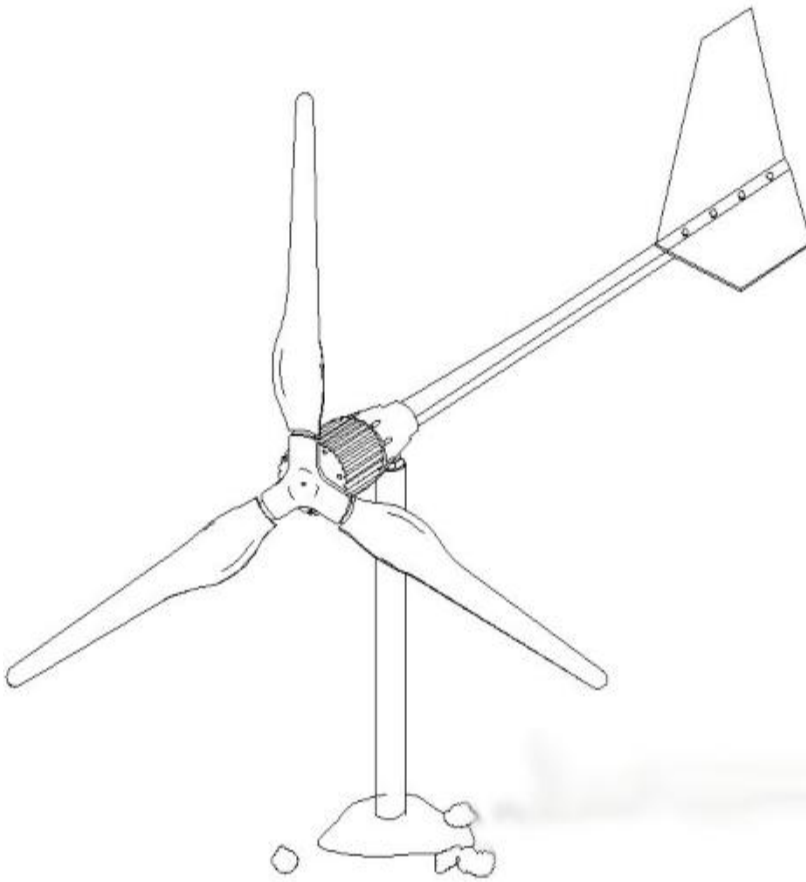


# 2KW USER'S MANUAL



## **Distinguished Users:**

We are very glad that you choose our company's products and feel sure that you will find the convenience that our products bring to you and the joy of promoting the policy of "low carbon and environmental protection".

Please do not forget to read the "User Installation Manual" before installing of the products.

## **Catalogue**

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## **Part1. Safety Warning and Attentions :**



For correct installation and use of this equipment, please read carefully the safety warning and attention and strictly follow the instructions.

### **Basic requirements:**

- Do not disassemble the equipment by you. Please contact the specified maintenance department when the equipment is out of order.
- Without authority, no company or individual are allowed to change the equipment structure, safety and performance design.
- please obey local laws and regulations when using this product

### **Assembling requirements:**

1. Before the assembly of the wind generator or in the process of maintenance, please be sure to read the users manual first.
2. Please don't install the wind turbines in rainy days or when the wind scale is at Level 3 or above.
3. After opening the package, it is advised to short circuit the three leads of the wind turbines (the exposed copper parts should be screwed together).
4. Before the installation of the wind turbine, lightning grounding must be prepared. You can arrange the facilities according to national standards, or you may arrange them according to the local environment and soil condition. Table 1 is for reference.
5. When assembling the Wind turbine, all the parts should be fastened with fasteners specified in table2.

Table 1

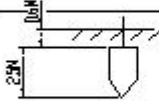


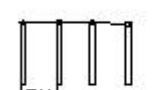

type	schetch	dimension(mm)&length(m)				earth resistivity ( $\Omega \cdot M$ )		
		round steel	steel pipe	angle steel	flat steel	100	250	500
		$\phi 20$	$\phi 50$	$50 \times 50 \times 5$	$40 \times 4$	industrial frequency grounding resistance $\Omega$		
1		2.5	2.5	2.5		30.2	75.4	151
						37.2	92.9	186
						32.4	81.0	162
2			5	5	2.5	10.0	25.1	50.2
					2.5	10.5	26.2	52.5
3			7.5	7.5		6.65	16.6	33.2
						6.92	17.3	34.6
4			10	10	7.5	5.08	12.7	25.4
					7.5	5.29	13.2	26.5
6			15	15	25	3.58	8.95	17.9
					25	3.73	9.32	18.6

Table2

Serial#	Fasteners	spec	qty	tightening torque (N*M)	remarks	Executive standard
1	Bolts for blades	M10*50	12	$\geq 19$		
2	Lock nut on shaft	M24	1	$\geq 210$		
3	Tail bolts	M8*45	4	$\geq 10$		
4	Tail nut	M8	4	$\geq 10$		
5	Flange nuts	M16*60	4	$\geq 82$		
6	Tail board nut	M16*170	1	$\geq 82$		

6. Before hoisting the wind turbines, the end (which should be connected with controller) of the tower lead should be cut away the insulating layer for 20mm or so. Then screw the three exposed leads (short circuit) together.

7. Before the connection between the wind turbine flange and the tower flange, please connect the three leads of the wind turbine to the three leads of the tower accordingly. When using the hinge method, every pair of wires should be no less than 40mm in length and be wrapped with Acetate cloth tape for three layers, then sheathed with spun glass paint tube. With this method, connect the three pairs of wires (attention: the joint of the wires can't bear the weight of the tower leads directly, so wires 100mm downward from the joint should be wrapped with adhesive tape and then stuffed into the steel pipe. After that, wind turbine flange and tower flange can be connected.

8. During the installation, it is prohibited to revolve the rotor blades roughly (the ends of wind turbine leads or the tower leads are short-circuited at this moment). Only after all the installation and the examination is finished and the security of the erection crew is guaranteed, it is allowed to dismantle short circuited leads and then connect with controller and battery before running.

**Attention:**

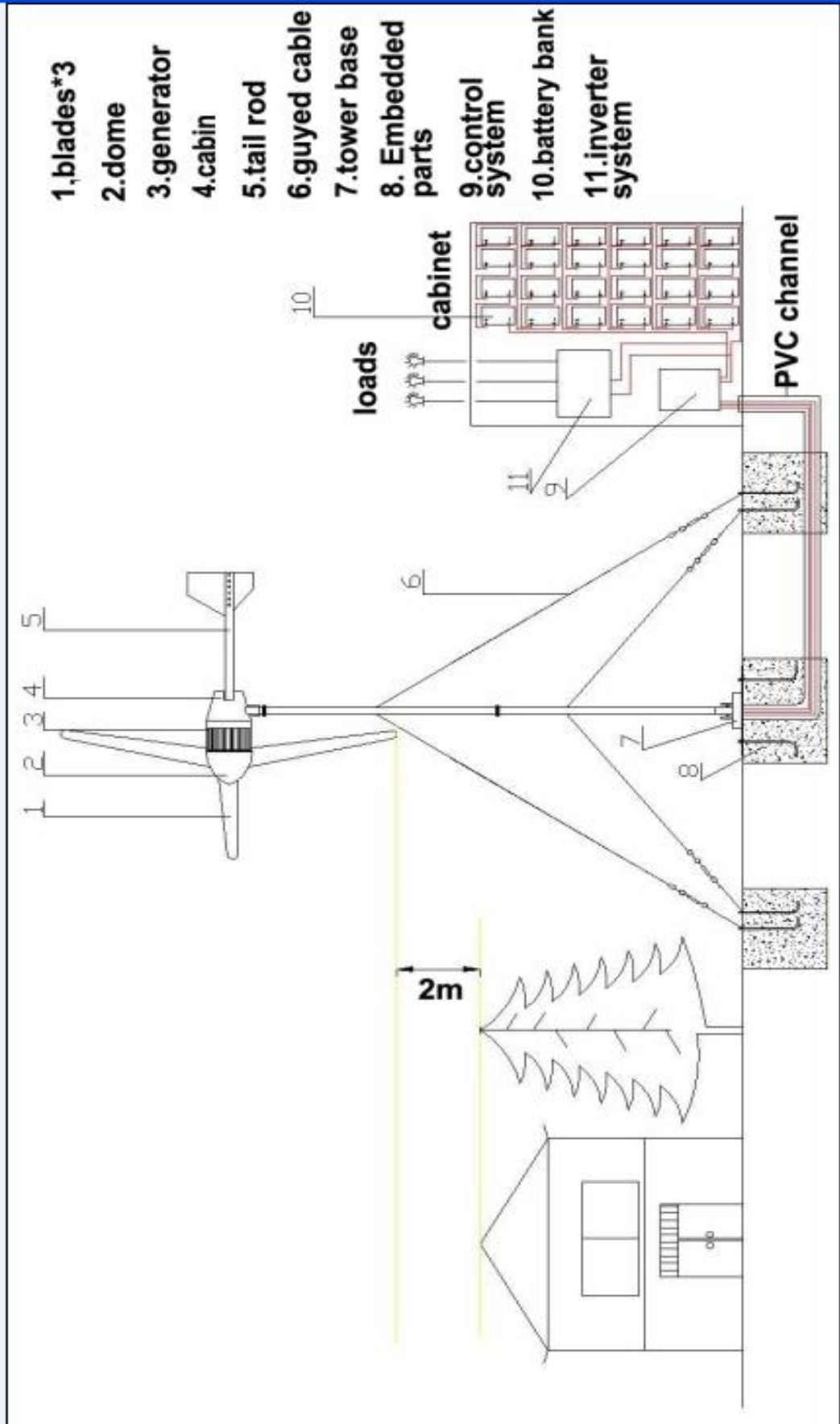
**Battery should be connected with controller before wind turbine connected with controller**

**If above stated instruction are not followed when assembling and installing the wind turbines, we are sorry that any problem or failure resulted are not to be covered by warranty.**

## Part2. Product Description

1. Low start up speed; high wind energy utilization; beautiful appearance; low vibration
2. Human friendly design, easy installation, maintenance and repair.
3. Precise injection molding blades together with the optimized design of aerodynamic contour and structure, the blades have such advantages: high utilization of wind energy which contributes to the annual energy output.
- 4.the generators, adopting patented permanent magnet rotor alternator , with a special kind of stator design, efficiently decrease resistance torque. Meanwhile, it makes the wind turbines match the generators quite well and increase its reliability.

2000W wind turbine spec	
Rated power (W)	2000
Rated voltage (V)	48
Wheel diameter (m)	3.2
Start up wind speed (m/s)	3
Rated wind speed (m/s)	10
Survival wind speed (m/s)	35
TOP NG (kg)	48
Body material	Casting aluminum
Blades material	Reinforced glass fiber
generator	Three phase ac permanent magnet generator
Blades number	3
protection	Electronic magnet/tail furling
lubrication	Lubrication grease
Working temperture	-40℃-80℃
Tower height (m)	6
Tower type	Guyed tower



## **Part 3 Product Structure and Features**

The wind turbine consist of wind wheel, generator set( generator and swivel),tail, guyed tower, controller, inverter,battery bank.

- Wind wheel: 3 blades wheel, Laminar flow type, high lift-drag ratio, good performance.  
Reinforced glass fiber blades, strong toughness and perfect dynamic nature.
- Generator and swivel are designed in a complete body, a close compact structure which enhances toughness, reduce weight of the generator set, and thus make it rotate more easily and safely.
- Tail, die casting , spined with generator,tail furls to protect wind turbine in strong wind.
- Controller converts ac current produced by wind turbine to be dc current to charge battery
- Battery, to store the power from wind turbine
- inverter: to covert dc power from battery to power for family loads

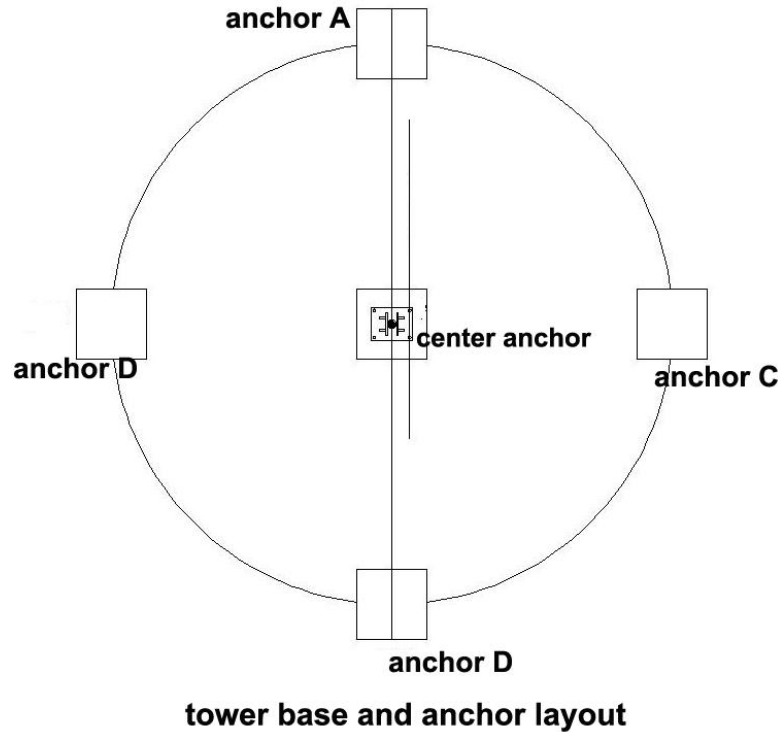
## **Part 4. The Wind Turbine Installation Steps**

Wind turbine should be installed on a pole as high as possible, and be clear of obstacles (refer to pic 1-1) to capture big wind turbine. The soil condition should be taken into consideration; those conditions are not recommended, sand land, ruggy places or places vulnerable to climate. The distance from the wind generator to the battery is suggested to be as short as possible to save cables and lessen power losses over transmission, if long distance can not be avoided, please choose thick standard cables.

### **4.1. Tower base, anchors making and installation**

11.layout of tower base and anchor (pic 1-2). Attention: the connection line from anchor A to B should be parallel to the connection line of the two pin holes on the base, which is to ensure the tension of guyed cables balanced and adjustable.





**Pic 1-2**

2. Dig holes for concrete pouring following the layout, the center holes edge length is suggested to be 0.7m, depth 0.8m, and holes for the anchors edge length is suggested to be 0.6m, depth 0.8m.

3. For the center hole, pour concrete, and mix with some steel bar and put 4 anchor bolts into the ground, please make sure the base hole align with the anchor bolts

4. For the four anchor holes around, use 4 ring shape anchor separately (one end embedded in the ground), the ring above ground installed toward tower base, adjust the distance of 4 ring anchor from the center of tower base to make even distance

5. Fix the tower base on the concrete block with bolts

#### **4.2. Assembling of wind turbine and tower**

1. Open the package, check if goods same as listed in the packing list

2. First put the bottom section of tower into the tower base, then thrust the pin shaft into the pin holes on the tower base

3. Connect the middle and upper section of tower orderly, then place it onto a wood stand

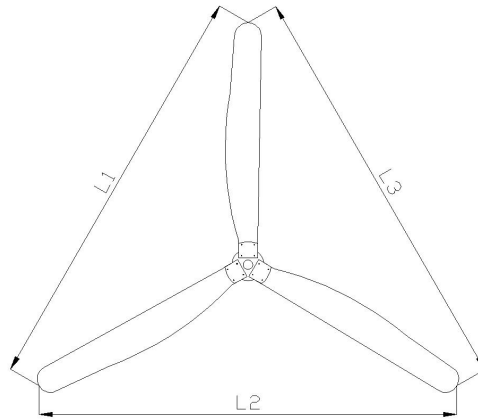
4. Pull the cables of wind generator through the tower pipe, and led out from the hole on the bottom section of tower.

5. Blades installation, put the windward side upward (pic 2-1), screw the bolt (not to screw it tight), adjust the blades ends distance to be balanced, then screw tight bolts, make sure

L1=L2=L3, allowance within 5mm(please refer to pic 2-2)



**Pic 2-1**



**Pic 2-2**

6. Fasten the tower flange and the wind turbine flange with bolts, please make sure the wind generator shaft is upward to make easy blades installation.

7. Install the blades with hub onto the generator shaft, then covered with dome.

8. Tail installation, the side with buffering ( refer to pic 2-3), the tail board fix on the left of tail(pic2-4) with the small end upward(pic2-5)



**pic2-3**



**pic 2-4**



**pic2-5**



**pic 2-6**

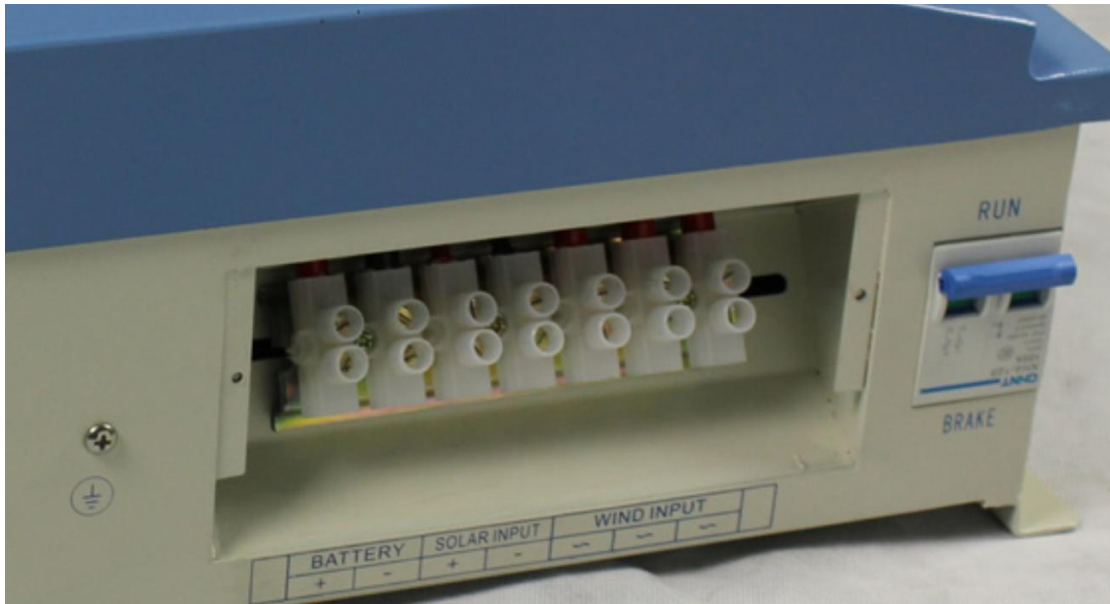
9. Pull the steel guyed cables through the holes on the upper tower( pic 2-6), the left and right guyed cables connected to the side anchors with Turnbuckle, the back guyed cable fixed with the back anchor with the same length as left and right cables, please make sure the three cables does not wrap together, the front cable fixed with front anchor after the tower hoisted vertically.
10. Check the tension of guyed cables, adjust its tension by rotating the Turnbuckles to make sure tower not bent when too tight or shake when too loose.

### **4.3. Battery installation and connection**

1. The battery should be placed in a dry, ventilated place; a wood stand is suggested to hold batteries, controller and inverters.
2. Connect batteries in series, connect the positive electrode of the first battery to the negative electrode of the second batteries, same is to be followed with other batteries.
3. Lubricate all the terminals with grease or other anti-corrosion materials, install fuse on the positive terminals of batteries and keep the cables between controller and batteries within 3m to avoid possible electronic magnet interference.

### **4.4 Connection of controller and inverter**

1. The controller should be placed in dry, well ventilated place, moisture and dust-proofed, inverter shell should be kept grounded and more than 1.5 meters away from the batteries to avoid acid gas pollution.
2. The positive terminal of battery indicator on the controller should be connected with the positive electrode of last battery and negative terminal with negative electrode on the first battery



3. Connect the three wires of wind turbine correspondingly with the wind turbine terminals on the controller.
4. Please be noted that the input voltage of inverter should equate with the batteries voltage in series.
5. It is prohibited to run the wind turbine without load to avoid blades damage when high speed rotation

## **Part 5. Maintenance and Attentions**

1. wind turbine is generally worked in windy areas, please check it 3 months after installation, fasten bolts, nuts, check whether the tower shaking, lasso loose, if anything amiss, please solve it immediately
2. Please check wind turbine right before or after storm, if anything amiss, it is advised to lay down slowly wind turbine to do inspection or repair. If inspection needs to be done on the tower, make sure wind turbine have been short circuited and protection measures taken before and election climb up.
3. The free maintenance batteries should be kept externally clear.
4. Do not disassemble the equipment by yourself. Please contact sales department when the equipment is out of order.

## Part6. Packing list

Serial #	item	spec	material	qty	packing
1	generator	Diameter:260mm, length:500mm	Aluminum alloy case	1	carton
2	hub	Diameter:235mm, thickness:10mm	Carbon steel	1	
3	Blades press board	Thickness:3mm , diameter:235mm	Carbon steel	1	
4	dome		Reinforced glass fiber	1	
5	Dome bolt	M6*105	Carbon steel	1	
6	Blades nut	M10*55	Carbon steel	9	
7	Flat washer	M10	Carbon steel	9	
8	Elastic washer	M10	Carbon steel	9	
9	Tail board	650*450	Aluminum	1	
10	Tail board bolt	M8*40	Stainless steel 304	4	
11	Tail board nuts	M8	Stainless steel 304	4	
12	Tail board flat washer	M8	Stainless steel 304	8	
13	Tail board elastic washer	M8	Stainless steel 304	4	
14	blades	1.5m	Reinforced glass fiber	3	carton
15	Tail rod	1.38m	Carbon steel	1	
16	tower	3000mm $\phi$ 89*4mm	Galvanized steel pipe	3	Packing bags
17	Tower base	300*210mm	Carbon steel	1	carton
18	Tower bolt	M16*45	Carbon steel	8	
19	Tower nut	M16	Carbon steel	8	
20	Tower flat washer	M16	Carbon steel	16	
21	Tower elastic washer	M16	Carbon steel	8	
22	guyed cable	$\phi$ 8 7.500mm	galvanized	4	
23	turnbuckle	12mm		4	
24	Guyed cables clamp	8mm		32	

## Part7. Quality Guarantee

1.The company guarantees customers that generator is of excellent quality,function is good, the body is complete,rigorously checked before delivery,

2.The wind turbine should be maintained by professional person regularly, the problems resulted from irregular maintain-ance or without maintain-ance are not to be covered by the warranty

2,We provide 1 year's warranty for wind generator since the date of sale , damages occurred in the following situation:dismantle optionally by yourself or seriously violate operation (not according to instructions use) are not covered by warranty, in such case cost to be charged when repair at our designated shop.

3. We offer maintain-ance and repair then products warranty expires at cost.

4, The documents are as a product warranty certificate, please keep it properly.

### User information table:

Sales company:	Purchase company:
Purchase time:	Contact person:
SBBH:	Contact:
Model:	Zip code:

### Maintenance records:

Date	Maintenance species	Summary	SMT rework

## Part 8. Maintenance Records-table

maintenance	Time after installation	Items	SMT rework	Date
First time	3 months	<p>Check blades and main shaft bolt, wind generator and tower, see if loose or any damage, check the tail spin and connectors ,see if any friction damages, check and see if anything amiss on the wind generator and tower, accessories</p>		
2 <sup>nd</sup> time	6months			
3 <sup>rd</sup> time	1 year			
4 <sup>th</sup> time	2 year			
5 <sup>th</sup> time	3 year			
6 <sup>th</sup> time	3 year and 6 months			
7 <sup>th</sup> time	4 year			
8 <sup>th</sup> time	4 year and 6 months			
9 <sup>th</sup> time	5 year			
10th time	5 year and 6 months			
11th time	6 year			
12th time	6 year and 6 months			
13th time	7 year			

14th time	7 year and 6 months			
15th time	8 year			
16th time	8 year and 6 month			
17th time	9 year			
18th time	9 year and 6 months			
19th time	10 year			

A whole complete inspection and repair should be made, and records remade again.