

**Electrical Test Program - Preparation for Test (driver/passenger-side airbag/side airbag/windowbag)**

Preliminary work:  
 Diagnosis - Diagnostic Trouble Code (DTC) Memory ..... 12  
 Diagnosis - Fault Frequency, Time Span ..... 13

**Electrical Wiring Diagram:**

Electrical Troubleshooting Manual, Model 210, Vol. 2, group 91

**Preparation for Test:**

 **CAUTION!**

Risk of injury if airbag units and ETR units are ignited accidentally or if stored with the opening end facing downward which may cause the accidentally ignited components to fly about causing injury. Danger to persons also exists if the components are disposed of by cutting apart with cutting torches or other cutting/separation devices. Danger also exists if disposing the untriggered units via refuse collection or via smelting/carbonizing companies.

**Protective measures/Supervision**

- Place removed airbag unit with the opening side facing downward.
- Allow only **properly trained dealer staff** to supervise, purchase, transport, store, test/replace any of the SRS components.
- Install all airbag or ETR units once pulled from the parts department.
- Protect all airbag or ETR units from any sparks, open flame, or temperatures above 100°C.
- Do not transport airbag or ETR units in the passenger compartment, rather transport securely in their **original packaging** in the trunk.
- Do not allow oil, grease or cleaning agents to come in contact with the airbag or ETR units.
- Perform SRS tests only with approved test equipment (such as HHT), while installed in the vehicle **without** occupants inside vehicle.

- When reconnecting the vehicle battery or any outside electrical source, with the ignition turned **ON**, do not allow any occupants inside the vehicle.
- Airbag or ETR units which have been dropped from a height greater than 18 inches must be replaced.
- Prior to disposing the airbag or ETR units, the units must be made un-useable by discharging.
- In order to render the airbag and ETR unit un-useable, the specially made discharge harness must be used and at the same time maintain a **safe distance of at least 33 feet** from the units being discharged.

Prior to undertaking any chassis/body repairs, installation/repair work on airbag and ETR units, or any components which come in contact with the airbag and ETR units, or are part of the electrical circuit of airbag and ETR units (such as removal of the steering wheel), the following conditions must be met:

- Remove ignition key.
- Disconnect any outside source of electrical circuit (i.e. battery charger).
- When performing welding operations, disconnect the connector from the SRS control module.

### Electrical Test Program - Preparation for Test (driver/passenger-side airbag/side airbag/windowbag)

#### Preparation for Test (continued):

 **CAUTION!**

**Risk of Injury** when performing Diagnostic Tests and repairs on components of the SRS system.

Store both airbags and side airbags with opening surface pointing upward.

Do not expose to temperatures above 100°C.

**Interrupt any electrical current from reaching the airbag unit.**

**Review pages** 11/1 and 11/2

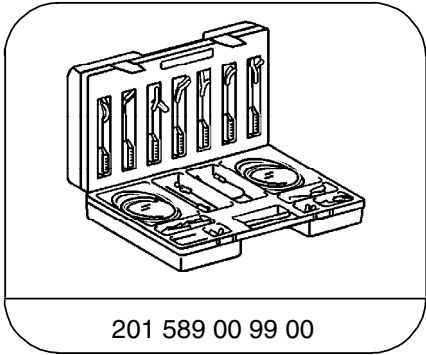
1. Review: Section 0, and 12, 13, 14, 20, 21, 22,
2. Also review: GF91.60-P-2003A,
2. Check fuses,
3. Battery voltage 11 – 14 V

 **CAUTION!**

Do not connect battery trickle charger.

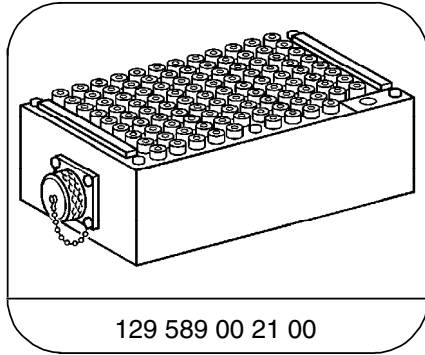
Electrical Test Program - Preparation for Test (driver/passenger-side airbag/side airbag/windowbag)

Special Tools



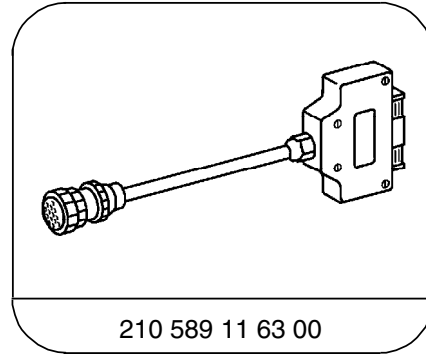
201 589 00 99 00

Electrical connecting set



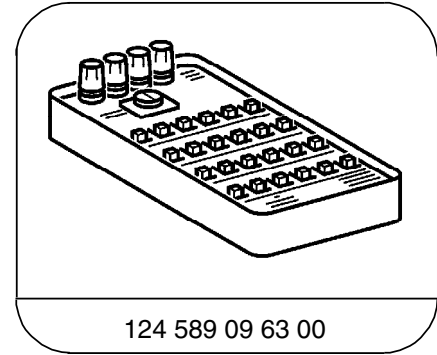
129 589 00 21 00

126-pin socket box



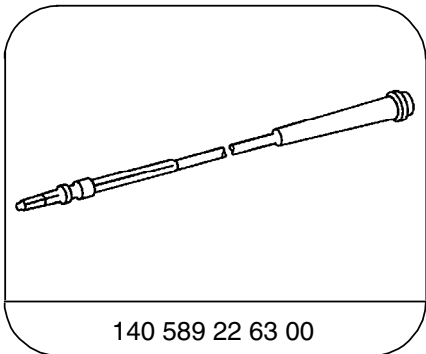
210 589 11 63 00

Test cable



124 589 09 63 00

Ohm decade



140 589 22 63 00

Adapter cable

Test equipment; See MBUSA Standard Service Equipment Program

Description	Brand, model, etc.
Digital multimeter	Fluke models 23, 77 III, 83, 85, 87

Electrical Test Program - Preparation for Test (driver/passenger-side airbag/side airbag/windowbag)

Connection Diagram - Socket Box  
Tester/SRS Control Module Connector

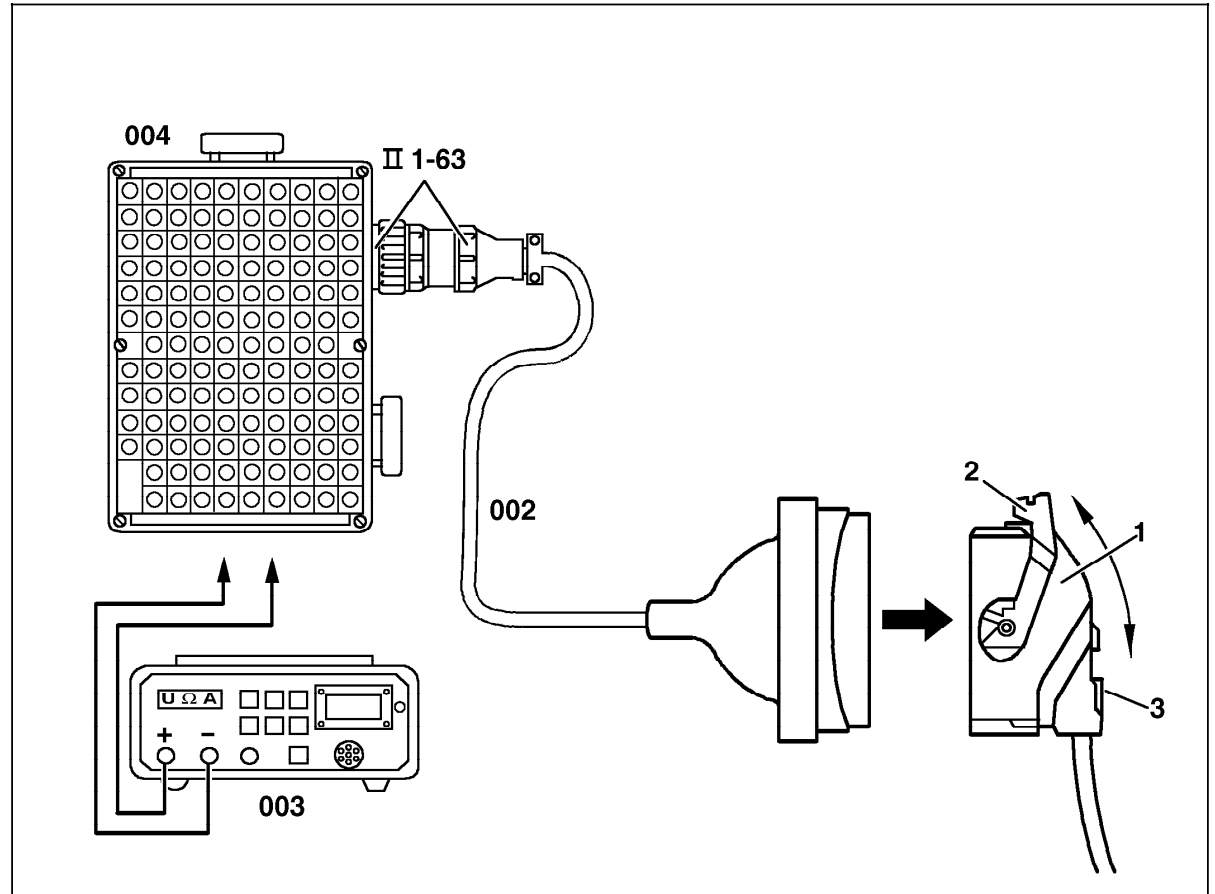


Figure 1

- 002 Test cable
- 003 Multimeter
- 004 Socket box (26-pole socket box)
- 1 SRS control module connector
- 2 Connect and disconnect aid
- 3 Connect and disconnect lock

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Electrical Test Program - Preparation for Test (driver/passenger-side airbag/side airbag/windowbag)

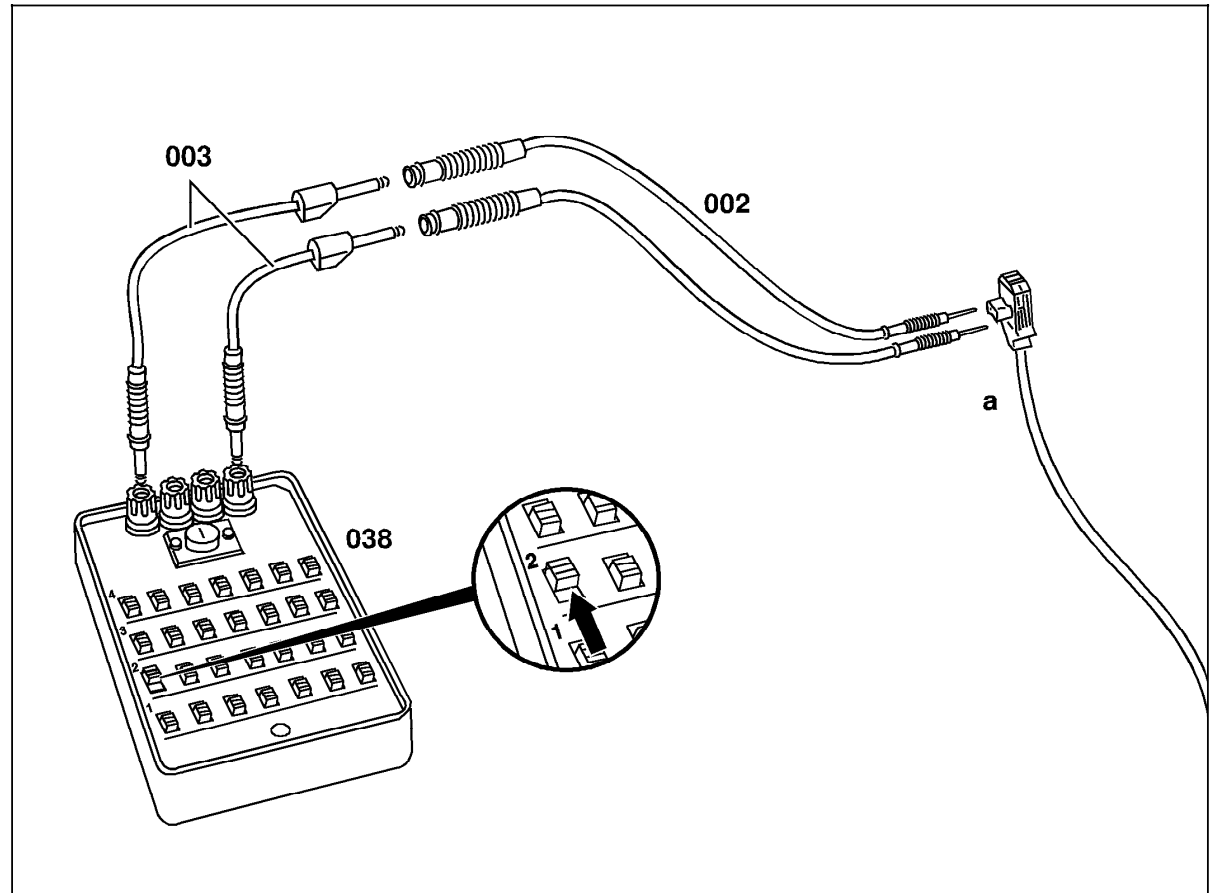
Connection Diagram -  
Test Cables/Connectors



Verify the squib connections via the wiring diagram before connecting the test cables.

Figure 2

- 002 Test cable part number 140 589 22 63 00
- 003 Test cables with banana plugs
- 038 Resistance substitution unit
- a Connectors:
  - Left ETR squib (R12/1)
  - Front passenger ETR squib (R12/2)
  - Driver AB squib (R12/3)
  - LR ETR squib (R12/6)
  - RR ETR squib (R12/7)
  - Front passenger AB squib (R12/8)
  - LR side airbag squib (R12/11)
  - RR side airbag squib (R12/12)
  - Left front side airbag squib (R12/20)
  - Right front side airbag squib (R12/21)
  - Left rear side windowbag squib (R12/22)
  - Right rear side windowbag squib (R12/23)



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Electrical Test Program - Preparation for Test (driver/passenger-side airbag/side airbag/windowbag)

Connection Diagram -  
Test Cables/Connectors

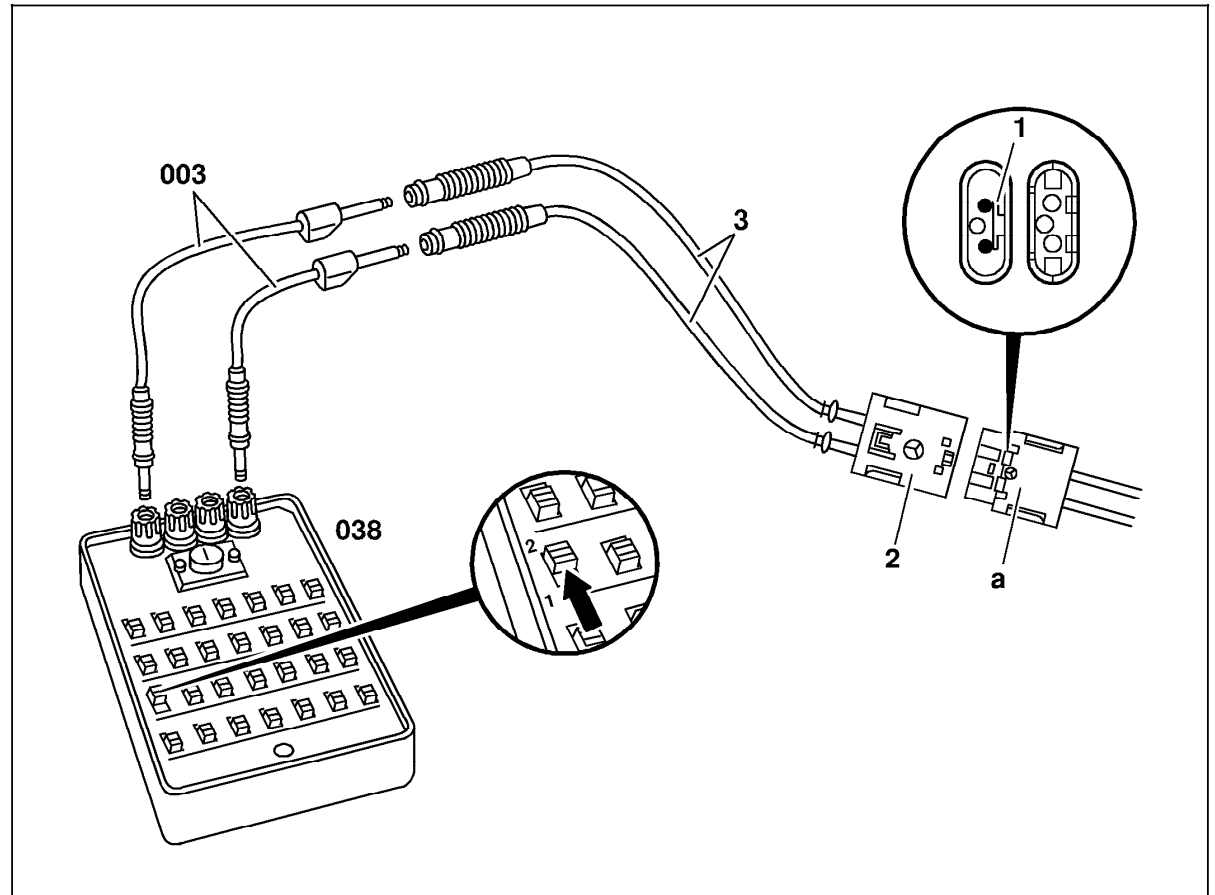


Figure 3

- 003 Test cables with banana plugs
- 038 Resistance substitution unit
- 1 Short circuit bridge
- 2 Connector part number 019 545 19 28
- 3 Test Cables from electrical connection set (2.5 mm pins)
  
- a Connectors:  
 Horn/airbag clock spring contact connector (A45x1)  
 Left rear door/FFS connector (X35/3)  
 Right rear door/FSS connector (X35/4)  
 Left front door separation point (X35/41)  
 Right front door separation point (X35/42)

P91.60-2030-06

Electrical Test Program - Preparation for Test (driver/passenger-side airbag/side airbag/windowbag)

Connection Diagram -  
Test Cables/Sidebag Sensors

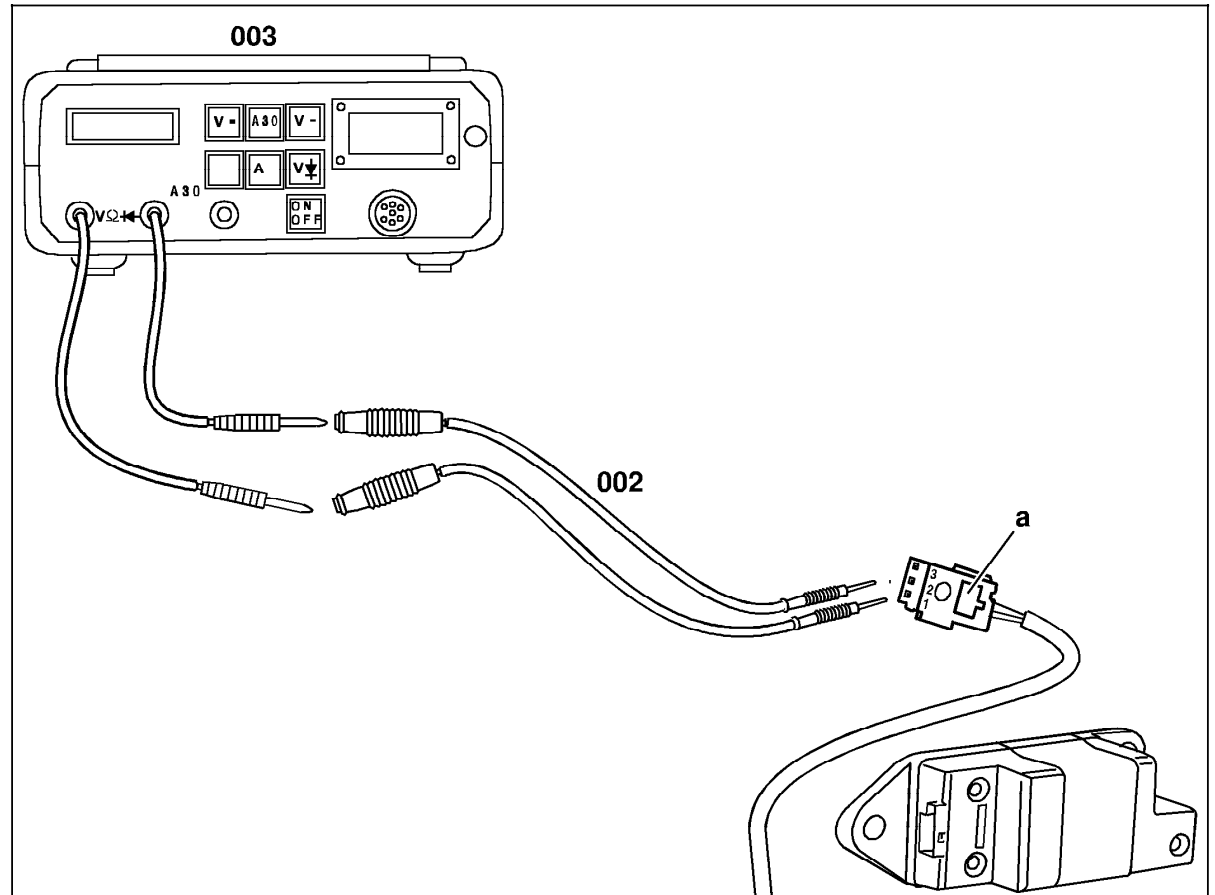


Figure 4

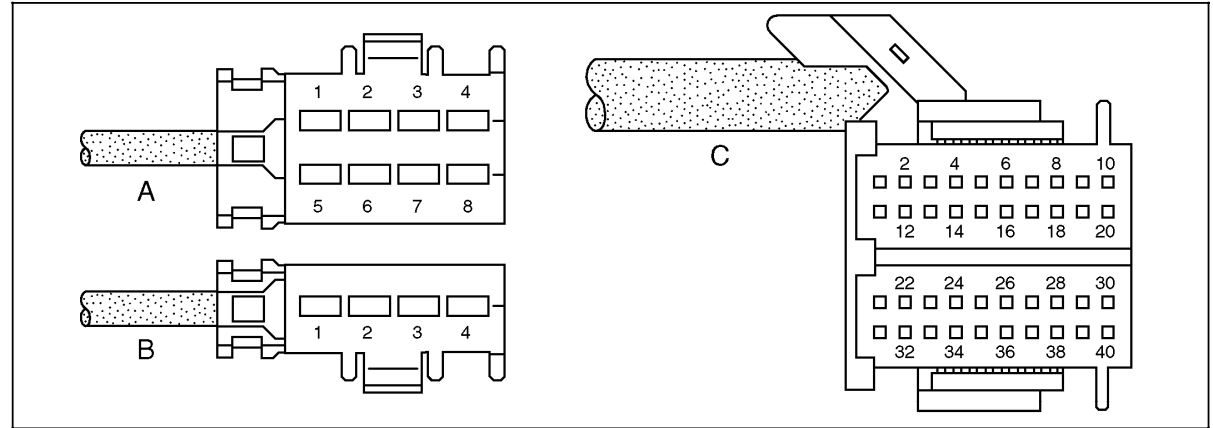
002 Test cable part number 140 589 22 63 00  
003 Multimeter

a Connectors:  
Left side airbag sensor (A53/1)  
Right side airbag sensor (A54/1)

P91.60-2031-06

Electrical Test Program - Preparation for Test (driver/passenger-side airbag/side airbag/windowbag)

Engine 112  
Connector Layout - Engine Control Module



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Figure 5

1A	Left O2S 1 heater (before TWC)	1C – 20C	–	28C	AIR pump relay module (only <b>USA</b> )
2A	Voltage supply (circuit 87), fused	21C	Purge control valve	29C	Fuel pump relay module
3A	Ground, Model 163: component compartment W16, Model 202/208/210: component compartment W16/6	22C	Pedal value sensor (+ nominal value potentiometer 1)	30C	–
4A	–	23C	Pedal value sensor (– nominal value potentiometer 1)	31C	Right O2S 1 ground (right before TWC)
5A	O2S 1 heater (right before TWC)	24C	Pedal value sensor (nominal value potentiometer 1 wiper)	32C	Right O2S 1 signal (right before TWC)
6A	Engine/climate control electric cooling fan control	25C	Pedal value sensor (nominal value potentiometer 2 wiper)	33C	Left O2S 1 signal (left before TWC)
7A	Ground, Model 163: component compartment W16 Model 202/208/210: component compartment W16/6	26C	Pedal value sensor (– nominal value potentiometer 2)	34C	Left O2S 1 ground (left before TWC)
8A	Ground, Model 163: component compartment W16 Model 202/208/210: component compartment W16/6	27C	Pedal value sensor (+ nominal value potentiometer 2)	35C-37C	–
1B	O2S 2 heater (right after TWC) (only <b>USA</b> )				
2B	O2S 2 heater (left after TWC) (only <b>USA</b> )				
3B	Diagnosis connection (data link connector)				
4B	Voltage supply (circuit 30)				



Electrical Test Program - Preparation for Test (driver/passenger-side airbag/side airbag/windowbag)

Engine 112  
Connector Layout - Engine Control Module

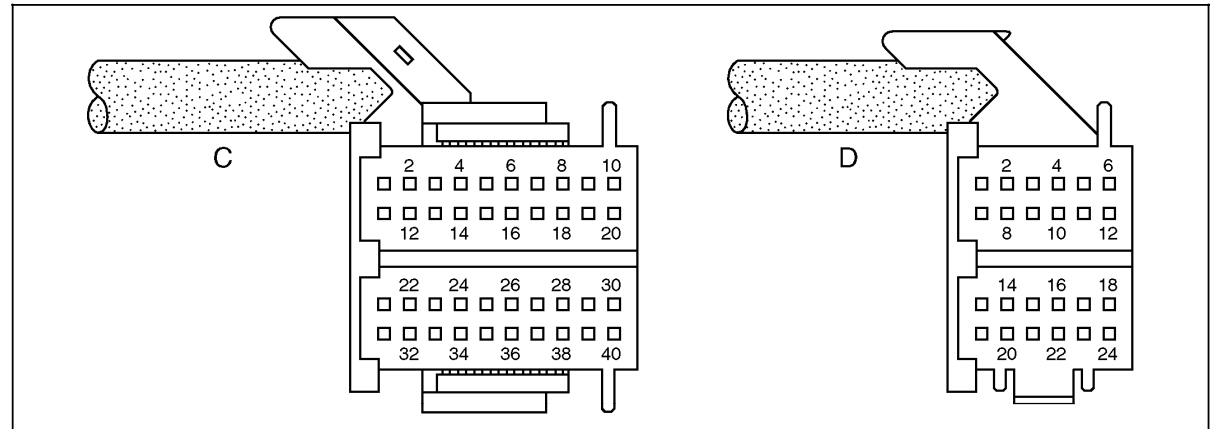


Figure 6

P07.61-0252-04

38C Data link connector (engine rpm signal)  
39C Data link connector (ME-SFI DTC's)  
40C Signal (circuit 50)

1D FP relay module (K27)  
2D Activated charcoal canister shut-off valve (only USA)  
3D Starter relay  
4D Ground, fuel tank pressure sensor (only USA)  
5D Signal, fuel tank pressure sensor (only USA)  
6D Voltage supply 5 V for fuel tank pressure sensor (only USA)

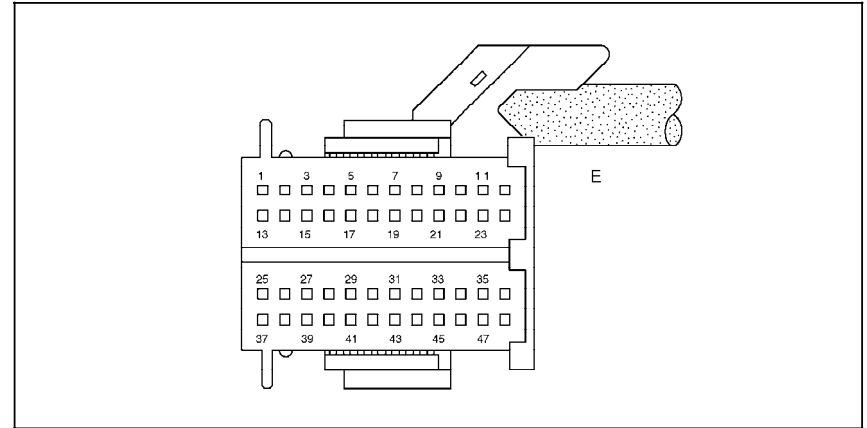
7D Right O2S 2 ground (right after TWC) (only USA)  
8D Right O2S 2 signal (right after TWC) (only USA)  
9D Left O2S 2 signal (left after TWC) (only USA)  
10D Left O2S 2 ground (left after TWC) (only USA)  
11D CAN data bus "H"  
12D CAN data bus "L"  
13D Variable speed limit regulation (without DAS 3 only)  
14D Backup lamp switch  
15D -  
16D Crash signal (as of 06/98)  
17D Kick-down switch (only MT as of 06/98)  
18D -  
19D Clutch pedal switch with MT only  
19D P/N recognition with AT  
20D CC switch (accelerate/set) (without DAS 3 only)  
21D CC switch (decelerate/set) (without DAS 3 only)  
22D CC switch (resume) (without DAS 3 only)  
23D CC switch (control contact) (without DAS 3 only)  
24D CC switch (off) (without DAS 3 only)

1E Injector cyl. 2  
2E Injector cyl. 5  
3E-4E -  
5E EGR switchover valve

## Electrical Test Program - Preparation for Test (driver/passenger-side airbag/side airbag/windowbag)

### Engine 112

### Connector Layout - Connector 1, interior for ME-SFI control module



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Figure 7

6E – 9E	–	28E	ETC sensor ground
10E	AIR pump switchover valve(only <b>USA</b> )	29E	ECT sensor signal
11E	–	30E	–
12E	Resonance intake manifold switchover valve	31E	EA/CC/ISC actuator (actual value potentiometer 1 wiper)
13E	Injector cyl. 3	32E	EA/CC/ISC actuator (actual value potentiometer ground)
14E	Injector cyl. 6	33E	Actual value potentiometer voltage supply
15E	Voltage supply 5 V, oil sensor (level/temperature/quality)	34E	EA/CC/ISC actuator (actual value potentiometer 2 wiper)
16E	Ground for oil sensor (level/temperature/quality)	35E – 36E	–
17E	Signal for oil sensor (level/temperature/quality)	37E	CKP sensor ground
18E – 21E	–	38E	CKP sensor signal
22E	Voltage supply 5 V, pressure sensor (only <b>USA</b> )	39E	Camshaft Hall-effect sensor ground
23E	Pressure sensor signal (only <b>USA</b> )	40E	Camshaft Hall-effect sensor signal
24E	Pressure sensor ground (only <b>USA</b> )		
25E	Injector cyl. 1		
26E	Injector cyl. 4		
27E	AIR pump relay in relay module (only <b>USA</b> )		

Electrical Test Program - Preparation for Test (driver/passenger-side airbag/side airbag/windowbag)

Engine 112  
Connector Layout - Engine Control Module

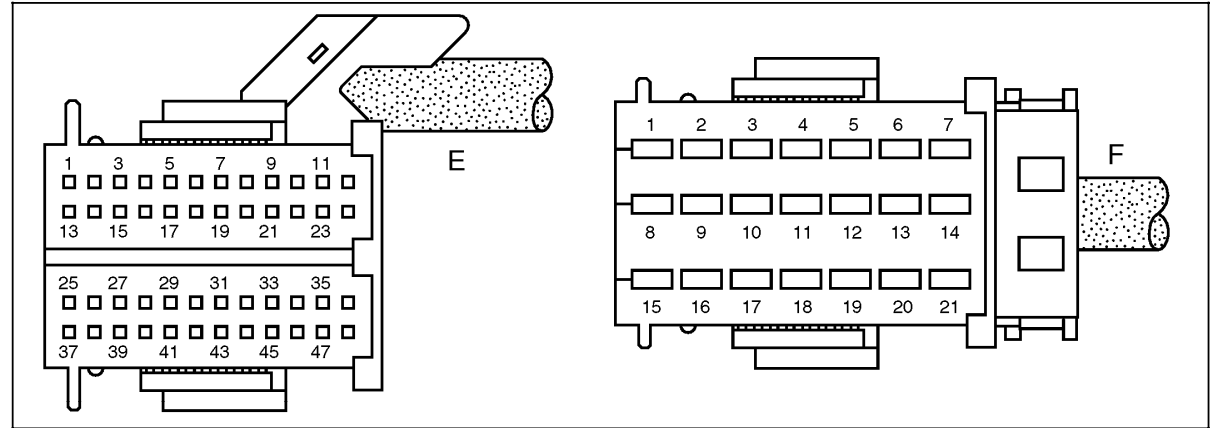


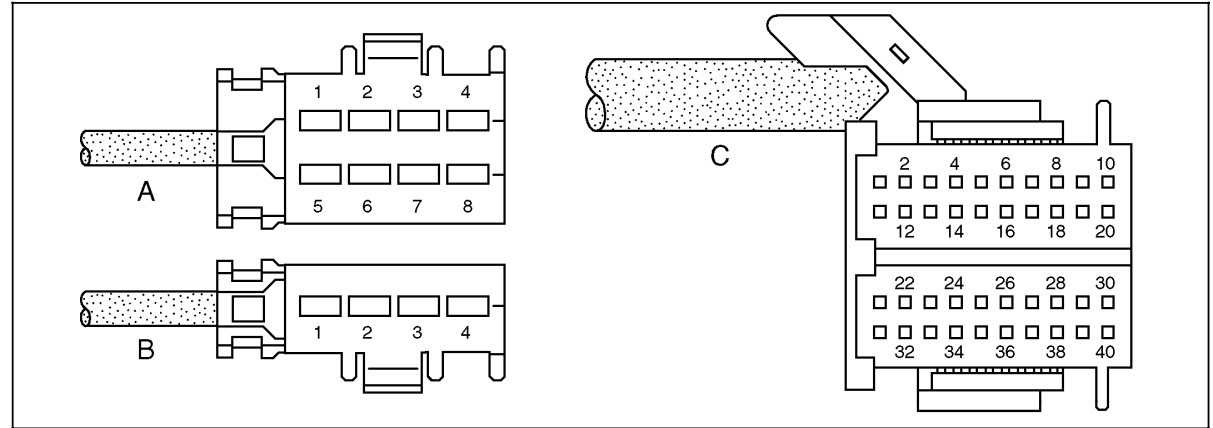
Figure 8

P07.61-0254-04

41E	KS 1 ground (right cylinder side of engine)	1F	EA/CC/ISC actuator (-)	13F	Ignition coil T1/4, a cyl. 4
42E	KS 1 signal (right cylinder side of engine)	2F	EA/CC/ISC actuator (+)	14F	Ignition coil T1/4, b cyl. 4
43E	KS 2 ground (left cylinder side of engine)	3F	-	15F	Ground,
44E	KS 2 signal (left cylinder side of engine)	4F	Ignition coil T1/5 b cyl. 5		Model 163: component compartment W16,
45E	IAT sensor (in hot film MAF sensor)	5F	Ignition coil T1/5 a cyl. 5		Model 202/208/210
46E	Hot film MAF sensor voltage supply 5 V	6F	Ignition coil T1/3 a cyl. 3		component compartment W16/6
47E	Hot film MAF sensor signal	7F	Ignition coil T1/3 b cyl. 3	16F	Ignition coil T1/2, b cyl. 2
48E	Hot film MAF sensor ground	8F	Ground,	17F	Ignition coil T1/2, a cyl. 2
			Model 163: component compartment W16,	18F	Ignition coil T1/6, b cyl. 6
			Model 202/208/210:	19F	Ignition coil T1/6, a cyl. 6
			component compartment W16/6	20F	Ignition coil T1/1, a cyl. 1
		9F - 12F	-	21F	Ignition coil T1/1, b cyl. 1

Electrical Test Program - Preparation for Test (driver/passenger-side airbag/side airbag/windowbag)

Engine 113  
Connector Layout - Engine Control Module



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Figure 9

- 1A Left O2S 1 heater (left before TWC)
- 2A Voltage supply (circuit 87), fused
- 3A Ground  
Model 129: control module box/module box W27  
Model 163: component compartment W16  
Model 208/210: component compartment W16/6
- 4A -
- 5A Right O2S 1 heater (right, before TWC)
- 6A Engine/climate control electric cooling fan control
- 7A Ground  
Model 129: control module box/module box W27  
Model 208/210: component compartment W16/6
- 8A Ground  
Model 129: control module box/module box W27  
Model 208/210: component compartment W16/6
- 1B Right O2S 2 heater (right, after TWC) (only USA)
- 2B Left O2S 2 heater (left, after TWC) (only USA)
- 3B Diagnosis connection (data link connector)
- 4B Voltage supply (circuit 30)

- 1C - 20C -
- 21C Purge control valve
- 22C Pedal value sensor  
(+ nominal value potentiometer 1)
- 23C Pedal value sensor  
(- nominal value potentiometer 1)
- 24C Pedal value sensor  
(nominal value potentiometer 1 wiper)
- 25C Pedal value sensor  
(nominal value potentiometer 2 wiper)
- 26C Pedal value sensor  
(- nominal value potentiometer 2)
- 27C Pedal value sensor  
(+ nominal value potentiometer 2)

- 28C AIR pump relay module (only USA)
- 29C FP relay module (K27)
- 30C -
- 31C Right O2S 1 ground (right, before TWC)
- 32C Right O2S 1 signal (right, before TWC)
- 33C Left O2S 1 signal (left, before TWC)
- 34C Left O2S 1 ground (left, before TWC)
- 35C-37C -

Electrical Test Program - Preparation for Test (driver/passenger-side airbag/side airbag/windowbag)

Engine 113  
Connector Layout - Engine Control Module

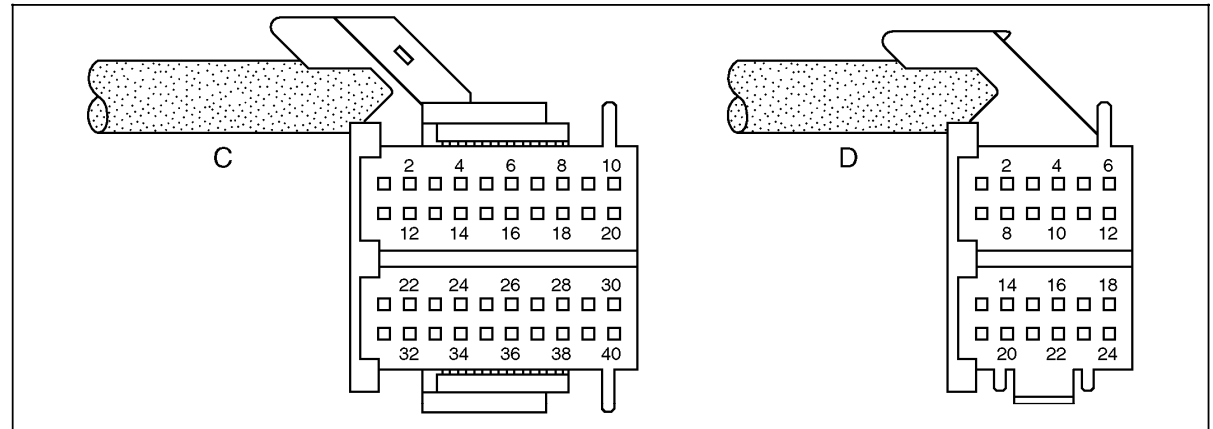


Figure 10

P07.61-0252-04

38C	Datalink connector (engine rpm signal)	36D	Voltage supply 5 V for fuel tank pressure sensor (only USA)	17D-18D	-
39C	Data link connector (ME-SFI DTC's)	7D	Right O2S 2 ground (right, after TWC) (only USA)	19D	P/N recognition with AT
40C	Signal (circuit 50)	8D	Right O2S 2 signal (right, after TWC) (only USA)	20D	CC switch (accelerate/set) (without DAS 3 only)
1D	FP relay module (K27)	9D	Left O2S 2 signal (left, after TWC) (only USA)	21D	CC switch (decelerate/set) (without DAS 3 only)
2D	Activated charcoal canister shut-off valve (only USA)	10D	Left O2S 2 ground (left, after TWC) (only USA)	22D	CC switch (resume) (without DAS 3 only)
3D	Starter relay	11D	CAN data bus "H"	23D	CC switch (control contact) (without DAS 3 only)
4D	Ground, fuel tank pressure sensor (only USA)	12D	CAN data bus "L"	24D	CC switch (off) (without DAS 3 only)
5D	Signal, fuel tank pressure sensor (only USA)	13D	Variable speed limit regulation (without DAS 3 only)		
		14D-15D	-		
		16D	Crash-Signal (as of 06/98)		

## 16.6 Airbag (AB)

Model 210 as of M.Y. 1999

### Electrical Test Program - Preparation for Test (driver/passenger-side airbag/side airbag/windowbag)

#### Engine 113

#### Connector Layout - Connector 1, interior for ME-SFI control module

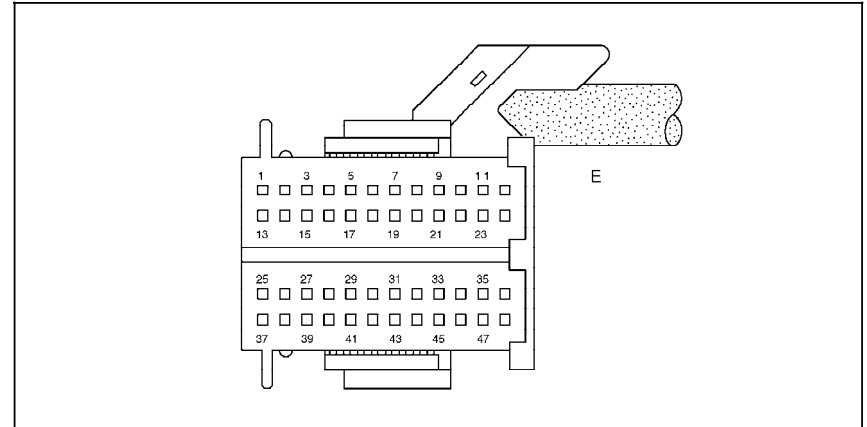


Figure 11

P07.61-0253-05

1E	Injector cyl. 6	6E – 9E	–	28E	ECT sensor ground
2E	Injector cyl. 3	10E	AIR pump switchover valve (only <b>USA</b> )	29E	ECT sensor signal
3E	Injector cyl. 7	11E	–	30E	–
4E	Injector cyl. 8	12E	Resonance intake manifold switchover valve	31E	EA/CC/ISC actuator (actual value potentiometer 1 wiper)
5E	EGR switchover valve	13E	Injector cyl. 4	32E	EA/CC/ISC actuator (actual value potentiometer ground)
		14E	Injector cyl. 2	33E	Actual value potentiometer voltage supply
		15E	Voltage supply 5 V, oil sensor (level/temperature/quality)	34E	EA/CC/ISC actuator (actual value potentiometer 2 wiper)
		16E	Ground for oil sensor (level/temperature/quality)	35E – 36E	–
		17E	Signal for oil sensor (level/temperature/quality)	37E	CKP sensor ground
		18E – 20E	–	38E	CKP sensor signal
		21E	Signal for oil pressure switch	39E	Camshaft Hall-effect sensor ground
		22E	Voltage supply 5 V, pressure sensor (only <b>USA</b> )	40E	Camshaft Hall-effect sensor signal
		23E	Pressure sensor signal (only <b>USA</b> )		
		24E	Pressure sensor ground (only <b>USA</b> )		
		25E	Injector cyl. 1		
		26E	Injector cyl. 5		
		27E	AIR pump relay in relay module (only <b>USA</b> )		

Electrical Test Program - Preparation for Test (driver/passenger-side airbag/side airbag/windowbag)

Engine 113  
Connector Layout - Engine Control Module

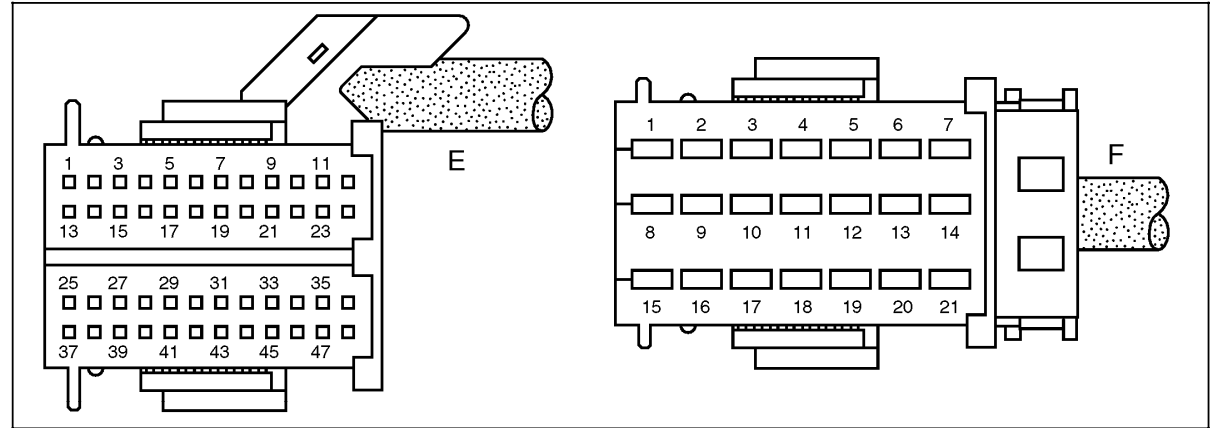


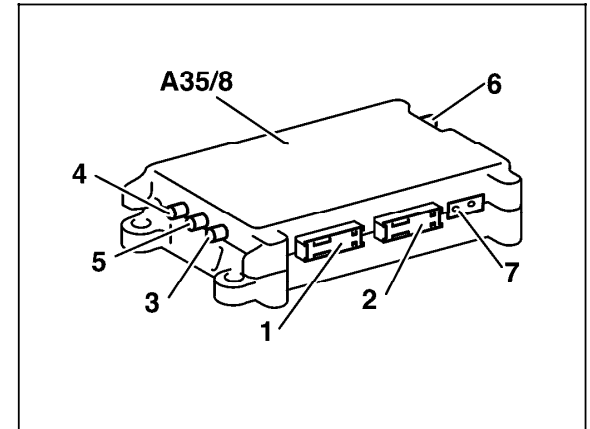
Figure 12

P07.61-0254-04

41E	KS 1 ground (right side of engine)	1F	EA/CC/ISC actuator (-)	15F	Ground
42E	KS 1 signal (right side of engine)	2F	EA/CC/ISC actuator (+)		Model 129: control module box/module box W27
43E	KS 2 ground (left side of engine)	3F	-		Model 163: component compartment W16
44E	KS 2 signal (left side of engine)	4F	Ignition coil T1/3 b cyl. 3		Model 208/210: component compartment W16/6
45E	IAT sensor (in hot film MAF sensor)	5F	Ignition coil T1/3 a cyl. 3	16F	Ignition coil T1/6, b cyl. 6
46E	Hot film MAF sensor voltage supply 5 V	6F	Ignition coil T1/4 a cyl. 4	17F	Ignition coil T1/6, a cyl. 6
47E	Hot film MAF sensor signal	7F	Ignition coil T1/4 b cyl. 4	18F	Ignition coil T1/2, b cyl. 2
48E	Hot film MAF sensor ground	8F	Ground	19F	Ignition coil T1/2, a cyl. 2
			Model 129: control module box/module box W27	20F	Ignition coil T1/1, a cyl. 1
			Model 163: component compartment W16	21F	Ignition coil T1/1, b cyl. 1
			Model 208/210: component compartment W16/6		
		9F	Ignition coil T1/8 b cyl. 8		
		10F	Ignition coil T1/8 a cyl. 8		
		11F	Ignition coil T1/7 b cyl. 7		
		12F	Ignition coil T1/7 a cyl. 7		
		13F	Ignition coil T1/5 a cyl. 5		
		12F	Ignition coil T1/5 b cyl. 5		

Electrical Test Program - Preparation for Test (driver/passenger-side airbag/side airbag/windowbag)

TELE AID Control module (A35/8)  
Connector Layout



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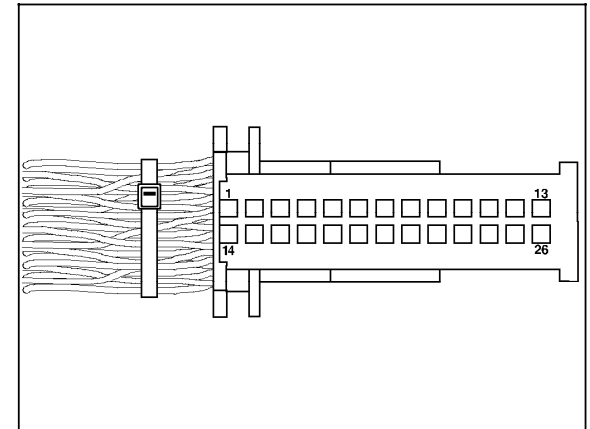
Figure 13

- 1 Emergency call system pushbutton (TELE AID) (S93/3), Wheel speed sensors (VSS)
- 2 Voltage supply, serial interface to CTEL transmitter-receiver (A35), handset
- 3 CTEL antenna (A2/49a1)
- 4 TELE AID backup antenna
- 5 Active antenna (A2/49a1 or A2/50) output to CTEL transmitter-receiver
- 6 GPS antenna (A2/49a2)
- 7 Buss system D2B connection (input/output)
- A35/8 Emergency call system control module (TELE AID)



Electrical Test Program - Preparation for Test (driver/passenger-side airbag/side airbag/windowbag)

TELE AID Control module (A35/8)  
Connector 1 Layout



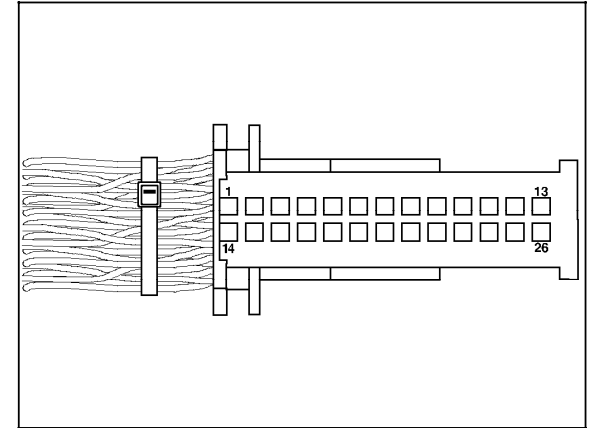
P82.61-0255-01

Figure 14

1	CAN-H	15	Stop lamp signal	22	—
2	CAN-L	16	Reverse lamp signal	23	Wake up (D2B)
3-9	—	17	—	24	—
10	Panic alarm activation switch (S62/2), (with Code 930) (not <b>USA</b> )	18	Emergency call system pushbutton (TELE AID) (S93/3) indicator lamp	25	Circuit 15R
11	Indicator lamp connection (not <b>USA</b> )	19	—	26	—
12	Left front VSS	20	Emergency call system pushbutton (TELE AID) (S93/3)		
13	Right front VSS	21	Diagnostics		
14	Signal from SRS control module (with ETRs)				

Electrical Test Program - Preparation for Test (driver/passenger-side airbag/side airbag/windowbag)

TELE AID Control module (A35/8)  
Connector 2 Layout



P82.61-0255-01

Figure 15

1	Ground input signal to speaker	13	ON/OFF, CTEL handset (A34) (not USA)	22	MUte-signal to A35 for radio volume switching
2	ON/OFF, CTEL handset (A34) (not USA)	14	Speaker ground, CTEL and TELE AID system	23	Ground (circuit 31)
3	Switch signal to CTEL transmitter-receiver (A35)	15	Hot positive, (Circuit 30)	24	Ground (circuit 31)
4	TELE AID bus: Downlink to (CTEL transmitter-receiver)	16	Hot positive, (Circuit 30)	25	Ground (circuit 31) for A35
5	TELE AID bus: Uplink to (CTEL transmitter-receiver)	17	Hot positive, (Circuit 30) for A35	26	Ground (circuit 31) for A35
6	TELE AID bus: ground A35	18	Hot positive, (Circuit 30) for A35		
7	Ground, CTEL handset (not USA)	19	Input signal for speaker (+)		
8	Harness shield to CTEL handset (A34) (not USA)	20	Circuit 15		
9	TELE AID bus: Ground to CTEL handset (A34) (not USA)	21	Speaker (+)		
10	TELE AID bus: Downlink to CTEL handset (A34) (not USA)				
11	TELE AID bus: Uplink to CTEL handset (A34) (not USA)				
12	Switch signal from CTEL handset (A34) (not USA)				