ZEXEL Ass'y No.	104745-4032
Bosch Ass'y No.	9 460 610 619
Bosch Typecode	
Engine Type	TD27-T
Manufacturer	NISSAN DIESEL
Edition date	31.01.02 (2)

1 Adjustment conditions

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
	Test oil		ISO4113orSAEJ967d				
		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	800	800	800		
P	Boost pressure	kPa	30.65	29.3	32		
P	Boost pressure	mmHg	230	220	240		
S	Average injection quantity	mm3/st.	54.9	54.4	55.4		
P	Basic		*				
	Remarks						
		CBS					

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1100	1100	1100		
P	Boost pressure	kPa	66.65	65.3	68		
P	Boost pressure	mmHg	500	490	510		
S	Average injection quantity	mm3/st.	61.5	61	62		
S	Difference in delivery	mm3/st.	5		5		
P	Basic		*				
	Remarks						
		Full					

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	2500	2500	2500		
P	Boost pressure	kPa	66.65	65.3	68		
P	Boost pressure	mmHg	500	490	510		
C	Average injection quantity	mm3/st.	19.6	15.1	24.1		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	2250	2250	2250		
P	Boost pressure	kPa	66.65	65.3	68		
P	Boost pressure	mmHg	500	490	510		
C	Average injection quantity	mm3/st.	42.8	40.3	45.3		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	2000	2000	2000		
P	Boost pressure	kPa	66.65	65.3	68		
P	Boost pressure	mmHg	500	490	510		
C	Average injection quantity	mm3/st.	57.3	54.8	59.8		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1100	1100	1100		
P	Boost pressure	kPa	66.65	65.3	68		

S = Setting value, C = Check value)
OT = Outside Tolerance (X is set)

P	Boost pressure	mmHg	500	490	510		
C	Average injection quantity	mm3/st.	61.5	60.5	62.5		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1100	1100	1100		
P	Boost pressure	kPa	0	0	0		
P	Boost pressure	mmHg	0	0	0		
C	Average injection quantity	mm3/st.	45.3	42.8	47.8		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	800	800	800		
P	Boost pressure	kPa	30.65	29.3	32		
P	Boost pressure	mmHg	230	220	240		
C	Average injection quantity	mm3/st.	54.9	53.9	55.9		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	500	500	500		
P	Boost pressure	kPa	0	0	0		
P	Boost pressure	mmHg	0	0	0		
C	Average injection quantity	mm3/st.	48.5	45.5	51.5		

2.2 Governing

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	2250	2250	2250		
P	Boost pressure	kPa	66.65	65.3	68		
P	Boost pressure	mmHg	500	490	510		
S	Average injection quantity	mm3/st.	42.8	40.8	44.8		
P	Basic		*				

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	2700	2700	2700		
P	Boost pressure	kPa	66.65	65.3	68		
P	Boost pressure	mmHg	500	490	510		
C	Average injection quantity	mm3/st.	5		5		

2.3 Idle

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	350	350	350		
P	Boost pressure	kPa	0	0	0		
P	Boost pressure	mmHg	0	0	0		
S	Average injection quantity	mm3/st.	10	8	12		
S	Difference in delivery	mm3/st.	2		2		
P	Basic		*				

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	750	750	750		
P	Boost pressure	kPa	0	0	0		
P	Boost pressure	mmHg	0	0	0		
C	Average injection quantity	mm3/st.	3		3		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	350	350	350		
P	Boost pressure	kPa	0	0	0		
P	Boost pressure	mmHg	0	0	0		
C	Average injection quantity	mm3/st.	10	7.5	12.5		

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	mmHg	0	0	0		
S	Average injection quantity	mm3/st.	77.5	60	95		
P	Basic		*				

2.5 Stop

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	350	350	350		
P	Boost pressure	kPa	0	0	0		
P	Boost pressure	mmHg	0	0	0		
C	Average injection quantity	mm3/st.	0	0	0		
	Remarks						
		Magnet OFF					

2.6 Overflow

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT

S = Setting value, C = Check value)
OT = Outside Tolerance (X is set)

P	Pump speed	r/min	1100	1100	1100		
P	Boost pressure	kPa	66.65	65.3	68		
P	Boost pressure	mmHg	500	490	510		
C	Overflow quantity with S/T ON	cm3/min	390	258	522		
	Remarks						
		With an O-ring					

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1100	1100	1100		
P	Boost pressure	kPa	66.65	65.3	68		
P	Boost pressure	mmHg	500	490	510		
C	Overflow quantity with S/T ON	cm3/min	489	360	618		
	Remarks						
		Without an O-ring					

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	66.65	65.3	68		
P	Boost pressure	mmHg	500	490	510		
S	Pressure with S/T ON	kPa	520	481	559		
S	Pressure with S/T ON	kgf/cm2	5.3	4.9	5.7		
S	Pressure with S/T OFF	kPa	451.5	422	481		
S	Pressure with S/T OFF	kgf/cm2	4.6	4.3	4.9		
P	Basic		*				

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1100	1100	1100		
P	Boost pressure	kPa	66.65	65.3	68		
P	Boost pressure	mmHg	500	490	510		
C	Pressure with S/T ON	kPa	520	481	559		
C	Pressure with S/T ON	kgf/cm2	5.3	4.9	5.7		
C	Pressure with S/T OFF	kPa	451.5	422	481		
C	Pressure with S/T OFF	kgf/cm2	4.6	4.3	4.9		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1750	1750	1750		
P	Boost pressure	kPa	66.65	65.3	68		
P	Boost pressure	mmHg	500	490	510		
C	Pressure with S/T ON	kPa	686.5	647	726		
C	Pressure with S/T ON	kgf/cm2	7	6.6	7.4		
C	Pressure with S/T OFF	kPa	617.5	588	647		
C	Pressure with S/T OFF	kgf/cm2	6.3	6	6.6		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	2150	2150	2150		
P	Boost pressure	kPa	66.65	65.3	68		
P	Boost pressure	mmHg	500	490	510		
C	Pressure with S/T OFF	kPa	715.5	686	745		
C	Pressure with S/T OFF	kgf/cm2	7.3	7	7.6		

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	66.65	65.3	68		
P	Boost pressure	mmHg	500	490	510		
S	Timer stroke with S/T ON	mm	6	5.6	6.4		
S	Timer stroke with S/T OFF	mm	4.8	4.6	5		
P	Basic		*				

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	850	850	850		
P	Boost pressure	kPa	66.65	65.3	68		
P	Boost pressure	mmHg	500	490	510		
C	Timer stroke with S/T OFF	mm	3.6	3	4.2		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1100	1100	1100		
P	Boost pressure	kPa	66.65	65.3	68		
P	Boost pressure	mmHg	500	490	510		
C	Timer stroke with S/T ON	mm	6	5.4	6.6		
C	Timer stroke with S/T OFF	mm	4.8	4.5	5.1		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1750	1750	1750		
P	Boost pressure	kPa	66.65	65.3	68		
P	Boost pressure	mmHg	500	490	510		
C	Timer stroke with S/T ON	mm	9.1	8.5	9.7		
C	Timer stroke with S/T OFF	mm	7.9	7.3	8.5		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	2250	2250	2250		
P	Boost pressure	kPa	66.65	65.3	68		
P	Boost pressure	mmHg	500	490	510		
C	Timer stroke with S/T OFF	mm	9.7	9.2	10.2		

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	1100	1100	1100		
P	Boost pressure	kPa	66.65	65.3	68		
P	Boost pressure	mmHg	500	490	510		
S	Average injection quantity	mm3/st.	36	35.5	36.5		
S	Timer stroke variation dT	mm	0.5	0.3	0.7		
P	Basic		*				

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1100	1100	1100		
P	Boost pressure	kPa	66.65	65.3	68		
P	Boost pressure	mmHg	500	490	510		
C	Average injection quantity	mm3/st.	36	35	37		
C	Timer stroke variation dT	mm	0.5	0.2	0.8		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1100	1100	1100		
P	Boost pressure	kPa	66.65	65.3	68		
P	Boost pressure	mmHg	500	490	510		
C	Average injection quantity	mm3/st.	25	23.5	26.5		
C	Timer stroke variation dT	mm	1.1	0.6	1.6		

2.11 Additional device adjustment

2.11.1 Additional device 1

Name	POTENTIOMETER ADJUSTMENT

N1=1275r/min
Q1=12.9+-1.0cm3/1,000st
V1=6.9+-0.03V
V2=2.0+-1.0V
V3=(10)V
a=-deg

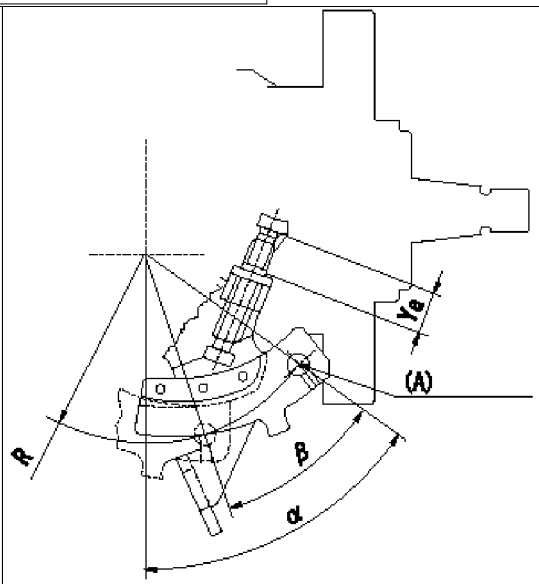
N	Q	V	C	
N1	Q1	V1	a	A
C1		V2		B
C2		V3		B

V1=6.9+-0.03V
P1=0kPa
P2=0mmHg
Vi=10V

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:Adjusting point
B:Checking point
C:Angle of the control lever
C1:Idle
C2:Full-speed

2.11.2 Additional device 2

Name	CONTROL LEVER ANGLE

Ya=9.6~13.8mm R=53mm Alpha=6~14deg Beta=31~41deg	
Ya=9.6~13.8mm R=53mm	Control lever angle measurement 1. Measure dimension Ya. 2. Measure the lever angle from the pin hole R (plate). (A) = lever reaction force measuring position

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	5.82	5.72	5.92		
S	MS dimension	mm	0.9	0.8	1		
S	BCS stroke	mm	3.9	3.8	4		
S	Control lever angle alpha	deg.	10	6	14		
S	Control lever angle beta	deg.	36	31	41		