FOREWORD
In the interests of continuing technical development work we reserve the right to modify designs and equipment.
1984
BMW 528e/533i
Electrical
Troubleshooting
Manual

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The purpose of this manual is to show electrical schematics in a manner that makes electrical troubleshooting easier. Electrical components which work together are shown together on one schematic. The Wiper-Washer schematic, for example, shows all of the electrical components in one diagram. At the top of the page is the fuse (positive) that powers the circuit. The flow of current is shown through all wires, connectors, switches, and motors to ground (negative) at the bottom of the page.

Within the schematic, all switches and sensors are shown "at rest," as though the Ignition Switch were off. For identification, component names are underlined and placed next to or above each component. Notes are included, describing how switches and other components work.

The power distribution schematic shows the current feed through all the connections from the Battery and Alternator to each fuse and the Ignition and Light Switches. If the Power Distribution schematic is combined with any other circuit schematic, a complete picture is made of how that circuit works. The Ground Distribution schematics show how several circuits are connected to common grounds.

All wiring between components is shown exactly as it exists in the vehicle; however, the wiring is not drawn to scale. To aid in understanding electrical operation, wiring inside complicated components has been simplified. The "Solid State" label designates electronic components.

<table>
<thead>
<tr>
<th>WIRE SIZE CONVERSION CHART</th>
</tr>
</thead>
<tbody>
<tr>
<td>METRIC (CROSSECTIONAL AREA IN MM²)</td>
</tr>
<tr>
<td>.5</td>
</tr>
<tr>
<td>.75</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>1.5</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>2.5</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>8</td>
</tr>
<tr>
<td>16</td>
</tr>
<tr>
<td>20</td>
</tr>
<tr>
<td>25</td>
</tr>
<tr>
<td>32</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WIRE INSULATION</th>
</tr>
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<tbody>
<tr>
<td>ABBREVIATIONS</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>BK</td>
</tr>
<tr>
<td>BR</td>
</tr>
<tr>
<td>RD</td>
</tr>
<tr>
<td>YL</td>
</tr>
<tr>
<td>GN</td>
</tr>
<tr>
<td>BU</td>
</tr>
<tr>
<td>VI</td>
</tr>
<tr>
<td>GY</td>
</tr>
<tr>
<td>WT</td>
</tr>
<tr>
<td>PK</td>
</tr>
</tbody>
</table>
TROUBLESHOOTING PROCEDURE

1. Verify the Problem
   Operate the problem circuit to check the accuracy of the complaint. Note the symptoms of the inoperative circuit.

2. Analyze the Problem
   Refer to the schematic of the problem circuit in the ETM. Determine how the circuit is supposed to work by tracing the current path(s) from the power feed through the circuit components to ground. Then based on the symptoms you noted in step 1 and your understanding of circuit operation, identify one or more possible causes of the problem.

3. Isolate the Problem
   Make circuit tests to prove or disprove the preliminary diagnosis made in step 2. Keep in mind that a logical simple procedure is the key to efficient troubleshooting. Test for the most likely cause of failure first. Try to make tests at points which are easily accessible.

4. Repair the Problem
   Once the specific problem is identified, make the repair using the proper tools and safe procedures.

5. Check the Problem
   Operate the circuit to check for satisfactory circuit operation. Good repair practice calls for rechecking all circuits you have worked on.

TROUBLESHOOTING TOOLS

Isolating the problem (Step 3 of TROUBLESHOOTING PROCEDURES) requires the use of a voltmeter and/or ohmmeter. A voltmeter measures voltage at selected points in a circuit. An ohmmeter measures a circuit's resistance to current flow. It has an internal battery that provides current to the circuit under test. Disconnect the car battery when using an ohmmeter because the battery voltage will cause the ohmmeter to give false readings. Also, do not use an ohmmeter on solid-state components. The voltage that the ohmmeter applies to the circuit could damage these components.

TROUBLESHOOTING TESTS

Voltage Test

This test measures voltage in a circuit. By taking measurements at several points (terminals or connectors) along the circuit, you can isolate the problem.

To take a voltage measurement, connect the negative lead of the voltmeter to the battery's negative terminal or other known good ground. Then connect the positive lead of the voltmeter to the point you want to test. The voltmeter will measure the voltage present at that point in the circuit.
Voltage Drop Test

Wires, connectors, and switches are designed to conduct current with a minimum loss of voltage. A voltage drop of more than one volt indicates a problem.

To test for voltage drop, connect the voltmeter leads to connectors at either end of the circuit's suspected problem area. The positive lead should be connected to the connector closest to the power source. The voltmeter will show the voltage drop between these two points.

Continuity Test

To perform a continuity test, first disconnect the car battery. Then adjust the ohmmeter to read zero while holding the leads together. Connect the ohmmeter leads to connector or terminals at either end of the circuit's suspected problem area. The ohmmeter will show the resistance across that part of the circuit.

Short Test Using Voltmeter

Remove the blown fuse and disconnect the load. Connect the voltmeter leads to the fuse terminals. The positive lead should be connected to the terminal closest to the power source.

Starting near the POWER DISTRIBUTION BOX, move the wire harness back and forth and watch the voltmeter reading. If the voltmeter registers a reading, there is a short to ground in the wiring. Somewhere in the area of the harness being moved, the wire insulation is worn away and the circuit is grounding.
Short Test Using Ohmmeter

Disconnect the battery. Adjust the ohmmeter to read zero while holding the leads together. Remove the blown fuse and disconnect the load. Connect one lead of the ohmmeter to the fuse terminal that is closest to the load. Connect the other lead to a known good ground.

Starting near the POWER DISTRIBUTION BOX, move the wire harness back and forth and watch the ohmmeter reading. Low or no resistance indicates a short to ground in the wiring. Infinitely high resistance indicates no short.

![Diagram of ohmmeter test setup]
NOTE
On some cars, the position of the side mounted relays may be interchanged on their respective sides. Check relay wire colors for positive identification.
<table>
<thead>
<tr>
<th>FUSE NO.</th>
<th>SIZE/ COLOR</th>
<th>CIRCUIT NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16A (RD)</td>
<td>Fuel Delivery/Evaporative Control.</td>
</tr>
<tr>
<td>2</td>
<td>8A (WT)</td>
<td>Active Check Control (also fuse 5, 6, 9, 10, 11, 12); Headlights (RH Low Beam).</td>
</tr>
<tr>
<td>3</td>
<td>8A (WT)</td>
<td>Active Check Control (also fuses 5, 6, 9, 10, 11, 12); Headlights (LH Low Beam).</td>
</tr>
<tr>
<td>4</td>
<td>25 (BU)</td>
<td>Cigar Lighter; Active Check Control (also fuses 2, 3, 6, 9, 10, 11, 12); Central Locking; Gauges (also fuse 6); Glove Box Light; Heated Door Lock;</td>
</tr>
<tr>
<td>5</td>
<td>8A (WT)</td>
<td>Ignition Key Warning/Seatbelt Warning (also fuse 6); Interior Lights (also fuse 6); Lights: Turn/Hazard Warning (also fuse 11); Lights: Trunk; Auto-Charging Flashlight; Auto-Charging Flashlight; On-Board Computer (also fuses 6, 12); Radio/Power Antenna (also fuses 4, 12); Service Interval Indicator (also fuse 6).</td>
</tr>
<tr>
<td>6</td>
<td>8A (WT)</td>
<td>Active Check Control (also fuses 2, 3, 5, 9, 10, 11, 12); Back Up Lights/Transmission Range Lights; Brake Lining Warning; Cruise Control (also fuse 12); Dash Lights (also fuse 9, 14); Fog Lights (also fuses 15, 16); Gauges (also fuse 5); Heater/Air Conditioning (also fuse 14).</td>
</tr>
<tr>
<td>7</td>
<td>8A (WT)</td>
<td>Idle Speed Control; Ignition; Interior Lights (also fuse 5); On-Board Computer (also fuses 5, 12); Power Mirrors; Power Windows (also Power Window Circuit Breaker); Seatbelt Warning (also fuse 5); Service Interval Indicator (also fuse 5); Speedometer; Warning Indicators (also fuse 15).</td>
</tr>
<tr>
<td>8</td>
<td>8A (WT)</td>
<td>Headlights (LH Low Beams).</td>
</tr>
<tr>
<td>9</td>
<td>8A (WT)</td>
<td>Active Check Control (also fuses 2, 3, 5, 6, 10, 11, 12); Dash Lights (also fuses 6, 14); Lights: Front Park/Marker/Tail; Lights: Rear Marker/License.</td>
</tr>
<tr>
<td>10</td>
<td>8A (WT)</td>
<td>Active Check Control (also fuse 2, 3, 5, 6, 9, 11, 12); Lights: Front Park/Marker/Tail.</td>
</tr>
<tr>
<td>11</td>
<td>16A (RD)</td>
<td>Active Check Control (also fuse 2, 3, 5, 6, 9, 11, 12); Lights: Turn/Hazard Warning (also fuse 5); Wiper/Washer and Heater Washer Jets.</td>
</tr>
<tr>
<td>12</td>
<td>8A (WT)</td>
<td>Active Check Control (also fuses 2, 3, 5, 6, 9, 10, 11); Cruise Control; Radio (also fuses 4, 5); Stoplights; On-Board Computer (also fuses 5, 6); Power Antenna (also fuses 4, 5).</td>
</tr>
<tr>
<td>13</td>
<td>25A (BU)</td>
<td>Rear Defogger; Sunroof.</td>
</tr>
<tr>
<td>14</td>
<td>25A (BU)</td>
<td>Auxiliary Fan (also fuse 17); Dash Lights (also fuses 6, 9); Heater/Air Conditioning (also fuse 6).</td>
</tr>
<tr>
<td>15</td>
<td>8A (WT)</td>
<td>Fog Lights (RH).</td>
</tr>
<tr>
<td>16</td>
<td>8A (WT)</td>
<td>Fog Lights (LH).</td>
</tr>
<tr>
<td>17</td>
<td>25A (BU)</td>
<td>Auxiliary Fan (also fuse 14).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Power Window Circuit Breaker</td>
</tr>
<tr>
<td>18</td>
<td></td>
<td>25A</td>
</tr>
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</table>
### DIAGNOSTIC CONNECTOR FACE

#### Figure 1: Top Of Engine

<table>
<thead>
<tr>
<th>PIN</th>
<th>WIRE SIZE</th>
<th>WIRE COLOR</th>
<th>CIRCUIT AND COMPONENT CONNECTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.5</td>
<td>BR</td>
<td>Ground Distribution, G103</td>
</tr>
<tr>
<td>4</td>
<td>.5</td>
<td>BR/VI</td>
<td>Gauges/Warning Indicators, Coolant Temperature Sender.</td>
</tr>
<tr>
<td>6</td>
<td>.5</td>
<td>WT/BK</td>
<td>Not Used</td>
</tr>
<tr>
<td>7</td>
<td>.5</td>
<td>WT/BU</td>
<td>Service Interval Indicator, Service Interval Processor (Reset).</td>
</tr>
<tr>
<td>8</td>
<td>.5</td>
<td>YL</td>
<td>Ignition, TDC Sensor.</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>SHIELD</td>
<td>Ignition, TDC Sensor.</td>
</tr>
<tr>
<td>10</td>
<td>.5</td>
<td>BK</td>
<td>Ignition, TDC Sensor.</td>
</tr>
<tr>
<td>11</td>
<td>2.5</td>
<td>BK/YL</td>
<td>Start, Start Signal.</td>
</tr>
<tr>
<td>12</td>
<td>.75</td>
<td>BU</td>
<td>Charge System, Alternator...</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>GN</td>
<td>Ignition, Ignition Coil.</td>
</tr>
<tr>
<td>14</td>
<td>2.5</td>
<td>RD</td>
<td>Charge System, Alternator.</td>
</tr>
<tr>
<td>15</td>
<td>1.5</td>
<td>GN/YL</td>
<td>Idle Speed Control, Idle Speed Control Unit.</td>
</tr>
</tbody>
</table>
POWER DISTRIBUTION (DETAILS)

(For Component Locations See Page 210)

- Fuse 6
  - 8 AMP
    - 0.75 GN/WT
      - Heater/Air Conditioning
    - 1.5 GN/WT
      - FUEL DELIVERY
      - IDLE SPEED CONTROL
    - 0.75 GN/WT
      - Idle Speed Control
    - 0.75 GN/WT
      - Brake Lining Warning, Speedometer/Gauges/Warning Indicators, On-Board Computer, Service Interval Indicator
    - 0.5 GN/WT
      - Active Check Control
    - 0.5 GN/WT
      - Ignition Key Warning/SEATBELT WARNING
    - 0.5 GN/WT
      - Gloves Box Light
    - 0.75 RD/WT
      - Gauges, On-Board Computer, Service Interval Indicator
    - 0.75 RD/WT
      - Auto-Charging Flashlight
    - 1.5 RD/WT
      - Active Check Control
      - Lights: Turn Hazard Warning
    - 0.75 RD/WT
      - Power Mirrors
      - Interior Lights
      - Backup Lights/Cruise Control
      - Seatbelt Warning
      - Power Windows
      - Idle Speed Control
      - Lights: Dash/Transmission Range
118 WARNING INDICATORS

(For Component Locations See Page 216)
ACTIVE CHECK CONTROL

1. When the Ignition Switch is initially placed in "Run," the Active Check Control Alarm Indicator flashes, and the Active Check Control Unit Brake Light LED and panel light illuminate for test purposes. Depressing the brake pedal clears the display.

2. When the Ignition Switch is places in "Run," fault monitoring begins. To monitor the low beams, rear lights, or license lights, those circuits must be on. The brake lights are monitored only while the brake pedal is depressed.

3. When a fault occurs, the alarm indicator flashes, the appropriate LED indicator lights, and the panel light goes on for five seconds. Depressing the test button will clear the alarm indicator, but the LED fault indicator remains on.

4. To test the unit, depress the test button. The LED fault indicators and panel lights should go on.
RESISTOR DIMS THE HAZARD SWITCH LIGHT WHEN THE LIGHT SWITCH IS IN "HEAD" OR "PARK" AND THE HAZARD SWITCH IS OFF.

(For Component Locations See Page 209)
136 CIGAR LIGHTER/GLOVE BOX LIGHT/AUTO-CHARGING FLASHLIGHT

(For Component Locations See Page 203)
Figure 1 - Under Left Side Of Dash
ACTIVE CHECK CONTROL

Active Check Control Unit........ Above rear view mirror ....................... 119-1
Brake Switch ....................... Above brake pedal ......................... 213-2
Coolant Level Switch (528 e) .... On RH front wheel well, in coolant reservoir 212-3
Coolant Level Switch (533 i) ..... On LH front wheel well, in coolant reservoir 212-6
Low Beam Check Relay .......... Attached to power distribution box ............ 102-1
Oil Level Sensor .................. Bottom of engine oil pan .................. 210-2
Power Distribution Box ....... On LH front wheel well ....................... 102-1
Rear Lights Check Relay .... Mounted on trunk lock support .................. 201-1
Seatbelt Warning Timer ........ Under LH side of dash ...................... 212-1
Washer Fluid Level Switch ...... In reservoir, behind RH headlights .......... 211-1
C101 (17 pin) (528 e) ........ In power distribution box .................. 205-1
C101 (17 pin) (533 i) ........ In power distribution box .................. 215-2
C102 (7 pin) ....................... In power distribution box .................. 205-1
C206 (29 pin) .......... On connector bracket under LH side of dash .... 206-1
G102 (Main Body Ground) ..... On fender well behind LH headlights .... 203-1
G103 (Engine Ground) (533 i) . Top rear of engine ....................... 202-1
G200 (Front Interior Ground) .. Under LH side of dash, near brake bracket 208-1
G301 (Rear Interior Ground) ... Under LH side of rear seat .................. 208-1

AUXILIARY FAN

Auxiliary Fan Motor ........ Forward of radiator .................................. 214-3
Evaporator Temp. Regulator .... On LH side of heater/evaporator housing ...... 214-5
High Pressure Cut-Out Switch ... On receiver-drier behind RH headlights .. 207-1
High Speed Cool. Temp. Switch On upper LH side of radiator (red terminals) 214-2
High Speed Relay ............... Attached to power distribution box .......... 102-1
Normal Speed Blower Resistor , Ahead of radiator, on auxiliary fan shield .... 214-3
Normal Speed Cool. Temp. Switch On upper LH side of radiator (white terminals) 214-2
Normal Speed Relay ............... Attached to power distribution box .......... 102-1
Power Distribution Box ....... On LH front wheel well ....................... 212-1
C105 (1 pin) (528 e) ........ At RH wheel well, below coolant reservoir .... 212-3
C105 (1 pin) (533 i) ........ At RH wheel well, below coolant reservoir .... 214-3
C106 (1 pin) (528 e) ........ Near air conditioning compressor ............. 214-4
C106 (1 pin) (533 i) ........ Near air conditioning compressor ............. 214-4
G102 (Main Body Ground) ..... On fender well behind LH headlights .... 203-1
BACKUP LIGHTS

Auto. Trans. Range Switch ... At base of shift lever ...................... 215-5
Backup Light Switch ........ On LH side of transmission
Power Distribution Box ....... On LH front wheel well .................. 102-1
C206 (29 pin) ............... On connector bracket under LH side of dash ...... 206-1
C301 (2 pin) ............... In center console, ahead of shift lever
G301 (Rear Interior Ground) .. Under LH side of rear seat ..................... 208-1

BRAKE LINING WARNING

Power Distribution Box ...... On LH front wheel well .................. 102-1
C206 (29 pin) ............... On connector bracket under LH side of dash ...... 206-1
G200 (Front Interior Ground) .. Under LH side of dash, near brake bracket
G301 (Rear Interior Ground) .. Under LH side of rear seat ..................... 208-1

CENTRAL LOCKING

Central Locking Control Unit .. Above right front speaker
Gas Filler Lock Motor ......... In trunk, right of power antenna
Ignition Switch ............... Upper part of steering column
LH Front Door Lock Actuator .. In LH front door
LH Rear Door Lock Motor .... In LH rear door
Lock Inhibit Micro Switch ..... In RH front door near door lock cylinder
Power Distribution Box ...... On LH front wheel well .................. 102-1
RH Front Door Lock Actuator .. In RH front door
RH Rear Door Lock Motor .... In RH rear door
Trunk Lock Actuator .......... In rear panel of trunk
C200 (10 pin) ............... On LH side of steering column .......... 203-2
C206 (29 pin) ............... On connector bracket under LH side of dash ...... 206-1
C302 (accessory connector) .. Under LH side of dash .................. 212-1
C400 (13 pin) ............... Behind RH front speaker
C401 (13 pin) ............... Behind RH front speaker ...................... 213-3
C402 (6 pin) ............... At LH rear door grommet
C403 (6 pin) ............... At RH rear door grommet
C404 (4 pin) ............... In bottom rear of driver's door ................. 202-2
C405 (2 pin) ............... In trunk near trunk lock.
C500 (6 pin) ............... Behind LH front speaker
G200 (Front Interior Ground) .. Under LH side of dash, near brake bracket

Figure 1 - Top Retrofit Of 533i Engine
Figure 2 - Inside Driver's Door
CHARGING SYSTEM

Diagnostic Connector (528 e) ...................... LH side of engine ......................... 104-1
Diagnostic Connector (533 i) ...................... Top front of engine ...................... 104-1
Ignition Switch ..................................... Upper part of steering column.
Power Distribution Box ......................... On LH front wheel well .................. 102-1
Starter ........................................... Lower rear LH side of engine
C101 (17 pin) (528 e) ......................... In power distribution box .................. 205-1
C101 (17 pin) (533 i) ......................... In power distribution box .................. 215-2
C200 (10 pin) .................................. On LH side of steering column .......... 203-2
C206 (29 pin) .................................. On connector bracket under LH side of dash 206-1
C302 (accessory connector) ..................... Under LH side of dash .................... 212-1
G102 (Main Body Ground) ...................... On fender well behind LH headlights .... 203-1

CIGAR LIGHTER/GLOVE BOX LIGHT/
AUTO-CHARGING FLASHLIGHT

Auto-Charging Flashlight ......................... In glove box
Power Distribution Box ......................... On LH front wheel well .................. 102-1
C206 (29 pin) .................................. On connector bracket under LH side of dash 206-1
C302 (accessory connector) ..................... Under LH side of dash .................... 212-1
G200 (Front Interior Ground) .................. Under LH side of dash, near brake bracket

CRUISE CONTROL/STOP LIGHTS

Active Check Control Unit ....................... Above rear view mirror ...................... 119-1
Auto Trans Range Switch ....................... At base of shift lever ..................... 215-5
Brake Switch .................................... Above brake pedal ......................... 213-2
Clutch Switch ................................... Above clutch pedal .........................
Cruise Control Actuator (528 e) ................ Forward of power distribution box .......... 203-1
Cruise Control Actuator (533 i) ................ Forward of power distribution box .......... 215-2
Cruise Control Control Unit .................... Mounted on left under dash cover ........ 203-2
Cruise Control Switch ......................... On RH side of steering column .......... 209-1
Power Distribution Box ......................... On LH front wheel well .................. 102-1
Rear Lights Check Relay ....................... Mounted on trunk lock support .......... 201-1
C206 (29 pin) .................................. On connector bracket under LH side of dash 206-1
C208 (2 pin) ................................... Near clutch pedal .......................... 206-1
C209 (7 pin) ................................... Near cruise control control unit .......... 203-2
C210 (4 pin) ................................... On LH side of steering column .......... 203-2
C301 (2 pin) ................................... In center console, ahead of shift lever ....
C302 (accessory connector) ..................... Under LH side of dash .................... 212-1
G200 (Front Interior Ground) .................. Under LH side of dash, near brake bracket
G301 (Rear Interior Ground) .................. Under LH side of rear seat ..................... 208-1
FUEL CONTROL

Air Flow Meter (528 e) .......... LH side of engine .............................. 212-2
Air Flow Meter (533 i) .......... Top right side of engine ....................... 202-1
Altitude Switch (528e) ............ Near the air flow meter
Altitude Switch (533i) .......... Near rear corner of engine compartment
Idle Speed Control Unit ......... Under RH side of dash, above glove box ........ 204-1
Motronic Control Unit .......... Above glove box .............................. 204-1
Oxygen Sensor (528 e) .......... In exhaust manifold at rear of engine ...... 212-3
Oxygen Sensor (533 i) .......... Rear of engine, in exhaust manifold
G103 (Engine Ground) (528 e) . Above starter on engine block ............... 214-1
G103 (Engine Ground) (533 i) .. Top rear of engine .......................... 202-1

FUEL DELIVERY/EVAPORATIVE CONTROL

Auxiliary Fuel Pump .......... In fuel tank, under trunk .......................... 213-5
Diagnostic Connector (528 e) .. LH side of engine ............................ 104-1
Diagnostic Connector (533 i) .. Top front of engine ........................... 104-1
Fuel Pump Relay ................. On power distribution box ....................... 102-1
Ignition Switch .................. Upper part of steering column
Main Fuel Pump .................. Forward and right of differential housing
Main Relay ....................... On power distribution box ....................... 102-1
Motronic Control Unit ............ Above glove box ............................. 204-1
On-Board Computer .............. Mounted on left under dash cover
Power Distribution Box .. On LH front wheel well ............................ 102-1
Purge Valve Relay ............... On power distribution box ....................... 102-1
Purge Valve ...................... Behind RH headlights ......................... 207-1
Purge Valve Relay Diode ........ In jumper harness between the purge valve relay and throttle switch
Throttle Switch (528e) ........... Top LH side of engine, below throttle body 212-5
Throttle Switch (533i) ............ Top LH side of engine, below throttle body 213-1
C101 (17 pin) (528 e) ............ In power distribution box ....................... 205-1
C101 (17 pin) (533 i) .......... In power distribution box ....................... 215-2
C103 (6 pin) ..................... RH side of dash near Motronic control unit ........ 204-1
C200 (10 pin) ................... On LH side of steering column ............... 203-2
C206 (29 pin) .................. On connector bracket under LH side of dash ........ 206-1
C212 (1 pin) ..................... Under LH side of dash taped to harness
C235 (1 pin) ..................... Under LH side of dash, near on-board computer
C236 (2 pin) ..................... Under LH side of dash, near on-board computer
G102 (Main Body Ground) ....... On fender well behind LH headlights .......... 203-1
G103 (Engine Ground) (528 i) .. Above starter on engine block ............... 214-1
G103 (Engine Ground) (533 i) .. Top rear of engine .......................... 202-1
G301 (Rear Interior Ground) .... Under LH side of rear seat ................ 208-1
HEADLIGHTS (CONTROL/POWER)/FOG LIGHTS (CONTROL/POWER)

Active Check Control Unit ........ Above rear view mirror ......................... 119-1
Combination Switch ................. On LH side of steering column .......... 209-1
Low Beam Check Relay ............... Attached to power distribution box ... 102-1
Power Distribution Box .............. On LH front wheel well .................. 102-1
C102 (7 pin) ...................... In power distribution box ................. 205-1
C107 (2 pin) ....................... Behind LH headlights ....................... 203-1
C108 (2 pin) ....................... Behind RH headlights ....................... 211-1
C202 (13 pin) ...................... On LH side of steering column ....... 203-2
G102 (Main Body Ground) ........... On fender well behind LH headlights 203-1
G200 (Front Interior Ground) ....... Under LH side of dash, near brake bracket

HEATER/AIR CONDITIONING

Blower Speed Switch .......... In center console ..... 214-6
Evaporator Blower Motor ....... Under center of dash ............... 205-2
Evaporator Blower Resistors ... On RH side of evaporator housing .... 205-2
Evaporator Temp. Regulator .... On LH side of heater/evaporator housing 214-5
Evaporator Temp. Sensor ......... In evaporator, above evaporator blower motor
Heater Blower Motor .......... Below windshield, behind cover panel
Heater Blower Resistors ...... Below heater cover motor
Heater Regulator ................ Behind A/C selector switch ............ 210-1
Heater Temperature Sensor ...... LH side heater/evaporator, near heater core 214-5
High Pressure Cut-Out Switch ... On receiver-drier behind RH headlights 207-1
Idle Speed Control Unit ........ Under RH side of dash, above glove box 204-1
Interior Temp. Sensor .......... Mounted in left under dash cover ........ 213-2
Power Distribution Box ........ On LH front wheel well .................. 102-1
Water Shutoff Valve (528 e) .... Below brake master cylinder
Water Shutoff Valve (533 i) .... Center rear of engine compartment .... 215-3
C103 (6 pin) ...................... RH side of dash near Motronic control unit 204-1
C105 (1 pin) (528 e) ............. At RH wheel well, below coolant reservoir 212-3
C105 (1 pin) (533 i) ............. At RH wheel well, below coolant reservoir
C106 (1 pin) (528 e) ............. Near air conditioning compressor .... 214-4
C106 (1 pin) (533 i) ............. Near air conditioning compressor
C204 (13 pin) .................... On LH side of heater/evaporator housing 214-5
C205 (6 pin) ..................... On RH side of heater/evaporator housing 205-2
C214 (6 pin) ..................... Behind center of dash, near heater blower
G200 (Front Interior Ground) .... Under LH side of dash, near brake bracket

Figure 1 - Top Of LH Front Wheel Well

Figure 2 - RH Side Of Upper Console
**HORN/SUNROOF**

Horn Brush/Slip Ring ......... Below hub of steering wheel ......................... 207-2
Horn Switches ................ In each spoke on steering wheel
Limit Switch .................... Behind header, above rear view mirror
Motor Relay ...................... Behind header, above rear view mirror
Power Distribution Box ....... On LH front wheel well .......................... 102-1
Sunroof Drive Motor .......... Behind header, above rear view mirror
Sunroof Switch ................. Above rear view mirror
C200 (10 pin) ................. On LH side of steering column 203-2
C206 (29 pin) ................. On connector bracket under LH side of dash 206-1
C302 (accessory connector) .... Under LH side of dash ...................... 212-1
G102 (Main Body Ground) .... On fender well behind LH headlights 203-1
G200 (Front Interior Ground) .. Under LH side of dash, near brake bracket
G600 .......................... Near sun roof switch

**IDLE SPEED CONTROL**

O°C Temperature Switch ...... On right inlet of heater blower housing
Auto. Trans. Range Switch ... At base of shift lever .......................... 215-5
Coolant Temp. Sensor (528 e), Front of engine, top of thermostat housing 206-2
Coolant Temp. Sensor (533 i) . Front of engine, top of thermostat housing 201-2
Coolant Temp. Switch (528 e) . Front of engine, top of thermostat housing 211-2
Coolant Temp. Switch (533 i) . Front of engine, back of thermostat housing 201-2
Diagnostic Connector (528 e) . LH side of engine ......................... 104-1
Diagnostic Connector (533 i) . Top front of engine ......................... 104-1
Engine Speed Sensor (528 e) . On transmission bell housing .......... 212-4
Engine Speed Sensor (533 i) . On transmission bell housing .......... 202-1
Idle Control Valve (528 e) . Top rear RH side of engine .............. 212-3
Idle Control Valve (533 i) . Top center of engine ......................... 213-1
Idle Speed Control Unit .... Under RH side of dash, above glove box 204-1
Motronic Control Unit ......... Above glove box ........................... 204-1
Power Distribution Box ....... On LH front wheel well ...................... 102-1
Throttle Switch (528 e) ....... Top LH side of engine, below throttle body 212-5
Throttle Switch (533 i) ....... Top LH side of engine, below throttle body 213-1
C101 (17 pin) (528 e) ....... In power distribution box .................... 205-1
C101 (17 pin) (533 i) ....... In power distribution box .................... 215-2
C103 (6 pin) ..................... RH side of dash near Motronic control unit 204-1
C104 (2 pin) ..................... RH side of dash near Motronic control unit 204-1
C206 (29 pin) ................. On connector bracket under LH side of dash 206-1
C301 (2 pin) ..................... In center console, ahead of shift lever
G103 (Engine Ground) (533 i) . Above starter on engine block .......... 214-1
G103 (Engine Ground) (528 e) . Top rear of engine ...................... 202-1

![Figure 1 - Lower LH Side Of Dash](5260)

![Figure 2 - Top RH Side Of 528e Engine](5283)
IGNITION
Diagnostic Connector (528 e) ......... LH side of engine .......................... 104-1
Diagnostic Connector (533 i) ......... Top front of engine .......................... 104-1
Ignition Coil ............................ On fender well, behind RH headlights ..... 207-1
Ignition Switch ........................... Upper part of steering column
Motronic Control Unit .......................... Above glove box ....................... 204-1
Power Distribution Box .......... On LH front wheel well ....................... 102-1
Reference Point Sensor (528 e) ......... On transmission bell housing ........ 212-4
Reference Point Sensor (533 i) ......... On transmission bell housing .......... 202-1
TDC Sensor ............................ Above crankshaft vibration damper
C101 (17 pin) (528 e) ........ In power distribution box ....................... 205-1
C101 (17 pin) (533 i) ........ In power distribution box ....................... 215-2
C200 (10 pin) ....................... On LH side of steering column .......... 203-2
G103 (Engine Ground) (528 e) .... Above starter on engine block .......... 214-1
G103 (Engine Ground) (533 i) .... Top rear of engine ....................... 202-1

IGNITION KEY WARNING/SEATBELT WARNING
Active Check Control Unit ........ Above rear view mirror ....................... 119-1
Ignition Key Switch ................. In upper portion steering column
Power Distribution Box .......... On LH front wheel well ....................... 102-1
Seatbelt Switch ...................... In driver's seatbelt buckle
Seatbelt Warning Timer .......... Under LH side of dash ....................... 212-1
Warning Buzzer ........................ In upper part of steering column .... 207-2
C200 (10 pin) ....................... On LH side of steering column .......... 203-2
C203 (2 pin) .......................... At upper end of steering column ..... 208-2
C206 (29 pin) ....................... On connector bracket under LH side of dash 206-1
G200 (Front Interior Ground) ... Under LH side of dash, near brake bracket

INTERIOR LIGHTS
Ignition Switch ........................ Upper part of steering column
Interior Light Timer Control ........ Under LH side of dash ....................... 212-1
Lock Heater Control Unit ........ In LH front door .......................... 213-4
Power Distribution Box .......... On LH front wheel well ....................... 102-1
C200 (10 pin) ....................... On LH side of steering column .......... 203-2
C206 (29 pin) ....................... On connector bracket under LH side of dash 206-1
C302 (accessory connector) .... Under LH side of dash ....................... 212-1
C303 (2 pin) .......................... In headliner, near LH dome light
C500 (6 pin) .......................... Behind LH front speaker
C503 (8 pin) .......................... In driver's door, driver's door .......... 202-2
G200 (Front Interior Ground) ... Under LH side of dash, near brake bracket
LIGHTS: DASH/TRANSMISSION RANGE

Auto. Trans. Range Switch .... At base of shift lever ......................... 215-5
Fog Light Switch .............. Under LH side of instrument cluster .......... 213-2
Hazard Switch ................. To right of instrument cluster
Heater-A/C Panel Lights ...... Behind heater-air conditioning control panel
On-Board Computer .......... Mounted on left under dash cover
Power Distribution Box ...... On LH front wheel well ...................... 102-1
C204 (13 pin) ................. On LH side of heater/evaporator housing .... 214-5
C206 (29 pin) ................. On connector bracket under LH side of dash .... 206-1
C215 (2 pin) .................. Behind radio
C301 (2 pin) ................. In center console, ahead of shift lever
C302 (accessory connector)... Under LH side of dash .................. 212-1
G200 (Front Interior Ground)... Under LH side of dash, near brake bracket

LIGHTS: FRONT PARK/FRONT MARKER/TAI

Active Check Control Unit ...... Above rear view mirror .................. 119-1
Power Distribution Box .......... On LH front wheel well ............... 102-1
Rear Lights Check Relay ........ Mounted on trunk lock support .......... 201-1
C206 (29 pin) ................. On connector bracket under LH side of dash .... 206-1
G102 (main body ground) ...... On fender well behind LH headlights ...... 203-1
G301 (rear interior ground) ... Under LH side of rear seat ................ 208-1

LIGHTS: REAR MARKER/LICENSE/TRUNK

Active Check Control Unit ...... Above rear view mirror .................. 119-1
Power Distribution Box .......... On LH front wheel well ............... 102-1
Rear Lights Check Relay ........ Mounted on trunk lock support .......... 201-1
Trunk Light Switch .............. In trunk lid near trunk lock.
C206 (29 pin) ................. On connector bracket under LH side of dash .... 206-1
C300 (2 pin) .................. Near trunk light
C302 (accessory connector)... Under LH side of dash .................. 212-1
G301 (Rear Interior Ground) ... Under LH side of rear seat ............... 208-1
LIGHTS TURN/HAZARD WARNING

Combination Switch .............. On LH side of steering column .............. 209-1
Flasher ................................ Upper part of steering column .............. 208-2
Hazard Switch ......................... To right of instrument cluster
Power Distribution Box .......... On LH front wheel well ...................... 102-1
C102 (7 pin) ......................... In power distribution box ...................... 205-1
C202 (13 pin) ....................... On LH side of steering column .............. 203-2
C206 (29 pin) ....................... On connector bracket under LH side of dash . 206-1
G102 (Main Body Ground) ...... On fender well behind LH headlights ...................... 203-1
G200 (Front Interior Ground) .. Under LH side of dash, near brake bracket
G201 (Steering Column Ground) Upper part of steering column ...................... 207-2
G301 (Rear Interior Ground) .... Under LH side of rear seat ...................... 208-1

ON-BOARD COMPUTER

Alarm Horn ......................... Behind battery .............................. 215-4
Chime ............................... Mounted on left under dash cover
Filter Capacitor .................... Behind battery .............................. 215-4
Ignition Switch ..................... Upper part of steering column
Main Relay ......................... On power distribution box .............. 102-1
On-Board Computer ............... Mounted on left under dash cover
Outside Temp. Sensor .......... Under front bumper, left side
Power Distribution Box .......... On LH front wheel well ...................... 102-1
C103 (6 pin) ....................... RH side of dash near Motronic control unit .... 204-1
C200 (10 pin) ....................... On LH side of steering column .............. 203-2
C206 (29 pin) ....................... On connector bracket under LH side of dash . 206-1
C212 (1 pin) ......................... Under LH side of dash taped to harness
C219 (3 pin) ......................... Taped to harness, near power distribution box . 204-2
C235 (1 pin) ......................... Under LH side of dash, near on-board computer
C236 (2 pin) ......................... Under LH side of dash, near on-board computer
C242 (2 pin) ......................... Ahead of on-board computer
C250 (1 pin) ......................... Under left side of dash, near on-board computer
C251 (1 pin) ......................... Behind battery .............................. 215-4
C302 (accessory connector) ... Under LH side of dash ...................... 212-1
G102 (Main Body Ground) ...... On fender well behind LH headlights ...................... 203-1
G103 (Engine Ground) (528 e) Above starter on engine block ...................... 214-1
G103 (Engine Ground) (533 I) Top rear of engine .............................. 202-1
G200 (Front Interior Ground) .. Under LH side of dash, near brake bracket

Figure 1 - Upper Part Of Steering Column

Figure 2 - Shift Console Near Shift Lever
POWER DISTRIBUTION

Combination Switch .......... On LH side of steering column .......... 209-1
Diagnostic Connector (528 e) .. LH side of engine .................. 104-1
Diagnostic Connector (533 i) .. Top front of engine .................. 104-1
Ignition Switch ............... Upper part of steering column
Low Beam Check Relay ......... Attached to power distribution box ........ 102-1
Power Distribution Box ..... On LH front wheel well ............... 102-1
Starter ........................ Lower rear LH side of engine
C200 (10 pin) ................ On LH side of steering column .......... 203-2
C202 (13 pin) ................ On LH side of steering column .......... 203-2
C206 (29 pin) ............... On connector bracket under LH side of dash ...... 206-1
C302 (accessory connector) ... Under LH side of dash .................. 212-1
G102 (Main Body Ground) ..... On fender well behind LH headlights .......... 203-1

POWER MIRRORS

Mirror Control Switch ........ On driver's door
Power Distribution Box ..... On LH front wheel well .................. 102-1
C206 (29 pin) ................ On connector bracket under LH side of dash ...... 206-1
C500 (6 pin) ................ Behind LH front speaker
C501 (4 pin) ................ Behind LH front speaker
C502 (4 pin) ................ Behind RH front speaker .................. 213-3
G200 (Front Interior Ground) ... Under LH side of dash, near brake bracket

POWER WINDOWS

Power Distribution Box ..... On LH front wheel well .................. 102-1
Power Window Circuit Brkr ..... Mounted in left under dash cover .......... 213-6
Power Window Relay ......... Under LH side of dash .................. 102-1
Safety Switch ................ On shift console .......................... 209-2
Window Console Switches ..... On shift console ....................... 209-2
Window Motors ................ In each door
C206 (29 pin) ................ On connector bracket under LH side of dash ...... 206-1
C302 (accessory connector) ... Under LH side of dash .................. 212-1
C400 (13 pin) ............... Behind RH front speaker
C401 (13 pin) ............... Behind RH front speaker .................. 213-3
C402 (6 pin) ............... At LH rear door grommet
C403 (6 pin) ............... At RH rear door grommet
C500 (6 pin) ............... Behind Left front speaker
G200 (Front Interior Ground) ... Under LH side of dash, near brake bracket
RADIO/POWER ANTENNA

- Fader Control: In upper part of center console (210-1)
- Power Distribution Box: On LH front wheel well (102-1)
- C206 (29 pin): On connector bracket under LH side of dash (206-1)
- C215 (2 pin): Behind radio
- C216 (2 pin): Behind radio
- C217 (2 pin): Behind radio
- C218 (2 pin): Behind radio
- C302 (accessory connector): Under LH side of dash (212-1)
- G200 (Front Interior Ground): Under LH side of dash, near brake bracket

REAR DEFOGGER/HEATER DOOR LOCK

- Lock Heater Control Unit: In LH front door (213-4)
- Lock Heater: In LH front door
- Power Distribution Box: On LH front wheel well (102-1)
- C206 (29 pin): On connector bracket under LH side of dash (206-1)
- C302 (accessory connector): Under LH side of dash (212-1)
- C500 (6 pin): Behind LH front speaker
- C503 (8 pin): In driver's door (202-2)
- C560 (2 pin): In LH front door
- G200 (Front Interior Ground): Under LH side of dash, near brake bracket
- G301 (Rear Interior Ground): Under LH side of rear seat (208-1)

SERVICE INTERVAL INDICATOR

- Coolant Temp. Sender (528 e): Front of engine, on thermostat housing (206-2)
- Coolant Temp. Sender (533 i): Front of engine, on thermostat housing (201-2)
- Diagnostic Connector (528 e): LH side of engine (104-1)
- Diagnostic Connector (533 i): Top front of engine (104-1)
- Motronic Control Unit: Above glove box (204-1)
- Power Distribution Box: On LH front wheel well (102-1)
- C101 (17 pin) (528 e): In power distribution box (205-1)
- C101 (17 pin) (533 i): In power distribution box (215-2)
- C103 (6 pin): RH side of dash near Motronic control unit (204-1)
- G200 (Front Interior Ground): Under LH side of dash, near brake bracket
SPEEDOMETER/GAUGES/WARNING INDICATORS

Active Check Control Unit........ Above rear view mirror ......................... 119-1
Brake Accumulator Pres. Switch Right of left front shock tower .................. 215-1
Brake Fluid Level Switch (528e) LH rear of engine, on brake fluid reservoir .... 214-1
Brake Fluid Level Switch (533 i) LH rear of engine, on brake fluid reservoir ... 215-1
Coolant Temp. Sender (528 e) Front of engine, on thermostat housing .......... 206-2
Coolant Temp. Sender (533 i) Front of engine, on thermostat housing .......... 201-2
Diagnostic Connector (528 e) LH side of engine .................................. 104-1
Diagnostic Connector (533 i) Top front of engine .................................. 104-1
Fuel Tank Sender ................ Under trunk, top RH side of fuel tank ........... 213-5
Hydraulic Pressure Switch ...... Right of left front shock tower ................ 215-3
Ignition Switch .................. Upper part of steering column .................
Motronic Control Unit .......... Above glove box .................................. 204-1
Oil Pressure Switch .............. RH side of engine, below oil filter ............. 210-2
Parking Brake Switch ............ In shift console at base of parking brake 
Power Distribution Box ......... On LH front wheel well .......................... 102-1
Speedometer Sender .............. In rear of differential ............................
C101 (17 pin) (528 e) .......... In power distribution box .......................... 205-1
C101 (17 pin) (533 i) .......... In power distribution box .......................... 215-2
C103 (6 pin) ...................... RH side of dash near Motronic control unit ... 204-1
C200 (10 pin) ................... On LH side of steering column .................. 203-2
G200 (Front Interior Ground) ...... Under LH side of dash, near brake bracket
G301 (Rear Interior Ground) ...... Under LH side of rear seat ................... 208-1
START

Auto. Trans. Range Switch ... At base of shift lever .......................... 215-5
Cold Start Valve (528 e) .... RH side of engine ............................... 212-4
Cold Start Valve (533 i) .... Between intake ports 3 and 4
Diagnostic Connector (528 e) LH side of engine ............................ 104-1
Diagnostic Connector (533 i) Top front of engine ............................ 104-1
Ignition Switch ................ Upper part of steering column
Power Distribution Box ...... On LH front wheel well ....................... 102-1
Start Relay .................... On connector bracket under LH side of dash 206-1
Starter .......................... Lower rear LH side of engine
Thermo-Time Switch (533 i) Front of engine, top of thermostat housing 201-2
Thermo-Time Switch (528 e) Front of engine, top of thermostat housing 211-2
C101 (17 pin) (528 e) ...... In power distribution box ...................... 205-1
C101 (17 pin) (533 i) ...... In power distribution box ...................... 215-2
C200 (10 pin) ................. On LH side of steering column ............. 203-2
C213 (1 pin) .................. Near start relay under LH side of dash 213-2
G102 (Main Body Ground) ... On fender well behind LH headlights 203-1
G200 (Front Interior Ground) Under LH side of dash, near brake bracket

WIPER/WASHER

Power Distribution Box ...... On LH front wheel well ....................... 102-1
Washer Jet Heaters .......... On washer jet nozzles
Washer Pump .................. Forward of RH front wheel well, in reservoir 211-1
Wiper Motor ................... Above brake master cylinder
Wiper/Washer Switch ...... On RH side of steering column ............. 209-1
C102 (7 pin) .................. In power distribution box ...................... 205-1
C110 (2 pin) .................. Near washer pump
C201 (6 pin) .................. On LH side of steering column ............. 203-2
G200 (Front Interior Ground) Under LH side of dash, near brake bracket
G201 (Steering Column Ground) Upper part of steering column ............. 207-2