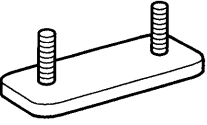


STANDARD BOLT

HOW TO DETERMINE BOLT STRENGTH

SS00F-01

	Mark	Class		Mark	Class
Hexagon head bolt	4– 5– 6– 7– 8– 9– 10– 11–  Bolt head No.	4T 5T 6T 7T 8T 9T 10T 11T	Hexagon flange bolt w/ washer hexagon bolt	 4 Protruding lines	9T
			Hexagon flange bolt w/ washer hexagon bolt	 5 Protruding lines	10T
	 No mark	4T	Hexagon flange bolt w/ washer hexagon bolt	 6 Protruding lines	11T
Hexagon flange bolt w/ washer hexagon bolt	 No mark	4T	Stud bolt	 No mark	4T
Hexagon head bolt	 2 Protruding lines	5T		 Grooved	6T
Hexagon flange bolt w/ washer hexagon bolt	 2 Protruding lines	6T			
Hexagon head bolt	 3 Protruding lines	7T	Welded bolt		4T
Hexagon head bolt	 4 Protruding lines	8T			

V06821

SPECIFIED TORQUE FOR STANDARD BOLTS

Class	Diameter mm	Pitch mm	Specified torque					
			Hexagon head bolt			Hexagon flange bolt		
			N·m	kgf·cm	ft·lbf	N·m	kgf·cm	ft·lbf
4T	6	1	5	55	48 in.·lbf	6	60	52 in.·lbf
	8	1.25	12.5	130	9	14	145	10
	10	1.25	26	260	19	29	290	21
	12	1.25	47	480	35	53	540	39
	14	1.5	74	760	55	84	850	61
	16	1.5	115	1,150	83	—	—	—
5T	6	1	6.5	65	56 in.·lbf	7.5	75	65 in.·lbf
	8	1.25	15.5	160	12	17.5	175	13
	10	1.25	32	330	24	36	360	26
	12	1.25	59	600	43	65	670	48
	14	1.5	91	930	67	100	1,050	76
	16	1.5	140	1,400	101	—	—	—
6T	6	1	8	80	69 in.·lbf	9	90	78 in.·lbf
	8	1.25	19	195	14	21	210	15
	10	1.25	39	400	29	44	440	32
	12	1.25	71	730	53	80	810	59
	14	1.5	110	1,100	80	125	1,250	90
	16	1.5	170	1,750	127	—	—	—
7T	6	1	10.5	110	8	12	120	9
	8	1.25	25	260	19	28	290	21
	10	1.25	52	530	38	58	590	43
	12	1.25	95	970	70	105	1,050	76
	14	1.5	145	1,500	108	165	1,700	123
	16	1.5	230	2,300	166	—	—	—
8T	8	1.25	29	300	22	33	330	24
	10	1.25	61	620	45	68	690	50
	12	1.25	110	1,100	80	120	1,250	90
9T	8	1.25	34	340	25	37	380	27
	10	1.25	70	710	51	78	790	57
	12	1.25	125	1,300	94	140	1,450	105
10T	8	1.25	38	390	28	42	430	31
	10	1.25	78	800	58	88	890	64
	12	1.25	140	1,450	105	155	1,600	116
11T	8	1.25	42	430	31	47	480	35
	10	1.25	87	890	64	97	990	72
	12	1.25	155	1,600	116	175	1,800	130

MAINTENANCE

SERVICE DATA

SS03I-01

Front axle and suspension	
Ball joint vertical play	Maximum 0 mm (0 in.)

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Front seat mount bolts	37	375	27
Front suspension member x Body	181	1,850	134
Rear suspension member x Body	51	520	38

ENGINE MECHANICAL

SERVICE DATA

SS03K-01

Compression pressure	at 250 rpm STD Minimum Difference of pressure between each cylinder	1,500 kPa (15.3 kgf/cm ² , 218 psi) 1,000 kPa (10.2 kgf/cm ² , 145 psi) 100 kPa (1.0 kgf/cm ² , 15 psi) or less
Valve clearance	at cold Intake Exhaust Adjusting shim for repair part Mark 2.500 Mark 2.550 Mark 2.600 Mark 2.650 Mark 2.700 Mark 2.750 Mark 2.800 Mark 2.850 Mark 2.900 Mark 2.950 Mark 3.000 Mark 3.050 Mark 3.100 Mark 3.150 Mark 3.200 Mark 3.250 Mark 3.300	0.15 – 0.25 mm (0.006 – 0.010 in.) 0.25 – 0.35 mm (0.010 – 0.014 in.) 2.500 mm (0.0984 in.) 2.550 mm (0.1004 in.) 2.600 mm (0.1024 in.) 2.650 mm (0.1043 in.) 2.700 mm (0.1063 in.) 2.750 mm (0.1083 in.) 2.800 mm (0.1102 in.) 2.850 mm (0.1122 in.) 2.900 mm (0.1142 in.) 2.950 mm (0.1161 in.) 3.000 mm (0.1181 in.) 3.050 mm (0.1201 in.) 3.100 mm (0.1220 in.) 3.150 mm (0.1240 in.) 3.200 mm (0.1260 in.) 3.250 mm (0.1280 in.) 3.300 mm (0.1299 in.)
Ignition timing	w/ Terminals TE1 and E1 connected of DLC1	8 – 12° BTDC @ idle
Idle speed	–	700 ± 50 rpm
Timing belt tensioner	Protrusion from housing side	10.0 – 10.8 mm (0.394 – 0.425 in.)
Cylinder head	Warpage Maximum Valve seat Refacing angle Contacting angle Contacting width Valve guide bushing bore diameter STD O/S 0.05 12 pointed head cylinder head bolt diameter at tension portion STD Minimum	0.10 mm (0.039 in.) 30°, 45°, 75° 45° 1.0 – 1.4 mm (0.039 – 0.055 in.) 10.295 – 10.313 mm (0.4053 – 0.4080 in.) 10.345 – 10.363 mm (0.4073 – 0.4080 in.) 8.95 – 9.05 mm (0.3524 – 0.3563 in.) 8.75 mm (0.3445 in.)
Valve guide bushing	Inside diameter Outside diameter for repair part STD O/S 0.05	5.510 – 5.530 mm (0.2169 – 0.2177 in.) 10.333 – 10.344 mm (0.4068 – 0.4072 in.) 10.383 – 10.394 mm (0.4088 – 0.4092 in.)
Valve	Valve overall length STD Intake Exhaust Minimum Intake Exhaust Valve face angle Stem diameter Intake Exhaust Stem oil clearance STD Intake Exhaust Maximum Intake Exhaust Margin thickness STD Maximum	95.45 mm (3.5779 in.) 95.40 mm (3.7559 in.) 94.95 mm (3.7382 in.) 94.90 mm (3.7362 in.) 44.5° 5.470 – 5.485 mm (0.2154 – 0.2159 in.) 5.465 – 5.480 mm (0.2152 – 0.2157 in.) 0.025 – 0.060 mm (0.0010 – 0.0024 in.) 0.030 – 0.065 mm (0.0012 – 0.0026 in.) 0.08 mm (0.0031 in.) 0.10 mm (0.0039 in.) 1.0 mm (0.039 in.) 0.5 mm (0.020 in.)

Valve spring	Deviation Free length Installed tension at 33.8 mm (1.331 in.)	Maximum	2.0 mm (0.079 in.) 45.50 mm (1.7913 in.) 186 – 206 N (19.0 – 21.0 kgf, 41.9 – 46.3 lbf)
Valve lifter	Lifter diameter Lifter bore diameter Oil clearance	STD Maximum	30.966 – 30.976 mm (1.2191 – 2.2195 in.) 31.000 – 31.016 mm (1.2205 – 1.2211 in.) 0.024 – 0.050 mm (0.0009 – 0.0020 in.) 0.07 mm (0.0028 in.)
Camshaft	Thrust clearance Journal oil clearance Journal diameter Circle runout Cam lobe height Camshaft gear backlash Camshaft gear spring end free distance	STD Maximum STD Intake Exhaust Maximum Intake Exhaust STD Intake Exhaust Minimum Intake Exhaust STD Maximum	0.040 – 0.090 mm (0.0016 – 0.0035 in.) 0.12 mm (0.0047 in.) 0.035 – 0.072 mm (0.0014 – 0.0028 in.) 0.025 – 0.062 mm (0.0010 – 0.0024 in.) 0.10 mm (0.0039 in.) 0.09 mm (0.0035 in.) 26.949 – 26.965 mm (1.0610 – 1.0616 in.) 0.06 mm (0.0024 in.) 42.11 – 42.21 mm (1.6579 – 1.6618 in.) 41.96 – 42.06 mm (1.6520 – 1.6559 in.) 41.96 mm (1.6520 in.) 41.81 mm (1.6461 in.) 0.020 – 0.200 mm (0.0008 – 0.0079 in.) 0.30 mm (0.0188 in.) 18.2 – 18.8 mm (0.712 – 0.740 in.)
Air intake chamber	Warpage	Maximum	0.10 mm (0.0039 in.)
Intake manifold	Warpage Air intake chamber side Cylinder head side	Maximum Maximum	0.15 mm (0.0059 in.) 0.08 mm (0.0031 in.)
Exhaust manifold	Warpage	Maximum	0.50 mm (0.0196 in.)
Cylinder block	Cylinder head surface warpage Cylinder bore diameter 12 pointed head main bearing cap bolt diameter at tension portion	Maximum Maximum STD Minimum	0.07 mm (0.0028 in.) 87.500 – 87.512 mm (3.4449 – 3.4453 in.) 87.52 mm (3.4457 in.) 7.500 – 7.600 mm (0.2953 – 0.2992 in.) 7.20 mm (0.2835 in.)
Piston and piston ring	Piston diameter Piston oil clearance Piston ring groove clearance Piston ring end gap	STD Maximum No.1 No.2 STD No.1 No.2 Oil Maximum No.1 No.2 Oil	87.406 – 87.416 mm (3.4412 – 3.4416 in.) 0.084 – 0.106 mm (0.0033 – 0.0042) 0.13 mm (0.0051 in.) 0.020 – 0.070 mm (0.0008 – 0.0028 in.) 0.020 – 0.060 mm (0.0008 – 0.0024 in.) 0.25 – 0.35 mm (0.0098 – 0.0138 in.) 0.35 – 0.45 mm (0.0138 – 0.0177 in.) 0.15 – 0.40 mm (0.0059 – 0.0157 in.) 0.95 mm (0.0374 in.) 1.05 mm (0.0413 in.) 1.00 mm (0.0394 in.)

SERVICE SPECIFICATIONS – ENGINE MECHANICAL

Connecting rod	Thrust clearance	STD	0.15 – 0.30 mm (0.0059 – 0.0118 in.)
		Maximum	0.35 mm (0.0138 in.)
	Connecting rod thickness		20.80 – 20.85 mm (0.8189 – 0.8209 in.)
	Connecting rod bearing center wall thickness		
	Reference	Mark 1	1.484 – 1.487 mm (0.0584 – 0.0585 in.)
		Mark 2	1.487 – 1.490 mm (0.0585 – 0.0587 in.)
		Mark 3	1.490 – 1.493 mm (0.0587 – 0.0588 in.)
		Mark 4	1.493 – 1.496 mm (0.0588 – 0.0589 in.)
	Connecting rod oil clearance	STD	0.038 – 0.064 mm (0.0015 – 0.0025 in.)
		Maximum	0.08 mm (0.0031 in.)
	Rod out-of-alignment	Maximum per 100 mm (3.94 in.)	0.05 mm (0.0020 in.)
	Rod twist	Maximum per 100 mm (3.94 in.)	0.15 mm (0.0059 in.)
	Bushing inside diameter		22.005 – 22.014 mm (0.8663 – 0.8667 in.)
	Piston pin diameter		21.997 – 22.006 mm (0.8660 – 0.8664 in.)
Crankshaft	Bushing oil clearance	STD	0.005 – 0.011 mm (0.0002 – 0.0004 in.)
		Maximum	0.05 mm (0.0020 in.)
	Connecting rod bolt diameter		
		at tension portion STD	7.2 – 7.3 mm (0.284 – 0.287 in.)
		Minimum	7.0 mm (0.276 in.)
	Thrust clearance	STD	0.04 – 0.24 mm (0.0016 – 0.0095 in.)
		Maximum	0.30 mm (0.0118 in.)
	Thrust washer thickness		1.930 – 1.980 mm (0.0760 – 0.0780 in.)
	Main journal oil clearance	STD No.1 and No.4	0.014 – 0.034 mm (0.0006 – 0.0013 in.)
		No.2 and No.3	0.026 – 0.046 mm (0.0010 – 0.0018 in.)
		Maximum No.1 and No.4	0.05 mm (0.0020 in.)
		No.2 and No.3	0.06 mm (0.0024 in.)
	Main journal diameter		60.988 – 61.000 mm (2.4011 – 2.4016 in.)
	Main bearing center wall thickness		
	Reference	Mark 1	2.486 – 2.489 mm (0.0979 – 0.0980 in.)
		Mark 2	2.489 – 2.492 mm (0.0980 – 0.0981 in.)
		Mark 3	2.492 – 2.495 mm (0.0981 – 0.0982 in.)
		Mark 4	2.495 – 2.498 mm (0.0982 – 0.0983 in.)
		Mark 5	2.498 – 2.501 mm (0.0983 – 0.0985 in.)
		Mark 6	2.501 – 2.504 mm (0.0985 – 0.0986 in.)
		Mark 7	2.504 – 2.507 mm (0.0986 – 0.0987 in.)
	Crank pin diameter		52.992 – 53.000 mm (2.0863 – 2.0866 in.)
	Circle runout	Maximum	0.06 mm (0.0024 in.)
	Main journal taper and out-of-round	Maximum	0.02 mm (0.0008 in.)
	Crank pin taper and out-of-round	Maximum	0.02 mm (0.0008 in.)

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Timing belt plate x Oil pump	8	80	69 in.·lbf
No.1 idler pulley x Oil pump	34	350	25
No.2 idler pulley x No.2 idler pulley bracket	43	440	32
Camshaft timing pulley x Camshaft	125	1,300	94
for SST	88	900	65
Timing belt tensioner x Oil pump	27	280	20
RH engine mounting bracket x Cylinder block	28	290	21
No.2 timing belt cover x No.3 timing belt cover	8.5	85	74 in.·lbf
No.1 timing belt cover x Oil pump	8.5	85	74 in.·lbf
Crankshaft pulley x Crankshaft	215	2,200	159
No.2 generator bracket x Engine RH mounting bracket	28	290	21
Cylinder head x Cylinder block	12 pointed head 1st 2nd Recessed head	54 Turn 90° 18.5	550 Turn 90° 185
Camshaft bearing cap x Cylinder head	16	160	12
Cylinder head cover x Cylinder head	8	80	69 in.·lbf
Exhaust manifold x Cylinder head	49	500	36
Exhaust manifold stay x Exhaust manifold	20	200	15
Exhaust manifold stay x Transmission housing	20	200	15
No.1 EGR pipe x RH exhaust manifold	12	120	9
No.1 EGR pipe x EGR cooler	12	120	9
PS pump bracket x RH cylinder head	43	440	32
Oil dipstick guide x LH cylinder head	8	80	69 in.·lbf
Water inlet pipe x LH cylinder head	19.5	200	14
Cylinder head rear plate x LH cylinder head	8	80	69 in.·lbf
No.3 timing belt cover x Cylinder head	8.5	85	74 in.·lbf
Water outlet x Intake manifold	15	150	11
Fuel inlet hose x Fuel filter	29	300	21
Intake manifold x Cylinder head	15	150	11
Air intake chamber x Intake manifold	43	440	32
No.2 EGR pipe x Air intake chamber	12	120	9
No.2 EGR pipe x EGR cooler	12	120	9
No.1 engine hanger x Air intake chamber	39	400	29
No.1 engine hanger x RH cylinder head	39	400	29
Air intake chamber stay x Air intake chamber	19.5	200	14
Air intake chamber stay x RH cylinder head	19.5	200	14
Drive plate x Crankshaft	83	850	61
Transaxle x Engine	17 mm head	64	650
No.1 oil pan x Transaxle	37.2	380	27
Drive plate x Torque convertor clutch	41	420	30
Flywheel housing under cover x Transaxle	7.8	80	69 in.·lbf
Rear engine mounting insulator x Cylinder block	64	650	47
Front engine mounting insulator x Cylinder block	64	650	47
Engine moving control rod x RH engine mounting bracket	64	650	47

1997 LEXUS ES300 (RM511U)

Author :

Date :

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SERVICE SPECIFICATIONS – ENGINE MECHANICAL

Engine moving control rod x RH fender apron	64	650	47
RH engine mounting stay x Water outlet	32	320	23
RH engine mounting stay x Engine moving control rod	32	320	23
RH engine mounting stay x No.2 RH engine mounting bracket	32	320	23
Front engine mounting insulator x Front frame	80	820	59
Engine mounting absorber x Front frame	48	490	35
Engine mounting absorber x Transaxle	48	490	35
Rear engine mounting insulator x Front frame	66	670	48
LH engine mounting insulator x Transaxle	64	650	47
PS pump x PS pump bracket	43	440	31
A/C compressor x Housing bracket	25.5	260	19
A/C compressor x No.1 oil pan	25.5	260	19
Generator adjusting bar x Drive belt adjusting bar bracket	18	185	13
Fuel inlet hose x Fuel filter	29	300	21
Main bearing cap x Cylinder block	12 pointed head 1st	22	225
	2nd	Turn 90°	Turn 90°
	6 pointed head	27	275
			20
Connecting rod cap x Connecting rod	1st	24.5	250
	2nd	Turn 90°	Turn 90°
			18
			Turn 90°
Rear oil seal retainer x Cylinder block	8	80	69 in.·lbf
EGR cooler x Cylinder block	9	90	78 in.·lbf
Engine coolant drain union x Cylinder block	39	400	29
Water seal plate x Cylinder block	18	180	13
Oil filter union x Cylinder block	30	310	22
Water inlet housing x Cylinder block	8	80	69 in.·lbf
Knock sensor x Cylinder block	39	400	29
No.2 idler pulley bracket x Cylinder block	28	290	21
A/C compressor housing bracket x Cylinder block	25	250	18
Generator bracket x Cylinder block	43	440	32
Front exhaust pipe support bracket x No.1 oil pan	20.6	210	15
Front exhaust pipe x Exhaust manifold	62	630	46
Front exhaust pipe x Center exhaust pipe	56	570	41
Center exhaust pipe x Tailpipe	56	570	41
Front exhaust pipe bracket x Sub frame	33	330	24
Front exhaust pipe support bracket x Front exhaust pipe stay	33	330	24

EMISSION CONTROL

SS03M-01

SERVICE DATA

EGR valve position sensor	Resistance (VC – E2)	1.5 – 4.3 k Ω
	Power source voltage (VC– E2)	4.5 – 5.5 V
	Power output voltage (EGLS – E2) at vacuum (17.3 kPa, 130 mmHg, 5.1 in.Hg)	3.2 – 5.1 V
	at no vacuum	0.4 – 1.6 V

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
EGR valve position sensor x EGR valve	2	20	17 in·lbf
EGR pipe x EGR valve	12	120	9
EGR pipe x EGR cooler	12	120	9
EGR valve x Air intake chamber	12	120	9
EGR gas temperature sensor x EGR valve	20	200	14
Front exhaust pipe x Exhaust manifold	62	630	46
Front exhaust pipe x Center exhaust pipe	56	570	41
Front exhaust pipe bracket x Sub frame	33	330	24
Front exhaust pipe support bracket x Front exhaust pipe stay	33	330	24

SEQUENTIAL MULTIPORT FUEL INJECTION

SERVICE DATA

SS030-01

Fuel pressure regulator	Fuel pressure at no vacuum	301 – 347 kPa (3.1 – 3.5 kgf/cm ² , 44 – 50 psi)
Fuel pump	Resistance at 20°C (68°F)	0.2 – 3.0 Ω
Injector	Resistance Injection volume Difference between each cylinder Fuel leakage	13.4 – 14.2 Ω 60 – 73 cm ³ (3.7 – 4.5 cu in.) per 15 sec. 13 cm ³ (0.8 cu in.) or less 1 drop or less per minute
MAF meter	Resistance (THA – E2) at –20°C (–4°F) at 20°C (68°F) at 60°C (140°F)	14.6 – 17.8 kΩ 2.21 – 2.69 kΩ 0.29 – 0.35 kΩ
Throttle body	Throttle opener setting speed	900 – 1,950 rpm
Throttle position sensor	Resistance Throttle valve fully closed VTA – E2 Throttle valve fully open VTA – E2 – VC – E2	0.2 – 6.3 kΩ 2.0 – 10.2 kΩ 2.5 – 5.9 kΩ
IAC valve	Resistance (+B – RSO or RSC) at cold at hot	17.0 – 24.5 Ω 21.5 – 28.5 Ω
VSV for EGR	Resistance at 20°C (68°F)	27 – 33 Ω
VSV for EVAP	Resistance at 20°C (68°F)	27 – 33 Ω
VSV for ACIS	Resistance at 20°C (68°F)	33 – 39 Ω
VSV for Vapor Pressure Sensor	Resistance at 20°C (68°F)	33 – 39 Ω
Vapor Pressure Sensor	Power source voltage	4.5 – 5.5 V
ECT 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 – 3 kΩ 0.9 – 1.3 kΩ 0.4 – 0.7 kΩ 0.2 – 0.4 kΩ
EGR gas temperature sensor	Resistance at 50°C (122°F) at 100°C (212°F) at 150°C (302°F)	64 – 97 kΩ 11 – 16 kΩ 2 – 4 kΩ
Air fuel ratio (A/F) sensor	Heater coil resistance at 20°C (68°F)	11 – 16 Ω
Heated oxygen sensor	Heater coil resistance at 20°C (68°F)	11 – 16 Ω
Fuel cut rpm	Fuel return rpm	1,200 rpm

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Fuel line (Union bolt type)	29	300	21
Fuel line (Flare nut type) using SST	28	285	21
Fuel pump assembly x Fuel tank	4	40	35 in·lbf
Fuel filter x Fuel pump bracket	2	20	17 in·lbf
Fuel pressure regulator x Fuel pump bracket	2	20	17 in·lbf
Delivery pipe x Intake manifold	10	100	7
No.1 fuel pipe x Intake manifold	19.5	200	14
Fuel tank band x Body	39	400	29
Throttle body x Air intake chamber	19.5	200	14
Intake air control valve x Air intake chamber	14.5	145	10
ECT sensor x Water outlet	20	200	14
Knock sensor x Cylinder block	39	400	29
Air–fuel ratio (A/F) sensor (Bank 1, 2 sensor 1) x Exhaust manifold	44	440	31
Heated oxygen sensor (Bank 1, 2 sensor 1) x Exhaust manifold	44	440	31
Heated oxygen sensor (Bank 1 sensor 2) x Exhaust pipe	44	440	31

COOLING

SERVICE DATA

SS03Q-01

Thermostat	Valve opening pressure Valve lift at 95°C (203°F)	80 – 84°C (176 – 183°F) 10.0 mm (0.394 in.) or more
Radiator cap	Relief valve opening pressure STD Minimum	83 – 113 kPa (0.85 – 1.15 kgf/cm ² , 12.1 – 16.4 psi) 69 kPa (0.7 kgf/cm ² , 10.0 psi)
Radiator	Plate height	7.4 – 7.8 mm (0.2959 – 0.3119 in.)
Cooling fan	Rotating amperage at 20°C (68°F) No.1 No.2	8.3 – 11.3 A 8.3 – 11.3 A

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
RH engine drain plug x EGR cooler	7	70	61 in·lbf
LH engine drain plug x Union on cylinder block	13	130	9
Water pump x Cylinder block	6	60	53 in·lbf
Water inlet x Water inlet housing	8	80	69 in·lbf
Water inlet pipe x LH cylinder head	19.5	200	14
Radiator support x Body	12.8	130	9
No.1 cooling fan shroud x Radiator	5.0	50	44 in·lbf
No.2 cooling fan shroud x Radiator	5.0	50	44 in·lbf
Radiator oil cooler x Radiator lower tank	8.3	85	74 in·lbf
Radiator inlet pipe x Radiator lower tank	14.7	150	11

LUBRICATION

SERVICE DATA

SS03S-01

Oil pressure		at idle speed at 3,000 rpm	29 kPa (0.3 kgf/cm ² , 43 psi) or more 294 – 539 kPa (3.0 – 5.5 kgf/cm ² , 43 – 78 psi)
Oil pump	Side clearance	STD	0.030 – 0.090 mm (0.0012 – 0.0035 in.)
		Maximum	0.15 mm (0.0059 in.)
	Body clearance	STD	0.100 – 0.175 mm (0.0039 – 0.0069 in.)
		Maximum	0.30 mm (0.0118 in.)
	Tip clearance	STD	0.110 – 0.240 mm (0.0043 – 0.0094 in.)
		Maximum	0.35 mm (0.0138 in.)

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Oil pressure switch x Cylinder block	13	130	9
No.2 oil pan x Drain plug	45	460	33
Oil pump x Relief valve plug	36.8	375	37
Oil pump x Cylinder block	10 mm head	8	69 in.·lbf
	12 mm head	19.5	14
Crankshaft position sensor x Oil pump	8	80	69 in.·lbf
Oil pan baffle plate x No.1 oil pan	8	80	69 in.·lbf
No.1 oil pan x Cylinder block	19.5	200	14
No.1 oil pan x Oil pump	10 mm head	8	69 in.·lbf
	12 mm head	19.5	14
No.1 oil pan x Rear oil seal retainer	8	80	69 in.·lbf
No.1 oil pan x Transaxle	37.2	380	27
Oil strainer x Main bearing cap	8	80	69 in.·lbf
Oil strainer x Oil pump	8	80	69 in.·lbf
No.2 oil pan x No.1 oil pan	8	80	69 in.·lbf
Oil level sensor x No.1 oil pan	8	80	69 in.·lbf
Flywheel housing under cover x Transaxle	7.8	80	69 in.·lbf
A/C compressor housing bracket x Cylinder block	25	250	18
PS pump x PS pump bracket	43.1	440	32
PS pump drive belt adjusting strut x PS pump	43.1	440	32
PS pump drive belt adjusting strut x Oil pump	43.1	440	32
Exhaust pipe bracket x No.1 oil pan	21	210	15

IGNITION

SS03U-06

SERVICE DATA

Firing order	–		1 – 2 – 3 – 4 – 5 – 6
Spark plug	Recommended spark plug	DENSO NGK	PK20TR11 BKR6EKP11
	Correct electrode gap for new plug		1.1 mm (0.043 in.)
	Maximum electrode gap for used plug		1.3 mm (0.051 in.)
Ignition coil	Primary coil resistance	at cold at hot	0.70 – 0.94 Ω 0.85 – 1.10 Ω
	Secondary coil resistance	at cold at hot	10.8 – 14.9 k Ω 13.1 – 17.5 k Ω
Camshaft position sensor	Resistance	at cold at hot	835 – 1,400 Ω 1,060 – 1,645 Ω
Crankshaft position sensor	Resistance	at cold at hot	1,630 – 2,740 Ω 2,065 – 3,225 Ω

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Spark plug x Cylinder head	18	180	13
Ignition coil x Cylinder head	8	80	69 in·lbf
Camshaft position sensor x Cylinder head	8	80	69 in·lbf
Crankshaft position sensor x Oil pump	8	80	69 in·lbf

STARTING

SERVICE DATA

SS03W-01

Starter	Rated voltage and output power		12 V 1.4 kW
	No-load characteristics	Current	90 A or less at 11.5 V
		rpm	3,000 rpm or more
	Brush length	STD	15.5 mm (0.610 in.)
		Minimum	10.0 mm (0.394 in.)
	Spring installed load	STD	17.6 – 23.5 N (1.8 – 2.4 kgf, 3.9 – 5.3 lbf)
		Minimum	11.8 N (1.2 kgf, 2.6 lbf)
	Commutator		
	Diameter	STD	30.0 mm (1.181 in.)
		Minimum	29.0 mm (1.142 in.)
	Undercut depth	STD	0.6 mm (0.024 in.)
		Minimum	0.2 mm (0.008 in.)
	Circle runout	Maximum	0.05 mm (0.0020 in.)
	Magnetic switch		
	Contact plate for wear	Maximum	0.9 mm (0.035 in.)

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Starter mounting bolt	37	380	27
End cover x Field frame	1.5	15	13 in·lbf
Starter housing x Magnetic switch	5.9	60	52 in·lbf
Field frame x Armature assembly	5.9	60	52 in·lbf
Lead wire x Terminal C of starter	5.9	60	52 in·lbf
Terminal nut x Terminal C of starter	17	170	12
Terminal nut x Terminal 30 of starter	17	170	12
Magnetic switch end cover x Magnetic switch	2.5	26	23 in·lbf

CHARGING

SERVICE DATA

SS03Y-03

Battery	Voltage at 20° C (68° F)	12.5 – 12.9 V
Drive belt	Tension New belt Used belt	175 ± 5 lbf 115 ± 20 lbf
Generator	Rated output Rotor coil resistance Slip ring diameter STD Limit Brush exposed length STD Limit	12 V 80 A 2.1 – 2.5 Ω 14.2 – 14.4 mm (0.559 – 0.567 in.) 12.8 mm (0.504 in.) 10.5 mm (0.413 in.) 1.5 mm (0.059 in.)
Voltage regulator	Regulating voltage	13.5 – 15.1 V

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Bearing retainer x Drive end frame	3.0	31	27 in·lbf
Rectifier end frame x Drive end frame	4.5	46	40 in·lbf
Cord clip x Rectifier end frame	5.4	55	48 in·lbf
Generator pulley x Rotor	110.5	1,125	81
Rectifier holder x Coil lead on rectifier end frame	2.9	30	26 in·lbf
Voltage regulator and brush holder x Rectifier end frame	2.0	20	18 in·lbf
Plate terminal x Rectifier holder	Nut	4.4	39 in·lbf
	Screw	3.9	35 in·lbf
Rear end cover x Rectifier holder	4.4	45	39 in·lbf
Terminal insulator x Rectifier holder	4.1	42	36 in·lbf
Generator x Generator bracket	56	570	41
Generator x Adjusting bar	18	180	13

AUTOMATIC TRANSAXLE

SERVICE DATA

SS05X-02

Line pressure (wheel locked)	Engine idling	
	D position	401 – 461 kPa (4.1 – 4.7 kgf/cm ² , 58 – 66 psi)
	R position	804 – 882 kPa (8.2 – 9.0 kgf/cm ² , 117 – 128 psi)
at stall (Throttle valve fully opened)	D position	1,138 – 1,236 kPa (11.6 – 12.6 kgf/cm ² , 165 – 179 psi)
	R position	1,716 – 1,854 kPa (17.5 – 18.9 kgf/cm ² , 249 – 269 psi)
Engine stall revolution		2,600 ± 150 rpm
Time lag	N → D position	Less than 1.2 seconds
	N → R position	Less than 1.5 seconds
Engine idle speed (A/C OFF)	N position	700 ± 50 rpm
Throttle cable adjustment (Throttle valve fully opened)		Between boot and face and inner cable stopper 0 – 1 mm (0 – 0.04 in.)
Drive plate runout	Max.	0.3 mm (0.0118 in.)
Torque converter clutch runout	Max.	0.20 mm (0.0079 in.)
Torque converter clutch installation distance		More than 13.7 mm (0.539 in.)
Lock-up point (Throttle valve opening 5%)		
3rd gear (O/D main switch OFF)	Lock-up ON	60 – 65 km/h (37 – 40 mph)
	Lock-up OFF	53 – 57 km/h (33 – 35 mph)
O/D gear	Lock-up ON	60 – 64 km/h (37 – 40 mph)
	Lock-up OFF	53 – 57 km/h (33 – 35 mph)
Shift schedule		
D position		
(Throttle valve fully opened)	1 → 2	60 – 66 km/h (37 – 41 mph)
	2 → 3	113 – 121 km/h (70 – 75 mph)
	3 → O/D	174 – 182 km/h (108 – 113 mph)
	O/D → 3	168 – 176 km/h (104 – 109 mph)
	3 → 2	104 – 112 km/h (65 – 70 mph)
	2 → 1	50 – 54 km/h (31 – 34 mph)
(Throttle valve fully closed)	3 → O/D	35 – 39 km/h (22 – 24 mph)
	O/D → 3	20 – 24 km/h (12 – 15 mph)
2 position		
(Throttle valve fully opened)	1 → 2	60 – 66 km/h (37 – 41 mph)
	3 → 2	122 – 130 km/h (76 – 81 mph)
	2 → 1	50 – 54 km/h (31 – 34 mph)
L position		
(Throttle valve fully opened)	3 → 2	107 – 114 km/h (66 – 71 mph)
	2 → 1	55 – 59 km/h (34 – 37 mph)

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Front engine front mounting insulator x Front frame assembly	80	820	59
Rear engine mounting insulator x Front frame assembly	66	670	48
LH transaxle mounting insulator x Transaxle	64	650	47
Engine mounting absorber x Front frame assembly	48	490	35
Transaxle x Engine 17 mm bolt	66	670	48
Transaxle x Engine 12 mm bolt	48	490	35
Torque converter clutch x Drive plate	27	280	20
Valve body x Transaxle case	11	110	8
Oil strainer x Valve body	11	110	8
Oil pan x Transaxle case	4.9	50	43 in.·lbf
Oil pan drain plug	49	500	36
Park/Neutral position switch x Transaxle case (bolt)	5.4	55	48 in.·lbf
Park/Neutral position switch (nut)	6.9	70	61 in.·lbf
B ₃ apply pipe retainer	11	110	8
Manual valve body x Transaxle case	11	110	8
Detent spring x Manual valve body	11	110	8
Oil pipe bracket	10	100	7
Steering gear housing x Front suspension member	181	1,850	134
Stabilizer bar bracket	19	195	14
Vehicle speed sensor x Transaxle case	16	160	12
Direct clutch speed sensor x Transaxle case	5.4	55	48 in.·lbf
Transfer lubrication apply pipe retainer	11	110	8
Exhaust manifold bracket x Transaxle case	20	200	14
Front frame x Body 19 mm	181	1,850	134
Front frame x Body 14 mm	32	330	24
Front frame x Body Nut	36	370	27
Exhaust front pipe x Exhaust center pipe	56	570	41
Exhaust manifold x Exhaust front pipe	62	630	46
Exhaust front pipe support stay x Exhaust front pipe support bracket	33	330	24
Exhaust pipe support x Front frame	33	330	24
Starter x Torque converter clutch housing	39	400	29
Throttle cable adjusting nut	15	150	11
Drive plate x Crankshaft	83	850	61
Shift control cable x Transaxle control shaft lever	15	150	11
Shift solenoid valve No.1, No.2, SL, SLN x Valve body	6.6	67	58 in.·lbf
Front wheel nut	103	1,050	76
Exhaust front pipe support bracket x Body	21	210	15
Steering return pipe x Front frame	10	100	7

SUSPENSION AND AXLE

SS05P-05

SERVICE DATA

Cold tire inflation Pressure	Tire size P205/65R15 92H	Front*1	180 kPa (1.8 kgf/cm ² or bar, 26 psi)
		Rear*1	180 kPa (1.8 kgf/cm ² or bar, 26 psi)
		Front*2	220 kPa (2.2 kgf/cm ² or bar, 32 psi)
		Rear*2	220 kPa (2.2 kgf/cm ² or bar, 32 psi)
Front wheel alignment	Vehicle height	Front*3 Rear*4	213 mm (8.39 in.) 259 mm (10.20 in.)
	Camber	Left-right error	−0° 37' ± 45' (−0.62° ± 0.75°) 45' (0.75°) or less
	Caster	Left-right error	2° 18' ± 45' (2.30° ± 0.75°) 45' (0.75°) or less
	Steering axis inclination	Left-right error	13° 04' ± 45' (13.07° ± 0.75°) 45' (0.75°) or less
	Toe-in (total)	Tie rod end length difference	0° ± 12' (0° ± 0.2°, 0 ± 2 mm, 0 ± 0.08 in.) 1.5 mm (0.059 in.) or less
	Wheel angle	Inside wheel Outside wheel	35° 47' ± 2° 31° 25'
Rear wheel alignment	Camber	Left-right error	−0° 48' ± 45' (−0.80° ± 0.75°) 45' (0.75°) or less
	Toe-in (total)	No.2 lower suspension arm length difference	0° 24' ± 12' (0.4° ± 0.2°, 4 ± 2 mm, 0.16 ± 0.08 in.) 1.0 mm (0.04 in.) or less
Front axle	Axle bearing backlash		0.05 mm (0.0020 in.) or less
	Axle hub deviation		0.05 mm (0.0020 in.) or less
Front drive shaft	Drive shaft standard length	LH	586.0 ± 2.0 mm (23.071 ± 0.079 in.)
		RH	881.6 ± 2.0 mm (34.709 ± 0.079 in.)
Front suspension	Lower ball joint turning torque		1.0 – 3.4 N·m (10 – 35 kgf·cm, 8.7 – 30 in.·lbf)
	Stabilizer bar link turning torque		0.05 – 1.0 N·m (0.5 – 10 kgf·cm, 0.4 – 8.7 in.·lbf)
Rear axle	Axle bearing backlash		0.05 mm (0.0020 in.) or less
	Axle hub deviation		0.07 mm (0.0028 in.) or less
Rear suspension	No.2 lower suspension arm length		512.3 mm (20.169 in.)
	Stabilizer bar link turning torque		0.05 – 1.0 N·m (0.5 – 10 kgf·cm, 0.4 – 8.7 in.·lbf)

*1: For all load including full rated loads

*2: For reduced loads (1 to 4 passengers)

*3: Measure from the ground to the center of the front side lower suspension arm mounting bolt.

*4: Measure from the ground to the center of the front side strut rod mounting bolt.

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
FRONT			
Hub nut	103	1,050	76
Tie rod end lock nut	74	750	54
Steering knuckle x Shock absorber	211	2,150	156
Steering knuckle x Brake caliper	107	1,090	79
Steering knuckle x Tie rod end	49	500	36
Axle hub x Drive shaft	294	3,000	217
Lower ball joint x Lower suspension arm	127	1,300	94
Lower ball joint x Steering knuckle	123	1,250	90
Steering knuckle x Disc brake dust cover	8.3	85	74 in.·lbf
Drive shaft center bearing lock bolt	32	330	24
Inboard joint shaft x Outboard joint shaft	65	660	48
Shock absorber cap x Suspension support	14	140	9
Suspension support x Body	80	820	59
Suspension support x Piston rod	49 (36)	500 (365)	36 (26)
ABS speed sensor set bolt	7.8	80	69 in.·lbf
Flexible hose x Shock absorber	29	300	22
ABS speed sensor wire harness x Shock absorber	29	300	22
Lower suspension arm set bolt	206	2,100	152
Stabilizer bar bracket x Suspension member	19	195	14
Stabilizer bar link set nut	39	400	29

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Part tightened	N-m	kgf-cm	ft-lbf
REAR			
Hub bolt	103	1,050	76
No.2 lower suspension arm lock nut	56	570	41
Brake caliper x Rear axle carrier	47	475	34
Axle hub bearing set bolt	80	820	59
Shock absorber x Axle carrier	New nut	255	2,600
	Reused nut (apply engine oil the threads)	196	2,000
Flexible hose x Shock absorber	29	300	22
ABS speed sensor set bolt	7.8	80	69 in.-lbf
ABS speed sensor wire harness x Shock absorber	5.4	55	48 in.-lbf
Rear seatback set bolt	18	185	13
Rear seat belt set bolt	41	420	30
Suspension support x Body	39	400	29
Suspension support x Piston rod	49 (36)	500 (365)	36 (26)
Parking brake cable set bolt	5.4	55	48
Lower suspension arm x Suspension member	181	1,850	134
Lower suspension arm x Rear axle carrier	181	1,850	134
Strut rod x Body	113	1,150	83
Strut rod x Rear axle carrier	113	1,150	83
Suspension member x Body	51	520	38
Suspension member lower stopper sub-assembly x Body	38	390	28
Stabilizer bar bracket x Suspension member	19	195	14
Stabilizer bar link set nut	39	400	29

(): For use with SST

BRAKE

SERVICE DATA

SS062-14

Brake pedal height (from asphalt sheet)		152.0 – 162.0 mm (5.984 – 6.378 in.)
Brake pedal freeplay		1 – 6 mm (0.04 – 0.24 in.)
Brake pedal reserve distance at 490 N (50 kgf, 110.2 lbf)		More than 70 mm (2.76 in.)
Brake booster push rod to piston clearance (w/ SST)		0 mm (0 in.)
Front brake pad thickness	STD	11.0 mm (0.433 in.)
Front brake pad thickness	Minimum	1.0 mm (0.039 in.)
Front brake disc thickness	STD	28.0 mm (1.102 in.)
Front brake disc thickness	Minimum	26.0 mm (1.024 in.)
Front brake disc runout	Maximum	0.05 mm (0.0020 in.)
Rear brake pad thickness	STD	10.0 mm (0.394 in.)
Rear brake pad thickness	Minimum	1.0 mm (0.039 in.)
Rear brake disc thickness	STD	10.0 mm (0.394 in.)
Rear brake disc thickness	Minimum	9.0 mm (0.354 in.)
Rear brake disc runout	Maximum	0.15 mm (0.0059 in.)
Rear brake disc inside diameter	STD	170 mm (6.69 in.)
Rear brake disc inside diameter	Maximum	171 mm (6.73 in.)
Parking brake lining thickness	STD	2.0 mm (0.079 in.)
Parking brake lining thickness	Minimum	1.0 mm (0.039 in.)
Parking brake pedal travel at 294 N (30 kgf, 66 lbf)		3 – 6 clicks
Parking brake clearance between rear shoe and lever		Less than 0.35 mm (0.0138 in.)
Parking brake adjusting shim thickness for rear disc brake		0.3 mm (0.012 in.) 0.6 mm (0.024 in.) 0.9 mm (0.035 in.)

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Master cylinder x Piston stopper bolt	10	100	7
Master cylinder x Reservoir	1.7	18	16 in.·lbf
Master cylinder x Brake booster	13	130	9
Brake line union nut	15	155	11
10 mm nut			
12 mm nut	20	200	14
Brake booster clevis lock nut	25	260	19
Brake booster x Pedal bracket	13	130	9
Front brake caliper installation bolt	34	350	25
Bleeder plug	8.3	85	74 in.·lbf
Front disc brake torque plate x Steering knuckle	107	1,090	79
Front disc brake caliper x Flexible hose	29	300	21
Flexible hose x Shock absorber	29	300	21
Rear disc brake caliper installation bolt	20	200	14
Rear disc brake caliper main pin installation bolt	26	270	20
Rear disc brake caliper x Flexible hose	29	300	21
Rear disc brake torque plate x Rear axle carrier	47	475	34
Parking brake pedal assembly x Body	36	370	27
ABS (& TRAC) actuator x Actuator bracket	5.4	55	48 in.·lbf
ABS (& TRAC) actuator bracket x Body	19	195	14
Front speed sensor installation bolt	7.8	80	69 in.·lbf
Front speed sensor harness clamp bolt	5.4	55	48 in.·lbf
Rear speed sensor installation bolt	7.8	80	69 in.·lbf
Rear speed sensor harness clamp bolt	5.4	55	48 in.·lbf

STEERING

SERVICE DATA

SS05R-01

ON-VEHICLE INSPECTION		
Steering wheel freeplay	Maximum	30 mm (1.18 in.)
Drive belt tension	New belt	150 – 185 lbf
Drive belt tension	Used belt	95 – 135 lbf
Fluid level rise	Maximum	5 mm (0.20 in.)
Fluid pressure at idle speed with valve closed	Minimum	7,845 kPa (80 kgf/cm ² , 1,138 psi)
Steering effort at idle speed	Maximum	5.9 N·m (60 kgf·cm, 52 in.·lbf)
PS VANE PUMP		
Vane pump rotating torque	Maximum	0.3 N·m (2.8 kgf·cm, 2.4 in.·lbf)
Oil clearance between pump shaft and bushing	STD	0.03 – 0.05 mm (0.0012 – 0.0020 in.)
Oil clearance between pump shaft and bushing	Maximum	0.07 mm (0.0028 in.)
Vane plate height	Minimum	8.6 mm (0.339 in.)
Vane plate thickness	Minimum	1.397 mm (0.0550 in.)
Vane plate length	Minimum	14.991 mm (0.5902 in.)
Clearance between the rotor groove and plate	Maximum	0.035 mm (0.0014 in.)
Vane plate length	Pump rotor and cam ring mark	
	NONE	14.999 – 15.001 mm (0.59051 – 0.59059 in.)
	1	14.997 – 14.999 mm (0.59043 – 0.59051 in.)
	2	14.995 – 14.997 mm (0.59035 – 0.59043 in.)
	3	14.993 – 14.995 mm (0.59027 – 0.59035 in.)
	4	14.991 – 14.993 mm (0.59020 – 0.59027 in.)
Spring free length	Minimum	32.3 mm (1.272 in.)
PS GEAR		
Steering rack runout	Maximum	0.30 mm (0.0118 in.)
Total preload (Control valve rotating torque)		0.8 – 1.4 N·m (8 – 14 kgf·cm, 6.9 – 12.2 in.·lbf)

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
STEERING COLUMN			
Steering wheel pad set screw (Torx screw)	7.1	72	63 in.·lbf
Steering wheel set nut	35	360	26
Intermediate shaft assembly x Control valve shaft	35	360	26
Steering column assembly x Intermediate shaft assembly	35	360	26
Steering column assembly set nut	25	260	19
Turn signal bracket x Column tube	7	70	31 in.·lbf
Lower column tube attachment x Column tube	19	195	14
PS VANE PUMP			
Pressure feed tube x Pressure feed tube	20 (25)	203 (250)	15 (18)
Clamp plate set nut	7.8	80	69 in.·lbf
Pump assembly set bolt A bolt	29 (43)	293 (440)	21 (32)
Pump assembly set bolt B bolt	43	440	32
Oil pressure switch x Union bolt	21	210	15
Union bolt x Pressure feed tube	52	525	38
Vane pump pulley set nut	43	440	32
Front bracket x Rear bracket	43	440	32
Suction port union set bolt	13	130	9
Pressure port union	83	850	62
Rear housing set bolt	24	240	17
PS GEAR			
Pressure feed clamp plate set nut	10	100	7
Pressure feed and return tubes x Control valve housing	32 (25)	326 (250)	24 (18)
Stabilizer bar set bolt	19	195	14
PS gear assembly set bolt and nut	181	1,850	134
Turn pressure tube union nut	10 (13)	102 (130)	7 (9)
Tie rod end lock nut	74	750	54
Rack x Rack end	60 (83)	615 (850)	45 (62)
Rack guide spring cap lock nut	50 (69)	513 (700)	37 (51)
Rack housing cap	59	600	43
Selt-locking nut	25	250	18
Control valve housing set bolt	18	185	13

(): For use without SST

SUPPLEMENTAL RESTRAINT SYSTEM

TORQUE SPECIFICATION

SS061-40

Part tightened	N·m	kgf·cm	ft·lbf
Steering wheel	35	360	26
Steering wheel pad	7.1	72	63 in·lbf
Front passenger airbag assembly x Instrument panel	21	210	15
Airbag sensor assembly	21	210	15

BODY ELECTRICAL

SERVICE DATA

SS05U-10

INTEGRATION RELAY (Relay Circuit)	
(Junction Block Side)	
1 – Ground (Constant)	Battery positive voltage
7 – Ground (Ignition switch LOCK or ACC)	No voltage
7 – Ground (Ignition switch ON)	Battery positive voltage
9 – Ground (Ignition switch LOCK or ACC)	No voltage
9 – Ground (Ignition switch ON)	Battery positive voltage
11 – Ground (Ignition switch LOCK)	No voltage
11 – Ground (Ignition switch ACC or ON)	Battery positive voltage
(Wire Harness Side)	
A1 – Ground (Constant)	Battery positive voltage
B1 – Ground (Light control switch OFF)	No voltage
B1 – Ground (Light control switch TAIL or HEAD)	Battery positive voltage
B4 – Ground (Light control switch OFF or TAIL)	No voltage
B4 – Ground (Light control switch HEAD)	Battery positive voltage
B2 – Ground (Constant)	Battery positive voltage
B3 – Ground (Constant)	Battery positive voltage
DAYTIME RUNNING LIGHT RELAY (MAIN) (Wire Harness Side)	
1 – Ground (Ignition switch position LOCK or ACC)	No voltage
1 – Ground (Ignition switch position ON or START)	Battery positive voltage
5 – Ground (Engine Running)	No voltage
5 – Ground (Engine Stop)	Battery positive voltage
7 – Ground (Constant)	Battery positive voltage
9 – Ground (Constant)	Battery positive voltage
AUTOMATIC LIGHT CONTROL SENSOR	
(Connector disconnected)	
1 – Ground (Ignition switch position LOCK or ACC)	No voltage
1 – Ground (Ignition switch position ON)	Battery positive voltage
2 – Ground (Constant)	Battery positive voltage
(Connector connected)	
1 – Ground (Ignition switch position ON)	10 V or more
1 – Ground (Ignition switch position OFF)	1 V or less
3 – Ground (Door courtesy switch ON)	1 V or less
3 – Ground (Door courtesy switch OFF)	9 V or more
5 – Ground (Vehicle's surroundings are dark)	1.8 V or less
5 – Ground (Dimmer switch position Flash)	0.3 V or less
6 – Ground (Vehicle's surroundings are dark)	1.5 V or less
8 – Ground (Vehicle's is under the direct sun light) (Sensor is not covered)	3.7 V or more
8 – Ground (Vehicle's surroundings are dim) (Sensor is covered and taillights are ON)	1.32 ~ 2.32 V
8 – Ground (Vehicle's surroundings are dark) (Sensor is covered and headlights are ON)	0.42 V

SERVICE SPECIFICATIONS – BODY ELECTRICAL

TURN SIGNAL FLASHER	
Flashes/ Minute	60 – 120
LIGHT FAILURE RELAY (Wire Harness Side)	
3 – Ground (Light control switch OFF)	No voltage
3 – Ground (Light control switch TAIL or HEAD)	Battery positive voltage
4 – Ground (Ignition switch LOCK or ACC)	No voltage
4 – Ground (Ignition switch ON)	Battery positive voltage
7 – Ground (Stop light switch OFF)	No voltage
7 – Ground (Stop light switch ON)	Battery positive voltage
8 – Ground (Ignition switch LOCK or ACC)	No voltage
8 – Ground (Ignition switch ON)	Battery positive voltage
SPEEDOMETER (ON-VEHICLE)	
USA:	
Standard indication (mph)	Allowable range (mph)
20	18 – 24
40	38 – 44
60	56 – 66
80	78 – 88
100	98 – 110
120	118 – 132
CANADA:	
Standard indication (km/h)	Allowable range (km/h)
20	17 – 24
40	38 – 46
60	57.5 – 67
80	77 – 88
100	96 – 109
120	115 – 130
140	134 – 151.5
160	153 – 173
TACHOMETER (ON-VEHICLE)/ DC 13.5 V 25 °C at (77 °F)	
Standard indication	Allowable range
700	630 – 770
1,000	900 – 1,100
2,000	1,850 – 2,150
3,000	2,800 – 3,200
4,000	3,800 – 4,200
5,000	4,800 – 5,200
6,000	5,750 – 6,250
7,000	6,700 – 7,300
FUEL RECEIVER GAUGE	
A – B	Approx. 270.8 Ω
A – C	Approx. 91.3 Ω
B – C	Approx. 179.5 Ω

FUEL SENDER GAUGE	
Float position mm (in.)	Resistance (Ω)
F: Approx. 91.1 (3.587)	Approx. 3.0
1/2: Approx. 34.2 (1.346)	Approx. 31.7
E: Approx. 30.8 (1.213)	Approx. 110.0
ENGINE COOLANT TEMPERATURE RECEIVER GAUGE (Resistance)	
A – B	Approx. 54.0 Ω
A – C	Approx. 175.7 Ω
B – C	Approx. 229.7 Ω
ENGINE COOLANT TEMPERATURE SENDER GAUGE (Resistance)	
Temperature $^{\circ}\text{C}$ ($^{\circ}\text{F}$)	Resistance (Ω)
50 (122.0)	160 – 240
120 (248.0)	17.1 – 21.2
SLIDING ROOF CONTROL RELAY AND SWITCH (Wire Harness Side)	
4 – Ground (Ignition switch LOCK or ACC)	* No voltage
4 – Ground (Ignition switch ON)	Battery positive voltage

*: Exceptions: For 60 seconds after the ignition switch ON→OFF (ACC) or until driver or passenger door is opened after the ignition switch ON→OFF (ACC).

BODY

TORQUE SPECIFICATION

SS05T-05

Part tightened	N·m	kgf·cm	ft·lbf
FRONT BUMPER	–	–	–
Reinforcement x Body	34	350	25
REAR BUMPER	–	–	–
Reinforcement x Body	34	350	25
HOOD	–	–	–
Hood x Hood hinge	26	265	19
HOOD SUPPORT	–	–	–
Hood support x Hood	17.5	178	13
Hood support x Body	17.5	178	13
HOOD LOCK CONTROL	–	–	–
Hood lock x Body (A bolt)	8.0	82	71 in·lbf
Hood lock x Body (B bolt)	11	112	8
FRONT DOOR	–	–	–
Upper stop x Door panel	14	143	10
Window regulator x Door panel	5.0	51	44 in·lbf
Window guide lower plate x Window regulator	5.0	51	44 in·lbf
Door glass guide x Door panel	7.0	71	62 in·lbf
Door lock x Door panel	5.0	51	44 in·lbf
Outside handle x Door panel	5.5	56	49 in·lbf
Door hinge x Body	30	306	22
Door hinge x Door	43	440	32
REAR DOOR	–	–	–
Upper stop x Door panel	14	143	10
Rear window guide x Door panel	5.5	56	49 in·lbf
Front window guide x Door panel	7.0	71	62 in·lbf
Window regulator x Door panel	5.0	51	44 in·lbf
Window guide lower plate x Window regulator	5.0	51	44 in·lbf
Door lock x Door panel	5.0	51	44 in·lbf
Outside handle x Door panel	5.5	56	49 in·lbf
Door hinge x Body	26	265	19
Door hinge x Door	43	440	32
FUEL LID	–	–	–
Fuel lid lock assembly x Body	5.5	56	49 in·lbf
Fuel lid opening lid lock retainer x Fuel filler opening lid	5.5	56	49 in·lbf
OUTSIDE REAR VIEW MIRROR	–	–	–
Outside rear view mirror x Door panel	5.5	56	49 in·lbf
LUGGAGE COMPARTMENT DOOR AND HINGE	–	–	–
Luggage compartment door x Luggage compartment door hinge	5.5	56	49 in·lbf
Door lock striker x Body	5.5	56	49 in·lbf
Door lock x Door panel	5.5	56	49 in·lbf
Door lock cylinder x Door panel	5.5	56	49 in·lbf

Part tightened	N-m	kgf-cm	ft-lbf
FRONT WIPER AND WASHER	–	–	–
Wiper link assembly x Body	7.0	71	62 in.-lbf
Wiper arm and blade x Wiper link assembly	24	245	18
INSTRUMENT PANEL	–	–	–
Front passenger airbag assembly x Reinforcement	20	204	15
Steering wheel set nut	35	360	26
FRONT SEAT	–	–	–
Seat adjuster x Body	37	375	27
REAR SEAT	–	–	–
Seatback pad with frame x Body	18	185	13
SEAT BELT	–	–	–
Front Seat Belt	–	–	–
Shoulder anchor x Adjustable anchor	42	430	31
Floor anchor x Body	42	430	31
Retractor x Body (Upper bolt)	7.5	76	66 in.-lbf
Retractor x Body (Lower bolt)	42	430	31
Inner belt x Seat	42	430	31
Rear Seat Belt	–	–	–
Floor anchor x Body	42	430	31
Retractor x Body	42	430	31
Inner belt x Seat	42	430	31
Inner with center belt	42	430	31

AIR CONDITIONING

SERVICE DATA

SS05V-01

Refrigerant charge volume	800 ± 50 g (28.22 ± 1.76 oz.)
Drive belt tension	–
New belt	165 ± 26 lbf
Used belt	110 ± 11 lbf
Idle-up speed	–
Magnetic clutch not engaged	700 ± 50 rpm
Magnetic clutch engaged	700 ± 50 rpm
Magnetic clutch clearance	0.5 ± 0.15 mm (0.020 ± 0.0059 in.)

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Compressor x Discharge hose	10	100	7
Compressor x Suction hose	10	100	7
Condenser x Discharge hose	22	225	16
Condenser x Liquid tube	14	140	10
Receiver x Liquid tube	5.4	55	48 in.·lbf
A/C unit x Liquid tube and suction tube	10	100	7
Expansion valve x Evaporator	5.4	55	48 in.·lbf
Compressor x Engine	25	250	18
Compressor x Compressor bracket	25	250	18
Drive belt adjusting bar bracket x Compressor	25	250	18
Drive belt adjusting bar bracket x Adjusting bar	18	185	13
Pivot bolt	56	570	41
Adjusting lock bolt	18	185	13
Pressure switch x Liquid tube	10	100	7
Pressure plate x Compressor	13.2	135	9
Suction line (Piping joint)	32	330	24
Suction line (Block joint)	10	100	7
Liquid line (Block joint)	10	100	7