1. Combination Meter
A: RED LUMINESCENT METER
To increase the product's desirability and visibility, a red luminescent meter is used on the STi models.

- Red LEDs are used for meter illumination.
- The brightness of the meter display area can be properly adjusted to meet various conditions.
- An indicator which illuminates when the lighting switch is turned to the next position from OFF is provided.

1. OPERATION
When the ignition switch is turned ON, the meter needle illuminates first and indicates the minimum position. Then the needle moves to the maximum position and the REV indicator flashes. After this the needle returns to the minimum position and the illumination and LCD turns ON. Finally the STi logo illuminates.

(1) Needle
(2) REV indicator
(3) Lights ON indicator
(4) STi logo
2. BRIGHTNESS ADJUSTMENT
The illumination brightness can be adjusted by selecting any of the five steps of the lighting switch dial.

(1) Adjustment dial  (2) Brighter  (3) Darker
COMBINATION METER

B: WARNING AND INDICATOR LIGHTS

IDI-4
When everything is normal, the warning and indicator lights should be ON or OFF as shown below according to ignition switch positions.

<table>
<thead>
<tr>
<th>Warning/Indicator light</th>
<th>Ignition switch position</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) CHECK ENGINE</td>
<td>LOCK/ACC</td>
</tr>
<tr>
<td>(2) Brake fluid level / parking brake</td>
<td>OFF</td>
</tr>
<tr>
<td>(3) AT OIL TEMP</td>
<td>OFF</td>
</tr>
<tr>
<td>(4) AIR BAG</td>
<td>OFF</td>
</tr>
<tr>
<td>(5) ABS</td>
<td>OFF</td>
</tr>
<tr>
<td>(6) Charge</td>
<td>OFF</td>
</tr>
<tr>
<td>(7) Oil pressure</td>
<td>OFF</td>
</tr>
<tr>
<td>(8) Seat belt</td>
<td>OFF</td>
</tr>
<tr>
<td>(9) Door or rear gate open</td>
<td>Open</td>
</tr>
<tr>
<td></td>
<td>Closed</td>
</tr>
<tr>
<td>(10) Low fuel level</td>
<td>OFF</td>
</tr>
<tr>
<td>(11) Rear differential oil temperature</td>
<td>OFF</td>
</tr>
</tbody>
</table>

*1: This warning light comes ON when the parking brake is applied.
*2: This warning light comes ON for about 6 seconds, and then goes out.
*3: This warning light comes ON for about 2 seconds, and then goes out.
*4: This warning light stays illuminated for about 6 seconds after the ignition switch has been turned ON if the drivers seat belt is NOT fastened.
*5: This light illuminates when the quantity of the fuel remaining in the tank has decreased to 9 liters (2.4 US gal, 2.0 Imp gal) or less.
INSTRUMENTATION/DRIVER INFO

COMBINATION METER

C: TELTAL LIGHTS

IDI-6

IDI00097

IDI00098

IDI-6
(1) Turn signal indicator
This indicator blinks in unison with the corresponding turn signal lights when the turn signal switch is operated.

(2) CRUISE indicator
This indicator illuminates when the cruise control main switch is turned ON.

(3) SET indicator
This indicator illuminates when the cruise control main switch is turned ON and the SET/COAST switch on the command switch is turned ON.

(4) Headlight beam indicator
This indicator illuminates when the headlights are in the high-beam position.

(5) FWD indicator
This indicator illuminates when the drive mode is changed from AWD to FWD (with the fuse installed in the FWD switch).

(6) Security indicator
This indicator illuminates when the security system is armed.

(7) AT selector lever position indicator
The indicator corresponding to the present AT select lever position illuminates when the ignition switch is in any position other than ACC and LOCK.

(8) Lighting switch indicator
Turns on when the lighting switch is turned to the next position from OFF.

(9) REV indicator
This indicator illuminates while the preset engine speed is exceeded.

(10) Intercooler water spray level warning light
This warning light illuminates when the water level in the intercooler water spray tank lowers.

(11) Driver-controllable center differential indicator
Indicates the degree of differential lock engagement in six steps. The AUTO light illuminates when auto is selected.
**COMBINATION METER**

When everything is normal, the telltales should be ON, OFF or in other states as shown below according to ignition switch position.

<table>
<thead>
<tr>
<th>Telltale lights</th>
<th>Ignition switch position</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LOCK/ACC</td>
</tr>
<tr>
<td>(1) Turn signal</td>
<td>OFF</td>
</tr>
<tr>
<td>(2) CRUISE</td>
<td>OFF</td>
</tr>
<tr>
<td>(3) SET</td>
<td>OFF</td>
</tr>
<tr>
<td>(4) Headlight beam <strong>High beam</strong></td>
<td>OFF</td>
</tr>
<tr>
<td><strong>Low beam</strong></td>
<td>OFF</td>
</tr>
<tr>
<td>(5) FWD <strong>High beam</strong></td>
<td>OFF</td>
</tr>
<tr>
<td><strong>4WD</strong></td>
<td>OFF</td>
</tr>
<tr>
<td>(6) Security</td>
<td>*2</td>
</tr>
<tr>
<td>(7) AT selector lever position</td>
<td>OFF</td>
</tr>
<tr>
<td>(8) Lighting switch</td>
<td>OFF</td>
</tr>
<tr>
<td>(9) REV indicator</td>
<td>OFF</td>
</tr>
<tr>
<td>(10) Intercooler water spray level</td>
<td>OFF</td>
</tr>
<tr>
<td>(11) Driver-controllable center differential</td>
<td>OFF</td>
</tr>
</tbody>
</table>

*1: This light illuminates when the SET/COAST switch is turned ON while driving at 40 km/h (25 MPH) or higher.
*2: This light illuminates when the security system is armed.
*3: Turns on when the lighting switch is turned to the next position from OFF.
*4: This light illuminates when the water level in the tank lowers to 0.4 liters.
*5: Indicates the current degree of differential lock engagement.
COMBINATION METER

D: SPEEDOMETER

1. GENERAL

- The speedometer system is an electrical type that uses electric signals from the speed sensor in MT models or the transmission control module in AT models.
- The vehicle speed sensor is installed on the manual transmission.
- Since the system does not use mechanical components such as rotating cable, there are no opportunities of occurring such problems as meter needle vibration and cable disconnection. Also, it does not constitute any means of mechanical noise transmission.
- The odometer and trip meter readings appear on a liquid crystal display (LCD).

2. OPERATION

MT models: The vehicle speed sensor sends vehicle speed signals (4 pulses per rotation of speed sensor's driven shaft) to the speedometer drive circuit and odometer/trip meter drive circuit in the speedometer.

AT models: The TCM sends vehicle speed signals (4 pulses per rotation of output shaft) to the speedometer drive circuit and odometer/trip meter drive circuit in the speedometer.

NOTE:
Signals from the speed sensor or TCM are also used by the engine control module, automatic transmission control module, etc.

3. SPECIFICATIONS

<table>
<thead>
<tr>
<th>Speedometer</th>
<th>Type</th>
<th>Electric pulse type.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indication</td>
<td>Needle points to 60 km/h (37.3 MPH) when 2,548 pulses are input per minute.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Odometer</th>
<th>Type</th>
<th>Pulse count type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display</td>
<td>LCD/6 digits; 0 to 999,999 km (mile).</td>
<td></td>
</tr>
<tr>
<td>Indication</td>
<td>Counts up 1 km per 2,548 pulses (1 mile per 4,104 pulses). (Count down is impossible.)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Trip meter</th>
<th>Type</th>
<th>Pulse count type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display</td>
<td>LCD/4 digits; 0 to 999.9 km (mile) and 1000 to 9999 km (mile).</td>
<td></td>
</tr>
<tr>
<td>Indication</td>
<td>Counts up 1 km per 2,548 pulses (1 mile per 4,104 pulses). (To change the trip meter from A to B or B to A, push the knob momentarily. To return the trip meter to zero indication, keep the knob pushed for more than 1 second.)</td>
<td></td>
</tr>
</tbody>
</table>
4. SYSTEM DIAGRAM

(A) MT models

1. Odometer/trip meter drive circuit
2. Speedometer movement
3. Speedometer
4. Odometer/trip meter
5. Speedometer drive circuit
6. Combination meter
7. Front wheel
8. Speed sensor
9. TCM
10. Electromagnetic pick-up
11. Gear for the speed sensor
12. Differentials

(B) AT models

1. Odometer/trip meter drive circuit
2. Speedometer movement
3. Speedometer
4. Odometer/trip meter
5. Speedometer drive circuit
6. Combination meter
7. Front wheel
8. Speed sensor
9. TCM
10. Electromagnetic pick-up
11. Gear for the speed sensor
12. Differentials

IDI-10
E: VEHICLE SPEED SENSOR

The vehicle speed sensor uses a Hall IC pick-up to generate speed signals (MT models).
This sensor is installed on the transmission case and detects rotating speed of the transmission output gear.
The sensor generates 4 pulses per rotation of the speed sensor driven shaft and send them to the speedometer.

1. CONSTRUCTION

The speed sensor mainly consists of a Hall IC, magnet ring, driven shaft and spring.

![Diagram of speed sensor components]

(1) Upper case  (2) O-ring  (3) Magnet ring
(4) Driven key  (5) Lower case  (6) Driven shaft
(7) Rivet  (8) Hall IC
2. OPERATION
As the driven key rotates, the magnet turns causing the magnetic field of the Hall IC to change. The Hall IC generates a signal that corresponds to a change in the magnetic field. One turn of the driven key in the speed sensor sends 4 pulses to the combination meter, engine control module and cruise control module.

```
(1) Revolution of transmission output gear
(2) Vehicle speed sensor
(3) Low-speed
(4) High-speed
(5) Signal (4 pulses per revolution)
(6) Combination meter
(7) Speedometer drive circuit
(8) Odometer and trip meter drive circuit
(9) Engine control unit
(10) Cruise control module
(11) Ignition switch
```
F: TACHOMETER
The tachometer drive circuit is connected to the engine speed sensing circuit in the engine control module.
When the engine speed increases or decreases, the voltage of the circuit also increases or decreases, changing the magnetic force of the tachometer drive coil.
The tachometer needle then moves in accordance with change in the engine speed.

(1) Ignition switch  (2) Combination meter  (3) Tachometer drive circuit
(4) Tachometer  (5) ECM
G: WATER TEMPERATURE GAUGE

- The water temperature signal is sent from the water temperature sensor located on the engine.
- The resistance of the water temperature sensor changes according to the engine coolant temperature. Therefore, the current sent to the water temperature gauge also changes according to the engine coolant temperature. As the change in current causes the magnetic force of the coil to change, the gauge’s needle moves according to the engine coolant temperature.
- When the coolant is at a normal operating temperature of approx. 70 to 100°C (158 to 212°F), the gauge’s needle stays in the middle of the indication range as shown below.

---

(1) Red zone  (5) Combination meter
(2) Indication  (6) Water temperature gauge
(3) Temperature (°C)  (7) Engine coolant temperature sensor
(4) Ignition switch
H: FUEL GAUGE

1. GENERAL

- The fuel gauge unit consists of a float and a potentiometer whose resistance varies depending on movement of the float. It is located inside the fuel tank and forms an integral part of the fuel pump. The fuel gauge for models except STi indicates the fuel level in the tank even when the ignition switch is in the LOCK position. The fuel gauge for STi models indicates the fuel level in the tank when the ignition switch is in the ON position.

- All models are equipped with two fuel level sensors. These sensors are installed in the fuel tank, one on the right side and the other on the left side. Two sensors are necessary because the fuel tank is divided into main and sub tank compartments.

![Diagram of fuel level sensors](IDI00017)

(1) Main fuel level sensor
(2) Sub fuel level sensor
(3) Float
2. OPERATION

The low fuel warning light operates as follows:

The ECM continually monitors the resistance signal from the fuel level sensor. It turns on the low fuel warning light in the combination meter if a resistance value corresponding to the critical fuel level is detected for a certain time while driving.

This monitoring time has been decided to avoid false operation of the warning light which may happen when a large part of remaining fuel is collected temporarily in the sub tank compartment.

3. SPECIFICATIONS

<table>
<thead>
<tr>
<th>Sensor Type</th>
<th>Fuel Level</th>
<th>Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main fuel level sensor</td>
<td>Full</td>
<td>0.5 — 2.5Ω</td>
</tr>
<tr>
<td></td>
<td>1/2</td>
<td>20.7 — 24.7Ω</td>
</tr>
<tr>
<td></td>
<td>Empty</td>
<td>50.0 — 52.0Ω</td>
</tr>
<tr>
<td>Sub fuel level sensor</td>
<td>Full</td>
<td>0.5 — 2.5Ω</td>
</tr>
<tr>
<td></td>
<td>1/2</td>
<td>19.5 — 23.5Ω</td>
</tr>
<tr>
<td></td>
<td>Empty</td>
<td>42.0 — 44.0Ω</td>
</tr>
</tbody>
</table>
4. SCHEMATIC DRAWINGS

(1) Combination meter
(2) Ignition switch
(3) Low fuel warning light
(4) Driver circuit
(5) Interface

(6) CUSTOM CPU
(7) Fuel gauge
(8) Sub fuel level sensor
(9) Main fuel level sensor