FUEL SYSTEM

Specifications

Fuel heater	Resistance at 20°C (68°F)		0.5 – 2.0 Ω
Injection nozzles (1PZ and 1HZ)	Nozzle type		DN20PD32
	Nozzle opening pressure	New nozzle	145 – 155 kg/cm^2 (2,062 – 2,205 psi, 14,220 – 15,200 kPa)
		Reused nozzle	135 – 155 kg/cm^2 (1,920 – 2,205 psi, 13,239 – 15,200 kPa)
	Adjusting shim thickness		0.900 mm 0.0354 in.
			0.925 mm 0.0364 in.
			0.950 mm 0.0374 in.
			0.975 mm 0.0384 in.
			1.000 mm 0.0394 in.
			1.025 mm 0.0404 in.
			1.050 mm 0.0413 in.
			1.075 mm 0.0423 in.
			1.100 mm 0.0433 in.
			1.125 mm 0.0443 in.
			1.150 mm 0.0453 in.
			1.175 mm 0.0463 in.
			1.200 mm 0.0472 in.
			1.225 mm 0.0482 in.
			1.250 mm 0.0492 in.
			1.275 mm 0.0502 in.
			1.300 mm 0.0512 in.
			1.325 mm 0.0522 in.
			1.350 mm 0.0531 in.
			1.375 mm 0.0541 in.
			1.400 mm 0.0551 in.
			1.425 mm 0.0561 in.
			1.450 mm 0.0571 in.
			1.475 mm 0.0581 in.
			1.500 mm 0.0591 in.
			1.525 mm 0.0600 in.
			1.550 mm 0.0610 in.
			1.575 mm 0.0620 in.
			1.600 mm 0.0630 in.
			1.625 mm 0.0640 in.
			1.650 mm 0.0650 in.
			1.675 mm 0.0659 in.
			1.700 mm 0.0669 in.
			1.725 mm 0.0679 in.
			1.750 mm 0.0689 in.
			1.775 mm 0.0699 in.
			1.800 mm 0.0709 in.
			1.825 mm 0.0719 in.
			1.850 mm 0.0728 in.
			1.875 mm 0.0738 in.
			1.900 mm 0.0748 in.
			1.925 mm 0.0758 in.
			1.950 mm 0.0768 in.

Specification (Cont'd)

Injection nozzle (1HD-T)	Nozzle type	KBAL	
	Pre-lift dimension	0.08 – 0.10 mm	0.0031 – 0.0039 in.
	Nozzle opening pressure		
	No.2 (Inspection pressure)	132 – 138 kg/cm^2 (1,877 – 1,963 psi, 12,945 – 13,533 kPa)	
	No.1	180 – 190 kg/cm^2 (2,560 – 2,702 psi, 17,652 – 18,633 kPa)	
	Pre-lift and nozzle opening pressure adjusting shim thickness	0.700 mm	0.0276 in.
		0.750 mm	0.0295 in.
		0.800 mm	0.0315 in.
		0.850 mm	0.0335 in.
		0.900 mm	0.0354 in.
		0.950 mm	0.0374 in.
		0.975 mm	0.0384 in.
		1.000 mm	0.0394 in.
		1.025 mm	0.0404 in.
		1.050 mm	0.0413 in.
		1.075 mm	0.0423 in.
		1.100 mm	0.0433 in.
		1.125 mm	0.0443 in.
		1.150 mm	0.0453 in.
		1.175 mm	0.0463 in.
		1.200 mm	0.0472 in.
		1.225 mm	0.0482 in.
		1.250 mm	0.0492 in.
		1.280 mm	0.0504 in.
		1.290 mm	0.0508 in.
		1.300 mm	0.0512 in.
		1.310 mm	0.0516 in.
		1.320 mm	0.0520 in.
		1.330 mm	0.0524 in.
		1.340 mm	0.0528 in.
		1.350 mm	0.0531 in.
		1.360 mm	0.0535 in.
		1.370 mm	0.0539 in.
		1.380 mm	0.0543 in.
		1.390 mm	0.0547 in.
		1.400 mm	0.0551 in.
		1.410 mm	0.0555 in.
		1.420 mm	0.0559 in.
		1.430 mm	0.0563 in.
		1.440 mm	0.0567 in.
		1.450 mm	0.0571 in.
		1.460 mm	0.0575 in.
		1.470 mm	0.0579 in.
		1.480 mm	0.0583 in.
		1.490 mm	0.0587 in.
		1.500 mm	0.0591 in.
		1.510 mm	0.0594 in.
		1.520 mm	0.0598 in.
		1.530 mm	0.0602 in.
		1.540 mm	0.0606 in.
		1.550 mm	0.0610 in.
		1.560 mm	0.0614 in.
		1.570 mm	0.0618 in.
		1.580 mm	0.0622 in.
		1.590 mm	0.0626 in.
		1.600 mm	0.0630 in.

Specification (Cont'd)

Injection nozzles (1HD-T) (cont'd)	Pre-lift and nozzle opening pressure adjusting shim thickness (cont'd)	1.610 mm	0.0634 in.
		1.620 mm	0.0638 in.
		1.630 mm	0.0641 in.
		1.640 mm	0.0646 in.
		1.650 mm	0.0650 in.
		1.660 mm	0.0654 in.
		1.670 mm	0.0657 in.
		1.680 mm	0.0661 in.
		1.690 mm	0.0665 in.
		1.700 mm	0.0669 in.
		1.750 mm	0.0689 in.
		1.800 mm	0.0709 in.
Injection pump	Direction of rotation	Clockwise as seen from drive side	
	Injection order 1PZ	1 – 2 – 4 – 5 – 3 (D – E – A – B – C)	
	1HZ and 1HD-T	1 – 4 – 2 – 6 – 3 – 5 (D – E – F – A – B – C)	
	Roller height variation	0.02 mm	0.0008 in.
	Plunger spring squareness	2.0 mm	0.079 in.
	Spring free length		
	Delivery valve spring		
	1PZ and 1HZ	24.4 mm	0.961 in.
	1HD-T	19.1 mm	0.752 in.
	Plunger spring		
	1PZ and 1HZ	30.0 mm	1.181 in.
	1HD-T	31.2 mm	1.228 in.
	Coupling spring		
	1PZ and 1HZ	16.6 mm	0.654 in.
	1HD-T	15.5 mm	0.610 in.
	Pneumatic bellows spring		
	1PZ and 1HZ (w/ HAC)	35.0 mm	1.378 in.
	Boost compensator spring		
	1HD-T (Europe)	19.7 mm	0.776 in.
	1HD-T (Others w/o BACS)	19.6 mm	0.772 in.
	1HD-T (Others w/ BACS)	21.8 mm	0.858 in.
	Pickup sensor resistance	600 – 800 Ω	
	Timer adjusting screw protrusion pre-setting	7.5 – 8.0 mm	0.295 – 0.315 in.
	Plunger spring shim thickness	0.5 mm	0.020 in.
		0.8 mm	0.031 in.
		1.0 mm	0.039 in.
		1.2 mm	0.047 in.
		1.5 mm	0.059 in.
		1.8 mm	0.071 in.
		2.0 mm	0.079 in.
	Plunger adjusting shim thickness	1.9 mm	0.075 in.
	1PZ	2.0 mm	0.079 in.
		2.1 mm	0.083 in.
		2.2 mm	0.087 in.
		2.3 mm	0.091 in.
		2.4 mm	0.094 in.
		2.5 mm	0.098 in.
		2.6 mm	0.102 in.
		2.7 mm	0.106 in.
		2.8 mm	0.110 in.
		2.9 mm	0.114 in.

Specification (Cont'd)

Injection pump (cont'd)	Plunger adjusting shim thickness	1.90 mm	0.0748 in.
	1HZ and 1HD-T (for pre-stroke)	1.95 mm	0.0768 in.
		2.00 mm	0.0787 in.
		2.05 mm	0.0807 in.
		2.10 mm	0.0827 in.
		2.15 mm	0.0846 in.
		2.20 mm	0.0866 in.
		2.25 mm	0.0886 in.
		2.30 mm	0.0906 in.
		2.35 mm	0.0925 in.
		2.40 mm	0.0945 in.
		2.45 mm	0.0965 in.
		2.50 mm	0.0984 in
		2.55 mm	0.1004 in.
		2.60 mm	0.1024 in.
		2.65 mm	0.1043 in.
		2.70 mm	0.1063 in.
		2.75 mm	0.1083 in.
		2.80 mm	0.1102 in.
		2.85 mm	0.1122 in.
		2.90 mm	0.1142 in.
		2.94 mm	0.1157 in.
		2.99 mm	0.1177 in.
		3.04 mm	0.1197 in.
		3.09 mm	0.1216 in.
		3.14 mm	0.1236 in.
		3.19 mm	0.1256 in.
	Flyweight holder thrust clearance	0.15 – 0.35 mm	0.0059 – 0.0138 in.
	Governor shaft protrusion	0.5 – 2.0 mm	0.020 – 0.079 in.
	Governor gear adjusting washer thickness	1.05 mm	0.0413 in.
		1.25 mm	0.0492 in.
		1.45 mm	0.0571 in.
		1.65 mm	0.0650 in.
		1.85 mm	0.0728 in.
	Boost compensator adjusting shim thickness	1.1 mm	0.039 in.
		1.3 mm	0.051 in.
		1.5 mm	0.059 in.
		1.7 mm	0.067 in.
		1.9 mm	0.075 in.
		2.1 mm	0.083 in.
		2.3 mm	0.090 in.
		2.5 mm	0.098 in.
		2.7 mm	0.106 in.
		2.9 mm	0.114 in.
		3.1 mm	0.122 in.
		3.3 mm	0.130 in.

Injection Pump Adjustment

Preparations of pump tester	Test nozzle type			DN12SD12	
	Test nozzle opening pressure			145 – 155 kg/cm^2 (2,062 – 2,205 psi, 14,220 – 15,200 kPa)	
	Injection pipe				
	Outer diameter			6.0 mm	0.236 in.
	Inner diameter			2.0 mm	0.079 in.
	Length			840 mm	33.07 in.
	Minimum bending radius			25 mm (0.98 in.) or more	
	Fuel temperature			40 – 45°C	
	Fuel feeding pressure			0.2 kg/cm^2 (2.8 psi, 20 kPa)	
Full load injection volume pre-setting	Item	Adjusting lever position	Pump rpm	No. of measuring strokes	Injection volume cc (cu in.)
	1PZ	Maximum speed side	1,200	200	11.78 – 12.18 (0.72 – 0.74)
	1HZ	Maximum speed side	1,200	200	11.80 – 12.20 (0.72 – 0.74)
	1HD-T (w/o BACS)	Maximum speed side	1,800	200	13.58 – 14.18 (0.83 – 0.87)
	1HD-T (w/ BACS)	Maximum speed side	1,800	200	13.14 – 13.74 (0.80 – 0.84)
Maximum speed pre-setting	Item	Adjusting lever position	Pump rpm	No. of measuring strokes	Injection volume cc (cu in.)
	1PZ	Maximum speed side	2,300	200	4.0 – 6.0 (0.24 – 0.37)
	1HZ	Maximum speed side	2,300	200	3.0 – 5.0 (0.18 – 0.31)
	1HD-T	Maximum speed side	2,200	200	3.0 – 5.0 (0.18 – 0.31)
Pump inner pressure	Item	Pump rpm	Inner pressure kg/cm^2 (psi, kPa)		
	1PZ	500	2.45 – 3.05 (35 – 43, 240 – 299)		
		2,000	6.4 – 7.0 (91 – 100, 628 – 686)		
	1HZ	500	2.5 – 3.1 (36 – 44, 245 – 304)		
		2,000	7.1 – 7.7 (101 – 110, 696 – 755)		
	1HD-T (w/o BACS)	400	2.2 – 3.1 (31 – 44, 216 – 304)		
		1,900	8.1 – 8.4 (115 – 119, 794 – 824)		
		2,200	9.0 (128, 883) or less		
	1HD-T (w/ BACS)	400	2.7 – 3.6 (38 – 51, 265 – 353)		
		2,200	8.7 – 9.0 (124 – 128, 853 – 883)		

Injection Pump Adjustment (Cont'd)

Overflow volume	Item	Pump rpm	Overflow volume cc/min. (cu in./min.)		
	1PZ and 1HZ	2,000	366 – 800 (22.3 – 48.8)		
	1HD-T	1,900	583 – 1,083 (35.6 – 66.1)		
Automatic timer	Item	Pump rpm	Piston stroke mm (in.)		
	1PZ	600	0.58 – 1.58 (0.0228 – 0.0622)		
		1,200	3.02 – 4.02 (0.1189 – 0.1583)		
		1,600	4.65 – 5.65 (0.1830 – 0.2224)		
		2,000	6.28 – 7.28 (0.2472 – 0.2866)		
		2,500	6.88 – 7.88 (0.2709 – 0.3102) (LST non-operational)		
	1HZ	600	0.43 – 1.43 (0.0169 – 0.0563)		
		1,200	3.23 – 4.23 (0.1272 – 0.1665)		
		1,600	5.09 – 6.09 (0.2004 – 0.2398)		
		2,000	6.88 – 7.88 (0.2709 – 0.3102)		
		2,500	6.88 – 7.88 (0.2709 – 0.3102) (LST non-operational)		
	1HD-T (Europe)	1,300	1.4 – 2.4 (0.055 – 0.094)		
		1,440	3.0 – 4.0 (0.118 – 0.157)		
		1,700	5.9 – 6.9 (0.232 – 0.272)		
		1,900	7.7 – 8.7 (0.303 – 0.343)		
	1HD-T (Others)	800	1.05 – 2.05 (0.0413 – 0.0807)		
		1,440	4.9 – 5.9 (0.193 – 0.232)		
		1,700	6.42 – 7.42 (0.2528 – 0.2921)		
		1,900	7.7 – 8.7 (0.303 – 0.343)		
Full load injection volume	Item	Adjusting lever angle position	Pump rpm	No. of measuring strokes	Injection volume cc (cu in.)
	1PZ	Plus 21 – 31°	1,200	200	11.78 – 12.18 (0.72 – 0.74)
	1HZ	Plus 21 – 31°	1,200	200	11.80 – 12.20 (0.72 – 0.74)
	1HD-T (w/o BACS)	Plus 21 – 31°	1,100	200	13.58 – 14.18 (0.83 – 0.87)
	1HD-T (w/ BACS)	Plus 21 – 31°	1,100	200	13.14 – 13.74 (0.80 – 0.84)

Injection Pump Adjustment (Cont'd)

Maximum speed	Item	Adjusting lever angle	Pump rpm	No. of measuring strokes	Injection volume cc (cu in.)	
	1PZ	Plus 21 – 31°	2,300	200	4.0 – 6.0 (0.24 – 0.37)	
			2,500	200	1.0 (0.06) or less	
	1HZ	Plus 21 – 31°	2,300	200	3.0 – 5.0 (0.18 – 0.31)	
			2,550	200	1.0 (0.06) or less	
	1HD-T	Plus 21 – 31°	2,200	200	3.0 – 5.0 (0.18 – 0.31)	
			2,350	200	1.0 (0.06) or less	
Injection volume	Item	Adjusting lever angle	Pump rpm	No. of measuring strokes	Injection volume cc (cu in.)	Variation limit cc (cu in.)
	1PZ	Plus 21 – 31°	1,200	200	11.78 – 12.18 (0.72 – 0.74)	0.4 (0.02)
			100	200	9.60 – 14.40 (0.59 – 0.88)	1.2 (0.07)
			500	200	10.56 – 11.76 (0.64 – 0.72)	0.6 (0.04)
			2,000	200	11.62 – 12.82 (0.71 – 0.78)	0.6 (0.04)
	1HZ	Plus 21 – 31°	1,200	200	11.80 – 12.20 (0.72 – 0.74)	0.4 (0.02)
			100	200	9.60 – 14.40 (0.59 – 0.88)	1.2 (0.07)
			500	200	9.74 – 10.94 (0.59 – 0.67)	0.6 (0.04)
			2,000	200	10.96 – 12.16 (0.67 – 0.74)	0.6 (0.04)
	1HD-T (Europe)	Plus 21 – 31°	1,100	200	13.52 – 14.72 (0.83 – 0.90)	0.6 (0.04)
			100	200	11.60 – 16.40 (0.71 – 1.00)	1.2 (0.07)
			500	200	8.32 – 9.12 (0.51 – 0.56)	0.6 (0.04)
			1,800	200	13.58 – 14.18 (0.83 – 0.87)	1.2 (0.07)
	1HD-T (Others w/o BACS)	Plus 21 – 31°	1,100	200	11.70 – 12.90 (0.71 – 0.79)	0.6 (0.04)
			100	200	11.60 – 16.40 (0.71 – 1.00)	1.2 (0.07)
			500	200	8.68 – 9.48 (0.53 – 0.58)	0.6 (0.04)
			1,800	200	13.58 – 14.18 (0.83 – 0.87)	1.2 (0.07)

Injection Pump Adjustment (Cont'd)

Injection volume (cont'd)	Item	Adjusting lever angle	Pump rpm	No. of measuring strokes	Injection volume cc (cu in.)	Variation limit cc (cu in.)
	1HD-T (Others w/ BACS)	Plus 21 – 31°	1,100	200	11.70 – 12.90 (0.71 – 0.79)	0.6 (0.04)
			100	200	11.60 – 16.40 (0.71 – 1.00)	1.2 (0.07)
			500	200	8.20 – 9.20 (0.50 – 0.56)	0.6 (0.04)
			1,800	200	13.14 – 14.74 (0.80 – 0.84)	1.2 (0.07)

Governor sleeve plug head thickness		
1PZ and 1HZ	3.0 mm	0.118 in.
	3.1 mm	0.122 in.
	3.2 mm	0.126 in.
	3.3 mm	0.130 in.
	3.4 mm	0.134 in.
	3.5 mm	0.138 in.
	3.6 mm	0.142 in.
	3.7 mm	0.146 in.
	3.8 mm	0.150 in.
	3.9 mm	0.154 in.
	4.0 mm	0.158 in.
	4.1 mm	0.161 in.
	4.2 mm	0.165 in.
1HD-T	3.0 mm	0.118 in.
	3.1 mm	0.122 in.
	3.2 mm	0.126 in.
	3.3 mm	0.130 in.
	3.4 mm	0.134 in.
	3.5 mm	0.138 in.
	3.6 mm	0.142 in.
	3.7 mm	0.146 in.
	3.8 mm	0.150 in.
	3.9 mm	0.154 in.
	4.0 mm	0.158 in.
	4.1 mm	0.161 in.
	4.2 mm	0.165 in.
	4.3 mm	0.169 in.
	4.4 mm	0.173 in.
	4.5 mm	0.177 in.
	4.6 mm	0.181 in.
	4.7 mm	0.185 in.
	4.8 mm	0.189 in.
	4.9 mm	0.193 in.
	5.0 mm	0.197 in.
	5.1 mm	0.201 in.
	5.2 mm	0.205 in.
	5.3 mm	0.209 in.
	5.4 mm	0.213 in.
	5.5 mm	0.216 in.
	5.6 mm	0.220 in.
	5.7 mm	0.224 in.
	5.8 mm	0.228 in.

Injection Pump Adjustment (Cont'd)

Injection volume (cont'd)	Governor sleeve plug head thickness 1HD-T (cont'd)	5.9 mm 0.232 in. 6.0 mm 0.236 in. 6.1 mm 0.240 in. 6.2 mm 0.244 in. 6.3 mm 0.248 in. 6.4 mm 0.252 in. 6.5 mm 0.256 in. 6.6 mm 0.260 in.

	Item	Pump rpm	No. of measuring stroke	Injection volume cc (cu in.)
Full-load minimum injection volume (1HD-T only)	(Europe)	500	200	8.32 – 9.12 (0.51 – 0.56)
	(Others) (w/o BACS)	500	200	8.68 – 9.48 (0.53 – 0.58)
	(Others) (w/ BACS)	500	200	7.54 – 8.34 (0.46 – 0.51)

	Item	Pump rpm	Boost	No. of measuring stroke	Injection volume cc (cu in.)
Boost compensator characteristic (1HD-T only)	(Europe)	1,100	0.48 (6.8, 47)	200	12.44 – 13.44 (0.76 – 0.82)
	(Others) (w/o BACS)	1,100	0.54 (7.7, 53)	200	10.86 – 11.86 (0.66 – 0.72)
	(Others) (w/ BACS)	500	0.50 (7.1, 49)	200	8.20 – 9.20 (0.50 – 0.56)

	Item	Pump rpm	Pressure kg/cm^2 (psi, kPa)	No. of measuring stroke	Injection volume cc (cu in.)	Hysterises cc (cu in.)
Boost compensator characteristic tendency (1HD-T only)	(Europe)	1,100	0.81 (11.5, 79)	200	13.52 – 14.72 (0.82 – 0.90)	–
		1,100	0.48 (6.8, 47)	200	12.44 – 13.44 (0.76 – 0.82)	–
		1,100	0.27 (3.8, 26)	200	10.50 – 11.70 (0.64 – 0.71)	0.3 (0.02) or less
		1,100	0 (0, 0)	200	9.70 – 11.10 (0.59 – 0.68)	–
	(Others) (w/o BACS)	1,100	0.81 (11.5, 79)	200	11.70 – 12.90 (0.71 – 0.79)	–
		1,100	0.54 (7.7, 53)	200	10.86 – 11.86 (0.66 – 0.72)	–
		1,100	0.41 (5.8, 40)	200	9.48 – 10.68 (0.58 – 0.65)	0.3 (0.02) or less
		1,100	0 (0, 0)	200	8.62 – 10.02 (0.453 – 0.61)	–
	(Others) (w/ BACS)	1,100	1.29 (18.3, 127)	200	11.70 – 12.90 (0.71 – 0.79)	–
		500	0.81 (11.5, 79)	200	9.80 – 11.00 (0.60 – 0.67)	0.3 (0.02) or less
		500	0.50 (7.1, 49)	200	8.20 – 9.20 (0.50 – 0.56)	–
		500	0 (0, 0)	200	7.54 – 8.34 (0.46 – 0.51)	–

Injection Pump Adjustment (Cont'd)

Load sensing timer (w/o HAC only)	Item	Pump rpm	No. of measuring strokes	Injection volume cc (cu in.)	Remark
	1PZ	1,600	200	Measured value at step (f) minus 1.4 (0.09) ± 0.3 (0.02)	Set to starting point
	1HZ	1,600	200	Measured value at step (f) minus 1.4 (0.09) ± 0.3 (0.02)	
	1HD-T (Europe)	1,800	200	Measured value at step (f) minus 1.6 (0.10) ± 0.6 (0.04)	
	1HD-T (Others)	1,800	200	Measured value at step (f) minus 1.2 (0.07) ± 0.2 (0.01)	
	1PZ	1,600	200	9.08 – 9.88 (0.55 – 0.60)	Check ending point
	1HZ	1,600	200	8.2 (0.50) or more	
	Item	Pump rpm		Timer piston fluctuation mm (in.)	
	1PZ	1,600		2.19 – 3.19 (0.0862 – 0.1256)	
	1HZ	1,600		2.73 – 3.73 (0.1075 – 0.1469)	
	1HD-T (Europe)	1,440		0.70 – 1.70 (0.0276 – 0.0670)	
	1HD-T (Others)	1,440		1.96 – 2.96 (0.0772 – 0.1165)	

Idle speed	Item	Adjusting lever angle	Pump rpm	No. of measuring strokes	Injection volume cc (cu in.)	Variation limit cc (cu in.)
	1PZ	Minus 12 – 22°	325	200	q = 2.94 – 3.94 (0.18 – 0.24)	0.4 (0.02)
			300	200	More than q plus 0.5 (0.03)	–
			400	200	q minus 1.2 – 2.2 (0.07 – 0.13)	–
	1HZ (M/T)	Minus 12 – 22°	375	200	q = 2.30 – 3.30 (0.14 – 0.20)	0.4 (0.02)
			350	200	More than q plus 0.5 (0.03)	–
			450	200	q minus 1.2 – 2.2 (0.07 – 0.13)	–
			325	200	2.60 – 3.60 (0.16 – 0.22)	0.4 (0.02)
	1HZ (A/T)	Minus 12 – 22°	375	200	q = 2.30 – 3.30 (0.07 – 0.20)	0.4 (0.02)
			350	200	More than q plus 0.5 (0.03)	–
			450	200	q minus 1.2 – 2.2 (0.07 – 0.13)	–
			375	200	1.64 – 2.64 (0.10 – 0.16)	0.4 (0.02)

Injection Pump Adjustment (Cont'd)

Idle speed (cont'd)	Item	Adjusting lever angle	Pump rpm	No. of measuring strokes	Injection volume cc (cu in.)	Variation limit cc (cu in.)
	1HD-T (Europe M/T)	Full position	400	200	9.32 – 11.72 (0.57 – 0.72)	–
		Minus 12 – 22°	325	200	q = 3.70 – 4.70 (0.23 – 0.29)	0.4 (0.02)
			300	200	More than q plus 0.5 (0.03)	–
	1HD-T (Europe A/T)	Full position	400	200	10.30 – 12.70 (0.63 – 0.77)	–
		Minus 12 – 22°	325	200	q = 2.84 – 3.84 (0.17 – 0.23)	0.4 (0.02)
			300	200	More than q plus 0.5 (0.03)	–
	1HD-T (Others M/T)	Full position	400	200	9.20 – 11.60 (0.56 – 0.71)	–
		Minus 12 – 22°	325	200	q = 3.70 – 4.70 (0.23 – 0.29)	0.4 (0.02)
			300	200	More than q plus 0.5 (0.03)	–
	1HD-T (Others A/T)	Full position	400	200	10.18 – 12.58 (0.62 – 0.77)	–
		Minus 12 – 22°	325	200	q = 2.84 – 3.84 (0.17 – 0.23)	0.4 (0.02)
			300	200	More than q plus 0.5 (0.03)	–
Dash pot	Item	Pump rpm	No. of measuring stroke		Injection volume cc (cu in.)	Remark
	1HZ	700	200		q = 0.5 – 0.9 (0.03 – 0.05)	Lever set
		700	200		q Plus 0.2 – 0.3 (0.01 – 0.02)	Adjust
	1HD-T	400	200		q = 0.1 – 0.3 (0.01 – 0.02)	Lever set
		400	200		q Plus 0.2 – 0.3 (0.01 – 0.02)	Adjust
Fast idle (w/ ACSD)	1PZ and 1HZ at fuel temperature 15°C (59°F) at fuel temperature 30°C (86°F) 1HD-T at fuel temperature 15°C (59°F) at fuel temperature 40°C (104°F)			1.3 mm 0 mm 1.6 mm 0 mm	0.051 in. 0 in. 0.063 in. 0 in.	
Adjusting lever	Lever moving angle			38 – 48°		

Torque Specifications

Part tightened	kg-cm	ft-lb	N·m
Nozzle holder body × Nozzle holder retaining nut			
(1PZ and 1HZ)	375	27	37
Injection nozzle × Cylinder head			
(1PZ and 1HZ)	650	47	64
Nozzle leakage pipe × Injection nozzle			
(1PZ and 1HZ)	300	22	29
Injection pipe × Injection nozzle			
(1PZ and 1HZ)	150	11	15
Injection pipe × Injection pump			
(1PZ and 1HZ)	150	11	15
Nozzle holder body × Nozzle holder retaining nut			
(1HD-T)	350	25	34
Injection nozzle × Cylinder head			
(1HD-T)	400	29	39
Nozzle leakage pipe × Injection nozzle			
(1HD-T)	125	9	12
Injection pipe × Injection nozzle			
(1HD-T)	250	18	25
Injection pipe × Injection pump			
(1HD-T)	250	18	25
Fuel inlet hollow screw × Injection pump body	375	27	37
Regulator valve × Injection pump body	90	78 in.-lb	8.8
Feed pump cover × Injection pump body	25	25 in.-lb	2.5
Distributive head × Injection pump body	120	9	12
Governor link support bolt	140	10	14
Delivery valve holder × Distributive head			
(1PZ and 1HZ)	500	36	49
(1HD-T)	550	40	54
Distributive head plug × Distributive head			
(1PZ and 1HZ)	700	51	69
(1HD-T)	900	65	88
Governor cover × Injection pump body	85	74 in.-lb	8.3
Fuel cut solenoid × Distributive head	225	16	22
Pickup sensor × Injection pump body	210	15	21
Fuel inlet pipe × Injection pump	230	17	23
Fuel outlet pipe × Injection pump	230	17	23
Injection pump × Timing gear case	185	13	18
Pump stay × Injection pump	700	51	69
Injection pump drive gear × Injection pump	1,000	72	98
Distributive head plug bolt	170	12	17