POWERSTAR TRUCKS INDUSTY CO., LIMITED

POWERSTAR Water & Foam Fire Truck

User's Manual

POWERSTAR TRUCKS INDUSTRY CO., LIMITED

http://www.isuzutruckscn.com/

Preface

Thank you for purchasing POWERSTAR TRUCKS products. For better using your ISUZU 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.

----POWERSTAR TRUCKS

Contents

Chapter 1. General Description

POWERSTAR TRUCKS Fire Truck based on type II ISUZU GIGA VC66 model 6*4 Left Hand Drive chassis, body capacity could up to 12,000Liters, including 6,000Liters water tanker and 6,000Liters foam tank, truck equipped with XIONGZHEN CB10/140 fire pump and 2 sets fire monitors, including 1 set PL8/48 model and 1 set PL8/64 model, 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 ISUZU brand truck chassis, fully consider the product's convenience and reliability, also the newly designed chassis ISUZU GIGA VC66 technology features. 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 ISUZU GIGA VC66 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 ISUZU GIGA 6000L Water + 6000L Foam Fire Truck)

Chapter 2, Main Technical Data

Basic parameter:

Items		6000liters Water & 6000liters Foam6 ISUZU GIGA 6x4 Fire Truck
SIZE	Outer Dimension（L×W×H）(mm)	10040*2600*3570
	Wheelbase（mm)	4800+1370
WEIGHT	Front Axle Capacity（kg）	9000
	Rear Axle Capacity（kg）	13000+13000
	Tank Capacity	Water tanker 6000 L
		Foam tanker 6000 L
Cab capacity（includes driver）		Double Row 2+4
Tire		385/65R22.5 20PR/315/80R22.5 20PR 10+1
ENGIN	Model	6WG1-TCG62
	Type	Six cylinder inline, water-cool, turbocharged Inter-cooling, diesel
	Rating Power（kW/HP）	381/520

Note: 1. The vehicle height includes fire monitor.

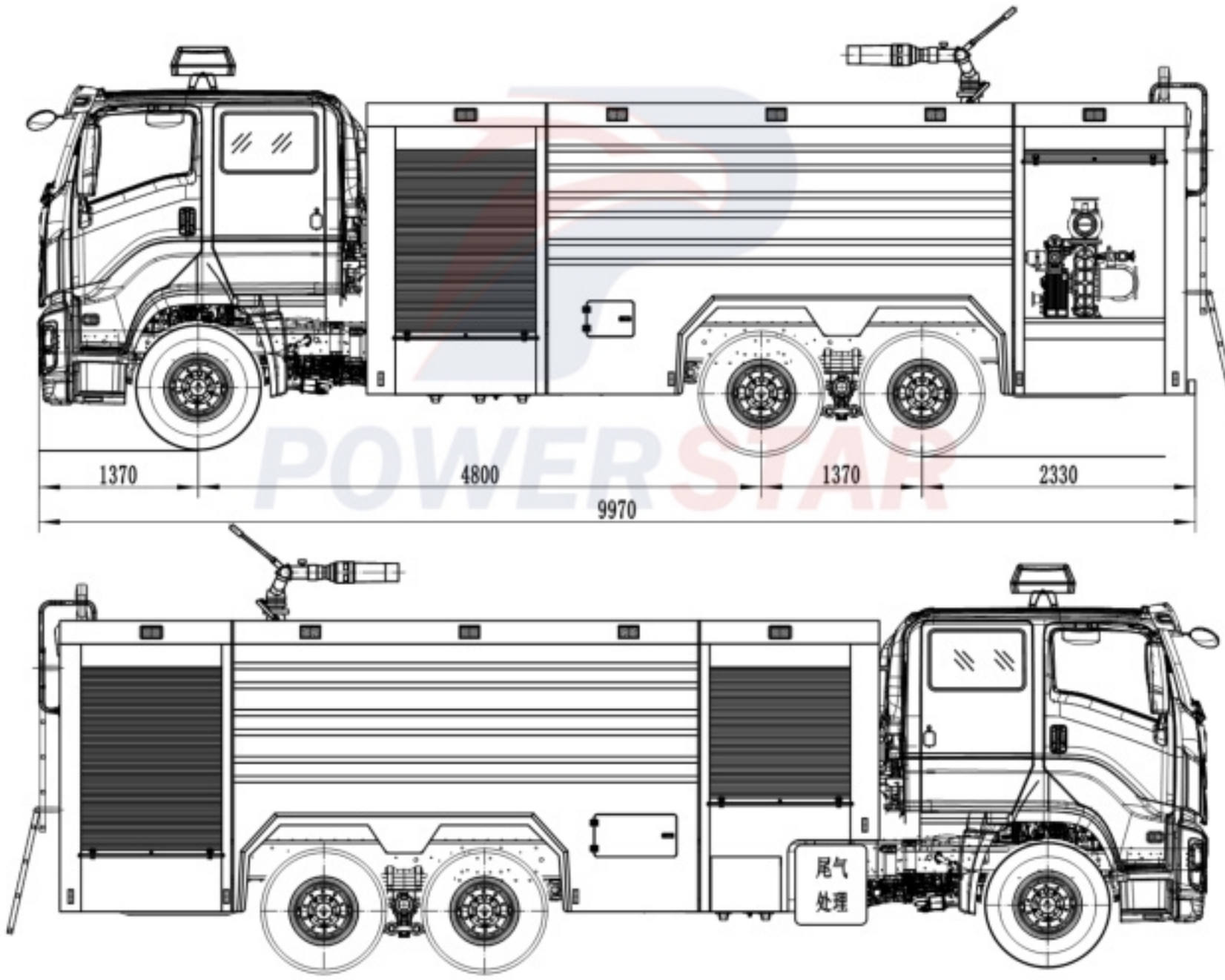
2. We keep the right to revise the parameters on the list above.

Firefighting basic parameter list (1)

Items \ Model		XIONGZHEN CB10/140 fire pump
Fire Pump	Model	CB10/140
	Flow (Low Pressure)	140 L/s at 1.0 Mpa
	Max suction depth(m)	7
Fire Monitor	Model	PL8/64 / PL8/48
	Location	Top
	Angle of rotation	360°
	Angle of elevation	⩾80°
	Angle of depression	⩽-10°
	Throw	Water: ⩾75 m; Foam: ⩾70 m
	Installation	Two Fire Monitor can be used separately

Chapter 3, Fire Truck Structure Components

*Overview for **ISUZU GIGA 6x4 LHD 6CBM water + 6CBM foam fire truck** technical drawing:*



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 6000L water tanker with Carbon Steel material and anticorrosion painting, 6000L 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

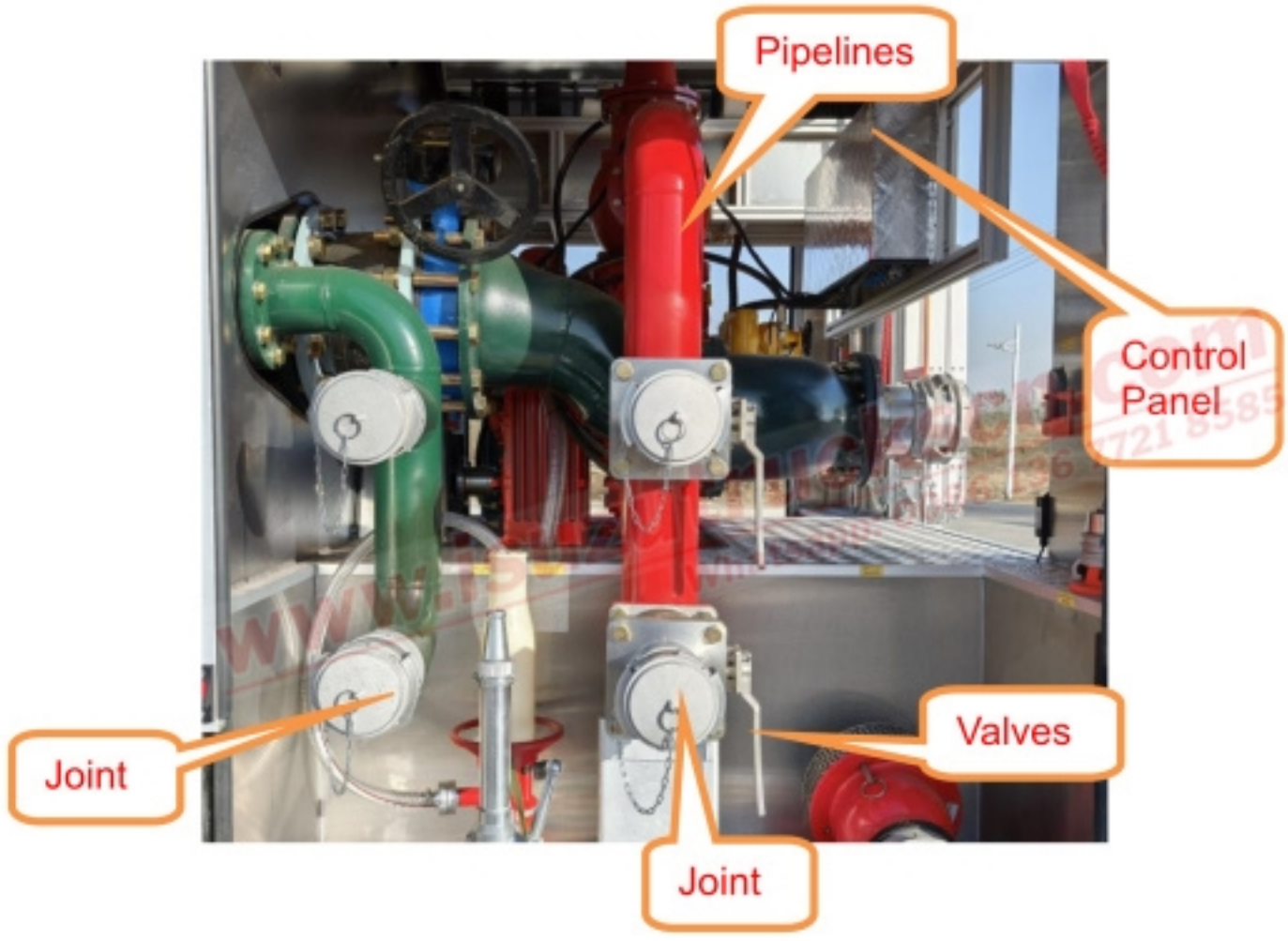
The tool room is half enveloping structure, easy for equipment to put or get.

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:

5. Pump and pipeline

The XIONGZHEN CB10/140 super powerful fire pump of this vehicle is rear-positioned. It is made of aluminum alloy materials, corrosion-resistant and easy for maintenance.

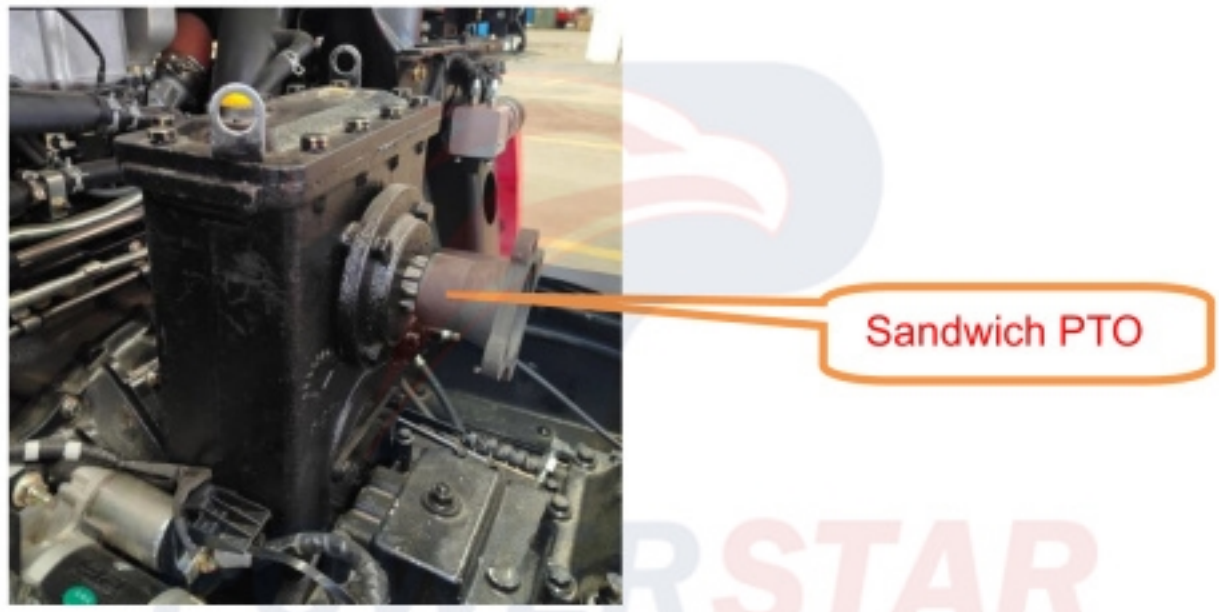
The vacuum gauge, pressure gauge and the additional cooling system have been equipped with the fire pump pipeline system, for monitoring the fire pump working situation and cooling the PTO.



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.

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）.

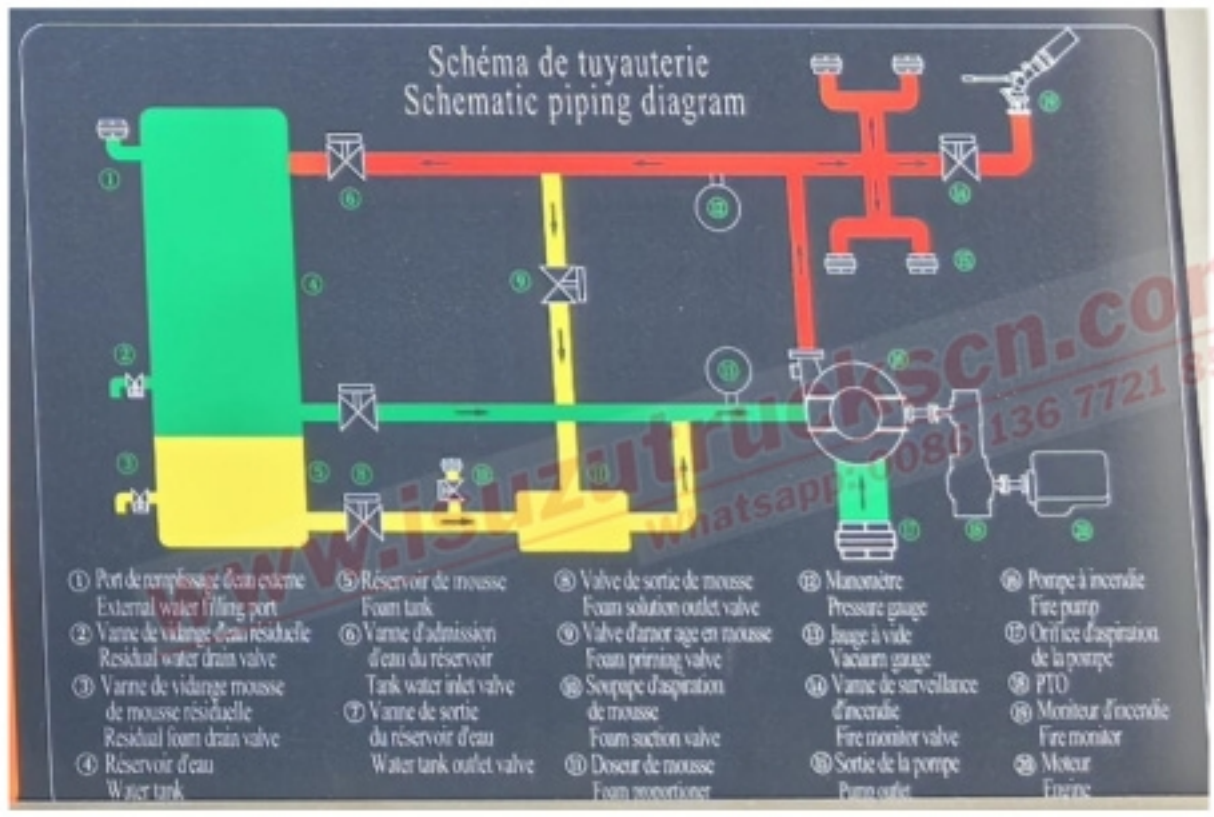
(4) Water Level Gauge: To show the water level of the tank by a set of Pointer.

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

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. Throttle (Which need to turn on the Accelerator Button in cabin)
3. PTO Indicator Light
4. Power Switch
5. Vacuum Pump Switch
6. Light for Outside
7. Light for Toolbox



(Working Principle for fire truck)

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

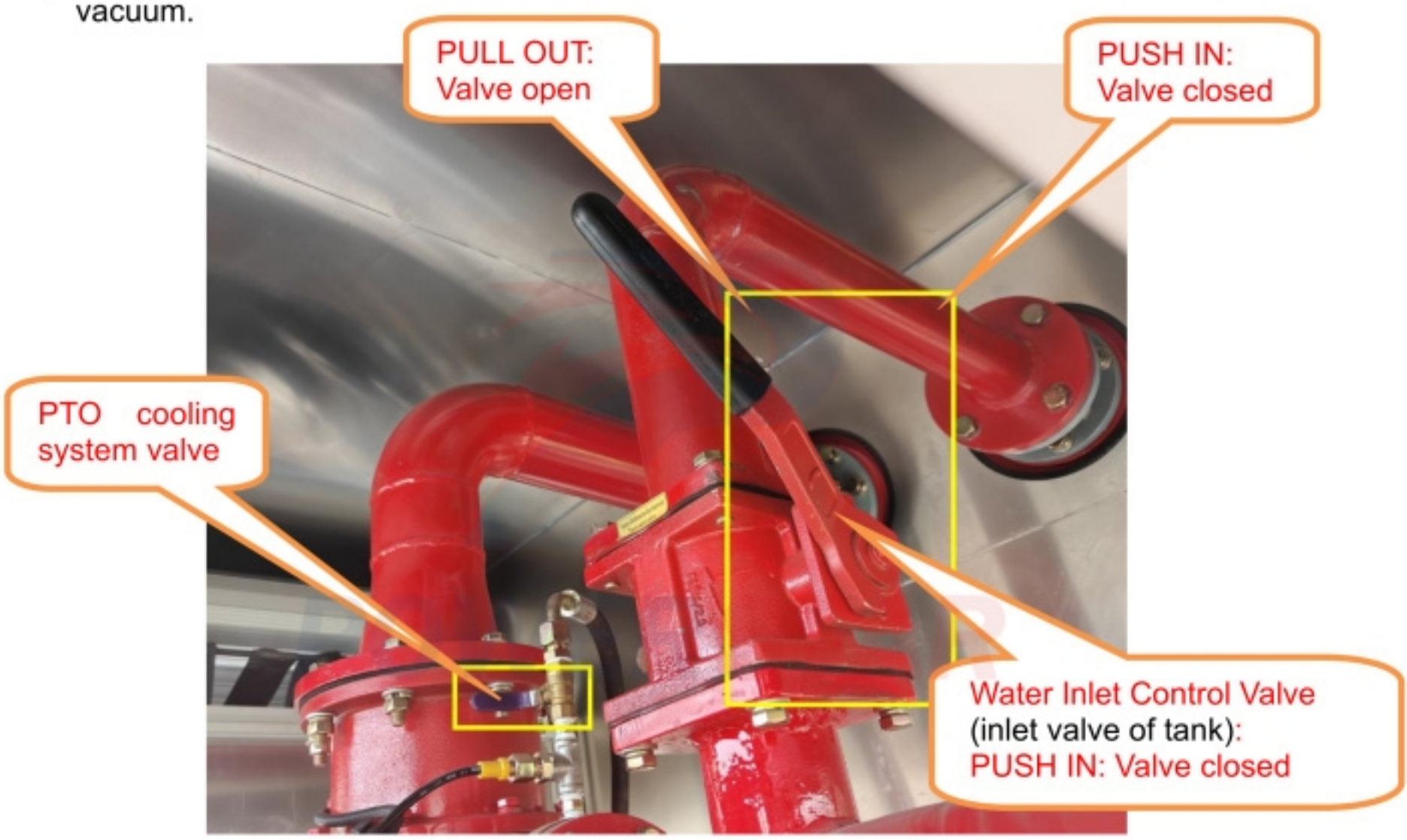
1) Carefully check around the working environment, make sure working is safety.

2) Make sure the whole truck electric system working.

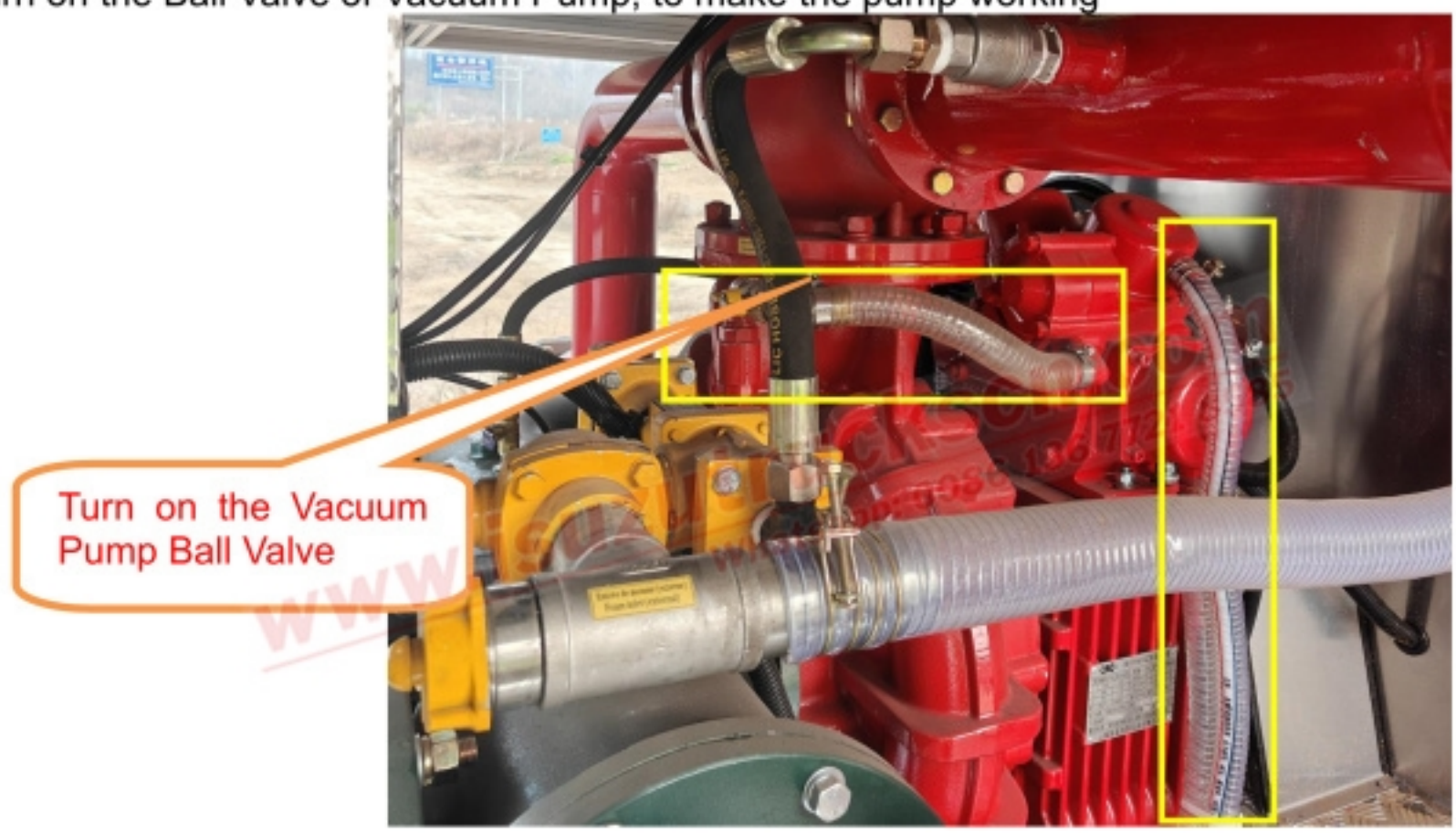
3) Use the Control Panel in pump house, press the Power Switch button

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

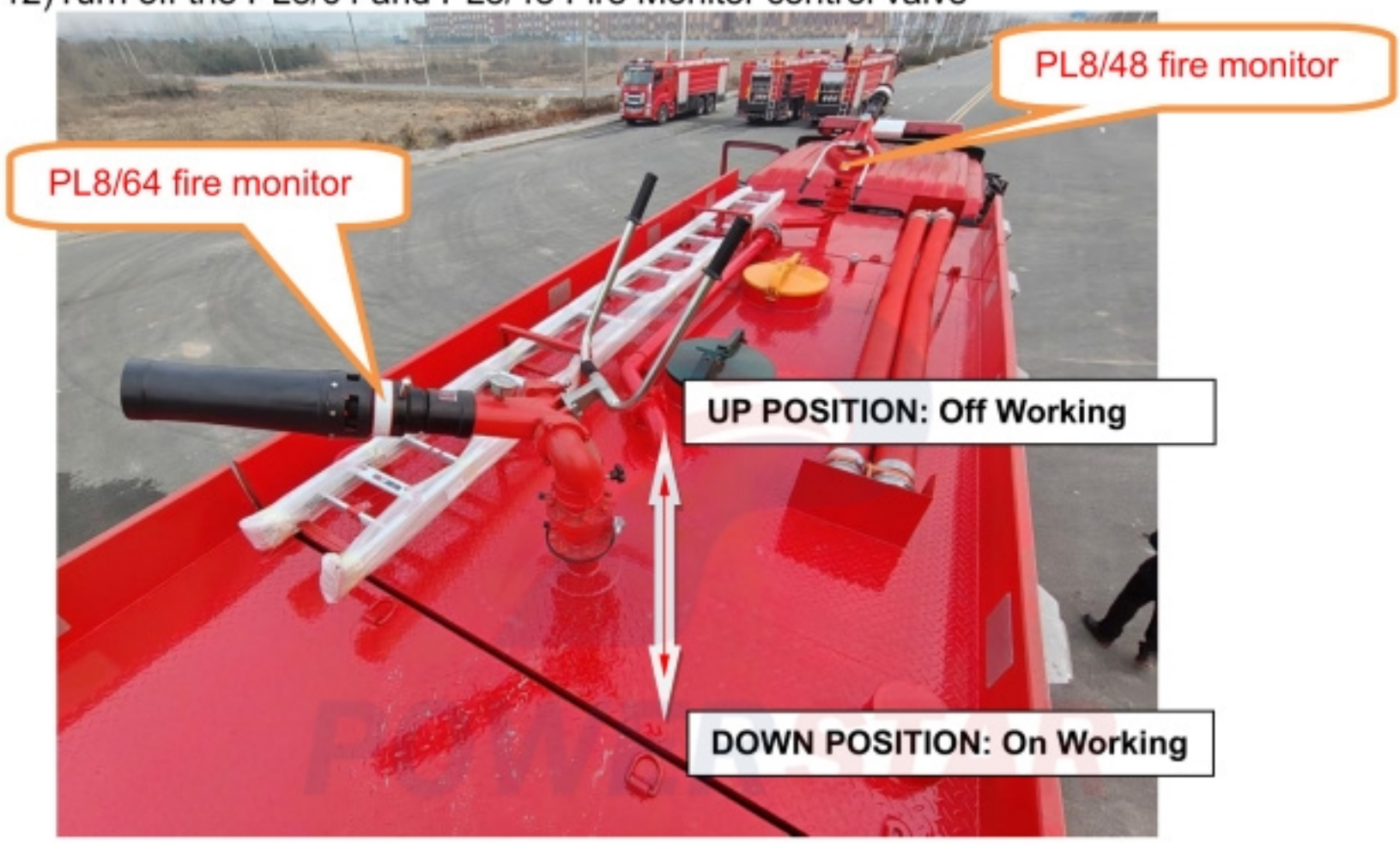
5) Firstly, PUSH IN the valve to turn off the Water Inlet Valve to make whole system vacuum.



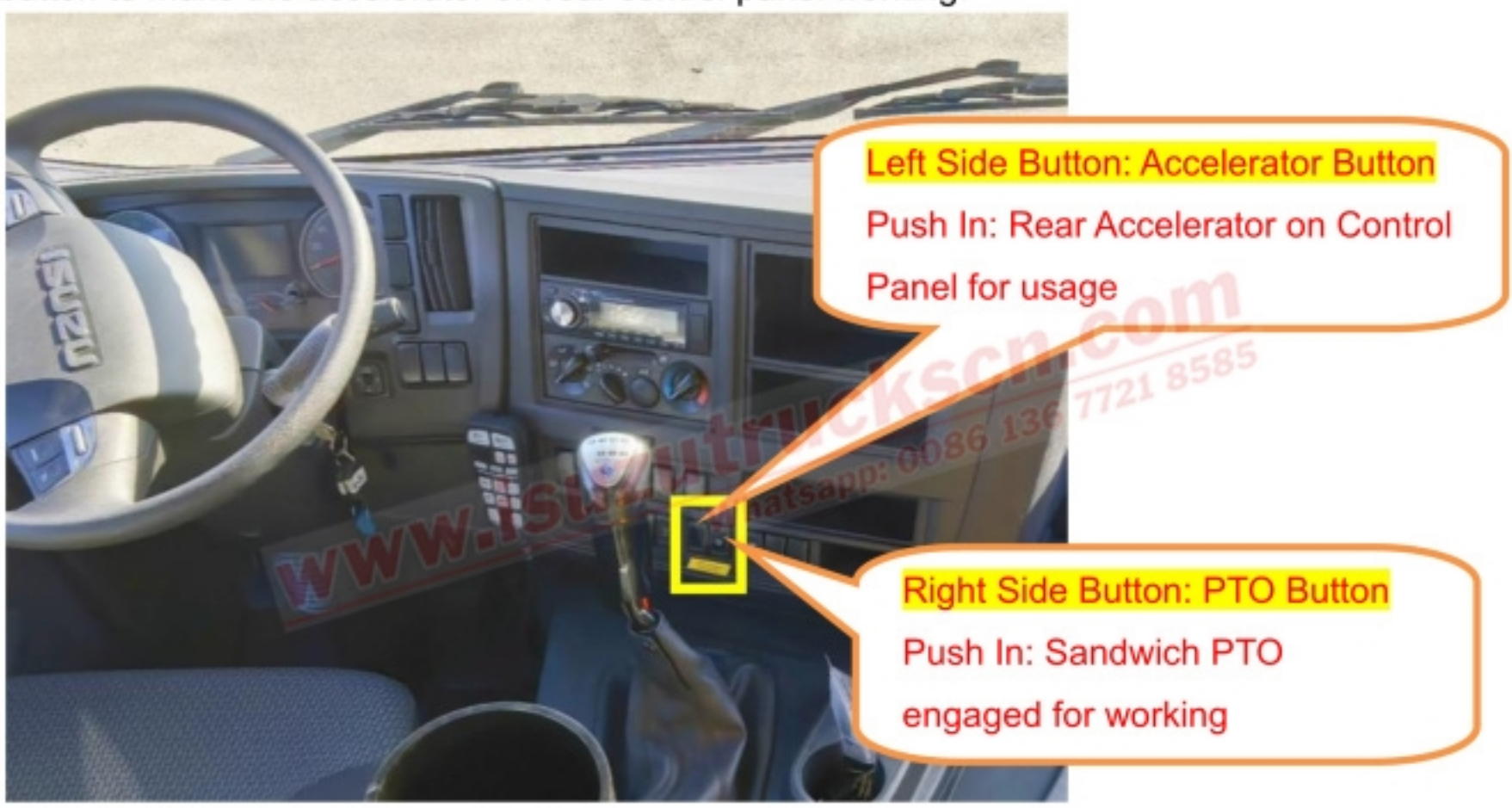
6) Turn on the Ball Valve of Vacuum Pump, to make the pump working

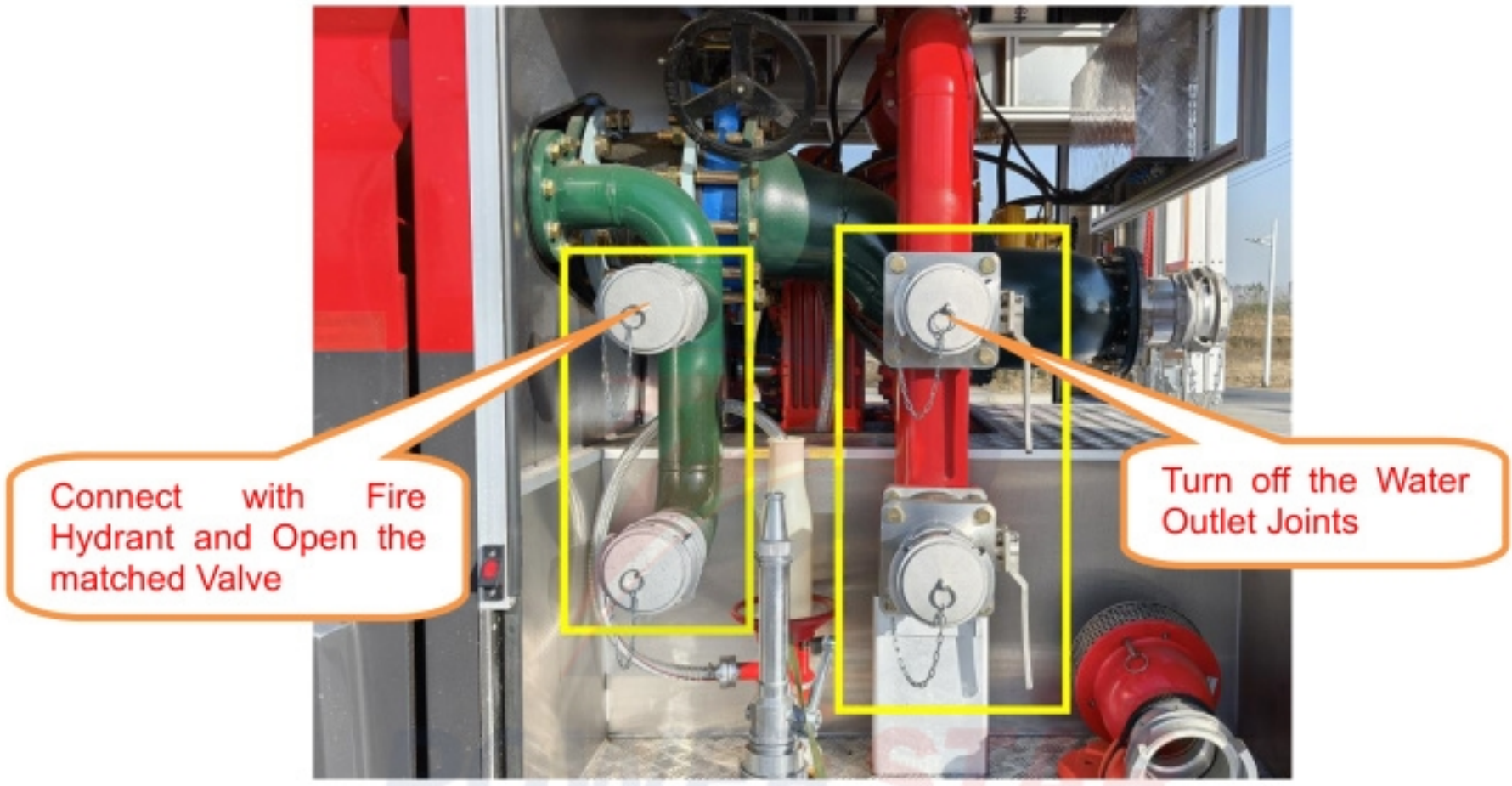


12)Turn off the PL8/64 and PL8/48 Fire Monitor control valve



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.

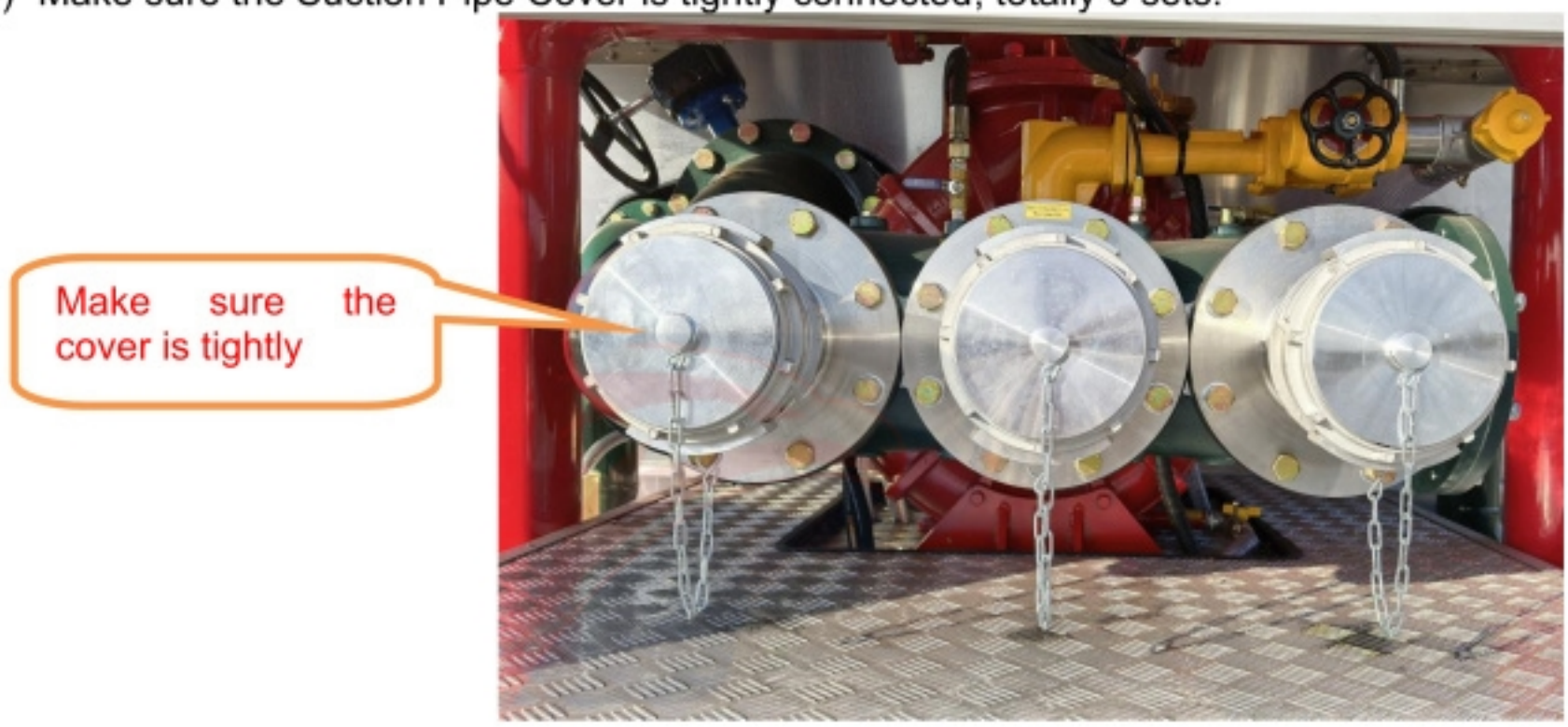




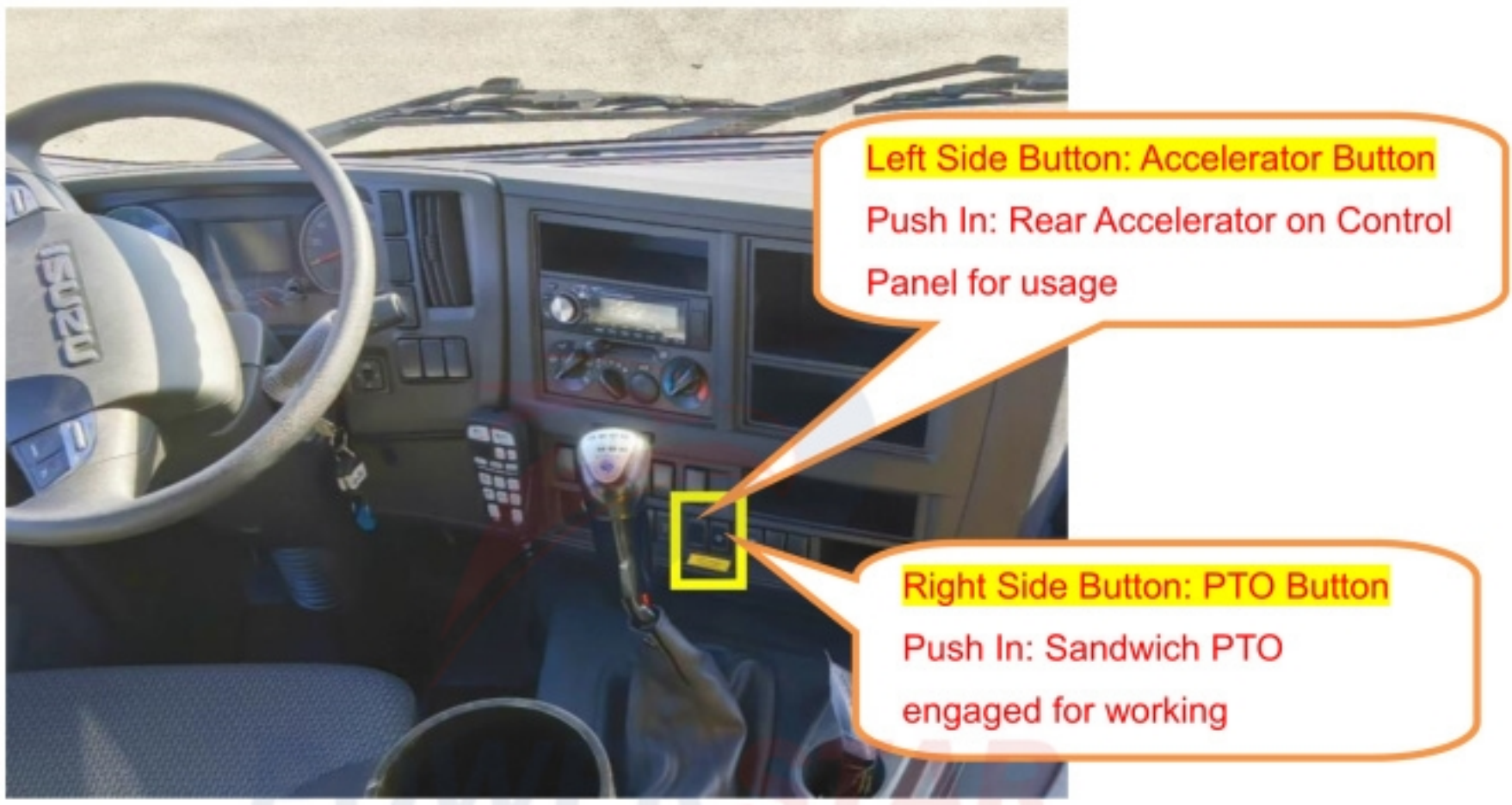
21)Besides, both water and foam can be added into the tanker through manhole from top.

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

5) Make sure the Suction Pipe Cover is tightly connected, totally 3 sets.

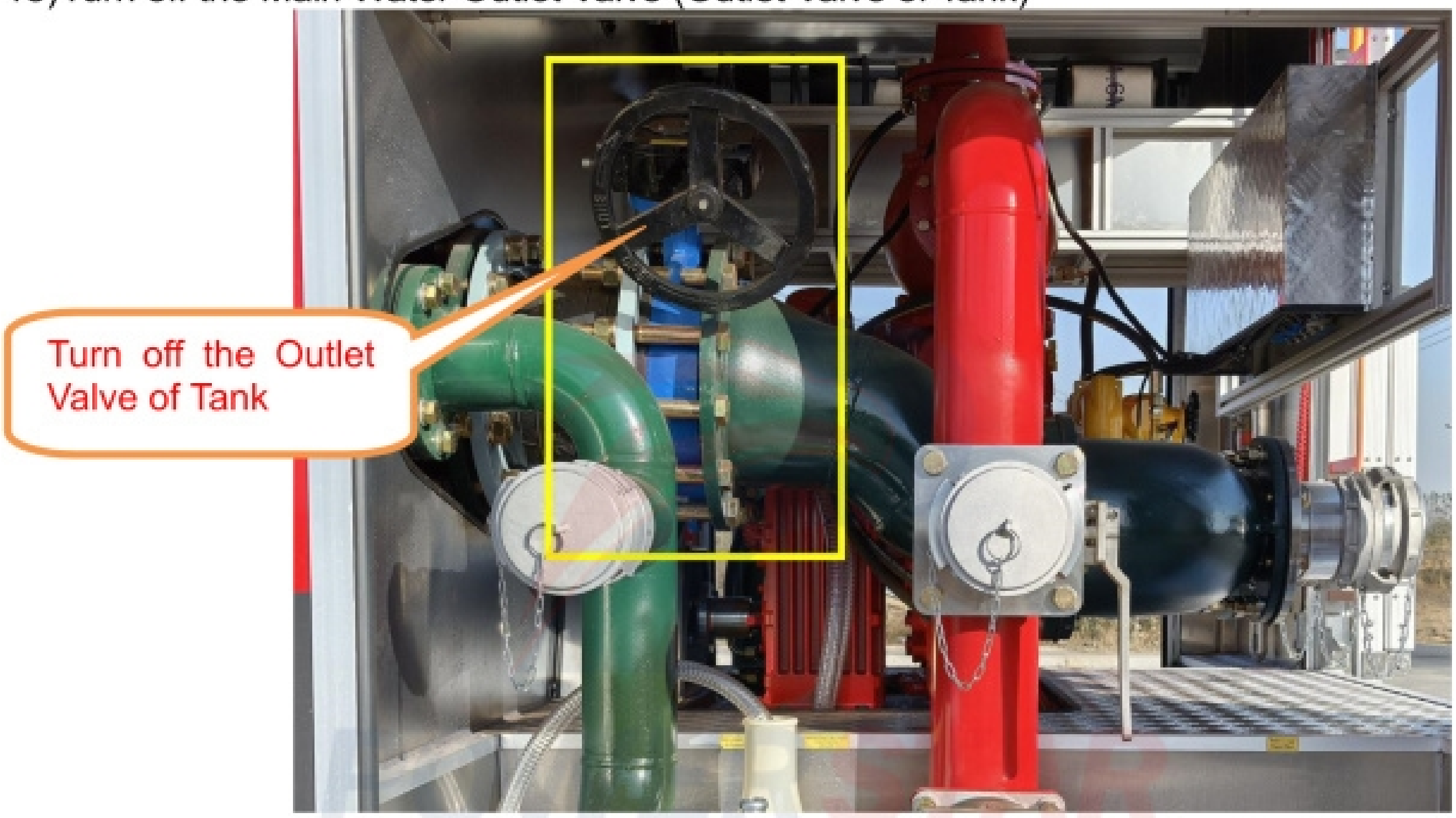


6) Turn on the Water Inlet Control Valve. Which just to guarantee the whole vacuum system is open, not have pressure retention state.



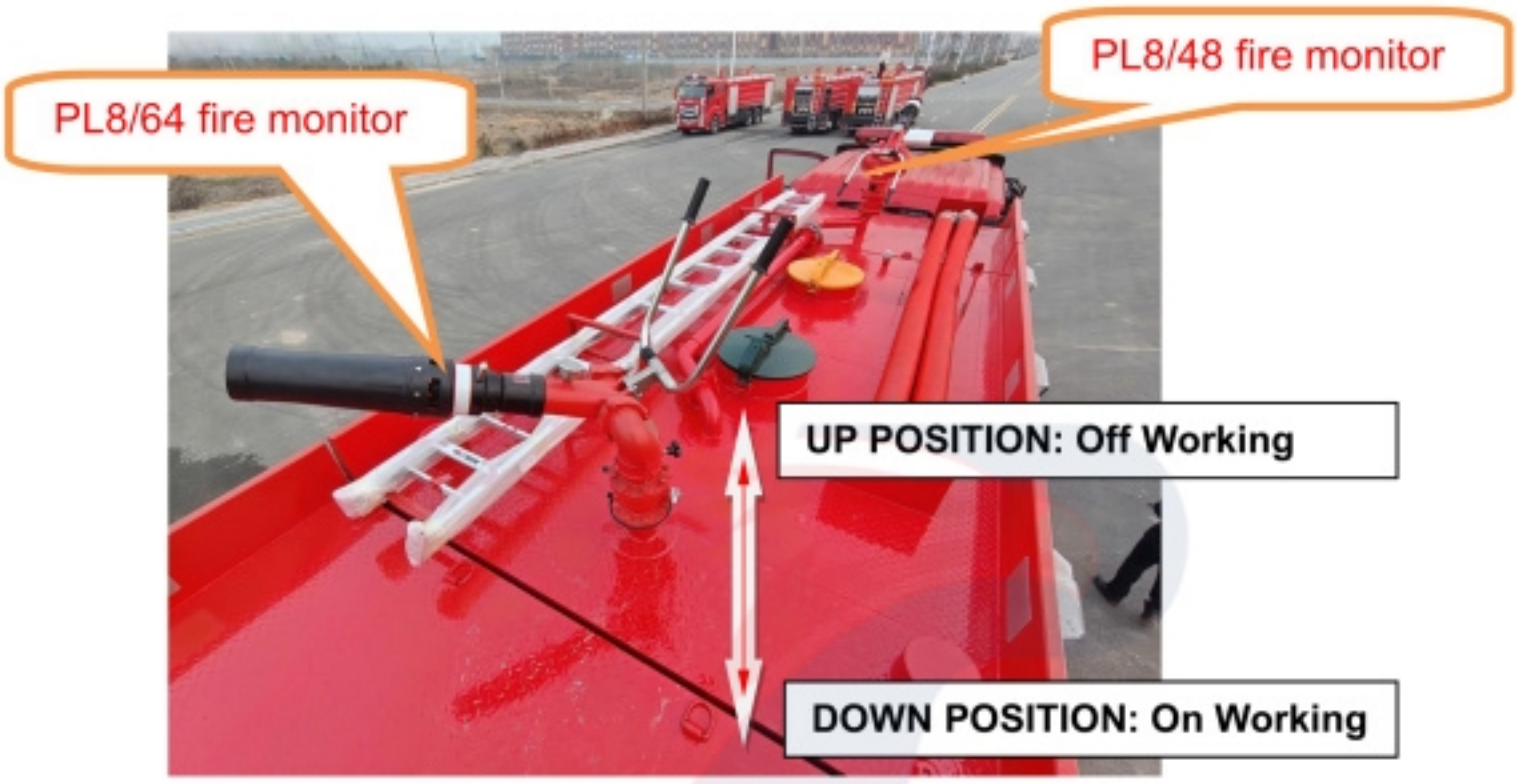
13)Adjust the Accelerator Handle to keep the Rotation Meter at 2000~3000r/min, and the Pressure Gauge at around 1Mpa. Then mixed water and foam can Jetting out from Fire Pipeline (11) or Fire Monitor (12)

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



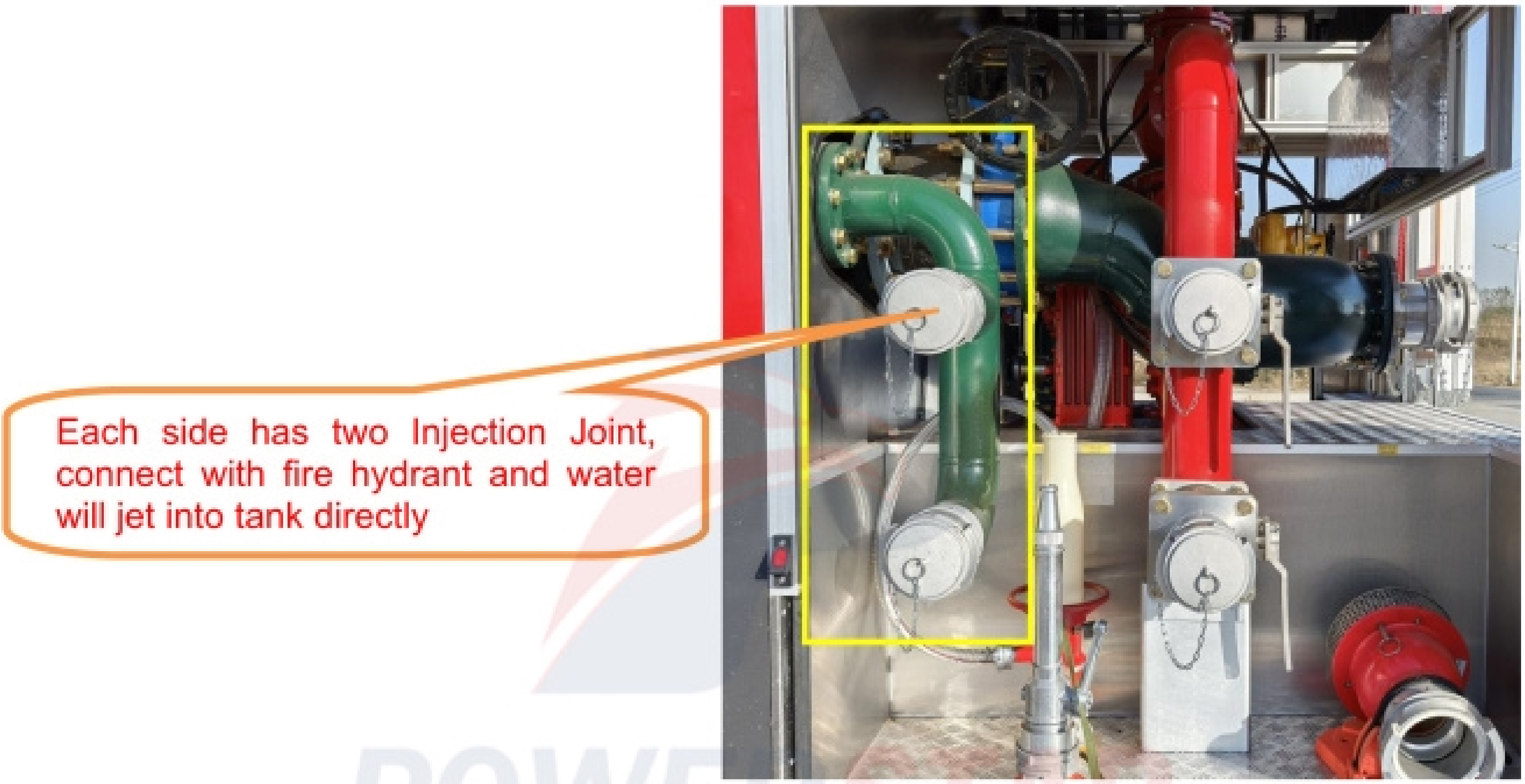
19) Turn on the Pump Drain Ball Valve for full discharge.

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)



(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) 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:

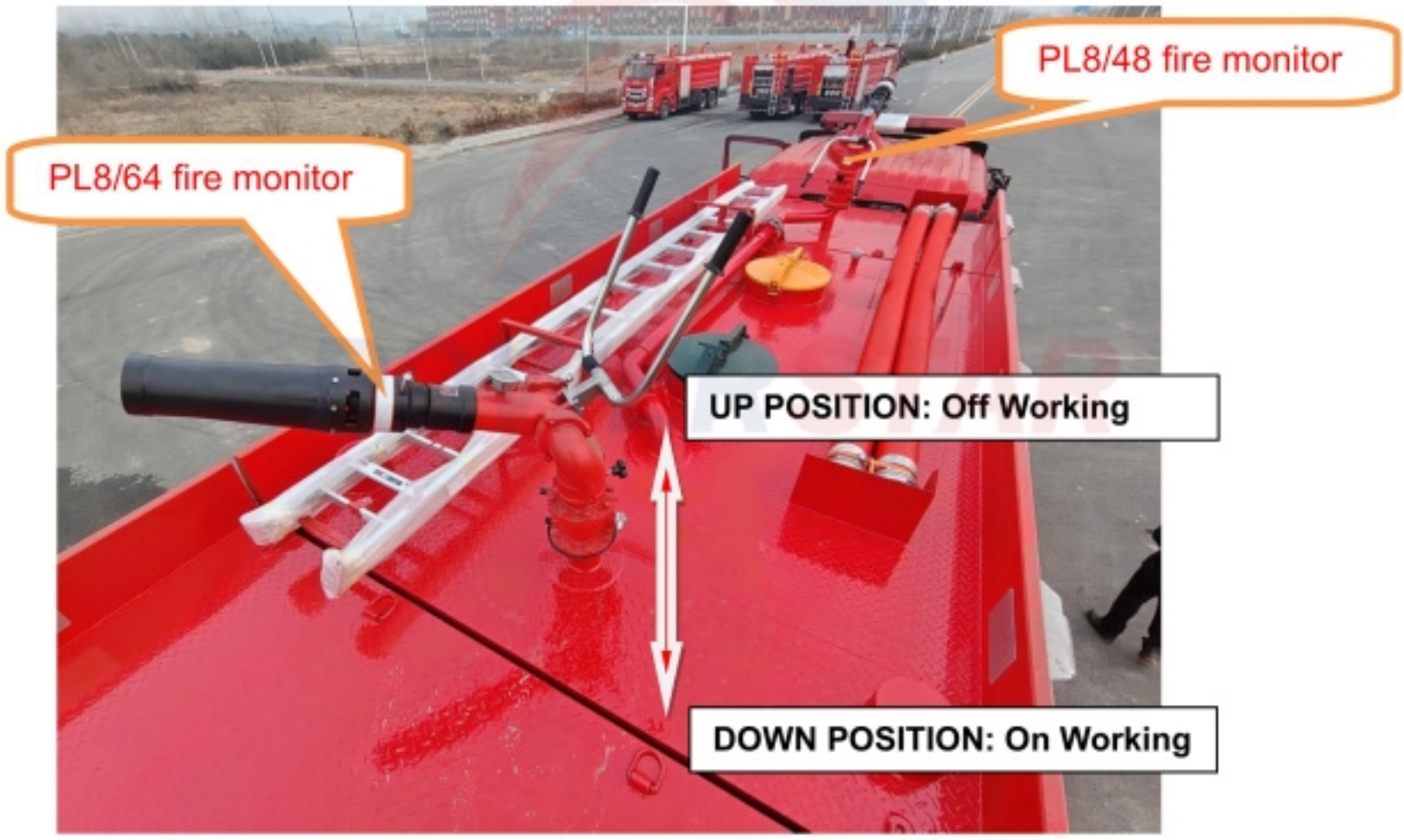
In both condition, the foam outlet valve should be turned off, preventing the water backflow to the foam tank (bucket).

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 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	PL8/64 & PL8/48 Mounted on truck topside.	2 sets
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
23	Medical First Aid Kit	Containing necessary medicine	4 sets
24	Handheld wireless Radio Equipment	10w, 20 KM working range	2 sets
25	Full fire suit	With 4 sets of fire boots, helmets and gloves (Size: Medium and Large optional)	4 sets
26	Aluminum Alloy Ladder	Aluminum alloy material	1 set

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