

SERVICE SPECIFICATIONS

SERVICE DATA

Fuel pump	Resistance	0.2 – 3.0 Ω	
Cold start injector	Resistance Fuel leakage	2 – 4 Ω One drop or less per minute	
Fuel pressure regulator	Fuel pressure at no vacuum	265 – 304 kPa (2.7 – 3.1 kgf/cm ² , 38 – 44 psi)	
Injector	Resistance Injection volume Difference between each cylinder Fuel leakage	13.4 – 14.2 Ω 55 – 70 cc (3.4 – 4.3 cu in.) per 15 sec. 10 cc (0.6 cu in.) or less One drop or less per minute	
Air flow meter	Resistance (THA – E2) at –20°C (–4°F) at 0°C (32°F) at 20°C (68°F) at 40°C (104°F) at 60°C (140°F) at 80°C (176°F)	10 – 20 kΩ 4 – 7 kΩ 2 – 7 kΩ 0.9 – 1.3 kΩ 0.4 – 0.7 kΩ 0.2 – 0.4 kΩ	
Throttle body	Throttle body fully closed angle	6°	
Throttle position sensor (main)	Clearance between stop screw and lever	Between terminals	Resistance
	0 mm 0 in. 0.40 mm 0.016 in. 0.65 mm 0.026 in. Throttle valve fully opened position –	VTA1 – E2 IDL1 – E2 IDL1 – E2 VTA1 – E2 VC – E2	0.2 – 0.8 kΩ 2.3 kΩ or less Infinity 3.3 – 10.0 kΩ 4.0 – 9.0 kΩ
Sub-throttle position sensor (w/ TRAC)	Clearance between stop screw and lever	Between terminals	Resistance
	0 mm 0 in. 0.30 mm 0.012 in. 0.50 mm 0.020 in. Throttle valve fully opened position –	VTA2 – E2 IDL2 – E2 IDL2 – E2 VTA2 – E2 VC – E2	0.2 – 0.8 kΩ 2.3 kΩ or less Infinity 3.3 – 10.0 kΩ 4.0 – 9.0 kΩ
Sub-throttle actuator (w/ TRAC)	Resistance (ACM – A and A, BCM – B and B)	0.5 – 1.0 Ω	
ISC valve	Resistance (B1 – S1 and S3, B2 – S2 and S4)	10 – 30 Ω	
Cold start injector time switch	Resistance STA – STJ below 15°C (59°F) above 30°C (86°F) STA – Ground	25 – 45 Ω 65 – 85 25 – 85 Ω	
VSV for fuel pressure control	Resistance	37 – 44 Ω	

SERVICE DATA (Cont'd)

Water temp. sensor	Resistance	at -20°C (-4°F) at 0°C (32°F) at 20°C (68°F) at 40°C (104°F) at 60°C (140°F) at 80°C (176°F)	10 – 20 kΩ 4 – 7 kΩ 2 – 7 kΩ 0.9 – 1.3 kΩ 0.4 – 0.7 kΩ 0.2 – 0.4 kΩ
EGR gas temp. sensor	Resistance	at 50°C (112°F) at 100°C (212°F) at 150°C (302°F)	69 – 89 kΩ 12 – 15 kΩ 2 – 4 kΩ
Main oxygen sensor	Heater coil resistance		5.1 – 6.3 Ω
Sub-oxygen sensor	Heater coil resistance		5.1 – 6.3 Ω
ECU	HINT: <ul style="list-style-type: none"> Perform all voltage and resistance measurements with the ECU connected. Verify that the battery voltage is 11 V or above with the ignition switch is ON. 		
	Voltage		
	Terminals	Condition	STD voltage (V)
	BATT – E1	–	10 – 14
	IGSW +B – E1 +B1	IG SW ON	10 – 14
	VC – E2	–	4.0 – 6.0
	IDL1 IDL2 – E2 VTA1 VTA 2 – E2	Throttle (or sub-throttle) valve fully closed	1 or less
		Throttle (or sub-throttle) valve fully open	10 – 14
		Throttle (or sub-throttle) valve fully closed	0.1 or less
		Throttle (or sub-throttle) valve fully open	3.0 – 6.0
	KS – E1	Idling	Pulse generation
	THA – E2 THW – E2	Intake air temp. 20°C (68°F)	1.0 – 3.0
		Engine coolant temp. 80°C (176°F)	0.1 – 1.0
	STA – E1	Cranking	6.0 or more
	#10 #20 – E01 #30 – E02 #40	IG SW ON	10 – 14
		Idling	Pulse generation
	IGT1 IGT2 – E1	Idling	Pulse generation

SERVICE DATA (Cont'd)

ECU (cont'd)	Voltage (cont'd)		
	Terminals	Condition	STD voltage (V)
IGF1 – E1 IGF2 – E1		IG SW ON	1.0 or less
		Idling	Pulse generation
G1 – G1 (–) G2 – G2 (–)		Idling	Pulse generation
NE – NE (+)		Idling	Pulse generation
M-REL – E1		IG SW ON	10 – 14
FPC – E1		Cracking, Sudden racing (6,000 rpm)	4.2 – 6.0
		Idling	Pulse generation
DI – E1		Idling	7.5 or more
FPU – E1		IG SW ON	10 – 14
		Restarting high temp.	2.0 or less
PAG – E1		IG SW ON	10 – 14
ISC1 ISC2 – E1 ISC3 ISC4		IG SW ON	10 – 14
VF1 – E1 VF2 – E1		Maintain engine speed at 2,500 rpm for 120 seconds after warming up then return to idling.	1.0 – 4.0
OXR1 – E1 OXL1		Maintain engine speed at 2,500 rpm for 120 seconds after warming up	Pulse generation (0 – 1.0)
HTR1 HTR2 – E01 HTL1 – E02 HTL2		IG SW ON	10 – 14
		Idling	2.0 or less
EGR1 EGR2 – E1 EGR3 EGR4		IG SW ON	10 – 14
EGR – E1		Idling	10 – 14
KNK1 – E1 KNK2		Idling	Pulse generation
NSW – E1	IG SW ON	Shift position "P" or "N" range	1.0 or less
		Ex. shift position "P" or "N" range	10 – 14

SERVICE DATA (Cont'd)

ECU (cont'd)	Voltage (cont'd)		
	Terminals	Condition	STD voltage (V)
	SPD – E1	IG SW ON Rotate driving wheel slowly.	4 or more
	TE1 TE2 – E1	IG SW ON	10 – 14
	W – E1	IG SW ON	2.0 or less
		Idling	10 – 14
	AD – E1	Idling	10 – 14
	OD1 – E1	IG SW ON	4.0 – 6.0
	A/C – E1	A/C SW ON (at idling)	2.0 or less
		A/C SW OFF	10 – 14
	ACMG – E1	A/C SW ON (at idling)	2.0 or less
		A/C SW OFF	10 – 14
	TR – E1	IG SW ON	10 – 14
	VT01 VT02 – E2	IG SW ON Throttle (or sub-throttle) valve fully closed	1.0 or less
		IG SW ON Throttle (or sub-throttle) valve fully open	3.0 – 5.5
	NE0 – E1	IG SW ON	4.0 – 6.0
	Resistance of wiring connector side		
	Terminals	Condition	STD voltage (Ω)
	#10 #20 – +B #30 – +B1 #40	–	13.2 – 14.2
	STJ – +B +B1	–	2 – 4
	ISC1 ISC2 – +B ISC3 – +B1 ISC4	–	10 – 30
	FPU – +B +B1	–	37 – 44
	EGR1 EGR2 – +B EGR3 – +B1 EGR4	–	19.9 – 23.4
	EGR – +B +B1	–	33 – 39

SERVICE DATA (Cont'd)

ECU (cont'd)	Resistance of wiring connector side (cont'd)		
	Terminals	Condition	STD voltage (Ω)
	HTR1 HTR2 – +B HTL1 – +B1 HTL2	–	5.1 – 6.3
	PAG – +B +B1	–	30 – 34
	IDL1 – +B IDL2 – +B1	Throttle valve fully open	Infinity
		Throttle valve fully closed	2,300 or less
	VTA1 – E2 VTA2 – E2	Throttle valve fully open	3,300 – 10,000
		Throttle valve fully closed	200 – 800
	VC – E2	–	4,000 – 9,000
	THS – E2	Intake air temp. 20°C (68°F)	2,000 – 3,000
	THW – E2	Coolant temp. 80°C (176°F)	200 – 400
	THG – E2	EGR gas temp. 50°C (112°F)	69,400 – 88,500
	G1 – G1 (–) G2 – G2 (–)	Cam position sensor – 10 – +40°C (14 – 104°F)	835 – 1,350
	NE – NE (–)	engine speed sensor – 10 – +40°C (14 – 104°F)	835 – 1,350
Fuel cut rpm	w/ Vehicle speed 0 km/h and coolant temp. 80°C (176°F)		Fuel cut rpm Fuel return rpm 1,800 rpm 1,400 rpm

TORQUE SPECIFICATIONS

Part tightened		N·m	kgf·cm	ft·lbf
Fuel line	Union bolt type Flare nut type	29	300	22
Fuel pipe X Delivery pipe		39	400	29
Fuel pump bracket X Fuel tank		5.4	55	48 in·lbf
Fuel pump set plate X Fuel tank		3.9	40	35 in·lbf
Fuel tank X Body		25	250	18
Fuel sender gauge X Fuel tank		2.9	30	26 in·lbf
Fuel inlet pipe X Fuel tank		2.9	30	26 in·lbf
Fuel tank main tube X Fuel tank		29	300	22
Fuel tank return tube X Fuel tank		29	300	22
Fuel tank evaporation vent tube X Fuel tank		29	300	22
Air flow meter X Air cleaner case		10	100	7
Cold start injector X Air intake chamber		7.8	80	69 in·lbf
Cold start injector tube X Cold start injector		15	150	11
Air intake chamber X Intake manifold		18	185	13
EGR pipe X Air intake chamber		18	185	13
EGR pipe X RH cylinder head		18	185	13
Cold start injector tube X RH Delivery pipe		15	150	11
Throttle body X Air intake chamber		18	185	13
Fuel return pipe X Fuel pressure regulator		35	360	26
Fuel pressure regulator X RH delivery pipe		29	300	22
Delivery pipe X Intake manifold		18	185	13
Fuel inlet hose X LH delivery pipe		39	400	29
	for SST	33	340	24
ISC valve X Air intake chamber		18	185	13
Cold start injector time switch X Front water by-pass joint		34	350	25
Water temperature sensor X Front water by-pass joint		20	200	14
Water inlet housing X Water pump		18	185	13
EGR gas temperature sensor X EGR valve adaptor		20	200	14
EGR valve adaptor X Air intake chamber		18	185	13
EGR valve X EGR valve adaptor		18	185	13
Knock sensor X Cylinder block		44	450	33
Intake manifold X Cylinder head		18	185	13
Main oxygen sensor X Exhaust manifold		44	450	33
Sub-oxygen sensor X Exhaust manifold		44	450	33