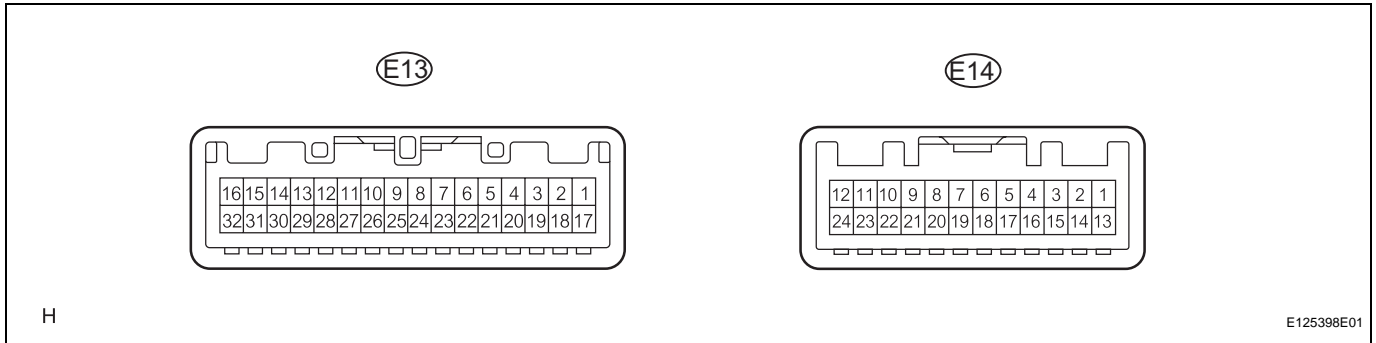


TERMINALS OF ECU

1. COMBINATION METER ASSEMBLY



- (a) Disconnect the E13 combination meter assembly connector.
- (b) Measure the voltage and resistance of the wire harness side connector.

Standard:

Symbols (Terminals No.)	Wiring Color	Terminal Description	Condition	Specified Condition
IG+ (E13-2) - Body ground	R-L - Body ground	Ignition switch signal	Ignition switch OFF → ON	Below 1 V → 11 to 14 V
B (E13-1) - Body ground	R - Body ground	Battery	Always	11 to 14 V
ES (E13-21) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

If the result is not as specified, there may be a malfunction in the wire harness.

- (c) Disconnect the E14 combination meter assembly connector.
- (d) Measure the voltage of the wire harness side connector.

ME

Standard voltage:

Symbols (Terminals No.)	Wiring Color	Terminal Description	Condition	Specified Condition
SE *1 (E13-4) - Body ground	W - Body ground	Vehicle speed signal (Output)	Driving at approx. 12 mph (20 km/h)	Pulse generation (See waveform 2)
E3 (E13-5) - Body ground	Y-B - Body ground	Fuel level signal	Ignition switch ON	11 to 14 V
SW (E13-6) - Body ground	B-Y - Body ground	Airbag signal	Airbag warning light ON → OFF	Below 1 V → 11 to 14 V
WRNP (E13-7) - Body ground	LG - Body ground	Passenger side seat belt warning light signal (Output)	Ignition switch ON Front passenger seat is occupied and its seat belt is unfastened	11 to 14 V → Below 1 V
			Ignition switch ON Front passenger seat is occupied and its seat belt is fastened	Below 1 V
L (E13-8) - Body ground	G-Y - Body ground	Seat belt condition signal (Driver side)	D-BELT indicator light ON	Below 1 V
			D-BELT indicator light OFF	11 to 14 V
KSW (E13-9) - Body ground	V-G - Body ground	Key switch condition signal	Key inserted	Below 1 V
			Key removed	11 to 14 V
PBKL (E13-10) - Body ground	L-R - Body ground	Front seat inner belt signal (Front passenger side)	Ignition switch ON Front seat belt is unfastened or fastened (Front passenger side)	Pulse generation
ILL- (E13-11) - Body ground	BR-W - Body ground	Light control rheostat signal	Ignition switch OFF → ON	Pulse generation (See waveform 1)

Symbols (Terminals No.)	Wiring Color	Terminal Description	Condition	Specified Condition
S (E13-12) - Body ground	B-W - Body ground	Tachometer signal	Idling	Pulse generation (See waveform 2)
SI (E13-13) - Body ground	R-Y*1 - Body ground	Vehicle speed signal (Input)	Driving at approx. 12 mph (20 km/h)	Pulse generation (See waveform 2)
	GR-R*2 - Body ground			
+S (E13-14) - Body ground	V-R - Body ground	Vehicle Speed signal (Input)	Ignition switch ON and wheel turning slowly	Pulse generation (See waveform 2)
TEMP (E13-15) - Body ground	BR-B - Body ground	Engine coolant temperature	Ignition switch ON Engine coolant temperature 90°C(194°F)	Pulse generation (See waveform 3)
L (E13-16) - Body ground	V-W - Body ground	Fuel level signal	Ignition switch ON	11 to 14 V
ESC (E13-17) - Body ground	LG-R - Body ground	ABS signal	ABS warning light ON → OFF	Below 1 V → 11 to 14 V
B (E13-18) - Body ground	P - Body ground	Turn signal RH signal	Ignition switch ON Turn signal RH indicator light OFF → ON → OFF	Below 1 V → 11 to 14 V → Below 1 V
B (E13-20) - Body ground	L-W - Body ground	Turn signal LH signal	Ignition switch ON Turn signal LH indicator light OFF → ON → OFF	Below 1 V → 11 to 14 V → Below 1 V
SW (E13-23) - Body ground	V-Y - Body ground	All door condition signal	All doors open → closed	Below 1 V → 11 to 14 V
+ (E13-26) - Body ground	R-W - Body ground	HEAD light signal	Light control switch OFF → ON	Below 1 V → 11 to 14 V
DOOR (E13-29) - Body ground	W-L - Body ground	Driver side door open	Driver side door open → closed	Below 1 V → 11 to 14 V
PKB (E13-31) - Body ground	B-L - Body ground	Brake fluid level warning light signal	Ignition switch ON Brake fluid level warning light ON → OFF	Below 1 V → 11 to 14 V
PRSW*8 (E14-1) - Body ground	L-Y - Body ground	Rear differential lock signal	Rear differential lock warning light ON → OFF	Below 1 V → 11 to 14 V
SW*4 (E14-2) - Body ground	R-L*3 - Body ground	4WD signal	4WD indicator OFF → ON	Below 1 V → 11 to 14 V
	GR*1 - Body ground			
CHG- (E14-3) - Body ground	GR - Body ground	Change signal	Ignition switch ON → OFF	11 to 14 V → Below 1 V
A/D*6 (E14-4) - Body ground	P-G - Body ground	Cruise signal	Cruise indicator ON → OFF	Below 1 V → 11 to 14 V
TROF*8 (E14-5) - Body ground	L-W - Body ground	VSC OFF signal	VSC OFF indicator ON → OFF	Below 1 V → 11 to 14 V
VSCW (E14-6) - Body ground	Y-R - Body ground	VSC TRAC signal	VSC TRAC indicator ON → OFF	Below 1 V → 11 to 14 V
SLIP (E14-7) - Body ground	R - Body ground	SLIP signal	SLIP warning light ON → OFF	Below 1 V → 11 to 14 V
CHK (E14-8) - Body ground	R-B - Body ground	Check engine warning light signal	Check engine warning light signal ON → OFF	Below 1V→11 to 14 V
ATRA*7 (E14-9) - Body ground	Y-V - Body ground	A-TRAC signal	A-TRAC indicator light ON → OFF	Below 1V→11 to 14 V
ALSD*5 (E14-10) - Body ground	BR-Y - Body ground	AUTO LSD signal	AUTO LSD indicator light ON → OFF	Below 1 V → 11 to 14 V
OILW*2 (E14-11) - Body ground	P - Body ground	A/T oil temperature signal	A/T OIL TEMP warning light ON → OFF	Below 1 V → 11 to 14 V
S (E14-12) - Body ground	LG-B - Body ground	Oil pressure signal	Oil pressure warning light ON → OFF	Below 1 V → 11 to 14 V
ILL+ (E14-13) - Body ground	G - Body ground	Taillight signal	Light control switch OFF → ON	Below 1 V→11 to 14 V
L*2 (E14-14) - Body ground	B-L - Body ground	A/T shift position signal (L)	A/T L indicator OFF → ON	Below 1 V→11 to 14 V
2*2 (E14-15) - Body ground	P-L - Body ground	A/T shift position signal (2)	A/T 2 indicator OFF → ON	Below 1 V→11 to 14 V

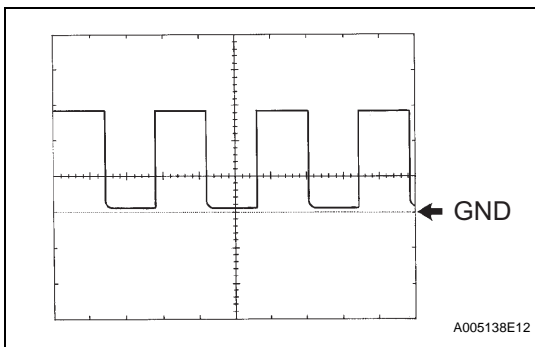
Symbols (Terminals No.)	Wiring Color	Terminal Description	Condition	Specified Condition
3*2 (E14-16) - Body ground	W-R - Body ground	A/T shift position signal (3)	A/T 3 indicator OFF → ON	Below 1 V→11 to 14 V
4*2 (E14-17) - Body ground	B-O - Body ground	A/T shift position signal (4)	A/T 4 indicator OFF → ON	Below 1 V→11 to 14 V
D*2 (E14-18) - Body ground	R-G - Body ground	A/T shift position signal (D)	A/T D indicator OFF → ON	Below 1 V→11 to 14 V
N*2 (E14-19) - Body ground	G-W - Body ground	A/T shift position signal (N)	A/T N indicator OFF → ON	Below 1 V→11 to 14 V
R*2 (E14-20) - Body ground	R-Y - Body ground	A/T shift position signal (R)	A/T R indicator OFF → ON	Below 1 V→11 to 14 V
R*1 (E14-20) - Body ground	R-Y - Body ground	M/T shift position signal (R)	M/T shift warning buzzer OFF → ON	Below 1 V→11 to 14 V
P*2 (E14-21) - Body ground	Y-B - Body ground	A/T shift position signal (P)	A/T P indicator OFF → ON	Below 1 V→11 to 14 V
ATP*3 (E14-22) - Body ground	W - Body ground	Transfer indicator switch neutral position signal	A/T P indicator OFF → ON	Below 1 V→11 to 14 V

- *1: for M/T
- *2: for A/T (2WD and 4WD)
- *3: for A/T (4WD only)
- *4: for 4WD
- *5: for 2WD
- *6: w/ cruise control
- *7: w/ active traction control (4WD only)
- *8: w/ rear differential lock

HINT:

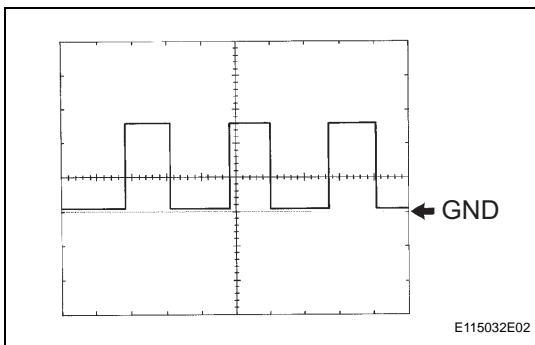
If the result is not as specified, the combination meter assembly may be malfunctioning.

(1) Waveform 1: Using an oscilloscope



Terminal Connections	ILL- (E13-11) - Body Ground
Tool Setting	5V / DIV, 50 ms / DIV
Condition	Ignition switch ON

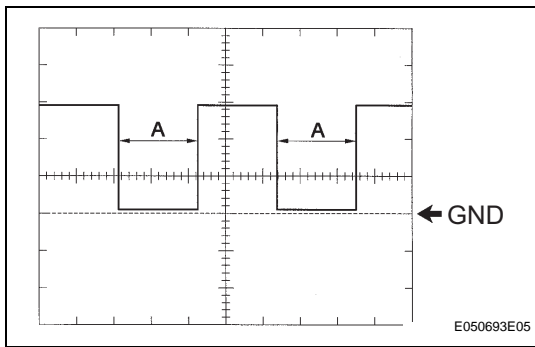
(2) Waveform 2: Using an oscilloscope



Terminal Connections	SE (E13-4) - Body Ground S (E13-12) - Body Ground SI (E13-13) - Body Ground +S (E13-14) - Body Ground
Tool Setting	5V / DIV, 20ms / DIV
Condition	Driving at approximately 12mph (20km/h)

HINT:

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



(e) Waveform 3: Using an oscilloscope

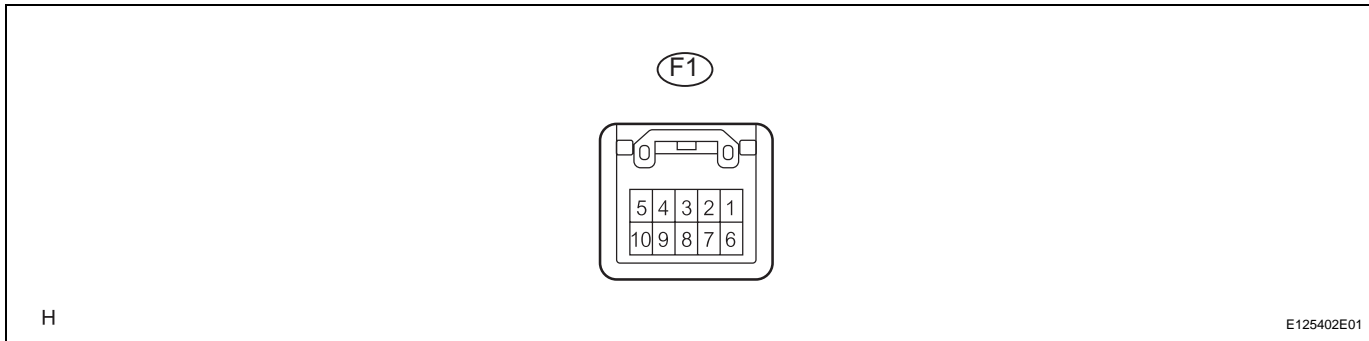
Tool setting	5 V/DIV., 0.1 sec./DIV
Vehicle condition	Ignition switch ON

HINT:

A changes in accordance with the engine coolant temperature.

Coolant temperature	Below 30°	Approximately 75°C	Above 90°
A	Approximately 16 ms	Approximately 204 ms	Approximately 262 ms

2. ACCESSORY METER ASSEMBLY



- (a) Disconnect the F1 accessory meter assembly connector.
- (b) Measure the voltage and resistance of the wire harness side connector.

ME

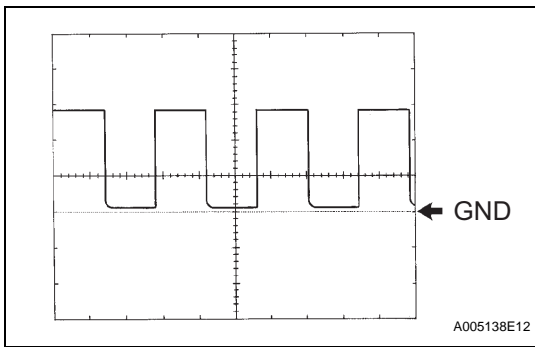
Standard:

Symbols (Terminals No.)	Wiring Color	Terminal Description	Condition	Specified Condition
+B (F1-1) - Body ground	R - Body ground	Battery	Always	11 to 14 V
ACC (F1-2) - Body ground	GR - Body ground	ACC	Ignition switch OFF → ACC	Below 1 V → 11 to 14 V
IG+ (F1-3) - Body ground	Y-R - Body ground	Ignition switch signal	Ignition switch OFF → ON	Below 1 V → 11 to 14 V
DMIN (F1-4) - Body ground	R-L - Body ground	Air conditioning amplifier signal	Ignition switch OFF → ON	Below 1 V → 11 to 14 V
ILL+ (F1-6) - Body ground	G - Body ground	Taillight signal	Light control switch OFF → ON	Below 1 V → 11 to 14 V
ILL- (F1-7) - Body ground	BR-W - Body ground	Light control rheostat signal	Ignition switch OFF → ON	Pulse generation (See waveform 1)
SI (F1-8) - Body ground	V-R - Body ground	Combination meter signal	Driving at approx. 3.1 mph (5 km/h)	1 V → 9 V → 1 V
E (F1-9) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

HINT:

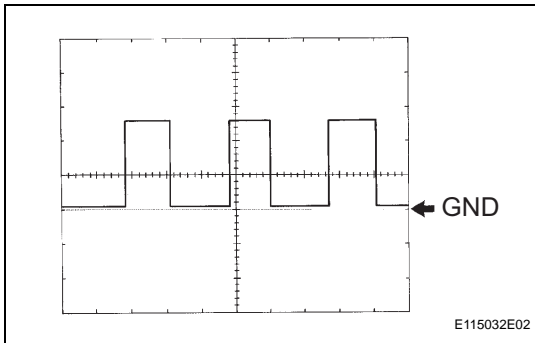
If the result is not as specified, the accessory meter assembly may be malfunctioning.

(1) Waveform 1: Using an oscilloscope



Terminal Connections	ILL- (F1-7) -Body Ground
Tool Setting	5V / DIV, 50 ms / DIV
Condition	Ignition switch ON

(2) Waveform 2: Using an oscilloscope

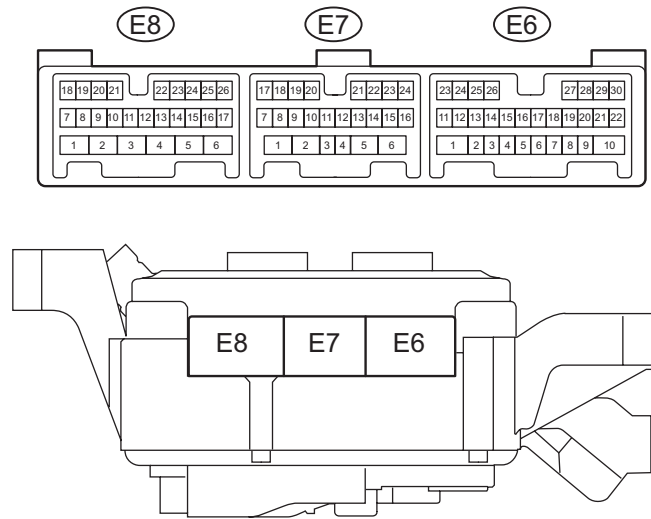


Terminal Connections	SI (F1-8) - Body Ground
Tool Setting	5V / DIV, 20 ms / DIV
Condition	Driving at approx. 3.1 mph (5 km/h)

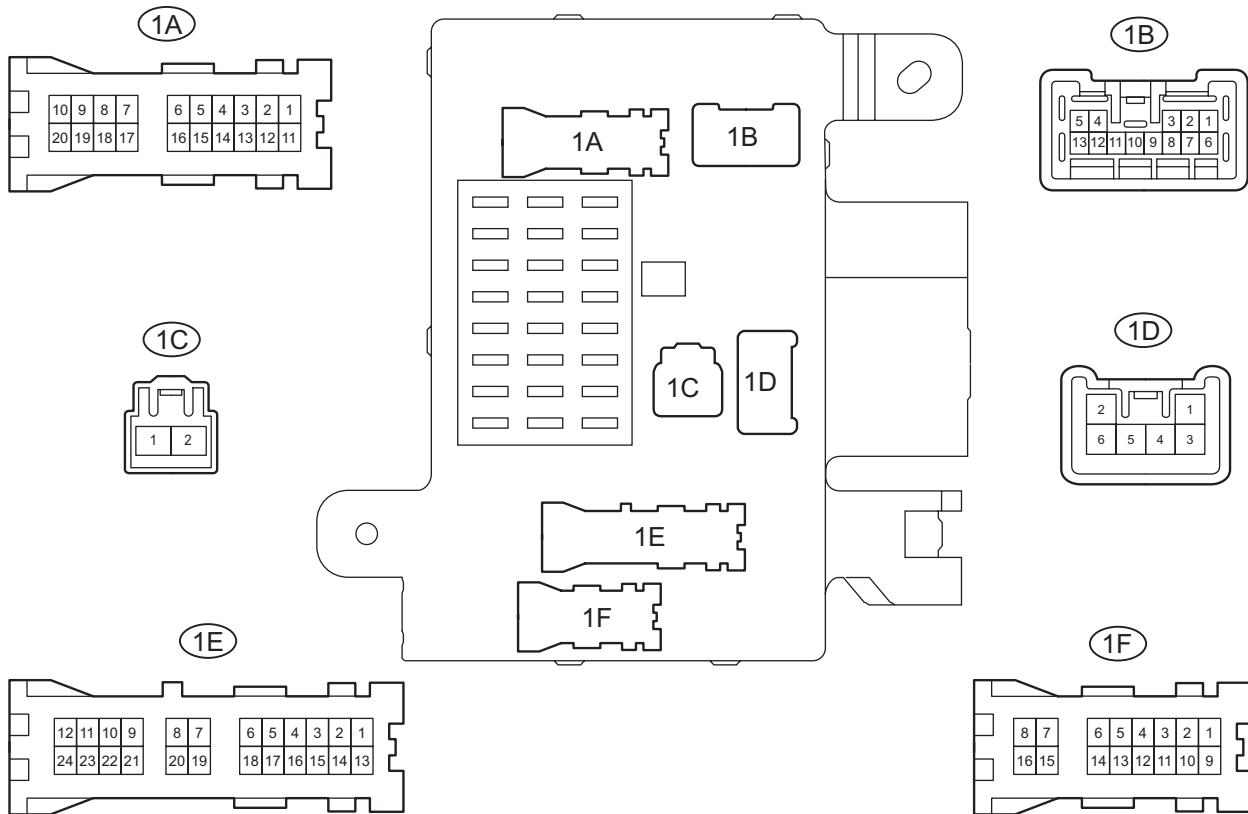
3. CHECK MAIN BODY ECU

Main Body ECU:

Left View:



Rear View:



ME

Y

B136051E01

(a) Disconnect the E7, E8 and 1A main body ECU connectors.

(b) Measure the voltage of the wire harness side connectors.

Standard voltage

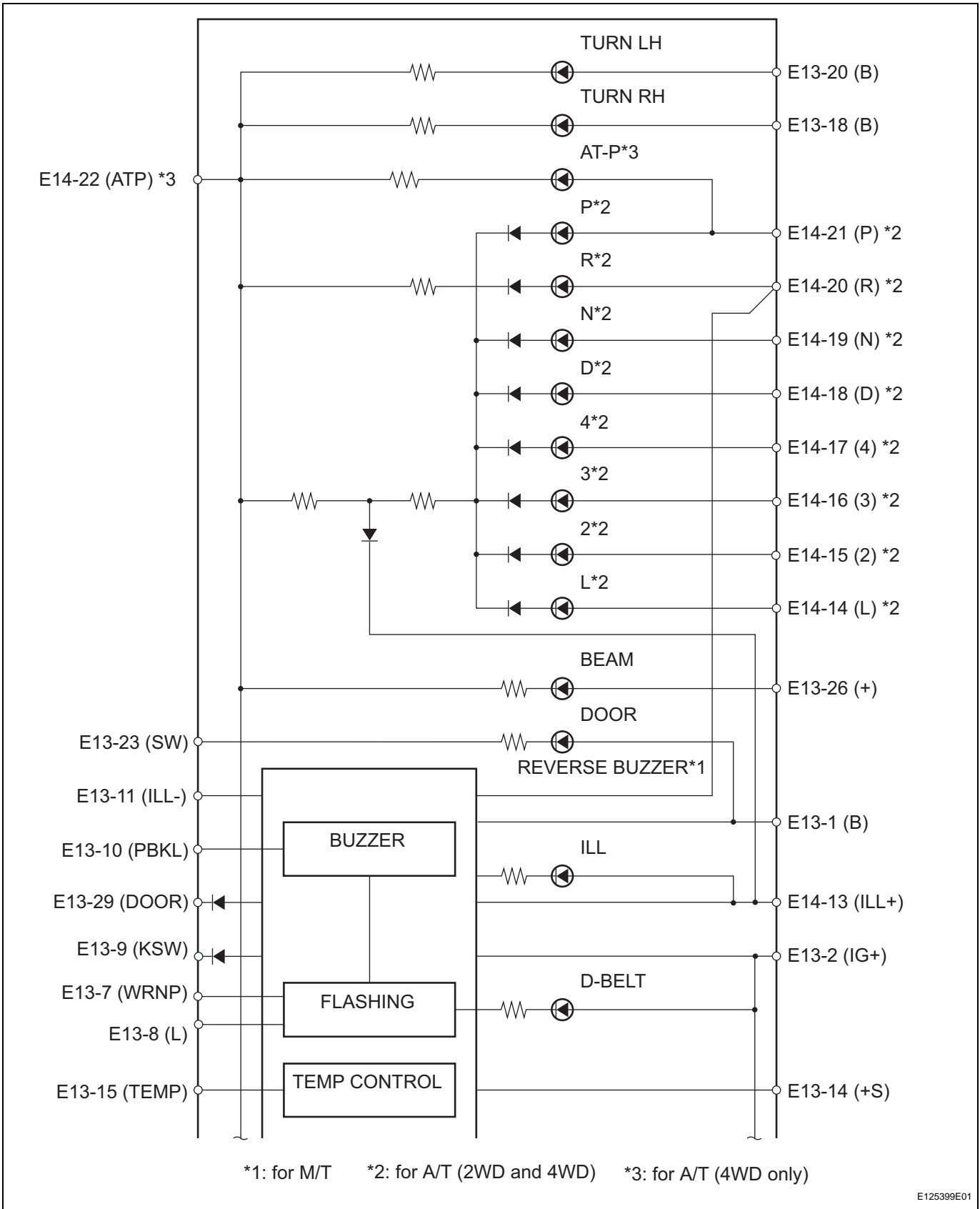
Symbols (Terminals No.)	Wiring Color	Terminal Description	Condition	Specified Condition
PKB (E7-2) - Body ground	W-R* - Body ground	Parking brake signal	Parking brake warning light ON → OFF	Below 1 V → 11 to 14 V
BCTY (E7-7) - Body ground	W - Body ground	Back door courtesy switch and back window courtesy switch input	Back door CLOSED → OPEN	11 to 14 V → Below 1 V
RLCY (E7-11) - Body ground	P-B - Body ground	Rear door courtesy switch signal (LH)	Rear door (Driver side) CLOSED → OPEN	11 to 14 V → Below 1 V
RRCY (E7-12) - Body ground	P-L - Body ground	Rear door courtesy switch signal (RH)	Rear door (Front passenger side) CLOSED → OPEN	11 to 14 V → Below 1 V
DCTY (E7-23) - Body ground	R-B - Body ground	Front door courtesy switch signal (Driver side)	Driver door CLOSED → OPEN	11 to 14 V → Below 1 V
PCTY (E7-24) - Body ground	G-Y - Body ground	Front door courtesy switch signal (Passenger side)	Front passenger door CLOSED → OPEN	11 to 14 V → Below 1 V
KSW (E8-14) - Body ground	G-Y - Body ground	Key unlock switch condition signal	Key inserted → Removed	Below 1 V → 11 to 14 V
GND2 (1H-2) - Body ground	W - Body ground	Ground	Always	Below 1 V

*: w/ daytime running light

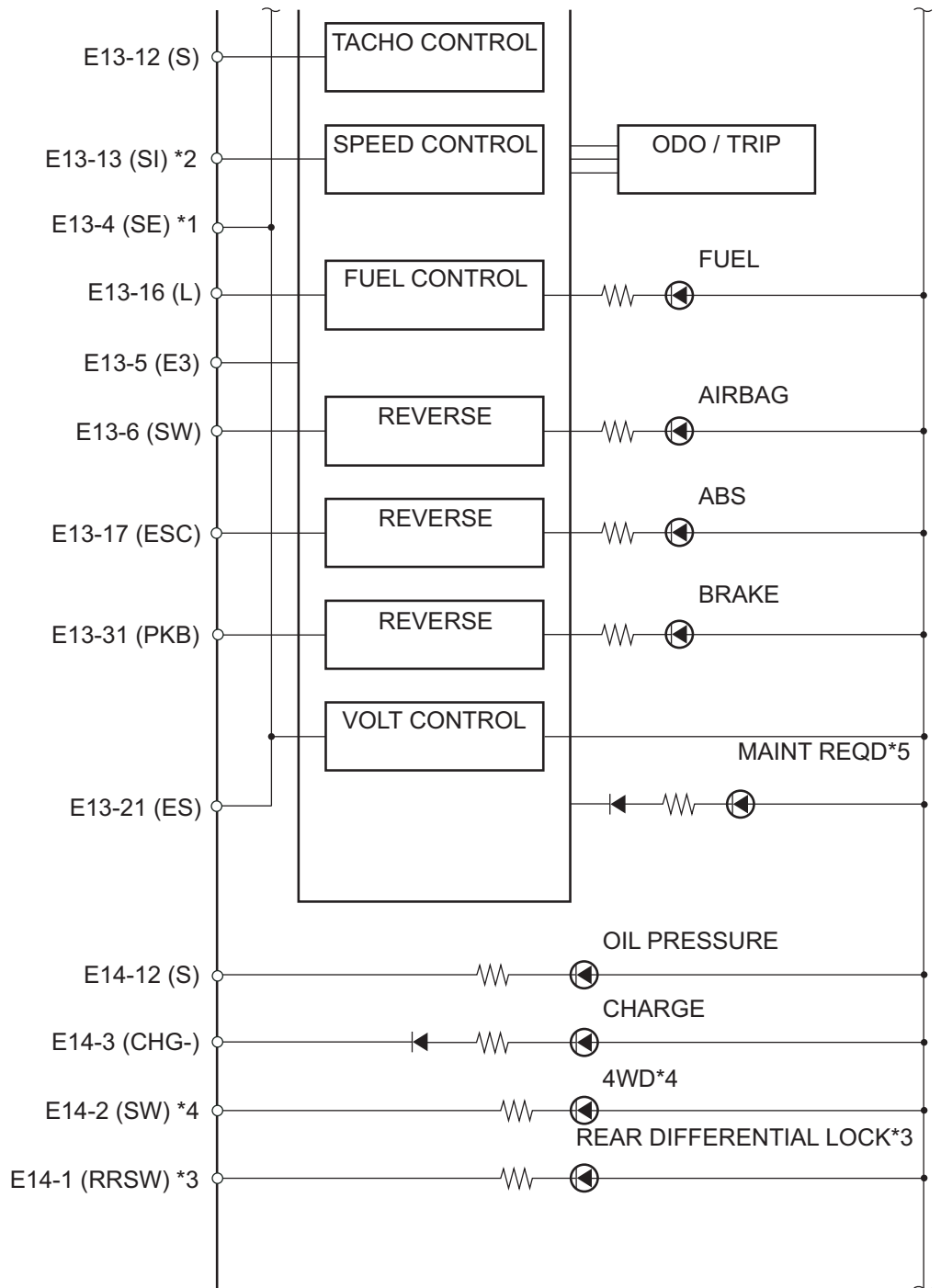
HINT:

If the result is not as specified, there may be a malfunction in the wire harness.

4. COMBINATION METER INTERNAL CIRCUIT



ME



*1: for M/T

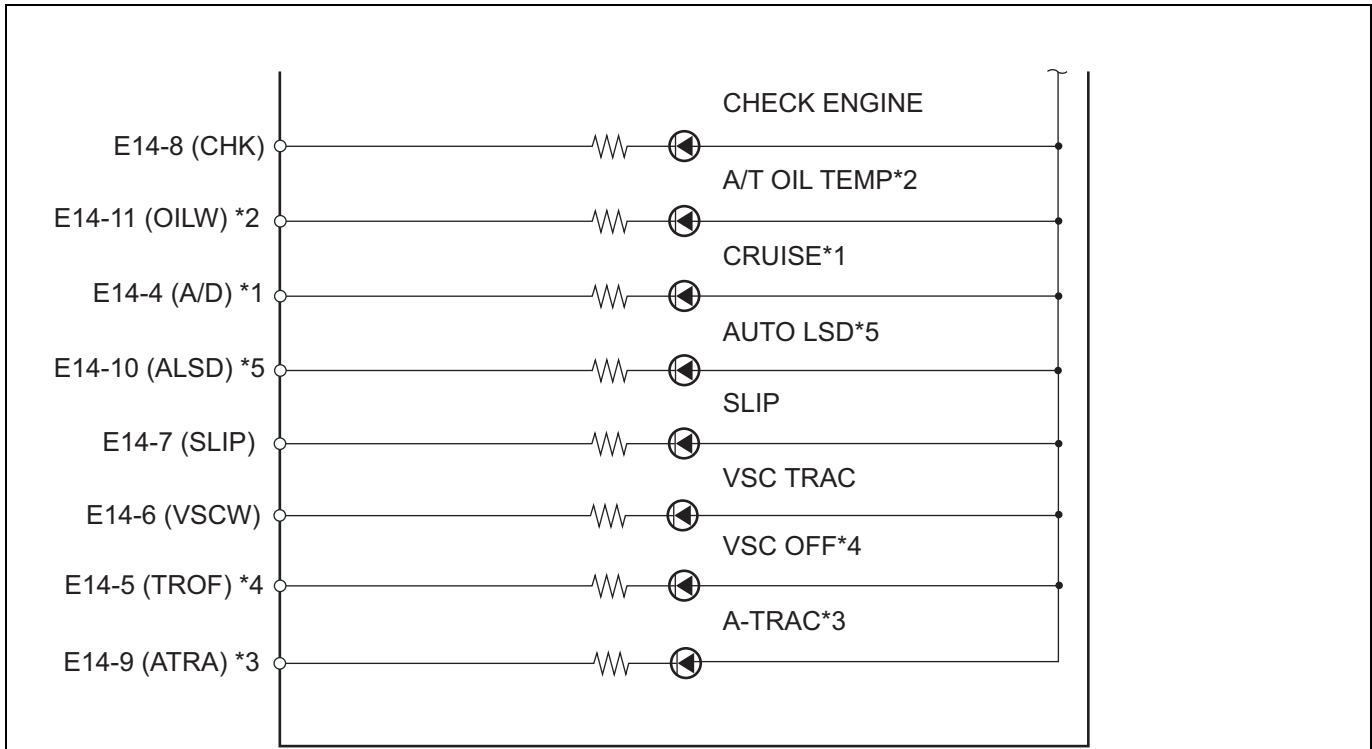
*4: for 4WD

*2: for A/T (2WD and 4WD)

*5: U.S.A. only

*3: w/ Rear Differential Lock

ME



*1: w/ Cruise Control

*3: w/ Active Traction Control (4WD only)

*5: for 2WD

*2: for A/T (2WD and 4WD)

*4: w/ Rear Differential Lock

ME

Connectors

	Terminal No.	Wire Harness Side	
E13	1	Battery	
	2	Ignition Switch	
	4	Speed Sensor *1	
	5	Fuel Suction Pump and Gauge Assembly	
	6	Center Airbag Sensor Assembly	
	7	Passenger Seat Belt Warning Light	
	8	Driver Seat Buckle Switch	
	9	Key Unlock Warning Switch	
	10	Center Airbag Sensor Assembly	
	11	Light Control Rheostat	
	12	Air Conditioning Amplifier	
	13		Speed Sensor *1
			Skid Control ECU *2
	14	4P-OUT (Other Parts)	
	15	ECM	
	16	Fuel Suction Pump and Gauge Assembly	
	17	Skid Control ECU	
	18	Turn Signal Flasher Assembly	
	20	Turn Signal Flasher Assembly	
	21	Body Ground	
	23	Main Body ECU	
	26		Main Body ECU *3
Headlight Relay *4			
29	Main Body ECU		
31	Skid Control ECU		
E14	1	Rear Differential Lock Switch *8	
	2	4WD Control ECU *1	
		Transfer Indicator Switch *2	
	3	Generator (Alternator)	
	4	ECM *6	
	5	Skid Control ECU *8	
	6	Skid Control ECU	
	7	Skid Control ECU	
	8	ECM	
	9	Skid Control ECU *7	
	10	Skid Control ECU *5	
	11	ECM *2	
	12	Engine Oil Pressure Switch	
	13	TAIL Fuse	
	14	Transmission Control Switch *2	
	15	Transmission Control Switch *2	
	16	Transmission Control Switch *2	
	17	Transmission Control Switch *2	
	18	Transmission Control Switch *2	
	19	Transmission Control Switch *2	
	20	Back up Light Switch *1	
	21	Park/Neutral Position Switch *2	
22	Transfer Indicator Switch (Neutral Position) *3		

ME

- *1: for M/T
- *2: for A/T
- *3: w/ Daytime Running Light
- *4: w/o Daytime Running Light
- *5: for 2WD
- *6: w/ Cruise Control
- *7: w/ Active Traction Control (4WD only)
- *8: w/ Rear Differential Lock