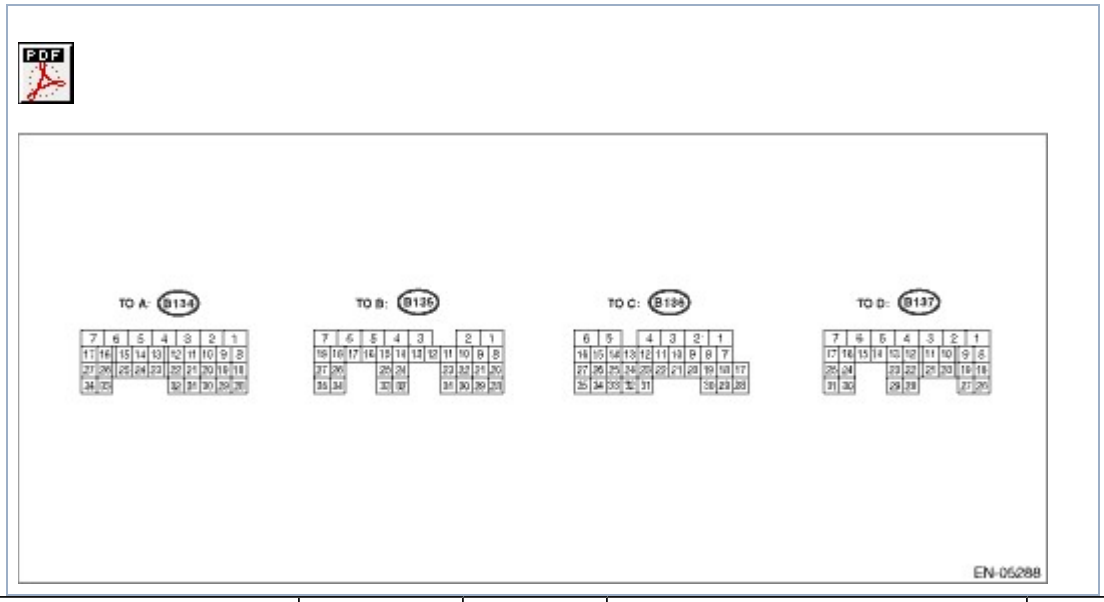
ENGINE (DIAGNOSTICS)(STI) > Engine Control Module (ECM) I/O Signal

ELECTRICAL SPECIFICATION



Description		Connector No.	Terminal No.	Signal (V)		Note
				Ignition SW ON (engine OFF)	Engine ON (idling)	
Crankshaft position sensor	Signal (+)	B134	13	0	−7 — +7	Waveform
	Signal (−)	B134	14	0	0	—
	Shield	B134	24	0	0	—
Rear oxygen sensor	Signal	B135	4	0	0 — 0.9	—
	Shield	B135	1	0	0	—
	GND (sensor)	B135	30	0	0	—
Front oxygen (A/F) sensor heater	Signal 1	B136	3	—	—	Waveform
	Signal 2	B136	2	—	—	Waveform
Rear oxygen sensor heater signal		B136	4	0 — 13	—	Waveform
Engine coolant temperature sensor	Signal	B134	34	1.0 — 1.4	1.0 — 1.4	After engine is warmed-up.
	GND (sensor)	B134	29	0	0	After engine is warmed-up.
Air flow sensor	Signal	B135	26	—	0.3 — 4.5	—
	Shield	B135	35	0	0	—
	GND	B135	34	0	0	—
		B135	18	0.3 — 4.6	0.3 — 4.6	—

Description		Connector No.	Terminal No.	Signal (V)		Note
				Ignition SW ON (engine OFF)	Engine ON (idling)	
Intake air temperature sensor signal						
Wastegate control solenoid valve		B137	27	0 or 10 — 13	0 or 12 — 14	Waveform
Starter switch		B136	32	0	0	Model without push button start Cranking: 8 — 14 Model with push button start Cranking: waveform
A/C switch		B136	24	ON: 10 — 13 OFF: 0	ON: 12 — 14 OFF: 0	—
Ignition switch		B135	19	10 — 13	12 — 14	—
Neutral position switch		B136	31	ON: 0 OFF: 10 — 13	ON: 0 OFF: 12 — 14	—
Delivery (test) mode connector		B135	27	10 — 13	12 — 14	When connected: 0
Knock sensor	Signal	B134	15	2.8	2.8	—
	Shield	B134	25	0	0	—
Back-up power supply		B135	5	10 — 13	12 — 14	Ignition switch "OFF": 10 — 13
Control module power supply		B134	7	10 — 13	12 — 14	—
		B135	2	10 — 13	12 — 14	—
Sensor power supply		B134	19	5	5	—
Ignition control	#1	B137	18	0	12 — 14	Waveform
	#2	B137	19	0	12 — 14	Waveform
	#3	B137	20	0	12 — 14	Waveform
	#4	B137	21	0	12 — 14	Waveform
Fuel injector	#1	B137	8	10 — 13	1 — 14	Waveform
	#2	B137	9	10 — 13	1 — 14	Waveform
	#3	B137	10	10 — 13	1 — 14	Waveform
	#4	B137	11	10 — 13	1 — 14	Waveform
Fuel pump control unit	Power supply	B136	12	0 or 10 — 13	12 — 14	—
	Signal	B135	33	0 or 5	0 or 5	Waveform

Description		Connector No.	Terminal No.	Signal (V)		Note
				Ignition SW ON (engine OFF)	Engine ON (idling)	
A/C relay control		B136	9	ON: 0.5 or less OFF: 10 — 13	ON: 0.5 or less OFF: 12 — 14	—
Radiator fan relay 1 control		B136	18	ON: 0.5 or less OFF: 10 — 13	ON: 0.5 or less OFF: 12 — 14	—
Radiator fan relay 2 control		B136	29	ON: 0.5 or less OFF: 10 — 13	ON: 0.5 or less OFF: 12 — 14	—
Malfunction indicator light		B136	11	—	—	Light "ON": 1 or less Light "OFF": 10 — 14
Engine speed output		B136	22	—	0 — 13 or more	Waveform
Purge control solenoid valve		B137	29	ON: 1 or less OFF: 10 — 13	ON: 1 or less OFF: 12 — 14	Waveform
Manifold absolute pressure sensor	Signal	B134	6	1.7 — 2.4	1.1 — 1.6	—
	Power supply	B134	19	5	5	
	GND (sensor)	B134	29	0	0	
Power steering oil pressure switch		B134	33	10 — 13	ON: 0 OFF: 12 — 14	—
Front oxygen (A/F) sensor signal (+)		B135	9	2.8 — 3.2	2.8 — 3.2	—
Front oxygen (A/F) sensor signal (−)		B135	8	2.4 — 2.7	2.4 — 2.7	—
Front oxygen (A/F) sensor shield		B135	1	0	0	—
SSM communication		B136	16	1 or less ⟷ 4 or more	1 or less ⟷ 4 or more	—
Electronic throttle control	Main	B134	18	0.64 — 0.72 Fully opened: 3.96	0.64 — 0.72 (After engine is warmed-up.)	Fully closed: 0.6 Fully opened: 3.96
	Sub	B134	28	1.51 — 1.58 Fully opened: 4.17	1.51 — 1.58 (After engine is warmed-up.)	Fully closed: 1.48 Fully opened: 4.17
		B134	19	5	5	—

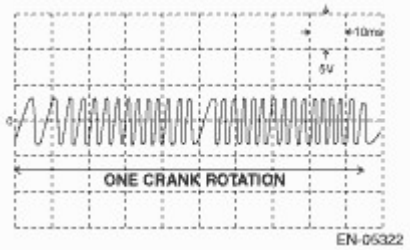
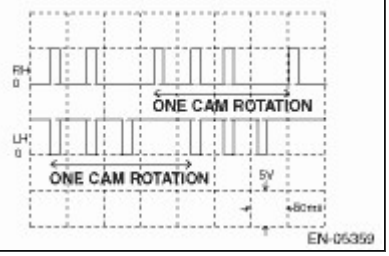
Description		Connector No.	Terminal No.	Signal (V)		Note
				Ignition SW ON (engine OFF)	Engine ON (idling)	
	Power supply					
	Ground (sensor)	B134	29	0	0	—
Electronic throttle control motor (+)		B137	5	Duty waveform	Duty waveform	Drive frequency: 500 Hz
Electronic throttle control motor (−)		B137	4	Duty waveform	Duty waveform	Drive frequency: 500 Hz
Electronic throttle control motor power supply		B136	1	10 — 13	12 — 14	—
Electronic throttle control motor relay		B136	21	ON: 0 OFF: 10 — 13	ON: 0 OFF: 12 — 14	When ignition switch is turned to ON: ON
Intake oil flow control solenoid valve (LH)	Signal (+)	B137	15	ON: 10 — 13 OFF: 0	ON: 12 — 14 OFF: 0	—
	Signal (−)	B137	14	0	0	—
Intake oil flow control solenoid valve (RH)	Signal (+)	B137	17	ON: 10 — 13 OFF: 0	ON: 12 — 14 OFF: 0	—
	Signal (−)	B137	16	0	0	—
Exhaust oil flow control solenoid valve (LH)	Signal (+)	B137	31	ON: 10 — 13 OFF: 0	ON: 12 — 14 OFF: 0	—
	Signal (−)	B137	30	0	0	—
Exhaust oil flow control solenoid valve (RH)	Signal (+)	B137	25	ON: 10 — 13 OFF: 0	ON: 12 — 14 OFF: 0	—
	Signal (−)	B137	24	0	0	—
Intake camshaft position sensor (LH)		B134	21	0 or 5	0 or 5	Waveform
Intake camshaft position sensor (RH)		B134	11	0 or 5	0 or 5	Waveform
Exhaust camshaft position sensor (LH)		B134	31	0	−7 — +7	Waveform
Exhaust camshaft position sensor (RH)		B134	12	0	−7 — +7	Waveform

Description		Connector No.	Terminal No.	Signal (V)		Note
				Ignition SW ON (engine OFF)	Engine ON (idling)	
Accelerator pedal position sensor	Main sensor signal	B135	23	Fully closed: 1 Fully opened: 3.3	Fully closed: 1 Fully opened: 3.3	—
	Shield	B136	6	0	0	—
	Main power supply	B135	21	5	5	—
	GND (main sensor)	B135	29	0	0	—
	Sub signal sensor	B135	31	Fully closed: 1 Fully opened: 3.3	Fully closed: 1 Fully opened: 3.3	—
	Sub power supply	B135	22	5	5	—
	GND (sub sensor)	B135	30	0	0	—
Starter relay		B136	20	ON: 0 OFF: 10 — 13	ON: 0 OFF: 12 — 14	ON: cranking
A/C middle pressure switch		B136	33	ON: 0 OFF: 10 — 13	ON: 0 OFF: 12 — 14	—
Clutch switch		B136	25	When clutch pedal is depressed: 0 When clutch pedal is released: 10 — 13	When clutch pedal is depressed: 0 When clutch pedal is released: 12 — 14	—
Brake switch 1		B135	20	When brake pedal is depressed: 0 When brake pedal is released: 10 — 13	When brake pedal is depressed: 0 When brake pedal is released: 12 — 14	—
Brake switch 2		B135	28	When brake pedal is depressed: 10 — 13	When brake pedal is depressed: 12 — 14	—

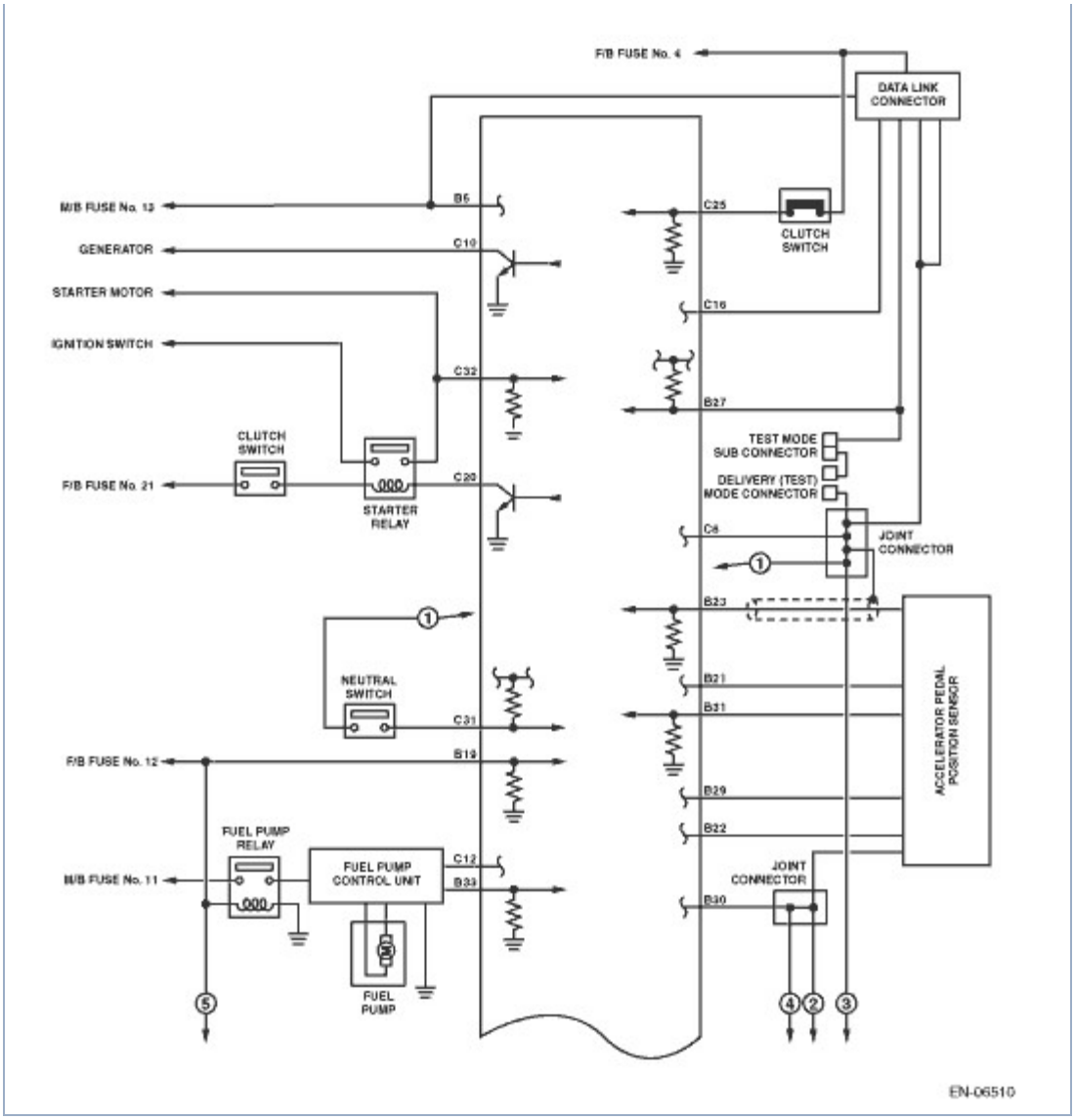
Description	Connector No.	Terminal No.	Signal (V)		Note
			Ignition SW ON (engine OFF)	Engine ON (idling)	
			When brake pedal is released: 0	When brake pedal is released: 0	
Cruise control command switch	B135	24	When operating nothing: 3.5 — 4.5 When operating RES/ACC: 2.5 — 3.5 When operating SET/COAST: 0.5 — 1.5 When operating CANCEL: 0 — 0.5	When operating nothing: 3.5 — 4.5 When operating RES/ACC: 2.5 — 3.5 When operating SET/COAST: 0.5 — 1.5 When operating CANCEL: 0 — 0.5	—
Cruise control main switch	B135	12	ON: 0 OFF: 5	ON: 0 OFF: 5	—
Immobilizer Signal 1	B136	26	—	—	Model without the push button start
Immobilizer Signal 2	B136	34	—	—	Model without the push button start
CAN communication (+)	B136	27	—	—	—
CAN communication (−)	B136	35	—	—	—
AT/MT identification	B136	15	0	0	—
Self-shutoff control	B136	23	0	0	—
Steering wheel switch signal	B136	14	0	0	—
Generator control	B136	10	0 — 6.5	0 — 6.5	—
Tumble generator valve position sensor signal (RH)	B134	26	Fully closed: 0.4 — 1.2 Fully opened: 2.8 — 4.6	Fully closed: 0.4 — 1.2 Fully opened: 2.8 — 4.6	—
	B134	16	Fully closed: 3.8 — 4.9	Fully closed: 3.8 — 4.9	—

Description		Connector No.	Terminal No.	Signal (V)		Note
				Ignition SW ON (engine OFF)	Engine ON (idling)	
Tumble generator valve position sensor signal (LH)				Fully opened: 0.2 — 0.9	Fully opened: 0.2 — 0.9	
Tumble generator valve RH (closed)		B137	23	0 or 10 — 13	0 or 12 — 14	—
Tumble generator valve LH (closed)		B137	13	0 or 10 — 13	0 or 12 — 14	—
Tumble generator valve RH (open)		B137	22	0 or 10 — 13	0 or 12 — 14	—
Tumble generator valve LH (open)		B137	12	0 or 10 — 13	0 or 12 — 14	—
Secondary air pipe pressure sensor	Signal	B134	27	2.2 — 2.8	2.2 — 2.8	When secondary air is inducted: 3.2 — 4.9
	Power supply	B134	19	5.12	5.12	—
	GND (sensor)	B134	29	0	0	
Secondary air combination valve relay		B135	15	ON: 0 OFF: 10 — 13	ON: 0 OFF: 12 — 14	—
Secondary air pump relay		B136	8	ON: 0 OFF: 10 — 13	ON: 0 OFF: 12 — 14	—
ID code box input		B135	16	—	—	Model with push button start
ID code box output		B136	19	—	—	Model with push button start
Accessory cut request		B135	3	10 — 13	12 — 14	Model with push button start Cranking: 0
Starter switch 2		B135	13	0	0	Model with push button start Cranking: 8 — 14
Starter cut relay		B136	30	0	0	Model with push button start

Description		Connector No.	Terminal No.	Signal (V)		Note
				Ignition SW ON (engine OFF)	Engine ON (idling)	
						Cranking: 8 — 14
Ground	Ignition system	B137	6	0	0	—
		B137	26	0	0	—
	Control system	B134	22	0	0	—
	Sensor	B134	29	0	0	—
	Engine 1	B134	5	0	0	—
	Engine 2	B137	7	0	0	—
	Engine 3	B137	2	0	0	—
	Engine 4	B137	1	0	0	—
	Engine 5	B137	3	0	0	—
	Body	B136	6	0	0	—

Input/output name	Measuring condition	Waveform
1. Crankshaft position sensor	At idling	
2. Camshaft position sensor	At idling	

- Model without push button start


F/B FUSE No. 4
DATA LINK CONNECTOR
M/B FUSE No. 12
B6
C25
CLUTCH SWITCH
GENERATOR
C10
C16
STARTER MOTOR
IGNITION SWITCH
C32
B27
TEST MODE SUB CONNECTOR
CLUTCH SWITCH
DELIVERY (TEST) MODE CONNECTOR
F/B FUSE No. 21
C20
STARTER RELAY
C6
JOINT CONNECTOR
1
B23
NEUTRAL SWITCH
B21
C31
B31
F/B FUSE No. 12
B19
B29
ACCELERATOR PEDAL POSITION SENSOR
FUEL PUMP RELAY
B22
C12
FUEL PUMP CONTROL UNIT
JOINT CONNECTOR
M/B FUSE No. 11
B33
B30
FUEL PUMP
5
4
2
3
EN-06510