STEERING

Specifications

Steering column	Steering wheel freeplay		40 mm (1.57 in.) or less		
	Collar No.1 outer diameter		17.989 – 17.996 mm	0.7082 – 0.7085 in.	
			17.996 – 18.003 mm	0.7085 – 0.7088 in.	
			18.003 – 18.010 mm	0.7088 – 0.7091 in.	
			18.010 – 18.017 mm	0.7091 – 0.7093 in.	
			18.017 – 18.024 mm	0.7093 – 0.7096 in.	
	Collar No.2 outer diameter		17.982 – 18.000 mm	0.7080 – 0.7087 in.	
			18.000 – 18.018 mm	0.7087 – 0.7094 in.	
	Tilt steering support shim thickness	Mark			
		None	0.197 – 0.203 mm	0.0078 – 0.0080 in.	
		5	0.495 – 0.505 mm	0.0195 – 0.0199 in.	
		8	0.795 – 0.805 mm	0.0313 – 0.0317 in.	
		14	1.395 – 1.405 mm	0.0549 – 0.0553 in.	
		18	1.795 – 1.805 mm	0.0707 – 0.0711 in.	
Manual gear housing	Sector shaft thrust washer thickness		1.95 mm	0.0768 in.	
			2.00 mm	0.0787 in.	
			2.05 mm	0.0807 in.	
	Sector shaft end cover bushing inside diameter	No.1	36.055 – 36.065 mm	1.4195 – 1.4199 in.	
		2	36.045 – 36.055 mm	1.4191 – 1.4195 in.	
		3	36.035 – 36.045 mm	1.4187 – 1.4191 in.	
		4	36.025 – 36.035 mm	1.4183 – 1.4187 in.	
	Worm shaft preload	at starting	3.5 – 5 kg-cm	3.0 – 4.3 in.-lb	0.34 – 0.49 N·m
	Total preload	at starting	8 – 11 kg-cm	6.9 – 9.5 in.-lb	0.78 – 1.08 N·m
Power steering	Drive belt tension at 10 kg (22.0 lb, 98 N)				
	FJ series	New belt	7 – 9.5 mm	0.28 – 0.37 in.	
		Used belt	8 – 10 mm	0.32 – 0.39 in.	
	LJ series	New belt	8 – 12 mm	0.32 – 0.47 in.	
		Used belt	10 – 15 mm	0.39 – 0.59 in.	
	RJ series	New belt	6 – 10 mm	0.24 – 0.39 in.	
		Used belt	7 – 11 mm	0.28 – 0.43 in.	
	Drive belt tension w/ SST	New belt	45 – 55 kg		
		Used belt	20 – 35 kg		
	Maximum rise of oil level		5 mm	0.20 in.	
	Oil pressure at idle speed	Minimum			
	FJ series		80 kg/cm^2	1,138 psi	7,855 kPa
	HZJ and PZJ series		85 kg/cm^2	1,209 psi	8,336 kPa
	LJ and RJ series		75 kg/cm^2	1,067 psi	7,355 kPa
	Steering effort	Maximum	4 kg	8.8 lb	39 N
	Rotor shaft bushing oil clearance	STD	0.01 – 0.03 mm	0.0004 – 0.0012 in.	
		Maximum	0.07 mm	0.0028 in.	
	Vane plate to rotor groove clearance				
	FJ series	Maximum	0.028 mm	0.0011 in.	
	LJ, RJ series	Maximum	0.06 mm	0.0024 in.	
	Vane plate				
	FJ series	Minimum height	8.1 mm	0.319 in.	
		Minimum thickness	1.797 mm	0.0707 in.	
		Minimum length	14.988 mm	0.5901 in.	
	LJ, RJ series	Minimum height	7.8 mm	0.307 in.	
		Minimum thickness	1.7 mm	0.067 in.	
		Minimum length	14.97 mm	0.5894 in.	

Specifications (Cont'd)

Power steering (cont'd)	Vane plate length			
	Rotor and cam ring Mark			
		None	14.996 – 14.998 mm	0.5904 – 0.5905 in.
		1	14.994 – 14.996 mm	0.5903 – 0.5904 in.
		2	14.992 – 14.994 mm	0.5902 – 0.5903 in.
		3	14.990 – 14.992 mm	0.59016 – 0.59024 in.
		4	14.988 – 14.990 mm	0.5901 – 0.5902 in.
	Flow control valve spring length			
		FJ series	35 – 37 mm	1.38 – 1.46 in.
		HZJ and PZJ series	50 – 55 mm	1.97 – 2.17 in.
		LJ and RJ series	47 – 50 mm	1.85 – 1.97 in.
	Pump rotating torque		2.8 kg-cm (2.4 in.-lb, 0.3 N·m) or less	
	Steering rack runout	Maximum	0.15 mm	0.006 in.
	Cross shaft adjusting screw thrust clearance		0.03 – 0.05 mm	0.0012 – 0.0020 in.
	Worm gear preload	at starting	3 – 5.5 kg-cm	2.6 – 4.8 in.-lb 0.3 – 0.5 N·m
	Total preload	at starting	7.5 – 11 kg-cm	6.5 – 9.6 in.-lb 0.74 – 9.6 N·m

Torque Specifications

Steering column	Part tightened	kg-cm	ft-lb	N·m
	Upper bracket × Column tube	75	65 in.-lb	7.4
	Column hole cover × Body	130	9	13
	Column tube × Body	250	18	25
	Steering wheel × Main shaft	350	25	34
	Main shaft × Intermediate shaft	360	26	35
	Intermediate shaft × Worm shaft	360	26	35
	Pawl set bolt	185	13	18
	Tilt lever retainer	185	13	18
	Tilt steering support × Breakaway bracket	185	13	18
	Tilt steering support stopper bolt	100	7	10
	Tilt steering support × Upper bracket	75	65 in.-lb	7.4
	Breakaway bracket × Column tube	185	13	18
	Column hole cover × Column tube	185	13	18
	Main shaft × Intermediate shaft	250	18	25
	Breakaway bracket × Body	250	18	25
	Intermediate shaft No.1 × No.2	360	26	35
Manual gear housing	Universal joint	360	26	35
	Gear housing × Body	1,450	105	142
	Pitman arm × Gear housing	1,800	130	177
	Sector shaft adjusting screw lock nut	450	33	44
	Sector shaft end cover	1,150	83	113
	Bleeder plug	200	14	20
	Worm shaft adjusting screw lock nut	1,110	80	109

Torque Specifications (Cont'd)

	Part tightened		kg-cm	ft-lb	N·m
Power steering (PS pump)	**FJ series**				
	Pressure tube		370	27	36
	PS pump × Bracket		450	33	44
	PS pump × Adjusting stay		375	27	37
	Adjusting stay × Bracket		375	27	37
	Pulley set nut		450	33	44
	Reservoir set bolt	12 mm bolt	130	9	13
		14 mm bolt	420	30	41
	Pressure port union		700	51	69
	HZJ and PZJ series				
	Union bolt		450	33	44
	PS pump × Body		400	29	39
	Return tube		80	69 in.-lb	7.8
	Front housing × Rear housing		375	27	37
	Drive gear lock nut		700	51	69
	Valve lock screw		650	47	64
	LJ and RJ series				
	Union bolt		450	33	44
	PS pump × Bracket		450	33	44
	Pulley set nut		450	33	44
	Pressure port union		700	51	69
	Suction port union		130	9	13
	Front housing × Rear housing		470	34	46
Power steering (Gear housing)	Pressure and return tube		450	33	44
	Universal joint		360	26	35
	Gear housing × Body		1,450	105	142
	Gear housing × Pitman arm		1,800	130	177
	Cross shaft adjusting screw set nut		470	34	46
	Cross shaft end cover lock bolt		470	34	46
	Worm gear valve body set bolt		470	34	46
	Plunger guide nut		205	15	20
Steering linkage	Pitman arm × Relay rod (Heavy-duty)		925	67	91
	Relay rod × Steering damper (Light-duty)		750	54	74
	Tie rod × Steering damper		750	54	74
	Steering damper × Damper hinge (Heavy-duty)		750	54	74
	Damper hinge × Body (Light-duty)		400	29	39
	Damper hinge × Body (Heavy-duty)		195	14	19
	Relay rod × Tie rod (Light-duty)		925	67	91
	Relay rod × Knuckle arm		925	67	91
	Tie rod × Knuckle arm		925	67	91
	Tie or relay rod clamp		450	33	44