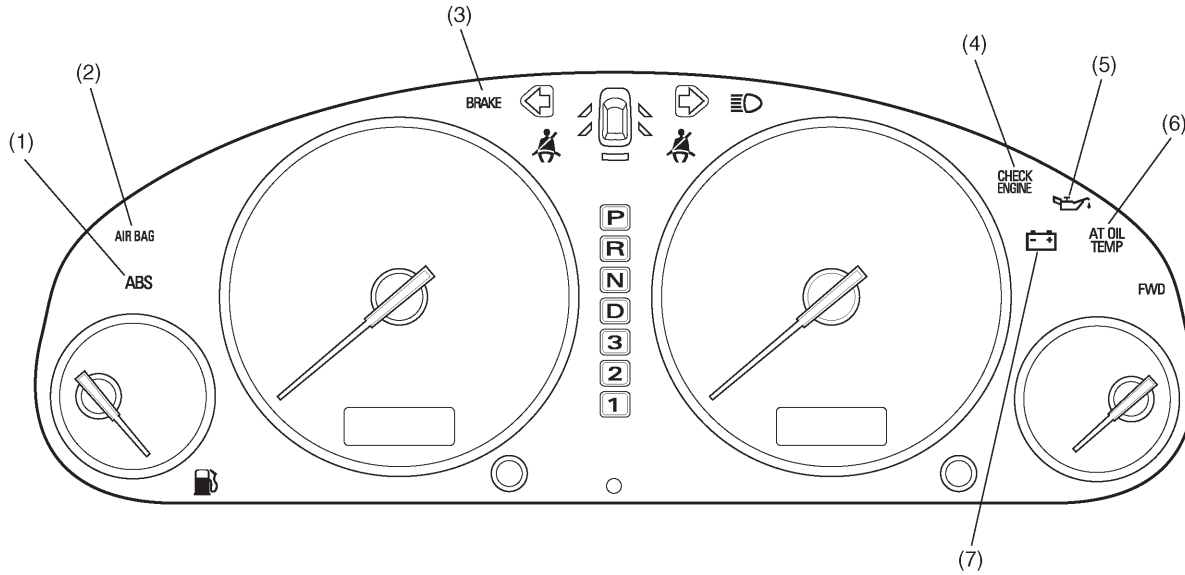


6-2 [M5A0] 5. Combination Meter

MECHANISM AND FUNCTION

5. Combination Meter

A: WARNING AND INDICATOR LIGHT



B6H1295A

- (1) ABS warning light
This light illuminates when trouble occurs in electrical components of ABS (Anti-lock Brake System).
- (2) AIR BAG system warning light
This light illuminates when trouble occurs in Airbag system.
- (3) Brake fluid level warning / parking brake indicator light
This light illuminates when the fluid level in the brake reservoir tank lowers under specified level and/or when parking brake is applied.
- (4) CHECK ENGINE warning light
This light illuminates when trouble occurs in MFI (Multiple point Fuel Injection) system.
- (5) Oil pressure warning light
This light illuminates when the engine oil pressure decreases below 14.7 kPa (0.15 kg/cm², 2.1 psi).
- (6) AT oil temperature warning light
This light illuminates when the ATF temperature exceeds 150°C (302°F).
- (7) Charge indicator light
This light illuminates when trouble occurs in charging system during engine running.

MECHANISM AND FUNCTION**[M5A0] 6-2**
5. Combination Meter

According to ignition switch position, the warning and indicator lights will come on and/or go off under normal conditions as follows:

| Warning/Indicator light | Ignition switch position | | | |
|--|--------------------------|----|----|-------------------------|
| | LOCK/ACC | ON | ST | While engine is running |
| (1) ABS | OFF | *3 | ON | OFF |
| (2) AIR BAG | OFF | *2 | ON | *2 |
| (3) Brake fluid level / parking brake | OFF | ON | ON | *4 |
| (4) Malfunction indicator (CHECK ENGINE) | OFF | *1 | ON | OFF |
| (5) Oil pressure | OFF | ON | ON | OFF |
| (6) AT oil temperature | OFF | ON | ON | OFF |
| (7) Charge | OFF | ON | ON | OFF |

*1: Light comes ON before engine starts, and stay OFF after engine has stopped.

*2: Light comes ON for about seven seconds, and goes out.

*3: Light comes ON for about two seconds, and goes out.

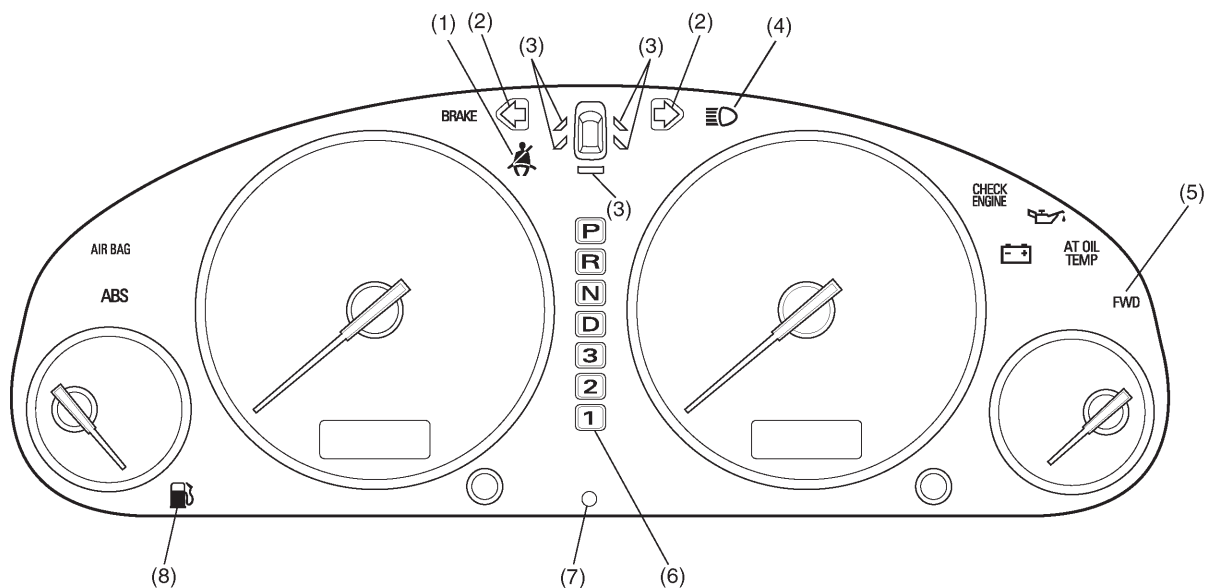
*4: Light comes ON when parking brake is applied.

6-2 [M5B0]

5. Combination Meter

MECHANISM AND FUNCTION

B: TELLTALE (GRAPHIC MONITOR)



B6H1295B

- (1) Seat belt warning light
This light illuminates about 6 seconds after ignition switch turns ON if the driver's seat belt is not fastened.
- (2) Turn signal indicator light
This light blinks (and turn signal light flashes) when the turn signal switch is turned ON.
- (3) Door open warning light
This light illuminates when one or more doors and/or rear gate or trunk lid are not fully closed.
- (4) Headlight beam indicator light
This light illuminates when the headlight is in high-beam position.
- (5) FWD indicator light
This light illuminates when the center differential locks (with the fuse installed in the center differential locking circuit).
- (6) AT selector lever position indicator
The light corresponding to the selected AT select lever position illuminates when the ignition switch is in other than ACC and LOCK positions.
- (7) Security indicator light
This light illuminates when the security system is operating
- (8) Low fuel warning light
This light illuminates when the fuel amount in fuel tank is lower than 10 liters (2.6 US gal, 2.2 Imp gal).

MECHANISM AND FUNCTION**[M5B0] 6-2**
5. Combination Meter

According to ignition switch position, the telltales will come on and/or go off under normal conditions as follows:

| Telltale light | Ignition switch position | | | |
|---|--------------------------|-------|-------|-------------------------|
| | LOCK/ACC | ON | ST | While engine is running |
| (1) Seat belt | OFF | *2 | *2 | *2 |
| (2) Turn signal | OFF | Blink | Blink | Blink |
| (3) Door open/rear gate or trunk lid open | • Open | ON | ON | ON |
| | • Shut | OFF | OFF | OFF |
| (4) Headlight beam | • High beam | OFF | ON | ON |
| | • Low beam | OFF | OFF | OFF |
| (5) FWD | • FWD | OFF | ON | ON |
| | • AWD | OFF | OFF | OFF |
| (6) AT selector lever position | OFF | ON | ON | ON |
| (7) Security | *3 | OFF | OFF | OFF |
| (8) Low fuel | OFF | *1 | *1 | *1 |

*1: Light illuminates when the fuel amount in fuel tank is lower than 10 liters (2.6 US gal, 2.2 Imp gal).

*2: Light illuminates about 6 seconds after ignition switch turns to ON if the driver's seat belt is NOT fastened.

*3: Light blinks when arm the security system.

C: SPEEDOMETER

1. DESCRIPTION

- The speedometer system is an electric type; it uses electrical wire and drives the speedometer according to electrical signals from speed sensor (MT model) or TCM (AT model).
- The speed sensor is installed on the manual transmission.
- For this reason, meter trouble (meter hand vibration, cable disconnection, etc.) is eliminated and transmission mechanical noise is decreased.
- The odometer and tripmeter are displayed by LCD (Liquid crystal display).

2. OPERATION

MT model: The speed sensor sends the vehicle speed signal (4 pulses per one turn of speed sensor driven shaft) to the speedometer drive circuit and odometer/tripmeter drive circuit in the speedometer.

AT model: The TCM sends the vehicle speed signal (4 pulses) to the speedometer drive circuit and odometer/tripmeter drive circuit in the speedometer.

NOTE:

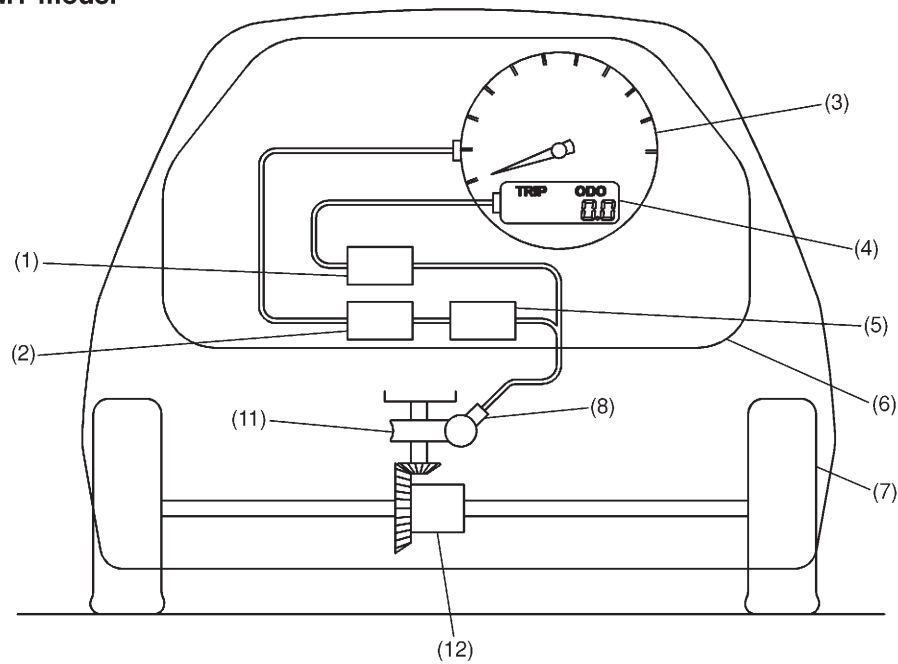
The output signal from speed detection circuit is also used in engine control module, automatic transmission control module, etc.

3. SPECIFICATION

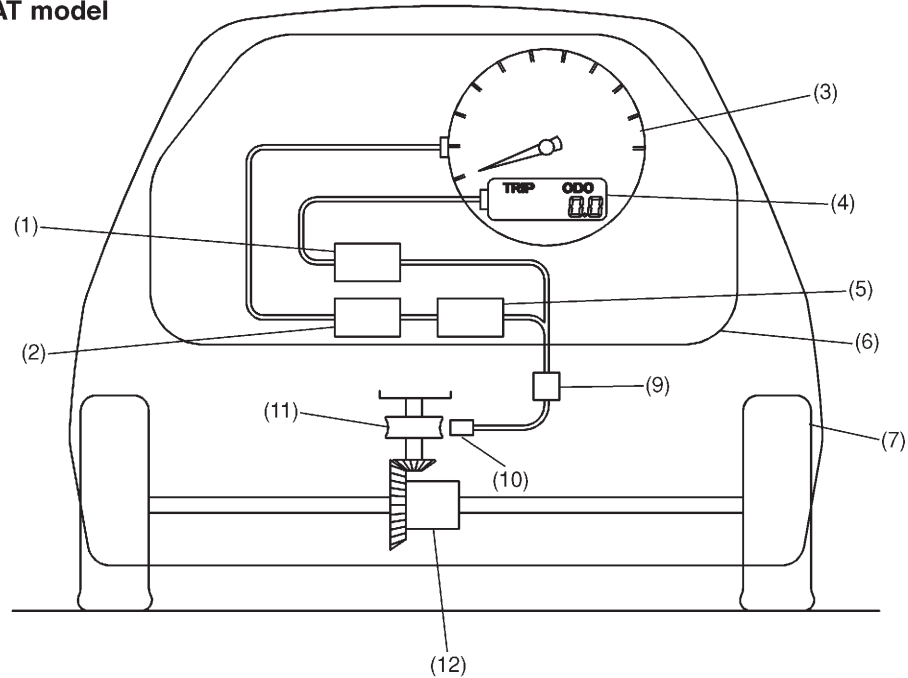
| | | |
|-------------|------------|--|
| Speedometer | Type | Electric pulse type |
| | Indication | Hand points to 60 km/h (72 miles) when 2,548 pulses are input per minute. |
| Odometer | Type | Pulse count type. |
| | Display | LCD/6 digits; 0 to 999,999 km (mile) |
| | Indication | Count up 1 km per 2,548 pulses. (Count down is impossible.) |
| Trip meter | Type | Pulse count type. |
| | Display | LCD/4 digits; 0 to 999.9 km (mile) |
| | Indication | Count up 1 km per 2,548 pulses (Push knob is adopted to return the trip meter to zero indication.) |

4. SYSTEM DIAGRAM

MT model



AT model



- | | |
|-------------------------------|--------------------------------|
| (1) ODO/TRIP drive circuit | (7) Front wheel |
| (2) Speedometer movement | (8) Speed sensor |
| (3) Speedometer | (9) TCM |
| (4) ODO/TRIP meter | (10) Electro magnetic pick-up |
| (5) Speedometer drive circuit | (11) Gear for the speed sensor |
| (6) Combination meter | (12) Differential |

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D: SPEED SENSOR

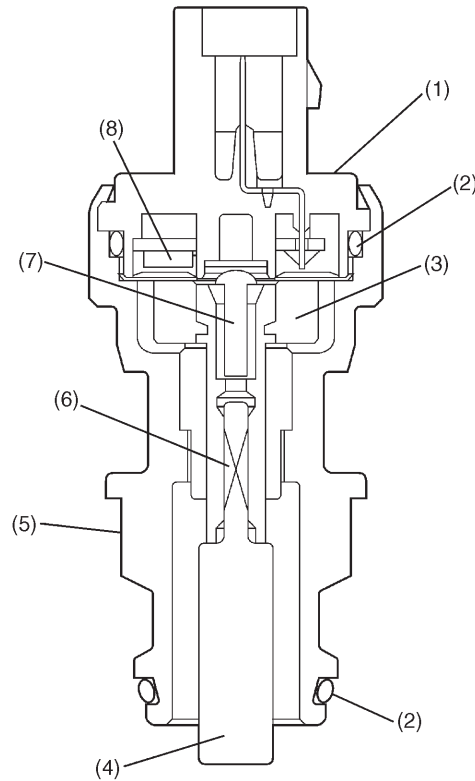
The speed sensor is a Hall IC pick-up type revolution sensor. (MT model)

This sensor is installed on the transmission case and detects the transmission output gear rotation speed.

4 pulses are sent to speedometer per rotation of speed sensor driven shaft.

1. CONSTRUCTION

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



B6H0911A

- (1) Upper case
- (2) O-ring
- (3) Magnet

- (4) Driven key
- (5) Lower case
- (6) Driven shaft

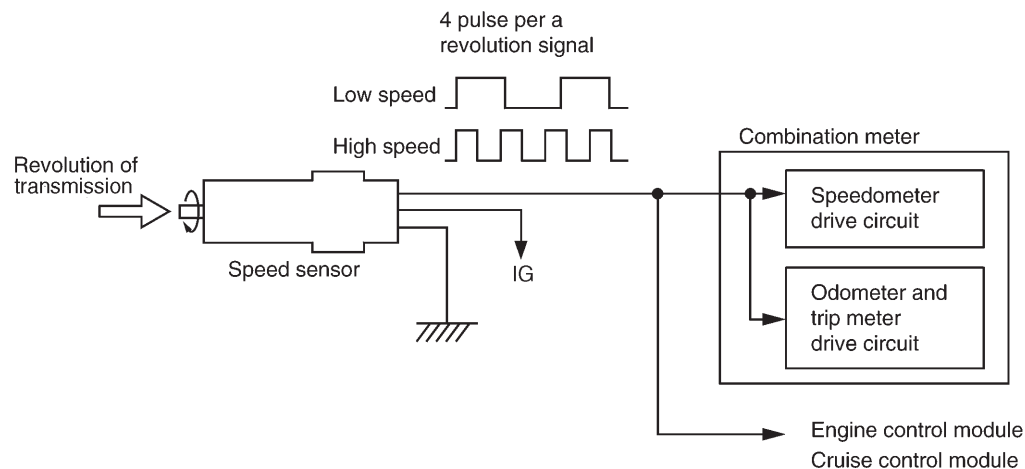
- (7) Rivet
- (8) Hall IC

2. OPERATION

As the driven key rotates, the magnet turns to change the magnetic field of the Hall IC.

The Hall IC generates a signal corresponding to a change in the magnetic field.

One turn of the driven key in the speed sensor sends 4 pulses of square wave signal to the combination meter, engine control module and cruise control module.



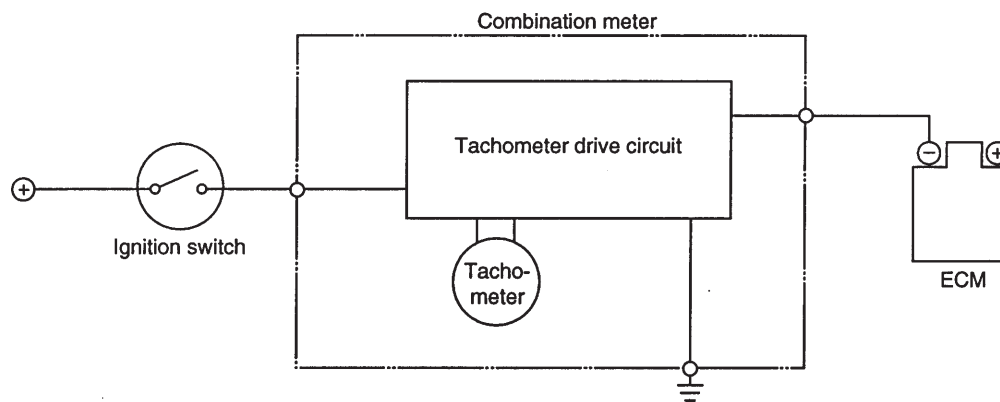
B6H0912B

E: TACHOMETER

The tachometer drive circuit connects to engine revolution detecting circuit in engine control module.

When the engine revolution increases/decreases, the voltage of this circuit also increases/decreases, changing the magnetic force of tachometer drive coil.

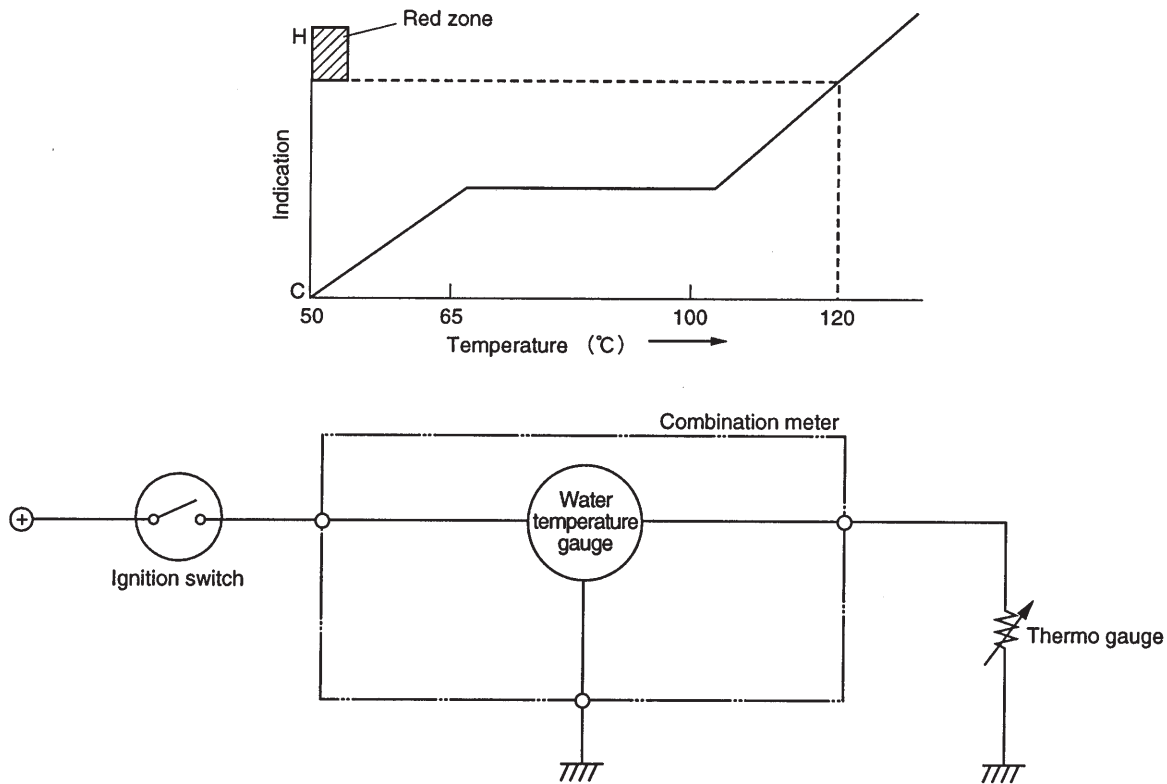
Thus, the tachometer hand moves together with engine revolution change.



H6H0419

F: WATER TEMPERATURE GAUGE

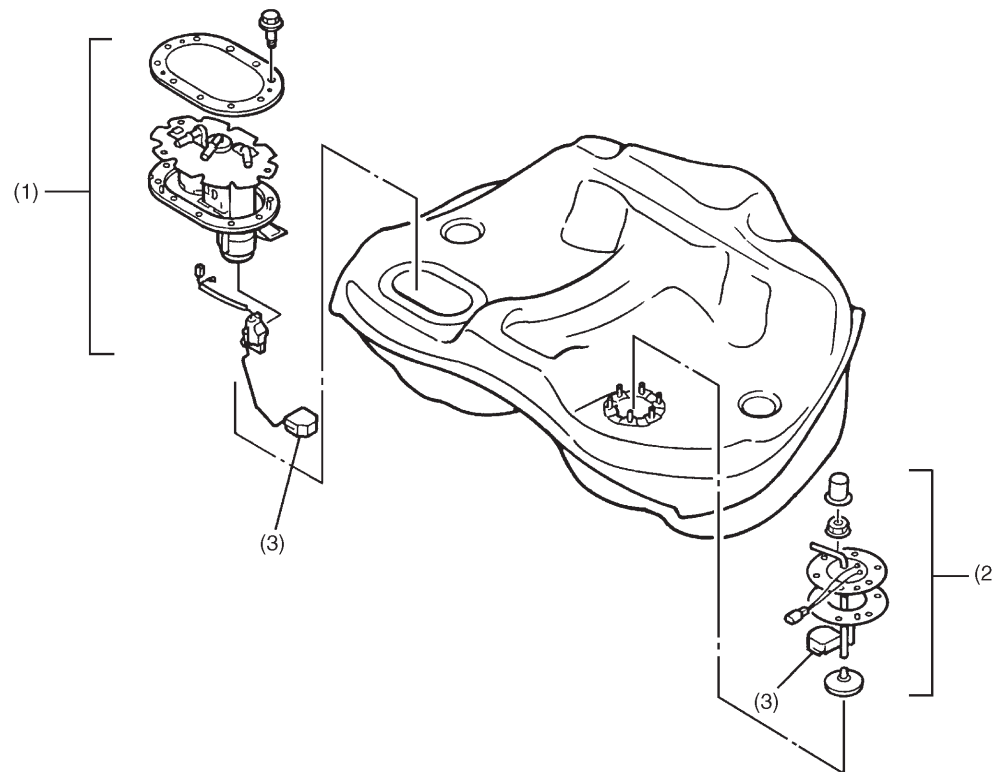
- The water temperature gauge is a cross-coil type.
- The water temperature signal is input from thermo gauge installed on the engine.
- The resistance of thermo gauge changes according to engine coolant temperature. Therefore, the current input to water temperature gauge also changes according to engine coolant temperature. Accordingly, gauge hand moves in proportion to the change in magnetic force of coil.
- When the water temperature is at approx. 70 to 100 °C (158 to 212 °F)[normal operating temperature], the meter hand is stable in the middle of indication range as shown in the graph below.



H6H0420

G: FUEL GAUGE**1. GENERAL**

- The fuel meter unit consists of a float and a potentiometer that varies in resistance values depending on movement of the float, and is installed inside the fuel tank, integral with the fuel pump. The fuel gauge indicates the fuel level in the tank even when the ignition switch is in LOCK position.
- All models are equipped with two fuel level sensors. Two fuel level sensors are installed in the fuel tank, one each at the right and left side, because the fuel tank is divided into main and sub tank area.
- The low fuel sensor (warning light switch) is installed in the main fuel level sensor.



B6H1296A

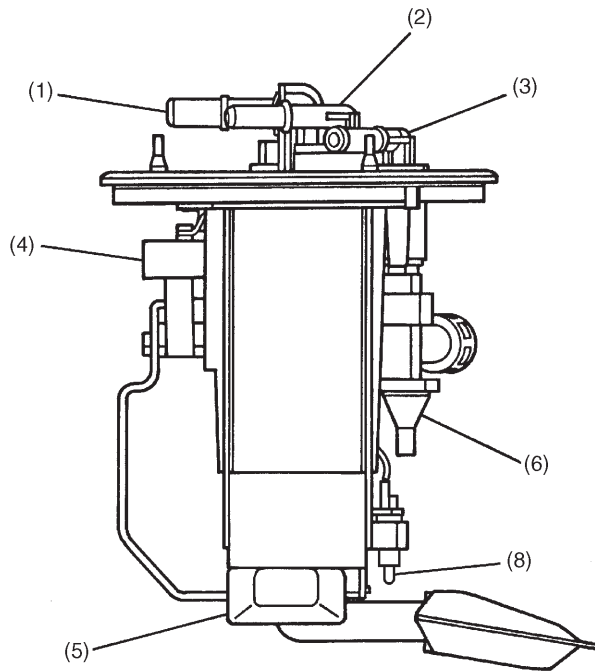
- (1) Main fuel level sensor
- (2) Sub fuel level sensor
- (3) Float

6-2 [M5G1]

5. Combination Meter

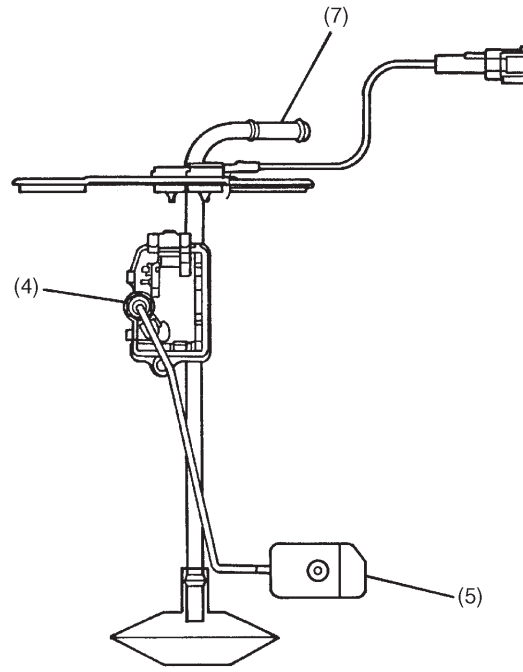
MECHANISM AND FUNCTION

Main fuel level sensor



- (1) To engine
- (2) From engine
- (3) From sub tank
- (4) Level sensor

Sub fuel level sensor



- (5) Float
- (6) Jet pump
- (7) To jet pump
- (8) Gas sensor

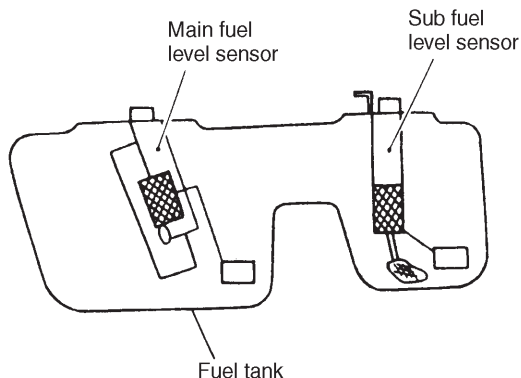
B6H1297A

2. OPERATION

Low fuel warning light operation

The ECM continually monitors the resistance signal input from the fuel level sensor, and turns on the low fuel warning light in the combination meter when the resistance value corresponding to the critical fuel level (approx. 76 Ω) is registered successively for about 10 minutes or during a 10 km driving.

In this system, therefore, an erroneous warning of low fuel level is avoided which may happen when a large part of remaining fuel is collected temporarily in the sub-tank.



B6H0026B

3. SPECIFICATION

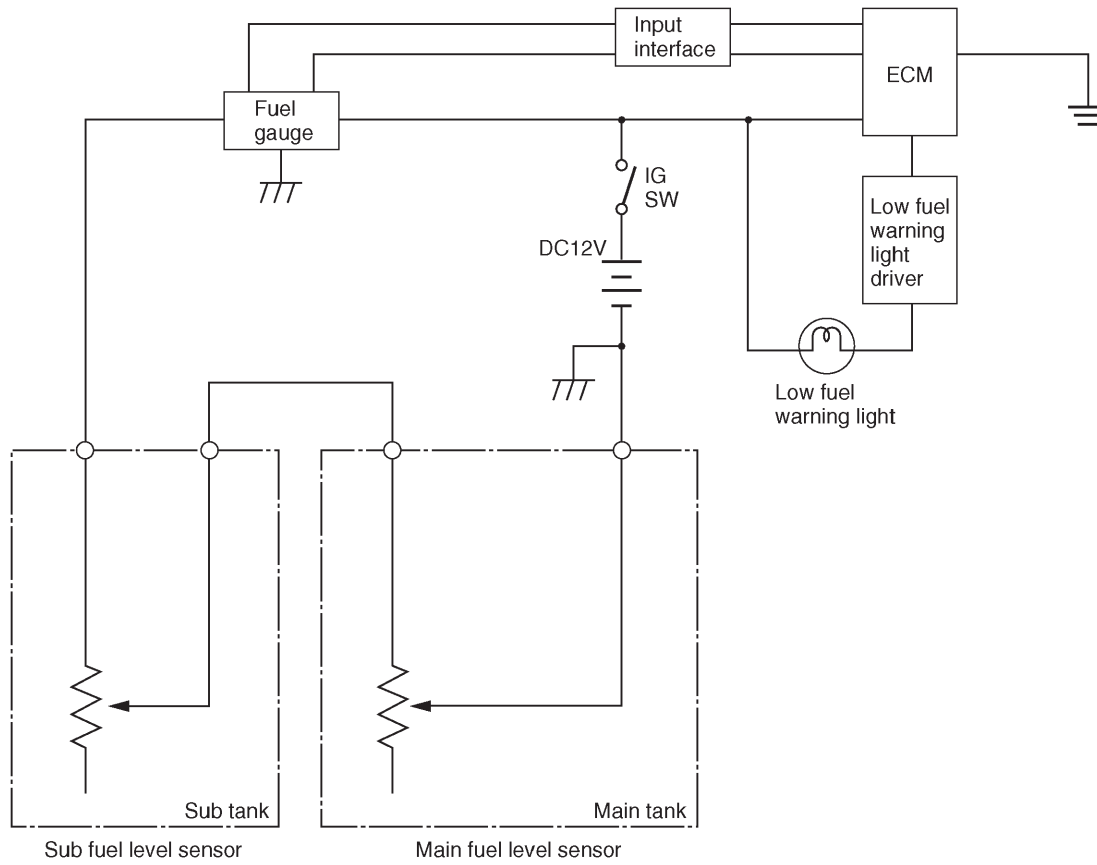
| | Fuel amount | Resistance |
|-----------|-------------|--------------------|
| Main unit | FULL | 0.5–2.5 Ω |
| | 1/2 | 18.5–22.5 Ω |
| | EMPTY | 52.5–54.5 Ω |
| Sub unit | FULL | 0.5–2.5 Ω |
| | 1/2 | 23.6–27.6 Ω |
| | EMPTY | 39.5–41.5 Ω |

6-2 [M5G4]

5. Combination Meter

MECHANISM AND FUNCTION

4. CIRCUIT DIAGRAM



B6H1281A