

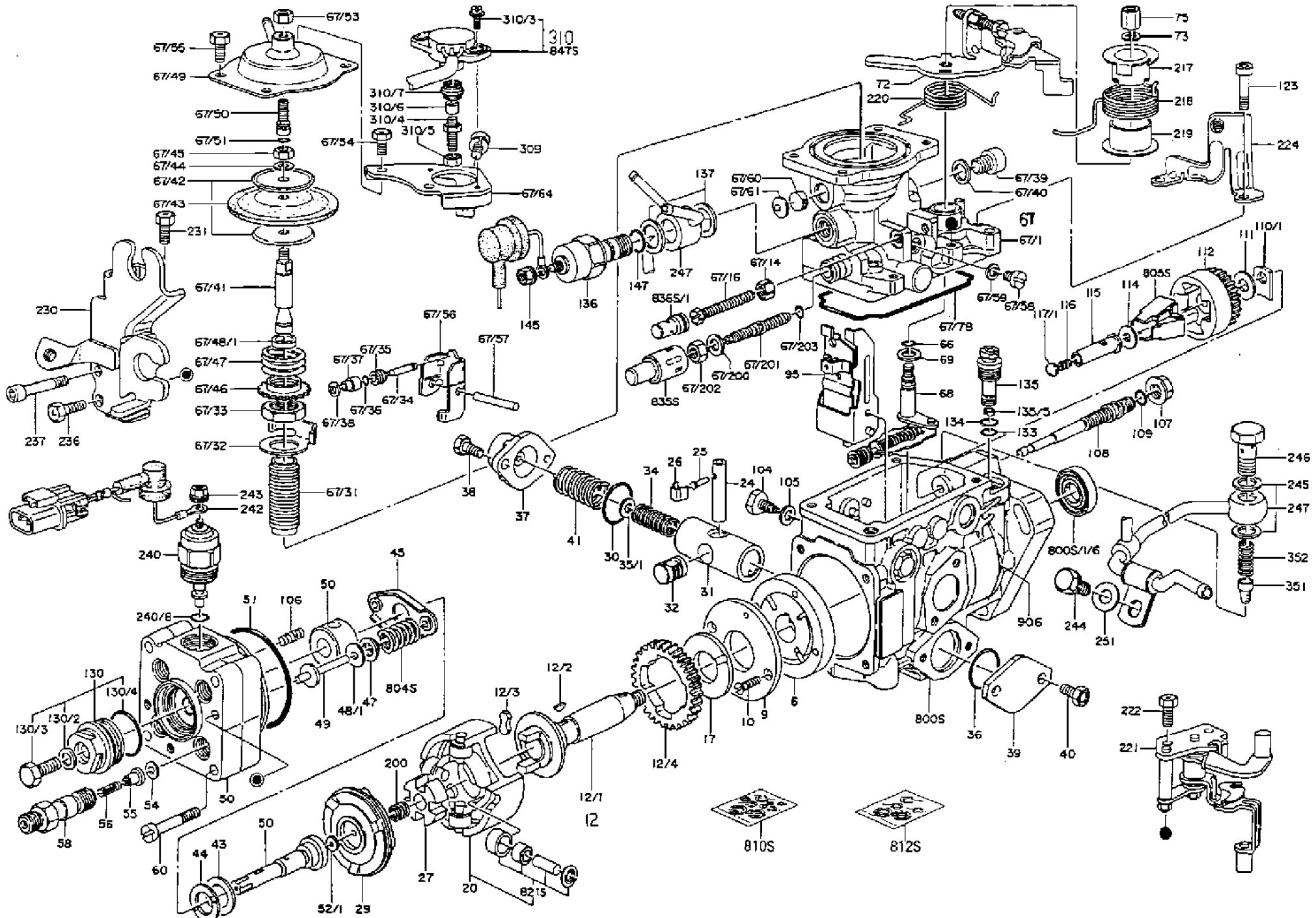
**ZEXEL  
COMPONENTS**

Date: 14.05.12  
Time: 10:32:59

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+ INJECTION-PUMP ASSEMBLY	104740-2860	9 460 610 986	
Manufacturer No.:	167001F105		
- FUEL-INJECTION PUMP	104640-2762	9 461 616 801	NP-VE4/10F2050RNP1527
- NAMEPLATE	146980-5200	9 461 616 928	
-			
-			
- NOZZLE AND HOLDER ASSY.	105148-1261	9 430 610 125	0050T
Nozzle and Holder:	16600-0F000		
Open Pre:MPa(Kgf/cm2):	9.8{100}		
- NOZZLE-HOLDER	105078-0050	9 430 615 042	
- NOZZLE	105007-1210	9 432 610 199	NP-DN0PDN121

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Product: 104740-2860 9 460 610 986 167001F105 INJECTION-PUMP ASSEMBLY

Item	ZEXEL No.	BOSCH No.	Info	Piece	Designation
1/6	146601-0900	9 461 614 046		1	PACKING RING
6	146100-0420	9 461 612 063		1	SUPPLY PUMP
9	146103-0100	9 461 611 411		1	COVER
10	139104-0000	9 411 610 049		2	FLAT-HEAD SCREW
12	146200-0020	9 461 610 101		1	# DRIVE SHAFT
12/1	146200-0000	9 461 610 100		1	DRIVE SHAFT
12/2	146201-0000	9 461 610 107		1	WOODRUFF KEY
12/3	146202-0100	9 461 610 109		2	DAMPER
12/4	146203-0000	9 461 610 110		1	TOOTHED GEAR
17	146204-0000	9 461 610 111		1	PLAIN WASHER
20	146210-2320	9 461 612 064		1	ROLLER SET
24	146303-0000	9 461 610 147		1	BEARING PIN
25	146304-0000	9 461 610 148		1	BEARING PIN
26	146305-0000	9 461 610 149		1	CLAMPING BAND
27	146205-0000	9 461 610 112		1	SLOTTED WASHER
29	146220-2120	9 461 614 976		1	CAM PLATE
30	146600-0800	9 461 610 421		1	O-RING
31	146311-8320	9 461 615 350		1	PUMP PLUNGER
32	146301-0000	9 461 610 138		1	SLIDING PIECE
34	146312-1800	9 461 612 066		1	COMPRESSION SPRING
35/1	146690-3200	9 461 612 011	A	1	SHIM:D11.5&9.4T0.1
35/1	146690-3300	9 461 612 012	A	1	SHIM:D11.5&9.4T0.2
35/1	146690-3400	9 461 612 013	A	1	SHIM:D11.5&9.4T0.25
35/1	146690-3500	9 461 612 014	A	1	SHIM:D11.5&9.4T1.0
35/1	146690-4100	9 461 612 015	A	1	SHIM:D11.5&9.4T2
35/1	146690-4200	9 461 612 278	A	1	SHIM:D11.5&9.4T0.5
35/1	146690-4300	9 461 612 279	A	1	SHIM:D11.5&9.4T0.75
36	146600-0800	9 461 610 421		1	O-RING
37	146310-4020	9 461 616 691		1	COVER
38	146620-5000	9 461 612 038		2	BLEEDER SCREW
39	146310-0100	9 461 610 151		1	COVER
40	146620-5000	9 461 612 038		2	BLEEDER SCREW
41	146312-3300	9 461 615 072		1	COMPRESSION SPRING
43	146230-0000	9 461 610 123		1	SHIM
44	146230-0100	9 461 610 124		1	PLAIN WASHER
45	146231-0001	9 461 614 270		1	SLOTTED WASHER
47	146233-0000	9 461 610 128		2	SLOTTED WASHER
48/1	146603-0000	9 461 610 440	A	1	SHIM:D17.0&5.2T0.50
48/1	146603-0100	9 461 610 441	A	1	SHIM:D17.0&5.2T0.80
48/1	146603-0200	9 461 610 442	A	1	SHIM:D17.0&5.2T1.00
48/1	146603-0300	9 461 610 443	A	1	SHIM:D17.0&5.2T1.20
48/1	146603-0400	9 461 610 444	A	1	SHIM:D17.0&5.2T1.50
48/1	146603-0500	9 461 610 445	A	1	SHIM:D17.0&5.2T1.80
48/1	146603-0600	9 461 610 446	A	1	SHIM:D17.0&5.2T2.00
48/1	146690-1400	9 461 611 329	A	1	SHIM:D17&5.2T0.9
48/1	146690-1500	9 461 611 330	A	1	SHIM:D17&5.2T1.1
48/1	146690-1600	9 461 611 331	A	1	SHIM:D17&5.2T1.3
48/1	146690-1700	9 461 611 332	A	1	SHIM:D17&5.2T1.4
48/1	146690-1800	9 461 611 333	A	1	SHIM:D17&5.2T1.6
48/1	146690-1900	9 461 611 334	A	1	SHIM:D17&5.2T1.7
48/1	146690-5800	9 461 619 110	A	1	SHIM
48/1	146690-5900	9 461 619 111	A	1	SHIM
48/1	146690-6000	9 461 619 112	A	1	SHIM
48/1	146690-6100	9 461 619 113	A	1	SHIM
48/1	146690-6200	9 461 619 114	A	1	SHIM
48/1	146690-6300	9 461 619 115	A	1	SHIM
48/1	146690-6400	9 461 619 116	A	1	SHIM
48/1	146690-6500	9 461 619 117	A	1	SHIM
48/1	146690-6600	9 461 619 118	A	1	SHIM
48/1	146690-6700	9 461 619 119	A	1	SHIM
48/1	146690-6800	9 461 619 120	A	1	SHIM
48/1	146690-6900	9 461 619 121	A	1	SHIM
48/1	146690-7000	9 461 619 122	A	1	SHIM

48/1	146690-7100	9 461 619 123	A	1	SHIM
48/1	146690-7200	9 461 615 908	A	1	SHIM
48/1	146690-7300	9 461 615 909	A	1	SHIM
48/1	146690-7400	9 461 615 910	A	1	SHIM
48/1	146690-7500	9 461 615 911	A	1	SHIM
48/1	146690-7800	9 461 619 124	A	1	SHIM
49	146234-0020	9 461 610 129		2	GUIDE PIN
50	146401-4120	9 461 616 826		1	HYDRAULIC HEAD
51	146600-0000	9 461 610 413		1	O-RING
52/1	146420-0000	9 461 610 177	A	1	SHIM:D9.5&3.0T1.90
52/1	146420-0100	9 461 610 178	A	1	SHIM:D9.5&3.0T1.92
52/1	146420-0200	9 461 610 179	A	1	SHIM:D9.5&3.0T1.94
52/1	146420-0300	9 461 610 180	A	1	SHIM:D9.5&3.0T1.96
52/1	146420-0400	9 461 610 181	A	1	SHIM:D9.5&3.0T1.98
52/1	146420-0500	9 461 610 182	A	1	SHIM:D9.5&3.0T2.00
52/1	146420-0600	9 461 610 183	A	1	SHIM:D9.5&3.0T2.02
52/1	146420-0700	9 461 610 184	A	1	SHIM:D9.5&3.0T2.04
52/1	146420-0800	9 461 610 185	A	1	SHIM:D9.5&3.0T2.06
52/1	146420-0900	9 461 610 186	A	1	SHIM:D9.5&3.0T2.08
52/1	146420-1000	9 461 610 187	A	1	SHIM:D9.5&3.0T2.10
52/1	146420-1100	9 461 610 188	A	1	SHIM:D9.5&3.0T2.12
52/1	146420-1200	9 461 610 189	A	1	SHIM:D9.5&3.0T2.14
52/1	146420-1300	9 461 610 190	A	1	SHIM:D9.5&3.0T2.16
52/1	146420-1400	9 461 610 191	A	1	SHIM:D9.5&3.0T2.18
52/1	146420-1500	9 461 610 192	A	1	SHIM:D9.5&3.0T2.20
52/1	146420-1600	9 461 610 193	A	1	SHIM:D9.5&3.0T2.22
52/1	146420-1700	9 461 610 194	A	1	SHIM:D9.5&3.0T2.24
52/1	146420-1800	9 461 610 195	A	1	SHIM:D9.5&3.0T2.26
52/1	146420-1900	9 461 610 196	A	1	SHIM:D9.5&3.0T2.28
52/1	146420-2000	9 461 610 197	A	1	SHIM:D9.5&3.0T2.30
52/1	146420-2100	9 461 610 198	A	1	SHIM:D9.5&3.0T2.32
52/1	146420-2200	9 461 610 199	A	1	SHIM:D9.5&3.0T2.34
52/1	146420-2300	9 461 610 200	A	1	SHIM:D9.5&3.0T2.36
52/1	146420-2400	9 461 610 201	A	1	SHIM:D9.5&3.0T2.38
52/1	146420-2500	9 461 610 202	A	1	SHIM:D9.5&3.0T2.40
52/1	146420-2600	9 461 610 203	A	1	SHIM:D9.5&3.0T2.42
52/1	146420-2700	9 461 610 204	A	1	SHIM:D9.5&3.0T2.44
52/1	146420-2800	9 461 610 205	A	1	SHIM:D9.5&3.0T2.46
52/1	146420-2900	9 461 610 206	A	1	SHIM:D9.5&3.0T2.48
52/1	146420-3000	9 461 610 207	A	1	SHIM:D9.5&3.0T2.50
52/1	146420-3100	9 461 610 208	A	1	SHIM:D9.5&3.0T2.52
52/1	146420-3200	9 461 610 209	A	1	SHIM:D9.5&3.0T2.54
52/1	146420-3300	9 461 610 210	A	1	SHIM:D9.5&3.0T2.56
52/1	146420-3400	9 461 610 211	A	1	SHIM:D9.5&3.0T2.58
52/1	146420-3500	9 461 610 212	A	1	SHIM:D9.5&3.0T2.60
52/1	146420-3600	9 461 610 213	A	1	SHIM:D9.5&3.0T2.62
52/1	146420-3700	9 461 610 214	A	1	SHIM:D9.5&3.0T2.64
52/1	146420-3800	9 461 610 215	A	1	SHIM:D9.5&3.0T2.66
52/1	146420-3900	9 461 610 216	A	1	SHIM:D9.5&3.0T2.68
52/1	146420-4000	9 461 610 217	A	1	SHIM:D9.5&3.0T2.70
52/1	146420-4100	9 461 610 218	A	1	SHIM:D9.5&3.0T2.72
52/1	146420-4200	9 461 610 219	A	1	SHIM:D9.5&3.0T2.74
52/1	146420-4300	9 461 610 220	A	1	SHIM:D9.5&3.0T2.76
52/1	146420-4400	9 461 610 221	A	1	SHIM:D9.5&3.0T2.78
52/1	146420-4500	9 461 610 222	A	1	SHIM:D9.5&3.0T2.80
52/1	146420-4600	9 461 610 223	A	1	SHIM:D9.5&3.0T2.82
52/1	146420-4700	9 461 610 224	A	1	SHIM:D9.5&3.0T2.84
52/1	146420-4800	9 461 610 225	A	1	SHIM:D9.5&3.0T2.86
52/1	146420-4900	9 461 610 226	A	1	SHIM:D9.5&3.0T2.88
52/1	146420-5000	9 461 610 227	A	1	SHIM:D9.5&3.0T2.90
52/1	146420-5100	9 461 610 228	A	1	SHIM:D9.5&3.0T1.74
52/1	146420-5200	9 461 610 229	A	1	SHIM:D9.5&3.0T1.76
52/1	146420-5300	9 461 610 230	A	1	SHIM:D9.5&3.0T1.78
52/1	146420-5400	9 461 610 231	A	1	SHIM:D9.5&3.0T1.80
52/1	146420-5500	9 461 610 232	A	1	SHIM:D9.5&3.0T1.82
52/1	146420-5600	9 461 610 233	A	1	SHIM:D9.5&3.0T1.84
52/1	146420-5700	9 461 610 234	A	1	SHIM:D9.5&3.0T1.86
52/1	146420-5800	9 461 610 235	A	1	SHIM:D9.5&3.0T1.88
54	146433-0100	9 461 610 239		4	GASKET:D12&6.4T1.00

55	146430-6620	9 413 610 300	4	DELIVERY-VALVE ASSEMBLY
56	146432-0000	9 461 610 238	4	COMPRESSION SPRING
58	146440-2720	9 461 617 960	4	FITTING
60	139106-0100	9 411 610 051	3	FLAT-HEAD SCREW
66	146600-0100	9 461 610 414	1	O-RING
67	146760-2620	9 461 616 890	1	# MANIFOLD-PRESSURE COMP.
67/1	146805-3320	9 461 615 656	1	GOVERNOR COVER
67/14	146621-1700	9 461 610 503	1	UNION NUT
67/16	146526-3000	9 461 611 439	1	BLEEDER SCREW
67/31	146710-0800	9 461 611 236	1	BUSHING
67/32	146711-0000	9 461 610 554	1	PLATE
67/33	139218-0400	9 411 610 060	1	UNION NUT
67/34	146712-1700	9 461 615 285	1	BEARING PIN
67/35	146621-0300	9 461 610 502	1	UNION NUT
67/36	146600-1400	9 461 610 426	1	O-RING
67/37	146710-1400	9 461 615 284	1	BUSHING
67/38	139506-0200	9 411 610 073	1	GASKET:D8.9&6.8T1.00
67/39	146620-0300	9 461 610 498	1	CAPSULE
67/40	026512-1540	9 442 610 044	1	GASKET:D15.4&12.2T1.50
67/41	146713-4100	9 461 615 286	1	ADJUSTING PIN
67/42	146714-0000	9 461 610 558	2	PLATE
67/43	146715-0000	9 461 610 559	1	DIAPHRAGM
67/44	139306-0100	9 411 610 061	1	LOCKING WASHER
67/45	013030-6040	9 442 610 012	1	UNION NUT:M6P1H3.6
67/46	146716-0000	9 461 610 560	1	UNION NUT
67/47	146717-3300	9 461 614 849	1	COILED SPRING
67/48/1	146720-0000	9 461 610 563	A 1	SPACER BUSHING:L3.7
67/48/1	146720-0100	9 461 610 564	A 1	SPACER BUSHING:L3.9
67/48/1	146720-0200	9 461 610 565	A 1	SPACER BUSHING:L4.1
67/48/1	146720-0300	9 461 610 566	A 1	SPACER BUSHING:L4.3
67/48/1	146720-0400	9 461 610 567	A 1	SPACER BUSHING:L4.5
67/48/1	146720-0500	9 461 610 568	A 1	SPACER BUSHING:L4.7
67/48/1	146720-0600	9 461 610 569	A 1	SPACER BUSHING:L4.9
67/48/1	146720-0700	9 461 610 570	A 1	SPACER BUSHING:L5.1
67/48/1	146720-0800	9 461 610 571	A 1	SPACER BUSHING:L5.3
67/48/1	146720-0900	9 461 610 572	A 1	SPACER BUSHING:L2.7
67/48/1	146720-1000	9 461 610 573	A 1	SPACER BUSHING:L2.9
67/48/1	146720-1100	9 461 610 574	A 1	SPACER BUSHING:L3.1
67/48/1	146720-1200	9 461 610 575	A 1	SPACER BUSHING:L3.3
67/48/1	146720-1300	9 461 610 576	A 1	SPACER BUSHING:L3.5
67/48/1	146720-1400	9 461 610 577	A 1	SPACER BUSHING:L2.8
67/48/1	146720-1500	9 461 610 578	A 1	SPACER BUSHING:L3.0
67/48/1	146720-1600	9 461 610 579	A 1	SPACER BUSHING:L3.2
67/48/1	146720-1700	9 461 610 580	A 1	SPACER BUSHING:L3.4
67/48/1	146720-1800	9 461 610 581	A 1	SPACER BUSHING:L3.6
67/48/1	146720-1900	9 461 610 582	A 1	SPACER BUSHING:L3.8
67/48/1	146720-2000	9 461 610 583	A 1	SPACER BUSHING:L4.0
67/48/1	146720-2100	9 461 610 584	A 1	SPACER BUSHING:L4.2
67/48/1	146720-2200	9 461 610 585	A 1	SPACER BUSHING:L4.4
67/48/1	146720-2300	9 461 610 586	A 1	SPACER BUSHING:L4.6
67/48/1	146720-2400	9 461 610 587	A 1	SPACER BUSHING:L4.8
67/48/1	146720-2500	9 461 610 588	A 1	SPACER BUSHING:L5.0
67/48/1	146720-2600	9 461 610 589	A 1	SPACER BUSHING:L5.2
67/48/1	146720-2700	9 461 610 590	A 1	SPACER BUSHING:L5.4
67/48/1	146720-2800	9 461 610 591	A 1	SPACER BUSHING:L5.5
67/48/1	146720-2900	9 461 610 592	A 1	SPACER BUSHING:L5.6
67/48/1	146720-4500	9 461 611 033	A 1	SPACER BUSHING:L1.8
67/48/1	146720-4600	9 461 611 034	A 1	SPACER BUSHING:L1.9
67/48/1	146720-4700	9 461 611 035	A 1	SPACER BUSHING:L2.0
67/48/1	146720-4800	9 461 611 036	A 1	SPACER BUSHING:L2.1
67/48/1	146720-4900	9 461 611 037	A 1	SPACER BUSHING:L2.2
67/48/1	146720-5000	9 461 611 038	A 1	SPACER BUSHING:L2.3
67/48/1	146720-5100	9 461 611 039	A 1	SPACER BUSHING:L2.4
67/48/1	146720-5200	9 461 611 040	A 1	SPACER BUSHING:L2.5
67/48/1	146720-5300	9 461 611 041	A 1	SPACER BUSHING:L2.6
67/48/1	146725-2500	9 461 614 256	A 1	SPACER BUSHING:L5.7
67/48/1	146725-2600	9 461 614 257	A 1	SPACER BUSHING:L5.8
67/48/1	146725-2700	9 461 614 258	A 1	SPACER BUSHING:L5.9
67/48/1	146725-2800	9 461 614 259	A 1	SPACER BUSHING:L6.0

67/48/1	146725-2900	9 461 614 260	A	1	SPACER BUSHING:L6.1
67/48/1	146725-3000	9 461 614 261	A	1	SPACER BUSHING:L6.2
67/48/1	146725-3100	9 461 614 262	A	1	SPACER BUSHING:L6.3
67/48/1	146725-3200	9 461 614 263	A	1	SPACER BUSHING:L6.4
67/48/1	146725-3300	9 461 614 264	A	1	SPACER BUSHING:L6.5
67/48/1	146725-3400	9 461 614 265	A	1	SPACER BUSHING:L6.6
67/48/1	146725-3500	9 461 614 266	A	1	SPACER BUSHING:L6.7
67/48/1	146725-3600	9 461 614 267	A	1	SPACER BUSHING:L6.8
67/48/1	146725-3700	9 461 614 268	A	1	SPACER BUSHING:L6.9
67/48/1	146725-3800	9 461 614 269	A	1	SPACER BUSHING:L7.0
67/48/1	146725-3900	9 461 617 846	A	1	SPACER BUSHING:L7.1
67/48/1	146725-4000	9 461 617 847	A	1	SPACER BUSHING:L7.2
67/48/1	146725-4100	9 461 617 848	A	1	SPACER BUSHING:L7.3
67/48/1	146725-4200	9 461 617 849	A	1	SPACER BUSHING:L7.4
67/48/1	146725-4300	9 461 617 850	A	1	SPACER BUSHING:L7.5
67/49	146721-4020	9 461 616 888		1	COVER
67/50	146722-0200	9 461 615 396		1	FLAT-HEAD SCREW
67/51	146600-0300	9 461 610 416		1	O-RING
67/53	013020-6040	9 442 610 010		1	UNION NUT:M6P1H5
67/54	139006-4600	9 411 610 667		2	BLEEDER SCREW
67/55	139006-4500	9 411 610 554		2	BLEEDER SCREW
67/56	146723-0200	9 461 611 259		1	CONTROL LEVER
67/57	146712-0100	9 461 610 556		1	BEARING PIN
67/58	146620-0600	9 461 610 500		2	CAPSULE
67/59	026506-1040	9 421 617 011		2	GASKET:D9.9&6.2T1
67/60	146724-0300	9 461 611 260		1	ELEMENT
67/61	146724-0600	9 461 611 262		1	CAPSULE
67/64	146927-2300	9 461 613 692		1	BRACKET
67/78	146600-4400	9 461 615 663		1	SEAL RING
67/200	139308-0300	9 411 610 063		1	PLAIN WASHER
67/201	146545-3400	9 461 612 181	A	1	THREADED PIN:L53.00
67/201B	146545-3500	9 461 612 182	A	1	THREADED PIN:L55.00
67/201C	146545-3600	9 461 612 183	A	1	THREADED PIN:L57.00
67/202	139208-0900	9 411 610 627		1	UNION NUT
67/203	146600-1200	9 461 610 424		1	O-RING
68	146810-3320	9 461 616 894		1	CONTROL SHAFT
69	139310-0200	9 411 610 065		1	PLAIN WASHER
72	146536-5320	9 461 613 674	A	1	CONTROL LEVER
72B	146536-5420	9 461 613 675	A	1	CONTROL LEVER
72C	146830-6720	9 461 615 296	A	1	CONTROL LEVER
72D	146830-6820	9 461 615 297	A	1	CONTROL LEVER
73	014110-6440	9 442 610 020		1	LOCKING WASHER
75	146621-0700	9 461 611 508		1	UNION NUT
95	146851-3720	9 461 616 900		1	FULCRUM LEVER
104	146568-0000	9 461 610 342		2	SLOTTED SPRING PIN
105	026508-1140	0 986 613 069		2	GASKET:D11.4&8.2T1
106	146588-0500	9 461 611 663		2	COILED SPRING
107	146569-0300	9 461 612 031		1	UNION NUT
108	146570-0420	9 461 610 347		1	GOVERNOR SHAFT
109	146600-0400	9 461 610 417		1	O-RING
110/1	146571-0000	9 461 610 348	A	1	SHIM:D20.2&8.3T1.05
110/1	146571-0100	9 461 610 349	A	1	SHIM:D20.2&8.3T1.25
110/1	146571-0200	9 461 610 350	A	1	SHIM:D20.2&8.3T1.45
110/1	146571-0300	9 461 610 351	A	1	SHIM:D20.2&8.3T1.65
110/1	146571-0400	9 461 610 352	A	1	SHIM:D20.2&8.3T1.85
110/1	146571-0500	9 461 610 353	A	1	SHIM:D20.2&8.3T1.15
110/1	146571-0600	9 461 610 354	A	1	SHIM:D20.2&8.3T1.35
110/1	146571-0700	9 461 610 355	A	1	SHIM:D20.2&8.3T1.55
110/1	146571-0800	9 461 610 356	A	1	SHIM:D20.2&8.3T1.75
111	146602-0600	9 461 610 437		1	PLAIN WASHER:D20&8.4T1.40
112	146572-0020	9 461 610 357		1	FLYWEIGHT ASSEMBLY
114	146602-0500	9 461 610 436		1	PLAIN WASHER:D17&6.4T1.60
115	146575-8100	9 461 616 837		1	SLIDING SLEEVE
116	146576-0200	9 461 610 851		1	CAP
117/1	146577-1800	9 461 610 383	A	1	PLUG:L2.10
117/1	146577-1900	9 461 610 384	A	1	PLUG:L2.30
117/1	146577-2000	9 461 610 385	A	1	PLUG:L2.50
117/1	146577-2100	9 461 610 386	A	1	PLUG:L2.70
117/1	146577-2200	9 461 610 387	A	1	PLUG:L2.90

117/1	146577-2300	9 461 610 388	A	1	PLUG:L3.10
117/1	146577-2400	9 461 610 389	A	1	PLUG:L3.30
117/1	146577-2500	9 461 610 390	A	1	PLUG:L3.50
117/1	146577-2600	9 461 610 391	A	1	PLUG:L3.70
117/1	146577-2700	9 461 610 392	A	1	PLUG:L3.90
117/1	146577-2800	9 461 610 393	A	1	PLUG:L4.10
117/1	146577-2900	9 461 610 394	A	1	PLUG:L4.30
117/1	146577-3000	9 461 610 395	A	1	PLUG:L4.50
117/1	146577-3100	9 461 610 396	A	1	PLUG:L4.70
117/1	146577-3200	9 461 610 397	A	1	PLUG:L4.90
117/1	146577-3300	9 461 610 398	A	1	PLUG:L5.10
117/1	146577-6700	9 461 611 309	A	1	PLUG:L2.2
117/1	146577-6800	9 461 611 310	A	1	PLUG:L2.4
117/1	146577-6900	9 461 611 311	A	1	PLUG:L2.6
117/1	146577-7000	9 461 611 312	A	1	PLUG:L2.8
117/1	146577-7100	9 461 611 313	A	1	PLUG:L3.0
117/1	146577-7200	9 461 611 314	A	1	PLUG:L3.2
117/1	146577-7300	9 461 611 315	A	1	PLUG:L3.4
117/1	146577-7400	9 461 611 316	A	1	PLUG:L3.6
117/1	146577-7500	9 461 611 317	A	1	PLUG:L3.8
117/1	146577-7600	9 461 611 318	A	1	PLUG:L4.0
117/1	146577-7700	9 461 611 319	A	1	PLUG:L4.2
117/1	146577-7800	9 461 611 320	A	1	PLUG:L4.4
117/1	146577-7900	9 461 611 321	A	1	PLUG:L4.6
117/1	146577-8000	9 461 611 322	A	1	PLUG:L4.8
117/1	146577-8100	9 461 611 323	A	1	PLUG:L5.0
117/1	146877-0000	9 461 613 553	A	1	PLUG:L5.2
117/1	146877-0100	9 461 613 554	A	1	PLUG:L5.3
117/1	146877-0200	9 461 613 555	A	1	PLUG:L5.4
117/1	146877-0300	9 461 613 556	A	1	PLUG:L5.5
117/1	146877-4700	9 461 616 284	A	1	PLUG
117/1	146877-4800	9 461 616 285	A	1	PLUG
117/1	146877-4900	9 461 616 286	A	1	PLUG
117/1	146877-5000	9 461 616 287	A	1	PLUG
123	146620-0500	9 461 610 499		4	HEX-SOCKET-HEAD CAP SCREW
130	146421-0020	9 461 610 236		1	# CAPSULE
130/2	026508-1140	0 986 613 069		1	GASKET:D11.4&8.2T1
130/3	146422-0000	9 461 610 237		1	BLEEDER SCREW
130/4	146600-0500	9 461 610 418		1	O-RING
133	146600-0600	9 461 610 419		1	O-RING
134	146600-0700	9 461 610 420		1	O-RING
135	146110-0520	9 461 610 687		1	# CONTROL VALVE
135/5	146114-0000	9 461 610 094		1	SPRING WASHER
136	146650-3920	9 461 612 133		1	PULLING ELECTROMAGNET
137	139514-0200	9 411 610 080		2	GASKET
145	146621-1000	9 461 611 665		1	UNION NUT
147	146600-5000	9 461 618 321		1	O-RING
200	146206-0100	9 461 610 113		1	COILED SPRING
217	146541-3100	9 461 610 320		1	SLOTTED WASHER
218	146592-6100	9 461 615 273		1	COILED SPRING
219	146541-3000	9 461 610 319		1	BUSHING
220	146592-6000	9 461 615 272		1	COILED SPRING
221	146927-2620	9 461 613 693		1	BRACKET
222	139006-4600	9 411 610 667		2	BLEEDER SCREW
224	146927-2700	9 461 613 694		1	BRACKET
230	146930-4220	9 461 615 310		1	BRACKET
231	139006-4600	9 411 610 667		1	BLEEDER SCREW
236	139006-4800	9 411 610 556		1	BLEEDER SCREW
237	146620-0200	9 461 610 497		1	HEX-SOCKET-HEAD CAP SCREW
240	146650-0720	9 461 610 530		1	# PULLING ELECTROMAGNET
240/8	146600-1700	9 461 610 427		1	O-RING
242	146658-6420	9 461 613 329		1	WIRE
243	146621-1000	9 461 611 665		1	UNION NUT
244	020118-1440	9 442 610 672		1	BLEEDER SCREW
245	139512-0500	9 411 611 625		2	GASKET
246	027412-2440	9 442 610 048		1	EYE BOLT
247	146665-7620	9 461 615 276		1	PIPE
251	014010-8140	9 442 610 015		1	PLAIN WASHER:D18&8.5T1.6
309	020146-1270	9 442 610 642		1	BLEEDER SCREW

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310	146683-4920	9 461 615 658	1	#	POTENCIOMETER
310/3	139104-0400	9 411 610 668	2		FLAT-HEAD SCREW
310/4	146620-1500	9 461 612 272	1		FLAT-HEAD SCREW
310/5	013020-6040	9 442 610 010	1		UNION NUT:M6P1H5
310/6	146614-2300	9 461 612 884	1		JOINT CONNECTION
310/7	146661-0401	9 461 615 767	1		BOOT
351	146125-0101	9 461 613 603	1		FILTER
352	146125-0200	9 461 611 413	1		COILED SPRING
800S	146018-0420	9 461 614 652	1		PUMP HOUSING
800S/1/6	146601-0900	9 461 614 046	1		PACKING RING
804S	146232-0320	9 461 610 127	1		COMPRESSION SPRING
805S	146574-0120	9 461 610 358	1		PARTS SET
810S	146600-1120	9 461 610 423	1		REPAIR SET
812S	146600-1920	9 461 610 429	1		PARTS SET
821S	146210-5720	9 461 616 128	1		ROLLER SET
835S	146598-1000	9 461 612 195	1		CAP
836S/1	146598-0600	9 461 612 191	A	1	CAP:L18
836S/1	146598-0700	9 461 612 192	A	1	CAP:L21
836S/1	146598-0800	9 461 612 193	A	1	CAP:L24
836S/1	146598-0900	9 461 612 194	A	1	CAP:L27
847S	146683-4910	9 461 616 876	1		POTENCIOMETER
906	146980-5200	9 461 616 928	1		NAMEPLATE

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ZEXEL Ass'y No.	104740-2860
Bosch Ass'y No.	9 460 610 986
Bosch Typecode	
Engine Type	TD27-T
Manufacturer	
Edition date	30.05.01

**1 Adjustment conditions**

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
	Test oil		ISO4113orSAEJ967 d				
		1404 Test oil					
P	Test oil temperature	degC	45	45	50		
	Nozzle		105780-0060				
	Bosch type code		NP-DN0SD1510				
	Nozzle holder		105780-2150				
P	Opening pressure	MPa	13	13	13.3		
P	Opening pressure	kgf/cm2	133	133	136		
	Injection pipe		157805-7320				
P	Injection pipe	mm	2-6-450				
		Inside diameter - outside diameter - length (mm)					
	Joint assembly		157641-4720				
	Tube assembly		157641-4020				
P	Transfer pump pressure	kPa	20	20	20		
P	Transfer pump pressure	kgf/cm2	0.2	0.2	0.2		
	Direction of rotation (viewed from drive side)		R				
		Right					

**2 Adjustment specification****2.1 Full load delivery**

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	600	600	600		
P	Boost pressure	kPa	0	0	0		
P	Boost pressure	kgf/cm2	0	0	0		
P	Boost pressure	mmHg	0	0	0		
S	Average injection quantity	mm3/st.	48	47.5	48.5		
P	Basic		*				
P	Oil temperature	degC	50	48	52		
	Remarks						
		NA					

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	850	850	850		
P	Boost pressure	kPa	40	38.7	41.3		
P	Boost pressure	kgf/cm2	0.41	0.396	0.424		
P	Boost pressure	mmHg	300	290	310		
S	Average injection quantity	mm3/st.	58.4	57.9	58.9		
P	Basic		*				
P	Oil temperature	degC	50	48	52		
	Remarks						
		CBS					

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1100	1100	1100		
P	Boost pressure	kPa	66.7	65.4	68		
P	Boost pressure	kgf/cm2	0.68	0.666	0.694		
P	Boost pressure	mmHg	500	490	510		
S	Average injection quantity	mm3/st.	66.4	65.9	66.9		
S	Difference in delivery	mm3/st.	5		5		
P	Basic		*				
P	Oil temperature	degC	50	48	52		
	Remarks						
		Full					

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	600	600	600		
P	Boost pressure	kPa	0	0	0		
P	Boost pressure	kgf/cm2	0	0	0		
P	Boost pressure	mmHg	0	0	0		
C	Average injection quantity	mm3/st.	48	47	49		
P	Basic		*				
P	Oil temperature	degC	50	48	52		
	Remarks						

NA							
CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	800	800	800		
P	Boost pressure	kPa	0	0	0		
P	Boost pressure	kgf/cm2	0	0	0		
P	Boost pressure	mmHg	0	0	0		
C	Average injection quantity	mm3/st.	51.5	49	54		
About							
P	Oil temperature	degC	50	48	52		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	850	850	850		
P	Boost pressure	kPa	40	38.7	41.3		
P	Boost pressure	kgf/cm2	0.41	0.396	0.424		
P	Boost pressure	mmHg	300	290	310		
C	Average injection quantity	mm3/st.	58.4	57.4	59.4		
P	Basic		*				
P	Oil temperature	degC	50	48	52		
Remarks							
CBS							

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1100	1100	1100		
P	Boost pressure	kPa	66.7	65.4	68		
P	Boost pressure	kgf/cm2	0.68	0.666	0.694		
P	Boost pressure	mmHg	500	490	510		
C	Average injection quantity	mm3/st.	66.4	65.4	67.4		
C	Difference in delivery	mm3/st.	5.5		5.5		
P	Basic		*				
P	Oil temperature	degC	50	48	52		
Remarks							
Full							

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1500	1500	1500		
P	Boost pressure	kPa	66.7	65.4	68		
P	Boost pressure	kgf/cm2	0.68	0.666	0.694		
P	Boost pressure	mmHg	500	490	510		
C	Average injection quantity	mm3/st.	66.7	64.2	69.2		
About							
P	Oil temperature	degC	50	48	52		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	2000	2000	2000		
P	Boost pressure	kPa	66.7	65.4	68		
P	Boost pressure	kgf/cm2	0.68	0.666	0.694		
P	Boost pressure	mmHg	500	490	510		
C	Average injection quantity	mm3/st.	58.2	55.2	61.2		
About							
P	Oil temperature	degC	50	48	52		

## 2.2 Governing

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	2500	2500	2500		
P	Boost pressure	kPa	66.7	65.4	68		
P	Boost pressure	kgf/cm2	0.68	0.666	0.694		
P	Boost pressure	mmHg	500	490	510		
S	Average injection quantity	mm3/st.	20.6	18.6	22.6		
P	Basic		*				
P	Oil temperature	degC	55	52	58		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	2700	2700	2700		
P	Boost pressure	kPa	66.7	65.4	68		
P	Boost pressure	kgf/cm2	0.68	0.666	0.694		
P	Boost pressure	mmHg	500	490	510		
C	Average injection quantity	mm3/st.	5		5		
P	Oil temperature	degC	55	52	58		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	2500	2500	2500		
P	Boost pressure	kPa	66.7	65.4	68		
P	Boost pressure	kgf/cm2	0.68	0.666	0.694		
P	Boost pressure	mmHg	500	490	510		
C	Average injection quantity	mm3/st.	20.6	17.6	23.6		
P	Basic		*				
P	Oil temperature	degC	55	52	58		

## 2.3 Idle

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	435	435	435		
P	Boost pressure	kPa	0	0	0		
P	Boost pressure	kgf/cm <sup>2</sup>	0	0	0		
P	Boost pressure	mmHg	0	0	0		
S	Average injection quantity	mm <sup>3</sup> /st.	7.9	5.9	9.9		
S	Difference in delivery	mm <sup>3</sup> /st.	2		2		
P	Basic		*				
P	Oil temperature	degC	48	46	50		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	435	435	435		
P	Boost pressure	kPa	0	0	0		
P	Boost pressure	kgf/cm <sup>2</sup>	0	0	0		
P	Boost pressure	mmHg	0	0	0		
C	Average injection quantity	mm <sup>3</sup> /st.	7.9	5.4	10.4		
C	Difference in delivery	mm <sup>3</sup> /st.	2.5		2.5		
P	Basic		*				
P	Oil temperature	degC	48	46	50		

## 2.4 Start

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	100	100	100		
P	Boost pressure	kPa	0	0	0		
P	Boost pressure	kgf/cm <sup>2</sup>	0	0	0		
P	Boost pressure	mmHg	0	0	0		
S	Average injection quantity	mm <sup>3</sup> /st.	65	50	85		
P	Oil temperature	degC	48	46	50		
	Remarks						
		Full					

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	100	100	100		
P	Boost pressure	kPa	0	0	0		
P	Boost pressure	kgf/cm <sup>2</sup>	0	0	0		
P	Boost pressure	mmHg	0	0	0		
C	Average injection quantity	mm <sup>3</sup> /st.	65	50	85		
P	Oil temperature	degC	48	46	50		
	Remarks						
		Full					

## 2.5 Stop

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	435	435	435		
P	Boost pressure	kPa	0	0	0		
P	Boost pressure	kgf/cm <sup>2</sup>	0	0	0		
P	Boost pressure	mmHg	0	0	0		
C	Average injection quantity	mm <sup>3</sup> /st.	0	0	0		
P	Oil temperature	degC	48	46	50		
	Remarks						
		Magnet OFF at idling position					

## 2.6 Overflow

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1100	1100	1100		
P	Boost pressure	kPa	66.7	65.4	68		
P	Boost pressure	kgf/cm <sup>2</sup>	0.68	0.666	0.694		
P	Boost pressure	mmHg	500	490	510		
C	Overflow quantity with S/T ON	cm <sup>3</sup> /min	590	460	720		
P	Oil temperature	degC	50	48	52		

## 2.7 Pump chamber pressure

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1100	1100	1100		
P	Boost pressure	kPa	66.7	65.4	68		
P	Boost pressure	kgf/cm <sup>2</sup>	0.68	0.666	0.694		
P	Boost pressure	mmHg	500	490	510		
S	Pressure with S/T ON	kPa	608	569	647		
		About					
S	Pressure with S/T ON	kgf/cm <sup>2</sup>	6.2	5.8	6.6		
		About					
S	Pressure with S/T OFF	kPa	461	432	490		
S	Pressure with S/T OFF	kgf/cm <sup>2</sup>	4.7	4.4	5		
P	Basic		*				
P	Oil temperature	degC	50	48	52		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1100	1100	1100		
P	Boost pressure	kPa	66.7	65.4	68		
P	Boost pressure	kgf/cm <sup>2</sup>	0.68	0.666	0.694		
P	Boost pressure	mmHg	500	490	510		
C	Pressure with S/T OFF	kPa	461	422	500		
C	Pressure with S/T OFF	kgf/cm <sup>2</sup>	4.7	4.3	5.1		
P	Basic		*				
P	Oil temperature	degC	50	48	52		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1500	1500	1500		
P	Boost pressure	kPa	66.7	65.4	68		
P	Boost pressure	kgf/cm <sup>2</sup>	0.68	0.666	0.694		
P	Boost pressure	mmHg	500	490	510		
C	Pressure with S/T OFF	kPa	579	540	618		
		About					
C	Pressure with S/T OFF	kgf/cm <sup>2</sup>	5.9	5.5	6.3		
		About					
P	Oil temperature	degC	50	48	52		

## 2.8 Timer

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1100	1100	1100		
P	Boost pressure	kPa	66.7	65.4	68		
P	Boost pressure	kgf/cm <sup>2</sup>	0.68	0.666	0.694		
P	Boost pressure	mmHg	500	490	510		
S	Timer stroke with S/T ON	mm	6.5	6.1	6.9		
		About					
S	Timer stroke with S/T OFF	mm	4.1	3.9	4.3		
P	Basic		*				
P	Oil temperature	degC	50	48	52		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	700	700	700		
P	Boost pressure	kPa	66.7	65.4	68		
P	Boost pressure	kgf/cm <sup>2</sup>	0.68	0.666	0.694		
P	Boost pressure	mmHg	500	490	510		
C	Timer stroke with S/T OFF	mm	1.5	1	2		
		About					
P	Oil temperature	degC	50	48	52		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1100	1100	1100		
P	Boost pressure	kPa	66.7	65.4	68		
P	Boost pressure	kgf/cm <sup>2</sup>	0.68	0.666	0.694		
P	Boost pressure	mmHg	500	490	510		
C	Timer stroke with S/T ON	mm	6.5	6	7		
		About					
C	Timer stroke with S/T OFF	mm	4.1	3.8	4.4		
P	Basic		*				
P	Oil temperature	degC	50	48	52		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1500	1500	1500		
P	Boost pressure	kPa	66.7	65.4	68		
P	Boost pressure	kgf/cm <sup>2</sup>	0.68	0.666	0.694		
P	Boost pressure	mmHg	500	490	510		
C	Timer stroke with S/T OFF	mm	6.1	5.6	6.6		
		About					
P	Oil temperature	degC	50	48	52		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	2250	2250	2250		
P	Boost pressure	kPa	66.7	65.4	68		
P	Boost pressure	kgf/cm <sup>2</sup>	0.68	0.666	0.694		
P	Boost pressure	mmHg	500	490	510		
C	Timer stroke with S/T OFF	mm	9	8.5	9.4		
P	Oil temperature	degC	52	50	54		

## 2.9 Magnet

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
C	Max. applied voltage	V	8	8	8		
P	Test voltage	V	13	12	14		

## 2.10 Compensator

### 2.10.1 Load-timer adjustment

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1100	1100	1100		
P	Boost pressure	kPa	66.7	65.4	68		
P	Boost pressure	kgf/cm <sup>2</sup>	0.68	0.666	0.694		
P	Boost pressure	mmHg	500	490	510		
S	Average injection quantity	mm <sup>3</sup> /st.	42	41.5	42.5		
S	Timer stroke TA	mm	3.1	2.9	3.3		
S	Timer stroke variation dT	mm	1	1	1		

About

P	Basic		*				
P	Oil temperature	degC	50	48	52		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1100	1100	1100		
P	Boost pressure	kPa	66.7	65.4	68		
P	Boost pressure	kgf/cm <sup>2</sup>	0.68	0.666	0.694		
P	Boost pressure	mmHg	500	490	510		
C	Average injection quantity	mm <sup>3</sup> /st.	42	41	43		
C	Timer stroke TA	mm	3.1	2.8	3.4		
C	Timer stroke variation dT	mm	1	1	1		

About

P	Basic		*				
P	Oil temperature	degC	50	48	52		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1100	1100	1100		
P	Boost pressure	kPa	66.7	65.4	68		
P	Boost pressure	kgf/cm <sup>2</sup>	0.68	0.666	0.694		
P	Boost pressure	mmHg	500	490	510		
C	Average injection quantity	mm <sup>3</sup> /st.	30	27.5	32.5		
C	Timer stroke TA	mm	2.2	1.7	2.7		

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C	Timer stroke variation dT	mm	1.9	1.9	1.9		
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About

P	Oil temperature	degC	50	48	52		
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CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	850	850	850		
P	Boost pressure	kPa	66.7	65.4	68		
P	Boost pressure	kgf/cm <sup>2</sup>	0.68	0.666	0.694		
P	Boost pressure	mmHg	500	490	510		
C	Average injection quantity	mm <sup>3</sup> /st.	30	27.5	32.5		
C	Timer stroke TA	mm	0.8	0.3	1.3		

About

P	Oil temperature	degC	50	48	52		
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## 2.11 Additional device adjustment

2.11.1 Additional device 1

Name		POTENTIOMETER ADJUSTMENT				
N1=850r/min Q1=24.6+-1.0mm3/st V1=2.92+-0.03V V2=1.65+-0.41V V3=7.56+-0.6V V4=2.42+-0.8V V5=4.83+-0.6V C3=0.1++deg C4=-deg P1=0kPa P2=0mmHg Vi=10.0V		<b>N</b>	<b>Q</b>	<b>V</b>	<b>C</b>	
	<b>A</b>	<b>N1</b>	<b>Q1</b>	<b>V1</b>	<b>C1</b>	<b>F</b>
				<b>V2</b>	<b>C2</b>	<b>G</b>
				<b>V3</b>		<b>H</b>
	<b>B</b>			<b>V4</b>	<b>C3</b>	<b>D</b>
			<b>V5</b>	<b>C4</b>	<b>E</b>	
		<b>P</b>	<b>P1</b>	<b>P2</b>	<b>Vi</b>	
V1=2.92+-0.03V P1=0kPa P2=0mmHg Vi=10.0V	Potentiometer adjustment 1. Applied voltage: Vi 2. Boost pressure = P1kPa {P2 mmHg} 3. Set the control lever at the adjusting point. Position the dummy bolt against the lever and fix. 4. Assemble the potentiometer to obtain output voltage V1 (V) at the fixed position. 5. After mounting the potentiometer, remove the dummy bolt. N: Pump speed Q: Injection quantity V: Output voltage A: Performance standards B: ON, OFF switch standard C: Angle of the control lever D: OFF-->ON E: OFF-->ON F: Adjusting point G: Checking point C1: Idle C2: Full-speed					

3 Assembly dimension

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
S	K dimension	mm	3.3	3.2	3.4		
S	KF dimension	mm	5.8	5.7	5.9		
S	MS dimension	mm	1.3	1.2	1.4		
S	BCS stroke	mm	3	2.8	3.2		
S	Pre-stroke	mm	0.1	0.08	0.12		
S	Control lever angle alpha	deg.	10	6	14		
S	Control lever angle beta	deg.	36	31	41		