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BEIBEN Water & Foam Fire Truck

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Preface

Thank you for purchasing CS TRUCKS products. For better using your Beiben fire truck, get the best operating performance, we strongly suggest that before the operation process you could read this manual instructions carefully, and to manipulate the program handily.

The manual detailed describes the performance of firefighting truck, structure, usage, precautions and maintenance of such knowledge. While showing details of the truck, both pictures and description will together help you get better understanding of how to use truck. Before the operation, the skilled operator should carefully read the contents of the manual.

After master the truck performance characteristics, methods of operation and precautions, then could start to operate this fire truck. In order to ensure the staff turnover after the operation, and properly use of the truck. This manual book must be properly kept, shall not be lost and damage.

Contents

Chapter 1. General Description

CEEC TRUCKS Fire Truck based on type II Beiben 2638 model 6*4 Left Hand Drive chassis, body capacity could up to 12,000Liters, including 10,000Liters water tanker and 2,000Liters foam tank, truck equipped with XIONGZHEN CB10/60 fire pump and PL8/48 fire monitor, very convenient for daily use. Mainly used for firefighting project in any areas of need.

The vehicle designed to fully rely on the advantages of the original of Beiben brand truck chassis, fully consider the product's convenience and reliability, also the newly designed chassis. The body material is international standard carbon steel with anti-corrosion painting and stainless steel, which can effective to avoid rusting and service for long life.

The Beiben 6x4 Fire Truck equipped with Sandwich PTO, fire pump, fire monitor, crew room, hose box, pump room, dry powder tanker and nitrogen system, matched with pipeline hose reel, English version control box, inlet and outlet pipeline, rear climbing ladder, top pillow lamp, and all necessary firefighting equipment. Customized Double-row cabin with 2+4 seats nice driving feeling. Therefore, the vehicle is an ideal Fire Truck mainly for firefighting project.

(Preview for your Beiben 10000L Water + 2000L Foam Fire Truck)

Chapter 2, Main Technical Data

Basic parameter:

Items		Beiben 6x4 Fire Truck
SIZE	Outer Dimension（L×W×H）(mm)	9830*2540*3630
	Wheelbase（mm）	4450+1450
WEIGHT	Front Axle Capacity（kg）	7500
	Rear Axle Capacity（kg）	13000+13000
	Tank Capacity	Water tanker 10000 L Foam tanker 2000 L
Cab capacity（includes driver）		Double Row 2+4
Tire		12.00R20 10+1
ENGIN	Model	WP10.380E32
	Type	Six cylinder inline, water-cool, turbocharged Inter-cooling, diesel
	Rating Power（kW/HP）	280/380

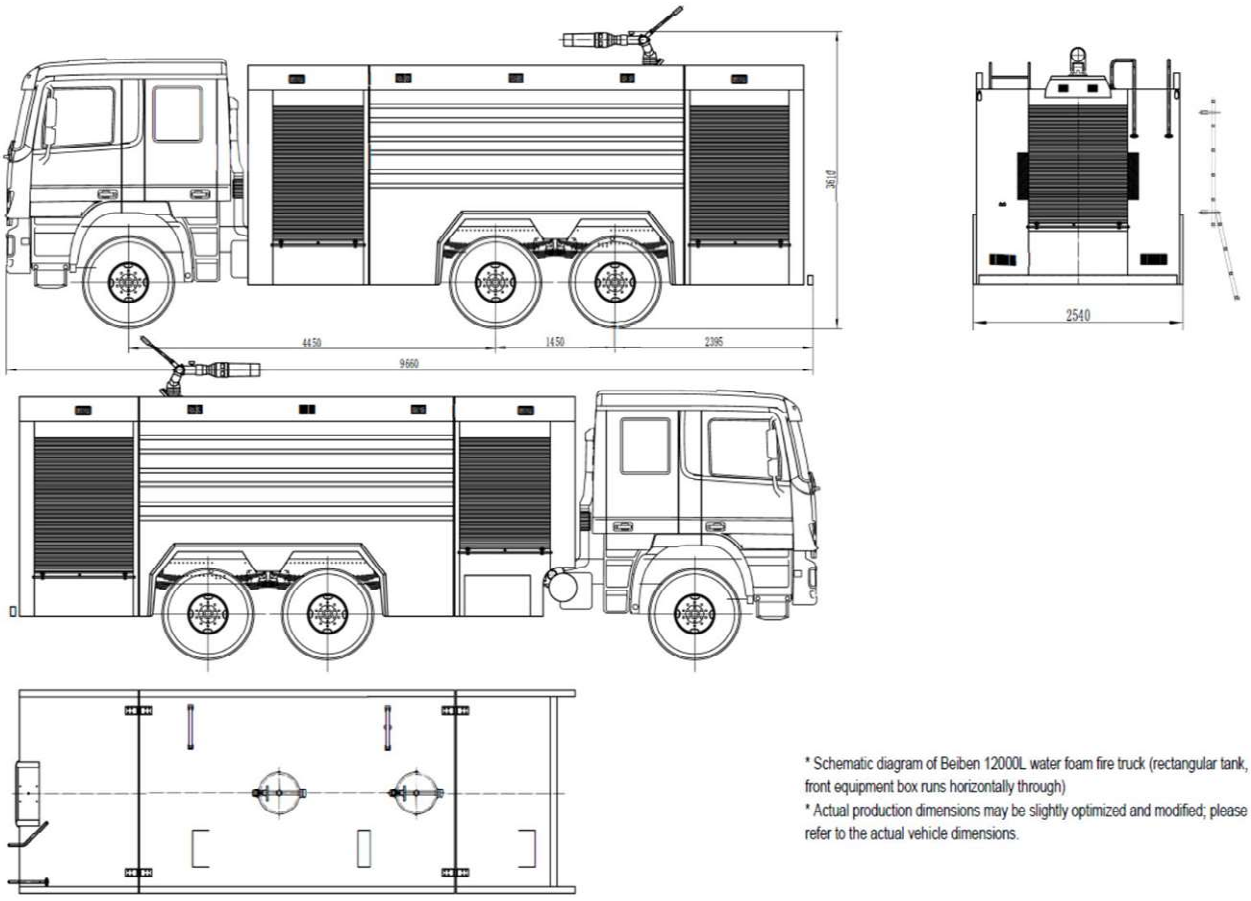
Note: 1. The vehicle height includes fire monitor.

2. We keep the right to revise the parameters on the list above.

Firefighting basic parameter list (1) Model / Items		
Fire Pump	Model	XIONGZHEN CB10/60 fire pump
		CB10/60
	Flow (Low Pressure)	60 L/s at 1.0 Mpa
	Max suction depth(m)	7
Fire Monitor	Model	PL8/48
	Location	Top
	Angle of rotation	360°
	Angle of elevation	⩾80°
	Angle of depression	⩽-10°
	Throw	Water: ⩾70 m; Foam: ⩾60 m
	Installation	Two Fire Monitor can be used separately

Chapter 3, Fire Truck Structure Components

*Overview for **Beiben 6x4 LHD 10CBM water + 2CBM foam fire truck** technical drawing:*



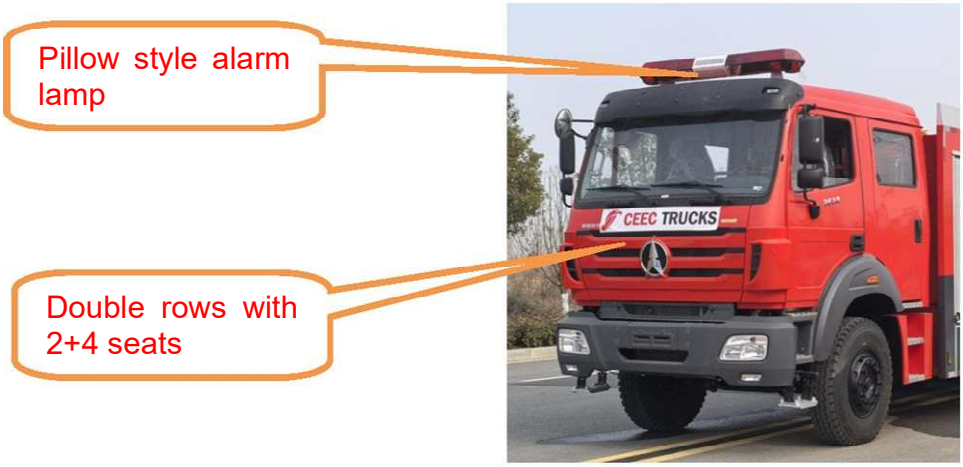
* Schematic diagram of Beiben 12000L water foam fire truck (rectangular tank, front equipment box runs horizontally through)
* Actual production dimensions may be slightly optimized and modified; please refer to the actual vehicle dimensions.

Main Structure:

1. Cab room
2. Tank
3. Hose box
4. Pump room
5. Pump and pipeline
6. Fire monitor
7. Additional drive system
8. Additional Control system
9. Additional cooling system
10. Additional electrical system
11. Additional gauge system
12. Equipment
13. Control board system

1. Cab room

Cab room allows 2+4 crews most. It is double rows 4 doors all-metal structure, and front face with customized chrome plate. Inside it, there are PTO's and other additional control switch; also, there is multifunctional electronic siren below the instrument desk. There is one pillow style alarm lamp on the top of the crew room.

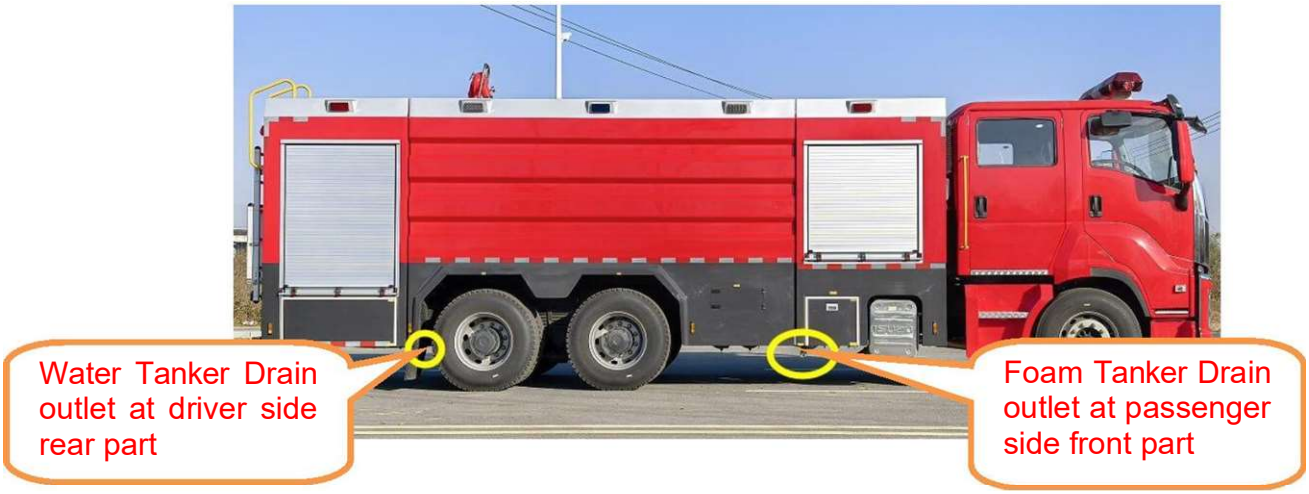


2. Tank

All the tanks are parallelepiped. They are including 10000L water tanker with Carbon Steel material and anticorrosion painting, 2000L foam tanker with Stainless Steel material and connected with the vehicle frame in secondary beam type:

1. On the top of the tank, there are one customized Euro manholes, overflow hole, safety guard, climbing ladder, suction pipeline and fire monitor.

2. At the bottom of the tank, there is one unit drain outlet valve for water tank and one unit drain outlet valve for foam tank.



3. On the rear of the truck, there is pump room for water inlet and outlet.
4. Inside the tank there is breakwater board for safety driving.

3. Tool room

The tool room is half enveloping structure, easy for equipment to put or get.

The sliding door there is made up with qualified aluminum alloy materials; there are special lightings for each tool room. Middle equipped with frame and aluminum platform, Equipment shown as follow:




(Detailed Parts List will be attached at end of this manual)

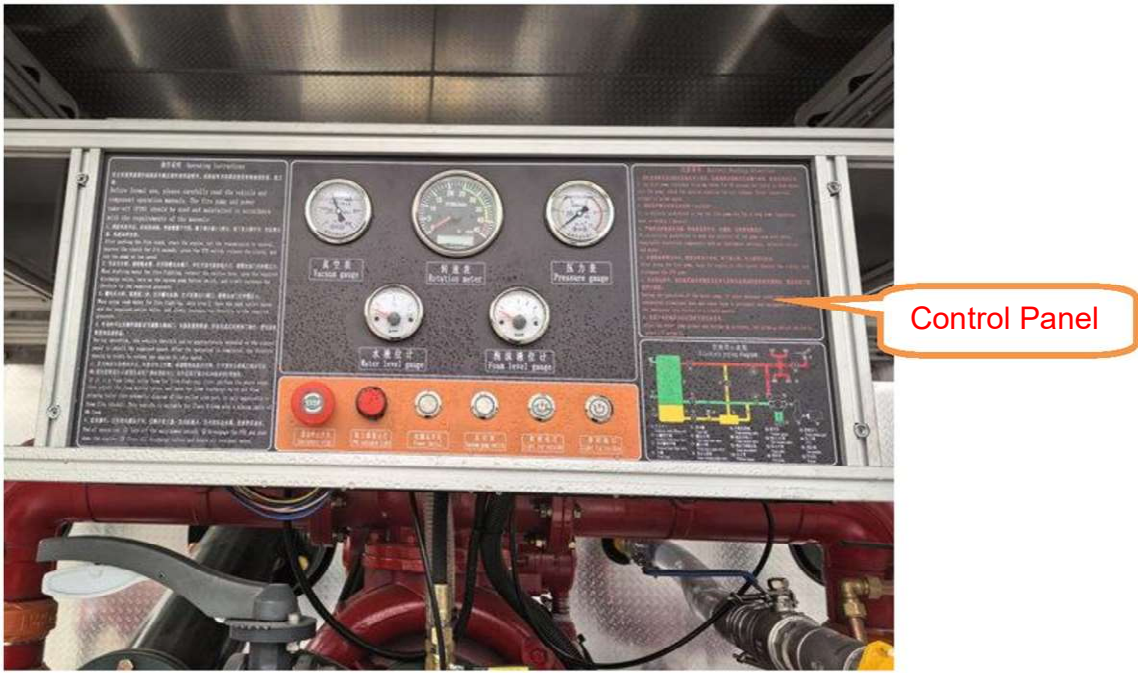
4. Pump room

The pump room is located at the rear part of the vehicle and it is all-mental structure.

In the pump room, there is the fire pump system, the operation system & control board, help checking the working condition monitoring and fire pump operation.

At the rear part of the water tank in the pump room, there is one large injection hole for water injection from the external water source.

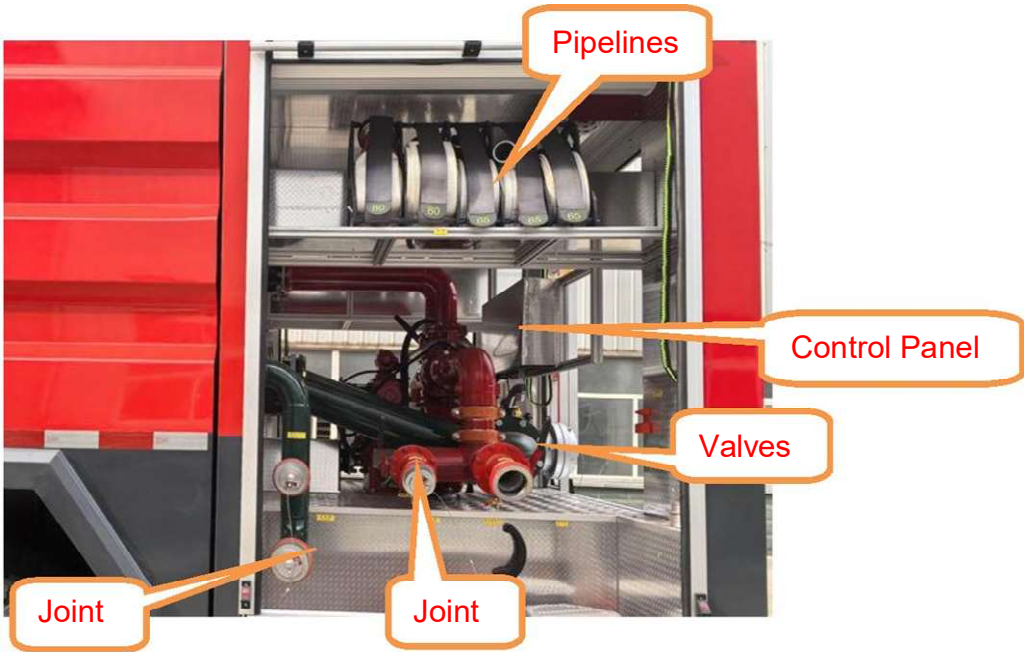
There are special lightings in the pump room for the night work. And the rear Headlight controller also is in the pump room.



5. Pump and pipeline

The XIONGZHEN CB10/60 super powerful fire pump of this vehicle is rear-positioned. It is made of aluminum alloy materials, corrosion-resistant and easy for maintenance.

The vacuum gauge, pressure gauge and the additional cooling system have been equipped with the fire pump pipeline system, for monitoring the fire pump working situation and cooling the PTO.



6. Fire monitor

Water & Foam Fire Monitor:

Model: PL8/48

Location: Top of tank

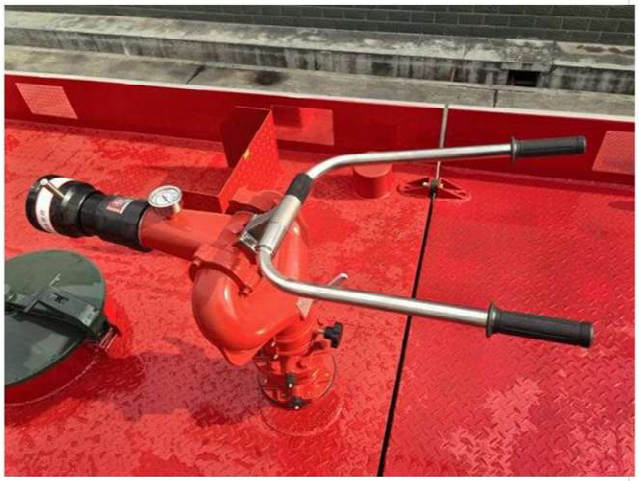
Angle of rotation: 360°

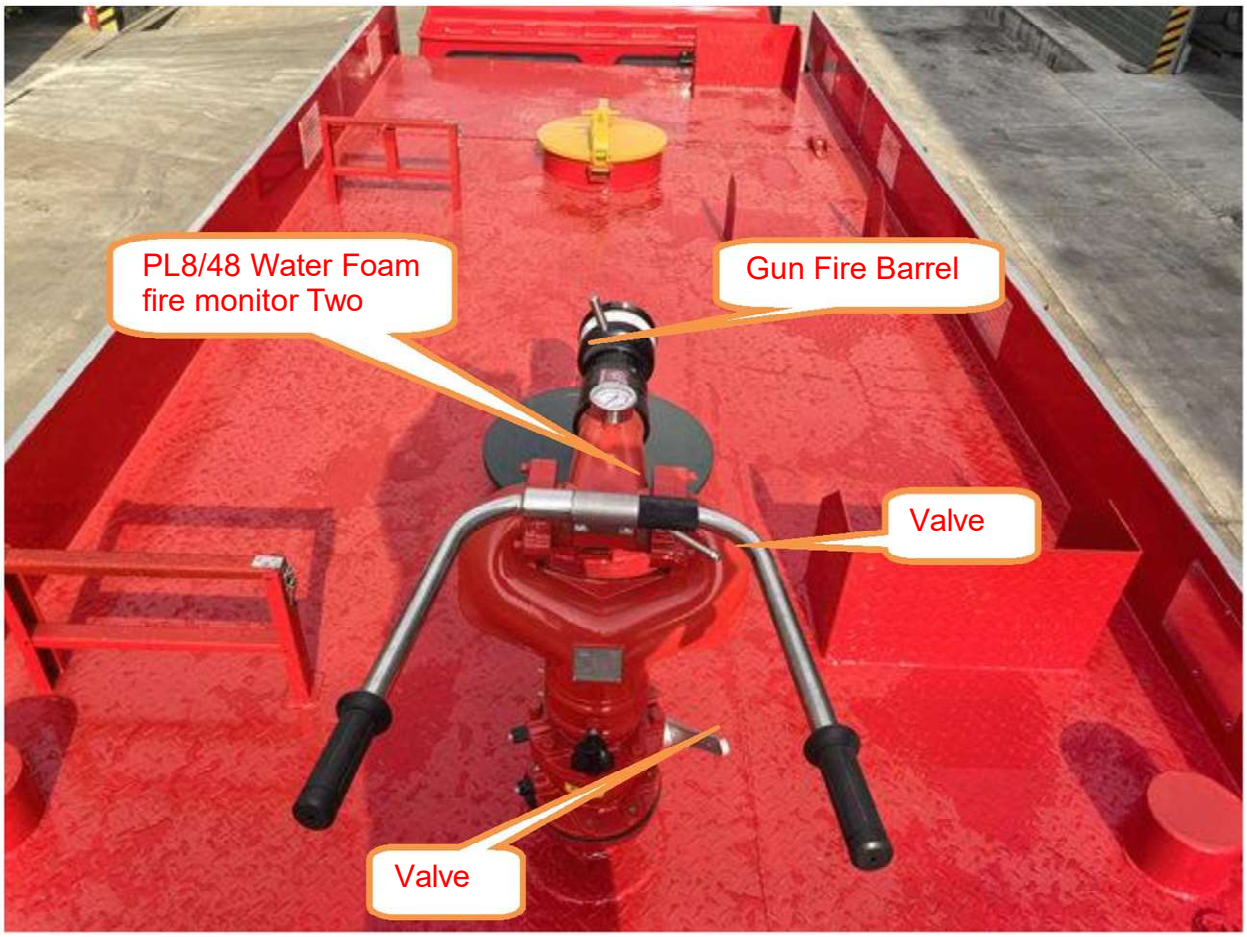
Angle of elevation: ≤80°

Angle of depression: ≥ -10°

Throw: Water throw ≥ 70m

Foam throw ≥ 60m

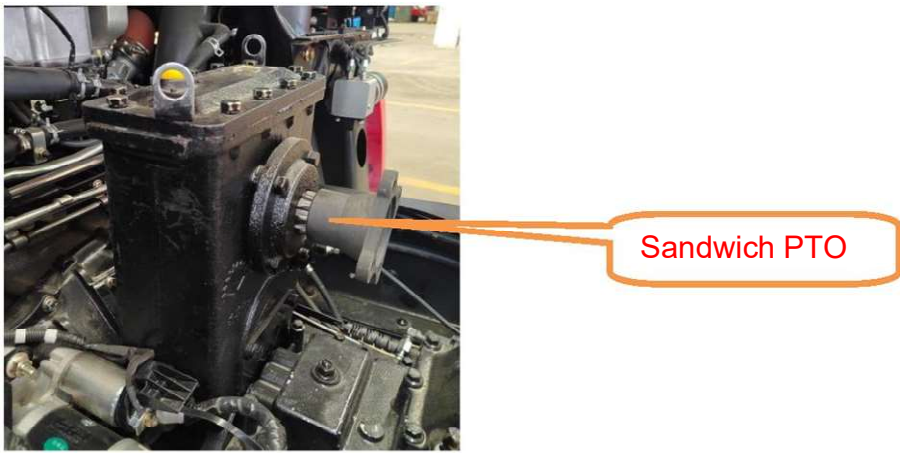




7. Additional drive system

Additional drive system is composed of PTO, pump transmission shaft and brackets.

The PTO is sandwich and full-power output type, gear driving, water cooling, Manual (pneumatic) control. It is fitted between the clutch and transmission, getting power from engine and passing it to the fire pump through its pump transmission shaft.



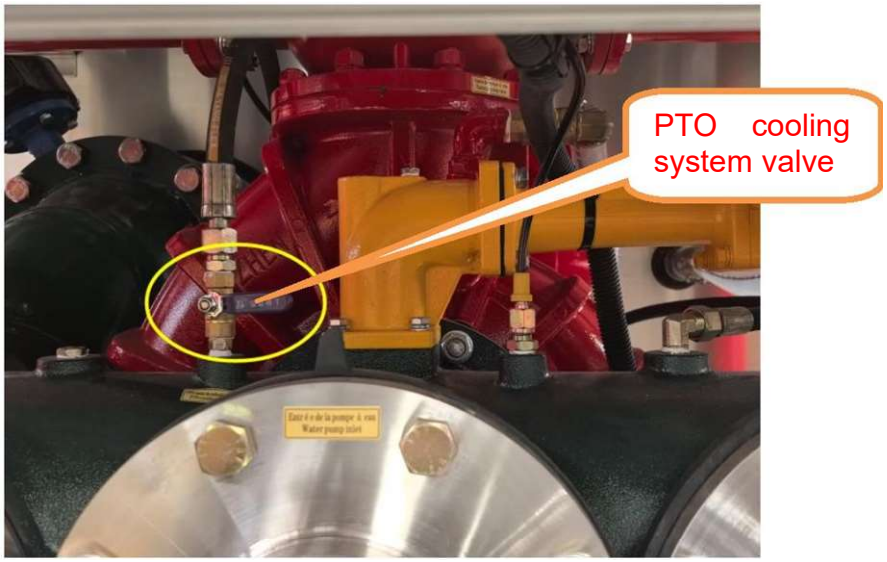
8. Additional Control system

Additional Control system is composed of PTO control rod, fire pump valve control rod, electrical control, button, hand throttle control rod, etc.

9. Additional cooling system

The main purpose of additional cooling system is use to cool PTO and Fire Pump imperatively.

It can control the temperature of that equipment when the fire truck is in a continuously running condition, prolonging the equipment life.



10. Additional electrical system

Additional electrical system is composed of several parts as below:

(1) Alarm lamp, siren

(2) Priming pump pneumatic electrical valve switch, fire pump rotation meter, electronic liquid level meter

(3) Fire scene lighting, pump room lighting and tool box lighting, etc.

11. Additional gauge system

Additional gauge system is composed of several parts as below:

(1) Vacuum gauge: to show the vacuum degree in the pump. （-0.1~0.15Mpa）.

(2) Rotation Meter: To show the rpm of the rotation axis of the pump. （0~4500RPM）.

(3) Pressure gauge: To show the water outlet pressure of the pump. （2.5 Mpa）.

(4) Water Level Gauge: To show the water level of the tank by a set of Pointer.

(5) Foam Level Gauge: To show the water level of the tank by a set of Pointer.

12. Equipment

The equipment is mainly for three purposes: extinguishing fire, saving life, and eliminating danger. For detailed items, please refer to equipment list.

1. Suction hose: for connecting the pump inlet with the water source, equipped on the top of the truck; the number is 2, each length is 4 meters.

2. Water filter: for preventing the pipe system from being blocked by the odds. When the fire pump stops running, the water in suction pipe will not spill out for the check valve or say one-way valve in the filter, so water will get in quickly while restarting the pump.

3. Manifold for separating: connecting equipment for dividing the main hose into three smaller caliber hoses. Each outlet has been controlled by the ball valve, so they could work at the same time, or separately.

4. Manifold for converging: while connecting the external water source by water hose, the manifold for converging could be fitted in the inlet of fire pump, with another two 100mm connector to connect with the water hose, and the other end to the water source.
   It is always used to supply & get water between several fire truck, or connect the fire hydrant（100mm）.

5. Reducing caliber connector: for connecting the outlet valve and the water hose with caliber between 125mm and 100mm.

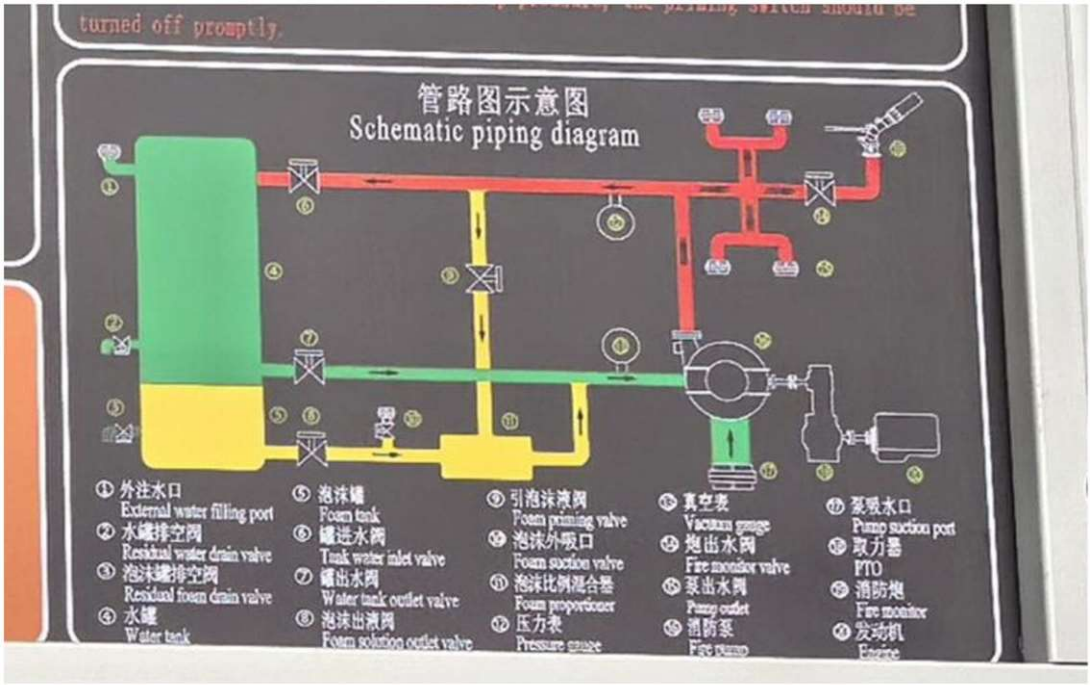
6. Hose coating: for wrapping the leaking place of the water hose tightly while there is leaking in firefighting, preventing the leaking place expanding and reducing the water loss.

7. Hose link: for hanging the water hose on climbing ladder, helping the fire fighter control the hose.

13. Control board system

(English Version Control Board Assembly)

1. Emergency STOP (Press when there is an emergency, then turn off the PTO button)
2. PTO Indicator Light
3. Power Switch
4. Vacuum Pump Switch
5. Light for Outside
6. Light for Toolbox



(Working Principle for fire truck)

Chapter 4, Fire Truck Working Principles

The operator should fully understand Whole Structure and Working Principle for Beiben 6x4 Water Foam Fire Truck before any operation. Only trained person can operate this vehicle properly and to prevent unnecessary accidents and equipment damage.

ⅰ,How are the fire trucks working?

The Beiben Water Foam Firefighting Truck makes use of the sandwich power take off (PTO) to get power from the engine, and then transfer the power to the XIONGZHEN CB10/140 Fire Pump via drive axle so to rotate the rear-installed fire pump. The pump start working: Optional one, transfer water & foam inside of the tank to fire monitor, and jetting out from top mounted two sets fire monitor for firefighting process; Optional two, suction water through pool, river, fire hydrant etc. or foam from tank, and jetting out through two sets fire monitor.

ⅱ,What is the main component for truck?

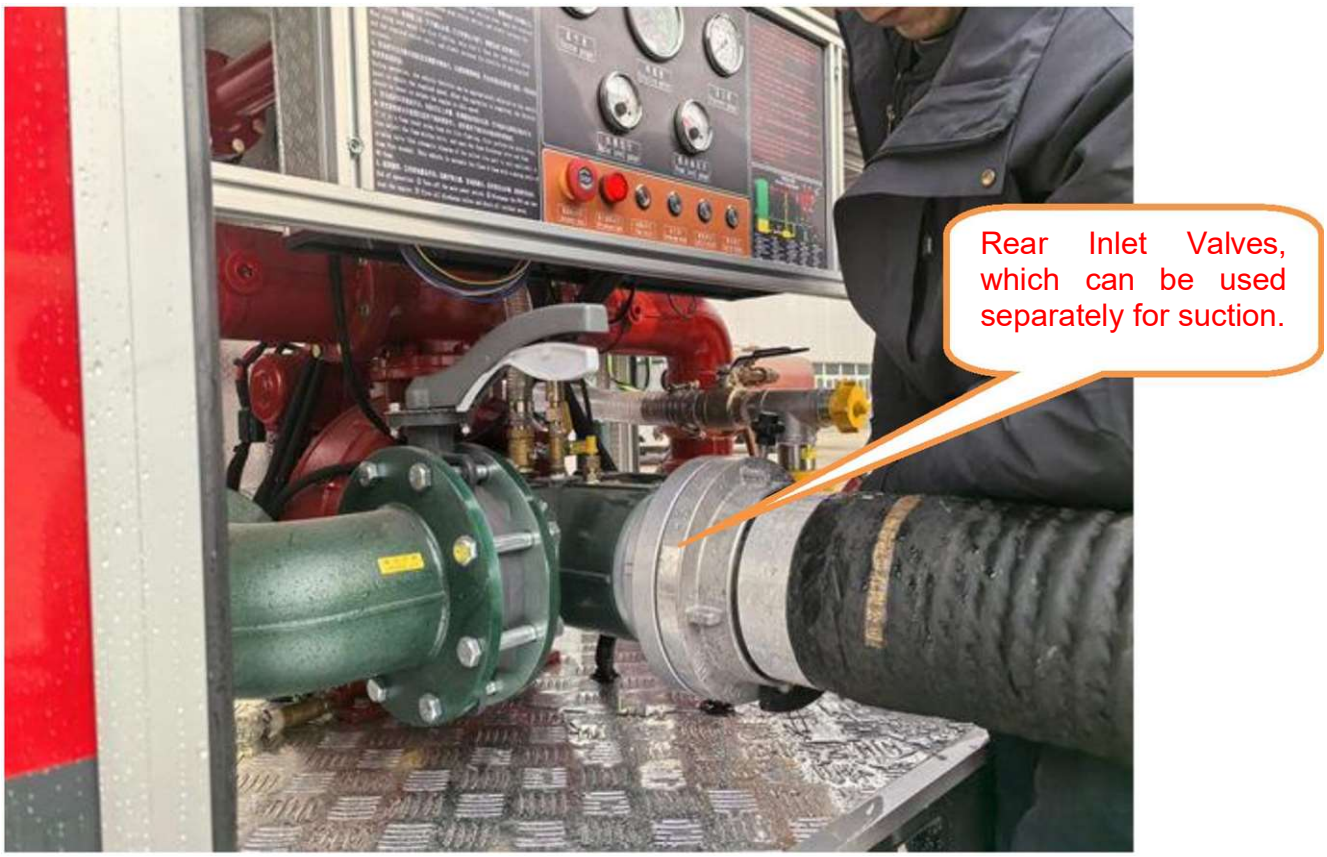
The fire truck is refitted based on the Beiben 6x4 LHD chassis. The refit part includes tanker system, actuator device, operation system dry powder system and firefighting equipment.

- Tanker: Stainless steel material foam tanker and carbon steel water tanker with anti-rust and anti-corrosion painting, standard steel pipelines for firefighting process.
- Actuator device: includes sandwich power take off, drive line, etc., which can pass the power from the chassis to the fire pump.
- Operation system: the Electric control system located at rear of pump house, which can view pump vacuum rate, water tanker and foam tanker level, light system, etc. this helps come to all special functions' convert.
- Firefighting equipment: whole standard firefighting equipment.

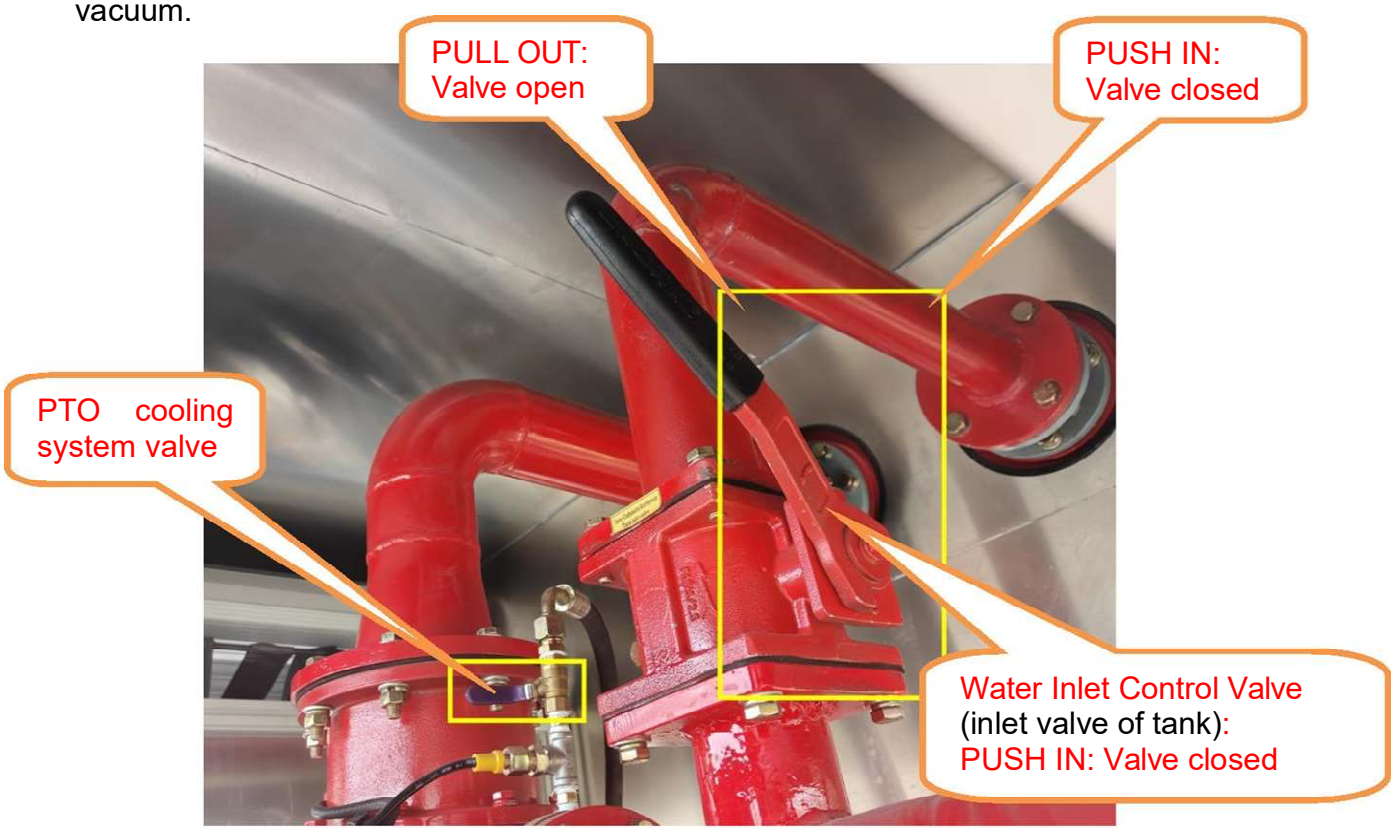
iii, Fire trucks Water Pump In Operation Guidance? (Very Important)

1) Carefully check around the working environment, make sure working is safety.
2) Make sure the whole truck electric system working.
3) Use the Control Panel in pump house, press the Power Switch button

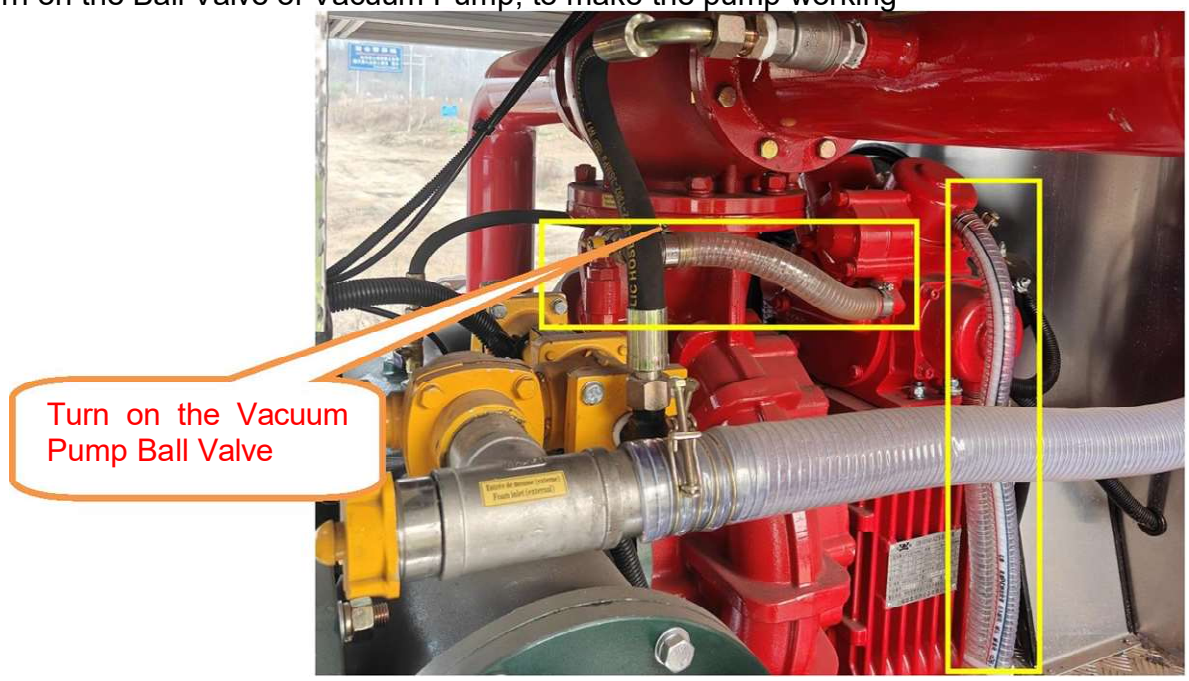
4) Connect the Pipeline with Suction Joint, make sure the connection is fastened.



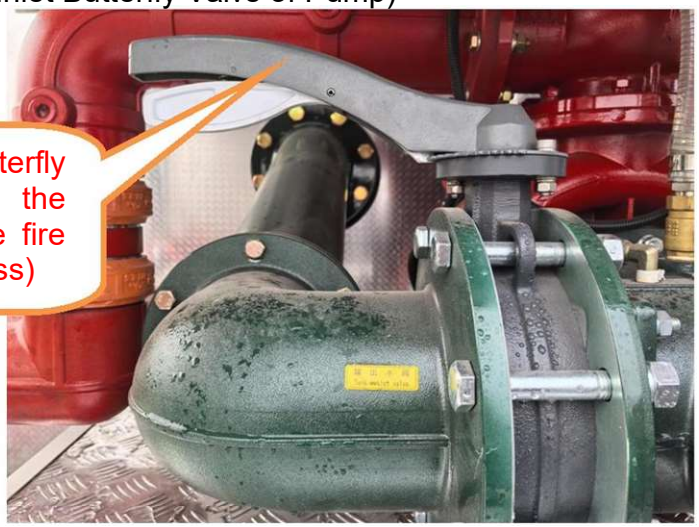
5) Firstly, PUSH IN the valve to turn off the Water Inlet Valve to make whole system vacuum.



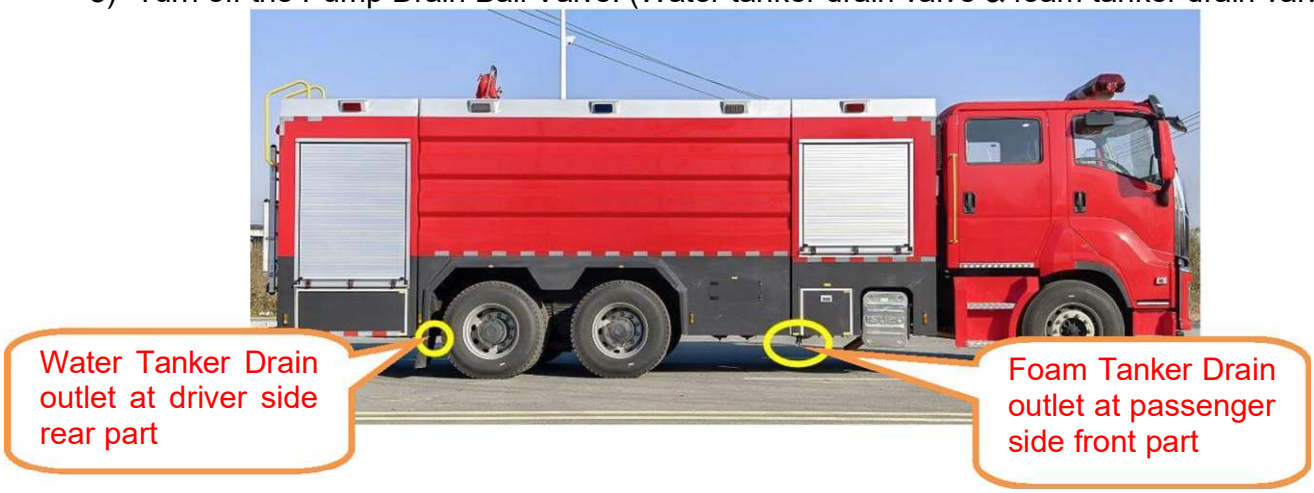
6) Turn on the Ball Valve of Vacuum Pump, to make the pump working



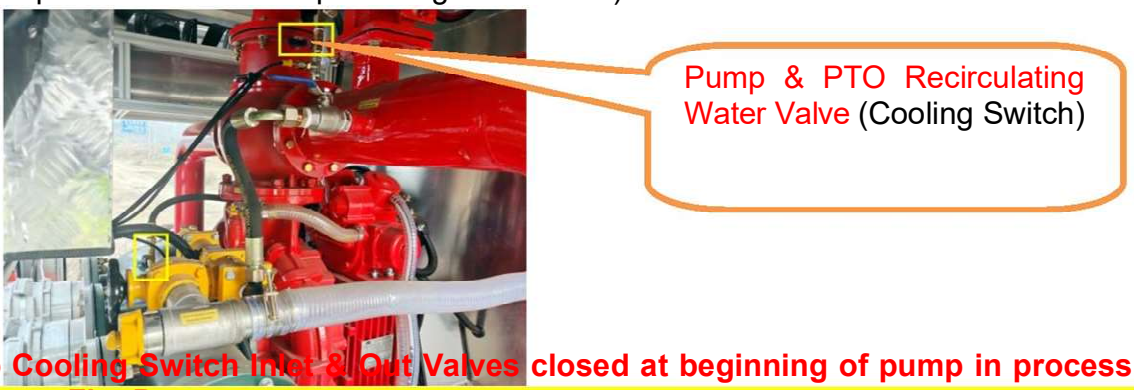
7) Turn off the Main Water Outlet Valve (Inlet Butterfly Valve of Pump)



8) Turn off the Pump Drain Ball Valve. (Water tanker drain valve & foam tanker drain valve)



9) Pump & PTO Recirculating Water Valve (Cooling Switch) (Mainly used to cooling and Pump and PTO after keep working over 30min)

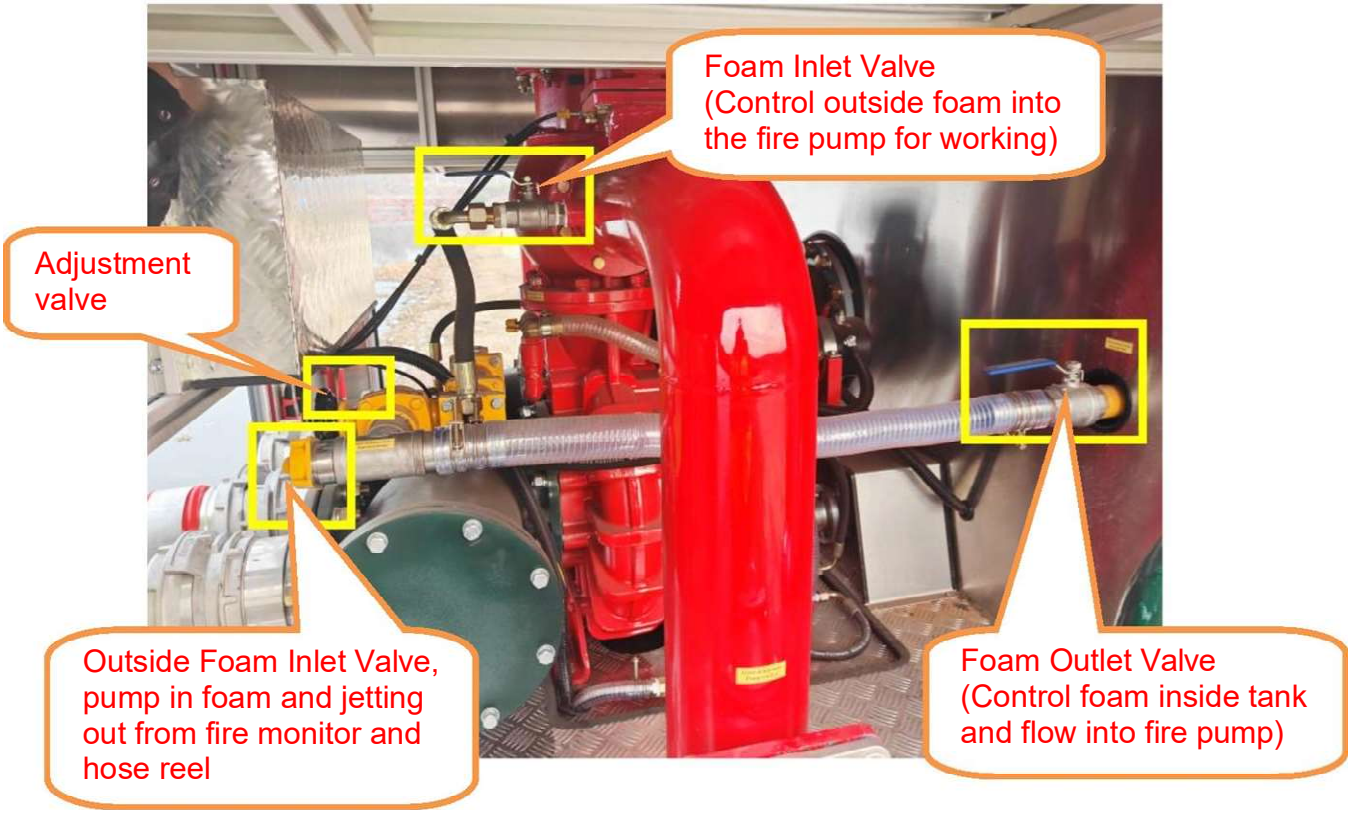


Keep Cooling Switch Inlet & Out Valves closed at beginning of pump in process, so can keep Fire Pump vacuum.

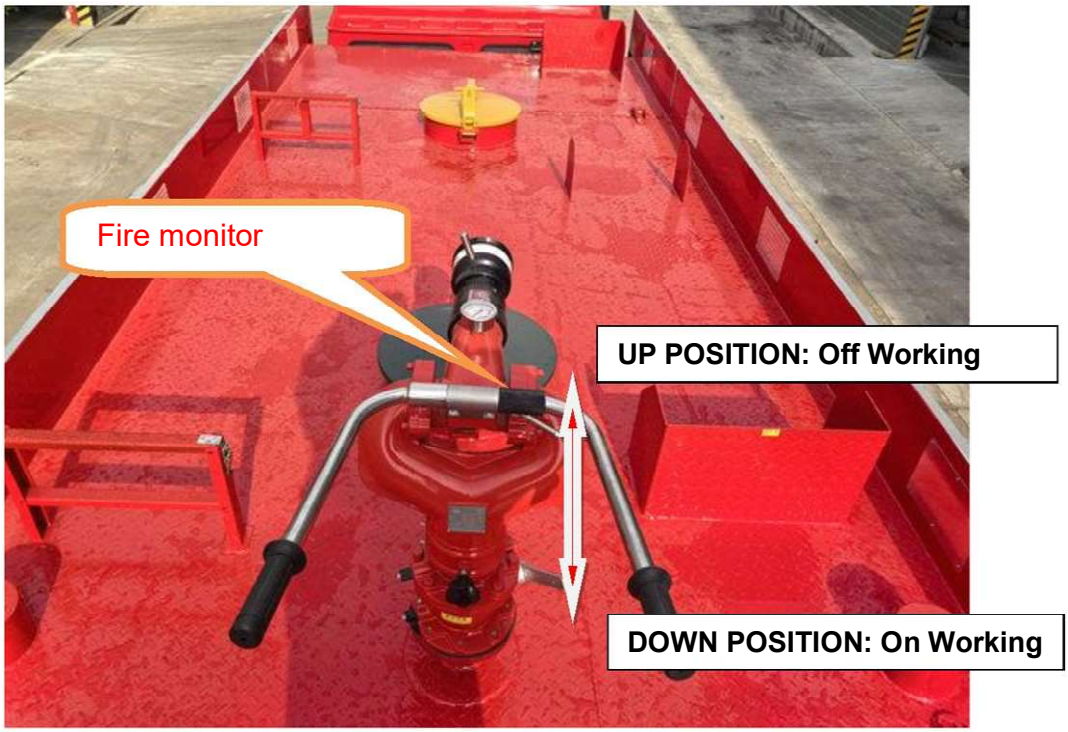
10)Turn off two sides Water Outlet Joint (Totally 4 units) and Fire Hydrant Inlet Valve

Fire Hydrant Inlet Valve can be used to add water into the tank from Fire Hydrant

11)Turn off whole Foam System Valves, below valves keep closed.



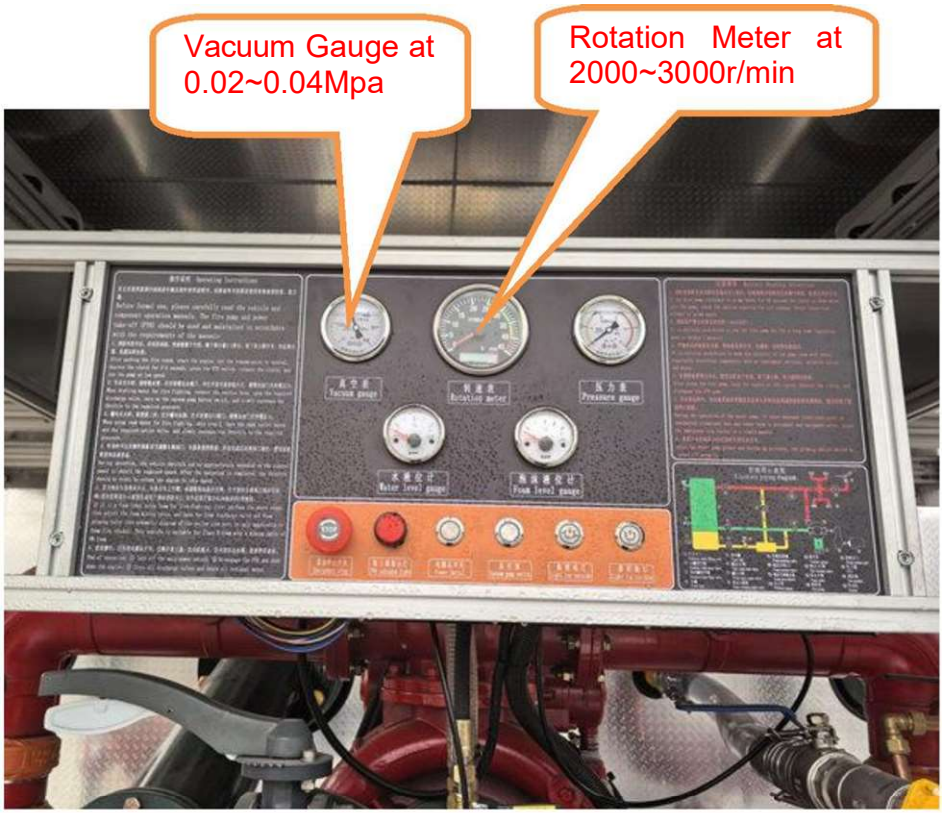
12)Turn off the PL8/48 Fire Monitor control valve



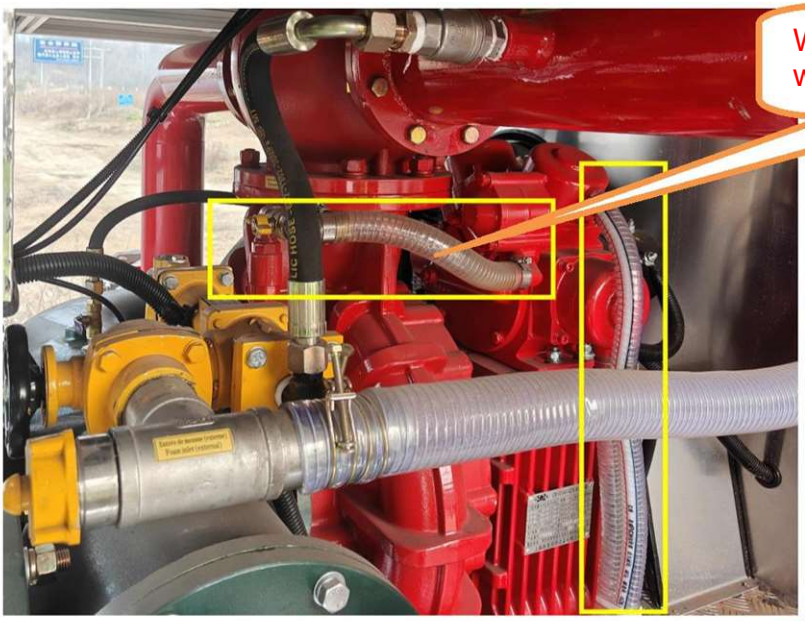
13)Start the truck engine, make sure the truck air pressure is over 0.6Mpa, then press the Clutch pedal, pull out the PTO control rod to make PTO working, then release the Clutch pedal slowly. Then PTO and Fire Pump start working. Also push in the accelerator button to make the accelerator on rear control panel working.

14)Use the Control Panel in pump house, press the Vacuum Pump button, the fire pump start working to suction water inside the tank.

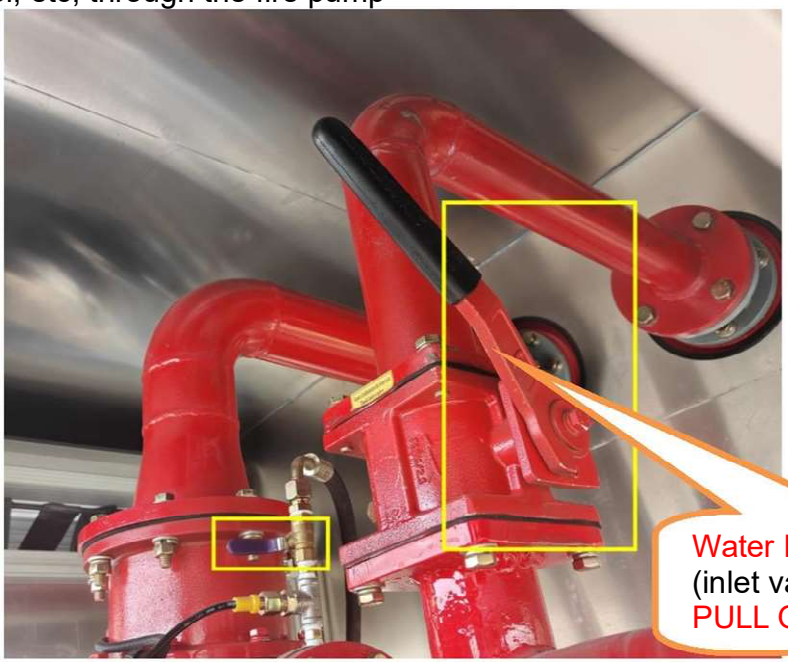
15)Adjust the Accelerator Handle to keep the Rotation Meter at 2000~3000r/min, and the Vacuum Gauge at 0.02~0.04Mpa



16)When water get through Ball Valve of Water Diversion Control, means the fire pump successfully pumps water, then can press to turn off the Water Diversion Control button. The fire pump starts suction water to the tank automatically.



17)**Only** turn on the Water Inlet Control Valve fastly, then water can be pump into the tank from river, pool, etc, through the fire pump

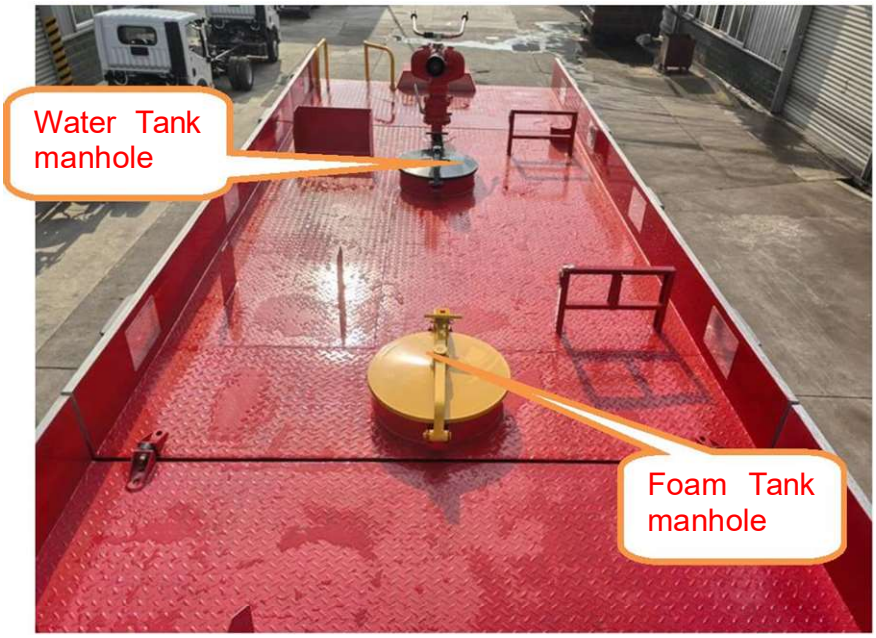


18)When Water Tank Liquid Level Gauge reaches the maximum value and the tank is full of water. Press the Clutch pedal, push in the PTO control rod to make PTO not working.

19)Water Pump In steps finished, stop the truck engine, and turn off the Water Inlet Control Valve, turn on the Water Drain Ball Valve to discharge all water in fire pump if need.

20)If get water from Fire Hydrant, just need to connect the Fire Hydrant with fire pipelines, then water can get into the tank under pressure of Fire Hydrant. Totally 4 sets inlet valves

21)Besides, both water and foam can be added into the tanker through manhole from top.



22)Reposition all the fire fighting equipment after working, so can guarantee next step fire working more convenient.




(Detailed Parts List will be attached at end of this manual)

iv, **Fire trucks Water Pump Out Operation Guidance? (Very Important)**

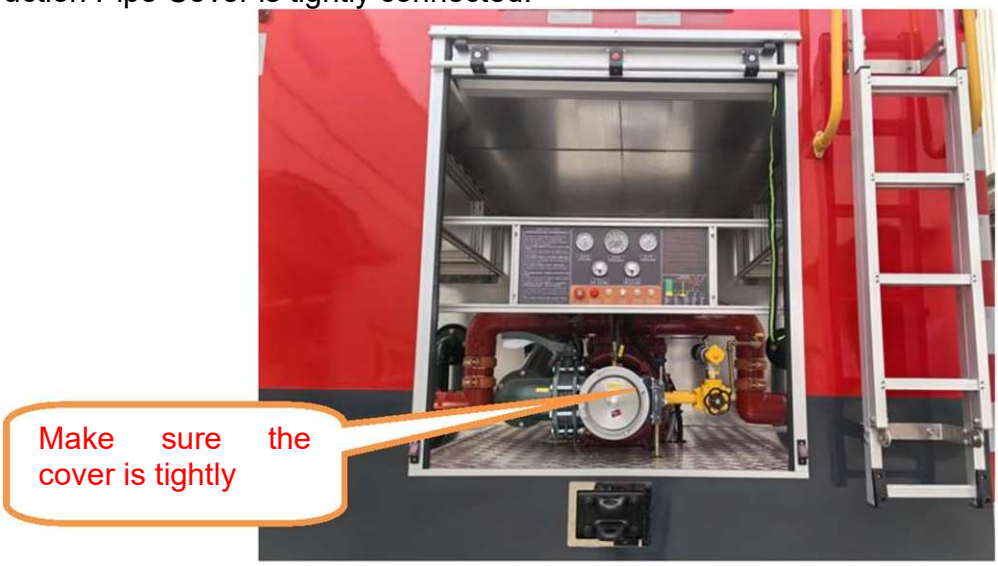
1) Carefully check around the working environment, make sure working is safety.

2) Make sure the whole truck electric system working.

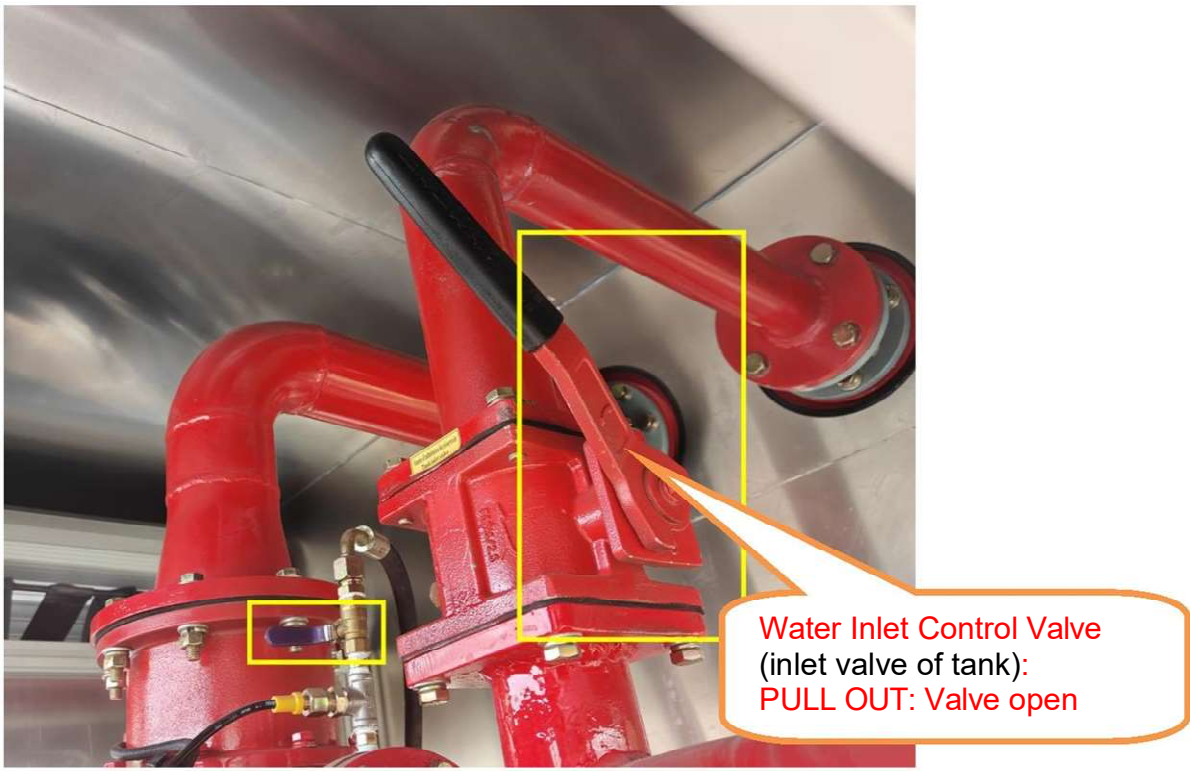
3) Use the Control Panel in pump house, press the Power Switch button

4) Carefully check and confirm Water Level Gauge and Foam Level Gauge reaches the maximum value.

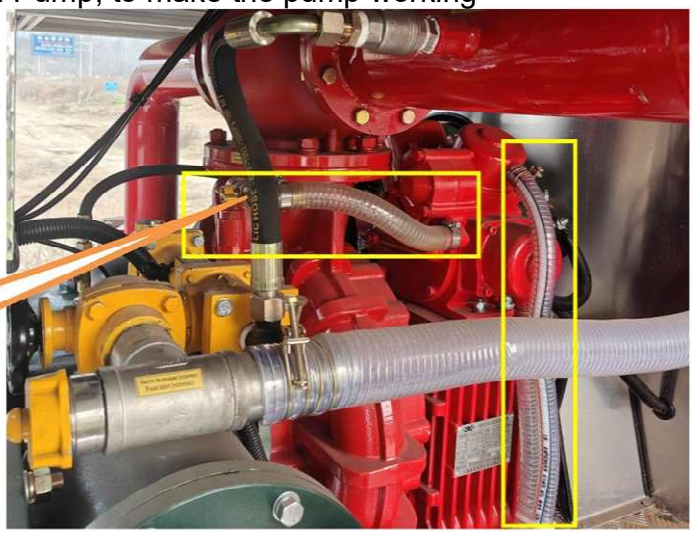
5) Make sure the Suction Pipe Cover is tightly connected.



6) Turn on the Water Inlet Control Valve. Which just to guarantee the whole vacuum system is open, not have pressure retention state.



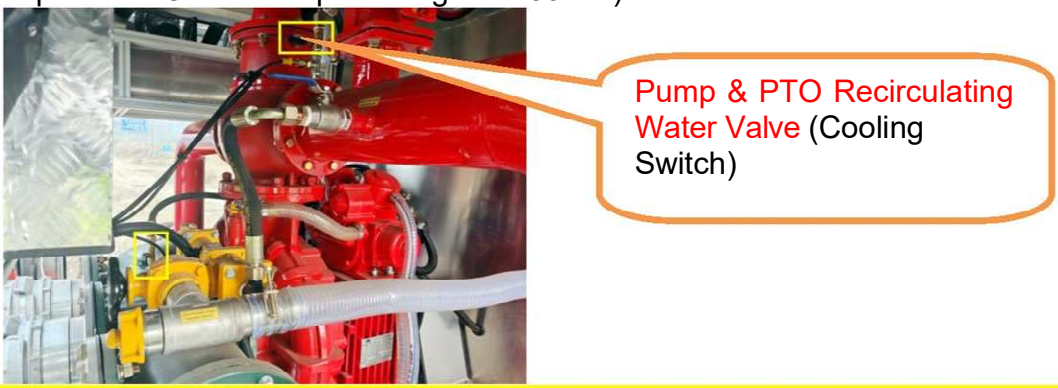
7) Turn on the Ball Valve of Vacuum Pump, to make the pump working



8) Turn on the Main Water Outlet Valve (Inlet Butterfly Valve of Pump)

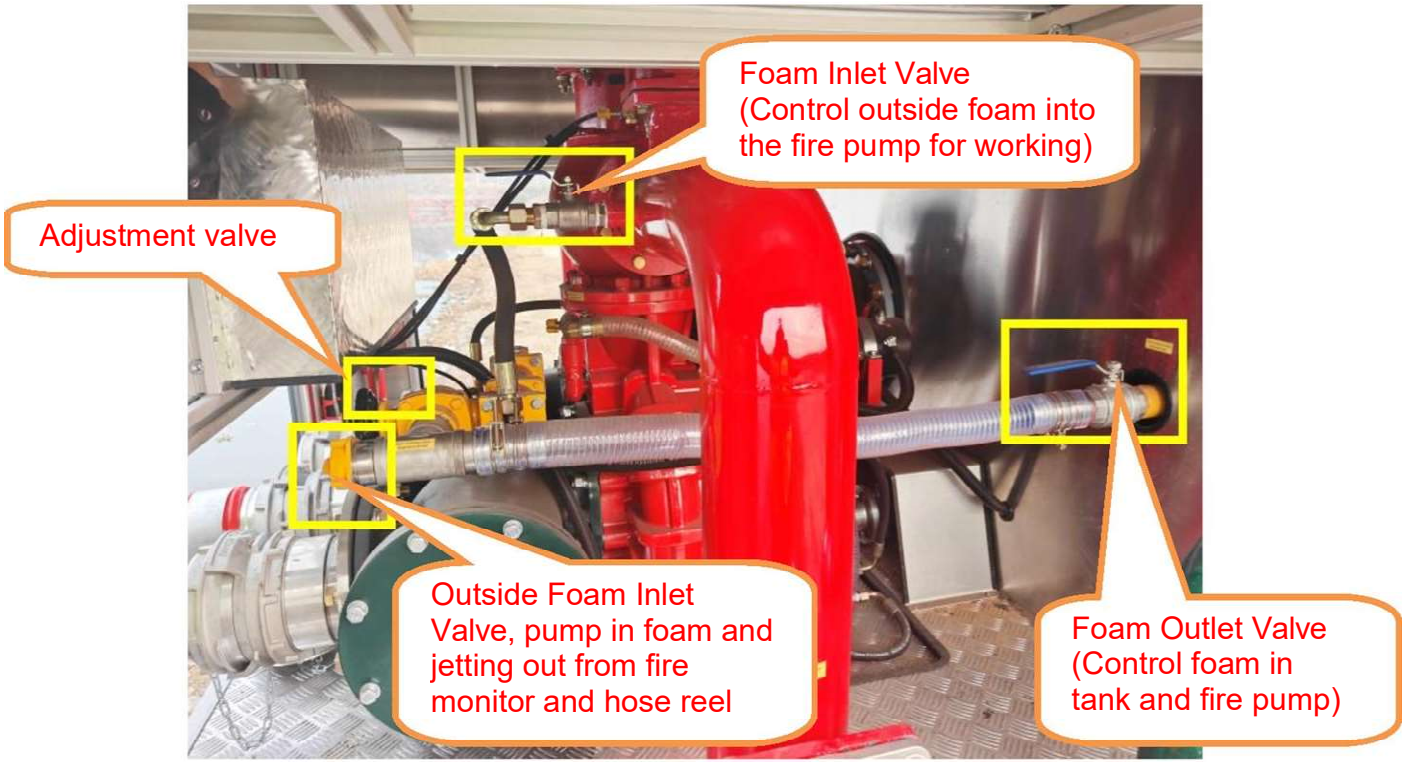
9) Turn off the Pump Drain Ball Valve. (Water tanker drain valve & foam tanker drain valve)

10)Pump & PTO Recirculating Water Valve (Cooling Switch) (Mainly used to cooling and Pump and PTO after keep working over 30min)



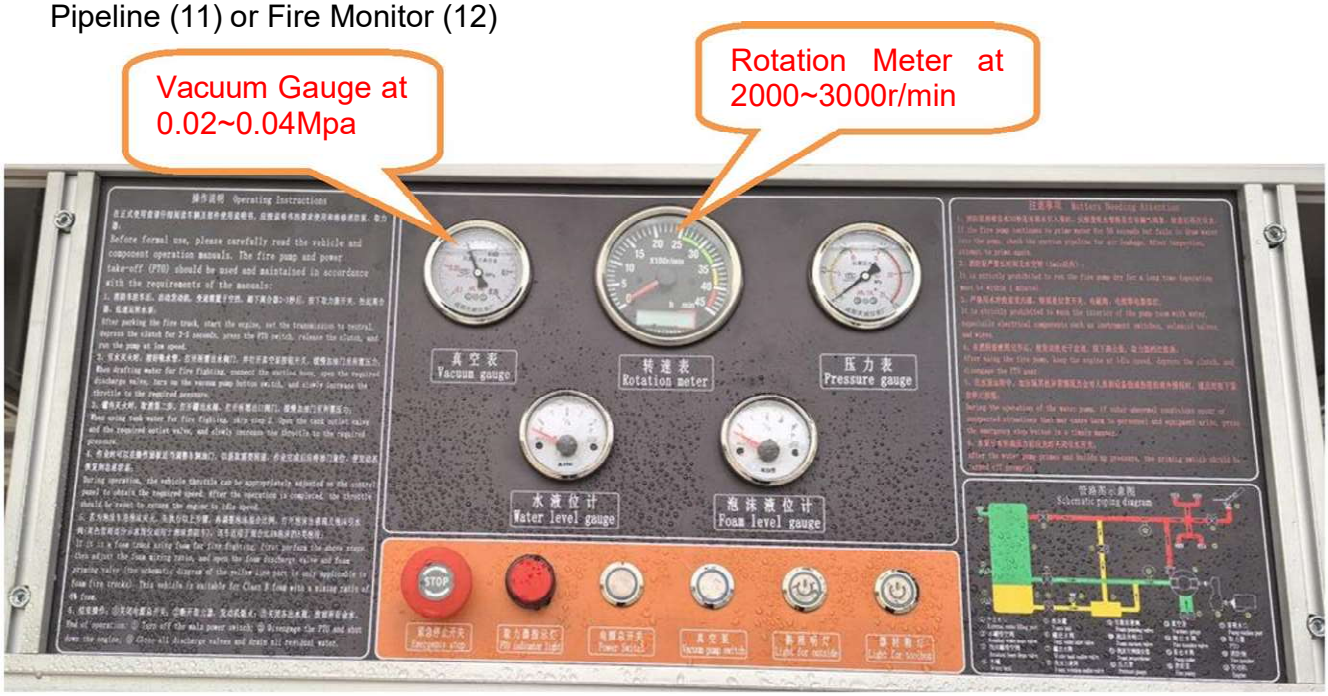
Keep Cooling Switch Inlet & Out Valves closed at beginning of pump in process, so can keep Fire Pump vacuum.

11)Turn on whole Foam System, below valves should keep open. Adjust the PH64 valve, which can change the water foam mixed ratio.
If Foam System Valves closed, the fire pump just has water pump out.



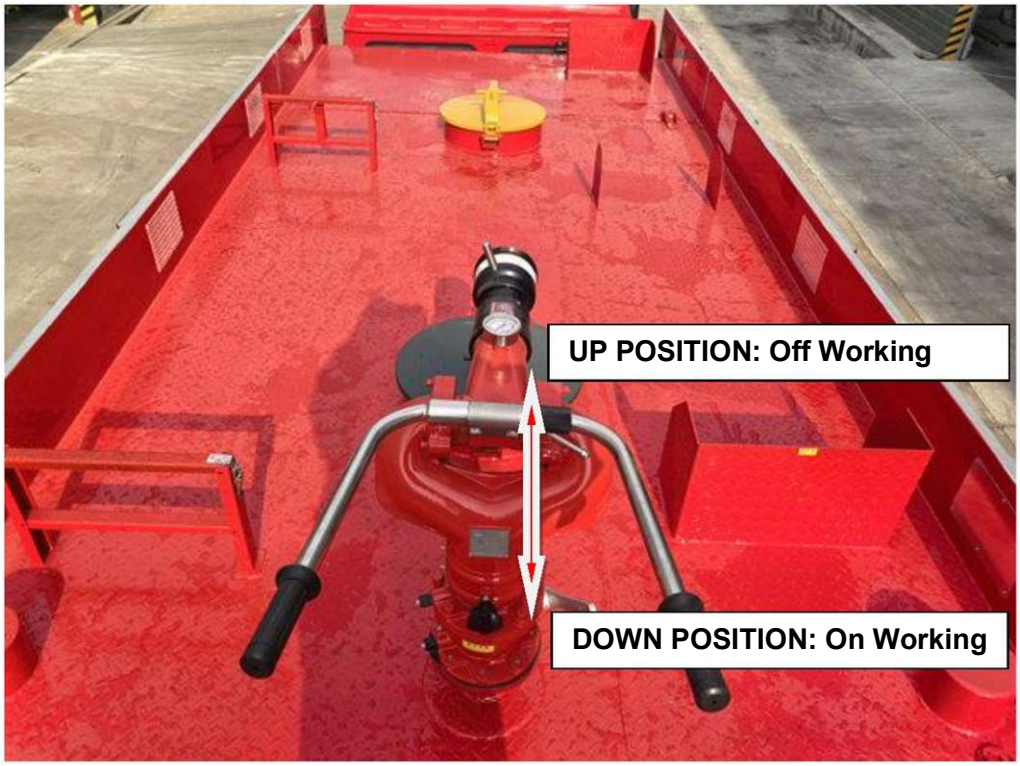
12)Start the truck engine, make sure the truck air pressure is over 0.6Mpa, then press the Clutch pedal, pull out the PTO control rod to make PTO working, then release the Clutch pedal slowly. Then PTO and Fire Pump start working.

13)Adjust the Accelerator Handle to keep the Rotation Meter at 2000~3000r/min, and the Pressure Gauge at around 1Mpa. Then mixed water and foam can Jetting out from Fire Pipeline (11) or Fire Monitor (12)



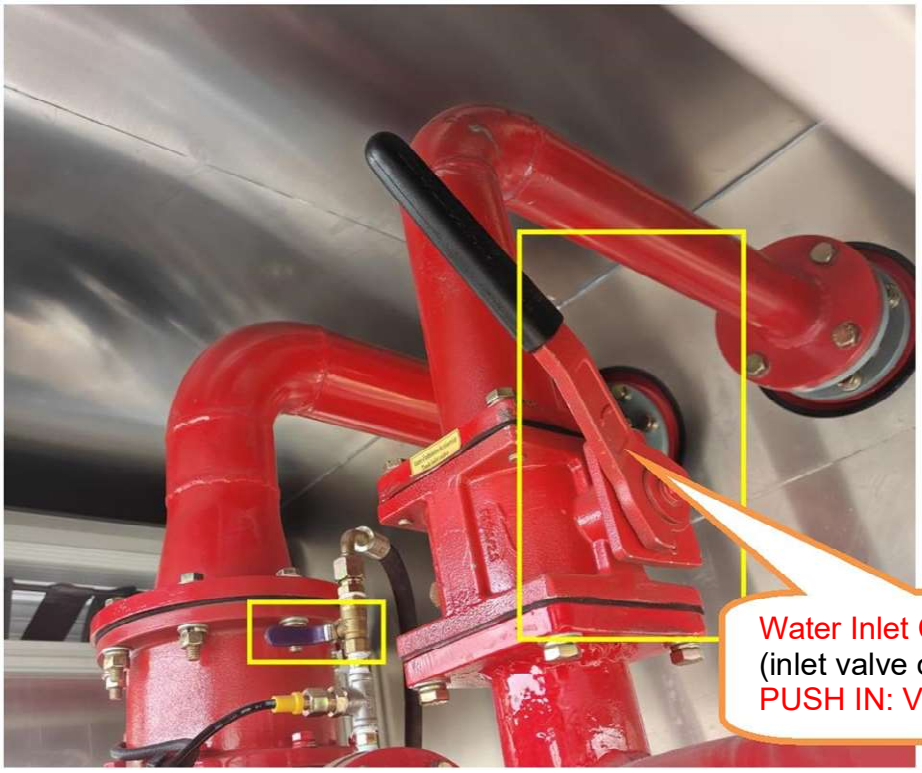
14)Turn on two sides Water Outlet Joint (Totally 4 units, can be open/close separated)
Connect with Fire Pipeline for firefighting work

15)Turn on the Fire Monitor control valve.



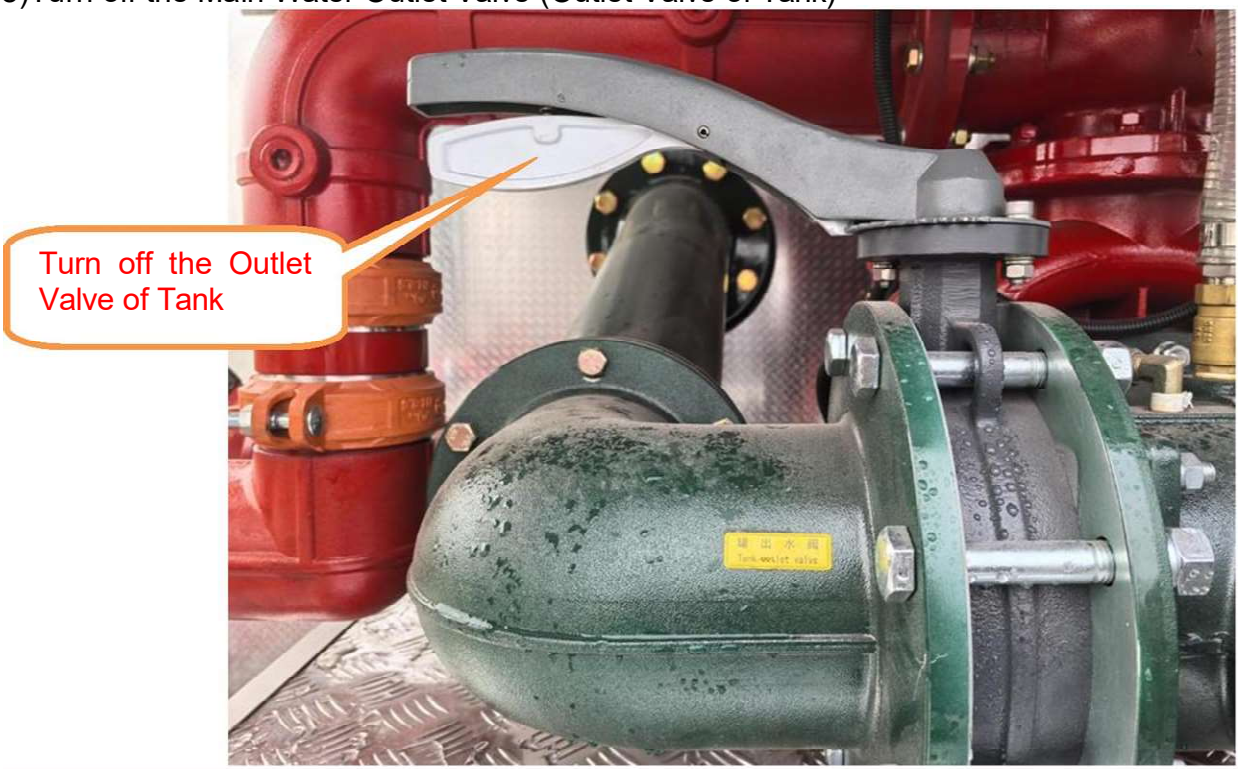
Use Fire Pipeline (14) or Fire Monitor (15) is depends on situation!

16)When fire monitor or outlet valve is jetting out water, then turn off the Water Inlet Control Valve. Then water flow rate can be higher and jetting out.

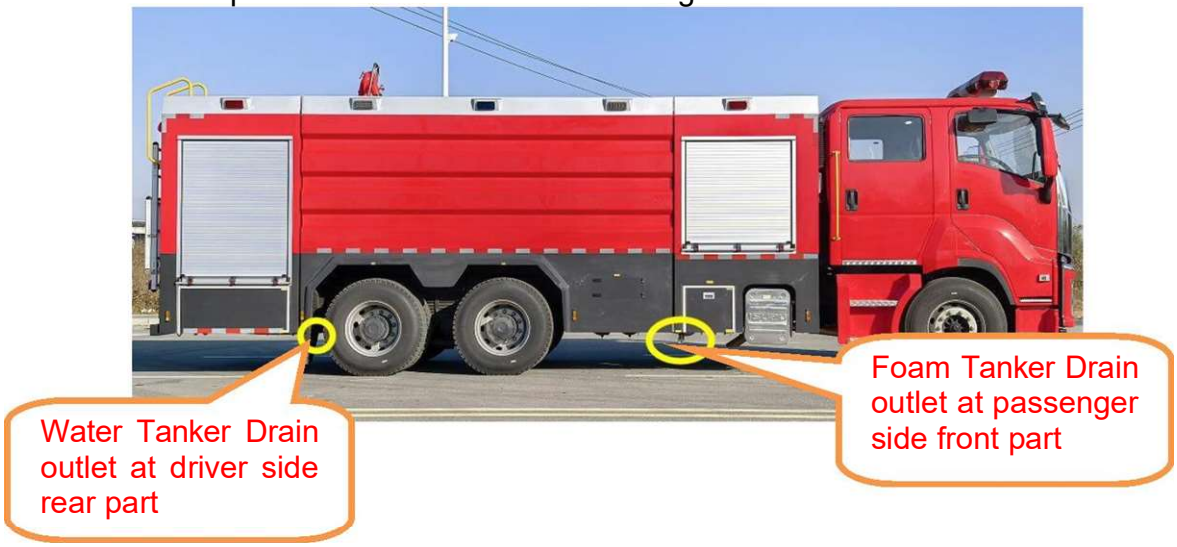


17)During fire truck working, pay attention to Water Level Gauge and Foam Level Gauge, when it point to the minimum position. Press the Clutch pedal, push in the PTO control rod to make PTO not working. Then stop the truck engine.

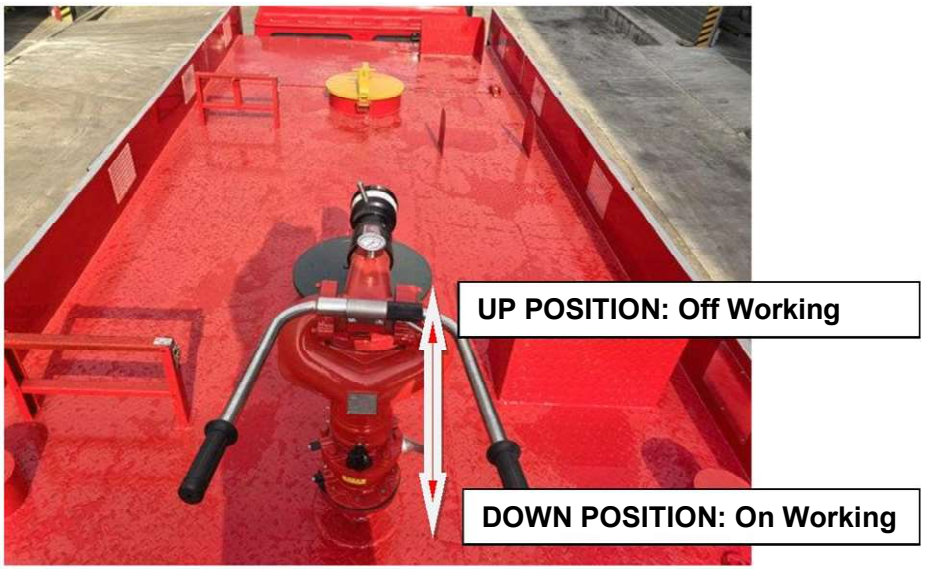
18)Turn off the Main Water Outlet Valve (Outlet Valve of Tank)



19)Turn on the Pump Drain Ball Valve for full discharge.



20)Turn on/off the Fire Monitor control valve 2~3 times, which can make sure not stock inside of it. Then reset the Fire Monitor position to make it suitable for driving.



21)Reposition all the fire fighting equipment after working, so can guarantee next step fire working more convenient.




(Detailed Parts List will be attached at end of this manual)

Ⅴ ,Other Notice for fire truck operation

1. Fire pump operation instruction

In order to extinguish the fire quickly, it is necessary to operate the fire pump exactly and masterly

1. XIONGZHEN CB10/60 operation instruction

a. Priming water:

If using water from tank, we can push the butterfly valve toward to the fire pump shaft direction in order to pull the pin out from pin-hole. Then pull the handle to horizontal position and open the butterfly valve, after that, water will be flowing into the pump.

If using water from hydrant, we can connect the suction pipe to the hydrant, and then the water will be flowing into the pump from the hydrant

If using water from pond, we need to use a piston primer pump for priming water. In this situation, firstly we can put the suction pipe into the pond; secondly start the low pressure fire pump; thirdly turn the pump rotational speed to 2500r/min in a short time; fourthly pull the control handle down and the piston primer pump begin to work. The water priming will be finished in 35 seconds, then the fire pump begin to work and the piston primer pump stop working automatically, after that ,we can push the control handle up to normal position, if the water priming are not finished in 60 seconds, please check whether there is air leakage in the system.

b. Low pressure work condition

Open the ball valve which is in the low pressure outlet, and then turn the reflux ball valve to “low pressure” position.

2. Water injection, suction and discharging

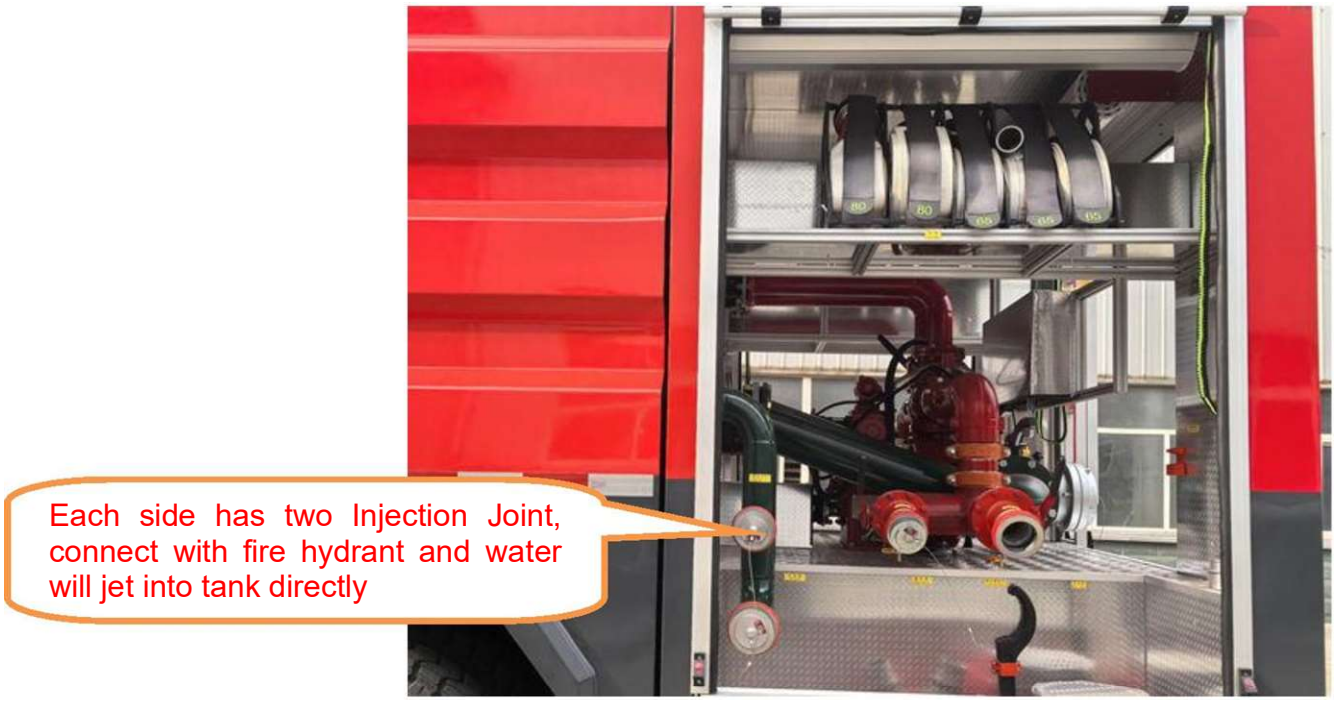
1.Two ways of injecting water into the tank:

(1) Water from hydrant

A. After parking the vehicle according to correct steps, take out fire hose and hydrant wrench.

B. Connect the outer injection joint to the hydrant with fire hose.

C. Open the hydrant valve with hydrant wrench until the tank has been full.



(2) Water from river and pond

A. After parking the vehicle according to correct steps, take out suction pipe, water-strainer and suction pipe wrench.

B. Connect the suction pipe to the inlet of the fire pump and make sure the length is suitable, then fix the water-strainer on the end of the suction pipe and put it into the river or pond (0.5m under water surface is best).

Notice:

1 Do not bend the suction pipe excessively.

2 Make sure the bending part not higher than the inlet of fire pump.

3 Do not make the water-strainer touch the bottom of pond or river to prevent sundries.

4 Make sure there is not air leakage at all joint, otherwise the water will not be primed

5 Turn off all valves, making the transmission in neutral. Start the engine, push the clutch, press the PTO switch, then release the clutch slowly until the fire pump runs.

6 Press the priming button, adjust the manual throttle simultaneously, making the rotation of pump around 2200r/min-2500r/min, get the vacuum gauge at around 0.5-0.8MPa.

7 After water getting in the pump, make the priming button back reset.

8 While the pressure gauge points at 0.25MPa open the water injection valve, adjust the manual throttle to the necessary pressure until the tank is full.

2. Water supplied by pump

Three water supply types:

1. Supply from tank
2. Supply from hydrant
3. Supply from river and pond

(1) Priming operation (Supply from tank):

Open the pipe valve between tank and fire pump, start fire pump, turn the hand throttle to make the rotational speed to rated speed. When the value of vacuum gauge is from 50Kpa to 80Kpa, open the outlet valve, then turn the hand throttle to proper pressure.

(2) Priming operation (Supply from hydrant):

a After parking the vehicle according to correct steps, take out fire hose, collecting breeching and hydrant wrench.

b Connect the outer injection joint to the hydrant with fire hose and collecting breeching

c Open the hydrant valve with hydrant wrench, when the water has been primed into the pump, the following steps are same as water supplied by tank situation.

(3) Priming operation (Supply from river and pond):

The operation steps are the same as water supplied by tank situation a to c.

3. Fire fighting

with water

After parking the vehicle according to correct steps, connect the fire hose and hose nozzle correctly, aim to the fire source, operate the clutch and PTO to make the pump start to work. Open vacuum gauge, pressure gauge and cooling system stopcock, check the indication of each gauge, and turn the hand throttle, when the pressure gauge indicates around 0.8Kpa to 1.0Kpa, open the outlet valve, then turn the hand throttle to proper pressure.

Note: Turn off the inlet valve while firefighting.

with foam

Water foam proportioner:

Fitted on the fire pump, composed of water pipe system, ball valve, inlet pipe, adjust valve, Y-branch, outlet soft pipe.

Working principle:

When the water with pressure gets into the nozzle through the pressure pipe, cock, then out of

the nozzle, negative pressure will be formed inside the proportioner. The foam liquid in the foam tank is sucked into the proportioner through the liquid pipe, ball valve, the calibration hole of the control valve, mixing with the water inside. After the injection pipe, outlet pipe, bending pipe to the pump, the mixing liquid is mixing in pump again and then being pressurized, most of the mixing liquid is sent to the injecting equipment to inject as foam, and small part of it enters the proportioner for running circularly.

Firefighting with foam:

Two foam liquid supply:

1. Supply from the foam tank: The foam liquid, sucked by the proportioner from the foam tank, is sent to the air-foam maker through the fire pump, forming the foam.
2. Supply from the external foam source: the foam liquid is sucked from the foam liquid bucket through the inlet of the air-foam spear, making foam for fighting fire.

(1) Foam liquid from the foam tank:

a. Take the water hose and air-foam spear as needed.
   Connect one end of the water hose with the fire pump outlet valve, and the other end is connected with the air-foam spear (other spraying equipment)
b. Make the handle of air-foam spear at the position for mixing liquid and water.
c. Start the fire pump for water supply as the instruction.
d. Turn on the switch of outlet valve.
e. Open the throttle, adjusting the pump pressure till the standard working pressure of the praying equipment.
f. Turn down the operation handle of foam liquid on the fire pump, open the foam liquid inlet valve on suction pipe, the air-foam liquid will spray out from the fire monitor (foam spear) or other spraying equipment.
g. If the foam liquid in foam tank has run out, the foam inlet valve could be turned off. After wrenching the screw of the external liquid inlet, fit the pipette, and get the other end into the foam liquid bucket, the foam could continue praying.
h. While the fire pump is send the mixing liquid, if the water in tank is not enough, don't add any water with pressure at the inlet of fire pump.
i. After fighting fire, the proportioner and the pipe system must be cleaned with water. The proper way is to put the pipette into clean water, start the pump, and turn on the proportioner valve.

(2) Foam liquid suction:

a. Take the water hose and air-foam spear as needed.
Connect one end of the water hose with the fire pump outlet valve, and the other end is connected with the air-foam spear (other spraying equipment)
Make the handle of air-foam spear at the position for mixing liquid and water.

b. As the instruction for fire pump in water supply, adjust the pump pressure, reaching the indicated outlet pressure of the air-foam spear, then the foam could be sprayed out.

c. The air-foam spear must be cleaned after firefighting.

NOTES:

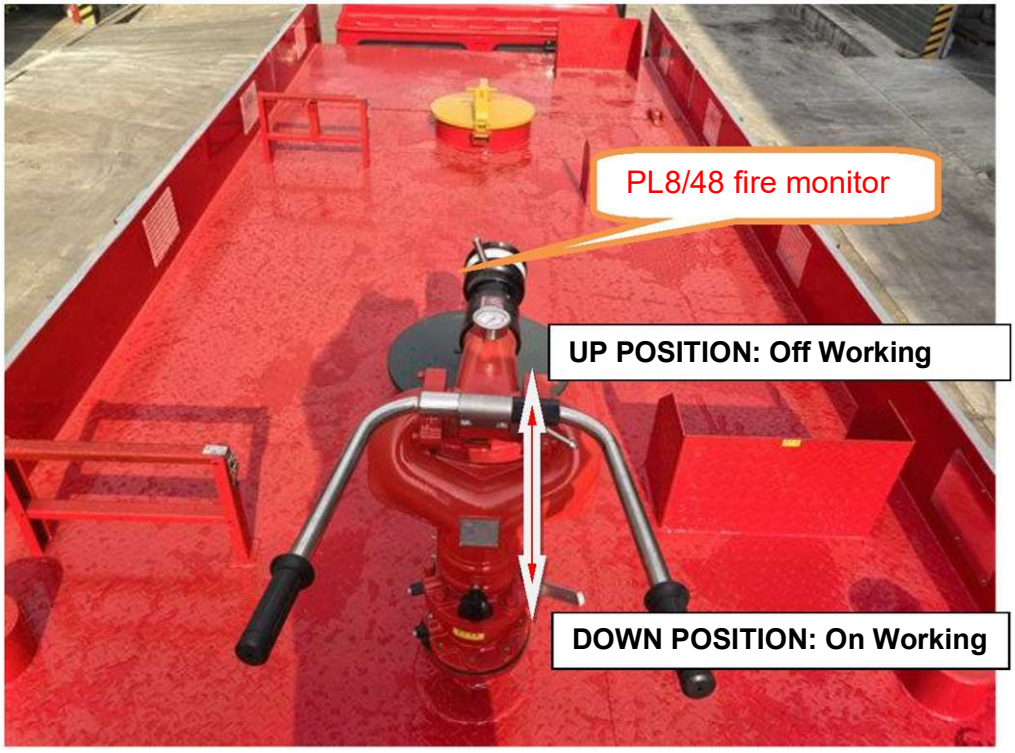
In both condition, the foam outlet valve should be turned off, preventing the water backflow to the foam tank (bucket).

Chapter 5, Other fire equipment brief introduction

1. Monitor operation

Making sure the water in pump be with pressure after the operation above, the monitor aims at the fire scene and adjust its angle, then open the valve under the monitor.

The monitor could spurt like stream by adjusting the handle at the muzzle of monitor.



2. Siren

This series vehicle has been equipped with multi-function electronic siren. Before using, turn on the main power switch, then turn on the siren power switch, finally turn on the relevant switch according to practical demands.

If the vehicle contains foam system, please acquaint yourself with the using of foam system, in order to operate skillfully.

3. Foam proportioner

The foam proportioner is fixed on the fire pump, including pipeline from outlet pipeline, ball valve, refilling pipe, adjusting valve, Y tube and effusion tube.

Working principle:

When the pressure water of pump flow into foam proportioner nozzle and spurt out by passing the pressure pipe and faucet, it will lead to a negative pressure. At this moment, the foam from the foam tank will be flow passing inlet pipe, ball valve, ration orifice of adjusting valve and then be sucked into mixing box automatically. After it is mixed with the water in mixing room, it will flow passing adjutage, outlet pipe and siphon into the water pump. Then the mixed liquor will be mixed again and pressurized in the pump, after that, most of the mixed liquor will be spurt out as foam, the rest flows into the proportioner for recycling.

When using, take the steps as follow: open the outer inlet cap of the foam tank, adjust the position of location hole according to foam spray equipment and flow, open the faucet and inlet pipe ball valve, adjust pump pressure according to foam spray equipment's pressure, the proportioner provide mixed liquor according to stated ratio, at last, the mixed liquor is mixed with the inhalant air and form the final foam mixed liquor spraying to the fire scene to extinguish the fire.

Chapter 6, Attentions on Using

1. Make sure the clutch is detached completely and the engine speed is low when the PTO is approaching or departing.
2. Fire pump running without water for more than 3 minutes or at a high speed are not allowed.
3. When the system is running, before all the water outlet valves have been closed, it must reduce the pump speed. Fire pump running in over rated pressure for a long time is not allowed.
4. After water priming finished, reset the priming handle.
5. After PTO working over 10 minutes in hot weather, it must turn on the water cooling stopcock, otherwise it may cause problems, the water must be drain out when the work is over.
6. If using seawater, sewage, corrosive liquid or foam, please run the fire pump with clear water to clean the fire pump .If using in cold weather, make the piston pump run for a while to drain out the remaining water to prevent it from freezing.
7. It is equipped with a breather valve on the top of foam tank. When using foam to extinguish fire, the foam liquid level will decline, the breather can suck air to make sure the ratio of water and foam are not change.

Daily checking:

To make sure the vehicle in a good state for a long time, the driver and operator must check the vehicle daily, in order to find out and eliminate hidden danger in time.

1. About chassis part, please refer to "*Chassis Instruction*".
2. Check daily whether the sound and lubricate of the fire pump, PTO, priming pump, transmission shaft is normal or not.
3. Check daily whether the air tightness of joints is normal or not.
4. Check daily whether the oil of PTO, reciprocating primer pump and gear case are degenerative or missing, whether every part has a leakage.
5. Check daily whether the cooling pipe of pump rack case is blocked, whether the water level of priming water box are normal, whether there is a leakage.
6. Check daily whether the monitor turning is flexible, whether lubrication is degenerative, missing or leakage.
7. Check and tidy up all kinds of equipment and accessories and keep them clean, dry and in good condition.

Chapter 7, Maintenance

1. Cabin

Check periodically whether the alarm lamp, electrical equipment, switches and fuse are in good state or not.

If necessary, please make the maintenance and replacement in time.

2. Tank

While the tank being full of extinguisher permanently, the extinguisher is corrosive for the tank. The tank should be checked periodically. Once it has been rusty, it is necessary to take some effective measures, preventing the rusty expanding. The common method is to clean the rusty point, after drying completely, brush it with epoxy resin paint. Also check the valves and pipeline periodically.

3. Hose box

Check periodically whether there is sleeper in the hose box, whether the roller door is flexible or damage, whether the oil of the chute of the door is lacking, whether the equipment are clean, dry and in good condition, whether the rubber rings of all joints are normal, whether the equipment are fixed firmly.

4. Pump room

Check periodically whether the equipment in pump room are in good condition. If there are standing water and oil stain, it must be cleaned. Check whether the standing water and oil stain are results from system leakage, if it is, make the maintenance in time.

5. PTO, Transmission shaft

Check the oil level and quality, change or add if necessary. Check the sound running state of PTO to find out whether it is blocked or spontaneous out-of-gear, if it is, check and repair in time. Check the sound of pump drive shaft. Check if all fasteners are tight or not.

6. Fire pump

a. While working, add lubricant to each running part every 3-6 hours.

b. Add lubricant to the screw thread of inlet and outlet, cover the cap.

7. Monitor and its pipeline

Check all fasteners, joints, turning parts after using. Add lubricant to turning part periodically

8. Middle pressure reels and gun

Check whether the reel pipe, joints, valves and reel roller are in good condition, check air tightness of all joints.

Add lubricant to turning part periodically

9. Additional electrical system, instrument

Check periodically whether the alarm lamp, siren system, hose box light, pump room light , solenoid valve , fluid level gauge and other instruments, check the fuse.

Chapter 8, Common malfunctions and methods in pump system

Malfunctions	Probable Cause	eliminating Methods
Pump cannot be stated	Clutch have not been connected	Connect clutch
	clutch slip	Adjust clutch
	Impeller is blocked	Change the impeller
	Pump is frozen	Heat the pump slowly
Priming failure	Suction Height is too high	Reduce the suction height
Stuffing box water leakage	Packing box packing leak	Add filler
	pump shaft wear and tear	Change the pump shaft
Gear case too hot	oil level too high	Reduce the oil level
	Bearing broken	Change the bearing
No pressure at the outlet	suction strainer has been blocked	Clean the strainer
	suction strainer is above the water surface	Put it below the water surface
	Suction pipe leakage	Change suction pipe
	Outlet valve is not closed	Close the outlet valve
	piston pump broken	Repair it
	cone belt slipping	Clean or change it
	Packing box packing leak	Add filler
Pump librating	Suction pipe too long and suction height too high	Reduce length and height
	Pump cavitation	Reduce speed and flow
	Impeller is blocked	Wash or change the impeller
	Pump is not fixed firmly	Firm it
	pump shaft or bearing broken	Change them
The oil box of reciprocating primer pump contains water	Piston broken	Change it
reciprocating primer pump cannot exhaust	Diaphragm of inlet is broken	change

Chapter 9, Firefighting Equipment

NO.	NAME	MODEL	QTY
1	Water Foam combined Cannon	PL8/48 Mounted on truck topside.	1 pc
2	DC switch water gun	QZG3.5/7.5-80	1 pc
3	Air-foam fire gun	QP4/0.7Z-80 (water fire truck without)	1 pc
4	Water suction pipe	DN125mmx4m	2 pc
5	Fire-hose	DN100mm fire hose (20m) (*French connector for optional*)	4 pc
6	Fire-hose	DN100mm fire hose (5m) (*French connector for optional*)	2 pc
7	Water filter	FLF DN125mm	1 pc
8	Two-way distributor	PFT100/80X2	1 pc
9	Siamese	PFT125/100X2	1 pc
10	Hose adapter	KJ80/100	2 pcs
11	Hose blanket	FP470	4 pc
12	Hose bridge	wooden type	1 set
13	Hose hanger		4 pc
14	Ground hydrant spanner	QT-DS, DN400mm	1 pc
15	Underground hydrant spanner	QT-DX, DN860mm	1 pc
16	Suction pipe spanner	FS125	2 pc
17	Dry powder fire extinguisher	MFZ type, 4 KG	1 pc
18	Fire scissors	GP5208	2 pc
19	Fire axe	DN400mm DN810mm	2 pc
20	Shovel	DN1050mm	1 pc
21	Fire Iron collar	DN1060mm	1 pc
22	Fire blanket	1.5m*1.5m	4 pc

Chapter 10, Attached Technology Files

Attached list：Common lubricant data

Usual lubricant types：

1. PTO lubricant: The model of PTO lubricant must be the same as the transmission.
2. Gear case lubricant：
   (1) Model：L CLD68 (GB7631.1-1987)
   (2) Amount：1.5L
3. Reciprocating primer lubricant:
   (1) Model：L CLD32 (GB7631.1-1987)
   (2) Amount：0.5L
4. Other part：Add lubricant with a grease gun

Additional：Cold season or district, priming water tank must be added antifreeze, detail as below:

Freezing point (℃)	Water(L)	Denatured alcohol(L)
-10	8	4
-20	6.5	5.5
-30	5.5	6.5
-40	3.5	8.5