

SERVICE SPECIFICATIONS

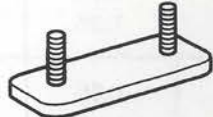
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STANDARD BOLT TORQUE SPECIFICATIONS

SS02G-01

HOW TO DETERMINE BOLT STRENGTH

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

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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

TORQUE SPECIFICATIONS

MA00U-0L

Part/tightened	N·m	kgf·cm	ft·lbf
Front seat mounting bolts	39	400	29

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ENGINE MECHANICAL

SERVICE DATA

EGOV7-0X

Compression pressure	at 250 rpm STD		1,176 kPa (12.0 kgf/cm ² , 171 psi) or more
	Minimum		883 kPa (9.0 kgf/cm ² , 128 psi)
	Difference of pressure between each cylinder		98 kPa (1.0 kgf/cm ² , 14 psi) or less
Valve clearance	at cold Intake		0.15 – 0.25 mm (0.006 – 0.010 in.)
	Exhaust		0.25 – 0.35 mm (0.010 – 0.014 in.)
Ignition timing	w/ Terminals TE1 and E1 connected		3° BTDC @ idle
Idle speed	—		650 ± 50 rpm
Intake manifold vacuum	at idle speed		63 kPa (473 mmHg, 18.6 in.Hg)
Cylinder head	Warpage		
	Cylinder block side	Maximum	0.15 mm (0.0059 in.)
	Manifold side	Maximum	0.10 mm (0.0039 in.)
	Valve seat		
	Refacing angle	Intake	30°, 45°, 75°
		Exhaust	45°, 75°
	Contacting angle		45°
	Contacting width	Intake	1.2 – 1.6 mm (0.047 – 0.063 in.)
		Exhaust	1.0 – 1.4 mm (0.039 – 0.055 in.)
	Cylinder head bolt thread outside diameter	STD	10.85 – 11.00 mm (0.4272 – 0.4331 in.)
	Minimum	10.6 mm (0.417 in.)	
Valve guide bushing	Inside diameter		7.010 – 7.030 mm (0.2760 – 0.2768 in.)
	Outside diameter (for repair part)	STD	11.540 – 11.551 mm (0.4543 – 0.4548 in.)
		O/S 0.05	11.590 – 11.601 mm (0.4563 – 0.4567 in.)
Valve	Valve overall length	STD Intake	98.2 – 98.6 mm (3.866 – 3.882 in.)
		Exhaust	97.7 – 98.1 mm (3.846 – 3.862 in.)
	Minimum Intake	97.9 mm (3.854 in.)	
		Exhaust	97.4 mm (3.835 in.)
	Vale face angle	44.5°	
	Stem diameter	Intake	6.970 – 6.985 mm (0.2744 – 0.2750 in.)
		Exhaust	6.965 – 6.980 mm (0.2742 – 0.2748 in.)
	Stem oil clearance	STD Intake	0.025 – 0.060 mm (0.0010 – 0.0024 in.)
		Exhaust	0.030 – 0.065 mm (0.0012 – 0.0026 in.)
	Maximum Intake	0.08 mm (0.0031 in.)	
		Exhaust	0.10 mm (0.0039 in.)
	Margin thickness	STD	1.2 mm (0.047 in.)
		Minimum	1.0 mm (0.039 in.)
	Valve spring	Deviation	Maximum
Free length		43.94 – 45.06 mm (1.7299 – 1.7740 in.)	
Installed tension at 36.5 mm (1.437 in.)		214 – 238 N (21.8 – 24.2 kgf, 48.1 – 53.4 lbf)	
Valve lifter	Lifter diameter	33.966 – 33.976 mm (1.3372 – 1.3376 in.)	
	Lifter bore diameter	34.000 – 34.021 mm (1.3386 – 1.3394 in.)	
	Oil clearance	STD	0.024 – 0.055 mm (0.0009 – 0.0022 in.)
		Maximum	0.07 mm (0.0028 in.)
Manifold	Warpage	Maximum	0.30 mm (0.0118 in.)

SERVICE SPECIFICATIONS - ENGINE MECHANICAL

Air intake chamber	Warpage	Maximum	0.30 mm (0.0118 in.)
Camshaft	Thrust clearance	STD	0.030 - 0.080 mm (0.0012 - 0.0031 in.)
		Maximum	0.10 mm (0.0039 in.)
	Journal oil clearance	STD	0.025 - 0.062 mm (0.0010 - 0.0024 in.)
		Maximum	0.10 mm (0.0039 in.)
	Journal diameter		26.959 - 26.975 mm (1.0614 - 1.0620 in.)
	Circle runout	Maximum	0.06 mm (0.0024 in.)
	Cam lobe height	STD	50.61 - 50.71 mm (1.9925 - 1.9965 in.)
		Minimum	50.51 mm (1.9886 in.)
	Camshaft gear backlash	STD	0.020 - 0.200 mm (0.0008 - 0.0079 in.)
		Maximum	0.30 mm (0.0188 in.)
	Camshaft gear spring end free distance		18.2 - 18.8 mm (0.717 - 0.740 in.)
Oil pump drive shaft gear	Thrust clearance	STD	0.040 - 0.160 mm (0.0016 - 0.0063 in.)
		Maximum	0.30 mm (0.0118 in.)
Chain and timing gear	Chain length at 16 links	Maximum	146.6 mm (5.772 in.)
	Camshaft timing gear wear (w/ chain)	Minimum	126.0 mm (4.961 in.)
	Crankshaft timing gear wear (w/ chain)	Minimum	65.4 mm (2.575 in.)
Chain tensioner slipper and vibration damper	Wear	Maximum	1.0 mm (0.039 in.)
Cylinder block	Cylinder head surface warpage	Maximum	0.05 mm (0.0020 in.)
	Cylinder bore diameter	STD Mark 1	100.000 - 100.010 mm (3.9370 - 3.9374 in.)
		Mark 2	100.010 - 100.020 mm (3.9374 - 3.9378 in.)
		Mark 3	100.020 - 100.030 mm (3.9378 - 3.9382 in.)
		Maximum STD	100.23 mm (3.9461 in.)
		O/S 0.50	100.73 mm (3.9658 in.)
		O/S 1.00	101.23 mm (3.9854 in.)
	Main bearing bolt thread outside diameter	STD	10.85 - 11.00 mm (0.4271 - 0.4331 in.)
		Minimum	10.6 mm (0.417 in.)
Piston and piston ring	Piston diameter	STD Mark 1	99.950 - 99.960 mm (3.9350 - 3.9354 in.)
		Mark 2	99.960 - 99.970 mm (3.9354 - 3.9358 in.)
		Mark 3	99.970 - 99.980 mm (3.9358 - 3.9362 in.)
		O/S 0.50	100.450 - 100.480 mm (3.9547 - 3.9559 in.)
		O/S 1.00	100.950 - 100.980 mm (3.9744 - 3.9756 in.)
	Piston oil clearance	STD	0.040 - 0.060 mm (0.0016 - 0.0024 in.)
		Maximum	0.080 mm (0.0031 in.)
	Piston ring groove clearance	No.1	0.040 - 0.080 mm (0.0016 - 0.0031 in.)
		No.2	0.030 - 0.070 mm (0.0012 - 0.0028 in.)
	Piston ring end gap	STD No.1	0.300 - 0.520 mm (0.0118 - 0.0205 in.)
		No.2	0.450 - 0.670 mm (0.0177 - 0.0264 in.)
		Oil	0.150 - 0.520 mm (0.0059 - 0.0205 in.)
		Maximum No.1	1.12 mm (0.0441 in.)
		No.2	1.17 mm (0.0461 in.)
		Oil	1.12 mm (0.0441 in.)

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Connecting rod	Thrust clearance	STD	0.160 – 0.262 mm (0.0063 – 0.0103 in.)
		Maximum	0.362 mm (0.0143 in.)
	Connecting rod bearing center wall thickness		
	Reference	STD Mark 2	1.744 – 1.747 mm (0.0687 – 0.0688 in.)
		Mark 3	1.747 – 1.750 mm (0.0688 – 0.0689 in.)
		Mark 4	1.750 – 1.753 mm (0.0689 – 0.0690 in.)
		Mark 5	1.753 – 1.756 mm (0.0690 – 0.0691 in.)
		Mark 6	1.756 – 1.759 mm (0.0691 – 0.0693 in.)
	Connecting rod oil clearance	STD STD	0.032 – 0.050 mm (0.0013 – 0.0020 in.)
		U/S 0.25	0.033 – 0.073 mm (0.0013 – 0.0029 in.)
		Maximum	0.10 mm (0.0039 in.)
	Rod bend	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		26.008 – 26.020 mm (1.0239 – 1.0244 in.)
	Piston pin diameter		26.000 – 26.012 mm (1.0236 – 1.0241 in.)
Crankshaft	Piston pin oil clearance	STD	0.004 – 0.012 mm (0.0002 – 0.0005 in.)
		Limit	0.05 mm (0.0020 in.)
	Connecting rod bolt tension portion diameter	STD	8.40 – 8.60 mm (0.3307 – 0.3386 in.)
		Minimum	8.00 mm (0.3150 in.)
	Thrust clearance	STD	0.020 – 0.220 mm (0.0008 – 0.0087 in.)
		Maximum	0.30 mm (0.0118 in.)
	Thrust washer thickness	STD	2.440 – 2.490 mm (0.0961 – 0.0980 in.)
		O/S 0.125	2.503 – 2.553 mm (0.0985 – 0.1005 in.)
		O/S 0.250	2.565 – 2.615 mm (0.1010 – 0.1030 in.)
	Main journal oil clearance	STD STD	0.036 – 0.054 mm (0.0014 – 0.0021 in.)
		U/S 0.25	0.035 – 0.075 mm (0.0014 – 0.0030 in.)
		Maximum	0.10 mm (0.0039 in.)
	Main journal diameter	STD	68.982 – 69.000 mm (2.7158 – 2.7165 in.)
		U/S 0.25	68.745 – 68.755 mm (2.7065 – 2.7069 in.)
	Main bearing center wall thickness	STD Mark 2	2.492 – 2.495 mm (0.0981 – 0.0982 in.)
	Reference	Mark 3	2.495 – 2.498 mm (0.0982 – 0.0983 in.)
		Mark 4	2.498 – 2.501 mm (0.0983 – 0.0985 in.)
		Mark 5	2.501 – 2.504 mm (0.0985 – 0.0986 in.)
		Mark 6	2.504 – 2.507 mm (0.0986 – 0.0987 in.)
	Crank pin diameter	STD	56.982 – 57.000 mm (2.2434 – 2.2441 in.)
		U/S 0.25	56.745 – 56.755 mm (2.2341 – 2.2344 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 SPECIFICATIONS

EG6VU-0V

Parttightened	N·m	kgf·cm	ft·lbf
Distributor x Cylinder head	18	180	13
No.1 and No.2 engine hangers x Cylinder head	41	420	30
Air intake chamber, Heater inlet pipe x Intake manifold	21	210	15
Intake manifold, EGR pipe, Water outlet x Cylinder head	21	210	15
EGR pipe x EGR valve	78	800	58
Generator bracket x Cylinder head	43	440	32

SERVICE SPECIFICATIONS - ENGINE MECHANICAL

Cylinder head x Cylinder block	1st	39	400	29
	2nd	Turn 90°	Turn 90°	Turn 90°
	3rd	Turn 90°	Turn 90°	Turn 90°
Cylinder head x Timing chain cover		21	210	15
Camshaft bearing cap x Cylinder head		16	160	12
Camshaft timing gear x Camshaft		74	750	54
Chain tensioner, Water bypass pipe x Cylinder head		21	210	15
Cylinder head cover x Cylinder head		12	120	9
Heater pipe x Timing chain cover		21	210	15
Heater pipe x Cylinder head		20	200	14
No.1 and No.2 exhaust manifolds x Cylinder head		39	400	29
No.2 water bypass pipe x Cylinder head, No.1 engine hanger		20	200	14
Fuel inlet hose x Fuel filter		29	300	22
Intake manifold stay x Air intake chamber, Cylinder block		36	360	26
Oil dipstick guide x Intake manifold, No.1 oil pan		20	200	14
PS reservoir x Air intake chamber		20	200	14
Oil jet, Chain vibration damper x Cylinder block		20	200	14
Chain tensioner slipper x Cylinder block		69	700	51
Timing chain cover x Cylinder block		21	210	15
Drive belt idler pulley x Timing chain cover		43	440	32
Crankshaft pulley x Crankshaft		412	4,200	304
Cylinder block oil orifice x Cylinder block		7.8	80	69 in. lbf
Main bearing cap x Cylinder block	1st	74	750	54
	2nd	Turn 90°	Turn 90°	Turn 90°
Connecting rod cap x Connecting rod	1st	48	490	35
	2nd	Turn 90°	Turn 90°	Turn 90°
Rear oil seal retainer x Cylinder block		21	210	15
LH and RH front engine mounting brackets x Cylinder block		69	700	51
PS pump x Cylinder block		36	370	27
Oil filter union x Cylinder block		44	450	33
Drive plate x Crankshaft		100	1,000	74
Transmission x Cylinder block, No.1 oil pan		72	730	53
Torque converter clutch x Drive plate		55	550	41
A/T oil cooler pipe x Union on transmission		34	350	25
Starter x Transmission		39	400	29
Frame crossmember x Frame		61	620	45
Frame crossmember x Engine rear mounting insulator		74	750	54
LH and RH front engine mounting insulators x Frame		74	750	54
Transfer shift lever x Transmission		18	185	13
Transmission shift lever assembly x Body		5.4	55	48 in. lbf
Transmission control rod x Control shaft lever		13	130	9
Stabilizer bar bracket x Stabilizer bar link		18	185	13
Stabilizer bar x Axle carrier		25	260	19
PS pressure hose x PS pump		56	575	42
Radiator pipe x No.1 oil pan		21	210	15
A/C compressor bracket x No.1 oil pan, Cylinder block		37	375	27
A/C compressor x A/C compressor bracket		25	250	18
Heated oxygen sensor (Bank 1 Sensor 1) x Front exhaust pipe		20	200	14
Heated oxygen sensor (Bank 1 Sensor 2) x Center pipe		20	200	14

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Front exhaust pipe x Exhaust manifold	63	630	46
Front exhaust pipe x Rear TWC	46	470	34
Rear TWC, Tailpipe x Center pipe	40	400	29
No.1 exhaust pipe support bracket x Transmission	24	240	17
No.1 exhaust pipe support bracket x Front exhaust pipe	19.5	195	14
No.2, No.3 and No.4 exhaust pipe support brackets x Frame	18.5	185	13
Exhaust pipe damper x Tailpipe	19.5	195	14

EMISSION CONTROL

SERVICE DATA

EG06P-18

VSV for EVAP	Resistance	at 20°C (68°F)	30 - 34 Ω
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EG06O-26

TORQUE SPECIFICATIONS

Parttightened	N·m	kgf·cm	ft·lbf
Charcoal canister x Charcoal canister bracket	14	145	10
Charcoal canister bracket x Body	18	185	13
TVV x Cylinder head	29	300	22
Intake manifold stay x Air intake chamber, Cylinder block	36	360	26
EGR valve x Air intake chamber	9	90	78 in.·lbf
EGR valve x Air intake chamber	18	180	13
EGR valve x EGR pipe	64	650	47
EGR vacuum modulator x EGR valve	18	185	13
Heated oxygen sensor (Bank 1 Sensor 1) x Front exhaust pipe	20	200	14
Front exhaust pipe x Exhaust manifold	63	630	46
Front exhaust pipe x Rear TWC	46	470	34
Rear TWC x Center pipe	40	400	29
No.1 exhaust pipe support bracket x Transmission	24	240	17
No.1 exhaust pipe support bracket x Front exhaust pipe	19.5	195	14

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SEQUENTIAL MULTIPOINT FUEL INJECTION

SERVICE DATA

Fuel pressure regulator	Fuel pressure at no vacuum	265 - 304 kPa (2.7 - 3.1 kgf/cm ² , 38 - 44 psi)
Fuel pump	Resistance at 20°C (68°F)	0.2 - 3.0 Ω
Injector	Resistance at 20°C (68°F)	13.4 - 14.2 Ω
	Injection volume	69 - 88 cm ³ (4.2 - 5.4 cu in.) per 15 sec.
	Difference between each cylinder	5 cm ³ (0.3 cu in.) or less
	Fuel leakage	One drop or less per minute
MAF meter	Resistance (THA - E2)	at -20°C (-4°F) 10 - 20 kΩ
		at 0°C (32°F) 4 - 7 kΩ
		at 20°C (68°F) 2 - 3 kΩ
		at 40°C (104°F) 0.9 - 1.3 kΩ
		at 60°C (140°F) 0.4 - 0.7 kΩ
		at 80°C (176°F) 0.2 - 0.4 kΩ
Throttle body	Throttle body fully closed angle	6°
	Dashpot setting speed	2,200 ± 300 rpm
	Throttle opener setting speed	700 - 1,000 rpm
Throttle position sensor	Clearance between stop screw and lever	Terminal
	0 mm (0 in.)	VTA - E2 0.2 - 5.7 kΩ
	0.50 mm (0.020 in.)	IDL - E2 2.3 kΩ or less
	0.75 mm (0.030 in.)	IDL - E2 Infinity
	Throttle valve fully open	VTA - E2 2.0 - 10.2 kΩ
IAC valve	Resistance (B1 - S1 and S3, B2 - S2 and S4)	VC - E2 2.5 - 5.9 kΩ
		at cold 15 - 25 Ω
		at hot 20 - 30 Ω
Fuel pump resistor	Resistance at 20°C (68°F)	0.70 - 0.76 Ω
VSV for fuel pressure control	Resistance at 20°C (68°F)	37 - 44 Ω
ECT sensor	Resistance	at -20°C (-4°F) 10 - 20 kΩ
		at 0°C (32°F) 4 - 7 kΩ
		at 20°C (68°F) 2 - 3 kΩ
		at 40°C (104°F) 0.9 - 1.3 kΩ
		at 60°C (140°F) 0.4 - 0.7 kΩ
		at 80°C (176°F) 0.2 - 0.4 kΩ
EGR gas temperature sensor	Resistance	at 50°C (122°F) 64 - 97 kΩ
		at 100°C (212°F) 11 - 16 kΩ
		at 150°C (302°F) 2 - 4 kΩ
Heated oxygen sensors (bank 1 sensor 1, 2)	Heater coil resistance at 20°C (68°F)	11 - 16 Ω
Fuel cut rpm	Fuel return rpm	1,200 rpm

TORQUE SPECIFICATIONS

Part/tightened	N·m	kgf·cm	ft·lbf
Fuel line for union bolt	29	300	22
for flare nut	30	310	22
Fuel pump bracket x Fuel tank	3.9	40	35 in.·lbf
Fuel inlet hose, Fuel inlet pipe x Fuel filter	29	300	22
Fuel filter x Intake manifold	21	210	15
Fuel pressure regulator x Delivery pipe	25	250	18
Delivery pipe x Intake manifold	21	210	15
Fuel inlet pipe x Delivery pipe Union bolt	29	300	22
Bolt	20	200	14
Fuel return pipe x Intake manifold	20	200	14
Air intake chamber x Intake manifold	21	210	15
Intake manifold stay x Air intake chamber, Cylinder block	36	360	26
PS reservoir x Air intake chamber	18	185	13
Heater inlet pipe x Air intake chamber	20	200	14
Drain plug x Fuel tank	6.5	65	57 in.·lbf
Fuel tank breather tube x Fuel tank	1.5	15	13 in.·lbf
Fuel tank filler pipe x Fuel tank	3.5	35	31 in.·lbf
Fuel tank band x Body	39	400	29
MAF meter x Air cleaner cap, Bracket	6.9	70	61 in.·lbf
Throttle body x Air intake chamber	21	210	15
Fuel pump resistor x Body	18	185	13
ECT sensor x Cylinder head	24.5	250	18
EGR gas temperature sensor x Air intake chamber	20	200	14
Knock sensor 1, 2 x Cylinder block	44	450	33
Heated oxygen sensor (Bank 1 Sensor 1) x Front exhaust pipe	20	200	14
Heated oxygen sensor (Bank 1 Sensor 2) x Center pipe	20	200	14

COOLING

SERVICE DATA

EG07L-2C

Thermostat	Valve opening temperature Valve lift at 95°C (203°F)	80 – 84°C (176 – 183°F) 10 mm (0.39 in.) or more
Radiator cap	Relief valve opening pressure	STD 74 – 103 kPa (0.75 – 1.05 kgf/cm ² , 10.7 – 14.9 psi) Minimum 59 kPa (0.6 kgf/cm ² , 8.5 psi)

EG07M-2D

TORQUE SPECIFICATIONS

Parttightened		N·m	kgf·cm	ft·lbf
Coolant drain plug x Cylinder block		29	300	22
Water pump x Cylinder block		21	210	15
Fan shroud x Radiator		5.0	50	43 in·lbf
Water inlet x Water inlet housing		21	210	15
Radiator x Radiator bracket		12	120	9
Radiator x Body	Bolt	18	185	13
	nut	12	120	9

LUBRICATION

SERVICE DATA

EG08H-0X

Oil pressure		at idle speed	29 kPa (0.3 kgf/cm ² , 4.3 psi) or more
		at 3,000 rpm	245 - 490 kPa (2.5 - 5.0 kgf/cm ² , 36 - 71 psi)
Oil pump	Body clearance	STD	0.100 - 0.170 mm (0.0039 - 0.0067 in.)
		Maximum	0.30 mm (0.0118 in.)
	Side clearance	STD	0.030 - 0.090 mm (0.0012 - 0.0035 in.)
		Maximum	0.15 mm (0.0059 in.)
	Tip clearance	STD	0.030 - 0.160 mm (0.0012 - 0.0063 in.)
		Maximum	0.25 mm (0.0098 in.)

EG09Y-0M

TORQUE SPECIFICATIONS

Parttightened		N·m	kgf·cm	ft·lbf
Engine oil drain plug x Oil pan		25	250	18
Relief valve plug x Oil pump body (Timing chain cover)		49	500	36
Oil strainer x No.1 oil pan		20	200	14
Baffle plate x No.1 oil pan		9.0	90	78 in.·lbf
No.1 oil pan x Cylinder block	12 mm head	20	200	14
	14 mm head	44	440	32
No.1 oil pan x Oil pump body (Timing chain cover)		20	200	14
No.2 oil pan x No.1 oil pan	Bolt	7.8	80	69 in.·lbf
	Nut	8.8	90	78 in.·lbf
No.1 oil pan x Transmission housing		72	730	53
Oil level sensor x No.1 oil pan		5.4	55	48 in.·lbf
Relief valve plug x Oil cooler cover		37	375	27
Oil cooler x Oil cooler cover		17	170	12
Oil cooler cover x Cylinder block		21	210	15
No.1 exhaust manifold x Cylinder head		39	400	29
Oil check valve x Cylinder block		25	250	18

IGNITION

SERVICE DATA

IG05M-00

Fire order	-	1-5-3-6-2-4
High-tension cord	Resistance Maximum	25 k Ω per cord
Spark plug	Recommended spark plug	ND K16R-U
	NGK BKR5EYA	
	Correct electrode gap	0.8 mm (0.031 in.)
Ignition coil	Primary coil resistance	at cold 0.36 - 0.55 Ω
		at hot 0.45 - 0.65 Ω
	Secondary coil resistance	at cold 9.0 - 15.4 k Ω
		at hot 11.4 - 18.1 k Ω
Distributor	Air gap	0.2 - 0.4 mm (0.008 - 0.016 in.)
	Pickup coil resistance	at cold G1 - G $\ominus$ 185 - 275 Ω
		G2 - G $\ominus$ 185 - 275 Ω
		NE - G $\ominus$ 185 - 275 Ω
		at hot G1 - G $\ominus$ 240 - 325 Ω
		G2 - G $\ominus$ 240 - 325 Ω
Crankshaft position sensor	Resistance	at cold NE $\oplus$ - NE $\ominus$ 1,630 - 2,740 Ω
		at hot NE $\oplus$ - NE $\ominus$ 2,065 - 3,225 Ω

IG017-0P

TORQUE SPECIFICATIONS

Part	tightened	N·m	kgf·cm	ft·lbf
Spark plug x Cylinder head		20	200	14
Distributor x Cylinder head		18	180	13
Crankshaft position sensor x No.1 oil pan		9	90	78 in·lbf
Crankshaft position sensor protector x No.1 oil pan		20	200	14

STARTING

SERVICE DATA

ST015-1X

Starter (1.4 kW type)	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, 4.0 – 5.3 lbf)
		Minimum	11.8 N (1.20 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.)
Starter (2.0 kW type)	Rated voltage and output power		12 V 2.0 kW
	No-load characteristics	Current	100 A or less at 11.5 V
		rpm	2,500 rpm or more
	Brush length	STD	15.0 mm (0.591 in.)
		Minimum	9.0 mm (0.354 in.)
	Spring installed load	STD	21.5 – 27.5 N (2.2 – 2.8 kgf, 4.9 – 6.2 lbf)
		Minimum	12.7 N (1.30 kgf, 2.9 lbf)
	Commutator Diameter	STD	35.0 mm (1.378 in.)
		Minimum	34.0 mm (1.339 in.)
	Undercut depth	STD	0.7 mm (0.028 in.)
		Minimum	0.2 mm (0.008 in.)
	Circle runout	Maximum	0.05 mm (0.0020 in.)
	Field frame		
	Shunt coil resistance	at 20 °C (68 °F)	1.5 – 1.9 Ω
	Magnetic switch		
	Contact plate for wear	Maximum	0.9 mm (0.035 in.)

TORQUE SPECIFICATIONS

Parttightened		N·m	kgf·cm	ft·lbf
Terminal 30 nut, Terminal C nut x Terminal bolt		17	173	13
End cover x Magnetic switch housing	1.4 kW type	2.5	25	22 in·lbf
	2.0 kW type	3.6	37	32 in·lbf
End cover x Brush holder	1.4 kW type	1.5	15	13 in·lbf
	2.0 kW type	3.8	39	35 in·lbf
Starter housing x Magnetic switch	1.4 kW type	5.9	60	52 in·lbf
	2.0 kW type	9.3	95	82 in·lbf
End cover x Starter housing	1.4 kW type	5.9	60	52 in·lbf
	2.0 kW type	9.3	95	82 in·lbf
Lead wire of field frame x Terminal C		5.9	60	52 in·lbf
Starter x Transmission		39	400	29
Starter wire x Starter		9.8	100	86 in·lbf

CHARGING

SERVICE DATA

CH018-1K

Battery	Voltage	at 20°C (68°F)	12.5 - 12.9
Drive belt	Tension	New belt	88 - 132 lbf
		Used belt	44 - 88 lbf
Generator	Rated output		12 V - 80 A
	Rotor coil resistance	20°C (68°F)	2.7 - 3.1 Ω
	Slip ring diameter	STD	14.2 mm - 14.4 mm (0.559 - 0.567 in.)
		Minimum	12.8 mm (0.504 in.)
	Brush exposed length	STD	9.5 - 11.5 mm (0.374 - 0.453 in.)
		Minimum	1.5 mm (0.059 in.)
Voltage regulator	Regulating voltage		13.5 - 15.1 V

CH03N-0J

TORQUE SPECIFICATIONS

Parttightened	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
Generator pulley x Rotor	110.5	1,125	81
Rectifier holder x Lead wire on rectifier end frame	2.9	30	26 in.-lbf
Voltage regulator x Rectifier end frame	2.0	20	18 in.-lbf
Voltage regulator, Brush holder x Rectifier holder	2.0	20	18 in.-lbf
Brush holder x Voltage regulator	2.0	20	18 in.-lbf
Rear end cover x Rectifier holder	4.4	45	39 in.-lbf
Rectifier plate x Rectifier holder	3.9	39	35 in.-lbf
Terminal insulator x Rectifier holder	4.1	42	36 in.-lbf
Drive belt adjusting bar x Timing chain cover	21	210	15
Generator x Generator bracket	58	590	43
Drive belt adjusting bar x Generator	21	210	15

AUTOMATIC TRANSMISSION

SERVICE DATA

SS01Y-05

Line pressure (wheel locked)				
Engine idling				
	D position	422-481 kPa	4.3-4.9 kgf/cm ²	61-70 psi
	R position	510-608 kPa	5.2-6.2 kgf/cm ²	74-88 psi
AT stall (Throttle valve fully opened)				
	D position	1,285-1,530 kPa	13.1-15.6 kgf/cm ²	128-153 psi
	R position	1,579-1,932 kPa	16.1-19.7 kgf/cm ²	158-193 psi
Engine stall revolution	D and R positions	1,950 ± 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	650 ± 50 rpm		
Throttle cable adjustment (Throttle valve fully closed)		Between boot and face and inner cable stopper		
		0-1 mm	0-0.04 in.	
Drive plate runout	Max.	0.20 mm	0.0079 in.	
Torque converter clutch runout	Max.	0.30 mm	0.0118 in.	
Torque converter clutch installation distance		More than 15.7 mm	More than 0.618 in.	

SHIFT POINT

Shift position	Shifting point	Vehicle speed km/h (mph)
*1 D	Throttle valve fully opened	
	1→2	56-62 (35-39)
	2→3	103-114 (64-71)
	3→O/D	152-163 (94-101)
	O/D→3	145-156 (90-97)
	3→2	95-101 (59-63)
*1 2	2→1	42-47 (26-29)
	*2 3→2	116-127 (72-79)
L	*2 2→1	56-62 (38-39)

*1: There is no 1→2 up-shift and 2→1 down-shift in the 2nd START switch ON.

*2: Shift points is the same when the throttle valve is closed as when the throttle valve is opened.

LOCK-UP POINT

D position	Lock-up ON km/h (mph)	Lock-up OFF km/h (mph)
Throttle valve opening 5%		
O/D Gear (NORM)	77-83 (48-52)	68-74 (42-46)
O/D Gear (PWR)	77-83 (48-52)	68-74 (42-46)

TORQUE SPECIFICATIONS

Part/tightened		N·m	kgf·cm	ft·lbf
Valve body x Transmission case		10	100	7
Oil strainer x Valve body		10	100	7
Oil pan		7.4	75	65 in·lbf
Drain plug		20	205	15
Parking lock pawl bracket x Transmission case		7.4	75	65 in·lbf
Front propeller shaft x Front differential		74	750	54
Front propeller shaft x Transfer		74	750	54
Rear propeller shaft x Transfer		88	900	65
Rear propeller shaft x Rear differential		88	900	65
Drive plate x Crankshaft		98	1,000	72
Torque converter clutch x Drive plate		55	550	40
Front exhaust pipe x Exhaust manifold		62	630	46
Front exhaust pipe x TWC		39	400	29
Oil cooler pipe		34	350	25
Transmission x Engine		72	730	53
Exhaust pipe clamp		19	195	14
Park/Neutral position switch	Nut	3.9	40	35 in·lbf
	Bolt	13	130	9
No.2 vehicle speed sensor		5.4	55	48 in·lbf
Speedometer driven gear sleeve x Locking plate		16	160	12
Starter mounting bolt		39	400	29
Transfer shift lever		18	185	13
Stabilizer bar bracket mounting bolt		18	185	13
Engine under cover mounting bolt		28	290	21
Exhaust pipe No.1 support bracket x Torque converter clutch housing		24	240	17
Crossmember x Frame		61	620	45
Engine rear mounting x Crossmember		74	750	54
Transmission shift lever assembly x Body		5.4	55	48 in·lbf
Oil cooler mounting bolt		11	115	8
Valve body x Shift solenoid valve		10	100	7
ATF temperature sensor		15	150	11
Fan shroud		5.0	50	43 in·lbf
Transmission control rod x Control shaft lever		13	130	9

TRANSFER

SERVICE DATA

SS03M-01

Idler gear rear bearing adjusting shim thickness	Mark 2	0.30 mm (0.0118 in.)
	Mark 3	0.45 mm (0.0177 in.)
	Mark 4	2.40 mm (0.0945 in.)
	Mark 5	2.60 mm (0.1024 in.)
	Mark 6	2.80 mm (0.1102 in.)
	Mark 7	3.00 mm (0.1181 in.)
	Mark 8	3.20 mm (0.1260 in.)
	Mark 9	3.40 mm (0.1339 in.)
	Mark 10	3.60 mm (0.1417 in.)
	Mark 11	3.80 mm (0.1496 in.)
	Mark 12	4.00 mm (0.1575 in.)
	Mark 13	0.55 mm (0.0216 in.)
Output shaft rear bearing adjusting shim thickness	Mark B	0.30 mm (0.0118 in.)
	Mark C	0.45 mm (0.0177 in.)
	Mark D	1.00 mm (0.0394 in.)
	Mark E	1.20 mm (0.0472 in.)
	Mark F	1.40 mm (0.0551 in.)
	Mark G	1.60 mm (0.0630 in.)
	Mark H	1.80 mm (0.0709 in.)
	Mark J	2.00 mm (0.0787 in.)
	Mark K	2.20 mm (0.0866 in.)
	Mark L	2.40 mm (0.0945 in.)
	Mark M	2.60 mm (0.1024 in.)
	Mark N	0.55 mm (0.0216 in.)
Input gear snap ring thickness	Mark A	2.00 mm (0.0787 in.)
	Mark B	2.10 mm (0.0827 in.)
	Mark C	2.20 mm (0.0866 in.)
	Mark D	2.30 mm (0.0906 in.)
	Mark E	2.40 mm (0.0945 in.)
	Mark F	2.50 mm (0.0984 in.)
	Mark G	2.60 mm (0.1024 in.)
	Mark H	2.70 mm (0.1063 in.)
	Mark J	2.80 mm (0.1102 in.)
Input shaft rear ball bearing snap ring thickness	Mark A	2.00 mm (0.0787 in.)
	Mark B	2.10 mm (0.0827 in.)
	Mark C	2.20 mm (0.0866 in.)
	Mark D	2.30 mm (0.0906 in.)
	Mark E	2.40 mm (0.0945 in.)
Idler low gear thrust clearance	STD	0.125 - 0.275 mm (0.0049 - 0.0108 in.)
	Max.	0.275 mm (0.0108 in.)
Idler low gear radial clearance	STD	0.015 - 0.068 mm (0.0006 - 0.0027 in.)
	Max.	0.068 mm (0.0027 in.)

SERVICE SPECIFICATIONS - TRANSFER

High speed output gear thrust clearance	STD	0.10 – 0.25 mm (0.0039 – 0.0098 in.)
	Max.	0.25 mm (0.0098 in.)
High speed output gear radial clearance	STD	0.035 – 0.091 mm (0.0014 – 0.0036 in.)
	Max.	0.091 mm (0.0036 in.)
Center differential backlash	Min.	0.05 mm (0.0020 in.)
Center differential side gear thrust washer thickness		1.70 mm (0.0669 in.) 1.85 mm (0.0728 in.) 2.00 mm (0.0787 in.) 2.15 mm (0.0846 in.) 2.30 mm (0.0906 in.) 2.45 mm (0.0965 in.) 2.60 mm (0.1024 in.) 2.75 mm (0.1083 in.) 2.90 mm (0.1142 in.) 3.05 mm (0.1201 in.)
Front drive gear piece snap ring thickness	Mark A Mark B Mark C Mark D Mark E Mark F Mark G Mark H Mark J Mark K Mark L	2.00 mm (0.0787 in.) 2.10 mm (0.0827 in.) 2.20 mm (0.0866 in.) 2.30 mm (0.0906 in.) 2.40 mm (0.0945 in.) 2.50 mm (0.0984 in.) 2.60 mm (0.1024 in.) 2.70 mm (0.1063 in.) 2.80 mm (0.1102 in.) 1.80 mm (0.0709 in.) 1.90 mm (0.0748 in.)
Front extension housing ball bearing snap ring thickness	Mark A	1.7 mm (0.0669 in.)
	Mark B	1.8 mm (0.0709 in.)
Front output shaft hub snap ring thickness	Mark A	1.8 mm (0.0709 in.)
	Mark B	1.9 mm (0.0748 in.)
	Mark C	2.0 mm (0.0787 in.)
	Mark D	2.1 mm (0.0827 in.)
	Mark E	2.2 mm (0.0866 in.)
Oil pump driven rotor body clearance	STD	0.08 – 0.17 mm (0.0031 – 0.0067 in.)
	Max.	0.17 mm (0.0067 in.)
Oil pump driven rotor body tip clearance	STD	0.05 – 0.15 mm (0.0020 – 0.0059 in.)
	Max.	0.15 mm (0.0059 in.)
Oil pump side clearance	STD	0.03 – 0.10 mm (0.0012 – 0.0039 in.)
	Max.	0.10 mm (0.0039 in.)
Rear extension housing ball bearing snap ring thickness	Mark A	1.7 mm (0.0669 in.)
	Mark B	1.8 mm (0.0709 in.)

Rear output shaft ball bearing snap ring thickness	Mark 1	1.95 mm (0.0768 in.)
	Mark 2	2.05 mm (0.0807 in.)
	Mark 3	2.15 mm (0.0847 in.)
	Mark 4	2.25 mm (0.0886 in.)
Motor actuator		
2 - 3	STD resistance	0.3 - 100 Ω
2 or 3 - body ground	STD resistance	More than 0.5 M Ω
Breather hose (from the hose end to the clip end)		5 mm (0.20 in.) or more

5503N-01

TORQUE SPECIFICATIONS

Parttightened	N·m	kgf·cm	ft·lbf
Crossmember x Frame	61	620	45
Crossmember x Engine rear mounting	74	750	54
Transfer x Transmission	69	700	51
Filler and drain plug	37	380	27
Oil pump plate and separator x Rear extension housing	4.9	50	43 in·lbf
Oil pump cover x Rear extension housing	4.9	50	43 in·lbf
Lever lock pin	12	120	9
Oil strainer x Rear case	4.9	50	43 in·lbf
Oil receiver x Front case	12	120	9
Case cover x Rear case	37	380	27
Rear extension housing x Rear case	37	380	27
Front extension housing x Front case	37	380	27
Center Diff Lock Indicator switch	37	380	27
L4 position switch	37	380	27
Neutral position switch	37	380	27
Screw plug x Front case	19	190	14
Screw plug x Rear extension housing	29	300	22
Motor actuator x Front case	18	185	13
Differential front case x Differential rear case	98	1,000	72
(Temporarily tighten)	88	900	65
Front case x Rear case	37	380	27
Rear case x Retainer	39	400	28
Dynamic damper x Rear extension housing	37	380	27

PROPELLER SHAFT

SERVICE DATA

SS03X-01

Propeller shaft runout	Maximum	0.8 mm (0.031 in.)
Spider bearing axial play	Maximum	0.05 mm (0.0020 in.)
Snap ring thickness		
Front propeller shaft and rear propeller shaft (Type B)		
	Mark	Color
	1	—
	2	—
	3	—
	—	Brown
	—	Blue
	6	—
	7	—
	8	—
Rear propeller shaft (Type A)	—	—
	—	Brown
	—	Blue
	—	—

SS03Y-01

TORQUE SPECIFICATIONS

Part tightened	N·m	kgf·cm	ft·lbf
Front propeller shaft x Front differential	74	750	54
Front propeller shaft x Transfer	74	750	54
Rear propeller shaft x Rear differential	88	900	65
Rear propeller shaft x Transfer	88	900	65

SUSPENSION AND AXLE

SERVICE DATA

SS02Z-01

Cold tire inflation pressure kPa (kgf/cm ² , psi)	Tire size		Front	Rear
	P275/70R 16		220 (2.2, 32)	220 (2.2, 32)
Follow spring and bumper stopper clearance	A : Follow spring clearance (Front)		A	B
	B : Bumper stopper clearance (Rear)		36 mm (1.42 in.)	104 mm (4.09 in.)
Front Wheel alignment	Camber	Inspection standard	1° ± 45' (1° ± 0.75°)	
		Left – right error	45' (0.75°) or less	
	Caster	Inspection standard	3° ± 1°	
		Left – right error	45' (0.75°) or less	
	Steering axis inclination	Inspection standard	13° ± 45' (13° ± 0.75°)	
	Toe – in	Inspection standard	0° 12' ± 12' (0.2° ± 0.2°, 2 ± 2mm, 0.08 ± 0.08 in.)	
	Wheel angle Max.	Inside wheel	Outside wheel (Reference)	
		32° – 35°	31°	
Tire runout			3.0 mm (0.118 in) or less	
Wheel balance (Unbalance after adjustment)			13.0g (0.029 lb) or less	
Wheel bearing preload (at starting)	Front	28 – 56 N	2.9 – 5.7 kgf	6.4 – 12.6 lbf
(rotating load hub bolt)	Rear	26 – 57 N	2.6 – 5.8 kgf	5.7– 12.8 lbf
Steering knuckle bearing preload				
(rotating load at Knuckle end, before installing dust seal)		25 – 44 N	2.5 – 4.5 kgf	5.5 – 9.9 lbf

V08294

SERVICE SPECIFICATIONS - SUSPENSION AND AXLE

Front differential	Drive pinion bearing preload at starting	0.9 - 1.6 N·m 10 - 16 kgf·cm 8.7 - 13.9 in.·lbf	
	New bearing	0.5 - 0.8 N·m 5 - 8 kgf·cm 4.3 - 6.9 in.·lbf	
	Reused bearing		
	Total preload at starting	Drive pinion bearing preload plus	
	New and reused bearing	0.4 - 0.6 N·m 4 - 6 kgf·cm 3.5 - 5.2 in.·lbf	
	Drive pinion to ring gear backlash	0.13 - 0.18 mm	0.0051 - 0.0071 in.
	Pinion gear to side gear backlash	0.05 - 0.20 mm	0.0020 - 0.0079 in.
	Ring gear runout Maximum	0.10 mm	0.0039 in.
	Companion flange runout Maximum		
	Radial	0.10 mm	0.0039 in.
	Lateral	0.10 mm	0.0039 in.
	Oil seal drive in depth	1.0 mm	0.039 in.
	Side gear thrust washer thickness w/o Differential lock	1.60 mm	0.063 in.
		1.65 mm	0.065 in.
		1.70 mm	0.067 in.
		1.75 mm	0.069 in.
		1.80 mm	0.071 in.
	w/ Differential lock	0.9 mm	0.035 in.
		1.0 mm	0.039 in.
		1.1 mm	0.043 in.
		1.2 mm	0.047 in.
		1.3 mm	0.051 in.
	Drive pinion adjusting plate washer thickness	1.70 mm	0.0669 in.
		1.73 mm	0.0681 in.
		1.76 mm	0.0693 in.
		1.79 mm	0.0705 in.
		1.82 mm	0.0717 in.
		1.85 mm	0.0728 in.
		1.88 mm	0.0740 in.
		1.91 mm	0.0752 in.
		1.94 mm	0.0764 in.
		1.97 mm	0.0776 in.
		2.00 mm	0.0787 in.
		2.03 mm	0.0799 in.
		2.06 mm	0.0811 in.
		2.09 mm	0.0823 in.
		2.12 mm	0.0835 in.
		2.15 mm	0.0846 in.
		2.18 mm	0.0858 in.
		2.21 mm	0.0870 in.
		2.24 mm	0.0882 in.
		2.27 mm	0.0894 in.
		2.30 mm	0.0906 in.
		2.33 mm	0.0917 in.

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Rear differential	Drive pinion bearing preload at starting		
	New bearing	1.3 - 2.0 N·m	13 - 20 kgf·cm 11.3 - 17.4 in.·lbf
	Reused bearing	0.7 - 1.0 N·m	7 - 10 kgf·cm 6.1 - 8.7 in.·lbf
	Total preload		Drive pinion bearing preload plus
	w/o Differential lock	0.4 - 0.6 N·m	4 - 6 kgf·cm 3.5 - 5.2 in.·lbf
	w/ Differential lock	0.3 - 0.7 N·m	3 - 7 kgf·cm 2.6 - 6.1 in.·lbf
	Drive pinion to ring gear backlash	0.15 - 0.20 mm	0.0059 - 0.0079 in.
	Pinion gear to side gear backlash	0.02 - 0.20 mm	0.0008 - 0.0079 in.
	Ring gear runout	Maximum	0.10 mm 0.0039 in.
	Companion flange runout	Maximum	
		Radial	0.10 mm 0.0039 in.
		Lateral	0.10 mm 0.0039 in.
	Oil seal drive in depth	1.0 mm	0.039 in.
	Side gear thrust washer thickness	1.55 mm	0.061 in.
		1.60 mm	0.063 in.
		1.65 mm	0.065 in.
		1.70 mm	0.067 in.
		1.75 mm	0.069 in.
		1.80 mm	0.071 in.
		1.85 mm	0.073 in.
		1.90 mm	0.075 in.
		1.95 mm	0.077 in.
		2.00 mm	0.079 in.
		2.05 mm	0.081 in.
		2.10 mm	0.083 in.
	Drive pinion adjusting plate washer thickness	1.050 mm	0.0413 in.
		1.075 mm	0.0423 in.
		1.100 mm	0.0433 in.
		1.125 mm	0.0443 in.
		1.150 mm	0.0453 in.
		1.175 mm	0.0463 in.
		1.200 mm	0.0472 in.
		1.225 mm	0.0482 in.
		1.250 mm	0.0492 in.
		1.275 mm	0.0502 in.
		1.300 mm	0.0512 in.
		1.325 mm	0.0522 in.
		1.350 mm	0.0531 in.
		1.375 mm	0.0541 in.
		1.400 mm	0.0551 in.
		1.425 mm	0.0561 in.
		1.450 mm	0.0571 in.
		1.475 mm	0.0581 in.
		1.500 mm	0.0591 in.
		1.525 mm	0.0600 in.
		1.550 mm	0.0610 in.

TORQUE SPECIFICATIONS

FRONT

Part/tightened	N·m	kgf·cm	ft·lbf
Axle hub x Disc	64	650	47
Axle hub bearing lock nut	64	650	47
Flange x Axle hub	35	360	26
Brake caliper x Axle carrier	123	1,250	90
Brake caliper x Flexible hose	30	310	22
Steering knuckle x Knuckle arm	96	980	71
Bearing cap x Steering knuckle	96	980	71
Knuckle arm x Tie rod	91	925	67
Steering knuckle x Knuckle spindle	47	475	34
Oil seal end retainer x Knuckle arm	5.4	55	48 in·lbf
ABS speed sensor set bolt x Steering knuckle	18	185	13
Hub nut	103	1,050	76
Drain plug	49	500	39
Filler plug	49	500	39
Propeller shaft x Companion flange	88	900	65
Side bearing cap x Differential carrier	78	800	58
Ring gear x Differential case	97	985	71
Drive pinion x Companion flange	196 – 343	2,000 – 3,500	145 – 253
Differential LH case x RH case	47	480	35
Differential lock shift retainer	24	240	17
Differential lock screw plug	22	220	16
Differential lock indicator switch	40	410	30
Differential lock actuator	26	270	20
Differential carrier x Axle housing	27	280	20
Adjusting nut lock x Bearing cap	13	130	9
Follow spring x Frame	9.2	94	82 in·lbf
Stabilizer bar x Axle housing	25	260	19
Shock absorber x Axle housing	69	700	51
Shock absorber x Frame	69	700	51
Stabilizer bar link x Cover	18	185	13
Stabilizer bar link x Link bracket	103	1,050	76
Lateral control rod x Frame	171	1,750	127
Lateral control rod x Axle housing	171	1,750	127
Leading arm x Frame	177	1,800	130
Leading arm x Axle housing	171	1,750	127

REAR

Parttightened	N·m	kgf·cm	ft·lbf
Rear axle shaft x Axle hub	34	340	25
Rear axle bearing lock nut	59	600	43
Rear axle bearing lock nut screw	5.4	55	48 in·lbf
Brake caliper x Axle carrier	103	1,050	76
ABS speed sensor set bolts	18	185	13
Hub nut	103	1,050	76
Drain plug	49	500	39
Filler plug	49	500	39
Pinion shaft pin (w/o Differential lock)	27	275	20
Pinion shaft pin (w/ Differential lock)	58	590	43
Propeller shaft x Companion flange	74	750	54
Side bearing cap x Differential carrier (w/o Differential lock)	78	800	58
Side bearing cap x Differential carrier (w/ Differential lock)	113	1,150	83
Ring gear x Differential case	110	1,125	81
Companion flange x Drive pinion (Maximum torque)	441	4,500	325
Differential carrier x Axle housing	73	740	54
Adjusting nut lock x Bearing cap	13	130	9
Differential case x Cover	58	590	43
Differential lock shift fork set bolt	20	200	14
Differential lock actuator	24	240	17
Differential lock cover	18	185	13
Differential lock indicator switch	40	410	30
Actuator protector	Nut	35	360
	Bolt	20	200
Follow spring x Frame	28	290	21
Shock absorber x Bracket	69	700	51
Shock absorber bracket x Frame	50	510	37
Shock absorber x Axle housing	64	650	47
Lateral control rod x Frame	177	1,800	130
Lateral control rod x Axle housing	245	2,500	181
Upper control rod x Frame	177	1,800	130
Upper control rod x Axle housing	177	1,800	130
Lower control arm x Frame	177	1,800	130
Lower control arm x Axle housing	177	1,800	130
Stabilizer bar x Link	25	260	19
Stabilizer bar Link x Bracket	15	153	11
Cover x Axle housing	18	185	13

BRAKE

SERVICE DATA

BR03A-28

Brake pedal height from asphalt sheet		167.5 – 177.5 mm (6.594 – 6.988 in.)
Brake pedal freeplay		3 – 6 mm (0.12 – 0.24 in.)
Brake pedal reserve distance at 490 N (50 kgf, 110.2 lbf)		More than 68 mm (2.68 in.)
Brake booster push rod to piston clearance (W/ SST)		0 mm (0 in.)
Front brake pad thickness	STD	9.5 mm (0.374 in.)
Front brake pad thickness	Minimum	1.0 mm (0.039 in.)
Front brake disc thickness	STD	32 mm (1.260 in.)
Front brake disc thickness	Minimum	30 mm (1.181 in.)
Front brake disc runout	Maximum	0.15 mm (0.0059 in.)
Rear brake disc pad thickness	STD	10.0 mm (0.394 in.)
Rear brake disc pad thickness	Minimum	1.0 mm (0.039 in.)
Rear brake disc thickness	STD	18.0 mm (0.709 in.)
Rear brake disc thickness	Minimum	16.0 mm (0.630 in.)
Rear brake disc runout	Maximum	0.15 mm (0.0059 in.)
Rear brake disc inside diameter	STD	230 mm (9.06 in.)
Rear brake disc inside diameter	Maximum	231 mm (9.09 in.)
Parking brake lining thickness	STD	4.0 mm (0.157 in.)
Parking brake lining thickness	Minimum	1.0 mm (0.039 in.)
Parking brake lever travel at 196 N (20 kgf, 44.1 lbf)		7 – 9 clicks
Parking brake clearance between rear shoe and lever		Less than 0.35 mm (0.0138 in.)
Parking brake adjusting shim thickness		0.3 mm (0.012 in.)
		0.6 mm (0.024 in.)
		0.9 mm (0.035 in.)

TORQUE SPECIFICATIONS

BR03B-2T

Part/tightened	N·m	kgf·cm	ft·lbf
Master cylinder x Piston stopper bolt	10	100	7
Master cylinder x Reservoir	1.7	17.5	15.2 in·lbf
Master cylinder x Brake booster	13	130	9
Brake line union nut	15	155	11
Brake booster clevis lock nut	25	260	19
Brake booster x Pedal bracket	13	130	9
Bleeder plug	11	110	8
Front disc brake caliper installation bolt	123	1,250	90
Front disc brake caliper x Flexible hose	30	310	22
Parking brake bellcrank x Backing plate	13	130	9
Rear disc brake caliper x Sliding pin	88	900	65
Rear disc brake caliper x Flexible hose	30	310	22
Rear disc brake torque plate x Knuckle	103	1,050	76
LSP & BV bracket x Frame	25	260	19
LSP & BV x LSP & BV bracket	13	130	9
LSP & BV spring x LSP & BV bracket	18	185	13
LSP & BV spring x Shackle No. 1	18	185	13
LSP & BV Shackle lock nut	25	250	18
LSP & BV shackle x Shackle bracket	13	130	9
LSP & BV shackle bracket x Rear axle housing	19	195	14
ABS actuator assembly x Body	19	195	14
ABS actuator x Actuator bracket	5.4	55	48 in·lbf
ABS control relay x Actuator bracket	13	130	9
Front speed sensor installation bolt	18	185	13
Rear speed sensor installation bolt	18	185	13

STEERING

SERVICE DATA

S90VC-0L

ON-VEHICLE INSPECTION		
Steering wheel freeplay	Maximum	40 mm (1.57 in.)
Fluid level rise	Maximum	Below 5 mm (0.20 in.)
Fluid pressure at idle speed with valve closed	Minimum	9,316 kPa (95 kgf/cm ² , 1,351 psi)
Steering effort at idle speed	Maximum	8.3 N·m (85 kgf·cm, 73 in.·lbf)
TILT STEERING COLUMN		
Pawl stopper alignment mark		
	1 or A	12.65 – 12.75 mm (0.4980 – 0.5020 in.)
	2 or B	12.55 – 12.65 mm (0.4941 – 0.4980 in.)
	3 or C	12.45 – 12.55 mm (0.4902 – 0.4941 in.)
	4 or D	12.35 – 12.45 mm (0.4862 – 0.4902 in.)
	5 or E	12.25 – 12.35 mm (0.4823 – 0.4862 in.)
PS VANE PUMP		
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 rotor groove and vane plate	Minimum	0.033 mm (0.0013 in.)
Vent length	: Pump rotor mark : : Cam ring mark :	
	NONE	2
	1	3
	2	4
Spring free length	Standard	35 – 37 mm (1.38 – 1.46 in.)
Vane pump rotating torque	Maximum	0.3 N·m (2.8 kgf·cm, 2.4 in.·lbf)
PS GEAR		
Worm gear valve body ball clearance	Maximum	0.15 mm (0.059 in.)
Cross shaft adjusting screw thrust clearance	Standard	0.03 – 0.05 mm (0.0012 – 0.0020 in.)
Worm gear preload		0.3 – 0.5 N·m (3 – 5.5 kgf·cm, 2.6 – 4.8 in.·lbf)
Total preload		0.74 – 1.08 N·m (7.5 – 11.0 kgf·cm, 6.5 – 9.6 in.·lbf)
STEERING LINKAGE		
Tie rod length	approximately	1,207 mm (47.52 in.)
Relay rod length	approximately	1,085 mm (42.72 in.)

TORQUE SPECIFICATIONS

Parttightened	N·m	kgf·cm	ft·lbf
TILT STEERING COLUMN			
Steering wheel set nut	34	350	25
Steering wheel pad set screw (Torx screw)	9.0	90	78 in·lbf
Steering column assembly set nut and bolt	25	250	18
Sliding yoke sub-assembly x Worm gear valve body shaft	34	350	25
Sliding yoke sub-assembly x Intermediate No.2 shaft	34	350	25
Universal joint x Intermediate No.2 shaft	34	350	25
Main shaft assembly x Universal joint	34	350	25
Turn signal bracket set bolt	5.7	58	50 in·lbf
Tilt sub lever side pawl set bolt x nut	5.9	60	52 in·lbf
Tilt lever retainer set nut	15	150	11
Tilt lever assembly set bolt	2.9	30	26 in·lbf
Compression spring set bolt	7.8	80	69 in·lbf
Column hole cover x Lower dust seal	5.9	60	52 in·lbf
Column hole cover x Body	13	130	9
Link joint protector set bolt	12	120	9
PS VANE PUMP			
Pressure feed tube set union bolt	56	575	42
PS vane pump assembly set nut	36	370	27
Suction port union set bolt	13	130	9
Vane pump drive gear set nut	74	750	54
Pressure port union	69	700	51
PS GEAR			
Pressure tube x Gear housing assembly	36 (44)	365 (450)	26 (33)
Return tube x Gear housing assembly	36 (44)	365 (450)	26 (33)
Gear housing assembly x Body	142	1,450	105
Pitman arm x Cross shaft	177	1,800	130
Cross shaft adjusting screw set nut	46	470	34
Side cover x Gear housing	61	620	45
Plunger guide nut	20	205	15
Worm gear valve body assembly x Gear housing	61	620	45
Control valve shaft x Sliding yoke sub-assembly	34	350	25
STEERING LINKAGE			
Pitman arm x Cross shaft	177	1,800	130
Pitman arm x Relay rod	91	925	67
Tie rod clamp bolt	37	375	27
Tie rod x Knuckle arm	91	925	67
Relay rod x Steering damper	74	750	54
Steering damper x Steering damper bracket	74	750	54
Steering damper bracket x Body	39	400	29
Relay rod clamp bolt	37	375	27

(): For use without SST

SUPPLEMENTAL RESTRAINT SYSTEM

TORQUE SPECIFICATIONS

SS026-03

Part/tightened	N·m	kgf·cm	ft·lbf
Steering wheel	34	350	25
Steering wheel pad	9.0	90	78 in.·lbf
Front passenger airbag assembly x Instrument panel reinforcement	21	210	15
Airbag sensor assembly	21	210	15

BODY ELECTRICAL

SERVICE DATA

SS02Y-01

DAYTIME RUNNING LIGHT RELAY (Wire Harness Side)	
2 - Ground (Ignition switch position LOCK or ACC)	No voltage
2 - Ground (Ignition switch position ON or START)	Battery positive voltage
4 - Ground (Constant)	Battery positive voltage
10 - Ground (Constant)	Battery positive voltage
15 - Ground (Constant)	Battery positive voltage
17 - Ground (Constant)	Battery positive voltage
TURN SIGNAL FLASHER	
Flashes/ Minute	60 - 120
SPEEDOMETER (Using a speedometer tester)	
USA:	
Standard indication (mph)	Allowable range (mph)
20	18 - 24
40	38 - 44
60	58 - 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)	
Standard indication (rpm)	Allowable range (rpm)
700	630 - 770
1,000	900 - 1,100
2,000	1,875 - 2,125
3,000	2,850 - 3,150
4,000	3,850 - 4,150
5,000	4,850 - 5,150
FUEL RECEIVER GAUGE	
A - B	85.5 - 105.5 Ω
A - C	126.0 - 150.0 Ω
B - C	*1 90 - 110 Ω
FUEL SENDER GAUGE	
Float position:F	Approx. 3.0 Ω
Float position:E	Approx. 110.0 Ω

SERVICE SPECIFICATIONS - BODY ELECTRICAL

ENGINE COOLANT TEMPERATURE RECEIVER GAUGE	
A - B	71.0 - 79.0 Ω
A - C	117.0 - 141.0 Ω
B - C	185.0 - 215.0 Ω
SEAT BELT WARNING LIGHT RELAY	
(Wire Harness Side)	
5 - Ground (Ignition switch position LOCK or ACC)	No voltage
5 - Ground (Ignition switch position ON)	Battery positive voltage
9 - Ground (Constant)	Battery positive voltage
DOOR LOCK CONTROL RELAY	
(Wire Harness Side)	
1 - Ground (Ignition switch position LOCK or ACC)	No voltage
1 - Ground (Ignition switch position ON)	Battery positive voltage
8 - Ground (Constant)	Battery positive voltage
SLIDING ROOF CONTROL RELAY	
(Wire Harness Side)	
6 - Ground (Ignition switch position LOCK or ACC)	*2 No voltage
6 - Ground (Ignition switch position ON)	Battery positive voltage
12 - Ground (Constant)	Battery positive voltage
POWER AMPLIFIER	
(Wire Harness Side)	
A3 - Ground (Ignition switch position LOCK)	No voltage
A3 - Ground (Ignition switch position ACC or ON)	Battery positive voltage
A4 - Ground (Constant)	Battery positive voltage
CD AUTO CHANGER	
(Wire Harness Side)	
1 - Ground (Constant)	Battery positive voltage
6 - Ground (Ignition switch position LOCK)	No voltage
6 - Ground (Ignition switch position ACC or ON)	Battery positive voltage
7 - Ground (Light control switch ON)	Battery positive voltage
MOTOR ANTENNA CONTROL RELAY	
(Wire Harness Side)	
4 - Ground (Constant)	Battery positive voltage
7 - Ground (Ignition switch position LOCK or ACC)	No voltage
7 - Ground (Ignition switch position ON)	Battery positive voltage
17 - Ground (Ignition switch position LOCK)	Battery positive voltage
17 - Ground (Ignition switch position ACC)	Battery positive voltage

*1: Include voltmeter resistance.

*2: Exceptions: During 60 second period after ignition switch ON $\rightarrow$ OFF (ACC) or until driver or passenger door is opened after ignition switch ON $\rightarrow$ OFF (ACC).

BODY

TORQUE SPECIFICATIONS

SS002-01

Part/tightened	N·m	kgf·cm	ft·lbf
HOOD	—	—	—
Hood hinge x Hood	18	185	13
Hood lock x Body	7.8	80	69 in·lbf
Hood damper stay	17	175	13
Hood side	18	185	13
Body side	18	185	13
FRONT BUMPER	—	—	—
Front bumper arm x Front bumper bracket	39	400	29
Front bumper arm x Body	39	400	29
Front bumper extension x Front bumper	5.4	55	48 in·lbf
REAR BUMPER	—	—	—
Rear bumper extension x Rear bumper reinforcement	13	130	9
Rear bumper reinforcement x Body	3.0	30	26 in·lbf
FRONT DOOR	—	—	—
Door hinge x Body	28	290	21
Door hinge x Door panel	28	290	21
Door lock x Door panel	5.0	50	43 in·lbf
Window regulator x Door panel	5.0	50	43 in·lbf
UPPER BACK DOOR	—	—	—
Door hinge x Body	28	290	21
Door hinge x Door panel	12	120	8.7
Door lock striker x Lower back door	7.8	80	69 in·lbf
Damper stay x Body	7.8	80	69 in·lbf
Damper stay x Door panel	7.8	80	69 in·lbf
Wiper motor x Door panel	5.0	50	43 in·lbf
Door lock x Door panel	5.0	50	43 in·lbf
FRONT WIPER AND WASHER	—	—	—
Front wiper arm x wiper link	20	210	15
Wiper link x Body	5.4	55	48 in·lbf
Wiper motor x Body	5.4	55	48 in·lbf
REAR WIPER AND WASHER	—	—	—
Rear wiper arm x Wiper motor	5.4	55	48 in·lbf
Wiper motor x Body	5.4	55	48 in·lbf
INSTRUMENT PANEL	—	—	—
Steering wheel set nut	34	350	25
Front passenger airbag assembly x Instrument panel reinforcement	20	210	15
SEAT	—	—	—
Front seat	—	—	—
Seat truck x Body	39	400	29
Power seat adjuster x Seatback frame	29	300	21
Power seat adjuster x Seat cushion frame	29	300	21
Lumber support x Seatback frame	18	185	13

SERVICE SPECIFICATIONS - BODY

Part/tightened	N·m	kgf·cm	ft·lbf
No.1 Rear Seat	—	—	—
Seat cushion hinge x Body	39	400	29
Seat cushion hinge x Seat cushion frame	39	400	29
Seat lock x seat cushion frame	41	420	30
Seatback lock assembly x Seat cushion	52	530	38
No.2 Rear Seat	—	—	—
Reclining adjuster x Seatback frame	52	530	38
Outer hinge assembly x Body	18	185	13
Seat leg x Body	41	420	30
POWER SEAT ADJUSTER	—	—	—
No.2 vertical seat link x Rear vertical motor (Bolt)	10	100	7
No.2 vertical seat link x Rear vertical motor (Nut)	2.0	20	17 in.·lbf
No.1 vertical seat link x Front vertical motor	10	100	7
Seat truck x Seat truck inner reinforcement	20	210	14
Front seat horizontal seat screw x Front seat motor side housing	20	210	14
Slide motor x Front seat horizontal jack screw (Bolt)	10	100	7
Slide motor x Front seat horizontal jack screw (Nut)	2.0	20	17 in.·lbf
Front seat horizontal jack screw x Front seat truck	19	200	14
SEAT BELT	—	—	—
Adjustable anchor x Body	43	440	32
ELR x Body	5.0	50	43 in.·lbf
Outer belt anchor x Body	43	440	32
Inner belt x Seat	43	440	32

AIR CONDITIONING

SERVICE DATA

AC0JW-0C

Refrigerant charge volume		850±50 g (29.98±1.76 oz.)
Drive belt tension	New belt	100–150 lbf
	Used belt	60–100 lbf
Idle-up speed		—
	Magnetic clutch not engaged	650 ± 50 rpm
	Magnetic clutch engaged	800 ± 50 rpm
Magnetic clutch clearance		0.5±0.15 mm (0.020±0.0059 in.)

AC0JX-0B

TORQUE SPECIFICATIONS

Part tightened	N·m	kgf·cm	ft·lbf
Compressor x Suction hose	10	100	7
Compressor x Discharge hose	10	100	7
Compressor x Compressor bracket	25	250	18
Compressor bracket x Engine	37	375	27
Receiver x Liquid tube	5.4	55	48 in.·lbf
Condenser x Discharge hose	10	100	7
Cooling unit x Liquid tube	10	100	7
Cooling unit x Suction tube	10	100	7
Pressure switch x Liquid tube	10	100	7
Expansion valve x Evaporator	5.4	55	48 in.·lbf
Liquid line (union nut)	14	140	10
Suction line (bolt)	10	100	7
Pressure plate x Compressor	13.2	135	9