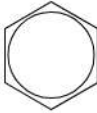
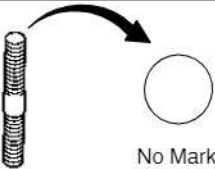
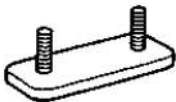


STANDARD BOLT

HOW TO DETERMINE BOLT STRENGTH

SS02S-01

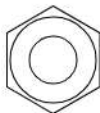
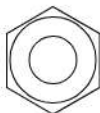
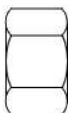
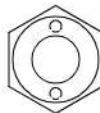
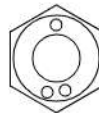
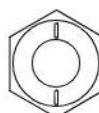
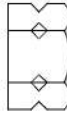
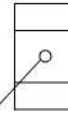
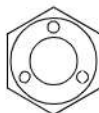
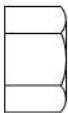
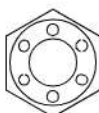
Bolt Type				Class
Hexagon Head Bolt		Stud Bolt	Weld Bolt	
Normal Recess Bolt	Deep Recess Bolt			
  No Mark	 No Mark	 No Mark		4T
 				5T
  w/ Washer	 w/ Washer			6T
 	 			7T
		 		8T
				9T
	 			10T
	 			11T

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.

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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

2005 CELICA (RM1131U)

MAINTENANCE

SERVICE DATA

SS0MG-08

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

TORQUE SPECIFICATION

Part tightened		N·m	kgf·cm	ft·lbf
Front seat x Body		37	375	27
Front suspension member x Body (See page MA-7)	Bolt A	113	1,152	83
	Bolt B	157	1,600	116
Rear suspension member x Body (See page MA-7)	Bolt A	80	816	59
	Bolt B	130	1,326	96

ENGINE MECHANICAL

SERVICE DATA

SS0MI-14

Compression pressure	1ZZ-FE:	at 250 rpm STD	1,500 kPa (15.3 kgf/cm ² , 218 psi)
		Minimum	1,000 kPa (10.2 kgf/cm ² , 145 psi)
	Difference of pressure between each cylinder		100 kPa (1.0 kgf/cm ² , 15 psi) or less
	2ZZ-GE:	at 250 rpm STD	1,400 kPa (14.3 kgf/cm ² , 203 psi)
Valve clearance		Minimum	1,000 kPa (10.2 kgf/cm ² , 145 psi)
	Difference of pressure between each cylinder		110 kPa (1.1 kgf/cm ² , 16 psi) or less
	1ZZ-FE:	at cold Intake	0.15 - 0.25 mm (0.006 - 0.010 in.)
		Exhaust	0.25 - 0.35 mm (0.010 - 0.014 in.)
Valve clearance	Valve clearance adjusting shim		
	No. 06		5.060 mm (0.1992 in.)
	No. 08		5.080 mm (0.2000 in.)
	No. 10		5.100 mm (0.2008 in.)
	No. 12		5.120 mm (0.2016 in.)
	No. 14		5.140 mm (0.2024 in.)
	No. 16		5.160 mm (0.2031 in.)
	No. 18		5.180 mm (0.2039 in.)
	No. 20		5.200 mm (0.2047 in.)
	No. 22		5.220 mm (0.2055 in.)
	No. 24		5.240 mm (0.2063 in.)
	No. 26		5.260 mm (0.2071 in.)
	No. 28		5.280 mm (0.2079 in.)
	No. 30		5.300 mm (0.2087 in.)
	No. 32		5.320 mm (0.2094 in.)
	No. 34		5.340 mm (0.2102 in.)
	No. 36		5.360 mm (0.2110 in.)
	No. 38		5.380 mm (0.2118 in.)
	No. 40		5.400 mm (0.2126 in.)
	No. 42		5.420 mm (0.2134 in.)
	No. 44		5.440 mm (0.2142 in.)
	No. 46		5.460 mm (0.2150 in.)
	No. 48		5.480 mm (0.2157 in.)
	No. 50		5.500 mm (0.2165 in.)
	No. 52		5.520 mm (0.2173 in.)
	No. 54		5.540 mm (0.2181 in.)
	No. 56		5.560 mm (0.2189 in.)
	No. 58		5.580 mm (0.2197 in.)
	No. 60		5.600 mm (0.2205 in.)
	No. 62		5.620 mm (0.2213 in.)
	No. 64		5.640 mm (0.2220 in.)
	No. 66		5.660 mm (0.2228 in.)
	No. 68		5.680 mm (0.2236 in.)
	No. 70		5.700 mm (0.2244 in.)
	No. 72		5.720 mm (0.2252 in.)
	No. 74		5.740 mm (0.2260 in.)

SERVICE SPECIFICATIONS – ENGINE MECHANICAL

Valve clearance	2ZZ-GE:	at cold Intake	0.08 – 0.18 mm (0.0031 – 0.0071 in.)
		Exhaust	0.22 – 0.32 mm (0.0087 – 0.0126 in.)
	Valve clearance adjusting shim		
		No. 00	2.000 mm (0.0787 in.)
		No. 02	2.020 mm (0.0795 in.)
		No. 04	2.040 mm (0.0803 in.)
		No. 06	2.060 mm (0.0811 in.)
		No. 08	2.080 mm (0.0819 in.)
		No. 10	2.100 mm (0.0827 in.)
		No. 12	2.120 mm (0.0835 in.)
		No. 14	2.140 mm (0.0843 in.)
		No. 16	2.160 mm (0.0850 in.)
		No. 18	2.180 mm (0.0858 in.)
		No. 20	2.200 mm (0.0866 in.)
		No. 22	2.220 mm (0.0874 in.)
		No. 24	2.240 mm (0.0882 in.)
		No. 26	2.260 mm (0.0890 in.)
		No. 28	2.280 mm (0.0898 in.)
		No. 30	2.300 mm (0.0906 in.)
		No. 32	2.320 mm (0.0913 in.)
		No. 34	2.340 mm (0.0921 in.)
		No. 36	2.360 mm (0.0929 in.)
		No. 38	2.380 mm (0.0937 in.)
		No. 40	2.400 mm (0.0945 in.)
		No. 42	2.420 mm (0.0953 in.)
		No. 44	2.440 mm (0.0961 in.)
		No. 46	2.460 mm (0.0969 in.)
		No. 48	2.480 mm (0.0976 in.)
		No. 50	2.500 mm (0.0984 in.)
		No. 52	2.520 mm (0.0992 in.)
		No. 54	2.540 mm (0.1000 in.)
		No. 56	2.560 mm (0.1008 in.)
		No. 58	2.580 mm (0.1016 in.)
		No. 60	2.600 mm (0.1024 in.)
		No. 62	2.620 mm (0.1031 in.)
		No. 64	2.640 mm (0.1039 in.)
		No. 66	2.660 mm (0.1047 in.)
		No. 68	2.680 mm (0.1055 in.)
		No. 70	2.700 mm (0.1063 in.)
		No. 72	2.720 mm (0.1071 in.)
		No. 74	2.740 mm (0.1079 in.)
		No. 76	2.760 mm (0.1087 in.)
		No. 78	2.780 mm (0.1094 in.)
		No. 80	2.800 mm (0.1102 in.)
Ignition timing	1ZZ-FE:		10 – 18° BTDC @ idle
	2ZZ-GE:		8 – 12° BTDC @ idle
Idle speed	1ZZ-FE:	M/T	700 ± 50 rpm
		A/T	750 ± 50 rpm
	2ZZ-GE:	M/T	800 ± 50 rpm
		A/T	750 ± 50 rpm
Chain and timing sprocket	Chain length at 16 links	Maximum	122.6 mm (4.827 in.)
	Camshaft timing sprocket wear (w/ chain)	Minimum	97.3 mm (3.831 in.)
	Crankshaft timing sprocket wear (w/ chain)	Minimum	51.6 mm (2.031 in.)
Chain tensioner slipper and vibration damper	Wear	Maximum	1.0 mm (0.039 in.)

Cylinder head	Warpage	Maximum	0.05 mm (0.0020 in.)
	Valve seat		
	Refacing angle		30°, 45°, 75°
	Contacting angle		45°
	Contacting width		1.0 – 1.4 mm (0.039 – 0.055 in.)
	Residuary width	Minimum Intake	3.3 mm (0.130 in.)
		Exhaust	3.2 mm (0.126 in.)
	Valve guide bushing bore diameter	1ZZ-FE	
		STD	10.285 – 10.306 mm (0.4049 – 0.4057 in.)
		O/S 0.05	10.335 – 10.356 mm (0.4068 – 0.4077 in.)
Valve guide bushing		2ZZ-GE	
		STD	10.488 – 10.506 mm (0.41291 – 0.41362 in.)
		O/S 0.05	10.538 – 10.556 mm (0.41488 – 0.41559 in.)
	Cylinder head bolt diameter		
		at tension portion STD	9.0 – 9.2 mm (0.354 – 0.362 in.)
		Minimum	9.0 mm (0.354 in.)
	1ZZ-FE:		
	Inside diameter		5.510 – 5.530 mm (0.2169 – 0.2177 in.)
	Protrusion height		8.7 – 9.1 mm (0.342 – 0.358 in.)
	2ZZ-GE:		
Valve			
	Inside diameter		5.500 – 5.518 mm (0.2165 – 0.2172 in.)
	Protrusion height		15.3 – 15.7 mm (0.602 – 0.618 in.)
	1ZZ-FE:		
	Valve overall length	STD Intake	88.65 mm (3.4902 in.)
		Exhaust	88.69 mm (3.4917 in.)
		Minimum Intake	88.35 mm (3.4783 in.)
		Exhaust	88.39 mm (3.4799 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	0.7 mm (0.028 in.)
	2ZZ-GE:		
	Valve overall length	STD Intake	111.3 mm (4.382 in.)
		Exhaust	111.7 mm (4.398 in.)
		Minimum Intake	110.9 mm (4.366 in.)
		Exhaust	111.3 mm (4.382 in.)
	Valve face angle		44.5°
	Stem diameter	Intake	5.460 – 5.475 mm (0.21496 – 0.21555 in.)
		Exhaust	5.445 – 5.470 mm (0.21437 – 0.21535 in.)
	Stem oil clearance	STD Intake	0.025 – 0.058 mm (0.00098 – 0.00228 in.)
		Exhaust	0.030 – 0.063 mm (0.00118 – 0.00248 in.)
		Maximum	0.10 mm (0.0039 in.)
	Margin thickness	STD	1.0 mm (0.039 in.)
		Minimum	0.7 mm (0.028 in.)

SERVICE SPECIFICATIONS – ENGINE MECHANICAL

Valve spring	1ZZ-FE:		
	Deviation	Maximum	1.6 mm (0.063 in.)
	Angle (Reference)	Maximum	2°
	Free length		45.90 mm (1.807 in.)
	Installed tension at 33.6 mm (1.323 in.)		139.6 – 154.4 N (14.2 – 15.8 kgf, 31.3 – 34.8 lbf)
	Maximum working tension at 24.6 mm (0.969 in.)		244.9 – 276.1 N (25.5 – 28.1 kgf, 56.2 – 61.9 lbf)
	2ZZ-GE:		
	Deviation	Maximum	1.6 mm (0.063 in.)
	Angle (Reference)	Maximum	2°
	Free length	Intake	46.4 mm (1.830 in.)
Valve lifter		Exhaust	46.5 mm (1.831 in.)
	Installed tension at 38.5 mm (1.516 in.)	Intake	220.2 – 243.8 N (22.5 – 24.7 kgf, 49.6 – 55.5 lbf)
		Exhaust	208.2 – 229.8 N (21.2 – 23.4 kgf, 47.6 – 52.6 lbf)
	Maximum working tension	Intake at 27.3 mm (1.075 in.)	533 – 589 N (54.4 – 60.1 kgf, 119.9 – 132.5 lbf)
		Exhaust at 28.5 mm (1.122 in.)	495.5 – 548.5 N (50.5 – 55.9 kgf, 111.3 – 123.3 lbf)
	1ZZ-FE:		
	Lifter diameter		30.966 – 30.976 mm (1.2191 – 1.2195 in.)
	Lifter bore diameter		31.000 – 31.025 mm (1.2205 – 1.2215 in.)
	Oil clearance	STD	0.024 – 0.059 mm (0.0009 – 0.0023 in.)
		Maximum	0.079 mm (0.0031 in.)
Camshaft	1ZZ-FE:		
	Thrust clearance	STD	0.040 – 0.095 mm (0.0016 – 0.0037 in.)
		Maximum	0.11 mm (0.0043 in.)
	Journal oil clearance	STD	0.035 – 0.072 mm (0.0014 – 0.0028 in.)
		Maximum	0.10 mm (0.0039 in.)
	Journal diameter	No. 1	34.449 – 34.465 mm (1.3563 – 1.3569 in.)
		Others	22.949 – 22.965 mm (0.9035 – 0.9041 in.)
	Circle runout	Maximum	0.03 mm (0.0012 in.)
	Cam lobe height	STD Intake	44.333 – 44.433 mm (1.7454 – 1.7493 in.)
		Exhaust	43.761 – 43.861 mm (1.7229 – 1.7268 in.)
		Minimum Intake	44.18 mm (1.7394 in.)
		Exhaust	43.61 mm (1.7169 in.)
	2ZZ-GE:		
	Thrust clearance	STD	0.04 – 0.14 mm (0.0016 – 0.0055 in.)
		Maximum	0.15 mm (0.0059 in.)
	Journal oil clearance	STD	
		No. 1	0.035 – 0.076 mm (0.00138 – 0.00299 in.)
		Others	0.035 – 0.072 mm (0.00138 – 0.00283 in.)
		Maximum	0.1 mm (0.039 in.)
	Journal diameter	No. 1	34.449 – 34.465 mm (1.35626 – 1.35689 in.)
		Others	27.949 – 27.965 mm (1.10035 – 1.10098 in.)
	Circle runout	Maximum	0.03 mm (0.0012 in.)
	Cam lobe height	STD Intake	
		No. 1	40.607 – 40.707 mm (1.59586 – 1.59979 in.)
		No. 2	38.769 – 38.869 mm (1.52362 – 1.52755 in.)
		Exhaust	
		No. 1	40.019 – 40.119 mm (1.57275 – 1.57668 in.)
		No. 2	38.863 – 38.963 mm (1.52732 – 1.53125 in.)
		Minimum Intake	
		No. 1	40.45 mm (1.5925 in.)
		No. 2	38.61 mm (1.5201 in.)
		Exhaust	
		No. 1	39.86 mm (1.5693 in.)
		No. 2	38.71 mm (1.5240 in.)
Intake manifold	Warpage	Maximum	0.10 mm (0.0039 in.)
Exhaust manifold	Warpage	Maximum	0.70 mm (0.0276 in.)

Cylinder block	1ZZ-FE:		
	Cylinder head surface warpage	Maximum	0.05 mm (0.0020 in.)
	Cylinder bore diameter	STD	79.000 – 79.013 mm (3.1102 – 3.1107 in.)
		Difference limit (See page EM-100)	0.10 mm (0.0039 in.)
	12 pointed head bearing cap sub-assembly bolt diameter		
		at tension portion STD	7.3 – 7.5 mm (0.287 – 0.295 in.)
		Minimum	7.3 mm (0.287 in.)
	2ZZ-GE:		
	Cylinder head surface warpage	Maximum	0.05 mm (0.0020 in.)
	Cylinder bore diameter	STD	82.000 – 82.013 mm (3.2283 – 3.2289 in.)
Piston and piston ring		Difference limit (See page EM-100)	0.10 mm (0.0039 in.)
	12 pointed head bearing cap sub-assembly bolt diameter		
		at tension portion STD	7.3 – 7.5 mm (0.287 – 0.295 in.)
		Minimum	7.3 mm (0.287 in.)
	1ZZ-FE:		
	Piston diameter		
		at 25.6 mm (1.008 in.) from the piston head	78.925 – 78.935 mm (3.1073 – 3.1077 in.)
	Piston oil clearance		
		STD	0.065 – 0.088 mm (0.0026 – 0.0035 in.)
		Maximum	0.10 mm (0.0039 in.)
	Piston ring groove clearance		0.030 – 0.070 mm (0.0012 – 0.0028 in.)
	Piston ring end gap	STD No. 1	0.25 – 0.35 mm (0.0098 – 0.0138 in.)
		No. 2	0.35 – 0.50 mm (0.0138 – 0.0197 in.)
		Oil	0.15 – 0.40 mm (0.0059 – 0.0157 in.)
		Maximum No. 1	1.05 mm (0.0413 in.)
		No. 2	1.20 mm (0.0472 in.)
		Oil	1.05 mm (0.0413 in.)
	2ZZ-GE:		
	Piston diameter		
		at 12.0 mm (0.048 in.) from the piston head	81.975 – 81.993 mm (3.2274 – 3.2281 in.)
	Piston oil clearance		
		STD	0.007 – 0.038 mm (0.0003 – 0.0015 in.)
		Maximum	0.10 mm (0.0039 in.)
	Piston ring groove clearance		0.030 – 0.070 mm (0.0012 – 0.0028 in.)
	Piston ring end gap	STD No. 1	0.25 – 0.35 mm (0.0098 – 0.0138 in.)
		No. 2	0.35 – 0.50 mm (0.0138 – 0.0197 in.)
		Oil	0.15 – 0.40 mm (0.0059 – 0.0157 in.)
		Maximum No. 1	1.05 mm (0.0413 in.)
		No. 2	1.20 mm (0.0472 in.)
		Oil	1.05 mm (0.0413 in.)

SERVICE SPECIFICATIONS - ENGINE MECHANICAL

Connecting rod	1ZZ-FE:		
	Thrust clearance	STD	0.160 – 0.342 mm (0.0063 – 0.0135 in.)
		Maximum	0.342 mm (0.0135 in.)
	Connecting rod thickness		19.788 – 19.840 mm (0.7791 – 0.7811 in.)
	Connecting rod bearing center wall thickness		
	Reference	Mark 1	1.486 – 1.490 mm (0.0585 – 0.0587 in.)
		Mark 2	1.490 – 1.494 mm (0.0587 – 0.0588 in.)
		Mark 3	1.494 – 1.498 mm (0.0588 – 0.0590 in.)
	Connecting rod oil clearance	STD	0.028 – 0.060 mm (0.0011 – 0.0024 in.)
		Maximum	0.08 mm (0.0031 in.)
	Rod out-of-alignment	Maximum per/100 mm (3.94 in.)	0.05 mm (0.0020 in.)
	Rod twist	Maximum per/100 mm (3.94 in.)	0.05 mm (0.0020 in.)
	Bushing inside diameter		20.012 – 20.021 mm (0.7879 – 0.7882 in.)
	Piston pin diameter		20.004 – 20.013 mm (0.7876 – 0.7879 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 diameter		
		at tension portion STD	6.6 – 6.7 mm (0.260 – 0.264 in.)
		Minimum	6.4 mm (0.252 in.)
	2ZZ-GE:		
	Thrust clearance	STD	0.160 – 0.342 mm (0.0063 – 0.0135 in.)
		Maximum	0.342 mm (0.0135 in.)
	Connecting rod thickness		19.788 – 19.840 mm (0.7791 – 0.7811 in.)
	Connecting rod bearing center wall thickness		
	Reference	Mark 1	1.482 – 1.486 mm (0.0583 – 0.0585 in.)
		Mark 2	1.486 – 1.490 mm (0.0585 – 0.0587 in.)
		Mark 3	1.490 – 1.494 mm (0.0587 – 0.0588 in.)
	Connecting rod oil clearance	STD	0.028 – 0.052 mm (0.0011 – 0.0020 in.)
		Maximum	0.08 mm (0.0031 in.)
	Rod out-of-alignment	Maximum per/100 mm (3.94 in.)	0.05 mm (0.0020 in.)
	Rod twist	Maximum per/100 mm (3.94 in.)	0.05 mm (0.0020 in.)
	Bushing inside diameter	Connecting rod	20.011 – 20.023 mm (0.7878 – 0.7883 in.)
		Piston	20.013 – 20.025 mm (0.7879 – 0.7884 in.)
	Piston pin diameter		20.004 – 20.016 mm (0.7876 – 0.7880 in.)
	Bushing oil clearance	STD Piston x Piston pin	0.005 – 0.013 mm (0.0002 – 0.0005 in.)
		Piston pin x Connecting rod	0.005 – 0.009 mm (0.0002 – 0.0004 in.)
		Maximum	0.05 mm (0.0020 in.)
	Connecting rod bolt diameter		
		at tension portion STD	6.6 – 6.7 mm (0.260 – 0.264 in.)
		Minimum	6.4 mm (0.252 in.)

Crankshaft	1ZZ-FE:		
	Thrust clearance	STD	0.04 – 0.24 mm (0.0016 – 0.0094 in.)
		Maximum	0.30 mm (0.0118 in.)
	Thrust washer thickness		2.430 – 2.480 mm (0.0957 – 0.0976 in.)
	Main journal oil clearance	STD	0.015 – 0.032 mm (0.0006 – 0.0013 in.)
		Maximum	0.050 mm (0.0020 in.)
	Main journal diameter	Mark 0	47.998 – 48.000 mm (1.8897 – 1.8898 in.)
		Mark 1	47.996 – 47.998 mm (1.8896 – 1.8897 in.)
		Mark 2	47.994 – 47.996 mm (1.8895 – 1.8896 in.)
		Mark 3	47.992 – 47.994 mm (1.8894 – 1.8895 in.)
		Mark 4	47.990 – 47.992 mm (1.8893 – 1.8894 in.)
		Mark 5	47.988 – 47.990 mm (1.8892 – 1.8893 in.)
	Main bearing center wall thickness		
	Reference	Mark 1	1.993 – 1.996 mm (0.0785 – 0.0786 in.)
		Mark 2	1.996 – 1.999 mm (0.0786 – 0.0787 in.)
		Mark 3	1.999 – 2.002 mm (0.0787 – 0.0788 in.)
		Mark 4	2.002 – 2.005 mm (0.0788 – 0.0789 in.)
	Crank pin diameter		43.992 – 44.000 mm (1.7320 – 1.7323 in.)
	Circle runout	Maximum	0.03 mm (0.0012 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.)
	2ZZ-GE:		
	Thrust clearance	STD	0.04 – 0.24 mm (0.0016 – 0.0094 in.)
		Maximum	0.30 mm (0.0118 in.)
	Thrust washer thickness		2.430 – 2.480 mm (0.0957 – 0.0976 in.)
	Main journal oil clearance	STD	0.016 – 0.032 mm (0.0006 – 0.0013 in.)
		Maximum	0.050 mm (0.0020 in.)
	Main journal diameter	Mark 0	47.998 – 48.000 mm (1.8897 – 1.8898 in.)
		Mark 1	47.996 – 47.998 mm (1.8896 – 1.8897 in.)
		Mark 2	47.994 – 47.996 mm (1.8895 – 1.8896 in.)
		Mark 3	47.992 – 47.994 mm (1.8894 – 1.8895 in.)
		Mark 4	47.990 – 47.992 mm (1.8893 – 1.8894 in.)
		Mark 5	47.988 – 47.990 mm (1.8892 – 1.8893 in.)
	Main bearing center wall thickness		
	Reference	Mark 1	1.989 – 1.992 mm (0.0783 – 0.0784 in.)
		Mark 2	1.992 – 1.995 mm (0.0784 – 0.0785 in.)
		Mark 3	1.995 – 1.998 mm (0.0785 – 0.0787 in.)
		Mark 4	1.998 – 2.001 mm (0.0787 – 0.0788 in.)
		Mark 5	2.001 – 2.004 mm (0.0788 – 0.0789 in.)
	Crank pin diameter		44.992 – 45.000 mm (1.7713 – 1.7717 in.)
	Circle runout	Maximum	0.03 mm (0.0012 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	
Camshaft timing sprocket x Camshaft		54	551	40	
Valve timing controller assembly x Camshaft		54	551	40	
Chain vibration damper x Cylinder block	1ZZ-FE	11	113	8	
	2ZZ-GE	20.5	209	15	
Chain tensioner slipper x Cylinder block	1ZZ-FE	18.5	189	14	
	2ZZ-GE	20.5	209	15	
Timing chain cover					
1ZZ-FE: (See page EM-26)	10 mm head bolt D and E	13	133	10	
	10 mm head bolt C	9	92	80 in.·lbf	
	10 mm head bolt B	11	113	8	
	12 mm head bolt A	18.5	189	14	
2ZZ-GE: (See page EM-26)	Stud (E8)	9.3	95	82 in.·lbf	
	Bolt A	21	214	15	
	Bolt B	11	113	8	
	Bolt C	9.0	92	80 in.·lbf	
	Bolt D	9.0	92	80 in.·lbf	
	Stud (E8)	9.3	95	82 in.·lbf	
RH engine mounting bracket x Timing chain cover	1ZZ-FE	47	479	35	
	2ZZ-GE	49	500	36	
Driver belt tensioner x Timing chain cover	Bolt				
	1ZZ-FE	69	704	51	
	2ZZ-GE	100	1,020	74	
	Nut	29	296	21	
Crankshaft position sensor x Timing chain cover		9.0	92	80 in.·lbf	
Crankshaft pulley x Crankshaft	1ZZ-FE	138	1,409	102	
	2ZZ-GE	120	1,200	87	
Chain tensioner x Timing chain cover		9.0	92	80 in.·lbf	
Cylinder head cover x Cylinder head	1ZZ-FE w/ Washer	9.0	92	80 in.·lbf	
	w/o Washer	11	113	8	
	2ZZ-GE	10	100	7	
No. 1 ventilation pipe x Cylinder head cover		10	100	7	
No. 1 ventilation pipe x Intake manifold		2ZZ-GE	25	255	18
RH engine mounting insulator		52	530	38	
PS pump x Engine		36	370	27	
Camshaft bearing cap x Cylinder head	1ZZ-FE No. 1	23	235	17	
	No. 3	13	133	10	
	2ZZ-GE	18.5	189	14	
Rocker No. 1 and No. 2 shaft x Cylinder head		2ZZ-GE	7.5	76	66 in.·lbf
Oil control valve housing x Cylinder head		2ZZ-GE	9.0	92	80
Oil pressure switch x Cylinder head		2ZZ-GE	13	130	9
Oil control valve filter x Cylinder head		2ZZ-GE	29	300	22
Cylinder head x Cylinder block	1ZZ-FE 1st	49	500	36	
	2nd	Turn 90°	Turn 90°	Turn 90°	
	2ZZ-GE 1st	35	375	26	
	2nd	Turn 180°	Turn 180°	Turn 180°	
Water bypass pipe x Cylinder head		9.0	92	80 in.·lbf	

Intake manifold x Cylinder head			
1ZZ-FE:		30	306
2ZZ-GE: (See page EM-67)		27	275
	Bolt A	46	469
	Bolt B	34	347
	Bolt others		25
Intake manifold stay	2ZZ-GE	24	245
Exhaust manifold x Cylinder head	1ZZ-FE	37	377
	2ZZ-GE Bolt A	20	204
	Bolt B	50	510
Lower heat insulator x Exhaust manifold	1ZZ-FE	12	123
	2ZZ-GE	20	204
Upper heat insulator x Exhaust manifold	1ZZ-FE	18	184
	2ZZ-GE	20	204
Exhaust manifold stay	1ZZ-FE	49	500
	2ZZ-GE	50	510
Engine hanger x Cylinder head		38	388
LH engine mounting		80	816
Rear engine mounting bracket x Transaxle		64	653
Rear engine mounting	Through bolt	87	887
Suspension member	Bolt A	52	530
(See page EM-82)	Bolt B	52	530
	Bolt C	157	1,600
	Bolt D	157	1,600
	Bolt E	39	400
	Nut	52	530
PS gear x Suspension member		45	460
Exhaust pipe		43	440
Clutch release cylinder x Transaxle		12	120
Clutch release cylinder bracket	Bolt A	12	120
	Bolt B	4.9	50
A/C Compressor x Engine		25	255
ECM box stay	Nut	12	120
	Bolt	18	185
ECM box		6.9	70
ECM cover		6.9	70
Air cleaner case		5.0	51
Bearing cap sub-assembly x Cylinder block	12 pointed head 1st	22	225
	2nd	44	449
	3rd	Turn 45°	Turn 45°
	4th	Turn 45°	Turn 45°
	Hexagon head 1ZZ-FE	18.5	189
	2ZZ-GE	18	185
Screw plug x Bearing cap sub-assembly	2ZZ-GE	43	438
Connecting rod cap	1ZZ-FE 1st	20	204
	2nd	Turn 90°	Turn 90°
	2ZZ-GE 1st	30	306
	2nd	Turn 90°	Turn 90°
Oil strainer		9.0	92
Oil pan baffle	2ZZ-GE	9.0	92
Oil pan		9.0	92
Oil filter union		30	306

SERVICE SPECIFICATIONS - ENGINE MECHANICAL

Engine coolant drain union	1ZZ-FE	20	200	14
	2ZZ-GE	25	255	18
Knock sensor	1ZZ-FE	44	450	33
	2ZZ-GE	20	204	15
Ventilation case	2ZZ-GE	8.5	87	75 in.·lbf
Water bypass pipe x Cylinder block	1ZZ-FE	9.0	92	80 in.·lbf
	2ZZ-GE			
	Bolt	8.5	87	75 in.·lbf
	Nut	10	100	7
Dipstick guide	1ZZ-FE	11	113	8
	2ZZ-GE	24	245	18
Fly wheel	1st	49	500	36
	2nd	Turn 90°	Turn 90°	Turn 90°
Drive plate		88	897	65

EMISSION CONTROL

SERVICE DATA

SS1UW-02

Pressure sensor (for 2ZZ-GE)	Voltage	AIP – E2	1.0 – 2.2V
VSV for air switching valve (for 2ZZ-GE)	Resistance	at 20°C (68°F)	37 – 44 Ω
Air pump relay (for 2ZZ-GE)		Terminal 1 – 2 Terminal 3 – 4	Continuity No continuity

TORQUE SPECIFICATION

Part tightened		N·m	kgf·cm	ft·lbf
Charcoal canister x Body		18	184	13
Air switching valve x Bracket	2ZZ-GE	8	82	71 in.·lbf
Air switching valve x Body	2ZZ-GE	20.5	209	15
Air pump assembly	2ZZ-GE	8	82	71 in.·lbf

SFI

SERVICE DATA

SS0MM-23

Fuel pressure regulator	Fuel pressure	301 – 347 kPa (3.1 – 3.5 kgf/cm ² , 44 – 50 psi)
Fuel pump	Resistance at 20°C (68°F)	0.2 – 3.0 Ω
Injector	Resistance at 20°C (68°F)	13.4 – 14.2 Ω
	Injection volume	47 – 58 cm ³ (2.7 – 3.3 cu in.) per 15 seconds
	Difference between each cylinder	10 cm ³ (0.6 cu in.) or less
	Fuel leakage	One drop or less per 12 minutes
Mass air flow meter	Resistance at -20°C (-4°F)	13.6 – 18.4 kΩ
	at 20°C (68°F)	2.21 – 2.69 kΩ
	at 60°C (140°F)	0.49 – 0.67 kΩ
Throttle position sensor (1ZZ-FE engine)	Clearance between stop screw and lever 0 mm (0 in.) VTA – E2 Throttle valve fully open VTA – E2 – VC – E2	0.2 – 5.7 kΩ 2.0 – 10.2 kΩ 2.5 – 5.9 kΩ
Throttle control motor (2ZZ-GE engine)	Resistance at 20°C (68°F)	0.3 – 100 kΩ
Camshaft timing oil control valve	Resistance at 20°C (68°F)	6.9 – 7.9 Ω
VSV (CCV)	Resistance at 20°C (68°F)	24 – 30 Ω
VSV (Pressure switching valve)	Resistance at 20°C (68°F) at 120°C (248°F)	37 – 44 Ω 51 – 62 Ω
VSV (EVAP)	Resistance at 20°C (68°F)	27 – 33 Ω
VSV (Intake air control valve)	Resistance at 20°C (68°F)	37 – 44 Ω
ECT sensor	Resistance at -20°C (-4°F) at 0°C (32°F) at 20°C (68°F) at 40°C (104°F) at 60°C (140°F) at 80°C (176°F)	10 – 20 kΩ 4 – 7 kΩ 2 – 3 kΩ 0.9 – 1.3 kΩ 0.4 – 0.7 kΩ 0.2 – 0.4 kΩ
Vapor pressure sensor	Power source voltage Remove fuel tank cap Terminal 2 – 3	4.5 – 5.5 V 3.0 – 3.6 V
Knock sensor (2ZZ-GE engine)	Resistance at 20°C (68°F)	120 – 280 Ω
Heated oxygen sensor (1ZZ-FE engine)	Heater coil resistance	5 – 10 Ω
Heated oxygen sensor (2ZZ-GE engine)	Heater coil resistance	11 – 16 Ω
Fuel cut rpm	Fuel return rpm	1,500 rpm

TORQUE SPECIFICATION

Part tightened		N·m	kgf·cm	ft·lbf
Delivery pipe x Cylinder head	1ZZ-FE	19	190	14
	2ZZ-GE	29	290	21
Fuel pump x Fuel tank		4.0	40	35 in.·lbf
Fuel tank band x Body		39	400	29
Throttle body x Intake manifold	1ZZ-FE	21	210	15
Throttle body x Throttle gasket	2ZZ-GE	22	220	16
Throttle gasket x Intake manifold	2ZZ-GE	22	220	16
Camshaft timing oil control valve x Cylinder head	1ZZ-FE	7.5	80	66 in.·lbf
	2ZZ-GE	8.5	87	75 in.·lbf
Knock sensor 1 x Cylinder block	1ZZ-FE	44	450	33
	2ZZ-GE	20	204	15
Oxygen sensor x Front exhaust pipe		44	450	33
Accelerator pedal assembly x Body		5.0	51	44 in.·lbf

COOLING

SERVICE DATA

SS0MO-11

Thermostat	Valve opening temperature	80.0 – 84.0°C (176 – 183°F)
	Valve lift at 90°C (194°F)	10 mm (0.39 in.)
Radiator cap	Relief valve opening pressure STD	93 – 123 kPa (0.95 – 1.25 kgf/cm ² , 13.5 – 17.8 psi)
	Minimum	79 kPa (0.8 kgf/cm ² , 11.5 psi)
Electric cooling fan	Rotating amperage	5.2 – 8.2 A

TORQUE SPECIFICATION

Part tightened		N·m	kgf·cm	ft·lbf
Drain plug x Radiator		12.7	130	9
Water pump x Timing chain cover (See page CO-7)	1ZZ-FE			
	Bolt A	9.0	92	80 in.·lbf
	Bolt B	11	113	8
	2ZZ-GE	9.0	92	80 in.·lbf
Water pump pulley x Water pump		15	153	11
Water inlet x Cylinder block		10	100	7
Electric cooling fan x Radiator		6.0	60	53 in.·lbf
Engine coolant reservoir x Radiator upper support		5.0	51	44 in.·lbf
Fan motor x Fan shroud		2.55	26	23 in.·lbf
Fan x Fan motor		6.18	63	55 in.·lbf

LUBRICATION

SERVICE DATA

SS0MO-13

Oil pressure	Oil control valve housing	1ZZ-FE at idle speed	29 kPa (0.3 kgf/cm ² , 43 psi) or more
		at 3,000 rpm	294 – 539 kPa (3.0 – 5.5 kgf/cm ² , 43 – 78 psi)
Oil pump	Side clearance STD	2ZZ-GE at idle speed	39.2 kPa (0.4 kgf/cm ² , 5.7 psi) or more
		2ZZ-GE at idle speed	39.2 kPa (0.4 kgf/cm ² , 5.7 psi) or more
	Maximum	1ZZ-FE	0.025 – 0.071 mm (0.00098 – 0.00280 in.)
		2ZZ-GE	0.030 – 0.080 mm (0.00118 – 0.00314 in.)
	Tip clearance STD	1ZZ-FE	0.071 mm (0.00280 in.)
		2ZZ-GE	0.160 mm (0.00630 in.)
	Maximum	1ZZ-FE	0.040 – 0.160 mm (0.00157 – 0.00630 in.)
		2ZZ-GE	0.060 – 0.180 mm (0.00236 – 0.00709 in.)
	Body clearance STD	1ZZ-FE	0.160 mm (0.00630 in.)
		2ZZ-GE	0.350 mm (0.01378 in.)
	Maximum	1ZZ-FE	0.260 – 0.325 mm (0.01024 – 0.01280 in.)
		2ZZGE	0.125 – 0.180 mm (0.00492 – 0.00709 in.)
			0.325 mm (0.01280 in.)

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Oil pressure switch x Cylinder block	13	130	9
Oil pressure switch x Oil control valve housing	13	130	9
Drain plug x Oil pan	37	378	27
Oil pump body cover x Oil pump body	10.5	107	8
Plug x Oil pump	1ZZ-FE	37	27
	2ZZ-GE	49	36
Oil pump x Cylinder block	9.0	92	80 in.·lbf
Oil nozzle x Cylinder block	9.0	92	80 in.·lbf

IGNITION**SERVICE DATA**

SS0MS-15

Spark plug	Recommended spark plug	1ZZ-FE	
		DENSO	SK16R11
		NGK	IFR5A11
		2ZZ-GE	
		DENSO	SK20R11
		NGK	IFR6A11
Camshaft position-sensor	Resistance	at cold	835 – 1,400 Ω
		at hot	1,060 – 1,645 Ω
Crankshaft position sensor	Resistance	at cold	1,630 – 2,740 Ω
		at hot	2,065 – 3,225 Ω

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Spark plug x Cylinder head	18	184	13
Ignition coil (w/ Igniter) x Cylinder head cover	9.0	92	79 in.:lbf
Camshaft position sensor x Cylinder head	8.8	90	78 in.:lbf
Crankshaft position sensor x Timing chain cover	8.8	90	78 in.:lbf

STARTING

SERVICE DATA

SS0MU-09

Starter	Rated voltage and output power		12 V 1.4 kW 12 V 1.2kW
	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	
		1.4 kW	17.6 – 23.5 N (1.8 – 2.4 kgf, 4.0 – 5.3 lbf)
		1.2 kW	13.7 – 19.6 N (1.4 – 2.0 kgf, 3.1 – 4.6 lbf)
		Minimum	
		1.4 kW	11.8 N (1.2 kgf, 2.6 lbf)
		1.2 kW	8.8 N (0.9 kgf, 2.0 lbf)
	Commutator		
	Diameter	STD	30.0 mm (1.181 in.)
		Minimum	29.0 mm (1.412 in.)
	Undercut depth	STD	0.6 mm (0.024 in.)
		Minimum	0.2 mm (0.008 in.)
	Circle runout	Maximum	0.05 mm (0.0020 in.)
	Magnetic switch		
	Contact plate for wear	Maximum	0.9 mm (0.035 in.)

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Starter x Transaxle	37	380	28
End cover x Brush holder	3.8	39	34 in·lbf
Starter housing x Magnetic switch	9.3	95	82 in·lbf
End cover x Starter housing	9.3	95	82 in·lbf
Lead wire x Terminal C of starter	5.9	60	52 in·lbf
Terminal nut x Terminal C of starter, Terminal 30 of starter	17	173	12
Magnetic switch end cover x Magnetic switch	2.5	26	23 in·lbf

CHARGING

SERVICE DATA

SS0MW-13

Battery	Voltage	at 20°C (68°F)	12.7 – 12.9 V
	Specific gravity	at 20°C (68°F)	1.25 – 1.29
Generator	Rated output		12 V 80 A
	Rotor coil resistance	M/T	2.7 – 3.1 Ω
		A/T	2.1 – 2.5 Ω
	Slip ring diameter	STD	14.2 – 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		13.2 – 14.8 V

TORQUE SPECIFICATION

Part tightened		N·m	kgf·cm	ft·lbf
Bearing retainer x Drive end frame		3.0	31	27 in·lbf
Rectifier end frame x Drive end frame	Nut A	4.5	46	40 in·lbf
	Nut B	5.4	55	48 in·lbf
Generator pulley x Rotor		111	1,125	81
Rectifier end frame x Brush holder, Voltage regulator		2.0	20	17 in·lbf
Rectifier holder x Coil lead on rectifier end frame		2.9	30	25 in·lbf
Rear end cover x Rectifier holder		4.4	45	39 in·lbf
Plate terminal x Rectifier holder	Nut	4.4	45	39 in·lbf
	Bolt	3.9	39	35 in·lbf
Terminal insulator x Rectifier holder		4.1	42	36 in·lbf
Generator x RH engine mount bracket		25	20	18
Generator x Cylinder block	1ZZ-FE	54	550	40
	2ZZ-GE	58	590	43
Generator x Generator bracket		29	295	21

CLUTCH

SERVICE DATA

SS09I-15

Pedal height from asphalt sheet	Standard pedal	135.6 – 145.6 mm (5.339 – 5.732 in.)
	Sport pedal	136.9 – 146.9 mm (5.390 – 5.783 in.)
Pedal freeplay		1.0 – 5.0 mm (0.039 – 0.197 in.)
Push rod play at pedal top		5.0 – 15.0 mm (0.197 – 0.591 in.)
Clutch release point from pedal full stroke end position		25 mm (0.98 in.) or more
Slotted spring pin protrusion		1.5 – 2.5 mm (0.059 – 0.098 in.)
Disc rivet head depth	Min.	0.3 mm (0.012 in.)
Disc runout	Max.	0.8 mm (0.031 in.)
Flywheel runout	Max.	0.1 mm (0.004 in.)
Diaphragm spring finger wear	Max. depth	0.5 mm (0.020 in.)
Diaphragm spring finger wear	Max. width	6.0 mm (0.236 in.)
Diaphragm spring tip non-alignment	Max.	0.5 mm (0.020 in.)

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Clutch line union	15	155	11
Master cylinder installation nut	12	120	9
Bleeder plug	8.4	85	74 in·lbf
Release cylinder installation bolt	12	120	9
Clutch line clamp x Clutch line bracket	4.9	50	43 in·lbf
Flywheel set bolt	49	500	36
Clutch cover x Flywheel	19	195	14
Release fork support	37	375	27

MANUAL TRANSAXLE (C56)

SERVICE DATA

SS02P-19

Input shaft roller bearing journal diameter	Min.	24.985 mm (0.9837 in.)
Input shaft 3rd gear journal diameter	Min.	30.985 mm (1.2199 in.)
Input shaft 4th gear journal diameter	Min.	28.985 mm (1.1411 in.)
Input shaft 5th gear journal diameter	Min.	24.885 mm (0.9797 in.)
Input shaft runout	Max.	0.03 mm (0.0012 in.)
Output shaft roller bearing journal diameter	Min.	32.985 mm (1.2986 in.)
Output shaft 1st gear journal diameter	Min.	37.985 mm (1.4955 in.)
Output shaft 2nd gear journal diameter	Min.	31.985 mm (1.2592 in.)
Output shaft runout	Max.	0.03 mm (0.0012 in.)
Gear thrust clearance 1st	STD Max.	0.10 – 0.40 mm (0.0039 – 0.0157 in.) 0.40 mm (0.0157 in.)
Gear thrust clearance 2nd	STD Max.	0.10 – 0.55 mm (0.0039 – 0.0217 in.) 0.55 mm (0.0217 in.)
Gear thrust clearance 3rd	STD Max.	0.10 – 0.35 mm (0.0039 – 0.0138 in.) 0.35 mm (0.0138 in.)
Gear thrust clearance 4th	STD Max.	0.10 – 0.55 mm (0.0039 – 0.0217 in.) 0.55 mm (0.0217 in.)
Gear thrust clearance 5th	STD Max.	0.10 – 0.57 mm (0.0039 – 0.0224 in.) 0.57 mm (0.0224 in.)
Gear radial clearance 1st, 2nd, 3rd, 4th and 5th (KOYO made)	STD Max.	0.015 – 0.058 mm (0.0006 – 0.0023 in.) 0.058 mm (0.0023 in.)
Gear radial clearance 1st, 2nd, 3rd, 4th and 5th (NSK made)	STD Max.	0.015 – 0.056 mm (0.0006 – 0.0022 in.) 0.056 mm (0.0022 in.)
No. 3 gear shift fork to No. 3 hub sleeve clearance	Max.	0.5 mm (0.020 in.)
No. 2 gear shift fork to No. 2 hub sleeve clearance	Max.	0.35 mm (0.014 in.)
No. 1 gear shift fork to reverse gear clearance	Max.	0.35 mm (0.014 in.)
Synchronizer ring to gear clearance 1st, 4th and 5th	Min.	0.75 mm (0.0295 in.)
Synchronizer ring to gear clearance 3rd	Min.	0.65 mm (0.0256 in.)
Synchronizer ring to gear clearance 2nd	Min.	0.70 mm (0.0276 in.)
Drive in depth		
Input shaft front oil seal		15.8 ± 0.2 mm (0.622 ± 0.008 in.)
Input shaft front bearing		0 – 0.3 mm (0 – 0.012 in.)
Transmission case bushing		0.80 – 1.30 mm (0.0315 – 0.0512 in.)
Transmission case oil seal (Shift and select lever shaft side)		10.0 ± 0.3 mm (0.394 ± 0.012 in.)
Transmission case oil seal (Differential case side)		9.9 ± 0.3 mm (0.390 ± 0.012 in.)
Transaxle case oil seal		1.9 ± 0.3 mm (0.075 ± 0.012 in.)
Select inner lever slotted spring pin		0 ± 0.5 mm (0 ± 0.020 in.)
No. 1 shift inner lever slotted spring pin		0 ± 0.5 mm (0 ± 0.020 in.)
No. 2 shift inner lever slotted spring pin		3.5 ± 0.5 mm (0.138 ± 0.020 in.)

SERVICE SPECIFICATIONS – MANUAL TRANSAXLE (C56)

Input shaft snap ring thickness		
No. 2 clutch hub	Mark 0	2.30 mm (0.0906 in.)
	Mark 1	2.36 mm (0.0929 in.)
	Mark 2	2.42 mm (0.0953 in.)
	Mark 3	2.48 mm (0.0976 in.)
	Mark 4	2.54 mm (0.1000 in.)
	Mark 5	2.60 mm (0.1024 in.)
Rear radial ball bearing	Mark A	2.29 mm (0.0902 in.)
	Mark B	2.35 mm (0.0925 in.)
	Mark C	2.41 mm (0.0949 in.)
	Mark D	2.47 mm (0.0972 in.)
	Mark E	2.53 mm (0.0996 in.)
	Mark F	2.59 mm (0.1020 in.)
Output shaft snap ring thickness		
No. 1 clutch hub	Mark A	2.50 mm (0.0984 in.)
	Mark B	2.56 mm (0.1008 in.)
	Mark C	2.62 mm (0.1031 in.)
	Mark D	2.68 mm (0.1055 in.)
	Mark E	2.74 mm (0.1079 in.)
	Mark F	2.80 mm (0.1102 in.)
Front bearing inner race	Mark 7	1.85 mm (0.0728 in.)
	Mark 8	1.90 mm (0.0748 in.)
	Mark 1	1.95 mm (0.0768 in.)
	Mark 2	2.00 mm (0.0787 in.)
	Mark 3	2.05 mm (0.0807 in.)
	Mark 4	2.10 mm (0.0827 in.)
No. 3 clutch hub	Mark 5	2.15 mm (0.0846 in.)
	Mark 6	2.20 mm (0.0866 in.)
	Mark A	2.25 mm (0.0886 in.)
	Mark B	2.31 mm (0.0909 in.)
	Mark C	2.37 mm (0.0933 in.)
	Mark D	2.43 mm (0.0957 in.)
	Mark E	2.49 mm (0.0980 in.)
	Mark F	2.55 mm (0.1004 in.)
	Mark G	2.61 mm (0.1028 in.)
Differential tapered roller bearing preload (at starting)(For use with SST)		
New bearing		0.8 – 1.6 N·m (8 – 16 kgf·cm, 6.9 – 13.9 in.-lbft)
Reused bearing		0.5 – 1.0 N·m (5 – 10 kgf·cm, 4.3 – 8.7 in.-lbft)
Differential pinion to side gear backlash		0.05 mm – 0.20 mm (0.0020 – 0.0079 in.)
Differential side gear thrust washer thickness		0.95 mm (0.0374 in.)
		1.00 mm (0.0394 in.)
		1.05 mm (0.0413 in.)
		1.10 mm (0.0433 in.)
		1.15 mm (0.0453 in.)
		1.20 mm (0.0472 in.)

Differential tapered roller bearing adjusting shim thickness		
	Mark AA	2.10 mm (0.0827 in.)
	Mark BB	2.15 mm (0.0846 in.)
	Mark CC	2.20 mm (0.0866 in.)
	Mark DD	2.25 mm (0.0886 in.)
	Mark EE	2.30 mm (0.0906 in.)
	Mark FF	2.35 mm (0.0925 in.)
	Mark GG	2.40 mm (0.0945 in.)
	Mark HH	2.45 mm (0.0965 in.)
	Mark JJ	2.50 mm (0.0984 in.)
	Mark KK	2.55 mm (0.1004 in.)
	Mark LL	2.60 mm (0.1024 in.)
	Mark MM	2.65 mm (0.1043 in.)
	Mark NN	2.70 mm (0.1063 in.)
	Mark PP	2.75 mm (0.1083 in.)
	Mark QQ	2.80 mm (0.1102 in.)
	Mark RR	2.85 mm (0.1122 in.)
	Mark SS	2.90 mm (0.1142 in.)
	Mark TT	2.95 mm (0.1161 in.)
	Mark UU	3.00 mm (0.1181 in.)

TORQUE SPECIFICATION

Part tightened		N·m	kgf·cm	ft·lbf
No. 2 cylinder head cover		7.0	71	62 in·lbf
Radiator reservoir set bolt		4.9	50	43 in·lbf
ECM cover x ECM box		6.9	70	61 in·lbf
ECM box set bolt		6.9	70	61 in·lbf
Battery carrier x Body	Bolt	18	185	13
	Nut	12	120	9
Clutch line set bolt (See page MX-4)	Bolt A	12	120	9
	Bolt B	4.9	50	43 in·lbf
Clutch release cylinder x Transaxle		12	120	9
Starter x Transaxle		37	378	28
Transaxle x Engine (From transaxle side)		64	650	47
Transaxle x Engine (From engine side) (See page MX-4)	Bolt A	47	480	35
	Bolt B	23	230	17
No. 1 and No. 2 engine hangers set bolt		38	387	28
Engine left mounting bracket x Transaxle		60	610	44
Engine left mounting bracket x Engine left mounting insulator		80	820	59
Oxygen sensor x Front exhaust pipe		44	450	33
Front exhaust pipe		43	440	32
Pressure feed tube x PS vane pump assembly		40 (44)	410 (450)	30 (33)
Intermediate extension x Control valve shaft		35	360	26
Tube clamp		7.8	80	69 in·lbf
Pressure feed and return tubes x PS gear assembly		40 (44)	410 (450)	30 (33)
Engine rear mounting insulator x Engine rear mounting bracket		87	890	64
Engine rear mounting bracket x Transaxle		64	650	47
Passenger airbag assembly		20	204	15
Airbag sensor assembly x Body		20	205	15
Steering wheel lock nut		34	350	25
Shift lever assembly x Body		12	120	9
Shift cable retainer x Body		4.9	50	43 in·lbf
Shift and select control cable bracket		4.9	50	43 in·lbf
Filler and drain plugs		39	400	29
Vehicle speed sensor		11	115	8
Back-up light switch		40	410	30
Control cable bracket x Transaxle case		25	250	18
Control shaft assembly		12	120	9
Selecting bellcrank assembly x Transmission case		25	250	18
Lever lock pin set nut		12	120	9
Transmission case x Transmission case cover		18	185	13
Lock ball assembly (Shift and select lever shaft side)		29	300	22
Control shaft cover x Transmission case		20	200	14
5th driven gear lock nut		118	1,200	87
No. 1, No. 2 and No. 3 gear shift forks set bolt		16	160	12
Rear bearing retainer x Transmission case		27	280	20
Reverse idler gear shaft lock bolt		29	300	22

Straight screw plug	25	250	18
Lock ball assembly (Reverse shift fork side)	39	400	29
Transmission case x Transaxle case	29	300	22
Oil receiver pipe set bolt	17	175	13
Reverse shift arm bracket x Transaxle case	17	175	13
No. 1 gear shift head set bolt	16	160	12
Output shaft front bearing lock plate set bolt	11	115	8
Transaxle case receiver x Transaxle case	11	115	8
Straight screw plug (Reverse restrict pin)	13	130	9
Differential case x Ring gear	77	790	57

(): For use without SST

MANUAL TRANSAXLE (C60)

SERVICE DATA

SS032-04

Input shaft roller bearing journal diameter	Min.	24.985 mm (0.9837 in.)
Input shaft 3rd gear journal diameter	Min.	30.985 mm (1.2199 in.)
Input shaft 4th gear journal diameter	Min.	28.985 mm (1.1411 in.)
Input shaft 5th gear journal diameter	Min.	24.885 mm (0.9797 in.)
Input shaft 6th gear journal diameter	Min.	21.991 mm (0.8658 in.)
Input shaft runout	Max.	0.03 mm (0.0012 in.)
Output shaft roller bearing journal diameter	Min.	32.985 mm (1.2986 in.)
Output shaft 1st gear journal diameter	Min.	37.985 mm (1.4955 in.)
Output shaft 2nd gear journal diameter	Min.	31.985 mm (1.2592 in.)
Output shaft runout	Max.	0.03 mm (0.0012 in.)
Gear thrust clearance 1st	STD	0.10 – 0.40 mm (0.0039 – 0.0157 in.)
	Max.	0.40 mm (0.0157 in.)
Gear thrust clearance 2nd	STD	0.10 – 0.55 mm (0.0039 – 0.0217 in.)
	Max.	0.55 mm (0.0217 in.)
Gear thrust clearance 3rd	STD	0.10 – 0.35 mm (0.0039 – 0.0138 in.)
	Max.	0.35 mm (0.0138 in.)
Gear thrust clearance 4th	STD	0.10 – 0.55 mm (0.0039 – 0.0217 in.)
	Max.	0.55 mm (0.0217 in.)
Gear thrust clearance 5th	STD	0.10 – 0.62 mm (0.0039 – 0.0244 in.)
	Max.	0.62 mm (0.0244 in.)
Gear thrust clearance 6th	STD	0.10 – 0.60 mm (0.0039 – 0.0236 in.)
	Max.	0.60 mm (0.0236 in.)
Gear radial clearance 1st, 2nd, 3rd and 4th (KOYO made)	STD	0.15 – 0.58 mm (0.0006 – 0.0023 in.)
	Max.	0.058 mm (0.0023 in.)
Gear radial clearance 1st, 2nd, 3rd and 4th (NSK made)	STD	0.015 – 0.056 mm (0.0006 – 0.0022 in.)
	Max.	0.056 mm (0.0022 in.)
Gear radial clearance 5th	STD	0.015 – 0.056 mm (0.0006 – 0.0022 in.)
	Max.	0.056 mm (0.0022 in.)
Gear radial clearance 6th	STD	0.009 – 0.050 mm (0.0003 – 0.0020 in.)
	Max.	0.050 mm (0.0020 in.)
No. 3 gear shift fork to No. 3 hub sleeve clearance	Max.	0.89 mm (0.035 in.)
No. 2 gear shift fork to No. 2 hub sleeve clearance	Max.	0.35 mm (0.014 in.)
No. 1 gear shift fork to reverse gear clearance	Max.	0.35 mm (0.014 in.)
Synchronizer ring to gear clearance 1st, 4th, 5th and 6th	Min.	0.75 mm (0.0295 in.)
Synchronizer ring to gear clearance 3rd	Min.	0.65 mm (0.0256 in.)
Synchronizer ring to gear clearance 2nd	Min.	0.70 mm (0.0276 in.)
Drive in depth		
Input shaft front oil seal		15.8 ± 0.2 mm (0.622 ± 0.008 in.)
Input shaft front bearing		0 – 0.3 mm (0 – 0.012 in.)
Transmission case bushing		0.80 – 1.30 mm (0.0315 – 0.0512 in.)
Transmission case oil seal (Shift and select lever shaft side)		10.0 ± 0.3 mm (0.394 ± 0.012 in.)
No. 1 and No. 2 shift inner lever slotted spring pin		0 ± 0.5 mm (0 ± 0.020 in.)
Transmission case oil seal (Differential case side)		9.9 ± 0.3 mm (0.390 ± 0.012 in.)
Transaxle case oil seal		1.9 ± 0.3 mm (0.075 ± 0.012 in.)
Differential side gear backlash		0.05 – 0.20 mm (0.0020 – 0.0079 in.)

Differential side gear thrust washer thickness		0.95 mm (0.0374 in.) 1.00 mm (0.0394 in.) 1.05 mm (0.0413 in.) 1.10 mm (0.0433 in.) 1.15 mm (0.0453 in.) 1.20 mm (0.0472 in.)
Differential tapered roller bearing preload (at starting) (For use with SST)		
New bearing		0.8 – 1.6 N·m (8 – 16 kgf·cm, 6.9 – 13.9 in.·lbf)
Reused bearing		0.5 – 1.0 N·m (5 – 10 kgf·cm, 4.3 – 8.7 in.·lbf)
Input shaft snap ring thickness		
No. 2 clutch hub	Mark 0	2.30 mm (0.0906 in.)
	Mark 1	2.36 mm (0.0929 in.)
	Mark 2	2.42 mm (0.0953 in.)
	Mark 3	2.48 mm (0.0976 in.)
	Mark 4	2.54 mm (0.1000 in.)
	Mark 5	2.60 mm (0.1024 in.)
No. 3 clutch hub	Mark A	1.75 mm (0.0689 in.)
	Mark B	1.80 mm (0.0709 in.)
	Mark C	1.85 mm (0.0728 in.)
	Mark D	1.90 mm (0.0748 in.)
	Mark E	1.95 mm (0.0768 in.)
	Mark F	2.00 mm (0.0787 in.)
	Mark G	2.05 mm (0.0807 in.)
	Mark H	2.10 mm (0.0827 in.)
	Mark J	2.15 mm (0.0846 in.)
	Mark A	2.29 mm (0.0902 in.)
Input shaft center radial ball bearing	Mark B	2.35 mm (0.0925 in.)
	Mark C	2.41 mm (0.0949 in.)
	Mark D	2.47 mm (0.0972 in.)
	Mark E	2.53 mm (0.0996 in.)
	Mark F	2.59 mm (0.1020 in.)
	Mark A	1.70 mm (0.0669 in.)
Input shaft rear radial ball bearing	Mark B	1.75 mm (0.0689 in.)
	Mark C	1.80 mm (0.0709 in.)
	Mark D	1.85 mm (0.0728 in.)
	Mark E	1.90 mm (0.0748 in.)
	Mark F	1.95 mm (0.0768 in.)
	Mark G	2.00 mm (0.0787 in.)
	Mark H	2.05 mm (0.0807 in.)
	Mark J	2.10 mm (0.0827 in.)
	Mark K	2.15 mm (0.0846 in.)
	Mark L	2.20 mm (0.0866 in.)
	Mark M	2.25 mm (0.0886 in.)

SERVICE SPECIFICATIONS – MANUAL TRANSAXLE (C60)

Output shaft snap ring thickness No. 1 clutch hub	Mark A	2.50 mm (0.0984 in.)
	Mark B	2.56 mm (0.1008 in.)
	Mark C	2.62 mm (0.1031 in.)
	Mark D	2.68 mm (0.1055 in.)
	Mark E	2.74 mm (0.1079 in.)
	Mark F	2.80 mm (0.1102 in.)
	Mark 7	1.85 mm (0.0728 in.)
	Mark 8	1.90 mm (0.0748 in.)
	Mark 1	1.95 mm (0.0768 in.)
	Mark 2	2.00 mm (0.0787 in.)
	Mark 3	2.05 mm (0.0807 in.)
	Mark 4	2.10 mm (0.0827 in.)
	Mark 5	2.15 mm (0.0846 in.)
	Mark 6	2.20 mm (0.0866 in.)
	Mark B	2.31 mm (0.0909 in.)
Front bearing inner race	Mark C	2.37 mm (0.0933 in.)
	Mark D	2.43 mm (0.0957 in.)
	Mark E	2.49 mm (0.0980 in.)
	Mark F	2.55 mm (0.1004 in.)
	Mark G	2.61 mm (0.1028 in.)
	Mark H	2.67 mm (0.1051 in.)
	Mark J	2.73 mm (0.1075 in.)
	Mark K	2.79 mm (0.1098 in.)
	Mark L	2.85 mm (0.1122 in.)
	Mark M	2.91 mm (0.1146 in.)
	Mark AA	2.10 mm (0.0827 in.)
	Mark BB	2.15 mm (0.0846 in.)
	Mark CC	2.20 mm (0.0866 in.)
	Mark DD	2.25 mm (0.0886 in.)
	Mark EE	2.30 mm (0.0906 in.)
	Mark FF	2.35 mm (0.0925 in.)
	Mark GG	2.40 mm (0.0945 in.)
	Mark HH	2.45 mm (0.0965 in.)
	Mark JJ	2.50 mm (0.0984 in.)
	Mark KK	2.55 mm (0.1004 in.)
	Mark LL	2.60 mm (0.1024 in.)
	Mark MM	2.65 mm (0.1043 in.)
	Mark NN	2.70 mm (0.1063 in.)
	Mark PP	2.75 mm (0.1083 in.)
	Mark QQ	2.80 mm (0.1102 in.)
	Mark RR	2.85 mm (0.1122 in.)
	Mark SS	2.90 mm (0.1142 in.)
	Mark TT	2.95 mm (0.1161 in.)
	Mark UU	3.00 mm (0.1181 in.)
Output shaft rear radial ball bearing		
Differential tapered roller bearing adjusting shim thickness		

TORQUE SPECIFICATION

Part tightened		N·m	kgf·cm	ft·lbf
No. 2 cylinder head cover		7.0	71	62 in.·lbf
Radiator reservoir set bolt		4.9	50	43 in.·lbf
ECM cover x ECM box		6.9	70	61 in.·lbf
ECM box set bolt		6.9	70	61 in.·lbf
Battery carrier x Body	Bolt	18	185	13
	Nut	12	120	9
Clutch line set bolt (See page MX-4)	Bolt A	12	120	9
	Bolt B	4.9	50	43 in.·lbf
Clutch release cylinder x Transaxle		12	120	9
Starter x Transaxle		37	378	28
Transaxle x Engine (From transaxle side)		64	650	47
Transaxle x Engine (From engine side) (See page MX-4)	Bolt A	47	480	35
	Bolt B	23	230	17
No. 1 and No. 2 engine hangers set bolt		38	387	28
Engine left mounting bracket x Transaxle		60	610	44
Engine left mounting bracket x Engine left mounting insulator		80	820	59
Oxygen sensor x Front exhaust pipe		44	450	33
Front exhaust pipe		43	440	32
Pressure feed tube x PS vane pump assembly		40 (44)	410 (450)	30 (33)
Intermediate extension x Control valve shaft		35	360	26
Tube clamp		7.8	80	69 in.·lbf
Pressure feed and return tubes x PS gear assembly		44 (44)	410 (450)	30 (33)
Engine rear mounting insulator x Engine rear mounting bracket		87	890	64
Engine rear mounting bracket x Transaxle		64	650	47
Passenger airbag assembly		20	204	15
Airbag sensor assembly x Body		20	205	15
Steering wheel lock nut		34	350	25
Shift lever assembly x Body		12	120	9
Shift cable retainer x Body		4.9	50	43 in.·lbf
Shift and select control cable bracket		4.9	50	43 in.·lbf
Filler and drain plug		39	400	29
Plug		39	400	29
Vehicle speed sensor		11	115	8
Back-up light switch		40	410	30
Control cable bracket x Transaxle case		25	250	18
Control shaft assembly		12	120	9
Selecting bellcrank assembly x Transmission case		25	250	18
Lever lock pin set nut		12	120	9
Transmission case cover x Transmission case		18	185	13
Lock ball assembly		29	300	22
Control shaft cover assembly x Transmission case		20	200	14
No. 1, No. 2 and No. 3 gear shift fork x Gear shift fork shaft		16	160	12
No. 1 gear shift head x Gear shift fork shaft		16	160	12
Rear bearing retainer x Transmission case		27	280	20

SERVICE SPECIFICATIONS - MANUAL TRANSAXLE (C60)

Reverse idler gear shaft lock bolt		29	300	22
Straight screw plug (Gear shift fork shaft)		25	250	18
Straight screw plug (See page MX-13)	Plug A	13	130	9
	Plug B	39	400	29
Transmission case x Transaxle case		29	300	22
Reverse shift arm bracket x Transaxle case		17	175	13
Output shaft front bearing lock plate set bolt		11	115	8
Transaxle case receiver x Transaxle case		11	115	8
Oil receiver pipe		17	175	13
Ring gear x Differential case		77	790	57

(): For use without SST

AUTOMATIC TRANSAXLE (U240E)

SS02B-15

SERVICE DATA

Line pressure (Wheel locked)	Engine idling	
	D position	372 – 412 kPa (3.8 – 4.2 kgf/cm ² , 54 – 59 psi)
	R position	672 – 742 kPa (6.9 – 7.6 kgf/cm ² , 97 – 107 psi)
	AT stall (Throttle valve fully opened)	
	D position	931 – 1,031 kPa (9.5 – 10.5 kgf/cm ² , 134 – 149 psi)
	R position	1,768 – 1,968 kPa (18.0 – 20.1 kgf/cm ² , 255 – 284 psi)
Engine stall revolution	D position	2,220 – 2,520 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
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 12.75 mm (0.5020 in.)
Differential oil seal drive in depth	LH side	2.7 ± 0.5 mm (0.106 ± 0.020 in.)
	RH side	0 ± 0.5 mm (0 ± 0.020 in.)
Shift schedule		
D position (Throttle valve fully opened)	1 → 2	60 – 67 km/h (37 – 42 mph)
	2 → 3	112 – 123 km/h (70 – 76 mph)
	3 → 4	179 – 191 km/h (111 – 119 mph)
	4 → 3	173 – 186 km/h (107 – 115 mph)
	3 → 2	105 – 116 km/h (65 – 72 mph)
	2 → 1	44 – 50 km/h (27 – 31 mph)
	3 → 4	40 – 45 km/h (25 – 28 mph)
	4 → 3	14 – 19 km/h (9 – 12 mph)
(Throttle valve fully closed)		
2 position (Throttle valve fully opened)	1 → 2	60 – 67 km/h (37 – 42 mph)
	3 → 2	112 – 123 km/h (70 – 76 mph)
	2 → 1	44 – 50 km/h (27 – 31 mph)
L position (Throttle valve fully opened)	3 → 2	112 – 123 km/h (70 – 76 mph)
	2 → 1	52 – 58 km/h (32 – 36 mph)
Lock-up point		
3rd gear	Throttle valve opening 5 %	
	Lock-up ON	220 – 234 km/h (137 – 145 mph)
	Lock-up OFF	220 – 234 km/h (137 – 145 mph)
O/D gear	Lock-up ON	75 – 81 km/h (47 – 50 mph)
	Lock-up OFF	64 – 71 km/h (40 – 44 mph)

TORQUE SPECIFICATION

Part tightened		N·m	kgf·cm	ft·lbf
Vehicle speed sensor x Transaxle		5.5	56	49 in.·lbf
Input turbine speed sensor x Transaxle		11	115	8
Counter gear speed sensor x Transaxle		11	115	8
ATF temperature sensor x Transaxle		6.6	67	58 in.·lbf
Oil pan x Transaxle		7.8	80	69 in.·lbf
Control cable x Control shaft		12	120	9
Control shaft x Park/neutral position switch		13	130	9
Park/neutral position switch x Transaxle	Bolt	5.4	55	48 in.·lbf
	Nut	6.9	70	61 n.·lbf
Shift solenoid valve x Valve body	12 mm (0.47 in.)	6.6	67	58 in.·lbf
	45 mm (1.77 in.)	11	110	8
Valve body x Transaxle		11	110	8
Oil strainer x Valve body		11	110	8
Drain plug x Oil pan		49	500	36
Steering wheel set nut		34	350	25
Front passenger airbag assembly x Instrument panel reinforcement		20	204	15
Floor shift assembly x Body		12	120	9
Hood set bolt		13	130	9
No. 2 cylinder head cover		7.0	71	62 in.·lbf
ECM case set bolt		6.9	70	61 in.·lbf
ECM set bolt		6.9	70	61 in.·lbf
ECM bracket set bolt		18	185	13
ECM bracket set nut		12	120	9
Radiator reservoir set bolt		4.9	50	43 in.·lbf
Ground cable x Transaxle		18	185	13
Starter x Transaxle		37	378	28
Drain plug x Differential		54	550	40
Stabilizer bar link x Shock absorber		44	450	32
Lower suspension arm x Lower ball joint		142	1,450	105
Drive shaft lock nut		216	2,200	159
Steering knuckle x Tie rod end		49	500	33
Drive shaft bearing lock bolt		64	650	47
Power steering gear assembly set bolt		45	459	33
Center member x Body		39	398	29
Center member x Engine front mounting		52	530	38
Suspension member x Body		157	1,601	116
Engine rear mounting insulator x Engine rear mounting bracket		87	890	64
Engine rear mounting insulator x Suspension member		52	530	38
Engine hanger set bolt		38	387	28
Engine left mounting x Engine left mounting bracket		80	816	59
Torque converter clutch x Drive plate		41	418	30
Transaxle housing x Engine block	See page AX-30			
Drive plate x Crankshaft		88	897	65

AUTOMATIC TRANSAXLE (U341E)

SS16T-02

SERVICE DATA

Line pressure (Wheel locked)	Engine idling	
	D position	553 – 623 kPa (5.6 – 6.4 kgf/cm ² , 80 – 100 psi)
	R position	588 – 683 kPa (6.0 – 7.0 kgf/cm ² , 85 – 100 psi)
	at stall (Throttle valve fully opened)	
	D position	1,126 – 1,226 kPa (11.5 – 12.5 kgf/cm ² , 164 – 178 psi)
	R position	1,764 – 1,964 kPa (18.0 – 20.0 kgf/cm ² , 256 – 284 psi)
Engine stall revolution	D and R positions	2,220 – 2,520 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	750 ± 50 rpm
Drive plate runout	Max.	0.20 mm (0.0079 in.)
Torque converter runout	Max.	0.30 mm (0.0118 in.)
Torque converter installation distance		More than 13.3 mm (0.524 in.)
Differential oil seal drive in depth	LH side	2.7 ± 0.5 mm (0.106 ± 0.020 in.)
	RH side	0 ± 0.5 mm (0 ± 0.020 in.)
Shift schedule		
D position (Throttle valve fully opened)	1 → 2	57 – 63 km/h (35 – 39 mph)
	2 → 3	112 – 122 km/h (69 – 75 mph)
	3 → O/D	169 – 179 km/h (103 – 110 mph)
	O/D → 3	132 – 141 km/h (81 – 86 mph)
	3 → 2	106 – 114 km/h (65 – 70 mph)
	2 → 1	46 – 50 km/h (28 – 31 mph)
(Throttle valve fully closed)	3 → O/D	46 – 50 km/h (28 – 31 mph)
	O/D → 3	30 – 37 km/h (20 – 23 mph)
2 position (Throttle valve fully opened)	1 → 2	57 – 63 km/h (35 – 39 mph)
	3 → 2	106 – 114 km/h (65 – 70 mph)
	2 → 1	42 – 50 km/h (26 – 31 mph)
L position (Throttle valve fully opened)	3 → 2	106 – 114 km/h (65 – 70 mph)
	2 → 1	53 – 57 km/h (32 – 35 mph)
Lock-up point	Throttle valve opening 5 %	
3rd gear	Lock-up ON	84 – 90 km/h (51 – 55 mph)
	Lock-up OFF	79 – 84 km/h (48 – 51 mph)
O/D gear	Lock-up ON	56 – 60 km/h (34 – 37 mph)
	Lock-up OFF	53 – 58 km/h (32 – 36 mph)

TORQUE SPECIFICATION

Part tightened		N·m	kgf·cm	ft·lbf
Vehicle speed sensor x Transaxle		5.5	56	49 in·lbf
Input turbin speed sensor x Transaxle		5.4	55	48 in·lbf
ATF temperature sensor x Valve body		10	110	8
Oil pan x Transaxle		7.8	80	69 in·lbf
Control cable x Control shaft lever		12	120	9
Control shaft lever x Park/neutral position switch		13	130	9
Park/neutral position switch x Transaxle	Bolt	5.4	55	48 in·lbf
	Nut	6.9	70	61 n·lbf
Shift solenoid valve x Valve body	14 mm (0.55 in.)	6.6	67	58 in·lbf
	55 mm (2.17 in.)	11	110	8
Valve body x Transaxle		11	110	8
Oil strainer x Valve body		11	110	8
Drain plug x Oil pan		49	500	36
Steering wheel set nut		34	350	25
Front passenger airbag assembly x Instrument panel reinforcement		20	204	15
Floor shift assembly x Body		12	120	9
Hood set bolt		13	130	9
No. 2 cylinder head cover		7.0	71	62 in·lbf
ECM case set bolt		6.9	70	61 in·lbf
ECM set bolt		6.9	70	61 in·lbf
ECM bracket set bolt		18	185	13
ECM bracket set nut		12	120	9
Radiator reservoir set bolt		4.9	50	43 in·lbf
Ground cable x Transaxle		18	185	13
Starter x Transaxle		37	378	28
Drain plug x Differential		54	550	40
Stabilizer bar link x Shock absorber		44	450	32
Lower suspension arm x Lower ball joint		142	1,450	105
Drive shaft lock nut		216	2,200	159
Steering knuckle x Tie rod end		49	500	33
Drive shaft bearing lock bolt		64	650	47
Power steering gear assembly set bolt		45	459	33
Center member x Body		39	398	29
Center member x Engine front mounting		52	530	38
Suspension member x Body		157	1,601	116
Engine rear mounting insulator x Engine rear mounting bracket		87	890	64
Engine rear mounting insulator x Suspension member		52	530	38
Engine hanger set bolt		38	387	28
Engine left mounting x Engine left mounting bracket		80	816	59
Torque converter clutch x Drive plate		41	420	25
Transaxle housing x Engine block	See page AX-30			
Drive plate x Crankshaft		78	800	58

SUSPENSION AND AXLE

SERVICE DATA

SS04W-19

Cold tire inflation pressure	1ZZ-FE engine models		
	195/60R15 88H P195/60R15 87H	Front, rear	210 kPa (2.1 kgf/cm ² , 29 psi)
	2ZZ-GE engine models		
	205/55R15 87V P205/55R15 87V 205/50R16 87V	Front, rear	220 kPa (2.2 kgf/cm ² , 32 psi)
Front Wheel alignment	Vehicle height		
	Tire size: 195/60R15, P195/60R15	Front*1	190 mm (7.48 in.)
		Rear*2	224 mm (8.82 in.)
	Tire size: 205/55R15, P205/55R15	Front*1	190 mm (7.48 in.)
		Rear*2	226 mm (8.90 in.)
	Tire size: 205/50R16	Front*1	193 mm (7.60 in.)
		Rear*2	225 mm (8.86 in.)
	Camber		
	195/60R15, P195/60R15		-0°28' ± 45' (-0.47° ± 0.75°)
	205/55R15, P205/55R15		-0°25' ± 45' (-0.42° ± 0.75°)
Rear wheel alignment	205/50R16		-0°29' ± 45' (-0.48° ± 0.75°)
	Right-left error		45' (0.75°) or less
	Caster		
	195/60R15, P195/60R15		2°07' ± 45' (2.12° ± 0.75°)
	205/55R15, P205/55R15		2°01' ± 45' (2.02° ± 0.75°)
	205/50R16		2°02' ± 45' (2.03° ± 0.75°)
	Right-left error		45' (0.75°) or less
	Steering axis inclination		
	195/60R15, P195/60R15		13°09' ± 45' (13.15° ± 0.75°)
	205/55R15, P205/55R15		13°04' ± 45' (13.07° ± 0.75°)
Front axle	205/50R16		13°12' ± 45' (13.20° ± 0.75°)
	Right-left error		45' (0.75°) or less
	Toe-in (total)		0° ± 12' (0° ± 0.2°, 0 ± 2 mm, 0 ± 0.08 in.)
	Rack end length difference		1.5 mm (0.059 in.) or less
	Wheel angle		
	195/60R15, P195/60R15	Inside wheel	38°41' ± 2° (38.68° ± 2°)
		Outside wheel: Reference	33°20' (33.33°)
	205/55R15, P205/55R15	Inside wheel	38°46' ± 2° (38.77° ± 2°)
		Outside wheel: Reference	33°25' (33.42°)
	205/50R16	Inside wheel	38°38' ± 2° (38.63° ± 2°)
Rear wheel alignment		Outside wheel: Reference	33°19' (33.32°)
	Camber		
	Right-left error		-1°11' ± 45' (-1.18° ± 0.75°)
Rear wheel alignment	Toe-in (total)		0°18' ± 12' (0.3° ± 0.2°, 3 ± 2 mm, 0.12 ± 0.08 in.)
	Toe-in cross measurement difference		6 mm (0.24 in.) or less
Front axle	Axle bearing backlash	Maximum	0.05 mm (0.0020 in.)
	Axle hub deviation	Maximum	0.07 mm (0.0028 in.)

SERVICE SPECIFICATIONS – SUSPENSION AND AXLE

Front drive shaft	Drive shaft standard length 1ZZ-FE (A/T)	RH	851.0 ± 5.0 mm (33.504 ± 0.197 in.)
		LH	565.9 ± 5.0 mm (22.279 ± 0.197 in.)
	1ZZ-FE (M/T) and 2ZZ-GE	RH	845.5 ± 5.0 mm (33.287 ± 0.197 in.)
		LH	563.7 ± 5.0 mm (22.193 ± 0.197 in.)
Front suspension	Lower ball joint turning torque		1.0 – 4.9 N·m (10 – 50 kgf·cm, 8.7 – 43 in.·lbf)
	Stabilizer bar link ball joint turning torque		0.05 – 1.0 N·m (0.5 – 10 kgf·cm, 0.4 – 8.7 in.·lbf)
Rear axle	Axle bearing backlash	Maximum	0.05 mm (0.0020 in.)
	Axle hub deviation	Maximum	0.07 mm (0.0028 in.)
Rear suspension	Stabilizer bar link ball joint turning torque		0.05 – 1.0 N·m (0.5 – 10 kgf·cm, 0.4 – 8.7 in.·lbf)

***1: Front measuring point**

Measure the distance from the ground to the center of the front side lower suspension arm mounting bolt.

***2: Rear measuring point**

Measure the distance from the ground to the center of the rear side lower suspension arm suspension member side set bolt.

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
FRONT AXLE			
Hub nut	103	1,050	76
Tie rod end lock nut	74	750	54
Steering knuckle x Shock absorber	153	1,560	113
Steering knuckle x Brake caliper	107	1,090	79
Steering knuckle x Tie rod end	49	500	36
Axle hub x Drive shaft	216	2,200	159
Lower ball joint x Lower suspension arm	142	1,450	105
Lower ball joint x Steering knuckle	103	1,050	76
Steering knuckle x Dust cover	8.3	85	74 in·lbf
ABS speed sensor set bolt	8.0	82	71 in·lbf
FRONT DRIVE SHAFT			
Drive shaft center bearing case lock bolt	64	650	47
FRONT SUSPENSION			
Suspension support x Body	39	400	29
Suspension support x Piston rod	47	475	34
Flexible hose x Shock absorber	19	192	14
ABS speed sensor wire harness x Shock absorber	8.0	82	71 in·lbf
Lower suspension arm set bolt	137	1,397	101
PS gear set bolt	58	591	43
Engine front mount x Center member	52	530	38
Engine rear mount x Suspension member	52	530	38
Suspension member set bolt	157	1,600	116
Center member front side set bolt	39	400	29
Stabilizer bar bracket x Suspension member	19	194	14
Stabilizer bar link set nut	44	449	32
REAR AXLE			
Hub nut	103	1,050	76
Brake caliper set bolt	47	475	34
Axle hub set bolt	56	571	41
Upper suspension arm x Axle carrier	74	755	55
Lower suspension arm x Axle carrier	74	755	55
REAR SUSPENSION			
Shock absorber x Lower suspension arm	140	1,428	103
ABS speed sensor wire harness x Lower suspension arm	19	194	14
Spring bracket x Body	80	816	59
Shock absorber center nut	56	571	41
Tailpipe set bolt	43	440	32
Parking brake cable set bolt	5.4	55	48 in·lbf
Upper suspension arm x Suspension member	74	755	55
Lower suspension arm x Suspension member	74	755	55
Lower suspension arm bracket set bolt	65	663	48
Lower suspension arm bracket x Lower suspension arm	110	1,122	81

SERVICE SPECIFICATIONS - SUSPENSION AND AXLE

Stabilizer bar bracket set bolt	18	184	13
Stabilizer bar link set nut	44	449	32

BRAKE

SERVICE DATA

SS0LM-15

Brake pedal height from asphalt sheet	Standard pedal: Sport pedal:	139.8 – 149.8 mm (5.504 – 5.898 in.) 141.1 – 151.1 mm (5.555 – 5.949 in.)
Brake pedal free play		1 – 6 mm (0.04 – 0.24 in.)
Brake pedal reserve distance at 490 N (50 kgf, 110.2 lbf)		More than 85 mm (3.35 in.)
Brake booster push rod to piston clearance (w/ accessory tool)		0 mm (0 in.)
Front brake pad thickness	STD	11.5 mm (0.453 in.)
Front brake pad thickness	Minimum	1.0 mm (0.039 in.)
Front brake disc thickness	STD	25.0 mm (0.984 in.)
Front brake disc thickness	Minimum	23.0 mm (0.906 in.)
Front brake disc runout	Maximum	0.05 mm (0.0020 in.)
Rear brake pad thickness	STD	10.0 mm (0.394 in.)
Rear brake pad thickness	Minimum	1.0 mm (0.039 in.)
Rear brake disc thickness	STD	9.0 mm (0.354 in.)
Rear brake disc thickness	Minimum	7.5 mm (0.295 in.)
Rear brake disc runout	Maximum	0.15 mm (0.0059 in.)
Rear brake disc inside diameter	STD	173.0 mm (6.811 in.)
Rear brake disc inside diameter	Maximum	174.0 mm (6.850 in.)
Rear brake drum inside diameter	STD	200.0 mm (7.874 in.)
Rear brake drum inside diameter	Maximum	201.0 mm (7.913 in.)
Drum brake shoe lining thickness	STD	4.0 mm (0.157 in.)
Rear brake drum to shoe clearance		0.6 mm (0.024 in.)
Drum brake shoe lining thickness	Minimum	1.0 mm (0.039 in.)
Parking brake shoe lining thickness	STD	2.0 mm (0.079 in.)
Parking brake shoe lining thickness	Minimum	1.0 mm (0.039 in.)
Parking brake lever travel at 196N (20 Kgf, 44.1 lbf)		7 – 8 clicks
Rear brake clearance between rear shoe and lever		Less than 0.35 mm (0.0138 in.)

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·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
Front disc brake caliper installation bolt	34	350	25
Bleeder plug	8.3	85	74 in·lbf
Front disc brake torque plate x Steering knuckle	107	1,090	79
Front disc brake caliper x Flexible hose	30	310	22
Rear drum brake wheel cylinder x Backing plate	10	100	7
Rear disc brake caliper installation bolt	47	475	34
ABS actuator assembly x Body	19	195	14
ABS actuator x ABS actuator bracket assembly	5.4	55	48 in·lbf
Front speed sensor installation bolt	8.0	82	71 in·lbf
Front speed sensor harness clamp bolt	8.0	82	71 in·lbf
Rear speed sensor harness clamp bolt	Body	8.0	71 in·lbf
	Lower arm	19	14
Pedal bracket x Reinforcement	24	241	17
Brake pedal x Pedal bracket	37	375	27

STEERING

SERVICE DATA

SS18Y-13

POWER STEERING FLUID		
Fluid level rise	Maximum	5 mm (0.20 in.)
Fluid pressure at idle speed with valve closed	Minimum	7,355 kPa (75 kgf/cm ² , 1,067 psi)
STEERING WHEEL		
Steering wheel freeplay	Maximum	30 mm (1.18 in.)
Steering effort at idle speed	Reference	6.5 N·m (65 kgf·cm, 58 in.·lbf)
POWER STEERING VANE PUMP		
Vane pump rotating torque		0.27 N·m (2.8 kgf·cm, 2.4 in.·lbf) or less
Vane pump shaft and front housing bushing oil clearance	STD Maximum	0.021 – 0.043 mm (0.0008 – 0.0017 in.) 0.07 mm (0.0028 in.)
Vane plate height	Minimum	7.6 mm (0.299 in.)
Vane plate thickness	Minimum	1.405 mm (0.0553 in.)
Vane plate length	Minimum	11.993 mm (0.4722 in.)
Vane plate and vane pump rotor groove clearance	Maximum	0.03 mm (0.0012 in.)
Vane plate length	pump rotor and cam ring mark	
	0	12.001 – 12.003 mm (0.47248 – 0.47256 in.)
	1	11.999 – 12.001 mm (0.47240 – 0.47248 in.)
	2	11.997 – 11.999 mm (0.47232 – 0.47240 in.)
	3	11.995 – 11.997 mm (0.47224 – 0.47232 in.)
	4	11.993 – 11.995 mm (0.47216 – 0.47224 in.)
Spring free length	Minimum	35.8 mm (1.409 in.)
POWER STEERING GEAR		
Steering rack runout	Maximum	0.1 mm (0.004 in.)
Total preload	Turning	0.9 – 1.3 N·m (9 – 13 kgf·cm, 8.0 – 11.5 in.·lbf)

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
TILT STEERING COLUMN			
Adjusting nut	See page SR-19		
No. 2 tilt lever lock bolt	5.4	55	48 in.·lbf
Tilt steering support x Column tube	15	150	11
No. 2 intermediate shaft assembly x Main shaft assembly	35	360	26
Column assembly set bolt and nut	21	210	15
No. 2 intermediate shaft assembly x Intermediate extension	35	360	26
Steering wheel set nut	50	510	37
Steering wheel pad set screw (Torx® screw)	8.8	90	78 in.·lbf
POWER STEERING VANE PUMP			
Front housing x Rear housing	22	220	16
Rear bracket set bolt	43	440	32
Oil pressure switch	21	210	15
Pressure port union	69	700	51
Suction port union set bolt	12	120	9
PS vane pump assembly set nut	37	370	27
Pressure feed tube clamp set bolt	7.8	80	69 in.·lbf
Pressure feed tube x PS vane pump assembly	40 (44)	410 (450)	30 (33)
POWER STEERING GEAR			
Engine hanger set bolt	38	388	28
Bearing guide nut	40	410	30
Rack housing cap	74	750	54
Rack end x Steering rack	62 (83)	630 (850)	46 (61)
Tie rod end lock nut	74	750	54
Turn pressure tube x Rack housing	23 (25)	230 (250)	17 (18)
Engine rear mount bracket set bolt	64	655	47
Engine rear mount bracket x Engine rear mount insulator	87	890	64
Intermediate extension x Control valve shaft	35	360	26
PS gear assembly set bolt	58	591	43
Front suspension member with lower suspension arm x Frame	Bolt C	157	1,600
	Bolt D	157	1,600
	Bolt E	39	400
Engine front mount insulator x Front suspension member	52	530	38
Engine rear mount insulator x Front suspension member	52	530	38
Stabilizer bar link set nut	44	449	32
Lower suspension arm x Lower ball joint	142	1,450	105
Engine hood x Hinge	13	130	9
Tube clamp	7.8	80	69 in.·lbf
Pressure feed and return tubes x PS gear assembly	40 (44)	410 (450)	30 (33)
Tie rod end x Steering knuckle	49	500	36

(): For use without SST

SUPPLEMENTAL RESTRAINT SYSTEM

TORQUE SPECIFICATION

SS081-78

Part tightened	N·m	kgf·cm	ft·lbf
Steering wheel	34	350	25
Steering wheel pad	8.8	90	78 in·lbf
Front passenger airbag assembly x Instrument panel reinforcement	20	205	15
Seatback assembly x Seat adjuster	43	440	32
Seat cushion assembly x Seat adjuster	21	210	15
Front seat x Body	37	375	27
Airbag sensor assembly	20	205	15
Front airbag sensor	20	205	15
Side airbag sensor assembly x body	20	205	15
Door side airbag sensor x door	8.0	82	71 in·lbf

BODY ELECTRICAL

SERVICE DATA

SS080-23

SPEEDOMETER (ON-VEHICLE)	
USA:	
Standard indication (mph)	Allowable range (mph)
20	19 – 22
40	39 – 42.5
60	59.5 – 63.5
80	80 – 85
100	100 – 105.5
120	120 – 125.5
CANADA:	
Standard indication (km/h)	Allowable range (km/h)
20	18 – 23
40	40 – 44
60	60 – 64.5
80	80 – 85
100	100 – 105
120	120 – 125.5
140	140 – 146
160	160 – 167
TACHOMETER (ON-VEHICLE)/ DC 13.5 V 25 °C at (77 °F)	
Standard indication	Allowable range
700	700 – 770
1,000	900 – 1,100
2,000	1,850 – 2,150
3,000	2,800 – 3,200
4,000	3,800 – 4,200
5,000	4,800 – 5,200
6,000	5,800 – 6,200
7,000	6,800 – 7,200
FUEL SENDER GAUGE	
Float position mm (in.)	Resistance (Ω)
F: Approx. 75.9 (2.99)	Approx. 3.0
1/2: Approx. 17.2 (0.68)	Approx. 31.6
E: Approx. 50.8 (2.00)	Approx. 110.0
ENGINE COOLANT TEMPERATURE SENDER GAUGE (Resistance)	
Temperature °C (°F)	Resistance (Ω)
50 (122.0)	160 – 240
120 (248.0)	17.1 – 21.2

BODY

TORQUE SPECIFICATION

SS18Q-10

Part tightened	N·m	kgf·cm	ft·lbf
FRONT BUMPER	–	–	–
Front bumper reinforcement x Body	20	200	14
REAR BUMPER	–	–	–
Rear bumper reinforcement x Body	20	200	14
HOOD	–	–	–
Hood hinge x Hood	13	130	9
Hood lock x Body	6.9	70	61 in·lbf
FRONT DOOR	–	–	–
Door side airbag sensor x Door panel	8.0	82	71 in·lbf
Outside rear view mirror x Door panel	8.3	85	74 in·lbf
Upper window stop x Door panel	11	115	8
Door glass x Window regulator	7.8	80	69 in·lbf
Lower plate x Door panel	4.9	50	43 in·lbf
Window regulator x Door panel	8.3	85	74 in·lbf
Door glass female stabilizer x Door panel	4.9	50	43 in·lbf
Door lock x Door panel Bolt:	4.9	50	43 in·lbf
Door lock x Door panel Nut:	5.4	55	48 in·lbf
Door lock x Door panel Screw:	4.9	50	43 in·lbf
Outside handle x Door panel	5.4	55	48 in·lbf
Key cylinder x Outside handle	5.4	55	48 in·lbf
Door hinge x Body	25	260	19
Door hinge x Door panel	25	260	19
Door lock striker x Body	23	230	17
BACK DOOR	–	–	–
Door lock x Door panel	5.4	55	48 in·lbf
Door handle x Door panel	5.4	55	48 in·lbf
Door hinge x Door panel	11	115	8
Door hinge x Body	19	196	14
Door lock striker x Body	11	115	8
BACK DOOR STAY	–	–	–
Back door stay x Body	8.3	85	74 in·lbf
Back door stay x Door panel	26	270	20
FRONT WIPER AND WASHER	–	–	–
Wiper motor x Wiper link assembly	5.4	55	48 in·lbf
Wiper motor and link assembly x Body	5.4	55	48 in·lbf
Wiper arm x Wiper motor and link assembly	32	323	23
REAR WIPER AND WASHER	–	–	–
Rear wiper motor x Door panel	5.4	55	48 in·lbf
Rear wiper arm x Rear wiper motor	5.4	55	48 in·lbf
ROOF HEADLINING	–	–	–
Drive gear x Sliding roof assembly	5.4	55	48 in·lbf

SERVICE SPECIFICATIONS - BODY

INSTRUMENT PANEL	-	-	-
Steering wheel set nut	50	510	37
Passenger airbag assembly x Reinforcement	20	204	15
FRONT SEAT	-	-	-
Front seat x Body	37	375	27
Seat cushion assembly x Seat adjuster	21	210	15
Seatback assembly x Seat adjuster	43	440	32
Side airbag assembly x Seatback frame	5.5	56	49 in.·lbf
REAR SEAT	-	-	-
Seatback assembly x Side hinge	18	185	13
Seatback assembly x Center hinge	18	185	13
Side hinge x Body	7.8	80	69 in.·lbf
Center hinge x Body	18	185	13
Seatback lock striker x Body	18	185	13
Seatback lock x Seatback frame	21	210	15
SEAT BELT	-	-	-
Front seat outer belt shoulder anchor x Body	43	440	32
Front seat outer belt floor anchor x Body	43	440	32
Front seat outer belt retractor x Body Upper side:	7.5	76	66 in.·lbf
Front seat outer belt retractor x Body Lower side:	43	440	32
Front seat inner belt x Front seat	43	440	32
Rear seat outer belt retractor x Belt outer anchor bracket	43	440	32
Rear seat outer belt floor anchor x Body	43	440	32
Rear seat inner belt x Body	43	440	32
Belt outer anchor bracket x Body	43	440	32

AIR CONDITIONING

SERVICE DATA

SS0MB-08

Refrigerant charge volume		430 ± 30 g (15.17 ± 1.06 oz.)
Idle-up speed (1ZZ-FE)	M/T:	
	Magnetic clutch is not engaged	700 ± 50 rpm
	Magnetic clutch is engaged	900 ± 50 rpm
Idle-up speed (1ZZ-FE)	A/T:	
	Magnetic clutch is not engaged	750 ± 50 rpm
	Magnetic clutch is engaged	900 ± 50 rpm
Idle-up speed (2ZZ-GE)	M/T:	
	Magnetic clutch is not engaged	750 ± 50 rpm
	Magnetic clutch is engaged	850 ± 50 rpm
Idle-up speed (2ZZ-GE)	A/T:	
	Magnetic clutch is not engaged	650 ± 50 rpm
	Magnetic clutch is engaged	850 ± 50 rpm
Magnetic clutch clearance		0.45 ± 0.10 mm (0.018 ± 0.004 in.)

TORQUE SPECIFICATION

Part tightened		N·m	kgf·cm	ft·lbf
Suction hose x Compressor		10	100	7
Discharge hose x Compressor		10	100	7
Discharge hose x Condenser		5.4	55	48 in.·lbf
Compressor x Engine		25	250	18
Liquid tube x Condenser		5.4	55	48 in.·lbf
Evaporator x Expansion valve		5.4	55	48 in.·lbf
Pressure switch x Liquid tube		10	100	7
Pressure plate x Compressor		13.2	135	9
Liquid lines		10	100	7
Discharge lines		10	100	7
Suction lines		10	100	7
Air pump assembly set bolt	2ZZ-GE	8.0	82	71 in.·lbf
Cruise control actuator set bolt	1ZZ-FE	5.5	56	49 in.·lbf
Engine coolant reservoir set bolt		5.0	51	44 in.·lbf
Center brace set bolt		9.8	100	87 in.·lbf
Upper radiator support set bolt		68	693	50
Upper condenser support set bolt and nut		10	102	88 in.·lbf
Air cleaner case set bolt		5.0	51	41 in.·lbf