

TC-320 Electrostatic Sprayer Operator Manual



This manual last updated August 2020
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The **TC-320** is powerful, compact, efficient, cost effective, easy to operate and user-friendly to maintain. *Before operating the **TC-320 for the first time**, please read the **Operator Responsibility** statement below and read this Manual thoroughly for important information and instructions for the safe operation of this sophisticated piece of equipment which will enable you to keep your machine running at peak efficiency for decades.*

Thank you, we appreciate your business!

If at any time you have questions or issues, contact us:

Worldwide:
service@wctinfo.com

In the USA:
info@transactinc.com

OPERATOR RESPONSIBILITY

It is the responsibility of those who operate the TC-320 to read this Owner's Manual to understand all safe and correct operating procedures. Lack of attention to safety can result in reduction of efficiency, an accident, even personal injury. Failure to follow the instructions herein could cause irreparable damage to your equipment.

GENERAL PRECAUTIONS and BEST PRACTICES

Your TC-320 has been engineered to be safe during intended operation. However, as with all line-powered electrical equipment certain safety procedures are always recommended.

- Use a GFCI (Ground Fault Circuit Interrupter) power outlet.
- If an extension cord is necessary, use a three-prong grounding cord.
- Turn OFF the **TC-320** before unplugging.
- Unplug the **TC-320** when not in use. Always unplug by grasping the plug, not by pulling the cord. Do not pull the **TC-320** by the power cord. Do not crimp the cord or cause it to be damaged by straining it around sharp corners. Keep power cord away from heat sources. Never unplug the machine with wet hands. Do not use the **TC-320** with a damaged power cord. Call us for a replacement.
- Use protective clothing, eye protection and gloves as when dealing with materials to be applied with the **TC-320** as indicated by manufacturers' label. Follow manufacturers' label recommendations when applying, handling, mixing, storing, disposing and first aid.
- The pressurized air lines will heat up under continuous use. The thumb push quick connectors can become very hot to the touch, exercise caution when handling the air lines.
- Always flush out the spraygun and hose with clean soapy water after every day's operation. *This is the most important thing you can do to ensure trouble free operation of the **TC-320**. Failure to clean these on a regular basis will cause the system to malfunction and will negate the warranty.*
- Always ensure the spraygun is triggered and liquid is flowing through the spraygun when the electrostatic sprayer is operating. *Failure to trigger the spraygun for an extended time may result in the liquid pump overheating.*
- The air filter on the compressor should be checked frequently, and if clogged it should be cleaned. *Failure to clean the compressor air filter will cause problems with air pressure and possible hose failure.*

- The spraygun assembly can freeze up when ambient temperature is less than 50° F (10° C).
- Ensure the spraygun battery is fully charged which will provide approximately ten hours of continuous use.

1. OVERVIEW

The **TC-320** Electrostatic Sprayer combines airspray atomization with proprietary **Microbicide®** spray charging technology to produce electrically charged spray droplets that are carried to a target surface in a low-pressure, continuous air stream.

The electrostatic charge is strong (approximately 75X that of gravity) thus defying gravity allowing droplets to move in any direction to uniformly cover surfaces including their backside and underside. Our electrostatic sprayer provides more than twice the deposition efficiency of hydraulic and non-electrostatic sprayers. These features combine in the **TC-320** to provide the best surface coverage of any machine on the market.

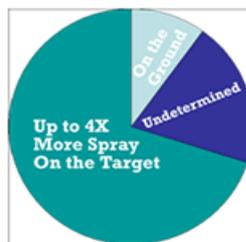
The spraygun is corrosion-proof and easy to clean.

The **TC-320** is virtually maintenance-free and guarantees you savings in the application of chemicals.

Conventional Sprayer



TC-320 Sprayer



The University of California completed a series of tests to investigate what happens to spray liquid after it leaves the spraygun tip.

Conclusion: Electrostatic technology places over 4 times the amount of liquid onto a target surface using 50% less chemicals.

Less solution used overall, less waste, improved operator productivity, significant cost savings!

2. Recommended Application Technique

Note: When using unfamiliar spray materials always test on a small area before treating the entire surface.

The goal when applying any liquid using the **TC-320** is to achieve *even coverage over the surface*. The **TC-320** has been specifically designed to help you do just that by controlling the rate of flow of liquid and by propelling the liquid with a continuous air flow. Therefore, you can stay well away from the target surface and let the electrostatic attraction do the work. Here are some tips to achieve the best possible coverage with the **TC-320**:

1. First charge the battery in the spraygun

2. Before spraying expensive material train yourself to use the **TC-320** using water as the spray liquid.
3. The **TC-320** should always be operated at temperatures above 50° Fahrenheit (10° Celsius) otherwise the atomized liquid might freeze at the nozzle opening.
4. Set the Flow Control Gauge at 100 to 120. Check this setting from time to time as the flow rate changes with operating temperature of the sprayer as well as the temperature and humidity of the areas in which you are spraying.
5. Train yourself inside before trying to spray outside. You should notice a plume existing the spray gun. The objective is to run this plume smoothly and evenly along the surface you are treating. Let the electrostatics pull the plume onto the surface; you do not really spray the liquid onto the target, let the electrostatics do the work.
6. The optimal spraying distance from the target surface is approximately 1m (3 feet), this gives the charged mist enough space to develop into a chaotic cloud that will be attracted to the target surface.
7. Hold the liquid flow control trigger ON and point the spraygun at a right angle to the target surface. Start at the highest point and use a zigzag horizontal stroke to apply the coating down to the lowest point. Try to have each stroke overlap the previous one by about 50% even when moving from one area to be treated to the next. You can use vertical strokes if it suits the area better; just make sure to work in a methodical pattern and have your strokes overlap.
8. Be careful to keep the spraygun level. This helps reduce the occasional drip.
9. You do not have to stop the application process on each return stroke. Just concentrate on a regular zigzag application pattern. Periodically check to make sure the **red LED indicator** is illuminated on the spraygun which indicates all controls are operating as intended. **Note:** Press the test button on the battery to test charge; recharge or replace the battery if necessary.
10. Apply the liquid to be sprayed according to manufacturer specifications.



3. Quick Step-by-Step Operating Guide

1. Prepare the liquid to be applied.
2. Connect the liquid input line to the liquid container.
3. Connect the liquid input line to the liquid input connector at the top of the sprayer.
4. Connect the twin line hose to the liquid and air output connectors at the sprayer.
5. Connect the twin line hose to the liquid and air connectors on the spraygun.
6. Plug the power cord into an appropriate receptacle. Turn on the **TC-320** sprayer.
7. Depress the flow control trigger and allow sprayer to draw liquid to the spraygun. **Note:** To speed up the filling of the hose with liquid, open the flow control valve until liquid starts to spray. Reset the flow control valve to 100 – 120 or to your desired setting.

8. Observe flow rate gauge and adjust Flow Rate Control Valve to desired rate of flow.
9. Turn on the electrostatics by depressing the switch until it latches and the red LED is on.
10. Begin spraying.



Important Cautions



Always flush out the spray gun with clean soapy water after each day's use. This is the most important thing you can do to ensure trouble free operation of the **TC-320**.

Always make sure liquid is flowing through the sprayer when power is applied. Failure to keep liquid flowing through sprayer may result in the liquid pump overheating.



The **TC-320's** compressor becomes **hot** enough to burn during operation especially when continually running. **DO NOT TOUCH.** The compressor has a built-in thermal overload switch so in the event the **TC-320** overheats, the compressor will shut down automatically. Should this happen, leave the case open and allow the unit to cool down for about one hour.

4. Air & Liquid Delivery Systems

The air compressor plugs into an electrical source to produce compressed air which atomizes and propels the liquid.

There are 3 chromed quick connect connectors at the **TC-320** case and 2 chromed quick connect connectors at the spraygun.

1. Container Liquid Line Input Connector (top of the case)
2. Liquid Line Output Connector (on the right side of the case)
3. Air Line Output Connector (on the right side of the case)
4. Spray Gun Liquid Line Input Connector (on spray gun)
5. Spray Gun Air Line Input Connector (on spray gun)



To connect the quick connects

1. Push the liquid and air plug connectors into their respective sockets until you feel it latch. They are different sizes and cannot be cross connected.
2. Pull gently to make sure they are properly seated.



To disconnect the quick connects

1. Release the plug connectors.
2. Pull the plug connectors out of the socket.

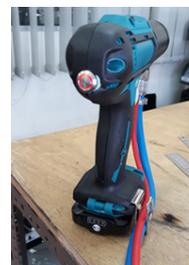
5. The Electrostatic Spraygun

For operator safety the power supply for the **TC-320** spraygun is separate from the power supply for the **TC-320** compressor. The spraygun is powered by a 12V battery located at the base of the spraygun housing. Activation of the spray gun's trigger causes a liquid plume to be created and directed toward the target surface.



Make sure the spray gun battery is in good working order before using it.

The “electrostatics” can be turned “On” and “Off” by a switch at the back of the spray gun's housing. Push the switch “in,” and when latched, the LED light will illuminate indicating the power to the electrostatics are “on.” To turn “off” the electrostatics, push the switch and release and you'll see the LED light go dark indicating the electrostatics are “off.” When not in use be sure to keep the electrostatics in the “off” position.



Control the flow of liquid “on” and “off” at the spray gun by depressing or releasing the trigger to control the liquid flow on/off.

There is a hook on the side of the spraygun. This is a strain relief for the hose. By placing the hose in this hook, the strain on the spraygun connectors is reduced significantly allowing the operator to move about more freely without the worry of putting strain on the hoses and connectors.

Note: Occasionally when using the spraygun the operator might feel a slight “tingling” sensation when working in an enclosed space; this is **not** dangerous to the operator, it's akin to static electricity. In order to minimize the “static electricity” build up, the operator can make contact with the grounding stud located on the left side of the spraygun (screw head on the left side of the spraygun, just above the trigger). Additionally make sure the **TC-320** is properly grounded; the **TC-320** has a built-in short, stainless-steel chain attached to the bottom of its housing, this chain adds to the grounding of the sprayer.

User serviceable parts of the spray gun is the battery. Except for the battery, nothing inside the spray gun shell is serviceable by the operator.

Do not open the spraygun shell; doing so will void all warranties.

NOTE

6. Battery

The spraygun's electrostatics are powered by a 12V battery located at the base of the spraygun housing. Under average operating conditions the battery will last 10 to 12 hours of operation on a charge. Recharge when the **red LED** on the spraygun shell doesn't illuminate when the switch is pushed in.

Order a Battery Charger and Replacement Battery Pack from us:

Worldwide:
service@wctinfo.com

In the USA:
info@transactinc.com

Spray Gun Servicing by Manufacturer

We will thoroughly service your spraygun, replace any worn parts and recalibrate the electrostatics if you like for a modest service charge plus the cost of replacement parts.

Periodic servicing will increase sprayer performance and prolong the life of your spraygun. Email us to discuss spray gun servicing: service@wctinfo.com

7. Setting Flow Rate

The Flow Rate setting is determined by:

1. **Coverage Desired**, i.e., the amount of liquid you wish to apply to a given surface
2. **Operator Speed**, i.e., the time required for an operator to spray a given area. An experienced operator can adequately spray One Square Meter (about 10 Square Feet) in 3 seconds.

By example, suppose you want to treat ~ 8,000 Sq. Ft. Referring to the *Flow Rate Table* below, read down Column #3 (Sq. Ft./Gallon) and locate the closest square feet desired to be treated. Then read across to Column #1 (Gauge Setting); note “100” is the indicator.

So, at a Flow Gauge setting of 100, you can cover ~8,100 Sq. Ft. using ~ One Gallon of product.

At a Flow Gauge setting of 100, a skilled operator can apply liquid to an area of ~ 12,000 Sq. Ft. per Hour.

Furthermore, as you can see from the Table, the *higher the Flow Gauge setting* the larger the droplet size therefore fewer square feet are covered per gallon. Whereas, the *lower the Gauge setting*, the finer the droplet size, so more Square Feet would be covered per gallon.

The above is by example of an experienced operator. Other factors to consider besides operator experience are chemical label application requirements, dwell times necessary, humidity, temperature, etc. *Experience, by on-the-job training, is key.*

FLOW RATE TABLE

Gauge Setting	Coverage	
	Sq.Ft./ Liter	Sq.Ft./ Gal
240	896.7	3393.9
230	935.7	3541.4
220	978.2	3702.4
210	1024.8	3878.7
200	1076.0	4072.7
190	1132.6	4287.0
180	1195.6	4525.2
170	1265.9	4791.4
160	1345.0	5090.8
150	1434.7	5430.2
140	1537.1	5818.1
130	1655.4	6265.6
120	1793.3	6787.8
110	1956.4	7404.8
100	2152.0	8145.3
90	2391.1	9050.4
80	2690.0	10181.7
70	3074.3	11636.2
60	3586.7	13575.5
50	4304.0	16290.6
40	5380.0	20363.3
30	7173.3	27151.1
20	10760.0	40726.6

8. Maintenance

To clean the TC-320 & SprayGun

1. Clean the exterior case with mild detergent using a damp cloth.
2. Fill liquid container with clean water, turn on the sprayer and engage the spraygun trigger to flush the sprayer, spraygun and lines with the clean water. Allow air to flow for 30 seconds after the water has been sprayed. Always flush out the spraygun with clean soapy water after every day's operation. This is the most important thing you can do to ensure trouble free operation of the TC-320. By cleaning at the end of the workday you will avoid long-term buildup that will eventually cause clogs, poor spray patterns and shorten spraygun life.
3. Apply lubricating grease to all quick connect fittings. Lubricating grease can be ordered from our website.

To clean the spraygun assembly

Establish routine maintenance intervals to disassemble and clean the spraygun assembly. Generally, it is recommended protocol to thoroughly clean the assembly at least every 50 hours of machine use. To clean the assembly:

1. Unscrew the spraygun cone shaped cover from the base, clean any debris found.
Note: Take care not to damage the liquid tip when the cover is removed.
2. Use a small brush (soft or mild bristle) to clean the inside of the cover and the hole through it. Rinse thoroughly.
3. Scrub the base with the detergent solution using a soft bristle brush. Be sure to thoroughly clean the base cavity and take care not to damage the liquid tip.
4. Reassemble assembly by screwing on the cover **hand tight**. Wipe clean the exterior of all hoses and fittings connected to the base.

The spraygun cover should be hand tight. Never use pliers or other tools to tighten it.

9. Troubleshooting

Symptom	Possible Problem	Corrective Action
• Air pressure seems too low	• Air connector/s might be leaking	• Inspect for damaged O-rings on quick connects – Spray connectors with soapy water – replace O-rings that bubble
• No spray from spraygun or the spray is erratic and/or spits	• Liquid connectors might be leaking	• Inspect for damaged O-rings on quick connects – Spray connectors with soapy water – replace O-rings that bubble
	• Debris in the spraygun	• Clean assembly; See instructions herein
	• Spray is freezing up	• Make sure the temperature of the water is at least 50°F (10°C)
	• Over tightened assembly cover	• Loosen cover. It should only be hand-tight
• Charging indicator (LED) blinks or	• Battery is exhausted	• Recharge battery If problem persists,

goes out during operation		replace battery pack
	· Dirty cone assembly	· Clean assembly according to instructions
· Air compressor cuts out during operation	· Compressor has overheated	· Let unit cool for approximately 1 hour with case open
· Electrostatic sprayer will not start	· No power	· Make sure the unit is plugged into an appropriate electrical receptacle
	· Sprayer is not switched On	· Make sure the power switch is On
	· Tripped GFCI	· Reset GFCI
	· Dirty air filter	· Clean air filter

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