FOREWORD
This Service Manual has been prepared with the latest service information available at the time of publication. It is subdivided into various group categories and each section contains diagnosis, disassembly, repair, and installation procedures along with complete specifications and tightening references. Use of this manual will aid in properly performing any servicing necessary to maintain or restore the high levels of performance and reliability designed into these outstanding vehicles.

NOTE:
For information concerning all components other than the electrical system and on-vehicle service procedures for engines and transmissions, refer to Volume I "Chassis & Body" of this paired Service Manual.
## FUSIBLE LINK, FUSE AND IOD OR STORAGE CONNECTOR LOCATION

<table>
<thead>
<tr>
<th>Name</th>
<th>Symbol</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dedicated fuse No. 1 to No. 7</td>
<td>B</td>
<td>Fusible link</td>
<td>A</td>
</tr>
<tr>
<td>Dedicated fuse No. 8 and No. 9</td>
<td>C</td>
<td>IOD or Storage connector</td>
<td>B</td>
</tr>
<tr>
<td>Dedicated fuse No. 10</td>
<td>E</td>
<td>Multi-purpose fuse</td>
<td>D</td>
</tr>
</tbody>
</table>

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### INSPECTION TERMINAL LOCATION

<table>
<thead>
<tr>
<th>Name</th>
<th>Symbol</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data link connector &lt;From 1994 models&gt;</td>
<td>C</td>
<td>Fuel pump check connector</td>
<td>A</td>
</tr>
<tr>
<td>Data link connector &lt;Up to 1993 models&gt;</td>
<td>B</td>
<td>Ignition timing adjustment connector</td>
<td>A</td>
</tr>
<tr>
<td>Engine speed detection connector</td>
<td>A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Diagram A:**
- Engine speed detection connector
- Fuel pump check connector
- Ignition timing adjustment connector

**Diagram B:**
- Data link connector
- Junction block

**Diagram C:**
- Data link connector

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GROUNDS LOCATION

NOTE
Same ground numbers are used in the circuit diagram.

TSB Revision
## RELAY LOCATION

<table>
<thead>
<tr>
<th>Name</th>
<th>Symbol</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABS power relay *1</td>
<td>A</td>
<td>MFI relay</td>
<td>J</td>
</tr>
<tr>
<td>Auto-cruise control relay</td>
<td>I</td>
<td>Motor relay (ABS hydraulic unit)</td>
<td>B</td>
</tr>
<tr>
<td>Blower motor relay</td>
<td>E</td>
<td>Pop-up motor relay *3</td>
<td>A</td>
</tr>
<tr>
<td>Blower motor relay (HI) *5</td>
<td>K</td>
<td>Power window relay</td>
<td>F</td>
</tr>
<tr>
<td>Condenser fan motor relay (HI)</td>
<td>D</td>
<td>Radiator fan motor control relay *3</td>
<td>D</td>
</tr>
<tr>
<td>Condenser fan motor relay (LO)</td>
<td>D</td>
<td>Radiator fan motor relay (HI)</td>
<td>A</td>
</tr>
<tr>
<td>Defogger relay</td>
<td>F</td>
<td>Radiator fan motor relay (LO)</td>
<td>A</td>
</tr>
<tr>
<td>Door lock power relay 1</td>
<td>F</td>
<td>Rear intermittent wiper relay</td>
<td>L</td>
</tr>
<tr>
<td>Door lock power relay 2 ● 2</td>
<td>L</td>
<td>Starter relay</td>
<td>A</td>
</tr>
<tr>
<td>Fog light relay</td>
<td>A</td>
<td>Tail light relay</td>
<td>A</td>
</tr>
<tr>
<td>Fuel pump relay</td>
<td>C</td>
<td>Theft-alarm horn relay *4</td>
<td>E</td>
</tr>
<tr>
<td>Generator relay</td>
<td>A</td>
<td>Theft-alarm starter relay *4</td>
<td>H</td>
</tr>
<tr>
<td>Headlight relay</td>
<td>A</td>
<td>Turn-signal and hazard flasher unit</td>
<td>G</td>
</tr>
<tr>
<td>Horn relay</td>
<td>A</td>
<td>Valve relay (ABS hydraulic unit)</td>
<td>B</td>
</tr>
<tr>
<td>Magnetic clutch relay</td>
<td>D</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE**

2. ● 2: Except 1993 and earlier models without keyless entry system.
3. ● 3: Up to 1993 models
4. ● 4: Vehicles with theft-alarm system.
5. ● 5: Except vehicles with manual air conditioning from 1996 models.
### SENSOR LOCATION

<table>
<thead>
<tr>
<th>Name</th>
<th>Symbol</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABS front speed sensor</td>
<td>Y</td>
<td>Kickdown servo switch</td>
<td>M</td>
</tr>
<tr>
<td>ABS rear speed sensor</td>
<td>Z</td>
<td>Knock sensor</td>
<td>E</td>
</tr>
<tr>
<td>Air inlet sensor (for A/C)</td>
<td>S</td>
<td>Left bank heated oxygen sensor</td>
<td>D</td>
</tr>
<tr>
<td>Air thermo sensor (for A/C)</td>
<td>R</td>
<td>Manifold differential pressure sensor*4</td>
<td>C</td>
</tr>
<tr>
<td>Automatic transaxle oil temperature sensor &lt;A/T&gt;</td>
<td>M</td>
<td>Photo sensor</td>
<td>T</td>
</tr>
<tr>
<td>Camshaft position sensor and crankshaft position sensor*7</td>
<td>N</td>
<td>Power steering pressure switch</td>
<td>F</td>
</tr>
<tr>
<td>Camshaft position sensor (from 1993 model)</td>
<td>G</td>
<td>Pulse generator A, B &lt;A/T&gt;</td>
<td>M</td>
</tr>
<tr>
<td>Crankshaft position sensor (from 1993 model)</td>
<td>H</td>
<td>Revolution pick-up sensor</td>
<td>I</td>
</tr>
<tr>
<td>EGR temperature sensor*3 &lt;Turbo, Non Turbo (for California)&gt;</td>
<td>C</td>
<td>Right bank heated oxygen sensor</td>
<td>D</td>
</tr>
<tr>
<td>Engine coolant temperature sensor (for A/C)</td>
<td>Q</td>
<td>Steering wheel angle speed sensor</td>
<td>O</td>
</tr>
<tr>
<td>Engine coolant temperature sensor (for engine control)</td>
<td>L</td>
<td>Thermo sensor*2</td>
<td>K</td>
</tr>
<tr>
<td>Engine coolant temperature switch (for A/C)*2</td>
<td>L</td>
<td>Thermostat</td>
<td>I</td>
</tr>
<tr>
<td>Front impact sensor</td>
<td>X</td>
<td>Throttle position sensor</td>
<td>J</td>
</tr>
<tr>
<td>G sensor (for ABS)</td>
<td>U</td>
<td>Vehicle speed sensor (Reed switch)*1</td>
<td>P</td>
</tr>
<tr>
<td>G sensor (for ECS)*3</td>
<td>V</td>
<td>Vehicle speed sensor</td>
<td>B</td>
</tr>
<tr>
<td>Heated oxygen sensor*3</td>
<td>D</td>
<td>Volume air flow sensor</td>
<td>A</td>
</tr>
<tr>
<td>Interior temperature sensor</td>
<td>W</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE**

1. *1*: Up to 1992 models
2. *2*: Up to 1993 models
3. *3*: Up to 1995 models
4. *4*: From 1996 models

![Diagram of sensor locations](image-url)
GENERAL – Sensor Location

A. Volume air flow sensor

B. Vehicle speed sensor

C. <Turbo, Non Turbo (for California)>

EGR temperature sensor

C. Manifold differential pressure sensor

D. <Non Turbo> – up to 1993 models or <Non Turbo> – 1994, 1995 models for Federal

Heated oxygen sensor

D. <Non Turbo> – 1994, 1995 models for California and from 1996 models

Right bank heated oxygen sensor (front)

Right bank heated oxygen sensor (rear)

Left bank heated oxygen sensor (front)

Left bank heated oxygen sensor (rear)

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GENERAL – Sensor Location

Heated oxygen sensor, right
Heated oxygen sensor, left

E Knock sensor

G <From 1993 models>
Camshaft position sensor

I <up to 1993 models>
Revolution pick-up sensor
Compressor
Thermostat

J <SOHC>
Throttle position sensor (with built-in closed throttle position switch)

Right bank heated oxygen sensor (front)
Right bank heated oxygen sensor (rear)
Left bank heated oxygen sensor (rear)

F Power steering pressure switch

H <From 1993 models>
Crankshaft position sensor

I <From 1994 models>
Compressor
Thermostat
Revolution pick-up sensor

J <DOHC>
Throttle position sensor (with built-in closed throttle position switch)

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GENERAL - Sensor Location

K <Up to 1993 models>
- Thermo sensor

L Engine coolant temperature sensor
  (for engine control)
- Engine coolant temperature switch
  (for A/C control) <Up to 1993 models>

M <A/T>
- Pulse generator B
- Kickdown servo switch
- Pulse generator A
- Automatic transaxle oil temperature sensor

N Camshaft position sensor
  and crankshaft position sensor

O <ECS>
- Steering wheel angle speed sensor

P <Up to 1992 models>
- Vehicle speed sensor
  (reed switch)

Q Engine coolant temperature sensor

R Evaporator
- Air-thermo sensor

S Air-inlet sensor

T Photo sensor

TSB Revision
### CONTROL UNIT LOCATION

<table>
<thead>
<tr>
<th>Name</th>
<th>Symbol</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABS control unit</td>
<td>J</td>
<td>Engine control module</td>
<td>B</td>
</tr>
<tr>
<td>Active exhaust control module &lt;Up to 1994 models&gt;</td>
<td>H</td>
<td>ETACS control unit</td>
<td>A</td>
</tr>
<tr>
<td>Air conditioning compressor lock controller</td>
<td>C</td>
<td>Keyless entry control unit</td>
<td>F</td>
</tr>
<tr>
<td>Air conditioning control unit</td>
<td>B</td>
<td>Light automatic shut-off unit</td>
<td>F</td>
</tr>
<tr>
<td>Auto-cruise control unit</td>
<td>C</td>
<td>Motor antenna control unit</td>
<td>G</td>
</tr>
<tr>
<td>ELC-4 A/T control module</td>
<td>B</td>
<td>SRS diagnosis unit</td>
<td>D</td>
</tr>
<tr>
<td>Electronic control suspension control unit</td>
<td>I</td>
<td>Sunroof control unit</td>
<td>E</td>
</tr>
</tbody>
</table>

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### TSB Revision

[Image of control unit location]
GENERAL - Control Unit Location

C
Air conditioning compressor lock controller
Auto-cruise control unit

D
SRS diagnosis unit

E
Sunroof control unit

F
<Vehicles without keyless entry system>
Light automatic shut-off unit

G
Motor antenna
Motor antenna control unit

H
Active exhaust control module

I
Electronic control suspension control unit

J
ABS control unit

TSB Revision
## SOLENOID, SOLENOID VALVE LOCATION

<table>
<thead>
<tr>
<th>Name</th>
<th>Symbol</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGR solenoid</td>
<td>C</td>
<td>Fuel pressure solenoid &lt;Turbo&gt;</td>
<td>A</td>
</tr>
<tr>
<td>&lt;Turbo&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;Non Turbo (Up to 1995 models for California and from 1996 models)&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaporative emission purge solenoid</td>
<td>B</td>
<td>Turbocharger waste gate solenoid &lt;Turbo&gt;</td>
<td>D</td>
</tr>
</tbody>
</table>

![Diagram showing solenoid locations]

**TSB Revision**
## DIODE LOCATION

<table>
<thead>
<tr>
<th>Name</th>
<th>Symbol</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diode (ABS circuit) &lt;Up to 1995 models&gt;</td>
<td>A</td>
<td>Diode (Theft-alarm circuit)</td>
<td>C</td>
</tr>
<tr>
<td>Diode (MFI circuit)</td>
<td>B</td>
<td>Diode (4WS fluid level warning light circuit)</td>
<td>D</td>
</tr>
<tr>
<td>Diode (Seat belt warning circuit)</td>
<td>C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

![Diode Locations Diagram]

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**TSB Revision**
Remarks
(1) Alphabets assigned to the connectors are keyed to those assigned to connectors on P.19
(2) Terminals of the harness side connector are indicated in parentheses ( ).

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Theft-alarm horn relay

Blower motor relay

Fuse block (Multi-purpose fuses)

To roof wiring harness

To instrument panel wiring harness

To front wiring harness

To body wiring harness (LH)
## CENTRALIZED JUNCTION

**FUSIBLE LINK (Relay box in engine compartment)**

<table>
<thead>
<tr>
<th>No.</th>
<th>Circuit</th>
<th>Housing color</th>
<th>Rated capacity (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Generator circuit</td>
<td>Wine red</td>
<td>120</td>
</tr>
<tr>
<td>2</td>
<td>Pop-up motor circuit (Up to 1993 models)</td>
<td>Pink</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>Lighting circuit</td>
<td>Green</td>
<td>40</td>
</tr>
<tr>
<td>4</td>
<td>Ignition switch circuit</td>
<td>Pink</td>
<td>30</td>
</tr>
<tr>
<td>5</td>
<td>Radiator fan motor and condenser fan motor circuit</td>
<td>Green</td>
<td>40</td>
</tr>
<tr>
<td>6</td>
<td>Junction block (Multipurpose fuse (1),(6),(14),(16),(17), (19))</td>
<td>Green</td>
<td>40</td>
</tr>
<tr>
<td>7</td>
<td>ABS circuit</td>
<td>Yellow</td>
<td>60</td>
</tr>
<tr>
<td>8</td>
<td>Top stack circuit &amp;&lt;nbsp;&lt;Convertible&gt;</td>
<td>Pink</td>
<td>30</td>
</tr>
<tr>
<td>9</td>
<td>Power window circuit</td>
<td>Pink</td>
<td>30</td>
</tr>
<tr>
<td>10</td>
<td>Defogger circuit</td>
<td>Green</td>
<td>40</td>
</tr>
<tr>
<td>11</td>
<td>Active aero circuit &amp;&lt;nbsp;&lt;Hatchback&gt;</td>
<td>Pink</td>
<td>30</td>
</tr>
</tbody>
</table>

![Fusible Link Diagram](image-url)

**TSB Revision**
DEDICATED FUSE

<table>
<thead>
<tr>
<th>Power supply circuit</th>
<th>No.</th>
<th>Rated capacity (A)</th>
<th>Housing color</th>
<th>Circuit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery</td>
<td>1</td>
<td>20</td>
<td>Yellow</td>
<td>MFI circuit</td>
</tr>
<tr>
<td>Taillight relay</td>
<td>2</td>
<td>15</td>
<td>Blue</td>
<td>Taillight circuit</td>
</tr>
<tr>
<td>Fusible link (6)</td>
<td>3</td>
<td>10</td>
<td>Red</td>
<td>Horn circuit</td>
</tr>
<tr>
<td>Fusible link (3)</td>
<td>4</td>
<td>15</td>
<td>Red</td>
<td>Fog light circuit</td>
</tr>
<tr>
<td>Headlight relay</td>
<td>5</td>
<td>10</td>
<td>Red</td>
<td>Upper beam circuit</td>
</tr>
<tr>
<td>Battery</td>
<td>6</td>
<td>10</td>
<td>Red</td>
<td>Hazard light circuit</td>
</tr>
<tr>
<td>7*1</td>
<td></td>
<td>10</td>
<td>Red</td>
<td>ABS circuit</td>
</tr>
<tr>
<td>7*2</td>
<td></td>
<td>20</td>
<td>Yellow</td>
<td>Sunroof circuit</td>
</tr>
<tr>
<td>Fusible link (6)</td>
<td>a</td>
<td>20</td>
<td>Yellow</td>
<td>Condenser fan motor circuit</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>10</td>
<td>Red</td>
<td>Air conditioning circuit</td>
</tr>
<tr>
<td>Defogger relay</td>
<td>10</td>
<td>10</td>
<td>Red</td>
<td>Remote controlled mirror heater circuit</td>
</tr>
</tbody>
</table>

NOTE
*2: Vehicles with sunroof
## MULTI-PURPOSE FUSE (In junction block)

<table>
<thead>
<tr>
<th>Power supply circuit</th>
<th>No.</th>
<th>Rated capacity (A)</th>
<th>Load circuit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery</td>
<td>1</td>
<td>10</td>
<td>Seat belt solenoid, Active aero control unit, MFI relay</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ignition switch IG₂</td>
<td>3</td>
<td>10</td>
<td>Radiator fan motor relay, Air conditioning compressor lock controller, Blower motor relay, Air conditioning control unit, ABS relay<em>₁, ECS control unit</em>₂, Condenser fan motor relay</td>
</tr>
<tr>
<td>ACC</td>
<td>4</td>
<td>10</td>
<td>Audio, Motor antenna control unit, Auto-cruise control unit, ETACS unit</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>15</td>
<td>Remote controlled mirror, Cigarette lighter</td>
</tr>
<tr>
<td>Battery</td>
<td>6</td>
<td>10</td>
<td>Door lock power relay, Motor antenna control unit</td>
</tr>
<tr>
<td>Ignition switch IG₂</td>
<td>7</td>
<td>10</td>
<td>ELC-4/A/T control module</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ignition switch ACC</td>
<td>9</td>
<td>15</td>
<td>Wiper relay, Wiper motor, Washer motor, Rear intermittent wiper relay, keyless control unit</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>15</td>
<td>Accessory socket, ETACS unit</td>
</tr>
<tr>
<td>Ignition switch IG₁</td>
<td>11</td>
<td>15</td>
<td>Combination meter, Combination gauge, ETACS unit, Speed sensor, Motor antenna control unit, Turn signal and hazard flasher unit, Auto-cruise control main switch, Active aero control unit, SRS diagnosis unit, Auto-cruise relay</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>15</td>
<td>Ignition coil, Power transistor, MFI relay, Engine control module</td>
</tr>
<tr>
<td>Battery</td>
<td>13*₂</td>
<td>15</td>
<td>Amplifier &lt;radio and tape player&gt;</td>
</tr>
<tr>
<td>Battery</td>
<td>14</td>
<td>10</td>
<td>Theft-alarm horn, Theft-alarm horn relay</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Battery</td>
<td>16</td>
<td>30</td>
<td>Blower motor</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>15</td>
<td>Stop light, High-mounted stop light</td>
</tr>
<tr>
<td>Ignition switch IG₁</td>
<td>18</td>
<td>10</td>
<td>Back-up light, Light automatic shut-OFF unit, SRS diagnosis unit</td>
</tr>
<tr>
<td>Battery</td>
<td>19</td>
<td>10</td>
<td>Engine control module, ELC-4 A/T control module, ETACS unit, Dome light, Foot light, Door light, Luggage compartment light, Combination meter, Ignition key cylinder illumination light, Air conditioning control unit, Auto-cruise control unit, Audio, Light automatic shut-OFF unit, ECS control unit*₃, Active aero control unit</td>
</tr>
</tbody>
</table>

**NOTE**

(2)*₂: From 1994 models.
(3)*₃: Up to 1995 models.
### CENTRALIZED RELAY

<table>
<thead>
<tr>
<th>Classification</th>
<th>Name</th>
<th>Classification</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relay box in engine compartment</td>
<td>A-01X Headlight relay</td>
<td>A-31X</td>
<td>Condenser fan motor relay (Hi)</td>
</tr>
<tr>
<td></td>
<td>A-02X ABS power relay (vehicles produced up to Oct. 1993)</td>
<td>A-32X</td>
<td>Radiator fan motor control relay (Up to 1993 models)</td>
</tr>
<tr>
<td></td>
<td>A-03X Fog light relay</td>
<td>A-33X</td>
<td>Magnetic clutch relay</td>
</tr>
<tr>
<td></td>
<td>A-04X Radiator fan motor relay (LO)</td>
<td>A-34X</td>
<td>Condenser fan motor relay (LO)</td>
</tr>
<tr>
<td></td>
<td>A-05X Taillight relay</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A-06X Horn relay</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A-07X Radiator fan motor relay (HI)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A-08X Pop-up motor relay (Up to 1993 models)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A-09X Starter relay</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A-I 0X Generator relay</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A-11X IOD or Storage connector</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A-07X Pop-up motor relay (Up to 1993 models)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>A-09X Starter relay</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A-I 0X Generator relay</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A-11X IOD or Storage connector</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### NOTE

IOD: Ignition Off Draw

---

**<Relay box in engine compartment>**

**<Air conditioning relay box in engine compartment>**

**<Interior relay box>**

**TSB Revision**
GENERAL — Harness Connector Inspection

**HARNESS CONNECTOR INSPECTION**

**CONNECTOR CONTINUITY AND VOLTAGE TEST**
When checking continuity and/or voltage at the waterproof connectors, follow the steps below to avoid poor connector contact and/or reduced waterproof performance of connectors.

1. When checking is performed with the circuit in the state of continuity, be sure to use the special tool (harness connector).
   Never insert a test bar from the harness side, because to do so will reduce the waterproof performance and result in corrosion.

2. When the connector is disconnected for checking the female pin, the harness for checking the contact pressure of connector pins should be used.
   Never force the insertion of a test bar, because to do so will cause poor contact.

3. When the male pin is to be checked, apply the test bar against the pin directly.
   Care must be taken not to short-circuit the connector pins.

**TERMINAL ENGAGEMENT CHECK**
When the terminal stopper of connector is out of order, engagement of male and female terminals becomes improper even when the connector itself is engaged perfectly and the terminal sometimes slips out to the rear side of connector. Ascertain, therefore, that each terminal does not come off the connector by pulling each harness wire.

**CONNECTOR TERMINAL ENGAGEMENT AND DISENGAGEMENT**
Connectors which are loose shall be rectified by removing the female terminal from connector housing and raising its lance to establish a more secure engagement. Removal of connector terminal used for MFI and 4 A/T control circuit shall be done in the following manner.

**COMPUTER CONNECTOR**
(1) Insert screwdriver [1.4 mm (.06 in.) width] as shown in the figure, disengage front holder and remove it.
(2) Insert harness of terminal to be rectified deep into connector from harness side and hold it there.

(3) Insert tip of screwdriver [1.4 mm (.06 in.) width] into connector in a manner as shown in the figure, raise housing lance slightly with it and pull out harness.

Caution
Tool No. 753787-I supplied by AMP can be used instead of screwdriver.

(4) Insert needle through a hole provided on terminal and raise contact point of male terminal.

ROUND WATERPROOF CONNECTOR

(1) Remove waterproof cap by using a screwdriver.
(2) Insert tip of screwdriver [1.4 mm (.06 in.) or 2.0 mm (.08 in.) width] into connector in a manner as shown in the figure, raise housing lance slightly with it and pull out harness.

(3) Insert screwdriver through a hole provided on terminal and raise contact point of male terminal.
RECTANGULAR WATERPROOF CONNECTOR
(1) Disengage front holder by using a screwdriver and remove it.

(2) Insert tip of screwdriver [0.8 mm (.03 in.) width] into connector in a manner as shown in the figure, push it lightly to raise housing lance and pull out harness.
*If right size screwdriver is not available, convert a conventional driver to suit the size.

(3) Press contact point of male terminal down by holding a screwdriver [1.4 mm (.06 in.) width] in a manner as shown in the figure.

INJECTOR CONNECTOR
(1) Remove waterproof cap.

(2) Insert tip of screwdriver [1.4 mm (.06 in.) width] into connector in a manner as shown in the figure, press in terminal lance and pull out harness.

(3) Press contact point of male terminal down by holding a screwdriver [1.4 mm (.06 in.) width] in a manner as shown in the figure.

Caution
Make sure that lance is in proper condition before terminal is inserted into connector.
HOW TO DIAGNOSE
The most important point in troubleshooting is to determine “Probable Causes”. Once the probable causes are determined, parts to be checked can be limited to those associated with such probable causes. Therefore, unnecessary checks can be eliminated. The determination of the probable causes must be based on a theory and be supported by facts and must not be based on intuition only.

TROUBLESHOOTING STEPS
If an attempt is made to solve a problem without going through correct steps for troubleshooting, the problem symptoms could become more complicated, resulting in failure to determine the causes correctly and making incorrect repairs. The four steps below should be followed in troubleshooting.

1. Observation of Problem Symptoms
   Observe the symptom carefully. Check if there are also other problems.

2. Determination of Probable Causes
   In determining the probable causes, it is necessary to check the wiring diagram to understand the circuit as a system. Knowledge of switches, relays and other parts is necessary for accurate determination. The causes of similar problems in the past must be taken into account.

3. Checking of Parts Associated with Probable Causes and Determination of Faulty Parts
   Troubleshooting is carried out by making step by step checks until the true cause is found. Always go through the procedures considering what check is to be made where for the best results.

4. Repair and Confirmation
   After the problems are corrected, be sure to check that the system operates correctly. Also, check that new problems have not been caused by the repair.

INFORMATION FOR DIAGNOSIS
This manual contains the cable diagrams as well as the individual circuit drawings, operational explanations, and troubleshooting hints for each component required to facilitate the task of troubleshooting. The information is compiled in the following manner:
(1) Cable diagrams show the connector positions, etc., on the actual vehicle as well as the harness path.
(2) Circuit drawings show the configuration of the circuit with all switches in their normal positions.
(3) Operational explanations include circuit drawings of voltage flow when the switch is operated and how the component operates in reaction.
(4) Troubleshooting hints include numerous examples of problems which might occur, traced backward in a common-sense manner to the origin of the trouble.

Problems whose origins may not be found in this manner are pursued through the various system circuits.

NOTE
Components of MFI, ETACS, ECS, etc. with ECU do not include 3 and 4 above. For this information, refer to a manual which includes details of these components.

TSB Revision
INSPECTION

1. Visual and aural checks
Check relay operation, blower motor rotation, light illumination, etc. visually or aurally. The flow of current is invisible but can be checked by the operation of the parts.

2. Simple checks
For example, if a headlight does not come on and a faulty fuse or poor grounding is suspected, replace the fuse with a new one or ground the light to the body by a jumper wire to determine which part is responsible for the problem.

3. Checking with instruments
Use an appropriate instrument in an adequate range and read the indication correctly. You must have sufficient knowledge and experience to handle instruments correctly.

INSPECTION INSTRUMENTS
In inspection, make use of the following instruments.

1. Test lights
A test light consists of a 12 V bulb and lead wires. It is used to check voltages or short circuits.

2. Self-power test light
A self-power test light consists of a bulb, battery and lead wires connected in series. It is used to check continuity or grounding.
3. Jumper wire
A jumper wire is used to close an open circuit. Never use one to connect a power supply directly to a load.

4. Voltmeter
A voltmeter is used to measure the circuit voltage. Normally, the positive (red lead) probe is applied to the point of voltage measurement and the negative (black lead) probe to the body ground.

5. Ohmmeter
An ohmmeter is used to check continuity or measure resistance of a switch or coil. If the measuring range has been changed, the zero point must be adjusted before measurement.

CHECKING SWITCHES
In a circuit diagram, a switch is represented by a symbol and in the idle state.

1. Normal open or normal close switch
Switches are classified into those which make the circuit open and those which make the circuit closed when off.
2. SWITCH CONNECTION

This figure illustrates a complex switch. The continuity between terminals at each position is as indicated in the table below.

<table>
<thead>
<tr>
<th>Position</th>
<th>Terminal No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>1  2  3  4  5  6</td>
</tr>
<tr>
<td>1st stage</td>
<td>O       O   O</td>
</tr>
<tr>
<td>2nd stage</td>
<td>O       O   O</td>
</tr>
<tr>
<td>3rd stage</td>
<td>O       O   O</td>
</tr>
<tr>
<td>4th stage</td>
<td>O       O   O</td>
</tr>
</tbody>
</table>

CHECKING RELAYS

1. When current flows through the coil of a relay, its core is magnetized to attract the iron piece, closing (ON) the contact at the tip of the iron piece. When the coil current is turned off, the iron piece is made to return to its original position by a spring, opening the contact (OFF).

2. By using a relay, a heavy current can be turned on and off by a switch of small capacity. For example, in the circuit shown here, when the switch is turned on (closed), current flows to the coil of the relay. Then, its contact is turned on (closed) and the light comes on. The current flowing at this time to the switch is the relay coil current only and is very small.

3. The relays may be classified into the normal open type and the normal close type by their contact construction. 

   **NOTE**
   The deenergized state means that no current is flowing through the coil and the energized state means that current is flowing through the coil.
When a normal close type relay as illustrated here is checked, there should be continuity between terminals (1) and (2) and between terminals 3 and 4 when the relay is deenergized, and the continuity should be lost between terminals 3 and 4 when the battery voltage is applied to the terminals 1 and 2. A relay can be checked in this manner and it cannot be determined if a relay is okay or faulty by checking its state only when it is deenergized (or energized).

### CHECKING FUSES

A blade type fuse has test taps provided to allow checking of the fuse itself without removing it from the fuse block. The fuse is okay if the test light comes on when its one lead is connected to the test taps (one at a time) and the other lead is grounded. (Change the ignition switch position adequately so that the fuse circuit becomes live.)

### CAUTIONS IN EVENT OF BLOWN FUSE

When a fuse is blown, there are two probable causes as follows: One is that it is blown due to flow of current exceeding its rating. The other is that it is blown due to repeated on/off current flowing through it. Which of the two causes is responsible can be easily determined by visual check as described below.

1. **Fuse blown due to current exceeding rating**
   - The illustration shows the state of a fuse blown due to this cause. In this case, do not replace the fuse with a new one hastily since a current heavy enough to blow the fuse has flowed through it. First, check the circuit for shorting and check for abnormal electric parts. Only after the correction of such shorting or parts, fuse of the same capacity should be used as a replacement. Never use a fuse of larger capacity than the one that has blown. If such a fuse is used, electric parts or wirings could be damaged before the fuse blows in the event an overcurrent occurs again.

2. **Fuse blown due to repeated current on/off**
   - The illustration shows the state of a fuse blown due to repeated current on/off. Normally, this type of problem occurs after fairly long period of use and hence is less frequent than the above type. In this case, you may simply replace with a new fuse of the same capacity.
GENERAL – How to Diagnose

CHECKING CABLES AND WIRES

1. Check connections for looseness, rust and stains.
2. Check terminals and wires for corrosion by battery electrolyte, etc.
3. Check terminals and wires for open circuit or impending open circuit.
4. Check wire insulation and coating for damage, cracks and degrading.
5. Check conductive parts of terminals for contact with other metallic parts (vehicle body and other parts).
6. Check grounding parts to verify that there is complete continuity between attaching bolt(s) and vehicle body.
7. Check for incorrect wiring.
8. Check that wirings are so clamped as to prevent contact with sharp corners of the vehicle body, etc. or hot parts (exhaust manifold, pipe, etc.).
9. Check that wirings are clamped firmly to secure enough clearance from the fan pulley, fan belt and other rotating or moving parts.
10. Check that the wirings between the fixed parts such as the vehicle body and the vibrating parts such as the engine are made with adequate allowance for vibrations.

HANDLING ON-VEHICLE BATTERY

When checking or servicing does not require power from the on-vehicle battery, be sure to disconnect the cable from the battery (-) terminal. This is to prevent problems that could be caused by a short circuit. Disconnect the (-) terminal first and reconnect it last.

Caution

1. Before connecting or disconnecting the negative cable, be sure to turn off the ignition switch and the lighting switch.
   (If this is not done, there is the possibility of semiconductor parts being damaged.)
2. After completion of the work steps [when the battery’s negative (-) terminal is connected], warm up the engine and allow it to idle for approximately five minutes under the conditions described below, in order to stabilize the engine control conditions, and then check to be sure that the idling is satisfactory.

   Engine coolant temperature: 85–95°C (185–203°F)
   Lights, electric fans, accessories: OFF
   Transaxle: neutral position
   (A/T models: “N” or “P”)
   Steering wheel: neutral (center) position
GENERAL ELECTRICAL SYSTEM CHECKS

A circuit consists of the power supply, switch, relay, load, ground, etc. There are various methods to check a circuit including an overall check, voltage check, short circuit check and continuity check. Each of these methods is briefly described in the following.

1. VOLTAGE CHECK

(1) Ground one lead wire of the test light. If a voltmeter is used instead of the test light, ground the grounding side lead wire.

(2) Connect the other lead wire of the test light to the power side terminal of the switch connector. The test light should come on or the voltmeter should indicate a voltage.

(3) Then, connect the test light or voltmeter to the motor connector. The test light should not come on, or the voltmeter should indicate no voltage. When the switch is turned on in this state, the test light should come on, or the voltmeter should indicate a voltage, with motor starting to run.

(4) The circuit illustrated here is normal but if there is any problem such as the motor failing to run, check voltages beginning at the connector nearest to the motor until the faulty part is identified.
2. SHORT-CIRCUITS CHECK

A blown fuse indicates that a circuit is shorted. The circuit responsible can be determined by the following procedures.

Remove the blown fuse and connect a test light in its place
(Switch is in the OFF position)

Test light comes on

YES → Short circuit between fuse block and switch (A)

NO

Turn on the switch
(Test light comes on but the illumination light does not come on)

Disconnect the illumination light connector

Test light remains on

YES → Short circuit between the switch and illumination light connector (B)

NO → Short circuit between the illumination light connector and illumination light (C)

3. CONTINUITY CHECK

(1) When the switch is in the OFF position, the self power test light should come on or the ohmmeter should read 0 ohm only when the terminals 1 and 2 are interconnected.

(2) When the switch is in the ON position, the self power test light should come on or the ohmmeter should read 0 ohm only when the terminals 3 and 4 are interconnected.
CONFIGURATION DIAGRAMS

CONTENTS

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  <M/T> ........................................ 46
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Instrument Panel and Floor Console ............ 54
Interior............................................ 56
Luggage Compartment ........................... 58
Overall Configuration Diagram ............... 36
OVERALL CONFIGURATION DIAGRAM

<HATCHBACK>

- Instrument panel wiring harness
- Control wiring harness
- Body wiring harness (LH)
- Body wiring harness (RH)
- Roof wiring harness
- Liftgate wiring harness
- Front wiring harness

<CONVERTIBLE>

- Instrument panel wiring harness
- Control wiring harness
- Body wiring harness (LH)
- Body wiring harness (RH)
- Rear wiring harness
- Roof wiring harness
- Door wiring harness
- Front wiring harness

NOTE
(1) This illustration shows only the major wiring harness.
(2) *indicates also equipped at the right side.

TSB Revision
HOW TO READ CONFIGURATION DIAGRAM

The wiring harness diagrams clearly show the connector locations and harness routings at each site on actual vehicles.

- **Denotes connector No.**
  - The same connector No. is used throughout the circuit diagrams to facilitate connector location searches. The first alphabetical symbol indicates the location site of the connector and a number that follows in the unique number. Numbers are assigned to parts in clockwise order on the diagram.

  **Example:** A-1 2
  - Number specific to connector (serial number)
  - Connector location site symbol
    - A: Engine compartment
    - B: Engine and transaxle
    - C: Dash panel
    - D: Instrument panel and floor console
    - E: Interior
    - F: Luggage compartment

- **Denotes ground point.**
  - Same ground number is used throughout circuit diagrams to facilitate search of ground point. Refer to P.4 for details of ground points.

- **The mark ★ shows the standard mounting position of wiring harness.**

- **Denotes a section covered by a corrugated tube.**

---

A-01X Headlight relay
A-02X ABS power relay
A-03X Fog light relay
A-04X Radiator fan motor relay (LO)
A-05X Taillight relay
A-06X Horn relay
A-07X Radiator fan motor relay (HI)
A-09X Starter relay
A-11X Generator relay
A-12 ABS front speed sensor (RH)
A-13 ECS front shock absorber (RH)
A-14 Washer fluid level sensor
A-18 Ignition timing adjustment connector
A-19 Front washer motor
A-20 Evaporative emission purge solenoid
A-21 EGR solenoid (Vehicles for California)
A-22 EGR temperature sensor (Vehicles for California)
A-23 No connection <Turbo>
A-24 Brake fluid level sensor
A-25 ECS front shock absorber (LH)
A-26 Theft-alarm horn
A-27 Theft-alarm horn
A-28 Auto-cruise vacuum pump

---

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ENGINE COMPARTMENT (UP TO 1993 MODELS)

Connector symbols:
- A01X thru 34X
- <Turbo>

A-01X Headlight relay
A-02X ABS power relay
A-03X Fog light relay
A-04X Radiator fan motor relay (LO)
A-05X Taillight relay
A-06X Horn relay
A-07X Radiator fan motor relay (HI)
A-08X Pop-up motor relay
A-09X Starter relay

A-10X Generator relay
A-11X IOD or Storage connector
A-12 ABS front speed sensor (RH)
A-13 ECS front shock absorber (RH)
A-14 Washer fluid level sensor
A-15 Front wiper motor
A-16 Engine speed detection connector
A-17 Fuel pump check connector
A-18 Ignition timing adjustment connector
A-19  Front washer motor
A-20  Evaporative emission purge solenoid
A-21  EGR solenoid (Vehicles for California)
A-22  EGR temperature sensor (Vehicles for California)
A-23  No connection <Turbo>
A-24  Brake fluid level sensor
A-25  ECS front shock absorber (LH)
A-26  Theft-alarm horn
A-27  Theft-alarm horn
A-28  Auto-cruise vacuum pump
A-29  ABS front speed sensor (LH)
A-30  4WS fluid level sensor <Turbo>
A-31X Condenser fan motor relay (HI)
A-32X Radiator fan motor control relay
A-33X Magnetic clutch relay
A-34X Condenser fan motor relay (LO)
A-35  Dual pressure switch
A-36  Air conditioning relay box
A-37  Air conditioning relay box
A-38  SRS front impact sensor (LH)
A-39  Front combination light (LH)
A-40  Inspection light switch
A-41  Headlight (LH)
A-42  Front wiring harness and headlight wiring harness (LH) combination
A-43  Fog light (LH)
A-44  Pop-up motor (LH)

A-45  Condenser fan motor
A-46  Condenser fan motor
A-47  Horn
A-48  Horn
A-49  Horn
A-50  Horn
A-51  Fuel pump resistor <Turbo>
A-52  A/T fluid temperature sensor
A-53  Kickdown servo switch <A/T>
A-54  Pulse generator <A/T>
A-55  Radiator fan motor

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A-56  Engine coolant level sensor
A-57  Active aero front venturi skirt
A-58  Fog light (RH)
A-59  Pop-up motor (RH)
A-60  Front wiring harness and headlight wiring harness (RH) combination
A-61  Headlight (RH)
A-62  Front combination light (RH)
A-63  SRS front impact sensor (RH)
A-64  ABS hydraulic unit
A-65  ABS hydraulic unit
A-66  Hood switch
A-67  Front wiring harness and control wiring harness combination
A-67  Diode (for ABS circuit)
A-69  Resistor <Turbo>
A-70  Turbocharger waste gate solenoid <Turbo>
A-71  Fuel pressure solenoid <Turbo>
A-72  Control wiring harness and solenoid valve harness combination
A-73  Inspection light

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ENGINE COMPARTMENT
(FROM 1994 MODELS)

<table>
<thead>
<tr>
<th>Connector symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 01X thru 34X</td>
<td>Engine Compartment</td>
</tr>
</tbody>
</table>

**NOTE**:
*: Up to 1995 models

<table>
<thead>
<tr>
<th>Connector</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-01X</td>
<td>Headlight relay</td>
</tr>
<tr>
<td>A-02X</td>
<td>ABS power relay</td>
</tr>
<tr>
<td>A-03X</td>
<td>Fog light relay</td>
</tr>
<tr>
<td>A-04X</td>
<td>Radiator fan motor relay (LO)</td>
</tr>
<tr>
<td>A-05X</td>
<td>Taillight relay</td>
</tr>
<tr>
<td>A-06X</td>
<td>Horn relay</td>
</tr>
<tr>
<td>A-07X</td>
<td>Radiator fan motor relay (HI)</td>
</tr>
<tr>
<td>A-09X</td>
<td>Starter relay</td>
</tr>
<tr>
<td>A-11X</td>
<td>IOD or Storage connector</td>
</tr>
<tr>
<td>A-12</td>
<td>ABS front speed sensor (RH)</td>
</tr>
<tr>
<td>A-13</td>
<td>ECS front shock absorber (RH)*</td>
</tr>
<tr>
<td>A-14</td>
<td>Washer fluid level sensor</td>
</tr>
<tr>
<td>A-15</td>
<td>Front wiper motor</td>
</tr>
<tr>
<td>A-16</td>
<td>Engine speed detection connector</td>
</tr>
<tr>
<td>A-17</td>
<td>Fuel pump check connector</td>
</tr>
<tr>
<td>A-18</td>
<td>Ignition timing adjustment connector</td>
</tr>
<tr>
<td>A-19</td>
<td>Front washer motor</td>
</tr>
</tbody>
</table>

**TSB Revision**
A-20  Evaporative emission purge solenoid
A-21  EGR solenoid
  <Turbo, Non Turbo (Up to 1995 models for California and from 1996 models)>
A-22  EGR temperature sensor*
  <Turbo, Non Turbo (California)>
A-23  No connection <Turbo>
A-24  Brake fluid level sensor
A-25  ECS front shock absorber (LH)
A-26  Theft-alarm horn
A-27  Theft-alarm horn
A-28  Auto-cruise vacuum pump
A-29  ABS front speed sensor (LH)
A-30  4WS fluid level sensor <Turbo>
A-31X Condenser fan motor relay (HI)
A-33X Magnetic clutch relay
A-34X Condenser fan motor relay (LO)

TSB Revision
NOTE
*1: Up to 1995 models
*2: From 1996 models

A-35 Dual pressure switch
A-36 Air conditioning relay box
A-37 Air conditioning relay box
A-38 SRS front impact sensor (LH)
A-39 Front combination light (LH)
A-40 Inspection light switch
A-41 Headlight (LO, HI)
A-43 Fog light (LH)
A-44 Pop-up motor (LH)
A-45 Condenser fan motor
A-46 Condenser fan motor
A-47 Horn
A-48 Horn
A-49 Horn
A-50 Horn
A-51 Fuel pump resistor <Turbo>
A-52 A/T fluid temperature sensor
A-53 Kickdown servo switch <A/T>
A-54 Pulse generator <A/T>
A-55 Radiator fan motor
A-56 Engine coolant level sensor
A-57 Active aero front venturi skirt

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A-58 Fog light (RH)  
A-61 Headlight (LO, RH)  
A-62 Front combination light (RH)  
A-63 SRS front impact sensor (RH)  
A-64 ABS hydraulic unit  
A-65 ABS hydraulic unit  
A-66 Hood switch  
A-67 Front wiring harness and control wiring harness combination  
A-68 Diode (for ABS circuit)*1

A-69 Resistor <Turbo>  
A-70 Turbocharger waste gate solenoid <Turbo>  
A-71 Fuel pressure solenoid <Turbo>  
A-72 Control wiring harness and solenoid valve harness combination  
A-73 Inspection light  
A-74 Headlight (Hi, LH)  
A-76 Headlight (Hi, RH)  
A-77 No connection <Turbo>  
A-79 Motor antenna control unit <Convertible>*1 or motor antenna <Convertible>*2

TSB Revision
ENGINE AND TRANSAXLE <M/T>

NOTE:
(1) *1: 1992 models
(2) *2: From 1993 models
(3) *3: 1994, 1995 models for California and from 1996 models
(4) *4: From 1996 models

B-01  Engine coolant temperature gauge unit  B-10  Variable induction servo motor (with intake control valve position sensor)  <Non-Turbo>
B-02  Engine coolant temperature sensor  B-11  Injector No. 5  <Non-Turbo>
B-03  Engine coolant temperature switch (for air conditioning circuit)  B-12  Injector No. 3  <Non-Turbo>
B-04  Crankshaft position sensor and camshaft position sensor*1  B-13  Injector No. 1  <Non-Turbo>
B-05  Throttle position sensor  B-14  Ignition coil  <Non-Turbo>
B-06  Control wiring harness and oil pressure wiring harness combination  B-15  Capacitor  <Non-Turbo>
B-07  Control wiring harness and injector wiring harness combination  B-16  Left bank heated oxygen sensor (front)  <Turbo, Non Turbo – 1994, 1995 models for California and 1996 models>  Generator
B-08  Knock sensor  B-17  Generator  <Non-Turbo>
B-09  Variable induction servo motor (with intake control valve position sensor)  B-18  Generator  <Non-Turbo>
        <Non-Turbo>

TSB Revision
B-23  Starter motor
B-24  Starter motor
B-25  Back-up light switch
B-28  Fuel pump relay <Turbo>
B-29  Volume air flow sensor (with intake air
temperature sensor and atmospheric sensor)
B-30  Control wiring harness and battery cable
combination
B-31  Injector No. 2
B-32  Injector No. 4
B-33  Injector No. 6

B-34  Speed sensor <Turbo>
B-35  Idle air control motor (stepper motor)
B-36  Oil pressure gauge unit
B-37  Oil pressure switch
B-38  Power steering pressure switch
B-40  Camshaft position sensor²
B-41  Crankshaft position sensor²
B-44  Right bank heated oxygen sensor (rear)³
B-45  Left bank heated oxygen sensor (rear)³
B-46  Manifold differential pressure sensor⁴

TSB Revision
ENGINE AND TRANSAXLE <A/T>

NOTE
(1) *1: 1992 models
(2) *2: From 1993 models
(3) *3: 1994, 1995 models for California and from 1996 models
(4) *4: From 1996 models

B-01 Engine coolant temperature gauge unit
B-02 Engine coolant temperature sensor
B-03 Air conditioning engine coolant temperature switch
B-04 Crankshaft position sensor and camshaft position sensor*1
B-05 Throttle position sensor
B-06 Control wiring harness and oil pressure wiring harness combination
B-07 Control wiring harness and injector wiring harness combination
B-08 Knock sensor
B-09 Variable induction servo motor (with intake control valve position sensor)
B-10 Variable induction servo motor (with intake control valve position sensor)
B-11 Injector No. 5
B-12 Injector No. 3
B-13 Injector No. 1
B-14 Ignition coil
B-15 Capacitor
B-16 Left bank heated oxygen sensor (front)*3
B-17 Generator
B-18 Generator
B-19 Magnetic clutch
B-20 Magnetic clutch
B-21 Power transistor

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B-22  Power transistor
B-23  Starter motor
B-24  Starter motor
B-26  Inhibitor switch
B-27  ELC-4 A/T control solenoid valve
B-29  Volume air flow sensor (with intake air temperature sensor and atmospheric sensor)
B-30  Control wiring harness and battery cable combination
B-31  Injector No. 2
B-32  Injector No. 4
B-33  Injector No. 6
B-34  Speed sensor
B-35  Idle air control motor (stepper motor)
B-36  Oil pressure gauge unit
B-37  Oil pressure switch
B-38  Power steering pressure switch
B-40  Camshaft position sensor²
B-41  Crankshaft position sensor²
B-42  Kickdown servo switch²
B-43  AA fluid temperature sensor²
B-44  Right bank heated oxygen sensor (rear)³
B-45  Left bank heated oxygen sensor (rear)³
B-46  Manifold differential pressure sensor⁴

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**NOTE**

*1: 1992 models
*2: Up to 1995 models

**C-01** Body wiring harness (LH) and front wiring harness combination
**C-02** Body wiring harness (LH) and front wiring harness combination
**c-03** Body wiring harness (LH) and front wiring harness combination
**C-04X** Door lock power relay 1
**C-06X** Defogger relay
**C-07X** Power window relay
**C-08** Diode (for seat belt warning circuit)
**C-09** Diode (for seat belt warning circuit)
**C-10** Column switch
**C-11** Column switch
**C-12** Diode (for theft-alarm circuit)
**C-13** Accelerator pedal switch*1
**C-14** Control wiring harness and instrument panel wiring harness combination
**C-15** Body wiring harness (LH) and instrument panel wiring harness combination
**C-16** Air conditioning control panel
**C-17** Air conditioning control panel
**C-18** Air conditioning switch
**C-19** Blower switch
**C-20** Heater control panel illumination light
**c-21** Blend air damper control motor
**c-22** Mode selection damper control motor
**C-23** Power transistor (for full-auto air conditioning circuit)
**C-24** Blower resistor
C-25  Air conditioning control unit
<Manual air conditioning>

C-26  Air conditioning control unit*2
<Manual air conditioning>

C-27  Air-inlet sensor <Full-auto air conditioning>

C-28  Air selection damper control motor

c-29  Body wiring harness (LH) and control wiring harness combination

C-30  Body wiring harness (LH) and control wiring harness combination

c-31  Body wiring harness (LH) and front wiring harness combination

C-32  Body wiring harness (RH) and front wiring harness combination

c-33  Body wiring harness (RH) and front wiring harness combination

C-34  Body wiring harness (LH) and body wiring harness (RH) combination

c-35  Foot light (RH)

C-36  Body wiring harness (RH) and control wiring harness combination

c-37  Auto-cruise control unit

C-38  Blower motor

c-39  Blower motor relay (HI)

C-40  Air conditioning compressor lock controller

c-41  Air-inlet sensor <Manual air conditioning>*2

C-42  Air-thermo sensor

c-43  Engine coolant temperature sensor

C-44  MFI relay

c-45  Over drive and power / economy switch

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**NOTE**

(1) *1:* 1992 Up to models 1993 models
(2) *3:* From 1994 models
(4) *4:* 1995 models
(5) *5:* From 1996 models

- C-46: ELC-4 A/T control module
- c-47: ELC-4 A/T control module
- C-48: ELC-4 A/T control module
- c-49: Air conditioning control unit <Full-auto conditioning>
- C-50: Air conditioning control unit <Full-auto conditioning>
- C-51: Air conditioning control unit <Full-auto conditioning>
- C-52: Engine control module
- c-53: Engine control module
- C-54: Engine control module
- c-55: Left bank heated oxygen sensor (front) <Non-Turbo except for California>
- C-56: Theft-alarm starter relay
- c-57: Clock spring
- C-58: Key reminder switch
- c-59: Ignition switch
- C-60: Steering wheel angle speed sensor
- C-61: Stop light switch
- C-62: Stop light switch
- C-63: Clutch pedal position switch (for auto-cruise control circuit)
- C-64: Clutch pedal position switch (for theft-alarm circuit)
- C-65: ETACS unit
- C-66: ETACS unit
- C-67: Foot light (LH)
- C-68: Front wiring harness and junction block combination
- C-69: Front wiring harness and junction block combination
- C-70: Front wiring harness and junction block combination

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c-71  Adapter wiring harness and junction block combination
C-72  Theft-alarm horn relay
C-73  Blower motor relay
C-74  Roof wiring harness and junction block combination
C-76  Body wiring harness (LH) and junction block combination
C-77  Body wiring harness (LH) and junction block combination
C-78  Body wiring harness (LH) and junction block combination
c-79  Data link connector^3
C-80  Body wiring harness (LH) and junction block combination
C - 8 1 Body wiring harness (LH) and junction block combination
C-82  Body wiring harness (LH) and junction block combination
C-83  Body wiring harness (LH) and junction block combination
C-84  Auto-cruise relay
C-85  Spare connector (Hand free microphone)
C-86  Passenger's air bag module^3
C-87  No connection <Turbo>
C-88  Control wiring harness and front wiring harness combination^3
C-89  Body wiring harness (LH) and body wiring harness (RH) combination^3
C-90  Engine control module^3
<Turbo, Non Turbo - Up to 1995 models for California>
C-91  Data link connector <Convertible>^4^5
C-92  Engine control module^5
C-93  MFI relay^5
C-94  Body wiring harness (RH) and front wiring harness combination^5
C-95  Motor antenna control unit^5
INSTRUMENT PANEL AND FLOOR CONSOLE

NOTE
(1) *1: Up to 1993 models
(2) *2: Up to 1994 models
(3) *3: From 1996 models

D-01 Pop-up switch and fog light switch
D-02 Front speaker (LH)
D-03 Combination meter
D-04 Combination meter
D-05 Combination meter
D-06 Defogger switch and ECS switch
D-08 Hazard switch
D-09 Combination gauge
D-1 Diode (for 4WS fluid level warning light circuit)
D-11 Glove box illumination light
D-12 Photo sensor
D-13 Front speaker (RH)
D-14 Glove box illumination light switch
D-15 Instrument panel wiring harness and control wiring harness combination
D-16 Instrument panel wiring harness and body wiring harness (RH) combination
D-17 Ashtray illumination light
D-18 Cigarette lighter
D-19 Cigarette lighter
D-20 Cigarette lighter illumination light
D-21 Power seat switch
D-22 Body wiring harness (LH) and console wiring harness combination
D-23 SRS diagnosis unit
D-24 SRS diagnosis unit
D-25 SRS diagnosis unit*1
D-26 SRS diagnosis unit
D-27 ABS G sensor
D-28 Parking brake switch

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D-29  Active aero switch <Hatchback>  
D-30  Accessory socket  
D-31  Accessory socket  
D-32  Auto-cruise main switch  
D-33  Seatbelt warning buzzer  
D-34  Radio  
D-35  Radio  
D-36  Radio  
D-37  Rear wiper and washer switch <Hatchback>  
D-38  Active exhaust switch*  
D-39  Remote-control mirror switch  
D-40  Rheostat  
D-41  Instrument panel wiring harness and body wiring harness (LH) combination  
D-42  Instrument panel wiring harness and body wiring harness (LH) combination  

D-43  Instrument panel wiring harness and body wiring harness (LH) combination  
D-44  Instrument panel wiring harness and adapter wiring harness combination  
D-45  Instrument panel wiring harness and front wiring harness combination  
D-46  Telephone cable  
D-47  Radio or body wiring harness and radio sub wiring harness combination  
D-48  Top switch <Convertible>  
D-49  Instrument panel wiring harness and body wiring harness (LH) combination <Convertible>  
D-50  Parking switch <Convertible>  
D-51  Chime*  
D-52  Body wiring harness (LH) and header wiring harness combination*  
D-53  Body wiring harness (LH) and header wiring harness combination*  

TSB Revision
NOTE
(1) *1: From 1993 models
(2) *1*: From 1994 models
(3) *3: Up to 1995 models
(4) *4: From 1996 models

E-01 Body wiring harness (RH) and door wiring harness (RH) combination
E-02 Vanity mirror illumination light (LH)
E-03 Door mirror (RH)
E-04 Door speaker (RH)
E-05 Dome light
E-06 Power window sub switch
E-07 Vanity mirror illumination light (RH)
E-08 Power window motor (RH)
E-09 Door light (RH)
E-10 Door key cylinder unlock switch (RH)
E-11 Door lock actuator (RH)
E-12 ABS control unit
E-13 ABS resistor <AWD>*3
E-14 Front seat belt solenoid (RH)
E-15 Door switch (RH)
E-16 ABS rear speed sensor (RH)
E-17 Light automatic shut-OFF unit
E-18 Rear intermittent wiper relay
E-19 ABS rear speed sensor (LH)
E-20 Front seat belt solenoid (LH)
E-21 Door switch (LH)
E-22 Door lock actuator (LH)
E-23 Door key cylinder unlock switch (LH)
E-24 Front seat belt switch (RH)
E-25 Door light (LH)
E-26 Front seat belt switch (LH)
E-27 Power seat assembly
E-28 ECS G sensor
E-29 Door speaker
E-30 Turn signal and hazard flasher unit
E-31 Diode (for MFI circuit)
E-32 Body wiring harness (LH) and door wiring harness (LH) combination
E-33 Door mirror (LH)
E-34 Power window main switch
E-35 Power window motor (LH)
E-37 Keyless control Unit*1
E-38 Door lock power relay 2*1
(for keyless control system)
E-39 Amplifier*2
E-40 Body wiring harness (LH) and door wiring harness (LH) combination <Convertible>

E-41 Jumper connector A (LH) <Convertible>
E-42 Jumper connector B <Convertible>
E-43 Body wiring harness (RH) and door wiring harness (RH) combination <Convertible>
E-44 Jumper connector A (RH) <Convertible>
E-45 Sunroof control unit
E-46 Liftgate wiring harness and sunroof wiring harness combination <Hatchback>
E-47 Sunroof switch
E-48 Sunroof motor
E-49 Interior temperature sensor <Vehicles with sunroof:>
E-50 Rear courtesy light (LH) <Convertible>*4
E-51 Rear courtesy light (RH) <Convertible>*4

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NOTE
(1) From 1993 models
(2) Up to 1994 models
(3) Up to 1993 models

F-01 Interior temperature sensor
F-02 Defogger (+)
F-03 Rear wiper motor
F-04 High-mounted stop light or active aero rear spoiler
F-05 Defogger (−)
F-06 Rear speaker (RH)
F-07 ECS rear shock absorber (RH)
F-08 Luggage compartment light
F-09 ABS resistor <FWD>
F-10 Rear combination light (RH)
F-11 Back-up light (RH)
F-12 ECS control unit
F-13 ECS control unit
F-14 Body wiring harness (RH) and fuel tank wiring harness combination
F-15 Rear washer motor
F-16 Fuel tank
F-17 License plate light (RH)
F-18 Body wiring harness (RH) and rear bumper wiring harness combination
F-19 Body wiring harness (LH) and body wiring harness (RH) combination
F-20 Body wiring harness (LH) and body wiring harness (RH) combination
F-21 License plate light (LH)
F-22 Luggage compartment light switch
F-23 Liftgate cylinder lock switch
F-24 Liftgate switch
F-25 Back-up light (LH)
F-26 Active exhaust control unit*2
F-27 Active aero control unit
F-28 Active aero control unit
F-29 Active exhaust actuator assembly*2
F-30 Rear combination light (LH)
F-31 Motor antenna control unit
F-32 ECS rear shock absorber (LH)
F-33 Rear speaker (LH)
F-34 Body wiring harness (LH) and liftgate wiring harness combination
F-35 Body wiring harness (LH) and liftgate wiring harness combination
F-36 Telephone cable*3
F-37 Spare connector (Wireless telephone unit)*3
F-38 Spare connector (Hand free controller)*3
F-39 Jumper connector (or Hand free controller)*3
F-40 CD changer*1

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<CONVERTIBLE> 1995 models

- Connector symbol F

F-05  Defogger (−)
F-06  Rear speaker (RH)
F-07  ECS rear shock absorber (RH)
F-08  Luggage compartment light
F-09  ABS resistor
F-10  Rear combination light (RH)
F-11  Back-up light (RH)
F-12  ECS control unit
F-13  ECS control unit
F-14  Rear wiring harness (RH) and fuel tank wiring harness combination
F-15  Fuel tank
F-17  License plate light (RH)
F-18  Rear wiring harness (RH) and rear bumper wiring harness combination
F-21  License plate light (LH)
F-22  Luggage compartment light switch
F-23  Liftgate cylinder lock switch
F-24  Liftgate switch
F-25  Back-up light (LH)
F-30  Rear combination light (LH)
F-32  ECS rear shock absorber (LH)
F-33  Rear speaker (LH)
F-40  CD changer
F-41  Top stack harness
F-42  Top stack harness
F-43  Top stack harness
F-44  Body wiring harness (RH) and rear wiring harness combination
F-45  ABS resistor
F-46  Body wiring harness (LH) and rear wiring harness combination
F-47  Body wiring harness (LH) and rear wiring harness combination
F-48  Body wiring harness (LH) and rear wiring harness combination
F-49  Body wiring harness (LH) and rear wiring harness combination

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<CONVERTIBLE>
From 1996 models

**Connector symbol**

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<th>Description</th>
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<td>Rear wiring harness (RH) and fuel tank wiring harness combination</td>
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<td>F-16</td>
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<tr>
<td>F-17</td>
<td>License plate light (RH)</td>
</tr>
<tr>
<td>F-18</td>
<td>Rear wiring harness (RH) and rear bumper wiring harness combination</td>
</tr>
<tr>
<td>F-21</td>
<td>License plate light (LH)</td>
</tr>
<tr>
<td>F-23</td>
<td>Liftgate cylinder lock switch</td>
</tr>
<tr>
<td>F-24</td>
<td>Liftgate switch</td>
</tr>
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<td>F-25</td>
<td>Back-up light (LH)</td>
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<td>F-30</td>
<td>Rear combination light (LH)</td>
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<td>F-44</td>
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<td>F-47</td>
<td>Body wiring harness (LH) and rear wiring harness combination</td>
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<tr>
<td>F-48</td>
<td>Body wiring harness (LH) and rear wiring harness combination</td>
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<tr>
<td>F-50</td>
<td>No connection</td>
</tr>
<tr>
<td>F-51</td>
<td>No connection</td>
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# CIRCUIT DIAGRAMS

## CONTENTS

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<td>Active Exhaust System Circuit</td>
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<td>Windshield Wiper and Washer Circuit</td>
<td>316</td>
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</table>
HOW TO READ CIRCUIT DIAGRAMS

The circuit of each system from the fuse (or fusible link) to ground is shown. The power supply is shown at the top and the ground at the bottom to facilitate understanding of how the current flows.

Indicates harness junction point No. for another system. It corresponds to the junction point No. indicated on the destination system circuit diagram.

Indicates the circuit name to be connected. The arrow indicates the current flow direction.

Indicates the circuit name to be connected. The arrow indicates the current flow direction.

Indicates harness junction point No. for another system. It corresponds to the junction point No. indicated on the destination system circuit diagram.

An "X" at the end of a connector No. indicates that the connector is connected to a centralized junction that is shown in the section "Centralized Junction".

Indicates the operating conditions of the engine coolant switch, etc.

Indicates that the diagram continues at ▽ in the same circuit.

Indicates the connector symbol. Connectors in the circuit diagram are indicated in numerical order.

Indicates shield wire.

KFC3540AA

TSB Revision
How to Read Circuit Diagrams

Indicates input/output to/from control unit (current flow direction).

Input/Output

A broken line indicates that these connectors are the same intermediate connectors.

Indicates that the diagram comes from \( \square \) in the same circuit.

Indicates terminal No.

In case two or more connectors are connected to the same device, markings indicating the same connector are connected by a broken line.

Indicates current flow downward or upward as controlled by the control unit.

Indicates harness junction where wire diameter or color changes.

Indicates intersections at which the lead wires are not connected.

Indicates intersections at which the lead wires are connected.

Indicates vehicle body ground point. (Same No. as that of ground point in GROUNDING LOCATION).

Indicates that the terminal is a spare one if the device (sensor in this case) is not provided.

TSB Revision
CONNECTOR / GROUNDING INDICATIONS

[Diagram of a circuit with labels and numbers indicating various connections and components.]
<table>
<thead>
<tr>
<th>Item</th>
<th>No.</th>
<th>Connector / Grounding</th>
<th>Symbol</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Connector and terminal marking</strong></td>
<td>1</td>
<td>Male terminal</td>
<td><img src="A16R0001" alt="Male terminal symbol" /></td>
<td>For the terminal symbols, the <strong>connected</strong> terminal is indicated as the male terminal, and the receptacle terminal is indicated as the female terminal as shown in the illustration. The connector in which the male terminal is assembled is indicated as the male connector and the connector in which the female is assembled is indicated as the female connector. The connector symbols shown the male connector with a double outer contour line and the female connector with a single outer contour line.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female terminal</td>
<td><img src="A16R0002" alt="Female terminal symbol" /></td>
<td></td>
</tr>
<tr>
<td><strong>Connector symbol marking</strong></td>
<td>2</td>
<td>Device</td>
<td><img src="16A0333" alt="Device symbol" /></td>
<td>The symbol indicates the connector as viewed from the illustrated direction. At the connection with a device, the connector symbol on the device side is shown, and for an intermediate connector, the male connector symbol is shown. For the connectors which are not connected to any appliance (spare terminal, terminal for inspection), the connectors at the harness side are shown.</td>
</tr>
<tr>
<td><strong>Connector connection marking</strong></td>
<td>3</td>
<td>Direct connection type</td>
<td><img src="16A0339" alt="Direct connection type symbol" /></td>
<td>A connection between a device and connector on the harness side is either by direct insertion in the device (direct connection type) or by connection with a harness connector furnished on the device side (harness connection type). The two types are indicated as illustrated.</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Harness connection type</td>
<td><img src="16A0334" alt="Harness connection type symbol" /></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Intermediate connector</td>
<td><img src="16A0336" alt="Intermediate connector symbol" /></td>
<td></td>
</tr>
</tbody>
</table>
### WIRE COLOR CODES

Wire colors are identified by the following color codes.

<table>
<thead>
<tr>
<th>Code</th>
<th>Wire color</th>
<th>Code</th>
<th>Wire color</th>
</tr>
</thead>
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<tr>
<td>B</td>
<td>Black</td>
<td>P</td>
<td>Pink</td>
</tr>
<tr>
<td>BR</td>
<td>Brown</td>
<td>R</td>
<td>Red</td>
</tr>
<tr>
<td>G</td>
<td>Green</td>
<td>SB</td>
<td>Sky blue</td>
</tr>
<tr>
<td>GR</td>
<td>Gray</td>
<td>V</td>
<td>Violet</td>
</tr>
<tr>
<td>L</td>
<td>Blue</td>
<td>W</td>
<td>White</td>
</tr>
<tr>
<td>LG</td>
<td>Light green</td>
<td>Y</td>
<td>Yellow</td>
</tr>
<tr>
<td>0</td>
<td>Orange</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If a cable has two colors, the first of the two color code characters indicates the basic color (color of the cable coating) and the second indicates the marking color.

<table>
<thead>
<tr>
<th>No.</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><code>&lt;F&gt;</code>: Flexible wire</td>
</tr>
<tr>
<td></td>
<td><code>&lt;T&gt;</code>: Twisted wire</td>
</tr>
<tr>
<td>2</td>
<td>Wire size (mm²)</td>
</tr>
<tr>
<td>3</td>
<td>Basic color (color of the cable coating)</td>
</tr>
<tr>
<td>4</td>
<td>Marking color</td>
</tr>
</tbody>
</table>

**NOTE**

* No code indicates 0.5 mm² (.0008 in.²).
  Cable color code in parentheses indicates 0.3 mm² (.0005 in.²).
POWER DISTRIBUTION
COMPONENT LOCATION

Fusible link

Dedicated fuse No. 1 to No. 7

Dedicated fuse No. 8 and No. 9

Dedicated fuse No. 10

Headlight relay, Taillight relay

Defogger relay <1992, 1993 and 1995 models>

Defogger relay <1994 models>

Junction block
POWER DISTRIBUTION CIRCUIT
(UP TO 1993 MODELS)

BATTERY

5W

20B-Y 20B-Y 20B-R

STARTER MOTOR

8W-R 8W-R

GENERATOR

FUSIBLE LINK

MULTI-PURPOSE FUSE

3R-B

2R-B

ACTIVE CONTROL UNIT

DEFOGGER RELAY
(C-06X)

L-R - 3R-B

G-Y 1 2 3R-B

OFF ON

3B-R

ETACS UNIT

HYDRAULIC UNIT

5W-B

2B-R ULRFOGGERK

Dedicated Fuse

1 10A

R-B

ABS CONTROL UNIT

2B-R

REMOVER ORB REDUCED MIRROR (HEATER)

R-B

HORN RELAY - HORN

TSB Revision
CIRCUIT DIAGRAMS – Power Distribution Circuit

FUSIBLE LINK

RADIATOR FAN MOTOR

HEADLIGHT RELAY

AUTOMATIC SHUT-OFF UNIT

TAIL LIGHT RELAY

AUTOMATIC SHUT-OFF UNIT

LIGHTING SWITCH

AIR CONDITIONING CONDENSER FAN MOTOR

COMBINATION METER (BEAM)

FOG LIGHT

FOG LIGHT RELAY

TURN SIGNAL AND HAZARD FLASHER UNIT

MFI RELAY

TSB Revision
CIRCUIT DIAGRAMS – Power Distribution Circuit

The above circuit diagram shows the current flow at the ignition key position "ACC", "ON" and "ST" combined. Be sure trace the appropriate circuit depending on the ignition key position.

Remark

- ACTIVE AERO CONTROL UNIT
- AUTO-CRUISE CONTROL
- MAIN SWITCH
- AUTO-CRUISE RELAY
- COMBINATION GAUGE
- COMBINATION METER
- ETACS UNIT
- MOTOR ANTENNA CONTROL UNIT
- SPARE CONNECTOR (WIRELESS TELPHONE UNIT)
- SPEED SENSORS (DIAGNOSIS UNIT)
- TURN SIGNAL AND HAZARD FLASHER UNIT
- ABS POWER RELAY (UP TO 1993 October)
- AIR CONDITIONING CONTROLLER
- AIR-conditioning CONTROL UNIT
- BLOWER MOTOR RELAY
- BLOWER MOTOR RELAY (HI)

REFERENCES

A-11X C-39 C-70 C-82

TSB Revision
POWER DISTRIBUTION CIRCUIT (1994 MODELS)

- Battery
- 20B-Y, 20B-Y, 20B-R
- Starter Motor
- Generator

Fusible Link

1. 30A
2. 40A
3. 30A
4. 40A
5. 30A
6. 40A

Active Control Unit

- Multi-Purpose Fuse 3
- 3R-B
- 2R-B
- 3R-B
- 5W-B

DeFogger Relay

- L-R
- D
- G-Y
- 3B-R
- 2B-R
- 3B-R

Horn Relay

- B-R
- R-B
- R-B

NOTE: Up to 1993 October
CIRCUIT DIAGRAMS – Power Distribution Circuit

**Remark:** The above circuit diagram shows the current flow at the ignition key position "ACC," "ON," and "ST" combined. Be sure trace the appropriate circuit depending on the ignition key position.

**TSB Revision**
POWER DISTRIBUTION CIRCUIT
(1995 MODELS)

NOTE
(1) Fusible link No. 8: For Convertible
(2) Fusible link No. 11: For Hatchback
NOTE
THE ABOVE CIRCUIT DIAGRAM SHOWS THE CURRENT FLOW AT THE IGNITION KEY POSITION "ACC", "ON" AND "ST" COMBINED.
BE SURE TRACE THE APPROPRIATE CIRCUIT DEPENDING ON THE IGNITION KEY POSITION.

* HATCHBACK

TSB Revision
CIRCUIT DIAGRAMS - Power Distribution Circuit

THE ABOVE CIRCUIT DIAGRAM SHOWS THE CURRENT FLOW AT THE IGNITION KEY POSITION "ACC", "ON" AND "ST" COMBINED. BE SURE TRACE THE APPROPRIATE CIRCUIT DEPENDING ON THE IGNITION KEY POSITION.

* HATCHBACK

TSB Revision
MFI CIRCUIT (1992 MODEL)

<NON TURBO>
CIRCUIT DIAGRAMS – MFI Circuit <NON TURBO>

MFI CIRCUIT (1992 MODEL) <NON TURBO> (CONTINUED)

TSB Revision
CIRCUIT DIAGRAMS – MFI Circuit <NON TURBO>

MFI RELAY

TRI

EVAPORATIVE EMISSION PURGE SOLENOID

RL

BR-L

LG-R

EGR SOLENOID (A-21)

ENGINE CONTROL MODULE

POWER STEERING PRESSURE SWITCH

DATA LINK CONNECTOR

IGNITION TIMING ADJUSTMENT CONNECTOR

TRANSMISSION CONTROL MODULE

TSB Revision
CIRCUIT DIAGRAMS – MFI Circuit <TURBO>

MFI CIRCUIT (1992 MODEL)
<TURBO>

[Diagram of circuit connections and labels]
MFI CIRCUIT (1992 MODEL) <TURBO> (CONTINUED)

VOLUME AIR FLOW SENSOR (B-29)

INTAKE AIR TEMPERATURE SENSOR

ATMOSPHERIC SENSOR

CRANKSHAFT AND CAMSHAFT POSITION SENSORS (B-04) 0.85R

FLOW SENSOR (B-29)

INTAKE AIR TEMPERATURE

--

R-W 1.25B R-L G-Y 0 0.85R L-Y

19 C-53 30 65 70 68 69

1.25B 1.25B

G-Y BR-R 1.25B Y-R B-W

63 ENGINE CONTROL MODULE

MFI RELAY

0.85R

HEATED OXYGEN SENSOR (LH) (B-16)

THROTTLE POSITION SENSOR (B-05)

ENGINE COOLANT TEMPERATURE (B-02)

TSB Revision
CIRCUIT DIAGRAMS – MFI Circuit <TURBO>

 IGNITION SW 11
 2B-
 0.85B-
 0.85B-
 B-W
 COMBINATION METER
 106
 111
 111
 66
 21

 COMBINATION GAUGE
 7
 6 (C-14)
 7
 5G (0-04)

 SPEED SENSOR
 6 (C-71)

 MET RELAY
 (F) 1.25B-L
 (F) 1.25B-L
 1.25B-L

 RESISTOR
 1.25B-L

 FUEL PUMP RELAY
 (B-28)

 FUEL PUMP
 CONNNECTION

 ENGINE CONTROL MODULE
 2B

 TSB Revision

HR05M06AB
MFI CIRCUIT (1994 MODELS)

MFI CIRCUIT (1994 MODELS)

CIRCUIT DIAGRAMS – MFI Circuit <NON TURBO>

NOTE:
#1: FEDERAL
#2: CALIFORNIA HR05M02AA
MFI CIRCUIT (1994 MODELS) <NON TURBO> (CONTINUED)

CIRCUIT DIAGRAMS – MFI Circuit <NON TURBO>
MFI CIRCUIT (1994 MODELS) <NON TURBO> (CONTINUED)
MFI CIRCUIT (1994 MODELS)
<TURBO>
CIRCUIT DIAGRAMS - MFI Circuit <TURBO>

THROTTLE POSITION SENSOR

EGR TEMPERATURE SENSOR (CALIFORNIA)

KNOCK SENSOR

ENGINE CONTROL MODULE

(TSBN05M07BB)

TSB Revision
CIRCUIT DIAGRAMS – MFI Circuit <NON TURBO>

MFI CIRCUIT (1995 MODELS)
<NON TURBO> (FEDERAL)

[Image of a circuit diagram with labels and connections, including fuse links, battery, starter relay, ignition switch, and various electrical components such as headlights, dome light, foot light, and Ignition key illumination light.]

1.25B-W
2.5B-W
2.5B-Y
1.25R-E
1.25R-B
1.25R-L
1.25R-W
1.25B-W
1.25B-Y
1.25B-L
B-W
2B-W
2B-Y
2B-R
1.25
M/T
A/T
W-R
L-G
FEDERAL
NON TURBO
TSB Revision
MFI CIRCUIT (1995 MODELS) <NON TURBO> (FEDERAL) (CONTINUED)

MFI Relay

1. 1.25R 25R (F) 1.25R

2. 0.85R (F) 0.85R

3. E-40

4. Sensor 3

5. 3

6. 4

7. 1.25B 1.25B

8. 1.25B 1.25B

9. E-11

10. E-12

11. E-53

12. E-35

13. E-40

14. E-41

15. E-52

16. E-53

17. SV

18. SV

19. GND

20. V

21. ENGINE CONTROL MODULE

TSB Revision
CIRCUIT DIAGRAMS – MFI Circuit <NON TURBO>

ENGINE CONTROL MODULE

LEFT BANK HEATED OXYGEN SENSOR (FRONT)

KNOCK SENSOR

INJECTOR

TSB Revision
MFI CIRCUIT (1995 MODELS)
<NON TURBO> (CALIFORNIA)

---

**FUSIBLE LINKS**

- **BATTERY**
- **STARTER RELAY**
- **IGNITION SWITCH (ST)**

---

**HORN**

- **J/B**

---

**MFI CIRCUIT**

- **2W-B**
- **5W-B**
- **125B-Y**
- **125B-W**
- **1.25B-R**
- **1.25B-L**
- **2B-Y**
- **2B-W**
- **2B-R**
- **2B-E**
- **2B-W**
- **B-W**
- **B-E**
- **B-R**
- **B-L**
- **W-R**
- **L-G**
- **R-E**
- **R-B**
- **R-Y**
- **R-R**
- **R-L**

---

**TSB Revision**
MFI CIRCUIT (1995 MODELS) <NON TURBO> (CALIFORNIA) (CONTINUED)

**J/B MULTI-PURPOSE FUSE**
- 0.85R-B (WITH ACTIVATION CONTROL)
- 1.25R-W (W/O CRUISE CONTROL)

**STOP LIGHT SWITCH**
- ON: OFF
- OFF: ON

**DIODE**
- E-31

**ENGINE CONTROL MODULE**
- C-52

**RADIATOR FAN MOTOR RELAY (HI) (LO)**
- A-39
- A-52

**IGNITION POWER TRANSISTOR**
- ELC-4A/T

**MAGNETIC CLUTCH**
- NOTE: Hatchback Convertible

**TSB Revision**

**DEFOGGER RELAY**
- 3B-R

**G-R**

**ELC-4A/T**
- G-R

**NOTE**: Hatchback Convertible

**MAGNETIC CLUTCH**

**DIODE**
- G-Y

**RED WINDOW DEFOGGER REMOTE CONTROLLED MIRROR**
- G

**DIODE**
- E-31

**G**

**NOTE**: Hatchback Convertible
MFI CIRCUIT (FROM 1996 MODELS)

1. Circuit Diagrams - MFI Circuit <NON TURBO>

2. Diagram of the MFI Circuit from 1996 models, showing the connections and components involved.

3. Key components and their connections include:
   - Fusible Link
   - Battery
   - Starter Relay
   - Ignition Switch (ST)
   - Horn
   - Headlights
   - Door lights
   - Ignition Key Cylinder
   - Dome Light
   - Foot Light
   - Volume Airflow Sensor
   - MFI Relay

4. Additional details include:
   - PNP Switch
   - 10D Connector
   - A-T Disconnect
   - Connectors and their connections are marked with numbers and labels.
MFI CIRCUIT (FROM 1996 MODELS) <NON TURBO> (CONTINUED)
MFI CIRCUIT (FROM 1996 MODELS) <NON TURBO> (CONTINUED)

J/B (MULTI-PURPOSE) FUSE

W/O AUTO CRUISE CONTROL

STOP LIGHT SWITCH

0.85G

DIODE

1

REAR WINDOW DEFOGGER

DIODE E31

G

G

G

R-G

19 (C-29)

R-G

58 (C-92)

G

32 (C-52)

L-B

(F)B-L

(F)B-W

(F)BR-R

(F)

0

21

11 (C-3;2)

11 (C-3;2)

51

(L-0)

31 (C-53)

45

G

(G-B)

G

ELC-4A/T

ELC-4A/T

(A-67)

(A-67)

CIRCUIT DIAGRAMS — MFI Circuit <NON TURBO>

TSB Revision
MFI CIRCUIT (FROM 1996 MODELS)
<TURBO>

CIRCUIT DIAGRAMS - MFI Circuit <TURBO>

TSB Revision
CIRCUIT DIAGRAMS – MFI Circuit <TURBO>

LEFT BANK HEATED OXYGEN SENSOR (FRONT) (B-16)

RIGHT BANK HEATED OXYGEN SENSOR (REAR) (B-44)

LEFT BANK HEATED OXYGEN SENSOR (REAR) (G-45)

RIGHT BANK HEATED OXYGEN SENSOR (FRONT) (B-19)

TSB Revision
## COMPONENT LOCATION

Up to 1993 models and 1994, 1995 models Non Turbo (Federal)

<table>
<thead>
<tr>
<th>Name</th>
<th>Symbol</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air conditioning relay</td>
<td>O</td>
<td>Ignition coil (ignition power transistor)</td>
<td>M</td>
</tr>
<tr>
<td>Air conditioning switch</td>
<td>G</td>
<td>Ignition timing adjusting terminal</td>
<td>Q</td>
</tr>
<tr>
<td>Camshaft position sensor</td>
<td>a</td>
<td>Injector</td>
<td>K</td>
</tr>
<tr>
<td>Check engine/malfunction indicator lamp</td>
<td>P</td>
<td>Knock sensor</td>
<td>T</td>
</tr>
<tr>
<td>Crankshaft position sensor</td>
<td>D</td>
<td>Multiport fuel injection (MFI) relay</td>
<td>N</td>
</tr>
<tr>
<td>Data link connector</td>
<td>R</td>
<td>Data link connector</td>
<td>R</td>
</tr>
<tr>
<td>EGR solenoid &lt;California - Non Turbo, Turbo&gt;</td>
<td>Z</td>
<td>Park/Neutral position switch &lt;A/T&gt;</td>
<td>I</td>
</tr>
<tr>
<td>EGR temperature sensor &lt;California - Non Turbo, Turbo&gt;</td>
<td>Y</td>
<td>Power steering pressure switch</td>
<td>H</td>
</tr>
<tr>
<td>Engine control module</td>
<td>S</td>
<td>Resistor &lt;Turbo&gt;</td>
<td>W</td>
</tr>
<tr>
<td>Engine coolant temperature sensor</td>
<td>B</td>
<td>Throttle position sensor (With built-in closed throttle position switch)</td>
<td>C</td>
</tr>
<tr>
<td>Evaporative emission purge solenoid</td>
<td>X</td>
<td>Turbocharger waste gate solenoid &lt;Turbo&gt;</td>
<td>U</td>
</tr>
<tr>
<td>Fuel pressure solenoid &lt;Turbo&gt;</td>
<td>V</td>
<td>Variable induction control motor (DC motor) (with built-in induction control valve position sensor) &lt;Non Turbo&gt;</td>
<td>J</td>
</tr>
<tr>
<td>Heated oxygen sensor</td>
<td>E</td>
<td>Vehicle speed sensor</td>
<td>F</td>
</tr>
<tr>
<td>Idle air control motor (stepper motor)</td>
<td>L</td>
<td>Volume air flow sensor (with built-in intake air temperature sensor and barometric pressure sensor)</td>
<td>A</td>
</tr>
</tbody>
</table>

[Diagram of component locations]
Volume airflow sensor (with built-in intake air temperature sensor and barometric pressure sensor)

Engine coolant temperature sensor

Crankshaft position sensor

Crankshaft position sensor

Heated oxygen sensor

Vehicle speed sensor (reed switch)

TSB Revision
CIRCUIT DIAGRAMS – MFI Circuit

F <Turbo>, <Non-Turbo (From 1994 models)>
- Vehicle speed sensor

H Power steering pressure switch

J <Non Turbo>
- Variable induction control motor (DC motor) (with built-in induction control valve position sensor)

K Ignition coil (ignition power transistor)

L Idle air control motor (stepper motor)

M Ignition coil (ignition power transistor)

N MFI relay

O Air conditioning relay

TSB Revision
CIRCUIT DIAGRAMS - MFI Circuit

Check engine/malfunction indicator lamp

<Up to 1993 models>
Diagnostic output terminal and diagnostic test mode control terminal

Engine control module

<From 1994 models>
Data link connector

Knock sensor

Turbocharger waste gate solenoid

Fuel pressure solenoid

Resister

Evaporative emission purge solenoid

TSB Revision
CIRCUIT DIAGRAMS – MFI Circuit

Y <California – Non Turbo, Turbo>
- EGR temperature sensor

X7FU1010

Z <California – Non Turbo, Turbo>
- EGR solenoid

X7FU1011

a <1992 models>
- Camshaft position sensor

W7FU0942

a <From 1993 models>
- Camshaft position sensor

Y7FU1309

TSB Revision
### 1994, 1995 models except Non Turbo (Federal) and from 1996 models

<table>
<thead>
<tr>
<th>Name</th>
<th>Symbol</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air conditioning relay</td>
<td>O</td>
<td>Ignition timing adjusting terminal</td>
<td>Q</td>
</tr>
<tr>
<td>Air conditioning switch</td>
<td>G</td>
<td>Injector</td>
<td>K</td>
</tr>
<tr>
<td>Camshaft position sensor</td>
<td>a</td>
<td>Knock sensor</td>
<td>T</td>
</tr>
<tr>
<td>Check engine/malfunction indicator lamp</td>
<td>P</td>
<td>Left bank heated oxygen sensor</td>
<td>E</td>
</tr>
<tr>
<td>Crankshaft position sensor</td>
<td>D</td>
<td>Manifold differential pressure sensor (From 1996 models)</td>
<td>Y</td>
</tr>
<tr>
<td>Data link connector</td>
<td>R</td>
<td>Multiport fuel injection (MFI) relay</td>
<td>N</td>
</tr>
<tr>
<td>EGR solenoid &lt;Up to 1995 models for California - Non Turbo, Turbo, 1996 models&gt;</td>
<td>Z</td>
<td>Park/Neutral position switch &lt;A/T&gt;</td>
<td>I</td>
</tr>
<tr>
<td>EGR temperature sensor &lt;Up to 1995 models for California, Up to 1995 models for Federal -Turbo&gt;</td>
<td>Y</td>
<td>Power steering pressure switch &lt;Turbo&gt;</td>
<td>H</td>
</tr>
<tr>
<td>Engine control module</td>
<td>S</td>
<td>Right bank heated oxygen sensor</td>
<td>E</td>
</tr>
<tr>
<td>Engine coolant temperature sensor</td>
<td>B</td>
<td>Throttle position sensor (with built-in closed throttle position switch)</td>
<td>C</td>
</tr>
<tr>
<td>Evaporative emission purge solenoid</td>
<td>X</td>
<td>Turbocharger waste gate solenoid &lt;Turbo&gt;</td>
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<td>Fuel pressure solenoid &lt;Turbo&gt;</td>
<td>V</td>
<td>Variable induction control motor (DC motor) (with built-in induction control valve position sensor) &lt;Non Turbo&gt;</td>
<td>J</td>
</tr>
<tr>
<td>Heated oxygen sensor</td>
<td>E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Idle air control motor (stepper motor)</td>
<td>L</td>
<td>Vehicle speed sensor</td>
<td>F</td>
</tr>
<tr>
<td>Ignition coil (ignition power transistor)</td>
<td>M</td>
<td>Volume air flow sensor (with built-in intake air temperature sensor and barometric pressure sensor)</td>
<td>A</td>
</tr>
</tbody>
</table>

**Diagram:**

- **Q**: Ignition timing adjusting terminal
- **W**: Multiport fuel injection (MFI) relay
- **VXZUYETJH**: Engine and related components
- **LDBMCKA**: Vehicle speed sensor
- **RPFGSN**: TSB Revision
CIRCUIT DIAGRAMS – MFI Circuit

Volume air flow sensor (with built-in intake air temperature sensor and barometric pressure sensor)

Throttle position sensor (with built-in closed throttle position switch)

<California – Non Turbo and From 1996 models>

Left bank heated oxygen sensor (front)
Right bank heated oxygen sensor (rear)

<California – Turbo and From 1996 models>

Left bank heated oxygen sensor (front)
Right bank heated oxygen sensor (rear)

<Turbo>, <Non–Turbo (From 1994 models)>

Vehicle speed sensor

<Non–Turbo (Up to 1993 models)>

Vehicle speed sensor (reed switch)

<Up to 1995 models for Federal – Turbo>

Heated oxygen sensor, right
Heated oxygen sensor, left

Engine coolant temperature sensor

Crankshaft position sensor

Air conditioning switch

1 TSB Revision
CIRCUIT DIAGRAMS – MFI Circuit

H Power steering pressure switch

J <Non Turbo>
Variable induction control motor (DC motor) (with built-in induction control valve position sensor)

L Idle air control motor (stepper motor)

N <Up to 1995 models>
MFI relay

O Air conditioning relay

P Check engine/malfunction indicator lamp

CIRCUIT DIAGRAMS – MFI Circuit

I Park/Neutral position switch

K Injector

M Ignition coil (ignition power transistor)

N <From 1996 models>
MFI relay

TSB Revision
CIRCUIT DIAGRAMS - MFI Circuit

- EGR solenoid

- Camshaft position sensor
## COOLING
### COMPONENT LOCATION

<table>
<thead>
<tr>
<th>Name</th>
<th>Symbol</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air conditioning compressor lock controller</td>
<td>E</td>
<td>Radiator fan motor control relay (up to 1993 models)</td>
<td>B</td>
</tr>
<tr>
<td>Air conditioning control unit</td>
<td>D</td>
<td>Radiator fan motor relay (Hi)</td>
<td>A</td>
</tr>
<tr>
<td>Condenser fan motor relay (Hi)</td>
<td>B</td>
<td>Radiator fan motor relay (LO)</td>
<td>A</td>
</tr>
<tr>
<td>Condenser fan motor relay (LO)</td>
<td>B</td>
<td>Thermo sensor</td>
<td>C</td>
</tr>
</tbody>
</table>

![Diagram A](image1.png)

![Diagram B](image2.png)

![Diagram C](image3.png)

![Diagram D](image4.png)

![Diagram E](image5.png)

---

**TSB Revision**
COOLING CIRCUIT (UP TO 1993 MODELS)

COOLING CIRCUIT (UP TO 1993 MODELS)

IGNITION SWITC(IG2)

IGNITION SWITC(IG1)

FUSIBLE LINK

ENGINE COOLANT LEVEL SENSOR

ENGINE COOLANT TEMPERATURE SENSOR

RADIATOR FAN ASSEMBLY

RADIATOR FAN ASSEMBLY

RESISTOR

ENGINE LIGHT WARNING

RADIATOR FAN ASSEMBLY (FAN ASSEMBLY)

ENGINE LIGHT WARNING
COOLING CIRCUIT (1994, 1995 MODELS)

<NON TURBO> (FEDERAL)
COOLING CIRCUIT (1994, 1995 MODELS)
<TURBO, NON TURBO (CALIFORNIA)>
COOLING CIRCUIT (FROM 1996 MODELS)
<Up to 1993 models>

TROUBLESHOOTING HINTS

1. Neither the radiator fan nor condenser fan rotate at all.
   - Check fusible link No. 5

2. Only the condenser fan does not operate.
   - Check dedicated fuse No. 8.

3. The radiator fan and condenser fan do not operate in the low speed mode, but operate otherwise.
   (1) The A/C compressor magnet clutch does not enter the "ON" state.
       - Check whether the output of the auto compressor control unit is available.
       NOTE
       For troubleshooting of the air conditioning control unit, refer to GROUP 55.
   (2) The A/C compressor magnet clutch enters the "ON" state.
       - Check the resistor.

4. The radiator fan and condenser fan do not operate in the high speed mode, but operate otherwise.
   - Check the thermo sensor (for condenser fan).
   - Check the radiator fan motor relay (Hi) and condenser fan motor relay (Lo).

---

Fan Operating Mode

<table>
<thead>
<tr>
<th>Air conditioning switch</th>
<th>Thermo sensor for radiator fan ON at 85 ± 4°C (185 ± 7°F) or more</th>
<th>Thermo sensor for condenser fan ON at 95 ± 4°C (209 ± 7°F) or more</th>
<th>A/C engine coolant temperature switch (for air conditioning cut-off) OFF at 115 ± 3°C (239 ± 5°F) or over, ON at 108°C (226°F) or less</th>
<th>Radiator fan motor</th>
<th>Condenser fan motor</th>
</tr>
</thead>
</table>
| OFF                     | OFF
| ON                      | OFF
| ON                      | -

---

Condenser fan motor operates in HIGH only when it receives input from condenser fan motor relay (Hi) and (Lo).
OPERATION

The engine control module controls the power transistors (high speed and low speed) in the module to provide radiator fan motor and condenser fan motor rotation controls in accordance with the engine coolant temperature and vehicle speed.

1. Radiator Fan (Low Speed Rotation)

   - When the engine control module turns on the power transistor (low speed) in the module, the current flows from the ignition switch to the engine control module through the radiator fan motor relay (LO) coil. If the current flows to the fan motor relay coil, the switch of the relay turns on to supply the motor driving power (for low speed rotation). This will cause the current to flow from the battery to the ground through the radiator fan motor, relay switch and resistor, rotating the radiator fan at low speeds.

2. Condenser Fan (Low Speed Rotation)

   - The power from the A/C compressor lock controller turns on the condenser fan motor relay (LO) to rotate the condenser fan at low speeds.

3. Radiator Fan, Condenser Fan (High Speed Rotation)

   - When the engine control module turns on the power transistor (high speed) in the module, the radiator fan motor relay (HI) and condenser fan motor relay (HI) will operate and the motor driving power (for high speed rotation) is sent to the radiator fan motor and condenser fan motor to rotate the radiator fan and condenser fan at high speeds.

**TROUBLESHOOTING HINTS**

1. Neither the radiator fan nor condenser fan rotate at all.
   - Check fusible link No. 5.

2. Only the condenser fan does not operate.
   - Check dedicated fuse No. 8.

3. The condenser fan do not operate in the low speed mode, but operate otherwise.
   - The A/C compressor magnet clutch does not enter the "ON" state.
     - Check whether the output of the air conditioning compressor lock controller unit is available.
   - The A/C compressor magnet clutch enters the "ON" state.
     - Check the condenser fan motor relay (LO).

4. The radiator fan and condenser fan do not operate in the high speed mode, but operate otherwise.
   - Check the engine control unit.

**Fan Operating Mode**

<table>
<thead>
<tr>
<th>A/C compressor lock controller output</th>
<th>Vehicle speed km/h [mph]</th>
<th>Engine coolant temperature °C [°F]</th>
<th>Transistor in engine control unit</th>
<th>Radiator fan</th>
<th>Condenser fan</th>
</tr>
</thead>
<tbody>
<tr>
<td>LO (0V) 80 or less [50 or less]</td>
<td>Approx. 95 [203] or less</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Approx. 95 [203] or more</td>
<td>ON</td>
<td>OFF</td>
<td>Low speed</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>Approx. 105 [221] or more</td>
<td>ON</td>
<td>ON</td>
<td>High speed</td>
<td>High speed</td>
<td>High speed</td>
</tr>
<tr>
<td>80 or more [50 or more]</td>
<td>Approx. 105 [221] or less</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>Approx. 105 [221] or more</td>
<td>ON</td>
<td>ON</td>
<td>High speed</td>
<td>High speed</td>
<td>High speed</td>
</tr>
<tr>
<td>HI (12V)</td>
<td>Approx. 105 [221] or less</td>
<td>ON</td>
<td>Low speed</td>
<td>Low speed</td>
<td>Low speed</td>
</tr>
<tr>
<td>Approx. 105 [221] or more</td>
<td>ON</td>
<td>ON</td>
<td>High speed</td>
<td>High speed</td>
<td>High speed</td>
</tr>
</tbody>
</table>

**Caption:** TSB Revision
ELC-4 A/T CIRCUIT (1992 MODEL)

IGNITION SWITCH (ST) -> STARTER RELAY -> IGNITION SWITCH (IG1)

WITHOUT THEALARM

WITH THEALARM

PARK/NEUTRAL POSITION SWITCH

COMBINATION METER

RHEOSTAT

TSB Revision
ELC-4 A/T CIRCUIT (1993 MODELS)

IGNITION SWITCH (ST)  —  STARTER RELAY  —  IGNITION SWITCH (IG1)

WITHOUT THEFT-ALARM  WITH THEFT-ALARM

IGNITION SWITCH (ST)  —  STARTER

PARK/NEUTRAL POSITION SWITCH

COMBINATION METER

RHEOSTAT

TSB Revision
ELC-4 A/T CIRCUIT (1994, 1995 MODELS)

(FEDERAL)
ELC-4 A/T CIRCUIT (1994, 1995 MODELS) (CALIFORNIA)
NOTE:
- Hatchback
- Convertible

- Overdrive and Economy
- Taillight Relay
- Overdrive and Power/Economy Switch
- Electronic Control
- Suspension Meter and Fog Light
- Glove Box Light, Vanity Mirror Light and Inspection Light
- Rear Window Defogger
- Turn-Signal Light and Inspection and Hazard Light

- Combination Meter
- Rheostat

- ELC-4/A/T Control Module

TSB Revision
CIRCUIT DIAGRAMS – ELC-4 A/T Circuit

ENGINE CONTROL MODULE

PULSE GENERATOR B
PULSE GENERATOR A

THROTTLE POSITION SENSOR

SOLENOID VALVE

TSB Revision
COMPONENT LOCATION

<table>
<thead>
<tr>
<th>Name</th>
<th>Symbol</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>A/T fluid temperature sensor</td>
<td>A</td>
<td>ELC-4 A/T control module</td>
<td>F</td>
</tr>
<tr>
<td>A/T solenoid valve assembly (valve body)</td>
<td>B</td>
<td>Engine control module</td>
<td>D</td>
</tr>
<tr>
<td>Auto-cruise control unit</td>
<td>G</td>
<td>Kickdown servo switch</td>
<td>A</td>
</tr>
<tr>
<td>Data link connector (from 1994 models)</td>
<td>E</td>
<td>Pulse generator</td>
<td>A</td>
</tr>
<tr>
<td>Data link connector (up to 1993 models)</td>
<td>D</td>
<td>Throttle position sensor</td>
<td>C</td>
</tr>
</tbody>
</table>

**TSB Revision**
BUZZER CIRCUIT (FROM 1994 MODELS)

FUSIBLE LINK

IGNITION SWITCH (IG1)

BUZER CIRCUIT (FROM 1994 MODELS)

FUSIBLE LINK

IGNITION SWITCH (IG1)

DOOR LIGHT AND LUGGAGE COMPARTMENT LIGHT

DOOR LIGHT AND LUGGAGE COMPARTMENT LIGHT

DOOR LIGHT AND LUGGAGE COMPARTMENT LIGHT

NOTE:

1. VEHICLES WITHOUT TIRE-ALARM SYSTEM

2. VEHICLES WITH TIRE-ALARM SYSTEM

DATA LINK CONNECTOR

TSB Revision
CIRCUIT DIAGRAMS – Buzzer Circuit

COMPONENT LOCATION

<table>
<thead>
<tr>
<th>Name</th>
<th>Symbol</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buzzer</td>
<td>C</td>
<td>ETACS unit</td>
<td>A</td>
</tr>
<tr>
<td>Diode (seat belt warning)</td>
<td>B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

![Diagram showing component location]
OPERATION

<Key-reminder warning>
- Battery positive voltage is continuously applied to the key-reminder switch.
- If the driver’s door is opened (door switch ON) with the key inserted in the ignition switch (key-reminder switch ON), the buzzer sounds to warn that the key has been left in the switch.

<Seat belt warning>
- When the ignition switch is turned on, the timer circuit and pulse circuit will flicker the seat belt warning light for approx. 6 seconds with the buzzer intermittently sounding.
- If the seat belt is fastened for the while, the seat belt switch will be turned off and the buzzer will stop.

TROUBLESHOOTING HINTS

<table>
<thead>
<tr>
<th>Problem</th>
<th>Check method</th>
</tr>
</thead>
<tbody>
<tr>
<td>The key-reminder warning doesn’t sound.</td>
<td>The seat belt warning function is OK.</td>
</tr>
<tr>
<td>The key-reminder warning doesn’t sound.</td>
<td>The seat belt warning also doesn’t function.</td>
</tr>
<tr>
<td>The seat belt warning doesn’t function.</td>
<td>The seat belt warning light flashes.</td>
</tr>
<tr>
<td>The seat belt warning doesn’t function.</td>
<td>The seat belt warning light also does not function (and the key-reminder warning also does not function).</td>
</tr>
<tr>
<td>The buzzer doesn’t stop even through the driver’s seat belt has been buckled.</td>
<td></td>
</tr>
<tr>
<td>The seat belt warning light doesn’t flashes (but the buzzer sounds).</td>
<td></td>
</tr>
<tr>
<td>The warning light does not flash and the warning buzzer also does not sound.</td>
<td></td>
</tr>
<tr>
<td>The warning light flashes, but the warning buzzer does not sound.</td>
<td></td>
</tr>
</tbody>
</table>
POWER WINDOW CIRCUIT
(UP TO 1993 MODELS)
CIRCUIT DIAGRAMS – Power Window Circuit
POWER WINDOW- CIRCUIT
(1995 MODELS)

POWERT WINDOW MAIN SWITCH (E-34)

2L-B

POWER WINDOW MOTOR

TSB Revision
POWER WINDOW CIRCUIT
(FROM 1996 MODELS)

NOTE:
1: HATCHBACK
2: CONVERTIBLE

POWER WINDOW MAIN SWITCH (E-34)

ONE-TOUCH DOWN CIRCUIT

POWER WINDOW MOTOR

TSB Revision
CIRCUIT DIAGRAMS – Power Window Circuit

COMPONENT LOCATION

<table>
<thead>
<tr>
<th>Name</th>
<th>Symbol</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data link connector (up to 1993 models)</td>
<td>A</td>
<td>ETACS unit</td>
<td>C</td>
</tr>
<tr>
<td>Data link connector (from 1994 models)</td>
<td>D</td>
<td>Power window relay</td>
<td>B</td>
</tr>
</tbody>
</table>

A <Up to 1993 models>
- Junction block
- Data link connector
- ETACS unit

B
- Power window relay

C
- ETACS unit

D <From 1994 models>
- Data link connector

TSB Revision
**OPERATION**
- Turn on the ignition switch, and the transistor Tr will be turned on by the timer circuit. This will turn on the power window relay allowing the power window to be opened and closed.
- Turn the ignition switch from on to off, and the timer circuit will be activated to keep transistor Tr on for 30 seconds allowing the power window to be opened and closed. Moreover, if the front door is opened, the timer circuit will stop to turn off the transistor Tr. This will prevent the window from being opened and closed.

**TROUBLESHOOTING HINTS**

<table>
<thead>
<tr>
<th>Phenomenon</th>
<th>Inspection method</th>
</tr>
</thead>
<tbody>
<tr>
<td>All door windows cannot be opened or closed.</td>
<td>• Check fusible link No. 9.</td>
</tr>
<tr>
<td></td>
<td>• Check the power-window relay.</td>
</tr>
<tr>
<td></td>
<td>• Check the power-window main switch.</td>
</tr>
<tr>
<td>One of the door windows cannot be opened or closed.</td>
<td>• Check the power-window main switch.</td>
</tr>
<tr>
<td></td>
<td>• Check the power-window motor for the power window that does not operate.</td>
</tr>
<tr>
<td>Neither of the power-window switches (main or sub) operates</td>
<td>• Check the power-window switch for the power window that does not operate.</td>
</tr>
<tr>
<td>Either the power-window main switch or sub switch does not operate.</td>
<td></td>
</tr>
<tr>
<td>The one-touch down switch function only does not operate.</td>
<td>• Replace the power-window main switch.</td>
</tr>
<tr>
<td>The power windows do not operate when the ignition switch is at the “ON” position.</td>
<td>• Check the ignition switch input signal. (Refer to GROUP 42-Troubleshooting.)</td>
</tr>
<tr>
<td></td>
<td>• Check the ignition switch. (Refer to GROUP 54–Ignition Switch.)</td>
</tr>
<tr>
<td></td>
<td>• Check the powerwindow relay. (Refer to GROUP 42–Power Window)</td>
</tr>
<tr>
<td>The power windows can be opened and closed immediately after ignition switch is switched “OFF”, but the power window operation does not stop if a front door is opened within 30 seconds.</td>
<td>• Check the front door switch input signal. (Refer to GROUP 42–Troubleshooting.)</td>
</tr>
<tr>
<td></td>
<td>• Check the front door switch. (Refer to GROUP 42–Door Assembly.)</td>
</tr>
<tr>
<td>The opening and closing operations of the power windows are possible after the timer operation time has elapsed when the ignition switch is set to the “OFF” position.</td>
<td>• Check the power window relay. (Refer to GROUP 42–Power Window.)</td>
</tr>
</tbody>
</table>
CENTRAL DOOR LOCKING CIRCUIT (UP TO 1993 MODELS)
(Vehicles without keyless entry system)
CIRCUIT DIAGRAMS – Central Door Locking Circuit

NOTE

13: VEHICLES WITHOUT THEFT-ALARM SYSTEM
14: VEHICLES WITH THEFT-ALARM SYSTEM
CENTRAL DOOR LOCKING CIRCUIT (UP TO 1993 MODELS)

(Vehicles with keyless entry system)
CIRCUIT DIAGRAMS – Central Door Locking Circuit

1. Fusible Link (G)
2. J/B
3. 10A Fuse
4. R
5. Y
6. 12V IGN
7. SWI
8. IGNITION SWITCH (ACC)
9. 2-L
10. 15A

1. IDD OR STORAGE CONNECTOR
2. KEY REMINDER SWITCH (VEHICLES WITH THEFT-ALARM)
3. ON (ACC)
4. OFF
5. 11 (C-81)
6. 8 (R-B)
7. 10A
8. FEEDER ANTENNA
9. KEYLESS ENTRY CONTROL UNIT
10. C-37
11. BR-W
12. Y-B
13. BR-L
14. BR-Y
15. B-R

1. TRANSMITTER
2. 2V
3. UNLOCK
4. LOCK
5. HR11M04AB
6. TSB Revision
CENTRAL DOOR LOCKING CIRCUIT (UP TO 1993 models)
(Vehicles with keyless entry system) (CONTINUED)

NOTE
3: VEHICLES WITHOUT THEFT-ALARM SYSTEM
4: VEHICLES WITH THEFT-ALARM SYSTEM

TSB Revision
CENTRAL DOOR LOCKING CIRCUIT (1994, 1995 MODELS)

CIRCUIT DIAGRAMS - Central Door Locking Circuit

FUSIBLE LINK 6

2W-B

HORN

5W-B

J/B

0.85R-B

0.85R-B

POWER RELAY 2 (E-38)

POWER RELAY 1 (E-38)

UNLOCK

OFF

ON

LOCK

KEYLESS ENTRY (E-37) CONTROL UNIT

TSB Revision
CENTRAL DOOR LOCKING CIRCUIT (FROM 1996 MODELS)
CIRCUIT DIAGRAMS — Central Door Locking Circuit

NOTE:
1: VEHICLES WITHOUT POWER WINDOW
2: VEHICLES WITH POWER WINDOW
3: VEHICLES WITHOUT THEFT-ALARM SYSTEM
4: VEHICLES WITH THEFT-ALARM SYSTEM

KEYLESS ENTRY CONTROL UNIT

POWER RELAY 1

POWER RELAY 2

DOOR LOCK

DOOR LOCK

NOTE:
- "POWER RELAY 1" and "POWER RELAY 2" are connected to different sections of the diagram.
- The diagram includes various components such as switches, relays, and control units.
- The notes indicate different types of vehicles and their configurations.

ETACS UNIT

TSB Revision
CENTRAL DOOR LOCKING CIRCUIT (FROM 1996 MODELS) (CONTINUED)

NOTE

Vehicle without theft-alarm system

Vehicle with theft-alarm system

Vehicle with keyless entry system

TSB Revision
COMPONENT LOCATION

<table>
<thead>
<tr>
<th>Name</th>
<th>Symbol</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data link connector (from 1994 models)</td>
<td>D</td>
<td>Door lock power relay 2 (Concerning the vehicles up to 1993 models, only for the vehicles equipped with keyless entry system.)</td>
<td>F</td>
</tr>
<tr>
<td>Data link connector (up to 1993 models)</td>
<td>A</td>
<td>ETACS unit</td>
<td>C</td>
</tr>
<tr>
<td>Door lock actuator</td>
<td>E</td>
<td>Keyless entry control unit</td>
<td>F</td>
</tr>
<tr>
<td>Door lock power relay 1</td>
<td>B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
OPERATION

<Vehicles without keyless entry system>
- When the door lock switch is set to the LOCK side (or UNLOCK side), the LOCK side (or UNLOCK side) of the door lock relay is turned ON and the door actuators of all doors operate.
- If the driver seat side door (or assistant seat side door) is opened and the driver seat side inside lock knob (or assistant seat side inside lock knob) is locked with the key inserted in the ignition switch, the ETACS unit grounds the unlock side circuit of the door lock relay to unlock all doors. This way, failure to remove the key is prevented.

<Vehicles with keyless entry system>
- With the driver's and front passenger's doors unlocked, press the LOCK switch of the transmitter, and the door lock signal output (0 V) will be sent from the keyless entry control unit terminal No. 12 closing the door lock power relays 1 and 2 to lock the driver's and front passenger's doors.
- While the R.H. and L.H. doors are in the locked state, press the UNLOCK switch of the transmitter once, and the DOOR UNLOCK switch signal (0 V) will be sent from the keyless entry control unit terminal No. 14 closing the door lock power relay 2 to unlock the driver's door.
- Under the above-mentioned conditions, further press the UNLOCK switch of the transmitter, and the DOOR UNLOCK signal output (0 V) will be sent from the keyless entry control unit terminal No. 13 closing the door lock power relay 1 to lock the front passenger's door.
- When the keyless entry system is operated to turn the driver's door lock switch from the UNLOCK position to the LOCK position, the dome light/foot light blinking signal output (system voltage) will be sent twice from the keyless entry control unit terminal No. 11 when the door lock switch is turned from the LOCK position to the UNLOCK position, the lighting signal output (0 V) will be provided for approx. 3 seconds.

NOTE
The dome light winks or comes on when the dome light switch is in the DOOR interlock position. However, the dome light does not wink while it is ON for 6 seconds after closing the door by ETACS function.
Besides the above-mentioned operations, the keyless entry control unit has the following functions.
- If any door is not opened or closed within 30 seconds from unlocking the door by means of the keyless entry system, the door is automatically locked. In addition, if the cryptographic code other than the code stored in the receiver memory is received 30 times in one minute continuously, operation of the unit is suspended for 10 minutes.
- Operation is also suspended if the ignition key remains inserted (key reminder switch: OFF) and either door is left open (door switch: ON).

TROUBLESHOOTING HINTS

<Vehicles without keyless entry system>

<table>
<thead>
<tr>
<th>Phenomenon</th>
<th>Inspection method</th>
</tr>
</thead>
<tbody>
<tr>
<td>One of the door lock actuators fails to operate.</td>
<td>- Check the door actuator which fails to operate.</td>
</tr>
<tr>
<td>No unlock operation can be made by pressing door lock knob after fulfillment of following conditions.</td>
<td>- Check the key reminder switch input signal.</td>
</tr>
<tr>
<td>- Insertion of key in ignition switch (key reminder switch OFF)</td>
<td>- Check the key reminder switch. (Refer to GROUP 54-Ignition Switch.)</td>
</tr>
<tr>
<td>- Opening of door (door switch ON)</td>
<td>- Check the front door switch input signal.</td>
</tr>
<tr>
<td></td>
<td>- Check the front door switch. (Refer to GROUP 42-Door Assembly)</td>
</tr>
</tbody>
</table>
<Vehicles with keyless entry system>

- The indicator does not blink after pressing the transmission switch of the transmitter.
  1) Check or replace the battery. (Refer to GROUP 42-Keyless Entry System.)
  2) Replace the transmitter.
- Transmitted wave is being sent from the transmitter (indicator is blinking), but the system does not operate.
  1) Check the cryptographic code registering method. (Refer to GROUP 42-Keyless Entry System.)
  2) Check the keyless entry control unit terminal voltage. (Refer to GROUP 42-Troubleshooting.)
  3) Check the coaxial cable of antenna and the ground wire for connection.
- Only R.H. or L.H. door can be locked or unlocked.
  1) Check the door lock power relay 1 (for front passenger’s door) or door lock power relay 2 (for driver’s door). (Refer to GROUP 42-Central Door Locking System.)
  2) Check the keyless entry control unit terminal voltage. (Refer to GROUP 42-Troubleshooting.)
- R.H. and L.H. doors can be locked and unlocked by the transmitter but the dome light and foot light do not blink or come on. (Interlocked lighting of the dome light and foot light by means of the dome light switch or door opening and closing is normal).
  1) Check the keyless entry control unit terminal voltage (Refer to GROUP 42-Troubleshooting.)
  2) Check the harness.

NOTE
- Perform this check when replacement of the transmitter and/or keyless entry control unit or faulty storage of cryptographic code has been made.
HEATER CIRCUIT (FROM 1996 MODELS)

- **FUSIBLE LINK**: 5W-B 1 1
- **IGNITION SWITCH**
- **TAIL LIGHT RELAY**: 2R-W
- **DEDICATED FUSE**: 15A G
- **G-W**: 6 C-69
- **G-W**: 5 C-83
- **G-W**: 3
- **TAIL LIGHT, LAMPS AND LICENSE PLATE LIGHT**: HEATER CONTROL PANEL ILLUMINATION LIGHT

**BLOWER MOTOR RELAY**: C-73
- **OFF**: 3
- **ON**: 2

**BLOWER MOTOR**: C-38
- **BLOWER RESISTOR**: C-24
- **RESISTANCE**: 0.85

**BLOWER SWITCH**: (c-19)
- **LOW**: 1
- **MED**: 2
- **HI**: 3

**A/C SWITCH**: W-B 1 2

**IGNITION SWITCH**: 7N (YG2)
- **SWITCH**: 10A

**REAR WINDOW DEFOGGER**: 3L

**BLADE**: 3

**TAIL LIGHT, LAMPS, PARKING/SIDEMARKER LIGHT**: C-20

**B-Y**: 1

**RHEOSTAT**: C-83

**TSB Revision**

**HR12M09AA**
## COMPONENT LOCATION

<table>
<thead>
<tr>
<th>Name</th>
<th>Symbol</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blower motor relay</td>
<td>A</td>
<td>Blower resistor</td>
<td>B</td>
</tr>
<tr>
<td>Blower motor relay (HI) (Up to 1995 models)</td>
<td>C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TSB Revision**
MANUAL AIR CONDITIONING CIRCUIT (1992 MODEL)
MANUAL AIR CONDITIONING CIRCUIT (1992 MODEL) (CONTINUED)

G-R

ON-OFF: 115°C (239°F)
OFF-ON: 110°C (230°F)

THERMOSTAT

L-R

ON-OFF: 115°C (239°F)
OFF-ON: 110°C (230°F)

G-R

DUAL PRESSURE SWITCH

(A-35)

FUSE:

LINE 1

2R-B

Dedicated Fuse

10A

MAGNETIC CLUTCH

RELAY

(A-33X)

COMPARISON

COMPRESSOR SPEED OPERATION CIRCUIT

ON-OFF: 2100kPa (299Psi)
OFF-ON: 235kPa (33.4 Psi)

COMPARISON

ON-OFF

: 210kPa (29.9 Psi)
OFF-ON

: 235kPa (33.4 Psi)

TRANSAXLE CONTROL MODULE

AIR CONDITIONING TEMPERATURE

SWITCH

ON-OFF:
115°C (239°F)
110°C (230°F)

G-R

G-R

3

B-W

MAGNETIC CLUTCH

(B-20)

ENGINE CONTROL MODULE

HR12M01BA

TSB Revision
MANUAL AIR CONDITIONING CIRCUIT (1992 MODEL) (CONTINUED)

- Fusible Link (6)
- Ignition Switch (1G2)
- Blower Motor Relay
- Blower Switch

(c-19) C-24, (c-39) C-68 (c-73) C-82, C-83

TSB Revision
MANUAL AIR CONDITIONING CIRCUIT (1993 MODELS) (CONTINUED)

DUAL PRESSURE SWITCH A-35

THERMOSTAT ON-OFF: 155°C (311°F)
OFF-ON: 110°C (230°F)

FUSIBLE LINK

TRANSMISSION CONTROL

ENGINE COOLANT TEMPERATURE SWITCH
ON-OFF: 123°F (50°C)
OFF-ON: 100°C (212°F)

MAGNETIC CLUTCH RELAY A-33X

MAGNETIC CLUTCH B-20

SPEEDOMETER

TSB Revision
MANUAL AIR CONDITIONING CIRCUIT (1993 MODELS) (CONTINUED)
MANUAL AIR CONDITIONING CIRCUIT (1994, 1995 MODELS)

<NON TURBO> (FEDERAL)
CIRCUIT DIAGRAMS - Manual Air Conditioning Circuit

J/B
CIRCULAR FUSE

2L-R
2L-Y
2L-W
2L-V
2L-U
2L-D

G-B

G-O

AIR CONDITIONING COMPRESSOR LOCK CONTROLLER

DEDICATED FUSE

CONDENSER FAN MOTOR RELAY (HI) (LO)

1
2
3
4

OFF
ON

A-31X
A-34X

A-45

2L-B

2L-A

NO CONNECTION

2B

A-3B

2B

4

(A-31X) (A-34X) (A-35)


HR12M03AB

TSB Revision
MANUAL AIR CONDITIONING CIRCUIT (1994, 1995 MODELS) <NON TURBO> (FEDERAL) (CONTINUED)
CIRCUIT DIAGRAMS – Manual Air Conditioning Circuit

Multifunction Switch

Air Conditioning Compressor Lock
Blower Switch

RAIL LIGHT RELAY

2R-W

DEDICATED FUSE

G-W

C-E9

J/B

G-W

C-E9

5

G-W

TAIL LIGHT

MARKER/LIGHT

PLATE LIGHT

MULTI-PURPOSE FUSE

AIR CONDITIONING SWITCH

OFF

A/C

ECONO

A/C

ECONO

B-Y

B-Y

B-Y

B-Y

B-Y

B-Y

B-Y

B-Y

CIGARETTE LIGHTER

RHEOSTAT

AIR CONDITIONING CONTROL UNIT

6V

6V

6V

AIR INLET SENSOR

AIR THERMO SENSOR

AIR CONDITIONING CONTROL UNIT

TSB Revision
MANUAL AIR CONDITIONING CIRCUIT (1994, 1995 MODELS)

<TURBO, NON TURBO (CALIFORNIA)>

CIRCUIT DIAGRAMS – Manual Air Conditioning Circuit

[Diagram of the manual air conditioning circuit with labels for various components such as fan assembly, resistor, ignition switch, radiator motor relay, vehicle speed sensor, and engine control module.]

TSB Revision
MANUAL AIR CONDITIONING CIRCUIT (1994, 1995 MODELS) <TURBO, NON TURBO (CALIFORNIA)> (CONTINUED)
MANUAL AIR CONDITIONING CIRCUIT (1994, 1995 MODELS) <TURBO, NON TURBO (CALIFORNIA)> (CONTINUED)
MANUAL AIR CONDITIONING CIRCUIT (FROM 1996 MODELS)
CIRCUIT DIAGRAMS – Manual Air Conditioning Circuit

MANUAL AIR CONDITIONING CIRCUIT (FROM 1996 MODELS) (CONTINUED)

COMPRESSOR SPEED
OPERATION CIRCUIT

THRESHOLD COMPARE

ON-OFF
OFF-ON:
200kPa (29 psi)
225kPa (32 psi)
2600kPa (370 psi)

ER12MR

REVOLUTION SENSOR

ENGINE

CONTROL

MODULE

 Junction Box

(a-33) (a-35) (a-36)
(a-67) (b-20) (c-02)
(c-40) (c-52)
(c-53)

TSB Revision
FULL AUTO AIR CONDITIONING CIRCUIT (1992 MODEL)
FULL AUTO AIR CONDITIONING CIRCUIT (1992 MODEL) (CONTINUED)

FUSIBLE LINK (G)

IGNITION SWITCH (IG2)

AIR CONDITIONING CONTROL UNIT

TSB Revision
CIRCUIT DIAGRAMS – Full Auto Air Conditioning Circuit

DISPLAY

52 61 55 56 (c-17)

(W-R: B-C B-R B-W)

16 15 5 6 (C-50)

AIR CONDITIONING CONTROL UNIT (C-49)

DEDICATED IC

5 V

105 111 60 56 58 57 (C-49) 112 103 (C-51)

R-G B-W (L-W) (L-G) (W) R-Y G-L

R-G B-W (L-W) (W-L) (L-G) (L-W) (W) (L-G) R-Y G-L

BLEND AIR DAMPER CONTROL MOTOR (C-21)

MODE SELECTION DAMPER CONTROL MOTOR (C-22)

C-17 C-21 C-22 C-49 C-50 (c-51) (F-01) (F-34)

INTEO R TEMPERATURE SENSOR

(F-01)

(Y-L) (L-W)

(F-34: 3——— 1

(Y-L) (L-W)

TSB Revision
FULL AUTO AIR CONDITIONING CIRCUIT
(1993 MODELS)

- Fusible Link (5)
- Ignition Switch (IG2)
- Radiator Fan Assembly (1993 MODELS)
- TSB Revision
FULL AUTO AIR CONDITIONING CIRCUIT (1994, 1995 MODELS)

<NON TURBO> (FEDERAL)

CIRCUIT DIAGRAMS – Full Auto Air Conditioning Circuit

[Diagram of Full Auto Air Conditioning Circuit with labels and connections]
FULL AUTO AIR CONDITIONING CIRCUIT (1994, 1995 MODELS)
\(<\text{TURBO}\>\) (FEDERAL) (CONTINUED)

### Dual Pressure Switch (A-35)
- ON-OFF: 200 kPa (28 psi)
- OFF-ON: 125 kPa (18 psi)
- OFF-OFF: 2000 kPa (290 psi)
- COMPARISON

### Thermostat
- ON-OFF: 155°C (311°F)
- OFF-ON: 110°C (230°F)

### Engine Control Module
- ELC-4A/T

### Compressor Speed Operation Circuit
- REVOLUT ON SENSORS
- MAGNETIC CLUTCH RELAY (A-33x)
- MAGNETIC CLUTCH (B-20)
- DUAL PRESSURE SWITCH (A-35)
- THERMOSTAT

### Controller
- AIR CONDITIONING COMPRESSOR LOCK

### Comparison
- COMPARISON
FULL AUTO AIR CONDITIONING CIRCUIT (1994, 1995 MODELS)  
<NON TURBO> (FEDERAL) (CONTINUED)
FULL AUTO AIR CONDITIONING CIRCUIT (1994, 1995 MODELS)
<TURBO, NON TURBO (CALIFORNIA)>
FULL AUTO AIR CONDITIONING CIRCUIT (1994, 1995 MODELS)
<TURBO, NON TURBO (CALIFORNIA)> (CONTINUED)
CIRCUIT DIAGRAMS - Full Auto Air Conditioning Circuit

[Diagram of Full Auto Air Conditioning Circuit]

- **Air Conditioning Controller**
- **Air Conditioning Operation Circuit**
- **Engine Speed Operation Circuit**
- **Combination Meter (Tachometer)**
- **Ignition Power Transistor**
- **Drive Belt Slip Signal Input Circuit**

**TSB Revision**
CIRCUIT DIAGRAMS – Full Auto Air Conditioning Circuit

NOTE:
1: HATCHBACK
2: CONVERTIBLE

Display

Air Conditioning Control Panel

Interior Temperature Sensor

Air Conditioning Control Unit

Blend Air Damper Control Motor

Mode Selection Motor

TSB Revision
FULL AUTO AIR CONDITIONING CIRCUIT (FROM 1996 MODELS)
CIRCUIT DIAGRAMS – Full Auto Air Conditioning Circuit

PHOTO SENSOR

AIR CONDITIONING CONTROL PANEL

AIR CONDITIONING CONTROL SWITCH

DOOR LIGHT AND LUGGAGE COMPARTMENT

DATA LINK CONNECTOR

AIR SELECTION DAMPER CONTROL MOTOR

TSB Revision
FULL AUTO AIR CONDITIONING CIRCUIT (FROM 1996 MODELS) (CONTINUED)

TAILLIGHT RELAY

AIR CONDITIONING CONTROL PANEL

NOTE: 1: HATCHBACK  2: CONVERTIBLE

ENGINE COOLANT TEMPERATURE SENSOR

C-15 C-16 C-27 C-42 C-43 C-49

C-50

TSB Revision
CIRCUIT DIAGRAMS – Full Auto Air Conditioning Circuit

AIR CONDITIONING CONTROL PANEL

DISPLAY

AIR CONDITIONING CONTROL UNIT

INTERIOR TEMPERATURE SENSOR

INTERIOR TEMPERATURE SENSOR

NOTE:
1: HATCHBACK
2: CONVERTIBLE
3: VEHICLES WITH SUNROOF
4: VEHICLES WITHOUT SUNROOF

DEDICATED IC

5V

C-51
105
111
60
56
53
57 (C-49)
112
103
(C-51)
(L-W)

R-G
B-W
(L-W)
(W-L)
(L-G)
(L-W)
(W)
(L-G)
R-1

BLEND AIR CONTROL MOTOR

MODE SELECTION MOTOR

C-17
C-21
C-22
C-49
C-50
C-51
E-49
E-46
F-01

HR12M11DB

TSB Revision
## COMPONENT LOCATION

<table>
<thead>
<tr>
<th>Name</th>
<th>Symbol</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air conditioning compressor lock controller</td>
<td>I</td>
<td>Dual pressure switch</td>
<td>C</td>
</tr>
<tr>
<td>Air conditioning control unit</td>
<td>E</td>
<td>Engine control module</td>
<td>E</td>
</tr>
<tr>
<td>Air-inlet sensor</td>
<td>H</td>
<td>Engine coolant temperature sensor (J)</td>
<td></td>
</tr>
<tr>
<td>Air-thermo sensor</td>
<td>F</td>
<td>Engine coolant temperature switch* (A)</td>
<td></td>
</tr>
<tr>
<td>Blower motor relay</td>
<td>L</td>
<td>Interior temperature sensor</td>
<td>N</td>
</tr>
<tr>
<td>Blower motor relay (HI)</td>
<td>I</td>
<td>Magnetic clutch relay</td>
<td>B</td>
</tr>
<tr>
<td>Condenser fan motor relay (HI)</td>
<td>B</td>
<td>Photo sensor</td>
<td>G</td>
</tr>
<tr>
<td>Condenser fan motor relay (LO)</td>
<td>B</td>
<td>Radiator fan motor control relay* (B)</td>
<td></td>
</tr>
<tr>
<td>Data link connector (from 1994 models)</td>
<td>K</td>
<td>Revolution sensor</td>
<td>D</td>
</tr>
<tr>
<td>Data link connector (up to 1993 models)</td>
<td>L</td>
<td>Thermostat*</td>
<td>D</td>
</tr>
</tbody>
</table>

### NOTE
- Up to 1993 models

---

### TSB Revision
CIRCUIT DIAGRAMS - Full Auto Air Conditioning Circuit

D <Up to 1993 models>
Revolution sensor
Compressor
Thermostat

E Air conditioning control unit
Engine control module
ELC-4A/T control module

F Evaporator
Air thermo sensor

G Photo sensor

H Air inlet sensor

I Blower motor relay (HI)
Air conditioning compressor lock controller

J Engine coolant temperature sensor

K <From 1994 models>
Data link connector

TSB Revision
WINDSHIELD WIPER AND WASHER
COMPONENT LOCATION

- Wiper relay
- Data link connector
  - <From 1994 models>
- ETACS unit
  - <Up to 1993 models>

TSB Revision
OPERATION

<Low-speed (and high-speed) wiper>
- When the wiper switch is placed in the LO position with the ignition switch in the ACC or ON position, wipers operate continuously at low speed.
- Placing the wiper switch in the HI position causes the wipers to operate at high speed.

<Intermittent wiper>
- If the wiper switch is turned to the INT position when the ignition switch is in the ON or ACC position, the voltage value from the intermittent variable volume switch is input to intermittent time detection circuit.
- The intermittent time detection circuit outputs an H signal at the intermittent time according to the set value of the intermittent variable volume switch and, via OR, turns the Tr on and off to operate the wiper.

<TROUBLESHOOTING HINTS>

<table>
<thead>
<tr>
<th>Phenomenon</th>
<th>Inspecting method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wipers do not operate continuously</td>
<td>• Check the multi-purpose fuse No. 9</td>
</tr>
<tr>
<td>Washer operates.</td>
<td>• Check the wiper motor. (Refer to GROUP 51–Windshield Wiper and Washer.)</td>
</tr>
<tr>
<td>Washer does not operate.</td>
<td>• Check the column switch. (Refer to GROUP 51–Windshield Wiper and Washer.)</td>
</tr>
<tr>
<td>Low-speed (or high-speed) wiper operation only is inoperative.</td>
<td>• Check the column switch. (Refer to GROUP 51–Windshield Wiper and Washer.)</td>
</tr>
<tr>
<td>Wipers do not operate intermittently. (They operate continuously.)</td>
<td>• Check the wiper switch “INT” input signal. (Refer to GROUP 51–Troubleshooting.)</td>
</tr>
<tr>
<td>• Check the column switch. (Refer to GROUP 51–Windshield Wiper and Washer.)</td>
<td></td>
</tr>
<tr>
<td>Wipers do not stop.</td>
<td>• Check the wiper switch “INT” input signal. (Refer to GROUP 51–Troubleshooting.)</td>
</tr>
<tr>
<td>• Check the column switch. (Refer to GROUP 51–Windshield Wiper and Washer.)</td>
<td></td>
</tr>
<tr>
<td>The intermittent time will not vary even if the variable intermittent wiper control switch is operated.</td>
<td>• Check the variable intermittent wiper control switch input signal. (Refer to GROUP S–Troubleshooting.)</td>
</tr>
<tr>
<td>• Check the column switch. (Refer to GROUP 51–Windshield Wiper and Washer.)</td>
<td></td>
</tr>
<tr>
<td>Even if the washer switch is on for 0.6 second or more, the washer will not operate.</td>
<td>• Check the washer motor. (Refer to GROUP 51–Windshield Wiper and Washer.)</td>
</tr>
<tr>
<td>• Check the washer nozzle and washer tube.</td>
<td>• Check the column switch. (Refer to GROUP 51–Windshield Wiper and Washer.)</td>
</tr>
<tr>
<td>The wipers linked with the washer operate.</td>
<td>• Check the column switch. (Refer to GROUP 51–Windshield Wiper and Washer.)</td>
</tr>
<tr>
<td>The wipers linked with the washer do not operate.</td>
<td>• Check the column switch. (Refer to GROUP 51–Windshield Wiper and Washer.)</td>
</tr>
<tr>
<td></td>
<td>• Check the following signal. (Refer to GROUP 51–Windshield Wiper and Washer.)</td>
</tr>
</tbody>
</table>

<Auto wiper stop>
- When the wipe: switch is placed in the OFF position, the cam contacts of wiper motor causes current to flow through the auto wiper stop circuit, allowing the wiper blades to cycle before they reach to the stop position.

<Mist wiper>
- If the washer switch is on for 0.6 second or less when the ignition switch is at ON or ACC with the wiper switch turned off, the washer liquid will not be poured but transistor will be turned on to operate the wipers one time.

<Wiper linked with washer>
- If the washer switch is on for 0.6 second or more when the ignition switch is at ON or ACC with the wiper switch turned off, the washer liquid will be poured and the transistor will be turned on 0.6 second later to operate the wipers two or three times.

TSB Revision
WINDSHIELD WIPER AND WASHER CIRCUIT

NOTE:
1: VEHICLES WITHOUT THEFT-ALARM SYSTEM
2: VEHICLES WITH THEFT-ALARM SYSTEM

NOTE: VEHICLES WITHOUT THEFT-ALARM SYSTEM
2: VEHICLES WITH THEFT-ALARM SYSTEM

NOTE: VEHICLES WITHOUT THEFT-ALARM SYSTEM
2: VEHICLES WITH THEFT-ALARM SYSTEM

NOTE: VEHICLES WITHOUT THEFT-ALARM SYSTEM
2: VEHICLES WITH THEFT-ALARM SYSTEM

NOTE: VEHICLES WITHOUT THEFT-ALARM SYSTEM
2: VEHICLES WITH THEFT-ALARM SYSTEM

NOTE: VEHICLES WITHOUT THEFT-ALARM SYSTEM
2: VEHICLES WITH THEFT-ALARM SYSTEM

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2: VEHICLES WITH THEFT-ALARM SYSTEM

NOTE: VEHICLES WITHOUT THEFT-ALARM SYSTEM
2: VEHICLES WITH THEFT-ALARM SYSTEM

NOTE: VEHICLES WITHOUT THEFT-ALARM SYSTEM
2: VEHICLES WITH THEFT-ALARM SYSTEM

NOTE: VEHICLES WITHOUT THEFT-ALARM SYSTEM
2: VEHICLES WITH THEFT-ALARM SYSTEM

NOTE: VEHICLES WITHOUT THEFT-ALARM SYSTEM
2: VEHICLES WITH THEFT-ALARM SYSTEM
OPERATION

<Low-speed wiper>
- When the rear wiper switch is placed in the ON position with the ignition switch in the ACC or ON position, wipers operate continuously at low speed.

<Auto wiper stop>
- When the rear wiper switch is placed in the OFF position, the cam contains of wiper motor causes current to flow through the auto wiper stop circuit, allowing the wiper blades to cycle before they reach to the stop positions.

<Intermittent wiper>
- When the rear wiper switch is placed in the INT position with the ignition switch in ACC or ON position, the rear intermittent wiper relay is energized causing the rear intermittent wiper relay contacts to close and open repeatedly.
- When the contacts are closed, the wiper motor is energized.
- When the rear wiper motor is energized, the rear intermittent wiper relay contacts open; however, the cam contacts keep the rear wiper motor energized until the wiper blades return to their stop position.

TROUBLESHOOTING HINTS

1. Wipers do not operate.
   (1) Washer is not operative, either.
   - Check multi-purpose fuse No. 9.
   - Check ground.
2. Low-speed wiper operation only is inoperative.
   - Check wiper switch.
3. Wipers do not stop.
   - Check wiper motor.
   - Check rear intermittent wiper relay.
   - Check rear wiper switch.
4. Intermittent wiper operation is inoperative.
   - Check terminal voltage of the rear intermittent wiper relay energized.
   (Refer to GROUP 51—Windshield Wiper and Washer for information concerning the installation position of the intermittent wiper relay.)

<table>
<thead>
<tr>
<th>Terminal No.</th>
<th>Voltage</th>
<th>Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0V</td>
<td>Rear intermittent wiper relay or rear wiper switch</td>
</tr>
<tr>
<td></td>
<td>12V</td>
<td>Rear intermittent wiper relay</td>
</tr>
<tr>
<td></td>
<td>0 → 12V (alternating)</td>
<td>(Normal)</td>
</tr>
</tbody>
</table>

5. Washer is inoperative.
   - Check washer motor.
   - Check washer switch.
OPERATION

- When the remote controlled mirror switch is operated while the ignition key is in “ACC” or “ON” position, current flows through fuse No. 5 remote controlled mirror switch, remote controlled mirror, remote controlled mirror switch, and ground, causing the mirror to move.

TROUBLESHOOTING HINTS

Neither right nor left mirror operates

1) Also cigarette lighter does not operate
   - Check multi-purpose fuse No. 5.

2) Cigarette lighter operates
   - Check remote controlled mirror switch.
ANTI-LOCK BRAKING SYSTEM (ABS) CIRCUIT (UP TO OCTOBER, 1993)

<FWD>
CIRCUIT DIAGRAMS - Anti-lock Braking System (ABS)

CIRCUIT <FWD>
ANTI-LOCK BRAKING SYSTEM (ABS) CIRCUIT
(FROM NOVEMBER, 1993)

<FWD> (HATCHBACK)
Anti-lock Braking System (ABS)

CIRCUIT DIAGRAMS

Circuit <FWD>

NOTE:

1: VEHICLES WITH AUTO-CRUISE CONTROL SYSTEM,
2: VEHICLES WITHOUT AUTO-CRUISE CONTROL SYSTEM.

TSB Revision
CIRCUIT DIAGRAMS  Anti-lock Braking System (ABS)

CIRCUIT <FWD>

IGNITION SWITCH (IG1)

CHARGING J/B

FUSIBLE LINK

STOP SWITCH

TURN-SIGNAL LIGHT AND HAZARD LIGHT

WARNING <F> R-LIGHT

COMBINATION METER

DOOR LIGHT R-E

AND LUGGAGE

COMPARTMENT LIGHT

ELECTRONIC CONTROL UNIT

ABS METER

ABS CONTROL UNIT

TSB Revision
ANTI-LOCK BRAKING SYSTEM (ABS) CIRCUIT
(UP TO OCTOBER, 1993)

ANTI-Lock Braking System (ABS) Circuit (AWD)
ANTI-LOCK BRAKING SYSTEM (ABS) CIRCUIT (UP TO OCTOBER, 1993) <AWD> (CONTINUED)
CIRCUIT DIAGRAMS - Anti-lock Braking System (ABS)

IGNITION SWITCH (G1)

CHARGING J/B

0.85B-V

0.85B-W

L-R

G-R

(D-16)

NOTE:
1: VEHICLES WITH AUTO-CRUISE CONTROL SYSTEM.
2: VEHICLES WITHOUT AUTO-CRUISE CONTROL SYSTEM.

STOP LIGHT 0.85G

G-R

DOOR LIGHT R-LUGGAGE COMPARTMENT LIGHT

WARNING (F) R-LIGHT

COMBINATION METER (D-04)

0.85R-B

0.85G

G-R

G-R

(D-45)

FUSIBLE LINK 6

HORN

5W-B

5W-E

G

G

ELECTRONIC CONTROL SUSPENSION

STOP LIGHT

ABS CONTROL UNIT (E-12)

TBS Revision

HR15M0GAB
ANTI-LOCK BRAKING SYSTEM (ABS) CIRCUIT (FROM NOVEMBER, 1993)
<AWD> (HATCHBACK) (CONTINUED)

SPEED SENSOR

FRONT (LH)  FRONTRH)  REAR (LH)  REAR (RH)
(A-29)      (A-12)    (E-19)      (E-16)

NOTE:
1: From 1994 models
2: Up to 1993 models

TSB Revision
ANTI-Lock BRAKING SYSTEM (ABS) CIRCUIT
(1995 MODELS)
<AWD> (CONVERTIBLE)
Anti-lock Braking System (ABS)
CIRCUIT DIAGRAMS – Anti-lock Braking System (ABS) Circuit

NOTE:

#1: VEHICLES WITH AUTO-CRUISE CONTROL SYSTEM.

#2: VEHICLES WITHOUT AUTO-CRUISE CONTROL SYSTEM.
ANTI-LOCK BRAKING SYSTEM (ABS) CIRCUIT (FROM 1996 MODELS)
(CONTINUED)
### COMPONENT LOCATION

<table>
<thead>
<tr>
<th>Name</th>
<th>Symbol</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABS control unit</td>
<td>G</td>
<td>G sensor</td>
<td>F</td>
</tr>
<tr>
<td>ABS power relay (Up to 1993–October models)</td>
<td>C</td>
<td>Hydraulic unit</td>
<td>A</td>
</tr>
<tr>
<td>Data link connector (from 1994 models)</td>
<td>E</td>
<td>Motor relay</td>
<td>A</td>
</tr>
<tr>
<td>Data link connector (up to 1993 models)</td>
<td>D</td>
<td>Rear speed sensor</td>
<td>I</td>
</tr>
<tr>
<td>Diode (Up to 1995 models)</td>
<td>B</td>
<td>Valve relay</td>
<td>A</td>
</tr>
<tr>
<td>Front speed sensor</td>
<td>H</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### TSB Revision

- **<Up to 1995 models>**
  - Motor relay
  - Hydraulic unit

- **<From 1996 models>**
  - Motor relay
  - Valve relay
  - Hydraulic unit
CIRCUIT DIAGRAMS – Electronic Control Suspension (ECS) Circuit

IGNITION SWITCH (TG2)

2L-E

C-83

STOP LIGHT SWITCH (C-61)

0.85R-B

6 (F-20)

L-R

0.85G

5 (F-19)

0.85G

L-R

51

58

G-BR

G-GR

G-R

G-L

W-R

0-29

W-R

Y-W

C-14

C-10

Y-W

S1

B

57

54

53

56

55

G-BR

G-GR

G-R

G-L

STEERING WHEEL ANGLE SENSOR (E-28)

G SENSOR (E-28)

AMPLIFIER

GND

C-60

C-54

C-61

C-53

C-52

C-51

C-29

C-25

C-24

C-23

C-22

C-19

C-20

5V

GND

12V

HR15M12AB

TSB Revision
ELECTRONIC CONTROL SUSPENSION (ECS) CIRCUIT
(1995 MODELS)

<CONVERTIBLE>
CIRCUIT DIAGRAMS – Electronic Control Suspension (ECS) Circuit

Engine Control Module (F-53)

Throttle Position Sensor (B-05)

MFI System

Electronic Suspension Control Unit (F-13)

Stop Light Control Unit (B-05)

Door Light, Compartment Light

Data Link Connector (B-05)

Speed Sensor

G Sensor (E-28)

Steering Wheel Angle (E-60)

TSB Revision
ELECTRONIC CONTROL SUSPENSION (ECS) CIRCUIT (1995 MODELS) <CONVERTIBLE> (CONTINUED)
## COMPONENT LOCATION

<table>
<thead>
<tr>
<th>Name</th>
<th>Symbol</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data link connector (from 1994 models)</td>
<td>D</td>
<td>G sensor</td>
<td>E</td>
</tr>
<tr>
<td>Data link connector (up to 1993 models)</td>
<td>F</td>
<td>Steering wheel angle speed sensor</td>
<td>B</td>
</tr>
<tr>
<td>ECS control unit</td>
<td>G</td>
<td>Throttle position sensor</td>
<td>A</td>
</tr>
<tr>
<td>Engine control module</td>
<td>C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TSB Revision**
TSB Revision
ACTIVE EXHAUST SYSTEM

COMPONENT LOCATION

<table>
<thead>
<tr>
<th>Name</th>
<th>Symbol</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active exhaust control unit</td>
<td>C</td>
<td>Engine control module</td>
<td>B</td>
</tr>
<tr>
<td>Actuator assembly</td>
<td>D</td>
<td>Power window relay</td>
<td>A</td>
</tr>
</tbody>
</table>

TSB Revision
ACTIVE EXHAUST SYSTEM CIRCUIT (UP TO 1993 MODELS)
INPUT SIGNAL
- CRANKSHAFT POSITION SENSOR
- THROTTLE POSITION SENSOR

ENGINE CONTROL MODULE

POWER
--------

FUSEABLE LINK

ENGINE CONTROL MODULE

ACTUATOR ASSEMBLY

FULL CLOSE

FULL OPEN

TSB Revision
SUPPLEMENTAL RESTRAINT SYSTEM (SRS) CIRCUIT (UP TO 1993 MODEL)
CAUTION

- Carefully read and observe the SRS SERVICE PRECAUTIONS (Refer to GROUP 52B - Service Precautions) prior to any service.
SUPPLEMENTAL RESTRAINT SYSTEM (SRS) CIRCUIT
(FROM 1994 MODELS)
### COMPONENT LOCATION

<table>
<thead>
<tr>
<th>Name</th>
<th>Symbol</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data link connector (from 1994 models)</td>
<td>D</td>
<td>Front impact sensor</td>
<td>A</td>
</tr>
<tr>
<td>Data link connector (up to 1993 models)</td>
<td>C</td>
<td>SRS diagnosis unit</td>
<td>B</td>
</tr>
</tbody>
</table>

**A**<br>Front impact sensor<br>!

**B**<br>SRS diagnosis unit<br>!

**C**<br>Up to 1993 models<br>!

**D**<br>From 1994 models<br>!

TSB Revision
## AUTO-CRUISE CONTROL

### COMPONENT LOCATION

<table>
<thead>
<tr>
<th>Name</th>
<th>Symbol</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto-cruise control unit</td>
<td>B</td>
<td>Data link connector (up to 1993 models)</td>
<td>D</td>
</tr>
<tr>
<td>Auto-cruise relay</td>
<td>C</td>
<td>Engine control module</td>
<td>C</td>
</tr>
<tr>
<td>Data link connector (from 1994 models)</td>
<td>E</td>
<td>Throttle position sensor</td>
<td>A</td>
</tr>
</tbody>
</table>

![Diagram A](image1)

![Diagram B](image2)

![Diagram C](image3)

![Diagram D](image4)

![Diagram E](image5)

TSB Revision
AUTO-CRUISE CONTROL CIRCUIT (1994, 1995 MODELS)
<M/T> TURBO, NON TURBO (CALIFORNIA)

GND

100 OR STORAGE CONNECTOR

J/B

2L

AUTO-CRUISE CONTROL UNIT

GND

ENGINE CONTROL MODULE

5V

<1.25B

THROTTLE POSITION SENSOR (B-05)

B-Y

CLUTCH PEDAL POSITION SWITCH

C-37

AUTO-CRUISE CONTROL SWITCH

SET

RESUME

CANCEL

AUTO-CRUISE

C-57

CLOCK SPRING

B-W

B-hf

RADIO AND TAPE PLAYER

BR-R

C-29

C-30

5V

MFI SYSTEM

HR1SM216A

TSB Revision
AUTO-CRUISE CONTROL CIRCUIT (1994, 1995 MODELS) <M/T> TURBO, NON TURBO (CALIFORNIA) (CONTINUED)

CIRCUIT DIAGRAMS – Auto-cruise Control Circuit <M/T>
AUTO-CRUISE CONTROL CIRCUIT (1992 MODEL)

CIRCUIT DIAGRAMS – Auto-cruise Control Circuit <A/T>
AUTO-CRUISE CONTROL CIRCUIT (1992 MODEL) <A/T> (CONTINUED)

TSB Revision
AUTO-CRUISE CONTROL CIRCUIT (1993 MODELS) <A/T>
(CONTINUED)

CIRCUIT DIAGRAMS – Auto-cruise Control Circuit <A/T>
AUTO-CRUISE CONTROL CIRCUIT (1994, 1995 MODELS)

< A / T > (FEDERAL)

IGNITION SWITCH (ACC)

ENGINE CONTROL MODULE

THROTTLE POSITION SENSOR

AUTO-CRUISE CONTROL UNIT

RADIO AND TAPE PLAYER

TSB Revision
AUTO-CRUISE CONTROL CIRCUIT (1994, 1995 MODELS) <A/T> (FEDERAL) (CONTINUED)
CIRCUIT DIAGRAMS – Auto-cruise Control Circuit <A/T>
AUTO-CRUISE CONTROL CIRCUIT (1994, 1995 MODELS) <A/T> (CALIFORNIA)
(CONTINUED)

AUTO-CRUISE CONTROL UNIT

TSB Revision
AUTO-CRUISE CONTROL CIRCUIT (FROM 1996 MODELS)
AUTO-CRUISE CONTROL CIRCUIT (FROM 1996 MODELS) <A/T> (CONTINUED)
POWER SEAT CIRCUIT (UP TO 1993 MODELS)
POWER SEAT CIRCUIT (1994, 1995 MODELS)

NOTE:

#1: VEHICLES WITHOUT THEFT ALARM SYSTEM
#2: VEHICLES WITH THEFT ALARM SYSTEM

POWER SEAT SWITCH
(D-21)

POWER SEAT ASSEMBLY
(E-27)

TSB Revision
CIRCUIT DIAGRAMS – Power Seat Circuit

POWER SEAT SWITCH (4)

SLIDE
FRONT HEIGHT
REAR HEIGHT

FUSIBLE LINK (3)

2R-B

POWER SEAT ASSEMBLY

FRONT
REAR

SLIDE MOTOR
LIMIT SWITCH

FRONT HEIGHT MOTOR
LIMIT SWITCH

REAR HEIGHT MOTOR
LIMIT SWITCH

1.25B
1.25B
1.25B

J/B

TSB Revision
COMPONENT LOCATION

Power window relay

Junction block

TSB Revision
TENSION-REDUCER TYPE SEAT BELT CIRCUIT
(FROM 1995 MODELS)
CIRCUIT DIAGRAMS – Tension-reducer Type Seat Belt Circuit

COMPONENT LOCATION

<table>
<thead>
<tr>
<th>Name</th>
<th>Symbol</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data link connector (from 1994 models)</td>
<td>C</td>
<td>ETACS unit</td>
<td>A</td>
</tr>
<tr>
<td>Data link connector (up to 1993 models)</td>
<td>B</td>
<td>Front seat belt solenoid</td>
<td>D</td>
</tr>
</tbody>
</table>

Note: * indicates that this component is used on the right side as well.

TSB Revision
OPERATION

- If the driver fastens the seat belt with the ignition switch placed in the "ON" position, the seat belt switch in the seat belt buckle is turned "ON" to operate the seat belt solenoid in the retractor.
- This will reduce the seat belt rewinding torque to minimize a sense of oppression given by the belt.
- Owing to the timer function of the ETACS unit, the seat belt solenoid is kept in operation for 30 seconds after turning off the ignition switch, with due consideration to elimination of the sudden rise in a sense of oppression caused by the belt immediately after the ignition switch is turned off.

TROUBLESHOOTING HINTS

<table>
<thead>
<tr>
<th>Phenomenon</th>
<th>Inspection method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some of the tension-reducers do not operates.</td>
<td>- Check dedicated fuse No. 1 and 19.</td>
</tr>
<tr>
<td></td>
<td>- Check the inoperative seat belt switch.</td>
</tr>
<tr>
<td></td>
<td>- Check the inoperative seat belt solenoid.</td>
</tr>
<tr>
<td>The tension-reducer does not operate with the ignition switch placed in the ON position.</td>
<td>- Check the ignition switch input signal.</td>
</tr>
<tr>
<td></td>
<td>- Check the ignition switch. (Refer to GROUP 54-Ignition switch.)</td>
</tr>
<tr>
<td>The tension-reducer is in operation immediately after the ignition switch is turned off, but it does not stop operation even if the door is opened within 30 seconds from the turning-off the ignition switch.</td>
<td>- Check the door switch input signal.</td>
</tr>
<tr>
<td></td>
<td>- Check the door switch. (Refer to GROUP 42-Door Assembly.)</td>
</tr>
</tbody>
</table>
ACTIVE AERO CIRCUIT (FROM 1994 MODELS)

<HATCHBACK>

- Turn-Signal Light and Hazard Light
- Ignition Switch (IG1)
- Charging
- Radiator and Tape Player
- Theft-Alarm System
- Active Aero Control Unit
- Rheostat
- Auto Cruise, Climate Control

TSB Revision
ACTIVE AERO CIRCUIT (FROM 1994 MODELS) (CONTINUED)

FUSIBLE LINK ①

FRONT VENTURI SKIRT (A-57)

ACTIVE AERO CONTROL UNIT

REAR SPOILER (F-04)

TSB Revision
COMPONENT LOCATION

<table>
<thead>
<tr>
<th>Name</th>
<th>Symbol</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active aero control unit</td>
<td>E</td>
<td>Data link connector (from 1994 models)</td>
<td>B</td>
</tr>
<tr>
<td>Active aero front venturi skirt</td>
<td>C</td>
<td>Data link connector (up to 1993 models)</td>
<td>A</td>
</tr>
<tr>
<td>Active aero rear spoiler</td>
<td>D</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CIRCUIT DIAGRAMS – Active Aero Circuit

---

[Diagram of Active Aero Circuit Control Unit]

**TSB Revision**
CAR TELEPHONE CIRCUIT (1992 MODEL)
(VEHICLES HARNESS WITHOUT TELEPHONE COMPONENT)
TOP STACK CIRCUIT (1995 MODELS)

<CONVERTIBLE>
SUNROOF CIRCUIT (FROM 1995 MODELS)

<HATCHBACK>

CIRCUIT DIAGRAMS — Sunroof Circuit

TSB Revision
CIRCUIT DIAGRAMS – Sunroof Circuit

CPU

INPUT SIGNAL

G-B 12
G-R 13

SUNROOF SWITCH (E-47)
OPEN 1
CLOSE 3

DOOR SWITCH (LH) (E-21)
OFF
TON

TSB Revision
# ENGINE ELECTRICAL

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<td>ON-VEHICLE SERVICE</td>
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<tr>
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<td>Refer to GROUP 13A (ON-VEHICLE INSPECTION OF MFI COMPONENTS)</td>
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<td>Spark Plug Cable Test</td>
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<tr>
<td>Spark Plug Test</td>
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<td>SPECIAL TOOLS</td>
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</tr>
<tr>
<td>SPECIFICATIONS</td>
<td>31</td>
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<tr>
<td>General Specifications</td>
<td>31</td>
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<tr>
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<td>SPECIFICATIONS</td>
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<tr>
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<td>23</td>
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<tr>
<td>TROUBLESHOOTING</td>
<td>20</td>
</tr>
</tbody>
</table>
# CHARGING SYSTEM

## SPECIFICATIONS

### GENERAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Items</th>
<th>Up to 1995 models</th>
<th>From 1996 models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Battery voltage sensing</td>
<td>Battery voltage sensing</td>
</tr>
<tr>
<td>Rated output VIA</td>
<td>12/110</td>
<td>12/95</td>
</tr>
<tr>
<td>Voltage regulator</td>
<td>Electronic type</td>
<td>Electronic type</td>
</tr>
</tbody>
</table>

### SERVICE SPECIFICATIONS

<table>
<thead>
<tr>
<th>Items</th>
<th>Standard value</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulated voltage Ambient temp at voltage regulator V</td>
<td>-20°C (-4°F)</td>
<td>14.2–15.4</td>
</tr>
<tr>
<td></td>
<td>20°C (68°F)</td>
<td>13.9–1</td>
</tr>
<tr>
<td></td>
<td>60°C (140°F)</td>
<td>13.4–14.6</td>
</tr>
<tr>
<td></td>
<td>80°C (176°F)</td>
<td>13.1–14.5</td>
</tr>
<tr>
<td>Slip ring O.D. mm (in.)</td>
<td>26.7 (1.05)</td>
<td>26.1 (1.03)</td>
</tr>
<tr>
<td>Field coil resistance Ø</td>
<td>Approx. 3-5</td>
<td>-</td>
</tr>
<tr>
<td>Output current</td>
<td>-</td>
<td>/ 70% of nominal output current</td>
</tr>
</tbody>
</table>

TSB Revision
CIRCUIT DIAGRAM

1. FUSIBLE LINK (O)
2. FUSIBLE (O)
3. IGNITION SWITCH (IG1)
4. GENERATOR RELAY
5. METER AND GAUGES
6. GENERATOR
7. VOLTAGE REGULATOR

Connections:
- B-W
- J/B
- 0.85 B-W
- 0.85 B-W
- 0.85 B-W
- B-W
- B-W
- L-R
- WARNING LIGHT
- TURN-SIGNAL LIGHT AND HAZARD LIGHT
- doors
- headlight
- mirror
- defogger

Legend:
- 15A
- B-W
- C-82
- C-04
- L-12
- C-02
- C-01
- C-71
- C-77
- C-50
- C-62
- C-59
- C-65
- C-45

TSB Revision
OPERATION

When engine is stopped
When the ignition switch is switched to the “ON” position, electricity flows from the “L” terminal of the generator to the field coil, and at the same time the charging warning light illuminates.

When engine is being started/has started
When the engine is started, charging voltage is applied to the “L” terminal of the generator, with the result that the charging warning light is extinguished. In addition, because battery voltage is applied to the “S” terminal of the generator, this battery voltage is monitored at the IC voltage regulator, thus switching ON and OFF the current to the field coil and thereby controlling the output voltage of the generator.

Power is supplied to each load from the “B” terminal of the generator.

NOTE
The generator relay functions as a back-up for the flow of electricity to the field coil if there is a disconnection or damaged wiring of the charging warning light.

TROUBLESHOOTING HINTS
1. Charging warning light does not go on when the ignition switch is turned to “ON”, before the engine starts.
   - Check the bulb.
2. Charging warning light fails to go off once the engine starts.
   - Check the IC voltage regulator (located within the generator).
3. Discharged or overcharged battery.
   - Check the IC voltage regulator (located within the generator).
4. The charging warning light illuminates dimly.
   - Check the diode (within the combination meter) for a short-circuit.

COMPONENT LOCATION

<table>
<thead>
<tr>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generator relay</td>
<td>A</td>
</tr>
</tbody>
</table>

TSB Revision
ON-VEHICLE SERVICE

GENERATOR OUTPUT LINE VOLTAGE DROP TEST

This test determines whether the wiring from the generator "B" terminal to the battery (+) terminal (including the fusible link) is in a good condition or not.

1. Always be sure to check the following before the test.
   - Generator installation
   - Generator drive belt tension (Refer to GROUP 00 – Maintenance Service.)
   - Fusible link
   - Abnormal noise from the generator while the engine is running

2. Turn the ignition switch to the OFF position.
3. Disconnect the negative battery cable.
4. Disconnect the generator output wire from the generator "B" terminal and connect a DC test ammeter with a range of 0 – 100 A in series between the "B" terminal and the disconnected output wire. (Connect the (+) lead of the ammeter to the "B" terminal, and then connect the (-) lead of the ammeter to the disconnected output wire.)

NOTE
A clamp-type ammeter which enables measurements to be taken without disconnecting the generator output wire is recommended. The reason for this is if a vehicle in which the voltage may have dropped due to an imperfect connection at the generator "B" terminal is being inspected, and the generator "B" terminal is loosened when the test ammeter is connected, the connection will be completed at this time and the possibility of finding problems will be reduced.

5. Connect a digital-type voltmeter between the generator "B" terminal and the battery (+) terminal. (Connect the (+) lead of the voltmeter to the "B" terminal, and then connect the (-) lead of the voltmeter to the battery (+) cable.)
(6) Connect a tachometer. (For the procedure for connecting the tachometer, refer to GROUP 11 – On-vehicle Service.)
(7) Reconnect the negative battery cable.
(8) Leave the hood open.
(9) Start the engine.
(10) With the engine running at 2500 rpm, turn the headlights and other lights on and off to adjust the generator load so that the value displayed on the ammeter is slightly above 30A.
Limit value: Max. 0.3 V

NOTE
When the generator output is high and the value displayed on the ammeter does not decrease to 30A, set the value to 40A. Read the value displayed on the voltmeter at this time.
In this case the limit value becomes max. 0.4V. Adjust the engine speed by gradually decreasing it until the value displayed on the ammeter is 30A. Take a reading of the value displayed on the voltmeter at this time.
(11) If the value displayed on the voltmeter is above the limit value, there is probably a malfunction in the generator output wire, so check the wiring between the generator "B" terminal and the battery (+) terminal (including fusible link).
If a terminal is not sufficiently tight or if the harness has become discolored due to overheating, repair and then test again.
(12) After the test, run the engine at idle.
(13) Turn off all lights and turn the ignition switch to the OFF position.
(14) Disconnect the negative battery cable.
(15) Disconnect the ammeter, voltmeter and tachometer.
(16) Connect the generator output wire to the generator “B” terminal.
(17) Connect the negative battery cable.

OUTPUT CURRENT TEST

![Diagram of charging system](Image)
This test determines whether the generator outputs normal current.

(1) Before the test, always be sure to check the following.
- Generator installation
- Battery (Refer to GROUP 54 – Battery.)

NOTE
The battery to be used should be slightly discharged. The load in a fully-charged battery will be insufficient and the test may not be able to be carried out correctly.
- Generator drive belt tension (Refer to GROUP 11 – On-vehicle Service.)
- Fusible link
- Abnormal noise from the generator while the engine is running

(2) Turn the ignition switch to the OFF position.
(3) Disconnect the negative battery cable.
(4) Disconnect the generator output wire from the generator "B" terminal and connect a DC test ammeter with a range of 0–100 A in series between the "B" terminal and the disconnected output wire. (Connect the (+) lead of the ammeter to the "B" terminal, and then connect the (–) lead of the ammeter to the disconnected output wire.)

Caution
Never use clips but tighten bolts and nuts to connect the line. Otherwise, loose connections (e.g. using clips) will lead to a serious accident because of high current.

NOTE
A clamp-type ammeter which enables measurements to be taken without disconnecting the generator output wire is recommended.

(5) Connect a voltmeter with a range of 0 – 20 V between the generator “B” terminal and the ground. (Connect the (+) lead of the voltmeter to the “B” terminal, and then connect the (–) lead of the voltmeter to the ground.)

(6) Connect a tachometer. (For the procedure for connecting the tachometer, refer to GROUP 11 – On-vehicle Service.)
(7) Connect the negative battery cable.
(8) Leave the hood open.
(9) Check to be sure that the reading on the voltmeter is equal to the battery voltage.

NOTE
If the voltage is 0 V, the cause is probably an open circuit in the wire or fusible link between the generator “B” terminal and the battery (+) terminal.

(10) After turning the light switch on and turning on the headlights, start the engine.
(11) Immediately after setting the headlights to high beam and turning the heater blower switch to the high revolution position, increase the engine speed to 2,500 r/min and read the maximum current output value displayed on the ammeter.

Limit value: 70% of nominal current output

NOTE
- For the nominal current output, refer to the Generator Specifications.
- Because the current from the battery will soon drop after the engine is started, the above step should be carried out as quickly as possible in order to obtain the maximum current output value.
- The current output value will depend on the electrical load and the temperature of the generator body.
- If the electrical load is small while testing, the specified level of current may not be output even though the generator is normal. In such cases, increase the electrical load by leaving the headlights turned on for some time to discharge the battery or by using the lighting system in another vehicle, and then test again.
- The specified level of current also may not be output if the temperature of the generator body or the ambient temperature is too high. In such cases, cool the generator and then test again.

(12) The reading on the ammeter should be above the limit value. If the reading is below the limit value and the generator output wire is normal, remove the generator from the engine and check the generator.
(13) Run the engine at idle speed after the test.
(14) Turn the ignition switch to the OFF position.
(15) Disconnect the negative battery cable.
(16) Disconnect the ammeter, voltmeter and tachometer.
(17) Connect the generator output wire to the generator “B” terminal.
(18) Connect the negative battery cable.
REGULATED VOLTAGE TEST

This test determines whether the voltage regulator is correctly controlling the generator output voltage.

(1) Always be sure to check the following before the test.
   - Generator installation
   - Check to be sure that the battery installed in the vehicle is fully charged. (Refer to GROUP 54 – Battery.)
   - Generator drive belt tension (Refer to GROUP 00 – Maintenance Service.)
   - Fusible link
   - Abnormal noise from the generator while the engine is running

(2) Turn the ignition switch to the OFF position.
(3) Disconnect the negative battery cable.
(4) Connect a digital-type voltmeter between the generator “S” terminal and the ground. (Connect the (+) lead of the voltmeter to the “S” terminal, and then connect the (−) lead of the voltmeter to a secure ground or to the battery (−) terminal.)
(5) Disconnect the generator output wire from the generator “B” terminal.
(6) Connect a DC test ammeter with a range of 0–100A in series between the “B” terminal and the disconnected output wire. (Connect the (+) lead of the ammeter to the “B” terminal, and then connect the (−) lead of the ammeter to the disconnected output wire.)
(7) Connect a tachometer. (Refer to GROUP 11 – On-vehicle Service.)
(8) Reconnect the negative battery cable.

(9) Turn the ignition switch to the ON position and check that the reading on the voltmeter is equal to the battery voltage.

NOTE
If the voltage is 0 V, the cause is probably an open circuit in the wire or fusible link between the generator “S” terminal and the battery (+) terminal.
(10) Check to be sure that all lights and accessories are off.
(11) Start the engine.
(12) Increase the engine speed to 2,500 r/min.
(13) Read the value displayed on the voltmeter when the current output by the generator becomes 10A or less.
(14) If the voltage reading conforms to the value in the voltage regulation table, then the voltage regulator is operating normally. If the voltage is outside the standard value, there is a malfunction of the voltage regulator or of the generator.
(15) After the test, lower the engine speed to the idle speed.
(16) Turn the ignition switch to the “OFF” position.
(17) Disconnect the negative battery cable.
(18) Disconnect the ammeter, voltmeter and tachometer.
(19) Connect the generator output wire to the generator “B” terminal.
(20) Connect the negative battery cable.

VOLTAGE REGULATION TABLE

<table>
<thead>
<tr>
<th>Inspection terminal</th>
<th>Voltage regulator ambient temperature (°C [°F])</th>
<th>Standard value (V)</th>
<th>Inscription terminal</th>
<th>Voltage regulator ambient temperature (°C [°F])</th>
<th>Standard value (V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal “S”</td>
<td>-20 (-4)</td>
<td>14.2-15.4</td>
<td>Terminal “S”</td>
<td>60 (140)</td>
<td>13.4-14.5</td>
</tr>
<tr>
<td></td>
<td>20 (68)</td>
<td>13.9-14.9</td>
<td></td>
<td>80 (176)</td>
<td>13.1-14.5</td>
</tr>
</tbody>
</table>
WAVE-FORM CHECK USING AN ANALYZER
MEASUREMENT METHOD

Connect the analyzer special patterns pick-up to the generator B terminal.

STANDARD WAVE-FORM
Observation Conditions

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>SPECIAL PATTERNS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PATTERN HEIGHT</td>
<td>VARIABLE</td>
</tr>
<tr>
<td>VARIABLE Knob</td>
<td>Adjust while viewing the wave-form</td>
</tr>
<tr>
<td>PATTERN SELECTOR</td>
<td>RASTER</td>
</tr>
</tbody>
</table>

| Engine speed | Curb idle speed |

NOTE
Furthermore, the voltage wave-form of the generator B terminal can undulate as shown at left. This wave-form is produced when the regulator operates according to fluctuations in the generator load (current), and is normal for the generator.
**ABNORMAL WAVE-FORMS EXAMPLES**

**NOTE**
1. The size of the wave-form patterns differs largely depending on the adjustment of the variable knob on the analyzer.
2. Identification of abnormal wave-forms is easier when there is a large output current (regulator is not operating). (Wave-forms can be observed when the headlights are illuminated.)
3. Check the conditions of the charge light (illuminated/not illuminated) also, and carry out a total check.

<table>
<thead>
<tr>
<th>Abnormal wave-forms</th>
<th>Problem cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example 1</td>
<td>• Open diode</td>
</tr>
<tr>
<td><img src="image1" alt="Example 1 Wave-form" /></td>
<td></td>
</tr>
<tr>
<td>Example 2</td>
<td>• Short in diode</td>
</tr>
<tr>
<td><img src="image2" alt="Example 2 Wave-form" /></td>
<td></td>
</tr>
<tr>
<td>Example 3</td>
<td>• Broken wire in stator coil</td>
</tr>
<tr>
<td><img src="image3" alt="Example 3 Wave-form" /></td>
<td></td>
</tr>
<tr>
<td>Example 4</td>
<td>• Short in stator coil</td>
</tr>
<tr>
<td><img src="image4" alt="Example 4 Wave-form" /></td>
<td></td>
</tr>
<tr>
<td>Example 5</td>
<td>• Open supplementary diode</td>
</tr>
<tr>
<td><img src="image5" alt="Example 5 Wave-form" /></td>
<td></td>
</tr>
</tbody>
</table>

At this time, the charge light is illuminated.

TSB Revision
## Generator
### Removal and Installation

#### Pre-removal and Post-installation Operation
- Removal and Installation of Right Bank Warm Up Three-Way Catalytic Converter
  (Refer to GROUP 15 - Exhaust Pipe, Main Muffler and Catalytic Converter.)

#### Removal Steps
1. Air hose E \*Turbo*
2. Air hose C \*Turbo*
3. Suction hose clamp nuts
   - Vehicles with air conditioning
4. Drive belt
   (Refer to GROUP 11 - Engine Adjustment.)
5. Generator connector
6. Heated oxygen sensor connector
7. Generator and generator bracket assembly
8. Generator bracket
9. Generator

#### Removal Service Point
**A** CLAMP NUT REMOVAL

On vehicles with an air conditioning, remove the clamp nut, raise the suction hose and suspend it from the engine hood using a cord.
DISASSEMBLY AND REASSEMBLY
(Up to 1995 models)

Disassembly steps
1. Generator pulley
2. Rotor assembly
3. Rear bearing
4. Bearing retainer
5. Front bearing
6. Front bracket
7. Stator
8. Insulator
9. Plate
10. Regulator and brush holder
11. Slinger
12. Rectifier
13. Brush
14. Brush spring
15. Rear bracket

TSB Revision
Disassembly steps

1. Pulley
2. Rotor assembly
3. Rear bearing
4. Bearing retainer
5. Front bearing
6. Front bracket
7. Stator assembly
8. Plate
9. Regulator and brush holder
10. Brush
11. Slinger
12. Rectifier assembly
13. Rear bracket

DISASSEMBLY SERVICE POINT

A GENERATOR PULLEY REMOVAL

(1) Remove the bolts.
(2) Insert plain screwdriver between front bracket and stator core and pry downward.

Caution
Do not insert screwdriver too deep, as there is danger of damage to stator coil.
(3) Clamp the rotor in a vise with soft jaws.
(4) After removing the nut, remove the pulley and front bracket from the rotor.

**Stator/Regulator and Brush Holder Removal**

1. When removing the stator, unsolder stator lead wire from the main diode of the rectifier.
2. When removing the brush holder, unsolder it from the rectifier.

**Caution**

1. When soldering or unsoldering, be careful to make sure that heat of soldering iron is not transmitted to diodes for a long period. Finish soldering or unsoldering in as short a time as possible.
2. Be careful that no undue force is exerted to leads of diodes.

**Reassembly Service Point**

**Rotor Assembly Installation**

Before rotor is attached to rear bracket, insert wire through small hole made in rear bracket to lift brush. After rotor has been installed, remove the wire.
INSPECTION

ROTOR

(1) Check field coil for continuity. Check to ensure that there is continuity between slip rings. If resistance is extremely small, it means that there is a short. If there is no continuity or if there is short circuit, replace rotor assembly.

Resistance value: Approx. 3–5 Ω

(2) Check field coil for grounding. Check to ensure that there is no continuity between slip ring and core. If there is continuity, replace rotor assembly.

STATOR

(1) Make continuity test on stator coil. Check to ensure that there is continuity between coil leads. If there is no continuity, replace stator assembly.

(2) Check coil for grounding. Check to ensure that there is no continuity between coil and core. If there is continuity, replace stator assembly.

RECTIFIERS

(1) Positive Rectifier Test

Check for continuity between positive rectifier and stator coil lead connection terminal with a circuit tester. If there is continuity in both directions, diode is shorted. Replace rectifier assembly.

TSB Revision
(2) Negative Rectifier Test
Check for continuity between negative rectifier and stator coil lead connection terminal. If there is continuity in both directions, diode is shorted, and rectifier assembly must be replaced.

(3) Diode Trio Test
Check three diodes for continuity by connecting an ammeter to both ends of each diode. If there is no continuity in both directions, diode is faulty and heatsink assembly must be replaced.

BRUSH REPLACEMENT <Up to 1995 models>
(1) Replace brush by the following procedures if it has been worn to limit line.

(2) Unsolder pigtail and remove old brush and spring.

(3) Install brush spring and new brush in brush holder.
(4) Insert the brush to where there is a space 2 to 3 mm (.079 to .118 in.) between the limit line and the end of the brush holder.
(5) Solder pigtail to brush holder as shown in the illustration.

BRUSH REPLACEMENT <From 1996 models>
(1) Replace brush by the following procedures if it has been worn to limit line.

(2) Unsolder pigtail and remove old brush and spring.

(3) When installing a new brush, push the brush in the brush holder as shown in the illustration, and solder the lead wire.
STARTING SYSTEM

SPECIFICATIONS

GENERAL SPECIFICATIONS

STARTER MOTOR

<table>
<thead>
<tr>
<th>Items</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Reduction drive (with planetary gear)</td>
</tr>
<tr>
<td>Rated output kW/V</td>
<td>1.2/12</td>
</tr>
<tr>
<td>No. of pinion teeth</td>
<td>8</td>
</tr>
</tbody>
</table>

SERVICE SPECIFICATIONS

STARTER MOTOR

<table>
<thead>
<tr>
<th>Items</th>
<th>Standard value</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free running characteristics</td>
<td>Terminal voltage V</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Current A</td>
<td>90 or less</td>
</tr>
<tr>
<td></td>
<td>Speed r/min</td>
<td>3,000 or more</td>
</tr>
<tr>
<td>Pinion gap mm (in.)</td>
<td>0.5–2.0 (.020–.079)</td>
<td></td>
</tr>
<tr>
<td>Commutator runout mm (in.)</td>
<td>0.05 (.0020)</td>
<td>0.1 (.004)</td>
</tr>
<tr>
<td>Commutator diameter mm (in.)</td>
<td>29.4 (1.158)</td>
<td>28.4 (1.118)</td>
</tr>
<tr>
<td>Undercut depth mm (in.)</td>
<td>0.5 (.020)</td>
<td></td>
</tr>
</tbody>
</table>

TSB Revision
TROUBLESHOOTING

CIRCUIT DIAGRAM
<VEHICLES WITHOUT THEFT-ALARM SYSTEM>

(M/T)  (A/T)

BATTERY  BATTERY

STARTER RELAY

STARTER RELAY

CLUTCH PEDAL POSITION SWITCH

PARK/NEUTRAL POSITION SWITCH

SUPPLEMENTAL RESTRAINT SYSTEM

MFI SYSTEM WARNING LIGHT

NOTE:

1. FROM 1993 MODEL
2. FROM 1992 MODEL

HR02W00AA

TSB Revision
VEHICLES WITH THEFT-ALARM SYSTEM (AK)

FUSIBLE LINK

IGNITION SWITCH (ST)

KEY REMINDER SWITCH

STARTER RELAY

MFI SYSTEM

BATTERY

STARTER MOTOR

ETACS UNIT

NOTE FROM 1993 MODEL

SUPPLEMENTAL RESTRAINT SYSTEM

FROM 1992 MODEL
ENGINE ELECTRICAL – Starting System

OPERATION

- For models equipped with the M/T, the clutch pedal position switch contact is switched OFF when the clutch pedal is depressed; when the ignition switch is then switched to the “ST” position, electricity flows to the starter relay and the starter motor, the contact (magnetic switch) of the starter is switched ON and the starter motor is activated.

NOTE
If the ignition switch is switched to the “ST” position without the clutch pedal being depressed, electricity flows to the starter relay (coil), the clutch pedal position switch (contacts) and to ground, with the result that the contacts of the starter relay are switched OFF, and, because the power to the starter motor is thereby interrupted, the starter motor is not activated.

- For models equipped with the A/T, when the ignition switch is switched to the “ST” position while the selector lever is at the “P” or “N” position, the contact (magnetic switch) of the starter is switched ON and the starter motor is activated.

TROUBLESHOOTING HINTS

The starter motor does not operate at all.
- Check the starter (coil).
- Check for poor contact at the battery terminals and starter.
- Check Park/Neutral position switch.
- Check clutch pedal position switch.
- Check starter relay.
- Check theft-alarm starter relay.
- Check key reminder switch.

STARTER MOTOR

REMOVAL AND INSTALLATION
Refer to GROUP 22 – Manual Transaxle, or GROUP 23 – Automatic Transaxle.

INSPECTION

PINION GAP ADJUSTMENT

(1) Disconnect field coil wire from M-terminal of magnetic switch.
(2) Connect a 12 V battery between S-terminal and M-terminal.
(3) Set switch to “ON”, and pinion will move out.

Caution
This test must be performed quickly (in less than 10 seconds) to prevent coil from burning.

(4) Check pinion to stopper clearance (pinion gap) with a feeler gauge.

Standard value: 0.5-2.0 mm (.020-.079 in.)
(5) If pinion gap is out of specification, adjust by adding or removing gaskets between magnetic switch and front bracket.

MAGNETIC SWITCH PULL-IN TEST
(1) Disconnect field coil wire from M-terminal of magnetic switch.
(2) Connect a 12 V battery between S-terminal and M-terminal.

Caution
This test must be performed quickly (in less than 10 seconds) to prevent coil from burning.

(3) If pinion moves out, then pull-in coil is good. If it doesn't, replace magnetic switch.

MAGNETIC SWITCH HOLD-IN TEST
(1) Disconnect field coil wire from M-terminal of magnetic switch.
(2) Connect a 12 V battery between S-terminal and body.

Caution
This test must be performed quickly (in less than 10 seconds) to prevent coil from burning.

(3) Pull out the pinion by hand until it comes into contact with the pinion stopper.
(4) If pinion remains out, everything is in order. If pinion moves in, hold-in circuit is open. Replace magnetic switch.

FREE RUNNING TEST
(1) Place starter motor in a vise equipped with soft jaws and connect a fully-charged 12-volt battery to starter motor as follows:
(2) Connect a test ammeter (100-ampere scale) and carbon pile rheostat in series with battery positive post and starter motor terminal.
(3) Connect a voltmeter (15-volt scale) across starter motor.
(4) Rotate carbon pile to full-resistance position.
(5) Connect battery cable from battery negative post to starter motor body.
(6) Adjust rheostat until the battery voltage shown by the voltmeter is 11 V.
(7) Confirm that the maximum amperage is within the specifications and that the starter motor turns smoothly and freely.

Current: Max. 90 Amps
MAGNETIC SWITCH RETURN TEST
(1) Disconnect field coil wire from M-terminal of magnetic switch.
(2) Connect a 12 V battery between M-terminal and body.
   Caution
   This test must be performed quickly (in less than 10 seconds) to prevent coil from burning.
(3) Pull pinion out and release. If pinion quickly returns to its original position, everything is in order. If it doesn’t, replace magnetic switch.
   Caution
   When pulling out the pinion, be careful not to have your finger pinched.

STARTER RELAY
(1) Remove the starter relay from the relay box.
(2) Connect battery to terminal 2 and check continuity between terminals with terminal 4 grounded.

<table>
<thead>
<tr>
<th>Power is supplied</th>
<th>3-4 terminals</th>
<th>No continuity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3-5 terminals</td>
<td>Continuity</td>
</tr>
<tr>
<td>Power is not supplied</td>
<td>3-4 terminals</td>
<td>Continuity</td>
</tr>
<tr>
<td></td>
<td>3-5 terminals</td>
<td>No continuity</td>
</tr>
<tr>
<td></td>
<td>1-2 terminals</td>
<td>Continuity</td>
</tr>
</tbody>
</table>

TSB Revision
DISASSEMBLY AND REASSEMBLY
<EXCEPT FROM 1994 CALIFORNIA VERSION>

Disassembly steps
1. Screw
2. Magnetic switch
3. Screw
4. Screw
5. Rear bracket
6. Brush holder
7. Brush
8. Rear bearing
9. Armature
10. Yoke assembly
11. Ball
12. Packing A
13. Packing B
14. Plate
15. Planetary gear
16. Lever
17. Snap ring
18. Stop ring
19. Overrunning clutch
20. Internal gear
21. Planetary gear holder
22. Front bracket

TSB Revision
Disassembly steps
1. Screw
2. Magnetic switch
3. Screw
4. Starter cover
5. Rear bracket
6. Brush holder
7. Brush
8. Brush
9. Armature
10. Yoke assembly
11. Ball
12. Packing A
13. Packing B
14. Plate
15. Planetary gear
16. Lever
17. Snap ring
18. Stop ring
19. Overrunning clutch
20. Internal gear
21. Planetary gear holder
22. Front bracket

DISASSEMBLY SERVICE POINTS

ARMATURE / BALL REMOVAL

Caution
When removing the armature, be careful not to lose the ball (which is used as a bearing) in the armature end.

TSB Revision
**SNAP RING / STOP RING REMOVAL**

1. Press the stop ring, by using an appropriate socket, wrench, to the snap ring side.

2. After removing the snap ring (by using snap-ring pliers), remove the stop ring and the overrunning clutch.

**STARTER MOTOR PARTS CLEANING**

1. Do not immerse parts in cleaning solvent. Immersing the yoke and field coil assembly and/or armature will damage insulation. Wipe these parts with a cloth only.

2. Do not immerse drive unit in cleaning solvent. Overrunning clutch is pre-lubricated at the factory and solvent will wash lubrication from clutch.

3. The drive unit may be cleaned with a brush moistened with cleaning solvent and wiped dry with a cloth.

**REASSEMBLY SERVICE POINT**

**STOP RING / SNAP RING INSTALLATION**

Using a suitable pulling tool, pull overrunning clutch stop ring over snap ring.

**INSPECTION**

**COMMUTATOR INSPECTION**

1. Place the armature on a pair of V-blocks, and check the deflection by using a dial gauge.

   - **Standard value**: 0.05 mm (.0020 in.)
   - **Limit**: 0.1 mm (.004 in.)
(2) Check the outer diameter of the commutator.
Standard value: 29.4 mm (1.158 in.)
Limit: 28.4 mm (1.118 in.)

(3) Check the depth of the undercut between segments.
Standard value: 0.5 mm (.020 in.)

**BRUSH HOLDER**
Check for continuity between brush holder plate and brush holder.
The normal condition is non-continuity.

**OVERRUNNING CLUTCH**
1. While holding clutch housing, rotate the pinion. Drive pinion should rotate smoothly in one direction, but should not rotate in opposite direction. If clutch does not function properly, replace overrunning clutch assembly.
2. Inspect pinion for wear or burrs. If pinion is worn or burred, replace overrunning clutch assembly. If pinion is damaged, also inspect ring gear for wear or burrs.

**FRONT AND REAR BRACKET BUSHING**
Inspect bushing for wear or burrs. If bushing is worn or burred, replace front bracket assembly or rear bracket assembly.
BRUSHES AND SPRINGS REPLACEMENT
1. Brushes that are worn beyond wear limit line, or oil-soaked, should be replaced.
2. When replacing field coil brushes, crush worn brush with pliers, being careful not to damage pigtail.
3. Sand pigtail end with sandpaper to ensure good soldering.
4. Insert pigtail into hole provided in new brush and solder it.
   Make sure that pigtail and excess solder do not come out onto brush surface.
5. When replacing ground brush, slide the brush from brush holder by prying retaining spring back.

ARMATURE TEST
ARMATURE SHORT-CIRCUIT TEST
1. Place armature in a growler.
2. Hold a thin steel blade parallel and just above while rotating armature slowly in growler. A shorted armature will cause blade to vibrate and be attracted to the core. Replace shorted armature.

ARMATURE GROUNDING TEST
Check the insulation between the armature coil cores and the commutator segments. They are normal if there is no continuity.

ARMATURE COIL OPEN-CIRCUIT CHECK
Check for continuity between segments. The condition is normal if there is continuity.
IGNITION SYSTEM

SPECIFICATIONS

GENERAL SPECIFICATIONS
CRANK ANGLE SENSOR <Up to 1992 model>

<table>
<thead>
<tr>
<th>Items</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Contact pointless type</td>
</tr>
<tr>
<td>Identification No.</td>
<td>T1 T49371</td>
</tr>
<tr>
<td>Part No.</td>
<td>MD1 53464</td>
</tr>
<tr>
<td>Advance mechanism</td>
<td>Controlled by engine control unit</td>
</tr>
<tr>
<td>Firing order</td>
<td>1-2-3-4-5-6</td>
</tr>
</tbody>
</table>

IGNITION COIL

<table>
<thead>
<tr>
<th>Items</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Mold 3-coil</td>
</tr>
<tr>
<td>Identification No.</td>
<td>F-536</td>
</tr>
<tr>
<td>Part No.</td>
<td>MD152648</td>
</tr>
</tbody>
</table>

SPARK PLUG

<table>
<thead>
<tr>
<th>Items</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>NGK</td>
<td>PFR6J-11</td>
</tr>
<tr>
<td>NIPPON DENSO</td>
<td>PK20PR-P11</td>
</tr>
</tbody>
</table>

SERVICE SPECIFICATIONS

<table>
<thead>
<tr>
<th>Items</th>
<th>Standard value</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ignition coil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary coil resistance at 20°C (68°F) Ω</td>
<td>0.67–0.81</td>
<td></td>
</tr>
<tr>
<td>Secondary coil resistance at 20°C (68°F) kΩ</td>
<td>11.3–15.3</td>
<td></td>
</tr>
<tr>
<td>Spark plug gap mm (in.)</td>
<td>1.0–1.1 (0.39–0.43)</td>
<td>1.3 (.051)</td>
</tr>
<tr>
<td>Spark plug cable kΩ</td>
<td></td>
<td>Max. 22</td>
</tr>
</tbody>
</table>

SPECIAL TOOLS

<table>
<thead>
<tr>
<th>Tool number and name</th>
<th>Supersession</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD998464 Harness connector</td>
<td></td>
<td>Check of ignition primary voltage (connection of ignition coil connector)</td>
</tr>
<tr>
<td>(4 pin, square)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TROUBLESHOOTING (UP TO 1993 MODELS)

CIRCUIT DIAGRAM

IGNITION TIMING ADJUSTMENT CONNECTOR

16-32 ENGINE ELECTRICAL - Ignition System

TSB Revision
OPERATION
- Turn ignition switch to "ON" position, and battery voltage will be applied to primary winding of ignition coil.
- When crankshaft position sensor and camshaft position sensor signal is input to engine control module, engine control module makes ON-OFF control of power transistors one by one.
- When power transistor is turned on, current flows from ignition coil (primary winding) to ground through power transistor.
- When power transistor A is turned from ON to OFF, the spark plugs of No. 1 and No. 4 cylinders spark. Turning of power transistor B from ON to OFF will produce sparking in spark plugs of No. 2 and No. 5 cylinders. Furthermore, when power transistor C is turned from ON to OFF, sparking is produced in spark plugs of No. 3 and No. 6 cylinders.

TROUBLESHOOTING HINTS
1. Engine cranks, but does not start.
   (1) Spark is insufficient or does not occur at all (on spark plug).
   - Check ignition coil.
   - Check camshaft position sensor and crankshaft position sensor
   - Check power transistor.
   - Check spark plugs.
   - Check spark plug cable.
   (2) Spark is good.
   - Check ignition timing.

2. Engine idles roughly or stalls.
   - Check spark plugs.
   - Check ignition timing.
   - Check ignition coil.
   - Check spark plug cable.

3. Poor acceleration
   - Check ignition timing.
   - Check spark plug cable.
   - Check ignition coil.

TSB Revision
ON-VEHICLE SERVICE

SPARK PLUG CABLE TEST
(1) Disconnect, one at a time, each of the spark plug cables while the engine is idling to check whether the engine’s running performance changes or not.

Caution
Wear rubber gloves while doing so.

(2) If the engine performance does not change, check the resistance of the spark plug cable, and check the spark plug itself.

SPARK PLUG TEST
(1) Remove the spark plug and connect to the spark plug cable.
(2) Ground the spark plug outer electrode (body), and crank the engine. Check to be sure that there is an electrical discharge between the electrodes at this time.
IGNITION SECONDARY VOLTAGE WAVE-FORM CHECK

MEASUREMENT METHOD

(1) Clamp SECONDARY PICKUP around spark plug cable.

NOTE
1. The ignition voltage peak appears reversely between when the spark plug cables of the cylinders No. 4, No. 5 and No. 6 are clamped and when those of the cylinders No. 1, No. 2 and No. 3 are clamped.
2. Since the 2-cylinder simultaneous ignition system is employed, the wave-form for two cylinder appears group by group when the wave-form is observed. (Cylinder No. 1 – cylinder No. 4, cylinder No. 2 – cylinder No. 5 and cylinder No. 3 – cylinder No. 6 as the respective groups) Here, the wave-form is observed for the cylinder whose spark plug cable is clamped with the secondary pickup.

(2) Clamp the spark plug cable with the trigger pickup.

NOTE
1. Clamp the spark plug cable of the cylinders No. 1, No. 2 or No. 3 which belongs to the same group of the cylinders clamped with the secondary pickup.
2. Though it is difficult to isolate the cylinder of the wave-form, the wave-form of the cylinders clamped with the secondary pickup is stable. Use this as a reference for isolation.
### STANDARD WAVE-FORM

**Observation Conditions**

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>SECONDARY</th>
</tr>
</thead>
<tbody>
<tr>
<td>PATTERN HEIGHT</td>
<td>HIGH (or LOW)</td>
</tr>
<tr>
<td>PATTERN SELECTOR</td>
<td>RASTER</td>
</tr>
<tr>
<td>Engine revolutions</td>
<td>Curb idle speed</td>
</tr>
</tbody>
</table>

#### Secondary ignition voltage wave-form

- **Spark line (Point A)**
- **Ignition voltage (Point D)**
- **Wave damping reduction section (Point B)**
- **Dwell section**
- **(Point C)**

#### Observation conditions (Only PATTERN SELECTOR below changes from the above conditions)

<table>
<thead>
<tr>
<th>PATTERN SELECTOR</th>
<th>DISPLAY</th>
</tr>
</thead>
</table>

#### Secondary ignition voltage wave-form

- **No. 1 Cylinder**
- **No. 2 Cylinder**
- **No. 3 Cylinder**
- **No. 4 Cylinder** (Waveform is disturbed)
- **No. 5 Cylinder**
- **No. 6 Cylinder**

---

**TSB Revision**
Wave-form Observation Points
Point A: The height, length and slope of the spark line (refer to abnormal wave-form examples 1, 2, 3 and 4) show the following trends.

<table>
<thead>
<tr>
<th>Spark line</th>
<th>Plug gap</th>
<th>Condition of electrode</th>
<th>Compression force</th>
<th>Concentration of air mixture</th>
<th>Ignition timing</th>
<th>Spark plug cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>Long</td>
<td>Small</td>
<td>Normal.</td>
<td>Low</td>
<td>Rich</td>
<td>Advanced</td>
</tr>
<tr>
<td></td>
<td>Short</td>
<td>Large</td>
<td>Large wear</td>
<td>High</td>
<td>Lean</td>
<td>Retarded</td>
</tr>
<tr>
<td></td>
<td>Height</td>
<td>High</td>
<td>Large wear</td>
<td>High</td>
<td>Lean</td>
<td>Retarded</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>Small</td>
<td>Normal</td>
<td>Low</td>
<td>Rich</td>
<td>Advanced</td>
</tr>
<tr>
<td>Slope</td>
<td>Large</td>
<td></td>
<td>Plug is fouled</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Point B: Number of vibrations in reduction vibration section (Refer to abnormal wave-form example 5)

<table>
<thead>
<tr>
<th>Number of vibrations</th>
<th>Coil and condenser</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three or more</td>
<td>Normal</td>
</tr>
<tr>
<td>Except above</td>
<td>Abnormal</td>
</tr>
</tbody>
</table>

Point C: Number of vibrations at beginning of dwell section (Refer to abnormal wave-form example 5)

<table>
<thead>
<tr>
<th>Number of vibrations</th>
<th>Coil</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 – 6 or higher</td>
<td>Normal</td>
</tr>
<tr>
<td>Except above</td>
<td>Abnormal</td>
</tr>
</tbody>
</table>

Point D: Ignition voltage height (distribution per each cylinder) shows the following trends.

<table>
<thead>
<tr>
<th>Ignition voltage</th>
<th>Plug gap</th>
<th>Condition of electrode</th>
<th>Compression force</th>
<th>Concentration of air mixture</th>
<th>Ignition timing</th>
<th>Spark plug cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Large</td>
<td>Large wear</td>
<td>High</td>
<td>Lean</td>
<td>Retarded</td>
<td>High resistance</td>
</tr>
<tr>
<td>Low</td>
<td>Small</td>
<td>Normal</td>
<td>Low</td>
<td>Rich</td>
<td>Advanced</td>
<td>Leak</td>
</tr>
</tbody>
</table>

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### Examples of Abnormal Wave-Forms

<table>
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<tr>
<th>Abnormal wave-form</th>
<th>Wave characteristics</th>
<th>Cause of problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example 1</td>
<td>Spark line is high and short.</td>
<td>Spark plug gap is too large.</td>
</tr>
<tr>
<td></td>
<td><img src="Z01P0215" alt="Wave-form Image" /></td>
<td></td>
</tr>
<tr>
<td>Example 2</td>
<td>Spark line is low and long, and is sloping. Also, the second half of the spark line is distorted. This could be a result of misfiring.</td>
<td>Spark plug gap is too small.</td>
</tr>
<tr>
<td></td>
<td><img src="Z01P0216" alt="Wave-form Image" /></td>
<td></td>
</tr>
<tr>
<td>Example 3</td>
<td>Spark line is low and long, and is sloping. However, there is almost no spark line distortion.</td>
<td>Spark plug gap is fouled.</td>
</tr>
<tr>
<td></td>
<td><img src="Z01P0217" alt="Wave-form Image" /></td>
<td></td>
</tr>
<tr>
<td>Example 4</td>
<td>Spark line is high and short. Difficult to distinguish between this and abnormal wave-form example 1.</td>
<td>Spark plug cable is nearly falling off. (Causing a dual ignition)</td>
</tr>
<tr>
<td></td>
<td><img src="Z01P0218" alt="Wave-form Image" /></td>
<td></td>
</tr>
<tr>
<td>Example 5</td>
<td>No waves in wave damping section.</td>
<td>Rare short in ignition coil.</td>
</tr>
<tr>
<td></td>
<td><img src="Z01P0219" alt="Wave-form Image" /></td>
<td></td>
</tr>
</tbody>
</table>
IGNITION PRIMARY VOLTAGE WAVE-FORM CHECK

MEASUREMENT METHOD
(1) Remove the ignition coil connector and connect the special tool (harness connector: MD998464) in between.
(2) When observing the No. 1 - No. 4 cylinder group, connect the primary pickup of the analyzer probe to the ignition coil side connector terminal No. 2 (black clip on the special tool).
For the No. 2 - No. 5 cylinder group, connect to terminal No. 1 (red clip), and for the No. 3 - No. 6 cylinder group, connect to terminal No. 4 (white clip).
(3) Ground the primary pickup ground terminal.
(4) Clamp the spark plug cable with the trigger pickup.

NOTE
(1) Clamp the spark plug cable of cylinder No. 1, No. 2 or No. 3 which belongs to the same group of the cylinder to which the primary pickup is connected.
(2) The wave-form of any cylinder in the same group is displayed on the left side of the screen.

STANDARD WAVE-FORM
Observation Conditions

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>PRIMARY</th>
</tr>
</thead>
<tbody>
<tr>
<td>PATTERN HEIGHT</td>
<td>HIGH (or LOW)</td>
</tr>
<tr>
<td>PATTERN SELECTOR</td>
<td>RASTER</td>
</tr>
<tr>
<td>Engine revolutions</td>
<td>Curb idle speed</td>
</tr>
</tbody>
</table>

Zener voltage (Point C)
(Approx. 40 x 10V)
Spark line (Point A)
Wave damping reduction section (Point B)
Primary ignition voltage wave-form

TSB Revision
Observation conditions (Only PATTERN SELECTOR below changes from the above conditions.)

<table>
<thead>
<tr>
<th>PATTERN SELECTOR</th>
<th>DISPLAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>(V)</td>
<td></td>
</tr>
</tbody>
</table>

- No. 1 (or No. 4) cylinder igniton noise
- No. 2 (or No. 5) cylinder igniton noise
- No. 3 (or No. 6) No. 4 (or No. 1) cylinder igniton noise
- No. 5 (or No. 2) No. 6 (or No. 1) cylinder igniton noise

Primary ignition voltage wave-form

Neutral section

Time

TSB Revision
Wave-form Observation Points

Point A: The height, length and slope of the spark line (refer to abnormal wave-form examples 1, 2, 3 and 4) show the following trends.

<table>
<thead>
<tr>
<th>Spark line</th>
<th>Plug gap</th>
<th>Condition of electrode</th>
<th>Compression force</th>
<th>Concentration of air mixture</th>
<th>Ignition timing</th>
<th>High tension cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long</td>
<td>Small</td>
<td>Normal</td>
<td>Low</td>
<td>Rich</td>
<td>Advanced</td>
<td>Leak</td>
</tr>
<tr>
<td>Short</td>
<td>Large</td>
<td>Large wear</td>
<td>High</td>
<td>Lean</td>
<td>Retarded</td>
<td>High resistance</td>
</tr>
<tr>
<td>Height</td>
<td>High</td>
<td>Large</td>
<td>High</td>
<td>Lean</td>
<td>Retarded</td>
<td>High resistance</td>
</tr>
<tr>
<td>Low</td>
<td>Small</td>
<td>Normal</td>
<td>Low</td>
<td>Rich</td>
<td>Advanced</td>
<td>Leak</td>
</tr>
<tr>
<td>Slope</td>
<td>Large</td>
<td>Plug is fouled</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Point B: Number of vibrations in reduction vibration section
(Refer to abnormal wave-form example 5)

<table>
<thead>
<tr>
<th>Number of vibrations</th>
<th>Coil and condenser</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 or higher</td>
<td>Normal</td>
</tr>
<tr>
<td>Except above</td>
<td>Abnormal</td>
</tr>
</tbody>
</table>

Point C: Height of Zener voltage

<table>
<thead>
<tr>
<th>Height of Zener voltage</th>
<th>Probable cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher</td>
<td>Problem in Zener diode</td>
</tr>
<tr>
<td>Lower</td>
<td>Abnormal resistance in primary coil circuit</td>
</tr>
<tr>
<td>Abnormal wave-form</td>
<td>Wave characteristics</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td><strong>Example 1</strong></td>
<td>Spark line is high and short.</td>
</tr>
<tr>
<td><img src="Z01P0210" alt="Image" /></td>
<td><img src="Z01P0211" alt="Image" /></td>
</tr>
<tr>
<td><strong>Example 2</strong></td>
<td>Spark line is low and long, and is sloping. Also, the second half of the spark line is distorted. This could be a result of misfiring.</td>
</tr>
<tr>
<td><strong>Example 3</strong></td>
<td>Spark line is low and long, and is sloping. However, there is almost no spark line distortion.</td>
</tr>
<tr>
<td><strong>Example 4</strong></td>
<td>Spark line is high and short.</td>
</tr>
<tr>
<td><strong>Example 5</strong></td>
<td>No waves in wave damping section.</td>
</tr>
</tbody>
</table>

**TSB Revision**
IGNITION SYSTEM
REMOVAL AND INSTALLATION

Removal steps
- Intake manifold plenum (Refer to GROUP 15 – Intake Manifold.)
  1. Center cover
  2. Spark plug cable
  3. Spark plug
  4. Ignition coil
  5. Ignition power transistor
  6. Crankshaft position sensor <1992 models>
  7. O-ring <1992 models>
  8. Clamp <From 1993 models>
     Camshaft position sensor, Crankshaft position
     sensor removal steps <From 1993 models>
     - Timing belt cover (Refer to GROUP 11 – Timing Belt)
  9. Camshaft position sensor
  10. Crankshaft position sensor

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INSTALLATION SERVICE POINTS

A. CRANKSHAFT POSITION SENSOR INSTALLATION
   <Up to 1992 model>
   (1) Turn the crankshaft so that the No. 1 cylinder is at compression top dead center.
   Caution
   Be careful not to turn it to the No. 4 cylinder compression top dead center by mistake.
   (2) Install, lining up the matchmarks on the crankshaft position sensor housing and the coupling.

B. SPARK PLUG CABLE INSTALLATION
   Improper arrangement of spark plug cables will induce voltage between the cables, causing miss firing and developing a surge at acceleration in high-speed operation. Therefore, be careful to arrange the spark plug cables properly by the following procedure.
   1. Install the spark plug cable clamps as shown in the illustration.
   2. The numerals on the support and clamp indicate the spark plug cable No.
   3. Pay attention to the following items when the spark plug cables are installed.
      (1) Install the cables securely to avoid possible contact with metal parts.
      (2) Install the cables neatly, ensuring they are not too tight, loose, twisted or kinked.
ENGINE ELECTRICAL - Ignition System

<Up to 1992 model>

Approx. 60 mm (2.36 in.)

<From 1993 model>

Approx. 80 mm (3.15 in.)
T/C only
INSPECTION

SPARK PLUG
Check the plug gap and replace if the limit is exceeded.

Standard value: 1.0–1.1 mm (.039–.043 in.)
Limit: 1.3 mm (.051 in.)

Caution
1. Do not attempt to adjust the gap of the platinum plug.
2. Cleaning of the platinum plug may damage the platinum tip. Therefore, if carbon deposits must be removed, use a plug cleaner and complete cleaning within 20 seconds for protection of the electrode. Do not use wire brushes.

SPARK PLUG CABLE
(1) Check cap and coating for cracks.
(2) Measure resistance.
Limit: Max. 22 kΩ

IGNITION POWER TRANSISTOR

NOTE
An analog-type circuit tester should be used.

No. 1–No. 4 coil side
(1) Connect the negative (–) terminal of the 1.5 V power supply to terminal (4) of the ignition power transistor; then check whether there is continuity between terminal (13) and terminal (4) when terminal (3) and the positive (+) terminal are connected and disconnected.

<table>
<thead>
<tr>
<th>Terminal 3 and (+) terminal</th>
<th>Terminal 13 and terminal 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connected</td>
<td>Continuity</td>
</tr>
<tr>
<td>Unconnected</td>
<td>No continuity</td>
</tr>
</tbody>
</table>

(2) Replace the ignition power transistor if there is a malfunction.

No. 2–No. 5 coil side
(1) Connect the negative (–) terminal of the 1.5 V power supply to terminal (4) of the ignition power transistor; then check whether there is continuity between terminal (12) and terminal (4) when terminal (2) and the positive (+) terminal are connected and disconnected.

NOTE
Connect the (–) probe of the circuit tester to terminal (12).
(2) Replace the ignition power transistor if there is a malfunction.

**No. 3—No. 6 coil side**

(1) Connect the negative (−) terminal of the 1.5 V power supply to terminal (4) of the ignition power transistor; then check whether there is continuity between terminal (11) and terminal (4) when terminal (1) and the positive (+) terminal are connected and disconnected.

**NOTE**
Connect the (−) probe of the circuit tester to terminal 11.

<table>
<thead>
<tr>
<th>Terminal 2 and (+) terminal</th>
<th>Terminal 12 and terminal 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connected</td>
<td>Continuity</td>
</tr>
<tr>
<td>Unconnected</td>
<td>No continuity</td>
</tr>
</tbody>
</table>

(2) Replace the ignition power transistor if there is a malfunction.

**IGNITION COIL**

**Primary Coil Resistance**
Measure the resistance between connector terminal (3) (power) and each coil terminal.

**Measuring point:**
- Coil A (No.1—No.4 cylinder side coil) . . . . . . . (2)−(3)
- Coil B (No.2—No.5 cylinder side coil) . . . . . . . (1)−(3)
- Coil C (No.3—No.6 cylinder side coil) . . . . . . . (4)−(3)

**Standard value:** 0.67-0.81 Ω

**Secondary Coil Resistance**
Measure the resistance between each coil high voltage terminals.

**Measuring point:**
- Coil A (No. 1—No. 4 cylinder side coil)
- Coil B (No. 2—No. 5 cylinder side coil)
- Coil C (No. 3—No. 6 cylinder side coil)

**Standard value:** 11.3-15.3 kΩ
WARNINGS REGARDING SERVICING OF SUPPLEMENTAL RESTRAINT SYSTEM (SRS) EQUIPPED VEHICLES

WARNING!

(1) Improper service or maintenance of any component of the SRS, or any SRS-related component, can lead to personal injury or death to service personnel (from inadvertent firing of the air bag) or to the driver and passenger (from rendering the SRS inoperative).

(2) Service or maintenance of any SRS component or SRS-related component must be performed only at an authorized MITSUBISHI dealer.

(3) MITSUBISHI dealer personnel must thoroughly review this manual, and especially its GROUP 52B - Supplemental Restraint System (SRS) and GROUP 00 - Maintenance Service before beginning any service or maintenance of any component of the SRS or any SRS-related component.

NOTE

The SRS includes the following components: impact sensors, SRS diagnosis unit, SRS warning light, air bag module, clock spring and interconnecting wiring. Other SRS-related components (that may have to be removed/installed in connection with SRS service or maintenance) are indicated in the table of contents by an asterisk (*).
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<th>Section</th>
<th>Page</th>
</tr>
</thead>
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<td>Sealant</td>
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<td>Service Specifications</td>
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<td>TROUBLESHOOTING</td>
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<td>RADIO REMOTE-CONTROL*</td>
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<td>SPEAKER</td>
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<td>ON-VEHICLE SERVICE</td>
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<tr>
<td>REAR WINDOW DEFOGGER SWITCH</td>
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<td>SPECIAL TOOLS</td>
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<tr>
<td>REAR WIPER AND WASHER</td>
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<tr>
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<td></td>
</tr>
<tr>
<td>SEAT BELT (BUZZER)</td>
<td></td>
</tr>
<tr>
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<td></td>
</tr>
<tr>
<td>SEAT BELT (TENSION-REDUCER TYPE</td>
<td></td>
</tr>
<tr>
<td>SEAT BELT)</td>
<td></td>
</tr>
<tr>
<td>SUPPLEMENTAL RESTRAINT SYSTEM (SRS)</td>
<td></td>
</tr>
<tr>
<td>Refer to GROUP 52B</td>
<td></td>
</tr>
<tr>
<td>THEFT-ALARM SYSTEM</td>
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<tr>
<td>SPECIAL TOOLS</td>
<td>205</td>
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<tr>
<td>TROUBLESHOOTING</td>
<td>206</td>
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<tr>
<td>WINDSHIELD WIPER AND WASHER</td>
<td></td>
</tr>
<tr>
<td>Refer to GROUP 51</td>
<td></td>
</tr>
</tbody>
</table>
BATTERY

SPECIFICATIONS

GENERAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Items</th>
<th>Up to 1993 models</th>
<th>From 1994 models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>75D26R-MF</td>
<td>75D23R-MF</td>
</tr>
<tr>
<td>Ampere hours (5HR) Ah</td>
<td>52</td>
<td>52</td>
</tr>
<tr>
<td>Cranking rating [at -18°C(0°F)] A</td>
<td>490</td>
<td>520</td>
</tr>
<tr>
<td>Reserve capacity min.</td>
<td>123</td>
<td>118</td>
</tr>
</tbody>
</table>

NOTES
1. CRANKING RATING is the current a battery can deliver for 30 seconds and maintain a terminal voltage of 7.2 volts or greater at a specified temperature.
2. RESERVE CAPACITY RATING is the amount of time a battery can deliver 25A and maintain a minimum terminal voltage of 10.5 at 27°C (80°F).

ON-VEHICLE SERVICE

BATTERY INSPECTION

BATTERY VISUAL CHECK (1)
The battery contains a visual test indicator which gives blue signal when an adequate charge level exists, and white signal when charging is required.

BATTERY VISUAL CHECK (2)
Make sure ignition switch is in Off position and all battery feed accessories are Off.
1. Disconnect ground cable from battery before disconnecting (+) cable.
2. Remove battery from vehicle.

Caution
Care should be taken in the event battery case is cracked or leaking to protect hands from the electrolyte. A suitable pair of rubber gloves (not the household type) should be worn when removing battery by hand.

3. Inspect battery carrier for damage caused by loss of acid from battery. If acid damage is present, it will be necessary to clean area with a solution of clean warm water and baking soda. Scrub area with a stiff bristle brush and wipe off with a cloth moistened with ammonia or baking soda.

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4. Clean top of battery with same solutions as described in step (3).
5. Inspect battery case and cover for cracks. If cracks are present, battery must be replaced.
6. Clean the battery post with a suitable battery post cleaning tool.
7. Clean the inside surfaces of the terminal clamps with a suitable battery terminal cleaning tool. Replace damaged or frayed cables and broken terminals clamps.
8. Install the battery in vehicle.
9. Connect (+) and (−) cables to battery in the order of mention.
10. Tighten the clamp nut securely.

BATTERY CHARGING

Caution
When batteries are being charged, an explosive gas forms beneath the cover of each cell. Do not smoke near batteries on charge or which have recently been charged. Do not break live circuits at the terminals of the batteries on charge. A spark will occur where the live circuit is broken. Keep all open flames away from the battery.

Battery electrolyte temperature may temporarily be allowed to rise to 55°C (131°F). Increase of electrolyte temperature above 55°C (131°F) is harmful to the battery, causing deformation of battery cell, decrease in life of battery, etc.

CHARGE RATE
If the test indicator is white, the battery should be charged as outlined below.

When the dot appears or when maximum charge shown below is reached, charging should be stopped.

NOTE
When the charging is performed at 5 amps, charging is virtually 100% three hours after the indicator's indication changes from white to green.

Use fast charging only in an emergency.
If the indicator does not turn to green even after the battery is charged, the battery should be replaced; do not overcharge.

Charge Rate Chart

<table>
<thead>
<tr>
<th>Battery</th>
<th>Slow Charging</th>
<th>Fast Charging</th>
</tr>
</thead>
<tbody>
<tr>
<td>75D26R-MF (490 amps)</td>
<td>5 amps 15 hrs.</td>
<td>20 amps 3.75 hrs.</td>
</tr>
<tr>
<td>75D23R-MF (520 amps)</td>
<td>10 amps 7.5 hrs.</td>
<td>30 amps 2.5 hrs.</td>
</tr>
</tbody>
</table>

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BATTERY TESTING PROCEDURE

TEST STEP

(1) Remove negative cable, then positive cable.
(2) Check for dirty or corroded connections.

OK

NG

Clean terminals and clamps.

(1) Remove hold-downs and shields.
(2) Check for broken/cracked case or cover.

NG

Replace battery

OK

(1) Turn headlights on for 15 seconds.
(2) Turn headlights off for 2 minutes to allow battery voltage to stabilize.
(3) Disconnect cables.
(4) Read open circuit voltage.

OK: Open circuit voltage is more than 12.4V.

NG

Charge battery at 5 amps.

NG

Replace battery

(1) Connect a load tester to the battery.
(2) Load the battery at the recommended discharge rate (see LOAD TEST RATE CHART) for 15 seconds.
(3) Read voltage after 15 seconds, then remove load.
(4) Compare the measured value with the minimum voltage. (See LOAD TEST CHART.)

OK: Higher than the minimum voltage

Re-test

LOAD TEST CHART

<table>
<thead>
<tr>
<th>Temperature °C (°F)</th>
<th>21 (70) and above</th>
<th>18 (60)</th>
<th>10 (50)</th>
<th>4 (40)</th>
<th>-1 (30)</th>
<th>-7 (20)</th>
<th>-12 (10)</th>
<th>-18 (0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum voltage</td>
<td>9.6</td>
<td>9.6</td>
<td>9.4</td>
<td>9.3</td>
<td>9.1</td>
<td>8.9</td>
<td>8.7</td>
<td>8.5</td>
</tr>
</tbody>
</table>

LOAD TEST RATE CHART

<table>
<thead>
<tr>
<th>Load test (Amps)</th>
<th>Cranking rating (0°F)</th>
<th>Reserve capacity</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>240 amps</td>
<td>490 amps</td>
<td>123 minutes</td>
<td>75D26R-MF</td>
</tr>
<tr>
<td>240 amps</td>
<td>520 amps</td>
<td>123 minutes</td>
<td>75D23R-MF</td>
</tr>
</tbody>
</table>
IGNITION SWITCH

SPECIAL TOOL

<table>
<thead>
<tr>
<th>Tool</th>
<th>Tool number and name</th>
<th>Supersession</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MB990803</td>
<td>General service tool</td>
<td>Removal of steering wheel</td>
</tr>
<tr>
<td></td>
<td>Steering wheel puller</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

IGNITION SWITCH

REMOVAL AND INSTALLATION

**CAUTION: SRS**
Before removal of air bag module, refer to GROUP 52B – Service Precautions and Air Bag Module and Clock Spring.

Steering lock cylinder removal steps
1. Air bag module (Refer to GROUP 52B – Air Bag Module and Clock Spring.)
2. Steering wheel
3. Knee protector (Refer to GROUP 52A – Instrument Panel.)
4. Column cover, lower
5. Column cover, upper
6. Lap cooler duct and foot shower duct
7. Column switch and clock spring assembly
8. Ignition key illumination ring
9. Steering lock cylinder

Ignition switch segment removal steps
3. Knee protector (Refer to GROUP 52A – Instrument Panel.)
4. Column cover, lower
5. Column cover, upper
6. Lap cooler duct and foot shower duct
10. Key reminder switch segment
11. Ignition switch segment

TSB Revision
REMOVAL SERVICE POINTS

- STEERING WHEEL REMOVAL
  Remove the steering wheel by using the special tool.
  **Caution**
  Do not hammer on the steering wheel to remove it; doing so may damage the collapsible mechanism.

- COLUMN COVER LOWER / COLUMN COVER UPPER REMOVAL
  After the screws have been removed, remove the covers, while making sure not to break the grippers.

- STEERING LOCK CYLINDER REMOVAL
  1. Insert the ignition key into the steering lock cylinder and place the key in the ACC position.
  2. Press the lock pin down with a Phillips head screwdriver (small-size one) to remove the steering lock cylinder.

INSTALLATION SERVICE POINT

- COLUMN SWITCH AND CLOCK SPRING ASSEMBLY INSTALLATION
  Line up the "NEUTRAL" mark of the clock spring with the mating mark to center the clock spring.
  **Caution**
  If the clock spring is not centered, problems such as intermediate failure of the steering wheel to turn, broken ribbon cable in the clock spring, or the like could occur. As a result, they might hinder proper operation of the SRS, resulting in serious injury.
INSPECTION
IGNITION SWITCH CHECK

(1) Remove the knee protector, the column cover lower and the column cover upper. (Refer to GROUP 52A - Instrument Panel.)

(2) Disconnect the wiring connector from the ignition switch and key reminder switch, and connect an ohmmeter to the switch side connector.

(3) Operate the switch, and check the continuity between the terminals.

<table>
<thead>
<tr>
<th>Position</th>
<th>Key</th>
<th>Connector A</th>
<th>Connector B</th>
<th>Connector B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Ignition switch terminal No.</td>
<td>Key reminder switch terminal No.</td>
<td>ignition key illumination light terminal No.</td>
</tr>
<tr>
<td>LOCK</td>
<td>Removed</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>ACC</td>
<td>Installed</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>ON</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>START</td>
<td></td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
## METERS AND GAUGES

### GENERAL SPECIFICATIONS

#### METERS AND GAUGES

<table>
<thead>
<tr>
<th>Items</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speedometer</td>
<td>Type Mechanical type*¹</td>
</tr>
<tr>
<td></td>
<td>Electrical type*²</td>
</tr>
<tr>
<td>Tachometer</td>
<td>Type Pulse type</td>
</tr>
<tr>
<td>Fuel gauge</td>
<td>Type Coil type</td>
</tr>
<tr>
<td>Fuel gauge unit</td>
<td>Type Variable resistance type</td>
</tr>
<tr>
<td>Engine coolant temperature gauge</td>
<td>Type Coil type</td>
</tr>
<tr>
<td>Engine coolant temperature gauge unit</td>
<td>Type Thermistor type</td>
</tr>
<tr>
<td>Oil pressure gauge</td>
<td>Type Bi-metal type</td>
</tr>
<tr>
<td>Oil pressure gauge unit</td>
<td>Type Bi-metal type</td>
</tr>
<tr>
<td>Pressure gauge &lt;Turbo&gt;</td>
<td>Type Moving coil type</td>
</tr>
<tr>
<td>Voltage gauge &lt;Non-turbo&gt;</td>
<td>Type Moving iron type</td>
</tr>
</tbody>
</table>

**NOTE**

*¹ 1992 models
*² 1992 models <Turbo>, and from 1993 models
## INDICATORS AND WARNING LIGHTS

<table>
<thead>
<tr>
<th>Items</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turn signal indicator light W</td>
<td>3.0</td>
</tr>
<tr>
<td>High beam indicator light W</td>
<td>1.4 (74)</td>
</tr>
<tr>
<td>Charging system warning light W</td>
<td>1.4 (74)</td>
</tr>
<tr>
<td>Oil pressure warning light W</td>
<td>1.4 (74)</td>
</tr>
<tr>
<td>Door-ajar warning light W</td>
<td>1.4 (74)</td>
</tr>
<tr>
<td>Brake warning light W</td>
<td>1.4 (74)</td>
</tr>
<tr>
<td>Low fuel warning light W</td>
<td>3.4 (158)</td>
</tr>
<tr>
<td>Seat belt warning light W</td>
<td>1.4 (74)</td>
</tr>
<tr>
<td>Cruise control indicator light W</td>
<td>1.4 (74)</td>
</tr>
<tr>
<td>Engine coolant level warning light W</td>
<td>1.4 (74)</td>
</tr>
<tr>
<td>Check engine warning light W</td>
<td>1.4 (74)</td>
</tr>
<tr>
<td>Security indicator light*1 W</td>
<td>1.4 (74)</td>
</tr>
<tr>
<td>Power/economy changeover indicator light &lt;A/T&gt; W</td>
<td>1.12</td>
</tr>
<tr>
<td>Overdrive indicator light &lt;A/T&gt; W</td>
<td>1.12</td>
</tr>
<tr>
<td>Supplemental restraint system warning light W</td>
<td>1.4 (74) × 2</td>
</tr>
<tr>
<td>Anti-lock braking system warning light W</td>
<td>1.4 (74)</td>
</tr>
<tr>
<td>Active aero system warning indicator light &lt;AWD&gt; W</td>
<td>1.4 (74)</td>
</tr>
<tr>
<td>Washer fluid level indicator light W</td>
<td>1.4 (74)</td>
</tr>
<tr>
<td>4-wheel steering oil level warning light &lt;AWD&gt; W</td>
<td>1.4 (74)</td>
</tr>
<tr>
<td>Cruise control ON indicator light W</td>
<td>1.4 (74)</td>
</tr>
<tr>
<td>Tour/sport mode indicator light*2 W</td>
<td>1.12</td>
</tr>
<tr>
<td>Tour mode indicator light*3 W</td>
<td>1.12</td>
</tr>
</tbody>
</table>

**NOTE**

(1) The values in parentheses denote SAE trade numbers.

(2) The *1 symbol indicates vehicles with theft-alarm system.

(3) The *2 symbol indicates vehicles with Electronic Controlled Suspension.

(4) The *3 symbol indicates vehicles with Active Exhaust System.

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### SERVICE SPECIFICATIONS

<table>
<thead>
<tr>
<th>Items</th>
<th>Standard values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speedometer indication error mph</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>19-22</td>
</tr>
<tr>
<td>40</td>
<td>38-44</td>
</tr>
<tr>
<td>60</td>
<td>57-66</td>
</tr>
<tr>
<td>80</td>
<td>76-88</td>
</tr>
<tr>
<td>100</td>
<td>94-110</td>
</tr>
<tr>
<td>Tachometer indication error rpm</td>
<td></td>
</tr>
<tr>
<td>1,000</td>
<td>± 100</td>
</tr>
<tr>
<td>3,000</td>
<td>± 150</td>
</tr>
<tr>
<td>5,000</td>
<td>± 250</td>
</tr>
<tr>
<td>6,000</td>
<td>± 300</td>
</tr>
<tr>
<td>Fuel gauge unit resistance Ω</td>
<td></td>
</tr>
<tr>
<td>Point F</td>
<td>3 ± 2</td>
</tr>
<tr>
<td>Point E</td>
<td>110 ± 7</td>
</tr>
<tr>
<td>Fuel gauge unit float height mm (in.)</td>
<td></td>
</tr>
<tr>
<td>Point F</td>
<td>18.6-21.6 (.73-.85)</td>
</tr>
<tr>
<td>Point E</td>
<td>193.4-196.4 (7.61-7.73)</td>
</tr>
<tr>
<td>Engine coolant temperature gauge unit resistance [at 70°C(158°F)] Ω</td>
<td>104 ± 13.5</td>
</tr>
<tr>
<td>Fuel gauge resistance Ω</td>
<td></td>
</tr>
<tr>
<td>Between A – B</td>
<td>Approx. 254</td>
</tr>
<tr>
<td>Between A – C</td>
<td>Approx. 101</td>
</tr>
<tr>
<td>Between B – C</td>
<td>Approx. 153</td>
</tr>
<tr>
<td>Engine coolant temperature gauge resistance Ω</td>
<td></td>
</tr>
<tr>
<td>Between A – B</td>
<td>Approx. 51</td>
</tr>
<tr>
<td>Between A – C</td>
<td>Approx. 139</td>
</tr>
<tr>
<td>Between B – C</td>
<td>Approx. 190</td>
</tr>
<tr>
<td>Oil pressure gauge resistance Ω</td>
<td>Approx. 42</td>
</tr>
<tr>
<td>Pressure gauge resistance &lt;Turbo&gt;Ω</td>
<td>Approx. 72</td>
</tr>
</tbody>
</table>

### SEALANT

<table>
<thead>
<tr>
<th>Items</th>
<th>Specified sealant</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine coolant temperature gauge unit</td>
<td>3M Nut Locking Part No. 4171 or equivalent</td>
<td>Semi-drying sealant</td>
</tr>
</tbody>
</table>
TROUBLESHOOTING

METERS AND GAUGES CIRCUIT DIAGRAM <UP TO 1993 MODELS>

IGNITION SWITCH (IG1)

J/B

60

0.85B-W

0.85B-W

B-W

B-W

B-W

J/B

6 (D-71)

6 (D-44)

15A

6 (D-04)

2B-W

7 (D-82)

IGNITION POWER TRANSISTOR

FUEL GAUGE UNIT (F-16)

ENGINE CONTROL MODULE

SPEED SENSOR (B-34)

HR10M00AA

TSB Revision
IGNITION SWITCH (IG1)

CHARGING

B-W

0.85B-W

O.B5B-W

L-R

WARNING LIGHT

B-W

TURN-SIGNAL LIGHT

AND HAZARD LIGHT

COMBINATION

METER

SPEED

FUEL

GAUGE

UNIT

IGNITION

POWER TRANSISTOR

NOTE 4

CONVERTIBLE

TSB Revision
OPERATION

<Fuel gauge>
- When the ignition key is at the “ON” position, the fuel gauge is activated.
- When there is much fuel, the unit’s resistance is small and the current flowing in the circuit is great, so the gauge’s indicator indicates in the “F” area.
- When there is little fuel, the unit’s resistance is high and the current flowing in the circuit is small, so the gauge’s indicator indicates in the “E” area.

<Engine coolant temperature gauge>
- When the ignition key is at the “ON” position, the engine coolant temperature gauge is activated.
- When the engine coolant temperature is high, the unit’s resistance is low and there is a great flow of current in the circuit, so the gauge’s indicator indicates in the “H” area.
- When the engine coolant temperature is low, the unit’s resistance is high and there is a small flow of current in the circuit, so the gauge’s indicator indicates in the “C” area.

<Reed switch (mechanical speedometer type) /Speed sensor (electrical speedometer type)>
- Pulses are produced in accordance with the vehicle speed, and vehicle-speed signals are input to systems (the MFI system, etc.) that regulate according to the vehicle speed.

<TROUBLESHOOTING HINTS>

1. The fuel gauge doesn’t function, or shows the incorrect indication.
   (1) Disconnect the connector of the fuel pump and gauge unit assembly; the “F” side is indicated when terminal (5) is then grounded.
   - Check the fuel gauge.
2. The engine coolant temperature gauge doesn’t function, or shows the incorrect indication.
   (1) The “H” side is indicated when the connector of the engine coolant temperature gauge unit is disconnected and then grounded.
   - Check the engine coolant temperature gauge unit.
3. Systems dependent upon control according to the vehicle speed do not function correctly.
   - Check the reed switch (mechanical speedometer type)
   - Check the speed sensor (electrical speedometer type)
4. The oil pressure gauge doesn’t function, or shows the incorrect indication.
   (1) The “H” side is indicated when the connector of the oil pressure gauge unit is disconnected and then grounded.
   - Check the oil pressure gauge unit.
5. The meter illumination light does not illuminate.
   (1) The tail lights illuminate.
   - Check the rheostat.
6. The voltage gauge doesn’t function, or shows the incorrect indication.
   - Check the voltage gauge.
COMPONENT LOCATION

Engine control module

TSB Revision
WARNING LIGHT CIRCUIT DIAGRAM <UP TO 1994 MODELS>
WARNING LIGHT CIRCUIT DIAGRAM <FROM 1996 MODELS>
ON-VEHICLE SERVICE

INSPECTION

SPEEDOMETER CHECK
(1) Assure tire pressure at standard value. (Refer to GROUP 31 — Specifications.)
(2) Set the vehicle on a speedometer tester.
(3) Set free rollers securely on the floor according to the wheelbase and rear tread of the vehicle (when rear wheels are to be set on free rollers).
(4) Raise the rear wheels on a jack and place rigid racks to support the specified positions of the side sills (when rear wheels are to be raised on a jack).
(5) Make sure the parking brake has been set. <FWD>

(6) Attach anchoring bars on the tie-down brackets and secure their ends to the anchor plates.
(7) Make sure the tension on the right and left bars is the same. Also be sure there is enough tension on each bar.
(8) Attach a chain or wire to the rear tie-down hole. Make sure the end of the wire or chain is secured firmly.
(9) Take all other necessary precautions.
(10) Use a speedometer tester to measure the speedometer’s indication error.

Standard value:

<table>
<thead>
<tr>
<th>Standard indication mph</th>
<th>Allowable range mph</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>19-22</td>
</tr>
<tr>
<td>40</td>
<td>38-44</td>
</tr>
<tr>
<td>80</td>
<td>57-66</td>
</tr>
<tr>
<td>80</td>
<td>76-88</td>
</tr>
<tr>
<td>100</td>
<td>94-110</td>
</tr>
</tbody>
</table>

Caution
Do not operate the clutch or accelerator abruptly or decelerate during the operations.
TACHOMETER CHECK

(1) Insert paper clip into the engine revolution speed detection terminal provided in the engine compartment, and connect the engine tachometer to the inserted paper clip.

Caution
As the tachometer is negative grounded, do not connect battery conversely to prevent damaging transistor and diode.

NOTE
For tachometer inspection, use of a fluxmeter-type engine tachometer is recommended. (Because a fluxmeter only needs to be clipped to the high tension cable.)

(2) Connect the engine tachometer and compare the engine tachometer and tachometer readings. Replace tachometer if difference is excessive.

Standard value:
- 1,000 ± 100 rpm
- 3,000 ± 150 rpm
- 5,000 ± 250 rpm
- 6,000 ± 300 rpm

Caution
The engine speed signal output from the engine is one-third of the actual speed. When the engine speed is measured, make sure that the engine tachometer is placed in the 2-cylinder range. (The real speed is indicated.)

FUEL GAUGE SIMPLE CHECK

Remove the fuel gauge unit coupling connector.

Connect a test light to the harness connector.

Place the ignition switch in the ON position.

Check the test light and gauge conditions.

(1) Test light lights. (Pointer of gauge does not swing.) Replace fuel gauge.

(2) Test light lights. (Pointer of gauge swings.) Replace fuel gauge unit.

(3) Test light does not light. (Pointer of gauge does not swing.) Correct harness.

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FUEL GAUGE UNIT CHECK
To check, remove fuel gauge unit from fuel tank. (Refer to GROUP 13F – Fuel Tank.)

Fuel Gauge Unit Resistance
(1) Check that resistance value between the fuel gauge terminal and ground terminal is at standard value when fuel gauge unit float is at point F (highest) and point E (lowest).

  **Standard value:**
  - Point F: 3 ± 2 Ω
  - Point E: 110 ± 7 Ω

(2) Check that resistance value changes smoothly when float moves slowly between point F (highest) and point E (lowest).

Fuel Gauge Unit Float Height
Move float and measure the height at point F (highest) and point E (lowest) with float arm touching stopper.

  **Standard value:**
  - Point F: 18.6-21.6 mm (.73-.85 in.)
  - Point E: 193.4-196.4 mm (7.61-7.73 in.)

FUEL SENSOR CHECK
Connect fuel gauge unit to battery via test light (12 V-3.4 W). Immerse in water. Condition good if light goes off when unit thermistor is in water and lights when unit is removed from water.

Caution
After completing this test, wipe the unit dry and install it in the fuel tank.
ENGINE COOLANT TEMPERATURE GAUGE SIMPLE CHECK

1. Remove the water temperature gauge unit coupling connector.
2. Connect the harness connector via a test light to the ground.
3. Place the ignition switch in the ON position.
4. Check the test light and gauge conditions.
   - (1) Test light lights. (Pointer of gauge does not swing.) → Replace water temperature gauge.
   - (2) Test light lights. (Pointer of gauge swings.) → Replace water temperature gauge unit.
   - (3) Test light does not light. (Pointer of gauge does not swing.) → Correct harness.

ENGINE COOLANT TEMPERATURE GAUGE UNIT CHECK

To check, remove engine coolant temperature gauge unit from the thermostat housing.

Engine Coolant Temperature Gauge Unit Resistance

1. Immerse unit in 70°C (158°F) water to measure resistance.
   - Standard value: 104 ± 13.5 Ω

2. After checking, apply the specified sealant around the thread of engine coolant temperature gauge unit and install on the thermostat housing.
   - Specified sealant: 3M Nut Locking Part No. 4171 or equivalent
OIL PRESSURE GAUGE SIMPLE CHECK

Remove the oil pressure gauge unit coupling connector.

Connect the harness connector via a test light to the ground.

Place the ignition switch in the ON position.

Check the test light and gauge conditions.

1. Test light lights. (Pointer of gauge does not swing.) Replace oil pressure gauge.
2. Test light lights. (Pointer of gauge swings.) Replace oil pressure gauge unit.
3. Test light does not light. (Pointer of gauge does not swing.) Correct harness.

VOLTAGE GAUGE SIMPLE CHECK

Start engine and let it idle.

Connect voltmeter to battery.

Check voltage gauge for conditions.

1. Voltage indicated by voltmeter differs from voltage indicated by voltage gauge (position indicated by pointer). Replace gauge.
2. Gauge does not operate. Correct harness or replace gauge.
COMBINATION METERS
REMOVAL AND INSTALLATION

Removal steps
1. Knee protector (Refer to GROUP 52A – Instrument Panel)
2. Column cover, lower
3. Column cover, upper
4. Meter bezel
5. Combination meter

6. Adapter* (Mechanical speedometer type) /Wash tank (Refer to GROUP 51 – Windshield Wiper and Washer.)
7. Vehicles speed sensor (Electrical speedometer type)

REMOVAL SERVICE POINTS

COLUMN COVER LOWER / COLUMN COVER UPPER REMOVAL

After the screws have been removed, remove the covers, while making sure not to break the grippers.

ADAPTER REMOVAL <Mechanical Speedometer Type>

(1) Disconnect the speedometer cable at the transaxle end of the cable.
(2) Pull the speedometer cable slightly toward the vehicle interior, release the lock by turning the adaptor to the left or right, and then remove the adapter.
DISASSEMBLY AND REASSEMBLY

Disassembly steps
1. Trip counter reset knob
2. Meter glass
3. Window plate
4. Speedometer
5. Fuel gauge
6. Tachometer
7. Printed-circuit board
8. Meter case

INSPECTION

REED SWITCH CHECK
<Mechanical Speedometer Type>
Use circuit tester to check circuit repeats off/on between terminals when speedometer shaft turned several times.

VEHICLES SPEED SENSOR CHECK
<Electrical Speedometer Type>
(1) Remove the vehicles speed sensor and connect as shown in the illustration, using a 3–10 kΩ resistance.
(2) Use a voltmeter to check for voltage at terminals (2) and (3) when the pulse generator shaft is turning. (One revolution is four pulses.)

FUEL GAUGE CHECK
Measure resistance between terminals with circuit tester.
Standard value:
A–B  Approx. 254 Ω
A–C  Approx. 101 Ω
B–C  Approx. 153 Ω
COMBINATION GAUGES
REMOVAL AND INSTALLATION

Removal steps
1. Instrument panel
   (Refer to GROUP 52A – Instrument Panel.)
   • Distribution duct
     [Refer to GROUP 55 – Ventilators (Instrument Panel).]
2. Combination gauge

DISASSEMBLY AND REASSEMBLY

Disassembly steps
1. Gauge bracket
2. Gauge glass
3. Window plate
4. Voltage gauge <Non-Turbo> or pressure gauge <Turbo>
5. Oil pressure gauge
6. Engine coolant temperature gauge
7. Printed-circuit board
8. Gauge case

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INSPECTION
PRESSURE GAUGE CHECK <Turbo>
Measure resistance between terminals with circuit tester.
Standard value: Approx. 72 Ω

VOLTAGE GAUGE CHECK <Non-Turbo>
Refer to P.54-30

OIL PRESSURE GAUGE CHECK
Measure resistance between terminals with circuit tester.
Standard value: Approx. 42 Ω

ENGINE COOLANT TEMPERATURE GAUGE CHECK
(1) Remove the IG terminal screw from area A.
(2) Measure resistance between terminals with circuit tester.

Caution
For inspection, use a circuit tester which uses a measurement current of 4 mA or less.

Standard value:
A-B Approx. 51 Ω
A-C Approx. 139 Ω
B-C Approx. 190 Ω
# Lighting System Specifications

## General Specifications

### Exterior lights

<table>
<thead>
<tr>
<th>Items</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headlight W</td>
<td>65/45<em>1, 60/51</em>2</td>
</tr>
<tr>
<td>Fog light W</td>
<td>55</td>
</tr>
<tr>
<td>Front combination light</td>
<td>Turn-signal light / side marker light CP</td>
</tr>
<tr>
<td>Rear combination light</td>
<td>Turn-signal light / side marker and tail light CP</td>
</tr>
<tr>
<td></td>
<td>Stop light / side maker and tail light CP</td>
</tr>
<tr>
<td>Back-up light CP</td>
<td>32/2 (2057)</td>
</tr>
<tr>
<td>License plate light CP</td>
<td>32 (1156)</td>
</tr>
<tr>
<td>High-mounted stop light</td>
<td>3 (168)</td>
</tr>
<tr>
<td>Vehicles without rear spoiler CP</td>
<td>32 (1156)</td>
</tr>
<tr>
<td>Vehicles with fixed rear spoiler W</td>
<td>4</td>
</tr>
<tr>
<td>Vehicles with active rear spoiler</td>
<td>LED (Light Emitting Diode)</td>
</tr>
<tr>
<td>Engine compartment inspection light W</td>
<td>3.8 (194)</td>
</tr>
</tbody>
</table>

### Interior lights

<table>
<thead>
<tr>
<th>Items</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foot light W</td>
<td>3.4 (158)</td>
</tr>
<tr>
<td>Dome light W</td>
<td>8</td>
</tr>
<tr>
<td>Spot light W</td>
<td>8</td>
</tr>
<tr>
<td>Door light W</td>
<td>5</td>
</tr>
<tr>
<td>Glove compartment light W</td>
<td>3.4 (158)</td>
</tr>
<tr>
<td>Luggage compartment light W</td>
<td>5</td>
</tr>
</tbody>
</table>

**NOTE**

The values in parentheses denote SAE trade number.

*1 Up to 1993 models
*2 From 1994 models

## Service Specifications

<table>
<thead>
<tr>
<th>Items</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headlight intensity</td>
<td>20,000 cd or more</td>
</tr>
</tbody>
</table>
## SPECIAL TOOLS

<table>
<thead>
<tr>
<th>Tool</th>
<th>Tool number and name</th>
<th>Supersession</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ROM Pack</td>
<td></td>
<td>Up to 1993 models</td>
</tr>
<tr>
<td></td>
<td>(For the number, refer to GROUP 00 - Precautions Before Service)</td>
<td></td>
<td>Checking the lighting system</td>
</tr>
<tr>
<td>MB991341</td>
<td>Scan tool (Multi-use tester &lt;MUT&gt;)</td>
<td>MB991 341 C</td>
<td>All models</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Checking the lighting system</td>
</tr>
<tr>
<td>MB991502</td>
<td>Scan tool (MUT-II)</td>
<td>MB991 502</td>
<td>From 1994 models</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Checking the lighting system using a voltmeter</td>
</tr>
<tr>
<td>MB991 529</td>
<td>Diagnostic trouble code check harness</td>
<td>MB991 529</td>
<td>Up to 1993 models</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Checking the lighting system</td>
</tr>
</tbody>
</table>
TROUBLESHOOTING

HEADLIGHT OPERATION

<Headlights ON operation>
- Turn the lighting switch to “HEAD”, and the contact point of the headlight relay will be closed to turn “ON” the headlight relay.
- When the dimmer switch is placed in the LO position, the headlight low-beams go on. On vehicles up to 1993 model, when the switch is placed in the HI position, the headlight high-beams go on. On vehicles from 1994 model, when the switch is placed in the HI position, the headlight high-beams and low-beams go on.

<High-beam indicator light>
- When the high-beam is lit or when the passing switch is activated, the high-beam indicator light will be lit.

<Light automatic shut-OFF system>
- If the driver’s door is opened after the ignition switch is turned to “OFF” or the ignition switch is turned to “OFF” after the driver’s door is opened when the headlights are lit, the current which flows to the coil side of the headlight relay will be cut off by the light automatic shut-OFF unit opening the contact point, and the headlight relay will be turned “OFF” to automatically shut off the headlights.
- To turn the headlights on again after they are automatically shut off, turn the lighting switch to “OFF” once and then back to “HEAD”, or turn the ignition switch to “ACC” or “ON”, and the automatic shut-OFF will be cancelled and the current will flow from the light automatic shut-OFF unit to the coil side of the headlight relay again to close the contact point. Thus, the headlight relay will be turned “ON” to turn on the headlights.

NOTE
When the lighting switch is at “HEAD”, the light automatic shut-OFF system is valid for tail lights, parking and side marker lights, license plate light, illumination light, etc.
(Refer to P.54-70.)

<Pop-up operation—Operation by lighting switch> (Up to 1993 models)
- When the lighting switch is placed in the HEAD position, current flows through multi-purpose fuse (6) to the lighting switch, and the ETACS control unit. Then the UP timer circuit in the ETACS control unit is operated and current flows from the ETACS control unit to the U/D (UP/DOWN) switch, the coil of the pop-up motor relay and ground, causing the contacts of the pop-up motor relay to close.
When the contacts of the pop-up motor relay close, current flows through the contacts of the pop-up motor relay to the pop-up motor and ground, causing the pop-up motor to rotate, which brings the headlights to the UP position. The pop-up motor rotates until the automatic UP stop position is reached, then the contacts of the interlocked U/D (UP/DOWN) switch change from the U to D contacts. As a result, the contacts of the pop-up motor relay open to cut off the current supplied to the pop-up motor. Then the pop-up motor ceases to rotate, holding the headlights in the UP position.
- When the lighting switch is placed in the TAIL or OFF position, current flows through the multi-purpose fuse (6) to the lighting switch, and the ETACS control unit. Then the DOWN timer circuit in the ETACS control unit is operated and current flows from the ETACS control unit to the DOWN contacts of the pop-up motor U/D (UP/DOWN) switch, the coil of the pop-up motor relay and ground, causing the contacts of the pop-up motor relay to close.
When the contacts of the pop-up motor relay close, current flows through the contacts of the pop-up motor relay to the pop-up motor and ground, causing the pop-up motor to rotate, which brings the headlights to the DOWN position.
The pop-up motor rotates until the automatic DOWN stop position is reached, then the contacts of the interlocked U/D (UP/DOWN) switch change from the D to U contacts. As a result, the contacts of the pop-up motor relay open to cut off current supply to the pop-up motor. Then the pop-up motor ceases to rotate, holding the headlights in the DOWN position.

<Pop-up operation—Operation by pop-up switch> (Up to 1993 models)
- When the pop-up switch is placed in the UP position, current flows through multi-purpose fuse (6) to the lighting switch, the pop-up switch and the ETACS control unit, which brings the headlights to the UP position and holds them in the UP position just like when they are operated by the lighting switch.
- When the pop-up switch is placed in the DOWN position, current flows through the multi-purpose fuse (6) to the lighting switch, the pop-up switch and the ETACS control unit, which brings the headlights to the DOWN position and holds them in the DOWN position just like when they are operated by the lighting switch.
## TROUBLESHOOTING HINTS

<table>
<thead>
<tr>
<th>Phenomenon</th>
<th>Checking method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headlights don’t come on.</td>
<td>But the tail lights do illuminate.</td>
</tr>
<tr>
<td>Check the headlight relay.             (Refer to P.54-108.)</td>
<td></td>
</tr>
<tr>
<td>Check the lighting switch.             (Refer to P.54-113.)</td>
<td></td>
</tr>
<tr>
<td>Check the light automatic shut-OFF unit. (Refer to P.54-108.)</td>
<td></td>
</tr>
<tr>
<td>The tail lights also don’t illuminate.</td>
<td>Check the fusible link (3).</td>
</tr>
<tr>
<td>The low beam at both sides doesn’t illuminate.</td>
<td>Check the “LO” contacts of the dimmer switch.</td>
</tr>
<tr>
<td>The upper beam at both sides doesn’t illuminate.</td>
<td>Check the “HI” contacts of the dimmer switch.</td>
</tr>
<tr>
<td>The passing signal functions OK.</td>
<td>Check the dimmer switch. (Refer to P.54-114.)</td>
</tr>
<tr>
<td>The passing signal doesn’t function.</td>
<td></td>
</tr>
<tr>
<td>One headlight doesn’t illuminate.</td>
<td>Check the bulb.</td>
</tr>
<tr>
<td>Can’t switch from low to high beam or vice versa.</td>
<td>Check the dimmer switch. (Refer to P.54-114.)</td>
</tr>
<tr>
<td>The high beam indicator light doesn’t illuminate.</td>
<td>Check dedicated fuse No. (5).</td>
</tr>
<tr>
<td>The high beam of the headlights is normal.</td>
<td>Check the bulb.</td>
</tr>
<tr>
<td>Headlights are not automatically shut off.</td>
<td>Tail lights are automatically shut off.</td>
</tr>
<tr>
<td>Check the light automatic shut-OFF unit. (Refer to P.54-108.)</td>
<td></td>
</tr>
<tr>
<td>Tail lights are not automatically shut off either.</td>
<td>Check the driver’s side door switch. (Refer to GROUP 52B – Door Assembly.)</td>
</tr>
<tr>
<td>Check the light automatic shut-OFF unit. (Refer to P.54-108.)</td>
<td></td>
</tr>
<tr>
<td>Headlights do not rise*</td>
<td>They rise only when the lighting switch is operated.</td>
</tr>
<tr>
<td>Check the pop-up switch input signal. (Refer to P.54-109.)</td>
<td></td>
</tr>
<tr>
<td>Check the pop-up switch. (Refer to P.54-109.)</td>
<td></td>
</tr>
<tr>
<td>They rise only when the pop-up switch is operated.</td>
<td>Check the lighting switch. (Refer to P.54-113.)</td>
</tr>
<tr>
<td>Headlights do not retract*</td>
<td></td>
</tr>
<tr>
<td>Check the pop-up switch input signal. (Refer to P.54-109.)</td>
<td></td>
</tr>
<tr>
<td>Check the pop-up switch. (Refer to P.54 100.)</td>
<td></td>
</tr>
<tr>
<td>One headlight does not move*</td>
<td>Check the pop-up motor relay. (Refer to P.54-109.)</td>
</tr>
<tr>
<td>Check the pop-up motor. (Refer to P.54-104.)</td>
<td></td>
</tr>
</tbody>
</table>

### NOTE
1. *Up to 1993 models
2. For information concerning the theft-alarm system, refer to P.54-222.
COMPONENT LOCATION

Headlight relay/Pop-up motor relay/ Tail light relay

Data link connector <Up to 1993 models>

Light automatic shut-off unit <Vehicles with keyless entry system>

Light automatic shut-off unit <Vehicles without keyless entry system>

ETACS unit

TSB Revision
CIRCUIT DIAGRAM <VEHICLES WITHOUT THEFT-ALARM SYSTEM (FROM 1994 MODELS)>

- **Dedicated Fuse**: Y-R (D-45) 10A
- **Combination Meter**: 0.85B 1.25R 0.85R 1.25R
- **Fusible Link**: 1.25R-B
- **Headlight Relay**: A-41 1.25R 0.85R
- **Headlight (RH)**: A-75 1.25R 0.85R
- **Headlight (RH)**: A-77 1.25R 0.85R
- **Fog Light**: (R-Y)
CIRCUIT DIAGRAM <VEHICLES WITHOUT THEFT-ALARM SYSTEM (FROM 1994 MODELS)>
(CONTINUED)
INPUT SIGNAL

<Up to 1993 models>

When using the scan tool (MUT) or voltmeter

Using the scan tool or voltmeter, check whether or not the input signals from each switch are being input to the ETACS unit.

1. Connect the scan tool to the data link connector located at the right side of the junction block or connect the voltmeter between the ETACS terminal and the ground terminal.

2. Check if the buzzer of the scan tool sounds or the needle of the voltmeter moves when each switch is operated. If the buzzer sounds or the needle moves, the input signals are being input to the ETACS unit, so that switch can be considered to be functioning normally. If not, the switch or switch input circuit is faulty. Check the switch and the switch input circuit.

<All models>

When using the scan tool (MUT-II)

1. Connect the scan tool to the data link connector. When connecting the scan tool to a vehicle up to 1993 models, use the adapter harness supplied together.

   Caution
   Turn off the ignition switch beforehand whenever the scan tool is connected or disconnected.

2. If the scan tool makes a peep sound when each switch is operated (turned ON/OFF), the input signal to ECU is normally sent from the switch circuit system.

<From 1994 models>

When using the voltmeter

1. Connect a voltmeter to the ETACS terminal and the ground terminal of the data link connector using the special tool.

2. If the voltmeter pointer deflects once when each switch is operated (turned ON/OFF), the input signal to ECU is normally sent from the switch circuit system.
FOG LIGHT CIRCUIT
CIRCUIT DIAGRAM (UP TO 1993 MODELS)
CHASSIS ELECTRICAL - Lighting System

1. FOG LIGHT
   - Switch
   - 3 Wires: R-Y, G-Y, G-A
   - Rheostat
   - 0.85 R-W

2. HEADLIGHT RELAY
   - 3 Wires: G-Y, R-Y, (D-45)
   - Headlight switch
   - Dimmer (passing) switch

3. TAILLIGHT RELAY
   - Dedicated fuse
   - 3 Wires: G-W, J/B, (R-Y)

4. HEADLIGHT RELAY
   - 3 Wires: G-W, J/B, (R-Y)
   - Headlight switch
   - Dimmer (passing) switch

TSB Revision
CIRCUIT DIAGRAM (FROM 1994 MODELS)

- Ignition Switch (L11)
- Fusible Link
- Horn
- Warning Lamps
- Headlight
- Tail light, Parking and License Plate
- Door Light and Luggage Compartment Light
- Fog Light (LH)
- Fog Light (RH)

**TSB Revision**
CHASSIS ELECTRICAL - Lighting System

TAILLIGHT, PARKING/SIDE
LICENSE "HATE" LIGHT

HEADLIGHT LIGHT AUTOMATIC
SHUT OFF UNIT

FOG LIGHT TAILLIGHT
RELAY RELAY

DEDICATED FUSE

G-W
J/B
G-W

NOTE: 1: HATCHBACK
2: CONVERTIBLE
3: UP TO 1995 MODELS

TSB Revision
OPERATION

- When the fog light switch is placed in the ON position with the lighting switch in the HEAD position and the dimmer switch in the LO position, current flows through the dedicated fuse (4) to the coil of the fog light relay, the fog light switch, the dimmer switch and ground, causing the contacts of the fog light relay to close.
  When the contacts of the fog light relay close, current flows through the dedicated fuse (4) to the contacts of the fog light relay, the fog lights and ground, causing the fog lights to come on.
- When the dimmer switch is placed in the HI position or the lighting switch is placed in the TAIL or OFF position while the fog lights are ON, current supply to the fog light relay or headlight relay is cut off. As a result, the contacts of the fog light relay open, and the fog lights go out.

NOTE
The fog lights are included in the light automatic shut-OFF system. (Refer to P.54-37). The indicator lights are also included in the same system.

Fog Lights Operation Conditions

<table>
<thead>
<tr>
<th>Fog light switch</th>
<th>Lighting switch</th>
<th>Dimmer switch</th>
<th>Fog lights</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON position</td>
<td>OFF position or TAIL position</td>
<td>LO position</td>
<td>OFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HI position</td>
<td>OFF</td>
</tr>
<tr>
<td>HEAD position</td>
<td>LO position</td>
<td></td>
<td>ON</td>
</tr>
<tr>
<td></td>
<td>HI position</td>
<td></td>
<td>OFF</td>
</tr>
</tbody>
</table>

TROUBLESHOOTING HINTS

1. The right or left fog lights only go on.
   - Check the bulb.
2. Fog lights do not go on when the fog light switch is set at ON.
   - Check the dedicated fuse (4).
   - Check the fog light relay. (Refer to P.54-108).
   - Check the fog light switch.

NOTE
For the light automatic shut-OFF system troubleshooting hints, refer to P.54-38.
COMPONENT LOCATION

Headlight relay / Foglight relay

Light automatic shut-off unit
<Vehicles with keyless entry system>

TSB Revision
TAIL LIGHT, PARKING/SIDE MARKER LIGHT AND LICENSE PLATE LIGHT CIRCUIT DIAGRAM (UP TO 1993 MODELS)
CIRCUIT DIAGRAM <HATCHBACK> (FROM 1994 MODELS)

CHASSIS ELECTRICAL - Lighting System

FUSIBLE LINK

HEADLIGHT

FOG LIGHT

TAILLIGHT RELAY

IGNITION SWITCH (IG1)

FUSIBLE LINK

CHARGING

BACK-UP LIGHT

DOOR LIGHT AND LUGGAGE COMPARTMENT

LIGHT AUTOMATIC SHUT-OFF UNIT (E-17)

DOOR (LH) SWITCH

C-11X

C-10

C-71

C-70

C-72

C-32

C-12

TSB Revision
OPERATION

When the lighting switch is placed in the TAIL or HEAD position, current flows through the coil of the tail light relay to the lighting switch and ground, causing the contacts of the tail light relay to close.

Then current flows through the contacts of the tail light relay to the dedicated fuse (2), the individual lights and ground, causing the tail lights, parking/side marker lights and license plate lights to go ON.

<Light automatic shut-OFF system>

If the driver’s door is opened after the ignition switch is turned to “OFF” or the ignition switch is turned to “OFF” after the driver’s door is opened when the tail lights are lit, the current which flows to the coil side of the tail light relay will be cut off by the light automatic shut-off unit opening the contact point, and the tail light relay will be turned “OFF” to automatically shut off the tail lights, parking and front side marker lights and license plate light.

To turn on the tail lights, parking and front side marker lights and license plate light again after they are automatically shut off, turn the lighting switch to “OFF” once and to “HEAD” again, or turn the ignition switch to “ACC” or “ON”, and the automatic shut-OFF will be cancelled and the current will flow from the light automatic shut-OFF unit to the coil side of the tail light relay to close the contact point. Thus, the tail light relay will be turned “ON” to turn on the tail lights, parking and front marker lights and license plate light.

NOTE

When the lighting switch is at the “HEAD” position, the light automatic shut-OFF system will be also activated for the headlights. (Refer to P.54-37.) The same system will also be activated for the illumination lights, etc.

TROUBLESHOOTING HINTS

1. All lights don’t illuminate.
   - The headlights don’t illuminate, either.
     - Check the fusible link (3).
   - The headlights illuminate.
     - Check the tail light relay. (Refer to P.54-108.)
     - Check the dedicated fuse (2).
     - Check the lighting switch. (Refer to P.54-113.)
     - Check the light automatic shut-OFF unit. (Refer to P.54-108.)

2. Some light does not come on.
   - Check the bulb.
   - Check the grounding circuit.

3. Some light is not automatically shut off.
   - Check the driver’s side door switch. (Refer to GROUP 42–Door Assembly.)
   - Check the automatic shut-OFF unit. (Refer to P.54-108.)

TSB Revision
COMPONENT LOCATION

Taillight relay

Light automatic shut-off unit
<Vehicles with keyless entry system>

Light automatic shut-off unit
<Vehicles without keyless entry system>
CIRCUIT DIAGRAM <HATCHBACK> (FROM 1995 MODELS) AND <CONVERTIBLE> (1995 MODELS)
CIRCUIT DIAGRAM <CONVERTIBLE> (FROM 1996 MODELS)
OPERATION

<Dome light>
- Battery voltage is always applied to the dome light. When the dome light switch is turned to "ON", the dome light will remain lit. After either door is opened if the dome light switch is at "DOOR" position, the dome light will come on.
- With the dome light turned on (with the ignition switch in the OFF position and with the dome light switch in the DOOR position), close all doors, and the timer circuit in the ETACS unit will be activated to gradually vary the voltage for approx. 6 seconds owing to the duty control, and the voltage will be output to transistor Tr. Since the voltage applied to the dome light gradually decreases, the dome light will be dimmed.
- If the ignition switch is turned to "ON" while the dome light is lit (while the timer is activated), the timer circuit will be opened to turn "OFF" transistor Tr. This will immediately turn off the dome light without dimming.

<Foot lights and ignition key illumination light>
- Battery voltage is always applied to the foot lights and ignition key illumination light. With the ignition switch in the OFF position, open any door, and all lights will come on.
- With all lights turned on (with the ignition switch in the OFF position), close all doors, and the timer circuit inside the ETACS unit will operate in the same manner as the dome light to dim all lights. When the ignition switch is placed in the ON position with all lights turned on (with the timer in operation), the same operation as the dome light will take place.

TROUBLESHOOTING HINTS

<table>
<thead>
<tr>
<th>Phenomenon</th>
<th>Checking method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dome light does not come on when a door is opened with the dome light switch in the DOOR position.</td>
<td>• Check the door switch input signal. (Refer to P.54-80.)</td>
</tr>
<tr>
<td>The foot lights and ignition key cylinder illumination light don't illuminate, either.</td>
<td>• Check the door switch. (Refer to GROUP 42 - Door Assembly.)</td>
</tr>
<tr>
<td>The foot lights and ignition key cylinder illumination light illuminate.</td>
<td>• Check the dome light switch.</td>
</tr>
<tr>
<td>• Check the dome light bulb.</td>
<td></td>
</tr>
<tr>
<td>Dome light, foot lights and ignition key illumination light go out at once when doors are closed.</td>
<td>• Check the door switch input signal. (Refer to P.54-80.)</td>
</tr>
<tr>
<td>Even if ignition switch is turned on while lights are being dimmed, lights do not go out at the same time.</td>
<td>• Check the ignition switch input signal. (Refer to P.54-80.)</td>
</tr>
</tbody>
</table>

COMPONENT LOCATION

ETACS unit

Data 'link connector
-Up to 1993 models

TSB Revision
Data link connector
<From 1994 models>
INPUT SIGNAL

<Up to 1993 models>
When using the scan tool (MUT) or voltmeter
Using the scan tool or voltmeter, check whether or not the input signals from each switch are being input to the ETACS unit.

(1) Connect the scan tool to the data link connector located at the right side of the junction block or connect the voltmeter between the ETACS terminal and the ground terminal.

(2) Check if the buzzer of the scan tool sounds or the needle of the voltmeter moves when each switch is operated. If the buzzer sounds or the needle moves, the input signals are being input to the ETACS unit, so that switch can be considered to be functioning normally. If not, the switch or switch input circuit is faulty. Check the switch and the switch input circuit.

<All models>
When using the scan tool (MUT-II)
(1) Connect the scan tool to the data link connector. When connecting the scan tool to a vehicle up to 1993 models, use the adapter harness supplied together.

Caution
Turn off the ignition switch beforehand whenever the scan tool is connected or disconnected.

(2) If the scan tool makes a peep sound when each switch is operation (turned ON/OFF), the input signal to ECU is normally sent from the switch circuit system.

<From 1994 models>
When using the voltmeter
(1) Connect a voltmeter to the ETACS terminal and the ground terminal of the data link connector using the special tool.

(2) If the voltmeter pointer deflects once when each switch is operated (turned ON/OFF), the input signal to ECU is normally sent from the switch circuit system.
DOOR LIGHT AND LUGGAGE COMPARTMENT LIGHT
CIRCUIT DIAGRAM <HATCHBACK>

FUSIBLE LINK
5W-B 2W-B
5W-B (C-68) 1
HORN

10A

10D OR STORAGE CONNECTOR (A-11X)

DOOR LIGHT (RH) (LH)

NOTE

LIGHT SWITC

(RH) (LH)

NOTE

TO 1995 MODELS
FROM 1996 MODELS

TSB Revision
OPERATION

- Battery voltage is always applied (via sub-fusible link No. (6) and multipurpose fuse No. (19)) to the luggage compartment light and door light.
- When the door is opened, the door switch is switched ON and the door light illuminates.

- When the liftgate is opened, the luggage compartment light switch is switched ON and the luggage compartment light illuminates.

GLOVE BOX LIGHT, VANITY MIRROR LIGHT AND INSPECTION LIGHT

OPERATION

- When the lighting switch is placed in the TAIL or HEAD position, and the contacts of the tail light relay close, battery voltage is applied via the dedicated fuse (2) to the glove box light, the vanity mirror light and the inspection light.
- When the glove box is opened, the glove box illumination light switch is switched ON and the glove box illumination light illuminates.

- When the vanity mirror lid is opened, the vanity mirror light switch is switched ON and the vanity mirror light illuminates.
- When the engine hood is opened, the inspection light switch is switched ON and the inspection light illuminates.

NOTE
The light automatic shut-off system is valid for the glove box light, vanity mirror light and inspection light. (Refer to P.54-37.)
CIRCUIT DIAGRAM <HATCHBACK> (FROM 1994 MODELS)

IGNITION SWITCH (IG1)

- 2B-W
- 2B-W
- J/B
- 0.85B-W
- 0.85B-W
- 0.85B-R
- 0.85B-W
- B-W

CHARGING

HEADLIGHT (F) 0.85B-W
BACK UP LIGHT SWITCH (B-25)
BACK UP LIGHT (LH) (F-25)
BACK UP LIGHT (RH) (F-11)
SUPPLEMENTAL RESTRAINT SYSTEM

SUPPLEMENTAL M/T A/T

NOTE: UP TO 1995 MODELS

TSB Revision

HR09M07AA
COMPONENT LOCATION

OPERATION
- When, with the ignition switch at the "ON" position, the shift lever (or the selector lever) is moved to the "R" position, the backup light switch (M/T) is switched ON (or the park/neutral position switch (A/T) is switched to the "R" position), and the backup light illuminates.
TURN-SIGNAL LIGHT AND HAZARD LIGHT

OPERATION

1. When operation is normal
   - When the ignition switch is switched to the ON position, battery voltage is applied (via the multipurpose fuse (11) and hazard switch) to the turn-signal and hazard flasher unit.
   - When the turn-signal switch is switched to the LH position, Tr1 (within the flasher unit) is switched ON and OFF repeatedly. Then the contacts of the relay 1 (also within the flasher unit) repeatedly switch from ON to OFF, causing the turn-signal lights and turn-signal indicator light LH to flash.
   - When the turn-signal switch is switched to the RH position, Tr2 (within the flasher unit) is switched ON and OFF repeatedly. Then the contacts of relay 2 (also within the flasher unit) repeatedly switch from ON to OFF, causing the turn-signal lights and turn-signal indicator light RH to flash.

2. If one of the bulbs is burned out
   - If the LH (or RH) turn-signal light bulb is burned-out, the resistance of the turn-signal circuit as a whole increases, resulting in shorter ON and OFF intervals of the LH Tr1 (or RH Tr2) and a higher flashing rate of the LH lights (or RH lights).

<Hazard-warning lights,
- When the hazard-warning switch is switched to the “ON” position, the relay contact of the turn signal and hazard flasher unit is switched ON and OFF repeatedly, in the same manner as for the operation of the turn-signal lights, and the left and right turn-signal lights and turn-signal indicator lights simultaneously flash repeatedly.

NOTE
(1) The number of flashes of the hazard-warning lights does not change if there is damaged or disconnected wiring of one light.
(2) The light automatic shut-OFF system is valid for the illumination light of the hazard switch. (Refer to P.54-37.)

TROUBLESHOOTING HINTS

1. The turn-signal lights and hazard-warning lights do not operate at all.
   - Check the hazard switch contact (power supply side).
   - Check the turn-signal and hazard flasher unit.

2. All turn-signal lights at the left (or right) side do not function.
   (1) The hazard-warning lights function normally.
   - Check the hazard switch contact (turn-signal side).
   - Check the turn-signal switch.

3. The number of flashes of the turn-signal lights is excessive.
   - Check the bulbs.

4. The hazard-warning lights do not function.
   (1) The turn-signal lights function normally.
   - Check the hazard switch contact (hazard-warning light side).

NOTE
For the troubleshooting hints of the automatic light shut-OFF system, refer to P.54-37.
CIRCUIT DIAGRAM (TYPE 1) (UP TO 1994 MODELS)
CIRCUIT DIAGRAM <CONVERTIBLE> (FROM 1995 MODELS)

IGNITION SWITCH (G1)

BATTERY

TAIL LIGHT RELAY

DEDICATED FUSE

CHARGING

HAZARD SWITCH (D-06)

GLOVE BOX LID HARNESS-CNCTN INSPECTION

REAR WINDOW DEFOGGER ELECTRONIC SUSPENSION #1

TURN SIGNAL AND HAZARD FLASHER UNIT (E-30)

NOTE

1: FROM 1995 MODELS

2: FROM 1996 MODELS
STOP LIGHT
CIRCUIT DIAGRAM <HATCHBACK>

FUSIBLE LINKS

WITH AUTO-CRUISE CONTROL

WITHOUT AUTO-CRUISE CONTROL

G 0.85G 0.85G 0.85G 0.85G 0.85G 0.85G 0.85G

REAR COMBINATION LIGHT (LA)

REAR COMBINATION LIGHT (RB)

NOTE:

1: VEHICLES WITHOUT ACTIVE AERO
2: VEHICLES WITH ACTIVE AERO
3: UP TO 1995 MODELS

TSB Revision
ON-VEHICLE SERVICE

HEADLIGHT AIMING

PRE-AIMING INSTRUCTIONS

(Up to 1993 models)

1. Test dimmer switch operation.
2. Observe operation of high beam light mounted in instrument cluster.
3. Inspect for badly rusted or faulty headlight assemblies. These conditions must be corrected before a satisfactory adjustment can be made.
4. Place vehicle on a level floor.
5. Bounce front suspension through three (3) oscillations by applying body weight to hood or bumper.
6. Inspect tire inflation.
7. Rock vehicle sideways to allow vehicle to assume its normal position.
8. If fuel tank is not full, place a weight in trunk of vehicle to simulate weight of a full tank [3 kg (6.5 lbs.) per gallon].
9. There should be no other load in the vehicle other than driver or substituted weight of approximately 70 kg (150 lbs.) placed in driver’s position.
10. Thoroughly clean headlight lenses.
11. Adjust headlights following the instructions of the headlight tester manufacturer.

(From 1994 models)

1. Inspect for badly rusted or faulty headlight assemblies. These conditions must be corrected before a satisfactory adjustment can be made.
2. Place vehicle on a level floor.
3. Bounce front suspension through three (3) oscillations by applying body weight to hood or bumper.
4. Inspect tire inflation.
5. Rock vehicle sideways to allow vehicle to assume its normal position.
6. If fuel tank is not full, place a weight in trunk of vehicle to simulate weight of a full tank [3 kg (6.5 lbs.) per gallon].
7. There should be no other load in the vehicle other than driver or substituted weight of approximately 70 kg (150 lbs.) placed in driver’s position.
8. Thoroughly clean headlight lenses.
9. When performing the visual headlight adjustment on vehicles with resin lens headlights, be sure to observe the following precautions.

Caution

When adjusting one headlight, the other headlight should be turned off if possible. If this is not possible, do not cover the other headlight for more than three minutes while it is turned on. Otherwise, heat from the bulb may warp the headlight lens.

NOTE

If the visual headlight adjustment at low beam is made, the adjustment at high beam is not necessary.
VERTICAL ADJUSTING
Adjust the vertical angle with the vertical adjusting gear so that the bubble of the vertical angle gauge is aligned with the "0" mark position.

NOTE
The beam angle will change about 0°12' with on mark.

HORIZONTAL ADJUSTING
Insert a screwdriver in the horizontal adjusting hole and turn until the "0" mark and the center line are in alignment.

NOTE
The beam angle will change about 0°23' with on mark.

3. Check to see that the bubble in the headlight vertical angle gauge is in the illustrated position.
4. If the bubble is out of position, adjust by turning the adjusting screw.
5. Confirm that the "0" mark on the headlight horizontal angle adjusting gear (B) is in alignment with the center line.
6. If not, perform the adjustment as follows.
   (1) Pull up the stopper.
   (2) Push the gear (B) in the arrow direction to disengage it from the gear (A).
   (3) Align the "0" mark on the gear (B) with the center line.
   (4) Push down the stopper to engage the gear (B) with the gear (A).
LUMINOUS INTENSITY MEASUREMENT

Measure the luminous intensity of headlights with a photometer in accordance with the instruction manual prepared by the manufacturer of the photometer and make sure that the luminous intensity is within the following limit.

Limit: 20,000 cd or more

NOTE

(1) When measuring the luminous intensity of headlight, keep the engine at 2,000 rpm and have the battery charged.
(2) If there are specific regulations for luminous intensity of headlights in the region where the vehicle is operated, make sure that the intensity conforms to the requirements of such regulations.

FOG LIGHT AIMING

1. Place vehicle on a known level floor 7.6 m (25 feet) from aiming screen or light colored wall.
2. Use adjusting screw to adjust the top end of high intensity zone to dimension A.

BULB REPLACEMENT

1. Disconnect the connector.
2. Turn the bulb socket counterclockwise to pull it out.

Caution

Do not touch the surface of the headlight bulb with hands or dirty gloves. If the surface dies become dirty, clean it with alcohol or thinner, and let it dry thoroughly before installing.
HEADLIGHT
REMOVAL AND INSTALLATION

(From 1994 models)

1. Front combination light
2. Headlight

(Up to 1993 models)

1. Headlight bezel, upper
2. Headlight bezel, lower
3. Retaining ring
4. Headlight
5. Spring
6. Mounting ring
7. Housing
8. Rod assembly
9. Headlight hood
10. Link assembly
11. Boot
12. Pop-up motor

REMOVAL SERVICE POINTS

A. HEADLIGHT BEzel, UPPER REMOval
(1) Raise the headlights by using the pop-up switch.
   Disconnect the negative (–) battery terminal.
(2) Remove the headlight bezel, upper.

TSB Revision
ROD ASSEMBLY REMOVAL

Using a flat head screwdriver (wrap cloth or similar on the ball joint area to prevent injury), disconnect the connector.

NOTE
When disconnecting the rod assembly from the link, hold the link by hand.

INSPECTION
POP-UP MOTOR (Up to 1993 models) CHECK

Rotate the manual knob of the pop-up motor clockwise by hand to check continuity between terminals.

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Continuity range</th>
</tr>
</thead>
<tbody>
<tr>
<td>When the (+) terminal of the ohmmeter is connected to (1) and the (−) terminal is connected to (2)</td>
<td>B</td>
</tr>
<tr>
<td>When the (+) terminal of the ohmmeter is connected to (1) and the (−) terminal is connected to (5)</td>
<td>A</td>
</tr>
</tbody>
</table>
FOG LIGHT
REMOVAL AND INSTALLATION
(Up to 1993 models)

Removal steps
(Up to 1993 models)
1. Front air side spoiler
2. Fog light assembly
3. Socket cover
4. Bulb

(Bulb replacement removal steps)

1. Front air side spoiler
2. Fog light assembly
3. Lens
4. Projector unit
5. Bulb
6. Bracket

REMOVAL SERVICE POINT

BULB REMOVAL

(1) Remove the socket cover (Up to 1993 models).
(2) Remove the bulb mounting spring and remove the bulb.

Caution
Do not touch the surface of the headlight bulb with bare hands or dirty gloves.
If there are deposits on the surface, loosen and remove the deposits with a cloth dipped in alcohol or thinner, and let the surface dry before mounting the bulb.
FRONT COMBINATION LIGHT AND OPTICAL HORN LENS
REMOVAL AND INSTALLATION
(Up to 1993 models)

Removal steps
1. Light cover
2. Front combination light

From 1994 models

REAR COMBINATION LIGHT AND LICENSE PLATE LIGHT
REMOVAL AND INSTALLATION

Removal steps
1. Rear combination light unit
2. Bulb
3. Rear side trim (Refer to GROUP 52A - Trims.)
3. Socket assembly
HIGH MOUNTED STOP LIGHT
REMOVAL AND INSTALLATION

<Vehicles with rear spoiler>

Removal steps
1. Liftgate lower trim
   (Refer to GROUP 52A - Trims.)
2. Rear spoiler
   (Refer to GROUP 51 - Aero Parts.)
3. High mounted stop light
   <Vehicles with active rear spoiler>
   1. Light unit
   2. Socket assembly
   3. Bulb

<Vehicles with fixed rear spoiler>

Removal steps
1. Liftgate lower trim
   (Refer to GROUP 52A - Trims.)
2. High mounted stop light cover
3. High mounted stop light lens and bracket
4. Gasket

REMOVAL SERVICE POINT
4A, HIGH-MOUNTED STOP LIGHT REMOVAL
(Vehicles with fixed rear spoiler)
Remove the air spoiler center stay mountingscrews before removing the high-mounted stop light.
**RELAY INSPECTION**

**HEADLIGHT RELAY / TAILLIGHT RELAY / FOG LIGHT RELAY CHECK**

Connect battery to terminal 1 and check continuity between terminals with terminal 3 grounded.

<table>
<thead>
<tr>
<th>Power is supplied</th>
<th>4–5 terminals</th>
<th>Continuity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power is not supplied</td>
<td>4–5 terminals</td>
<td>No continuity</td>
</tr>
<tr>
<td></td>
<td>1–3 terminals</td>
<td>Continuity</td>
</tr>
</tbody>
</table>

**POP-UP MOTOR RELAY (Up to 1993 models) CHECK**

Check for continuity between terminals under the conditions described below.

<table>
<thead>
<tr>
<th>Battery voltage</th>
<th>Terminal No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuity no voltage</td>
<td>1 2 3 4 5 6 7 8</td>
</tr>
<tr>
<td>Continuity with voltage</td>
<td>1 2 3 4 5 6 7 8</td>
</tr>
</tbody>
</table>

**LIGHT AUTOMATIC SHUT-OFF UNIT CHECK**

1. Remove the quarter trim. (Refer to GROUP 52A – Trim.)
2. Keeping the connector connected to the light automatic shut-off unit, connect the test light (12 V-3.4 W) from the harness side to terminal No. 6 (for tail lights) or No. 7 (for headlights). Under the following conditions, check the operation of the test light.

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Test light</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Ignition switch and lighting switch are at “OFF” position.</td>
<td>Illuminated</td>
</tr>
<tr>
<td>(2) Lighting switch is at “TAIL” or “HEAD” with ignition switch at “ACC” or “ON” position.</td>
<td>Illuminated</td>
</tr>
<tr>
<td>(3) Driver’s door is opened after ignition switch is turned from state (2) to “OFF” position. (Reverse procedure is also allowable.)</td>
<td>Illuminated</td>
</tr>
<tr>
<td>(4) Ignition switch is once turned from state (3) “OFF”, then turned to “TAIL” or “HEAD”.</td>
<td>Extinguished</td>
</tr>
<tr>
<td>(5) Ignition switch is turned from state (3) to “ACC” or “ON” position.</td>
<td>Illuminated</td>
</tr>
</tbody>
</table>

**TSB Revision**
POP-UP SWITCH* AND FOG LIGHT SWITCH
REMOVAL AND INSTALLATION

Removal steps
1. Knee protector
   (Refer to GROUP 52A - Instrument Panel.)
2. Column cover, lower
3. Column cover, upper
4. Meter bezel
5. Pop-up switch* and fog light switch
6. Rear window defogger switch

NOTE
- Up to 1993 models

REMOVAL SERVICE POINTS
COLUMN COVER, LOWER / COLUMN COVER, UPPER REMOVAL
After the screws have been removed, remove the covers, while making sure not to break the grippers.

INSPECTION
Operate the switch to check for continuity between terminals.

<table>
<thead>
<tr>
<th>Switch position</th>
<th>Terminal No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Pop-up switch (Up to 1993 models)</td>
<td></td>
</tr>
<tr>
<td>UP</td>
<td></td>
</tr>
<tr>
<td>DOWN</td>
<td></td>
</tr>
<tr>
<td>Fog light switch</td>
<td></td>
</tr>
<tr>
<td>ON</td>
<td></td>
</tr>
<tr>
<td>OFF</td>
<td></td>
</tr>
</tbody>
</table>

NOTE
Refer to P.54-203. Check the rear window defogger switch.

TSB Revision
RHEOSTAT
INSPECTION
(1) Remove the instrument panel switch from the knee protector.

(2) Connect the battery and a test bulb (40 W) as shown in the figure.
(3) The function of the rheostat is normal if the intensity of illumination changes smoothly, without flashing or flickering, when the rheostat is operated.

HAZARD SWITCH
INSPECTION
(1) Remove the center air outlet assembly from instrument panel. [Refer to GROUP 55 – Ventilators (Instrument Panel).]

(2) Operate the switch to check for continuity between terminals.

<table>
<thead>
<tr>
<th>Switch position</th>
<th>Terminal No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1 5 6 7 8 9 10</td>
</tr>
<tr>
<td></td>
<td>Illumination light</td>
</tr>
<tr>
<td>OFF</td>
<td>5 6 7 8 9 10</td>
</tr>
</tbody>
</table>
COLUMN SWITCH

SPECIFICATIONS

GENERAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Items</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lighting switch</td>
<td></td>
</tr>
<tr>
<td>Rated load A</td>
<td>0.22 ± 0.05</td>
</tr>
<tr>
<td>Voltage drop V</td>
<td>0.2 or less</td>
</tr>
<tr>
<td>Turn-signal switch</td>
<td></td>
</tr>
<tr>
<td>Rated load A</td>
<td>6.6 ± 0.5</td>
</tr>
<tr>
<td>Voltage drop V</td>
<td>0.2 or less</td>
</tr>
<tr>
<td>Dimmer/passing switch</td>
<td></td>
</tr>
<tr>
<td>Rated load A</td>
<td></td>
</tr>
<tr>
<td>High beam : 10.7 ± 0.8</td>
<td></td>
</tr>
<tr>
<td>Low beam : 9.8 ± 0.7</td>
<td></td>
</tr>
<tr>
<td>Passing : 20.5 ± 1.5</td>
<td></td>
</tr>
<tr>
<td>Voltage drop V</td>
<td>0.2 or less</td>
</tr>
</tbody>
</table>

NOTE
For the wiper and washer switch, refer to GROUP 51 – Windshield Wiper and Washer.

SPECIAL TOOL

<table>
<thead>
<tr>
<th>Tool</th>
<th>Tool number and name</th>
<th>Supersession</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steering wheel puller</td>
<td>MB990803</td>
<td>General service tool</td>
<td>Removal of steering wheel</td>
</tr>
</tbody>
</table>
COLUMN SWITCH
REMOVAL AND INSTALLATION

CAUTION: SRS
Before removal of air bag module, refer to GROUP 52B – Service Precautions and Air Bag Module and Clock Spring.

Removal steps
1. Air bag module (Refer to GROUP 52B – Air Bag Module and Clock Spring.)
2. Steering wheel
3. Knee protector (Refer to GROUP 52A – Instrument P8001)
4. Column cover, lower

5. Column cover, upper
6. Lap cooler duct and foot shower duct
7. Column switch, right (For lighting switch, dimmer/passing switch and turn signal switch)
8. Column switch, right (For wiper and washer switch)

REMOVAL SERVICE POINTS

A STEERING WHEEL REMOVAL
Remove the steering wheel by the special tool.
Caution
Do not hammer on the steering wheel. Doing so may damage the collapsible column mechanism.
COLUMN COVER, LOWER / COLUMN COVER, UPPER REMOVAL

After the screws have been removed, remove the covers, while making sure not to break the grippers.

INSTALLATION SERVICE POINT

STEERING WHEEL INSTALLATION

To center the clock spring, line up the "NEUTRAL" mark of the clock spring with the mating mark.

Caution
If the clock spring's mating mark is not properly aligned, the steering wheel may not be completely rotational during a turn, or the flat cable within the clock spring may be severed, obstructing normal operation of the SRS and possibly leading to serious injury to the vehicle’s driver.

INSPECTION

(1) Remove the knee protector and the column cover. (Refer to GROUP 52A – Instrument Panel.)

(2) Disconnect the column switch left connector (16 terminals) and check the continuity between the terminals for each switch.

LIGHTING SWITCH CHECK

Operate the switch and check the continuity between the terminals.

<table>
<thead>
<tr>
<th>Switch position</th>
<th>Terminal No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>[ ]</td>
<td></td>
</tr>
<tr>
<td>[ ]</td>
<td></td>
</tr>
<tr>
<td>[ ]</td>
<td></td>
</tr>
<tr>
<td>[ ]</td>
<td></td>
</tr>
</tbody>
</table>

TSB Revision
TURN SIGNAL SWITCH CHECK
Operate the switch and check the continuity between the terminals.

<table>
<thead>
<tr>
<th>Switch position</th>
<th>Terminal No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Left</td>
<td></td>
</tr>
<tr>
<td>Neutral</td>
<td></td>
</tr>
<tr>
<td>Right</td>
<td></td>
</tr>
</tbody>
</table>

DIMMER/PASSING SWITCH CHECK
Operate the switch and check the continuity between the terminals.

<table>
<thead>
<tr>
<th>Switch position</th>
<th>Terminal No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Dimmer switch</td>
<td>LOW</td>
</tr>
<tr>
<td></td>
<td>HIGH</td>
</tr>
<tr>
<td>Passing switch</td>
<td></td>
</tr>
</tbody>
</table>

WIPER AND WASHER SWITCH
Refer to GROUP 51 - Windshield Wiper and Washer.
HORN

SPECIFICATIONS

GENERAL SPECIFICATIONS
Horn (Except for theft-alarm horn)

<table>
<thead>
<tr>
<th>Items</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Flat type</td>
</tr>
<tr>
<td>Effective sounding voltage V</td>
<td>11.5–15</td>
</tr>
<tr>
<td>Power consumption A</td>
<td>3.0</td>
</tr>
<tr>
<td>Sound level dB</td>
<td></td>
</tr>
<tr>
<td>&quot;low&quot; sound</td>
<td>100–112</td>
</tr>
<tr>
<td>&quot;high&quot; sound</td>
<td>100–112</td>
</tr>
<tr>
<td>Fundamental frequency Hz</td>
<td></td>
</tr>
<tr>
<td>&quot;low&quot; sound</td>
<td>350–390</td>
</tr>
<tr>
<td>&quot;high&quot; sound</td>
<td>395–435</td>
</tr>
</tbody>
</table>

Theft-alarm horn

<table>
<thead>
<tr>
<th>Items</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Flat type</td>
</tr>
<tr>
<td>Effective sounding voltage V</td>
<td>11–14.5</td>
</tr>
<tr>
<td>Power consumption A</td>
<td>Max. 3.5</td>
</tr>
<tr>
<td>Sound level dB</td>
<td>105–120</td>
</tr>
<tr>
<td>Fundamental frequency Hz</td>
<td>405–435</td>
</tr>
</tbody>
</table>

TROUBLESHOOTING

COMPONENT LOCATION

OPERATION
- The horn switch always receives battery voltage via the dedicated fuse (6) and the coil of the horn relay.
- When the horn switch is set to ON, the contacts of the horn relay close. Then current flows through the dedicated fuse (6) to the contacts of the horn relay, the horn and ground, causing the horn to sound.

TROUBLESHOOTING HINTS
1. One of the horn does not sound.
   - Check the horn.
2. Horns do not sound.
   - Check the horn switch.
   - Check the dedicated fuse (6).

NOTE
(1) For vehicles equipped with the theft-alarm system, refer to P.54-205.
(2) For information concerning the horn relay and theft-alarm horn relay, refer to P.54-118.

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CIRCUIT DIAGRAM
<VEHICLES WITHOUT THEFT-ALARM SYSTEM>

- Anti-lock Braking System
- Auto-Cruise Control
- Buzzer
- Central Door Locking
- Dome Light Foot Light
- Ignition Key Cylinder Illumination Light
- Door Light and Luggage Compartment Light
- ELC 4x4
- Electronic Control Suspension
- Fog Light
- Full Auto A/C
- Headlight
- Heater
- Manual A/C
- MFI System
- Power Window
- Radio and Tape Player
- Rear Window Defogger
- Starting
- Stop Light
- Supplemental Restraint System
- Tail Light Parking/Side Marker Light and License Plate Light
- Tension Reducer
- Tether Seat Belt
- Theft-Alarm System
- Windshield Wiper and Washer

NOTE
1: UP TO 1995 MODELS

TSB Revision
<VEHICLES WITH THEFT-ALARM SYSTEM>
HORN SWITCH
REMOVAL AND INSTALLATION

CAUTION: SRS
Before removal of air bag module, refer to GROUP 52B – Service Precautions and Air Bag Module and Clock Spring.

(UP TO 1993 MODELS)

Removal steps
1. Air bag module (Refer to GROUP 52B – Air Bag Module and Clock Spring.)
2. Horn contact switch
3. Horn contact plate and wire
4. Horn switch

(FROM 1994 MODELS)

The horn switch is not supplied by itself. If it is faulty, replace the steering wheel assembly.

RELAY
INSPECTION
HORN RELAY CHECK
Connect battery to terminal 1 and check continuity between terminals with terminal 3 grounded.

<table>
<thead>
<tr>
<th>Power is supplied</th>
<th>4–5 terminals</th>
<th>Continuity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power is not supplied</td>
<td>4–5 terminals</td>
<td>No continuity</td>
</tr>
<tr>
<td></td>
<td>1 3 terminals</td>
<td>Continuity</td>
</tr>
</tbody>
</table>

THEFT-ALARM HORN RELAY CHECK
Connect battery to terminal 2 and check continuity between terminals with terminal 4 grounded.

<table>
<thead>
<tr>
<th>Power is supplied</th>
<th>1–3 terminals</th>
<th>Continuity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power is not supplied</td>
<td>1–3 terminals</td>
<td>No continuity</td>
</tr>
<tr>
<td></td>
<td>2–4 terminals</td>
<td>Continuity</td>
</tr>
</tbody>
</table>
CIGARETTE LIGHTER

SPECIFICATIONS

GENERAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Items</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. input W</td>
<td>120</td>
</tr>
<tr>
<td>Reset time/second</td>
<td>Within 18</td>
</tr>
<tr>
<td>Thermal fuse fusion temperature °C (°F)</td>
<td>180–250 (356–482)</td>
</tr>
</tbody>
</table>
TROUBLESHOOTING
CIRCUIT DIAGRAM <UP TO 1995 MODELS>

CHASSIS ELECTRICAL – Cigarette Lighter

NOTE: BACKPACK

TSB Revision

HR14M38AA
CIGARETTE LIGHTER
REMOVAL AND INSTALLATION

Removal steps
1. Console side cover (RH)
2. Plug
3. Fixing ring
4. Socket case
5. Plate
6. Socket
7. Protector

INSPECTION
- Take out the plug, and check for a worn edge on the element spot connection, and for shreds of tobacco or other material on the element.
- Using an ohmmeter, check the continuity of the element.
RADIO AND TAPE PLAYER

TROUBLESHOOTING

CIRCUIT DIAGRAM
(1992 model)
CIRCUIT DIAGRAM
(1994 models-Radio and Tape Player with Amplifier)
RADIO AND TAPE PLAYER

Dedicated Fuse

1.25 R-W

G-W

G-W

B-k

RHEOSTAT

B-I

TSB Revision 1
CIRCUIT DIAGRAM
<Hatchback (From 1994 models-Radio and Tape Player without Amplifier)>
CIRCUIT DIAGRAM
<Convertible (1995 models-Radio and Tape Player without Amplifier)>
CIRCUIT DIAGRAM <Convertible (1995 models-Radio and Tape Player without Amplifier)>
(CONTINUED)
CHASSIS ELECTRICAL – Radio and Tape Player

RADIO AND TAPE PLAYER

AMPLIFIER (NO CONNECTION)

FRONT SPEAKER

DOOR SPEAKER

TSB Revision
COMPONENT LOCATION

Motor antenna control unit
< Hatchback >
RADIO AND TAPE PLAYER WITH ANTI-THEFT SYSTEM

- When power supply is reconnected after set has been removed from vehicle (after BATT line of set has been disconnected for more than one hour), what can be effectively performed is only supply of power made by POWER button operation. (If power supply is connected within an hour, operating state before disconnection of power supply is resumed.)

IGN key of vehicle is in ACC position and set is in no display state.

Is "code" displayed when power is turned on?

Yes

Is it possible to set identification number by preset button?

Yes

Is a beep heard and then does radio operate when PROG button is placed to ON position after setting four-digit identification number given on card?

Yes

Normal

Is a beep heard and "2 Err" displayed for two seconds before displaying "code"?

Yes

Faulty set

Press POWER button to erase "code" (to change to no display state).

Yes

Continued to next page.
Continued from previous Page

Is changeover to normal operation made by placing POWER button to ON position while pressing EJECT button?

Yes

Is power supply cut off automatically to return to no display state after three-minute operation?

No

Faulty set

Faulty set

Does manufacturing number of set agree with identification number on card?

No

Error

Error in attaching card (For set manufacturing number identification location, refer to P.54-183)

Yes

Error in attaching card (For set manufacturing number identification location, refer to P.54-183)

Yes

Normal (Error in first and second setting)

No

Is a beep heard and does radio operate when identification number indicated on card is reset and PROG button is placed to ON position?

No

Faulty set

Yes

In this state, only POWER button operation is accepted ("OFF" displayed) and no other button operation can be made effectively.

In the "OFF" state, continuation of the BATT, ACC line ON state for more than one hour will allow identification number checking operation again and placing the POWER button to ON position will display "code" and wait for input.
# Troubleshooting Chart

<table>
<thead>
<tr>
<th>Item</th>
<th>Problem Symptom</th>
<th>Relevant Chart</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noise</td>
<td>Noise appears at certain places when traveling (AM).</td>
<td>A-1</td>
</tr>
<tr>
<td></td>
<td>Noise appears at certain places when traveling (FM).</td>
<td>A-2</td>
</tr>
<tr>
<td></td>
<td>Mixed with noise, only at night (AM).</td>
<td>A-3</td>
</tr>
<tr>
<td></td>
<td>Broadcasts can be heard but both AM and FM have a lot of noise.</td>
<td>A-4</td>
</tr>
<tr>
<td></td>
<td>There is more noise either on AM or on FM.</td>
<td>A-5</td>
</tr>
<tr>
<td></td>
<td>There is noise when starting the engine.</td>
<td>A-6</td>
</tr>
<tr>
<td></td>
<td>Some noise appears when there is vibration or shocks during traveling.</td>
<td>A-7</td>
</tr>
<tr>
<td></td>
<td>Noise sometimes appears on FM during traveling.</td>
<td>A-8</td>
</tr>
<tr>
<td></td>
<td>Ever-present noise.</td>
<td>A-9</td>
</tr>
<tr>
<td>Radio</td>
<td>When switch is set to ON, no power is available.</td>
<td>B-1</td>
</tr>
<tr>
<td></td>
<td>No sound from one speaker.</td>
<td>B-2</td>
</tr>
<tr>
<td></td>
<td>There is noise but no reception for both AM and FM or no sound from AM, or no</td>
<td>B-3</td>
</tr>
<tr>
<td></td>
<td>sound from FM.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Insufficient sensitivity.</td>
<td>B-4</td>
</tr>
<tr>
<td></td>
<td>Distortion on AM or on both AM and FM.</td>
<td>B-5</td>
</tr>
<tr>
<td></td>
<td>Distortion on FM only.</td>
<td>B-6</td>
</tr>
<tr>
<td></td>
<td>Too few automatic select stations.</td>
<td>B-7</td>
</tr>
<tr>
<td></td>
<td>Insufficient memory (preset stations are erased).</td>
<td>B-8</td>
</tr>
<tr>
<td>Cassette player</td>
<td>Cassette tape will not be inserted.</td>
<td>C-1</td>
</tr>
<tr>
<td></td>
<td>No sound.</td>
<td>C-2</td>
</tr>
<tr>
<td></td>
<td>No sound from one speaker.</td>
<td>C-3</td>
</tr>
<tr>
<td></td>
<td>Sound quality is poor, or sound is weak.</td>
<td>C-4</td>
</tr>
<tr>
<td></td>
<td>Cassette tape will not be ejected.</td>
<td>C-5</td>
</tr>
<tr>
<td></td>
<td>Uneven revolution. Tape speed is fast or slow.</td>
<td>C-6</td>
</tr>
<tr>
<td></td>
<td>Automatic search does not work.</td>
<td>C-7</td>
</tr>
<tr>
<td></td>
<td>Faulty auto reverse.</td>
<td>C-8</td>
</tr>
<tr>
<td></td>
<td>Tape gets caught in mechanism.</td>
<td>C-9</td>
</tr>
<tr>
<td>CD player</td>
<td>CD will not be accepted.</td>
<td>D-1</td>
</tr>
<tr>
<td></td>
<td>No sound.</td>
<td>D-2</td>
</tr>
<tr>
<td></td>
<td>CD sound skips.</td>
<td>D-3</td>
</tr>
<tr>
<td></td>
<td>Sound quality is poor.</td>
<td>D-4</td>
</tr>
<tr>
<td></td>
<td>CD will not be ejected.</td>
<td>D-5</td>
</tr>
<tr>
<td></td>
<td>No sound from one speaker.</td>
<td>D-6</td>
</tr>
<tr>
<td>Motor antenna</td>
<td>Motor antenna won't extend or retract.</td>
<td>E-1</td>
</tr>
<tr>
<td></td>
<td>Motor antenna extends and retracts but does not receive.</td>
<td>E-2</td>
</tr>
<tr>
<td></td>
<td>TSB Revision</td>
<td></td>
</tr>
</tbody>
</table>
CHART
A. NOISE

A-I Noise appears at certain places when traveling (AM).

Is there a particular structure? No

Yes

Find out the following information from the user:
1. Place
2. Locality conditions (valley, mountain, etc.)
3. Name and frequency of stations affected by noise

Do the following measures eliminate the noise? Yes

1. Change to a different station with a strong signal to boost resistance to interference.
2. Suppress high tones to reduce noise.

No

If due to vehicle noise:
It may not be possible to prevent noise if the signal is weak.

If due to external noise:
In almost all cases, prevention on the receiver side is impossible. Weak signals especially are susceptible to interference.

If there is more noise than other radios, find out the noise conditions and the name and frequency of the receiving stations from the user, and consult with the service center.
A-2 Noise appears at certain places when traveling (FM).

Do the following measures eliminate the noise?

- Change to a different station with a strong signal to boost resistance to interference.
- Suppress high tones to reduce noise.
- Extend antenna completely. (Whip antenna)

Yes

No

If there is more noise than other radios, find out the noise conditions and the name and frequency of the receiving stations from the user, and consult with the service center.

NOTE

About FM waves:
FM waves have the same properties as light, and can be deflected and blocked. Wave reception is not possible in the shadow of obstructions such as buildings or mountains.

1. The signal becomes weak as the distance from the station's transmission antenna increases. Although this may vary according to the signal strength of the transmitting station and intervening geographical formations or buildings, the area of good reception is approx. 20–25 km (12–16 miles) for stereo reception, and 30–40 km (19–25 miles) for monaural reception.

2. The signal becomes weak when an area of shadow from the transmitting antenna (places where there are obstructions such as mountains or buildings between the antenna and the car), and noise will appear. (This is called first fading, and gives a steady buzzing noise.)

3. If a direct signal hits the antenna at the same time as a signal reflected by obstructions such as mountains or buildings, interference of the two signals will generate noise. During traveling, noise will appear each time the vehicle's antenna passes through this kind of obstructed area. The strength and interval of the noise varies according to the signal strength and the conditions of deflection. (This is called multipath noise, and is a repetitious buzzing.)

4. Since FM stereo transmission and reception has a weaker field than monaural, it is often accompanied by a hissing noise.

FM Broadcast Good Reception Areas

FM Signal Characteristics and Signal Interference

TSB Revision
The following factors can be considered as possible causes of noise appearing at night.

1. Factors due to signal conditions: Due to the fact that long-distance signals are more easily received at night, even stations that are received without problem during the day may experience interference in a general worsening of reception conditions. The weaker a station is the more susceptible it is to interference, and a change to a different station or the appearance of a beating sound* may occur.

   Beat sound*: Two signals close in frequency interfere with each other, creating a repetitious high-pitched sound. This sound is generated not only by sound signals but by electrical waves as well.

2. Factors due to vehicle noise: Generator noise may be a cause.

---

**Diagram Description**

- **Is the noise still obvious even with the lamps OFF?**
  - Yes → **Do the following measures eliminate the noise?**
  - No → **Does the noise fade away when the vehicle harness is moved away from the radio chassis?**
    - Yes → OK
    - No → If there is more noise than other radios, consult a service center.
  - **Tune to a station with a strong signal.**
  - **Tune to a station with a strong signal without completely extending the antenna.**
A-4  Broadcasts can be heard but both AM and FM have a lot of noise.

(1) Noise occurs when the engine is stopped.  
Yes

Do the following measures eliminate the noise?
- Tune to a station with a strong signal.
- Extend the antenna completely. (Whip antenna)
- Adjust the sound quality to suppress high tones.

Yes  OK

(2) Noise occurs when the engine in running.

Inspect the vehicle's noise suppressor. (refer to A-6.)

Yes

No

Securely tighten the nuts for the body ground.

Is the radio body ground mounted securely?
Yes

Correctly attach the antenna plug.

Is the antenna plug properly connected to the radio?
Yes

Clean the antenna plug and ground wire mounting area. Mount the antenna securely. On a vehicle with a motor antenna, check the antenna itself. (Refer to E-1, 2.)

Is the antenna itself in good condition or is it properly mounted?
Yes

Is the noise eliminated?
Yes  OK

No

If there is more noise than other radios, consult a service center

NOTE  
About noise encountered during FM reception only. Due to differences in FM and AM systems, FM is not as susceptible as AM to interference from engines, power lines, lightning, etc. On the other hand, there are cases due to the characteristics of FM waves of noise or distortion generated by typical noise interference (first fading and multipath). (Refer to A-2.)

<Noise (hissing) occurs in weak signal areas such as mountainous regions, but this is not due to a problem with the radio.>

TSB Revision
A-5 There is more noise either on AM or on FM.

1. There is much noise only on AM
   Due to differences in AM and FM systems, AM is more susceptible to noise interference.

   Were conditions such as the following present when noise was received?
   - Lightning was flashing. A motorcycle was passing.
   - A vehicle passed close by, but it appeared to be a vehicle generating a particularly large amount of noise radiation.
   - Passed beneath a power line. Passed under a bridge.
   - Passed beneath a telephone line.
   - Passed close by a signal generator.
   - Passed close by some other source of electrical noise.

   Continue to check for static; when static is detected, check for the conditions listed above.

   No
   - If the problem is particularly worse than other radios, consult a service center.

   Yes
   - Noise prevention on Me radio side is difficult. If the problem is particularly worse than other radios, consult a service center.

2. There is much noise only on FM
   Due to differences in FM and AM systems, FM is not as susceptible as AM to interference from engines, power lines, lightning, etc. On the other hand, there are cases due to the characteristics of FM waves of noise or distortion generated by typical noise interference (first fading and multipath). (Refer to A-2) <Noise (hissing) occurs in weak signal areas such as mountainous regions, but this is not due to a problem with the radio.>
<table>
<thead>
<tr>
<th>Noise type Sounds are in parentheses ( )</th>
<th>Conditions</th>
<th>Cause</th>
<th>Parts to be inspected or remedy</th>
<th>Location of parts (next page)</th>
</tr>
</thead>
</table>
| AM, FM: Ignition noise (Popping, Snapping, Cracking, Buzzing) | • Increasing the engine speed causing the popping sound to speed up, and volume decreases.  
• Disappears when the ignition switch is turned to ACC. | • Mainly due to the spark plugs.  
• Due to the engine noise. | Noise condenser 1  
Ground cable 2, 3 | |
| Other electrical components | Noise may appear as electrical components become older. | Repair or replace electrical components. | |
| Static electricity (Cracking, Crinkling) | • Disappears when the vehicle is completely stopped.  
• Severe when the clutch is engaged. | Occurs when parts or wiring move for some reason and contact metal parts of the body. | Return parts or wiring to their proper position. |
| | • Various noises are produced depending on the body part of the vehicle. | Due to detachment from the body of the fronthood, bumpers, exhaust pipe and muffler, suspension, etc. | Ground parts by bonding. Cases where the problem is not eliminated by a single response to one area are common, due to several body parts being imperfectly grounded. |

**Caution**

1. Connecting a high tension cable to the noise filter may destroy the noise filter and should never be done.
2. Check that there is no external noise. Since failure to do this may result in misdiagnosis due to inability to identify the noise source, this operation must be performed.
3. Noise prevention should be performed by suppressing strong sources of noise step by step.

**NOTE**

1. Condenser
   The condenser does not pass D.C. current, but as the number of waves increases when it passes A.C. current, impedance (resistance against A.C.) decreases, and current flow is facilitated. A noise suppressing condenser which takes advantage of this property is inserted between the power line for the noise source and the ground. This suppresses noise by grounding the noise component (A.C. or pulse signal) to the body of the vehicle.

2. **Coil**
   The coil passes D.C. current, but impedance rises as the number of waves increases relative to the A.C. current. A noise suppressing coil which takes advantage of this property is inserted into the power line for the noise source, and works by preventing the noise component from flowing or radiating out of the line.
A-7 Some noise appears when there is vibration or shocks during traveling.

Are connectors properly connected? No → Ensure proper connection
Yes

Does noise appear when the radio switch is turned on while the vehicle is stopped and the radio is struck while tuned away from a station? No → Static electricity noise:
- Body static electric from the shock absorber rubber bushings used to prevent vibration, tires, etc. occurs because of separation from the ground, causing a buzzing noise.
- Since no measures can be taken on the radio side, steps should be taken to discharge the static electricity of the vehicle body.
Yes

Is the radio correctly grounded? (Is the mounting screw tightened securely?) No → Tighten the screw securely.
Yes

Is the antenna correctly grounded? (If noise appears when the antenna is moved, this means the ground is not securely connected.) No → If rust is present on the antenna ground screw, clean and tighten the ground securely.
Yes → Repair or replace radio.

TSB Revision
### CHASSIS ELECTRICAL – Radio and Tape Player

#### A-8 Noise sometimes appears on FM during traveling.

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the antenna completely extended?</td>
<td>No</td>
<td>Check the antenna itself. (Refer to E-I, 2.)</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the problem clear up when returned?</td>
<td>Yes</td>
<td>OK</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the problem appear only in certain locations and only with certain stations?</td>
<td>Yes</td>
<td>Due to electrical field conditions. (Multipath noise*, fading noise*).</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are connectors properly connected?</td>
<td>No</td>
<td>Check connector connections.</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does noise appear when the radio switch is turned on while the vehicle is stopped and the radio is struck while tuned away from a station?</td>
<td>No</td>
<td>Static electricity noise: Body static electric from the shock absorber rubber bushings used to prevent vibration, tires, etc. occurs because of separation from the ground, causing a buzzing noise. Since no measures can be taken on the radio side, steps should be taken to discharge the static electricity of the vehicle body.</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is the radio body correctly grounded? (Is the mounting screw tightened securely?)</td>
<td>No</td>
<td>Tighten the screw securely.</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is the antenna correctly grounded? (If noise appears when the antenna is moved, this means the ground is not securely connected.)</td>
<td>No</td>
<td>If rust is present on the antenna ground screw, clean and tighten the ground securely.</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td>Repair or replace radio.</td>
</tr>
</tbody>
</table>

- About multipath noise and fading noise
  - Because the frequency of FM waves is extremely high, it is highly susceptible to effects from geological formations and buildings. These effects disrupt the broadcast signal and obstruct reception in several ways.
- Multipath noise
  - This describes the echo that occurs when the broadcast signal is reflected by a large obstruction and enters the receiver with a slight time delay relative to the direct signal (repetitious buzzing).
- Fading noise
  - This is a buzzing noise that occurs when the broadcast beam is disrupted by obstructing objects and the signal strength fluctuates intricately within a narrow range.
A-9 Ever-present noise.

Noise is often created by the following factors, and often the radio is OK when it is checked individually.
- Traveling conditions of the vehicle
- Terrain of area traveled through
- Surrounding buildings
- Signal conditions
- Time period

For this reason, if there are still problems with noise even after the measures described in steps A-1 to A-8 have been taken, get information on the factors listed above as well as determining whether the problem occurs with AM or FM, the station names, frequencies, etc., and contact a service center.

B. RADIO

B-1 No power is supplied when the switch is set to ON.

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is multi-purpose fuse No. 4 blown or is the circuit open?</td>
<td>Yes</td>
<td>Replace fuse or repair harness.</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Is the connector at the back of the radio connected properly?</td>
<td>Yes</td>
<td>Connect connector securely.</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Disconnect and check the connector at the rear of the radio. Is the ACC power (12 V) being supplied to the radio?</td>
<td>Yes</td>
<td>Repair harness.</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Repair or replace radio.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

B-2 No sound from one speaker.

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check to see if there is any sound when attached to another radio.</td>
<td>Yes</td>
<td>Repair or replace radio unit.</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Remove the connector on the back of the radio and check the speaker harness for conductance.</td>
<td>Yes</td>
<td>It conducts electricity but is shorted out.</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>Repair speaker harness.</td>
</tr>
<tr>
<td>Check the speaker for conductance.</td>
<td>Yes</td>
<td>Repair speaker harness and ensure proper connection of relay connectors.</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Repair or replace speaker.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TSB Revision
There is noise but no reception for both AM and FM or no sound from AM, or no sound from FM.

- Is the check being conducted under special electrical field conditions?
  - No: Example: in an underground garage or inside a building.
  - Yes

- Is proper performance obtained when the vehicle is moved?
  - No
  - Yes: OK

- Is the antenna completely extended?
  - No: Check the antenna itself. (Refer to E-l, 2.)
  - Yes

- Does tuning solve the problem?
  - Yes: OK
  - No

- Are the antenna plug and radio unit properly connected?
  - No: Reconnect
  - Yes

- Does the problem disappear if connected to another radio?
  - Yes: Repair or replace radio.
  - No: Repair or replace the antenna. (Refer to E-l, 2.)

TSB Revision
Is the check being conducted under special electrical field conditions? No
Example: in an underground garage or inside a building
Is proper performance obtained when the vehicle is moved? No
Is the antenna completely extended? No
Yes
Check the antenna itself. (Refer to E-I, 2.)

Does tuning solve the problem? Yes
No

Is the problem limited to the reception of a specific radio station from a specific position? Yes
Electrical field condition related*. (multipath noise or fading noise)
No

Is the antenna plug properly connected to the unit? No
Yes
Ensure proper connection.

Does the problem disappear when a different radio is connected? Yes
No
Repair or replace radio.

Repair or replace the antenna. (Refer to E-I, 2.)

* For multipath noise and fading noise problems, refer to P.54-167.
B-5  Distortion on AM or on both AM and FM.

How much distortion is there?
- Occasional
- Constant

Dissolution in the vicinity of the radio station
- Yes
- No

Are the speaker cords in contact with the cone paper?
- Yes
- No

Remove the speakers and check for torn cone paper or foreign objects.
- Yes
- No

Check for deformation with speaker installed.
- Yes
- No

Repair or replace radio.

B-6  Distortion on FM only

Does the distortion persist when the radio is tuned to another station?
- Yes
- No

Does distortion increase or decrease when the vehicle is moved?
- Yes
- No

Repair or replace radio.
B-7  Too few automatic select stations.

Is the check being conducted under special electrical field conditions?

<table>
<thead>
<tr>
<th>No</th>
<th>Example: in an underground garage or inside a building</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

Is proper performance obtained when the vehicle is moved?

<table>
<thead>
<tr>
<th>No</th>
</tr>
</thead>
</table>

Is the antenna completely extended?

<table>
<thead>
<tr>
<th>No</th>
</tr>
</thead>
</table>

Check the antenna itself.
(Refer to E-1, 2.)

Yes

Ensure proper connection.

Is the antenna plug properly connected to the equipment?

<table>
<thead>
<tr>
<th>No</th>
</tr>
</thead>
</table>

Repair harness.

Yes

Does the equipment work properly if the radio is changed?

<table>
<thead>
<tr>
<th>No</th>
</tr>
</thead>
</table>

Repair or replace radio.

B-8  Insufficient memory (preset stations are erased).

Is multi-purpose fuse No. 19 blown or is the circuit open?

<table>
<thead>
<tr>
<th>Yes</th>
</tr>
</thead>
</table>

Replace fuse or repair harness.

No

Disconnect and check the connector at the rear of the radio. Is the memory backup (battery) power being supplied?

<table>
<thead>
<tr>
<th>No</th>
</tr>
</thead>
</table>

Repair harness.

Yes

Repair or replace radio.
C. CASSETTE PLAYER

C-1 Cassette tape will not be inserted.

Are there any foreign objects in the cassette player? Yes → Remove the object(s)*1

No

Are there any foreign objects in the cassette player? Yes → Remove the object(s)*1

No → Are there any foreign objects in the cassette player?

Yes → Remove the object(s)*1

No

Does the cassette player work if another tape is inserted?

Yes → Replace tape *2

No → Repair or replace cassette player.

*1 Attempting to force a foreign object (e.g., a coin or clip, etc.) out of the cassette player may damage the mechanism. The player should be taken to a service dealer for repair.

*2 Ensure that the tape label is not that the tape itself tape of C-120 or greater length often get caught in the mechanism and should not be used.

C-2 No sound (even after a tape has been inserted).

Is multi-purpose fuse No. 4 blown or is the circuit open? Yes → Replace fuse or repair harness.

No

Is connector at rear of radio connected tightly? Yes → Connect connector firmly.

No → Is connector at rear of radio connected tightly?

Yes → Connect connector firmly.

No

Is connector at rear of radio connected tightly? Yes → Connect connector firmly.

No → Is connector at rear of radio connected tightly?

Yes → Connect connector firmly.

No

Is connector at rear of radio connected tightly? Yes → Repair or replace cassette player.

No

Repair harness.

TSB Revision
C-3 No sound from one speaker.

- Clean the cassette player head and check again. 
  - Yes: OK
  - No: Replace the cassette player and check again.

- Replace the cassette player and check again. 
  - Yes: Repair or replace cassette player.
  - No: Repair speaker harness and ensure proper connection of relay connectors.

- Remove the connector on the back of the radio and check the speaker harness for conductance. 
  - Yes: It conducts electricity but is shorted out. 
  - No: Repair speaker harness.

- Check the speaker for conductance. 
  - Yes: Repair speaker harness and ensure proper connection of relay connectors.
  - No: Repair or replace speaker.
C-4  Sound quality is poor, or sound is weak.

- Ensure that the tape label is not loose, that the tape itself is not deformed and that the tape is tightly wound.
- Tapes of C-I 20 or greater length often get caught in the mechanism and should not be used.

C-5  Cassette tape will not be ejected.

The problems covered here are all the result of the use of a bad tape (deformed or not properly tightened) or of a malfunction of the cassette player itself. Malfunctions involving the tape becoming caught in the mechanism and ruining the case are also possible, and attempting to force the tape out of the player can cause damage to the mechanism. The player should be taken to a service dealer for repair.
C-6 Uneven revolution. Tape speed is fast or slow.

Does the player play OK if the tape is changed?  Yes → OK

No

Are there any foreign objects inside the cassette player?  Yes → Remove foreign object(s).

No

Is the head or capstan roller dirty?

Yes → Clean.

No

Repair or replace cassette player.

C-7 Automatic search does not work.

Does the MSS (automatic search) button depress properly?  No → Button improperly operated.

Yes

Does the player play OK if the tape is changed?  Yes → Tape used is bad.

No

- When the time between songs on a tape is less than three seconds, or when there is a three second period in the middle of a song in which the volume level is extremely low, the automatic search function may not work properly.

- Ensure that the tape label is not loose, that the tape itself is not deformed and that the tape is tightly wound. Also, tapes of C-120 or greater length often get caught in the mechanism and should not be used.

Repair or replace the cassette player.
C-8  Faulty auto reverse.

Does the player play OK if the tape is changed?

Yes  →  OK

No

- Ensure that the tape label is not loose, that the tape itself is not deformed and that the tape is tightly wound.
- Tapes of C-120 or greater length often get caught in the mechanism and should not be used.

Does the problem only occur while the vehicle is being driven?

No  →  Repair or replace cassette player.

Yes

Is the cassette player properly installed to the vehicle?

No  →  Ensure cassette player installation.

Yes  →  Repair or replace cassette player.

C-9  Tape gets caught in mechanism*1.

When the tape is caught in the mechanism, the case may not eject. When this occurs, do not try to force the tape out as this may damage the tape player mechanism. Take the cassette to a service dealer for repair.

Does the player play OK if the tape is changed?

Yes  →  Tape used is bad.

No

- Ensure that the tape label is not loose, that the tape itself is not deformed and that the tape is tightly wound. Also, tapes of C-120 or greater length often get caught in the mechanism and should not be used.

Repair or replace cassette player.
D. CD PLAYER

D-I  CD will not be accepted.

Does the shutter open when a CD is inserted?  Yes

Is CD rejected from approx. 15 mm depth of the insertion panel though CD can be inserted?  Yes

Though CD is completely inserted once, "error" is displayed and the CD is rejected?  Yes

Check CD.
- Is the labeled side faced downward?
- Is the recorded face of the CD dirty?
- Does dew exit on the recorded face of the CD?

Replace CD.

No

No

No

No

Yes

Insert the CD correctly or check to see if the CD is defective.

Take out the CD.

OK

OK

Replace CD.

1. If the CD is already loaded, doesn't the shutter open to allow insertion when another CD is inserted?
2. If the key switch is not at ACC or ON, the CD stops at depth of 15 mm below the panel surface even when it is inserted, and it will be rejected when pushed farther?
3. Even though the CD is loaded, E (error) is sometimes displayed with the CD rejected because of vibration/shock or dew on the CD face or optical lens.

TSB Revision
**D-2** No sound.

1. Does it play if an existing proper CD is inserted?
   - Yes: Replace defective CD.
   - No: Does "WAIT" indicator flicker?
     - Yes: Return it to normal temperature, and recheck operation. Does it operate properly?
     - Yes: OK
     - No: Are the radio set and CD player connected securely?
       - Yes: Securely connect them.
       - No: Repair or replace CD player.

(The combined radio cassette must operate properly.)

**D-3** CD sound skips.

1. Sound sometimes skips during parking.
   - Is CD face scratched or dirty?
     - Yes: CD is defective, or clean CD.
     - No: Does it play properly if CD is replaced with an existing proper CD?
       - No: Repair or replace CD player.
       - Yes: Replace CD.

2. Sound sometimes skips during driving.
   - (Stop vehicle, and check it.)
   - (Check it by using a proper CD which is free of scratch, dirt or other abnormality.)
   - Does sound skip when the side of the CD player is tapped?
     - No: Check the sound skipping state during driving in detail, and contact a service shop.
     - Yes: Securely mount the CD player.

---

**TSB Revision**
D-4  Sound quality is poor.

Does it play properly if another proper CD is loaded?  
Yes  
Replace CD.  

No  
Repair or replace CD player.

D-5  CD will not be ejected.

Is the key switch (ignition key) at ACC or ON?  
No  
Turn the key to ON.  

Yes  
Is the combined amplifier or radio set connected securely?  
No  
Securely connect the subjected one.  

Yes  
If CD is not ejected, don't reject it. The player may be damaged. Therefore, contact a service shop for repairs.

D-6  No sound from one speaker.

Is CD player securely connected to the combined radio set?  
No  
Securely connect them.  

Yes  
Does it play properly if another CD player is combined?  
Yes  
Repair or replace CD player.  

No  
Repair or replace the combined radio set.
E. MOTOR ANTENNA

E-I Motor antenna won't extend or retract.

Clean and polish the surface of the antenna rod.

- Is the radio power switch ON? No → Switch it ON.
  Yes →

- Is voltage (approx. 12 V) emitted to the radio’s motor antenna terminal? No → Repair or replace the radio.
  Yes →

- Is the antenna bent? Yes → Repair the bend, or replace the antenna mast.
  No →

- Is the antenna relay OK? No → Replace the antenna relay.
  Yes →

- Is the motor OK? No → Replace the motor.
  Yes →

- Repair the harness.
E-2 Motor antenna extends and retracts but does not receive.

Is the antenna itself OK? No → Repair or replace it.

Is operation normal when a new antenna assembly is directly installed to the radio? No → Refer to B. "Radio troubleshooting".

Yes → Replace the feeder cable.

Checking the antenna *

<table>
<thead>
<tr>
<th>Ohmmeter measurement locations</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circuits from F to A, B, C, D and E</td>
<td>Continuity</td>
</tr>
<tr>
<td>Circuit between G and H</td>
<td>Continuity</td>
</tr>
<tr>
<td>Circuits from H to A, B, C, D and E</td>
<td>No continuity</td>
</tr>
</tbody>
</table>
PROCEDURE FOR INPUT OF SECURITY CODE FOR RADIO AND TAPE PLAYER WITH ANTI-THEFT SYSTEM

The radio and tape player does not operate in the following states.

(1) Power supply to the radio and tape player has been suspended for more than one hour continuously by removing the cable from the battery terminal or disconnecting the harness connectors.

(2) The power supply to the radio and tape player has been suspended for more than one hour owing to blown fuse or discharged battery.

(3) The radio and tape player has been replaced.

If the radio and tape player does not operate for these causes, input the security code by the following procedure to operate it.

1. Using any of the following methods, confirm the security code.
   (1) Read the security code indicated on the cards retained by the user.
   (2) If the security code is unknown owing to the user's loss of the cards,
       a. Remove the audio panel and then pull out the radio and tape player partially.
       b. Read the serial No. shown on the name card of the radio and tape player.
       c. Look up the anti-theft code corresponding to the serial number in the serial number-anti-theft code table; or, make inquiries to Mitsubishi Motor Sales of America, Inc.

   (3) When the radio and tape player is replaced
       Read the security code on the cards attached to the upper surface of the replacement radio and tape player.

NOTE
Deliver the cards (two) to the user.
2. Return power supply for the radio and player to the normal state.
3. Turn the ignition key to the “ACC” position.
4. Press the POWER button, and “code” will be displayed on the display.

5. Press No.1 through No.4 memory select buttons and set the 4-digit security code indicated on the card. Every time each digit key is pressed, the number changes as follows:

   \[
   \rightarrow 0 \rightarrow 1 \rightarrow 2 \cdots 9 \rightarrow 0 \cdots
   \]

6. Press the PROG button. After a beep is heard, the radio and tape player will be in the operating state.
7. If the input security code does not agree with that in memory, “1 Err” is displayed on the display. In a few seconds, it will change to “code”. So, repeat steps 4 and 5.

NOTE
(1) The security code can be set three times at the most.
(2) The second error is displayed as “2 Err”. If the third error is made, “3 Err” is displayed and then it changes to “OFF”.
(3) When setting is attempted four or more times, keeping the ignition key in the “ACC” or “ON” position for about one hour will automatically erase the “OFF” display.

TSB Revision
After the erasing, therefore, repeat step 3 and up. If the ignition key is turned to the “OFF” position during one-hour period of keeping it in “ACC” or “ON” position, the “OFF” display will be erased. With the ignition key placed in the “ACC” position again, press the POWER button, and the “OFF” display will be resumed. Therefore, keep this state for another one hour or so.
CAUTION: SRS
<Up to 1993 models>
Before removal of air bag module, refer to GROUP 52B – Service Precautions and Air Bag Module and Clock Spring.

<From 1994 models>
When removing and installing the remote control switch, don’t allow any impact or shock to the air bag module.

Removal steps
1. Air bag module (Refer to GROUP 52B – Air Bag Module and Clock Spring.)
2. Radio remote control switch

RADIO AND TAPE PLAYER
REMOVAL AND INSTALLATION

Removal steps
1. Radio panel
2. Radio and tape player
3. CD player
4. Radio bracket
5. Front console assembly (Refer to GROUP 52A – Console Box.)

TSB Revision
SPEAKER
REMOVAL AND INSTALLATION

<DOOR SPEAKER>

1. Door trim (Refer to GROUP 42 – Door Trim and Waterproof Film.)
2. Speaker garnish
3. Speaker
4. Speaker cover

<REAR SPEAKER>

1. Quarter trim (Refer to GROUP 52A – Trims.)
2. Speaker garnish
3. Speaker
4. Speaker box

Door speaker removal steps
Rear speaker removal steps

TSB Revision
Motor antenna removal steps
- Rear side trim (LH)
  (Refer to GROUP 52A – Trims.)
1. Ring nut
2. Base
3. Antenna pole
4. Antenna feeder cable and motor antenna connection
5. Motor antenna

Amplifier removal
11. Amplifier (under passenger’s seat)

NOTE
- : Refer to GROUP 52A – Trims
-2: Vehicles with glass mounted antenna

Antenna feeder cable removal steps
- Rear side trim (LH)*1
- Quarter trim (LH)*1
- Rear side trim*1,2
- Quarter trim (LH)*1,2
- Quarter upper trim*1,2
- Liftgate upper trim*1,2
- Liftgate side trim (RH)*1
- Rear console assembly
  (Refer to GROUP 52A – Console Box.)
- Radio and tape player
  (Refer to P54-176)
4. Antenna feeder cable and motor antenna connection
6. Rear seat cushion
7. Rear seat back
8. Inner seat belt
9. Console side cover (LH)
10. Antenna feeder cable
REMOVAL SERVICE POINT

-A REAR SEAT CUSHION REMOVAL
Raise and remove the seat cushion with the lever pulled.

INSTALLATION SERVICE POINT

-A REAR SEAT CUSHION INSTALLATION
(1) Securely fit the attachment wire of the seat cushion under the seatback.
(2) Pass the inner seat belt buckles through the cushion.
(3) Securely fit the lock plates of the seat cushion into the holes in the floor.

INSPECTION

ANTENNA MOTOR INSPECTION
Disconnect the motor antenna control unit connector, connect the positive terminal of the power supply to terminal (1) and connect the negative terminal to terminal (4) to check that the antenna goes up, and that when the connections are reversed, the antenna goes down.

MOTOR ANTENNA CONTROL UNIT INSPECTION
(1) Connect the harness connector to the motor antenna.
(Body harness)
(2) Disconnect the antenna motor connector.
(3) With the ignition switch in the ACC or ON position, operate the radio switch and check the voltage between the terminals during the period when the antenna is going up or going down.

<table>
<thead>
<tr>
<th>Antenna operating direction</th>
<th>Terminals to check</th>
<th>Voltage (V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Down</td>
<td>1 - 3</td>
<td>10 - 13</td>
</tr>
<tr>
<td>Up</td>
<td>3 - 4</td>
<td>10 - 13</td>
</tr>
</tbody>
</table>
ANTENNA POLE REPLACEMENT

(1) Remove the ring nut.

(2) Set the radio switch to ON. After the antenna pole has extended, remove the antenna pole and rack cable as an assembly.

(3) Extend the antenna pole up to its farthest point.

   NOTE
   If the motor end of the rack cable is bent, straighten it.

(4) Force the rack cable into the motor assembly with the tooth side of the rack cable toward the luggage compartment.

(5) Turn the tooth side of the rack cable toward the rear of the vehicle (90° clockwise) to bring the rack cable into mesh with the motor gear.

(6) Lightly pull the rack cable. If it comes out without resistance, it means that the rack cable is not in mesh with the motor gear. Recheck that the rack cable end is not bent before repeating the above-mentioned steps (2) and (3).

(7) With the antenna pole upright and the radio switch at OFF, take up the rack cable. As the rack cable is taken up, insert the antenna pole toward the motor antenna.

(8) After the ring nut has been tightened, set the radio switch to ON and OFF to check the operation of the antenna pole.
CD AUTO CHANGER
REMOVAL AND INSTALLATION

Removal steps
1. CD changer cover
   - Utility compartment floor carpet, high floor center board.
2. CD auto changer
3. CD changer bracket (front)
4. CD changer bracket (rear)
# REAR WINDOW DEFOGGER

## SPECIAL TOOLS

<table>
<thead>
<tr>
<th>Tool</th>
<th>Tool number and name</th>
<th>Supersession</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image" /></td>
<td>MB991341</td>
<td>MB991341C</td>
<td>Up to 1993 models Checking the rear window defogger system</td>
</tr>
<tr>
<td></td>
<td>MB991529</td>
<td>MB991529</td>
<td>From 1994 models Checking the rear window defogger system using a voltmeter</td>
</tr>
<tr>
<td><img src="image2.png" alt="Image" /></td>
<td>ROM Pack</td>
<td></td>
<td></td>
</tr>
<tr>
<td><img src="image3.png" alt="Image" /></td>
<td>MB991502</td>
<td>MB991502</td>
<td>All models Checking the rear window defogger system</td>
</tr>
<tr>
<td><img src="image4.png" alt="Image" /></td>
<td>ROM pack</td>
<td></td>
<td></td>
</tr>
<tr>
<td><img src="image5.png" alt="Image" /></td>
<td>MB991529</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TSB Revision
TROUBLESHOOTING
CIRCUIT DIAGRAM
(UP TO 1993 MODELS)

FUSIBLE LINK (G1)
3R-B (C-01)
2
3R-B (C-03)
DEFOGGER RELAY (C-06X)
DEFOGGER CONNECTOR (F-02)
DATA LINK CONNECTOR

IGNITION SWITCH (G2)
2L-B
2B-W
3B-R

IGNITION SWITCH (G1)
GENERATOR (L TERMINAL)

DEFOGGER UNIT (C-05X)
5
6
12+2
2+1
52

TAILLIGHT RELAY
1.25R-W
2B-R (G-W)

DEDICATED FUSE
10A
10A

B-R B-R 3B-R

REMOTE CONTROLLED MIRROR (HEATER)

2B-R G-Y (B-Y)

RHEOSTAT

DATA LINK CONNECTOR

VEHICLES WITHOUT THEFT-ALARM SYSTEM
1: VEHICLES WITHOUT THEFT-ALARM SYSTEM
2: VEHICLES WITH THEFT-ALARM SYSTEM

TSB Revision
CIRCUIT DIAGRAM <CONVERTIBLE (1995 MODELS)>

NOTE:  
1: VEHICLES WITHOUT THEFT-ALARM SYSTEM.  
2: VEHICLES WITH THEFT-ALARM SYSTEM.
 OPERATION

- If the defogger switch is turned to "ON" when the generator is generating electricity (L terminal exceeds 10 V.) with the ignition switch at the "ON" position, the timer circuit in the ETACS unit will be operated to keep the transistor "on" for 11 minutes to close the contact point of the defogger relay. When the defogger relay is "on", the defogger and mirror heater will be activated. Moreover, the indicator light of the defogger switch is lit to inform that the defogger and mirror heater are activated.

- When 11 minutes have passed, the defogger and mirror heater will stop activating even if the defogger switch is at "ON". When the defogger and mirror heater are activated (the timer is activated), they will also stop activating even if the defogger switch is set at "ON" again or if the generator stops generating electricity (the terminal is 3.5 V or less.)

NOTE

The light automatic shut-off system is valid for the illumination light of the defogger switch. (Refer to P.54-37.)

TROUBLESHOOTING HINTS

<table>
<thead>
<tr>
<th>Phenomenon</th>
<th>Checking method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mirror heater operates but defogger does not operate.</td>
<td>Check the defogger (Refer to P.54-203.)</td>
</tr>
<tr>
<td>Defogger operates but mirror heater does not operate.</td>
<td>Check the dedicated fuse No. (10).</td>
</tr>
<tr>
<td></td>
<td>Check the mirror heater. (Refer to GROUP 51 – Door Mirror.)</td>
</tr>
<tr>
<td>Neither defogger nor mirror heater operates.</td>
<td>Check the multi-purpose fuse No. (3).</td>
</tr>
<tr>
<td></td>
<td>Check the defogger relay. (Refer to P.54-204.)</td>
</tr>
<tr>
<td></td>
<td>Check the defogger switch. (Refer to P.54-203.)</td>
</tr>
<tr>
<td></td>
<td>Check the defogger switch input signal. (Refer to P.54-202.)</td>
</tr>
<tr>
<td></td>
<td>Check the ignition switch input signal. (Refer to P.54-202.)</td>
</tr>
<tr>
<td></td>
<td>Check the generator. (Refer to GROUP 16 – On-vehicle Service.)</td>
</tr>
<tr>
<td>Illumination light of defogger switch does not come on or is dim.</td>
<td>Check the illumination light bulb.</td>
</tr>
<tr>
<td></td>
<td>Check the rheostat. (Refer to P.54-110.)</td>
</tr>
</tbody>
</table>

NOTE

For the troubleshooting hints of the automatic light shut-OFF system, refer to P.54-38.

COMPONENT LOCATION

Data link connector
<Up to 1993 models>

Defogger relay
<Except 1994 models>

Data link connector
<From 1994 models>

Defogger relay
<1994 models>
CHASSIS ELECTRICAL – Rear Window Defogger

TSB Revision
INPUT SIGNAL

<Up to 1993 models>
When using the scan tool (MUT) or voltmeter

Using the scan tool or voltmeter, check whether or not the input signals from each switch are being input to the ETACS unit.

1. Connect the scan tool to the data link connector located at the right side of the junction block or connect the voltmeter between the ETACS terminal and the ground terminal.
2. Check if the buzzer of the scan tool sounds or the needle of the voltmeter moves when each switch is operated. If the buzzer sounds or the needle moves, the input signals are being input to the ETACS unit, so that switch can be considered to be functioning normally. If not, the switch or switch input circuit is faulty. Check the switch and the switch input circuit.

<All models>
When using the scan tool (MUT-II)

1. Connect the scan tool to the data link connector. When connecting the scan tool to a vehicle up to 1993 models, use the adapter harness supplied together.

Caution
Turn off the ignition switch beforehand whenever the scan tool is connected or disconnected.

2. If the scan tool makes a peep sound when each switch is operated (turned ON/OFF), the input signal to ECU is normally sent from the switch circuit system.

<From 1994 models>
When using the voltmeter

1. Connect a voltmeter to the ETACS terminal and the ground terminal of the data link connector using the special tool.
2. If the voltmeter pointer deflects once when each switch is operated (turned ON/OFF), the input signal to ECU is normally sent from the switch circuit system.
ON-VEHICLE SERVICE

THE PRINTED-HEATER LINES CHECK
(1) Run engine at 2,000 rpm. Check heater element with battery at full.
(2) Turn ON rear window defogger switch. Measure heater element voltage with circuit tester at rear window glass center A.
Condition good if indicating about 6 V.
(3) If 12 V is indicated at A, there is a break in the negative terminals from A.
Move test bar slowly to negative terminal to detect where voltage changes suddenly (0 V).
(4) If 0 V is indicated at A, there is a break in the positive terminals from A. Detect where the voltage changes suddenly (12 V) with the same method described.

THE PRINTED-HEATER LINES REPAIR
REQUIRED MATERIALS
- Thinner
- Tape
- Lead-free gasoline
- Fine brush
- Conductive paint

(1) Clean disconnected area with lead-free gasoline. Tape along both sides of heater element.
(2) Mix conductive paint thoroughly. Thin the required amount of paint in a separate container with a small amount of thinner and paint break three times at 15 minute intervals.
(3) Remove tape and leave for a while before use (circuit complete).
(4) When completely dry (after 24 hours) finish exterior with a knife.

Caution
Clean glass with a soft cloth (dry or damp) along defogger heater element.

REAR WINDOW DEFOGGER SWITCH

(1) Remove rear window defogger switch from the meter bezel. (Refer to P.54-109.)
(2) Operate the switch and check the continuity between the terminals.

<table>
<thead>
<tr>
<th>Switch position</th>
<th>Terminal No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>ON</td>
<td>IND ILL</td>
</tr>
</tbody>
</table>

TSB Revision
DEFOGGER RELAY

INSPECTION

<Except 1994 models>
Connect battery power source to terminal 5. Check circuit between terminals with terminal 3 grounded.

<table>
<thead>
<tr>
<th>Power is supplied</th>
<th>1-2 terminals</th>
<th>Continuity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power is not supplied</td>
<td>1-2 terminals</td>
<td>No continuity</td>
</tr>
<tr>
<td></td>
<td>3-5 terminals</td>
<td>Continuity</td>
</tr>
</tbody>
</table>

<1994 models>
Connect battery power source to terminal 1. Check circuit between terminals with terminal 3 grounded.

<table>
<thead>
<tr>
<th>Power is supplied</th>
<th>4-5 terminals</th>
<th>Continuity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power is not supplied</td>
<td>4-5 terminals</td>
<td>No continuity</td>
</tr>
<tr>
<td></td>
<td>1-3 terminals</td>
<td>Continuity</td>
</tr>
</tbody>
</table>
## THEFT-ALARM SYSTEM

### SPECIAL TOOLS

<table>
<thead>
<tr>
<th>Tool</th>
<th>Tool number and name</th>
<th>Supersession</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>MB991 341 Scan tool (Multi-use tester <code>&lt;MUT&gt;</code>)</td>
<td></td>
<td>MB991 341 C</td>
<td>Up to 1993 models Checking the theft-alarm system</td>
</tr>
<tr>
<td>ROM Pack (For the number, refer to GROUP 00 − Precautions Before Service.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MB991 502 Scan tool (MUT-II)</td>
<td></td>
<td>MB991 502</td>
<td>All models Checking the theft-alarm system</td>
</tr>
<tr>
<td>ROM pack</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MB991 529 Diagnostic trouble code check harness</td>
<td></td>
<td>MB991 529</td>
<td>From 1994 models Checking the theft-alarm system using a voltmeter</td>
</tr>
</tbody>
</table>

**TSB Revision**
TROUBLESHOOTING
(UP TO 1993 MODELS)
CIRCUIT DIAGRAM
CIRCUIT DIAGRAM <HATCHBACK (FROM 1994 MODELS)>

FUSIBLE LINK  
IGNITION SWITCH (IG1)  
IGNITION SWITCH (ACC)  

2R-B
1.25R-B
FOG LIGHT

2R-B
CHARGING

2R-L
1.25R-L
2R-L
HEADLIGHT (RH) (H1)
1.25R-(A-71) A-71

2R-L
HEADLIGHT (RH) (H2)
1.25R-(A-71) A-71

2R-L
HEADLIGHT (RH) (LO) (H2)
1.25R-(A-71) A-71

2R-L
HEADLIGHT PARKING/TAILLIGHT AND PLATE
1.25R-(A-71) A-71

2R-L
FOG LIGHT

FOG LIGHT

0.85B
0.85R

C-01

COLUMNSWITCH (DIMMER)
C-10

2B
J/H

2B

1.25R
0.85B

Y-B

LIGHT AUTOMATIC SHUT-OFF UNIT (E-17)

2B

C-02

C-76

C-85

C-65

C-66

C-80

C-82

C-15

C-17

C-21

OFF
ON
OFF
ON

DOOR SWITCH

TSB Revision
FUSIBLE LINK:

1. 5W-B
2. 2W-B
3. 1 (c-68) HORN

IOD OR STORAGE CONNECTOR (A-11X)

DOOR LIGHT COMPARTMENT LIGHT

LIGHT AUTOMATIC SHUT-OFF UNIT (E-17)

COMBINATION METER (0-04)

DOOR LIGHT COMPARTMENT LIGHT
WHEN KEY IS REMOVED B-L

CENTRAL DOOR LOCKING B-L

B-UZZER KEY REMINDER SWITCH (C-59)

ETACS UNIT

DOOR KEY CYLINDER UNLOCK SWITCH (LH) (E-23)

DOOR LOCK ACTUATOR (RH) (E-22)

DOOR LOCK ACTUATOR (RH) (E-13)

TSB Revision
CIRCUIT DIAGRAM <CONVERTIBLE (FROM 1995 MODELS)>

FUSIBLE LINK (L)
IGNITION SWITCH (ACC)

FOG LIGHT
CHARGING
BACK UP LIGHT
HEADLIGHT
LIGHT AUTOMATIC SHUT-OFF UNIT
DOOR LIGHT AND COMPARTMENT LIGHT
DOOR SWITCH
ETACS UNIT

C-77
C-60
C-31
C-34
C-85

HR15M02AA

TSB Revision
## COMPONENT LOCATION

<table>
<thead>
<tr>
<th>Name</th>
<th>Symbol</th>
<th>Name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data link connector &lt;From 1994 models&gt;</td>
<td>G</td>
<td>Horn relay</td>
<td>A</td>
</tr>
<tr>
<td>Data link connector &lt;Up to 1993 models&gt;</td>
<td>F</td>
<td>Light automatic shut-off unit</td>
<td>H</td>
</tr>
<tr>
<td>Diode</td>
<td>D</td>
<td>Starter relay</td>
<td>A</td>
</tr>
<tr>
<td>ETACS unit</td>
<td>C</td>
<td>Theft-alarm horn relay</td>
<td>B</td>
</tr>
<tr>
<td>Headlight relay</td>
<td>A</td>
<td>Theft-alarm starter relay</td>
<td>E</td>
</tr>
</tbody>
</table>

![Diagram of component location](image)

**TSB Revision**
CHASSIS ELECTRICAL – Theft-alarm System

Theft-alarm starter relay

Junction block

Data link connector

Light automatic shut-off unit

TSB Revision
TROUBLESHOOTING GUIDE
CHECKING THE INPUT

<Up to 1993 models>
When using the scan tool (MUT) or voltmeter
1. Connect a voltmeter between terminal for ETACS and terminal for ground, or connect the scan tool to the data link connector.

<All models>
When using the scan tool (MUT-II)
1. Connect the scan tool to the data link connector. When connecting the scan tool to a vehicle up to 1993 models, use the adapter harness supplied together.

Caution
Turn off the ignition switch beforehand whenever the scan tool is connected or disconnected.

<From 1994 models>
When using the voltmeter
1. Connect a voltmeter to the ETACS terminal and the ground terminal of the data link connector using the special tool.
2. Make sure that when the following switches are turned on, the output shown in the illustration is delivered. (Only those switches which are related to the theft-alarm system are listed here.)

- Driver and front passenger door switches
- Headlight switch
- Driver and front passenger door lock switches
- Passing light switch
- Pop-up switch (up to 1993 models)
- Hood switch
- **Liftgate** switch
- Door key cylinder switch
- **Liftgate** switch

If there is no output of a voltage pattern at all, check for a malfunction of that switch or for damaged or disconnected wiring.
# TROUBLESHOOTING QUICK-REFERENCE TABLE

For information concerning the locations of electrical components, refer to GENERAL-Theft-alarm System Circuit.

## 1. ARMING / DISARMING RELATIONSHIP

<table>
<thead>
<tr>
<th>Trouble symptom</th>
<th>Cause</th>
<th>Check method</th>
<th>Remedy</th>
</tr>
</thead>
</table>
| The system is not armed (The SECURITY light doesn’t illuminate, and the alarm doesn’t function.)  
(The central door locking system functions normally.  
If the central locking system does not function normally, refer to GROUP 42.) | Damaged or disconnected wiring of ECU power supply circuit | Check by using check chart P.54-224. | Replace the fusible link No. (6) or the fuse No. (19).  
Replace the harness. |
| | Damaged or disconnected wiring of door switch input circuit | Check by using check chart P.54-225. | Repair the harness or replace the door switch. |
| The arming procedures are followed, but the SECURITY light does not illuminate.  
(There is an alarm, however, when an alarm test is conducted after about 20 seconds have passed.) | Damaged or disconnected wiring of SECURITY light activation circuit. | Check by using check chart P.54-229. | Replace the fusible link No. (6) or the fuse No. (19).  
Replace the harness. |
| | Blown SECURITY light bulb | | Replace the bulb. |
| | Malfunction of the ECU. | | Replace the ECU. |
| The alarm sounds in error when, while the system is armed, a door or the liftgate is unlocked by using the key. | Damaged or disconnected wiring of a door key cylinder and the liftgate unlock switch input circuit. | If input checks (P.54-220) indicate a malfunction, check by using check chart P.54-227. | Repair the harness or replace a door key cylinder and the liftgate unlock switch. |
| | Malfunction of a door key cylinder and the liftgate unlock switch. | | |
| | Malfunction of the ECU. | | Replace the ECU. |

## 2. ACTIVATION / DEACTIVATION RELATIONSHIP

<table>
<thead>
<tr>
<th>Trouble symptom</th>
<th>Cause</th>
<th>Check method</th>
<th>Remedy</th>
</tr>
</thead>
</table>
| There is no alarm when, as an alarm test, a door is opened without using the key.  
(The arming and disarming are normal, and the alarm is activated when the liftgate or hood is opened.) | Damaged or disconnected wiring of door switch (all doors) input circuit | If input checks (P.54-220) indicate a malfunction, check by using check chart P.54-225. | Repair the harness or replace the door switch. |
| | Malfunction of the door switch | | Replace the ECU. |
| | Malfunction of the ECU | | |
| There is no alarm when, as an alarm test, the liftgate is opened without using the key.  
(The alarm is activated, however, by opening a door or the hood.) | Damaged or disconnected wiring of liftgate switch input circuit | If input checks (P.54-220) indicate a malfunction, check by using check chart P.54-228. | Repair the harness or replace the liftgate switch. |
| | Malfunction of the liftgate switch. | | Replace the ECU. |
| | Malfunction of the ECU. | | |

TSB Revision
<table>
<thead>
<tr>
<th>Trouble symptom</th>
<th>Cause</th>
<th>Check method</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no alarm when, as an alarm test, the hood is opened from within the vehicle. (The alarm is activated, however, by opening a door or the liftgate.)</td>
<td>Damaged or disconnected wiring of hood switch input circuit. Malfunction of the hood switch.</td>
<td>If input checks (P.54-220) indicate a malfunction, check by using check chart P.54-225.</td>
<td>Repair the harness or replace the hood switch.</td>
</tr>
<tr>
<td>Engine would not start [Engine starting is possible when the starter relay is in the switched-off (normally closed) condition, with the clutch switch in the switch-off and the ECU harness connector disconnected.]</td>
<td>There is a short-circuit of the starter relay activation circuit. Malfunction of the ECU.</td>
<td>Check by using check chart P.54-234.</td>
<td>Repair the harness.</td>
</tr>
<tr>
<td>When, as a test of the alarm, a door or the liftgate is opened without using the key, the hood is opened from within the vehicle, the horn and the theft-alarm horn sound but the headlights don't flash. (The headlights can, however, be switched ON by using the passing switch.)</td>
<td>Damaged or disconnected wiring of headlight power supply circuit or headlight activation circuit. Malfunction of the ECU.</td>
<td>Check by using check chart P.54-231, 232.</td>
<td>Repair the harness or replace the diode D₂. Replace the headlight relay or the headlight.</td>
</tr>
<tr>
<td>The headlights flash during an alarm test but the horn or the theft alarm horn does not sound.</td>
<td>Damaged or disconnected wiring of horn relay power supply circuit or horn activation circuit. Damaged or disconnected wiring of the theft-alarm horn relay power supply circuit or the theft-alarm horn activation circuit. Malfunction of the ECU.</td>
<td>Check by using check chart P.54-229, 230, 231.</td>
<td>Repair the harness. Replace the horn. Replace dedicated fuse No. (6) or the fusible link No. (6).</td>
</tr>
<tr>
<td>The system is not deactivated when, during an alarm test in which the alarm is intentionally activated, the door or liftgate is unlocked by using the key. (The system also cannot be disarmed.)</td>
<td>Damaged or disconnected wiring of door key cylinder and liftgate unlock switch input circuit. Malfunction of door key cylinder and liftgate unlock switch. Malfunction of the ECU.</td>
<td>If input checks (P.54-220) indicate a malfunction, check by using check chart P.54-227, 228.</td>
<td>Repair the harness. Replace the key cylinder switch or the liftgate switch.</td>
</tr>
</tbody>
</table>

ECU: Electronic Control Unit

NOTE

1) If the liftgate unlock switch or door key cylinder unlock switch is operated roughly, or if these switches have been installed incorrectly or switches themselves are defective the ECU may not accept the warning or alarm canceling signal. In such case, the alarm operation will take place when the door is opened using a key. [When the door key cylinder switch has been shorted, however, if the ignition switch is turned ON, the ECU judges the detection-switch as faulty and thereafter, it will prevent setting of (warning) alarm until the shorting is corrected.]

2) If the liftgate is opened using a key and is left opened when the door key cylinder switch system has a trouble (wiring harness damage, open circuit, etc.), the ECU judges it as the liftgate holding mode and does not produce alarm even when the door is opened.
CHECKING THE CIRCUIT AND INDIVIDUAL PART

1. ETACS POWER-SUPPLY AND GROUND CIRCUITS

Description of operation
The battery supplies a stabilized 5 V power supply to the ECU, via the constant-voltage circuit and terminal 51 (which is directly connected to the battery).

ECU terminal voltage (Connection condition of the ECU connector).

<table>
<thead>
<tr>
<th>ECU terminal No.</th>
<th>Signal</th>
<th>Condition</th>
<th>Terminal voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>51</td>
<td>ECU power supply</td>
<td>At all times</td>
<td>12 V</td>
</tr>
</tbody>
</table>

2. KEY-REMINDER SWITCH INPUT CIRCUIT

Description of operation
The key-reminder switch is switched OFF and HIGH-level signals are sent to the ECU when the key is inserted into the ignition key cylinder: when the key is removed, the key-reminder switch is switched ON and LOW-level signals are sent to the ECU.

ECU terminal voltage (Connection condition of the ECU connector).

<table>
<thead>
<tr>
<th>ECU terminal No.</th>
<th>Signal</th>
<th>Condition</th>
<th>Terminal voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>64</td>
<td>Key-reminder switch</td>
<td>Key removed</td>
<td>12 V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Key inserted</td>
<td>0 V</td>
</tr>
</tbody>
</table>
3. HOOD SWITCH INPUT CIRCUIT
Description of operation
When the hood is closed (the hood switch is switched OFF), HIGH-level signals are sent to the ECU. When the hood is opened (the hood switch is switched ON), LOW-level signals are sent to the ECU.
ECU terminal voltage (Connection condition of the ECU connector).

<table>
<thead>
<tr>
<th>ECU terminal No.</th>
<th>Signal</th>
<th>Condition</th>
<th>Terminal voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>Hood switch</td>
<td>Open</td>
<td>OV</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Closed</td>
<td>5 V*</td>
</tr>
</tbody>
</table>

* Measurement is not possible by using a voltmeter, but is possible by using an oscilloscope.

4. DOOR SWITCH INPUT CIRCUIT
Description of operation
When the door is closed (the door switch is switched OFF), HIGH-level signals are sent to the ECU. When the door is opened (the door switch is switched ON), LOW-level signals are sent to the ECU.
ECU terminal voltage (Connection condition of the ECU).

<table>
<thead>
<tr>
<th>ECU terminal No.</th>
<th>Signal</th>
<th>Condition</th>
<th>Terminal voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Driver door switch</td>
<td>Open</td>
<td>OV</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Closed</td>
<td>5 V*</td>
</tr>
<tr>
<td></td>
<td>Passenger door switch</td>
<td>Open</td>
<td>0 V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Closed</td>
<td>5 V*</td>
</tr>
</tbody>
</table>

* Measurement is not possible by using a voltmeter, but is possible by using an oscilloscope.
5. DOOR LOCK ACTUATOR SWITCH INPUT CIRCUIT

Description of operation

When a door is locked by the lock knob or the key, the door lock actuator switch is switched OFF, and HIGH-level signals are sent to the ECU. These signals activate the timer circuit of the R ECU, thereby causing the activation circuit to function, thus R activating the door lock actuator of all doors.

ECU terminal voltage (Connection condition of the ECU connector).

<table>
<thead>
<tr>
<th>ECU terminal No.</th>
<th>Signal</th>
<th>Condition</th>
<th>Terminal voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Door lock actuator switch (driver door)</td>
<td>Lock: OFF</td>
<td>5 V*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unlock: ON</td>
<td>0 V</td>
</tr>
<tr>
<td>14</td>
<td>Door lock actuator switch (passenger door)</td>
<td>Lock: OFF</td>
<td>5 V*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unlock: ON</td>
<td>0 V</td>
</tr>
</tbody>
</table>

* Measurement is not possible by using a voltmeter, but is possible by using an oscilloscope.
### 6. DOOR KEY CYLINDER UNLOCK AND LIFTGATE CYLINDER LOCK SWITCH INPUT CIRCUIT

#### Description of operation

When the door key is rotated or the liftgate key is unlocked, ECU LOW-level signals are sent to the ECU.

ECU terminal voltage (Connection condition of the ECU connector).

#### <Up to 1993 models>

<table>
<thead>
<tr>
<th>ECU terminal No.</th>
<th>Signal</th>
<th>Condition</th>
<th>Terminal voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>Door key cylinder unlock switch</td>
<td>Not rotate</td>
<td>5 V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rotate</td>
<td>0 V</td>
</tr>
<tr>
<td></td>
<td>Door key cylinder (LH)</td>
<td>Not rotate</td>
<td>5 V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>rotate</td>
<td>0 V</td>
</tr>
<tr>
<td>20</td>
<td>Liftgate unlock switch</td>
<td>Liftgate</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lock</td>
<td>5 V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unlock</td>
<td>0 V</td>
</tr>
</tbody>
</table>

#### <From 1994 models>

<table>
<thead>
<tr>
<th>ECU terminal No.</th>
<th>Signal</th>
<th>Condition</th>
<th>Terminal voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>65</td>
<td>Door key cylinder unlock switch</td>
<td>Not rotate</td>
<td>5 V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rotate</td>
<td>0 V</td>
</tr>
<tr>
<td>19</td>
<td>Door key cylinder unlock switch</td>
<td>Not rotate</td>
<td>5 V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rotate</td>
<td>0 V</td>
</tr>
<tr>
<td>20</td>
<td>Liftgate unlock switch</td>
<td>Liftgate</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lock</td>
<td>5 V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unlock</td>
<td>0 V</td>
</tr>
</tbody>
</table>
7. LIFTGATE SWITCH INPUT CIRCUIT
Description of operation
When the liftgate is closed (the liftgate switch is switched \textit{OFF}), HIGH-level signals are sent to the ECU. When the liftgate is opened (the liftgate switch is switched \textit{ON}), LOW-level signals are sent to the ECU.

ECU terminal voltage (Connection condition of the ECU connector).

<table>
<thead>
<tr>
<th>ECU terminal No.</th>
<th>Signal</th>
<th>Condition</th>
<th>Terminal voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>Liftgate switch</td>
<td>Open</td>
<td>0 V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Closed</td>
<td>5 V*</td>
</tr>
</tbody>
</table>

* Measurement is not possible by using a voltmeter, but is possible by using an oscilloscope.
8. SECURITY LIGHT ACTIVATION CIRCUIT

Description of operation

If all doors are in locked state after key-less locking, the ECU transistor is turned ON and the security light comes on.

Checking the security light activation circuit (Disconnect the connector of the ECU and check at the wiring harness side.)

<table>
<thead>
<tr>
<th>Step</th>
<th>Check object</th>
<th>Normal condition</th>
<th>Mal-function</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>D-04 connector terminal voltage 51</td>
<td>12v ov</td>
<td>Fuse (19) damaged or disconnected</td>
<td>Replace the fuse</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Harness damaged or disconnected, or short-circuit</td>
<td>Repair the harness</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>D-04 connector terminal voltage 52</td>
<td>12v ov</td>
<td>Damaged or disconnected wiring of SECURITY light bulb</td>
<td>Replace the bulb</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Harness damaged or disconnected</td>
<td>Repair the harness</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>ECU terminal voltage 57</td>
<td>12v ov</td>
<td>Harness damaged or disconnected, or short-circuit</td>
<td>Repair the harness</td>
<td></td>
</tr>
</tbody>
</table>

9. HORN RELAY POWER-SUPPLY CIRCUIT

Description of operation

Power voltage is always supplied to the horn relay.

Checking the horn relay power-supply circuit (Disconnect the horn relay)

<table>
<thead>
<tr>
<th>Check object</th>
<th>Normal condition</th>
<th>Mal-function</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>HORN RELAY connector terminal voltage 5</td>
<td>12 V</td>
<td>0 V</td>
<td>Fuse (3) damaged or disconnected</td>
<td>Replace the fuse</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Damaged or disconnected harness</td>
<td>Repair the harness</td>
</tr>
</tbody>
</table>
10. HORN ACTIVATION CIRCUIT
Description of operation
The ECU transistor is turned ON if the vehicle door, etc. are opened without use of the key. This energizes the horn relay to activate the horn.

Checking the horn activation circuit (Disconnect the connector of the ECU, then short-circuit terminal connector No.58, and activate the horn relay.)

<table>
<thead>
<tr>
<th>Step</th>
<th>Check object</th>
<th>Normal condition</th>
<th>Malfunction</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Horn relay terminal voltage (4-Ground)</td>
<td>12v ov</td>
<td>Malfunction of the horn relay</td>
<td>Check the horn relay (Refer to P.54-118.)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Horn terminal voltage (LH &amp; RH) (1-Ground)</td>
<td>12v ov</td>
<td>Harness damaged or disconnected</td>
<td>Repair the harness</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Horn terminal voltage (LH &amp; RH) (1-Ground)</td>
<td>Horn doesn't sound (0V)</td>
<td>Malfunction of the horn</td>
<td>Replace the horn</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Battery voltage</td>
<td>Damaged or disconnected wiring of ground circuit</td>
<td>Repair the harness</td>
<td></td>
</tr>
</tbody>
</table>

11. THEFT ALARM HORN RELAY POWER-SUPPLY CIRCUIT
Description of operation
Power voltage is always supplied to theft alarm horn relay.

Checking the horn relay power-supply circuit (Disconnect the theft alarm horn relay)

<table>
<thead>
<tr>
<th>Check object</th>
<th>Normal condition</th>
<th>Malfunction</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>THEFT ALARM HORN RELAY connector terminal voltage 1</td>
<td>12v ov</td>
<td>Fuse (14) damaged or disconnected</td>
<td>Replace the fuse</td>
<td></td>
</tr>
</tbody>
</table>

Damaged or disconnected harness | Repair the harness
12. THEFT ALARM HORN ACTIVATION CIRCUIT

Description of operation

The ECU transistor is turned ON if the vehicle door, etc. are opened without use of the key. This energizes the theft alarm horn relay to activate the horn.

Checking the horn activation circuit (Disconnect the connector of the ECU, then short-circuit terminal connector No. 58, and activate the theft alarm horn relay.)

<table>
<thead>
<tr>
<th>Step</th>
<th>Check object</th>
<th>Normal condition</th>
<th>Mal-function</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Horn relay terminal voltage (1-Ground)</td>
<td>12 V</td>
<td>0 V</td>
<td>Malfunction of the horn relay</td>
<td>Check the horn relay (Refer to P.54-118.)</td>
</tr>
<tr>
<td>2</td>
<td>Horn terminal voltage (1-Ground)</td>
<td>12 V</td>
<td>0 V</td>
<td>Harness damaged or disconnected</td>
<td>Repair the harness</td>
</tr>
<tr>
<td>3</td>
<td>Horn terminal voltage (1-Ground)</td>
<td>Horn sound s (0 V)</td>
<td>Hom doesn't sound (0 V)</td>
<td>Malfunction of the horn</td>
<td>Replace the horn</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Battery voltage</td>
<td></td>
<td>Damaged or disconnected wiring of ground circuit</td>
<td>Repair the harness</td>
</tr>
</tbody>
</table>

13. HEADLIGHT POWER-SUPPLY CIRCUIT

Description of operation

Power voltage is always supplied to the headlight relay.

Checking the headlight power-supply circuit (Disconnect the headlight relay)

Check object | Normal condition | Mal-function | Cause          | Remedy                        |
--------------|------------------|--------------|----------------|-------------------------------|
(Wiring harness side) terminal voltage (5-Ground) | 12 V             | 0 V          | Fusible link (3) blown       | Replace the fusible link     |
|               |                   |              | Damaged or disconnected harness | Repair the harness          |
14. HEADLIGHT ACTIVATION CIRCUIT

Description of operation
The ECU transistor is turned ON if the vehicles door, etc. are opened without use of the key. This energizes the headlight relay to active the headlight.

Checking the headlight activation circuit (Disconnect the connector of the ECU, then short-circuit terminal connector 2, and activate the headlight relay.)
### <Up to 1993 models>

<table>
<thead>
<tr>
<th>Step</th>
<th>Check object</th>
<th>Normal condition</th>
<th>Malfunction</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Headlight relay terminal voltage (4-Ground)</td>
<td>12V</td>
<td>OV</td>
<td>Malfunction of the headlight relay</td>
<td>Check the headlight relay (Refer to P.54-108.)</td>
</tr>
<tr>
<td>2</td>
<td>Headlight terminal voltage (3-Ground)</td>
<td>12V</td>
<td>OV</td>
<td>Harness damaged or disconnected</td>
<td>Repair the harness</td>
</tr>
<tr>
<td>3</td>
<td>Headlight terminal voltage (1-Ground)</td>
<td>Column switch:</td>
<td>OV</td>
<td>The headlight isn't turned on</td>
<td>Repair the headlight or column switch.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low</td>
<td></td>
<td>Malfunction of the headlight. Harness</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Column switch:</td>
<td>12V</td>
<td>damaged or disconnected. Malfunction of</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hi</td>
<td></td>
<td>column switch.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Headlight terminal voltage (2-Ground)</td>
<td>Column switch:</td>
<td>12V</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Column switch:</td>
<td>OV</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hi</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### <From 1994 models>

<table>
<thead>
<tr>
<th>Step</th>
<th>Check object</th>
<th>Normal condition</th>
<th>Malfunction</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Headlight relay terminal voltage (4-Ground)</td>
<td>12v</td>
<td>ov</td>
<td>Malfunction of the headlight relay</td>
<td>Check the headlight relay (Refer to P.54-108.)</td>
</tr>
<tr>
<td>2</td>
<td>Headlight terminal voltage (2-Ground)</td>
<td>12v</td>
<td>ov</td>
<td>Harness damaged or disconnected</td>
<td>Repair the harness</td>
</tr>
<tr>
<td>3</td>
<td>Headlight (HI) terminal voltage (1-Ground)</td>
<td>Column switch:</td>
<td>12v</td>
<td>The headlight isn't turned on</td>
<td>Replace the headlight or column switch.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low</td>
<td></td>
<td>Malfunction of the headlight. Harness</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Column switch:</td>
<td>OV</td>
<td>damaged or disconnected. Malfunction of</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hi</td>
<td></td>
<td>column switch.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Headlight (LO) terminal voltage (2-Ground)</td>
<td>Column switch:</td>
<td>OV</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Column switch:</td>
<td>OV</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hi</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
15. STARTER RELAY ACTIVATION CIRCUIT

Description of operation
The ECU transistor is turned ON if the vehicle door etc. are opened without use of the key. This turns OFF the starter relay and power ceases to be supplied to the starter magnet switch.

Checking the starter relay activation circuit (Disconnect the connector of the ECU, depress fully the clutch pedal and activate the starter relay)

<table>
<thead>
<tr>
<th>Step</th>
<th>Check object</th>
<th>Normal condition</th>
<th>Malfunction</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Starter relay terminal voltage (2-Ground)</td>
<td>12v</td>
<td>OV</td>
<td>Malfunction of the starter relay</td>
<td>Check the starter relay</td>
</tr>
<tr>
<td>2</td>
<td>Starter motor terminal (1-Ground)</td>
<td>12v</td>
<td>OV</td>
<td>Harness damaged or disconnected</td>
<td>Repair the harness</td>
</tr>
</tbody>
</table>

(Starter motor connector B-24: Separation)

<table>
<thead>
<tr>
<th>Step</th>
<th>Check object</th>
<th>Normal condition</th>
<th>Malfunction</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Continuity between “B-24” connector and ground</td>
<td>0 Ω</td>
<td>∞ Ω</td>
<td>Damaged magnet switch</td>
<td>Replace magnet switch</td>
</tr>
</tbody>
</table>

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**NOTE**
*1: Up to Sept. 1992 models
*2: From Oct. 1992 models