TMG INDUSTRIAL

TMG-PST50
PRODUCT MANUAL
v.2026.07.13

50 Gal Tower Mist Sprayer



⚠ WARNING



Please read and understand the product manual completely before assembly
- Check the parts list to make sure all parts are received.
- Wear safety goggles or other protective gear while assembling.
- Do not return products to dealers, who are not equipped to handle returns.

Missing parts or have questions on assembly?
Email: cs@tmgindustrial.com
Or visit: tmgindustrial.com

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1.Safety Warnings

The proper use of the machine is based on the safe operations. Please comply with the instructions described in this chapter strictly.

A. When placing the machine on the ground, please confirm in advance the place is smooth, non-sloped and solid.

B. While the fan is running, it is strictly forbidden to project hands or any foreign bodies into the protective grill or the place of transmission shaft.

C. While the transmission shaft is running, it is strictly forbidden to do any repair or maintenance work for the pump, such as refill of oil and inflation of accumulator, etc.

D. When doing treatment the operator should use safety appliances, wear face mask, protective gloves and protective overalls. When cleaning the machine, also take protective measures. It is strictly prohibited to eat, drink or smoke while preparing and spraying to avoid poisoning. Those people like mental patients, pregnant women, minors or who are drunk, fatigued or sick are strictly prohibited to operate the machine.

E. When using and dealing with chemicals, the operator should carefully read and strictly comply with the safety instructions provided by the chemical manufacturer.

F. It is strictly prohibited to use inflammable, explosive, strong acid, strong alkali, and other special liquids.

G. The tractor driver should have the driving license approved by related traffic and safety department.

H. The manufacturer is not responsible for the accidents caused by any modifications of the machine or any improper operations of the machine.

In this manual and on the machine you will find the following warning signs for different security attentions. When seeing these signs, you should take precautions for possible risks and injuries. Read carefully the information under these signs and inform the other persons related.

Explanations of these safety symbols:

	Read the manual
	Protect your hearing
	Use a mas
	Use protective clothing
	Use gloves

	Attention May causing injuries
	Cardan shaft caution
	Toxic
	Max. pressure
	Max. speed 550RPM
	No passing
	Do not remove safety mechanisms
	Do not clean or lubricate while running
	No smoking
	Do not enter in the tank
	Driving speed max. 30km/h
	Circuit washer Non-drinking water
	Hand washer Non-drinking water

2.Product Introduction

This type of mist blower is designed to deliver fog droplets by blast air produced by the high speed axial fan, thus having very good penetrating and adhesive properties of atomizing. It also has advantages of long and wide distribution range, fine atomization, easy maintenance, long life, etc. and thus widely used for agriculture and forestry plant protection treatments. It is suitable for the pest control in large area orchards, such as apple, pear, peach, orange, etc., and suitable for the treatment of vines and vegetables which are cultivated in forms of espalier or canopy and in rows.

3.Product Features

1. The liquid pump is of diaphragm type characterized by high pressure, stable flow, permission of dry run, long service life, etc.
2. The fan unit has plasticized rotor blades, whole plastic protective casing, characterized by strong airflow, long and high shooting range, good penetration.
3. The machine is fitted with double head anti-drip cone nozzles, which distribute even droplets. The spray volume can be adjusted by converting the two ends of each nozzle conveniently (1.2mm and 1.5mm orifice) or either end can be closed according to target demand. The special ceramic nozzle plate is high pressure resistant and corrosion resistant.
4. The spray booms are made of stainless steel and will never get rusty.
5. Fitted with integrated tanks, including chemical tank, circuit washing tank, hand washing tank, with good-looking appearance, long durability, good resistance to chemical corrosion.
6. Technically the machine is designed with features of rational structure, simple operation, easy maintenance, light weight. It can be coupled with the tractor's rear mounted 3-point elevator quickly and conveniently. It has high work efficiency, good treatment effect and needs less labor.

4.Technical Specifications

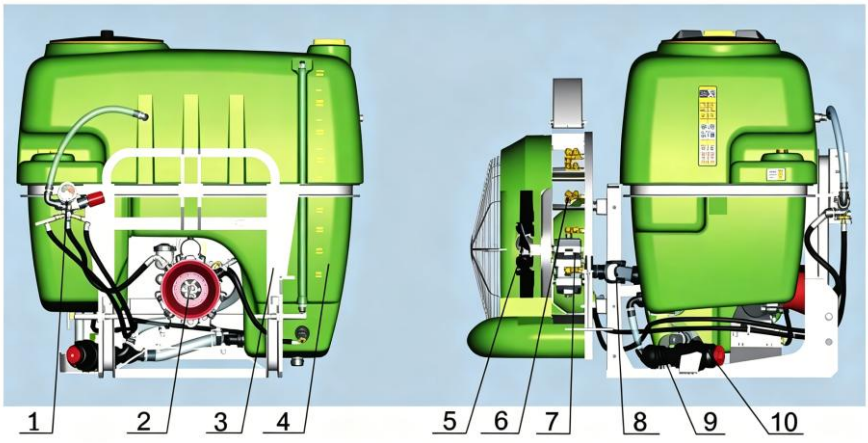
Model		PST50
Type		mounted
Power supply	Power input	Tractor PTO shaft
	Mating power	⩾25Hp
Spray system	Spray boom	2 booms, separate control
	Nozzle type	double head anti-drip cone nozzles
	Nozzle orifice dia.	1.2mm &1.5mm, rotational
	Nozzle number	12pcs
	Spray pressure (MPa)	1.0~4.0
	Spray range (m)	⩾6m
Pump	Type	diaphragm
	Suction (L/min)	54
	Work pressure (MPa)	0~4.0
	Max. speed (r/min)	540 (6-teeth spline shaft)
Fan dia.(mm)		490
Chemical tank (L)		200
Dimension (L×W×H)		50” × 35” × 58” (126.5x90x147cm)
Weight		430 lbs (195kg)

5.Structure and Principle

5.1 Composition

The orchard mist blower is mainly composed of four major parts including blower system, plumbing system, tanks and mounting frame. The blower system is composed of fan rotor, plastic casing, airflow deflection shield, deflection plates, nozzles, multiplier, cardan shaft etc. The plumbing system is composed of diaphragm pump, 3-way ball valve, suction filter, pressure regulator, etc. The integrated tanks include chemical tank, circuit washing tank, hand washing tank. The chemical tank is fitted with a pressure stirrer for mixing the chemical liquid inside. The mounting frame is for coupling with the tractor which outputs power to drive the pump and fan rotor so that to do spraying jobs. Details as shown below:

Equipment Structure

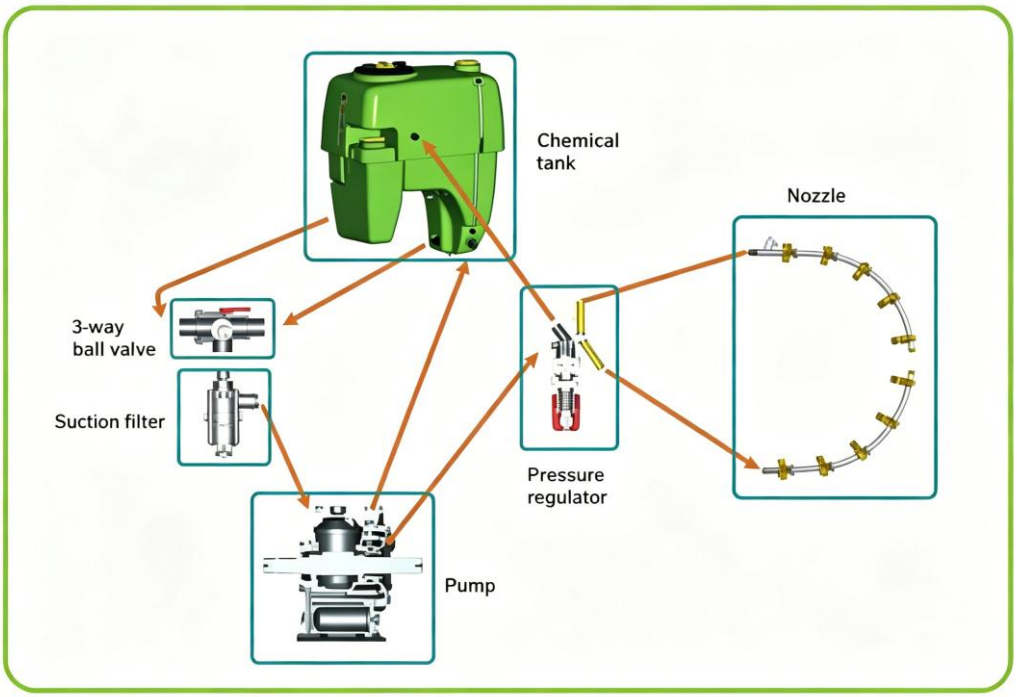


1.Pressure regulator 2.Diaphragm pump 3.Mounting frame
4.Integrated tanks (Chemical tank, Circuit washing tank, Hand washing tank)
5.Fan unit 6.Anti-drip nozzles 7. Multiplier 8.Cardan shaft 9. 3-way ball valve 10.Suction filter

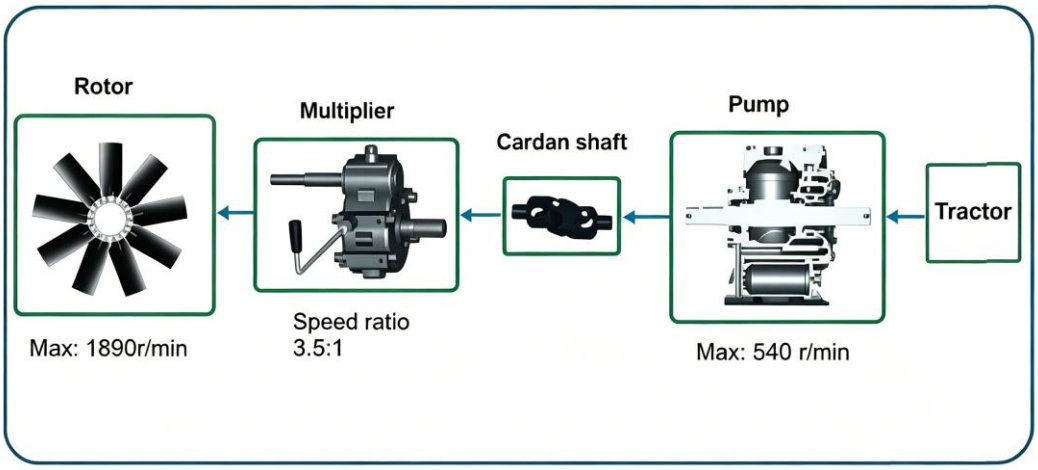
5.2 Work principle

Through the cardan shaft, the pump is driven by the tractor power take-off. The liquid is sucked into the pump through the suction filter from the chemical tank, and is pressurized, then enters into the spray booms through the section valves of pressure regulator, and atomized by the nozzles. And then the fog droplets are blown out onto the target by the high speed air flow. The surplus of liquid flows back to the chemical tank through the overflow pipe of the pressure regulator and stirs the liquid.

Liquid Flow Circuit



Transmission Speed Diagram



6.Operation Instructions

6.1 Working illustrations

This equipment is coupled with a tractor with rear-set 1"3/8 power take-off, runs at 540rpm.

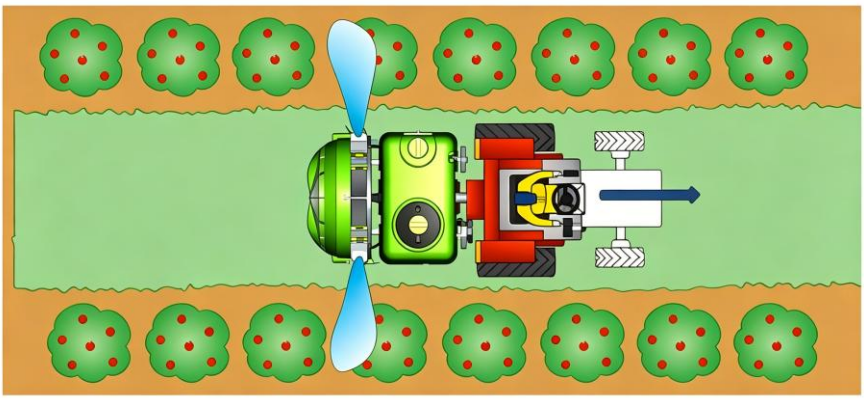


Illustration 1

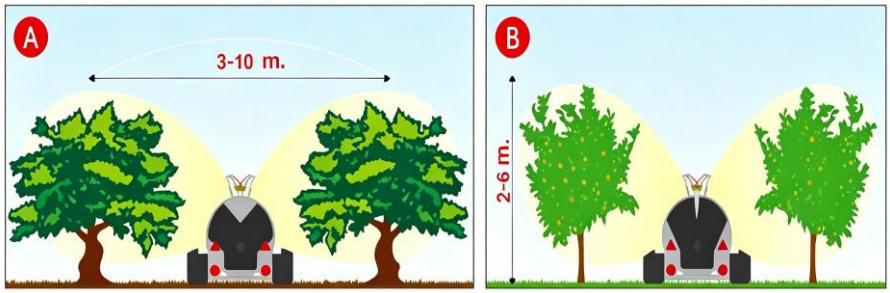


Illustration 2

6.2 Installation and Use

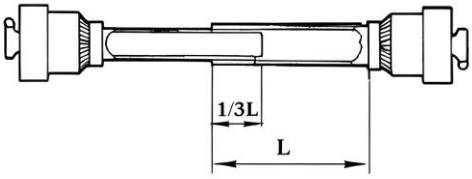
6.2.1 Preparations:

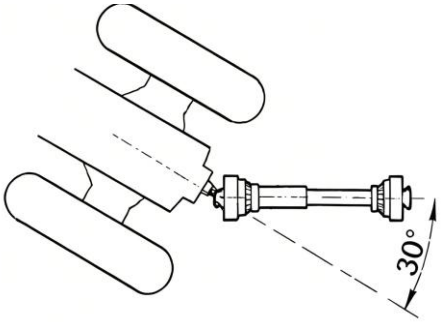
Make sure that the tractor is suitable for supporting the weight of the fully loaded sprayer safely. Check the level of lubricants in the multiplier and diaphragm pump. If lower than the rated level, refill clean oils (SAE 30 for pump and SAE 90 for multiplier). Check if any of the nozzles are lost or damaged. Get ready all the safety appliances used for spray treatments.

6.2.2 Tractor Coupling

Connect the elevator coupling pins on the two bottom sides of the tank frame to the lower lifting arms of the tractor's lifting device and fix them. Then connect the upper tie-rod of the tractor's lifting device to the upper coupling point of the tank frame. Lift up the machine to make the pump shaft in the same horizontal level with the tractor PTO.
When connecting the cardan shaft and the tractor power take-off, pay special attentions to the length of the cardan shaft to avoid:
A) if it is to0 long, dangerous thrust on the pump shaft;
B) if it is too short, the possibility of dangerous breakages.

The minimum overlap of the inner axle and the outer sleeve must never be less than 1/3 of their length.
In case the shaft is too long, cut down the extra part (cut down same length from the inner axle and the outer sleeve).





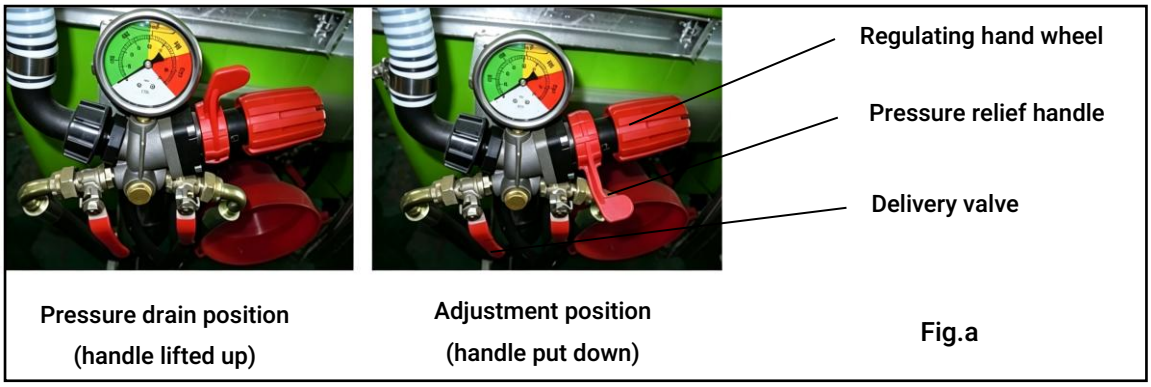
Please pay attention to avoid very tight steering circles with the cardan shaft turning (max.30°) as this could damage both the cardan shaft and the pump.

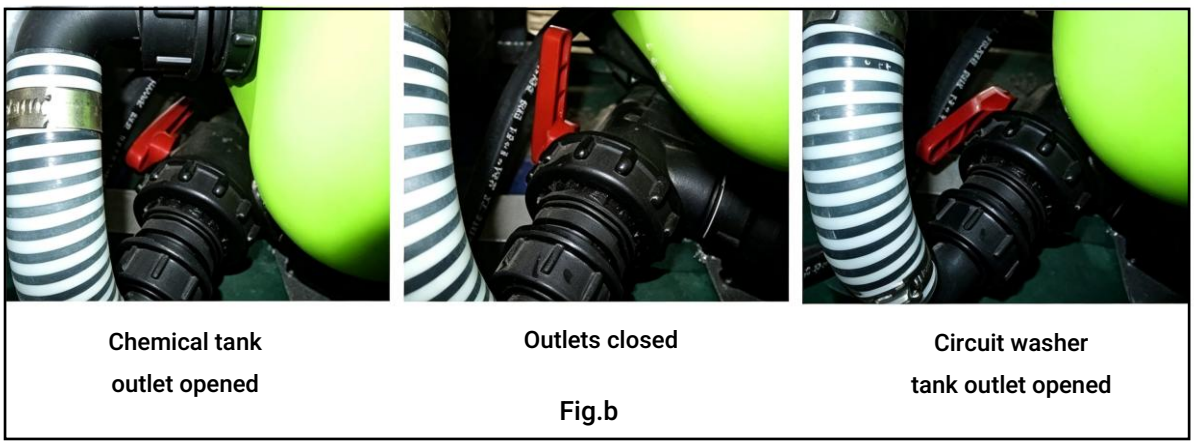
6.2.3 Test with Clean Water

It is good practice to do a test with clean water before the first treatment to make sure the sprayer is working properly and get to know the controls. Test procedures as follows: Adjust the pressure regulator to a low pressure position, and put the pressure relief handle to the drain position (lift it up),(Fig.a)Check and make sure the 3-way ball valve handle (red) is opened to the outlet pipe of the chemical tank, (Fig.b).

Check and make sure the multiplier gear is engaged normally. Use the hexagonal spanner fitted to switch the the gear shift lever to make the gear engaged so that to drive the fan rotor,(Fig.d) If it is difficult to engage, turn the cardan shaft slightly by hand to find the right position (make sure the tractor is turned off).

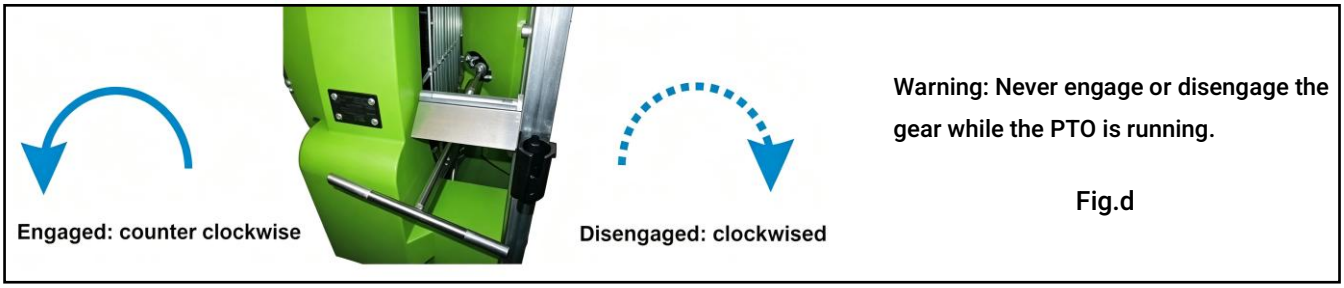
Fill clean water into the chemical tank through the tank strainer until 1/4 volume place.
Then fill in the circuit washer tank with clean water And fill in the hand washer tank with clean water. Lift up the machine, adjust the tie-rod of the tractor lifting device to make the tank axis vertical to the ground. Activate the tractor PTO and observe whether all the moving devices are running properly, whether there are abnormal noises, whether the pump is solid, whether the protective covers are solid.







Opened position Fig.c Closed position



Warning: Never engage or disengage the gear while the PTO is running.

Fig.d

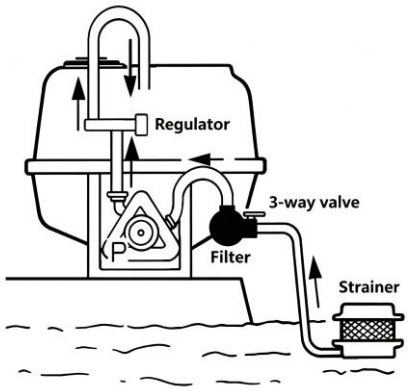
Open the delivery valves on the pressure regulator (fig.a) to spray, open the outlet tap (on the pump) for pressure stirring (fig.c), set the tractor throttle on normal working speed (350-540rpm), put down the pressure relief handle, adjust the working pressure of the pressure regulator according to need (max.4Mpa).

While the trial spraying, observe whether all the nozzles are spraying normally and in good state, whether the stirrer is working normally, whether all the pipe fittings are in good state, whether there are any leaks, whether the fan speed meets requirement.

6.2.4 Spray Operations

Drive the sprayer to the water sources nearby the treatment place. Through the tank strainer, firstly fill in water and then add chemicals until the rated tank capacity.

Also you can fill the tank by running the pump: through the pump suction filter by using a pipe with coupling (G1 1/2).



Drive the machine to the field. Close the delivery valves, put down the pressure relief handle to adjustment position, open the outlet tap (on the pump) for pressure stirring (fig.c) to run the stirrer for about 10-15 minutes at the maximum pressure available

Determine the suitable driving gear and throttle (350-540 rpm), turn on the ventilation fan, when arriving at the target, turn on the delivery valves quickly to do the spraying.

when arriving at the target, turn on the delivery valves quickly to do the spraying.

When the chemical liquid is sprayed over, you should turn off the powers of the fan and the pump, change the machine to transportation state, drive to the water sources and refill water and chemicals.

Note:
When stop spraying, make sure firstly lift up the pressure relief handle of the pressure regulator, then close all the outlet valves, and then disengage the tractor power take-off.

The nozzle numbers and spray angles can be adjusted according to different growth forms, different heights and thickness of fruit trees. The air deflection plates can also be adjusted to get optimum spray.

The distribution volume should be adjusted by regulating the work pressure, changing the size of nozzle, or driving speed.

There is a spare outlet tap (G 1/2") on the pressure regulator. If connected with a spray gun, you can wash the machine, or other implements, vehicles and livestock sheds, etc.

7.Maintenance

7.1 Daily inspection and maintenance before treatment

Check all fasteners on the machine, if any are loose, tighten them timely.

Check oil level in the diaphragm pump and multiplier, if lack of oil, refill timely.

Check whether the shift gear of the fan is engaged. If engaged, switch to the neutral position.

Check whether any of the nozzles are lost or damaged, if lost or damaged, replace timely.

Check whether any residues in the chemical tank, if any, drain out.

Clean the filter cartridge and tank strainer, clean them if needed.

7.2 Change lubricating oil regularly

After accumulated working for 100 hours, should drain out the oil from the pump and replace clean oil (SAE 30). Subsequently, for each 300 working hours, make replacements. After accumulated working for 50 hours, should drain out the gear oil from the multiplier and replace clean gear oil (SAE 90). Subsequently, for each 500 working hours, make replacements.

7.3 Cleaning and maintenance

At the end of each treatment, switch the handle of 3-way ball valve to the circuit washer position (Fig b), run the pump to rinse the chemical tank and the circuit completely, and then discharge all the residues in the whole system.

Note: Do not discharge the residues of washing in the environment without precautions. Distribute the residues in the field or on the crops where they won't cause any damage.

Then lift up the pressure relief handle and loosen the pressure adjustment hand wheel of the regulator and put the machine in a safe place.

Regularly clean the suction filter and the nozzle filters. If the water has impurities, make cleanings more often.

After one seasonal use, wash the machine thoroughly inside and out, clean and air it, store the machine in a garage dry and closed, away from acids, alkalis and other chemicals.

For questions relating to the pump, please read the pump manual carefully.

Table of Programmed Maintenance

Operation	8H	50H	300H	Season end
Check the level and state of the oil	0			
Check the accumulator pressure		0		
Check the suction (hoses, pipes, unions)		0		
Check and clean the suction filter	0			
Check the pump fixing feet and screws in good state		0		
Check the diaphragm and the oil and change if necessary			X (1)	X (2)
Check the suction / delivery valves			X	X
Check the pump screws and bolts are tight				X
Check and clean the nozzles and the anti-drip diaphragm	0			
Check the wear of the nozzles			0	
Check the hydraulic oil level		0		
Check any failures or cracking of the welds, especially on the herbicide booms				0
Grease the articulated joints and the wheel hubs		0		
Check the tire pressure		0		

Note: 0 Operation to be carried out by the operator
X Operation to be carried out by a specialized technician or in an authorized workshop
(1) First oil change
(2) Change oil and at the same time the diaphragm.

8.Trouble Shooting

8.1 Pump does not charge when new machine starts

Cause analysis:

The tractor PTO has not reached the corrected speed (generally 350-540 rpm). Pump inlet and outlet valves do not work, i.e. the valve slice got clogged or the valves fixed in reverse.

The gaskets and rings in the pump and suction pipe joints not well fixed or missing, cause serious air intake. Air bubbles are visible from the overflow pipes inside the chemical tank.

8.2 After normal work for a period of time, pressure fluctuates suddenly and severely, or no pressure.

Cause analysis:

Pump valves are worn severely, or foreign matters stuck inside, or spring damaged, causing the valve slice and the valve seat can't close tightly.

The suction filter cartridge got clogged because of water impurities, causing less or no water passing. Sometimes a flat suction pipe can be seen.

Foreign matters come into the pressure regulator, or the piston friction increased because of insufficient oil, thus result in the valve slice can not be reset.

The suction pipe worn or aged and causing air leakage, or suck in foreign matters.

The engine oil in the pump loss or consumed, reduced pressure is visible.

8.3 Pressure goes up suddenly, but the atomizing is not good, or no spray at all.

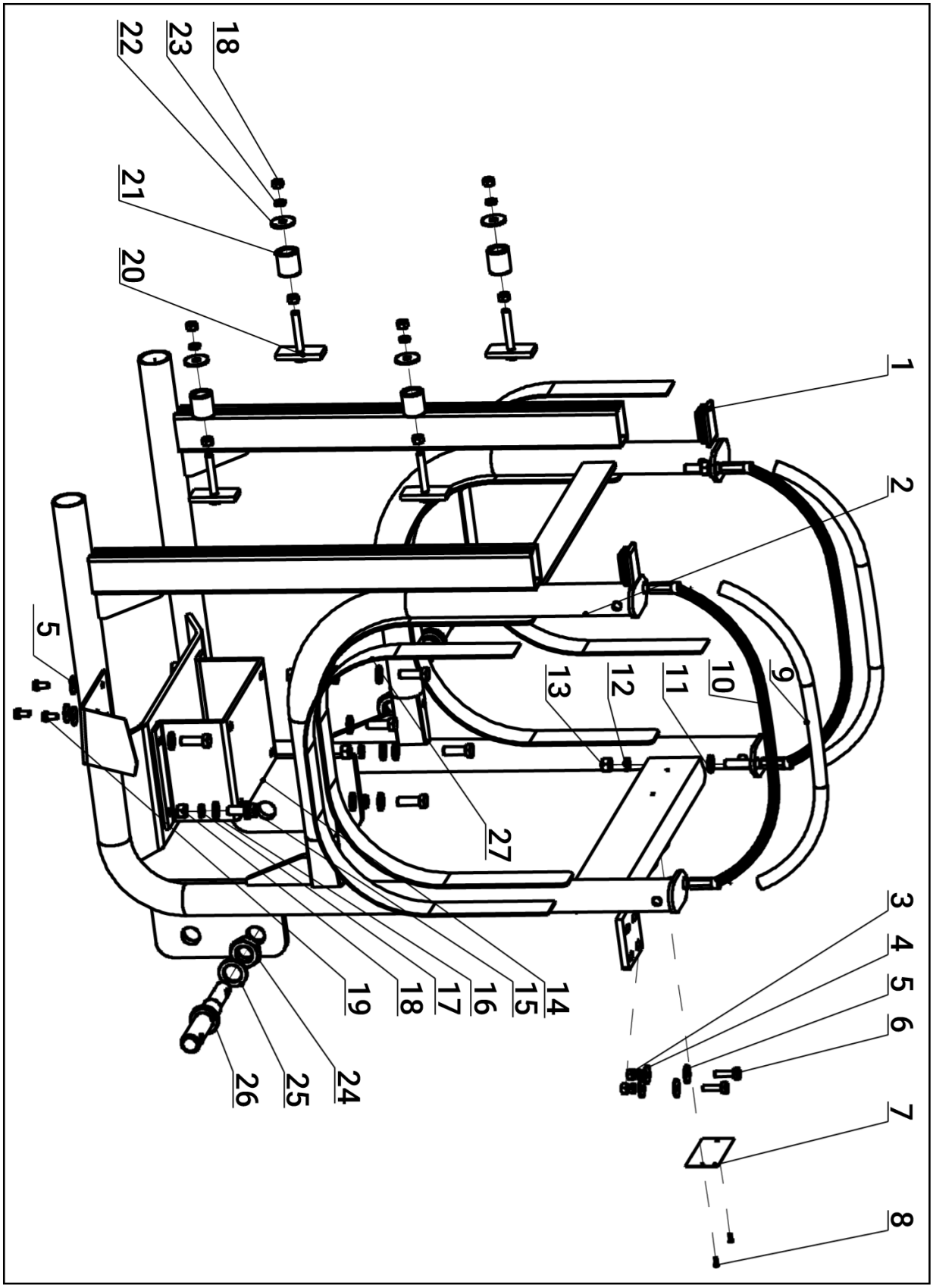
Cause analysis: The circuits between the pump outlet and the nozzles are blocked or the filters are clogged. The nozzles orifices are clogged.

Common Faults and Causes and Solutions

Faults	Causes	Solutions
Pump does not charge or discharges little	Air leak in the suction circuit	Inspect all the joints if all the gaskets are in good state and tighten them
	Circuits blocked by foreign matters	Inspect and clear
	The valve slices of pump inlet and outlet valves stuck or worn	Inspect and replace (*)
	Valve spring broken	Replace spring (*)
	Suction filter clogged	Clean filter screen
The pump doesn't reach the set pressure	Foreign matters into the regulator (between valve slice and valve seat)	Remove foreign matters (*)
	Regulator spring broken	Replace spring (*)
	Regulator piston stuck	Remove and grease it (*)
	Low pump speed	Speed up to correct rpm. (350-540 rpm)
	Nozzles used are worn or have too big orifices	Replace
Excessive vibrations at delivery	Pressure accumulator discharged or incorrect air pressure	Bring the air pressure back up to the right value (see pump manual) (*)
	Pressure accumulator diaphragm broken	Replace (*)
Water in the oil	Breakage of diaphragms	Inspect and replace (*)
	Diaphragm gland loose	Inspect and tighten (*)
	For above two cases, must drain out the oil and water mixture and clean the pump inside completely. Suggest to inspect the work diaphragm for every 100 working hours, and change the diaphragm for every 300 hours so that to avoid the liquid entering the pump and causing damages of the components.	
Note: (*) to be carried out by a specialized technician or in an authorized workshop.		

9.Exploded View & Parts List

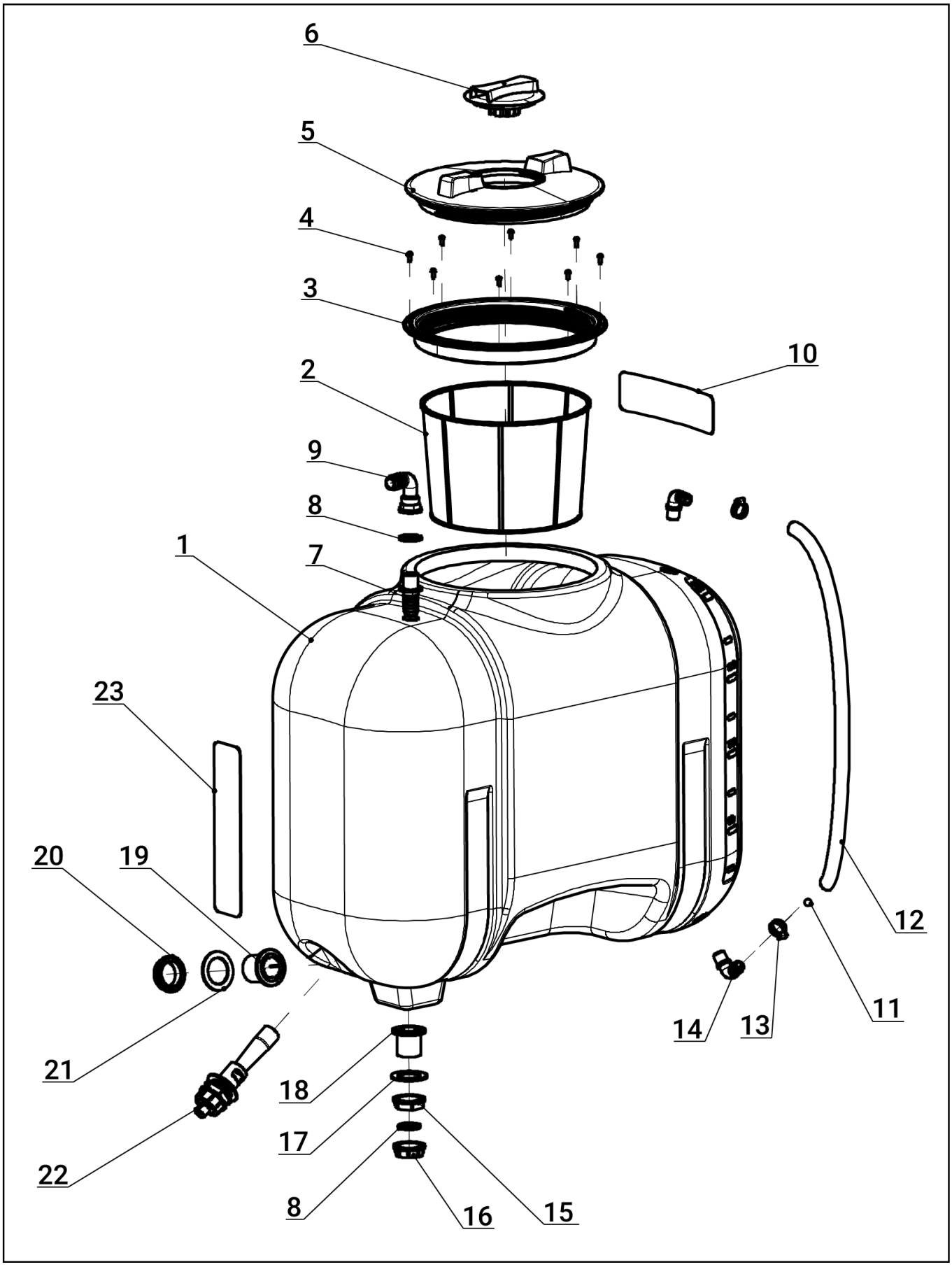
Support Bracket Exploded-View



Support Bracket Parts List

Parts No.	Description	Qty
1	End Cap	2
2	Chemical Tank Support Bracket Weldment	1
3	Hex Nut M8	2
4	Standard Spring Washer Size 8	2
5	Large Washer Size 8	7
6	Hex Bolt M8×30	2
7	Nameplate	1
8	Hollow Rivet 4×8	2
9	Cable Sleeve	2
10	Cable	2
11	Plain Washer M12	4
12	Standard Spring Washer M12	4
13	Hex Nut M12	4
14	Pump Connection Plate	1
15	Hex Bolt M10×35	8
16	Plain Washer M10	16
17	Standard Spring Washer M10	8
18	Hex Nut M10	16
19	Hex Bolt M8×16	3
20	Bolt Weldment	4
21	Spacer Sleeve	4
22	Large Washer M10	4
23	Standard Spring Washer M10	4
24	Nut M27×1.5	2
25	Washer Size 27	2
26	Connecting Shaft	2
27	Rubber Strip	2

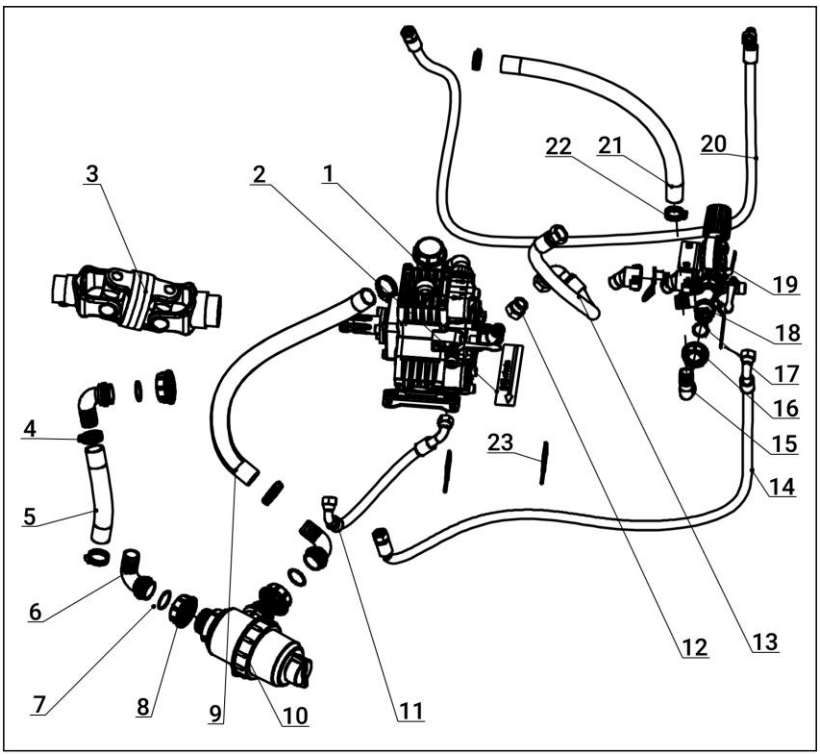
Tank components Exploded-View



Tank components Parts List

Parts No.	Description	Qty
1	Main Medicine Tank	1
2	Water Tank Filter 302	1
3	Water Tank Fixing Ring	1
4	Self-tapping Screw ST3.5×13-C	8
5	Medicine Tank Cover	1
6	Water Filling Cover Assembly	1
7	Return Water Joint	1
8	Return Water Joint Gasket	2
9	Return Water Elbow Joint	1
10	Main Medicine Tank Label 1	1
11	Liquid Level Float	1
12	Liquid Level Transparent Tube	1
13	Hose Clamp 16-25	2
14	Liquid Level Elbow Joint	2
15	G1¼ Fixing Nut	1
16	Water Drain Plug Cover	1
17	Water Drain Joint Gasket	1
18	Water Drain Joint	1
19	Water Outlet Joint	1
20	G1 ½ Locking Nut	1
21	Water Outlet Gasket	1
22	Pressure Agitator	1
23	Main Medicine Tank Label 2	1

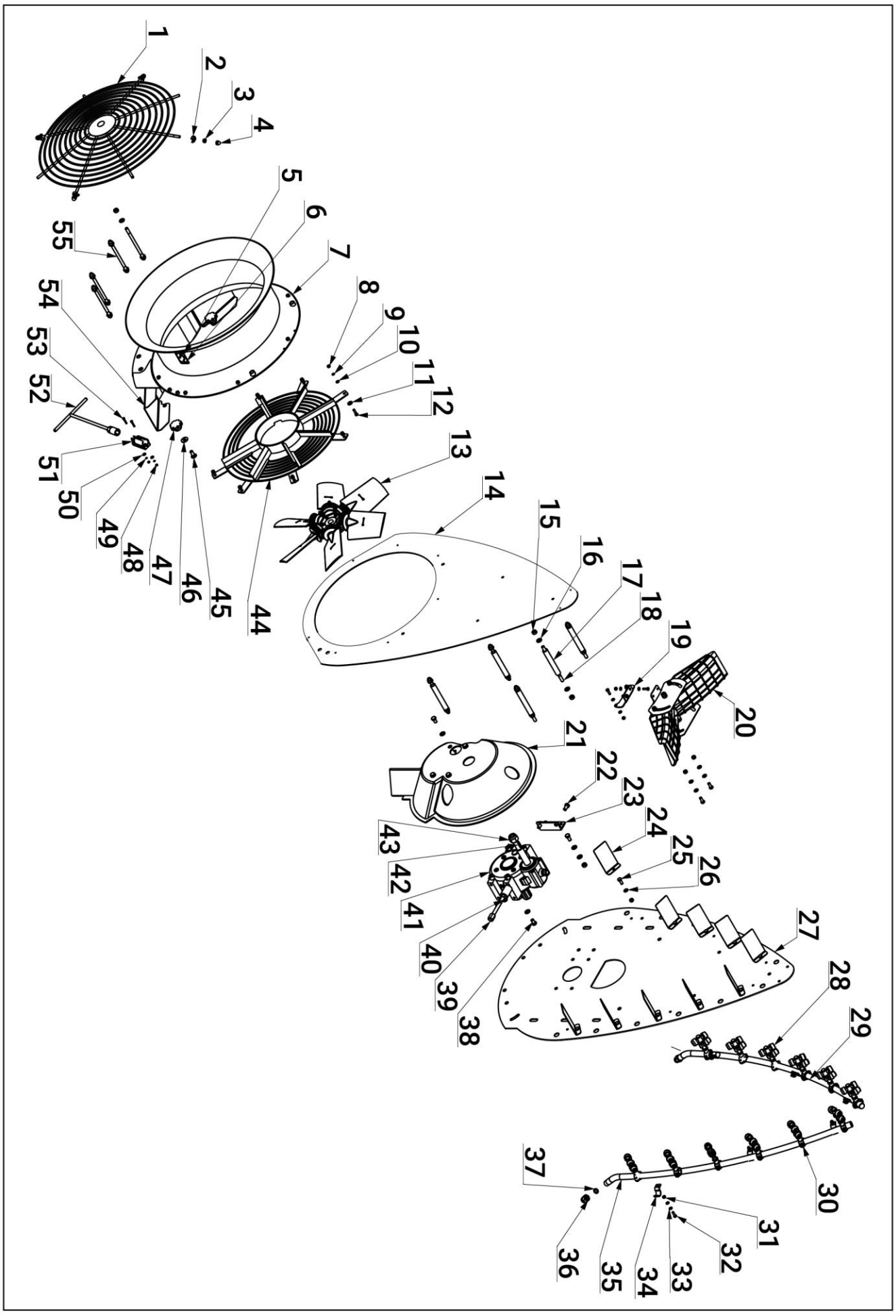
Plumbing system Exploded-View



Plumbing system Parts List

Parts No.	Description	Qty
1	MBS54 Diaphragm Pump	1
2	Max Speed Mark	1
3	Universal Joint Coupling	1
4	Hose Clamp 25-38	4
5	Chemical Tank Outlet Transparent Tube	1
6	Outlet Elbow (Ø 28.5)	3
7	O-Ring (Inner Diameter) 33.5x2.65	3
8	G1½ Inlet/Outlet Nut	3
9	Pump Suction Transparent Tube	1
10	GLQ200 Filter	1
11	Hydraulic Agitating Tube Assembly	1
12	Adapter Fitting (G1/2-G3/4)	1
13	Pump Outlet Tube Assembly	1
14	Pressure Regulator Outlet Nozzle Assembly (Left)	1
15	Bevel (Elbow) 25	1
16	Nut G1	1
17	O-Ring 23.5x2.65	1
18	Adapter Fitting	1
19	RM40YF Remote Control Pressure Regulator	1
20	Pressure Regulator Outlet Nozzle Assembly (Right)	1
21	Main Chemical Tank Return Transparent Tube	1
22	Hose Clamp 22-32	2
23	Cable Tie 200x8	2

Air-blast Sprayer Exploded-View



Air-blast Sprayer Parts List

Parts No.	Description	Qty	Parts No.	Description	Qty
1	Protective Screen	1	29	Left Nozzle Tube Weldment	1
2	Pressure Plate	4	30	Nozzle Seat Assembly M12 (Internal)	12
3	Hex Nut M8	16	31	Hex Nut M6	10
4	Acorn Nut M8	4	32	Hex Bolt M6×20	10
5	Handle Operation Label	1	33	Flat Washer 6	20
6	Open-type Oval Head Blind Rivet 4×8	4	34	Clamp Fastener	6
7	Air Duct Assembly	1	35	Right Nozzle Tube Weldment	1
8	Hex Nut M6	7	36	Brass Fitting	2
9	Standard Spring Washer 6	7	37	Flat Washer	2
10	Flat Washer 6	7	38	Hex Bolt M10×16	8
11	Large Washer 6	7	39	Hex Head Bolt Shift Lever	1
12	Hex Bolt M6×25	7	40	Hex Nut M12	1
13	Impeller Assembly	1	41	Gearbox	1
14	Fan Rear Side Plate	1	42	Plain Type Flat Key 8×7×32 Type A	1
15	Hex Nut M10	20	43	Non-metallic Insert Hex Lock Nut M24×1.5	1
16	Flat Washer 10	30	44	Air Guide Screen	1
17	Stainless Steel Sleeve	5	45	Reinforced Round Head Square Neck Bolt M10×25	2
18	Equal Length Double Ended Stud M10×190	5	46	Large Washer 10	2
19	Support Plate	1	47	Hex Flange Lock Nut M10	2
20	Top Wind Direction Adjuster	1	48	Hex Nut M4	2
21	Plastic Air Deflector	1	49	Standard Spring Washer 4	2
22	Hex Bolt M10×20	4	50	Flat Washer 4	2
23	Gearbox Reinforcement Plate	1	51	Handle Mounting Bracket	1
24	Stainless Steel Air Guide Vane	10	52	19mm Hex Shift Handle	1
25	Hex Head Bolt M8×20	12	53	Socket Head Cap Screw M4×25	2
26	Flat Washer 8	14	54	Dual Air Guide Plate Assembly	2
27	Fan Front Side Plate	1	55	M10 Double Ended Stud	4
28	Anti-drip Nozzle (1.2, 1.0)	12			

WARRANTY INFORMATION: Please refer to our website for detailed warranty conditions and coverage.
For the most up-to-date and comprehensive warranty information, visit **www.tmgindustrial.com**