KHCK DRINKING WATER PURIFYING TRAILER OPERATION MANUAL

PREFACE

How to make your purchased KHCK- WPT-01 drinking water purifying trailer play its optimum operating function is the common objective we are seeking after. However, it depends in a large extent on how familiar you are with the operation of the vehicle. This manual provides you with instructions on maintenance of KHCK- WPT-01 drinking water purifying trailer. We sincerely hope that you will read through this manual to know the properties of the vehicle before you operate it so as to bring the maximum function of the equipment into full play.

This manual is part of KHCK- WPT-01 drinking water purifying trailer, which should be maintained and used with the vehicle. The graphics and the instructions are correct when the manual is published. Since the structure of the product is kept changing and improving, it may happen that the introduction in this manual is different from the actual structure of the vehicle, therefore you have to read this manual in accordance with the state of the equipment of your vehicle.

CONTENTS

1. Introduction

Water is purified in KHCK- WPT-01 drinking water purifying trailer by means of simple and easy physical and chemical reactions. New technologies, UN sterilization and activated carbon absorption, are used to expand water treatment functions, therefore, surface water resource, which conforms with drinking water standard, such as water with higher turbidity in rivers, lakes and reservoirs can be purified to drinking water at one treatment. The maximum quantity to be purified is 3t/h by three operators. So it is the most ideal purifying equipment for field operation.

The tent of KHCK- WPT-01 drinking water purifying trailer is of fully-open umbrella structure. The deployed state of the tent is shown in Fig. 1.

Fig. 1 Deployed tent of KHCK- WPT-01 drinking water purifying trailer

Major Parameters

Item	Unit	Value
Gross weight	Kg	1600
Outside dimensions （L×W×H）	mm	4000×2240×2400
Purifying rate		3t/h

2. Operations of structures and equipment

2.1 Front pilot wheel

1) Lower the front pilot wheel (see Fig. 2.1-1).
- ◆ Turn the handle clockwise.
- ◆ Remove the ring from the hook.
- ◆ Turn the handle to adjust the trailer to horizontal state.

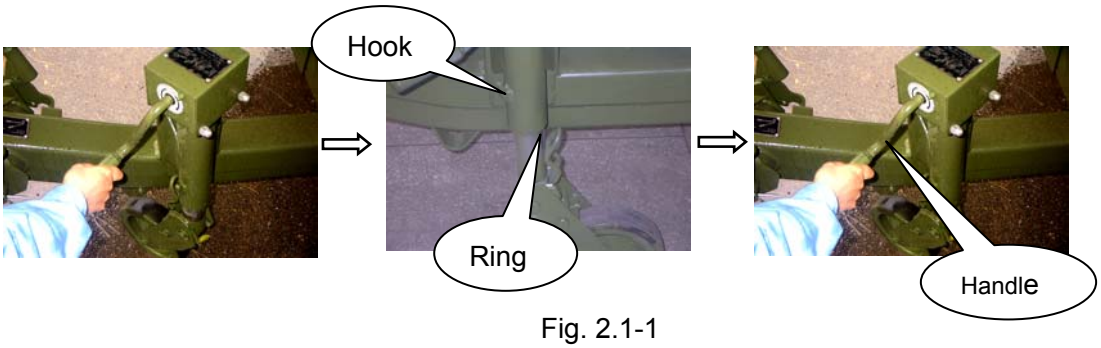


Fig. 2.1-1

2) Retract the front pilot wheel.

For retraction, the front pilot wheel must be operated in the reverse sequence as above.

Precautions:
- ◆ **Before traction, the front pilot wheel should be retracted and fixed firmly.**
- ◆ **The front pilot wheel should be lowered before it is disengaged from the tractor.**

2.2 Supporting leg

1) Extension of the supporting leg
- ◆ Open the four side doors of the water purifying trailer.
- ◆ Lift the handle, pull out the movable supporting frame and place it in the groove at the bottom of the fixing frame.
- ◆ Adjust the height of the supporting leg with the crank handle.

2) Retraction of the supporting leg

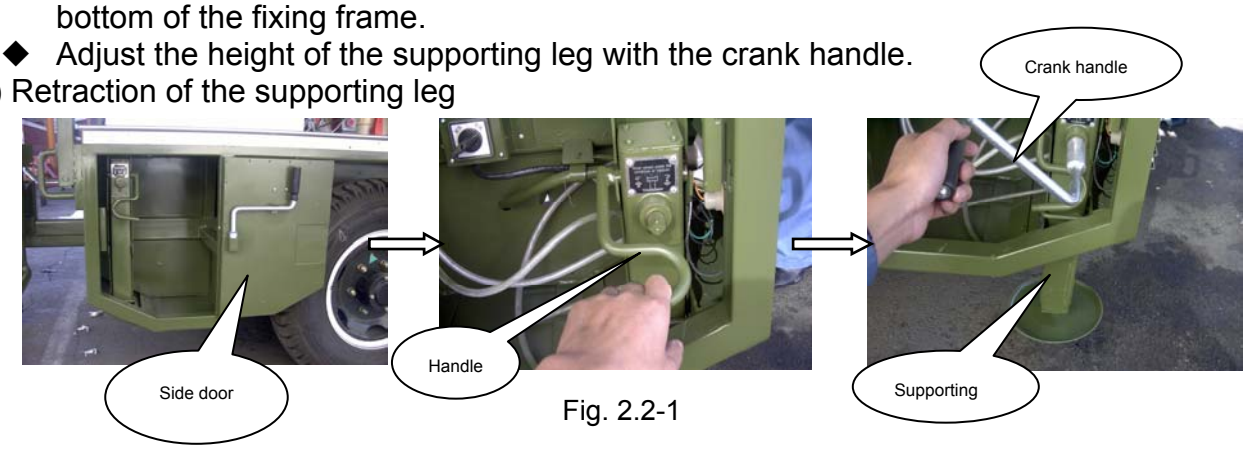


Fig. 2.2-1

When retracted, the supporting leg should be operated in the reverse sequence as above.

Precaution: The supporting leg must be retracted and fixed firmly before the vehicle starts to run.

2.3 Brake system

The brake system is composed of running brake and parking brake.

- For parking brake, just pull up the parking brake handle (See Fig. 2.3-1).
- To reverse the vehicle, if the resistance is too high, the reversing locating pin should be pulled out and inserted into the reversing lock hole. (See Fig. 2.3-1).

Fig. 2.3-1

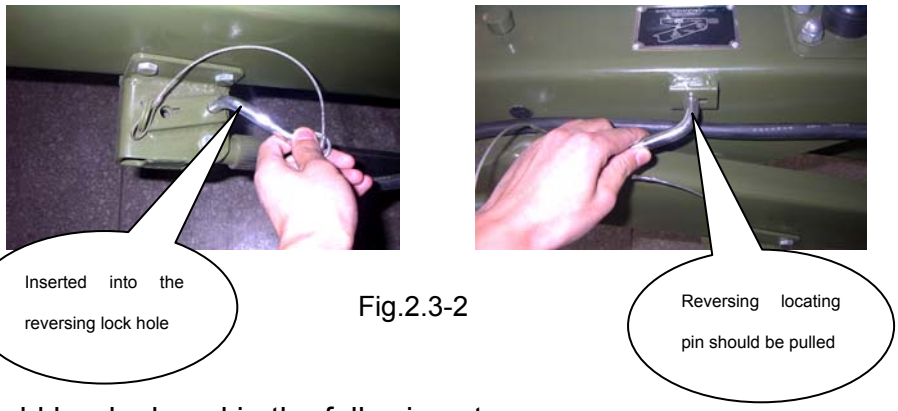


Fig.2.3-2

2.4 Tent

The tent should be deployed in the following steps:

1) Unfasten all the fastening belts of the tent (See Fig. 2.4-1).

2) First deploy the front and the rear tent.

3) Turn the locking pins of the left and the right tents, and then deploy the left and the right tents See Fig. 2.4-2).

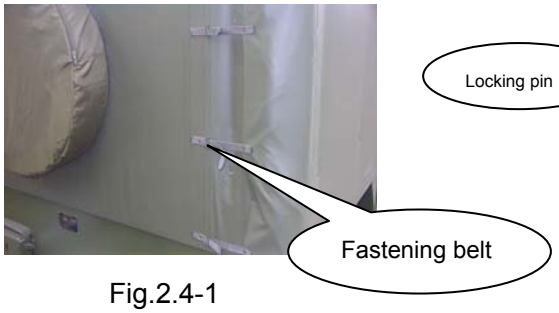


Fig.2.4-1

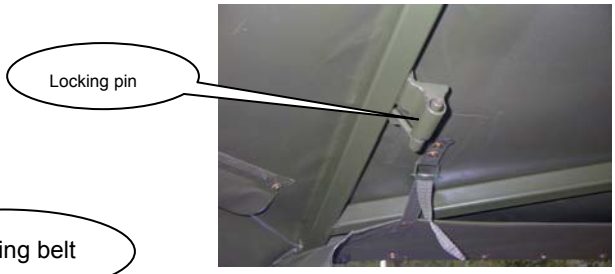


Fig.2.4-2

For retraction of the tent, just perform the deploying steps from the end to the beginning.

Precautions:

- **The air spring is a high pressure pneumatic spring device, no lateral action should be imposed on it in operation. (See Fig. 2.4-3)**
- **Drying of the air spring on fire and impacting shall be strictly forbidden. It should not get in contact with caustic gases (such as paint, gasoline and thinner).**

Fig. 2.4-3

2.5 Generator

The generator is mainly used for all the electric equipment and the illuminating mains of KHCK- WPT-01 drinking water purifying trailer. The generator should be operated according to the operating instructions supplied with the trailer.

The operating sequence of the generator shall be as follows:

1) Open the upper lid, stir open the bolt and open the cover of the generator (See Fig.2.5-1).

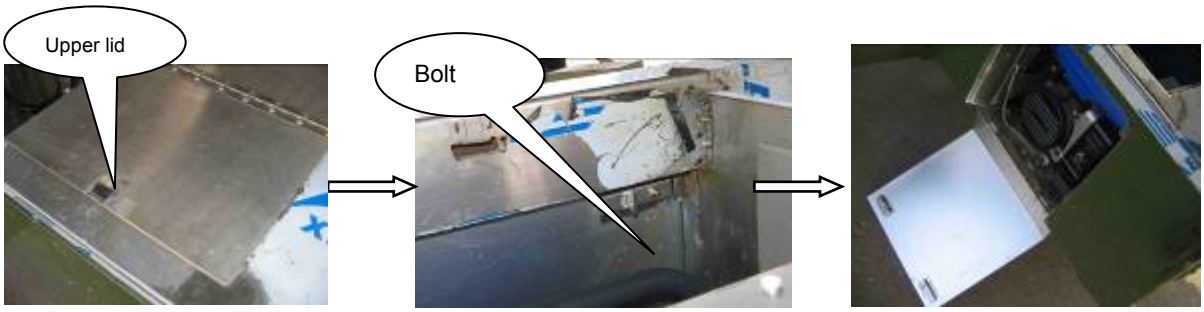


Fig. 2.5-1

2) Unfasten the fixing pin, pull out the generator, place it on the ground and ensure that the generator contacts the ground directly See Fig. 2.5-2).

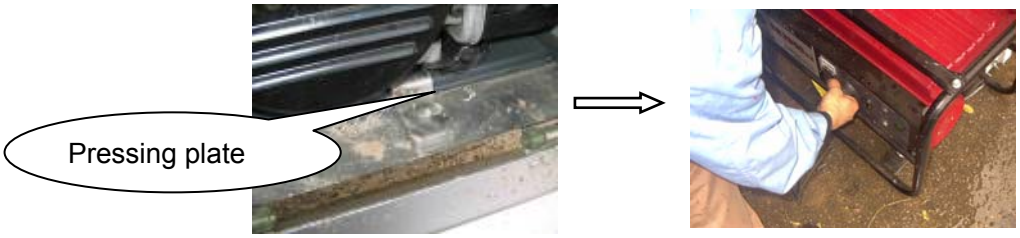


Fig. 2.5-2

3) Plug the power cable of the generator into the receptacle in the distribution box (As shown in Fig. 2.5-3).

Fig. 2.5-3

4) A grounding stake is provided with the trailer. Before electricity is supplied from the generator, the grounding stake should be connected properly as follows:

- Connect one end of the grounding wire provided with the trailer to the grounding terminal in the distribution box.
- Knock two thirds of the grounding stake into the ground.

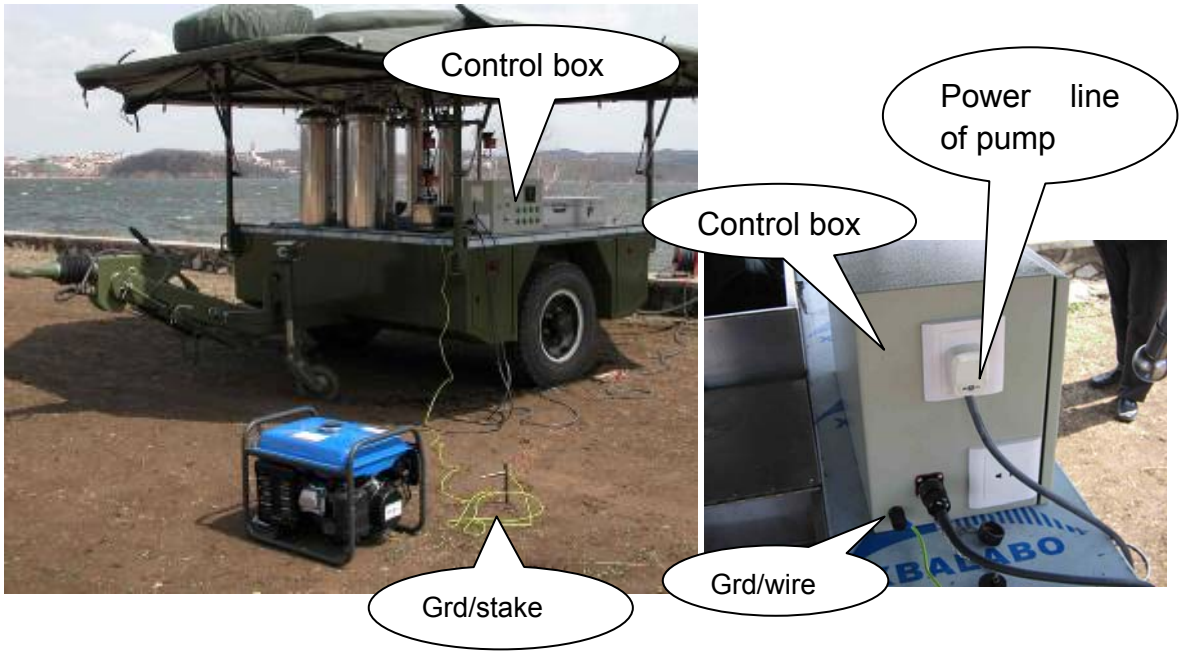


Fig. 2.5-4

Precautions：

- **The control box must be grounded reliably.**
- **The generator should not be operated in rains or placed under strong sunshine.**
- **The generator must be away from combustibles by over 1m.**
- **The generator should be switched off when fuel is filled. The fuel should not be spilt out. Smoking shall be forbidden.**

2.6 Submersible electric pump

The submersible electric pump mainly serves to pick up water from the water source and provide power for the water purifying system.

The pump is hanged from a bracket and connected to the water inlet in the trailer body with a tarpaulin hose (see Figs. 2.6-1, 2.6-2). Filling of water can be realized just by turning on the power.

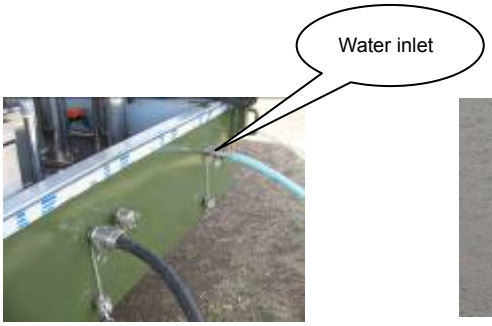


Fig. 2.6-1

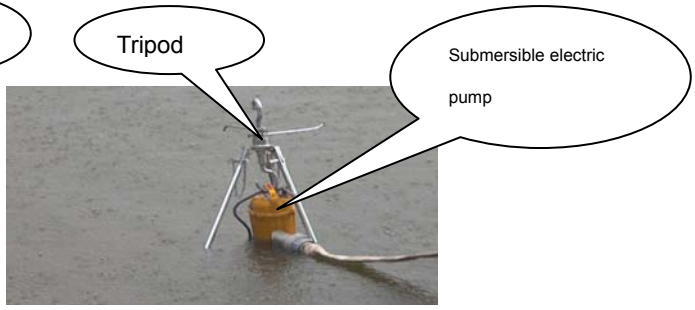


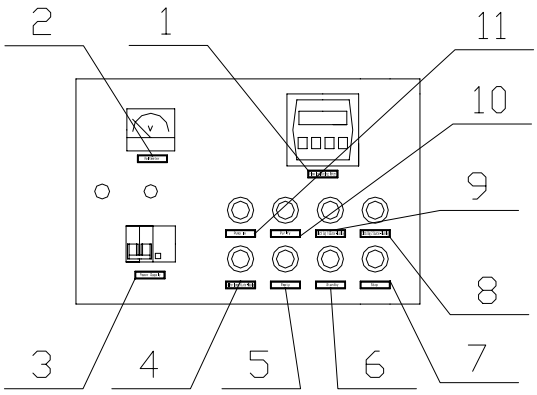
Fig. 2.6-2

Precautions:

- **In operation, the grounding wire should be grounded reliably for prevention of electric shock.**
- **Do not pull the cable when moving the electric pump.**
- **Care should be taken not to embed the pump in mud or sand. In operation, the tripod provided with the trailer should used to make the pump leave the mud and sand (See Fig. 2.6-2).**

2.7 Control box

The control box is mainly composed of the box body, receptacle, knob switch and fuses (as shown in Fig. 2.7-1). After the generator is started, the power switch should be turned on and the equipment can be started by pressing corresponding buttons.



1) flow indicating meter 2) voltmeter 3)Power supply 4) filter element counter-flushing 5)empty 6) standby 7) stop 8) cloth bag 2 counter-flushing 9) cloth bag 1 counter-flushing 10) purification 11)pump in

Fig. 2.7-1

2.8 Water bag

The water bag is mainly used to hold purified water (See Fig. 2.8-1).

Fig. 2.8-1

Precautions：

- **The water bag should be arranged on a flat ground without any sharp objects under the bottom for fear that the fabric water bag.**
- **When the water bag is laid, no violent force should be used to prevent the thermally sealed area from cracking. After water is stored in the bag, it should not be removed randomly.**
- **After the water bag is used, residual water should be removed and the bag should be washed with clean water, folded properly and placed in a packing bag and stored in a designated place.**

2.9 Electrically actuated ball valve

The electrically actuated ball valve can be operated electrically or manually. Electrically actuating mode is used in this trailer, the manual function is not recommended.

Manual operation of the electrically actuated ball valve is as follows:

Press Button 1 and pull Handle 2 at the same time.

This function shall be used only for regulation of the pipeline. It is not recommended for use at usual time.

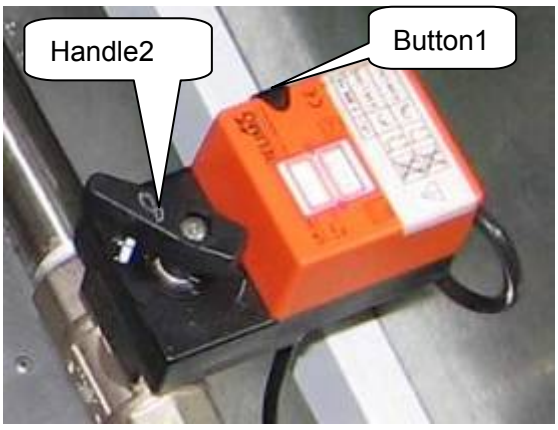


Fig. 2.9-1

3. Operations of functions

3.1 Steps to deploy the trailer

1）After towed to the water source, the KHCK- WPT-01 drinking water purifying trailer should be parked at a flat place within 20m from the water source (horizontal distance).

2）After the trailer is parked properly, lower the front pilot wheel (see 2.1 for steps), disconnect it from the main vehicle, apply the hand brake (see 2.3 for steps) and drive the tractor away from the working position and park it.

3）Open the side door of the box, lower the supporting leg and level the trailer (see 2.2 for steps).

4）Deploy the tent, first the front and the rear tents, then the left and the right tents (see 2.4 for steps).

5）Remove the generator and place it at a cool position without sunshine, unload the items piled on the vehicle and place them at a place that does not affect the work (see 2.5 for steps).

6) Connect the grounding stake (see 2.5).

7）Start the generator and supply power.

3.2 Steps for retraction of the vehicle

1) Switch off the generator, retract all the equipment.

2) Drain off all the remaining water from the wastewater drain.

3) Fix all the equipment at designated positions on the vehicle.

4) Close the tent, retract the supporting leg.

5) Connect the trailer to the tractor, retract the front pilot wheel, release the hand brake, tie the safety rope, plug the signal lights in the power receptacle and start to tow the trailer.

3.3 Pumping water

Water is pumped into the water bag directly without passing the purifying system. The steps are as follows:

1) Deploy the vehicle (see Fig. 3.1).

2）Connect the power cable of the submersible pump (see Fig. 2.5-4).

3）Take out a tarpaulin hose and a submersible pump. Select a tarpaulin hose with proper length according to the distance between the water source and the vehicle body. Connect the hose to the water outlet of the pump (see Fig. 3.3-1). Then select a place where there is no float grass or floating objects and place the pump into the water. If the water is shallow, hang the pump from the tripod and place it into the water (see Fig. 3.3-2). If the water is deep, fix the pump on the inner tube provided with the vehicle and tie the tube to the bank with a long rope and put the pump into the water. (See Fig. 3.3-3).

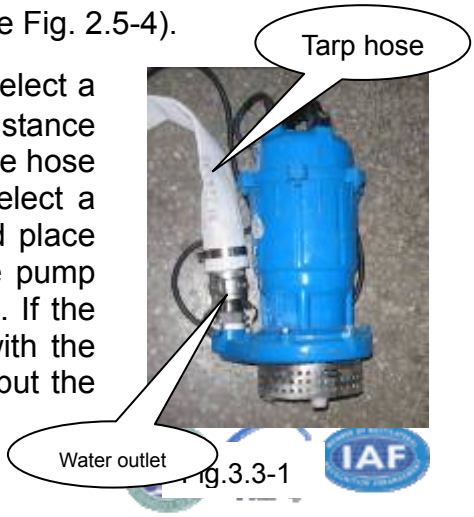


Fig.3.3-1

4） Press the "Pump In" button on the control box to start the pumping function (see Fig. 3.3-4).

5）When pumping is finished, just press the red "Stop" button on the control box.

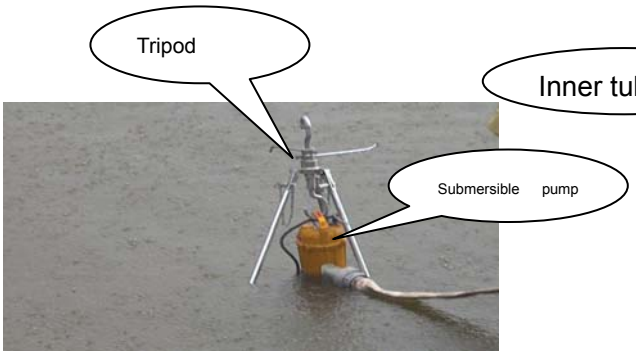


Fig. 3.3-2

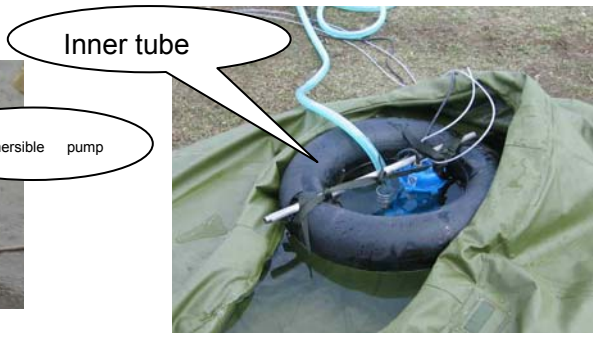


Fig.3.3-3

Fig.3.3-4

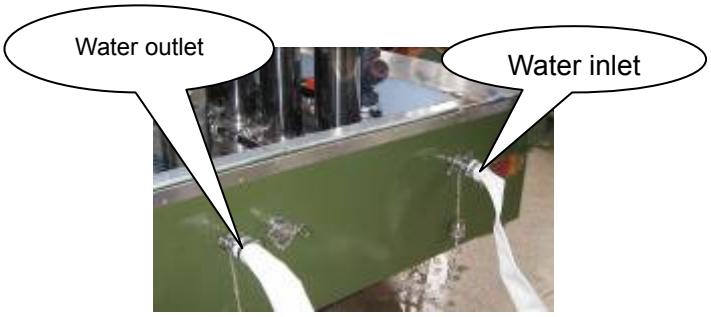


Fig.3.4-1

5）Retract the vehicle（see Fig. 3.2）

3.4 Purification

Water is purified to qualified drinking water in the following steps:

1) Deploy the vehicle (See Fig. 3.1).

2) Connect the power cable of the submersible pump (see Fig. 2.5-4).

Fig. 3.4-2

3）Take out a tarpaulin hose and a submersible pump. Select a tarpaulin hose with proper length according to the distance between the water source and the vehicle body. Connect one end of the hose to the water outlet of the pump (see Fig. 3.3-1) and the other to the water inlet (see Fig. 3.4-1). Then select a place where there is no float grass or floating objects and place the pump into the water. If the water is shallow, hang the pump from the tripod and place it into the water (see Fig. 3.3-2). If the water is deep, fix the pump on the inner tube provided with the vehicle and tie the tube to the bank with a long rope and put the pump into the water. (See Fig. 3.3-3).

4）Deploy the water bag（see Fig.3.4-2），place it on the ground near the water outlet of the vehicle body, where the work should not be affected.

5）Put the hose from the water outlet into the water bag.

6）Press the "Purification" button on the control box to start the water purification function.

In the process of purification, turn on the exhaust valve on the filter and turn it off when water comes out. Pay attention to observe the indication of the pressure indicator on the fabric bag filter. If the indicated pressure is over 0.2Mpa, clean the fabric bag filter and the filter element filter, and turn off them when water flows from the valve (see Fig. 3.4-4).

Precaution: The UV sterilizer should be in a constant open state (see Fig. 3.4-5).

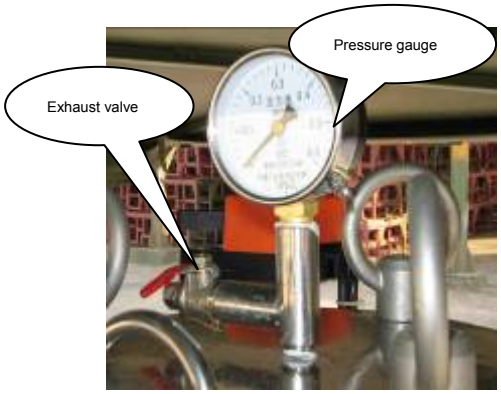


Fig. 3.4-4

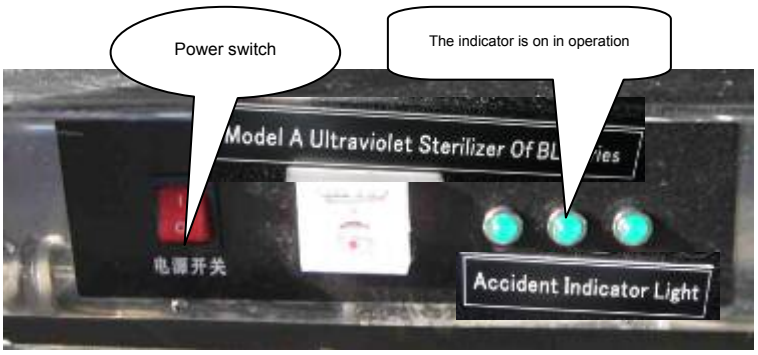


Fig. 3.4-5

7）Regulate the opening of the outlet pipe valve to make the reading of the flow meter below 12GPM (see Fig. 3.4-6).

8）Wnen pumping is finished, just press the red "Stop" button on the control box.

Fig. 3.4-6

9）Retract the vehicle (see 3.2).

Control sequence of electrically actuated ball valve：
Turn on valves 1,4 and 6 while the others are off.

3.5 Counter-washing

In order to maintain good effect of purification, when 20 tons of water has been purified or the indication of the pressure meter is over 0.2Mpa, the fabric bag filters 1 and 2 and the filter element filter should be washed with clean water in the following steps:

1）Open the wastewater drain.

2） Put the submersible pump into the clean water in the water bag, connect the tarpaulin hose to the water inlet at the rear of the vehicle (see Fig. 3.5-1) and open the wastewater drain.

3）Press the "Fabric bag 1 counter-washing" button on the control box to start counter-washing function until clear water flows out of the wastewater drain.

4）Retract the vehicle (see 3.2).

Counter-wash fabric bag 2 and filter element filer in the same steps as above.

The disk filter and the Y filter can be washed manually (see Fig. 3.5-2). The method is: open the end cover, take out the filter element and wash it with clear water.

Fig. 3.5-1

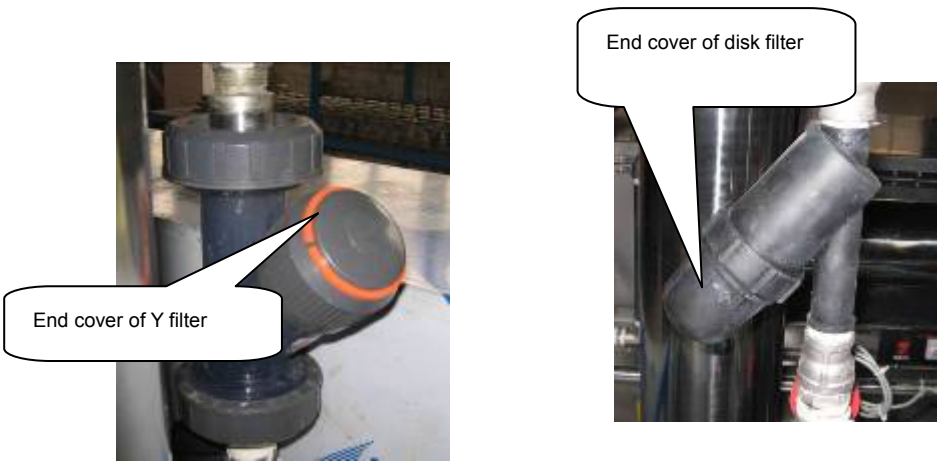


Fig. 3.5-2

Control sequence of electrically actuated ball valve for "Fabric bag 1 counter-washing":
Turn on valves 2 and 3 while the others are off.

Control sequence of electrically actuated ball valve for "Fabric bag 2counter-washing":
Turn on valves 2 and 7 while the others are off.

Control sequence of electrically actuated ball valve for "Filter element counter-washing":
Turn on valves 2 and 5 while the others are off.

3.6 Evacuation

Every time after the operation of the vehicle is finished, the remaining water in the pipeline should be evacuated in the following steps:

1）Open the water inlet, wastewater drain and the water outlet at the rear of the vehicle.

2）Turn on the exhaust valves and evacuating valves of all the filters(see Fig. 3.6-1).

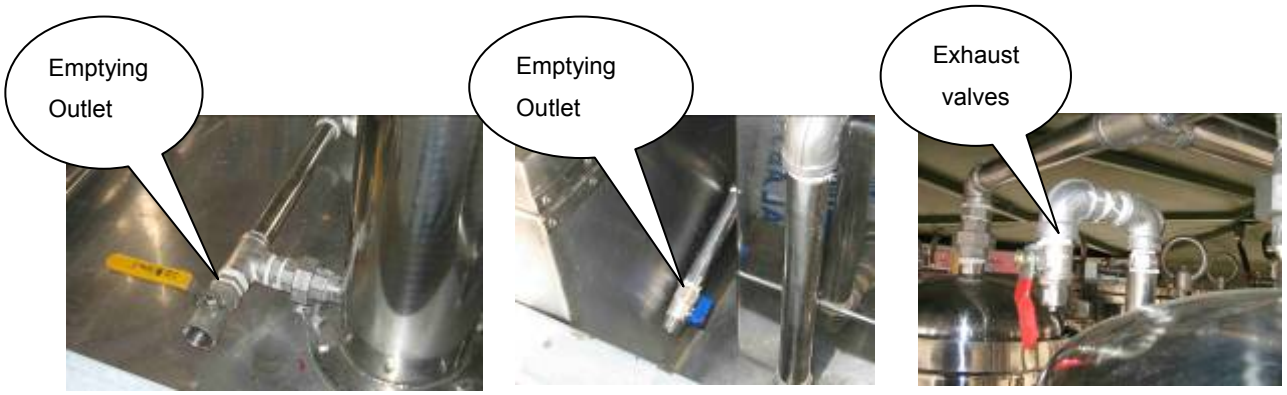


Fig. 3.6-1

3）Press the "Evacuation" button on the control box to start evacuating .

Control sequence of electrically actuated ball valve for "Evacuation":
Turn on valves 1, 2, 3, 4, 5, 6 and 7.

3.7 Towing operation

1) Connect the towing ring to the main vehicle.

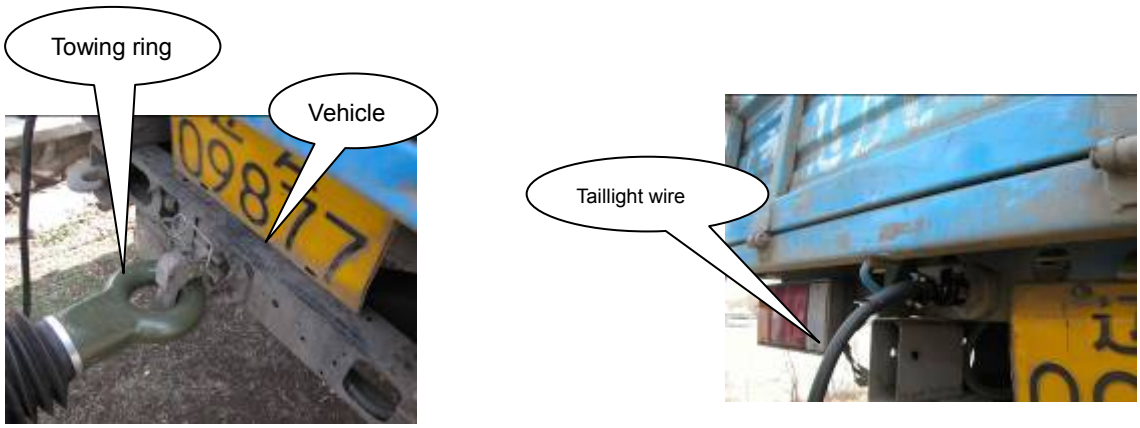


Fig. 3.7-1

Precaution: Plug the towing hook and lock the bolt.

2) Retract the front pilot wheel: first lift the front pilot wheel with the crank handle, then lift up the front pilot wheel, hook it and lock the crank handle.

3) Connect the taillight (see Fig. 3.7-2) to the main vehicle and check that all the indications of the taillight are in conformity with the main vehicle.

4) Connect the safety rope (see Fig. 3.7-2) to the main vehicle.

Precaution: Towing speed of the purifying trailer ≯50km/h.

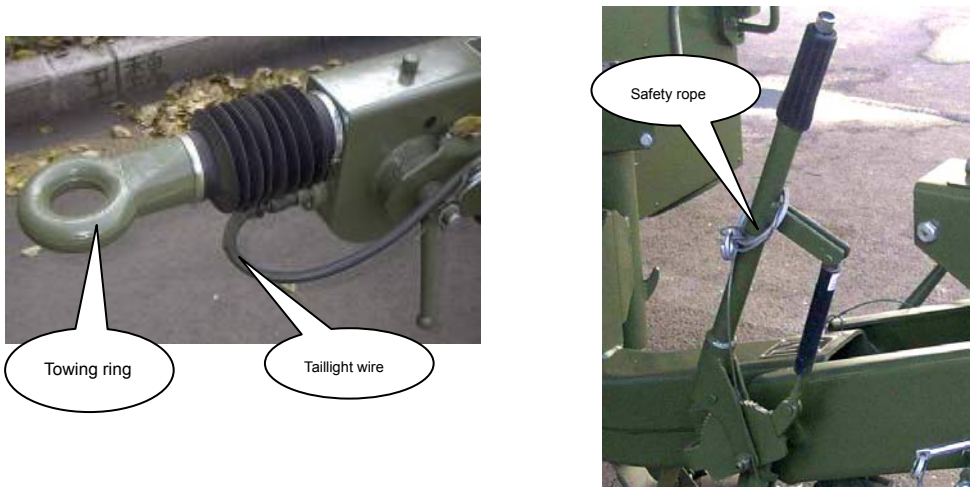


Fig. 3.7-2

3.8 Temporary inspection in running

1) Check that the locking bolt of the towing hook is normal.

2) Check that the connection of the taillight is normal.

3) Check that the connection of the safety rope is normal.

4) Check that the connecting bolts of the tractor, the connecting bolts of the middle shaft pipe and the brake connecting system are normal.

5) Check that the wheel hub and the brake hub are working normally and the temperature is not over 80℃.

6) Check that the pressure of the tyre s normal and the fixing screws of the tyre should not be loose or short.

7) Check that all the door locks and the tent are normal.

4. Hoisting and transportation of the vehicle

See Fig. 4-1 for hoisting.

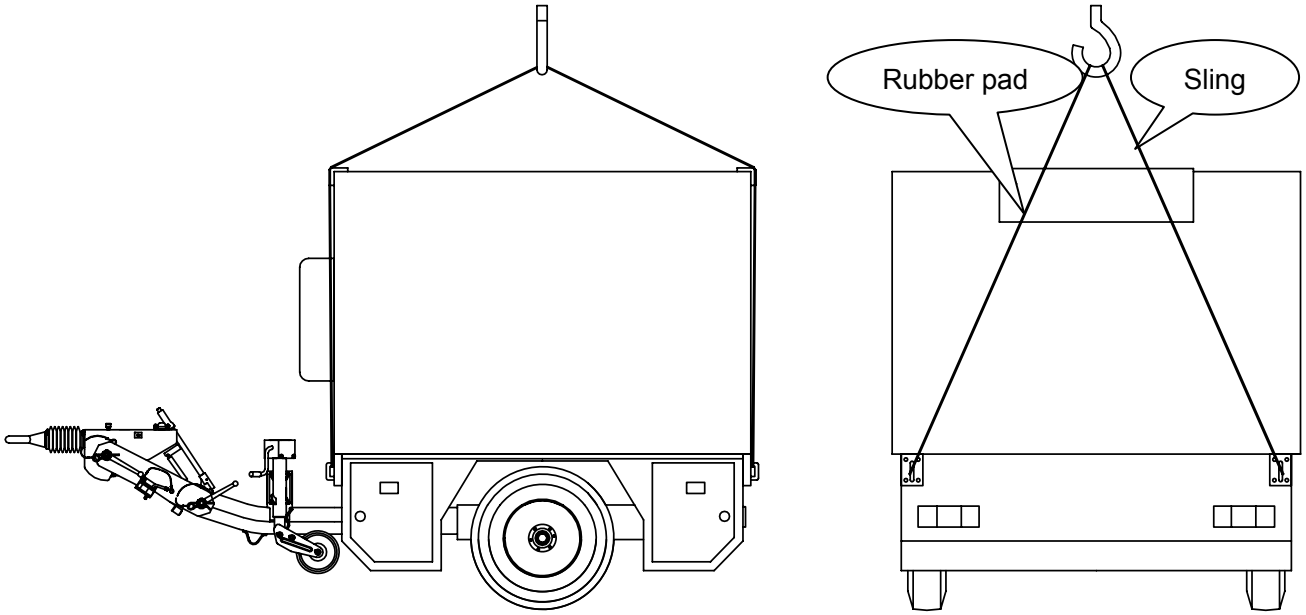


Fig. 4-1 Schematic diagram of hoisting

See Fig. 4-2 for transportation.

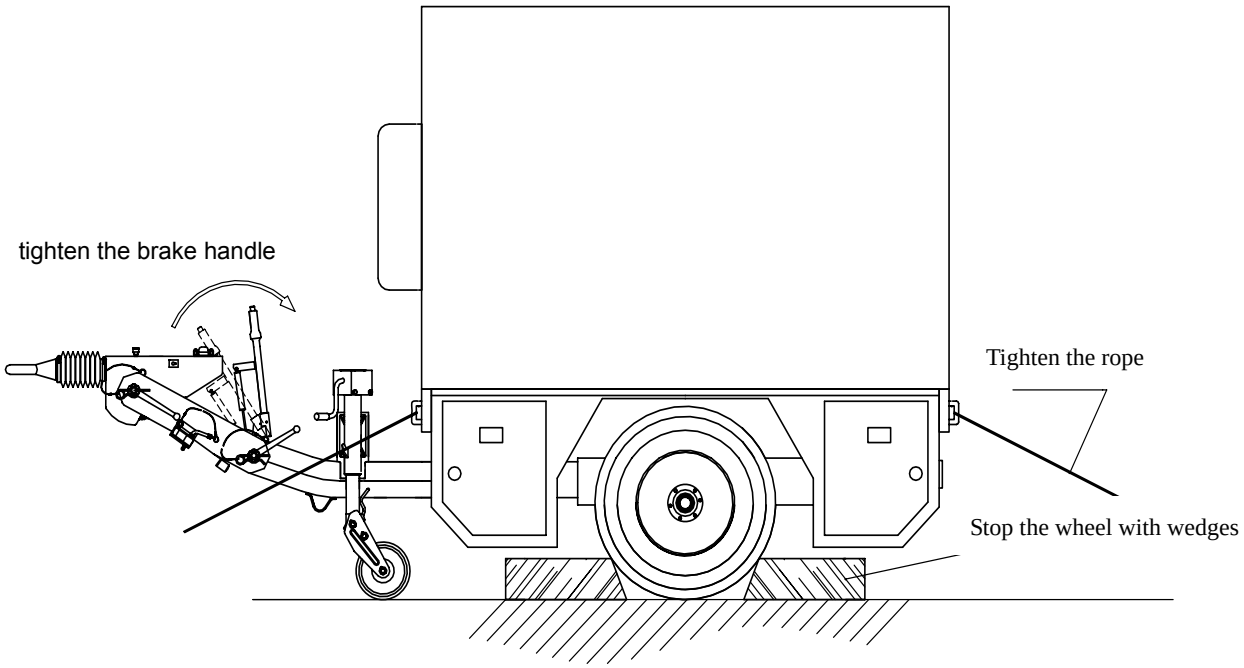


Fig. 4-2 Schematic diagram of transportation

5. Accessories, spare parts and documents provided with KHCK- WPT-01 drinking water purifying trailer

5.1 List of accessories, spare parts and documents provided with KHCK- WPT-01 drinking water purifying trailer

List of accessories, spare parts and documents provided with KHCK- WPT-01 drinking water purifying trailer

Type	S/N	Description	Specification	Qty	Remarks
Accessories Provided with the vehicle	1	EF2600 Generator	2.3 KVA	1set	
	2	QDX3-20-0.55Z Submersible pump	3 m^3/h	2 sets	Including 1spare pump
	3	Water quality testing box		1 unit	
	4	Water bag	3000 L	2 pcs	
Spare parts provided with the vehicle	5	Fuses		3 pcs	
	6	Voltmeter		2	
	7	Buttons		1 of each	LA39C-11D/r23 LA39C-11D/g23
	8	Relay		1	ARL2F-L DC24V
	9	Power supply plug		1	GNT-10L1
	10	Cable plut		1	Y50DX-1402TK2
	11	Grounding wire	5m	1 pc	
	12	Power supply cable	5m	1pc	
	13	Sealing ring		8	
	14	Cable reel	30 m	1	
	15	Submersible pump bracket	Self made	1 unit	
	16	Inner tube	Model 130 tube	1pc	

Tools provided with the vehicle	17	Tarpaulin hose	5 m, 15 m, 20 m	1 of each	
	18	Air pump		1	
	19	Test pencil		1	
	20	Working lamp with rubber handle	220 V, 60 W	1	
	21	Flashlight	3 batteries	1	
	22	Pincers	180 mm	1 pair	
	23	Cross-head screwdriver	150	2	
	24	Screwdriver	150×1×6.5	2	
	25	Pipe wrench		2	
	26	Adjustable wrench	6″,10″	1 of each	
	27	Hammer	0.6 Kg	1	
	28	Shovel		1	

5.2 Documents provided with the vehicle

(1). Operating Manual of KHCK- WPT-01 Drinking Water Purifying Trailer

(2). Maintenance Manual of KHCK- WPT-01 Drinking Water Purifying Trailer

(3). Operating Manual of Generator

（4）. Instructions on Electrically Actuated Ball Valves

（5）. Instructions on Flowmeter

（6）. Certificate of Quality