

**ZEXEL
COMBINATIONS**

Date: 30.09.15
Time: 01:19:34

Product: 104646-1322 9 461 619 365 FUEL-INJECTION PUMP (NP-VE4/11F1800RNP1380)

+ INJECTION-PUMP ASSEMBLY	104746-1322	9 460 611 820	
Manufacturer No.:	8971078631		
- FUEL-INJECTION PUMP	104646-1322	9 461 619 365	NP-VE4/11F1800RNP1380
- NAMEPLATE	146924-6800	9 461 619 553	
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- CAPSULE	146620-0120	9 461 610 496	
- ADJUSTING DEVICE	146679-2420	9 461 617 200	
- NOZZLE AND HOLDER ASSY.	105158-2292	9 430 613 707	H88-1120
Nozzle and Holder:	8-97081-789-1		
Open Pre:MPa(Kgf/cm2):	14.7{150}		
- NOZZLE-HOLDER	105088-1120	9 430 615 096	
- NOZZLE	105007-1280	9 432 610 476	NP-DN0PDN128

ZEXEL Ass'y No.	104746-1322
Bosch Ass'y No.	9 460 611 820
Bosch Typecode	
Engine Type	4JG2
Manufacturer	ISUZU
Edition date	04.02.02 (3)

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	1000	1000	1000		
S	Average injection quantity	mm3/st.	60.9	60.4	61.4		
S	Difference in delivery	mm3/st.	3.5		3.5		
P	Basic		*				
P	Oil temperature	degC	50	48	52		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	500	500	500		
C	Average injection quantity	mm3/st.	60	60	60		
		About					
P	Oil temperature	degC	48	46	50		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1000	1000	1000		
C	Average injection quantity	mm3/st.	60.9	59.9	61.9		
C	Difference in delivery	mm3/st.	3.5		3.5		
P	Basic		*				
P	Oil temperature	degC	50	48	52		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1440	1440	1440		
C	Average injection quantity	mm3/st.	58.9	58.9	58.9		
		About					
P	Oil temperature	degC	50	48	52		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1800	1800	1800		
C	Average injection quantity	mm3/st.	59.2	59.2	59.2		
		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	2100	2100	2100		
S	Average injection quantity	mm3/st.	19.6	16.6	22.6		
S	Difference in delivery	mm3/st.	5.5		5.5		
P	Basic		*				
P	Oil temperature	degC	52	50	54		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
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P	Pump speed	r/min	2300	2300	2300		
C	Average injection quantity	mm ³ /st.	5		5		
P	Oil temperature	degC	52	50	54		
CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	2100	2100	2100		
C	Average injection quantity	mm ³ /st.	19.6	16.6	22.6		
C	Difference in delivery	mm ³ /st.	5.5		5.5		
P	Oil temperature	degC	52	50	54		

2.3 Idle

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	360	360	360		
S	Average injection quantity	mm ³ /st.	13.2	11.2	15.2		
S	Difference in delivery	mm ³ /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	360	360	360		
C	Average injection quantity	mm ³ /st.	13.2	11.2	15.2		
C	Difference in delivery	mm ³ /st.	2		2		
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		
S	Average injection quantity	mm ³ /st.	74	69	79		
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		
C	Average injection quantity	mm ³ /st.	74	69	79		
P	Oil temperature	degC	48	46	50		

2.5 Stop

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	360	360	360		
C	Average injection quantity	mm ³ /st.	0	0	0		
	Remarks						
		Magnet OFF at idling position					

2.6 Overflow

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1000	1000	1000		
C	Overflow quantity	cm ³ /min	680	550	810		
		About					
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	1000	1000	1000		
S	Pressure	kPa	422	393	451		
S	Pressure	kgf/cm ²	4.3	4	4.6		
P	Basic		*				
P	Oil temperature	degC	50	48	52		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1000	1000	1000		
C	Pressure	kPa	422	393	451		
C	Pressure	kgf/cm ²	4.3	4	4.6		
P	Basic		*				
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	1000	1000	1000		
S	Timer stroke	mm	2.5	2.3	2.7		
P	Basic		*				
P	Oil temperature	degC	50	48	52		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1700	1700	1700		

S	Timer stroke	mm	5.8	5.5	6.1		
P	Basic		*				
P	Oil temperature	degC	50	48	52		
CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	520	520	520		
C	Timer stroke	mm	0.5	0.1	1.3		
CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1000	1000	1000		
C	Timer stroke	mm	2.5	2.3	2.7		
P	Basic		*				
CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1440	1440	1440		
C	Timer stroke	mm	3.9	3.6	4.2		
CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1700	1700	1700		
C	Timer stroke	mm	5.8	5.4	6.2		
P	Basic		*				
CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1950	1950	1950		
C	Timer stroke	mm	7.8	7.5	8.2		

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		

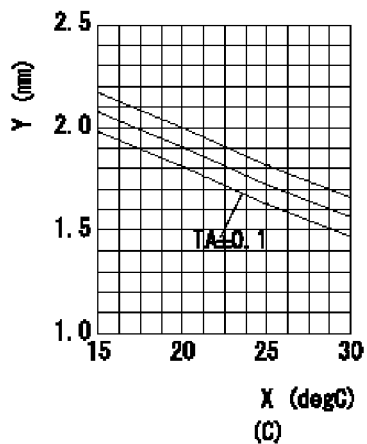
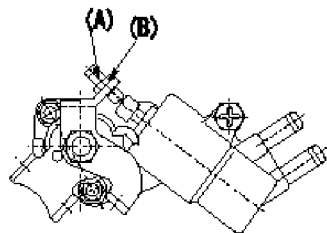
2.10 Compensator**2.10.1 Load-timer adjustment**

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1000	1000	1000		
S	Average injection quantity	mm ³ /st.	31.8	31.3	32.3		
S	Timer stroke TA	mm	2.2	2.2	2.2		
		About					
S	Timer stroke variation dT	mm	0.3	0.1	0.5		
P	Basic		*				
P	Oil temperature	degC	50	48	52		
CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1000	1000	1000		
C	Average injection quantity	mm ³ /st.	31.8	30.8	32.8		
C	Timer stroke variation dT	mm	0.3	-0.1	0.7		
P	Basic		*				
P	Oil temperature	degC	50	48	52		
CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1000	1000	1000		
C	Average injection quantity	mm ³ /st.	16.7	15.7	17.7		
C	Timer stroke variation dT	mm	1	0.4	1.6		
P	Oil temperature	degC	50	48	52		

2.11 Additional device adjustment

2.11.1 Additional device 1

Name W-CSD ADJUSTMENT



Adjustment of the W-CSD

1. Adjustment of the advance angle of the timer

(1) Determine the timer advance angle using the graph.

(2) (1) Adjust with the screw (A) so that the timer advance angle determined in the item (1) is obtained.

Y: Timer stroke TA

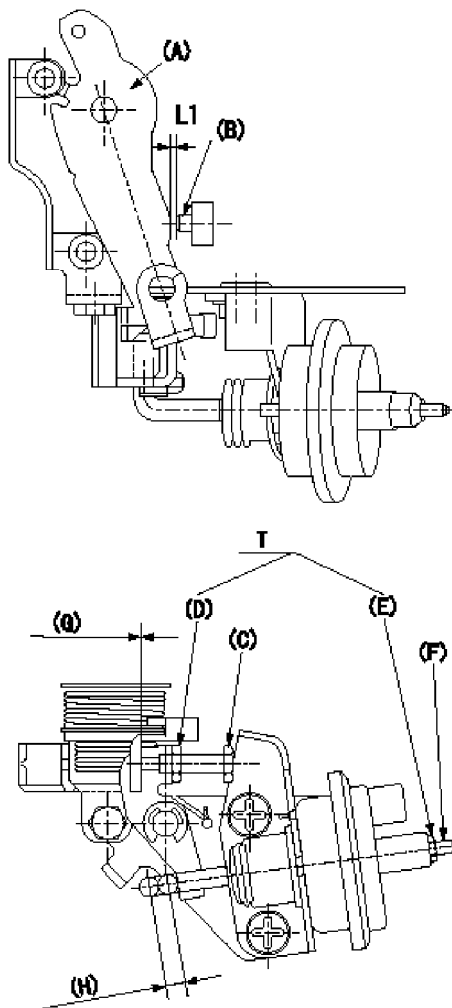
X: Temperature t

(C): timer stroke TA(mm)

2.11.2 Additional device 2

Name V-FICD ADJUSTMENT

T=3.4~4.9Nm(0.35~0.50kgfm)



L1=1.40±0.1mm
 L2=0.5mm
 P1=-53.3kPa
 P2=-400mmHg

Adjustment of the V-FICD

1. Insert a shim L1 between the control lever (A) and the idle adjusting screw (B) and adjust using the FICD adjusting screw (C) so that the actuator moves through its full stroke. Then, fix using nut (D).

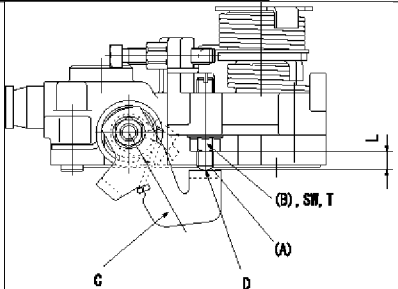
If adjustment with the FICD adjusting screw (C) is not possible, adjust by moving the actuator stroke with (E) and (F).

2. Apply P1{P2} pressure to the actuator and confirm that the actuator moves through its full stroke. After release, confirm that the gap between control lever (A) and FICD adjusting screw (C) is at least L2.

(G): exceeds L2 when releasing actuator

(H): actuator stroke L3

2.11.3 Additional device 3

Name	STARTING I/Q ADJUSTMENT
<p>L=2~8.5mm T=6~9Nm(0.6~0.9kgfm) SW=SW10</p>	
L=2~8.5mm	<p>Starting injection quantity adjustment Adjust the adjusting bolt A so that the starting injection quantity adjustment is within the standards . Fix using nut (B). Screw (A) protrusion: L C = stop lever D = no clearance</p>

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	0.7	0.6	0.8		
S	Pre-stroke	mm	0.1	0.08	0.12		
S	Control lever angle alpha	deg.	18	14	22		
S	Control lever angle beta	deg.	31	26	36		
		About					