

ZEXEL Ass'y No.	104741-4394
Bosch Ass'y No.	9 460 613 290
Bosch Typecode	
Engine Type	QD32
Manufacturer	NISSAN DIESEL
Edition date	04.02.02 (4)

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	16		
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.	58.3	57.8	58.8		
S	Difference in delivery	mm3/st.	4.5		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	500	500	500		
C	Average injection quantity	mm3/st.	52	48.5	55.5		
		About					
P	Oil temperature	degC	48	46	50		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	800	800	800		
C	Average injection quantity	mm3/st.	57.1	53.6	60.6		
		About					
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	mm3/st.	58.3	57.3	59.3		
C	Difference in delivery	mm3/st.	5		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	1500	1500	1500		
C	Average injection quantity	mm3/st.	58.3	55.3	61.3		
		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.	60.5	57.5	63.5		
		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	2350	2350	2350		
S	Average injection quantity	mm3/st.	17.8	15.8	19.8		
P	Basic		*				
P	Oil temperature	degC	52	50	54		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	2350	2350	2350		
C	Average injection quantity	mm ³ /st.	17.8	15.3	20.3		
P	Basic		*				
P	Oil temperature	degC	52	50	54		
CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	2600	2600	2600		
C	Average injection quantity	mm ³ /st.	5		5		
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	375	375	375		
S	Average injection quantity	mm ³ /st.	12.9	10.9	14.9		
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	375	375	375		
C	Average injection quantity	mm ³ /st.	12.9	10.4	15.4		
C	Difference in delivery	mm ³ /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		
S	Average injection quantity	mm ³ /st.	90	75	110		
		About					
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.	90	75	110		
		About					
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	375	375	375		
C	Average injection quantity	mm ³ /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	1000	1000	1000		
C	Overflow quantity	cm ³ /min	390	260	520		
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	539	519	559		
S	Pressure	kgf/cm ²	5.5	5.3	5.7		
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	Pressure	kPa	539	500	578		
C	Pressure	kgf/cm ²	5.5	5.1	5.9		
P	Basic		*				
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	Pressure	kPa	736	677	795		
C	Pressure	kgf/cm ²	7.5	6.9	8.1		
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	3.5	3.3	3.7		
P	Basic		*				
P	Oil temperature	degC	50	48	52		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	600	600	600		
C	Timer stroke	mm	1.4	0.9	1.9		
	About						
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	Timer stroke	mm	3.5	3.2	3.8		
P	Basic		*				
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	Timer stroke	mm	7.4	6.9	7.9		
	About						
P	Oil temperature	degC	50	48	52		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	2050	2050	2050		
C	Timer stroke	mm	8.2	7.7	8.6		
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	1000	1000	1000		
S	Average injection quantity	mm ³ /st.	29	28.5	29.5		
S	Timer stroke TA	mm	2.3	2.1	2.5		
S	Timer stroke variation dT	mm	1.2	1.2	1.2		
	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	1000	1000	1000		
C	Average injection quantity	mm ³ /st.	29	28	30		
C	Timer stroke TA	mm	2.3	2	2.6		
C	Timer stroke variation dT	mm	1.2	1.2	1.2		
	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	1000	1000	1000		
C	Average injection quantity	mm ³ /st.	20	17.5	22.5		
C	Timer stroke TA	mm	1.2	0.7	1.7		
	About						
C	Timer stroke variation dT	mm	2.3	2.3	2.3		
	About						
P	Oil temperature	degC	50	48	52		

2.11 Additional device adjustment

2.11.1 Additional device 1

Name	POTENTIOMETER ADJUSTMENT																																													
V1=a+-0.03V V2=1.44+-0.56V V3=1.19+-0.81V V4=3.49+-0.82V f=7.1deg+-5.5deg g=21deg+-6deg Vi=10V	<table><tr><th colspan="5"></th><th>Vi</th></tr><tr><th></th><th>N</th><th>Q</th><th>V</th><th>C</th><th></th></tr><tr><td rowspan="3">A</td><td></td><td></td><td>V1</td><td>C1</td><td>F</td></tr><tr><td></td><td></td><td>V2</td><td>C2</td><td>E</td></tr><tr><td></td><td></td><td></td><td></td><td>F</td></tr><tr><td rowspan="2">B</td><td>C</td><td></td><td>V3</td><td>f</td><td>F</td></tr><tr><td>D</td><td></td><td>V4</td><td>g</td><td>F</td></tr><tr><td colspan="6">P P1 P2</td></tr></table>						Vi		N	Q	V	C		A			V1	C1	F			V2	C2	E					F	B	C		V3	f	F	D		V4	g	F	P P1 P2					
					Vi																																									
	N	Q	V	C																																										
A			V1	C1	F																																									
			V2	C2	E																																									
					F																																									
B	C		V3	f	F																																									
	D		V4	g	F																																									
P P1 P2																																														
c=28.5deg d=36.5deg	Boost pressure P1kPa {P2 mmHg} Switch voltage is the value when the idle lever position is 0 V. * Adjusting method of the 1 potentiometer (P/M) Substitute the actual measurement of the angle a of each I/P in the following formula and determine the P/M output adjustment y (V). When the angle a <= c: y = 6.27 When c < angle a < d: y=6.27 + (angle a - 28.5) x 0.163 When d < angle a < e: y=7.57 A:Potentiometer standards B:ON, OFF switch standard G:ON-->OFF D:OFF-->ON E:Adjusting point F:Checking point P:Boost pressure Vi:Applied voltage C1:Full-speed C2:Idle Q:Injection quantity N:Pump speed V:Output voltage C:Control lever angle																																													

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	5.62	5.52	5.72		
S	MS dimension	mm	0.9	0.8	1		
S	Pre-stroke	mm	0.1	0.08	0.12		
S	Control lever angle alpha	deg.	55.5	51.5	59.5		
S	Control lever angle beta	deg.	32.5	27.5	37.5		