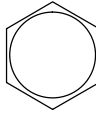
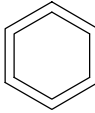
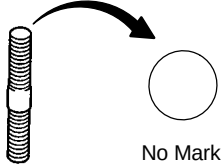
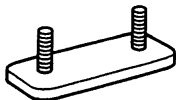
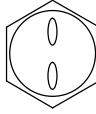
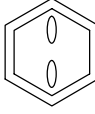
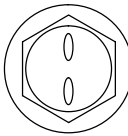
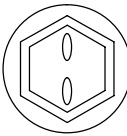
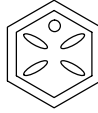
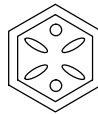


STANDARD BOLT

HOW TO DETERMINE BOLT STRENGTH

SS02S-01

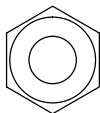
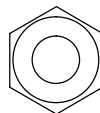
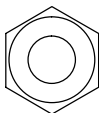
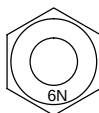
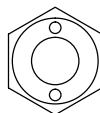
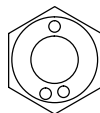
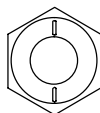
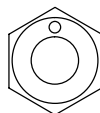
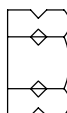
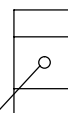
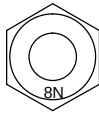
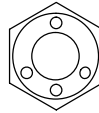
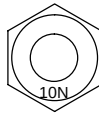
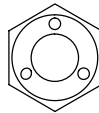
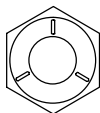
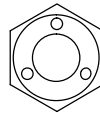
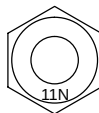
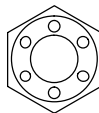
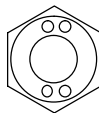
Bolt Type				Class
Hexagon Head Bolt		Stud Bolt	Weld Bolt	
Normal Recess Bolt	Deep Recess Bolt			
4  No Mark	 No Mark	 No Mark		4T
5 				5T
6  w/ Washer	 w/ Washer			6T
7 	 			7T
8		 		8T
9				9T
10	 			10T
11	 			11T

B06431

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

HOW TO DETERMINE NUT STRENGTH

Nut Type			Class
Present Standard Hexagon Nut	Old Standard Hexagon Nut		
	Cold Forging Nut	Cutting Processed Nut	
 No Mark			4N
 No Mark (w/ Washer)	 No Mark (w/ Washer)	 No Mark	5N (4T)
  			6N
	 	 	7N (5T)
 			8N
 	 	 No Mark	10N (7T)
 			11N
 			12N

*: Nut with 1 or more marks on one side surface of the nut.

B06432

HINT:

Use the nut with the same number of the nut strength classification or the greater than the bolt strength classification number when tightening parts with a bolt and nut.

Example: Bolt = 4T

Nut = 4N or more

2000 LEXUS LS400 (RM717U)

MAINTENANCE

TORQUE SPECIFICATION

SS0C7-01

Part tightened	N·m	kgf·cm	ft·lbf
Front seat bolts	37	375	27
Strut/stabilizer bar bracket x Body	72	730	53
Front suspension lower crossmember x Body	98	1,000	72
Rear suspension member x Body	180	1,840	133

ENGINE MECHANICAL

SERVICE DATA

SS0C8-03

Compression pressure	at 250 rpm STD Minimum Difference of pressure between each cylinder	1,226 kPa (12.5 kgf/cm ² , 178 psi) or more 981 kPa (10.0 kgf/cm ² , 142 psi) 98 kPa (1.0 kgf/cm ² , 14 psi) or less
Valve clearance	at cold Intake Exhaust Valve clearance adjusting shim No.00 No.02 No.04 No.06 No.08 No.10 No.12 No.14 No.16 No.18 No.20 No.22 No.24 No.26 No.28 No.30 No.32 No.34 No.36 No.38 No.40 No.42 No.44 No.46 No.48 No.50 No.52 No.54 No.56 No.58 No.60 No.62 No.64 No.66 No.68 No.70 No.72 No.74 No.76 No.78 No.80	0.15 – 0.25 mm (0.006 – 0.010 in.) 0.25 – 0.35 mm (0.010 – 0.014 in.) 2.000 mm (0.0787 in.) 2.020 mm (0.0795 in.) 2.040 mm (0.0803 in.) 2.060 mm (0.0811 in.) 2.080 mm (0.0819 in.) 2.100 mm (0.0827 in.) 2.120 mm (0.0835 in.) 2.140 mm (0.0843 in.) 2.160 mm (0.0850 in.) 2.180 mm (0.0858 in.) 2.200 mm (0.0866 in.) 2.220 mm (0.0874 in.) 2.240 mm (0.0882 in.) 2.260 mm (0.0890 in.) 2.280 mm (0.0898 in.) 2.300 mm (0.0906 in.) 2.320 mm (0.0913 in.) 2.340 mm (0.0921 in.) 2.360 mm (0.0929 in.) 2.380 mm (0.0937 in.) 2.400 mm (0.0945 in.) 2.420 mm (0.0953 in.) 2.440 mm (0.0961 in.) 2.460 mm (0.0969 in.) 2.480 mm (0.0976 in.) 2.500 mm (0.0984 in.) 2.520 mm (0.0992 in.) 2.540 mm (0.1000 in.) 2.560 mm (0.1008 in.) 2.580 mm (0.1016 in.) 2.600 mm (0.1024 in.) 2.620 mm (0.1031 in.) 2.640 mm (0.1039 in.) 2.660 mm (0.1047 in.) 2.680 mm (0.1055 in.) 2.700 mm (0.1063 in.) 2.720 mm (0.1071 in.) 2.740 mm (0.1079 in.) 2.760 mm (0.1087 in.) 2.780 mm (0.1094 in.) 2.800 mm (0.1102 in.)
Ignition timing	w/ Terminals TC and E1 connected of DLC1	8 –12° BTDC @ idle
Idle speed	–	750 ± 50 rpm
Timing belt tensioner	Protrusion from housing end	10.5 – 11.5 mm (0.413 – 0.453 in.)

Cylinder head	Warpage	Maximum	0.10 mm (0.039 in.)
	Valve seat		
	Refacing angle		30°, 45°, 60°
	Contacting angle		45°
	Contacting width		1.0 – 1.4 mm (0.039 – 0.055 in.)
	Valve guide bushing bore diameter	STD	10.285 – 10.306 mm (0.4049 – 0.4057 in.)
		O/S 0.05	10.335 – 10.356 mm (0.4069 – 0.4077 in.)
	Cylinder head bolt thread inside diameter	STD	9.770 – 9.960 mm (0.3846 – 0.3921 in.)
		Minimum	9.60 mm (0.3780 in.)
Valve guide bushing	Inside diameter		5.510 – 5.530 mm (0.2169 – 0.2374 in.)
	Outside diameter (for repair part)	STD	10.333 – 10.344 mm (0.4068 – 0.4072 in.)
		O/S 0.05	10.383 – 10.394 mm (0.4088 – 0.4092 in.)
Valve	Valve overall length	STD Intake	95.05 mm (3.7421 in.)
		Exhaust	95.10 (3.7441 in.)
		Minimum Intake	94.55 mm (3.7224 in.)
		Exhaust	94.60 mm (3.7244 in.)
	Valve face angle		44.5°
	Stem diameter	Intake	5.470 – 5.485 mm (0.2154 – 0.2159 in.)
		Exhaust	5.465 – 5.480 mm (0.2152 – 0.2157 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	1.0 mm (0.039 in.)
		Minimum	0.5 mm (0.020 in.)
Valve spring	Deviation	Maximum	2.0 mm (0.079 in.)
	Free length		54.05 – 54.15 mm (2.1279 – 2.1319 in.)
	Installed tension at 35.0 mm (1.378 in.)		204 – 226 N (20.8 – 23.0 kgf·cm, 45.9 – 50.7 lbf)
Valve lifter	Lifter diameter		30.966 – 30.976 mm (1.2191 – 2.2195 in.)
	Lifter bore diameter		31.000 – 31.016 mm (1.2205 – 1.2211 in.)
	Oil clearance	STD	0.024 – 0.050 mm (0.0009 – 0.0020 in.)
		Maximum	0.07 mm (0.0028 in.)
Camshaft	Thrust clearance	STD Intake	0.060 – 0.100 mm (0.0024 – 0.0039 in.)
		Exhaust	0.040 – 0.090 mm (0.0016 – 0.0035 in.)
		Maximum Intake	0.13 mm (0.0051 in.)
		Exhaust	0.12 mm (0.0047 in.)
	Journal oil clearance	STD	0.030 – 0.067 mm (0.0012 – 0.0026 in.)
		Maximum	0.10 mm (0.0039 in.)
	Journal diameter	Intake (A)	30.984 – 31.000 mm (1.2198 – 1.2205 in.)
		Others	26.954 – 26.970 mm (1.0612 – 1.0618 in.)
	Circle runout		0.08 mm (0.0031 in.)
	Cam lobe height	STD Intake	42.610 – 42.710 mm (1.6776 – 1.6815 in.)
		Exhaust	42.630 – 42.730 mm (1.6783 – 1.6823 in.)
		Minimum Intake	42.46 mm (1.6717 in.)
		Exhaust	42.48 mm (1.6724 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 (0.712 – 0.740 in.)
Camshaft timing tube	Journal diameter	Green painted mark	39.958 – 39.964 mm (1.5731 – 1.5734 in.)
		Red painted mark	39.964 – 39.970 mm (1.5734 – 1.5736 in.)
	Journal oil clearance	Sylinder head mark A	0.036 – 0.050 mm (0.0014 – 0.0020 in.)
		Sylinder head mark B	0.038 – 0.052 mm (0.0015 – 0.0021 in.)
Manifold	Warpage	Maximum Intake	0.15 mm (0.0059 in.)
		Exhaust	0.50 mm (0.0197 in.)

SERVICE SPECIFICATIONS – ENGINE MECHANICAL

Cylinder block	Cylinder head surface warpage	Maximum	0.07 mm (0.0028 in.)
	Cylinder bore diameter	STD Mark 1	87.500 – 87.510 mm (3.4449 – 3.4453 in.)
		Mark 2	87.510 – 87.520 mm (3.4453 – 3.4457 in.)
		Mark 3	87.520 – 87.530 mm (3.4457 – 3.4461 in.)
		Maximum	87.73 mm (3.4539 in.)
	Main bearing cap bolt tension portion diameter	STD	7.500 – 7.600 mm (0.2953 – 0.2992 in.)
Piston and piston ring	Piston diameter	STD Mark 1	87.406 – 87.416 mm (3.4411 – 3.4416 in.)
		Mark 2	87.416 – 87.426 mm (3.4416 – 3.4420 in.)
		Mark 3	87.426 – 87.436 mm (3.4420 – 3.4424 in.)
	Piston oil clearance	STD	0.084 – 0.104 mm (0.0033 – 0.0041 in.)
		Maximum	0.124 mm (0.0049 in.)
	Piston ring groove clearance	No.1	0.020 – 0.070 mm (0.0008 – 0.0028 in.)
		No.2	0.010 – 0.050 mm (0.0004 – 0.0020 in.)
	Piston ring end gap	STD No.1	0.250 – 0.450 mm (0.0098 – 0.0177 in.)
		No.2	0.500 – 0.700 mm (0.0197 – 0.0276 in.)
		Oil	0.150 – 0.500 mm (0.0059 – 0.0197 in.)
		Maximum No.1	1.05 mm (0.0413 in.)
		No.2	1.30 mm (0.0512 in.)
		Oil	1.10 mm (0.0433 in.)
Connecting rod	Thrust clearance	STD	0.160 – 0.290 mm (0.0063 – 0.0138 in.)
		Maximum	0.35 mm (0.0138 in.)
	Connecting rod thickness		22.880 – 22.920 mm (0.9008 – 0.9024 in.)
	Connecting rod oil clearance	STD	0.027 – 0.053 mm (0.0011 – 0.0021 in.)
		Maximum	0.065 mm (0.0026 in.)
	Connecting rod bearing center wall thickness (Reference)	Mark 2	1.484 – 1.487 mm (0.0584 – 0.0585 in.)
		Mark 3	1.487 – 1.490 mm (0.0585 – 0.0587 in.)
		Mark 4	1.490 – 1.493 mm (0.0587 – 0.0588 in.)
		Mark 5	1.493 – 1.496 mm (0.0588 – 0.0589 in.)
		Mark 6	1.496 – 1.499 mm (0.0589 – 0.0590 in.)
		Mark 7	1.499 – 1.502 mm (0.0590 – 0.0591 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		22.005 – 22.014 mm (0.8663 – 0.8667 in.)
	Piston pin diameter		21.997 – 22.006 mm (0.8660 – 0.8664 in.)
	Bushing oil clearance	STD	0.005 – 0.011 mm (0.0002 – 0.0004 in.)
		Maximum	0.05 mm (0.0020 in.)
	Connecting rod bolt tension portion diameter	STD	7.200 – 7.300 mm (0.2835 – 0.2874 in.)
		Minimum	7.00 mm (0.2756 in.)
Crankshaft	Thrust clearance	STD	0.020 – 0.220 mm (0.0008 – 0.0087 in.)
		Maximum	0.30 mm (0.0118 in.)
	Thrust washer thickness		2.440 – 2.490 mm (0.0961 – 0.0980 in.)
	Main journal bore diameter on cylinder block (with main bearing)		66.986 – 67.000 mm (2.6372 – 2.6378 in.)
	Main journal oil clearance	STD No.1 and No.5	0.017 – 0.033 mm (0.0007 – 0.0013 in.)
		Others	0.029 – 0.045 mm (0.0011 – 0.0018 in.)
		Maximum No.1 and No.5	0.043 mm (0.0017 in.)
		Others	0.055 mm (0.0022 in.)
	Main journal diameter		66.988 – 67.000 mm (2.6373 – 2.6378 in.)

Crankshaft (cont'd)	Main bearing center wall thickness (Reference)		
	No.1 and No.5	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.)
	Others	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.)
	Crank pin diameter		51.982 – 52.000 mm (2.0465 – 2.0472 in.)
	Circle runout	Maximum	0.08 mm (0.0031 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
No.1 idler pulley, No.2 idler pulley x Cylinder Block	34.5	350	25
Camshaft timing pulley x Camshaft timing tube	7.5	80	66 in.·lbf
Drive belt tensioner x Cylinder block	16	160	12
Timing belt tensioner x Oil pump	26	270	19
Crankshaft pulley x Crankshaft	245	2,500	181
Fan bracket x Cylinder block	12 mm head	16	12
	14 mm head	32	24
No.2 timing belt cover x Cylinder block	16	160	12
No.3 timing belt cover x Cylinder block, cylinder head	7.5	80	66 in.·lbf
Drive belt idler pulley x Fan bracket	37	380	27
Fluid coupling x Fan bracket	21	215	16
Exhaust manifold x Cylinder head	44	450	33
Cylinder head x Cylinder block	1st	39	29
	2nd	Turn 90°	Turn 90°
Camshaft drive gear x Camshaft timing tube	7.5	80	66 in.·lbf
Camshaft timing tube x Camshaft	78	790	58
Staright screw plug x Camshaft timing tube	15	150	11
Camshaft bearing cap x Cylinder head	Bolt C	7.5	66 in.·lbf
	Others	16	12
Cylinder head cover x Cylinder head	6.0	60	53 in.·lbf
Engine hanger x Cylinder head	37	380	27
Front water bypass joint, Rear water bypass joint x Cylinder head	18	185	13
Intake manifold x Cylinder head	18	185	13
V-bank cover bracket x engine hanger	7.5	80	66 in.·lbf
Timing belt rear plate x Cylinder head	7.5	80	66 in.·lbf
Main bearing cap x Cylinder block	2 progressive type 1st	27	20
	2nd	Turn 90°	Turn 90°
	Others	49	36
Connecting rod cap x Connecting rod	1st	25	18
	2nd	Turn 90°	Turn 90°
Rear oil seal retainer x Cylinder block	8.0	80	71 in.·lbf
Engine coolant drain union x Cylinder block	49	500	36
Water seal plate x Cylinder block	14	145	10
Water bypass pipe x Cylinder Block	18	185	13
Engine mounting bracket x Cylinder block	36	370	27
Drive plate x Crankshaft	83	850	61
Transmission x Cylinder block	72	730	53
Transmission x No.1 oil pan	37	380	27
Drive plate x Torque converter clutch	41	420	30
Flywheel housing under cover x Transmission	18.5	185	14
Rear engine mounting member x Body	25	250	19
Rear engine mounting member x Rear engine mounting insulator	13.5	135	10
Transmission control rod x Shift lever	13	130	9
Front suspension crossmember x Engine mounting insulator	70	700	52
A/C compressor x Cylinder block, Fan bracket	49	500	36

2000 LEXUS LS400 (RM717U)

A/C compressor stay x Oil filter bracket		29	300	22
PS pump x Cylinder head	Bolt	39	400	29
	Nut	43	440	32
Front center floor crossmember brace x Body		13	130	9
Rear center floor crossmember brace x Body		13	130	9
TWC x Exhaust manifold		61.8	630	46
Front exhaust pipe x TWC		43.1	440	32
Front exhaust pipe support bracket x Transmission		43.1	440	32
Tailpipe bracket x Body		12.7	130	9
Damper x Front exhaust pipe		19	195	14
Heated oxygen sensor x Front exhaust pipe		44	450	33

EMISSION CONTROL

TORQUE SPECIFICATION

SS0CA-01

Part tightened	N·m	kgf·cm	ft·lbf
TWC x Exhaust manifold	62	630	46
TWC x Front exhaust pipe	44	440	32
Heated oxygen sensor x Front exhaust pipe	44	450	33

SFI

SS0CB-07

SERVICE DATA

Fuel pressure regulator	Fuel pressure	304 – 343 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 at 20 °C (68 °F) 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 (0.6 cu in.) or less One 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)	13.6 – 18.4 kΩ 2.21 – 2.69 kΩ 0.493 – 0.667 kΩ
Throttle body	Throttle body fully closed angle	4°
Throttle position sensor	Resistance (VC – E2) at 20 °C (68 °F)	1.25 – 2.35 kΩ
Accelerator pedal position sensor	Resistance (VC – E2) at 20 °C (68 °F) Standard throttle valve opening percentage Sensor lever full–open position	1.64 – 3.28 kΩ 60 % or more
Throttle control motor w/ clutch	Motor resistance at 20 °C (68 °F) Clutch resistance at 20 °C (68 °F)	0.3 – 100 Ω 4.2 – 5.2 Ω
Camshaft timing oil control valve	Resistance at 20 °C (68 °F)	6.9 – 7.9 Ω
Fuel pump resistor	Resistance at 20 °C (68 °F)	0.70 – 0.76 Ω
VSV for EVAP	Resistance at 20 °C (68 °F)	30 – 34 Ω
VSV for vapor pressure sensor	Resistance at 20 °C (68 °F)	37 – 44 Ω
VSV for acoustic control induction system (ACIS)	Resistance at 20 °C (68 °F)	33 – 39 Ω
ECT sensor	Resistance at –20 °C (–4 °F) 0 °C (32 °F) 20 °C (68 °F) 40 °C (104 °F) 60 °C (140 °F) 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
Heated oxygen sensor	Heater coil resistance at 20 °C (68 °F) 800 °C (1,472 °F)	11 – 16 Ω 23 – 32 Ω
VVT sensor	Resistance Cold Hot	835 – 1,400 Ω 1,060 – 1,645 Ω
Fuel cut rpm	Fuel return rpm	1,400 rpm

TORQUE SPECIFICATION

Part tightened		N·m	kgf·cm	ft·lbf
Fuel line	for union bolt	29	300	21
	for flare nut	31	310	23
Fuel pump bracket x Fuel tank		5.5	55	48 in.·lbf
Fuel pump set plate x Fuel tank		3.0	30	26 in.·lbf
Fuel pressure regulator, Fuel filter x Fuel pump bracket		2.0	20	17 in.·lbf
Fuel inlet hose x Fuel tube	for SST	30	310	22
Delivery pipe x Intake manifold		18	185	13
Fuel pressure pulsation damper x delivery pipe		39	400	29
	for SST	33	340	24
VSV for EVAP x Intake manifold		18	185	13
Accelerator cable bracket x Intake manifold		18	185	13
LH front V-bank cover bracket x Engine hanger		7.5	80	66 in.·lbf
RH rear V-bank cover bracket x Engine hanger		7.5	80	66 in.·lbf
LH rear V-bank cover bracket x Intake manifold		7.5	80	66 in.·lbf
Fuel inlet pipe x Fuel tank	Bolt	3	30	26 in.·lbf
	Screw	1.5	15	13 in.·lbf
Fuel sender gauge x Fuel tank		3	30	26 in.·lbf
Fuel tank x Body		25	250	18
Fuel main tube x Fuel tank, Fuel filter		30	300	21
Fuel EVAP tube x Fuel tank		30	300	21
Throttle body x Intake manifold		18	185	13
Camshaft oil control valve x Front bearing cap		7.5	80	66 in.·lbf
Intake air control valve x Upper intake manifold		8.5	85	73 in.·lbf
Actuator x Upper intake manifold		8.5	85	73 in.·lbf
Upper intake manifold x Lower intake manifold		18	185	13
ECT sensor x Front water bypass joint		20	200	14
Knock sensor x Cylinder block		44	450	33
Heated oxygen sensor x Exhaust manifold, Front exhaust pipe		44	450	33

COOLING

SS0CD-01

SERVICE DATA

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

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Drain plug x Union on cylinder block	12.7	130	9
Water pump x Cylinder block	18	185	13
Water inlet housing x Water pump	18	185	13
Water inlet x Water inlet housing	18	185	13
Oil cooler x Radiator lower tank	8.34	85	74 in.·lbf
ECT switch for A/C cooling fan x Radiator	7.4	75	65 in.·lbf
No.1 fan shroud x Radiator	5.0	50	44 in.·lbf
Upper radiator support x Body	13.5	135	10

LUBRICATION

SERVICE DATA

SS0CF-01

Oil pressure		at idle speed at 3,000 rpm	29 kPa (0.3 kgf/cm ² , 43 psi) or more 294 – 588 kPa (3.0 – 6.0 kgf/cm ² , 43 – 85 psi)
Oil pump	Tip clearance	STD	0.060 – 0.180 mm (0.0024 – 0.0071 in.)
		Maximum	0.180 mm (0.0071 in.)
	Side clearance	STD	0.030 – 0.090 mm (0.0012 – 0.0035 in.)
		Maximum	0.090 mm (0.0035 in.)
	Body clearance	STD	0.250 – 0.325 mm (0.0098 – 0.0127 in.)
		Maximum	0.325 mm (0.0127 in.)

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
No.2 oil pan x Drain plug	39	400	29
Oil pump body cover x Oil pump body	10	105	8
Oil pump body x Plug	49	500	36
Oil pump x Cylinder block	12 mm head	15.5	11
	14 mm and 6 mm hexagon socket head	30.5	22
Oil strainer x Cylinder block, Oil pump	7.5	80	66 in·lbf
No.1 oil pan x Oil pump, Oil seal retainer	7.5	80	66 in·lbf
No.1 oil pan x Cylinder block	10 mm head	7.5	66 in·lbf
	12 mm head	28	21
Oil pan baffle plate x No.1 oil pan	7.5	80	66 in·lbf
No.2 oil pan x No.1 oil pan	7.5	80	66 in·lbf
Oil filter bracket x Oil pump	18	185	13
Oil level sensor x No.1 oil pan	5.4	55	48 in·lbf

IGNITION

SS0CH-01

SERVICE DATA

Firing order	–		1 – 8 – 4 – 3 – 6 – 5 – 7 – 2
Spark plug	Recommended spark plug	ND	SK20R11
		NGK	IFR6A11
	Correct electrode gap for new spark plug		1.1 mm (0.043 in.)
	Maximum electrode gap for used spark plug		1.2 mm (0.047 in.)
Camshaft position sensor	Resistance	Cold	835 – 1,400 Ω
		Hot	1,060 – 1,645 Ω
Crankshaft position sensor	Resistance	Cold	1,630 – 2,740 Ω
		Hot	2,065 – 3,225 Ω

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Spark plug x Cylinder head	17.5	180	13
Ignition coil x Cylinder head cover	7.5	80	66 in.·lbf
Camshaft position sensor x LH cylinder head	7.5	80	66 in.·lbf
Crankshaft position sensor x Oil pump	6.5	65	56 in.·lbf

STARTING

SERVICE DATA

SS0CJ-01

Starter	Rated voltage and output power		12 V 2.0 kW
	No-load characteristics	Current	100 A or less at 11.5 V
		rpm	2,000 rpm or less
	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 (1.3 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 SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Terminal 30 nut, Terminal C nut x Terminal bolt	17	170	12
End cover x Magnetic switch housing	3.6	37	32 in.·lbf
End cover x Brush holder	3.8	39	34 in.·lbf
Starter housing x Magnetic switch	9.3	95	82 in.·lbf
End cover with field frame x Magnetic switch	9.3	95	82 in.·lbf
Lead wire of field coil x Terminal C	5.9	60	52 in.·lbf
Wire clamp, Starter wire x Starter	9.81	98	84 in.·lbf
Starter x Cylinder block	39	400	29
Water bypass pipe x Cylinder block	18	185	13

CHARGING

SERVICE DATA

SSOCL-01

Battery	Voltage	at 20° C (68° F)	12.2 – 14.8 V
Generator	Rated output		12 V – 100 A
	Rotor coil resistance	at 20° C (68° F)	2.1 – 2.5 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	10.5 mm (0.413 in.)
		Minimum	1.5 mm (0.059 in.)
Voltage regulator	Regulating voltage	at 25° C (77° F)	13.7 – 14.8 V
		at 115° C (239° F)	13.2 – 14.0 V

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Bearing cover x Drive end frame	3.0	31	27 in·lbf
Rectifier end frame without wire clip x Drive end frame	4.5	46	40 in·lbf
Rectifier end frame with cord clip x Drive end frame	5.4	55	48 in·lbf
Generator pulley x Rotor	110.5	1,128	81
Rectifier holder x Lead wire on rectifier end frame	2.94	30	26 in·lbf
Voltage regulator x Rectifier end frame	2.0	20	17 in·lbf
Voltage regulator x Rectifier holder	2.0	20	17 in·lbf
Brush holder x Rectifier holder	2.0	20	17 in·lbf
Brush holder x Voltage regulator	2.0	20	17 in·lbf
Rear end cover x Rectifier holder	4.4	45	39 in·lbf
Plate terminal x Rectifier holder	3.8	39	34 in·lbf
Terminal insulator x Rectifier holder	6.5	66	58 in·lbf
Generator x Cylinder block	39	400	29

AUTOMATIC TRANSMISSION

SERVICE DATA

SS0C5-01

Line pressure (Wheel locked)	Idling	
	D position	395 – 455 kPa (4.0 – 4.6 kgf·cm ² , 57 – 65 psi)
	R position	632 – 732 kPa (6.4 – 7.5 kgf·cm ² , 91 – 107 psi)
	Stall	
	D position	1,200 – 1,360 kPa (12.2 – 13.9 kgf·cm ² , 174 – 198 psi)
	R position	1,655 – 1,960 kPa (16.9 – 20.0 kgf·cm ² , 240 – 284 psi)
Accumulator back pressure Engine idling and shift lever D position ECM SLN terminal condition		245 kPa (2.5 kgf·cm ² , 36 psi)
Engine stall revolution	(D and R positions)	2,250 ± 150 rpm
Time lag	N → D position	Less than 1.2 seconds
	N → R position	Less than 1.5 seconds
Engine idle speed (N position and A/C OFF)		750 ± 50 rpm
Drive plate runout	Max.	0.20 mm (0.0079 in.)
Torque converter clutch sleeve runout	Max.	0.30 mm (0.0118 in.)
Torque converter clutch installation (Correct distance)		More than 17.1 mm (0.673 in.)
Extension housing oil seal drive in depth from flat end		2.0 mm (0.079 in.)
Shift schedule		Differential gear ratio 3.266
D, 4 position (Throttle valve fully opened)	1 → 2	65 – 75 km/h (40 – 47 mph)
	2 → 3	96 – 107 km/h (60 – 66 mph)
	3 → 4	150 – 166 km/h (93 – 103 mph)
	4 → 5	219 – 237 km/h (136 – 147 mph)
	5 → 4	211 – 225 km/h (131 – 140 mph)
	4 → 3	141 – 153 km/h (88 – 95 mph)
	3 → 2	83 – 90 km/h (52 – 60 mph)
	2 → 1	44 – 50 km/h (27 – 31 mph)
	4 → 5	35 – 40 km/h (22 – 25 mph)
	5 → 4	26 – 31 km/h (16 – 19 mph)
(Throttle valve fully closed)	4 → 5	35 – 40 km/h (22 – 25 mph)
	5 → 4	26 – 31 km/h (16 – 19 mph)
3 position (Throttle valve fully opened)	1 → 2	65 – 75 km/h (40 – 47 mph)
	2 → 3	96 – 107 km/h (60 – 66 mph)
	4 → 3	159 – 172 km/h (99 – 107 mph)
	3 → 2	83 – 90 km/h (52 – 60 mph)
	2 → 1	44 – 50 km/h (27 – 31 mph)
2 position (Throttle valve fully opened)	1 → 2	65 – 75 km/h (40 – 47 mph)
	3 → 2	104 – 111 km/h (65 – 69 mph)
	2 → 1	44 – 50 km/h (27 – 31 mph)
L position (Throttle valve fully opened)	2 → 1	18 – 23 km/h (11 – 14 mph)
Lock-up point		(Throttle valve opening 5%)
5th gear (D position)	Lock-up ON	61 – 67 km/h (38 – 42 mph)
	Lock-up OFF	57 – 63 km/h (35 – 39 mph)
4th gear (4 position)	Lock-up ON	146 – 155 km/h (91 – 96 mph)
	Lock-up OFF	139 – 147 km/h (86 – 91 mph)

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Transmission output flange x Output shaft	123	1,250	90
Extension housing x Transmission case	34	345	25
Solenoid connector set bolt	5.4	55	48 in.·lbf
Solenoid wiring clamp set bolt	10	100	7
Oil strainer x Valve body	10	100	7
Oil pan x Transmission case	7.4	75	65 in.·lbf
Drain plug	20	205	15
Shift solenoid valve No.1, No.3, SLU and SLT set bolt	6.4	65	56 in.·lbf
Shift solenoid valve No.2, No.4 and SLN set bolt	10	100	7
Valve body x Transmission case	10	100	7
Heated oxygen sensor x Front exhaust pipe	44	450	32
Front exhaust pipe x Front TWC	43	440	32
Pipe support bracket x Transmission	43	440	32
Front exhaust pipe x Center exhaust pipe		See page EM-120	
Front TWC x Exhaust manifold	62	630	46
Engine rear mounting member bracket plate x Engine rear mounting	5.4	55	48 in.·lbf
Heat insulator x Body	5.4	55	48 in.·lbf
Front center floor crossmember brace x Body	13	130	9
Front center floor crossmember brace x Body	13	130	9
Shift control rod x Shift lever	13	130	9
Oil cooler pipe union nut	44	450	32
Oil cooler pipe clamp set bolt	4.9	50	43 in.·lbf
Torque converter clutch x Drive plate	48	490	35
Engine rear mounting x Body	26	270	20
Flywheel housing under cover set bolt	18	185	13
Transmission x Engine	14 mm head	37	27
	17 mm head	72	53
Drive plate x Crankshaft	83	850	61

PROPELLER SHAFT

SS0C3-01

SERVICE DATA

Shaft runout	Max.	0.8 mm (0.031 in.)
Joint angle	No.2 joint	$-50' \pm 30'$
	No.3 joint	$1^{\circ} 15' \pm 30'$

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Intermediate shaft x Transmission	79	805	58
Propeller shaft x Differential	79	805	58
Front center floor crossmember brace x Body	13	130	9
Rear center floor crossmember brace x Body	13	130	9
Heat insulator	5.4	55	48 in.·lbf
Front exhaust pipe x Front TWC	43	440	32
Front exhaust pipe x Center exhaust pipe		See page EM-120	
Center support bearing x Body	37	375	27
Propeller shaft adjusting nut	50 (69)	515 (700)	37 (51)

(): For use without SST

SUSPENSION AND AXLE

SERVICE DATA

SS0C0-01

Cold tire inflation pressure	Tire size P225/60R16 97 V	Front Rear	200 kPa (2.0 kgf/cm ² , 29 psi) 200 kPa (2.0 kgf/cm ² , 29 psi)
Front wheel alignment	Vehicle height	Front	264 mm (10.39 in.)
	Coil suspension	Rear	243 mm (9.57 in.)
	Air suspension	Front	250 ± 10 mm (9.84 ± 0.39 in.)
		Left–right error	10 mm (0.39 in.) or less
		Rear	222.5 ± 10 mm (8.76 ± 0.39 in.)
		Left–right error	10 mm (0.39 in.) or less
		H _F – F _R	27.5 ± 15 mm (1.08 ± 0.59 in.)
	Camber		
	Coil suspension	Left–right error	0°20' ± 45' (0.33° ± 0.75°) 30' (0.5°) or less
	Air suspension	Left–right error	0°05' ± 45' (0.08° ± 0.75°) 30' (0.5°) or less
Rear wheel alignment	Caster		
	Coil suspension	Left–right error	7°00' ± 45' (7° ± 0.75°) 30' (0.5°) or less
	Air suspension	Left–right error	7°25' ± 45' (7°42' ± 0.75°) 30' (0.5°) or less
	Steering axis inclination (Reference)		
	Coil suspension	Left–right error	8°25' ± 45' (8.42° ± 0.75°) 30' (0.5°) or less
	Air suspension	Left–right error	8°40' ± 45' (8.66° ± 0.75°) 30' (0.5°) or less
	Toe–in (total)		
	Coil suspension		0°18' ± 12' (0.3° ± 0.2°, 2 ± 2 mm, 0.12 ± 0.08 in.)
	Air suspension		0°06' ± 12' (0.1° ± 0.2°, 1 ± 2 mm, 0.04 ± 0.08 in.)
	Wheel angle		
Front axle	Inside wheel		42°00' ± 1°30' (42° ± 1.5°)
	Outside wheel (Reference)	Coil suspension	34°20' (34.33°)
		Air suspension	34°00' (34°)
	Camber		
	Coil suspension	Left–right error	–0°50' ± 45' (–0.83° ± 0.75°) 30' (0.5°) or less
	Air suspension	Left–right error	–1°25' ± 45' (–1.42° ± 0.75°) 30' (0.5°) or less
	Toe–in (total)		
	Coil suspension		0°12' ± 12' (0.2° ± 0.2°, 2 ± 2 mm, 0.08 ± 0.08 in.)
	Air suspension		0°18' ± 12' (0.3° ± 0.2°, 3 ± 2 mm, 0.12 ± 0.08 in.)
	Wheel bearing backlash		0.05 mm (0.0020 in.) or less
Front suspension	Axle hub deviation		0.05 mm (0.0020 in.) or less
	Upper ball joint turning torque		1.0 – 3.4 N·m (10 – 35 kgf·cm, 9 – 30 in.·lbf)
	Lower ball joint turning torque		1.0 – 2.5 N·m (10 – 25 kgf·cm, 9 – 21.7 in.·lbf)
	Lower ball joint excessive play		0.3 mm (0.0118 in.) or less
Stabilizer bar ball joint turning torque			
			0.05 – 1.5 N·m (0.5 – 15 kgf·cm, 0.4 – 13 in.·lbf)

H_F: Measured value of the front vehicle heightF_R: Measured value of the rear vehicle height

SERVICE SPECIFICATIONS – SUSPENSION AND AXLE

Rear axle	Wheel bearing backlash	0.05 mm (0.0020 in.) or less
	Axle hub deviation	0.07 mm (0.0028 in.) or less
Rear drive shaft	Drive shaft length	RH 619.5 mm (24.390 in.) LH 573.5 mm (22.579 in.)
Rear suspension	Upper ball joint turning torque	1.0 – 3.4 N·m (10 – 35 kgf·cm, 9 – 30 in.·lbf)
	No.1 lower suspension arm ball joint turning torque	0.8 – 3.4 N·m (8.5 – 35 kgf·cm, 7.4 – 30 in.·lbf)
	Stabilizer bar link ball joint turning torque	0.05 – 1.5 N·m (0.5 – 15 kgf·cm, 0.4 – 13 in.·lbf)
Rear differential	Drive pinion shaft runout	Maximum 0.08 mm (0.0031 in.)
	Ring gear runout	Maximum 0.05 mm (0.0020 in.)
	Ring gear backlash	0.08 – 0.13 mm (0.0031 – 0.0051 in.)
	Drive pinion bearing	New bearing 1.5 – 1.8 N·m (15 – 18 kgf·cm, 13.0 – 15.6 in.·lbf) Reused bearing 0.5 – 0.8 N·m (5 – 8 kgf·cm, 4.3 – 6.9 in.·lbf)
	Total preload	Drive pinion preload plus 0.5 – 0.8 N·m (5 – 8 kgf·cm, 4.3 – 6.9 in.·lbf)
	Pinion gear backlash	Maximum 0.15 mm (0.0059 in.)
	Pinion gear backlash adjusting thrust washer	1.50 mm (0.059 in.)
		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.)

Rear differential (cont'd)	Ring gear backlash adjusting washer	No.	
		02	2.02 mm (0.0795 in.)
		04	2.04 mm (0.0803 in.)
		06	2.06 mm (0.0811 in.)
		08	2.08 mm (0.0819 in.)
		10	2.10 mm (0.0827 in.)
		12	2.12 mm (0.0835 in.)
		14	2.14 mm (0.0843 in.)
		16	2.16 mm (0.0850 in.)
		18	2.18 mm (0.0858 in.)
		20	2.20 mm (0.0866 in.)
		22	2.22 mm (0.0874 in.)
		24	2.24 mm (0.0882 in.)
		26	2.26 mm (0.0890 in.)
		28	2.28 mm (0.0898 in.)
		30	2.30 mm (0.0906 in.)
		32	2.32 mm (0.0913 in.)
		34	2.34 mm (0.0921 in.)
		36	2.36 mm (0.0929 in.)
		38	2.38 mm (0.0937 in.)
		40	2.40 mm (0.0945 in.)
		42	2.42 mm (0.0953 in.)
		44	2.44 mm (0.0961 in.)
		46	2.46 mm (0.0969 in.)
		48	2.48 mm (0.0976 in.)
		50	2.50 mm (0.0984 in.)
		52	2.52 mm (0.0992 in.)
		54	2.54 mm (0.1000 in.)
		56	2.56 mm (0.1008 in.)
		58	2.58 mm (0.1016 in.)
		60	2.60 mm (0.1024 in.)
		62	2.62 mm (0.1031 in.)
		64	2.64 mm (0.1039 in.)
		66	2.66 mm (0.1047 in.)
		68	2.68 mm (0.1055 in.)
		70	2.70 mm (0.1063 in.)
		72	2.72 mm (0.1071 in.)
		74	2.74 mm (0.1079 in.)
		76	2.76 mm (0.1087 in.)
		78	2.78 mm (0.1094 in.)
		80	2.80 mm (0.1102 in.)
		82	2.82 mm (0.1094 in.)
		84	2.84 mm (0.1118 in.)
		86	2.86 mm (0.1126 in.)

SERVICE SPECIFICATIONS – SUSPENSION AND AXLE

Rear differential (cont'd)	Tooth contact pattern adjusting washer	No.	
		87	1.87 mm (0.0736 in.)
		88	1.88 mm (0.0740 in.)
		89	1.89 mm (0.0744 in.)
		90	1.90 mm (0.0748 in.)
		91	1.91 mm (0.0752 in.)
		92	1.92 mm (0.0756 in.)
		93	1.93 mm (0.0760 in.)
		94	1.94 mm (0.0764 in.)
		95	1.95 mm (0.0768 in.)
		96	1.96 mm (0.0772 in.)
		97	1.97 mm (0.0776 in.)
		98	1.98 mm (0.0780 in.)
		99	1.99 mm (0.0784 in.)
		00	2.00 mm (0.0788 in.)
		01	2.01 mm (0.0791 in.)
		02	2.02 mm (0.0795 in.)
		03	2.03 mm (0.0799 in.)
		04	2.04 mm (0.0803 in.)
		05	2.05 mm (0.0807 in.)
		06	2.06 mm (0.0811 in.)
		07	2.07 mm (0.0815 in.)
		08	2.08 mm (0.0819 in.)
		09	2.09 mm (0.0823 in.)
		10	2.10 mm (0.0827 in.)
		11	2.11 mm (0.0831 in.)
		12	2.12 mm (0.0835 in.)
		13	2.13 mm (0.0839 in.)
		14	2.14 mm (0.0843 in.)
		15	2.15 mm (0.0846 in.)
		16	2.16 mm (0.0850 in.)
		17	2.17 mm (0.0854 in.)
		18	2.18 mm (0.0858 in.)
		19	2.19 mm (0.0862 in.)
		20	2.20 mm (0.0866 in.)
		21	2.21 mm (0.0870 in.)
		22	2.22 mm (0.0874 in.)
		23	2.23 mm (0.0878 in.)
		24	2.24 mm (0.0882 in.)
		25	2.25 mm (0.0886 in.)
		26	2.26 mm (0.0890 in.)
		27	2.27 mm (0.0894 in.)
		28	2.28 mm (0.0898 in.)

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
FRONT			
Hub bolt	103	1,050	76
Lower suspension arm x Body (Camber adjusting cam nut)	251	2,560	185
Suspension member brace x Body	39	400	29
Strut bar x Strut bar bracket (Caster adjusting cam nut)	181	1,850	134
Rack end x Tie rod end	56	570	41
Brake caliper x Steering knuckle	118	1,200	87
Brake disc x Axle hub	5.0	55	48 in.·lbf
ABS speed sensor installation bolt	7.8	80	69 in.·lbf
ABS speed sensor wire harness installation bolt	7.8	80	69 in.·lbf
Lower ball joint x Steering knuckle	113	1,150	83
Steering knuckle x Upper suspension arm	65	660	48
Dust cover x Steering knuckle	8.4	85	74 in.·lbf
Axle hub lock nut	199	2,030	147
Height control sensor link x Shock absorber lower bracket	5.0	55	48 in.·lbf
Shock absorber x Shock absorber lower bracket	157	1,600	116
Suspension support x Piston rod	28	280	20
Suspension support x Body	58	590	43
Pneumatic cylinder x Shock absorber lower bracket	157	1,600	116
Air tube x Pneumatic cylinder	17	175	13
Actuator cover nut	58	590	43
Actuator x Pneumatic cylinder	7.8	80	69 in.·lbf
Suspension support x Pneumatic cylinder	36	370	27
Shock absorber lower bracket set bolt	A 59	600	43
	B 113	1,150	83
Strut bar x Lower suspension arm	164	1,670	121
Upper suspension arm x Body	113	1,150	83
Tie rod end x Lower ball joint	59	600	43
Lower ball joint x Lower suspension arm	152	1,550	112
Stabilizer bar link nut	95	970	70
Stabilizer bar bracket x Body	28	290	21
Strut bar bracket x Body	72	730	53
Height control compressor bracket x Body	19	195	14
Height control compressor x Dryer	6.4	65	56 in.·lbf
Height control compressor x Bracket	5.9	60	52 in.·lbf
Height control valve x Body	5.4	55	48 in.·lbf

SERVICE SPECIFICATIONS – SUSPENSION AND AXLE

Part tightened	N·m	kgf·cm	ft·lbf
REAR			
Hub nut	103	1,050	76
Height control sensor link x No.1 lower suspension arm	5.0	55	48 in.·lbf
Brake caliper x Axle carrier	104	1,065	77
Brake disc x Axle hub	5.0	55	48 in.·lbf
ABS speed sensor installation bolt	7.8	80	69 in.·lbf
ABS speed sensor wire harness installation bolt	5.4	55	48 in.·lbf
Shock absorber x Axle carrier	137	1,400	101
Upper suspension arm x Body	164	1,670	121
Parking brake cable x Backing plate	7.8	80	69 in.·lbf
Backing plate x Axle carrier	59	600	43
Upper suspension arm x Axle carrier	108	1,100	80
Drive shaft x Axle hub	289	2,950	213
Suspension member brace x Body	50	510	37
Drive shaft x Differential	83	850	61
Stabilizer bar bracket x Body	18	180	13
Propeller shaft x Differential	79	805	58
Propeller shaft x Transmission	79	805	58
Center support bearing x Body	37	375	27
Front center crossmember brace x Body	13	130	9
Rear center crossmember brace x Body	13	130	9
Heated oxygen sensor	44	450	33
Exhaust front pipe x Exhaust manifold	43	440	32
Differential mounting bolt	Front Rear	147 142	108 105
Ring gear set bolt	64	650	47
Differential carrier retainer x Differential carrier	22	225	16
Companion flange lock nut	See page SA-83		
Oil deflector x Differential carrier cover	7.0	70	62 in.·lbf
Differential carrier cover set bolt	47	475	34
Breather plug	21	210	15
Drain plug	49	500	39
Filler plug	49	500	39
Seatback x Body	18	185	13
Stabilizer bar link nut	65	660	48
Shock absorber cap nut	25	260	18
Suspension support x Piston rod	27	280	20
Suspension support x Body	64	650	47
Air tube x Pneumatic cylinder	17	175	13
Actuator cover nut	25	260	18
Actuator x Pneumatic cylinder	7.8	80	69 in.·lbf
Suspension support x Pneumatic cylinder	36	370	27
Strut rod x Axle carrier	184	1,880	136
Strut rod x Body	78	790	57
No.1 lower suspension arm x Axle carrier	59	600	43

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Date :

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Part tightened	N·m	kgf·cm	ft·lbf
No.1 lower suspension arm x Body	78	790	57
No.2 lower suspension arm x Axle carrier	81	825	60
No.2 lower suspension arm x Body	78	790	57
Height control valve x Body	5.4	55	48 in.·lbf

BRAKE

SERVICE DATA

SS0A7-01

Brake pedal height from floor panel		133.8 – 143.8 mm (5.268– 5.661 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	12.0 mm (0.472 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 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	16.0 mm (0.630 in.)
Rear brake disc thickness	Minimum	15.0 mm (0.591 in.)
Rear brake disc runout	Maximum	0.05 mm (0.0020 in.)
Rear brake disc inside diameter	STD	190 mm (7.48 in.)
Rear brake disc inside diameter	Maximum	191 mm (7.52 in.)
Parking brake lining thickness	STD	2.5 mm (0.098 in.)
Parking brake lining thickness	Minimum	1.0 mm (0.039 in.)
Parking brake pedal travel at 294 N (30 kgf, 66.1 lbf)		5 – 7 clicks
Parking brake clearance between rear shoe and lever		Less than 0.35 mm (0.014 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 SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Master cylinder x Reservoir	1.8	18	16 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
Brake booster push rod	7.4	75	65 in.·lbf
Bleeder plug	11	110	8
Brake caliper	8.3	85	74 in.·lbf
Brake actuator	118	1,200	87
Front disc brake caliper x Steering knuckle	39	400	29
Front disc brake caliper x Flexible hose	104	1,065	77
Rear disc brake torque plate x Rear axle carrier	39	400	29
Rear disc brake caliper x Flexible hose	34	350	25
Rear disc brake caliper installation bolt	13	130	9
Parking brake pedal bracket x Body	32	330	24
Parking brake pedal bracket x Parking brake pedal	5.4	55	48 in.·lbf
Parking brake release lever x Lower pad	5.4	55	48 in.·lbf
Brake actuator x Actuator bracket	19	195	14
Actuator bracket x Body	7.8	80	69 in.·lbf
Front speed sensor installation bolt	7.8	80	69 in.·lbf
Rear speed sensor installation bolt	5.4	55	48 in.·lbf
Speed sensor harness clamp bolt			

STEERING

SERVICE DATA

SSOCO-04

POWER STEERING FLUID		
Fluid level rise	Maximum	5 mm (0.20 in.)
Fluid pressure at idle speed with valve closed	Minimum	8,336 kPa (85 kgf/cm ² , 1,209 psi)
STEERING WHEEL		
Steering wheel freeplay	Maximum	30 mm (1.18 in.)
Steering effort at idle speed	Maximum	6.9 N·m (70 kgf·cm, 61 in.·lbf)
POWER STEERING VANE PUMP		
Vane pump rotating torque	Maximum	0.25 N·m (2.5 kgf·cm, 2.2 in.·lbf)
Oil clearance between pump shaft and bushing	STD	0.030 – 0.045 mm (0.0012 – 0.0018 in.)
Oil clearance between pump shaft and bushing	Maximum	0.07 mm (0.0028 in.)
Vane plate height	Minimum	8.0 mm (0.315 in.)
Vane plate thickness	Minimum	1.77 mm (0.0697 in.)
Vane plate length	Minimum	14.97 mm (0.5894 in.)
Clearance between the rotor groove and plate	Maximum	0.030 mm (0.0012 in.)
Vane plate length	Pump rotor and cam ring mark	
	None	14.996 – 14.998 mm (0.59039 – 0.59047 in.)
	1	14.994 – 14.996 mm (0.59032 – 0.59039 in.)
	2	14.992 – 14.994 mm (0.59024 – 0.59032 in.)
	3	14.990 – 14.992 mm (0.59016 – 0.59024 in.)
	4	14.988 – 14.990 mm (0.59008 – 0.59016 in.)
Spring free length	Minimum	36.0 mm (1.417 in.)
POWER STEERING GEAR		
Steering rack runout	Maximum	0.30 mm (0.0118 in.)
Total preload (Control valve rotating torque)	Turning	0.9 – 1.2 N·m (9 – 12 kgf·cm, 7.8 – 10.4 in.·lbf)

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
POWER STEERING FLUID			
Pressure line joint	37	375	27
POWER TILT AND POWER TELESCOPIC STEERING COLUMN			
Column upper tube sub-assembly x Column upper tube assembly	20	210	15
Telesco lever lock bolt	20	210	15
Column tube stopper	19	190	14
Telescopic steering slider support set bolt	11	110	8
Column tube support x Column tube	15	150	11
Power tilt motor set bolt	20	210	15
No. 2 intermediate shaft assembly x Main shaft assembly	35	360	26
Steering column assembly set nut	25	260	19
Sliding yoke x Control valve shaft	35	360	26
Sliding yoke x No. 2 intermediate shaft assembly	35	360	26
Steering wheel set nut	35	360	26
Steering wheel pad set screw (Torx screw)	8.8	90	78 in.·lbf
POWER STEERING VANE PUMP			
Front housing x Rear bracket	39	400	29
Pressure port union	69	700	51
Suction port union x Vane pump assembly	13	130	9
Air control valve	29	300	22
Vane pump pulley set nut	43	440	32
Pump assembly set bolt	39	400	29
Pump assembly set nut	43	440	32
Pressure feed tube x Vane pump assembly	49	500	36
POWER STEERING GEAR			
Control valve housing x Rack housing	18	185	13
Self-locking nut	39	400	29
Rack housing cap	69	700	51
Rack guide spring cap lock nut	50 (69)	513 (700)	37 (51)
Rack end x Steering rack	77 (103)	782 (1,050)	57 (76)
Tie rod end lock nut	56	570	41
Turn pressure tube	20 (25)	203 (250)	15 (18)
Pressure control valve x Control valve housing	18	185	13
PS gear assembly set bolt and nut	76	770	56
Pressure feed and return tubes	49	500	36
Sliding yoke x Control valve shaft	35	360	26
Steering knuckle x Tie rod end	59	600	43
Steering wheel set nut	35	360	26

(): For use without SST

SUPPLEMENTAL RESTRAINT SYSTEM

TORQUE SPECIFICATION

SS061-03

Part tightened	N·m	kgf·cm	ft·lbf
Steering wheel	35	360	26
Steering wheel pad	8.8	90	78 in.·lbf
Front passenger airbag assembly x Instrument panel reinforcement	21	210	15
Front seat installation bolt	37	375	27
Side airbag assembly x Seatback frame	9.0	92	6.7 in.·lbf
Airbag sensor assembly	21	210	15
Side airbag sensor assembly	21	210	15
Front seat outer belt retractor	Upper bolt	7.4	75
	Lower bolt	41	420
			65 in.·lbf 30

BODY ELECTRICAL

SERVICE DATA

SSOCN-01

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 Stop)	No voltage
5 – Ground (Engine Running)	Battery positive voltage
7 – Ground (Constant)	Battery positive voltage
9 – Ground (Constant)	Battery positive voltage
AUTOMATIC LIGHT CONTROL SENSOR	
(Connector disconnected)	
4 – Ground (Ignition switch position LOCK or ACC)	No voltage
4 – Ground (Ignition switch position ON)	5.2 – 9.0 V
5 – Ground (Ignition switch position LOCK or ACC)	No voltage
5 – Ground (Ignition switch position ON)	Battery positive voltage
(Connector connected)	
6 – Ground (Constant)	1 V or less
5 – Ground (Ignition switch position LOCK or ACC)	1 V or less
5 – Ground (Ignition switch position ON)	9.5 V or more
4 – Ground (Vehicle's surroundings are dark) (Sensor is covered)	Taillight and headlight are ON
HEADLIGHT BEAM LEVEL CONTROL ECU	
(Connector disconnected)	
1 – 4 (Ignition switch position OFF)	26 – 30 Ω
1 – 5 (Ignition switch position OFF)	26 – 30 Ω
1 – 6 (Ignition switch position OFF)	26 – 30 Ω
1 – 7 (Ignition switch position OFF)	26 – 30 Ω
1 – 17 (Ignition switch position OFF)	26 – 30 Ω
1 – 18 (Ignition switch position OFF)	26 – 30 Ω
1 – 19 (Ignition switch position OFF)	26 – 30 Ω
1 – 20 (Ignition switch position OFF)	26 – 30 Ω
(Connector disconnected)	
1 – 13 (Ignition switch position ON)	Battery positive voltage
10 – 25 (Ignition switch position ON)	Approx. 2.5 V
13 – 15 (Ignition switch position ON and light control switch HEAD)	Below 1.5 V
21 – 25 (Ignition switch position ON)	Approx. 2.5 V
24 – 25 (Ignition switch position ON)	5V
TURN SIGNAL FLASHER	
1 – Ground (Ignition switch position LOCK or ACC)	No voltage
1 – Ground (Ignition switch position ON)	Battery positive voltage
4 – Ground (Constant)	Battery positive voltage
LIGHT FAILURE RELAY (Wire Harness Side)	
1 – Ground (Stop light switch position OFF)	No voltage
1 – Ground (Stop light switch position ON)	Battery positive voltage
8 – Ground (Stop light switch position OFF)	No voltage

SERVICE SPECIFICATIONS – BODY ELECTRICAL

8 – Ground (Stop light switch position ON)	Battery positive voltage
9 – Ground (Ignition switch position LOCK or ACC)	No voltage
9 – Ground (Ignition switch position ON)	Battery positive voltage
14 – Ground (Ignition switch position LOCK or ACC)	No voltage
14 – Ground (Ignition switch position ON)	Battery positive voltage
16 – Ground (Light control switch position OFF)	No voltage
16 – Ground (Light control switch position TAIL or HEAD)	Battery positive voltage
SPEEDOMETER (ON-VEHICLE)	
USA:	
Standard indication (mph)	Allowable range (mph)
20	18.5 – 21.5
40	40 – 43
60	60.5 – 64
80	81 – 85
100	102 – 107
120	122.5 – 128.5
CANADA:	
Standard indication (km/h)	Allowable range (km/h)
20	18 – 23
40	38 – 42
60	57 – 61.5
80	76.5 – 81.5
100	96.5 – 101.5
120	116 – 121.5
160	155.5 – 162.5
200	194.5 – 203.5
TACHOMETER (ON-VEHICLE)/ DC 13.5 V 25 °C at (77 °F)	
Standard indication	Allowable range
700	630 – 770
1,000	925 – 1,125
2,000	1,900 – 2,200
3,000	2,845 – 3,305
4,000	3,870 – 4,330
5,000	4,925 – 5,320
7,000	6,875 – 7,475
FUEL RECEIVER GAUGE	
A – B	Approx. 151.8 Ω
C – D	Approx. 164.2 Ω
FUEL SENDER GAUGE	
Float position mm (in.)	Resistance (Ω)
F: Approx. 310.5 (12.22)	Approx. 4.6
1/2: Approx. 172.0 (6.77)	Approx. 2.43
E: Approx. 34.3 (1.35)	Approx. 0.35
ENGINE COOLANT TEMPERATURE RECEIVER GAUGE (Resistance)	Resistance (Ω)
A – B	Approx. 151.8 Ω
C – D	Approx. 164.2 Ω

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ENGINE COOLANT TEMPERATURE SENDER GAUGE (Resistance)	
Temperature °C (°F)	Resistance (Ω)
50 (122.0)	160 – 240
120 (248.0)	17.1 – 21.2
MULTI INFORMATION DISPLAY SWITCH	
Switch position	Resistance (Ω)
FUNCTION	0
REST	Approx. 360
MODE	Approx. 1,110
DEFOGGER SWITCH	
2 – Ground (Ignition switch position LOCK or ACC)	No voltage
2 – Ground (Ignition switch position ON)	Battery positive voltage
WIRELESS DOOR LOCK CONTROL RECEIVER	
(Connector disconnected)	
1 – Ground (Constant)	Battery positive voltage
(Connector connected)	
3 – Ground (Ignition switch position OFF, Key removed, Transmitter OFF → ON)	4.5 – 5.5 V → below 1 V
3 – Ground (Ignition switch position OFF, Key removed, Transmitter OFF → ON)	4.5 – 5.5 V → below 1 V
4 – Ground (Ignition switch position OFF, Key removed, Transmitter OFF)	10 – 14 V
RADIO RECEIVER	
(Nakamichi made)	
B6 – Ground (Ignition switch position ACC or ON)	Battery positive voltage
B6 – Ground (Ignition switch position LOCK)	No voltage
B1 – Ground (Constant)	Battery positive voltage
POWER AMPLIFIER	
(Nakamichi made)	
A5 – Ground (Constant)	Battery positive voltage
A6 – Ground (Ignition switch position ACC or ON)	Battery positive voltage
D6 – Ground (Ignition switch position ACC or ON, Radio tape or CD switch ON)	Battery positive voltage
CD AUTO CHANGER	
(Nakamichi made)	
5 – Ground (Constant)	Battery positive voltage
4 – Ground (Ignition switch position LOCK)	No voltage
4 – Ground (Ignition switch position ACC or ON)	Battery positive voltage
RADIO RECEIVER	
(Pioneer made)	
A1 – Ground (Constant)	Battery positive voltage
A6 – Ground (Ignition switch position ACC or ON)	Battery positive voltage
A6 – Ground (Ignition switch position LOCK)	No voltage
POWER AMPLIFIER	
(Pioneer made and LEXUS navigation system)	
B4 – Ground (Constant)	Battery positive voltage

SERVICE SPECIFICATIONS – BODY ELECTRICAL

C12 – Ground (Ignition switch position ACC or ON)	Battery positive voltage
CD AUTO CHANGER	
(Pioneer made and LEXUS navigation system)	
5 – Ground (Constant)	Battery positive voltage
12 – Ground (Ignition switch position LOCK)	No voltage
12 – Ground (Ignition switch position ACC or ON)	Battery positive voltage
RADIO RECEIVER	
(LEXUS navigation system)	
B1 – Ground (Ignition switch position ACC or ON)	Battery positive voltage
B1 – Ground (Ignition switch position LOCK)	No voltage
B4 – Ground (Constant)	Battery positive voltage

BODY

TORQUE SPECIFICATION

SS0C2-02

Part tightened	N·m	kgf·cm	ft·lbf
FRONT BUMPER	–	–	–
Front bumper reinforcement x Body	13	130	9
Front bumper cover x Body	5.4	55	48 in.·lbf
REAR BUMPER	–	–	–
Rear bumper cover x Body	5.4	55	48 in.·lbf
HOOD	–	–	–
Hood hinge x Hood	11	115	8
Hood lock x Body	7.8	80	69 in.·lbf
HOOD SUPPORT	–	–	–
Hood support x Hood	22	225	16
Hood support x Body	22	225	16
FRONT DOOR	–	–	–
Window regulator x Door panel	8.0	82	71 in.·lbf
Door lock x Door panel	5.0	51	44 in.·lbf
Outside handle x Door panel	5.5	56	49 in.·lbf
Key cylinder x Door panel	5.5	56	49 in.·lbf
Door hinge x Body	33	330	24
Door hinge x Door	26	260	19
REAR DOOR	–	–	–
Window regulator x Door panel	8.0	82	71 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	33	330	24
Door hinge x Door	26	260	19
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 hinge	11	115	8
Door lock x Door panel	5.5	56	49 in.·lbf
Key cylinder x Door panel	5.5	56	49 in.·lbf
LUGGAGE COMPARTMENT DOOR SUPPORT	–	–	–
Door support x Door hinge	22	225	16
FRONT WIPER AND WASHER	–	–	–
Wiper motor and link assembly x Body	5.5	56	49 in.·lbf
Sub arm stay set bolt	5.5	56	49 in.·lbf
Wiper arm x Wiper link	22	225	16
INSTRUMENT PANEL	–	–	–
Steering wheel set nut	35	360	26
Front passenger airbag assembly x Reinforcement	21	210	15

Part tightened	N·m	kgf·cm	ft·lbf
FRONT SEAT	–	–	–
Seat regulator x Body	37	375	27
Side airbag assembly x Seatback frame	9.0	92	7
Seatback frame x Reclining adjuster	18	185	13
Seat cushion frame x Seat regulator	18	185	13
REAR SEAT	–	–	–
Seatback assembly x Body	18	185	13
SEAT BELT	–	–	–
Power adjuster anchor x Body	41	420	30
Front seat shoulder anchor x Power adjuster anchor	41	420	30
Front seat floor anchor x Body	41	420	30
Front seat retractor x Body (Upper side)	7.8	80	69 in.·lbf
Front seat retractor x Body (Lower side)	41	420	30
Front seat inner belt x Front seat	41	420	30
Rear seat outer belt x Body	41	420	30
Rear seat inner belt x Body	41	420	30
Rear seat center belt x Body	41	420	30
CRS tether anchor bracket x Body	21	210	15

AIR CONDITIONING

SS05V-03

SERVICE DATA

Refrigerant charge volume	700 ± 50 g (24.69 ± 1.76 oz.)
Drive belt tension	–
Idle-up speed	–
Magnetic clutch not engaged	750 ± 50 rpm
Magnetic clutch engaged	800 ± 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	10	100	7
Condenser x Liquid tube	10	100	7
Receiver x Liquid tube	5.4	55	48 in.·lbf
A/C unit x Liquid tube	10	100	7
A/C unit x Suction tube	10	100	7
Expansion valve x Liquid tube	19mm nut	14	10
	24 mm nut	23	17
Expansion valve x Suction tube	10	100	7
Pressure regulator valve x tube	5.4	55	48 in.·lbf
Compressor x Engine	Bolt	49	36
	Nut	29	22
Pressure switch x Liquid tube	10	100	7
Pressure plate x Compressor	13.2	135	9
Suction line (Piping joint)	32	330	24
Discharge line (Piping joint)	22	225	16
Liquid line (Piping joint)	14	140	10