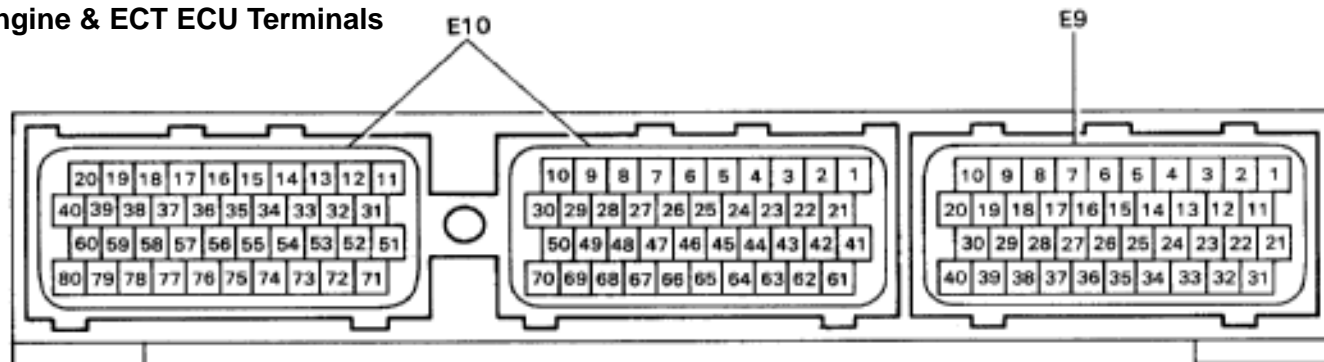


Engine & ECT ECU

TERMINALS OF ENGINE & ECT ECU

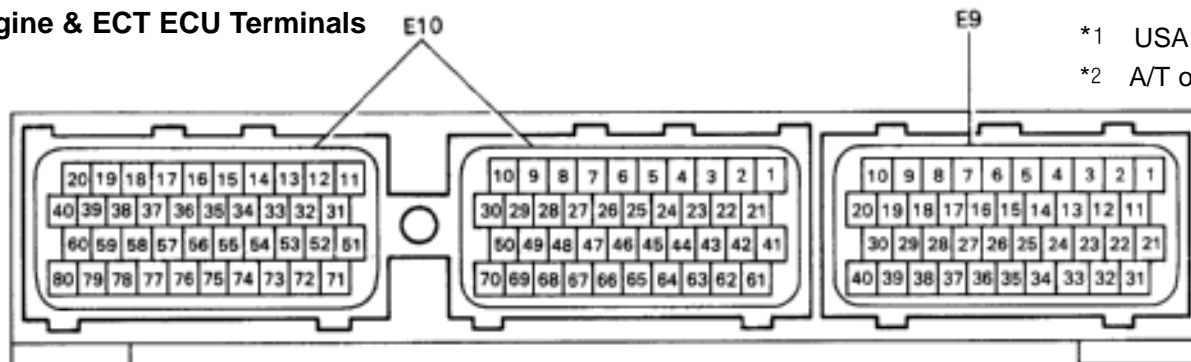
Terminal No.	Symbol	Connection	Terminal No.	Symbol	Connection
E9 – 1	IGSW	Ignition Switch	E9 – 31	+ B	EFI Main Relay
2	SPD	No. 1 Speed Sensor	32	+ B1	EFI Main Relay
3	KD	Kick-Down Switch	33	BATT	Battery
4	STP	Stop light Switch	34	A/C	A/C Control Assembly
5		–	35		–
6	W	“CHECK” Engine Warning Light	36		–
7	R	Neutral Start Switch	37	TR	TRAC ECU
8		–	38	NEO	TRAC ECU
9	2	Neutral Start Switch	39	VTO2	TRAC ECU
10	L	Neutral Start Switch	40	VTO1	TRAC ECU
11	AD	CC ECU	E10 – 1	NCO⊖	T/M Input Speed Sensor
12	OD1	CC ECU	2		–
13		–	3	SP2⊖	No. 2 Speed Sensor for ECT
14		–	4	E11	ECU Ground
15		–	5	G2⊖	Cam position Sensor
16		–	6	G1⊖	Cam position Sensor
17	TT	TDCL	7	NF⊖	Engine Speed Sensor
18	P	ECT Pattern Select Switch	8		–
19	TE2	Check Connector	9	S2	ECT Solenoid Value
20	TE1	Check Connector	10	S1	ECT Solenoid Value
21	D1	Fuel Pump ECU	11		–
22	FPC	Fuel Pump ECU	12		–
23	ACMG	A/C Magnet Clutch Relay	13	SLN⊕	No.3 ECT Solenoid Valve
24	M-REL	EFI Main Relay	14	SLU⊖	No.4 ECT Solenoid Valve
25		–	15		–
26		–	16		–
27		–	17	#10	No.3 and No.5 Injectors
28	OD2	O/D Main Relay	18	#20	No.4 and No.6 Injectors
29		–	19	#20	No.2 and No.8 Injectors
30		–	20	#40	No.1 and No.7 Injectors

Engine & ECT ECU Terminals



TERMINALS OF ENGINE & ECT ECU (Cont'd)

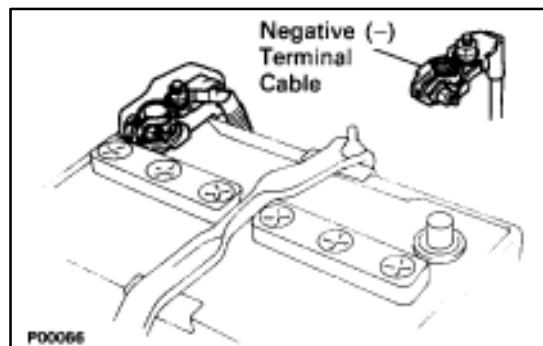
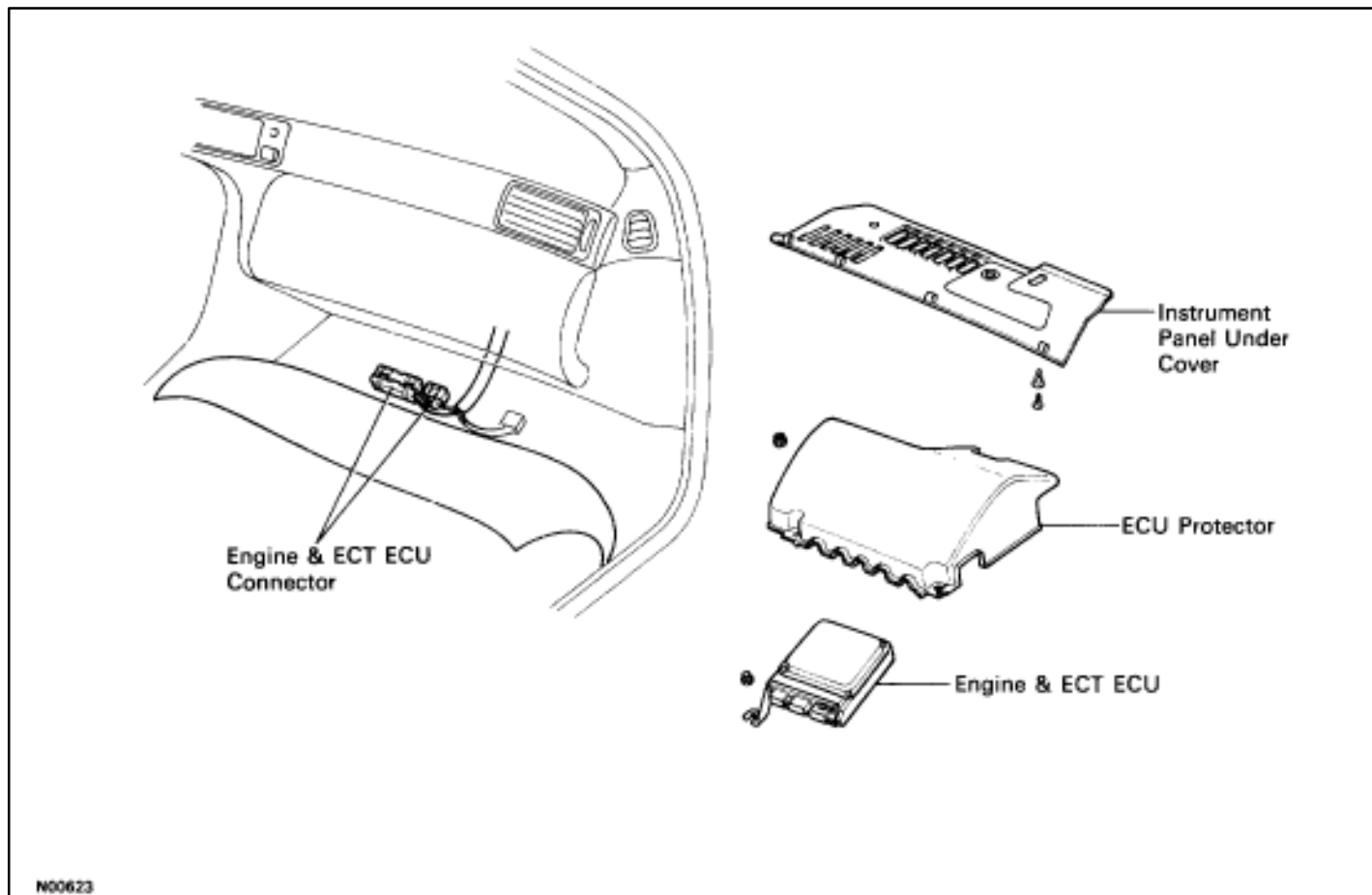
Terminal No.	Symbol	Connection	Terminal No.	Symbol	Connection
E10– 21	NCO	T/M Input Speed Sensor	E10 – 51		–
22		–	52	HTL2	LH Sub–Oxygen Sensor Heater
23	SP2	No.2 Speed Sensor for ECT	53	HTR2	RH Sub–Oxygen Sensor Heater
24		–	54		–
25	G2	LH (No.2) Cam Position Sensor	55		–
26	G1	RH (No.1) Cam Position Sensor	56	IGT2	No.2 Igniter for RH Bank
27	NE	Engine Speed Sensor	57	IGT1	No.1 Igniter for LH Bank
28	VF2	Check Connector	58	IGF1	No.1 Igniter for LH Bank
29	VF1	Check Connector	59	IGF2	No.2 Igniter for RH Bank
30		–	60		–
31		–	61		–
32	ISC4	ISC Valve	62		–
33	ISC3	ISC Valve	63	IDL2	Sub–Throttle Position Sensor
34	ISC2	ISC Valve	64	IDL1	Throttle Position Sensor
35	ISC1	ISC Valve	65	E2	Sensor Ground
36	*1EGR4	EGR Valve	66	KS	Air Flow Meter
37	*1EGR3	EGR Valve	67	OXR2	
38	*1EGR2	EGR Valve	68	OXL2	LH Sub–Oxygen Sensor
39	*1EGR1	EGR Valve	69	E1	ECU Ground
	*2EGR	VSV for EGR			
40		–	70		–
41	VC	Throttle Position Sensor Air Flow Meter	71	HTL1	LH Main Oxygen Sensor
42	VTA2	Fuel Pump ECU	72	HTR1	RH Main Oxygen Sensor
43	VTA1	A/C Magnet Clutch Relay	73	FPU	VSV for Fuel Pressure Control Value
44	THW	Water Temp. Sensor	74	*2PAG	VSV for EVAP
45	THA	Intake Air Temp. Sensor	75		–
46	THG	EGR Gas Temp. Sensor	76	NSW	Neutral Start Switch
47	OXR1	RH Main Oxygen Sensor	77	STA	Starter Relay
48	OXL1	LH Main Oxygen Sensor	78	STJ	Cold Start Injector
49	KNK2	RH (No.2) Knock Sensor	79	E02	Power Ground
50	KNK1	LH (No.1) Knock Sensor	80	E01	Power Ground

Engine & ECT ECU Terminals

*1 USA spec. only

*2 A/T only

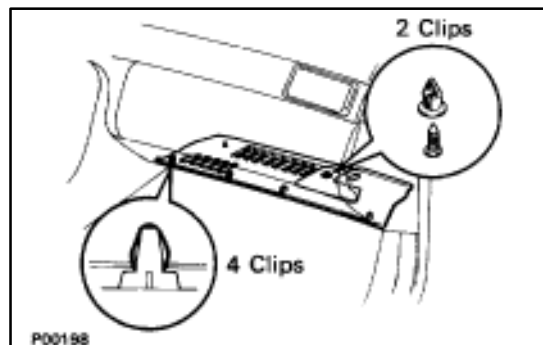
COMPONENTS FOR REMOVAL AND INSTALLATION



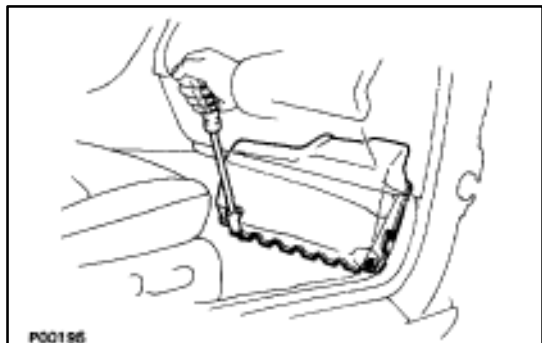
INSPECTION OF ENGINE & ECT ECU

1. DISCONNECT CABLE FROM NEGATIVE TERMINAL OF BATTERY

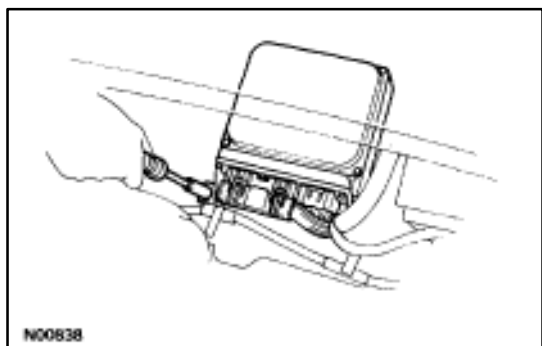
CAUTION: Work must be started after approx. 20 seconds or longer from the time the ignition switch is turned to the "LOCK" position and the negative (-) terminal cable is disconnected from the battery.



2. DISCONNECT ENGINE & ECT ECU FROM FLOOR PANEL
 - (a) Remove the two clips, and pull out the instrument panel under cover.



- (b) Take out the front side of the floor carpet.
- (c) Remove the two nuts and protector.



- (d) Remove the nut, and disconnect the engine & ECT ECU from the floor panel.

3. INSPECT ENGINE & ECT ECU

A. Install SST (check harness) between engine & ECT ECU and wiring connectors

HINT:

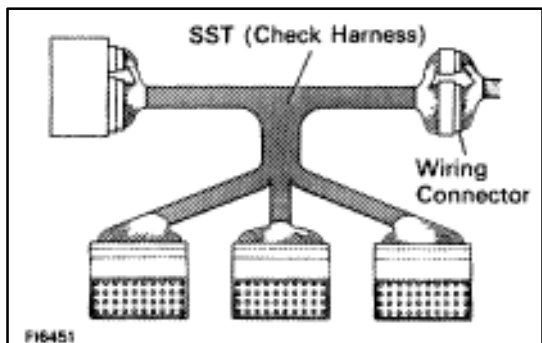
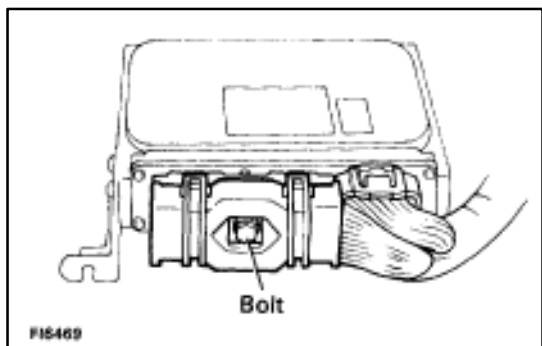
- ECU connectors are water-proof and are the bolt type.
 - For water-proof type connectors, in order to measure the voltage of ECU terminals and the resistance of connected parts, connect a check harness (SST 09990-01000) between the ECU and wiring connectors, then perform the inspection.
 - Avoid inserting a tester probe from the other side of connector as this noticeably reduces the water-proof ability.
 - Disconnect the ECU connectors by fully loosening the bolt.
- (a) Remove the bolt, and disconnect the two ECU connectors.

NOTICE:

- **Do not pull the wiring harness when disconnecting the connectors.**
 - **When disconnecting the connector, the ECU's back-up power source is cut off, so the malfunction codes, etc. recorded in the ECU memory are cancelled.**
 - **Never insert a tester probe or male terminal used for inspection purposes into the female terminal of the vehicle wire harness. Otherwise, the female terminal may be widened, which can result in faulty connection.**
- (b) Connect SST (check harness) between ECU and wiring connectors.

SST 09990-01000

HINT: SST (check harness) connector terminals are arranged the same as those of the ECU.



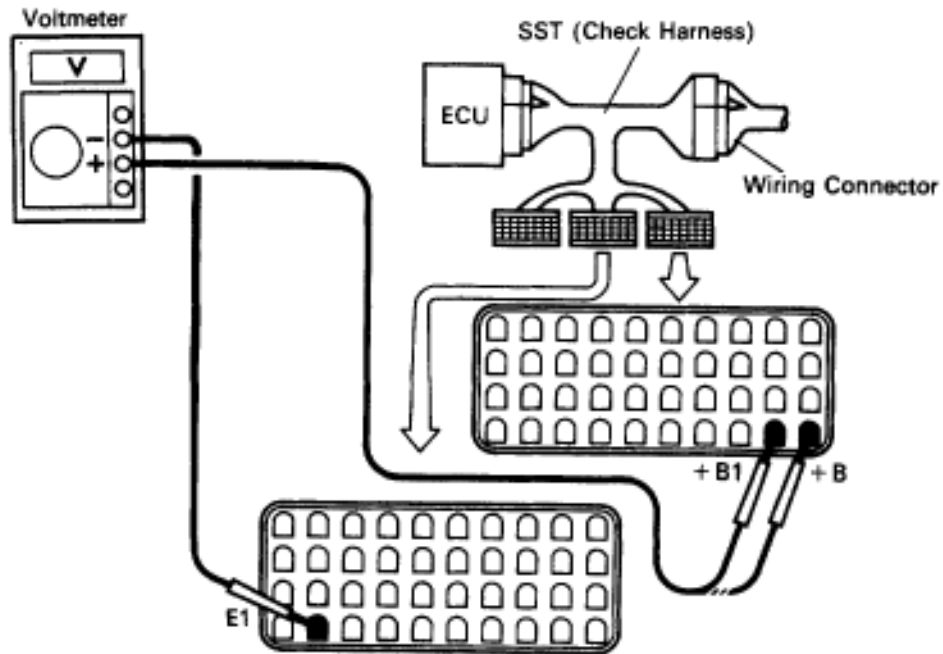
B. Inspect voltage of engine & ECT ECU

Check the voltage between each terminal.

- Turn the ignition switch ON.
- Measure the voltage at each terminal.

HINT:

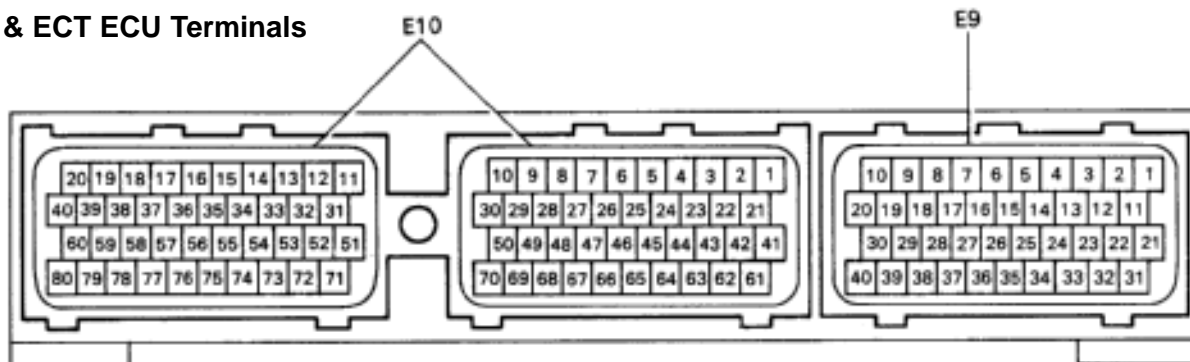
- Perform all voltage measurements with the connectors connected.
- Verify that the battery voltage is 11 V or more when the ignition switch is ON.



Voltage at Engine (& ECT) ECU Wiring Connectors

Terminals	Condition		STD voltage (V)
BATT (E9 – 33) – E1 (E10 – 69)	–		10 – 14
IGSW (E9 – 1) +B (E9 – 31) – E1 (E10 – 69) +B1 (E9 – 32)	IG SW ON		10 – 14
VC (E10 – 41) – E2 (E10 – 65)	IG SW ON	–	4.0 – 6.0
IDL1 (E10 – 64) – E2 (E10 – 65)		Throttle (or sub-throttle) valve fully closed	1.0 or less
IDL2 (E10 – 63) – E2 (E10 – 65)		Throttle (or sub-throttle) valve fully open	10 – 14
VTA1 (E10 – 43) – E2 (E10 – 65) VTA1 (E10 – 42)		Throttle (or sub-throttle) valve fully closed Throttle (or sub-throttle) valve fully open	0.1 – 1.0 3.0 – 6.0
KS (E10 – 66) – E1 (E10 – 69)	Idling		Pulse generation
THA (E10 – 45) – E2 (E10 – 65)	Idling	Intake air temp. 20°C (68°F)	1.0 – 3.0
THW (E10 – 44) – E2 (E10 – 65)		Engine Coolant temp. 80°C (176°F)	0.1 – 1.0
STA (E10 – 77) – E1 (E10 – 69)	Cranking		6.0 or more
#10 (E10 – 20) #20 (E10 – 19) – E01 (E10 – 80) #30 (E10 – 18) – E02 (E10 – 79) #40 (E10 – 17)	IG SW ON		10 – 14
	Idling		Pulse generation
IGT1 (E10 – 57) – E1 (E10 – 69) IGT2 (E10 – 56)	Idling		Pulse generation
IGF1 (E10 – 58) – E1 (E10 – 69) IGF2 (E10 – 59)	Idling		Pulse generation
G1 (E10 – 26) – G1⊖ – (E10–6) G2 (E10 – 25) – G2⊖ – (E10–5)	Idling		Pulse generation
NE (E10 – 27) – G – (E10 – 7)	Idling		Pulse generation
M – REL (E9 – 24) – E1 (E10 – 69)	IG SW ON		10 – 14
FPC (E9 – 22) – E1 (E10 – 69)	Cranking, Sudden racing (6,000 rpm)		4.2 – 6.0
	Idling		Pulse generation
D1 (E9 – 21) – E1 (E10 – 69)	Idling		7.5 or more
FPU (E10 – 73) – E1 (E10 – 69)	IG SW ON		10 – 14
	Restarting high temp.		2.0 or less
PAG (E10 – 74) – E01 (E10 – 69)	IG SW ON		10 – 14

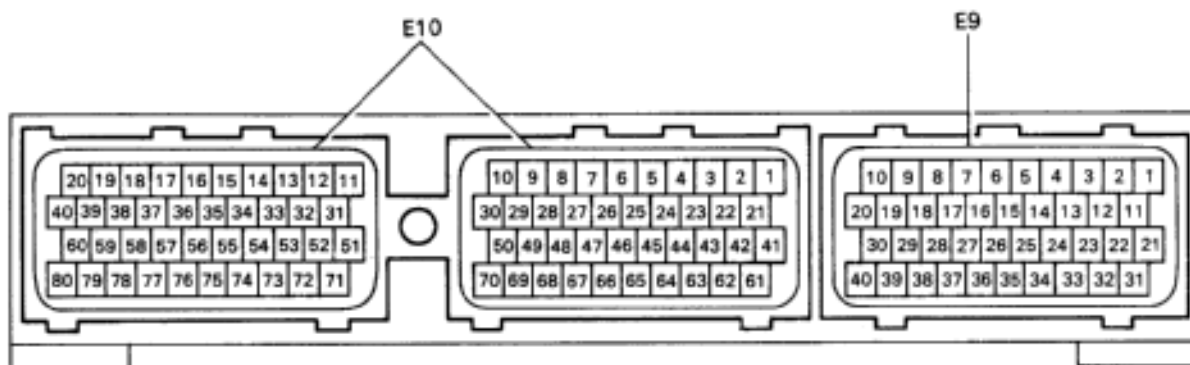
Engine & ECT ECU Terminals



Voltage at Engine (& ECT) ECU Wiring Connectors (Cont'd)

Terminals	Condition		STD voltage (V)
ISC1 (E10 – 35) ISC2 (E10 – 34) ISC3 (E10 – 33) ISC4 (E10 – 32)	IG SW ON		10 – 14
VF1 (E10 – 29) VF2 (E10 – 28)	Maintain engine speed at 2,500 rpm for 120 seconds after warming up then return to idling		1.0 – 4.0
OX1 (E10 – 48) OX2 (E10 – 47)	Maintain engine speed at 2,500 rpm for 120 seconds after warming up		Pulse generation (0 – 1.0)
HT (E10 – 71)	Idle		2.0 or less
KNK1 (E10 – 50) KNK2 (E10 – 49)	Idle		Pulse generation
NSW (E10 – 76)	IG SW ON	Shift position “P” or “N” range	1.0 or less
		Ex. shift position “P” or “N” range	10 – 14
SP1 (E9 – 2)	IG SW ON	Rotate driving wheel slowly.	4 or more
TE1 (E9 – 20) TE2 (E9 – 19)	IG SW ON		10 – 14
W (E9 – 6)	IG SW ON		2.0 or less
	Idle		10 – 14
OD1 (E9 – 12)	IG SW ON		4.0 – 6.0
A/C (E9 – 34)	A/C SW ON (at idle)		2.0 or less
	A/C SW OFF		10 – 14
ACMG (E9 – 23)	A/C SW ON (at idle)		2.0 or less
	A/C SW OFF		10 – 14
TR (E9 – 37)	IG SW ON		10 – 14
VT01 (E9 – 40)	IG SW ON	Throttle (or sub-throttle) valve fully closed	1.0 or less
VT02 (E9 – 39)		Throttle (or sub-throttle) valve fully open	3.0 – 5.5
NEO (E9 – 38)	IG SW ON		4.0 – 6.0

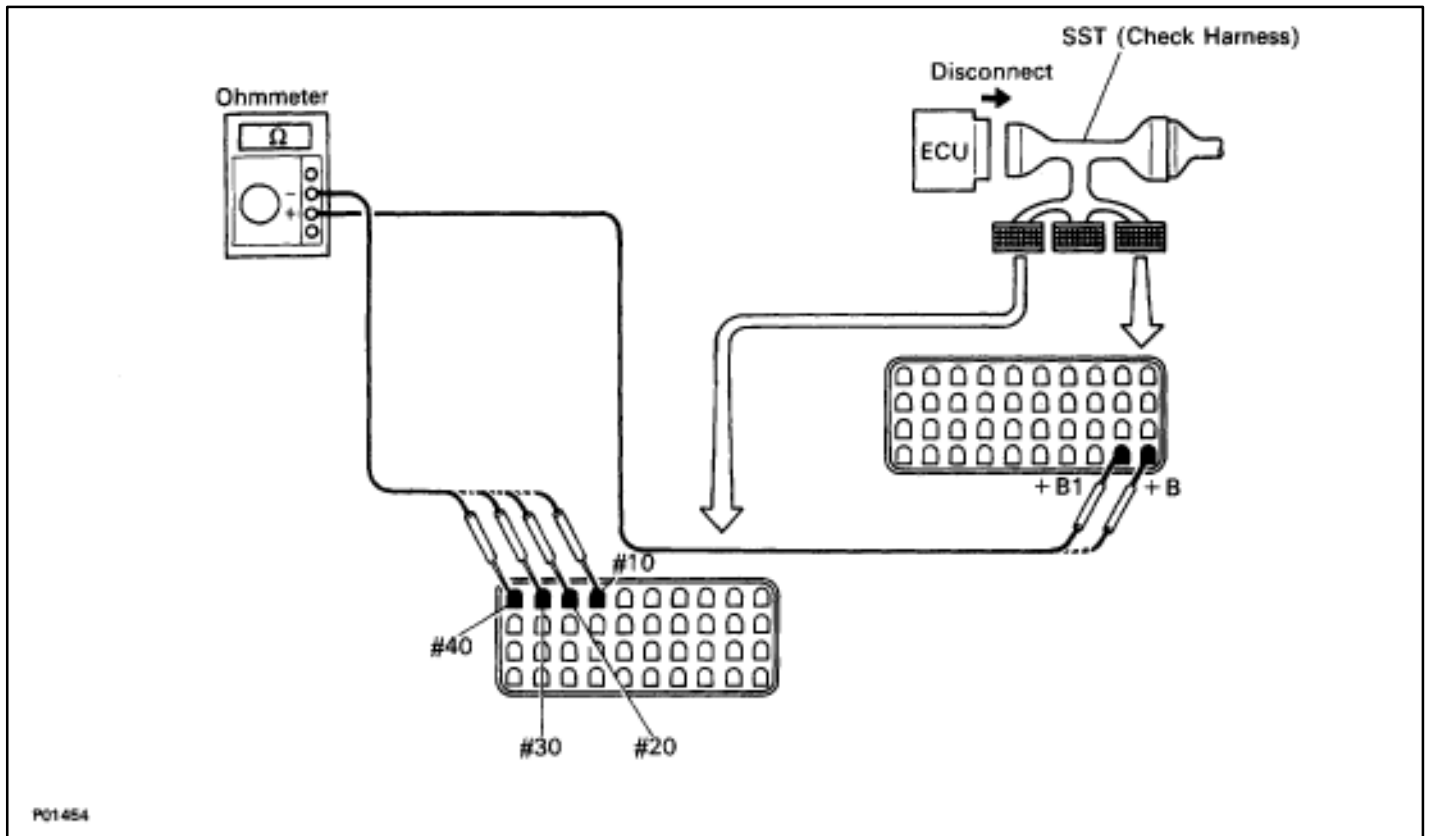
Engine & ECT ECU Terminals



B. Inspect resistance of engine & ECT ECU wiring connectors**NOTICE: Do not touch the ECU terminals.**

Check the resistance between each terminal of the wiring connectors.

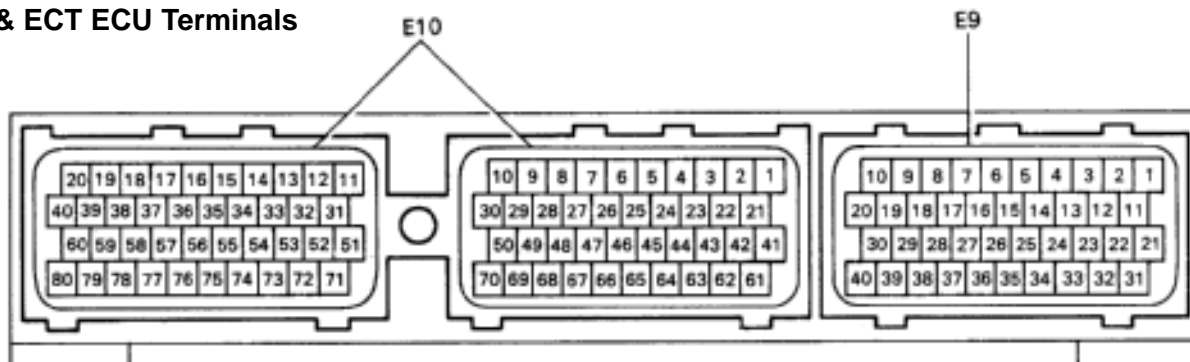
- Disconnect the SST (check harness) connectors from the ECU.
- Measure the resistance at each terminal.

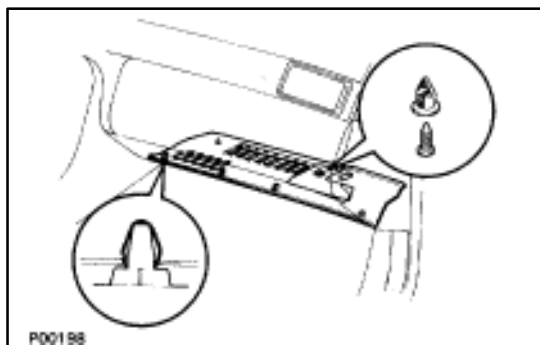
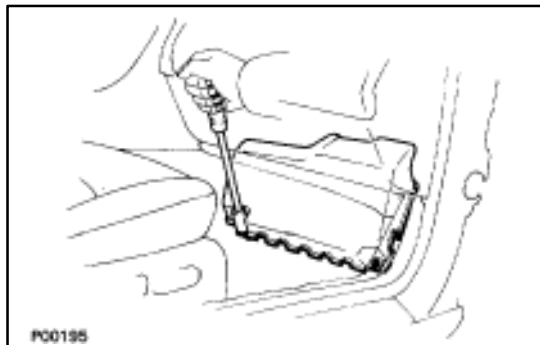
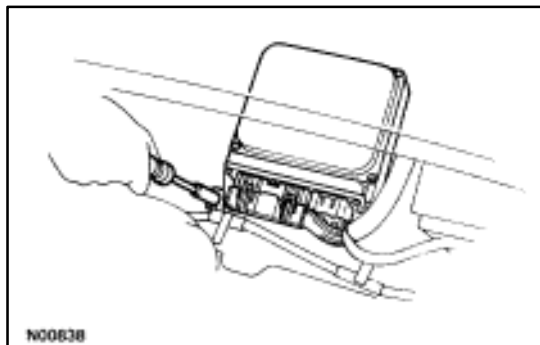
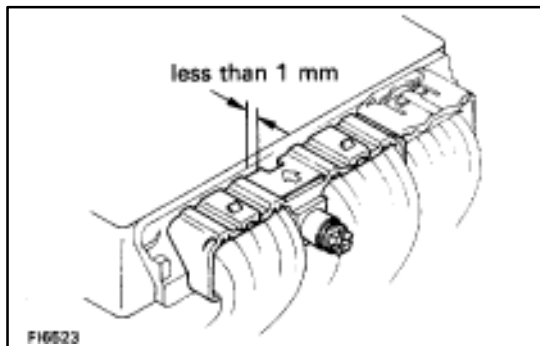
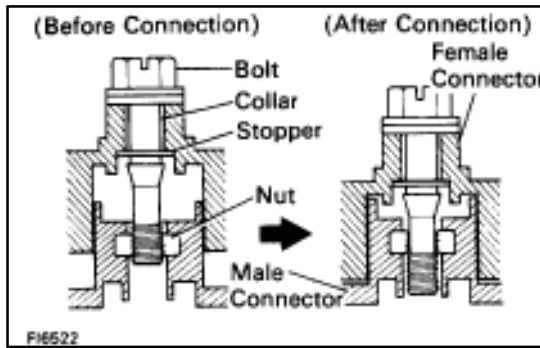


Resistance of ECU Wiring Connectors

Terminals	Condition	STD voltage (V)
#10 (E10 – 20) #20 (E10 – 19) #30 (E10 – 18) – + B (E9 – 31) #40 (E10 – 17) – + B1 (E9 – 32) #50 (E10 – 16) #60 (E10 – 15)	–	13.2 – 14.2
ISC1 (E10 – 35) ISC2 (E10 – 34) – + B (E9 – 31) ISC3 (E10 – 33) – + B1 (E9 – 32) ISC4 (E10 – 32)	–	10 – 30
ACIS (E10 – 39) – + B (E9 – 31) + B1 (E9 – 32)	–	38.5 – 44.5
HT (E10 – 71) – + B (E9 – 31) + B1 (E9 – 32)	–	5.1 – 6.3
EVAP (E10 – 74) – + B (E9 – 31) + B1 (E9 – 32)	–	30 – 34
ERG (E10 – 75) – + B (E9 – 31) + B1 (E9 – 32)	–	33 – 39
IDL1 (E10 – 64) IDL2 (E10 – 63) – E2 – (E10 – 65)	Throttle valve open	Infinity
	Throttle valve fully closed	2,300 or less
VTA1 (E10 – 43) VTA2 (E10 – 42) – E2 – (E10 – 65)	Throttle valve open	3,300 – 10,000
	Throttle valve fully closed	200 – 800
VC (E10 – 41) – E2 – (E10 – 65)	–	4,000 – 9,000
THA (E10 – 45) – E2 – (E10 – 65)	Intake air temp. 20°C (68°F)	2,000 – 3,000
THW (E10 – 44) – E2 – (E10 – 65)	Coolant temp. 80°C (176°F)	200 – 400
THG (E10 – 46) – E2 – (E10 – 65)	EGR gas temp. 50°C (112°F)	69,400 – 88,500
G1 (E10 – 26) G2 (E10 – 25) – G (E10 – 7)	Cam position sensor – 10 – + 40°C (14 – 104°F)	125 – 190
NE (E10 – 27) – G (E10 – 7)	Cam position sensor – 10 – + 40°C (14 – 104°F)	155 – 240

Engine & ECT ECU Terminals





- Disconnect the SST from the wiring connectors.
SST 09990-01000

4. REINSTALL ENGINE & ECT ECU TO FLOOR PANEL

(a) Connect the two ECU connectors.

- Match the male connector correctly with the female connector, then press them together.
- Tighten the bolt.

Make sure the connector is completely connected, by tightening the bolt until there is a clearance of less than 1 mm (0.04 in.) between bottom of the male connector and end of the female connector.

(b) Install the ECU with the bolt.

- (c) Install the ECU protector with the two nuts.
(d) Install the floor carpet.

(e) Install the instrument panel under cover with the two clips.

5. RECONNECT CABLE TO NEGATIVE TERMINAL OF BATTERY