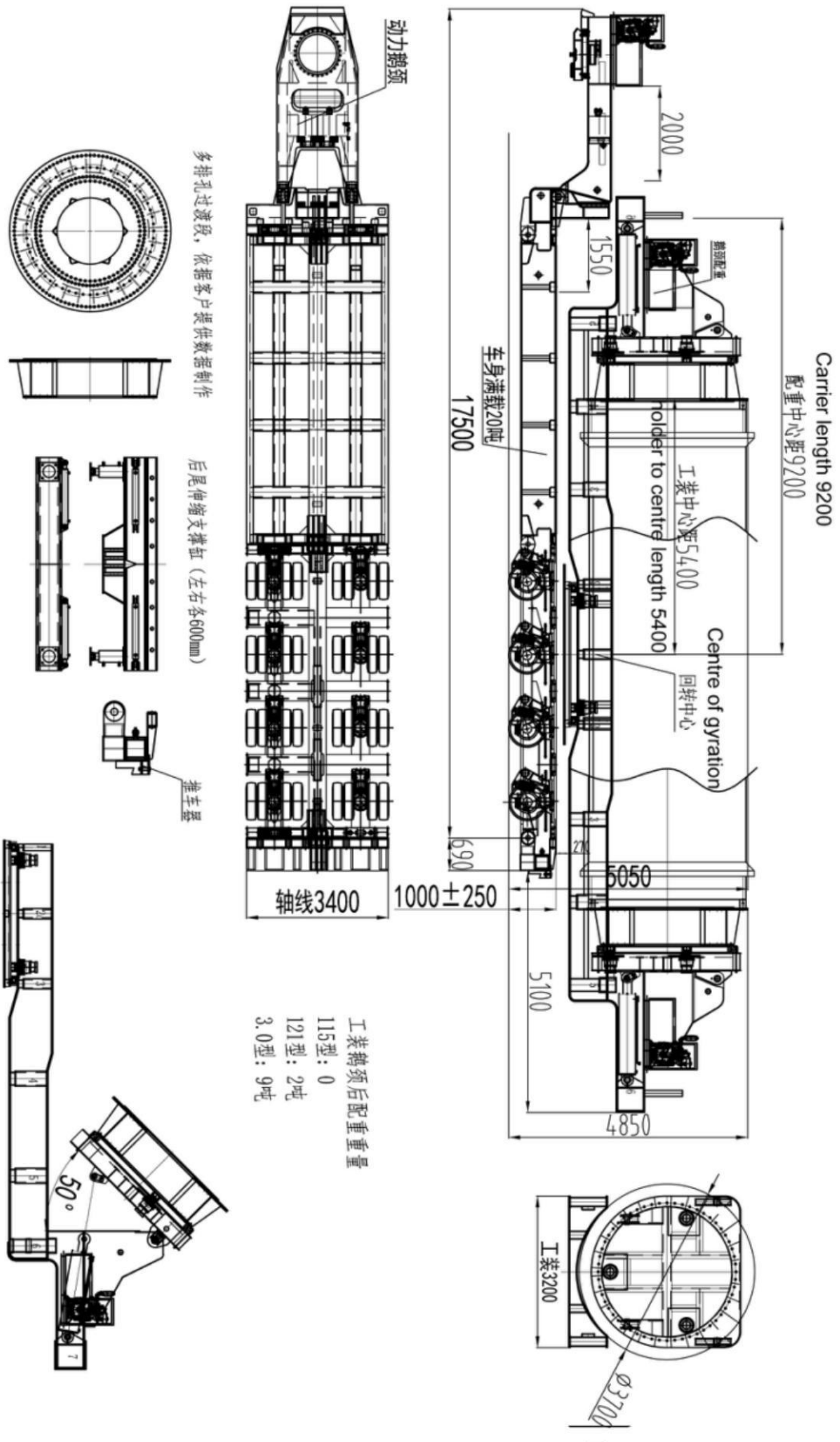


### 1. Introduction of the Windmill Blade Trailer

#### 1.1 Overall photo of the Windmill Blade Trailer



#### 1.2 Draft of the Rotation Trailer(Max.67m length wind blade)



### 1.3 Brief introduction



- The rotation carrier is for windmill turbine blade transportation. It is combined with low bed trailer or hydraulic modular trailer to be whole set of vehicle. The advantage of the rotation carrier trailer is that the length of the trailer is too short, so it need small turning radius.
- The carrier is rotatory. The raise angle of the blade is  $0-55^{\circ}$  , and the rotation carrier angle is  $0-360^{\circ}$  . So it can meet many complicated road conditions, and small turning angle roads such as mountain roads, woods, electric wires, house, waves etc.
- The carrier is fixed on the trailer axle platform. It is consisted of flange plate, lifting cylinders, diesel power station, manual handle operation etc. The wind blade is fixed on flange plate, and through the engine power, lifting cylinder and slewing bearing to raise and rotate the wind blade.

## 2. Detail Photos and introduction

### 2.1 Turntable of the adapter





●The turntable of the adapter combine with the wind blade holder to transport various specification wind blades.

### 2.2 Wind blade holder





- The holder has two sides, and each side has some circles of holes. One circle match with one specification blade.
- We can make two sides of the holder has the holes circles, so one holder could meet 7 specification wind blades transportation together.

### 2.3 Wind blade with the holder



- The blade combine with the holder by bolt and nut.

### 2.4 Lifting cylinder



- The adapter has two lifting cylinders among the adapter to adjust the lift angle of the blades.

### 2.5 Steering bearing





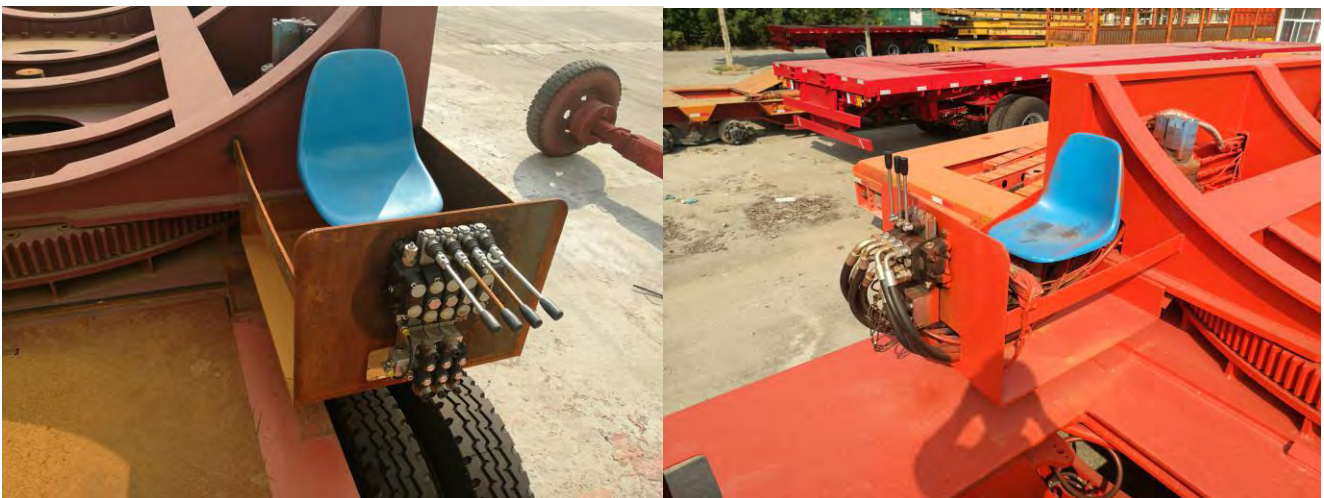
- The bottom of the adapter is a big steering, and it achieve the rotation function.

### 2.6 Installation of the adapter



- The adapter is fixed by the nuts and bolts, and also, we must weld the adapter on the trailer.

### 2.7 Operation Valve(Lifting and steering)



## 3. Main parameters of the rotation carrier (Also, it is customized)

3.1 Overall dimension: 14000mm\*3000mm(or 3200mm)\*4500mm

3.2 Raise angle of the wind blade:0-55°

3.3 Rotation angle of the wind blade:0-360°

3.4 Gooseneck balance weight for carrier: Against on blade self weight (refer below sheet)

3.5 Semi trailer balance weight for carrier: 25-30 tons. Against on blade self weight.

3.6 Main components of the carrier

- A. Raise lifting cylinder for windmill blade
- B. Diesel engine power pack
- C. Steering operation valves. (Manual handle operation and remote control)
- D. Air compressor for screw nuts and bolts of the carrier

#### **4. Transportation conditions requirements**

4.1 After the trailer combine with the truck. The front of the trailer should not be higher than rear part. It is good for uphill traction adhesion.

4.2 The equipment can adapt to  $-30-40^{\circ}\text{C}$  temperature.

4.3 The flange plate of the carrier could transport 6 specifications wind blades.

4.4 The maximum transport length of the blade is 67m

4.5 Working surroundings conditions requirements

A. Temperature range:  $40$  to  $-20^{\circ}\text{C}$ , wind speed  $\leq 8\text{km/h}$

B. Slope angle of the uphill road  $\leq 30^{\circ}$ , if more bigger angle, please improve the truck power engine.

4.6 The speed of the rotation:  $0.05^{\circ}/\text{min}$

4.7 The suitable speed for complicated mountain roads:  $20\text{km/h}$

4.8 Hydraulic system

A. The rated working pressure of the hydraulic system is  $20\text{MPa}$  (max.), the rated working pressure of whole system is  $31.5\text{MPa}$  (max.). Adjusted by flood valve.

B. Hydraulic oil tank is  $200\text{L}$ . Use #46 Caltex anti-wear hydraulic oil, and the replacement



period is 4 month.

C. The hydraulic oil cylinder has manual handle two levels protection valves. The left and right switch must be consistent. Or it would damage the machine.

## 5. Sheet of Balance weight for windmill blade

NO.	Name	Length	Pitch Dia.	Bolt	Bolt amount	Gravity position	Blade weight	Gose. B.W.
1	1500-46	45.5m	1800mm	M30 213-215mm	60pcs	13.25m	8 tons	0 ton
2	2000-54	54m	2110mm	M36 235-239mm	60pcs	15.5m	12 tons	3-4 tons
3	2000-57	56.6m	2300mm	M36 240mm	64pcs	16.72m	13.5tons	4-5 tons
4	2000-60	59.8m	2300mm	M36 227-232mm	64pcs	18.2m	14 tons	6 tons
5	3000-51	50.5m	2300mm	M36 250mm	64pcs	15.81m	12.1 tons	3-4 tons
6	3000-60	59.5m	2300mm	M36 245-250mm	92pcs	18.7m	15 tons	6-8 tons

The carrier is doing the rotation movement, please raise the blade anger of 25-30° , or it would overturn the trailer

## 6. Lubrication and maintenance

6.1 Please check the oil tank every day, in case it is lacked of the oil, and damage the engine.

6.2 Please add the lubrication oil regularly to the up and down slewing bearings. When add the lubrication oil, while please rotating the slewing bearing to make it be even.

6.3 Please check the slewing bearing working conditions every day, especially it has nosy sounds or the movement is not smoothly. Please stop the vehicle immediately to check the slewing bearing.

6.4 Adjust the oil pressure by the flood valve which above the oil tank. (At the beginning of the raise, the pressure should be 16-18Mpa)

6.5 Make sure the bolt and nut which fix the windmill and flange plate must be tight!

6.6 For complicated road condition, make sure the trailer speed below 20km.

## 7. Cautious of some affairs

7.1 The start rotation of the carrier should not be suddenly, or the first twisting force of transmission system is too big to damage the equipment.

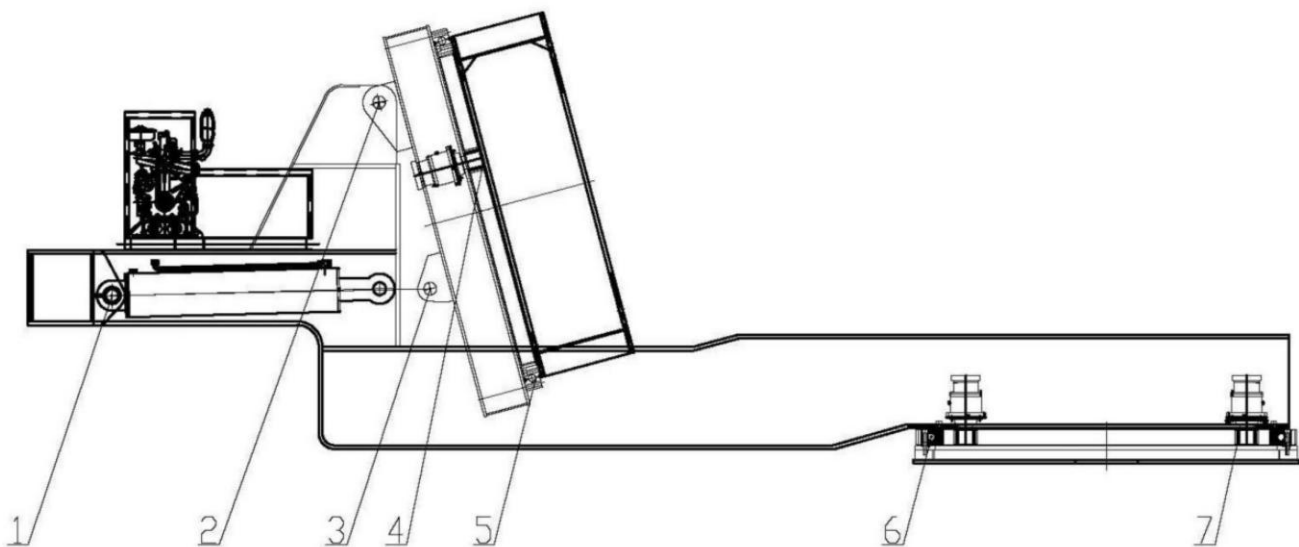
7.2 Please operate the valve of raise and rotation movements slowly, and do not pull and push the handle suddenly and quickly. The rotation movement should not be consecutive, in case to reduce the blade shake.

7.3 Please be cautious of the surroundings when operating the carrier to guarantee the security.

7.4 Please do not operate the carrier at the left and right slope roads.

7.5 The trailer should be slow with constant speed, and please do not always to brake the trailer in case to reduce shake and damage of the trailer.

7.6 If the wind speed above 8m/s, please do not run the trailer.



The lubrication positions