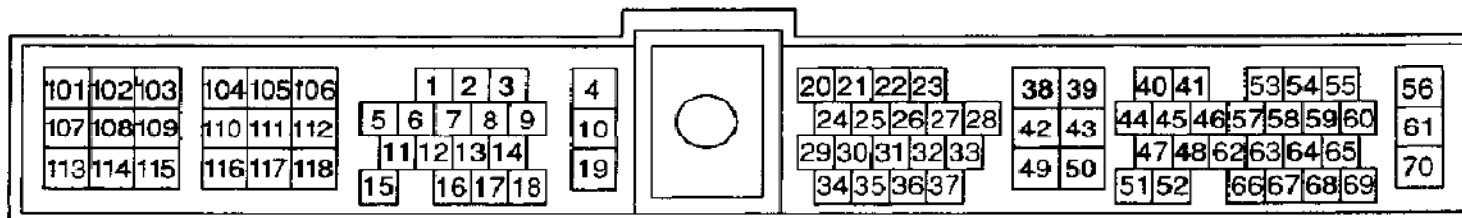

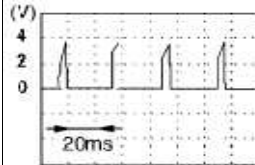

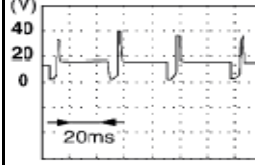

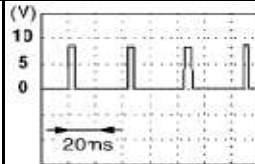























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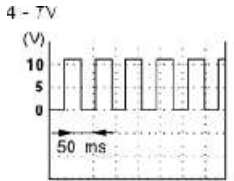







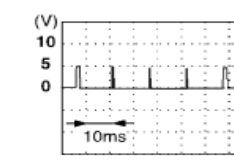

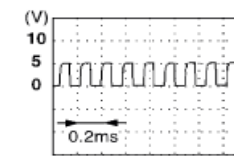

by jserrano (www.nissanclub.com)


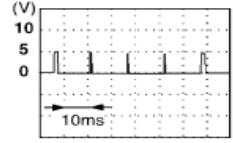

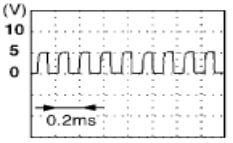

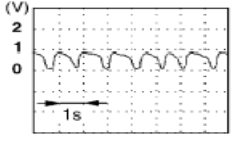







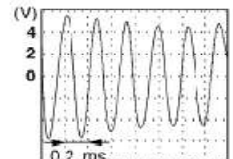


















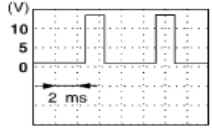

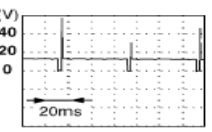
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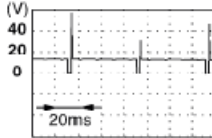


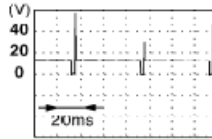

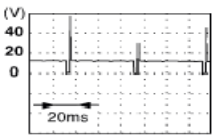





Pin	Color	Name	Symbol	Description	Signal
1		Ignition Signal	IGN	This pulse signal drives the base of the ignition power transistor and switches it ON and OFF. The power transistor will then in turn cycle the primary side of the ignition coil ON and OFF.	
2		Ignition Check	IGNCK	This ignition signal is a feedback for the ECU to monitor the status of the primary ignition system.	
3		Tachometer	TACHO	This pulse signal drives the tachometer in the instrument cluster.	
4		ECM Relay Ground (self-shutoff)	SSOFF	The ECU will provide this ground to the ECM Relay when the ignition switch is set to ON (sensed on pin 38). When the ignition switch is switched OFF, power will drop out from pin 38 and the ECU will then provide battery voltage to this relay to put the ECU in standby. It take a few seconds for the ECU to go into standby.	0 - 1V
5		N/A ??????		No pinout connection.	BATTERY VOLTAGE (11 - 14V)
6		ECM Ground ???????	GND	This ECU ground comes from two engine grounding points located at the topside of the upper intake manifold.	Engine ground
7		A/T Check Signal	ATCK	This line is used by the ATCU to inform the ECU when it has encountered a problem. In which case, the ATCU will set the O/D light while the ECU with set the Check Engine light.	6.0 -16.0V
8		Fuel Pump Relay	FPR	This ECU provided ground enables the fuel pump relay during fuel pump priming (5 seconds) or while the engine is running. The <u>only</u> time is goes to battery voltage is after the fuel pump priming function.	Approximately 0.8V
9		Air conditioning Triple-pressure switch	ARCON	This signal informs the ECU when the A/C liquid tank is under- or over-pressurized. It also controls the cooling fans operation to equalize the pressure buildup.	Triple-pressure position, ON: 0.1V, OFF: ~6.0V - 16.0V


10	 B	ECM Ground	GND-I	The ECU provided ground goes to various sensors. The original ground comes from two engine grounding points located at the topside of the upper intake manifold.	Engine ground
11	 B	ECM Ground	GND-I	The ECU provided ground goes to various sensors. The original ground comes from two engine grounding points located at the topside of the upper intake manifold.	Engine ground
12	 B	ECM Ground	GND-I	The ECU provided ground goes to various sensors. The original ground comes from two engine grounding points located at the topside of the upper intake manifold.	Engine ground
13	 LG	Cooling Fan Relay (high speed)	RFRH	The ECU will provide ground to this relay when it needs to operate the cooling fans at high speed. Also, it will provide battery voltage to this relay when it needs to turn OFF the cooling fans.	0.7V BATTERY VOLTAGE (11 - 14V)
14	 LG/R	Cooling Fan Relay (low speed)	RFRL	The ECU will provide ground to this relay when it needs to operate the cooling fans at low speed. Also, it will provide battery voltage to this relay when it needs to turn OFF the cooling fans.	0.7V BATTERY VOLTAGE (11 - 14V)
15	 Y/L	Air Conditioner Relay	ACRLY	The ECU will provide ground when both the A/C and blower fan switches are turned ON. It will provide battery voltage when it needs to turn OFF the relay.	0.7V BATTERY VOLTAGE (11 - 14V)
16	 Y/L	Air Conditioner Relay	ACRLY	The ECU will provide ground when both the A/C and blower fan switches are turned ON. It will provide battery voltage when it needs to turn OFF the relay.	0.7V BATTERY VOLTAGE (11 - 14V)
17	 Y/L	Air Conditioner Relay	ACRLY	The ECU will provide ground when both the A/C and blower fan switches are turned ON. It will provide battery voltage when it needs to turn OFF the relay.	0.7V BATTERY VOLTAGE (11 - 14V)
18	 OR	Malfunction Indicator Lamp	LED-R	This wire turns on the MIL. It flashes when the ECU is set to diagnostic mode, set to oxygen sensor testing, or the engine is misfiring. It is normally turned OFF by applying battery voltage.	Approximately 0.1V BATTERY VOLTAGE (11 - 14V)
19	 B	ECM Ground	GND-I	The ECU provided ground goes to various sensors. The original ground comes from two engine grounding points located at the topside of the upper intake manifold.	Engine ground
20	 G/B	Start Signal	STSW	The ignition switch provides battery power to this pin to tell the ECU to go into START mode.	Approximately 0.1V BATTERY VOLTAGE (11 - 14V)
21	 LG/B	Air Conditioner Switch	A/C SW	This signal informs the ECU when the A/C is switched ON (~0.1V). The ECU response by increasing idle speed to improve idling and reduce emissions. During heavy engine load, the ECU will turn OFF the A/C clutch relay to disengage the A/C clutch.	A/C switch position, ON: 0.1V, OFF: ~11-14V
22	 G/OR	Park/Neutral Position Switch	PNPSW	The ECU senses the ground from this switch when the transmission in either in Park or Neutral.	Gear selector position, Neutral: 0.1V, not-Neutral: ~5.0V
23	 W	Throttle Position Sensor	TVI1	This DC voltage varies with the position of the throttle plate. The ECU sends a 5 volts reference to this sensor and then senses how much of it comes back from this line. This voltage represents the angular degrees of opening (max=90 degrees).	0.3 - 4.0V
24	 BR/R	Automatic Transmission Data Line #1	DT1	This A/T data transmission line #1 is used in conjunction with DT2 & DT3 to control the smooth shifting up and down of the AT during hard acceleration and deceleration.	6 - 8V
25	 G/Y	Power Steering Pressure Switch	PWST	The ECU senses this switch to detect when the steering wheel is turning at low speeds. It will quickly increase the idle to compensate for the additional engine load.	Steering wheel position, Turning: 0.1V, Straight: > 4.4V

26	 Y/G	Vehicle Speed Sensor	VSP	The vehicle speed sensor is installed in the transaxle. It sends a signal to the speedometer, which will in turn sends it out to the ECU, ATCU, and cruise control unit.	
27					
28	 L	Intake Air Temperature Sensor	TA	This DC voltage varies with the intake air temperature. The voltage decreases as the intake air temperature rises. This sensor is only used for diagnostics, never for air/fuel mixture control.	0 - 5.0V
29	 L/R	Automatic Transmission Data Line #2	DT2	This A/T data transmission line #2 is used in conjunction with DT1 & DT3 to control the smooth shifting up and down of the AT during hard acceleration and deceleration.	6 - 8V
30	 BR/W	Automatic Transmission Data Line #3	DT3	This A/T data transmission line #3 is used in conjunction with DT1 & DT2 to control the smooth shifting up and down of the AT during hard acceleration and deceleration.	0V
31					
32					
33	 W/R	Throttle Position Sensor	TVI1	This DC voltage varies with the position of the throttle plate and represents the angular degrees of opening (max=90 degrees). This signal is solely provided for the ATCU. .	0.4 - 5.0V
34					
35					
36					
37					
38	 B/R	Ignition Switch	IGNSW	The ignition switch provides battery power to this pin to tell the ECU that the ignition switch is ON or STARTing.	Approximately 0.1V BATTERY VOLTAGE (11 - 14V)
39	 B	ECM Ground	GND-C	The ECU provided ground goes to various sensors. The original ground comes from two engine grounding points located at the topside of the upper intake manifold.	Engine ground
40	 L	Camshaft Position Sensor (Reference signal)	REF	The pulse signal represents the TDC of all cylinders. The #1 cylinder is differentiated by a long pulse width. This signal is referred to a 180° signal. It originates from 4 slits of a photo diode/sensor disc (Optronic) inside the distributor. This wire is also paired up with pin 44.	
41	 L	Camshaft Position Sensor (Position signal)	POS	The pulse signal represents the 1° rotation of the crankshaft. There are 360 slits of a photo diode/sensor disc (Optronic) inside the distributor. This wire is also paired up with pin 45.	
42					
43	 B	ECM Ground	GND-C	The ECU provided ground goes to various sensors. The original ground comes from two engine grounding points located at the topside of the upper intake manifold.	Engine ground

44	 L	Camshaft Position Sensor (Reference signal)	CMP1	The pulse signal represents the TDC of all cylinders. The #1 cylinder is differentiated by a long pulse width. This signal is referred to a 180° signal. It originates from 4 slits of a photo diode/sensor disc (Optronic) inside the distributor. This wire is also paired up with pin 40.	0.2 - 0.4V 
45	 L	Camshaft Position Sensor (Position signal)	CMP2	The pulse signal represents the 1° rotation of the crankshaft. There are 360 slits of a photo diode/sensor disc (Optronic) inside the distributor. This wire is also paired up with pin 41.	Approximately 2.3 - 2.5V 
46	 W	Front Heated Oxygen Sensor	O2	When the ECU enters O2 sensor mixture feedback called closed loop, it will continuously monitor that this sensor's output voltage swings between 0 -1 volts. When the engine is running at stoichiometric (AFR = 14.7), it should swing at least five (5) times across the centerline of 0.5 volts (500 mV) within ten (10) seconds. Changes outside these parameters causes the ECU to identify areas needing long term fuel trim corrections.	0 - Approximately 1.0V 
47	 OR	Mass Airflow Sensor	QA+	This DC voltage signal carries the representation of the amount of intake air flow sensed by the MAF hot-wire. The value varies with engine speed and is sent to the ECU for calculating fuel and ignition requirements.	0.8 - 3.0V
48	 W	Mass Airflow Sensor Ground	QA-	This ground is provided by the ECU solely for the MAF.	0.005 - 0.02V
49	 R/Y	Throttle Position Sensor Power Supply	TPSPS	This is the 5V reference that the ECU provides to the TPS.	Approximately 5.0V
50	 B	ECM Sensor Ground	GND-A	The ECU provided ground goes to various sensors. The original ground comes from two engine grounding points located at the topside of the upper intake manifold.	Engine ground
51	 L/OR	Engine Coolant Temperature Sensor	TW	This DC voltage varies with the engine coolant temperature. The voltage decreases as the coolant temperature rises.	0 - 5.0V
52	 W	Rear Heated Oxygen Sensor	O2SR	This signal provides the ECU and indication of the state of the three-way catalytic (TWC) converter functionality. With a fully warmed up system this signal will swing and follow what the front oxygen sensor is doing.	0 - Approximately 1.0V
53	 W	Crankshaft Position Sensor	RGC/S	The CKP provides the ECU a crank rotation signal so that it can monitor for an engine misfire. It compares the CMP reference signal to determine which cylinder caused the misfire. This is purely used for diagnostic and do not affect air/fuel mixture control.	Approximately 0V 

54	 W	Knock Sensor	KS	This wire is held steady at about 2.5V. When an audible knock is heard it will inform the ECU of the event. The level of knock spikes determine the knock intensity.	Approximately 2.5V
55	 L/R	Rear Window Defogger Relay	R/DEF	The ECU senses the rear window defogger relay to determine when the defoggers are operating so that it can make adjustments to the added electrical load.	Approximately 0.1V BATTERY VOLTAGE (11 - 14V)
56	 OR	Power Supply for ECM	VB	This power comes from the ECM relay to energize the ECM, and the MAF and CMP sensors. It is available when the ignition switch is set to ON. This wire is also paired with pin 61.	BATTERY VOLTAGE (11 - 14V)
57	 OR				
58	 OR	Data Link Connector for GST	KLIN	This line is used by an Onboard Diagnostic II (OBD2) generic scan tools to read out ECU engine operating parameters.	Approximately 9V
59	 OR				
60	 OR				
61	 OR	Power Supply for ECM	VB	This power comes from the ECM relay to energize the ECM, and the MAF and CMP sensors. It is available when the ignition switch is set to ON. This wire is also paired with pin 56.	BATTERY VOLTAGE (11 - 14V)
62	 R/L	EGR Temp Sensor	EGRTS	The EGR temperature sensor is provided on California engines or models with manual transmission. It is used to diagnose EGR flow related issues.	< 1.0V @ 1500 rpm with EGR valve fully open
63	 L	Intake Air Temperature Sensor	TA	This DC voltage varies with the intake air temperature. The voltage decreases as the coolant temperature rises.	0 - 5.0V
64	 Y/B	CONSULT Data Link Connector (Rx)	SCIRX	This is the data line used by the ECU to receive serial data from a Nissan CONSULT device.	~0.1V
65	 Y/R	CONSULT Data Link Connector (Tx)	SCITX	This is the data line used by the ECU to transmit serial data from a CONSULT device.	~4 - 9V
66	 Y/R				
67	 Y/R				
68	 Y	CONSULT Data Link Connector (Clk)	SCICL	This is the data line used by the ECU to clock serial data to and from a CONSULT device.	~3.5V
69	 Y				
70	 W	Power Supply (Back-up)	BATT	This battery power is provided to the ECU at all times. This wire is also paired up with pin 113.	BATTERY VOLTAGE (11 - 14V)
101	 SB	IACV-AAC Valve	ISC	This is the Idle Air Control Valve - Auxiliary Air Control Valve duty cycle signal that controls the idle speed.	1 - 12V 
102	 BR	Injector #1	INJ#1	This is the ECU provided pulsewidth signal for injector #1.	BATTERY VOLTAGE (11 - 14V) 

103	 LG	EGR/Canister Solenoid Control Valve	EGR	This ECU provided ground enables the EGR/Canister solenoid. This will in turn let a vacuum signal can pass through it to reach the EGR valve. This vacuum will also reach the charcoal canister to purge it of some stored fuel vapors.	0.7V BATTERY VOLTAGE (11 - 14V)
104	 BR/Y	Injector #3	INJ#3	This is the ECU provided pulsewidth signal for injector #3.	BATTERY VOLTAGE (11 - 14V) 
105					
106	 B	ECM Ground	GND-E	The ECU provided ground goes to various sensors. The original ground comes from two engine grounding points located at the topside of the upper intake manifold.	Engine ground
107	 BR/W	Injector #2	INJ#2	This is the ECU provided pulsewidth signal for injector #2.	BATTERY VOLTAGE (11 - 14V) 
108					
109	 BR	Injector #4	INJ#4	This is the ECU provided pulsewidth signal for injector #4.	BATTERY VOLTAGE (11 - 14V) 
110	 Y	Rear Heated Oxygen Sensor	O2H+	This ground is provided by the ECU to turn ON the rear oxygen sensor heater so that the sensor quickly reaches normal operating temperature.	Approximately 0-0.2V
111	 B	Rear Oxygen Sensor Heater Ground	O2H-	This ground is provided to rear heated oxygen sensor, crankshaft position sensor, and throttle position sensor to shield the signal wire from electrical interference.	~ 0.02-0.07V
112	 B	ECM Ground	GND-E	The ECU provided ground goes to various sensors. The original ground comes from two engine grounding points located at the topside of the upper intake manifold.	Engine ground
113	 W	Current Return	CRTN	This battery power is provided to the ECU at all times. This wire is also paired up with pin 70.	BATTERY VOLTAGE (11 - 14V)
114					
115	 Y	Front Heated Oxygen Sensor	O2H+	This ground is provided by the ECU to turn ON the front oxygen sensor heater so that the sensor quickly reaches normal operating temperature.	Approximately 0-0.2V
116					
117					

118	 B	ECM Ground	GND-E	The ECU provided ground goes to various sensors. The original ground comes from two engine grounding points located at the topside of the upper intake manifold.	Engine ground
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1997 Nissan Altima ECU

Circuit Diagram

