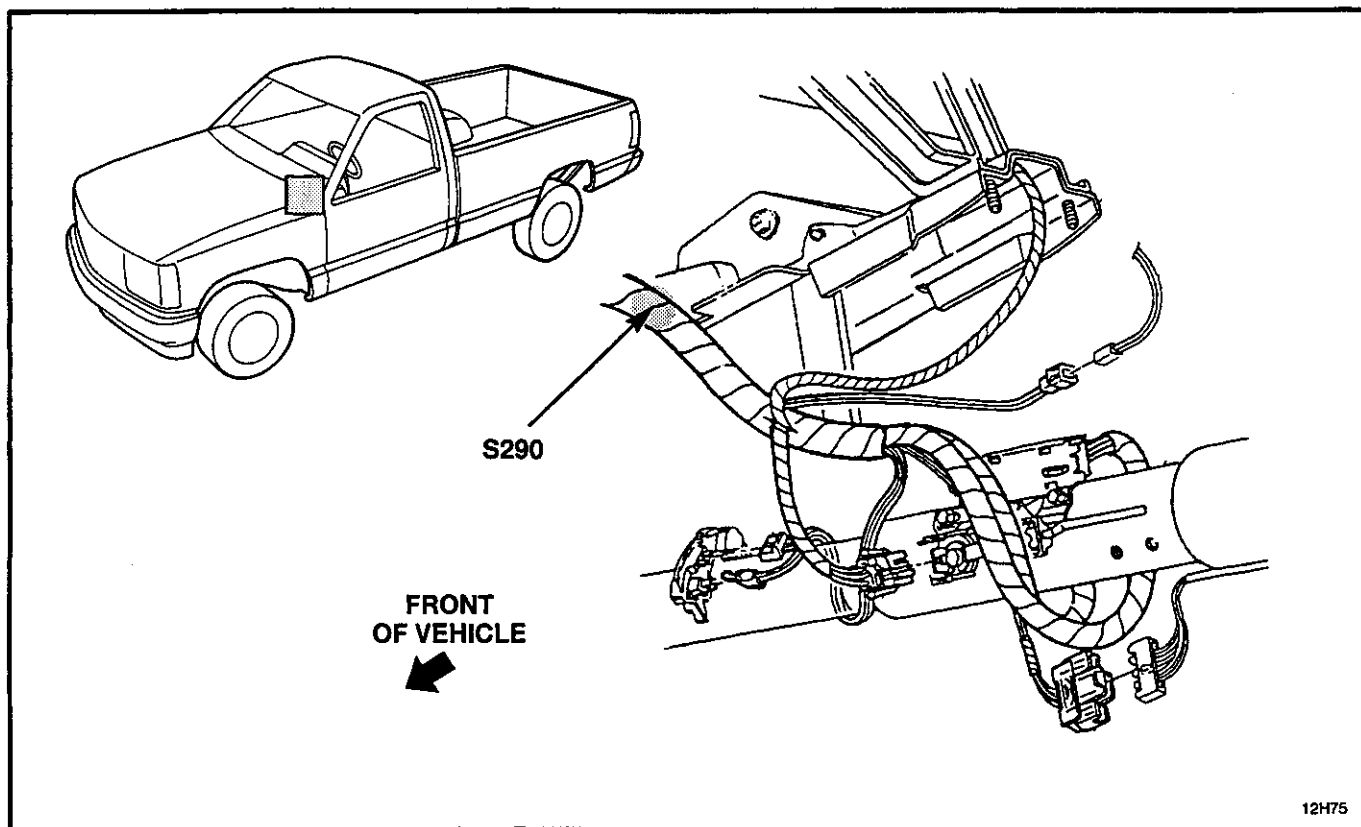


Figure 9 — Steering Column Wiring, LH Side

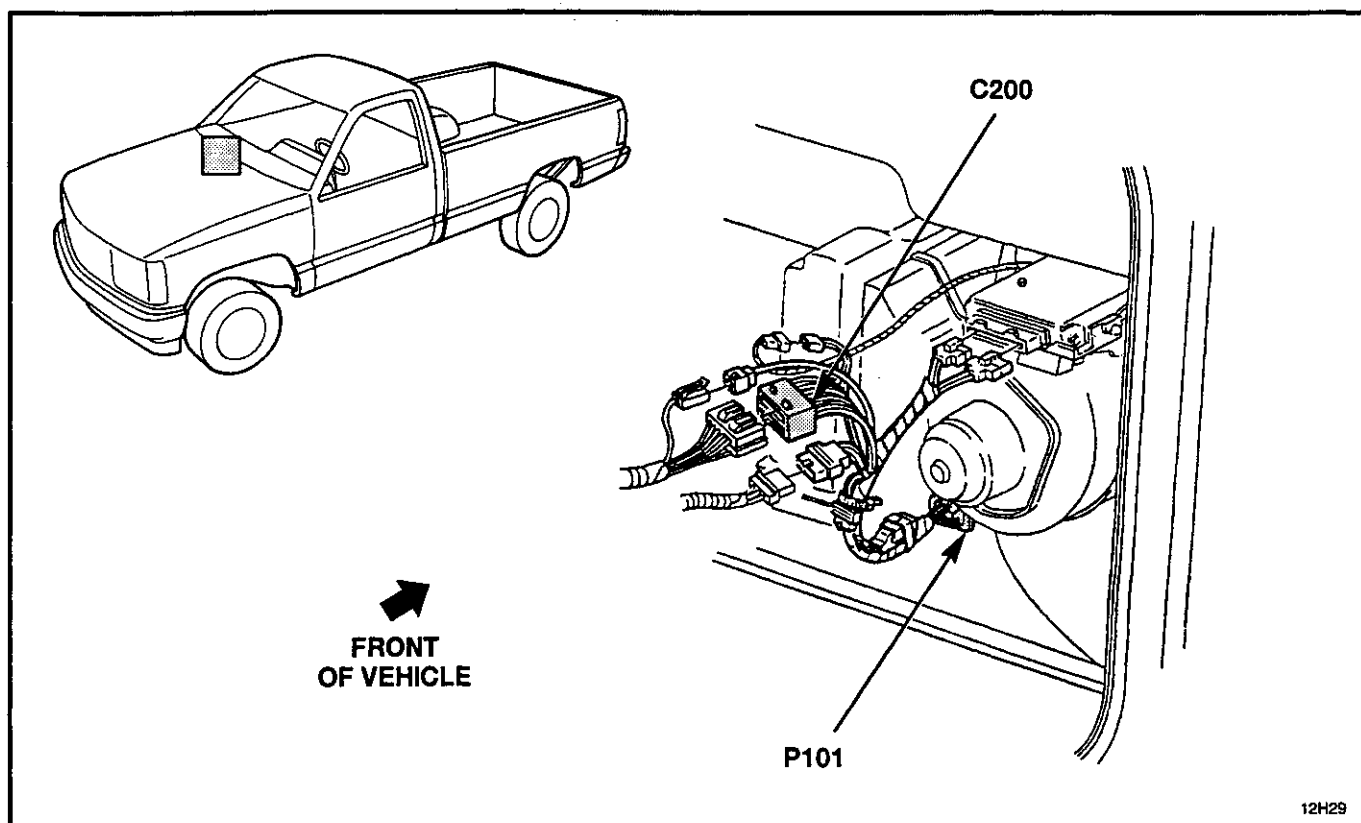


Figure 10 — Behind RH Side of I/P

**8A-33-14 VEHICLE SPEED SENSOR BUFFER**

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## **CIRCUIT OPERATION**

The Cruise Control regulates the speed of the vehicle in response to driver commands.

The Cruise Control Module contains electronic circuitry and a stepper motor. The other system components are as follows:

- Cruise Switch
- Set Switch
- Brake Switch
- Clutch Switch
- Vehicle Speed Sensor

The Cruise Control Module receives voltage from the GAUGES Fuse in RUN or START. A speed signal is received from the Vehicle Speed Sensor Buffer. The driver gives his input to the Cruise Control Module through the system components previously listed. The Cruise Control Module circuitry receives the driver's input and generates electrical pulses. These pulses cause the stepper motor and its output reel to rotate. The throttle is controlled by a cable wound on the output reel. The Cruise Control Module also contains a switch which releases the cable when the Cruise Control System must be shut off. This switch will operate when the Brake Pedal is depressed, the Clutch Pedal is depressed, the Cruise Control System is turned off or the Cruise Control System detects a failure.

## **COMPONENT LOCATION**

### **Page — Figure**

Cruise Control Brake Switch	At top of brake pedal	Not Shown	
Clutch Switch	At top of clutch pedal	34-6	1
Convenience Center	Under LH side of I/P	34-6	1
Cruise Control Module	LH rear side engine compartment	34-8	4
Cruise Control Switch	At turn signal lever	34-6	1
Fuse Block	Below LH side of I/P	34-8	3

## **CONNECTORS:**

C200	Under RH side of I/P, near blower motor	34-10	7
C267	Behind RH side of I/P, near blower motor	Not Shown	
C290	At convenience center	34-6	1

## **GROMMETS:**

P101	RH lower cowl (engine compartment)	34-10	7
P102	Lower LH cowl, above convenience center	34-6	1

## **GROUND:**

G108	LH top front of engine	34-9	5
G109 (Diesel)	Top front center of engine	34-10	6
G109 (Gasoline)	Top front center of engine	34-9	5

## **SPLICES:**

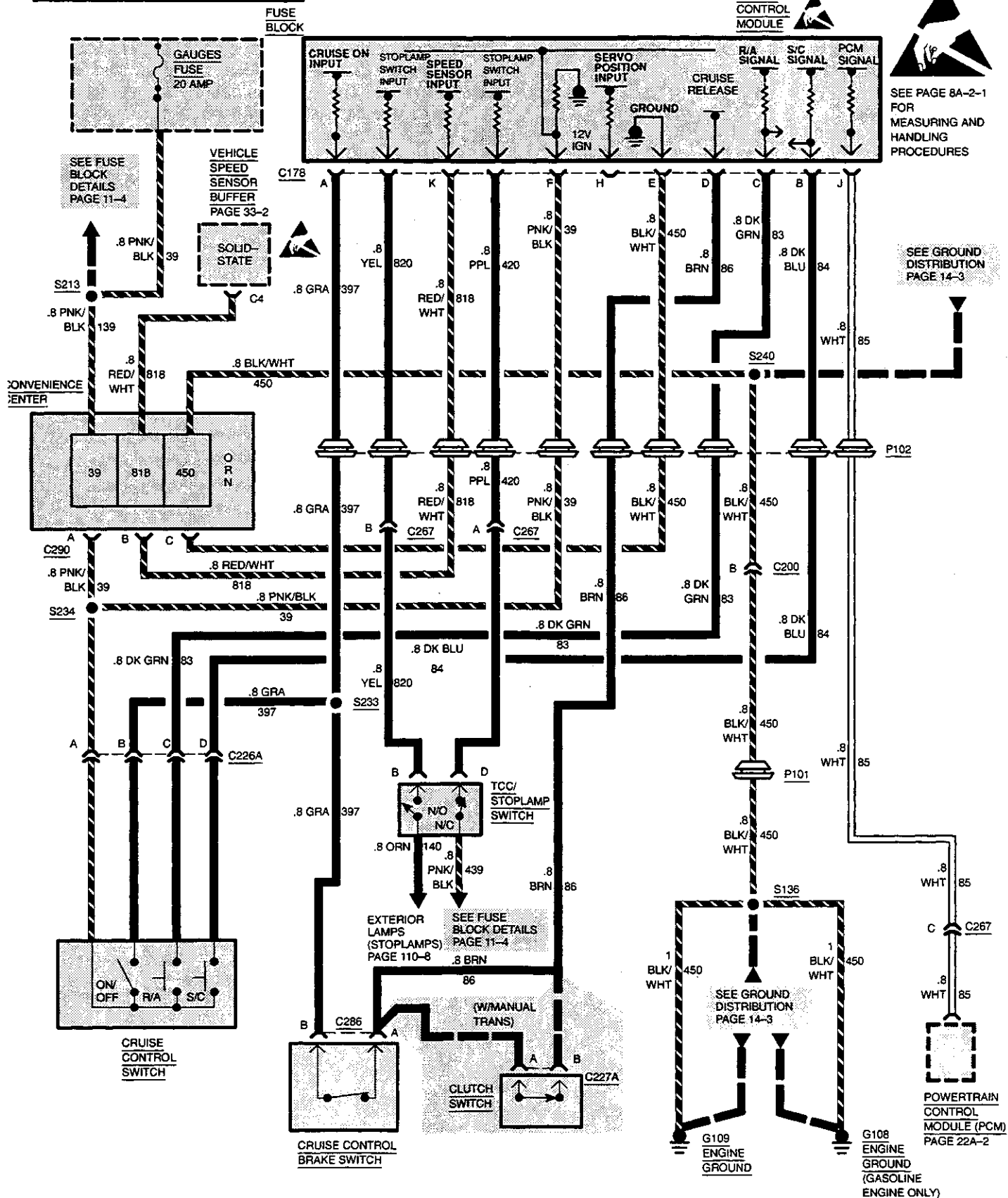
S136	Rear of engine compartment, near center	34-9	5
S213	Under LH side of I/P	34-7	2
S233	Cruise control harness, near cruise brake switch	34-6	1
S234	Cruise control harness, near convenience center lead	34-6	1
S240	Behind LH side of I/P	34-7	2

# 8A-34-2 CRUISE CONTROL

HOT IN RUN, BULB TEST OR START

CRUISE  
CONTROL  
MODULE

SEE PAGE 8A-2-1  
FOR  
MEASURING AND  
HANDLING  
PROCEDURES



## DIAGNOSIS — CRUISE CONTROL

### PRELIMINARY CHECKS:

1. Check condition of GAUGES Fuse. If fuse is blown, locate and repair source of overload. Replace fuse.

### CRUISE CONTROL DOES NOT DISENGAGE WHEN CLUTCH OR BRAKE PEDAL(S) IS DEPRESSED

TEST	RESULT	ACTION
1. Place ignition switch in RUN position and cruise control switch to ON. Depress brake pedal. Connect test lamp from BRN (86) wire at brake switch connector C286 to ground.	Test lamp does not light.	REPLACE control module.
	Test lamp lights.	CHECK adjustment of brake switch. If adjustment cannot be corrected, REPLACE brake switch. If vehicle is equipped with man trans, GO to step 2.
2. Connect test lamp from BRN (86) wire at clutch switch connector C227A to ground. Depress clutch.	Test lamp does not light.	REPLACE control module.
	Test lamp lights.	CHECK adjustment of clutch switch. If adjustment cannot be corrected, REPLACE clutch switch.

### CRUISE CONTROL DOES NOT OPERATE

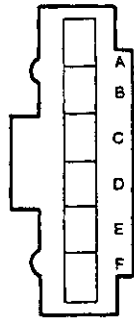
TEST	RESULT	ACTION
1. Place ignition switch in RUN and cruise control switch to ON. Connect test lamp from PNK/BLK (39) wire at cruise control switch connector C226A to ground and then cruise control module connector C178 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in PNK/BLK (39) wire from cruise control switch connector C226A or cruise module connector C178 to convenience center connector C290 or from convenience center to fuse block.
2. Connect test lamp from GRA (397) wire at cruise control switch connector C226A to ground.	Test lamp lights.	GO to step 3.
	Test lamp does not light.	REPLACE cruise control switch.
3. Connect test lamp from GRA (397) wire at cruise control module connector C178 to ground.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	LOCATE and REPAIR open in GRA (397) wire from cruise control module connector C178 to cruise control switch connector C226A.
4. Connect test lamp from GRA (397) wire to BLK/WHT (450) wire at cruise control module connector C178.	Test lamp lights.	GO to step 5.
	Test lamp does not light.	LOCATE and REPAIR open in BLK/WHT (450) wire from cruise control module connector C178 to convenience center connector C290 or from convenience center C225 to ground G108, G109, (Gasoline), G109 (Diesel).

## 8A-34-4 CRUISE CONTROL

### CRUISE CONTROL DOES NOT OPERATE (CONTINUED)

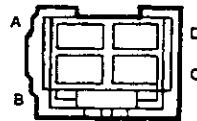
TEST	RESULT	ACTION
5. Connect test lamp from GRA (397) wire at brake switch connector C286 to ground.	Test lamp lights.	GO to step 6.
	Test lamp does not light.	LOCATE and REPAIR open in GRA (397) wire from brake switch connector C286 to splice S233.
6. Connect test lamp from BRN (86) wire at brake switch connector C286 to ground. Depress brake pedal.	Test lamp lights.	GO to step 7 if vehicle is equipped with man trans. GO to step 8 if vehicle is equipped with auto trans.
	Test lamp does not light.	CHECK adjustment of brake switch. If properly adjusted, REPLACE brake switch.
7. Connect test lamp from BRN (86) wire at clutch switch connector C227A to ground. Depress brake pedal.	Test lamp lights.	GO to step 8.
	Test lamp does not light.	CHECK adjustment of clutch switch. If properly adjusted, REPLACE clutch switch.
8. Connect test lamp from BRN (86) wire at cruise control module connector C178 to ground. Depress brake pedal.	Test lamp lights.	REPLACE cruise control module.
	Test lamp does not light.	LOCATE and REPAIR open in BRN (86) wire from cruise control module connector C178 to brake switch connector C235A.

**12065427**



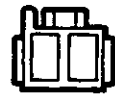
**C178**  
**Cruise Control Module**

**12020651**



**C266A**  
**Cruise Control Switch**

**12034417**



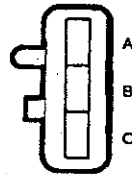
**C227A**  
**Clutch Switch**

**12033709**



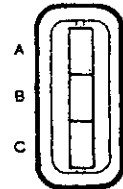
**BLACK**  
**Metri-Pack 280**  
**C286**  
**Brake Switch**

**12047781**



**BLACK**  
**Metri-Pack 150**  
**C267**  
**In-Line Module to PCM**

**12047782**



**BLACK**  
**Metri-Pack 150**  
**C267**  
**In-Line PCM to Module**

**12033698**



**C290**  
**Cruise Module to Convenience**  
**Center**

## 8A-34-6 CRUISE CONTROL

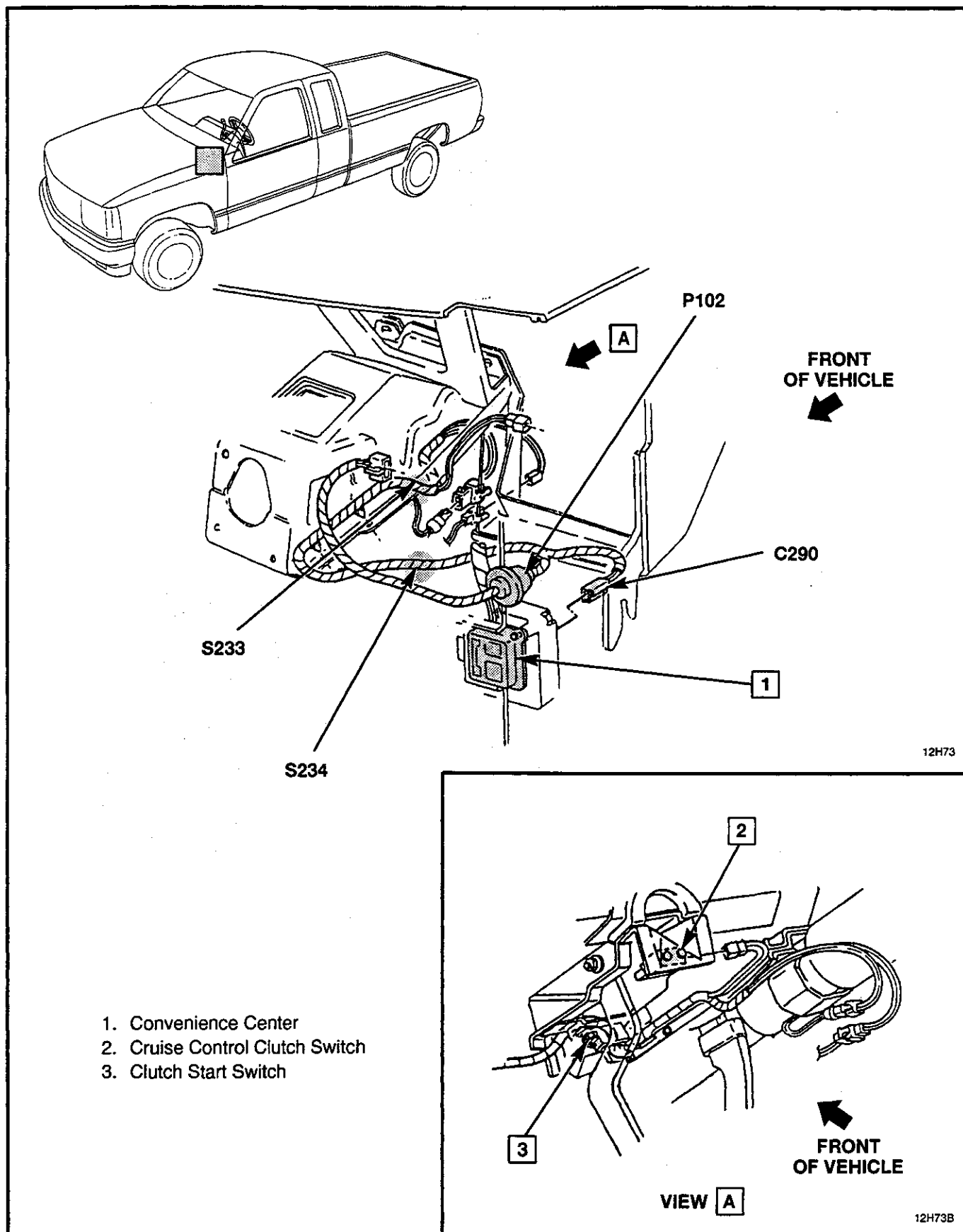


Figure 1 — Cruise Control Wiring



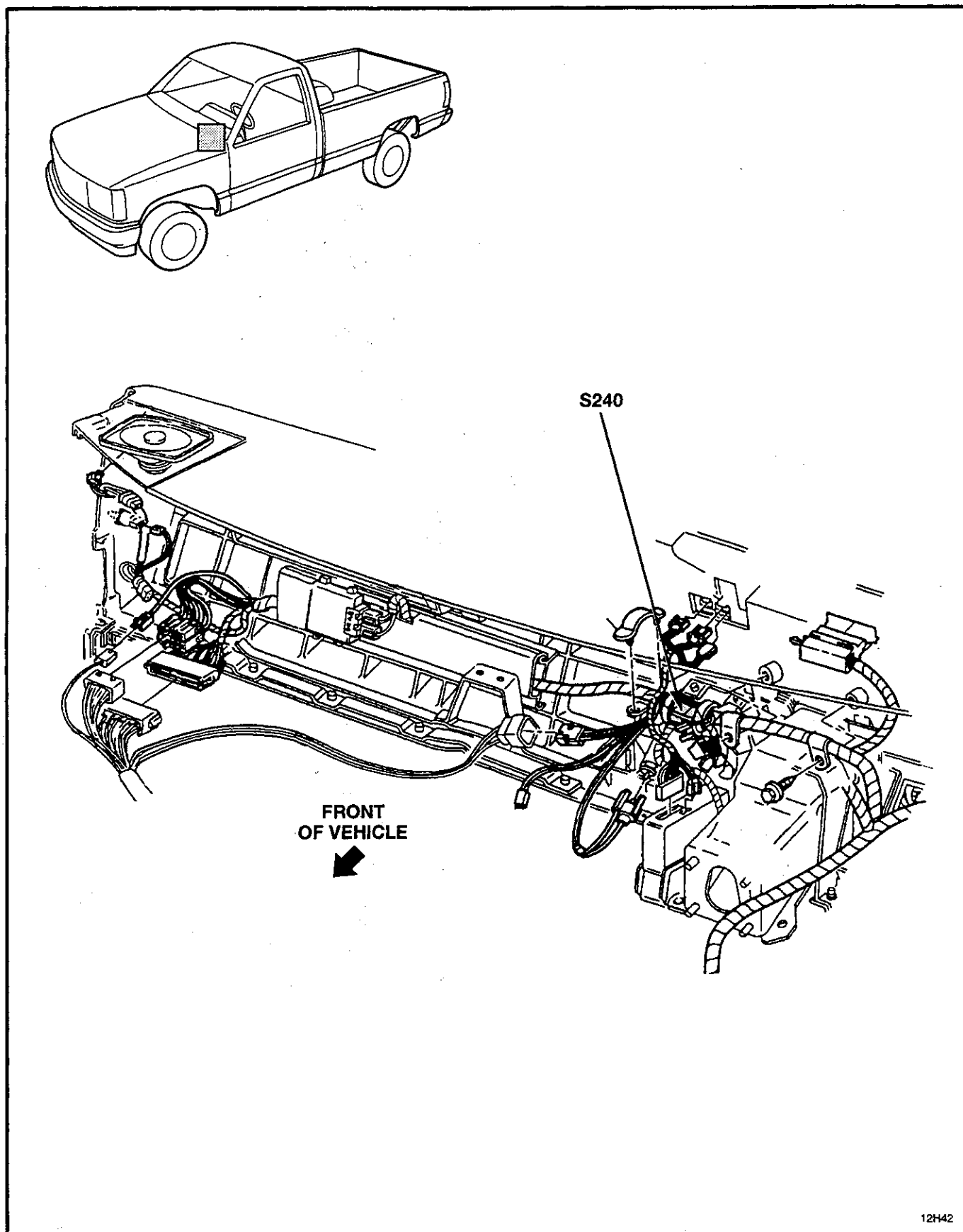


Figure 2 — Instrument Panel Wiring, LH Side

## 8A-34-8 CRUISE CONTROL

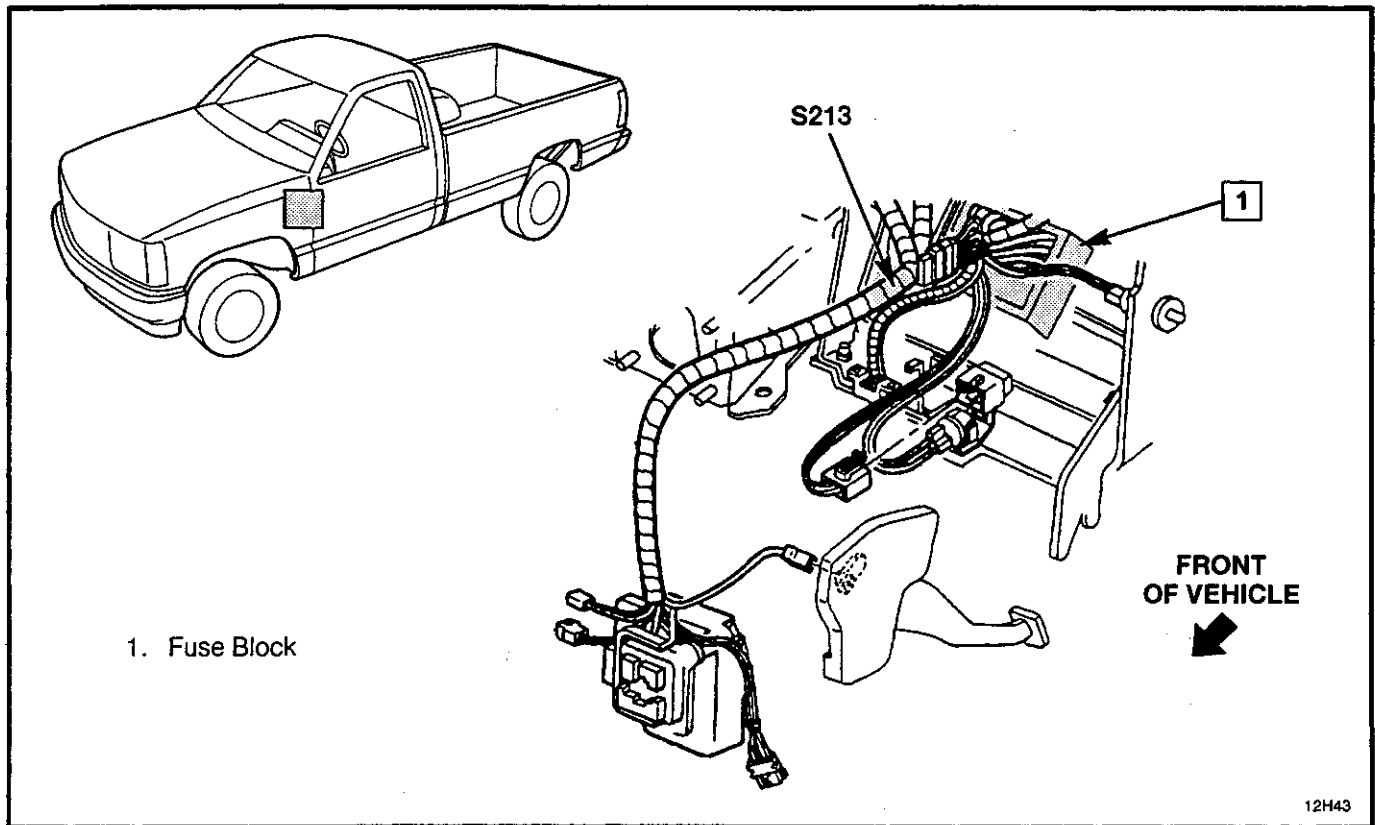


Figure 3 — Instrument Panel, LH Side

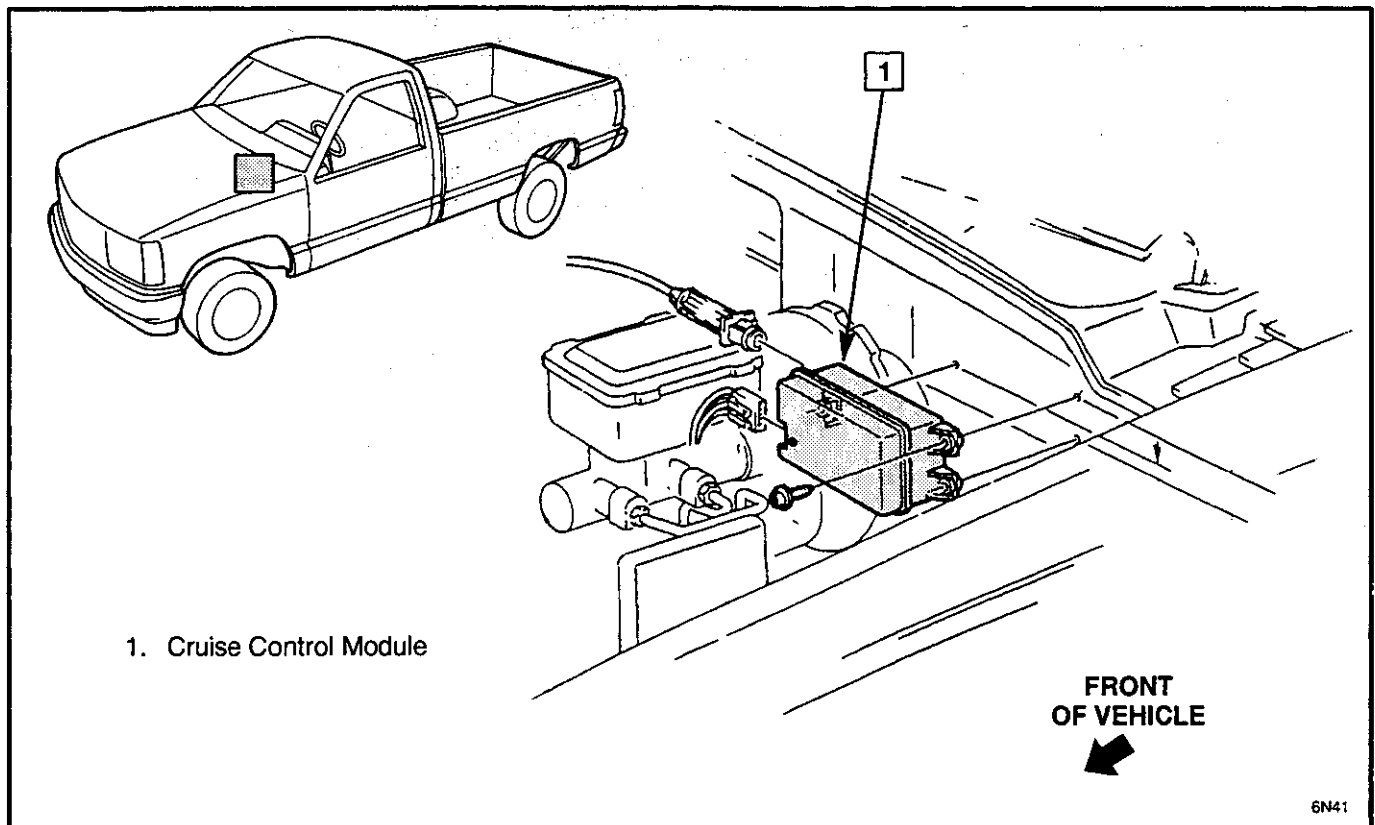


Figure 4 — Cruise Control Module

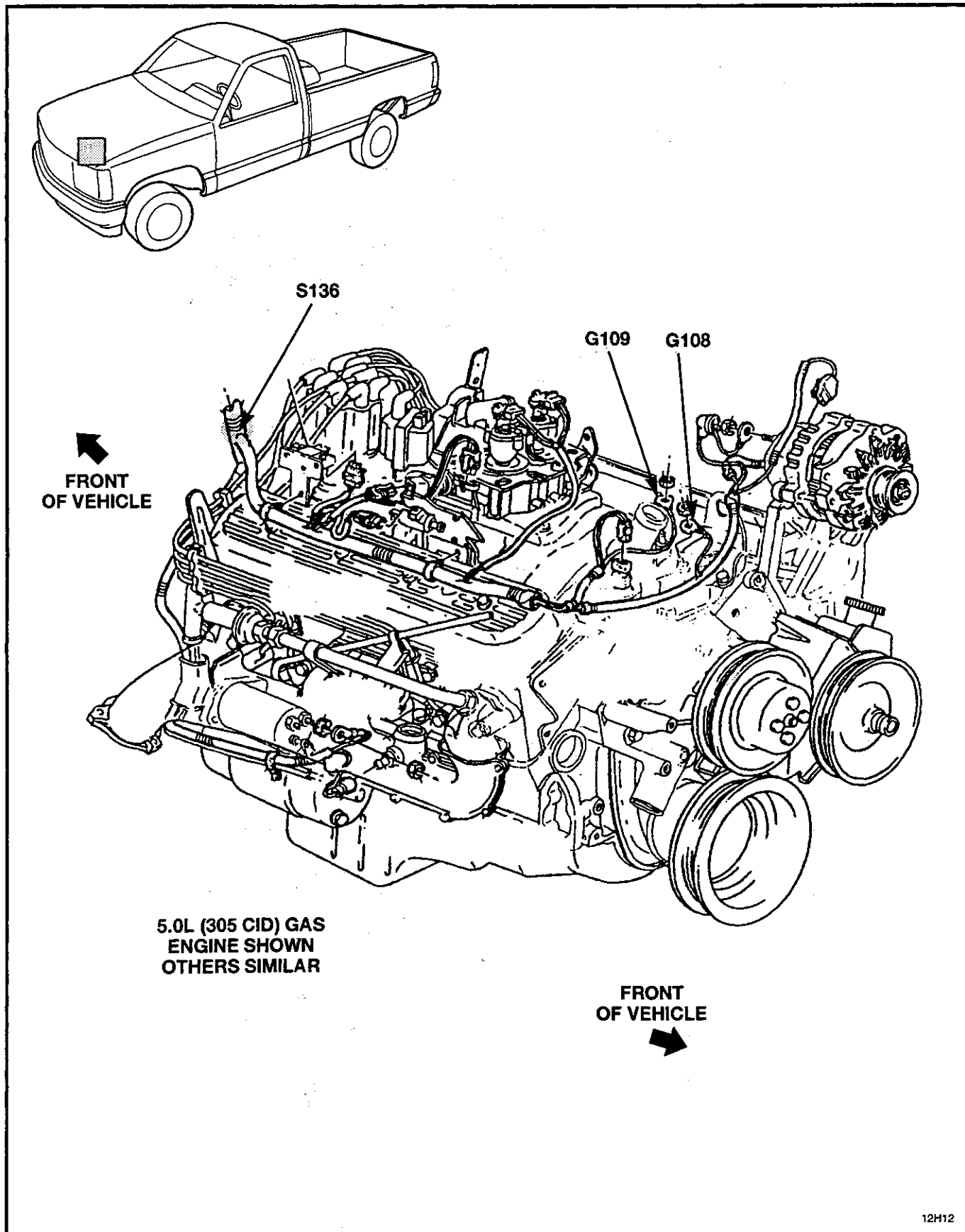


Figure 5 — RH Side of Engine, 5.0L (305 CID) Engine — Gasoline

## 8A-34-10 CRUISE CONTROL

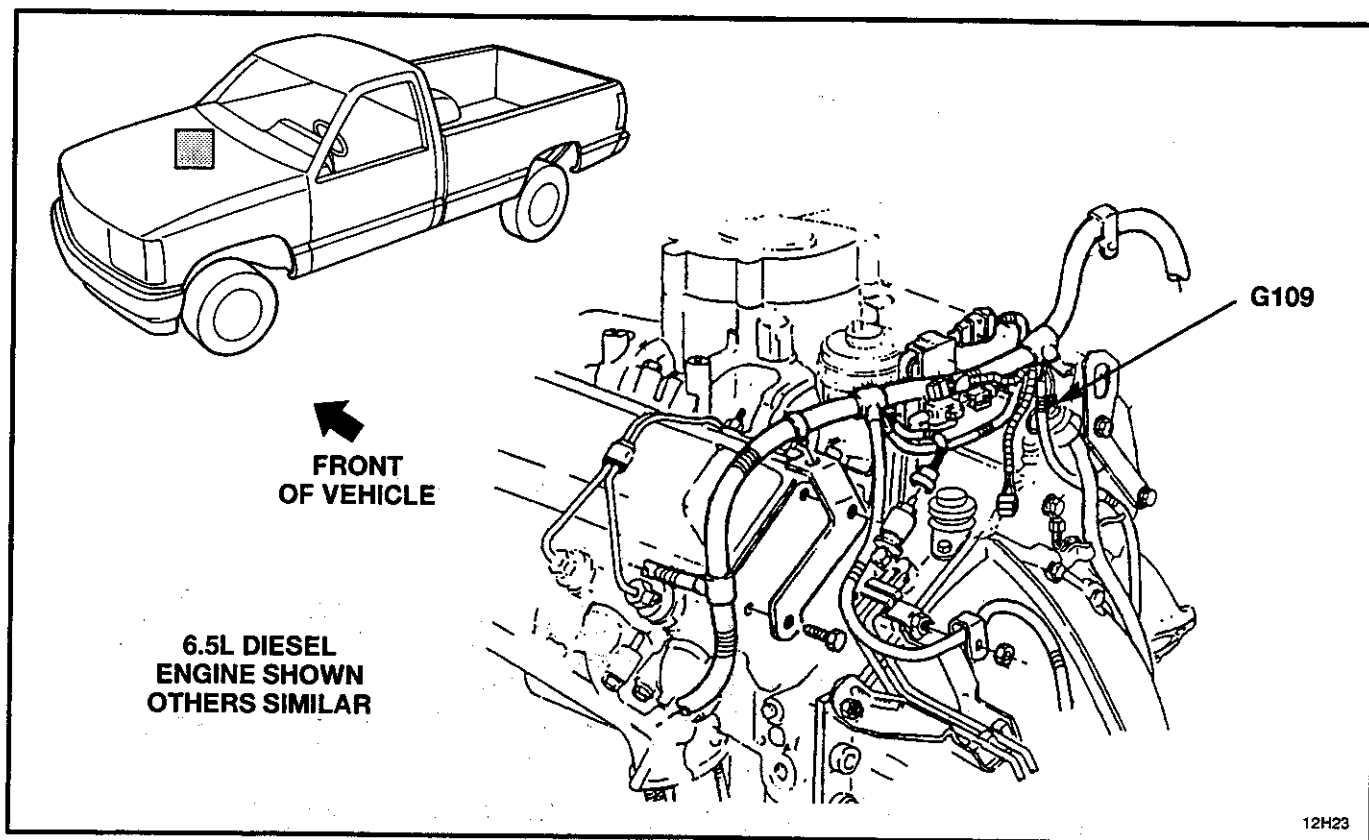


Figure 6 — Engine Wiring, Rear — Diesel

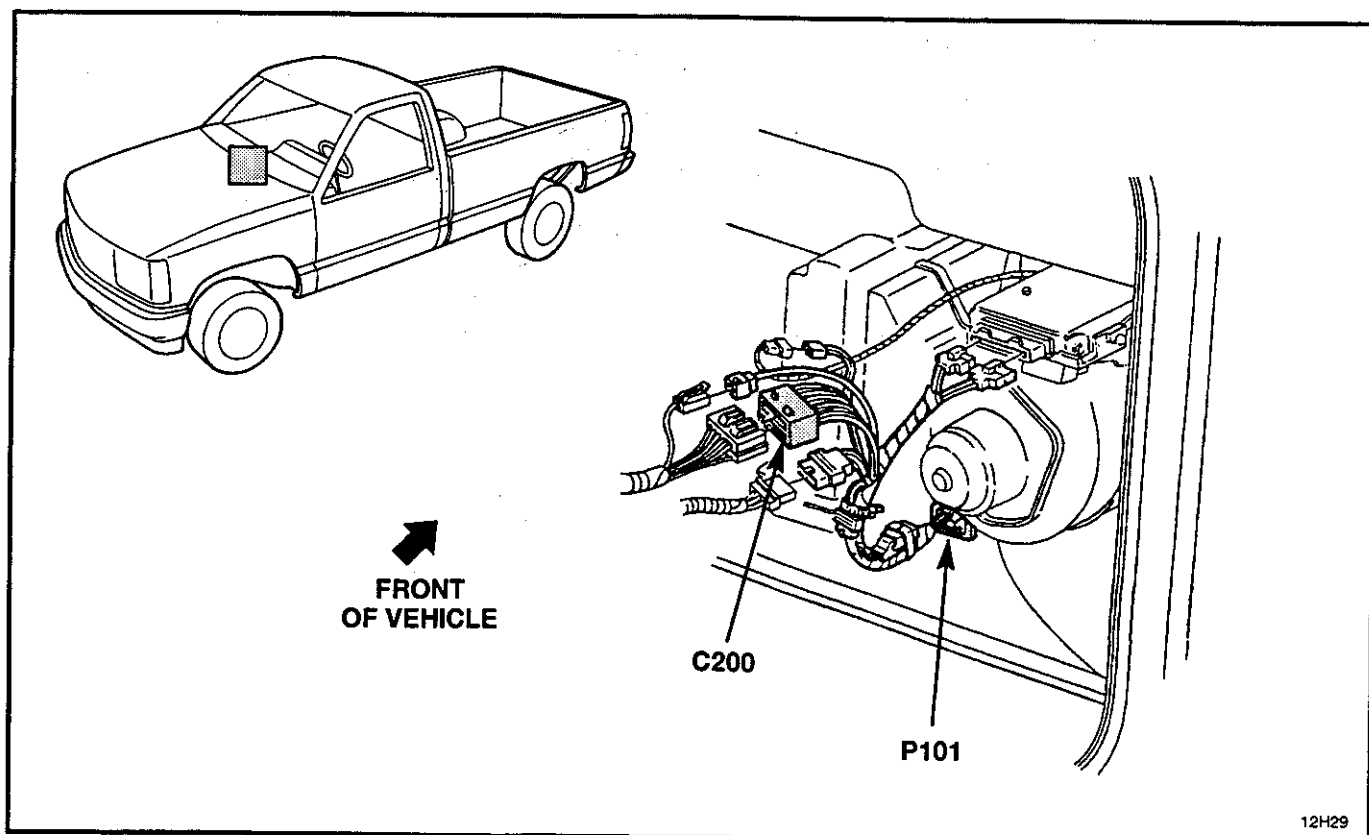


Figure 7 — Behind RH Side of I/P

## CIRCUIT OPERATION

When the Ignition Switch is in RUN and the four-wheel drive control lever is engaged, the transfer case switch closes and battery voltage is supplied across the front axle actuator. The front axle actuator energizes and the four-wheel drive gears are meshed. This meshing action of the four-wheel drive gears closes the front axle switch, and battery voltage is supplied through the PPL (420) wire across the four-wheel drive indicator lighting the bulb.

Battery voltage is also supplied through the front axle switch contacts and PPL (420) or BRN/WHT (650) wires to

the rear-wheel or four-wheel antilock brake module. This will modify the antilock braking system operation in 4WD mode.

A transfer case relay is used on one-ton vehicles with four-wheel drive. This relay is energized when the vehicle is in 4WD mode. From the transfer case relay, voltage is supplied to the transfer case synchronizer.

## COMPONENT LOCATION

### Page — Figure

Convenience Center	Under LH side of I/P	38-10	5
Four-Wheel Drive Indicator Lamp	I/P cluster	38-10	5
Front Axle Actuator	RH side of front drive axle	38-7	1
Front Axle Solenoid Switch	RH rear side of front drive axle	38-7	1
Fuse Block	Behind LH side of I/P	38-9	4
Transfer Case Shift Illumination Lamp	At transfer case selector lever	38-10	5
Transfer Case Relay	RH rear of engine compartment, near battery junction block	38-7	1
Transfer Case Switch	LH top of transfer case	38-11	6

## CONNECTORS:

C152	Under floor at transmission case control	38-11	6
C160	Center rear of engine	38-8	2
C215A	At convenience center	38-10	5
C216A	At convenience center	38-10	5

## GROMMETS:

P101	RH lower cowl (engine compartment)	Not Shown
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## GROUND:

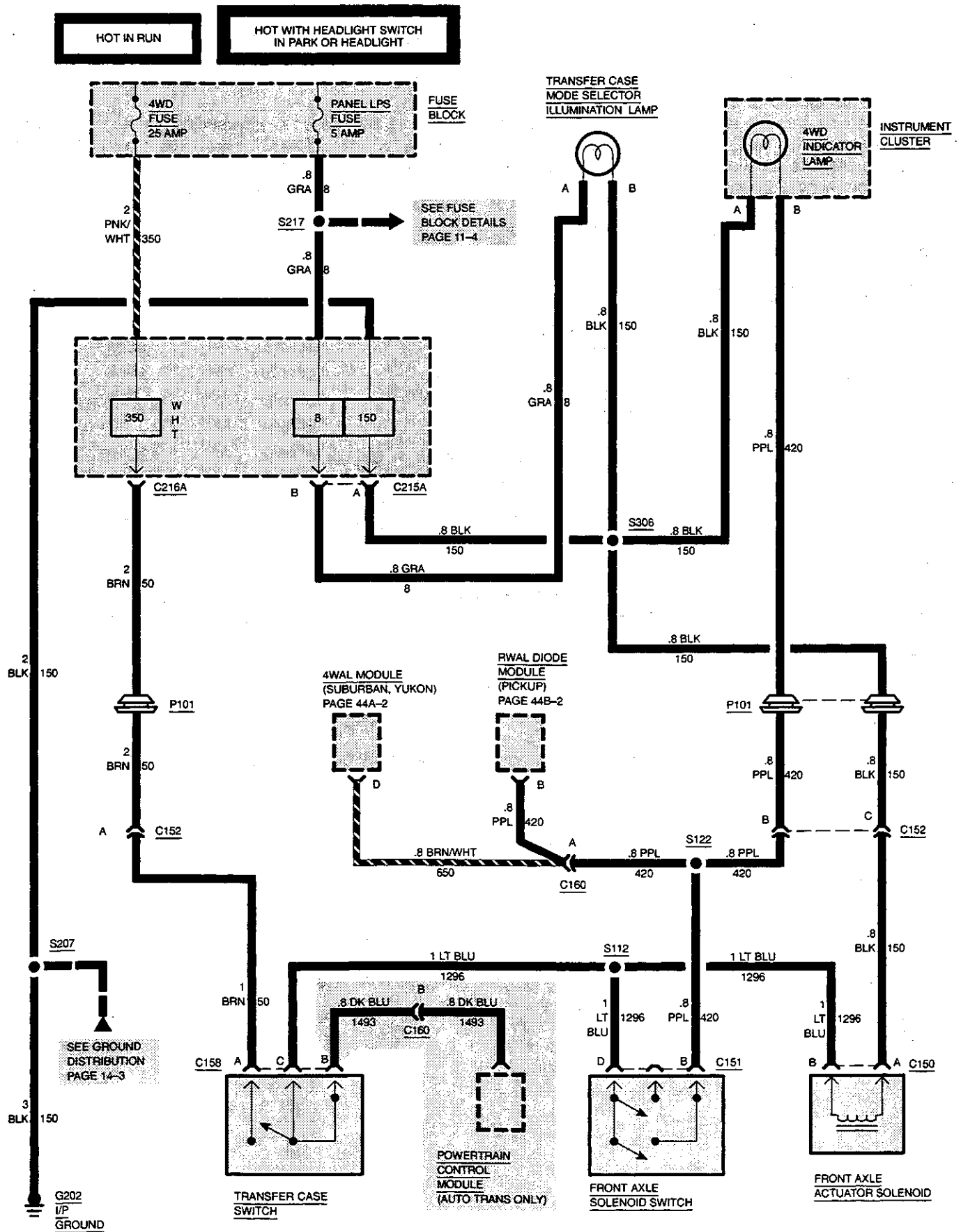
G202	At DLC connector	38-8	3
------	------------------	------	---

## SPLICES:

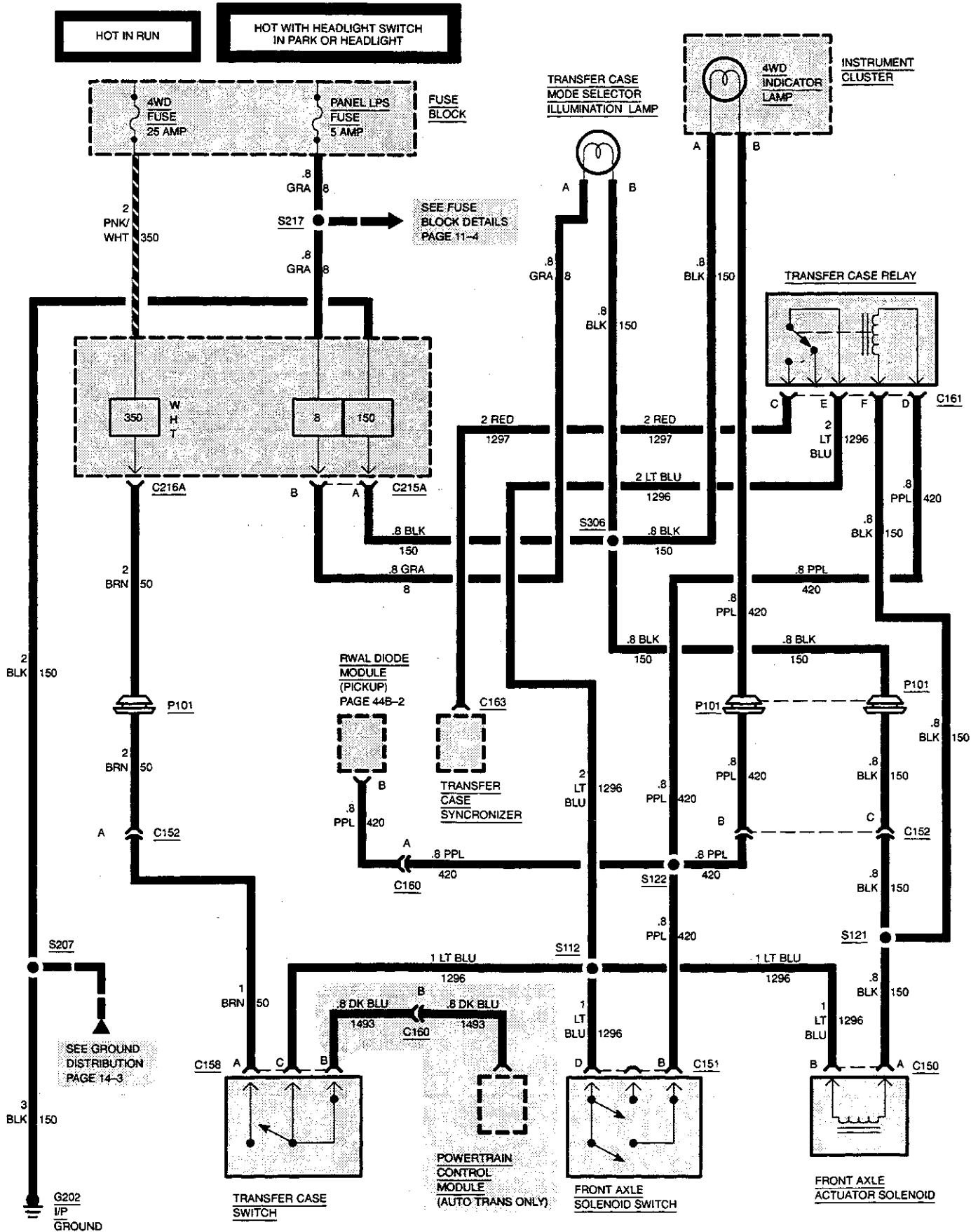
S112 (K300 Only)	LH top side of transmission	38-7	1
S121	4-wheel drive indicator extension harness, near C160 lead	38-11	6
S122 (K300 Only)	4-wheel drive indicator extension harness, near C160 lead	38-11	6
S207	Under LH side of I/P	38-9	4
S217	Under LH side of I/P	38-9	4
S306	Left of shift console	38-10	5

# 8A-38-2 FOUR WHEEL DRIVE INDICATOR

ALL EXCEPT K300 W/MANUAL OR AUTOMATIC TRANSMISSION



# **FOUR WHEEL DRIVE INDICATOR 8A-38-3** **K300 W/MANUAL OR AUTOMATIC TRANSMISSION**



## 8A-38-4 FOUR WHEEL DRIVE INDICATOR

### DIAGNOSIS — FOUR-WHEEL DRIVE

#### PRELIMINARY CHECKS:

1. Make sure all mechanical components are operative before diagnosing electrical portion of four-wheel drive system.
2. To determine whether vehicle is two-wheel drive or four-wheel drive, lift it up so wheels can spin freely.
3. Check to see that 4WD and PANEL LPS fuses are not blown. If blown, locate and repair source of overload and replace fuse.
4. While performing the following diagnostic procedures, Ignition Switch must be in RUN and 4WD Control Lever must be in 4WD ENGAGED position.

#### FOUR-WHEEL DRIVE WILL NOT DISENGAGE

TEST	RESULT	ACTION
1. Disconnect transfer case switch connector C158.	4WD disengages.	REPLACE transfer case switch.
	4WD does not disengage.	CHECK for mechanical problem within transfer case.

#### FOUR-WHEEL DRIVE INDICATOR LAMP WILL NOT TURN OFF

TEST	RESULT	ACTION
1. Disconnect front axle solenoid switch connector C151.	4WD indicator lamp goes off.	REPLACE front axle solenoid switch.

#### FOUR-WHEEL DRIVE WILL NOT ENGAGE

TEST	RESULT	ACTION
1. Connect test lamp from BRN (50) wire at transfer case switch connector C158 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in BRN (50) wire from transfer case switch connector C158 to convenience center connector C216A. If wiring is good, LOCATE and REPAIR open in PNK/WHT (350) wire from convenience center to fuse block.
2. Connect test lamp from LT BLU (1296) wire at transfer case switch connector C158 to ground.	Test lamp lights.	GO to step 3.
	Test lamp does not light.	REPLACE transfer case switch.
3. Disconnect front axle actuator connector C150. Connect test lamp from LT BLU (1296) wire at front axle actuator connector C150 to ground.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	LOCATE and REPAIR open in LT BLU (1296) wire from front axle actuator connector C150 to transfer case switch connector C158.



## FOUR WHEEL DRIVE INDICATOR 8A-38-5

### FOUR-WHEEL DRIVE WILL NOT ENGAGE (CONTINUED)

TEST	RESULT	ACTION
4. Connect test lamp from LT BLU (1296) to BLK (150) wires at front axle actuator connector C150.	Test lamp lights.	REPLACE front axle actuator. GO to step 5 for one-ton vehicles equipped with dual wheels.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire from front axle actuator connector C150 to ground terminal G202.
5. Disconnect transfer case synchronizer connector C163. Connect test lamp from RED (1297) wire at transfer case synchronizer connector C163 to ground. (With dual rear wheels only.)	Test lamp lights.	REPLACE transfer case synchronizer.
	Test lamp does not light.	LOCATE and REPAIR open in RED (1297) wire between transfer case synchronizer connector C163 and transfer case relay connector C161. If wire is good, REPLACE relay.

### FOUR-WHEEL DRIVE ENGAGES BUT 4WD INDICATOR LAMP WILL NOT LIGHT

TEST	RESULT	ACTION
1. Remove 4WD indicator lamp. Connect test lamp from PPL (420) wire at 4WD indicator lamp connector C305 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	GO to step 3.
2. Connect test lamp from PPL (420) to BLK (150) wires at 4WD indicator lamp connector C305.	Test lamp lights.	REPLACE 4WD indicator lamp.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire from 4WD indicator lamp to ground terminal G202.
3. Connect test lamp from PPL (420) wire at front axle solenoid switch connector C151 to ground.	Test lamp lights.	LOCATE and REPAIR open in PPL (420) wire between solenoid switch connector C151 and indicator lamp connector C305.
	Test lamp does not light.	LOCATE and REPAIR open in LT BLU (1296) wire between front axle solenoid switch connector C151 and splice S122. If wire is good, REPLACE front axle solenoid switch.

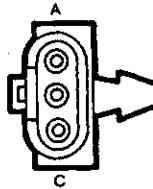
## 8A-38-6 FOUR WHEEL DRIVE INDICATOR

12033713



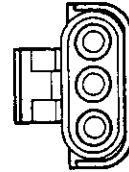
**C215A**  
4WD Illumination Lamp to  
Convenience Center

12033852



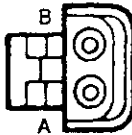
**BLACK**  
Weather-Pack  
**C152**  
In-Line I/P to Transfer Case

12020829



**BLACK**  
Weather-Pack  
**C152**  
In-Line Transfer Case to I/P

12015792



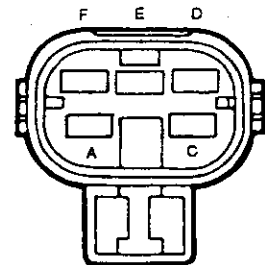
**BLACK**  
Weather Pack  
**C158**  
Transfer Case Switch W/K300

12015792



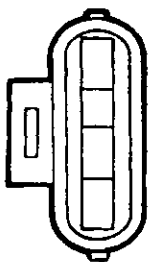
**BLACK**  
Weather Pack  
**C150**  
Front Axle Actuator

12052287



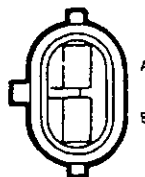
**BLACK**  
Metri-Pack  
**C161**  
Transfer Case Relay

12047950



**BLACK**  
Metri-Pack 150  
**C160**  
Transfer Case to I/P W/MT1

12052647



**BLACK**  
Metri-Pack  
**C160**  
I/P to Transfer Case W/O MT1

12052641



**BLACK**  
Metri-Pack 150  
**C160**  
Transfer Case to I/P W/O MT1

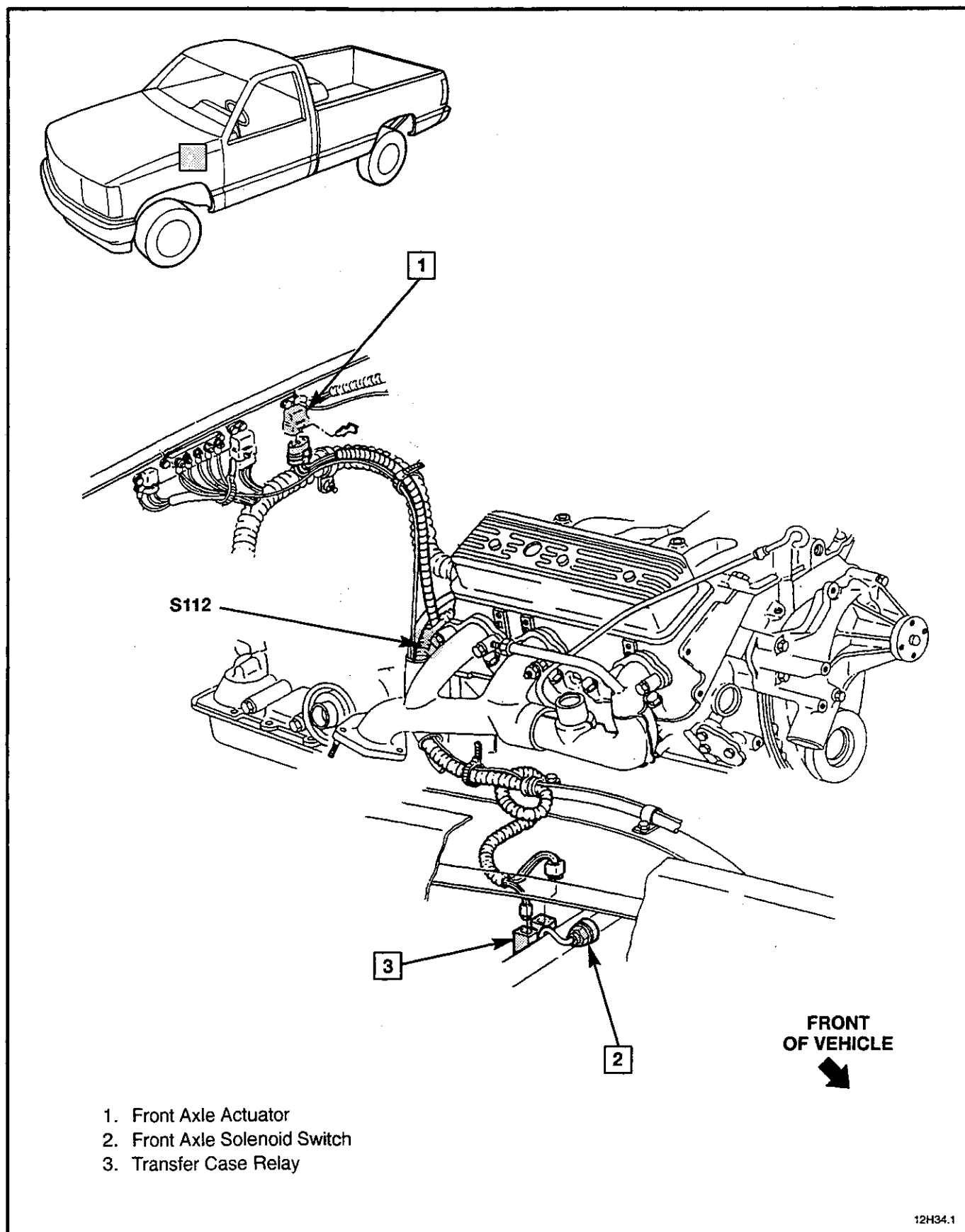


Figure 1 — Four-Wheel Drive Axle Actuator

8A-38-8 FOUR WHEEL DRIVE INDICATOR

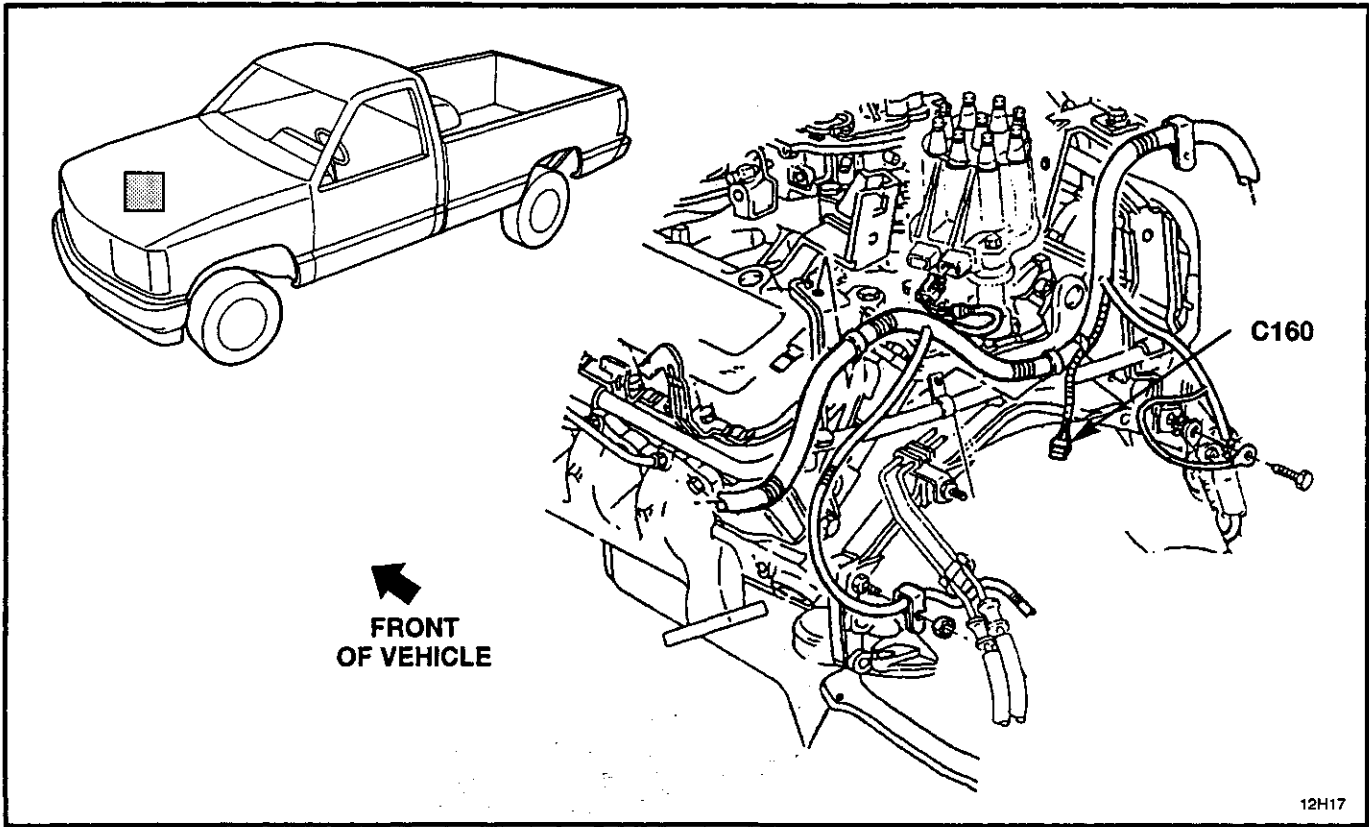


Figure 2 — Four-Wheel Drive Indicator Wiring

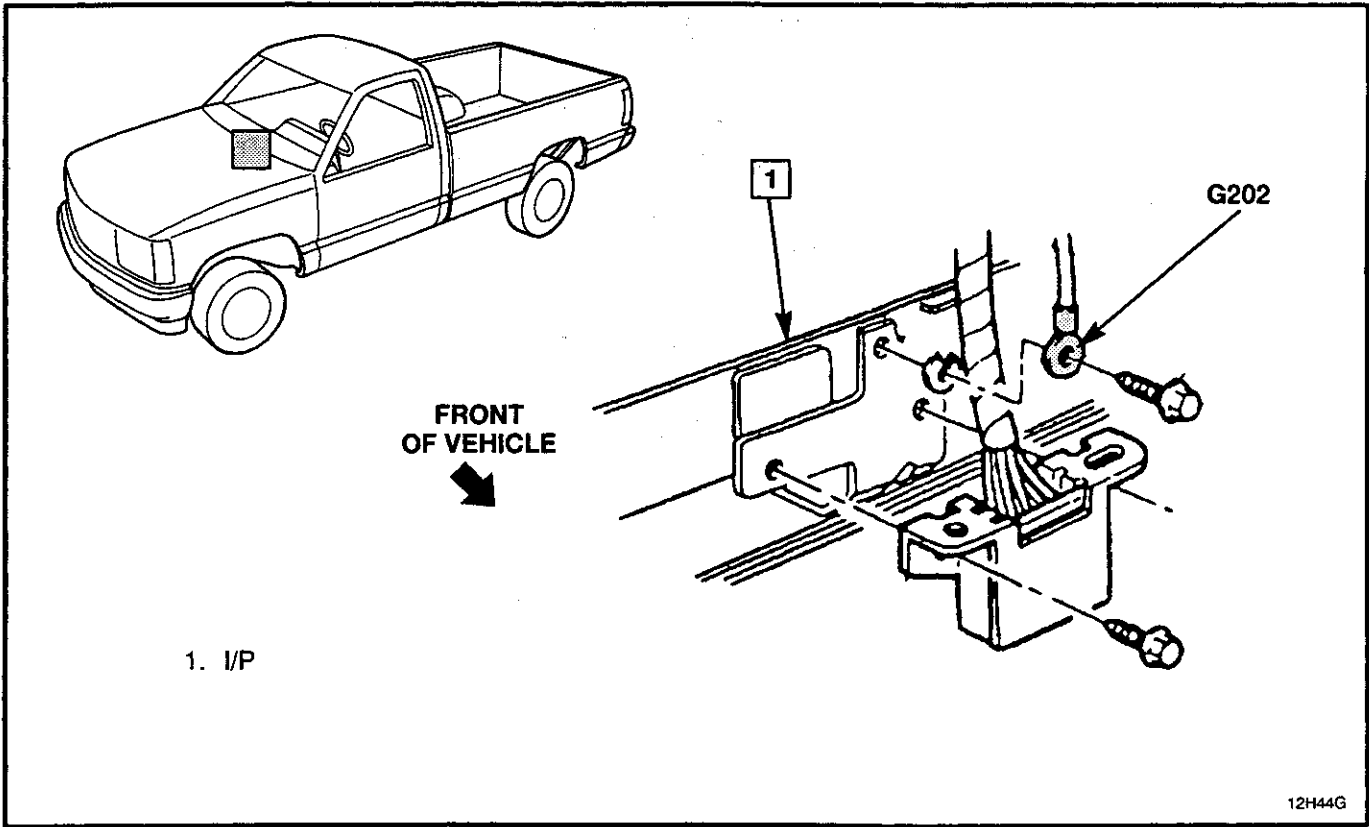


Figure 3 — I/P Ground

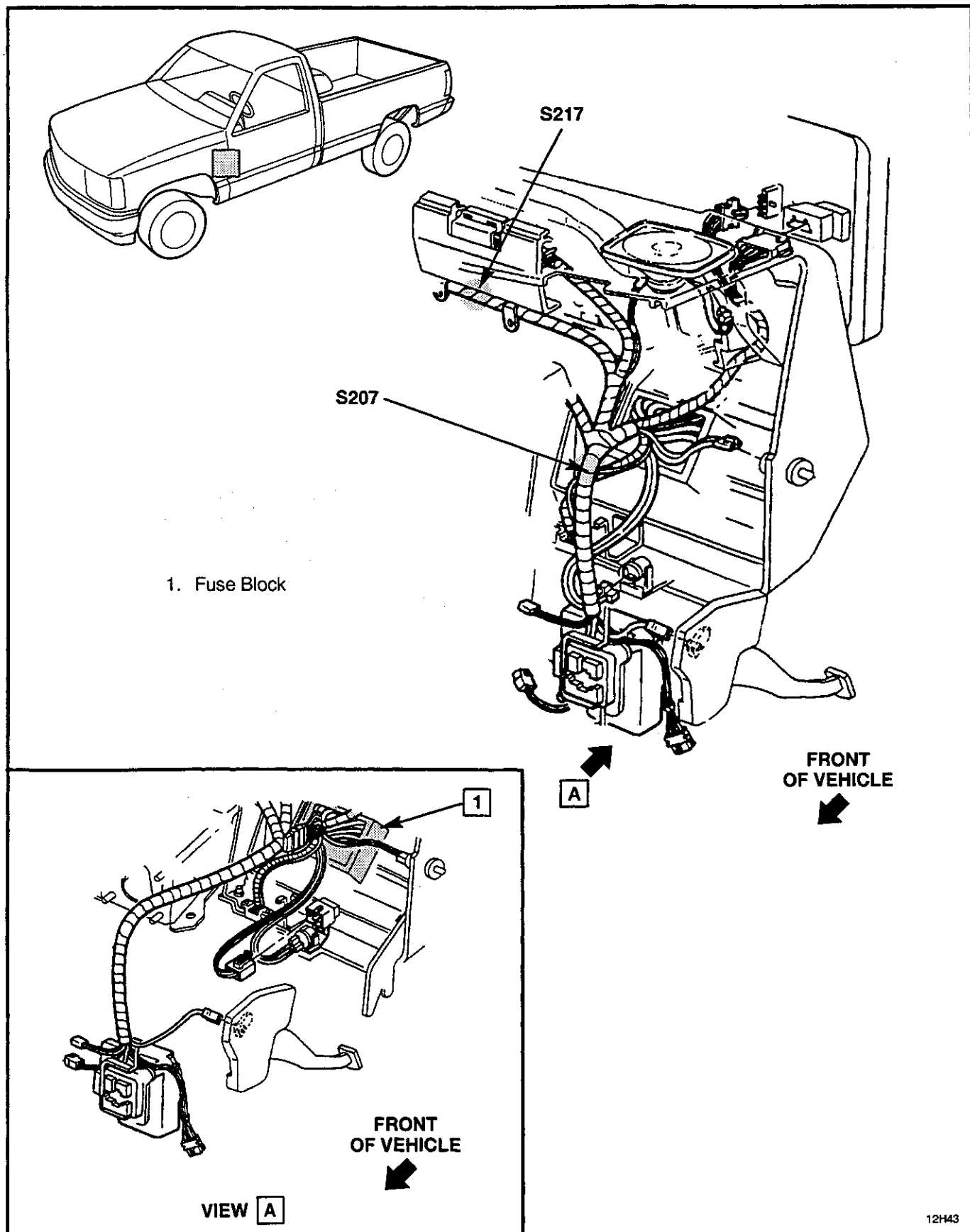


Figure 4 — LH Side of Instrument Panel

## 8A-38-10 FOUR WHEEL DRIVE INDICATOR

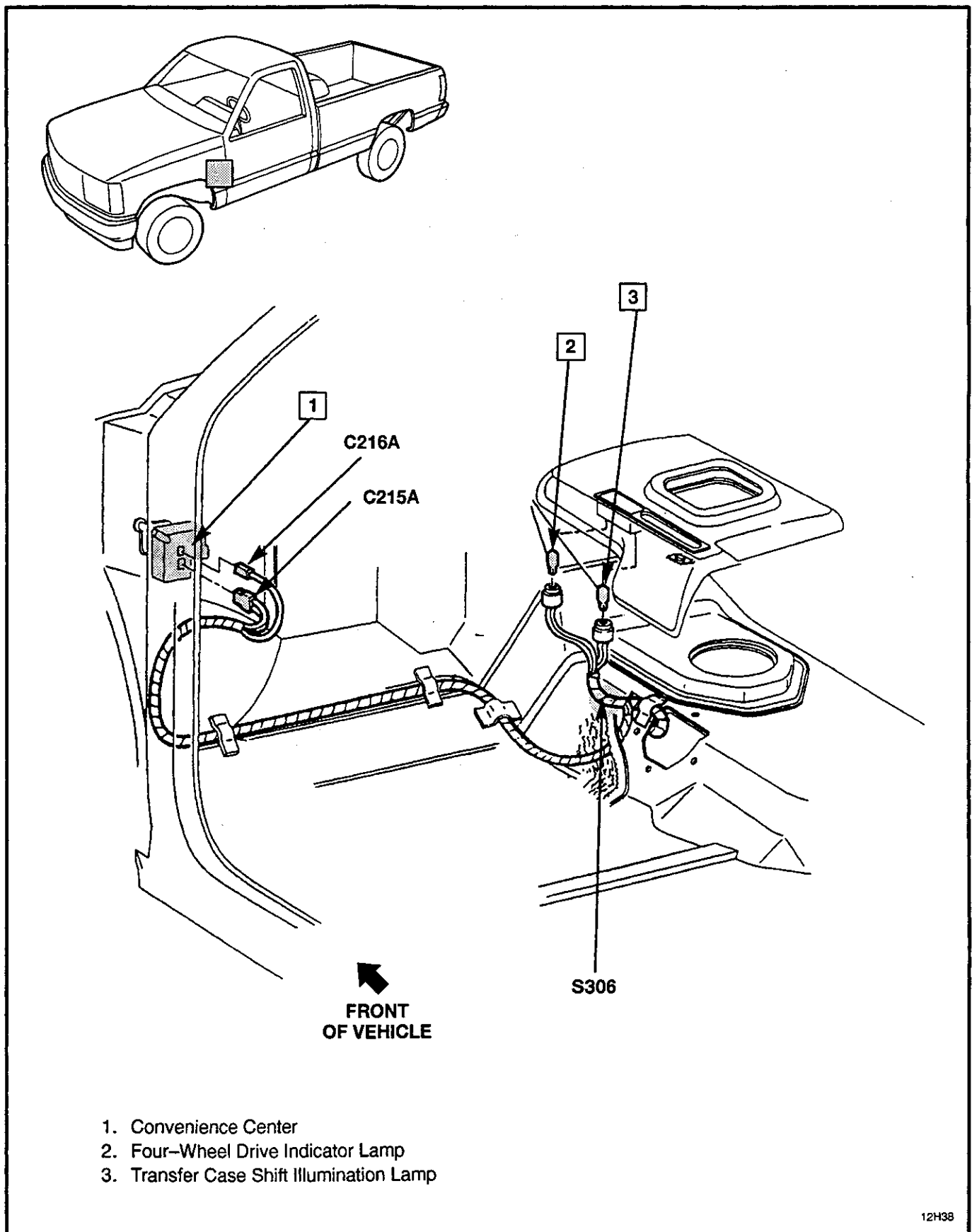


Figure 5 — Four-Wheel Drive Illumination Wiring

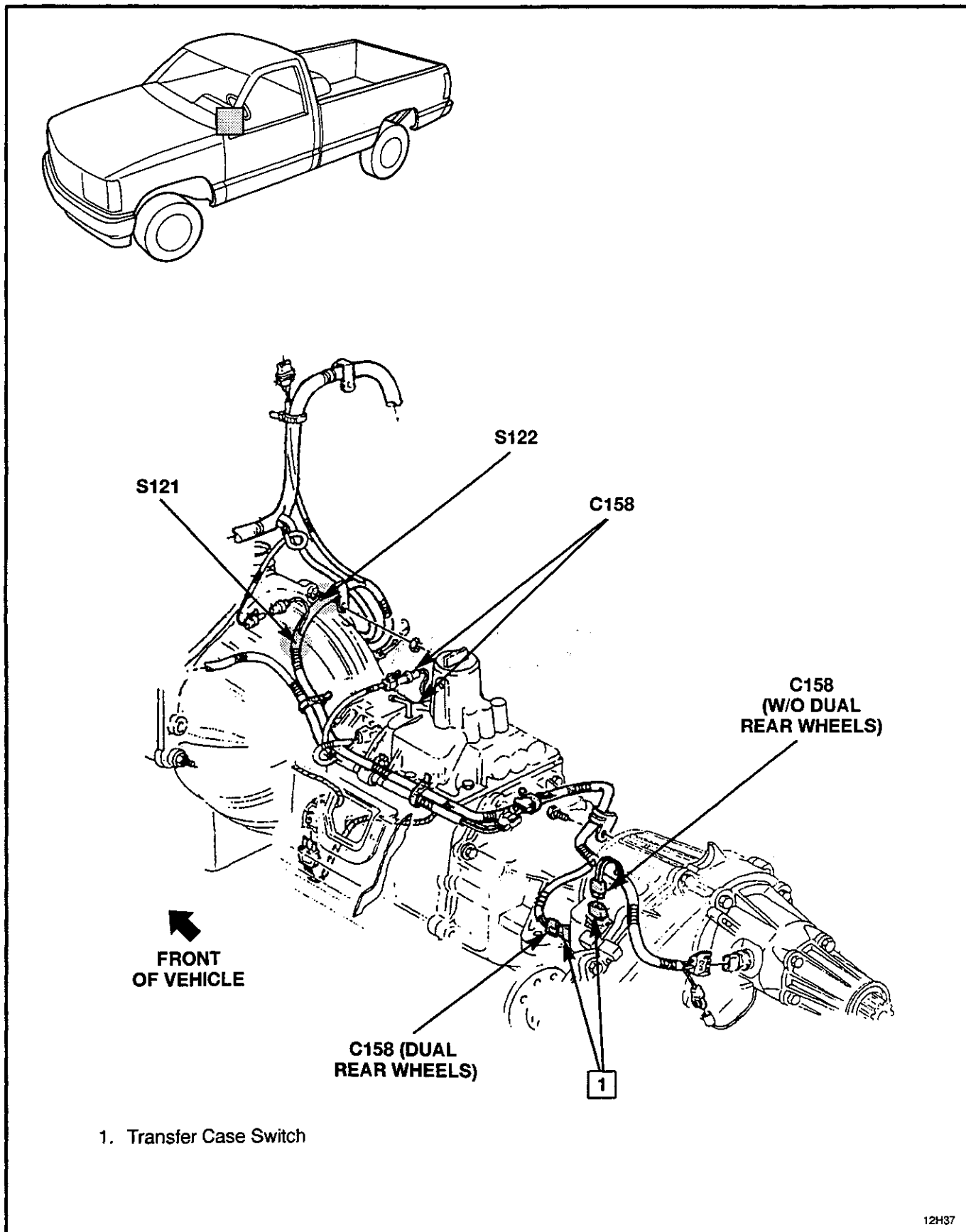


Figure 6 — Transmission Wiring, Heavy Duty — 4-Speed, W/Overdrive Auto Trans

**8A-38-12 FOUR WHEEL DRIVE INDICATOR**

---

**BLANK**



## CIRCUIT OPERATION

When the Horn Button is depressed, one side of the coil of the Horn Relay is grounded. The relay is energized. Its contacts close and battery voltage is supplied to the Horns.

## COMPONENT LOCATION

### Page — Figure

Convenience Center .....	Under LH side of I/P .....	40-6	3
Horn Relay .....	At convenience center .....	40-6	3
Horn, LH .....	At front of vehicle .....	40-5	1
Horn, RH .....	At front of vehicle .....	40-5	1
Multi-Function Switch .....	LH upper side of steering column .....	Not Shown	

## CONNECTORS:

C100 .....	At bulkhead connector .....	40-5	2
C102 .....	At bulkhead connector .....	40-5	2

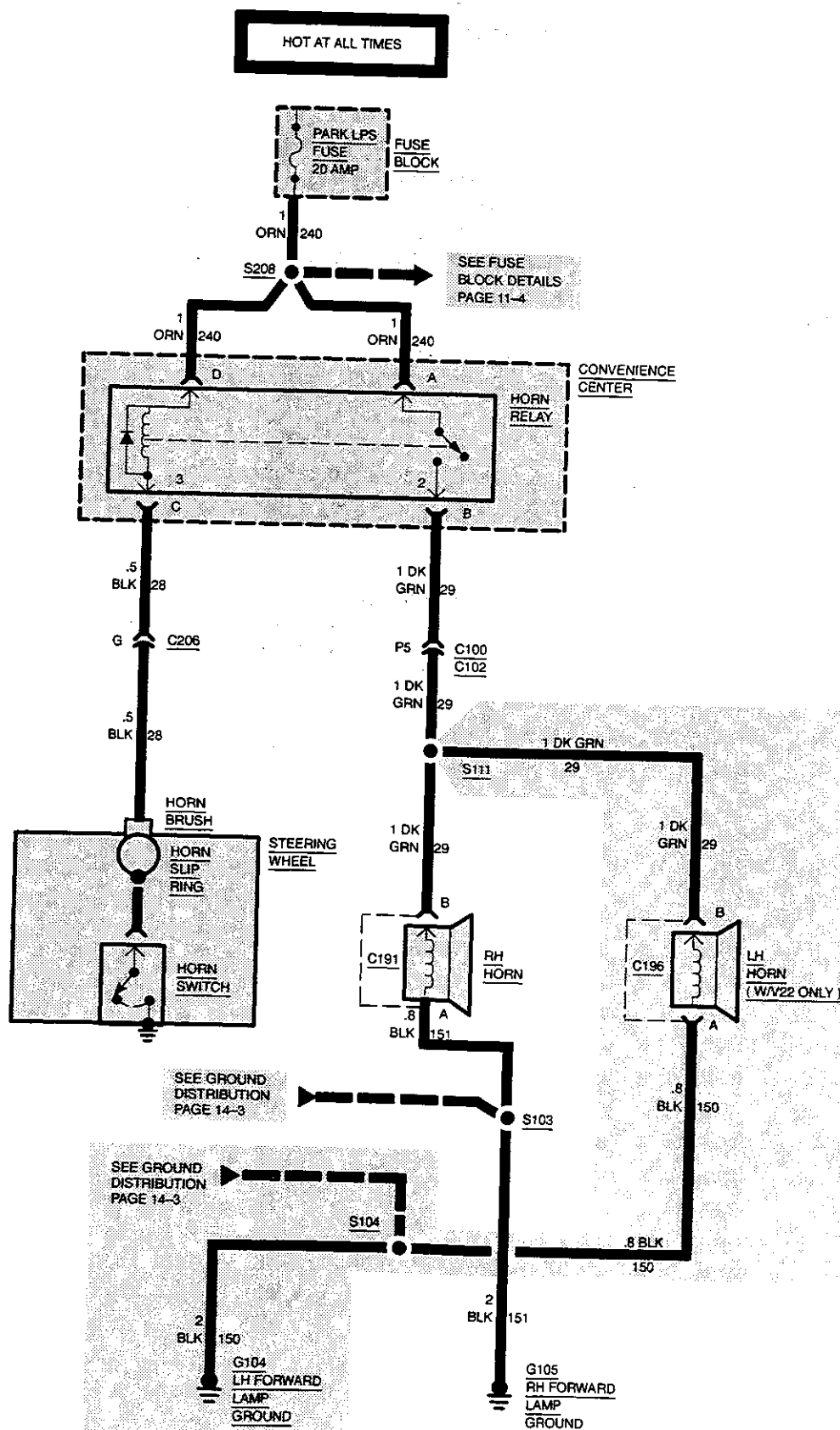
## GROUNDING:

G104 .....	On sheet metal, above LH headlamp .....	40-5	1
G105 .....	RH inner fender, near battery .....	40-5	1

## SPLICES:

S103 .....	RH side, near headlamp .....	40-5	1
S104 .....	LH side, near headlamp .....	40-5	1
S111 .....	Forward lamp harness, near LH side of radiator .....	Not Shown	
S208 .....	Under LH side of I/P .....	40-7	4

# 8A-40-2 HORN



## DIAGNOSIS — HORNS

### PRELIMINARY CHECKS:

1. Check condition of PARK LPS Fuse. If fuse is blown, locate and repair source of overload. Replace fuse.

#### HORN(S) WILL NOT OPERATE

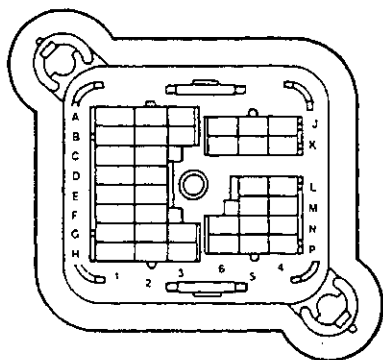
TEST	RESULT	ACTION
1. Connect test lamp from DK GRN (29) wire at horn connector C191 (C196 dual horn) to ground. Press horn button.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	GO to step 3.
2. Connect test lamp from DK GRN (29) wire and BLK (150 or 151) at horn connector C191 (C196 dual horn) to ground.	Test lamp lights.	REPLACE horn(s).
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150 or 151) wire(s).
3. Remove horn relay. Connect test lamp from ORN (240) wires at convenience center to ground. Check each wire for voltage.	Test lamp lights at both connections.	GO to step 4.
	Test lamp does not light at one or both connection.	LOCATE and REPAIR open in ORN (240) wire(s).
4. Disconnect multi-function switch connector C206. Use jumper wire to ground BLK (28) wire at multi-function switch connector C206.	Horn does not sound.	GO to step 5.
	Horn sounds.	REPLACE horn button.
5. Disconnect horn relay. Install jumper wire from ORN (240) terminal to DK GRN (29) terminal at convenience center.	Horn sounds.	REPLACE horn relay.
	Horn does not sound.	LOCATE and REPAIR open in DK GRN (29) wire from convenience center to horn(s).

#### HORN SOUNDS CONTINUOUSLY WITHOUT DEPRESSING HORN SWITCH

TEST	RESULT	ACTION
1. Disconnect multi-function switch connector C206.	Horn stops.	REPLACE horn button.
	Horn continues to sound.	GO to step 2.
2. Disconnect horn relay. Check for short to ground in DK GRN (29) and BLK (28) wires.	No short(s) found.	REPLACE relay.
	Short(s) found.	REPAIR or REPLACE as required.

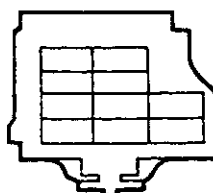
## 8A-40-4 HORN

12020184



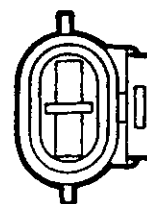
**GRAY**  
Metri-Pack  
**C100**  
Bulkhead Connector - I/P

12020100



**C102**  
Bulkhead - Forward Lamps

12052644



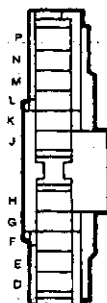
**GRAY**  
Metri-Pack 150  
**C191**  
RH Horn

12052644



**GRAY**  
Metri-Pack 150  
**C196**  
LH Horn

12004147



**BLACK**  
Pac/on  
**C206**  
I/P to Multi-Function Switch

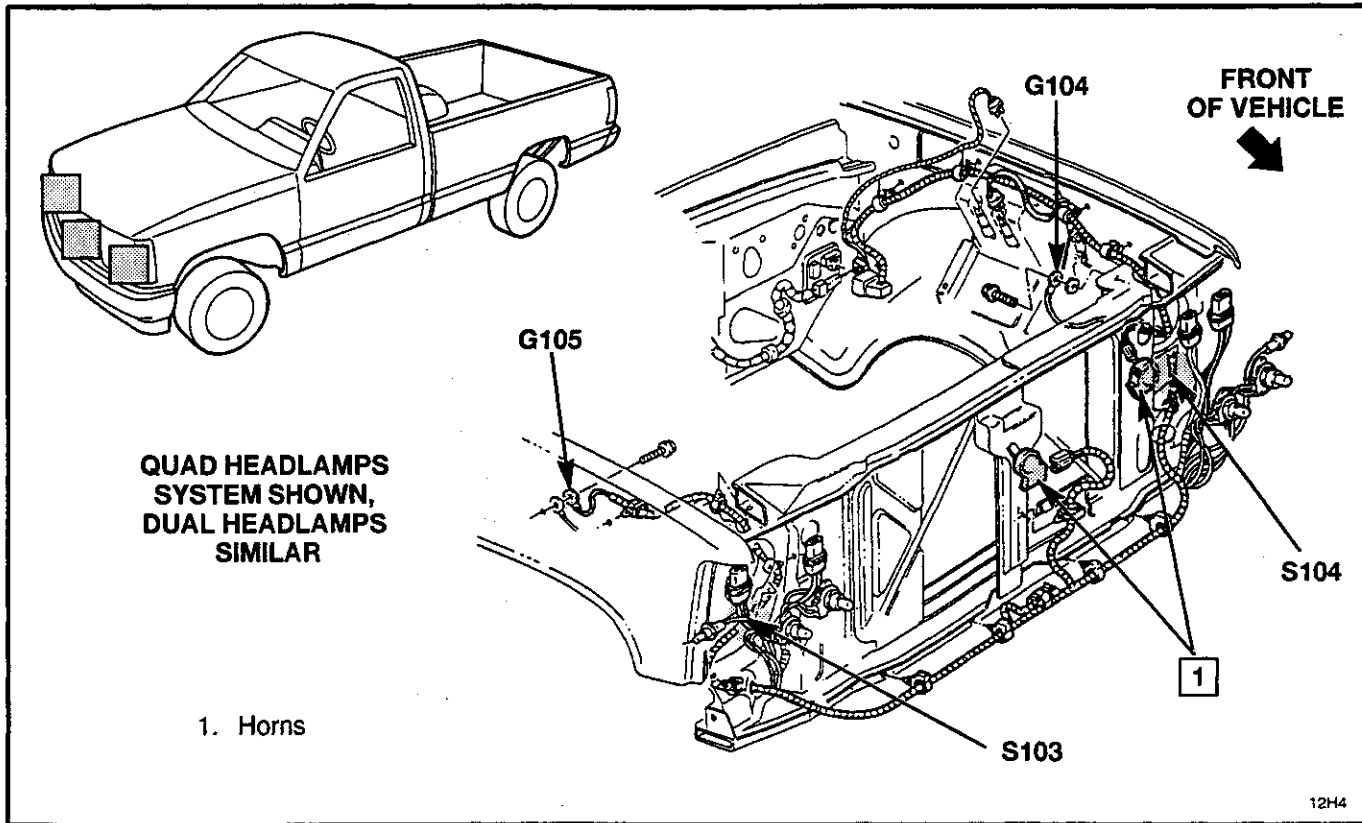


Figure 1 — Forward Lamp Harness, Quad Headlamps

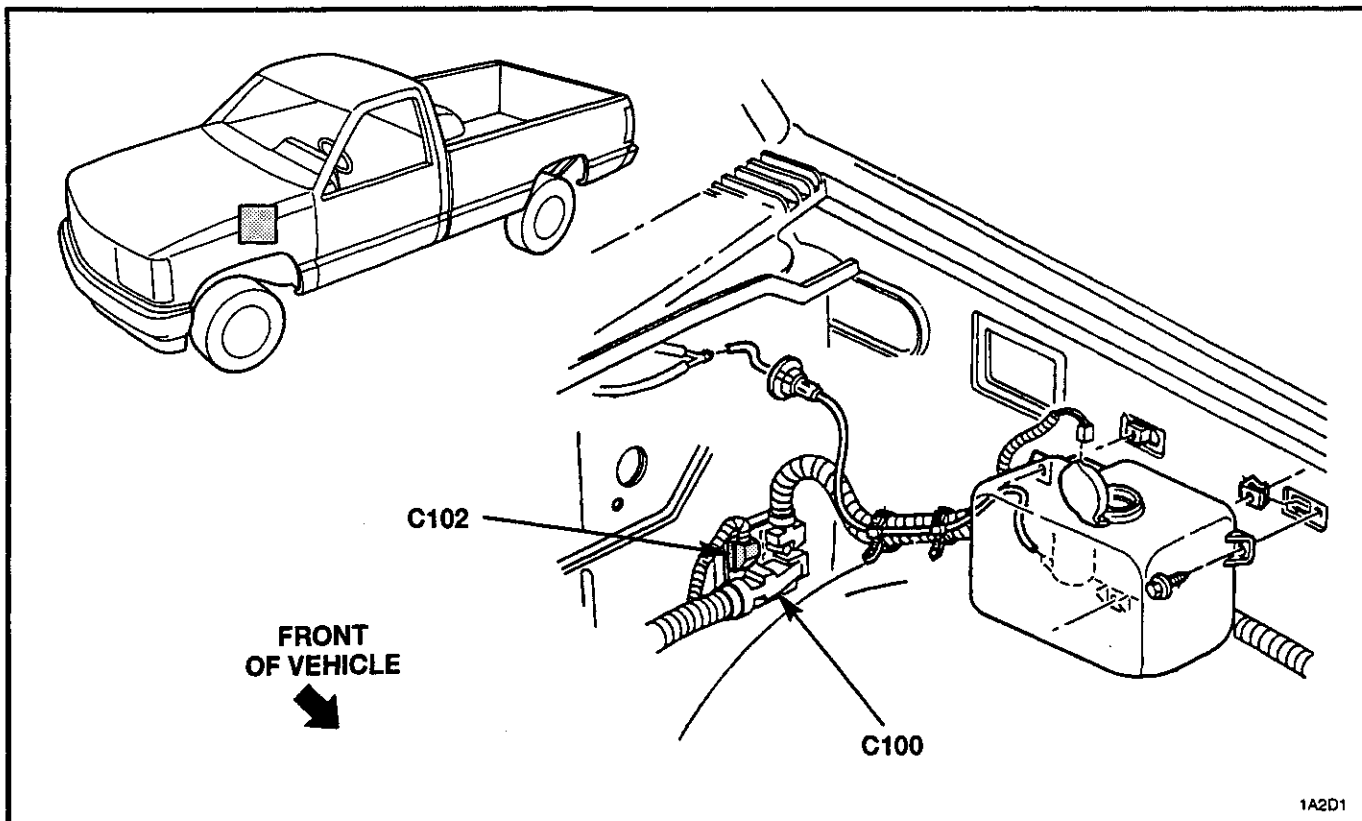


Figure 2 — I/P Wiring

## 8A-40-6 HORN

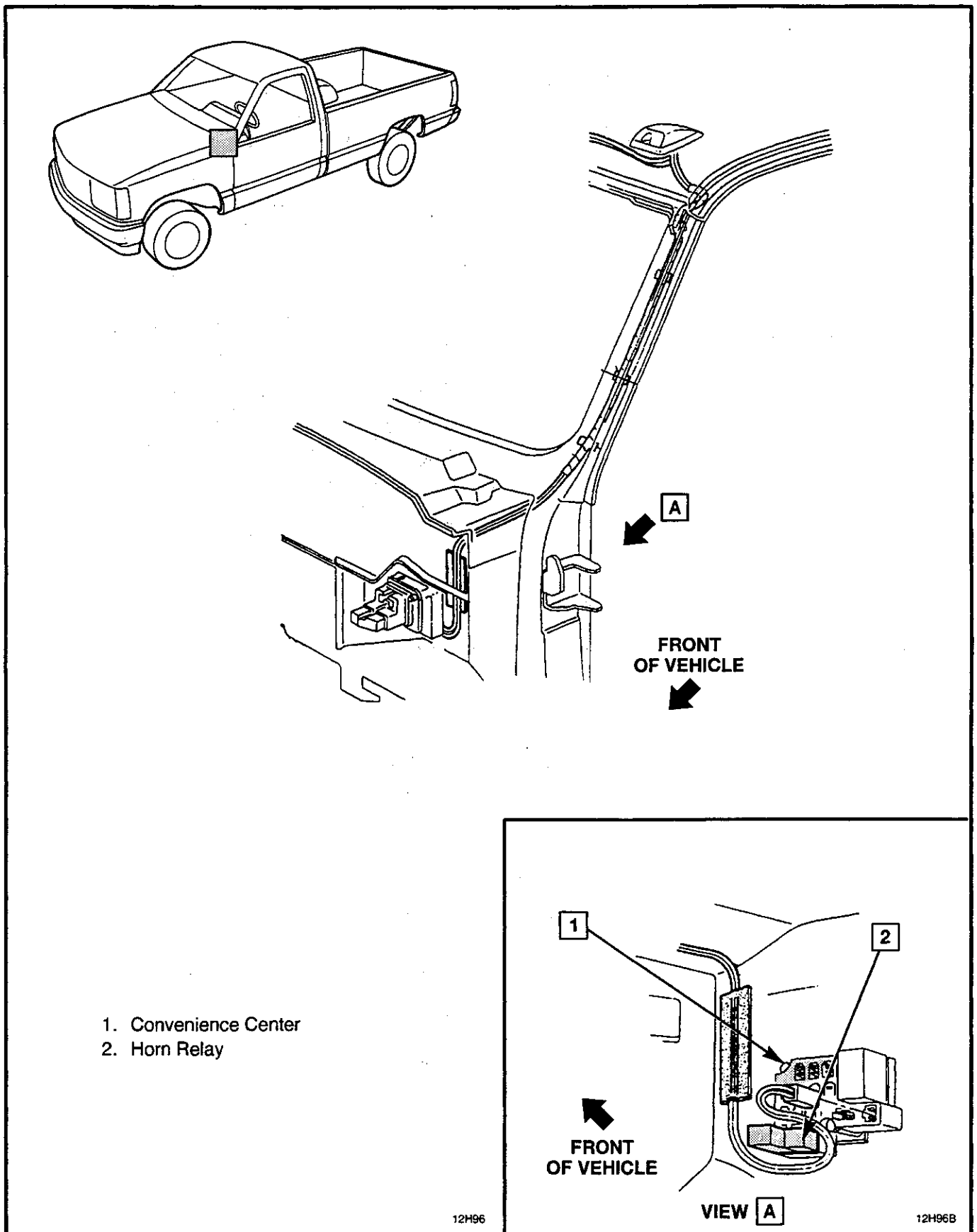


Figure 3 — Convenience Center Wiring

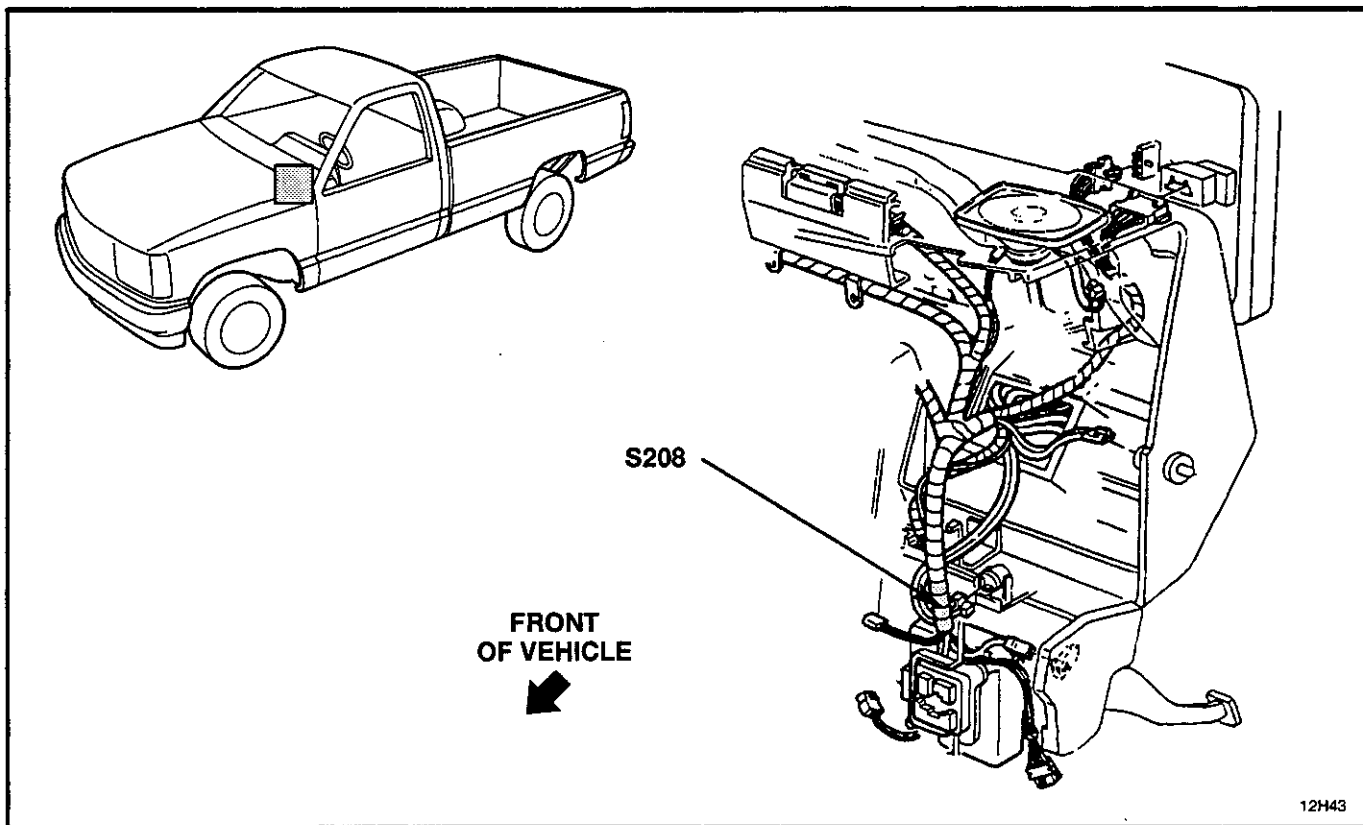


Figure 4 — LH Side of Instrument Panel

**8A-40-8 HORN**

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**BLANK**



## **CIRCUIT OPERATION**

Battery voltage is supplied to the BRAKE Indicator when the Ignition Switch is in RUN or START. Three Switches are connected to the BRAKE Indicator. When any one of these Switches closes, ground is provided and the Indicator lights. The BRAKE Indicator is also connected to the Electronic Rear-Wheel and Four-Wheel Brake Control Modules.

The Park Brake Warning Switch provides a ground when the Park Brake is applied. The Park Brake Warning Indicator lights to alert the driver.

When the ignition switch is turned to the BULB TEST Position the Brake Warning Lamp lights.

The Brake Pressure Warning Switch closes to light the Brake Warning Indicator when there is low brake fluid pressure in one of the two hydraulic brake systems. This

could be caused by a leak in one of the brake lines. Refer to Section 5A in the 1994 C/K Service Manual for switch reset procedure. This can only be accomplished after the faulty system has been repaired.

The Electronic Rear-Wheel Brake Control Module grounds the BRAKE Indicator when the Module senses a fault in the Antilock Brake System. For Rear-Wheel Anti-lock Brake Diagnosis refer to Section 5E3 in the 1994 C/K Service Manual.

The Electronic Four-Wheel Antilock Brake Control Module grounds the brake warning indicator and the Antilock brake warning indicator lamps when the module senses a fault in the Antilock Brake System. For Four-Wheel Antilock Brake Diagnosis refer to Section 5E1 in the 1994 Service Manual.

## **COMPONENT LOCATION**

### **Page — Figure**

Brake Pressure Warning Switch . . . .	Below master cylinder, at combination valve . . . . .	Not Shown	
Park Brake Warning Switch . . . . .	At park brake, under LH end of I/P . . . . .	41-8	3
Ignition Switch . . . . .	Lower LH side of steering column . . . . .	41-7	2
I/P Cluster . . . . .	LH side of I/P . . . . .	Not Shown	

## **CONNECTORS:**

C100 . . . . .	At bulkhead connector . . . . .	41-8	3
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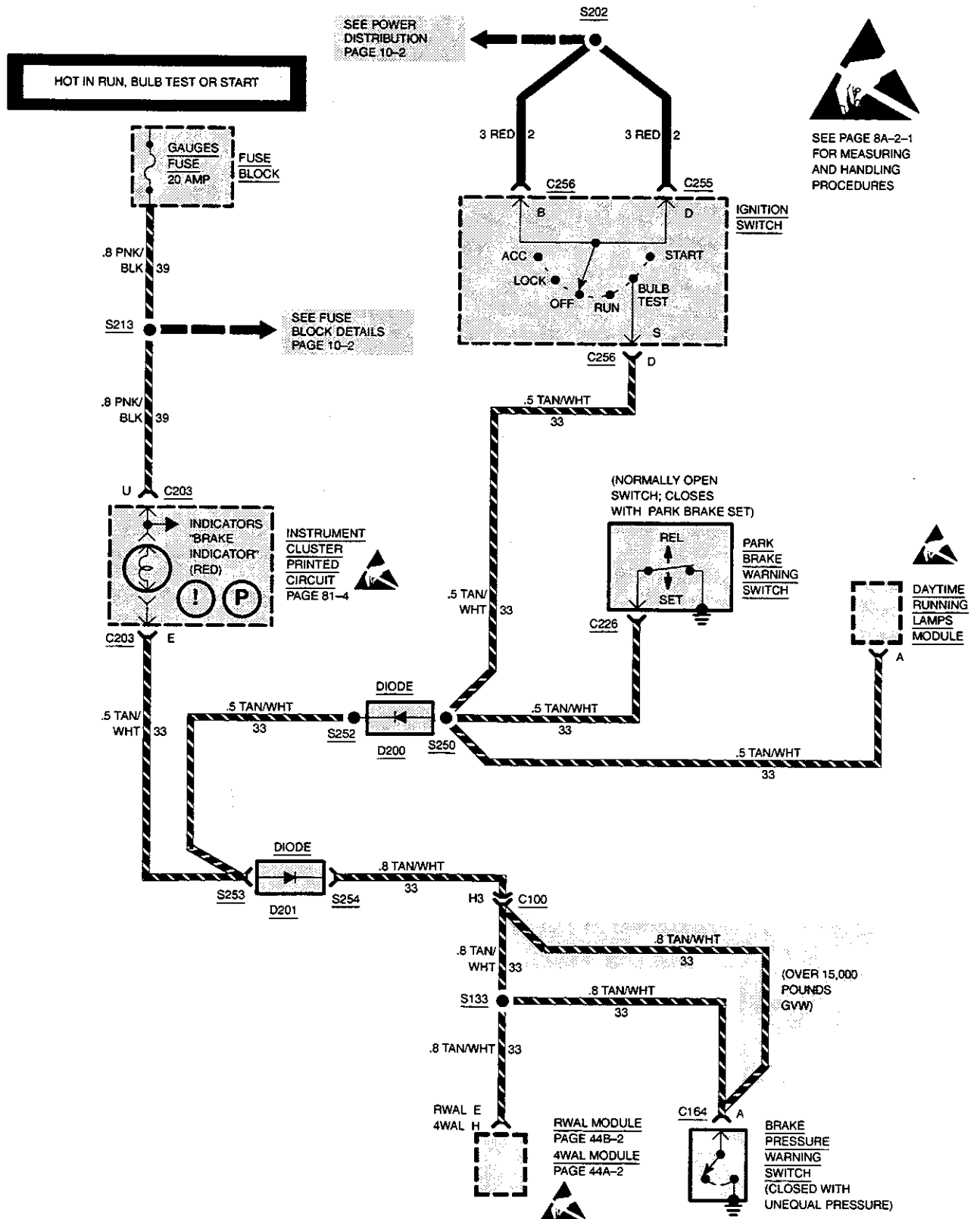
## **DIODES:**

D200 . . . . .	Behind LH side of I/P . . . . .	41-8	3
D201 . . . . .	Behind LH side of I/P . . . . .	41-8	3

## **SPLICES:**

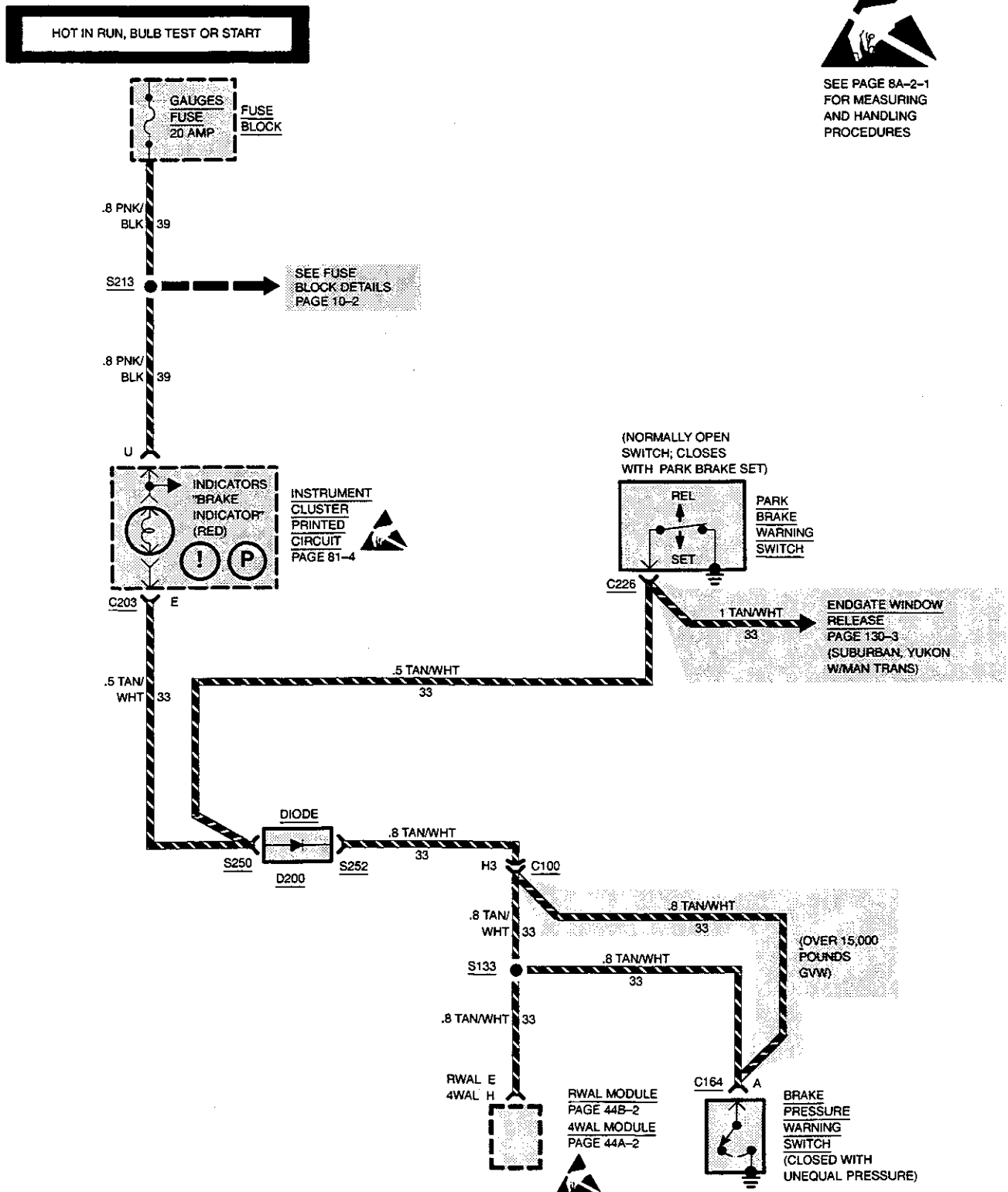
S118 . . . . .	Engine harness, near cowl LH rear engine compartment . . . .	41-7	1
S133 . . . . .	LH rear engine compartment, near bulkhead connector . . . .	Not Shown	
S202 . . . . .	Under LH side of I/P . . . . .	41-7	2
S213 . . . . .	Under LH side of I/P . . . . .	41-8	3
S250 . . . . .	At in-line diode, near bulkhead connector . . . . .	41-8	3
S252 . . . . .	At in-line diode, near bulkhead connector . . . . .	41-8	3
S253 . . . . .	Under LH side of I/P . . . . .	41-8	3
S254 . . . . .	Under LH side of I/P . . . . .	41-8	3

# 8A-41-2 BRAKE WARNING SYSTEM WITH DAYTIME RUNNING LAMPS



# BRAKE WARNING SYSTEM 8A-41-3

## WITHOUT DAYTIME RUNNING LAMPS



## **8A-41-4 BRAKE WARNING SYSTEM**

---

### **DIAGNOSIS — BRAKE SYSTEMS**

#### **PRELIMINARY CHECKS:**

1. Check condition of GAUGES Fuse. If fuse is blown, locate and repair source of overload. Replace fuse.

#### **BRAKE INDICATOR REMAINS ON WITH IGNITION SWITCH IN RUN AND PARK BRAKE OFF**

<b>TEST</b>	<b>RESULT</b>	<b>ACTION</b>
1. Disconnect park brake switch connector C226.	Brake indicator lamp does not go out.	GO to step 2.
	Brake indicator lamp goes out.	CHECK adjustment of park brake switch. If adjustment cannot be corrected, REPLACE brake switch.
2. Disconnect brake pressure warning switch connector C164.	Brake indicator lamp does not go out.	GO to step 3.
	Brake indicator lamp goes out.	CHECK for a possible leak or loss of fluid in the brake system.
3. Disconnect electronic four-wheel or rear-wheel brake control module connector C159.	Brake indicator lamp does not go out.	LOCATE and REPAIR short in TAN/WHT (33) wire between four-wheel or rear-wheel antilock module connector C159 or brake pressure warning switch connector C164 and splice S133 or between splice S133 and in-line diode splice S252 or between diode splice S250 and park brake switch connector C226 or I/P cluster connector C203.
	Brake warning indicator lamp goes out.	CHECK for an inoperative antilock brake system. Refer to Section 5A in the 1994 C/K Service Manual for circuit diagnosis.

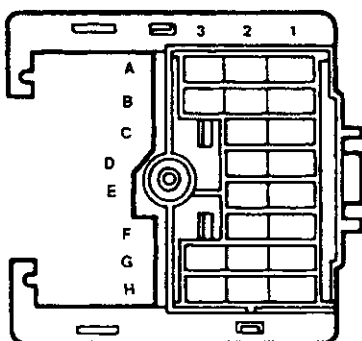
## BRAKE WARNING SYSTEM 8A-41-5

### BRAKE INDICATOR DOES NOT LIGHT DURING A WARNING CONDITION OR DURING THE ANTILOCK SYSTEM CHECK

TEST	RESULT	ACTION
1. Disconnect park brake warning switch connector C226. Connect fused jumper from park brake switch connector C226 to ground.	Brake indicator lamp does not come on.	GO to step 2.
	Brake indicator lamp does come on.	CHECK adjustment of park brake warning switch. If adjustment cannot be corrected, REPLACE park brake warning switch.
2. Disconnect brake pressure warning switch connector C164. Connect fused jumper from TAN/WHT (33) wire at park brake warning switch connector C226 to ground.	Brake indicator lamp does not come on.	GO to step 3.
	Brake indicator lamp does come on.	REPLACE brake pressure warning switch.
3. Disconnect electronic four-wheel or rear-wheel brake control module connector C159. Connect fused jumper from TAN/WHT (33) wire at antilock module connector C159 to ground.	Brake indicator lamp does not come on.	LOCATE and REPAIR open in TAN/WHT (33) wire between four-wheel or rear-wheel antilock module connector C159, brake pressure warning switch connector C164 and splice S133 or between splice S133 and in-line diode splice S252 or between splice S250 and park brake switch connector C226 or I/P cluster connector C203.
	Brake indicator lamp does come on.	CHECK for an inoperative antilock brake system. Refer to Section 5A in the 1994 C/K Service Manual for circuit diagnosis.

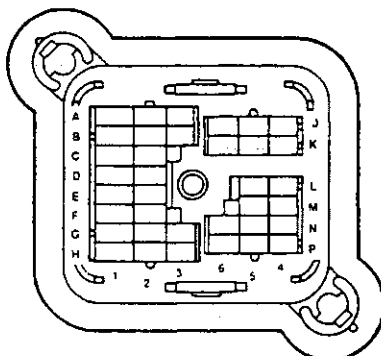
## 8A-41-6 BRAKE WARNING SYSTEM

12020183



**GRAY**  
Metri-Pack  
**C100**  
Bulkhead Connector – Eng

12020184



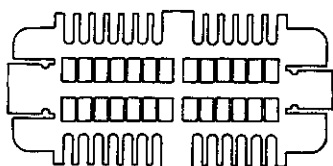
**GRAY**  
Metri-Pack  
**C100**  
Bulkhead Connector – I/P

12004635



**CREAM**  
Molded on  
**C164**  
Brake Pressure Warning Switch

12089908



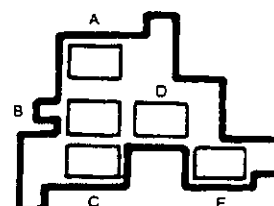
**BLACK**  
Bow Series  
**C203**  
I/P Cluster

12004267



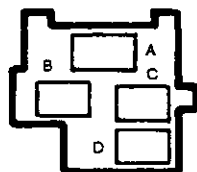
**BLACK**  
56 Series  
**C226**  
Park Brake Switch

12010966

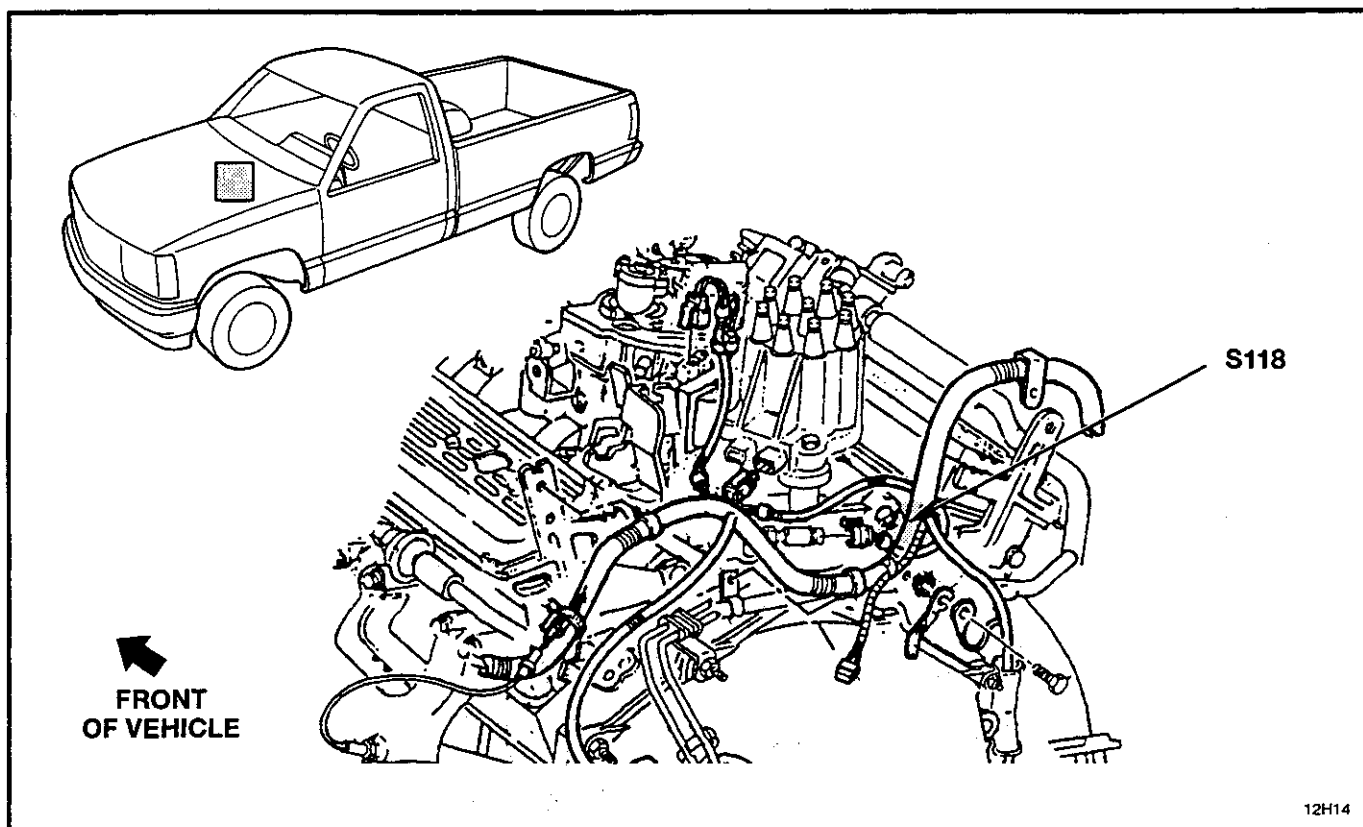


**BLUE**  
56 Series  
**C255**  
Ignition Switch

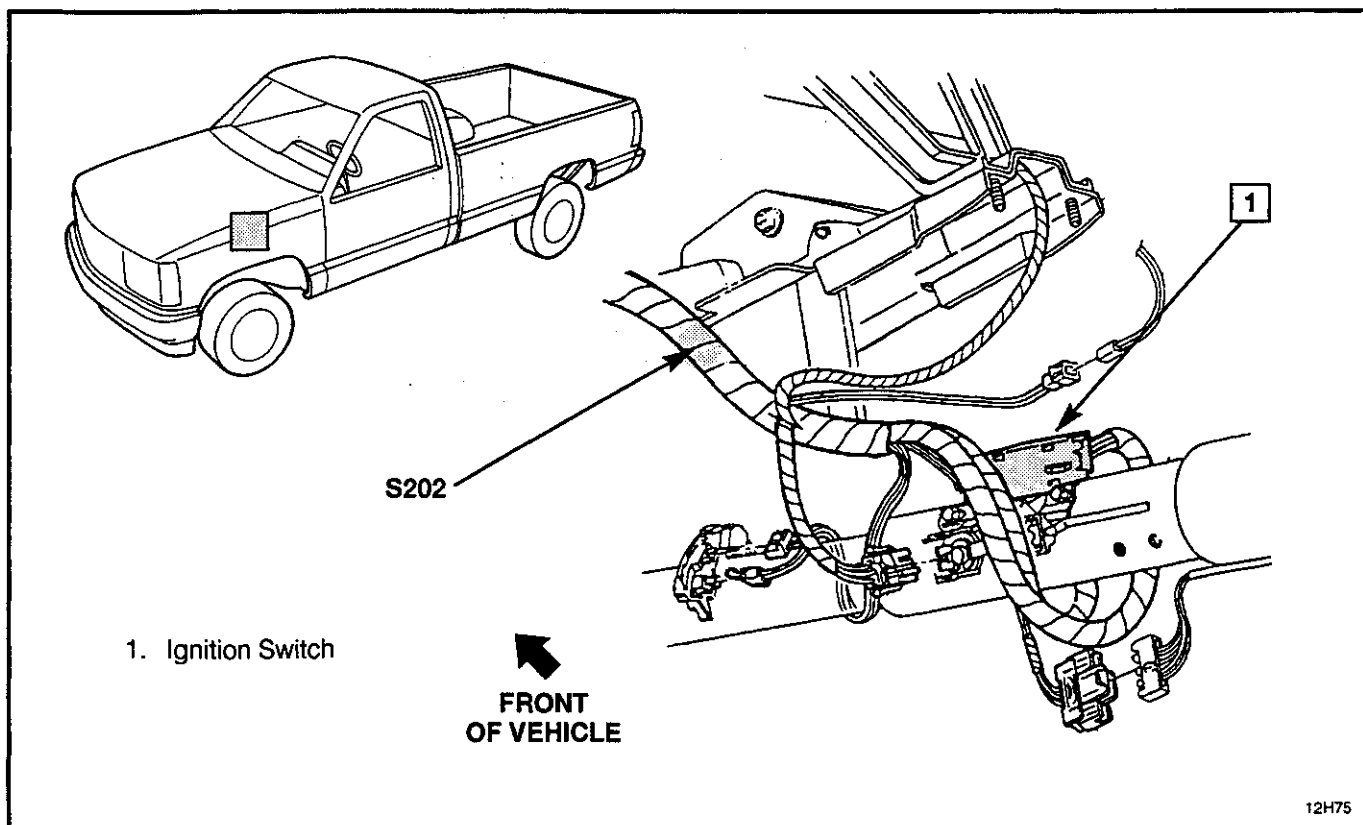
06294641



**BLACK**  
56 Series  
**C256**  
Ignition Switch



**Figure 1 — LH Side of Engine, 5.0L (305 CID) and 5.7L (350 CID) — Gasoline Engines**



**Figure 2 — LH Side of Steering Column Wiring**

## 8A-41-8 BRAKE WARNING SYSTEM

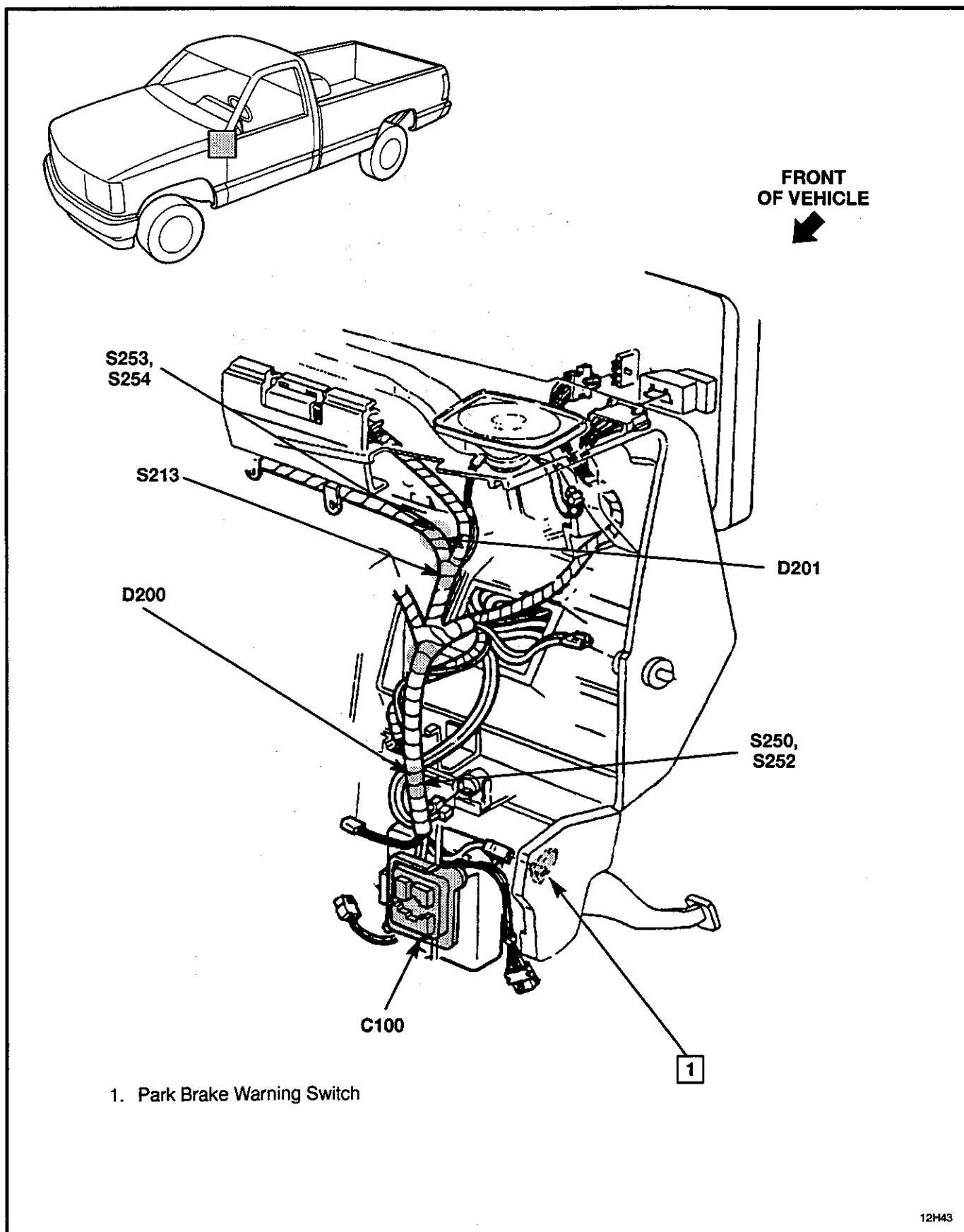


Figure 3 — LH Side of Instrument Panel



## FOUR-WHEEL ANTILOCK BRAKE WARNING SYSTEM 8A-44A-1

### CIRCUIT OPERATION

Battery voltage is supplied to the BRAKE Indicator when the Ignition Switch is in RUN or START. Three Switches are connected to the BRAKE Indicator. When any one of these Switches closes, ground is provided and the Indicator lights. The BRAKE Indicator is also connected to the Electronic Four-Wheel Brake Control Module.

The Park Brake Warning Indicator Switch provides a ground when the Park Brake is applied. The Park Brake Warning Indicator lights to alert the driver.

When the ignition switch is turned to the BULB TEST Position the Brake Warning Lamp lights.

The Brake Pressure Warning Switch closes to light the Brake Warning Indicator when there is low brake fluid pressure in one of the two hydraulic brake systems. This could be caused by a leak in one of the brake lines. Refer to Section 5A in the 1994 C/K Service Manual for switch reset procedure. This can only be accomplished after the faulty system has been repaired.

The Electronic Four-Wheel Antilock Brake Control Module grounds the brake warning indicator and the Antilock brake warning indicator lamps when the module senses a fault in the Antilock Brake System. For Four-Wheel Antilock Brake Diagnosis refer to Section 5E1 in the 1994 Service Manual.

### COMPONENT LOCATION

#### Page — Figure

Battery Junction Block	RH rear engine compartment, at cowl	44A-7	3
Brake Pressure Warning Switch	Below master cylinder, at combination valve	Not Shown	
DLC	Under LH side of I/P	44A-8	5
Four-Wheel Antilock Brake Module	Near master cylinder	Not Shown	
Fuse Block	Under LH side of I/P	44A-8	5
TCC/Stoplamp Switch	Top of brake pedal	44A-6	2
Wheel Sensor, LH Front	At LH front wheel	Not Shown	
Wheel Sensor, RH Front	At RH front wheel	Not Shown	

### CONNECTORS:

C100	At bulkhead connector	44A-8	5
C134A	At LH front wheel sensor	Not Shown	
C135A	At RH front wheel sensor	Not Shown	
C160	LH lower side of engine	44A-6	1
C200	Under RH side of I/P, near blower motor	44A-7	4
C267	Under LH side of I/P	44A-7	4

### GROMMETS:

P101	RH cowl	44A-7	4
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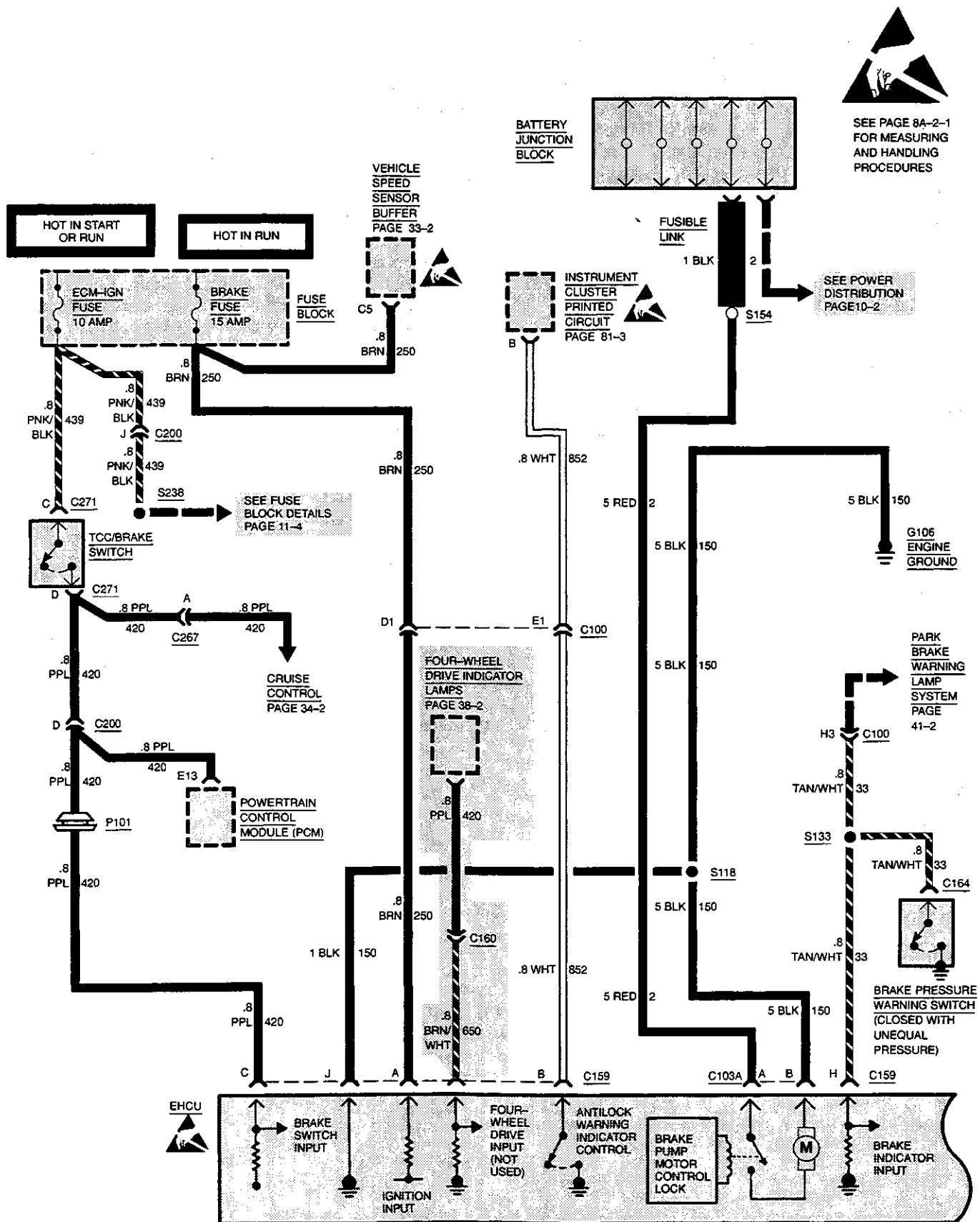
### GROUND:

G106 (All Engines)	Rear of RH cylinder head	44A-6	1
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### SPLICES:

S118	Engine harness, near cowl LH rear engine compartment	44A-6	1
S133	LH rear engine compartment, near bulkhead connector	Not Shown	
S154	Center of cowl, below battery junction block	44A-7	3
S238	Under LH side of I/P	44A-7	4

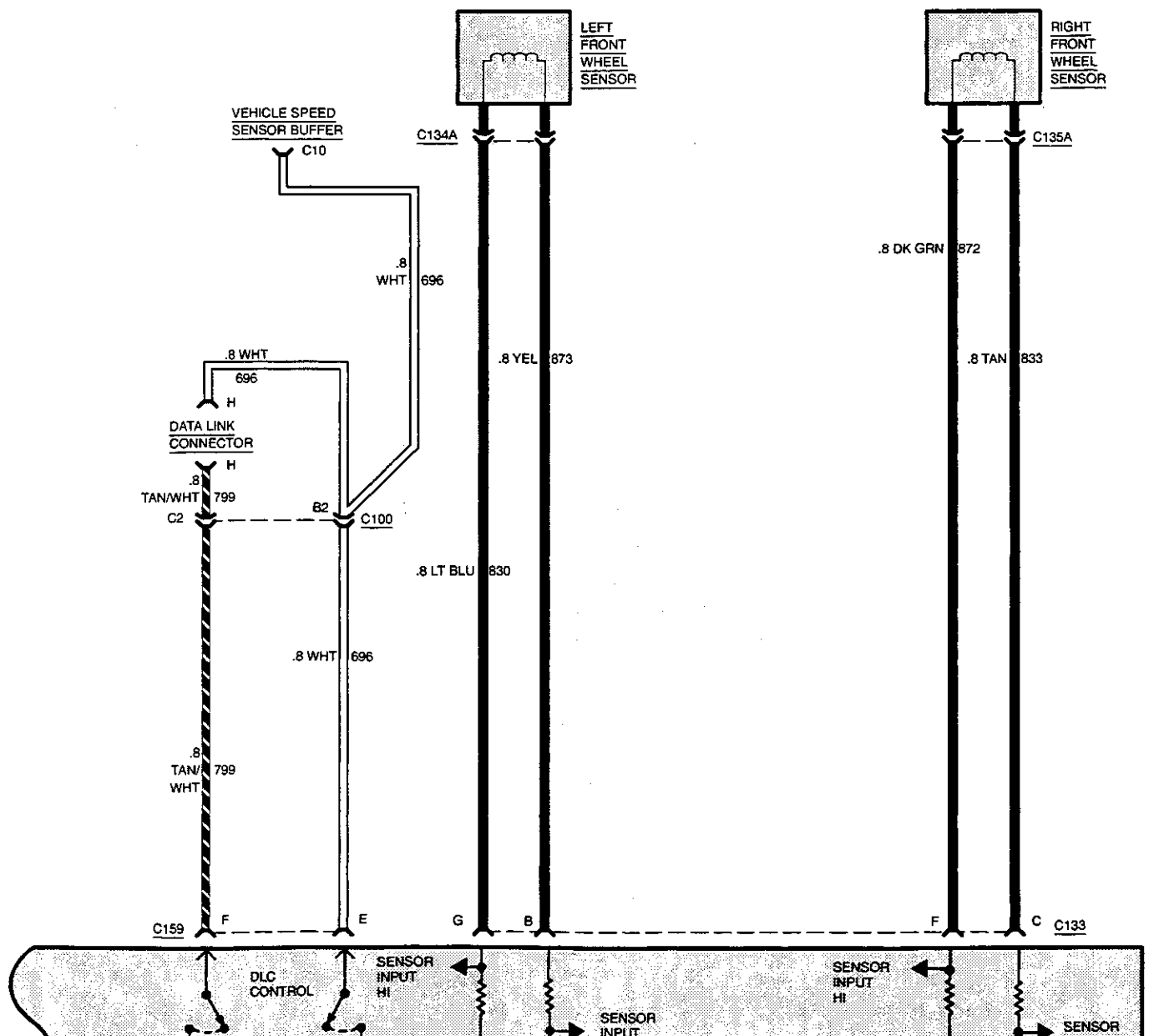
## 8A-44A-2 FOUR-WHEEL ANTILOCK BRAKE WARNING SYSTEM



# FOUR-WHEEL ANTILOCK BRAKE WARNING SYSTEM 8A-44A-3

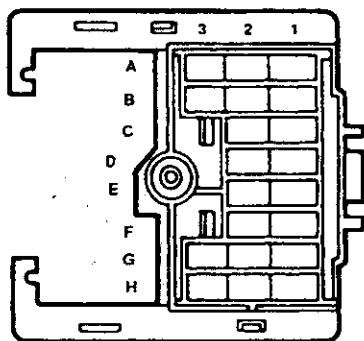


SEE PAGE 8A-2-1  
FOR MEASURING  
AND HANDLING  
PROCEDURES



## 8A-44A-4 FOUR-WHEEL ANTILOCK BRAKE WARNING SYSTEM

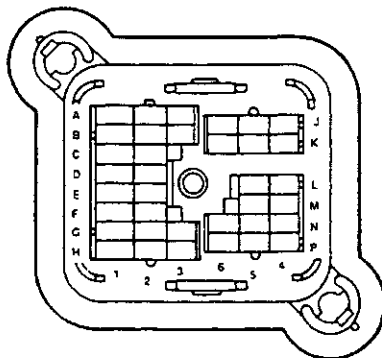
12020183



GRAY  
Metri-Pack

C100  
Bulkhead Connector – Eng

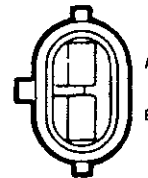
12020184



GRAY  
Metri-Pack

C100  
Bulkhead Connector – I/P

12052647



BLACK  
Metri-Pack

C160  
4WD Indicator In-Line

12052648



GRAY  
Metri-Pack 150

C160  
4WD Indicator In-Line

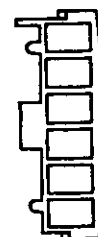
12004635



CREAM  
Molded on

C164  
Brake Pressure Warning Switch

12040551



BLACK  
Metri-Pack 480

C271  
TCC/Brake Switch

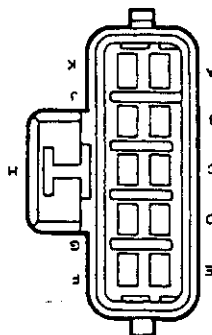
12085030



BLACK  
Metri-Pack

C103A  
4WD Module Pump Motor

12065425



NATURAL

C159  
4WD Module

12052641



BLACK  
Metri-Pack 150

C134A  
LH Front Wheel Sensor

## FOUR-WHEEL ANTILOCK BRAKE WARNING SYSTEM 8A-44A-5

12052641



**BLACK**  
Metri-Pack 150

**C135A**  
**RH Front Wheel Sensor**

## 8A-44A-6 FOUR-WHEEL ANTILOCK BRAKE WARNING SYSTEM

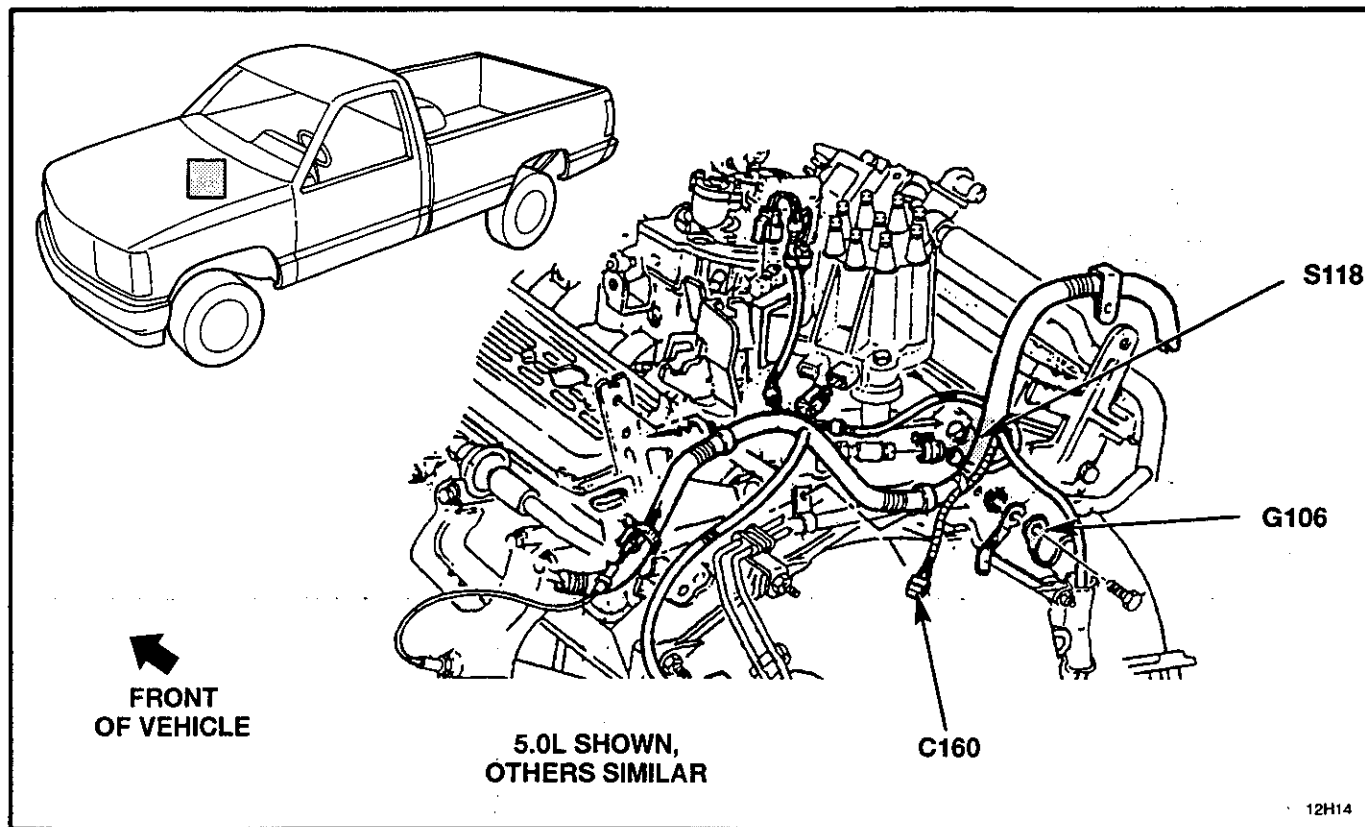


Figure 1 — LH Side of Engine, 5.0L (305 CID) 5.7L (350 CID) — Gasoline Engines

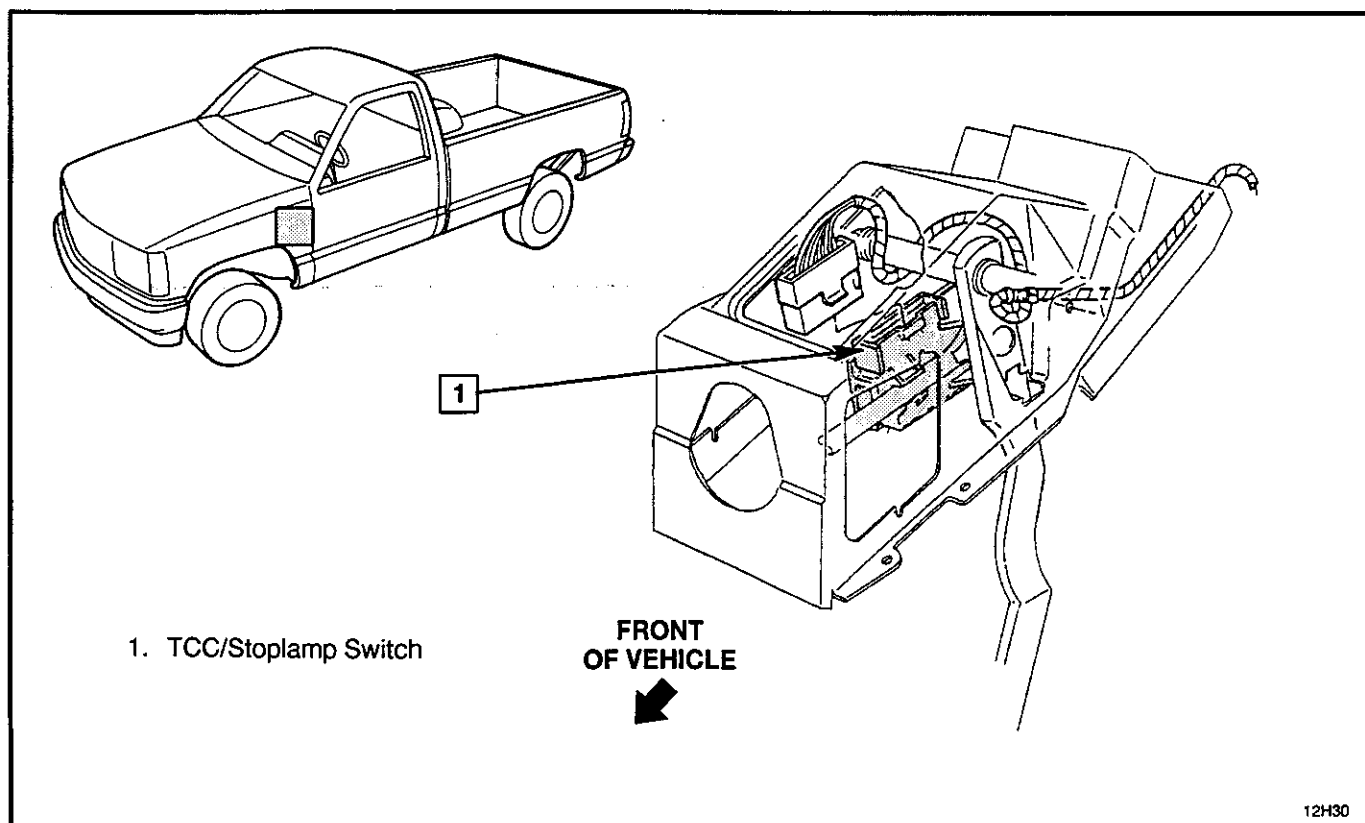


Figure 2 — TCC/Stoplamp Switch

## FOUR-WHEEL ANTILOCK BRAKE WARNING SYSTEM 8A-44A-7

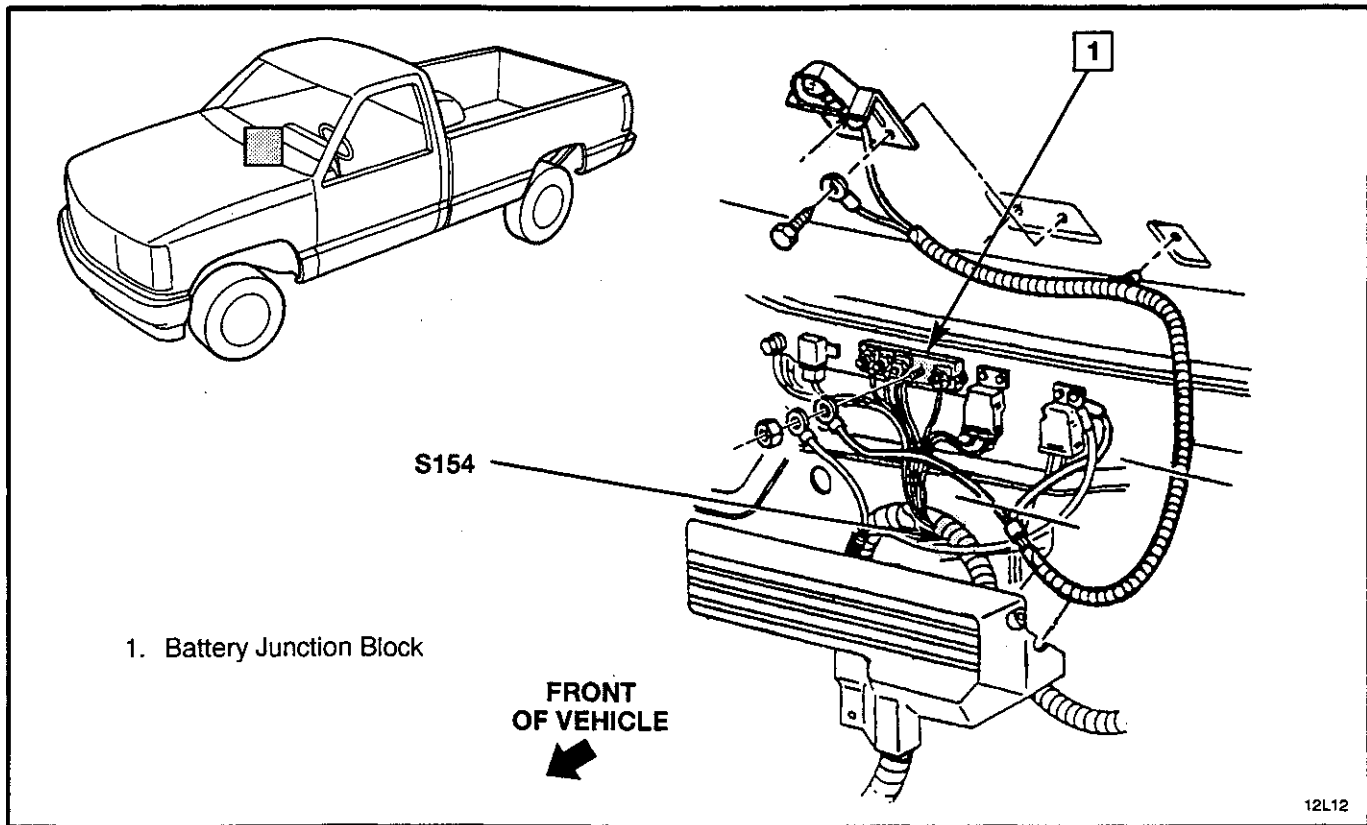


Figure 3 — Junction Block Wiring

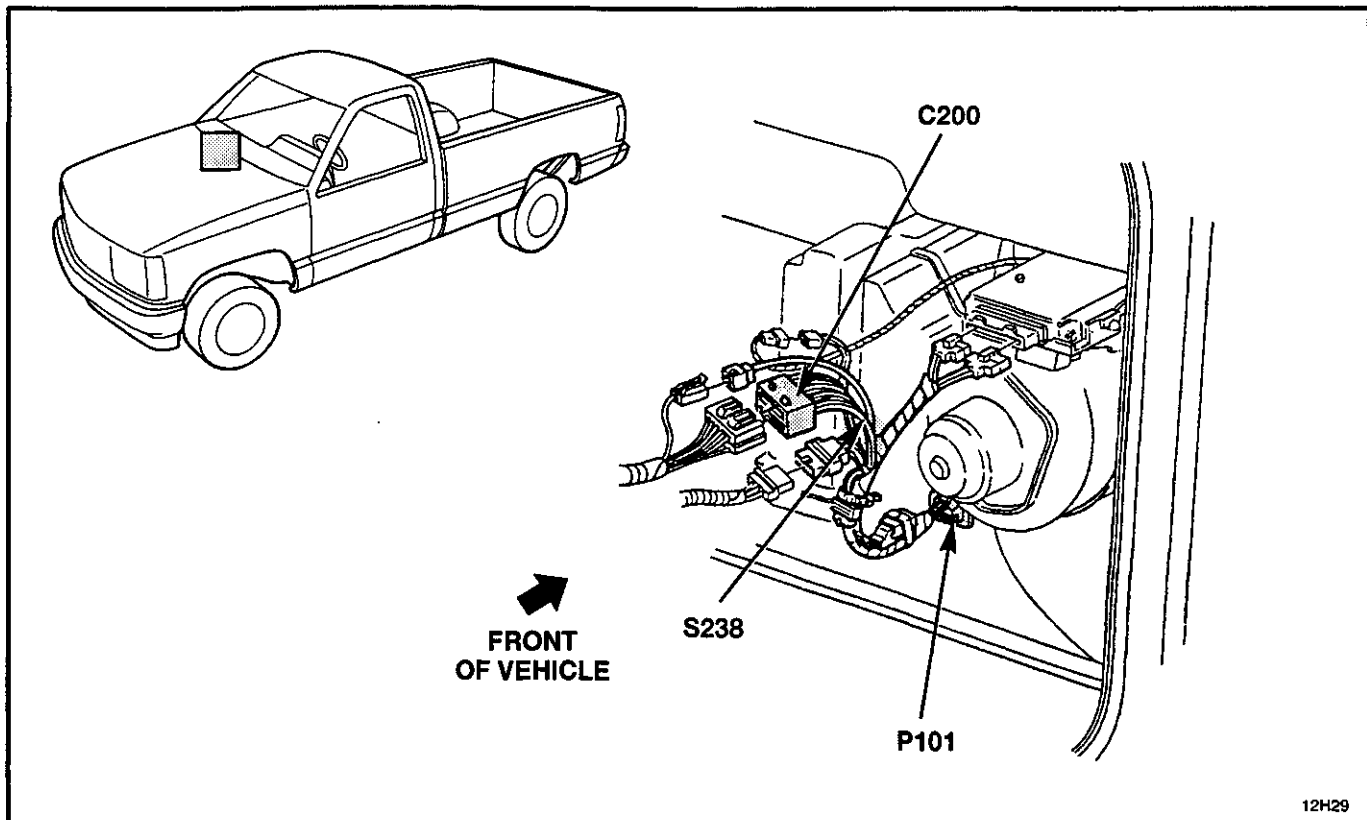


Figure 4 — Behind RH Side of I/P

## 8A-44A-8 FOUR-WHEEL ANTILOCK BRAKE WARNING SYSTEM

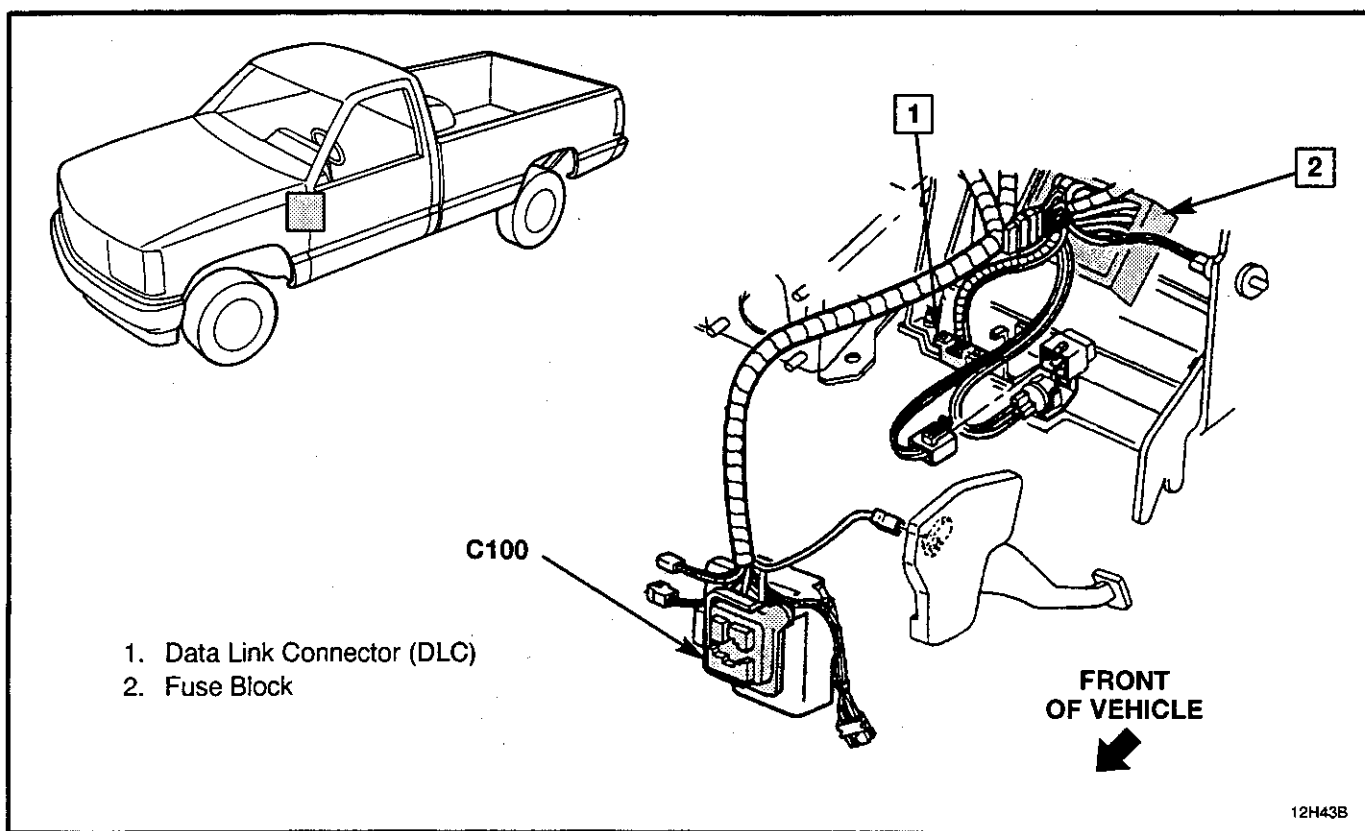


Figure 5 — LH Side of Instrument Panel



## REAR-WHEEL ANTILOCK BRAKE WARNING SYSTEM 8A-44B-1

### CIRCUIT OPERATION

Battery voltage is supplied to the Brake Indicator when the Ignition Switch is in RUN or START. Three Switches are connected to the Brake Indicator. When any one of these Switches closes, ground is provided and the Indicator lights. The Brake Indicator is also connected to the Ignition Switch with Daytime Running Lamps.

The Park Brake Warning Switch provides a ground when the Park Brake is applied. The Park Brake Warning Indicator lights to alert the driver.

When the ignition switch is turned to the BULB TEST Position the Brake Warning Lamp lights (with Daytime Running Lamps only).

The Brake Pressure Warning Switch closes to light the Brake Warning Indicator when there is low brake fluid pressure in one of the two hydraulic brake systems. This could be caused by a leak in one of the brake lines. Refer to Section 5A in the 1994 C/K Service Manual for switch reset procedure. This can only be accomplished after the faulty system has been repaired.

The Electronic Rear-Wheel Brake Control Module grounds the Brake Indicator when the Module senses a fault in the Antilock Brake System. For Rear-Wheel Antilock Brake Diagnosis refer to Section 5E3 in the 1994 C/K Service Manual.

### COMPONENT LOCATION

#### Page — Figure

ABS Diode Module .....	Under LH side of I/P .....	Not Shown	
Brake Pressure Warning Switch ....	Below master cylinder, at combination valve .....	44B-5	3
Fuse Block .....	Under LH side of I/P .....	44B-6	4
Park Brake Warning Switch .....	At park brake, under LH end of I/P .....	44B-6	4
RWAL Module .....	LH rear engine compartment .....	44B-5	3
TCC/Stoplamp Switch .....	Top of brake pedal .....	44B-4	2

### CONNECTORS:

C100 .....	At bulkhead connector .....	44B-5	3
C200 .....	Under RH side of I/P, near blower motor .....	44B-7	5

### DIODES:

D200 .....	In diode module .....	44B-6	4
D201 .....	In diode module .....	44B-6	4

### GROMMETS:

P101 .....	RH lower cowl .....	44B-5	3
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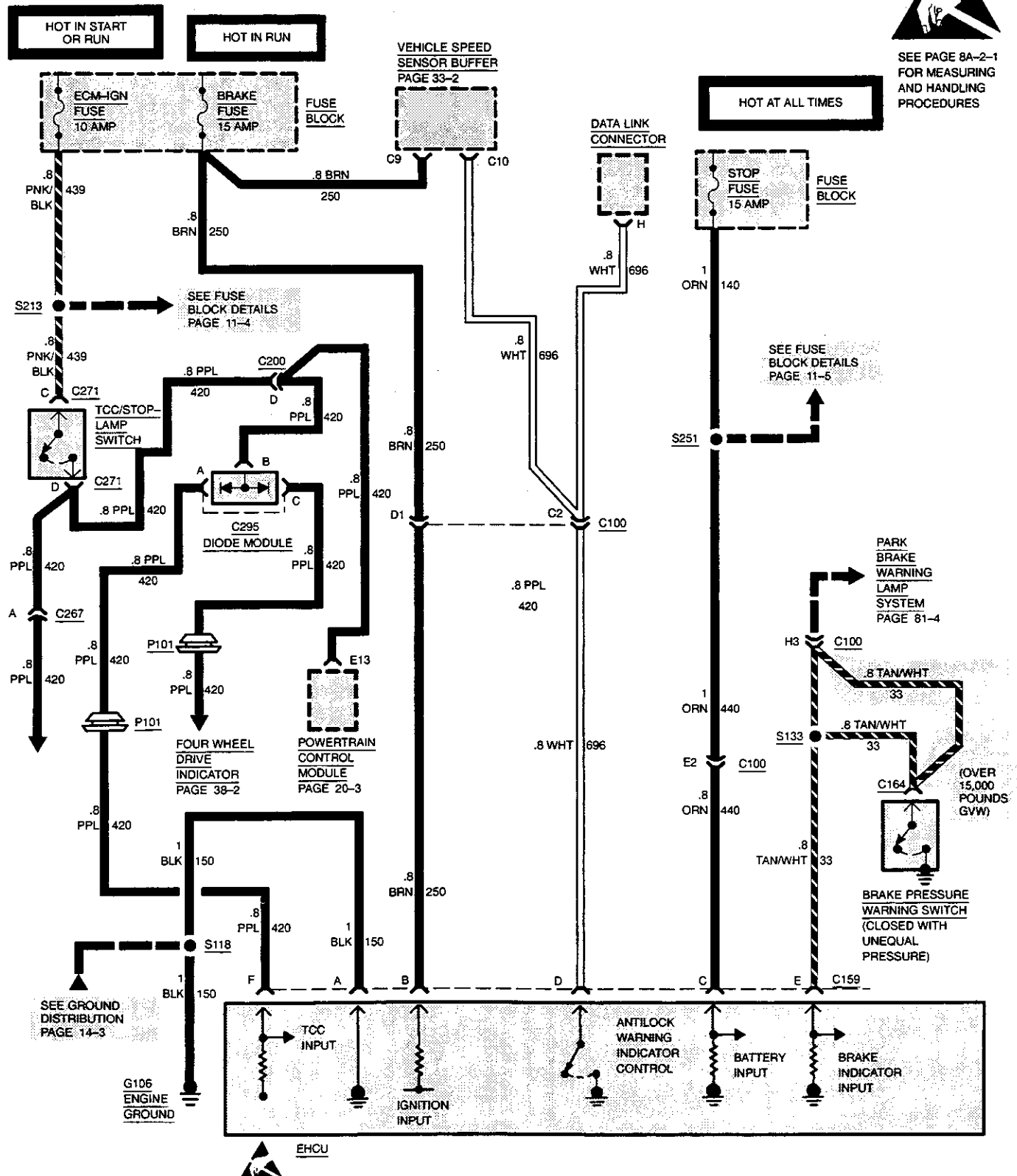
### GROUND:

G106 .....	Rear of RH cylinder head .....	44B-4	1
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### SPLICES:

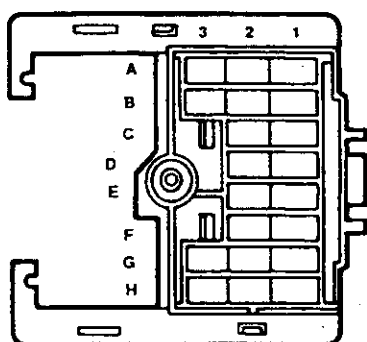
S118 .....	Engine harness, near cowl LH rear engine compartment ....	44B-4	1
S133 .....	LH rear engine compartment, near bulkhead connector ....	Not Shown	
S213 .....	Under LH side of I/P .....	44B-6	4
S251 .....	Under LH side of I/P .....	44B-6	4

# 8A-44B-2 REAR-WHEEL ANTILOCK BRAKE WARNING SYSTEM



## REAR-WHEEL ANTILOCK BRAKE WARNING SYSTEM 8A-44B-3

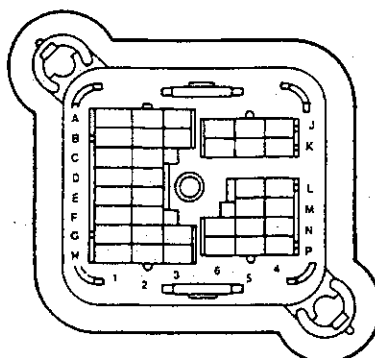
12020183



**GRAY**  
Metri-Pack

**C100**  
Bulkhead Connector – Eng

12020184



**GRAY**  
Metri-Pack

**C100**  
Bulkhead Connector – I/P

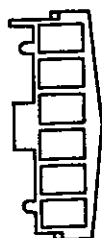
12004635



**CREAM**  
Molded on

**C164**  
Brake Pressure Warning Switch

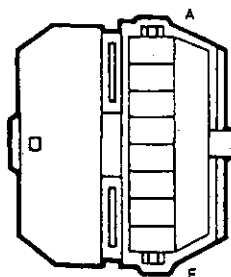
12040551



**BLACK**  
Metri-Pack 480

**C271**  
TCC/Brake Switch

12040549



**GRAY**

**C295**  
RWAL Diode Module

## 8A-44B-4 REAR-WHEEL ANTILOCK BRAKE WARNING SYSTEM

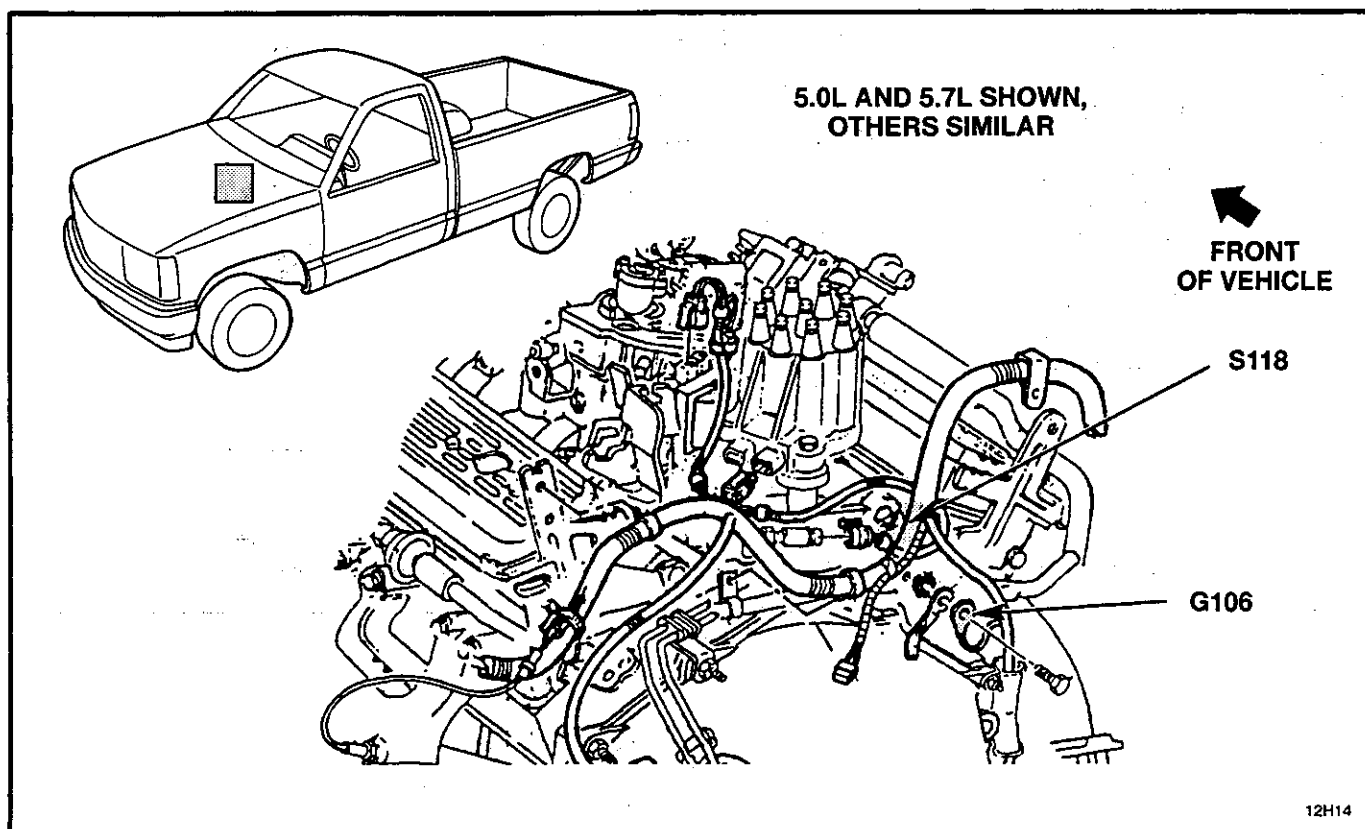


Figure 1 — LH Side of Engine, 5.0L and 5.7L — Gasoline

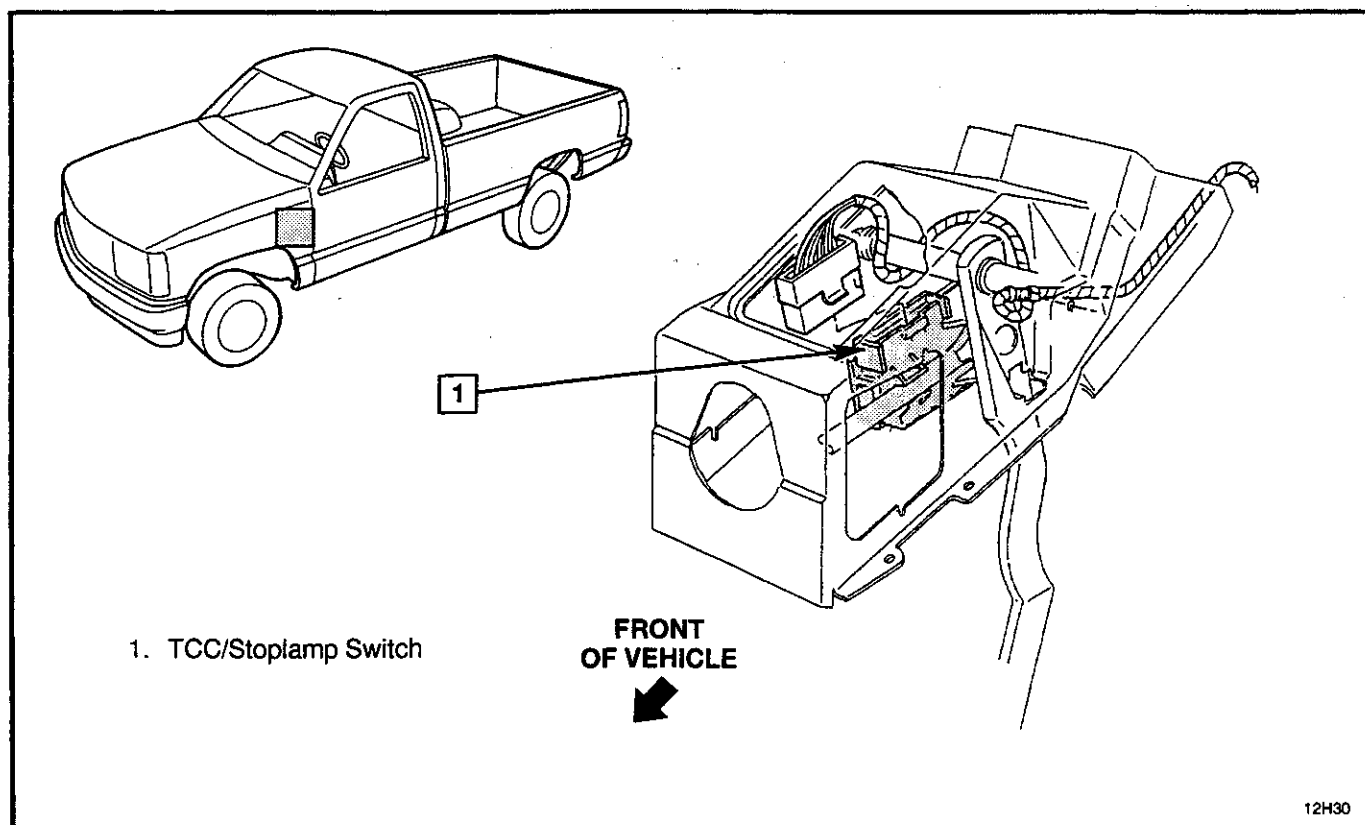


Figure 2 — TCC/Stoplamp Switch

## REAR-WHEEL ANTILOCK BRAKE WARNING SYSTEM 8A-44B-5

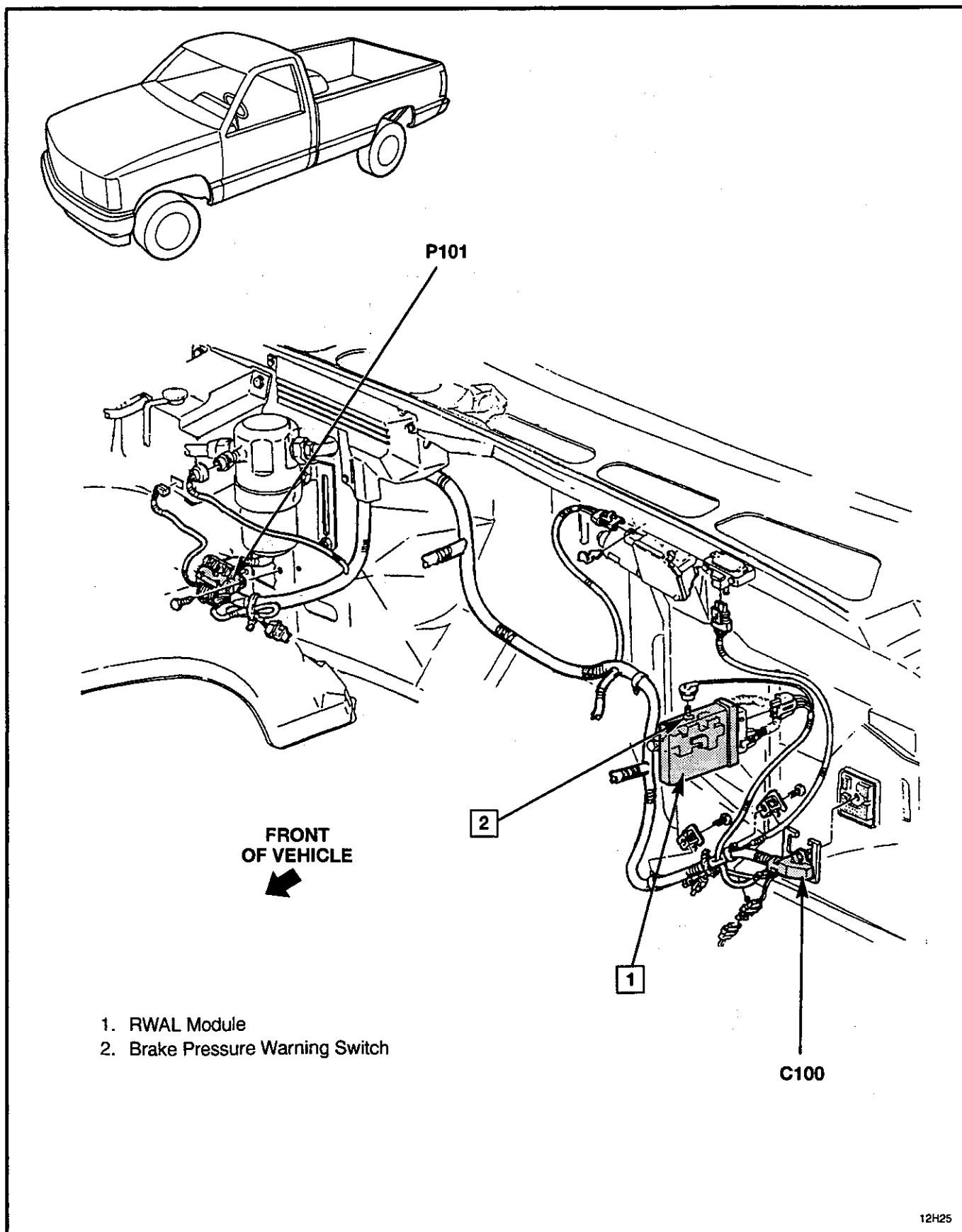
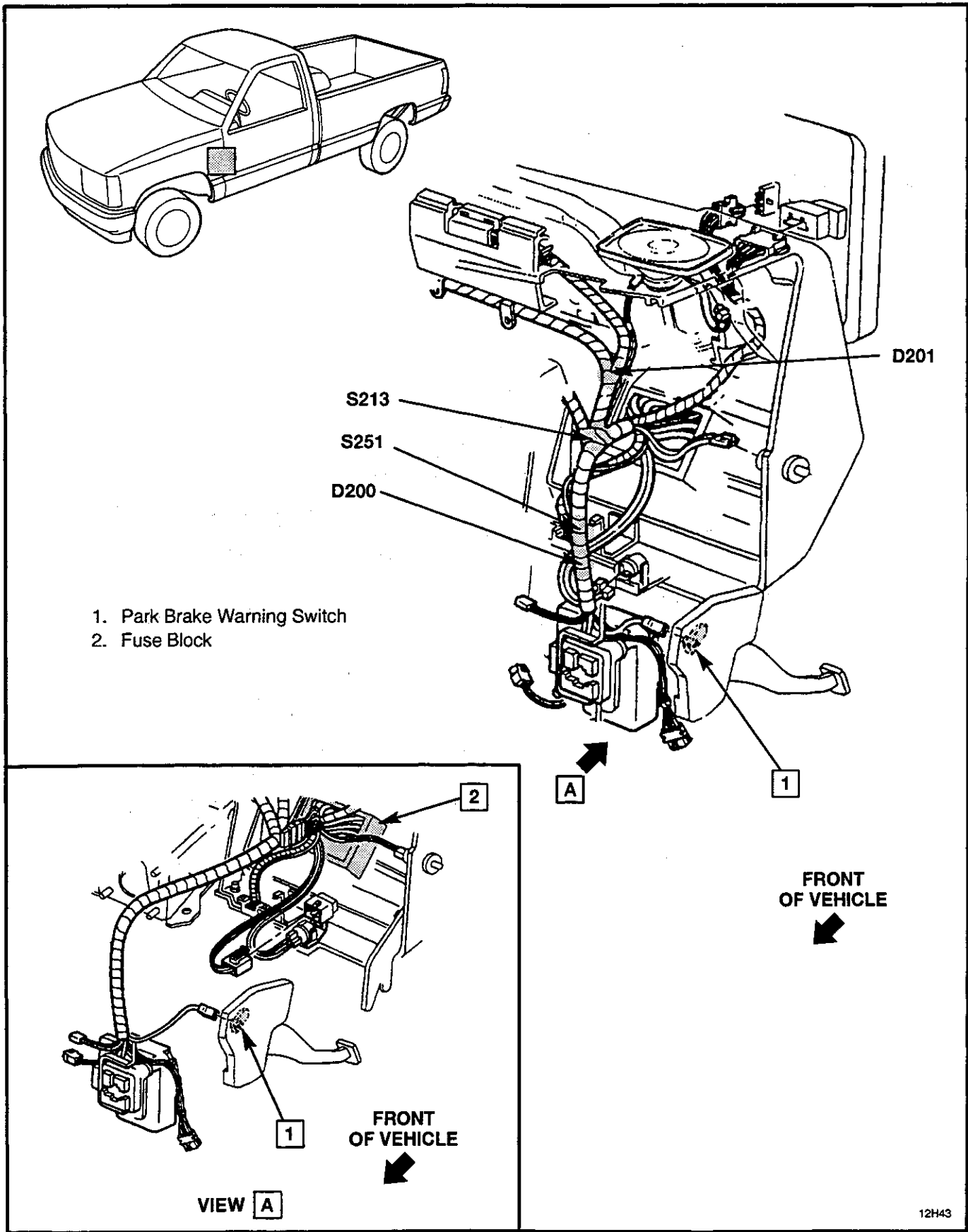


Figure 3 — Cowl Wiring

8A-44B-6 REAR-WHEEL ANTILOCK BRAKE WARNING SYSTEM



## REAR-WHEEL ANTILOCK BRAKE WARNING SYSTEM 8A-44B-7

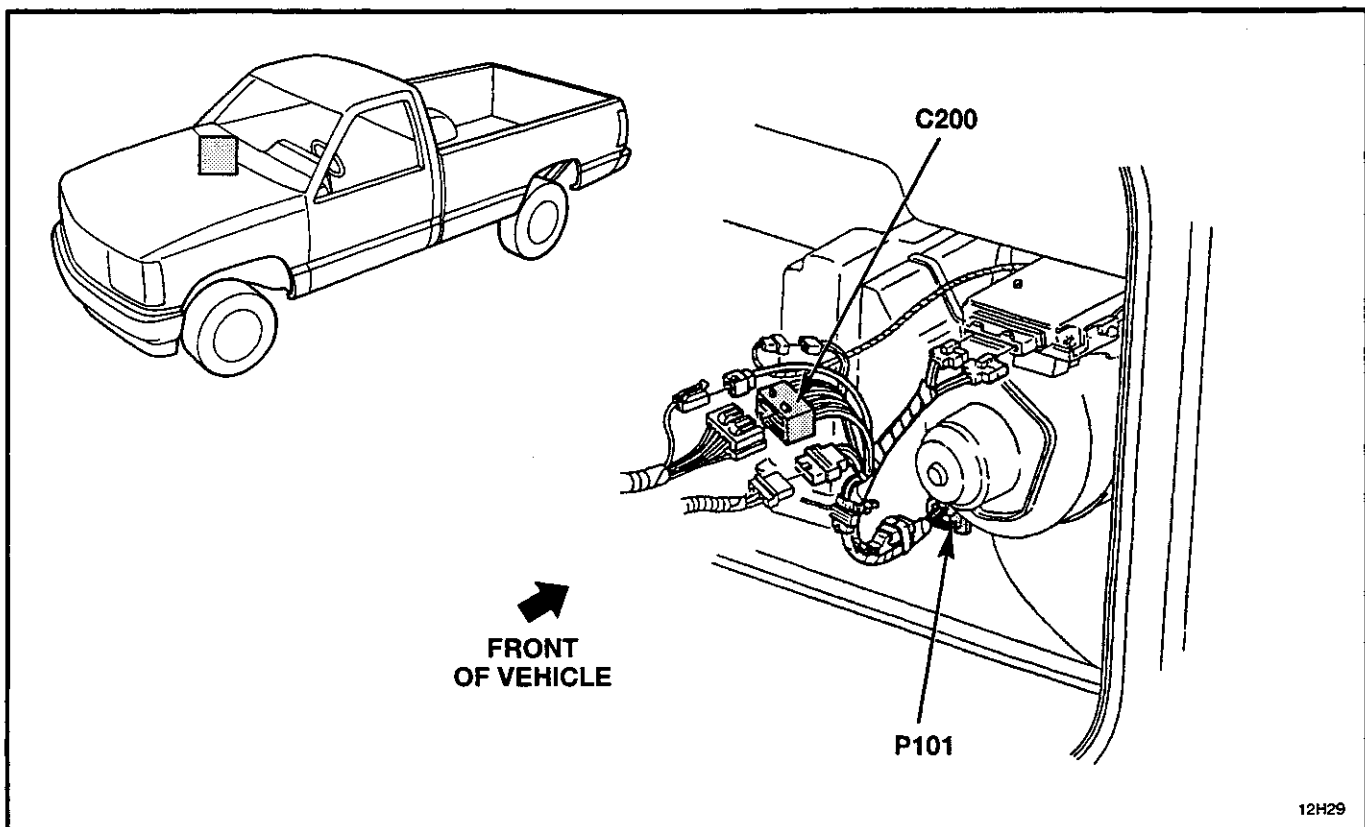


Figure 5 — Behind RH Side of I/P

## **8A-44B-8 REAR-WHEEL ANTILOCK BRAKE WARNING SYSTEM**

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**BLANK**



## CIRCUIT OPERATION

The Blower Motor delivers air to the interior of the vehicle. Its speed is controlled by the Blower Switch and the Blower Resistors. When the Ignition Switch is in RUN, battery voltage is supplied to the Blower Switch. With the Blower Switch in LO, voltage is supplied across both Blower Resistors and the Blower Motor. The Blower Motor

runs at its slowest speed. With the Blower Switch in MED, one of the Blower Resistors is bypassed and the Blower Motor runs faster. When the Blower Switch is set to HI, battery voltage is supplied directly to the Blower Motor and the Blower Motor runs at its fastest speed.

## COMPONENT LOCATION

### Page — Figure

Blower Motor .....	Under RH side of I/P .....	60A-7	3
Blower Resistor .....	Under I/P, on heater housing .....	60A-7	3
Blower Switch .....	At heater control .....	60A-7	3

## CONNECTORS:

C230 .....	Near heater-A/C control .....	60A-8	4
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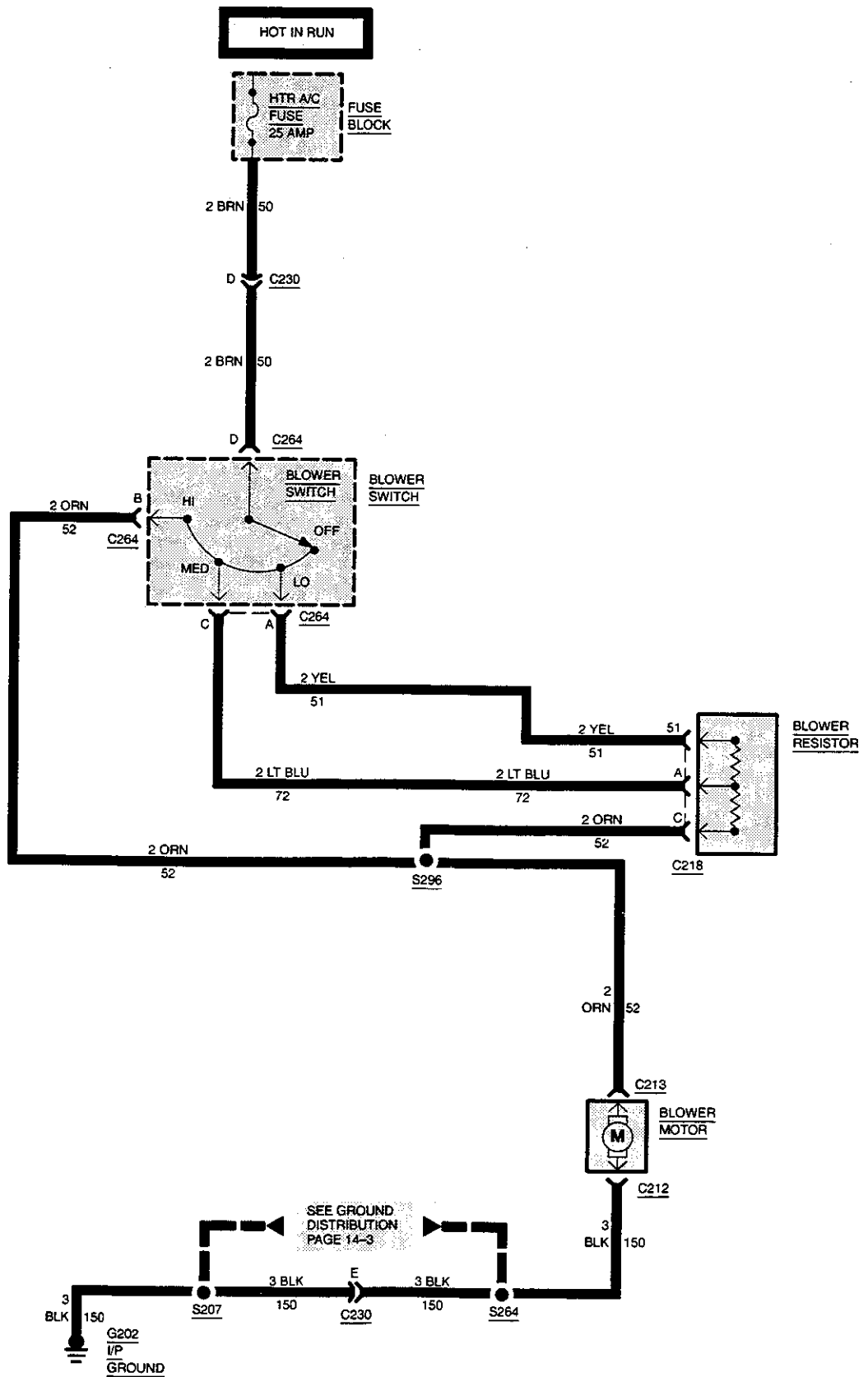
## GROUND:

G202 .....	At DLC connector .....	60A-6	1
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## SPLICES:

S264 .....	Heater harness, near I/P harness lead .....	Not Shown	
S296 .....	Heater harness, near resistor lead .....	60A-7	3
S207 .....	Under LH side of I/P .....	60A-6	2

# 8A-60A-2 HEATER



## DIAGNOSIS — HEATER

### PRELIMINARY CHECKS:

1. Check condition of HTR A/C Fuse. If fuse is blown, locate and repair source of overload. Replace fuse.
2. If fuse is not blown, proceed with the following diagnostic procedures.

### BLOWER MOTOR DOES NOT OPERATE AT ALL

TEST	RESULT	ACTION
1. Disconnect blower motor connector C213. Connect test lamp from ORN (52) wire at blower motor connector C213 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in ORN (52) wire between blower motor connector C213 and splice S296 or from splice S296 to resistor connector C218 or from splice S213 to blower switch connector C264. If wire is good, GO to step 3.
2. Connect test lamp from ORN (52) wire to BLK (150) wire at blower motor connectors C212 and C213.	Test lamp lights.	REPLACE blower motor.
	Test lamp does not light.	LOCATE and REPAIR open in ground BLK (150) wire between blower motor connector C212 and connector C230 or from C230 to I/P ground G202.
3. Connect test lamp from BRN (50) wire at blower switch connector C264 to ground.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	LOCATE and REPAIR open in BRN (50) wire between blower switch connector C264 and connector C230 or from C230 to fuse block.
4. Place blower switch in LO, MED, or HI. Connect test lamp from blower switch connector C264 at wire that applies to position of switch to ground. LO is YEL (51) wire, MED is LT BLU (72) wire, and HI is ORN (52) wire.	Test lamp does not light.	REPLACE blower switch.
	Test lamp lights.	LOCATE and REPAIR open in wires between blower switch connector C264 and resistor connector C218.

### BLOWER MOTOR DOES NOT OPERATE IN HI, OPERATES ONLY IN LO AND/OR MED

TEST	RESULT	ACTION
1. Place blower switch in HI and connect test lamp from ORN (52) wire at blower switch connector C264 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	REPLACE blower switch.
2. Connect test lamp from ORN (52) wire at resistor connector C218 to ground.	Test lamp does not light.	LOCATE and REPAIR open in ORN (52) wire between splice S296 and blower switch connector C264.

## 8A-60A-4 HEATER

### BLOWER MOTOR DOES NOT OPERATE IN LO AND/OR MED BUT ONLY IN HI

TEST	RESULT	ACTION
1. Place blower switch in position where blower motor does not work. Connect test lamp from either YEL (51) LO wire or LT BLU (72) MED wire (depending on switch position) at blower motor switch connector C264 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	REPLACE blower switch.
2. Connect test lamp from either YEL (51) LO wire or LT BLU (72) MED wire (depending on switch position) at resistor connector C218 to ground.	Test lamp lights.	GO to step 3.
	Test lamp does not light.	LOCATE and REPAIR open in wire(s) (51 or 72) from resistor connector C218 to blower switch connector C264.
3. Connect test lamp from ORN (52) wire at resistor connector C218 to ground.	Test lamp does not light.	REPLACE resistor.

## HEATER 8A-60A-5

12004267



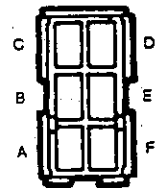
**BLACK**  
56 Series  
**C212**  
Blower Motor Ground

02965104



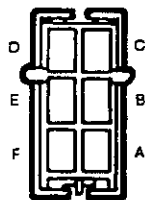
**NATURAL**  
56 Series  
**C218**  
Blower Resistor

12034481



**GRAY**  
Metri-Pack 280  
**C230**  
In-Line I/P to Heater Control

12034482



**GRAY**  
Metri-Pack 280  
**C230**  
In-Line Heater Control to I/P

## 8A-60A-6 HEATER

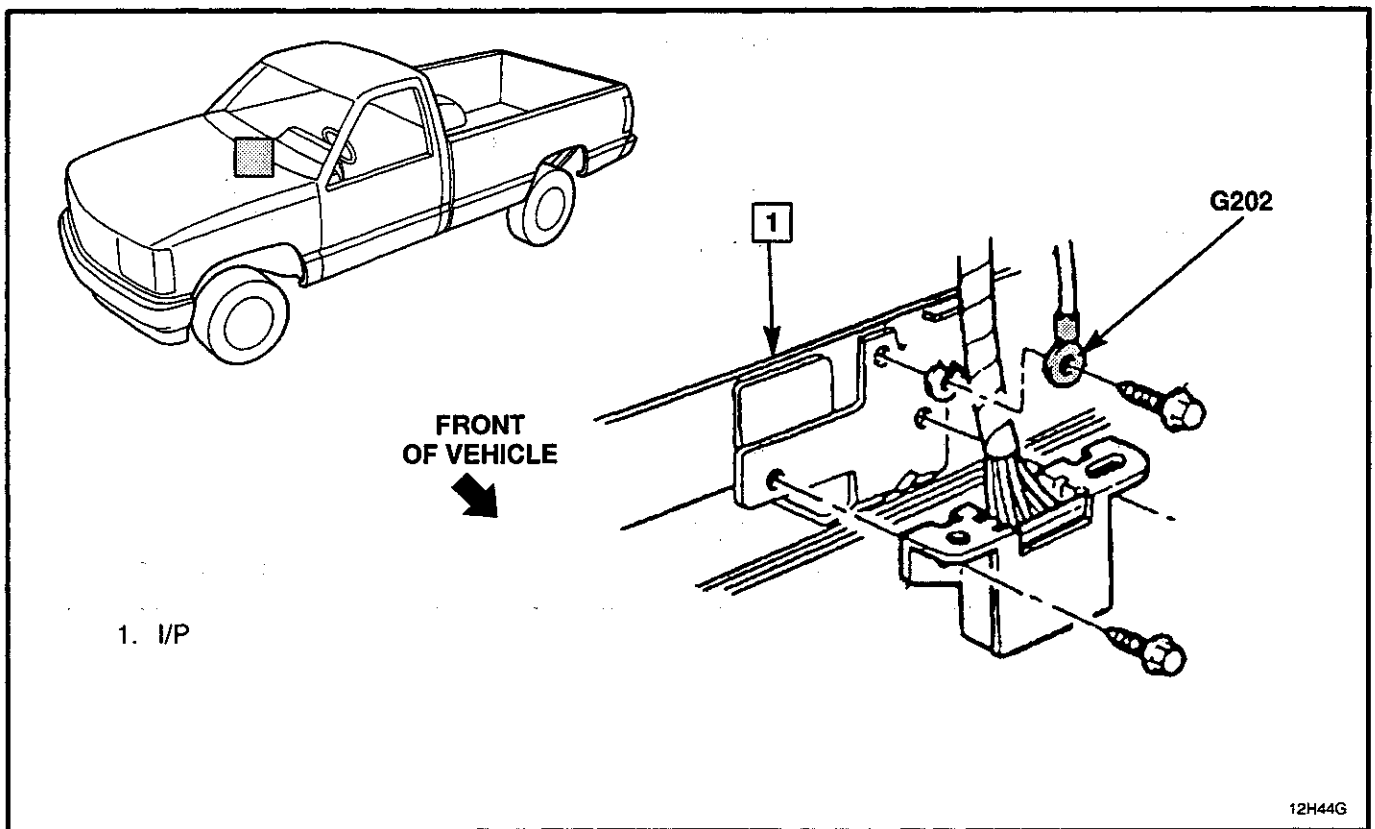


Figure 1 — I/P Ground

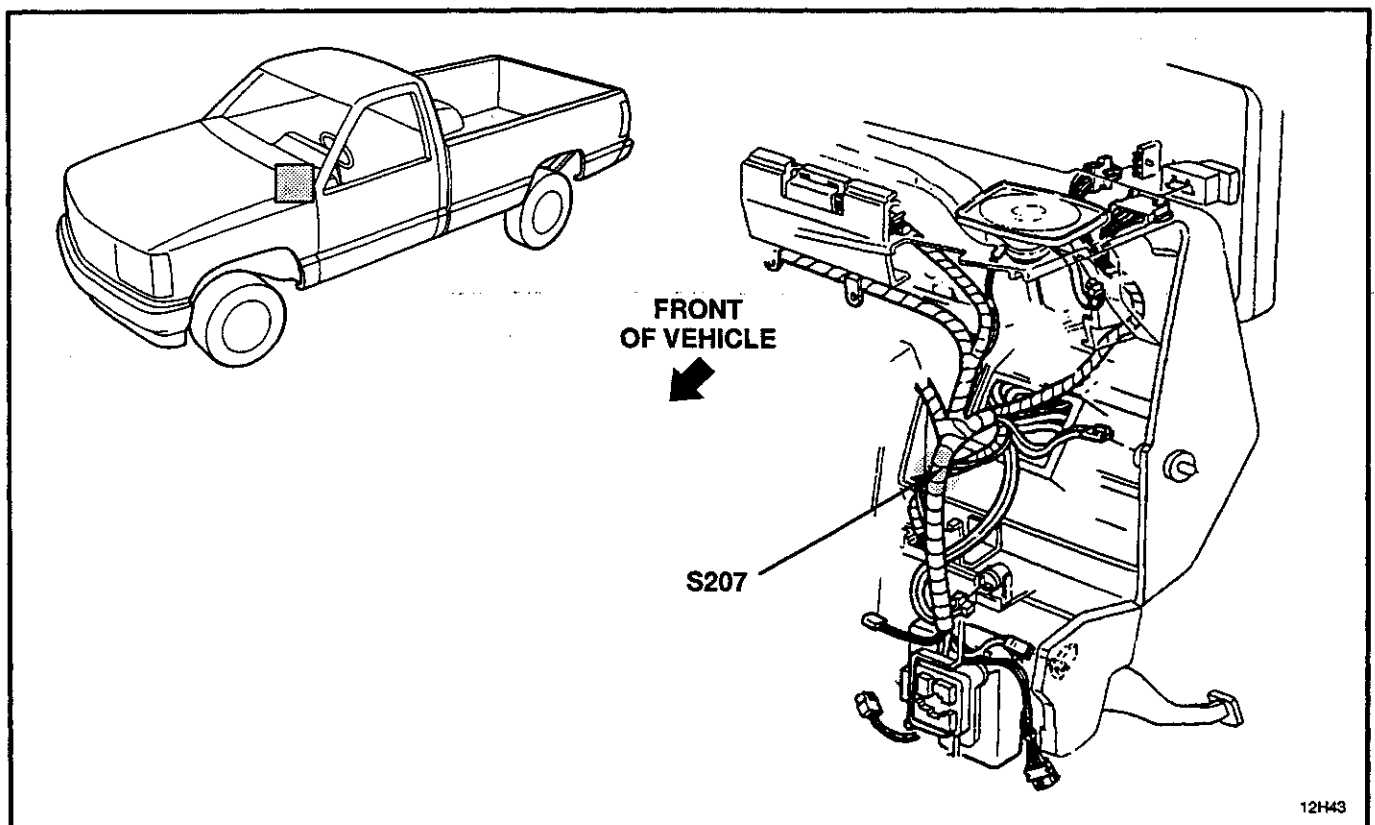


Figure 2 — LH Side of Instrument Panel

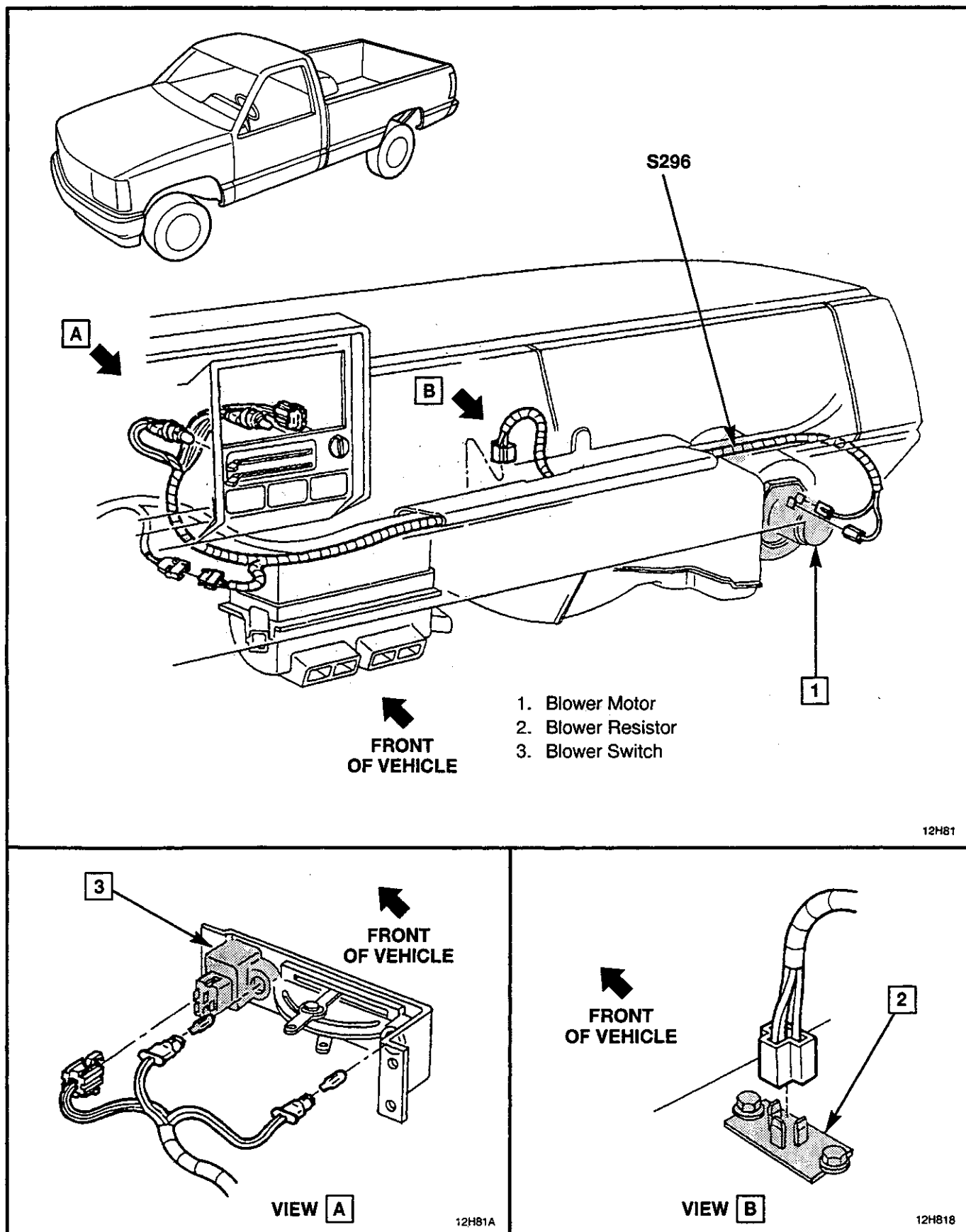


Figure 3 — Heater Wiring

## 8A-60A-8 HEATER

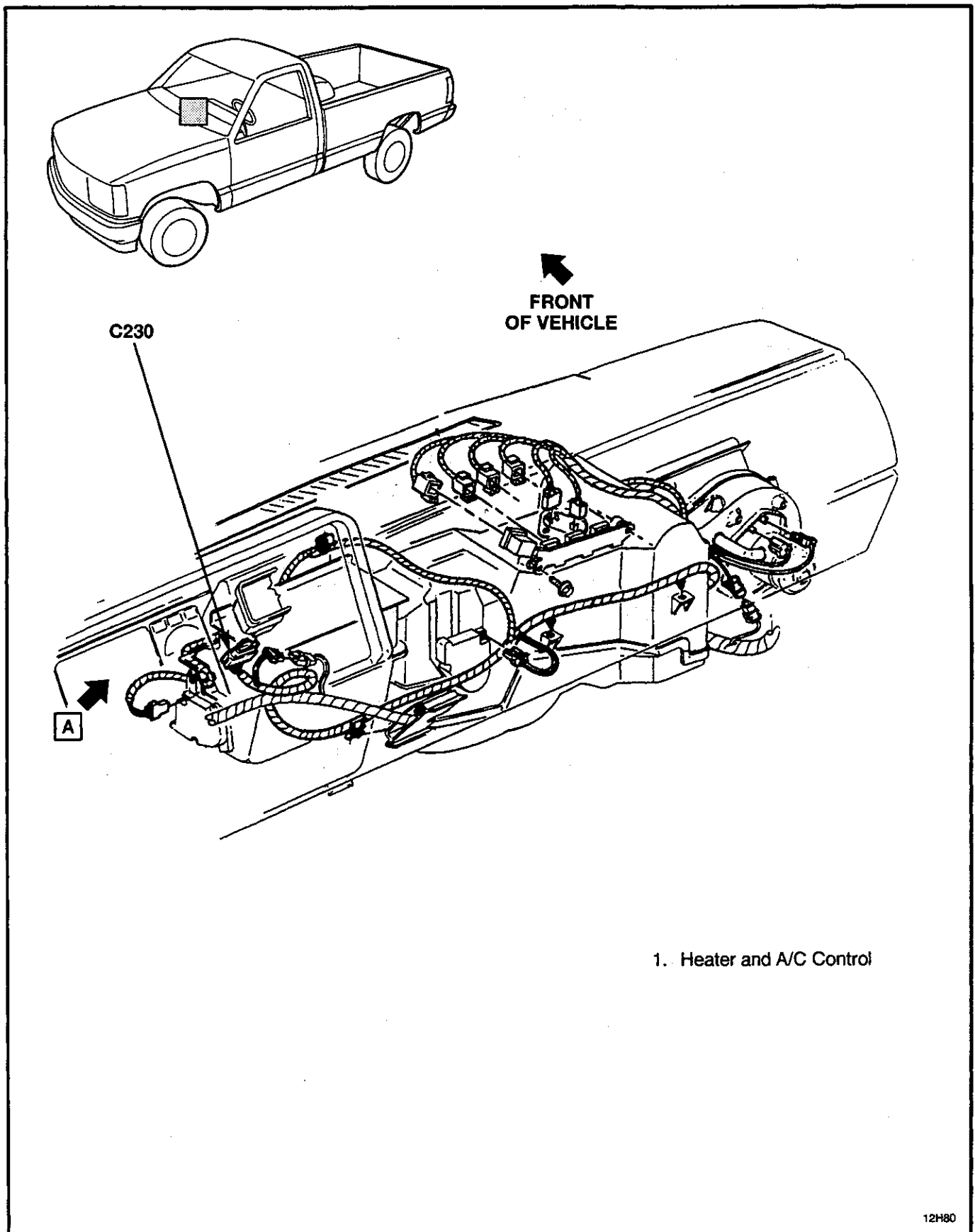


Figure 4 — Heater and A/C Harness Wiring



## CIRCUIT OPERATION

### REAR AUXILIARY HEATER

The Rear Auxiliary Heater Module operates independently from the vehicle front heater except that both systems receive their hot water supply from the engine cooling system.

Battery voltage for the rear heater module relays is supplied by the RED (2) and BRN (50) wires at the convenience center. The battery junction blower supplies battery voltage from the convenience center through the RED (2) wire. The RR HVAC Fuse supplies battery voltage to the convenience center through the BRN/WHT (650) wire.

A dash-mounted rear heater switch controls the temperature mode door relay through the DK GRN (949) wire. The temperature mode door relay operates the temperature mode door motor which regulates the air temperature. The dash switch also controls the three blower speeds.

Manually operated airflow direction vents are located at the air outlet openings.

### COMPONENT LOCATION

### Page — Figure

Battery Junction Block	RH rear engine compartment, at cowl	60B-10	1
Blower Motor, Rear	Lower LH side of I/P	60B-14	8
Blower Resistor	Under I/P, on heater housing	60B-13	6
Convenience Center	Under LH side of I/P	60B-11	3
Fuse Block	Under LH side of I/P	60B-12	5
Heater Control Switch, Rear	On I/P, RH side of cluster	Not Shown	
HI Blower Relay, Rear	On auxiliary heater and A/C module	60B-14	8
Low Blower Relay	On auxiliary heater and A/C module	60B-14	8
Medium Blower Relay	On auxiliary heater and A/C module	60B-14	8
Temperature Mode Door Motor, Rear	On rear heater housing	60B-14	8
Temperature Mode Door Relay, Rear	On rear heater housing	Not Shown	

### CONNECTORS:

C206	At steering column, under cowl	60B-14	7
C228	At convenience center	60B-11	3
C231	At convenience center	60B-11	3
C263	Under LH end of I/P	60B-11	3
C264	At heater switch	60B-11	4
C475	At RH D-pillar	60B-14	8
C476	At RH D-pillar	60B-14	8

### GROMMETS:

P101	RH lower cowl (engine compartment)	Not Shown
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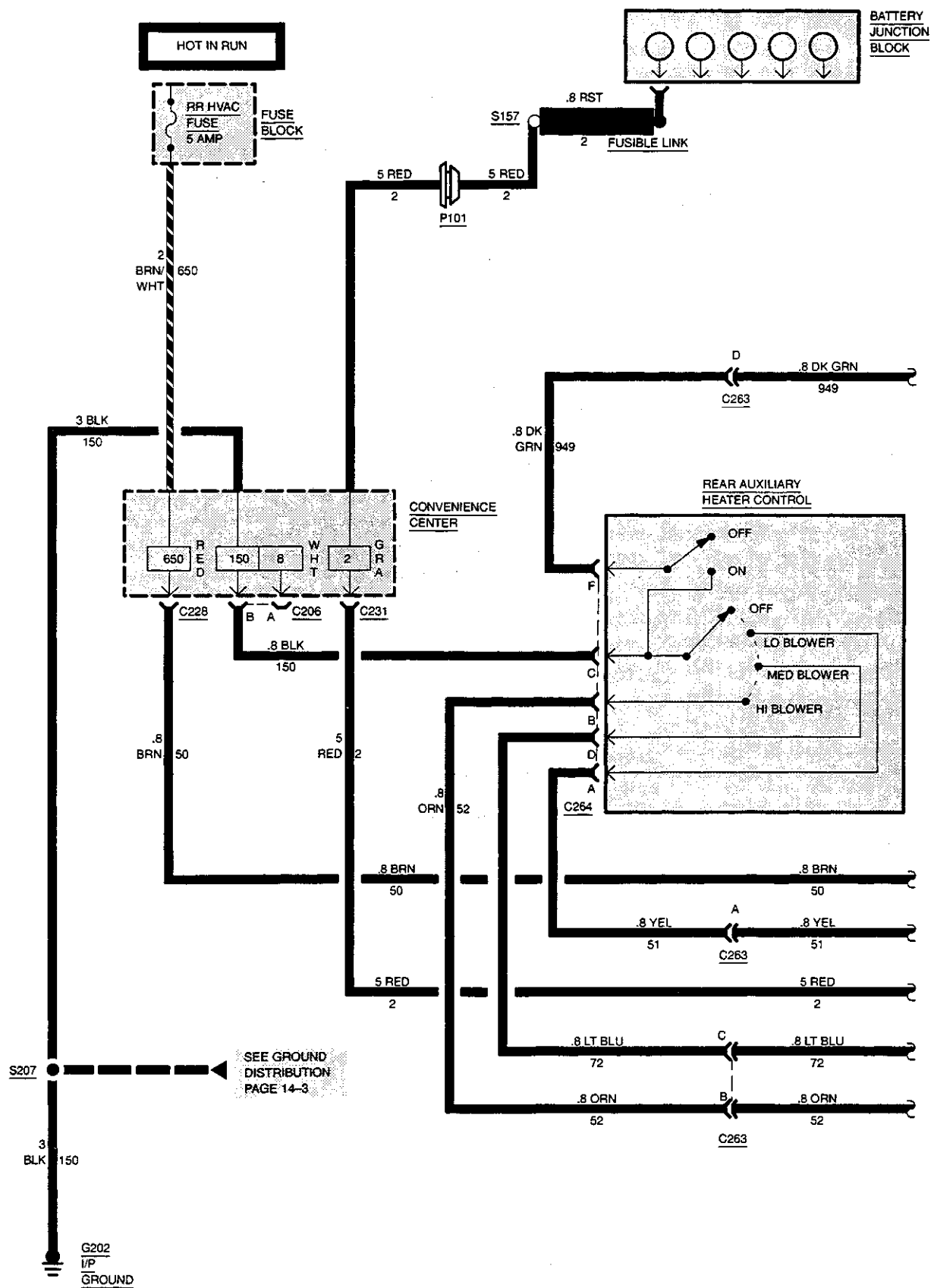
### GROUND:

G202	At DLC connector	60B-10	2
G400	At RH D-pillar	Not Shown	

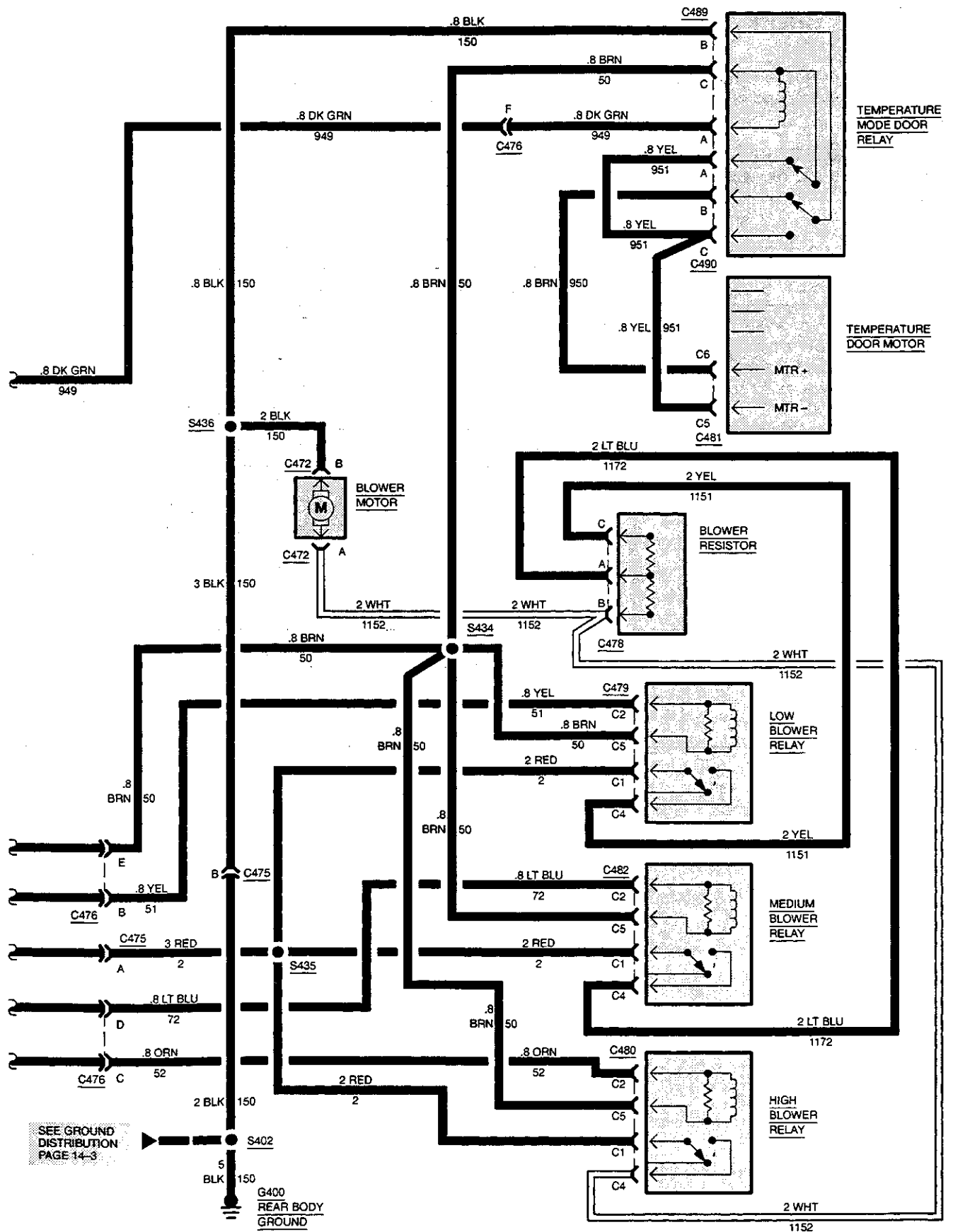
### SPLICES:

S157	Center of cowl, below battery junction block	60B-10	1
S207	Under LH side of I/P	60B-12	5
S402	Above rear liftgate glass opening	60B-15	9
S434	Auxiliary heater - A/C harness, near relay leads	60B-14	8
S435	Auxiliary heater - A/C harness, near relay leads	60B-14	8
S436	Auxiliary heater - A/C harness, near blower resistor lead	Not Shown	

# 8A-60B-2 REAR AUXILIARY HEATER



# REAR AUXILIARY HEATER 8A-60B-3



## 8A-60B-4 REAR AUXILIARY HEATER

### DIAGNOSIS — REAR AUXILIARY HEATER

#### PRELIMINARY CHECKS:

1. Check to see that RR HVAC Fuse is not blown. If fuse is blown locate and repair source of overload, replace fuse.
2. Check to see that RST (2) fuse wire is not melted, if melted located and repair source of overload, repair fuse wire.
3. If fuse is not blown or fuse wire is not melted, proceed with the following diagnostics.

#### REAR BLOWER MOTOR DOES NOT OPERATE IN HI BUT OPERATES IN LO OR MED

TEST	RESULT	ACTION
1. Place ignition switch in RUN and rear heater blower switch to HI. Connect test lamp from BRN (50) wire at HI blower relay connector C480 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in BRN (50) wire between HI blower relay connector C480 and splice S434.
2. Connect test lamp from ORN (52) wire to BRN (50) wire at HI blower relay connector C480.	Test lamp lights.	GO to step 3.
	Test lamp does not light.	LOCATE and REPAIR open in ORN (52) wire between HI blower relay connector C480 and connector C475, from C475 to connector C263 or from C263 to rear locator switch C264. If wire is good, REPLACE rear heater switch.
3. Connect test lamp from RED (2) wire at HI blower relay connector C480 to ground.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	LOCATE and REPAIR open in RED (2) wire between HI relay connector C480 and splice S435.
4. Connect test lamp from WHT (1152) wire at HI blower relay connector C480 to ground.	Test lamp lights.	LOCATE and REPAIR open in WHT (1152) wire between HI blower relay connector C480 and blower resistor connector C478.
	Test lamp does not light.	REPLACE HI blower relay.

## REAR AUXILIARY HEATER 8A-60B-5

### REAR BLOWER DOES NOT OPERATE IN ANY SPEED

TEST	RESULT	ACTION
1. Place ignition switch in RUN and heater blower switch in HI. Connect test lamp from WHT (1152) wire at blower motor connector C477 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in WHT (1152) wire between blower motor connector C477 and resistor block connector C478 or from resistor block connector C478 to HI blower relay connector C480. If wire is good, GO to step 3.
2. Connect test lamp from WHT (1152) wire to BLK (150) wire at blower motor connector C477.	Test lamp lights.	REPLACE blower motor.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire between blower motor connector C477 and splice S436 or from splice S436 to ground G400.
3. Connect test lamp from BRN (50) wire at blower relay connector C480 to ground.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	LOCATE and REPAIR open in BRN (50) wire between relay connector C480 and splice S434, from splice S434 to convenience center connector C228 or from convenience center to fuse block.
4. Connect test lamp from ORN (52) wire to BRN (50) wire at HI blower relay connector C480.	Test lamp lights.	GO to step 6.
	Test lamp does not light.	LOCATE and REPAIR open in ORN (52) wire between HI blower relay connector C480 and rear heater switch connector C264. If wire is good, GO to step 5.
5. Connect self-powered test lamp to BLK (150) wire from rear blower switch connector C264 to ground.	Test lamp lights.	REPLACE rear heater switch.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire between rear heater switch connector C264 to convenience center connector C206 or from convenience center to ground G202.
6. Connect test lamp from RED (2) wire at blower relay connector C480 to ground.	Test lamp lights.	REPLACE blower relay.
	Test lamp does not light.	LOCATE and REPAIR open in RED (2) wire between relay connector C480 and splice S435 from splice S435 to convenience center connector C231 or from convenience center to battery junction block.

## 8A-60B-6 REAR AUXILIARY HEATER

### REAR BLOWER OPERATES IN HI BUT DOES NOT OPERATE IN LOW OR MED

TEST	RESULT	ACTION
1. Place ignition switch in RUN and heater switch to LO or MED position. Connect self-powered test lamp from YEL (51) LO speed or LT BLU (72) MED speed wire at rear heater switch connector C264 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	REPLACE rear heater switch.
2. Connect test lamp from BRN (50) wire at LO blower relay connector C479 or MEDIUM blower relay connector C482 to ground.	Test lamp lights.	GO to step 3.
	Test lamp does not light.	LOCATE and REPAIR open in BRN (50) wire between LO blower relay connector C479 or MED blower relay connector C482 and splice S434.
3. Connect test lamp from BRN (50) wire to YEL (51) LO blower or LT BLU (72) MED blower at blower relay connector(s) C479 or C482. Put blower switch in a position that blower will not operate.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	LOCATE and REPAIR open in YEL (51) or LT BLU (72) wire(s) between blower relay connector(s) C479 or C482 and connector C475, from C475 to connector C263 or from C263 to rear heater switch connector C264.
4. Connect test lamp from RED (2) wire at LO blower relay connector C479 or MEDIUM blower relay connector C482 to ground.	Test lamp lights.	GO to step 5.
	Test lamp does not light.	LOCATE and REPAIR open in RED (2) wire(s) between blower relay connectors C479 (LO) or C482 (MED) and splice S435.
5. Place blower switch in a position that blower will not operate. Connect test lamp from YEL (151) LO or LT BLU (1172) (MED) wire(s) at blower relay connector C479 or C482 to ground.	Test lamp lights.	GO to step 6.
	Test lamp does not light.	REPLACE blower relay.
6. Connect test lamp from YEL (1151) LO blower or LT BLU (1172) MED blower wire(s) at blower resistor connector C478 to ground.	Test lamp lights.	REPLACE blower resistor.
	Test lamp does not light.	LOCATE and REPAIR open in YEL (1151) LO blower or LT BLU (1172) MED blower wire(s) between resistor block connector C478 and blower relay connectors C479 LO or C482 MED.

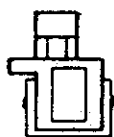
## REAR AUXILIARY HEATER 8A-60B-7

### REAR TEMPERATURE DOOR DOES NOT OPERATE

TEST	RESULT	ACTION
1. Place ignition switch in RUN, heater switch to ON. Connect test lamp from BRN (50) wire at temperature door relay connector C489 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in BRN (50) wire between temperature door relay connector C489 and splice S434, from splice S434 to convenience center connector C228 or from convenience center to fuse block.
2. Connect self-powered test lamp from BLK (150) wire at rear heater switch connector C264 to ground.	Test lamp lights.	GO to step 3.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire between rear locator switch connector C264 and convenience center connector C206, from convenience center to splice S207 or from splice S207 to ground G202.
3. Connect test lamp from BRN (50) wire to DK GRN (949) wire at temperature door relay connector C489.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	LOCATE and REPAIR open in DK GRN (949) wire between temperature door relay connector C489 and rear heater switch connector C264. If wire is good, REPLACE rear heater control switch.
4. Connect test lamp from BRN (50) wire to BLK (150) wire at temperature door relay connector C489.	Test lamp lights.	GO to step 5.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire between temperature door relay connector C489 and splice S436 or from splice S436 to ground G400.
5. Connect test lamp from BRN (950) wire at temperature door relay connector C490 to ground.	Test lamp lights.	GO to step 6.
	Test lamp does not light.	REPLACE relay.
6. Connect test lamp from BRN (950) wire at temperature door motor connector C481 to ground.	Test lamp lights.	GO to step 7.
	Test lamp does not light.	LOCATE and REPAIR open in BRN (950) wire between temperature door motor connector C481 and temperature door motor relay connector C480.
7. Connect test lamp from BRN (950) wire to YEL (951) wire at temperature door motor connector C418.	Test lamp lights.	REPLACE temperature door motor.
	Test lamp does not light.	LOCATE and REPAIR open in YEL (951) wire between temperature door motor connector C418 and temperature door relay connector C490 cavity C or from temperature door relay connector C490 cavity C to cavity A.

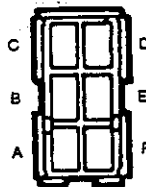
## 8A-60B-8 REAR AUXILIARY HEATER

12089856



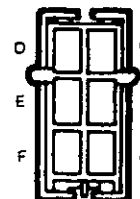
**C231**  
Rear Auxiliary Heater Battery Tap  
at Convenience Center

12015345



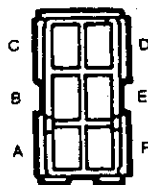
**BLACK**  
Metri-Pack 280  
**C264**  
Rear Auxiliary Heater Control

12015344



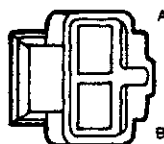
**BLACK**  
Metri-Pack 280  
**C263**  
In-Line Rear Auxiliary Heater  
Control to Extension Harness

12015345



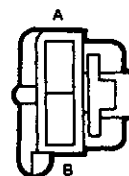
**BLACK**  
Metri-Pack 280  
**C263**  
In-Line Extension Harness to  
Rear Auxiliary Heater Control

12064750



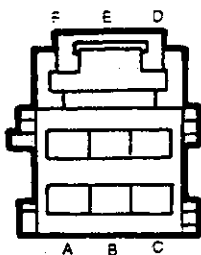
**BLACK**  
Metri-Pack 480  
**C475**  
In-Line Rear A/C Heater Control  
Extension Harness to Rear  
Module

12064749



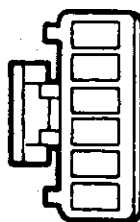
**BLACK**  
Metri-Pack 480  
**C475**  
In-Line Rear Module to Rear A/C  
Heater Control Extension  
Harness

12064762



**GRAY**  
Metri-Pack 150  
**C476**  
In-Line Rear Module to Rear A/C  
Heater Control Extension  
Harness

12040953



**BLACK**  
Micro-Pack  
**C481**  
Temp Door Motor

02965104

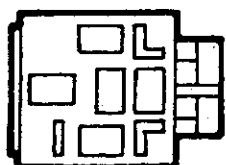


**NATURAL**  
56 Series  
**C478**  
Blower Resistor



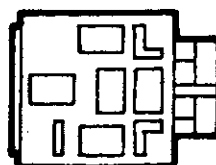
## REAR AUXILIARY HEATER 8A-60B-9

12034003



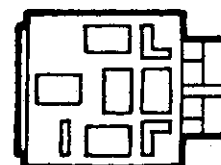
**BLACK**  
Metri-Pack 630  
**C479**  
Blower Relay

12034003



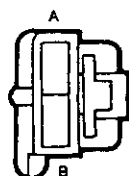
**BLACK**  
Metri-Pack 630  
**C480**  
Blower Relay

12034003



**BLACK**  
Metri-Pack 630  
**C482**  
Blower Relay

12064749



**BLACK**  
Metri-Pack 480  
**C472**  
Blower Motor

## 8A-60B-10 REAR AUXILIARY HEATER

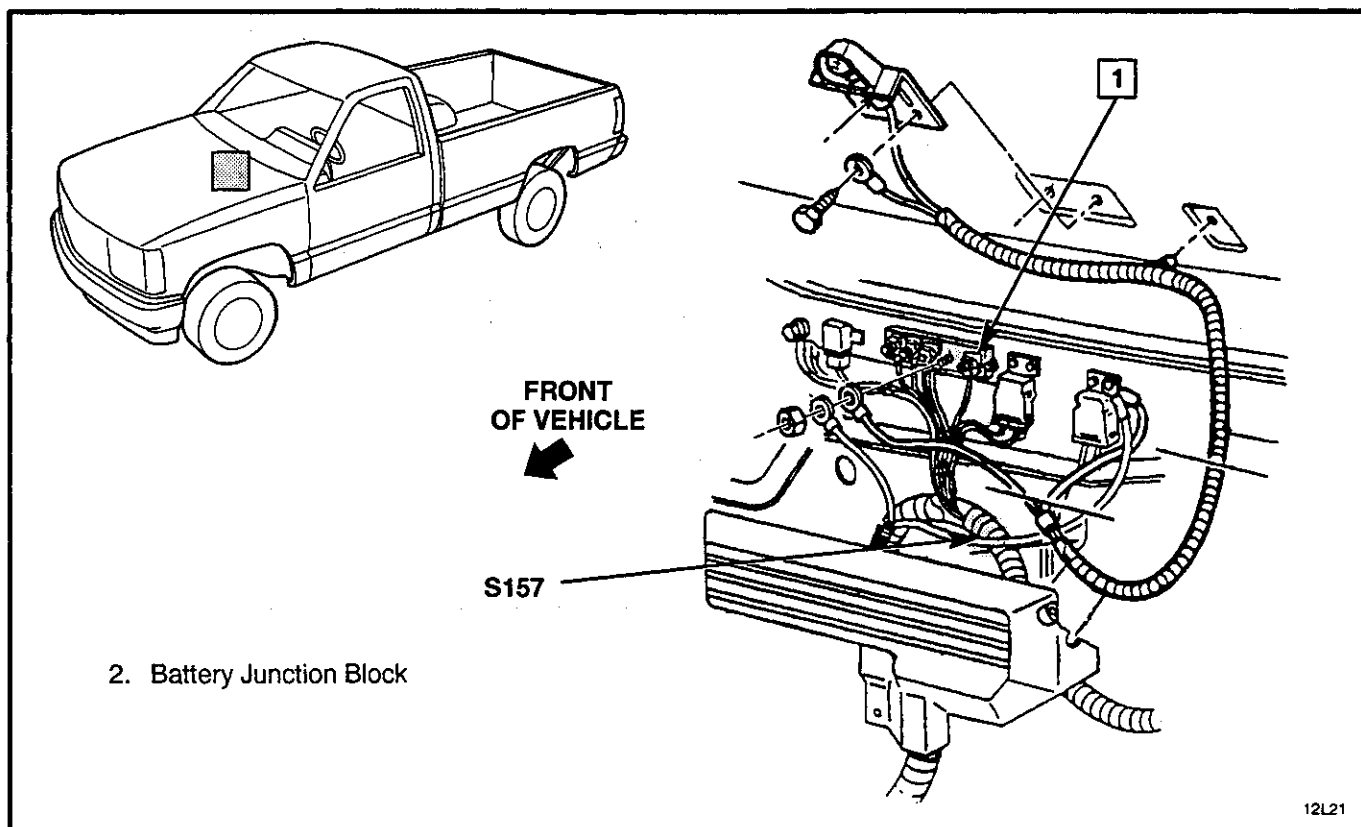


Figure 1 — Battery Junction Block

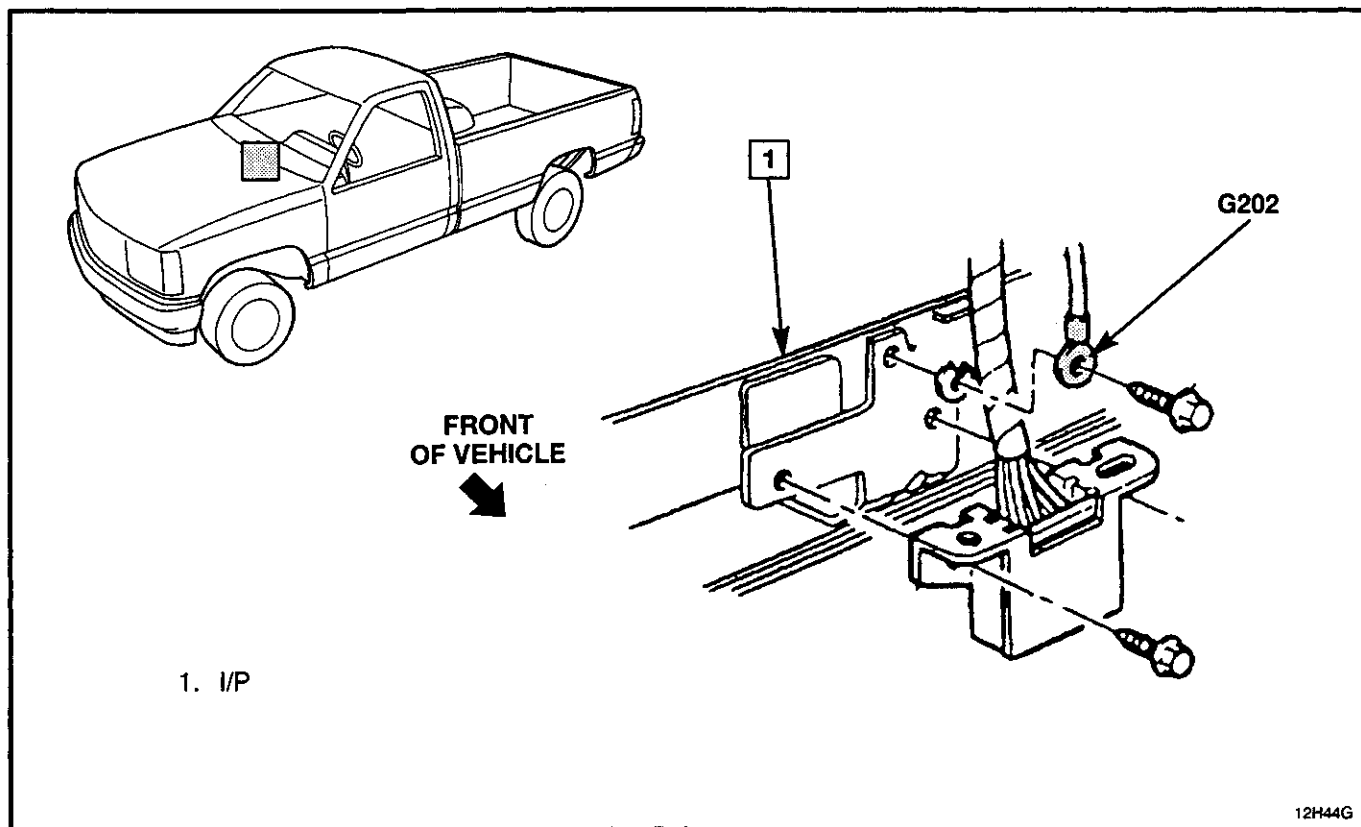


Figure 2 — I/P Ground Wiring

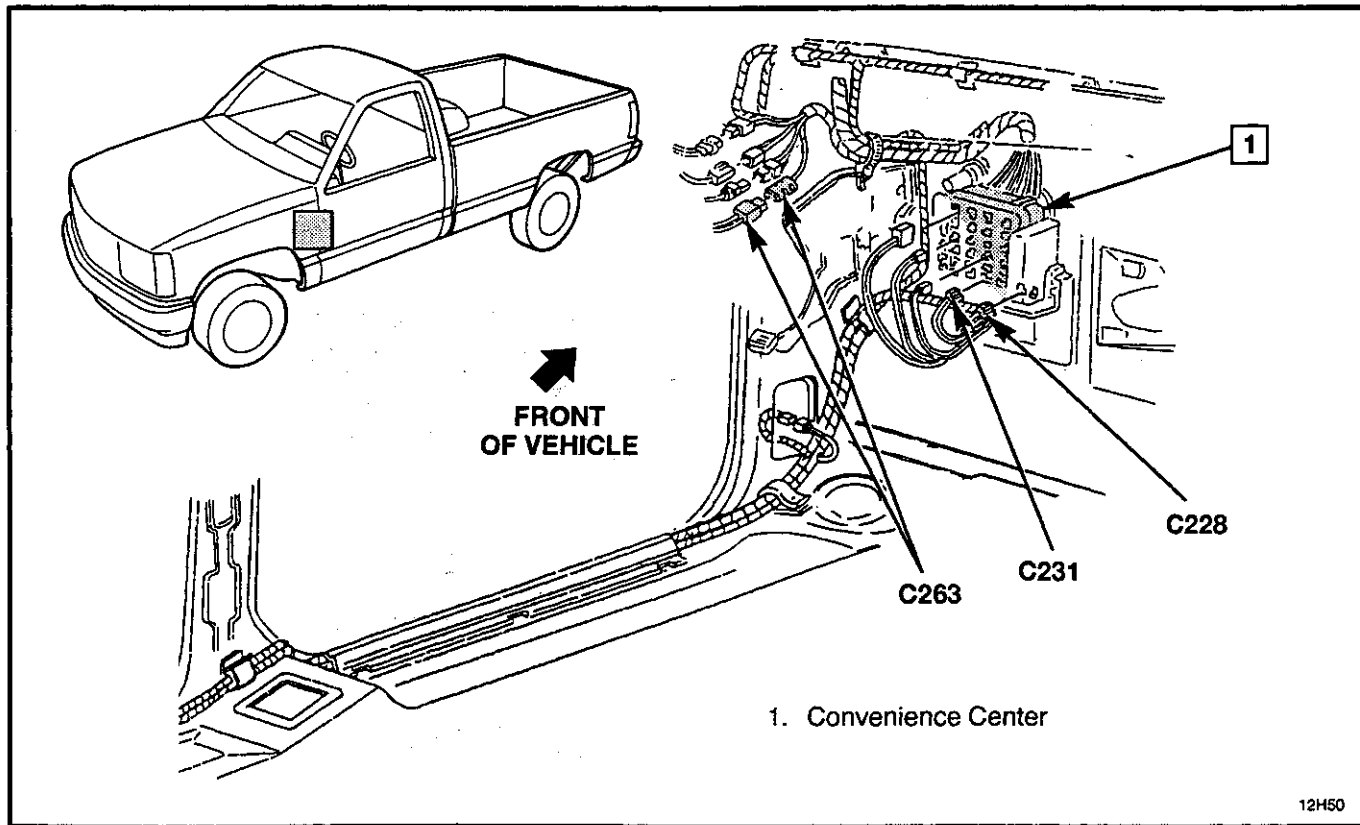


Figure 3 — Body Wiring Harness, Front

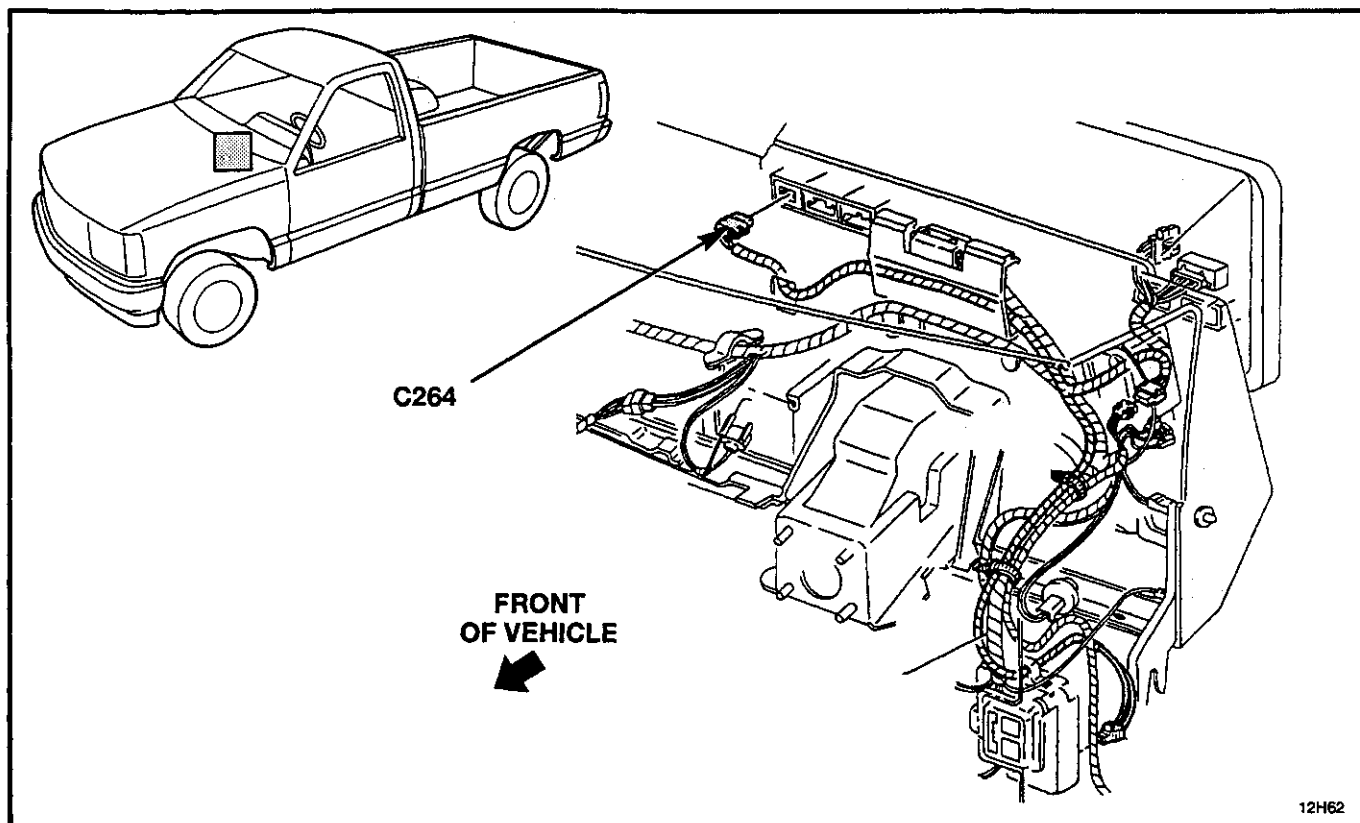


Figure 4 — Auxiliary Heater Front Wiring

**8A-60B-12 REAR AUXILIARY HEATER**

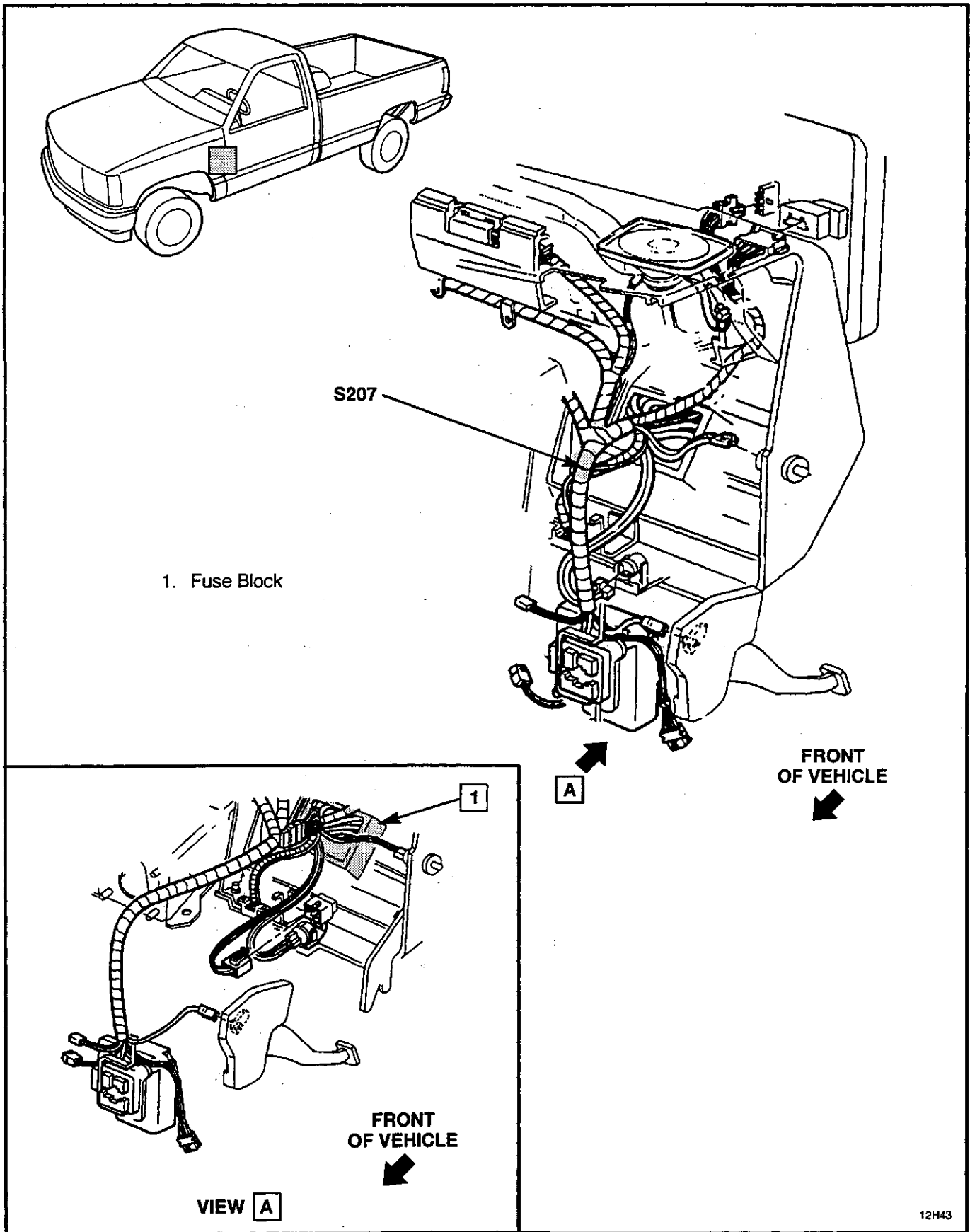


Figure 5 — LH Side of Instrument Panel

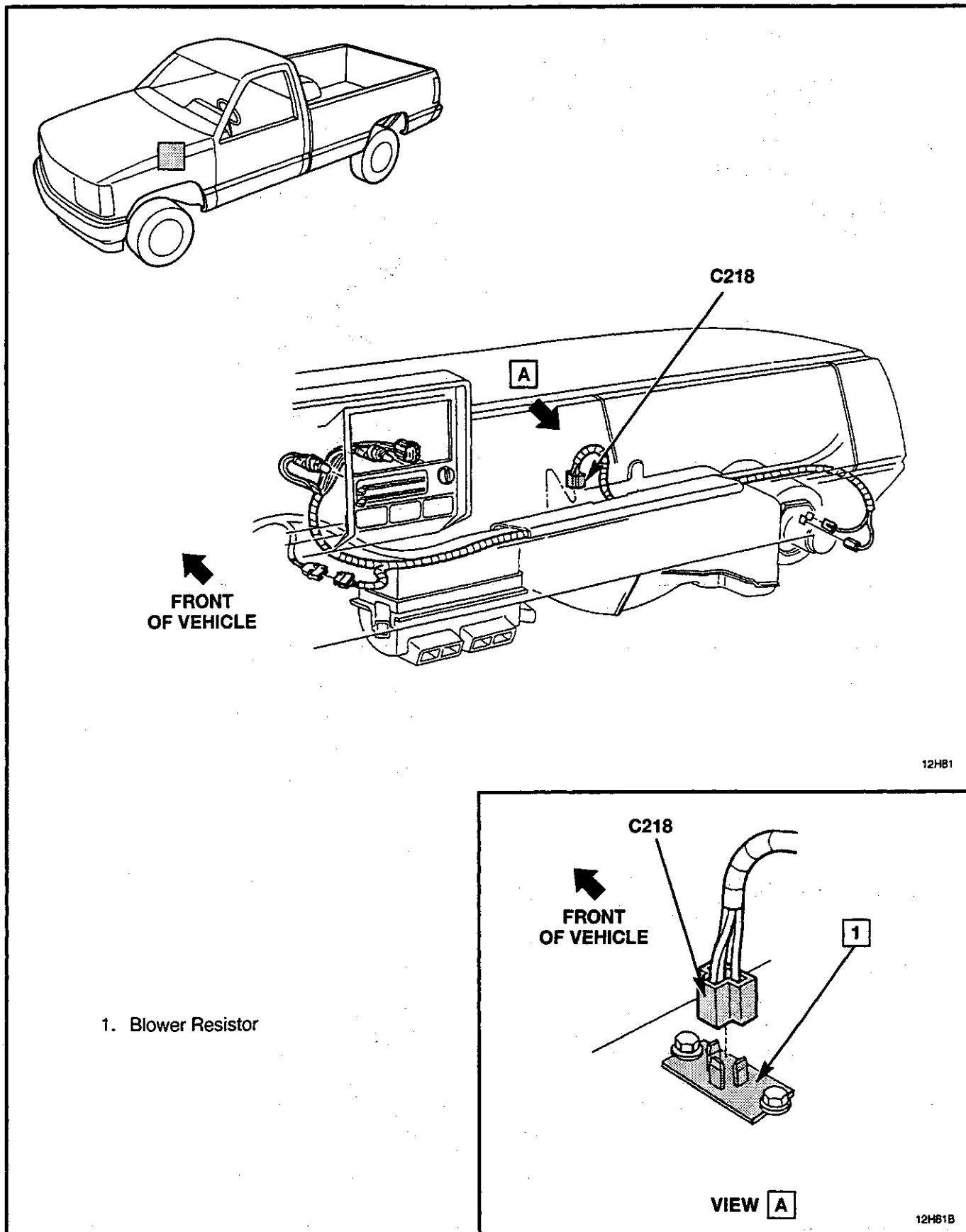


Figure 6 — Heater A/C Wiring

## 8A-60B-14 REAR AUXILIARY HEATER

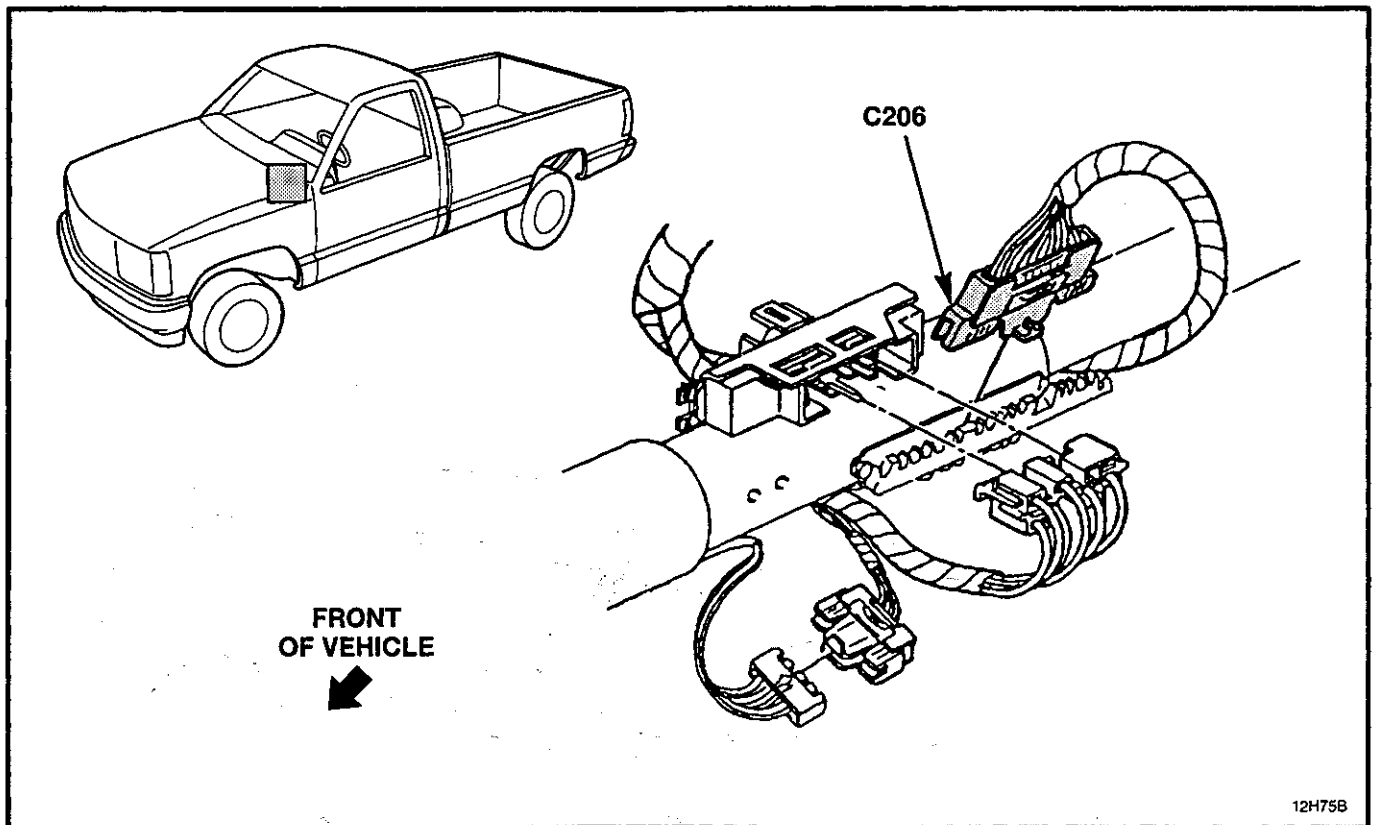


Figure 7 — Ignition Switch Wiring

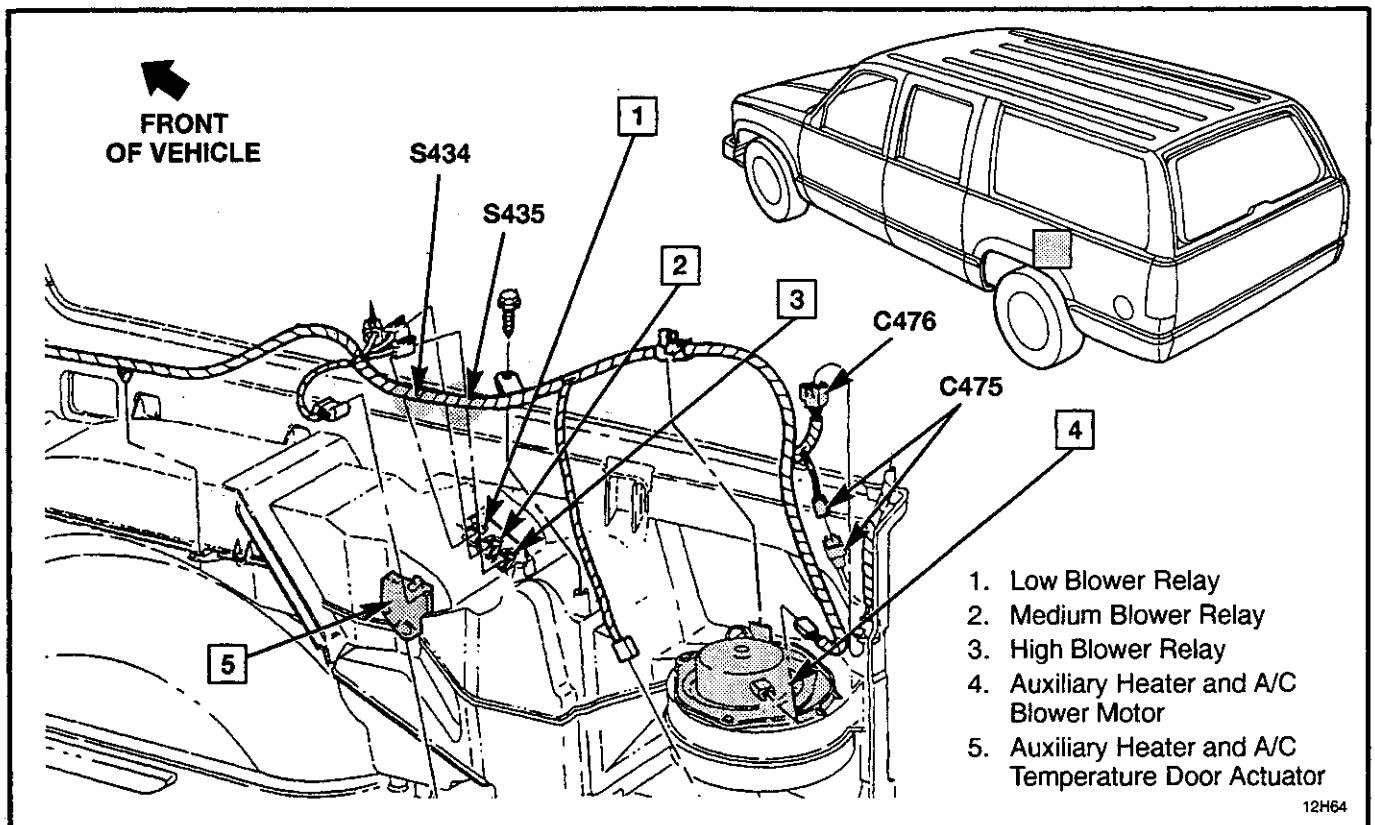


Figure 8 — Auxiliary Heater and A/C Wiring

## REAR AUXILIARY HEATER 8A-60B-15

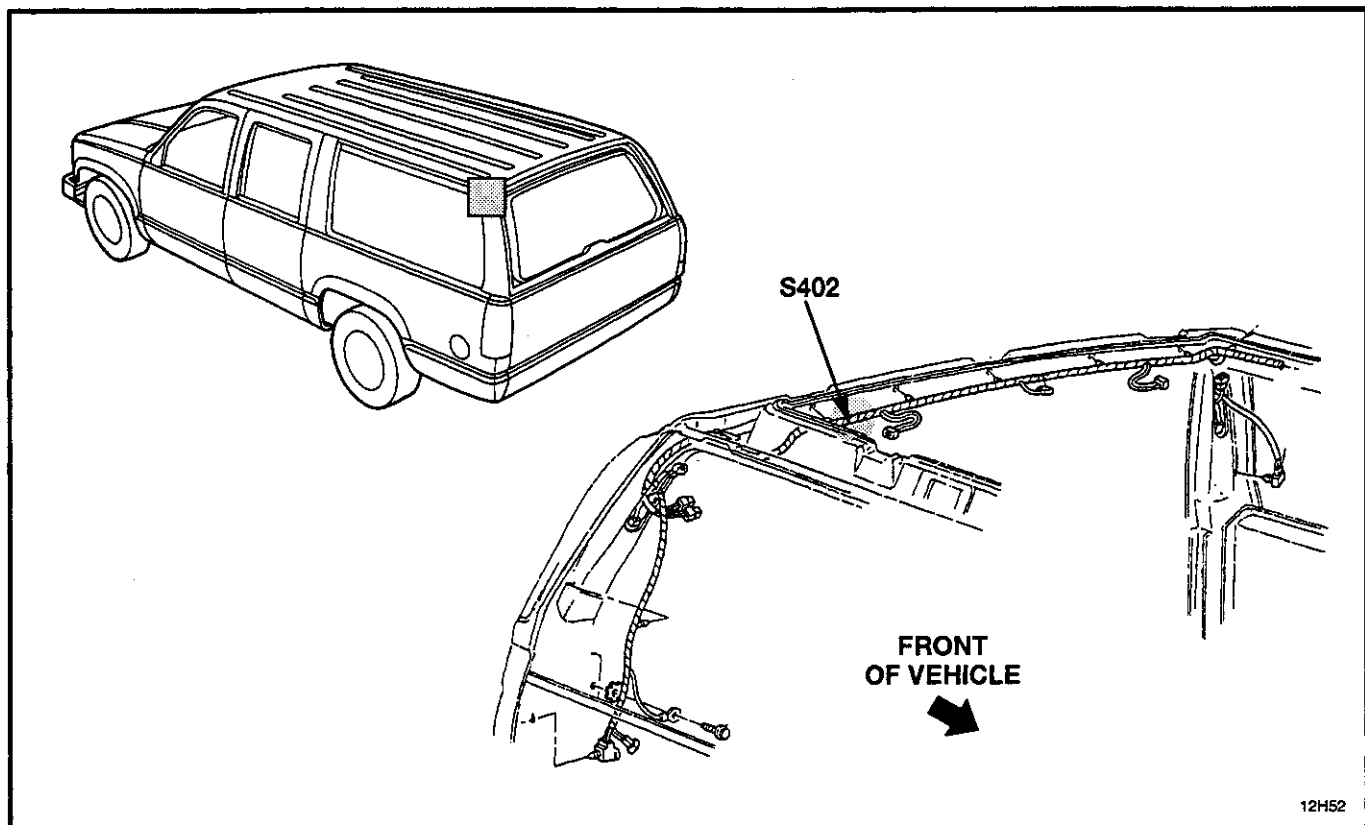


Figure 9 — Body Wiring, Rear — Suburban

**8A-60B-16 REAR AUXILIARY HEATER**

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**BLANK**



## REAR WINDOW DEFOGGER 8A-61-1

### CIRCUIT OPERATION

With the Ignition Switch in RUN, voltage is supplied to the Rear Defogger Control. When the Rear Defogger Control Switch is moved to the ON position, the contact closes, which provides voltage to the ON Indicator and the Rear Defogger. The rear window will become warm to remove fog from the surface of the window.

The contact in the Rear Defogger Control will stay closed until the Rear Defogger Control Switch is turned off or the timer cycle is complete.

The Timer also shuts off anytime the Rear Defogger Control ON-OFF Switch is depressed to OFF.

### COMPONENT LOCATION

#### Page — Figure

Contact, LH Cargo Door	Upper LH rear body opening and door	61-14	4
Cargo Door Defogger Grid, LH Rear	On LH rear cargo door glass	Not Shown	
Cargo Door Defogger Grid, RH Rear	On RH rear cargo door glass	Not Shown	
Contact, RH Cargo Door	Upper RH rear body opening and door	61-15	5
Convenience Center	Under LH side of I/P	61-13	3
Fuse Block	Under LH side of I/P	61-12	1
Rear Liftgate Defogger Grid	On rear liftgate glass	Not Shown	
Rear Window Defogger Switch	Center of I/P	61-13	3

### CONNECTORS:

C261	Under LH end of I/P	61-13	3
C492	At LH D-pillar	61-15	5
C493	At LH D-pillar	61-15	5
C494	At RH D-pillar	61-14	4
C495	At RH D-pillar	61-14	4
C496	At LH D-pillar	Not Shown	
C497	At RH D-pillar	Not Shown	
C920	Inside LH rear door	61-14	4
C921	Inside RH rear door	61-15	5
C922	Inside LH rear door	61-14	4
C923	Inside RH rear door	61-15	5

### GROMMETS:

P415	At LH upper side of body opening	61-17	8
P416	At RH upper side of body opening	61-17	8
P910	Inside LH cargo door below glass	61-14	4
P911	Inside RH cargo door below glass	61-14	4
P912	Inside LH cargo door below glass	61-15	5
P913	Inside RH cargo door below glass	61-15	5
P914	At liftgate strut	61-17	8
P915	At liftgate strut	61-17	8
P916	At liftgate strut	61-17	8
P917	At liftgate strut	61-17	8

## 8A-61-2 REAR WINDOW DEFOGGER

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### COMPONENT LOCATION

Page — Figure

#### GROUND:

G202	At DLC connector	61-13	2
G307	At RH B-Pillar	61-16	6
G400	At RH D-pillar	Not Shown	
G415	At RH C-pillar	Not Shown	

#### SPLICES:

S207	Under LH side of I/P	61-12	1
S213	Under LH side of I/P	61-12	1
S217	Under LH side of I/P	61-12	1
S401	Above rear liftgate glass	61-16	7
S402	Above rear liftgate glass opening	61-18	9

**HOT IN RUN, BULB TEST OR START**

**HOT AT ALL TIMES**

**HOT WITH HEADLIGHT SWITCH IN PARK OR HEADLIGHT**

**FUSE BLOCK**

**GAUGES FUSE 20 AMP**

**ACC/BATT CIRCUIT BREAKER 30 AMP**

**PNL LPS FUSE 5 AMP**

**SEE FUSE BLOCK DETAILS PAGE 11-4**

**SEE FUSE BLOCK DETAILS PAGE 11-6**

**SEE GROUND DISTRIBUTION PAGE 14-3**

**SEE GROUND DISTRIBUTION PAGE 14-3**

**CONVENIENCE CENTER**

**REAR DEFOGGER SWITCH**

**PANEL LAMPS**

**ON INDICATOR**

**LH DOOR CONTACT SWITCH**

**RH DOOR CONTACT SWITCH**

**LH CARGO DOOR DEFOGGER GRID (SUBURBAN ONLY)**

**RH CARGO DOOR DEFOGGER GRID (SUBURBAN ONLY)**

**REAR DEFOGGER GRID**

**LH REAR WINDOW STRUT**

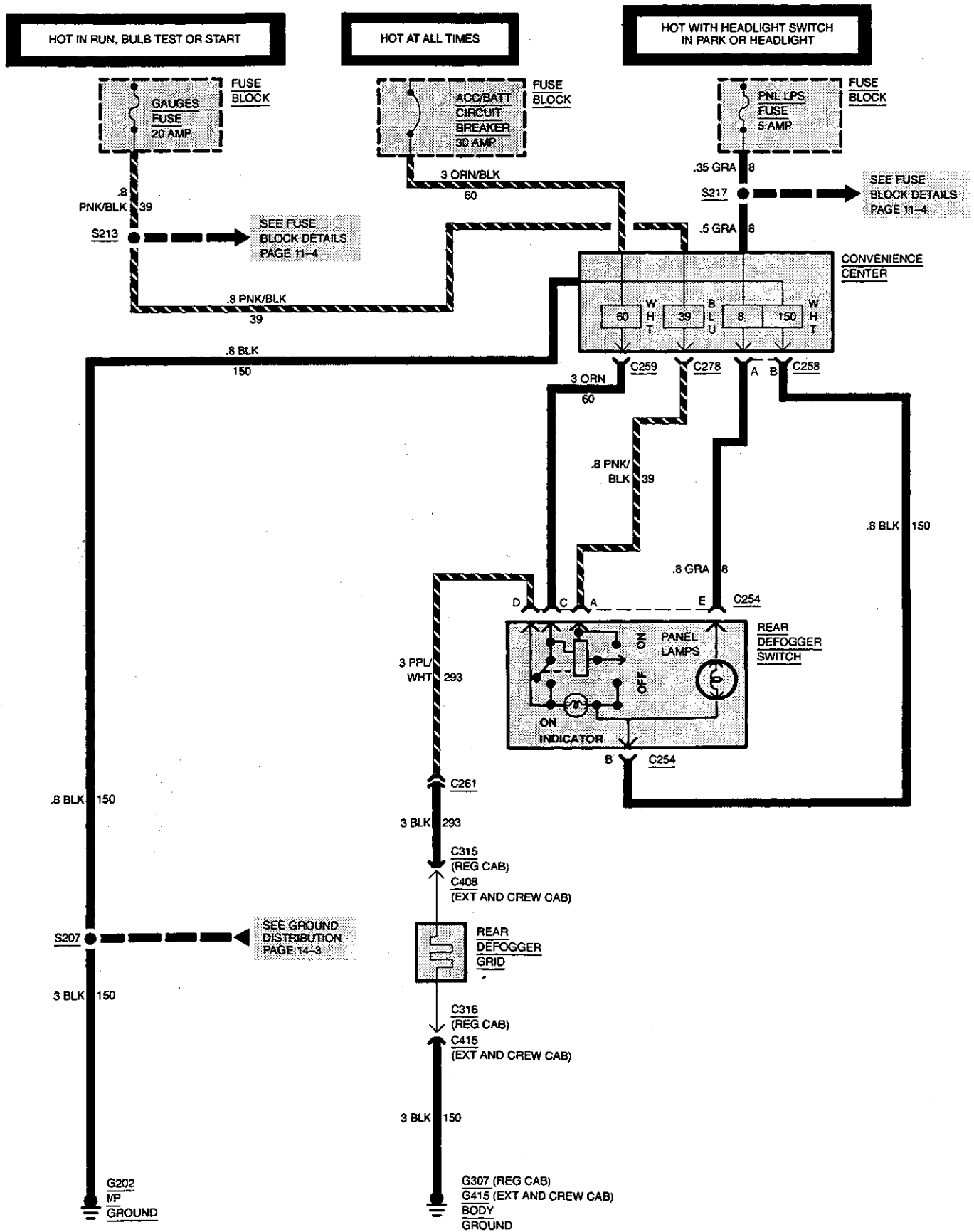
**RH REAR WINDOW STRUT**

**(W/ENDGATE)**

**G202 I/P GROUND**

**G400 REAR BODY GROUND**

# 8A-61-4 REAR WINDOW DEFOGGER PICKUP



## DIAGNOSIS — REAR WINDOW DEFOGGER

### PRELIMINARY CHECKS:

1. Check to see that GAUGES and PNL LPS Fuses and also ACC-BATT circuit breaker are not blown. If blown, locate and repair source of overload, then replace fuse or breaker.
2. If fuses are not blown, proceed with the following diagnostic charts.

### ON INDICATOR WORKS BUT REAR WINDOW DEFOGGER DOES NOT DEFROST— REGULAR, EXTENDED AND CREW CAB

TEST	RESULT	ACTION
1. Place ignition switch in RUN position and turn rear defogger switch ON. Connect test lamp from PPL/WHT (293) wire at rear window grid connector C315 or C408 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in PPL/WHT (293) wire between rear window grid connector C315 or C408 and body connector C261 or PPL/WHT (293) wire between body connector C261 and rear defogger switch connector C254.
2. Connect test lamp from PPL (293) wire at rear window grid LH connector C315 or C408 to BLK (150) wire at rear window grid RH connector C316 or C415.	Test lamp lights.	REPAIR rear window defogger grid as required.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire between rear window grid RH connector C316 and ground terminal G307 or G415.

### ON INDICATOR WORKS BUT REAR WINDOW DEFOGGER DOES NOT DEFROST — UTILITY AND SUBURBAN WITH LIFTGATE

TEST	RESULT	ACTION
1. Place ignition switch in RUN position and turn rear defogger switch ON. Connect test lamp from BLK (293) wire at LH side of rear window where wire attaches from grid to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (293) wire between rear window grid wire attaching point and liftgate strut rod connector C917, or PPL/WHT (293) wire from liftgate strut rod body side connector C416 to body connector C412, from body connector C412 to body connector C261 or from body connector C261 to rear defogger switch connector C254.
2. Connect test lamp from BLK (293) wire at rear window grid LH wire attaching point to BLK (150) wire at rear window grid RH attaching point.	Test lamp lights.	REPAIR rear window defogger grid as required.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire between rear window grid RH attaching point and RH liftgate strut rod connector C916, from RH strut rod connector C417 and body connector C413 or from body connector C413 to ground G400.

## 8A-61-6 REAR WINDOW DEFOGGER

### REAR WINDOW DEFOGGER DOES NOT WORK AND ON INDICATOR DOES NOT LIGHT

TEST	RESULT	ACTION
1. Disconnect rear defogger switch connector C254 and place ignition switch in RUN position. Connect test lamp from ORN (40) wire at rear defogger switch connector C254 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in ORN (60) wire between rear defogger switch connector C254 and convenience center connector C259 or from convenience center to fuse block.
2. Connect test lamp from PNK/BLK (39) wire at defogger switch connector C254 and ground.	Test lamp lights.	GO to step 3.
	Test lamp does not light.	LOCATE and REPAIR open in PNK/BLK (39) wire between rear window defogger switch connector C254 and convenience center connector C255, from convenience center to splice S213, or from splice S213 to fuse block.
3. Connect test lamp from PNK/BLK (39) wire to BLK (150) wire at rear defogger switch connector C254.	Test lamp lights.	REPLACE rear defogger switch.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire between rear defogger switch connector C254 and convenience center connector C258, from convenience center to splice S207, or from splice S207 to ground G202.

### ON INDICATOR WORKS BUT LH OR RH CARGO DOOR WINDOW(S) DO NOT DEFROST — SUBURBAN W/CARGO DOORS

TEST	RESULT	ACTION
1. Close both rear cargo doors, place ignition switch in RUN position and turn rear defogger switch ON. Connect test lamp from BLK (293) wire at LH side of rear window in LH or RH cargo door from where wire attaches at grid to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (293) wire between rear window grid wire attaching point and connector C920 in LH cargo door or connector C923 in RH cargo door, from connector C920 or C923 to LH contact connector C918 or RH contact connector C919, from LH contact connector C414 or RH contact connector C415 to LH body connector C412 or RH body connector C413, from LH body connector C412 or RH body connector C413 to splice S410, from splice S401 to connector C261, or from connector C261 to rear defogger switch connector C254.

## REAR WINDOW DEFOGGER 8A-61-7

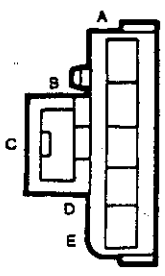
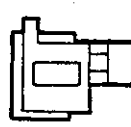







### ON INDICATOR WORKS BUT LH OR RH CARGO DOOR WINDOW(S) DO NOT DEFROST — SUBURBAN W/CARGO DOORS (CONTINUED)

TEST	RESULT	ACTION
2. Close both rear cargo doors, place ignition switch in RUN position and turn rear defogger switch ON. Connect test lamp from BLK (293) wire at LH side of rear window to BLK (150) wire at RH side of rear window in LH or RH cargo door from where wires attach to grid.	Test lamp lights.	REPAIR rear window grid.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire between rear window grid wire attaching point and connector C922 in LH cargo door or connector C921 in RH cargo door, from connector C922 or C921 to LH contact connector C918 or RH contact connector C919, from LH contact connector C414 or RH contact connector C415 to LH body connector C412 or RH body connector C413, from LH body connector C412 or RH body connector C413 to splice S402, from splice S402 to ground G400.

### REAR DEFOGGER PANEL LAMP DOES NOT WORK

TEST	RESULT	ACTION
1. Turn headlamps ON and position dimmer control to BRIGHT. Connect test lamp from GRA (8) wire at rear defogger switch connector C254 to ground.	Test lamp lights.	REPLACE panel lamp.
	Test lamp does not light.	LOCATE and REPAIR open in GRA (8) wire between rear defogger switch connector C254 and convenience center connector C258, from convenience center to splice S217 or from splice S217 to fuse block.

## 8A-61-8 REAR WINDOW DEFOGGER

<p>12059296</p>  <p><b>C254</b> Rear Defogger Switch</p>	<p>12059233</p>  <p><b>C259</b> Defogger Switch to Convenience Center</p>	<p>12015952</p>  <p><b>MED. GRAY</b> Metri-Pack 480 <b>C261</b> Defogger Switch to Grid Extension</p>
<p>12015987</p>  <p><b>MED. GRAY</b> Metri-Pack 480 <b>C261</b> Grid Extension to Defogger Switch</p>	<p>02977253</p>  <p><b>BLACK</b> 56 Series <b>C315</b> Grid to Extension Power (Regular Cab)</p>	<p>02977253</p>  <p><b>BLACK</b> 56 Series <b>C315</b> Grid to Ground (Regular Cab)</p>
<p>02977253</p>  <p><b>BLACK</b> 56 Series <b>C408</b> Grid to Extension Power (Extended Cab)</p>	<p>02977253</p>  <p><b>BLACK</b> 56 Series <b>C408</b> Grid to Ground (Extended Cab)</p>	<p>12015197</p>  <p><b>BLACK</b> Weather Pack <b>C918</b> LH Door Contactor to Grid Extension</p>



# REAR WINDOW DEFOGGER 8A-61-9

12015197



**BLACK**  
Weather Pack  
**C919**  
RH Door Contactor to Grid  
Extension

12033709



**BLACK**  
Metri-Pack 280  
**C414**  
Switch Extension to LH Door  
Contactor

12033709



**BLACK**  
Metri-Pack 280  
**C415**  
Switch Extension to RH Door  
Contactor

12015952



**MED. GRAY**  
Metri-Pack 480  
**C492**  
Switch Extension to RH  
Contactors

12015987



**MED. GRAY**  
Metri-Pack 480  
**C492**  
Switch Extension to RH  
Contactors

12015952



**MED. GRAY**  
Metri-Pack 480  
**C493**  
Switch Extension to RH  
Contactors

12015987



**MED. GRAY**  
Metri-Pack 480  
**C493**  
Switch Extension to RH  
Contactors

12015952









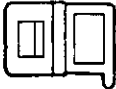


**MED. GRAY**  
Metri-Pack 480  
**C494**  
Switch Extension to LH  
Contactors

12015987


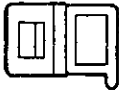

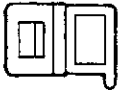





**MED. GRAY**  
Metri-Pack 480  
**C494**  
Switch Extension to LH  
Contactors

## 8A-61-10 REAR WINDOW DEFOGGER

<p>12015952</p>  <p>MED. GRAY Metri-Pack 480 C495 Switch Extension to LH Contactors</p>	<p>12015987</p>  <p>MED. GRAY Metri-Pack 480 C495 Switch Extension to LH Contactors</p>	<p>12015952</p>  <p>MED. GRAY Metri-Pack 480 C496 Switch Extension to LH Contactors</p>
<p>12015987</p>  <p>MED. GRAY Metri-Pack 480 C496 Switch Extension to LH Contactors</p>	<p>12015952</p>  <p>MED. GRAY Metri-Pack 480 C497 Switch Extension to RH Contactors</p>	<p>12015987</p>  <p>MED. GRAY Metri-Pack 480 C497 Switch Extension to RH Contactors</p>
<p>12059884</p>  <p>C920 LH Contactors to Grid</p>	<p>12059885</p>  <p>C920 Grid to LH Contactors Extension</p>	<p>12059884</p>  <p>C921 RH Contactors to Grid</p>

**REAR WINDOW DEFOGGER 8A-61-11**

<p>12059885</p>  <p><b>C921</b> Grid to RH Contactors Extension</p>	<p>12059884</p>  <p><b>C922</b> LH Contactors to Grid</p>	<p>12059885</p>  <p><b>C922</b> Grid to LH Contactors Extension</p>
<p>12059884</p>  <p><b>C9233</b> RH Contactors to Grid</p>	<p>12059885</p>  <p><b>C923</b> Grid to RH Contactors Extension</p>	<p>02962793</p>  <p><b>BLACK</b> 56 Series <b>C416</b> Grid Extension to LH Gas Cylinder</p>
<p>02962793</p>  <p><b>BLACK</b> 56 Series <b>C417</b> Grid Extension to RH Gas Cylinder</p>		

## 8A-61-12 REAR WINDOW DEFOGGER

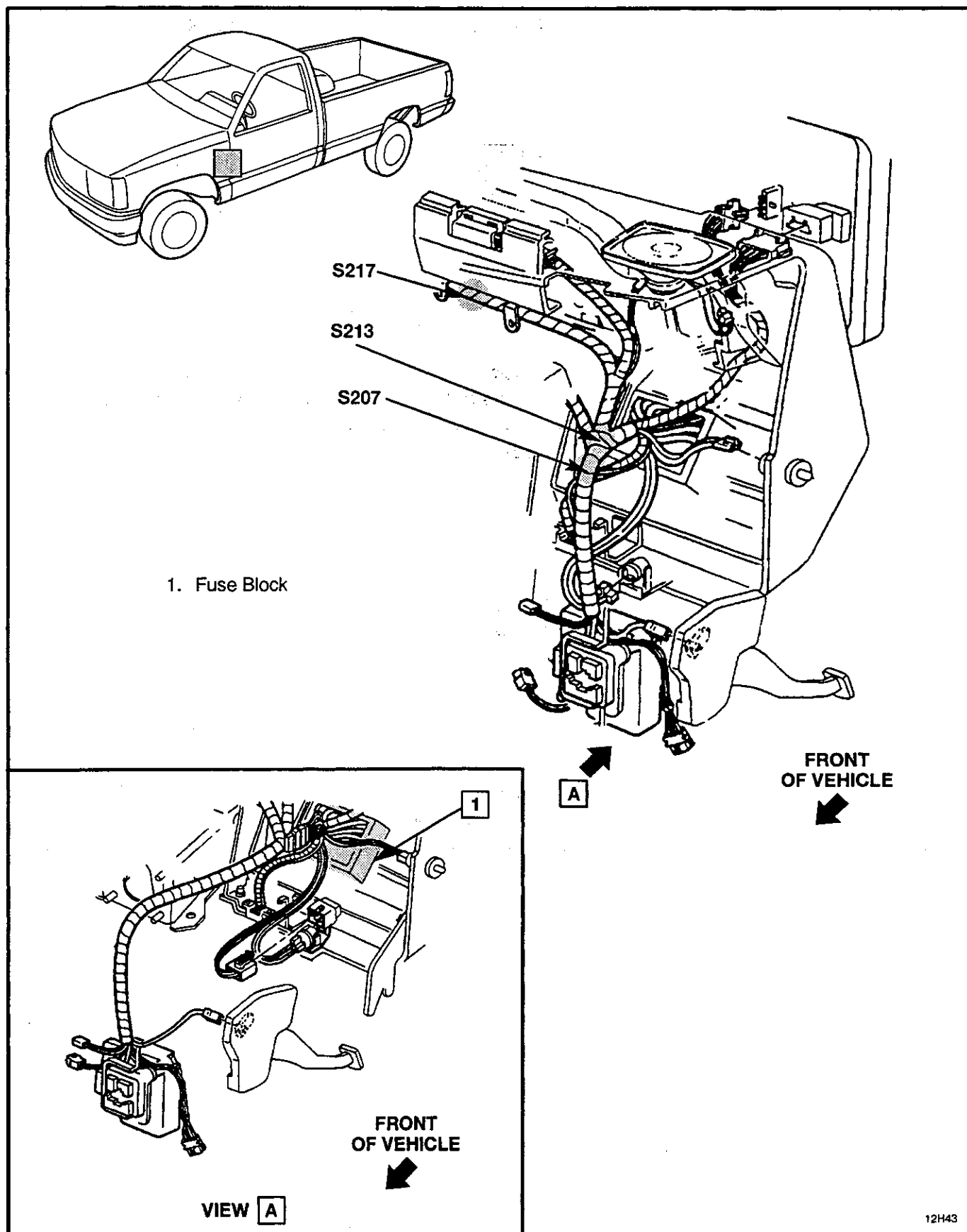


Figure 1 — LH Side of Instrument Panel

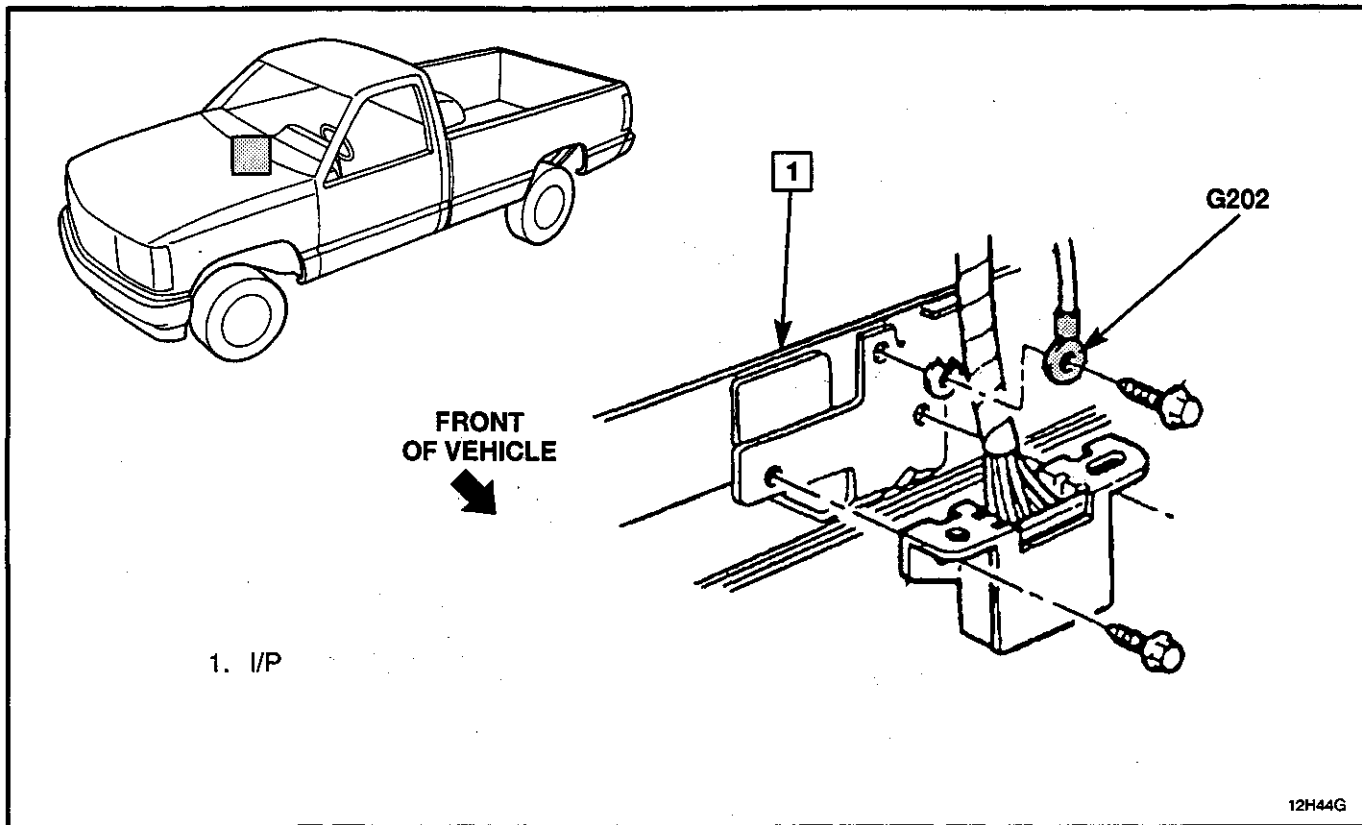


Figure 2 — I/P Ground

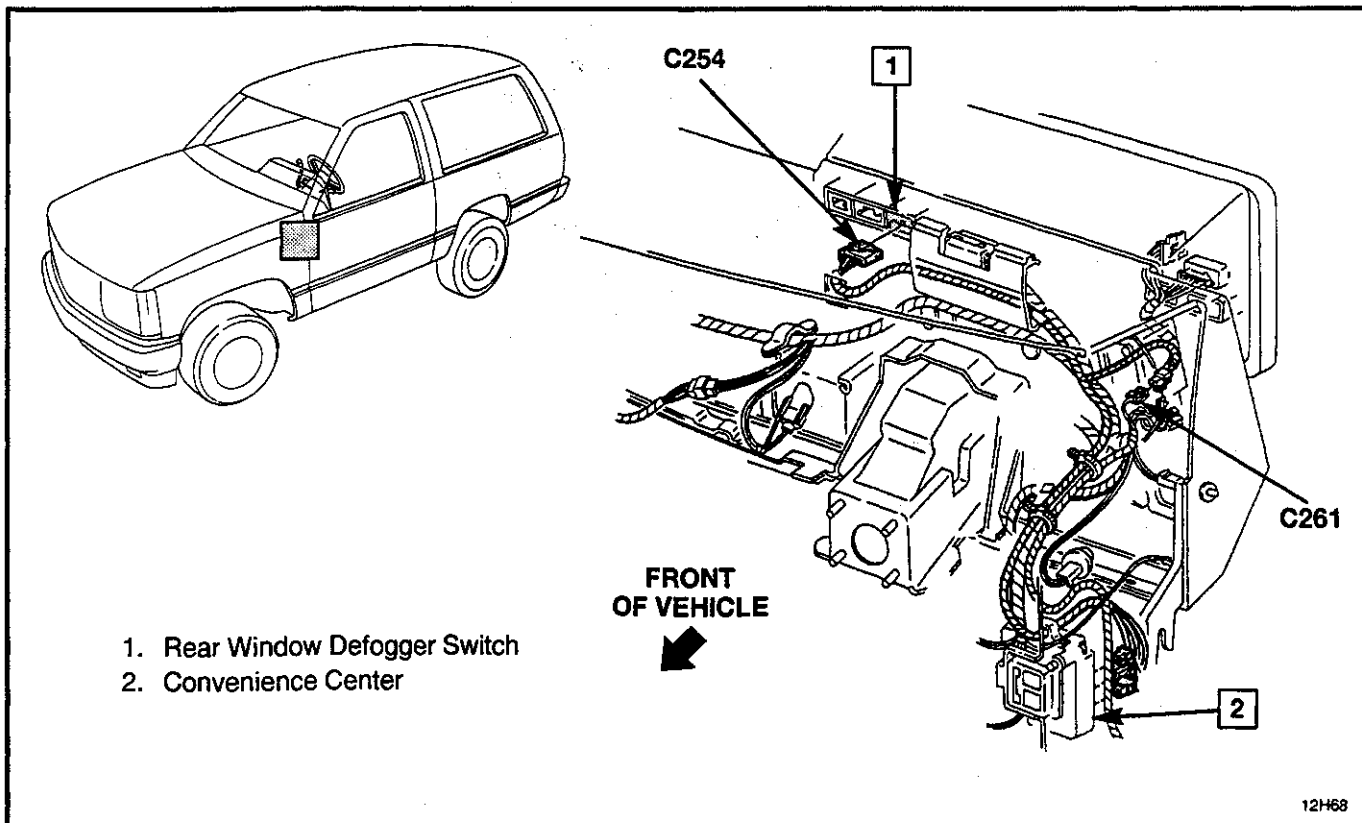


Figure 3 — Rear Window Defogger Front Wiring, Utility and Suburban Shown — Extended and 4-Door Cabs Similar

## 8A-61-14 REAR WINDOW DEFOGGER

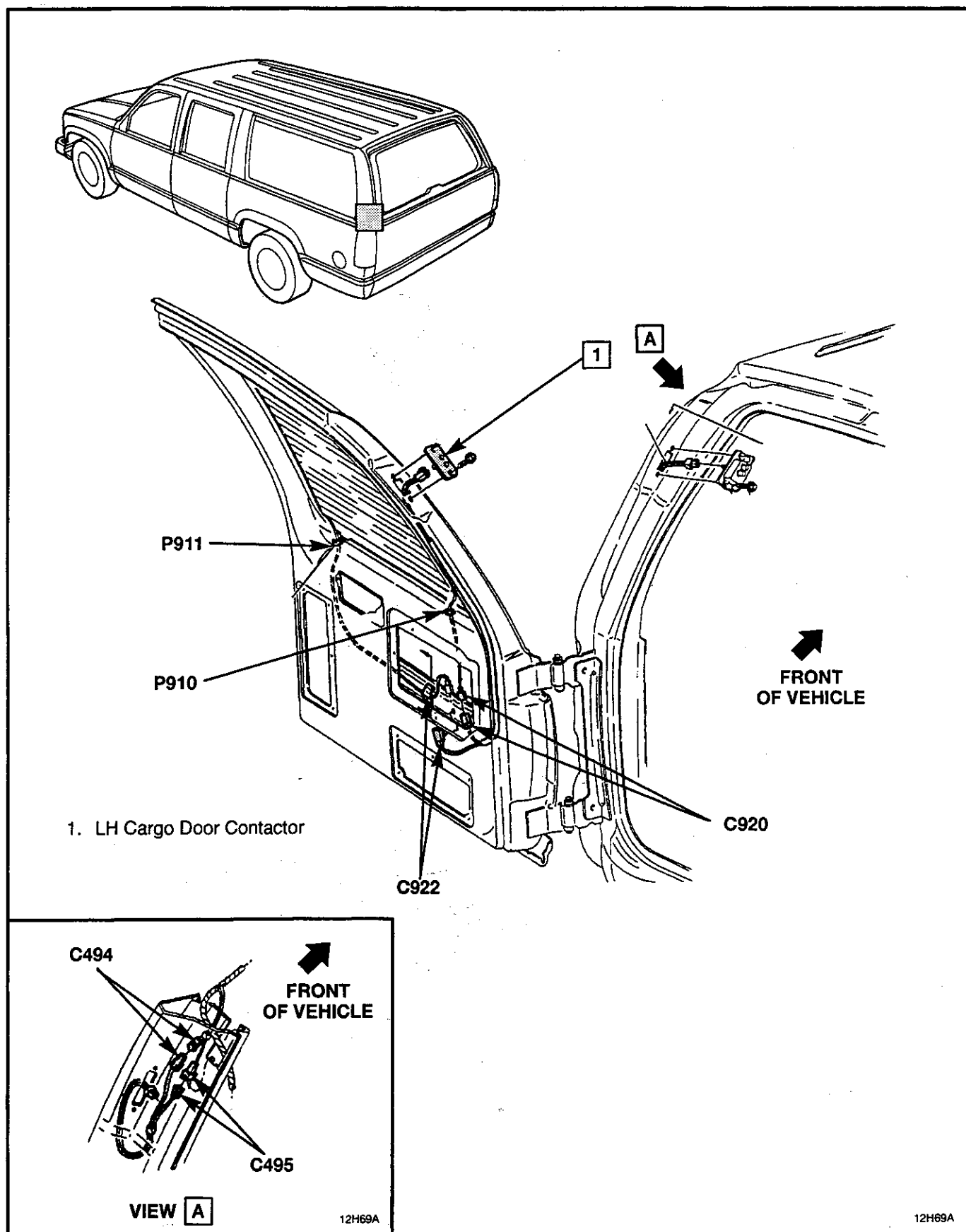


Figure 4 — Rear Door Contact Assembly

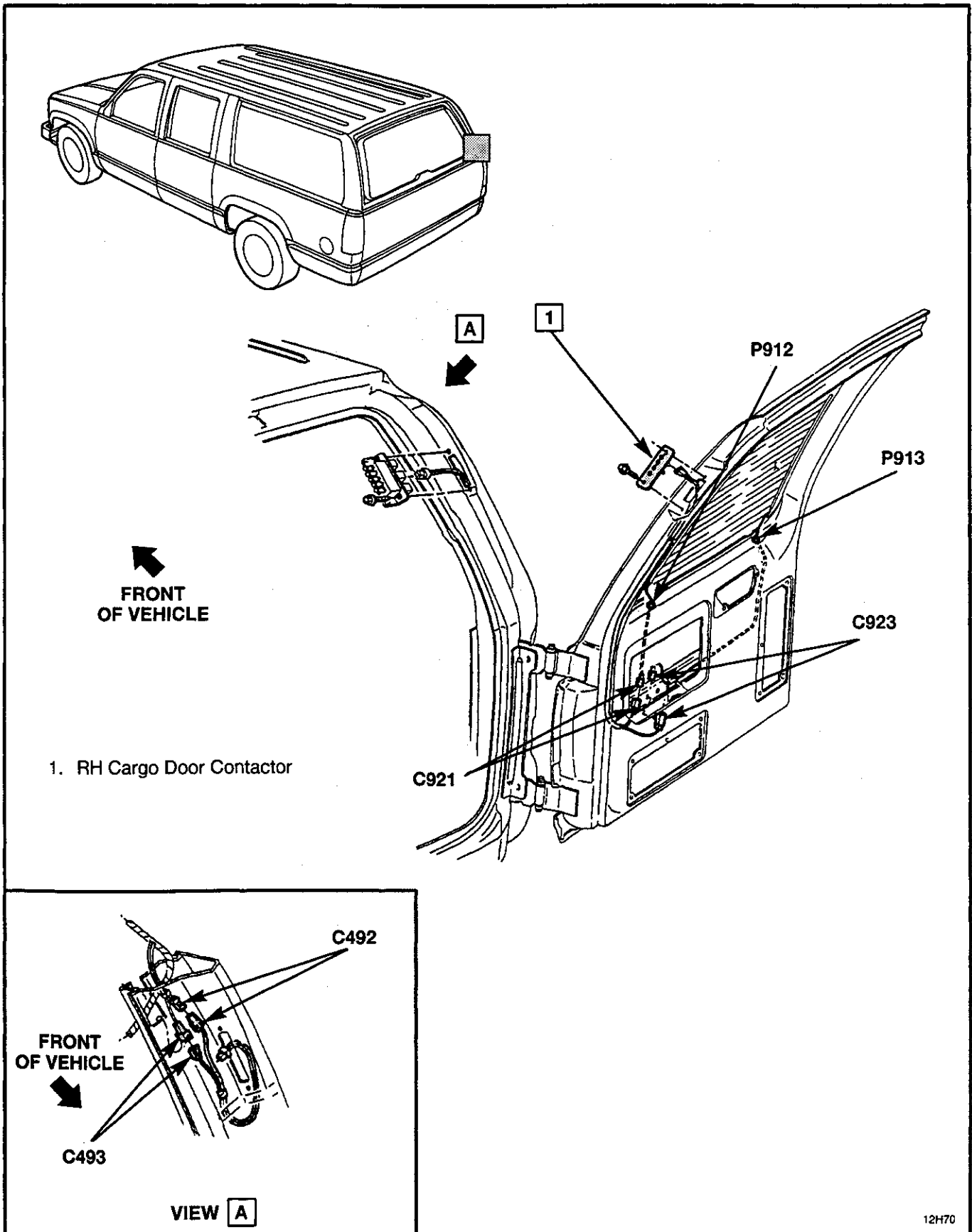


Figure 5 — Rear Door Contact Assembly

## 8A-61-16 REAR WINDOW DEFOGGER

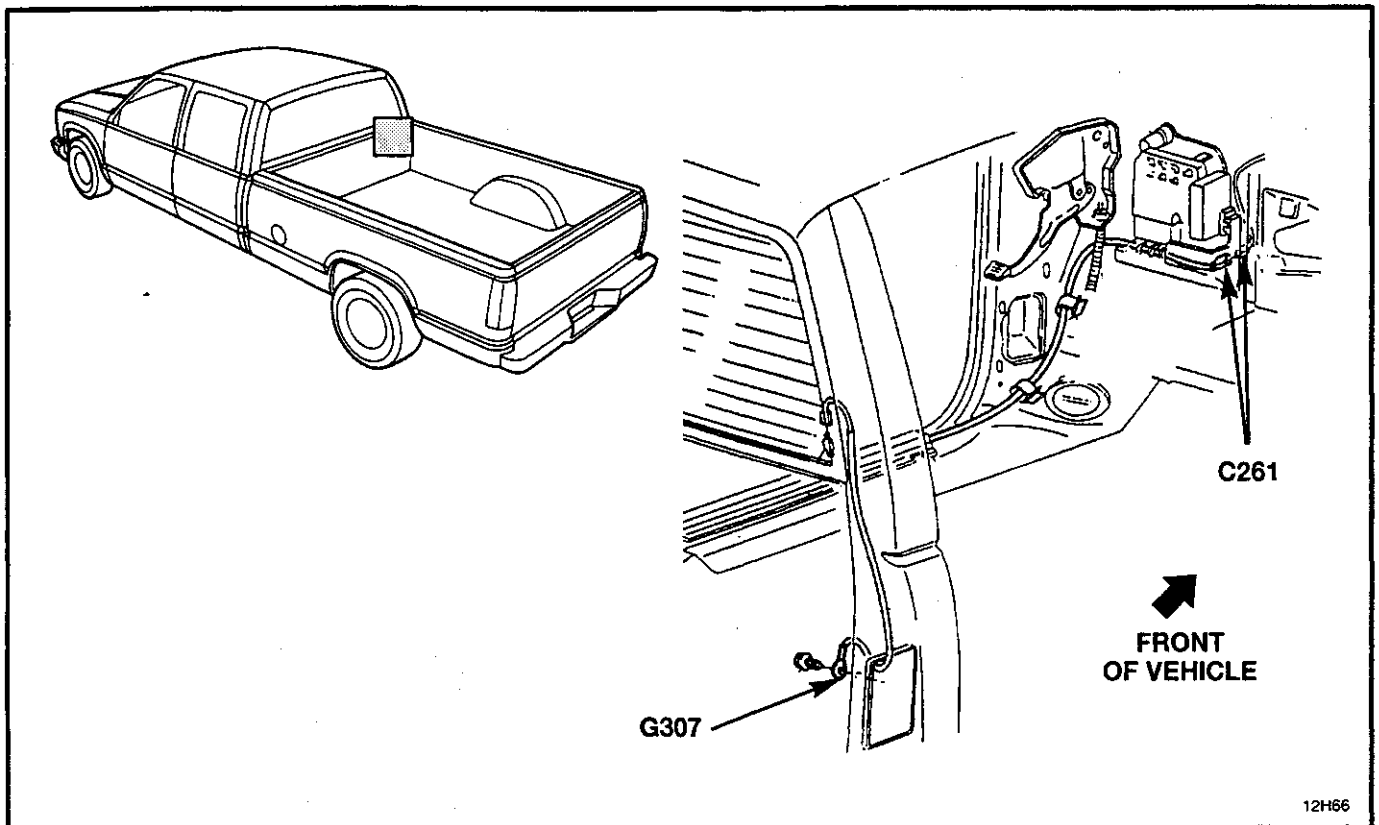


Figure 6 — Rear Window Defogger Wiring, 4-Door Cab Shown — Pickup and Extended Cabs Similiar

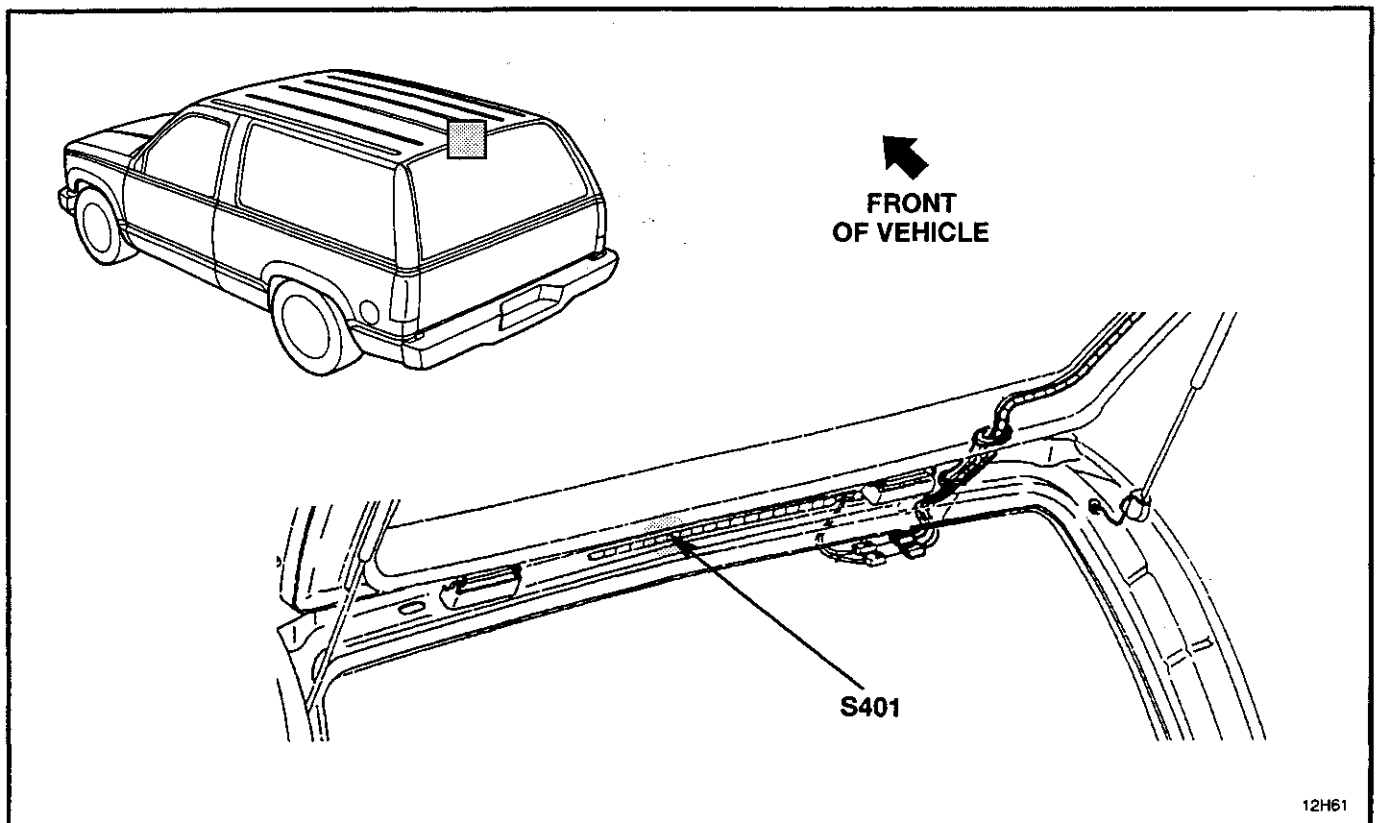


Figure 7 — Rear Window Wiper and Washer Rear Wiring, Utility and Suburban



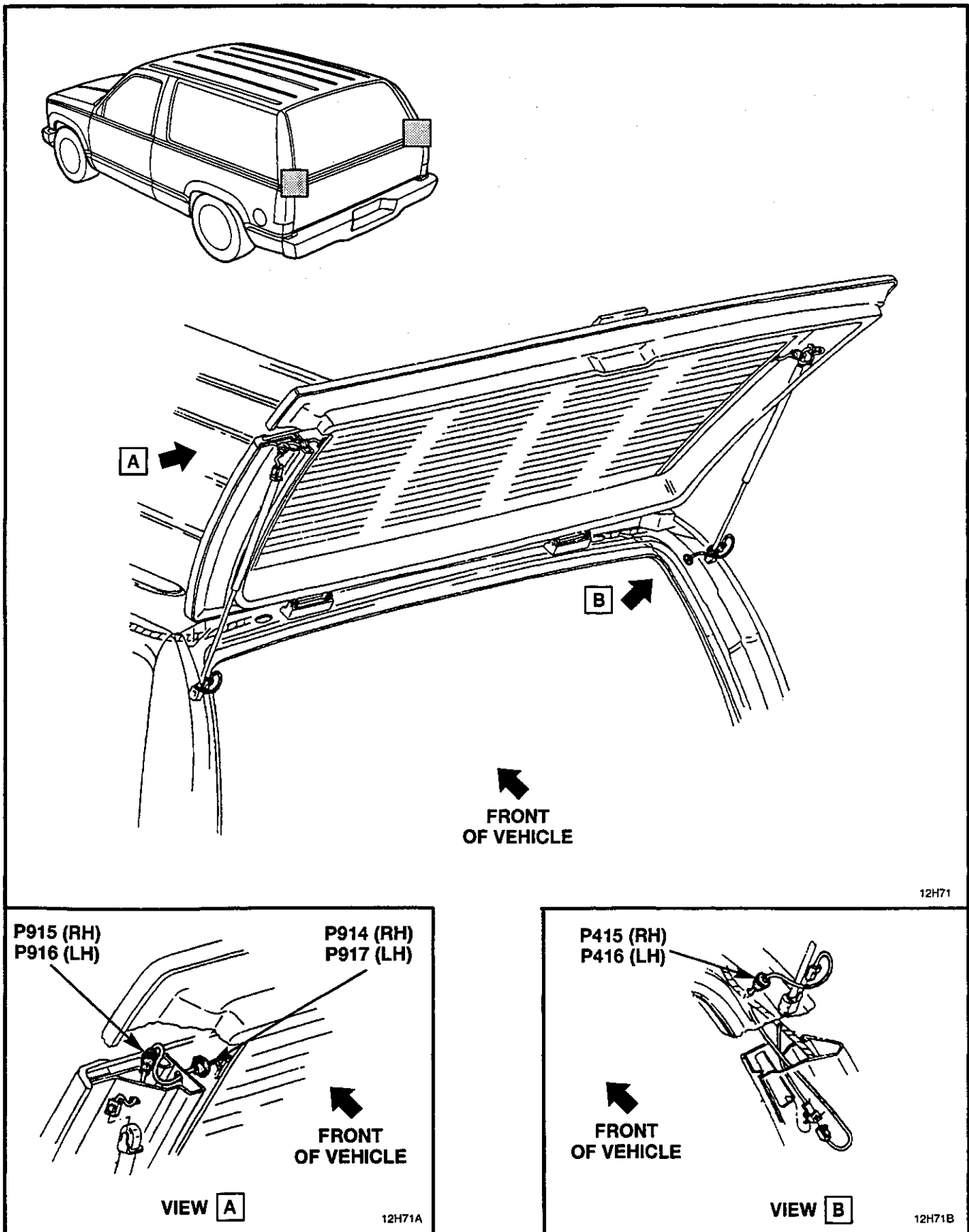


Figure 8 — Rear Window Defogger Rear Wiring, Utility and Suburban W/Endgate

## 8A-61-18 REAR WINDOW DEFOGGER

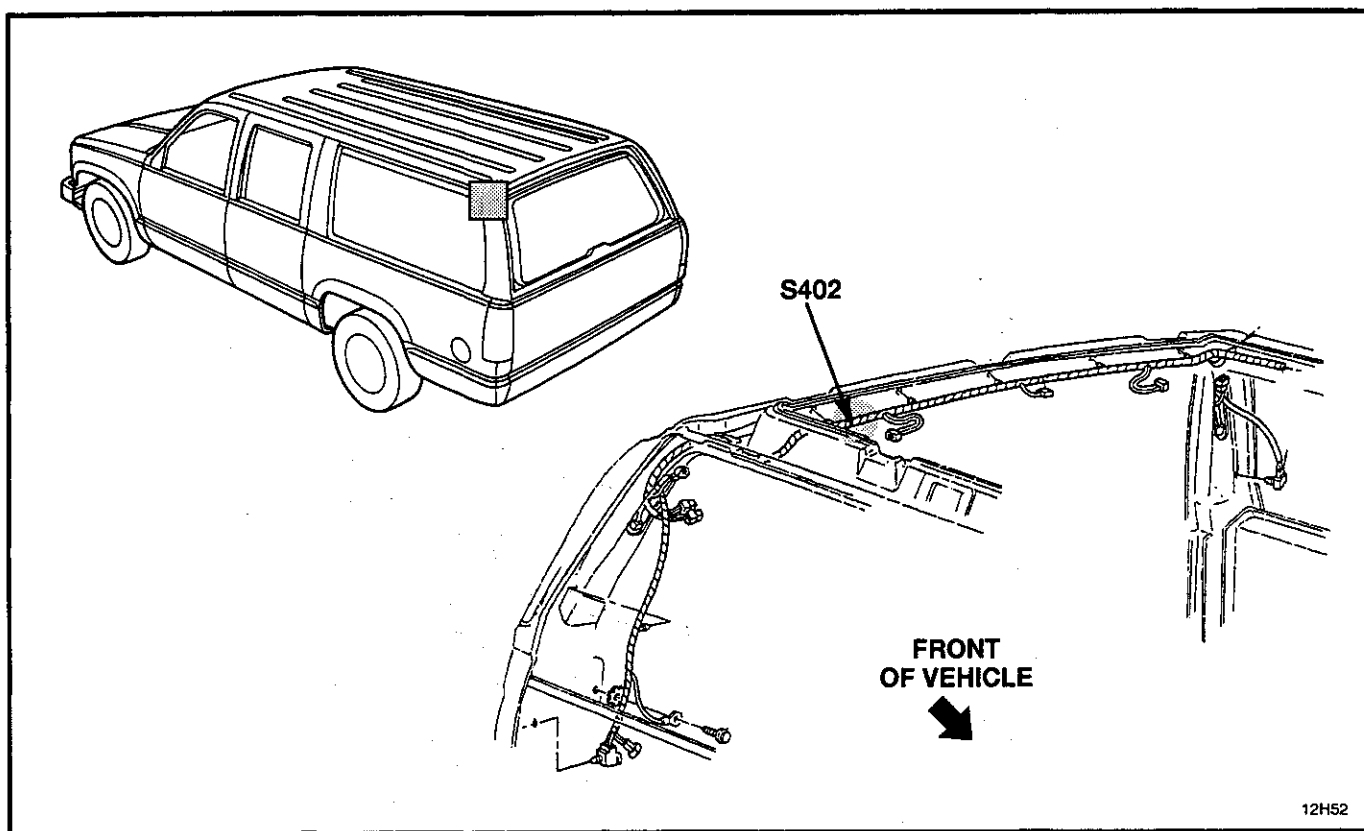


Figure 9 — Body Wiring, Rear — Suburban

## CIRCUIT OPERATION

### BLOWER CONTROLS

Battery voltage is supplied at all times to Terminal 1 of the Low Blower Relay through RED (2) wire. When the Heater and A/C Controller is OFF, the Low, Medium, and High Blower Relays are de-energized. In this state there is no voltage path through the relay contacts to the Blower Motor so the Blower Motor does not run.

With the Blower Mode in Low, Terminals 1649 and 1650 of the Heater and A/C Controller are grounded, energizing the Low Blower and High Blower Relay. Voltage is supplied through the closed contacts of the Low Blower Relay, the YEL (51) wire and the two Blower Resistors to the Blower Motor. The Blower Motor is a variable speed motor which runs at a speed proportional to the voltage supplied to the Motor. With both Blower Resistors in the circuit, the supplied voltage is low and the Blower runs slowly.

In either of the Medium blower speed positions, Terminal 1650 of the Heater and A/C Controller is not grounded which de-energizes the High Blower Relay. In the de-energized state, the contacts of the Relay shunt one of the Blower Resistors allowing the Blower Motor to operate at increased speed.

With the Blower Mode in High, the Low Blower Relay is de-energized and the High Blower Relay is energized. The voltage path is then through the normally closed contacts of the Low Blower Relay, the DK GRN (249) wire and the closed contacts of the High Blower Relay to the Blower Motor. With battery voltage supplied directly to the Motor, it runs at maximum speed.

	LO Blower Relay	HI Blower Relay
LO	ON	ON
MED	ON	OFF
HI	OFF	ON

### AIR DELIVERY

The Valves which control the flow of air through the Heater and A/C Module are positioned by electric Motors. There is one Motor and one Position Potentiometer for each Valve except the Recirculation Valve which does not contain a potentiometer. The Position Potentiometer indicates the position of the Valve at any time to the Heater and A/C Controller by means of a voltage level.

There are two drive circuits for each Motor in the Controller which can operate the Motors in either direction. When any Motor is to operate one of the drivers supplies approximately 7.5 volts to one side of the Motor depending on the direction it is to run.

The Recirculation Valve is normally in the position that allows outside air to enter the system. When RECIRC is selected, the Motor changes to the Recirc Air position. If RECIRC is selected again or defrost is selected, the Controller will provide voltage to position the Motor back to the outside air position. Since there is no potentiometer on the Recirculation Valve, the Controller drives the motor for 22 seconds to ensure the proper position is attained.

The Temperature Valve Motor positions the Temperature Valve according to the Temperature setting of the Heater and A/C Controller. For the full Cold temperature setting, the Valve is in the cold position and the Temperature Valve Potentiometer returns about 4.0 volts to the Heater and A/C Controller. As the temperature setting is changed to full HOT, the Temperature Valve is moved to the warm positions and the potentiometer output rises to about 0.5 volts. For a temperature setting in the mid range, the Temperature Valve is positioned to a point where the potentiometer output is the same as the preprogrammed value for the selected setting.

The Mode Valve Motor operates in a manner similar to that for the Temperature Valve and is positioned according to the Mode selected. For full A/C, the potentiometer output is about 0.2 volts and for full DEFROST, the output is about 4.8 volts. In the Heat Mode, the potentiometer output is about 2.5 volts.

Should any of the Motors stall when changing a Valve location, voltage is removed by the Heater and A/C Controller after 45 seconds to protect the Motor. This sequence will be repeated each time there is a change in the Mode setting.

### SYSTEM DIAGNOSTICS

The microprocessor monitors the actuators position and flashes an indicator should a malfunction occur.

Should a malfunction occur, the respective indicator will flash for a period of two minutes at every ignition ON cycle and everytime a control head key-press command selects the malfunctioning actuator, until the malfunction is repaired.

## 8A-63-2 HEATER AND A/C CONTROLS

The first time an actuator malfunction is diagnosed the corresponding flashing indicators will begin after a five second delay.

The assignments of the flashing indicators to the malfunctioning actuators are listed in the following table:

Actuator	Flashing Indicator
Mode	The active mode indicator, and mode cursors
Temperature	All the temperature scale cursors

T2561

### COMPONENT LOCATION

### Page — Figure

A/C Controller	Center of I/P	63-17	5
Battery Junction Block	RH rear engine compartment, at cowl	63-15	1
Blower Motor	Under RH side of I/P	63-17	5
Blower Resistor A	Under I/P, on heater housing	63-17	5
Blower Resistor B	Under RH side of I/P	63-17	5
HI Blower Relay	Under I/P, on top heater – A/C case	63-17	5
Low Blower Relay	Under center of I/P, on top of heater – A/C case	63-17	5
Medium Blower Relay	Under RH side of I/P	63-17	5
Mode Door Motor	Under I/P, on heater – A/C case	63-17	5
Recirc Door Motor	Under I/P, on heater – A/C case	Not Shown	
Temperature Mode Door Motor	Under I/P, on heater – A/C case	63-17	5

### CONNECTORS:

C230	Below center of I/P, near heater outlet	63-17	5
C260	Under LH side of I/P	63-16	4

### GROMMETS:

P101	RH lower cowl (engine compartment)	63-18	6
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### GROUND:

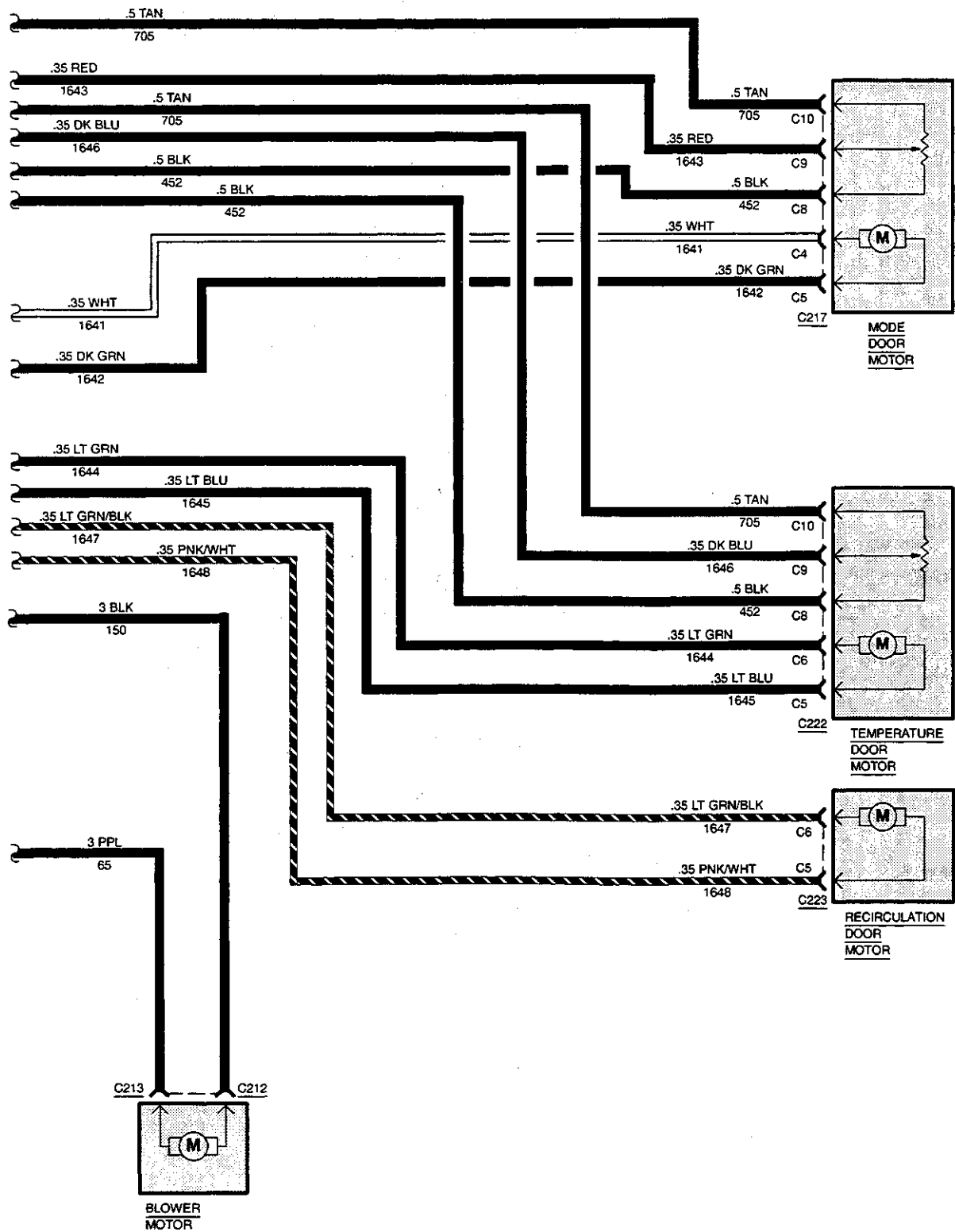
G202	At DLC connector	63-16	3
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### SPLICES:

S156	Center of cowl, below battery junction block	63-15	1
S207	Under LH side of I/P	63-15	2
S221	Engine harness, near PCM	63-18	6
S259	RH upper side of engine	Not Shown	
S264	A/C wiring harness, near I/P connector lead	Not Shown	
S290A	A/C wiring harness, near blower motor	63-18	6
S291A	A/C wiring harness, near blower motor	63-18	6

[illegible]

## 8A-63-4 HEATER AND A/C BLOWER CONTROLS



## DIAGNOSIS — HEATER AND A/C CONTROLS

### PRELIMINARY CHECKS:

1. Complete operational check to identify all display, air deliver, blower and refrigeration (A/C clutch) operating symptoms.
2. If refrigeration performance is symptom, refer to 1B of the 1994 C/K Service Manual.  
(All other symptoms, refer to SYMPTOM TABLE.)

### SYMPTOM TABLE

SYMPTOM	TEST
A/C clutch does not engage	REFER to Section 64 A/C Compressor Controls
A/C indicator flashing	Test B
Control head display blank or none of the door motors operate	Test C
Display does not dim properly	Test D
Recirculation valve does not operate	Test E
Incorrect air delivery or mode indicators flashing	Test F
Temperature door motor does not operate or temperature cursors flashing	Test G
Water valve does not operate (Suburban)	Test H
Blower Motor does not operate in any mode or speed	Test I
Blower Motor does not operate in low speed only	Test J
Blower Motor does not operate in medium speed	Test K
Blower Motor does not operate in high speed	Test L

### TEST I BLOWER MOTOR DOES NOT OPERATE IN ANY MODE

TEST	RESULT	ACTION
1. Disconnect blower motor connectors C213 and C212. Place ignition switch in RUN position, A/C controller in VENT-UPPER and blower speed in HI. Connect voltmeter from PPL (65) wire at blower motor connector C213 to ground.	Battery voltage.	GO to step 2.
	No voltage.	GO to step 6.
2. Connect voltmeter from PPL (65) wire to BLK (150) wire at blower motor connectors C213 and C212.	Battery voltage.	REPLACE blower motor.
	No voltage.	GO to step 3.
3. Place light switch in HEAD position. Vary intensity of panel lamps. Observe HEATER-A/C illumination lamps.	Lamps vary intensity.	LOCATE and REPAIR open in BLK (150) wire between blower motor connector C212 and splice S218.
	Lamps do not operate.	GO to step 4.

## 8A-63-6 HEATER AND A/C CONTROLS

### TEST I BLOWER MOTOR DOES NOT OPERATE IN ANY MODE (CONTINUED)

TEST	RESULT	ACTION
4. Connect voltmeter from BLK (150) wire at connector C209 to ground.	Battery voltage.	GO to step 5.
	No voltage.	LOCATE and REPAIR open in BLK (150) wire between connector C209 and splice S218.
5. Does I/P cluster and cigarette lighter operate properly?	Yes.	LOCATE and REPAIR open in BLK (150) wire between splice S207 and connector C209.
	No.	LOCATE and REPAIR open in BLK (150) wire between splice S207 and I/P ground G202.
6. Ignition ON, blower speed low, connect test lamp to Low blower relay connector C219 terminal 1 RED (2) wire and ground.	Test lamp lights.	GO to step 7.
	Test lamp does not light.	LOCATE and REPAIR open in RED (2) wire between C219 and junction block.
7. Connect test lamp to terminal 4 YEL (51) wire and ground.	Test lamp does not light.	GO to step 8.
	Test lamp lights.	GO to step 11.
8. Disconnect low blower relay and connect a test lamp across C219 terminals 2 LT BLU/BLK (1649) and 5 BRN (50) wires.	Test lamp lights.	REPLACE relay.
	Test lamp does not light.	GO to step 9.
9. Connect test lamp to terminal 5 BRN (50) wire of C219 and ground.	Test lamp lights.	GO to step 10.
	Test lamp does not light.	LOCATE and REPAIR open in circuit BRN (50) wire.
10. Ignition off, disconnect control head. Install ohmmeter across terminal 2 LT BLU/BLK (1649) wire of C219 and terminal M LT BLU/BLK (1649) wire of C230.	Continuity of circuit #1649.	REPLACE control head.
	Greater than 30 ohms resistance.	LOCATE and REPAIR open in LT BLU/BLK (1649) wire
11. Ignition ON, blower speed low, connect test lamp from terminal C YEL (51) wire of C218 blower resistor connector (low blower relay installed), and ground.	Test lamp lights.	GO to step 12.
	Test lamp does not light.	LOCATE and REPAIR open in YEL (51) wire between C219 and C218.
12. Connect test lamp to terminal B PPL (65) wire of C218 and ground.	Test lamp lights (slightly dimmer than previous test).	LOCATE and REPLACE open in (65) wire between C218 and C213.
	Test lamp does not light.	REPLACE blower resistor.



**TEST C  
CONTROL HEAD DISPLAY BLANK OR NONE OF THE DOOR MOTORS OPERATE**

TEST	RESULT	ACTION
1. Ignition ON, A/C switch ON, blower speed LO, does blower, A/C and air delivery mode operate correctly?	Yes.	REPLACE control head.
	No.	GO to step 2.
2. Check A/C HTR 25 amp fuse with test lamp.	OK.	GO to step 3.
	Blown fuse.	Use ohmmeter to ground on BRN (50) wire to locate short to ground at faulty component.
3. Check battery junction block for battery feed with test lamp to ground and visually check fusible link.	OK.	GO to step 4.
	Blown fusible link.	Use ohmmeter to ground on circuit RED (2) wire to locate short to ground or faulty component.
4. Remove control head, connect a test lamp to C230 terminal A BRN (50) wire to ground (ignition on).	Test lamp lights.	GO to step 5.
	Test lamp does not light.	REPAIR open in BRN (50) wire.
5. Connect a test lamp to C230 terminal 12 RED (2) wire to ground.	Test lamp lights.	GO to step 6.
	Test lamp does not light.	REPAIR open in RED (2) wire.
6. Connect a test lamp to C230 across terminals A BRN (50) wire and 8 BLK (150) wire.	Test lamp lights.	REPLACE control head.
	Test lamp does not light.	GO to step 7.
7. Does I/P cluster and cigarette lighter operate?	Yes.	REPAIR open in BLK (150) wire from S207 to C230.
	No.	REPAIR open at G202 or BLK (150) wire to S207.

**TEST D  
DISPLAY DOES NOT DIM PROPERLY**

TEST	RESULT	ACTION
1. Place ignition switch in RUN, A/C controller in OFF, light switch in PARK and dimming control to full brightness. Connect voltmeter from BRN (9) wire at A/C controller connector C230 to ground.	Battery voltage.	GO to step 2.
	No voltage.	LOCATE and REPAIR open in BRN (9) wire between A/C controller connector C230 and light switch connector C204.
2. Connect voltmeter from GRA (8) wire at A/C controller connector C230 to ground.	Battery voltage.	GO to step 3.
	No voltage.	GO to step 4.
3. Observe radio display while adjusting panel and interior lamps control switch.	Radio display changes intensity.	LOCATE and REPAIR open in GRA (8) wire between A/C controller connector and splice S217.
	Radio display does not change intensity.	LOCATE and REPAIR open in GRA (8) wire between splice S217 and fuse block.

## 8A-63-8 HEATER AND A/C CONTROLS

### TEST D DISPLAY DOES NOT DIM PROPERLY (CONTINUED)

TEST	RESULT	ACTION
4. Place dimming control to full brightness. Connect test lamp from BLK (150) wire at A/C controller connector C230 to ground.	Test lamp lights.	GO to step 5.
	Test lamp does not light.	REPLACE A/C controller.
5. Place A/C controller in ON and blower speed in LOW.	Blower operates.	LOCATE and REPAIR open in BLK (150) wire between A/C controller connector C230 and splice S264.
	Blower does not operate.	GO to step 6.
6. Connect test lamp from BLK (150) wire at connector C209 to ground.	Test lamp lights.	LOCATE and REPAIR open in BLK (150) wire between splice S264 and connector C209.
	Test lamp does not light.	GO to step 7.
7. Open drivers door. Observe dome lamp.	Lamp operates.	LOCATE and REPAIR open in BLK (150) wire between connector C209 and splice S207.
	Lamp does not operate.	LOCATE and REPAIR open in BLK (150) wire between splice S207 and ground G202.

### TEST E RECIRCULATION VALVE DOES NOT OPERATE

TEST	RESULT	ACTION
1. Place ignition switch in RUN, blower in MED, A/C controller in RECIRC. Disconnect recirculation valve motor connector C223. Connect voltmeter from PNK/WHT (1648) wire to LT GRN/BLK (1647) wire.	A reading of $\pm 6$ to 7.5 volts, for approximately 22 seconds.	CHECK for stuck door, if ok REPLACE recirculation door motor.
	A reading of less than $\pm 6$ volts.	LOCATE and REPAIR open in PNK/WHT (1648) wire or LT GRN/BLK (1647) wire between recirculation door motor connector C223 and A/C controller connector C230. If wires are good, REPLACE A/C controller.
	A reading of greater than $\pm 7.5$ volts.	LOCATE and REPAIR short to voltage in PNK/WHT (1648) wire or LT GRN/BLK (1647) wire between recirculation door motor connector C223 and A/C controller connector C230. If wires are good, REPLACE A/C controller.

**TEST F  
INCORRECT AIR DELIVERY OR MODE INDICATORS FLASHING**

TEST	RESULT	ACTION
1. Ignition ON, A/C switch on, select defrost, floor and then upper vent modes. Are mode indicators flashing?	No.	GO to step 2.
	Yes.	GO to step 3.
2. Ignition ON, A/C switch ON, blower MED speed. Change mode to floor selection, followed by defrost, followed by upper vent, while visually checking for mode door and linkage movement. Does the linkage move from one extreme position to the other?	Yes.	CHECK for internal valve problem or air box restriction.
	No.	GO to step 3.
3. Disconnect connector C217 and install A/C Diagnostic Tester to C217, - harness side only. Install voltmeter across terminals 5 DK GRN (1642) and 6 WHT (1641) wires and change mode setting from floor to defrost. (Take reading within 20 seconds of making selection.)	A reading of positive or negative 6 to 7.5 volts.	GO to step 4.
	A reading of less than positive or negative 6 volts.	LOCATE and REPAIR open in DK GRN (1642) or WHT (1641) wires between C217 and controller connector C230, if wires are good, REPLACE A/C controller.
	A reading of more than positive or negative 7.5 volts.	LOCATE and REPAIR short to voltage in DK GRN (1642) or WHT (1641) wires between C217 and C230. If wires are good, REPLACE A/C controller.
4. Connect A/C Diagnostic Tester to mode door motor and select defrost then upper vent mode. Does motor and linkage move?	Yes.	GO to step 5.
	No.	REPLACE motor assembly.
5. Install voltmeter across terminals 10 TAN (705) and 8 BLK (452) wires at C217. Install A/C Diagnostic Tester.	A reading of 5 volts $\pm$ .3.	GO to step 6.
	A reading of less than 4.7 volts.	LOCATE and REPAIR open in TAN (705) and BLK (452) wires between C217 and C230. If good CHECK connections at C230 and if ok REPLACE A/C controller.
	A reading of greater than 5.3 volts.	LOCATE and REPAIR short in TAN (705) and BLK (452) wires between C217 and C230. If good REPLACE A/C controller.
6. Ignition OFF. Disconnect A/C Diagnostic Tester from motor and connect ohmmeter from terminal 9 RED (1643) wire of C217 and ground, (set meter to 400 Ohm scale or lower).	Continuity reading.	LOCATE and REPAIR short to ground in RED (1643) wire.
	Out of limits reading.	GO to step 7.
7. Connect ohmmeter across terminal 9 RED (1643) wire of C217 and terminal D RED (1643) wire of C230 control head connector.	Less than 10 ohms.	REPLACE motor assembly.
	Greater than 10 ohms.	LOCATE and REPAIR open in RED (1643) wire.

## 8A-63-10 HEATER AND A/C CONTROLS

### TEST G TEMPERATURE DOOR MOTOR DOES NOT OPERATE OR TEMP CURSORS FLASH

TEST	RESULT	ACTION
1. Ignition ON, A/C switch ON, change temperature selection from HOT to COLD. Do the temp. cursors flash?	No.	GO to step 2.
	Yes.	GO to step 3.
2. While temperature selection is changed from HOT to COLD, visually note motor shaft rotation.	Motor operates (shaft turns).	CHECK temp door or internal air box for problem.
	Motor does not operate (no shaft movement).	GO to step 3.
3. Disconnect temp. motor connector C222 and install A/C Diagnostic Tester on connector. Install voltmeter across terminals 5 LT BLU (1645) and 6 LT GRN (1644) wires and change temp selection from hot to cold.	A reading of positive or negative 6 to 7.5 volts.	GO to step 4.
	A reading of less than positive or negative 6 volts.	LOCATE and REPAIR open LT BLU (1645) or LT GRN (1644) wires. If wires are good, REPLACE A/C controller.
	A reading of more than positive or negative 7.5 volts.	LOCATE and REPAIR short to voltage in LT BLU (1645) or LT GRN (1644) wires. If wires are good, REPLACE A/C controller.
4. Connect A/C Diagnostic Tester to mode door motor and select defrost then upper vent mode. Does motor and linkage move?	Yes.	GO to step 5.
	No.	REPLACE motor assembly.
5. Install voltmeter across terminals 10 TAN (705) and 8 BLK (452) wires at C217.	A reading of 5 volts $\pm$ .3.	GO to step 6.
	A reading of less than 4.7 volts.	LOCATE and REPAIR open in TAN (705) and BLK (452) wires between C217 and C230. If good CHECK connections at C230 and if ok REPLACE A/C controller.
6. Ignition OFF. Disconnect A/C Diagnostic Tester from motor and connect ohmmeter from terminal 9 DK BLU (1646) wire of C222 and ground, (set meter to 400 ohm scale or lower).	Continuity reading.	LOCATE and REPAIR short to ground on DK BLU (1646) wire.
	Out of limits reading.	GO to step 7.
7. Connect ohmmeter across terminal 9 DK BLU (1646) wire of C222 and terminal D DK BLU (1646) wire of C230.	Less than 10 ohms.	REPLACE motor assembly.
	Greater than 10 ohms.	LOCATE and REPAIR open in DK BLU (1646).

**TEST J  
BLOWER MOTOR DOES NOT OPERATE IN LOW SPEED ONLY**

TEST	RESULT	ACTION
1. Disconnect blower resistor connector C218. Connect ohmmeter from PPL (65) terminal to YEL (51) terminal on blower resistor.	A reading of $1.5 \pm 0.7$ ohms.	LOCATE and REPLACE open in YEL (51) wire between blower resistor connector C218 and low blower relay connector C219.
	A reading less or greater than $1.5 \pm 0.7$ ohms.	REPLACE blower resistor. LOCATE and REPAIR short of voltage in TAN (705) or BLK (452) wires between C217 and C230. If wires are good, REPLACE A/C control head.

**TEST K  
BLOWER MOTOR DOES NOT OPERATE IN MEDIUM SPEED**

TEST	RESULT	ACTION
1. Place ignition switch OFF and disconnect blower resistor connector C218. Connect ohmmeter across C218 terminals A TAN (63) wire and B PPL (65) wire.	Continuity reading.	GO to step 2.
	Greater than 30 ohms reading.	LOCATE and REPAIR open in TAN (63) wire, if wire good, REPLACE high blower relay.
2. Connect ohmmeter to A of resistor block and terminal B of resistor block.	A reading of $1.5 \pm 0.7$ ohms.	GO to step 3.
	A reading of less than or greater than $1.5 \pm 0.7$ ohms.	REPLACE resistor block.
3. Place ignition switch in RUN, A/C controller in vent-upper and blower speed MED. Connect a test lamp to low blower relay connector C219 terminal 1 RED (2) wire and ground.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	LOCATE and REPAIR open in RED (2) wire between connector C219 and junction block.
4. Connect test lamp to terminal 4 of C219 YEL (51) wire and ground.	Test lamp lights.	GO to step 5.
	Test lamp does not light.	GO to step 6.
5. Connect test lamp to terminal C YEL (51) wire of C218 to ground.	Test lamp lights.	REPLACE resistor block assembly.
	Test lamp does not light.	REPAIR open in YEL (51) wire.
6. Ignition switch in RUN, blower speed MED, disconnect low blower relay and connect a test lamp across C219 terminals 2 LT BLU/BLK (1649) wire and 5 BRN (50) wire.	Test lamp lights.	REPLACE low blower relay.
	Test lamp does not light.	GO to step 7.
7. Connect test lamp from terminal 5 BRN (50) wire of C219 to ground.	Test lamp lights.	REPLACE medium blower relay.
	Test lamp does not light.	LOCATE and REPAIR open in BRN (50) wire between C219 and splice S259.

## 8A-63-12 HEATER AND A/C CONTROLS

### TEST L BLOWER MOTOR DOES NOT OPERATE IN HIGH SPEED

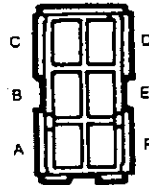
TEST	RESULT	ACTION
1. Place ignition switch in run, and blower speed to HI. Connect test lamp from terminal 4 DK GRN (249) wire of high blower relay connector C220 and ground.	Test lamp lights.	GO to step 3.
	Test lamp does not light.	GO to step 2.
2. Connect test lamp from terminal 3 DK GRN (249) wire of low blower relay connector C219 to ground.	Test lamp lights.	LOCATE and REPAIR open in DK GRN (249) wire between C219 and C220.
	Test lamp does not light.	REPLACE low blower relay.
3. Connect test lamp from terminal 1 PPL (65) wire of high blower relay connector C220 and ground.	Test lamp does not light.	GO to step 4.
	Test lamp lights.	LOCATE and REPAIR open in PPL (65) wire between connector C220 and blower resistor connector C218.
4. Connect test lamp from terminal 5 BRN (50) wire of high blower relay connector C220 and ground.	Test lamp lights.	GO to step 5.
	Test lamp does not light.	LOCATE and REPAIR open in BRN (50) wire between C220 and splice S259.
5. Ignition switch in RUN, blower speed HI, disconnect high blower relay and connect a test lamp across C220 terminals 2 DK GRN/WHT (1650) wire and 5 BRN (50) wire.	Test lamp lights.	REPLACE high blower relay.
	Test lamp does not light.	LOCATE and REPAIR open in DK GRN/WHT (1650) wire. If wire is good, REPLACE A/C controller.

02965104



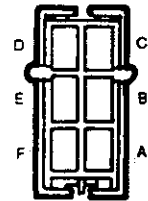
**NATURAL**  
56 Series  
**C218A**  
Blower Resistor B

12034481



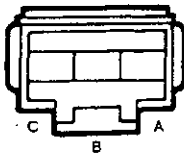
**GRAY**  
Metri-Pack 280  
**C230**  
In-Line Fuse Block to I/P

12034482



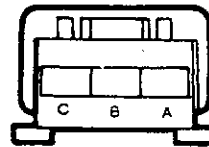
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Metri-Pack 280  
**C230**  
In-Line I/P to Fuse Block

12020398



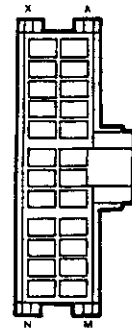
**BLACK**  
Metri-Pack 180  
**C260**  
In-Line Battery Junction Block  
to I/P

12020397



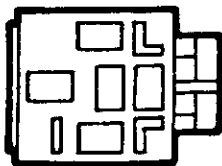
**BLACK**  
Metri-Pack 280  
**C260**  
In-Line I/P to Battery Junction  
Block

12004702



**BLACK**  
**C230**  
A/C Controller

12034003



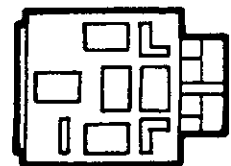
**BLACK**  
Metri-Pack 630  
**C219**  
Low Blower Relay

02965104



**NATURAL**  
56 Series  
**C218**  
Blower Resistor A

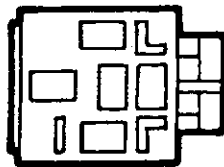
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**BLACK**  
Metri-Pack 630  
**C210A**  
Medium Blower Relay

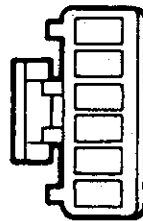
## 8A-63-14 HEATER AND A/C CONTROLS

12034003



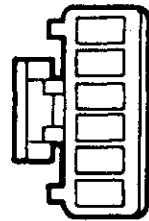
**BLACK**  
Metri-Pack 630  
**C220**  
High Blower Relay

12040953



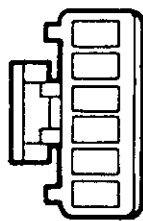
**BLACK**  
Micro-Pack  
**C217**  
Mode Door Motor

12040953



**BLACK**  
Micro-Pack  
**C222**  
Temperature Door Motor

12040953



**BLACK**  
Micro-Pack  
**C223**  
Recirculation Door Motor

12004267



**BLACK**  
56 Series  
**C212**  
Blower Motor



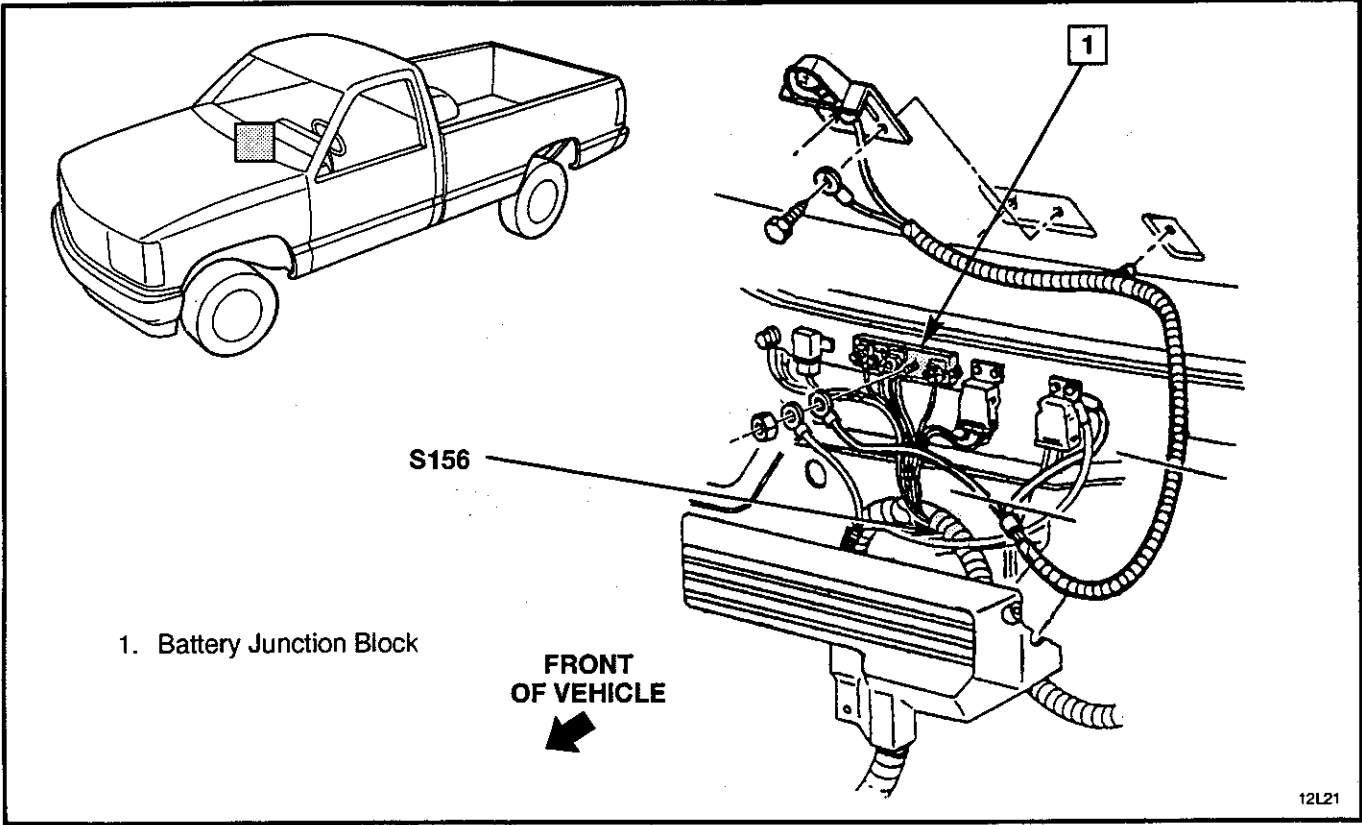


Figure 1 — Junction Block Wiring

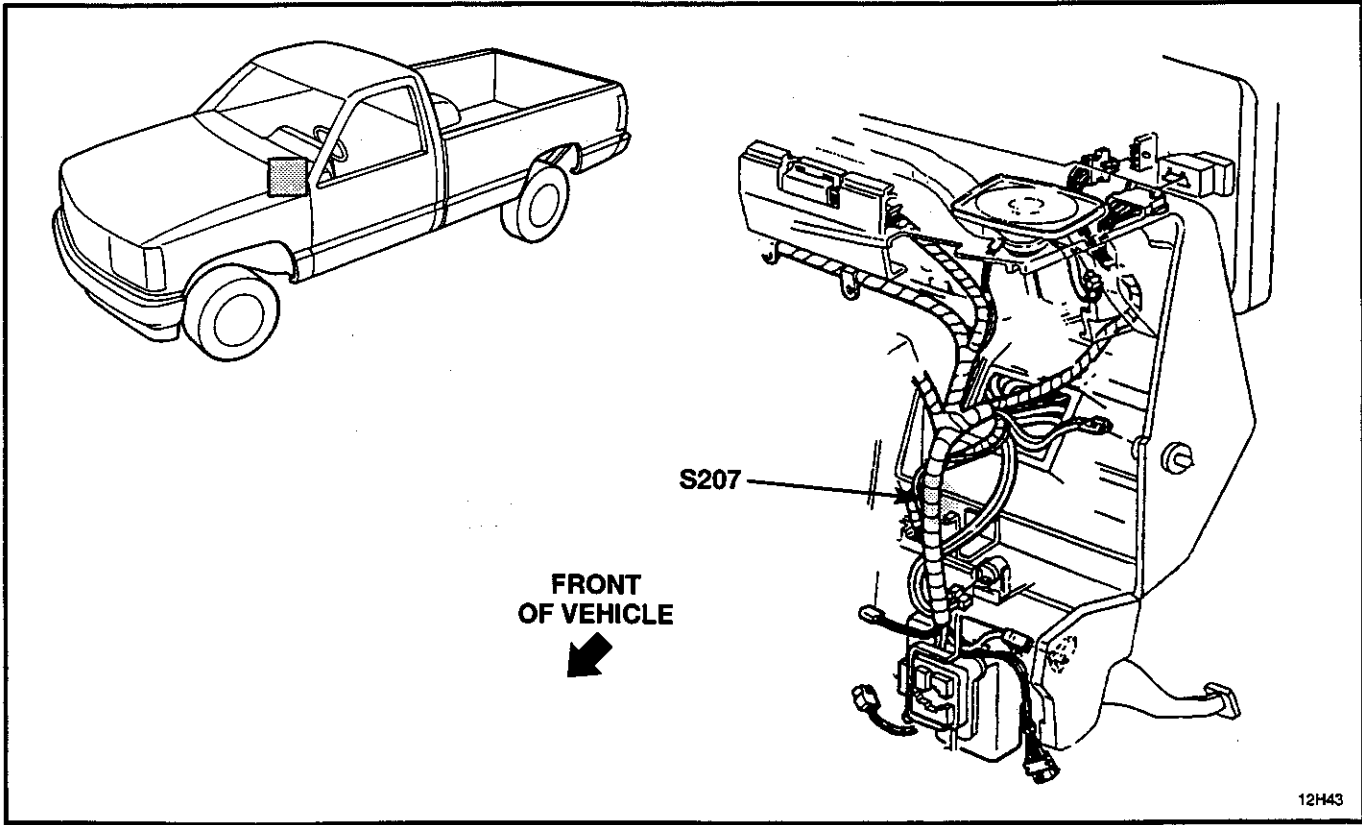


Figure 2 — LH Side of Instrument Panel

## 8A-63-16 HEATER AND A/C CONTROLS

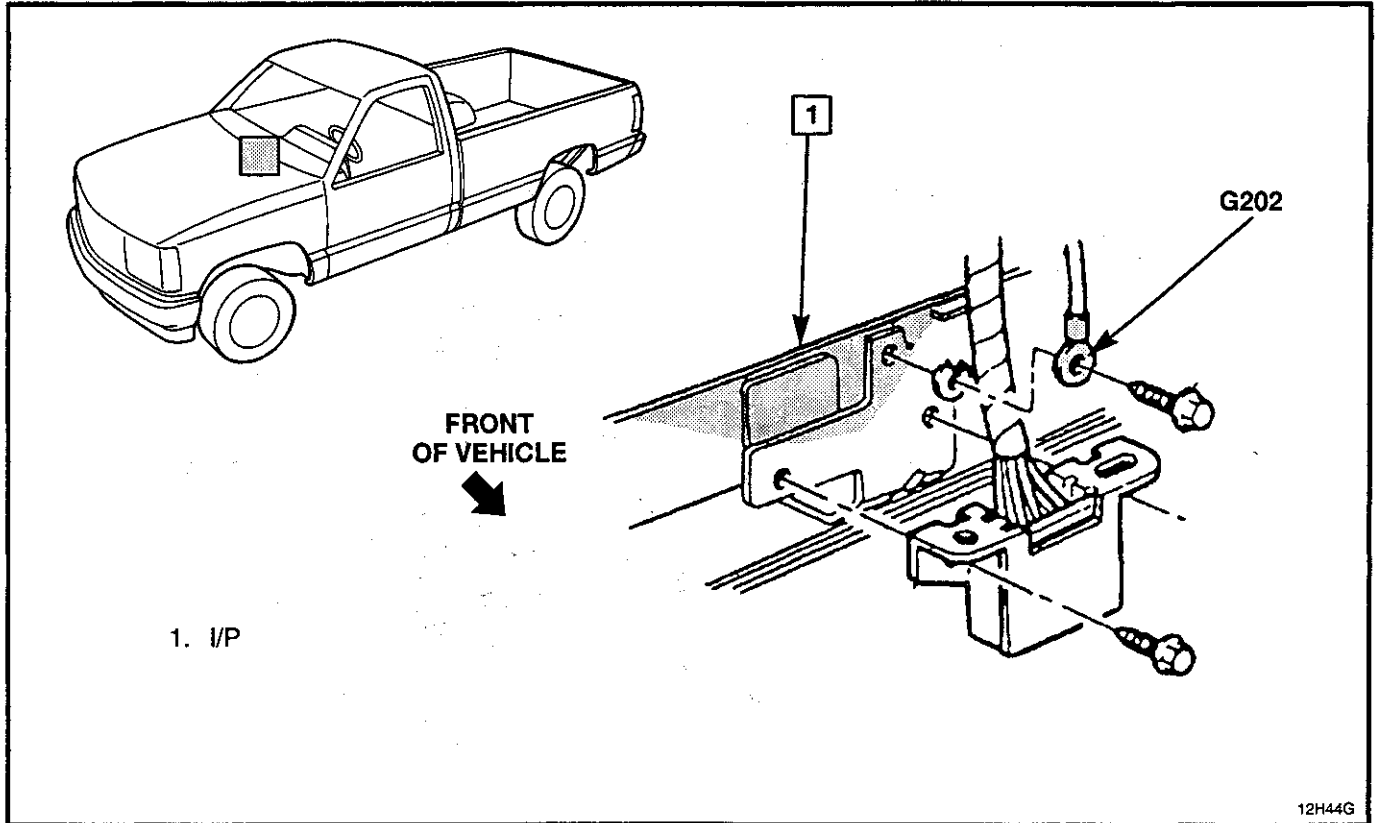


Figure 3 — I/P Ground Wiring

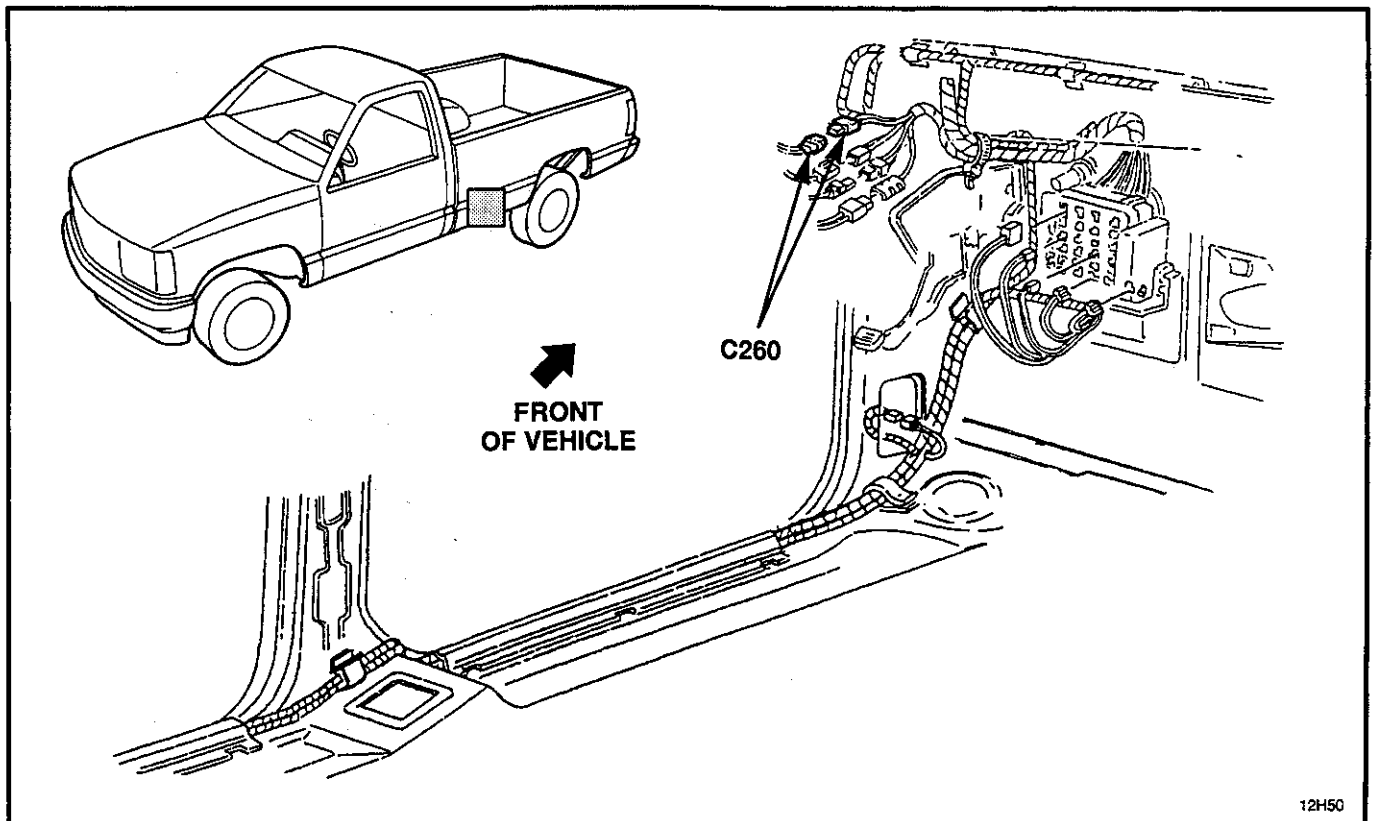


Figure 4 — Body Wiring Harness, Front

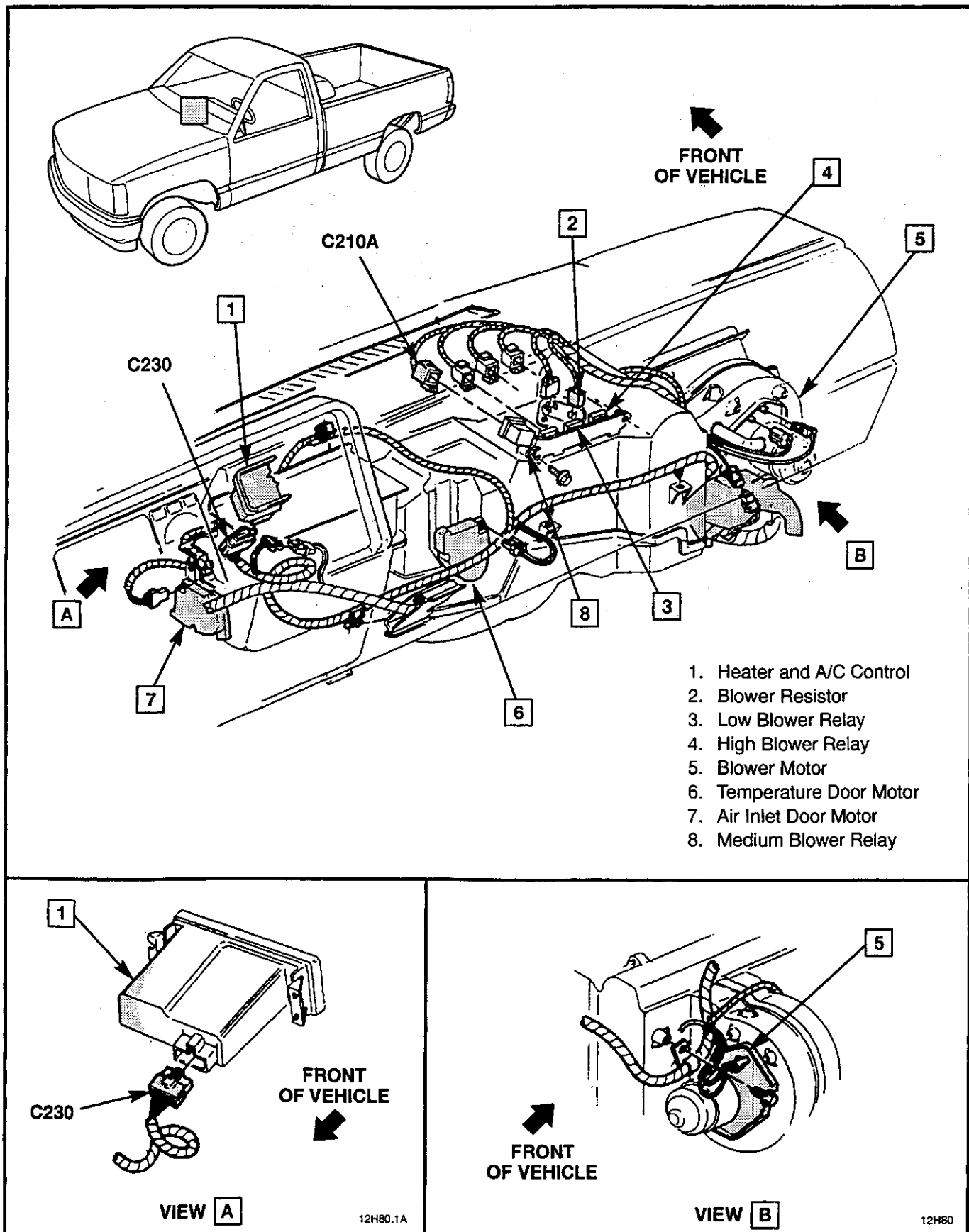


Figure 5 — Heater and A/C Harness Wiring

## 8A-63-18 HEATER AND A/C CONTROLS

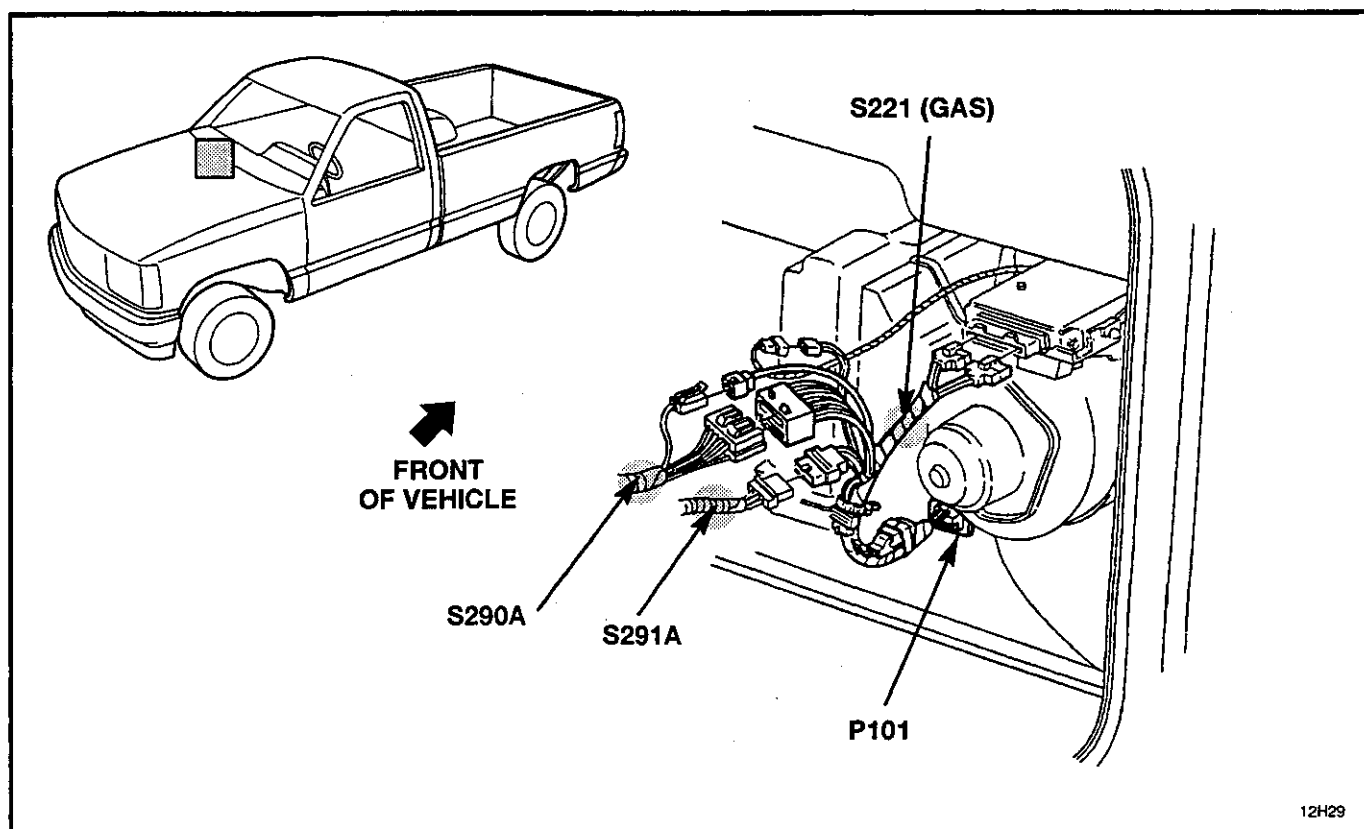


Figure 6 — Heater and A/C Harness Wiring

**CIRCUIT OPERATION**

The Compressor for the Air Conditioning System is driven by the engine by means of a belt drive and the A/C Compressor Clutch. The Clutch allows the Compressor to be disengaged when Air Conditioning is not required.

Operation of the Compressor depends on the particular A/C Mode selected at the Heater and A/C Controller. When the Ignition Switch is in RUN, battery voltage is supplied through the A/C HTR Fuse to the coil and contacts of the A/C Clutch Relay. With A/C ON selected, Terminal 1651 of the Heater and A/C Controller is grounded which energizes the A/C Clutch Relay. The contacts of the Relay close and battery voltage is supplied through the closed contacts and the normally closed A/C Accumulator Switch to the coil of the A/C Compressor Clutch. The coil is energized and the A/C Compressor clutch engages.

If the refrigerant pressure drops to a point which may cause icing of the evaporator, the A/C Accumulator Switch opens, de-energizing the A/C Compressor Clutch.

When the refrigerant pressure rises to a point where cooling is required again, the A/C Accumulator Switch closes to re-energize the A/C Compressor Clutch.

The A/C Compressor Clutch Diode is connected across the terminals of the A/C Compressor Clutch.

Whenever the clutch is de-energized, the magnetic field around it collapses, generating an induced voltage in the clutch coil. The Diode provides a path for the current resulting from the induced voltage so that other circuit components are not damaged.

**COMPONENT LOCATION****Page — Figure**

A/C Compressor Clutch .....	Front of A/C compressor .....	64-7	1
A/C Compressor Clutch Relay .....	Under I/P, on top of heater-A/C case .....	64-9	3
A/C Controller .....	Center of I/P .....	64-9	3
A/C Pressure Cycling Switch .....	At A/C accumulator .....	Not Shown	
Fuse Block .....	Under LH side of I/P .....	64-11	6
HI Pressure Cutout Switch #1 .....	Back side of compressor .....	Not Shown	
HI Pressure Cutout Switch #2 .....	Near compressor .....	64-10	5
PCM .....	Under RH side of I/P .....	64-10	5

**CONNECTORS:**

C209 .....	Below center of I/P, near heater outlet .....	64-10	4
C260 (Suburban) .....	LH side of I/P .....	64-12	7

**DIODES:**

D100 .....	Near A/C compressor .....	64-7	1
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**GROMMETS:**

P101 .....	RH lower cowl (engine compartment) .....	64-10	5
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**GROUNDING:**

G106 .....	Rear of RH cylinder head .....	64-8	2
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## **8A-64-2 A/C COMPRESSOR CONTROLS**

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### **COMPONENT LOCATION**

**Page — Figure**

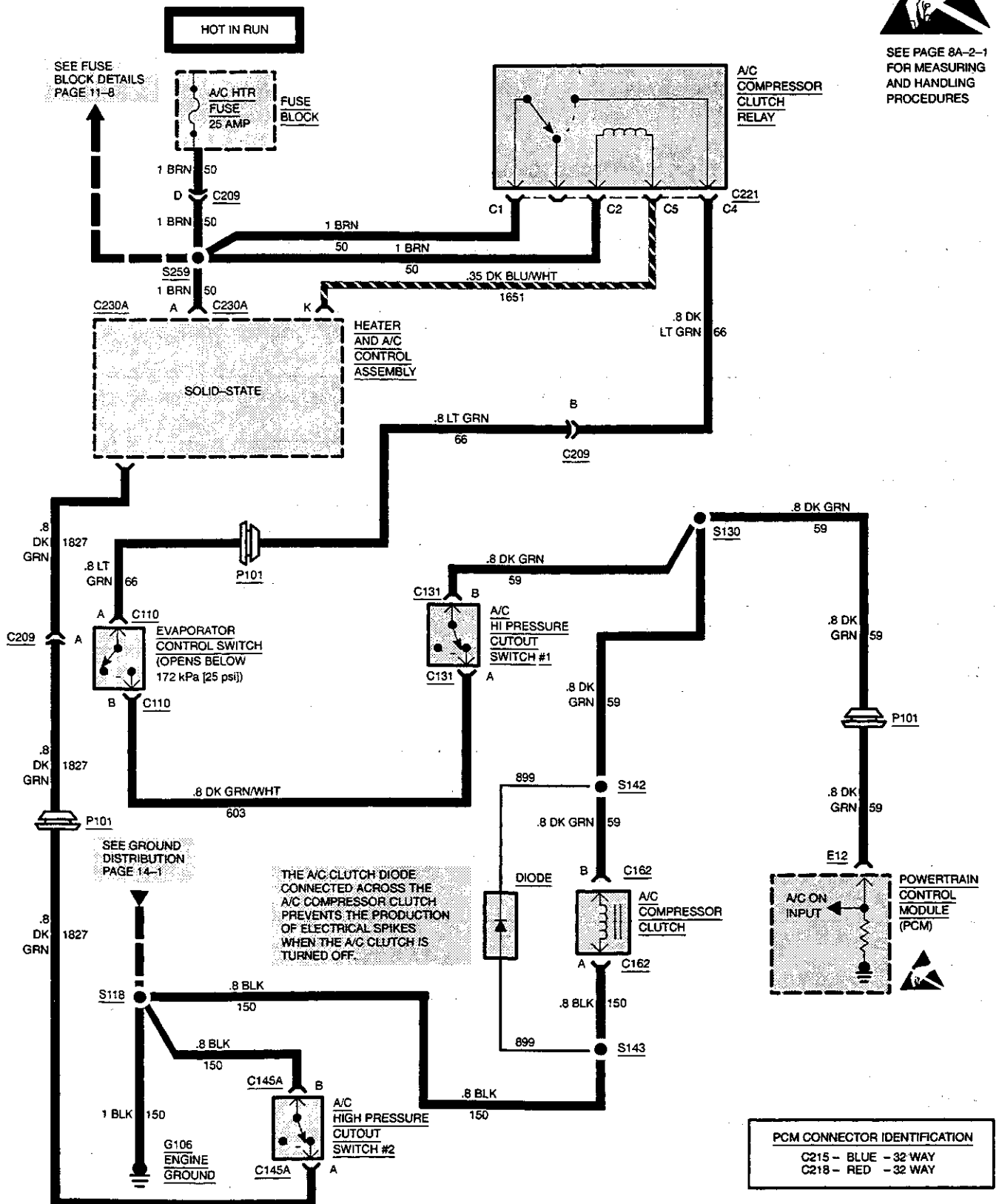
#### **SPLICES:**

S118 .....	Engine harness, near cowl LH rear engine .....	64-8	2
S130 .....	RH rear engine compartment, near P101 .....	Not Shown	
S142 .....	Near A/C compressor .....	Not Shown	
S143 .....	Near A/C compressor .....	Not Shown	
S259 .....	RH upper side of engine .....	Not Shown	

# A/C COMPRESSOR CONTROLS 8A-64-3



SEE PAGE 8A-2-1  
FOR MEASURING  
AND HANDLING  
PROCEDURES



## 8A-64-4 A/C COMPRESSOR CONTROLS

### DIAGNOSIS — AIR CONDITIONING COMPRESSOR CONTROLS

#### PRELIMINARY CHECKS:

1. Check the condition of the refrigerant to ensure adequate system pressure.
2. Check to ensure connector contacts are not out of place or missing and that connectors are firmly seated.
3. Check condition of A/C HTR Fuse. If fuse is blown, locate and repair source of overload. Replace fuse.

#### TEST A – A/C CLUTCH DOES NOT ENGAGE

TEST	RESULT	ACTION
<b>NOTE:</b> Outside temperature must be above 16°C (60°F) in order to properly diagnose.	A/C indicator turns on (steady).	GO to step 2.
	A/C indicator flashing.	GO to Test B.
	A/C indicator not on when button selected.	Replace control head.
1. Ignition On, A/C switch On, does A/C indicator turn on?		
2. Disconnect A/C clutch connector C162. Place ignition in RUN position and A/C switch ON. Connect test lamp to terminal B (DK GRN 59) to ground.	Test lamp lights.	GO to step 3.
	Test lamp does not light.	GO to step 5.
3. Install test lamp across terminals A (BLK 150) and B (DK GRN 59) of C162.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	CHECK and REPAIR ground circuit 150 (to circuit 151).
4. Apply battery feed (through a fused jumper) and ground to the A/C clutch assembly.	Clutch engages.	GO to step 5.
	Clutch does not engage.	Replace clutch.
5. Remove jumper and check refrigerant pressure.	Low side below 50 psi.	See Section 1B refrigeration diagnosis.
	Low side above 50 psi.	GO to step 5.
6. Reconnect A/C clutch connector C162, and disconnect pressure cycling switch connector C110. Connect a test lamp to terminal B (LT GRN 66) to ground.	Test lamp lights.	GO to step 7.
	Test lamp does not light.	GO to step 8.
7. Jumper terminals A and B with a fused jumper.	Clutch engages.	Replace pressure cycling switch.
	Clutch does not engage.	GO to step 8.
8. Backprobe A/C clutch relay connector C221 (with relay installed) and ignition in RUN, and A/C switch on, with a test lamp to terminal 4 (LT GRN 66) to ground.	Test lamp lights.	REPAIR open in circuit 66 between C221 and pressure cycling switch C110.
	Test lamp does not light.	GO to step 9.
9. Backprobe A/C clutch relay connector C221 (with relay installed) at terminals 1 and 2 (both BRN 50) to ground.	Test lamp lights for both.	GO to step 10.
	Test lamp does not light on either or both.	REPAIR open in circuit 50. (If blower operates open is between S259 and C221.)



## A/C COMPRESSOR CONTROLS 8A-64-5

### TEST A – A/C CLUTCH DOES NOT ENGAGE (CONTINUED)

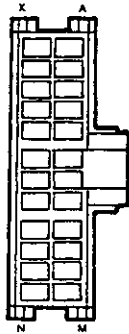
TEST	RESULT	ACTION
10. Remove A/C clutch relay and install a test lamp across terminals 2 and 5 (BRN 50 and DK BLU/WHT 1651).	Test lamp lights.	REPLACE relay.
	Test lamp does not light.	GO to step 11.
11. Ignition switch off, remove control head, and measure resistance from connector C230, terminal K (DK BLU/WHT 1651) to C221 terminal 5 (DK BLU/WHT 1651).	Less than 10 ohms (continuity of circuit 1651)	REPLACE control head.
	Greater than 10 ohms (poor continuity of circuit 1651)	REPAIR open in circuit 1651.

### TEST B – A/C CLUTCH INDICATOR FLASHING

TEST	RESULT	ACTION
<b>NOTE:</b> Outside temp. must be above 16°C (60°F) in order to properly diagnose.  1. Ignition ON, A/C switch ON, does A/C indicator flash?	Yes.	GO to step 2.
	No.	GO to Test A.
2. Refer to 1B and perform system performance test to determine proper refrigerant charge (look for excess cycling).	OK.	GO to step 3.
	Low charge/poor performance (determined by performance test).	SERVICE refrigeration system as per 1B and retest.
3. Check wiring from A/C clutch relay to A/C clutch (circuits 50, 66, 1651) and circuit 59 for loose conditions.	Loose connections/wiring identified.	REPAIR wiring/connections.
	OK.	REFER to PSB (intermittent false excess cycling condition).

## 8A-64-6 A/C COMPRESOR CONTROLS

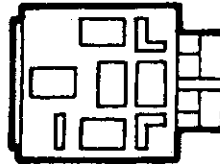
12004702



BLACK

**C230A**  
Heater-A/C Controller

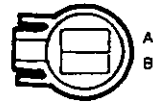
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BLACK

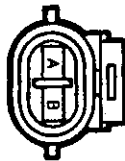
Metri-Pack 630  
**C221**  
A/C Clutch Relay

12078086



**C110**  
Evaporator Control Switch

12052643



RED

Metri-Pack 150  
**C145A**  
High Pressure Cutout Switch #2

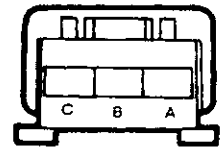
12066603



GRAY

Metri-Pack 150  
**C162**  
A/C Clutch

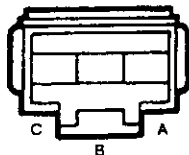
12020397



BLACK

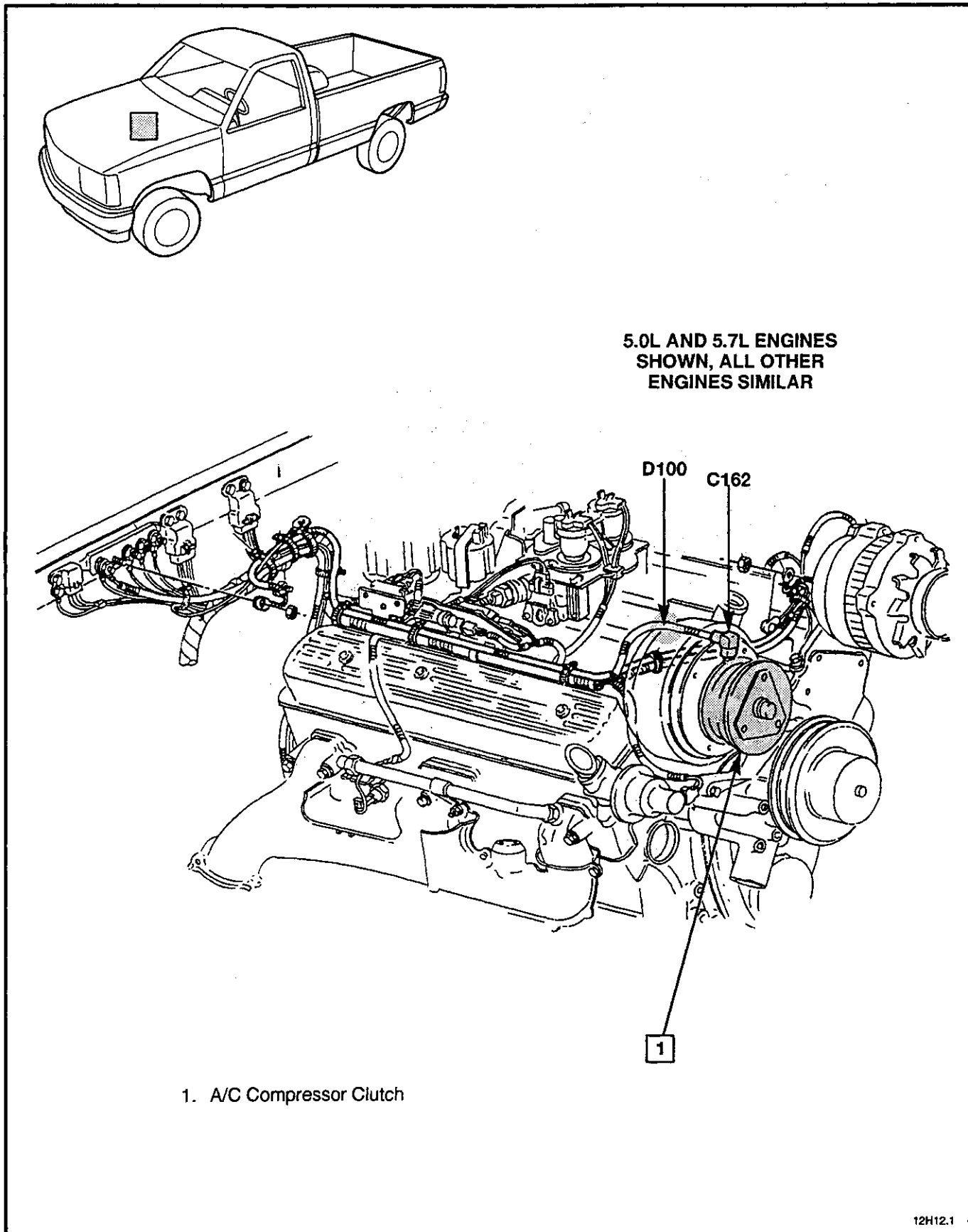
Metri-Pack 280  
**C260**  
In-Line I/P to A/C

12020398



BLACK

Metri-Pack 180  
**C260**  
In-Line A/C to I/P



**Figure 1 — RH Side of Engine, 5.0L (305 CID) and 5.7L (350 CID) V8 Gasoline Engines**

## 8A-64-8 A/C COMPRESSOR CONTROLS

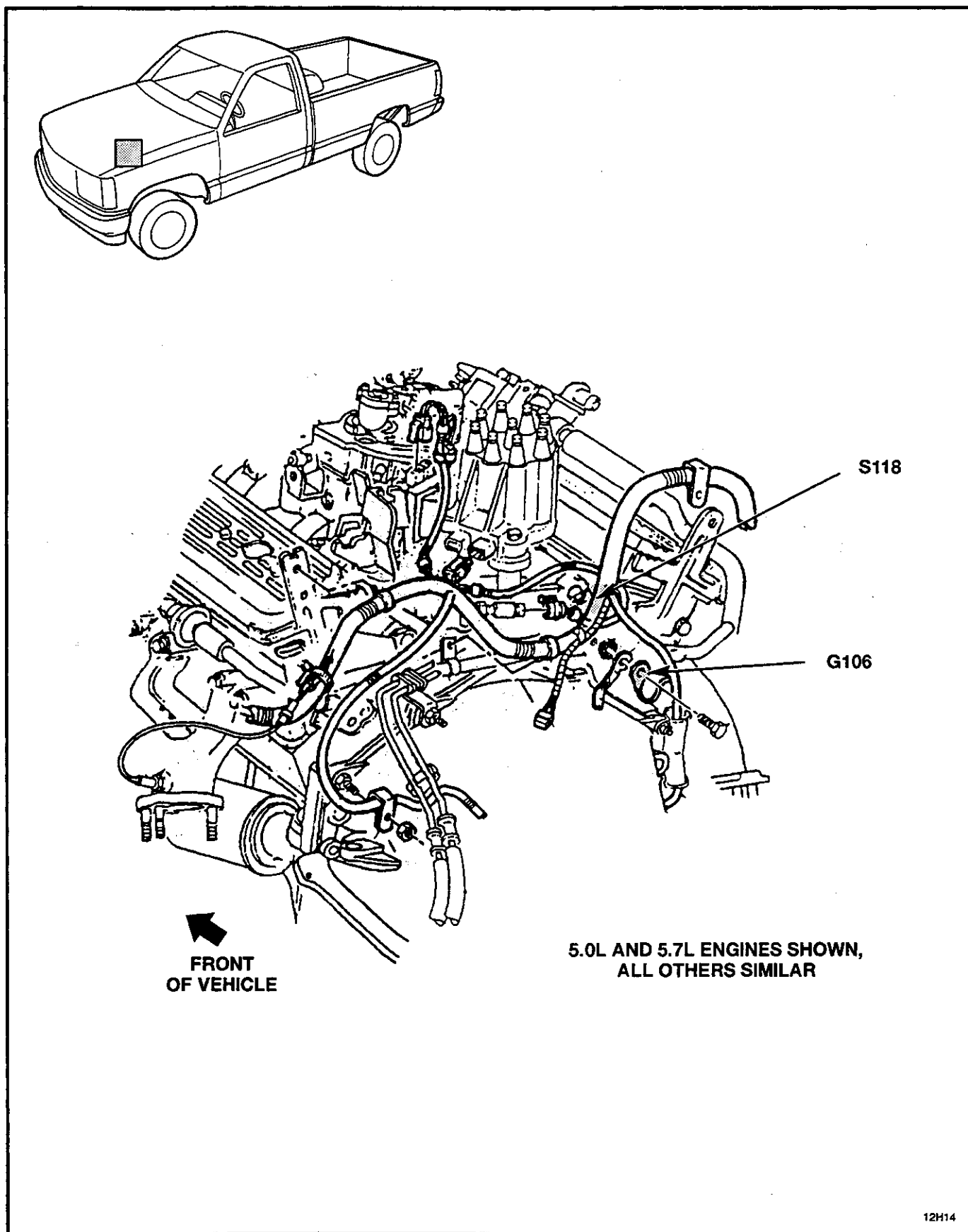
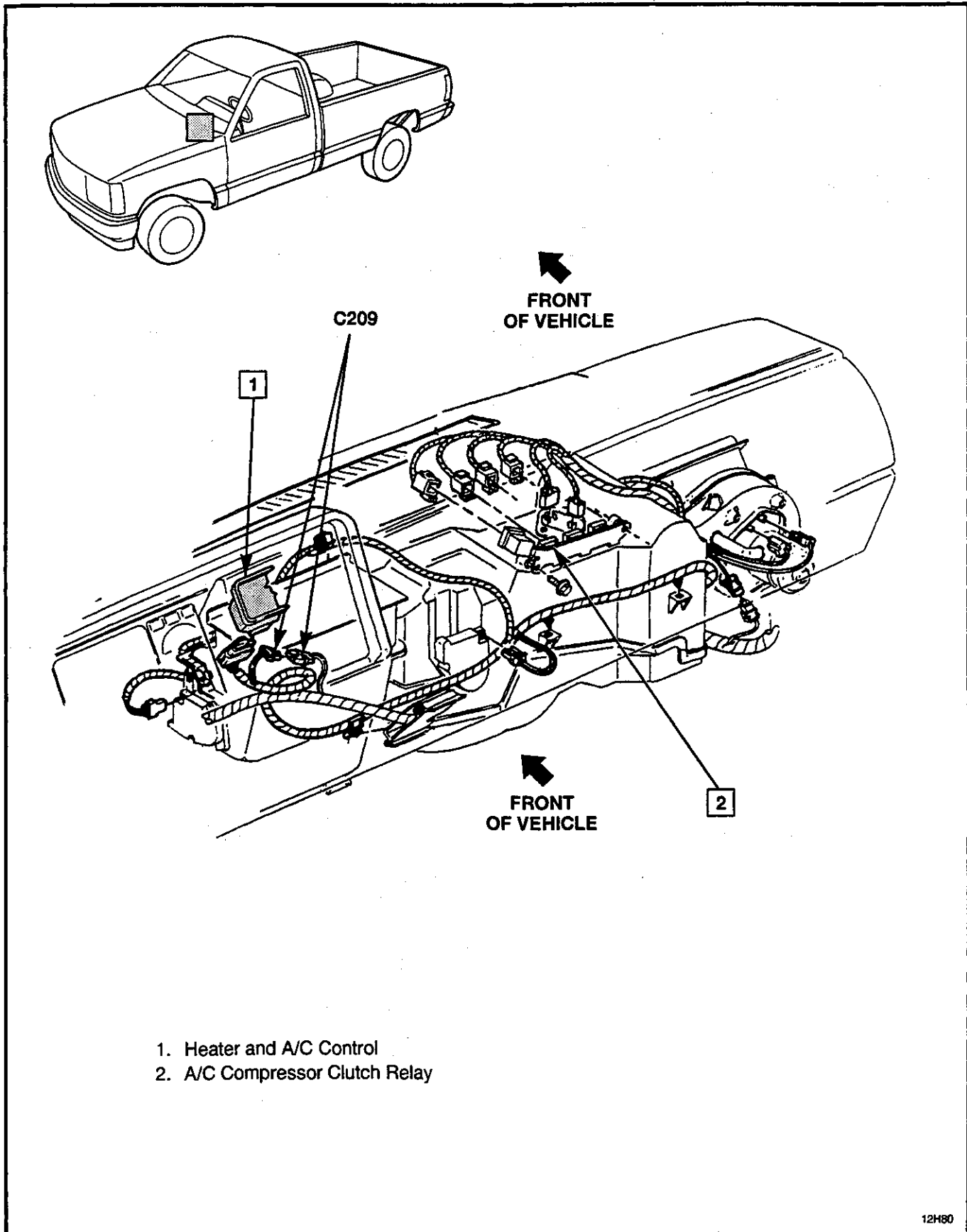


Figure 2 — LH Side of Engine, 5.0L (305 CID) and 5.7L (350 CID) Gasoline Engines



**Figure 3 — Heater and A/C Harness Wiring**

## 8A-64-10 A/C COMPRESSOR CONTROLS

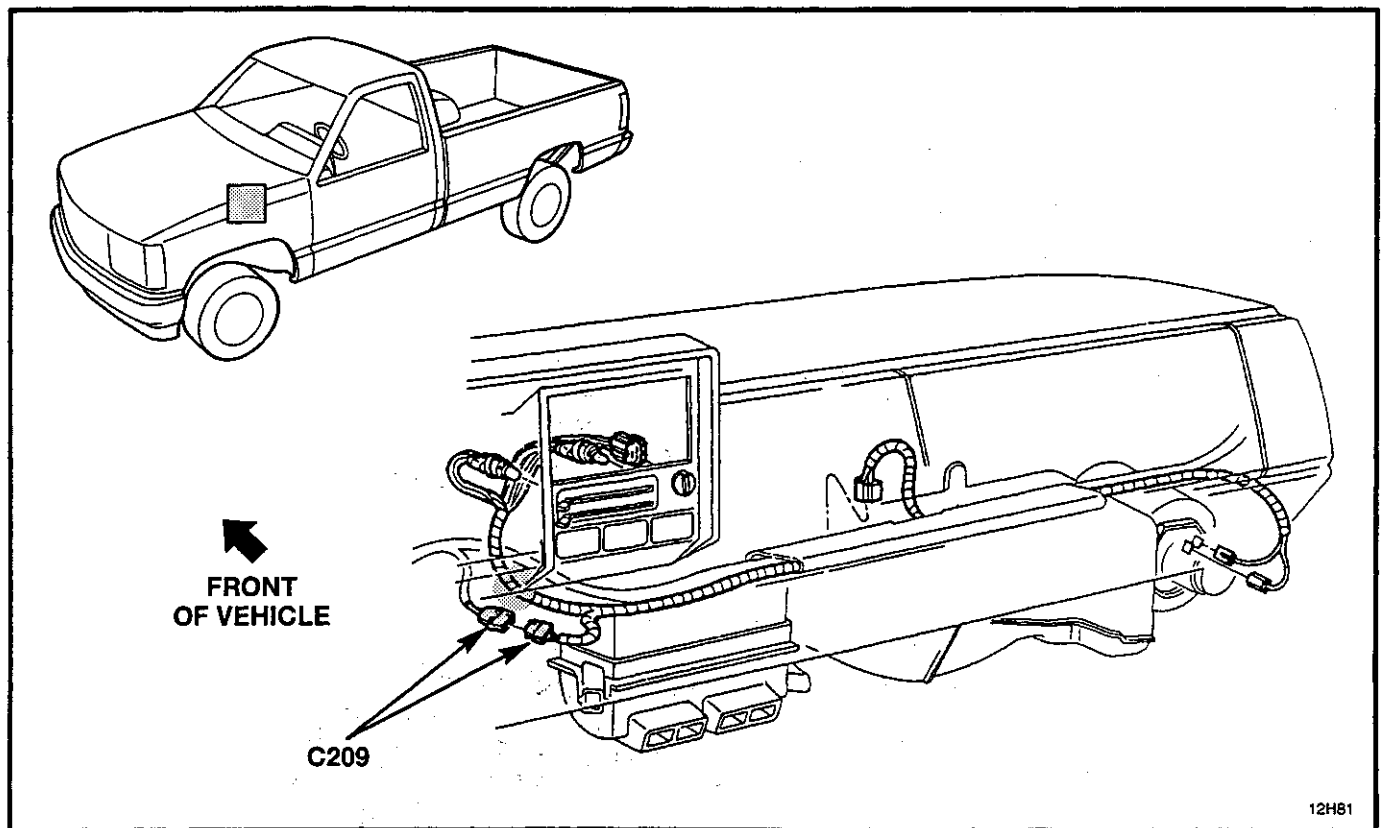


Figure 4 — Heater Wiring

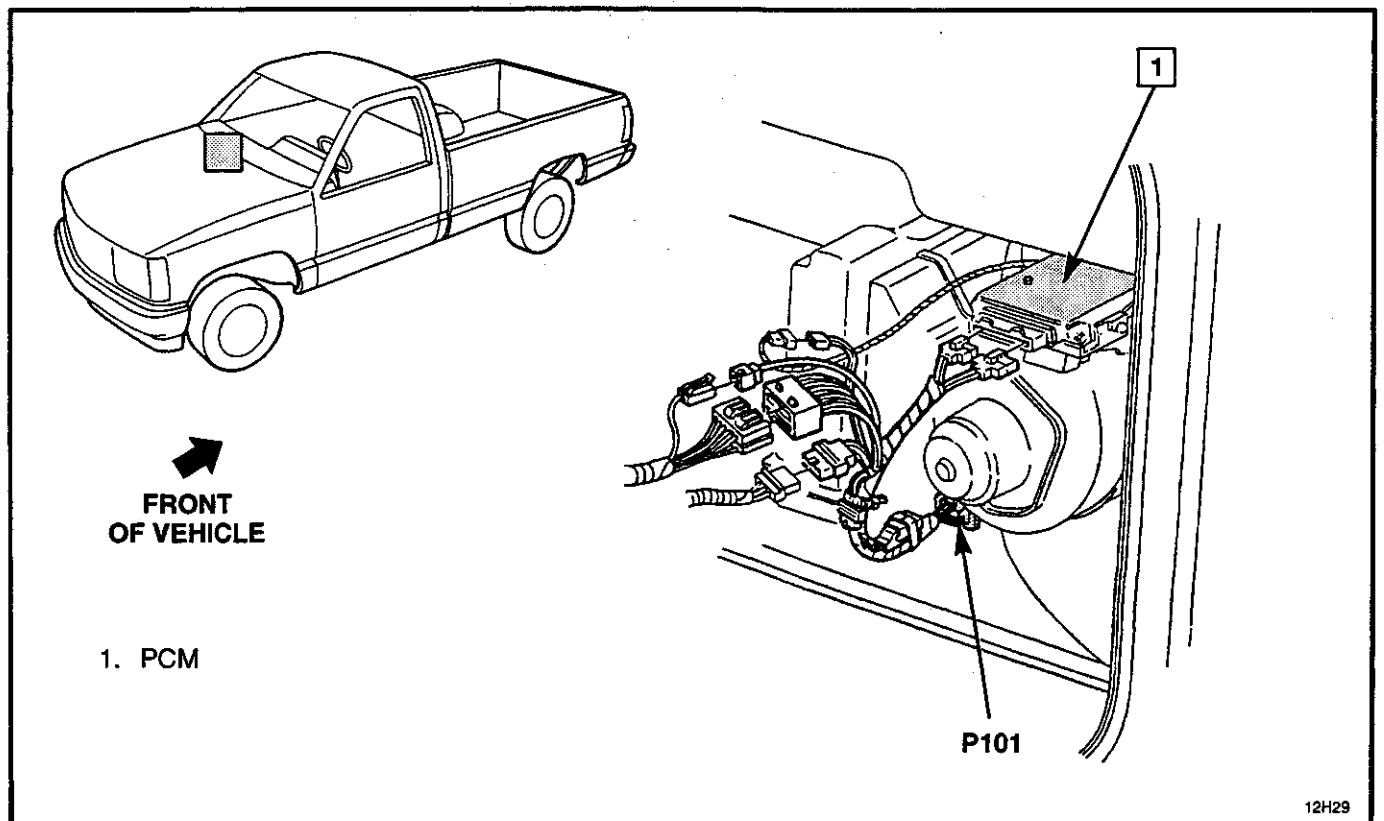
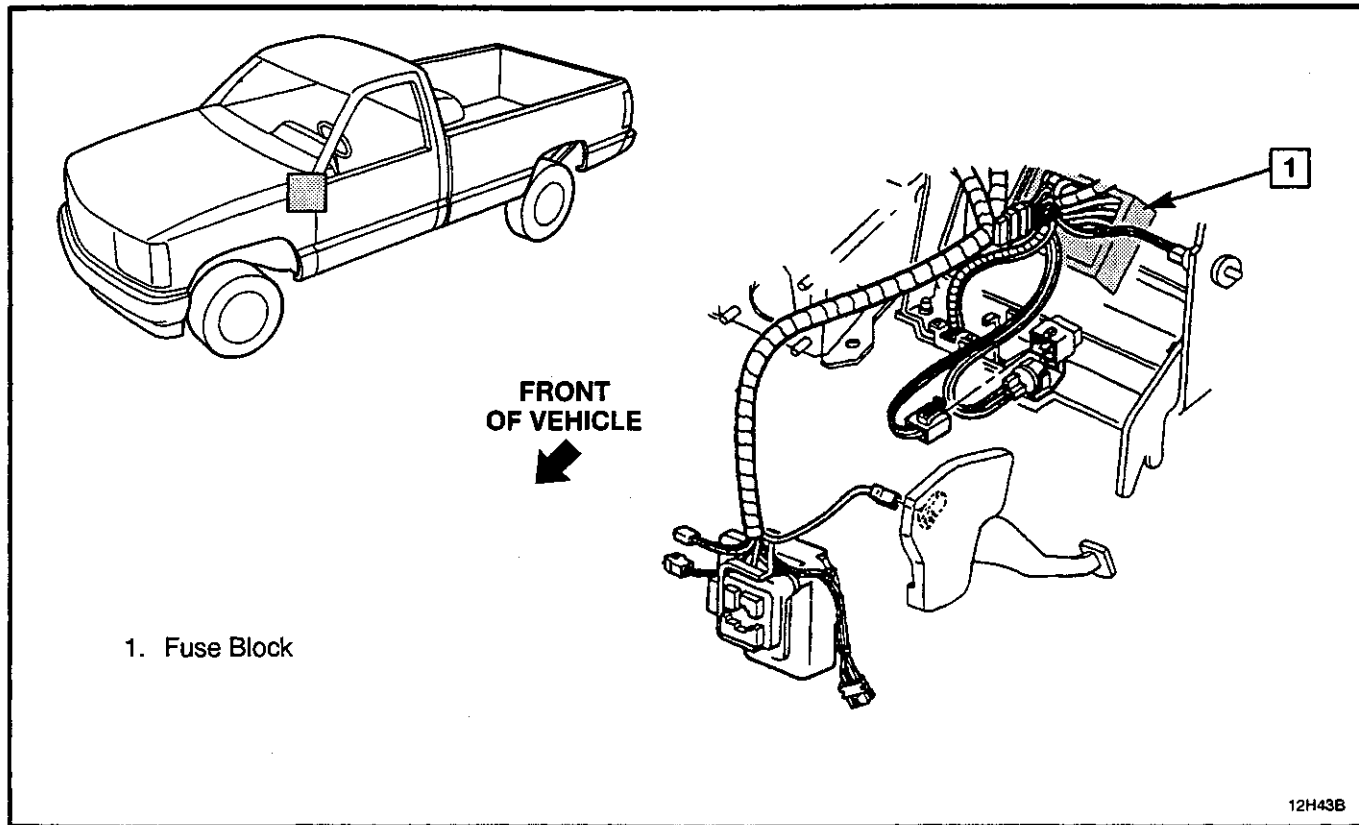
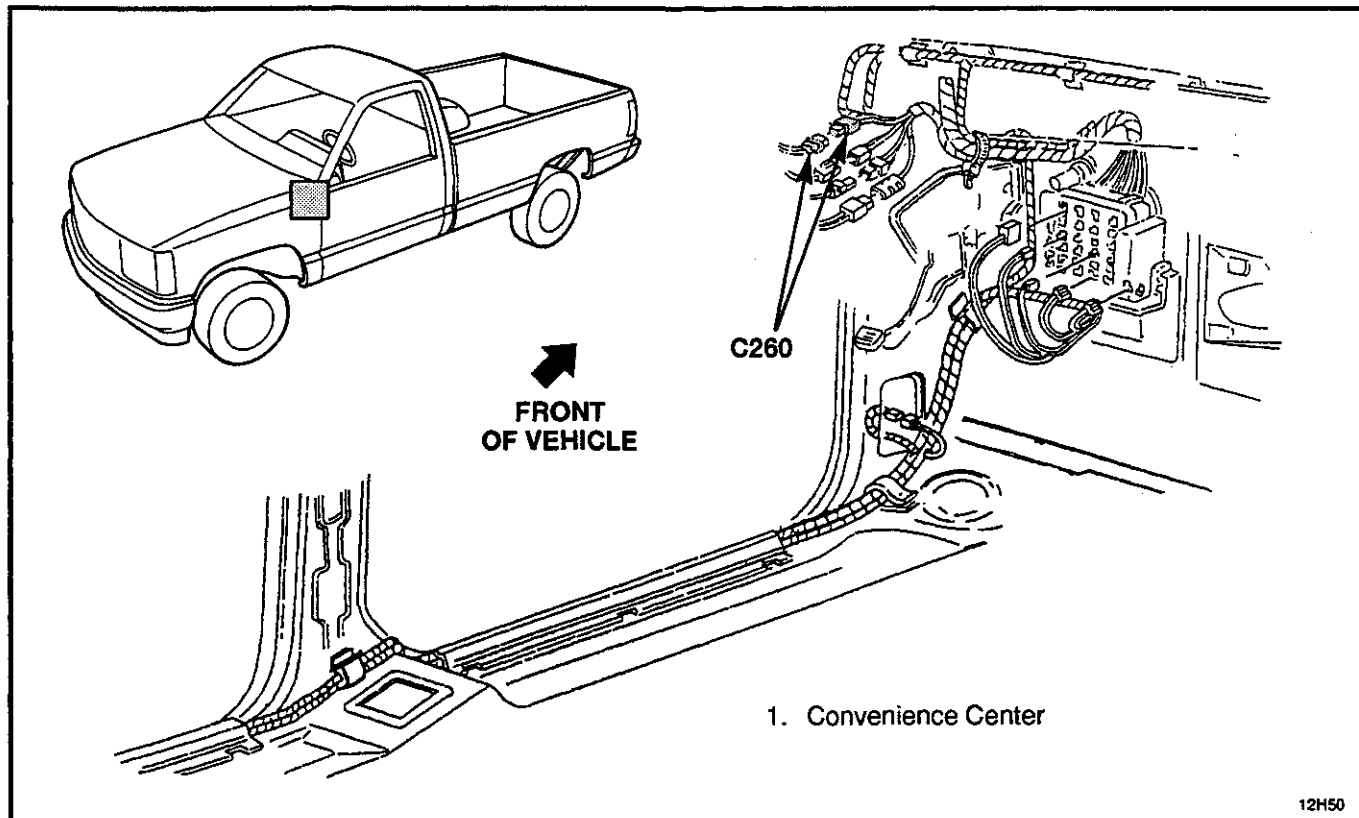


Figure 5 — Behind RH Side of I/P



**Figure 6 — Instrument Panel, LH Side**



**Figure 7 — Body Wiring Harness, Front**

**8A-64-12 A/C COMPRESSOR CONTROLS**

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**BLANK**



## REAR AUXILIARY AIR CONDITIONING 8A-67A-1

### CIRCUIT OPERATION

#### REAR AUXILIARY AIR CONDITIONING

The Rear Auxiliary Air Conditioning Module is operated by either of two control panels in the overhead console. The front control has the capability to override the rear control settings. The controls select the blower fan's three operating speeds: LO, MED and HI.

The fan speeds are controlled by the selector control and the selected speed blower relay. Battery voltage is supplied from the battery junction block to each relay through the RED (2) wire. Battery voltage is also supplied

to each relay through the RR HVAC fuse and the BRN (50) wire. The blower speed control switch grounds the relays through the YEL (51) LO speed, LT BLU (72) MED speed or the ORN (52) HI speed wire. The BLK (150) wire completes the path to ground from the blower speed switch to the I/P ground lug.

The front and rear control switch panels in the overhead console are both backlit. With the park lamps on, battery voltage is supplied to the lamps by the PANEL LPS fuse and the GRA (8) wire. Ground is provided by the BLK (150) wire from the I/P ground lug. The panel dimmer switch controls the lamp's illumination intensity.

#### COMPONENT LOCATION

#### Page — Figure

Auxiliary A/C Control, Front	At front of roof	67A-14	6
Auxiliary A/C Control, Rear	At rear of roof	67A-14	6
Battery Junction Block	RH rear engine compartment, at cowl	67A-10	1
Blower Motor	Under RH side of I/P	67A-11	2
Blower Motor Resistor	Under I/P on heater housing	67A-11	2
Convenience Center	Under LH side of I/P	67A-13	5
Fuse Block	Under LH side of I/P	67A-12	3
Hi Blower Relay, Rear	On auxiliary heater and A/C module	67A-13	4
Low Blower Relay, Rear	On auxiliary heater and A/C module	67A-13	4
Medium Blower Relay, Rear	On auxiliary heater and A/C module	67A-13	4

#### CONNECTORS:

C206A	At convenience center	67A-13	5
C228	At convenience center	67A-13	5
C231	At convenience center	67A-13	5
C382	At roof bow, near front dome lamp	67A-14	6
C475	At RH D-pillar	67A-13	4
C476	At RH D-pillar	67A-13	4

#### GROMMETS:

P101	RH lower cowl (engine compartment)	Not Shown
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#### GROUNDING:

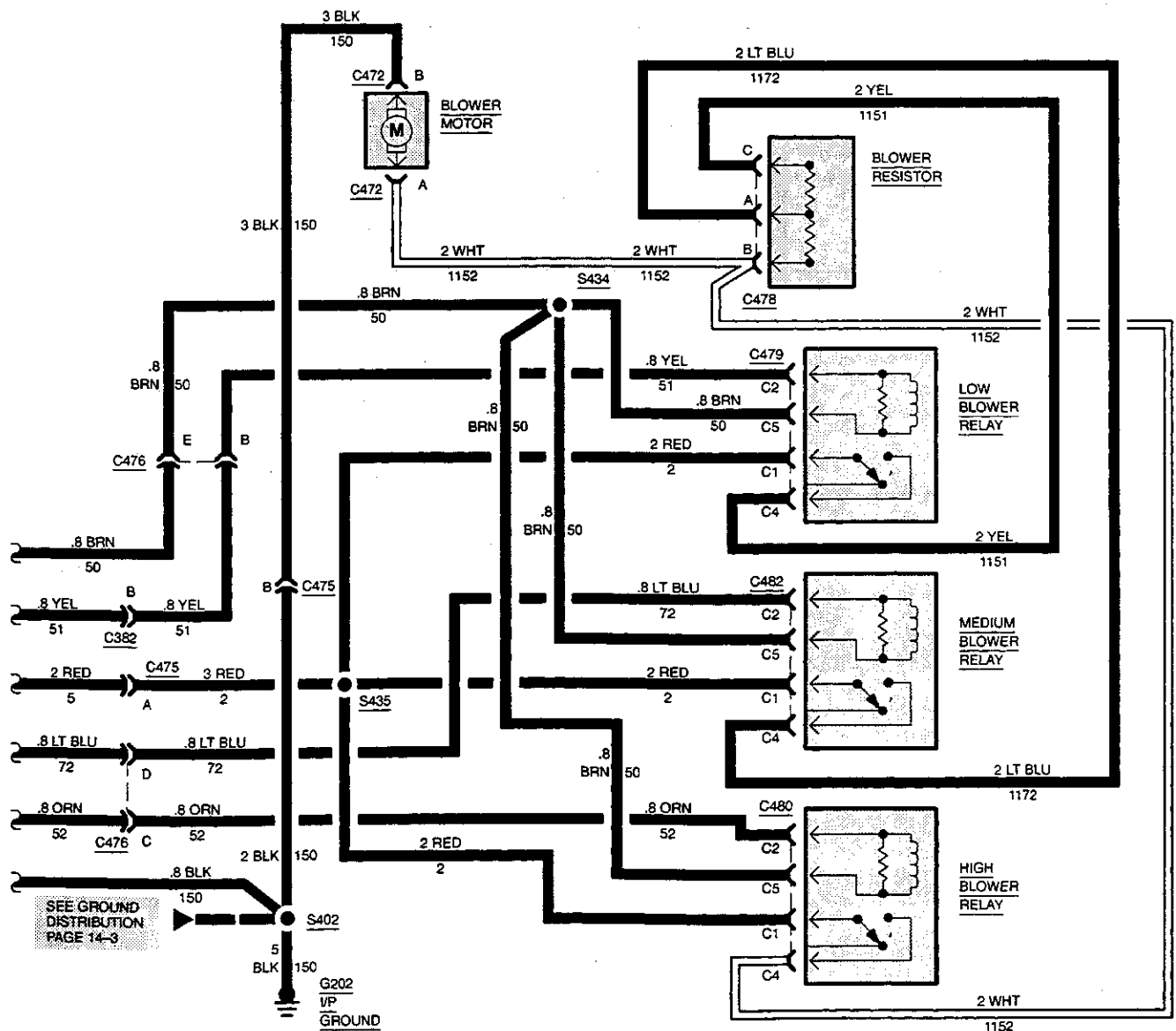
G400	At RH D-pillar	Not Shown
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#### SPLICES:

S157	Center of cowl, below battery junction block	67A-10	1
S217	Behind LH side of I/P	67A-12	3
S325	Auxiliary A/C control harness, behind roof console	67A-14	6
S326	Auxiliary A/C control harness, behind roof console	67A-14	6
S327	Auxiliary A/C control harness, behind roof console	67A-14	6
S328	Auxiliary A/C control harness, behind roof console	Not Shown	
S329	Auxiliary A/C control harness, at rear control lead	67A-14	6
S402	Above rear liftgate glass opening	67A-15	7
S434	Auxiliary A/C harness, near relay leads	67A-13	4
S435	Auxiliary A/C harness, near relay leads	67A-13	4



# REAR AUXILIARY AIR CONDITIONING 8A-67A-3



## 8A-67A-4 REAR AUXILIARY AIR CONDITIONING

### DIAGNOSIS — REAR AUXILIARY AIR CONDITIONING

#### PRELIMINARY CHECKS:

1. Check condition of RR HVAC, PNL LPS Fuses. If fuse(s) is blown, locate and repair source of overload. Replace fuse.

#### REAR BLOWER OPERATES IN LO AND MED FROM BOTH SWITCHES BUT DOES NOT OPERATE IN HI FROM EITHER SWITCH

TEST	RESULT	ACTION
1. Place ignition switch in RUN and blower switch in HI speed position. Connect test lamp from WHT (1152) wire at HI blower relay connector C480 to ground.	Test lamp lights.	LOCATE and REPAIR open in WHT (1152) wire between HI blower relay connector C480 and blower resistor connector C478.
	Test lamp does not light.	GO to step 2.
2. Connect test lamp from RED (2) wire at HI blower relay connector C480 to ground.	Test lamp lights.	GO to step 3.
	Test lamp does not light.	LOCATE and REPAIR open in RED (2) wire between HI blower relay connector C480 and splice S435.
3. Connect test lamp from BRN (50) wire at HI blower relay connector C480 to ground.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	LOCATE and REPAIR open in BRN (50) wire between HI blower relay connector C480 and splice S434.
4. Connect test lamp from BRN (50) wire to ORN (52) wire at HI blower relay connector C480.	Test lamp lights.	REPLACE HI blower relay.
	Test lamp does not light.	LOCATE and REPAIR open in ORN (52) wire between HI blower relay connector C480 and connector C476, from connector C476 to connector C382, from connector C382 to splice S329.

## REAR AUXILIARY AIR CONDITIONING 8A-67A-5

### REAR A/C BLOWER DOES NOT OPERATE IN ANY SPEED FROM EITHER SWITCH (REAR A/C ONLY)

TEST	RESULT	ACTION
1. Place ignition switch in RUN and rear A/C switch in HI speed position. Connect test lamp from WHT (152) wire at rear blower motor connector C477 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	GO to step 3.
2. Connect test lamp from WHT (1152) wire to BLK (150) wire at rear blower motor connector C477.	Test lamp lights.	REPLACE blower motor.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire between rear blower motor connector C477 and connector C475, from connector C475 to splice S402 or from splice S402 to ground G400.
3. Connect test lamp from WHT (1152) wire at blower resistor connector C478 to ground.	Test lamp lights.	LOCATE and REPAIR open in WHT (1152) wire between blower resistor connector C478 and blower motor connector C477.
	Test lamp does not light.	GO to step 4.
4. Connect test lamp from BRN (50) wire at HI blower relay connector C480 to ground.	Test lamp lights.	GO to step 5.
	Test lamp does not light.	LOCATE and REPAIR open in BRN (50) wire between splice S434 and connector C476, from connector C476 to convenience center connector C228 or from convenience center to fuse block.
5. Connect test lamp from RED (2) wire at HI blower relay connector to ground.	Test lamp lights.	GO to step 6.
	Test lamp does not light.	LOCATE and REPAIR open in RED (2) wire between splice S435 and connector C475, from connector C475 to convenience center connector C231, or from convenience center to battery junction block.
6. Connect test lamp from BRN (50) wire to ORN (52) wire at HI blower relay connector C480.	Test lamp lights.	CHECK all connections.
	Test lamp does not light.	GO to step 7.
7. Connect test lamp from positive battery voltage source to BLK (150) wire at rear blower switch connector C382 or C383.	Test lamp lights.	REPLACE switches.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire between splice S328 and connector C382, from connector C382 to splice S402 or from splice S402 to ground G400.

## 8A-67A-6 REAR AUXILIARY AIR CONDITIONING

### REAR BLOWER MOTOR OPERATES IN HI SPEED FROM BOTH SWITCHES BUT DOES NOT OPERATE IN LO/MED SPEEDS FROM EITHER SWITCH

TEST	RESULT	ACTION
1. Place ignition switch in RUN and rear blower switch in LO or MED. Connect test lamp from YEL (1151) wire (LO) or LT BLU (72) wire (MED) at blower resistor connector C478 to ground.	Test lamp lights.	REPLACE blower resistor.
	Test lamp does not light.	GO to step 2.
2. Connect test lamp from RED (2) wire at LO blower relay connector C479 or MED blower connector C482 to ground.	Test lamp lights.	GO to step 3.
	Test lamp does not light.	LOCATE and REPAIR open in RED (2) wire between LO blower relay connector C479 or MED blower connector C482 and splice S435.
3. Connect test lamp from BRN (50) wire at LO blower relay connector C479 or MED blower connector C482 to ground.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	LOCATE and REPAIR open in BRN (50) wire between LO blower relay connector C479 or MED blower relay connector C482 and splice S434.
4. Connect test lamp from BRN (50) wire to YEL (51) wire at LO blower relay connector C479 or to LT BLU (72) wire at MED blower relay connector C482.	Test lamp lights.	GO to step 5.
	Test lamp does not light.	LOCATE and REPAIR open in YEL (51) or LT BLU (72) wire(s) between LO blower relay connector C479 or MED blower relay connector C482 and connector C467, from connector C476 to connector C382 or from connector C382 to splice S327 YEL (51) or splice S326 LT BLU (72).
5. Connect test lamp from YEL (1151) wire at LO blower relay connector C479 or LT BLU (72) wire at MED blower relay connector C482 to ground.	Test lamp lights.	REPLACE relay.
	Test lamp does not light.	LOCATE and REPAIR open in YEL (1151) LO or LT BLU (72) MED wire(s) between LO blower relay connector C479 or MED blower relay connector C482 and blower resistor connector C478.

## REAR AUXILIARY AIR CONDITIONING 8A-67A-7


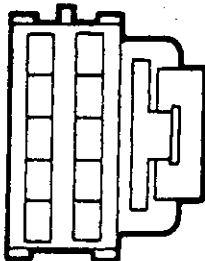
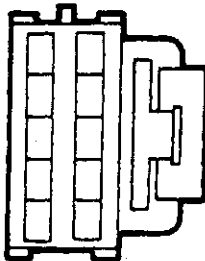
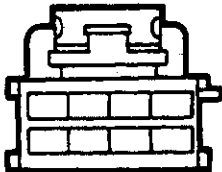
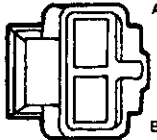
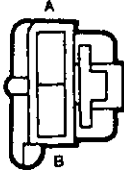
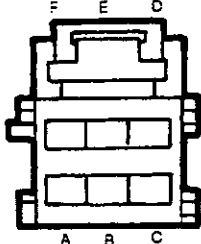

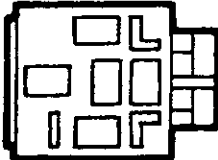
### ALL REAR BLOWER SPEEDS OPERATE BUT ONLY FROM CONSOLE FRONT CONTROL SWITCH

TEST	RESULT	ACTION
1. Place ignition switch in RUN and rear blower switch in LO, MED or HI speed position and front blower switch in OFF. Connect test lamp from positive battery voltage source to BLK (150) wire at rear blower control switch connector C384.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire between rear blower switch and splice S328.
2. Connect test lamp from positive battery voltage source to LT BLU (203) wire at rear blower switch connector C384.	Test lamp lights.	LOCATE and REPAIR short in LT BLU (203) wire between rear blower control switch connector C384 and front blower control switch connector C383.
	Test lamp does not light.	REPLACE rear blower switch.

### ALL BLOWER SPEEDS OPERATE BUT ONLY FROM CONSOLE REAR CONTROL SWITCH

TEST	RESULT	ACTION
1. Place ignition switch in RUN and front blower switch in LO, MED or HI speed position. Connect test lamp from positive battery voltage source to BLK (150) wire at blower control switch connector C383.	Test lamp lights.	REPLACE switch.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire between blower control switch connector C383 and splice S328.

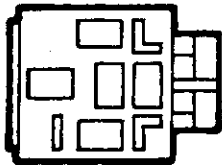
## 8A-67A-8 REAR AUXILIARY AIR CONDITIONING

<p>12089856</p>  <p><b>C231</b> Rear Auxiliary A/C Battery Tap at Convenience Center</p>	<p>12064871</p>  <p><b>C383</b> Front Auxiliary A/C Controls</p>	<p>12064871</p>  <p><b>C384</b> Rear Auxiliary A/C Controls</p>
<p>12064766</p>  <p><b>BLUE</b> Metri-Pack 150 <b>C382</b> In-Line Rear Auxiliary A/C Controls to Extension Harness</p>	<p>12064750</p>  <p><b>BLACK</b> Metri-Pack 480 <b>C475</b> In-Line Rear A/C Heater Control Extension Harness to Rear Module</p>	<p>12064749</p>  <p><b>BLACK</b> Metri-Pack 480 <b>C475</b> In-Line Rear Module to Rear A/C Heater Control Extension Harness</p>
<p>12064762</p>  <p><b>GRAY</b> Metri-Pack 150 <b>C476</b> In-Line Rear Module to Rear A/C Heater Control Extension Harness</p>	<p>02965104</p>  <p><b>NATURAL</b> 56 Series <b>C478</b> Blower Resistor</p>	<p>12034003</p>  <p><b>BLACK</b> Metri-Pack 630 <b>C479</b> Blower Relay</p>



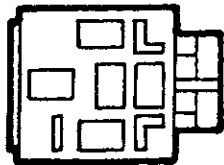
**REAR AUXILIARY AIR CONDITIONING 8A-67A-9**

**12034003**



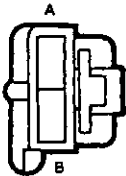
**BLACK**  
Metri-Pack 630  
**C480**  
Blower Relay

**12034003**



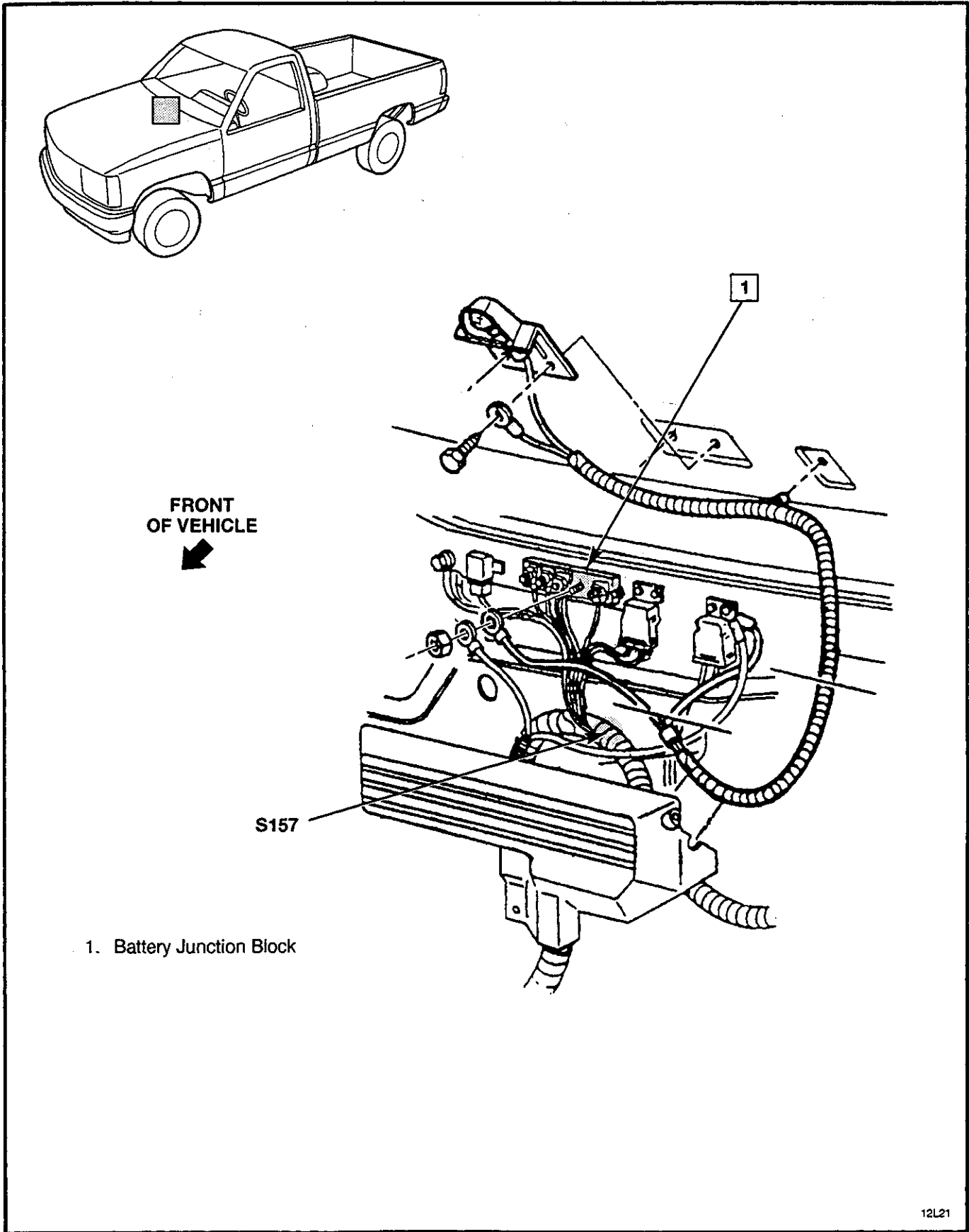
**BLACK**  
Metri-Pack 630  
**C482**  
Blower Relay

**12064749**



**BLACK**  
Metri-Pack 480  
**C472**  
Blower Motor

**8A-67A-10 REAR AUXILIARY AIR CONDITIONING**



**Figure 1 — Battery Junction Block**

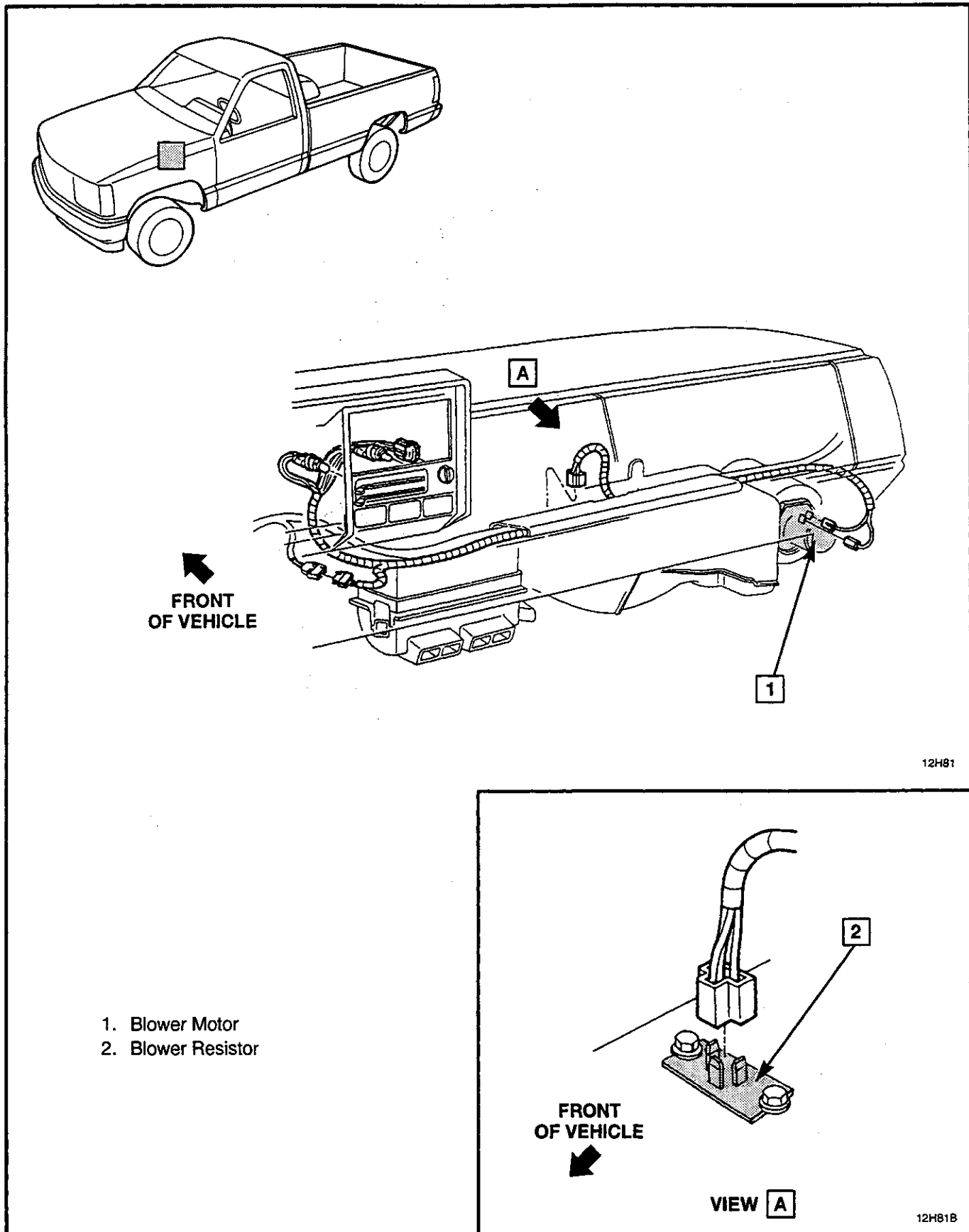


Figure 2 — Heater A/C Wiring

## 8A-67A-12 REAR AUXILIARY AIR CONDITIONING

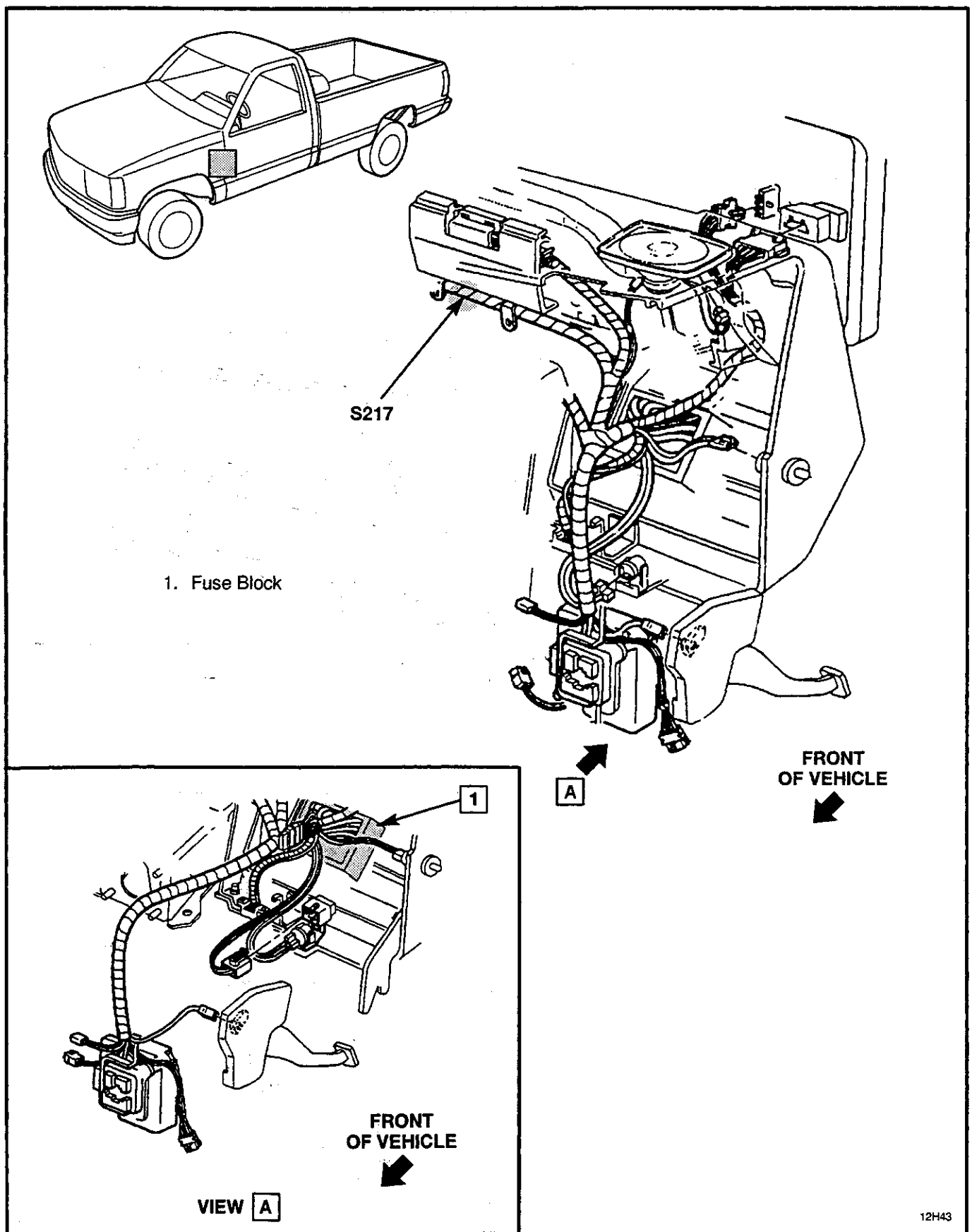


Figure 3 — LH Side of Instrument Panel

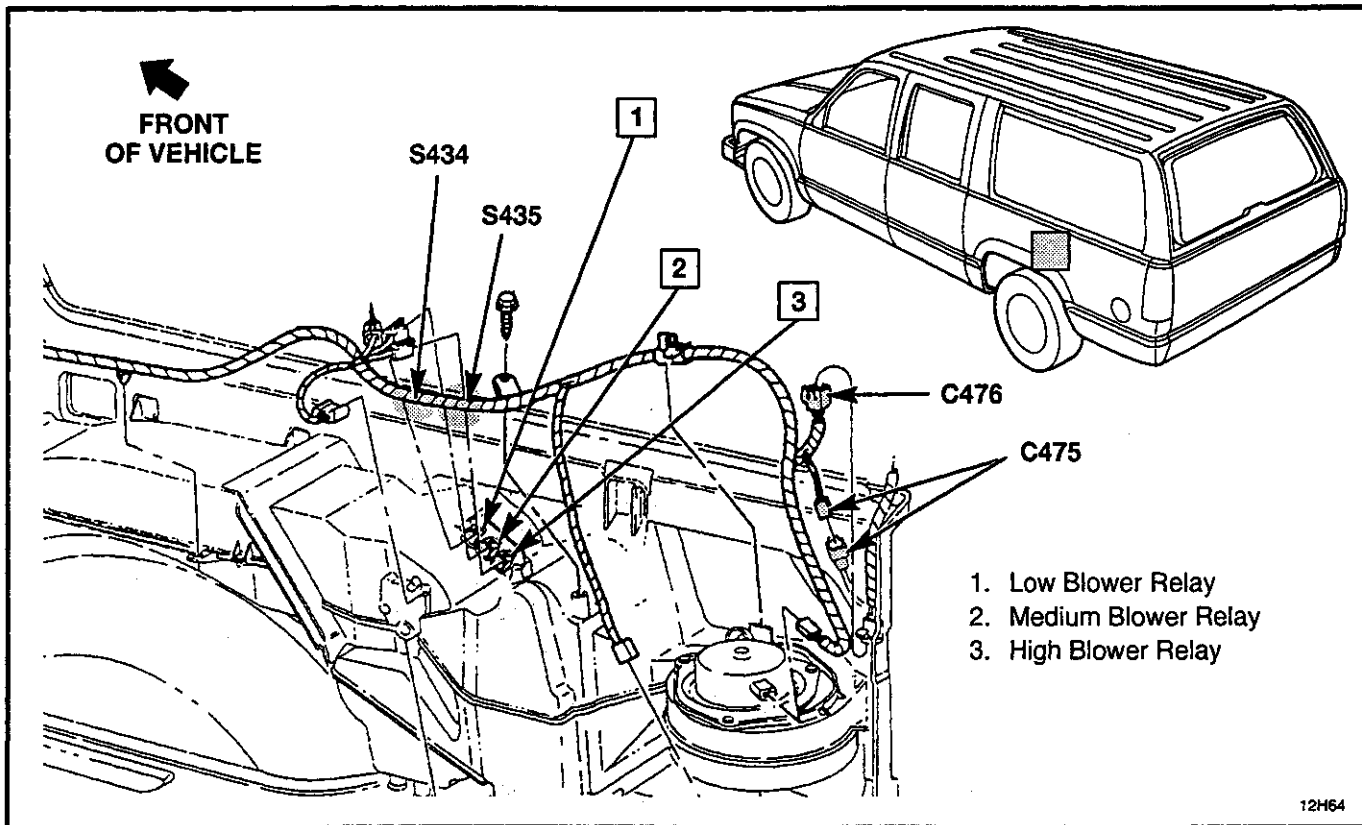


Figure 4 — Auxiliary Heater and A/C Wiring

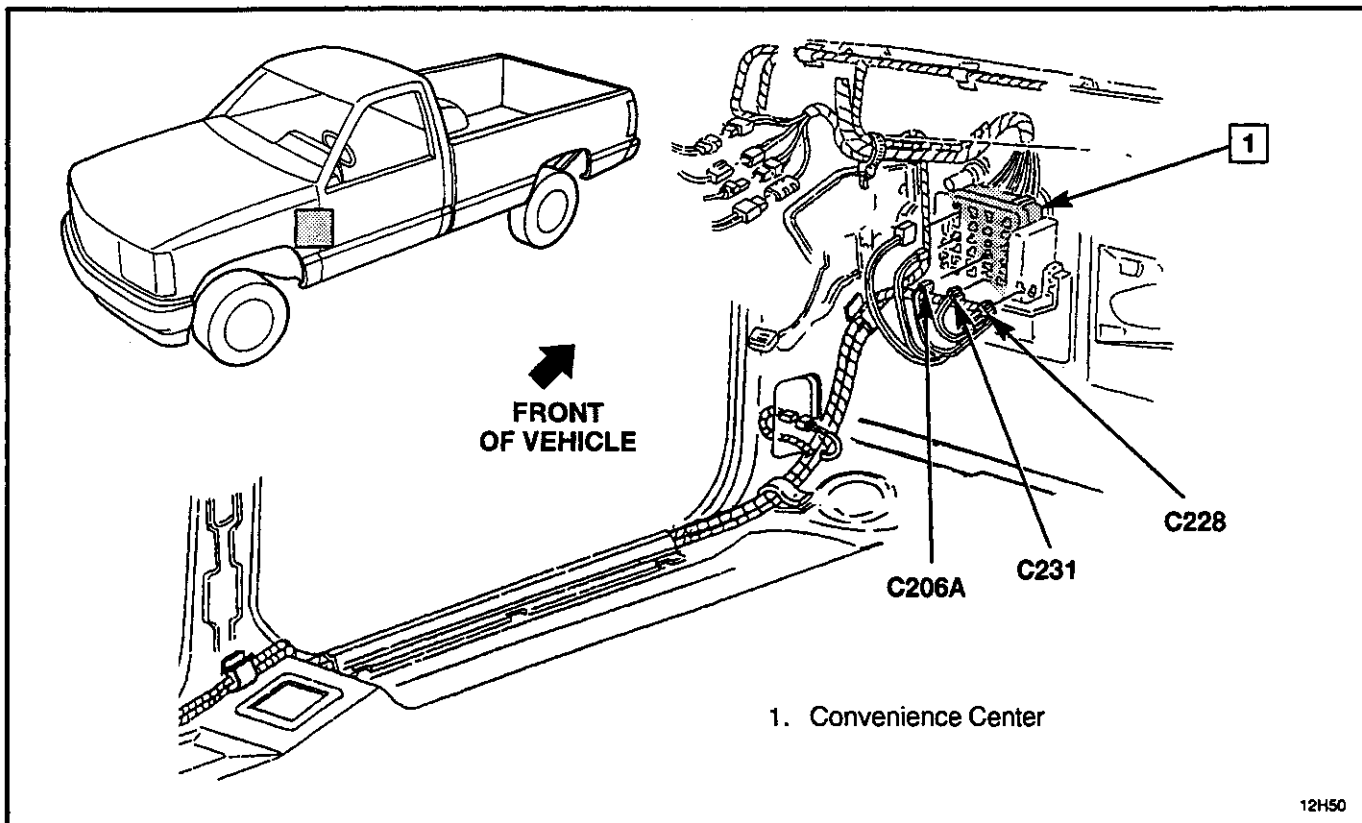
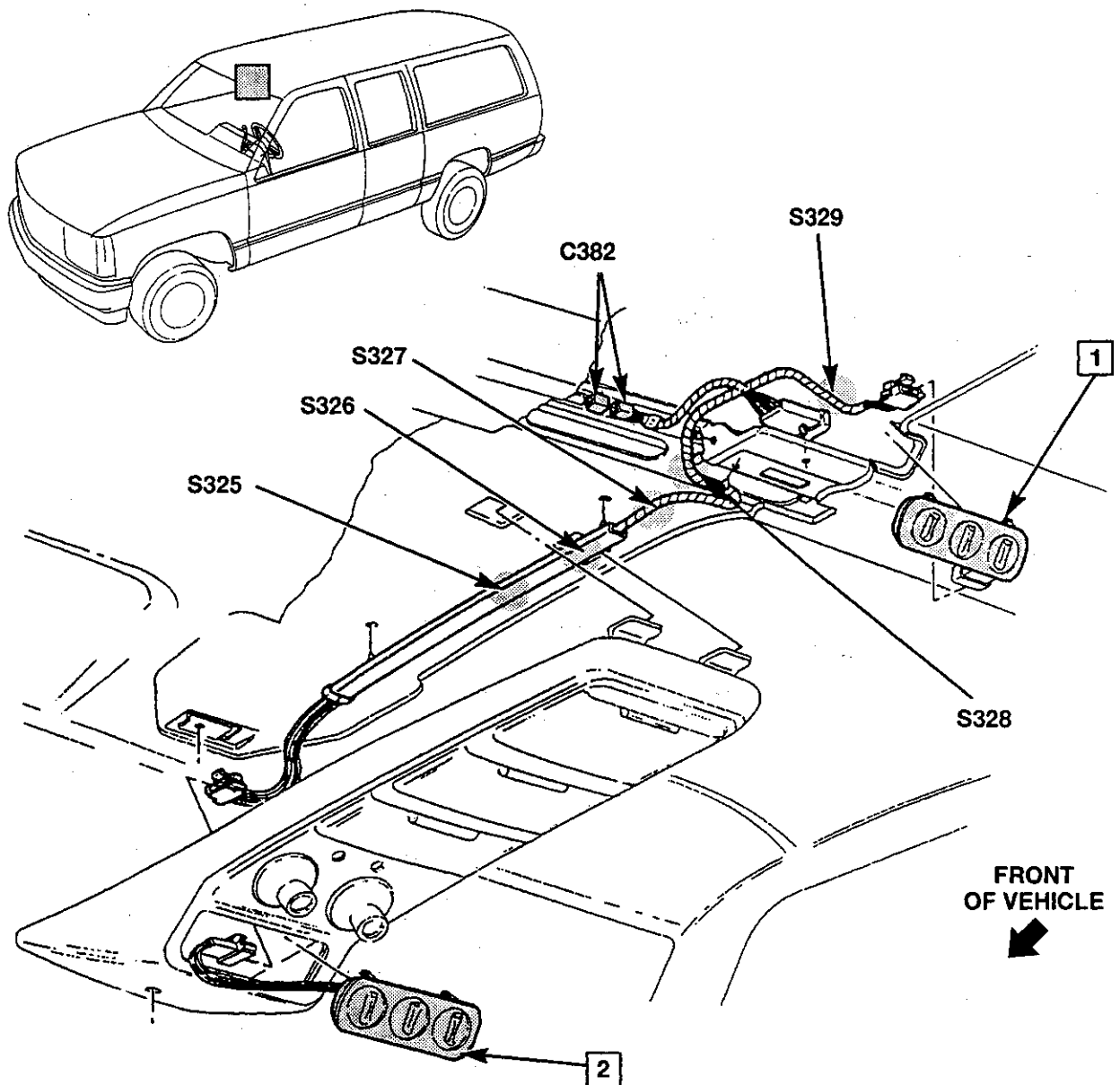


Figure 5 — Body Wiring Harness, Front

## 8A-67A-14 REAR AUXILIARY AIR CONDITIONING



1. Auxiliary Heater and A/C Front Control
2. Auxiliary Heater and A/C Rear Control

Figure 6 — Auxiliary Heater and A/C Controls

## REAR AUXILIARY AIR CONDITIONING 8A-67A-15

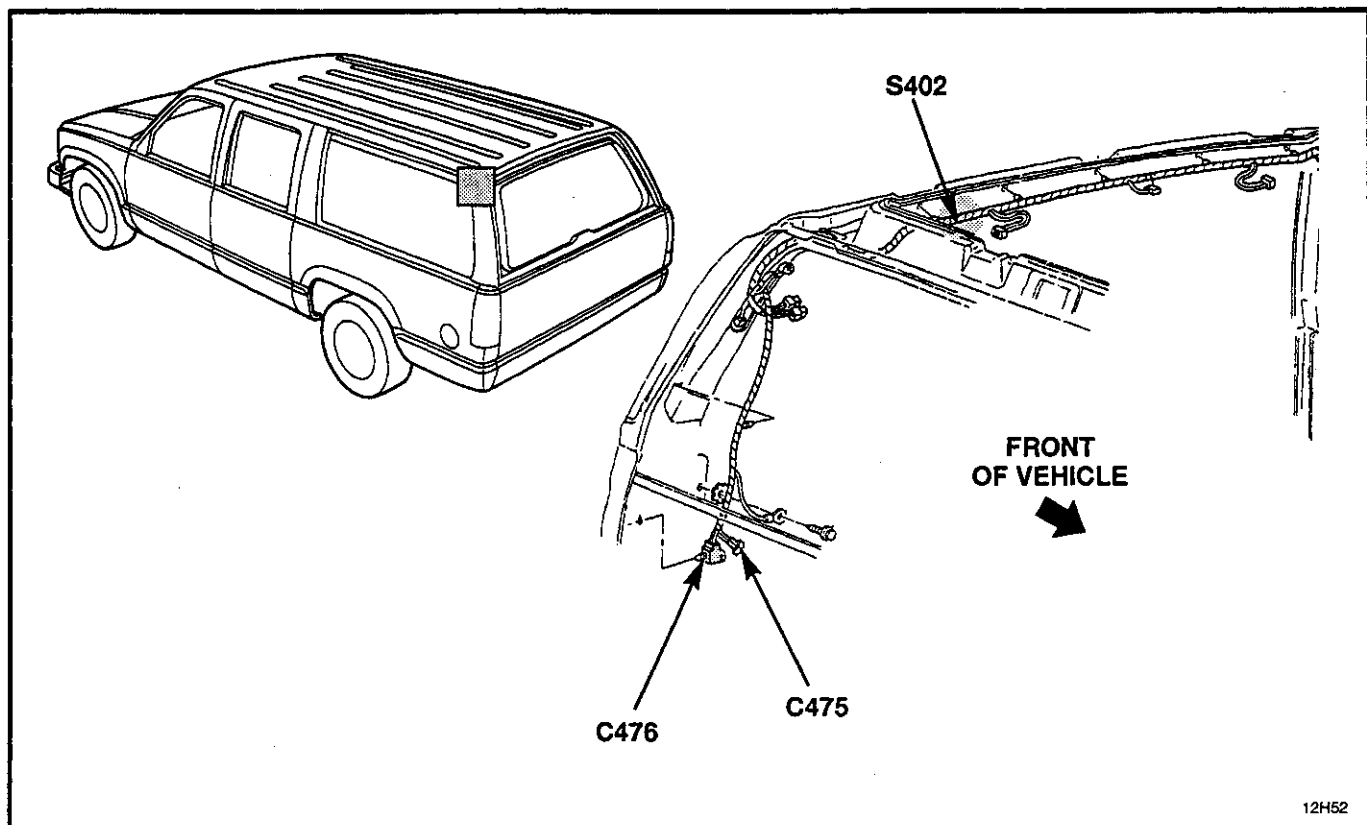


Figure 7 — Body Wiring — Rear — Suburban

**8A-67A-16 REAR AUXILIARY AIR CONDITIONING**

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## REAR AUXILIARY HEATER AND AIR CONDITIONING 8A-67B-1

### CIRCUIT OPERATION

#### REAR AUXILIARY HEATER AND AIR CONDITIONING

The Rear Auxiliary Heater and Air Conditioning Module is operated by either of two control panels in the overhead console. The front control has the capability to override the rear control settings. The controls select the blower fan's three operating speeds: LO, MED and HI.

The fan speeds are controlled by the selector control and the selected speed blower relay. Battery voltage is supplied from the battery junction block to each relay through the RED (2) wire. Battery voltage is also supplied

to each relay through the RR HVAC fuse and the BRN (50) wire. The blower speed control switch grounds the relays through the YEL (51) LO speed, LT BLU (72) MED speed or the ORN (52) HI speed wire. The BLK (150) wire completes the path to ground from the blower speed switch to the I/P ground lug.

The front and rear control switch panels in the overhead console are both backlit. With the park lamps on, battery voltage is supplied to the lamps by the PANEL LPS fuse and the GRA (8) wire. Ground is provided by the BLK (150) wire from the I/P ground lug. The panel dimmer switch controls the lamp's illumination intensity.

#### COMPONENT LOCATION

#### Page — Figure

Auxiliary Heater and A/C Control, Front .....	At front of roof .....	67B-16	9
Auxiliary Heater and A/C Control, Rear .....	At rear of roof .....	67B-16	9
Battery Junction Block .....	RH rear engine compartment, at cowl .....	67B-11	1
Blower Motor .....	Under RH side of I/P .....	67B-14	6
Blower Motor Resistor .....	Under I/P on heater housing .....	67B-14	6
Convenience Center .....	Under LH side of I/P .....	67B-12	2
Front/Rear Heater, A/C Control Logic Module (W/Rear A/C and Heater Only) .....	Above overhead console .....	Not Shown	
Fuse Block .....	Under LH side of I/P .....	67B-13	5
HI Blower Relay, Rear .....	On auxiliary heater and A/C module .....	67B-15	7
Low Blower Relay, Rear .....	On auxiliary heater and A/C module .....	67B-15	7
Medium Blower Relay, Rear .....	On auxiliary heater and A/C module .....	67B-15	7

#### CONNECTORS:

C206A .....	At convenience center .....	67B-12	2
C228 .....	At convenience center .....	67B-12	3
C231 .....	At convenience center .....	67B-12	3
C382 .....	At roof bow, near front dome lamp .....	67B-16	9
C475 .....	At RH D-pillar .....	67B-15	7
C476 .....	At RH D-pillar .....	67B-15	7

#### GROMMETS:

P101 .....	RH lower cowl (engine compartment) .....	Not Shown
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#### GROUND:

G400 .....	At RH D-pillar .....	Not Shown
G202 .....	At DLC bracket .....	67B-13 4

## **8A-67B-2 REAR AUXILIARY HEATER AND AIR CONDITIONING**

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### **COMPONENT LOCATION**

**Page — Figure**

#### **SPLICES:**

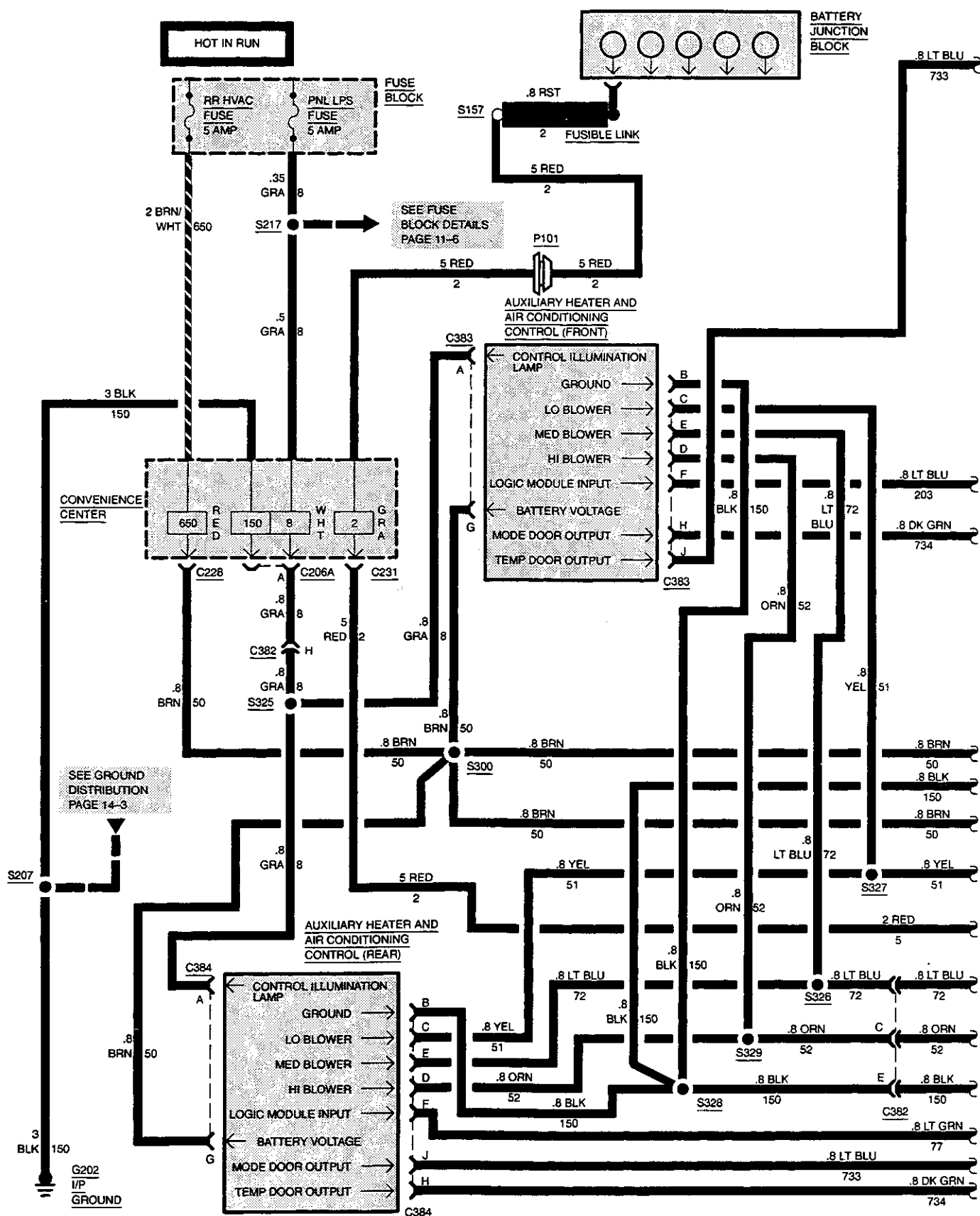
S157	Center of cowl, below battery junction block	67B-11	1
S300	LH door sill area	67B-11	5
S325	Auxiliary heater-A/C control harness, behind roof console	67B-16	9
S326	Auxiliary heater-A/C control harness, behind roof console	67B-16	9
S327	Auxiliary heater-A/C control harness, behind roof console	67B-16	9
S328	Auxiliary heater-A/C control harness, behind roof console	67B-16	9
S329	Auxiliary heater-A/C control harness, at rear control lead	67B-16	9
S330	Auxiliary heater-A/C control harness, at rear control lead	67B-16	9
S402	Above rear liftgate glass opening	67B-15	8
S434	Auxiliary heater-A/C harness, near relay leads	67B-15	7
S435	Auxiliary heater-A/C harness, near relay leads	67B-15	7
S436	Auxiliary heater-A/C harness, near blower resistor lead	Not Shown	

## **REAR AUXILIARY HEATER AND AIR CONDITIONING 8A-67B-3**

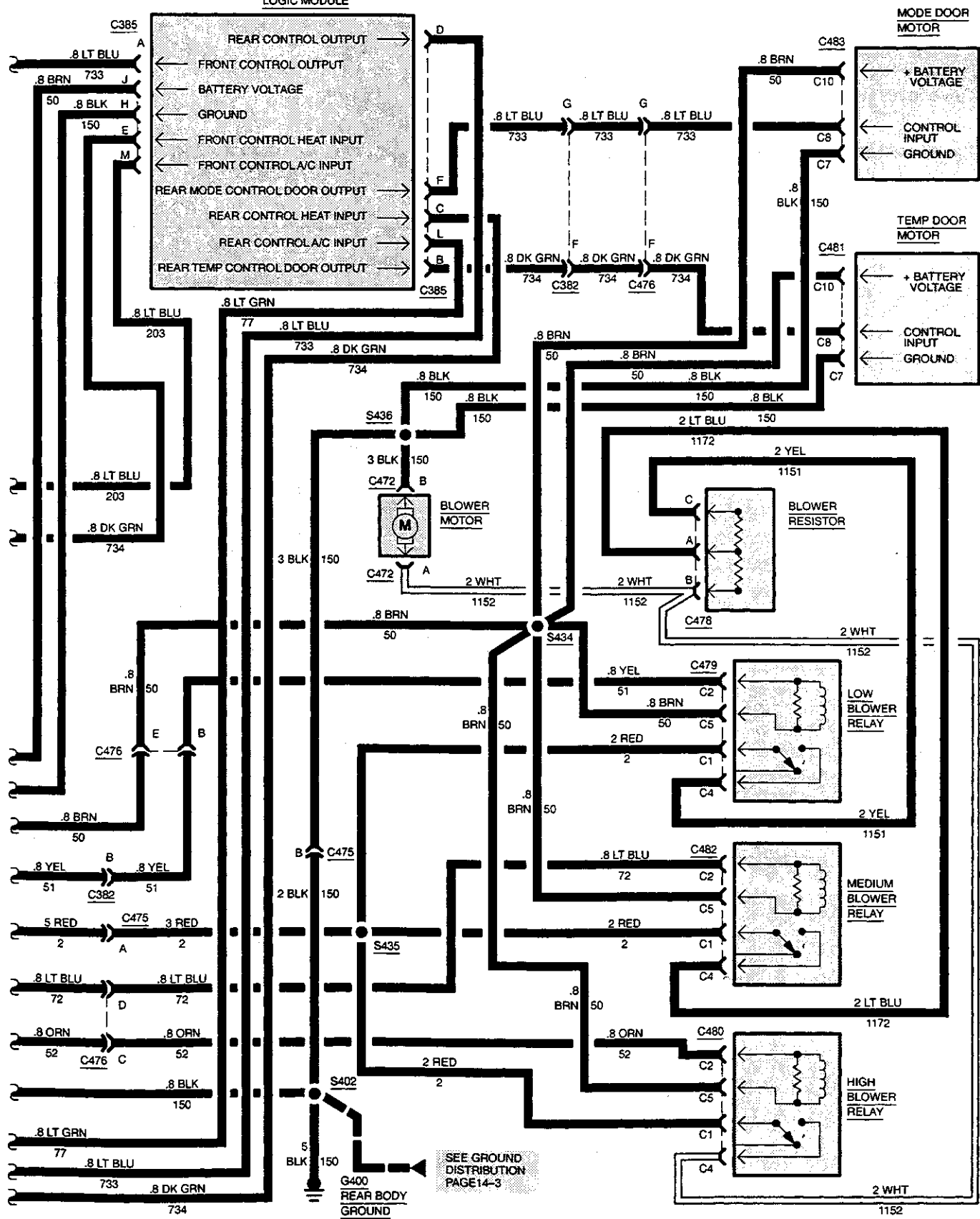
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# 8A-67B-4 REAR AUXILIARY HEATER AND AIR CONDITIONING



## AUXILIARY HEATER AND AIR CONDITIONING LOGIC MODULE



## **8A-67B-6 REAR AUXILIARY HEATER AND AIR CONDITIONING**

### **DIAGNOSIS — REAR AUXILIARY HEATER AND AIR CONDITIONING**

#### **PRELIMINARY CHECKS:**

1. Check condition of RR HVAC, PNL LPS Fuses. If fuse(s) is blown, locate and repair source of overload. Replace fuse.

#### **TEMPERATURE CONTROL MODE DOOR OPERATES BUT REAR AIRFLOW MODE DOOR DOES NOT OPERATE FROM EITHER CONSOLE CONTROL (W/REAR HEATER AND A/C)**

TEST	RESULT	ACTION
1. Place ignition switch in RUN and overhead console front control in A/C position. Connect test lamp from DK GRN (734) wire at airflow mode door motor connector C483 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in DK GRN (734) wire between airflow mode door motor connector C483 and connector C476, from C476 to C483, from C382 to logic module connector C385.
2. Connect test lamp from DK GRN (734) wire to BLK (150) wire at airflow mode door motor connector C483.	Test lamp lights.	REPLACE airflow mode door motor.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire between airflow mode door motor connector C483 and splice S436. If wire is good, REPLACE logic controller.

#### **REAR TEMPERATURE AND AIRFLOW MODE DOOR MOTORS OPERATE FROM ROOF CONSOLE FRONT CONTROL ONLY — BLOWER OPERATES FROM BOTH CONTROLS (W/REAR HEATER AND A/C)**

TEST	RESULT	ACTION
1. Place ignition switch in RUN and console rear control switch in A/C and front control switch in OFF. Connect test lamp from positive battery voltage source to LT GRN (77) wire at rear A/C control connector C384.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	REPLACE rear control switch.
2. Connect test lamp from positive battery voltage source to LT GRN (77) wire at logic module connector C385.	Test lamp lights.	REPLACE logic module.
	Test lamp does not light.	LOCATE and REPAIR open in LT GRN (77) wire between rear control connector C384 and logic connector C385.

## REAR AUXILIARY HEATER AND AIR CONDITIONING 8A-67B-7

### REAR TEMPERATURE AND AIRFLOW MODE DOOR MOTORS OPERATE FROM ROOF CONSOLE REAR CONTROL ONLY — BLOWER MOTOR OPERATES FROM BOTH CONTROLS (W/REAR HEATER AND A/C)

TEST	RESULT	ACTION
1. Place ignition switch in RUN and console front switch in A/C. Connect test lamp from positive battery voltage source to LT BLU (203) wire at front A/C control connector C383.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	REPLACE front control switch.
2. Connect test lamp from positive battery source to LT BLU (203) wire at logic control module connector C385.	Test lamp lights.	REPLACE logic module.
	Test lamp does not light.	LOCATE and REPAIR open in LT BLU (203) wire between front control switch connector C383 and logic module connector C385.

### REAR TEMPERATURE DOOR MOTOR DOES NOT OPERATE FROM EITHER CONTROL (W/REAR HEATER AND A/C)

TEST	RESULT	ACTION
1. Place ignition switch in RUN and overload console front control in MAX cooling. Connect test lamp from LT BLU (733) wire at rear temperature door connector C481 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in LT BLU (733) wire between temperature door motor connector C481 and connector C476, from connector C476 to connector C382 or from connector C382 to logic controller connector C385. If wire is good, GO to step 3.
2. Connect test lamp from LT BLU (733) wire to BLK (150) wire at temperature door connector C481.	Test lamp lights.	REPLACE temperature door motor.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire between rear temperature door motor connector C481 and splice S436, from splice S436 to connector C475, from connector C475 to splice S402 or from splice S402 to ground G400.
3. Connect test lamp from BRN (50) wire at front control connector C383 to ground.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	LOCATE and REPAIR open in BRN (50) wire between front control connector C383 and splice S330, from splice S330 to connector C382, from connector C382 to splice S300, from splice S300 to convenience center connector C228 or from convenience center to fuse block. If wire is good, GO to step 4.

## **8A-67B-8 REAR AUXILIARY HEATER AND AIR CONDITIONING**

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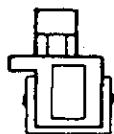
### **REAR TEMPERATURE DOOR MOTOR DOES NOT OPERATE FROM EITHER CONTROL (W/REAR HEATER AND A/C) (CONTINUED)**

<b>TEST</b>	<b>RESULT</b>	<b>ACTION</b>
4. Connect test lamp from BRN (50) wire at logic connector C385 to ground.	Test lamp lights.	GO to step 5.
	Test lamp does not light.	LOCATE and REPAIR open in BRN (50) wire between logic module connector C385 and splice S330.
5. Connect test lamp from BRN (50) wire to BLK (150) wire at logic module connector C385.	Test lamp lights.	REPLACE logic module.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire between logic module connector C385 and splice S328.



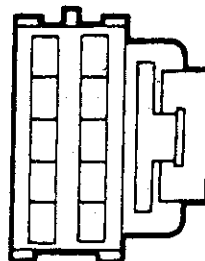
# REAR AUXILIARY HEATER AND AIR CONDITIONING 8A-67B-9

12089856



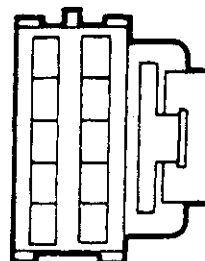
**C231**  
Rear Auxiliary Heater & A/C  
Battery Tap at Convenience  
Center

12064871



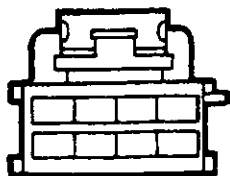
**C383**  
Front Auxiliary Heater & A/C  
Controls

12064871



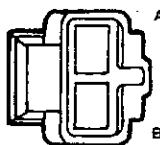
**C384**  
Rear Auxiliary Heater & A/C  
Controls

12064766



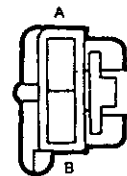
**BLUE**  
Metri-Pack 150  
**C382**  
In-Line Rear Auxiliary Heater &  
A/C Controls to Extension  
Harness

12064750



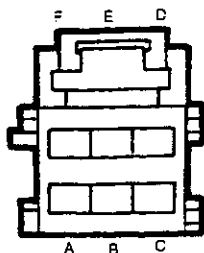
**BLACK**  
Metri-Pack 480  
**C475**  
In-Line Rear Auxiliary & A/C  
Heater Control Extension  
Harness to Rear Module

12064749



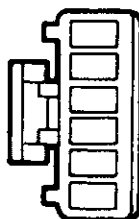
**BLACK**  
Metri-Pack 480  
**C475**  
In-Line Rear Auxiliary Heater &  
A/C Module to Control Extension  
Harness

12064762



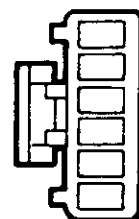
**GRAY**  
Metri-Pack 150  
**C476**  
In-Line Rear Auxiliary & A/C  
Heater Control Extension  
Harness to Rear Module

12040953



**BLACK**  
Micro-Pack  
**C483**  
Mode Door Motor

12040953



**BLACK**  
Micro-Pack  
**C481**  
Temp Door Motor

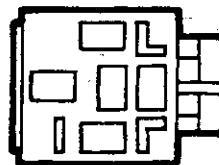
## 8A-67B-10 REAR AUXILIARY HEATER AND AIR CONDITIONING

02965104



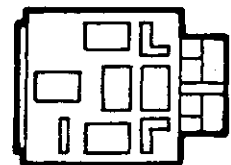
**NATURAL**  
56 Series  
**C478**  
Blower Resistor

12034003



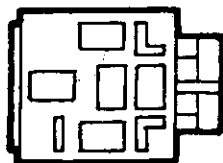
**BLACK**  
Metri-Pack 630  
**C479**  
Blower Relay

12034003



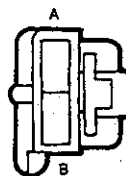
**BLACK**  
Metri-Pack 630  
**C480**  
Blower Relay

12034003



**BLACK**  
Metri-Pack 630  
**C482**  
Blower Relay

12064749



**BLACK**  
Metri-Pack 480  
**C472**  
Blower Motor

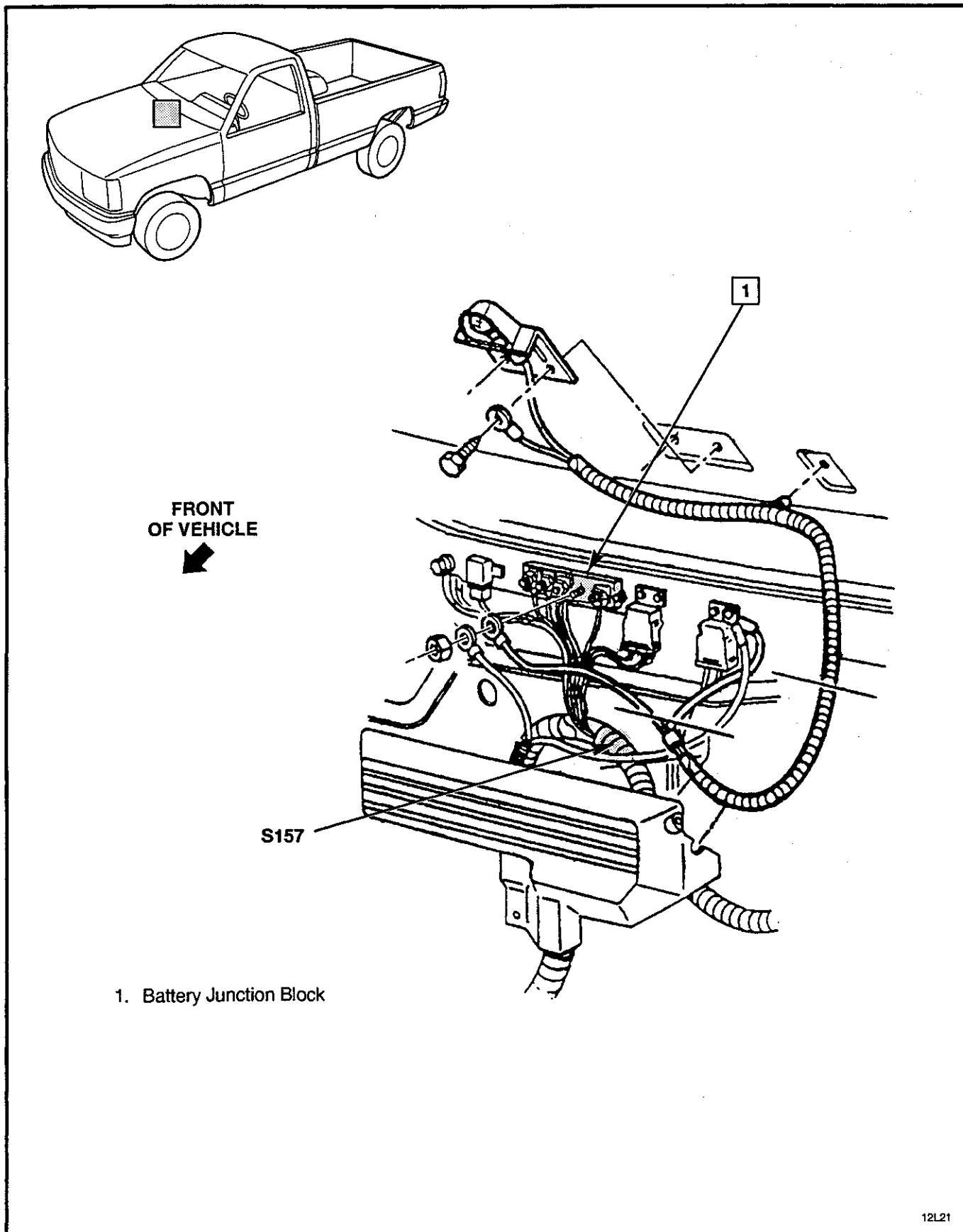


Figure 1 — Battery Junction Block

## 8A-67B-12 REAR AUXILIARY HEATER AND AIR CONDITIONING

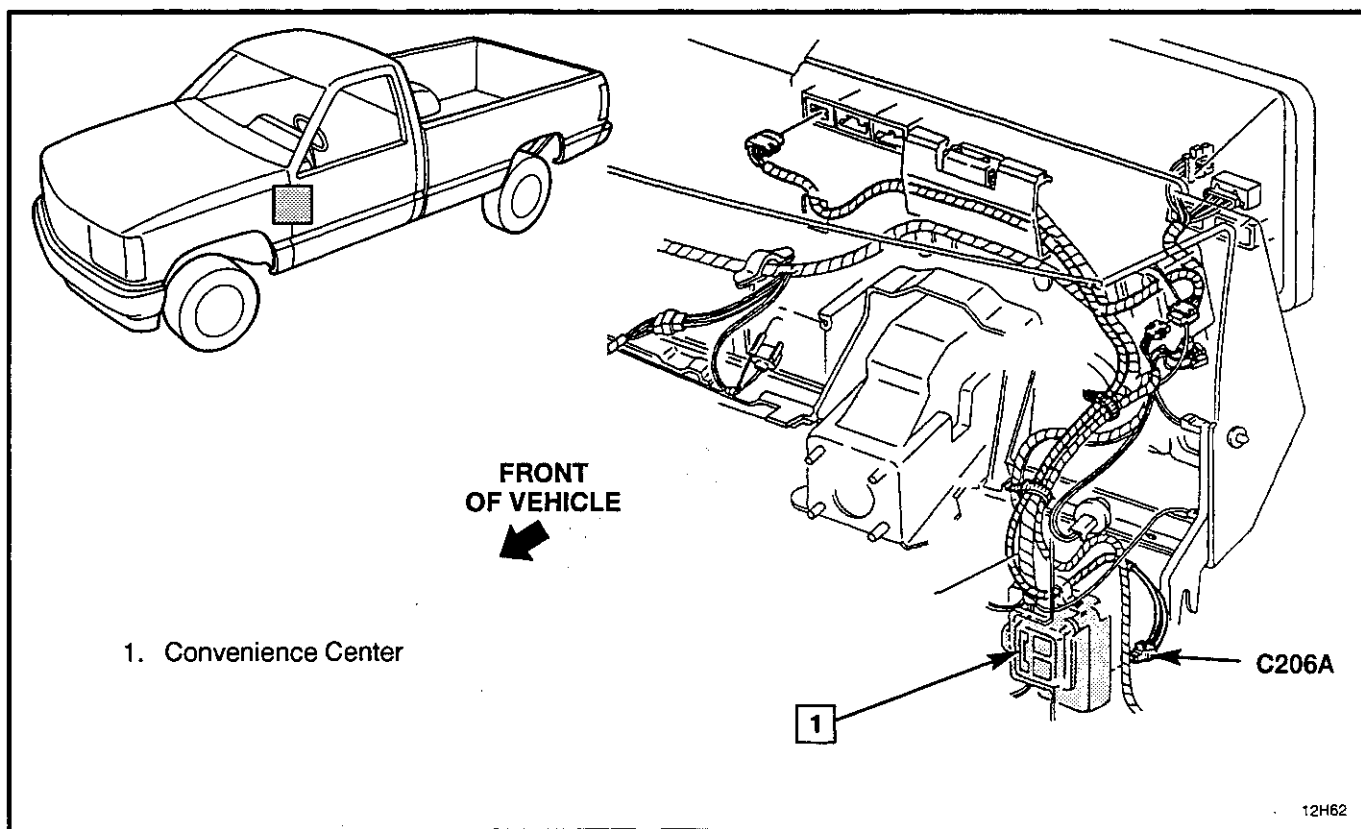


Figure 2 — Auxiliary Heater Front Wiring

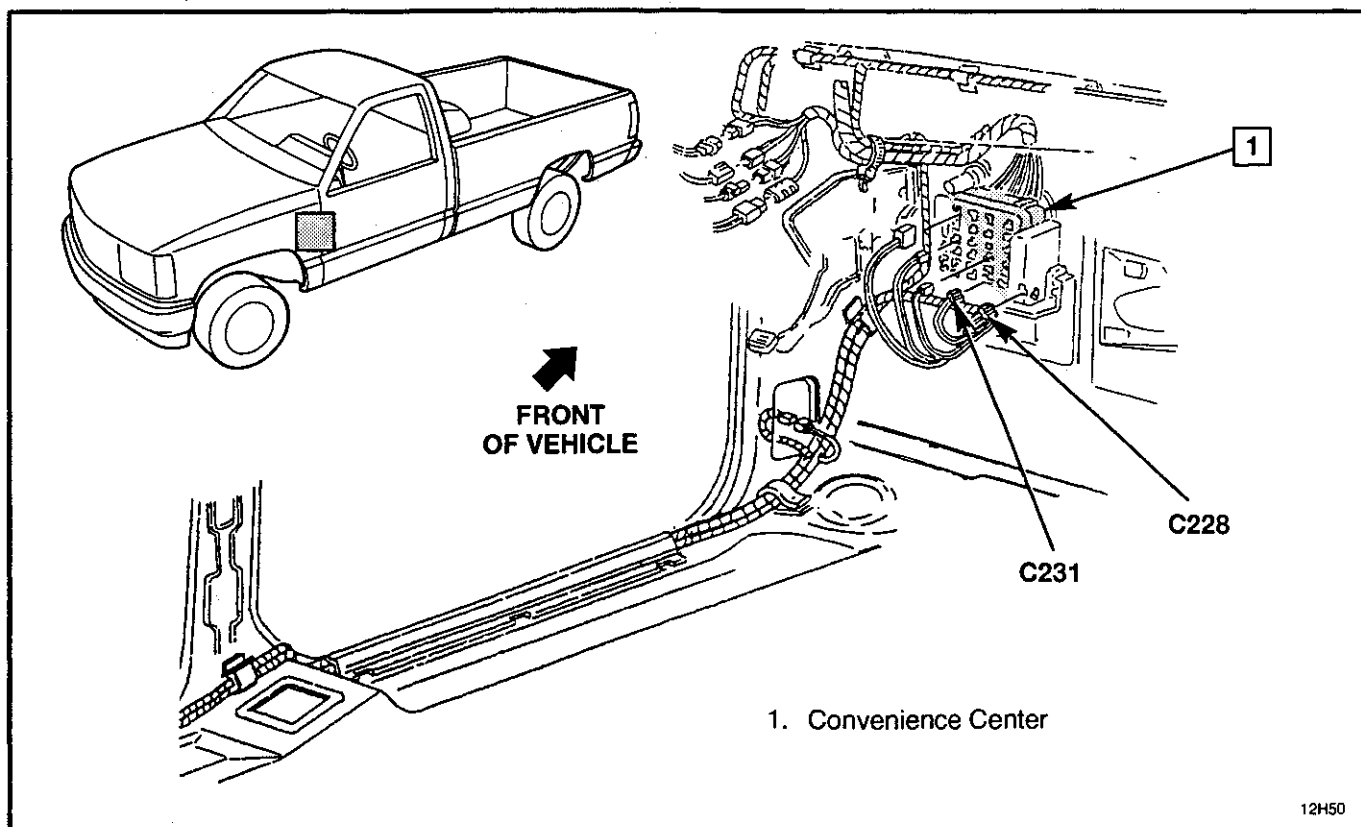


Figure 3 — Body Wiring Harness, Front

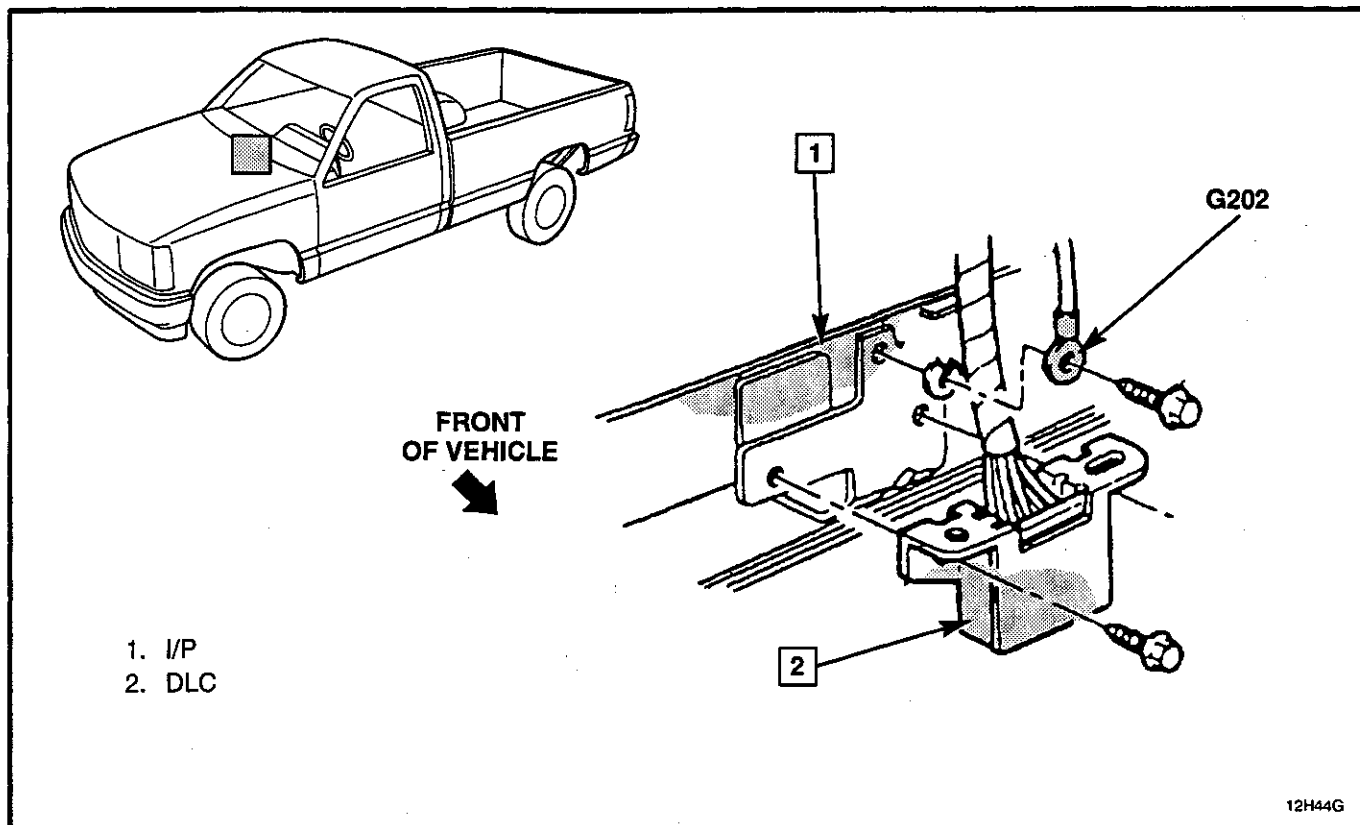


Figure 4 — Instrument Panel Ground

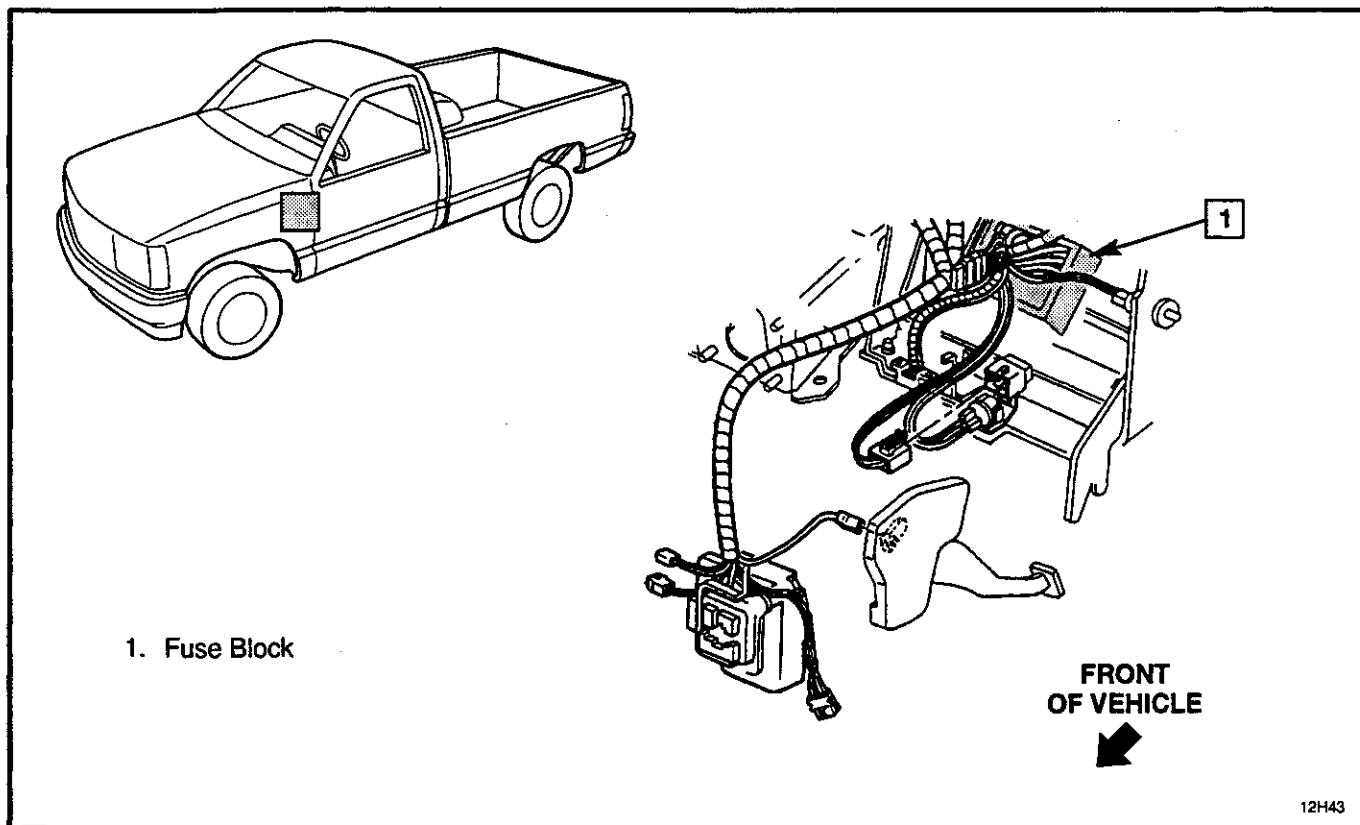


Figure 5 — LH Side of Instrument Panel

8A-67B-14 REAR AUXILIARY HEATER AND AIR CONDITIONING

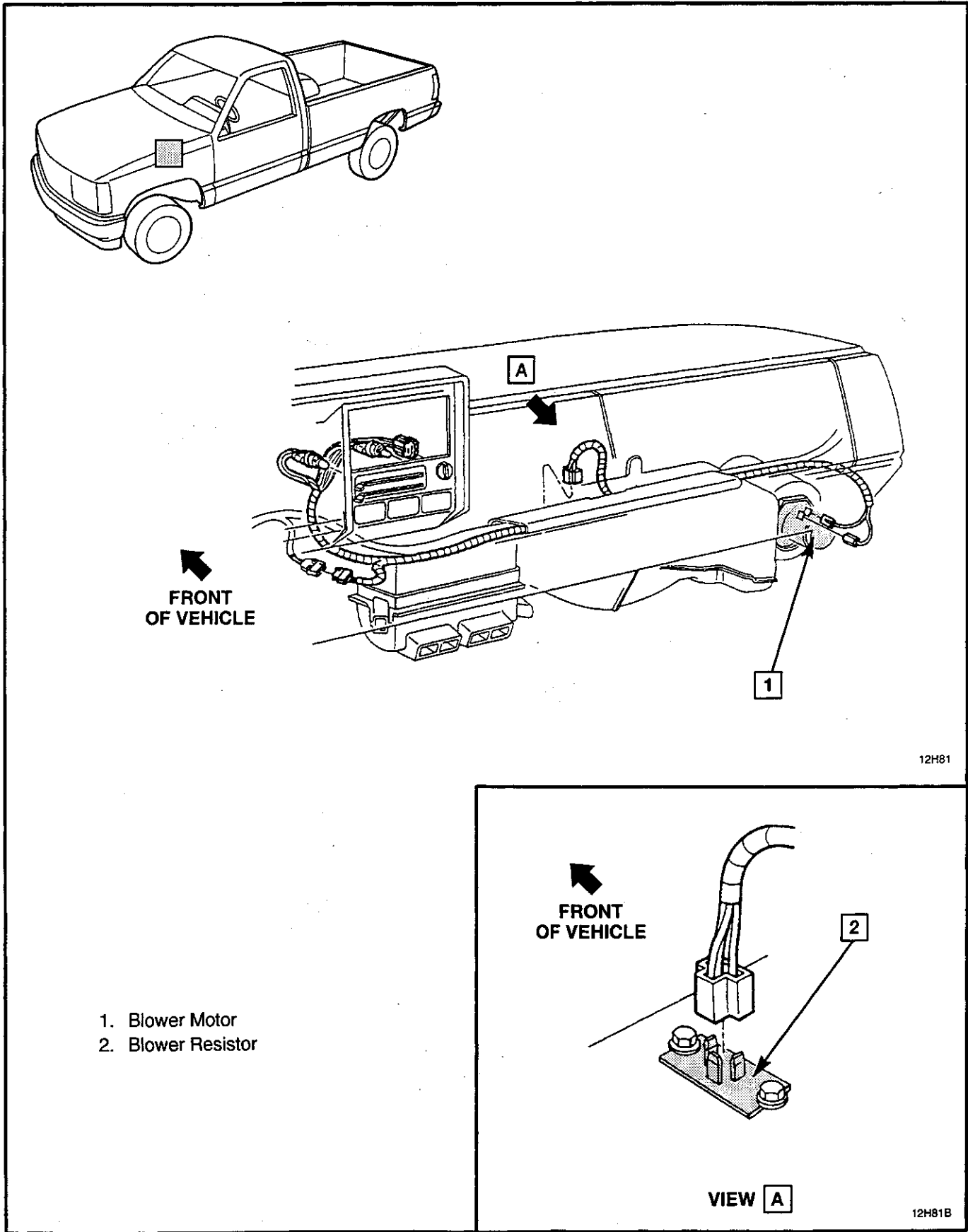


Figure 6 — Heater Wiring

## REAR AUXILIARY HEATER AND AIR CONDITIONING 8A-67B-15

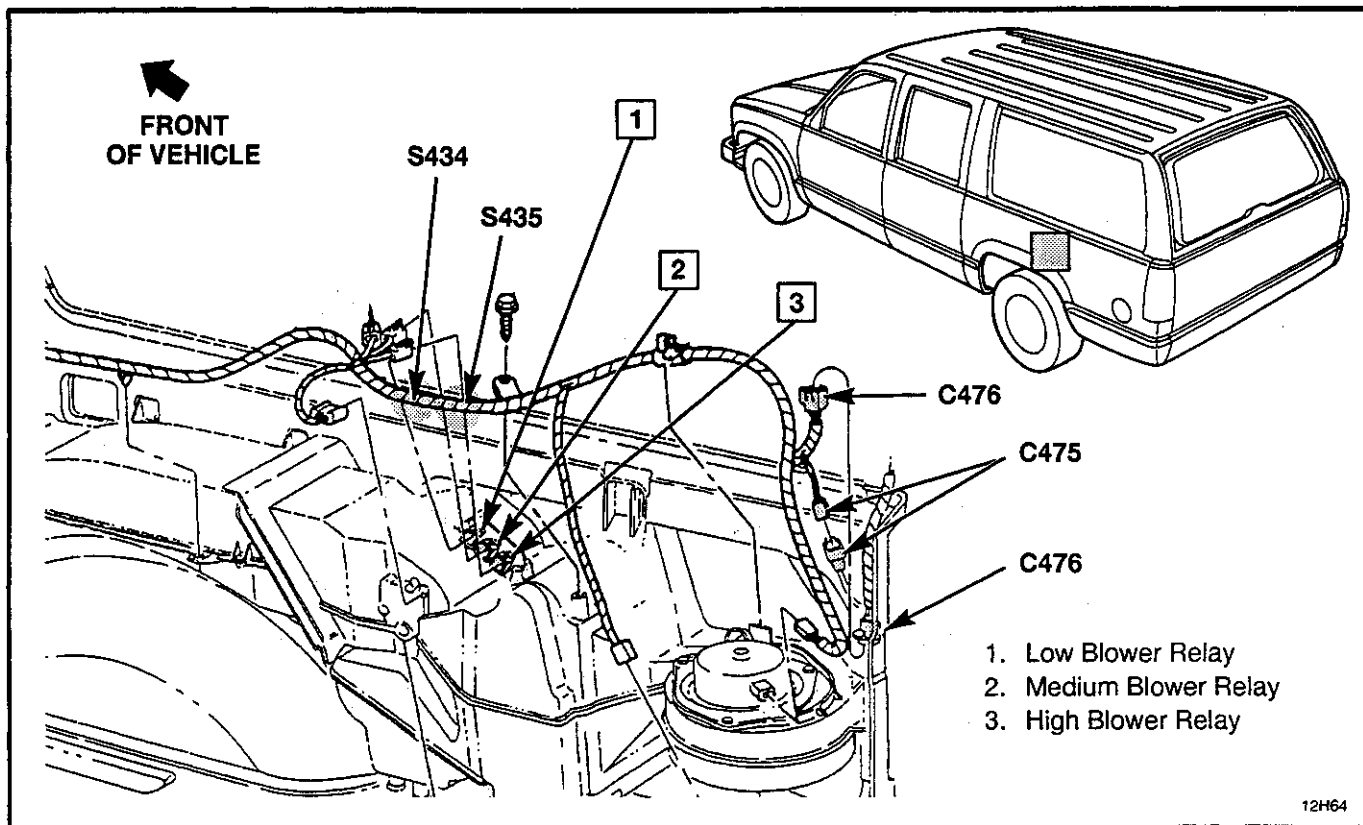


Figure 7 — Auxiliary Heater and A/C Wiring

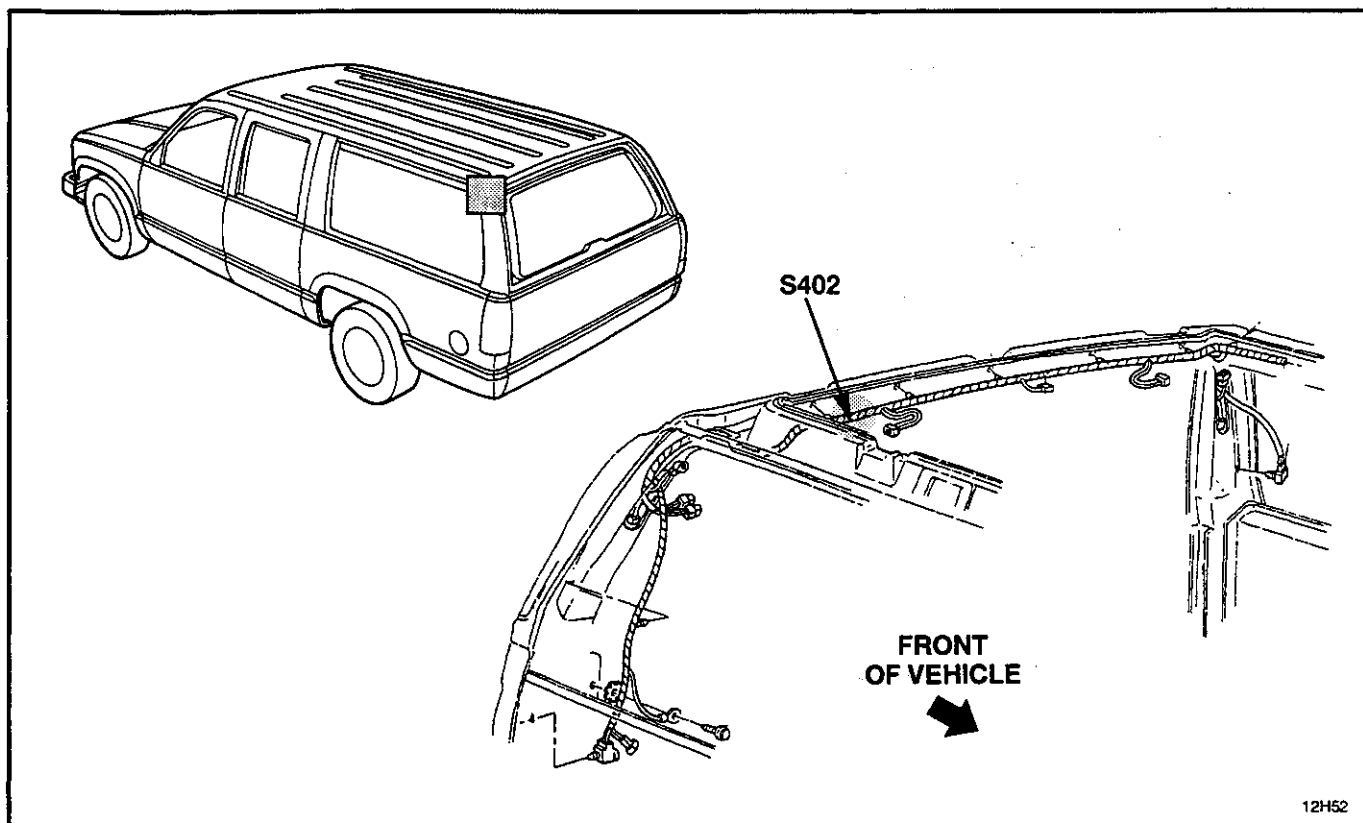


Figure 8 — Body Wiring, Rear - Suburban

## 8A-67B-16 REAR AUXILIARY HEATER AND AIR CONDITIONING

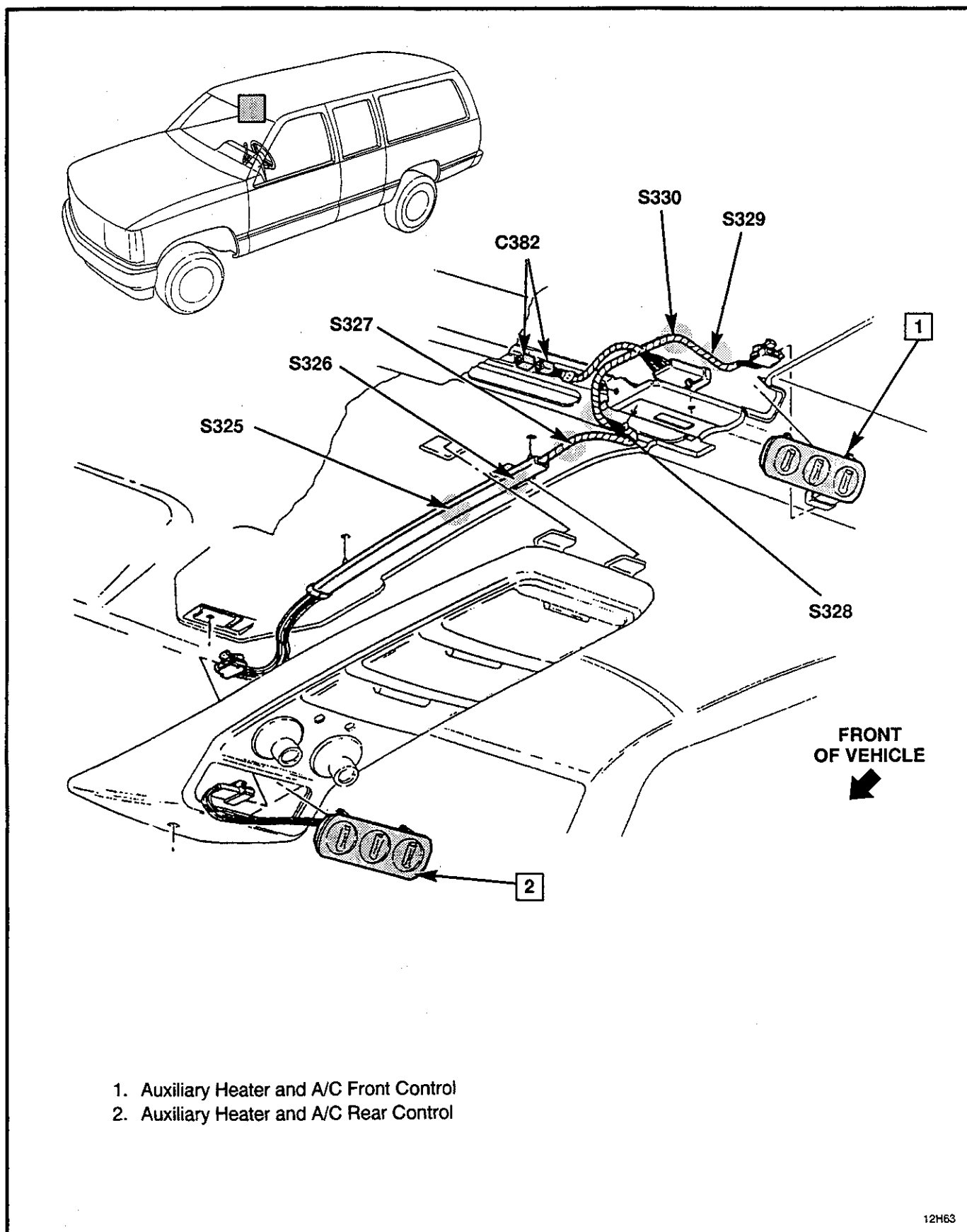


Figure 9 — Auxiliary Heater and A/C Controls



## **CIRCUIT OPERATION**

### **SAFETY BELT WARNING BUZZER**

With the Ignition Switch in START or RUN, voltage is supplied to the Audio Alarm Module (buzzer or chime) through the GAGES Fuse and the PNK/BLK (39) wire. When the Ignition Switch is first turned to START or RUN, voltage from the Audio Alarm Module is supplied to the Fasten Safety Belt Indicator in the instrument cluster through the YEL (237) wire. The indicator stays lit for about five seconds.

If the driver's safety belt is not buckled, a ground is applied to the Audio Alarm Module through the WHT (238) wire from the Safety Belt Retractor Switch. The chime or buzzer will sound for about five seconds.

### **KEY-IN WARNING BUZZER**

Voltage is supplied at all times to the Audio Alarm Module through the STOP-HAZ Fuse and the ORN (140) wire. With the key in the Ignition Switch and the Ignition Switch in ACC, LOCK or OFF, the chime or buzzer will sound if the left door is open.

With the door open, the LH Door Jamb Switch closes to ground. This provides a ground to the Audio Alarm Module through the TAN (158) wire, the Key-In Ignition Switch and the LT GRN (80) wire. The chime or buzzer will sound as long as the door is open or the key is in the Ignition Switch.

### **LAMPS-ON WARNING BUZZER**

When the Light Switch is in HEAD or PARK, and the Panel Dimmer Switch is not at the dimmest setting, voltage is applied through the PANEL LPS Fuse to the Audio Alarm Module through the GRA (8) wire. With the Panel Dimmer Switch at its dimmest setting, the current to the Audio Alarm module may not be enough to be sensed by the module. When the Ignition Switch is turned to RUN or START, voltage is supplied through the GAGES Fuse to the Module through the PNK/BLK (39) wire. These two voltages are sensed and the alarm is not sounded.

When the Ignition Switch is turned to LOCK, OFF or ACC, the GAGES Fuse loses voltage. The Audio Alarm Module senses the change. If voltage is still available from the PANEL LPS Fuse, voltage from the STOP-HAZ Fuse is supplied to sound the alarm through the ORN (140) wire. The alarm can be turned off by turning the Light Switch off. The Module no longer senses voltage from the Light Switch, so the alarm does not sound.

## **COMPONENT LOCATION**

		<b>Page — Figure</b>	
Audio Alarm Module .....	On convenience center .....	76-9	5
Convenience Center .....	Under LH side of I/P .....	76-9	5
Door Jamb Switch, LH Front .....	At LH end of I/P .....	76-7	1
I/P Cluster .....	LH side of I/P .....	Not Shown	
Multi-Function Switch .....	On upper steering column .....	Not Shown	
Safety Belt Retractor Switch .....	At driver's safety belt buckle .....	76-8	4

### **CONNECTORS:**

C206 .....	At steering column, under cowl .....	76-7	1
C340 .....	At safety belt retractor .....	76-7	1

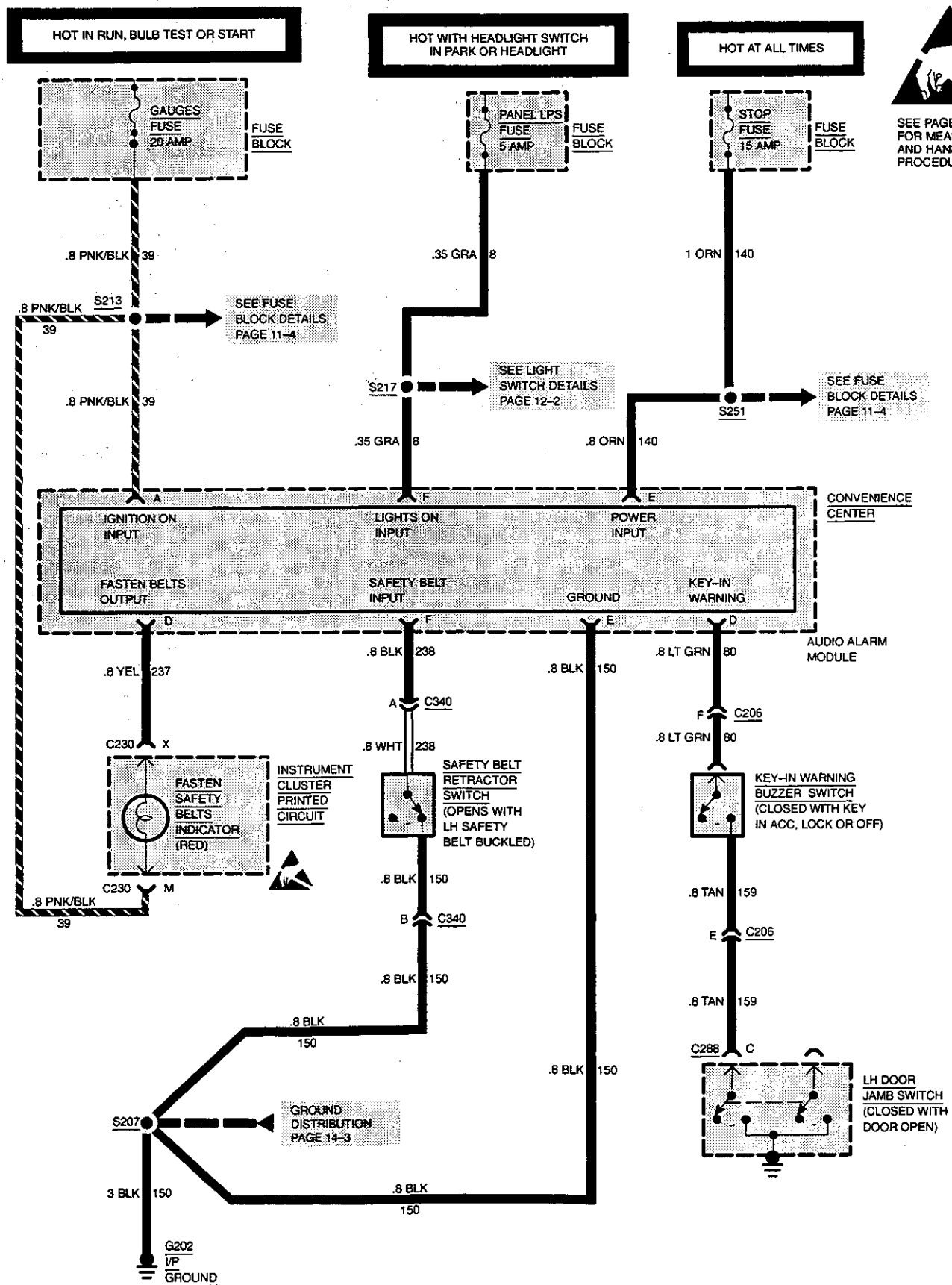
### **GROUNDING:**

G202 .....	At DLC connector .....	76-8	3
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### **SPLICES:**

S207 .....	Under LH side of I/P .....	76-7	1
S213 .....	Under LH side of I/P .....	76-7	1
S217 .....	Under LH side of I/P .....	76-7	1
S251 .....	Under LH side of I/P .....	76-7	1

# 8A-76-2 AUDIO ALARM MODULE



**DIAGNOSIS — AUDIO ALARMS****PRELIMINARY CHECKS:**

1. Check condition of PARK-LPS, PNL LPS, STOP, and GAUGES Fuse(s). If fuse(s) are blown, locate and repair source of overload. Replace fuse(s).

**THE FASTEN BELTS WARNING ALARM OPERATES WHEN SAFETY BELT IS BUCKLED**

TEST	RESULT	ACTION
1. Disconnect safety belt retractor switch connector C340.	Safety belt alarm stops.	REPLACE safety belt retractor switch.
	Safety belt alarm continues.	LOCATE and REPAIR short in WHT (238) wire to ground between belt retractor connector C340 and convenience center. If wire is good, REPLACE Audio Alarm Module.

**THE FASTEN BELTS WARNING ALARM DOES NOT OPERATE**

TEST	RESULT	ACTION
1. With ignition switch in RUN and audio alarm module removed, connect test lamp from PNK/BLK (39) wire at convenience center to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in PNK/BLK (39) wire from convenience center to fuse block.
2. Connect self-powered test lamp from BLK (238) wire at convenience center to ground.	Test lamp lights.	REPLACE audio alarm module.
	Test lamp does not light.	GO to step 3.
3. Connect self-powered test lamp from BLK (238) wire at safety belt retractor switch connector C340 to ground.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (238) wire from safety belt retractor switch connector C340 to convenience center.
4. Buckle safety belt. Connect self-powered test lamp from BLK (150) wire at safety belt retractor switch connector C340 to ground.	Test lamp lights.	REPLACE safety belt retractor switch.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire from safety belt retractor switch connector C340 to splice S207 or from splice S207 to ground G202.

## 8A-76-4 AUDIO ALARM MODULE

### KEY-IN WARNING ALARM DOES NOT OPERATE

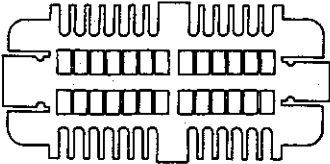


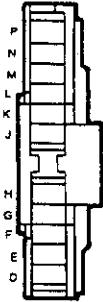
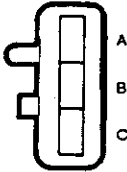
TEST	RESULT	ACTION
1. Turn ignition switch OFF. Leave key in ignition switch. Open left door. Remove audio alarm module. Connect voltmeter from ORN (140) wire at convenience center to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	REPAIR open in ORN (140) wire between convenience center and fuse block. INSTALL audio alarm module.
2. Connect self-powered test lamp from LT GRN (80) wire at convenience center to ground.	Test lamp lights.	REPLACE audio alarm module.
	Test lamp does not light.	GO to step 3.
3. Connect self-powered test lamp from LT GRN (80) wire at multi-function switch connector C206 to ground.	Test lamp lights.	LOCATE and REPAIR open in LT GRN (80) wire from multi-function switch connector C206 to convenience center. INSTALL audio alarm module.
	Test lamp does not light.	GO to step 4.
4. Connect self-powered test lamp from TAN (159) wire at multi-function switch connector C206 to ground.	Test lamp lights.	REPLACE multi-function switch. INSTALL audio alarm module.
	Test lamp does not light.	GO to step 5.
5. Connect self-powered test lamp from TAN (159) wire at left door jamb switch connector C288 to ground.	Test lamp lights.	LOCATE and REPAIR open in TAN (159) wire between door jamb switch connector C288 and multi-function switch connector C206. INSTALL audio alarm module.
	Test lamp does not light.	REPLACE door jamb switch. INSTALL audio alarm module.

## AUDIO ALARM MODULE 8A-76-5

### LAMPS-ON WARNING ALARM DOES NOT OPERATE

TEST	RESULT	ACTION
1. Remove audio alarm module. Place ignition switch in RUN. Turn lamps switch ON. Connect voltmeter from PNK/BLK (39) wire at convenience center to ground.	Battery voltage.	GO to step 2.
	No voltage.	LOCATE and REPAIR open in PNK/BLK (39) wire between convenience center and splice S213 or between splice S213 and fuse block.
2. Connect voltmeter from GRA (8) wire at convenience center to ground.	Battery voltage.	GO to step 3.
	No voltage.	LOCATE and REPAIR open in GRA (8) wire between convenience center and splice S217 or between splice S217 and fuse block. Refer to "INSTRUMENT PANEL ILLUMINATION" Diagnosis in this manual. INSTALL audio alarm module.
3. Connect ohmmeter from BLK (150) wire at convenience center to ground.	Low resistance.	REPLACE audio alarm module.
	High resistance.	LOCATE and REPAIR cause of high resistance in BLK (150) wire between convenience center and splice S207 or between splice S207 and ground G202.

**8A-76-6 AUDIO ALARM MODULE**

<p>12089908</p>  <p><b>BLACK</b> Bow Series <b>C230</b> I/P Cluster</p>	<p>12047662</p>  <p><b>BLACK</b> Metri-Pack 150 <b>C340</b> In-Line I/P to Seat Belt Retractor Switch</p>	<p>12047663</p>  <p><b>BLACK</b> Metri-Pack 150 <b>C340</b> In-Line Seat Belt Retractor Switch to I/P</p>
<p>12004147</p>  <p><b>BLACK</b> Pac/on <b>C206</b> I/P to Multi-Function Switch</p>	<p>12047781</p>  <p><b>BLACK</b> Metri-Pack 150 <b>C288</b> LH Door Jamb Switch</p>	

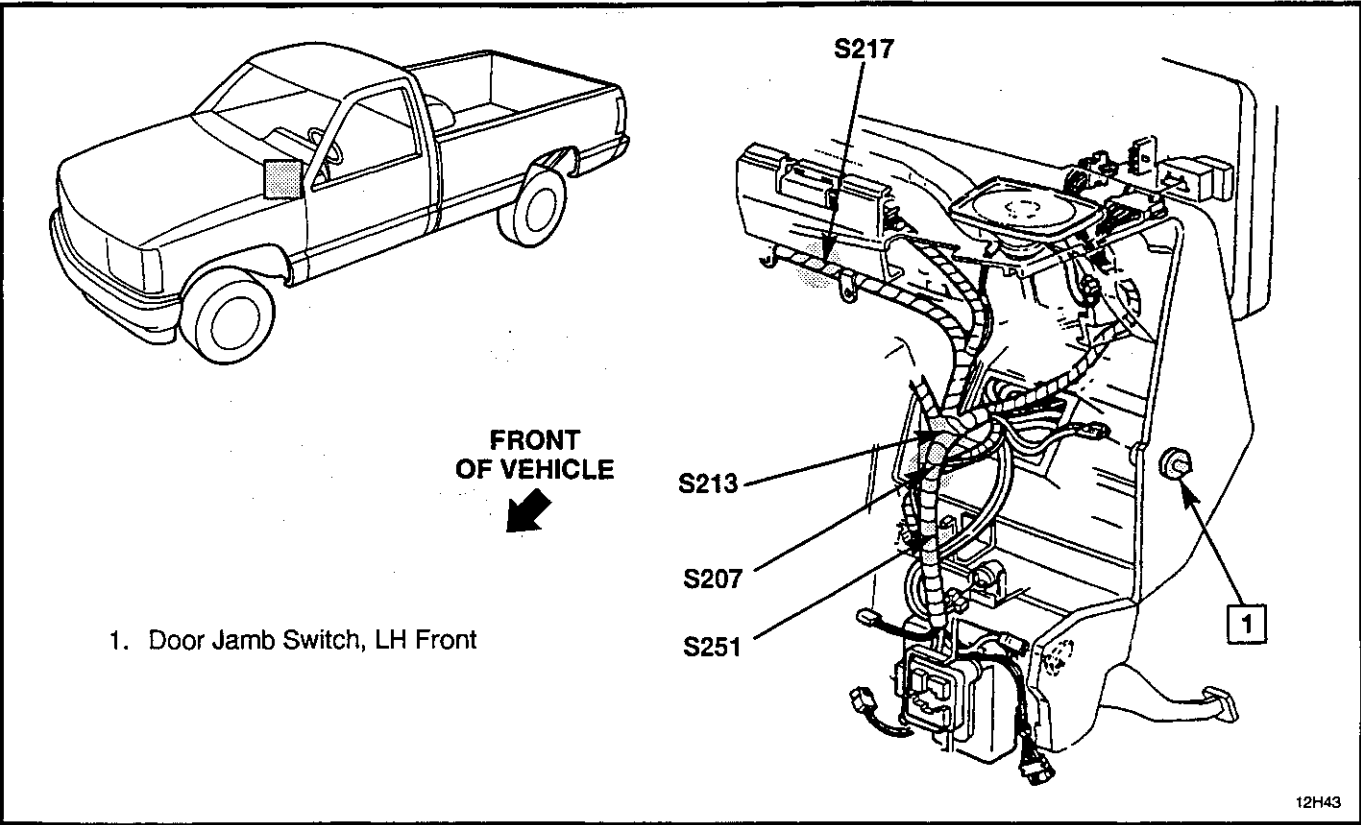


Figure 1 — Instrument Panel, LH Side

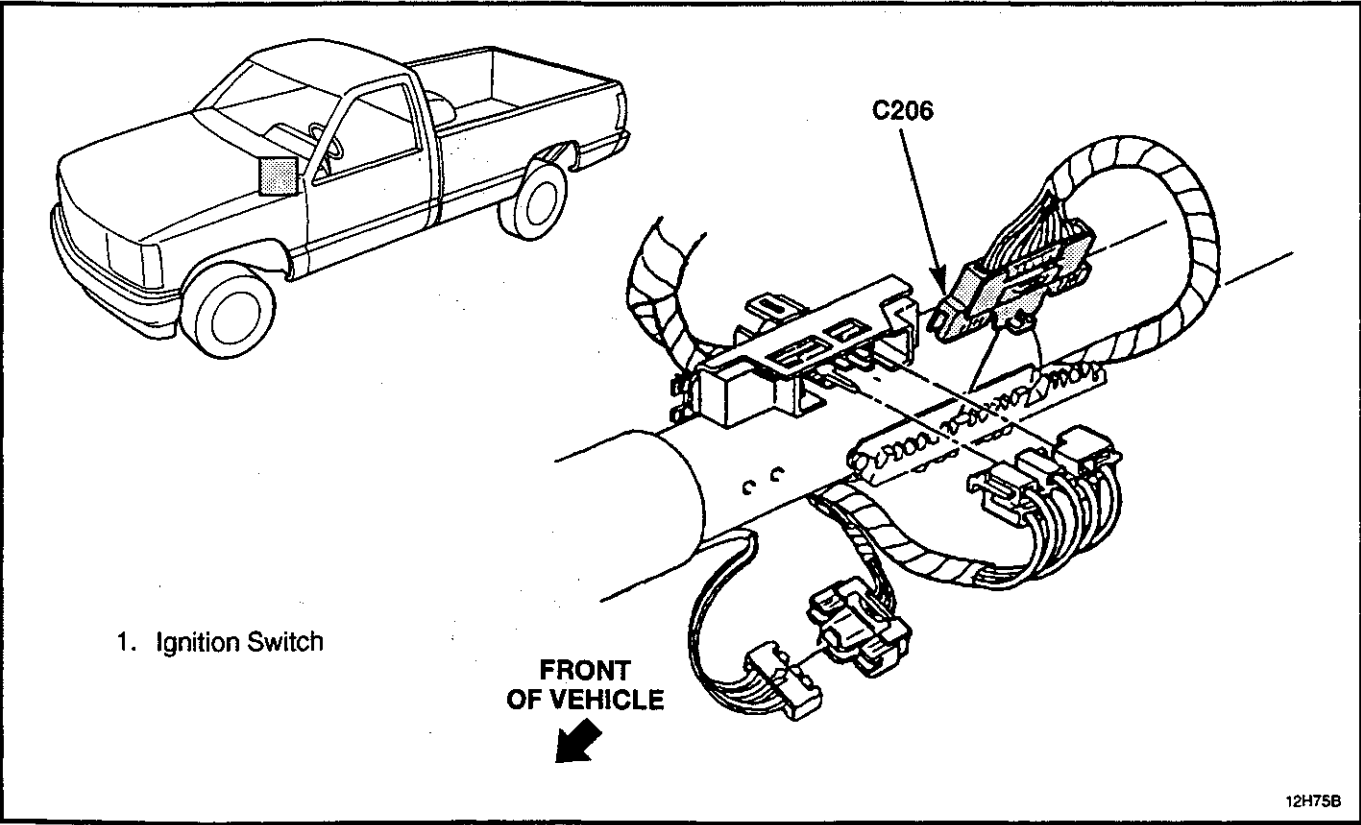


Figure 2 — Steering Column Wiring, RH Side

## 8A-76-8 AUDIO ALARM MODULE

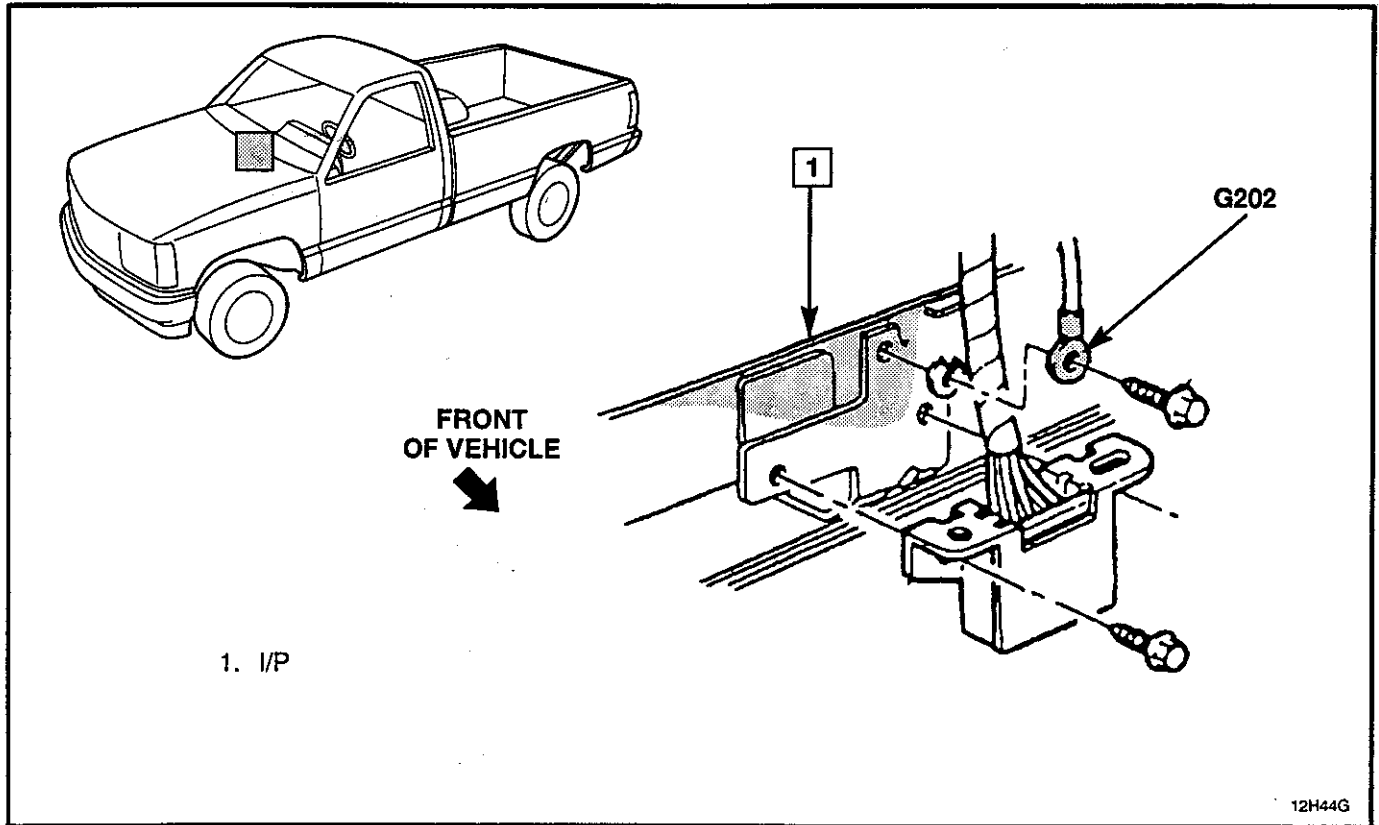


Figure 3 — I/P Ground

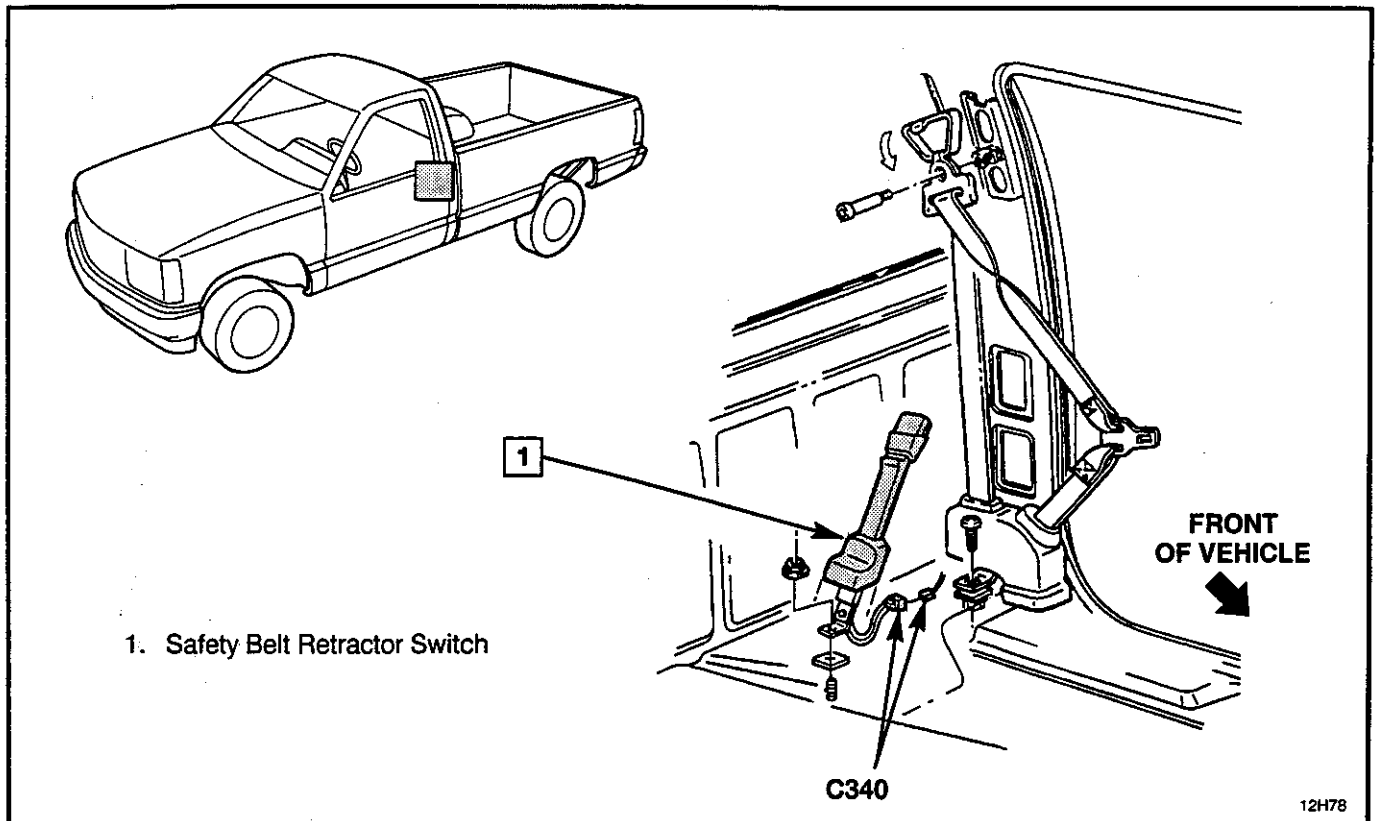


Figure 4 — Safety Belt Switch Wiring



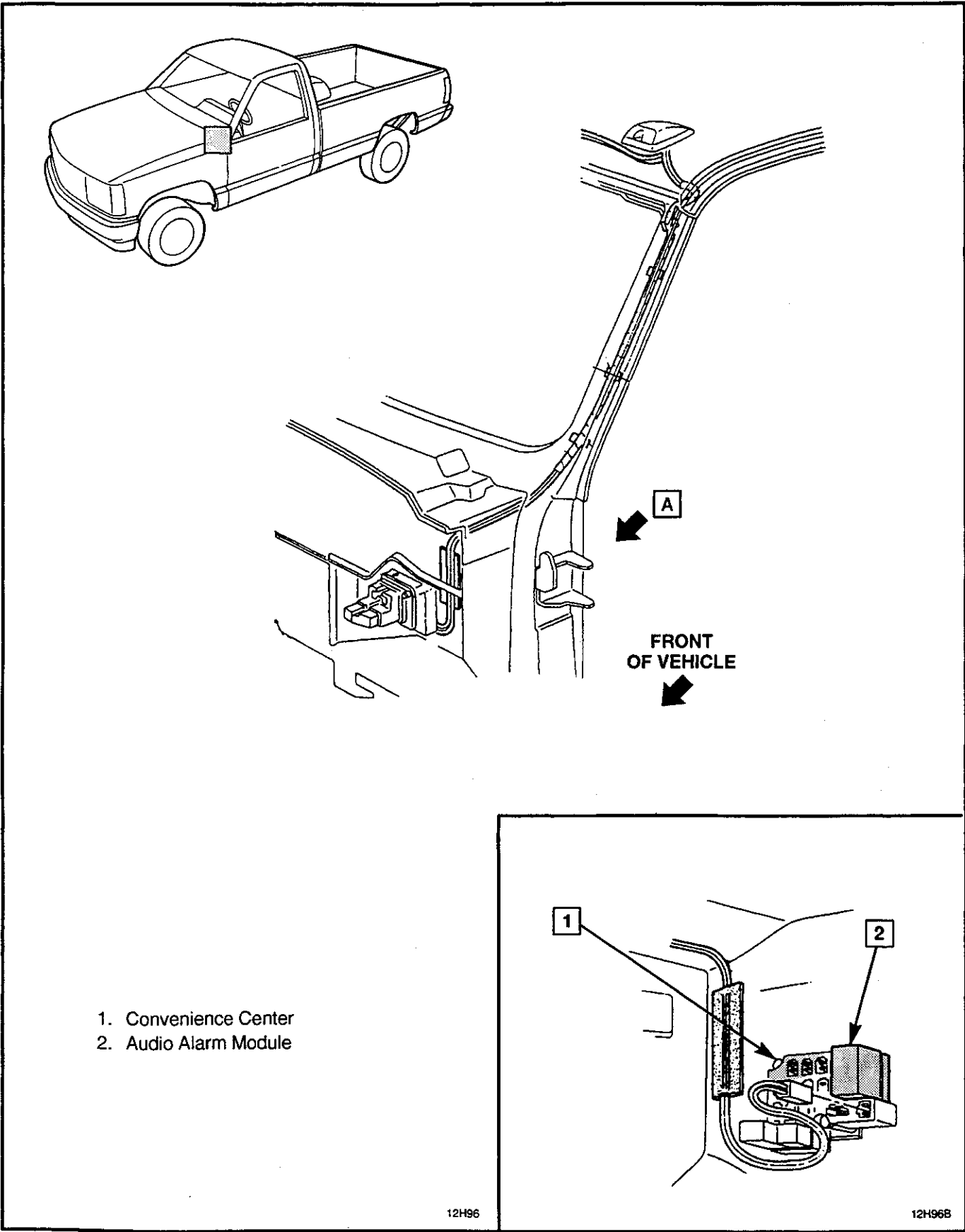


Figure 5 — Convenience Center Wiring

**8A-76-10 AUDIO ALARM MODULE**

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**BLANK**

## **CIRCUIT OPERATION**

### **FUEL GAGE**

The pointer of the Fuel Gage is moved by the magnetic fields of two coils. The coils are at right angles to each other. Battery voltage is applied to the E-coil and the circuit divides at the opposite end of the coil. One path continues to ground through the F-coil. Another goes to ground through the variable resistor of the Fuel Gage Sender.

When the tank is low, the resistance of the Sender is low. A large flow of current passes through the E-coil and the Fuel Gage Sender resistor. This moves the pointer toward E on the scale. When the tank is full, the Sender resistance is high. More current now flows through the F-coil, moving the pointer toward F on the scale.

With two coils operating the pointer, the Gage is not affected by changes in the system's battery voltage.

### **OIL PRESSURE GAGE**

The engine oil pressure is displayed by the Oil Pressure Gage. The pointer of the Gage is moved by two coils, and its operation is similar to that of the Fuel Gage.

The Oil Pressure Sender is connected to the junction of the two coils. It has low resistance when the oil pressure is low, and 90 ohms resistance when the oil pressure is high. This changing resistance changes the current flow through the coils. The magnetic fields of the coils move the pointer from low to high.

### **TEMPERATURE GAGE**

The Temperature Gage is also operated by two coils. Battery voltage is applied to both coils. One is grounded directly and the other is grounded through the Engine Temperature Sender. This has 55 ohms resistance at 123°C (260°F) (hot coolant) and its resistance becomes greater at low temperatures. It is approximately 1400 ohms at 47°C (100°F). This causes the current through the Sender and one coil to increase as the coolant temperature increases. This moves the pointer.

### **VOLTMETER**

The Voltmeter measures the electrical system's voltage with the Ignition Switch in RUN or START. With the engine stopped, the Voltmeter indicates Battery condition. With the engine running, the Voltmeter indicates Charging System operation.

### **ENGINE COOLANT LEVEL INDICATOR**

The Engine Coolant Level Indicator comes on to warn the driver when a low level of coolant exists in the radiator. Battery voltage is applied to the Engine Coolant Level Indicator Module. When a low coolant condition exists, a signal is sent to the Engine Coolant Level Indicator Module from the Engine Coolant Level Sensor. The Engine Coolant Level Indicator Module will provide a ground to the Engine Coolant Level Indicator.

The Engine Coolant Level Sensor is not a switch that opens and closes. It has a very high resistance to ground, more than 50,000 ohms, when the engine coolant level is low. This causes the Engine Coolant Level Indicator Module to illuminate the Engine Coolant Level Indicator. With more of the Sensor covered by coolant, its resistance decreases. When the fluid level is good, the resistance will be less than 10,000 ohms. With the Sensor resistance between 10,000 and 50,000 ohms, the Sensor is partly covered and the fluid is not low enough to cause the warning to be displayed.

### **OIL PRESSURE INDICATOR**

The Oil Pressure Indicator comes on to warn the driver when the engine oil pressure is low. Battery voltage is applied to one side of the bulb. A ground path is provided by the Oil Pressure Switch. It is closed when the oil pressure is below 27 kPa (4 psi). This tests the bulb when the Ignition Switch is turned on to start the engine. After the engine starts and normal oil pressure builds up, the Oil Pressure Switch opens. The Oil Pressure Indicator goes out.

### **SHIFT INDICATOR**

With Manual Transmission, the SHIFT Indicator illuminates when the vehicle should be shifted to the next higher gear for better fuel economy. Battery voltage is applied to one side of the bulb. The other side of the bulb is switched to ground by the ECM which uses engine data such as rpm, vehicle speed and intake manifold vacuum to compute an efficient shift point.

## 8A-81-2 INSTRUMENT PANEL

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### COMPONENT LOCATION

Page — Figure

Engine Coolant Level Indicator			
Module .....	Under center of I/P .....	Not Shown	
Engine Coolant Level Sensor .....	RH rear side of radiator .....	Not Shown	
Fuel Pump and Sender .....	Inside fuel tank .....	Not Shown	
Fuel Pump Oil Pressure Switch			
and Sender .....	LH rear of engine under exhaust manifold .....	81-19	2
Generator .....	LH top front of engine .....	Not Shown	
Ignition Switch .....	Under I/P on steering column .....	81-22	8
Instrument Cluster .....	LH upper end of I/P .....	81-21	6

### CONNECTORS:

C100 .....	At bulkhead connector .....	81-19	3
C102 .....	At bulkhead connector .....	81-19	3
C106A .....	Near bulkhead connector .....	Not Shown	
C166 .....		Not Shown	
C200 .....	Under RH side of I/P, near blower motor .....	81-20	5

### GROMMETS:

P100 .....	RH lower cowl in engine compartment .....	81-20	5
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### GROUND:

G106 .....	Front of engine .....	81-18	1
G108 .....	LH top front of engine .....	81-18	1
G202 .....	At DLC connector .....	81-20	4

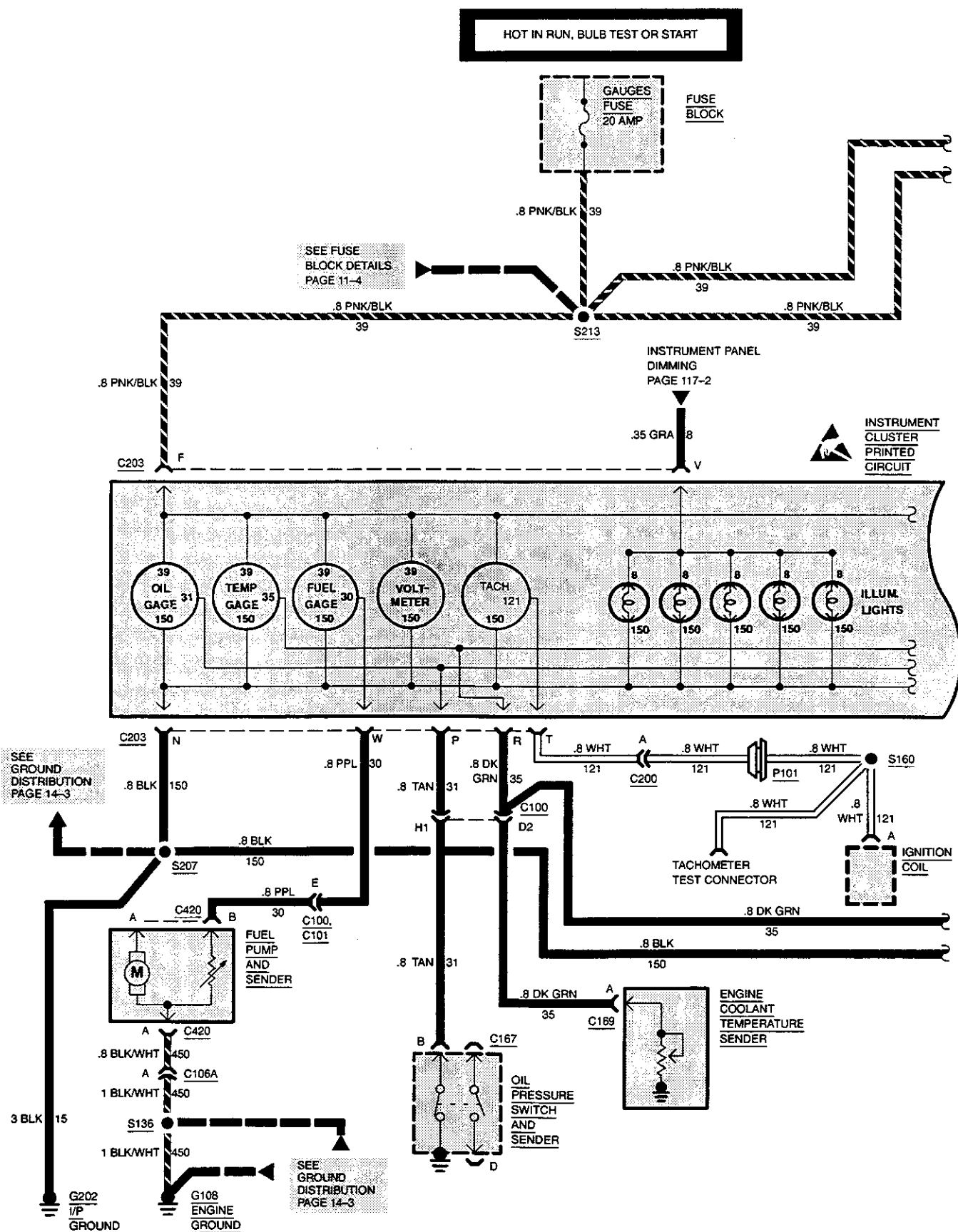
### SPLICES:

S118 (Diesel) .....	Rear of engine .....	81-19	1
S160 (Gasoline) .....	Engine harness, near coil .....	81-18	1
S207 .....	Under LH side of I/P .....	81-22	7
S213 .....	Under LH side of I/P .....	81-22	7

**BLANK**

# 8A-81-4 INSTRUMENT PANEL

## GASOLINE ENGINES

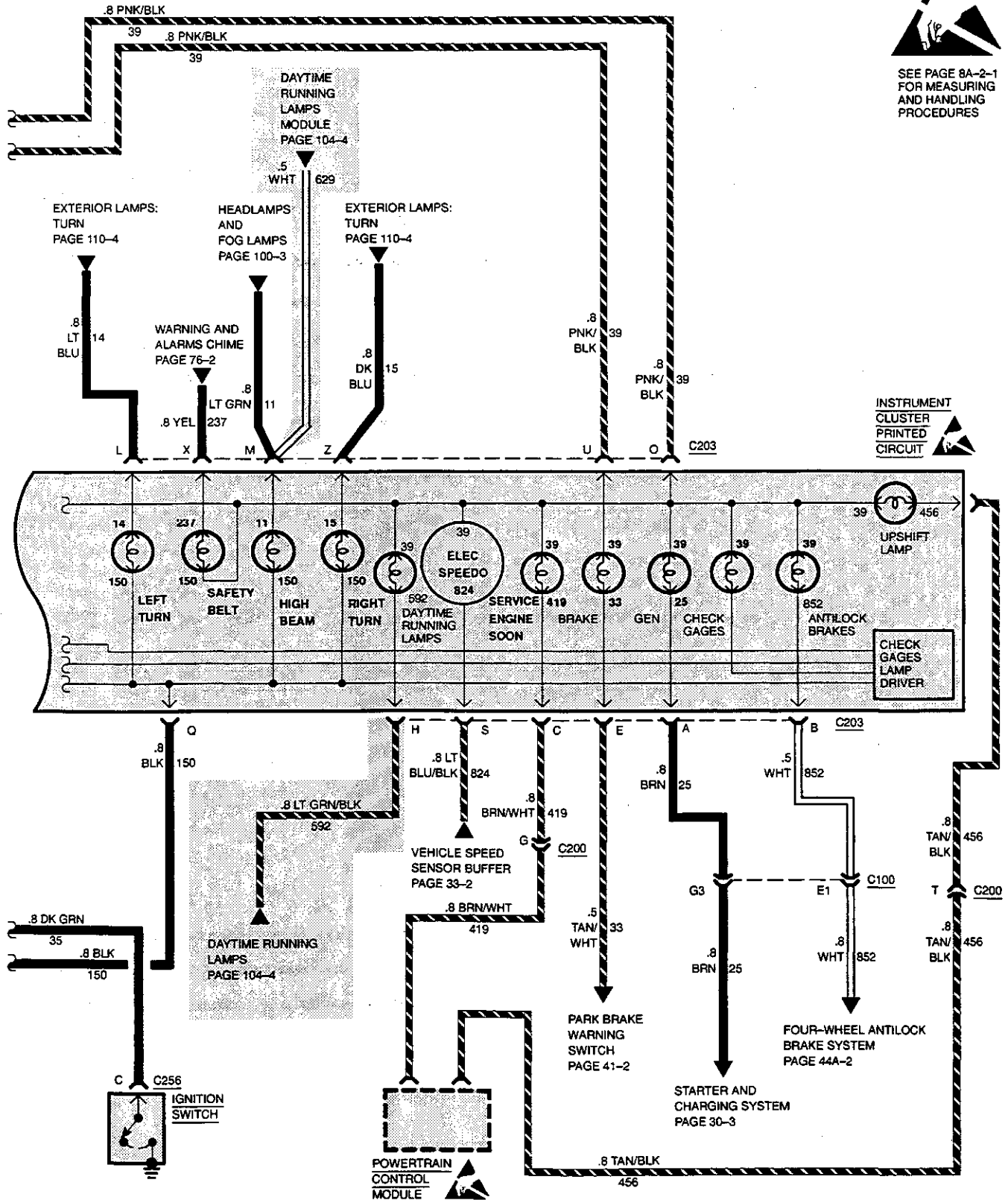


# INSTRUMENT PANEL 8A-81-5

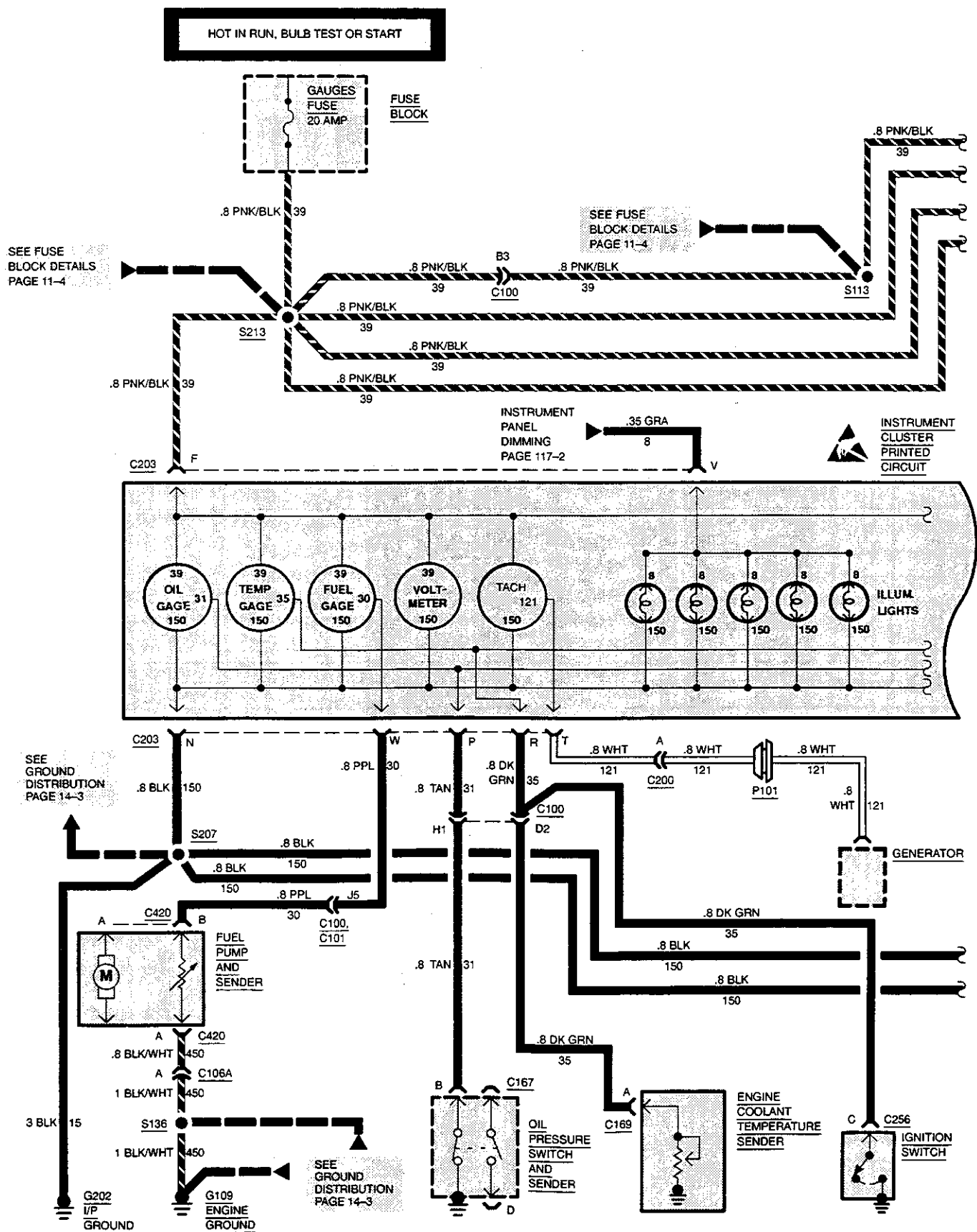
## GASOLINE ENGINES



SEE PAGE 8A-2-1  
FOR MEASURING  
AND HANDLING  
PROCEDURES



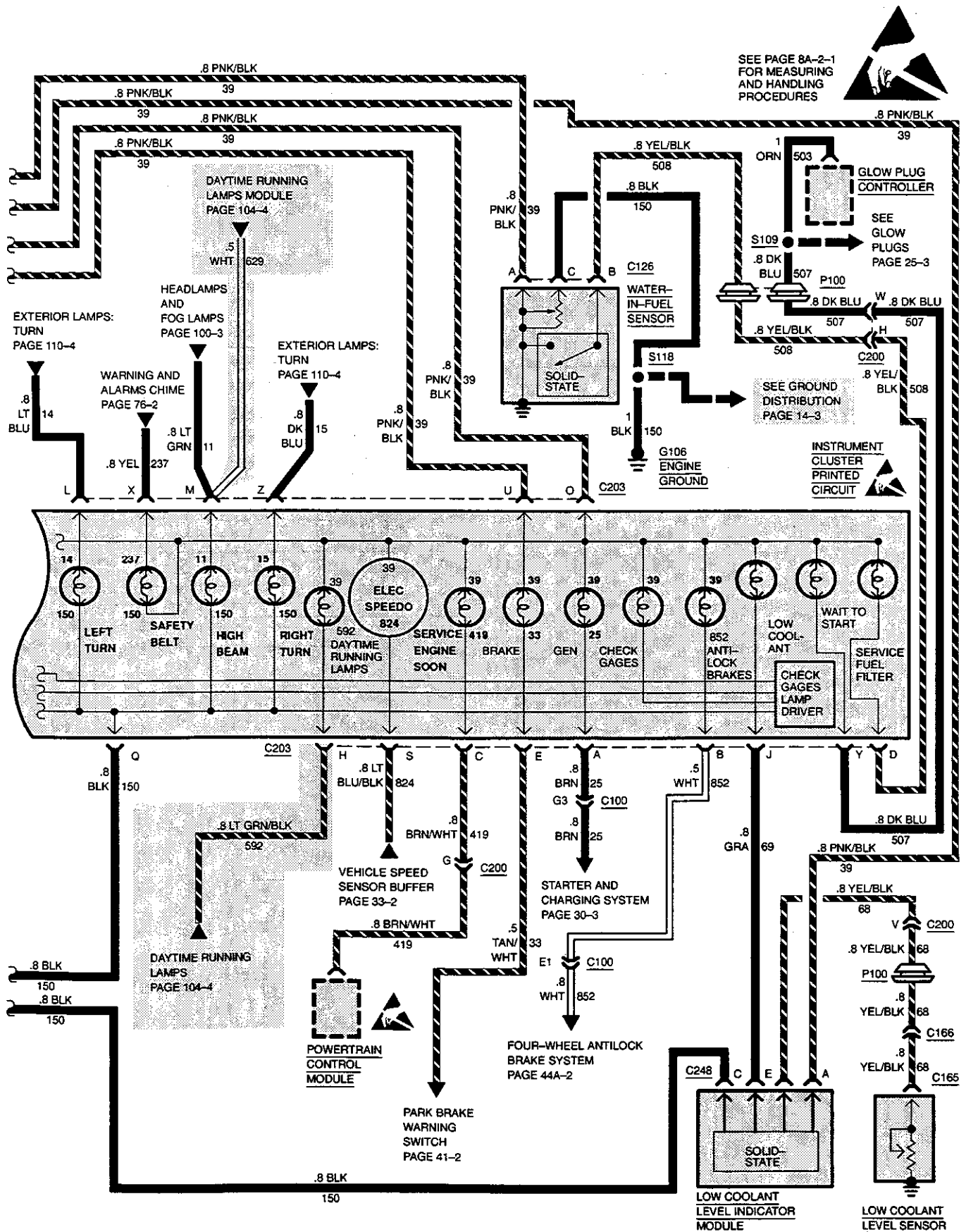
## DIESEL ENGINES



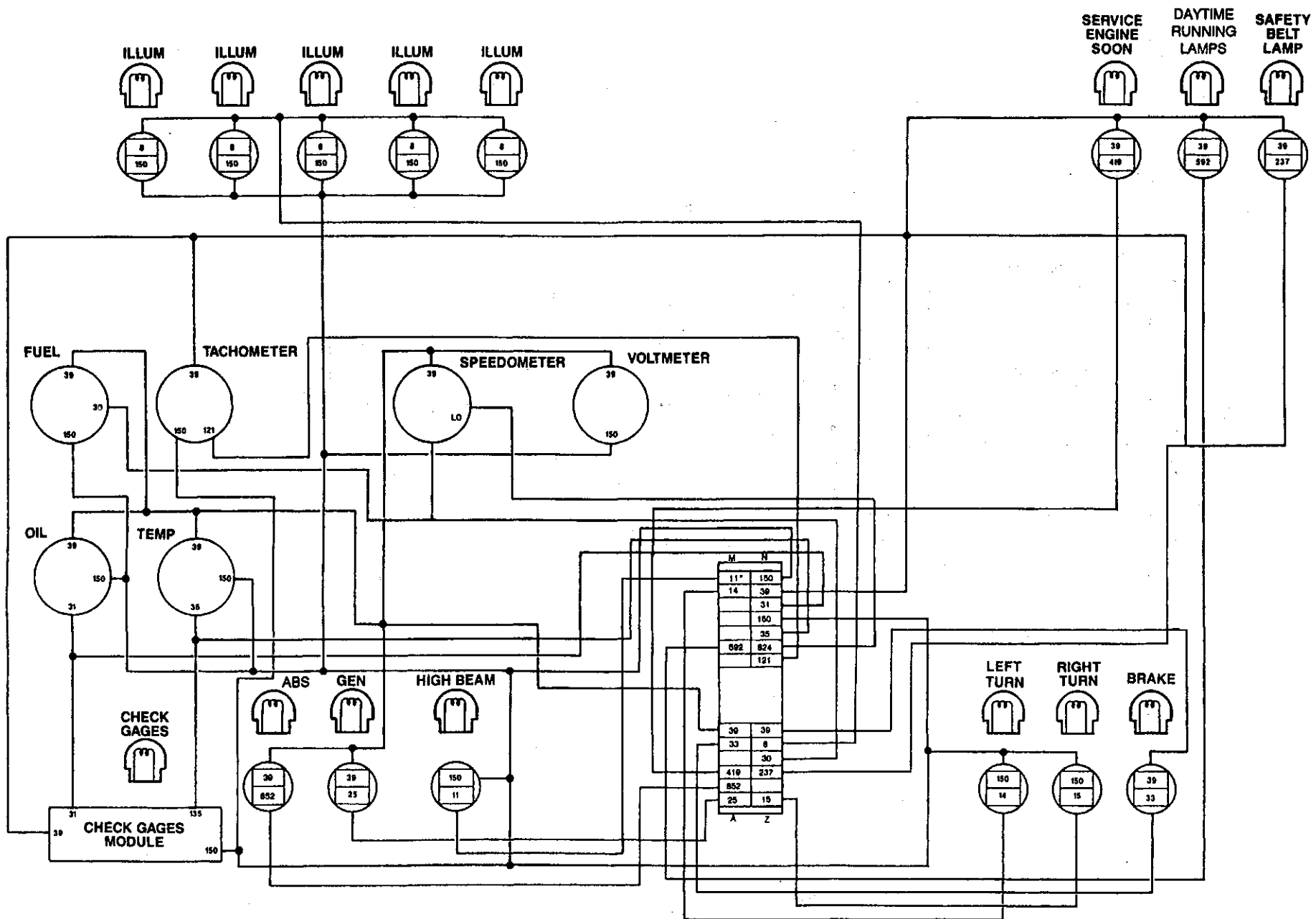


# INSTRUMENT PANEL 8A-81-7

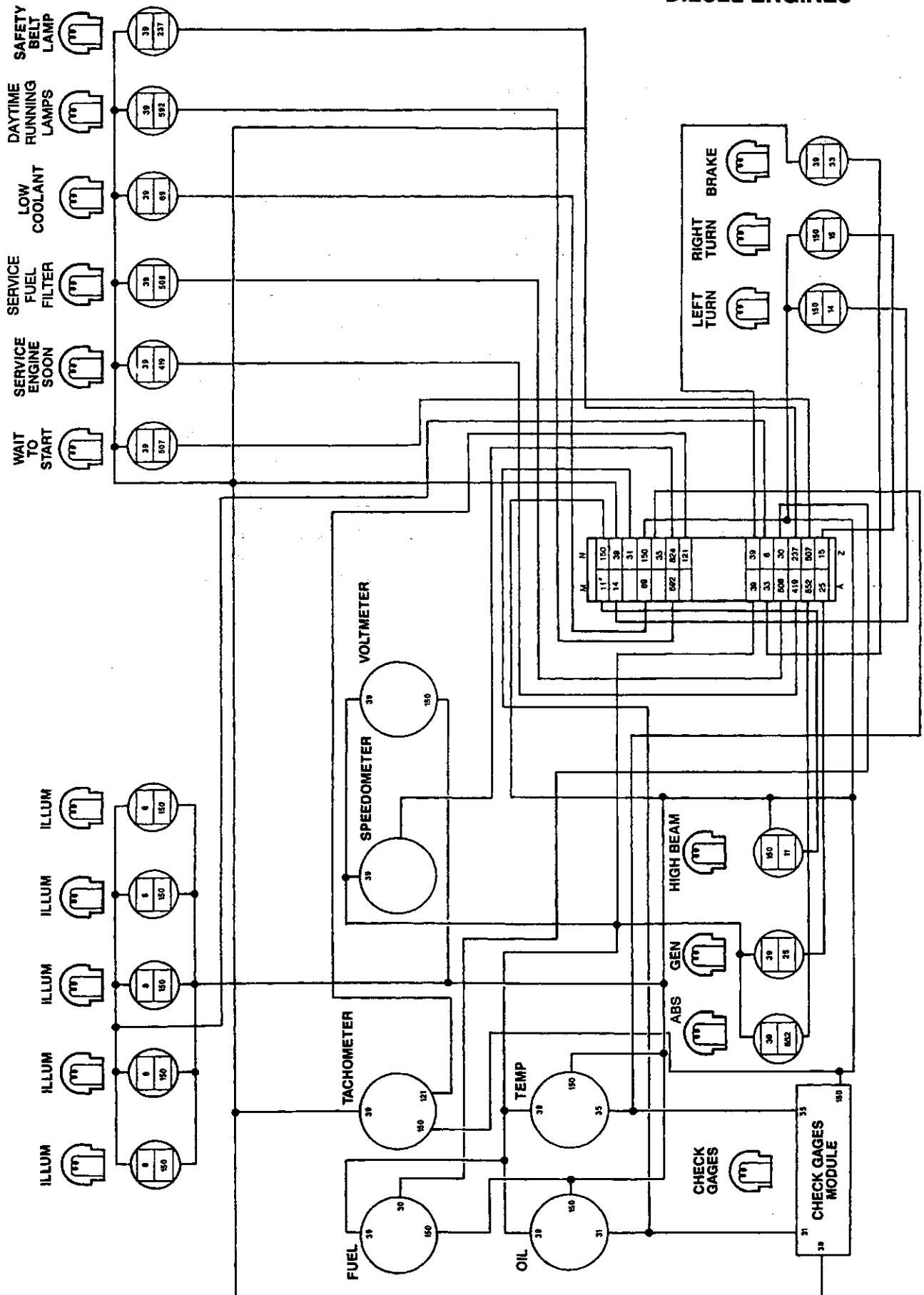
## DIESEL ENGINES



# 8A-81-8 INSTRUMENT PANEL GASOLINE ENGINES



# INSTRUMENT PANEL 8A-81-9 DIESEL ENGINES



## 8A-81-10 INSTRUMENT PANEL

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### DIAGNOSIS

The following list of symptoms are not covered in this section. The symptoms will be referenced to the appropriate subject located within this manual or will show what manual to use.

#### SYMPTOM

#### FOR DIAGNOSIS

High Beam Indicator Does Not Operate Properly .....	See Headlamps (Page 100-1)
Fasten Belts Indicator And Alarm Do Not Operate Properly .....	See Safety Belt Warning Buzzer (Page 76-1)
Brake Indicator Is Always Lit .....	See Brake Warning System (Page 44-1)
Brake Indicator Does Not Light When Park Brake Is Applied .....	See Brake Warning System (Page 44-1)
Malfunction Indicator Is Always Lit .....	Refer To The 1994 Light Duty Fuel And Emissions Manual.
Malfunction Indicator Does Not Light With The Ignition Switch In Run And Engine Not Running .....	Refer To The 1994 Light Duty Fuel And Emissions Manual.
Turn Indicator Does Not Operate Properly .....	See Front Exterior Lamps (Page 110-1).
Wait Indicator Does Not Operate Properly .....	Refer To The 1994 Light Duty Fuel And Emissions Manual.
Service Fuel Filter Indicator Does Not Operate Properly .....	See Diesel Engine Fuel Controls (Page 26-1)

## **DIAGNOSIS — INSTRUMENT PANEL: GAGES AND INDICATORS**

### **PRELIMINARY CHECKS:**

1. Check condition of GAGES Fuse. If fuse is blown, locate and repair source of overload. Replace fuse.

#### **FUEL GAGE IS INACCURATE**

<b>TEST</b>	<b>RESULT</b>	<b>ACTION</b>
1. Disconnect fuel tank sender connector C407. Connect one red lead of tester J33431-B to PNK (30) wire and other to ground. Set resistance dials to 0 ohms and then to 90 ohms. Fuel gage should indicate empty and then slowly move to full.	Gage responds correctly.	CHECK BLK/WHT (450) wire for high resistance. If wire is good, REPAIR/REPLACE fuel gage sender.
	Gage does not respond correctly.	CHECK for high resistance in PNK (30) wire. If wire is good, REPLACE fuel gage.

#### **FUEL GAGE INDICATES FULL OR BEYOND AT ALL TIMES**

<b>TEST</b>	<b>RESULT</b>	<b>ACTION</b>
1. Disconnect fuel tank sender connector C407 and place ignition switch in RUN. Connect fused jumper from PNK (30) wire at fuel pump and sender connector C407 to ground.	Fuel gage indicates full.	LOCATE and REPAIR a short in PNK (30) wire between fuel pump and sender connector C407 and connector C102 or connector C102 and I/P cluster connector C203. If no short is found, REPLACE fuel gage.
	Fuel gage indicates empty.	GO to step 2.
2. Connect fused jumper from PNK (30) wire to BLK/WHT (450) wire at fuel pump and sender connector C407.	Fuel gage indicates full.	LOCATE and REPAIR open in BLK/WHT (450) wire between fuel pump and sender connector C407 and connector C406 or between connector C406 and engine ground G108.
	Fuel gage indicates empty.	REPAIR/REPLACE fuel gage sender.

## 8A-81-12 INSTRUMENT PANEL

### TEMPERATURE GAGE INDICATES HOT WITH ENGINE COOLANT BELOW OPERATING TEMPERATURE AND IGNITION SWITCH IN RUN

TEST	RESULT	ACTION
1. Disconnect engine temperature sender connector C169 and place ignition switch in RUN.	Temperature gage indicates cold.	REPLACE engine temperature sender.
	Temperature gage does not indicate cold.	LOCATE and REPAIR a short in DK GRN (35) wire between engine temperature sender connector C169 and connector C100 or connector C100 and I/P cluster connector C203. If no short is found, PERFORM diagnostic procedures under symptom "Temperature Gage Is Not Accurate."

### TEMPERATURE GAGE INDICATES COLD ALL THE TIME

TEST	RESULT	ACTION
1. Disconnect engine temperature sender connector C169. Ground the DK GRN (35) wire at engine temperature sender connector C169.	Temperature gage indicates hot.	REPAIR/REPLACE engine temperature sender.
	Temperature gage does not indicate hot.	LOCATE and REPAIR open in DK GRN (35) wire between engine temperature sender connector C169 and connector C100 or connector C100 and I/P cluster connector C203. If wire is good, REPLACE temperature gage.

### TEMPERATURE GAGE IS NOT ACCURATE

TEST	RESULT	ACTION
1. Disconnect temperature sender connector C169. Connect red lead from J 33431-B tester to DK GRN (35) wire and other lead to ground. Adjust resistance dials to 1400 ohms and then to 55 ohms. Temperature gage should indicate cold then hot.	Gage indicates correctly.	REPLACE temperature sender.
	Gage is not correct.	LOCATE and REPAIR open in DK GRN (35) wire between temperature sender connector C169 and connector C100 at connector C100 and I/P cluster connector C203. If wire is good, REPLACE temperature gage.

### CHECK GAGES INDICATOR DOES NOT LIGHT WITH IGNITION SWITCH IN BULB TEST OR START

TEST	RESULT	ACTION
1. Disconnect ignition switch connector C256. Connect fused jumper from DK GRN (35) wire at ignition switch connector C256 to ground. Place ignition switch in RUN.	Temperature or check gages indicator lights.	REPLACE ignition switch.
	Temperature or check gages does not light.	LOCATE and REPAIR open in DK GRN (35) wire from ignition switch connector C256 to connector C100 or connector C100 to I/P cluster connector C203.

## **INSTRUMENT PANEL 8A-81-13**

### **OIL PRESSURE GAGE INDICATES LOW PRESSURE WHEN OIL PRESSURE IS GOOD (GAGE EQUIPPED) OR OIL PRESSURE INDICATOR IS ALWAYS LIT**

<b>TEST</b>	<b>RESULT</b>	<b>ACTION</b>
1. Disconnect fuel pump oil pressure switch connector C167 (Gasoline) or C168 (Diesel) and place ignition switch in RUN.	Oil pressure gage indicates high pressure or indicator light goes out.	REPLACE oil pressure sender.
	Oil pressure indicates no or low pressure or indicator light stays on.	LOCATE and REPAIR short in TAN (31) wire between fuel pump oil pressure switch connector C167 (Gasoline) or C168 (Diesel) and connector C100 or connector C100 and I/P cluster connector C203. If wire is good, REPLACE oil pressure gage or instrument cluster if equipped with indicator light.

### **OIL PRESSURE GAGE INDICATES HIGH PRESSURE AT ALL TIMES**

<b>TEST</b>	<b>RESULT</b>	<b>ACTION</b>
1. Disconnect fuel pump oil pressure switch connector C167 (Gasoline) or C168 (Diesel) and place ignition switch in RUN. Connect fused jumper from TAN (31) wire at fuel pump oil pressure switch connector C167 (Gasoline) or C168 (Diesel) to ground.	Oil pressure gage indicates low pressure or indicator lights.	REPLACE fuel pump oil pressure switch.
	Oil pressure gage indicates high pressure or indicator does not light.	LOCATE and REPAIR open in TAN (31) wire between fuel pump oil pressure switch connector C167 (Gasoline) C168 (Diesel) and connector C100 or connector C100 and I/P cluster connector C203 and bulb. If wire and bulb are good, REPLACE oil pressure gage or instrument cluster if equipped with indicator light.

### **VOLTMETER IS NOT ACCURATE**

<b>TEST</b>	<b>RESULT</b>	<b>ACTION</b>
1. Place ignition switch in RUN position. Connect voltmeter between positive and negative terminals of the battery.	Voltage reading is same as vehicle's voltmeter.	Voltmeter is good.
	Voltage reading is different from vehicle's voltmeter.	LOCATE and REPAIR open in PNK/BLK (39) wire and BLK (150) wire at instrument cluster. If wires are good, REPLACE voltmeter.

## 8A-81-14 INSTRUMENT PANEL

### ENGINE COOLANT LEVEL INDICATOR DOES NOT LIGHT WITH COOLANT LEVEL LOW (DIESEL ONLY)

TEST	RESULT	ACTION
1. Disconnect engine coolant level sensor connector C165 and place ignition switch in RUN. Observe engine coolant level indicator light.	Engine coolant level indicator lights.	REPLACE engine coolant level sensor.
	Engine coolant level indicator does not light.	GO to step 2.
2. Disconnect engine coolant level indicator module connector C248. Connect voltmeter from PNK/BLK (39) wire at engine coolant level indicator module connector C248 to ground.	Battery voltage.	GO to step 3.
	No voltage.	LOCATE and REPAIR open in PNK/BLK (39) wire between fuse block and engine coolant level indicator module connector C248.
3. Connect voltmeter from PNK/BLK (39) wire to BLK (150) wire at engine coolant level indicator module connector C248.	Battery voltage.	GO to step 4.
	No voltage.	LOCATE and REPAIR open in BLK (150) wire between engine coolant level indicator module connector C248 and I/P ground G202.
4. Connect voltmeter from GRA (69) wire at engine coolant level indicator module connector C248 to ground.	Battery voltage.	GO to step 5.
	No voltage.	LOCATE and REPAIR open or short to ground in GRA (69) wire between engine coolant level indicator module connector C248 and I/P cluster connector C203.
5. Connect voltmeter from PNK/BLK (39) wire to YEL/BLK (68) at engine coolant level indicator module connector C248.	Battery voltage.	LOCATE and REPAIR short to ground in YEL/BLK (68) wire between engine coolant level indicator module connector C248 and engine coolant level sensor connector C165.
	No voltage.	REPAIR engine coolant level indicator module.

### ENGINE COOLANT LEVEL INDICATOR IS LIT WHEN COOLANT LEVEL IS GOOD

TEST	RESULT	ACTION
1. Connect fused jumper from engine coolant level sensor connector C165 to ground. Place ignition switch in RUN and observe engine coolant level indicator light.	Engine coolant level indicator goes out.	REPLACE engine low coolant level sensor.
	Engine coolant level indicator stays lit.	LOCATE and REPAIR open in YEL/BLK (68) wire between engine coolant level sensor connector C165 and engine coolant level indicator module connector C248. If wire is good, follow diagnostic procedures listed under symptom "Engine Coolant Level Indicator Does Not Light With Coolant Level Low."



## **INSTRUMENT PANEL 8A-81-15**

### **FUEL GAGE INDICATES EMPTY WHEN THERE IS FUEL IN THE TANK**

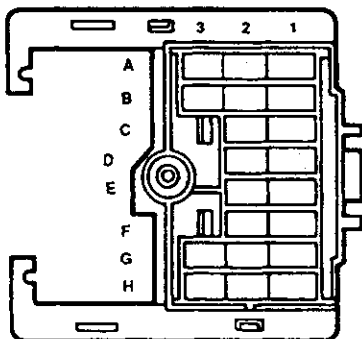
<b>TEST</b>	<b>RESULT</b>	<b>ACTION</b>
1. Disconnect fuel pump and sender connector C407 and place ignition switch in RUN.	Fuel gage indicates full.	REPAIR/REPLACE fuel gage sender.
	Fuel gage indicates empty.	LOCATE and REPAIR a short in PNK (30) wire between fuel pump and sender connector C407 and connector C102, or connector C105 and I/P cluster connector C203. If not short is found, REPLACE fuel gage.

### **OIL PRESSURE GAGE IS NOT ACCURATE**

<b>TEST</b>	<b>RESULT</b>	<b>ACTION</b>
1. Disconnect fuel pump oil pressure switch connector C167 (Gasoline) or C168 (Diesel). Connect one red lead of J33431B tester to TAN (31) wire at fuel pump oil pressure switch connector C167 (Gasoline) or C168 (Diesel) and other lead to ground. Set resistance dials to 0 ohms and then to 90 ohms. The oil pressure gage should indicate low pressure and then high pressure.	Oil pressure gage indicates correctly.	REPLACE fuel pump oil pressure switch.
	Oil pressure gage does not indicate correctly.	LOCATE and REPAIR open in TAN (31) wire between fuel pump oil pressure switch connector C167 (Gasoline) C168 (Diesel) and connector C100 or connector C100 and I/P cluster connector C203. If wire is good, REPLACE oil pressure gage.

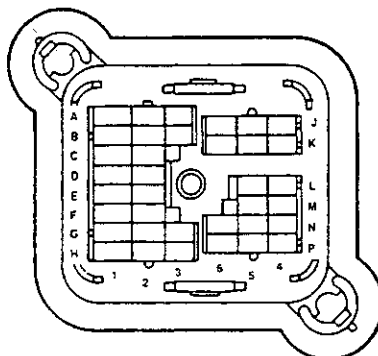
## 8A-81-16 INSTRUMENT PANEL

12020183



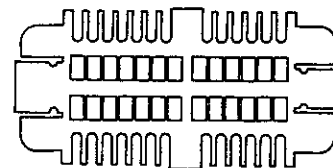
**GRAY**  
Metri-Pack  
**C100**  
Bulkhead Connector – Eng

12020184



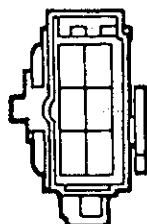
**GRAY**  
Metri-Pack  
**C100**  
Bulkhead Connector – I/P

12089908



**BLACK**  
Bow Series  
**C203**  
I/P Cluster

12020099



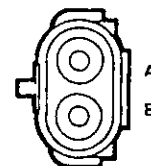
**C101**  
Bulkhead – Rear Lamps

12015792



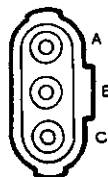
**BLACK**  
Weather Pack  
**C106A**  
Engine to Fuel Pump

12010973



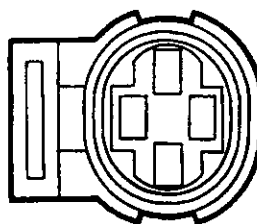
**BLACK**  
Weather Pack  
**C106A**  
Fuel Pump to Engine

12010717



**BLACK**  
Weather Pack  
**C420**  
Fuel Sender Unit

12065401



**GRAY**  
Metri-Pack 150  
**C167**  
Oil Pressure Switch/Sender

12089499



**C169**  
Engine Coolant Temperature  
Sender

## INSTRUMENT PANEL 8A-81-17

12015793



BLACK  
Weather Pack  
C126  
Water-In-Fuel Sensor

06288440



BLACK  
C165  
Low Coolant Level Sensor

12010996



BLACK  
Weather Pack  
C166  
I/P to Low Coolant Level Sensor

12015791



BLACK  
Weather Pack  
C166  
Low Coolant Level Sensor to I/P

## 8A-81-18 INSTRUMENT PANEL

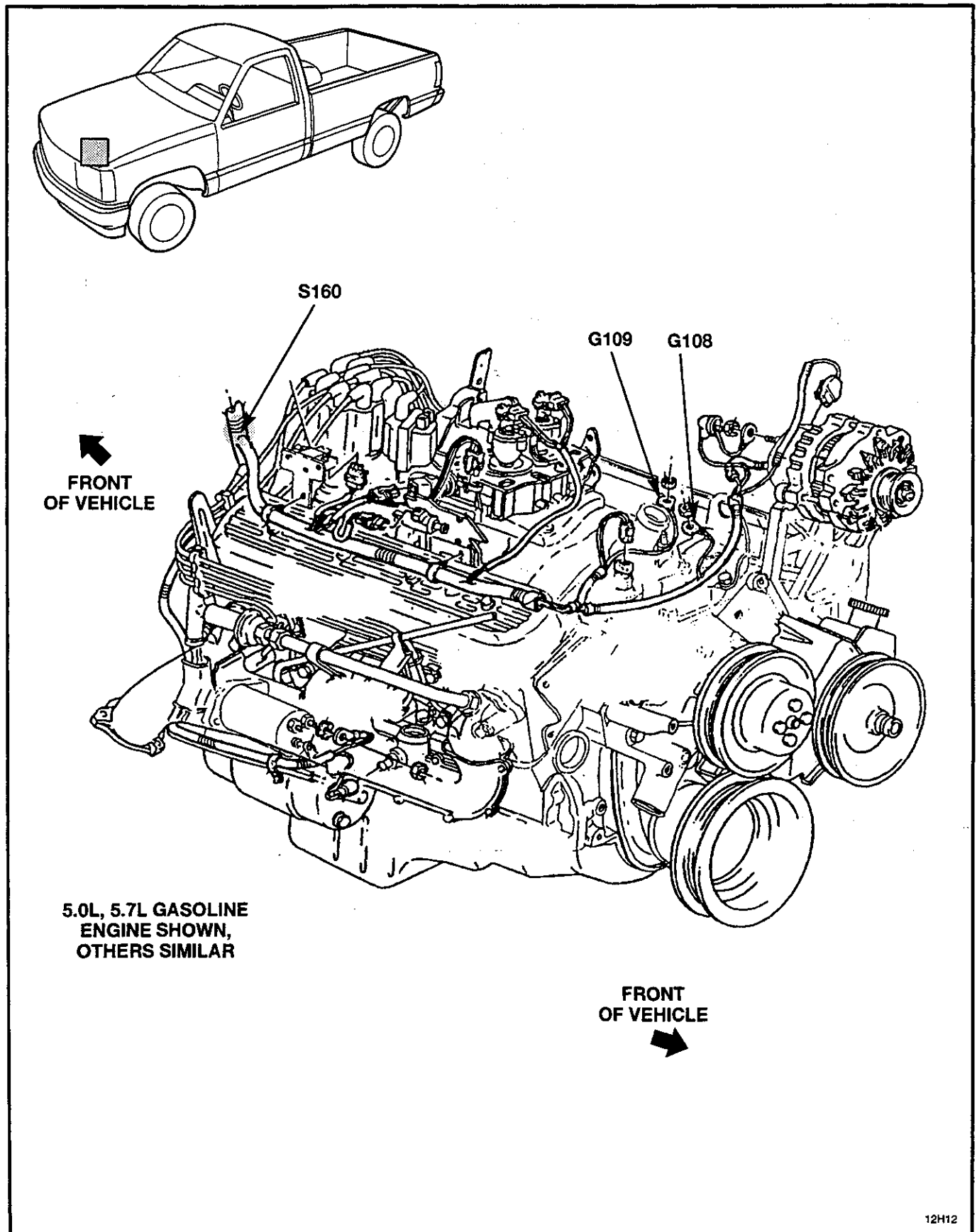


Figure 1 — LH Side of Engine, 5.0L (305 CID), 5.7L (350 CID) Engine — Gasoline

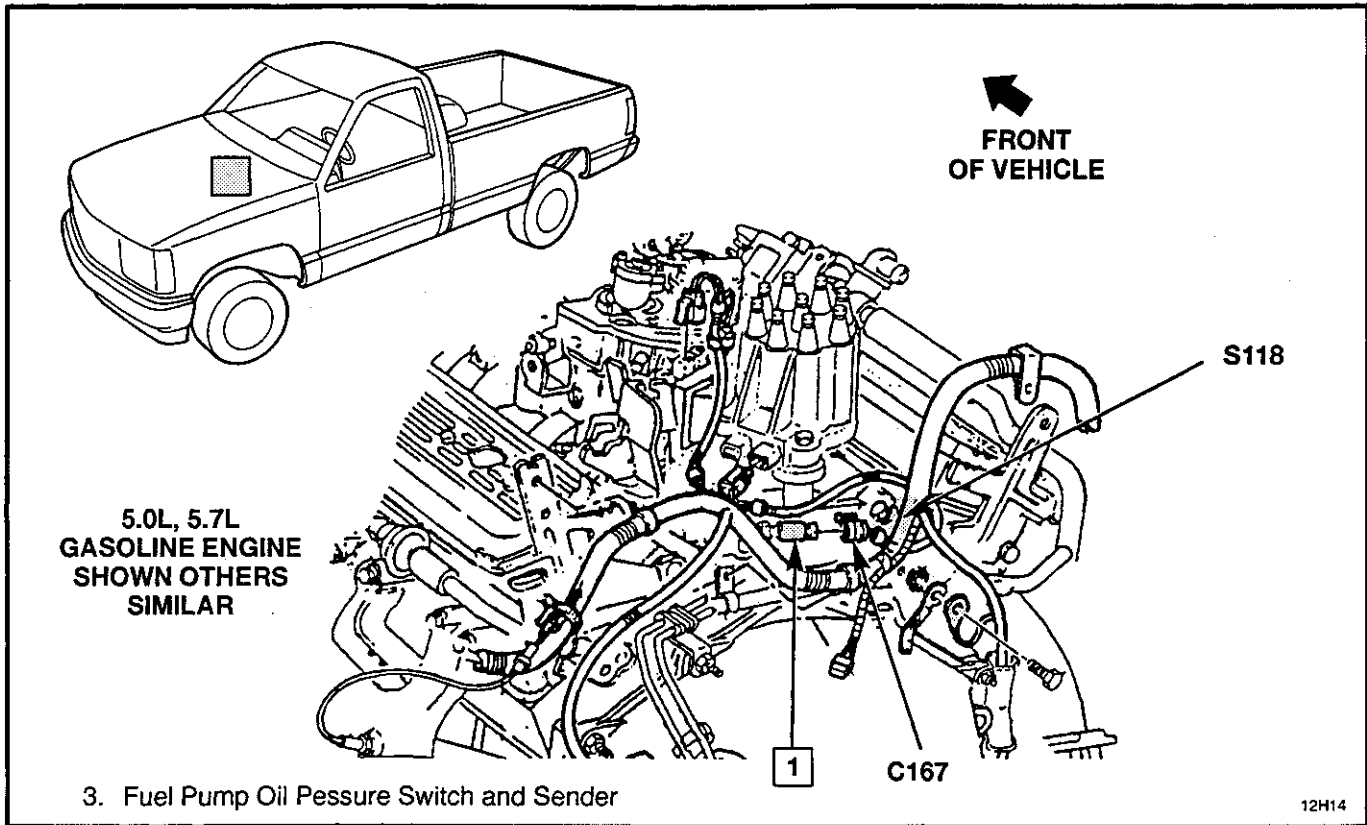


Figure 2 — Engine Wiring Rear, 5.0L (305 CID) and 5.7L (350 CID) — Gasoline Engines

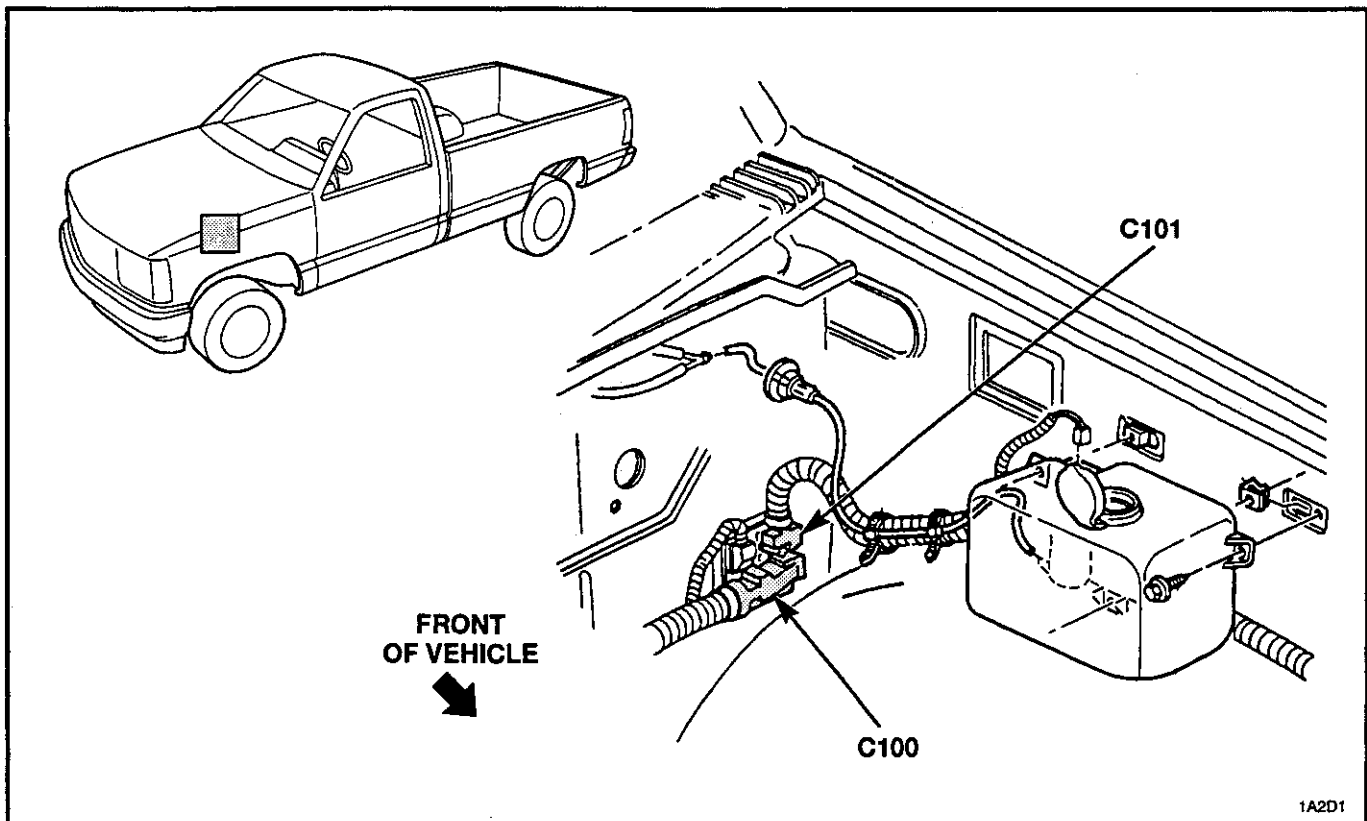


Figure 3 — LH Front Fender Wiring

## 8A-81-20 INSTRUMENT PANEL

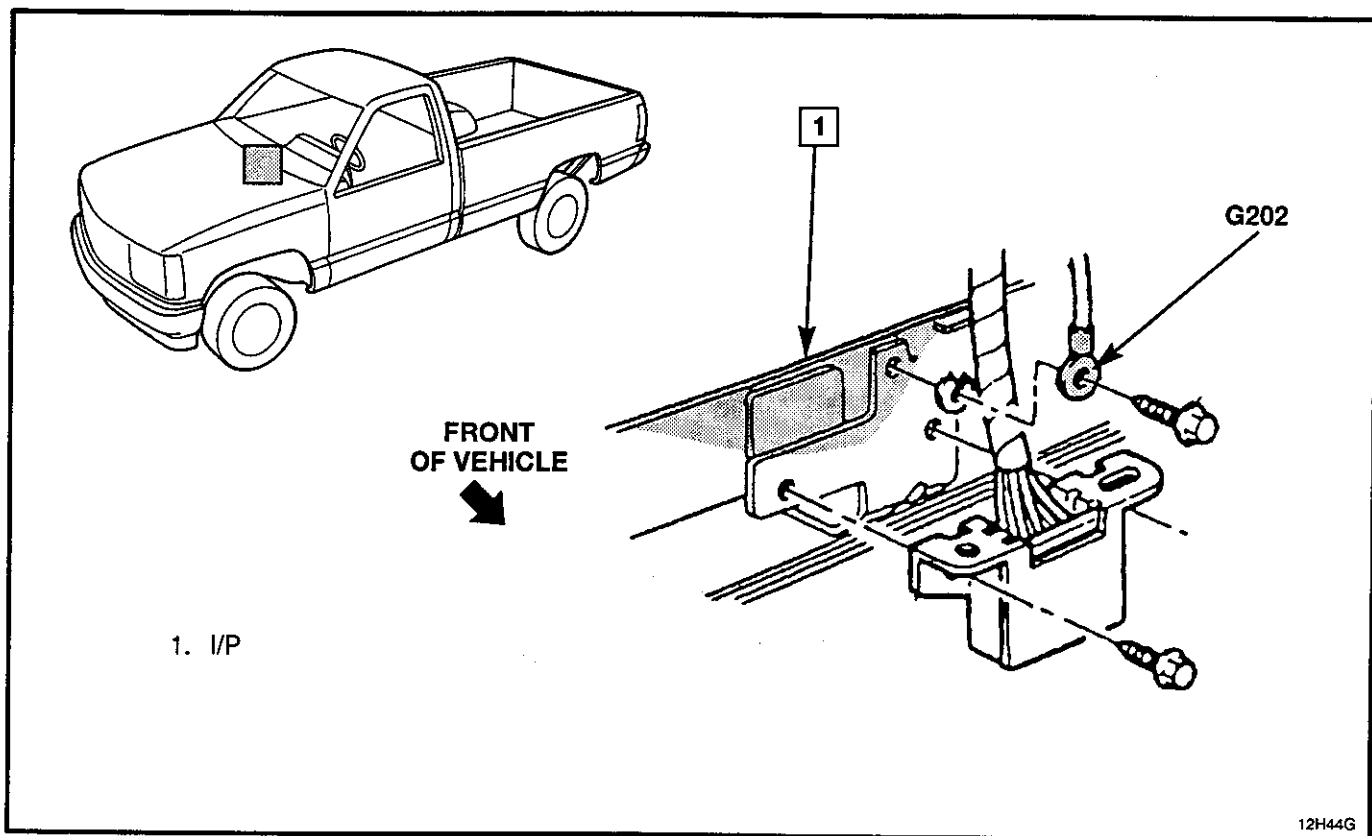


Figure 4 — I/P Ground Wiring

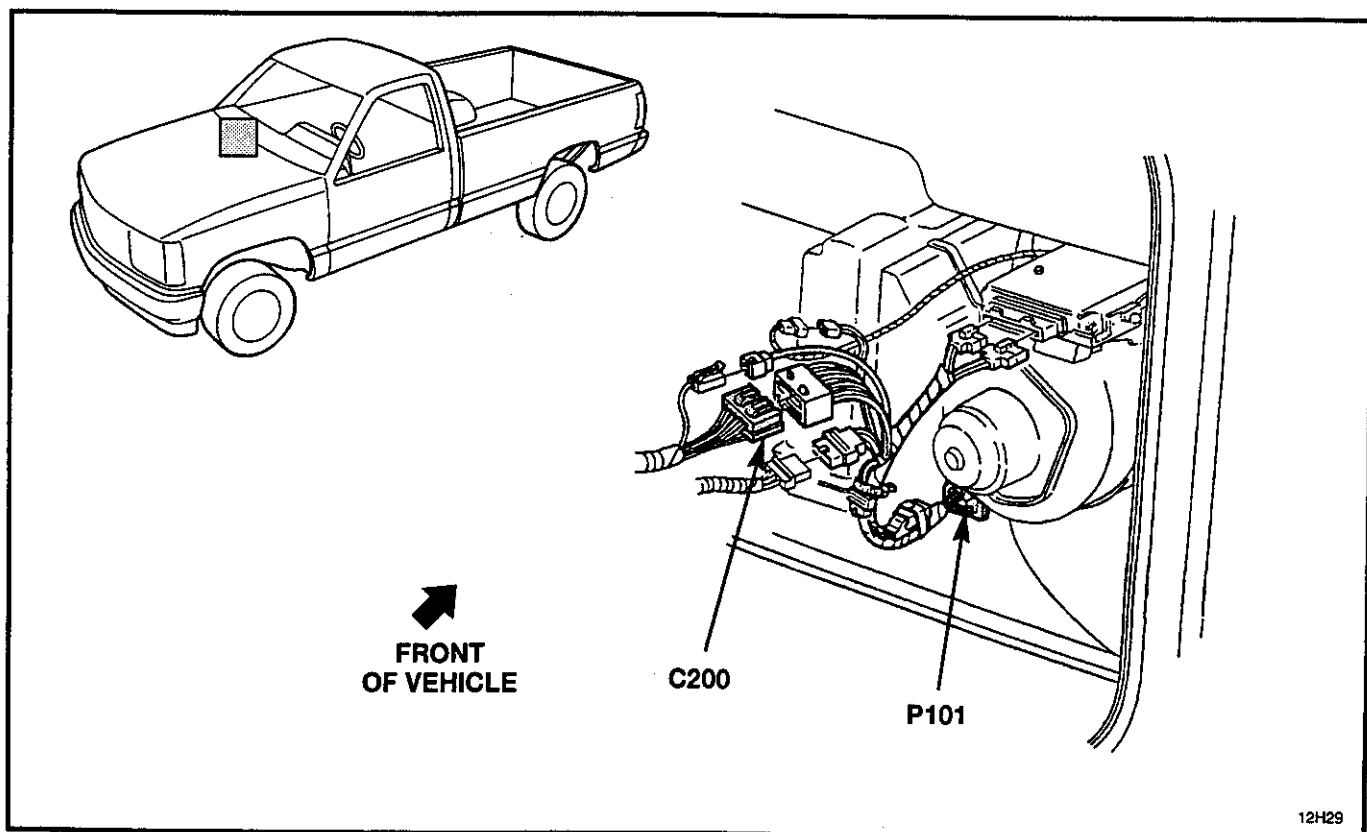


Figure 5 — Behind RH Side of I/P

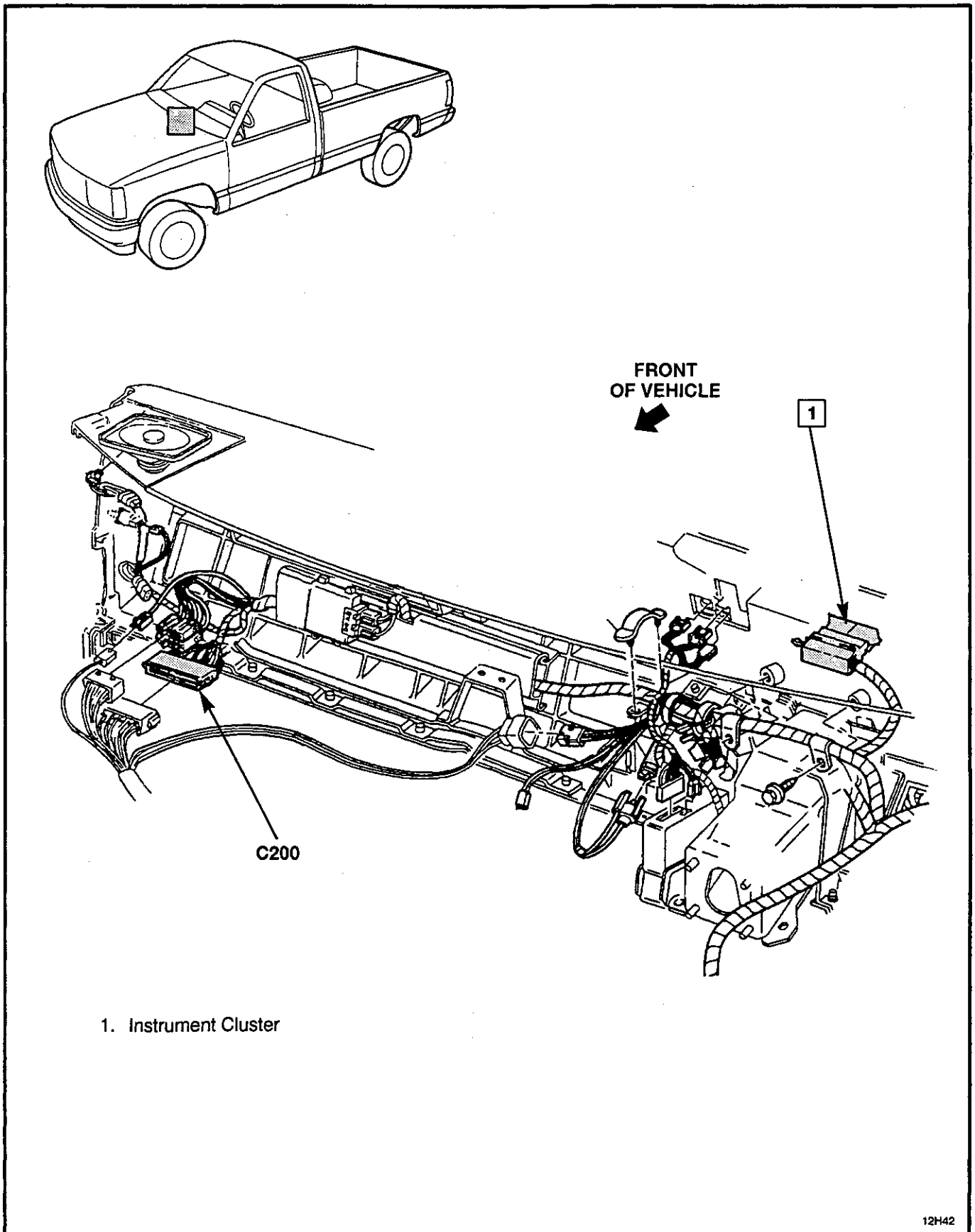


Figure 6 — Instrument Panel Wiring, RH Side

## 8A-81-22 INSTRUMENT PANEL

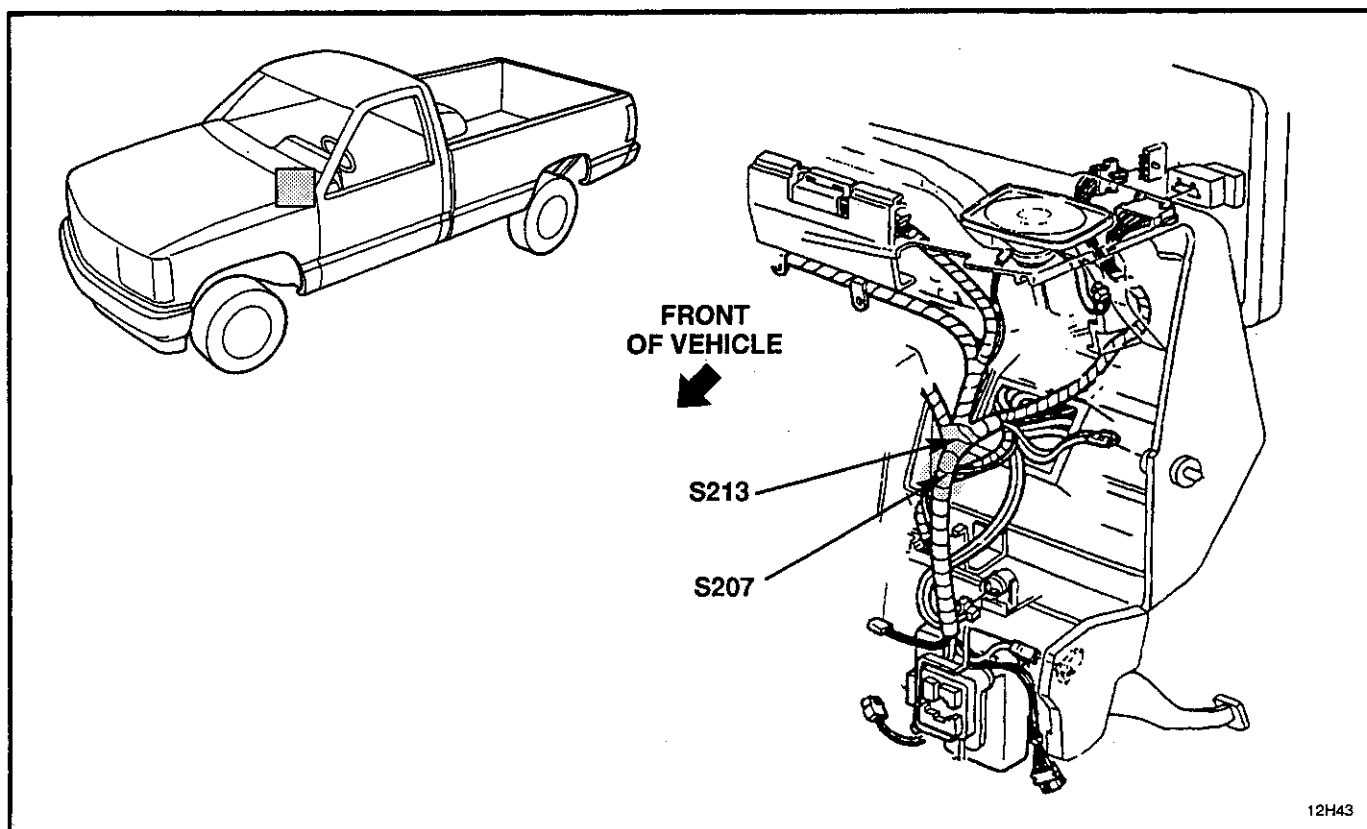


Figure 7 — Instrument Panel LH Side

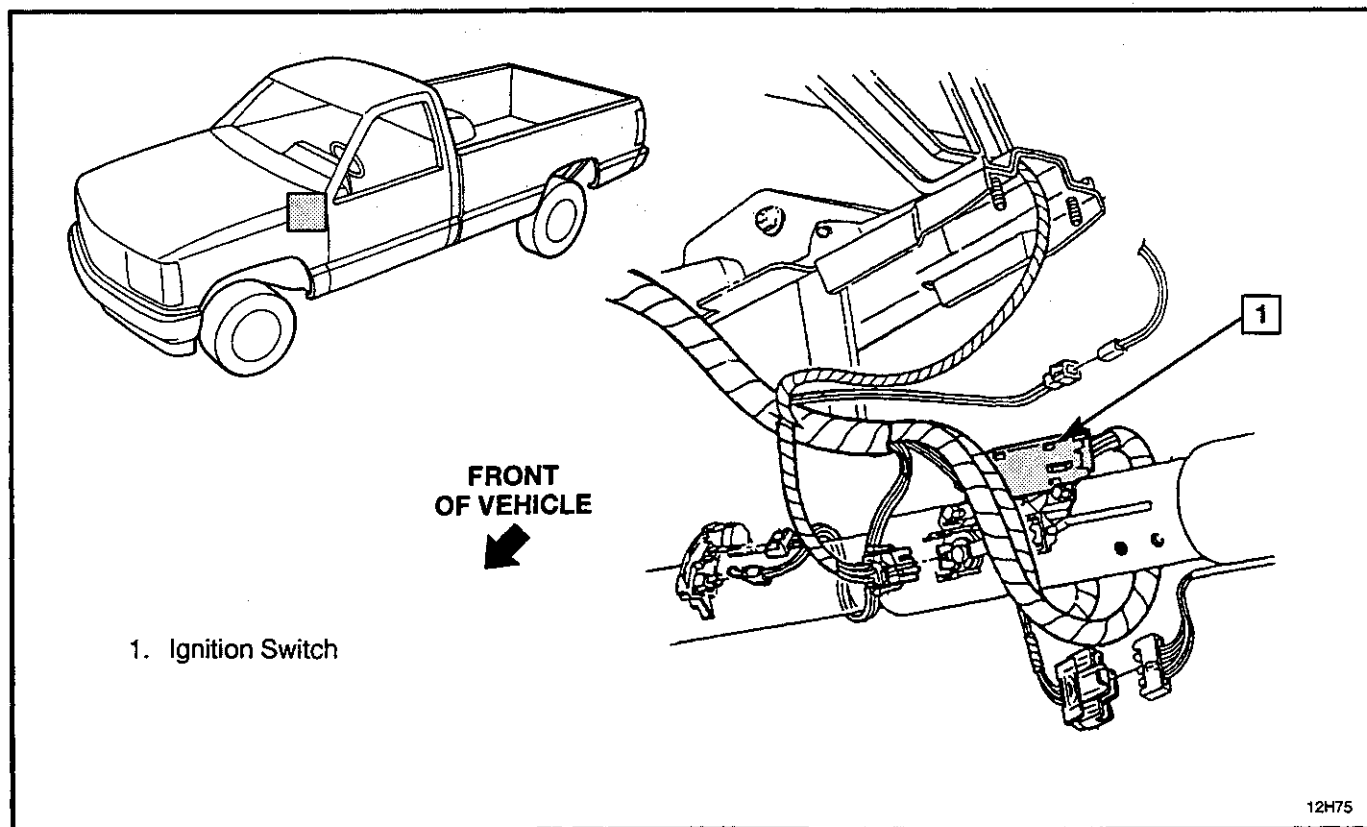


Figure 8 — Steering Column Wiring, RH Side



### CIRCUIT OPERATION

#### WIPERS (CONVENTIONAL)

When the Wiper/Washer Switch is in LO, battery voltage is supplied through the GRA (91) wire directly to the low speed brushes of the Wiper Motor. The Wiper Motor runs at low speed.

When the Wiper/Washer Switch is in HI, battery voltage is supplied through the PPL (92) wire to the high speed brushes of the Wiper Motor. The motor operates at higher speed.

The Park Switch is open only when the wiper blades are in the PARK position. In all other positions, the Park Switch is closed. When the Wiper/Washer Switch is moved to OFF, battery voltage at the WHT (93) wire is supplied through the Park Switch, the Wiper/Washer Switch and the GRA (91) wire to the low speed brushes of the Wiper Motor. The Wiper Motor continues to run at low speed until the wiper blades reach the PARK position. At that time the Park Switch opens and stops the Wiper Motor.

The Wiper Motor is protected by a circuit breaker which opens if the current through the Motor rises to a high level. This may happen if the wiper blades are blocked by ice or snow. The circuit breaker resets automatically after it cools off.

#### WASHER (CONVENTIONAL WIPER)

The Washer Motor is engaged whenever the Washer Switch is pressed and runs as long as the Washer Switch is closed. Battery voltage is supplied through the Washer Switch and the PNK (94) wire to the Washer Motor. The other terminal of the motor is grounded through the BLK (150) wire.

#### WIPERS (PULSE)

In addition to the features of a conventional (non-pulse) Wiper System (MIST, LO and HI speeds), the pulse-type Wiper/Washer System includes an operating mode in which the wipers make single strokes with an adjustable time interval between strokes. The time interval is controlled by a Solid-State Pulse/Speed/Wash Control in the Wiper Motor Module. The duration of the relay interval is determined by the Pulse Delay Resistance in the Wiper/Washer Switch.

#### LOW SPEED

In the LO position, the Wiper/Washer Switch supplies voltage to the GRA (91) wire and the Pulse/Speed/Wash Control. The Pulse/Speed/Wash Control provides ground to the Park/Run Relay which is energized and supplies voltage to the brushes of the Wiper Motor. The wipers run at low speed until they are turned off.

#### HIGH SPEED

With the Wiper/Washer Switch in the HI position, battery voltage is supplied from the PPL (92) wire directly to a second armature terminal of the Wiper Motor. The wipers run at high speed. When the Wiper/Washer Switch is turned to OFF, the wipers complete the last sweep at low speed and park.

#### PARK

When the wipers are turned off, the Wiper Motor runs at low speed until the wiper blades reach the PARK position. At that time the Park/Run Relay opens and shunts the Wiper Motor to stop it immediately. The wiper blades remain in the PARK position.

#### MIST

When the control is moved to MIST and released, the wipers make one sweep at low speed and return to PARK. The circuit operation is the same as low speed.

#### PULSE

With the Wiper/Washer Switch in PULSE (Delay), voltage is applied to the GRA (91) wire, the Wiper Motor Module and the Solid-State Control Board. Voltage is supplied to the Park/Run Relay coil which is momentarily grounded by the Pulse/Speed/Wash Control circuit and the relay closes. Battery voltage is supplied through the closed contacts of the relay to run the Wiper Motor. The relay remains energized as long as the contacts of the Park/Run Switch remain closed. When the wiper blades have reached PARK, the Park/Run Switch opens, de-energizing the Park/Run Relay. The wiper blades remain in PARK until the Control Board grounds the Park/Relay coil to start another sweep. The delay time between sweeps is controlled by the pulse delay resistors. The delay can be adjusted from 0 to 43 seconds.

## 8A-91-2 FRONT WIPER/WASHER

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### WASHER (PULSE WIPER)

When the Washer Switch is depressed, voltage is supplied to the Solid-State Control Board. The Control Board supplies battery voltage to the Washer Motor through the ORN (98) and PNK (94) wire. It also starts the wiper cycle through the low speed brushes of the Wiper Motor. The washer continues to run as long as the switch is held down. The Solid-State Control Board keeps the

wipers on for approximately six seconds after the washer goes off. If the washer is switched on during the PULSE operation, the wipers run in low speed for six seconds. The wash cycle is completed before the wipers return to the delayed pulse operation.

The Wiper Motor is equipped with a circuit breaker which protects the motor when the wipers are blocked. The resulting high current will open the circuit breaker which will reset upon cooling.

### COMPONENT LOCATION

#### Page — Figure

Fuse Block .....	Lower LH side of I/P .....	91-12	6
Windshield Washer Pump .....	At washer reservoir .....	91-10	4
Windshield Wiper Motor Module ....	Center rear engine compartment, at cowl .....	Not Shown	
Windshield Wiper and Washer Switch .....	Part of multi-function switch, LH upper steering column .....	91-11	5

### CONNECTORS:

C100 .....	At bulkhead connector .....	91-10	4
C102 .....	At bulkhead connector .....	91-10	4
C202 .....	Under RH side of I/P, near blower motor .....	91-8	2
C266 .....	At steering column, under cowl .....	91-11	5

### GROMMETS:

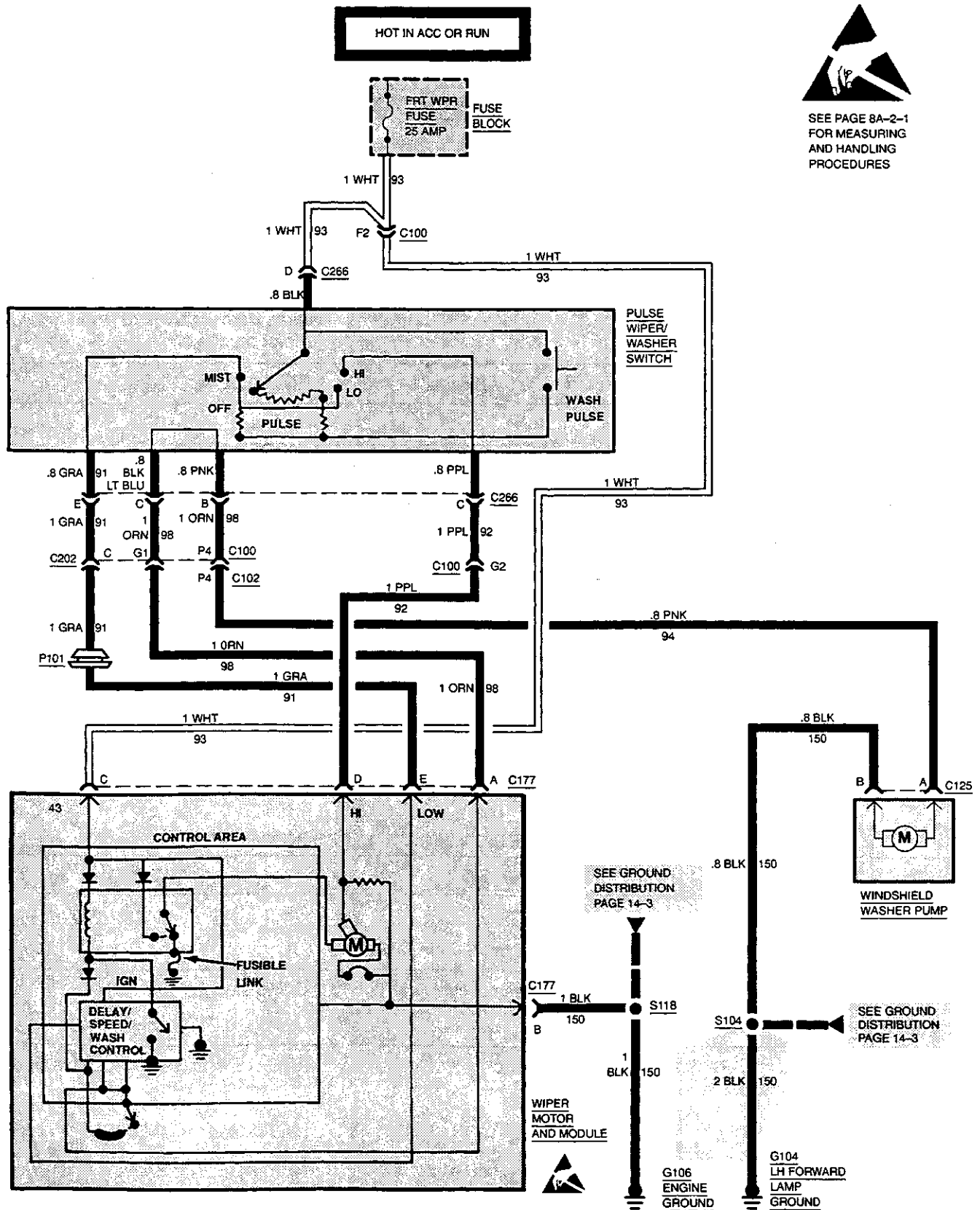
GT101 .....	RH lower cowl (engine compartment) .....	91-8	2
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### GROUNDING:

G104 .....	On sheet metal, above LH headlamp .....	91-8	1
G106 .....	Rear center cowl, near in-line fuse .....	91-9	3

### SPLICES:

S104 .....	LH side, near headlamp .....	91-8	1
S118 .....	Engine harness, near cowl LH rear engine compartment ....	91-9	3



## 8A-91-4 FRONT WIPER/WASHER

### DIAGNOSIS — WIPER/WASHER

#### PRELIMINARY CHECKS:

1. Check condition of FRT WIPER Fuse. If fuse is blown, locate and repair source of overload. Replace fuse.

#### WIPERS DO NOT OPERATE IN ANY MODE

TEST	RESULT	ACTION
1. Disconnect wiper switch connector C266. Connect test lamp from WHT (93) wire at wiper switch connector C266 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in WHT (93) wire from wiper switch connector C266 to fuse block.
2. Connect wiper switch connector C266. Position switch in LO. Connect test lamp from GRA (91) wire at wiper switch connector C266 to ground.	Test lamp lights.	LOCATE and REPAIR open in wiper wires from wiper switch to wiper motor module.
	Test lamp does not light.	REPLACE wiper switch.

#### WIPERS OPERATE AT LOW SPEED ONLY (HIGH SPEED INOPERATIVE)

TEST	RESULT	ACTION
1. Disconnect wiper motor module connector C177. Place ignition switch in ACC and wiper switch in HI position. Connect test lamp from PPL (92) wire at wiper module connector C177 to ground.	Test lamp lights.	REPLACE wiper motor module.
	Test lamp does not light.	GO to step 2.
2. Connect test lamp from PPL (92) wiper switch connector C266 to ground.	Test lamp lights.	LOCATE and REPAIR open in PPL (92) wire from wiper switch connector C266 to wiper motor module connector C177.
	Test lamp does not light.	REPLACE wiper switch.

#### WIPERS OPERATE AT HIGH SPEED ONLY (LOW SPEED INOPERATIVE)

TEST	RESULT	ACTION
1. Disconnect wiper motor module connector C177. Place ignition switch in ACC and wiper switch in LO position. Connect test lamp from GRA (91) wire at wiper motor module connector C177 to ground.	Test lamp lights.	REPLACE wiper motor module.
	Test lamp does not light.	GO to step 2.
2. Connect test lamp from GRA (91) wire at wiper switch connector C266 to ground.	Test lamp lights.	LOCATE and REPAIR open in GRA (91) wire from wiper switch connector C266 to wiper motor module connector C177.
	Test lamp does not light.	REPLACE wiper switch.

## FRONT WIPER/WASHER 8A-91-5

### NO DELAY IN THE PULSE (DELAY) MODE

TEST	RESULT	ACTION
1. Disconnect wiper switch connector C266. Place wiper switch to LO position. Connect ohmmeter from GRA (91) wire terminal to WHT (93) wire terminal at wiper switch.	A reading of approximately 680 ohms.	GO to step 2.
	A reading of less than or greater than 680 ohms.	REPLACE wiper switch.
2. Move wiper switch through delay range to maximum delay position.	Readings increase in steps to approximately 450 k ohms.	LOCATE and REPAIR open in GRA (91) wire or WHT (93) wire from wiper switch connector C266 to wiper motor module C177. If wires are good, REPLACE wiper switch.
	Readings are incorrect.	REPLACE wiper switch.

### WIPERS WILL NOT SHUT OFF

TEST	RESULT	ACTION
1. Disconnect wiper motor module connector C177. Place ignition switch in ACC and wiper switch to LO position. Connect test lamp from GRA (91) wire at wiper motor module connector C177 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in GRA (91) wire from wiper motor module connector C177 to wiper switch connector C266.
2. Move wiper switch to HI position. Connect test lamp from PPL (92) wire at wiper motor module connector C177 to ground.	Test lamp lights.	GO to step 3.
	Test lamp does not light.	LOCATE and REPAIR open in PPL (92) wire from wiper motor module connector C177 to wiper switch connector C266.
3. Connect test lamp from WHT (93) wire at wiper motor module connector C177 to ground.	Test lamp lights (w/pulse wipers).	REPLACE wiper motor module.
	Test lamp lights (w/o pulse wipers).	GO to step 4.
	Test lamp does not light.	LOCATE and REPAIR open in WHT (93) wire from wiper motor module connector C177 to ground G106.
4. Turn ignition and wiper switches to OFF. Disconnect battery. Connect ohmmeter between ORN (98) and GRA (91) wires at wiper motor module connector C177.	A reading of 0 ohms.	REPLACE wiper motor module.
	A reading of greater than 0 ohms.	LOCATE and REPAIR open in ORN (98) wire from wiper motor module connector C177 to wiper switch connector C266.

## 8A-91-6 FRONT WIPER/WASHER

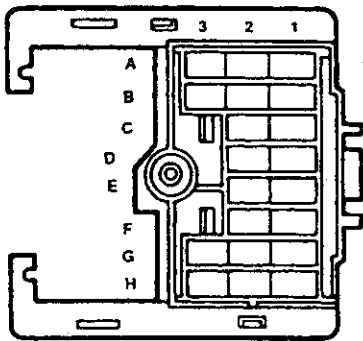
### WASHER WILL NOT OPERATE (W/O PULSE WIPERS)

TEST	RESULT	ACTION
1. Disconnect washer pump motor connector C176. Place ignition switch to WASH. Connect test lamp from PNK (94) wire at washer pump motor connector C176 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	GO to step 3.
2. Connect test lamp from PNK (94) wire to BLK (150) wire at washer pump motor connector C176.	Test lamp lights.	REPLACE washer pump motor.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire from washer pump motor connector C176 to ground terminal G104.
3. Connect test lamp from PNK (94) wire at wiper switch connector C266.	Test lamp lights.	LOCATE and REPAIR open in PNK (94) wire from wiper switch connector C266 to washer pump motor connector C176.
	Test lamp does not light.	REPLACE wiper switch.

### WASHER WILL NOT OPERATE (W/PULSE WIPERS)

TEST	RESULT	ACTION
1. Disconnect washer pump motor connector C176. Place ignition switch to ACC and wiper switch to WASH. Connect test lamp from PNK (94) wire at washer pump motor connector C176 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	GO to step 3.
2. Connect test lamp from PNK (94) wire to BLK (150) wire at washer pump motor connector C176.	Test lamp lights.	REPLACE washer pump motor.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire from washer pump motor connector C176 to ground terminal G104.
3. Connect test lamp from GRA (91) wire at wiper motor module connector C177 to ground.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	LOCATE and REPAIR open in GRA (91) wire from wiper motor module connector C177 to wiper switch connector C266. If wire is good, REPLACE wiper switch.
4. Connect test lamp from ORN (98) wire at wiper motor module connector C177 to ground.	Test lamp lights.	LOCATE and REPAIR open in ORN (98) wire from wiper motor module connector C177 to wiper switch connector C266. If wire is good, REPLACE wiper switch.
	Test lamp does not light.	REPLACE wiper motor module.

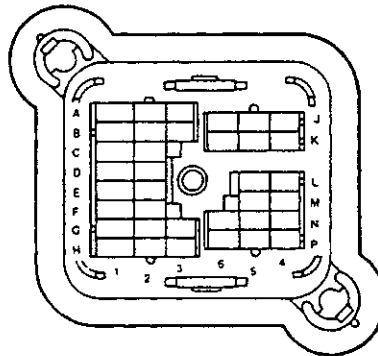
**12020183**



**GRAY**  
Metri-Pack

**C100**  
Bulkhead Connector – Eng

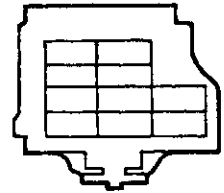
**12020184**



**GRAY**  
Metri-Pack

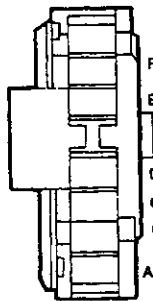
**C100**  
Bulkhead Connector – I/P

**12020100**



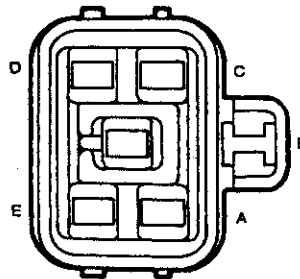
**C102**  
Bulkhead to Forward Lamps

**12020491**



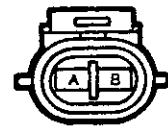
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Pac/on  
**C266**  
Wiper/Washer Switch

**12052813**



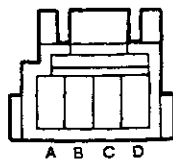
**BLACK**  
Metri-Pack 280  
**C177**  
Wiper Motor Module

**12052641**



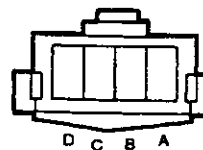
**BLACK**  
Metri-Pack 150  
**C125**  
Washer Pump

**12015664**



**BLACK**  
Metri-Pack 630  
**C202**  
In-Line Engine to I/P

**12052623**



**BLACK**  
Metri-Pack 630  
**C202**  
In-Line I/P to Engine

## 8A-91-8 FRONT WIPER/WASHER

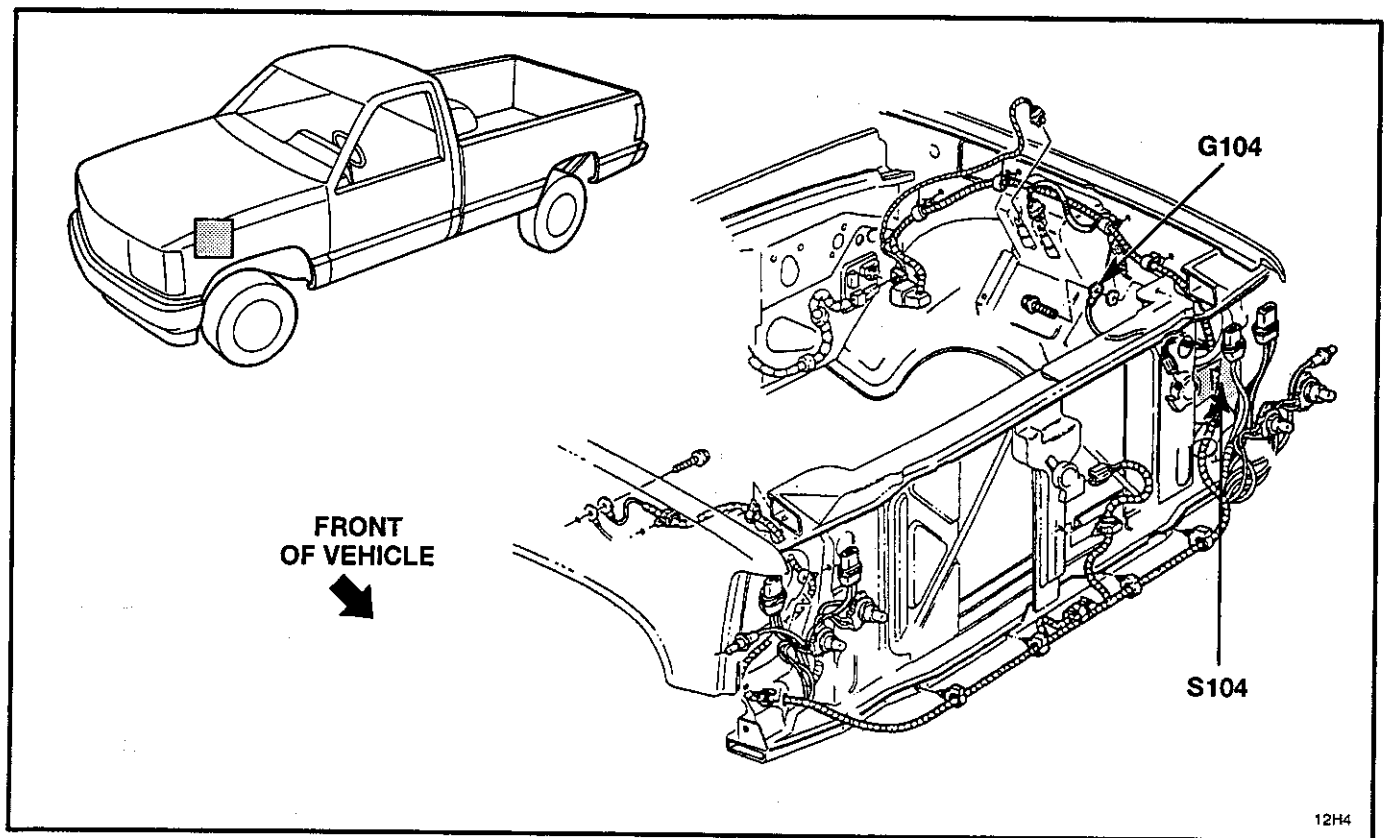


Figure 1 — Forward Lamp Harness

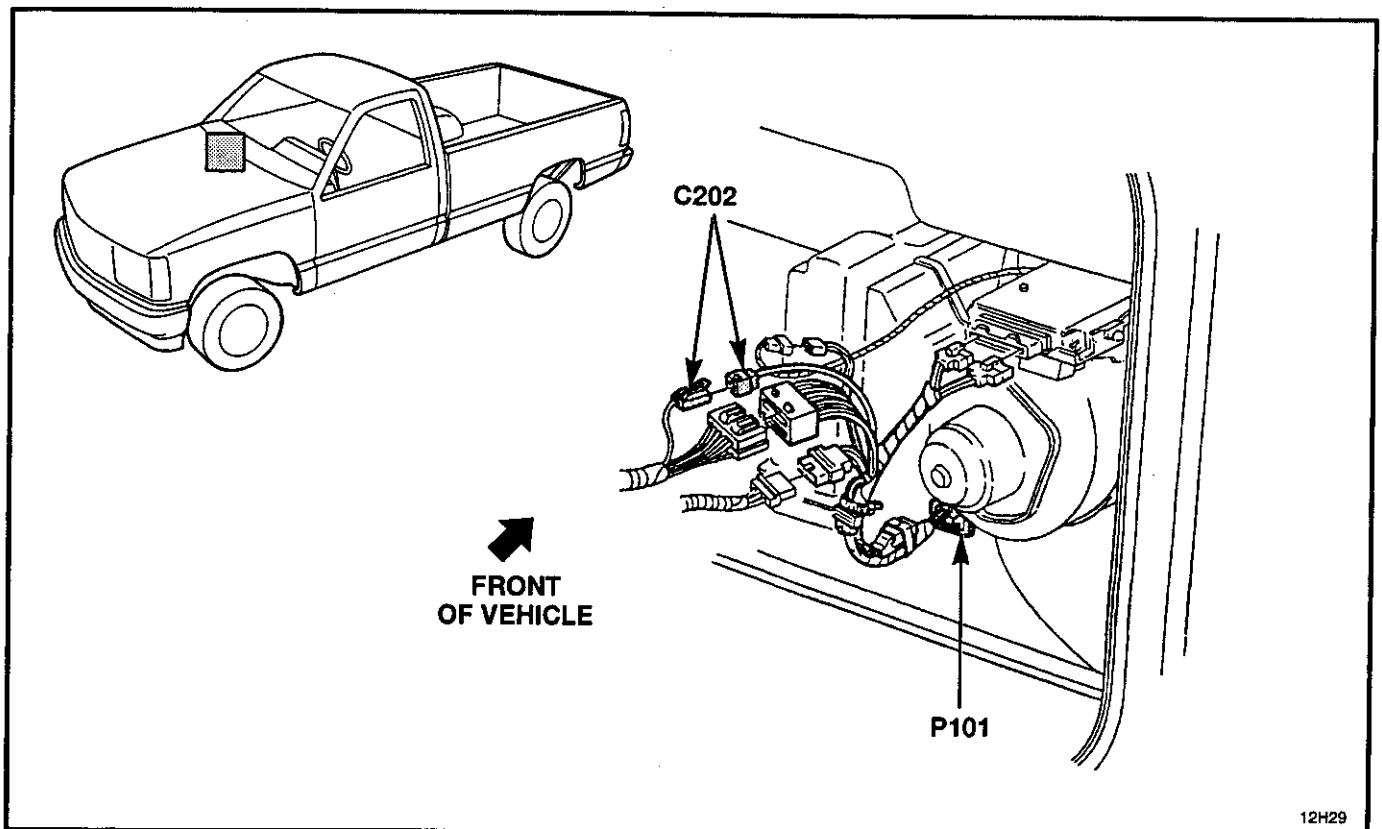
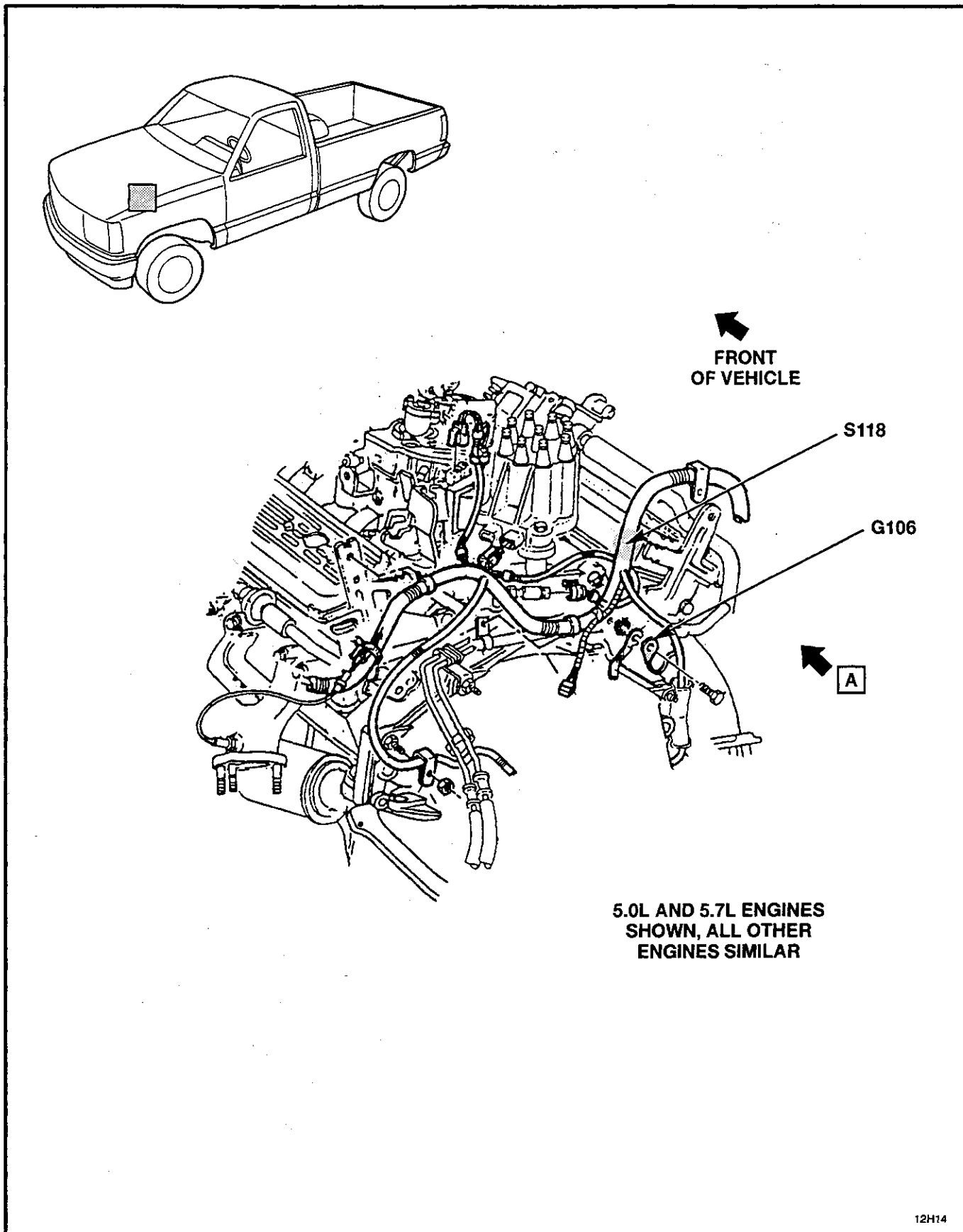


Figure 2 — Behind RH Side of I/P





**Figure 3 — LH Side of Engine — 5.0L (305 CID), 5.7L (350 CID) Gasoline Engine**

## 8A-91-10 FRONT WIPER/WASHER

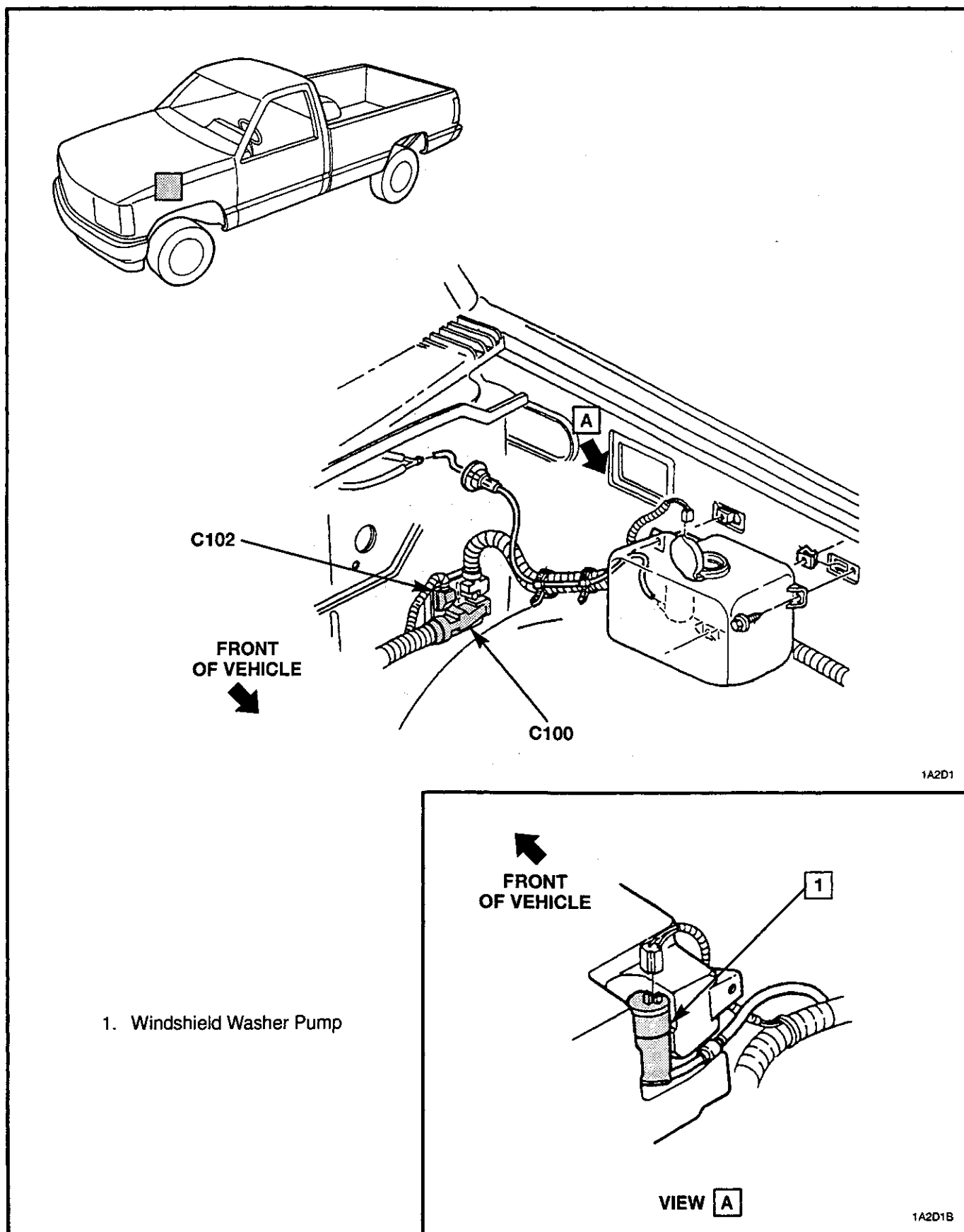


Figure 4 — Windshield Washer Reservoir and Pump, Except Suburban and Utility

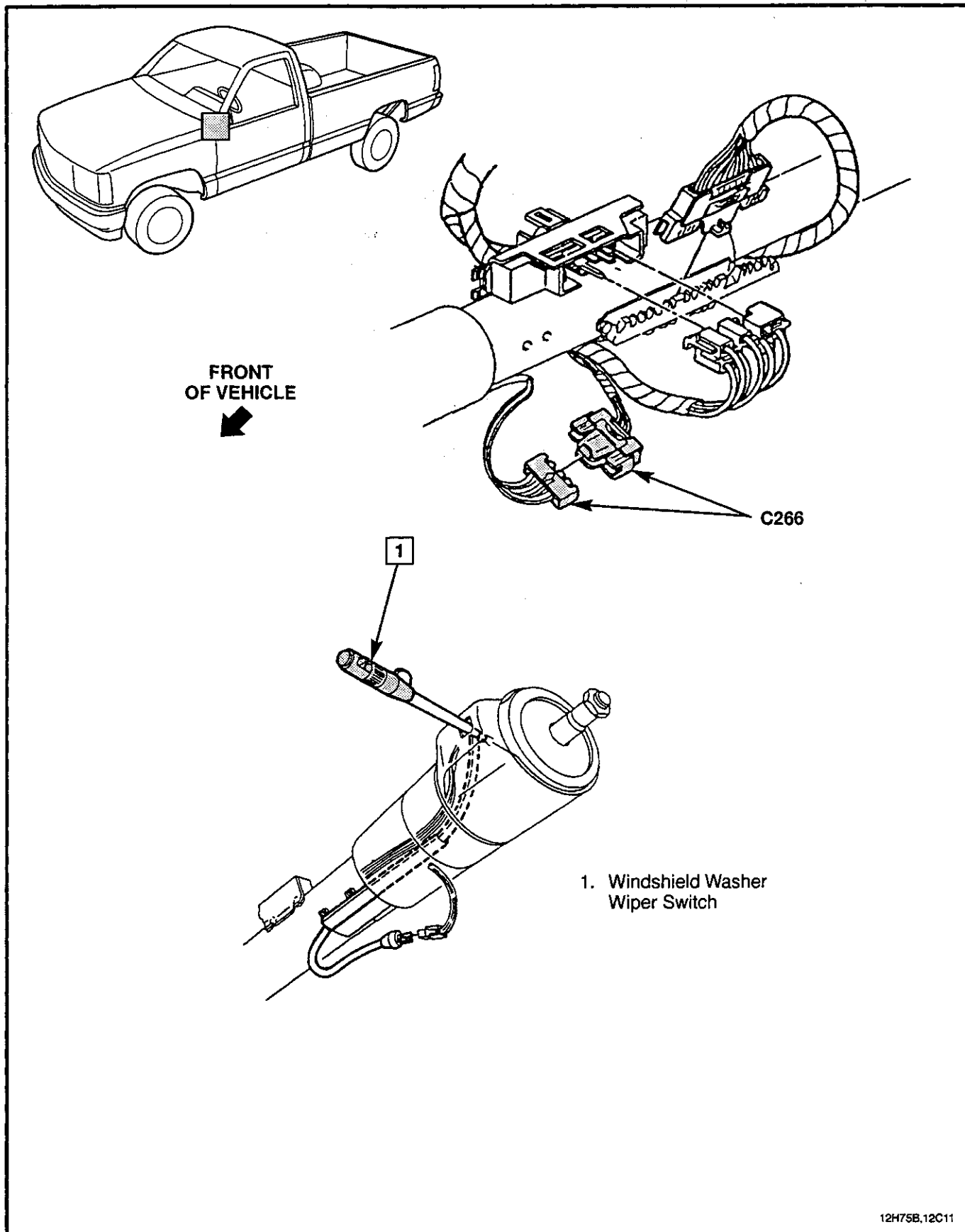


Figure 5 — Steering Column Wiring, RH Side

## 8A-91-12 FRONT WIPER/WASHER

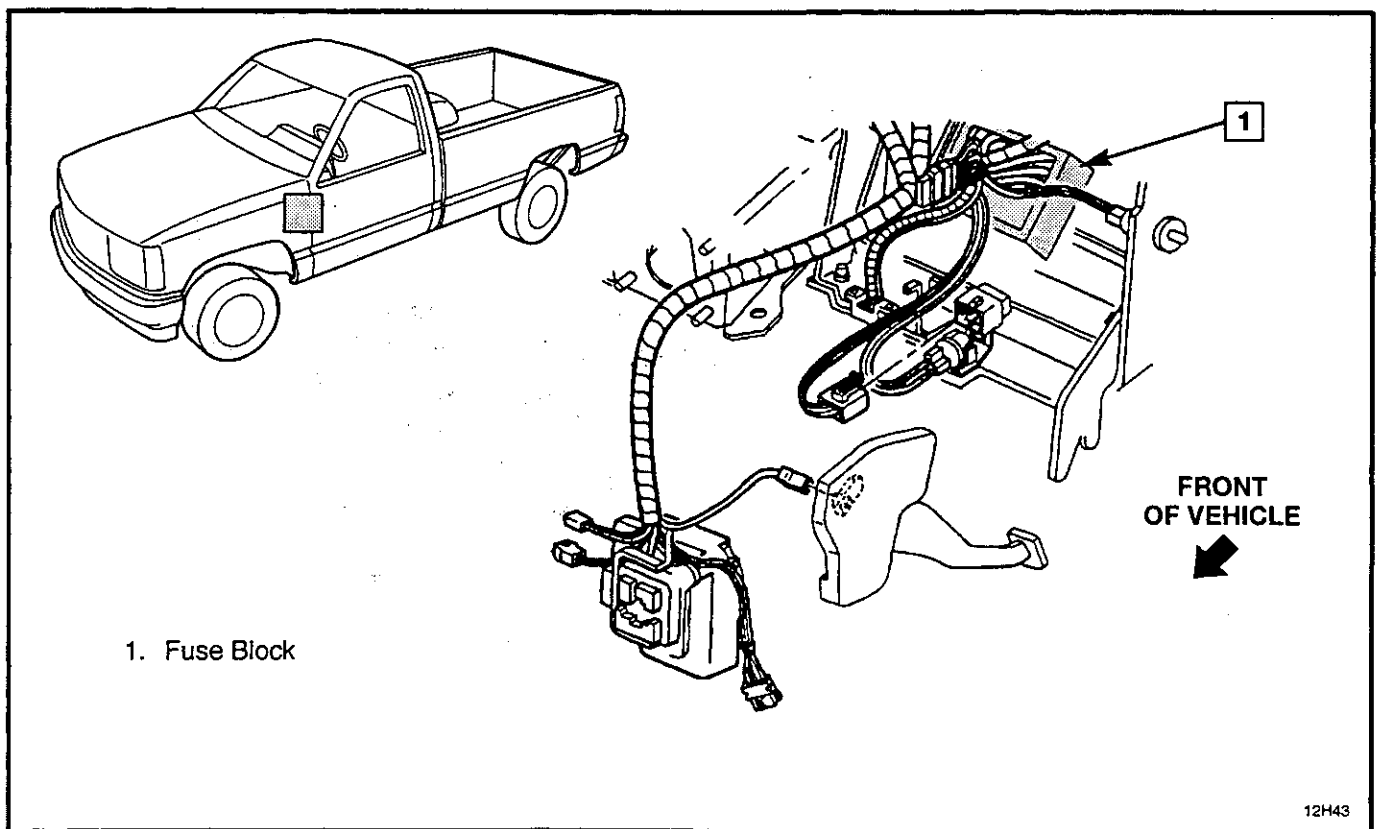


Figure 6 — LH Side of Instrument Panel

## CIRCUIT OPERATION

### PULSE REAR WIPER/WASHER

Voltage to the Rear Wiper/Washer is supplied through the ACC-IGN circuit breaker and WHT (393) wire with the Ignition Switch in ACC or RUN.

### WIPERS

In addition to the features of a conventional (non-pulse) Wiper System (MIST, LO and HI speeds), the Rear Pulse Wiper/Washer System includes an operating mode in which the wipers make single strokes with an adjustable time interval between strokes. The time interval is controlled by a Solid-State Pulse/Speed/Wash Control in the Wiper Motor Module. The duration of the relay interval is determined by the Pulse Delay Resistance in the Wiper/Washer Switch.

In the LO position, the Wiper/Washer Switch supplies voltage to the GRA (391) wire and the Pulse/Speed/Wash Control. The Pulse/Speed/Wash Control provides ground to the Park/Run Relay which is energized and supplies voltage to the brushes of the Wiper Motor. The wipers run at low speed until they are turned off.

With the Wiper/Washer Switch in the HI position, battery voltage is supplied from the DK GRN (392) wire directly to a second armature terminal of the Wiper Motor. The wipers run at high speed. When the Wiper/Washer Switch is turned to OFF, the wipers complete the last sweep at low speed and park.

When the wipers are turned off, the Wiper Motor runs at low speed until the wiper blades reach the PARK position. At that time the Park/Run Relay opens and shunts the Wiper Motor to stop it immediately. The wiper blades remain in the PARK position.

When the control is moved to MIST and released, the wipers make one sweep at low speed and return to PARK. The circuit operation is the same as low speed.

With the Wiper/Washer Switch in PULSE, voltage is supplied to the GRA (391) wire, the Wiper Motor Module and the Solid-State Control Board. Voltage is supplied to the Park/Run Relay coil which is momentarily grounded by the Pulse/Speed/Wash Control circuit and the relay closes. Battery voltage is supplied by the LT BLU (97) wire through the closed contacts of the Relay to run the Wiper Motor at LO speed. The relay remains energized as long as the contacts of the Park/Run Switch remain closed. When the wiper blades have reached PARK, the Park/Run Switch opens, de-energizing the Park/Run Relay. The wiper blades remain in PARK until the Control Board grounds the Park/Relay coil to start another sweep. The delay time between sweeps is controlled by the pulse delay resistors. The delay can be adjusted from 0 to 43 seconds.

### WASHER

When the Washer Switch is depressed, voltage is supplied to the Solid-State Control Board in the Wiper Control Module. The Wiper Switch supplies battery voltage to the Washer Motor through the DK GRN (392) wire. It also starts the wiper cycle through the low speed brushes of the Wiper Motor. The washer continues to run as long as the switch is held down. The Solid-State Control Board keeps the wipers on for approximately six seconds after the washer goes off. If the washer is switched on during the PULSE operation, the wipers run in low speed for six seconds. When the wash cycle is completed the Wipers return to the pulse operation.

The Wiper Motor is equipped with a circuit breaker which protects the motor when the wipers are blocked. The resulting high current will open the circuit breaker which will reset upon cooling.

### COMPONENT LOCATION

		Page	Figure
Convenience Center	Under LH side of I/P	92-10	4
Fuse Block	Under LH side of I/P	92-9	3
Rear Window Washer Pump	At washer reservoir	92-8	1
Rear Window Wiper/Washer Module	On lower rear liftgate glass	92-11	5
Rear Window Wiper/Washer Switch	Center of I/P	92-10	4

### CONNECTORS:

C260	Under LH end of I/P	92-10	4
C273	Behind LH side of I/P, near convenience center	Not Shown	
C406	RH upper rear body	92-11	5
C900	At rear window wiper module	92-11	5

## **8A-92-2 REAR WIPER/WASHER**

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### **COMPONENT LOCATION**

**Page — Figure**

#### **GROMMETS:**

P120 .....	At lower LH cowl .....	92-10	4
P405 .....	At endgate window frame .....	92-11	5

#### **GROUND:**

G202 .....	At DLC connector .....	92-8	2
G400 .....	At RH D-pillar .....	Not Shown	

#### **SPLICES:**

S207 .....	Under LH side of I/P .....	92-9	3
S285 .....	Rear window wiper switch harness, near body wiring harness connector .....	92-10	4
S402 .....	Above rear liftgate glass opening .....	92-12	6



## 8A-92-4 REAR WIPER/WASHER

### DIAGNOSIS — REAR WIPER/WASHER

#### PRELIMINARY CHECKS:

1. Check to see if RR WPR Fuse is blown. If fuse is blown, locate and repair source of overload. Replace fuse.
2. If fuse is not blown, proceed with the following diagnostic procedures.

#### REAR WIPER DOES NOT OPERATE IN ANY MODE

TEST	RESULT	ACTION
1. Turn ignition switch to ACC or RUN. Connect test lamp from WHT (393) wire at rear wiper switch connector C280 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in WHT (393) wire between rear wiper switch connector C280 and convenience center connector C273, or from convenience center connector C273 to fuse block.
2. Connect test lamp from GRA (391) wire at rear wiper switch connector C280 to ground. Move rear wiper switch to LO position. Repeat at LT BLU (97) wire with wiper switch in HI.	Test lamp lights at both wires.	GO to step 3.
	Test lamp does not light at one or both wires.	REPLACE rear wiper switch.
3. Disconnect rear wiper/washer module connector C900. Connect test lamp from GRA (391) wire at connector C900 to ground. Move rear wiper switch to LO position. Repeat at LT BLU (97) wire with switch in HI.	Test lamp lights at both wires.	GO to step 4.
	Test lamp does not light at one or both wires.	LOCATE and REPAIR open in GRA (391) or LT BLU (97) wire between rear wiper/washer module connector C900 and connector C406, from C406 to C260, or from C260 to rear wiper switch connector C280.
4. Connect test lamp from GRA (391) or LT BLU (97) wire to BLK (150) wire at rear wiper/washer module connector C900. Move rear wiper switch to LO.	Test lamp lights.	REPAIR rear wiper/washer module. Refer to Section 8E in the 1994 C/K Service Manual.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire between rear wiper/washer module connector C900 and connector C406, from C406 to splice S402, or from S402 to ground G400.



## REAR WIPER/WASHER 8A-92-5

### REAR WIPER OPERATES AT LOW SPEED ONLY (HIGH SPEED INOPERATIVE)

TEST	RESULT	ACTION
1. Connect test lamp from DK GRN (392) wire at rear wiper switch connector C280 to ground. Move switch to HI position.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	REPLACE rear wiper switch.
2. Disconnect rear wiper/washer module connector C900. Connect test lamp from LT BLU (97) wire at rear wiper/washer module connector C900 to ground. Move rear wiper switch to HI position.	Test lamp lights.	REPAIR rear wiper/washer module.
	Test lamp does not light.	LOCATE and REPAIR open in LT BLU (97) wire between rear wiper/washer module connector C900 and connector C406, from C406 to connector C260, or from C260 to rear wiper switch connector C280.

### REAR WIPER OPERATES AT HIGH SPEED ONLY (LOW SPEED INOPERATIVE)

TEST	RESULT	ACTION
1. Connect test lamp from GRA (391) wire at rear wiper switch connector C280 to ground. Move switch to LO position.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	REPLACE rear wiper switch.
2. Disconnect rear wiper/washer module connector C900. Connect test lamp from GRA (391) wire at rear wiper/washer module connector C900 to ground. Move rear wiper switch to LO position.	Test lamp lights.	REPAIR rear wiper/washer module.
	Test lamp does not light.	LOCATE and REPAIR open in GRA (391) wire between rear wiper/washer module connector C900 and connector C406, from C406 to connector C260, or from C260 to rear wiper switch connector C280.

### REAR WIPER WILL NOT SHUT OFF OR PARK

TEST	RESULT	ACTION
1. Turn ignition switch to ACC or RUN and rear wiper switch to OFF. Connect test lamp from GRA (391) wire at rear wiper/washer module connector C900 to ground.	Test lamp lights.	REPLACE rear wiper switch.
	Test lamp does not light.	GO to step 2.
2. Connect self-powered test lamp from ground to BLK (150) wire at rear wiper/washer module connector C900.	Test lamp lights.	REPAIR rear wiper/washer module. Refer to Section 8E in the 1994 C/K Service Manual.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire between rear wiper/washer module connector C900 and connector C406, from C406 to splice S402, or from S402 to ground G400.

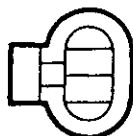
## 8A-92-6 REAR WIPER/WASHER

### REAR WASHER WILL NOT OPERATE

TEST	RESULT	ACTION
1. Place ignition switch to ACC or RUN and rear washer switch to ON. Connect test lamp from DK GRN (392) wire at rear wiper switch connector C280 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	REPLACE rear washer switch.
2. Disconnect rear washer pump connector C150A. Connect test lamp from DK GRN (392) at rear washer pump connector C150A to ground.	Test lamp lights.	GO to step 3.
	Test lamp does not light.	LOCATE and REPAIR open in DK GRN (392) wire between rear washer pump connector C150A and splice S285 or from S285 to rear washer switch connector C280.
3. Connect test lamp from DK GRN (392) wire to BLK (150) wire at rear washer pump connector C150A.	Test lamp lights.	REPLACE rear washer pump.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire between rear washer pump connector C150A and convenience center connector C270, from C270 to splice S207, or from S207 to ground G102.

# REAR WIPER/WASHER 8A-92-7

12020599



**BLACK**  
Metri-Pack 280  
**C150A**  
Rear Washer Pump Motor

12034344



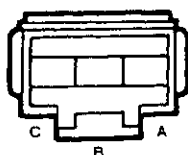
**BLACK**  
Metri-Pack 280  
**C273**  
In-Line I/P to Wiper Switch

12034343



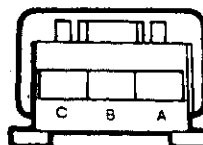
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Metri-Pack  
**C273**  
In-Line Wiper Switch to I/P

12020398



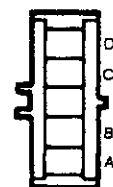
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Metri-Pack 180  
**C260**  
In-Line Wiper Extension to Switch

12020397



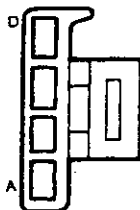
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Metri-Pack 280  
**C260**  
In-Line Wiper Switch to Extension

08905220



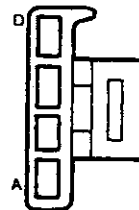
**BLACK**  
Pac/on  
**C406**  
In-Line Rear Wiper to Extension Harness

12052856



**C280**  
Rear Wiper Switch

12052856



**C900**  
Rear Wiper Module

## 8A-92-8 REAR WIPER/WASHER

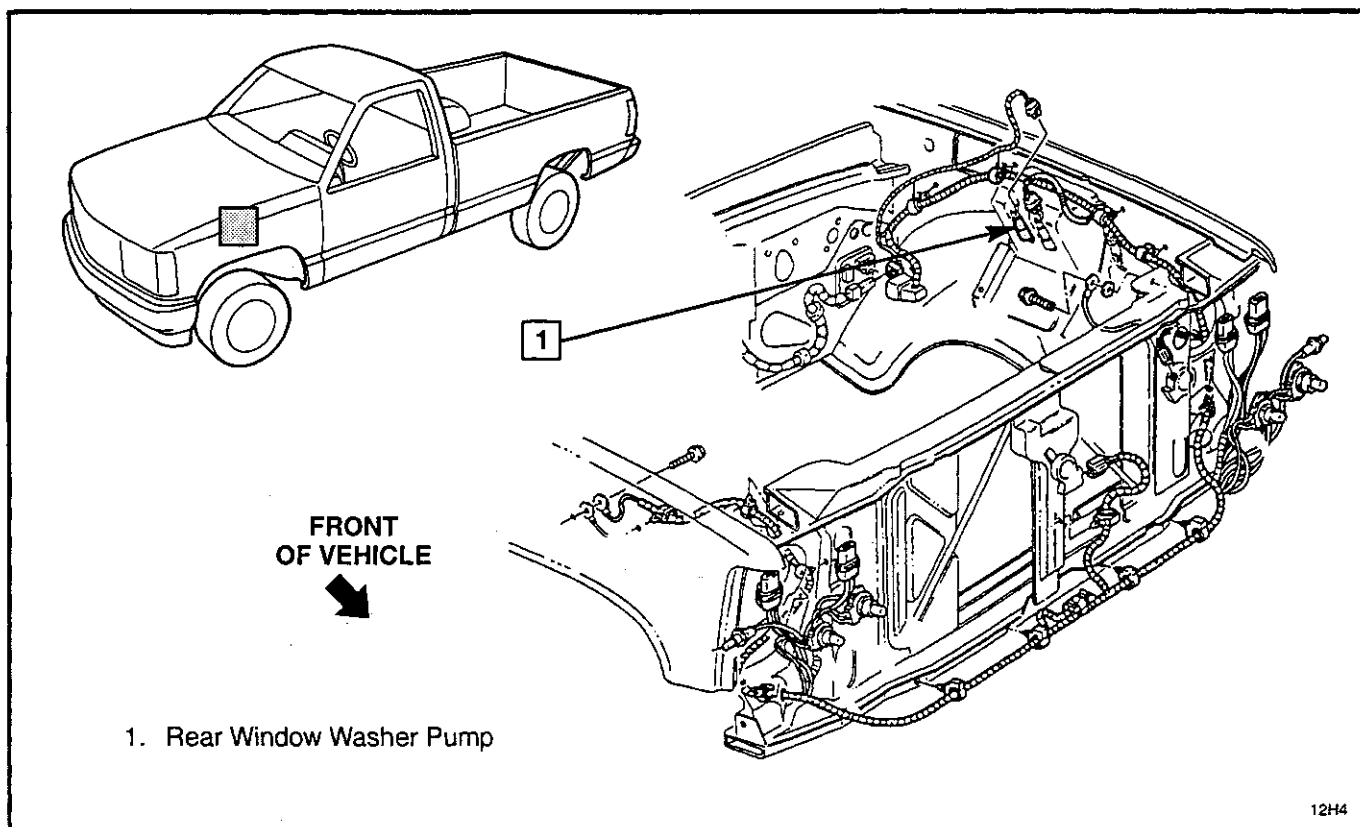


Figure 1 — Rear Window Washer Pump

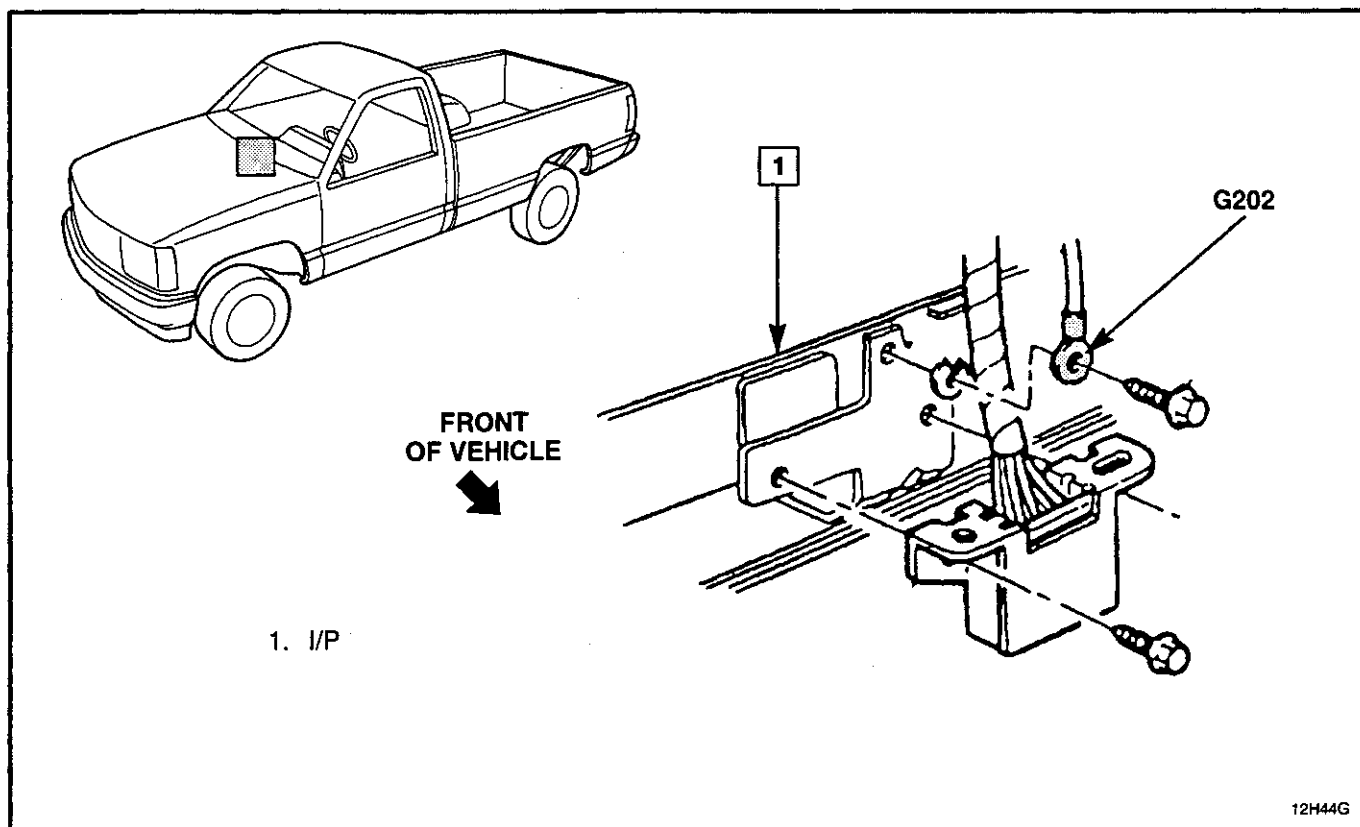


Figure 2 — I/P Ground

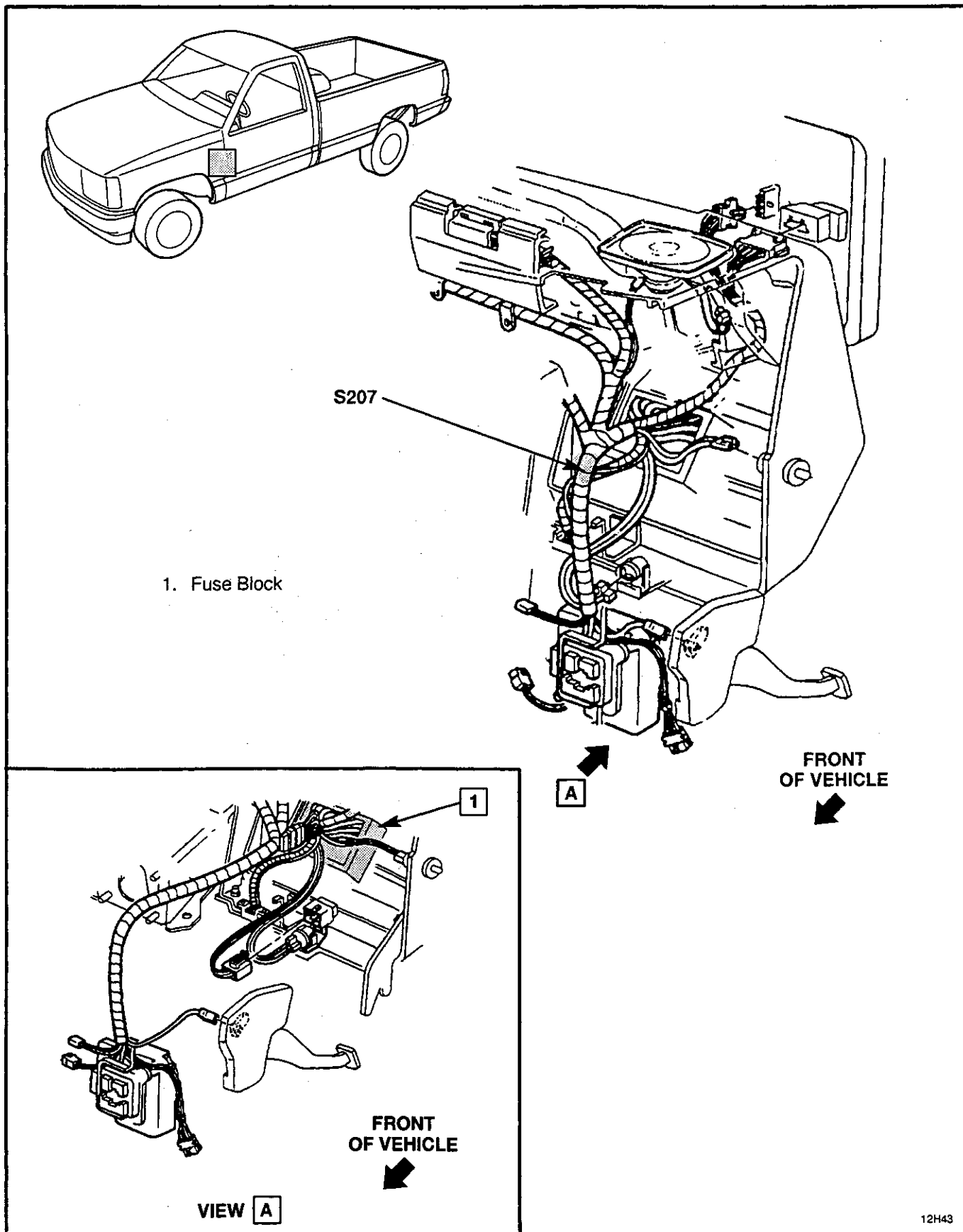


Figure 3 — LH Side of Instrument Panel

## 8A-92-10 REAR WIPER/WASHER

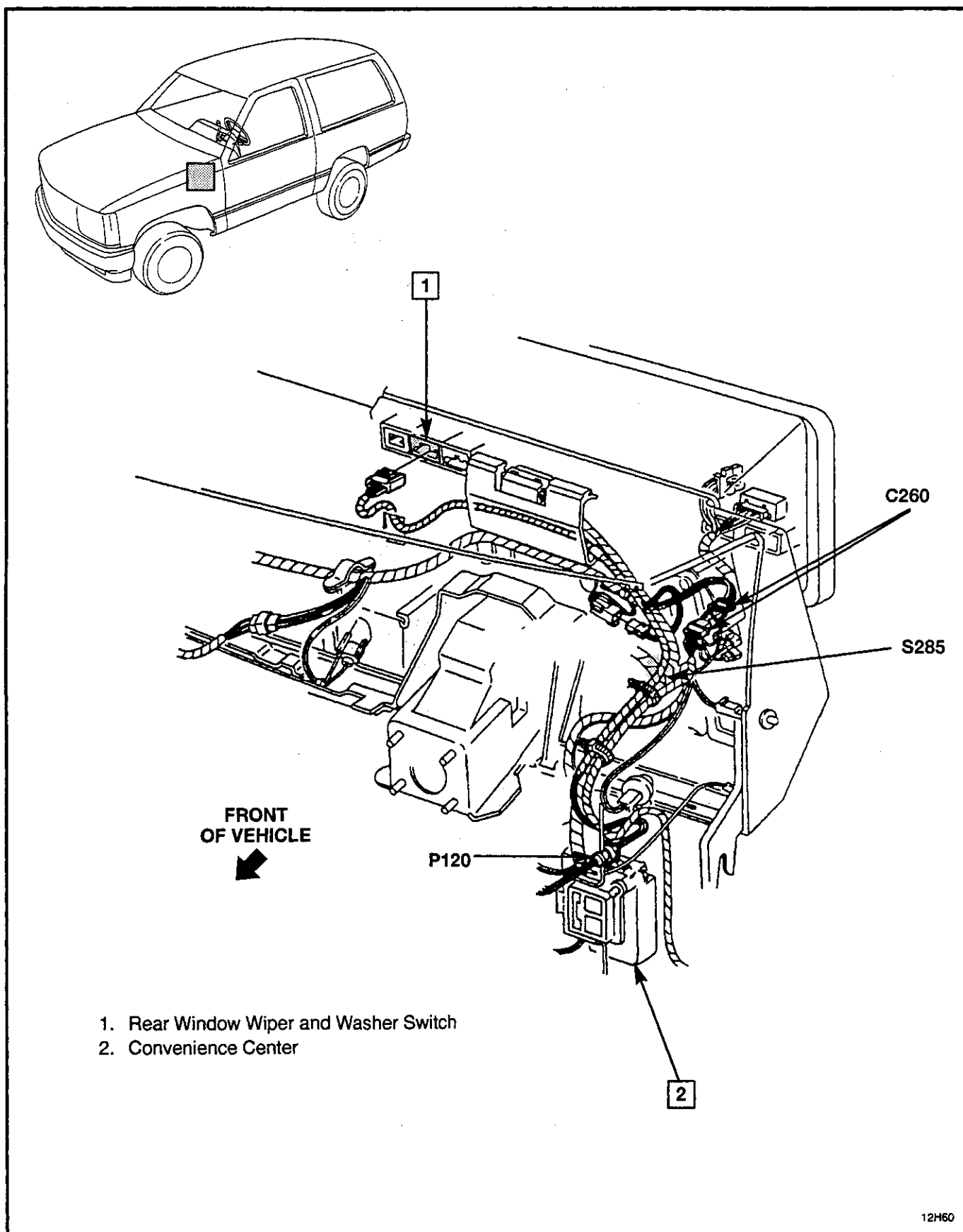


Figure 4 — Rear Window Wiper and Washer Front Wiring – Utility and Suburban

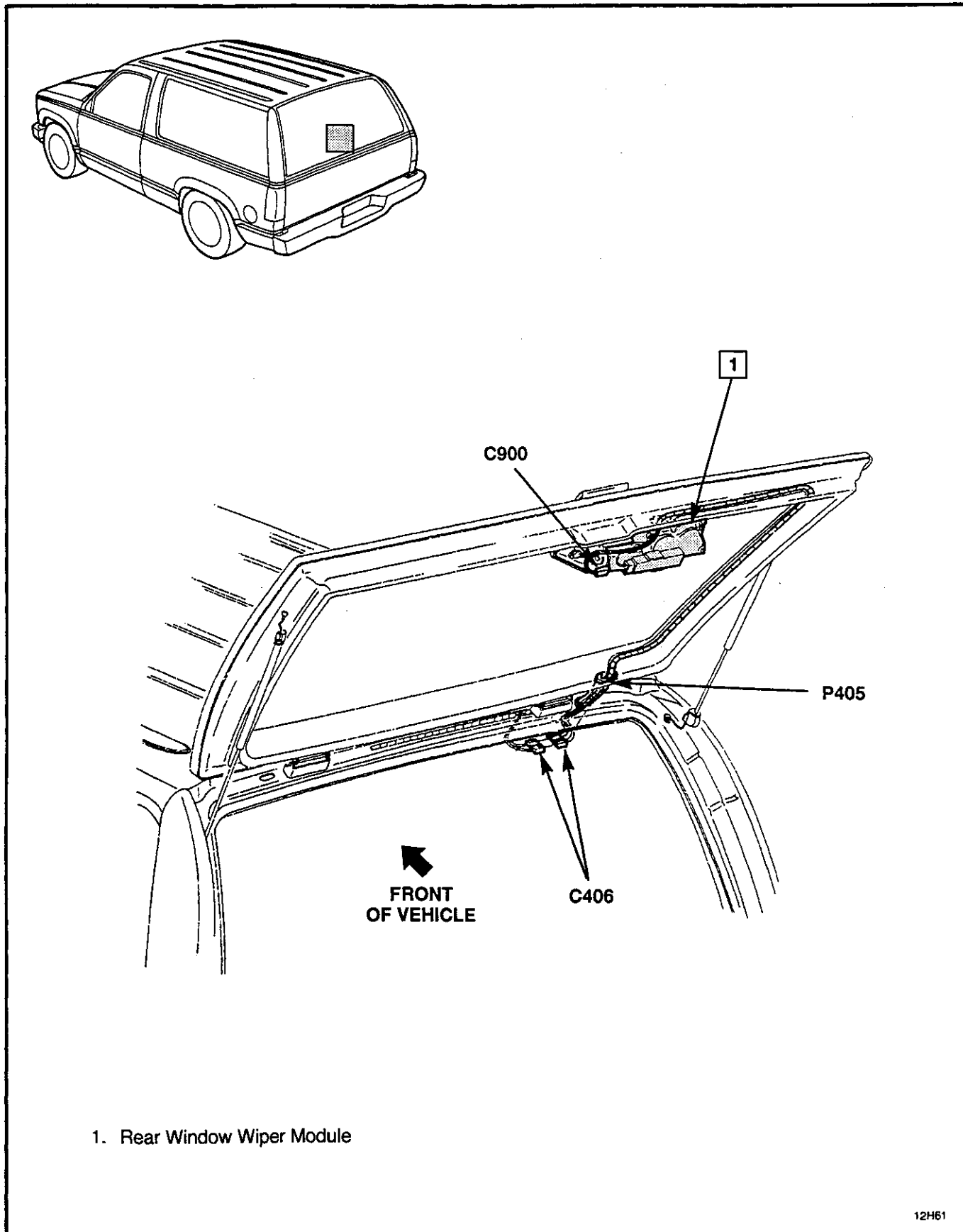


Figure 5 — Rear Window Wiper and Washer Rear Wiring – Utility and Suburban

## 8A-92-12 REAR WIPER/WASHER

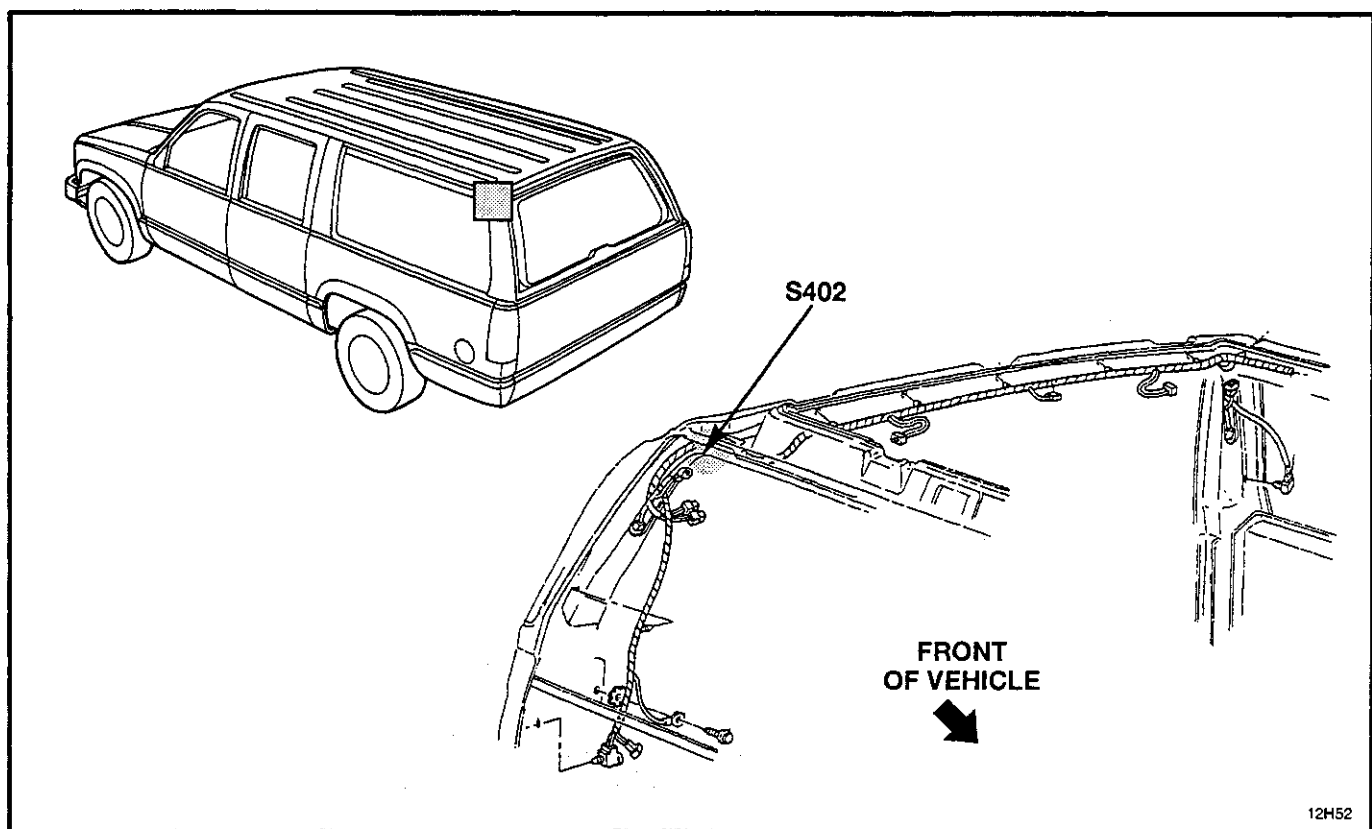


Figure 6 — Body Wiring, Rear — Suburban



## CIRCUIT OPERATION

### HEADLAMPS

Voltage is supplied to the Light Switch at all times. The Light Switch includes a Self-Resetting Circuit Breaker. The Circuit Breaker opens when the Headlight circuit draws too much current. When the Circuit Breaker opens, it interrupts the current flow. With no current flow, the Circuit Breaker cools off and resets automatically. When the Light Switch is in HEAD, the Headlamp Dimmer Switch directs voltage to either the Low Beams or High Beams. The High Beam Indicator also receives voltage along with the High Beams.

### FOG LAMPS

Voltage is supplied to the Fog Lamp Relay at all times through the ORN/BLK (60) wire and the ACC-BATT circuit

breaker. When the Fog Lamp switch is ON, voltage is supplied to the coil of the Fog Lamp Relay through the BRN (9) wire. Ground for the coil is provided through the YEL (317) wire, the Logic Circuit of the Fog Lamp Switch, the BLK (150) wire to the Convenience Center and Ground G202. With the relay energized, voltage is provided to the Fog Lamps through the PPL (34) wire. The Fog Lamp Indicator is illuminated by the Logic Circuit located in the Fog Lamp Switch.

If the headlamps are on HIGH BEAM, voltage is supplied to LT GRN (11) wire to the Logic Circuit of the Fog Lamp Switch. This interrupts the voltage for the Fog Lamps and de-energizes the circuit.

### COMPONENT LOCATION

### Page — Figure

Convenience Center .....	Under LH side of I/P .....	100-13	3
Fog Lamp, LH .....	Lower ends of front bumper .....	100-16	7
Fog Lamp, RH .....	Lower ends of front bumper .....	100-16	7
Fog Lamp Relay .....	Under LH end of I/P .....	100-13	3
Fog Lamp Switch .....	RH side of instrument cluster .....	100-13	3
Headlamp Dimmer Switch .....	Lower LH side of steering column .....	100-17	8
Headlamp, LH High/Low Beam .....	LH front of vehicle .....	Not Shown	
Headlamp, RH High/Low Beam .....	RH front of vehicle .....	Not Shown	
Headlamp, LH High Beam .....	LH front of vehicle .....	Not Shown	
Headlamp, RH High Beam .....	RH front of vehicle .....	Not Shown	
Headlamp, LH Low Beam .....	LH front of vehicle .....	Not Shown	
Headlamp, RH Low Beam .....	RH front of vehicle .....	Not Shown	
Instrument Cluster .....	LH side of I/P .....	100-17	9
Light Switch .....	Upper LH side of I/P .....	100-16	6

### CONNECTORS:

C100 .....	At bulkhead connector .....	100-12	1
C102 .....	At bulkhead connector .....	100-12	1
C183 .....	LH rear engine compartment, near GT103 .....	100-13	3

### GROMMETS:

P103 .....	LH rear engine compartment at cowl, near bulkhead connector .....	100-13	3
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### GROUND:

G104 .....	On sheet metal, above LH headlamp .....	100-14	4
G105 .....	RH inner fender, near battery .....	100-14	4
G202 .....	At DLC connector .....	100-12	2

## 8A-100-2 HEADLAMPS AND FOG LAMPS

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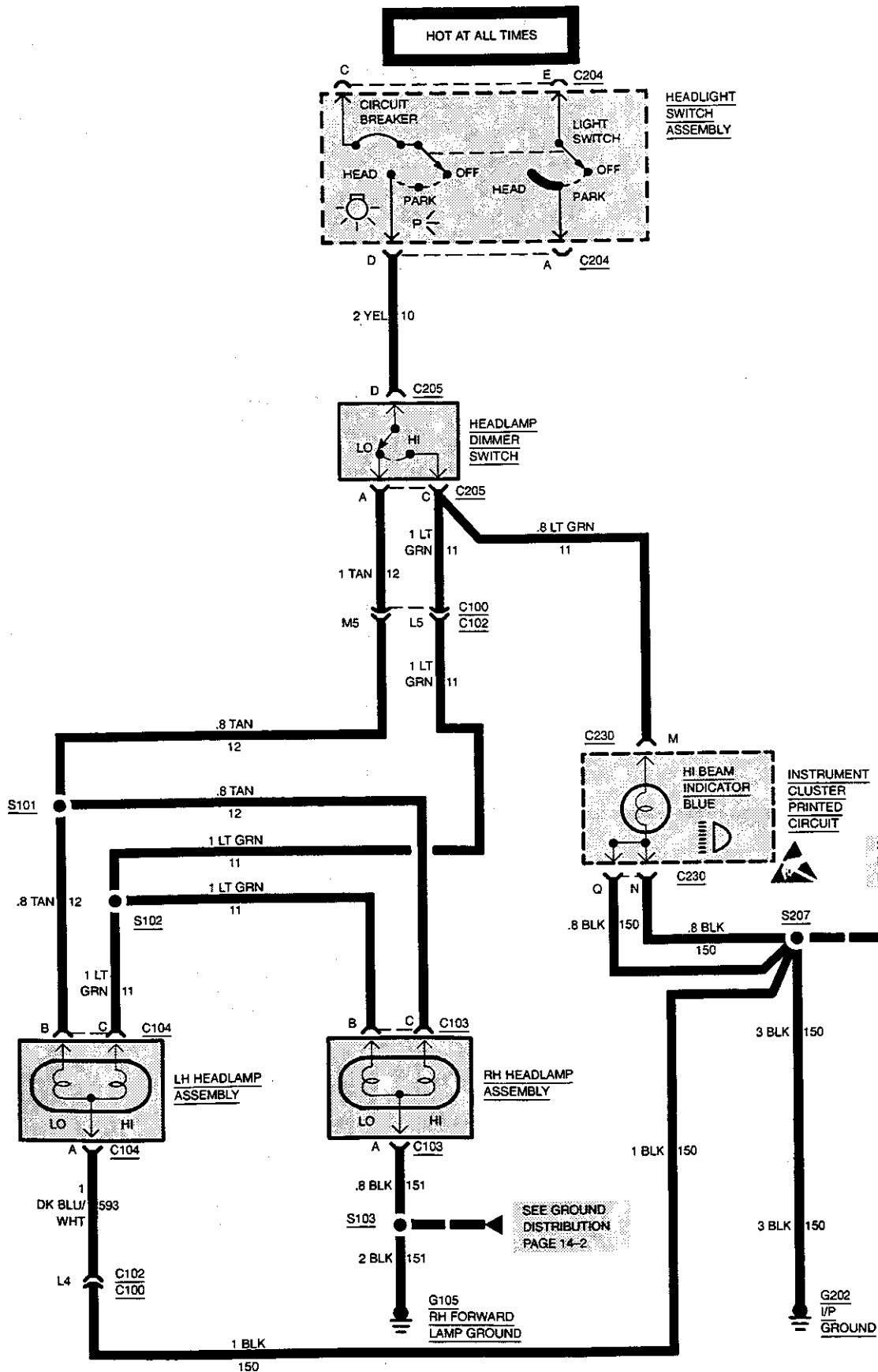
### COMPONENT LOCATION

Page — Figure

#### SPLICES:

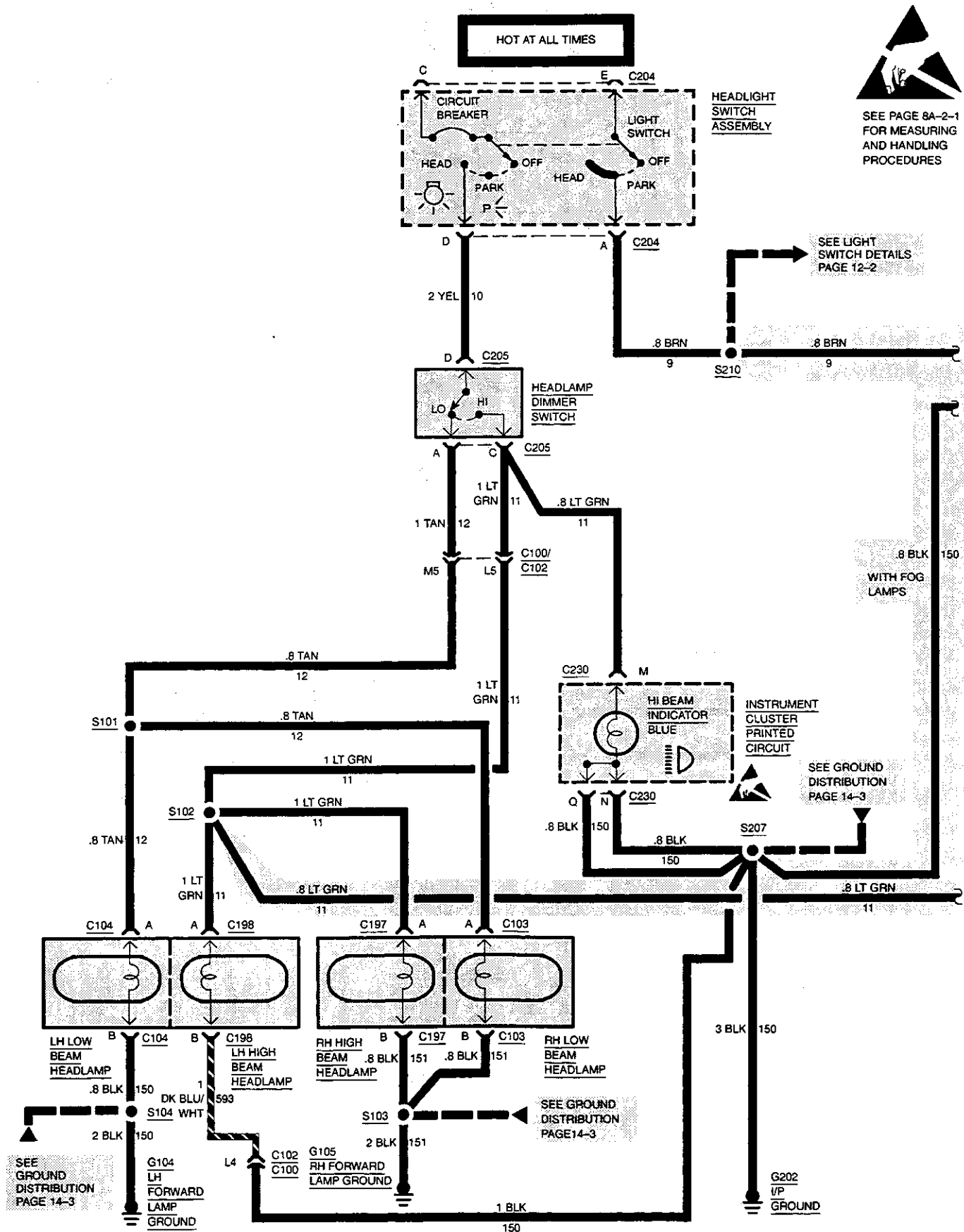
S101	..... LH side, near headlamp .....	100-14	4
S102	..... LH side, near headlamp .....	100-14	4
S103	..... RH side, near headlamp .....	100-14	4
S104	..... LH side, near headlamp .....	100-15	5
S195	..... LH side, near headlamp .....	100-15	5
S207	..... Under LH side of I/P .....	100-16	6
S210	..... Under LH side of I/P .....	100-16	6
S217	..... Under LH side of I/P .....	100-16	6

# HEADLAMPS AND FOG LAMPS 8A-100-3

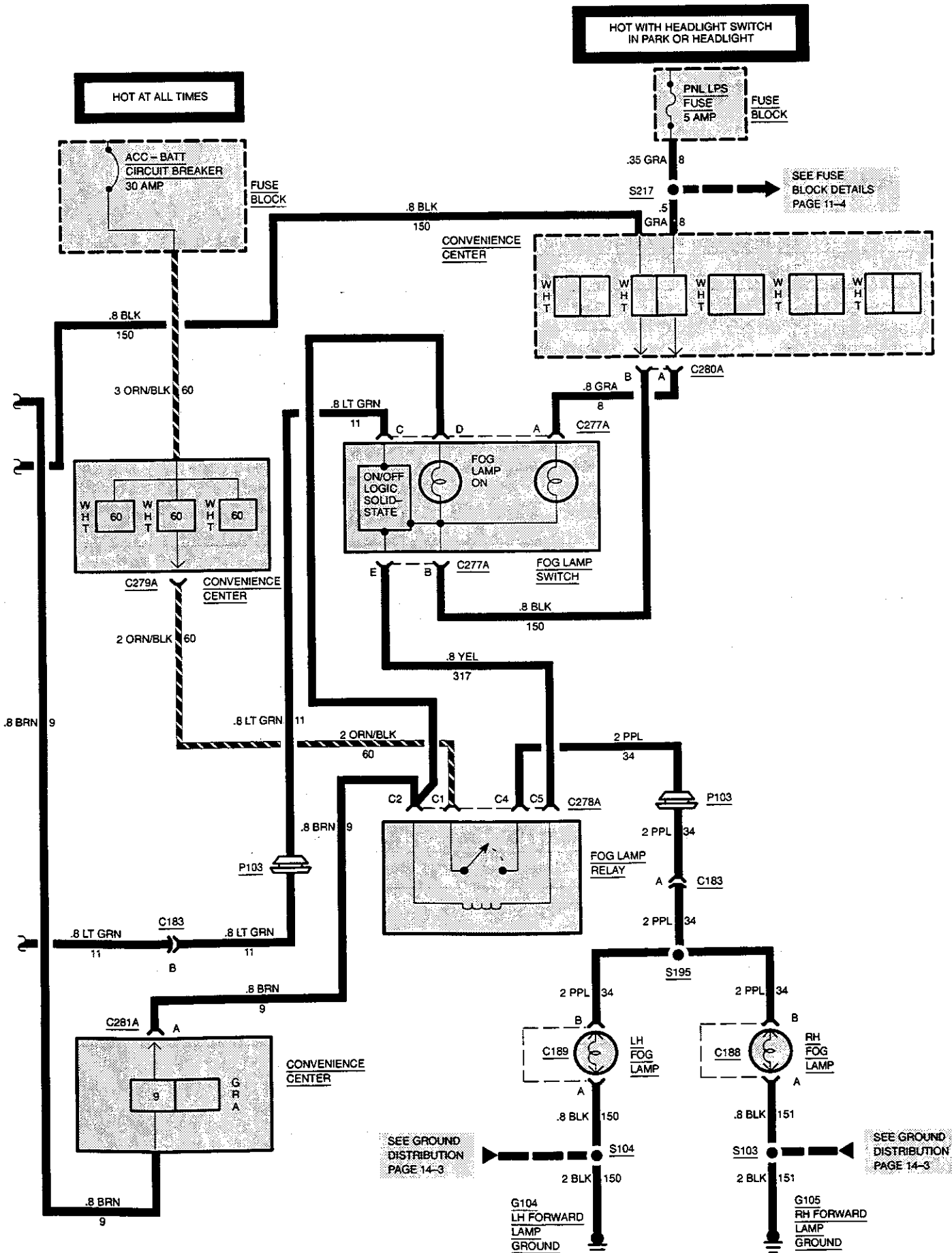


SEE PAGE 8A-2-1  
FOR MEASURING  
AND HANDLING  
PROCEDURES

## 8A-100-4 HEADLAMPS AND FOG LAMPS



## HEADLAMPS AND FOG LAMPS 8A-100-5



## 8A-100-6 HEADLAMPS AND FOG LAMPS

### DIAGNOSIS — HEADLAMPS AND FOG LAMPS

#### PRELIMINARY CHECKS:

1. Check condition of ACC-BATT circuit breaker. If breaker will not reset, locate and repair source of overload.

#### HEADLAMPS DO NOT ILLUMINATE HIGH OR LOW BEAMS — BOTH SIDES

TEST	RESULT	ACTION
1. Connect test lamp from RED (2) wire at light switch connector C204 to ground.	Test lamp lights.	GO to step 3.
	Test lamp does not light.	GO to step 2.
2. Connect test lamp from RED (2) wire at connector C202 to ground.	Test lamp lights.	LOCATE and REPAIR open in RED (2) wire between connector C202 and light switch connector C204.
	Test lamp does not light.	LOCATE and REPAIR open in RED (2) wire or BLK (2) fusible link between connector C202 and Battery Junction Block.
3. Place the light switch in ON and the headlamp dimmer switch in HIGH BEAM. Connect test lamp from YEL (10) wire at light switch connector C204 to ground.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	REPLACE light switch.
4. Connect test lamp from YEL (10) wire at headlamp dimmer connector C205 to ground.	Test lamp lights.	REPLACE headlamp dimmer switch.
	Test lamp does not light.	LOCATE and REPAIR open in YEL (10) wire between light switch connector C204 and headlamp dimmer switch connector C205.

#### LOW BEAM LAMP(S) DO NOT OPERATE (SINGLE HEADLAMPS)

TEST	RESULT	ACTION
1. Place light switch in ON and headlamp dimmer switch in LOW BEAM position. Connect test lamp from TAN (12) wire at inoperative lamp(s) to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	GO to step 3.
2. Connect test lamp from TAN (12) wire to BLK (151) wire at RH headlamp connectors C103 or from TAN (12) wire to DK BLU/WHT (593) wire at LH headlamp connector C104.	Test lamp lights.	REPLACE headlamp(s).
	Test lamp does not light.	LOCATE and REPAIR open in BLK (151) wire from RH headlamp connector C103 to ground G105 or LOCATE and REPAIR open in DK BLU/WHT (593) wire from LH headlamp connector C104, to bulkhead connector C102/C100 or BLK (150) wire from C100 to splice S207 or from splice S207 to I/P ground G202.

## HEADLAMPS AND FOG LAMPS 8A-100-7

### LOW BEAM LAMP(S) DO NOT OPERATE (SINGLE HEADLAMPS) (CONTINUED)

TEST	RESULT	ACTION
3. Connect test lamp from TAN (12) wire at headlamp dimmer switch connector C205 to ground.	Test lamp lights.	LOCATE and REPAIR open in BLK (151) wire from RH headlamp connector C103 to ground G105 or LOCATE and REPAIR open in DK BLU/WHT (593) wire from LH headlamp connector C104 to bulkhead connector C102/C100 or BLK (150) wire from C100 to splice S207 or from splice S207 to I/P ground G202.
	Test lamp does not light.	REPLACE headlamp dimmer switch.

### HIGH BEAM LAMP(S) DO NOT OPERATE (SINGLE HEADLAMPS)

TEST	RESULT	ACTION
1. Place headlamp switch in ON and headlamp dimmer switch in HIGH BEAM position. Connect test lamp from LT GRN (11) wire at inoperative lamp(s) to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	GO to step 3.
2. Connect a test lamp from LT GRN (11) wire to DK BLU/WHT (593) LH or BLK (151) RH wire(s) at light connectors C103 RH or C104 LH.	Test lamp lights.	REPLACE headlamp(s).
	Test lamp does not light.	LOCATE and REPAIR open in BLK (151) wire at headlamp connector C103 to ground connection G105 or from C104 to I/P ground G202.
3. Connect test lamp from LT GRN (11) wire at headlamp dimmer switch connector C205 to ground.	Test lamp lights.	LOCATE and REPAIR open in LT GRN (11) wire from headlamp connector(s) C103 or C104 to headlamp dimmer switch connector C205.
	Test lamp does not light.	REPLACE headlamp dimmer switch.

### FOG LAMPS DO NOT OPERATE

TEST	RESULT	ACTION
1. Place fog lamp switch in ON and light switch in OFF. Connect test lamp from PPL (34) wire at connector C183 to ground.	Test lamp lights.	LOCATE and REPAIR open in PPL (34) wire between connector C183 and splice S111.
	Test lamp does not light.	GO to step 2.
2. Connect test lamp from PPL (34) wire at fog lamp relay connector C278A to ground.	Test lamp lights.	LOCATE and REPAIR open in PPL (34) wire from fog lamp relay to fog lamps.
	Test lamp does not light.	GO to step 3.
3. Connect test lamp from ORN/BLK (60) wire at fog lamp relay connector C278A to ground.	Test lamp lights.	GO to step 5.
	Test lamp does not light.	GO to step 4.

## 8A-100-8 HEADLAMPS AND FOG LAMPS

### FOG LAMPS DO NOT OPERATE (CONTINUED)

TEST	RESULT	ACTION
4. Connect test lamp from ORN/BLK (60) wire at convenience center tap connector C279A to ground.	Test lamp lights.	LOCATE and REPAIR open in ORN/BLK (60) wire from fog lamp relay connector C278A to convenience center tap connector C279A.
	Test lamp does not light.	LOCATE and REPAIR open in ORN/BLK (60) wire between convenience center and fuse block.
5. Connect test lamp from BRN (9) wire at fog lamp relay connector C278A to ground.	Test lamp lights.	GO to step 8.
	Test lamp does not light.	GO to step 6.
6. Connect test lamp from BRN (9) wire at convenience center tap connector C281A to ground.	Test lamp lights.	LOCATE and REPAIR open in BRN (9) wire between convenience center tap connector C281A and fog lamp relay connector C278A.
	Test lamp does not light.	GO to step 7.
7. Place light switch in PARK. Observe taillamps.	Taillamps are ON.	LOCATE and REPAIR open in BRN (9) wire between convenience center and splice S210.
	Taillamps are OFF.	LOCATE and REPAIR open in BRN (9) wire between light switch connector C204 and splice S210.
8. Connect self-powered test lamp from YEL (317) wire at fog lamp relay connector C278A to ground.	Test lamp lights.	REPLACE fog lamp relay.
	Test lamp does not light.	GO to step 9.
9. Connect self-powered test lamp from YEL (317) wire at fog lamp switch connector C277A to ground.	Test lamp lights.	LOCATE and REPAIR open in YEL (317) wire between fog lamp switch connector C277A and fog lamp relay connector C278A.
	Test lamp does not light.	GO to step 10.
10. Connect self-powered test lamp from BLK (150) wire at fog lamp switch connector C277A to ground.	Test lamp lights.	REPLACE fog lamp switch.
	Test lamp does not light.	GO to step 11.
11. Connect self-powered test lamp from BLK (150) wire at convenience center tap connector C280A to ground.	Test lamp lights.	LOCATE and REPAIR open in BLK (150) wire between convenience center tap connector C280A and fog lamp switch connector C722A.
	Test lamp does not light.	GO to step 12.
12. Turn on radio.	Radio operates.	LOCATE and REPAIR open in BLK (150) wire between convenience center and splice S207.
	Radio does not operate.	LOCATE and REPAIR open in BLK (150) wire between splice S207 and ground G202.



## HEADLAMPS AND FOG LAMPS 8A-100-9

### LOW BEAM LAMP(S) DO NOT OPERATE (QUAD HEADLAMPS)

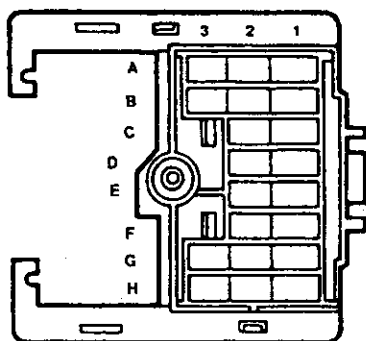
TEST	RESULT	ACTION
1. Place light switch in ON and headlamp dimmer switch in LOW BEAM position. Connect test lamp from TAN (12) wire at inoperative lamp(s) to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	GO to step 3.
2. Connect test lamp from TAN (12) wire to BLK (150 or 151) wire(s) at headlamp connectors C103 RH or C104 LH to ground.	Test lamp lights.	REPLACE headlamp(s).
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150 or 151) wire(s) from RH headlamp connector(s) C103 RH or C104 LH to ground(s) G104 LH or G105 RH.
3. Connect test lamp from TAN (12) wire at headlamp dimmer switch connector C205 to ground	Test lamp lights.	LOCATE and REPAIR open in TAN (12) wire from headlamp dimmer switch connector C205 to headlamp connector(s) C103 or C104.
	Test lamp does not light.	REPLACE headlamp dimmer switch.

### HIGH BEAM LAMP(S) DO NOT OPERATE (QUAD HEADLAMPS)

TEST	RESULT	ACTION
1. Place headlamp switch in ON and headlamp dimmer switch in HIGH BEAM position. Connect test lamp from LT GRN (11) wire at inoperative lamp(s) to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	GO to step 3.
2. Connect a test lamp from LT GRN (11) wire to DK BLU/WHT (593) LH or BLK (151) RH wire(s) at light connectors C197 RH or C198 LH.	Test lamp lights.	REPLACE headlamp(s).
	Test lamp does not light.	LOCATE and REPAIR open in BLK (151) wire at headlamp connection C197 to ground connection G105 or from DK BLU/WHT (593) wire at headlamp connector C198 to I/P ground G202.
3. Connect test lamp from LT GRN (11) wire at headlamp dimmer switch connector C205 to ground.	Test lamp lights.	LOCATE and REPAIR open in LT GRN (11) wire from headlamp connector(s) C103 or C104 to headlamp dimmer switch connector C205.
	Test lamp does not light.	REPLACE headlamp dimmer switch.

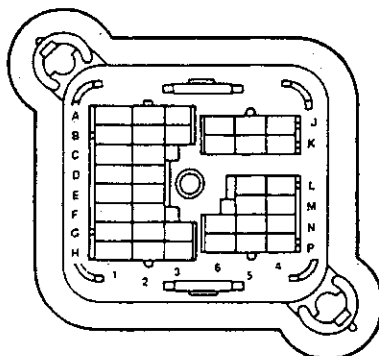
## 8A-100-10 HEADLAMPS AND FOG LAMPS

12020183



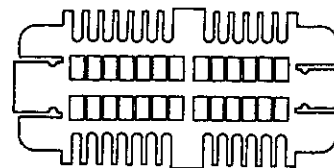
**GRAY**  
Metri-Pack  
**C100**  
Bulkhead Connector – Eng

12020184



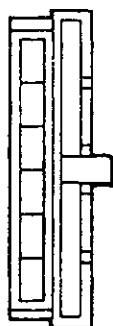
**GRAY**  
Metri-Pack  
**C100**  
Bulkhead Connector – I/P

12089908



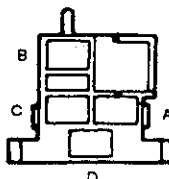
**BLACK**  
Bow Series  
**C203**  
I/P Cluster

12034061



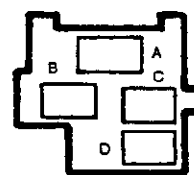
**NATURAL**  
Metri-Pack 480  
**C204**  
Light Switch

08917693



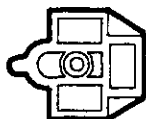
**BLACK**  
56 Series  
**C203**  
Headlamp Dimmer Switch

06294641



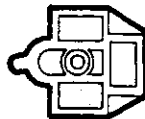
**BLACK**  
56 Series  
**C256**  
Ignition Switch

06288471



**NATURAL**  
56 Series  
**C103**  
RH High-Low Beam Headlamp

06288471



**NATURAL**  
56 Series  
**C104**  
LH High-Low Beam Headlamp

12059181



**MED. GRAY**  
Metri-Pack 280  
**C103**  
RH Low Beam Headlamp

# HEADLAMPS AND FOG LAMPS 8A-100-11

12059181



**MED. GRAY**  
Metri-Pack 280

**C104**  
LH Low Beam Headlamp

12059183



**BLACK**  
Metri-Pack 280

**C197**  
RH High Beam Headlamp

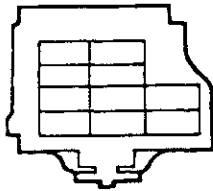
12059183



**BLACK**  
Metri-Pack 280

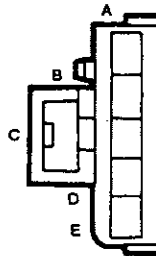
**C198**  
LH High Beam Headlamp

12020100



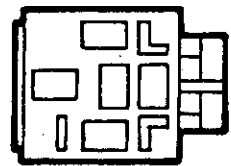
**C102**  
Bulkhead - Forward Lamps

12059296



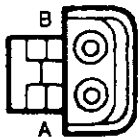
**C277A**  
Fog Lamp Switch

12034003



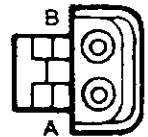
**BLACK**  
Metri-Pack 630  
**C278A**  
Fog Lamp Relay

12015792



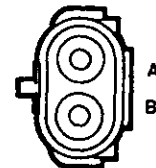
**BLACK**  
Weather Pack  
**C188**  
RH Fog Lamp

12015792



**BLACK**  
Weather Pack  
**C189**  
LH Fog Lamp

12034074



**C183**  
In-Line to Fog Lamps

## 8A-100-12 HEADLAMPS AND FOG LAMPS

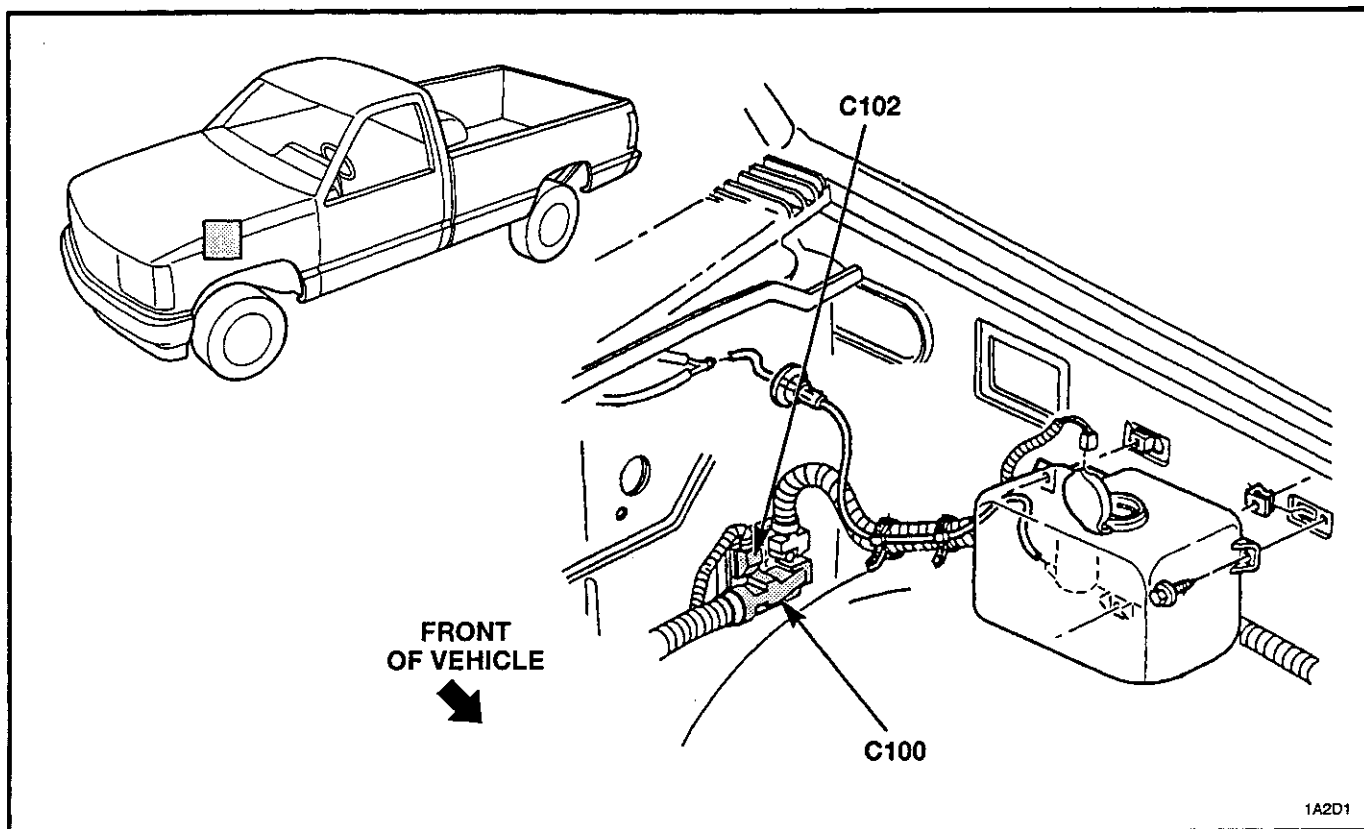


Figure 1 — Cowl Wiring — Except Suburban and Utility

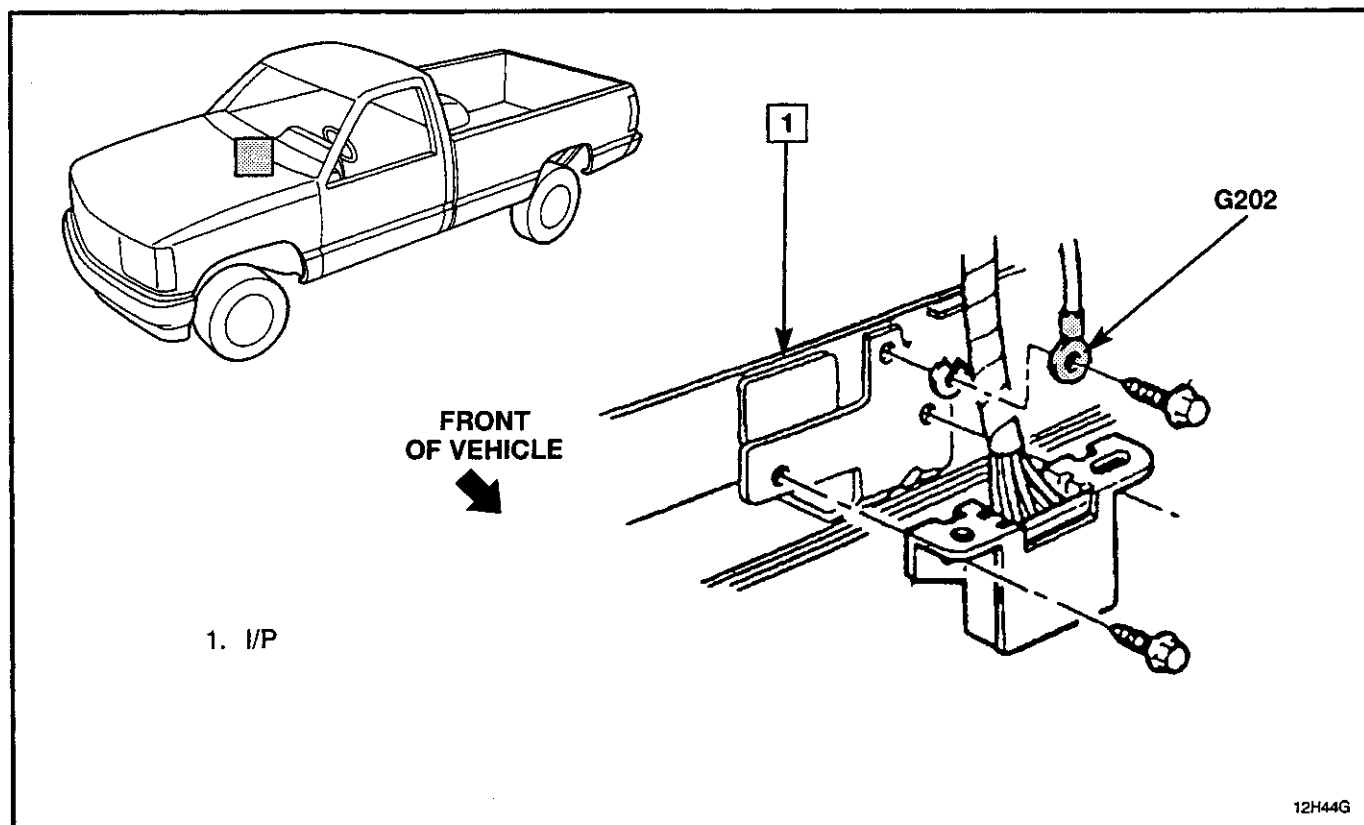
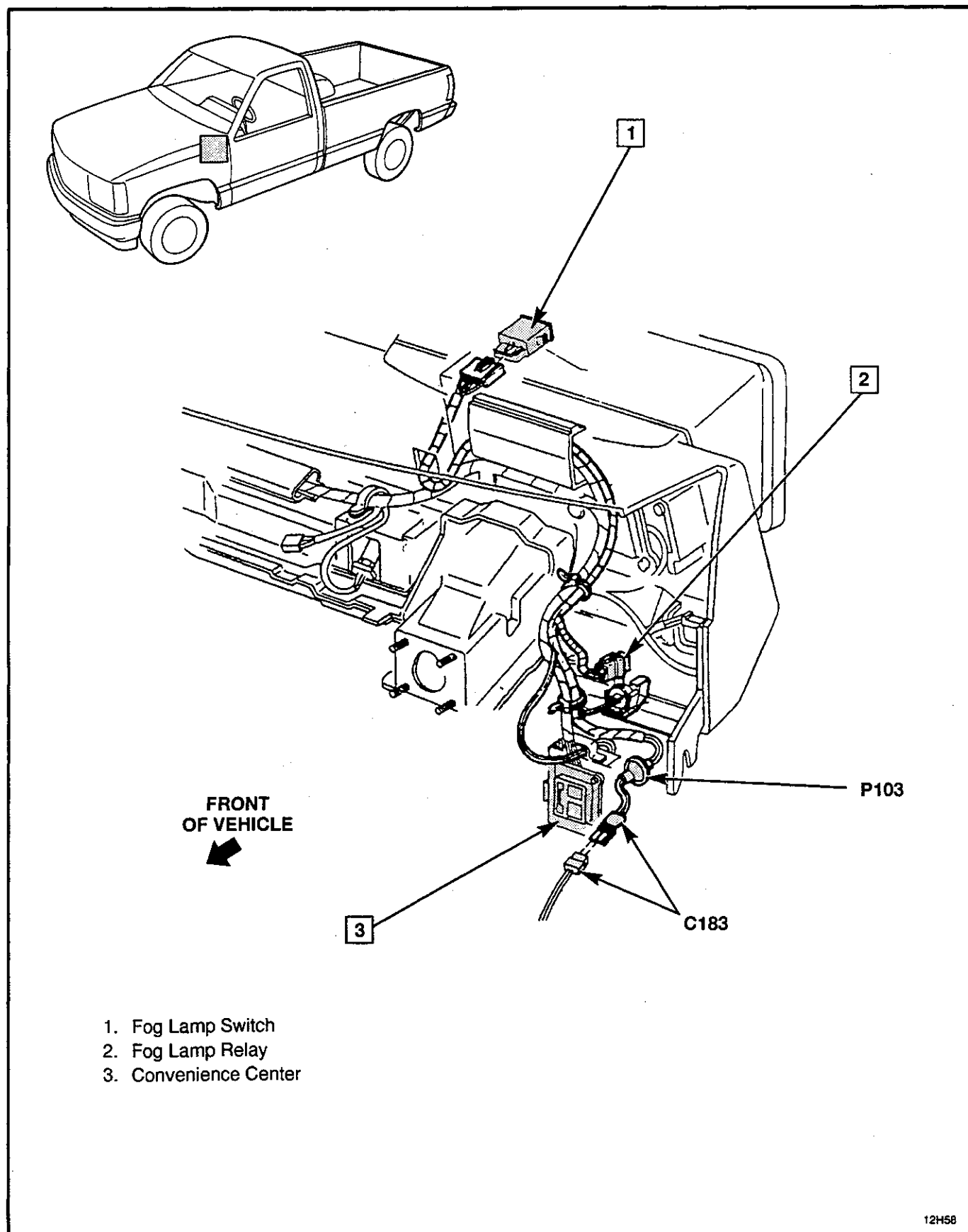


Figure 2 — I/P Ground



1. Fog Lamp Switch
2. Fog Lamp Relay
3. Convenience Center

Figure 3 — Fog Lamp Wiring

8A-100-14 HEADLAMPS AND FOG LAMPS

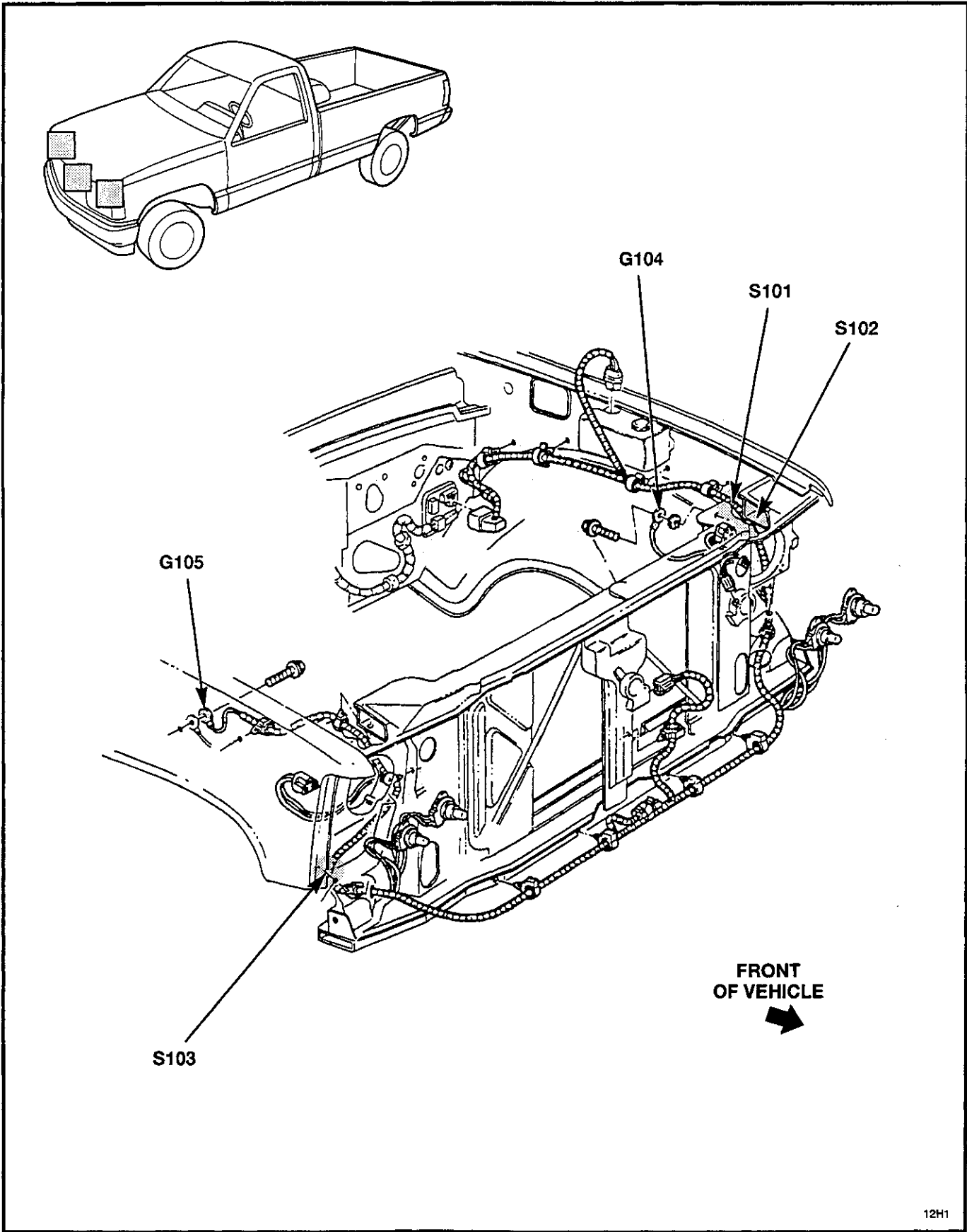


Figure 4 — Forward Lamp Harness, Dual Headlamp — 2 Door Pickup

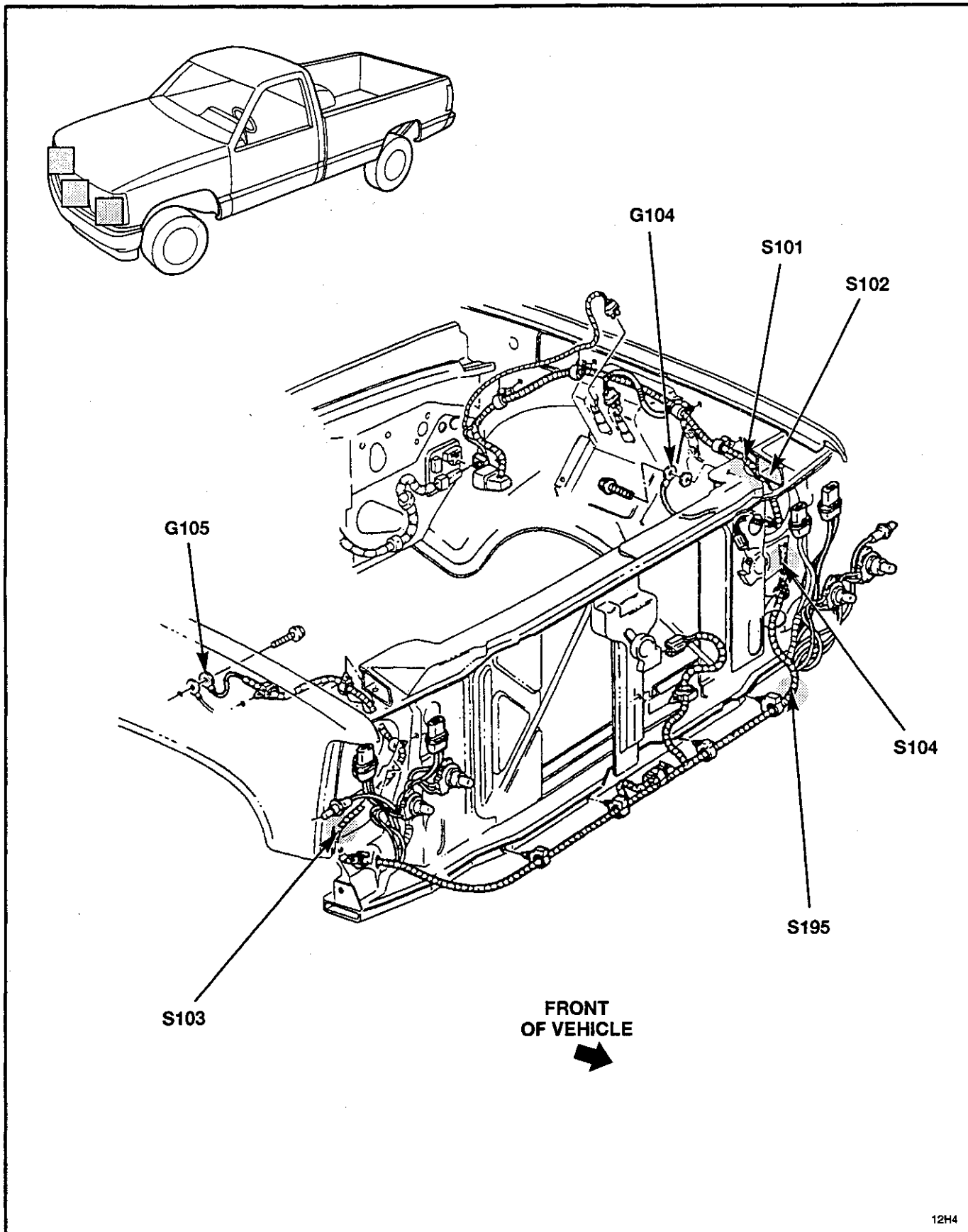


Figure 5 — Forward Lamp Harness, Quad Headlamps

## 8A-100-16 HEADLAMPS AND FOG LAMPS

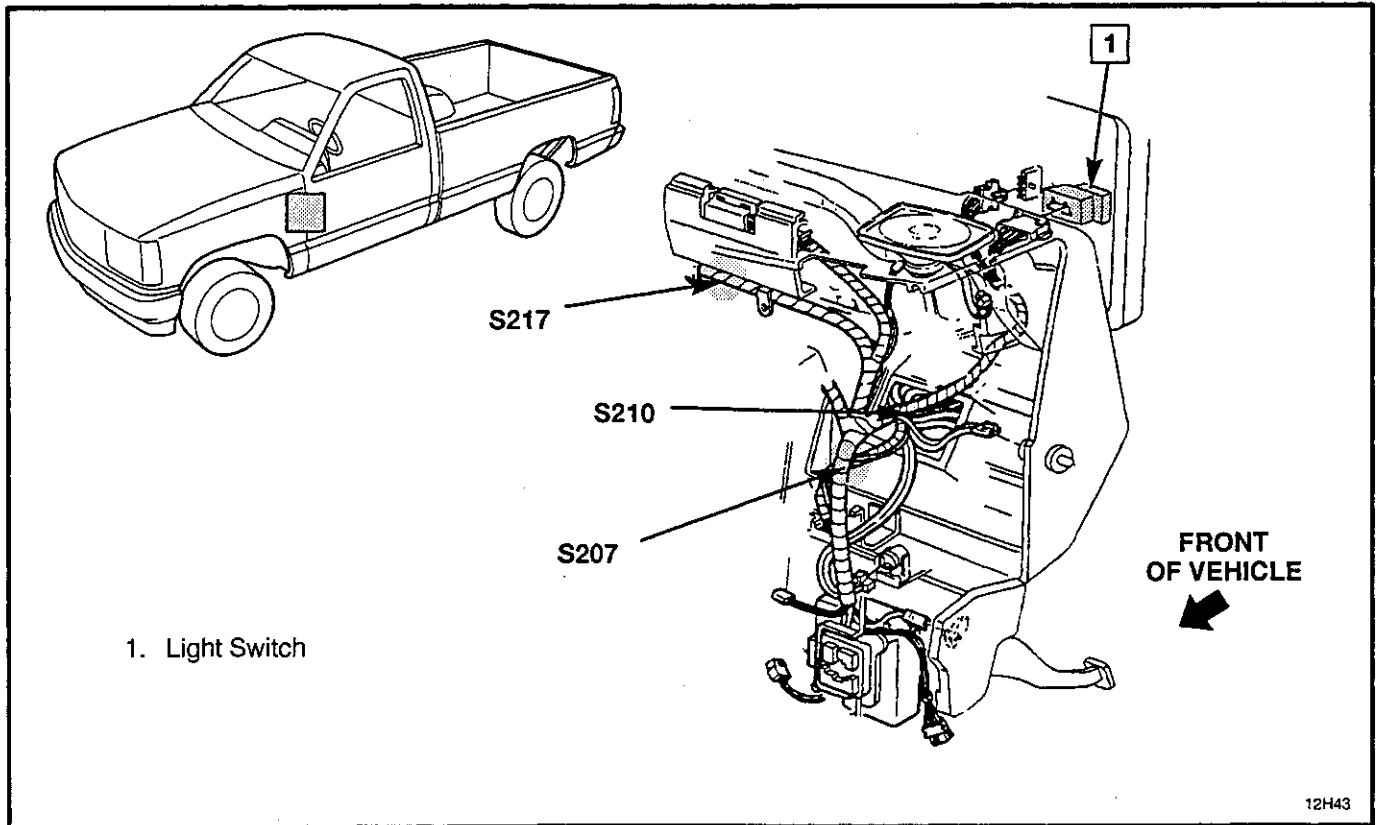


Figure 6 — LH Side of Instrument Panel

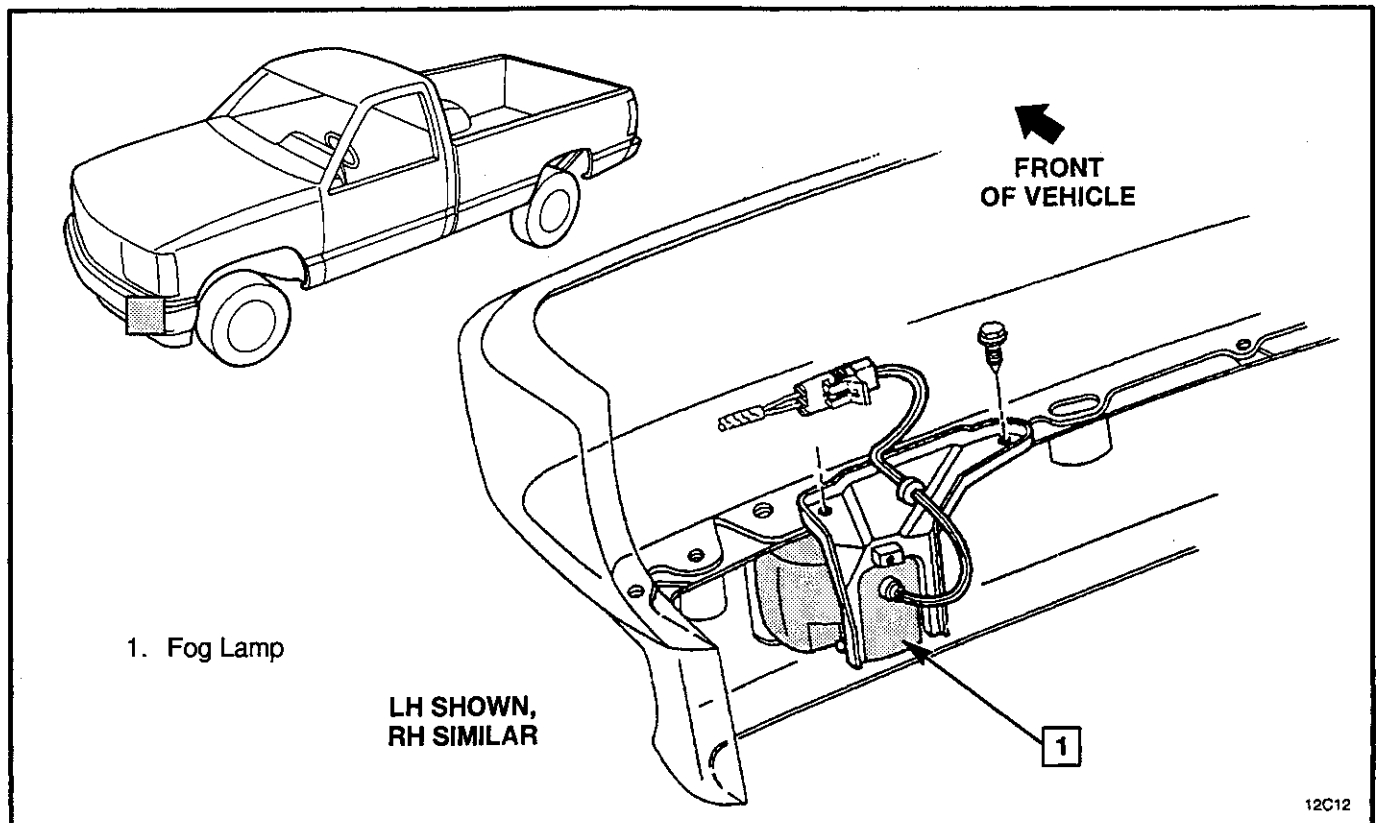


Figure 7 — Fog Lamp



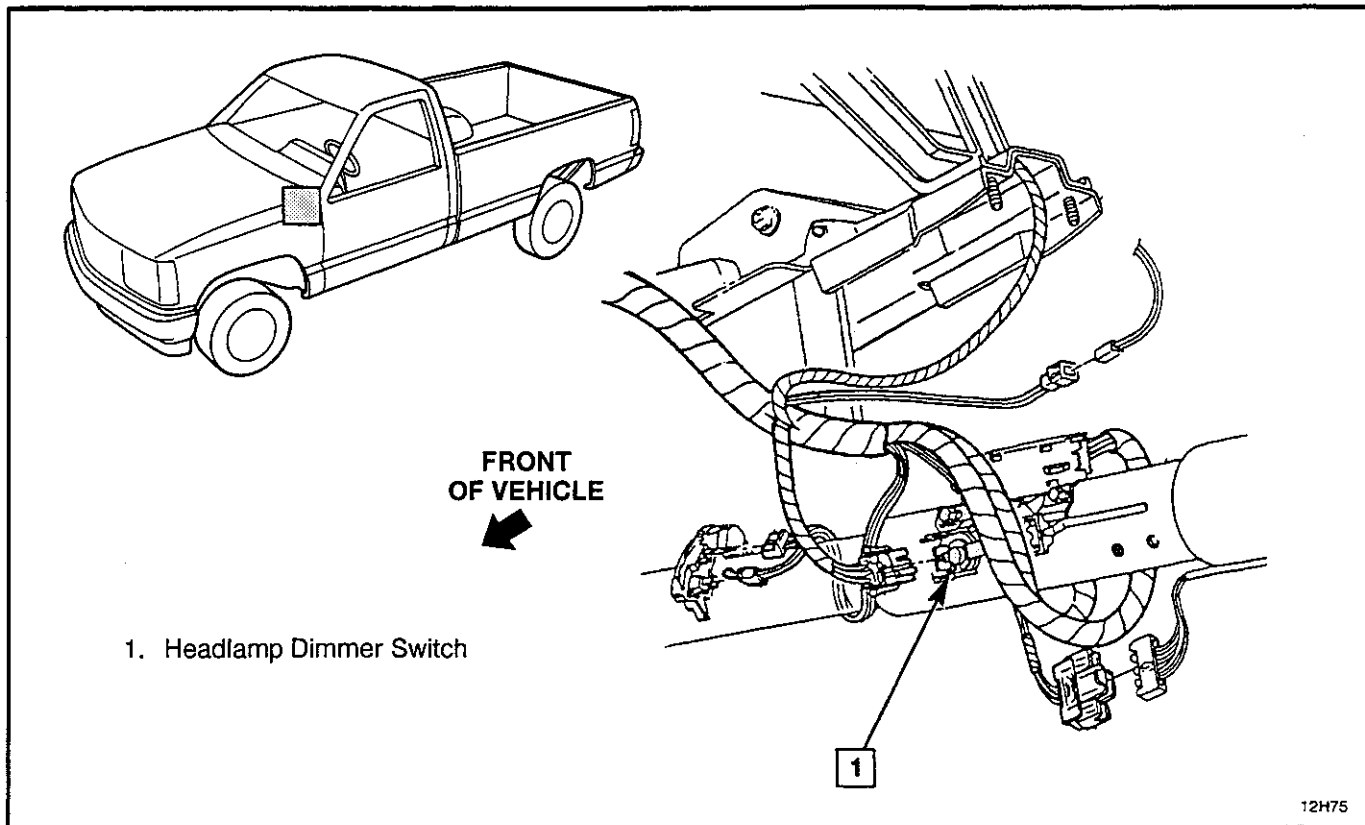


Figure 8 — Steering Column Wiring, LH Side

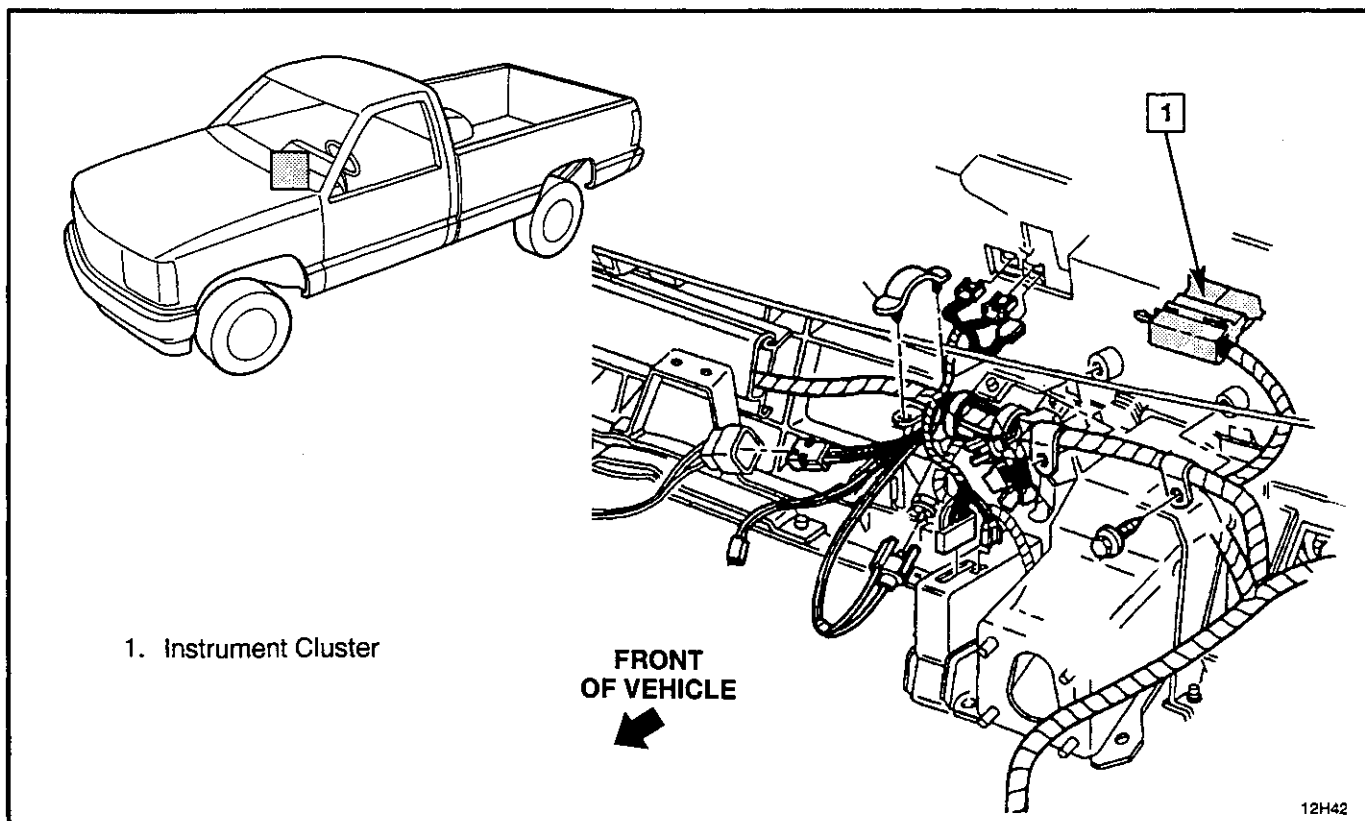


Figure 9 — Instrument Panel Wiring, RH Side

**8A-100-18 HEADLAMPS AND FOG LAMPS**

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## HEADLAMPS WITH DAYTIME RUNNING LAMPS 8A-104-1

### CIRCUIT OPERATION

#### HEADLAMPS

Voltage is supplied to the Light Switch at all times. The light switch includes a Self-Resetting Circuit Breaker. The Circuit Breaker opens when the Headlight circuit draws too much current. When the Circuit Breaker opens, it interrupts the current flow. With no current flow, the Circuit Breaker cools off and resets automatically. When the Light Switch is in HEAD, the Headlamp Dimmer Switch directs voltage to either the Low Beams or High Beams. The High Beam Indicator also receives voltage along with the High Beams.

#### DAYTIME RUNNING LAMPS (CANADIAN ONLY)

Voltage is supplied to the Daytime Running Lamp (DRL) Relay Switch at all times through the RED (340) wire from the DRL Fuse and when the Ignition Switch is in RUN through the PNK/BLK (39) wire from the GAGES Fuse.

The DRL Relay Switch provides voltage to the LH High Beam through the DK BLU/WHT (593) wire and this wire also becomes the ground wire when the Headlamps are operating normally.

Voltage is supplied to the DRL Module when the Ignition Switch is in RUN through the BRN (50) wire from the AC/HTR Fuse. When the Ignition Switch is placed in RUN, the voltage from the DRL Relay Switch is provided a ground path through the LT GRN wire through the DRL Module. This enables the DRL Relay Switch to provide voltage to the High Beam Lamps from the DRL Relay Switch and places the High Beam Lamps in series.

The DRL Module will not enable the DRL Relay Switch if the Light Switch is in the ON position or the Park Brake Switch is ON.

The High Beam Indicator also receives voltage from the DRL Module when the Headlamp Dimmer Switch is in the High position.

#### COMPONENT LOCATION

#### Page — Figure

Daytime Running Lamps (Canadian Only) Module .....	Under LH side of I/P, taped on I/P harness .....	104-17	5
Daytime Running Lamps (Canadian Only) Relay .....	Under LH side of I/P .....	104-17	5
Fuse Block .....	Below LH side of I/P .....	104-17	5
Headlamp Dimmer Switch .....	Lower LH side of steering column .....	104-16	4
Headlamp, LH High/Low Beam .....	LH front of vehicle .....	Not Shown	
Headlamp, RH High/Low Beam .....	RH front of vehicle .....	Not Shown	
Headlamp, LH High Beam .....	LH front of vehicle .....	Not Shown	
Headlamp, RH High Beam .....	RH front of vehicle .....	Not Shown	
Headlamp, LH Low Beam .....	LH front of vehicle .....	Not Shown	
Headlamp, RH Low Beam .....	RH front of vehicle .....	Not Shown	
Ignition Switch .....	In RH side of steering column .....	104-16	4
I/P Cluster .....	LH side of I/P .....	104-18	7
Light Switch .....	Upper LH side of I/P .....	104-17	5
Marker Lamp, LH Roof .....	On roof, above windshield .....	Not Shown	
Marker Lamp, RH Roof .....	On roof panel .....	Not Shown	
Park Brake Warning Switch .....	At park brake under LH end of I/P .....	104-17	5

#### CONNECTORS:

C100 .....	At bulkhead connector .....	104-18	6
C102 .....	At bulkhead connector .....	104-18	6

#### DIODES:

D200 .....	At convenience center .....	104-17	5
D201 .....	At Instrument cluster .....	104-17	5

## 8A-104-2 HEADLAMPS WITH DAYTIME RUNNING LAMPS

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### COMPONENT LOCATION

Page — Figure

#### GROUNDS:

G104	On sheet metal, above LH headlamp	104-14	1
G105	RH inner fender, near battery	104-14	1
G126	Near RH headlamp	Not Shown	
G126	Near RH headlamp	Not Shown	
G202	At DLC connector	104-16	3

#### SPLICES:

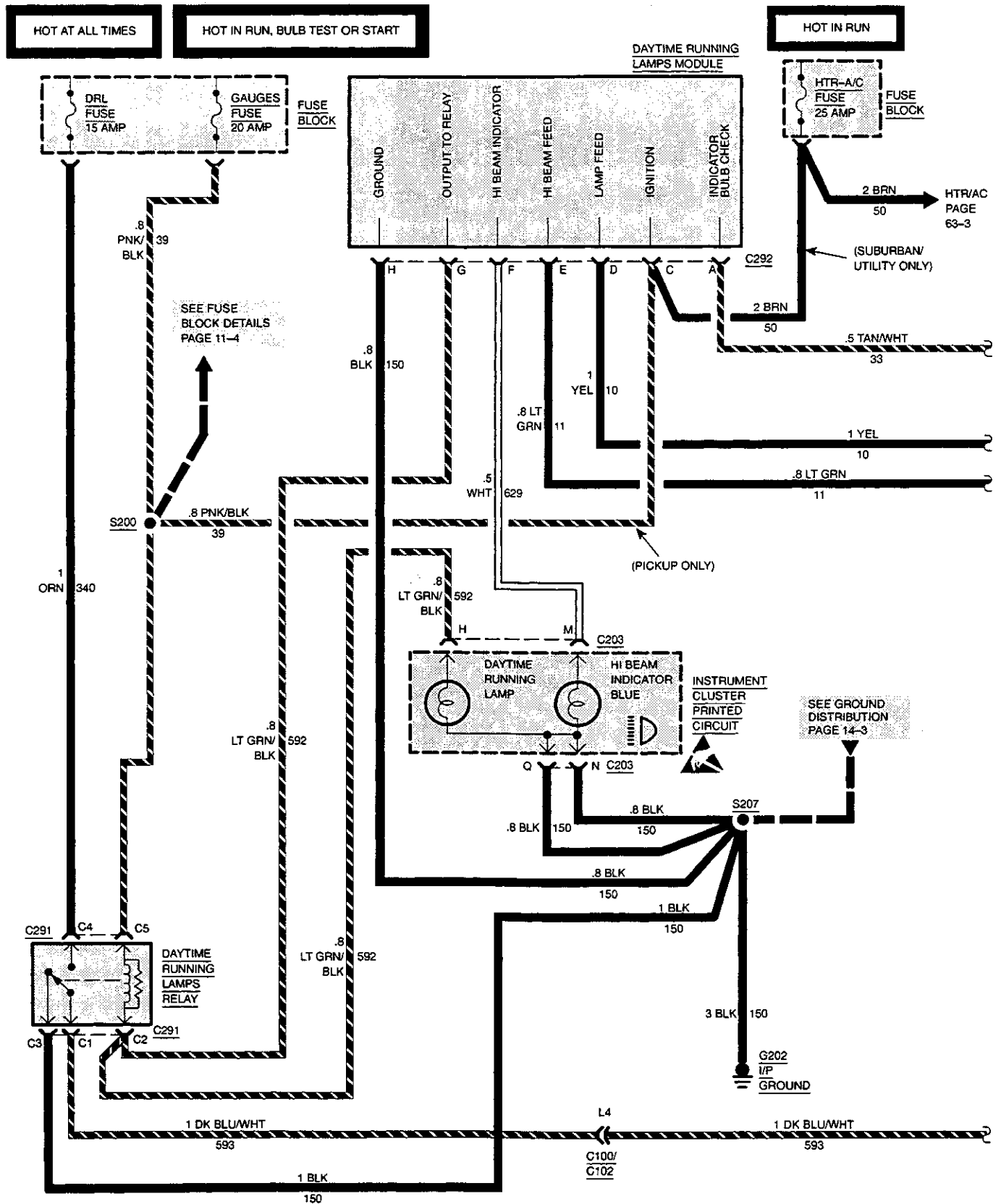
S101	LH side, near headlamp	104-14	1
S102	LH side, near headlamp	104-14	1
S103	RH side, near headlamp	104-14	1
S104	LH side, near headlamp	104-15	2
S151	At RH headlamp assembly	Not Shown	
S200	Near fuse block	Not Shown	
S207	Near instrument cluster	104-17	5
S213	Under LH side of I/P	104-17	5
S250	At in-line diode, near bulkhead connector	104-17	5
S252	At in-line diode, near bulkhead connector	104-17	5
S253	Under LH side of I/P	104-17	5
S254	Under LH side of I/P	104-17	5

## **HEADLAMPS WITH DAYTIME RUNNING LAMPS 8A-104-3**

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## 8A-104-4 HEADLAMPS WITH DAYTIME RUNNING LAMPS



**Wiring Diagram Details:**

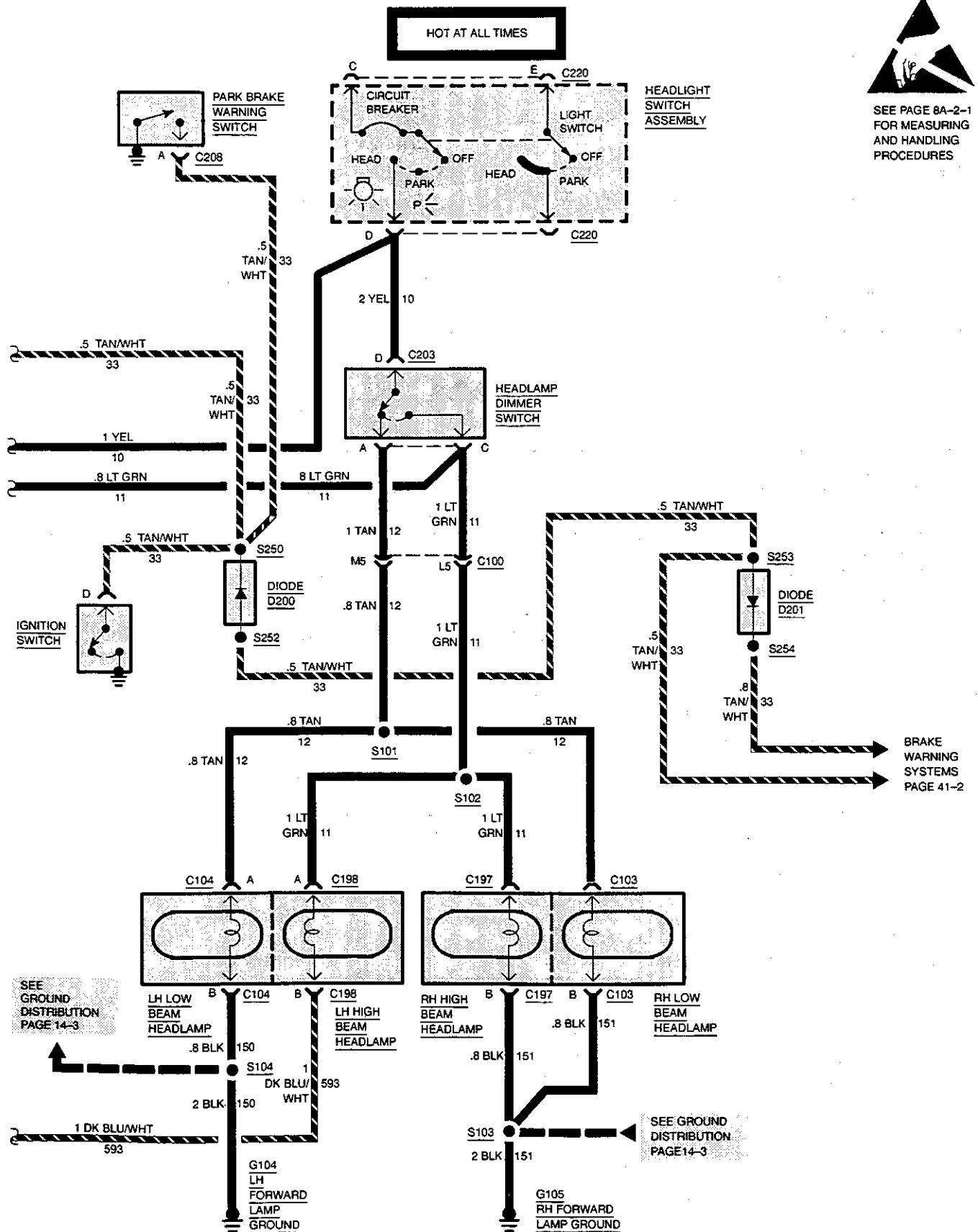
- Power Source:** HOT AT ALL TIMES (Battery connection).
- Switches:**
  - PARK BRAKE WARNING SWITCH:** Connected to terminal A, C208.
  - HEADLIGHT SWITCH ASSEMBLY:** Includes a CIRCUIT BREAKER and LIGHT SWITCH. Controls HEAD and PARK lights.
  - HEADLAMP DIMMER SWITCH:** Controls LO and HI settings for both headlamps.
  - IGNITION SWITCH:** Connected to terminal D, C256.
- Relays and Components:**
  - C203:** Headlamp Dimmer Relay.
  - C204:** Headlight Relay.
  - C103:** LH Headlamp Relay.
  - C104:** RH Headlamp Relay.
  - DIODE D200:** Connected to terminal S250.
  - DIODE D201:** Connected to terminal S253.
- Wiring Paths and Grounding:**
  - Grounding:** G126 SHEET METAL GROUND and G127 FRAME METAL GROUND.
  - Wiring Colors and Gauges:** .5 TAN/WHT, 1 YEL, .8 LT GRN, .8 TAN, 1 LT GRN, 1 DK BLU/WHT, 3 BLK.
  - Terminal Connections:** A, B, C, D, E, M5, L5, S101, S102, S151, S250, S252, S253, S254.





# HEADLAMPS WITH DAYTIME RUNNING LAMPS 8A-104-7

## W/QUAD HEADLAMPS



## 8A-104-8 HEADLAMPS WITH DAYTIME RUNNING LAMPS

### DIAGNOSIS — HEADLAMP W/DAYTIME RUNNING LAMPS

#### PRELIMINARY CHECKS:

Before checking DAYTIME RUNNING LAMPS (Canadian only) system, do the following:

1. Place Park Brake in OFF position and Ignition Switch in RUN.
2. Verify condition of DRL, GAUGES and A/C HTR Fuses. If blown, locate and repair source of overload. Then replace fuse.
3. Place Light Switch in ON and Headlamp Dimmer Switch to the HIGH BEAM. If HIGH BEAM headlamp(s) are inoperative, refer to HIGH BEAM LAMP(S) DO NOT OPERATE (CANADIAN VEHICLES) diagnostic procedure.
4. If the High Beam Lamp(s) are operative, use the following diagnostic procedures, after placing the Light Switch to OFF position.

#### DAYTIME RUNNING LAMPS (CANADIAN ONLY) DO NOT OPERATE

TEST	RESULT	ACTION
1. Connect test lamp from ORN (340) wire at daytime running lamps relay (Canadian only) connector C291 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in ORN (340) wire between relay connector C291 and fuse block.
2. Connect test lamp from PNK/BLK (39) wire at relay connector C291 to ground.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	GO to step 3.
3. Place park brake in ON. Observe BRAKE indicator lamp on I/P Cluster.	Lamp lights.	LOCATE and REPAIR open in PNK/BLK (39) wire between relay connector C291 and splice S213.
	Lamp does not light.	LOCATE and REPAIR open in PNK/BLK (39) wire between splice S213 and fuse block.
4. Connect self-powered test lamp from LT GRN/BLK (592) wire at relay connector C291 to ground.	Test lamp lights.	GO to step 5.
	Test lamp does not light.	GO to step 6.
5. Connect test lamp from DK BLU/WHT (593) wire at relay connector C291 to ground.	Test lamp lights.	System operating normally.
	Test lamp does not light.	REPLACE daytime running lamps relay (Canadian only).
6. Connect self-powered test lamp from LT GRN/BLK (592) wire at daytime running lamps module (Canadian only) connector C292 to ground.	Test lamp lights.	LOCATE and REPAIR open in LT GRN/BLK (592) wire between module connector C292 and relay connector C291.
	Test lamp does not light.	GO to step 7.
7. Connect test lamp from PNK/BLK (39) wire (pickup) or BRN (50) wire (suburban/utility) at module connector C292 to ground.	Test lamp lights.	GO to step 8.
	Test lamp does not light.	LOCATE and REPAIR open in PNK/BLK (39) wire between module connector C292 to splice S213 (pickup) or BRN (50) wire between module connector C292 to fuse block (suburban/utility).

## HEADLAMPS WITH DAYTIME RUNNING LAMPS 8A-104-9

### DAYTIME RUNNING LAMPS (CANADIAN ONLY) DO NOT OPERATE (CONTINUED)

TEST	RESULT	ACTION
8. Connect self-powered test lamp from BLK (150) wire at module connector C292 to ground.	Test lamp lights.	GO to step 10.
	Test lamp does not light.	GO to step 9.
9. Turn on radio.	Radio operates.	LOCATE and REPAIR open in BLK (150) wire from module connector C292 to splice S207.
	Radio does not operate.	LOCATE and REPAIR open in BLK (150) wire between splice S207 and ground G202.
10. Connect self-powered test lamp from TAN/WHT (33) wire at module connector C292 to ground.	Test lamp lights.	LOCATE and REPAIR short to ground in TAN/WHT (33) wire between module connector C292 and park brake switch connector C226. If no short is found, REPLACE park brake switch.
	Test lamp does not light.	REPLACE daytime running lamps module (Canadian only).

### DAYTIME RUNNING LAMPS (CANADIAN ONLY) STAY ON

TEST	RESULT	ACTION
1. Disconnect daytime running lamps module (Canadian only) connector C292. Place ignition switch in RUN and light switch in ON position. Connect test lamp from YEL (10) wire at module connector to ground.	Test lamp lights.	REPLACE daytime running lamps module (Canadian only).
	Test lamp does not light.	LOCATE and REPAIR open in YEL (10) wire from module connector C292 to light switch connector C204.

### LOW BEAM LAMP(S) DO NOT OPERATE (CANADIAN ONLY)

TEST	RESULT	ACTION
1. Place light switch in ON and headlamp dimmer switch in LOW BEAM position. Connect test lamp from TAN (12) wire at inoperative lamp(s) to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	GO to step 6.
2. Connect test lamp from TAN (12) wire to BLK (151) wire at RH headlamp connector C103 or DK BLU/WHT (593) wire at LH headlamp connector C104.	Test lamp lights.	REPLACE headlamp(s).
	Test lamp does not light.	LOCATE and REPAIR open in BLK (151) wire from RH headlamp connector C103 ground G105. GO to step 3 for LH headlamp.
3. Connect self-powered test lamp from DK BLU/WHT (593) wire at daytime running lamps relay (Canadian only) connector C291 to ground.	Test lamp lights.	LOCATE and REPAIR open in DK BLU/WHT (593) wire between relay connector C291 and connector C100 or connector C100 and LH headlamp connector C104.
	Test lamp does not light.	GO to step 4.

## 8A-104-10 HEADLAMPS WITH DAYTIME RUNNING LAMPS

### LOW BEAM LAMP(S) DO NOT OPERATE (CANADIAN ONLY) (CONTINUED)

TEST	RESULT	ACTION
4. Connect self-powered test lamp from BLK (150) wire at relay connector C291 to ground.	Test lamp lights.	REPLACE daytime running lamps relay (Canadian only).
	Test lamp does not light.	Go to step 5.
5. Turn on radio.	Radio operates.	LOCATE and REPAIR open in BLK (150) wire between relay connector C291 and splice S207.
	Radio does not operate.	LOCATE and REPAIR open in BLK (150) wire between splice S207 and ground G202.
6. Connect test lamp from TAN (12) wire at headlamp dimmer switch connector C205 to ground.	Test lamp lights.	LOCATE and REPAIR open in TAN (12) wire from headlamp dimmer switch connector C205 to headlamp connector(s) C103 or C104.
	Test lamp does not light.	REPLACE headlamp dimmer switch.

### HIGH BEAM LAMP(S) DO NOT OPERATE (CANADIAN ONLY)

TEST	RESULT	ACTION
1. Place headlamp switch in ON and headlamp dimmer switch in HIGH BEAM position. Connect test lamp from LT GRN (11) wire at inoperative lamp(s) to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	GO to step 6.
2. Connect test lamp from LT GRN (11) wire to BLK (151) wire at RH headlamp connector C103 or DK BLU/WHT (593) wire at LH headlamp connector C104.	Test lamp lights.	REPLACE headlamp(s).
	Test lamp does not light.	LOCATE and REPAIR open in BLK (151) wire from RH headlamp connector C103 ground G105. GO to step 3 for LH headlamp.
3. Connect self-powered test lamp from DK BLU/WHT (593) wire at daytime running lamps relay (Canadian only) connector C291 to ground.	Test lamp lights.	LOCATE and REPAIR open in DK BLU/WHT (593) wire between relay connector C291 and connector C100 or connector C100 and LH headlamp connector C104.
	Test lamp does not light.	GO to step 4.
4. Connect self-powered test lamp from BLK (150) wire at relay connector C291 to ground.	Test lamp lights.	REPLACE daytime running lamps relay (Canadian only).
	Test lamp does not light.	GO to step 5.

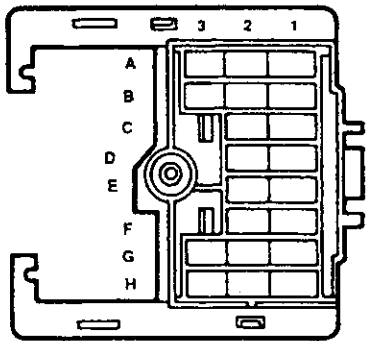
## HEADLAMPS WITH DAYTIME RUNNING LAMPS 8A-104-11

### HIGH BEAM LAMP(S) DO NOT OPERATE (CANADIAN ONLY) (CONTINUED)

TEST	RESULT	ACTION
5. Turn on radio.	Radio operates.	LOCATE and REPAIR open in BLK (150) wire between relay connector C291 and splice S207.
	Radio does not operate.	LOCATE and REPAIR open in BLK (150) wire between splice S207 and ground G202.
6. Connect test lamp from LT GRN (11) wire at headlamp dimmer switch connector C205 to ground.	Test lamp lights.	LOCATE and REPAIR open in LT GRN (11) wire from headlamp dimmer switch connector C205 to headlamp connector(s) C103 or C104.
	Test lamp does not light.	REPLACE headlamp dimmer switch.

## 8A-104-12 HEADLAMPS WITH DAYTIME RUNNING LAMPS

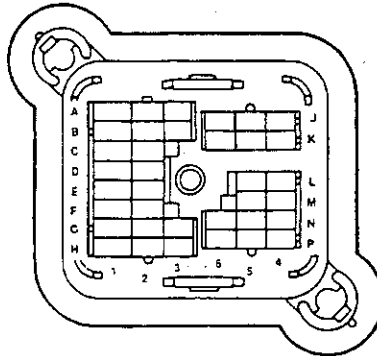
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GRAY  
Metri-Pack

C100  
Bulkhead Connector – Eng

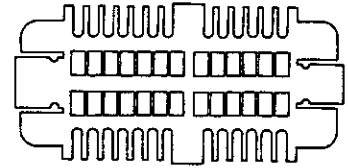
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GRAY  
Metri-Pack

C100  
Bulkhead Connector – I/P

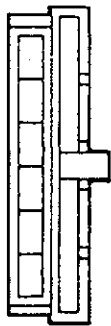
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BLACK  
Bow Series

C203  
I/P Cluster

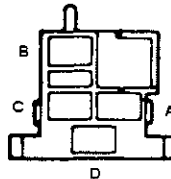
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NATURAL  
Metri-Pack 480

C204  
Light Switch

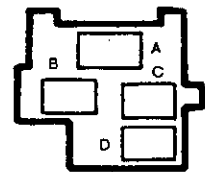
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BLACK  
56 Series

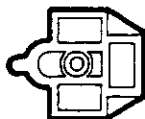
C203  
Headlamp Dimmer Switch

06294641



BLACK  
56 Series  
C256  
Ignition Switch

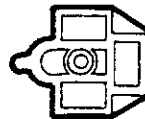
06288471



NATURAL  
56 Series

C103  
RH High-Low Beam Headlamp

06288471



NATURAL  
56 Series

C104  
LH High-Low Beam Headlamp

12059181



MED. GRAY  
Metri-Pack 280

C103  
RH Low Beam Headlamp

## HEADLAMPS WITH DAYTIME RUNNING LAMPS 8A-104-13

12059181



**MED. GRAY**  
Metri-Pack 280  
**C104**  
LH Low Beam Headlamp

12059183



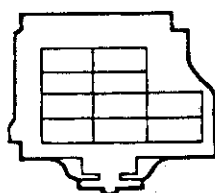
**BLACK**  
Metri-Pack 280  
**C197**  
RH High Beam Headlamp

12059183



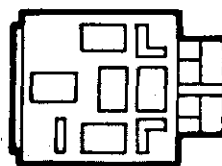
**BLACK**  
Metri-Pack 280  
**C198**  
LH High Beam Headlamp

12020100



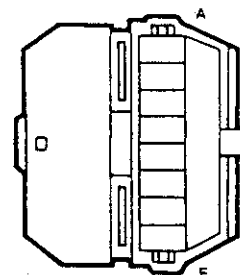
**C102**  
Bulkhead - Forward Lamps

12034003



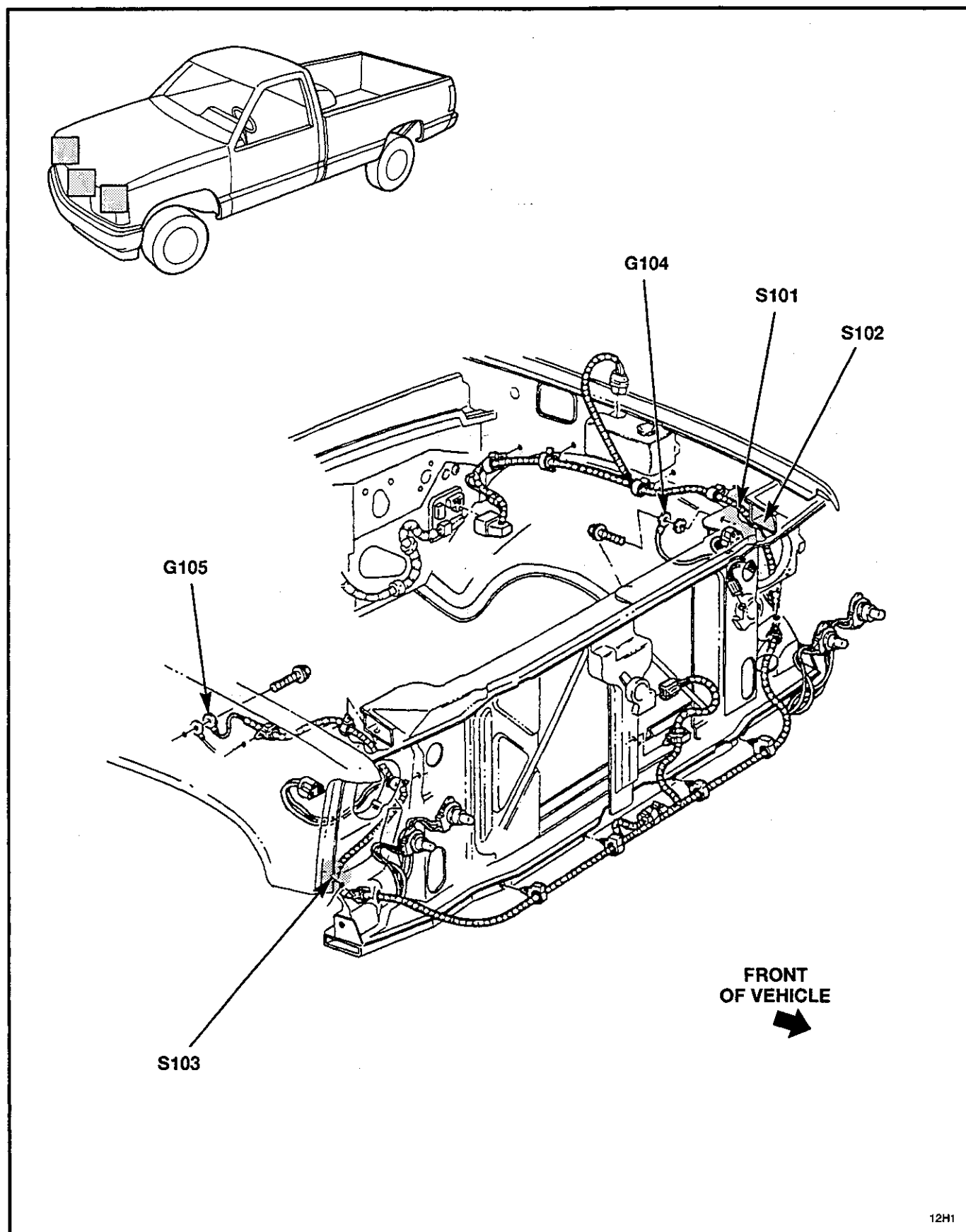
**BLACK**  
Metri-Pack 630  
**C291**  
Daytime Running Lamps Relay

12015308



**GRAY**  
P/C Edgeboard  
**C292**  
Daytime Running Lamps Module

## 8A-104-14 HEADLAMPS WITH DAYTIME RUNNING LAMPS





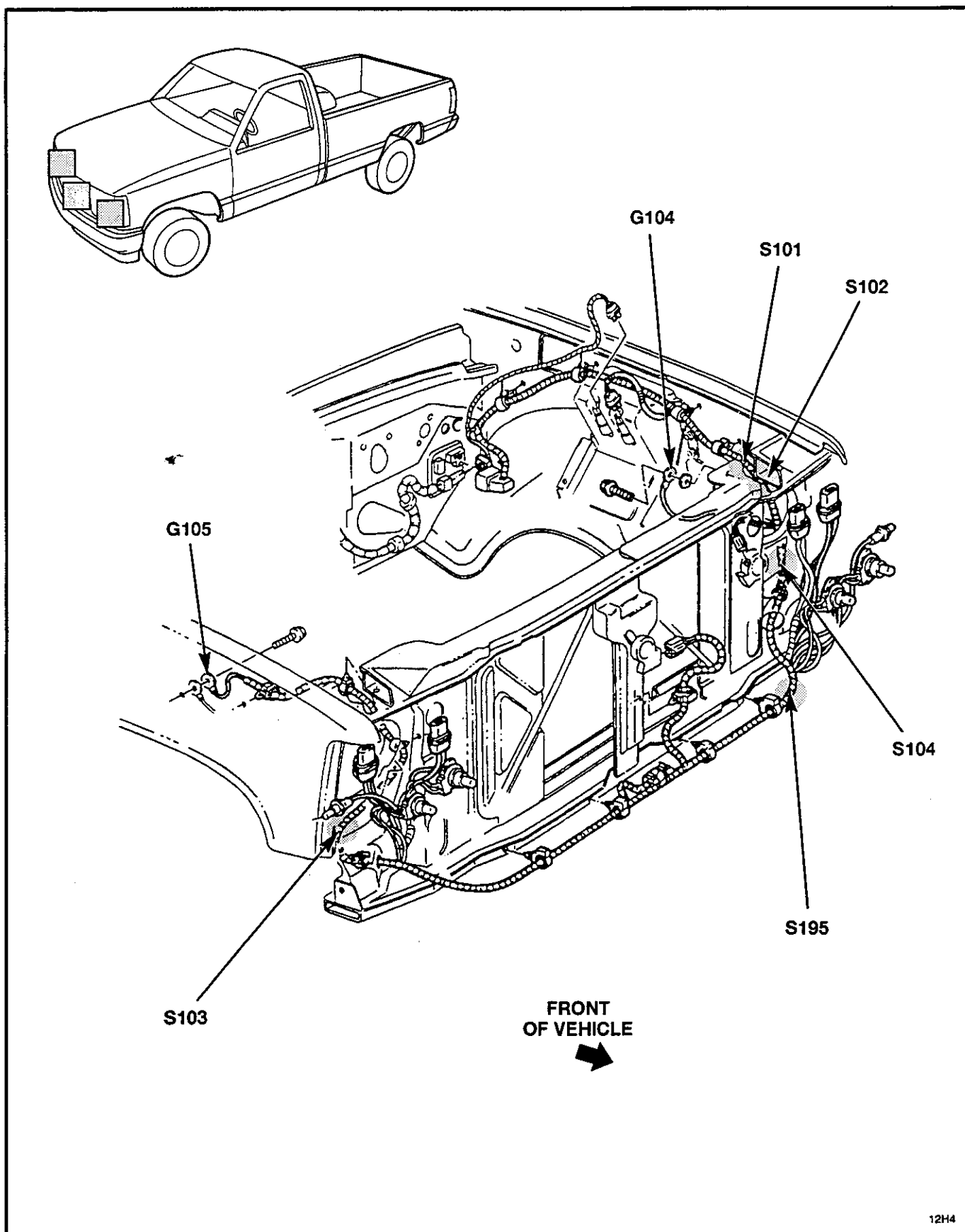


Figure 2 — Forward Lamp Harness, Quad Headlamps

## 8A-104-16 HEADLAMPS WITH DAYTIME RUNNING LAMPS

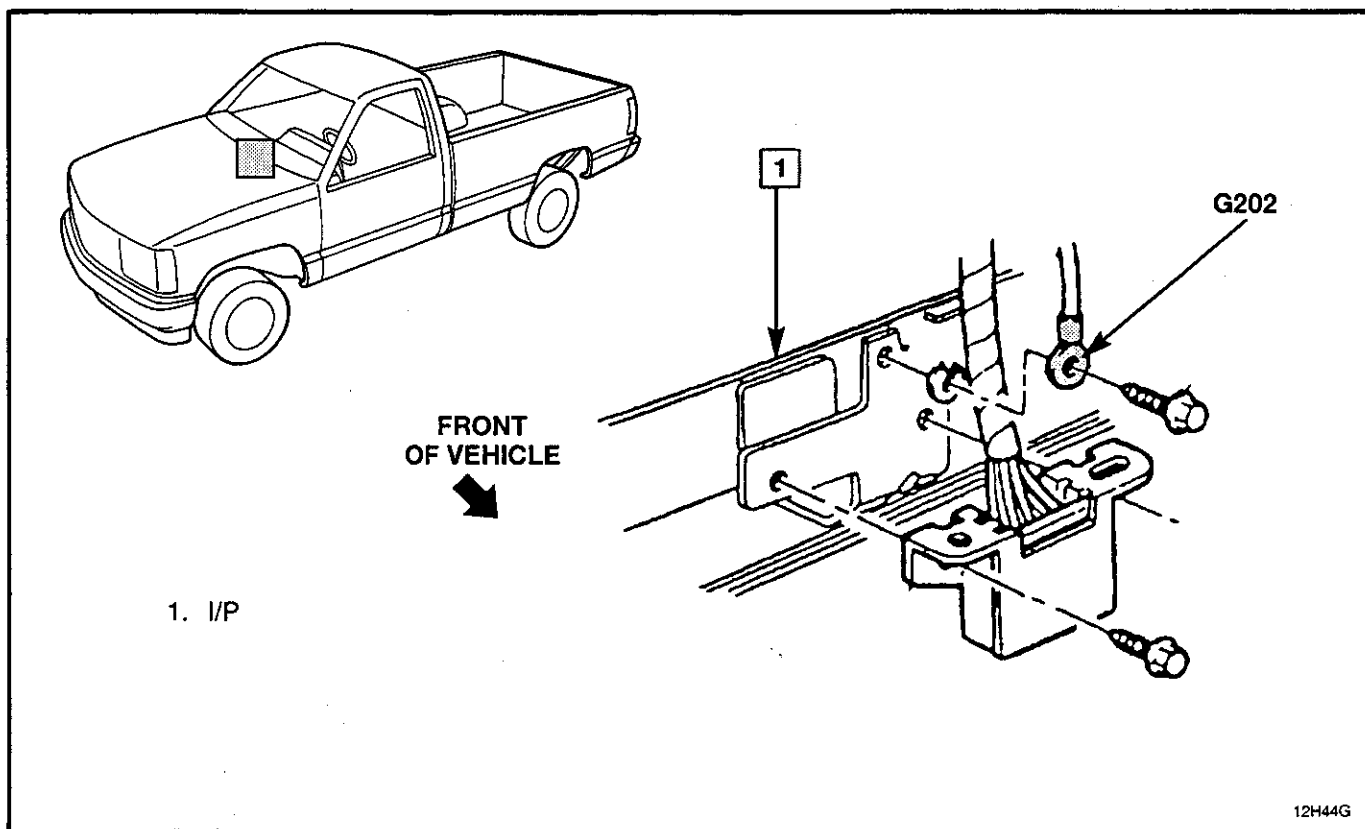


Figure 3 — I/P Ground

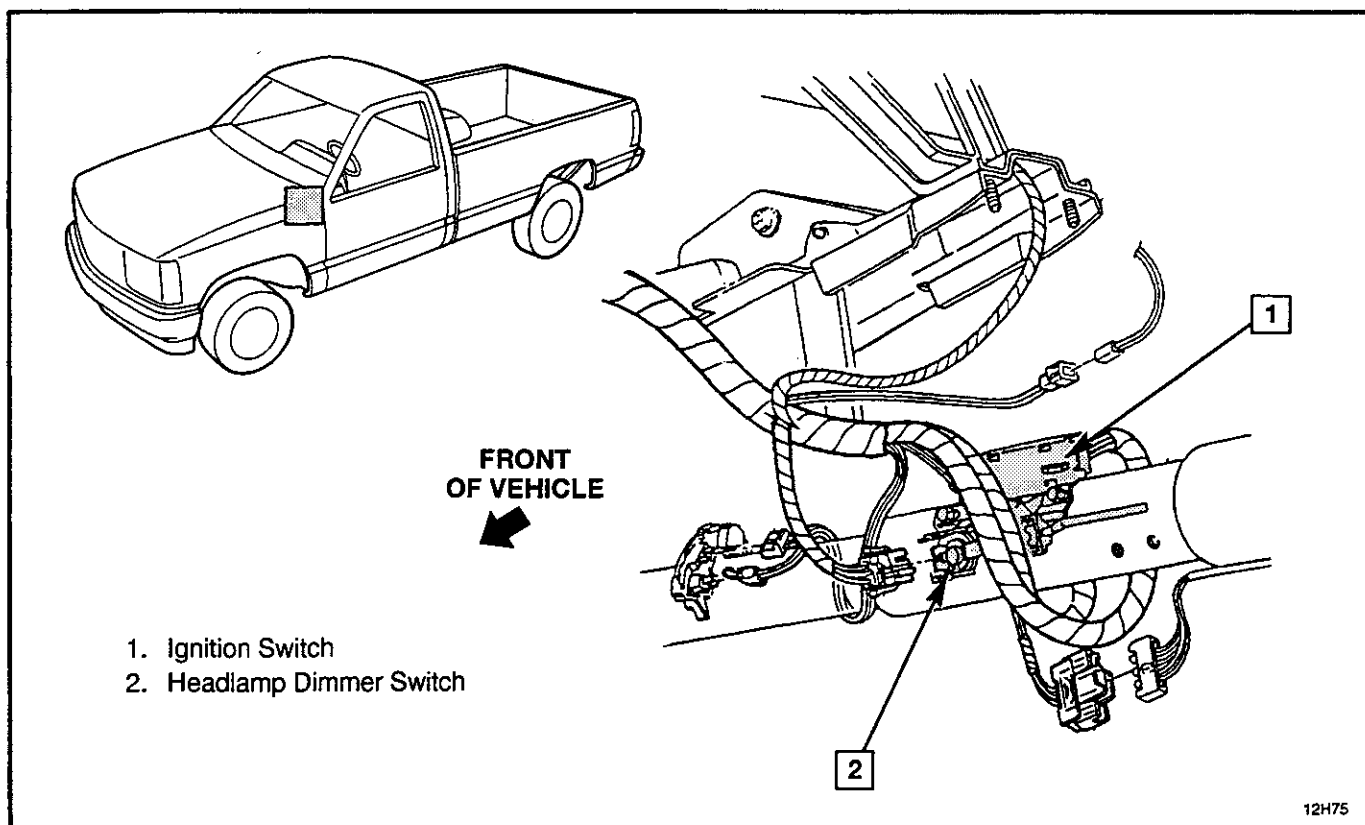


Figure 4 — Steering Column Wiring, LH Side

# HEADLAMPS WITH DAYTIME RUNNING LAMPS 8A-104-17

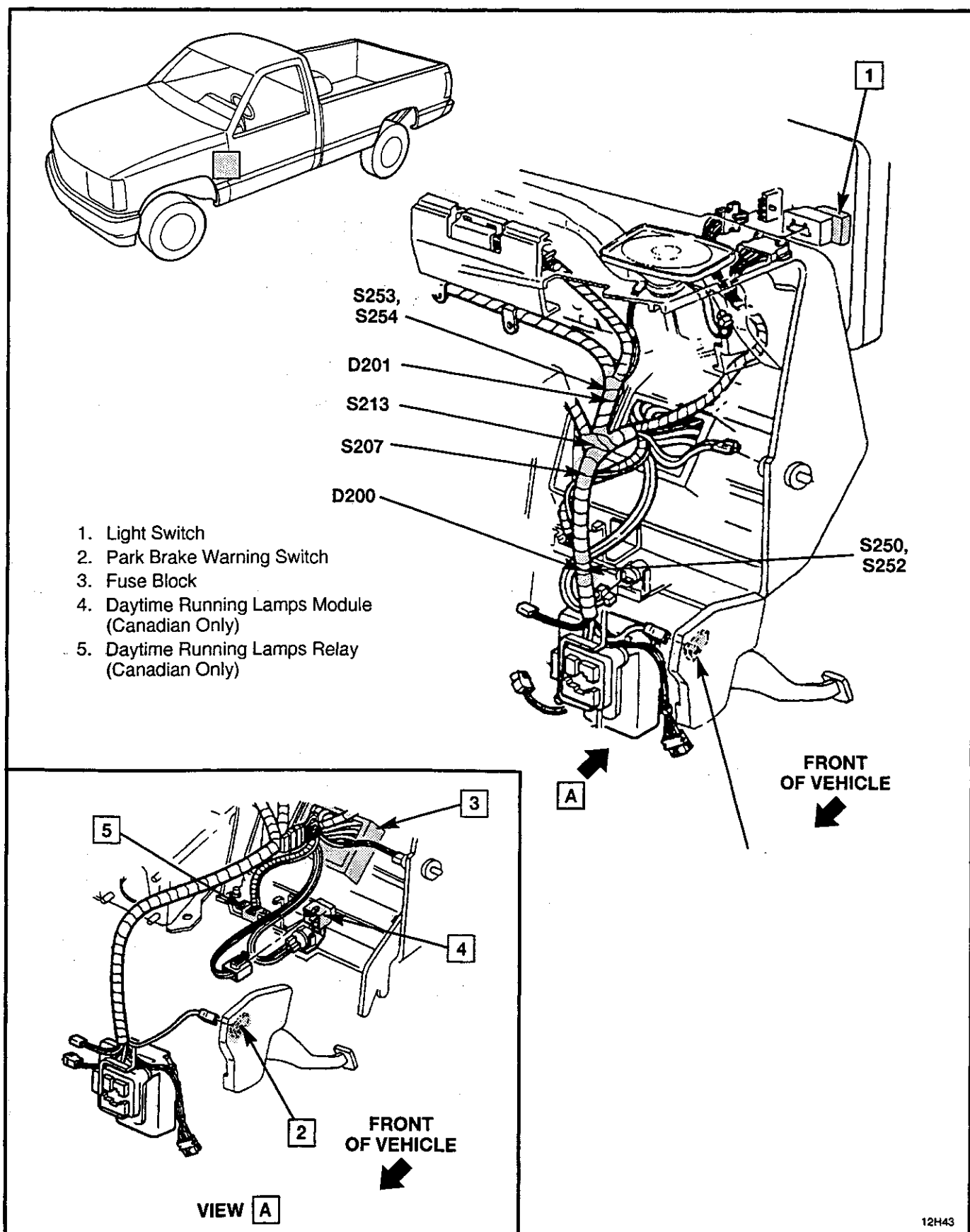


Figure 5 — LH Side of Instrument Panel

## 8A-104-18 HEADLAMPS WITH DAYTIME RUNNING LAMPS

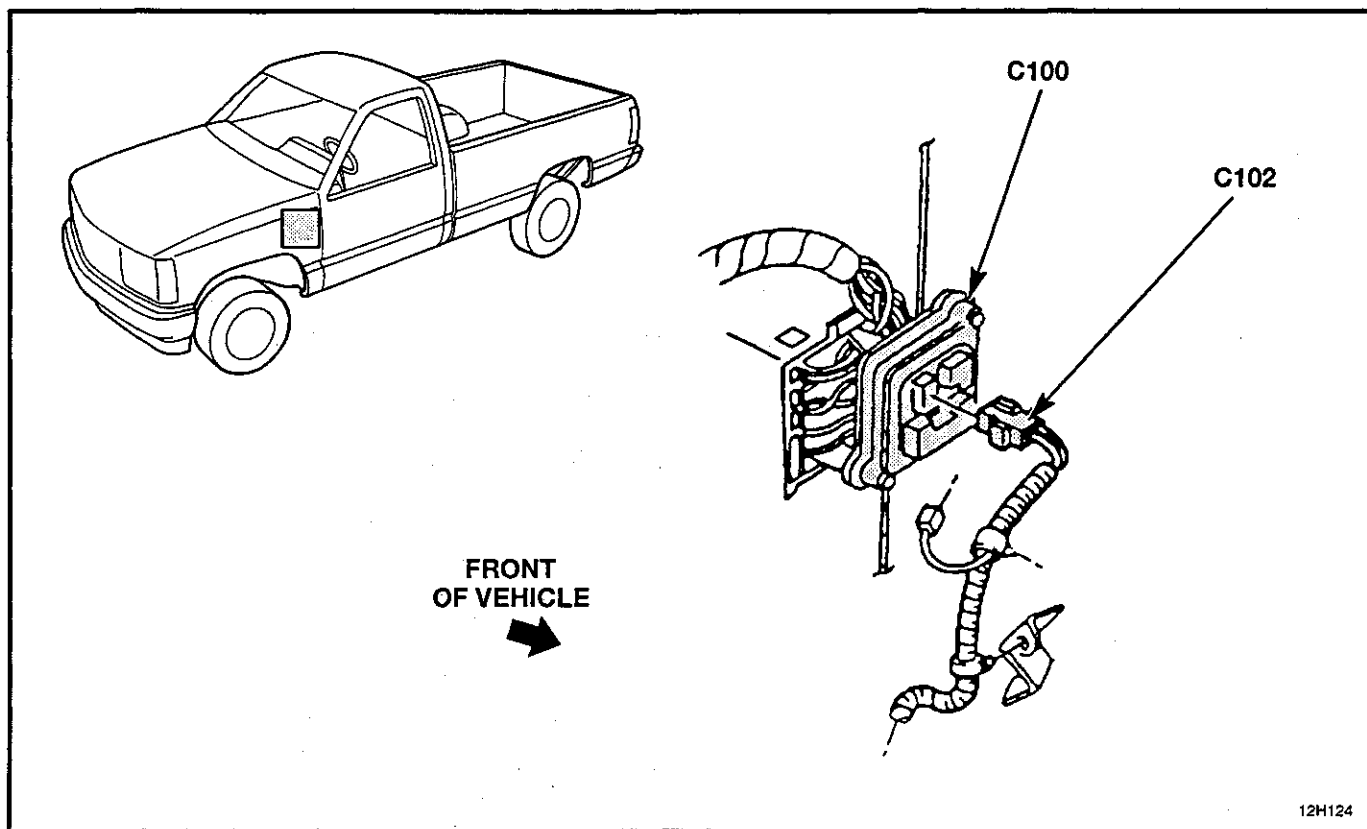


Figure 6 — I/P Wiring

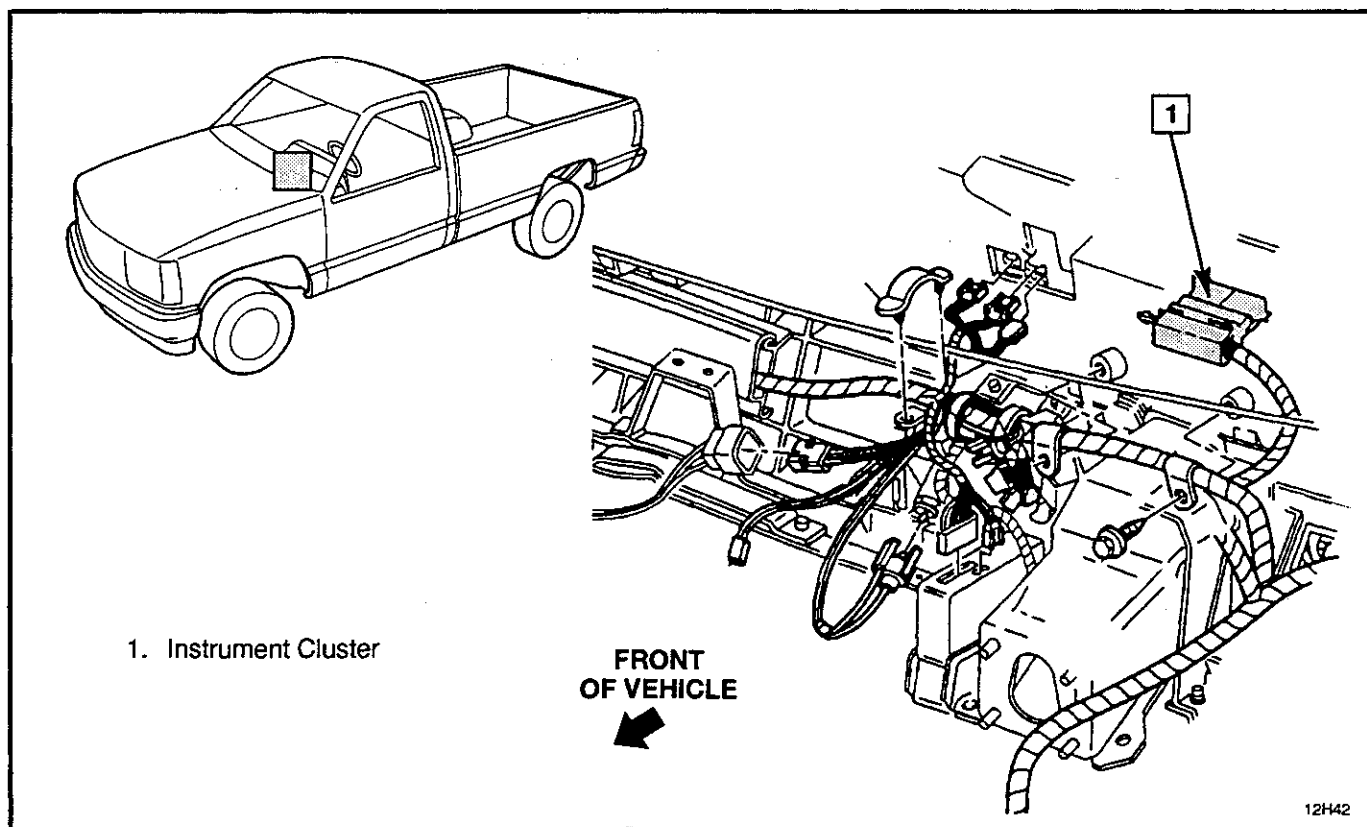


Figure 7 — Instrument Panel Wiring, RH Side

### CIRCUIT OPERATION

#### TAIL, MARKER, ENDGATE CLEARANCE AND LICENSE LAMPS

Voltage is supplied through the PARK LP Fuse to the Light Switch at all times. With Light Switch in PARK or HEAD, voltage is supplied to the Tail, Marker, Endgate Clearance and License Lamps.

#### STOPLAMPS

Voltage is supplied at all times through the STOP Fuse to the Brake Switch. When the brake pedal is depressed, the contacts in the TCC/Stoplamp Switch close. Voltage is supplied through the Turn Switch Assembly to the LH and RH Stoplamp, and the Stoplamp lights. If a Turn Signal is on, the Stoplamp on that side will flash as a Turn Signal. The other Stoplamp will serve as a Stoplamp.

#### TURN SIGNAL LAMPS

With the Ignition Switch in RUN or START, voltage is supplied through the TURN-B/U Fuse and Turn Flasher to the normally closed contact of the Hazard Flasher Switch in the Turn Signal Switch Assembly.

With the Signal Switch in LH Turn position, voltage is supplied to both the LH Turn Indicator and the LH Front Park/Turn Lamp LT BLU (14) wire. Voltage is supplied to the LH Rear Turn Lamp YEL (18) wire.

The Lamps go on immediately. They begin to flash when the current flow heats up the timing element in the flasher and it repeatedly opens and closes the circuit.

The voltage supplied to the LH Front Park/Turn Lamp will also be supplied to the LH Front Marker Lamp. If the Light Switch is in the OFF position, the LH Front Marker Lamp will find a path to ground through splice S105 and the many Lamps connected in parallel to ground. These Lamps provide low resistance paths to ground. The Marker Lamp will flash with the Turn Lamps. The Lamps used for the ground path will not flash, however, since the voltage drop across the Marker Lamp is much higher than that across the other Lamps.

When the Light Switch is in either PARK or HEAD, voltage is supplied through the PARK LP Fuse, Lamp Switch and Splice 105 to the Marker and Park Lamps. If the

Turn Signal Switch Assembly is in TURN LEFT, the LH Front Marker Lamp will have voltage at both connections and will go out. When the flasher removes voltage to the Turn Lamp, the Marker Lamp will be grounded through the Turn Lamp and will go on. In this way, the LH Front Marker Lamp will flash on when the LH Front Park/Turn Lamp goes off, and off when the Turn Lamp goes on.

With the Turn Signal Switch Assembly in TURN RIGHT, voltage will be supplied to the RH Lamps in the same way.

#### HAZARD LAMPS

Voltage is supplied at all times, through the STOP Fuse and the Hazard Flasher to the normally open contact of the Hazard Switch in the Turn Signal Switch Assembly. With the Hazard Switch in HAZARD FLASH, voltage is supplied to both Front and Rear Turn Lamps. All of the Turn Lamps and Turn Indicators flash on and off.

The Front Marker Lamps flash in HAZARD FLASH just as they did in TURN RIGHT and TURN LEFT. If the Lamp Switch is in OFF, they flash on when the Hazard Lamps are on. If the Lamp Switch is in either PARK or HEAD, they flash on when the Hazard Lamps are off and off when the Hazard Lamps are on.

In HAZARD, the circuit is always open and the Hazard Flasher controls the Lamps.

#### PARK AND MARKER LAMPS

Voltage is supplied through the PARK LP Fuse to the Lamp Switch at all times. With the Lamp Switch in PARK or HEAD, voltage is supplied to the Park, Tail, Marker, Roof Marker and License Lamps.

#### SNOWPLOW PREPARATION PACKAGE

Voltage is supplied to the RH and LH Snowplow Turn Signal Relays through the Battery Junction Block at all times. When the Turn Signal Switch is placed in LH or RH turn the appropriate relay will energize, providing battery voltage to the associated turn signal on the snowplow assembly. As the turn signal flashes on and off, the relay will also cycle on and off, causing the snowplow turn signal lamp to flash.

## 8A-110-2 EXTERIOR LAMPS

### COMPONENT LOCATION

### Page — Figure

Center High Mount Stoplamp (Pickup)	Back, top of cab	Not Shown	
Center High Mount Stoplamp (Suburban, Utility)	At rear of vehicle	Not Shown	
Center High Mount Stoplamp Relay (Pickup)	On RH cowl, in engine compartment	Not Shown	
Convenience Center	Under LH side of I/P	110-23	7
Clearance Lamp, LH Front	Front of LH rear fender	110-24	9
Clearance Lamp, RH Front	Front of RH rear fender	110-24	9
Clearance Lamp, LH Rear	Rear of LH rear fender	110-24	9
Clearance Lamp, RH Rear	Rear of RH rear fender	110-24	9
Endgate Clearance Lamps	On rear of endgate	110-28	14
Front Identification Lamps	On outside front of roof panel	Not Shown	
Fuse Block		110-22	6
Hazard Flasher	Under LH side of I/P	110-22	6
License Lamp	Rear of vehicle at license holder	110-29	15
License Lamp, LH	Center of rear bumper	110-29	15
License Lamp, RH	Center of rear bumper	110-29	15
Light Switch	Upper LH side of I/P	110-22	6
Marker Lamp, LH Roof	On roof above windshield	110-23	7
Marker Lamp, RH Roof	On roof panel	110-23	7
Park and Turn Lamp, LH	LH front of vehicle	110-19	1
Park and Turn Lamp, RH	RH front of vehicle	110-19	1
Side Marker Lamp, LH	LH front side of vehicle	110-19	1
Side Marker Lamp, RH	RH front side of vehicle	110-19	1
Snowplow Turn Signal Relay, LH	On LH front of core support	Not Shown	
Snowplow Turn Signal Relay, RH	On RH front of core support	Not Shown	
Tail, Stop, Turn Signal and Backup Lamp, LH	LH rear of vehicle	Not Shown	
Tail, Stop, Turn Signal and Backup Lamp, RH	RH rear of vehicle	Not Shown	
TCC/Stoplamp Switch	Top of brake pedal	110-24	8
Turn Signal Flasher	At convenience center	110-23	7
Turn Signal Switch	LH upper side of steering column	110-25	10

### CONNECTORS:

C100	At bulkhead connector	110-20	3
C101	At bulkhead connector	110-19	1
C102	At bulkhead connector	110-20	3
C200	Behind RH side of I/P	110-21	5
C206	At turn hazard switch	Not Shown	
C267	Lower edge of tailgate	Not Shown	
C284	At convenience center	110-23	7
C288A	Below LH side of I/P	Not Shown	
C299A	Below LH side of I/P	Not Shown	
C400	At rear crossmember, LH side	110-30	16
C401	Rear of LH frame rail	110-27	13
C403	Behind center of rear bumper	110-27	13

### GROMMETS:

P101	RH lower cowl (engine compartment)	110-21	5
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COMPONENT LOCATION (continued)

Page — Figure

GROUNDS:

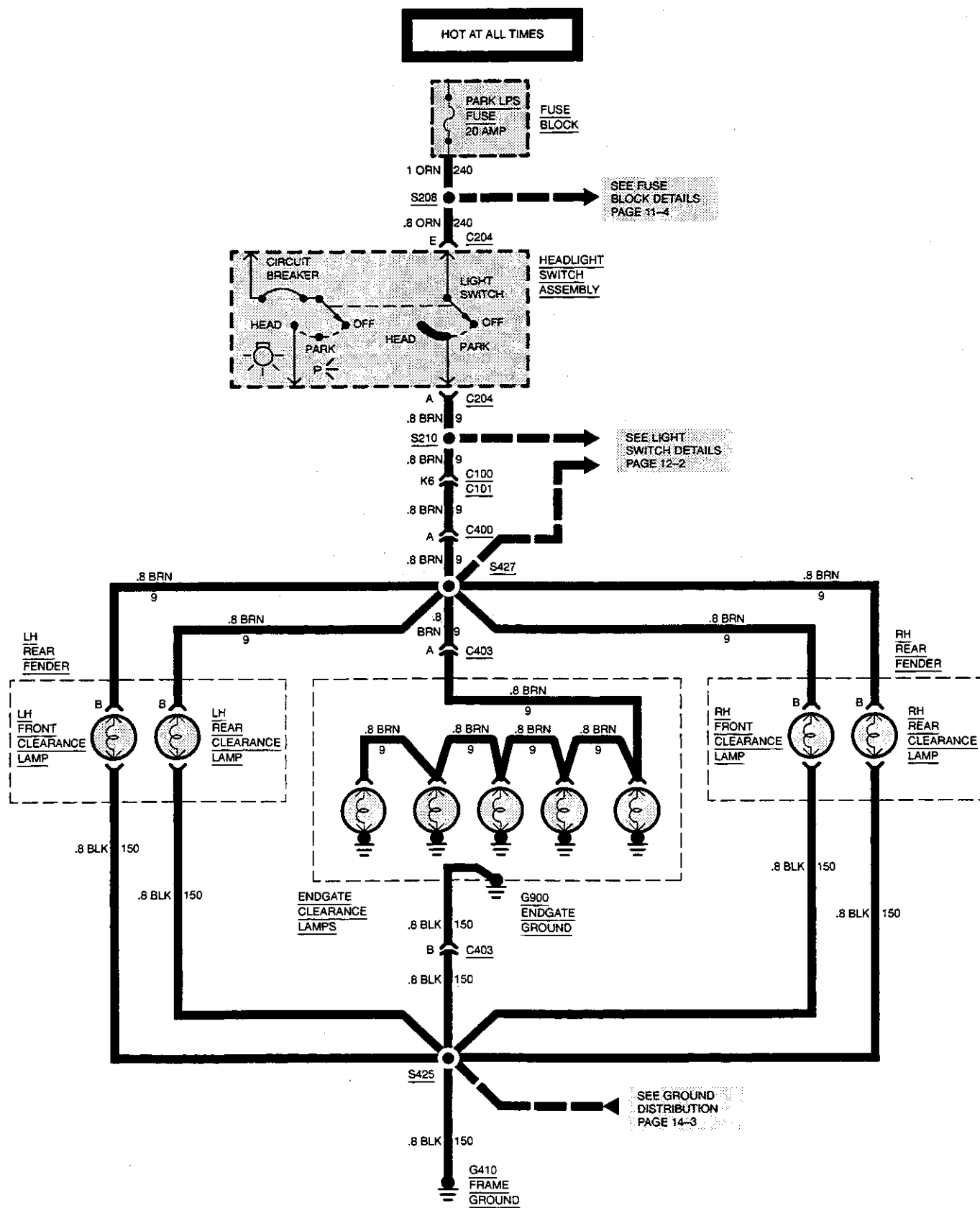
G104	On sheet metal, above LH headlamp	110-19	1
G105	RH inner fender, near battery	110-19	1
G106	Rear of RH cylinder head	110-20	2
G202	At DLC connector	110-21	4
G400 (Suburban)	At RH D-pillar	Not Shown	
G400 (Utility)	At RH C-pillar	Not Shown	
G410	At LH side of platform hitch	110-27	13
G900	Bottom center of endgate	Not Shown	

SPLICES:

S103	RH side, near headlamp	Not Shown	
S104	LH side, near headlamp	110-19	1
S105	LH front fender	110-19	1
S106	LH side, near headlamp	110-19	1
S107	RH side, near headlamp	110-19	1
S118	Engine harness, near cowl LH rear engine compartment	110-20	2
S190 (Pickup Only)	LH cowl in engine compartment	Not Shown	
S207	Under LH side of I/P	110-22	6
S208	Under LH side of I/P	110-22	6
S210	Under LH side of I/P	110-22	6
S251	Under LH side of I/P	110-22	6
S260A (Suburban/Utility)	Behind LH side of I/P	Not Shown	
S275A (Pickup Only)	Behind LH side of I/P	Not Shown	
S402 (Suburban/Utility)	Above rear liftgate glass opening	110-26	11
S403	License lamps harness, near LH license lamp lead	110-27	13
S404	License lamps harness, near LH license lamp lead	110-27	13
S425	Rear lamp harness, LH side at rear crossmember	110-27	13
S427	Rear lamp harness, LH side at rear crossmember	110-26	12

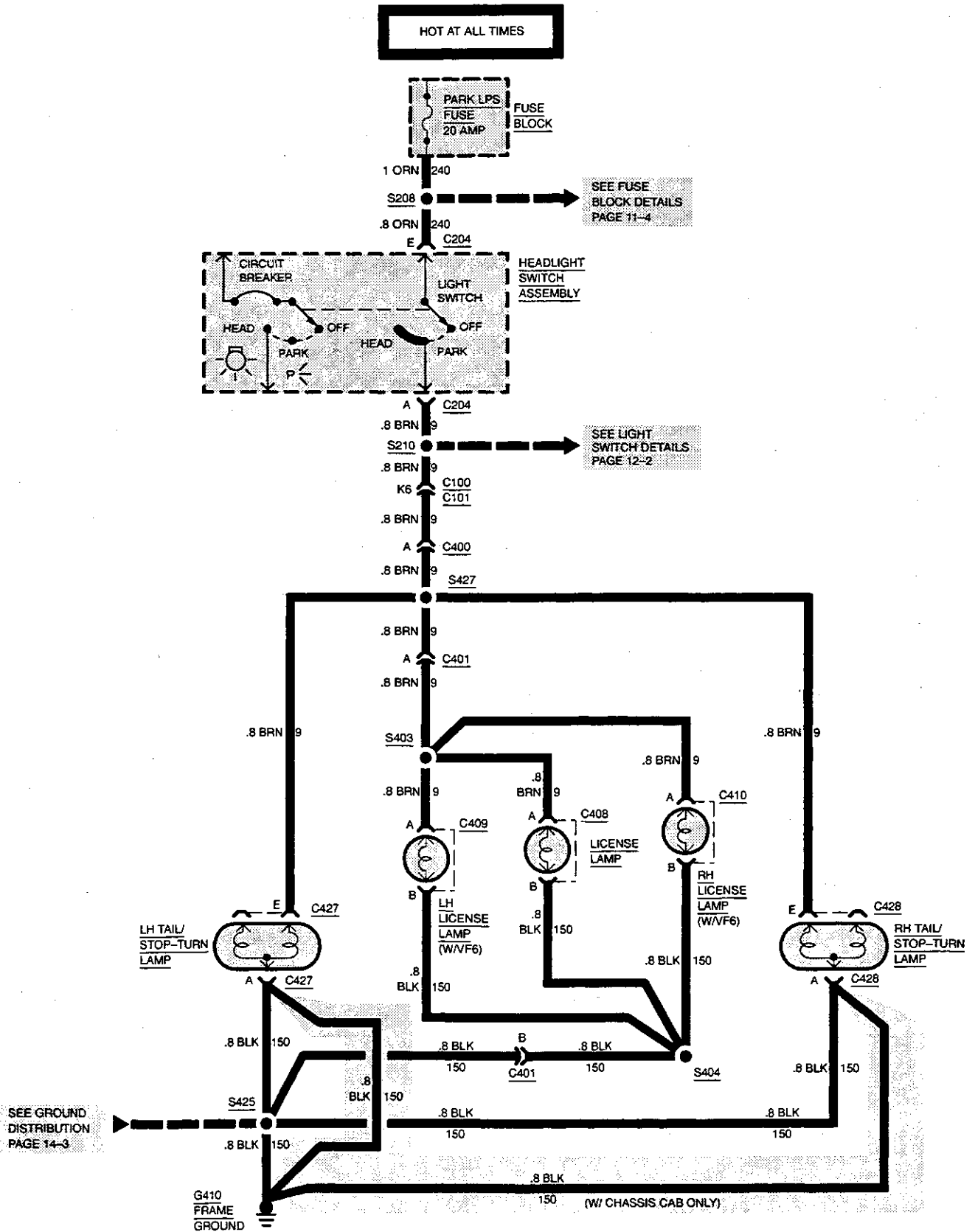
## 8A-110-4 EXTERIOR LAMPS

### CLEARANCE LAMPS (PICKUP WITH DUAL REAR WHEELS)



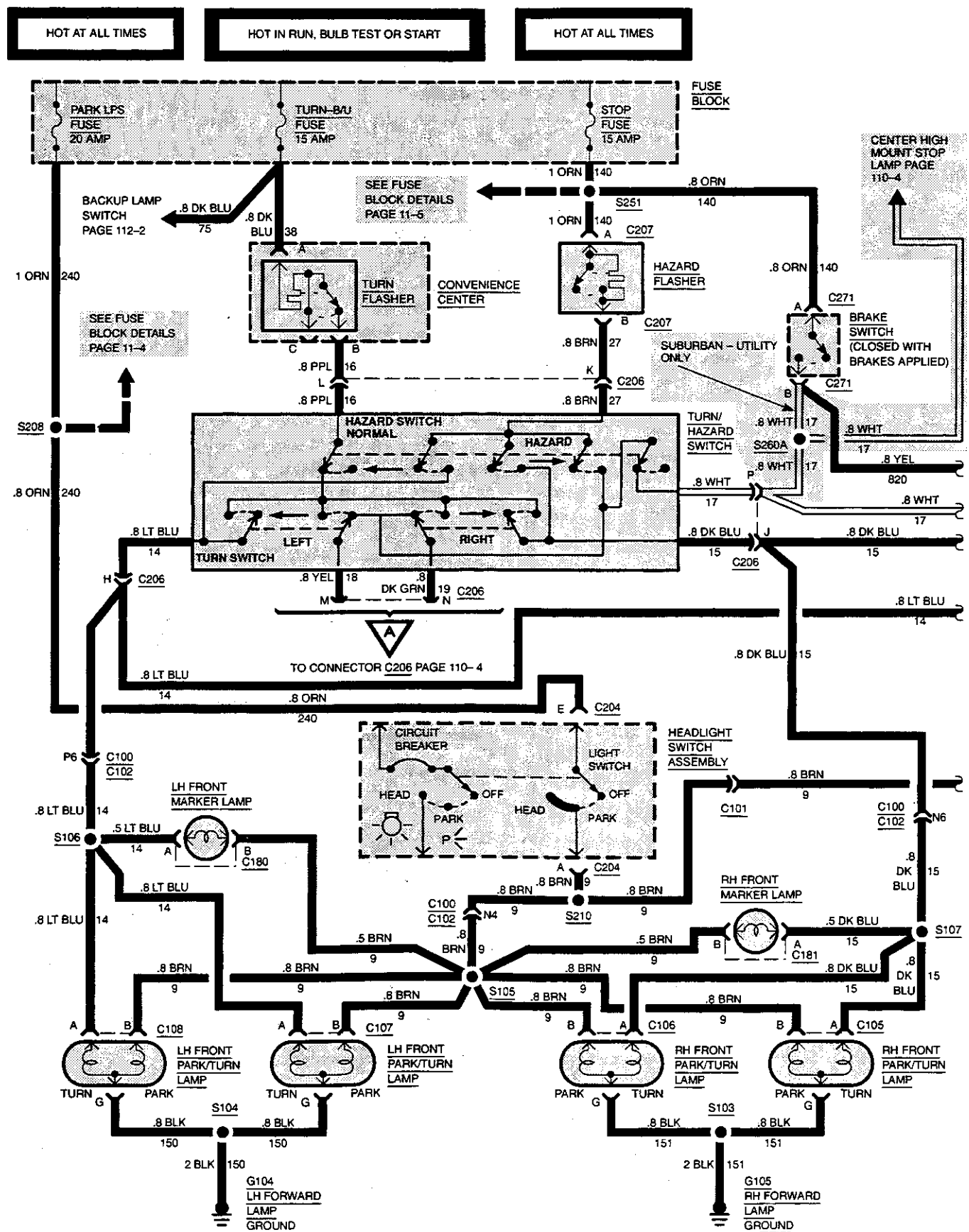


REAR PARK/MARKER AND LICENSE LAMPS



## 8A-110-6 EXTERIOR LAMPS

## TURN AND HAZARD LAMPS PARK AND MARKER LAMPS

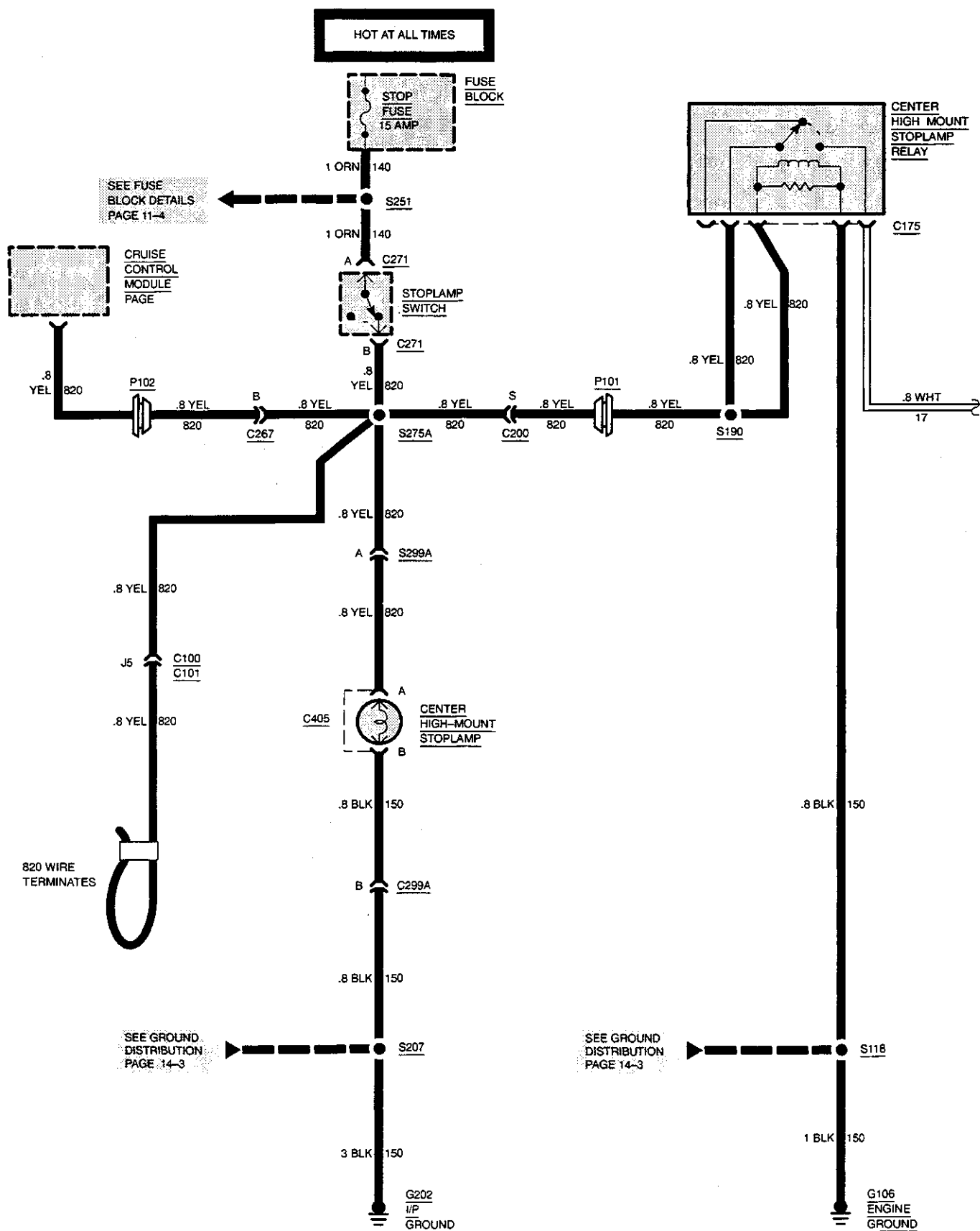


## TURN AND HAZARD LAMPS PARK AND MARKER LAMPS



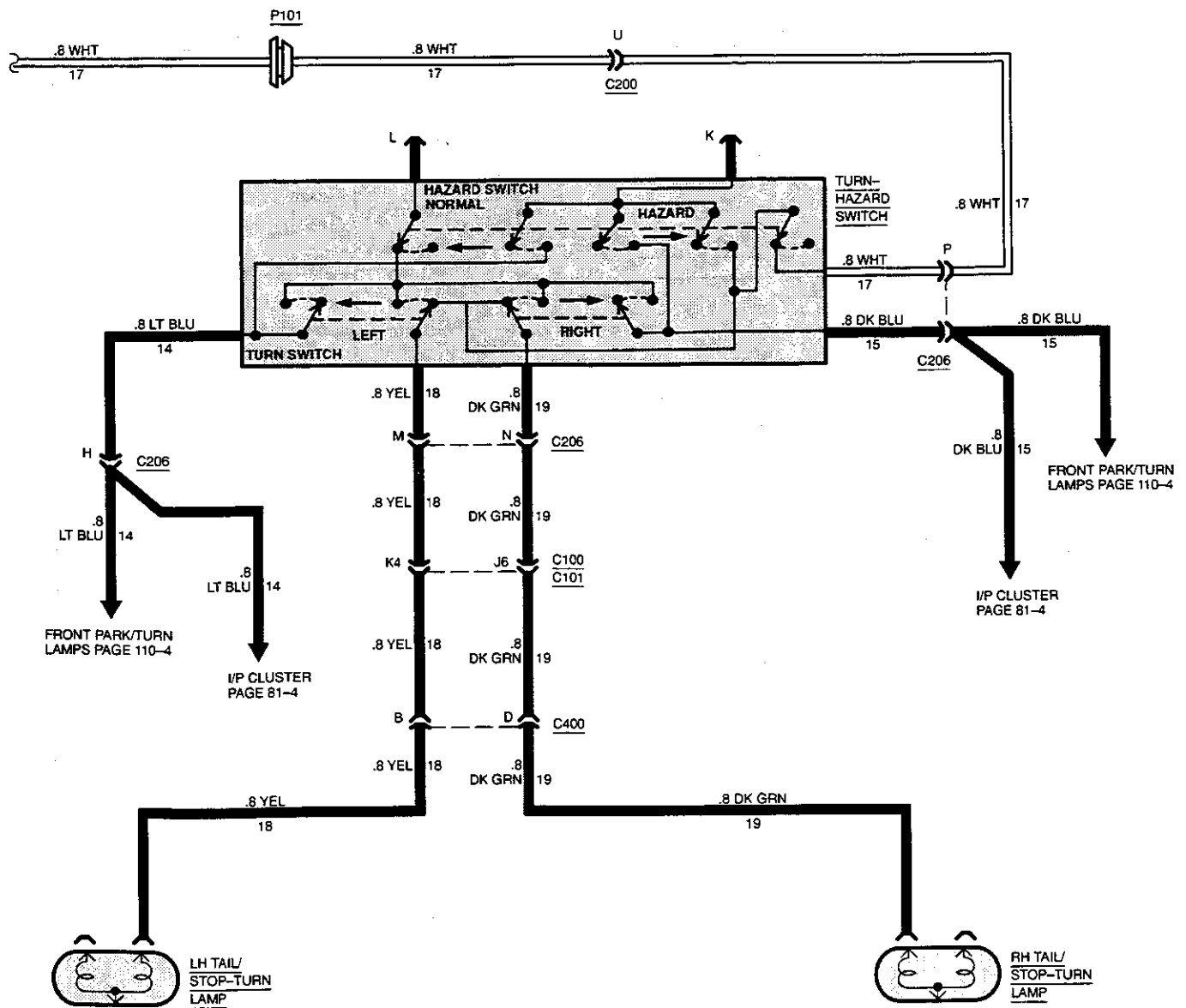
# 8A-110-8 EXTERIOR LAMPS

## STOPLAMP (PICKUP)

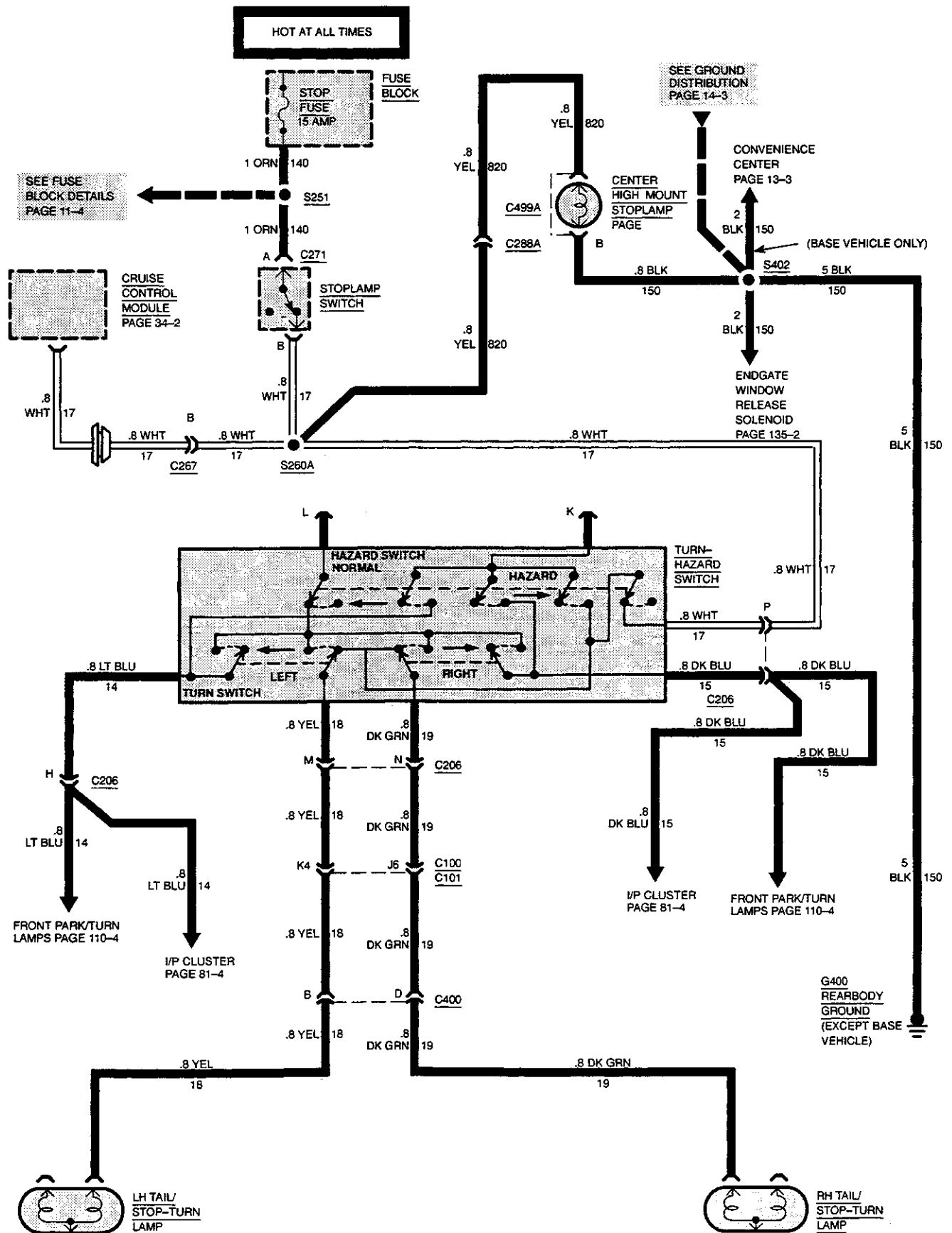


# EXTERIOR LAMPS 8A-110-9

## STOPLAMP (PICKUP)

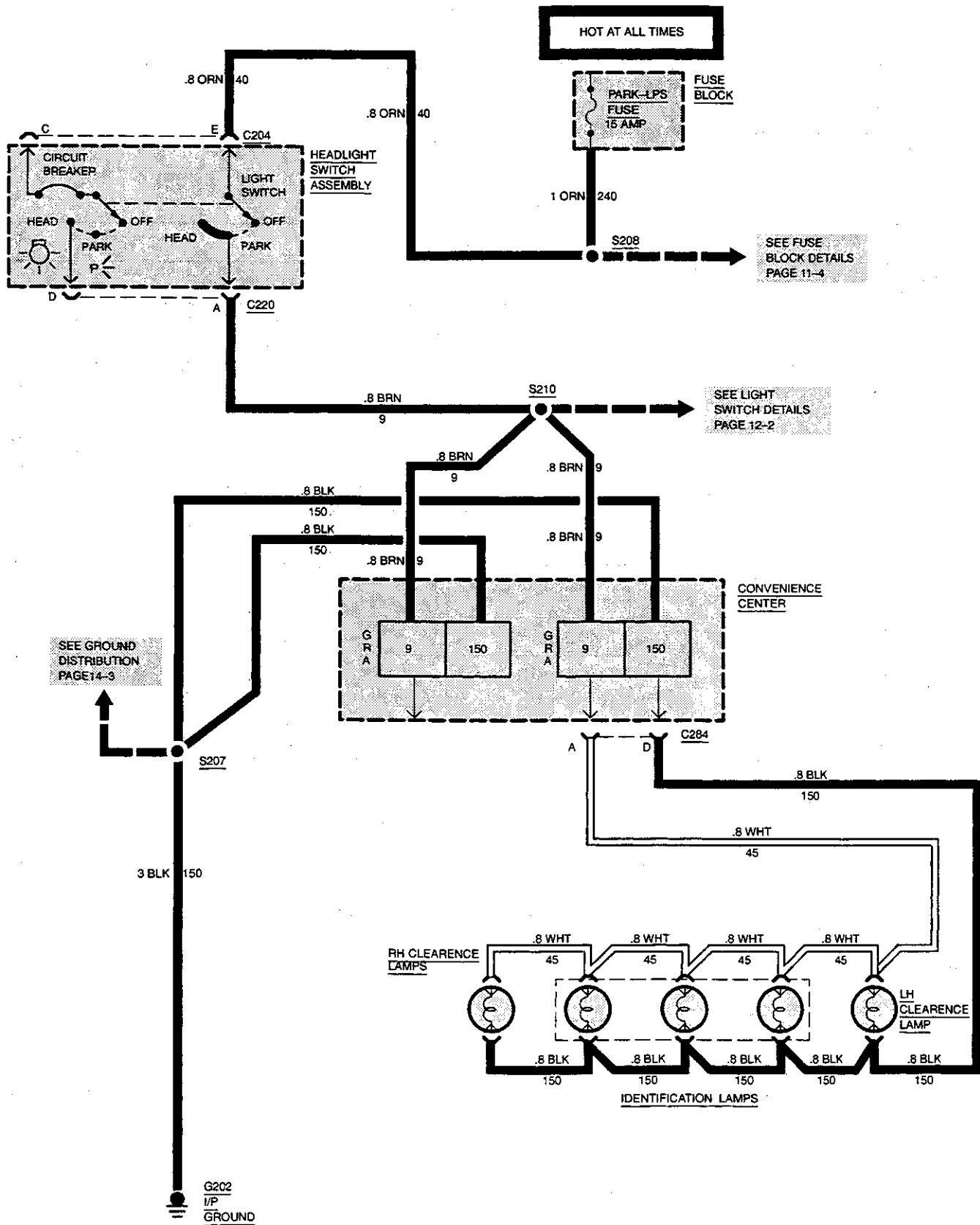


## STOPLAMP (SUBURBAN-UTILITY)



# EXTERIOR LAMPS 8A-110-11

## ROOR MARKER LAMPS



## 8A-110-12 EXTERIOR LAMPS

### DIAGNOSIS — REAR EXTERIOR LAMPS

#### PRELIMINARY CHECKS:

1. Rear lamp systems (taillamps, clearance lamps, endgate lamps and license plate lamps) all receive voltage from same wire circuit BRN (9) and share same ground terminal G410. If only one system is not working, LOCATE and REPAIR open in wiring and/or bulbs that pertain to that system.
2. Check condition of STOP, PARK LP, TURN-B/U Fuse(s). If fuse(s) is blown, locate and repair source of overload. Replace fuse(s).

#### STOPLAMPS DO NOT OPERATE

TEST	RESULT	ACTION
1. Connect test lamp from ORN (140) wire at stoplamp switch connector C271 to ground.	Test lamp lights.	GO to step 3.
	Test lamp does not light.	GO to step 2.
2. Place hazard flasher switch to ON position.	Hazard flashers operate.	LOCATE and REPAIR open in ORN (140) wire between splice S251 and stoplamp switch connector C271.
	Hazard flashers do not operate.	LOCATE and REPAIR open in ORN (140) wire between fuse block and splice S251.
3. Connect test lamp from WHT (17) wire at stoplamp switch connector C271 to ground. Depress brake pedal.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	REPLACE stoplamp switch.
4. Connect test lamp from WHT (17) wire at turn signal switch connector C206 to ground. Depress brake pedal.	Test lamp lights.	GO to step 5.
	Test lamp does not light.	LOCATE and REPAIR open in WHT (17) wire between stoplamp switch connector C271 and turn signal switch connector C206.
5. Connect test lamp from YEL (18) or DK GRN (19) wire at turn signal switch connector C206 to ground. Depress brake pedal.	Test lamp lights.	VERIFY condition of connectors C100 and C400.
	Test lamp does not light.	REPLACE turn signal switch.

#### STOPLAMPS DO NOT OPERATE ON ONE SIDE

TEST	RESULT	ACTION
1. Connect test lamp from YEL (18) or DK GRN (19) wire at affected stoplamp connector to ground. Depress brake pedal.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	GO to step 2.
2. Connect test lamp from YEL (18) or DK GRN (19) wire (depending on side with failure) at connector C400 to ground. Depress brake pedal.	Test lamp lights.	LOCATE and REPAIR open in YEL (18) or DK GRN (19) wire between connector C400 and affected stoplamp.
	Test lamp does not light.	GO to step 3.



**STOPLAMPS DO NOT OPERATE ON ONE SIDE (CONTINUED)**

TEST	RESULT	ACTION
3. Connect test lamp from YEL (18) or DK GRN (19) wire (depending on side with failure) at connector C101 to ground. Depress brake pedal.	Test lamp lights.	LOCATE and REPAIR open in YEL (18) or DK GRN (19) wire between connector C101 and connector C400.
	Test lamp does not light.	LOCATE and REPAIR open in YEL (18) or DK GRN (19) wire between connector C101 and turn signal switch connector C206. If no open is found, REPLACE turn signal switch.
4. Connect self-powered test lamp from BLK (150) wire at affected stoplamp to ground.	Test lamp lights.	REPLACE stoplamp.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire between stoplamp and ground G410.

**REAR LAMP SYSTEMS DO NOT OPERATE**

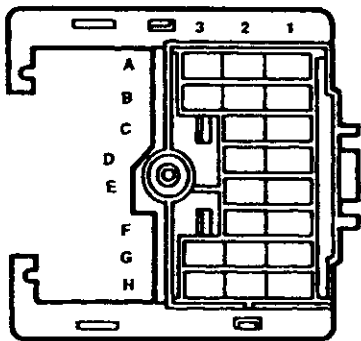
TEST	RESULT	ACTION
1. Place light switch in PARK. Observe front park and marker lamps.	Front park and marker lamps operate.	GO to step 3.
	Front park and marker lamps do not operate.	GO to step 2.
2. Push horn button.	Horn sounds.	LOCATE and REPAIR open in ORN (240) wire between splice S209 and light switch connector C204. If no open is found, REPLACE light switch.
	Horn does not sound.	LOCATE and REPAIR open in ORN (240) wire between fuse block and splice S209.
3. Connect test lamp from BRN (9) wire at LH tail, stop, turn and backup lamp connector C427 to ground.	Test lamp lights.	LOCATE and REPAIR open in BLK (150) wire between splice S425 and ground G410 (all except chassis cab), CHECK condition of ground G410 (chassis cab).
	Test lamp does not light.	GO to step 4.
4. Connect test lamp from BRN (9) wire at connector C400 to ground.	Test lamp lights.	LOCATE and REPAIR open in BRN (9) wire between connector C400 and splice S427.
	Test lamp does not light.	GO to step 5.
5. Connect test lamp from BRN (9) connector C101 to ground.	Test lamp lights.	LOCATE and REPAIR open in BRN (9) wire between connector C101 and connector C400.
	Test lamp does not light.	LOCATE and REPAIR open in BRN (9) wire between splice S210 and connector C101.

## 8A-110-14 EXTERIOR LAMPS

### TURN SIGNALS DO NOT OPERATE ON ONE SIDE

TEST	RESULT	ACTION
1. Turn hazard flasher ON. Observe lights on side of turn signals that does not work.	Lights flash.	GO to step 2.
	Lights do not flash.	GO to step 3.
2. Turn hazard warning system OFF. Place ignition switch in RUN and turn signal switch to side that does not work. Connect test lamp from LT BLU (14) or DK BLU (15) wire (depending on which side does not work) at turn signal switch connector C206 to ground.	Test lamp flashes.	System operating normally.
	Test lamp does not flash.	REPLACE turn signal switch.
3. Connect test lamp from LT BLU (14) or DK BLU (15) wire (depending on which side does not work) at park lamp connector C105, C106, C107 or C108 to ground.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	LOCATE and REPAIR open in either LT BLU (14) or DK BLU (15) wires between affected lamp and connector C102 or connector C100 and turn signal switch connector C206.
4. Connect test lamp from LT BLU (14) or DK BLU (15) wire to BLK (150 or 151) wire at park lamp C105, C106, C107 or C108.	Test lamp lights.	CHECK condition of bulb sockets.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150 or 151) wire between affected lamp and ground G104 or G105.

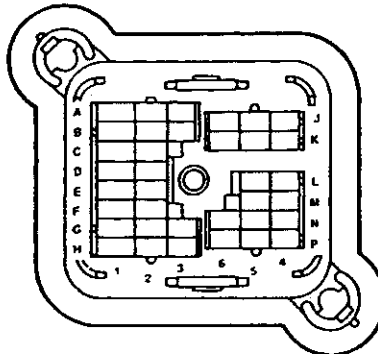
**12020183**



**GRAY**  
Metri-Pack

**C100**  
Bulkhead Connector – Eng

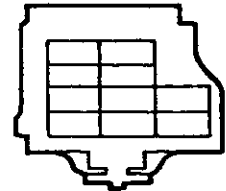
**12020184**



**GRAY**  
Metri-Pack

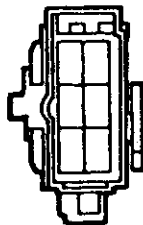
**C100**  
Bulkhead Connector – I/P

**12020100**



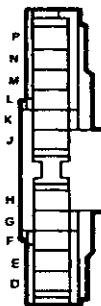
**C102**  
Bulkhead – Forward Lamps

**12020099**



**C101**  
Bulkhead – Rear Lamps

**12004147**



**BLACK**  
Pac/on  
**C206**  
Turn Signal Switch

**12004148**



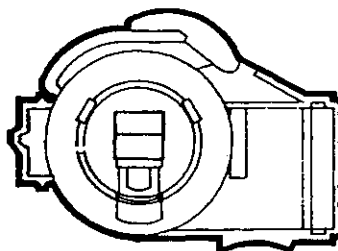
**BLACK**  
Pac/on  
**C206**  
Turn Signal Switch

**12040551**



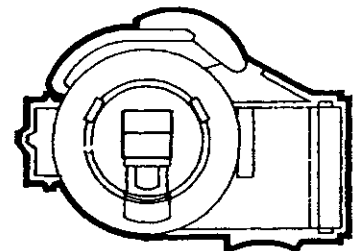
**BLACK**  
Metri-Pack 480  
**C271**  
TCC/Brake Switch

**12089345**



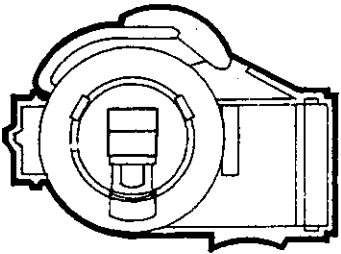
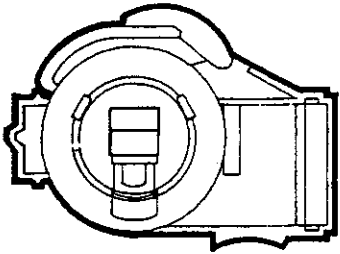



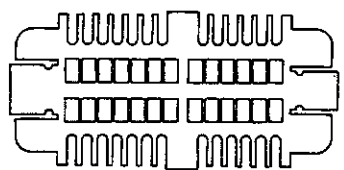
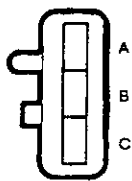
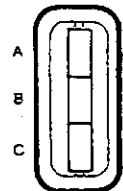
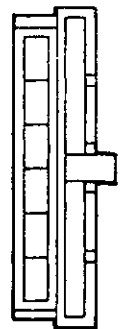
**GRAY**  
**C105**  
RH Park and Turn Signal Lamp

**12089345**



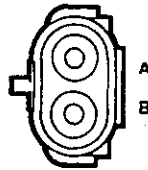
**GRAY**  
**C106**  
RH Park and Turn Signal Lamp

## 8A-110-16 EXTERIOR LAMPS

<p>12089345</p>  <p>GRAY</p> <p>C107 LH Park and Turn Signal Lamp</p>	<p>12089345</p>  <p>GRAY</p> <p>C108 LH Park and Turn Signal Lamp</p>	<p>12077765</p>  <p>CREAM Molded-on</p> <p>C180 LH Side Marker Lamp</p>
<p>12077765</p>  <p>CREAM Molded-on</p> <p>C181 RH Side Marker Lamp</p>	<p>02973385</p>  <p>BLACK 56 Series</p> <p>C271 Hazard Flasher</p>	<p>12089908</p>  <p>BLACK Bow Series</p> <p>C203 I/P Cluster</p>
<p>12047781</p>  <p>BLACK Metri-Pack 150</p> <p>C267 Cruise Control Module to PCM</p>	<p>12047782</p>  <p>BLACK Metri-Pack 150</p> <p>C267 PCM to Cruise Control Module</p>	<p>12034061</p>  <p>NATURAL Metri-Pack 480</p> <p>C204 Light Switch</p>

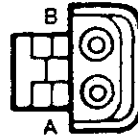
# EXTERIOR LAMPS 8A-110-17

12010973



**BLACK**  
Weather Pack  
**C403**  
Endgate to Rear Lamps Harness

12015792



**BLACK**  
Weather Pack  
**C403**  
Rear Lamps Harness to Endgate

12020348



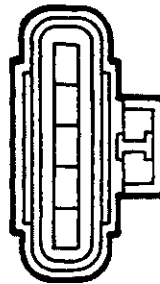
**CREAM**  
Molded On  
**C409**  
License Lamp (W/VF6)

12020348



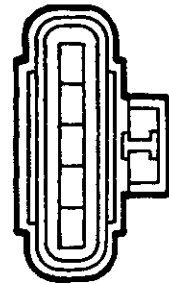
**CREAM**  
Molded On  
**C410**  
License Lamp (W/VF6)

12065862



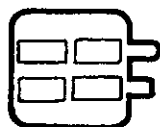
**BLACK**  
Metri-Pack 280  
**C427**  
LH Tail and Stoplamp

12065862



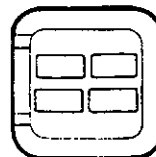
**BLACK**  
Metri-Pack 280  
**C428**  
RH Tail and Stoplamp

12047785



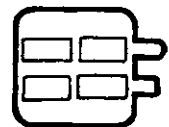
**BLACK**  
Metri-Pack 150  
**C299A**  
In-Line CHMSL to I/P

12047786



**BLACK**  
Metri-Pack 150  
**C299A**  
In-Line I/P to CHMSL

12047785



**BLACK**  
Metri-Pack 150  
**C405**  
CHMSL

## 8A-110-18 EXTERIOR LAMPS

12047683



**BLACK**  
Metri-Pack 150  
**C288A**  
In-Line I/P to CHMSL (Suburban)

12047682



**BLACK**  
Metri-Pack 150  
**C288A**  
In-Line CHMSL to I/P (Suburban)

12033701



**C284**  
Front Identifications Lamps

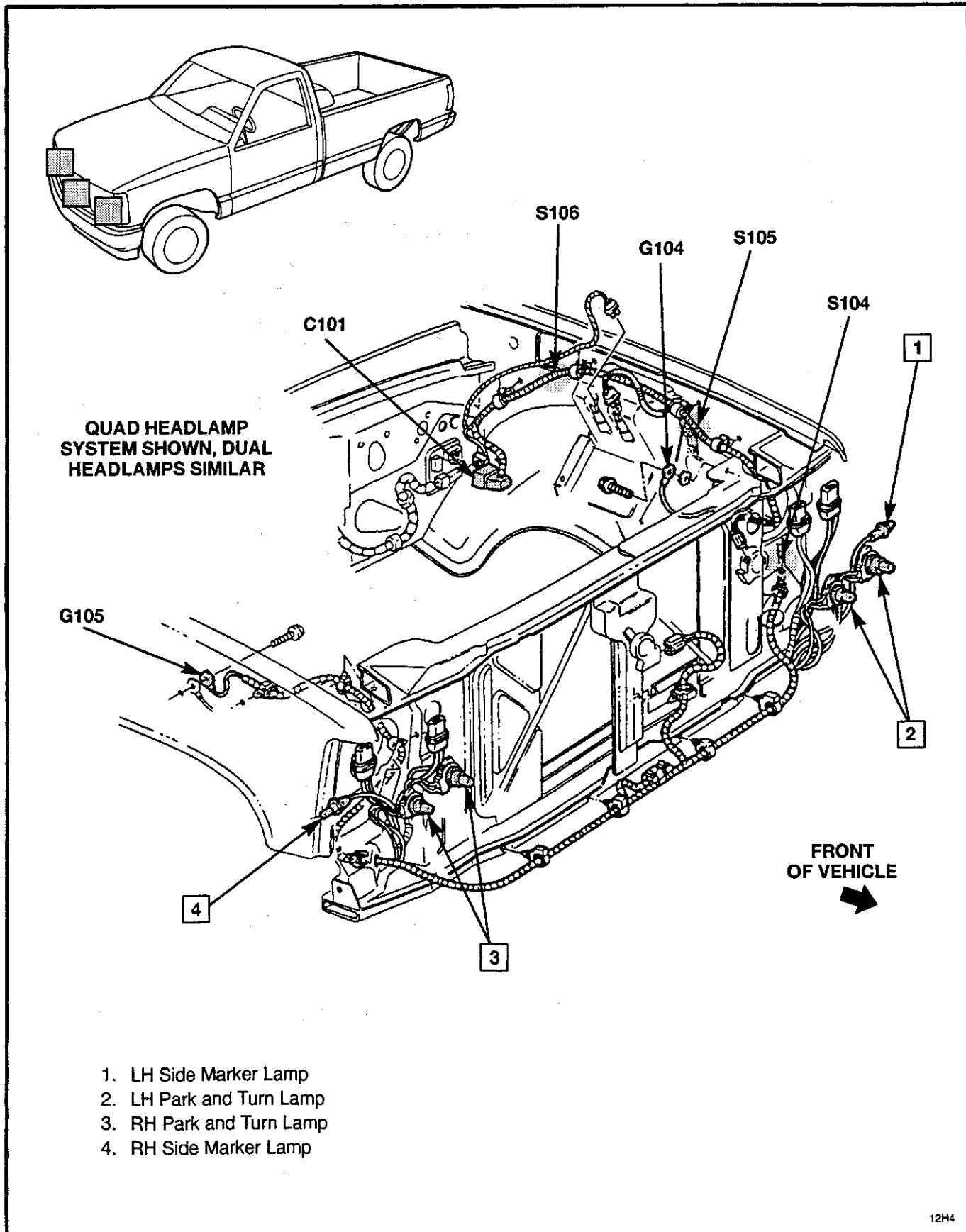


Figure 1 — Forward Lamps Harness, Quad Headlamps

## 8A-110-20 EXTERIOR LAMPS

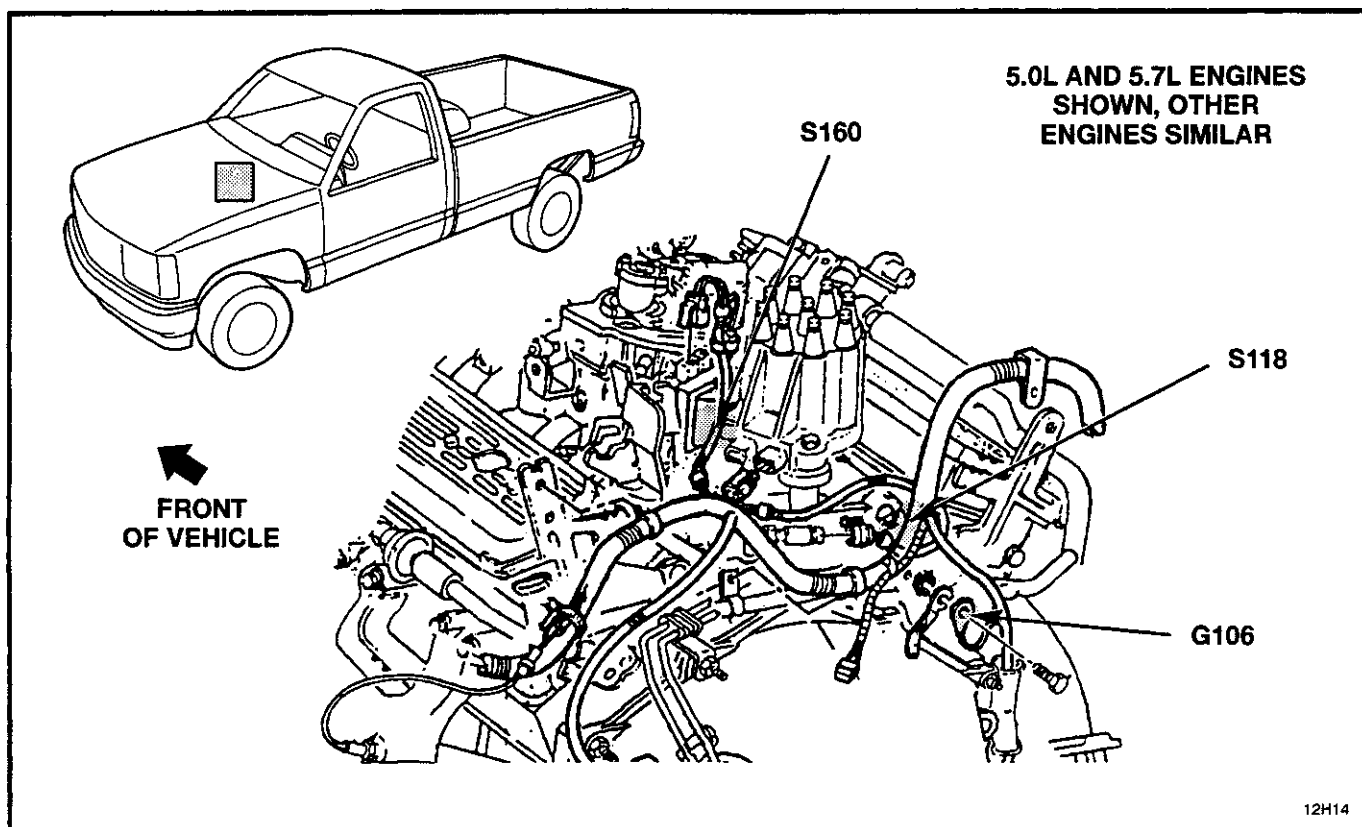


Figure 2 — LH Side of Engine, 5.0L (305 CID) 5.7L (350 CID) — Gasoline Engines

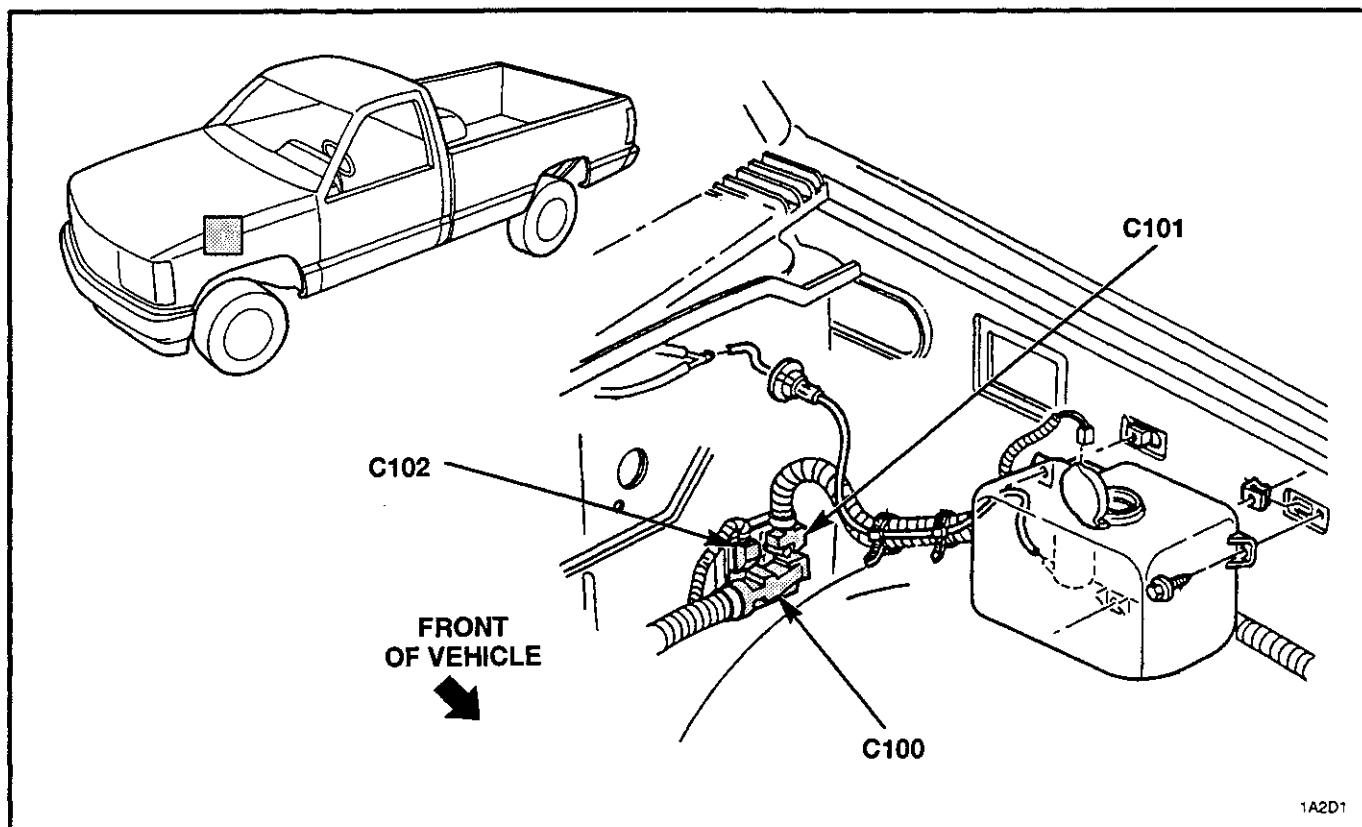


Figure 3 — Windshield Washer Reservoir and Pump, Except Suburban and Utility



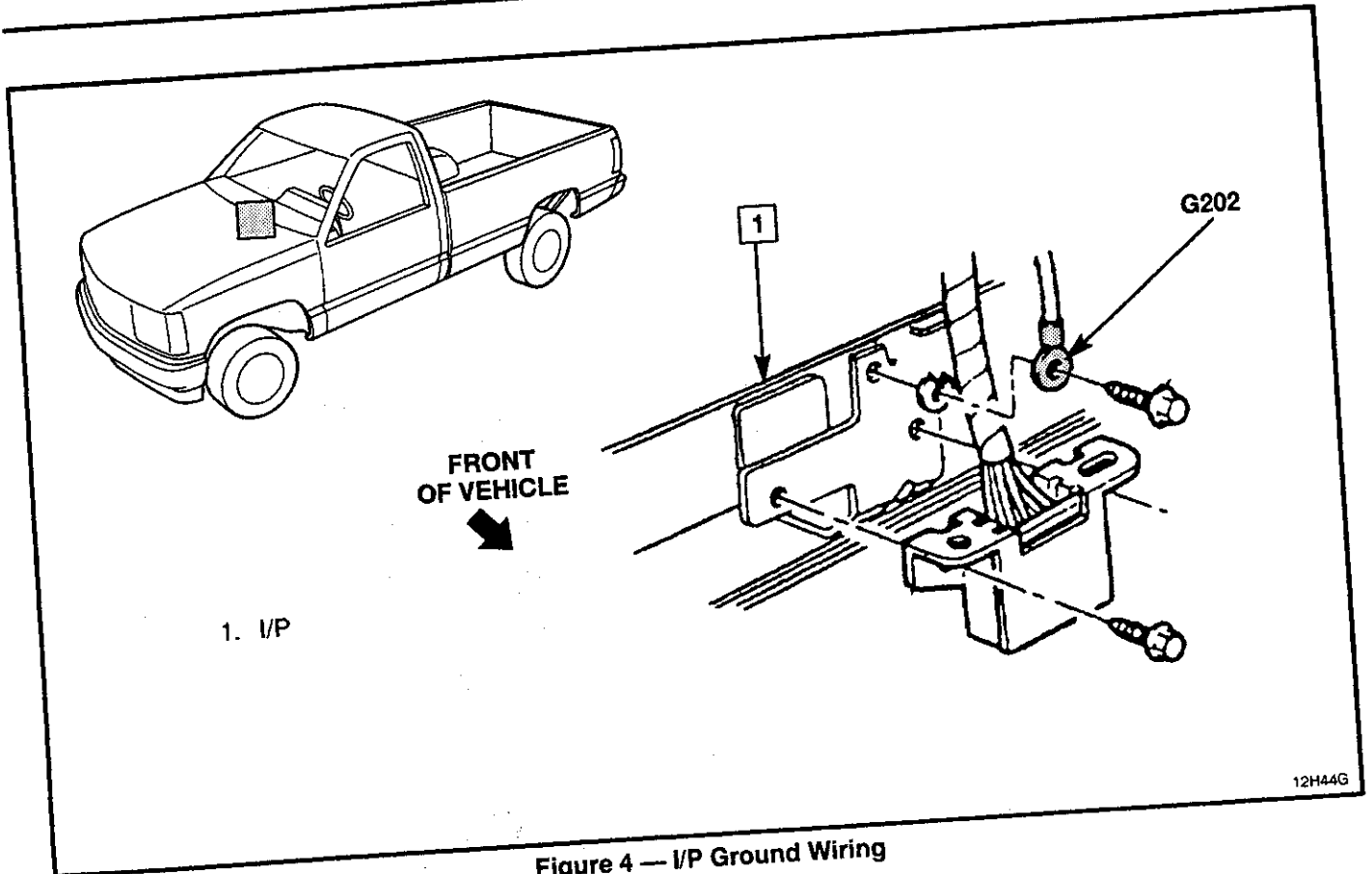


Figure 4 — I/P Ground Wiring

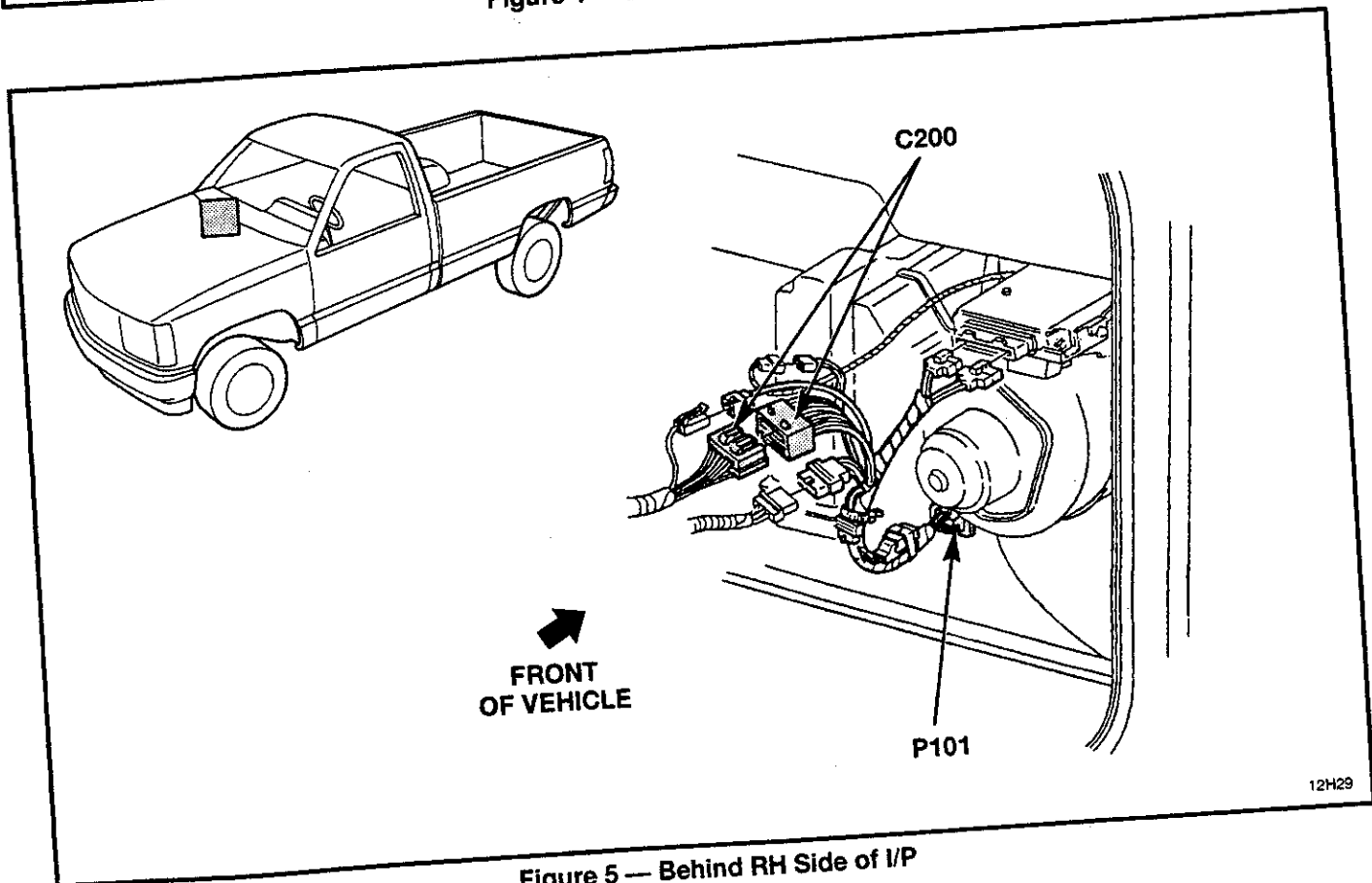
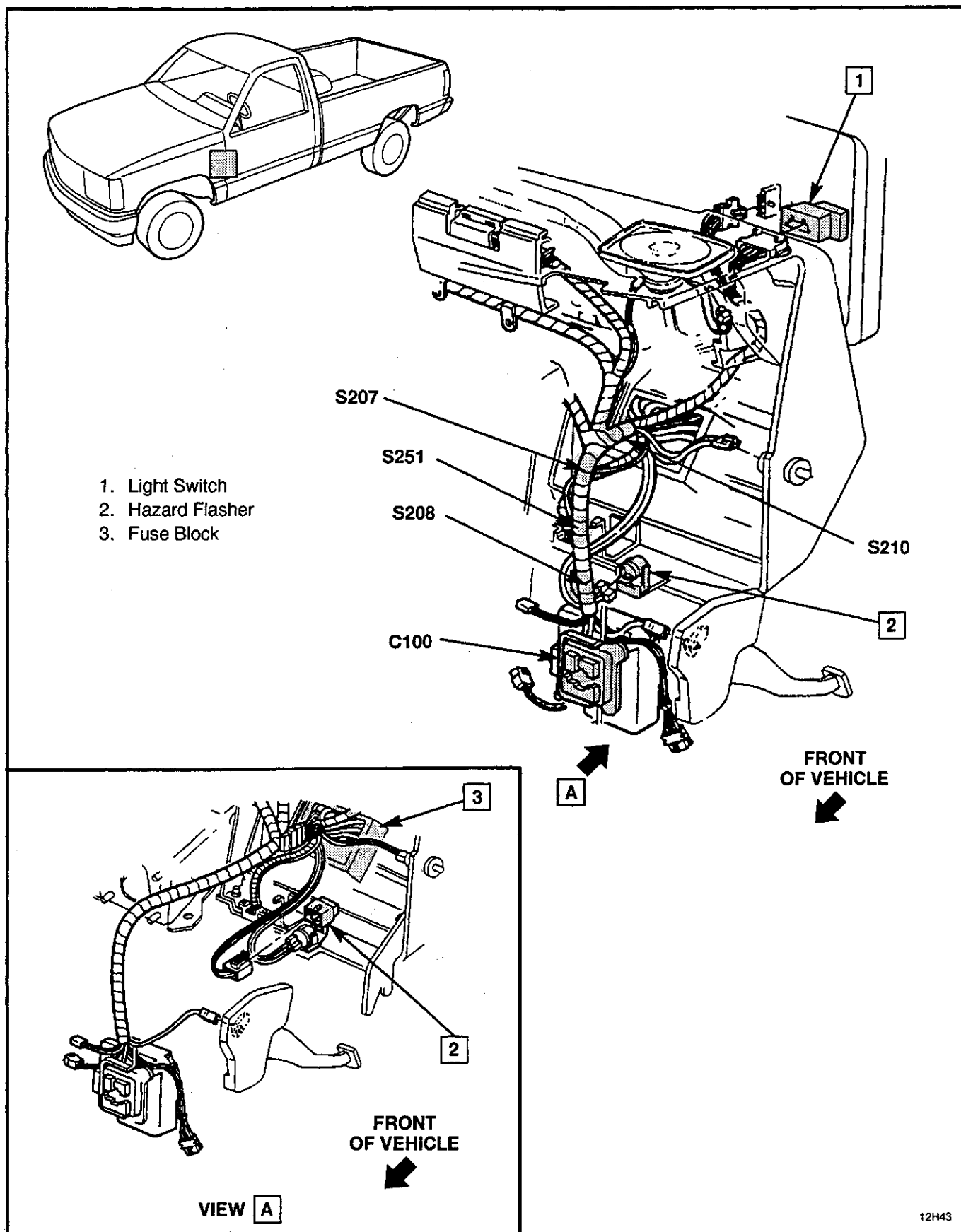


Figure 5 — Behind RH Side of I/P

## 8A-110-22 EXTERIOR LAMPS



12H43

Figure 6 — LH Side of Instrument Panel

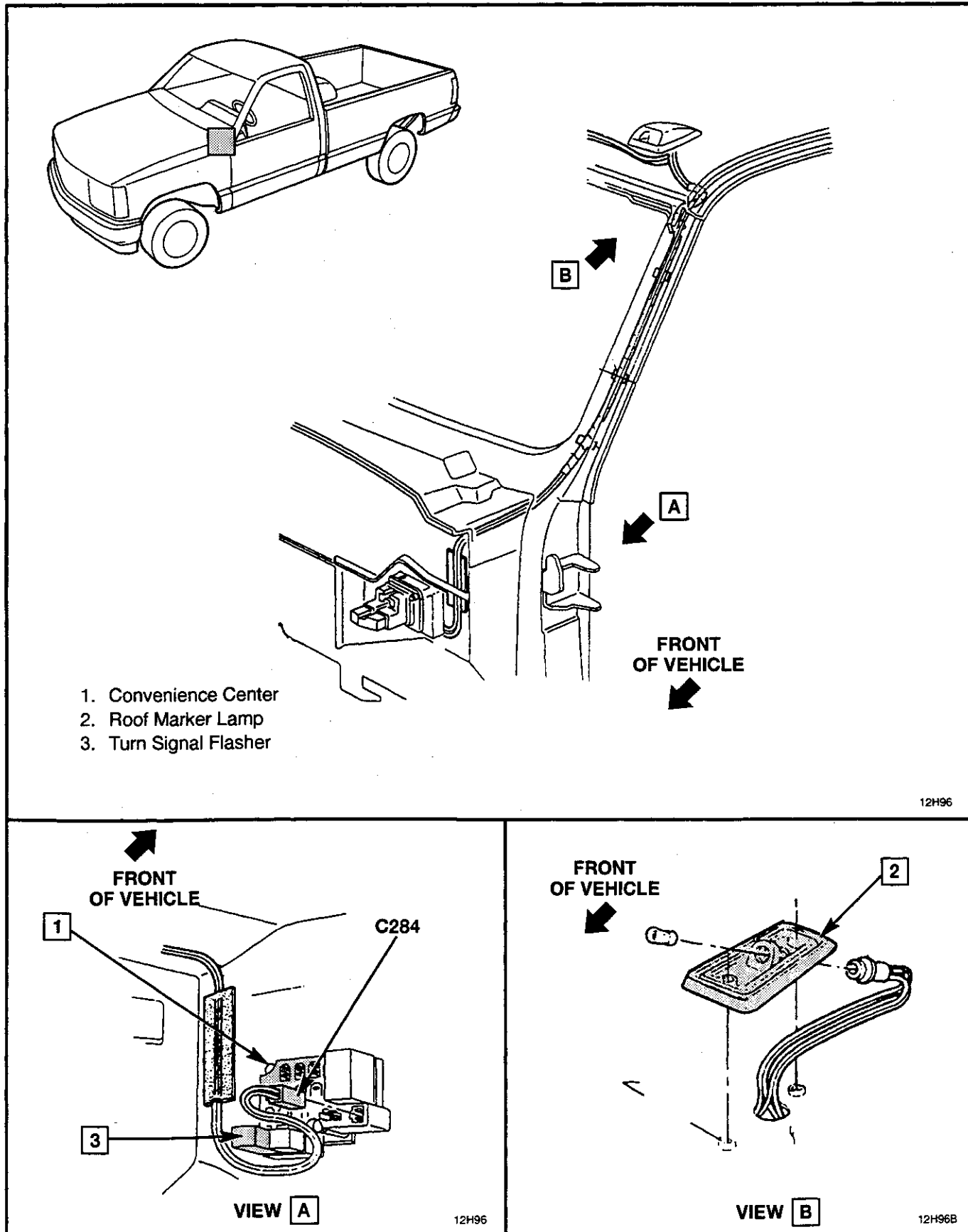


Figure 7 — Roof Marker Lamp Wiring

## 8A-110-24 EXTERIOR LAMPS

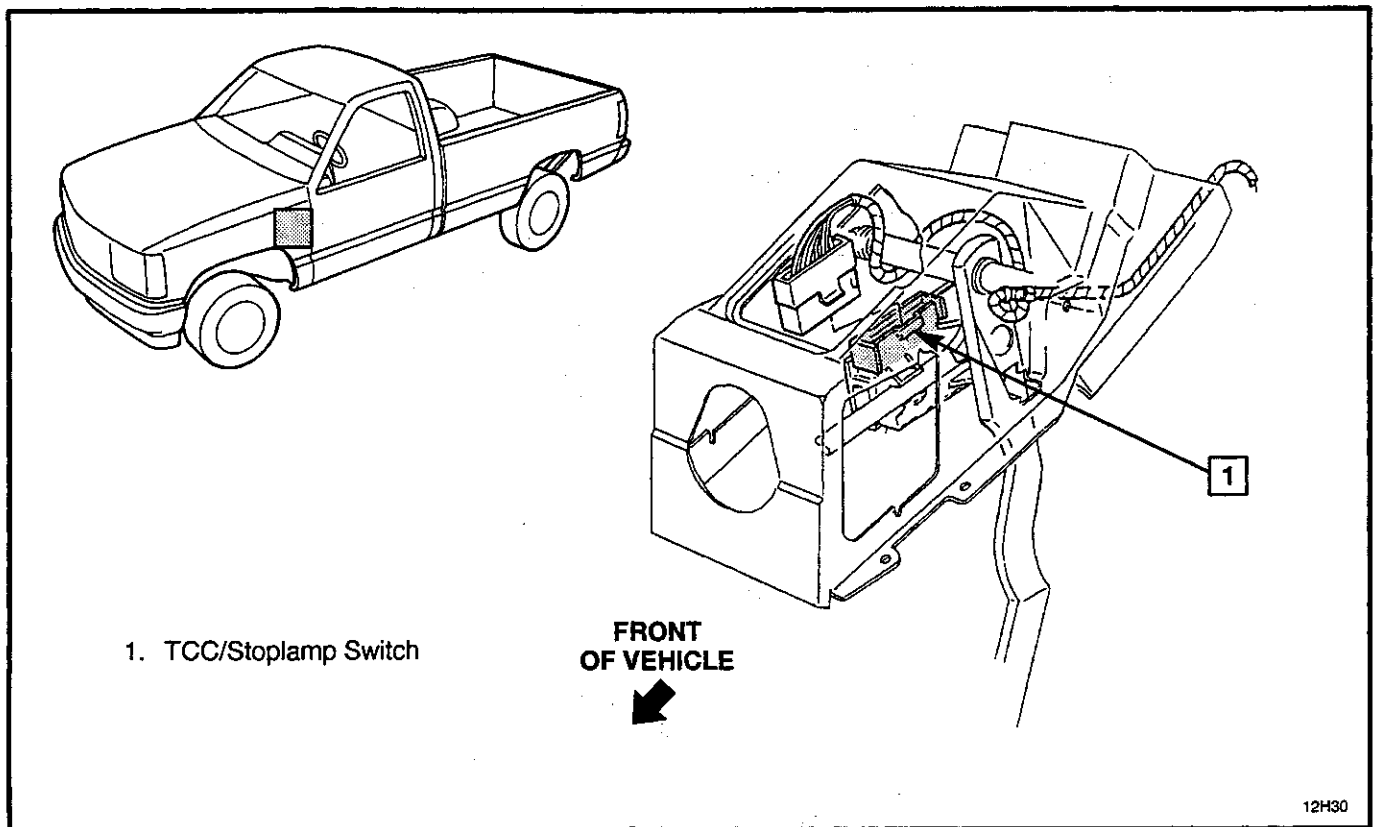


Figure 8 — TCC/Stoplamp Switch

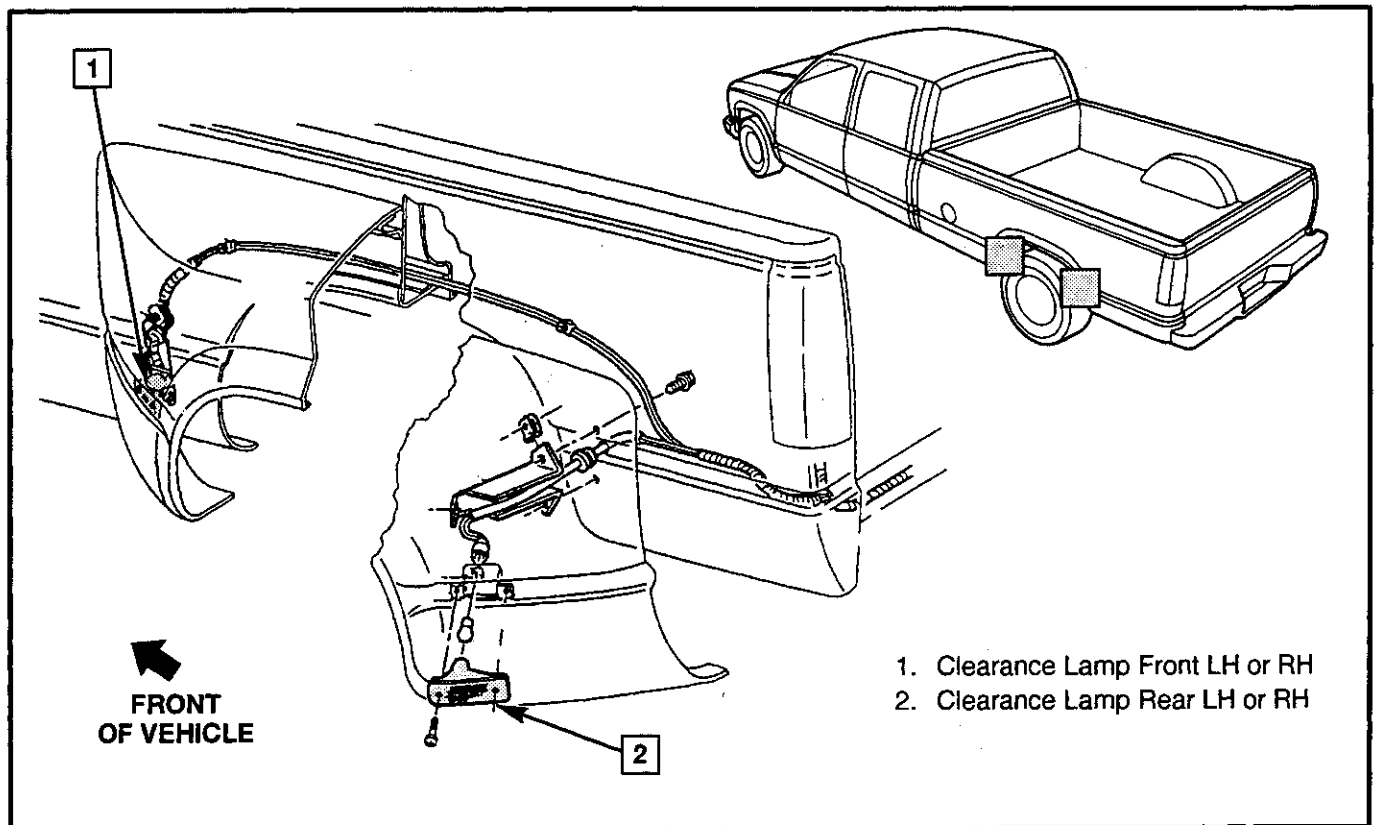
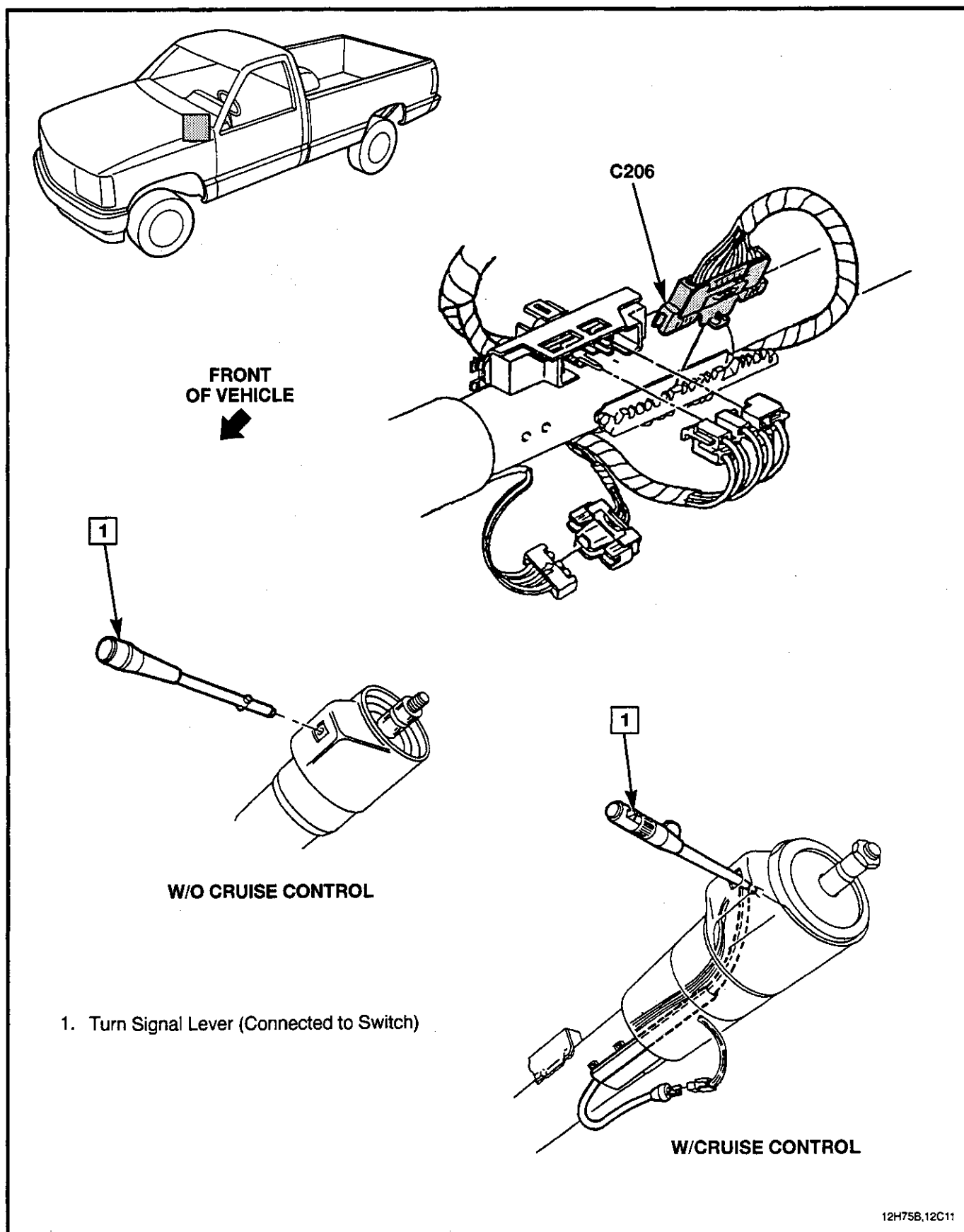


Figure 9 — Rear Clearance Lamps W/Dual Rear Wheels



1. Turn Signal Lever (Connected to Switch)

W/CRUISE CONTROL

12H75B, 12C11

Figure 10 — RH side of Steering Column Wiring

## 8A-110-26 EXTERIOR LAMPS

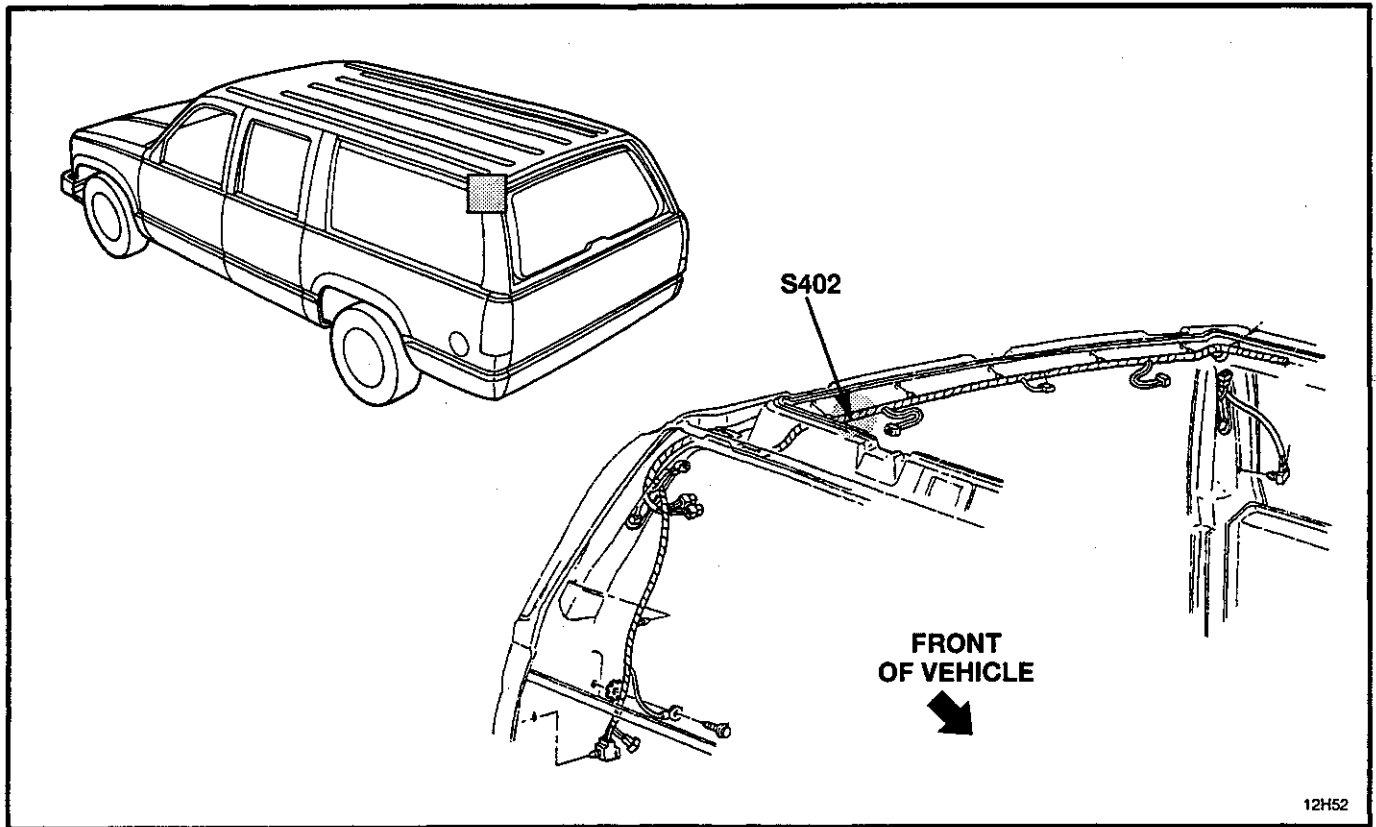


Figure 11 — Body Wiring, Rear – Suburban

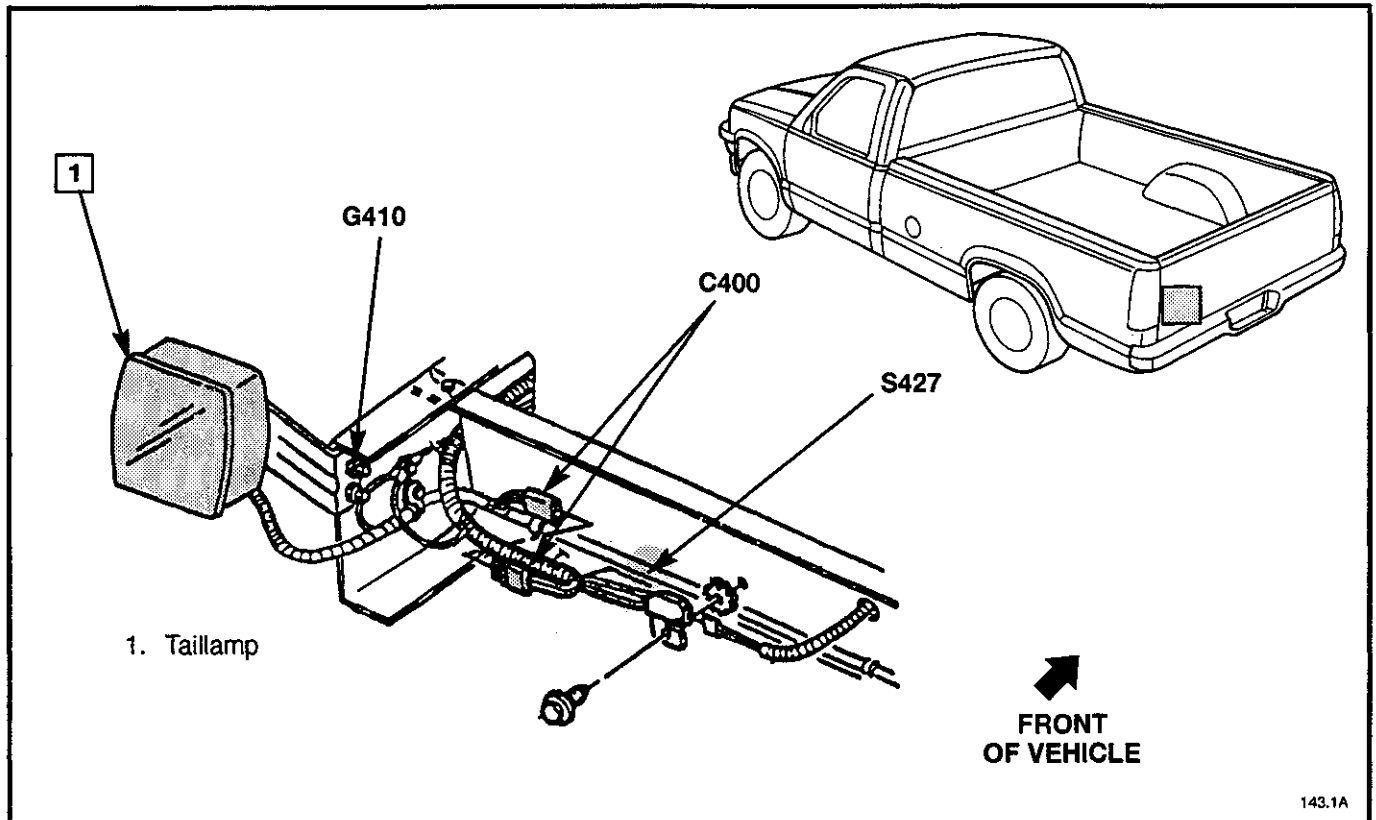


Figure 12 — Rear Lamp Wiring – Chassis Cab

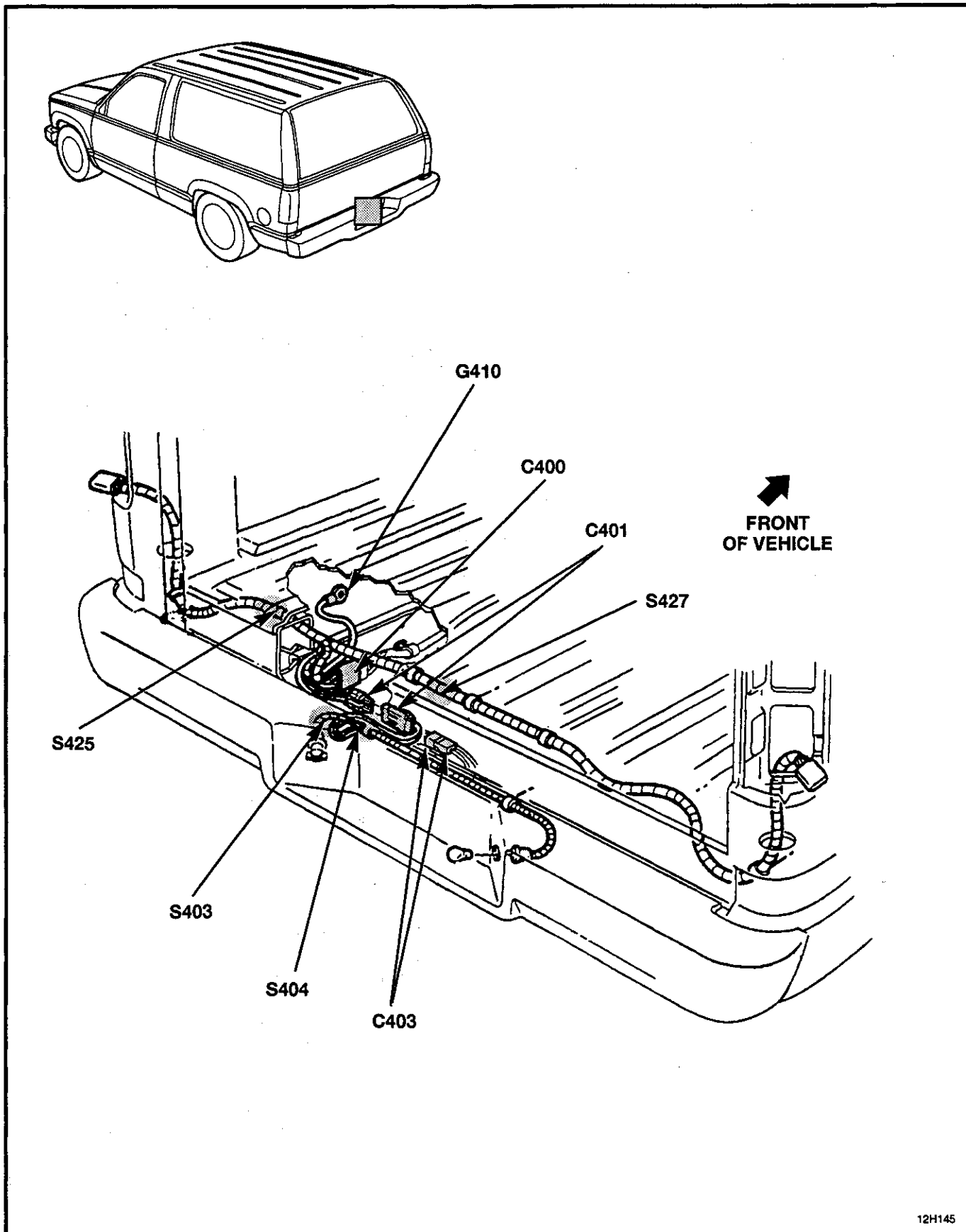
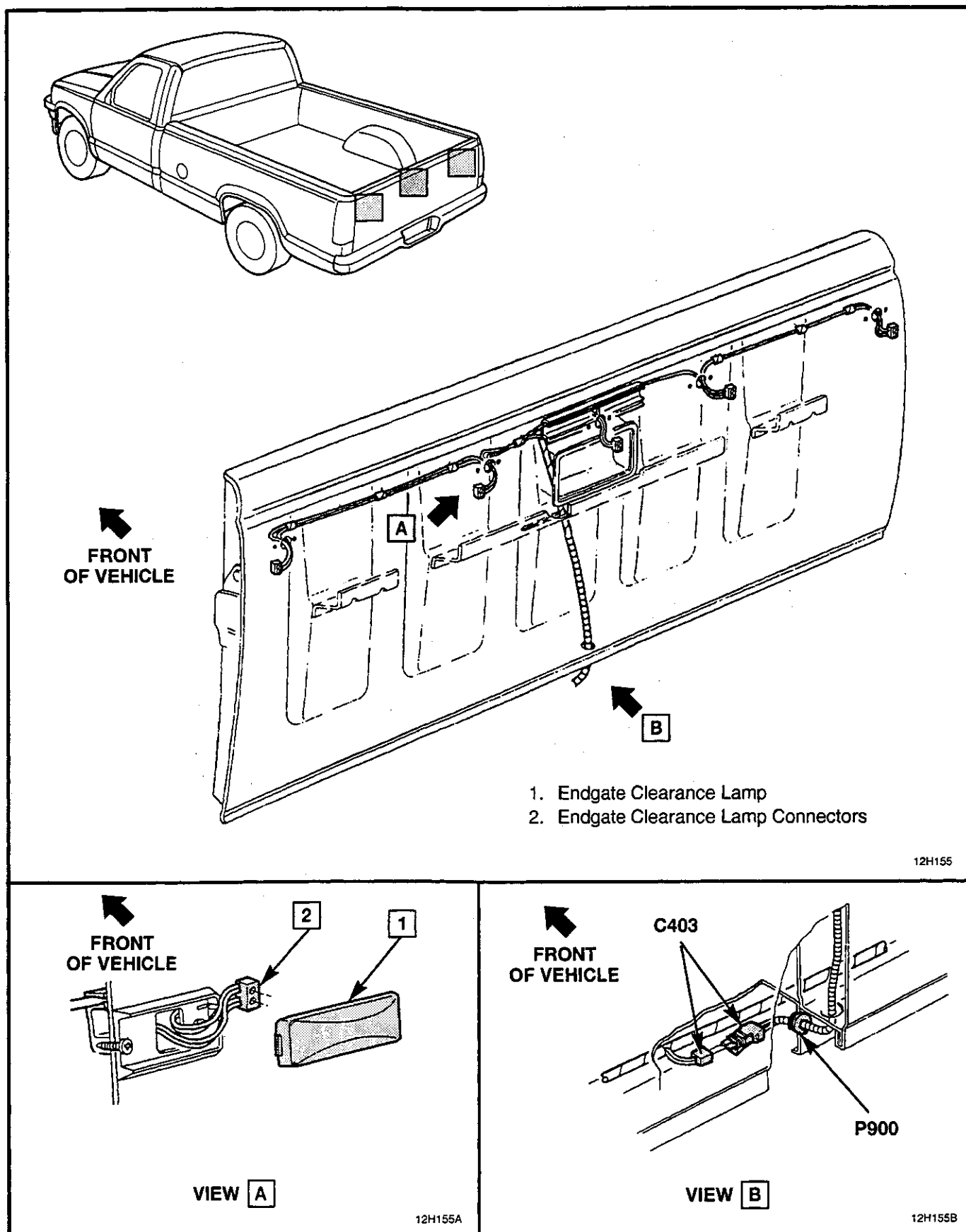


Figure 13 — Tail and Stoplamp Harness Wiring (Pickup, Utility, and Suburban)

## 8A-110-28 EXTERIOR LAMPS





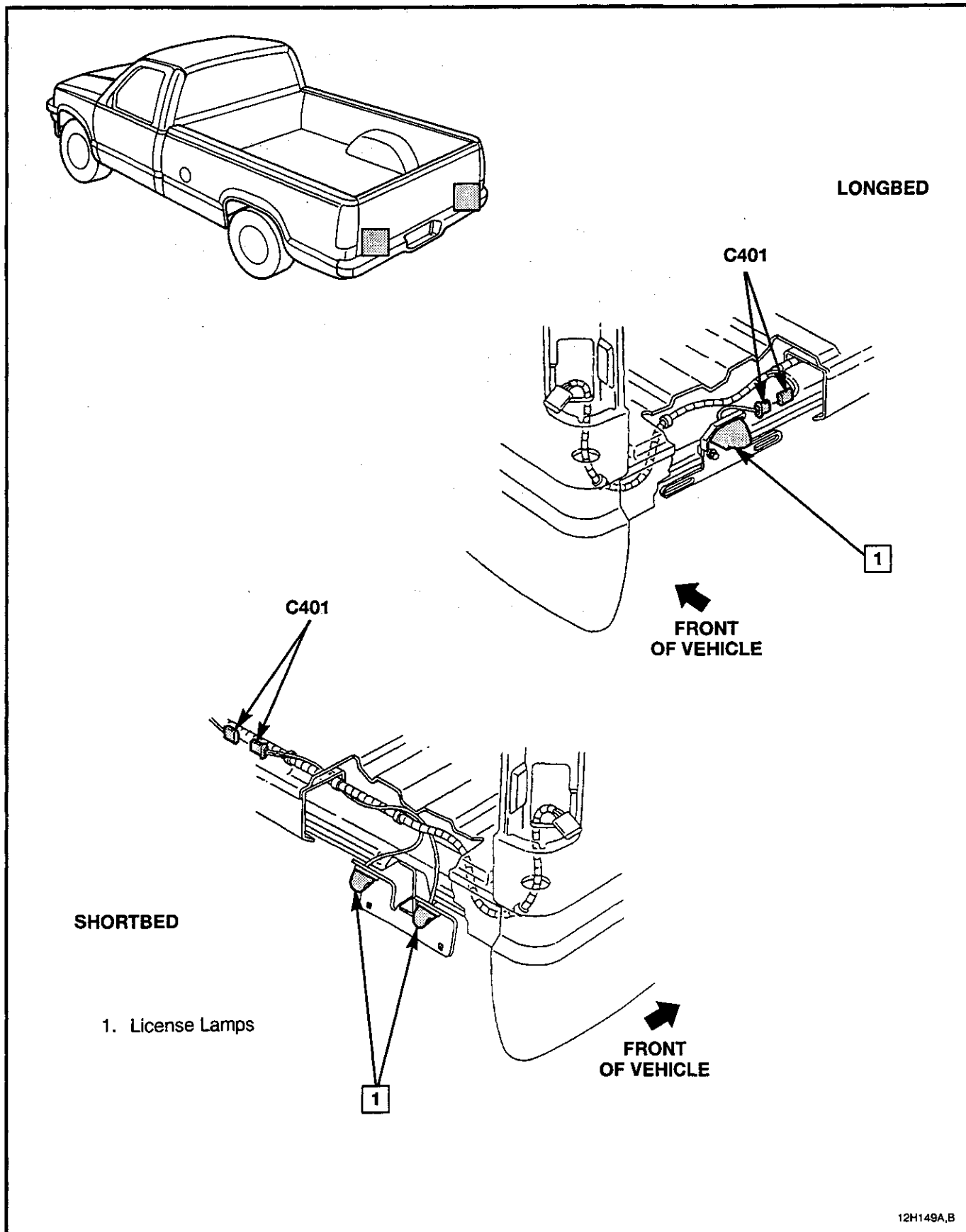


Figure 15 — License Lamps Without Bumper

## 8A-110-30 EXTERIOR LAMPS

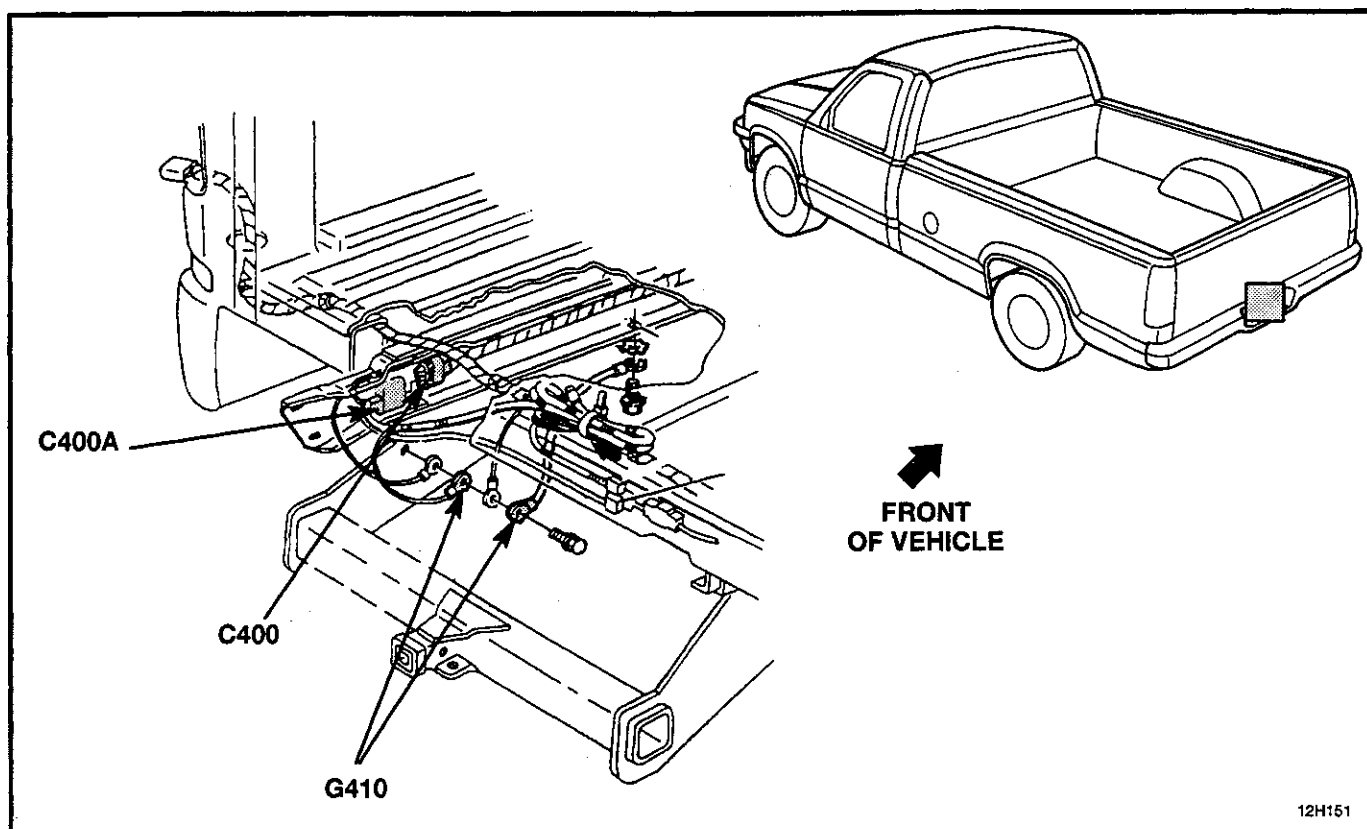


Figure 16 — Trailer Wiring W/Platform Hitch, 2-Door and Extended Cab Pickup

## **CIRCUIT OPERATION**

### **BACKUP LAMPS**

With the Ignition Switch in RUN or START, voltage is supplied through the TURN-B/U Fuse to the Backup Lamp Switch. Whenever the gear selector lever is shifted to REVERSE the Backup Lamp Switch closes and voltage is supplied to the Backup Lamps and the Lamps turn on.

### **COMPONENT LOCATION**

### **Page — Figure**

Backup Lamp Switch (Auto Trans) .. Top of steering column .....	112-6	3
Backup Lamp Switch (Man Trans) .. LH top of transmission .....	112-5	2
Tail, Stop, Turn Signal and Backup Lamp, LH .....	LH rear of vehicle .....	112-8 5
Tail, Stop, Turn Signal and Backup Lamp, RH .....	RH rear of vehicle .....	Not Shown

### **CONNECTORS:**

C100 .....	At bulkhead connector .....	112-5	1
C101 .....	At bulkhead connector .....	112-5	1
C400 (Chassis Cab) .....	At rear crossmember, LH side .....	112-8	5
C400 (Pickup, Utility and Suburban) .....	At rear crossmember, LH side .....	112-7	4

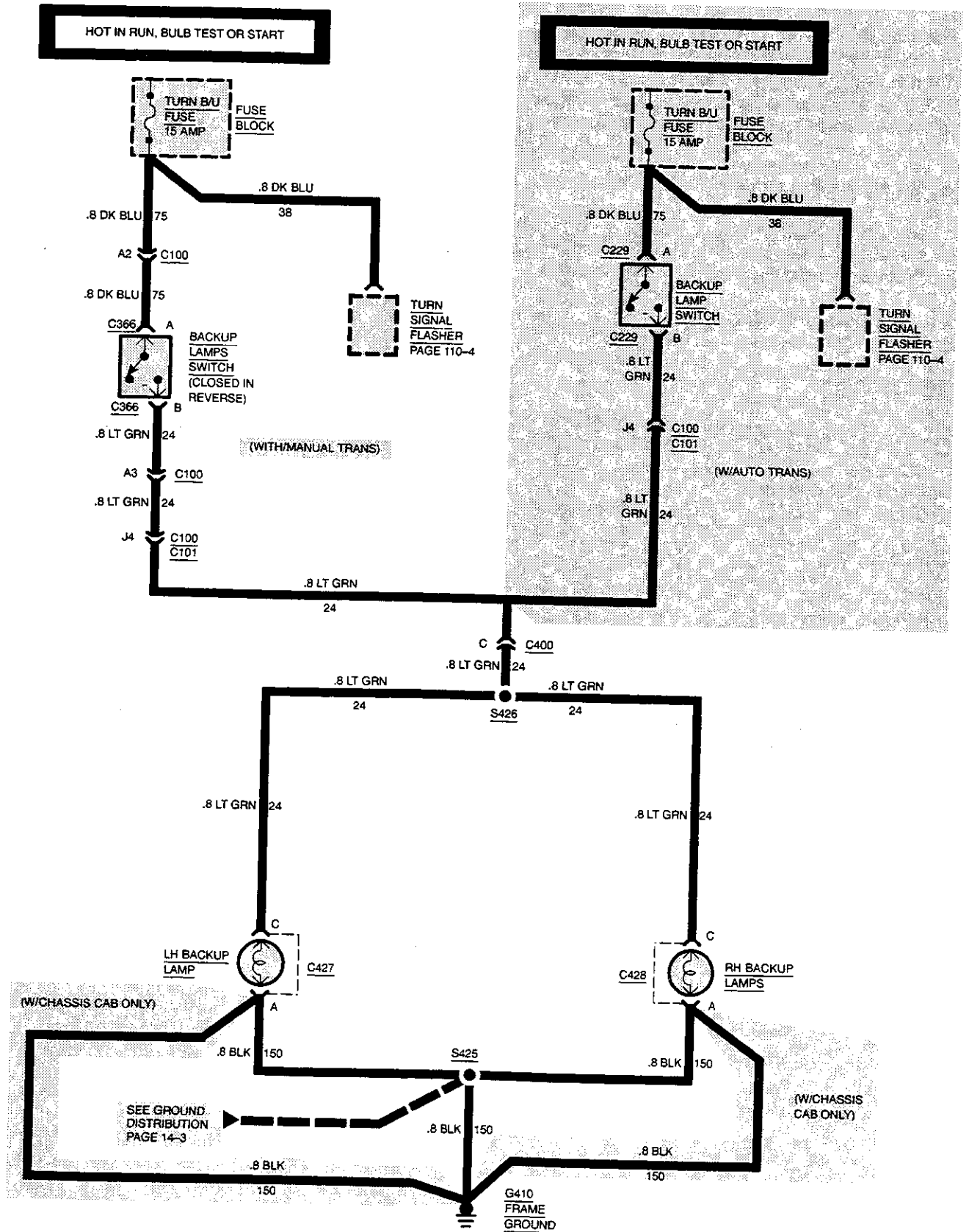
### **GROUND:**

G410 (Chassis Cab) .....	At LH side of platform hitch .....	112-8	5
G410 (Pickup, Utility and Suburban) .....	Rear of LH frame rail .....	112-7	4

### **SPLICES:**

S425 (Chassis Cab) .....	Rear lamp harness, LH side at rear crossmember .....	112-8	5
S425 (Pickup, Utility and Suburban) .....	At rear of LH frame rail .....	112-7	4
S426 (Chassis Cab) .....	Rear lamp harness, LH side at rear crossmember .....	112-8	5
S426 (Pickup, Utility and Suburban) .....	At rear of LH frame rail .....	112-7	4

## 8A-112-2 BACKUP LAMPS



## DIAGNOSIS — BACKUP LAMPS

### PRELIMINARY CHECKS:

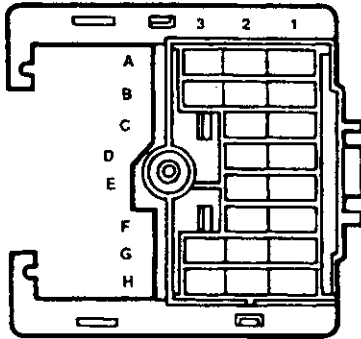
1. Check condition of STOP, PARK LP, TURN-B/U Fuse(s). If fuse(s) is blown, locate and repair source of overload. Replace fuse(s).

### BACKUP LAMPS DO NOT OPERATE

TEST	RESULT	ACTION
1. Place transmission in REVERSE. Connect test lamp from LT GRN (24) wire at backup lamp connector C404 and C405 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	GO to step 3.
2. Connect test lamp from LT GRN (24) wire to BLK (150) wire at backup lamp connector C427, C428 (all except chassis cab) or C429, C430 (chassis cab).	Test lamp lights.	REPLACE bulb.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire from backup lamp connector C427, C428 (all except chassis cab) or C429, C430 (chassis cab) to ground G410.
3. Connect test lamp from DK BLU (75) wire at backup lamp switch connector C366 (man) or C229 (auto) to ground.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	LOCATE and REPAIR open in DK BLU (75) wire from backup lamp switch to fuse block.
4. Connect test lamp from LT GRN (24) wire at backup lamp switch connector C366 (man) or C229 (auto) to ground.	Test lamp lights.	GO to step 5.
	Test lamp does not light.	Adjust backup lamp switch. If backup lamp switch will not adjust properly, REPLACE backup lamp switch.
5. Connect test lamp from LT GRN (24) wire at connector C100 to ground.	Test lamp lights.	GO to step 6.
	Test lamp does not light.	LOCATE and REPAIR open in LT GRN (24) wire between backup lamp switch connector C366 (man) or C229 (auto) and connector C100.
6. Connect test lamp from LT GRN (24) wire at connector C400 to ground.	Test lamp lights.	LOCATE and REPAIR open in LT GRN (24) wire between connector C400 and splice S426.
	Test lamp does not light.	LOCATE and REPAIR open in LT GRN (24) wire between connector C101 and connector C400.

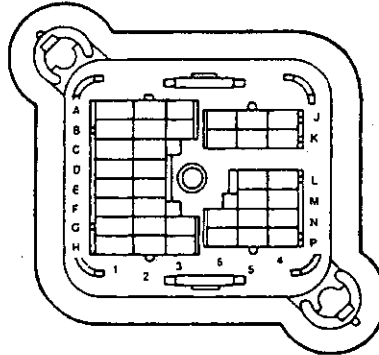
## 8A-112-4 BACKUP LAMPS

12020183



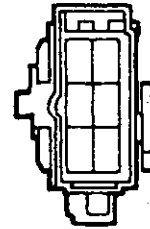
**GRAY**  
Metri-Pack  
**C100**  
Bulkhead Connector – Eng

12020184



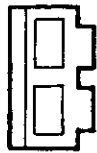
**GRAY**  
Metri-Pack  
**C100**  
Bulkhead Connector – I/P

12020099



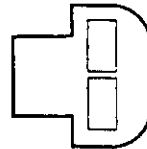
**C101**  
Bulkhead – Rear Lamps

02973407



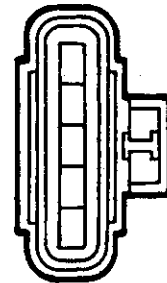
**BLACK**  
56 Series  
**C229**  
Backup Lamp Switch (Auto)

12103584



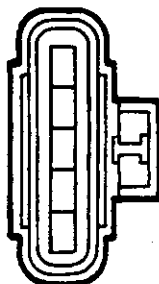
**BROWN**  
**C366**  
Backup Lamp Switch (Man)

12065862



**BLACK**  
Metri-Pack 280  
**C427**  
LH Rear Lamp Assembly

12065862



**BLACK**  
Metri-Pack 280  
**C428**  
RH Rear Lamp Assembly

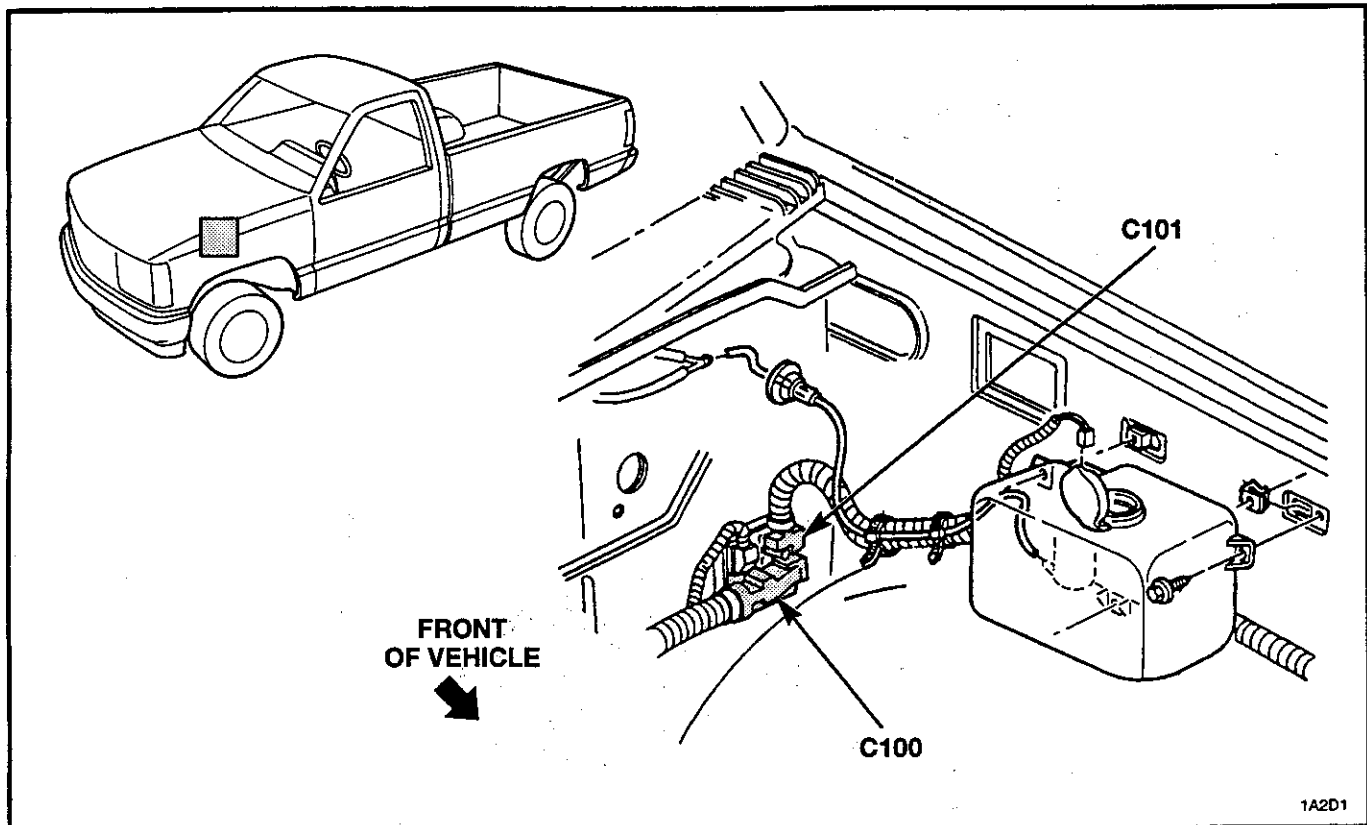


Figure 1 — Cowl Wiring — Except Suburban and Utility

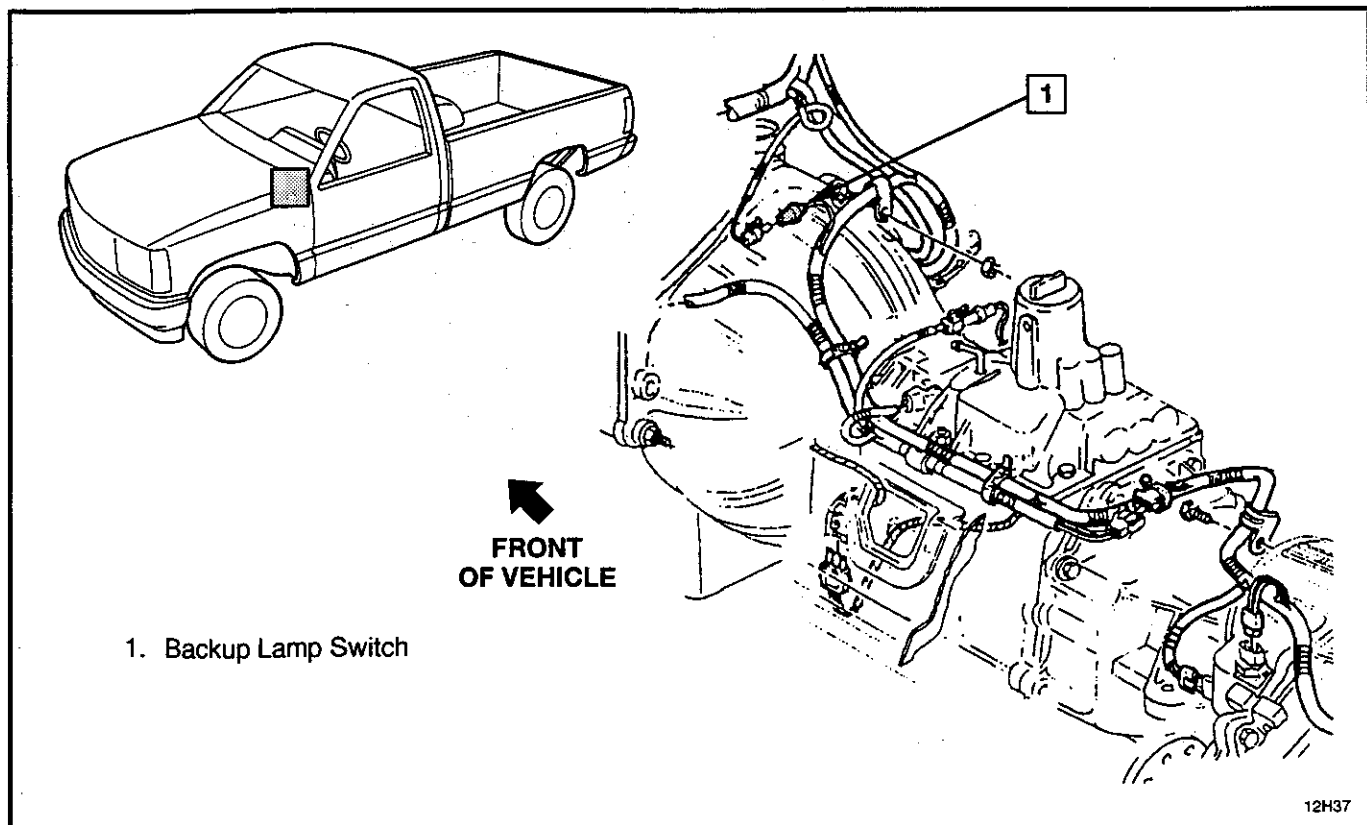
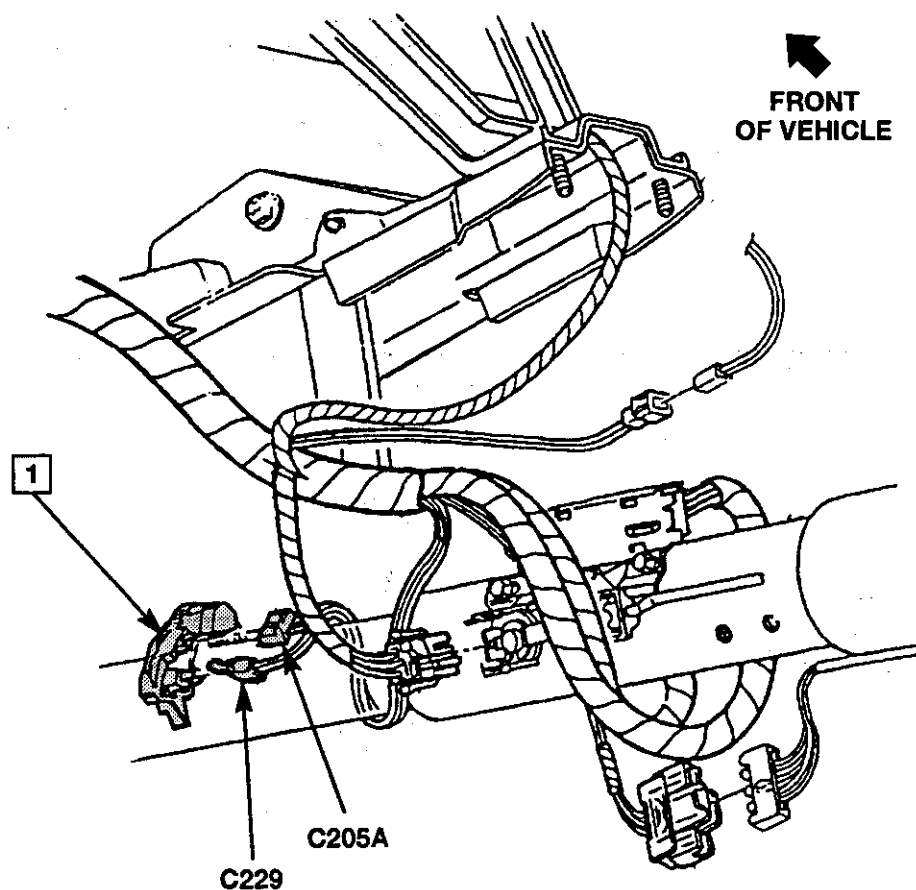
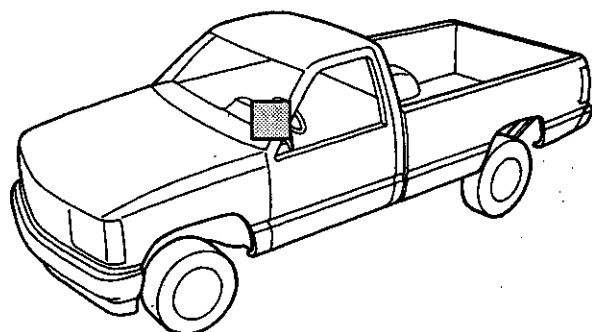


Figure 2 — Backup Lamp Switch Wiring

## 8A-112-6 BACKUP LAMPS



1. Park/Neutral Position and Backup Lamp Switch

Figure 3 — LH Side of Steering Column Wiring



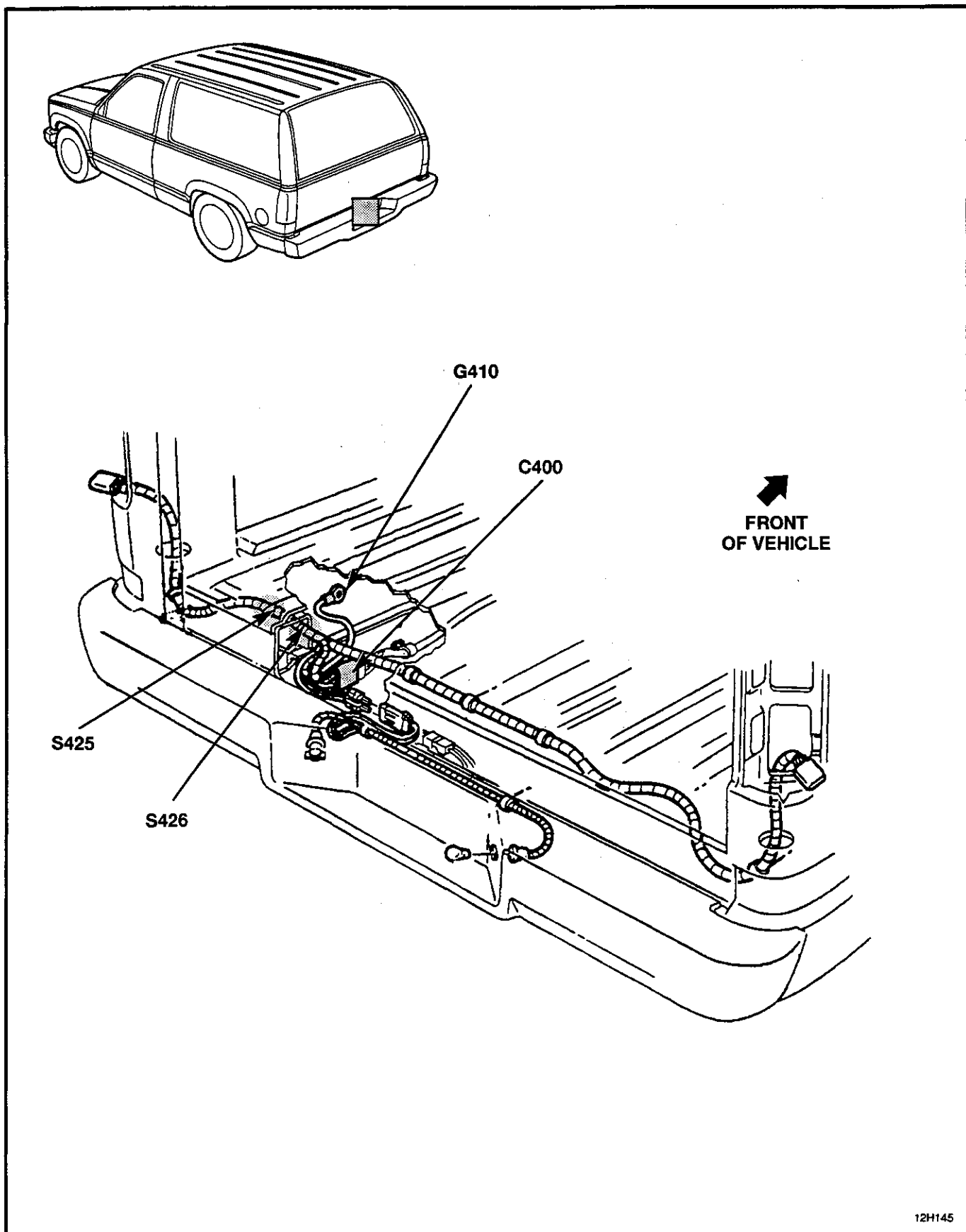


Figure 4 — Tail and Stoplamp Harness Wiring, Pickup, Utility and Suburban

## 8A-112-8 BACKUP LAMPS

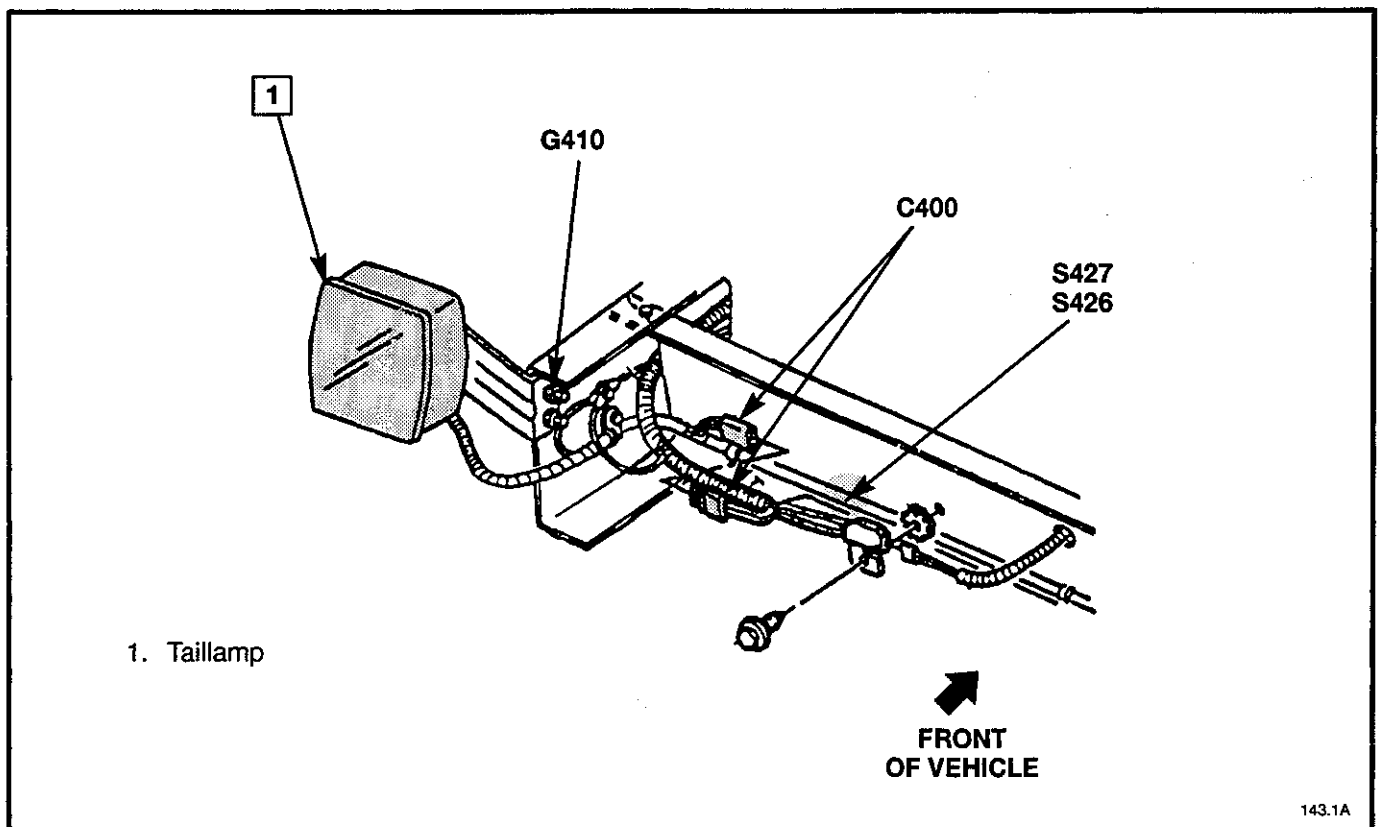


Figure 5 — Rear Lamp Wiring — Chassis Cab

## CIRCUIT OPERATION

### COURTESY, DOME AND I/P COMPARTMENT BOX LAMPS

Voltage is supplied at all times from the CTSY Fuse to the Courtesy Lamp, Dome Lamp and I/P Compartment Box Lamp. The Courtesy and Dome Lamps turn on when a

ground path is provided by the Panel Dimmer Switch or one of the Door Jamb Switches.

The I/P Compartment Box and Vanity Lamps have their own switches that provide ground paths when their switches close.

### COMPONENT LOCATION

#### Page — Figure

Ashtray Lamp	Behind I/P, at ashtray	114-16	2
Cigarette Lighter	Center of I/P at ashtray	114-17	3
Convenience Center	Under LH side of I/P	114-16	2
Courtesy Lamp, LH	Under LH side of I/P	114-16	2
Courtesy Lamp, RH	Below RH side of I/P	114-16	2
Dome/Reading Lamp, Front	Inside on roof	114-19	6
Dome/Reading Lamp, Rear	Inside on roof	114-22	10
Dome Lamp Override Switch	On center of I/P	Not Shown	
Door Jamb Switch, LH Front	At LH end of I/P	114-16	2
Door Jamb Switch, RH Front	At RH end of I/P	114-16	2
Endgate Jamb Switch (Utility/ Suburban)	RH D-pillar	Not Shown	
I/P Compartment Box Lamp	In I/P compartment box	114-16	2
Light Switch	Upper LH side of I/P	114-15	1
Overhead Console Lamps	In roof console	Not Shown	
Panel Dimmer Switch	LH end of I/P	114-15	1
Rear Door Jamb Switch (Suburban)	RH rear body opening frame	114-22	9
Side Door Jamb Switch, LH Rear	At LH B-pillar	114-21	8
Side Door Jamb Switch, RH Rear	At RH B-pillar	Not Shown	

### CONNECTORS:

C224	At convenience center	114-16	2
C227	At convenience center	114-18	4
C237	At LH body hinge pillar	114-18	4
C269	At convenience center	114-16	2
C297	Behind LH side of I/P	Not Shown	
C299	Under LH side of I/P, near convenience center	114-15	1
C299A	Near convenience center	Not Shown	
C300	LH side, at roof, near front dome lamp	114-19	6
C300A	Near front dome lamp	Not Shown	
C301	Behind roof console at front	114-19	6
C459	At RH rear body opening	Not Shown	
C464	LH rear body upper, near rear dome lamp	114-22	10
C464A	Near rear dome lamp	Not Shown	

### GROUNDS:

G202	At DLC connector	Not Shown	
G300	Near front dome lamp	114-18	5
G380	Near front dome lamp	Not Shown	
G400 (Pickup)	Rear frame rail	Not Shown	
G400 (Suburban)	Rear D-pillar	Not Shown	
G400 (Utility)	Rear C-pillar	Not Shown	
G480	Near rear dome lamp	Not Shown	

## 8A-114-2 INTERIOR LAMPS

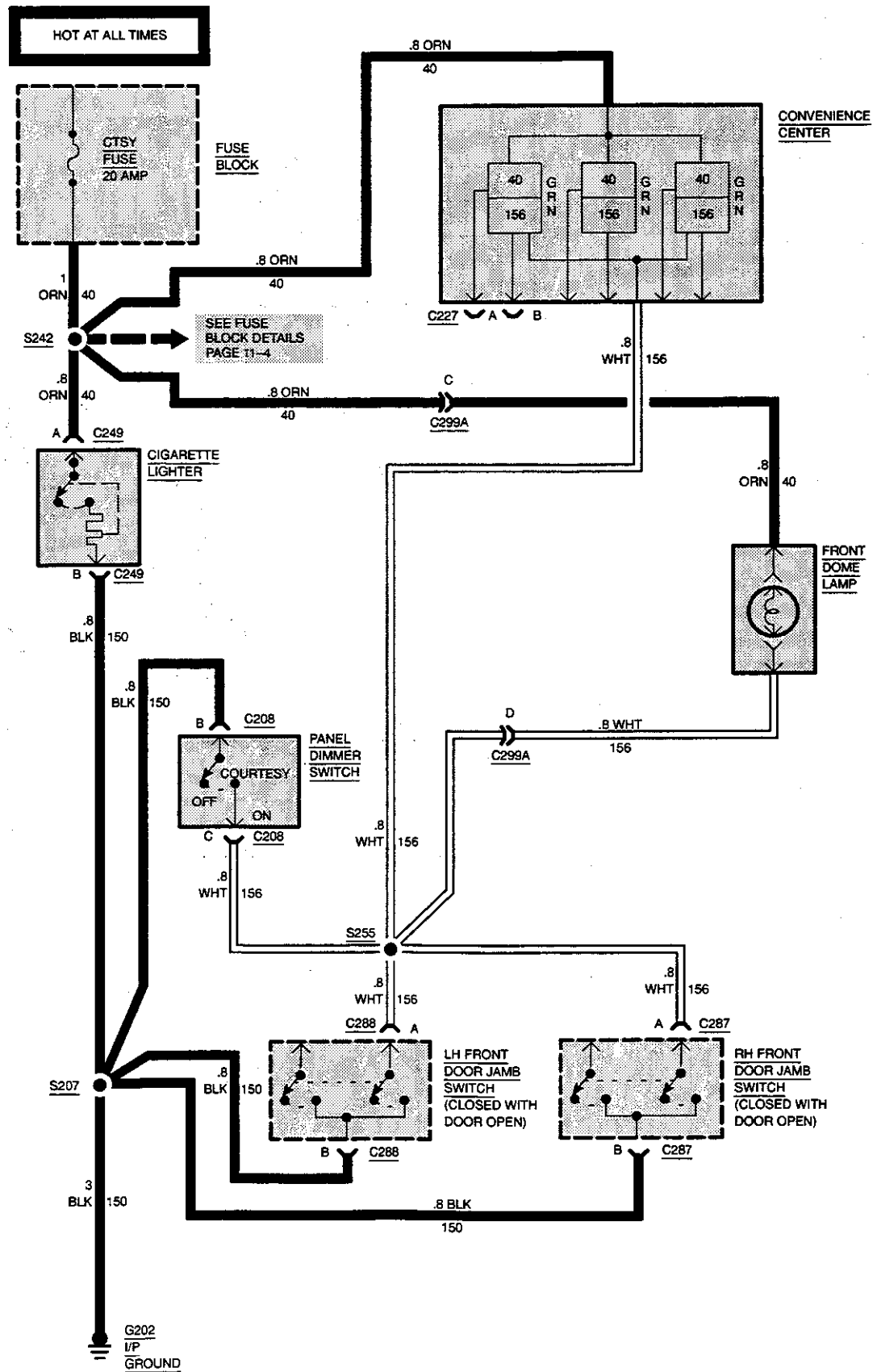
### COMPONENT LOCATION (CONTINUED)

Page — Figure

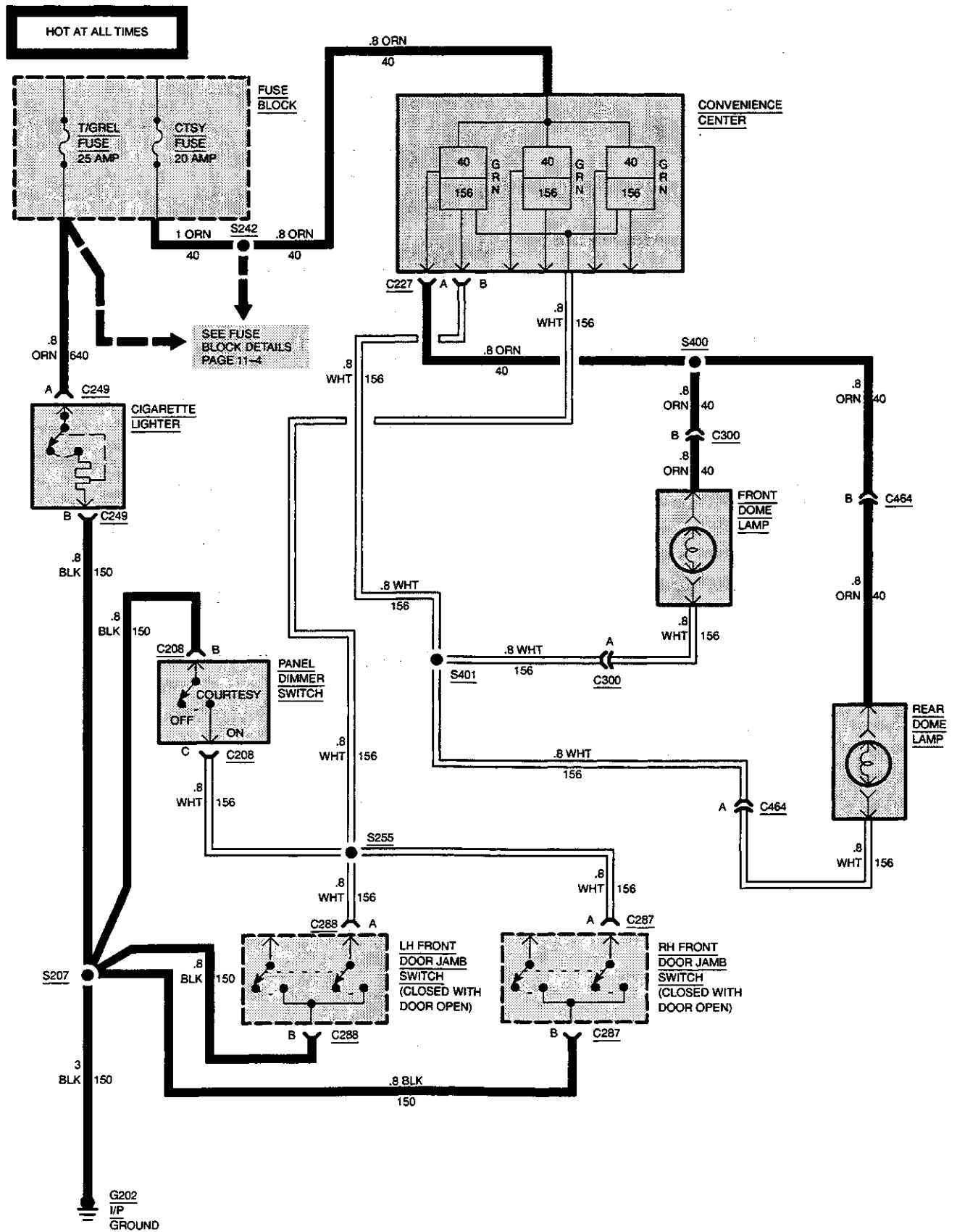
#### SPLICES:

S207	Under LH side of I/P	114-15	1
S208	Under LH side of I/P	114-15	1
S210	Under LH side of I/P	114-15	1
S211	Courtesy lamp harness, near I/P compartment lamp lead	114-16	2
S212	Courtesy lamp harness, near ashtray lamp lead	114-16	2
S214	Courtesy lamp harness, near ashtray compartment lamp lead	114-16	2
S242	Under LH side of I/P	114-15	1
S255	Under LH side of I/P	114-15	1
S255A	Near panel dimmer switch	Not Shown	
S275	Under LH side of I/P	114-15	1
S305	In roof console harness, near C300 lead	Not Shown	
S315	Inside overhead console	Not Shown	
S316	Inside overhead console	Not Shown	
S400	In dome lamp harness, at center pillar	114-20	7
S402	Above rear liftgate glass opening	114-23	11
S410	In dome lamp harness, at bottom of center pillar	114-20	7

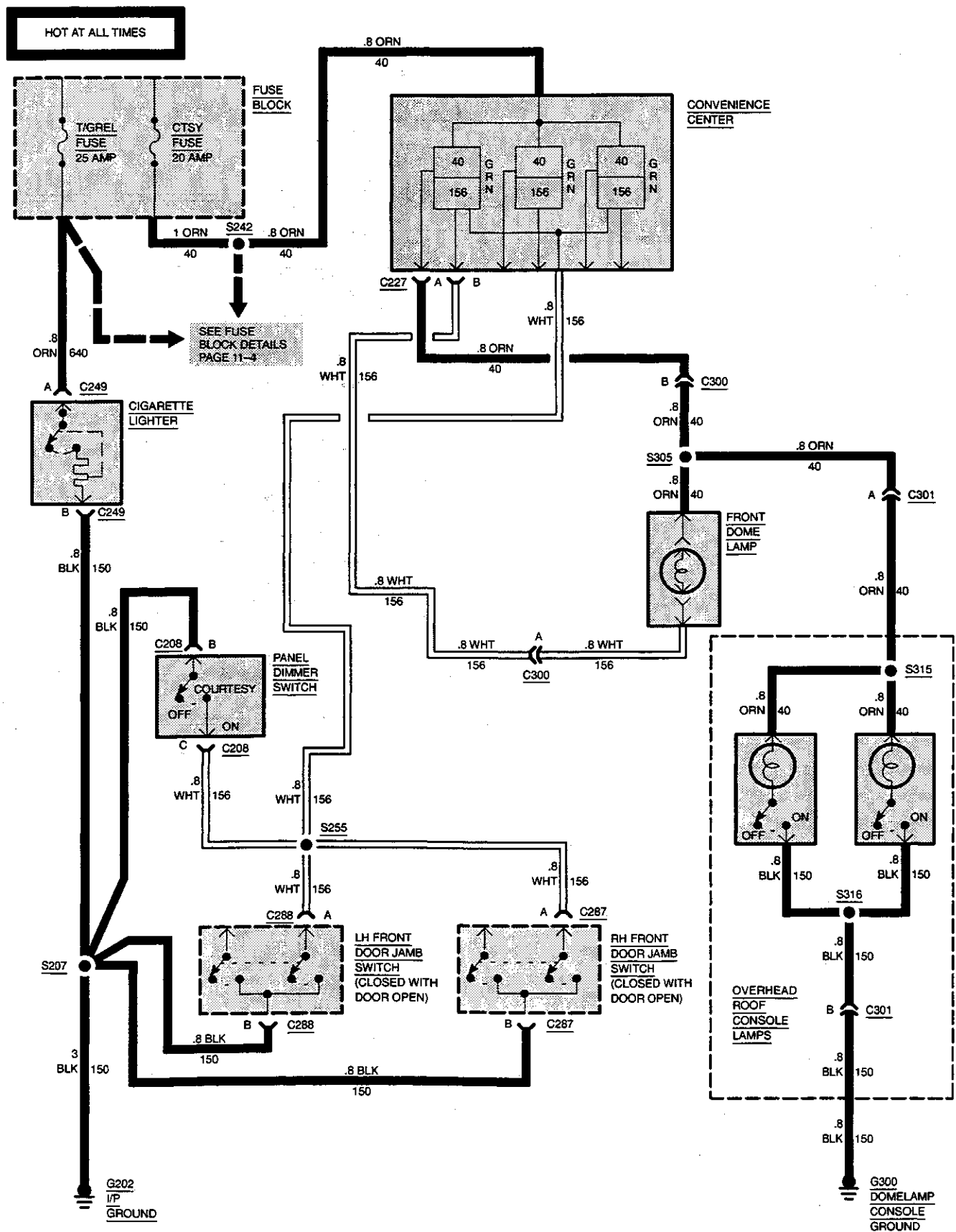
# INTERIOR LAMPS 8A-114-3 PICKUP BASE



# 8A-114-4 INTERIOR LAMPS SUBURBAN-YUKON BASE

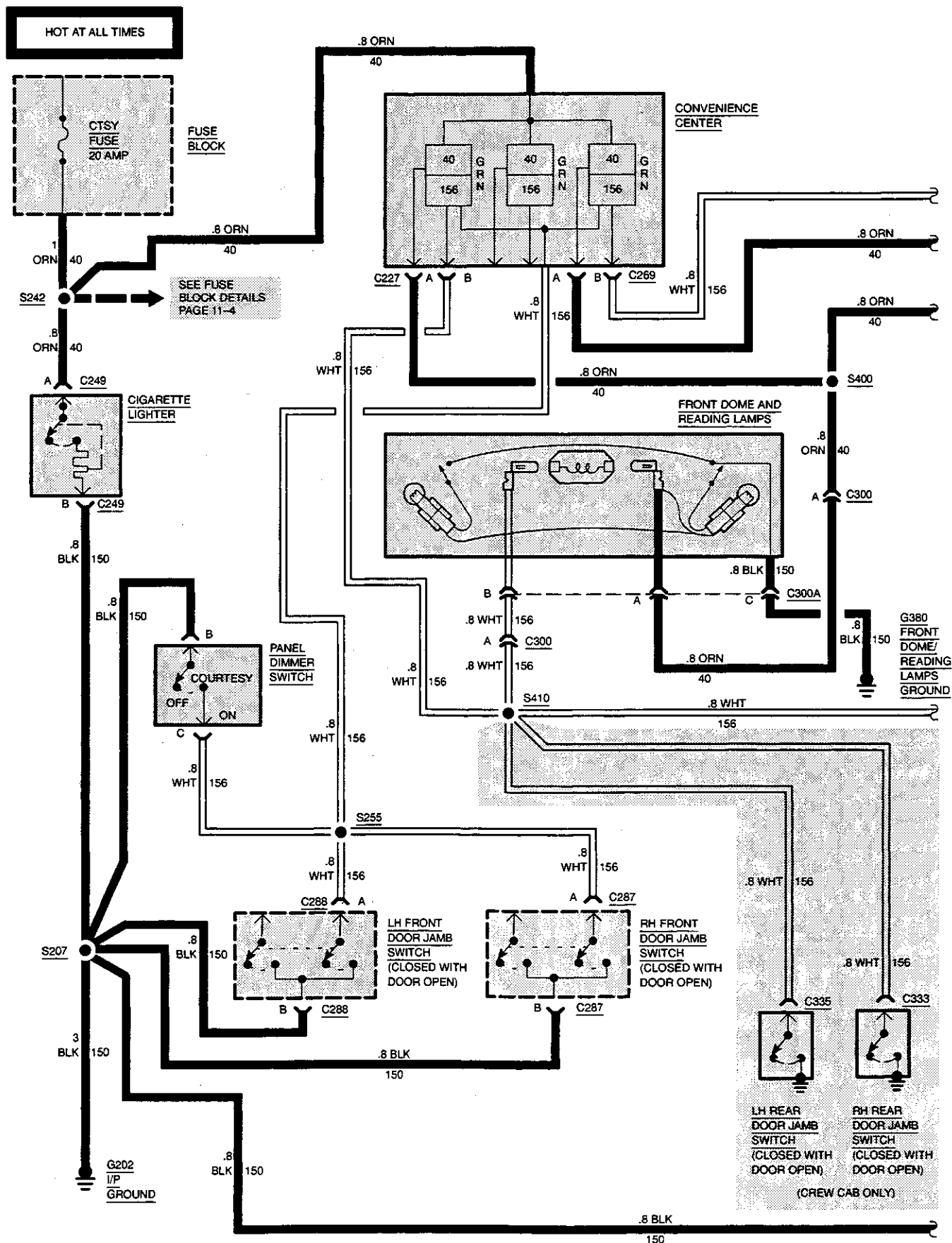


**CREW CAB, SUBURBAN, UTILITY W/OVERHEAD ROOF CONSOLE**



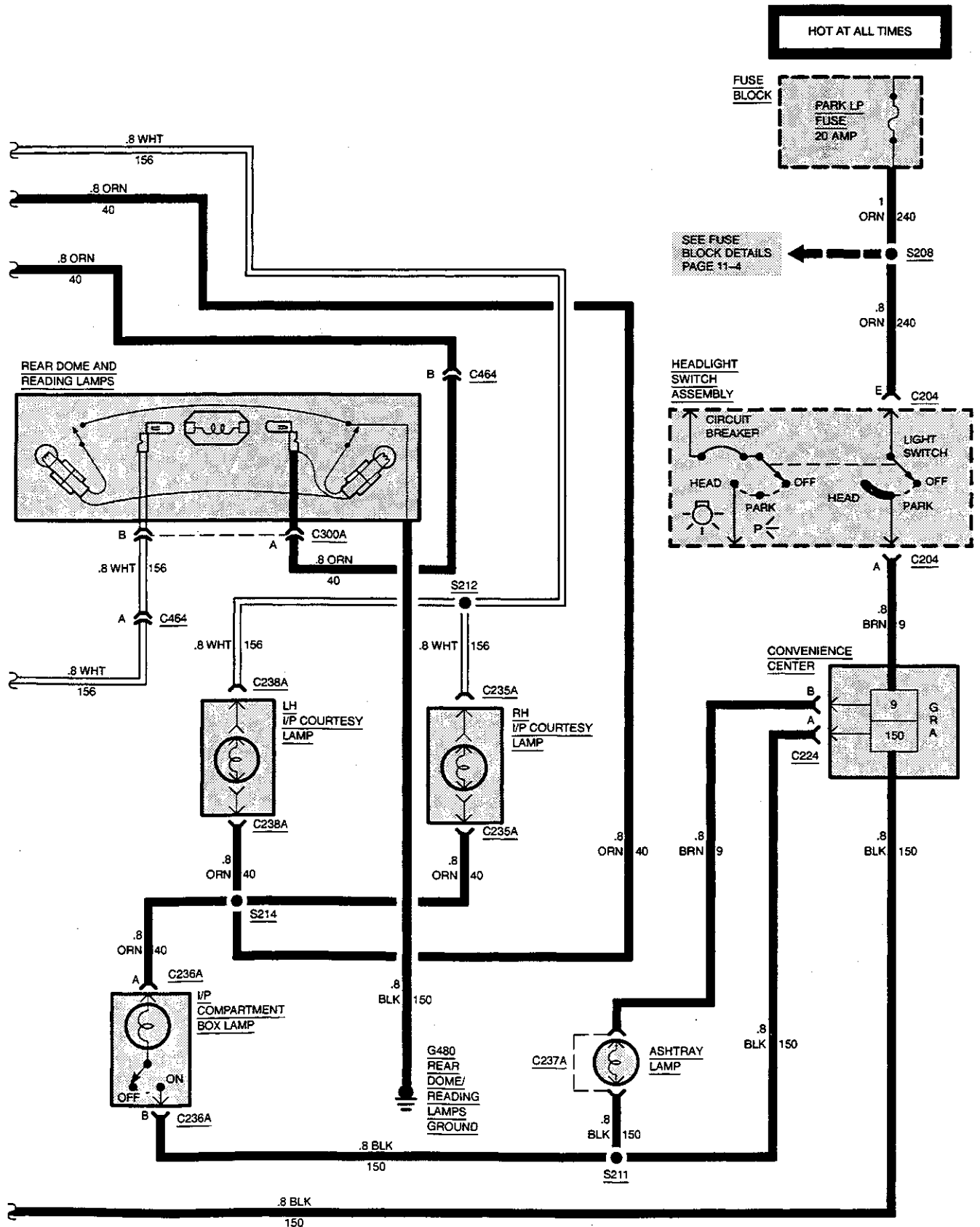
# 8A-114-6 INTERIOR LAMPS

## CREW CAB W/AUXILIARY LIGHTING

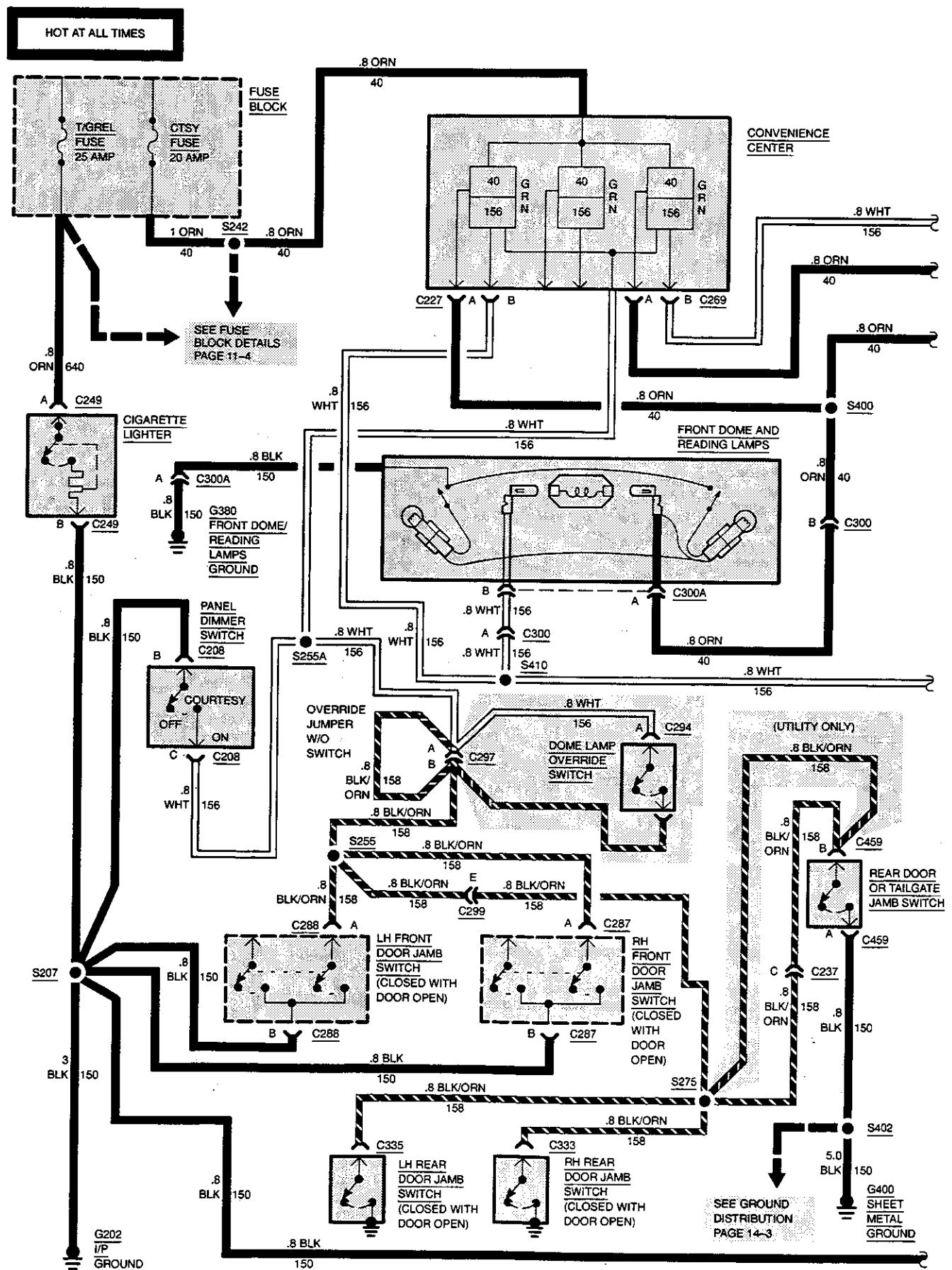




## CREW CAB W/AUXILIARY LIGHTING

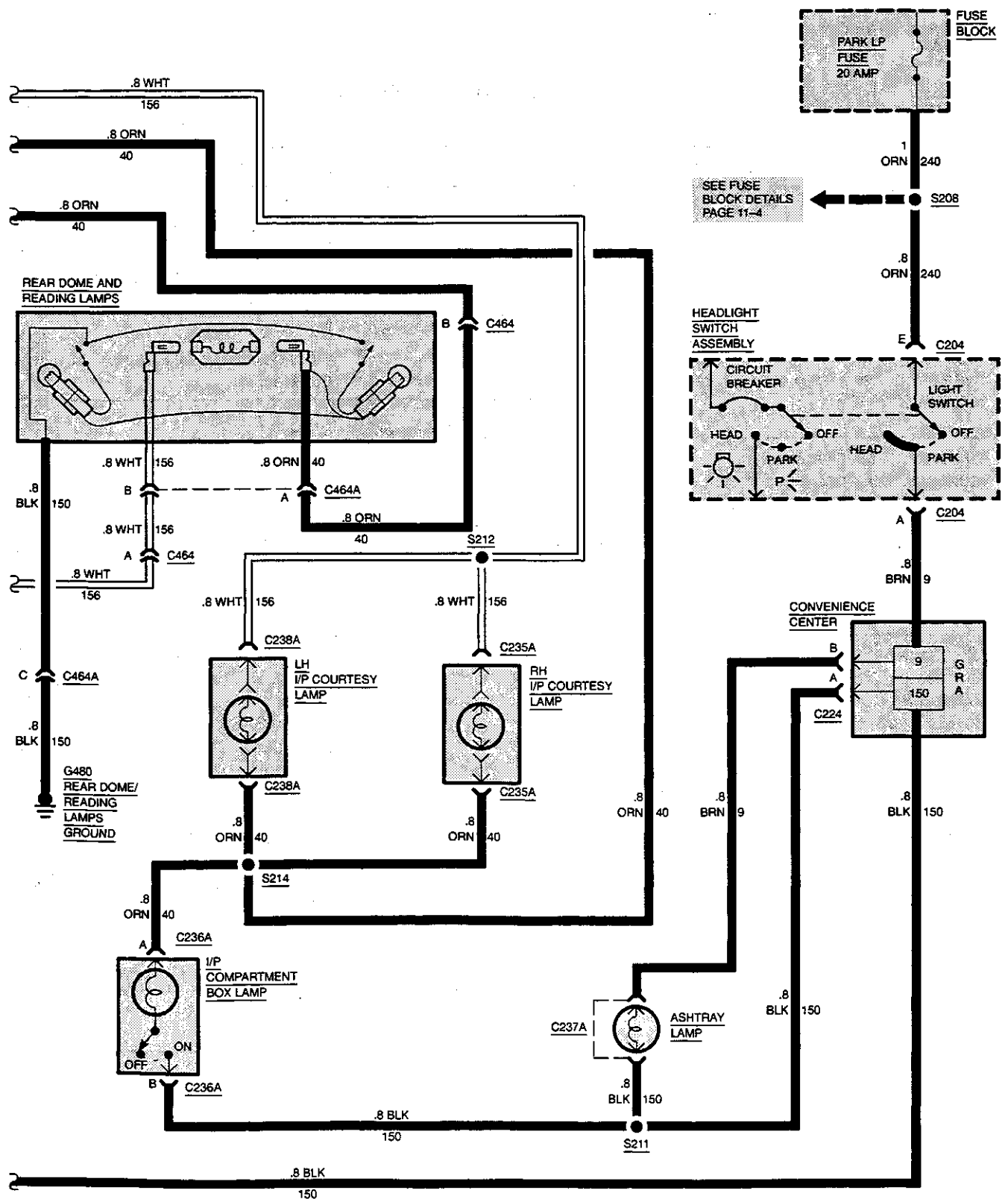


**SUBURBAN/UTILITY W/AUXILIARY LIGHTING**



## SUBURBAN/UTILITY W/AUXILIARY LIGHTING

## HOT AT ALL TIMES



## 8A-114-10 INTERIOR LAMPS

### DIAGNOSIS — INTERIOR LAMPS

#### PRELIMINARY CHECKS:

1. Check condition of CTSY, PARK LP, and T/GREL Fuse(s). If fuse(s) is blown, locate and repair source of overload. Replace fuse(s).

#### COURTESY LAMPS DO NOT OPERATE

TEST	RESULT	ACTION
1. Connect a test lamp from ORN (40) wire at courtesy lamp connectors C235/C238 to ground. Check at each courtesy lamp.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in ORN (40) wire from inoperative courtesy lamp connector(s) C235A/C238A to splice S214 or from splice S214 to convenience center connector C269.
2. Open all doors. Connect test lamp from ORN (40) wire to WHT (156) wire at courtesy lamp connectors C235/C238.	Test lamp lights.	REPLACE bulb if lamp did not work. If lamp stayed ON all the time, GO to step 3.
	Test lamp does not light.	GO to step 3.
3. Disconnect door jamb switch connectors. Connect ohmmeter from WHT (156) terminal at door jamb switch to ground. Take reading with door open and reading with door closed. With door open, reading must be 0 ohms and with door closed, infinite ohms.	Correct readings.	GO to step 4.
	Incorrect readings.	REPLACE door jamb switch(es) that have incorrect reading.
4. Disconnect panel control switch connector C208. Connect ohmmeter from WHT (156) terminal to BLK (150) terminal at panel lamp switch. Turn panel lamp switch to ON and then OFF and take a reading in each position. When ON, reading must be 0 ohms and when OFF, reading must be infinite ohms.	Correct readings.	LOCATE and REPAIR open in WHT (156) wire between panel lamps control switch connector C208 and splice S255 or between splice S255 and door jamb switch connectors or between splice S255 and convenience center C225. Also check WHT (156) wire from courtesy lamp connectors C235A and C238A to splice S212 or from splice S212 to convenience center connector C269. Also check BLK (150) wire from panel lamps control switch connector C208 to splice S207 or from splice S207 to ground G202.
	Incorrect readings.	REPLACE panel lamps control switch.

## INTERIOR LAMPS 8A-114-11




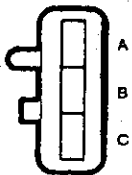
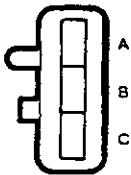
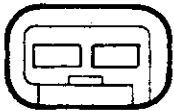



### DOME LAMP DOES NOT WORK OR STAYS ON ALL THE TIME

TEST	RESULT	ACTION
1. Connect test lamp from ORN (40) wire at inoperative dome lamp to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in ORN (40) wire between inoperative dome lamp and splice S900 or between splice S400 and convenience center connector C227.
2. Open all doors and turn panel lamp switch to ON. Connect test lamp from ORN (40) wire to WHT (156) wire at inoperative dome lamp.	Test lamp lights.	REPLACE bulb if dome lamp did not work. If dome lamp stayed ON all the time, GO to step 3.
	Test lamp does not light.	GO to step 3.
3. Disconnect door jamb switch connectors. Connect ohmmeter from WHT (156) terminal to BLK (150) terminal at door jamb switch. Take reading with door open and reading with door closed. With door open, reading must be 0 ohms and with door closed, infinite ohms.	Correct readings.	GO to step 4.
	Incorrect readings.	REPLACE door jamb switch(es) that have incorrect reading.
4. Disconnect light switch connector C208. Connect ohmmeter from WHT (156) terminal to BLK (150) terminal at light switch. Turn light switch to ON and then OFF and take a reading in each position. When ON, reading must be 0 ohms and when OFF, reading must be infinite ohms.	Correct readings.	LOCATE and REPAIR open or short in WHT (156) wire from panel lamps control switch connector C208 to splice S255 or from splice S255 to convenience center C225. Also LOCATE and REPAIR open in BLK (150) wire between panel lamps control switch connector C208 and splice S207 or between splice S207 and ground G202.
	Incorrect readings.	REPLACE panel lamp control switch.

### I/P COMPARTMENT BOX LAMP DOES NOT WORK

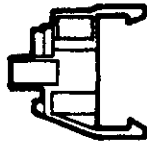
TEST	RESULT	ACTION
1. Open I/P compartment box door. Connect test lamp from ORN (40) wire I/P compartment box lamp connector C236 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in ORN (40) wire between I/P compartment box connector C236A and splice S214 or between splice S214 and convenience center connector C269.
2. Connect test lamp from ORN (40) wire to BLK (150) wire at I/P compartment box lamp connector C236A.	Test lamp lights.	REPLACE I/P compartment box lamp assembly.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire from I/P compartment box lamp connector C236A to ground terminal G202.

## 8A-114-12 INTERIOR LAMPS

<p>12033700</p>  <p><b>C227</b> Convenience Center Tap</p>	<p>12033700</p>  <p><b>C269</b> Convenience Center Tap</p>	<p>12034060</p>  <p><b>NATURAL</b> Metri-Pack 480 <b>C208</b> Panel Dimmer Switch</p>
<p>12047781</p>  <p><b>BLACK</b> Metri-Pack 150 <b>C287</b> RH Front Door Jamb Switch</p>	<p>12047781</p>  <p><b>BLACK</b> Metri-Pack 150 <b>C288</b> LH Front Door Jamb Switch</p>	<p>12047663</p>  <p><b>BLACK</b> Metri-Pack 150 <b>C300</b> Convenience Center to Dome Lamp</p>
<p>12047662</p>  <p><b>BLACK</b> Metri-Pack 150 <b>C300</b> Dome Lamp to Convenience Center</p>	<p>12047663</p>  <p><b>BLACK</b> Metri-Pack 150 <b>C301</b> In-Line Overhead Roof Console</p>	<p>12047662</p>  <p><b>BLACK</b> Metri-Pack 150 <b>C301</b> In-Line Overhead Roof Console</p>

# INTERIOR LAMPS 8A-114-13

12047699



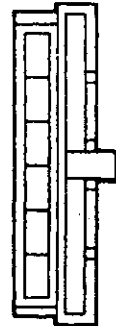
**C249**  
Cigarette Lighter

12047662



**BLACK**  
Metri-Pack 150  
**C464**  
Rear Dome Lamp to  
Convenience Center

12034061



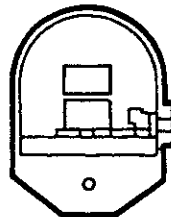
**NATURAL**  
Metri-Pack 480  
**C204**  
Light Switch

12033701



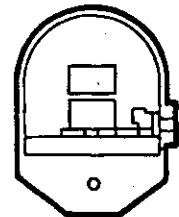
**C224**  
Convenience Center Tap

12124219



**C235A**  
Courtesy Lamp

12124219



**C238A**  
Courtesy Lamp

12089063



**BLACK**  
**C237A**  
Ashtray Lamp

06288872



188 Series  
**C333**  
Rear Door Jamb Switch

06288872



188 Series  
**C335**  
Rear Door Jamb Switch

## 8A-114-14 INTERIOR LAMPS

12064870



**C297**  
In-Line Convenience Center to  
Override Switch

12020556



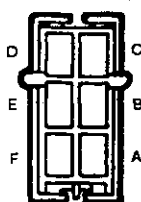
**BLACK**  
Metri-Pack 480  
**C294**  
Dome Lamp Override Switch

12059251



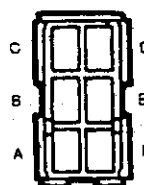
**C459**  
Tailgate Jamb Switch

12034482



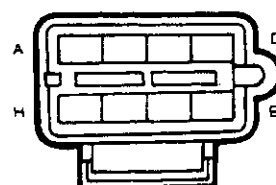
**GRAY**  
Metri-Pack 280  
**C299**  
Convenience Center to Rear  
Jamb Switches In-Line

12034481



**GRAY**  
Metri-Pack 280  
**C299**  
Rear Jamb Switches to  
Convenience Center In-Line

12066195



**BLACK**  
Metri-Pack 280  
**C237**  
Rear Tailgate Jamb Switch



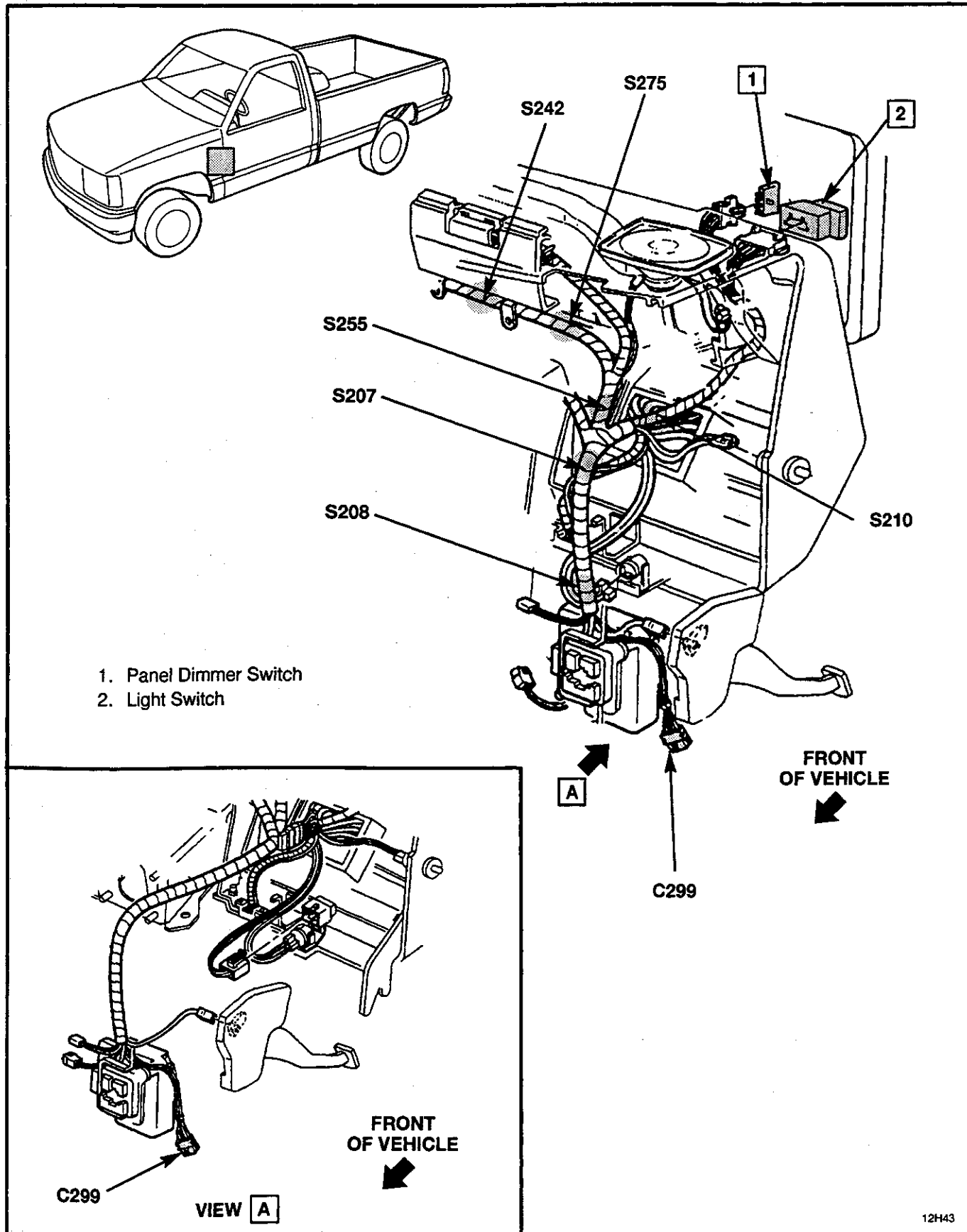


Figure 1 — LH Side of Instrument Panel

## 8A-114-16 INTERIOR LAMPS

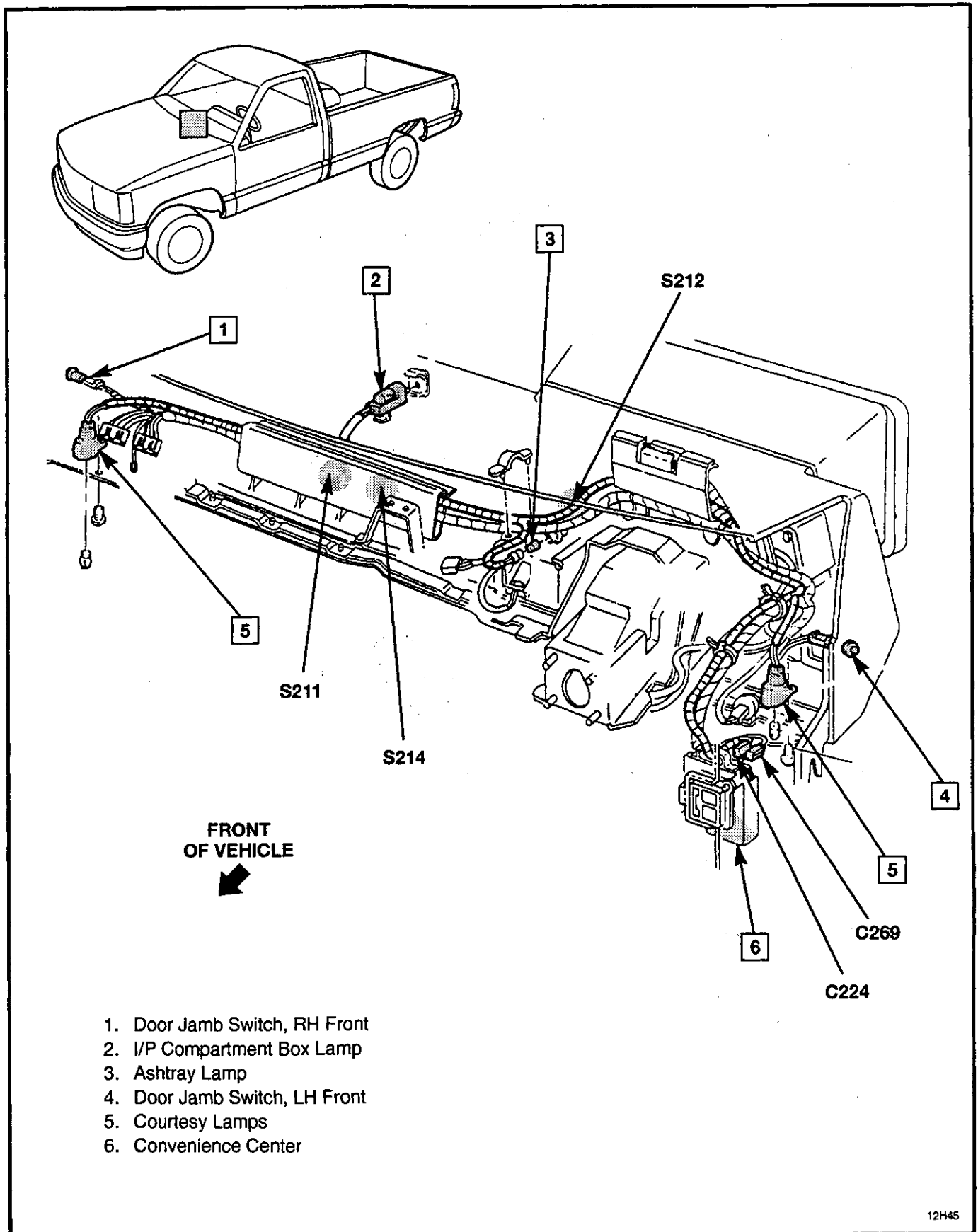


Figure 2 — Interior Lighting

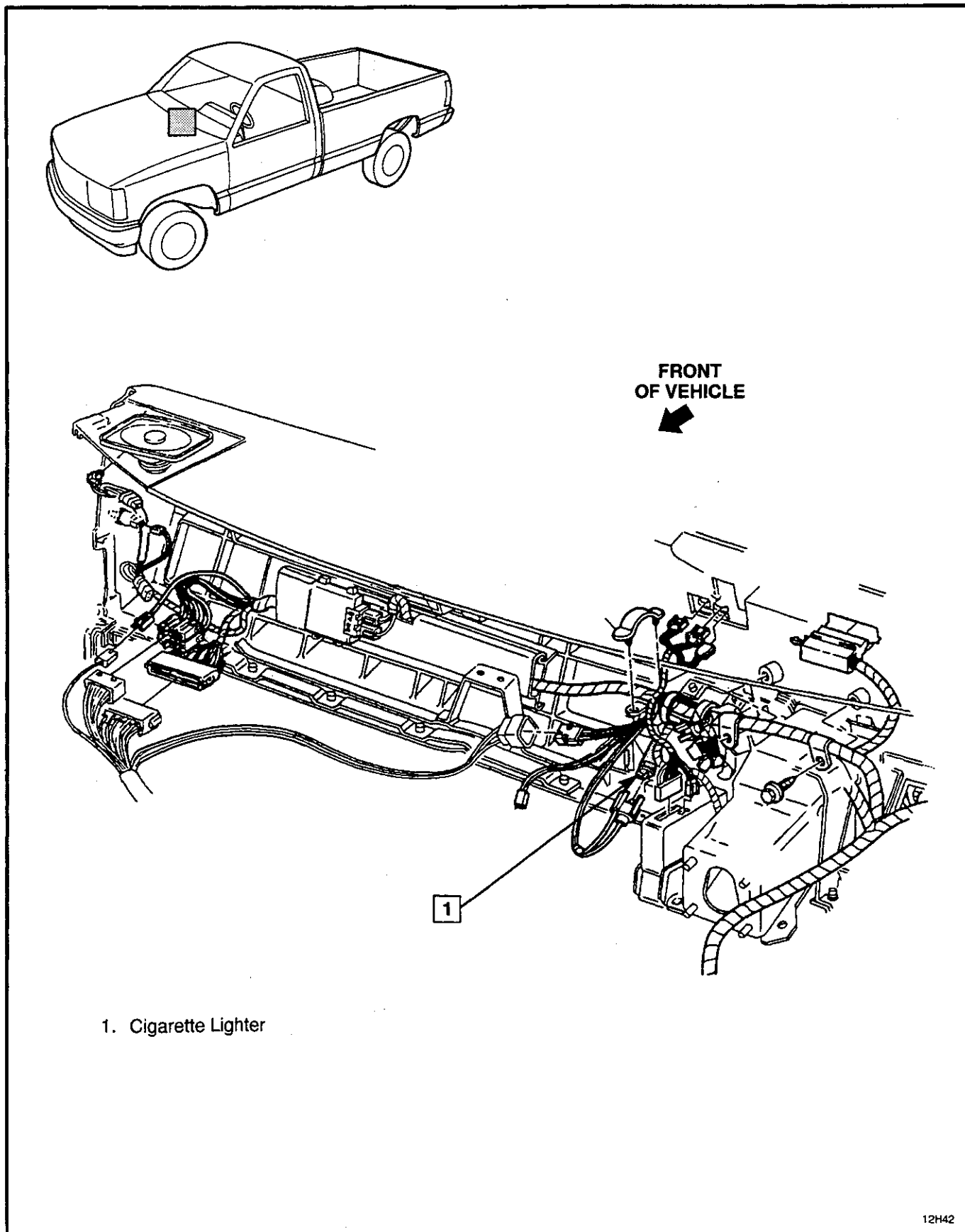


Figure 3 — Instrument Panel Wiring — RH Side

## 8A-114-18 INTERIOR LAMPS

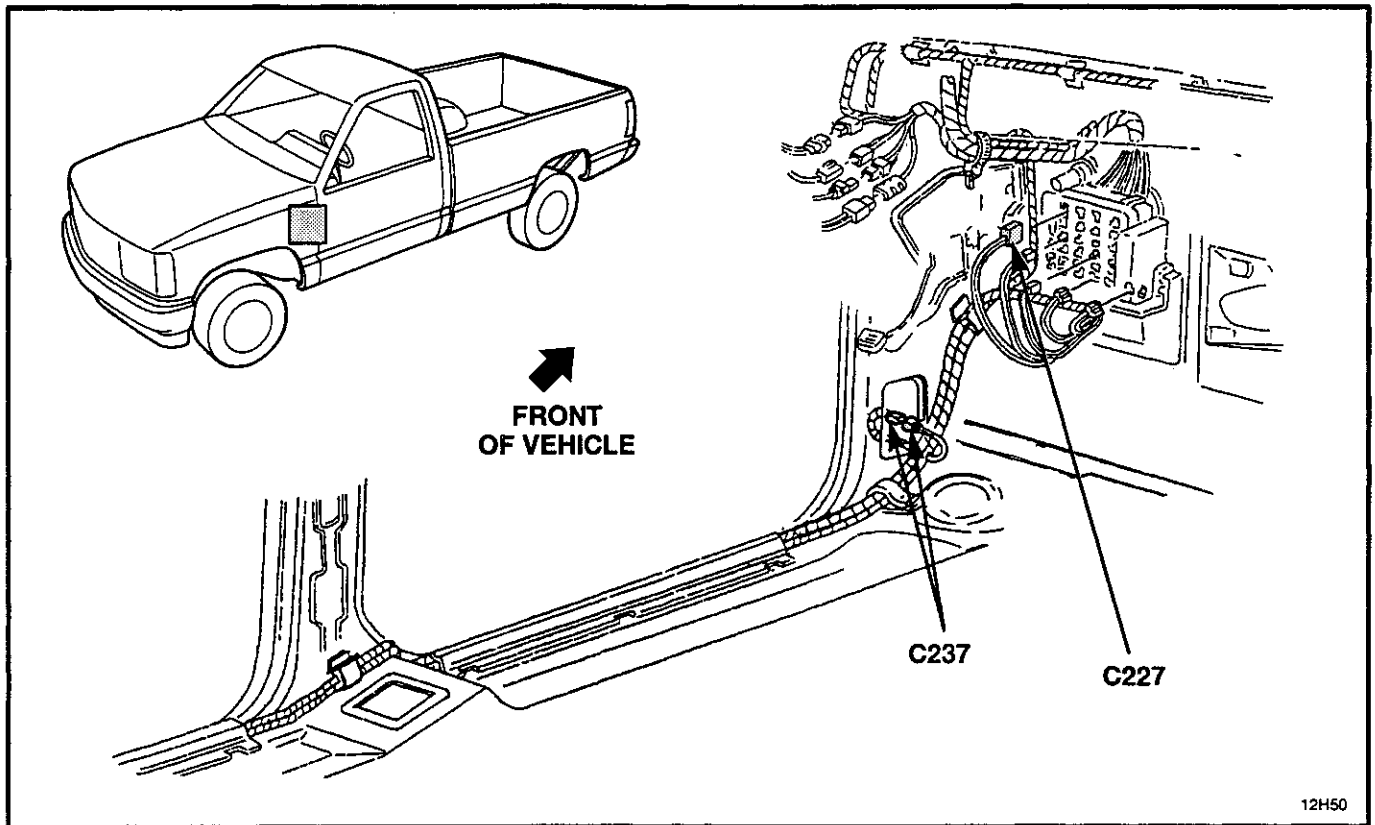


Figure 4 — Body Wiring Harness, Front

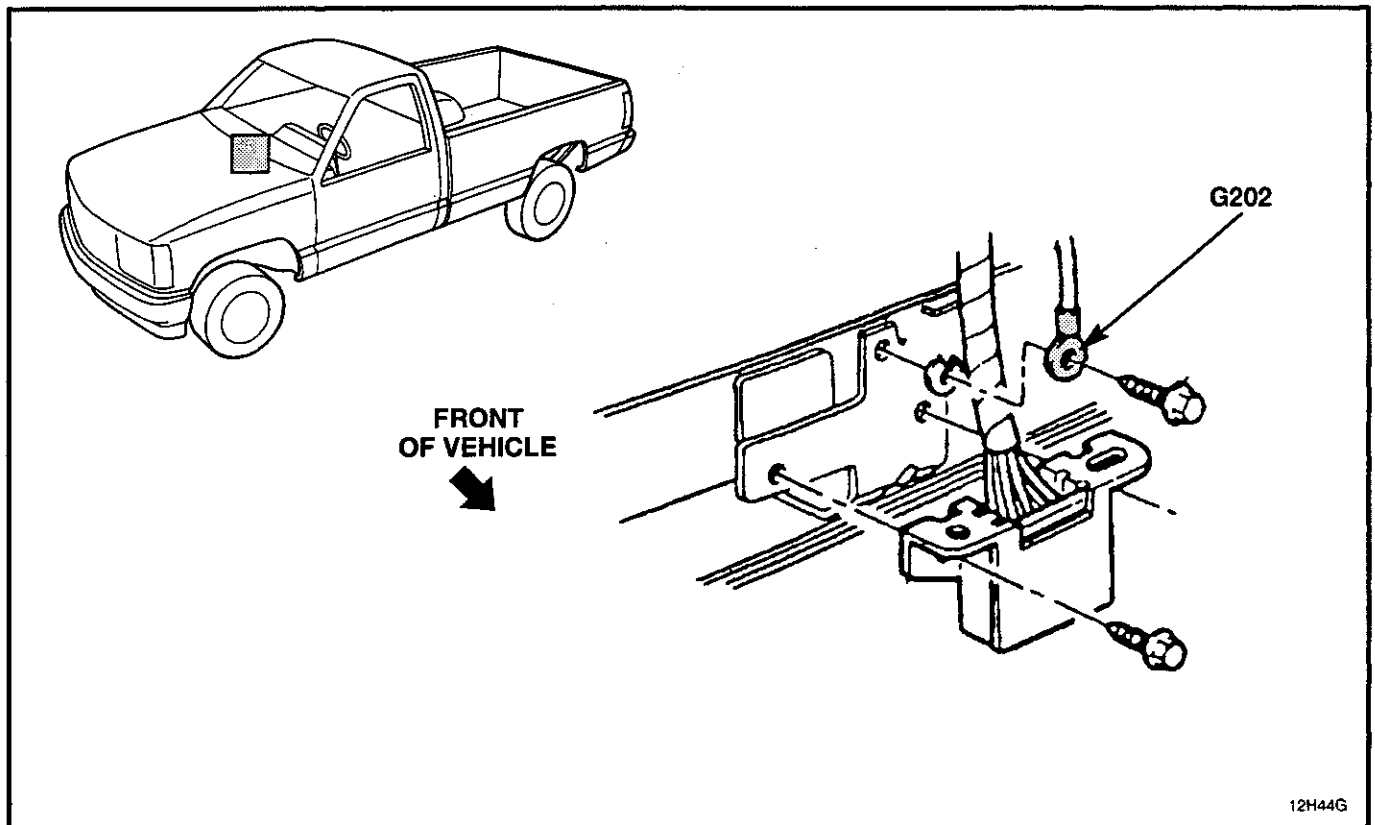


Figure 5 — I/P Ground

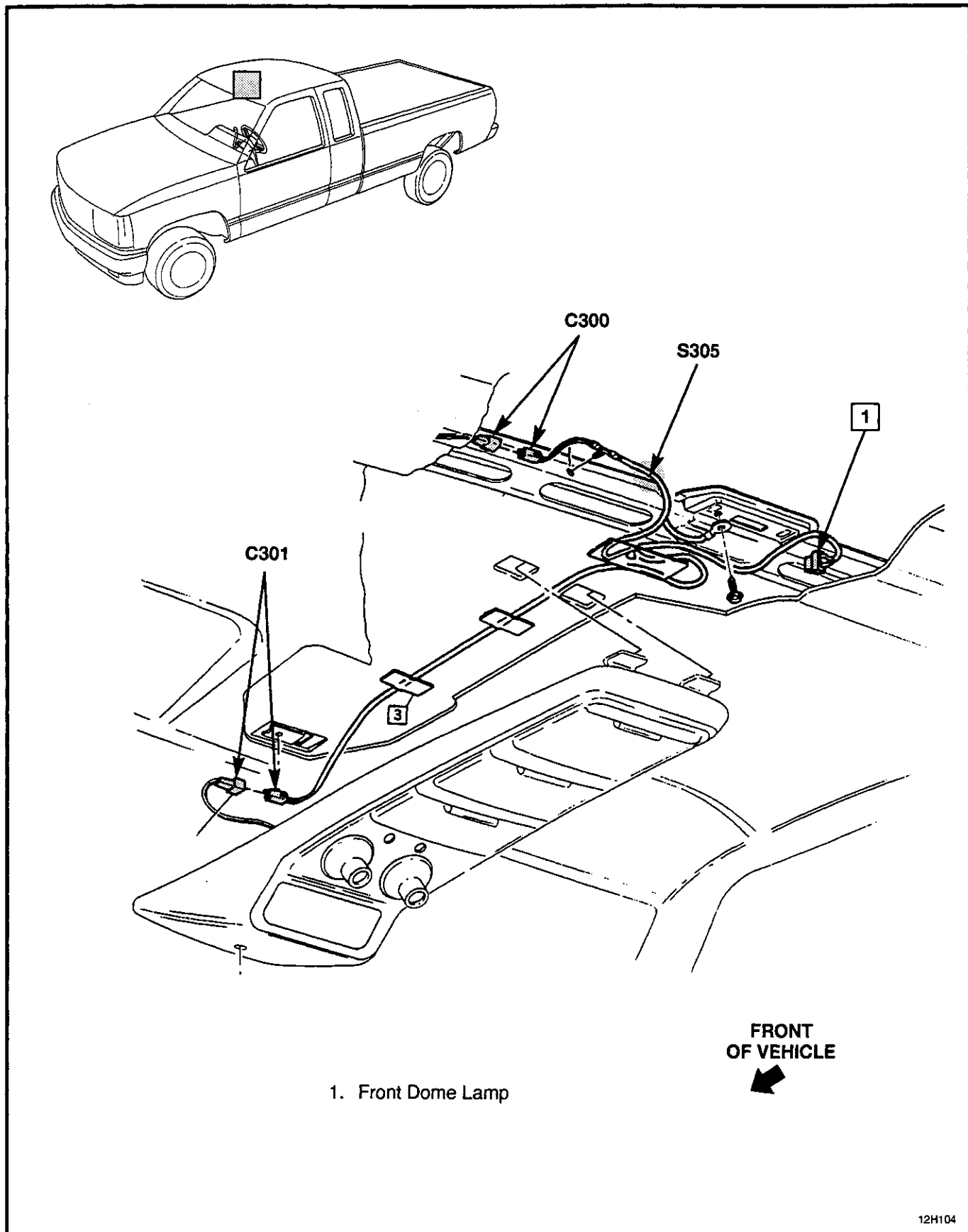


Figure 6 — Roof Console and Dome Lamp Wiring – Suburban, Utility and 4-Door Pickup

## 8A-114-20 INTERIOR LAMPS

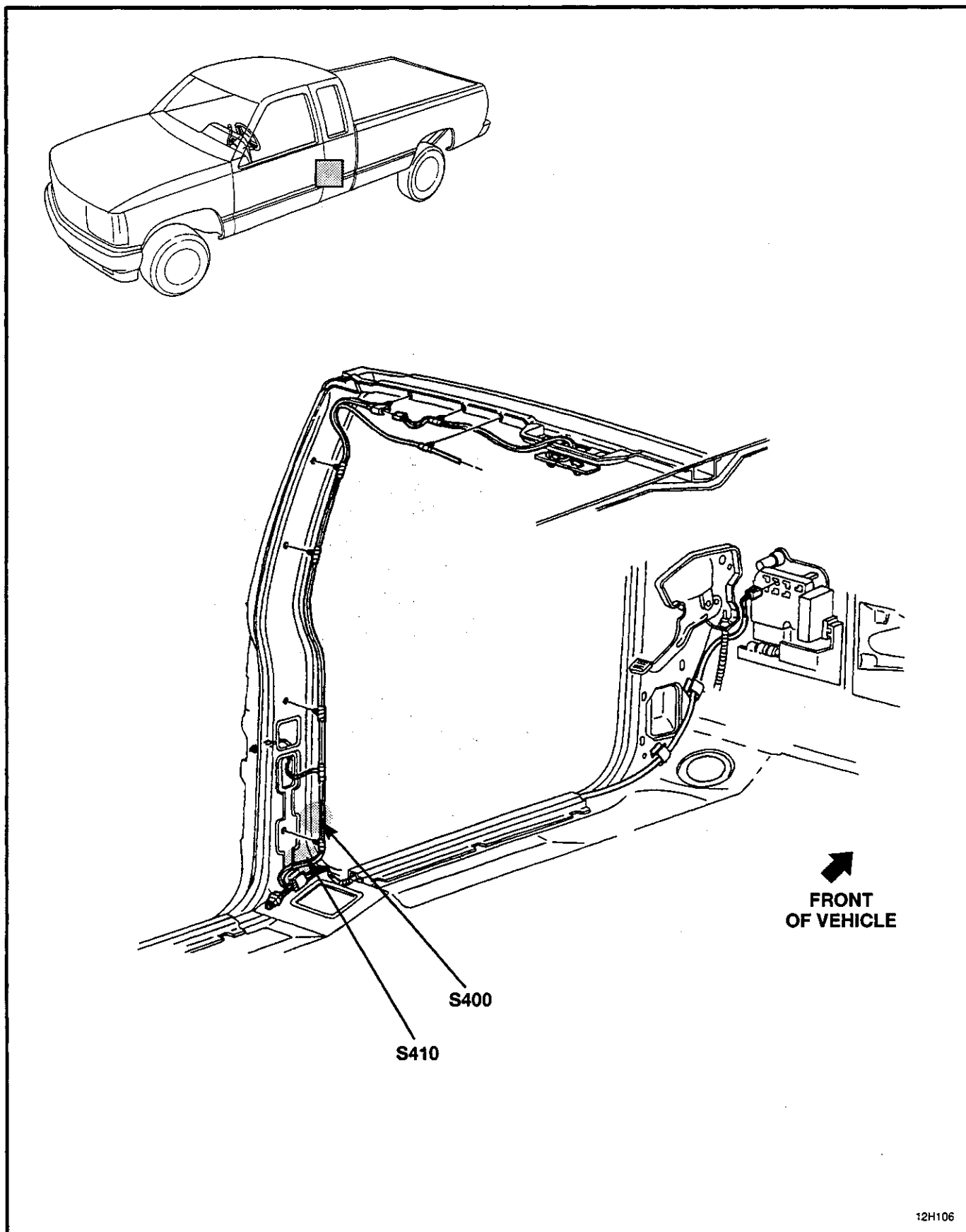


Figure 7 — Front Dome Lamp Harness – Crew W/Convenience Package

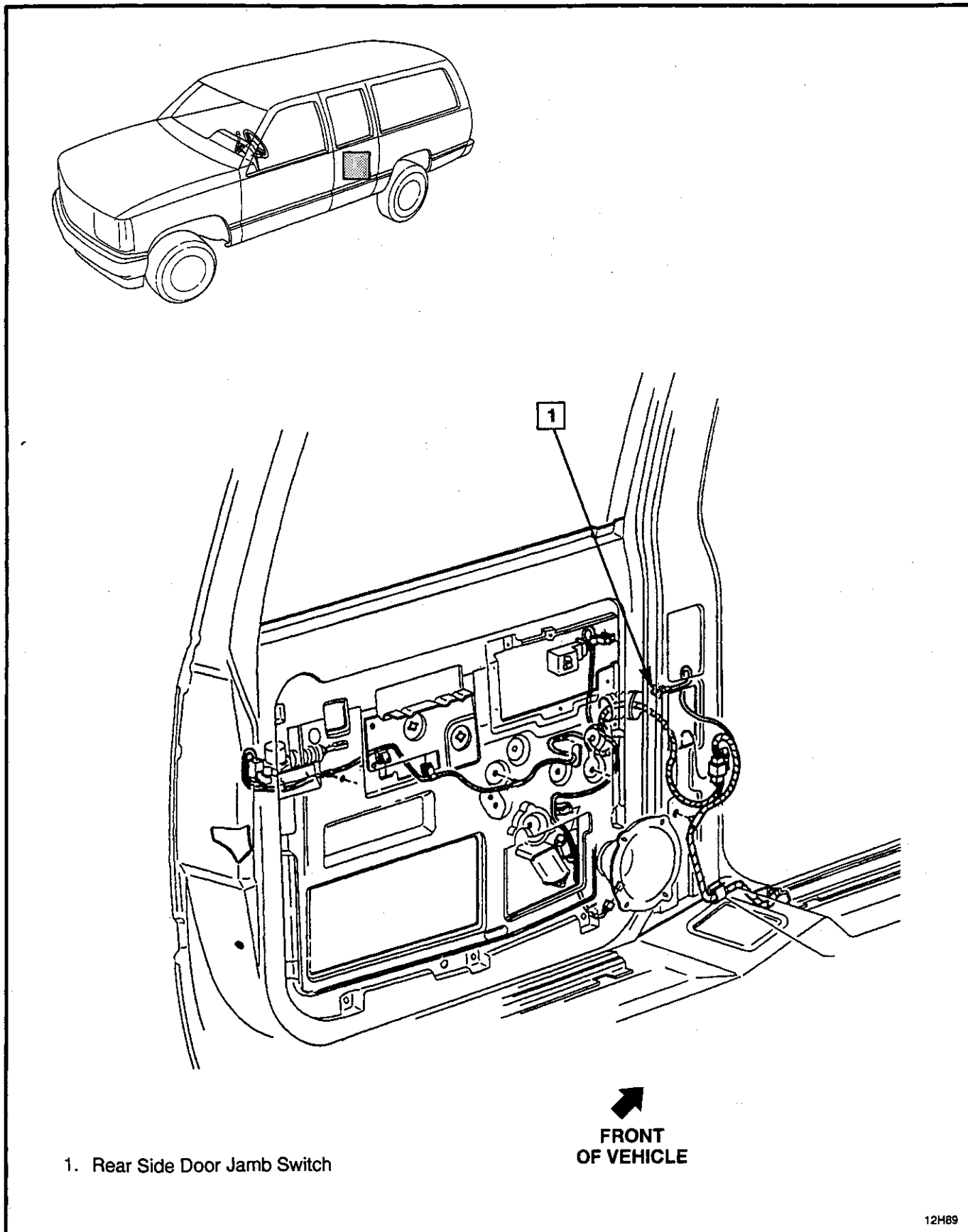


Figure 8 — Rear Side Door Wiring — Suburban and 4-Door

## 8A-114-22 INTERIOR LAMPS

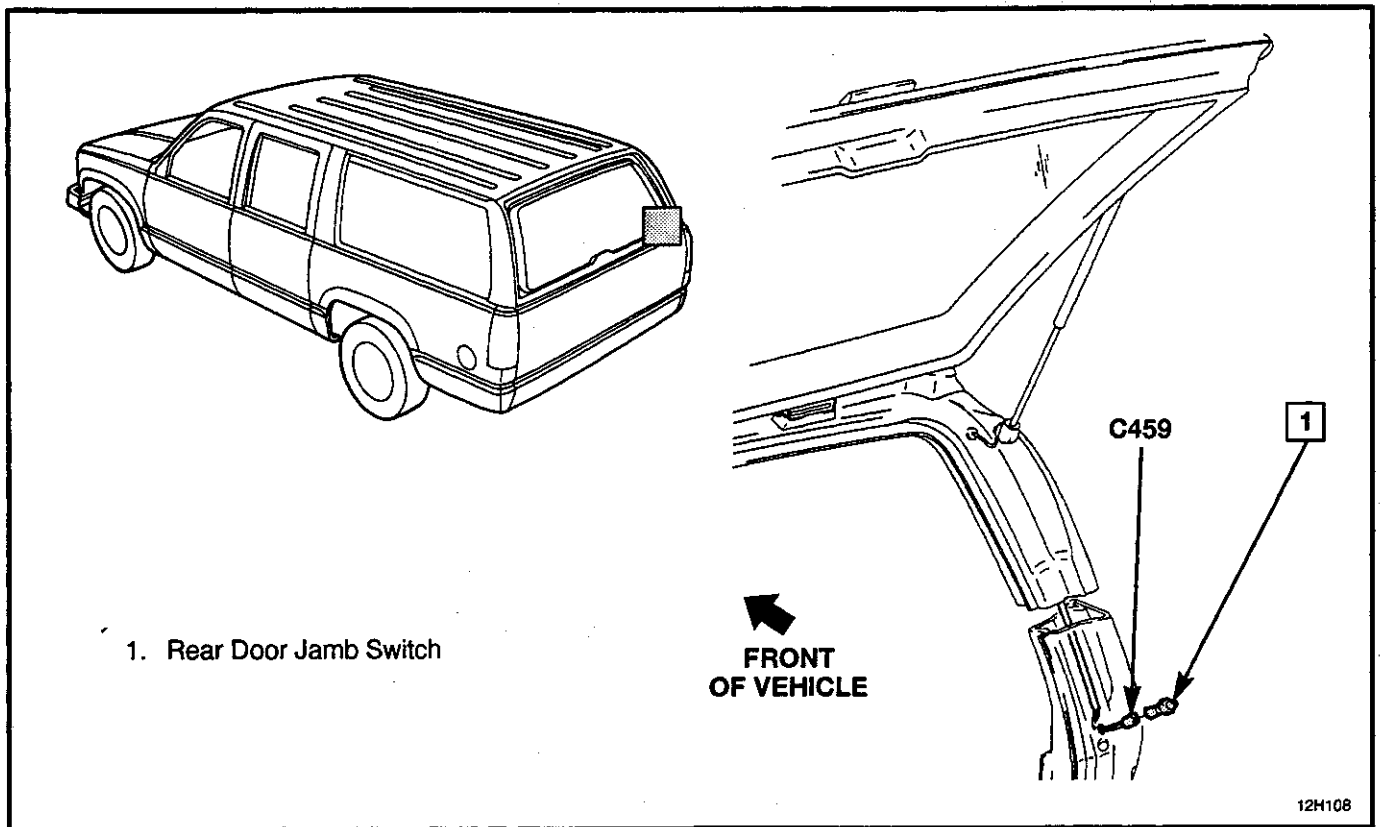


Figure 9 — Rear Door Jamb Switch Wiring, Suburban W/Endgate

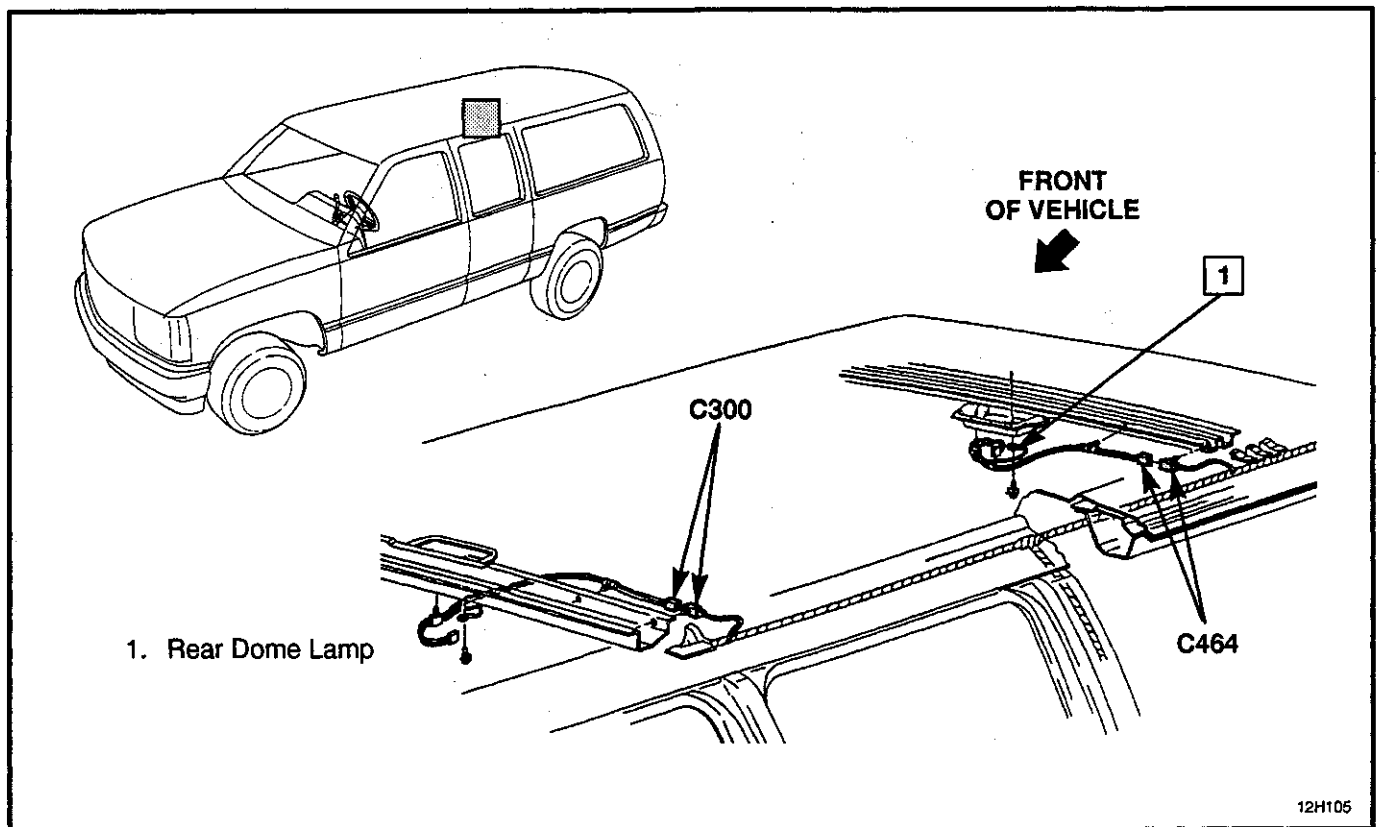
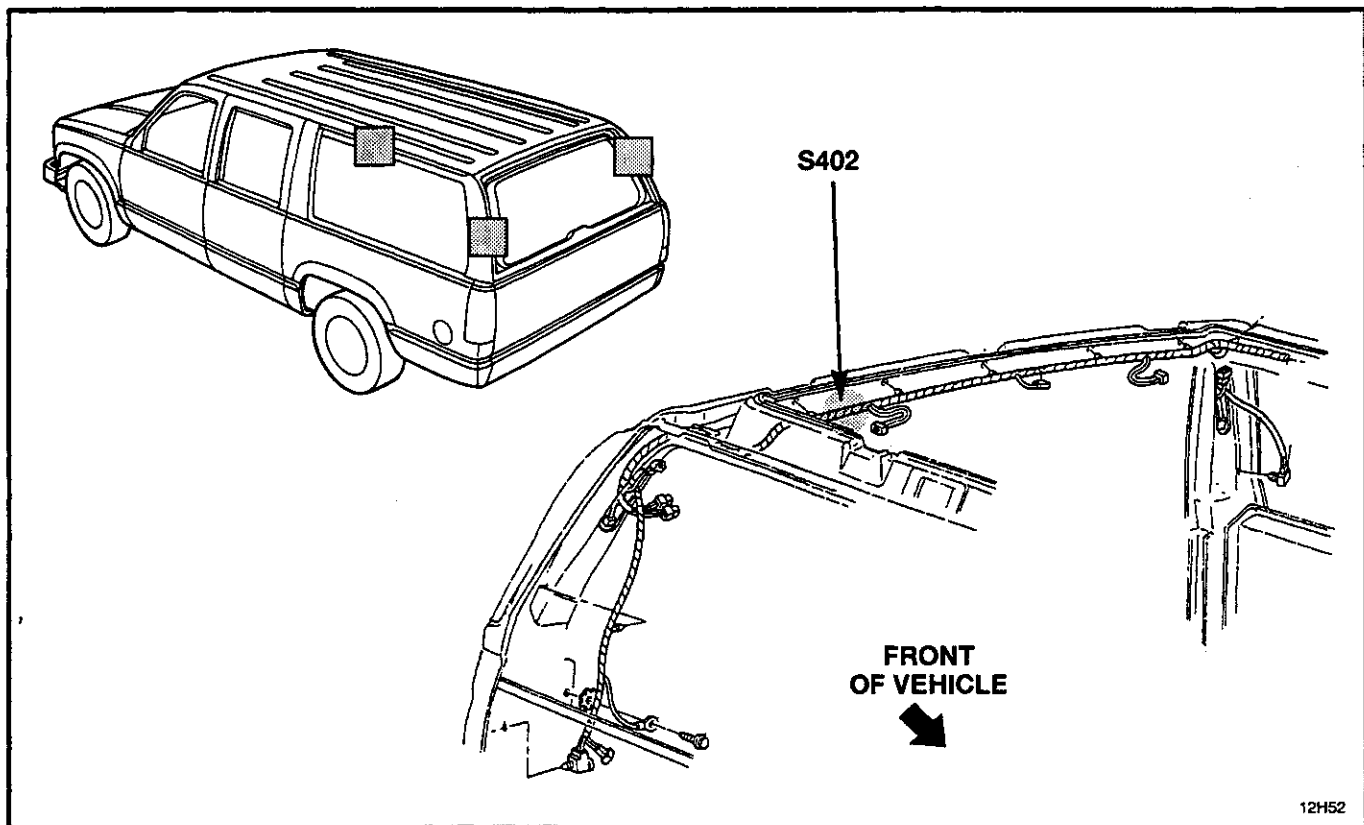


Figure 10 — Front and Rear Dome Lamp Wiring, Suburban and Utility W/O Console





**Figure 11 — Body Wiring, Rear — Suburban**

## **8A-114-24 INTERIOR LAMPS**

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**BLANK**

## **CIRCUIT OPERATION**

### **CARGO LAMP**

Voltage is supplied at all times through the CTSY Fuse to the Cargo Lamp Switch. When the Cargo Lamp Switch is turned on, voltage flows through the switch to the Lamp.

### **COMPONENT LOCATION**

**Page — Figure**

Convenience Center .....	Under LH side of I/P .....	116-7	4
Cargo Lamp .....	Rear center of cab, above rear window .....	116-7	5
Cargo Lamp Switch .....	LH side of I/P .....	116-6	2
Door Jamb Switch, LH Front .....	At LH end of I/P .....	116-5	1
Door Jamb Switch, RH Front .....	At RH end of I/P .....	Not Shown	
Fuse Block .....	Below LH side of I/P .....	116-5	1
Panel Dimmer Switch .....	LH end of I/P .....	116-5	1

### **CONNECTORS:**

C239A .....	At convenience center .....	116-7	4
C293 .....	Behind LH side of I/P, near convenience center .....	116-7	4

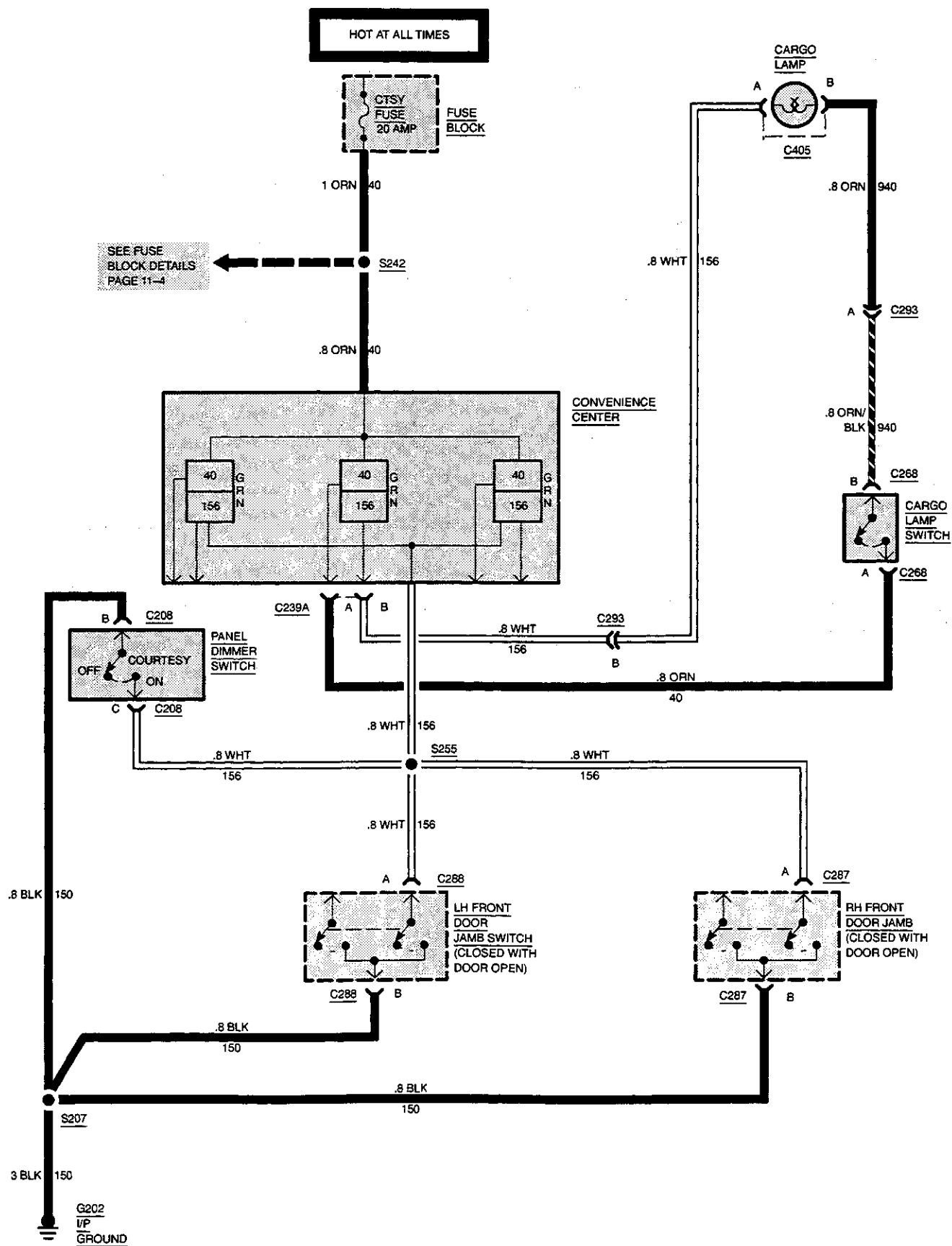
### **GROUND:**

G202 .....	At DLC connector .....	116-6	3
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### **SPLICES:**

S207 .....	Under LH side of I/P .....	116-5	1
S242 .....	Under LH side of I/P .....	116-5	1
S255 .....	Under LH side of I/P .....	116-5	1

**8A-116-2 CARGO LAMP**



**DIAGNOSIS — CARGO LAMP****PRELIMINARY CHECKS:**

1. Check condition of CTSY Fuse. If fuse is blown, locate and repair source of overload. Replace fuse.
2. Check operation of dome and courtesy lamps, if inoperative, repair before proceeding with cargo lamp diagnosis.

**CARGO LAMP DOES NOT OPERATE**

TEST	RESULT	ACTION
1. Place cargo switch to ON. Connect test lamp from ORN (940) wire at cargo lamp connector C405 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	GO to step 3.
2. Connect test lamp from ORN (940) wire to WHT (156) wire at cargo lamp connector C405.	Test lamp lights.	REPLACE bulb.
	Test lamp does not light.	LOCATE and REPAIR open in WHT (156) wire from cargo lamp to convenience center connector C227.
3. Connect test lamp from ORN (40) wire at cargo lamp switch connector C268 to ground.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	LOCATE and REPAIR open in ORN (40) wire between cargo switch connector C268 and convenience center connector C227.
4. Connect test lamp from ORN/BLK (940) wire at cargo lamp switch connector C268 to ground.	Test lamp lights.	LOCATE and REPAIR open in ORN/BLK (940) wire from cargo lamp switch connector C268 to cargo lamp connector C405.
	Test lamp does not light.	REPLACE cargo lamp switch.

# 8A-116-4 CARGO LAMP

12033700



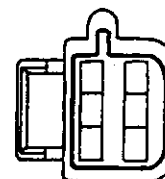
**C239A**  
Cargo Lamp to Convenience  
Center

12034060



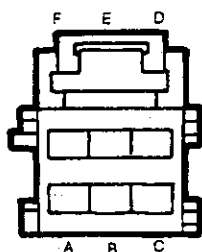
**NATURAL**  
Metri-Pack 480  
**C208**  
Panel Dimmer Switch

12064763



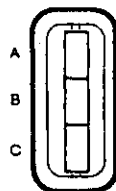
**GRAY**  
Metri-Pack 150  
**C293**  
In-Line Convenience Center to  
Cargo Lamp

12064762



**GRAY**  
Metri-Pack 150  
**C293**  
In-Line Cargo Lamp to  
Convenience Center

12047782



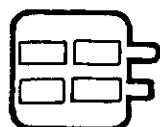
**BLACK**  
Metri-Pack 150  
**C268**  
Cargo Lamp Switch

12047781



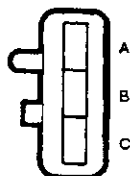
**BLACK**  
Metri-Pack 150  
**C288**  
LH Front Door Jamb Switch

12047785



**BLACK**  
Metri-Pack 150  
**C405**  
Cargo Lamp

12047781



**BLACK**  
Metri-Pack 150  
**C287**  
RH Front Door Jamb Switch

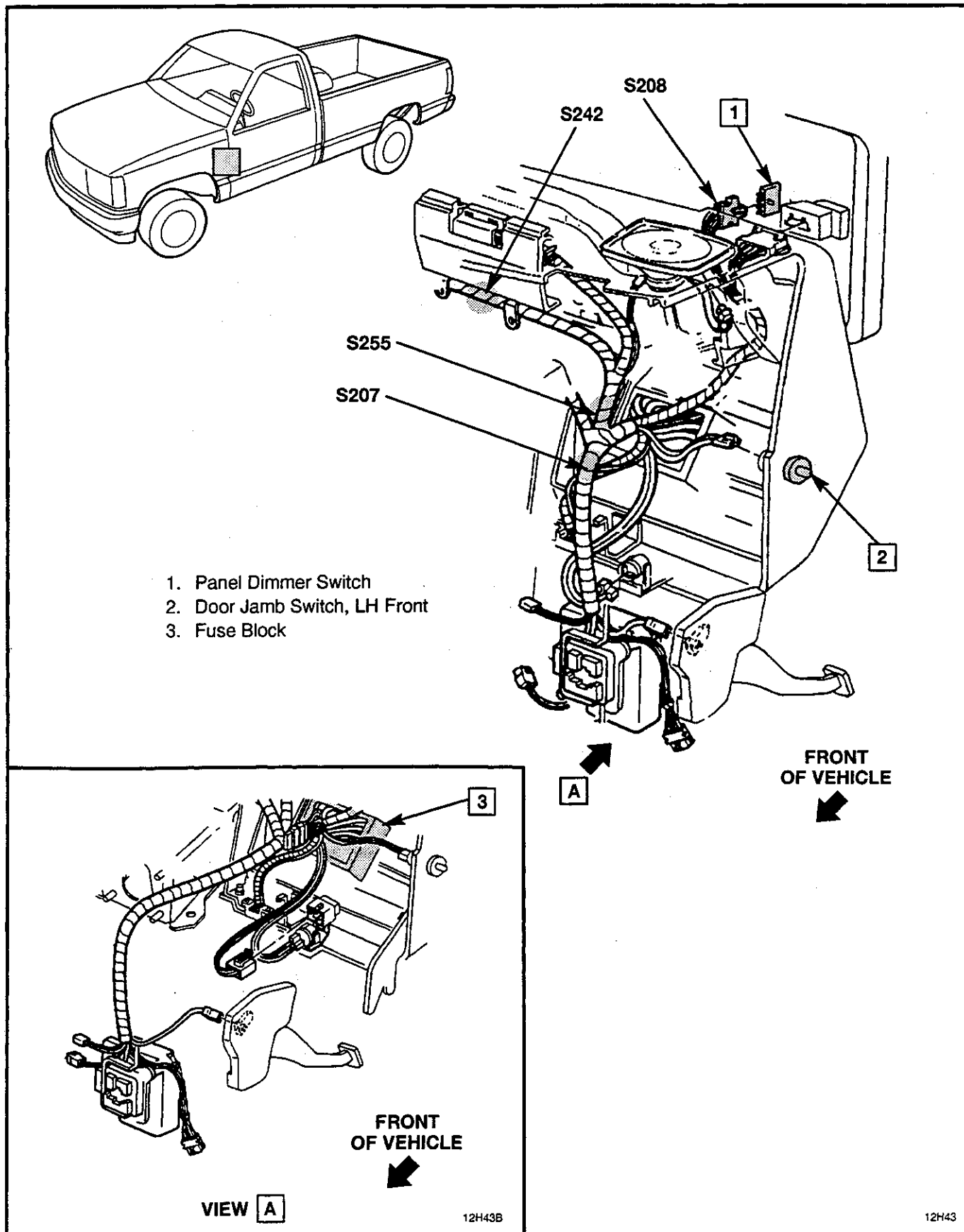


Figure 1 — LH Side of Instrument Panel

8A-116-6 CARGO LAMP

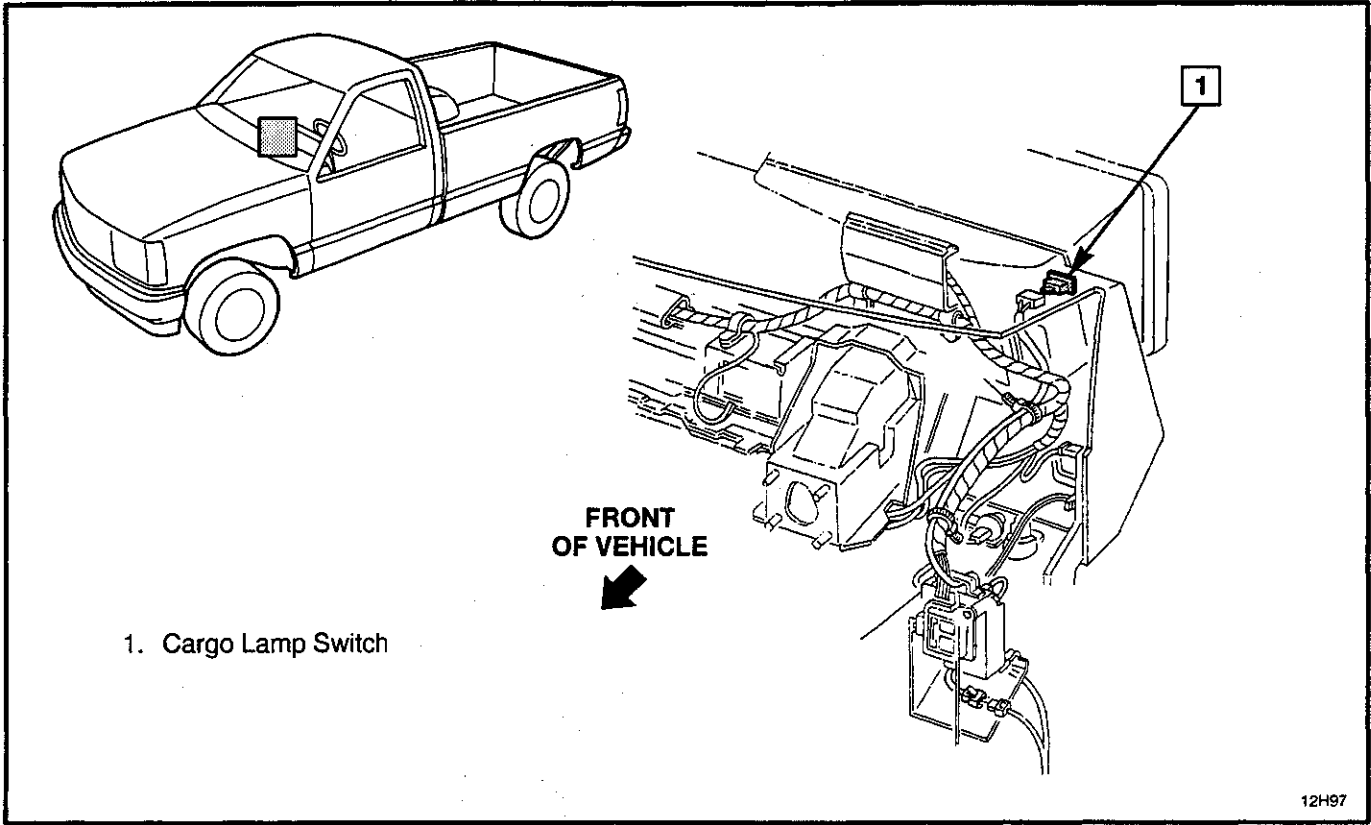


Figure 2 — Cargo Lamp Switch Wiring

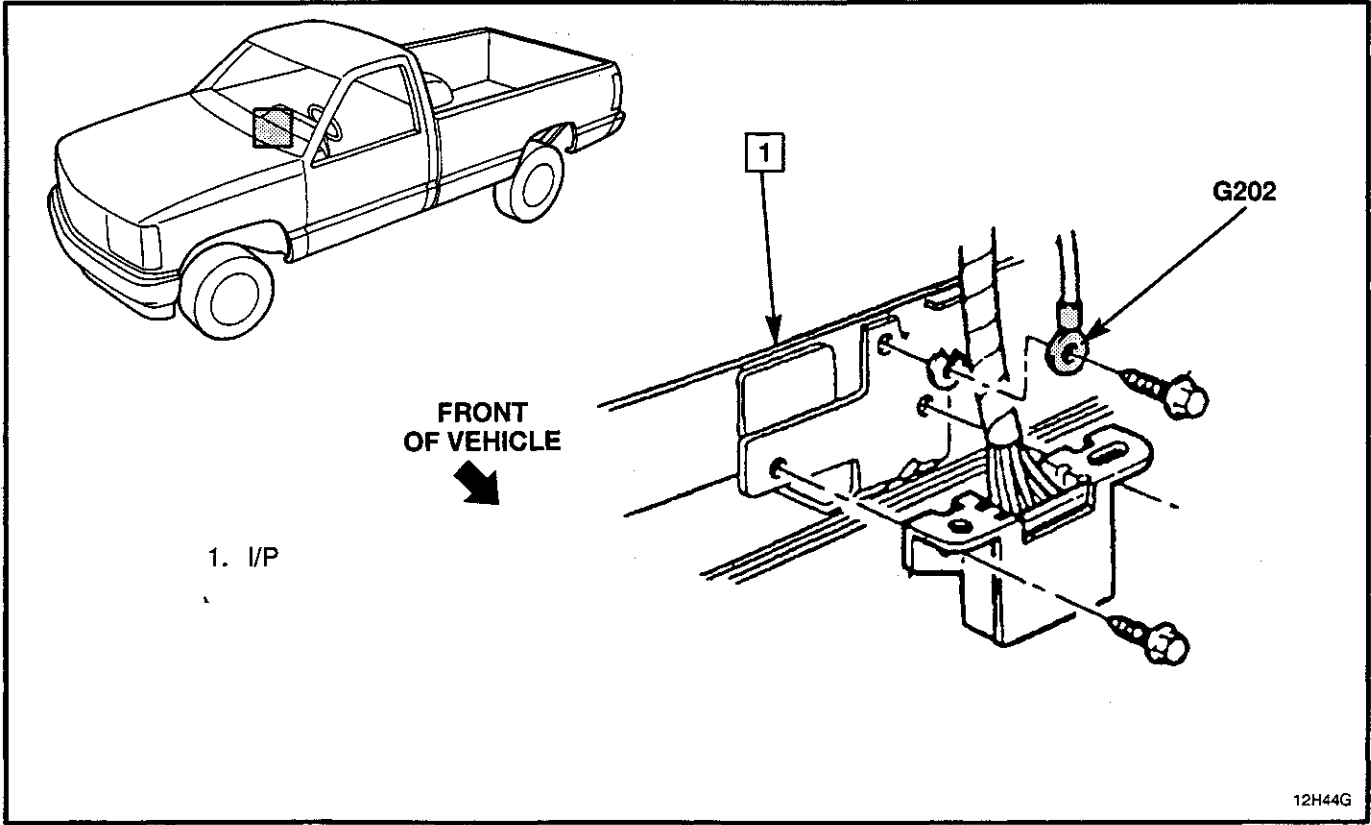


Figure 3 — I/P Ground



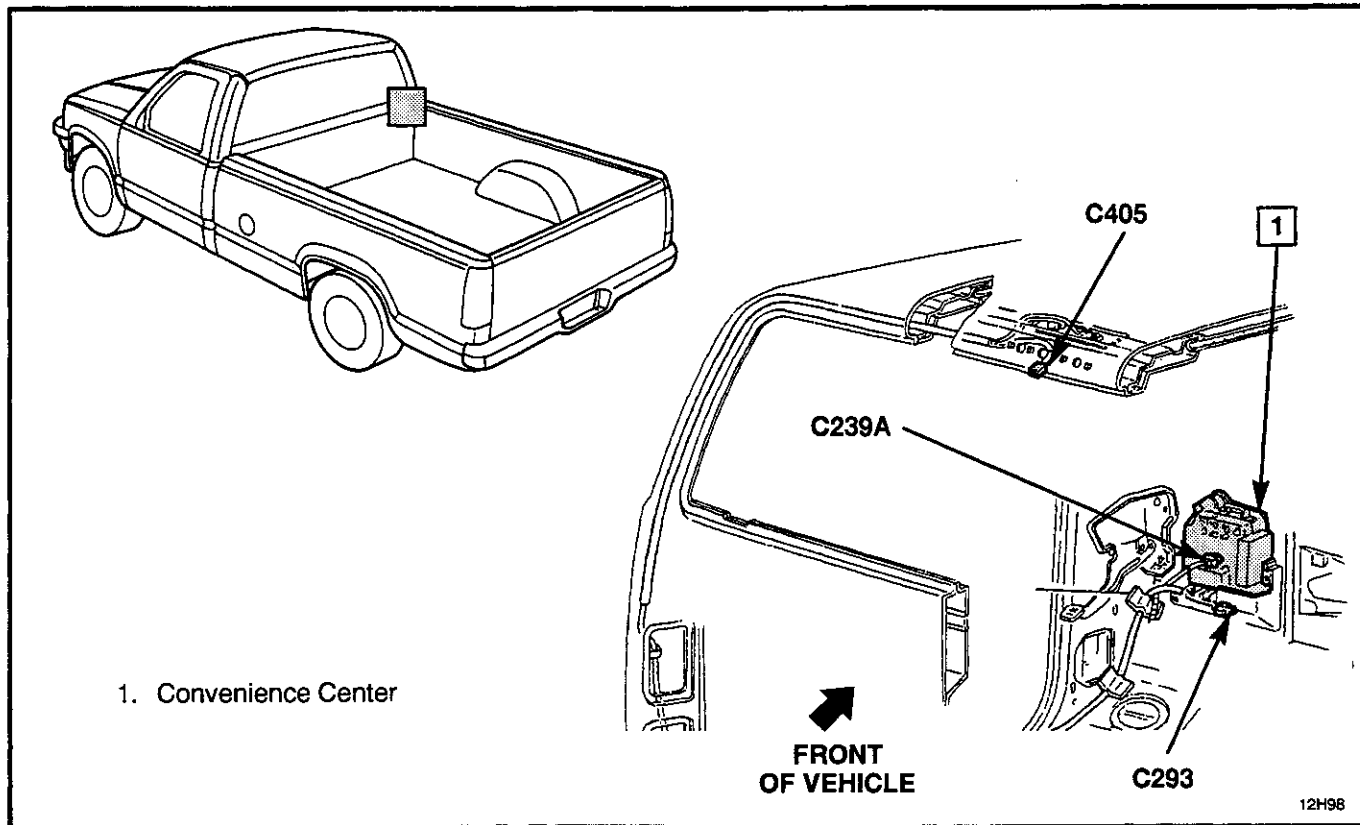


Figure 4 — Cargo CHMSL and Dome Lamp Wiring

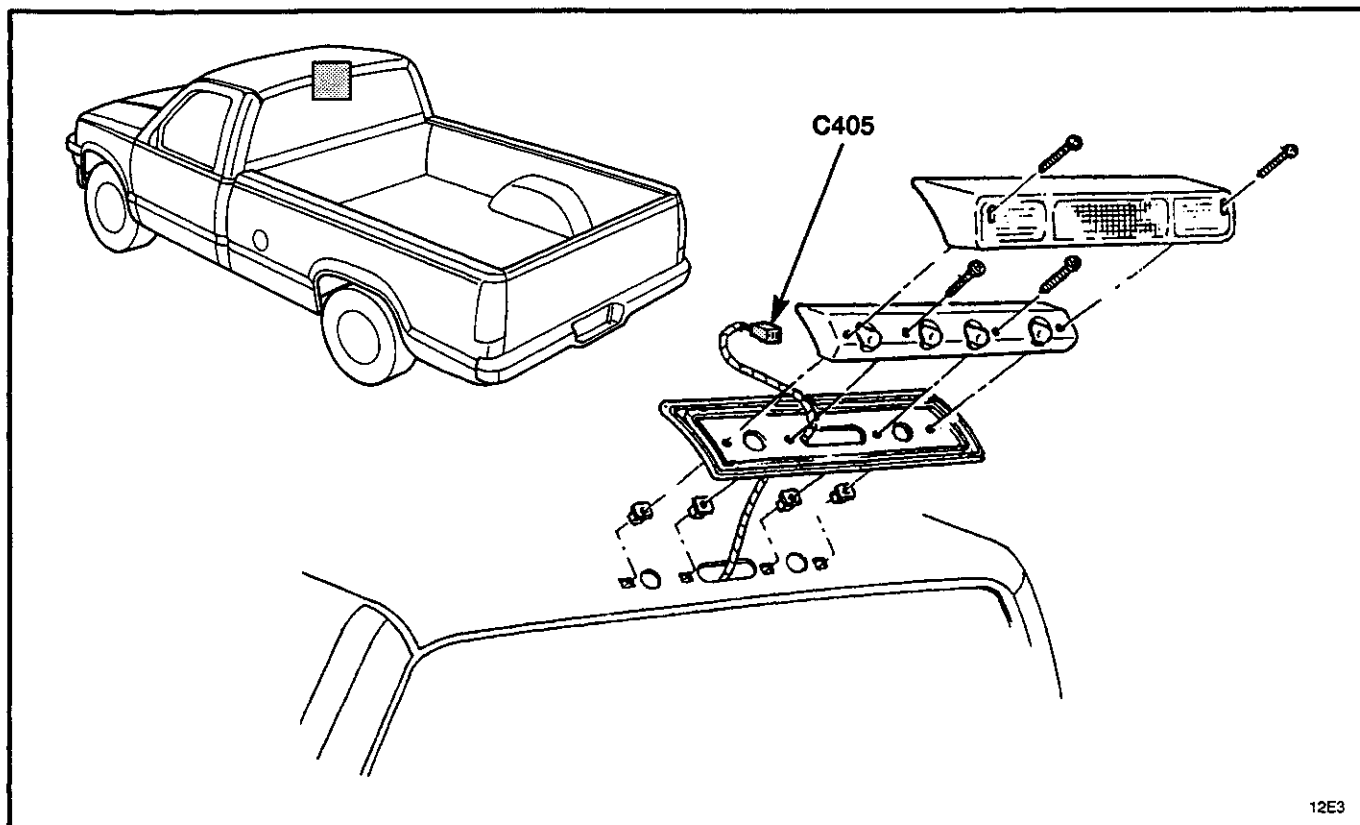


Figure 5 — Cargo and CHMSL Lamp Rear Wiring

**8A-116-8 CARGO LAMP**

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**BLANK**

## **CIRCUIT OPERATION**

### **INTERIOR LAMPS DIMMING**

With the Headlight Switch in PARK or HEAD, voltage is supplied to Panel Dimmer Switch assembly. This voltage goes through the PNL LPS 5 Amp Fuse to the I/P Cluster Lamps, Radio, Heater — A/C Control Assembly, Auxiliary Heater—A/C Control Assemblies, Rear Defogger and Four Wheel Drive Indicator Lamps.

### **COMPONENT LOCATION**

**Page — Figure**

Auxiliary Heater and A/C Control Assemblies .....	Overhead console .....	117-10	6
Convenience Center .....	Under LH side of I/P .....	117-11	7
Heater and A/C Control .....	Center of I/P at heater control .....	117-7	3
Heater Control .....	Center of I/P at heater control .....	Not Shown	
Instrument Cluster .....	LH upper end of I/P .....	Not Shown	
Light Switch .....	Upper LH side of I/P .....	117-8	4
Panel Dimmer Switch .....	RH side of I/P .....	117-8	4
Radio .....	LH side of I/P .....	117-9	5
Rear Defogger Switch .....	LH side of I/P .....	117-12	8
Four-Wheel Drive Indicator .....	Center floor console .....	117-11	7

### **CONNECTORS:**

C215A .....	At convenience center .....	117-11	7
C230 .....	Below center of I/P, near heater outlet .....	117-7	3
C258 .....	At convenience center .....	117-12	8
C382 .....	Under driver's seat .....	117-10	6

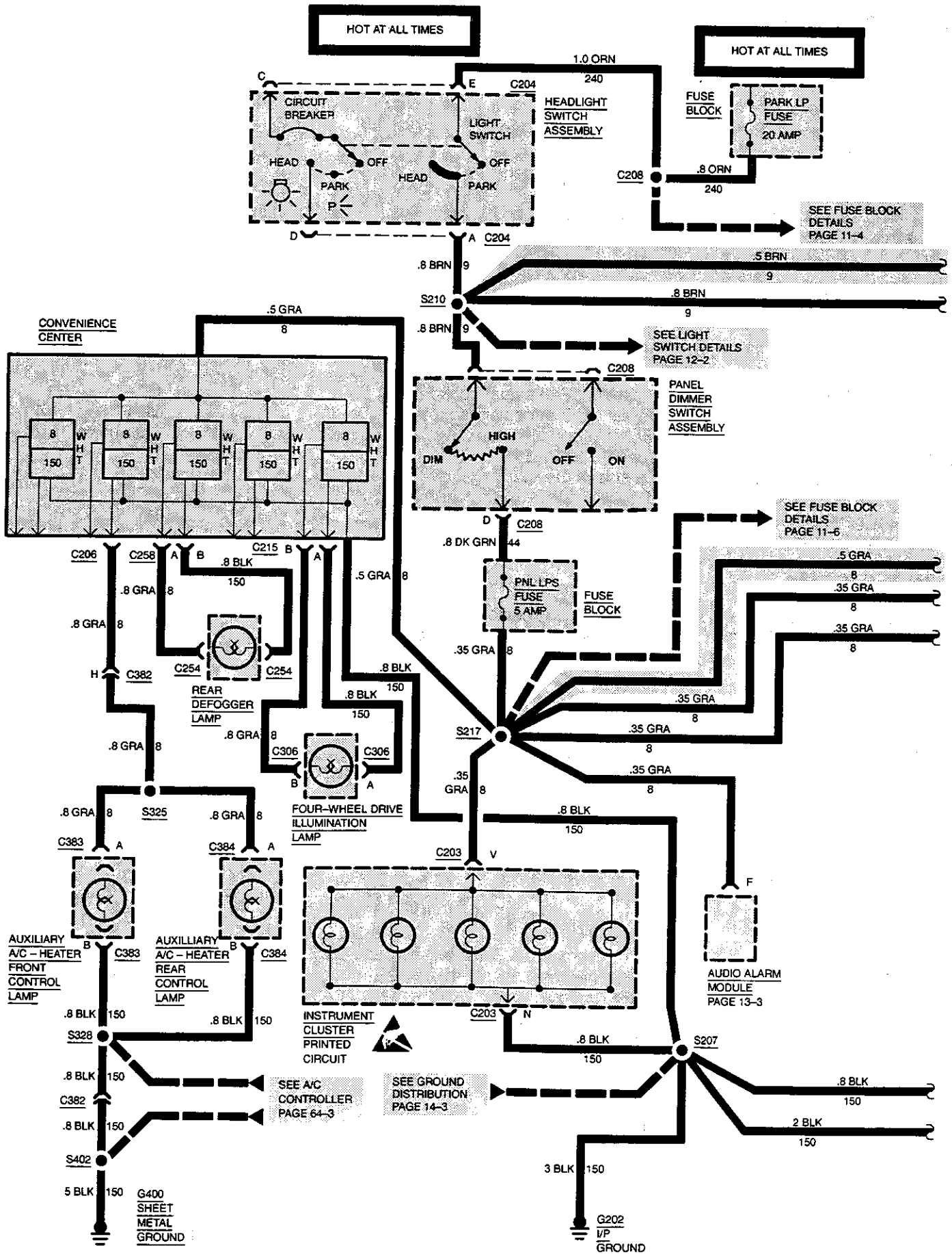
### **GROUND:**

G202 .....	At DLC connector .....	117-6	2
G400 (Utility) .....	At RH D-pillar .....	Not Shown	
G400 (Suburban) .....	At RH C-pillar .....	Not Shown	

### **SPLICES:**

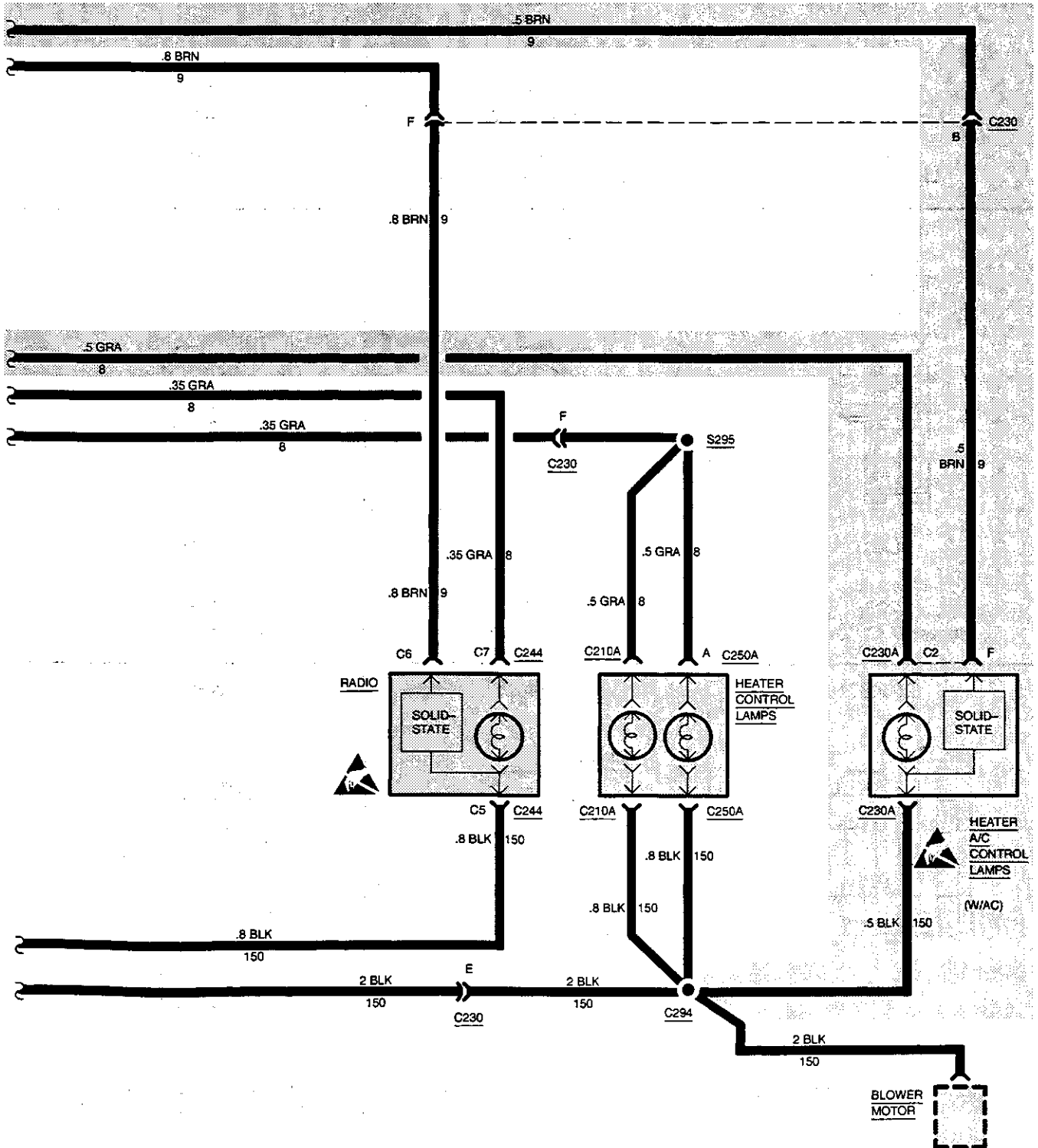
S207 .....	Under LH side of I/P .....	117-8	4
S208 .....	Under LH side of I/P .....	117-8	4
S210 .....	Under LH side of I/P .....	117-8	4
S217 .....	Under LH side of I/P .....	117-8	4
S294 .....	Heater harness, near I/P harness lead .....	117-12	9
S295 .....	Heater harness, near I/P harness lead .....	117-12	9
S325 .....	At overhead console .....	117-10	6
S328 .....	At overhead console .....	117-10	6
S402 .....	Rear of vehicle .....	117-6	1

# 8A-117-2 INSTRUMENT PANEL DIMMING



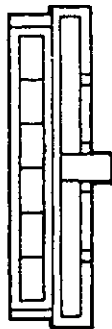
# INSTRUMENT PANEL DIMMING 8A-117-3

SEE PAGE 8A-2-1  
FOR MEASURING  
AND HANDLING  
PROCEDURES



## 8A-117-4 INSTRUMENT PANEL DIMMING

12034061



**NATURAL**  
Metri-Pack 480  
**C204**  
Light Switch

12034060



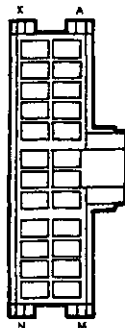
**NATURAL**  
Metri-Pack 480  
**C208**  
Panel Dimmer Switch

12047531



**BLACK**  
Micro-Pack 100  
**C244**  
Radio

12004702



**BLACK**  
**C203A**  
Heater-A/C Control

12015956



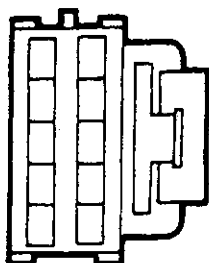
**BLACK**  
**C210A**  
Heater Control

12015956



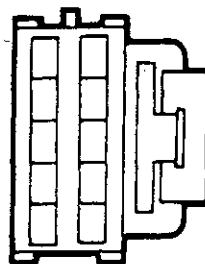
**BLACK**  
**C250A**  
Heater Control

12064871



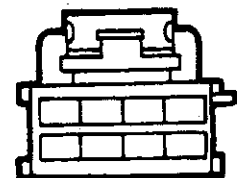
**C383**  
Front Auxiliary Heater-A/C  
Control

12064871



**C384**  
Rear Auxiliary Heater-A/C  
Control

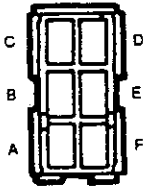
12064766



**BLUE**  
Metri-Pack 150  
**C382**  
In-Line Extension Harness to  
Auxiliary Heater-A/C Controls

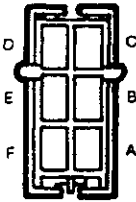
**INSTRUMENT PANEL DIMMING 8A-117-5**

**12034481**



**GRAY**  
Metri-Pack 280  
**C230**  
I/P to Heater-A/C Harness

**12034482**



**GRAY**  
Metri-Pack 280  
**C230**  
Heater-A/C Harness to I/P

## 8A-117-6 INSTRUMENT PANEL DIMMING

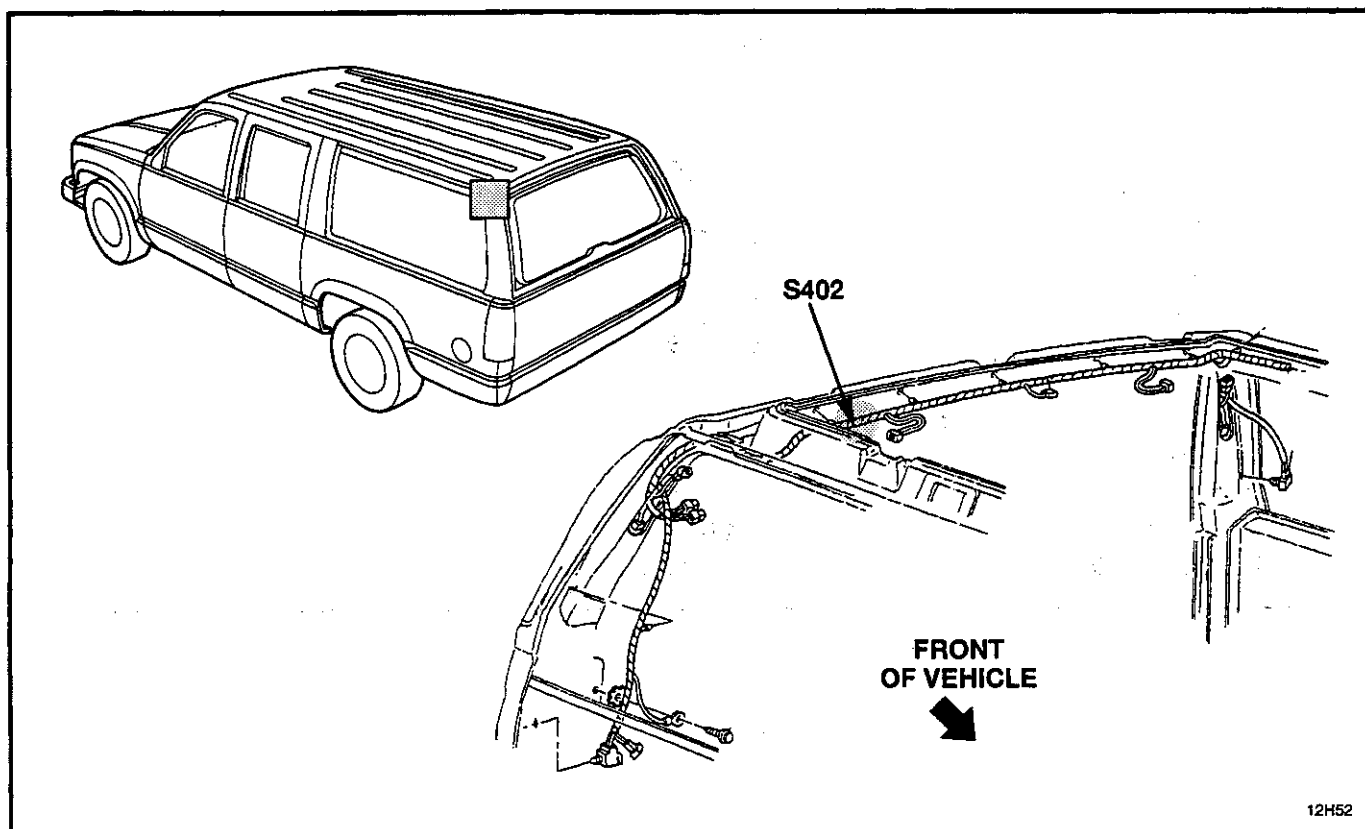


Figure 1 — Body Wiring, Rear – Suburban

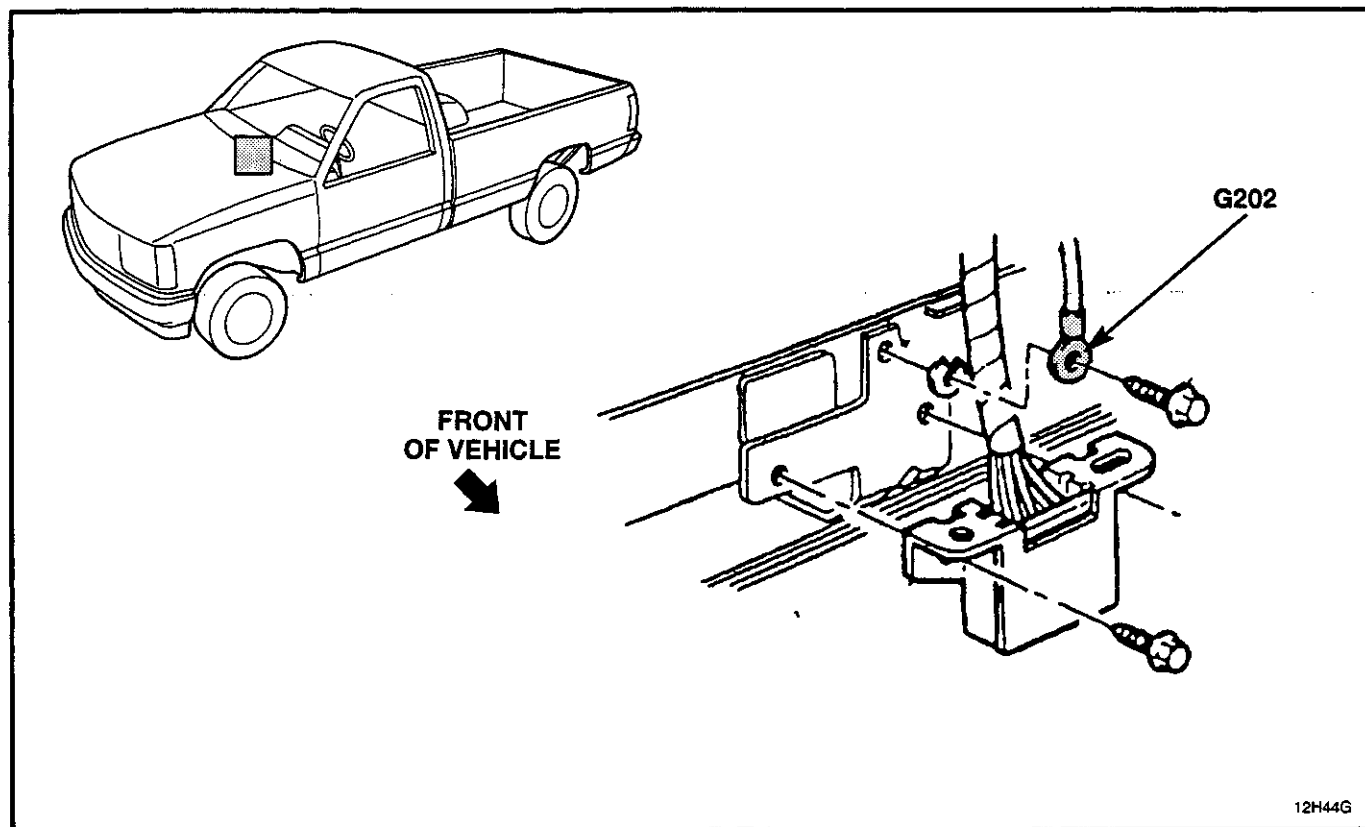


Figure 2 — I/P Ground



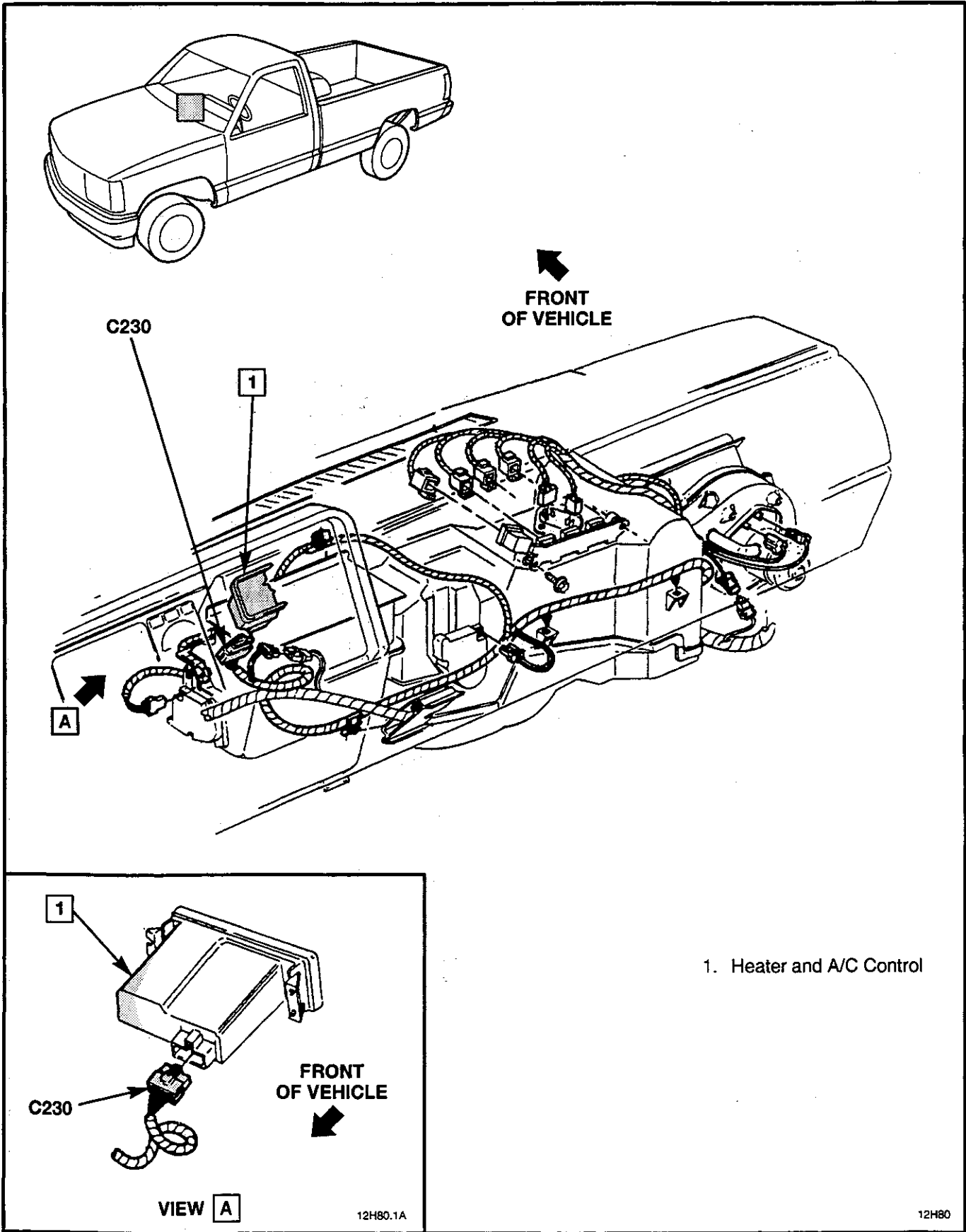


Figure 3 — Heater and A/C Harness Wiring

## 8A-117-8 INSTRUMENT PANEL DIMMING

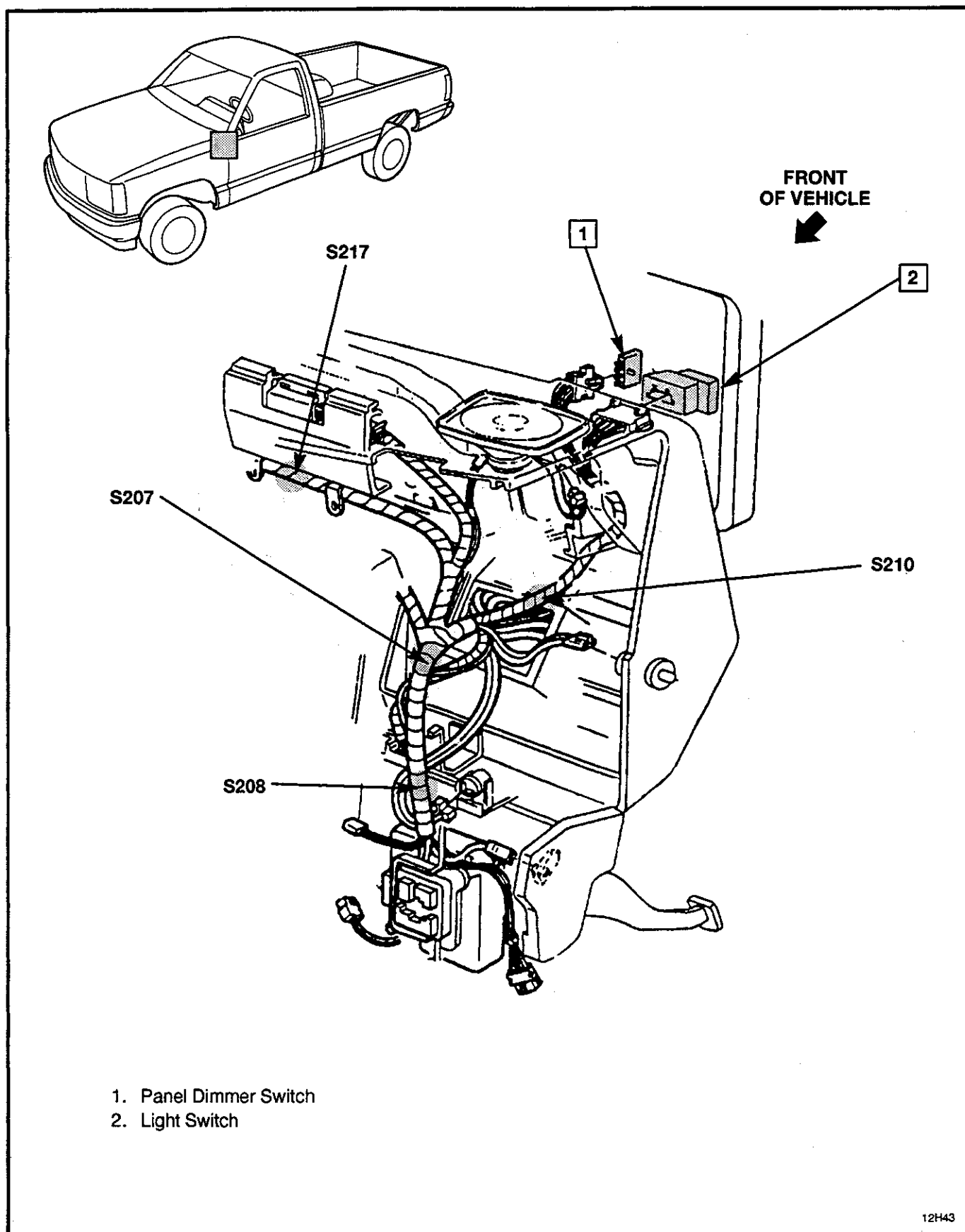


Figure 4 — LH Side of Instrument Panel

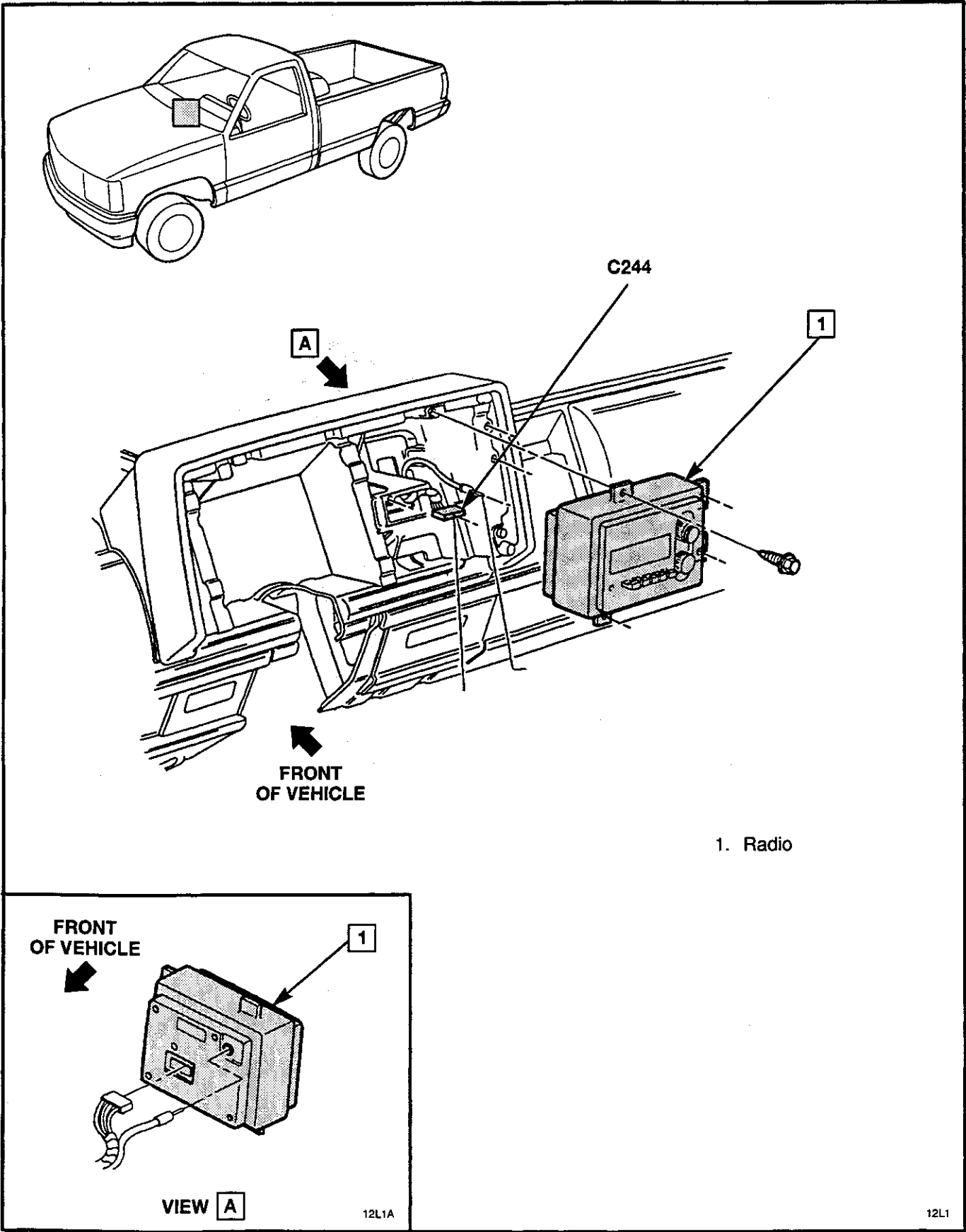


Figure 5 — Radio Wiring

## 8A-117-10 INSTRUMENT PANEL DIMMING

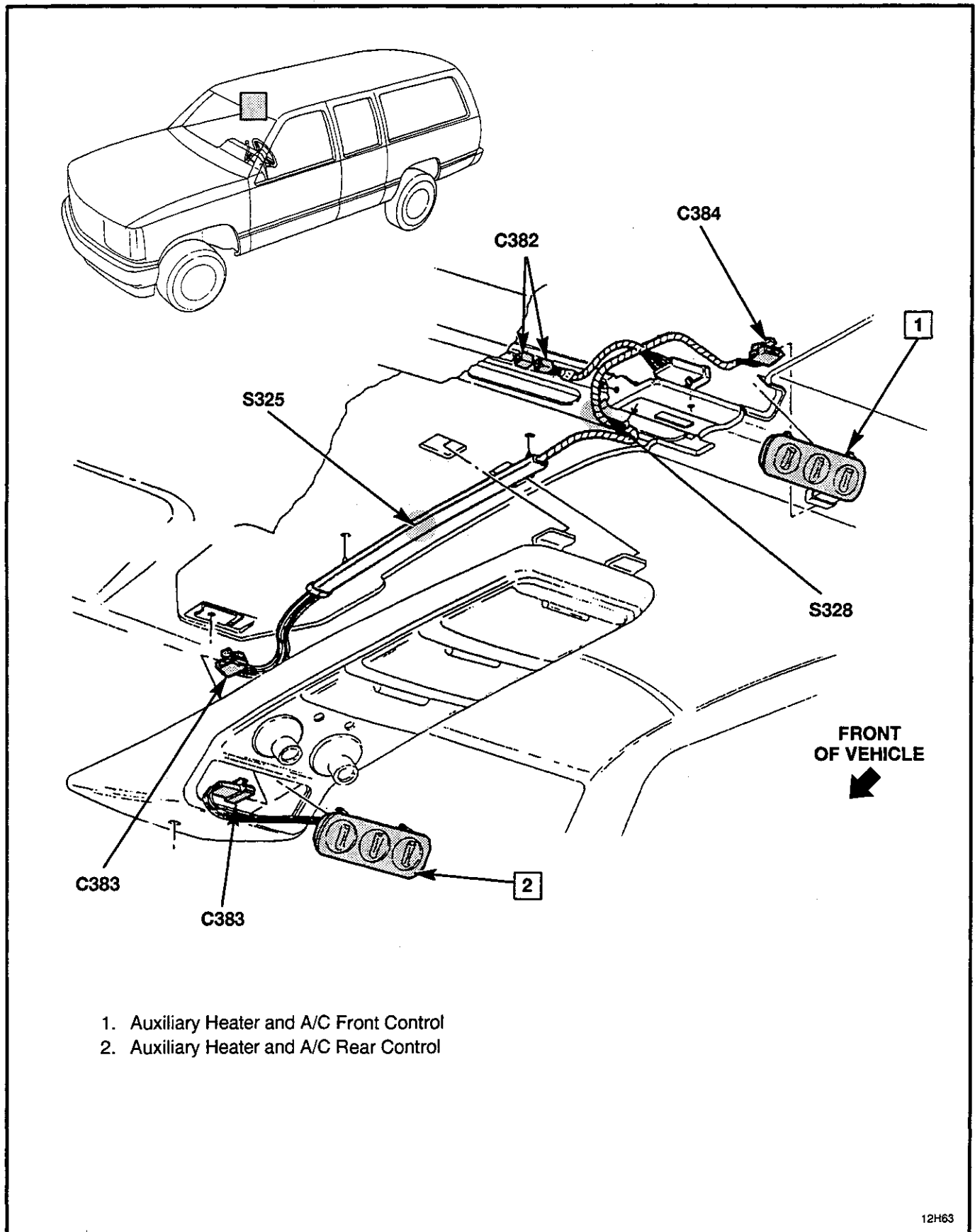
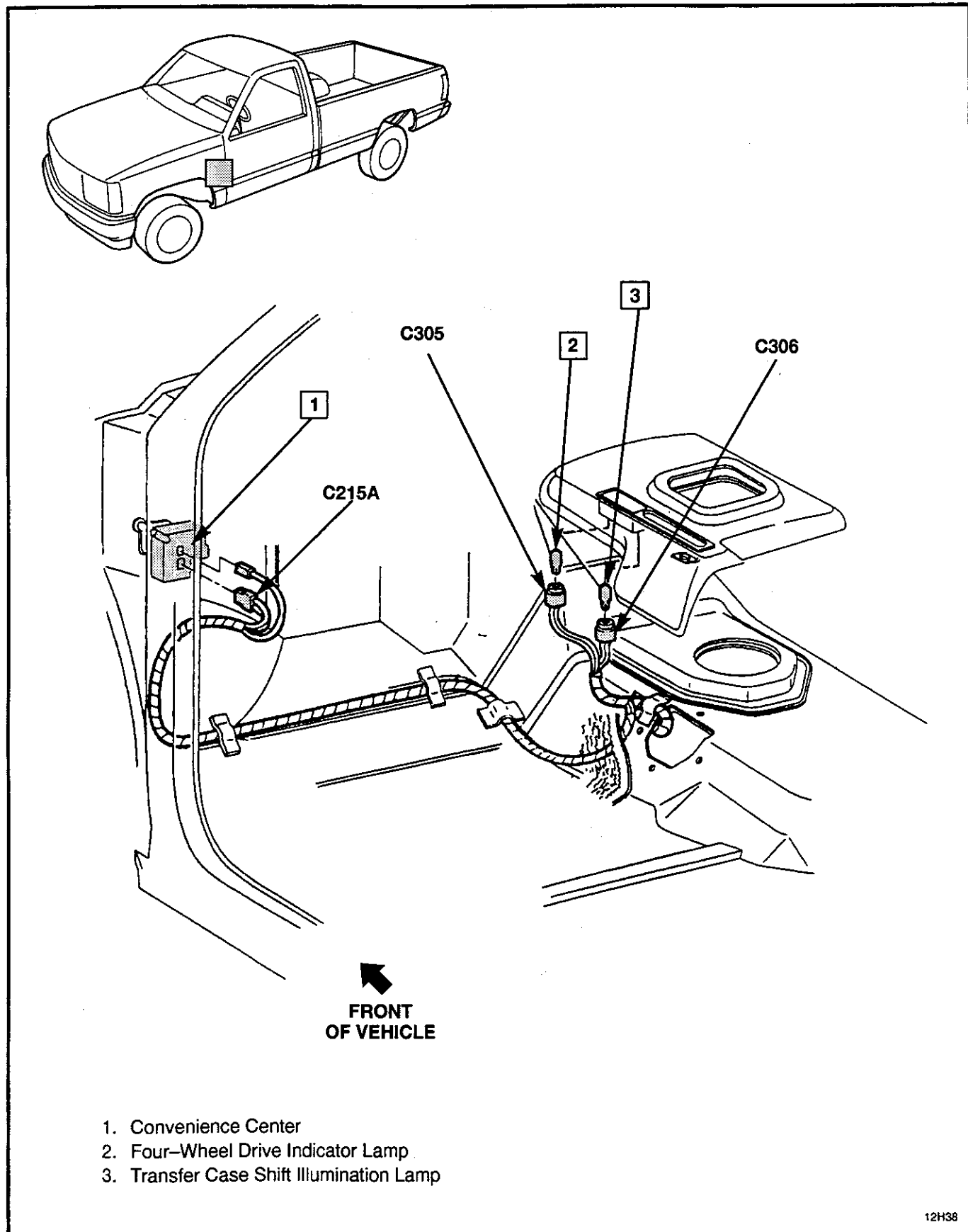


Figure 6 — Auxiliary Heater and A/C Controls



**Figure 7 — Four-Wheel Drive Illumination Wiring**

## 8A-117-12 INSTRUMENT PANEL DIMMING

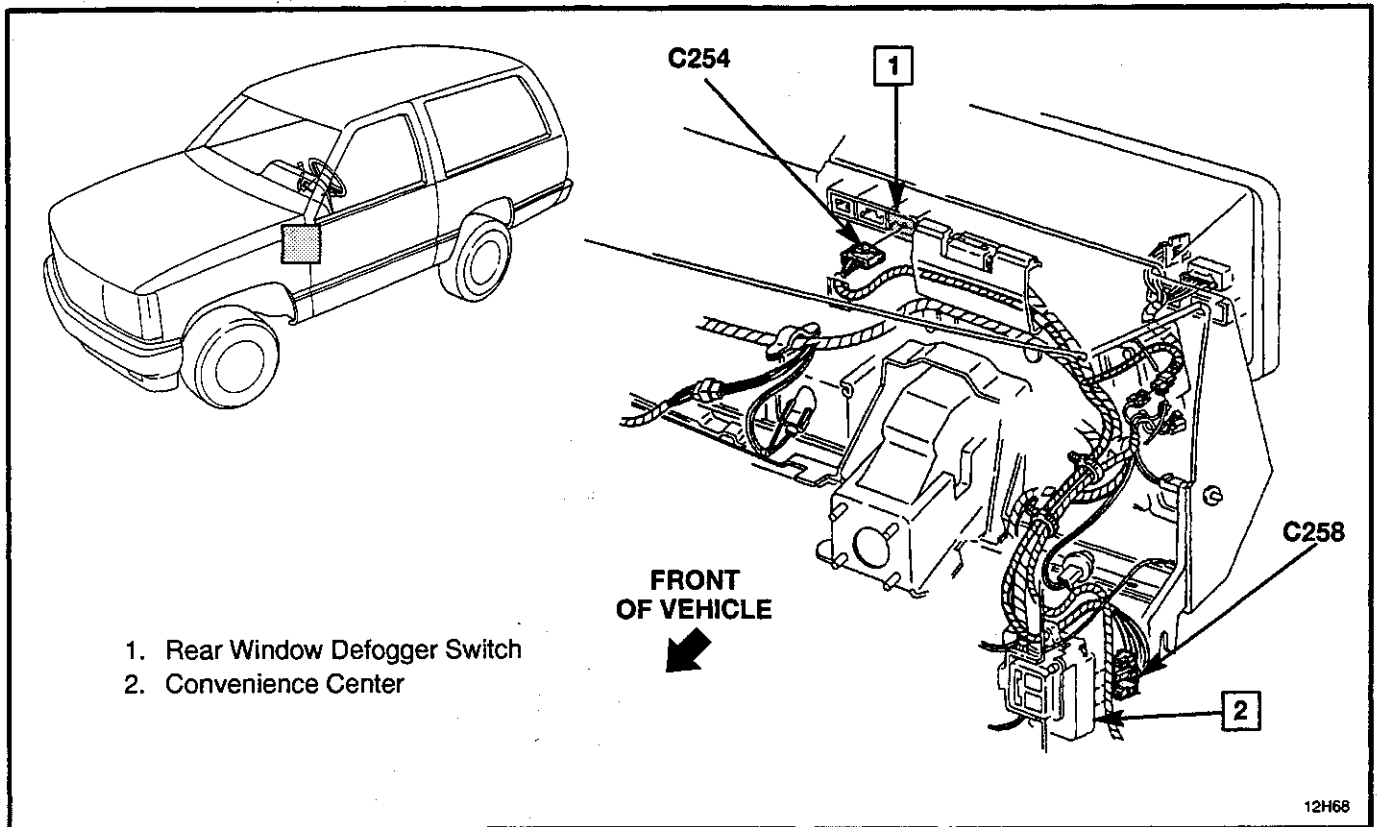


Figure 8 — Rear Window Defogger Front Wiring – Utility and Suburban Shown  
Extended and 4-Door Cabs Similar

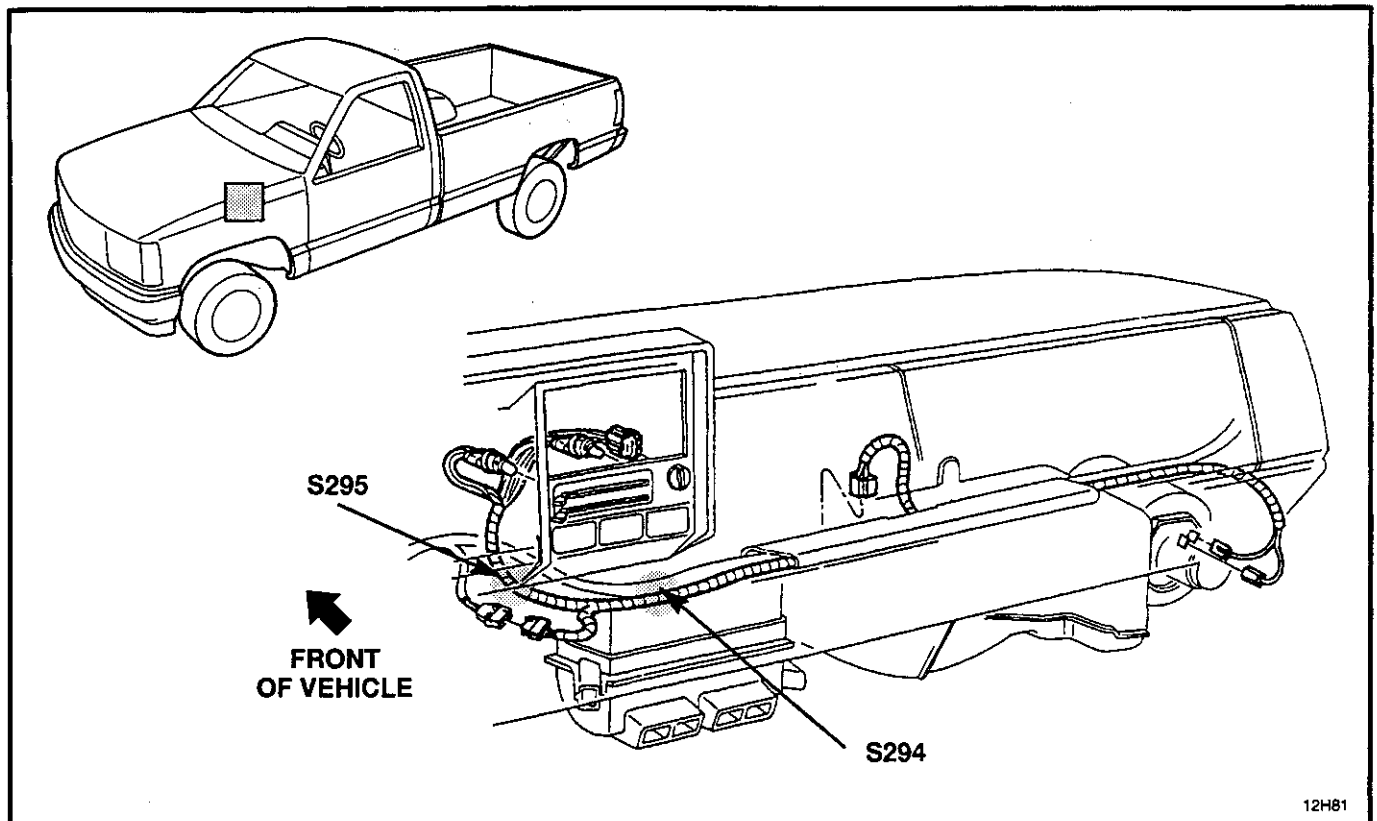


Figure 9 — Heater Wiring

**CIRCUIT OPERATION**

**UNDERHOOD REEL LAMP**

Voltage is supplied at all times to the Underhood Lamp from the Battery Junction Block through an in-line fuse. When the switch is closed a ground path is provided.

<b>COMPONENT LOCATION</b>		<b>Page — Figure</b>	
Battery Junction Block .....	RH rear engine compartment, at cowl .....	118-5	1
In-Line Fuse Holder .....	On cowl, near battery junction block .....	Not Shown	
Underhood Reel Lamp .....	RH front side of engine compartment .....	118-5	1

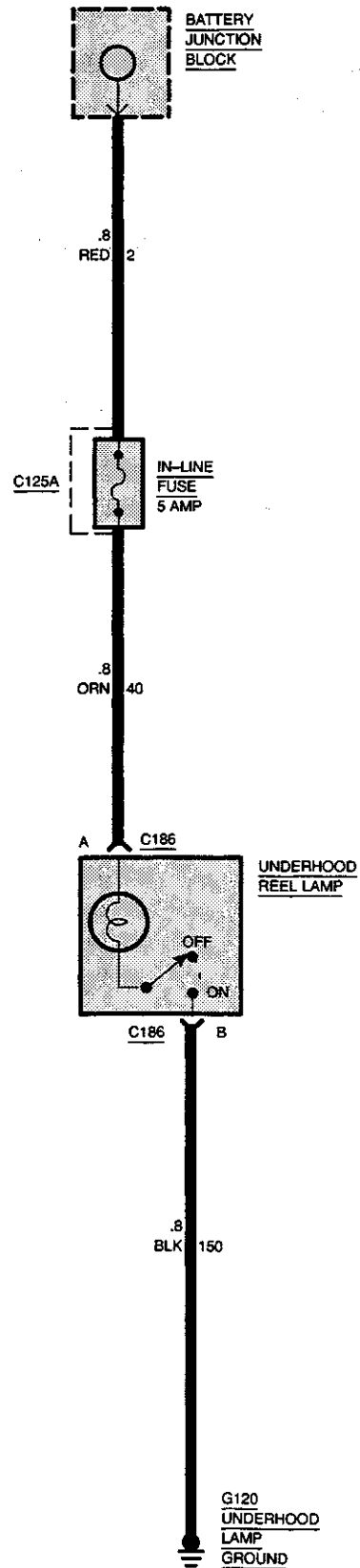
**CONNECTORS:**

C125A .....	Behind battery junction block cover .....	Not Shown
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**GROUNDING:**

G120 .....	At underhood lamp .....	Not Shown
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## 8A-118-2 UNDERHOOD LAMP





**DIAGNOSIS — UNDERHOOD LAMP****PRELIMINARY CHECKS:**

1. Check condition of UNDERHOOD LAMP Fuse. If fuse is blown, locate and repair source of overload. Replace fuse.

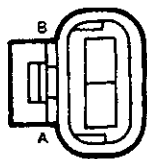
**UNDERHOOD REEL LAMP DOES NOT OPERATE**

TEST	RESULT	ACTION
1. Connect a test lamp from ORN (40) wire to BLK (150) wire at underhood lamp connector C186.	Test lamp lights.	REPLACE underhood lamp bulb.
	Test lamp does not light.	GO to step 2.
2. Connect a test lamp to RED (2) wire at in-line fuse connector C125A to ground.	Test lamp lights.	REPLACE in-line fuse.
	Test lamp does not light.	LOCATE and REPAIR open in RED (2) wire from in-line fuse connector C125A to battery junction block.

## 8A-118-4 UNDERHOOD LAMP

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12078084



**BLACK**  
Metri-Pack 150  
**C186**  
**Underhood Lamp**

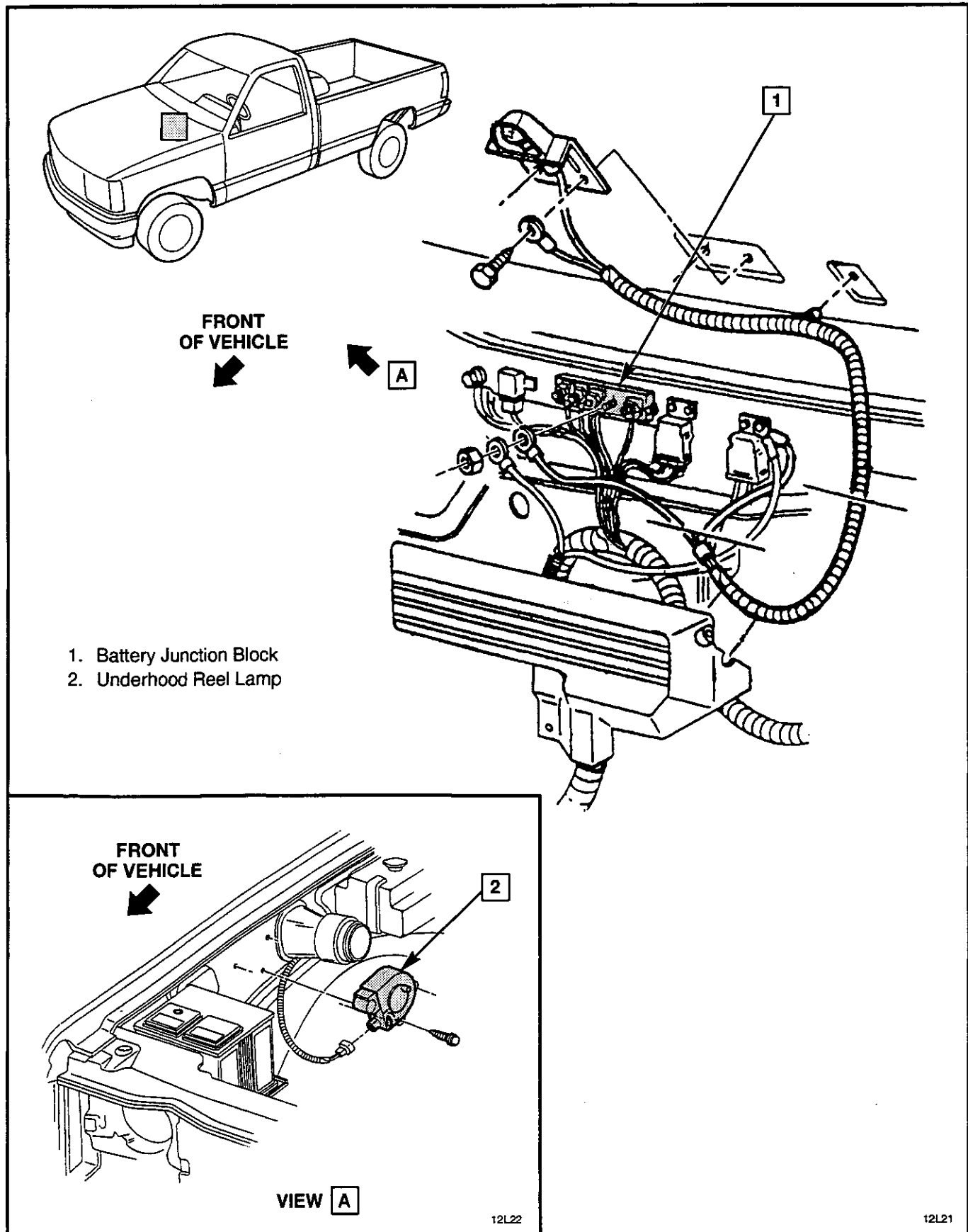


Figure 1 — Underhood Reel Lamp Wiring

**8A-118-6 UNDERHOOD LAMP**

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**BLANK**

**COMPONENT LOCATION**

**Page — Figure**

Backup Lamp Switch (Auto)	Top of lower steering column	119-8	6
Backup Lamp Switch (Man)	LH top of transmission	119-6	3
Battery Junction Block	RH upper cowl	119-5	2
Brake Switch	Top of brake pedal support	Not Shown	
Convenience Center	Under LH side of I/P	119-6	4
Fuse Block	Lower LH side of I/P	119-10	9
Hazard Flasher	Under LH side of I/P	119-10	9
Headlight Switch	Upper LH side of I/P	119-10	9
High Mount Stoplamp Relay			
(Pickup Only)	LH side of cowl, near brake booster	Not Shown	
In-Line Fuse	Near Battery Junction Block	Not Shown	
Turn Signal Switch	Part of multi-function switch	119-7	5

**CONNECTORS:**

C100	At bulkhead connector	119-5	1
C101	At bulkhead connector	119-5	1
C200	Under RH side of I/P, near blower motor	119-8	7
C206	Lower LH side of steering column	119-7	5
C400	At rear of LH frame rail	119-9	8
C400A	At rear of LH frame rail	119-9	8
C400B	At rear of LH frame rail	119-9	8

**GROMMETS:**

P101	Lower RH cowl	119-8	7
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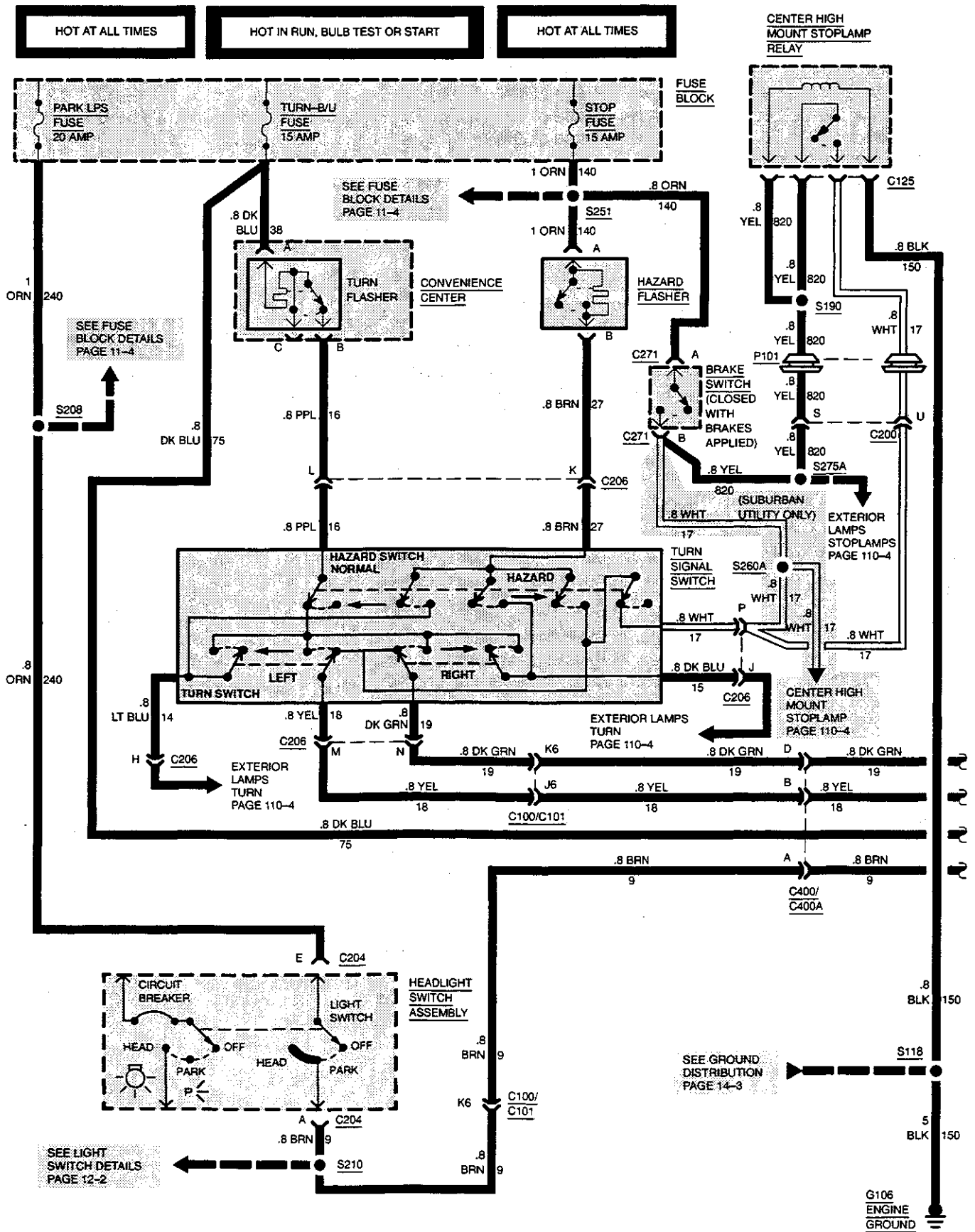
**GROUND:**

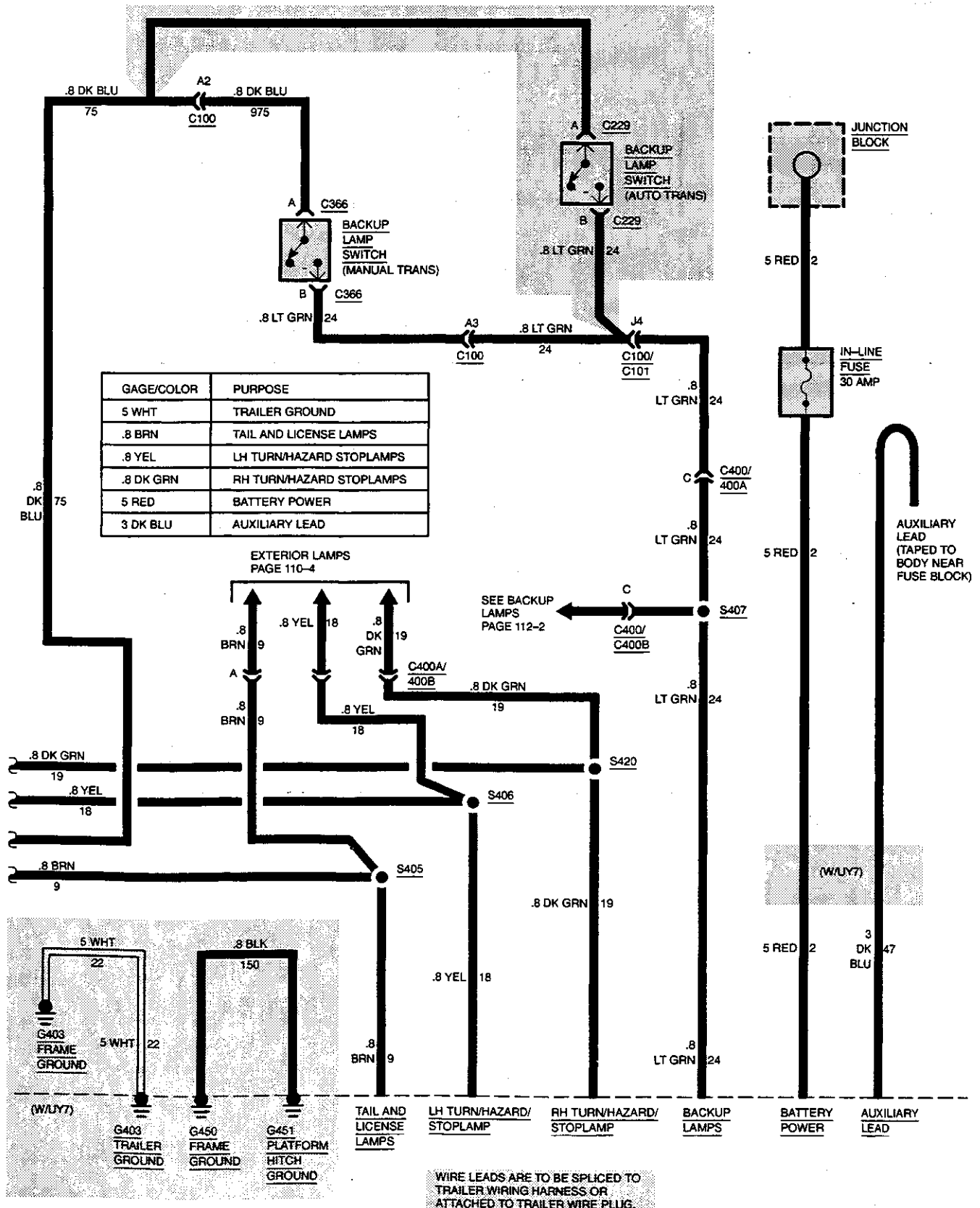
G106 (5.0L)	Rear of RH cylinder head	Not Shown	
G106 (5.7L)	Rear of RH cylinder head	Not Shown	
G106 (7.4L)	Rear of RH cylinder head	Not Shown	
G106 (4.5L)	Rear of RH cylinder head	Not Shown	
G403	At rear of LH frame rail	119-9	8
G450	At rear of LH frame rail	Not Shown	
G451	At LH support of platform hitch	Not Shown	

**SPLICES:**

S118 (4.3L)	Rear of RH cylinder head	119-5	1
S190	Near center high mount stoplamp relay	Not Shown	
S208	Behind LH side of I/P	119-10	9
S210	Under LH side of I/P	119-10	9
S251	Under LH side of I/P	119-10	9
S275A	Near center high mount stoplamp relay	Not Shown	
S405	In trailer harness, rear crossmember	119-11	10
S406	In trailer harness, rear crossmember	119-9	8
S407	In trailer harness, rear crossmember	119-9	8
S420	In trailer harness, rear crossmember	119-9	8

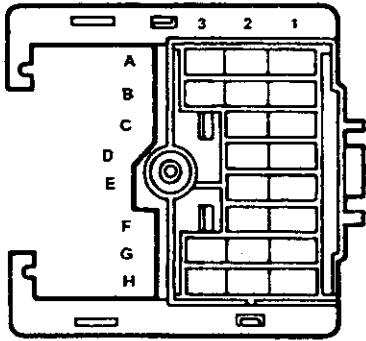
**8A-119-2 TRAILER TOW**





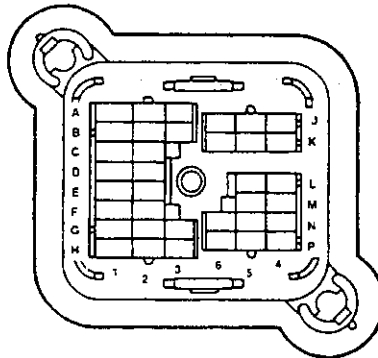
## 8A-119-4 TRAILER TOW

12020183



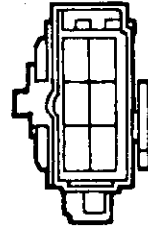
**GRAY**  
Metri-Pack  
**C100**  
Bulkhead Connector – Eng

12020184



**GRAY**  
Metri-Pack  
**C100**  
Bulkhead Connector – I/P

12020099



**C101**  
Bulkhead – Rear Lamps

12040551



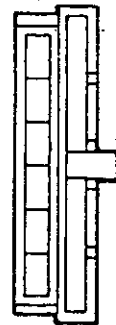
**BLACK**  
Metri-Pack 480  
**C271**  
Brake Switch

02973385



**BLACK**  
56 Series  
**C207**  
Hazard Flasher

12034061



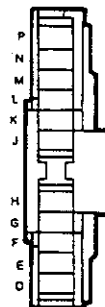
**NATURAL**  
Metri-Pack 480  
**C204**  
Light Switch

12034060



**NATURAL**  
Metri-Pack 480  
**C203**  
Panel Dimmer Switch

12004147



**BLACK**  
Pac/on  
**C206**  
I/P to Multi-Function Switch



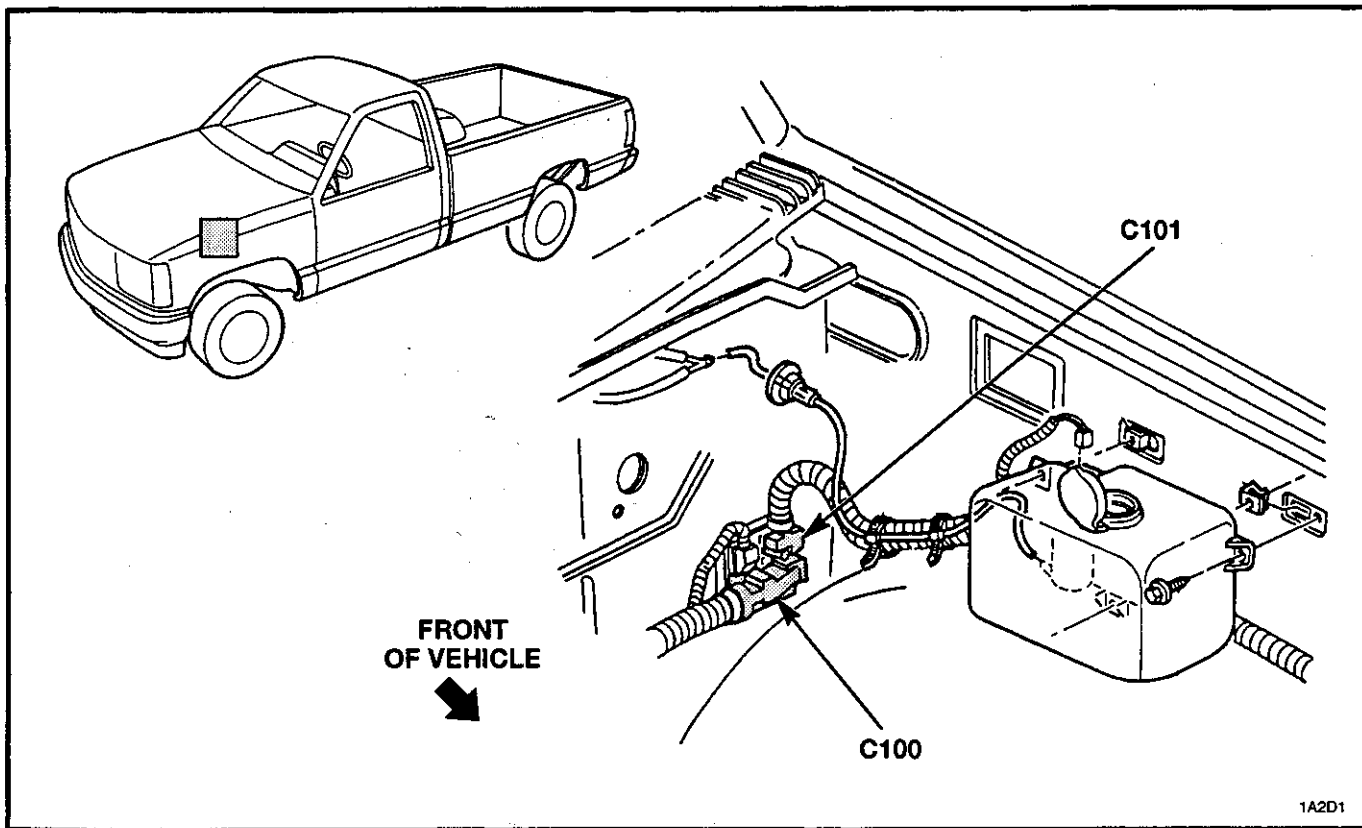


Figure 1 — LH Front Fender Wiring

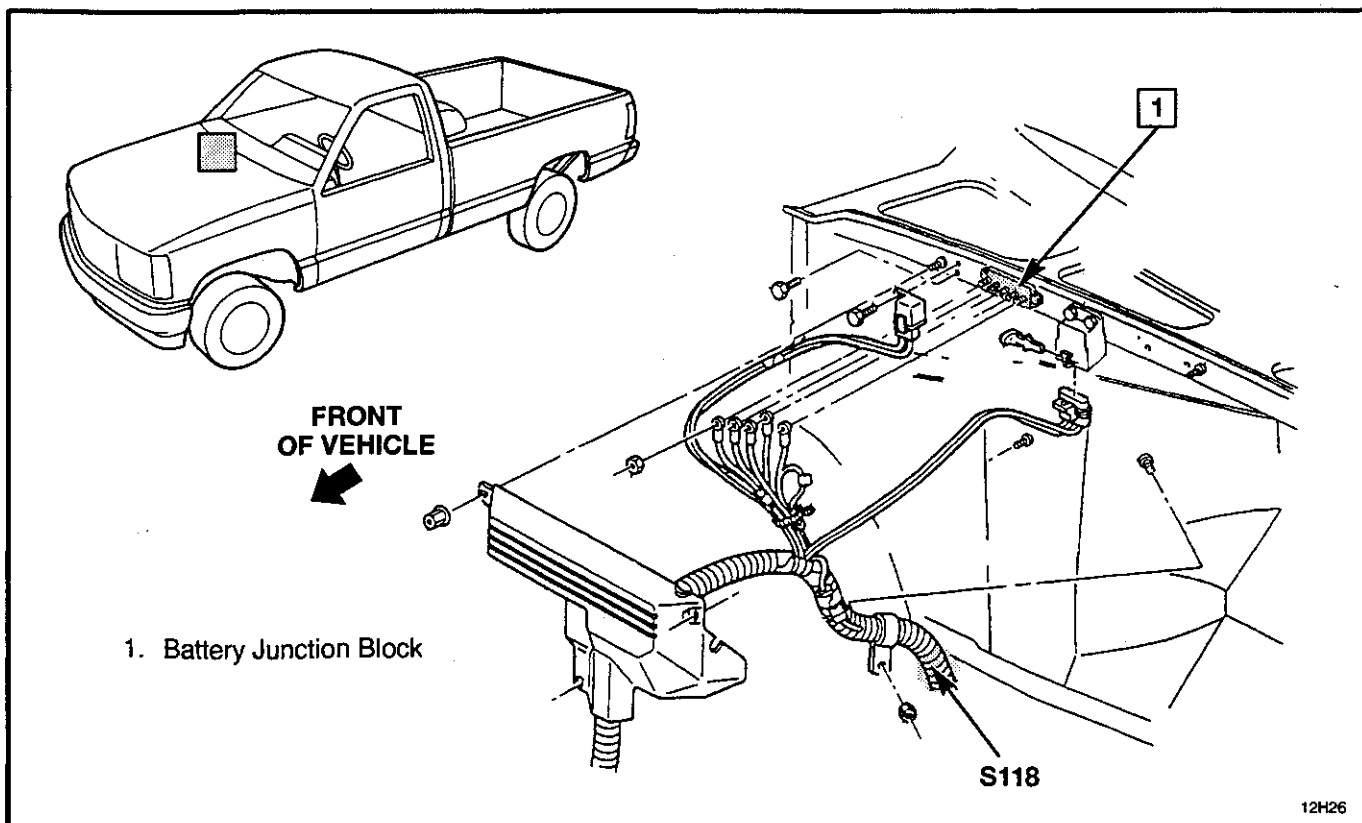


Figure 2 — Battery Junction Block and Relay Wiring

## 8A-119-6 TRAILER TOW

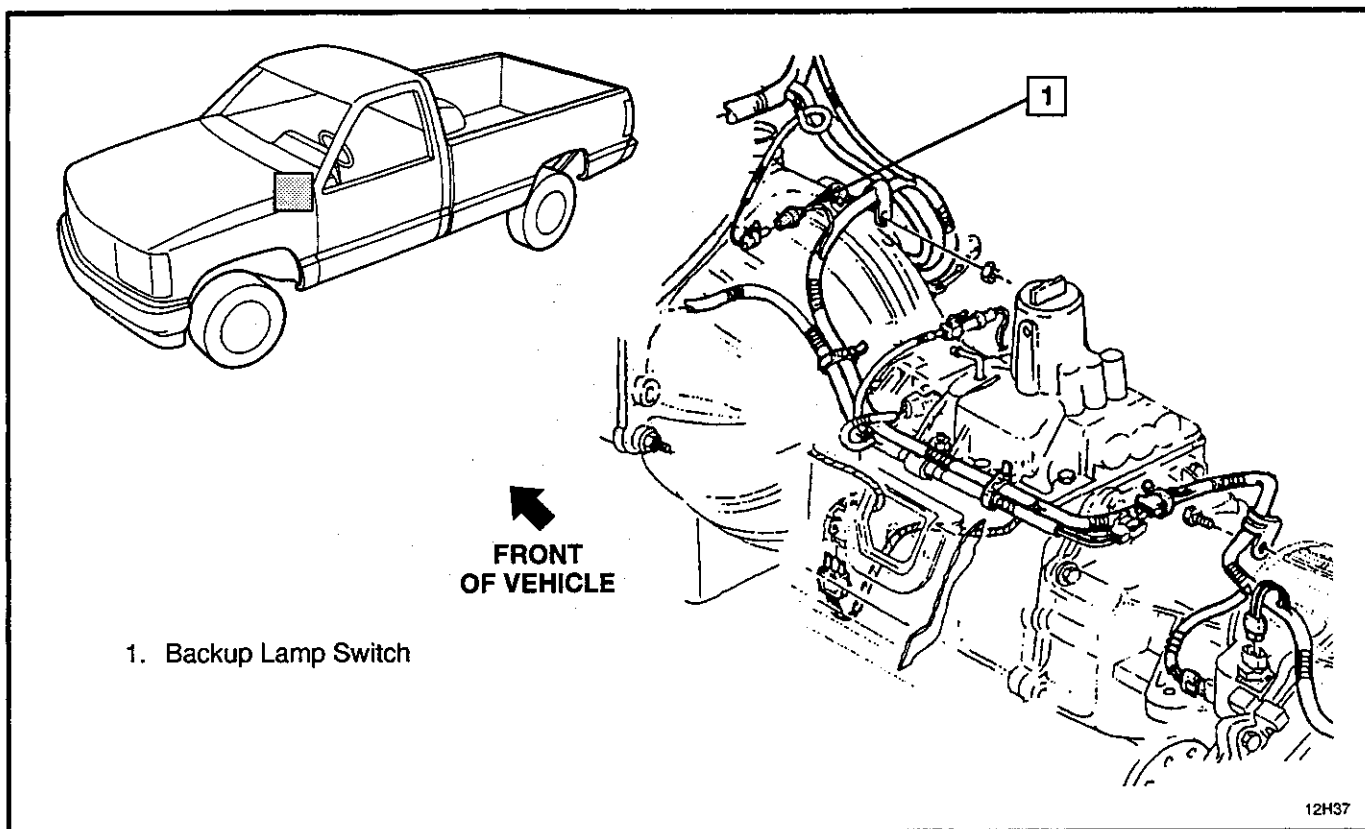


Figure 3 — Backup Lamp Switch Wiring

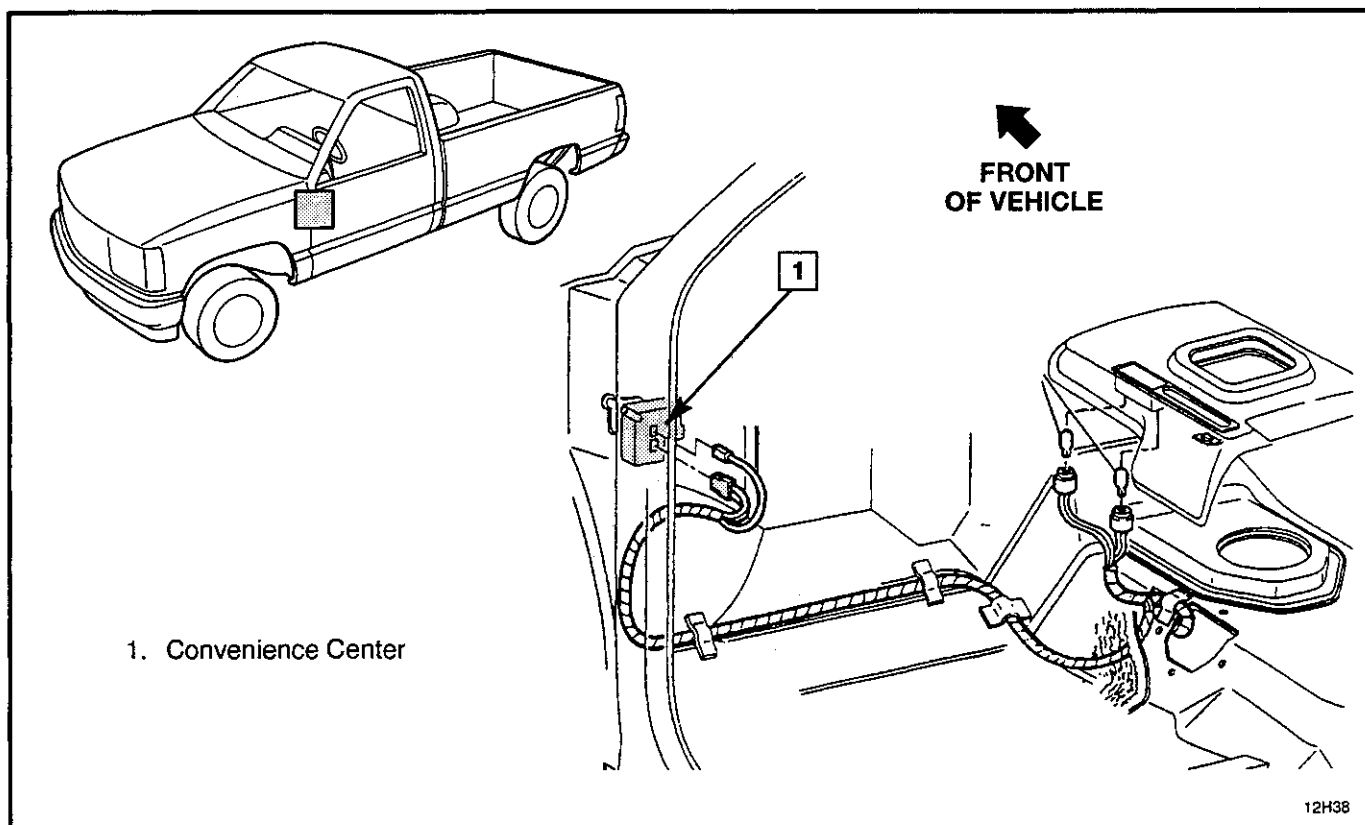


Figure 4 — LH I/P Wiring

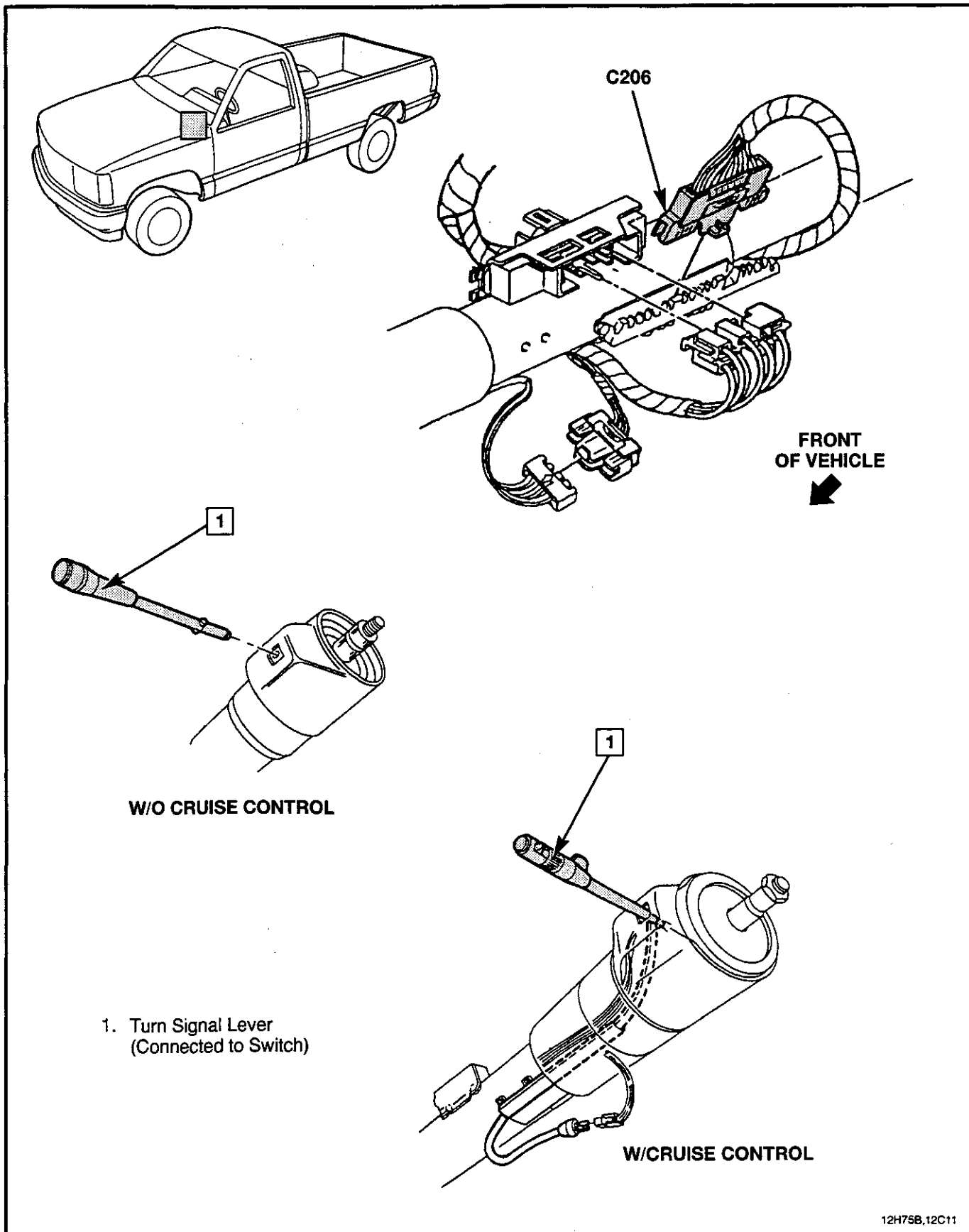


Figure 5 — RH Side of Steering Column Wiring

## 8A-119-8 TRAILER TOW

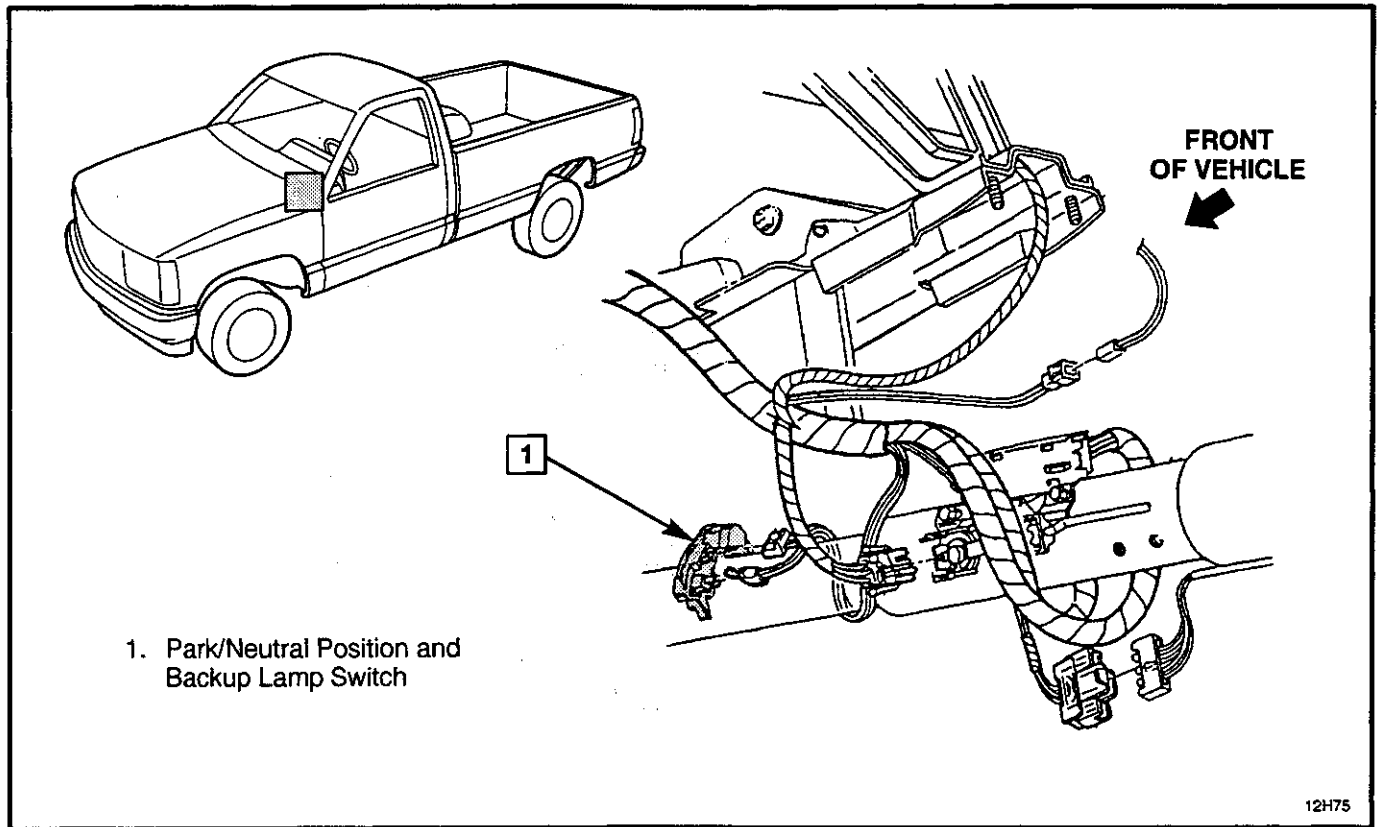


Figure 6 — LH Side of Steering Column Wiring

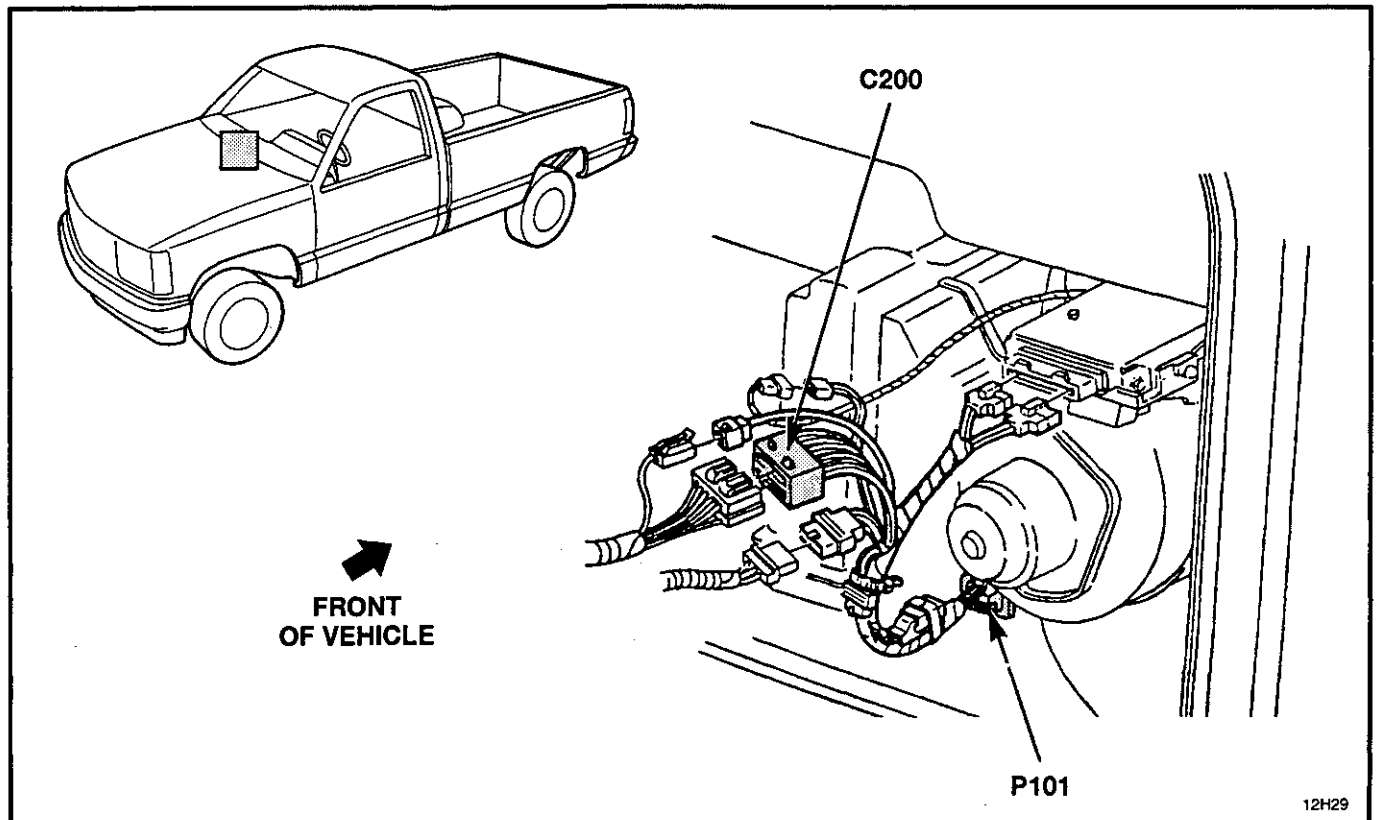


Figure 7 — Behind RH Side of I/P

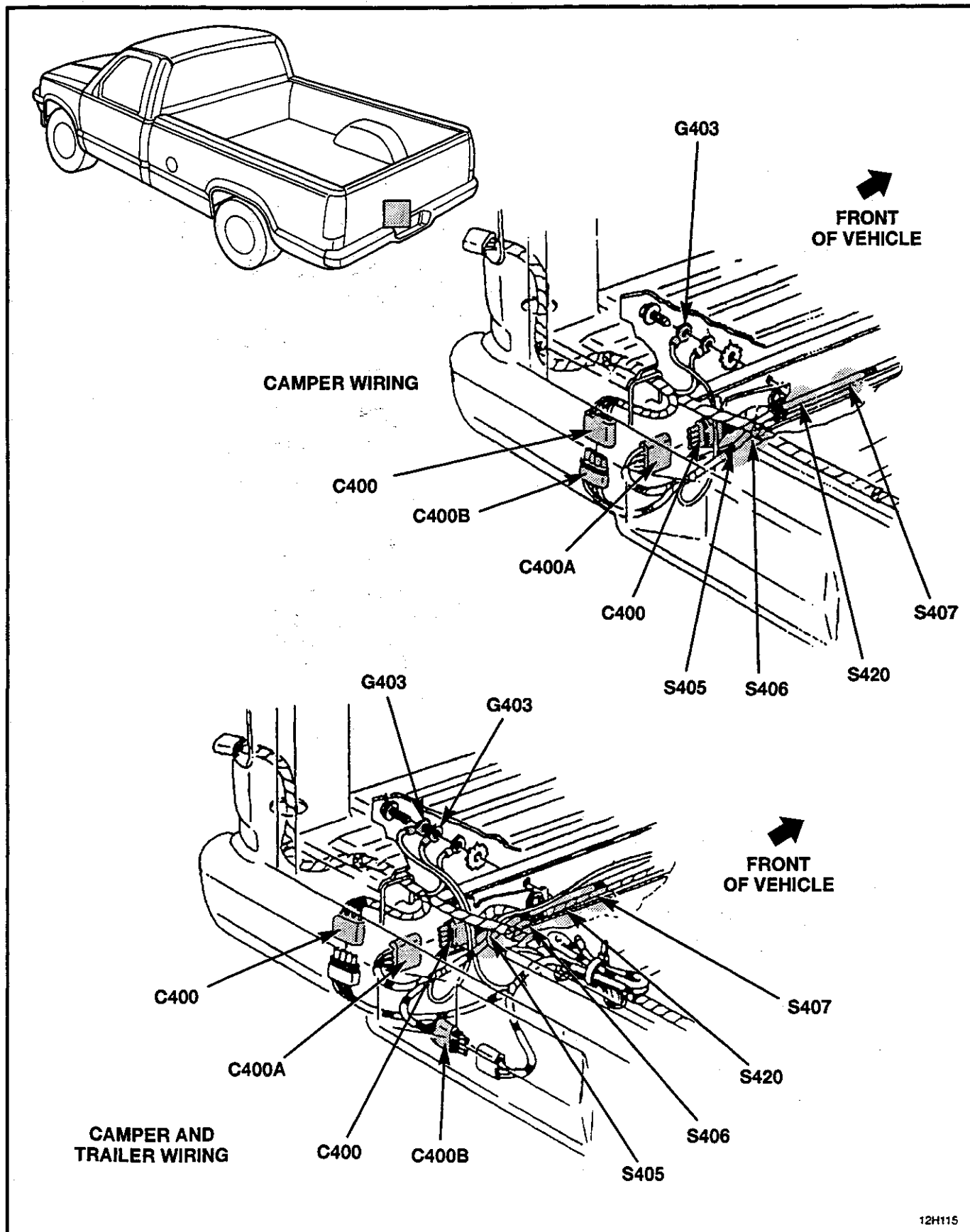


Figure 8 — Heavy Duty Trailer and Camper Rear Lamp Wiring, 2 Door Pickup

## 8A-119-10 TRAILER TOW

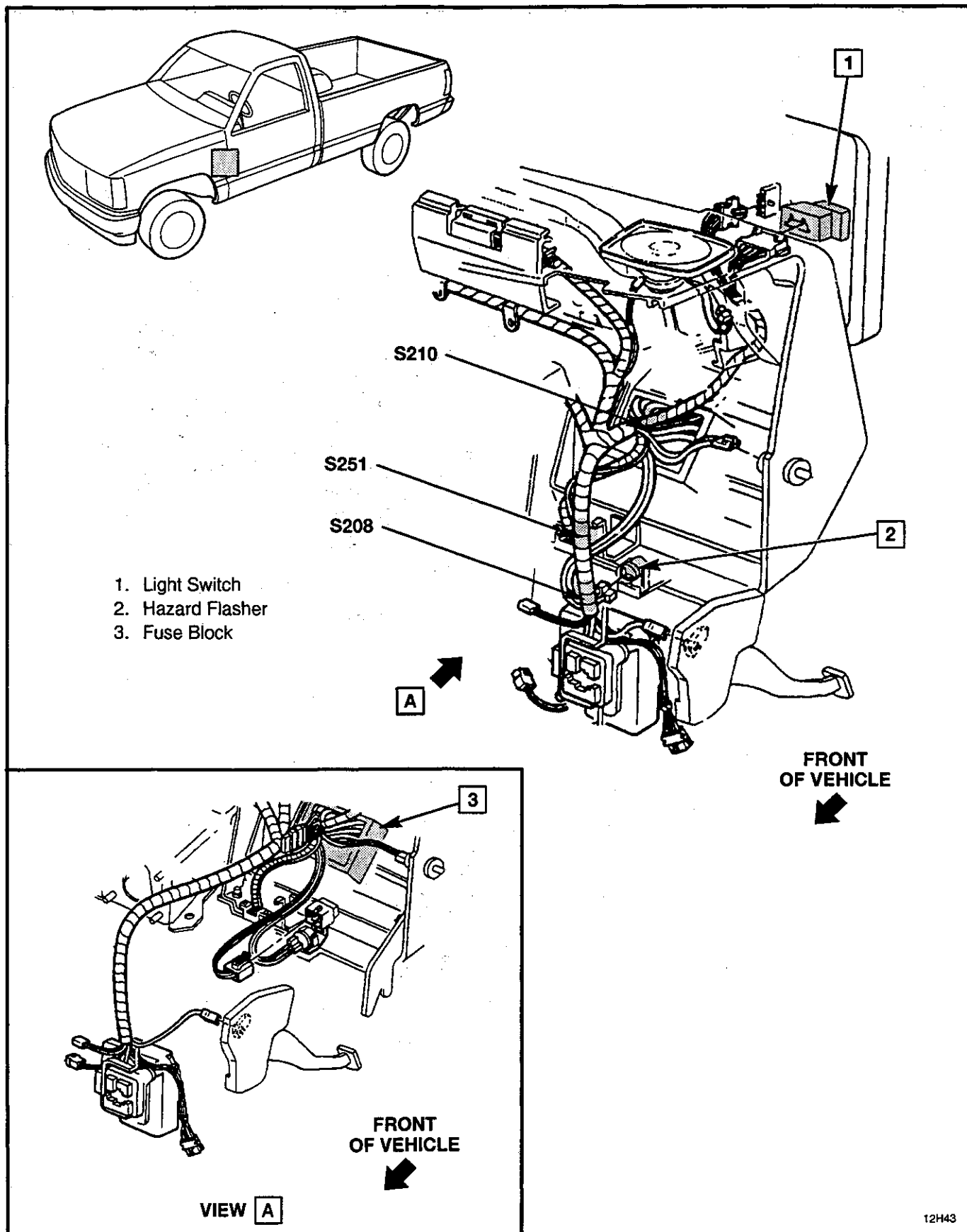
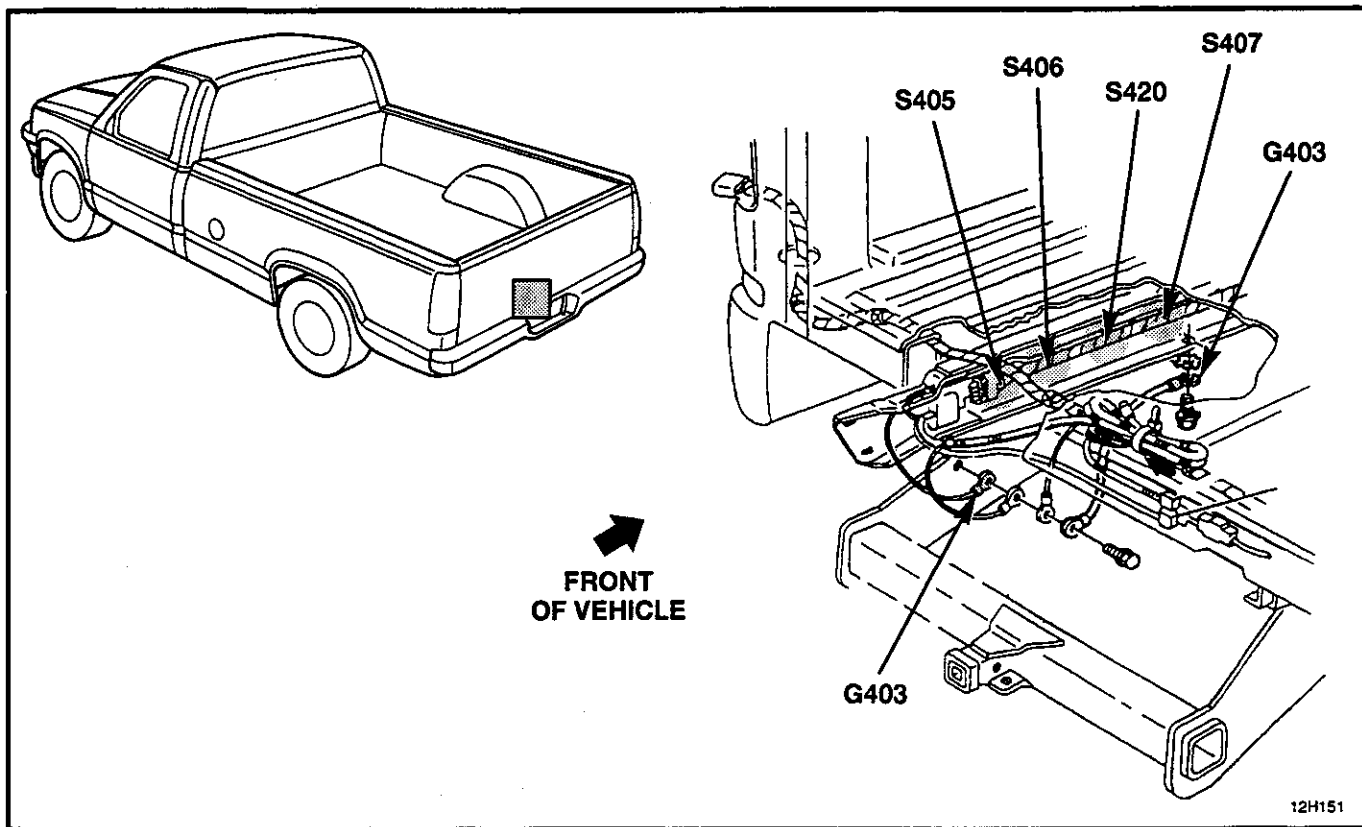


Figure 9 — LH Side of Instrument Panel



**Figure 10 — Trailer Wiring W/Platform Hitch, 2 Door and Extended Cab Pickup**

**8A-119-12 TRAILER TOW**

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**BLANK**



## **CIRCUIT OPERATION**

### **CREW CAB, SUBURBAN, UTILITY**

A permanent magnet (PM) motor operates each of the Power Windows. Each Motor raises or lowers the window when the voltage is supplied to it. The direction the Motor turns depends on the polarity of the supply voltage. The Switches control the supply voltage. The Switches control the supply voltage polarity.

The Master Door Lock/Power Window Switch Assembly controls all of the Windows Motors. Each window also has its own control switch.

Each Motor is protected by a built-in circuit breaker. If a Window Switch is held too long with the window obstructed or after the window is fully up or down, the circuit breaker opens the circuit. The circuit breaker resets automatically.

When the Ignition Switch is in RUN or ACC, battery voltage is supplied to the Master Door Lock/Power Window Switch Assembly, the ACC-IGN Circuit Breaker and the PNK (76) wires.

When any of the UP Switches are operated, battery voltage is supplied to the Window Motor through the DK BLU/WHT (166) wire. The Window Motor is grounded through the DN contact. The Motor runs to drive the window up. When any of the DN Switches are operated, battery voltage is supplied to the Window Motor in the opposite direction through the BRN (165) wire. The Window Motor is grounded through the UP contact. The Motor runs to drive the window down.

### **2-DOOR AND EXTENDED CAB PICKUP**

A permanent magnet (PM) motor operates each of the Power Windows. Each Motor raises or lowers the glass when the voltage is supplied to it. The direction the Motor turns depends on the polarity of the supply voltage. The Switches control the supply voltage. The Switches control the supply voltage polarity.

The Master Door Lock/Power Window Switch Assembly controls both of the Motors. The RH Window Switch controls only the RH Window Motor.

Each Motor is protected by a built-in circuit breaker. If a Window Switch is held too long with the window obstructed or after the window is fully up or down, the circuit breaker opens the circuit. The circuit breaker resets automatically as it cools.

When the Ignition Switch is in RUN, or ACC, battery voltage is applied to the Master Door Lock/Power Window Switch Assembly, the ACC IGN Circuit Breaker and the PNK (76) wires. When any of the UP Switches are operated, battery voltage is supplied to the Window Motor through the DK BLU (164) wire. The Window Motor is grounded through the DN contact. The Motor runs to drive the window up. When any of the DN Switches are operated, battery voltage is supplied to the Window Motor in the opposite direction through the BRN (165) wire. The Window Motor is grounded through the UP contact. The Motor runs to drive the window down.

## **WINDOW SWITCH OPERATION**

When the Ignition Switch is in RUN or ACC, battery voltage is supplied to the Window Switch through the ACC-IGN Circuit Breaker and the PNK (76) wires. When the UP Switch in the Window Switch is operated, battery voltage is supplied to the Window Motor through the DK BLU/WHT (166) wire. The Motor is grounded through the BRN (165) wire, the DN contact in the Window Switch, the TAN (167) wire and the DN contact in the Master Door Lock/Power Window Switch Assembly. The Motor runs to drive the window up. When the DN switch in the Window Switch is operated, battery voltage is supplied to the Window Motor in the opposite direction through the BRN (165) wire. The Motor is grounded through the DK BLU (164) wire, the UP contact in the Window Switch, the DK BLU/WHT (166) wire and the UP contact in the Master Door Lock/Power Window Switch Assembly. The Motor runs to drive the window down.

### **FRONT DOOR WINDOW SWITCH LAMPS (EXCEPT PICK-UP)**

The front door power window switches have illumination lamps built into the switches. When the ignition switch is in ACC or RUN, battery voltage is supplied to the front door window switches through the GAGES fuse, PNK/BLK (39) and GRA (8) circuits.

## 8A-120-2 POWER WINDOWS

### COMPONENT LOCATION

### Page — Figure

Convenience Center .....	Under LH side of I/P .....	120-18	3
Window Motor, LH Front .....	Inside LH front door .....	Not Shown	
Window Motor, RH Front .....	Inside RH front door .....	Not Shown	
Window Motor, LH Rear .....	Inside LH rear door .....	120-20	5
Window Motor, RH Rear .....	Inside RH rear door .....	120-20	5
Window Switch, Master .....	On LH trim panel .....	120-19	4
Window Switch, RH Front .....	On RH trim panel .....	Not Shown	
Window Switch, LH Rear .....	On rear door trim panel .....	120-20	5
Window Switch, RH Rear .....	On rear door trim panel .....	120-20	5

### CONNECTORS:

C240 .....	At convenience center .....	120-18	3
C247 .....	At convenience center .....	120-18	3
C257 .....	At convenience center .....	120-18	3
C325 (2-Door Pickup) .....	LH body hinge pillar .....	120-18	3
C326 .....	LH body hinge pillar .....	120-18	3
C328 .....	RH body hinge pillar .....	120-18	3
C330 .....	RH body hinge pillar .....	120-18	3
C331 (2-Door Pickup) .....	RH body hinge pillar .....	120-18	3
C332 .....	LH body hinge pillar .....	120-18	3
C341 .....	At LH center pillar .....	120-20	5
C342 .....	At RH center pillar .....	120-20	5

### GROUNDINGS:

G202 .....	At DLC connector .....	120-17	2
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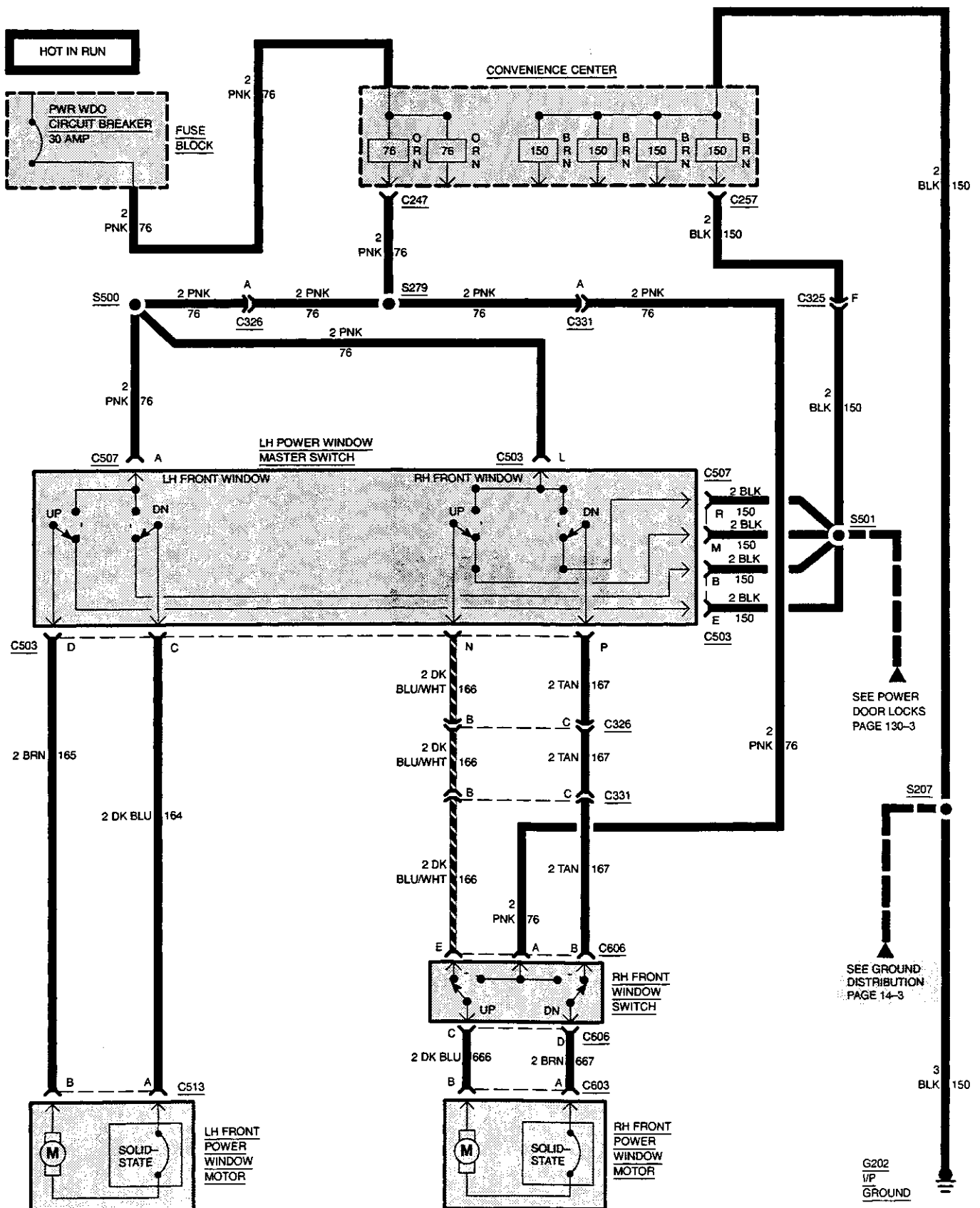
### SPLICES:

S207 .....	Under LH side of I/P .....	120-17	1
S213 .....	Under LH side of I/P .....	120-17	1
S272 .....	Power window and door locks harness, near convenience center leads .....	120-18	3
S277 .....	Power window and door locks harness, near convenience center leads .....	120-18	3
S279 .....	Power window and door locks harness, near convenience center leads .....	120-18	3
S500 .....	Power window and locks harness, LH front door, near power window motor lead .....	120-19	4
S501 .....	Power window and locks harness, LH front door, near power window motor lead .....	120-19	4

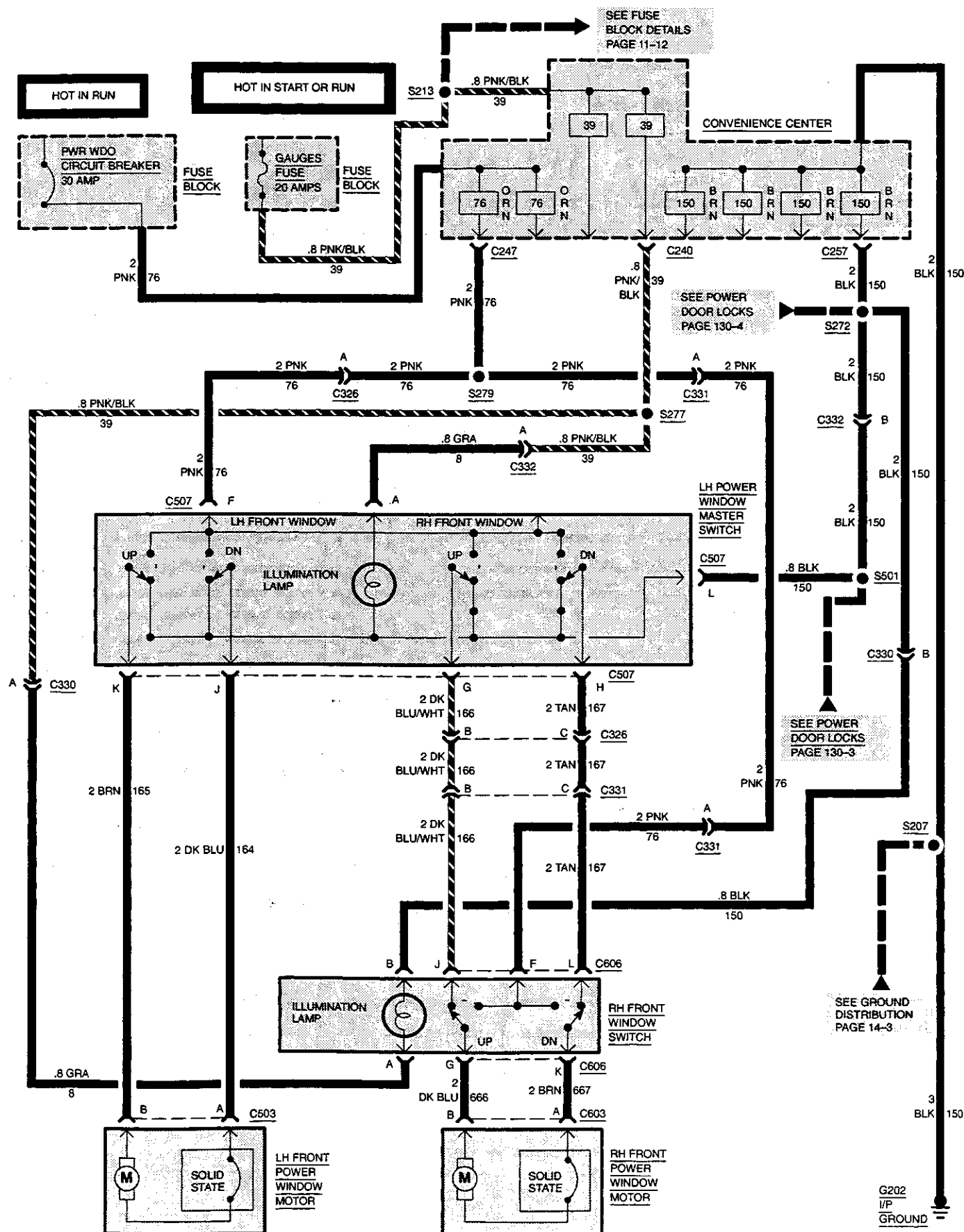
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# 8A-120-4 POWER WINDOWS

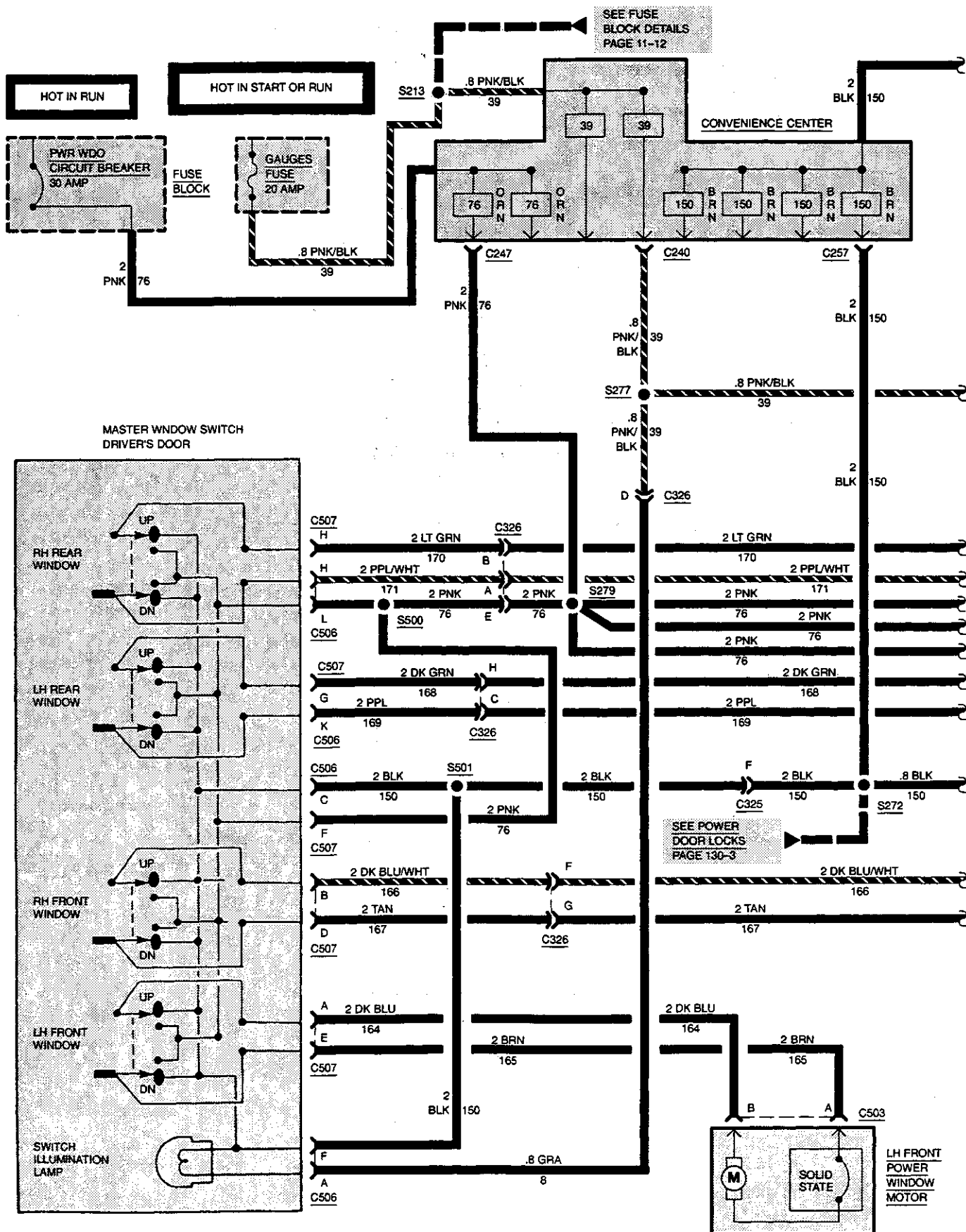
## 2 DOOR PICKUP



## UTILITY

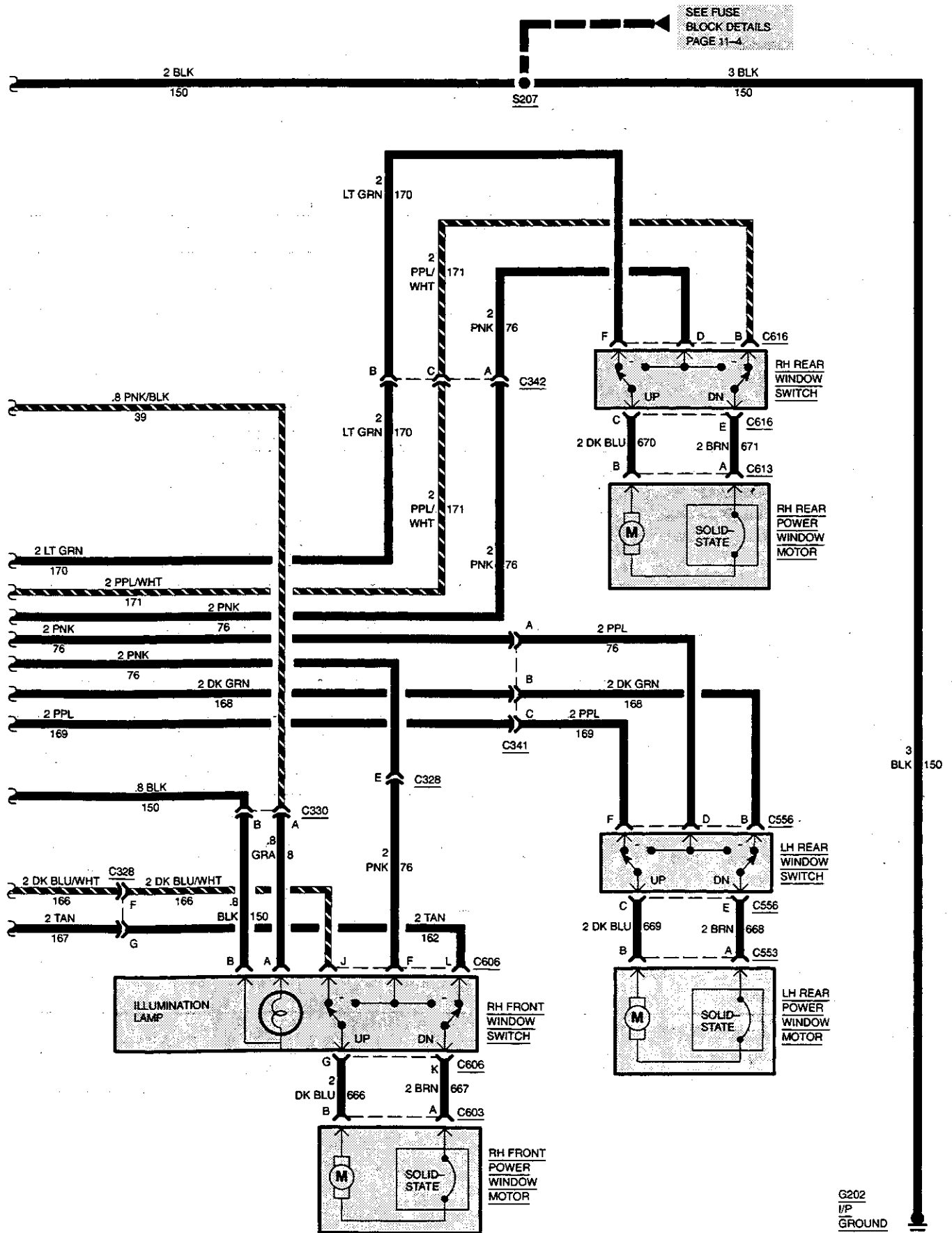


# 8A-120-6 POWER WINDOWS CREW CAB & SUBURBAN



# POWER WINDOWS 8A-120-7

## CREW CAB & SUBURBAN



## 8A-120-8 POWER WINDOWS

### DIAGNOSIS — POWER WINDOWS

#### PRELIMINARY CHECKS:

1. Check condition of ACC-IGN circuit breaker. If circuit breaker is in good condition, use the following diagnostic procedures.
2. Check condition of GAUGES fuse. If fuse is blown, locate and repair source of overload. Replace fuse.

#### BOTH POWER WINDOWS DO NOT OPERATE

TEST	RESULT	ACTION
1. Place ignition switch in ACC position. Connect test lamp from PNK (76) wire at LH window switch connector C506 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in PNK (76) wire from LH window switch connector C506 to splice S279 or from splice S279 to convenience center connector C247. Also PNK (76) wire from convenience center connector to fuse block.
2. Connect test lamp from PNK (76) wire to BLK (150) wire at LH window switch connector C506.	Test lamp lights.	REPLACE LH window switch.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire from LH window switch connector C506 to convenience center connector C257.

#### LH POWER WINDOW DOES NOT OPERATE OR ONLY GOES IN ONE DIRECTION (PICKUP, UTILITY)

TEST	RESULT	ACTION
1. Place ignition switch in ACC position. Connect test lamp from PNK (76) wire at LH window switch connector C506 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in PNK (76) wire from LH window switch connector C506 to splice S279.
2. Connect test lamp from PNK (76) wire to BLK (150) wire at LH window switch connector C506.	Test lamp lights.	GO to step 3.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire from LH window switch connector C506 to splice S501.
3. Move and hold LH window switch to UP position. Connect test lamp from BRN (165) wire at LH window switch connector C506.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	REPLACE LH window switch.
4. Connect test lamp from BRN (165) wire to DK BLU (164) wire at LH window switch connector C506.	Test lamp lights.	GO to step 5.
	Test lamp does not light.	REPLACE LH window switch.



**LH POWER WINDOW DOES NOT OPERATE OR ONLY GOES IN ONE DIRECTION  
(PICKUP, UTILITY) (CONTINUED)**

TEST	RESULT	ACTION
5. Connect test lamp from BRN (165) wire at LH window motor connector C503 to ground.	Test lamp lights.	GO to step 6.
	Test lamp does not light.	LOCATE and REPAIR open in BRN (165) wire from LH window motor connector C503 and LH window switch connector C506.
6. Connect test lamp from BRN (165) wire to DK BLU (164) wire at LH window motor connector C503.	Test lamp lights.	REPLACE LH window motor.
	Test lamp does not light.	LOCATE and REPAIR open in DK BLU (164) wire between LH window motor connector C503 and LH window switch connector C506.

**RH POWER WINDOW ONLY OPERATES FROM DRIVER'S SIDE WINDOW SWITCH (PICKUP, UTILITY)**

TEST	RESULT	ACTION
1. Place ignition switch in ACC position. Connect test lamp from PNK (76) wire at RH window switch connector C606 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in PNK (76) wire from RH window switch connector C606 to splice S279.
2. Move RH window switch to UP position. Connect test lamp from BRN (667) wire at RH window switch connector C606 to ground.	Test lamp lights.	GO to step 3.
	Test lamp does not light.	REPLACE RH window switch.
3. Move RH window switch to DOWN position. Connect test lamp from DK BLU (666) wire at RH window switch connector C606 to ground.	Test lamp does not light.	REPLACE RH window switch.

**RH POWER WINDOW DOES NOT OPERATE FROM EITHER SWITCH (PICKUP, UTILITY)**

TEST	RESULT	ACTION
1. Place ignition switch in ACC position. Position and hold RH window switch to UP. Connect test lamp from BRN (667) wire at RH window motor connector C603 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	GO to step 3.
2. Connect test lamp from BRN (667) wire to DK BLU (666) wire at RH window motor connector C603.	Test lamp lights.	REPLACE RH window motor.
	Test lamp does not light.	GO to step 4.
3. Connect test lamp from PNK (76) wire at LH window switch connector C507 to ground.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	LOCATE and REPAIR open in PNK (76) wire from LH window switch connector C507 to splice S279.
4. Connect test lamp from PNK (76) wire to DK BLU/WHT (166) wire at LH window switch connector C507.	Test lamp lights.	GO to step 6.
	Test lamp does not light.	GO to step 5.

## 8A-120-10 POWER WINDOWS

### RH POWER WINDOW DOES NOT OPERATE FROM EITHER SWITCH (PICKUP, UTILITY) (CONTINUED)

TEST	RESULT	ACTION
5. Connect test lamp from PNK (76) wire to BLK (150) wire at LH window switch connector C507.	Test lamp lights.	REPLACE LH window switch.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire from LH window switch connector C507 to splice S501.
6. Connect test lamp from PNK (76) wire to TAN (167) wire at LH window switch connector C507.	Test lamp lights.	GO to step 7.
	Test lamp does not light.	REPLACE LH window switch.
7. Connect test lamp from PNK (76) wire to DK BLU/WHT (166) wire and then to TAN (167) wire at RH window switch connector C507.	Test lamp lights at both wires (166 and 167).	REPLACE RH window switch.
	Test lamp lights at only one wire or not at all.	LOCATE and REPAIR open in wires (166 and 167) from RH window switch connector C606 to master switch connector C507.

### POWER WINDOW SWITCH ILLUMINATION LAMP(S) DO NOT LIGHT (CREW CAB, SUBURBAN, UTILITY)

TEST	RESULT	ACTION
1. Place ignition switch in RUN or ACC position. Connect test lamp from GRA (8) wire at window switch connector C507 or C606 to ground.	Test lamp lights.	GO to step 3 for LH, step 4 for RH.
	Test lamp does not light.	LOCATE and REPAIR open in GRA (8) wire between window switch connector C507 or C606 and body connector C326 or C328. If wire is good, GO to step 2.
2. Connect test lamp from PNK/BLK (39) wire at body connector C326 or C328 to ground.	Test lamp lights.	GO to step 3 for LH, step 4 for RH.
	Test lamp does not light.	LOCATE and REPAIR open in PNK/BLK (39) wire between body connector C326 or C328 and splice S277 or between splice S277 and convenience center connector C240. Also check PNK/BLK (39) wire from convenience center to fuse block.
3. Connect test lamp from GRA (8) wire to BLK (150) wire at window switch connector C507.	Test lamp lights.	REPLACE switch.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire from LH window switch connector C507 to splice S501, from splice S501 to splice S272, from splice S272 to convenience center connector C257, from convenience center to splice S207 or from splice S207 to I/P ground G202.

**POWER WINDOW SWITCH ILLUMINATION LAMP(S) DO NOT LIGHT  
(CREW CAB, SUBURBAN, UTILITY) (CONTINUED)**

TEST	RESULT	ACTION
4. Connect test lamp from GRA (8) wire to BLK (150) wire at window switch connector C606.	Test lamp lights.	REPLACE switch.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire from RH window switch connector C606 to splice S272, from splice S272 to convenience center connector C257, from convenience center to splice S207 or from splice S207 to I/P ground G202.

**POWER WINDOWS DO NOT OPERATE OR ONLY GO IN ONE DIRECTION (SUBURBAN, CREW CAB)**

TEST	RESULT	ACTION
1. Place ignition switch in RUN or ACC position. Connect test lamp from PNK (76) wire at affected window switch connector C506, C507, C606, C556 or C616 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in PNK (76) wire from affected window switch connector C506, C507, C606, C556 or C616 to splice S279 or from splice S279 to convenience center connector C247.
2. Connect a test lamp from PNK (76) wire to BLK (150) wire at affected window switch connector C506, C507.	Test lamp lights.	GO to step 3.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire from affected window switch connector C506, C507 to splice S501 or from splice S501 to convenience center connector C257.
3. Move and hold affected window switch to UP position. Connect test lamp from BRN (165, 667, 669, 671) wire at affected window switch connector C506, 606, C556, or C616 to ground.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	REPLACE affected window switch.
4. Connect test lamp from BRN (165, 667, 669 or 671) wire to DK BLU (164, 666, 668 or 670) wire at affected window switch connector C506, C606, C556 or C616.	Test lamp lights.	GO to step 5.
	Test lamp does not light.	REPLACE affected window switch.
5. Connect test lamp from BRN (165, 667, 669 or 671) wire at affected window motor connector C503, C603, C553 or C613 to ground.	Test lamp lights.	GO to step 6.
	Test lamp does not light.	LOCATE and REPAIR open in BRN (165, 667, 669 or 671) wire from affected window motor connector C503, C603, C553 or C613 to window switch connector C506, C507, C606, C556 or C616.

## 8A-120-12 POWER WINDOWS

### POWER WINDOWS DO NOT OPERATE OR ONLY GO IN ONE DIRECTION (SUBURBAN, CREW CAB) (CONTINUED)

TEST	RESULT	ACTION
6. Connect test lamp from BRN (165, 667, 669 or 671) wire to DK BLU (164, 666, 668 or 670) wire at affected window motor connector C503, C603, C553 or C613.	Test lamp lights.	REPLACE affected window motor.
	Test lamp does not light.	LOCATE and REPAIR open in DK BLU (164, 666, 668 or 670) wire between affected window motor connector C503, C603, C553 or C613 and window switch connector C506, C507, C606, C553 or C616.

### POWER WINDOWS DO NOT OPERATE FROM DRIVER'S SIDE WINDOW SWITCH (SUBURBAN)

TEST	RESULT	ACTION
1. Place ignition switch in ACC position. Position and hold affected window switch to UP position. Connect test lamp from BRN (165, 667, 669 or 671) wire at affected window motor connector C503, C603, C553 or C613 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	GO to step 3.
2. Connect test lamp from BRN (165, 667, 669, 671) wire to DK BLU (164, 666, 668 or 671) wire at affected window motor connector C503, C603, C553 or C613.	Test lamp lights.	REPLACE affected window motor.
	Test lamp does not light.	GO to step 3.
3. Connect test lamp from PNK (76) wire at affected window switch connector C506, C507 to ground.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	LOCATE and REPAIR open in PNK (76) wire from affected window switch connector C506, C507 to splice S500 or from splice S500 to splice S279.
4. Connect test lamp from PNK (76) wire to DK BLU/WHT (166), DK GRN (168) or LT GRN (170) wires at affected window switch connector C506, C507.	Test lamp lights.	GO to step 6.
	Test lamp does not light.	GO to step 5.
5. Connect test lamp from PNK (76) wire to BLK (150) wire at affected window switch connector C506, C507.	Test lamp lights.	REPLACE affected window switch.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire from affected window switch connector C506, C507 to splice S501 or from splice S501 to splice S272 or from splice S272 to convenience center connector C257.
6. Connect test lamp from PNK (76) wire to TAN (167), PPL (169) or PPL/WHT (171) wire at affected window switch connector C506, C507.	Test lamp lights.	GO to step 8.
	Test lamp does not light.	GO to step 7.

## POWER WINDOWS 8A-120-13

### POWER WINDOWS DO NOT OPERATE FROM DRIVER'S SIDE WINDOW SWITCH (SUBURBAN, CREW CAB) (CONTINUED)

TEST	RESULT	ACTION
7. Connect test lamp from PNK (76) wire to BLK (150) wire at affected window switch connector C506, C507.	Test lamp lights.	REPLACE affected window switch.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire from affected window switch connector C506, C507 to splice S501 or from splice S501 to splice S272 or from splice S272 to convenience center connector C257.
8. Connect test lamp from PNK (76) wire to DK BLU/WHT (166), DK GRN (168) or LT GRN (170) wire and then to TAN (167), PPL (169) or PPL/WHT (171) wire at affected window switch connector C606, C556 or C616.	Test lamp lights at all wires.	REPLACE affected window switch.
	Test lamp lights at only one wire or not at all.	LOCATE and REPAIR open in wires DK BLU/WHT (166), DK GRN (168), LT GRN (170), TAN (167), PPL (169) or PPL/WHT (171) from affected window switch connector C606, C556 or C616 to master switch connector(s) C506, C507.

### POWER WINDOWS ONLY OPERATE FROM DRIVER'S SIDE WINDOW SWITCH (SUBURBAN, CREW CAB)

TEST	RESULT	ACTION
1. Place ignition switch in ACC position. Connect test lamp from PNK (76) wire at affected window switch connector (C606, C556 or C616) to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in PNK (76) wire from affected window switch C616, C556, or C616 to splice S279 or from splice S279 to convenience center connector C247.
2. Move affected window switch to UP position. Connect test lamp from BRN (667, 679 or 671) wire at affected window switch connector C606, C556 or C616 to ground.	Test lamp lights.	GO to step 3.
	Test lamp does not light.	REPLACE affected window switch.
3. Move affected window switch to DOWN position. Connect test lamp from DK BLU (666, 668 or 670) wire at affected window switch connector C606, C556 or C616 to ground	Test lamp lights.	System operates normally.
	Test lamp does not light.	REPLACE affected window switch.

## 8A-120-14 POWER WINDOWS

12059235



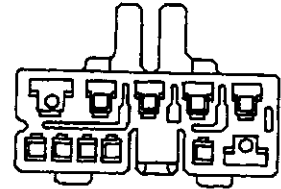
**C247**  
Ignition Tap to Convenience  
Center

12059236



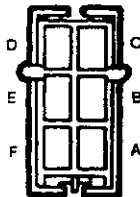
**C257**  
Ground Tap to Convenience  
Center

12084617



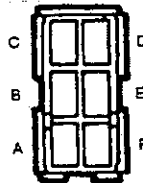
**BLACK**  
Metri-Pack  
**C606**  
RH Power Window Switch  
(Suburban and Crew Cab)

12015344



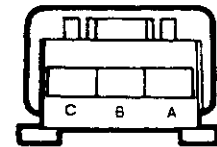
**BLACK**  
Metri-Pack 280  
**C325**  
LH Door to Crossbody (Pickup)

12015345



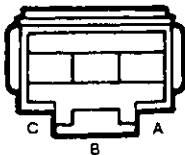
**BLACK**  
Metri-Pack 280  
**C325**  
Crossbody to LH Door (Pickup)

12020397



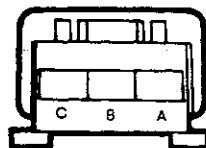
**BLACK**  
Metri-Pack 280  
**C326**  
LH Door to Crossbody (Pickup)

12020398



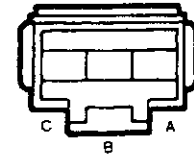
**BLACK**  
Metri-Pack 180  
**C326**  
Crossbody to LH Door (Pickup)

12020397



**BLACK**  
Metri-Pack 280  
**C330**  
RH Door to Crossbody (Pickup)

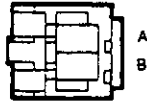
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**BLACK**  
Metri-Pack 180  
**C330**  
Crossbody to RH Door (Pickup)

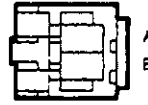
# POWER WINDOWS 8A-120-15

12004140



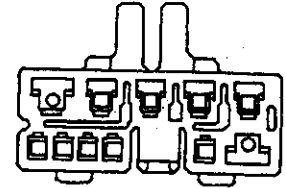
**BLACK**  
Pac/on  
**C503**  
LH Power Window Motor  
(Pickup)

12004140



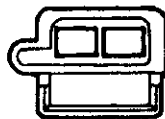
**BLACK**  
Pac/on  
**C603**  
RH Power Window Motor  
(Pickup)

12084617



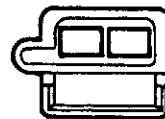
**BLACK**  
Metri-Pack  
**C507**  
LH Power Window Switch  
(Utility)

12064870



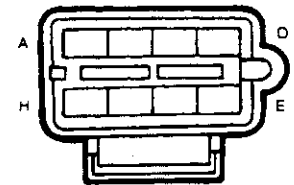
**C332**  
Crossbody to LH Door  
(All Except 2-Door Pickup)

12064870



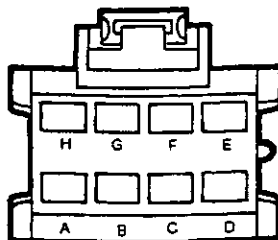
**C330**  
Crossbody to RH Door  
(All Except 2-Door Pickup)

12066195



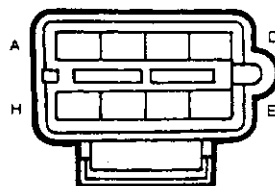
**BLACK**  
Metri-Pack 280  
**C326**  
Crossbody to LH Front Door  
(Suburban and Crew Cab)

12064998



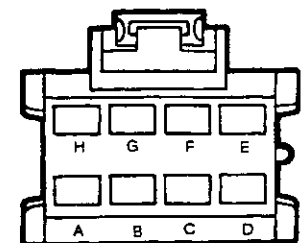
**BLACK**  
Metri-Pack 280  
**C326**  
LH Front Door to Crossbody  
(Suburban and Crew Cab)

12066195



**BLACK**  
Metri-Pack 280  
**C328**  
Crossbody to RH Front Door  
(Suburban and Crew Cab)

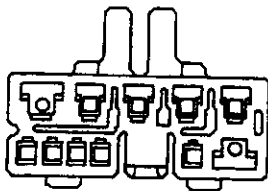
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**BLACK**  
Metri-Pack 280  
**C328**  
RH Front Door to Crossbody  
(Suburban and Crew Cab)

## 8A-120-16 POWER WINDOWS

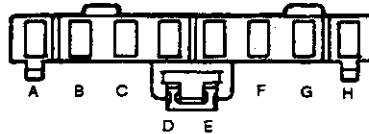
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**BLACK**  
Metri-Pack

**C506**  
LH Door Master Power Window  
Switch

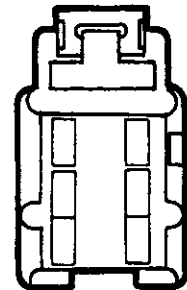
12084603



**MED. GRAY**  
Metri-Pack

**C507**  
LH Door Master Power Window  
Switch

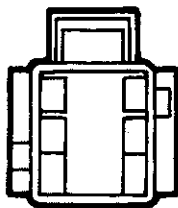
12064752



**BLACK**  
Metri-Pack 280

**C325**  
Crossbody to LH Door  
(Suburban and Crew Cab)

12064754



**BLACK**  
Metri-Pack 280

**C325**  
LH Door to Crossbody  
(Suburban and Crew Cab)



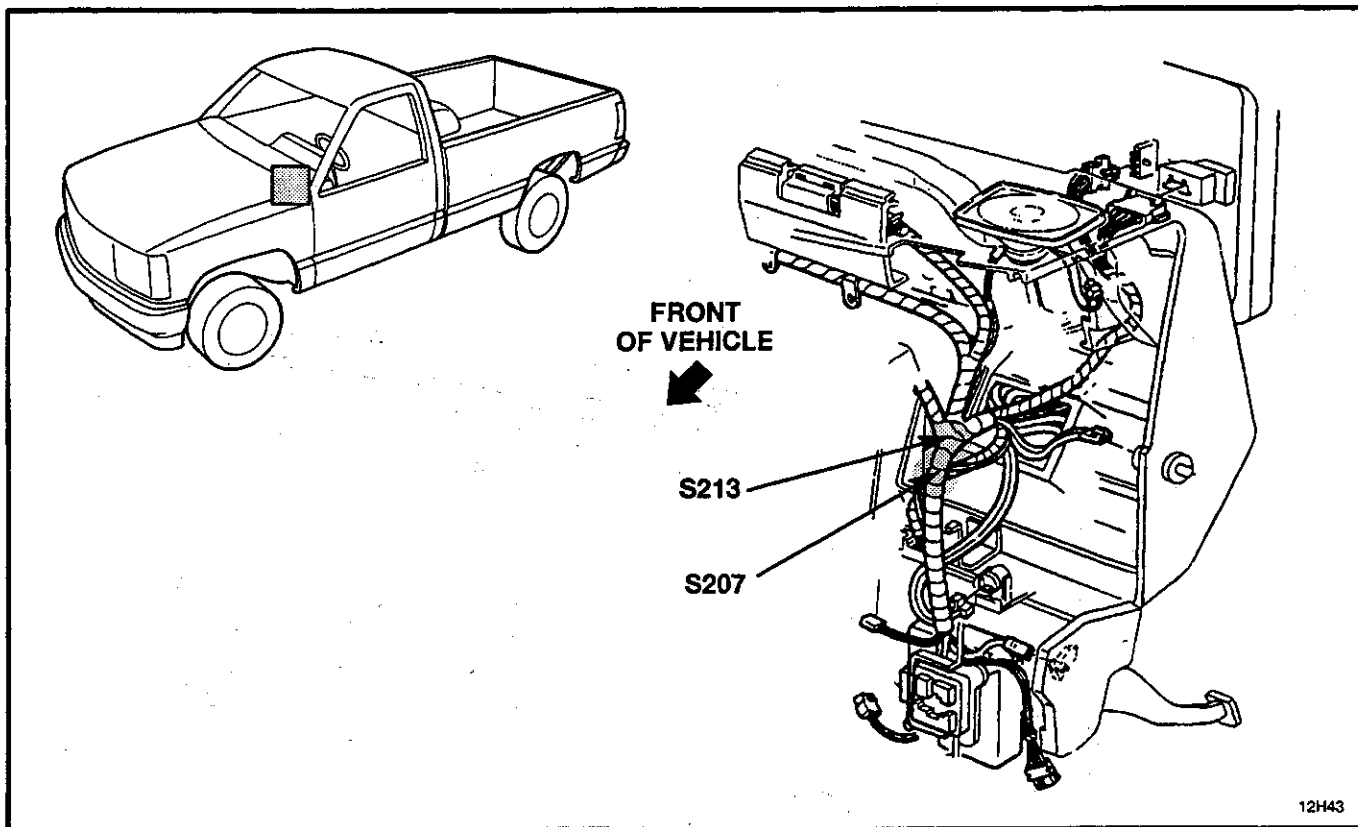


Figure 1 — LH Side of Instrument Panel

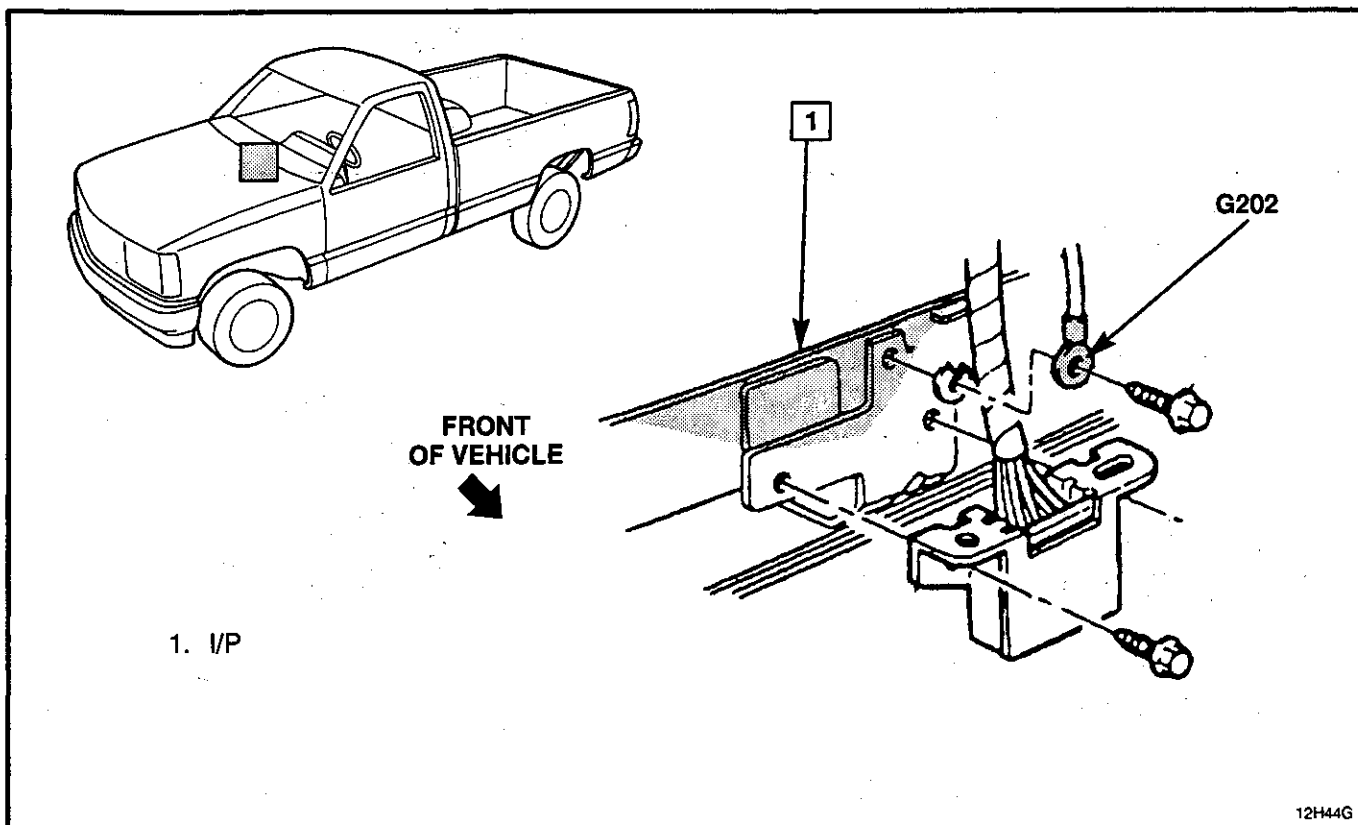
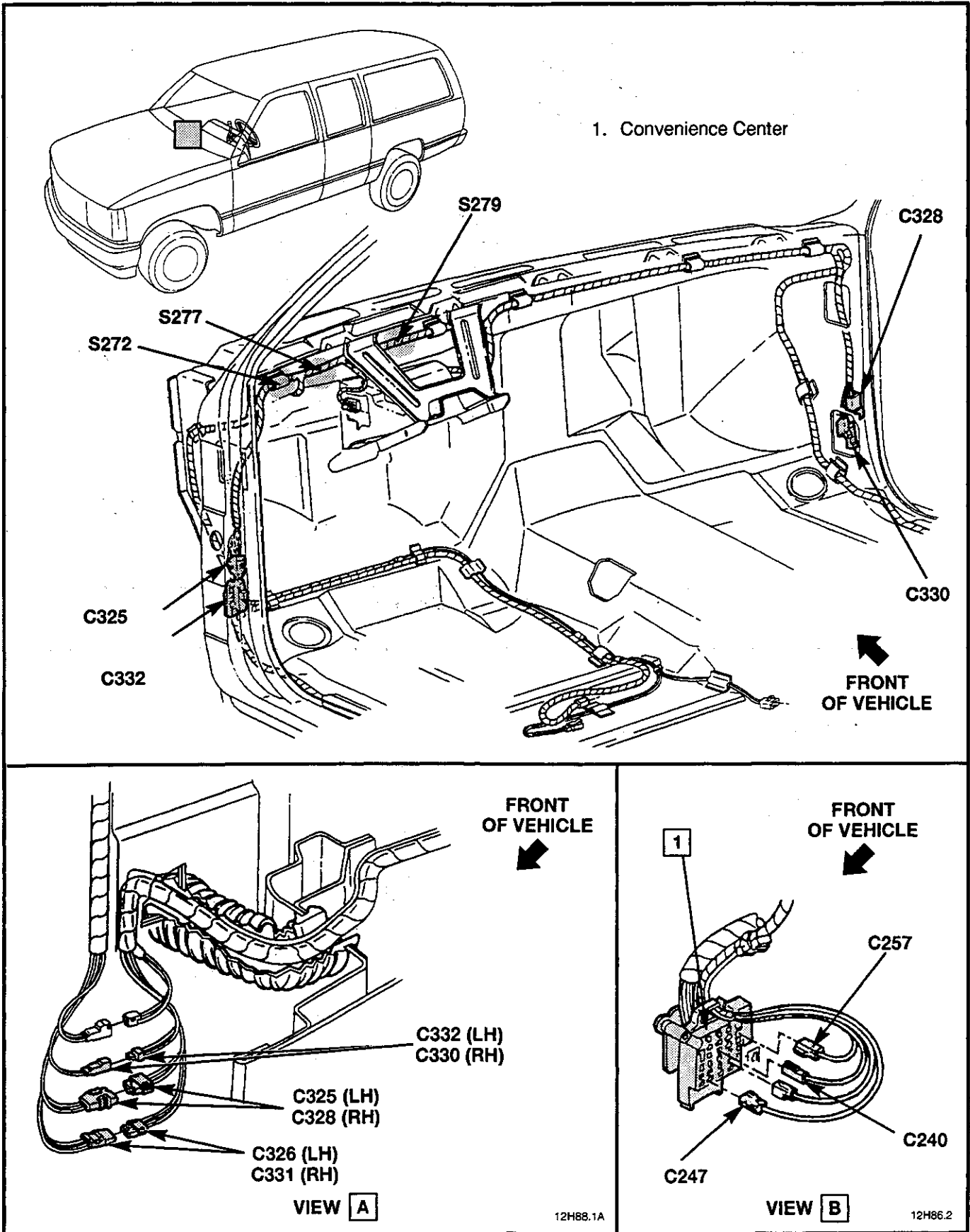


Figure 2 — I/P Ground Wiring

**8A-120-18 POWER WINDOWS**



**Figure 3 — Power Window and Door Lock Crossbody Wiring – Suburban**

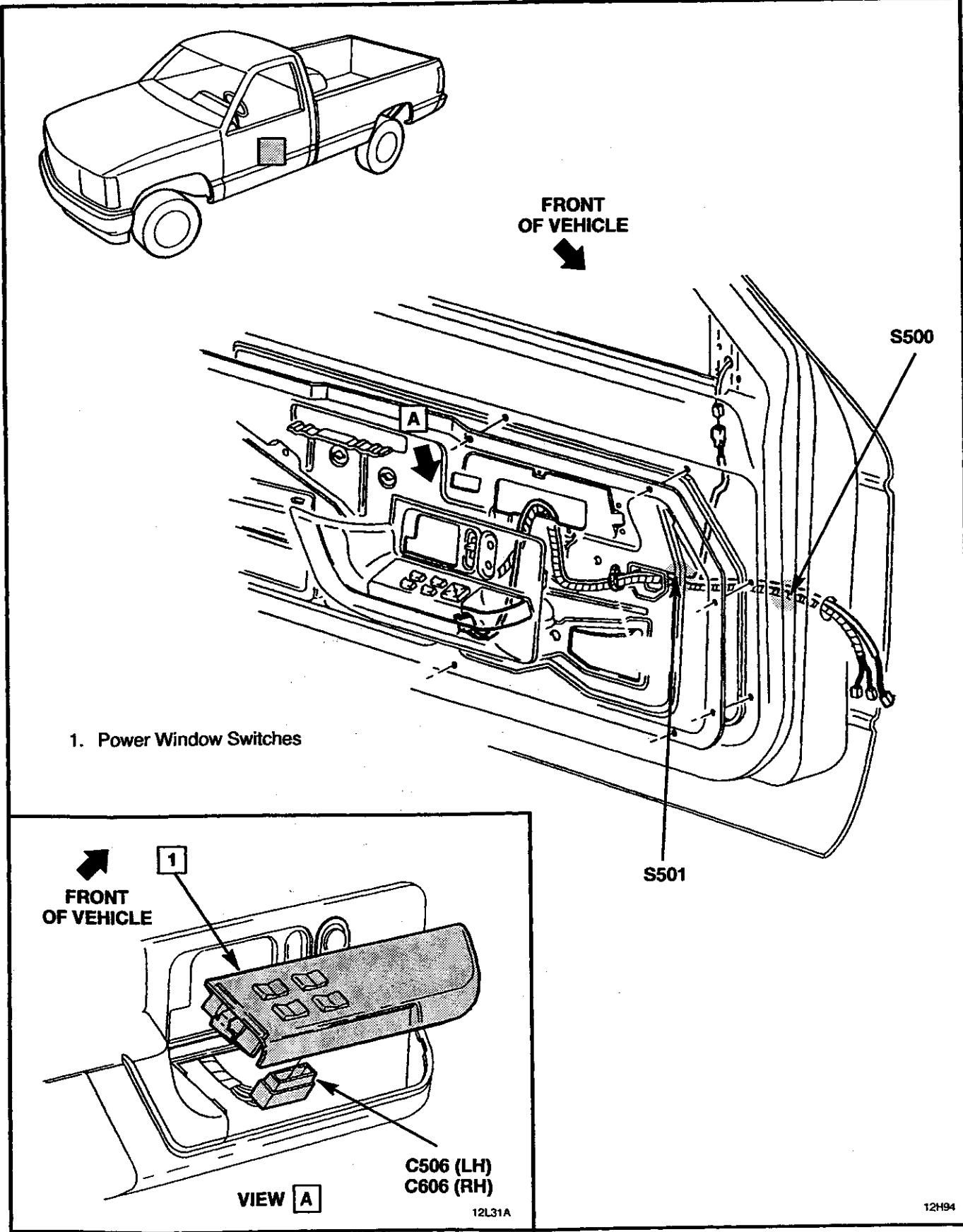


Figure 4 — Power Window Wiring

## 8A-120-20 POWER WINDOWS

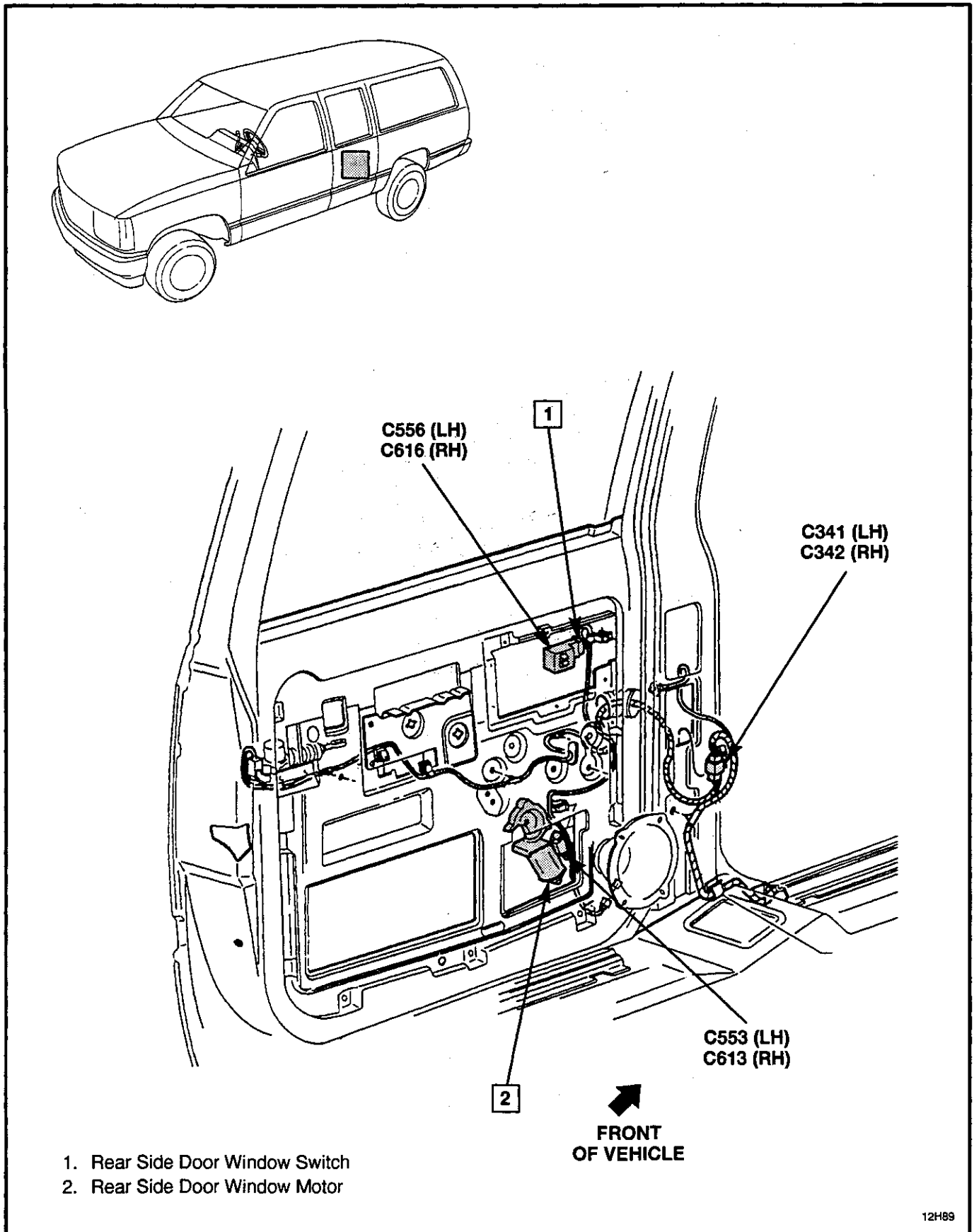


Figure 5 — Rear Side Door Wiring – Suburban and 4-Door

## **CIRCUIT OPERATION**

### **2-DOOR, EXTENDED CAB AND UTILITY**

When a Door Lock Switch is operated, both of the doors will lock or unlock. Each lock can also be operated manually. The locks are operated by reversible motors that receive voltage from the ACC-BATT Circuit Breaker. The Door Lock Switches operate to turn the Motors on by supplying battery voltage to one of the terminals and ground the other terminal.

When either Door Lock Switch is moved to the LOCK position, it completes the circuit to the Motors. Voltage is supplied to the GRA (295) wire and to the Door Lock Motors, which are grounded by the TAN (294) wire from the other terminal of the Motor through the other switch contact and through the Door Lock Relay to the BLK (150) wire and ground G202. The Motor in each door runs to operate the Door Locks. When the Door Lock Switch is released, the circuit is opened and the Motors turn off.

A similar action occurs with either of the Door Lock Switches closing to the UNLOCK position. Now the TAN (294) wires to the Motors supply battery voltage and the GRA (295) wires are grounded. The polarity of the voltage to the Motors has reversed. The Motors run in the opposite direction to unlock the doors.

The Door Lock Switches are usually closed for just a moment. If the Door Lock Switches are held closed, a circuit breaker in each Motor will open to protect against damage. The circuit breakers close automatically when they cool off.

### **CREW CAB AND SUBURBAN**

When a Door Lock Switch is operated, all of the doors will lock or unlock. Each lock can also be operated

manually. The locks are operated by reversible motors that receive voltage from the ACC-BATT Circuit Breaker. The Door Lock Switches operate to turn the Motors on by supplying battery voltage to one of the terminals and ground the other terminal.

When either Door Lock Switch is moved to the LOCK position, it completes the circuit to the Motors. Voltage is supplied to the GRA (295) wire and to the Door Lock Motors, which are grounded by the TAN (294) wire from the other terminal of the Motor through the other switch contact and through the Door Lock Relay to the BLK (150) wire and ground G202. The Motor in each door runs to operate the Door Locks. When the Door Lock Switch is released, the circuit is opened and the Motors turn off.

A similar action occurs with either of the Door Lock Switches closing to the UNLOCK position. Now the TAN (294) wires to the Motors supply battery voltage and the GRA (295) wires are grounded. The polarity of the voltage to the Motors has reversed. The Motors run in the opposite direction to unlock the doors.

The Door Lock Switches are usually closed for just a moment. If the Door Lock Switches are held closed, a circuit breaker in each Motor will open to protect against damage. The circuit breakers close automatically when they cool off.

### **REAR CARGO DOORS (SUBURBAN)**

The Rear Cargo Doors must be fully closed for the Door Lock Motor to operate. The Door Lock Motor is located in the right rear cargo door. Contact buttons are located on the cargo door opening on the body and also on the right rear cargo door.

## **COMPONENT LOCATION**

		<b>Page — Figure</b>	
Convenience Center .....	Under LH side of I/P .....	130-12	3
Door Lock Relay .....	Under I/P, RH side of brake pedal bracket .....	130-12	3
Door Lock Motor, Cargo Door .....	Inside RH rear cargo door .....	130-15	6
Door Lock Motor, LH Front .....	Inside door .....	Not Shown	
Door Lock Motor, RH Front .....	Inside door .....	Not Shown	
Door Lock Motor, LH Rear .....	Inside door .....	130-14	5
Door Lock Motor, RH Rear .....	Inside door .....	130-14	5
Door Lock Switch, LH Front .....	On door trim panel .....	Not Shown	
Door Lock Switch, RH Front .....	On door trim panel .....	Not Shown	

## 8A-130-2 POWER DOOR LOCKS

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### COMPONENT LOCATION

Page — Figure

#### CONNECTORS:

C237	At LH body hinge pillar	130-16	8
C241	At convenience center	130-12	3
C257	At convenience center	130-12	3
C325	LH body hinge pillar	130-12	3
C328	RH body hinge pillar	130-12	3
C341	At LH center pillar	130-14	5
C342	At RH center pillar	130-14	5
C404	RH rear body pillar	130-16	7
C904	At rear cargo door contact	130-15	6

#### GROUND:

G202	At DLC connector	130-11	2
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#### SPLICES:

S207	Under LH side of I/P	130-11	1
S272	Power window and door locks harness, near convenience center leads	130-12	3
S278	Power window and door locks harness, near convenience center leads	130-12	3
S280	Power window and door locks harness, near convenience center leads	130-12	3
S281	Power window and door locks harness, near door lock relay	130-12	3
S282	Power window and door locks harness, near door lock relay	130-12	3
S283	Power window and door locks harness, near door lock relay	130-12	3
S501	Power window and lock harness LH front door, near power window motor lead	130-13	4
S600	Power window and lock harness RH front door, near power window motor lead	130-13	4
S601	Power window and lock harness RH front door, near power window motor lead	130-13	4

**HOT AT ALL TIMES**

**AC-BATT CIRCUIT BREAKER 30 AMP**

**FUSE BLOCK**

**CONVENIENCE CENTER**

**LH FRONT DOOR LOCK SWITCH**

**RH FRONT DOOR LOCK SWITCH**

**LH FRONT DOOR LOCK MOTOR**

**RH FRONT DOOR LOCK MOTOR**

**SEE POWER WINDOWS PAGE 11-4 (UTILITY ONLY)**

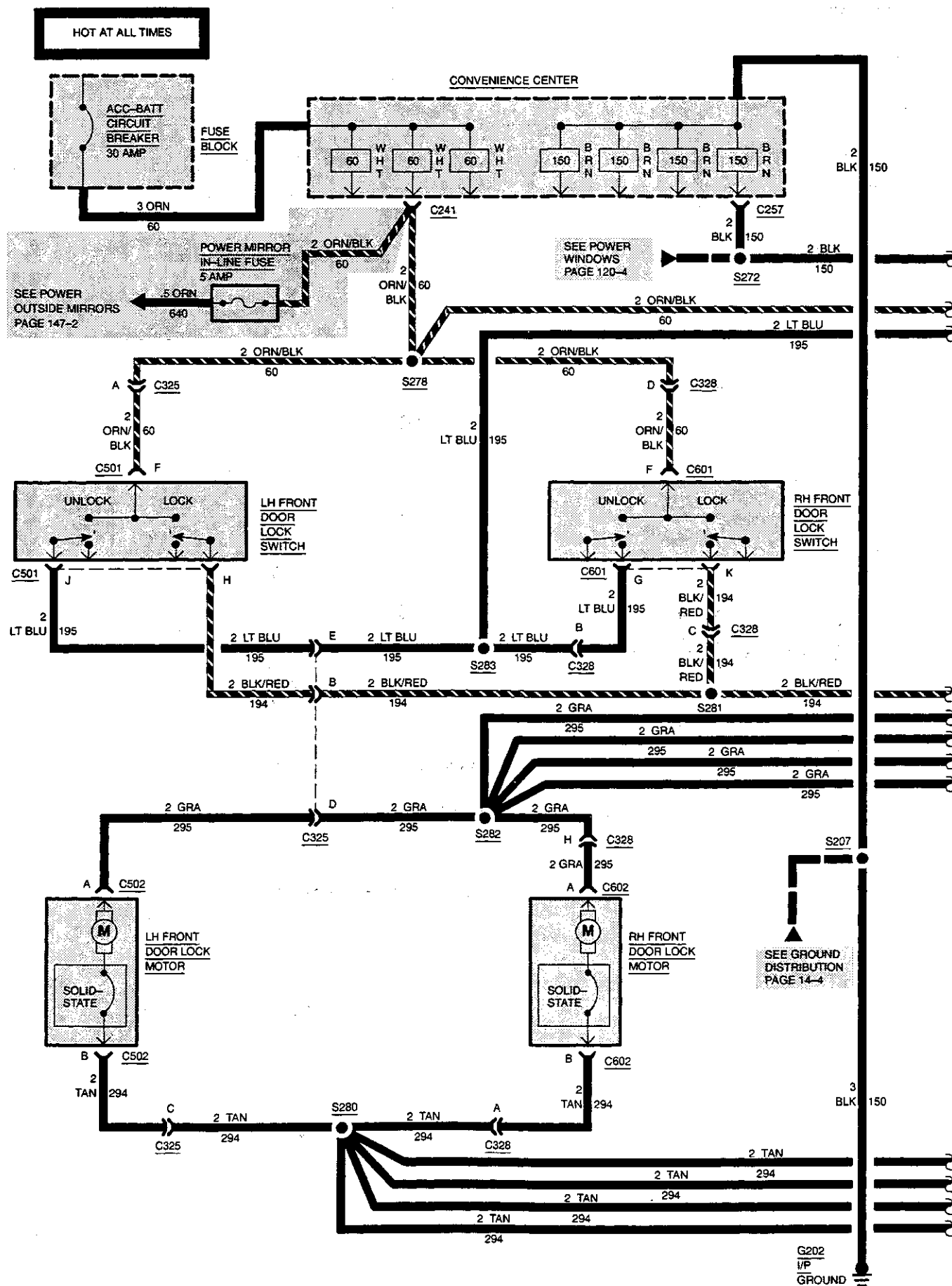
**SEE POWER WINDOWS PAGE 120-4**

**SEE GROUND DISTRIBUTION PAGE 11-4**

**G202 I/P GROUND**

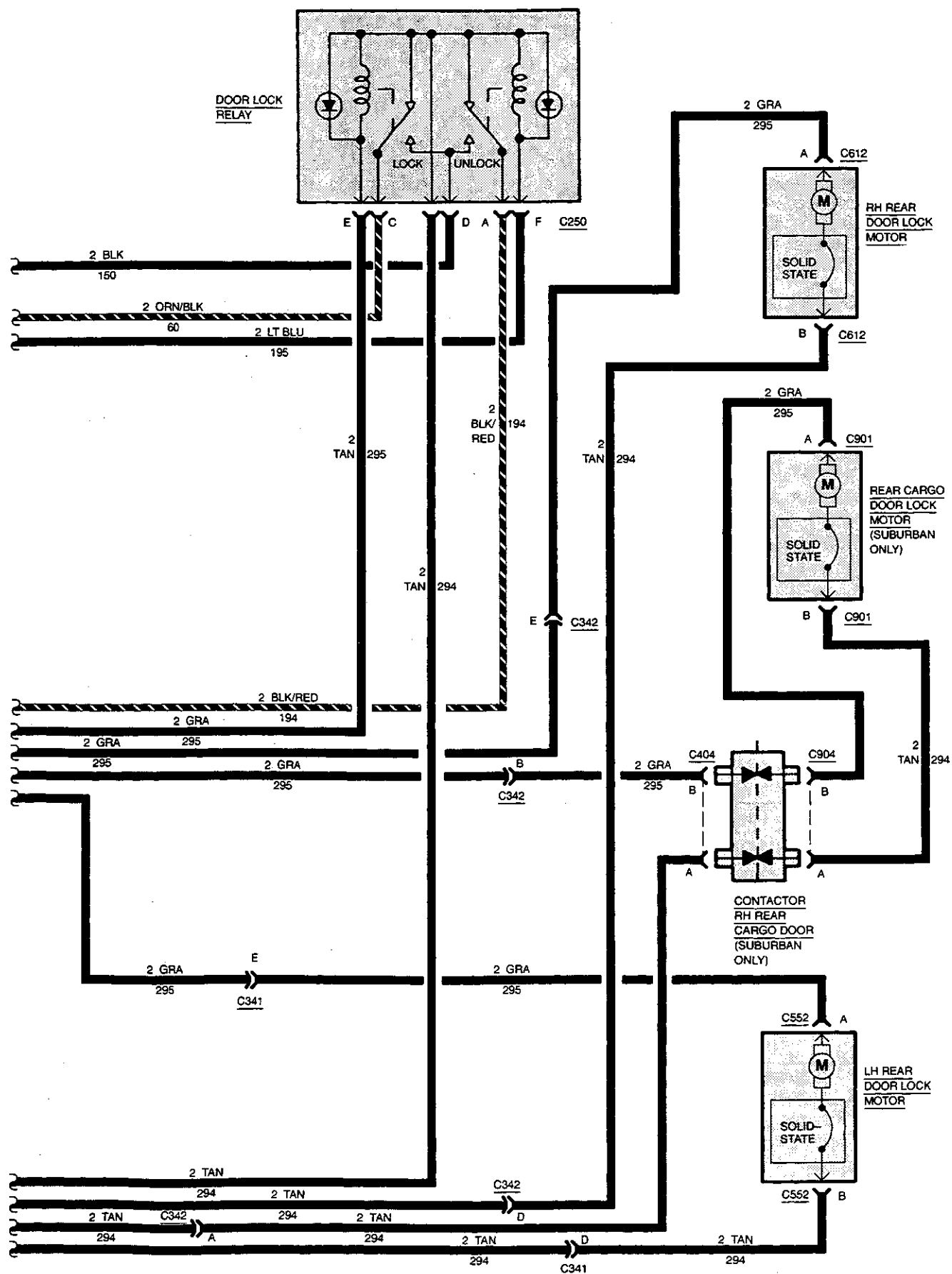
G202  
I/P  
GROUND

# 8A-130-4 POWER DOOR LOCKS CREW CAB AND SUBURBAN





## CREW CAB AND SUBURBAN



## 8A-130-6 POWER DOOR LOCKS

### DIAGNOSIS — POWER DOOR LOCKS

#### PRELIMINARY CHECKS:

1. Check to see that ACC-BATT Circuit Breaker and in-line (C296) fuse are not blown. If fuse is blown, locate and repair source of overload, then replace fuse. If Circuit Breaker is open, locate and repair source of overload, then check breaker for proper operation. If breaker does not reset, replace breaker.
2. Refer to Section 10A1 of the 1994 C/K Service Manual for diagnosis and repair of all non-electrical system components.

#### POWER DOOR LOCKS DO NOT OPERATE FROM EITHER SWITCH (2-DOOR AND EXTENDED CAB)

TEST	RESULT	ACTION
1. Connect test lamp from ORN/BLK (60) wire at LH lock switch connector C501 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in ORN/BLK (60) wire between LH lock switch connector C501 and connector C325 or from connector C325 to splice S278 or between splice S278 and convenience center connector C257 or from convenience center connector C257 to fuse block.
2. Connect test lamp from ORN/BLK (60) wire to BLK (150) wire(s) at LH lock switch connector C501.	Test lamp lights.	REPLACE LH lock switch.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire(s) from lock switch connector C501 to splice S501 or from splice S501 to connector C325 or from connector C325 to splice S272 or from splice S272 to convenience center connector C257.

#### BOTH SWITCHES ONLY OPEN ONE DOOR LOCK

TEST	RESULT	ACTION
1. Move one of the lock switches to UNLOCK position. Disconnect connector C502 or C602 at motor that is not working. Connect test lamp from GRA (295) wire at lock motor connector C502 or C602 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in GRA (295) wire from lock motor connector C502 or C602 to splice S600.
2. Connect test lamp from GRA (295) wire to TAN (294) wire at inoperative lock motor connector C502 or C602.	Test lamp lights.	REPLACE lock motor.
	Test lamp does not light.	LOCATE and REPAIR open in TAN (294) wire from lock motor connector C502 or C602 to splice S601.

## POWER DOOR LOCKS 8A-130-7

### NONE OF THE DOOR LOCK MOTORS LOCK OR UNLOCK (CREW CAB AND SUBURBAN)

TEST	RESULT	ACTION
1. Connect test lamp from ORN/BLK (60) wire at door lock relay connector C250 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in ORN/BLK (60) wire between door lock relay connector C250 and splice S278 or between splice S278 and convenience center connector C241 or from ORN (60) wire at convenience center to fuse block.
2. Connect test lamp from ORN/BLK (60) wire to BLK (150) wire at door lock relay connector C250.	Test lamp lights.	GO to step 3.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire between door lock relay connector C250 and splice S272 or between splice S272 and convenience center connector C257. Also check BLK (150) wire from convenience center to I/P ground G202.
3. Connect test lamp from TAN (294) or GRA (295) wire(s) at door lock relay connector C250 to ground. Move either door lock switch to the lock or unlock position.	Test lamp lights on both wires.	LOCATE and REPAIR open in TAN (294)/GRA (295) wire(s) between door lock relay connector C250 and splice S280 or S282.
	Test lamp does not light on one or both wires.	REPLACE door lock relay.

### BOTH SWITCHES ONLY OPEN ONE DOOR LOCK (CREW CAB AND SUBURBAN)

TEST	RESULT	ACTION
1. Move one of lock switches to UNLOCK position. Disconnect door lock motor connector C502, C552, C602 or C612 at motor that is not working. Connect test lamp from GRA (295) wire at lock motor connector C502, C552, C602 or C612 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in GRA (295) wire from lock motor connector C502, C552, C602 or C612 to splice S282.
2. Connect test lamp from GRA (295) wire to TAN (294) wire at inoperative lock motor connector C502, C552, C602 or C612.	Test lamp lights.	REPLACE lock motor.
	Test lamp does not light.	LOCATE and REPAIR open in TAN (294) wire from lock motor connector C502, C552, C602 or C612 to splice S280.

### POWER DOOR LOCKS ONLY WORK FROM ONE LOCK SWITCH (ALL VEHICLES)

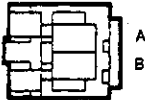
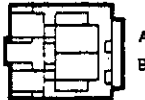
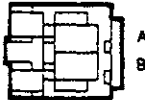
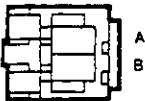
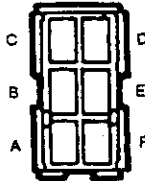
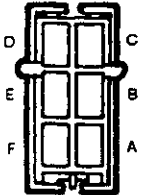
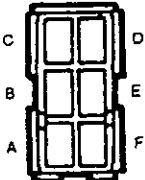
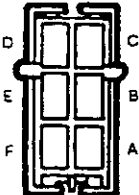

TEST	RESULT	ACTION
1. Connect test lamp from ORN/BLK (60) wire at inoperative lock switch connector C501 or C601 to ground.	Test lamp lights.	REPLACE inoperative lock switch.
	Test lamp does not light.	LOCATE and REPAIR open in ORN/BLK (60) wire from lock switch to splice S278.

## 8A-130-8 POWER DOOR LOCKS

### CARGO DOOR LOCK MOTOR DOES NOT LOCK AND/OR UNLOCK (SUBURBAN)

TEST	RESULT	ACTION
1. Open rear cargo doors. Connect test lamp from TAN (294) or GRA (295) wire(s) at cargo door contact button connector C404 to ground. Move either door lock switch to the lock or unlock position.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in TAN (294) or GRA (295) wire(s) from contact button connector C404 to splice(s) S280 or S282.
2. Close cargo doors. Connect test lamp from GRA (295) wire at door lock motor connector C901 to ground. Move one lock switch to UNLOCK position.	Test lamp lights.	GO to step 3.
	Test lamp does not light.	LOCATE and REPAIR open in GRA (295) wire from door lock motor connector C901 to door mounted contact button connector C904.
3. Connect test lamp from GRA (295) wire to TAN (294) wire at door lock motor connector C901. Move one lock switch to LOCK and UNLOCK positions.	Test lamp lights in both positions.	REPLACE cargo door lock motor.
	Test lamp does not light in one or both positions.	LOCATE and REPAIR open in TAN (294) wire from door lock motor connector C901 to door mounted contact button connector C904.

**POWER DOOR LOCKS 8A-130-9**

<div>12004140</div> <div></div> <div>BLACK Pac/on C502 LH Front Power Door Lock Motor</div>	<div>12004140</div> <div></div> <div>BLACK Pac/on C602 RH Front Power Door Lock Motor</div>	<div>12004140</div> <div></div> <div>BLACK Pac/on C552 LH Rear Power Door Lock Motor</div>
<div>12004140</div> <div></div> <div>BLACK Pac/on C612 RH Rear Power Door Lock Motor</div>	<div>12015345</div> <div></div> <div>BLACK Metri-Pack 280 C325 Crossbody to LH Front Door</div>	<div>12015344</div> <div></div> <div>BLACK Metri-Pack 280 C325 LH Front Door to Crossbody</div>
<div>12015345</div> <div></div> <div>BLACK Metri-Pack 280 C328 Crossbody to RH Front Door</div>	<div>12015344</div> <div></div> <div>BLACK Metri-Pack 280 C328 RH Front Door to Crossbody</div>	<div>12059233</div> <div></div> <div>C241 Power Tap at Convenience Center</div>

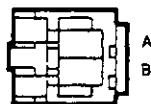
## 8A-130-10 POWER DOOR LOCKS

12059236



**C257**  
Ground Tap at Convenience  
Center

12004140



**BLACK**  
Packon  
**C901**  
Cargo Door Lock Motor

12033709



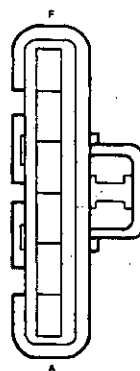
**BLACK**  
Metri-Pack 280  
**C404**  
Door Contactor – Body

12033709



**BLACK**  
Metri-Pack 280  
**C904**  
Door Contactor – Door

12059561



**C250**  
Power Door Lock Relay

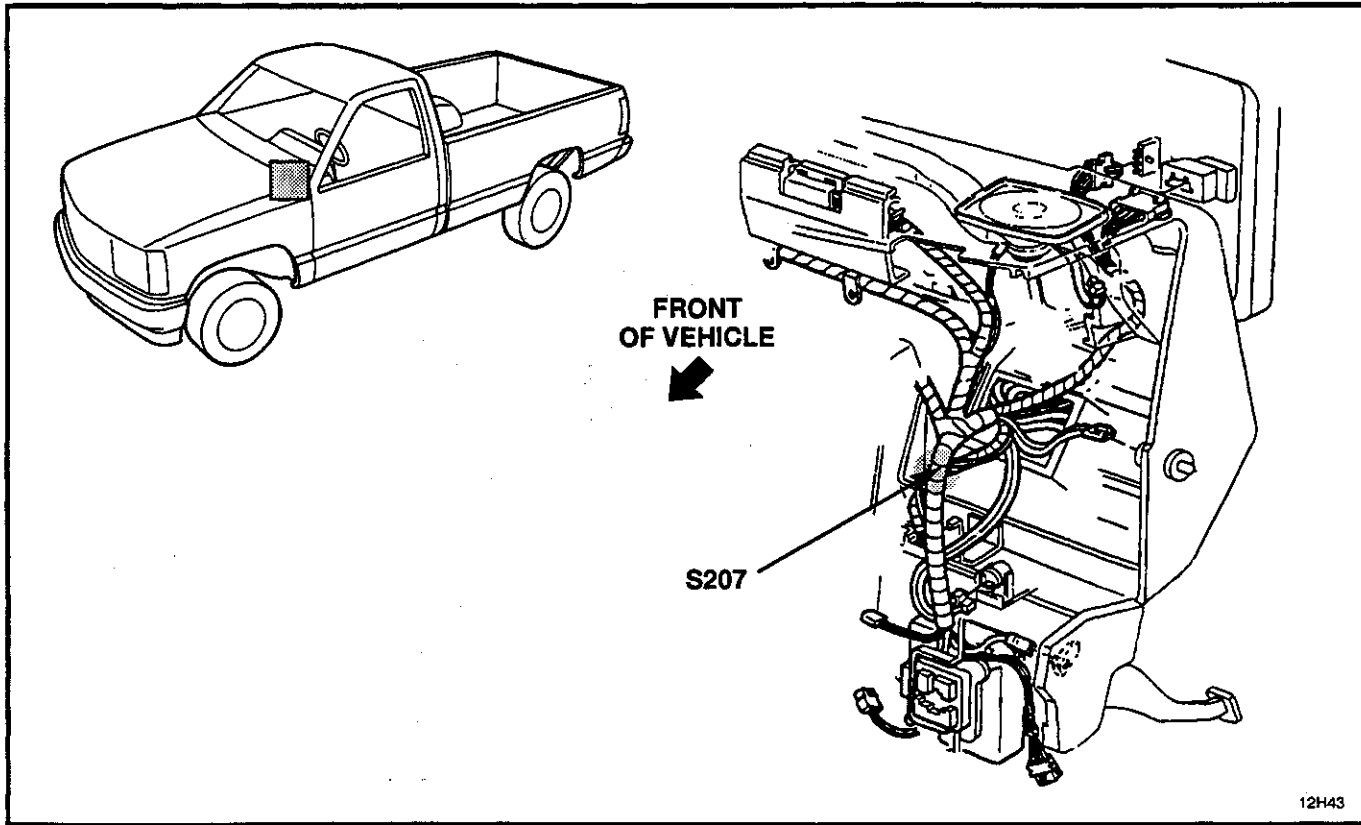


Figure 1 — LH Side of Instrument Panel

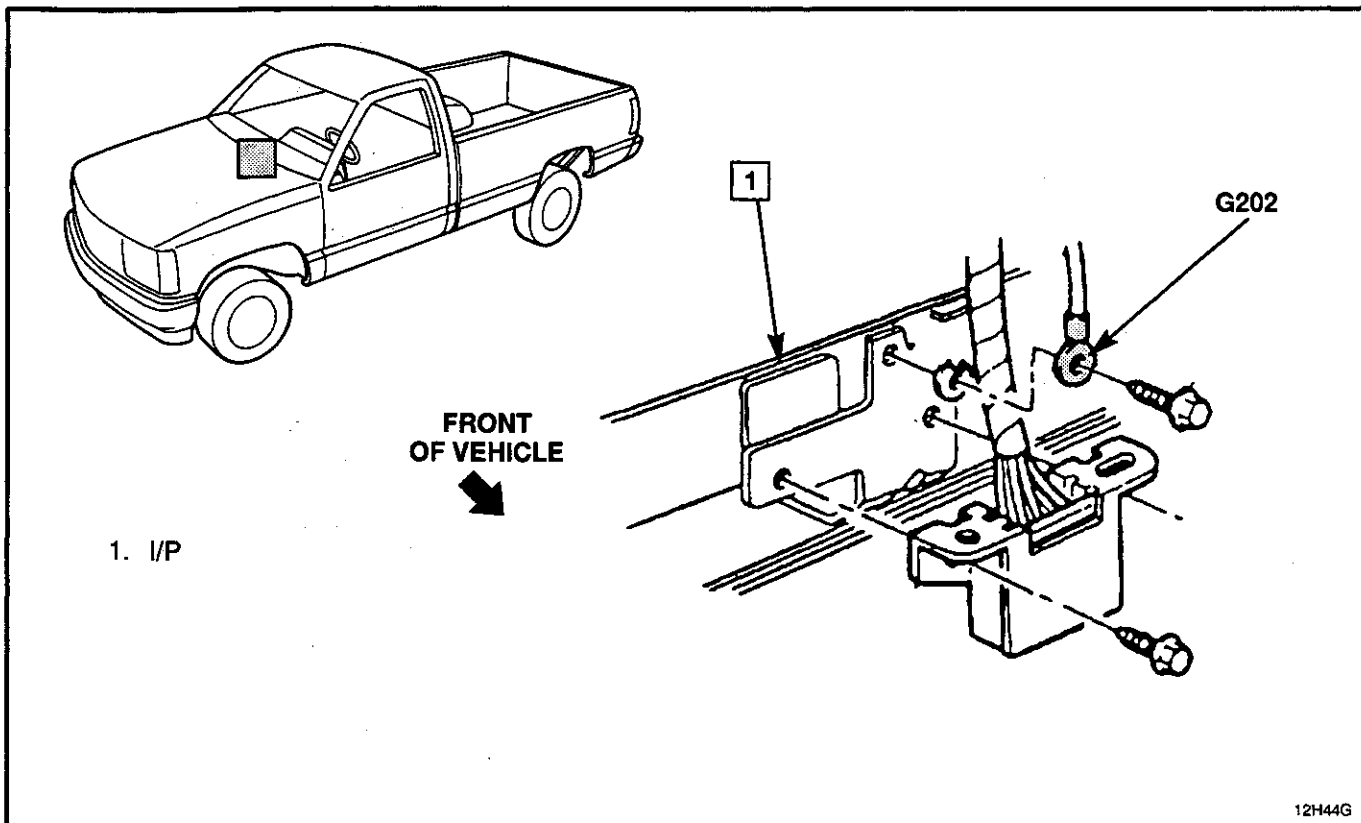


Figure 2 — I/P Ground Wiring

# 8A-130-12 POWER DOOR LOCKS

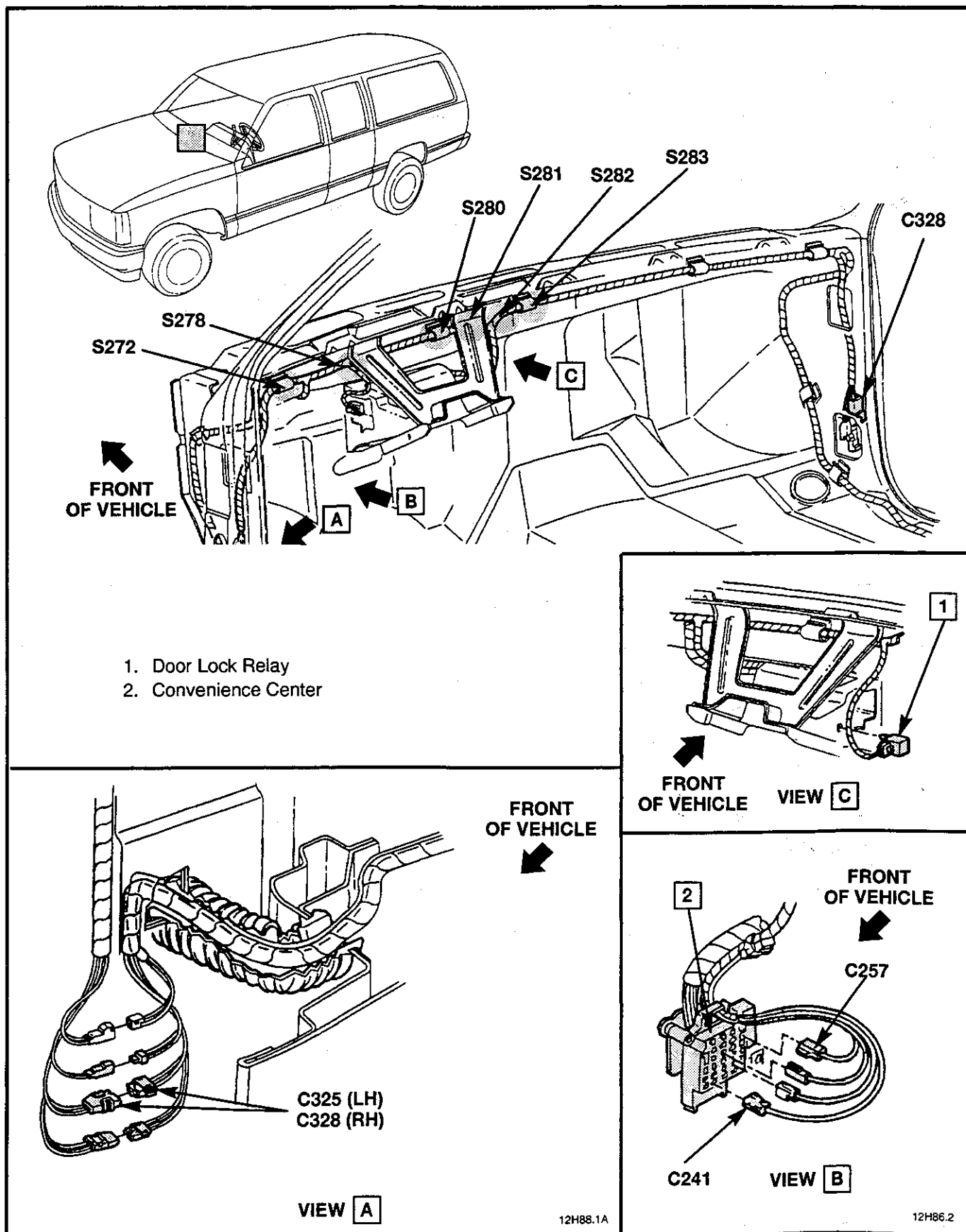
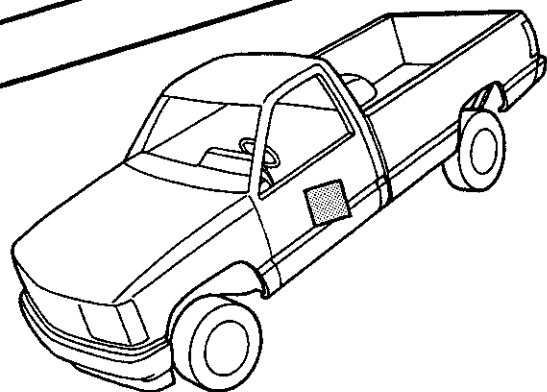


Figure 3 — Crossbody Wiring — Suburban



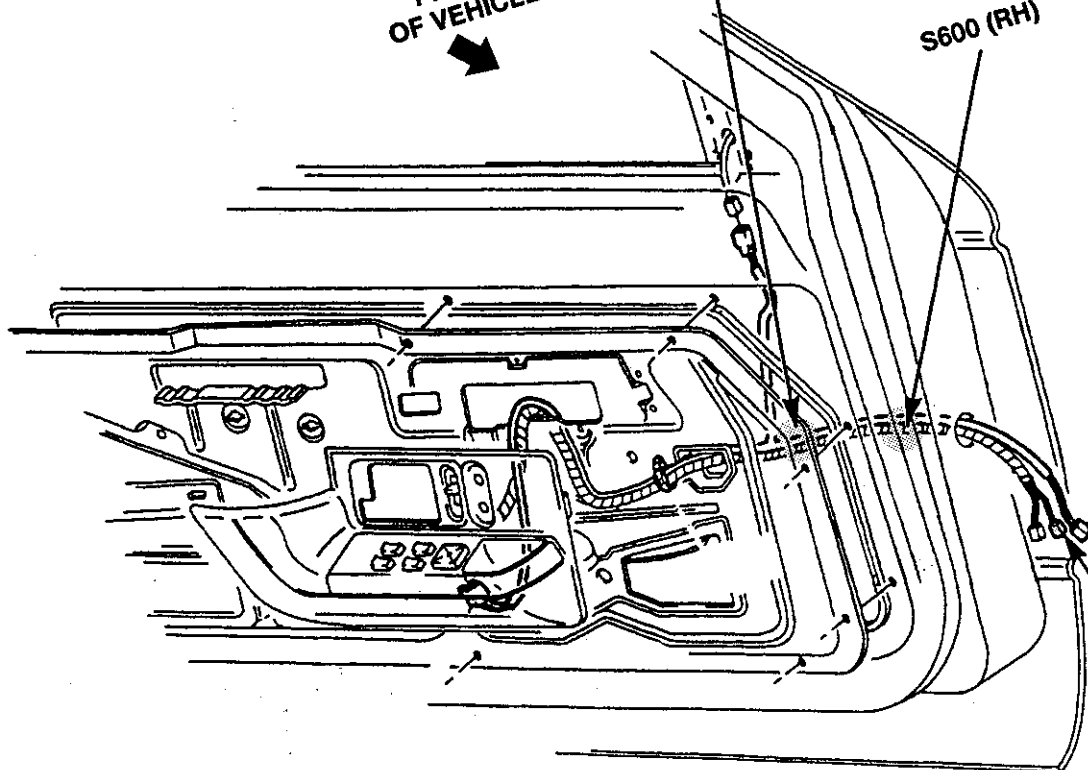
# POWER DOOR LOCKS 8A-130-13



FRONT  
OF VEHICLE

S501 (LH)  
S601 (RH)

S600 (RH)



C325 (L)  
C328 (R)

Figure 4 — Door Wiring

## 8A-130-14 POWER DOOR LOCKS

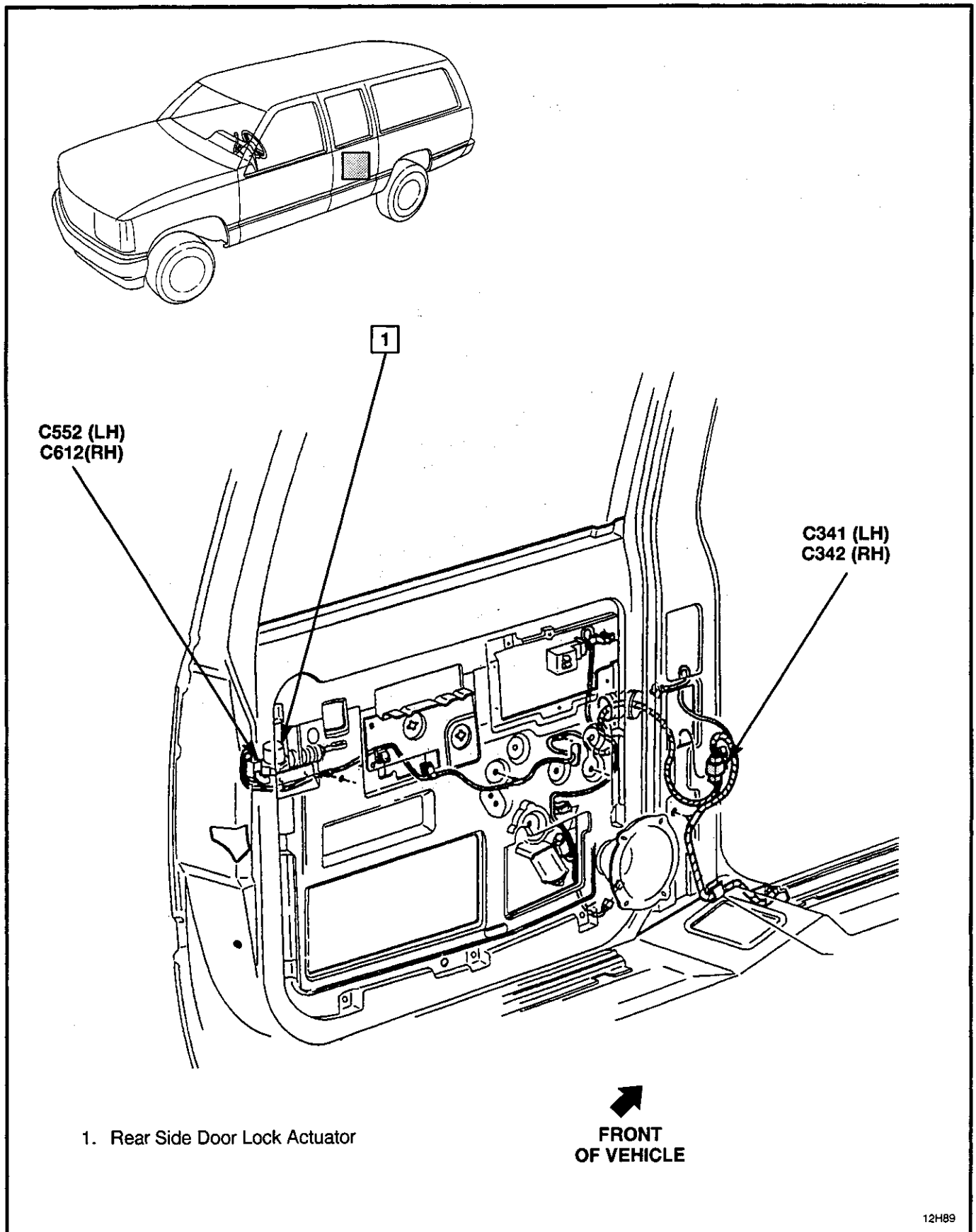


Figure 5 — Rear Side Door Wiring – Suburban and 4-Door

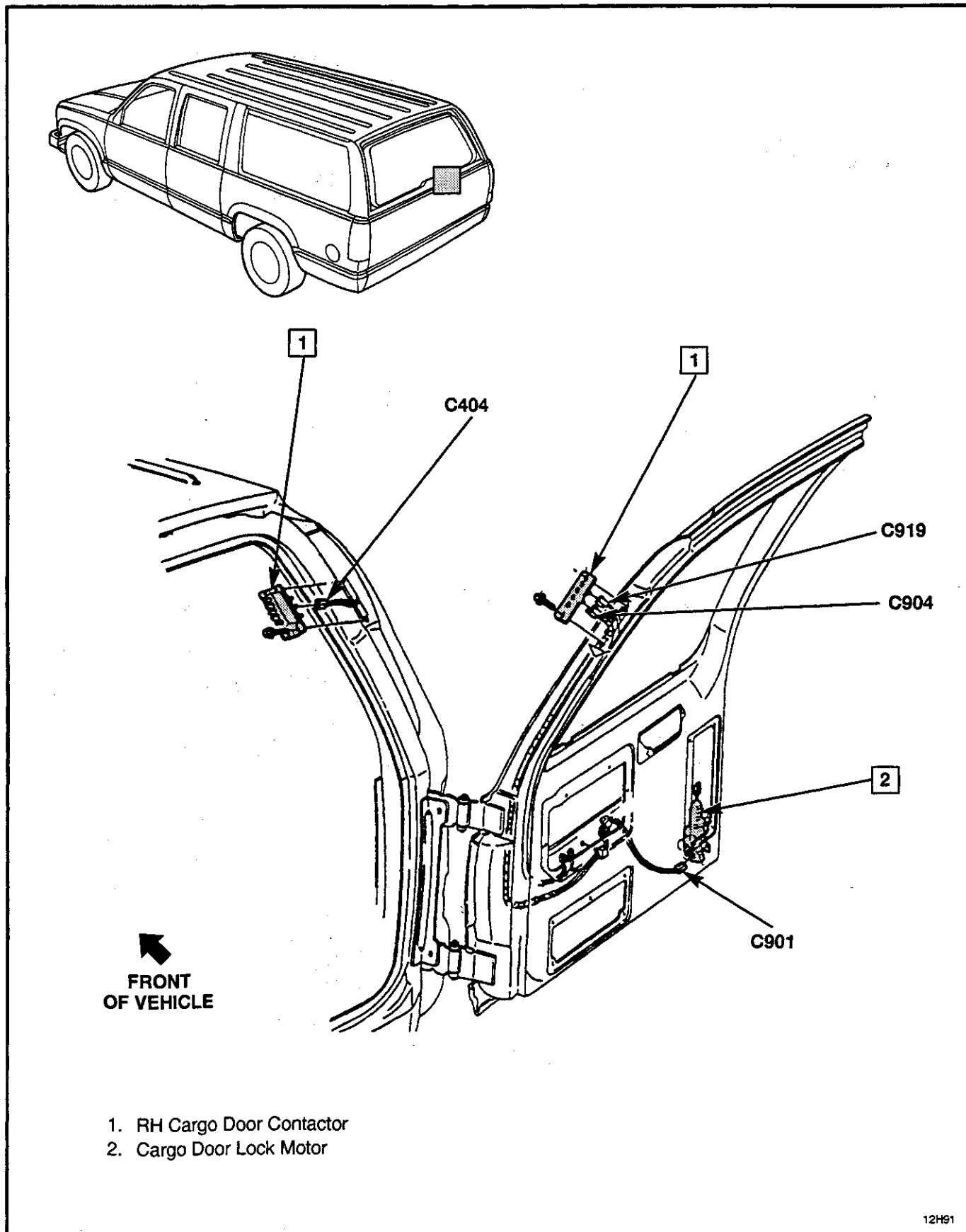


Figure 6 — Power Door Lock — Rear Door Wiring — Suburban

## 8A-130-16 POWER DOOR LOCKS

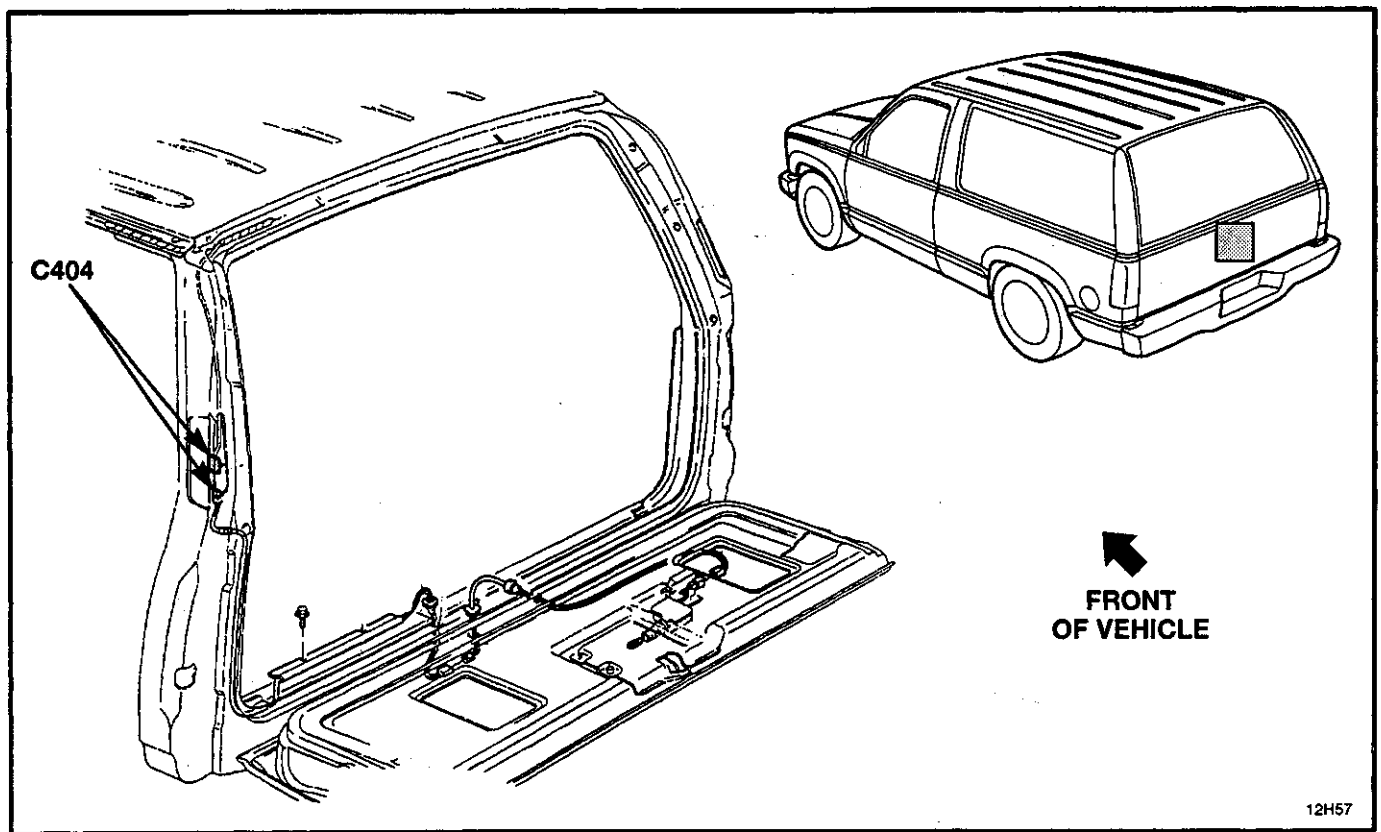


Figure 7 — Rear Window Release Rear Wiring – Utility and Suburban W/Endgate

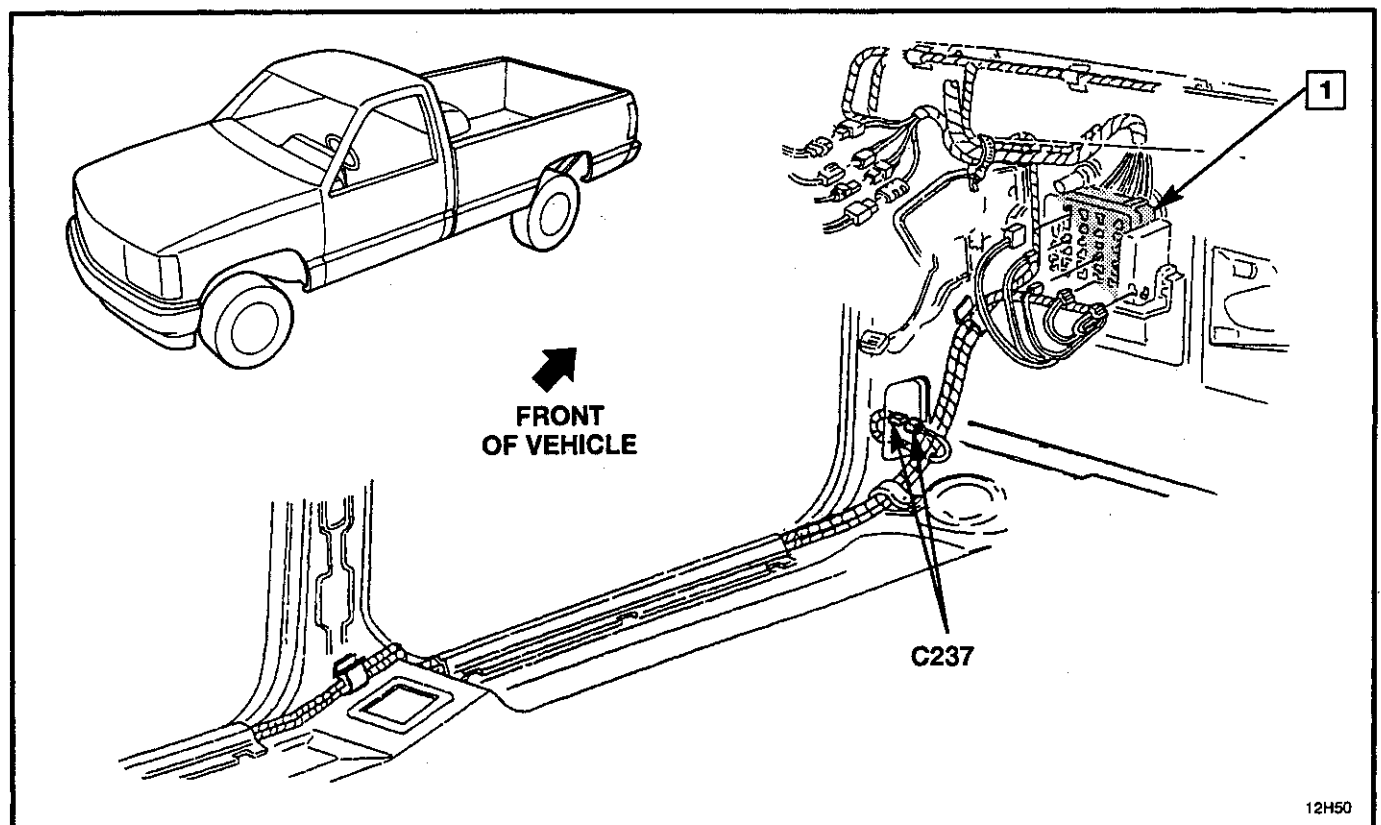


Figure 8 — Body Wiring Harness, Front

## CIRCUIT OPERATION

Voltage to the Rear Window Release system is available at all times through the T/GREL Fuse and the ORN (640) wire. Ground for the Rear Window Release Control Relay is provided through the TAN/WHT (33) wire and the Park Brake Warning Switch on manual transmissions or the ORN/BLK (434) wire and the Park/Neutral Position Switch on automatic transmissions.

These switches are closed to ground with the Parking Brake set or the transmission in PARK or NEUTRAL.

Closing the Rear Window Release Switch allows current to flow through the switch and the BRN (1146) wire to the Rear Window Release Control Relay.

The Relay is energized and current flows through the relay contacts and the DK GRN (1148) wire to energize the Rear Window Release Solenoid, which grounds through the BLK (150) wire at G400 and releases the Rear Window Latch.

## COMPONENT LOCATION

Page — Figure

Convenience Center .....	Under LH side of I/P .....	135-11	7
Park Brake Warning Switch .....	At park brake, under LH end of I/P .....	135-10	5
Park/Neutral Position Switch .....	Under I/P, above steering column .....	135-9	3
Rear Window Release Relay .....	Behind LH side of I/P .....	135-8	2
Rear Window Release Solenoid .....	Inside of endgate .....	135-12	9
Rear Window Release Switch .....	LH side of I/P .....	135-8	2

## CONNECTORS:

C200 .....	Under RH side of I/P, near blower motor .....	135-9	4
C200B .....	Under RH side of I/P, near blower motor .....	135-9	4
C262 .....	Under LH end of I/P .....	135-8	2
C296 .....	Under LH side of I/P .....	Not Shown	
C404 .....	LH rear door pillar .....	135-12	9
C905 .....	At lower rear body frame opening .....	135-12	9
C906 .....	At rear window release solenoid .....	135-12	9

## DIODES:

D200 .....	Near park brake switch .....	135-12	9
------------	------------------------------	--------	---

## GROMMETS:

P101 .....	RH lower cowl (engine compartment) .....	135-9	4
P409 .....	At lower rear body opening .....	135-12	9
P410 .....	At lower rear body to endgate .....	135-12	9
P910 .....	At liftgate window release solenoid .....	Not Shown	

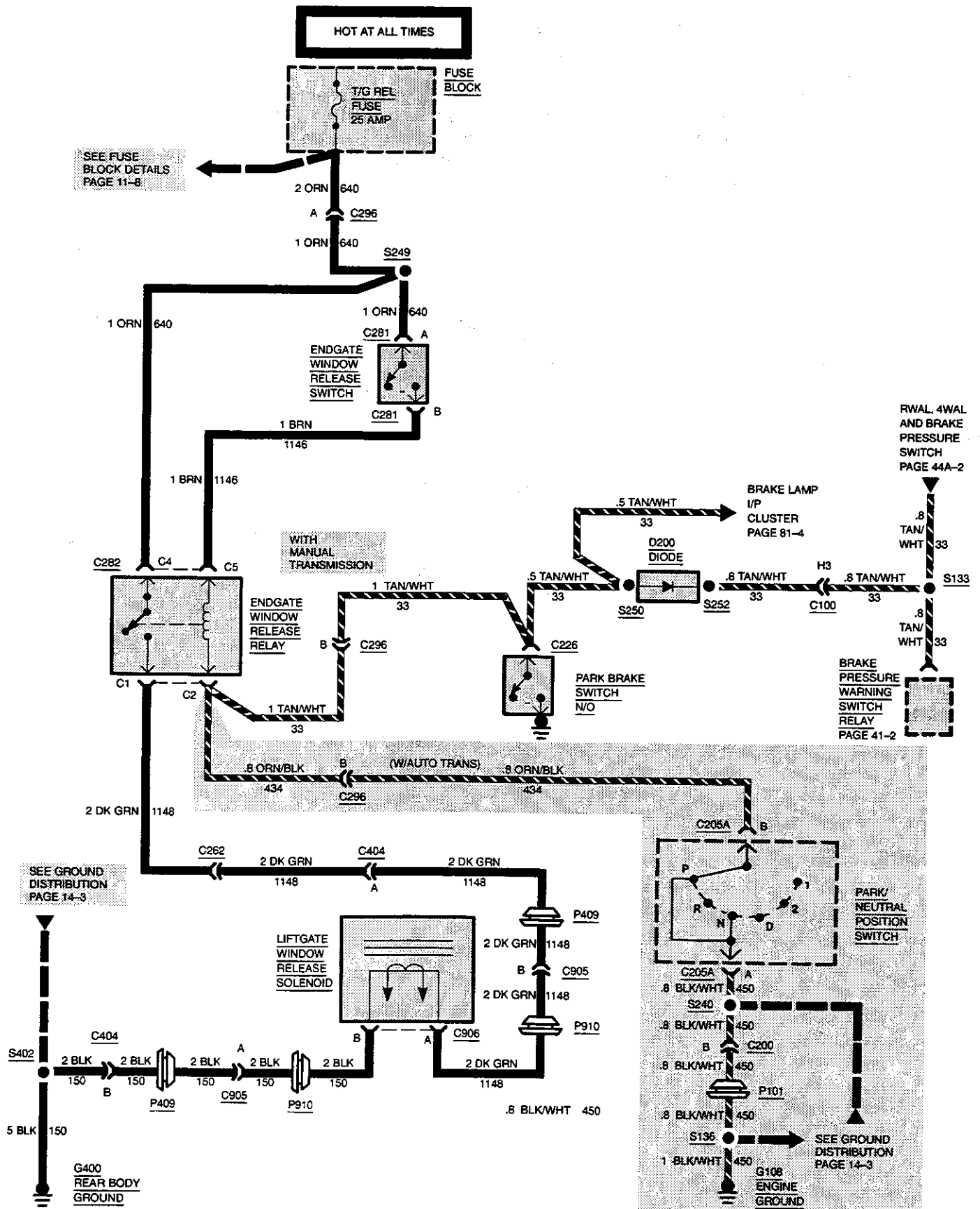
## GROUNDS:

G108 .....	LH top front of engine .....	135-7	1
G109 .....	Top front center of engine .....	135-7	1
G400 .....	At RH D-pillar .....	Not Shown	

## SPLICES:

S136 .....	Rear of engine compartment, near center .....	135-7	1
S240 .....	Behind LH side of I/P .....	135-10	6
S242 .....	Under LH side of I/P .....	135-10	6
S248 .....	Endgate release harness, near release switch lead .....	Not Shown	
S402 .....	Above rear liftgate glass opening .....	135-11	8

# 8A-135-2 REAR WINDOW RELEASE



## DIAGNOSIS — REAR LIFTGATE WINDOW RELEASE

### PRELIMINARY CHECKS:

1. Check to see that T/GREL Fuse is not blown. If fuse is blown, locate and repair source of overload, then replace fuse.
2. If fuse is not blown, proceed with the following diagnostic procedures.

### REAR WINDOW RELEASE DOES NOT OPERATE

TEST	RESULT	ACTION
1. Connect test lamp from ORN (640) wire at rear window release switch connector C281 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in ORN (640) wire from rear window release switch connector C281 to fuse panel. Be sure to check all splices and connectors between.
2. Connect test lamp from ORN (640) wire at rear window release relay connector C282 to ground.	Test lamp lights.	GO to step 3.
	Test lamp does not light.	LOCATE and REPAIR open in ORN (640) wire from rear window release control relay connector C282 to splice S248.
3. Connect test lamp from BRN (1146) wire at rear window release switch connector C281 to ground.	Test lamp lights.	GO to step 4.
	Test lamp does not light.	REPLACE rear window release switch.
4. Connect test lamp from BRN (1146) wire at rear window release control relay connector C282 to ground.	Test lamp lights.	GO to step 5.
	Test lamp does not light.	LOCATE and REPAIR open in BRN (1146) wire from rear window release control relay connector C282 to rear window release switch connector C281.
5. Connect test lamp from BRN (1146) wire to ORN/BLK (434) wire (auto trans) or TAN/WHT (33) wire (man trans) at rear window release control relay connector C282.	Test lamp lights.	GO to step 6.
	Test lamp does not light.	Man Trans Only: LOCATE and REPAIR open in TAN/WHT (33) wire from rear window release control relay connector C282 to park brake switch connector C226. If wire is not open, check adjustment of parking brake switch. Auto Trans Only: LOCATE and REPAIR open in ORN/BLK (434) wire from rear window release control relay connector C282 to grounds G108 or G109. Be sure to check between all splices and connectors. If wire is good, check park/neutral position switch adjustment.

## 8A-135-4 REAR WINDOW RELEASE

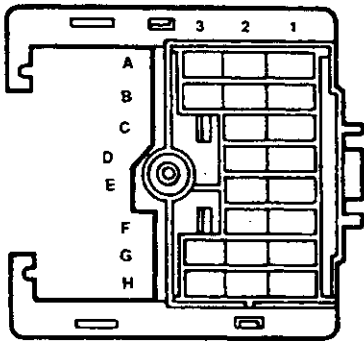
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### REAR WINDOW RELEASE DOES NOT OPERATE (CONTINUED)

TEST	RESULT	ACTION
6. Apply park brake (man trans) or place transmission in PARK (auto trans). Turn rear window release switch ON. Connect test lamp from DK GRN (1148) wire at rear window release solenoid connector C906 to ground.	Test lamp lights.	GO to step 7.
	Test lamp does not light.	LOCATE and REPAIR open in DK GRN (1148) wire from rear window release solenoid connector C909 to rear window release control relay connector C282.
7. Connect test lamp from DK GRN (1148) wire to BLK (151) wire at rear window release solenoid connector C906.	Test lamp lights.	REPLACE rear window release solenoid.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire from rear window release solenoid connector C909 to ground G400. Be sure to check between all splices and connectors.

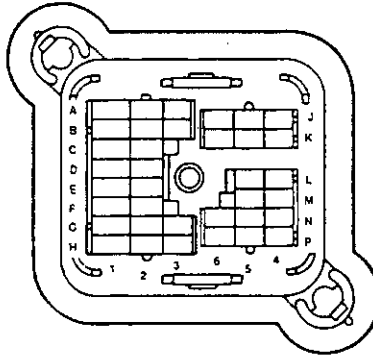


**12020183**



**GRAY**  
Metri-Pack  
**C100**  
Bulkhead Connector – Eng

**12020184**



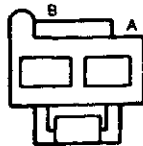
**GRAY**  
Metri-Pack  
**C100**  
Bulkhead Connector – I/P

**12015034**



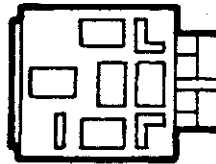
**BLACK**  
56 Series  
**C205A**  
Park/Neutral Position Switch

**12041433**



**BLACK**  
Metri-Pack 150  
**C281**  
Endgate Window Release Switch

**12034003**



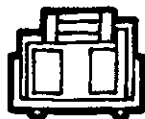
**BLACK**  
Metri-Pack 630  
**C282**  
Endgate Window Release Relay

**12034343**



**BLACK**  
Metri-Pack  
**C296**  
In-Line I/P to Release Switch

**12034344**



**BLACK**  
Metri-Pack 280  
**C296**  
In-Line Release Switch to I/P

**12059884**



**C262**  
In-Line Release Relay to  
Extension Harness

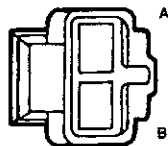
**12059885**



**C262**  
In-Line Extension Harness to  
Release Relay

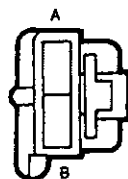
## 8A-135-6 REAR WINDOW RELEASE

12064750



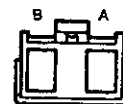
**BLACK**  
Metri-Pack 480  
**C404**  
In-Line Extension to I/P

12064749



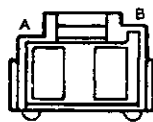
**BLACK**  
Metri-Pack 480  
**C404**  
In-Line I/P to Extension

12015199



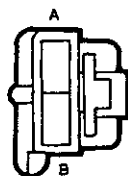
**NATURAL**  
Metri-Pack 280  
**C905**  
In-Line Extension to Solenoid

12015271



**BLACK**  
Metri-Pack  
**C905**  
In-Line Solenoid to Extension

12064749



**BLACK**  
Metri-Pack 480  
**C906**  
Release Solenoid

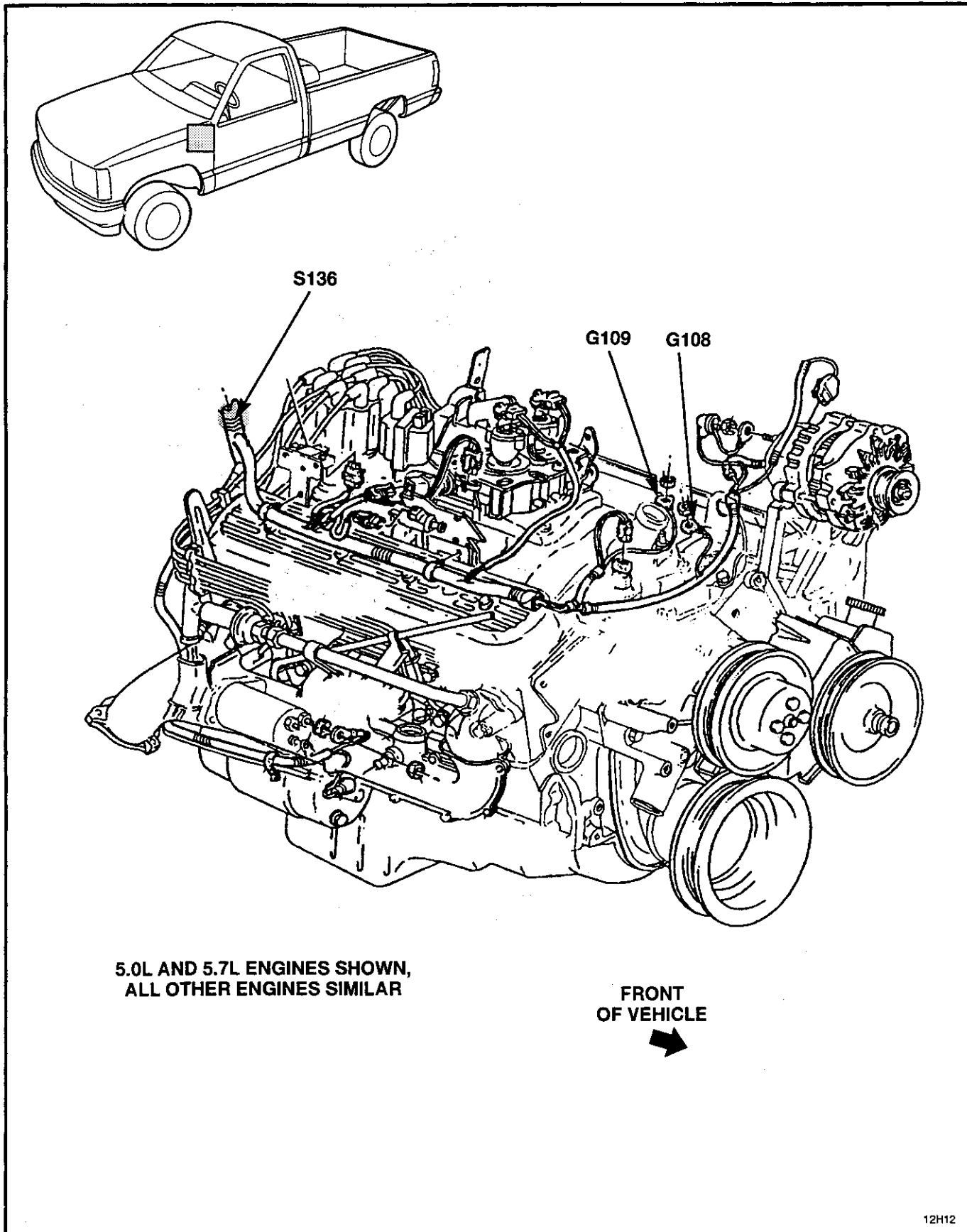


Figure 1 — LH Side of Engine, 5.0L (305 CID) Engine — Gasoline

## 8A-135-8 REAR WINDOW RELEASE

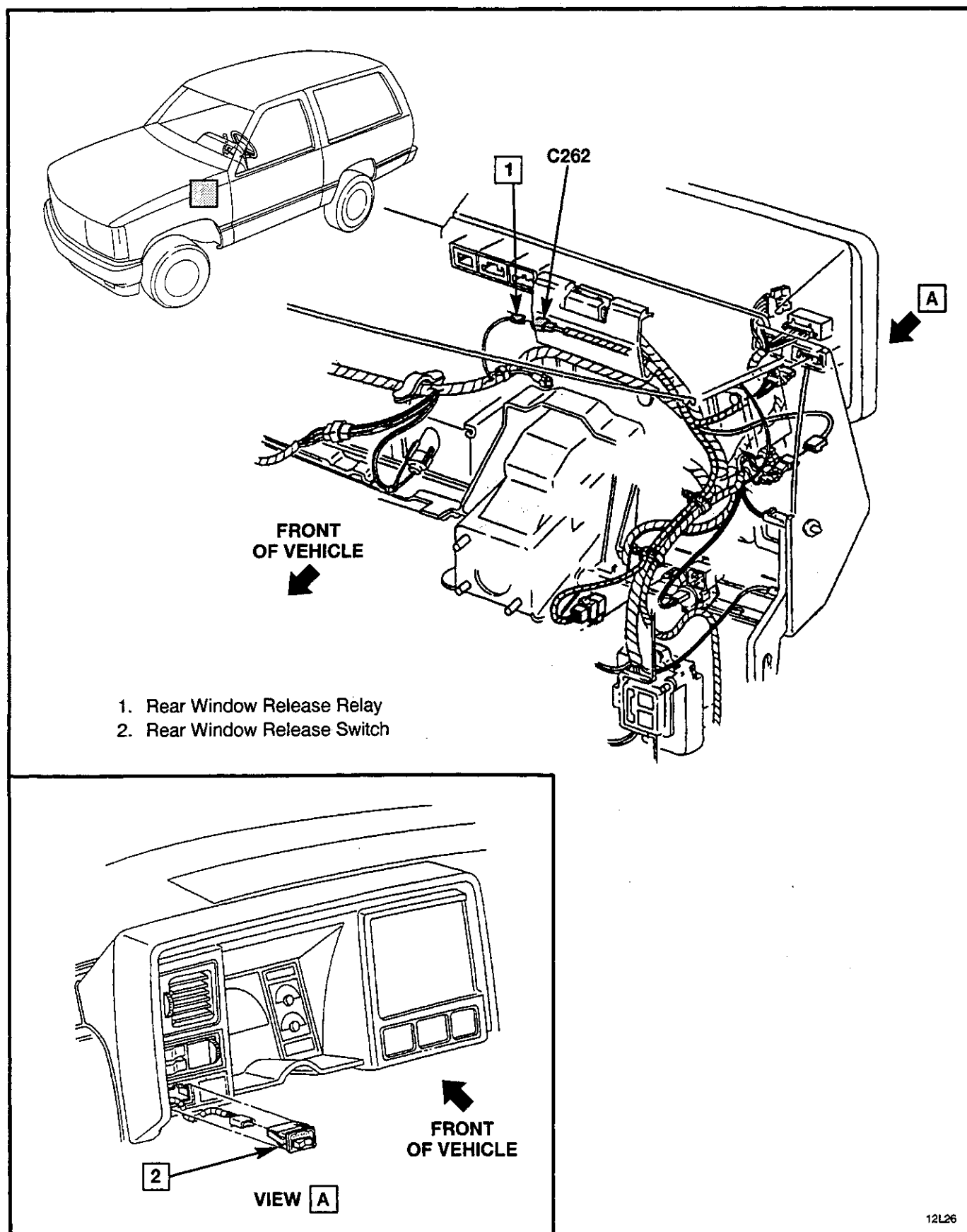


Figure 2 — Rear Window Release Front Wiring, Utility and Suburban W/Endgate

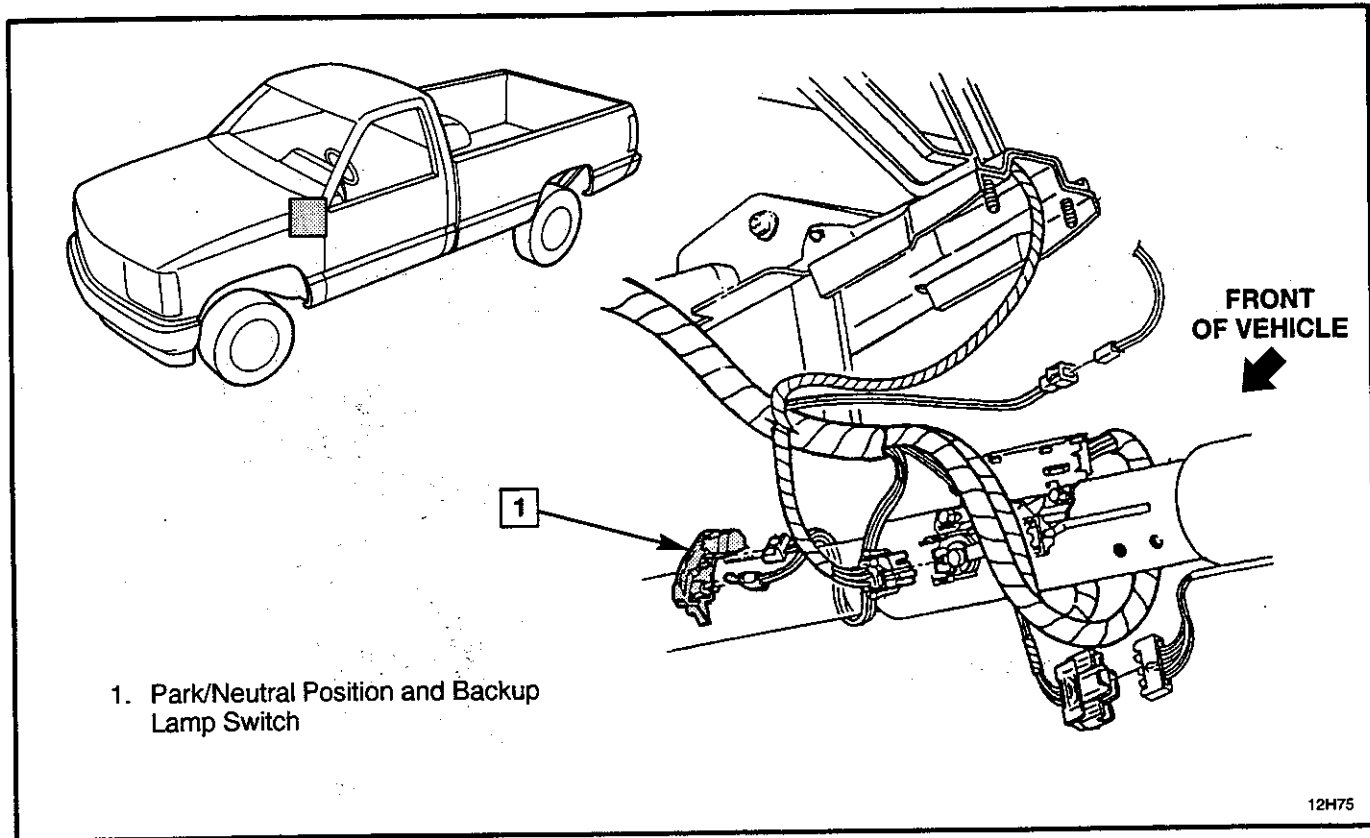


Figure 3 — Steering Column Wiring, LH Side

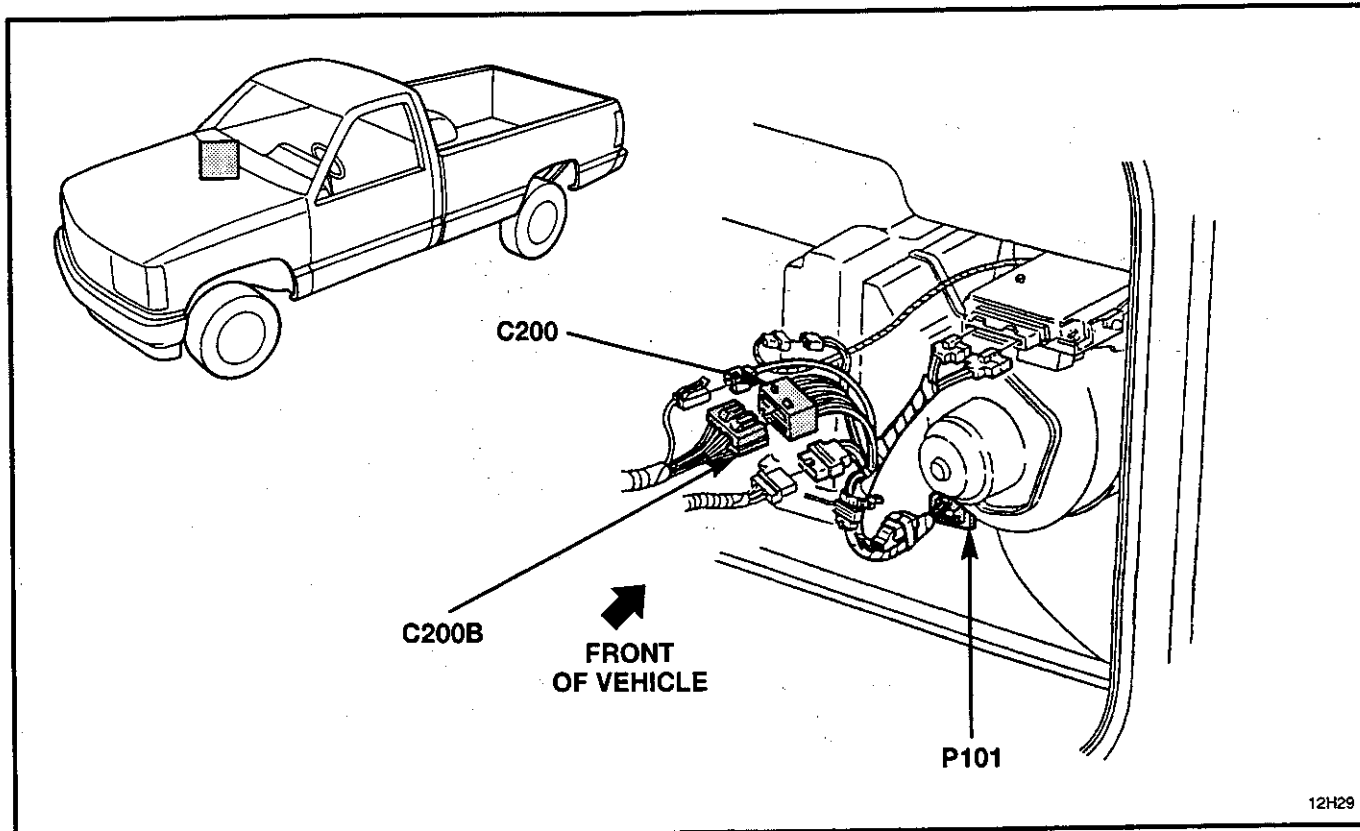


Figure 4 — Behind RH Side of I/P

## 8A-135-10 REAR WINDOW RELEASE

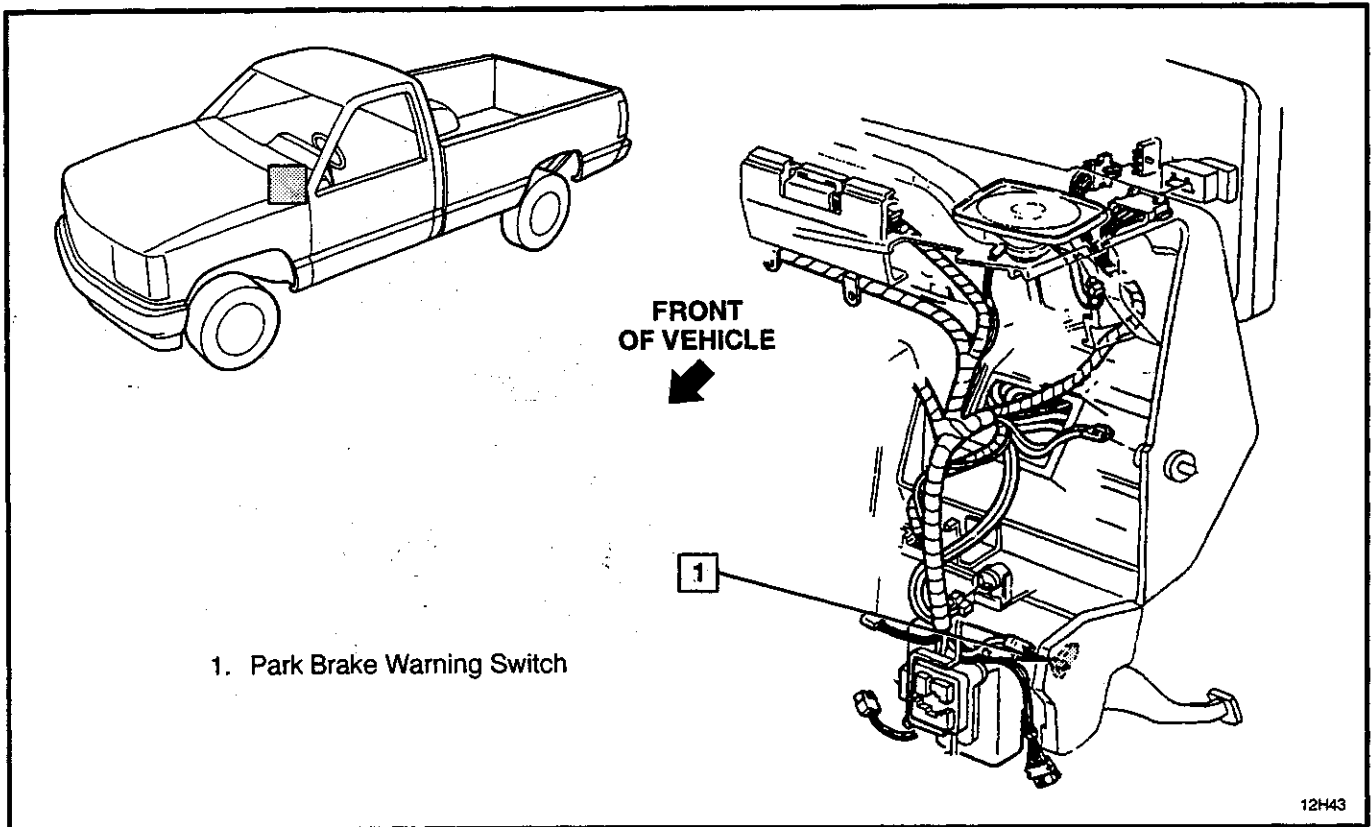


Figure 5 — Instrument Panel, LH Side

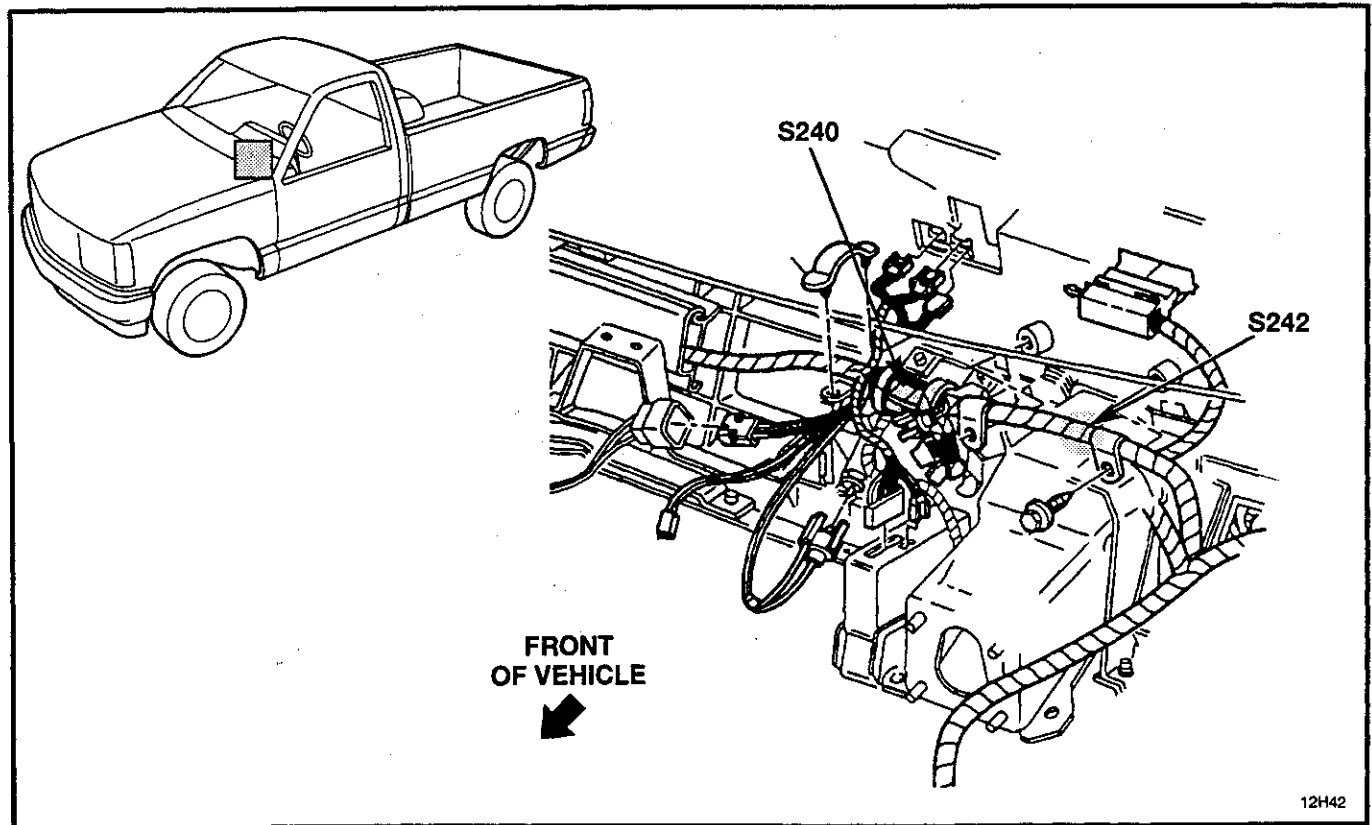


Figure 6 — Instrument Panel, RH Side

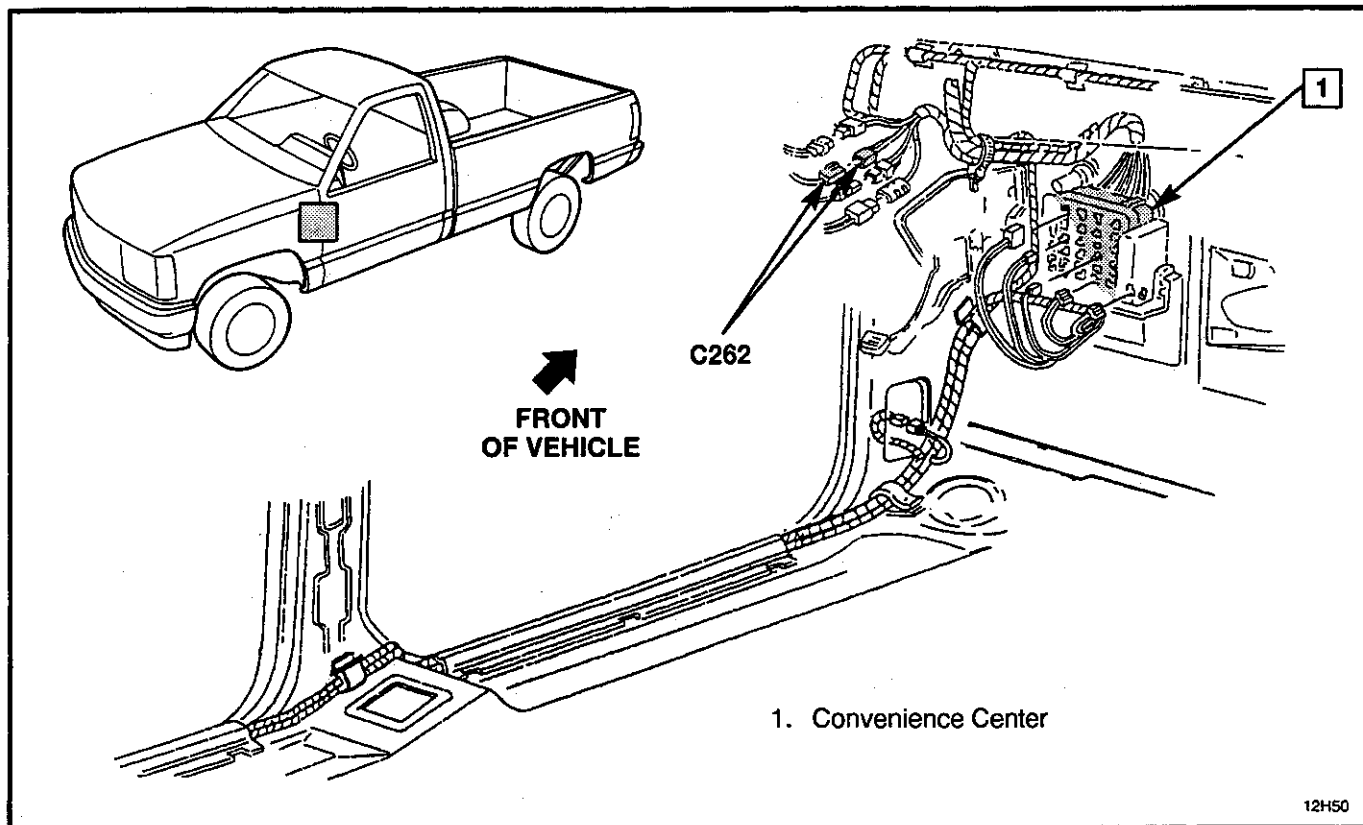


Figure 7 — Body Wiring Harness, Front

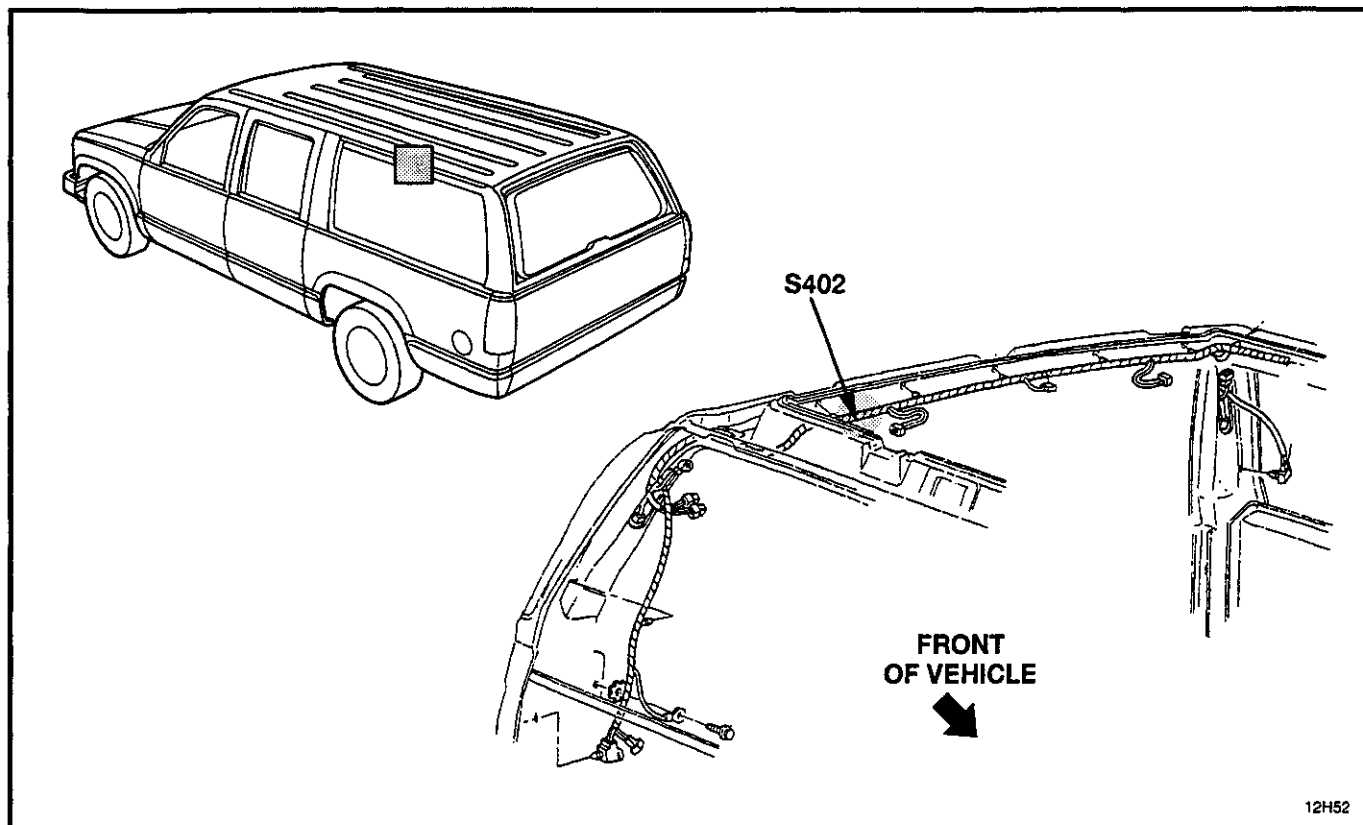


Figure 8 — Body Wiring, Rear — Suburban

## 8A-135-12 REAR WINDOW RELEASE

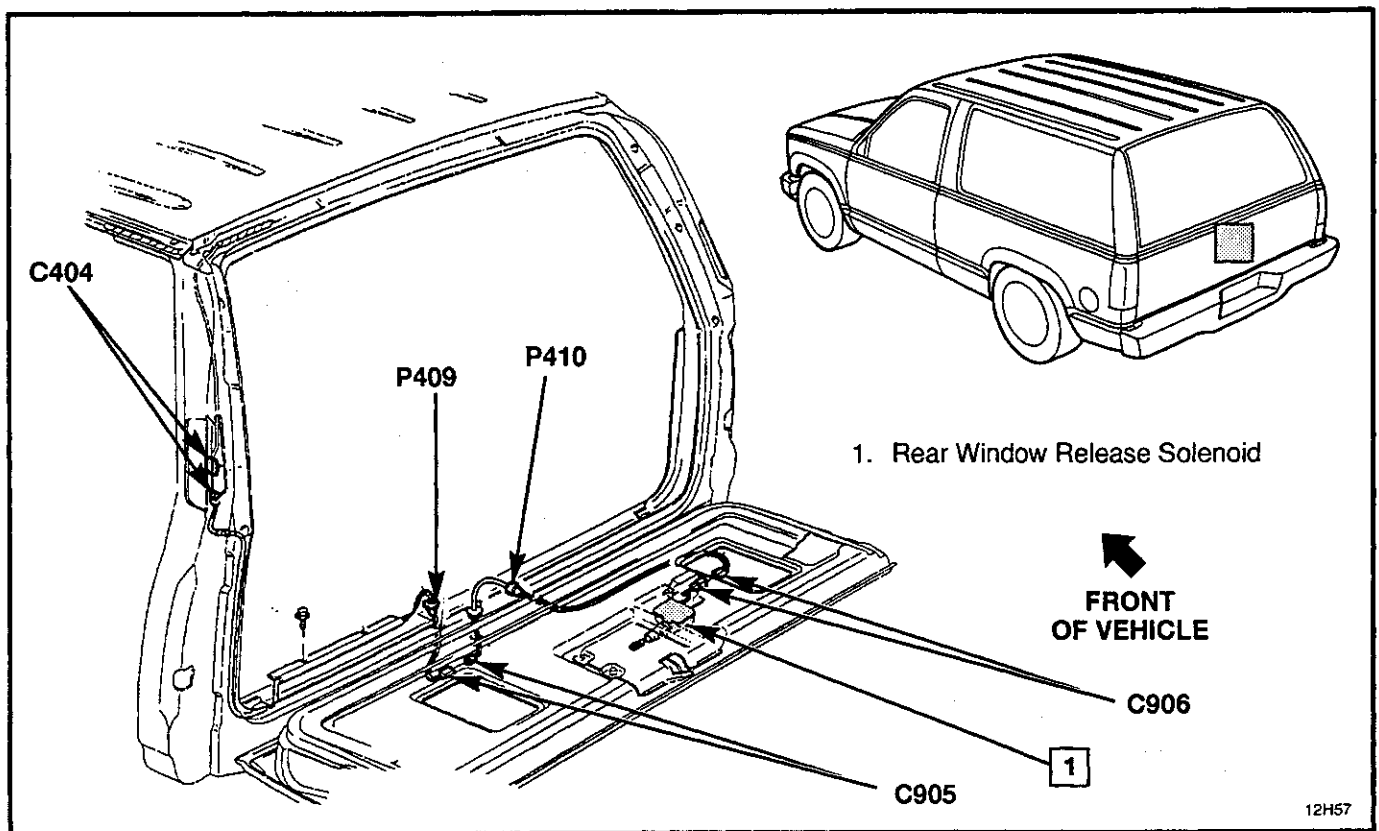


Figure 9 — Rear Window Release Wiring, Rear — Utility and Suburban W/Endgate



## **CIRCUIT OPERATION**

Three reversible motors operate the power seat. One motor raises or lowers the front of the seat. One motor raises or lowers the rear of the seat. The third motor moves the seat forward or back.

Moving the Front Tilt Switch UP supplies voltage to the Front Tilt Motor through the YEL wire (282). The motor is grounded through the Front Tilt Down Switch and the front of the seat is raised. Moving the Front Tilt Switch to the DOWN position reverses the polarity and the front of the seat is lowered.

The Rear Tilt Motor is operated in the same way through the Rear Tilt Switch.

Moving the Forward/Rearward, UP and DOWN Switch up or down operates the Front Tilt Motor and Rear Tilt Motor at the same time.

Moving the Forward/Rearward, UP and DOWN Switch up or down operates the Fore/Aft and the seat moves forward or back.

## **COMPONENT LOCATION**

### **Page — Figure**

Convenience Center .....	Under LH side of I/P .....	140-8	3
Power Front Seat Control Switch .....	On driver's seat .....	140-8	3
Power Front Seat Forward/ Rearward Motor, .....	Under driver's seat .....	Not Shown	
Power Front Seat Front Tilt Motor ..	Under driver's seat .....	Not Shown	
Power Front Seat Rear Tilt Motor ...	Under driver's seat .....	Not Shown	

## **CONNECTORS:**

C276A .....	At convenience center .....	140-8	3
C287A .....	At convenience center .....	140-8	3
C387 .....	Under driver's seat .....	140-8	3

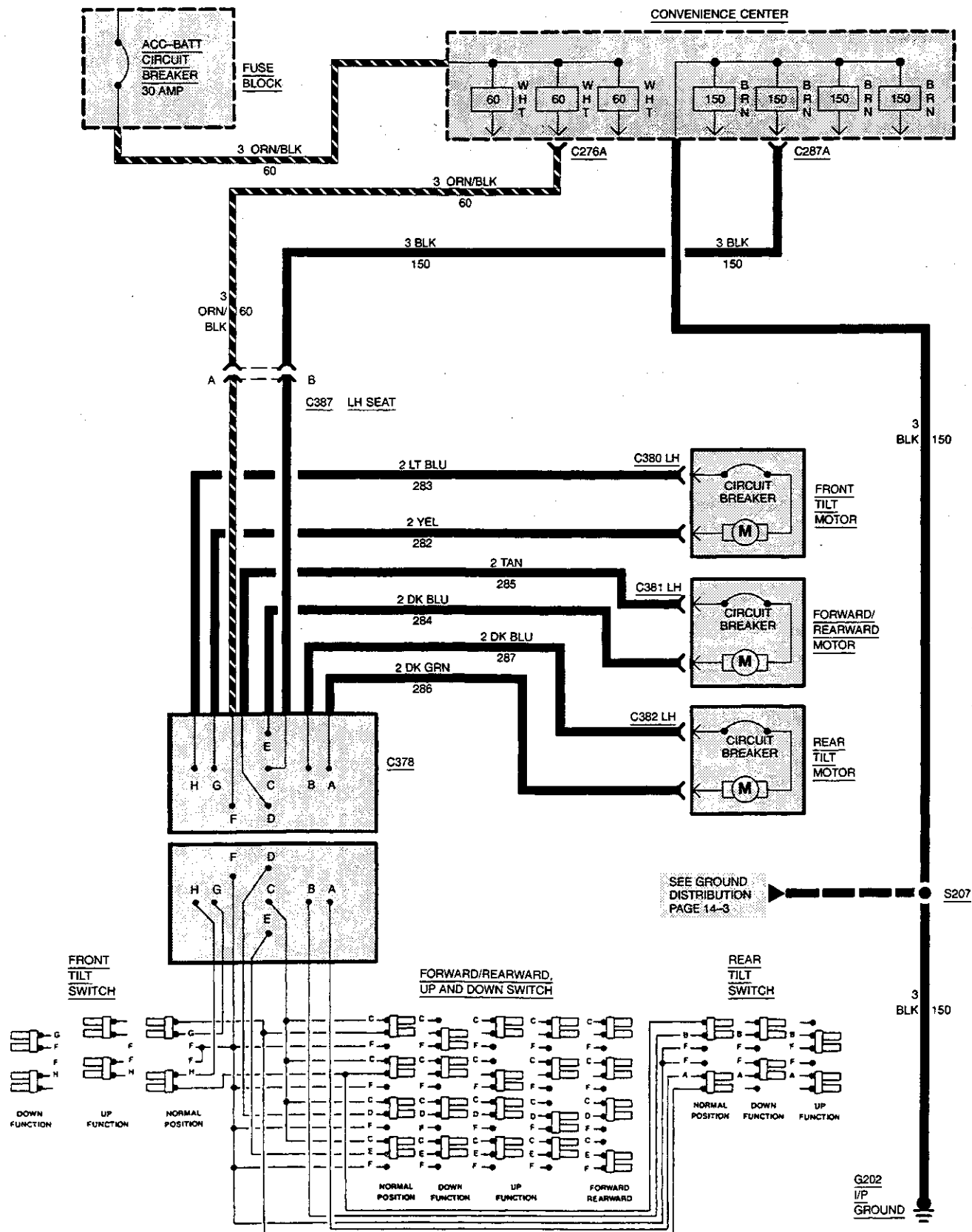
## **GROUNDING:**

G202 .....	At DLC connector .....	140-7	2
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## **SPLICES:**

S207 .....	Under LH side of I/P .....	140-7	1
------------	----------------------------	-------	---

## EXTENDED CAB, CREW CAB, SUBURBAN, YUKON



**DIAGNOSIS — POWER DRIVER'S SEAT****PRELIMINARY CHECKS:**

1. Check to see that the ACC-BATT circuit breaker is resetting. Replace if necessary.
2. Refer to Section 10A2 1994 CK Service Manual for diagnosis and repair of all non-electrical system components.
3. If seat tilts forward and/or rearward but does not move up or down, then REPLACE the forward/rearward up and down switch assembly.

**POWER SEAT DOES NOT OPERATE IN ANY DIRECTION**

TEST	RESULT	ACTION
1. Remove power seat switch assembly from connector C378. Connect test lamp from ORN/BLK (60) wire at connector C378 to ground.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in ORN/BLK (60) wire from seat switch connector C378 to connector C377, from connector C377 to convenience center connector C276A, or from convenience center connector to fuse block.
2. Connect test lamp from BLK (150) wire to ORN/BLK (60) wire at seat switch connector C378.	Test lamp lights.	GO to "Power Seat Does Not Tilt Forward" diagnosis.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire from seat switch assembly connector C378 to convenience center connector C277A, from convenience center to splice S207 or from splice S207 to ground G202.

**POWER SEAT DOES NOT TILT FORWARD**

TEST	RESULT	ACTION
1. Using jumper lead, connect YEL (282) wire to BLK (150) wire cavity at seat switch assembly connector C378. Connect jumper momentarily from LT BLU (283) wire to ORN/BLK (60) wire cavity at seat switch assembly connector C378.	Motor moves.	REPLACE switch assembly.
	Motor does not move.	GO to step 2.
2. Connect LT BLU (283) wire to BLK (150) wire at power seat switch assembly connector C378 with jumper lead. Momentarily connect YEL (282) wire cavity to ORN/BLK (60) wire cavity with jumper lead.	Motor moves.	REPLACE power seat switch assembly.
	Motor does not move.	GO to step 3.

## 8A-140-4 POWER SEAT

### POWER SEAT DOES NOT TILT FORWARD (CONTINUED)

TEST	RESULT	ACTION
3. Connect YEL (282) wire to LT BLU (283) wire at power seat switch assembly connector C378. Remove connector C380 from front tilt motor. Using ohmmeter check YEL (282) wire and LT BLU (283) wire for continuity to each other.	Continuity.	REPLACE front tilt motor.
	No continuity.	LOCATE and REPAIR open YEL (282) wire and/or LT BLU (283) wire from front tilt motor connector C380 to power seat switch assembly connector C378.

### POWER SEAT DOES NOT TILT TO THE REAR

TEST	RESULT	ACTION
1. Connect DK GRN (286) wire to BLK (150) wire at power seat switch assembly connector C378 with jumper lead. Momentarily connect DK BLU (287) wire cavity to ORN/BLK (60) wire cavity with jumper lead.	Motor moves.	REPLACE power seat switch assembly.
	Motor does not move.	GO to step 2.
2. Connect DK BLU (287) wire to BLK (150) wire at power seat switch assembly connector C378 with jumper lead. Momentarily connect DK GRN (286) wire cavity to ORN/BLK (60) wire cavity with jumper lead.	Motor moves.	REPLACE power seat switch assembly.
	Motor does not move.	GO to step 3.
3. Connect DK GRN (286) wire to DK BLU (287) wire at power seat switch assembly connector C378. Remove connector C382 from rear tilt motor. Using ohmmeter check DK GRN (286) wire and DK BLU (287) wire for continuity to each other.	Continuity.	REPLACE rear tilt motor.
	No continuity.	LOCATE and REPAIR open in DK GRN (286) wire and/or DK BLU (287) wire from rear tilt motor connector C382 to power seat switch assembly connector C378.

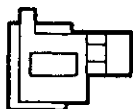
## POWER SEAT 8A-140-5

### POWER SEAT DOES NOT MOVE FORWARD/REARWARD

TEST	RESULT	ACTION
1. Connect LT GRN (284) wire to BLK (150) wire at power seat switch assembly connector C378 with jumper lead. Momentarily connect TAN (285) wire cavity to ORN/BLK wire cavity with jumper lead.	Motor moves.	REPLACE power seat switch assembly.
	Motor does not move.	GO to step 2.
2. Connect TAN (285) wire to BLK (150) wire cavity at power seat switch assembly connector C378 with jumper lead. Momentarily connect LT GRN (284) wire cavity to ORN/BLK (60) wire cavity with jumper lead.	Motor moves.	REPLACE power seat switch assembly.
	Motor does not move.	GO to step 3.
3. Connect TAN (285) wire to LT GRN (284) wire at power seat switch assembly connector C378. Remove connector C381 from forward/rearward motor. Using ohmmeter check TAN (285) wire and LT GRN (284) wire for continuity to each other.	Continuity.	REPLACE forward/rearward motor.
	No continuity.	LOCATE and REPAIR open in TAN (285) wire and/or LT GRN (284) wire from forward/rearward motor connector C381 to power seat switch assembly connector C378.

## 8A-140-6 POWER SEAT

12059233



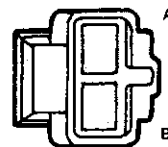
**C276A**  
Convenience Center Power Tap

12059236



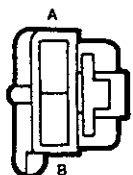
**C287A**  
Convenience Center Ground Tap

12064750



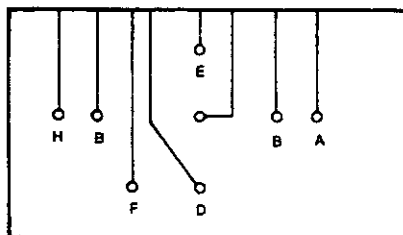
**BLACK**  
Mteri-Pack 480  
**C387**  
Convenience Center to Power  
Seat In-Line

12064749



**BLACK**  
Mteri-Pack 480  
**C387**  
Power Seat to Convenience  
Center In-Line

12047681



**BLACK**  
Mteri-Pack 480  
**C378**  
Power Seat Switch

12052110



**NATURAL**  
Mteri-Pack 480  
**C380**  
Front Tilt Motor

12052109



**BLUE**  
Mteri-Pack 480  
**C381**  
Forward/Rearward Motor

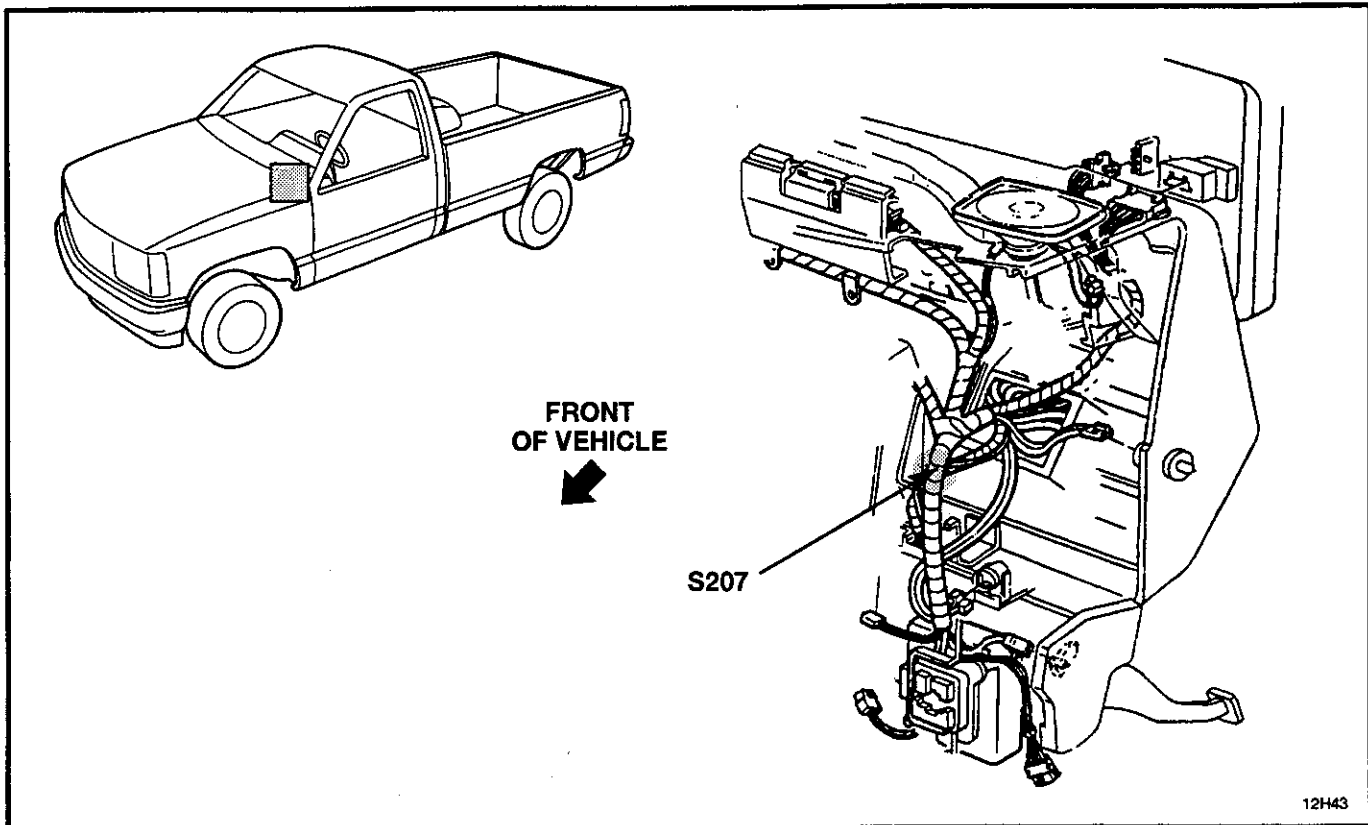


Figure 1 — LH Side of Instrument Panel

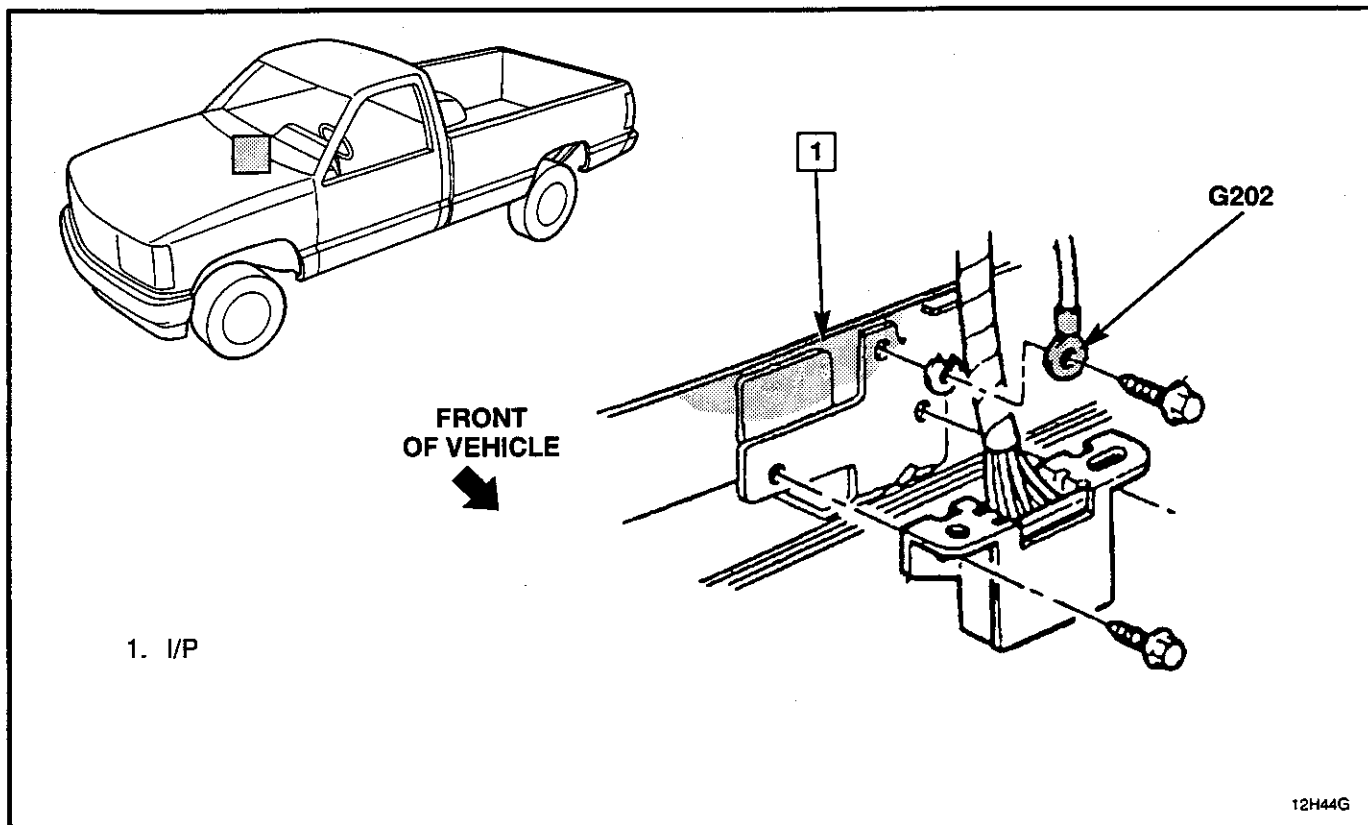


Figure 2 — I/P Ground

## 8A-140-8 POWER SEAT

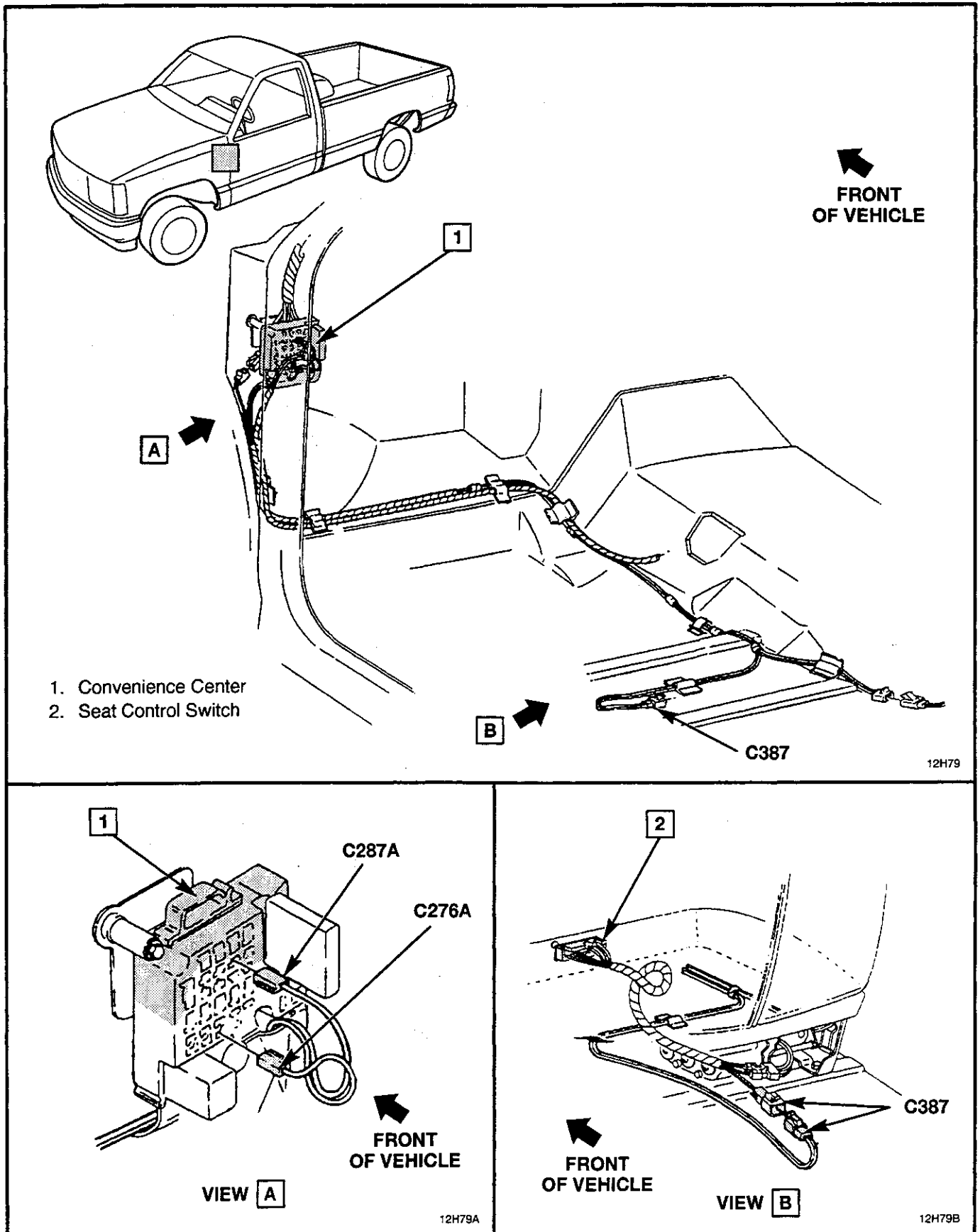


Figure 3 — Power Seat Wiring



## POWER OUTSIDE REARVIEW MIRRORS 8A-147-1

### CIRCUIT OPERATION

#### POWER MIRRORS

Voltage is supplied at all times to the Power Outside Rearview Mirror Switch through the ACC-BATT Circuit Breaker and an In-Line Auto Fuse.

The mirror assemblies contain two motors. One motor positions the mirror up and down, the other motor positions the mirror to the left or right. By reversing the polarity of the motors, the motors will move the mirrors either up/down or left/right.

#### COMPONENT LOCATION

#### Page — Figure

Convenience Center .....	Under LH side of I/P .....	147-7	3
Fuse Block .....	Under LH side of I/P .....	147-6	1
Power Outside Rearview Mirror, LH .....	On outside of LH front door .....	Not Shown	
Power Outside Rearview Mirror, RH .....	On outside of RH front door .....	Not Shown	
Power Outside Rearview Mirror Switch .....	On LH door trim panel .....	147-8	4

#### CONNECTORS:

C241 .....	At convenience center .....	147-7	3
C246 .....	Taped to cross body, near convenience center at in-line fuse	147-7	3
C257 .....	At convenience center .....	147-7	3
C327 .....	LH body hinge pillar .....	147-7	3
C329 .....	RH body hinge pillar .....	147-7	3

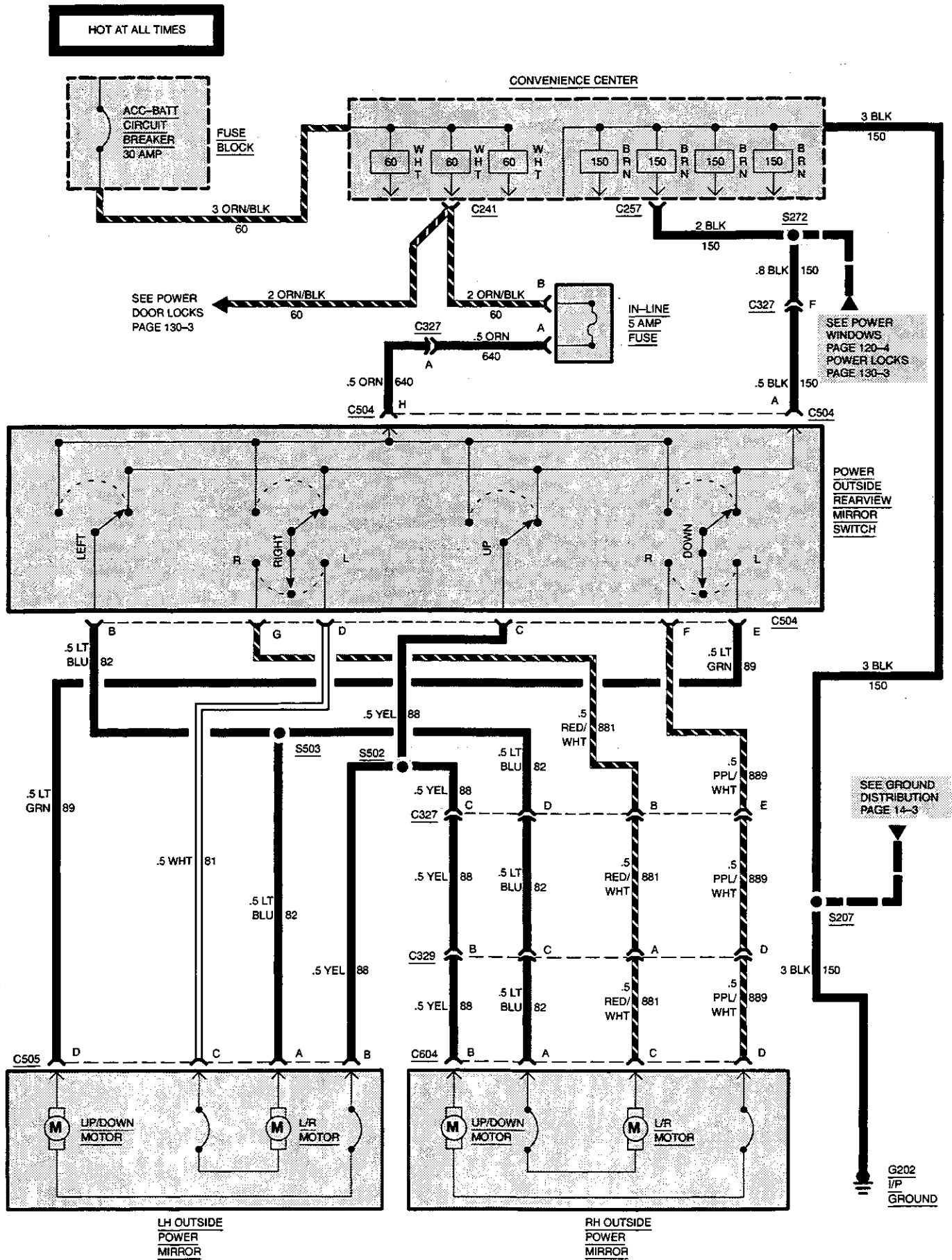
#### GROUNDING:

G202 .....	At DLC connector .....	147-6	2
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#### SPLICES:

S207 .....	Under LH side of I/P .....	147-6	1
S272 .....	Power window and door locks harness, near convenience center leads .....	147-7	3
S502 .....	Power window/lock harness LH front door, near power window motor lead .....	147-8	4
S503 .....	Power window lock harness, LH front door .....	147-8	4

## 8A-147-2 POWER OUTSIDE REARVIEW MIRRORS



## DIAGNOSIS — POWER MIRRORS

### PRELIMINARY CHECKS:

1. Check to see that the ACC-BATT Circuit Breaker and in-line (C296) fuse is not blown. If fuse is blown, locate and repair source of overload, then replace fuse. If Circuit Breaker is open, locate and repair source of overload, then check circuit breaker operation. If breaker does not reset, replace breaker.
2. Refer to Section 10A1 of the 1994 C/K Service Manual for diagnosis and repair of all non-electrical system components.

### LH MIRROR WILL NOT ADJUST UP AND DOWN

TEST	RESULT	ACTION
1. Disconnect in-line fuse connector C296 and connector C505 at LH mirror motor. Place ohmmeter on Rx1 scale and connect leads to YEL (88) and LT BLU (82) wires at LH mirror motor connector C505. While holding mirror adjustment switch in the UP and DOWN positions, measure for continuity.	Continuity.	REPLACE LH mirror motor.
	No continuity.	LOCATE and REPAIR open in YEL (88) or LT BLU (82) wires between mirror switch connector C504 and LH mirror motor connector C505. If none is found, REPLACE switch.

### LH MIRROR WILL NOT ADJUST LEFT AND RIGHT

TEST	RESULT	ACTION
1. Disconnect in-line fuse connector C296 and connector C505 at LH mirror motor. Place ohmmeter on Rx1 scale and connect leads to WHT (81) and LT GRN (89) wires at LH mirror motor connector C505. While holding mirror adjustment switch in the LEFT and RIGHT positions, measure for continuity.	Continuity.	REPLACE LH mirror motor.
	No continuity.	LOCATE and REPAIR open in WHT (81) or LT GRN (89) wires between mirror switch connector C504 and LH mirror motor connector C505. If none is found, REPLACE switch.

### RH MIRROR WILL NOT ADJUST UP AND DOWN

TEST	RESULT	ACTION
1. Disconnect in-line fuse connector C296 and connector C604 at RH mirror motor. Place ohmmeter on Rx1 scale and connect leads to YEL (88) and LT BLU (82) wire at RH mirror motor connector C604. While holding mirror adjustment switch in the UP and DOWN positions, measure for continuity.	Continuity.	REPLACE RH mirror motor.
	No continuity.	LOCATE and REPAIR open in YEL (88) and LT BLU (82) wires between mirror switch connector C504 and RH mirror motor connector C604. If none is found, REPLACE switch.

## 8A-147-4 POWER OUTSIDE REARVIEW MIRRORS

### RH MIRROR WILL NOT ADJUST LEFT AND RIGHT

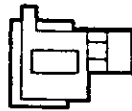
TEST	RESULT	ACTION
1. Disconnect in-line fuse connector C296 and connector C604 at RH mirror motor. Place ohmmeter on Rx1 scale and connect leads to RED/WHT (881) and PPL/WHT (889) wires at RH mirror motor connector C604. While holding mirror adjustment switch in the LEFT and RIGHT positions, measure for continuity.	Continuity.	REPLACE RH mirror motor.
	No continuity.	LOCATE and REPAIR open in RED/WHT (881) and PPL/WHT (889) wires between mirror switch connector C504 and RH mirror motor connector C604. If none is found, REPLACE switch.

### NEITHER MIRROR IS OPERATIONAL

TEST	RESULT	ACTION
1. Connect test lamp from ORN (640) wire at mirror switch connector C504 to ground.	Test lamp does not light.	LOCATE and REPAIR open in ORN (640) wire between mirror switch connector C504 and connector C327 or between connector C327 and in-line auto fuse connector C296, or ORN (60) wire between in-line auto fuse connector C296 and convenience center connector C241.
	Test lamp lights.	GO to step 2.
2. Connect test lamp from ORN (640) wire to BLK (150) wire at mirror switch connector C504.	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire between mirror switch connector C504 and connector C327 or between connector C327 and splice S272 or between splice S272 and convenience center connector C257.
	Test lamp lights.	REPLACE mirror switch.

# POWER OUTSIDE REARVIEW MIRRORS 8A-147-5

12059233



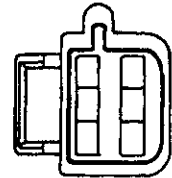
**C241**  
Power Tap to Convenience  
Center

12059236



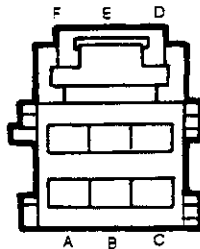
**C257**  
Ground Tap to Convenience  
Center

12064763



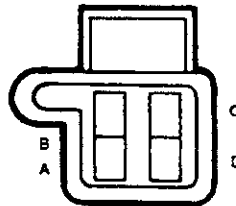
**GRAY**  
Metri-Pack 150  
**C327**  
Crossbody to LH Door

12064762



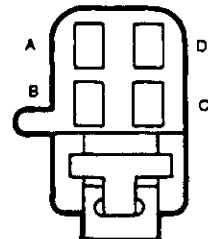
**GRAY**  
Metri-Pack 150  
**C327**  
LH Door to Crossbody

12064761



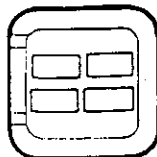
**BLACK**  
Metri-Pack 150  
**C329**  
Crossbody to RH Door

12064760



**BLACK**  
Metri-Pack 150  
**C329**  
RH Door to Crossbody

12047786



**BLACK**  
Metri-Pack 150  
**C505**  
LH Power Outside Mirror

12047786



**BLACK**  
Metri-Pack 150  
**C605**  
RH Power Outside Mirror

## 8A-147-6 POWER OUTSIDE REARVIEW MIRRORS

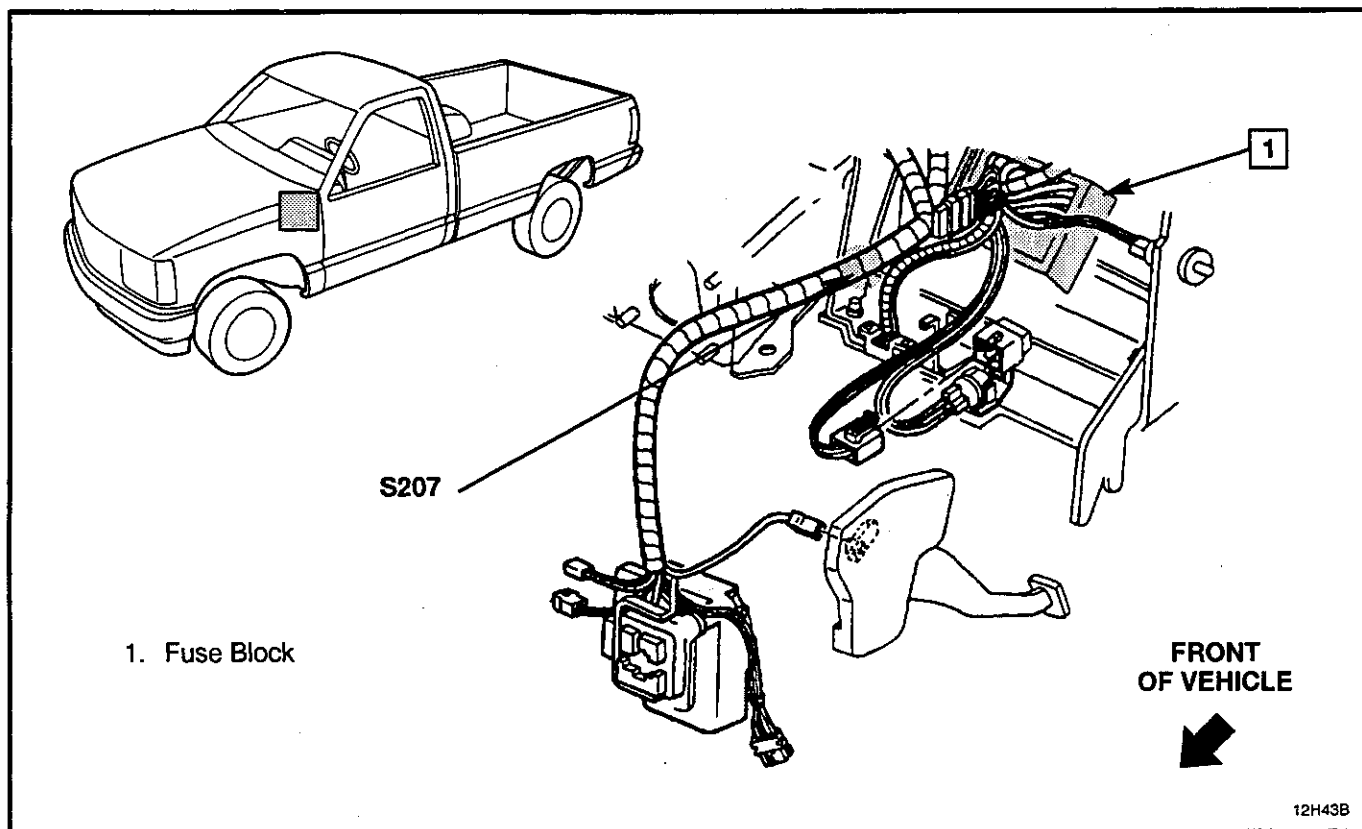


Figure 1 — LH Side of Instrument Panel

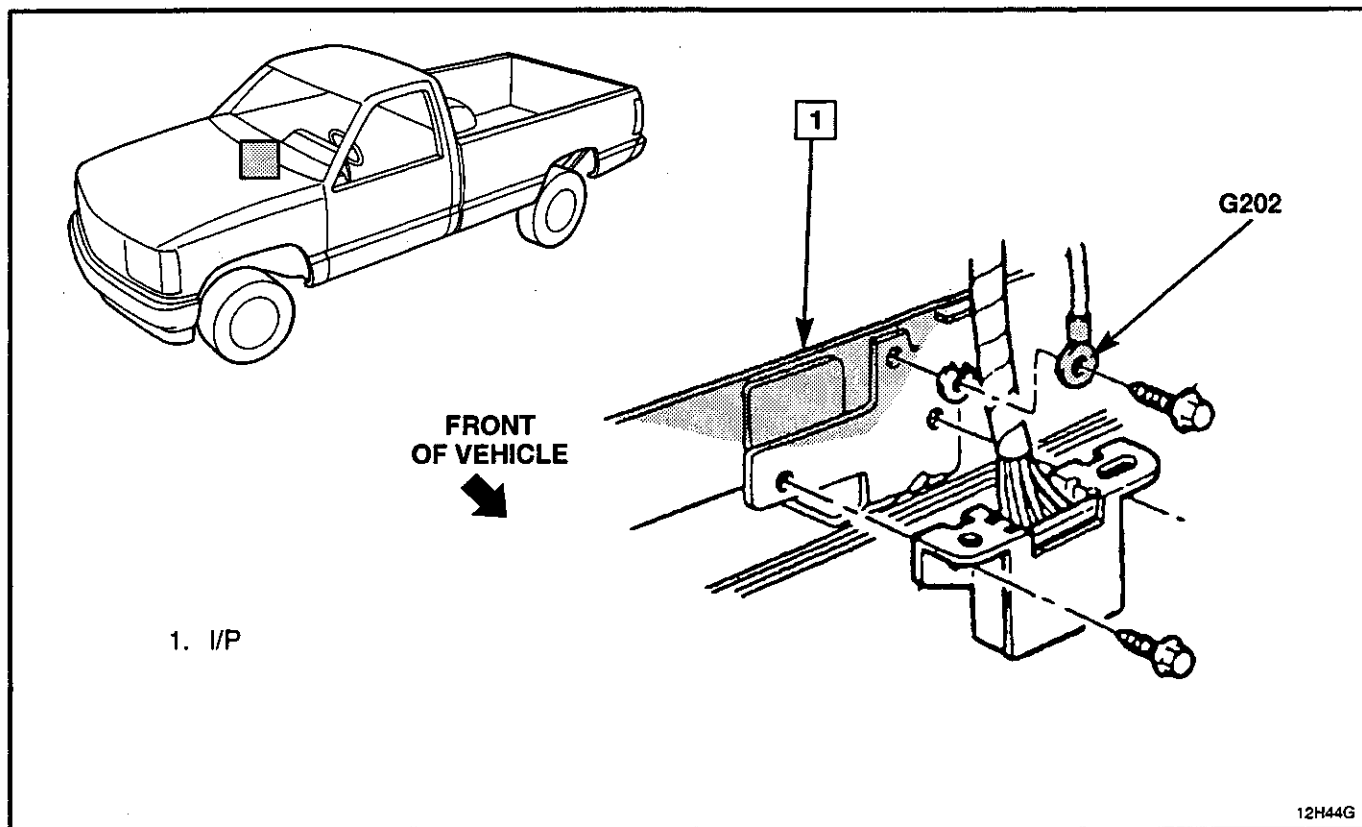


Figure 2 — I/P Ground Wiring

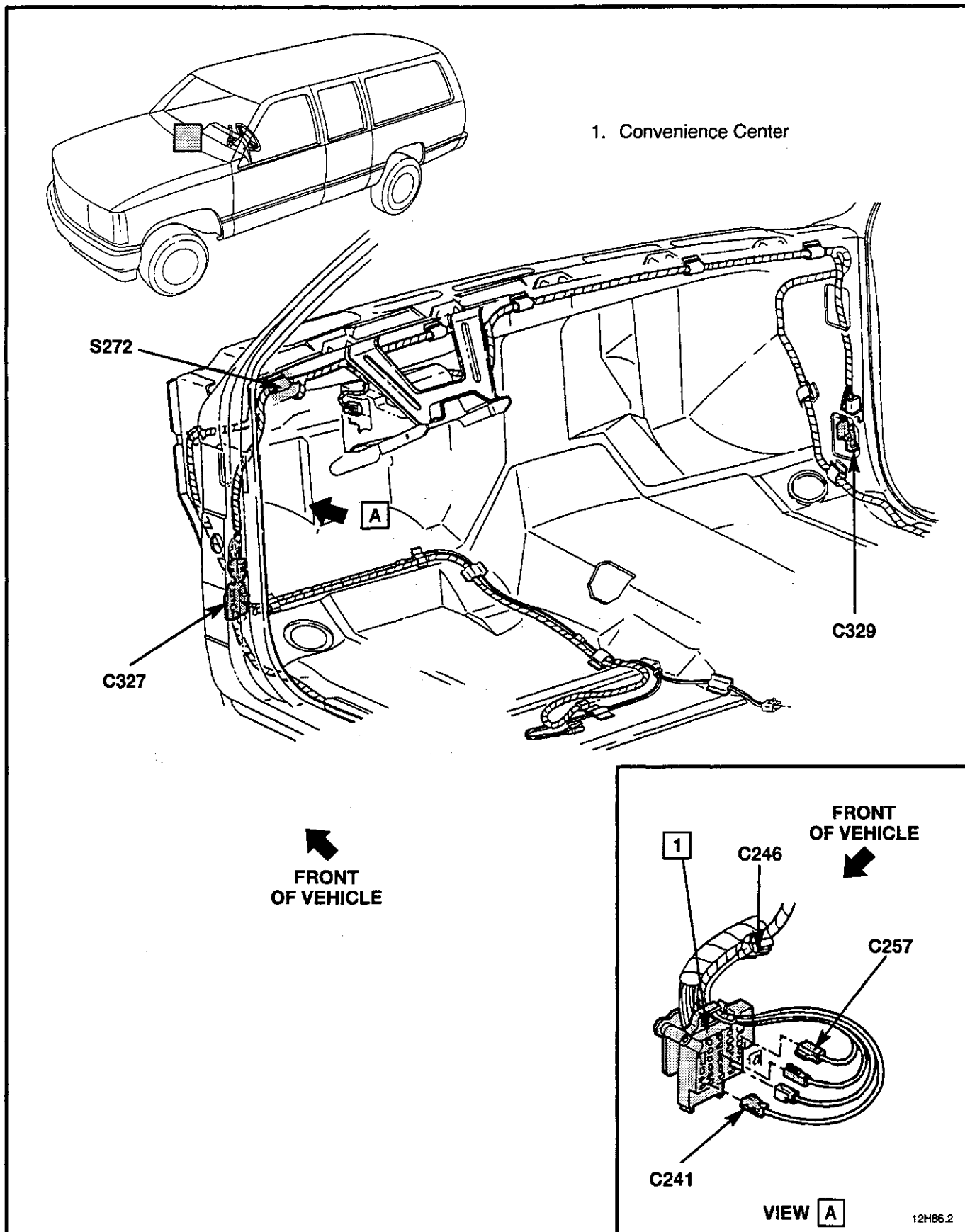
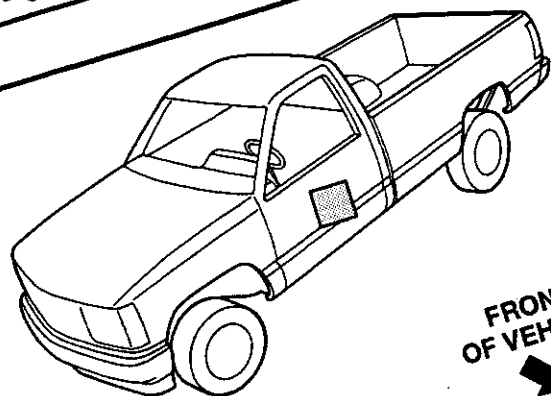
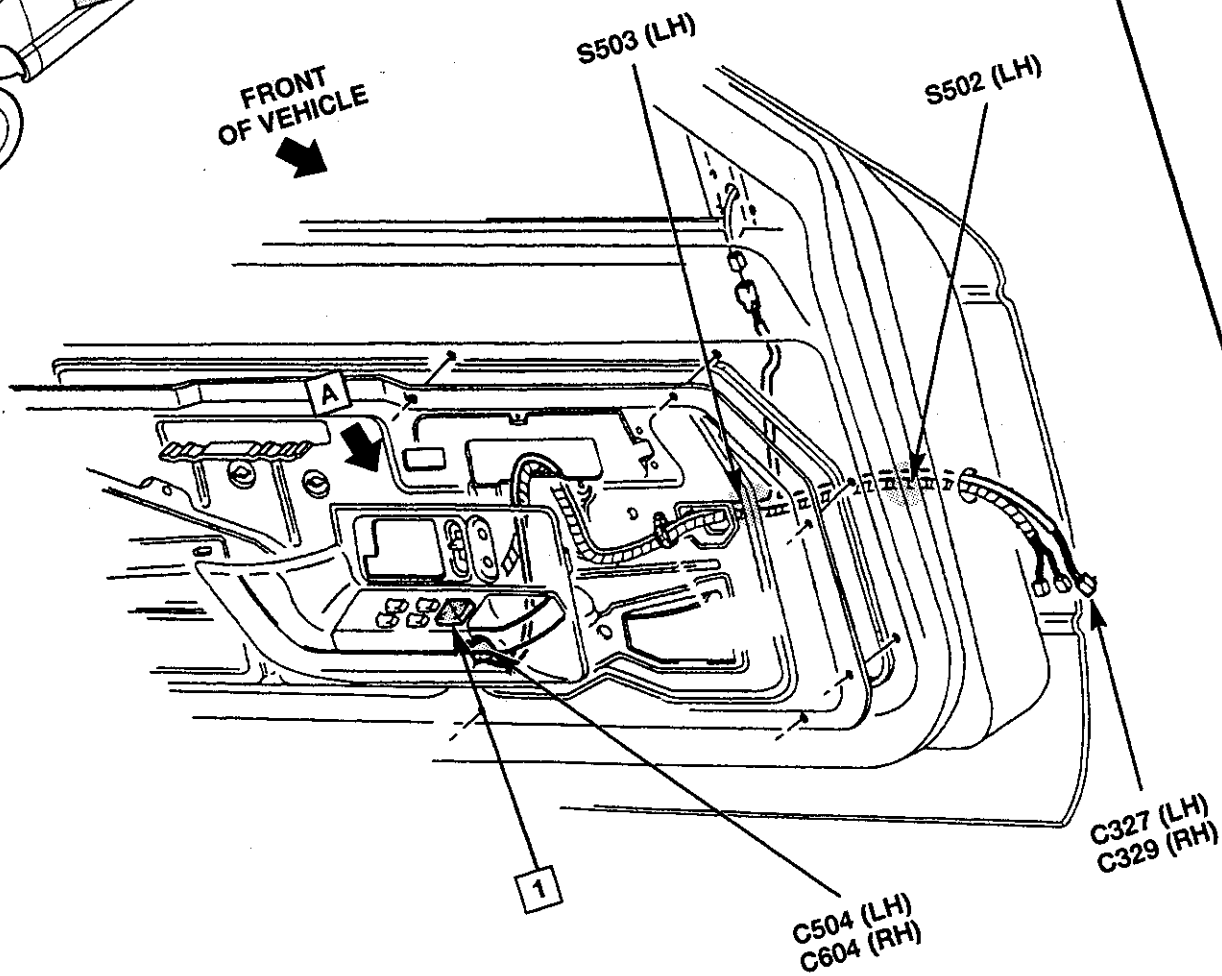


Figure 3 — Power Window and Door Lock Crossbody Wiring – Suburban

# 8A-147-8 POWER OUTSIDE REARVIEW MIRRORS



FRONT  
OF VEHICLE  
↓



1. Power Mirror Switch

Figure 4 — Door Wiring



## **CIRCUIT OPERATION**

### **LIGHTED VANITY MIRRORS**

The optional lighted vanity mirrors are incorporated in the LH and RH sunvisors. The mirror receives battery voltage at all times from the CTSY Fuse. The vanity mirror lamps switch on automatically when the mirror cover is opened and switch off when the mirror cover is closed.

### **COMPONENT LOCATION**

#### **Page — Figure**

Convenience Center .....	Under LH side of I/P .....	149-7	3
Fuse Block .....	Below LH side of I/P .....	149-6	2
Illuminated Vanity Mirror, LH .....	Part of LH sunvisor assembly .....	149-5	1
Illuminated Vanity Mirror, RH .....	Part of RH sunvisor assembly .....	149-5	1

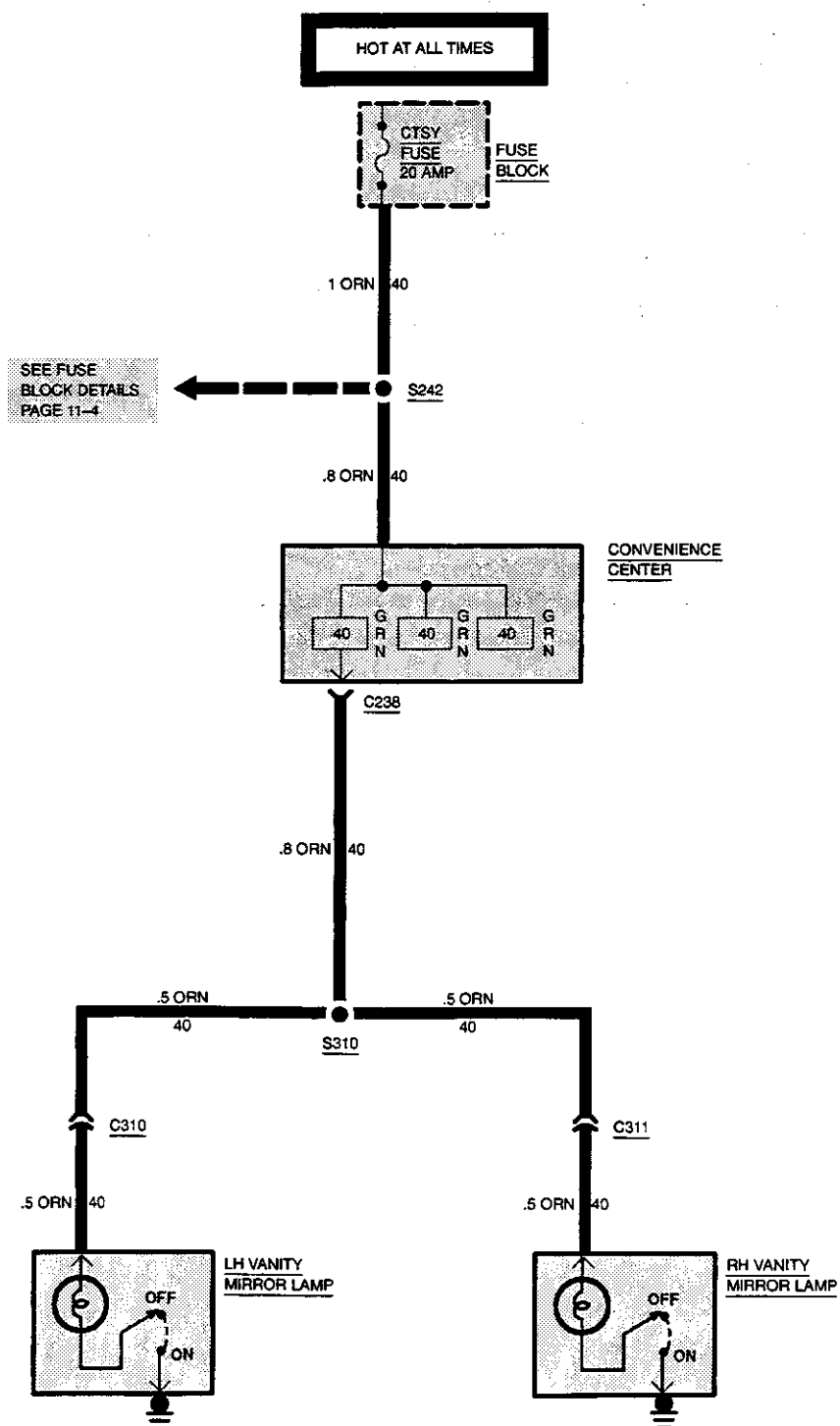
### **CONNECTORS:**

C238 .....	At convenience center .....	149-5	1
C239A .....	At convenience center .....	149-7	3

### **SPLICES:**

S242 .....	At LH side of cowl .....	149-6	2
S310 .....	At LH A-pillar .....	149-5	1

## 8A-149-2 LIGHTED VANITY MIRRORS



## **LIGHTED VANITY MIRRORS 8A-149-3**

### **DIAGNOSIS — LIGHTED VANITY MIRRORS**






#### **PRELIMINARY CHECKS:**

1. Check condition of CTSY Fuse. If fuse is blown, locate source of overload. Replace fuse.

#### **VANITY MIRROR DOES NOT OPERATE**

<b>TEST</b>	<b>RESULT</b>	<b>ACTION</b>
1. Connect test lamp from ORN (40) wire at vanity mirror connectors C310 or C311 to ground.	Test lamp lights.	REPLACE vanity mirror assembly.
	Test lamp does not light.	LOCATE and REPAIR open in ORN (40) wire between mirror connector C310 or C311 and splice S310 or between splice S310 and convenience center connector C238.

## 8A-149-4 LIGHTED VANITY MIRRORS

<p>12059234</p>  <p><b>C238</b> Power Tap at Convenience Center</p>	<p>12047683</p>  <p><b>BLACK</b> Metri-Pack 150 <b>C310</b> In-Line Convenience Center to LH Lighted Mirror</p>	<p>12047682</p>  <p><b>BLACK</b> Metri-Pack 150 <b>C310</b> In-Line LH Lighted Mirror to Convenience Center</p>
<p>12047683</p>  <p><b>BLACK</b> Metri-Pack 150 <b>C311</b> In-Line Convenience Center to RH Lighted Mirror</p>	<p>12047682</p>  <p><b>BLACK</b> Metri-Pack 150 <b>C311</b> In-Line RH Lighted Mirror to Convenience Center</p>	

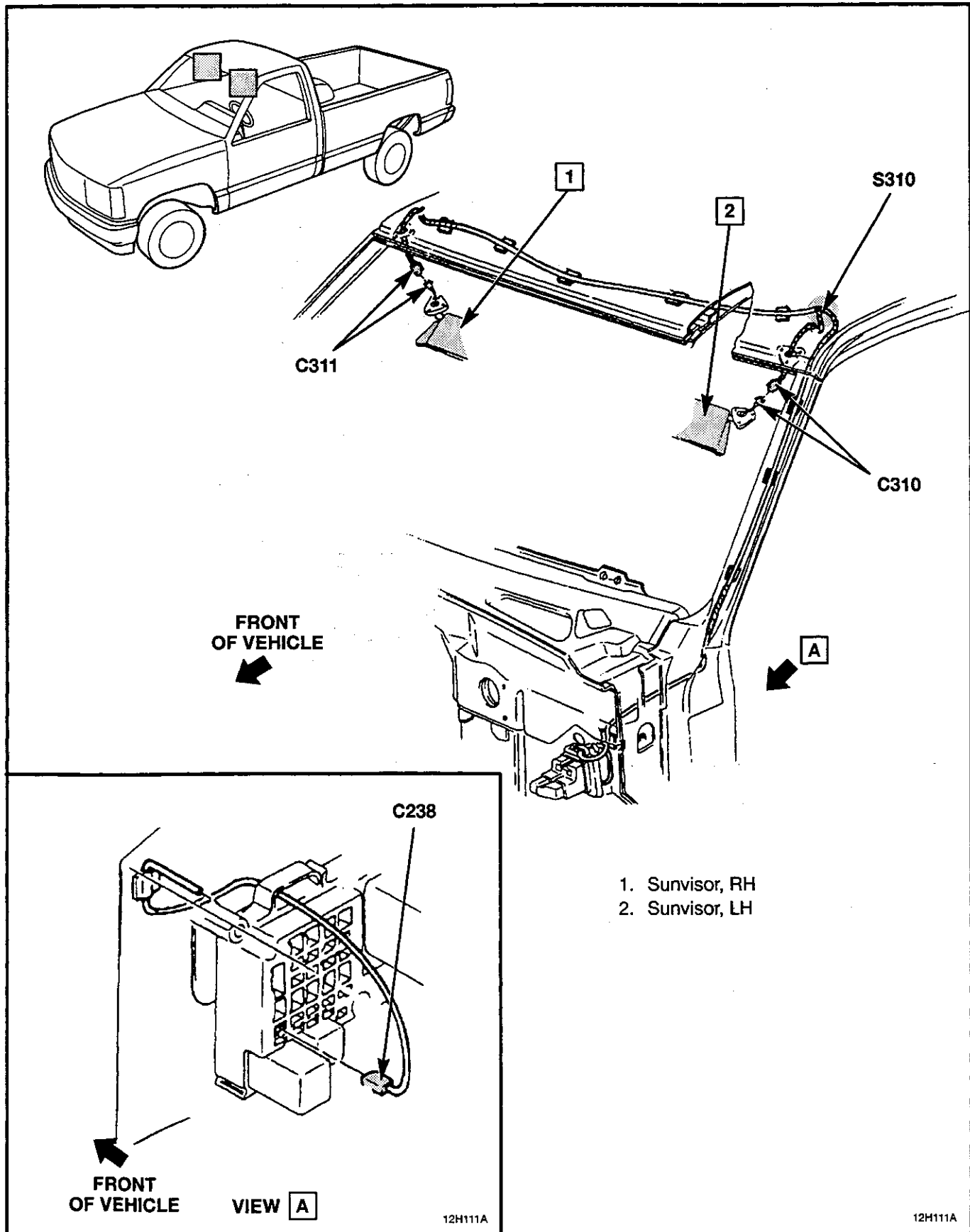


Figure 1 — Sunvisor Vanity Mirror Wiring

## 8A-149-6 LIGHTED VANITY MIRRORS

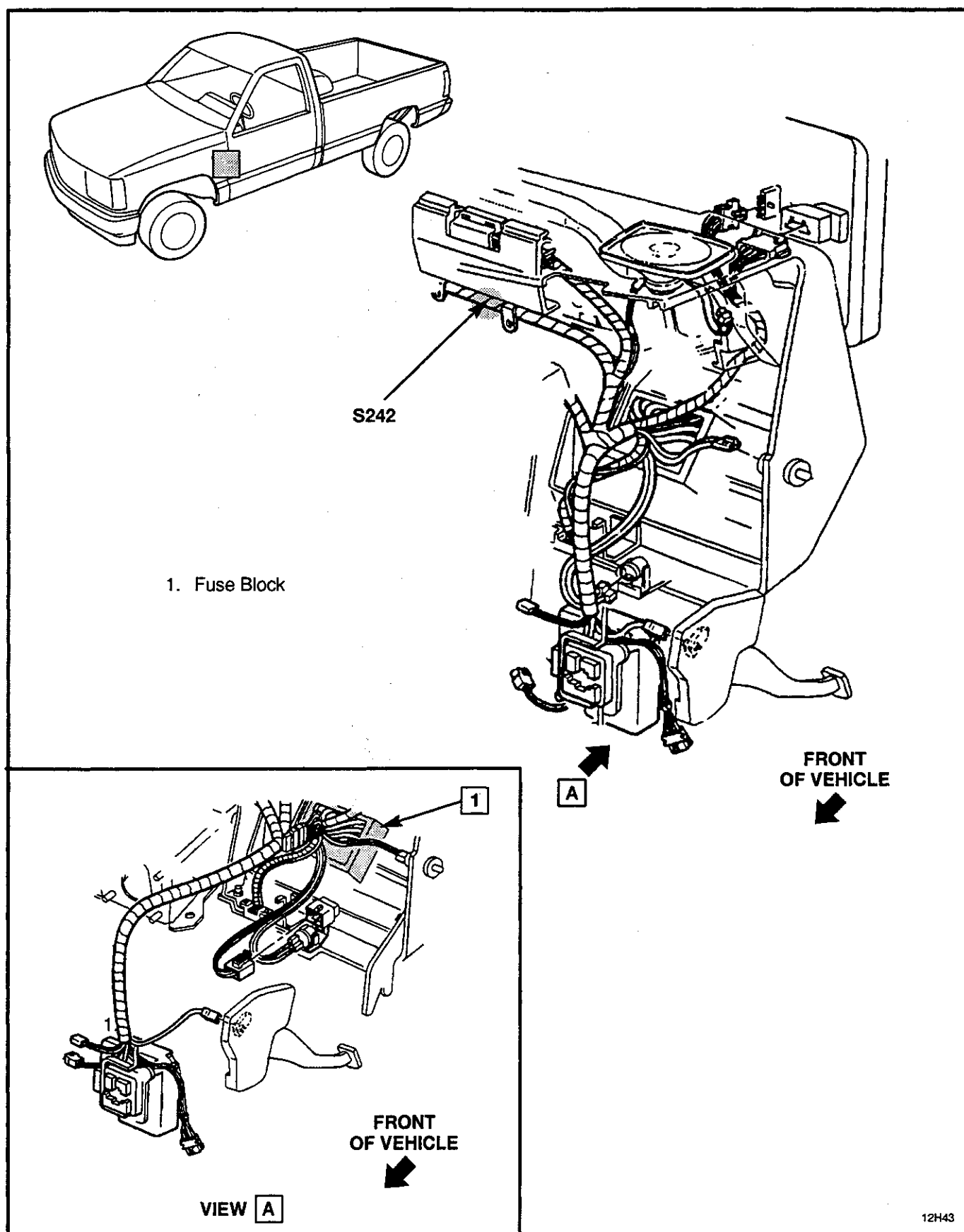


Figure 2 — LH Side of Instrument Panel

## LIGHTED VANITY MIRRORS 8A-149-7

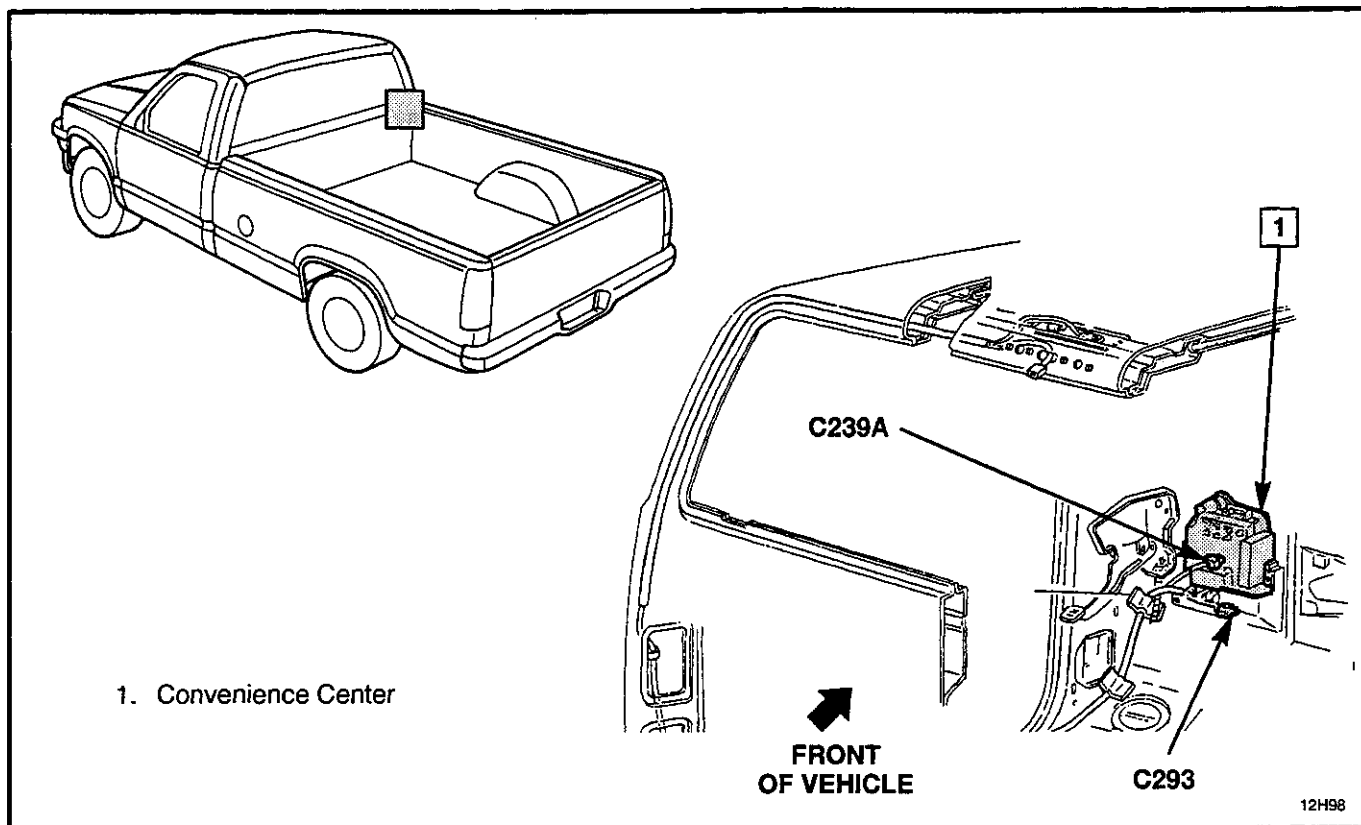


Figure 3 — Cargo CHMSL and Dome Lamp Wiring

**8A-149-8 LIGHTED VANITY MIRRORS**

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**BLANK**



## **CIRCUIT OPERATION**

The RADIO Fuse provides main voltage to the Radio. With the Ignition Switch in ACC or RUN, voltage is supplied through the RADIO Fuse and YEL wire to the On/Off Switch in the Radio. The On/Off Switch is located in the Radio (without Cassette) or Radio Control Head (with Cassette). The circuit is grounded at G202. With the On/Off Switch closed, voltage is supplied to the Solid-State Radio circuits to ground. Two wires connect each speaker to the Radio. The ETR Radio has two inputs that other models do not have: Display Dim Signal and Clock Power.

The ETR model is an AM/FM Radio that changes stations electronically. The frequency of preselected stations can be stored in the electronic memory. The ETR model also provides a digital display of time or station frequency. As in other models, the Panel Lamp Switch controls panel lamp dimming. In the ETR model, dimming is also controlled by the Radio itself by means of the Dim Display Input Signal.

The ETR model's Clock memory and Radio memory functions are supplied voltage at all times through the CTSY Fuse. If power to the ETR model is cut off — by disconnecting the Battery, for example — the operator must reset the memory functions when power is restored.

A serial data output link is provided at Pin J of the data link connector on the 853 circuit.

If the Cassette or Cassette/Equalizer options are included, a separate Radio Control Head is installed. This sends information along the data line to the Radio to control the volume, frequency and other Radio functions.

### **REMOTE CASSETTE TAPE PLAYER (OPTIONAL)**

With the Ignition Switch in ACC or RUN and the Radio Control Head ON, voltage is supplied to the Cassette Tape Player through the Radio.

With the Remote Cassette Tape Player in PLAY, the Tape Player returns a Tape ON signal and the stereo audio signals to the Radio. The Tape ON signal causes the receiver circuitry to ignore the signals from the tuner and to send the audio signals from the tape player to the speakers. With a cassette tape in FWD, REV or SEEK, the tape player applies a mute signal to the Radio to prohibit the audio sound of these functions from being heard. When the EJECT Button is pushed on the tape player, the Tape ON signal is terminated and the Radio returns to normal operation.

### **REMOTE GRAPHIC EQUALIZER (OPTIONAL)**

With the Ignition Switch in ACC or RUN and the Radio Control Head ON, voltage is supplied to the Graphic Equalizer through the Radio Control Head. As the frequency bands are manually adjusted, this information is sent on the data line through the Radio Control Head to the Radio. The VF dim input allows dimming control of the Graphic Equalizer display when the Park or Headlamps are ON.

### **POWER AMPLIFIER (OPTIONAL) (SUBURBAN ONLY)**

The optional power amplifier boosts the sound of the four rear speakers in the SUBURBAN when equipped with the premium sound system.

With the ignition switch in ACC or RUN position and the Radio Control Head ON, battery voltage is supplied to the Power Amplifier Relay through the PNK/BLK (143) and ORN (40) wires. The relay is grounded through the BLK (150) wire at the I/P ground G202. When the relay contacts close, battery voltage is supplied to the Power Amplifier through the ORN (140) wire, the ground is completed through the BLK (150) wire at the I/P ground G202.

## 8A-150-2 RADIO

### COMPONENT LOCATION

### Page — Figure

Cassette Deck	Center of I/P	150-23	6
Convenience Center	Under LH side of I/P	150-22	4
Graphic Equalizer	Center of I/P	150-23	6
Power Amplifier	Under driver's seat	Not Shown	
Power Amplifier Relay	Under I/P, LH side of brake pedal bracket	Not Shown	
Radio Control Head	Center of I/P	150-23	6
Radio Receiver	Behind center of I/P	150-23	6
Speaker, LH Front	Upper LH end of I/P	150-20	1
Speaker, RH Front	Upper RH end of I/P	150-21	3
Speaker, LH Rear	Upper rear sides of body	150-22	5
Speaker, RH Rear	Upper rear sides of body	150-22	5
Speaker, LH Rear Side Door	On rear side door	150-25	8
Speaker, RH Rear Side Door	On rear side door	150-25	8

### CONNECTORS:

C237	At LH body hinge pillar	150-22	4
C239	At convenience center	Not Shown	
C243	At radio	150-23	6
C244	At radio	150-23	6
C247	At convenience center	150-23	6
C251	At radio receiver	150-23	6
C253	At amplifier relay	150-24	7
C257	At convenience center	150-24	7
C299	Under LH side of I/P near convenience center	150-24	7
C341	At LH center pillar	150-25	8
C342	At RH center pillar	150-25	8
C209	Near radio receiver	Not Shown	
C207A	Near radio receiver	Not Shown	

### GROUND:

G202	At DLC connector	150-21	2
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### SPLICES:

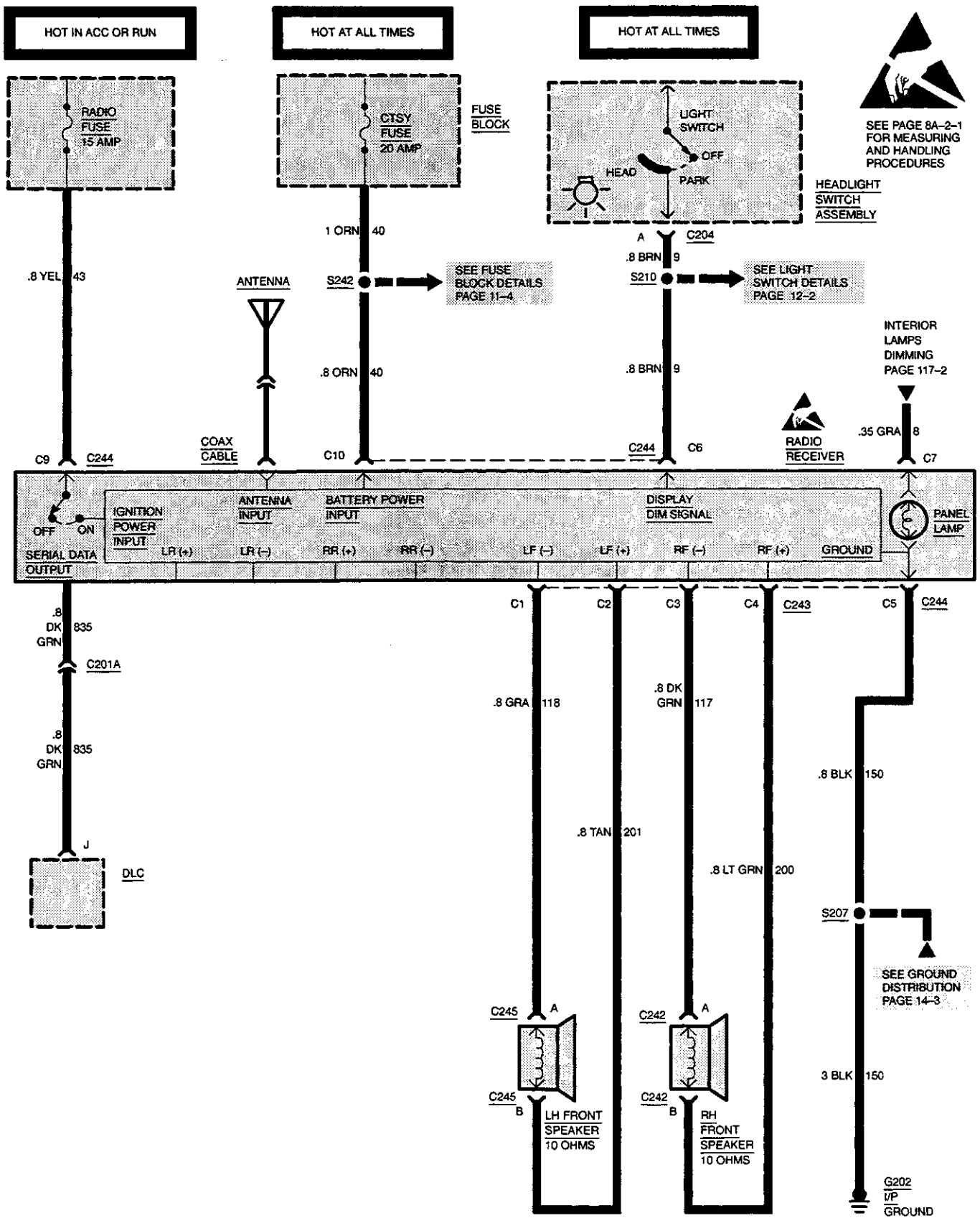
S207	Under LH side of I/P	150-20	1
S210	Under LH side of I/P	150-20	1
S217	Under LH side of I/P	150-20	1
S242	Under LH side of I/P	150-20	1
S270	Power window and door lock harness, near convenience center leads	150-24	7
S271	Power window and door lock harness, near convenience center leads	150-24	7
S272	Power window and door lock harness, near convenience center leads	150-24	7
S273	Power window and door lock harness, near convenience center leads	150-24	7
S274	Power window and door lock harness, near convenience center leads	150-24	7

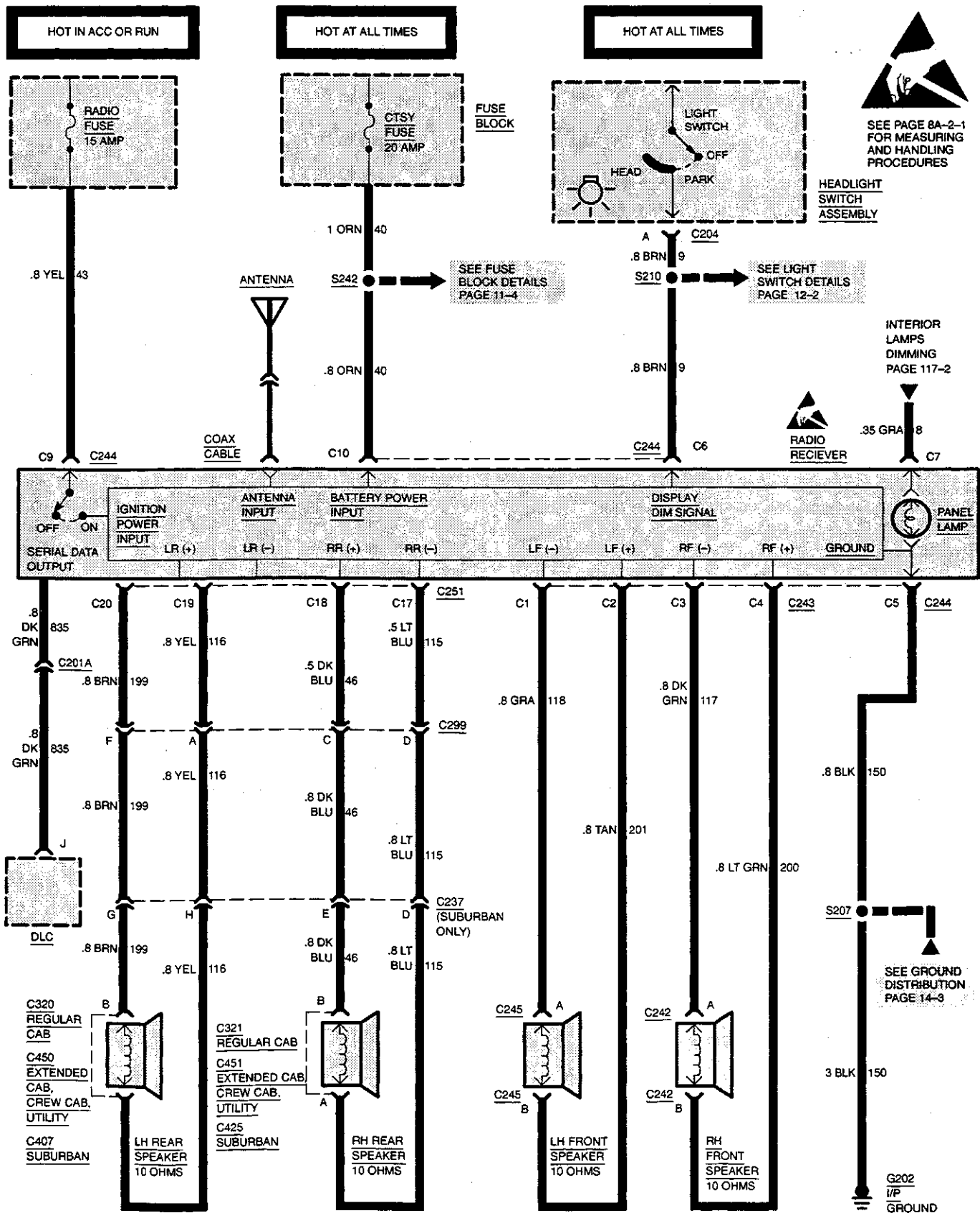
**RADIO 8A-150-3**

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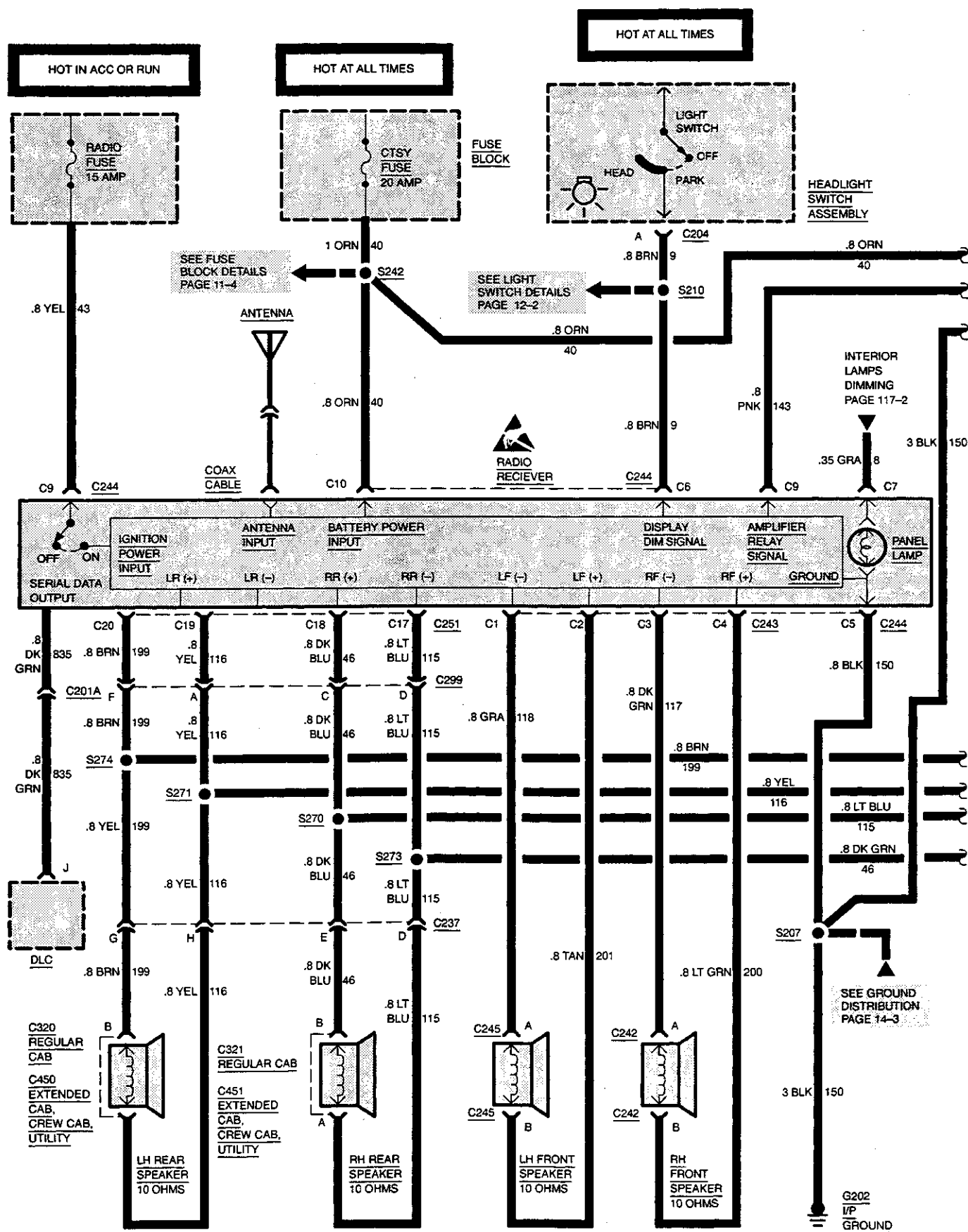
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### BASE (ALL VEHICLES)





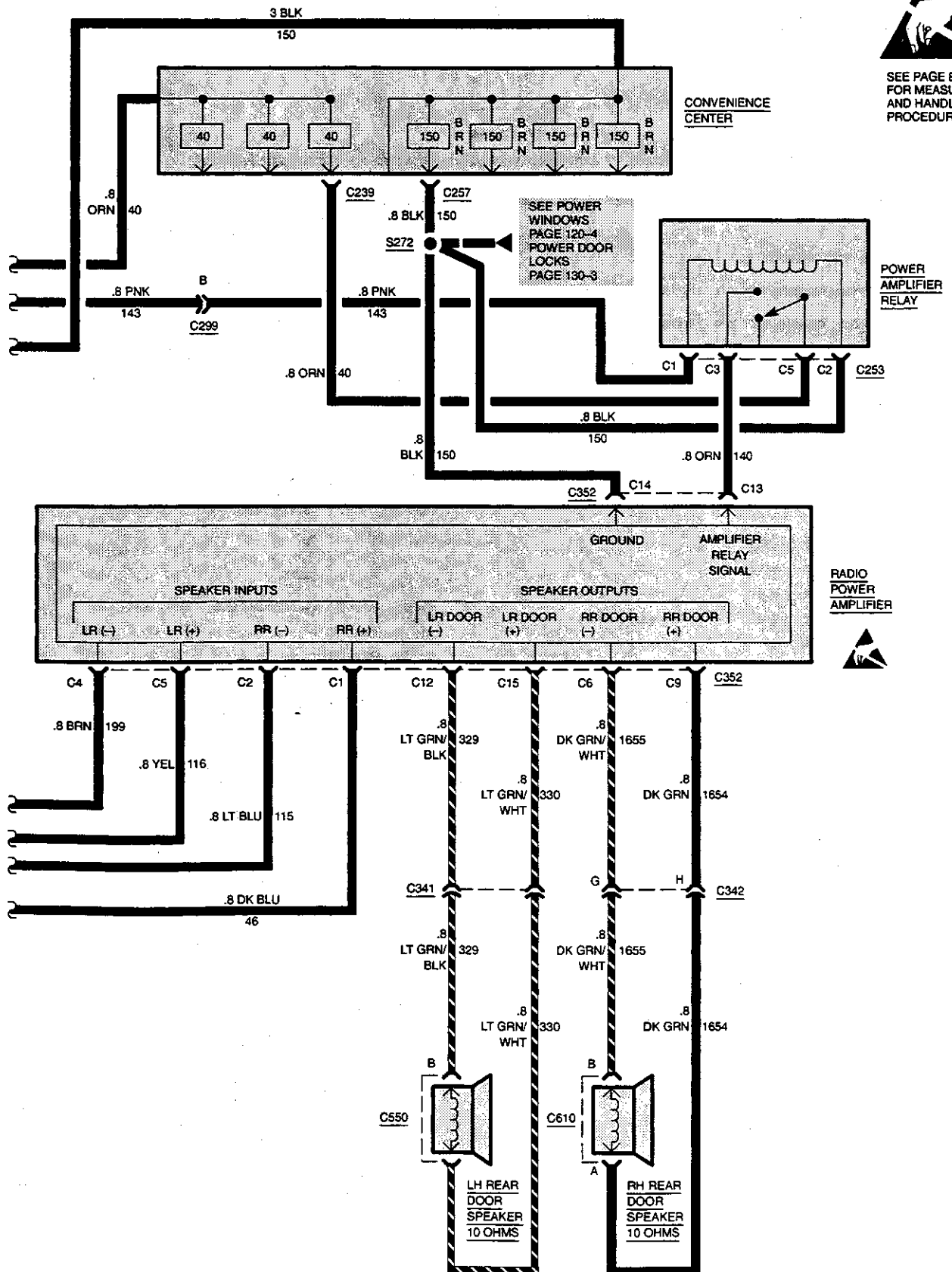
## STEREO W/POWER AMPLIFIER



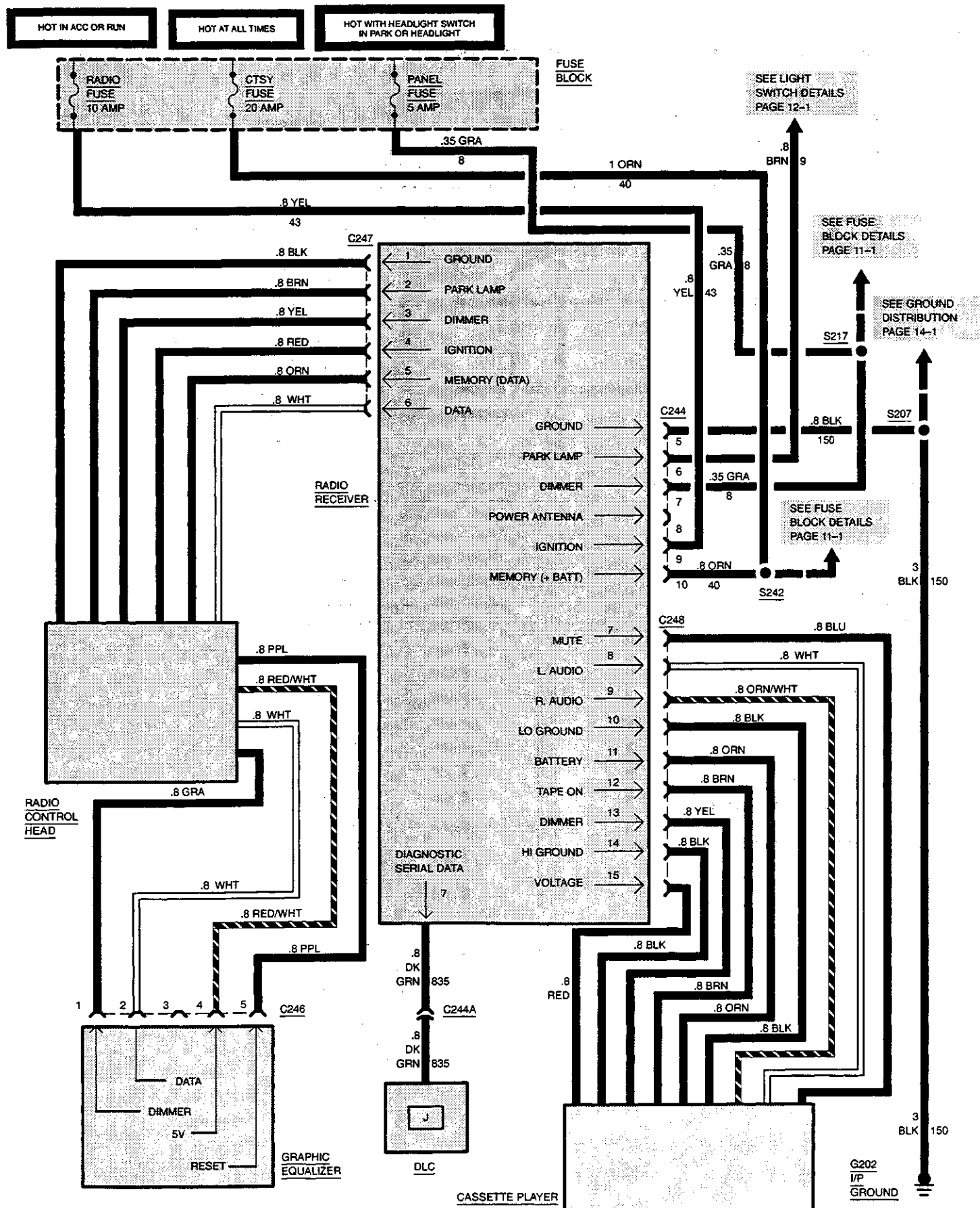
## STEREO W/POWER AMPLIFIER



SEE PAGE 8A-2-1  
FOR MEASURING  
AND HANDLING  
PROCEDURES



**8A-150-8 RADIO**





## DIAGNOSIS — RADIO (AM)

### PRELIMINARY CHECKS:

1. Check condition of RADIO, CTSY, PNL LPS Fuse(s).  
If fuse(s) is blown, locate and repair source of overload. Replace fuse(s).

#### RADIO DOES NOT APPEAR TO WORK (NO DISPLAY LIGHTS, NO SOUND)

TEST	RESULT	ACTION
1. Disconnect radio connector C244 and place ignition switch in RUN. Connect voltmeter from YEL (43) wire at radio connector C244 to ground.	Battery voltage.	GO to step 2.
	No voltage.	LOCATE and REPAIR open in YEL (43) wire between radio connector C244 and fuse block.
2. Connect voltmeter from YEL (43) wire to BLK (150) wire at radio connector C244.	Battery voltage.	REMOVE radio and send in for service.
	No voltage.	LOCATE and REPAIR open in BLK (150) wire from radio connector C244 to splice S207 or from splice S207 to I/P ground G202.

#### CLOCK (IF EQUIPPED) DOES NOT OPERATE

TEST	RESULT	ACTION
1. Disconnect radio connector C244. Connect voltmeter from ORN (40) wire at radio connector C244 to ground.	Battery voltage.	REMOVE radio and send in for service.
	No voltage.	LOCATE and REPAIR open in ORN (40) wire between radio connector C244 and splice S242 or between splice S242 and fuse block.

### PRELIMINARY CHECKS:

1. Observe instrument panel lamps. If inoperative, REPAIR before proceeding with radio lamp diagnosis.

#### RADIO PANEL LAMP DOES NOT COME ON

TEST	RESULT	ACTION
1. Disconnect radio connector C244. Place light switch in PARK and panel dimmer switch to HIGH. Connect voltmeter from GRA (8) wire at radio connector C244 to ground.	Battery voltage.	REMOVE radio and send in for service.
	No voltage.	LOCATE and REPAIR open in GRA (8) wire from radio connector C244 to splice S217.

## 8A-150-10 RADIO

### PRELIMINARY CHECKS:

1. Observe heater control lamp, if inoperative, REPAIR (9) circuit before proceeding with diagnosis.

#### DISPLAY DIMMING FUNCTION WILL NOT OPERATE

TEST	RESULT	ACTION
1. Disconnect radio connector C244. Place light switch in PARK. Connect voltmeter from BRN (9) wire at radio connector C244 to ground.	Battery voltage.	REMOVE radio and send in for service.
	No voltage.	LOCATE and REPAIR open in BRN (9) wire from radio connector C244 to splice S210.

### PRELIMINARY CHECKS:

1. Check condition of RADIO and CTSY Fuses. If fuse(s) is blown, locate and repair source of overload. Replace fuse(s).

#### NO SOUND OR DISTORTED SOUND FROM A SPEAKER

TEST	RESULT	ACTION
1. Disconnect suspected speaker connector C242 or C245. Set analog ohmmeter on Rx1 scale. Connect ohmmeter across speaker terminals.	Speaker pops.	GO to step 2.
	No noise.	REPLACE speaker.
2. Place ignition switch in RUN and turn radio ON. Tune radio to strong signal. Connect voltmeter across outputs for suspect speaker. LT GRN (200) and DK GRN (117) wires for RH speaker. GRA (118) and TAN (201) wires for LH speaker.	Varying around 1 volt AC.	LOCATE and REPAIR speaker wires between radio and speaker.
	No voltage or greater than 1 volt AC.	REMOVE radio and send in for service.

## DIAGNOSIS — AM/FM STEREO RADIO WITH OPTIONS

### RADIO DOES NOT APPEAR TO WORK (NO DISPLAY LIGHTS, NO SOUND)

TEST	RESULT	ACTION
1. Disconnect radio connector C244 and place ignition switch in RUN. Connect voltmeter from YEL (43) wire at radio connector C244 to ground.	Battery voltage.	GO to step 2.
	No voltage.	LOCATE and REPAIR open in YEL (43) wire.
2. Connect voltmeter from YEL (43) wire to BLK (150) wire at radio connector C244.	Battery voltage.	GO to step 3.
	No voltage.	LOCATE and REPAIR open in BLK (150) wire from radio to ground terminal G202.
3. Connect radio connector C244. Connect voltmeter from RED wire at radio connector C247 (going to radio control head) to ground.	Battery voltage.	GO to step 4.
	No voltage.	REMOVE radio and send in for service.
4. Connect voltmeter from RED wire to BLK wire at radio connector C247 (both wires going to radio control head).	Battery voltage.	REMOVE control head and send in for service.
	No voltage.	REMOVE radio and send in for service.

### NO SOUND OR DISTORTED SOUND FROM A FRONT SPEAKER

TEST	RESULT	ACTION
1. Disconnect suspected speaker connector C242 or C245. Set analog ohmmeter on Rx1 scale. Connect ohmmeter across speaker terminals.	Speaker pops.	GO to step 2.
	No noise.	REPLACE speaker.
2. Place ignition switch in RUN and turn radio ON. Tune radio to strong signal. Connect voltmeter across outputs for suspect speaker at connector C242 or C245.	Varying around 1 volt AC.	LOCATE and REPAIR short or open in LT GRN (200), DK GRN (117) or GRA (118), TAN (201) wires between speaker connectors C242 or C245 and radio receiver connector C243.
	No voltage or greater than 1 volt AC.	REMOVE radio and send in for service.

## 8A-150-12 RADIO

### NO SOUND OR DISTORTED SOUND FROM A REAR SPEAKER

TEST	RESULT	ACTION
1. Disconnect suspected speaker connector C407 or C405. Set analog ohmmeter on the Rx1 scale. Connect ohmmeter across the speaker terminals.	Speaker pops.	GO to step 2.
	No noise.	REPLACE speaker.
2. Place ignition switch in ACC or RUN position and turn radio ON. Tune radio to strong signal. Connect voltmeter across suspected speaker connector C407 or C405.	Varying around 1 volt AC.	LOCATE and REPAIR short or open in YEL (116), BRN (199) or the DK BLU (46), LT BLU (115) between speaker connector C407 or C405 and body connector C299 or from connector C299 to radio receiver connector C251.
	No voltage or voltage greater than 1 volt AC.	REMOVE radio and send in for repair.

### PRELIMINARY CHECKS:

1. Check condition of RADIO Fuse. If fuse is blown, locate and repair source of overload. Replace fuse.

### CLOCK DOES NOT OPERATE

TEST	RESULT	ACTION
1. Disconnect radio connector C244. Connect voltmeter from ORN (40) wire at radio connector C244 to ground.	Battery voltage.	GO to step 2.
	No voltage.	LOCATE and REPAIR open in ORN (40) wire between radio connector C244 and splice S242 or between splice S242 and fuse block.
2. Connect voltmeter from ORN (40) wire at radio connector C247 (going to radio control head) to ground.	Battery voltage.	REMOVE radio control head and send in for service.
	No voltage.	REMOVE radio receiver and send in for service.

### PANEL LAMP DOES NOT COME ON

TEST	RESULT	ACTION
1. Place light switch in PARK and panel dimmer switch to HIGH. Connect voltmeter from GRA (8) wire at radio connector C244 to ground.	Battery voltage.	GO to step 2.
	No voltage.	LOCATE and REPAIR open in GRA (8) wire from radio connector C244 to splice S217.
2. Connect voltmeter from BRN (9) wire at radio connector C247 (going to radio control head) to ground.	Battery voltage.	REMOVE radio control head and send in for service.
	No voltage.	REMOVE radio receiver and send in for service.

**DISPLAY DIMMING FUNCTION WILL NOT OPERATE**

TEST	RESULT	ACTION
1. Place light switch in PARK. Connect voltmeter from BRN (9) wire at radio connector C244 to ground.	Battery voltage.	GO to step 2.
	No voltage.	LOCATE and REPAIR open in BRN (9) wire from radio connector C244 to splice S210.
2. Connect voltmeter from YEL wire at radio connector C247 (going to radio control head) to ground.	Battery voltage.	REMOVE radio control head and send in for service.
	No voltage.	REMOVE radio receiver and send in for service.

**CASSETTE DECK DOES NOT OPERATE**

TEST	RESULT	ACTION
1. Place ignition switch in RUN, turn radio ON and cassette inserted into tape deck. Connect voltmeter from ORN wire at radio connector C248A (going to cassette deck) to ground.	Battery voltage.	GO to step 2.
	No voltage.	REMOVE radio and send in for service.
2. Connect voltmeter from RED wire at radio connector C248A (going to cassette deck) to ground.	Battery voltage.	GO to step 3.
	No voltage.	REMOVE radio and send in for service.
3. Connect voltmeter from ORN wire to BLK wire (LO ground) at radio connector C248A.	Battery voltage.	GO to step 4.
	No voltage.	REMOVE radio and send in for service.
4. Connect voltmeter from ORN wire to BLK wire (HI ground) at radio connector C248A.	Battery voltage.	GO to step 5.
	No voltage.	REMOVE radio and send in for service.
5. Connect voltmeter from WHT wire at radio connector C248A to ground.	A reading of approximately 4.5 volts.	GO to step 6.
	A reading less or greater than 4.5 volts.	REMOVE cassette deck and send in for service.
6. Connect voltmeter from ORN/WHT wire at radio connector C248A to ground.	A reading of approximately 4.5 volts.	GO to step 7.
	A reading less or greater than 4.5 volts.	REMOVE cassette deck and send in for service.
7. Connect voltmeter from BRN wire at radio connector C248A to ground.	A reading of approximately 4.5 volts.	GO to step 8.
	A reading less or greater than 4.5 volts.	REMOVE cassette deck and send in for service.
8. Connect voltmeter from BLU wire at radio connector C248A to ground.	Battery voltage.	REMOVE cassette deck and send in for service.
	No voltage.	GO to step 9.

## 8A-150-14 RADIO

### CASSETTE DECK DOES NOT OPERATE (CONTINUED)

TEST	RESULT	ACTION
9. Move tape deck switch to FWD and then REV. Connect voltmeter from BLU wire at radio connector C248A to ground, taking readings at each position.	A reading of approximately 8 volts.	GO to step 10.
	A reading less or greater than 8 volts.	REMOVE cassette deck and send in for service.
10. Remove cassette from tape deck. Connect voltmeter from BRN wire at radio connector C248A to ground.	Battery voltage.	REMOVE cassette deck and send in for service.

### GRAPHIC EQUALIZER DOES NOT OPERATE

TEST	RESULT	ACTION
1. Disconnect graphic equalizer connector C246A. Place ignition switch in RUN and turn radio ON. Connect voltmeter from WHT wire at graphic equalizer connector C246A to ground.	A reading of approximately 10 volts.	GO to step 2.
	A reading less or greater than 10 volts.	REMOVE radio control head and send in for service.
2. Place light switch to PARK and panel dimmer switch to HIGH. Connect voltmeter from GRA wire at graphic equalizer connector C246A to ground.	Battery voltage.	REMOVE graphic equalizer and send in for service.
	No voltage.	REMOVE radio control head and send in for service.

## DIAGNOSIS — POWER AMPLIFIER

### PRELIMINARY CHECKS:

1. Check condition of RADIO and CTSY Fuses. If fuse(s) is blown, locate and repair source of overload. Replace fuse(s).
2. If fuse(s) is not blown, proceed with the following diagnostic charts.

### POWER AMPLIFIER DOES NOT OPERATE

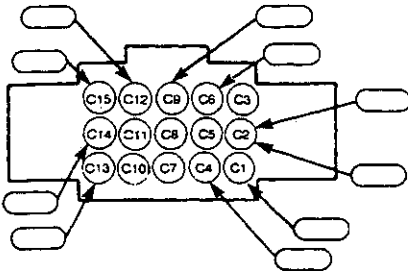
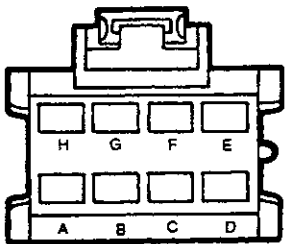
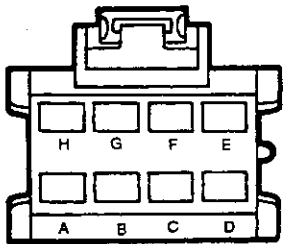


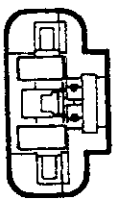
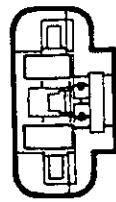

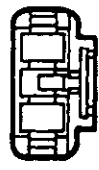
TEST	RESULT	ACTION
1. Place Ignition switch in ACC or RUN position. Connect test lamp from PNK (143) wire at power amplifier relay connector C253 to ground. Turn radio control head to ON position.	Test lamp lights.	GO to step 2.
	Test lamp does not light.	LOCATE and REPAIR open in PNK (143) wire between power amplifier relay connector C253 and radio receiver connector C244. If wire is good, REMOVE receiver and send in for repair.
2. Connect test lamp from PNK (143) wire to BLK (150) wire at power amplifier relay connector C253.	Test lamp lights.	GO to step 3.
	Test lamp does not light.	LOCATE and REPAIR open in BLK (150) wire between power amplifier relay connector C253 and splice S272, from splice S272 to convenience center connector C257, from convenience center to splice S207 or from splice S207 to I/P ground G202.
3. Connect test lamp from ORN (40) wire at power amplifier relay connector C253 to ground.	Test lamp does not light.	GO to step 4.
	Test lamp lights.	LOCATE and REPAIR open in ORN (40) wire between power amplifier relay connector C253 and convenience center connector C239, from convenience center to splice S242 or from splice S242 to fuse block.
4. Connect test lamp from ORN (140) wire at power amplifier relay connector C253 to ground.	Test lamp does not light.	GO to step 5.
	Test lamp lights.	REPLACE power amplifier relay.
5. Connect test lamp from ORN (140) wire to BLK (150) wire at power amplifier connector C352.	Test lamp does not light.	REMOVE power amplifier and send in for repair.
	Test lamp lights.	LOCATE and REPAIR open in BLK (150) wire between power amplifier connector C352 and splice S272, from splice S272 to convenience center connector C257, from convenience center to splice S207 or from splice S207 to I/P ground G202.

## 8A-150-16 RADIO




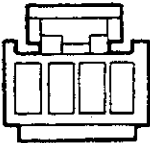

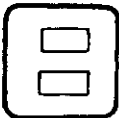
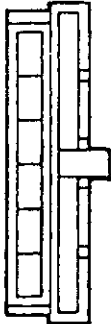
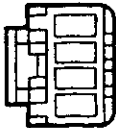
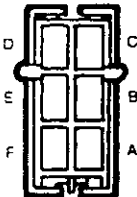
### NO SOUND OR DISTORTED SOUND FROM REAR SPEAKERS

TEST	RESULT	ACTION
1. Disconnect suspect speaker connector C407, C550, C405 or C610. Set ohmmeter on Rx1 scale. Connect ohmmeter across terminals of suspect speaker.	Speaker pops.	GO to step 2.
	No noise.	REPLACE speaker.
2. Place ignition switch in ACC or RUN position and turn radio ON. Tune radio to a strong signal. Connect voltmeter across suspect speaker connector C407, C550, C405 or C610.	Varying around 1 volt AC.	LOCATE and REPAIR open or short in YEL (116), BRN (199), DK BLU (46), LT BLU (115) between speaker connector C407 or C405 and splice S271, S274 or splice S270, S273 and power amplifier connector C352; or check LT GRN/BLK (329), LT GRN/WHT (330), DK GRN (1654), DK GRN/WHT (1655) between speaker connector C550 or C610 and power amplifier connector C352. Also check wires from splice S270, S271, S273 or S274 to body connector C299 or from connector C299 to radio receiver connector C251.
	No voltage or voltage greater than 1 volt AC.	REMOVE power amp and send in for repair.

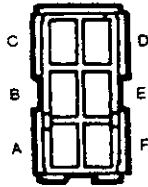


<p><b>12034325</b></p>  <p><b>C352</b> <b>Power Amplifier</b></p>	<p><b>12064998</b></p>  <p><b>BLACK</b> Metri-Pack 280 <b>C341</b> <b>LH Rear Door to Crossbody</b></p>	<p><b>12064998</b></p>  <p><b>BLACK</b> Metri-Pack 280 <b>C342</b> <b>RH Rear Door to Crossbody</b></p>
<p><b>12092428</b></p>  <p><b>C320</b> <b>LH Rear Speaker</b> <b>(Regular Cab)</b></p>	<p><b>12092428</b></p>  <p><b>C321</b> <b>RH Rear Speaker</b> <b>(Regular Cab)</b></p>	<p><b>08900444</b></p>  <p><b>BLACK</b> Pac/on <b>C407</b> <b>LH Rear Speaker</b> <b>(Suburban)</b></p>
<p><b>08900444</b></p>  <p><b>BLACK</b> Pac/on <b>C425</b> <b>RH Rear Speaker</b> <b>(Suburban)</b></p>	<p><b>12077887</b></p>  <p><b>BLACK</b> Pac/on <b>C450</b> <b>Rear Speaker (Crew Cab,</b> <b>Extended Cab &amp; Utility)</b></p>	<p><b>12077887</b></p>  <p><b>BLACK</b> Pac/on <b>C451</b> <b>Rear Speaker (Crew Cab,</b> <b>Extended Cab &amp; Utility)</b></p>

**8A-150-18 RADIO**

<div>12059234</div> <div></div> <div>C239 Power Amplifier Relay Convenience Center Tap</div>	<div>12059236</div> <div></div> <div>C257 Power Amplifier &amp; Amplifier Relay Convenience Center Tap</div>	<div>12047531</div> <div></div> <div>BLACK Micro-Pack 100 C244 Radio Receiver</div>
<div>12040904</div> <div></div> <div>C243 Front Speakers at Receiver</div>	<div>12092428</div> <div></div> <div>C242 RH Front Speaker</div>	<div>12092428</div> <div></div> <div>C245 LH Front Speaker</div>
<div>12034061</div> <div></div> <div>NATURAL Metri-Pack 480 C204 Light Switch</div>	<div>12047528</div> <div></div> <div>BLUE Micro-Pack 100 C251 Rear Speaker Extension</div>	<div>12034482</div> <div></div> <div>GRAY Metri-Pack 280 C299 In-Line Radio to Rear Speakers</div>

**12034481**



**GRAY**  
Metri-Pack 280

**C299**  
In-Line Rear Speakers to Radio

## 8A-150-20 RADIO

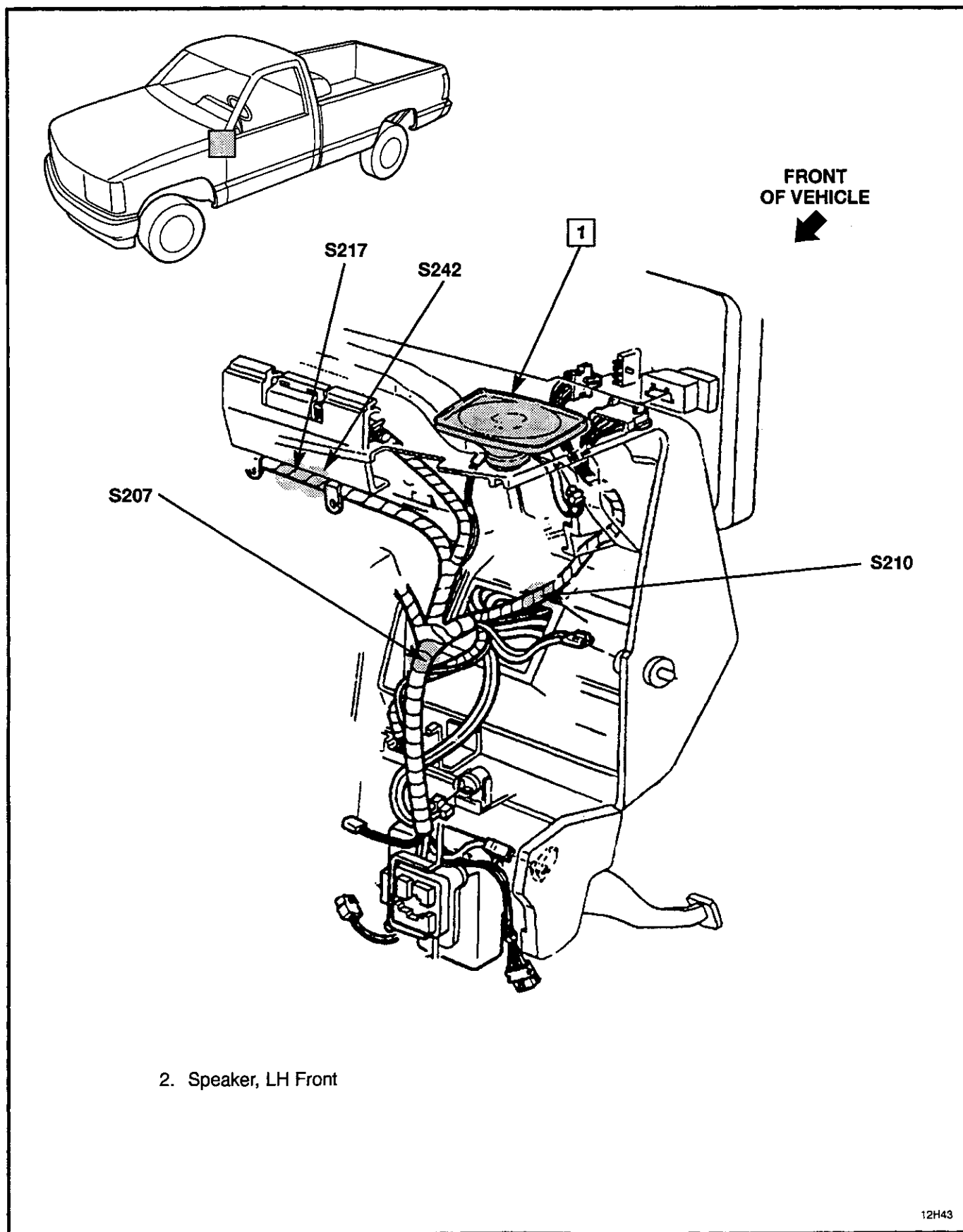


Figure 1 — LH Side of Instrument Panel

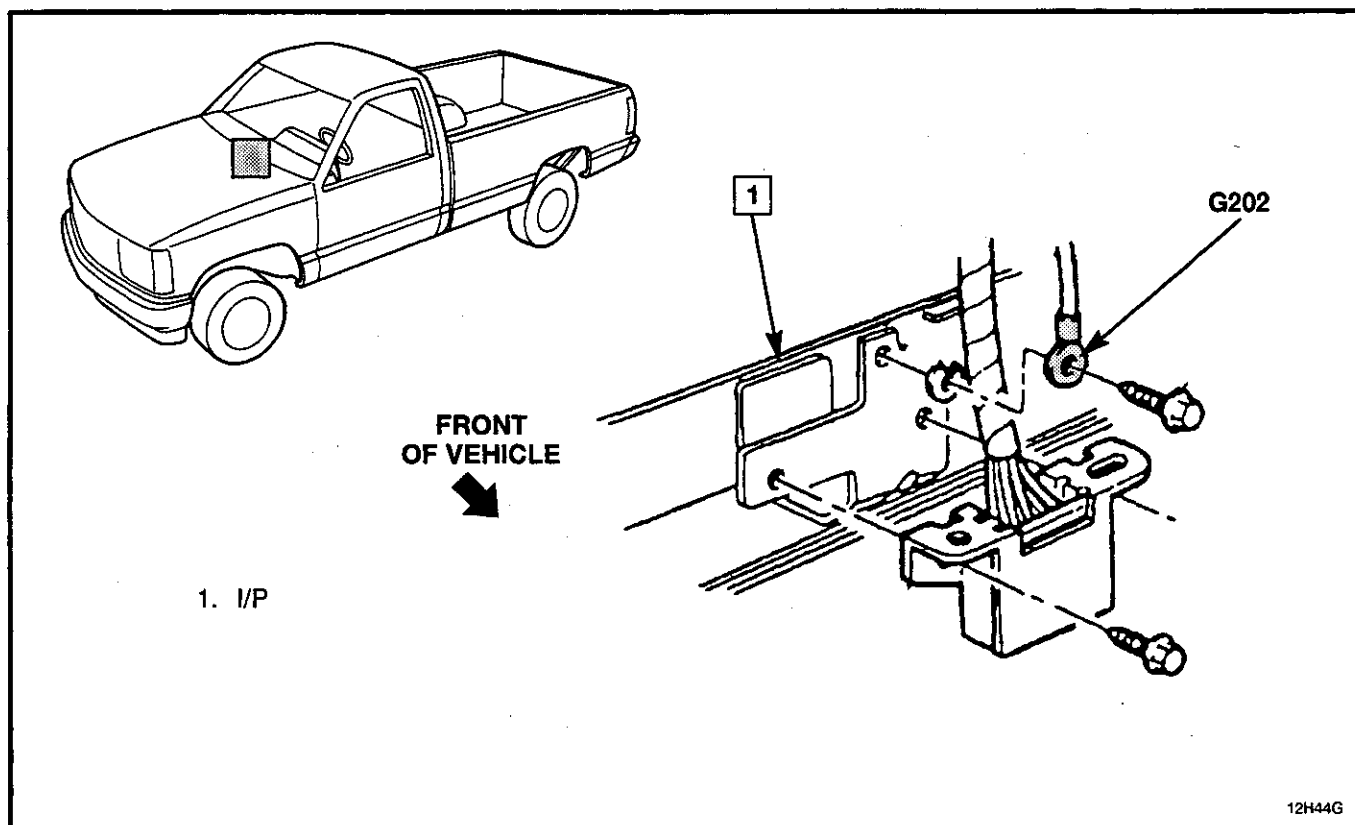


Figure 2 — I/P Ground

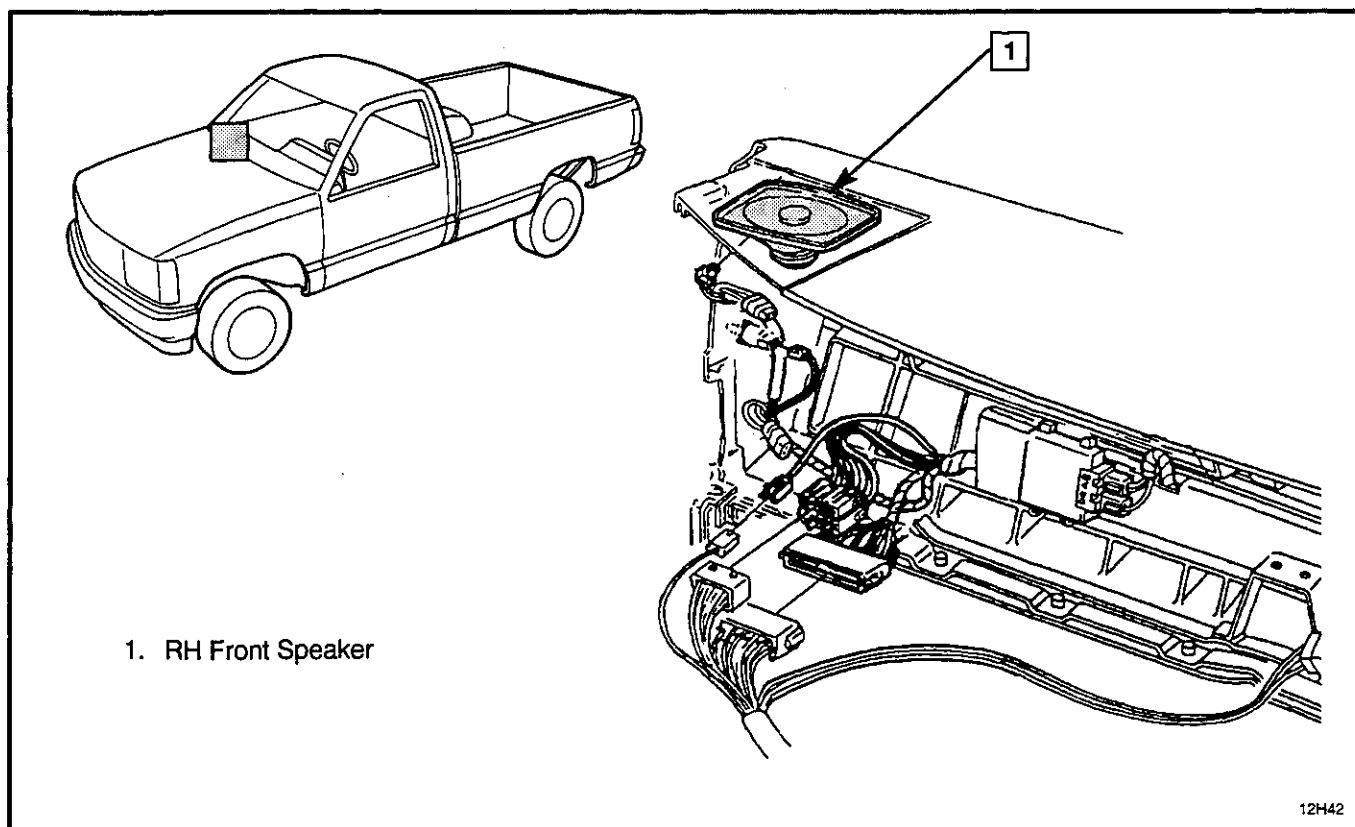


Figure 3 — Instrument Panel Wiring, RH Side

8A-150-22 RADIO

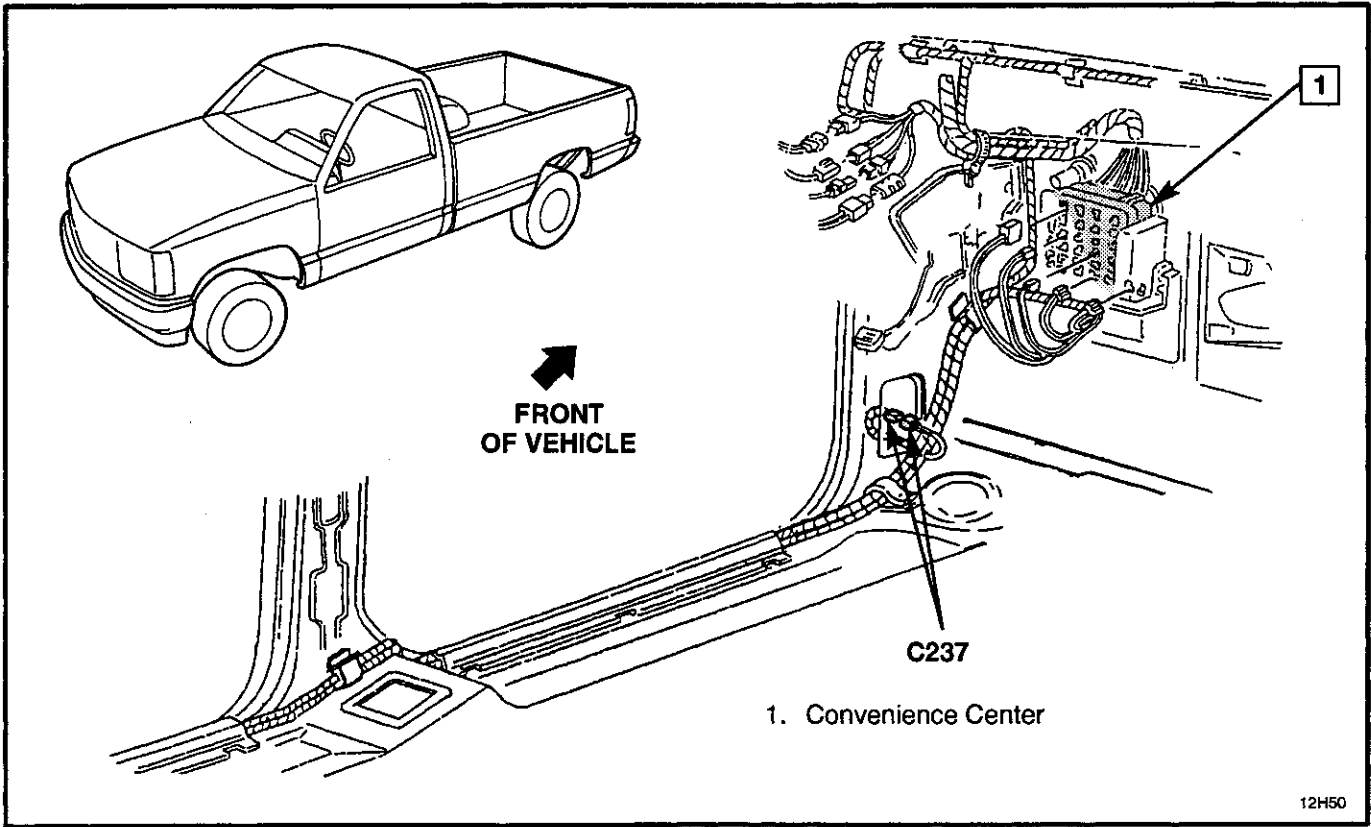


Figure 4 — Convenience Center

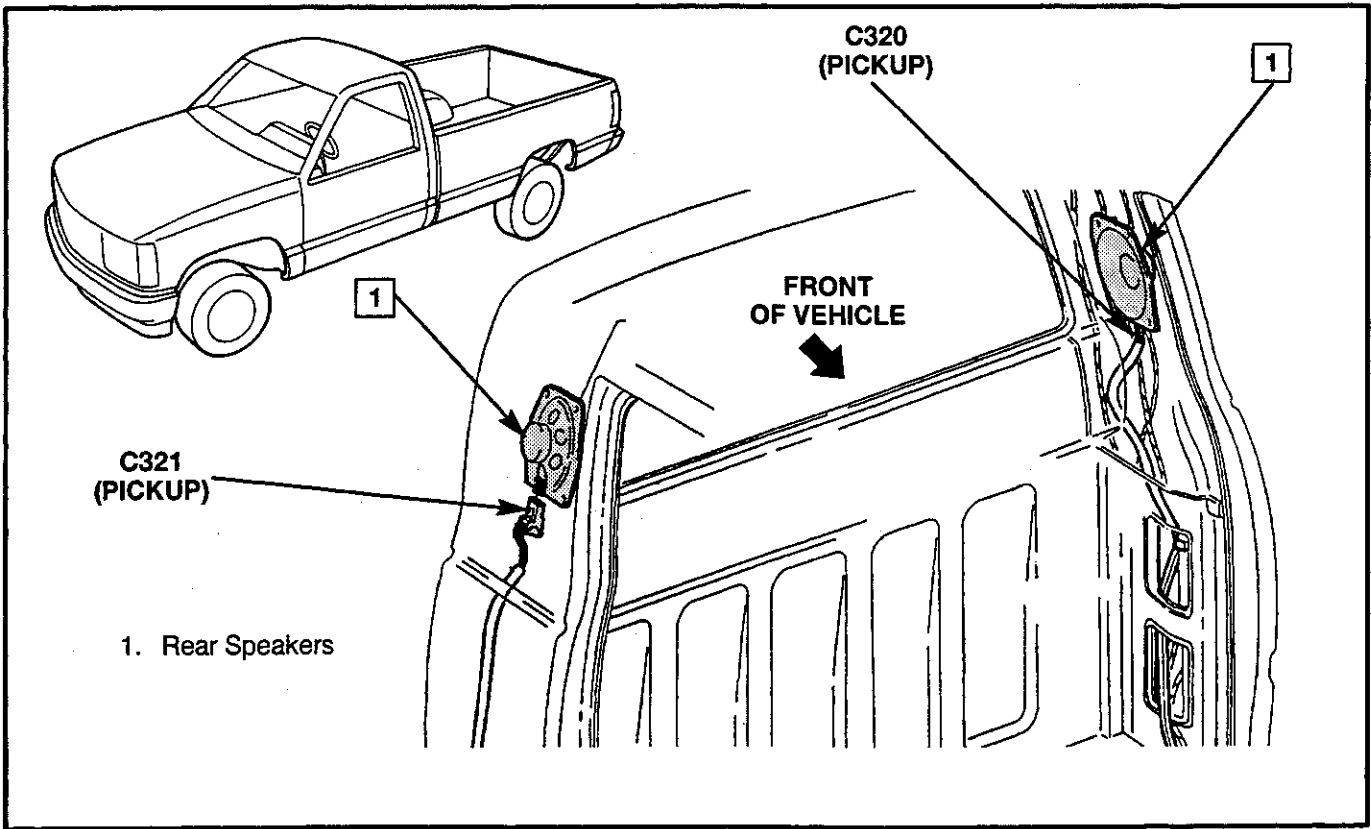


Figure 5 — Speaker Wiring

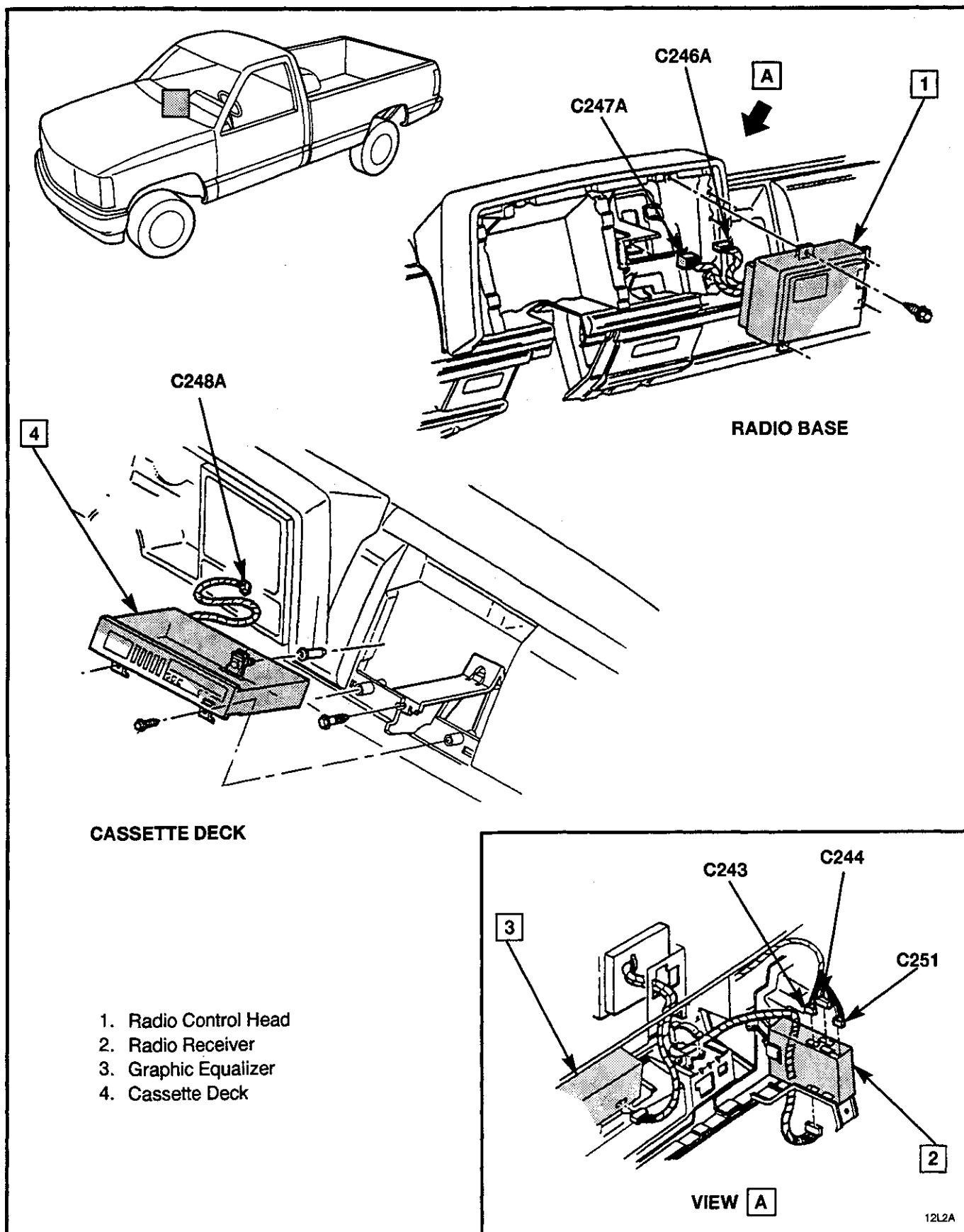


Figure 6 — Radio System

## 8A-150-24 RADIO

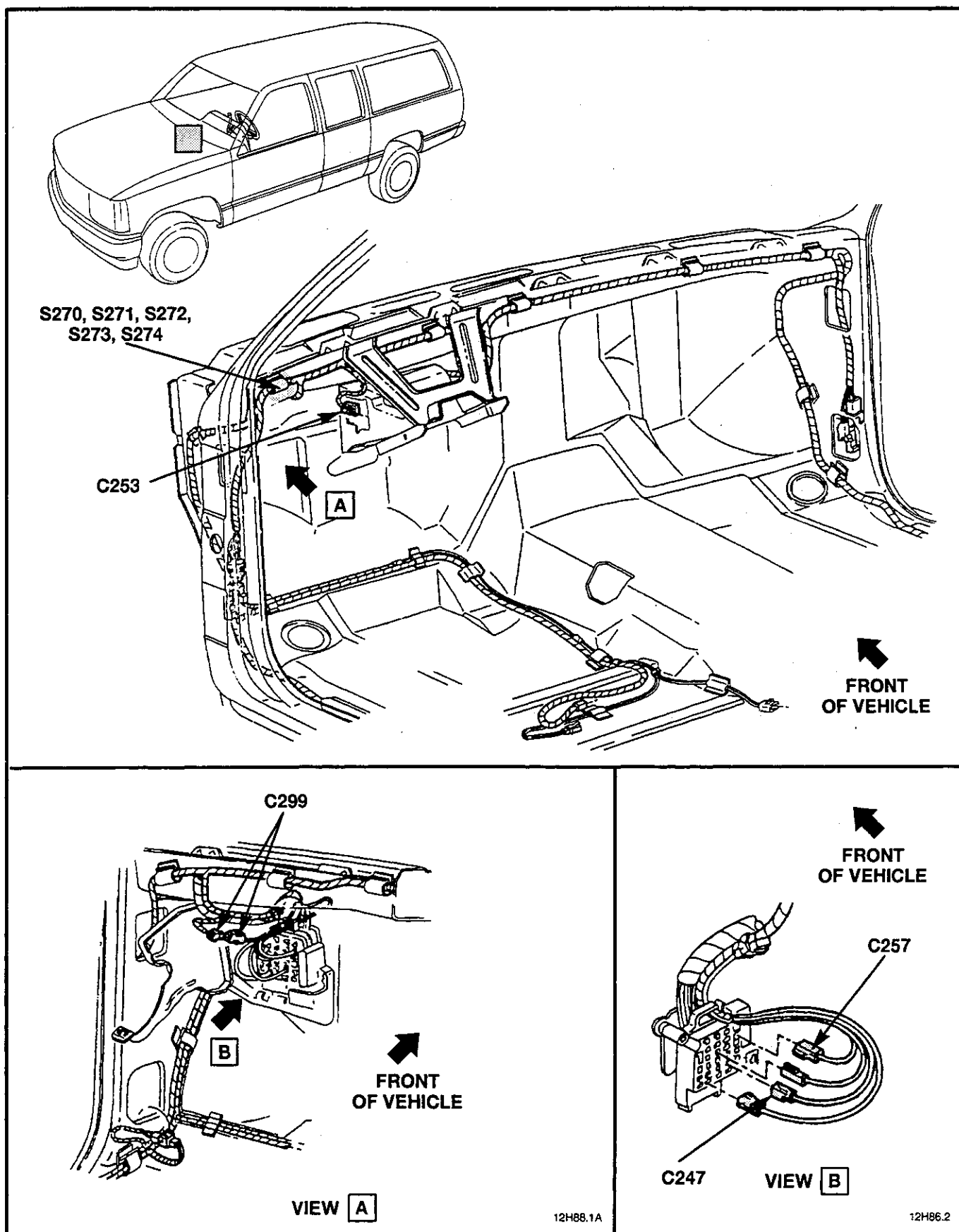


Figure 7 — Crossbody Wiring – Suburban



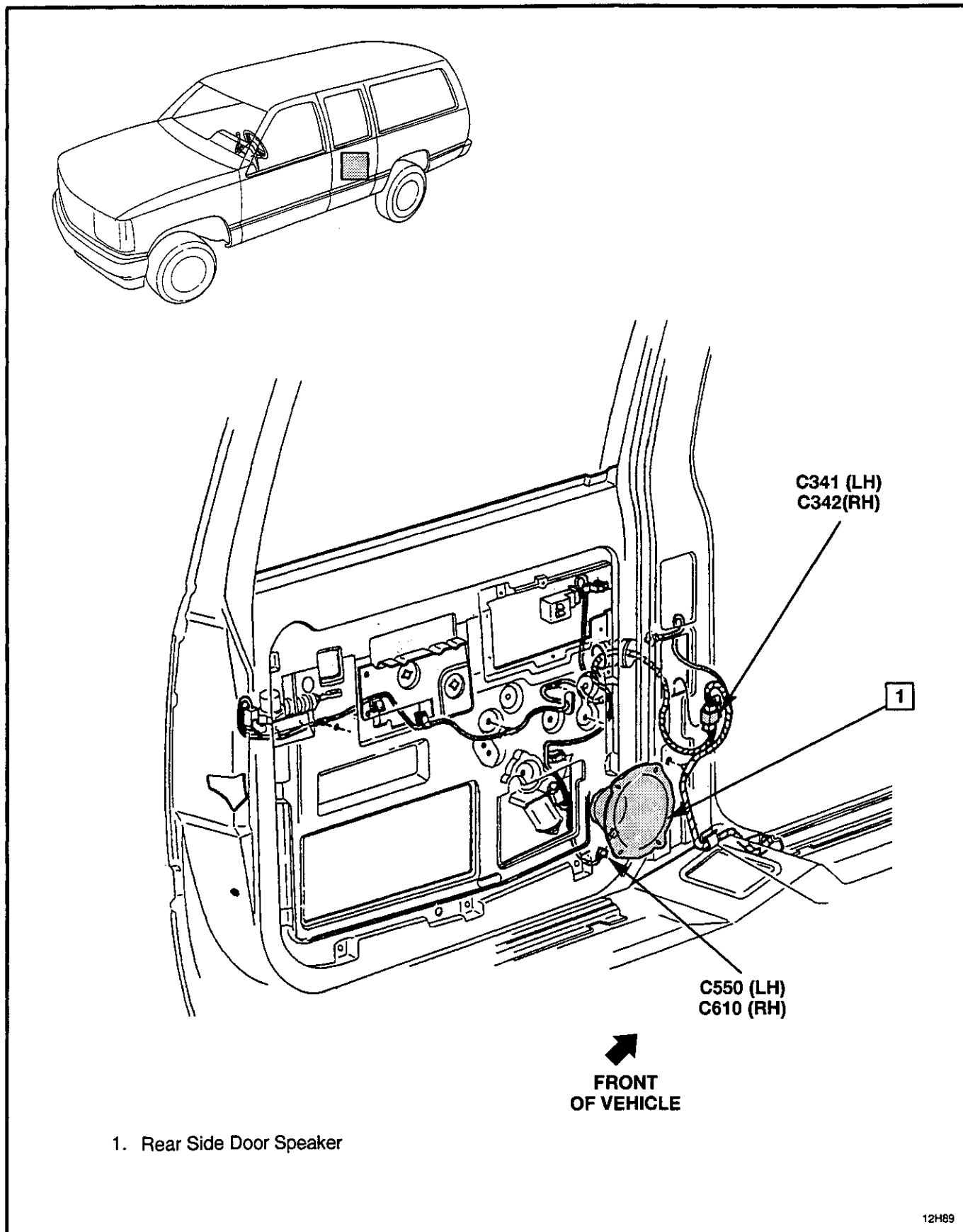


Figure 8 — Rear Side Door Wiring – Suburban and 4-Door

**8A-150-26 RADIO**

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**BLANK**

## **CIRCUIT OPERATION**

### **VACUUM SYSTEMS**

A vacuum-operated component uses the force of normal air pressure working against the lower air pressure of a partial vacuum to provide voltage that operates the component. With a gasoline engine, the vacuum created in the inlet manifold when the engine is running is stored in a ball-shaped vacuum tank suspended from the center of the hood inner panel. A check valve in the line feeding vacuum to the tank keeps the stored vacuum from weakening when inlet manifold vacuum drops during high speed or high voltage operation.

An engine-driven mechanical vacuum pump serves as the source of vacuum with a diesel engine. A vacuum tank is not required with a vacuum pump.

Vacuum is routed through hoses to a mechanical or electric valve that provides a means of controlling the vacuum-operated component. When the valve is open, it allows vacuum to go to an actuator that actually operates the component. When the component is to be returned to its original position, the valve cuts off the vacuum to the actuator hose and vents the hose to normal air pressure.

A typical actuator is a metal shell with a movable shaft that retracts and extends to mechanically operate the component. A flexible diaphragm separates the interior of the shell into two chambers – a sealed chamber to which vacuum can be admitted, and an open chamber exposed to normal air pressure. The movable shaft is attached to the center of the diaphragm and extends from the open chamber.

When vacuum is directed to the sealed chamber, normal air pressure presses on the other side of the diaphragm and causes it to retract the shaft. When the vacuum is cut off, the sealed chamber is vented to outside air to balance the air pressure on both sides of the diaphragm and eliminate the force that retracted the shaft. A coiled spring within the sealed chamber expands to push the diaphragm back to its original position. This extends the shaft.

In addition to the two-position actuator described above, a three-position actuator may be used for certain applications. The three-position actuator has a vacuum hose at each end of the shell. When vacuum is applied to either end of the actuator and the opposite end is vented, the shaft will move in the direction of the end having the vacuum. When both ends of the actuator are vented to normal air pressure, internal springs center the shaft. This provides a center position as well as both extremes for an actuator application that requires three operating positions.

### **POWER BRAKE BOOSTER VACUUM SYSTEM (GASOLINE ENGINES ONLY)**

The power brake booster is a tandem diaphragm vacuum-suspended unit. When the engine is running, inlet manifold vacuum is transmitted to the booster unit through a vacuum hose. A check valve at the power brake booster end of the hose keeps air from flowing from the hose into the booster unit and weakening the power brake operating force when inlet manifold vacuum is low.

With the service brakes released, vacuum is supplied equally to both sides of the two diaphragms in the booster unit. Because pressure on both sides of the diaphragms are balanced, no boost is provided to the braking system and the brakes are not applied.

When the driver presses down on the brake pedal, the pedal pushrod depresses a spring-loaded air valve within the power brake booster. The air valve opens to admit air at atmospheric pressure to the back side of both diaphragms. This forces the diaphragms forward and causes a piston rod in the booster unit to push the brake master cylinder pistons and apply the service brakes.

The amount of atmospheric air admitted to the back side of both diaphragms depends upon the force the driver applies to the brake pedal. The greater the pedal pressure, the more the valve opens. This provides a power boost that multiplies the force applied to the master cylinder pistons in proportion to the pressure on the brake pedal.

When the brake pedal is released, the flow of atmospheric air is cut off and inlet manifold vacuum draws off the air behind the diaphragms. As a result, air pressures within the diaphragm chambers are once again balanced so no power boost is developed.

### **EGR VALVE VACUUM SYSTEM**

The exhaust gas recirculation (EGR) system allows a small amount of exhaust gas to flow from the exhaust manifold into the inlet manifold when the throttle is opened beyond idle and inlet manifold vacuum is normal. This reduces combustion temperatures in the engine to control oxides of nitrogen emissions.

The EGR valve is operated by an integral vacuum actuator that controls a pintle within the valve. The pintle remains closed to prevent exhaust gas recirculation until vacuum is applied to the actuator. The vacuum causes the pintle to open, allowing the measured flow of exhaust gas to enter the inlet manifold.

## 8A-199-2 VACUUM SYSTEMS

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The EGR system used with gasoline engines remains closed during periods of engine idle and deceleration to prevent rough idle from excessive dilution of the air/fuel mixture. It also remains closed at wide-open throttle to prevent power loss. At other times, it rapidly cycles open and closed to modulate the flow of exhaust gas as required. Under certain circumstances, it may remain fully open to provide the maximum EGR.

In gasoline engines, the manifold absolute pressure (MAP) sensor measures the strength of inlet manifold vacuum in the EGR vacuum circuit and sends a signal back to the engine control module (ECM/PCM). The ECM/PCM uses the signal from the MAP sensor to control fuel delivery and ignition timing. In addition, the ECM/PCM will adjust the on-off intervals of the EGR valve to correct the flow of exhaust gas into the cylinders if actual vacuum differs from the preferred vacuum as calculated by the ECM/PCM. This provides the required control of oxides of nitrogen emissions while retaining engine performance under all operating conditions.

Vacuum for the EGR system of gasoline engines is taken from the throttle body and routed through a hose to the EGR electronic vacuum regulator solenoid valve. This valve is controlled by the 435 circuit from the ECM/PCM. When the EGR electronic vacuum regulator solenoid valve is energized, the valve routes vacuum to the EGR actuator. The actuator opens the EGR pintle valve to allow exhaust gas to flow into the inlet manifold. When the EGR electronic vacuum regulator solenoid valve is released, the valve vents the EGR actuator to outside air to close the EGR pintle valve.

In the diesel engine, the operation of the EGR valve is assisted by the exhaust pressure regulator (EPR) valve. At idle, the EPR valve increases exhaust back pressure to force more exhaust through the EGR valve and reduce combustion temperatures. The vacuum which operates the EGR valve and the EPR valve is supplied by an engine-driven vacuum pump.

The powertrain control module (PCM) controls the EGR valve solenoid to regulate the vacuum to the EGR valve in the same way as with a gasoline engine. The PCM calculates the amount of exhaust gas recirculation based on inputs from the engine speed sensor and the throttle position (TP) sensor, and pulses the EGR valve solenoid to control EGR. The MAP sensor monitors the control of exhaust gas recirculation as indicated by the air pressure in the EPR vacuum line. If actual vacuum differs from the preferred vacuum as calculated by the PCM, the PCM will adjust the on-off intervals of the EGR valve to correct the flow of exhaust gas into the cylinders.

When the ECM/PCM recognizes the operating range in which no exhaust gas recirculation is needed, the EGR vent solenoid opens to vent the vacuum at the EGR valve.

At idle, the ECM/PCM energizes the EPR valve solenoid to send vacuum to close the EPR valve. This increases exhaust back pressure to force more exhaust gas through the EGR system and lower combustion temperatures to reduce oxides of nitrogen emissions.

## **DIAGNOSIS — VACUUM SYSTEMS**

### **PRELIMINARY CHECKS:**

Conditions most likely to cause vacuum system problems include hoses that leak or become disconnected. With the engine running, either condition is easily detected from the hiss of air at the opening. Other common vacuum problems are kinked or obstructed hoses, hoses connected incorrectly or binding components.

A vacuum pump can be used as a vacuum source to operate components and test the system. The built-in vacuum gage of the pump provides a means of checking for a vacuum leak as well. Once vacuum is applied to operate the component, the gage should hold steady until the vacuum is purposely released.

On vacuum systems that are controlled by electrical or electronic switches, check for a blown fuse, wiring that is cracked, frayed or burned, and high resistance in connectors of the control circuit(s) before checking for a suspected vacuum system problem.

### **EGR VALVE VACUUM SYSTEM**

A leak in the EGR vacuum system can upset the ECM's/PCM programmed control of exhaust gas recirculation and adversely affect engine operation. Too much exhaust gas recirculation at idle or cruise with a gasoline engine can result in the engine stalling after closed throttle deceleration, surging during steady throttle cruising or a rough idle. Too little exhaust gas flow allows combustion temperatures to become too high and bring about detonation ("spark knock") or an overheated engine. In addition, nitrous oxide emissions may be high enough to cause the vehicle to fail an emissions test.

Because the source of an EGR system symptom might be traced to a mechanical or electrical condition as well as a faulty vacuum system, an effective systematic diagnosis

procedure should examine all three categories of components – not just the vacuum system alone. Therefore, no exclusive vacuum system diagnosis procedures are provided here. For more information on the EGR system, refer to the 1994 Light Duty Fuel and Emissions manual.

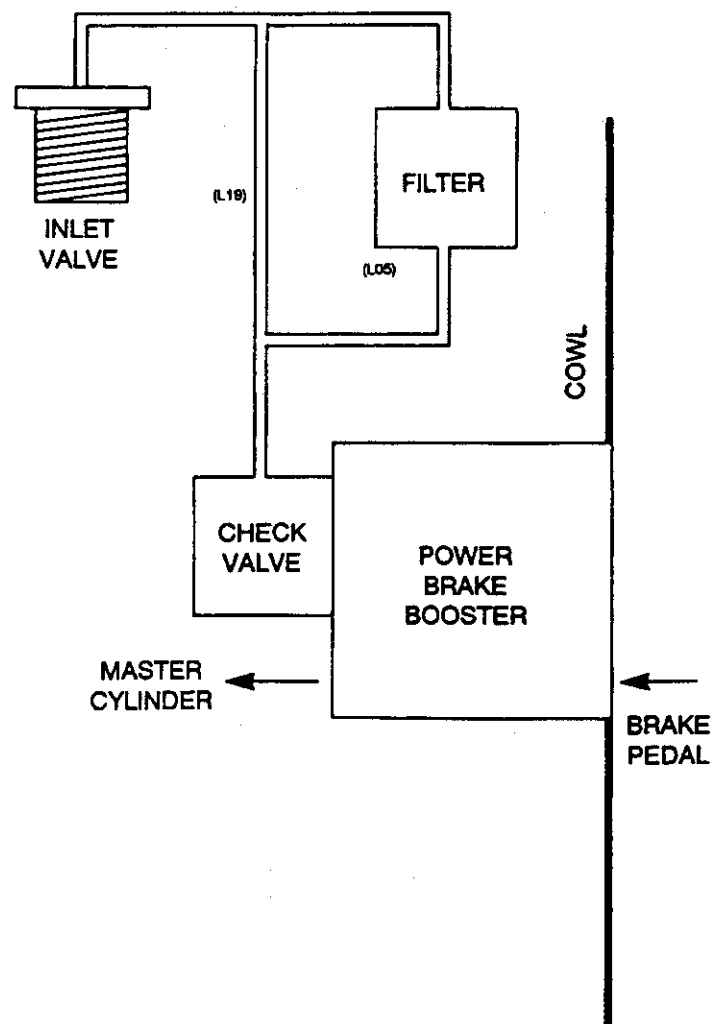
### **POWER BRAKE BOOSTER VACUUM SYSTEM (GASOLINE ENGINES ONLY)**

Little or no power assist upon brake application can be caused by a faulty power brake booster vacuum system. A simple two-step procedure can be used to check out the vacuum system if a visual inspection fails to uncover the cause.

- With the engine off, apply and release the brake a number of times to exhaust all vacuum from the power brake booster. As many as 8 to 10 strokes may be required. Then hold your foot on the brake pedal with a firm pressure (comparable to the pressure required to bring the vehicle to a normal gradual stop). While maintaining a steady pressure, start the engine. If the vacuum system is working properly, you should feel the brake pedal "fall away" slightly under your foot as the engine starts. If there is no power assist, refer to the 1994 Service Manual, Section 5A-1.
- With no pressure applied to the brake pedal, shut off the engine and allow the vehicle to stand undisturbed for 3-5 minutes. Then depress and release the brake pedal a number of times until firm resistance is met with very little brake pedal travel. A vacuum leak or a faulty check valve at the booster unit end of the vacuum hose is indicated if firm resistance is encountered with very little brake pedal travel on the first few strokes.

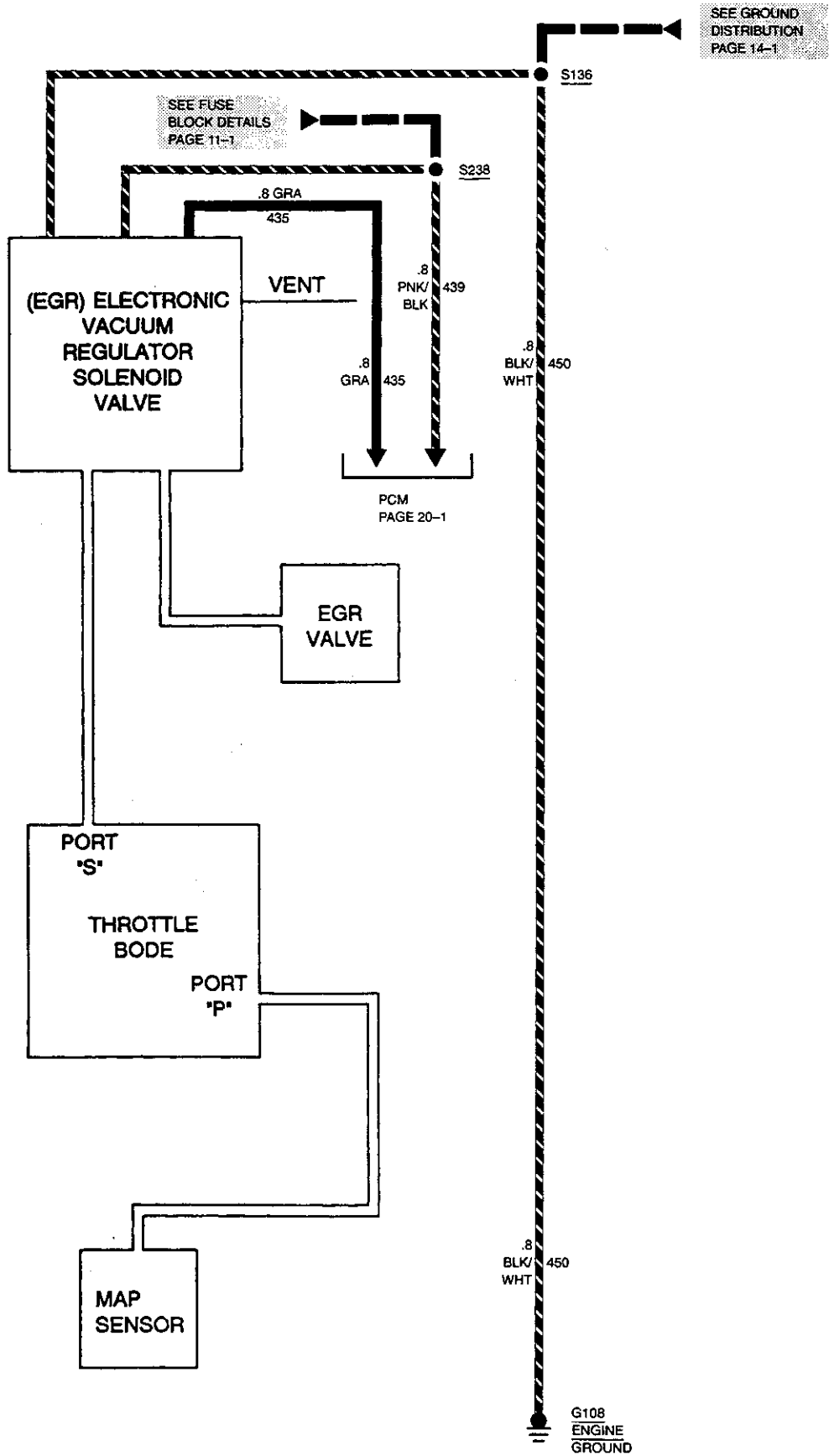
## 8A-199-4 VACUUM SYSTEMS

### POWER BRAKE BOOSTER VACUUM SYSTEM (GASOLINE ONLY)



# VACUUM SYSTEMS 8A-199-5

## EGR VALVE VACUUM SYSTEM (GASOLINE ONLY)



## 8A-199-6 VACUUM SYSTEMS

### EGR/EPR VACUUM SYSTEM (DIESEL ONLY)

