

METER / GAUGE SYSTEM

PRECAUTION

1. REMOVAL AND INSTALLATION OF BATTERY TERMINAL

- (a) Before performing electronic work, disconnect the battery negative (-) terminal in order to prevent a short in the system.
- (b) When disconnecting and reconnecting the battery cable, turn the ignition switch and lighting switches off and loosen the terminal nut completely. Perform these operations without prying on the terminal.
- (c) When the battery terminal is removed, the memories of the clock, radio, DTCs, etc. are erased. So before removing the terminal, check and make a note of them.

NOTICE:

When disconnecting the battery negative (-) terminal, initialize the following system after the terminal is reconnected.

ME

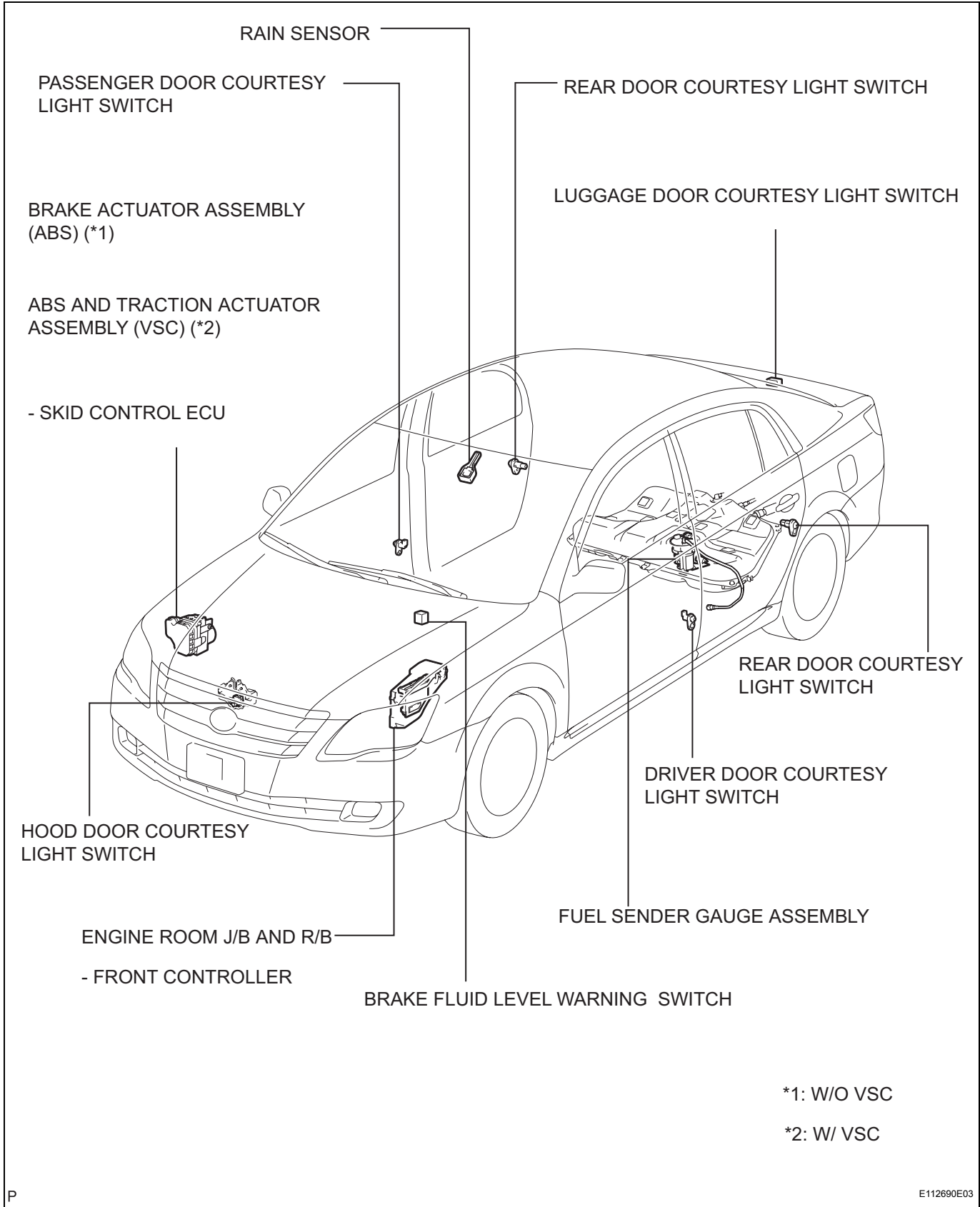
System Name	See Procedure
Front Power Seat Control System	IN-29
Sliding Roof System	

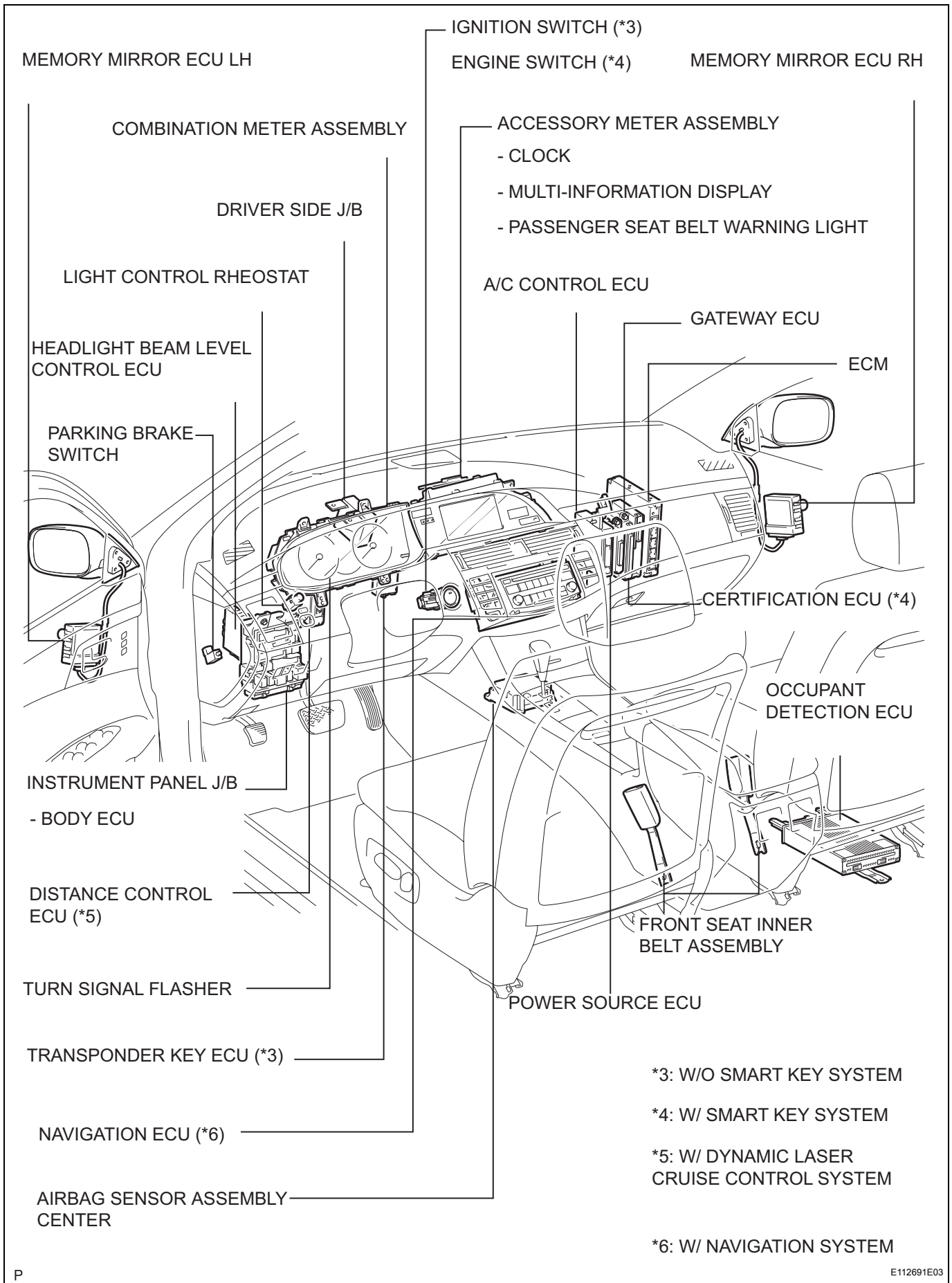
2. EXPRESSIONS OF IGNITION SWITCH

- (a) The type of ignition switch used on this model differs according to the specification of the vehicle. The expressions listed in the table below are used in this section.

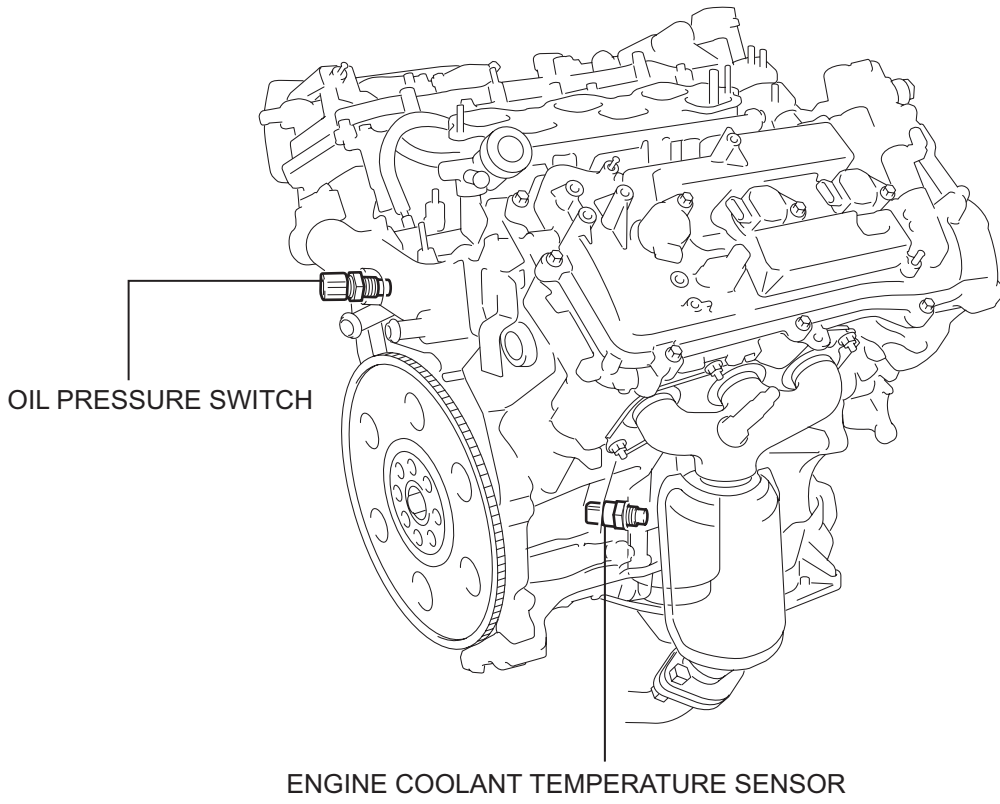
Switch Type	Ignition Switch (position)	Engine Switch (condition)	
Expression	Ignition Switch off	LOCK	Off
	Ignition Switch on (IG)	ON	On (IG)
	Ignition Switch on (ACC)	ACC	On (ACC)
	Engine Start	START	Start

PARTS LOCATION





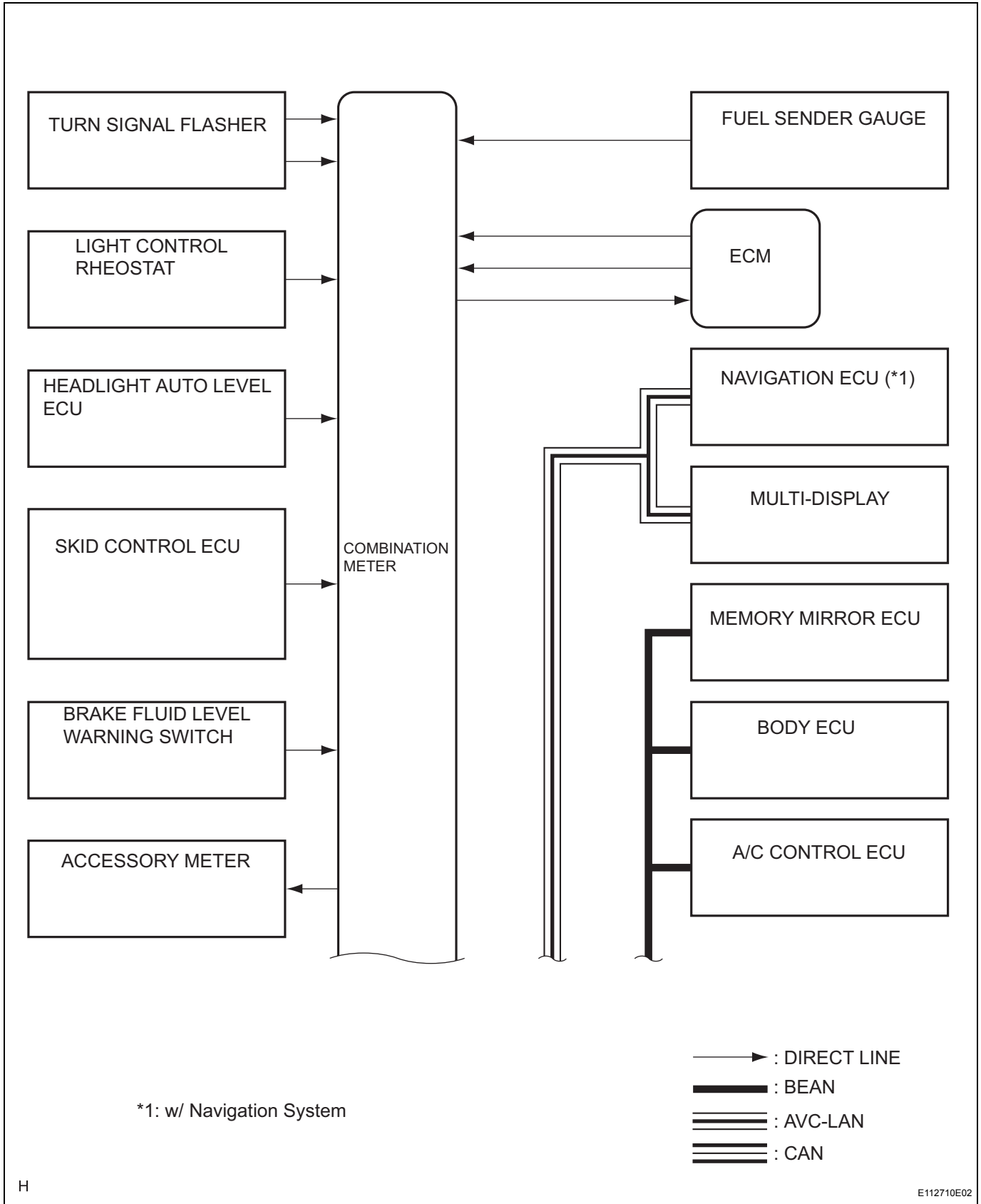
ME



ME

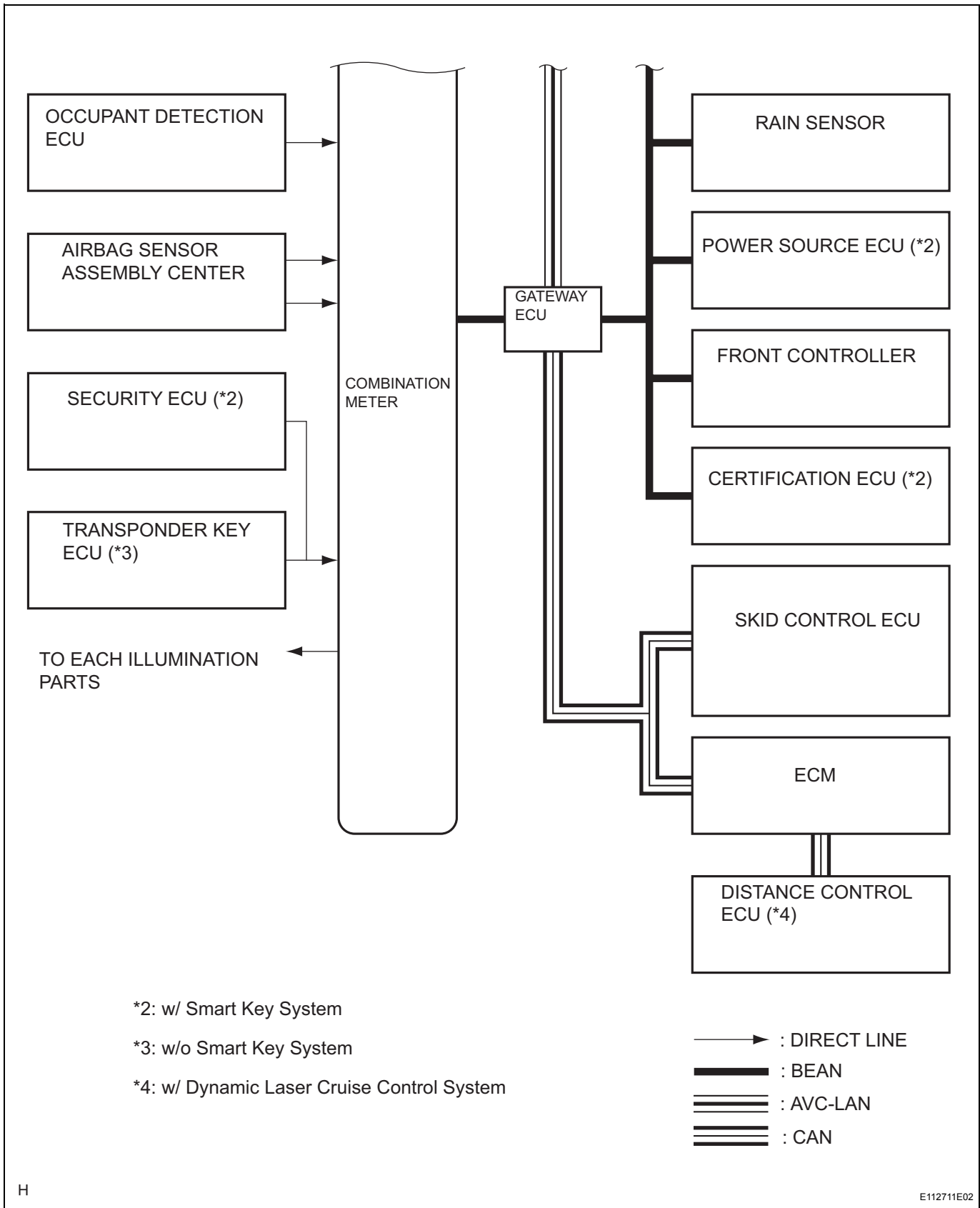
SYSTEM DIAGRAM

1. COMBINATION METER ASSEMBLY



ME

ME



*2: w/ Smart Key System
 *3: w/o Smart Key System
 *4: w/ Dynamic Laser Cruise Control System

—▶ : DIRECT LINE
 ——— : BEAN
 = = = : AVC-LAN
 = = = : CAN

H

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GATEWAY:

Sender	Receiver	Communication Signal	Communication Line
Gateway ECU	Combination meter	• Multiplex communication signal	BEAN

HINT:
CAN signals and AVC-LAN signals are transmitted to or received from the combination meter assembly through the gateway ECU.

CAN:

Sender	Receiver	Communication Signal	Communication Line
Distance Control ECU (*1)	Combination meter	<ul style="list-style-type: none"> • Laser cruise signal • Diagnosis signal (Cruise Control) 	CAN-BEAN
Skid Control ECU	Combination meter	<ul style="list-style-type: none"> • Brake warning light signal • Parking brake switch signal • ABS warning light signal • VSC warning light signal (*2) • Request signal to turn on / blink SLIP (*2) indicator light • Diagnosis signal (ABS, VSC) 	CAN-BEAN
ECM	Combination meter	<ul style="list-style-type: none"> • ECT indicator signal • Test mode signal • Starter signal • Diagnosis signal (ABS, VSC, Cruise control) • Shift position signal • Engine coolant temperature signal • Fuel injection volume signal (for FUEL gauge control) • Radar cruise signal 	CAN-BEAN

ME

BEAN:

Sender	Receiver	Communication Signal	Communication Line
Body ECU	Combination meter	<ul style="list-style-type: none"> • Rear door courtesy light switch signal • Passenger door courtesy light switch signal • Driver door courtesy light switch signal • Driver side seat belt buckle light switch signal • Diagnosis signal • Illumination signal • Request signal to turn on the headlight / taillight 	BEAN
Front Controller	Combination meter	<ul style="list-style-type: none"> • Engine oil level signal • Engine oil pressure signal • Washer level sensor signal • Alternator L signal 	BEAN
A/C Control ECU	Combination meter	<ul style="list-style-type: none"> • Outside temperature signal 	BEAN
Power Source ECU	Combination meter	<ul style="list-style-type: none"> • The power source signal 	BEAN
Certification EUC	Combination meter	<ul style="list-style-type: none"> • The door condition signal 	BEAN
Combination meter	Power Source ECU A/C Control ECU Body ECU Front Controller Rain sensor Certification EUC	<ul style="list-style-type: none"> • Vehicle speed signal 	BEAN
Combination meter	Power Source ECU Body ECU	<ul style="list-style-type: none"> • Light control rheostat signal 	BEAN
Combination meter	A/C Control ECU Memory mirror ECU LH / RH	<ul style="list-style-type: none"> • Vehicle specification signal 	BEAN
Combination meter	Certification EUC Body ECU Gateway ECU	<ul style="list-style-type: none"> • ODO meter signal 	BEAN
Combination meter	Gateway ECU	<ul style="list-style-type: none"> • Vehicle warning signal 	BEAN

AVC-LAN:

Sender	Receiver	Communication Signal	Communication Line
Multi-Display	Combination meter	• Driver monitor operation signal	AVC-LAN-BEAN
Combination meter	Multi-Display	• Driver monitor information signal (possible running distance / average vehicle speed / drive distance / average fuel consumption / travel time)	AVC-LAN-BEAN

Direct Line:

Sender	Receiver	Communication Signal	Communication Line
Headlight Auto Level ECU	Combination meter	• Headlight level warning signal	Direct Line
Airbag Sensor Assembly Center	Combination meter	• Diagnosis code signal • Passenger seat occupant classification signal • Passenger seat buckle switch signal • Request signal to turn on airbag warning light • Request signal to blink airbag warning light	Direct Line
Transponder Key ECU (*3)	Combination meter	• Security indicator light signal	Direct Line
Certification ECU (*4)	Combination meter	• Single buzzer sounding signal • Single to inform if key is in the cabin • Key battery information signal • Single to inform that engine cannot be restarted • A signal to inform if key is on front seats. • Incorrect key signal • Shift position warning signal • Request signal to sound a buzzer • Door open indication signal	Direct Line
Combination meter	Hazard Switch Seat Heater Switch Cigar Lighter A/T Shift Lever Audio Controller Navigation ECU Heater Control Panel	• Illumination control signal	Direct Line

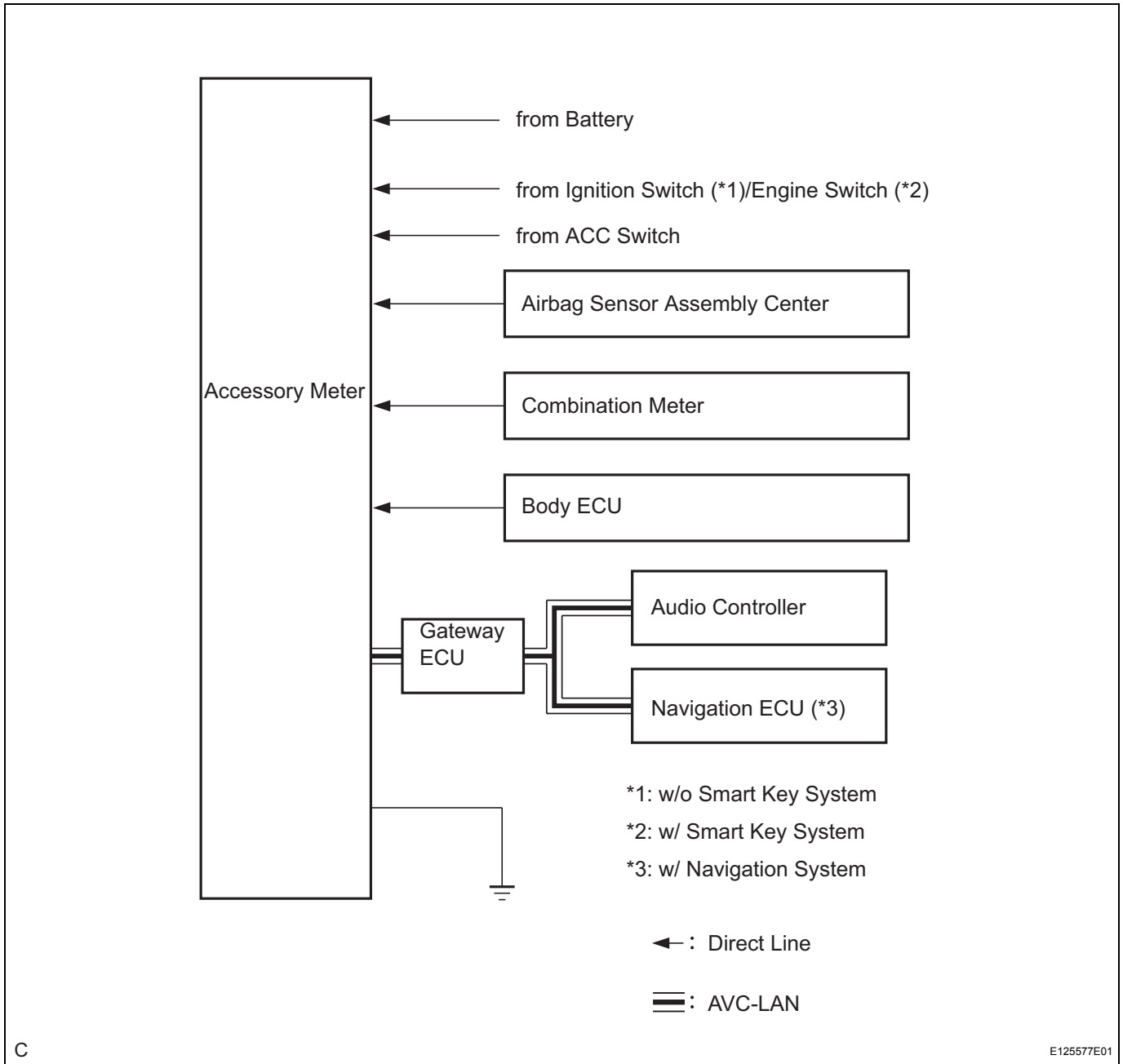
*1: w/ Dynamic Laser Cruise Control System. In addition, the distance control ECU communicates with the combination meter assembly via ECM.

*2: w/ VSC

*3: w/o Smart key System

*4: w/ Smart key System

2. ACCESSORY METER ASSEMBLY



ME

GATEWAY:

Sender	Receiver	Communication Signal	Communication Line
Gateway ECU	Each ECU	• Multiplex communication signal	AVC-LAN

HINT:

AVC-LAN signals are transmitted to or received from the combination meter assembly through the ECU.

AVC-LAN:

Sender	Receiver	Communication Signal	Communication Line
Navigation ECU (*3)	Accessory Meter	• GPS signal	AVC-LAN-BEAN
Audio Controller	Accessory Meter	• Audio display signal	AVC-LAN-BEAN

Direct Line

Sender	Receiver	Communication Signal	Communication Line
Body ECU	Accessory Meter	<ul style="list-style-type: none"> Air conditioning display, drive monitor display and warning display 	Direct Line
Airbag Sensor Assembly Center	Accessory Meter	<ul style="list-style-type: none"> Passenger airbag warning signal 	Direct Line
Combination Meter	Accessory Meter	<ul style="list-style-type: none"> Passenger seat belt warning signal Illumination signal 	Direct Line
Body ECU	Accessory Meter	<ul style="list-style-type: none"> ACAN signal 	Direct Line

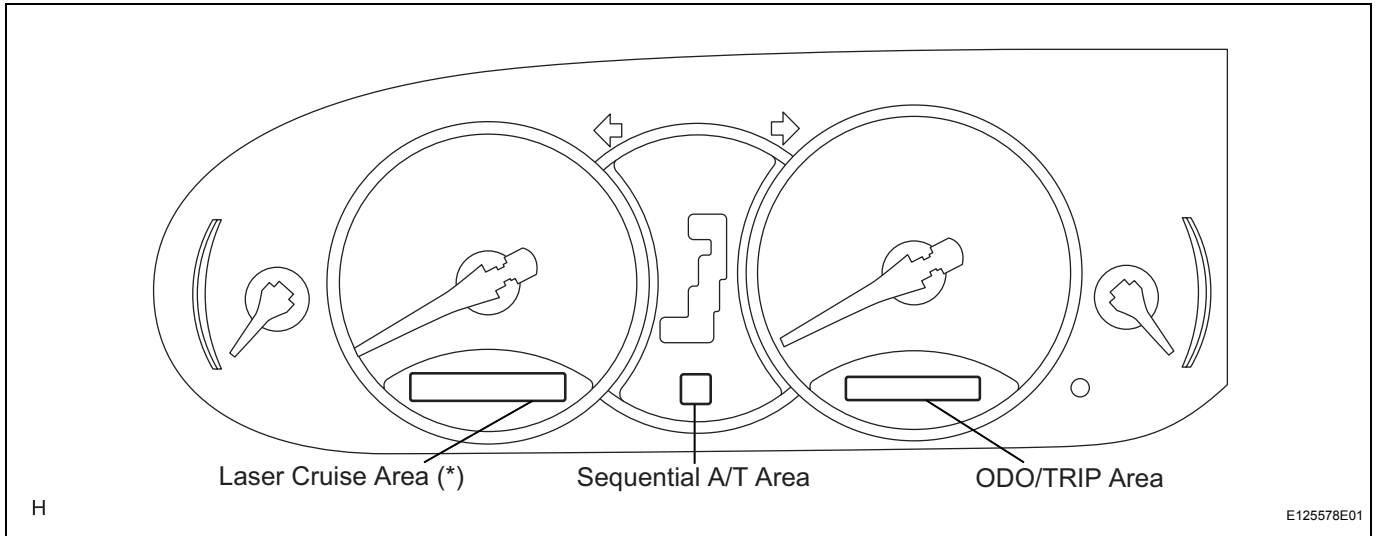
*1: w/o Smart Key System

*2: w/ Smart Key System

*3: w/ Navigation System

SYSTEM DESCRIPTION

1. Combination Meter Assembly



*: w/ Dynamic Laser Cruise Control System

HINT:

CAN signals and AVC-LAN signals are transmitted to or received from the combination meter assembly through the gateway ECU.

(a) GAUGE:

Item	Detail
Speedometer	Based on a signal received from the wheel speed sensor, the ABS and traction actuator assembly (VSC) (*1) brake actuator assembly (ABS) (*2) calculates vehicle speed and transmits the data to the meter (Direct line).
Tachometer	ECM transmits engine speed to the meter display (Direct line).
Engine Coolant Temperature Gauge	Displays the engine coolant temperature receiving a signal from the ECM (CAN-BEAN).
Fuel Gauge	Receives the fuel sender gauge signal from the fuel sender gauge assembly (Direct line).

(b) WARNING/INDICATOR:

Item	Detail
TURN SIGNAL	Receives the turn signal from the turn signal flasher (Direct line).
BEAM	Receives the beam signal from the body ECU (BEAN).
CHARGE	Receives the malfunction charge signal from the front controller (CAN-BEAN).
CHECK E/G	Receives the malfunction signal from the ECM (Direct line).
DOOR	Open door indicator comes on receiving from the body ECU (BEAN).
D BELT	Receives the driver seat belt signal (Unfastened) from the body ECU (BEAN).
P BELT	Receives the passenger seat belt signal (Unfastened) from the airbag sensor ECU (Direct line).
BRAKE	<ul style="list-style-type: none"> Receives the parking brake switch or warning signal from the ABS and traction actuator assembly (VSC) (*1) brake actuator assembly (ABS) (*2) (CAN-BEAN). Receives the brake fluid level warning signal from the brake fluid level warning switch (Direct line).
AIRBAG	Receives the malfunction signal from the airbag sensor assembly center (Direct line).
A/T P	Receives the P signal from the ECM (CAN-BEAN).
A/T R	Receives the R signal from the ECM (CAN-BEAN).
A/T N	Receives the N signal from the ECM (CAN-BEAN).
A/T D	Receives the D signal from the ECM (CAN-BEAN).
A/T S	Receives the S signal from the ECM (CAN-BEAN).

Item	Detail
SLIP	Receives the malfunction signal from the ABS and traction actuator assembly (VSC) (CAN-BEAN) (*1).
VSC	Receives the malfunction signal from the ABS and traction actuator assembly (VSC) (CAN-BEAN) (*1).
WASHER	Receives the washer level warning signal from controller (BEAN).
ABS	Receives the malfunction signal from the ABS and traction actuator assembly (VSC) (*1) / brake actuator assembly (ABS) (*2) (CAN-BEAN).
TAIL (*3)	Receives the malfunction tail (*3) signal from the body ECU (BEAN).
HEAD (*4)	Receives the malfunction head (*4) signal from the body ECU (BEAN).
MAINT REQD (*4)	The combination meter assembly determines the indicator operation based on the accumulated travel distance.
KEY (*6)	Receives the smart key system signal from the certification ECU (BEAN).
Oil pressure	Receives the low engine oil pressure signal from the front controller (BEAN)
Headlight	Receives the headlight auto level signal from the headlight auto level ECU (Direct line).
Security	Receives the security signal from the transponder key ECU (*5) / certification ECU (*6) (Direct line).
Fuel warning	Receives the fuel level warning signal from the fuel sender gauge assembly (Direct line).
CRUISE (*7)	Receives the laser cruise signal from the distance control ECU (CAN-BEAN).
NORM (*7)	Receives the laser cruise normal signal from the distance control ECU (CAN-BEAN).
READY (*7)	Receives the laser cruise ready signal from the distance control ECU (CAN-BEAN).
CRUISE CHECK	Receives the laser cruise warning signal from the distance control ECU (CAN-BEAN).

*1: w/ VSC

*2: w/o VSC

*3: Except U.S.A.

*4: U.S.A.

*5: w/o Smart key System

*6: w/ Smart key System

*7: w/ Dynamic Laser Cruise System

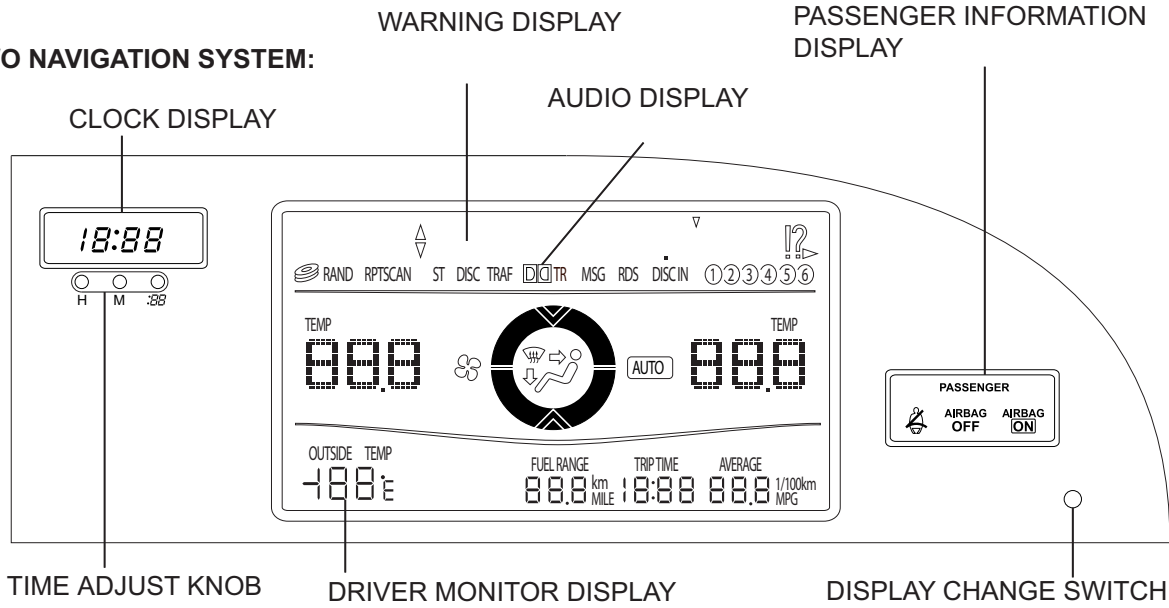
(c) MULTI-INFORMATION DISPLAY

- The multi-information display consists areas (Laser cruise area and ODO / TRIP area). These areas display the contents given in the table below.
- A steering pad switch (for multi-information display) that switches the contents of the multi-information display has been provided on the steering wheel.

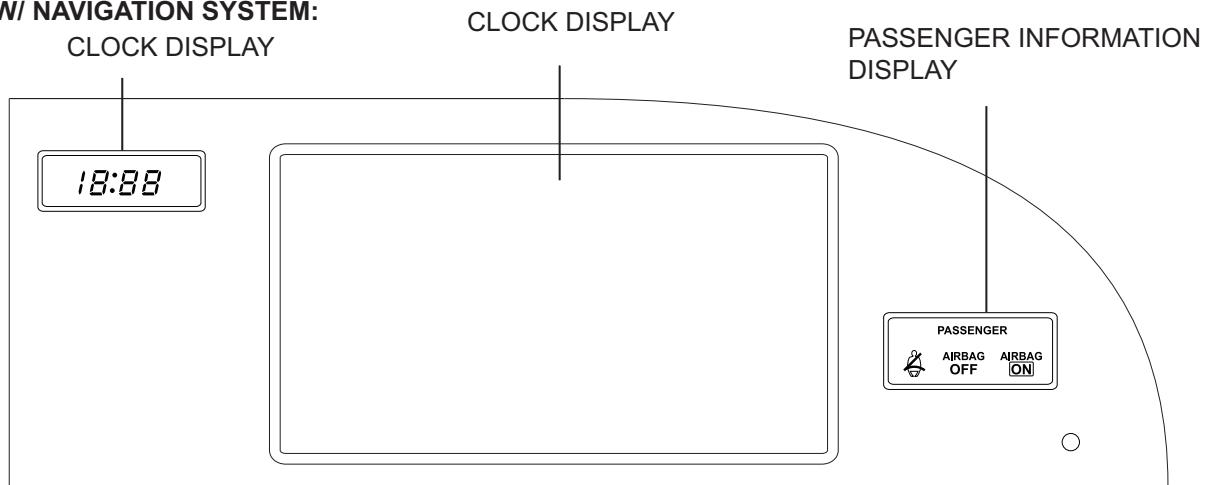
Item	Details
Laser cruise area	Displays cruise information. In addition, the contents of the display can be switched by operating the mode change of the cruise control switch.
ODO / TRIP area	Displays ODO / TRIP information. The contents of the display can be switched by operating ODO / TRIP switch.

2. ACCESSORY METER ASSEMBLY

W/O NAVIGATION SYSTEM:



W/ NAVIGATION SYSTEM:



ME

- (a) The accessory meter assembly consists of six displays (clock display, warning display, audio display, A/C display, driver information display, and passenger information display). These areas display the contents given in the table below.

Item	Details
Warning display	Displays the item below. In addition, the contents of the display can be switched by operating the display change switch. <ul style="list-style-type: none"> • Laser cruise warning • Fuel level warning • Washer fluid level warning • Engine start warning • Engine start and key certification signal • Door open warning • Ice road condition
Driver monitor display	Displays the item below. <ul style="list-style-type: none"> • Outside temperature (OUTSIDE TEMP) • Possible running distance (FUEL RANGE) • Driving time (TRIP TIME) • Average fuel consumption (AVERAGE)
Clock display	Displays the time and time can be adjusted by time adjusted knob (*1) / automatically (*2).
Passenger information display	Display the condition of the passenger seat belt ON / OFF and passenger seat airbag ON / OFF.
Audio display	Displays the condition of the audio.
A/C display	Displays the condition of the A/C.
Display change switch	Change the display condition (All display is ON→Driver monitor display is OFF→All display is OFF).

*1: w/o Navigation System

*2: w/ Navigation System

HOW TO PROCEED WITH TROUBLESHOOTING

1 VEHICLE BROUGHT TO WORKSHOP

NEXT

2 CUSTOMER PROBLEM ANALYSIS

NEXT

3 CHECK BODY MULTIPLEX COMMUNICATION SYSTEM

(a) Check for DTC output.

HINT:

(See page [MP-23](#))



MULTIPLEX DTC OUTPUTS (PROCEED TO "BODY MULTIPLEX COMMUNICATION SYSTEM")



NO MULTIPLEX DTC (GO TO STEP 4)

4 CHECK CAN COMMUNICATION SYSTEM

(a) Check for DTC output.

HINT:

(See page [CA-7](#))



CAN DTC OUTPUTS (PROCEED TO "CAN COMMUNICATION SYSTEM")



NO CAN DTC (GO TO STEP 5)

5 PROBLEM SYMPTOMS CONFIRMATION

NEXT

6 PROBLEM SYMPTOMS TABLE

(a) (See page [ME-17](#))

NEXT

7	CIRCUIT INSPECTION
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NEXT

8	REPAIR OR REPLACE
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NEXT

9	CONFIRMATION TEST
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NEXT

ME

END

CUSTOMIZE PARAMETERS

1. BUZZER ON / OFF SETTING

- (a) The buzzer ON / OFF setting, which is a setting of the buzzer function of the combination meter, can disable the driver's seat belt buzzer and front passenger's seat belt buzzer.

NOTICE:

Basically, these buzzers should be set on for safe driving. However, perform the following procedures only if it is necessary to set the buzzer off.

PROCEDURE:

Steps	Driver's Seat Belt Buzzer	Front Passenger's Seat Belt Buzzer
1	Turn the ignition switch on (IG).	Turn the ignition switch on (IG).
2	Press the ODO / TRIP switch until odometer displays "ODO".	Press the ODO / TRIP switch until odometer displays "ODO".
3	Turn the ignition switch off.	Turn the ignition switch off.
4	Turn the ignition switch on (IG) while depressing the brake pedal.	Turn the ignition switch on (IG) while depressing the brake pedal.
5	Press the ODO / TRIP switch immediately (within 6 seconds) and hold it down for 10 seconds or more.	Sit in the front passenger seat. Press the ODO / TRIP switch immediately (within 6 seconds after turning the power switch ON) and hold it down for 10 seconds or more.
6	Continue holding down the ODO / TRIP switch and fasten the driver's seat belt.	Continue holding down the ODO / TRIP switch and fasten the front passenger's seat belt.
7	Check that the odometer displays either "b-on" or "b-off". (*)	Check that the odometer displays either "b-on" or "b-off". (*)
8	Press the ODO/TRIP switch to change the display to "b-off".	Press the ODO/TRIP switch to change the display to "b-off".
9	Turn the ignition switch off.	Turn the ignition switch off.
10	Turn the ignition switch on (IG) while depressing the brake pedal.	Turn the ignition switch on (IG) while depressing the brake pedal.
11	Check that no buzzer sounds.	Check that no buzzer sounds when sitting on the front passenger's seat.

*:"b-off" indicates that the buzzer is OFF. "b-on" indicates that the buzzer is ON. The buzzer ON / OFF setting will be finished (the odometer will display "ODO") if the ODO / TRIP switch is not operated for 10 seconds or more. In this case, perform step 11 to check that buzzer ON / OFF setting is complete. If it is not complete, start from step 1 again.

NOTICE:

When either the battery cable or the combination meter connector is disconnected, these buzzers are set on.

2. CUSTOMIZE PARAMETER (Using a intelligent tester)

- (a) The following items can the possible items to be customized.

NOTICE:

- **Be sure to record the current value before customizing.**

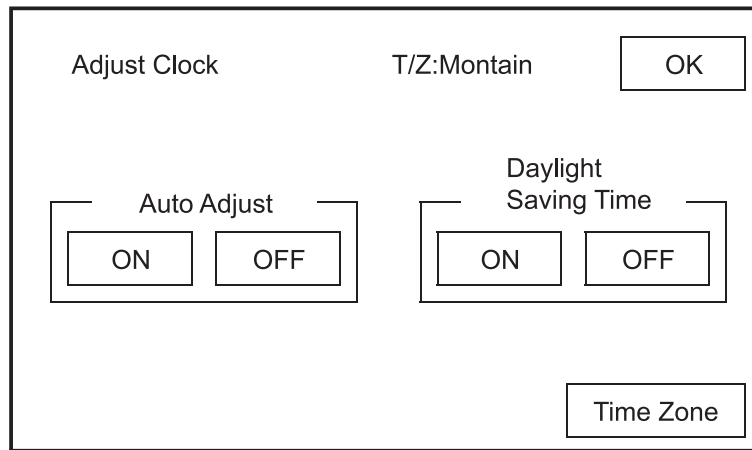
- When performing troubleshooting, be aware that the functions may be set to OFF by customizing. (Example: In case of the symptom in which "The wireless operation does not function", check that the wireless operation is not set to OFF by customizing, then perform the troubleshooting)

WARNING BUZZER:

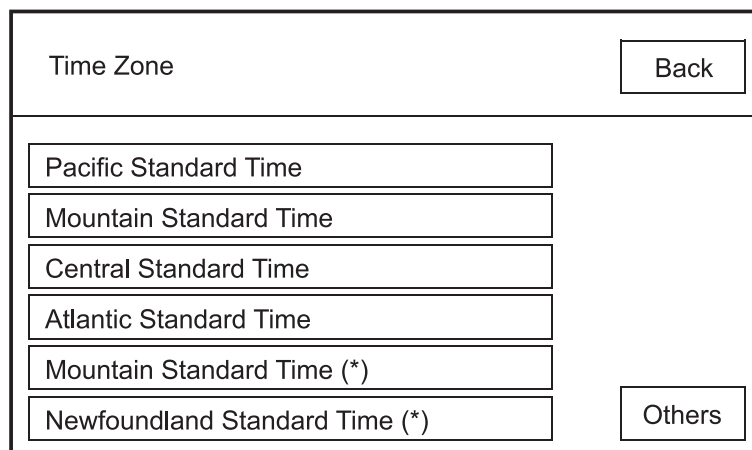
DISPLAY (ITEM)	DEFAULT	CONTENTS	SETTING
KEY REMND VOLUM	LARGE	Function to change volume of key remind warning buzzer.	Big / Middle / Small
KEY REMND SOUND	900 ms	Function to change cycle of key remind warning buzzer.	600 ms / 900 ms / 1,200 ms

3. TIME ZONE SETTING (w/ Navigation system)

ME



Press the "Time Zone" in the display above.



Select an appropriate time zone

(*): Canada only

PROBLEM SYMPTOMS TABLE

HINT:

Inspect the related "Fuse" and "Relay" before confirming the suspected area as shown in the charts below.

MALFUNCTION SYSTEM:

Symptom	Suspected area	See page
Entire combination meter does not operate.	Refer to troubleshooting	ME-40
Seat belt warning light for driver seat does not operate.	Refer to troubleshooting	ME-54
Seat belt warning light for passenger seat does not operate.	Refer to troubleshooting	ME-57
Clock display malfunction.	Refer to troubleshooting	ME-64
Operating light control rheostat does not change light brightness.	Refer to troubleshooting	ME-61

METER GAUGES:

Symptom	Suspected area	See page
Speedometer malfunction.	Refer to troubleshooting	ME-42
Tachometer malfunction.	Refer to troubleshooting	ME-46
Fuel receiver gauge malfunction.	Refer to troubleshooting	ME-49
Engine coolant temperature receiver gauge malfunction.	Refer to troubleshooting	ME-52

WARNING LIGHTS:

Symptom	Suspected area	See page
Check engine warning light does not come on.	1. ECM	ES-421
	2. Wire Harness or Connector	-
	3. Combination Meter Assembly	ME-69
Discharge warning light does not come on.	1. LED	ME-33
	2. Front Controller	-
	3. Wire Harness or Connector	-
	4. Combination Meter Assembly	ME-69
Brake warning light does not come on.	1. LED	ME-33
	2. Brake Actuator assembly (ABS) (*1)	BC-79
	3. ABS and Traction Actuator assembly (VSC) (*2)	BC-221
	4. Wire Harness or Connector	-
	5. Combination Meter Assembly	ME-69
Brake warning light does not go off.	1. LED	ME-33
	2. Brake Actuator assembly (ABS) (*1)	BC-73
	3. ABS and Traction Actuator assembly (VSC) (*2)	BC-214
	4. Wire Harness or Connector	-
	5. Combination Meter Assembly	ME-69
ABS warning light does not come on.	1. LED	ME-33
	2. Brake Actuator assembly (ABS) (*1)	BC-71
	3. ABS and Traction Actuator assembly (VSC) (*2)	BC-206
	4. Wire Harness or Connector	-
	5. Combination Meter Assembly	ME-69
ABS warning light does not go off.	1. LED	ME-33
	2. Brake Actuator assembly (ABS) (*1)	BC-67
	3. ABS and Traction Actuator assembly (VSC) (*2)	BC-202
	4. Wire Harness or Connector	-
	5. Combination Meter Assembly	ME-69

Symptom	Suspected area	See page
AIRBAG warning light does not come on.	1. Airbag Sensor Assembly Center	RS-195
	2. Wire Harness or Connector	-
	3. Combination Meter Assembly	ME-69
AIRBAG warning light does not go off.	1. Airbag Sensor Assembly Center	RS-190
	2. Wire Harness or Connector	-
	3. Combination Meter Assembly	ME-69
Open door warning light does not come on.	1. LED	ME-33
	2. Door Courtesy Switch	LI-65
	3. Wire Harness or Connector	-
	4. Body ECU	-
	5. Combination Meter Assembly	ME-69
Low engine oil pressure warning light does not come on.	1. LED	ME-33
	2. Engine Oil Pressure Warning Switch	ME-38
	3. Front Controller	-
	4. Wire Harness or Connector	-
	5. Combination Meter Assembly	ME-69
Security warning light does not come on.	1. Combination Meter Assembly	ME-69
	2. Engine Immobiliser System (*3)	EI-38
	3. Theft Deterrent System ECU (*4)	TD-40
	4. Wire Harness or Connector	-
Fuel level warning light does not come on.	1. LED	ME-33
	2. Fuel Sender Gauge Assembly	ME-38
	3. Wire Harness or Connector	-
	4. Combination Meter Assembly	ME-69
ACC W warning light does not come on (Radar cruise). (*5)	1. Combination Meter Assembly	ME-69
	2. Refer to troubleshooting	CC-52
	3. Wire Harness or Connector	-

INDICATOR LIGHTS:

Symptom	Suspected area	See page
Turn indicator light does not come on.	1. Combination Meter Assembly	ME-69
	2. Turn Signal and Hazard Warning System	LI-18
	3. Wire Harness or Connector	-
High beam indicator light does not come on.	1. LED	ME-33
	2. Combination Switch ECU	-
	3. Body ECU	-
	4. Wire Harness or Connector	-
	5. Combination Meter Assembly	ME-69
CRUISE indicator light does not come on.	1. LED	ME-33
	2. Refer to troubleshooting	CC-28
	3. Wire Harness or Connector	-
	4. Combination Meter Assembly	ME-69
SLIP indicator light does not come on. (*2)	1. LED	ME-33
	2. ABS and Traction Actuator assembly (VSC)	BC-227
	3. Wire Harness or Connector	-
	4. Combination Meter Assembly	ME-69
SLIP indicator light does not go off. (*2)	1. LED	ME-33
	2. ABS and Traction Actuator assembly (VSC)	BC-223
	3. Wire Harness or Connector	-
	4. Combination Meter Assembly	ME-69

Symptom	Suspected area	See page
VSC indicator light does not come on. (*2)	1. LED	ME-33
	2. ABS and Traction Actuator assembly (VSC)	BC-212
	3. Wire Harness or Connector	-
	4. Combination Meter Assembly	ME-69
VSC indicator light does not go off. (*2)	1. LED	ME-33
	2. ABS and Traction Actuator assembly (VSC)	BC-208
	3. Wire Harness or Connector	-
	4. Combination Meter Assembly	ME-69
TAIL (*6)/HEAD (*7) indicator light does not come on.	1. LED	ME-33
	2. Combination Switch ECU	-
	3. Body ECU	-
	4. Wire Harness or Connector	-
	5. Combination Meter Assembly	ME-69
WASHER indicator light does not come on.	1. LED	ME-33
	2. Front Controller	-
	3. Wire Harness or Connector	-
	4. Combination Meter Assembly	ME-69
A/T shift indicator light does not come on.	1. LED	ME-33
	2. Park/Neutral Position Switch	AX-18
	3. ECM	ES-33
	4. Wire Harness or Connector	-
	5. Combination Meter Assembly	ME-69
MAINT REQD indicator light does not come on. (*7)	1. LED	ME-33
	2. Refer to troubleshooting	ME-39
	3. Combination Meter Assembly	ME-69
Key indicator light does not come on. (*4)	1. LED	ME-33
	2. Certification ECU	TD-9
	3. Wire Harness or Connector	-
	4. Combination Meter Assembly	ME-69
Headlight auto level indicator light does not come on.	1. Headlight auto level ECU	LI-18
	2. Wire Harness or Connector	-
	3. Combination Meter Assembly	ME-69
NORM/READY/CRUISE indicator light does not come on. (*5)	1. LED	ME-33
	2. Dynamic Laser Cruise Control System	CC-52
	3. Wire Harness or Connector	-
	4. Combination Meter Assembly	ME-69

ME

CRUISE INFORMATION AREA:

Symptom	Suspected area	See page
Cruise information display dose not turn on.	1. Wire Harness or Connector	-
	2. ECM	-
	3. Combination Meter Assembly	ME-69

BUZZER:

Symptom	Suspected area	See page
Key reminder warning buzzer dose not sound.	1. Combination Meter Assembly	ME-69
	2. Refer to troubleshooting (*3)	EI-12
	3. Refer to troubleshooting (*4)	TD-9
	4. Wire Harness or Connector	-

Symptom	Suspected area	See page
Seat belt warning buzzer dose not sound.	1. Combination Meter Assembly	ME-69
	2. Front Seat Inner Belt Assembly	-
	3. Wire Harness or Connector	-

ACCESSORY METER ASSEMBLY:

Symptom	Suspected area	See page
Outside temperature/Trip time/Average dose not display	1. Wire Harness or Connector	-
	2. A/C Control ECU	AC-29
	3. Combination Meter Assembly	ME-69
	4. Accessory meter Assembly	-

*1: w/o VSC

*2: w/ VSC

*3: w/o Smart Key System

*4: w/ Smart Key System

*5: w/ Dynamic Laser Cruise Control System

*6: Except U.S.A.

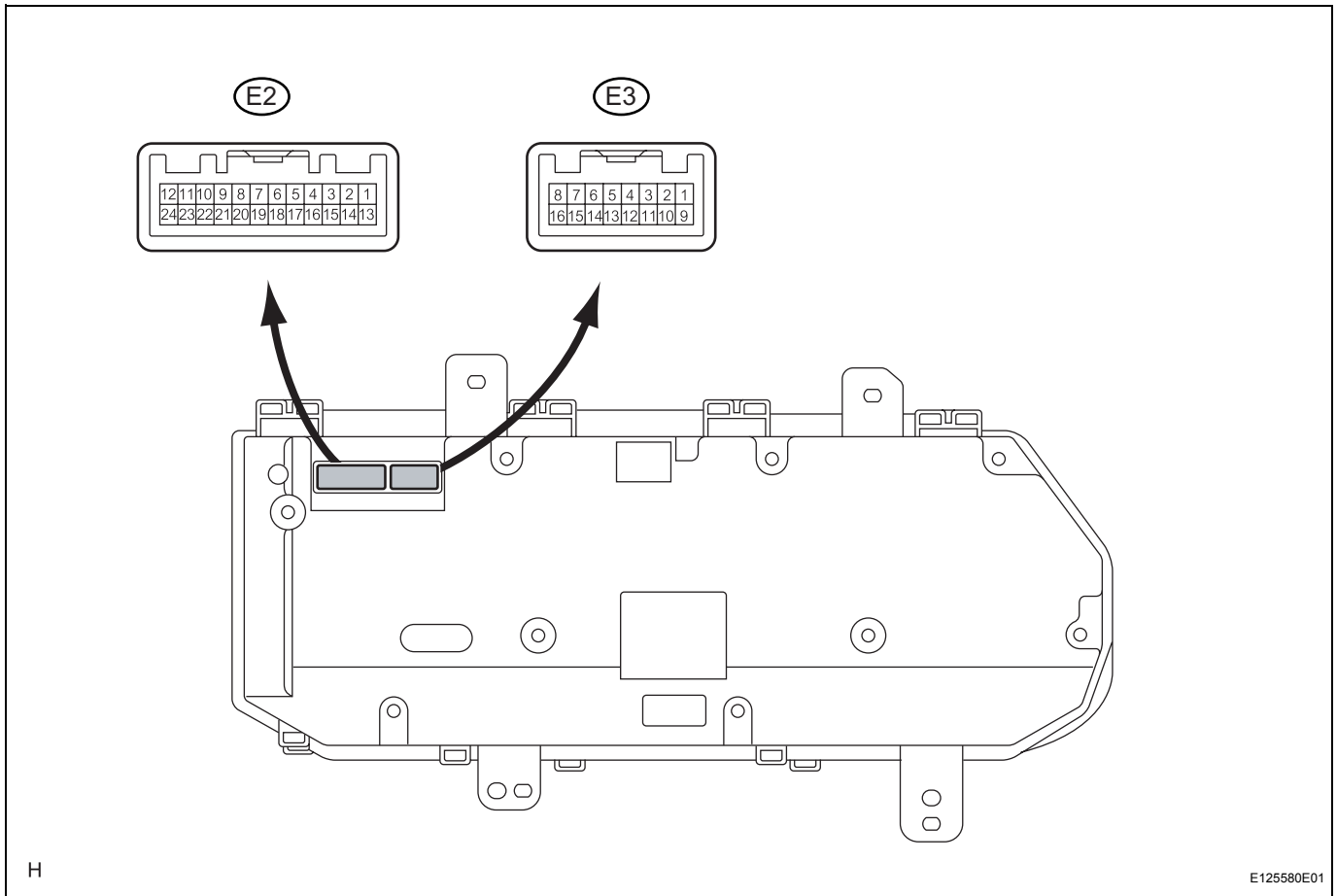
*7: U.S.A.

HINT:

Refer to on-vehicle inspection in the combination meter.

TERMINALS OF ECU

1. COMBINATION METER ASSEMBLY



ME

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
AIRBAG (E3-1) - Body ground	LG - Body ground	Airbag signal	Ignition switch on (IG), AIRBAG warning light ON → OFF	Below 1 V → 7 to 12 V
TURN R (E3-3) - Body ground	P - Body ground	Turn signal R	Ignition switch on (IG), turn signal RH indicator light OFF → ON	Below 1 V → 10 to 14 V
TURN L (E3-4) - Body ground	B - Body ground	Turn signal L	Ignition switch on (IG), turn signal LH indicator light OFF → ON	Below 1 V → 10 to 14 V
CHK E/G (E3-9) - Body ground	R - Body ground	Check engine signal	Ignition switch on (IG), CHECK ENGINE warning light ON → OFF	Below 2.5 V → 10 to 14 V
H-LP LEVEL (E3-10) - Body ground	G - Body ground	Headlight auto level signal	Ignition switch on (IG), headlight auto level indicator light ON → OFF	Below 1 V → 10 to 14 V
BRAKE LEVEL SW (E3-11) - Body ground	V - Body ground	Brake fluid level signal	Ignition switch on (IG), brake warning light ON → OFF	Below 1 V → 10 to 14 V
PBKL (3-13) - Body ground	G - Body ground	Seat belt condition signal (Passenger side)	Ignition switch on (IG), passenger seat belt indicator light OFF → Blinks	10 to 14 V → Below 1 V
SI (E3-14) Body ground	W - Body ground	Speed signal (Input)	Ignition switch on (IG), turn the wheel slowly	Pulse generation (See waveform 1)
FUEL (E3-15) - Body ground	GR - Body ground	Fuel level signal	Ignition switch on (IG), fuel level FULL → EMPTY	Below 1 V → 4 to 7 V
FE (E3-16) - E2-10	P - Body ground	Ground (Fuel ground)	Always	Below 1 V
DOMEB (E2-1) Body ground	V - Body ground	Battery	Always	10 to 14 V
ECU-B (E2-2) Body ground	B - Body ground	Battery	Always	10 to 14 V
MPX- (E2-4) - Body ground	P - Body ground	Communication circuit	-	-

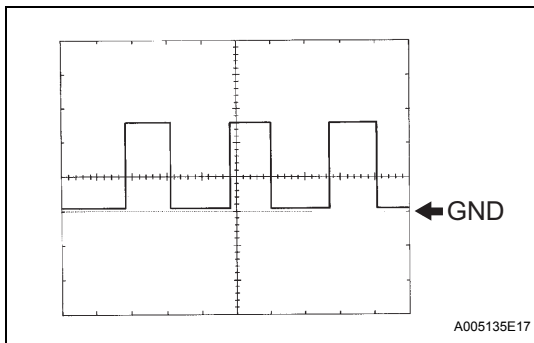
Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
PANEL DIM (E2-8) (*) - Body ground	Y - Body ground	Panel dimmer signal	Ignition switch on (IG), light control rheostat position MID	Pulse generation (See waveform 2)
P BELT (E2-9) - Body ground	B - Body ground	Seat belt condition signal (Passenger side)	Ignition switch on (IG), passenger seat belt indicator light OFF → Blinks	Pulse generation (See waveform 3)
S-GND (E2-10) - Body ground	W-B - Body ground	Ground (Signal ground)	Always	Below 1 V
ILL - (E2-11) - Body ground	R - Body ground	Illumination signal	Ignition switch on (IG), TAIL ON, and light control rheostat position MID	Pulse generation (See waveform 4)
P-GND (E2-12) - Body ground	W-B - Body ground	Ground (Power ground)	Always	Below 1 V
IG2 (E2-13) - Body ground	R - Body ground	Battery	Ignition switch off → on (IG)	Below 1 V → 10 to 14 V
TACHO (E2-14) - Body ground	O- Body ground	Tachometer signal	Engine running	Pulse generation (See waveform 5)
4P (E2-15) - Body ground	SB - Body ground	Speed signal (Output)	Ignition switch on (IG), turn the wheel slowly	Pulse generation (See waveform 1)
MPX+ (E2-16) - Body ground	LG - Body ground	Communication circuit	-	-
SECURITY (E2-18) (*) - Body ground	Y - Body ground	Security signal	Ignition switch off, SECURITY warning light ON → OFF	10 to 14 V → Below 1 V
TC SW (E2-19) - Body ground	V - Body ground	Tail cancel switch signal	Tail cancel switch OFF → ON	4 to 6 V → Below 1 V
RL (E2-20) - Body ground	B - Body ground	Light control rheostat signal	Ignition switch on (IG)	4 to 6 V
RV (E2-21) - Body ground	R - Body ground	Light control rheostat signal	Ignition switch on (IG), light control rheostat position MIN → MAX	Below 1 V → 4 to 6 V
RE (E2-22) - Body ground	W - Body ground	Ground (Rheostat ground)	Always	Below 1 V

ME

*1: w/o Navigation System

*2: w/ Theft Deterrent System

(a) Waveform 1 (Reference): Using an oscilloscope:

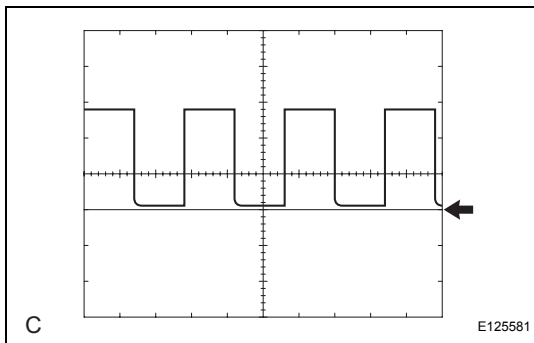


Item	Condition
Tool setting	5 V/DIV., 20 ms/DIV.
Vehicle condition	Driving at approx. 20 km/h (12 mph)

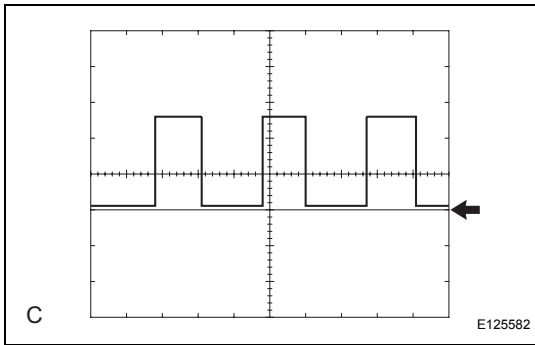
HINT:

As vehicle speed increases, the cycle of the signal waveform narrows.

(b) Waveform 2 (Reference): Using an oscilloscope:

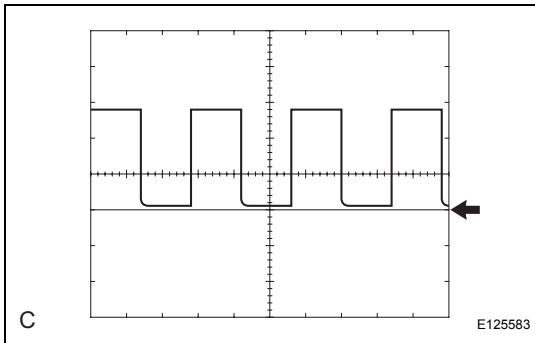


Item	Condition
Tool setting	2 V/DIV., 2 ms/DIV.
Vehicle condition	Ignition switch ON (IG), light control rheostat position MID



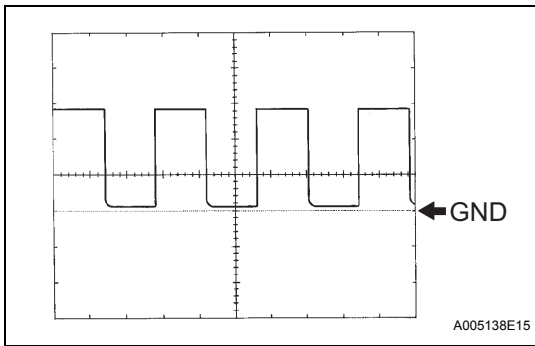
(c) Waveform 3 (Reference): Using an oscilloscope:

Item	Condition
Tool setting	5 V/DIV., 200 ms/DIV.
Vehicle condition	Ignition switch ON (IG), passenger seat belt indicator light blinks



(d) Waveform 4 (Reference): Using an oscilloscope:

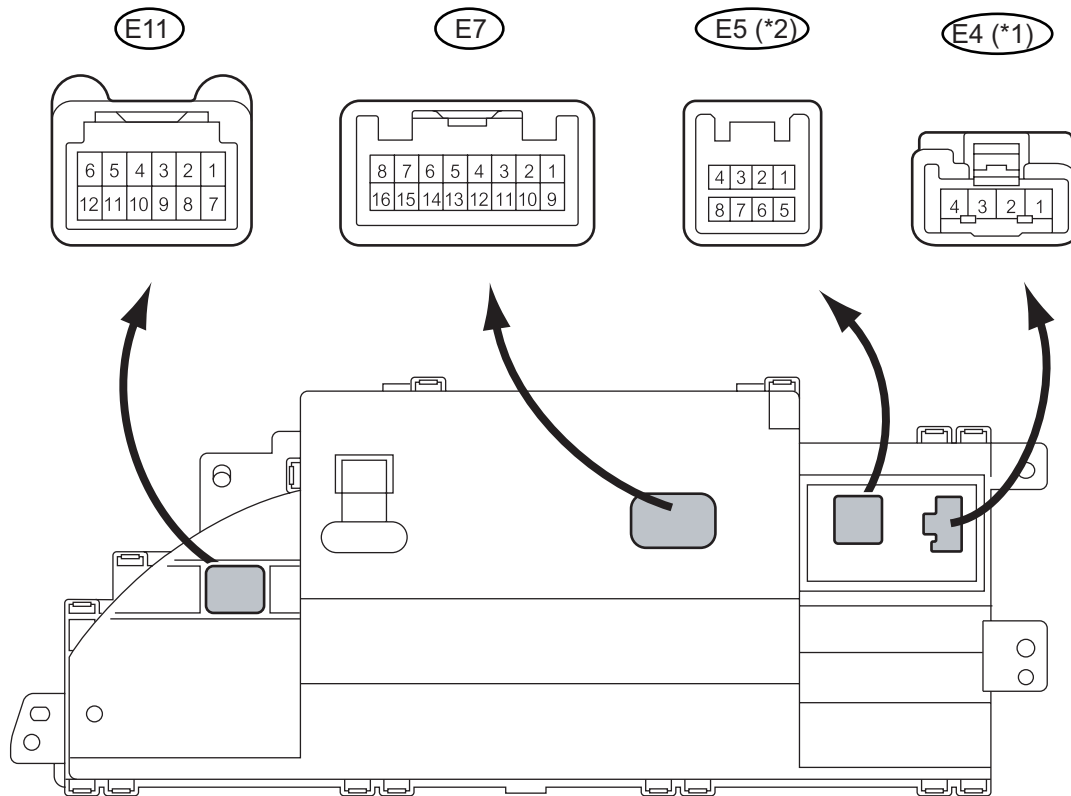
Item	Condition
Tool setting	5 V/DIV., 2 ms/DIV.
Vehicle condition	Ignition switch ON (IG), light control rheostat position MID



(e) Waveform 5 (Reference): Using an oscilloscope:

Item	Condition
Tool setting	5 V/DIV., 10 ms/DIV.
Vehicle condition	Engine idle speed

2. ACCESSORY METER ASSEMBLY



H

E125584E01

Symbols	Wiring	Terminal Description	Condition	Specified Condition
ACC (E7-1) - Body ground	GR - Body ground	Battery	Ignition switch off → on (ACC)	Below 1 V → 10 to 14 V
IG2 (E7-2) - Body ground	G - Body ground	Battery	Ignition switch off → on (IG)	Below 1 V → 10 to 14 V
TAIL (TR) (E7-5) - Body ground	Y - Body ground	Illumination signal	Ignition switch on (IG), light control rheostat position MID	Pulse generation (See waveform 1)
RE1 (SW) (E7-7) - Body ground	G - Body ground	Display switch signal	Ignition switch on (IG), display switch is pushed in	4 to 6 V → Below 1 V
GND1 (E7-8) - Body ground	W-B - Body ground	Ground (Power ground)	Always	Below 1 V
GND1 (E7-9) - Body ground	R - Body ground	Battery	Always	10 to 14 V
TX1+ (E7-11) (*1) - Body ground	Y - Body ground	Communication line	-	-
TX+ (E7-12) (*1) - Body ground	BR - Body ground	Communication line	-	-
TX1- (E7-13) (*1) - Body ground	B - Body ground	Communication line	-	Below 1 V
TX1- (E7-14) (*1) - Body ground	R - Body ground	Communication line	-	-

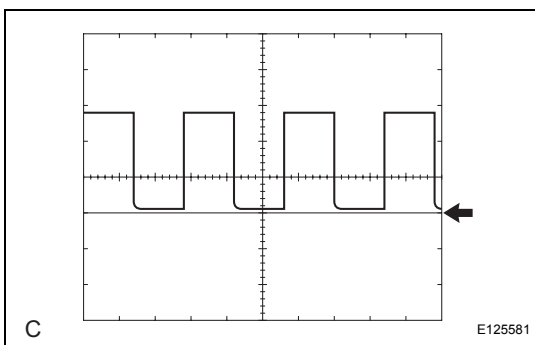
Symbols	Wiring	Terminal Description	Condition	Specified Condition
SG1 (E7-15) - Body ground	W - Body ground	Display switch signal	Always	Below 1 V
SG (E7-16) - Body ground	W-B - Body ground	Ground (Signal ground)	Ground (Signal ground)	Below 1 V
IG2 (E11-1) - Body ground	W - Body ground	Battery	Ignition switch off → on (IG)	Below 1 V → 10 to 14 V
MSW (E11-3) (*1) - Body ground	G - Body ground	Display switch signal	Ignition switch on (IG), display switch is pushed in	4 to 6 V → Below 1 V
SG1 (E11-4) (*1) - Body ground	W - Body ground	Display switch signal	Always	Below 1 V
SGND (E11-6) - Body ground	W-B - Body ground	Ground (Signal ground)	Always	Below 1 V
ACAN (E11-7) - Body ground	V - Body ground	Illumination signal	Ignition switch on (IG), TAIL OFF → ON	Below 1 V → 10 to 14 V
P-BELT (E11-9) - Body ground	B - Body ground	Seat belt condition signal (Passenger side)	Ignition switch on (IG), sit on the passenger seat and passenger seat belt warning light OFF → blinks	Pulse generation (See waveform 2)
P-AIRBAG-OFF (E11-10) - Body ground	L - Body ground	P-AIRBAG-OFF signal	Ignition switch on (IG), P-AIRBAG-OFF indicator light OFF → ON	10 to 14 V → Below 1 V
P-AIRBAG-ON (E11-11) - Body ground	BR - Body ground	P-AIRBAG-ON signal	Ignition switch on (IG), P-AIRBAG-ON indicator light OFF → ON	10 to 14 V → Below 1 V
B (+) (E4-1) (*1) - Body ground	W - Body ground	Battery	Always	10 to 14 V
EARTH (E4-2) (*1) - Body ground	W-B - Body ground	Ground	Always	Below 1 V
ILL (+) (E4-3) (*1) - Body ground	G - Body ground	Illumination signal	Ignition switch on (IG), light control switch OFF → ON	Below 1 V → 10 to 14 V
ACC (+) (E4-4) (*1) - Body ground	B - Body ground	Battery	Ignition switch off → on (IG)	Below 1 V → 10 to 14 V
ACC (+) (E5-4) (*2) - Body ground) (E	B - Body ground	Battery	Ignition switch off → on (IG)	Below 1 V → 10 to 14 V
TX- (E5-5) (*2) - Body ground	LG - Body ground	Communication line	-	-
TX+ (E5-6) (*2) - Body ground	V - Body ground	Communication line	-	-
EARTH (E5-7) (*2) - Body ground	W-B - Body ground	Ground	Always	Below 1 V
B (+) (E5-8) (*2) - Body ground	W - Body ground	Battery	Always	10 to 14 V

ME

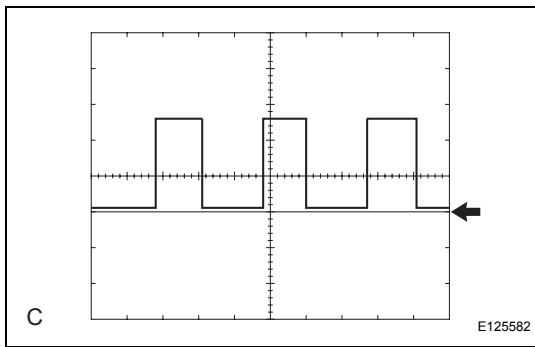
*1: w/o Navigation System

*2: w/ Navigation System

(a) Waveform 1 (Reference): Using an oscilloscope:



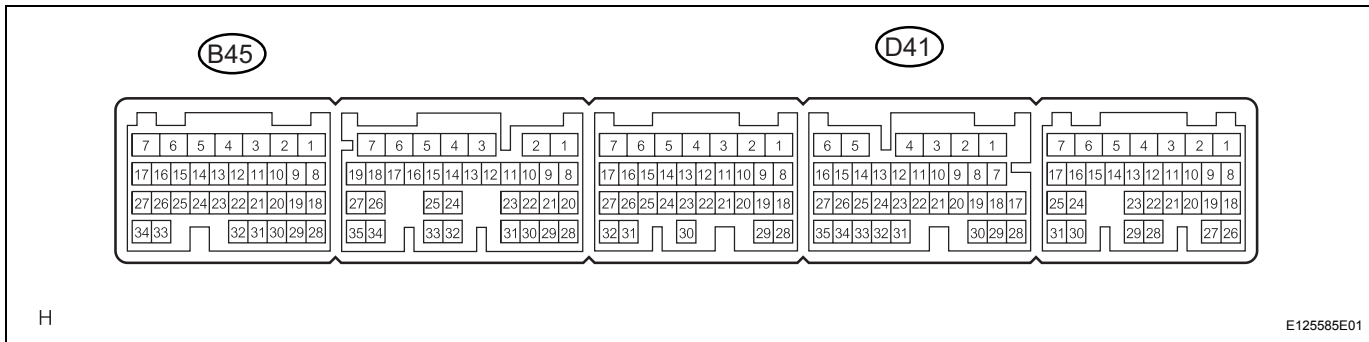
Item	Condition
Tool setting	2 V/DIV., 2 ms/DIV.
Vehicle condition	Ignition switch ON (IG), light control rheostat position MID



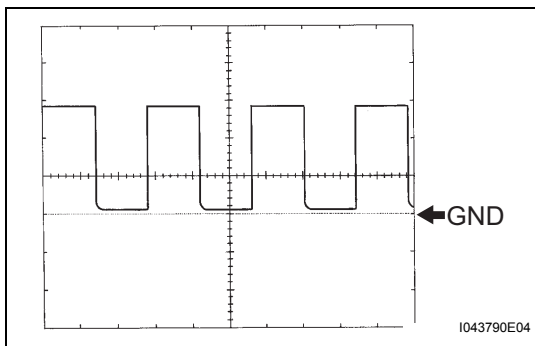
(b) Waveform 2 (Reference): Using an oscilloscope:

Item	Condition
Tool setting	5 V/DIV., 200 ms/DIV.
Vehicle condition	Ignition switch ON (IG), passenger seat belt indicator light blinks

3. ECM



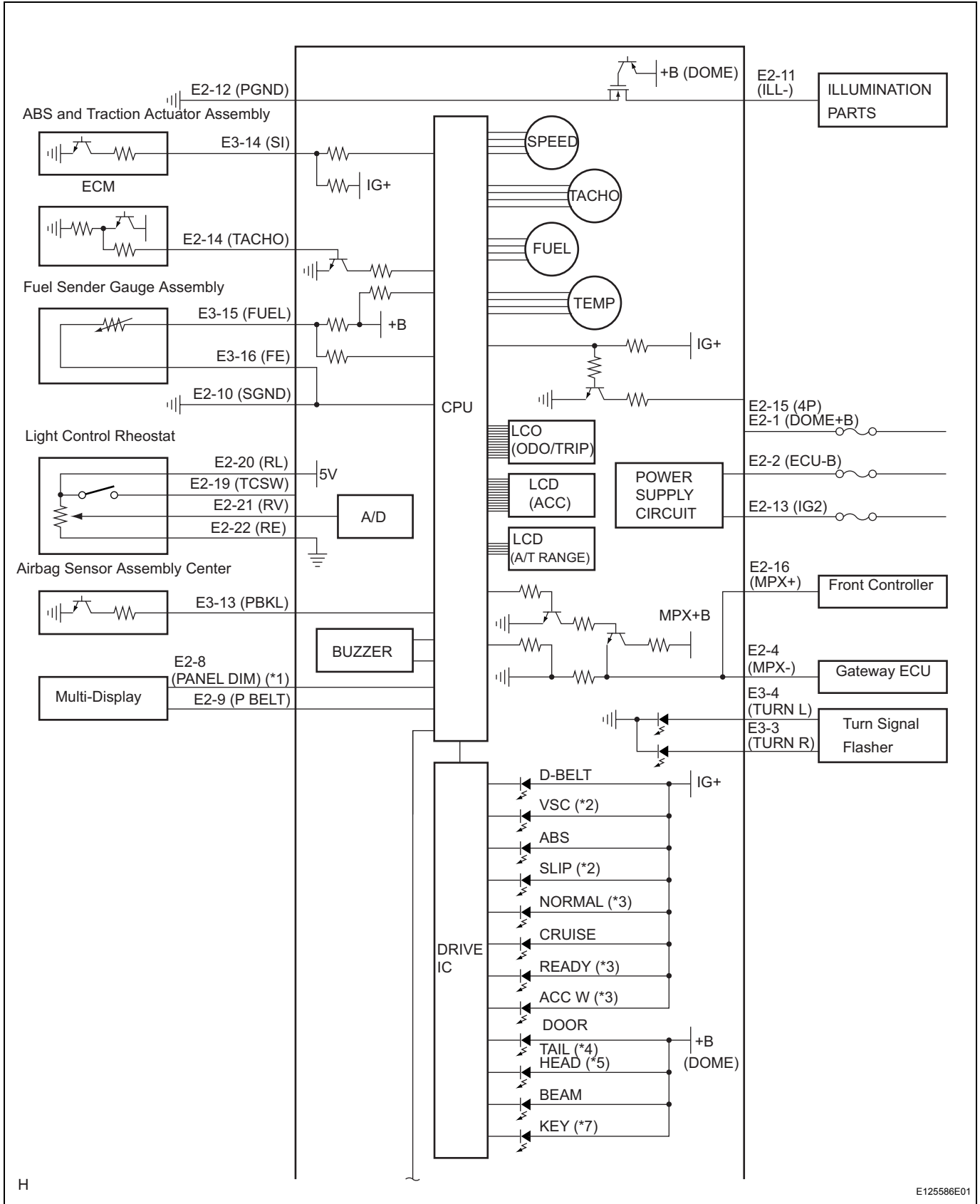
Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
TACH (D41-1) - Body ground	W - Body ground	Tachometer signal	Ignition switch off → on (IG), Engine idle speed	Pulse generation (See waveform 1)



(a) Waveform 1 (Reference): Using an oscilloscope:

Item	Condition
Tool setting	10 V/DIV., 20 V/DIV.
Vehicle condition	Engine idle speed

4. COMBINATION METER INNER CIRCUIT



ME

Connectors:

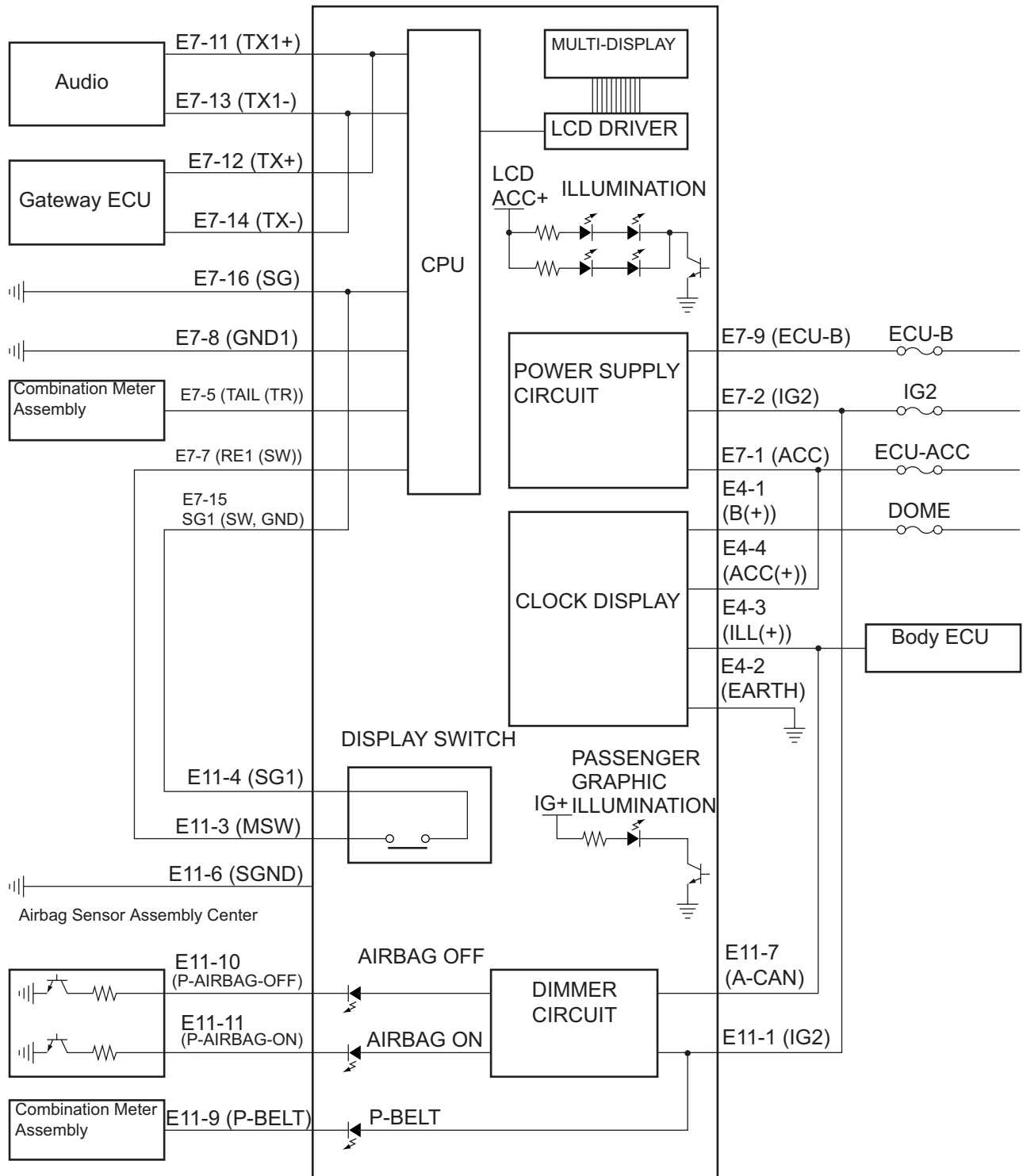
	Terminal No.	Wire harness side
E3	1	Airbag Sensor Assembly Center
	2	-
	3	Turn Signal Flasher (R)
	4	Turn Signal Flasher (L)
	5	-
	6	-
	7	-
	8	-
	9	ECM (Check E/G)
	10	Headlight Beam Level Control ECU
	11	Brake Fluid Level Warning Switch
	12	-
	13	Airbag Sensor Assembly Center
	14	ABS and Traction Actuator Assembly (VSC) (*1), Brake Actuator Assembly (ABS) (*2)
	15	Fuel Sender Gauge Assembly (Fuel)
	16	Fuel Sender Gauge Assembly (Fuel Ground)
E2	1	DOME Fuse
	2	ECU-B Fuse
	3	-
	4	Multiplex Communication Line
	5	-
	6	-
	7	-
	8	Multi-Display (*3)
	9	Multi-Display
	10	Ground (Signal Ground)
	11	Illumination Parts
	12	Ground (Power Ground)
	13	IG2 Fuse
	14	ECM
	15	Each Parts That Use Speed Signal (ECM, Power Source ECU, Body ECU, Navigation ECU)
	16	Multiplex Communication Line
	17	-
	18	ID Code Box (*4), Transponder Key ECU (*4) / Certification ECU (*5)
	19	Light Control Rheostat (TC)
	20	Light Control Rheostat (T)
	21	Light Control Rheostat (RV)
	22	Ground (Light Control Rheostat Ground)
	23	-
	24	-

ME

- *1: w/ VSC
- *2: w/o VSC
- *3: w/o Navigation System
- *4: w/o Smart key System
- *5: w/ Smart key System

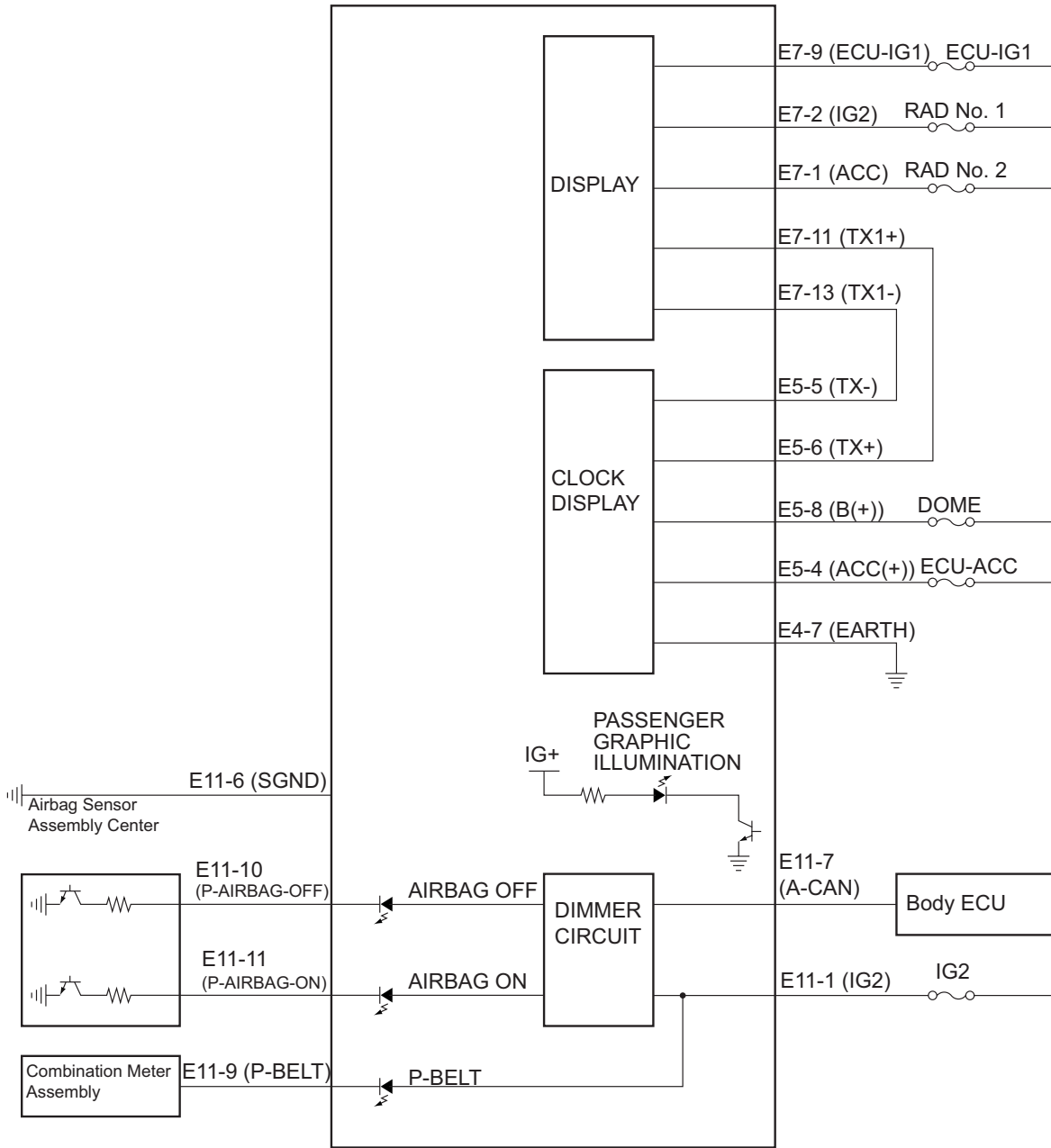
5. ACCESSORY METER INNER CIRCUIT

w/o Navigation System:



ME

w/ Navigation System:



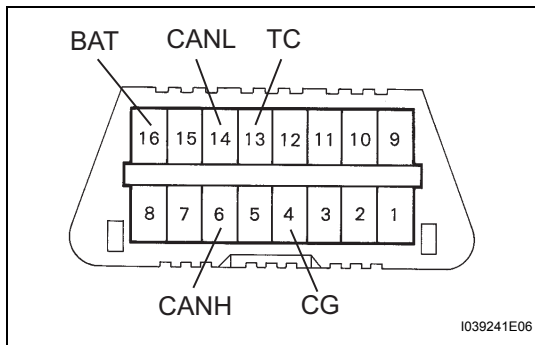
ME

Terminal No.	Wire harness side	
E7	1	ECU-ACC Fuse
	2	IG2 Fuse
	3	-
	4	-
	5	Combination Meter Assembly
	6	-
	7	Display Switch (*1)
	8	Ground (Power Ground)
	9	ECU-B Fuse
	10	-
	11	Audio Controller
	12	Gateway ECU
	13	Audio Controller
	14	Gateway ECU
	15	Display Switch (*1)
	16	Ground (Signal Ground)
E11	1	DOME Fuse
	2	-
	3	Display Switch (*1)
	4	Display Switch (*1)
	5	-
	6	Ground (Signal Ground)
	7	Body ECU
	8	-
	9	Combination Meter Assembly
	10	Airbag Sensor Assembly Center
	11	Airbag Sensor Assembly Center
	12	-
E4 (*1)	1	DOME Fuse
	2	Ground (Power Ground)
	3	Body ECU
	4	ECU-ACC Fuse
E5 (*2)	1	-
	2	-
	3	-
	4	ECU-ACC Fuse
	5	Multi-Display
	6	Multi-Display
	7	Ground (Power Ground)
	8	IG2 Fuse

*1: w/o Navigation System

*2: w/ Navigation System

DIAGNOSIS SYSTEM



1. CHECK DLC3

- (a) The vehicle's combination meter (ECU) uses CAN and the ISO 9141-2 for communication protocol. The terminal arrangement of the DLC3 complies with SAE J1962 and matches the ISO 9141-2 format.

Symbols (terminal No.)	Terminals Description	Condition	Specified condition
CG (4) - Body ground	Chassis ground	Always	Below 1 Ω
BAT (16) - Body ground	Battery positive	Always	11 to 14 V
CANH (6) - CANL (14)	HIGH-level CAN bus line	Ignition switch off	54 Ω to 67 Ω
CANH (6) - Body ground	HIGH-level CAN bus line	Ignition switch off	1 M Ω or higher
CANH (6) - CG (4)	HIGH-level CAN bus line	Ignition switch off	3 K Ω or higher
CANL (14) - Body ground	LOW-level CAN bus line	Ignition switch off	1 M Ω or higher
CANL (14) - CG (4)	LOW-level CAN bus line	Ignition switch off	3 K Ω or higher

HINT:

If the display shows an error message after having connected the cable of the intelligent tester to the DLC3, turned ignition switch on (IG) and operated the tester, there is a problem on either the vehicle side or the tool side.

- If communication is normal when the tool is connected to another vehicle, inspect the DLC3 on the original vehicle.
- If communication is still impossible when the tool is connected to another vehicle, the problem is probably in the tool itself, so consult the Service Department listed in the tool's instruction manual.

FAIL-SAFE CHART

ENGINE COOLANT TEMPERATURE GAUGE:

Condition	Response	Recovery
Engine coolant temperature data is interrupted for 5 seconds.	The gauge needle indicates below "C".	Engine coolant temperature data is received.

SHIFT INDICATOR:

Condition	Response	Recovery
"P to D" data is interrupted for 3 seconds.	All indicator lights go off.	Normal data is received.
"S" data is interrupted for 3 seconds.	The "S" indicator light goes off.	Normal data is received.

GEAR POSITION INDICATOR (1 TO 5):

Condition	Response	Recovery
Gear position data is interrupted for 3 seconds or a malfunction signal is received.	The indicator light goes off.	Normal data is received.

ABS & BRAKE:

Condition	Response	Recovery
ABS & Brake data is interrupted for 3 seconds.	The warning light comes on.	Normal data is received.

DOOR:

Condition	Response	Recovery
Regular data is interrupted.	The data received most recently remains indicated.	Normal data is received.

HEAD (*1) / TAIL (*2):

Condition	Response	Recovery
Regular data is interrupted.	The data received most recently remains indicated.	Normal data is received.

BEAM:

Condition	Response	Recovery
Regular data is interrupted.	The indicator light goes off.	Normal data is received.

KEY:

Condition	Response	Recovery
Regular data is interrupted.	The indicator light goes off.	Normal data is received.

MULTI-INFORMATION (INSTANTANEOUS FUEL CONSUMPTION/POSSIBLE RUNNING DISTANCE):

Condition	Response	Recovery
Cruise information data is interrupted for 60 seconds.	The display becomes blank (only measurement units are displayed).	Normal data is received.

ILLUMINATION:

Condition	Response	Recovery
The illumination data is interrupted for 10 seconds or abnormal data is received.	The display remains in daytime mode.	Normal data is received.

*1: U.S.A. only

*2: Except U.S.A.

DATA LIST / ACTIVE TEST

1. DATA LIST

- (a) According to the DATA LIST displayed by the intelligent tester, you can read the values of the switches, sensors, actuators and so on without parts removal. Reading the DATA LIST as the first step of troubleshooting is one method to shorten work time.
- (1) Warm up the engine.
 - (2) Turn the ignition switch off.
 - (3) Connect the intelligent tester to the DLC3.
 - (4) Turn the ignition switch on (IG).
 - (5) Operate the intelligent tester according to the steps on the display and select the "DATA LIST".

METER:

Item	Measurement Item / Range (Display)	Normal Condition	Diagnostic Note
SPEED METER	Vehicle speed / Min.: 0 km/h (0 mph), Max.: 255 km/h (158 mph)	Almost same as actual vehicle speed (When driving)	-
TACHO METER	Engine speed / Min.: 0 rpm, Max.: 12,750 rpm	Almost same as actual engine speed (When engine is running)	-
FUEL GAUGE	Fuel input signal Min.: 0, Max.: 255	Fuel gauge indicates (F): 35 Fuel gauge indicates (3/4): 85 Fuel gauge indicates (1/2): 145 Fuel gauge indicates (1/4): 186 Fuel gauge indicates (E): 205	-
LIGHT RHEOSTAT	Light control rheostat / Min.: 0, Max.: 255	Light control rheostat switch is Dark (0) → Bright (255)	-
ODO/TRIP SW	ODO/TRIP switch is ON / OFF	ON: Switch is pushed OFF: Switch is released	-
TRIP RESET SW	TRIP RESET switch is ON / OFF	ON: Switch is pushed OFF: Switch is released	-

BODY:

Item	Measurement Item / Range (Display)	Normal Condition	Diagnostic Note
D SEAT BUCKL SW	Driver seat belt buckle switch is ON / OFF	ON: Seat belt is fastened OFF: Seat belt is unfastened	-
OPEN DOOR WARN	Any door is OPEN / CLOSE	ON: Any door is opened OFF: All doors are closed	-
KEY UNLK WRN SW	Key unlock warning switch is ON / OFF	ON: Ignition key is inserted OFF: Ignition key is not inserted	-
PARKING BRAKE SW	Parking brake switch is ON / OFF	ON: Parking brake switch is ON OFF: Parking brake switch is OFF	-
D DOR CTY SW	Driver door is OPEN / CLOSE	ON: Driver door is closed OFF: Driver door is opened	-
P DOR CTY SW	Passenger door is OPEN / CLOSE	ON: Passenger door is closed OFF: Passenger door is opened	-
Rr DOR CTY SW	Rear door is OPEN / CLOSE	ON: Rear door is closed OFF: Rear door is opened	-

BODY No.5:

Item	Measurement Item / Range (Display)	Normal Condition	Diagnostic Note
WASHER LVL SW	Washer level warning switch is ON / OFF	ON: Washer level is low OFF: Washer level is proper	-
OIL PRESS SW	Engine oil pressure switch is ON / OFF	ON: Engine oil pressure is low OFF: Engine oil pressure is proper	-

Item	Measurement Item / Range (Display)	Normal Condition	Diagnostic Note
HOOD CURTESY SW	Hood is OPEN / CLOSE	ON: Hood is closed OFF: Hood is opened	-

SRS AIRBAG:

Item	Measurement Item / Range (Display)	Normal Condition	Diagnostic Note
D BUCKLE SW	Driver seat belt buckle switch is ON / OFF	ON: Seat belt is fastened OFF: Seat belt is unfastened	-
P BUCKLE SW	Passenger seat belt buckle switch is ON / OFF	ON: Seat belt is fastened OFF: Seat belt is unfastened	-

ENGINE:

Item	Measurement Item / Range (Display)	Normal Condition	Diagnostic Note
VEHICLE SPD	Vehicle speed / Min.: 0 km/h (0 mph), Max.: 255 km/h (158 mph)	Almost same as actual vehicle speed (when driving)	-
ENGINE SPD	Engine speed / Min.: 0 rpm, Max.: 16,383 rpm	Almost same as actual engine speed (when engine is running)	-
COOLANT TEMP	Coolant Temperature / Min.: -40°C (-40°F), Max.: 140°C (284°F)	After warming up: 80 to 95°C (176 to 203°F)	If the value is "-40°C (-40°F)" or "140°C (284°F)", sensor circuit is open or shorted.

ABS:

Item	Measurement Item / Range (Display)	Normal Condition	Diagnostic Note
(FR/FL/RR/RL) SPD	Vehicle speed / Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Almost same as actual speed (when driving)	-
VEHICLE SPD	Vehicle speed / Min.: 0 km/h (0 mph), Max.: 255 km/h (158 mph)	Almost same as actual vehicle speed (when driving)	-
ENGINE SPD	Engine speed / Min.: 0 rpm, Max.: 6,000 rpm	Almost same as actual engine speed (when engine is running)	-

OCCUPANT DETECTION SENSOR:

Item	Measurement Item / Range (Display)	Normal Condition	Diagnostic Note
P BUCKLE SW	Passenger seat belt buckle switch is ON / OFF	ON: Seat belt is fastened OFF: Seat belt is unfastened	-
PASSENGER DETEC	Occupant detection sensor is ON / OFF	ON: Passenger is seated OFF: Passenger is not seated	-

COMBINATION SWITCH:

Item	Measurement Item / Range (Display)	Normal Condition	Diagnostic Note
F FOG LIGHT SW	Turn signal flasher is ON / OFF	ON: Front fog light is ON OFF: Front fog light is OFF	-
R FOG LIGHT SW	Rear fog light switch is ON / OFF	ON: Rear fog light is ON OFF: Rear fog light is OFF	-
TURN LEFT SW	Turn signal flasher is ON/OFF	ON: Turn signal flasher is ON OFF: Turn signal flasher is OFF	-
TURN LIGHT SW	Turn signal flasher is ON / OFF	ON: Turn signal flasher is ON OFF: Turn signal flasher is OFF	-
HEAD (*1) LIGHT SW	HEAD light switch is ON/OFF	ON: Headlight is ON OFF: headlight is OFF	-
TAIL (*2) LIGHT SW	TAIL light switch is ON /OFF	ON: Taillight is ON OFF: Taillight is OFF	-

(*1): U.S.A.

(*2): Except U.S.A.

2. ACTIVE TEST

- (a) Performing the ACTIVE TEST using intelligent tester allows the meter, indicators and so on to operate without parts removal. Performing the ACTIVE TEST as the first step of troubleshooting is one way to shorten labor time.

It is possible to display the DATA LIST on the intelligent tester during the ACTIVE TEST.

- (1) Connect the intelligent tester to the DLC3.
- (2) Turn the ignition switch on (IG).
- (3) From the display on the tester, perform the "ACTIVE TEST".

METER:

Item	Test Details	Diagnostic Note
SPEED METER	0 / 40 (24) / 80 (48) / 120 (72) / 160 (96) / 200 (120) / 240 (149) km/h (mph)	-
TACHOMETER	0rpm / 1000rpm / 2000rpm / 3000rpm / 4000rpm / 5000rpm / 6000rpm / 7000rpm	-
FUEL GAUGE	OFF, EMPTY, 1/2, FULL	-
COOLANT TEMP	LOW / NORMAL / HIGH	-
LOW FUEL WARN	FUEL WARN indicator light (OFF / ON)	Confirm that the vehicle is stopped, engine idling
OPEN DOOR WARN	DOOR (OFF / ON)	Confirm that the vehicle is stopped, engine idling
P-BELT REMIND	P-SEAT BELT indicator light (OFF / ON)	Confirm that the vehicle is stopped, engine idling
D-BELT REMIND	D-SEAT BELT indicator light (OFF / ON)	Confirm that the vehicle is stopped, engine idling
OIL PRESS WARN	OIL PRESS warning light (OFF / ON)	Confirm that the vehicle is stopped, engine idling
DISCHARGE WARN	CHARGE warning light (OFF/ON)	Confirm that the vehicle is stopped, engine idling
HEADLIGHT INDIC	HEAD indicator light (OFF/ON)	Confirm that the vehicle is stopped, engine idling
TAILLIGHT INDIC	TAIL indicator light (OFF / ON)	Confirm that the vehicle is stopped, engine idling
ABS WARN	ABS warning light (OFF / ON)	Confirm that the vehicle is stopped, engine idling
BRAKE WARN	BRAKE warning light (OFF / ON)	Confirm that the vehicle is stopped, engine idling
VSC WARN (*1)	VSC warning light (OFF / ON)	Confirm that the vehicle is stopped, engine idling
SLIP INDIC (*1)	SLIP indicator light (OFF / ON)	Confirm that the vehicle is stopped, engine idling
CRUISE INDIC	CRUISE indicator light (OFF / ON)	Confirm that the vehicle is stopped, engine idling
LOW WASHER WARN	WASHER warning light (OFF / ON)	Confirm that the vehicle is stopped, engine idling
HIGH BEAM INDIC	BEAM indicator light (OFF / ON)	Confirm that the vehicle is stopped, engine idling
ODO/TRIP DISP	ODO/TRIP DISPLAY (OFF / ON)	Confirm that the vehicle is stopped, engine idling
L-CRUISE DISP (*2)	Laser Cruise DISPLAY indicator light (OFF / ON)	Confirm that the vehicle is stopped, engine idling
L-CRS CHECK IND (*2)	L-CRUISE CHECK indicator light (OFF / ON)	Confirm that the vehicle is stopped, engine idling
L-CRS READY IND (*2)	L-CRUISE READY indicator light (OFF / ON)	Confirm that the vehicle is stopped, engine idling
L-CRS NORM (*2)	L-CRUISE NORMAL indicator light (OFF / ON)	Confirm that the vehicle is stopped, engine idling
SMART KEY (*3)	ELECTRICAL KEY indicator light (OFF / ON)	Confirm that the vehicle is stopped, engine idling
MAINT REQD (*4)	MAINTNANCE indicator light (OFF / ON)	Confirm that the vehicle is stopped, engine idling
A/T SHIFT LCD	A/T shift LCD (L / 2 / 3 / 4) (OFF/ON)	Confirm that the vehicle is stopped, engine idling
SHIFT INDIC	A/T indicator light (P / R / N / D / S) (OFF / ON)	Confirm that the vehicle is stopped, engine idling
KEY REMND BUZZR	Key reminder buzzer (OFF / ON)	Confirm that the vehicle is stopped, engine idling
SEAT BELT BUZZR	Seat Belt buzzer (OFF / ON)	Confirm that the vehicle is stopped, engine idling
S SHFT RJCT BUZ	Sports Shift reject buzzer (OFF / ON)	Confirm that the vehicle is stopped, engine idling
WARNING BUZZER	Warning buzzer (OFF / ON)	Confirm that the vehicle is stopped, engine idling

*1: w/ VSC

*2: w/ Dynamic Laser Cruise Control System

*3: w/ Smart Key System

*4: U.S.A.

ON-VEHICLE INSPECTION

1. INSPECT SPEEDOMETER

(a) Check the operation.

- (1) Using a speedometer meter tester, check the speedometer indication according to the table below.

Reference

Chassis dynamometer indication	Acceptable range
20 mph (*1)	20.0 to 23.0 mph
40 mph (*1)	40.0 to 43.5 mph
60 mph (*1)	60.0 to 64.0 mph
80 mph (*1)	80.0 to 84.5 mph
100 mph (*1)	100.0 to 105.0 mph
120 mph (*1)	120.0 to 125.5 mph
140 mph (*1)	140.0 to 146.0 mph
160 mph (*1)	160.0 to 166.5 mph
20 km/h (*2)	(17.5 to 21.5 km/h)
40 km/h (*2)	38.0 to 42.0 km/h
60 km/h (*2)	58.0 to 63.0 km/h
80 km/h (*2)	78.0 to 84.0 km/h
100 km/h (*2)	98.5 to 104.5 km/h
120 km/h (*2)	119.0 to 125.0 km/h
140 km/h (*2)	139.0 to 146.0 km/h
160 km/h (*2)	159.0 to 167.0 km/h
180 km/h (*2)	179.0 to 188.0 km/h
200 km/h (*2)	199.0 to 209.0 km/h
220 km/h (*2)	219.0 to 230.0 km/h
240 km/h (*2)	239.0 to 251.0 km/h

*1: U.S.A.

*2: Canada

NOTICE:

Tire wear, as well as over or under inflation will cause errors.

- (2) Check the deviation from the acceptable value of the speedometer indication.

Reference:

Below 0.5 km/h (0.3 mph)

2. INSPECT TACHOMETER

(a) Check operation

- (1) Connect the tune-up test tachometer and start the engine.

NOTICE:

- **Reversing the connection of the tachometer will damage the transistors and the insides of the diodes.**
- **When removing or installing the tachometer, be careful not to drop or subject it to heavy shocks.**

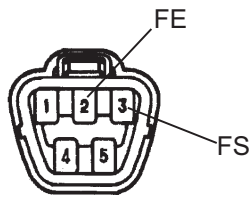
- (2) Compare the result of the test with the standard indication.

DC 13.5 V, at 25°C (77°F)

Reference

Chassis dynamometer indication (r/min)	Acceptable range (r/min) Data in () are for reference
700	630 to 770
1,000	(900 to 1,100)
2,000	(1,850 to 2,150)
3,000	2,800 to 3,200
4,000	(3,800 to 4,200)
5,000	4,800 to 5,200
6,000	(5,750 to 6,250)
7,000	6,700 to 7,300

Fuel Sender Gauge Connector
Front View:



1e-5-1-A

I030899E13

3. INSPECT FUEL RECEIVER GAUGE

- (a) Disconnect the connector from the sender gauge.
- (b) Turn the ignition switch on (IG), then check the position of the receiver gauge needle.

OK:

Needle position is on (EMPTY).

- (c) Connect terminals 2 and 3 on the wire harness side connector of the fuel sender gauge.
- (d) Turn the ignition switch on (IG), then check the position of the receiver gauge needle.

OK:

Needle position is on (FULL).

4. INSPECT FUEL LEVEL WARNING LIGHT

- (a) Disconnect the connector from the sender gauge.
- (b) Turn the ignition switch on (IG), then check that the fuel level needle indicates EMPTY and the fuel level warning light comes on.

OK:

Fuel level warning light comes on.

5. INSPECT LOW ENGINE OIL PRESSURE WARNING LIGHT

- (a) Disconnect the connector from the low oil pressure switch.
- (b) Turn the ignition switch on (IG).
- (c) Ground the terminal of the wire harness side connector, then check the low oil pressure warning light.

OK:

Low engine oil pressure warning light comes on.

6. INSPECT BRAKE WARNING LIGHT

- (a) Inspect the parking brake warning light.
 - (1) Disconnect the connector from the parking brake switch.
 - (2) Turn the ignition switch on (IG).
 - (3) Ground the terminal of the wire harness side connector, then check the parking brake warning light.

OK:

Brake warning light comes on.

- (b) Inspect the brake fluid level warning light.
- (1) Disconnect the connector from the brake fluid level warning switch.
 - (2) Turn the ignition switch on (IG).
 - (3) Connect a terminal to the other terminal of the wire harness side connector, then check the brake fluid level warning switch.

OK:

Brake warning light comes on.

7. INSPECT BRAKE FLUID LEVEL WARNING SWITCH

- (a) Remove the reservoir tank cap and strainer.
- (b) Disconnect the connector.
- (c) Measure the resistance between the terminals.

Resistance:

Float up (switch off): 10 k Ω or higher

- (d) Use a syphon, etc. to take fluid out of the reservoir tank.

- (e) Measure the resistance between the terminals.

Resistance:

Float down (switch on): Below 1 Ω

- (f) Pour the fluid back in the reservoir tank.

8. OIL MAINTENANCE INDICATOR RESETTING PROCEDURE

Indicator Condition:

State	Condition	Specified State
Blinking	The vehicle runs 4,500 to 5,000 miles after the previous setting	The indicator blinks for 12 seconds after the ignition switch is on (IG) (including 3 seconds for a bulb check)
Continuously Illuminated	The vehicle runs over 5,000 miles after the previous setting	The indicator is continuously illuminated after the ignition switch is on (IG).

- (a) Set the display window to ODO.
- (b) Turn the ignition switch off.
- (c) While pressing the reset switch, turn the ignition switch on (IG). Keep pressing the reset switch for at least 5 seconds to complete the reset procedure. Check that the "MAINTENANCE" indicator light goes off.

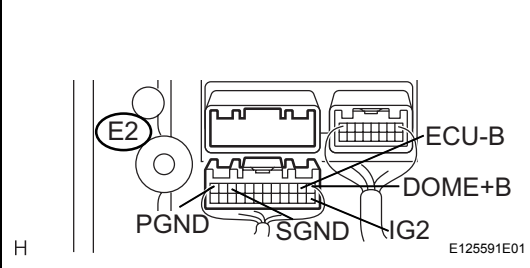
HINT:

- If the ignition switch is turned off during the reset procedure:
LCD: off
IND: off
- If the reset switch is not pressed for at least 5 seconds during the reset procedure:
LCD: return to ODO
IND: previous state

INSPECTION PROCEDURE

1 INSPECT COMBINATION METER ASSEMBLY

Combination Meter Assembly Wire Harness View:



- (a) Disconnect the E2 connector.
- (b) Measure the resistance according to the value(s) in the table below.

Resistance

Tester Connection	Condition	Specified Condition
E2-12 (PGND) - Body ground	Always	Below 1 Ω
E2-10 (SGND) - Body ground	Always	Below 1 Ω

- (c) Measure the voltage according to the value(s) in the table below.

Resistance

Tester Connection	Condition	Specified Condition
E2-1 (DOME+B) - Body ground	Always	10 to 14 V
E2-2 (ECU-B) - Body ground	Always	10 to 14 V
E2-13 (IG2) - Body ground	Ignition switch on (IG)	10 to 14 V

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

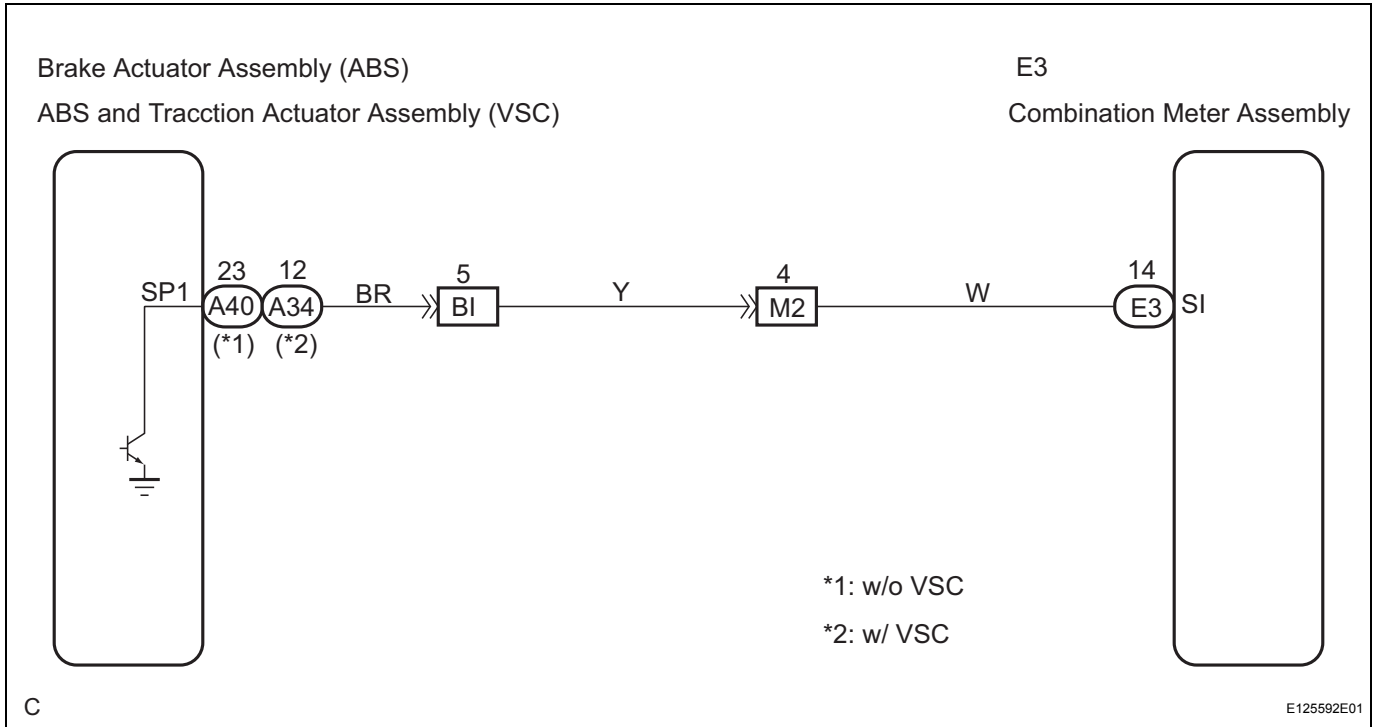
OK

REPLACE COMBINATION METER ASSEMBLY

ME

Speedometer Malfunction

WIRING DIAGRAM



ME

INSPECTION PROCEDURE

1 PERFORM ACTIVE TEST BY INTELLIGENT TESTER

- (a) Operate the intelligent tester according to the steps on the display and select the "ACTIVE TEST".

METER:

Item	Test Details	Diagnostic Note
SPEED METER	0 /40 (24) / 80 (48) / 120 (72) / 160 (96) / 200 (120) / 240 (149) km/m (mph)	-

OK:

Needle indication is normal.

NG → REPLACE COMBINATION METER ASSEMBLY

OK

2 READ VALUE OF INTELLIGENT TESTER (VEHICLE SPEED SIGNAL)

- (a) Operate the intelligent tester according to the steps on the display and select the "DATA LIST".

METER:

Item	Measurement Item / Range (Display)	Test Details	Diagnostic Note
SPEED METER	Vehicle speed / Min.: 0 km/h (0 mph), Max.: 255 km/h (158 mph)	Almost same as actual speed (When driving)	-

OK:

Vehicle speed displayed on the tester is almost the same as the actual vehicle speed.

NG 

Go to step 3

OK 

REPLACE COMBINATION METER ASSEMBLY

3 READ VALUE OF INTELLIGENT TESTER (VEHICLE SPEED SIGNAL)

- (a) Operate the intelligent tester according to the steps on the display and select the "DATA LIST".

ABS:

Item	Measurement Item / Range (Display)	Test Details	Diagnostic Note
(FR / FL / RR / RL) SPD	Vehicle speed / Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Almost same as actual speed (When driving)	-

OK:

Vehicle speed displayed on the tester is almost the same as the actual vehicle speed.

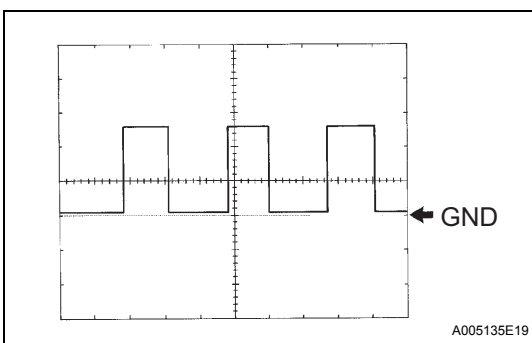
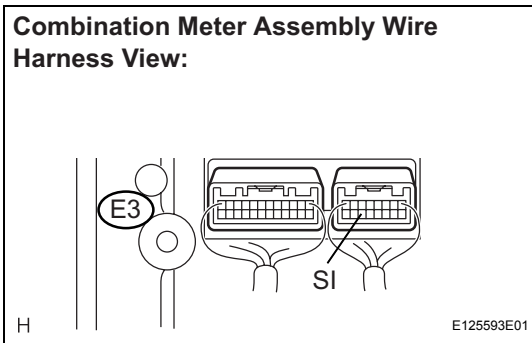
NG 

GO TO BRAKE CONTROL SYSTEM

OK 

4 INSPECT COMBINATION METER ASSEMBLY

- (a) Check the input signal waveform.
 - (1) Remove the combination meter assembly.
 - (2) Connect the oscilloscope to the terminals E3-14 (IS) and body ground.
 - (3) Start the engine.



- (4) Check the signal waveform according to the condition(s) in the table below.

OK:

The waveform is displayed as shown in the illustration.

Item	Condition
Tool setting	5 V/DIV., 20 ms/DIV.
Vehicle condition	Driving at approx. 20 km/h (12 mph)

HINT:

As the vehicle speed increases, the cycle of the signal waveform narrows.

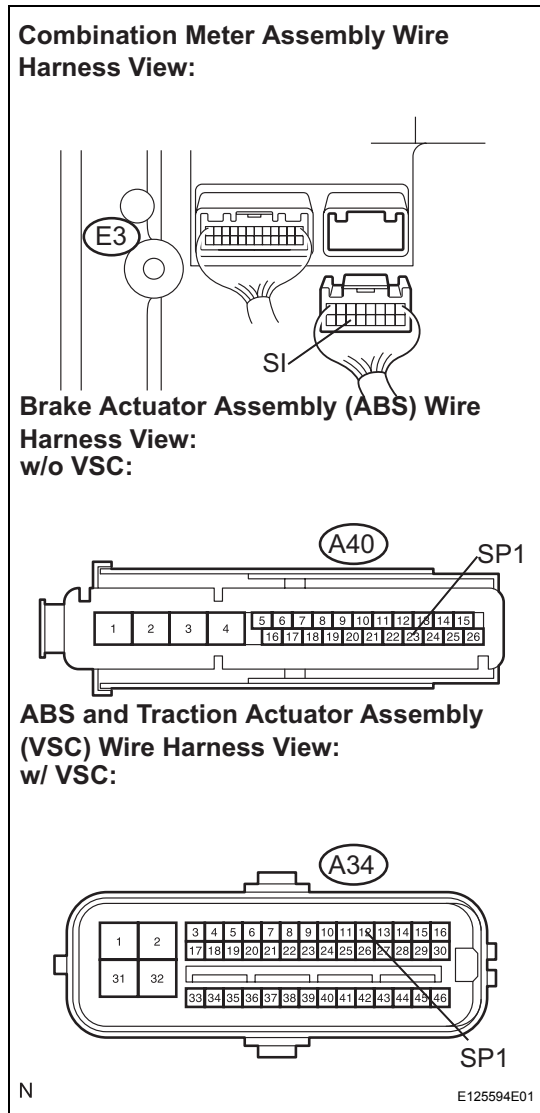
NG

Go to step 5

OK

REPLACE COMBINATION METER ASSEMBLY

5 CHECK HARNESS AND CONNECTOR (ABS AND TRACTION ACTUATOR ASSEMBLY (VSC) - COMBINATION METER)



- (a) Disconnect the E3 and A34 (A40) connectors.
- (b) Measure the resistance according to the value(s) in the table below.

Resistance

Tester Connection	Condition	Specified Condition
E3-14 (SI) - A34-12 (SP1) (*2)	Always	Below 1 Ω
E3-14 (SI) - A40-23 (SP1) (*1)	Always	Below 1 Ω
E3-14 (SI) - Body ground	Always	10 kΩ or higher

(*1): w/o VSC

(*2): w/ VSC

NG

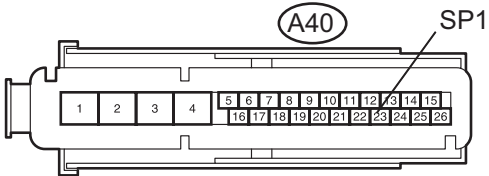
REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

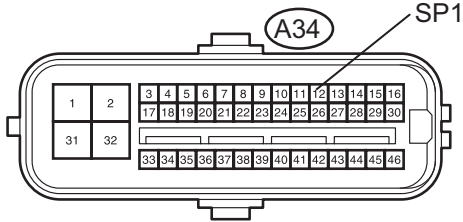
ME

6 INSPECT COMBINATION METER ASSEMBLY

Brake Actuator Assembly (ABS) Wire
Harness View:
w/o VSC



ABS and Traction Actuator Assembly (VSC) Wire
Harness View:
w/ VSC



N

E125595E01

- (a) Disconnect the A34 (A40) connector.
- (b) Measure the voltage according to the value(s) in the table below.

Voltage

Tester Connection	Condition	Specified Condition
A34-12 (SP1) (*2) - Body ground	Ignition switch on (IG)	10 to 14 V
A40-23 (SP1) (*1) - Body ground	Ignition switch on (IG)	10 to 14 V

(*1): w/o VSC

(*2): w/ VSC

NG

REPLACE COMBINATION METER ASSEMBLY

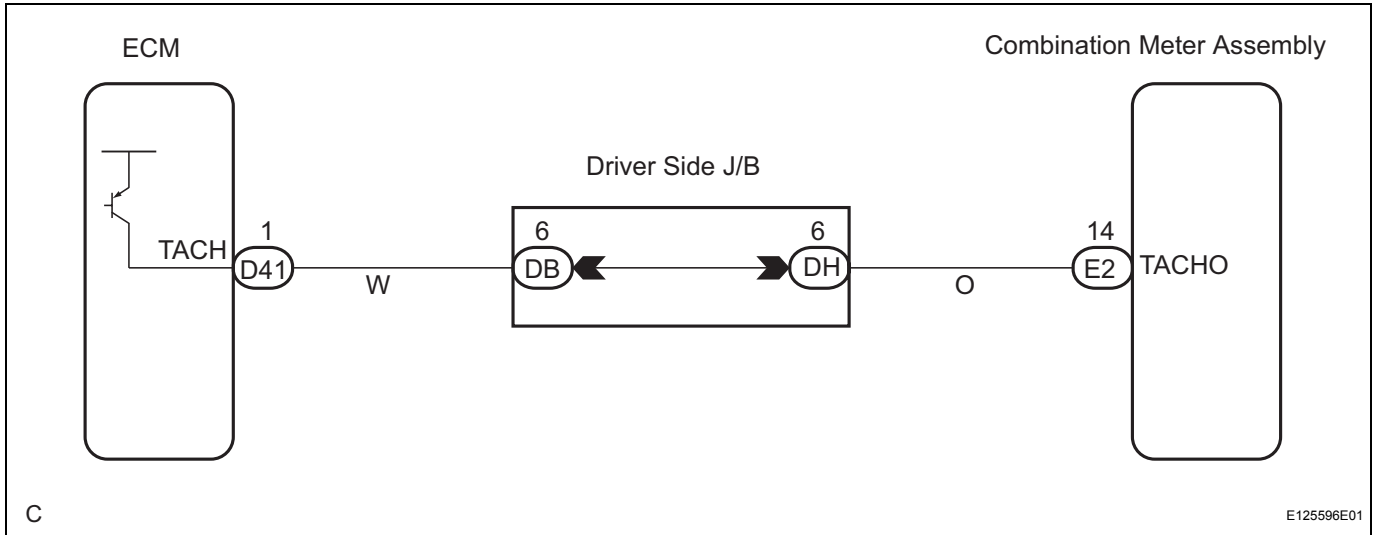
ME

OK

GO TO BRAKE CONTROL SYSTEM

Tachometer Malfunction

WIRING DIAGRAM



INSPECTION PROCEDURE

1 PERFORM ACTIVE TEST BY ACTIVE TEST USING INTELLIGENT TESTER

- (a) Operate the intelligent tester according to the steps on the display and select the "ACTIVE TEST".

METER:

Item	Test Details	Diagnostic Note
TACHOMETER	0 rpm / 1,000 rpm / 2,000 rpm / 3,000 rpm / 4,000 rpm / 5,000 rpm / 6,000 rpm / 7,000 rpm	-

OK:

Needle indication is normal.



REPLACE COMBINATION METER ASSEMBLY



2 READ VALUE OF INTELLIGENT TESTER (ENGINE SPEED SIGNAL)

- (a) Operate the intelligent tester according to the steps on the display and select the "DATA LIST".

METER:

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
TACHO METER	Engine speed / min.: 0 rpm, Max.: 12,750 rpm	Almost same as actual engine speed (When engine is running)	-

OK:

Engine speed displayed on the tester is almost the same as the actual engine speed.



Go to step 3

OK

REPLACE COMBINATION METER ASSEMBLY

3 READ VALUE OF INTELLIGENT TESTER (ENGINE SPEED SIGNAL)

- (a) Operate the intelligent tester according to the steps on the display and select the "DATA LIST".

ENGINE:

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
ENGINE SPD	Engine speed / min.: 0 rpm, Max.: 16,383 rpm	Almost same as actual engine speed (When engine is running)	-

OK:

Engine speed displayed on the tester is almost the same as the actual engine speed.

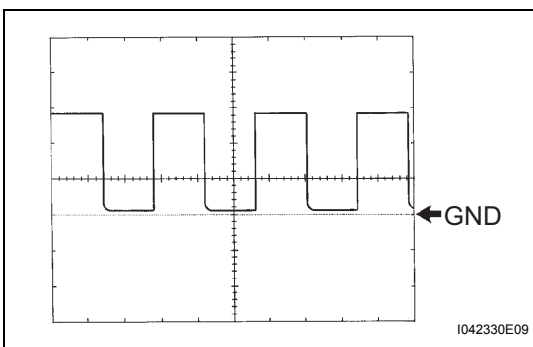
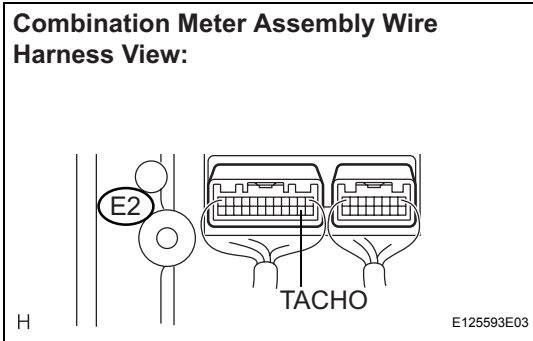
NG

GO TO ENGINE CONTROL SYSTEM

OK

4 INSPECT COMBINATION METER ASSEMBLY

- (a) Check the input signal waveform.
 - (1) Remove the combination meter assembly.
 - (2) Connect the oscilloscope to the terminals E2-14 (TACHO) and body ground.
 - (3) Start the engine.



- (4) Check the signal waveform according to the condition(s) in the table below.

Item	Condition
Tool setting	5 V/DIV., 10 ms/DIV.
Vehicle condition	Engine idle speed

OK:

The waveform is displayed as shown in the illustration.

NG

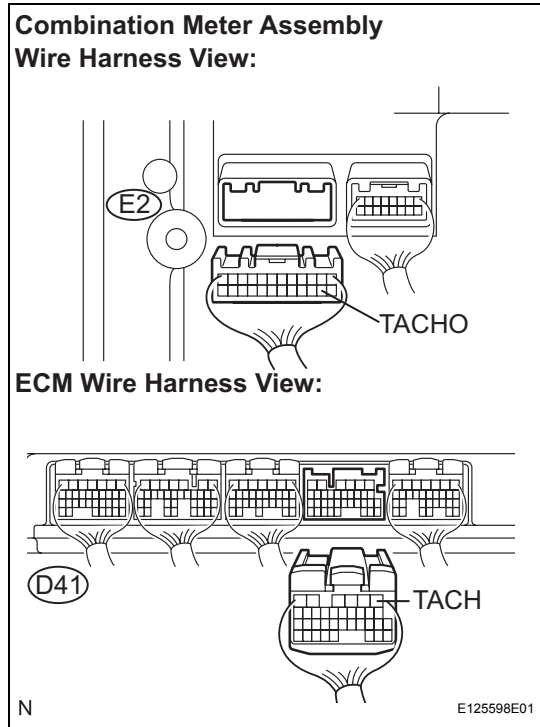
Go to step 5

ME

OK

REPLACE COMBINATION METER ASSEMBLY

5 CHECK HARNESS OR CONNECTOR (ECM - COMBINATION METER)



- (a) Disconnect the E2 and D41 connectors.
- (b) Measure the resistance according to the value(s) in the table below.

Resistance

Tester Connection (Symbols)	Condition	Specified Condition
E2-14 (TACHO) - D41-1 (TACH)	Always	Below 1 Ω
E2-14 (TACHO) - Body ground	Always	10 k Ω or higher

NG **REPAIR OR REPLACE HARNESS OR CONNECTOR**

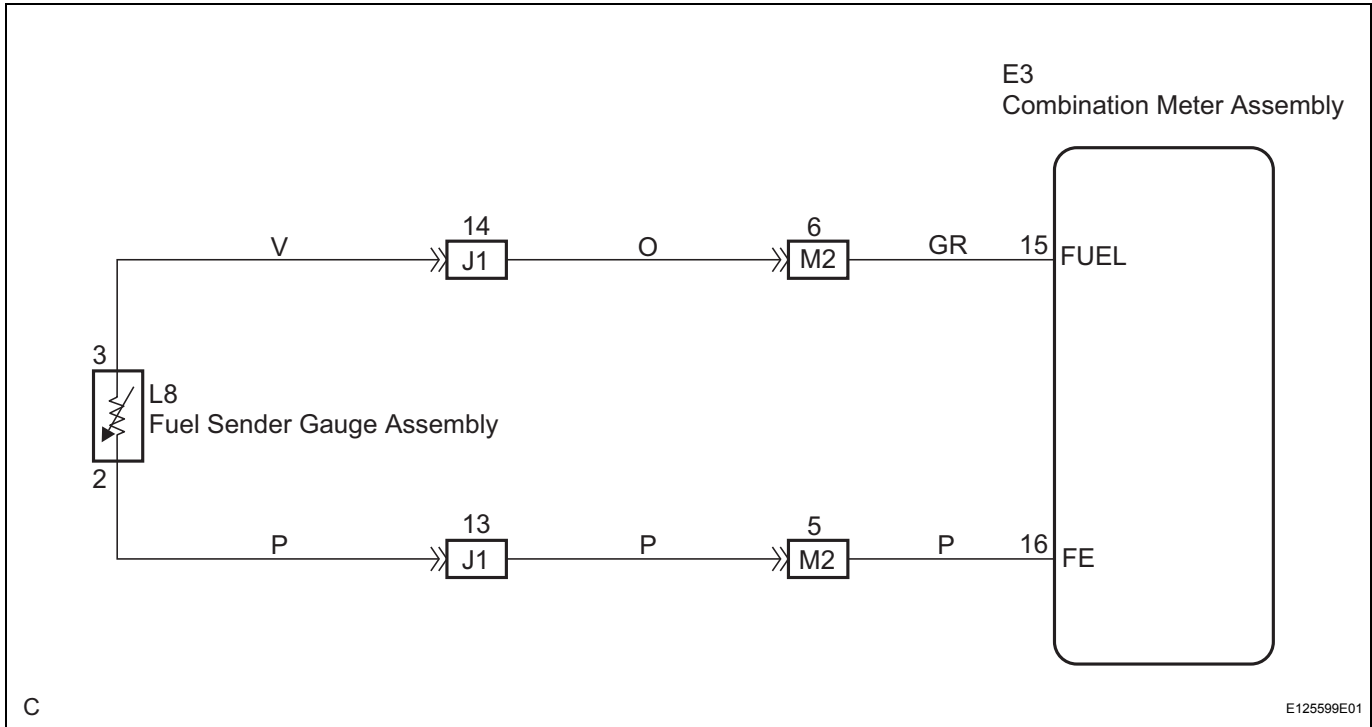
ME

OK

GO TO ENGINE CONTROL SYSTEM

Fuel Receiver Gauge Malfunction

WIRING DIAGRAM



INSPECTION PROCEDURE

1 PERFORM ACTIVE TEST BY INTELLIGENT TESTER

- (a) Operate the intelligent tester according to the step on the display and select the "ACTIVE TEST".

METER:

Item	Test Details	Diagnostic Note
FUEL GAUGE	OFF, EMPTY, 1/2, FULL	-

OK:

Needle indication is normal.

NG → **REPLACE COMBINATION METER ASSEMBLY**

OK

2 READ VALUE OF INTELLIGENT TESTER

- (a) Operate the intelligent tester according to the steps on the display and select the "DATA LIST".

METER:

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
FUEL GAUGE	Fuel input signal Min.: 0, max.: 255	Fuel gauge indicates (F): 35 Fuel gauge indicates (3/4): 85 Fuel gauge indicates (1/2): 145 Fuel gauge indicates (1/4): 186 Fuel gauge indicates (E): 205	-

OK:

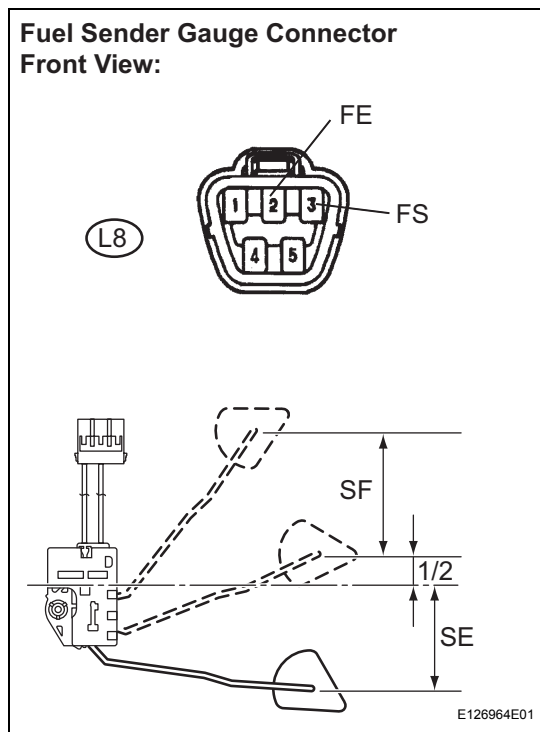
Fuel value signal displayed on the tester is almost the same as needle indication.

NG → **REPLACE COMBINATION METER ASSEMBLY**

ME

OK

3 INSPECT FUEL SENDER GAUGE ASSEMBLY



- (a) Disconnect the L8 connector.
- (b) Disconnect the fuel sender gauge connector.
- (c) Remove the fuel sender gauge assembly.
- (d) Measure the resistance between the terminal 2 (EF) and 3 (FS) of connector according to the value(s) in the table below

Resistance

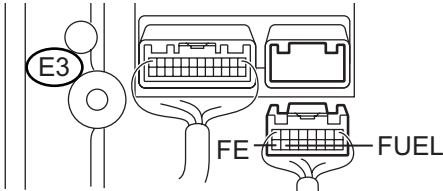
Float level	Float position mm (in.)	Resistance (Ω)
SF	73.1 (2.88) +- 3 (0.12)	13.5 to 16.5
1/2	13.8 (0.54) +- 3 (0.12)	199.5 to 225.5
SE	51.5 (2.03) +- 3 (0.12)	405.5 to 414.5

NG → **REPLACE FUEL SENDER GAUGE ASSEMBLY**

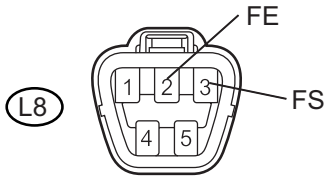
OK

4 CHECK HARNESS AND CONNECTOR (COMBINATION METER - FUEL SENDER GAUGE ASSEMBLY)

Combination Meter Assembly Wire Harness View:



Fuel Sender Gauge Assembly Wire Harness View:



H

E125601E01

- (a) Disconnect the E3 and L8 connectors
- (b) Measure the resistance according to the value(s) in the table below.

Resistance

Tester Connection	Condition	Specified Condition
E3-15 (FUEL) - L8-3 (FS)	Always	Below 1 Ω
E3-15 (FUEL) - Body ground	Always	10 kΩ or higher
E3-16 (FE) - L8-2 (FE)	Always	Below 1 Ω
E3-16 (FE) - Body ground	Always	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

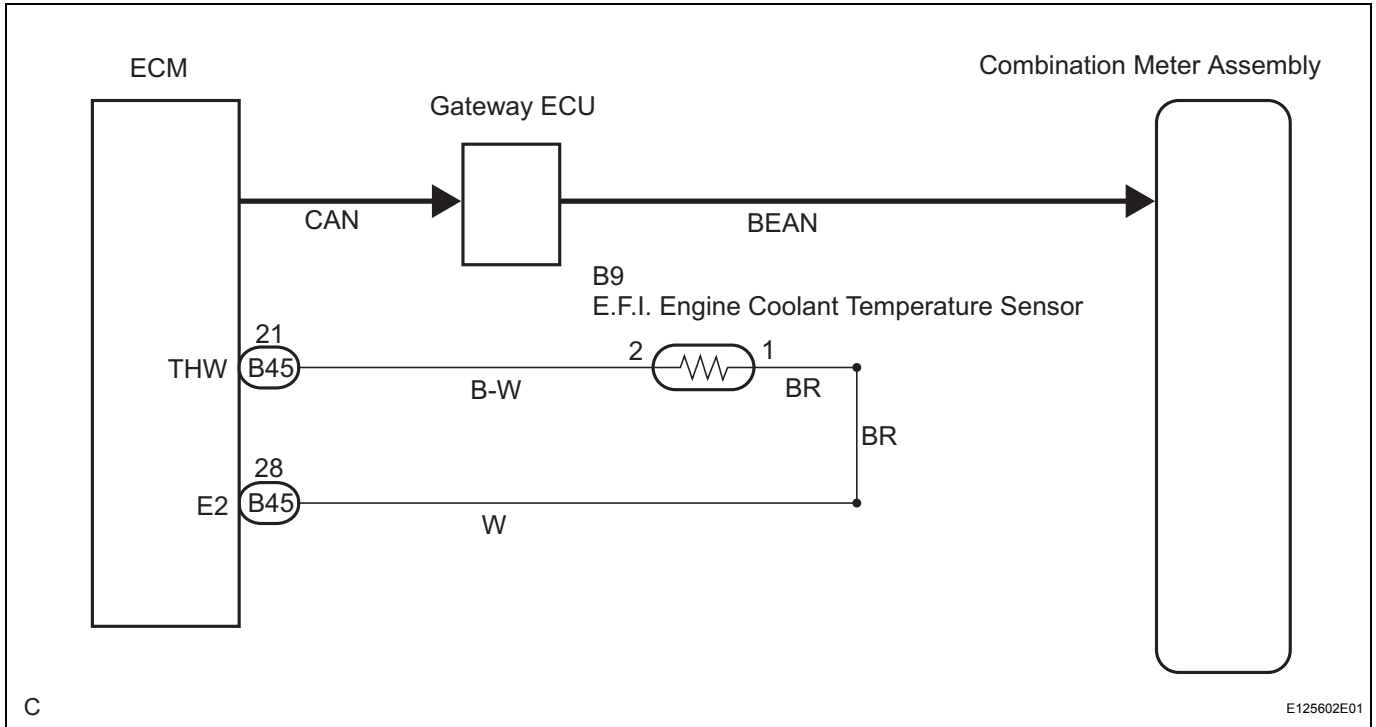
OK

REPLACE COMBINATION METER ASSEMBLY

ME

Engine Coolant Temperature Receiver Gauge Malfunction

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

If there is an open or short in the engine coolant temperature sensor circuit, the ECM outputs DTCs. Perform troubleshooting with the "SFI System" (See page ES-44).

1 PERFORM ACTIVE TEST BY INTELLIGENT TESTER

- (a) Operate the intelligent tester according to the steps on the display and select the "ACTIVE TEST".

METER:

Item	Test Details	Diagnostic Note
COOLANT TEMP	LOW / NORMAL / HI	-

OK:

Needle indication is normal.

NG

REPLACE COMBINATION METER ASSEMBLY

OK

ME

2 READ VALUE OF INTELLIGENT TESTER (ENGINE COOLANT)

- (a) Operate the intelligent tester according to the steps on the display and select the "DATA LIST".

ENGINE:

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
COOLANT TEMP	Coolant Temperature / Min.: -40°C (-40°F), Max.: 140°C (284°F)	After warming up: 80 to 95°C (176 to 203°F)	If the value is "-40°C (-40°F)" or "140°C (284°F)", sensor circuit is open or shorted.

OK:

Coolant temperature displayed on the tester is between 80°C (176°F) and 95°C (203°F) after warming up.

NG

GO TO ENGINE CONTROL SYSTEM

OK

3 REPLACE COMBINATION METER ASSEMBLY**OK:**

Operation of combination returns to normal.

NG

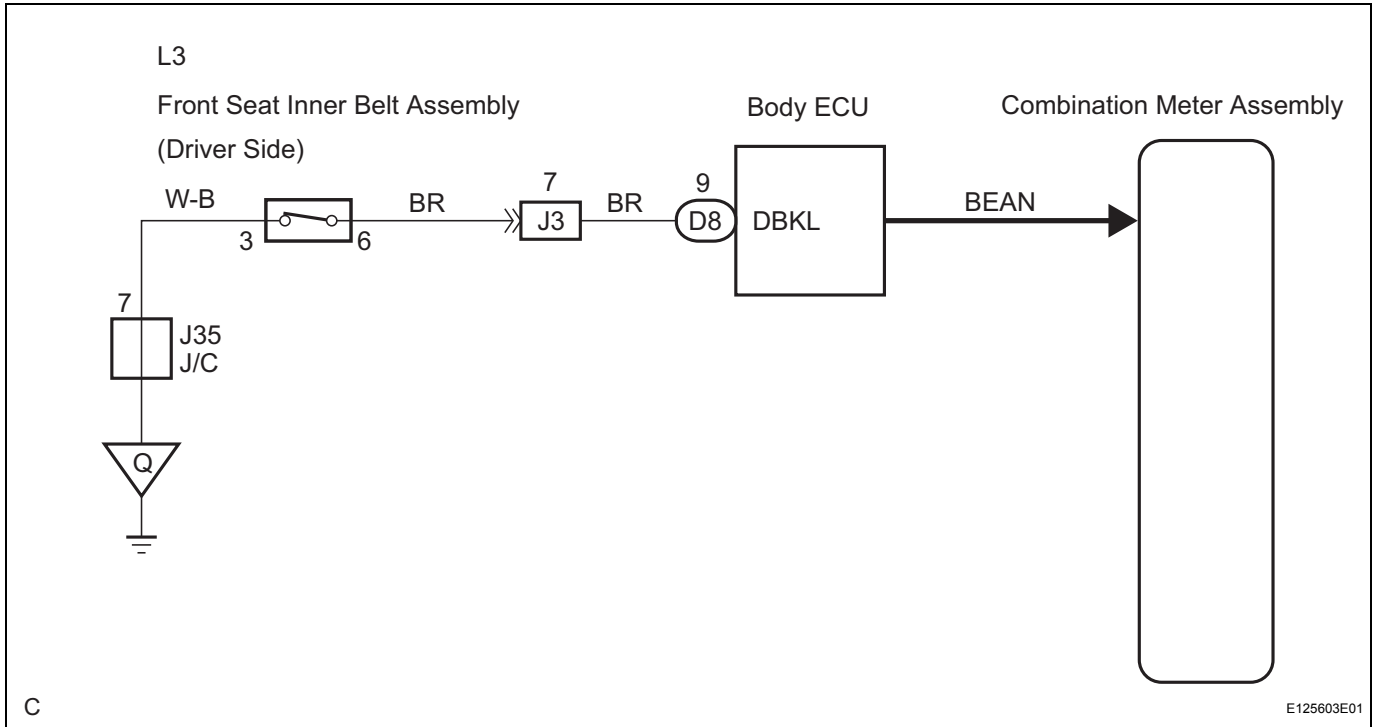
GO TO ENGINE CONTROL SYSTEM

OK

END

Driver Side Seat Belt Warning Light does not Operate

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

If there is an open in the ground circuit (Airbag sensor assembly center), the airbag sensor assembly center outputs DTCs. Perform troubleshooting with the "Supplemental Restraint System" (See page RS-34).

1 PERFORM ACTIVE TEST BY INTELLIGENT TESTER

- (a) Operate the intelligent tester according to the steps on the display and select the "ACTIVE TEST".

METER:

Item	Test Details	Diagnostic Note
D-BELT REMIND	Indicat. Light D-SEAT BELT (OFF / ON)	Confirm that the vehicle is stopped and engine idling

OK:

Indicator light (ON OFF) can be switched ACTIVE TEST.

NG → REPLACE COMBINATION METER ASSEMBLY

OK

ME

2 READ VALUE OF INTELLIGENT TESTER

- (a) Operate the intelligent tester according to the steps on the display and select the "DATA LIST".

DATA LIST / AIR CONDITIONER:

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
D BUCKLE SW	Driver seat belt buckle switch ON / OFF	ON: Seat belt is fastened OFF: seat belt is unfastened	-

OK:

Switch condition (ON / OFF) can be switched by actual operation.

NG → **REPLACE COMBINATION METER ASSEMBLY**

OK

ME

3 INSPECT FRONT SEAT INNER BELT ASSEMBLY LH (DRIVER SIDE)

Front Seat Inner Belt Assembly (Driver Side) Connector Front View:

- (a) Disconnect the connector from the front seat inner belt assembly (Driver Side).
- (b) Measure the resistance according to the value(s) in the table below.

Resistance

Tester Connection	Condition	Specified Condition
L3-6 - L3-3	Seat belt is fastened	Approx. 330 Ω
L3-6 - L3-3	seat belt is unfastened	Approx. 1,330 Ω

NG → **REPLACE FRONT SEAT INNER BELT ASSEMBLY LH (DRIVER SIDE)**

OK

4 CHECK HARNESS OR CONNECTOR (BODY ECU - FRONT SEAT INNER BELT ASSEMBLY (DRIVER SIDE))

Front Seat Inner Belt Assembly (Driver Side) Wire Harness View:

- (a) Disconnect the connector from the front seat inner belt assembly (Driver Side).
- (b) Measure the resistance according to the value(s) in the table below.

Resistance

Tester Connection	Condition	Specified Condition
L3-3 - Body ground	Always	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

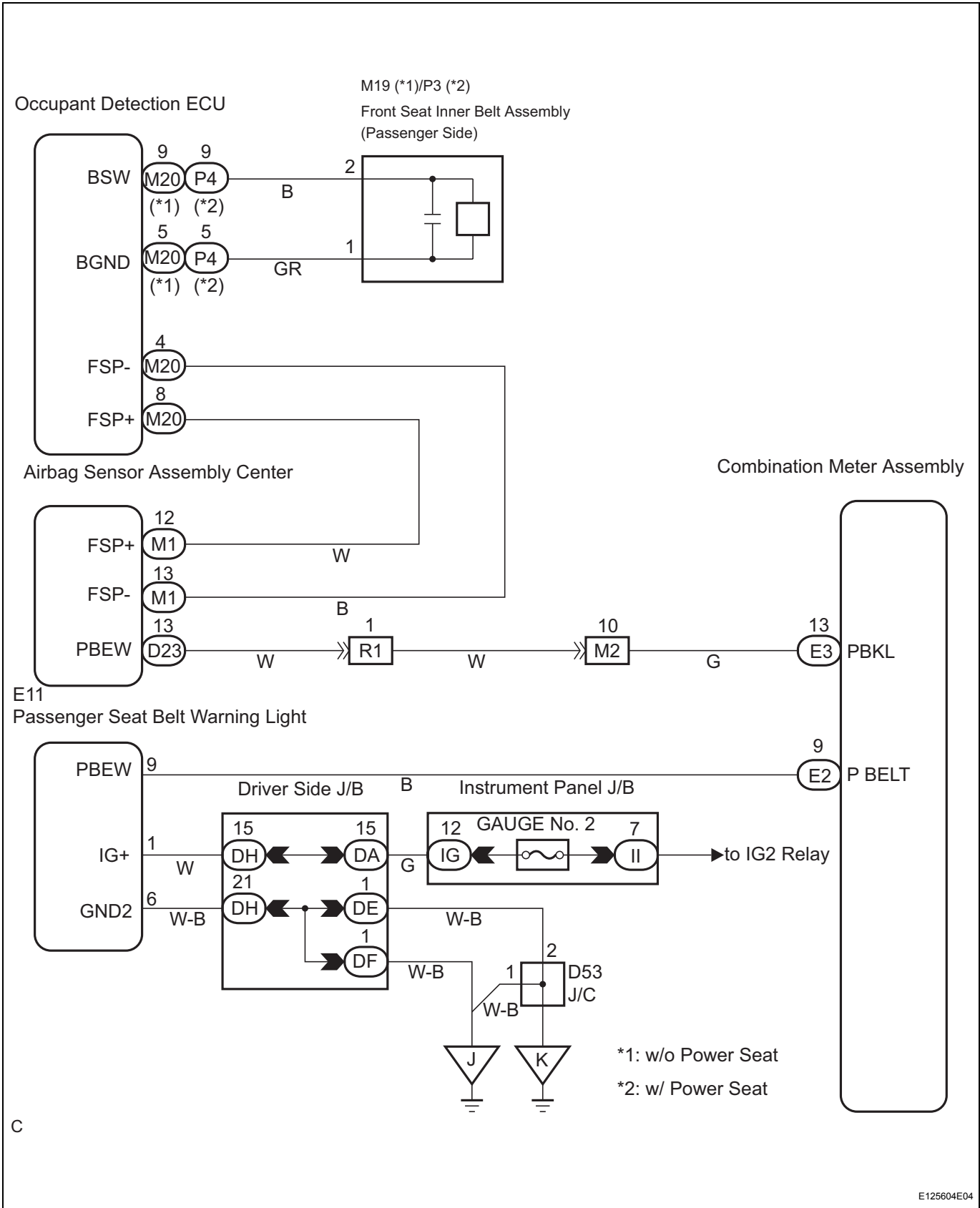
OK

GO TO MULTIPLEX COMMUNICATION SYSTEM

ME

Front Passenger Side Seat Belt Warning Light Malfunction

WIRING DIAGRAM



ME

C

INSPECTION PROCEDURE

HINT:

- Displays except for the seat belt warning indicator are shown in the navigation system (See page [NS-24](#)), supplemental restraint system (See page [RS-26](#)), and A/C system (See page [AC-29](#)).
- The passenger seat belt warning light can be inspected with it removed from the vehicle. The accessory meter assembly should be replaced if the passenger seat belt warning light has a malfunction because this part is not independently supplied.

1 PERFORM ACTIVE TEST BY INTELLIGENT TESTER

- (a) Operate the intelligent tester according to the steps on the display and select the "ACTIVE TEST".

DATA LIST / AIR CONDITIONER:

Item	Test Details	Diagnostic Note
P-BELT REMIND	Indicat. Light P-SEAT BELT (OFF / ON)	Confirm that the vehicle is stopped, engine idling

OK:

Indicator light (ON / OFF) can be switched by ACTIVE TEST.

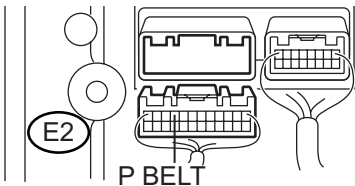
ME

OK → Go to step 5

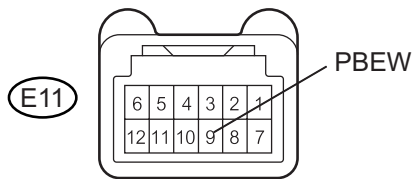
NG

2 CHECK HARNESS AND CONNECTOR (BETWEEN PASSENGER SEAT BELT WARNING LIGHT AND COMBINATION ME)

Combination Meter Assembly Wire Harness View:



Passenger Seat Belt Warning Light Wire Harness View:



H

E125605E01

- (a) Disconnect the E2 and E11 connectors.
 (b) Measure the resistance to the value(s) in the table blow.

Resistance

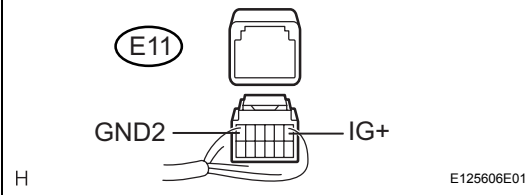
Tester Connection	Condition	Specified Condition
AE2-9 (P BEL) - E11-9 (PBEW)	Always	Below 1 Ω
E11-9 (PBEW) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3 INSPECT COMBINATION METER ASSEMBLY

Passenger Seat Belt Warning Light Wire
Harness View:



- (a) Disconnect the E2 connector
(b) Measure the voltage according the value(s) in the table below.

Voltage

Tester Connection	Condition	Specified Condition
E11-1 (IG+) - Body ground	Ignition switch on (IG)	10 to 14 V

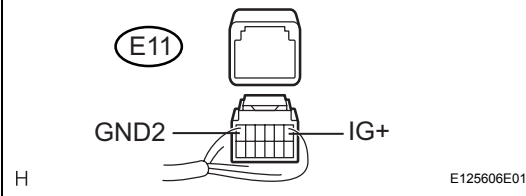
OK

REPLACE COMBINATION METER ASSEMBLY

NG

4 CHECK WIRE HARNESS AND CONNECTOR (PASSENGER SEAT BELT WARNING CIRCUIT)

Passenger Seat Belt Warning Light Wire
Harness View:



- (a) Disconnect the E2 connector
(b) Measure the voltage according the value(s) in the table below.

Voltage

Tester Connection	Condition	Specified Condition
E11-1 (IG+) - Body ground	Ignition switch on (IG)	10 to 14 V

- (c) Measure the resistance according to the value(s) in the table below.

Resistance

Tester Connection	Condition	Specified Condition
E11-6 (GND2) - Body ground	Always	Below 1 Ω

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE ACCESSORY METER ASSEMBLY**5 READ VALUE OF INTELLIGENT TESTER**

- (a) Operate the intelligent tester according to the step on the display and select "DATA LIST".

SRS AIRBAG:

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
P BUCKLE SW	Passenger seat belt buckle switch is ON / OFF	ON: Seat belt is fastened OFF: Seat belt is unfastened	-

OK:

Switch condition (ON / OFF) can be switched by actual operation.

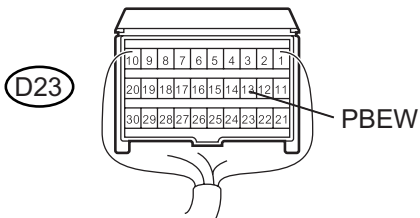
NG

GO TO SUPPLEMENTAL RESTRAINT SYSTEM

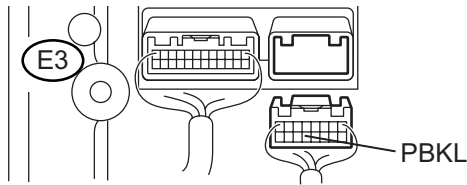
OK

6 CHECK HARNESS AND CONNECTOR (AIRBAG SENSOR ASSEMBLY CENTER - COMBINATION METER)

Airbag Sensor Assembly Center Wire Harness View:



Combination Meter Assembly Wire Harness View:



- (a) Disconnect the D23 and E3 connectors.
- (b) Measure the resistance according to the value(s) in the table below.

Resistance

Tester Connection	Condition	Specified Condition
D23-13 (PBEW) - E3-13 (PBKL)	Always	Below 1 Ω
E3-13 (PBKL) - Body ground	Always	10 kΩ or higher

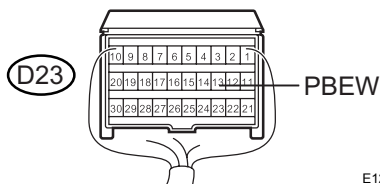
NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7 INSPECT COMBINATION METER ASSEMBLY

Airbag Sensor Assembly Center Wire Harness View:



- (a) Disconnect the D23 connector.
- (b) Measure the voltage according to the value(s) in the table below.

Voltage

Tester Connection	Condition	Specified Condition
D23-13 (PBEW) - Body ground	Ignition switch on (IG)	10 to 14 V

NG

REPLACE COMBINATION METER ASSEMBLY

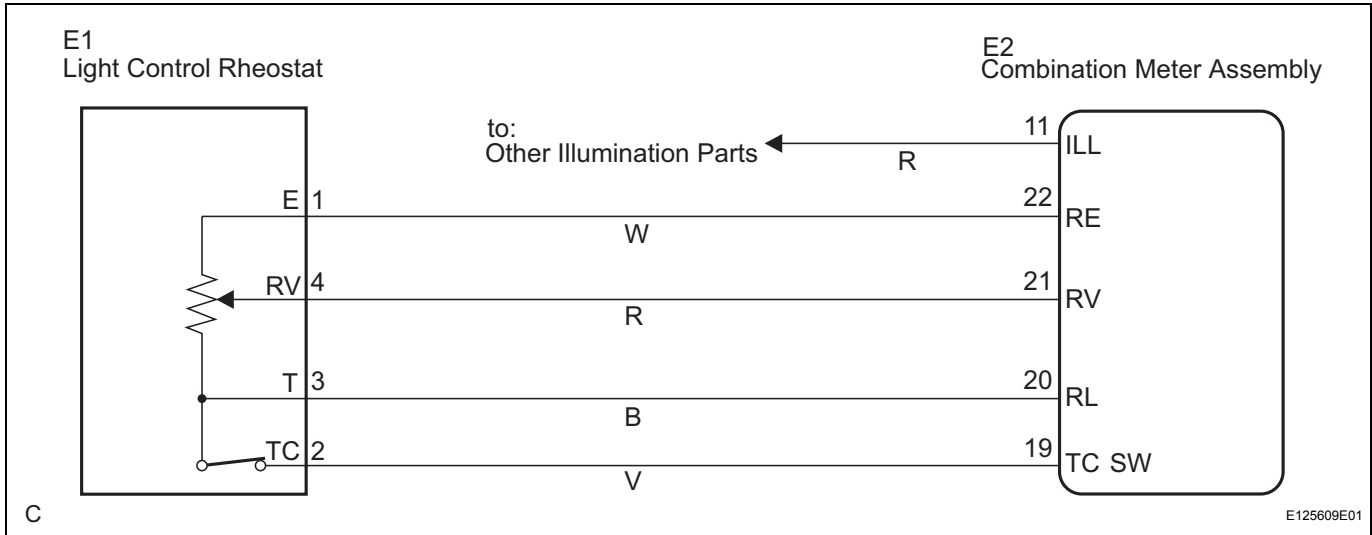
OK

REPLACE CENTER AIRBAG SENSOR ASSEMBLY

ME

Operating Light Control Rheostat does not Change Light Brightness

WIRING DIAGRAM



ME

INSPECTION PROCEDURE

1 READ VALUE OF INTELLIGENT TESTER (LIGHT CONTROL RHEOSTAT)

(a) Operate the intelligent tester according to the steps on the display and select the "DATA LIST".

METER:

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
RHEOSTAT VOL	Light control Rheostat / Min.: 0 , Max.: 255	Light control rheostat rheostat switch is Dark (0) → Bright (255)	-

OK:

Light control can be changed within the specified range by actual operation.

NG → **Go to step 5**

OK

2 CHECK ILLUMINATION

OK

Result	Proceed to
All illumination does not change.	A
Only combination meter illumination does not change.	A
Lounge illumination / Push start button illumination does not change.	B
Other illumination (navigation, audio, etc.) does not change.	C

B → **Go to step 3**

C

Go to step 4

A

REPLACE COMBINATION METER ASSEMBLY

3 REPLACE BODY ECU

HINT:

Check illumination circuit before replacing body ECU (See page LI-18).

OK:

Operation of the light control rheostat returns to normal.

NG

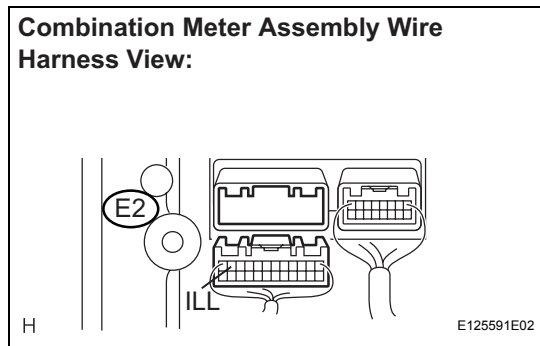
REPLACE COMBINATION METER ASSEMBLY

ME

OK

END

4 INSPECT COMBINATION METER ASSEMBLY



(a) Disconnect the E2 connector.

(b) Measure the voltage according to the value(s) in the table below.

Voltage

Tester Connection	Condition	Specified Condition
E2-11 (ILL) - Body ground	Ignition switch on (IG), and TAIL light ON	10 to 14 V
E2-11 (ILL) - Body ground	Ignition switch off	Below 1 V

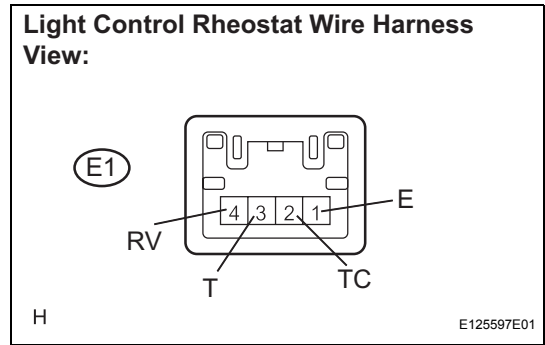
NG

REPLACE COMBINATION METER ASSEMBLY

OK

CHECK ILLUMINATION

5 INSPECT LIGHT CONTROL RHEOSTAT



- (a) Remove the light control rheostat.
- (b) Measure the resistance according to the value(s) in the table below.

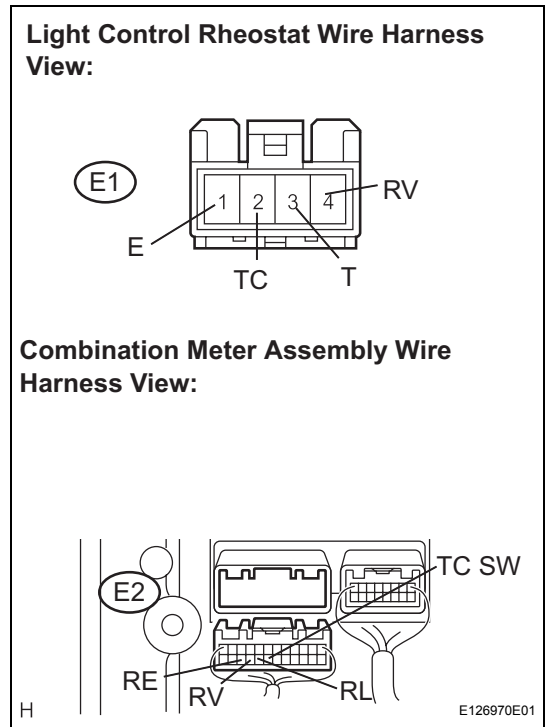
Resistance

Tester Connection	Condition	Specified Condition
E1-1 (E) - E1-4 (RV)	Rheostat knob fully turns clockwise.	8 to 12 Ω
E1-1 (E) - E1-4 (RV)	Rheostat knob fully turns counterclockwise.	Approx. 0 Ω
E1-2 (TC) - E1-3 (T)	Rheostat knob fully turns clockwise.	Below 1 Ω
E1-2 (TC) - E1-3 (T)	Rheostat knob fully turns counterclockwise.	10 k Ω or higher

NG REPLACE LIGHT CONTROL RHEOSTAT

OK

6 CHECK HARNESS AND CONNECTOR (COMBINATION METER - LIGHT CONTROL RHEOSTAT)



- (a) Disconnect the E1 and E2 connectors.
- (b) Measure the resistance according to the value(s) in the table below.

Resistance

Tester Connection	Condition	Specified Condition
E1-1 (E) - Body ground	Always	10 k Ω or higher
E1-2 (TC) - Body ground	Always	10 k Ω or higher
E1-3 (T) - Body ground	Always	10 k Ω or higher
E1-4 (RV) - Body ground	Always	10 k Ω or higher
E1-1 (E) - E2-22 (RE)	Always	Below 1 Ω
E1-2 (TC) - E2-19 (TC SW)	Always	Below 1 Ω
E1-3 (T) - E2-20 (RT)	Always	Below 1 Ω
E1-4 (RV) - E2-21 (RV)	Always	Below 1 Ω

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

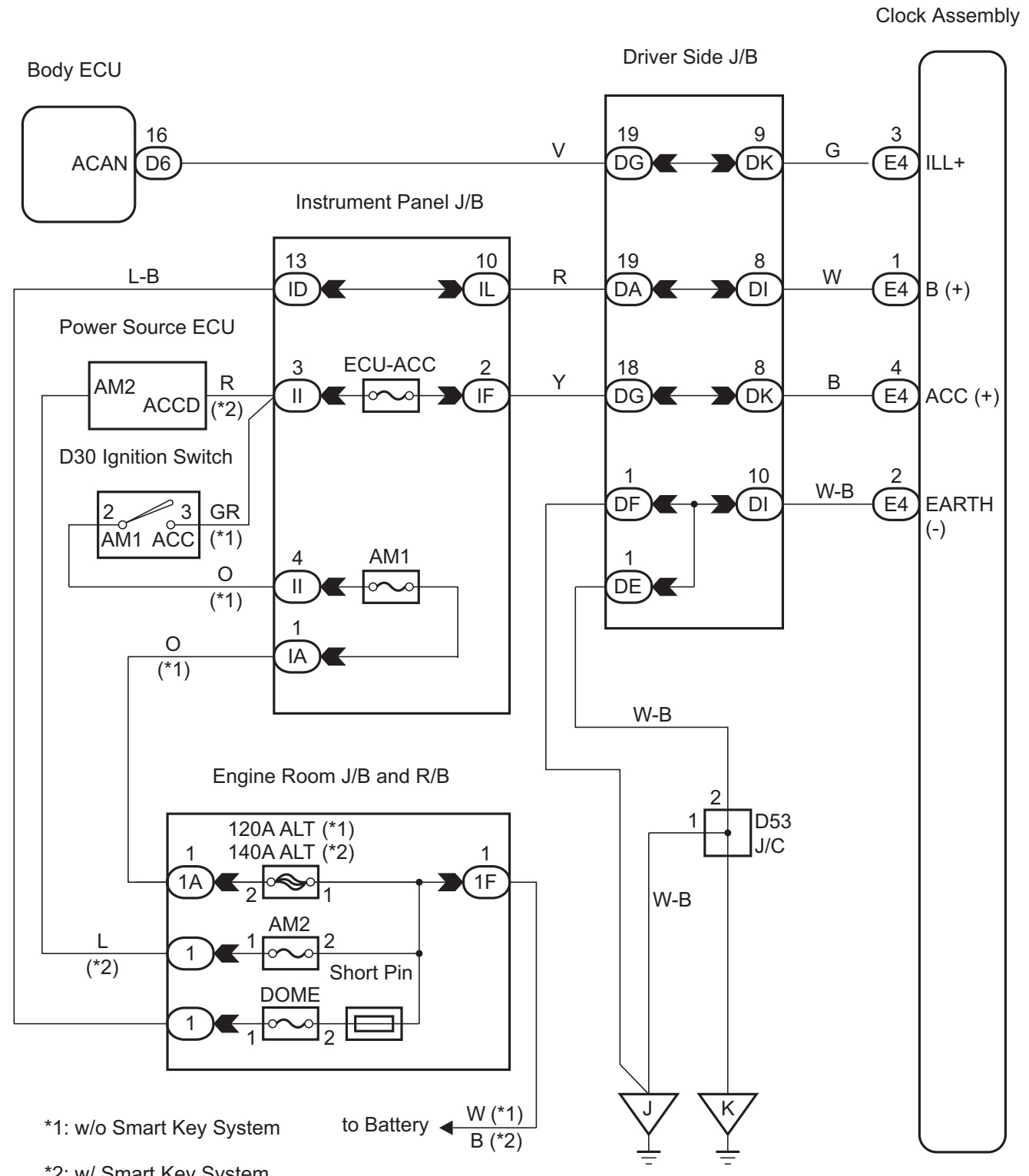
OK

REPLACE COMBINATION METER ASSEMBLY

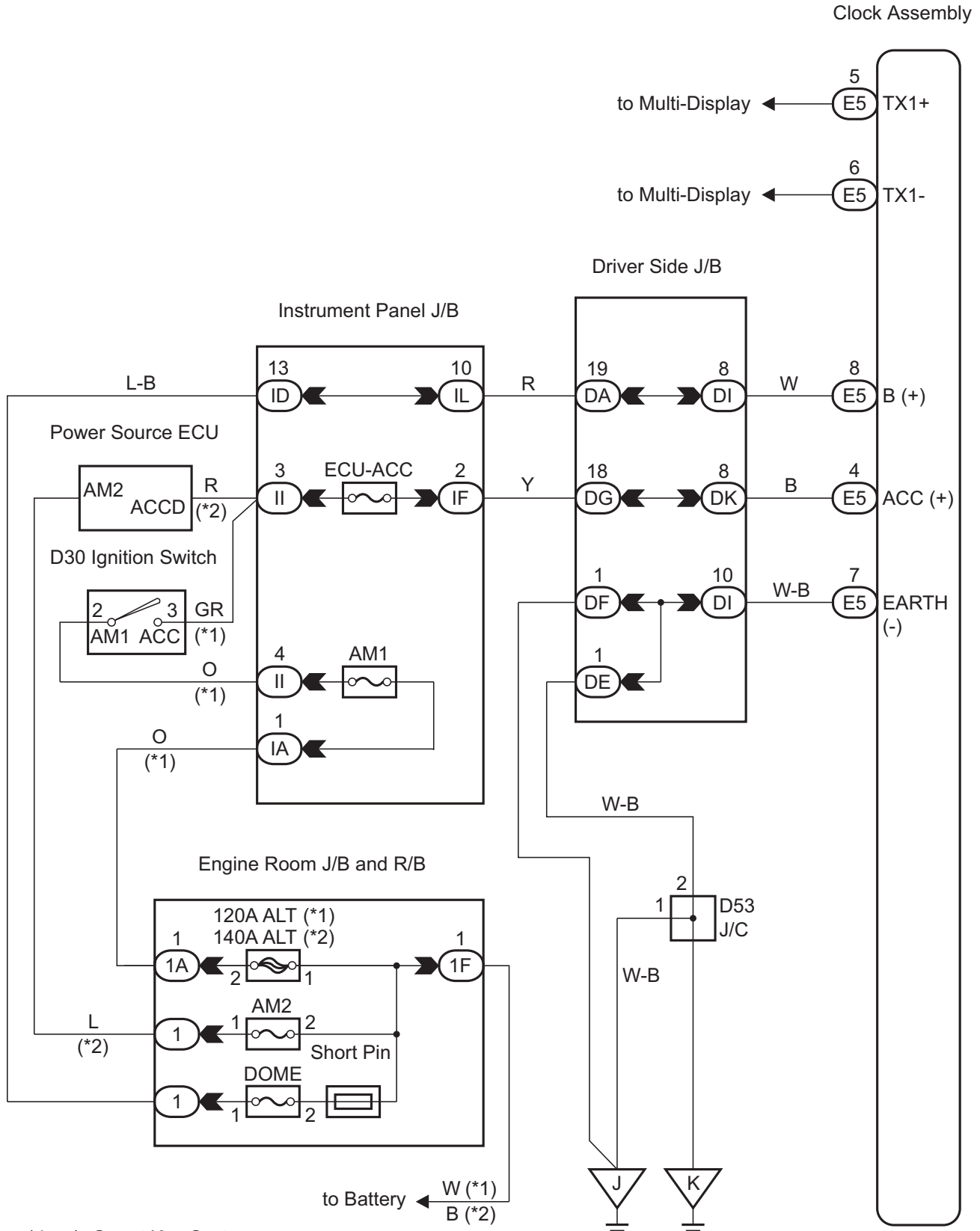
Clock Display Circuit

WIRING DIAGRAM

w/o Navigation System:



w/ Navigation System:



*1: w/o Smart Key System

*2: w/ Smart Key System

ME

INSPECTION PROCEDURE

HINT:

- The whole accessory meter assembly should be replaced if the passenger seat belt warning light has a malfunction because this part is not independently supplied.
- If any DTC for the clock communication system is output, there may be a malfunction in communication between the clock assembly and multi-display.
- The combination meter assembly controls illumination through the ILL+ terminal.
- If deviation in the clock exceeds the specification, replace the accessory meter assembly (See page IP-10).

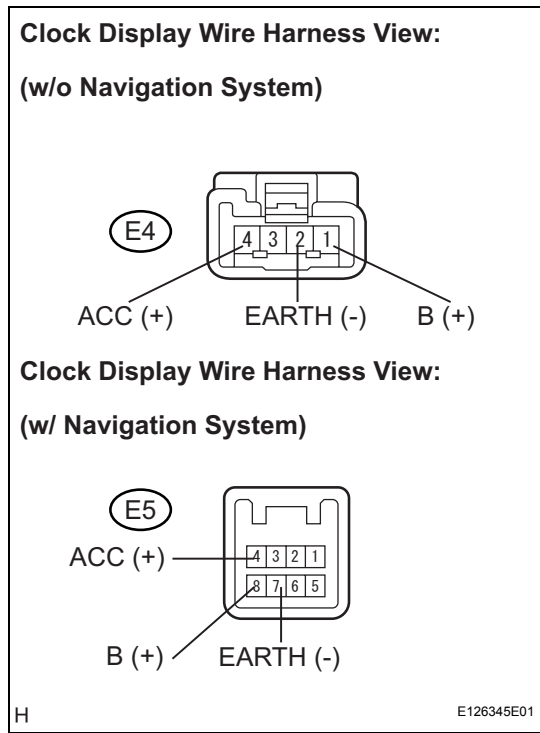
Standard:

w/o Navigation system: +-1 second/day

w/ Navigation system: -2 to 6 seconds/day

ME

1 INSPECT CLOCK ASSEMBLY



- Remove the clock display.
- Disconnect the E4 (*1)/E5 (*2) connector.
- Measure the voltage according to the value(s) in the table below.

Voltage

Tester Connection	Condition	Specified Condition
E4-1 (B(+)) (*1) - Body ground	Always	10 to 14 V
E4-2 (EARTH(-)) (*1) - Body ground	Always	Below 1 V
E4-4 (ACC(+)) (*1) - Body ground	Ignition switch on (ACC)	10 to 14 V
E5-4 (ACC(+)) (*2) - Body ground	Ignition switch on (ACC)	10 to 14 V
E5-7 (EARTH(-)) (*2) - Body ground	Always	Below 1 V
E5-8 (B(+)) (*2) - Body ground	Always	10 to 14 V

(*1): w/o Navigation System

(*2): w/ Navigation System

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

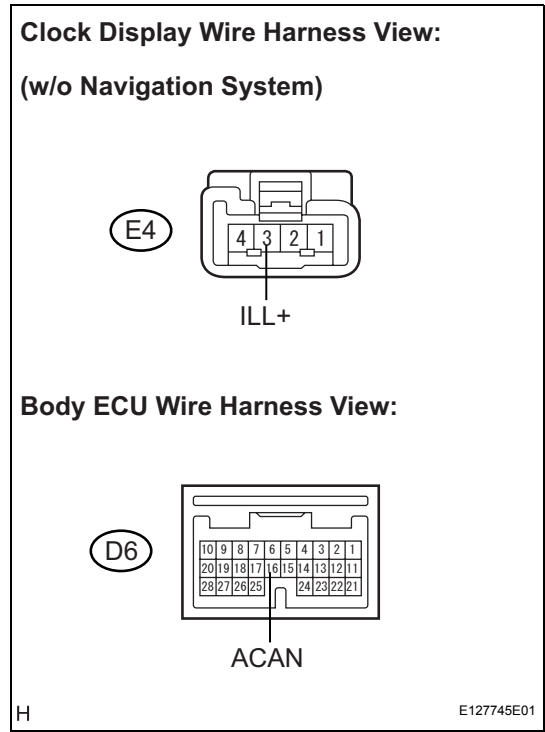
2 CHECK ILLUMINATION

w/o Navigation system	A
w/ Navigation system	B

B GO TO NAVIGATION SYSTEM

A

3 CHECK HARNESS AND CONNECTOR (BODY ECU - CLOCK DISPLAY)



- (a) Disconnect the E4 and D6 connectors.
- (b) Measure the resistance according to the value(s) in the table below.

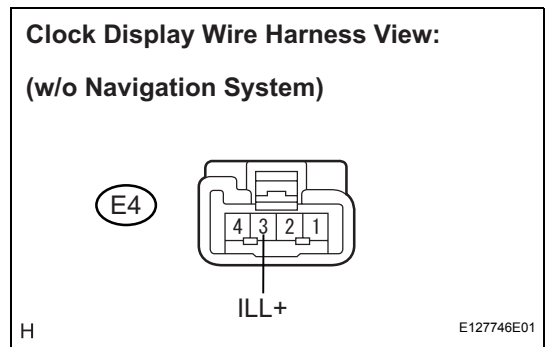
Resistance

Tester Connection	Condition	Specified Condition
E4-3 (ILL+) - D6-16 (ACAN)	Always	Below 1 Ω
D6-16 (ACAN) - Body ground	Always	10 kΩ or higher

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

4 INSPECT CLOCK ASSEMBLY



- (a) Remove the clock display with the connectors still connected.
- (b) Disconnect the E4 connector.
- (c) Measure the voltage according to the value(s) in the table below.

Voltage

Tester Connection	Condition	Specified Condition
E4-3 (ILL+) - Body ground	Ignition switch on (ACC) and TAIL on	10 to 14 V

NG → **REPLACE ACCESSORY METER ASSEMBLY**

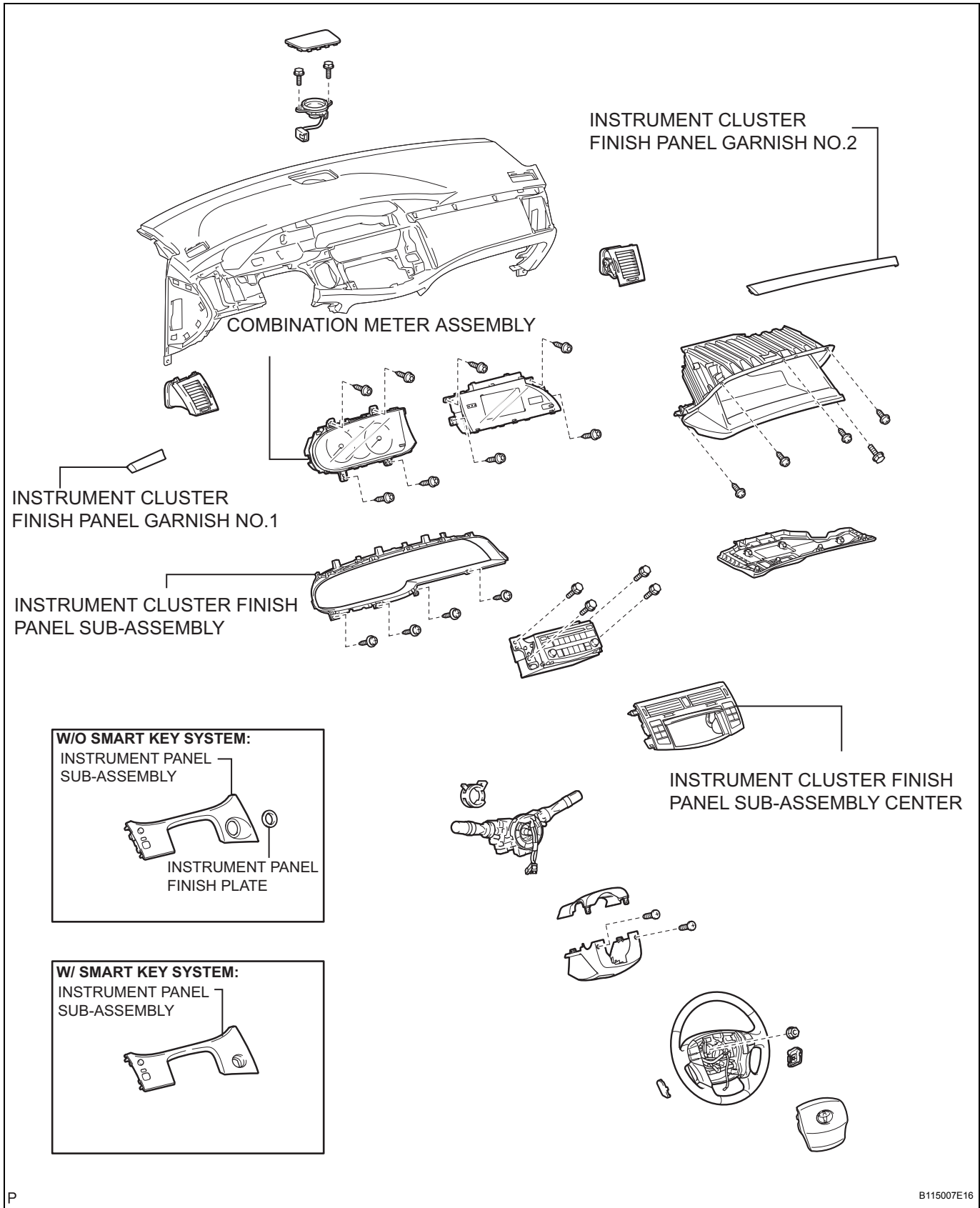
OK

REPLACE BODY ECU

COMBINATION METER

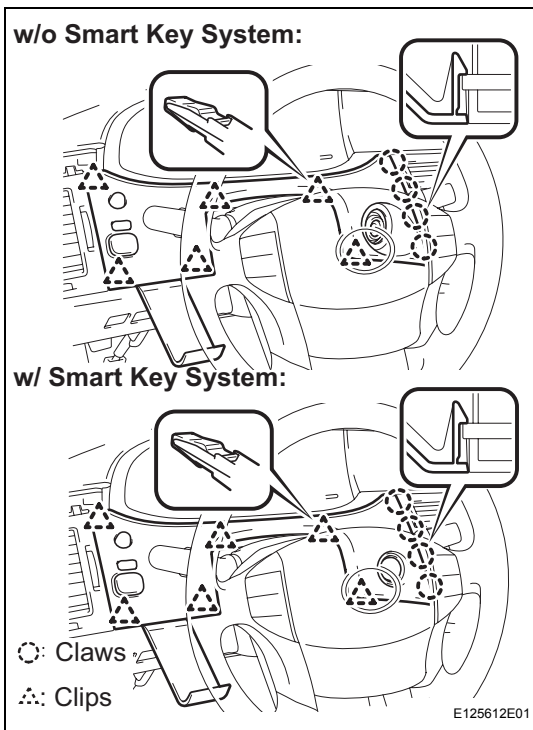
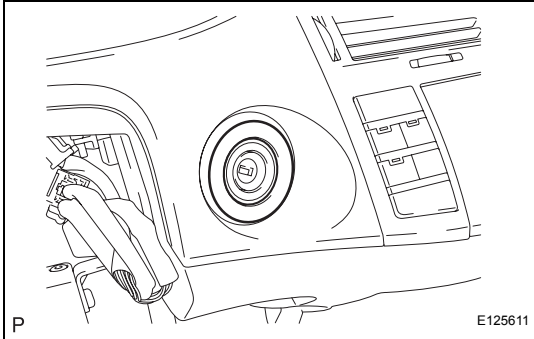
COMPONENTS

ME

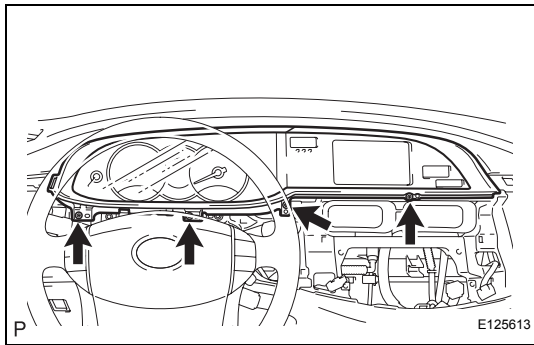


REMOVAL

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
CAUTION:
 Wait for 90 seconds after disconnecting the cable to prevent the airbag working.
2. **REMOVE INSTRUMENT CLUSTER FINISH PANEL GARNISH NO.1** (See page [IP-9](#))
3. **REMOVE INSTRUMENT CLUSTER FINISH PANEL GARNISH NO.2** (See page [IP-9](#))
4. **REMOVE INSTRUMENT PANEL FINISH PLATE (w/o Smart Key System)**
 (a) Remove the instrument panel finish plate.

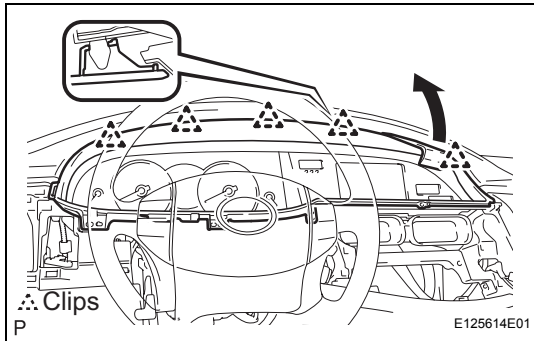


5. **REMOVE INSTRUMENT PANEL SUB-ASSEMBLY**
 (a) Using a moulding remover, disengage the 4 claws and 6 clips then remove the instrument panel sub-assembly.
6. **REMOVE INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY CENTER**

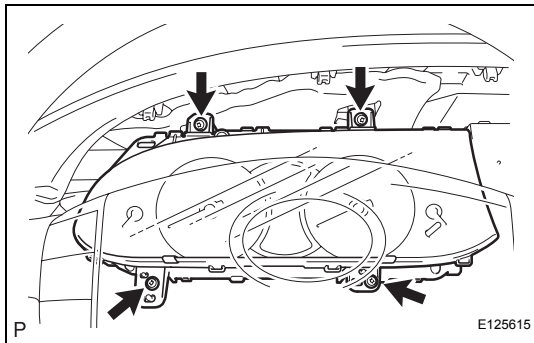


7. REMOVE INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

(a) Remove the 4 screws.



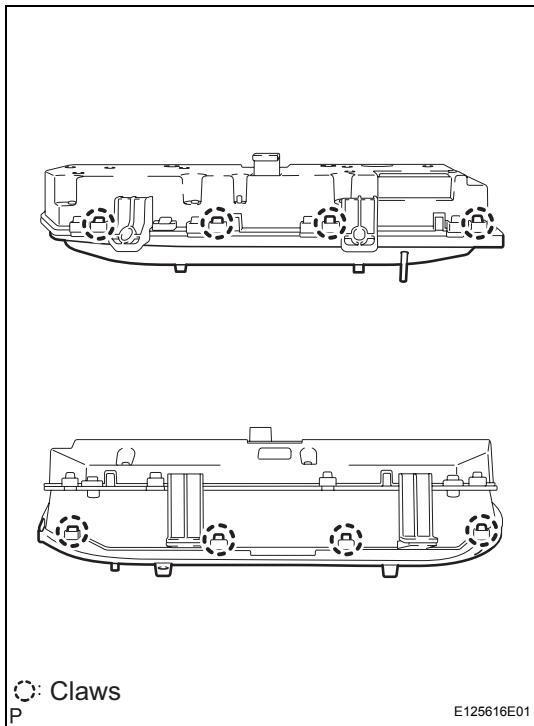
(b) Using a moulding remover, disengage the 5 clips and remove the instrument cluster finish panel sub-assembly.



8. REMOVE COMBINATION METER ASSEMBLY

(a) Remove the 4 screws.

(b) Pull out combination meter assembly, then disconnect the connectors.



DISASSEMBLY

1. REMOVE COMBINATION METER GLASS

(a) Disengage the 8 claws and remove the combination meter glass.

REASSEMBLY

1. INSTALL COMBINATION METER GLASS

INSTALLATION

1. **INSTALL COMBINATION METER ASSEMBLY**
2. **INSTALL INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY**
3. **INSTALL INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY CENTER**
4. **INSTALL INSTRUMENT PANEL SUB-ASSEMBLY**
5. **INSTALL INSTRUMENT PANEL FINISH PLATE (w/o Smart Key System)**
6. **INSTALL INSTRUMENT CLUSTER FINISH PANEL GARNISH NO.2**
7. **INSTALL INSTRUMENT CLUSTER FINISH PANEL GARNISH NO.1**
8. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**
9. **PERFORM INITIALIZATION**
 - (a) Some systems need initialization when disconnecting the cable from the negative battery terminal (See page [IN-29](#)).