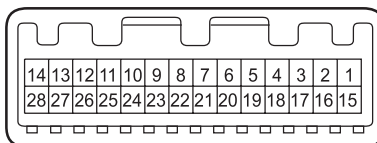


TERMINALS OF ECU

(2006/01-)

1. CHECK AIR CONDITIONING AMPLIFIER



(E36)

G

E125198E01

(a) Measure the voltage and resistance of the connectors.

HINT:

Check from the rear of the connector while it is connected to the air conditioning amplifier.

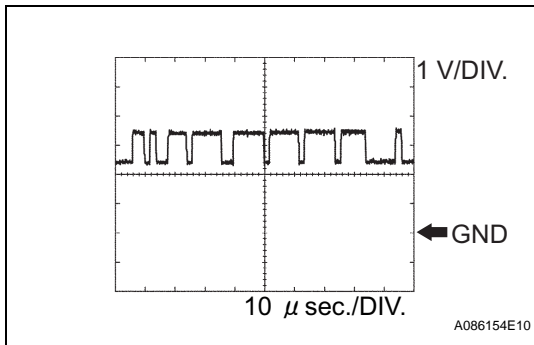
| Symbols (Terminal No.) | Wiring Color | Terminal Description | Condition | Specified Condition |
|------------------------------|-------------------|--|---|-----------------------------------|
| S5-3 (E36-7) - GND (E36-24) | B - W-B | Power supply for pressure sensor | Ignition switch ON | 4.5 to 5.5 V |
| CANH (E36-8) - GND (E36-24) | V - W-B | Hi-level CAN bus line | Ignition switch ON | Pulse generation (see waveform 1) |
| CANL (E36-9) - GND (E36-24) | W - W-B | Lo-level CAN bus line | Ignition switch ON | Pulse generation (see waveform 2) |
| SG-3 (E36-23) - Body ground | B - Body ground | Ground for evaporator temperature sensor | Always | Below 1 Ω |
| PRE (E36-12) - SG-2 (E36-10) | L - G | Air conditioning pressure sensor signal | Refrigerant pressure: normal | 0.76 to 4.74 V |
| PRE (E36-12) - SG-2 (E36-10) | L - G | Air conditioning pressure sensor signal | Refrigerant pressure: Abnormal (less than 0.196 MPa [2.0 kgf/cm ² , 28 psi]) | Below 0.76 V |
| PRE (E36-12) - SG-2 (E36-10) | L - G | Air conditioning pressure sensor signal | Refrigerant pressure: Abnormal (more than 3.14 MPa [32 kgf/cm ² , 455 psi]) | 4.74 V or more |
| SG-2 (E36-10) - Body ground | B - Body ground | Ground for pressure sensor | Always | Below 1 Ω |
| SOL+ (E36-13) - GND (E36-24) | GR - W-B | A/C compressor operation signal | Engine idling | Pulse generation (see waveform 3) |
| | | | Heater control (blower switch): 1 | |
| | | | A/C switch ON | |
| IG+ (E36-14) - GND (E36-24) | Y - W-B | Power source (IG) | Ignition switch ON | 10 to 14 V |
| SBLW (E36-21) - GND (E36-24) | GR - W-B | Blower motor ON signal | Ignition switch ON | 10 to 14 V → Below 1 V |
| | | | Heater control (blower switch): 0 → 1 | |
| TE (E36-22) - SG-3 (E36-23) | W - B | Evaporator temperature sensor signal | Ignition switch ON | 1 to 1.3 V |
| | | | Temperature near evaporator: 15°C (59°F) | |
| GND (E36-24) - Body ground | W-B - Body ground | Ground for main power supply | Always | Below 1 Ω |
| A/C (E36-27) - GND (E36-24) | P - W-B | A/C switch signal | Ignition switch ON | Below 1 V → 10 to 14 V |
| | | | A/C switch OFF → ON | |

AC

| Symbols (Terminal No.) | Wiring Color | Terminal Description | Condition | Specified Condition |
|-------------------------------|------------------|-------------------------------|---|-----------------------------------|
| LED (E36-28) - Body ground | GR - Body ground | A/C switch indicator signal | Engine idling | 10 to 14 V → Below 4 V |
| | | | A/C switch ON | |
| | | | Heater control (blower switch): 0 → 1 | |
| LOCK (E36-3)* - SG-2 (E36-10) | W - G | Compressor lock sensor signal | Ignition switch ON A/C switch ON Magnetic clutch ON | Pulse generation (see waveform 4) |
| MGC (E36-15)* - GND (E36-24) | V - W-B | Magnetic clutch relay signal | Ignition switch ON Magnetic clutch OFF | 10 to 14 V |
| MGC (E36-15)* - GND (E36-24) | W - B | Magnetic clutch relay signal | Ignition switch ON Magnetic clutch ON | Below 1 V |

HINT:
*: for 2GR-FE

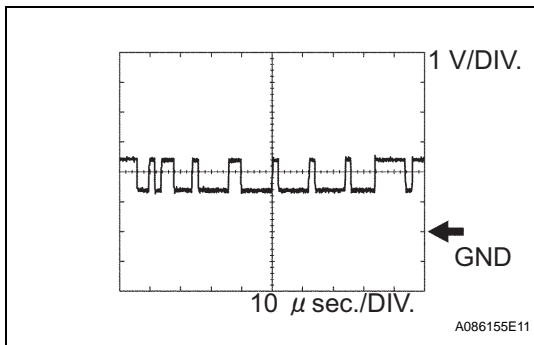
- (b) Using an oscilloscope, check waveform 1.
CAN communication signal



| Item | Content |
|------------------------|-----------------------------|
| Symbols (Terminal No.) | CANH (E36-8) - GND (E36-24) |
| Tool Setting | 1 V/DIV., 10 μsec./DIV. |
| Condition | Ignition switch ON |

HINT:
The waveform varies depending on the CAN communication signal.

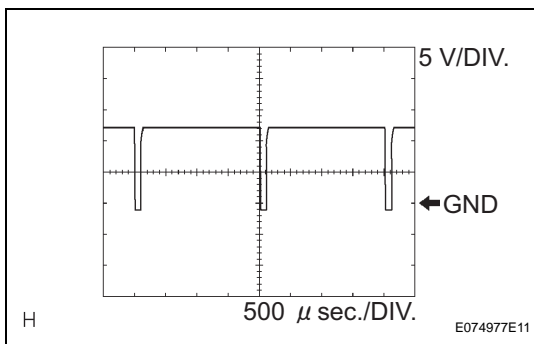
- (c) Using an oscilloscope, check waveform 2.
CAN communication signal



| Item | Content |
|------------------------|-----------------------------|
| Symbols (Terminal No.) | CANL (E36-9) - GND (E36-24) |
| Tool Setting | 1 V/DIV., 10 μsec./DIV. |
| Condition | Ignition switch ON |

HINT:
The waveform varies depending on the CAN communication signal.

- (d) Using an oscilloscope, check waveform 3.
A/C Compressor* operation signal

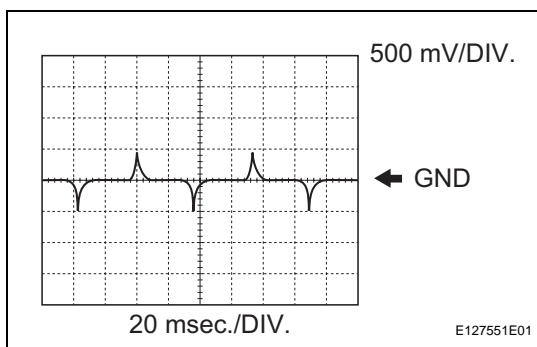


| Item | Content |
|------------------------|--|
| Symbols (Terminal No.) | SOL+ (E36-13) - GND (E36-24) |
| Tool Setting | 5 V/DIV., 500 μsec./DIV. |
| Condition | Engine idling, Blower switch LO, A/C switch ON |

HINT:
*: Compressor and pulley for 2AZ-FE, compressor and magnetic clutch for 2GR-FE

AC

(e) Using an oscilloscope, check waveform 4.
Compressor lock sensor signal*



| Item | Content |
|------------------------|---|
| Symbols (Terminal No.) | LOCK (E36-3)* - SG-2 (E36-10) |
| Tool Setting | 500 mV/DIV., 20 msec./DIV. |
| Condition | Ignition switch ON, A/C switch ON, Magnetic clutch ON |

HINT:

*: for 2GR-FE