

ZEXEL Ass'y No.	104749-0354
Bosch Ass'y No.	9 460 610 310
Bosch Typecode	
Engine Type	RFX
Manufacturer	MAZDA
Edition date	07.06.02 (1)

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		105000-2010				
	Bosch type code		NP-DN12SD12TT				
	Nozzle holder		105780-2080				
P	Opening pressure	MPa	14.7	14.7	15.19		
P	Opening pressure	kgf/cm2	150	150	155		
P	Injection pipe	mm	2-6-840				
		Inside diameter - outside diameter - length (mm)					
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		
P	Boost pressure	kPa	86.65	85.3	88		
P	Boost pressure	mmHg	650	640	660		
S	Average injection quantity	mm3/st.	49.9	49.4	50.4		
S	Difference in delivery	mm3/st.	4		4		
P	Basic		*				

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	2550	2550	2550		
P	Boost pressure	kPa	86.65	85.3	88		
P	Boost pressure	mmHg	650	640	660		
C	Average injection quantity	mm3/st.	11.5	8	15		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	2250	2250	2250		
P	Boost pressure	kPa	86.65	85.3	88		
P	Boost pressure	mmHg	650	640	660		
C	Average injection quantity	mm3/st.	35.2	32.7	37.7		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	2150	2150	2150		
P	Boost pressure	kPa	86.65	85.3	88		
P	Boost pressure	mmHg	650	640	660		
C	Average injection quantity	mm3/st.	42.2	39.7	44.7		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1000	1000	1000		
P	Boost pressure	kPa	86.65	85.3	88		
P	Boost pressure	mmHg	650	640	660		
C	Average injection quantity	mm3/st.	49.9	48.9	50.9		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1000	1000	1000		
P	Boost pressure	kPa	40	38.7	41.3		
P	Boost pressure	mmHg	300	290	310		
C	Average injection quantity	mm3/st.	44.8	43.8	45.8		

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	mmHg	0	0	0		
C	Average injection quantity	mm3/st.	36.4	33.9	38.9		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1000	1000	1000		
P	Boost pressure	kPa	40	38.7	41.3		
P	Boost pressure	mmHg	300	290	310		
S	Average injection quantity	mm3/st.	44.8	44.3	45.3		
S	Difference in delivery	mm3/st.	3.5		3.5		
P	Basic		*				

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	86.65	85.3	88		
P	Boost pressure	mmHg	650	640	660		
S	Average injection quantity	mm3/st.	35.2	33.2	37.2		
P	Basic		*				

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	2700	2700	2700		
P	Boost pressure	kPa	86.65	85.3	88		
P	Boost pressure	mmHg	650	640	660		
C	Average injection quantity	mm3/st.	3		3		

2.3 Idle

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	415	415	415		
P	Boost pressure	kPa	0	0	0		
P	Boost pressure	mmHg	0	0	0		
S	Average injection quantity	mm3/st.	12.1	11.1	13.1		
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	500	500	500		
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	415	415	415		
P	Boost pressure	kPa	0	0	0		
P	Boost pressure	mmHg	0	0	0		
C	Average injection quantity	mm3/st.	12.1	10.6	13.6		

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.	55	55			
P	Basic		*				

2.5 Stop

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	415	415	415		
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
P	Pump speed	r/min	1000	1000	1000		
P	Boost pressure	kPa	86.65	85.3	88		
P	Boost pressure	mmHg	650	640	660		
C	Overflow quantity	cm3/min	378	246	510		

2.7 Pump chamber pressure

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1500	1500	1500		
P	Boost pressure	kPa	86.65	85.3	88		
P	Boost pressure	mmHg	650	640	660		
S	Pressure	kPa	539.5	510	569		
S	Pressure	kgf/cm2	5.5	5.2	5.8		
P	Basic		*				

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1250	1250	1250		
P	Boost pressure	kPa	86.65	85.3	88		
P	Boost pressure	mmHg	650	640	660		
C	Pressure	kPa	470.5	441	500		
C	Pressure	kgf/cm2	4.8	4.5	5.1		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1500	1500	1500		
P	Boost pressure	kPa	86.65	85.3	88		
P	Boost pressure	mmHg	650	640	660		
C	Pressure	kPa	539.5	510	569		
C	Pressure	kgf/cm2	5.5	5.2	5.8		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	2150	2150	2150		

P	Boost pressure	kPa	86.65	85.3	88		
P	Boost pressure	mmHg	650	640	660		
C	Pressure	kPa	696.5	667	726		
C	Pressure	kgf/cm2	7.1	6.8	7.4		

2.8 Timer

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1500	1500	1500		
P	Boost pressure	kPa	86.65	85.3	88		
P	Boost pressure	mmHg	650	640	660		
S	Timer stroke	mm	4.6	4.4	4.8		
P	Basic		*				

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1250	1250	1250		
P	Boost pressure	kPa	86.65	85.3	88		
P	Boost pressure	mmHg	650	640	660		
C	Timer stroke	mm	3.3	2.7	3.9		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1500	1500	1500		
P	Boost pressure	kPa	86.65	85.3	88		
P	Boost pressure	mmHg	650	640	660		
C	Timer stroke	mm	4.6	4.3	4.9		

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	2150	2150	2150		
P	Boost pressure	kPa	86.65	85.3	88		
P	Boost pressure	mmHg	650	640	660		
C	Timer stroke	mm	8.2	7.6	8.8		

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	1500	1500	1500		
P	Boost pressure	kPa	86.65	85.3	88		
P	Boost pressure	mmHg	650	640	660		
S	Average injection quantity	mm3/st.	38.2	37.7	38.7		
S	Timer stroke variation dT	mm	0.4	0.2	0.6		
S	Basic		*				

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1500	1500	1500		
P	Boost pressure	kPa	86.65	85.3	88		
P	Boost pressure	mmHg	650	640	660		
C	Average injection quantity	mm3/st.	38.2	37.2	39.2		
C	Timer stroke variation dT	mm	0.4	0.1	0.7		

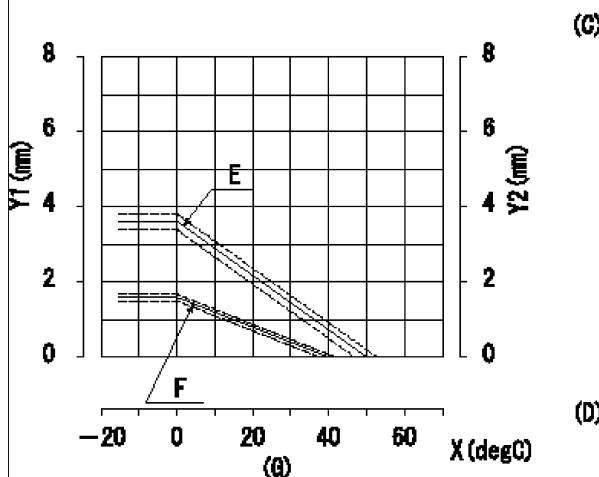
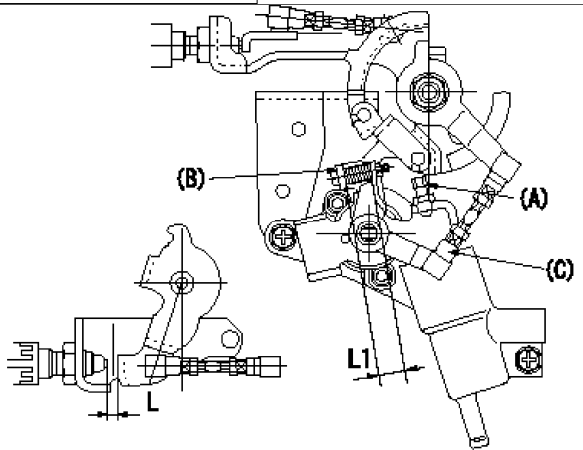
CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1500	1500	1500		
P	Boost pressure	kPa	86.65	85.3	88		
P	Boost pressure	mmHg	650	640	660		
C	Average injection quantity	mm3/st.	33.15	32.2	34.1		
C	Timer stroke variation dT	mm	0.8	0.4	1.2		

2.11 Additional device adjustment

2.11.1 Additional device 1

Name W-CSD ADJUSTMENT

$E=L+0.2$
 $F=TA+0.1$
 $L1=12.3+0.5\text{mm}$



$L1=12.3+0.5\text{mm}$

Adjustment of the W-CSD

1. Adjustment of the advance angle of the timer

(1) Determine the timer advance angle from the graph in Fig. 2 (D).

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

2. Adjust dimension L.

Adjust using turnbuckle B so that the dimension L is as described on the figure 2 D.

(C): figure 1

(G) :

Timer stroke: $TA = -0.04t + 1.6t$ ($t \geq 0$ deg C)Control lever gap: $L = -0.072t + 3.6$ ($t \geq 0$ deg C)

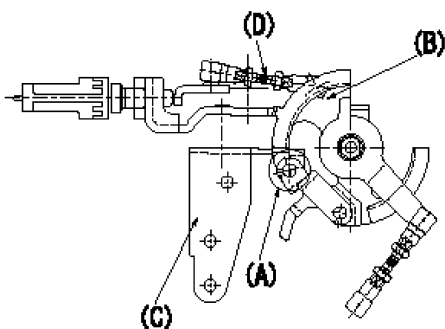
X = temperature t

Y1 = timer stroke TA

Y2 = control lever gap L

2.11.2 Additional device 2

Name	SIDE LINK LEVER ADJ. 14 SL
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L1=Dia.5.8-0.2mm
 L2=161+-3mm
 L3=32+-3mm
 L4=108+-3mm
 L5=32+-3mm
 V1=10.00V
 V2=1.6+-0.03V
 V3=8.43+-0.7V
 a=0deg

Side link lever adjustment**1. Fixing the side link lever**

(1) Hold the control lever in the position a.

(2) Adjust the length of the connecting rod D so that a pin L1 can pass between the side link B and the actuator bracket C at A. Then fix.

2. Idle switch confirmation

Confirm that the switch is ON at the idle lever position.

3. Potentiometer confirmation (input voltage: V1)

Control lever:

(1) Idle position: V2 (adjusting point)

(2) Full position: V3 (check point)

4. Confirming wire length

Accelerator wire

(1) Idle position: L2

(2) Idle~full stroke: L3

A/T wire:

(1) Idle position: L4

(2) Idle~full stroke: L5

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	1.7	1.6	1.8		
S	BCS stroke	mm	4	3.9	4.1		
S	Pre-stroke	mm	0.3	0.3	0.3		
S	Control lever angle alpha	deg.	25	21	29		
S	Control lever angle beta	deg.	41	38	44		