

YMMS: 2022 Toyota GR86 Premium
 Engine: 2.4L Eng
 VIN:

Aug 20, 2022
 License:
 Odometer:

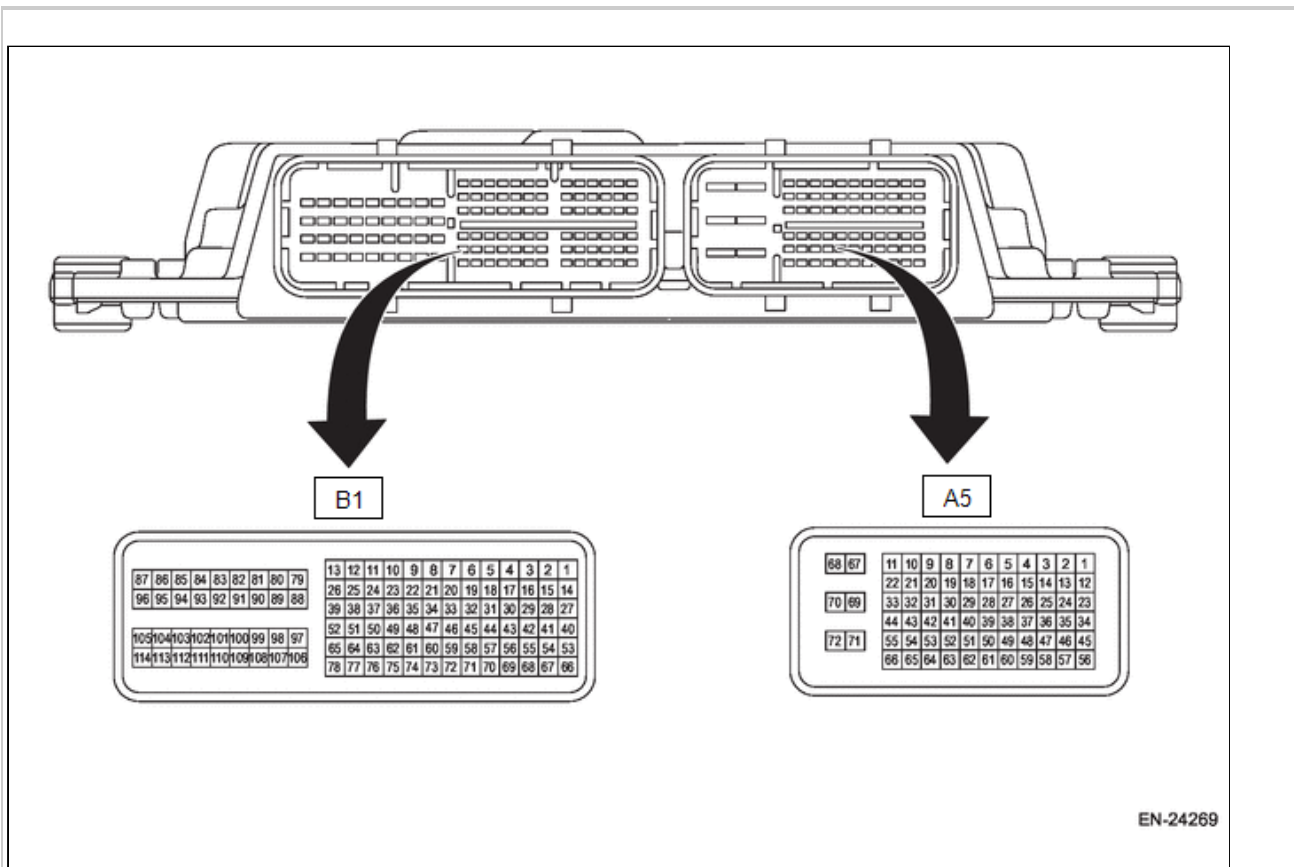
TERMINALS OF ECM [11/2021 -] [CHARGING SYSTEM]

TERMINALS OF ECM [11/2021 -]

Refer to SFI SYSTEM.
 Refer to TERMINALS OF ECM [11/2021 -]

TERMINALS OF ECM [11/2021 -] [SFI SYSTEM]

TERMINALS OF ECM [11/2021 -]



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Description	Connector No.	Terminal No.	Signal (V)		Note	
			Ignition SW ON After warm-up (at engine OFF)	Engine ON After warm-up (at idle)		
Crankshaft position sensor	Signal	B1	66	5	0 or 5	Waveform 1, 6 and 10

	Power supply	B1	40	5	5	-
	Ground	B1	68	0	0	-
Intake camshaft position sensor	RH	B1	78	0 or 5	0 or 5	Waveform 1
	LH	B1	77	0 or 5	0 or 5	Waveform 1
Exhaust camshaft position sensor	RH	B1	65	0 or 5	0 or 5	Waveform 1
	LH	B1	64	0 or 5	0 or 5	Waveform 1
Camshaft position sensor ground		B1	51	0	0	-
Front oxygen (A/F) sensor	(+) signal	B1	3	2.8 - 3.2	2.8 - 3.2	Waveform 2
	(-) signal	B1	4	1.3 - 3.1	2.4 - 2.7	Waveform 2
	Heater signal	B1	88	Battery voltage	0 or battery voltage	Waveform 4
Rear oxygen sensor	(+) signal	B1	14	2.7 - 3	Waveform	Waveform 3
	(-) signal	B1	15	1.9 - 2	Waveform	Waveform 3
	Heater signal	B1	7	Battery voltage	0 or battery voltage	Waveform 4
Oxygen sensor shield		B1	45	0	0	-
Air flow sensor signal		A5	32	0 or 5	0 or 5	Waveform 9
Intake air temperature sensor signal		A5	43	1.9 - 4.5	1.9 - 4.5	-
Engine coolant temperature sensor signal		B1	34	1 - 1.4	1 - 1.4	-
Engine oil temperature sensor signal		B1	46	1 - 1.4	1 - 1.4	-
Manifold absolute pressure sensor signal		B1	69	3 - 3.9	1.2 - 2.04	-
Knock sensor RH	Signal	B1	5	2.4 - 2.6	2.1 - 2.8	-
	Ground	B1	18	0	0	-
Knock sensor LH	Signal	B1	6	2.4 - 2.6	2.4	-
	Ground	B1	19	0	0	-
Knock sensor	Shield	B1	16	0	0	-
Accelerator pedal position sensor	Main signal	A5	66	Fully closed: 0.3 - 1.1 Fully open: 2.3 - 3.8	Fully closed: 0.3 - 1.4 Fully open: 2.4 - 3.8	Waveforms 2 and 3
	Main power supply	A5	51	5	5	-

	Main ground	A5	55	0	0	-
	Sub signal	A5	64	Fully closed: 0.3 - 1.1 Fully open: 2.3 - 3.8	Fully closed: 0.3 - 1.4 Fully open: 2.4 - 3.8	-
	Sub power supply	A5	52	5	5	-
	Sub ground	A5	65	0	0	-
Intake oil control solenoid	RH	B1	99	Battery voltage	0 or battery voltage	Waveform 5
	LH	B1	100	Battery voltage	0 or battery voltage	Waveform 5
Exhaust oil control solenoid	RH	B1	108	Battery voltage	0 or battery voltage	Waveform 5
	LH	B1	109	Battery voltage	0 or battery voltage	Waveform 5
Purge control solenoid valve		B1	9	Battery voltage	0 or battery voltage	Operating: 0
Leak check valve assembly	Switching valve	B1	26	Battery voltage	Battery voltage	Operating: 0
	Pressure sensor	A5	62	1 -4	1 -4	When ignition switch is turned to ON: atmospheric pressure
	Vacuum pump	B1	25	Battery voltage	Battery voltage	Operating: 0
Ignition coil	#1	B1	10	0	0 or 5	Waveform 6
	#2	B1	11	0	0 or 5	Waveform 6
	#3	B1	12	0	0 or 5	Waveform 6
	#4	B1	13	0	0 or 5	Waveform 6
Fuel pressure sensor	Signal 1	B1	56	0.8 - 1.6	0.8 - 1.6	-
	Signal 2	B1	50	3 - 3.8	0.8 - 1.6	-
High-pressure fuel pump	(+) signal	B1	105	-	-	Measurement prohibited
	(-) signal	B1	104	-	-	Measurement prohibited
Fuel injector (for cylinder direct injection)	#1 (+)	B1	87	2 - 3	-	Measurement is prohibited while the engine is running
	#1 (-)	B1	96	2 - 3	-	
	#2 (+)	B1	86	2 - 3	-	

	#2 (-)	B1	95	2 - 3	-	
	#3 (+)	B1	84	2 - 3	-	
	#3 (-)	B1	93	2 - 3	-	
	#4 (+)	B1	85	2 - 3	-	
	#4 (-)	B1	94	2 - 3	-	
Fuel injector (for port injection)	#1	B1	98	Battery voltage	Waveform	Waveform 10
	#2	B1	97	Battery voltage	Waveform	
	#3	B1	107	Battery voltage	Waveform	
	#4	B1	106	Battery voltage	Waveform	
Electronic throttle control sensor	Main signal	B1	29	Approx. 0.7	Approx. 0.6 - 1.2	Fully closed: Approx. 0.6 - 1.2 Fully open: Approx. 3.8 - 4.4
	Sub signal	B1	43	Approx. 1.6	Approx. 1.5 - 1.7	Fully closed: Approx. 1.4 - 2 Fully open: Approx. 4 - 4.6
	Shield	B1	44	0	0	-
	Motor (+)	B1	83	0 or battery voltage	0 or battery voltage	Drive frequency: 500 Hz
	Motor (-)	B1	92	0 or battery voltage	0 or battery voltage	Drive frequency: 500 Hz
	Power supply	B1	27	5	5	-
	Ground	B1	30	0	0	-
A/C relay control	A5	18	ON: 0.5 V or less OFF: Battery voltage	ON: 0.5 V or less OFF: Battery voltage	-	
A/C middle pressure switch	A5	49	ON: 0 OFF: Battery voltage	ON: 0 OFF: Battery voltage	-	
Self-shutoff relay control	A5	12	0	0	-	
Starter relay control	A5	2	Waveform	Waveform	Waveform 8	
Starter cut relay control	A5	24	Waveform	Waveform	Waveforms 7 and 8	
Fuel pump relay control	A5	31	ON: 0 or battery voltage OFF: 0	ON: 0 OFF: Battery voltage	-	
Main fan motor	A5	19	Battery voltage	Battery voltage	ON: 0	
Sub fan motor	A5	30	Battery voltage	Battery voltage	ON: 0	
Ignition switch	A5	56	Battery voltage	Battery voltage	Waveform 8	

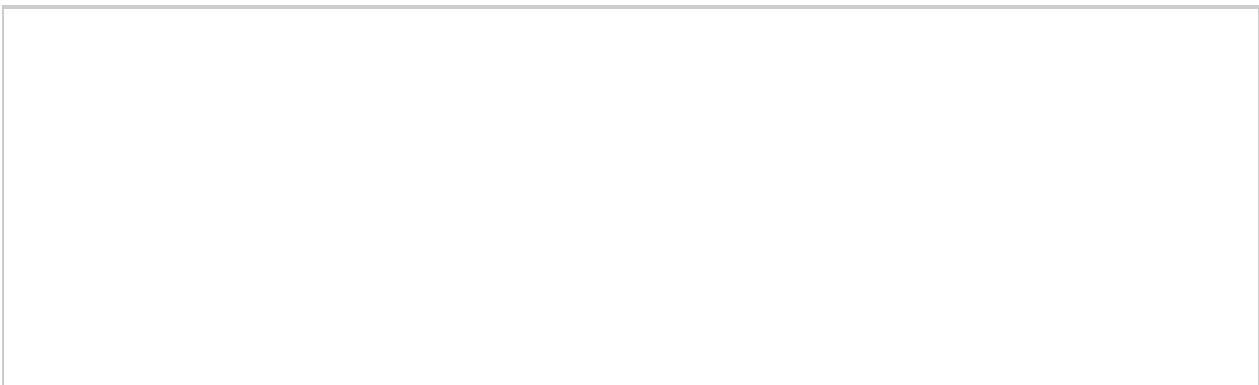
Neutral position switch	A5	39	ON: 0 OFF: Battery voltage	0	-
Delivery mode switch	A5	57	Battery voltage	Battery voltage	When fuse is installed: 0
Starter switch	A5	25	Waveform	Waveform	Waveform 7
Starter switch 2	A5	27	Waveform	Waveform	Waveform 7
Accessory cut request	A5	34	Waveform	Waveform	Waveform 7
Engine speed output	A5	21	Waveform	Waveform	Waveform 8
Clutch start switch	A5	37	When clutch pedal is depressed: Battery voltage When clutch pedal is released: 0	When clutch pedal is depressed: Battery voltage When clutch pedal is released: 0	MT model
Clutch switch	A5	28	When clutch pedal is depressed: 0 When clutch pedal is released: Battery voltage	When clutch pedal is depressed: 0 When clutch pedal is released: Battery voltage	MT model
Brake switch 1 (Brake switch)	A5	36	When brake pedal is depressed: 0 When brake pedal is released: Battery voltage	When brake pedal is depressed: 0 When brake pedal is released: Battery voltage	-
Brake switch 2 (Stop light switch)	A5	38	When brake pedal is depressed: Battery voltage When brake pedal is released: 0	When brake pedal is depressed: Battery voltage When brake pedal is released: 0	-
Cruise control command switch	A5	40	When operating nothing: 5 When operating RES/ACC: 0.5 - 1.5 When operating SET/COAST: 1.5 - 2.5 When operating MAIN SW: 0 - 0.5 When operating	When operating nothing: 5 When operating RES/ACC: 0.5 - 1.5 When operating SET/COAST: 1.5 - 2.5 When operating MAIN SW: 0 - 0.5 When operating	Model without EyeSight

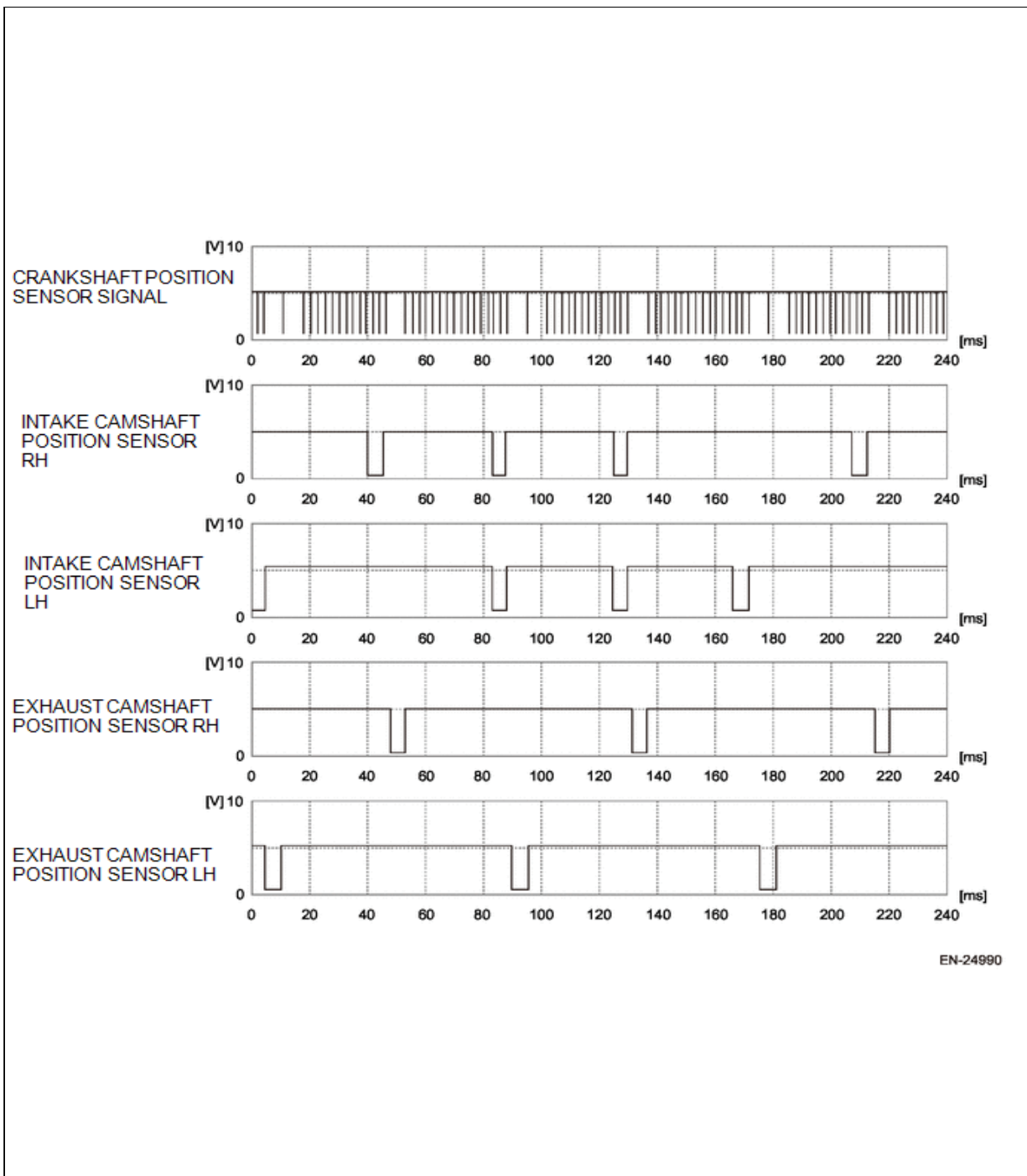
				CANCEL: 2.5 - 3.5	CANCEL: 2.5 - 3.5	
LIN communication		A5	17	-	-	-
Immobiliser communication		A5	6	-	-	-
CAN communication (P/U 1 CAN)	HI	A5	3	-	-	-
	LO	A5	14	-	-	-
CAN communication ((I)_P/U 2 CAN)	HI	A5	4	-	-	-
	LO	A5	15	-	-	-
Control module power supply		A5	67	Battery voltage	Battery voltage	-
		A5	68	Battery voltage	Battery voltage	-
Backup power supply		A5	1	Battery voltage	Battery voltage	Ignition switch OFF: Battery voltage
Sensor power supply		A5	53	5	5	-
		B1	54	5	5	-
Ground	Body	A5	50	0	0	-
	Sensor	A5	54	0	0	-
		B1	58	0	0	-
	Engine 1	A5	71	0	0	-
	Engine 2	A5	72	0	0	-
	Engine 3	A5	69	0	0	-
	Engine 4	A5	70	0	0	-

HINT:

- Perform measurement after the engine has warmed up.
- Set the select lever in "P" range or "N" range, or the shift lever in neutral.
- Turn the A/C to OFF.
- Turn all the accessory switches to OFF.
- Waveforms vary depending on a measurement environment and vehicle condition.
- Oscilloscope waveform illustrated here is an example for reference. Noise and chattering in waveform are omitted.

1. Waveform 1



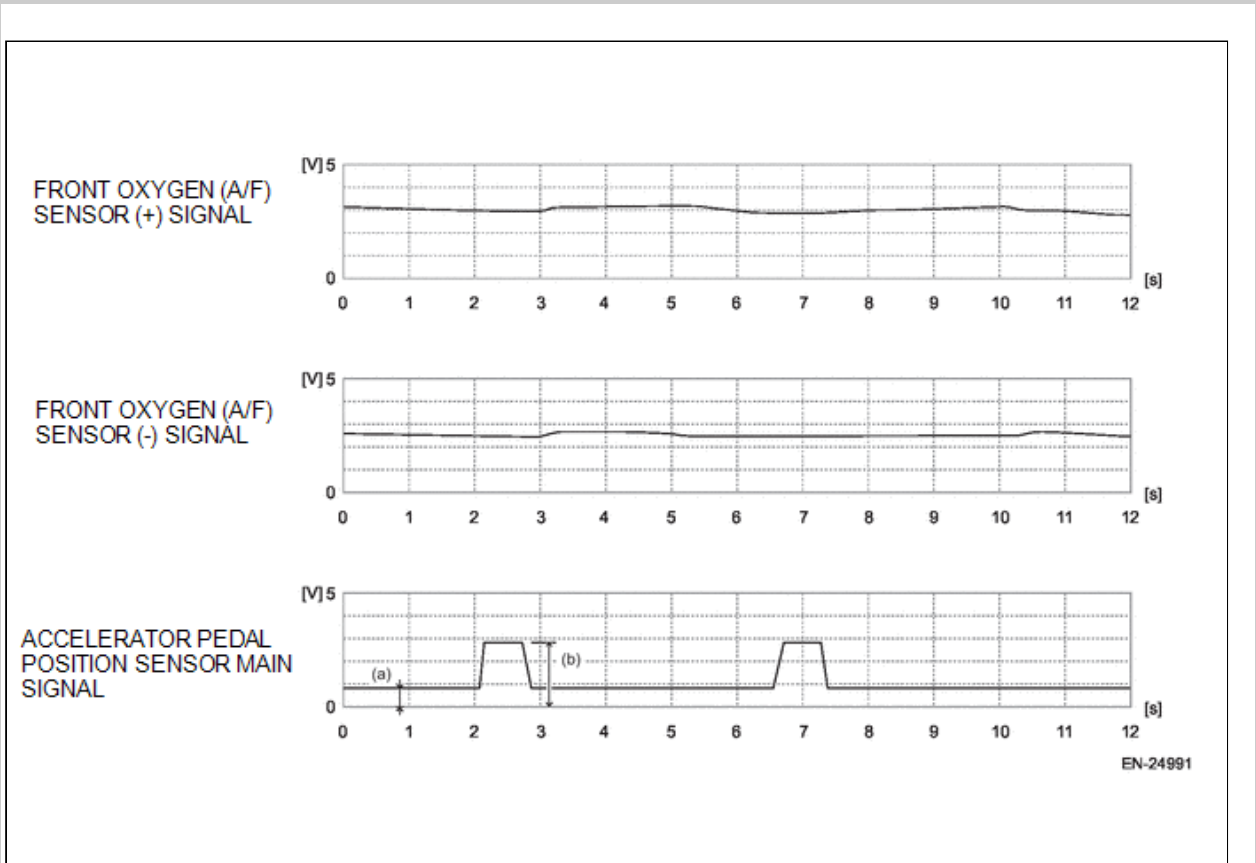


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Measured terminal	Crankshaft position sensor signal B1-66 (CRADIGT) - Engine ground 3 A5-69 (ACCM):
	Intake camshaft position sensor RH B1-78 (AVCSR+) - Engine ground 3 A5-69 (ACCM):
	Intake camshaft position sensor LH B1-77 (AVCSL+) - Engine ground 3 A5-69 (ACCM):
	Exhaust camshaft position sensor RH B1-65 (AVCSER+) - Engine ground 3 A5-69 (ACCM):

	Exhaust camshaft position sensor LH B1-64 (AVCSEL+) - Engine ground 3 A5-69 (ACCM):
Measuring condition	While engine idling

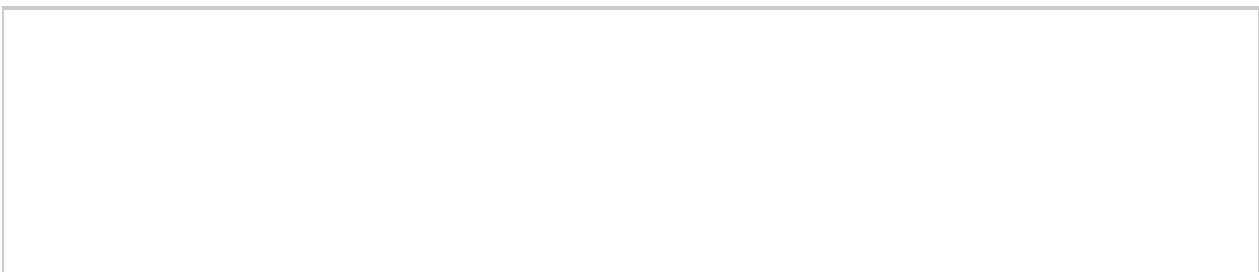
2. Waveform 2

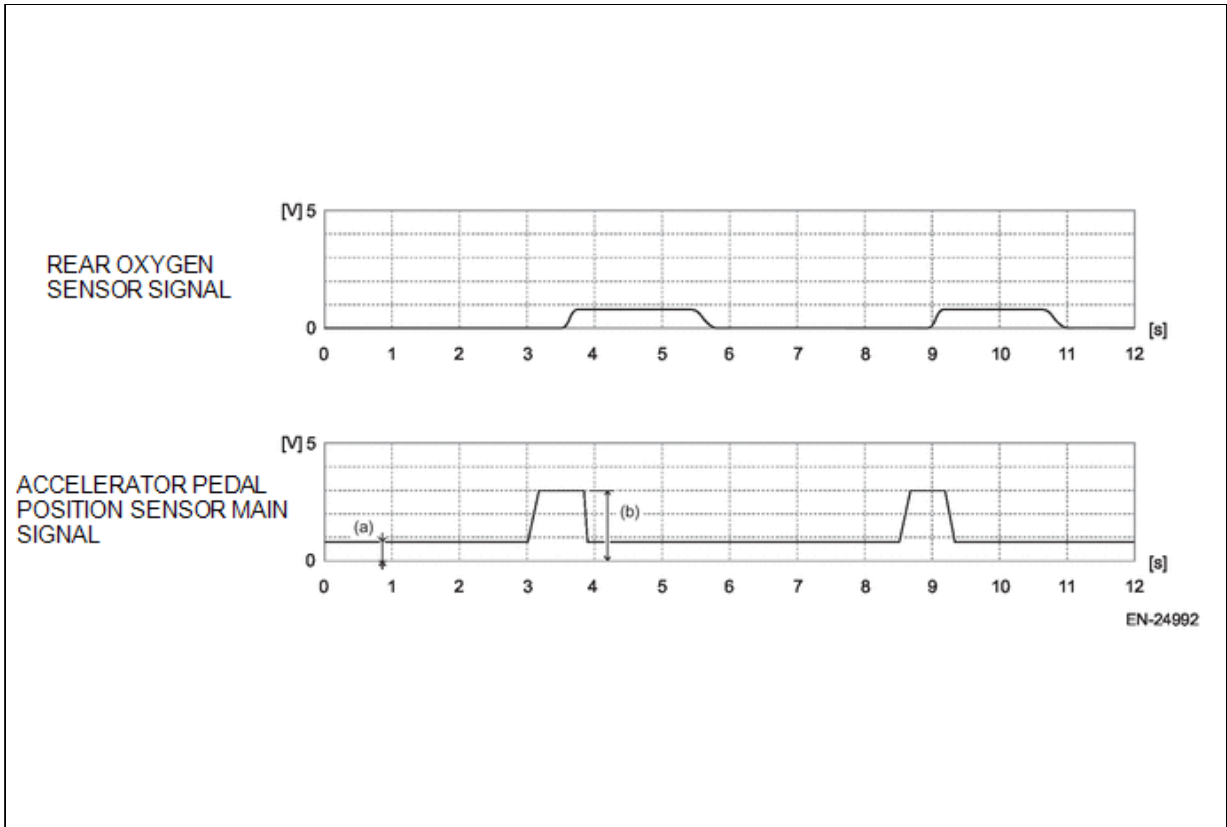


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Measured terminal	Front oxygen (A/F) sensor (+) signal B1-3 (AFR+) - Engine ground 3 A5-69 (ACCM):
	Front oxygen (A/F) sensor (-) signal B1-4 (AFR-) - Engine ground 3 A5-69 (ACCM):
	Accelerator pedal position sensor main signal A5-66 (ACCM) - Engine ground 3 A5-69 (ACCM):
Measuring condition	(a) Accelerator pedal fully closed
	(b) Accelerator pedal fully opened

3. Waveform 3

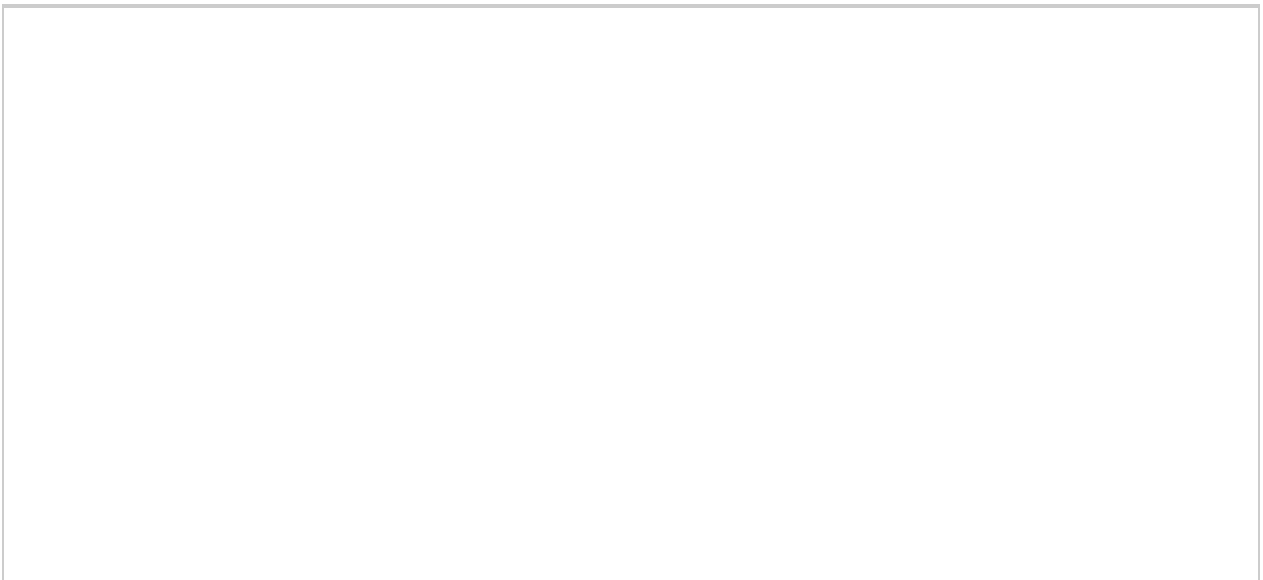


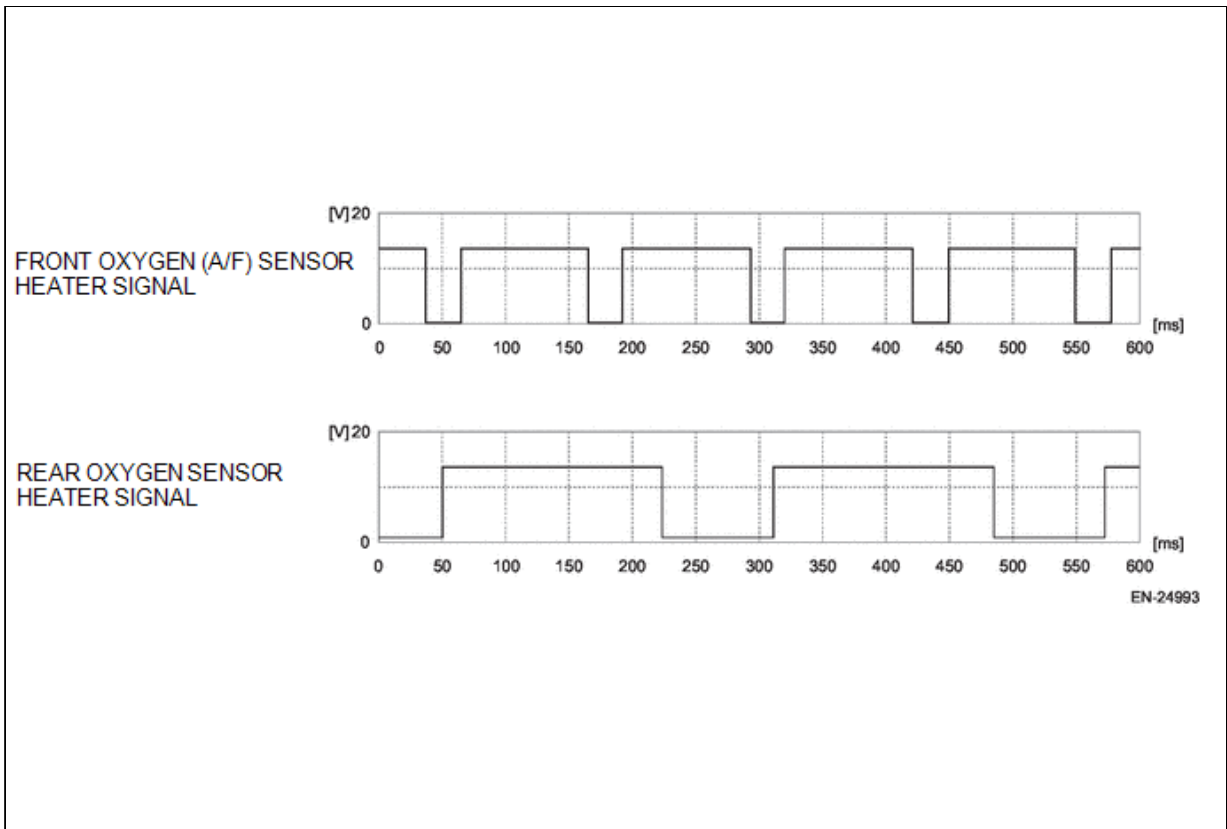


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Measured terminal	Rear oxygen sensor signal B1-14 (RO2SR+) - Rear oxygen sensor (-) signal B1-15 (RO2SR-):
	Accelerator pedal position sensor main signal A5-66 (ACCM) - Engine ground 3 A5-69 (ACCM):
Measuring condition	(a) Accelerator pedal fully closed
	(b) Accelerator pedal fully opened

4. Waveform 4

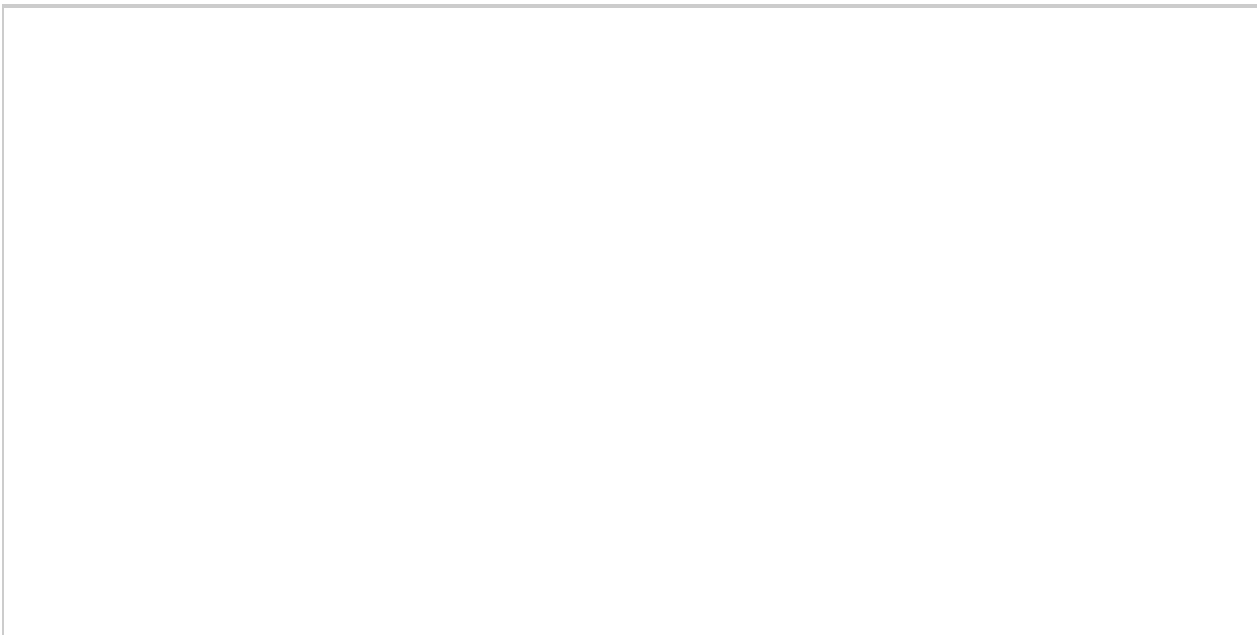


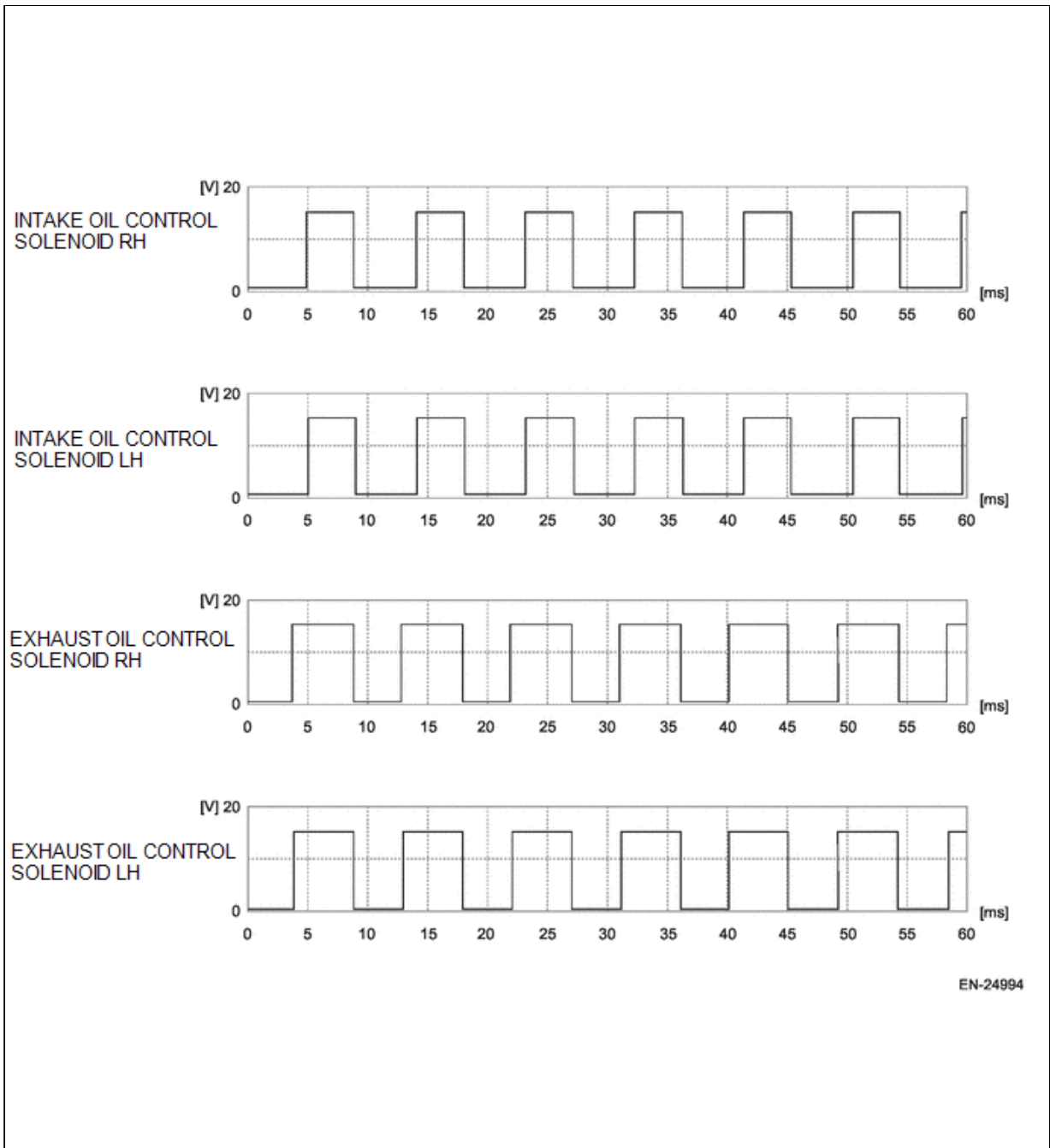


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Measured terminal	Front oxygen (A/F) sensor heater signal B1-88 (HTFR1) - Engine ground 3 A5-69 (ACCM):
	Rear oxygen sensor heater signal B1-7 (RO2HR) - Engine ground 3 A5-69 (ACCM):
Measuring condition	While engine idling

5. Waveform 5



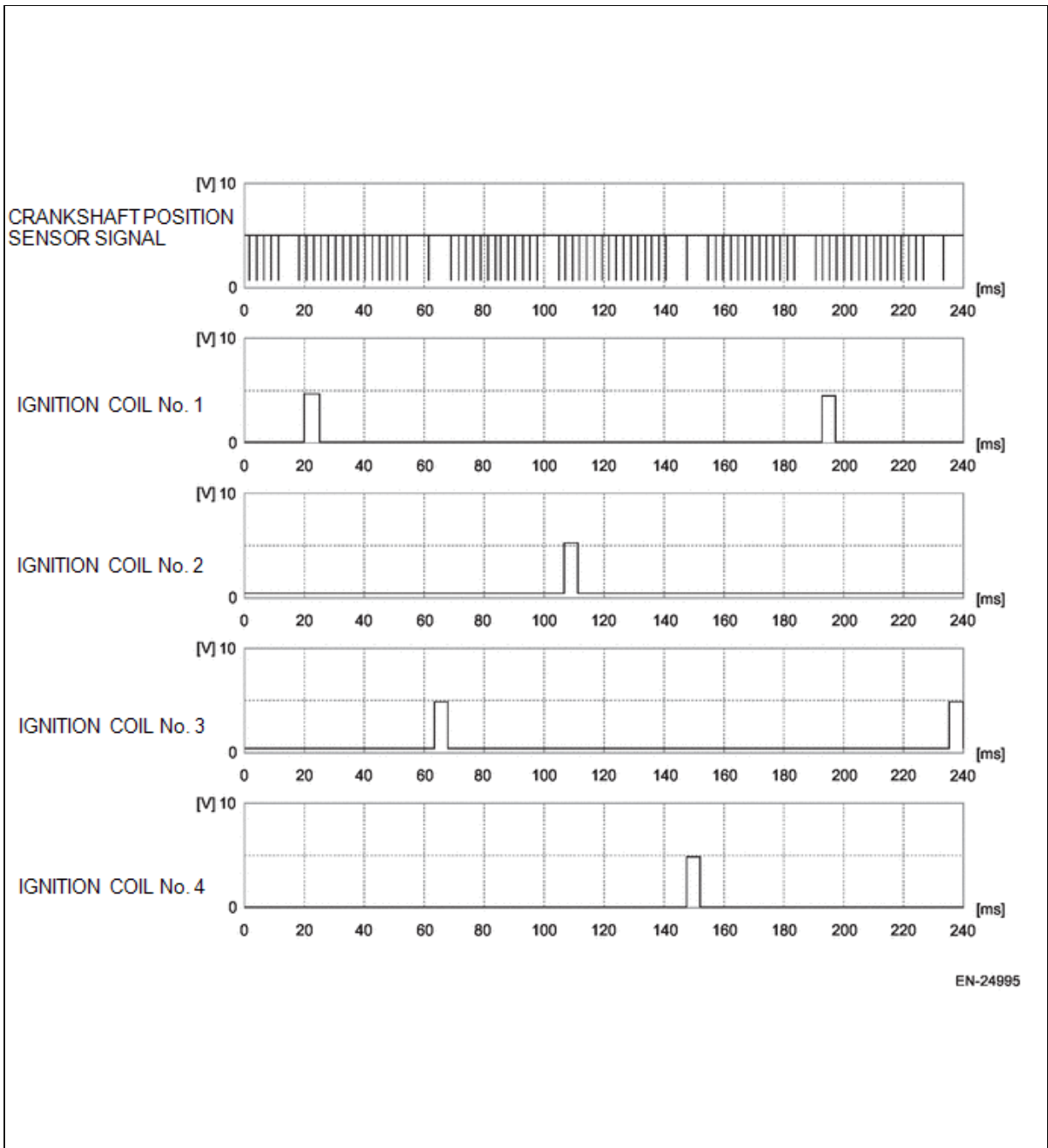


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Measured terminal	Intake oil control solenoid RH B1-99 (OCVR) - Engine ground 3 A5-69 (ACCM):
	Intake oil control solenoid LH B1-100 (OCVL) - Engine ground 3 A5-69 (ACCM):
	Exhaust oil control solenoid RH B1-108 (OCVER) - Engine ground 3 A5-69 (ACCM):
	Exhaust oil control solenoid LH B1-109 (OCVEL) - Engine ground 3 A5-69 (ACCM):
Measuring condition	While engine idling

6. Waveform 6

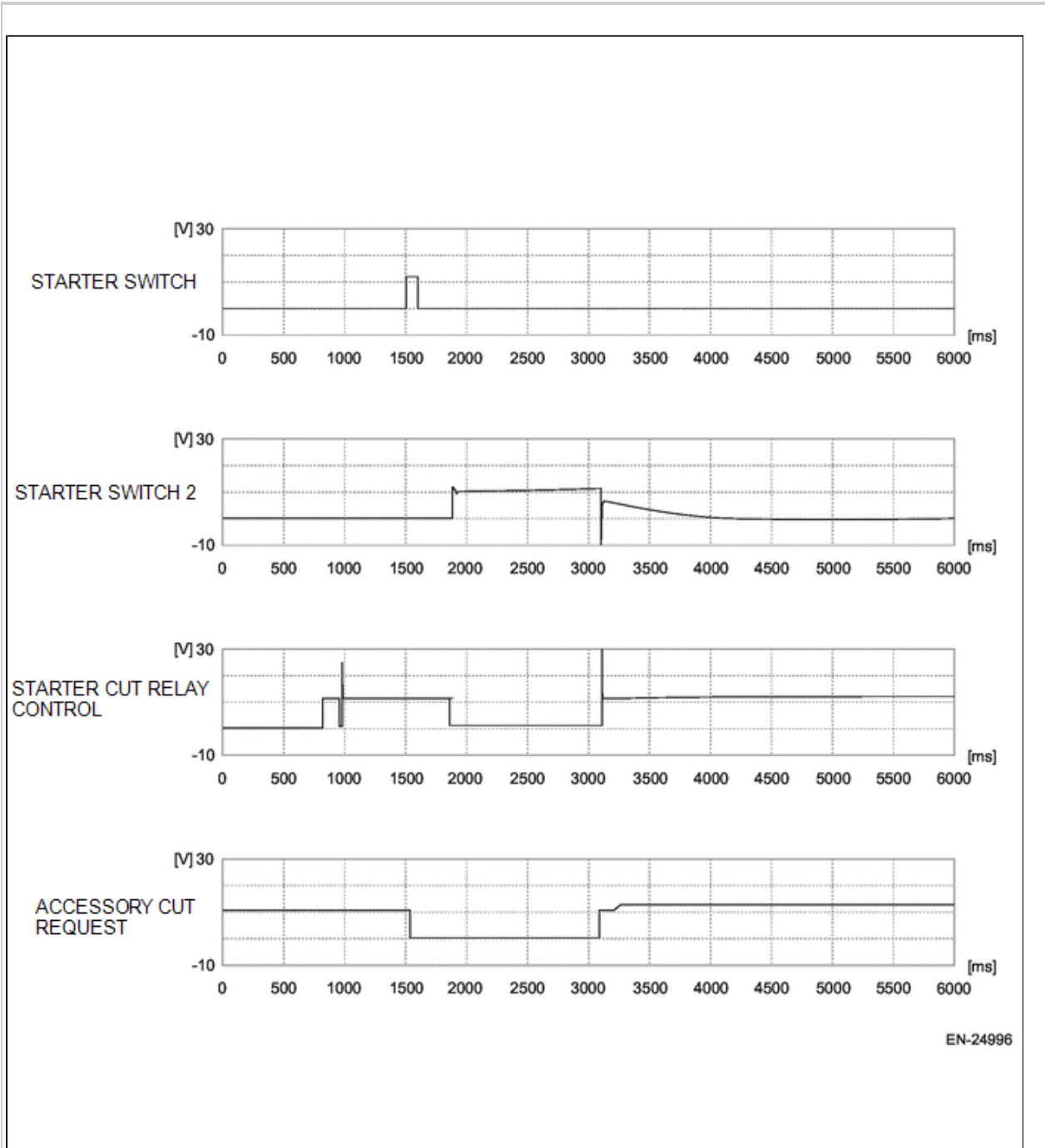




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Measured terminal	Crankshaft position sensor signal B1-66 (CRADIGT) - Engine ground 3 A5-69 (ACCM):
	Ignition coil B1-10 (IGN1) - Engine ground 3 A5-69 (ACCM):
	Ignition coil B1-11 (IGN2) - Engine ground 3 A5-69 (ACCM):
	Ignition coil B1-12 (IGN3) - Engine ground 3 A5-69 (ACCM):
	Ignition coil B1-13 (IGN4) - Engine ground 3 A5-69 (ACCM):
Measuring condition	While engine idling

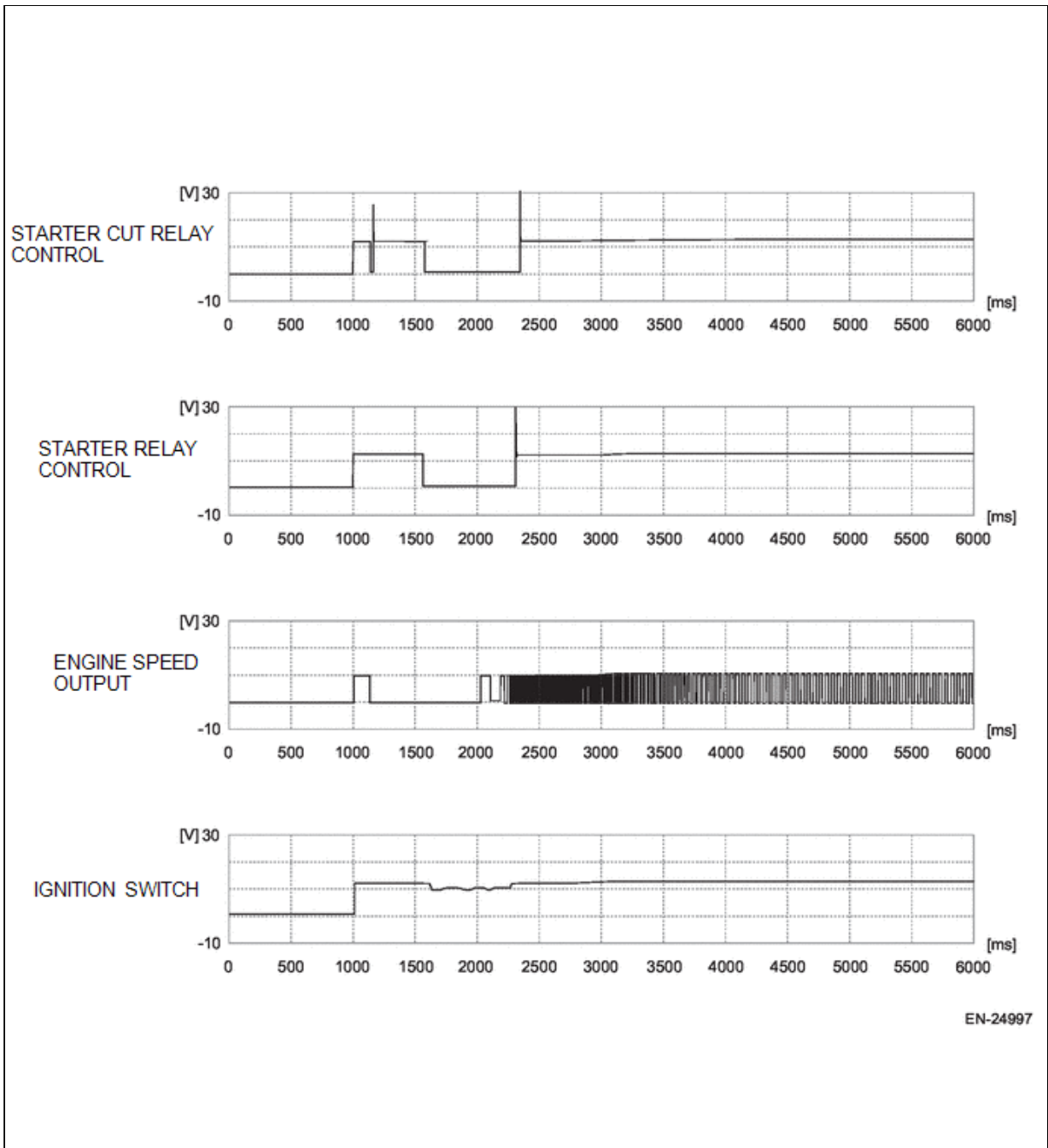
7. Waveform 7



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Measured terminal	Starter switch A5-25 (START) - Engine ground 3 A5-69 (ACCM):
	Starter switch 2 A5-27 (STSW2) - Engine ground 3 A5-69 (ACCM):
	Starter cut relay control A5-24 (STCTRLY) - Engine ground 3 A5-69 (ACCM):
	Accessory cut request A5-34 (ACCR) - Engine ground 3 A5-69 (ACCM):
Measuring condition	When engine is started

8. Waveform 8

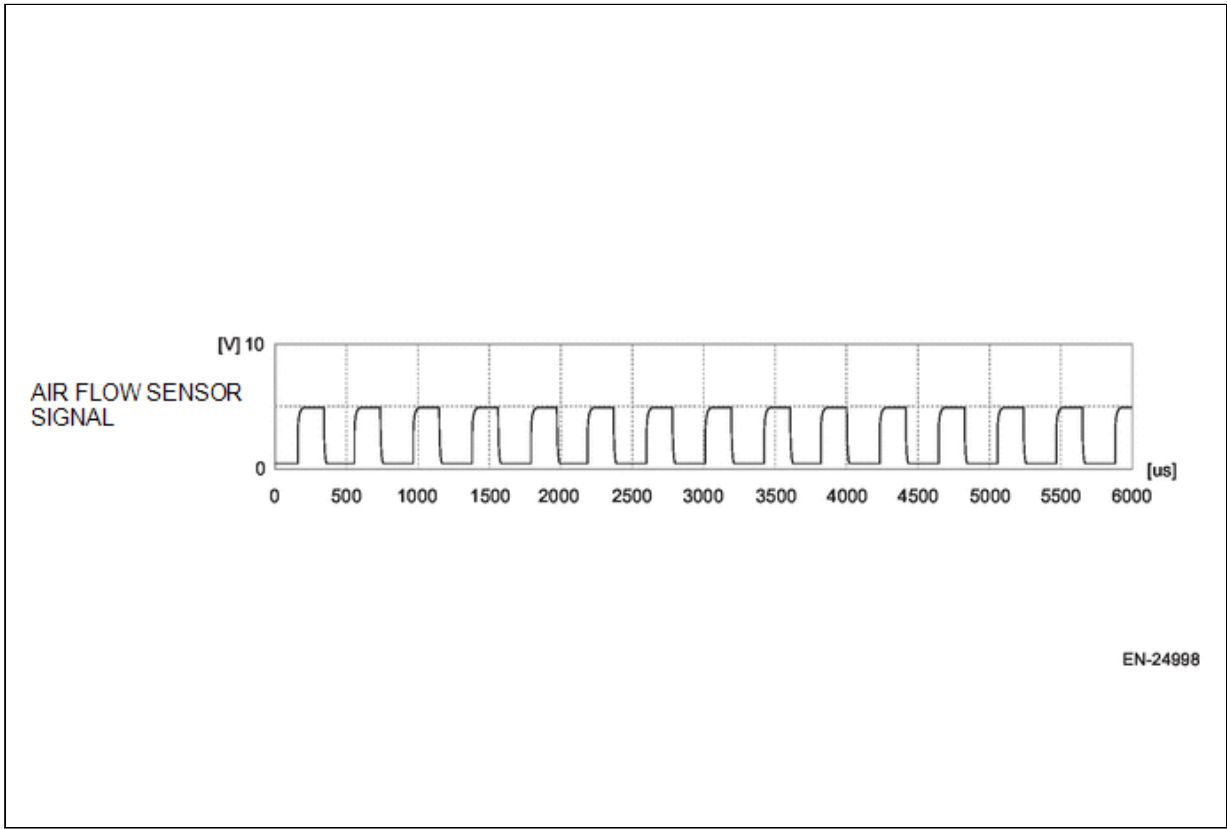


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Measured terminal	Starter cut relay control A5-24 (STCTRLY) - Engine ground 3 A5-69 (ACCM):
	Starter relay control A5-2 (STRLY) - Engine ground 3 A5-69 (ACCM):
	Engine speed output A5-21 (TACHO) - Engine ground 3 A5-69 (ACCM):
	Ignition switch A5-56 (KEY1) - Engine ground 3 A5-69 (ACCM):
Measuring condition	When engine is started

9. Waveform 9

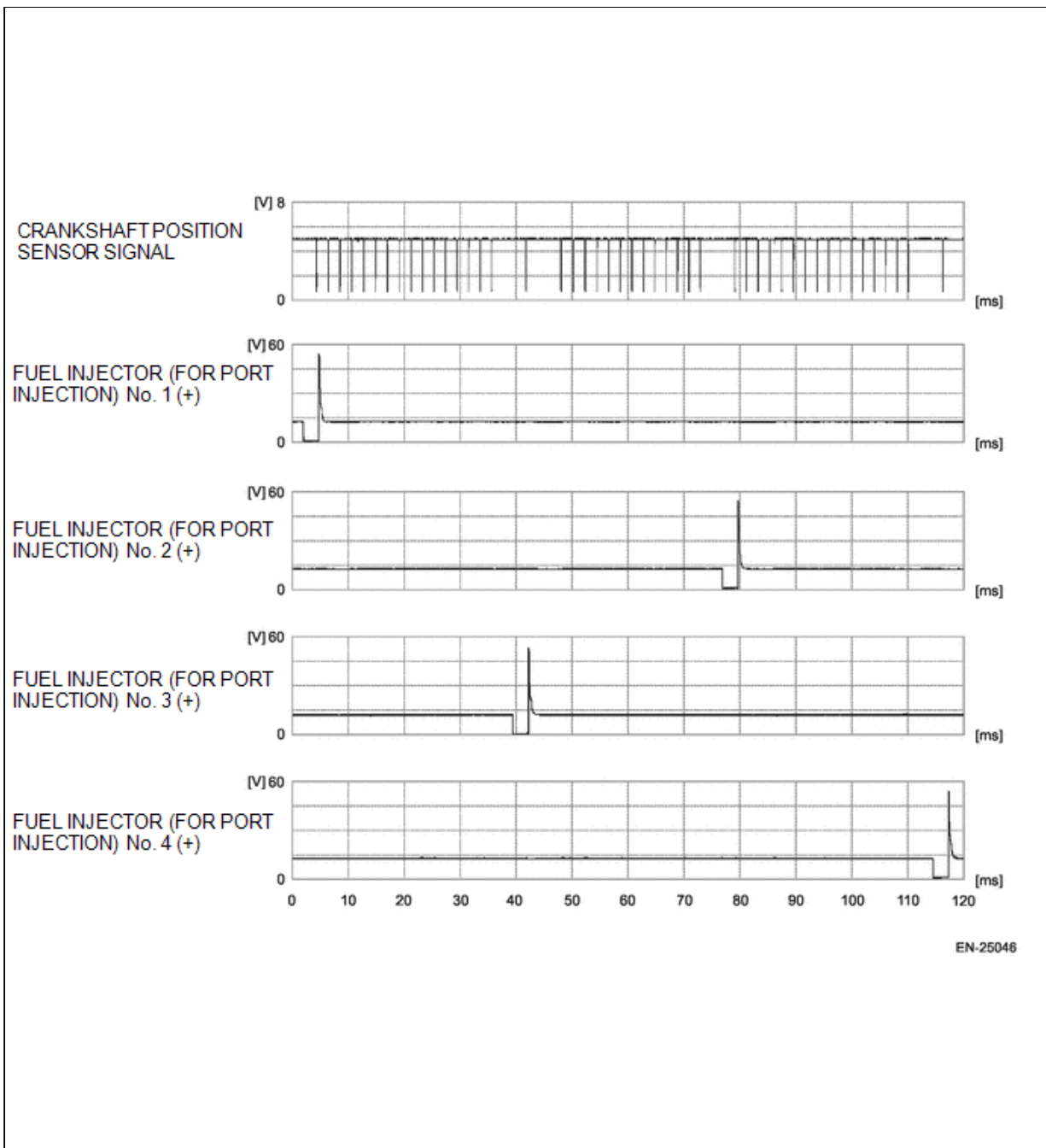


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Measured terminal	Air flow sensor signal A5-32 (AFM) - Engine ground 3 A5-69 (ACCM):
Measuring condition	While engine idling

10. **Waveform 10**



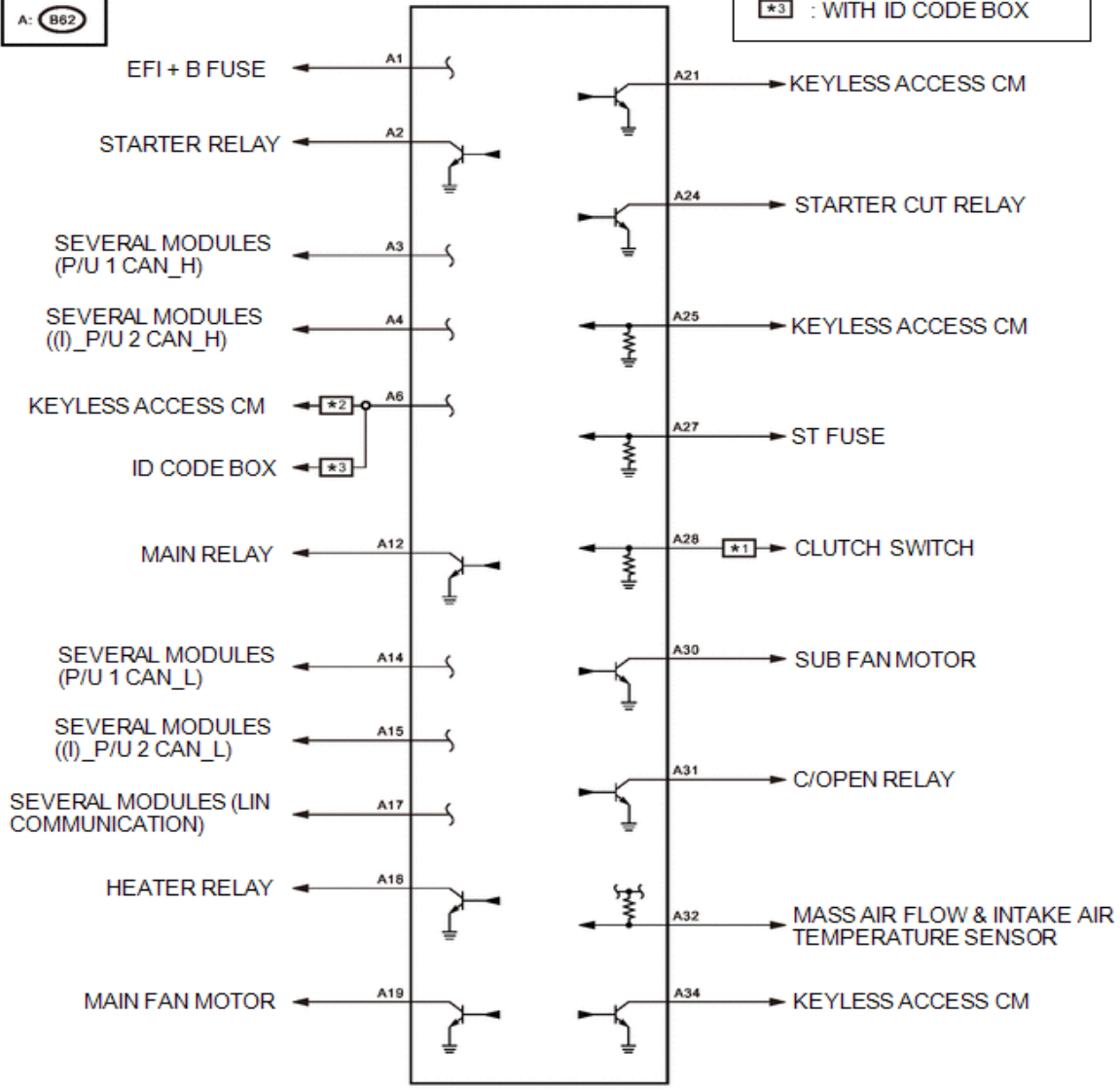


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Measured terminal	Crankshaft position sensor signal B1-66 (CRADIGT) - Engine ground 3 A5-69 (ACCM):
	Fuel injector (for port injection) (+) B1-98 (INJ1) - Engine ground 3 A5-69 (ACCM):
	Fuel injector (for port injection) (+) B1-97 (INJ2) - Engine ground 3 A5-69 (ACCM):
	Fuel injector (for port injection) (+) B1-107 (INJ3) - Engine ground 3 A5-69 (ACCM):
	Fuel injector (for port injection) (+) B1-106 (INJ4) - Engine ground 3 A5-69 (ACCM):
Measuring condition	When engine is started

A: B62

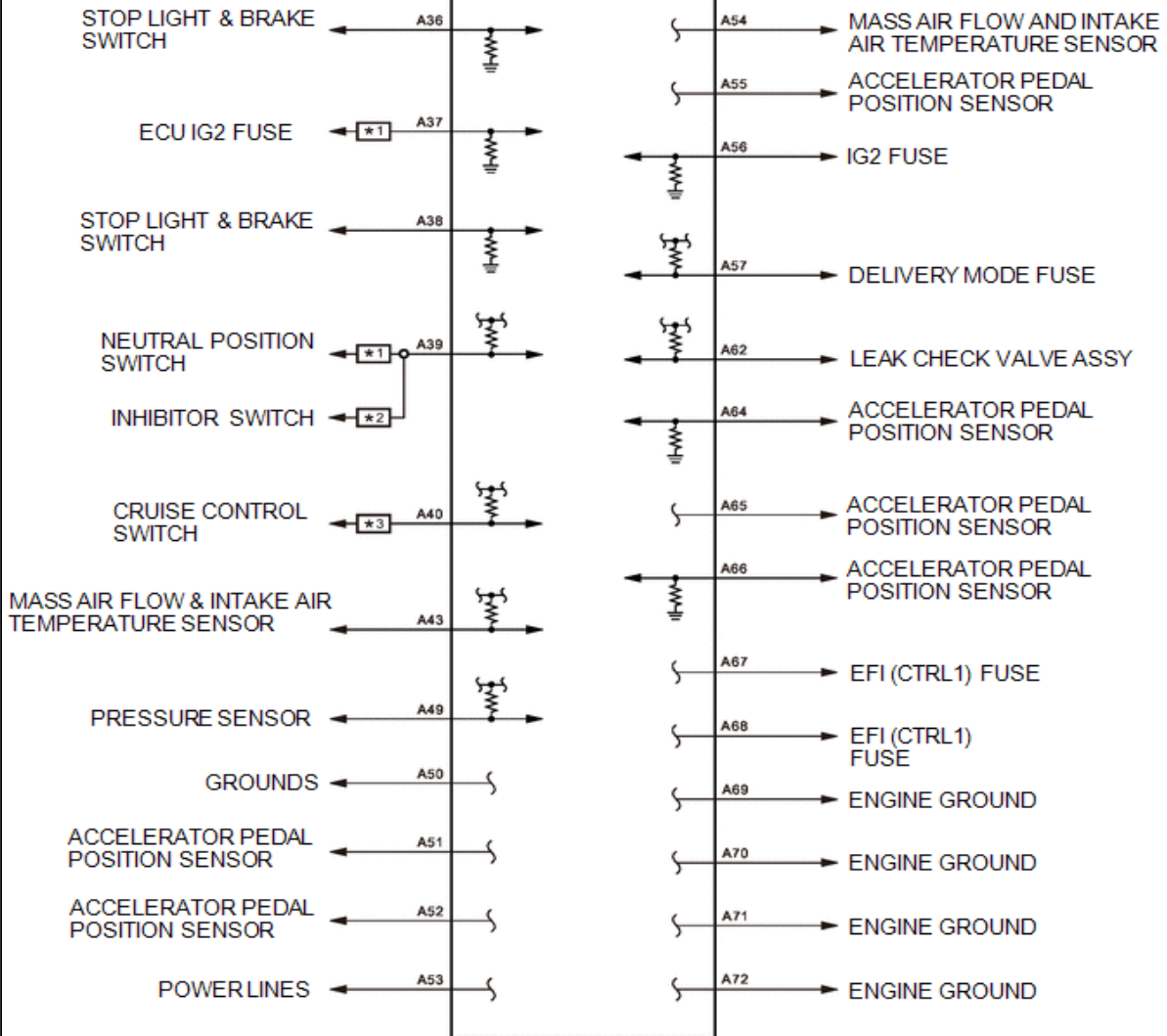
- *1 : MT MODEL
- *2 : WITHOUT ID CODE BOX
- *3 : WITH ID CODE BOX



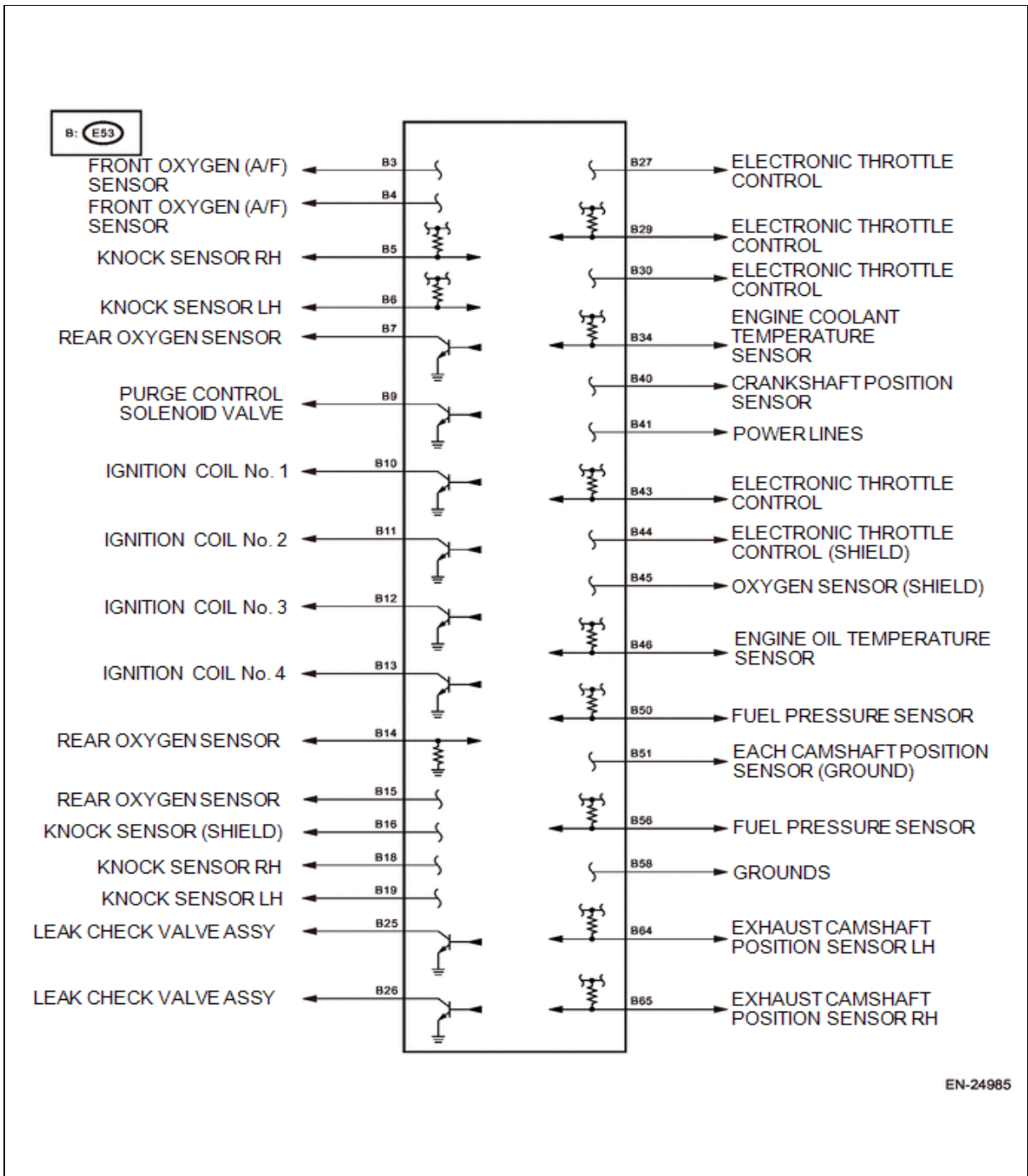
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A: B62

*1 : MT MODEL
 *2 : AT MODEL
 *3 : WITHOUT EyeSight

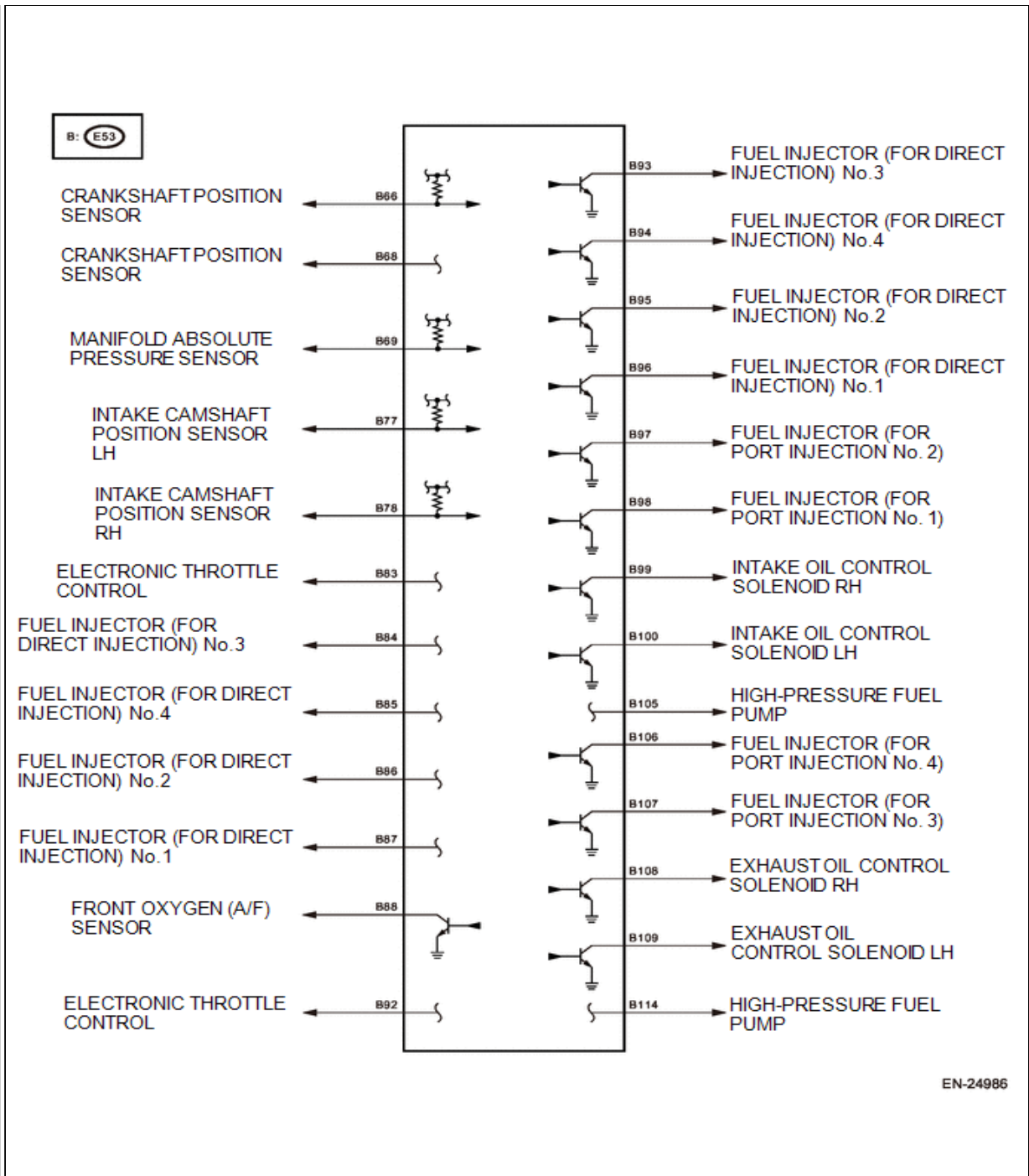


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EN-24985

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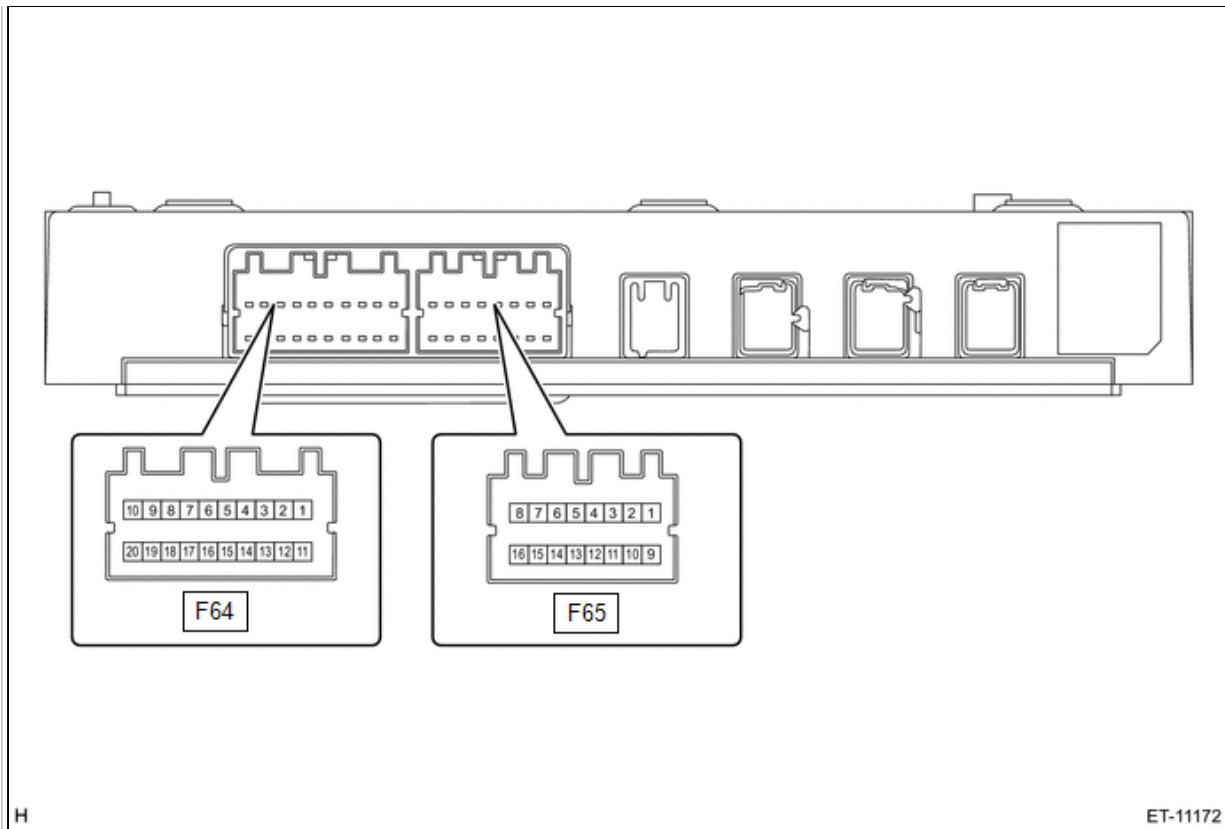


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TERMINALS OF ECM [11/2021 -] [TELEMATICS SYSTEM]

TERMINALS OF ECM [11/2021 -]





H

ET-11172

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1.	Terminal No.	Contents	Measuring condition	Standard
	F64-3 (LED_GREEN)	LED GREEN	-	-
	F64-4 (BUTTON_RS) - Chassis ground	i-button	i-button OFF → ON	1.6 kΩ or more → Less than 1 Ω
	F64-5 (BUTTON_SOS) - Chassis ground	SOS button	SOS button OFF → ON	1.6 kΩ or more → Less than 1 Ω
	F64-6 (DCM LC CAN_H)	DCM (telematics transceiver) local CAN H	-	-
	F64-7 ((J)_E/C CAN_L)	(J) Vehicle external connection CAN-L	-	-
	F64-8 (IGN) - Chassis ground	Ignition power supply	Ignition switch OFF → ON	Less than 1 V → 9 - 16 V
	F64-10 (VBATT) - Chassis ground	Battery power supply	Always	9 - 16 V
	F64-13 (LED_RED)	LED RED	-	-
	F64-14 (GND) - Chassis ground	GND	Always	Less than 1 Ω
	F64-16 (DCM LC CAN_L)	DCM (telematics transceiver) local CAN L	-	-
	F64-17 ((J)_E/C CAN_H)	(J) Vehicle external	-	-

	connection CAN-H		
F64-18 (AIRBAG)	Collision detection signal	-	-
F64-19 (MUTE)	MUTE	-	-
F64-20 (ACC) - Chassis ground	ACC	Ignition switch OFF → ACC ON	Less than 1 V → 9 - 16 V
F65-1 (FT LH-IN)	Front speaker input LH -	-	-
F65-2 (FT LH-OUT)	Front speaker output LH -	-	-
F65-3 (FT RH-IN)	Front speaker input RH -	-	-
F65-4 (FT_RH-OUT)	Front speaker output RH -	-	-
F65-5 (MIC SIGNAL OUT)	MIC signal OUT	-	-
F65-6 (MIC SIGNAL IN)	MIC signal IN	-	-
F65-8 (MIC_5V)	MIC 5 V	-	-
F65-9 (FT LH+IN)	Front speaker input LH +	-	-
F65-10 (FT_LH+OUT)	Front speaker output LH +	-	-
F65-11 (FT RH+IN)	Front speaker input RH +	-	-
F65-12 (FT_RH+ OUT)	Front speaker output RH +	-	-
F65-13 (MIC GND OUT) - Chassis ground	MIC GND OUT	Always	Less than 1 Ω
F65-14 (MIC GND IN)	MIC GND IN	-	-