

Operating Manual

WELDING POSITIONER

HBW150

- Thank you very much for buying our product.
- Before use, refer these operating manual to ensure proper use. Keep these safety instructions and read when necessary.
- Make sure to forward these instructions for safety to the final user.

Welding positioner


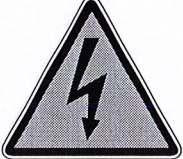

Model	HBW150			Customer No.	J11		
Make	<i>www</i>	Date	<i>17.3.20</i>	Rectify	<i>yuyido</i>	Date	<i>17.3.20</i>
Consigner				Date			
Consignee				Date			

S/N	Parts name	Q' ty	Unit	Remarks
1	HBW150 Welding positioner	1	Set	Whole machine
2	Technical documents	1	Piece	
3	KN1-202 Toggle switch	1	Piece	Spare parts
4				
5				

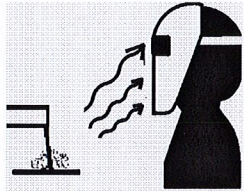
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1 Safety stipulations

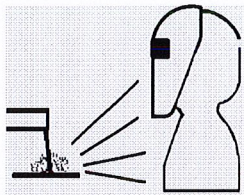
	<p>Warning:</p>
	<p>Before installation and operation, please read and understand this manual carefully for you and others especial If for safety</p>
<div style="display: flex; align-items: center;">  <p>Caution! Electrical shock can kill!</p> </div>	
	<p>Wear insulating and dry shoes, clothes and gloves</p>
	<p>When machine is running current exist between workpiece and welding positioner, if people wearing wet clothing and contact to live part will be electric shocks.</p>
	<p>Turn off power supply when out of use or maintenance.</p>
	<p>Insure the working environment and equipment are dry.</p>
	<p>Don't operate machine before closing every covers of equipment. Great danger exists in naked terminals of power supply.</p>
	<p>Frequently check the outer of power cable, if there is damage, the machine can not be used unless replaced a new cable.</p>
	<p>Make sure earthing accurate and reliability.</p>
	<p>Please install fuse, circuit breaker which assigned capacity</p>

Protect your eyes and skin not to be hurt by high-bright ultra-violet, light, spark and burning metals.



Protect eyes and face, please put on colored safety-glasses or welding mask or cap with protection glasses

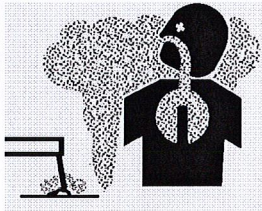
Protect scald, please put on protection clothes, gloves, shoes and cap.



Warn others not staring welding arc, and put on protection clothes, protection glasses or safety cap and so on

Don't touch the front of welding torch, nor the workpiece just been welded when welding, until it cools down.

To avoid being hurt by the poisonous gas created by welding



Do not breathe the gas created by welding. Keep head outside the smoke.

Insure draughty area.

Must have fume extractor when welding zinc-plating material which contain Pb,Cd and so on.

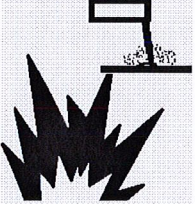
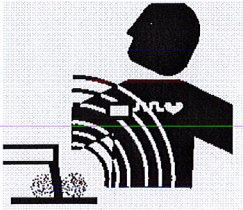
If gas used to shielded welding mixed with air, that can cause harm or death, especially in narrow area.

Explosion-proof



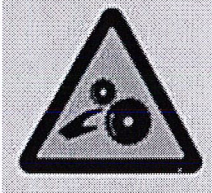
The vessel with flammable materials inside can not be welded, otherwise may cause an explosion.

When welding vessel which similarity to can, please make sure whether


	<p>cause combustibility, poisonous gas or not, then do proper welding.</p>
	<p>Do not in the environment with explosive dust or steam.</p>
	<p>Welded gas cylinder should be vertical and need an under prop or stationary barrier. Keep them far away from light, flame or calorigenic area.</p>
	<p>Do not use welding rod, electrode holder or other hot parts to touch the welded gas cylinder.</p>
<p>The welding causes metal heat, creates sparkle and fuse slag, so fireproof must be noted.</p>	
	<p>Prepare fire extinguisher in the welding.</p>
	<p>Flammable materials should be kept far away from working site.</p>
	<p>The metal just been welded should not touch the flammable materials.</p>
	<p>Insure draughty area with much dust or flammable gas</p>
	<p>Avoid welding rod (wire),work piece, welding positioner, ground wire contact each other.</p>
<p>Electromagnetic problems in the surrounding area: welding power source could cause electromagnetic area which around weld cable and machine.</p>	
	<p>Health of the people around, for example the user of pacemakers and hearing aids.</p>
	<p>It is bad for health of exposure on the electromagnetic area, but people would not aware of that.</p>

	Do not close to weld power source when operating. Do not twist the torch cable on body.
	Do not stand between the positive and negative cable, pack them together.


Mechanical injury and protection

	Insure all security protection are ready, cover and other installation normal operation.
	Let hands, hair, clothe and tools away from gears, fan, or other rotational parts.
	Be careful when maintaining without security protection installation.
	Do not put hands on rotational fan, or operate without preventer.

Notice for use

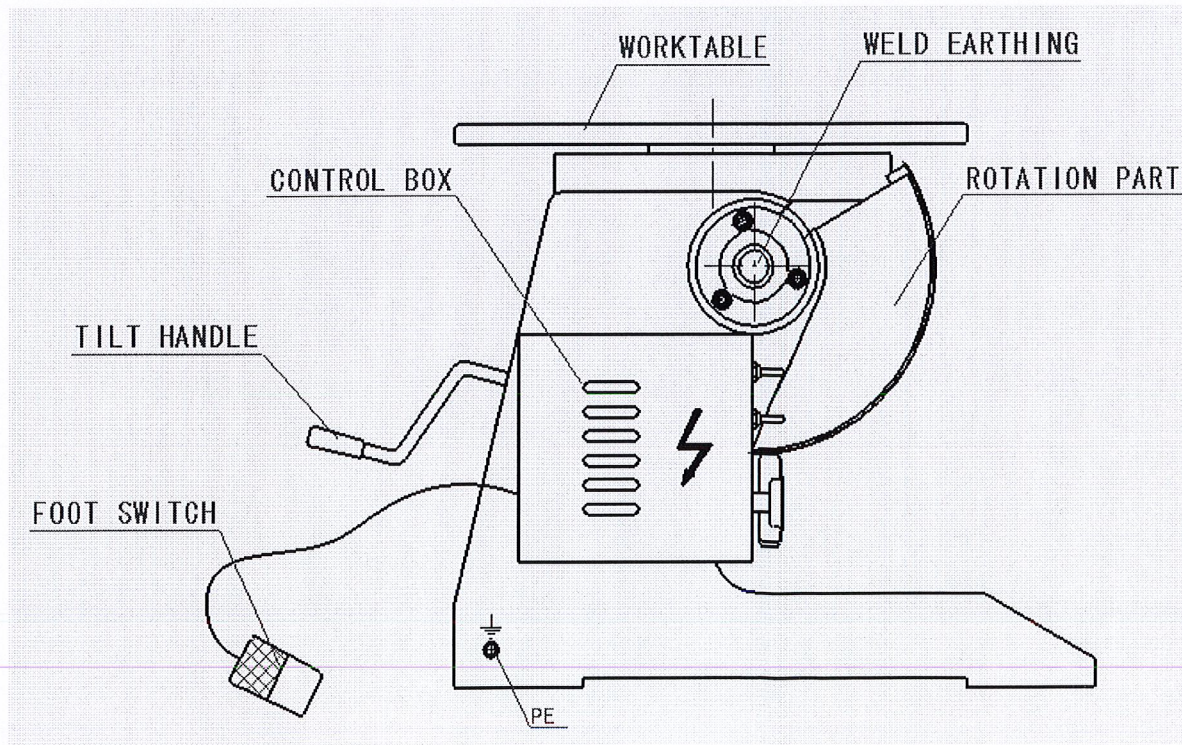
	Put on protection clothes, protection glasses or safety cap when install, operate and maintain.
	Install workpiece in the right way.
	Caution against twist, squeeze of foot, hand, clothes and other parts of body.
	Do not separate load which install in worktable.
	Do not operate machine without security protection or damaged.
	Machine need periodic check and must be repaired when damaged.

Attention: The following job need work certificate.

	Arc welding
	Flame welding
	Electric operate
	Crane
	High pressure gas

2 Main assembly

The DC motor drive the worktable to rotate, use switch on the control box to adjust speed for welding, use foot switch to start or stop the welding positioner.



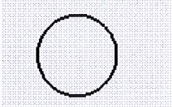
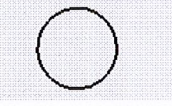
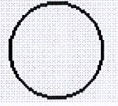

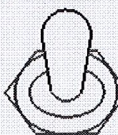
3 Technical parameter

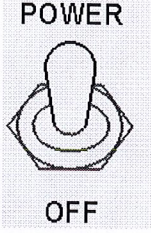
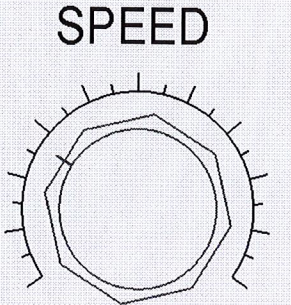
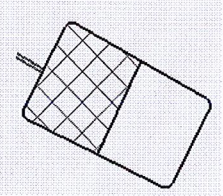
parameter	Model
	HBW150
horizontal max capacity	150 kg
Vertical max capacity	120 kg
Table diameter	Φ380 mm
Tilt range	0-90°
Rotation speed	0.25-5.5 rpm
Tilt method	Manual
Table height:	435 mm
Max. welding current	500 A
Power supply	AC220V, 1P, 50Hz, 0.5KVA
Size	673×536×435 mm

* Max rotational torque in rotational speed range 100% - 10% of max speed

4 Operation and function


Understand the following before operate.

No.	drawing	name	function
1	<p>MOTOR 10A</p> 	Fuse	Motor safety protection
2	<p>CONTROL 5A</p> 	Fuse	Control circuit safety protection
3	<p>LAMP</p> 	Indicator lamp	Turn on power, lamp on.
4	<p>CCW</p>  <p>CW</p>	Direction switch	<p>Choose worktable rotation direction must after stop.</p> <p>UP: counter-clockwise</p> <p>DOWN: clockwise</p>
5	<p>RUN</p>  <p>FOOT S/W</p>	Run switch	<p>RUN: Pendant control RUN</p> <p>FOOT S/W: Foot switch control RUN</p>

6	 <p>POWER OFF</p>	Power switch	<p>UP: power on DOWN: power off</p>
7	 <p>SPEED</p>	Speed selector	Adjust speed of worktable
8		Foot switch	<p>Set foot on, worktable begin to rotate, opposite stop.</p>

Attention: Please change the rotation direction of motor after loosen pedal switch, Otherwise the machine will be damaged.

5 Operation order

Attention	
	Power supply on after make sure without potential safety hazard.
	Do not put heavy load or feet on the earthing cable, avoid electric shock or leakage.
	Change rotation direction after worktable stop rotate. Motor would be damaged, if frequently change rotation direction.
	When temperature below zero, must racing 5~10 minutes for preheating.

Worktable		Body	
1	Power supply		
2	Put power switch "on"		
		3	Fix up work piece
		4	Tilt worktable to the angle then fix up
5	Use direction switch to choose rotation direction.		
6	Set rotation speed, then adjust it.		
		7	Set foot on foot switch, begin to work.
		8	Turn the worktable back to horizontal position after finish welding work.
		9	Unlade work piece
10	Put power switch "off".		

6 Notice of loading and unloading workpiece

Warning: If work piece move or slide may cause major safety accident and damage to the machine.



Put on protection clothes, protection glasses or safety cap when install.

Use specific nut and bolt to install.

Adopt secure manner to fix up workpiece in order to prevent slide

Do not exceed range, calculate load weight, eccentricity and tilt angle correctly.

Make sure there are no blocks around the worktable.

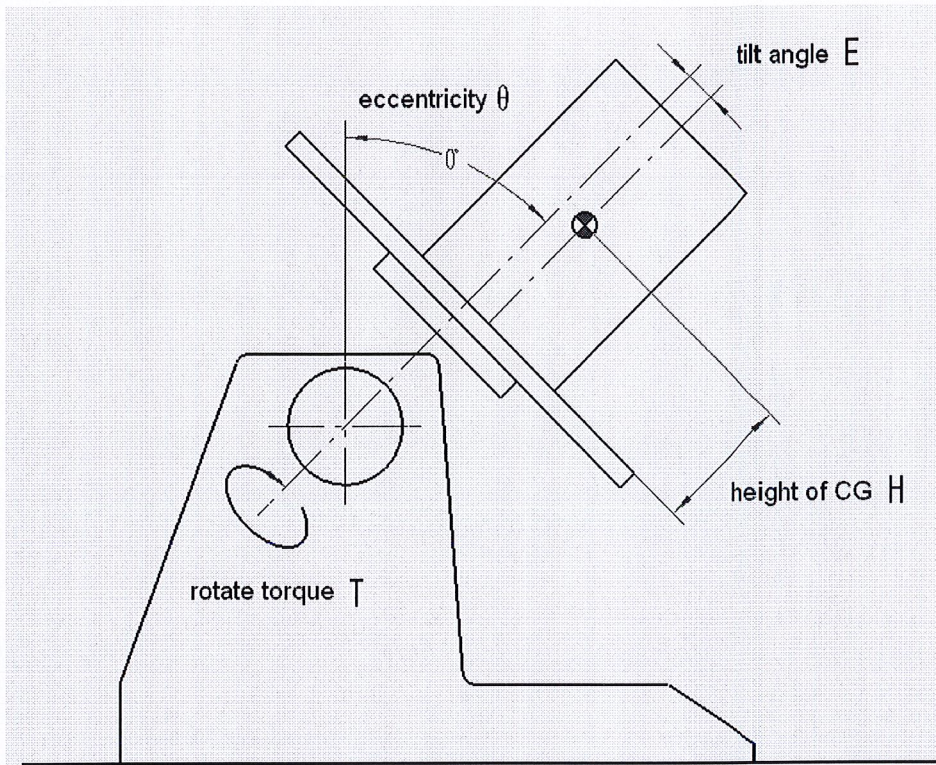
Attention



Avoid workpiece bumped the worktable while loading, especially when using crane.

Overload may damage motor and control system.

When worktable tilt to 90°, pay attention to chuck or workpiece, don't bumped ground.



W: load cap. —————workpiece weight

E: eccentricity—————the shortest distance from work pieces' CG to the center of the table.

T: rotate torque—————workpiece weight × eccentricity

H: height of CG—————the shortest distance from work pieces' CG to the table.

1、HBW150 capacity

model	Rotation speed (rpm)	Rotate torque(N. m)	Load Cap. (kg)	Eccentricity (mm)	Max. height of CG. (mm)
HBW150	0.25-5.5	110	150	70	110

2、Calculate of load weight and eccentricity when worktable is vertical.

If $W(\text{kg}) \times 10 \times E (\text{m}) \leq T (\text{Nm})$, that's in the permissible range.

MAX: $150 \times 10 \times 0.07 = 105 \text{ N. m}$

3、Tilt angle is $0^\circ < \theta < 135^\circ$

Please use in the permissible range of load weight and eccentricity, when worktable is vertical.

★ Max rotational torque in rotational speed range 100%-10% of max speed.

7 Revolve movement

Revolve movement Worktable can revolve at will along its plane. By control button of electric board, it can realize FOR, REV, STOP. When worktable is tilt and work-pc eccentric distance is less than rated range, worktable won't rotate by itself. Eccentric distance is limited by loading. The relationship between eccentric distance and loading, see fig. 1:

★ Max rotational torque in rotational speed range 100%-20% of max speed.

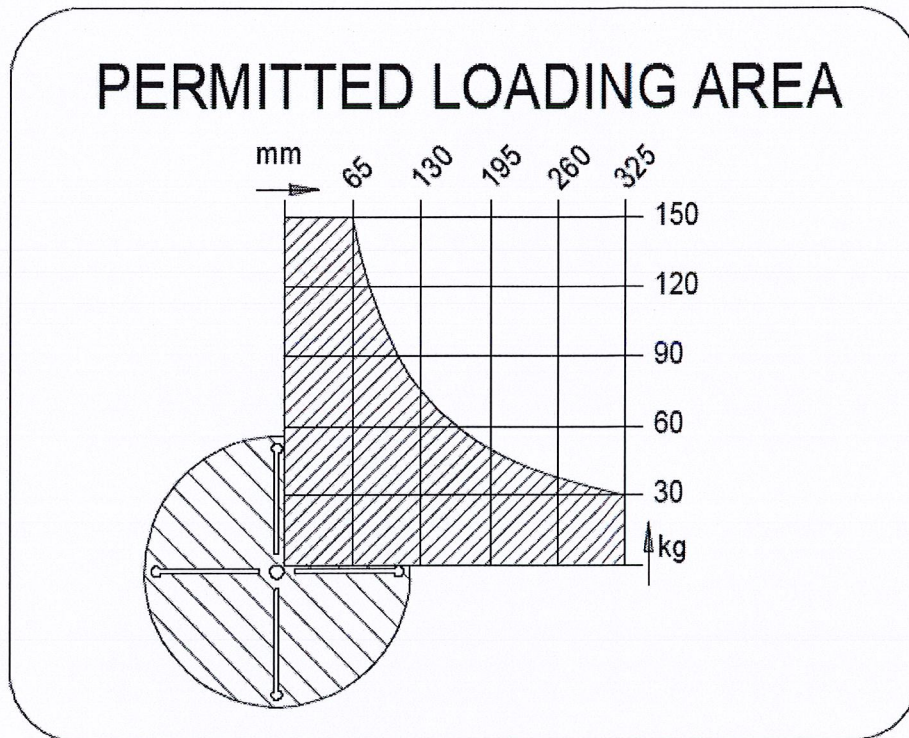
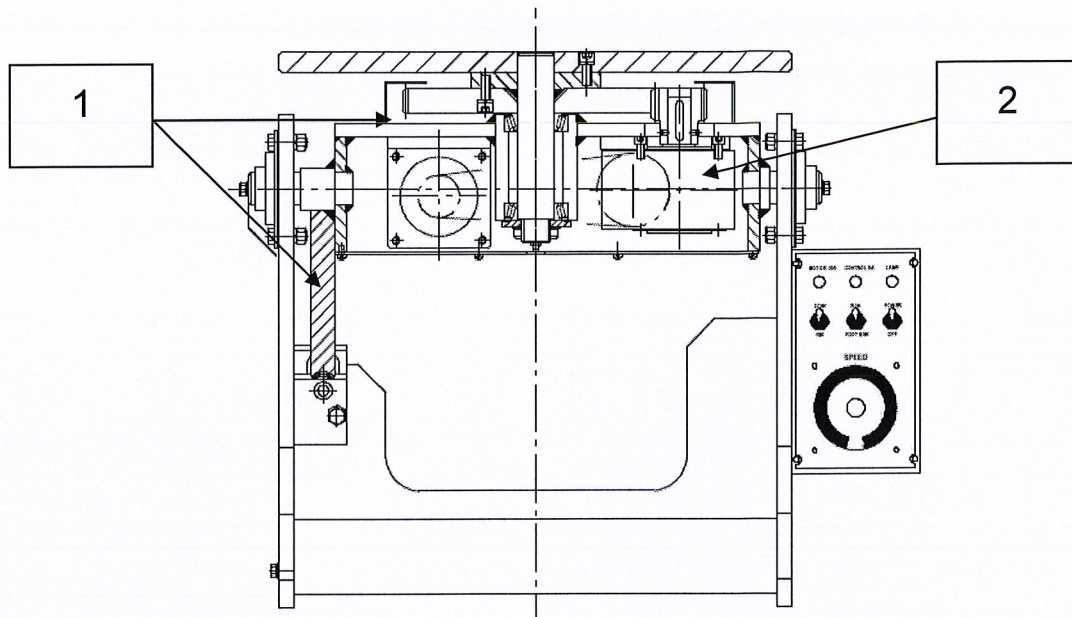


fig 1

fig. 1: The relationship between eccentric distance and loading

8 Lubrication



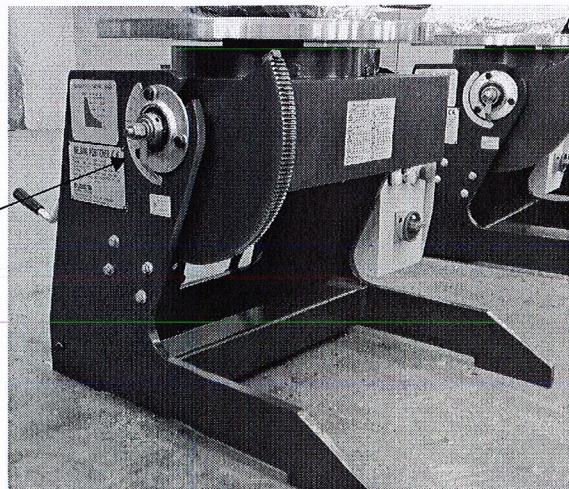
NO.	Lubrication object	Lubricant	Period*
1	Worm gear	Gear oil, 0.12 L Shell Tivela SC 320(or similar oil)	First: 300h Others: 3000h
2	Gearings	Oil for open gearbox ratio, viscosity 750-1500 cSt / 100°C	500h

*The re-lubrication period will depend on the operating conditions of the machine: speed, load, number of working cycles per day etc. The adjacent table gives recommended values (operating temperatures not exceeding +70°C). At higher temperatures the re-lubrication intervals should be shorter

9 Current conduct

Welding current is conducted by copper conductor and soft cable connecting to the underneath of framework.

Earth connection
500A



10 Installation

1、Condition

Well-ventilated

Fix up the machine on solid ground, otherwise may raise eccentricity cause the machine turned over.

Do not put the machine in the following condition

Outside

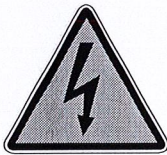
Wet ground

High humidity

Dangerous place which can cause fire.

Someplace that weld spatter may cause fire.

Warning: Avoiding electric shock on steel plate.



Put on insulated protective clothing while the machine on the steel plate, and separate yourself from work pieces, welding positioner, earthing cable

2、install machine

1) install body

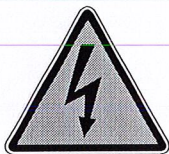
Fix up body on flat ground, then adjust level by two bolts(in the back). Front stone bolt must be screw down, otherwise maybe in danger.

2) connect cable of control box

Open the cover, connect cable according to the drawing, connect power line, motor line and foot switch, then screw the cover.

3) earthing cable


Warning: Must mount the earthing, in case of electric shocks.




About earthing and residual current circuit-breaker are professional operations (electric).installation must according to the electrical technical standard and norm. Connect all earth terminal.

11 Maintenance


Maintenance can keep the equipment works well

Attention	
	Machine need maintain regularly.
	If the machine has trouble, must maintain before operate.
	Maintenance man must be training of the electrical technical ability knowledge.
	Turn off power supply before maintain.
	Operating after maintain and check everything is ok.

1) daily inspection

item	solution
any nick or something on the cable	clear
whether the worktable is clean	cleaning
Whether tilting and rotate are smooth	cleaning
Any damaged for cable	Replace or repair
	Attention: If any damaged on cable must be maintained immediately.

2) Periodic inspection

Attention		
	Revolving axle of the worktable have current while welding, so must be screwed down, otherwise electrical spark may damage the bearing. Lubricating oil whatever overflowing or drip on body must be clean.	
Checking parts	item	solution
Rotation parts	Anything on gear. if it is correct about precision of rotation abnormal sound	clear Adjust lock nut of revolving axle
slew bearing	Abnormal sound in revolving axle	Replace bearing
tilting parts	working well or not	lubricate
gearbox	check oil level check lubricating oil	add lubricating oil change lubricating oil

12 Trouble shooting

Trouble phenomena	Cause	solution
worktable no motion	1) No input power 2) cable broken 3) button broken 4) end of core axis was loose 5) motor or control parts burning loss 6) tooth surface damaged 7) bearing broken 8) shaft key broken	1) input power 2) replace cable 3) replace button 4) screw down 5) replace motor or control parts 6) replace 7) replace 8) replace key
	Attention: find out the cause of 4,5, eliminate potential safety hazard then replace.	
Rotation unsmooth	1) Bearing burned by excessive weld current 2) some splash or solder stick on the gear 3) carbon brush wear cause poor contact 4) overload	1) replace bearing 2) clean and lubricate 3) replace carbon brush and grind. 4) in the permissible range
Lubricating oil leak	1) oil seal broken 2) oil hole loose 3) fuel level gauge broken	1) replace 2) screw down 3) replace
Welding instability	1) earthing cable loose 2) bearing lock nut loose cause gap.	1) screw down 2) screw down lock nut

13 Attachments

1. Electrical diagram
2. General assembly drawing

