TO INDEX

J3 METER

1 METER

1-1 ARTICLES TO BE PREPARED

Instrument

Oscillo scope

1-2 FUNCTION CHECK

1-2-1 VEHICLE SPEED SIGNAL

(1) Vehicle speed signal input check (Only M/T and ABS non-equipped vehicles)

1.Check the frequency of the voltage pulse between the terminal 7(SPD) - 18(GND) at the vehicle speed of 10 km/h.

Terminal No. (Nomenclature of terminal)	Frequency
7(SPD) - 18(GND)	About 7Hz

CAUTION

- With the connector connected, perform the check from behind the connector at the vehicle harness side.

NOTE

- Take the following procedures for easy checking .
  1. Insert a lead wire to the backside of the vehicle harness side connector.
  2. Secure the vehicles harness and the lead with tape.
  3. Check the signal through the lead wire.

(2) Vehicle speed signal output check

1.Check the frequency of the voltage pulse between the terminal 12(SPOUT) - 18(GND) at the vehicle speed of 10 km/h.

Terminal No. (Nomenclature of terminal)	Frequency
12(SPOUT) - 18(GND)	About 7Hz

CAUTION

- With the connector connected, perform the check from behind the connector at the vehicle harness side.

NOTE

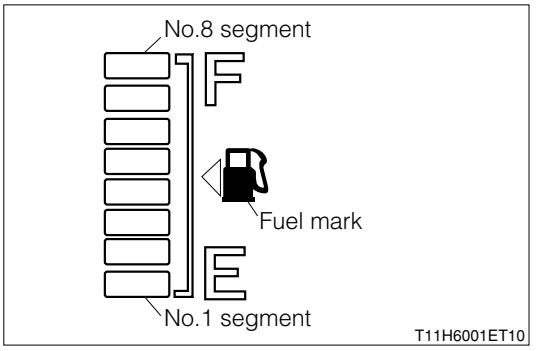
- Take the following procedures for easy checking .
  1. Insert a lead wire to the backside of the vehicle harness side connector.
  2. Secure the vehicles harness and the lead with tape.
  3. Check the signal through the lead wire.

1-2-2 FUEL GAUGE

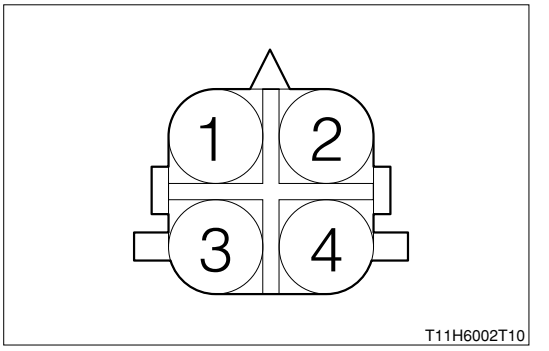
1.Disconnect the connector from the fuel sender gage.

2.Check fuel gauge state when the ignition switch is turned "ON" (without starting the engine).

SPECIFIED VALUE: No.1 segment shall blink.
Fuel mark shall blink.



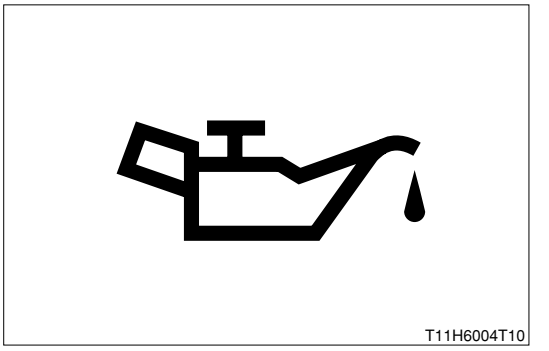
3.Short-circuit the vehicle harness side connector terminals 1and 2 of the fuel sender gauge.
4.Check the fuel gauge state when the ignition switch is turned "ON" (without starting the engine).
SPECIFIED VALUE: No.1 - No.8 segments shall illuminate.
Fuel mark shall illuminate.



T11H6002T10

1-2-3 OIL PRESSURE WARNING LAMP

1.Disconnect the connector from the engine oil pressure switch.
2.Turn ON the ignition switch.
3.Check the oil pressure warning lamp status when the vehicle wire harness connector terminal is short-circuited to the body earth.
SPECIFIED VALUE: The warning lamp shall illuminate.

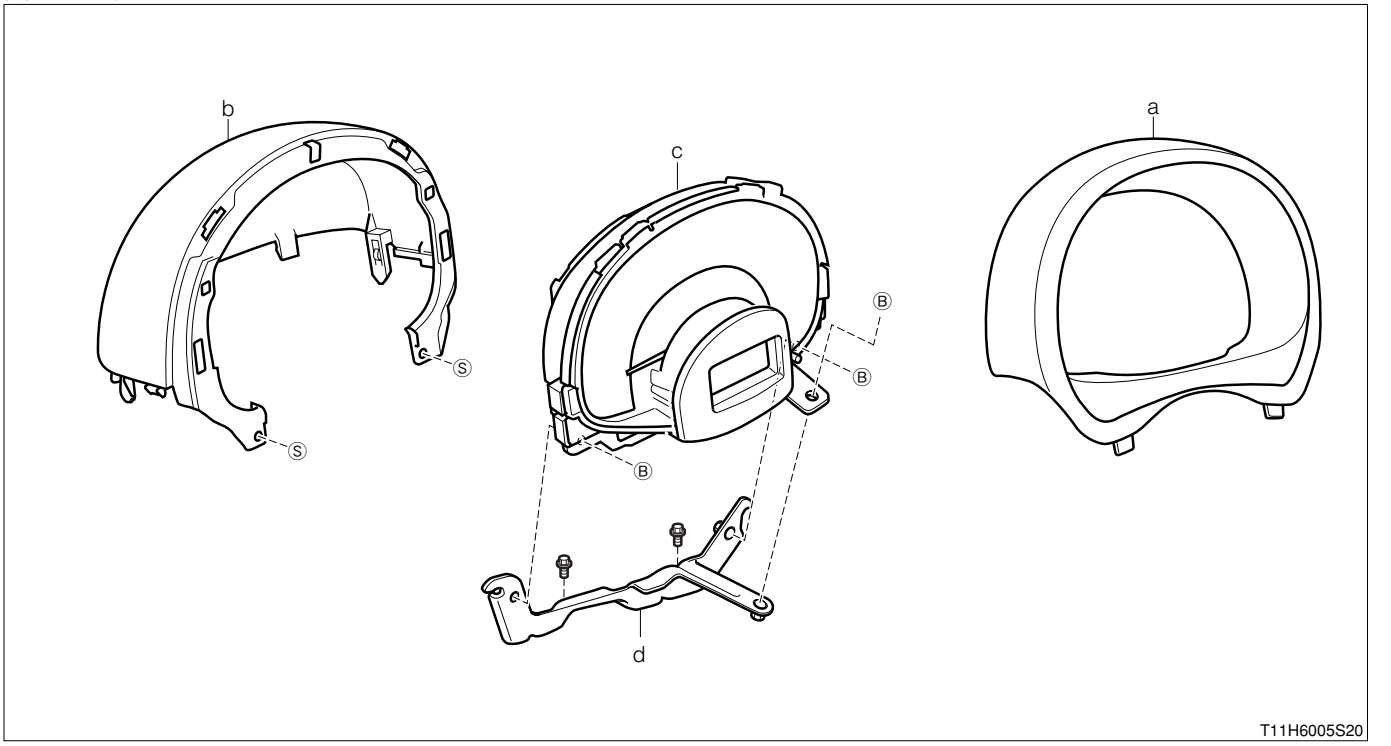

T11H6004T10

2 COMBINATION METER

2-1 REMOVAL AND INSTALLATION

2-1-1 REMOVAL AND INSTALLATION PROCEDURES

(1) Components



(2) Removal and installation procedures

1 a Panel S/A, cluster finish
2 b Cover, meter opening
3 c Meter Ay, combination
4 d Bracket, meter

3 TACHOMETER

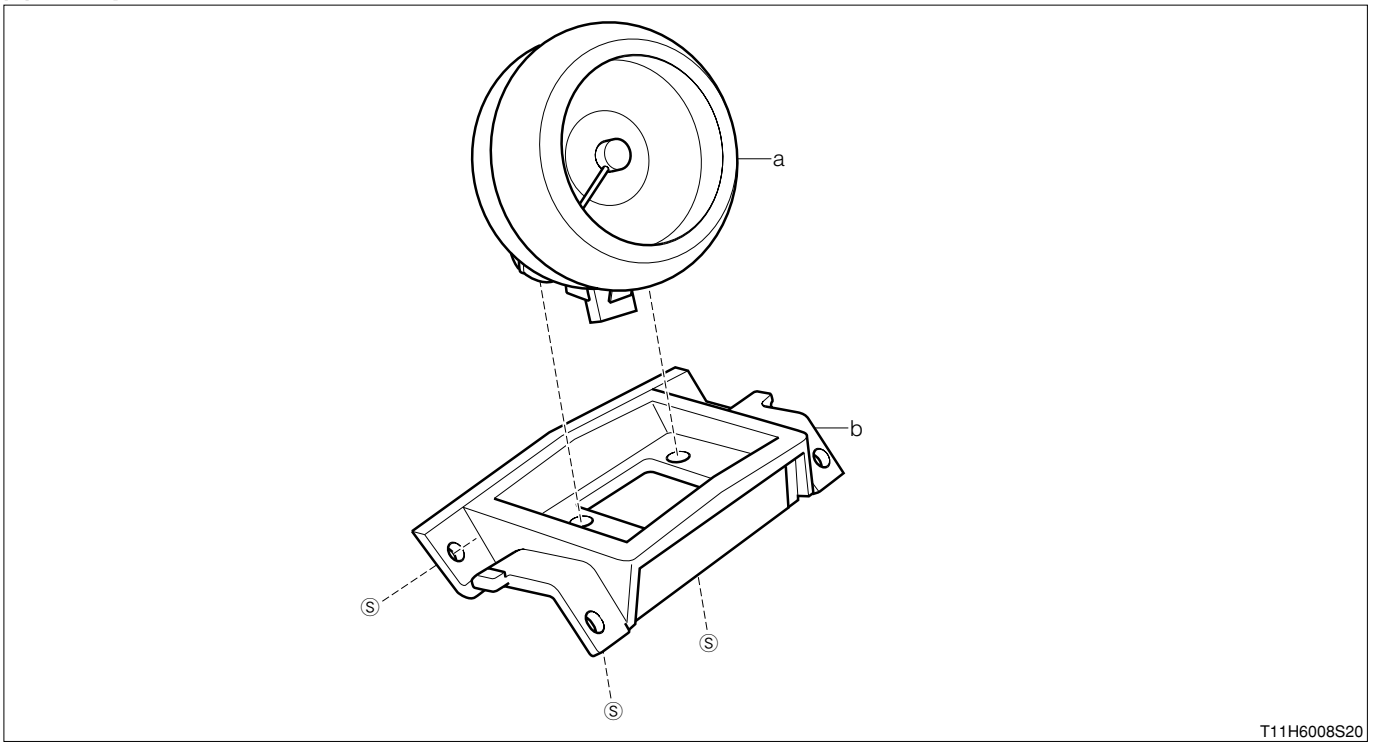
3-1 REMOVAL AND INSTALLATION

3-1-1 OPERATION BEFORE REMOVAL

1.Remove the panel S/A, instrument cluster finish, center.
Refer to Page I2-23.

3-1-2 REMOVAL AND INSTALLATION PROCEDURES

(1) Components



(2) Removal and installation procedures

1 a Tachometer Ay, engine
2 b Bracket, accessory meter

3-1-3 OPERATION AFTER INSTALLATION

1.Install the panel S/A, instrument cluster finish, center.
Refer to Page I2-23.

4 VEHICLE SPEED SENSOR

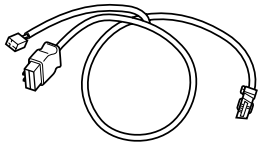
4-1 REMOVAL AND INSTALLATION

Refer to Page F2-10.

5 CONTROL SYSTEM

5-1 ARTICLES TO BE PREPARED

SST

Shape	Part No.	Part name
	09991-87403-000	Wire,diagnosis check
	09991-87404-000 (09991-87401-000)	Wire,engine control system inspection

Instrument

Electrical Tester,Tachometer

5-2 HANDLING INSTRUCTIONS OF CONTROL SYSTEM

5-2-1 CAN COMMUNICATION DESTINATION INFORMATION

(1) Description

1.In CAN communication, the meter itself stores information on which ECU the meter is connected with as CAN communication destination information. The meter, based on this CAN communication destination information, determines which indicator and/or warning lamp should be turned on. Therefore, it is necessary to set up CAN communication destinations when the meter is replaced.

NOTE

- The CAN communication destination information that meter stores is to recognize whether EFI ECU, A/T ECU, and ABS ECU are present.

(2) Setup procedures for CAN communication destinations

1.Check vehicle specifications.

NOTE

- Check vehicle specifications as to whether the transmission and ABS exist or not.

2.Set the IG switch to LOCK.

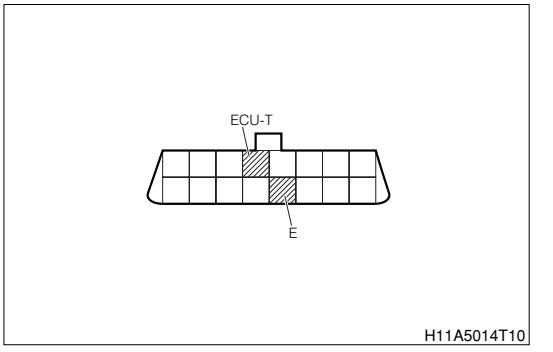
3.Use SST to short-circuit the ECU-T terminal and E terminal of DLC located beneath the instrument panel.

CAUTION

- Connecting the connector in the wrong location could cause a malfunction. Therefore, make sure the connection is correct.

SST: 09991-87403-000

SST: 09991-87404-000



4.Turn the IG switch ON, while the odometer/trip selection switch remains ON.

5.Set the odometer/trip selection switch to OFF.

6.Set the odometer/trip selection switch to ON again and hold more than 3 seconds.

NOTE

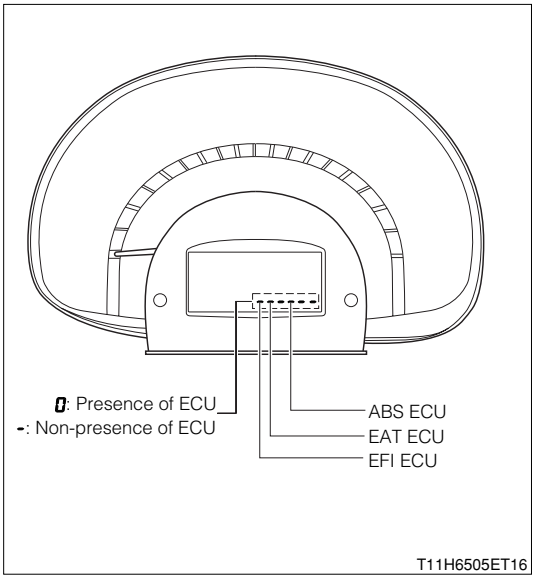
- When held for more than 3 seconds, the LCD display will indicate "b−0000" and blinks.

7.A buzzer sounds in about 6 seconds, CAN communication destination information is stored, and the setup is now complete.

8.The CAN communication destination information is displayed on the LCD display. Check whether the vehicle specification matches the information displayed.

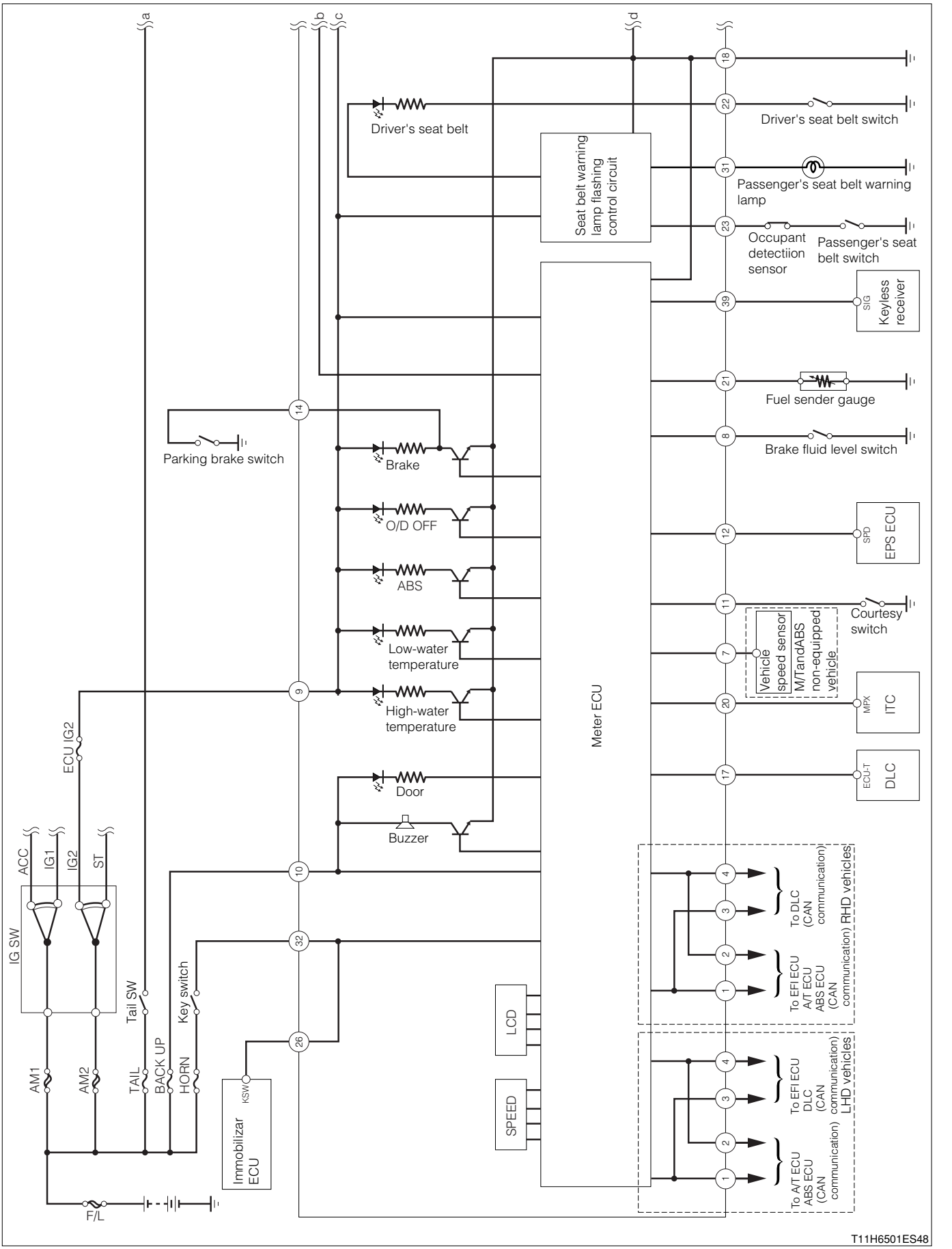
NOTE

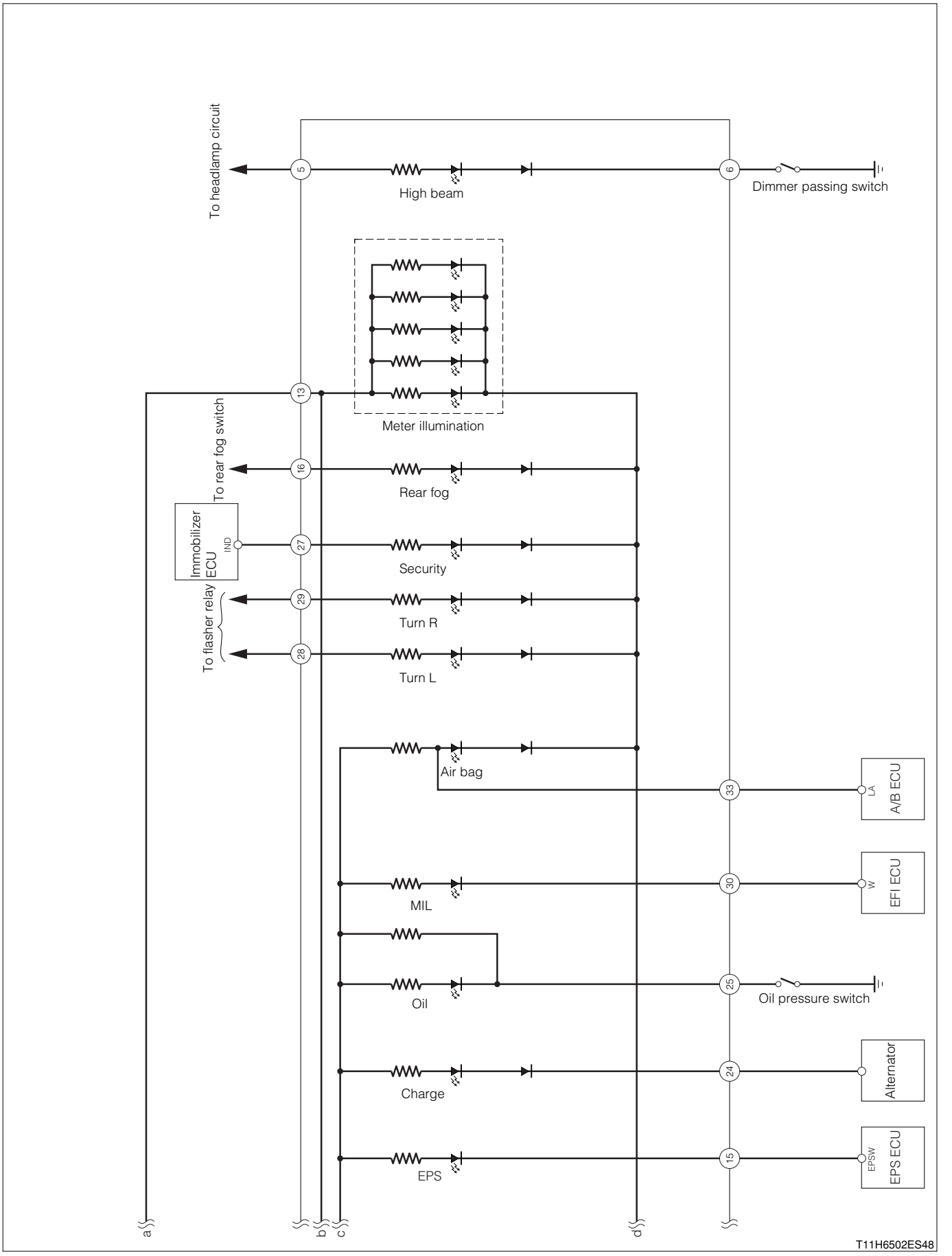
- The factory setting for CAN communication destination of the meter is that the vehicle is a M/T vehicle with no ABS equipped.
- The CAN communication destination information will not be erased even if the battery or the connector of the meter is removed.



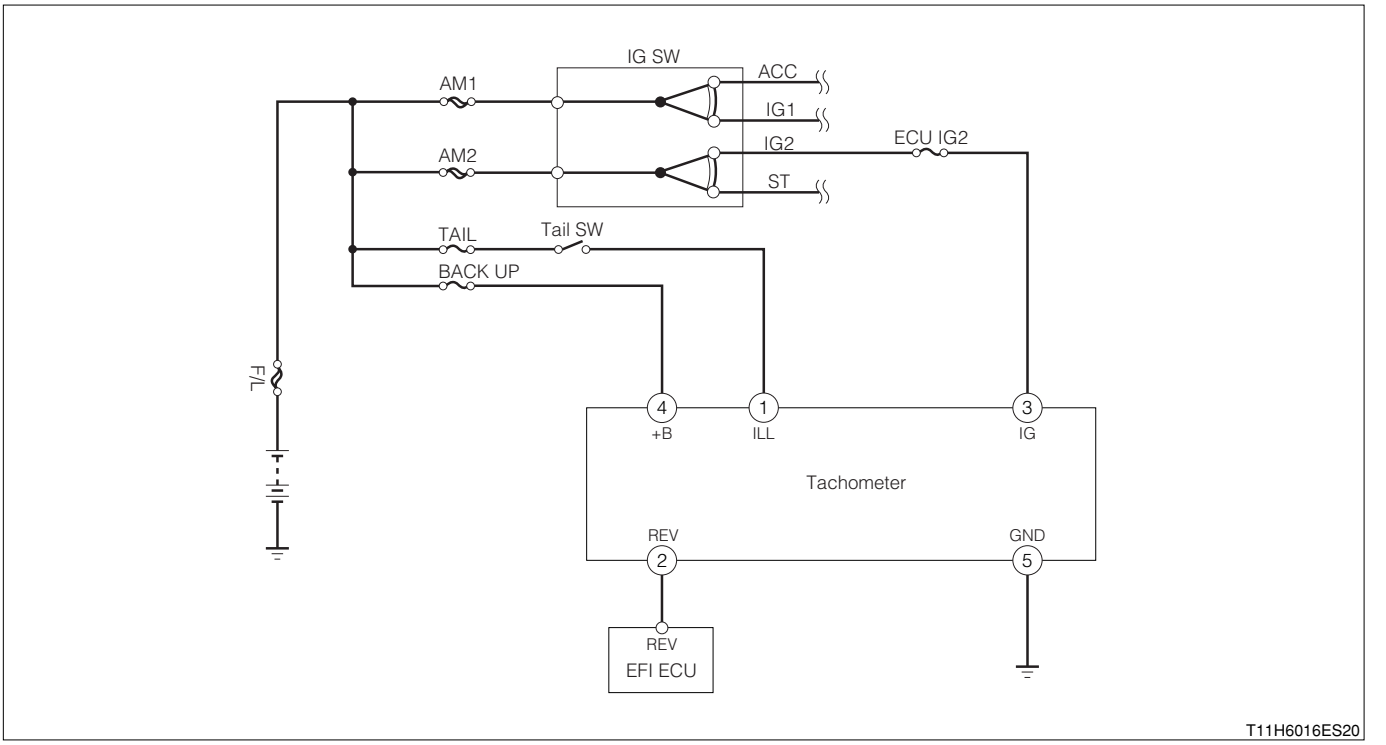
5-3 SYSTEM WIRING DIAGRAM

5-3-1 COMBINATION METER




To headlamp circuit
5
High beam
6
Dimmer passing switch
13
Meter illumination
To rear fog switch
16
Rear fog
Immobilizer ECU
IND
27
Security
To flasher relay
29
Turn R
28
Turn L
Air bag
33
A/B ECU
LA
MIL
30
EFI ECU
W
Oil
25
Oil pressure switch
Charge
24
Alternator
EPS
15
EPS ECU
EPSW
a
b
c
d
T11H6502ES48

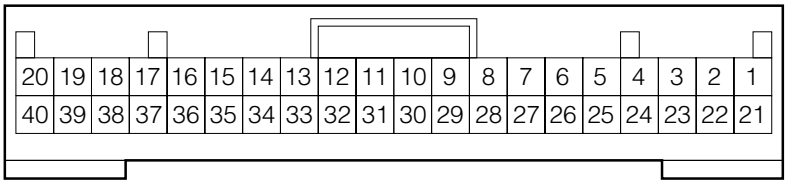
5-3-2 TACHOMETER



T11H6016ES20

5-4 ARRANGEMENT OF ECU TERMINAL

5-4-1 COMBINATION METER

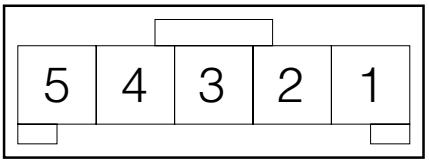


T11H6013S10

Meter terminal name

Terminal No.	Terminal code	Terminal name
1	CANH	CAN communication HI (1)
2	CANL	CAN communication LO (1)
3	HCAN	CAN communication HI (2)
4	LCAN	CAN communication LO (2)
5	BEAM+	High beam +
6	BEAM−	High beam −
7	SPD	Input of vehicle speed signal
8	BRK	Input of brake fluid signal
9	IG2	IG power supply
10	+B	+B power supply
11	DOOR	Input of courtesy switch signal
12	SPOUT	Output of vehicle speed signal
13	TAIL	Illumination +
14	PKBSW	Parking brake
15	EPS	EPS
16	RR-FOG	REAR FOG LAMP
17	ECU-T	ECU-T terminal signal input
18	GND	Earth
19	−	−
20	LIN	LIN communication input/output
21	FUEL	Input of fuel signal
22	D-BELT	Seat belt at driver's seat side
23	P-BELT	Front passenger seat side seat belt signal input
24	CHG	Charge
25	OIL	Oil
26	KEY2	Output of key switch signal
27	SEC	Security
28	TURNL	Turn LH
29	TURNR	Turn RH
30	MIL	MIL
31	P-BELOUT	Front passenger seat side seat belt signal output
32	KEY	Input of key switch signal
33	A/B	Airbag
34	−	−
35	−	−
36	−	−
37	−	−
38	−	−
39	KLS	Keyless receiver signal input
40	−	−

5-4-2 TACHOMETER

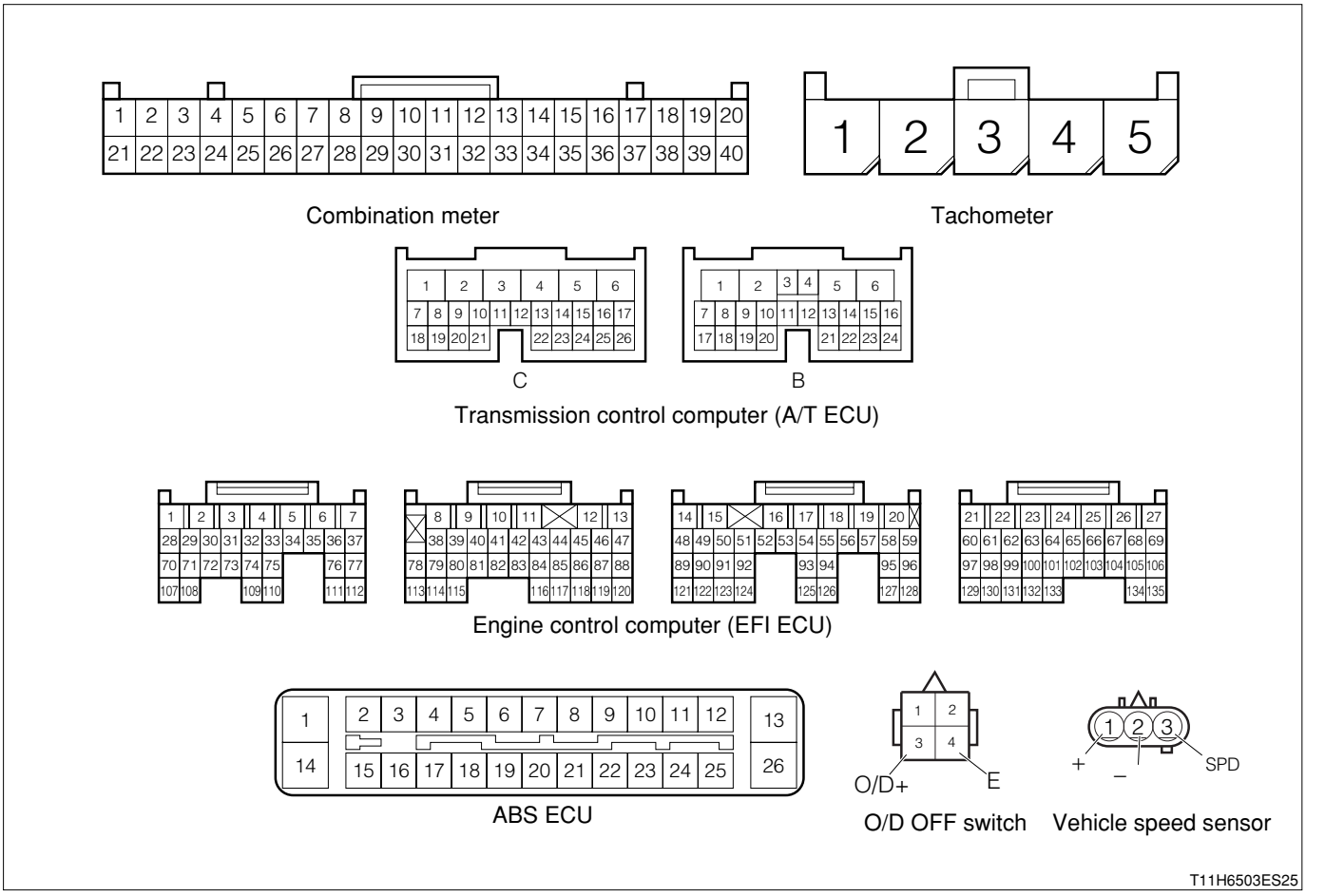


T11H6017S10

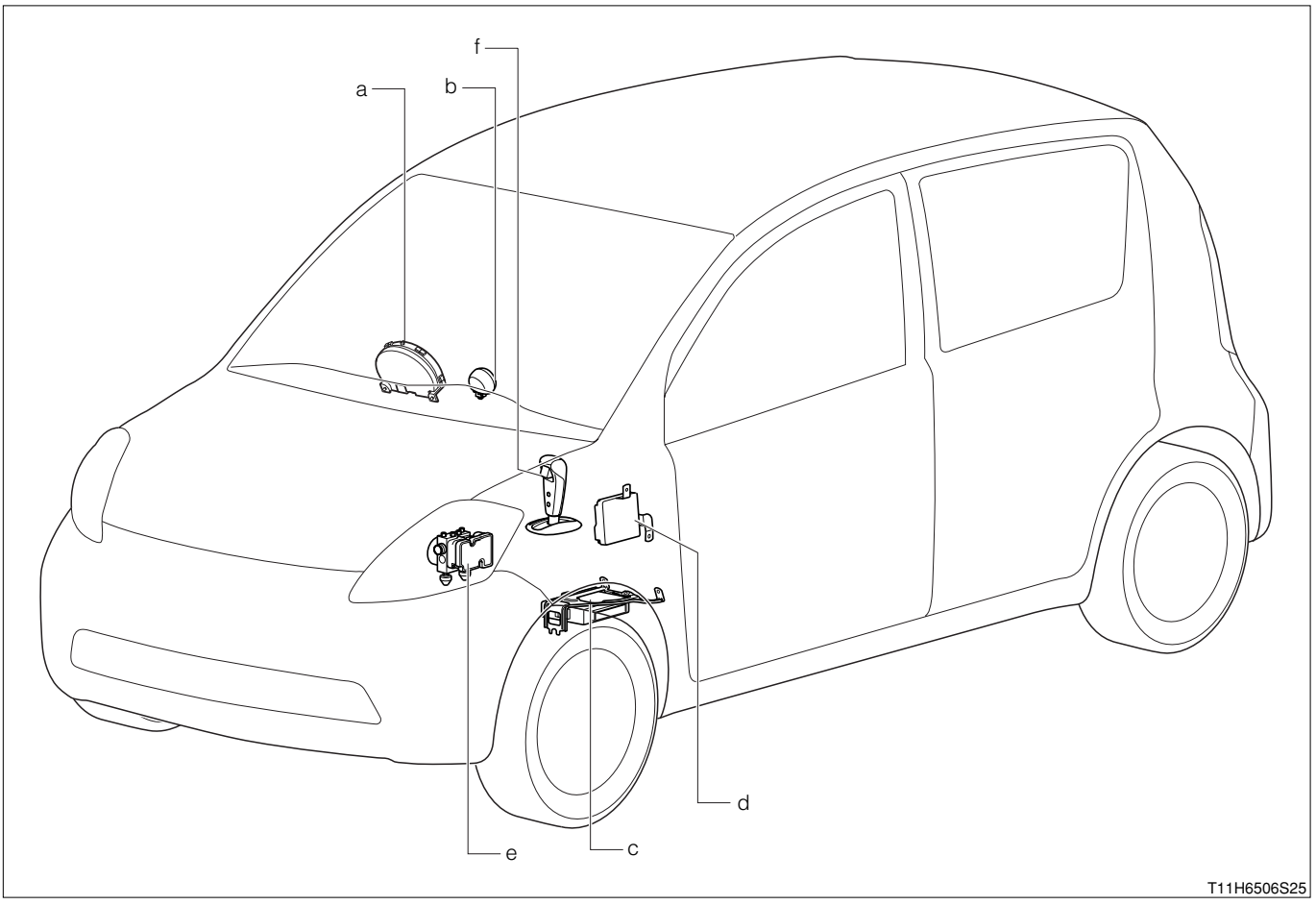
Tachometer terminal name

Terminal No.	Terminal code	Terminal name
1	ILL	Illumination
2	REV	Input of engine revolution speed signal
3	IG	IG power supply
4	+B	+B power supply
5	GND	Earth

5-5 ARRANGEMENT OF VEHICLE HARNESS SIDE CONNECTOR TERMINALS



5-6 LOCATION OF COMPONENTS



The illustration represents the RHD vehicles. In the case of the LHD vehicles, the illustration is symmetrical except the A/T ECU and ABS ECU.

a	Combination meter
b	Tachometer
c	EFI ECU
d	A/T ECU
e	ABS ECU
f	O/D OFF switch

5-7 HOW TO PROCEED WITH TROUBLE SHOOTING

1.This system incorporates diagnosis functions that will locate malfunctioning parts, thus providing a vital clue in trouble shooting.

∑1. Bringing malfunctioning vehicle to workshop

▼Go to Step ∑2.

∑2. Diagnosis by interview

1.Gather enough information from the customer on conditions, environment, and phenomenon in which the malfunction took place.

▼Go to Step ∑3.

∑3. Check the meter LCD diagnostic code indication for proper operation

1.Use the SST to short-circuit the DLC terminals between 4(ECU-T) - 13(E).
SST: 09991-87403-000

2.Check whether the meter LCD displays a diagnostic code (including the normal code).
SPECIFIED VALUE: Shall display properly.

NOTE

- Codes other than the CAN-related code are acceptable.

▼If it is OK, go to Step ∑4.
▼In the case of NG, check the meter for the following conditions. Replace the meter if no problem is found.
(1) Check the harness between the meter - DLC, and the DLC - body earth.
(2) Check of meter power supply system and earth system.

∑4. Check the diagnostic code (CAN-related)

1.Check that the LCD of the meter does not display a CAN-related diagnostic code (code No.00 51-00 53).
SPECIFIED VALUE: Shall not display the code No.00 51-00 53.

▼If it is OK, go to Step ∑5.
▼In the case of NG, refer to the CAN communication system section.
Refer to Page L2-1.

∑5. Check and record the diagnostic code (meter-related)

1.Check and record the meter-related diagnostic code (code No.00 41 - 00 43, 61) displayed on the meter LCD.

NOTE

- The meter LCD displays diagnosis codes for the CAN communication system and LIN communication system, in addition to a meter-related diagnostic code.

▼Go to Step ∑6.

∑6.Basic check

1.Perform the basic checks.
Refer to Page J3-16.

▼Go to Step ∑7.

∑7. Recheck the diagnostic code (CAN-related)

1.Recheck the meter related diagnostic code (code No.00 41 - 00 43, 61) displayed on the meter LCD.
▼Go to Step ∑8, if an abnormality code is displayed.
▼Go to Step ∑9, if the normal code is displayed.

∑>8. Trouble shooting according to the diagnostic code

1.Perform troubleshooting for the outputted diagnostic code.
Refer to Page J3-19.

▼Go to Step ∑>10 when the repair is complete.

∑>9.Trouble-shooting according to malfunction phenomenon

1.Perform troubleshooting for the malfunction phenomenon which is taking place.
Refer to Page J3-21.

▼Go to Step ∑>5 when the repair is complete.

∑>10.Confirmation test

1.Ensure that the problem that the customer described has been completely corrected and the operation is back to normal.
▼If it is OK, finish the trouble shooting.
▼In the case of NG, go back to Step ∑>3 for a recheck.

5-8 INQUIRY

1.In an effort to remove causes for malfunction from the vehicle concerned, it is impossible to determine the cause without confirming the malfunction phenomenon. If the phenomenon is not confirmed, the vehicle may not be able to return to the normal conditions even if you continue your work. The diagnosis through interviews is to collect information from the customer before confirming the malfunction phenomena. The diagnosis through interviews provides very important clues in reproducing malfunction phenomena.
2.Since the information obtained by the diagnosis through interviews is referred to during the trouble shooting, it is imperative to make an inquiry of the customer, centering on the items related to the malfunction, instead of simply asking general questions.

5-9 CONFIRMATION, RECORD AND ERASURE OF DIAGNOSIS CODE

1.The error message of the diagnostic code remains displayed as long as the communication failure exists, and will be erased when the communication is back to normal.

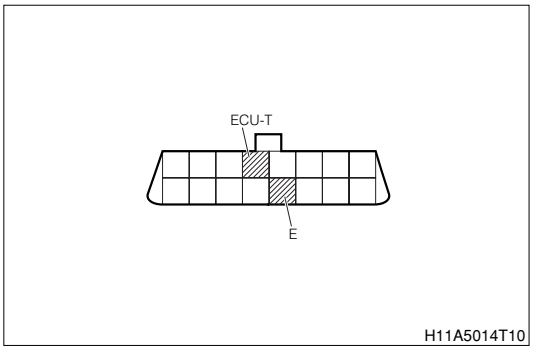
5-9-1 CHECKING METHOD OF DIAGNOSIS

1.Stop the vehicle.
2.Set the IG switch to LOCK and use SST to short-circuit the ECU-T terminal and E terminal of DLC located beneath the instrument panel.

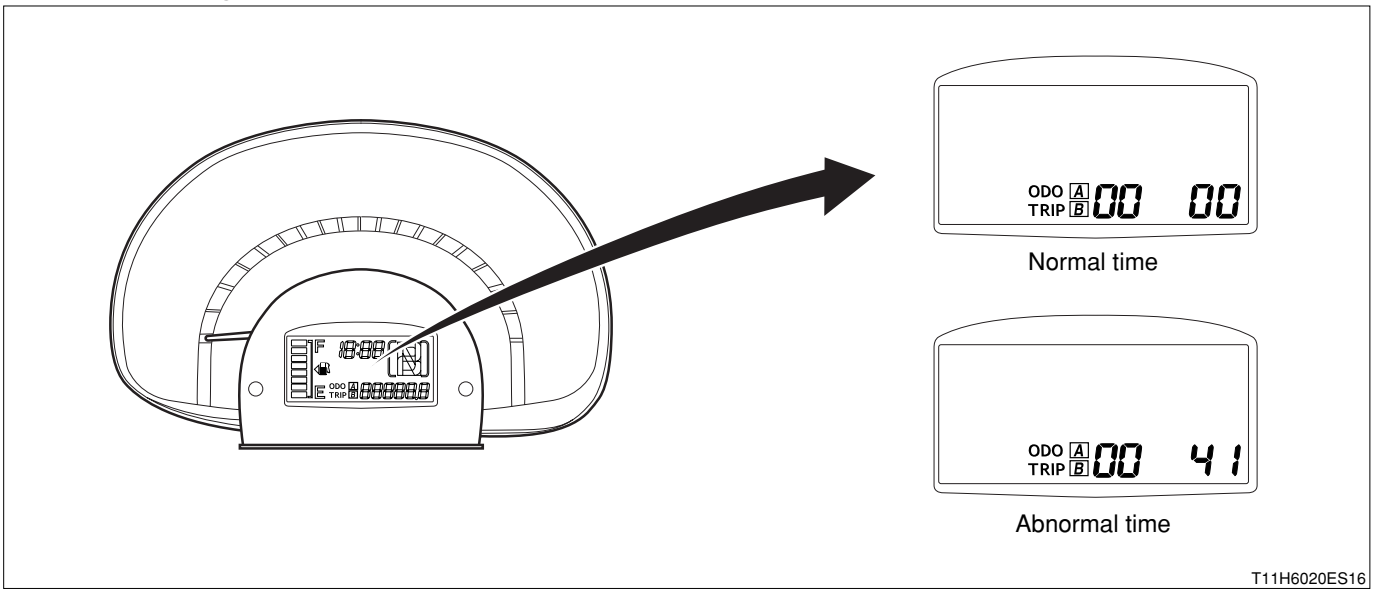
CAUTION

- Connecting the connector in the wrong location could cause a malfunction. Therefore, make sure the connection is correct.

SST: 09991-87403-000
09991-87404-000



3.With the IG switch turned ON, read the diagnosis code that is indicated on the LCD (Liquid Crystal Display) using numerals.



NOTE

- The meter LCD displays diagnosis codes for the CAN communication system and LIN communication system, in addition to a meter-related diagnostic code.
- When plural codes are to be outputted, they are outputted, starting from a smaller code number. Furthermore, when one cycle of indications is completed, these codes are repeatedly outputted at intervals of four seconds.

5-9-2 CANCELING METHOD OF DIAGNOSIS

1.The diagnosis code will be erased automatically when the problem has been solved.

5-9-3 CONTENTS OF DIAGNOSIS

Code No.		Warning indication (Provided: ○, Not provided: ×)	Code memory (Provided: ○, Not provided: ×)	Contents of diagnosis
LCD	4 digits			
00 00	–	×	×	Normal
00 41	–	×	×	A/T shift range information signal not yet received
00 42	–	×	×	More than one A/T shift range information signals received.
00 43	–	×	×	Unable to read CAN communication system connected ECU information
00 61	–	×	×	Low voltage error

NOTE

- The meter LCD displays diagnosis codes for the CAN communication system and LIN communication system, in addition to a meter-related diagnostic code.

CAN communication system (00 51 - 00 53)

Refer to Page L2-13.

LIN communication system (00 11, 00 21)

Refer to Page L2-44.

5-10 BASIC CHECK

5-10-1 BATTERY VOLTAGE CHECK

1.Measure the battery voltage with the engine stopped.
SPECIFIED VALUE: 10 - 14V

5-10-2 POWER SUPPLY CIRCUIT CHECK

1.Disconnect the connector of the meter. Measure the voltage between the following harness side connector terminal and the body earth.
(1) Between the meter harness side connector 9(IG2) and the body earth.
(2) Between the meter harness side connector 10(+B) and the body earth.
SPECIFIED VALUE: 10 - 14V

5-10-3 EARTH CIRCUIT CHECK

1.After setting the IG switch to "LOCK" remove the battery negative (-) terminal.
2.Disconnect the connector of the meter. Check continuity between the following harness side connector terminal and the body earth.
(1) Between the meter harness side connector 18(GND) and the body earth.
SPECIFIED VALUE: Continuity exists.

5-10-4 SPEEDOMETER CHECK

1.Place the vehicle on the speedometer tester.
2.Check the indication on the speedometer, and the measured speed of the speedometer tester.

EU region (MPH indication)

Tester indication standard speed (MPH)	Permissible range (MPH) of meter indication value
40	41.5 — 44.0
60	61.9 — 65.1
80	82.3 — 86.3
100	103.0 — 107.4
120	123.6 — 126.5
140	144.3 — 149.6

EU region (km/h indication), GCC region

Tester indication standard speed (km/h)	Permissible range (km/h) of meter indication value
40	41.9 — 45.2
60	62.3 — 65.8
80	82.7 — 87.7
100	103.1 — 108.9
120	123.5 — 130.1
140	143.9 — 151.3
160	164.4 — 172.5
180	184.8 — 193.7
200	205.2 — 214.9

Regions other than above

Tester indication standard speed (km/h)	Permissible range (km/h) of meter indication value
40	37.9 — 41.3
60	58.3 — 62.5
80	77.7 — 83.7
100	98.5 — 104.9
120	119.0 — 125.5
140	139.0 — 146.0
160	159.0 — 167.0
180	179.0 — 188.0
200	199.0 — 209.0

NOTE

- Improper air pressure and/or wear of a tire will lead to a meter reading error.

3.Check the deflection (without vibration) of the speedometer pointer.
SPECIFIED VALUE: Shall be within ±0.3km/h.

4.Check the odometer for proper operation.
SPECIFIED VALUE: Shall operate properly.

5-10-5 TACHOMETER CHECK

1.Connect a rev counter to the vehicle.
2.Check the error in the reading of the tachometer and the rev counter.

Rev counter reading (r/min)	Permissible range of tachometer reading (r/min)
700	630 — 770
1000	(900 — 1100)
2000	(1850 — 2150)
3000	2800 — 3200
4000	(3800 — 4200)
5000	4800 — 5200
6000	(5750 — 6250)
7000	6700 — 7300
8000	(7700 — 8300)

CAUTION

- Do not run the engine beyond the permissible engine speed (above the red zone on the tachometer).

NOTE

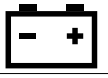
- Figures in ( ) show reference values.

5-10-6 CHECK OF WARNING LAMP INDICATOR

1.Check the lighting condition of the warning lamp indicator under conditions provided below.

CAUTION

- Perform checks with the engine stopped and the IG switch turned "ON".

Detected item		Condition	Standard
	Turn	When the turn signal switch is operated for the right turning	Right side flashing
		When the turn signal switch is operated for the left turning	Left side flashing
	High beam	When the dimmer passing switch HI is being operated	Illuminated
	Charge	The IG switch turned "OFF"→the IG switch turned "ON"(Engine stopped)→ the IG switch turned "ON"(Engine started)	Extinguished→Illuminated→Extinguished
	Oil	The IG switch turned "OFF"→the IG switch turned "ON"(Engine stopped)→ the IG switch turned "ON"(Engine started)	Extinguished→Illuminated→Extinguished
	MIL	The IG switch turned "OFF"→the IG switch turned "ON"(Engine stopped)→ the IG switch turned "ON"(Engine started)	Extinguished→Illuminated→Extinguished
	Brake	With the parking brake turned "OFF", the IG switch turned "OFF"→ the IG switch turned "ON"	Extinguished →Illuminated (for 3sec.)→Extinguished
	Driver's seat belt	Unengaged driver's seat belt→Engaged	Flashing→Extinguished
	Passenger's seat belt	Unengaged front passenger's seat belt the occupant seating on the front passenger seat →Engaged	Flashing→Extinguished
	Airbag	IG switch OFF→IG switch ON	Extinguished →Illuminated (for 6sec.)→Extinguished
	ABS	IG switch OFF→IG switch ON	Extinguished →Illuminated (for 3sec.)→Extinguished
	High-water temperature	IG switch OFF→IG switch ON	Extinguished →Illuminated (for 3sec.)→Extinguished
	Low-water temperature	With the water temperature above 40˚C IG switch turned "OFF"→ the IG switch turned "ON"	Extinguished →Illuminated (for 3sec.)→Extinguished
EPS	EPS	IG switch OFF→IG switch ON	Extinguished →Illuminated (for 2sec.)→Extinguished
O/D OFF	O/D OFF	When O/D OFF switch is turned ON:	Illuminated
	Security	Key insertion switch OFF→Key insertion switch ON	Flashing→Extinguished
	Rear fog	When the rear fog lamp is illuminated	Illuminated
—	Shift position	Each shift position	The shift indicator concerned is indicated.

T11H6504ES37

5-11 TROUBLE SHOOTING ACCORDING TO DIAGNOSIS CODE

5-11-1 NO.00 41 (A/T SHIFT RANGE INFORMATION SIGNARL NOT YET RECEIVED)

⊳1. Diagnostic code check (CAN-related)

1.Check that the meter LCD does not display a CAN-related diagnostic code (code No.00 51 - 00 53).
SPECIFIED VALUE: Shall not display the code No.00 51 - 00 53.

▼If it is OK, go to Step⊳2.
▼In the case of NG, refer to the CAN communication system section.
Refer to Page L2-1.

⊳2. Diagnostic code check (transmission control computer related)

1.Check the A/T ECU diagnostic code.
SPECIFIED VALUE: Shall display the code No.55.

▼If it is OK, perform the troubleshooting for the diagnostic code No.55 for A/T ECU.
Refer to Page F5-36.

▼If it is NG, go to Step ⊳3.

⊳3. Check of meter power supply system and earth system

1.Check voltage between the vehicle harness side connector power supply terminal of the meter, earth terminal, and the body earth.
SPECIFIED VALUE: 10 - 14V

▼If it is OK, go to Step ⊳4.
▼If it is NG, repair or replace the wire harness.

⊳4. Check of A/T ECU power supply system and earth system

1.Check voltage between the vehicle harness side connector power supply terminal of the A/T ECU, earth terminal, and the body earth.
SPECIFIED VALUE: 10 - 14V

▼If it is OK, replace the meter. If the problem is not solved after the replacement, replace the A/T ECU, too.
▼If it is NG, repair or replace the wire harness.

5-11-2 NO.00 42(MORE THAN ONE A/T SHIFT RANGE INFORMATION SIGNALS RECEIVED.)

⊳1. Diagnostic code check (CAN-related)

1.Check that the meter LCD does not display the CAN related diagnostic code (code No.00 51 - 00 53).
SPECIFIED VALUE: Shall not display the code No.00 51 - 00 53.

▼If it is OK, go to Step ⊳2.
▼In the case of NG, refer to the CAN communication system section.
Refer to Page L2-1.

⊳2. Diagnosis code check (transmission control computer related)

1.Check the A/T ECU diagnostic code.
SPECIFIED VALUE: Shall display the code No.56.

▼If it is OK, perform the troubleshooting for the A/T ECU diagnostic code No.56.
Refer to Page F5-38.

▼If it is NG, go to Step ⊳3.

⊳3. Check of meter power supply system and earth system

1.Check voltage between the vehicle harness side connector power supply terminal of the meter, earth terminal, and body earth.
SPECIFIED VALUE: 10 - 14V

▼If it is OK, go to Step ⊳4.
▼If it is NG, repair or replace the wire harness.

⊳4. Check of A/T ECU power supply system and earth system

1.Check voltage between the vehicle harness side connector power supply terminal of the A/T ECU, the earth terminal, and the body earth.
SPECIFIED VALUE: 10 - 14V

▼If it is OK, replace the meter. If the problem is not solved after the replacement, replace the A/T ECU, too.
▼If it is NG, repair or replace the wire harness.

5-11-3 NO.00 43 (UNABLE TO READ CAN COMMUNICATION SYSTEM CONNECTED ECU INFORMEITION.)

⊳1. Check of meter power supply system and earth system

1.Check voltage between the vehicles harness side connector power supply terminal of the meter, earth terminal, and the body earth.
SPECIFIED VALUE: 10 - 14V

▼If it is OK, the meter is defective.
▼If it is NG, repair or replace the wire harness.

5-11-4 NO.00 61 (LOW VOLTAGE ERROR)

1.Check voltage between the vehicle harness side connector power supply terminal of the meter, earth terminal, and the body earth.
SPECIFIED VALUE: 10 - 14V

▼If it is OK, the meter is defective.
▼If it is NG, repair or replace the wire harness.

5-12 TROUBLE SHOOTING ACCORDING TO MALFUNCTION PHENOMENA

5-12-1 SPEEDOMETER FAULTY(ABS-EQUIPPED VEHICLES)

⊳1. Diagnostic code check (CAN-related)

1.Check that the meter LCD does not display a CAN-related diagnostic code (code No.00 51 - 00 53).
SPECIFIED VALUE: Shall not display the code No.00 51 - 00 53.

▼If it is OK, go to Step ⊳2.
▼In the case of NG, refer to the CAN communication system section.
Refer to Page L2-1.

⊳2. Diagnostic code check (ABS-related)

1.Check the ABS ECU diagnostic code.
SPECIFIED VALUE: Shall not display the code No.21 - 29.

▼If it is OK, go to Step ⊳3.
▼In the case of NG, perform troubleshooting for the outputted diagnostic code.
Refer to Page E3-28.

⊳3. Check of meter power supply system and earth system

1.Check voltage between the vehicle harness side connector power supply terminal of the meter, earth terminal, and the body earth.
SPECIFIED VALUE: 10 - 14V

▼If it is OK, go to Step ⊳4.
▼If it is NG, repair or replace the wire harness.

⊳4. Check of ABS ECU power supply system and earth system

1.Check voltage between the vehicle harness side connector power supply terminal of the ABS ECU, earth terminal, and the body earth.
SPECIFIED VALUE: 10 - 14V

▼If it is OK, replace the meter. If the problem is not solved after the replacement, replace the ABS ECU, too.
▼If it is NG, repair or replace the wire harness.

5-12-2 SPEEDOMETER FAULTY(A/T AND ABS NON–EQUIPPED VEHICLE)

⊳1. Diagnostic code check (CAN-related)

1.Check that the meter LCD does not display a CAN-related diagnostic code (code No.00 51 - 00 53).
SPECIFIED VALUE: Shall not display the code No.00 51 - 00 53.

▼If it is OK, go to Step ⊳2.
▼In the case of NG, refer to the CAN communication system section.
Refer to Page L2-1.

Σ2. Diagnostic code check (A/T ECU-related)

1.Check the A/T ECU diagnostic code.
SPECIFIED VALUE: Shall not display the code No.42.

▼If it is OK, go to Step Σ3.
▼In the case of NG, perform troubleshooting for the outputted diagnostic code.
Refer to Page F5-29.

Σ3. Check of meter power supply system and earth system

1.Check voltage between the vehicle harness side connector power supply terminal of the meter, earth terminal, and the body earth.
SPECIFIED VALUE: 10 - 14V

▼If it is OK, go to Step Σ4.
▼If it is NG, repair or replace the wire harness.

Σ4. Check of A/T ECU power supply system and earth system

1.Check voltage between the vehicle harness side connector power supply terminal of the A/T ECU, earth terminal, and the body earth.
SPECIFIED VALUE: 10 - 14V

▼If it is OK, replace the meter. If the problem is not solved after the replacement, replace the A/T ECU, too.
▼If it is NG, repair or replace the wire harness.

5-12-3 SPEEDOMETER FAULTY(M/T AND ABS NON–EQUIPPED VEHICLE)

Σ1.Vehicle speed signal input / output check

1.Perform the vehicle speed signal input / output check.
Refer to Page J3-1.

▼If it is OK, go to Step Σ2.
▼If it is NG, go to Step Σ3.

Σ2. Check of meter power supply system and earth system

1.Check voltage between the vehicle harness side connector power supply terminal of the meter, earth terminal, and the body earth.
SPECIFIED VALUE: 10 - 14V

▼If it is OK, the meter is faulty.
▼If it is NG, repair or replace the wire harness.

Σ3. power supply system and earth system

1.Check the voltage between the vehicle harness side connectors 1(+) and 2(−) of the vehicle speed sensor and the body earth.
SPECIFIED VALUE: 10 - 14V

▼If it is OK, go to Step Σ4.
▼If it is NG, repair or replace the wire harness.

⊳4. Wiring harness check

1.Check continuity and short circuit between terminals below.

(1) Meter vehicle harness side connector terminal 7(SPD) - Vehicle speed sensor vehicle harness side connector terminal 3(SPD)

SPECIFIED VALUE: Continuity exists and no short circuit occurs.

▼In the case of NG, the vehicle speed sensor is faulty.

▼If it is OK, repair or replace the harness between the meter and vehicle speed sensor.

5-12-4 ODOMETER FAULTY, TRIP METER FAURLTY(ABS-EQUIPPED VEHICLES)

⊳1. Diagnostic code check (CAN-related)

1.Check that the meter LCD does not display a CAN-related diagnostic code (code No.00 51 - 00 53).

SPECIFIED VALUE: Shall not display the code No.00 51 - 00 53.

▼If it is OK, go to Step ⊳2.

▼In the case of NG, refer to the CAN communication system section.

Refer to Page L2-1.

⊳2. Diagnostic code check (ABS-related)

1.Check the ABS ECU diagnostic code.

SPECIFIED VALUE: Shall not display the code No.21 - 29.

▼If it is OK, go to Step ⊳3.

▼In the case of NG, perform troubleshooting for the outputted diagnostic code.

Refer to Page E3-28.

⊳3. Check of meter power supply and earth system

1.Check voltage between the vehicle harness side connector power supply terminal of the meter, earth terminal, and the body earth.

SPECIFIED VALUE: 10 - 14V

▼If it is OK, go to Step ⊳4.

▼If it is NG, repair or replace the wire harness.

⊳4. Check of ABS ECU power supply system and earth system

1.Check voltage between the vehicle harness side connector power supply terminal of the ABS ECU, earth terminal, and the body earth.

SPECIFIED VALUE: 10 - 14V

▼If it is OK, replace the meter. If the problem is not solved after the replacement, replace the ABS ECU, too.

▼If it is NG, repair or replace the wire harness.

5-12-5 ODOMETER FAULTY, TYIP METER FAULTY(A/T AND ABS NON–EQUIPPED VEHICLE)

∑1. Diagnostic code check (CAN-related)

1.Check that the meter LCD does not display a CAN-related diagnostic code (code No.00 51 - 00 53).
SPECIFIED VALUE: Shall not display the code No.00 51 - 00 53.

▼If it is OK, go to Step ∑2.
▼In the case of NG, refer to the CAN communication system section.
Refer to Page L2-1.

∑2. Diagnostic code check (A/T ECU-related)

1.Check the A/T ECU diagnostic code.
SPECIFIED VALUE: Shall not display the code No.42.

▼If it is OK, go to Step ∑3.
▼In the case of NG, perform troubleshooting for the outputted diagnostic code.
Refer to Page F5-29.

∑3. Check of meter power supply system and earth system

1.Check voltage between the vehicle harness side connector power supply terminal of the meter, earth terminal, and the body earth.
SPECIFIED VALUE: 10 - 14V

▼If it is OK, go to Step ∑4.
▼If it is NG, repair or replace the wire harness.

∑4. Check of A/T ECU power supply system and earth system

1.Check voltage between the vehicle harness side connector power supply terminal of the A/T ECU, earth terminal, and the body earth.
SPECIFIED VALUE: 10 - 14V

▼If it is OK, replace the meter. If the problem is not solved after the replacement, replace the A/T ECU, too.
▼If it is NG, repair or replace the wire harness.

5-12-6 ODOMETER FAULTY, TRIP METER FAULTY(M/T AND ABS NON–EQUIPPED VEHICLE)

∑1.Vehicle speed signal input / output check

1.Perform the vehicle speed signal input / output check.
Refer to Page J3-1.

▼If it is OK, go to Step ∑2.
▼If it is NG, go to Step ∑3.

∑2. Check of meter power supply system and earth system

1.Check voltage between the vehicle harness side connector power supply terminal of the meter, earth terminal, and the body earth.
SPECIFIED VALUE: 10 - 14V

▼If it is OK, the meter is faulty.
▼If it is NG, repair or replace the wire harness.

∑3. power supply system and earth system

1.Check the voltage between the vehicle harness side connectors 1(+) and 2(−) of the vehicle speed sensor and the body earth.

SPECIFIED VALUE: 10 - 14V

▼If it is OK, go to Step ∑4.

▼If it is NG, repair or replace the wire harness.

∑4. Wiring harness check

1.Check continuity and short circuit between terminals below.

(1) Meter vehicle harness side connector terminal 7(SPD) - Vehicle speed sensor vehicle harness side connector terminal 3(SPD)

SPECIFIED VALUE: Continuity exists and no short circuit occurs.

▼In the case of NG, the vehicle speed sensor is faulty.

▼If it is OK, repair or replace the harness between the meter and vehicle speed sensor.

5-12-7 SHIFT POSITION INDICATOR DEFECTIVE

1.Perform troubleshooting according to the diagnostic code, 00 41 and 00 42.

Refer to Page J3-19.

5-12-8 HIGH WATER TEMPERATURE WARNING LAMP DEFECTIVE, LOW WATER TEMPERATURE INDICATOR LAMP DEFECTIVE

∑1. Diagnostic code check (CAN-related)

1.Check that the meter LCD does not display a CAN-related diagnostic code (code No.00 51 - 00 53).

SPECIFIED VALUE: Shall not display the code No.00 51 - 00 53.

▼If it is OK, go to Step ∑2.

▼In the case of NG, refer to the CAN communication system section.

Refer to Page L2-1.

∑2. Diagnostic code check (EFI-related)

1.Check the EFI ECU diagnostic code.

SPECIFIED VALUE: Shall not display the code No.42.

▼If it is OK, go to Step ∑3.

▼In the case of NG, perform troubleshooting for the EFI ECU diagnostic code No.42.

Vehicle with Type 1KR-FE engine

Refer to Page B8-74.

Vehicle with Type K3-VE engine

Refer to Page B8-301.

∑3. Check of meter power supply system and earth system

1.Check voltage between the vehicle harness side connector power supply terminal of the meter, earth terminal, and the body earth.

SPECIFIED VALUE: 10 - 14V

▼If it is OK, go to Step ∑4.

▼If it is NG, repair or replace the wire harness.

⊳4. Check of EFI ECU power supply system and earth system

1.Check voltage between the vehicle harness side connector power supply terminal of the EFI ECU, earth terminal, and the body earth.
SPECIFIED VALUE: 10 - 14V

▼If it is OK, replace the meter. If the problem is not solved after the replacement, replace the EFI ECU as well.
▼If it is NG, repair or replace the wire harness.

5-12-9 O/D OFF INDICATOR LAMP DOES NOT LIGHT UP.

⊳1. Diagnostic code check (CAN-related)

1.Check that the meter LCD does not display a CAN-related diagnostic code (code No.00 51 - 00 53).
SPECIFIED VALUE: Shall not display the code No.00 51 - 00 53.

▼If it is OK, go to Step ⊳2.
▼In the case of NG, refer to the CAN communication system section.
Refer to Page L2-1.

⊳2. A/T ECU voltage check

1.Check voltage between the vehicle harness side connector terminal B22 (O/D+) of the A/T ECU and the body earth, when the O/D OFF switch is turned "ON".
SPECIFIED VALUE: 0V

▼If it is OK, go to Step ⊳3.
▼If it is NG, go to Step ⊳5.

3.O/D OFF switch check

1.Perform unit check for the O/D OFF switch.
Refer to Page F5-78.

▼If it is OK, go to Step ⊳4.
▼If it is NG, replace the O/D OFF switch.

⊳4. Wiring harness check

1.Check the following wire harness for continuity.
(1) The vehicle harness side connector terminal B22 (O/D+) of the A/T ECU - the vehicle harness side connector terminal 3 (O/D+) of the O/D OFF switch
(2) The vehicles harness side connector terminal 4(E) of the O/D OFF switch - the body earth
SPECIFIED VALUE: Continuity exists

▼If it is OK, go to Step ⊳5.
▼If it is NG, repair or replace the wire harness.

⊳5. Check of A/T ECU power supply system and earth system

1.Check voltage between the vehicle harness side connector power supply terminal of the A/T ECU, earth terminal, and the body earth.
SPECIFIED VALUE: 10 - 14V

▼If it is OK, go to Step ⊳6.
▼If it is NG, repair or replace the wire harness.

⊳6. Check of meter power supply system and earth system

1.Check voltage between the vehicle harness side connector power supply terminal of the meter, earth terminal, and the body earth.
SPECIFIED VALUE: 10 - 14V

▼If it is OK, replace the A/T ECU. If the problem is not solved after the replacement, replace the meter, too.
▼If it is NG, repair or replace the wire harness.

5-12-10 BRAKE WARNING LAMP REMAINS ILLUMINATED EVEN AFTER IGNITION SWITCH IS TURNED ON.(IN THE CASE OF ABS–EQUIPPED VEHICLES WHERE NO ABS DIAGNOSIS CODE IS OUTPUTTED)

⊳1. Diagnostic code check (CAN-related)

1.Check that the meter LCD does not display a CAN-related diagnostic code (code No.00 51 - 00 53).
SPECIFIED VALUE: Shall not display the code No.00 51 - 00 53.

▼If it is OK, go to Step ⊳2.
▼In the case of NG, refer to the CAN communication system section.
Refer to Page L2-1.

⊳2. Brake fluid level check

1.Check whether the master cylinder reservoir contains the specified level of brake fluid.
SPECIFIED VALUE: The level shall be as specified.

▼If it is OK, go to Step ⊳3.
▼In the case of NG, fill the brake fluid to the specified level.

⊳3. Level warning switch check

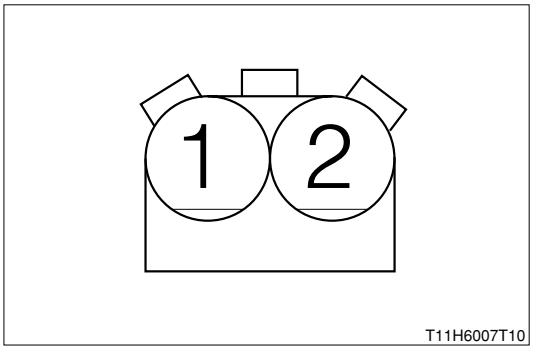
1.Check continuity between the level warning switch terminals.

Switching	Standard
ON	Continuity exists
OFF	No continuity exists

▼If it is OK, go to Step ⊳4.
▼If it is NG, replace the level warning switch.

⊳4. Wiring harness check

1.Check the following harnesses for continuity.
(1) The vehicle harness side connector 8 of the meter - the vehicles harness side connector 1of the level warning switch
(2) The vehicle harness side connector 2 of the level warning switch - the body earth
SPECIFIED VALUE: Continuity shall exist, without short-circuiting.



▼If it is OK, go to Step ⊳5.
▼If it is NG, repair or replace the wire harness.

∑5. Parking brake switch check

1.Check continuity between the parking brake switch and the body earth.

Switching	Standard
ON	Continuity exists
OFF	No continuity exists

▼If it is OK, go to Step ∑6.
▼If it is NG, replace the parking brake switch.

∑6.Wiring harness check

1.Check the following harness for continuity.
(1) The vehicle harness side connector 14 of the meter - the vehicle harness side connector of the parking brake switch
SPECIFIED VALUE: Continuity shall exist, without short-circuiting.

▼If it is OK, go to Step ∑7.
▼If it is NG, repair or replace the wire harness.

∑7. Check of meter power supply system and earth system

1.Check voltage between the vehicle harness side connector power supply terminal of the meter, earth terminal, and the body earth.
SPECIFIED VALUE: 10 - 14V

▼If it is OK, go to Step ∑8.
▼If it is NG, repair or replace the wire harness.

∑8. Check of ABS ECU power supply system and earth system

1.Check voltage between the vehicle harness side connector power supply terminal of the ABS ECU, earth terminal, and the body earth.
SPECIFIED VALUE: 10 - 14V

▼If it is OK, replace the meter. If the problem is not solved after the replacement, replace the ABS ECU, too.
▼If it is NG, repair or replace the wire harness.

5-12-11 BRAKE WARNING LAMP REMAINS ILLUMINATED EVEN AFTER IGNITION SWITCH IS TURNED ON.(VEHICLES NOT EQUIPPED WITH ABS)

∑1. Brake fluid level check

1.Check whether the master cylinder reservoir contains the specified level of brake fluid.
SPECIFIED VALUE: The level shall be as specified.

▼If it is OK, go to Step ∑2.
▼In the case of NG, fill the brake fluid to the specified level.

∑2. Level warning switch check

1.Check continuity between the level warning switch terminals.

Switching	Standard
ON	Continuity exists
OFF	No continuity exists

▼If it is OK, go to Step ∑3.
▼If it is NG, replace the level warning switch.

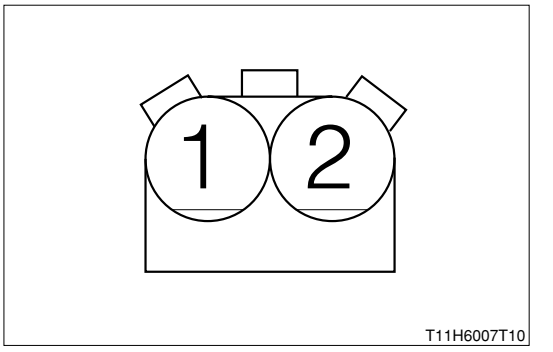
⊳3. Wiring harness check

1.Check the following harnesses for continuity.

(1) The vehicle harness side connector 8 of the meter - the vehicles harness side connector 1of the level warning switch

(2) The vehicle harness side connector 2 of the level warning switch - the body earth

SPECIFIED VALUE: Continuity shall exist, without short-circuiting.



▼If it is OK, go to Step ⊳4.

▼If it is NG, repair or replace the wire harness.

⊳4. Parking brake switch check

1.Check continuity between the parking brake switch and the body earth.

Switching	Standard
ON	Continuity exists
OFF	No continuity exists

▼If it is OK, go to Step ⊳5.

▼If it is NG, replace the parking brake switch.

⊳5.Wiring harness check

1.Check the following harness for continuity.

(1) The vehicle harness side connector 14 of the meter - the vehicle harness side connector of the parking brake switch

SPECIFIED VALUE: Continuity shall exist, without short-circuiting.

▼If it is OK, go to Step ⊳6.

▼If it is NG, repair or replace the wire harness.

⊳6. Check of meter power supply system and earth system

1.Check voltage between the vehicle harness side connector power supply terminal of the meter, earth terminal, and the body earth.

SPECIFIED VALUE: 10 - 14V

▼If it is OK, replace the meter.

▼If it is NG, repair or replace the wire harness.

5-12-12 THE BRAKE WARNING LAMP DOES NOT GO ON FOR THREE SECONDS AFTER IG SWITCH IS SET TO ON POSITION.

⊳1. Diagnostic code check (CAN-related)

1.Check that the meter LCD does not display a CAN-related diagnostic code (code No.00 51 - 00 53).

SPECIFIED VALUE: Shall not display the code No.00 51 - 00 53.

▼If it is OK, go to Step ⊳2.

▼In the case of NG, refer to the CAN communication system section.

Refer to Page L2-1.

▷2. Check of meter power supply system and earth system

1.Check voltage between the vehicle harness side connector power supply terminal of the meter, earth terminal, and the body earth.
SPECIFIED VALUE: 10 - 14V

▼If it is OK, the meter is defective.
▼If it is NG, repair or replace the wire harness.

5-12-13 BRAKE WARNING LAMP REMAINS ILLUMINATED EVEN AFTER IGNITION SWITCH IS TURNED ON.

Refer to Page E3-32.

5-12-14 THE ABS WARNING LAMP DOES NOT GO ON FOR THREE SECONDS AFTER IG SWITCH IS SET TO ON POSITION.

▷1. Diagnostic code check (CAN-related)

1.Check that the meter LCD does not display a CAN-related diagnostic code (code No.00 51 - 00 53).
SPECIFIED VALUE: Shall not display the code No.00 51 - 00 53.

▼If it is OK, go to Step ▷2.
▼In the case of NG, refer to the CAN communication system section.
Refer to Page L2-1.

▷2. Check of meter power supply system and earth system

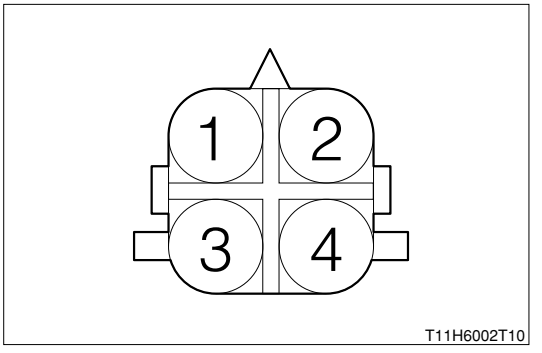
1.Check voltage between the vehicle harness side connector power supply terminal of the meter, earth terminal, and the body earth.
SPECIFIED VALUE: 10 - 14V

▼If it is OK, the meter is defective.
▼If it is NG, repair or replace the wire harness.

5-13 UNIT CHECK

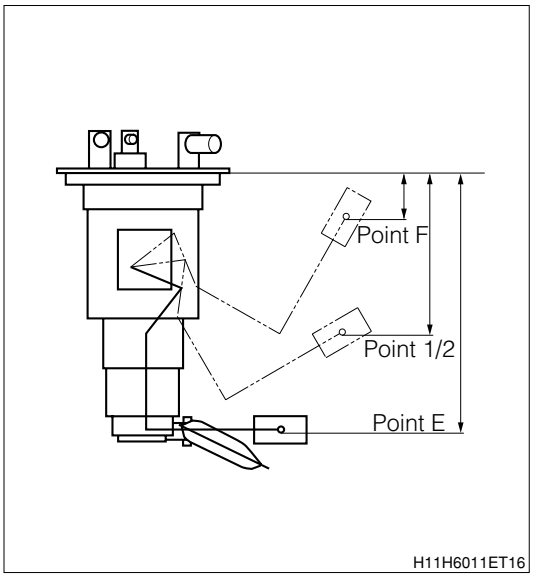
5-13-1 FUEL SENDER GAGE

1.Ensure that the float can move without any binding.



2.Check resistance between the terminals 1 - 2, when the float position is shifted from Point E to F.

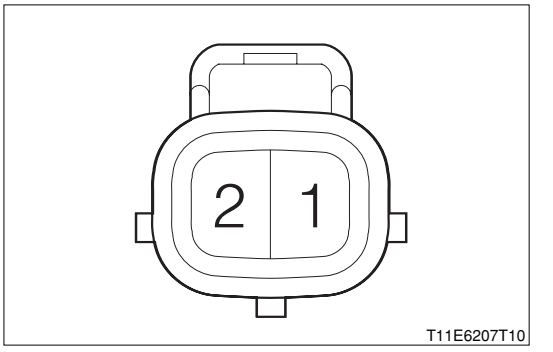
Level	Float position	Resistance (Ω)
F	33.7	3.0±1.0
1/2	107.4	32.5±3.0
E	175.6	120.0±1.0



5-13-2 WATER TEMPERATURE SENSOR

1.Check resistance between the terminal 1 - 2.

Temperature (°C)	Resistance (Ω)
20	2450
80	318±8
110	141.7±1.8



5-13-3 VEHICLE SPEED SENSOR (MRE TYPE:MAGNETIC RESISTANCE ELEMENT)

CAUTION

- This check is applied only to the M/T and ABS non-equipped vehicle.

1.Connect the connector terminal 1 of the vehicle speed sensor with the battery positive (+) terminal, whereas connect the terminal 2 with the battery negative (-) terminal.

2.When the sensor shaft is made one turn, check the change in resistance between the terminal 2 and terminal 3.

SPECIFIED VALUE: The switching between high and low occurs four times per turn.