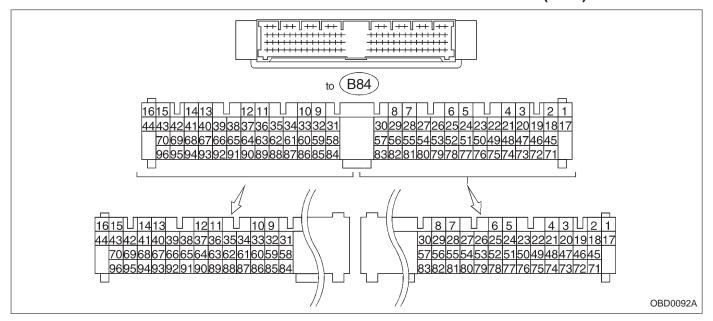
5. Specified Data

1. ENGINE CONTROL MODULE (ECM) I/O SIGNAL



Content		Connector No.	Terminal - No.	Signa	al (V)		
				Ignition SW ON (Engine OFF)	Engine ON (Idling)	Note	
Crankshaft Signal (+)		B84	8	0	-7 — +7	Sensor output waveform	
position	Signal (-)	B84	29	0	0	_	
sensor Shield		B84	54	0	0	_	
Camshaft	Signal (+)	B84	7	0	-7 — +7	Sensor output waveform	
position	Signal (-)	B84	28	0	0		
sensor	Shield	B84	54	0	0	_	
	Signal	B84	5	0 — 0.3	0.8 — 1.2	_	
Mass air flow sensor	Shield	B84	57	0	0	_	
	GND	B84	53	0	0	_	
Throttle	Signal	B84	6	Fully closed: 0.2 — 1.0 Fully opened: 4.2 — 4.7		_	
position sensor	Power supply	B84	21	5	5	_	
	GND	B84	20	0	0	_	
Front	Signal	B84	23	0	0 — 0.9	_	
oxygen sensor	Shield	B84	56	0	0	_	
Rear	Signal	B84	24	0	0 — 0.9	_	
oxygen sensor	Shield	B84	56	0	0	_	
Engine coola temperature		B84	22	1.0 — 1.4	1.0 — 1.4	After warm-up	
Vehicle speed sensor 2		B84	83	0 or 5	0 or 5	"5" and "0" are repeatedly displayed when vehicle is driven.	
Starter switch	:h	B84	86	0	0	Cranking: 8 to 14	
A/C switch		B84	60	ON: 10 — 13 OFF: 0	ON: 13 — 14 OFF: 0	_	
Ignition switch		B84	85	10 — 13	13 — 14	_	
Neutral position switch (MT)		- B84	82	ON: 5.0±0.5 OFF: 0		On MT model; switch is ON when gear is in neutral position.	
Neutral position switch (AT)		B84 82		ON: 0 OFF: 5.0±0.5		On AT model; switch is ON when shift is in "N" or "P" position.	
Test mode connector		B84	84	5	5	When connected: 0	

Note					Signal (V)		
Sensor Shield B84 58 D D C C C C C C C C					Ignition SW ON		Note
AT/MT identification		Signal	nal B84 3 2.8 2.8		2.8	_	
Service Serv	sensor	Shield	B84	56		<u> </u>	_
Control unit power supply	AT/MT ident	ification	B84	81	(MT) 0	(MT) 0	ECM and body.
	Back-up pov	ver supply	B84	39	10 — 13	13 — 14	Ignition switch "OFF": 10 — 13
# 3, # 4 B84 40 0 1 -3.4	Control unit	power supply	B84		10 — 13	13 — 14	_
Control # 3, # 4 B84 40 0 1 - 3.4 - -	Ignition	# 1, # 2	B84	41	0	1 — 3.4	_
Fuel to Fuel		# 3, # 4	B84	40	0	1 — 3.4	_
Figure		# 1	B84	96	10 — 13	1 — 14	Waveform
#4	Fuel	# 2	B84	70	10 — 13	1 — 14	Waveform
Ide air OPEN end B84	injector	# 3	B84	44	10 — 13	1 — 14	Waveform
CALOSE end B84 13		# 4	B84	16	10 — 13	1 — 14	Waveform
Valve CLOSE end B84 13 — 13 — 1 Waveform Fuel pump relay control B84 32 ON- 0.5, or less OFF: 10 — 13 0.5, or less — A/C relay control B84 31 ON: 0.5, or less OFF: 10 — 13 ON: 0.5, or less OFF: 13 — 14 — Radiator fan relay 1 control B84 74 ON: 0.5, or less OFF: 13 — 14 — Radiator fan relay 2 control B84 73 ON: 0.5, or less OFF: 13 — 14 — Radiator fan relay 2 control B84 63 10 — 13 13 — 14 — Radiator fan relay 2 control B84 63 10 — 13 13 — 14 — Malfunction indicator lamp B84 58 — — Light 'ON': 1, or less OFF: 10 — 13 ON: 1, or more Waveform Torque control signal B84 64 — 0 — 13, or more Waveform Torque control solenoid valve B84 47 0 — 0.3 0.8 — 1.2 — Purge control solenoid valve B84 72 ON: 1, or less OFF: 10 — 13 ON:	control	OPEN end	B84	14	_	1 — 13	Waveform
A/C relay control B84 31 OFF: 10 - 13 OS. of ress OFF: 13 - 14 OFF		CLOSE end	B84	13	_	13 — 1	Waveform
Radiator fan relay 1	Fuel pump r	elay control	B84	32		0.5, or less	_
Radiator fan relay 2	A/C relay co	ontrol	B84	31			_
Self-shutoff control B84 63 10 - 13 13 - 14		relay 1	B84	74			_
Matfunction indicator lamp B84 58 — — Light "ON": 1, or less Light "OFF: 10 — 14 Engine speed output B84 64 — 0 − 13, or more Waveform Torque control signal B84 79 5 5 — Mass air flow signal for AT B84 47 0 − 0.3 0.8 − 1.2 — Purge control solenoid valve B84 72 ON: 1, or less OFF: 10 − 13 ON: 1, or less OFF: 13 − 14 — Atmospheric pressure sources sensor B84 15 ON: 1, or less OFF: 10 − 13 OFF: 13 − 14 — Fresure sources sensor sensor heater signal B84 71 ON: 1, or less OFF: 10 − 13 OFF: 13 − 14 — Front oxygen sensor heater signal B84 38 0 − 1.0 0 − 1.0 — Fuel temperature sensor B84 25 2.5 − 3.8 2.5 − 3.8 2.5 − 3.8 • 2200 cc AWD except Taiwan spec. vehicles expect vehicles Fuel temperature sensor B84 27 0.12 − 4.75 0.12 − 4.75 2.3 − 2.7 • 2200 cc AWD except Taiwan spec. vehicles • The value				73			With A/C vehicles only
Engine speed output B84 64	Self-shutoff control		B84	63	10 — 13	13 — 14	_
Torque control signal	Malfunction	indicator lamp	B84	58	_	_	Light "ON": 1, or less Light "OFF": 10 — 14
Mass air flow signal for AT B84 47 0 − 0.3 0.8 − 1.2 − Purge control solenoid valve B84 72 ON: 1, or less OFF: 10 − 13 ON: 1, or less OFF: 13 − 14 − Atmospheric pressure sensor sensor B84 26 3.9 − 4.1 2.0 − 2.3 − Pressure sources switching solenoid valve B84 15 ON: 1, or less OFF: 10 − 13 OFF: 13 − 14 − EGR solenoid valve B84 71 ON: 1, or less OFF: 10 − 13 OFF: 13 − 14 − Front oxygen sensor heater signal B84 38 0 − 1.0 0 − 1.0 − Rear oxygen sensor heater signal B84 37 0 − 1.0 0 − 1.0 − Fuel temperature sensor B84 25 2.5 − 3.8 2.5 − 3.8 2.5 − 3.8 2.200 cc AWD except Taiwan spec. vehicles • Ambient temperature: 25°C (77°F) Fuel temperature sensor B84 27 0.12 − 4.75 0.12 − 4.75 2200 cc AWD except Taiwan spec. vehicles • Ambient temperature: 25°C (77°F) Fuel tank pressure sensor heater supply B84 21 5 5 −	Engine speed output		B84	64	_	0 — 13, or more	Waveform
Purge control Solenoid Sol	Torque cont	rol signal	B84	79	5	5	_
valve B64 72 OFF: 10 — 13 OFF: 13 — 14 — Atmospheric pressure sensor sensor B84 26 3.9 — 4.1 2.0 — 2.3 — Pressure sources switching solenoid valve B84 15 ON: 1, or less OFF: 10 — 13 ON: 1, or less OFF: 13 — 14 — EGR solenoid valve B84 71 ON: 1, or less OFF: 10 — 13 ON: 1, or less OFF: 13 — 14 — Front oxygen sensor heater signal B84 38 0 — 1.0 0 — 1.0 — Rear oxygen sensor heater signal B84 37 0 — 1.0 0 — 1.0 — Fuel temperature sensor B84 25 2.5 — 3.8 2.5 — 3.8 2.5 — 3.8 • 2200 cc AWD except Taiwan spec. vehicles • Ambient temperature: 25°C (77°F) Fuel level sensor B84 27 0.12 — 4.75 0.12 — 4.75 2200 cc AWD except Taiwan model • 2200 cc AWD except Taiwan spec. vehicles • The value obtained after the fuel filler cap was removed once and recapped. Fuel tank pressure control solenoid valve B84 20 0 0 — Fuel tank pressure control solenoid valve B84 10 ON: 1,		w signal for	B84	47	0 — 0.3	0.8 — 1.2	_
Sensor S		ol solenoid	B84	72	ON: 1, or less OFF: 10 — 13	ON: 1, or less OFF: 13 — 14	_
Switching solenoid valve		pressure	B84	26	3.9 — 4.1	2.0 — 2.3	_
Power supply B84 21 Signal B84 25 Signal B84 26 Signal B84 27 Signal B84 28 Signal B84 28 Signal B84 Signal B84 Signal B84 Signal B84 Signal B84 Signal B84 Signal Signal B84 Signal B84 Signal Signal B84 Signal Signal B84 Signal Signa			B84	15			_
Rear oxygen sensor heater signal B84 37 0 - 1.0 0 - 1.0 -	EGR soleno	id valve	B84	71			_
heater signal B64 37 0 — 1.0 0 — 1.0 — Fuel temperature sensor B84 25 2.5 — 3.8 2.5 — 3.8 • 2200 cc AWD except Taiwan spec. vehicles • Ambient temperature: 25°C (77°F) Fuel level sensor B84 27 0.12 — 4.75 0.12 — 4.75 2200 cc AWD except Taiwan model Fuel tank pressure sensor Signal B84 4 2.3 — 2.7 2.3 — 2.7 • 2200 cc AWD except Taiwan spec. vehicles • The value obtained after the fuel filler cap was removed once and recapped. Power supply B84 21 5 5 — GND B84 20 0 0 — Fuel tank pressure control solenoid valve B84 10 ON: 1, or less OFF: 10 — 13 ON: 1, or less OFF: 13 — 14 2200 cc AWD except Taiwan spec. vehicles Vent control solenoid valve B84 35 ON: 1, or less OFF: 10 — 13 ON: 1, or less OFF: 13 — 14 2200 cc AWD except Taiwan spec. vehicles			B84	38	0 — 1.0	0 — 1.0	_
Fuel temperature sensor B84 25 2.5 — 3.8 2.5 — 3.8 spec. vehicles Ambient temperature: 25°C (77°F) Fuel level sensor B84 27 0.12 — 4.75 0.12 — 4.75 2200 cc AWD except Taiwan model Fuel tank pressure sensor Signal B84 4 2.3 — 2.7 2.3 — 2.7 2.3 — 2.7 • The value obtained after the fuel filler cap was removed once and recapped. Power supply B84 21 5 5 — GND B84 20 0 0 — Fuel tank pressure control solenoid valve B84 10 ON: 1, or less OFF: 10 — 13 ON: 1, or less OFF: 13 — 14 2200 cc AWD except Taiwan spec. vehicles Vent control solenoid valve B84 35 ON: 1, or less OFF: 13 — 14 ON: 1, or less OFF: 13 — 14 200 cc AWD except Taiwan spec. vehicles			B84	37	0 — 1.0	0 — 1.0	_
Signal	Fuel temper	<u> </u>		25	2.5 — 3.8	2.5 — 3.8	spec. vehicles • Ambient temperature: 25°C
Fuel tank pressure sensor Signal B84 4 2.3 - 2.7 2.3 - 2.7 2.3 - 2.7 Evalue obtained after the fuel filler cap was removed once and recapped. Power supply B84 21 5 5	Fuel level sensor		B84	27	0.12 — 4.75	0.12 — 4.75	2200 cc AWD except Taiwan model
Fower Supply B84 21 5 5 —	pressure	Signal	B84	4	2.3 — 2.7	2.3 — 2.7	spec. vehicles The value obtained after the fuel filler cap was removed once and
Fuel tank pressure control solenoid valve B84 10 ON: 1, or less OFF: 10 — 13 ON: 1, or less OFF: 13 — 14 Vent control solenoid valve B84 35 ON: 1, or less OFF: 13 — 14	Sensor		B84	21	5	5	_
		GND	B84	20	0	0	
valve OFF: 10 — 13 OFF: 13 — 14 vehicles			B84	10			
TCS signal B84 61 $0-7$ $0-7$ Waveform			B84	35			
	TCS signal	TCS signal		61	0 — 7	0 — 7	Waveform

ON-BOARD DIAGNOSTICS II SYSTEM

	Connector No.	Terminal No.	Signa	al (V)	
Content			Ignition SW ON (Engine OFF)	Engine ON (Idling)	Note
AT diagnosis input signal	B84	80	Less than 1 ↔ More than 4	Less than 1 ↔ More than 4	Waveform
GND (sensors)	B84	20	0	0	_
CND (injectors)	B84	69	0	0	
GND (injectors)		95			_
GND (ignition system)	B84	94	0	0	_
CND (nower aunnly)	B84	19	0	0	
GND (power supply)		46			_
CND (southel systems)	B84	17	0	0	
GND (control systems)		18			_
GND (oxygen sensor heater)	B84	42	0	0	_

2. ENGINE CONDITION DATA

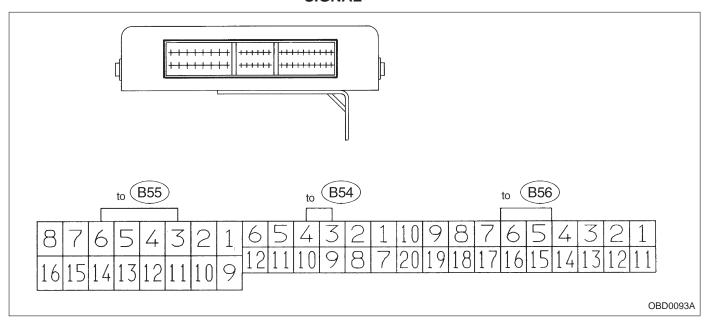
Content	Model	Specified data
	2200 cc	1.7 — 3.3 (g/sec): Idling
Mass air flow	2200 CC	7.1 — 14.2 (g/sec): 2,500 rpm racing
Iviass all flow	2500 cc	2.2 — 4.2 (g/sec): Idling
	2500 00	8.6 — 14.5 (g/sec): 2,500 rpm racing
	2200 cc	1.6 — 2.9 (%): Idling
Engine load	2200 00	6.4 — 12.8 (%): 2,500 rpm racing
Eligilie load	2500 cc	1.9 — 3.5 (%): Idling
	2500 CC	7.2 — 12.1 (%): 2,500 rpm racing

- Measuring condition:

 After warm-up the engine.

 Gear position is in "N" or "P" position.
- A/C is turned OFF.
- All accessory switches are turned OFF.

3. TRANSMISSION CONTROL MODULE (TCM) I/O SIGNAL



Check with ignition switch ON.

Content		Connector No.	or Terminal Measuring conditions		Voltage (V)
Back-up power supply		B56	14	Ignition switch OFF	10 — 16
Ignition power supply		B54 B55	Ignition switch		10 — 16
			9	Selector lever in "P" range	Less than 1
	"P" range switch	B56		Selector lever in any other than "P" range	More than 8
			8	Selector lever in "N" range	Less than 1
	"N" range switch	B56		Selector lever in any other than "N" range	More than 8
				Selector lever in "R" range	Less than 1
	"R" range switch	B56	10	Selector lever in any other than "R" range	More than 6
			1	Selector lever in "D" range	Less than 1
Inhibitor switch	"D" range switch	B54		Selector lever in any other than "D" range	More than 6
	"3" range switch	B54	2	Selector lever in "3" range	Less than 1
				Selector lever in any other than "3" range	More than 6
	"2" range switch	B54	3	Selector lever in "2" range	Less than 1
				Selector lever in any other than "2" range	More than 6
				Selector lever in "1" range	Less than 1
	"1" range switch	B54	4	Selector lever in any other than "1" range	More than 6
Proko	owitch	B56	7	Brake pedal depressed	More than 10.5
Diake	Brake switch		,	Brake pedal released	Less than 1
ABS signal		B56	5	ABS switch ON	Less than 1
		B00	5	ABS switch OFF	More than 6.5
AT diagnostics signal		B55	12	Ignition switch ON (with engine OFF)	Less than 1
AT diagnostics signal		B00	12	Ignition switch ON (with engine ON)	More than 10
Diamenta suitate		B56	6	Diagnosis connector connected.	Less than 1
Diagnosis switch		B00	6	Diagnosis connector disconnected.	More than 6

Content	Connector No.	Terminal No.	Measuring conditions	Voltage (V)	Resistance to body (ohms)	
Throttle position	B54	8	Throttle fully closed.	0.3 — 0.7		
sensor		0	Throttle fully open.	4.3 — 4.9	_	
Throttle position sensor power supply	B56	19	Ignition switch ON (with engine OFF)	4.8 — 5.3	_	
ATF temperature	B54	10	ATF temperature 20°C (68°F)	2.9 — 4.0	2.1 k — 2.9 k	
sensor	D34	10	ATF temperature 80°C (176°F)	1.0 — 1.4	275 — 375	
Vehicle speed			Vehicle stopped.	0		
sensor 1			Vehicle speed at least 20 km/h (12 MPH)	More than 1 (AC range)	450 — 720	
Vehicle speed sensor 2	B56	11	When vehicle is slowly moved at least 2 meters (7ft).	Less than 1↔More than 9	_	
Engine speed signal	B54	5	Ignition switch ON (with engine OFF).	More than 10.5	_	
orginal			Ignition switch ON (with engine ON).	8 — 11		
Cruise set signal	B56	3	When cruise control is set (SET lamp ON).	Less than 1	_	
		3	When cruise control is not set (SET lamp OFF).	More than 6.5		
Torque control signal	B55	16	Ignition switch ON	4 — 6	_	
Mass air flow signal	B54	9	Engine idling after warm-up	0.5 — 1.2	_	
Shift solenoid 1	B55	14	1st or 4th gear	More than 9	20 — 32	
			2nd or 3rd gear	Less than 1		
Shift solenoid 2	B55	13	1st or 2nd gear	More than 9	20 — 32	
			3rd or 4th gear	Less than 1		
Shift solenoid 3	B55	15	Selector lever in "N" range (with throttle fully closed). Selector lever in "D" range (with	Less than 1	20 — 32	
			throttle fully closed). `	More than 9		
Duty solenoid A	B55	8	Throttle fully closed (with engine OFF) after warm-up.	2.0 — 4.0	2.0 — 4.5	
			Throttle fully open (with engine OFF) after warm-up.	Less than 1		
Dropping resistor	B55	7	Throttle fully closed (with engine OFF) after warm-up.	More than 8.5	12 — 18	
			Throttle fully open (with engine OFF) after warm-up.	Less than 1		
Duty solenoid B	B55	5	When lock up occurs.	More than 8.5	9 — 17	
,			When lock up is released.	Less than 0.5		
Duty solenoid C AWD model only)	B55	3	Fuse on FWD switch Fuse removed from FWD switch (with throttle fully open and with select lever in 1st gear).	More than 8.5 Less than 0.5	9 — 17	
Sensor ground line 1	B54	7	_	0	Less than 1	
Sensor ground line 2	B56	20	_	0	Less than 1	
System ground line	B56	1	_	0	Less than 1	
Power system ground line	B55	10	_	0	Less than 1	
FWD switch (AWD model only)	B56	2	Fuse removed. Fuse installed.	6 — 9.1 Less than 1		
Data link signal		12	_	_		
(Subaru select monitor)	B56	13	_		_	
AT diagnosis signal	B56	11	Ignition switch ON	Less than 1 ↔ More than 4	_	