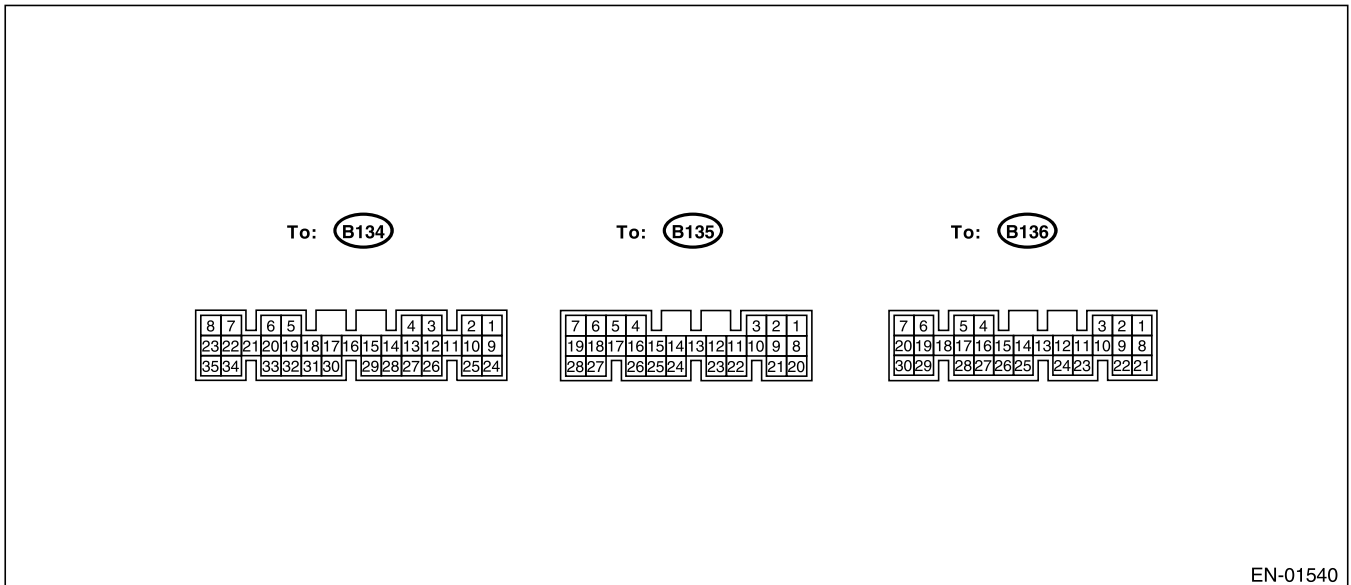


5. Engine Control Module (ECM) I/O Signal

A: ELECTRICAL SPECIFICATION



EN-01540

Engine Control Module (ECM) I/O Signal

ENGINE (DIAGNOSTICS)

Content		Connector No.	Terminal No.		Signal (V)		Note
					Ignition SW	Engine ON	
					ON (Engine OFF)	(Idling)	
Crankshaft position sensor	Signal (+)	B135	*2	1	0	±6	Sensor output waveform
	Signal (-)	B135	8		0	0	—
	Shield	B135	10		0	0	—
Camshaft position sensor	Signal (+)	B135	*1	2	0	±6	Sensor output waveform
	Signal (-)	B135	8		0	0	—
	Shield	B135	10		0	0	—
Intake air temperature sensor	Signal	B136	13		2.3 — 2.5	1.4 — 1.6	Ambient temperature: 25°C (77°F)
Throttle position sensor	Signal	B136	17		Fully closed: 0.5±0.3 Fully opened: 4.3±0.3		—
	Power supply	B136	15		5	5	—
	GND	B136	16		0	0	—
Oxygen sensor	Signal	B136	7		0		Rich mixture: 0.7 Lean mixture: 0
	Shield	B136	23		0	0	—
Engine coolant temperature sensor	Signal	B136	14		0.6 — 1.0	0.6 — 1.0	After warm-up
	GND	B136	16		0	0	—
Vehicle speed sensor		B135	24		0 or 5	0 or 5	"5" and "0" are repeatedly displayed when vehicle is driven.
Starter switch		B135	28		0	0	Cranking: 10 to 14
A/C switch		B135	27		ON: 10 — 13 OFF: 0	ON: 13 — 14 OFF: 0	—
Ignition switch		B135	7		10 — 13	13 — 14	—
Neutral position switch (MT)		B135	26		ON: 5 OFF: 0		Switch is ON when gear is in neutral position.
Park/Neutral position switch (AT)		B135	26		ON: 0 OFF: 5		Switch is ON when shift lever is in "P" or "N" position.
Test mode connector		B135	14		5	5	When connected: 0
Read memory connector		B135	15		5	5	When connected: 0
Back-up power supply		B136	9		10 — 13	13 — 14	—
Control unit power supply		B136	1		10 — 13	13 — 14	—
			2				
Ignition control	# 1, # 2	B134	25		0	3.4, max.	—
	# 3, # 4	B134	26		0	3.4, max.	—
Fuel injector	# 1	B134	4		10 — 13	13 — 14	Waveform
	# 2	B134	13		10 — 13	13 — 14	Waveform
	# 3	B134	14		10 — 13	13 — 14	Waveform
	# 4	B134	15		10 — 13	13 — 14	Waveform

*: With immobilizer

Engine Control Module (ECM) I/O Signal

ENGINE (DIAGNOSTICS)

Content		Connector No.	Terminal No.		Signal (V)		Note
					Ignition SW	Engine ON (Idling)	
					ON (Engine OFF)		
Idle air control solenoid valve	Signal 1	B134	5	—	1 — 13	Waveform	
	Signal 2	B134	6	—	1 — 13	Waveform	
	Signal 3	B134	19	—	1 — 13	Waveform	
	Signal 4	B134	20	—	1 — 13	Waveform	
Torque control signal 1		B135	16	5	5	—	
Torque control signal 2		B135	17	5	5	—	
Fuel pump relay control		B134	29*	16	ON: 0 OFF: 10 — 13	0	—
A/C relay control		B134	17	ON: 0 OFF: 10 — 13	ON: 0 OFF: 13 — 14	—	
Radiator fan relay 1 control		B134	3	ON: 0 OFF: 10 — 13	ON: 0 OFF: 13 — 14	—	
Radiator fan relay 2 control		B134	12	ON: 0 OFF: 10 — 13	ON: 0 OFF: 13 — 14	—	
Self-shutoff control		B135	19	10 — 13	13 — 14	—	
Malfunction indicator light		B134	11	—	—	Light "ON": 1, max. Light "OFF": 10 — 14	
Engine speed output		B134	30	—	0 — 13, min.	Waveform	
Knock sensor	Signal	B136	4	2.8	2.8	—	
	Shield	B136	25	0	0	—	
Manifold absolute pressure sensor	Signal	B136	5	3.4 — 3.6	1.2 — 1.8	—	
	Power supply		15	5	5	—	
	GND		16	0	0	—	
Purge control solenoid valve		B134	2	ON: 0 OFF: 10 — 13	ON: 0 OFF: 13 — 14	—	
GND (sensors)		B136	16	0	0	—	
GND (injectors)		B134	7	0	0	—	
GND (ignition system)		B134	27	0	0	—	
GND (power supply)		B134	8	0	0	—	
GND (control systems)		B136	21	0	0	—	
		B136	22	0	0	—	
Select monitor signal		B135	11	—	—	—	
			12	—	—	—	
Power steering switch		B135	13	ON: 0 OFF: 10 — 13	ON: 0 OFF: 10 — 13	—	
Torque control cut signal		B134	31	8	8	—	
AT load signal		B136	11	0 — 0.3	0.8 — 1.2	—	
MT/AT identification		B135	25	MT: 0 AT: 5	MT: 0 AT: 5	—	

*: With immobilizer