



SINGLE MAST

MOBILE ELEVATING WORK  
PLATFORM

INSTRUCTION MANUAL

(For GTWR4-1004)

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# 1. Preface

## 1.1 Features of the product

The aluminum mast type of mobile elevating work platform is one of the best equipment available for aerial work. Single mast of mobile elevating work platforms are designed to position one person along with their necessary tools and materials, at overhead work position.

They are generally intended for use over level surfaces. Normally, they are not insulated for use near electrical energized circuits nor are they intended to be used in hazardous location. They are mainly used for business decoration, ceiling/fixture works, industrial facilities maintenance, lamps and lanterns replacement in halls, maintenance of street lamp, aerial photographs and wall cleaning etc. In following area:

Office buildings, shopping centers, theatres, hospitals, warehouses, factories, museums, auditorium, hotels, gymnasium, business/convention center, airports, auto stations and highway toll station etc.


The single mast mobile elevating work platform has the following features:


**Stable lifting and lowering:** The unit adopts seamless transmission between the lifting masts, thus minimizing the amount of sway after lifting.

**Safe and reliable:** There are four bolts used for support the whole unit when in work.


**Convenient:** As single mast AWP is consisted of only one set of mast and the lifting masts are made of aluminum, the unit is light and compact. It can easily access through standard doorways or narrow passages. Only one person is required to move the equipment.

## 1.2 Definitions of terms and legends used in the manual

 **Caution** To be obeyed by to avoid personal injury.

 **Warning** To be followed up to avoid equipment damage.

 **Note** It shall be noted, since it prompts important and useful information.

 **Method** It shall be understood, since it provides the method or solution for correcting the problem

 **Problem** It shows that improper treatment will result in unusual.

## 1.3 Specifications

For the technical specifications of your single mast mobile elevating work platform, please refer to the specification form below:

Model	Max. platform height	Max. working height	Rated load	Number of person allowed on platform	Platform size	Power rating		Stored dimension	Machine weight
						AC	DC		
	inch	inch	lbs	person	inch	kw		inch	lbs
GTWR4-1004	150"	228"	300	1	24.8×25.6		0.8	49×29×69	1014

## 2. Notices for safety operation

### 2.1 Safety rules

Please read the following rules for safe and efficient operation, even if you are already

familiar with other types of mobile elevating work platform:

Do not operate this mobile elevating work platform if basic operation training has not been given.

Make sure understanding all the safety rules and instructions on markings before operate this machine.

The masts or the platform must not bump into any barrier or moving object during lifting or lowering. Especially the obstructs that may cause damage to personnel such as live electrical line, solid objects etc.

The lower control panel should not be operated without instruction from the personnel working on the platform, unless in an emergency.

Standing or putting goods under the platform when it is raised is strictly forbidden.

The safety devices installed must not be disconnected, changed or modified in any way

Overloading beyond the lifting capacity of the platform is strictly forbidden.

Do not move the whole unit with electrical supply and/or electrical cable connected to prevent accidental damage to the unit or cable.

The addition of any device (e.g. ladders) to increase working height or in reach is strictly not allowed.

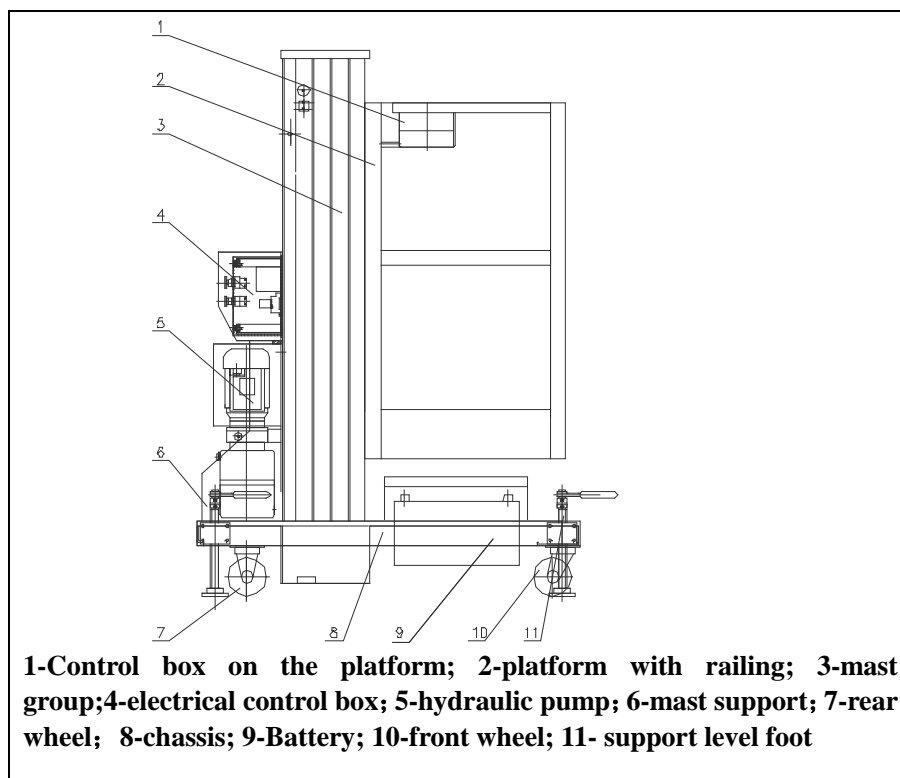
Any special working methods or conditions which are outside those specified by the manufacturer shall obtain the guidance and approval of the manufacturer.

 **WARNING** Use this MEWP as a crane is prohibitive.

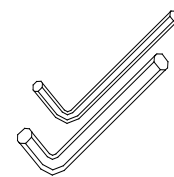
## 2.2 Preparation before use

### 2.2.1 Inspection after unpack the machine.

Your unit may come with packaging or it may be delivered ready for use. Please check the whole unit carefully and make sure the items below are included.



Key Spanners



User's Manual



### 2.2.2 Working condition

At the place of work, the ground surface should be flat and solid; there should be no barrier above where the equipment is placed and the equipment should be at an adequate distance from any high voltage lines.

- ❑ Ambient temperature:  $-10^{\circ}\text{C}\sim 40^{\circ}\text{C}$ ; Height above sea level:  $\leq 1000\text{ m}$  ;
- ❑ Humidity level:  $\leq 90\%$ ;
- ❑ Electrical power: Battery:DC12V
- ❑ **For use indoors only.**

🌀 **Note**

Avoid direct exposure of the hydraulic and electrical components to very strong sunlight.

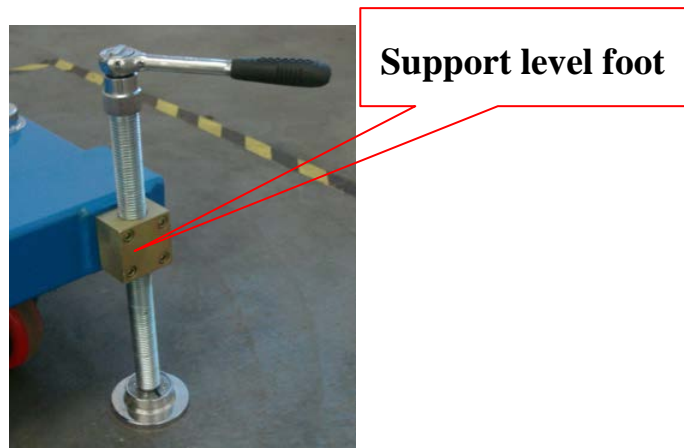
🌀 **Note**

Please contact your supplier if you are in doubt regarding any working condition at site.

## 3. Operation Procedures

### 3.1 Adjust on level

There are four bolts used for support the whole unit when in work. Please see the picture below:



**Operation as below:**

- ❑ Place the work platform at the working place, and turn the ratchet wheel until the flange contacts the ground for all the four bolts.
- ❑ Turn swing handle to let the nearest chassis wheel is just lifted off the ground.
- ❑ Adjust the leveling by observing the bubble level gauge.

⚠ **Warning!** You must observe the bubble level gauge squarely. The bubble should be within the center circle of the gauge.

⚠ **Warning!** Once you doubt leveling is incorrect, just base on mast and use rectangle level gauge to verify it.

🌀 **Caution!** When you found the direction of screw reverse, turn hand wheel to another side.

### 3.2 Operation with Control buttons

- ❑ The mobile elevating work platform has two sets of controls; one at the base of the unit and the other on the work platform itself.
- ❑ On either control panels, press “Up” button (black) for lifting and press “Down” button (white) for lowering the platform.
- ❑ The platform will be raised or lowered so long as the appropriate button is depressed. The platform will stop in position as soon as the button is released.
- ❑ Only one controllers can lift/lower the platform; the operator can choice it by switch knob on work platform

🌀 **Note**

The lower controls are together with the electrical box. Always remove the key from the electrical box to prevent unauthorized use when the unit is unattended or not in use.

### 3.3 Moving the Unit

To move the unit to storage or to another site, first lower the work platform to its rest position and switch off the power. Keep the support racks leave the ground. The unit can now be moved

If the next site is a long distance away, other means of transportation will need to be used.

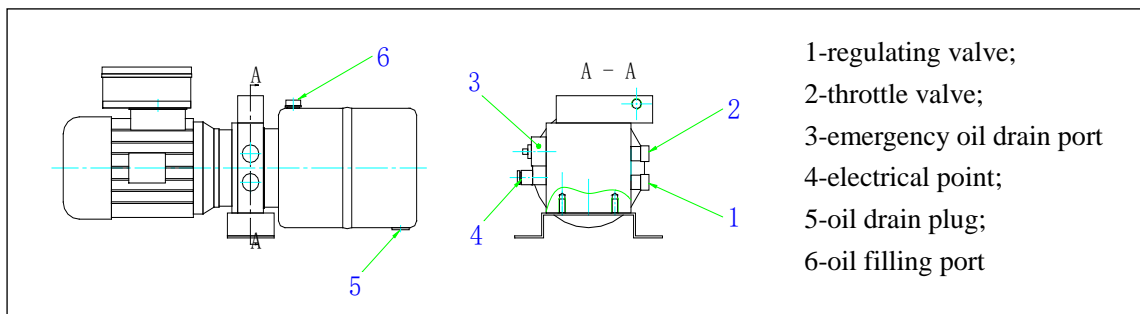
### 3.4 Emergency Operation

In the event of power cut-off or other reasons and the platform fails to descend using both the upper and lower controls, an emergency device consisting of a release valve located at the hydraulic pump (Please refer to structural drawing of the hydraulic pump) is used to lower the platform. Turn the valve counterclockwise and the platform will be lowered slowly. Once the platform has descended to its lowest position, the valve should then be closed securely.

## 4. Maintenance and Lubrication

### 4.1 Adjusting the initial maximum ascending hydraulic pressure

The proper hydraulic system pressure has been preset at the factory. However, some changes may occur after a long period of use.



🌀 **Note**

If it is found that the initial ascending pressure is not at rated value, remove the hydraulic pump cover and referring to the sketch above, turn the regulating valve (1)

on the hydraulic pump unit clockwise to the desired ascending pressure.

## 4.2 Adjusting the descending speed

The work platform's descending speed can also be adjusted.

### ⚡ Note

Referring to above sketch, turn the "throttle valve" adjusting screw (2) clockwise for decreasing and counterclockwise for increasing the speed

## 4.3 Solenoid valve

Make sure the platform descending is caused by the solenoid valve, and then follows the procedures bellows:

Figure 1 ↓

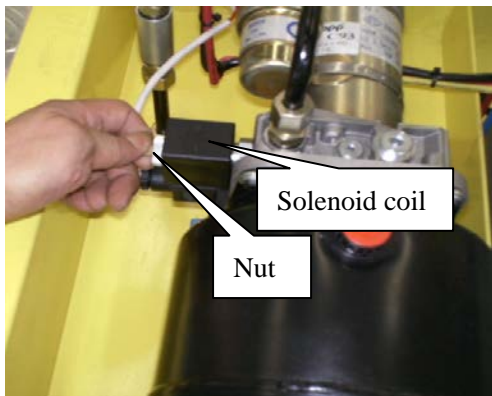


Figure 2 ↓



Figure 3 ↓

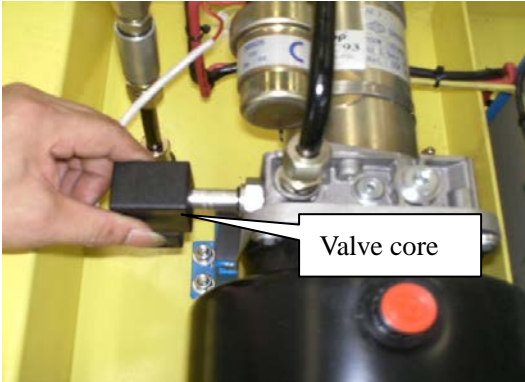


Figure 4 ↓

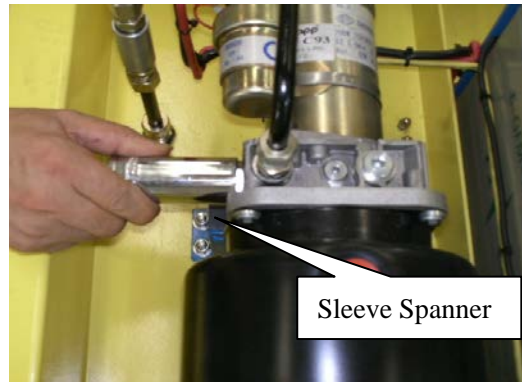


Figure 5 ↓



Figure 6 ↓



1) Loose the nut near the solenoid coil unit (Figure 1)


 **Warning!**

- Before carry out this procedure, please make sure the platform is fully lowered in its storage position
- 2) Pull out the solenoid coil unit (be careful with the o-ring inside) (Figure 2) to expose the solenoid valve core (Figure 3) and note the hexagon portion (Figure 5)
- 3) Get the valve core out by putting sleeve spanner on the hexagon portion (Figure 4) and turning it counterclockwise (Figure 5).
- 4) Use compressed air to blow on the end of the valve core so as to remove dust and rubbish on the surface (Figure 6).
- 5) Use petrol to clean the valve core and refit it into hydraulic pump together with solenoid coil unit and nut to finish servicing.

#### 4.4 Deal with the hose break valve

A hose break valve has been fitted in the outlet of the hydraulic cylinder which prevents undue and uncontrolled platform movement during pipe breaks so as to prevent accidents.

During normal operating conditions hose break valve is in the open position and allows flow in both directions. Once pipe breaks, the outlet flow exceeds the pre-set value of the valve and the closing element is pushed abruptly onto the valve seat to stop hydraulic flow out from cylinder. The valve opens automatically by pressure being applied from outside to cylinder.

 **Note**

In order to prevent hose break valve acting mistakenly, platform lowering speed adjustment should not exceed 9m/mim for which fitted with hose break valve. Too fast descending may actuates hose break valve acting and infect the platform normal lowering operation.

 **Note**

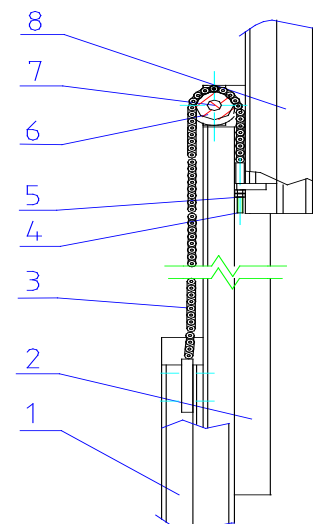
When hose break valve take effect and prevent undue and uncontrolled platform movement, there maybe still exists a slowly descending of platform. Once pipe breaks occurs, as long as the platform is hold on position, a steel rod should be used to block and held the aluminum mast which connected directly to hydraulic cylinder until the broken pipes are replaced or repaired. The steel rod should be removed as long as the hydraulic system is working in order again.

#### 4.5 Adjustment of Transmission Chain

The direct result of transmission chain wear is elongation of overall chain length. The transmission chain should be checked visually for elongation every three months. The mast connected to the elongated chain would be lower in position so that the top of each mast will not be level in 'stored' position. It may lead to damage on guide wheel baffle if the problem is serious.

1) Each transmission chain is associated with three masts. The sketch on the right shows the connection of the masts and the transmission chain. In the sketch:

1-lower mast; 2-intermediate mast; 3-transmission chain; 4-adjusting screw; 5-adjusting nut; 6-chain wheel; 7-chain





wheel shaft; 8-upper mast

2) Determine the mast that needs to be raised when adjusting a chain's length. Adjusting nut (5) would cause upper mast (8) to be raised.

3) Tighten the double nuts (5) to lock after carrying out the adjustment.

4) One mast is lifted by two chains in parallel which simultaneously bear the lifting load. Should one of the chains not be taking the load, the other chain will assume the full load. It is essential then to maintain equal tightness in the chains. Check method at site: Press the two chains with your fingers to compare their tautness under lifting status.

#### 4.6 Hydraulic Oil Change

The first hydraulic oil change should be done within 6 months of regular use of the equipment, to clean off the residue from initial wear (if any). Subsequent oil changes can be carried in intervals of one to one and a half years (suggested) or depending on oil condition.

The choice of hydraulic oil depends on the temperature of the working environment. Normal hydraulic oil of kinetic viscosity ISO 32 Cst is recommended unless under extreme cold conditions. (e.g. Duckhams Zircon 32, Esso Nuto H32, BP Energol HLP 32, Shell Tellus Oil 32)

When changing hydraulic oil, first place a receptacle under the oil tank. Open the oil-filling cap (6) at the top of the tank first, and then remove the drain plug at the bottom. Flush the oil tank by pouring a small amount of clean hydraulic oil via the top cap (6) after the used oil has been completely drained. Tighten the drain plug (5) after all the oil has been drained. Then fill up with clean hydraulic oil and allow for a slight overflow to displace any air.

#### 4.7 Lubrication of Components

Moving components that generate friction should be regularly lubricated.

4.7.1 Apply lubricating oil on the rotational friction surface between the chain wheel and its shaft by means of a lubricating gun. The oil-filling nipple is located on the side of the chain wheel. Lift the mast if necessary to locate the oil-filling nipple.

4.7.2 Apply lubricating oil on the rotational friction surface between the chain and chain wheel by means of a lubricating gun.

4.7.3 Apply 0# lithium-based lubricating grease on the plane friction surface between the rails of the contacting masts by means of a brush. (e.g. Mobiltac 81, Shell Livona 3, Castrol CL)

4.7.4 Apply lubricating oil on the rotational friction surface between chassis wheel and its shaft by means of a lubricating gun.

#### 4.8 Equipment Storage

If the equipment is not expected to be used for a long period of time, it is recommended that the unit be lifted 'off the ground' by pressing down the support bolts so as to avoid possible wheel distortion. The unit should be cleaned and protected by a dust-proof cover (supplied).

Check heat/cold, moisture, height for use, etc. prior to use after periods of storage, exposure to extremes of ambient conditions.

Ambient temperature:  $-10^{\circ}\text{C} \sim 40^{\circ}\text{C}$ ; Height above sea level:  $\leq 1000 \text{ m.}$ ;

Humidity level:  $\leq 90\%$ ;

## 4.9 Trouble shooting

Most problems that may occur while operating the mobile elevating work platform can be easily solved. Should any of the following problems occur in service, please follow the recommended checks as listed below to troubleshoot the fault. If you are still unable to solve the problem after running the checks, please obtain assistance from your supplier or an experienced service technician.

### 4.9.1 Ⓢ Problem 1 Electrical power indicator light is off and there is no lifting and lowering operation.

- 🔧 Check that the electrical cord is correctly plugged into the socket.
- 🔧 Check the circuit breaker to make sure it's in 'ON' position.

Ⓢ Problem 2 The power indication light is on, but there is a 'dadada...' sound in the electrical box when the 'ascend' button is pressed and the platform either does not lift or cannot be lifted fully.

- 🔧 Check the electrical cable to see if it is too long or too thin. The diameter of cable wire should be minimum 1.0 mm when the wire length is less than 25 meters, and minimum 1.5 mm when the wire length is above 25 meters and less than 50 meters. You can try to plug the equipment cord directly in the fixed socket, instead of to an extension cord.
- 🔧 Check power voltage to make sure it is within allowable limits.

Ⓢ Problem 3 Excessive noise from hydraulic power unit during 'lifting' operation.

- 🔧 Check oil tank to make sure there is sufficient hydraulic oil in the tank.
- 🔧 Check the oil pump suction line connections for tightness, as air would get into the oil line via the oil pump.
- 🔧 Check the mounting screws of the electrical motor, and cover etc. to see if they have become loose.

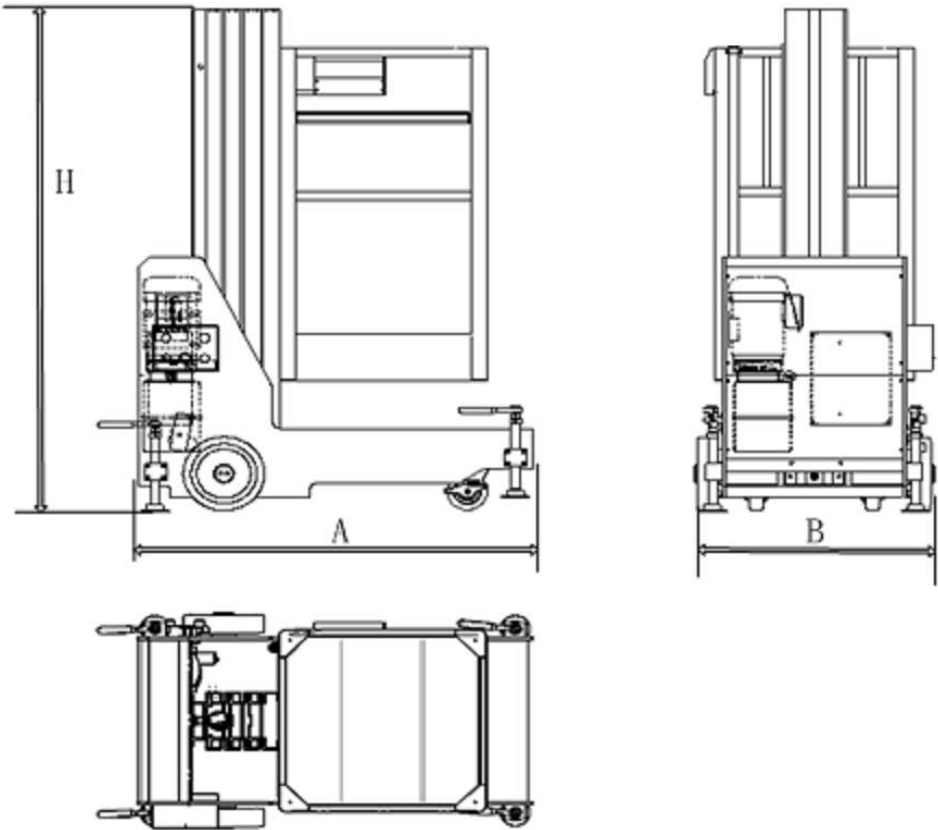
The ambient temperature should be within.

Ⓢ Problem 4 Hydraulic oil leakage

- 🔧 Check all piping connections for their tightness, and tighten up if necessary.
- 🔧 Check the viscosity of the oil in use to make sure it is not too thin

# 5. Structural Drawing, Electrical Diagram and Hydraulic Diagram

## 5.1 Structural Drawing

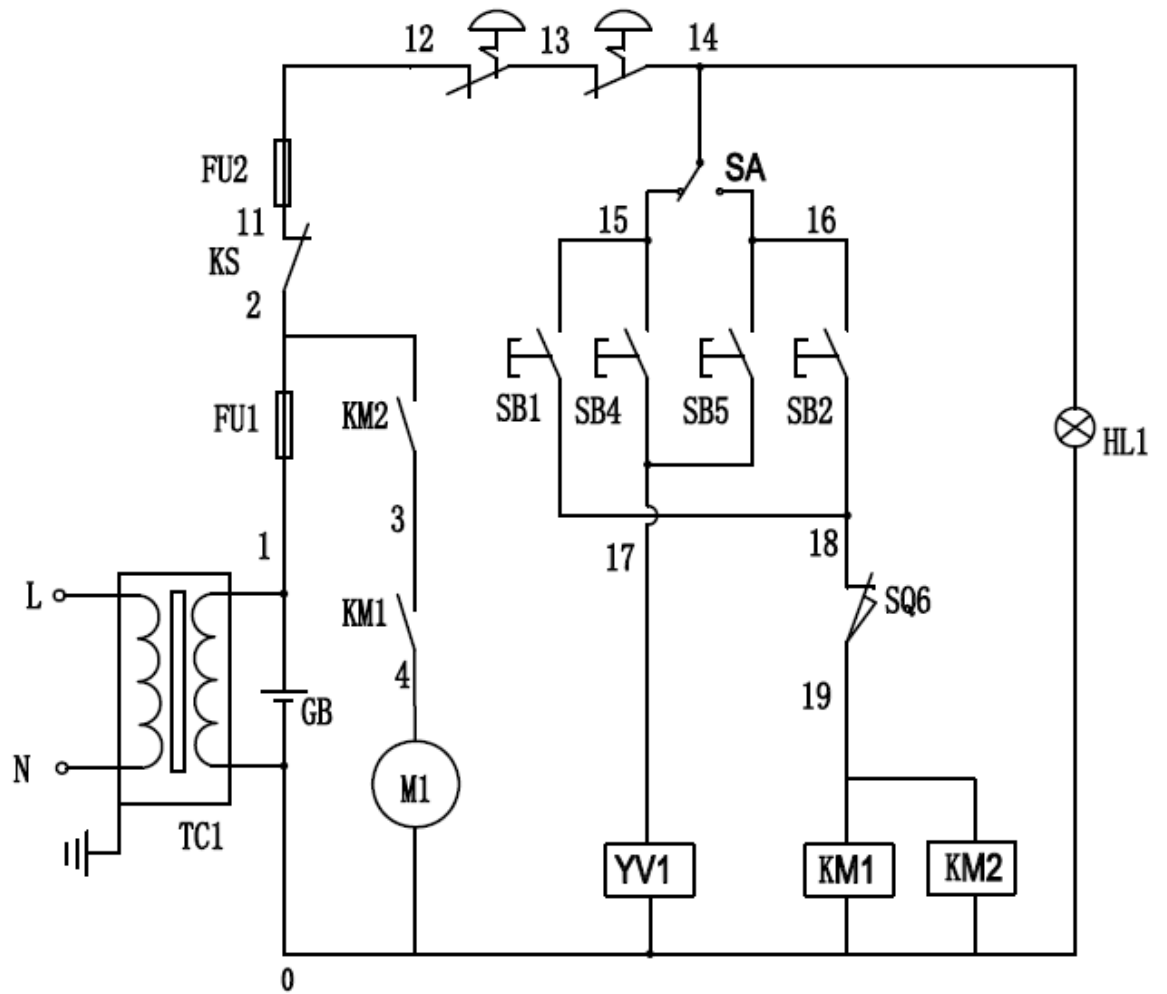


Where :

Unit: inch

Dimension	A	B	H
GTWR4-1004	49	29	69

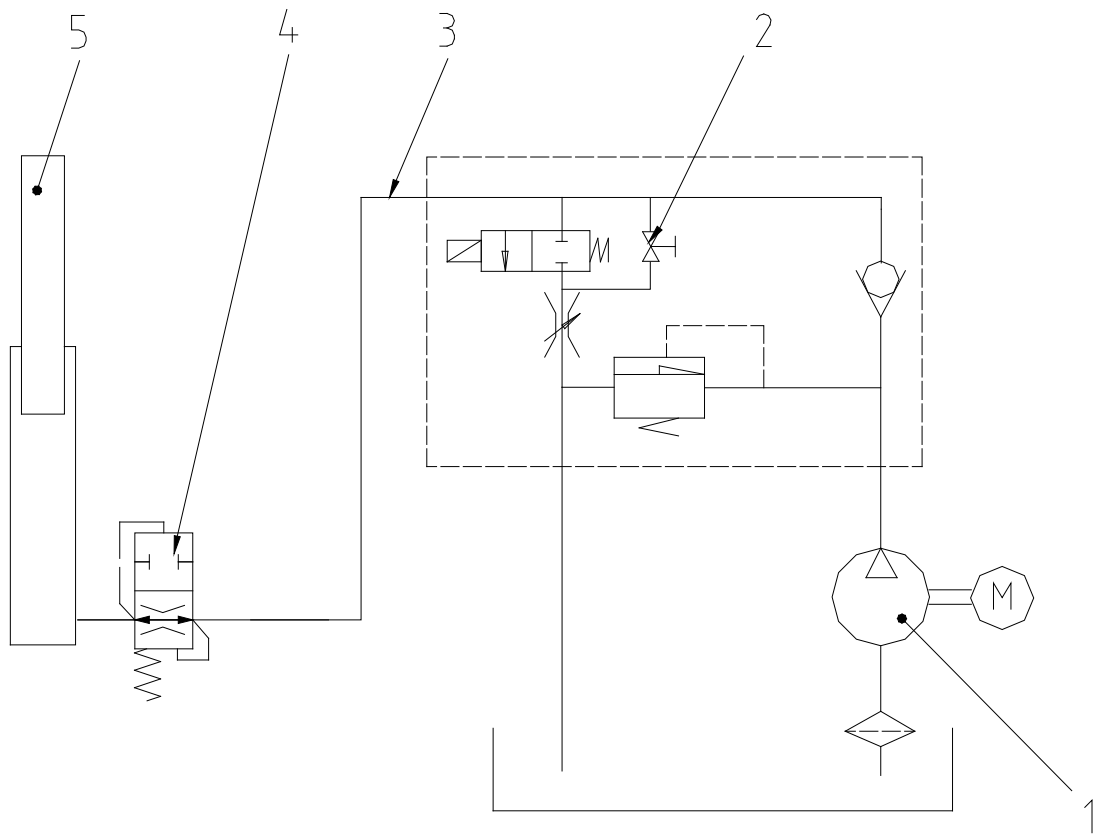
## 5.2 Electrical Diagram



## Electrical components for single mast

S/N	Symbol	Description/function	Model	Specification	Number
1	FU1	Fuse	RT18L-125	100A	1
2	FU2	Fuse	RT18-32	6A	1
3	GB	Battery	6-EVF-100AH	100AH	1
4	TC1	Transformer	BK50		1
5	HL1	Power indicator	B22-G111		1
6	SB1、SB2	Button	B22-KA11-710		2
7	SB4、SB5	Button	B22-WA11-710		2
8	SB3、SB6	Emergency stop	B22-RR21-701		2
9	SA	Selector switch	B22-KH21-711		1
10	SQ1~SQ4	Load-sensing device	XSS-5GL	DC 12V	4
11	V1~ V4	Light-emitting diode	LED		4
12	Yv1	Solenoid	—	DC 12V	1
13	SQ6	Limit switch	D4N-2122		2
14	KM1	contactor	ARD 1190		1
15	KM2	contactor	MZJ-100D/1201	DC 12V	1
16	M1	Motor	MR2	0.8KW	1
17	PJ	Coulometer	BI1201A	12V	1

### 5.3 Hydraulic Diagram



Hydraulic components for single mast (GTWR4-1004)

S/N	Description	Model	Specification	Quantity
1.	Hydraulic Power Unit			
		MR2-P-V1B-F2-PD-MAU4-T05-F1	DC 0.8KW	1
2.	Emergency Lowering Device		Dg8	1
3.	Piping	Steel	Dg8 & Dg4	Lot
4.	Hose Break Valve	TB104	M16×1.5	1
5.	Hydraulic Cylinder	TB105	ID45	1



#### **WARNING**

The overflow valve had been sealed. Adjusting this valve to enhance the rated load is strictly forbidden.