SERVICE SPECIFICATIONS

SERVICE DATA

EG

Injection nozzles	Nozzle type		DNOPD628
	Nozzle opening pressure	New nozzle	14,220 — 15,200 kPa (145 — 155 kgf/cm², 2,062 — 2,205 psi)
		Reused nozzle	13,239 — 15,200 kPa (135 — 155 kgf/cm², 1,920 — 2,205 psi)
	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.)

Injection nozzles (cont'd)	Adjusting shim thickness (cont'd)	1.800 mm (0.0709 in.) 1.825 mm (0.0719 in.) 1.850 mm (0.0728 in.) 1.875 mm (0.0736 in.) 1.900 mm (0.0748 in.) 1.925 mm (0.0758 in.) 1.950 mm (0.0768 in.)
Injection pump	Direction of rotation	Clockwise as seen from drive side
	Injection order	1 — 4 — 2 — 6 — 3 — 5 (A — B — C — D — E — F)
	Roller height variation	0.02 mm (0.0008 in.)
	Plunger spring squareness	2.0 mm (0.079 in.)
	Spring free length	
	Delivery valve spring	24.4 mm (0.961 in.)
	Plunger spring	30.0 mm (1.181 in.)
	Coupling spring	16.6 mm (0.665 in.)
	Pneumatic bellows spring	35.0 mm (1.378 in.)
	Pickup sensor resistance	600 — 800 Ω
	Plunger spring shim thickness	7.5 — 8.0 mm (0.295 — 0.315 in.) 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	1.90 mm (0.0748 in.) 1.91 mm (0.0752 in.) 1.92 mm (0.0756 in.) 1.93 mm (0.0760 in.) 1.94 mm (0.0764 in.) 1.95 mm (0.0768 in.) 1.96 mm (0.0772 in.) 1.97 mm (0.0776 in.) 1.98 mm (0.0780 in.) 1.99 mm (0.0783 in.) 2.00 mm (0.0787 in.) 2.01 mm (0.0791 in.) 2.02 mm (0.0795 in.) 2.03 mm (0.0799 in.) 2.04 mm (0.0803 in.) 2.05 mm (0.0807 in.) 2.06 mm (0.0811 in.) 2.07 mm (0.0815 in.) 2.08 mm (0.0819 in.) 2.09 mm (0.0823 in.) 2.10 mm (0.0827 in.) 2.11 mm (0.0831 in.) 2.12 mm (0.0835 in.) 2.13 mm (0.0839 in.)

Injection pump (cont'd)	Plunger adjusting shim thickness (cont'd)	2.14 mm (0.0843 in.) 2.15 mm (0.0846 in.) 2.16 mm (0.0850 in.) 2.17 mm (0.0854 in.) 2.18 mm (0.0858 in.) 2.19 mm (0.0862 in.) 2.20 mm (0.0866 in.) 2.21 mm (0.0870 in.) 2.22 mm (0.0874 in.) 2.23 mm (0.0878 in.) 2.24 mm (0.0882 in.) 2.25 mm (0.0886 in.) 2.26 mm (0.0890 in.) 2.27 mm (0.0894 in.) 2.28 mm (0.0898 in.) 2.29 mm (0.0902 in.) 2.30 mm (0.0906 in.) 2.31 mm (0.0909 in.) 2.32 mm (0.0913 in.) 2.33 mm (0.0917 in.) 2.34 mm (0.0921 in.) 2.35 mm (0.0925 in.) 2.36 mm (0.0929 in.) 2.37 mm (0.0933 in.) 2.38 mm (0.0937 in.) 2.39 mm (0.0941 in.) 2.40 mm (0.0945 in.) 2.41 mm (0.0949 in.) 2.42 mm (0.0952 in.) 2.43 mm (0.0957 in.) 2.44 mm (0.0961 in.) 2.45 mm (0.0965 in.) 2.46 mm (0.0969 in.) 2.47 mm (0.0972 in.) 2.48 mm (0.0976 in.) 2.49 mm (0.0980 in.) 2.50 mm (0.0984 in.) 2.51 mm (0.0988 in.) 2.52 mm (0.0992 in.) 2.53 mm (0.0996 in.) 2.54 mm (0.1000 in.) 2.55 mm (0.1004 in.) 2.56 mm (0.1008 in.) 2.57 mm (0.1012 in.) 2.58 mm (0.1016 in.) 2.59 mm (0.1020 in.) 2.60 mm (0.1024 in.) 2.61 mm (0.1028 in.) 2.62 mm (0.1031 in.)

Injection pump (cont'd)	Plunger adjusting shim thickness (cont'd)	2.63 mm (0.1035 in.) 2.64 mm (0.1039 in.) 2.65 mm (0.1043 in.) 2.66 mm (0.1047 in.) 2.67 mm (0.1051 in.) 2.68 mm (0.1055 in.) 2.69 mm (0.1059 in.) 2.70 mm (0.1063 in.) 2.71 mm (0.1067 in.) 2.72 mm (0.1071 in.) 2.73 mm (0.1075 in.) 2.74 mm (0.1079 in.) 2.75 mm (0.1083 in.) 2.76 mm (0.1087 in.) 2.77 mm (0.1091 in.) 2.78 mm (0.1094 in.) 2.79 mm (0.1098 in.) 2.80 mm (0.1102 in.) 2.81 mm (0.1106 in.) 2.82 mm (0.1110 in.) 2.83 mm (0.1114 in.) 2.84 mm (0.1118 in.) 2.85 mm (0.1122 in.) 2.86 mm (0.1126 in.) 2.87 mm (0.1130 in.) 2.88 mm (0.1134 in.) 2.89 mm (0.1138 in.) 2.90 mm (0.1142 in.) 2.91 mm (0.1146 in.) 2.92 mm (0.1150 in.) 2.93 mm (0.1154 in.) 2.94 mm (0.1157 in.) 2.95 mm (0.1161 in.) 2.96 mm (0.1165 in.) 2.97 mm (0.1169 in.) 2.98 mm (0.1173 in.) 2.99 mm (0.1177 in.) 3.00 mm (0.1181 in.) 3.01 mm (0.1185 in.) 3.02 mm (0.1189 in.) 3.03 mm (0.1193 in.) 3.04 mm (0.1197 in.) 3.05 mm (0.1201 in.) 3.06 mm (0.1205 in.) 3.07 mm (0.1209 in.) 3.08 mm (0.1213 in.) 3.09 mm (0.1217 in.) 3.10 mm (0.1220 in.) 3.11 mm (0.1224 in.)

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Injection pump (cont'd)	Plunger adjusting shim thickness (cont'd)	3.12 mm (0.1228 in.)
		3.13 mm (0.1232 in.)
		3.14 mm (0.1236 in.)
		3.15 mm (0.1240 in.)
		3.16 mm (0.1244 in.)
		3.17 mm (0.1248 in.)
		3.18 mm (0.1252 in.)
		3.19 mm (0.1256 in.)
		3.20 mm (0.1260 in.)
	Pre–stroke dimension B:	3.1 – 3.5 mm (0.122 – 0.138 in.)
	Flyweight holder thrust clearance	0.15 – 0.35 mm (0.0059 – 0.0138 in.)
	Governor shaft protrusion	0.5 – 2.0 mm (0.012 – 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.)

INJECTION PUMP ADJUSTMENT

Load sensing timer	Item	Pump rpm	No. of measuring strokes	Injection volume cc (cu in.)	Remark
	1HZ	1,600	200	Measured value at step (f) minus 1.4 (0.09)±0.4 (0.02)	Set to starting point
	1HZ	1,600	200	8.2 (0.50) or more	Check ending point

Item	Pump rpm	Timer piston fluctuation mm (in.)
1HZ	1,600	2.73 – 3.73 (0.1075 – 0.1469)

Governor sleeve hole diameter		
1.00 mm	0.0394 in.	
1.05 mm	0.0413 in.	
1.10 mm	0.0433 in.	

Idle speed	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 mimus 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)

Fast idle	1HZ at fuel temperature 15°C (59°F)	1.3 mm	0.051 in.
	at fuel temperature 30°C (86°F)	0 mm	0 in.
Adjusting lever	Lever moving angle	38 – 48°	

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INJECTION PUMP ADJUSTMENT (Cont'd)

Automatic timer	Item	Pump rpm	Piston stroke mm (in.)			
	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)			
	Timer spring free length		32.3 mm 1.272 in. 32.0 mm 1.260 in. 31.8 mm 1.252 in.			
Maximum speed	Item	Adjusting lever angle	Pump rpm	No. of measuring strokes	Injection volume cc (cu in.)	
	1HZ	Plus 21 - 31°	2,300	200	3.0 - 5.0 (0.18 - 0.31)	
			2,550	200	1.0 (0.06) or less	
Full load injection volume	Item	Adjusting lever angle position	Pump rpm	No. of measuring strokes	Injection volume cc (cu in.)	
	1HZ	Plus 21 - 31°	1,200	200	11.80 - 12.20 (0.72 - 0.74)	
Injection volume	Item	Adjusting lever angle	Pump rpm	No. of measuring strokes	Injection volume cc (cu in.)	Variation limit cc (cu in.)
	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)
	Governor sleeve plug head thickness		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.			

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INJECTION PUMP ADJUSTMENT (Cont'd)

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Preparations of pump tester	Test nozzle type Test nozzle opening pressure Injection pipe Outer diameter Inner diameter Length Minimum bending radius Fuel temperature Fuel feeding pressure			DN12SD12 14,220 - 15,200 kPa (145 - 155 kgf/cm², 2,062 - 2,205 psi) 6.0 mm 0.236 in. 2.0 mm 0.079 in. 840mm 33.07 in. 25mm (0.98 in.)or more 40 - 45°C 20 kPa (0.2 kgf/cm², 2.8 psi)	
Full load injection volume pre-setting	Item	Adjusting lever position	Pump rpm	No. of measuring strokes	Injection volume cc (cu in.)
	1HZ	Maximum speed side	1,200	200	11.80 - 12.20 (0.72 - 0.74)
Maximum speed pre-setting	Item	Adjusting lever position	Pump rpm	No. of measuring strokes	Injection volume cc (cu in.)
	1HZ	Maximum speed side	2,300	200	3.0 - 5.0 (0.18 - 0.31)
Pump inner pressure	Item	Pump rpm	Inner pressure kPa (kgf/cm², psi)		
	1HZ	500	245 - 304 (2.5 - 3.1, 36 - 44)		
		2,000	628 - 686 (6.4 - 7.0, 91 - 100)		
Overflow volume	Item	Pump rpm	Overflow volume cc/min. (cu in./min.)		
	1HZ	2,000	366 - 800 (22.3 - 48.8)		

V07033

EG88V-01

TORQUE SPECIFICATIONS

Part tightened	N·m	kgf·cm	ft·lbf
Nozzle holder body x Nozzle holder retaining nut	43	475	34
Fuel inlet pipe x Injection pump	25	250	18
Fuel outlet pipe x Injection pump	22.1	225	16.3