

SUSPENSION AND AXLE

SS051-03

SERVICE DATA

Cold tire inflation pressure	P195/75R14	Front Rear	200 kPa (2.0 kgf/cm ² , 29 psi) 240 kPa (2.4 kgf/cm ² , 35 psi)
	P215/70R14	Front Rear	200 kPa (2.0 kgf/cm ² , 29 psi) 200 kPa (2.0 kgf/cm ² , 29 psi)
	P225/75R15 31x10.5R15LT	Front Rear	180 kPa (1.8 kgf/cm ² , 26 psi) 200 kPa (2.0 kgf/cm ² , 29 psi)
	P265/75R15	Front Rear	180 kPa (1.8 kgf/cm ² , 26 psi) 180 kPa (1.8 kgf/cm ² , 26 psi)
Front wheel Alignment (2WD)	Vehicle height Front: A – B Rear: C – D Measuring point A: Ground clearance of spindle center. B: Ground clearance of lower suspension arm bolt center. C: Ground clearance of rear axle shaft center. D: Ground clearance of leaf spring front hanger pin bolt center.		
	RZN140L	Front Rear	44 mm (1.73 in.) 46 mm (1.81 in.)
	RZN150L	Front Rear	43 mm (1.69 in.) 52 mm (2.05 in.)
	VZN150L	Front Rear	43 mm (1.69 in.) 50 mm (1.97 in.)
	Camber	Right–left error	0° 04' ± 45' (0.06° ± 0.75°) 30' (0.5°) or less
	Caster	RZN140L RZN150L VZN150L Right–left error	0° 36' ± 45' (0.6° ± 0.75°) 0° 54' ± 45' (0.9° ± 0.75°) 0° 48' ± 45' (0.8° ± 0.75°) 30' (0.5°) or less
	Steering axis inclination	Right–left error	9° 56' ± 45' (10.93° ± 0.75°) 30' (0.5°) or less
	Toe–in (Total)	Rack end length difference	0° 12' ± 12' (0.2° ± 0.2°, 2 ± 2 mm, 0.08 ± 0.08 in.) 1.5 mm (0.059 in.) or less
	Wheel angle (Max.)	Inside wheel Outside wheel: Reference	36° (33° – 36°) 31° (28° – 31°)

SERVICE SPECIFICATIONS - SUSPENSION AND AXLE

Front wheel Alignment (4WD and pre runner)	Vehicle height		
	Measureingpoint		
	Front: A – B		
	Rear: C – D		
	A: Ground clearance of spindle center.		
	B: Ground clearance of front adjusting cam bolt center.		
	C: Ground clearance of leaf spring front hanger pin bolt center.		
	D: Ground clearance of rear axle shaft center.		
	RZN161L	Front	49 mm (1.93 in.)
		Rear	35 mm (1.38 in.)
	RZN171L	Front	48 mm (1.89 in.)
		Rear	48 mm (1.89 in.)
	RZN191L	Front	46 mm (1.81 in.)
		Rear	39 mm (1.54 in.)
	RZN196L	Front	45 mm (1.77 in.)
		Rear	51 mm (2.01 in.)
	VZN170L	Front	48 mm (1.89 in.)
		Rear	50 mm (1.97 in.)
	VZN195L	Front	45 mm (1.77 in.)
		Rear	53 mm (2.09 in.)
RZN161L model			
Camber	Right-left error	0° 12' ± 45' (0.20° ± 0.75°)	
Caster	Right-left error	30' (0.5°) or less	
Steering axis inclination	Right-left error	1° 42' ± 45' (1.7° ± 0.75°)	
	Right-left error	30' (0.5°) or less	
	Right-left error	10° 30' ± 45' (10.5° ± 0.75°)	
	Right-left error	30' (0.5°) or less	
RZN171L model			
Camber	Right-left error	0° 18' ± 45' (0.3° ± 0.75°)	
Caster	Right-left error	30' (0.5°) or less	
Steering axis inclination	Right-left error	1° 30' ± 45' (1.5° ± 0.75°)	
	Right-left error	30' (0.5°) or less	
	Right-left error	10° 30' ± 45' (10.5° ± 0.75°)	
	Right-left error	30' (0.5°) or less	
RZN191L model			
Camber	Right-left error	0° 18' ± 45' (0.3° ± 0.75°)	
Caster	Right-left error	30' (0.5°) or less	
Steering axis inclination	Right-left error	1° 36' ± 45' (1.6° ± 0.75°)	
	Right-left error	30' (0.5°) or less	
	Right-left error	10° 30' ± 45' (10.5° ± 0.75°)	
	Right-left error	30' (0.5°) or less	
RZN196L model			
Camber	Right-left error	0° 18' ± 45' (0.3° ± 0.75°)	
Caster	Right-left error	30' (0.5°) or less	
Steering axis inclination	Right-left error	1° 24' ± 45' (1.4° ± 0.75°)	
	Right-left error	30' (0.5°) or less	
	Right-left error	10° 24' ± 45' (10.4° ± 0.75°)	
	Right-left error	30' (0.5°) or less	

Front wheel Alignment (4WD and pre runner)	VZN170L model		
	Camber	Right-left error	0° 18' ± 45' (0.3° ± 0.75°) 30' (0.5°) or less
	Caster	Right-left error	1° 25' ± 45' (1.42° ± 0.75°) 30' (0.5°) or less
	Steering axis inclination	Right-left error	10° 30' ± 45' (10.5° ± 0.75°) 30' (0.5°) or less
	VZN195L model		
	Camber	Right-left error	0° 18' ± 45' (0.3° ± 0.75°) 30' (0.5°) or less
	Caster	Right-left error	1° 18' ± 45' (1.3° ± 0.75°) 30' (0.5°) or less
	Steering axis inclination	Right-left error	10° 24' ± 45' (10.4° ± 0.75°) 30' (0.5°) or less
	Toe-in (Total)	Rack end length difference	0° 12' ± 12' (0.2° ± 0.2°, 2 ± 2 mm, 0.08 ± 0.08 in.) 1.5 mm (0.059 in.) or less
	Wheel angle (Max.)	Inside wheel	37° 05' (35° 05' – 38° 05')
	Outside wheel: Reference	37.08° (35.08° – 38.08°) 32° 20' (32.33°)	
Front axle (2WD)	Axle hub bearing backlash	Max.	0.05 mm (0.0020 in.)
	Axle hub preload (at starting)		Frictional force plus 6 – 18 N (0.6 – 1.8 kgf, 1.3 – 4.0 lbf)
Front drive shaft	Front drive shaft length		436.2 ± 2.0 mm (17.173 ± 0.079 in.)
Front suspension (2WD)	Upper ball joint turning torque		0.5 – 3.5 N·m (5 – 35 kgf·cm, 4 – 30 in.·lbf)
	Lower ball joint turning torque		0.5 – 3.5 N·m (5 – 35 kgf·cm, 4 – 30 in.·lbf)
	Lower ball joint excessive play	Max.	0.5 mm (0.020 in.)
Front suspension (4WD and pre runner)	Upper ball joint turning torque		0.7 – 4.4 N·m (7 – 45 kgf·cm, 6 – 39 in.·lbf)
	Lower ball joint turning torque		0.1 – 2.5 N·m (1 – 25 kgf·cm, 1 – 22 in.·lbf)
	Lower ball joint excessive play	Max.	0.5 mm (0.020 in.)
	Stabilizer bar link ball joint turning torque		0.05 – 2.0 N·m (0.5 – 20 kgf·cm, 0.4 – 17 in.·lbf)
Rear axle shaft	Axle shaft bearing backlash	Max.	0.7 mm (0.028 in.)
	Axle shaft deviation	Max.	0.1 mm (0.0039 in.)
	Shaft runout	Max.	2.0 mm (0.079 in.)
	Flange runout	Max.	0.1 mm (0.004 in.)

SERVICE SPECIFICATIONS – SUSPENSION AND AXLE

Front differential	Companion flange vertical runout	Max.	0.10 mm (0.0039 in.)	
	Companion flange horizontal runout	Max.	0.10 mm (0.0039 in.)	
	Drive pinion preload (at starting)	New bearing Reused bearing	1.2 – 1.9 N·m (12 – 19 kgf·cm, 10.4 – 16.5 in.·lbf) 0.6 – 1.0 N·m (6 – 10 kgf·cm, 5.2 – 8.7 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)	
	Drive pinion to ring gear backlash		0.13 – 0.18 mm (0.0051 – 0.0071 in.)	
	Side gear backlash		0 – 0.20 mm (0 – 0.0079 in.)	
	Rear oil seal drive in depth		4.5 mm (0.177 in.)	
	Side oil seal drive in depth		0 mm (0 in.)	
	Side tube oil seal drive in depth		5.5 mm (0.217 in.)	
	Side gear thrust washer thickness			0.96 – 1.04 mm (0.0378 – 0.0409 in.)
				1.06 – 1.14 mm (0.0417 – 0.0449 in.)
				1.16 – 1.24 mm (0.0457 – 0.0488 in.)
				1.26 – 1.34 mm (0.0496 – 0.0528 in.)
	Side gear bearing adjusting washer thickness			2.00 – 2.02 mm (0.0787 – 0.0795 in.)
				2.03 – 2.05 mm (0.0799 – 0.0807 in.)
				2.06 – 2.08 mm (0.0811 – 0.0819 in.)
				2.09 – 2.11 mm (0.0823 – 0.0831 in.)
				2.12 – 2.14 mm (0.0835 – 0.0843 in.)
				2.15 – 2.17 mm (0.0846 – 0.0854 in.)
				2.18 – 2.20 mm (0.0858 – 0.0866 in.)
				2.21 – 2.23 mm (0.0870 – 0.0878 in.)
				2.24 – 2.26 mm (0.0882 – 0.0890 in.)
				2.27 – 2.29 mm (0.0894 – 0.0902 in.)
				2.30 – 2.32 mm (0.0906 – 0.0913 in.)
				2.33 – 2.35 mm (0.0917 – 0.0925 in.)
				2.36 – 2.38 mm (0.0929 – 0.0937 in.)
				2.39 – 2.41 mm (0.0941 – 0.0949 in.)
				2.42 – 2.44 mm (0.0953 – 0.0961 in.)
				2.45 – 2.47 mm (0.0965 – 0.0972 in.)
				2.48 – 2.50 mm (0.0976 – 0.0984 in.)
			2.51 – 2.53 mm (0.0988 – 0.0996 in.)	
			2.54 – 2.56 mm (0.1000 – 0.1008 in.)	
			2.57 – 2.59 mm (0.1012 – 0.1020 in.)	
		2.60 – 2.62 mm (0.1024 – 0.1031 in.)		
		2.63 – 2.65 mm (0.1035 – 0.1043 in.)		
		2.66 – 2.68 mm (0.1047 – 0.1055 in.)		
		2.69 – 2.71 mm (0.1059 – 0.1067 in.)		
		2.72 – 2.74 mm (0.1071 – 0.1079 in.)		
		2.75 – 2.77 mm (0.1083 – 0.1091 in.)		
		2.78 – 2.80 mm (0.1094 – 0.1102 in.)		

Front differential (cont'd)	Drive pinion bearing adjusting washer thickness	1.69 – 1.71 mm (0.0665 – 0.0673 in.)
		1.72 – 1.74 mm (0.0677 – 0.0685 in.)
		1.75 – 1.77 mm (0.0689 – 0.0697 in.)
		1.78 – 1.80 mm (0.0701 – 0.0709 in.)
		1.81 – 1.83 mm (0.0713 – 0.0720 in.)
		1.84 – 1.86 mm (0.0724 – 0.0732 in.)
		1.87 – 1.89 mm (0.0736 – 0.0744 in.)
		1.90 – 1.92 mm (0.0748 – 0.0756 in.)
		1.93 – 1.95 mm (0.0760 – 0.0768 in.)
		1.96 – 1.98 mm (0.0772 – 0.0780 in.)
		1.99 – 2.01 mm (0.0783 – 0.0791 in.)
		2.02 – 2.04 mm (0.0795 – 0.0803 in.)
		2.05 – 2.07 mm (0.0807 – 0.0815 in.)
		2.08 – 2.10 mm (0.0819 – 0.0827 in.)
		2.11 – 2.13 mm (0.0831 – 0.0839 in.)
		2.14 – 2.16 mm (0.0843 – 0.0850 in.)
		2.17 – 2.19 mm (0.0854 – 0.0862 in.)
		2.20 – 2.22 mm (0.0866 – 0.0874 in.)
		2.23 – 2.25 mm (0.0878 – 0.0886 in.)
	2.26 – 2.28 mm (0.0890 – 0.0898 in.)	
2.29 – 2.31 mm (0.0902 – 0.0909 in.)		
2.32 – 2.34 mm (0.0913 – 0.0921 in.)		
A.D.D. sleeve fork to clutch sleeve clearance w/ A.D.D.	0.35 mm (0.0138 in.) or less	
Differential case needle bearing press in depth	0.3 ± 0.3 mm (0.012 ± 0.012 in.)	
Rear differential (2RZ-FE)	Companion flange vertical runout Max.	0.10 mm (0.0039 in.)
	Companion flange horizontal runout Max.	0.10 mm (0.0039 in.)
	Drive pinion preload (at starting) New bearing Reused bearing	1.4 – 2.1 N·m (14 – 21 kgf·cm, 12.2 – 18.3 in.-lbf) 0.6 – 1.0 N·m (6 – 10 kgf·cm, 5.2 – 8.7 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)
	Drive pinion to ring gear backlash	0.13 – 0.18 mm (0.0051 – 0.0071 in.)
	Side gear backlash	0.05 – 0.20 mm (0.0020 – 0.0079 in.)
	Ring gear runout Max.	0.07 mm (0.0028 in.)
	Differential case runout Max.	0.07 mm (0.0028 in.)
	Drive pinion oil seal drive in depth	1.5 mm (0.059 in.)
	Side gear thrust washer thickness	1.0 mm (0.039 in.)
		1.1 mm (0.043 in.)
1.2 mm (0.047 in.)		
1.3 mm (0.051 in.)		

SERVICE SPECIFICATIONS – SUSPENSION AND AXLE

Rear differential (2RZ-FE, cont'd)	Drive pinion bearing washer thickness		2.24 mm (0.0882 in.)	
			2.27 mm (0.0894 in.)	
			2.30 mm (0.0906 in.)	
			2.33 mm (0.0917 in.)	
			2.36 mm (0.0929 in.)	
			2.39 mm (0.0941 in.)	
			2.42 mm (0.0953 in.)	
			2.45 mm (0.0965 in.)	
			2.48 mm (0.0976 in.)	
			2.51 mm (0.0988 in.)	
			2.54 mm (0.1000 in.)	
			2.57 mm (0.1012 in.)	
			2.60 mm (0.1024 in.)	
			2.63 mm (0.1035 in.)	
			2.66 mm (0.1047 in.)	
	2.69 mm (0.1059 in.)			
	2.72 mm (0.1071 in.)			
Rear differential (3RZ-FE, 5VZ-FE w/o Diff. lock)	Companion flange vertical runout	Max.	0.09 mm (0.0035 in.)	
	Companion flange horizontal runout	Max.	0.09 mm (0.0035 in.)	
	Drive pinion preload (at starting)	New bearing Reused bearing	1.1 – 1.7 N·m (12 – 18 kgf·cm, 10.0 – 15.2 in.-lbf) 0.6 – 0.9 N·m (7 – 10 kgf·cm, 5.7 – 8.3 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)	
	Drive pinion to ring gear backlash		0.13 – 0.18 mm (0.0051 – 0.0071 in.)	
	Side gear backlash		0.05 – 0.20 mm (0.0020 – 0.0079 in.)	
	Ring gear runout	Max.	0.05 mm (0.0020 in.)	
	Differential case runout	Max.	0.04 mm (0.0016 in.)	
	Drive pinion oil seal drive in depth		0.5 mm (0.020 in.)	
	Side gear thrust washer thickness			1.50 mm (0.0590 in.)
				1.55 mm (0.0610 in.)
				1.60 mm (0.0630 in.)
				1.65 mm (0.0650 in.)
			1.70 mm (0.0669 in.)	
			1.75 mm (0.0689 in.)	
			1.80 mm (0.0709 in.)	
			1.85 mm (0.0728 in.)	
		1.90 mm (0.0748 in.)		

Rear differential (3RZ-FE, 5VZ-FE w/o Diff. lock, cont'd)	Side bearing adjusting washer thickness	58	2.58 mm (0.1015 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 (0.1110 in.)
		84	2.84 mm (0.1118 in.)
		86	2.86 mm (0.1126 in.)
		88	2.88 mm (0.1134 in.)
		90	2.90 mm (0.1142 in.)
		92	2.92 mm (0.1150 in.)
		94	2.94 mm (0.1157 in.)
		96	2.96 mm (0.1165 in.)
		98	2.98 mm (0.1173 in.)
		00	3.00 mm (0.1181 in.)
		02	3.02 mm (0.1189 in.)
		04	3.04 mm (0.1197 in.)
		06	3.06 mm (0.1205 in.)
		08	3.08 mm (0.1213 in.)
		10	3.10 mm (0.1220 in.)
		12	3.12 mm (0.1228 in.)
		14	3.14 mm (0.1236 in.)
		16	3.16 mm (0.1244 in.)
		18	3.18 mm (0.1252 in.)
		20	3.20 mm (0.1260 in.)
		22	3.22 mm (0.1268 in.)
		24	3.24 mm (0.1276 in.)
		26	3.26 mm (0.1283 in.)
		28	3.28 mm (0.1291 in.)
		30	3.30 mm (0.1299 in.)
		32	3.32 mm (0.1307 in.)
		34	3.34 mm (0.1315 in.)
		36	3.36 mm (0.1323 in.)
		38	3.38 mm (0.1331 in.)
		40	3.40 mm (0.1339 in.)
		42	3.42 mm (0.1346 in.)
		44	3.44 mm (0.1354 in.)
		46	3.46 mm (0.1362 in.)
		48	3.48 mm (0.1370 in.)

SERVICE SPECIFICATIONS – SUSPENSION AND AXLE

Rear differential (3RZ-FE, 5VZ-FE w/o Diff. lock, cont'd)	Drive pinion bearing adjusting washer thickness	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.)		

Rear differential (3RZ-FE, 5VZ-FE w/ Diff. lock)	Companion flange vertical runout	Max.	0.10 mm (0.0039 in.)	
	Companion horizontal lateral runout	Max.	0.10 mm (0.0039 in.)	
	Drive pinion preload (at starting)	New bearing		0.9 – 1.6 N·m (10 – 16 kgf·cm, 8.7 – 13.9 in.·lbf)
		Reused bearing		0.5 – 0.8 N·m (5 – 8 kgf·cm, 4.3 – 6.9 in.·lbf)
	Total preload (at starting)		Drive pinion preload plus 0.4 – 0.6 N·m (4 – 6 kgf·cm, 3.5 – 5.2 in.·lbf)	
	Drive pinion to ring gear backlash		0.13 – 0.18 mm (0.0051 – 0.0071 in.)	
	Side gear backlash		0.05 – 0.20 mm (0.0020 – 0.0079 in.)	
	Ring gear runout	Max.	0.10 mm (0.0039 in.)	
	Differential case runout	Max.	0.07 mm (0.0028 in.)	
	Drive pinion oil seal drive in depth		1.0 mm (0.039 in.)	
	Diff. lock shift fork to sleeve clearance		0.15 – 0.35 mm (0.006 – 0.014 in.)	
	Side gear thrust washer thickness			0.9 mm (0.035 in.)
				1.0 mm (0.039 in.)
				1.1 mm (0.043 in.)
				1.2 mm (0.047 in.)
	Drive pinion bearing adjusting washer thickness			1.3 mm (0.051 in.)
				1.70 mm (0.0669 in.)
				1.73 mm (0.0681 in.)
				1.76 mm (0.0693 in.)
				1.79 mm (0.0705 in.)
				1.82 mm (0.0717 in.)
				1.85 mm (0.0728 in.)
				1.88 mm (0.0740 in.)
				1.91 mm (0.0752 in.)
				1.94 mm (0.0764 in.)
				1.97 mm (0.0776 in.)
				2.00 mm (0.0787 in.)
			2.03 mm (0.0799 in.)	
			2.06 mm (0.0811 in.)	
			2.09 mm (0.0823 in.)	
		2.12 mm (0.0835 in.)		
		2.15 mm (0.0846 in.)		
		2.18 mm (0.0858 in.)		
		2.21 mm (0.0870 in.)		
		2.24 mm (0.0882 in.)		
		2.27 mm (0.0894 in.)		
		2.30 mm (0.0906 in.)		
		2.33 mm (0.0917 in.)		