

METER / GAUGE / DISPLAY METER / GAUGE SYSTEM TERMINALS OF ECU

CHECK COMBINATION METER ASSEMBLY



- a. Measure the voltage, resistance and waveform according to the value(s) in the table below.

for 12 V Battery

Terminal No.	Wiring Color	Terminal Description	Condition	Specified Condition
L25-1 (FOG) - L25-15 (ES)*1	R-B - BR	FRONT FOG indicator light signal	Ignition switch ON, front fog indicator light on	11 to 14 V
			Ignition switch ON, front fog indicator light off	Below 1 V
L25-2 (SW) - L25-15 (ES)	B-L - BR	4WD indicator light signal	Ignition switch ON, 4WD indicator light on	Below 1 V
			Ignition switch ON, 4WD indicator light off	11 to 14 V
L25-3 (+) - L25-15 (ES)*2	R-L - BR	REAR FOG indicator light signal	Ignition switch ON, rear fog indicator light on	11 to 14 V
			Ignition switch ON, rear fog indicator light off	Below 1 V
L25-5 (ILL+) - L25-15 (ES)	G - BR	Illumination light signal	Light control switch off	Below 1 V
			Light control switch TAIL or HEAD	11 to 14 V
L25-6 (DOOR) - L25-15 (ES)	B-W - BR	DOOR warning light signal	A door is open	Below 1 V
			All door are closed	11 to 14 V
L25-7 (SW) - L25-15 (ES)	B - BR	DOOR warning light signal	Doors open (Disregarding driver side door)	Below 1 V
*1: w/ Front Fog Light *2: w/ Rear Fog Light *3: for 1GR-FE *4: w/o ABS *5: w/ ABS *6: for 1VD-FTV, 1HZ *7: for 1VD-FTV *8: Oil Pressure Gauge *9: for Double Tank Type *10: w/ Airbag System *11: w/o Airbag System *12: for 1VD-FTV, 1HZ (w/ Oil Pressure Gauge) *13: w/ Immobiliser System *14: for 1HZ *15: w/ Differential Lock *16: w/ Key Reminder Warning System *17: w/ Seat Belt Warning System				

Terminal No.	Wiring Color	Terminal Description	Condition	Specified Condition
			Doors closed (Disregarding driver side door)	11 to 14 V
L25-8 (+S) - L25-15 (ES)	G - BR	Speed signal (output)	Driving at approximately 20 km/h (12 mph)	Pulse generation (See waveform 1)
L25-9 (SI) - L25-15 (ES)	G-R - BR	Speed signal (input)	Driving at approximately 20 km/h (12 mph)	Pulse generation (See waveform 1)
L25-10 (S) - L25-15 (ES)	B - BR	Tachometer signal	Engine idling	Pulse generation
L25-11 (S) - L25-15 (ES)*3	Y-G - BR	Engine coolant temperature sensor signal	Engine running, engine coolant temperature 80°C (176°F)	Pulse generation (See waveform 2)
L25-13 (IG+) - L25-15 (ES)*4	L - BR	Speed sensor power supply	Ignition switch ON	11 to 14 V
			Ignition switch off	Below 1 V
L25-15 (ES) - Body ground	BR - Body ground	Ground	Always	Below 1 V
L25-16 (LP) - Body ground*4	V - Body ground	Ground	Always	Below 1 V
L25-16 (LP) - L25-15 (ES)*5	V - BR	ABS warning light signal	Ignition switch ON, ABS warning light on	11 to 14 V
			Ignition switch ON, ABS warning light off	Below 1 V
L25-17 (FRSW) - L25-15 (ES)*15	R-Y - BR	Front differential lock indicator light signal	Ignition switch ON, front differential lock indicator light on	Below 1 V
			Ignition switch ON, front differential lock indicator light off	11 to 14 V
L25-18 (RRSW) - L25-15 (ES)*15	R-L - BR	Rear differential lock indicator light signal	Ignition switch ON, rear differential lock indicator light on	Below 1 V
			Ignition switch ON, rear differential lock indicator light off	11 to 14 V
L25-19 (SW) - L25-15 (ES)*16	B-R - BR	Unlock warning switch assembly signal	Key in ignition key cylinder	Below 1 V
			No key in ignition key cylinder	11 to 14 V
L25-20 (PKBI) - L25-15 (ES)	R-W - BR	Parking brake switch assembly signal	Parking brake switch assembly on	Below 1 V
			Parking brake switch assembly off	11 to 14 V
L25-21 (SW) - L25-15 (ES)*17	P - BR	Seat belt warning light signal	Ignition switch ON, driver side seat buckle switch is fastened	Below 1 V
*1: w/ Front Fog Light *2: w/ Rear Fog Light *3: for 1GR-FE *4: w/o ABS *5: w/ ABS *6: for 1VD-FTV, 1HZ *7: for 1VD-FTV *8: Oil Pressure Gauge *9: for Double Tank Type *10: w/ Airbag System *11: w/o Airbag System *12: for 1VD-FTV, 1HZ (w/ Oil Pressure Gauge) *13: w/ Immobiliser System *14: for 1HZ *15: w/ Differential Lock *16: w/ Key Reminder Warning System *17: w/ Seat Belt Warning System				

Terminal No.	Wiring Color	Terminal Description	Condition	Specified Condition
			Ignition switch ON, driver side seat buckle switch is unfastened	11 to 14 V ↔ Below 1 V
L25-22 (S) - L25-15 (ES)*6	G-B - BR	Fuel sediment switch signal	Ignition switch ON, FUEL SEDIMENT warning light on	Below 1 V
			Ignition switch ON, FUEL SEDIMENT warning light off	11 to 14 V
L25-23 (FFTR) - L25-15 (ES)*7	W - BR	Fuel filter vacuum sensor signal	Ignition switch ON, FUEL FILTER warning light on	11 to 14 V
			Ignition switch ON, FUEL FILTER warning light off	Below 1 V
L25-24 (OIL) - L25-15 (ES)*7	B-R - BR	Engine oil level sensor signal	Ignition switch ON, OIL LEVEL warning light on	11 to 14 V
			Ignition switch ON, OIL LEVEL warning light off	Below 1 V
L25-26 (B) - Body ground	R - Body ground	Battery	Always	11 to 14 V
L25-28 (B) - Body ground	B-Y - Body ground	Battery	Always	11 to 14 V
L26-1 (CHG-) - L25-15 (ES)	Y - BR	CHARGE warning light signal	Ignition switch ON, CHARGE warning light on	Below 1 V
			Ignition switch ON, CHARGE warning light off	11 to 14 V
L26-2 (+) - L25-15 (ES)	L-W - BR	HI BEAM indicator light signal	Ignition switch ON, HI BEAM indicator light off	Below 1 V
			Ignition switch ON, HI BEAM indicator light on	11 to 14 V
L26-3 (SW) - L25-15 (ES)	R-W - BR	BRAKE warning light signal	BRAKE warning light on	Below 1 V
			BRAKE warning light off	11 to 14 V
L26-4 (OIL1) - L25-15 (ES)*8	B-R - BR	OIL PRESSURE warning light signal	Ignition switch ON, OIL PRESSURE warning light on	Below 1 V
			Ignition switch ON, OIL PRESSURE warning light off	11 to 14 V
L26-5 (B) - L25-15 (ES)	G-B - BR	Turn signal indicator LH signal	Ignition switch ON, turn signal indicator LH light off	Below 1 V

*1: w/ Front Fog Light

*2: w/ Rear Fog Light

*3: for 1GR-FE

*4: w/o ABS

*5: w/ ABS

*6: for 1VD-FTV, 1HZ

*7: for 1VD-FTV

*8: Oil Pressure Gauge

*9: for Double Tank Type

*10: w/ Airbag System

*11: w/o Airbag System

*12: for 1VD-FTV, 1HZ (w/ Oil Pressure Gauge)

*13: w/ Immobiliser System

*14: for 1HZ

*15: w/ Differential Lock

*16: w/ Key Reminder Warning System

*17: w/ Seat Belt Warning System

Terminal No.	Wiring Color	Terminal Description	Condition	Specified Condition
L26-6 (B) - L25-15 (ES)	G-Y - BR	Turn signal indicator RH signal	Ignition switch ON, turn signal indicator LH light on	11 to 14 V ↔ Below 1 V
			Ignition switch ON, turn signal indicator RH light off	Below 1 V
			Ignition switch ON, turn signal indicator RH light on	11 to 14 V ↔ Below 1 V
L26-10 (L) - L26-14 (FE)*9	Y-R - BR	Fuel receiver gauge assembly (sub) signal	Ignition switch ON, fuel F (full tank)	12 to 18 Ω
			Ignition switch ON, E (empty)	405 to 415 Ω
L26-11 (IND) - L25-15 (ES)*9	B-R - BR	SUB indicator light signal	Ignition switch ON, SUB indicator light on	Below 1 V
			Ignition switch ON, SUB indicator light off	11 to 14 V
L26-12 (L) - L26-13 (FE)	Y-R - BR	Fuel receiver gauge assembly signal	Ignition switch ON, fuel F (full tank)	12 to 18 Ω
			Ignition switch ON, E (empty)	405 to 415 Ω
L26-16 (IG+) - L25-15 (ES)*3	B-R - BR	Oil pressure sender gauge assembly power source	Ignition switch ON	4.75 to 5.25 V
			Ignition switch off	Below 1 V
L26-17 (S) - L25-15 (ES)*3	L - BR	Oil pressure sender gauge assembly signal	Ignition switch ON	0.14 to 0.9 V
L26-18 (FR) - L25-15 (ES)*6	Y-G - BR	Engine coolant temperature sensor signal	Engine is warmed up: Idling, engine coolant temperature at 60 to 120°C (140 to 248°F)*7	0.2 to 1.2 V
			Engine is warmed up: Idling, engine coolant temperature at 80°C (176°F)*14	0.2 to 1.0 V
L26-19 (A/B) - L25-15 (ES)*10	R - BR	SRS warning light signal	Ignition switch ON, SRS warning light off	11 to 14 V
			Ignition switch ON, SRS warning light on	Below 1 V
L26-19 (A/B) - L25-15 (ES)*11	R - BR	IG power supply	Ignition switch off	Below 1 V
			Ignition switch ON	11 to 14 V
L26-20 (S) - L25-15 (ES)*12	B-R - BR	Oil pressure sender gauge signal	Ignition switch off	Below 1 V
			Ignition switch ON	4.3 to 15.2 V
L26-21 (CHK) - L25-15 (ES)	R-W - BR	MIL signal	Ignition switch ON, MIL on	Below 1 V
			Ignition switch ON, MIL off	11 to 14 V

*1: w/ Front Fog Light

*2: w/ Rear Fog Light

*3: for 1GR-FE

*4: w/o ABS

*5: w/ ABS

*6: for 1VD-FTV, 1HZ

*7: for 1VD-FTV

*8: Oil Pressure Gauge

*9: for Double Tank Type

*10: w/ Airbag System

*11: w/o Airbag System

*12: for 1VD-FTV, 1HZ (w/ Oil Pressure Gauge)

*13: w/ Immobiliser System

*14: for 1HZ

*15: w/ Differential Lock

*16: w/ Key Reminder Warning System

*17: w/ Seat Belt Warning System

Terminal No.	Wiring Color	Terminal Description	Condition	Specified Condition
L26-22 (GLW-) - L25-15 (ES)*6	R-W - BR	GLOW warning light signal	Ignition switch ON, GLOW indicator light on	Below 1 V
			Ignition switch ON, GLOW indicator light off	11 to 14 V
L26-23 (LP) - L25-15 (ES)*13	G-R - BR	SECURITY warning light signal	Immobiliser unset	Below 1 V
			Immobiliser set	11 to 14 V ↔ Below 1 V
L26-24 (E) - L25-15 (ES)*3	W-B - BR	Oil pressure sender gauge assembly ground	Always	Below 1 V

*1: w/ Front Fog Light

*2: w/ Rear Fog Light

*3: for 1GR-FE

*4: w/o ABS

*5: w/ ABS

*6: for 1VD-FTV, 1HZ

*7: for 1VD-FTV

*8: Oil Pressure Gauge

*9: for Double Tank Type

*10: w/ Airbag System

*11: w/o Airbag System

*12: for 1VD-FTV, 1HZ (w/ Oil Pressure Gauge)

*13: w/ Immobiliser System

*14: for 1HZ

*15: w/ Differential Lock

*16: w/ Key Reminder Warning System

*17: w/ Seat Belt Warning System

for 24 V Battery

Terminal No.	Wiring Color	Terminal Description	Condition	Specified Condition
L25-2 (SW) - L25-15 (ES)	B-L - BR	4WD indicator light signal	Ignition switch ON, 4WD indicator light on	Below 1 V
			Ignition switch ON, 4WD indicator light off	20 to 28 V
L25-5 (ILL+) - L25-15 (ES)	G - BR	Illumination light signal	Light control switch off	Below 1 V
			Light control switch TAIL or HEAD	20 to 28 V
L25-6 (DOOR) - L25-15 (ES)	B-W - BR	DOOR warning light signal	A door is open	Below 1 V
			All door are closed	20 to 28 V
L25-7 (SW) - L25-15 (ES)	B - BR	DOOR warning light signal	Doors open (Disregarding driver side door)	Below 1 V
			Doors closed (Disregarding driver side door)	20 to 28 V
L25-8 (+S) - L25-15 (ES)	G - BR	Speed signal (output)	Driving at approximately 20 km/h (12 mph)	Pulse generation (See waveform 1)
L25-9 (SI) - L25-15 (ES)	G-R - BR	Speed signal (input)	Driving at approximately 20 km/h (12 mph)	Pulse generation (See waveform 1)
L25-13 (IG+) - L25-15 (ES)	L - BR	Speed sensor power supply	Ignition switch ON	11 to 14 V
			Ignition switch off	Below 1 V
L25-15 (ES) - Body ground	BR - Body ground	Ground	Always	Below 1 V
L25-17 (FRSW) - L25-15 (ES)	R-Y - BR	Front differential lock indicator light signal	Ignition switch ON, front differential lock indicator light on	Below 1 V

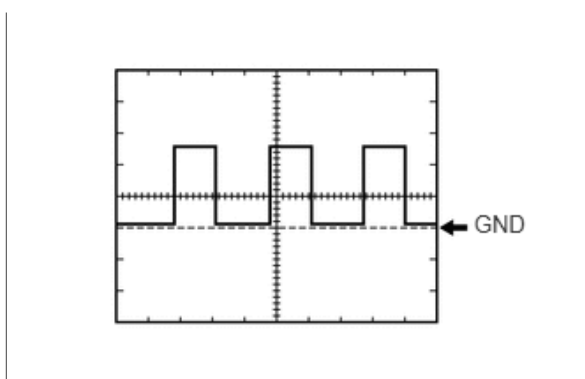
*: for Double Tank Type

Terminal No.	Wiring Color	Terminal Description	Condition	Specified Condition
			Ignition switch ON, front differential lock indicator light off	20 to 28 V
L25-18 (RRSW) - L25-15 (ES)	R-L - BR	Rear differential lock indicator light signal	Ignition switch ON, rear differential lock indicator light on	Below 1 V
			Ignition switch ON, rear differential lock indicator light off	20 to 28 V
L25-19 (SW) - L25-15 (ES)	B-R - BR	Unlock warning switch assembly signal	Key in ignition key cylinder	Below 1 V
			No key in ignition key cylinder	20 to 28 V
L25-20 (PKBI) - L25-15 (ES)	R-W - BR	Parking brake switch assembly signal	Parking brake switch assembly on	Below 1 V
			Parking brake switch assembly off	20 to 28 V
L25-22 (S) - L25-15 (ES)	G-B - BR	Fuel sediment switch signal	Ignition switch ON, FUEL SEDIMENT warning light on	Below 1 V
			Ignition switch ON, FUEL SEDIMENT warning light off	20 to 28 V
L25-26 (B) - Body ground	R - Body ground	Battery	Always	20 to 28 V
L25-28 (B) - Body ground	B-Y - Body ground	Battery	Always	20 to 28 V
L26-1 (CHG-) - L25-15 (ES)	Y - BR	CHARGE warning light signal	Ignition switch ON, CHARGE warning light on	Below 1 V
			Ignition switch ON, CHARGE warning light off	20 to 28 V
L26-2 (+) - L25-15 (ES)	L-W - BR	HI BEAM indicator light signal	Ignition switch ON, HI BEAM indicator light off	Below 1 V
			Ignition switch ON, HI BEAM indicator light on	20 to 28 V
L26-3 (SW) - L25-15 (ES)	R-W - BR	BRAKE warning light signal	BRAKE warning light on	Below 1 V
			BRAKE warning light off	20 to 28 V
L26-4 (OIL1) - L25-15 (ES)	B-R - BR	OIL PRESSURE warning light signal	Ignition switch ON, OIL PRESSURE warning light on	Below 1 V
			Ignition switch ON, OIL PRESSURE warning light off	20 to 28 V
L26-5 (B) - L25-15 (ES)	G-B - BR	Turn signal indicator LH signal	Ignition switch ON, turn signal indicator LH light off	Below 1 V
			Ignition switch ON, turn signal indicator LH light on	20 to 28 V ↔ Below 1 V
L26-6 (B) - L25-15 (ES)	G-Y - BR	Turn signal indicator RH signal	Ignition switch ON, turn signal indicator RH light off	Below 1 V
			Ignition switch ON, turn signal indicator RH light on	20 to 28 V ↔ Below 1 V
L26-11 (IND) - L25-15 (ES)*	B-R - BR	SUB indicator light signal	Ignition switch ON, SUB indicator light on	Below 1 V
*: for Double Tank Type				

Terminal No.	Wiring Color	Terminal Description	Condition	Specified Condition
			Ignition switch ON, SUB indicator light off	20 to 28 V
L26-12 (L) - L26-13 (FE)	Y-R - BR	Fuel receiver gauge assembly signal	Ignition switch ON, fuel F (full tank)	12 to 18 Ω
			Ignition switch ON, E (empty)	405 to 415 Ω
L26-18 (FR) - L25-15 (ES)	Y-G - BR	Engine coolant temperature sensor signal	Engine is warmed up: Idling, engine coolant temperature at 80°C (176°F)	0.2 to 1.0 V
L26-19 (A/B) - L25-15 (ES)	R - BR	IG power supply	Ignition switch off	Below 1 V
			Ignition switch ON	20 to 28 V
L26-22 (GLW-) - L25-15 (ES)	R-W - BR	GLOW warning light signal	Ignition switch ON, GLOW indicator light on	Below 1 V
			Ignition switch ON, GLOW indicator light off	20 to 28 V

*: for Double Tank Type

i.



Using an oscilloscope, check waveform 1.

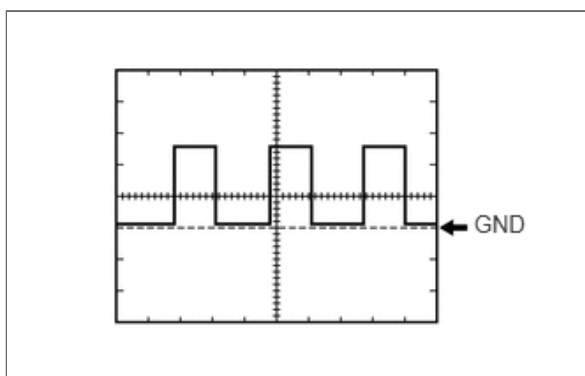
Waveform 1 (Reference)

Item	Condition
Tester Connection	<ul style="list-style-type: none"> · L25-8 (+S) - L25-15 (ES) · L25-9 (SI) - L25-15 (ES)
Tool Setting	5 V/DIV., 20 msec./DIV.
Condition	Driving at approximately 20 km/h (12 mph)

HINT:

As the vehicle speed increases, the wavelength shortens.

ii.



Using an oscilloscope, check waveform 2.

Waveform 2 (Reference)

Item	Condition
Tester Connection	L25-11 (S) - L25-15 (ES)
Tool Setting	5 V/DIV., 10 msec./DIV.
Condition	Engine running, engine coolant temperature 80°C (176°F)

HINT:

As the coolant temperature rises, the period "A" shown in the illumination becomes longer.