TMG INDUSTRIAL

TMG-PST80
PRODUCT MANUAL
v.2026.07.18

80 Gal Airblast 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. Only trained, alert operators who are physically capable of safely operating the machine may use it.

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 mask
	Use protective clothing
	Use gloves
	Warning: Risk of injury

	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

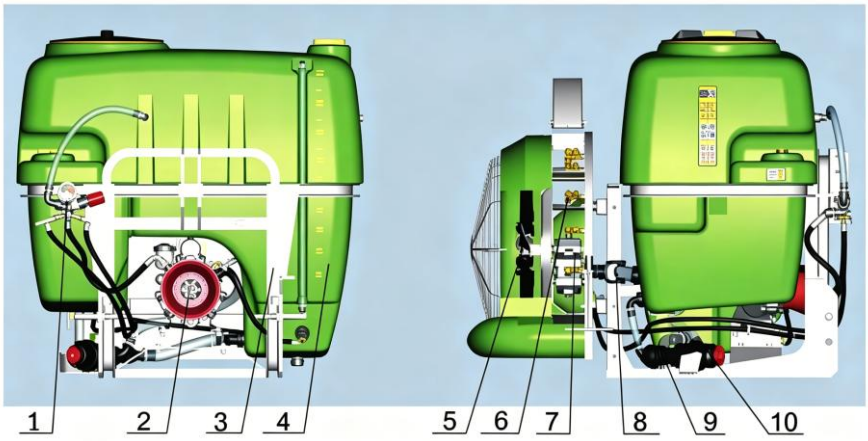
Model		PST80
Type		mounted
Power supply	Power input	Tractor PTO shaft
	Mating power	⩾35Hp
Spray system	Spray boom	2 booms, separate control
	Nozzle type	double head anti-drip cone nozzles
	Nozzle orifice dia.	1.2mm &1.5mm, rotational
	Nozzle number	10pcs
	Spray pressure (MPa)	1.00~4.0
	Spray range (m)	⩾10
Pump	Type	diaphragm
	Suction (L/min)	78
	Work pressure (MPa)	0~4.0
	Max. speed (r/min)	540 (6-teeth spline shaft)
Fan	Fan dia.(mm)	700
	Angle of blade (°)	30
	Speed (r/min)	1890
	Volume (m^3/h)	15800
	Power (Kw)	4.0
Tanks	Chemical tank (L)	300
	Circuit washing tank (L)	40
	Hand washing tank (L)	10
Driving speed (km/h)		⩽30
Dimension (L×W×H)		51”x39”x50” (130x100x127cm)
Weight		419 lbs (190kg)

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

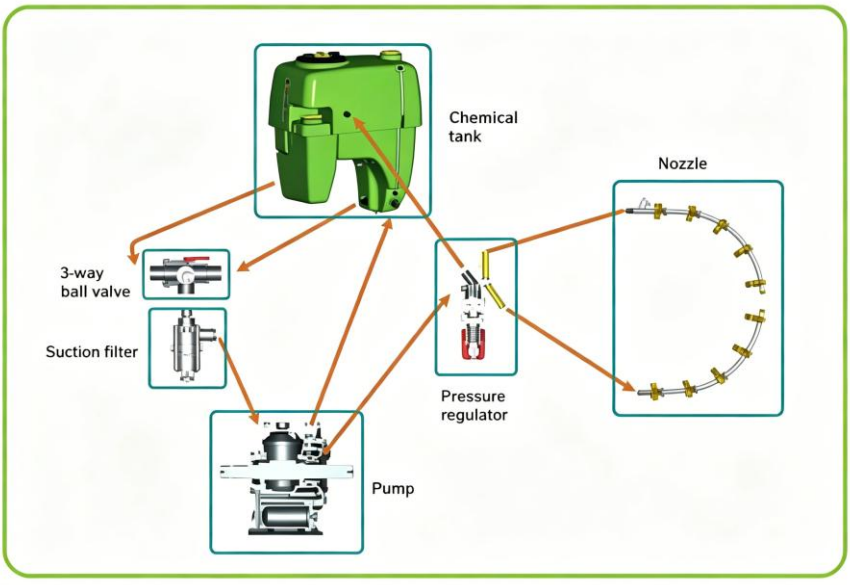


1.Pressure regulator	2.Diaphragm pump	3.Mounting frame
4.Integrated tanks (Chemical tank, Circuit washing tank, Hand washing tank)		5.Fan unit
6.Anti-drip nozzles	7. Multiplier	8.Cardan shaft
9. 3-way ball valve	10.Suction filter	

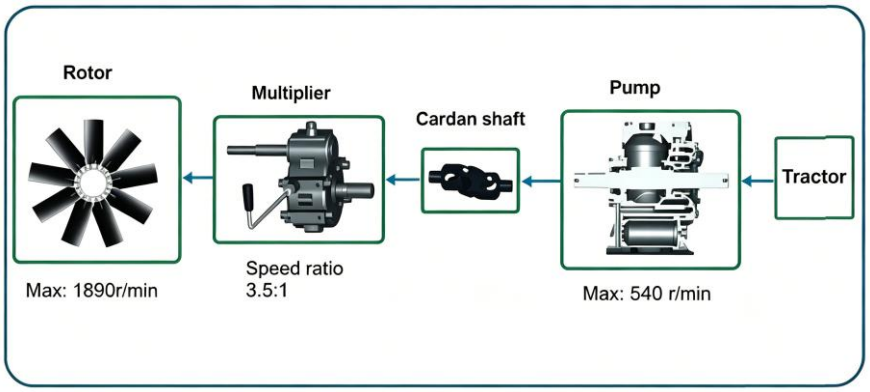
5.2 Work principle

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.

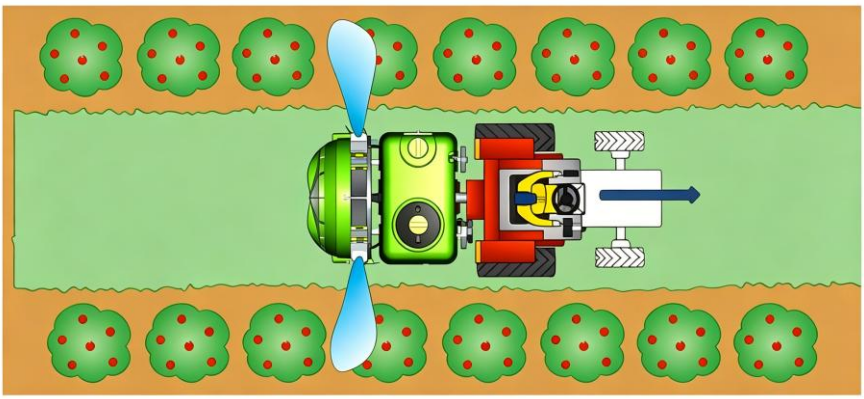


Illustration 1

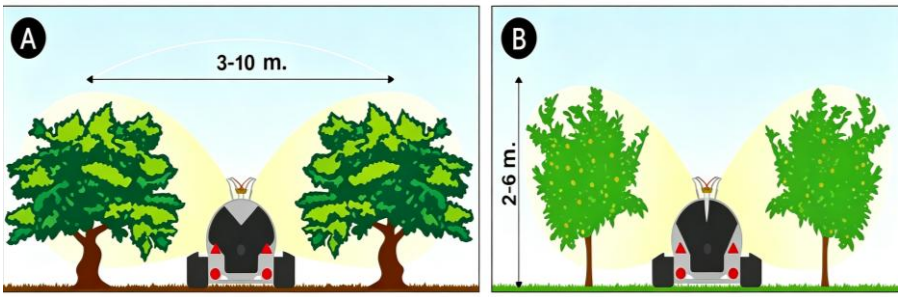


Illustration 2

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.

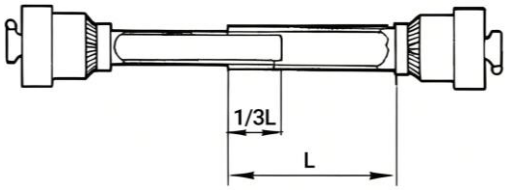
6.2.2 Tractor Coupling

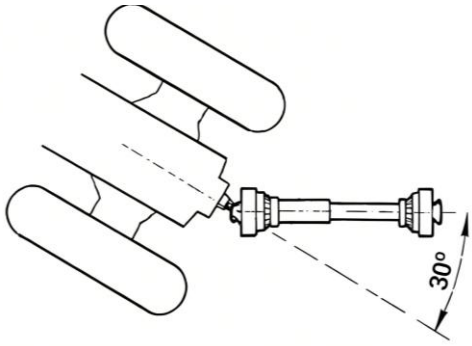
Connect the elevator coupling pins on the two bottom sides of the tank frame to the lower lifting arms of the tractor's lifting device and fix them. Then connect the upper tie-rod of the tractor's lifting device to the upper coupling point of the tank frame. Lift up the machine to make the pump shaft 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).





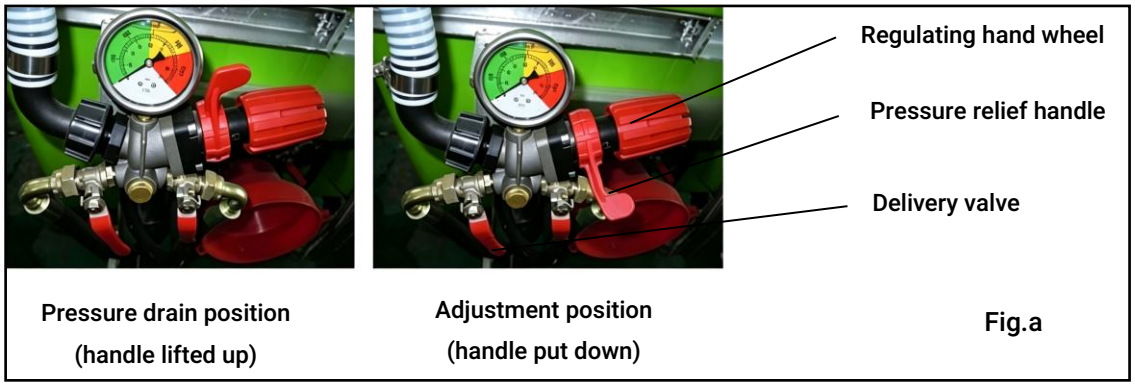
Please pay attention to avoid very tight steering circles with the cardan shaft turning (max.30°) as this could damage both the cardan shaft and the pump.

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.





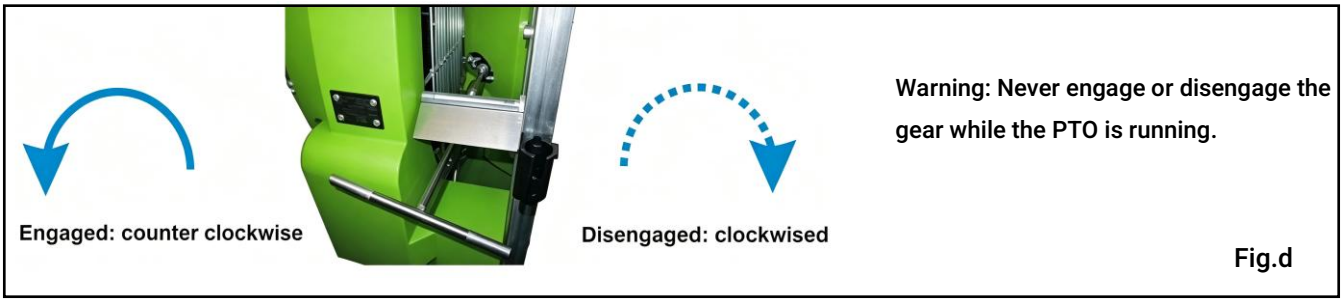
Chemical tank outlet opened | Outlets closed | Circuit washer tank outlet opened

Fig.b



Opened position | Closed position

Fig.c



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

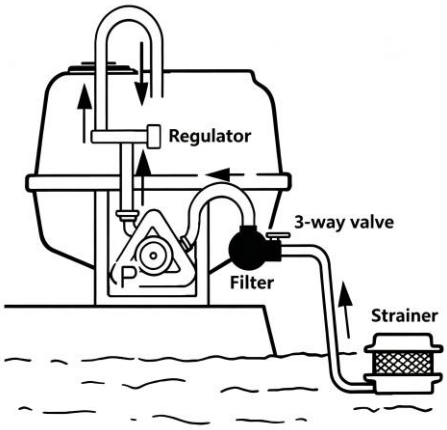
Fig.d

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.

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			

Operation	8H	50H	300H	Season end
Check the wear of the nozzles			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

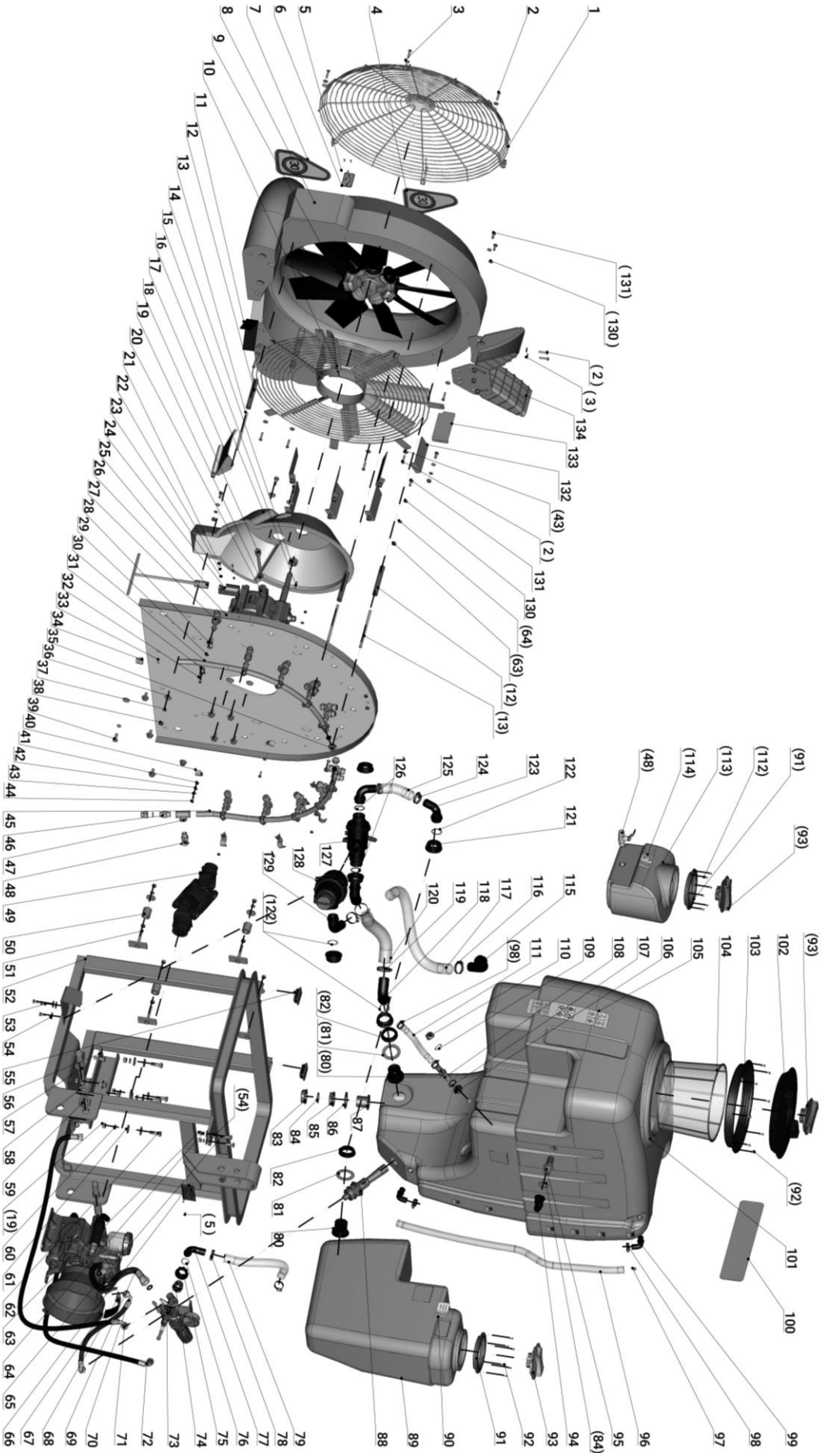
Cause analysis: The circuits between the pump outlet and the nozzles are blocked or the filters are clogged. The nozzles orifices are clogged.

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

Exploded-View



Parts List

No.	Description	Qty.	No.	Description	Qty.
1	Protective Guard Screen	1	68	Maximum RPM Sign	1
2	Phillips Pan Head Self-Tapping Screw ST6.3×25	15	69	Pump Outlet Hose Assembly	1
3	Large Washer Size 6	8	70	Return Agitation Hose Assembly	1
4	Left Speed Limit Sign	1	71	Pressure Regulator Valve Outlet Spray Tube Assembly (Left)	1
5	Rivet 4×14	6	72	Pressure Regulator Valve Outlet Spray Tube Assembly (Right)	1
6	Handle Operation Identification Label	1	73	RM40Y Remote Control Pressure Regulator Valve	1
7	Right Speed Limit Sign	1	74	Adapter Fitting	1
8	Fan Plastic Housing	1	75	Nut G1	1
9	Impeller	1	76	O-Ring 23.5×2.65	1
10	Air Guide Screen	1	77	Bevel Elbow 25	1
11	Foam Rubber Isolation Pad	1	78	Hose Clamp 22-32mm	2
12	Stainless Steel Spacer Sleeve	4	79	Main Chemical Tank Return Clear Hose	1
13	M10 Stud Bolt	4	80	Outlet Fitting	2
14	Non-Metallic Insert Hex Lock Nut (Fine Thread)	1	81	Outlet Gasket	2
15	Standard Parallel Key 6×30	1	82	G1/2 Lock Nut	2
16	Plastic Air Deflector Hood	1	83	Drain Plug Cap	1
17	Adjustable Wind Deflector	1	84	Return Fitting Gasket	2
18	Hex Bolt Shift Lever	1	85	G1/4 Retaining Nut	2
19	Hex Nut M12	9	86	Drain Fitting Gasket	2
20	Gearbox Assembly	1	87	Drain Fitting	1
21	Phillips Pan Head Screw M5×12	2	88	Pressure Agitator	1
22	Standard Spring Washer Size 5	2	89	Rinse Tank	1
23	Plain Washer Size 5	2	90	Rinse Tank Label	1
24	Handle Mounting Bracket	1	91	Fill Cap Retaining Ring	2
25	19mm AF Shift Handle	1	92	Self-Tapping Screw ST3.5×13-C	14
26	Wind Deflector Assembly	1	93	Fill Cap Assembly	3
27	Anti-Drip Nozzle	10	94	Return Elbow Fitting	1
28	Nozzle Body	10	95	Return Fitting	1
29	O-Ring Seal 8×2.65	10	96	Level Sight Tube	1
30	Stainless Steel Curved Spray Boom	1	97	Level Float Ball	1
31	Nozzle Body Clamp Plate	10	98	Hose Clamp 16-25mm	4
32	Socket Button Head Cap Screw M6×12	20	99	Level Elbow Fitting	2
33	Flat Shim	2	100	Main Chemical Tank Label 1	1
34	Brass Fitting	2	101	Main Chemical Tank	1
35	Plug Cap	2	102	Chemical Tank Lid	1
36	Large Washer Size 10	24	103	Tank Retaining Ring	1
37	Spring Washer Size 10	16	104	Tank Strainer 302	1
38	Hex Nut M10	14	105	Main Chemical Tank Label 2	1
39	Hex Head Bolt M10×25	8	106	G1/2 Fitting Lock Nut	1
40	Compression Clamp	6	107	G1/2 Fitting Gasket	1
41	Hex Nut M6	6	108	G1/2 Fitting	1

No.	Description	Qty.	No.	Description	Qty.
42	Standard Spring Washer Size 6	6	109	O-Ring 13.2×2.65	1
43	Plain Washer Size 6	15	110	G1/2 Plug Cap	1
44	Hex Head Bolt M6×20	6	111	Safety Valve Outlet Clear Hose	1
45	Stainless Steel Curved Spray Boom	1	112	Self-Tapping Screw ST3.5×8-C	6
46	Male R1/2 Nipple	1	113	Hand Wash Tank	1
47	G1/2 Tee Fitting	1	114	Clean Water Tank Label	1
48	Water Outlet Ball Valve	2	115	Outlet Elbow	1
49	Universal Joint Coupling	1	116	Hose Clamp 30-42mm	2
50	Spacer Sleeve	4	117	Pump Suction Clear Hose	1
51	Bolt Weldment	4	118	Main Chemical Tank Outlet Connecting Elbow	1
52	Chemical Tank Support Bracket Weldment	1	119	Hose Clamp 32-44mm	2
53	Hex Bolt M8×16	5	120	Main Chemical Tank Outlet Clear Hose	1
54	Large Washer Size 8	7	121	Inlet/Outlet Nut G1½	6
55	End Cap	2	122	O-Ring 33.5×2.65	3
56	Pump Connection Plate	2	123	Outlet Elbow (Ø28.5)	2
57	Connecting Shaft	2	124	Hose Clamp 25-38mm	2
58	Washer Size 27	2	125	Rinse Tank Outlet Clear Hose	1
59	Nut M27×1.5	2	126	O-Ring 30×3*	2
60	Standard Spring Washer Size 12	10	127	3-Way Diverter Valve	1
61	Plain Washer Size 12	20	128	GLQ200 Filter Assembly	1
62	Hex Bolt M12×35	10	129	Outlet Elbow (Ø35)	1
63	Hex Nut M8	19	130	Plain Washer Size 8	9
64	Standard Spring Washer Size 8	17	131	Hex Head Bolt M8×20	11
65	Hex Bolt M8×30	2	132	Stainless Steel Air Guide Vane	7
66	Identification Nameplate	1	133	Stainless Steel Notched Wind Deflector	1
67	GMB81 Diaphragm Pump	1	134	Top Wind Direction Regulator	1

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**