











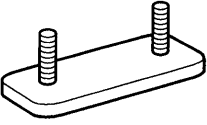


STANDARD BOLT

HOW TO DETERMINE BOLT STRENGTH

SS00F-01

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

V06821

SPECIFIED TORQUE FOR STANDARD BOLTS

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

V00079

MAINTENANCE

TORQUE SPECIFICATION

SS0DJ-01

Part tightened	N·m	kgf·cm	ft·lbf
Front seat x Body	37	375	27
Front suspension member x Body	Front side	125	1,280
	Rear side	200	2,040
Rear suspension member x Body	175	1,790	129
Rear suspension member rear cushion x Body	58	590	43

ENGINE MECHANICAL (2JZ-GE)

SS0DK-02

SERVICE DATA

Compression pressure	at 250 rpm STD Minimum Difference of pressure between each cylinder	1,275 kPa (13.0 kgf/cm ² , 185 psi) or more 1,079 kPa (11.0 kgf/cm ² , 156 psi) 98 kPa (1.0 kgf/cm ² , 14 psi) or less
Valve clearance	at cold Intake Exhaust Adjusting shim (for repair part) Mark 2.500 Mark 2.550 Mark 2.600 Mark 2.650 Mark 2.700 Mark 2.750 Mark 2.800 Mark 2.850 Mark 2.900 Mark 2.950 Mark 3.000 Mark 3.050 Mark 3.100 Mark 3.150 Mark 3.200 Mark 3.250 Mark 3.300	0.15 - 0.25 mm (0.006 - 0.010 in.) 0.25 - 0.35 mm (0.010 - 0.014 in.) 2.500 mm (0.0984 in.) 2.550 mm (0.1004 in.) 2.600 mm (0.1024 in.) 2.650 mm (0.1043 in.) 2.700 mm (0.1063 in.) 2.750 mm (0.1083 in.) 2.800 mm (0.1102 in.) 2.850 mm (0.1122 in.) 2.900 mm (0.1142 in.) 2.950 mm (0.1161 in.) 3.000 mm (0.1181 in.) 3.050 mm (0.1201 in.) 3.100 mm (0.1220 in.) 3.150 mm (0.1240 in.) 3.200 mm (0.1260 in.) 3.250 mm (0.1280 in.) 3.300 mm (0.1299 in.)
Ignition timing	w/ Terminals TE1 and E1 connected of DLC1	10° BTDC @ idle
Idle speed		700 ± 50 rpm
Timing belt tensioner	Protrusion (from housing side)	8.0 - 8.8 mm (0.315 - 0.346 in.)
Cylinder head	Warpage Cylinder block side Intake manifold side Exhaust manifold side Valve guide bore diameter Valve seat Refacing angle Contacting angle Contacting width Cylinder head bolt diameter	Maximum Maximum Maximum STD O/S 0.05 15°, 45°, 75° 45° Intake Exhaust STD Minimum 0.10 mm (0.0039 in.) 0.10 mm (0.0039 in.) 0.10 mm (0.0039 in.) 10.985 - 11.006 mm (0.4325 - 0.4333 in.) 11.035 - 11.056 mm (0.4344 - 0.4353 in.) 1.0 - 1.4 mm (0.039 - 0.055 in.) 1.2 - 1.6 mm (0.047 - 0.063 in.) 10.8 - 11.0 mm (0.425 - 0.433 in.) 10.7 mm (0.421 in.)
Valve guide bushing	Inside diameter Outside diameter (for repair part) STD O/S 0.05	6.010 - 6.030 mm (0.2366 - 0.2374 in.) 11.033 - 11.044 mm (0.4344 - 0.4348 in.) 11.083 - 11.094 mm (0.4363 - 0.4368 in.)
Valve	Valve overall length Valve face angle Stem diameter	STD Intake Exhaust Minimum Intake Exhaust Intake Exhaust 98.29 - 98.79 mm (3.8697 - 3.8894 in.) 98.84 - 99.34 mm (3.8913 - 3.9110 in.) 98.19 mm (3.8657 in.) 98.74 mm (3.8874 in.) 44.5° 5.970 - 5.985 mm (0.2350 - 0.2356 in.) 5.965 - 5.980 mm (0.2348 - 0.2354 in.)

SERVICE SPECIFICATIONS - ENGINE MECHANICAL (2JZ-GE)

Valve (cont'd)	Stem oil clearance	STD Intake Exhaust Maximum Intake Exhaust	0.025 - 0.060 mm (0.0010 - 0.0024 in.) 0.030 - 0.065 mm (0.0012 - 0.0026 in.) 0.08 mm (0.0031 in.) 0.10 mm (0.0039 in.)
	Margin thickness	STD Minimum	0.8 - 1.2 mm (0.031 - 0.047 in.) 0.5 mm (0.020 in.)
Valve spring	Deviation Free length Installed tension at 34.5 mm (1.358 in.)	Maximum	2.0 mm (0.079 in.) 41.70 mm (1.6417 in.) 186.2 - 206.0 N (19.0 - 21.0 kgf, 42 - 46 lbf)
Valve lifter	Lifter diameter Lifter bore diameter Oil clearance	STD Maximum	30.966 - 30.976 mm (1.2191 - 1.2195 in.) 31.000 - 31.016 mm (1.2205 - 1.2211 in.) 0.024 - 0.050 mm (0.0009 - 0.0020 in.) 0.07 mm (0.0028 in.)
Camshaft	Thrust clearance Cam lobe height Journal diameter Journal oil clearance Circle runout	STD Maximum STD Intake Exhaust Maximum Intake Exhaust STD Maximum Maximum	0.080 - 0.190 mm (0.0031 - 0.0075 in.) 0.30 mm (0.0118 in.) 44.570 - 44.670 mm (1.7547 - 1.7587 in.) 44.770 - 44.870 mm (1.7626 - 1.7665 in.) 44.42 mm (1.7488 in.) 44.62 mm (1.7567 in.) 28.949 - 28.965 mm (1.1397 - 1.1404 in.) 0.035 - 0.072 mm (0.0014 - 0.0028 in.) 0.10 mm (0.0039 in.) 0.08 mm (0.0031 in.)
Air intake chamber	Warpage	Maximum	0.15 mm (0.0059 in.)
Manifold	Warpage	Maximum Intake Exhaust	0.15 mm (0.0059 in.) 0.50 mm (0.0196 in.)
Cylinder block	Cylinder head surface warpage Cylinder bore diameter Main bearing bolt diameter	Maximum STD Maximum STD Minimum	0.07 mm (0.0028 in.) 86.000 - 86.013 mm (3.3858 - 3.3863 in.) 86.02 mm (3.3866 in.) 9.96 - 9.97 mm (0.3921 - 0.3925 in.) 9.7 mm (0.382 in.)
Connecting rod	Thrust clearance Connecting bolt diameter Connecting rod oil clearance Connecting rod bearing center wall thickness (Reference) Bushing inside diameter Piston pin diameter Piston pin oil clearance Rod bent Rod twist	STD Maximum STD Minimum STD STD U/S 0.25 Maximum STD U/S 0.25 STD Mark 1 Mark 2 Mark 3 Mark 4 Mark 5 STD Maximum	0.250 - 0.402 mm (0.0098 - 0.0158 in.) 0.50 mm (0.0197 in.) 8.1 - 8.3 mm (0.319 - 0.327 in.) 8.0 mm (0.315 in.) 0.023 - 0.041 mm (0.0009 - 0.0016 in.) 0.008 - 0.066 mm (0.0011 - 0.0026 in.) 0.07 mm (0.0027 in.) 0.08 mm (0.0031 in.) 1.498 - 1.501 mm (0.0590 - 0.0591 in.) 1.501 - 1.504 mm (0.0591 - 0.0592 in.) 1.504 - 1.507 mm (0.0592 - 0.0593 in.) 1.507 - 1.510 mm (0.0593 - 0.0594 in.) 1.510 - 1.513 mm (0.0594 - 0.0596 in.) 22.005 - 22.014 mm (0.8663 - 0.8667 in.) 21.997 - 22.006 mm (0.8660 - 0.8664 in.) 0.005 - 0.011 mm (0.0002 - 0.0004 in.) 0.05 mm (0.0020 in.) 0.05 mm (0.0020 in.) 0.15 mm (0.0059 in.)

Piston and Piston ring	Piston diameter		85.935 - 85.945 mm (3.3833 - 3.3837 in.)
	Piston oil clearance	STD	0.055 - 0.078 mm (0.0022 - 0.0031 in.)
		Maximum	0.10 mm (0.0039 in.)
	Piston ring groove clearance	No.1	0.011 - 0.070 mm (0.0004 - 0.0028 in.)
		No.2	0.030 - 0.070 mm (0.0012 - 0.0028 in.)
	Piston ring end gap	STD No.1	0.300 - 0.470 mm (0.0118 - 0.0185 in.)
		No.2	0.350 - 0.520 mm (0.0138 - 0.0205 in.)
		Oil	0.130 - 0.450 mm (0.0051 - 0.0177 in.)
		Maximum No.1	1.07 mm (0.0421 in.)
		No.2	1.12 mm (0.0441 in.)
	Oil	1.05 mm (0.0413 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	STD	1.940 - 1.990 mm (0.0764-0.0783 in.)
	Main journal oil clearance	STD STD	0.026 - 0.040 mm (0.0010-0.0016 in.)
		U/S 0.25	0.025 - 0.061 mm (0.0010-0.0024 in.)
		Maximum STD	0.06 mm (0.0024 in.)
		U/S 0.25	0.08 mm (0.0031 in.)
	Main journal diameter	STD	61.984 - 62.000 mm (2.4403 - 2.4409 in.)
		U/S 0.25	61.745 - 61.755 mm (2.4309 - 2.4313 in.)
	Main bearing center wall thickness (Reference)	Mark 1	1.994 - 1.997 mm (0.0785 - 0.0786 in.)
		Mark 2	1.997 - 2.000 mm (0.0786 - 0.0787 in.)
		Mark 3	2.000 - 2.003 mm (0.0787 - 0.0789 in.)
		Mark 4	2.003 - 2.006 mm (0.0789 - 0.0790 in.)
		Mark 5	2.006 - 2.009 mm (0.0790 - 0.0791 in.)
	Crank pin diameter	STD	51.982 - 52.000 mm (2.0465 - 2.0472 in.)
		U/S 0.25	51.745 - 51.755 mm (2.0372 - 2.0376 in.)
	Circle runout	Maximum	0.06 mm (0.0024 in.)
Main journal taper and out-of-round	Maximum	0.02 mm (0.0008 in.)	
Crank pin taper and out-of-round	Maximum	0.02 mm (0.0008 in.)	

TORQUE SPECIFICATION

Part tightened		N·m	kgf·cm	ft·lbf
Cylinder head cover x Cylinder head		8.3	85	74 in.·lbf
Timing belt plate x Oil pump		7.8	80	69 in.·lbf
Idler pulley x Oil pump		34	350	25
Crankshaft pulley x Crankshaft		324	3,300	239
Camshaft timing pulley x Camshaft		79	810	59
Timing belt tensioner x Oil pump		26	270	20
PS pump front bracket x PS vane pump		58	590	43
PS pump front bracket x A/C compressor		52	530	38
PS pump pulley x PS vane pump		43	430	32
Drive belt tensioner x Cylinder head		21	210	15
EGR cooler x Cylinder head		8.8	90	78 in.·lbf
ECT sensor x Cylinder head		25	250	18
ECT sensor gauge x Cylinder head		15	150	11
Engine hanger x Cylinder head		39	400	29
Cylinder head x Cylinder block	1st	34	350	25
	2nd	Turn 90°	Turn 90°	Turn 90°
	3rd	Turn 90°	Turn 90°	Turn 90°
Camshaft bearing cap x Cylinder head		20	200	14
No.4 timing belt cover x Cylinder head		7.8	80	69 in.·lbf
Intake manifold x Cylinder head		27	280	20
Fuel input pipe x Delivery pipe		42	420	30
Intake manifold stay x Intake manifold, Cylinder block		39	400	29
Water outlet x Cylinder head		21	210	15
Air intake chamber x Intake manifold		27	280	20
Vacuum control valve set x Intake manifold		21	210	15
No.2 vacuum pipe x Air intake chamber		27	280	20
No.2 vacuum pipe x Intake manifold		27	280	20
Air intake chamber stay x Cylinder head		18	185	13
Air intake chamber stay x Air intake chamber		18	185	13
PS pump rear stay x PS pump bracket		39	400	29
PS pump rear stay x Intake manifold stay		39	400	29
PS vane pump x PS pump bracket		58	590	43
Exhaust manifold x Cylinder head		39	400	29
Main bearing cap x Cylinder block	1st	44	450	33
	2nd	Turn 90°	Turn 90°	Turn 90°
Connecting rod cap x Connecting rod	1st	29	300	22
	2nd	Turn 90°	Turn 90°	Turn 90°
Rear oil seal retainer x Cylinder block		5.9	60	52 in.·lbf
Crankshaft position sensor x Cylinder block		8.8	90	78 in.·lbf
Engine mounting bracket x Cylinder block		58	590	43
Engine coolant drain plug x Cylinder block		29	300	22
Union nut x Cylinder block		55	550	41
Oil pressure switch x Cylinder block		14	150	11
Knock sensor x Cylinder block		44	450	33

Fuel pipe support x Cylinder block		28	290	21
Oil filter bracket x Cylinder block		88	900	65
No.2 water bypass pipe x Water pump, Cylinder block		21	210	15
Flywheel (M/T) x x Crankshaft	1st 2nd	49 Turn 90°	500 Turn 90°	36 Turn 90°
Drive plate (A/T) x Crankshaft		83	850	61
Clutch cover x Flywheel	M/T	19	195	14
Cylinder block x Transmission	14 mm head	39	400	29
	17 mm head	72	730	43
Drive plate x Torque converter clutch	A/T	33	340	25
Oil cooler tube x Union for transmission	A/T	34	350	25
Rear support member x Body		25	260	19
Rear support member x Engine rear mounting insulator		13	135	10
Front suspension crossmember x Engine mounting insulator		59	600	43
Transmission shift lever x Shift lever retainer	M/T	19	195	14
Transmission control rod x Shift lever	A/T	13	130	9
No.2 front exhaust pipe x Exhaust manifold		62	630	46
Pipe support bracket x Transmission		43	440	32
No.2 front exhaust pipe x Front exhaust pipe		58	590	43
Clutch release cylinder x Transmission	M/T	13	130	9
Ground strap (M/T) x Transmission		37	380	27
A/C compressor x Cylinder block	Stud bolt	26	265	19
	Bolt and nut	52	530	38
PS pump bracket x A/C compressor		58	590	43
PS pump bracket x Cylinder block		39	400	29
Fuel inlet hose x Fuel pipe support		29	300	22
Front exhaust pipe x Center exhaust pipe		58	590	43
Center exhaust pipe x Tailpipe		19	195	14
Heated oxygen sensor x Front exhaust pipe		20	200	14

ENGINE MECHANICAL (2JZ-GTE)

SS0DM-02

SERVICE DATA

Compression pressure	at 250 rpm STD Minimum Difference of pressure between each cylinder	1,079 kPa (11.0 kgf/cm ² , 156 psi) or more 883 kPa (9.0 kgf/cm ² , 128 psi) 98 kPa (1.0 kgf/cm ² , 14 psi) or less
Valve clearance	at cold Intake Exhaust Adjusting shim (for repair part) Mark 2.500 Mark 2.550 Mark 2.600 Mark 2.650 Mark 2.700 Mark 2.750 Mark 2.800 Mark 2.850 Mark 2.900 Mark 2.950 Mark 3.000 Mark 3.050 Mark 3.100 Mark 3.150 Mark 3.200 Mark 3.250 Mark 3.300	0.15 - 0.25 mm (0.006 - 0.010 in.) 0.25 - 0.35 mm (0.010 - 0.014 in.) 2.500 mm (0.0984 in.) 2.550 mm (0.1004 in.) 2.600 mm (0.1024 in.) 2.650 mm (0.1043 in.) 2.700 mm (0.1063 in.) 2.750 mm (0.1083 in.) 2.800 mm (0.1102 in.) 2.850 mm (0.1122 in.) 2.900 mm (0.1142 in.) 2.950 mm (0.1161 in.) 3.000 mm (0.1181 in.) 3.050 mm (0.1201 in.) 3.100 mm (0.1220 in.) 3.150 mm (0.1240 in.) 3.200 mm (0.1260 in.) 3.250 mm (0.1280 in.) 3.300 mm (0.1299 in.)
Ignition timing	w/ Terminals TE1 and E1 connected of DLC1	10° BTDC @ idle
Idle speed		650 ± 50 rpm
Timing belt tensioner	Protrusion (from housing side)	8.0 - 8.8 mm (0.315 - 0.346 in.)
Cylinder head	Warpage Cylinder block side Intake manifold side Exhaust manifold side Valve guide bore diameter Valve seat Refacing angle Contacting angle Contacting width Cylinder head bolt diameter	Maximum Maximum Maximum STD O/S 0.05 15°, 45°, 75° 45° Intake Exhaust STD Minimum 0.10 mm (0.0039 in.) 0.10 mm (0.0039 in.) 0.10 mm (0.0039 in.) 10.985 - 11.006 mm (0.4325 - 0.4333 in.) 11.035 - 11.056 mm (0.4344 - 0.4353 in.) 1.0 - 1.4 mm (0.039 - 0.055 in.) 1.2 - 1.6 mm (0.047 - 0.063 in.) 10.8 - 11.0 mm (0.425 - 0.433 in.) 10.7 mm (0.421 in.)
Valve guide bushing	Inside diameter Outside diameter (for repair part) STD O/S 0.05	6.010 - 6.030 mm (0.2366 - 0.2374 in.) 11.033 - 11.044 mm (0.4344 - 0.4348 in.) 11.083 - 11.094 mm (0.4363 - 0.4368 in.)
Valve	Valve overall length Valve face angle Stem diameter	STD Intake Exhaust Minimum Intake Exhaust Intake Exhaust 98.29 - 98.79 mm (3.8697 - 3.8894 in.) 98.84 - 99.34 mm (3.8913 - 3.9110 in.) 98.19 mm (3.8657 in.) 98.74 mm (3.8874 in.) 44.5° 5.970 - 5.985 mm (0.2350 - 0.2356 in.) 5.965 - 5.980 mm (0.2348 - 0.2354 in.)

Valve (cont'd)	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.)	
Margin thickness		Maximum Intake	0.08 mm (0.0031 in.)	
		Exhaust	0.10 mm (0.0039 in.)	
		STD	0.8 - 1.2 mm (0.031 - 0.047 in.)	
		Minimum	0.5 mm (0.020 in.)	
Valve spring	Deviation	Maximum	2.0 mm (0.079 in.)	
	Free length		41.70 mm (1.6417 in.)	
	Installed tension at 34.5 mm (1.358 in.)		186 - 206 N (19.0 - 21.0 kgf, 42 - 46 lbf)	
Valve lifter	Lifter diameter		30.966 - 30.976 mm (1.2191 - 1.2195 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	0.080 - 0.190 mm (0.0031 - 0.0075 in.)	
		Maximum	0.30 mm (0.0118 in.)	
	Cam lobe height	STD Intake		44.570 - 44.670 mm (1.7547 - 1.7587 in.)
		Exhaust		44.770 - 44.870 mm (1.7626 - 1.7665 in.)
		Maximum Intake		44.42 mm (1.7488 in.)
		Exhaust		44.62 mm (1.7567 in.)
	Journal diameter		28.949 - 28.965 mm (1.1397 - 1.1404 in.)	
	Journal oil clearance	STD		0.035 - 0.072 mm (0.0014 - 0.0028 in.)
		Maximum		0.10 mm (0.0039 in.)
Circle runout	Maximum		0.08 mm (0.0031 in.)	
Air intake chamber	Warpage	Maximum	0.15 mm (0.0059 in.)	
Manifold	Warpage	Maximum Intake	0.15 mm (0.0059 in.)	
		Exhaust	0.80 mm (0.0315 in.)	
Cylinder block	Cylinder head surface warpage	Maximum	0.07 mm (0.0028 in.)	
	Cylinder bore diameter	STD	86.000 - 86.013 mm (3.3858 - 3.3863 in.)	
		Maximum	86.02 mm (3.3866 in.)	
	Main bearing bolt diameter	STD	9.96 - 9.97 mm (0.3921 - 0.3925 in.)	
Minimum		9.7 mm (0.382 in.)		
Connecting rod	Thrust clearance	STD	0.250 - 0.402 mm (0.0098 - 0.0158 in.)	
		Maximum	0.50 mm (0.0197 in.)	
	Connecting bolt diameter	STD	8.1 - 8.3 mm (0.319 - 0.327 in.)	
		Minimum	8.0 mm (0.315 in.)	
	Connecting rod oil clearance	STD STD	0.023 - 0.041 mm (0.0009 - 0.0016 in.)	
		U/S 0.25	0.008 - 0.066 mm (0.0011 - 0.0026 in.)	
		Maximum STD	0.07 mm (0.0027 in.)	
		U/S 0.25	0.08 mm (0.0031 in.)	
	Connecting rod bearing center wall thickness (Reference)	STD Mark 1	1.498 - 1.501 mm (0.0590 - 0.0591 in.)	
		Mark 2	1.501 - 1.504 mm (0.0591 - 0.0592 in.)	
		Mark 3	1.504 - 1.507 mm (0.0592 - 0.0593 in.)	
		Mark 4	1.507 - 1.510 mm (0.0593 - 0.0594 in.)	
		Mark 5	1.510 - 1.513 mm (0.0594 - 0.0596 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.)	
	Piston pin oil clearance	STD	0.005 - 0.011 mm (0.0002 - 0.0004 in.)	
Maximum		0.05 mm (0.0020 in.)		
Rod bent	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.)	

SERVICE SPECIFICATIONS - ENGINE MECHANICAL (2JZ-GTE)

Piston and Piston ring	Piston diameter		85.917 - 85.927 mm (3.3826 - 3.3830 in.)
	Piston oil clearance	STD	0.073 - 0.096 mm (0.0029 - 0.0038 in.)
		Maximum	0.12 mm (0.0047 in.)
	Piston ring groove clearance	No.1	0.040 - 0.080 mm (0.0016 - 0.0031 in.)
		No.2	0.030 - 0.070 mm (0.0012 - 0.0028 in.)
	Piston ring end gap	STD No.1	0.300 - 0.400 mm (0.0118 - 0.0157 in.)
		No.2	0.350 - 0.450 mm (0.0138 - 0.0178 in.)
		Oil	0.130 - 0.380 mm (0.0051 - 0.0150 in.)
		Maximum No.1	1.00 mm (0.0394 in.)
		No.2	1.05 mm (0.0413 in.)
	Oil	0.98 mm (0.0386 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	STD	1.940 - 1.990 mm (0.0764-0.0783 in.)
	Main journal oil clearance	STD STD	0.026 - 0.040 mm (0.0010-0.0016 in.)
		U/S 0.25	0.025 - 0.061 mm (0.0010-0.0024 in.)
		Maximum STD	0.06 mm (0.0024 in.)
		U/S 0.25	0.08 mm (0.0031 in.)
	Main journal diameter	STD	61.984 - 62.000 mm (2.4403 - 2.4409 in.)
		U/S 0.25	61.745 - 61.755 mm (2.4309 - 2.4313 in.)
	Main bearing center wall thickness (Reference)	Mark 1	1.994 - 1.997 mm (0.0785 - 0.0786 in.)
		Mark 2	1.997 - 2.000 mm (0.0786 - 0.0787 in.)
		Mark 3	2.000 - 2.003 mm (0.0787 - 0.0789 in.)
		Mark 4	2.003 - 2.006 mm (0.0789 - 0.0790 in.)
		Mark 5	2.006 - 2.009 mm (0.0790 - 0.0791 in.)
	Crank pin diameter	STD	51.982 - 52.000 mm (2.0465 - 2.0472 in.)
		U/S 0.25	51.745 - 51.755 mm (2.0372 - 2.0376 in.)
Circle runout	Maximum	0.06 mm (0.0024 in.)	
Main journal taper and out-of-round	Maximum	0.02 mm (0.0008 in.)	
Crank pin taper and out-of-round	Maximum	0.02 mm (0.0008 in.)	

TORQUE SPECIFICATION

Part tightened		N·m	kgf·cm	ft·lbf
Cylinder head cover x Cylinder head		5.4	55	48 in.·lbf
Timing belt plate x Oil pump		7.8	80	69 in.·lbf
Idler pulley x Oil pump		34	350	25
Crankshaft pulley x Crankshaft		324	3,300	239
Camshaft timing pulley x Camshaft		79	810	59
Timing belt tensioner x Oil pump		26	270	20
PS pump front bracket (2JZ-GE) x PS vane pump		58	590	43
PS pump front bracket (2JZ-GE) x A/C compressor		52	530	38
PS pump pulley x PS vane pump		43	430	32
Drive belt tensioner x Cylinder head		21	210	15
Drive belt tensioner damper (M/T) x Tensioner arm		20	200	14
Drive belt tensioner damper (M/T) x Tensioner bracket		20	200	14
EGR cooler x Cylinder head		8.8	90	78 in.·lbf
Engine hanger x Cylinder head		39	400	29
Camshaft position sensor x Cylinder head		8.8	90	78 in.·lbf
Cylinder head x Cylinder block	1st	34	350	25
	2nd	Turn 90°	Turn 90°	Turn 90°
	3rd	Turn 90°	Turn 90°	Turn 90°
Camshaft bearing cap x Cylinder head		20	200	14
No.4 timing belt cover x Cylinder head		7.8	80	69 in.·lbf
Intake manifold x Cylinder head		27	280	20
Fuel input pipe x Delivery pipe		42	420	30
Intake manifold stay x Intake manifold, Cylinder block		39	400	29
Water outlet x Cylinder head		21	210	15
Air intake chamber x Intake manifold		27	280	20
PS pump rear stay x PS pump bracket		39	400	29
PS vane pump x PS pump bracket		58	590	43
Exhaust manifold x Cylinder head		39	400	29
Pressure tank x Intake manifold		21	210	15
Main bearing cap x Cylinder block	1st	44	450	33
	2nd	Turn 90°	Turn 90°	Turn 90°
Connecting rod cap x Connecting rod	1st	29	300	22
	2nd	Turn 90°	Turn 90°	Turn 90°
Oil nozzle x Cylinder block		8.8	90	78 in.·lbf
Rear oil seal retainer x Cylinder block		5.9	60	52 in.·lbf
Crankshaft position sensor x Cylinder block		8.8	90	78 in.·lbf
Engine mounting bracket x Cylinder block		58	590	43
Engine coolant drain plug x Cylinder block		29	300	22
Union for oil cooler x Cylinder block		39	400	29
Union nut x Cylinder block		55	550	41
Oil pressure switch x Cylinder block		14	150	11
Knock sensor x Cylinder block		44	450	33
Fuel pipe support x Cylinder block		28	290	21
Oil filter bracket x Cylinder block		88	900	65

SERVICE SPECIFICATIONS - ENGINE MECHANICAL (2JZ-GTE)

No.2 water bypass pipe x Water pump, Cylinder block		21	210	15
Flywheel (M/T) x Crankshaft	1st	49	500	36
	2nd	Turn 90°	Turn 90°	Turn 90°
Drive plate (A/T) x Crankshaft		83	850	61
Clutch cover x Flywheel	M/T	19	195	14
Cylinder block x Transmission	14 mm head	39	400	29
	17 mm head	72	730	43
Clutch service hole cover x Clutch housing	2JZ-GTE M/T	12	120	9
Drive plate x Torque converter clutch	A/T	33	340	25
Oil cooler tube x Union for transmission	A/T	34	350	25
Rear support member x Body		25	260	19
Rear support member x Engine rear mounting insulator		13	135	10
Front suspension crossmember x Engine mounting insulator		59	600	43
Transmission shift lever x Shift lever retainer	M/T	19	195	14
Transmission control rod x Shift lever	A/T	13	130	9
No.2 front exhaust pipe x Exhaust manifold		62	630	46
Pipe support bracket x Transmission		43	440	32
No.2 front exhaust pipe x Front exhaust pipe		58	590	43
Clutch release cylinder x Transmission	M/T	13	130	9
Clutch line tube (M/T) x No.1 oil pan		37	380	27
Ground strap (M/T) x Transmission		37	380	27
A/C compressor x Cylinder block	Stud bolt	26	265	19
	Bolt and nut	52	530	38
PS pump bracket x A/C compressor		58	590	43
PS pump bracket x Cylinder block		39	400	29
Fuel inlet hose x Fuel pipe support		29	300	22
Rear center floor crossmember brace x Body		28	290	21
Front exhaust pipe x Center exhaust pipe		58	590	43
Center exhaust pipe x Tailpipe		19	195	14
Heated oxygen sensor x Front exhaust pipe		20	200	14

TURBOCHARGING (2JZ-GTE)

SS000-02

SERVICE DATA

Turbocharger	Turbocharging pressure		61 - 75 kPa (0.62 - 0.76 kgf/cm ² , 8.8 - 10.8 psi)
	Impeller wheel axial play	Maximum	0.162 mm (0.0064 in.)
	Impeller wheel radial play	Maximum	0.110 mm (0.0045 in.)

TORQUE SPECIFICATION

Part tightened		N·m	kgf·cm	ft·lbf
Front lower arm bracket stay x Front suspension	Bolt	44	450	33
	Nut	59	600	43
Upper front crossmember extension x Front suspension	Bolt	29	300	22
	Nut	33	340	25
Front exhaust pipe x No.2 front exhaust pipe		58	590	43
Pipe support bracket x Transmission		43	440	32
No.2 front exhaust pipe x Exhaust gas control valve		62	630	46
No.1 air tube x No.1 turbocharger		21	210	15
No.4 air tube x No.1 turbocharger		21	210	15
Intake air control valve x No.2 turbocharger		21	210	15
Exhaust bypass pipe x Exhaust gas control valve		25	250	18
Exhaust bypass pipe x Turbine outlet elbow		25	250	18
Exhaust gas control valve stay x Cylinder block		43	440	32
Exhaust gas control valve stay x Exhaust gas control valve		43	440	32
Main heated oxygen sensor x Exhaust gas control valve		20	200	14
Exhaust gas control valve x Turbine outlet elbow		69	700	51
Turbocharger stay x Cylinder block		43	440	32
Turbocharger stay x Turbocharger		43	440	32
Turbo oil pipe x Cylinder block		39	400	29
Turbo oil pipe x Turbocharger		21	210	15
Turbocharger x Exhaust manifold		54	550	40
No.2 air tube x No.2 turbocharger		21	210	15
Side bearing housing plate x Turbocharger		8.8	90	78 in.·lbf
Turbo water pipe x Turbocharger		8.8	90	78 in.·lbf
Turbocharger x Turbine outlet elbow		25	250	18
CAC duct x CAC		4.9	50	43 in.·lbf
CAC x Body		13	135	10

EMISSION CONTROL (2JZ-GTE)

TORQUE SPECIFICATION

SS0DQ-03

Part tightened	N·m	kgf·cm	ft·lbf
EGR valve x Air Intake chamber	21	210	15
EGR gas temperature sensor x EGR valve	20	200	14
EGR pipe x Cylinder head	27	280	20
EGR valve x EGR pipe	64	650	47
No.2 front exhaust pipe (Front TWC) x Exhaust manifold	62	630	46
Pipe support bracket x Transmission	43	440	32
No.2 front exhaust pipe (Front TWC) x Front exhaust pipe (Rear TWC)	43	440	32
Front exhaust pipe (Rear TWC) x Center exhaust pipe	43	440	32
Heated oxygen sensor x Front exhaust pipe	20	200	14

SFI (2JZ-GTE)

SERVICE DATA

SS0DU-02

Fuel pressure regulator	Fuel pressure at no vacuum	226 - 275 kPa (2.3 - 2.8 kgf/cm ² , 33 - 40 psi)
Fuel pump	Resistance at 20°C (68°F)	0.1 - 3.0 Ω
Injector	Resistance Injection volume Difference between each cylinder Fuel leakage	at 20°C (68°F) Approx. 1.95 Ω 111 - 141 cm ³ (6.8 - 8.6 cu in.) per 15 sec. 10 cm ³ (0.6 cu in.) or less One drop or less per minutes
MAF meter	Resistance (THA - E2) at -20°C (-4°F) at 0°C (32°F) at 20°C (68°F) at 40°C (104°F) at 60°C (140°F)	10 - 20 kΩ 4 - 7 kΩ 2 - 3 kΩ 0.9 - 1.3 kΩ 0.4 - 0.7 kΩ
Throttle body	Throttle body fully closed angle Dashpot setting speed Throttle opener setting speed	10° 2,300 ± 400 rpm 1,500 ± 200 rpm
Throttle position sensor	Clearance between stop screw and lever 0 mm (0 in.) 0.54 mm (0.021 in.) 0.70 mm (0.028 in.) Throttle valve fully open -	VTA - E2 IDL - E2 IDL - E2 VTA - E2 VC - E2 0.34 - 6.3 kΩ 0.5 kΩ or less Infinity 2.4 - 11.2 kΩ 3.1 - 7.2 kΩ
Sub-throttle position sensor	Clearance between stop screw and lever 0 mm (0 in.) 0.41 mm (0.016 in.) 0.48 mm (0.019 in.) Throttle valve fully open -	VTA - E2 IDL - E2 IDL - E2 VTA - E2 VC - E2 0.3 - 6.3 kΩ 0.5 kΩ or less Infinity 2.0 - 10.8 kΩ 3.5 - 6.5 kΩ
Sub-throttle actuator	Resistance (A and A-, B and B-) at 20°C (68°F)	0.82 - 0.98 Ω
IAC valve	Resistance (B1 (or B2) - Others) at cold at hot	15 - 25 Ω 20 - 30 Ω
Solenoid resistor	Resistance (+B - Others) at 20°C (68°F)	Approx. 6 Ω
VSV for fuel pressure control	Resistance at 20°C (68°F)	33 - 39 Ω
VSV for intake air control valve	Resistance at 20°C (68°F)	38.5 - 44.5 Ω
VSV for exhaust bypass valve	Resistance at 20°C (68°F)	22 - 26 Ω
VSV for waste gate valve	Resistance at 20°C (68°F)	22 - 26 Ω
VSV for exhaust gas control valve	Resistance at 20°C (68°F)	38.5 - 44.5 Ω
VSV for EVAP	Resistance at 20°C (68°F)	30 - 34 Ω
EGR gas temperature sensor	Resistance at 50°C (122°F) at 100°C (212°F) at 150°C (302°F)	64 - 97 kΩ 11 - 16 kΩ 2 - 4 kΩ

SERVICE SPECIFICATIONS - SFI (2JZ-GTE)

ECT sensor	Resistance	at -20°C (-4°F)	10 - 20 kΩ
		at 0°C (32°F)	4 - 7 kΩ
		at 20°C (68°F)	2 - 3 kΩ
		at 40°C (104°F)	0.9 - 1.3 kΩ
		at 60°C (140°F)	0.4 - 0.7 kΩ
		at 80°C (176°F)	0.2 - 0.4 kΩ
VSV for EGR	Resistance	at 20°C (68°F)	30 - 34 Ω
Heated oxygen sensor	Heater coil resistance	at 20°C (68°F)	11 - 16 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	22
	for flare nut	30	310	22
Fuel pressure regulator x Delivery pipe		8.8	90	78 in.-lbf
Fuel return pipe x Fuel pressure regulator		27	280	20
Delivery pipe x Intake manifold		21	210	15
Injector holder x Delivery pipe		7.8	80	69 in.-lbf
Fuel inlet pipe x Delivery pipe		41	420	30
Air intake chamber x Intake manifold		27	280	20
Manifold stay x Air intake chamber		39	400	29
Manifold stay x Cylinder head		39	400	29
EGR pipe x Cylinder head		27	280	20
EGR pipe x EGR valve		64	650	47
Control cable bracket x Air intake chamber		19	195	14
Air intake chamber stay x Intake manifold		19	195	14
Air intake chamber stay x Control cable bracket		19	195	14
Fuel pressure pulsation damper x Fuel pipe support		41	420	30
	for SST	35	350	25
Fuel tank band x Body		39	400	29
MAF meter x Air cleaner case		6.9	70	61 in.-lbf
Throttle body x Air intake chamber		21	210	15
IAC valve x Air intake chamber		21	210	15
EGR gas temperature sensor x EGR valve		20	200	14
Knock sensor x Cylinder block		44	450	33
Main heated oxygen sensor x Exhaust manifold		20	200	14
Sub heated oxygen sensor x Center exhaust pipe		20	200	14
Upper front crossmember extension x Front suspension	Bolt	29	300	22
	Nut	33	340	25
Front lower arm bracket stay x Front suspension	Bolt	44	450	33
	Nut	59	600	43

COOLING

SERVICE DATA

SS0DW-01

Thermostat	Valve opening temperature Valve lift at 95 °C (203 °F)	80 - 84 °C (176 - 183 °F) 8.5 mm (0.335 in.) or more
Radiator cap	Relief valve opening pressure STD Minimum	93 - 123 kPa (0.95 - 1.25 kgf/cm ² , 13.5 - 17.8 psi) 78 kPa (0.8 kgf/cm ² , 11.4 psi)
Electric cooling fan	Rotating amperage	2.5 - 4.5 A

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf	
Engine drain plug x Cylinder block	29	300	22	
Fan x Fluid coupling	7.4	75	65 in.·lbf	
Water pump x Cylinder block	21	210	15	
Water pump x No.2 water bypass pipe	21	210	15	
Generator x Water pump	37	380	27	
Generator x Cylinder block	37	380	27	
Water bypass outlet (2JZ-GE) x Cylinder head	8.8	90	78 in.·lbf	
Water outlet (2JZ-GTE) x Cylinder head	21	210	15	
Fluid coupling assembly x Water pump pulley	16	165	12	
Water inlet x Water pump	2JZ-GE	8.8	90	78 in.·lbf
	2JZ-GTE	21	210	15
Upper radiator support x Body	15	155	11	
Oil cooler x Radiator lower tank	A/T	8.3	85	74 in.·lbf
Oil cooler x Oil cooler pipe	A/T	15	150	11
Fan motor (2JZ-GTE) x Fan shroud	4.9	50	43 in.·lbf	
ECT switch (2JZ-GTE) x Radiator	7.4	75	65 in.·lbf	
Fluid coupling x Water pump	16	165	12	

LUBRICATION

SERVICE DATA

SS0DY-07

Oil pressure		at idle speed at 3,000 rpm	49 kPa (0.5 kgf/cm ² , 7.1 psi) or more 324 - 579 kPa (3.3 - 5.9 kgf/cm ² , 49 - 84 psi)
Oil pump (2JZ-GE)	Tip clearance	STD	0.060 - 0.240 mm (0.0024 - 0.0094 in.)
		Maximum	0.30 mm (0.0118 in.)
	Body clearance	STD	0.100 - 0.175 mm (0.0039 - 0.0069 in.)
		Maximum	0.20 mm (0.0079 in.)
	Side clearance	STD	0.030 - 0.090 mm (0.0012 - 0.0035 in.)
		Maximum	0.12 mm (0.0047 in.)
Oil pump (2JZ-GTE)	Tip clearance	STD	0.056 - 0.326 mm (0.0022 - 0.0128 in.)
		Maximum	0.40 mm (0.0157 in.)
	Body clearance	STD	0.080 - 0.135 mm (0.0031 - 0.0053 in.)
		Maximum	0.16 mm (0.0063 in.)
	Side clearance	STD	0.020 - 0.065 mm (0.0007 - 0.0026 in.)
		Maximum	0.10 mm (0.0039 in.)

TORQUE SPECIFICATION

Part tightened		N·m	kgf·cm	ft·lbf
A/C compressor x Cylinder block	Stud bolt	26	265	19
	Bolt and nut	52	530	38
Oil pressure switch x Cylinder block		14	150	11
Drive belt tensioner Damper x Tensioner arm	2JZ-GTE M/T	20	200	14
Drive belt tensioner Damper x Drive belt tensioner bracket	2JZ-GTE M/T	20	200	14
Oil drain plug x No.2 oil pan		38	375	27
Oil pump body cover x Oil pump body		10	105	8
Plug x Oil pump body	2JZ-GE	49	500	36
	2JZ-GTE	29	300	22
Oil pump x Cylinder block		21	210	15
No.1 oil pan x Cylinder block	12 mm head	21	210	15
	14 mm head	39	400	29
Turbo oil outlet pipe (2JZ-GTE) x No.1 oil pan		27	280	20
Oil pan baffle plate x No.1 oil pan		8.8	90	78 in.·lbf
Oil strainer x No.1 oil pan		8.8	90	78 in.·lbf
No.2 oil pan x No.1 oil pan		8.8	90	78 in.·lbf
Oil level sensor x No.1 oil pan		5.4	55	48 in.·lbf
Drive belt tensioner bracket (2JZ-GTE M/T) x Oil pump		27	280	20
Crankshaft position sensor x Oil pump		8.8	90	78 in.·lbf
Oil cooler (2JZ-GTE) x Oil filter bracket		78	800	58
Oil nozzle (2JZ-GTE) x Cylinder block		8.8	90	78 in.·lbf

IGNITION (2JZ-GTE)

SS0E2-02

SERVICE DATA

Spark plug	Recommended spark plug	DENSO NGK	PK20R11 BKR6EP11
	Correct electrode gap for new plug Maximum electrode gap for used plug		1.1 mm (0.043 in.) 1.3 mm (0.051 in.)
Ignition coil	Primary coil resistance	at cold	0.54 - 0.84 Ω
		at hot	0.68 - 0.98 Ω
Camshaft position sensor	Resistance	at cold	835 - 1,400 Ω
		at hot	1,060 - 1,645 Ω
Crankshaft position sensor	Resistance	at cold	835 - 1,400 Ω
		at hot	1,060 - 1,645 Ω

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Spark plug x Cylinder head	18	180	13
Ignition coil bracket x Cylinder head	8.8	90	78 in.·lbf
Camshaft position sensor x Cylinder head	8.8	90	78 in.·lbf
Engine hanger x Cylinder head	39	400	29
Crankshaft position sensor x Oil pump	8.8	90	78 in.·lbf

STARTING

SERVICE DATA

SS0E4-01

Starter	Rated voltage and output power		12 V 1.4 kW
	No-load characteristics	Current	90 A or less at 11.5 V
		rpm	3,000 rpm or more
	Brush length	STD	15.5 mm (0.610 in.)
		Minimum	10.0 mm (0.394 in.)
	Spring installed load	STD	17.6 - 23.5 N (1.8 - 2.4 kgf, 3.9 - 5.3 lbf)
		Minimum	11.8 N (1.2 kgf, 2.6 lbf)
	Commutator		
		Diameter	STD
	Undercut depth	Minimum	29.0 mm (1.412 in.)
		STD	0.6 mm (0.024 in.)
	Circle runout	Minimum	0.2 mm (0.008 in.)
		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 Clutch housing	37	380	27
Lead wire x Terminal C of starter	5.9	60	52 in.·lbf
Field frame x Armature assembly	5.9	60	52 in.·lbf
Starter housing x Magnetic switch	5.9	60	52 in.·lbf
End cover x Field frame	1.5	15	13 in.·lbf
Terminal nut x Terminal 30 of starter	17	173	13
Terminal nut x Terminal C of starter	17	173	13
Magnetic switch end cover x Magnetic switch	2.5	26	22 in.·lbf

CHARGING

SERVICE DATA

SS0E6-01

Battery	Voltage (Maintenance-free battery) at 20°C (68°F)	12.5 - 12.9 V
	Specific gravity (Except maintenance-free battery) at 20°C (68°F)	1.25 - 1.29
Generator	Rated output 2JZ-GE	12 V 80 A
	2JZ-GTE (M/T)	12 V 90 A
	2JZ-GTE (A/T)	12 V 100 A
	Rotor coil resistance at 20°C (68°C)	2.7 - 3.1 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	9.5 - 11.5 mm (0.374 - 0.453 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	4.5	46	40 in.·lbf
Generator pulley x Rotor	110.5	1,125	81
Rectifier holder x Coil lead on rectifier end frame	2.9	30	26 in.·lbf
Wire clip x Rectifier end frame	5.4	55	48 in.·lbf
Voltage regulator x Rectifier end frame	2.0	20	18 in.·lbf
Voltage regulator x Rectifier holder	2.0	20	18 in.·lbf
Brush holder x Rectifier holder	2.0	20	18 in.·lbf
Brush holder x Voltage regulator	2.0	20	18 in.·lbf
Rear end cover x Rectifier holder	4.4	45	39 in.·lbf
Plate terminal x Rectifier holder	3.9	40	35 in.·lbf
Terminal insulator x Rectifier holder	6.5	67	58 in.·lbf
Generator x Water pump	37	380	27
Generator x Cylinder block	37	380	27

CLUTCH

SERVICE DATA

SS09-01

Pedal height from asphalt sheet		146.2 - 156.2 mm (5.76 - 6.15 in.)
Pedal freeplay		5.0 - 15.0 mm (0.197 - 0.591 in.)
Push rod play at pedal top		1.0 - 5.0 mm (0.039 - 0.197 in.)
Full pedal stroke		132.0 - 138.0 mm (5.20 - 5.43 in.)
Clutch release point from pedal full stroke end position		25 mm (0.98 in.) or more
Disc rivet head depth	Max.	0.3 mm (0.012 in.)
Disc runout	Max.	0.8 mm (0.031 in.)
Diaphragm spring out non-alignment	Max.	0.5 mm (0.020 in.)
Diaphragm spring finger wear (Depth)	Max.	0.6 mm (0.024 in.)
Diaphragm spring finger wear (Width)	Max.	5.0 mm (0.197 in.)
Flywheel runout	Max.	0.1 mm (0.004 in.)
Flywheel damper rotational freeplay	STD	105 mm (4.134 in.)

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Clutch cover x Flywheel	19	195	14
Master cylinder set nut	12	125	9
Release cylinder set bolt	12	120	9
Clutch line bracket (2JZ-GE)	4.9	50	43 in.·lbf
Clutch line union	15	155	11
Bleeder plug	11	110	8
Flywheel set bolt	49	500	36
Release fork support (2JZ-GTE)	25	260	18
Release fork support (2JZ-GE)	39	400	29
Clutch housing cover LH (2JZ-GTE)	12	120	9

MANUAL TRANSMISSION (V160)

SERVICE DATA

SS0DB-01

Companion flange adjusting shim thickness	1.15 - 1.20 mm (0.0453 - 0.0472 in.)
	1.25 - 1.30 mm (0.0492 - 0.0512 in.)
	1.45 - 1.50 mm (0.0571 - 0.0591 in.)
	1.65 - 1.70 mm (0.0650 - 0.0669 in.)
	1.85 - 1.90 mm (0.0729 - 0.0748 in.)
	1.95 - 2.00 mm (0.0768 - 0.0787 in.)

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Engine rear mounting x Transmission	25	250	18
Shift lever retainer x Transmission	19	195	14
Transmission x Engine	72	730	53
Starter x Transmission	39	400	29
Rear engine mounting member x Body	25	260	19
Rear engine mounting member x Transmission	13	135	10
Clutch cover x Flywheel	19	195	14
Service hole cover set bolt	12	120	9
Clutch release cylinder set bolt	12	120	9
Transmission shift lever x Control rod	19	195	14
Crossmember brace x Body	13	130	9
Heat insulator x Body	5.4	55	48 in.·lbf
Exhaust center pipe x Exhaust tail pipe	19	195	14
Exhaust front pipe x Exhaust center pipe	58	590	43
Pipe support bracket x Clutch housing	37	380	27
Exhaust front pipe x No.2 exhaust front pipe	58	590	43
Oxygen sensor set nut	20	200	14
Transmission shift lever x Shift lever retainer	7.8	80	69 in.·lbf
Release fork support x Transmission	26	260	19
Vehicle speed sensor set bolt	11	110	8
Companion flange lock nut (Temporary tighten)	120 190	1,220 1,940	88 140
Front bearing retainer set bolt	10	100	7

AUTOMATIC TRANSMISSION (2JZ-GTE)

SERVICE DATA

SSOCT-01

Line pressure (Wheel locked)	Engine idling D position R position AT stall (Throttle valve fully opened) D position R position	471 - 530 kPa (4.8 - 5.4 kgf/cm ² , 68 - 77 psi) 686 - 785 kPa (7.0 - 8.0 kgf/cm ² , 100 - 114 psi) 1,334 - 1,470 kPa (13.6 - 15.0 kgf/cm ² , 193 - 213 psi) 1,697 - 2,030 kPa (17.3 - 20.7 kgf/cm ² , 246 - 294 psi)
Engine stall revolution	D and R positions	2,600 ± 150 rpm
Time lag	N → D position N → R position	Less than 1.2 seconds 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 0.1 mm (0.004 in.)
Shift schedule (NORM mode)		
D position (Throttle valve fully opened)	1 → 2 2 → 3 3 → O/D O/D → 3 3 → 2 2 → 1	62 - 72 km/h (39 - 45 mph) 120 - 129 km/h (75 - 80 mph) 187 - 201 km/h (116 - 125 mph) 181 - 195 km/h (112 - 121 mph) 109 - 117 km/h (68 - 73 mph) 41 - 47 km/h (25 - 29 mph)
(Throttle valve fully closed)	3 → O/D O/D → 3	29 - 34 km/h (18 - 25 mph) 23 - 28 km/h (14 - 17 mph)
2 position (Throttle valve fully opened)	2 → 1 *3 → 2 2 → 1	62 - 72 km/h (39 - 45 mph) 135 - 147 km/h (84 - 91 mph) 41 - 47 km/h (25 - 29 mph)
L position (Throttle valve fully opened)	*2 → 1	60 - 66 km/h (37 - 41 mph)
Shift schedule (MANU mode)		
D position (Throttle valve fully opened)	2 → 3 3 → O/D O/D → 3 3 → 2	122 - 131 km/h (76 - 81 mph) 194 - 207 km/h (121 - 129 mph) 187 - 201 km/h (116 - 125 mph) 109 - 117 km/h (68 - 73 mph)
(Throttle valve fully closed)	3 → O/D O/D → 3	181 - 195 km/h (112 - 121 mph) 23 - 28 km/h (14 - 17 mph)
2 position (Throttle valve fully opened)	*3 → 2	135 - 147 km/h (84 - 91 mph)
L position (Throttle valve fully opened)	*2 → 1	60 - 66 km/h (37 - 41 mph)

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

Lock-up point (NORM mode)	(Throttle valve opening 5 %)	
3rd gear	Lock-up ON	60 - 66 km/h (37 - 41 mph)
	Lock-up OFF	50 - 56 km/h (31 - 35 mph)
O/D gear	Lock-up ON	53 - 59 km/h (33 - 37 mph)
	Lock-up OFF	50 - 56 km/h (31 - 35 mph)
Lock-up point (MANU mode)	(Throttle valve opening 5 %)	
2nd gear (2 position)	Lock-up ON	60 - 66 km/h (37 - 41 mph)
	Lock-up OFF	57 - 63 km/h (35 - 39 mph)
3rd gear (D position)	Lock-up ON	60 - 66 km/h (37 - 41 mph)
	Lock-up OFF	57 - 63 km/h (35 - 39 mph)
O/D gear (D position)	Lock-up ON	181 - 195 km/h (112 - 121 mph)
	Lock-up OFF	69 - 76 km/h (43 - 47 mph)

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
No.1 vehicle speed sensor	16	160	12
No.2 vehicle speed sensor	5.4	55	48 in.·lbf
O/D direct clutch speed sensor	5.4	55	48 in.·lbf
ATF temperature sensor	15	150	11
Valve body	10	100	7
Oil strainer	10	100	7
Oil pan	7.4	75	65 in.·lbf
Starter	37	380	27
Rear support x Body	25	250	19
Torque converter clutch x Drive plate	54	550	40
Oil cooler union nut	44	450	33
Oil cooler pipe bracket	10	100	7
Drive plate x Crankshaft	83	850	61
Transmission x Engine block	14 mm bolt	37	27
	17 mm bolt	72	53
Park/neutral position switch x Transmission case	13	130	9
Transmission output flange	123	1,250	90
Shift control rod x Shift lever	13	130	9
Shift control rod x Park/neutral position switch	16	160	12
Exhaust pipe bracket x Transmission housing	37	380	27
No.2 exhaust pipe x Center exhaust pipe	58	590	43
Rear center floor crossmember brace x Body	13	130	9
Heat insulator x Body	5.4	55	48 in.·lbf
Drain plug	20	205	15
Propeller shaft x Transmission	56	570	41
Propeller shaft x Differential	79	805	58
Propeller shaft center support	49	500	36
Propeller shaft adjusting nut	53	540	39
Oil pan drain plug	17	175	13
Transmission rear support x Body	25	250	19

PROPELLER SHAFT

SERVICE DATA

SSOCR-01

Shaft runout		0.8 mm (0.031 in.)
Joint angle	No.2 joint	-1 °09' ± 36'
	No.3 joint	44' ± 36'

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Propeller shaft x Differential	79	805	58
Propeller shaft x Intermediate shaft 2JZ-GE	74	750	54
Propeller shaft x Transmission 2JZ-GTE	56	570	41
Intermediate shaft x Center bearing x Universal joint flange	See page PR-8		
Center support bearing x Body	49	500	36
Oxygen sensor x Exhaust front pipe	44	450	34
No.2 front exhaust pipe x Front exhaust pipe	58	590	43
Crossmember brace x Body	13	130	8
Heat insulator x Body	5.4	55	48 in.·lbf
Adjusting nut 2JZ-GTE	69 (50)	700 (515)	51 (37)
Exhaust pipe support bracket x Transmission	37	380	27

(): For use with SST

SUSPENSION AND AXLE

SS0DD-04

SERVICE DATA

Cold tire inflation pressure	2JZ-GE	Front	225/50R16 92V	230 kPa (2.3 kgf/cm ² , 33 psi)
		Rear	245/45R16 94V	230 kPa (2.3 kgf/cm ² , 33 psi)
	2JZ-GTE	Front	235/45ZR17	230 kPa (2.3 kgf/cm ² , 33 psi)
		Rear	255/40ZR17	230 kPa (2.3 kgf/cm ² , 33 psi)
Front wheel alignment	Vehicle height			
	2JZ-GE	Front*1	225/50R16 92V	186 mm (7.32 in.)
		Rear*2	245/45R16 94V	246 mm (9.68 in.)
	2JZ-GTE	Front*1	235/45ZR17	188 mm (7.40 in.)
		Rear*2	255/40ZR17	254 mm (10.00 in.)
	Camber	2JZ-GE	-0°20' ± 45' (-0.33° ± 0.75°)	
		2JZ-GTE	-0°30' ± 45' (-0.5° ± 0.75°)	
		Left-right error	30' (0.5°) or less	
	Caster	2JZ-GE	3°20' ± 45' (3.33° ± 0.75°)	
		2JZ-GTE	3°30' ± 45' (3.5° ± 0.75°)	
	Left-right error	30' (0.5°) or less		
Steering axis inclination	2JZ-GE	9°35' ± 45' (9.58° ± 0.75°)		
<Reference>	2JZ-GTE	9°45' ± 45' (9.75° ± 0.75°)		
Toe-in (Total)		0° ± 12' (0° ± 0.2°)		
		0 ± 2 mm (0 ± 0.08 in.)		
	Rack end length left-right error	1.5 mm (0.059 in.) or less		
Wheel angle				
2JZ-GE	Inside wheel	35°00' (33°00' - 36°00')		
	Outside wheel <Reference>	35° (33° - 36°)		
		30°45'		
		(30.75°)		
2JZ-GTE	Inside wheel	34°55' (33°55' - 36°55')		
	Outside wheel <Reference>	34.92° (32.92° - 35.92°)		
		30°35'		
		(30.58°)		
Rear wheel alignment				
Camber	2JZ-GE	-1°35' ± 45' (-1.58° ± 0.75°)		
	2JZ-GTE	-1°30' ± 45' (-1.5° ± 0.75°)		
	Left - right error	30' (0.5°) or less		
Toe-in (Total)		0°18' ± 12' (0.3° ± 0.2°)		
		3 ± 2 mm (0.12 ± 0.08 in.)		

*1: Front measuring point

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

*2: Rear measuring point

Measure from the ground to the center of the lower suspension arm No.2 mounting bolt.

SERVICE SPECIFICATIONS - SUSPENSION AND AXLE

Front axle	Axle hub bearing backlash	Maximum	0.05 mm (0.0020 in.)
	Axle hub deviation	Maximum	0.05 mm (0.0020 in.)
Front suspension	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 - 3.4 N·m (10 - 35 kgf·cm, 9 - 30 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 hub bearing backlash	Maximum	0.05 mm (0.0020 in.)
	Axle hub deviation	Maximum	0.05 mm (0.0020 in.)
Rear drive shaft	Drive shaft standard length 2JZ-GE	RH	598.1 mm (23.547 in.)
		LH	552.2 mm (21.740 in.)
	2JZ-GTE (M/T)	RH	598.5 mm (23.602 in.)
		LH	547.5 mm (21.555 in.)
	2JZ-GTE (A/T)	RH	598.5 mm (23.602 in.)
		LH	553.5 mm (21.791 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 ball joint turning torque		1.0 - 3.4 N·m (10 - 35 kgf·cm, 9 - 30 in.·lbf)
	No. 2 Lower ball joint turning torque		1.0 - 3.4 N·m (10 - 35 kgf·cm, 9 - 30 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 differential 2JZ-GTE (M/T)	Drive pinion oil seal drive in depth		2.0 ± 0.5 mm (0.079 ± 0.020 in.)
	Drive pinion shaft runout	Maximum	0.08 mm (0.0031 in.)
	Ring gear runout	Maximum	0.08 mm (0.0031 in.)
	Ring gear backlash		0.08 - 0.13 mm (0.0031 - 0.0051 in.)
	Drive pinion preload (at starting)	New bearing	2.0 - 2.5 N·m (20 - 25 kgf·cm, 17.3 - 21.7 in.-lbf)
		Reused bearing	1.0 - 1.2 N·m (10 - 12 kgf·cm, 8.9 - 10.6 in.-lbf)
	Total preload (at starting)		Drive pinion preload plus 0.4 - 0.6 N·m (4 - 6 kgf·cm, 3.5 - 5.2 in.-lbf)
	Distance between 2 side gear shafts		293.4 ± 0.65 mm (11.551 ± 0.026 in.)
	Ring gear backlash adjusting washer		No.
		18	1.18 mm (0.0465 in.)
	20	1.20 mm (0.0472 in.)	
	22	1.22 mm (0.0480 in.)	
	24	1.24 mm (0.0488 in.)	
	26	1.26 mm (0.0496 in.)	
	28	1.28 mm (0.0504 in.)	
	30	1.30 mm (0.0512 in.)	
	32	1.32 mm (0.0520 in.)	
	34	1.34 mm (0.0528 in.)	
	36	1.36 mm (0.0535 in.)	
	38	1.38 mm (0.0543 in.)	
	40	1.40 mm (0.0551 in.)	
	42	1.42 mm (0.0559 in.)	
	44	1.44 mm (0.0567 in.)	
	46	1.46 mm (0.0575 in.)	
	48	1.48 mm (0.0583 in.)	
	50	1.50 mm (0.0591 in.)	
	52	1.52 mm (0.0598 in.)	
	54	1.54 mm (0.0606 in.)	
	56	1.56 mm (0.0614 in.)	
	58	1.58 mm (0.0622 in.)	
	60	1.60 mm (0.0630 in.)	
	62	1.62 mm (0.0638 in.)	
	64	1.64 mm (0.0646 in.)	
	66	1.66 mm (0.0654 in.)	
	68	1.68 mm (0.0661 in.)	
	70	1.70 mm (0.0669 in.)	
	72	1.72 mm (0.0677 in.)	
	74	1.74 mm (0.0685 in.)	
	76	1.76 mm (0.0693 in.)	
	78	1.78 mm (0.0701 in.)	
	80	1.80 mm (0.0709 in.)	
	82	1.82 mm (0.0717 in.)	
	84	1.84 mm (0.0724 in.)	
	86	1.86 mm (0.0732 in.)	
	88	1.88 mm (0.0740 in.)	
	90	1.90 mm (0.0748 in.)	
	92	1.92 mm (0.0756 in.)	
	08	1.08 mm (0.0425 in.)	
	10	1.10 mm (0.0433 in.)	
	12	1.12 mm (0.0441 in.)	
	14	1.14 mm (0.0449 in.)	
	16	1.16 mm (0.0457 in.)	

SERVICE SPECIFICATIONS - SUSPENSION AND AXLE

Rear differential 2JZ-GTE (M/T)	Tooth contact pattern adjusting washer	No.	
		80	1.80 mm (0.0709 in.)
		81	1.81 mm (0.0713 in.)
		82	1.82 mm (0.0717 in.)
		83	1.83 mm (0.0720 in.)
		84	1.84 mm (0.0724 in.)
		85	1.85 mm (0.0728 in.)
		86	1.86 mm (0.0732 in.)
		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 (0.0783 in.)
		00	2.00 mm (0.0787 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.)	
	77	1.77 mm (0.0697 in.)	
	78	1.78 mm (0.0701 in.)	
	79	1.79 mm (0.0705 in.)	

Rear differential Except 2JZ-GTE (M/T)	Drive pinion oil seal drive in depth		0 ± 0.5 mm (0 ± 0.020 in.)
	Drive pinion shaft runout	Maximum	0.08 mm (0.0031 in.)
	Ring gear runout	Maximum	0.05 mm (0.0020 in.)
	Ring gear backlash	Maximum	0.08 - 0.13 mm (0.0031 - 0.0051 in.)
	Drive pinion preload (at starting)	New bearing Reused bearing	1.5 - 1.8 N·m (15 - 18 kgf·cm, 13.0 - 16.0 in.-lbf) 0.5 - 0.8 N·m (5 - 8 kgf·cm, 4.3 - 6.9 in.-lbf)
	Total preload (at starting)		Drive pinion preload plus 0.5 - 0.8 N·m (5 - 8 kgf·cm, 4.3 - 6.9 in.-lbf)
	Distance between 2 side gear shafts		281.8 ± 0.95 mm (11.094 ± 0.037 in.)
	Pinion gear backlash	(Conventional type)	0.05 - 0.20 mm (0.0020 - 0.0079 in.)
	Pinion gear backlash adjusting thrust washer	(Conventional type)	1.6 mm (0.063 in.) 1.7 mm (0.067 in.) 1.8 mm (0.071 in.)

SERVICE SPECIFICATIONS - SUSPENSION AND AXLE

Rear differential Except 2JZ-GTE (M/T)	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 (0.1100 in.)	
	84	2.84 mm (0.1118 in.)	
	86	2.86 mm (0.1126 in.)	

Rear differential Except 2JZ-GTE (M/T)	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 (0.0783 in.)
		00	2.00 mm (0.0787 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 nut		103	1,050	76
Lower suspension arm x Suspension crossmember		226	2,300	166
Lower suspension arm bracket stay	Bolt	44	450	32
	Nut	59	600	43
Tie rod end lock nut		56	570	41
Axle hub lock nut		199	2,030	147
Upper suspension arm x Sub-frame		164	1,670	121
Lower suspension arm x Shock absorber bracket		52	530	38
Tie rod end x Steering knuckle		49	500	36
Steering knuckle x Upper suspension arm		103	1,050	76
Steering knuckle x Lower suspension arm		125	1,270	92
Brake caliper x Steering knuckle		118	1,200	87
ABS speed sensor x Steering knuckle		7.8	80	69 in.·lbf
Upper suspension arm x ABS speed sensor wire harness clamp		5.4	55	48 in.·lbf
Front shock absorber x Body		35	360	26
Front shock absorber x Lower suspension arm		143	1,460	106
Front shock absorber x Suspension support		29	300	22
Stabilizer bar link x Shock absorber bracket		74	750	54
Stabilizer bar link x Stabilizer bar		74	750	54
Stabilizer bar bracket x Body		18	180	13
Steering knuckle x Brake dust cover		8.0	85	74 in.·lbf

Part tightened		N-m	kgf-cm	ft-lbf
Rear				
Hub nut		103	1,050	76
Rear shock absorber x Lower suspension arm No.2		137	1,400	101
Upper suspension arm x Suspension crossmember		164	1,670	121
Rear axle carrier x Brake caliper		104	1,065	77
Lower suspension arm No.1 x Rear axle carrier		59	600	43
Lower suspension arm No.1 x Subframe		184	1,880	136
Lower suspension arm No.2 x Rear axle carrier		150	1,525	110
Lower suspension arm No.2 x suspension crossmember		184	1,880	136
Lower suspension arm brace x Subframe		18	180	13
ABS speed sensor x Rear axle carrier		7.8	80	69 in.-lbf
Parking brake cable set bolt		8.0	80	69 in.-lbf
Strut rod x Rear axle carrier		184	1,880	136
Strut rod x Body		184	1,880	136
Rear drive shaft x Axle hub		289	2,950	213
Upper suspension arm x Rear axle carrier		108	1,100	80
Backing plate x Rear axle carrier		26	260	19
Shoe guide plate set bolt		18	185	13
Parking brake cable clamp set bolt		19	190	14
Rear axle carrier x Backing plate	Hexagon bolt	180	1,825	132
Rear drive shaft x Differential	2JZ-GE	65	660	48
	2JZ-GTE	83	850	61
Heat insulator set nut		5.4	55	48 in.-lbf
Center floor crossmember brace set nut		13	130	9
Center support bearing set bolt		49	500	36
Rear differential x Propeller shaft		79	805	58
Propeller shaft x Transmission	2JZ-GTE	56	570	41
Oxygen sensor	2JZ-GE	44	450	34
Front exhaust pipe x Center exhaust pipe	2JZ-GE	44	450	33
	2JZ-GTE	58	590	43
Oxygen sensor set nut	2JZ-GTE	20	200	14
Differential mounting bolt	Front	147	1,500	108
	Rear	142	1,450	105
Ring gear x Differential case		See page SA-74		
Drive pinion x Companion flange	2JZ-GTE M/T (Maximam)	510	5,200	376
	Except 2JZ-GTE M/T (Maximam)	490	5,000	362
Differential carrier retainer set bolt	2JZ-GTE M/T	47	480	35
	Except 2JZ-GTE M/T	22	225	16
Differential carrier cover set bolt	2JZ-GTE M/T	78	800	58
	Except 2JZ-GTE M/T	47	475	34
Differential carrier cover x Deflector		7.0	70	62 in.-lbf
Drain and Filler plug		49	500	36
Breather plug		21	210	15
Shock absorber x Body		26	260	19
Shock absorber cape x Suspension support		10	105	8
Suspension support x Shock absorber		27	280	20

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SERVICE SPECIFICATIONS - SUSPENSION AND AXLE

Stabilizer bar link x Lower suspension arm No.2	74	750	54
Stabilizer bar link x Stabilizer bar	74	750	54
Stabilizer bar bracket x Body	31	320	23

BRAKE**SERVICE DATA**

SS03-01

Brake pedal height from asphalt sheet		154.2 - 164.2 mm (6.071 - 6.465 in.)
Brake pedal freeplay		1 - 6 mm (0.04 - 0.24 in.)
Brake pedal reserve distance at 490 N (50 kgf, 110.2 lbf)		
2JZ-GTE Engine		More than 70 mm (2.76 in.)
2JZ-GE Engine		More than 72 mm (2.83 in.)
Brake booster push rod to piston clearance (w/ SST)		0 mm (0 in.)
Front brake pad thickness (2JZ-GTE Engine)	STD	12.0 mm (0.472 in.)
Front brake pad thickness (2JZ-GTE Engine)	Minimum	1.0 mm (0.039 in.)
Front brake pad thickness (2JZ-GE Engine)	STD	11.0 mm (0.433 in.)
Front brake pad thickness (2JZ-GE Engine)	Minimum	1.0 mm (0.039 in.)
Front brake disc thickness (2JZ-GTE Engine)	STD	30.0 mm (1.181 in.)
Front brake disc thickness (2JZ-GTE Engine)	Minimum	28.0 mm (1.102 in.)
Front brake disc thickness (2JZ-GE Engine)	STD	32.0 mm (1.260 in.)
Front brake disc thickness (2JZ-GE Engine)	Minimum	30.0 mm (1.181 in.)
Front brake disc runout	Maximum	0.05 mm (0.0020 in.)
Rear brake disc pad thickness (2JZ-GTE Engine)	STD	11.0 mm (0.433 in.)
Rear brake disc pad thickness (2JZ-GTE Engine)	Minimum	1.0 mm (0.039 in.)
Rear brake disc pad thickness (2JZ-GE Engine)	STD	10.0 mm (0.394 in.)
Rear brake disc pad thickness (2JZ-GE Engine)	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 lever travel at 196 N (20 kgf, 44.1 lbf)		5 - 8 clicks
Parking brake clearance between rear shoe and lever		Less than 0.35 mm (0.0138 in.)
Parking brake adjusting shim thickness for rear disc brake		0.3 mm (0.012 in.) 0.6 mm (0.024 in.) 0.9 mm (0.035 in.)

TORQUE SPECIFICATION

Part tightened		N·m	kgf·cm	ft·lbf
Master cylinder x Piston stopper bolts		10	100	7
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
Bleeder plug		11	110	8
Front disc brake caliper x Steering knuckle	2JZ-GTE Engine	118	1,200	87
Front disc brake torque plate x Steering knuckle	2JZ-GE Engine	118	1,200	87
Front disc brake caliper installation bolt	2JZ-GE Engine	34	350	25
Front disc brake caliper x Flexible hose union bolt		30	310	22
Rear disc brake caliper x Axle carrier	2JZ-GTE Engine	104	1,065	77
Rear disc brake torque plate x Axle carrier	2JZ-GE Engine	104	1,065	77
Rear disc brake caliper installation bolt	2JZ-GE Engine	34	350	25
Rear disc brake caliper x Flexible hose union bolt		30	310	22
ABS actuator x ABS actuator bracket		5.4	55	48 in.·lbf
ABS actuator assembly x Body		19	195	14
Cruise control actuator x Body		19	195	14
Cruise control actuator x ABS actuator x Body		19	195	14
Front speed sensor installation bolt		7.8	80	69 in.·lbf
Front speed sensor harness set bolt		5.4	55	48 in.·lbf
Rear speed sensor installation bolt		7.8	80	69 in.·lbf
Rear speed sensor harness set nut		5.4	55	48 in.·lbf

STEERING

SERVICE DATA

SS00-01

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	Maximum	6.9 N-m (70 kgf-cm, 61 in.-lbf)
TILT STEERING COLUMN		
Pawl stopper	Mark	
	1 or A	12.68 - 12.74 mm (0.4992 - 0.5016 in.)
	2 or B	12.61 - 12.67 mm (0.4965 - 0.4988 in.)
	3 or C	12.54 - 12.60 mm (0.4937 - 0.4961 in.)
	4 or D	12.47 - 12.53 mm (0.4909 - 0.4933 in.)
	5 or E	12.40 - 12.46 mm (0.4882 - 0.4906 in.)
	6 or F	12.33 - 12.39 mm (0.4854 - 0.4878 in.)
	7 or G	12.26 - 12.32 mm (0.4827 - 0.4850 in.)
PS VANE PUMP		
Rotor shaft bushing oil clearance	STD	0.03 - 0.05 mm (0.0012 - 0.0020 in.)
	Maximum	0.07 mm (0.0028 in.)
Vane plate height	Minimum	8.6 mm (0.339 in.)
Vane plate thickness	Minimum	1.40 mm (0.0551 in.)
Vane plate length	Minimum	14.99 mm (0.5902 in.)
Vane plate to rotor groove clearance	Maximum	0.035 mm (0.00137 in.)
Vane plate length	Rotor and cam ring mark	
	NONE	14.999 - 15.001 mm (0.59051 - 0.59059 in.)
	1	14.997 - 14.999 mm (0.59043 - 0.59051 in.)
	2	14.995 - 14.997 mm (0.59035 - 0.59043 in.)
	3	14.993 - 14.995 mm (0.59027 - 0.59035 in.)
	4	14.991 - 14.993 mm (0.59020 - 0.59027 in.)
Spring free length	Minimum	33 mm (1.30 in.)
Vane pump rotating torque	Maximum	0.2 N-m (2.5 kgf-cm, 2.2 in.-lbf)
PS GEAR		
Steering rack runout	Maximum	0.30 mm (0.0118 in.)
Total preload		1.0 - 1.9 N-m (10 - 20 kgf-cm, 8.7 - 17.4 in.-lbf)
PROGRESSIVE POWER STEERING (PPS)		
Solenoid valve resistance		6 - 11 Ω

TORQUE SPECIFICATION

Part tightened	N-m	kgf-cm	ft-lbf
STEERING COLUMN			
Steering wheel set nut	35	360	26
Steering wheel pad set screw	7.1	72	62 in.-lbf
Column assembly set nut	25	260	19
Intermediate shaft x Sliding yoke	35	360	26
Sliding yoke x Control valve shaft	35	360	26
Tilt memory bolt x Square nut	6.4	65	56 in.-lbf
Tilt lever assembly set screw	4.7	48	42 in.-lbf
Tilt pawl set nut	5.9	60	52 in.-lbf
Tilt lever retainer set nut	15	150	11
Tilt memory bolt set nut	5.9	60	52 in.-lbf
Turn signal bracket set bolt	8.8	90	78 in.-lbf
Compression spring set screw	6.4	65	56 in.-lbf
PS VANE PUMP			
PS vane pump set bolt			
RH side bolt	39	400	29
LH side bolt	58	590	42
Union bolt	49	500	36
PS vane pump pulley set nut	43	440	32
Front housing x Rear housing	17	170	12
Pressure port union	83	850	61
Oil reservoir set bolt (2JZ-GE)			
Front side bolt	13	130	9
Rear side bolts	17	170	12
Suction port union set bolt (2JZ-GTE)	13	130	9
PS GEAR			
Tie rod end x Steering knuckle	49	500	36
Pressure feed and return tube set union bolts	49	500	36
Gear housing set bolt and nut	75	770	55
Pressure control valve assembly x Control valve housing	18	185	13
Control valve housing set bolt	18	185	13
Self-locking nut	39	400	29
Rack housing cap	69	700	50
Rack guide spring cap lock nut	50 (69)	513 (700)	37 (51)
Rack end	75 (100)	760 (1,020)	55 (74)
Tie rod end lock nut	56	570	41
Turn pressure tube union nut	24 (29)	243 (300)	18 (22)
Turn pressure tube union bolt	34	350	25

(): For use without SST

SUPPLEMENTAL RESTRAINT SYSTEM

TORQUE SPECIFICATION

SS0D8-02

Part tightened	N·m	kgf·cm	ft·lbf
Steering wheel	35	360	26
Steering wheel pad	7.1	72	62 in·lbf
Front passenger airbag assembly x Instrument panel reinforcement	21	210	15
Front passenger airbag assembly x Instrument panel	8.8	90	78 in·lbf
Airbag sensor assembly	21	210	15

BODY ELECTRICAL

SERVICE DATA

SS0DF-02

INTEGRATION RELAY (Relay Circuit)	
(Light Auto Turn Off System)	
B2 - Ground (Constant)	Battery positive voltage
B3 - Ground (Constant)	Battery positive voltage
A7 - Ground (Ignition switch LOCK or ACC)	No voltage
A7 - Ground (Ignition switch ON)	Battery positive voltage
A1 - Ground (Constant)	Battery positive voltage
DAYTIME RUNNING LIGHT MAIN RELAY	
(Wire Harness Side)	
2 - Ground (Ignition switch position LOCK or ACC)	No voltage
2 - Ground (Ignition switch position ON)	Battery positive voltage
11 - Ground (Engine stop)	No voltage
11 - Ground (Engine running)	Battery positive voltage
15 - Ground (Constant)	Battery positive voltage
17 - Ground (Constant)	Battery positive voltage
TURN SIGNAL FLASHER	
Flashes/Minute	60 - 120
INTEGRATION RELAY	
(Interior Light System)	
1 - Ground (Constant)	Battery positive voltage
9 - Ground (Ignition switch position LOCK or ACC)	No voltage
9 - Ground (Ignition switch position ON)	Battery positive voltage
SPEEDOMETER (USING A SPEEDOMETER TESTER)	
USA:	
Standard indication (mph)	Allowable range (mph)
20	18 - 24
40	38 - 44
60	58 - 66
80	78 - 88
100	98 - 110
120	118 - 132
CANADA:	
Standard indication (km/h)	Allowable range (km/h)
20	17 - 24
40	38 - 46
60	57.5 - 67
80	77 - 88
100	96 - 109
120	115 - 130
140	134 - 151.5
160	153 - 173
TACHOMETER (ON-VEHICLE)	
Standard indication (rpm)	Allowable range (rpm)

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700	630 - 770
1,000	915 - 1,115
2,000	1,920 - 2,220
3,000	2,890 - 3,350
4,000	3,940 - 4,400
5,000	5,025 - 5,425
6,500	6,650 - 6,950
7,000	7,025 - 7,625
OD/TRIP METER	
(Connector Connected)	
1 - Ground (Ignition switch position ON)	Battery positive voltage
4 - Ground (Light Control switch position TAIL or HEAD)	Battery positive voltage
5 - 7 (Ignition switch ON and drive the vehicle slowly)	0V ↔ Battery positive voltage
6 - 7 (Ignition switch ON and drive the vehicle slowly)	0V ↔ more than 5V
8 - Ground (Constant)	Battery positive voltage
10 - Ground (Ignition SW ON, Light Control SW TAIL or HEAD and turn the Light Control Rheostat knob to clockwise)	6V → 0V
FUEL RECEIVER GAUGE	
Between terminals	Resistance (Ω)
A - B	Approx. 269.7
A - C	Approx. 123.5
B - C	Approx. 146.2
FUEL SENDER GAUGE	
Float position: mm (in.)	Resistance (Ω)
F: Approx. 33.8 (1.331)	Approx. 4.0
1/2: Approx. 44.8 (1.764)	Approx. 55.0
E: Approx. 141.1 (5.555)	Approx. 107.0
ENGINE COOLANT TEMPERATURE RECEIVER GAUGE	
Between terminals	Resistance (Ω)
A - B	Approx. 229.7
A - C	Approx. 54.0
B - C	Approx. 175.7
ENGINE COOLANT TEMPERATURE SENDER GAUGE	
Temperature °C (°F)	Resistance (Ω)
50 (122.0)	160 - 240
120 (248.0)	17.1 - 21.2
LIGHT FAILURE SENSOR	
3 - Ground (Light Control SW position OFF)	No voltage
3 - Ground (Light Control SW position TAIL or HEAD)	Battery positive voltage
4 - Ground (Ignition SW position LOCK or ACC)	No voltage
4 - Ground (Ignition SW position ON)	Battery positive voltage
7 - Ground (Stop Light SW position OFF)	No voltage
7 - Ground (Stop Light SW position ON)	Battery positive voltage
8 - Ground (Engine stop)	No voltage
8 - Ground (Engine running)	Battery positive voltage
INTEGRATION RELAY	

SERVICE SPECIFICATIONS - BODY ELECTRICAL

(Seat Belt Warning)	
1 - Ground (Constant)	Battery positive voltage
9 - Ground (Ignition SW LOCK or ACC)	No voltage
9 - Ground (Ignition SW ON)	Battery positive voltage
ANTENNA MOTOR CONTROL RELAY	
(Wire Harness Side)	
1 - Ground (Constant)	Battery positive voltage
4 - Ground (Ignition switch position ON)	Battery positive voltage
5 - Ground (Ignition position ACC or ON)	Battery positive voltage
7 - Ground (Ignition SW position ACC or ON and radio SW ON)	Battery positive voltage
8 - Ground (Ignition SW position ACC or ON)	Battery positive voltage

BODY

TORQUE SPECIFICATION

SS0D7-01

Part tightened	N·m	kgf·cm	ft·lbf
FRONT BUMPER	-	-	-
Reinforcement x Body	5.9	60	52 in.·lbf
Front bumper cover x Body	5.9	60	52 in.·lbf
REAR BUMPER	-	-	-
Reinforcement x Body	42	430	31
Rear bumper cover x Body	5.9	60	52 in.·lbf
HOOD	-	-	-
Hood hinge x Hood	13	130	9.4
Hood lock x Body	8.8	90	78 in.·lbf
FRONT DOOR	-	-	-
Door hinge x Body	52	530	38
Door hinge x Door panel	25	260	19
Window regulator x Door glass	7.4	76	67 in.·lbf
Door lock x Door panel	5.0	51	44 in.·lbf
Window regulator x Door panel	7.4	76	67 in.·lbf
Window guide lower plate x Door panel	5.4	55	48 in.·lbf
Door window upper stop x Door panel	11	115	8.3
BACK DOOR	-	-	-
Back door hinge x Body	21	210	15
Back door hinge x Back door	13	130	9.4
Door lock x Body	19	195	14
Door lock striker x Body	13	130	9.4
Back door damper stay x Body	5.9	60	52 in.·lbf
Back door damper stay x Back door	7.8	80	69 in.·lbf
WIPER AND WASHER	-	-	-
Front Wiper	-	-	-
Wiper arm x Wiper link	22	225	16
Rear Wiper	-	-	-
Wiper arm x Wiper motor	11	110	8.0
INSTRUMENT PANEL	-	-	-
Steering column x Instrument panel reinforcement	25	260	19
Front passenger airbag assembly x Instrument panel reinforcement	21	210	15
Front passenger airbag assembly x Instrument panel	8.8	90	78 in.·lbf
Steering wheel x Steering column	35	360	26
Steering wheel pad x Steering wheel	7.1	72	62 in.·lbf
FRONT SEAT	-	-	-
Seat adjuster x Body	37	375	27
Seat adjuster x Seatback	18	185	13
Seat adjuster x Seat cushion	18	185	13
REAR SEAT	-	-	-
Seatback x Body	25	260	19
Reclining adjuster x Seatback	18	185	13

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SERVICE SPECIFICATIONS - BODY

SEAT BELT	-	-	-
Front Seat Belt	-	-	-
Shoulder anchor x Body	43	440	32
Outer belt anchor x Body	43	440	32
Retractor x Body (Upper Side)	7.8	80	69 in. lbf
Retractor x Body (Lower Side)	43	440	32
Inner belt x Seat	43	440	32
Rear Seat Belt	-	-	-
Shoulder anchor x Body	43	440	32
Outer belt anchor x Body	43	440	32
Retractor x Body	43	440	32
Inner belt x Body	43	440	32

AIR CONDITIONING

SERVICE DATA

SSOCW-01

Refrigerant charge volume	700 ± 50 g (24.96 ± 1.76 oz.)
Idle speed	
2JZ-GE (M/T)	
Magnetic clutch not engaged	Approx. 700 rpm
Magnetic clutch engaged	Approx. 900 rpm
2JZ-GE (A/T)	
Magnetic clutch not engaged	Approx. 700 rpm
Magnetic clutch engaged	Approx. 800 rpm
2JZ-GTE	
Magnetic clutch not engaged	Approx. 650 rpm
Magnetic clutch engaged	Approx. 800 rpm
Magnetic clutch clearance	0.5 ± 0.15 mm (0.020 ± 0.0059 in.)

TORQUE SPECIFICATION

Part tightned	N-m	kgf-cm	ft-lbf
Compressor x Suction hose	10	100	7
Compressor x Discharge hose	10	100	7
Compressor x Engine			
Stud bolt	26	265	19.2
Other bolts and nut	52	530	38.3
Receiver x Liquid tube	5.4	55	48 in.-lbf
Condenser x Liquid tube	10	100	7
Condenser x Discharge hose	10	100	7
Expansion valve x Evaporator	5.4	55	48 in.-lbf
A/C unit x Liquid and suction tube	10	100	7
Pressue switch x Liquid tube	10	100	7
Condenser upper mounting x Body	4.1	42	36 in.-lbf
Pressure plate x Compressor	14	140	10
ECT switch x radiator	7.4	75	65 in.-lbf
PS vane pump set bolt	58	590	42
Liquid lines	10	100	7
Discharge lines	10	100	7
Suction lines	10	100	7