

ZEXEL Ass'y No.	101401-7250
Bosch Ass'y No.	
Bosch Typecode	
Engine Type	4HG1
Manufacturer	ISUZU
Edition date	22.02.06 (2)

1 Adjustment conditions

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
	Test oil		ISO4113 or {SAEJ967d}				
		1404 Test oil					
P	Test Oil Temperature	degC	40	40	45		
	Nozzle and nozzle holder		105780-8140				
	Bosch type code		EF8511/9A				
	Nozzle		105780-0000				
	Bosch type code		DN12SD12T				
	Nozzle holder		105780-2080				
	Bosch type code		EF8511/9				
P	Opening Pressure	MPa	17.2				
P	Opening Pressure	kgf/cm2	175				
	Injection pipe	mm	6-2-600				
		Outer diameter - inner diameter - length (mm)					
	Overflow valve		134424-3920				
P	Overflow valve opening pressure	kPa	127	107	147		
P	Overflow valve opening pressure	kgf/cm2	1.3	1.1	1.5		
P	Tester oil delivery pressure	kPa	157	157	157		
P	Tester oil delivery pressure	kgf/cm2	1.6	1.6	1.6		
	Direction of rotation (viewed from drive side)		L				
		Left					

2 Adjustment specification**2.1 Injection timing adjustment**

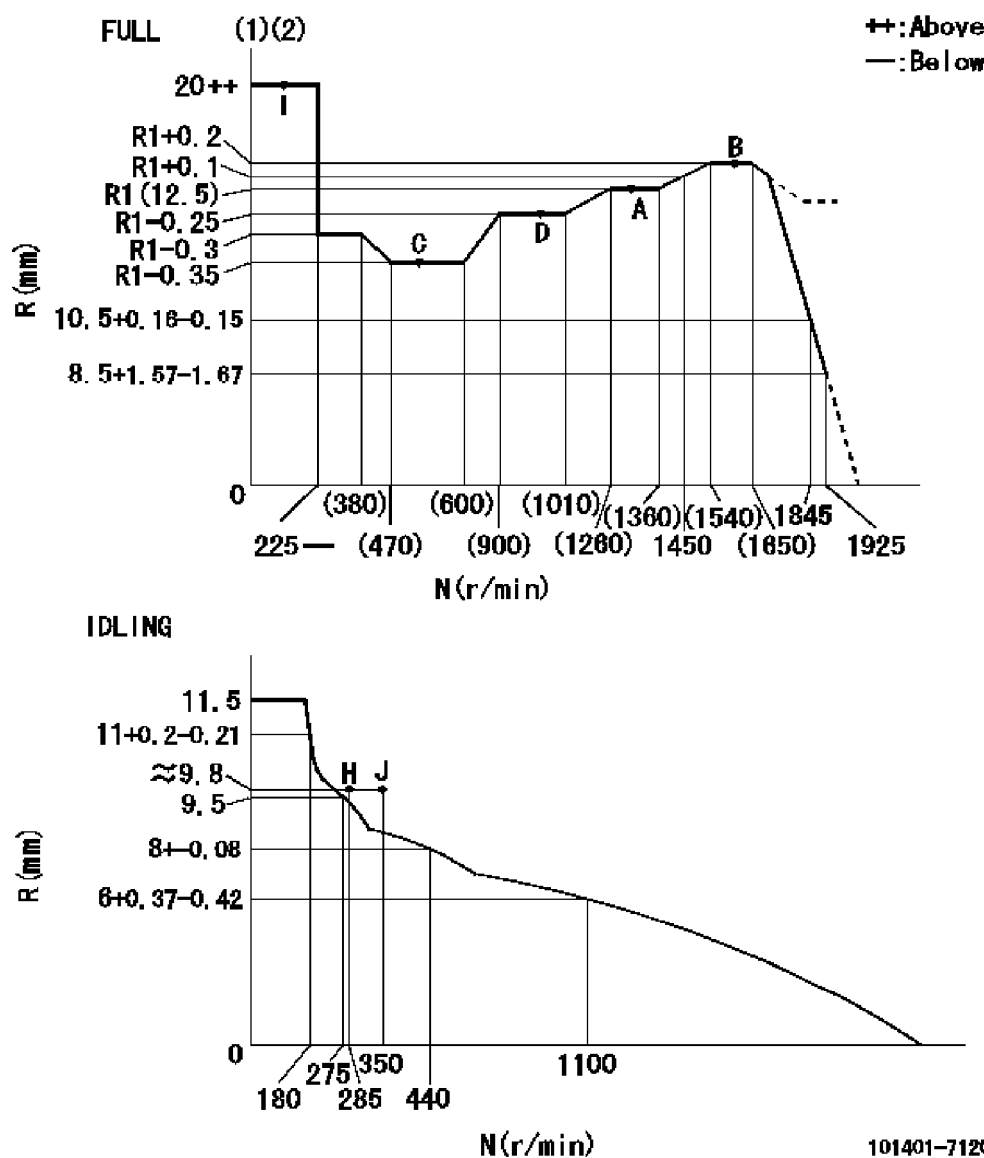
CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Direction of rotation (viewed from drive side)		L				
		Left					
P	Injection order		1-3-4-2				
S	Pre-stroke	mm	4.1	4.05	4.15		
S	Rack position		R=D				
		Point D					
P	Beginning of injection position		NO.1				
		Governor side					
S	Difference between angles 1	deg.	90	89.5	90.5		
		Cal 1-3					
S	Difference between angles 2	deg.	180	179.5	180.5		
		Cal 1-4					
S	Difference between angles 3	deg.	270	269.5	270.5		
		Cyl.1-2					

2.2 Injection quantity adjustment

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Adjusting point		-				
P	Rack position		12.5				
P	Pump speed	r/min	1310	1310	1310		
S	Average injection quantity	mm3/st.	80.5	78.9	82.1		
S	Max variation between cylinders	%	0	-4	4		
P	Basic		*				
P	Fixing the rack		*				
P	Standard for adjustment of the maximum variation between cylinders		*				
CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Adjusting point		H				
P	Rack position		9.8+-0.5				
P	Pump speed	r/min	285	285	285		
S	Average injection quantity	mm3/st.	10	8.7	11.3		
S	Max variation between cylinders	%	0	-10	10		
P	Fixing the rack		*				
P	Standard for adjustment of the maximum variation between cylinders		*				
CAT	Designation	Unit	Set value	min.	max.	Actual values	OT

P	Adjusting point		A				
P	Rack position		R1(12.5)				
P	Pump speed	r/min	1310	1310	1310		
S	Average injection quantity	mm ³ /st.	80.5	79.5	81.5		
P	Basic		*				
P	Fixing the lever		*				
CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Adjusting point		B				
P	Rack position		R1+0.2				
P	Pump speed	r/min	1600	1600	1600		
S	Average injection quantity	mm ³ /st.	88	84	92		
P	Fixing the lever		*				
CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Adjusting point		C				
P	Rack position		R1-0.35				
P	Pump speed	r/min	520	520	520		
S	Average injection quantity	mm ³ /st.	49.5	45.5	53.5		
P	Fixing the lever		*				
CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Adjusting point		D				
P	Rack position		R1-0.25				
P	Pump speed	r/min	960	960	960		
S	Average injection quantity	mm ³ /st.	68.5	64.5	72.5		
P	Fixing the lever		*				

2.3 Governor adjustment

Name 

T1=J79

N: Pump speed
 R: Rack position (mm)
 (1) Torque cam stamping: T1
 (2) Tolerance for racks not indicated: ± 0.05 mm.

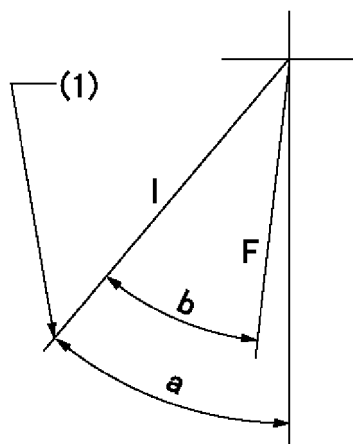
2.4 Timer adjustment

CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
S	Pump speed	r/min	1150--				
P	Advance angle	deg.	0	0	0		
	Remarks						
Start							
CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1100				
S	Advance angle	deg.	0.5		0.5		
CAT	Designation	Unit	Set value	min.	max.	Actual values	OT
P	Pump speed	r/min	1600				
S	Advance angle	deg.	6	5.5	6.5		
	Remarks						
Finish							

2.5 Speed control lever angleName

a=41deg±5deg

b=36deg±3deg



F:Full speed

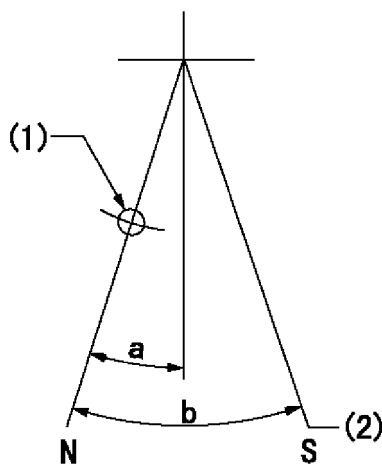
I:Idle

(1)Stopper bolt set position 'H'

2.6 Stop lever angleName

a=15deg±5deg

b=(29deg)±5deg



aa=25mm

bb=1600r/min

cc=5-0.5mm

N:Pump normal

S:Stop the pump.

(1)Use the hole at R = aa

(2)At pump speed bb and rack position cc, set the stopper bolt.

2.7 Additional device adjustment

2.7.1 Additional device 1

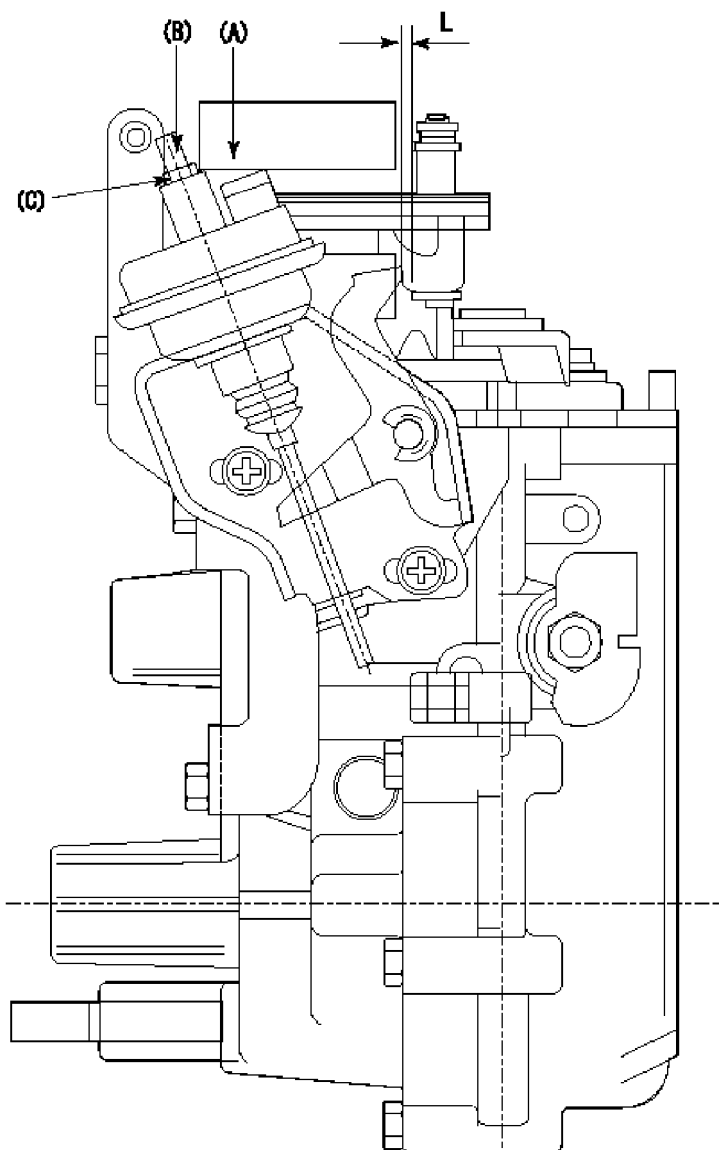
Name	RACK SENSOR
------	-------------

<p>V1=5+/-0.01V N1=960r/min Ra=R1(12.5)-0.25mm V1st=2.76+/-0.28V</p>	<p>Rack sensor adjustment 1. Flange type rack sensor (rack sensor adjustment -5*20) (1)These types of rack sensors do not need adjustment. Confirm the performance with the following procedures. (2)Mount the rack sensor main body to the pump main body. (3)Fix the pump lever at full. (4)At supply voltage V1, pump speed N1 and rack position Ra, confirm that the amp's output voltage is V1st. (5)Move the pump lever two or three times. (6)Set again to full. (7)Confirm that the amplifier output voltage is V1st. (8)Fix the caution plate to the upper part of the rack sensor. (For those without the caution plate instructions, make sure the nameplate of the rack sensor carries the "Don't hold here" caution.) (9)Apply red paint to the rack sensor mounting bolts (2 places).</p>

2.7.2 Additional device 2

Name	FICD
------	------

L=(5)mm



P1=53.3kPa(400mmHg)
P2=53.3kPa(400mmHg)
Na=400r/min
Ra=9.2+-0.1mm
T1=1.2~1.6N-m(0.12~0.16kgf-m)

(A) applied negative pressure

(B) Screw

(c) Nut

1. Set the actuator as described below.

(1)Confirm that there is clearance between the actuator lever and the speed lever.

(2)Loosen the nut (C).

(3)Push in the screw (B).

(4)Apply P1 from the actuator (A) part.

(5)Pull out the screw (B) slowly.

(6)Tighten and fix the nut (C) when pump speed is Na and the rack position is Ra.

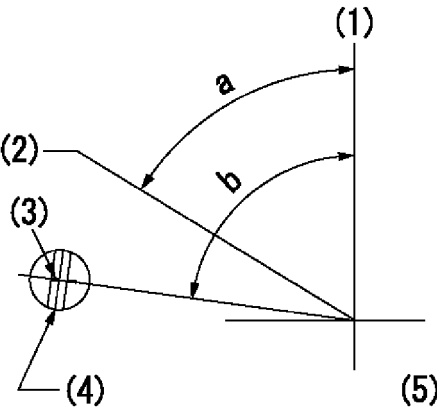
(7)Torque the nut (C) to T1.

(8)Apply P2 several times.

(9)Confirm that the actuator functions normally.

(10)Confirm that there is a clearance between the actuator lever and the speed lever at that time.

2.8 Timing setting

Name	
a=(60deg) b=(85deg)	 <p>The diagram illustrates the timing setting process. It shows a vertical line (1) representing the pump's vertical direction. A horizontal line (5) represents the B.T.D.C. (Before Top Dead Center) position. A circular gear (3) is shown with a standard threaded hole (2) at the beginning of injection. A stamping position (3) is marked on the A/T (After Top) outer rim. A bracket (4) is used to align the gear's check hole with the A/T's bevel C1. The angles a and b are indicated between the vertical line (1) and the horizontal line (5).</p>
aa=7deg	<p>(1) Pump vertical direction (2) Position of gear's standard threaded hole at No 1 cylinder's beginning of injection (3) Stamping position on the A/T outer rim (4) At the No 1 cylinder's beginning of injection, align with the aligning mark seen through the bracket's check hole and mark the A/T's bevel C1. (5) B.T.D.C.: aa</p>