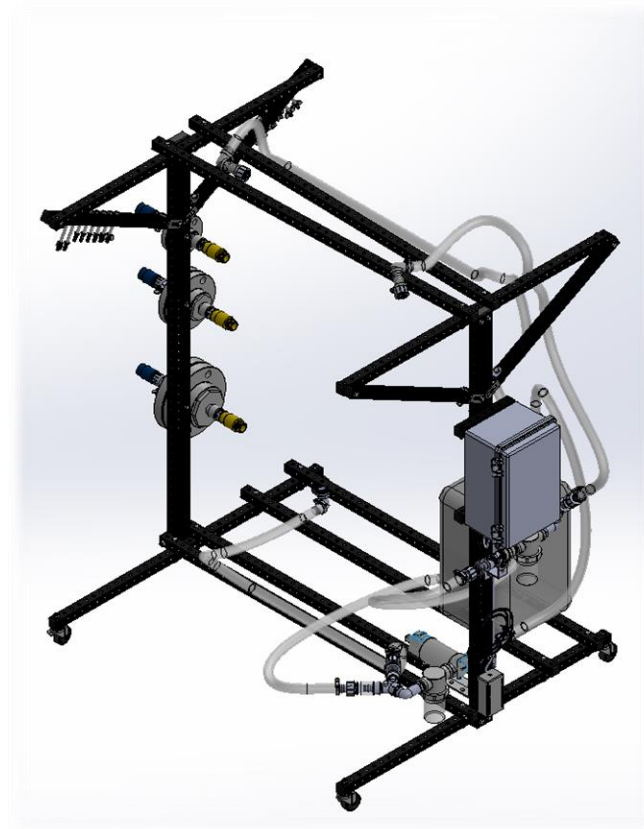




e9 Flush Treatment Apparatus

User Manual & Safety Instructions

January 2021



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Contents

Contents.....	iii
Introduction	1
Specifications	1
Important Safety Information.....	1
Unboxing & Initial Setup	2
Operating Instructions	5
Maintenance and Servicing.....	9
Troubleshooting.....	10
FAQ's	11
Parts List and Diagram	13
Warranty	16
Recommended Treatment Replenishment Interval	17

Introduction

The e9 Flush Treatment Apparatus is a safe, effective way to treat the internal surfaces of two (2) devices either simultaneously or in series, using a flush/flood process. Save time by treating one device while setting up another or treating devices simultaneously. The closed loop system reduces spillage and waste, while allowing you to reuse treatment for multiple devices. A top mounting bracket with secure fittings improves safety by minimizing the lifting and handling of devices.

Specifications

Maximum Weight Capacity (Combined)	500 lbs.
Connection Type	Class 150; 1", 2", 3" 4-bolt flange fittings
Maximum Flow Rate	4 GPM
Maximum Device Volume (combined)	17 L
Maximum Working Pressure	30 psi
Control Ways	Manually actuated
Fastening Method	Quick Connect Fittings & ¾ GHT
Direction of Flow	Bottom-to-top flooding and/or flushing

Important Safety Information

- **Wear ANSI-approved safety goggles and heavy-duty work gloves during use.**
- **Inspect the apparatus before every use; do not use if parts are loose or damaged.**
- **Use as intended only.** Do not use Flush Apparatus to treat devices or circulate fluids that are not specified.
- **Properly load device to be treated before use. Use a two-person lift for large, bulky or heavy devices.**
- **Read device manufacturer's cautions before use.**
- **Keep Flush Apparatus and device to be treated clean and free from oil and grease.**
- **Store idle equipment.** When not in use, store the apparatus and tools in a dry location to maintain usability.
- **Dress properly.** Do not wear loose clothing or jewelry that may get caught on the equipment.
- **Do not overreach.** Always keep proper fitting and balance.
- **Maintain device with care.** Follow instructions for maintenance and servicing device.
- **Replacement parts and accessories.** When servicing, use only identical replacement parts. Use of any other parts will void the product warranty.
- **Stay alert. Do not operate device if fatigued or under the influence of alcohol or drugs.**

- **WARNING:** The warnings, cautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

Unboxing & Initial Setup

- 1) Remove packaging supports and rigid bracing from Flush Loop and its contents. This process may be aided by the use of common hand tools such as a hammer or a crowbar.
- 2) Carefully remove all shrink wrap and Styrofoam pieces, being sure to not Knick, mar, or puncture any part of the Flush Loop itself. It is advised to not use any sharp objects for this step.
- 3) Press flexible outlet hoses self-sealing quick connect fittings into outlet rigid piping wye valve. Press firmly until an audible click is heard.

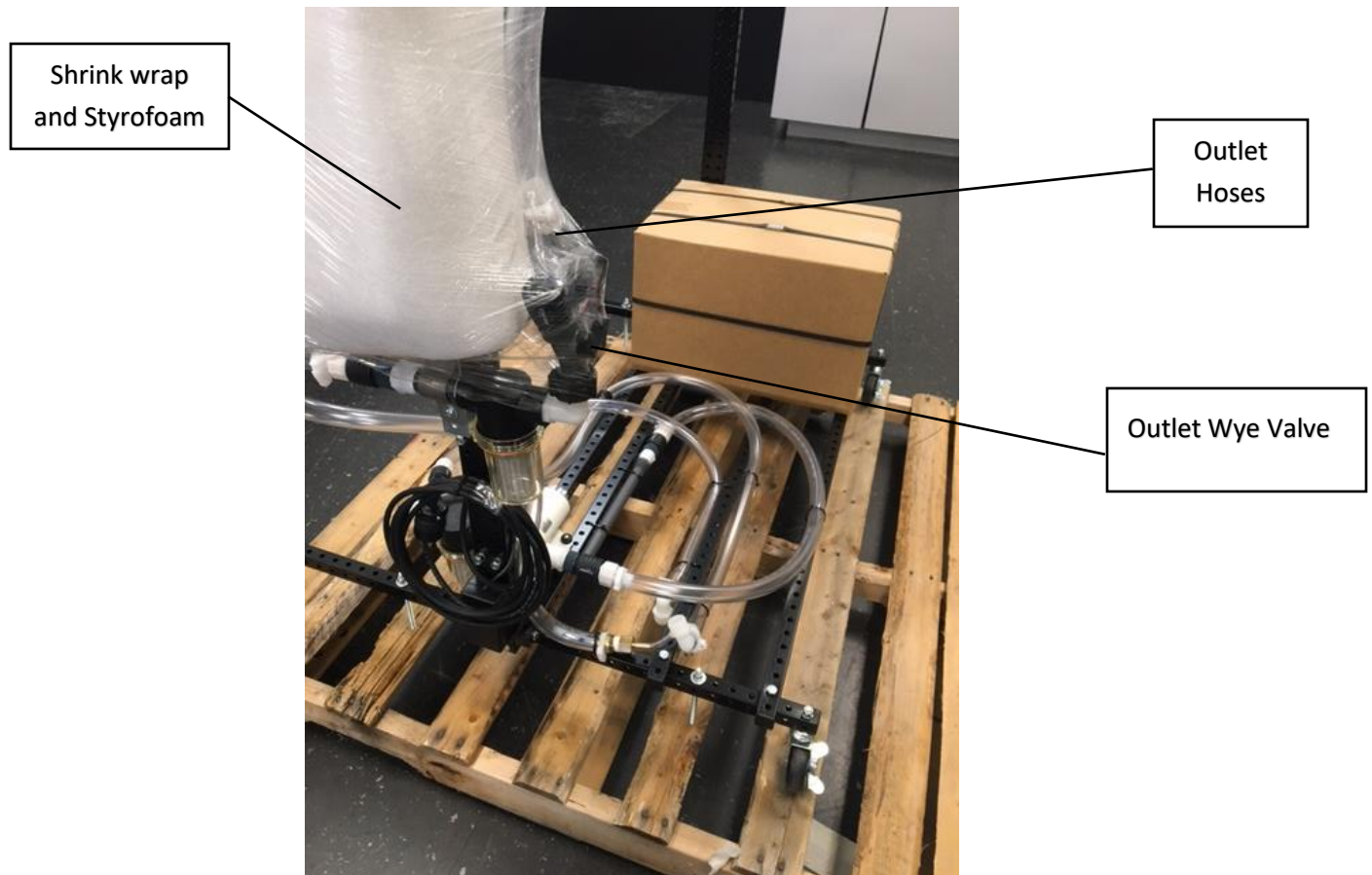


Figure 1: Unboxing, View 1

- 4) Remove all yellow-colored zip ties with a pair of wire cutters, pliers, or other cutting tools. DO NOT remove any black zip ties.
- 5) Cut black nylon straps and remove cardboard box from Flush Loop frame.
 - a. Within this box you will find: 1", 2", and 3" flange adapters, nut and bolt assortment, tank adapter cap, and a power cord hook. Please ensure all these components are present at this time.

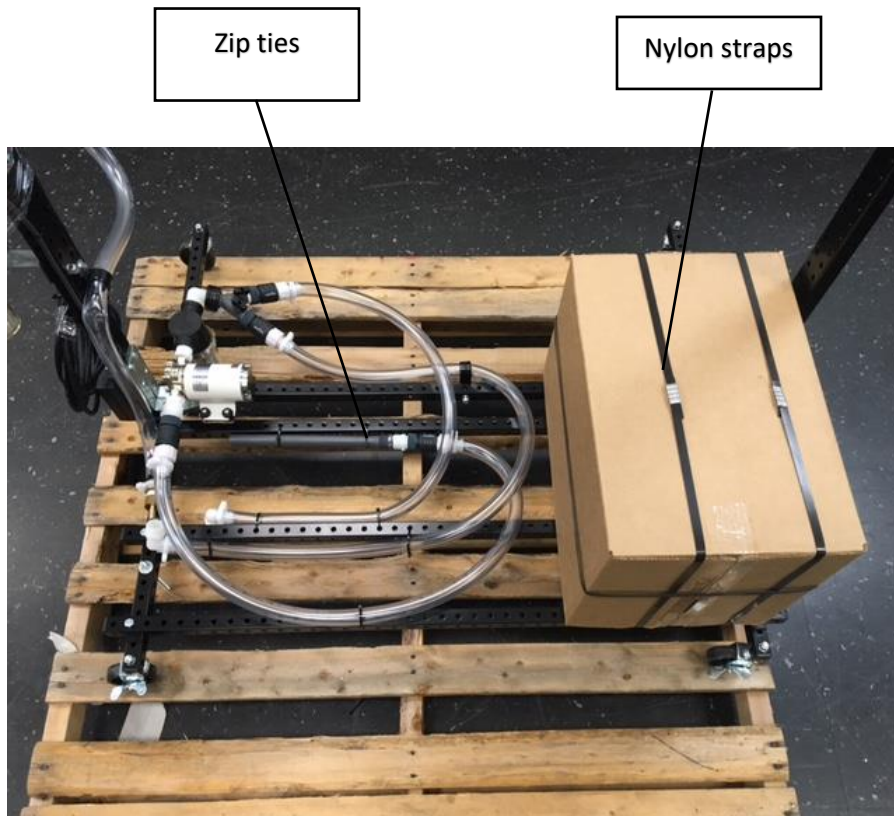


Figure 2: Unboxing, View 2

- 6) On the post opposite of the electrical enclosure, install three 4" long hex bolts spaced 8"-10" apart. Place Flange adapters over the bolts and secure with the provided wing nuts.
- 7) On the 18" 1x1 tube, organize the provided hex bolts, flat washers, and wing nuts to your preference. A suggested orientation is shown in the figure below.

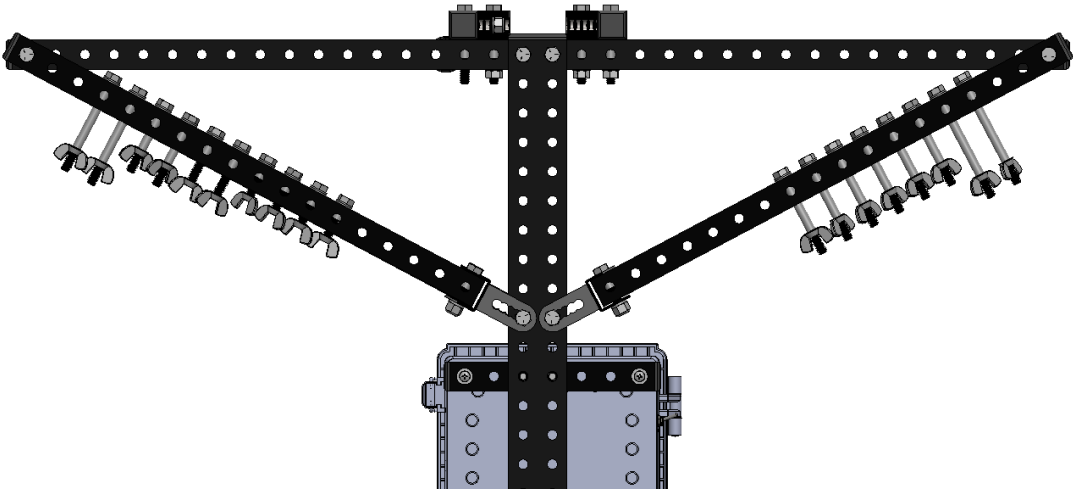


Figure 3: Suggested orientation of hex bolt and wing nut assortment

- 8) On the post with the electrical enclosure, mount the power cord hook approximately 8" above the wire enclosure and loosely wrap the power cord around it. At this time remove any tape or packaging used to secure the power cord during the shipping process.

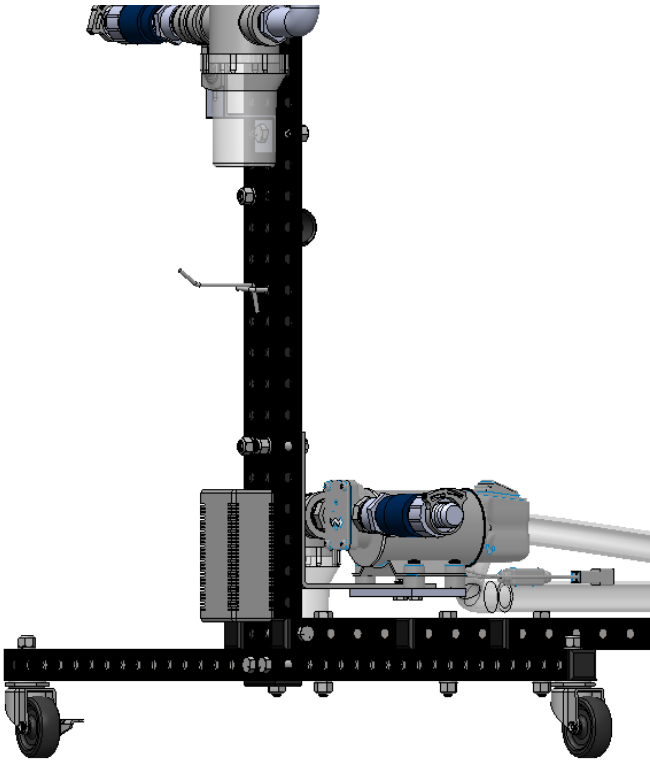


Figure 4: placement of power cord hook

- 9) On wheels equipped with a brake, ensure they are in the unlocked position at this time.
- 10) Using an SAE ½” wrench or socket, remove the 5/16-18 hex nuts and flat washers securing the frame to the wooden pallet. Carefully lift one end of the flush Loop at a time to remove the four carriage bolts from the framing.
- 11) Carefully roll Flush Loop off of wooden pallet or utilize two people to lift and remove.

Operating Instructions

- 1) Identify the appropriate size flange adapter to be mated with the device intended for treatment.
- 2) On a flat, level surface, install one flange adapter on each end of the device. Secure flanges and flange gaskets with two bolts placed opposite of each other until finger tight (Note: if the device has a clearly labelled direction of flow, install the flange adapter with the blue quick connect fitting on the device inlet).



Figure 5: Flow Meter secured with appropriate flange adapters.

- a. When selecting a bolt to secure the flange adapters, be sure to pick a bolt that has only its threaded portion protruding past the flange adapter, illustrated in Figure 6 and Figure 7.

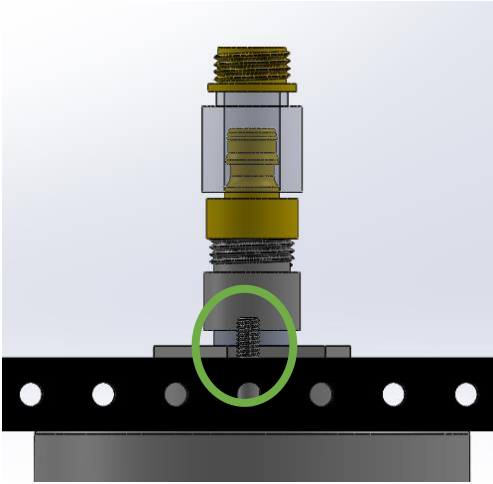


Figure 6: Correct threaded length protruding out

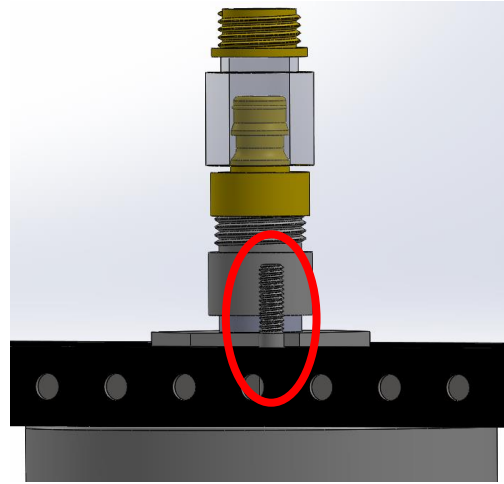


Figure 7: Incorrect threaded length protruding out

- 3) Align opposite bolt holes on flange adapter with through holes on Flush Loop top rails. Ensuring that the bolt holes on the flange adapter and framing are concentric for the load bearing bolt to run through.
 - a. To accommodate different sized devices at once, the adjustable top rails come pre-assembled at a tapered angle. This can be set to a wider/narrower distance depending upon your application needs.
- 4) If a device is over 50 lbs. recruit the assistance of an additional helper to secure the device to the frame.
- 5) Either one person or a mechanical device should securely grasp and lift the device so that the bottom of the cross rail is butted up firmly against the top face of the flange adapter, while the other person grabs two bolts from the provided assortment and secure the device to the adjustable top rails until finger tight.
- 6) If not already done so, thread male portion of quick connect fitting into female insert of flexible hosing barbed adapter.

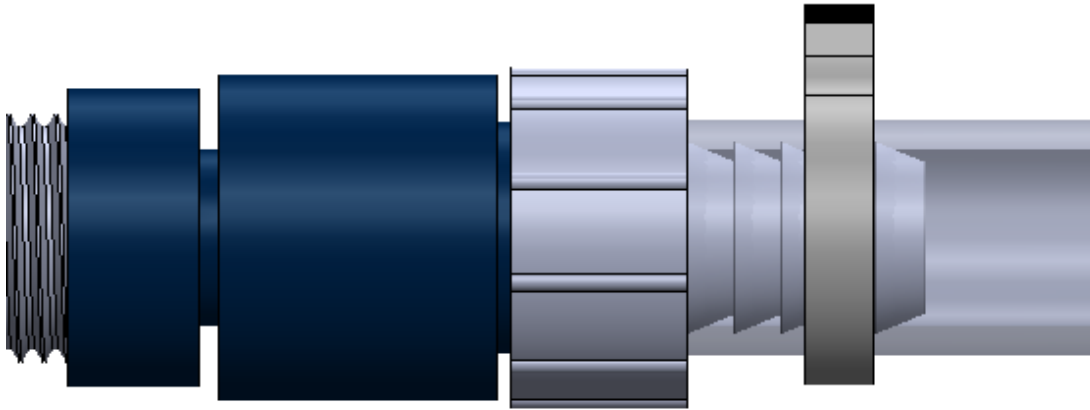


Figure 8: quick connect fitting-flexible hosing interface

- 7) To connect hoses with quick connect fittings already attached:
 - a. To connect fittings, place hose-end over the nipple and push firmly until a click is heard.
 - b. To remove fittings: grab fitting by the black, rubber collar and firmly pull away from the union (e.g. top yellow fitting will be pulled with an upward motion, bottom blue fitting will be pulled with a downward motion).
- 8) Situate the treatment tank firmly on the lower tank support rails.
- 9) Remove sealed cap from tank and thread pick up tube adapter cap. Thread pick up tube assembly into the adapter cap.
- 10) Insert tank return hose through small diameter hole on adapter cap, as shown in Figure 9.



Figure 9: Adapter cap with pick up tube and tank return hose attached.

11) On both inlet rigid piping and outlet rigid piping wye-valves, open and/or close the lines in which you wish to pass treatment through.

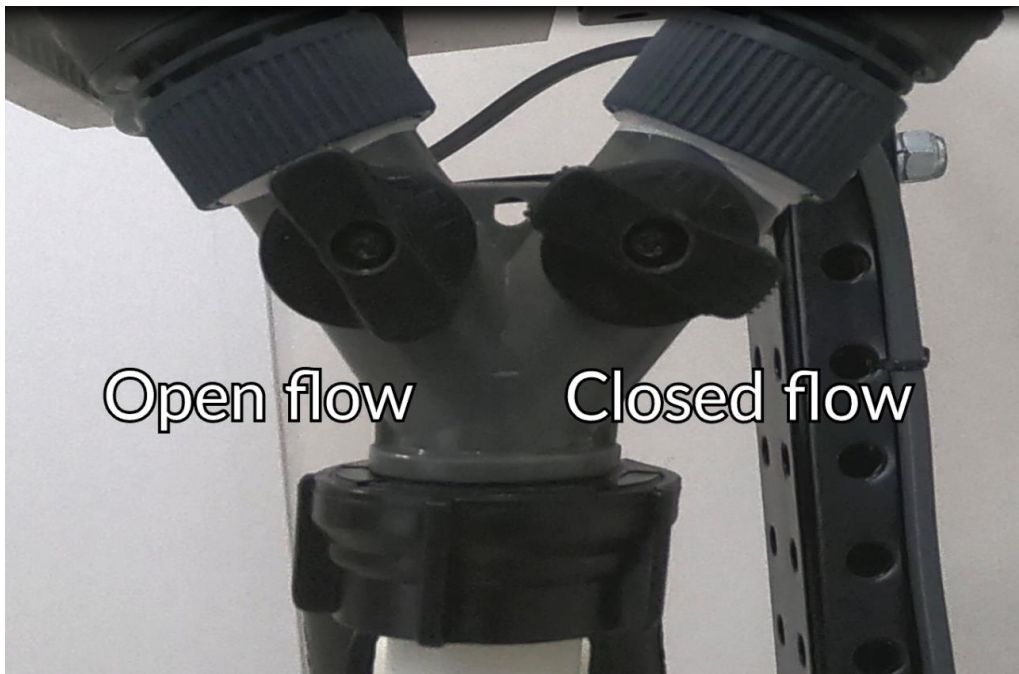


Figure 10: Orientation of valves for open/closed flow (Open flow: valve parallel with quick connect. Closed Flow: valve perpendicular with quick connect).

- 12) Unravel power cord and plug into a nearby power source.
 - a. Make sure there is slack left in the cord so that it does not present a trip hazard.
- 13) On the side of the control box, flip the toggle switch to the up position to begin filling the device.
 - a. At this time, adjust the speed controller knob to obtain the desired flowrate.
- 14) If using the flood method:
 - a. Run system long enough until fluid is seen in the tank return hose
 - b. Flip toggle switch to the neutral position.
 - c. Close the ball valves on the inlet and outlet wye valves to the device and let sit for 5 minutes
 - d. Reopen valves when finished.
- 15) Flip the toggle switch to the down position to begin draining fluid out of device.
 - a. Wait until no more fluid is visible in the line leaving the connected device(s) and continue to run on full speed for 10 additional seconds.
 - b. DO NOT run the pump dry for more than 2 minutes. Doing so may damage the pump and void the warranty.
- 16) When removing the treated device, close the inlet & outlet ball valves for that respective line and remove the quick-connect fitting (refer to step 7b).
- 17) Firmly support the device with both hands (if under 50 lbs.) or utilize a crane to support the device while removing the two bolts attaching the device to the frame.
- 18) Lay down device on a flat surface and proceed to remove remaining bolts securing flange adapters to the device.
- 19) If removing or disconnecting the treatment tank, carefully remove smaller diameter hose first, unscrew pick up tube adapter, and re-install original sealed cap and vent cap on tank.

Maintenance and Servicing

1. Before each use, inspect the general condition of Flush Treatment Apparatus. Check for cracked or damaged parts, misaligned or binding of moving parts, leaking connections, and any other condition that may affect the product's safe operation. If a problem occurs, have the problem corrected before further use. Do not use damaged equipment.
2. Clean filters by unscrewing plastic housing from cap and draining fluid back into 10L or 20L tank. Remove stainless steel screen from plastic housing and rinse both housing and screen well with

water. Wipe dry with a lint-free cloth or pressurized air before reattaching to Flush Apparatus. If mesh becomes too difficult to clean, order replacement part.

3. After every use, wipe spilled fluid off surrounding work floor and device from the edges of the spill inward with an inorganic absorbent material. Wipe off any grease and debris that may have accumulated. Ventilate the area with fresh air.
4. Do not directly spray with water or any other fluid; use a damp cloth to wipe device clean.
5. When storing, keep device in a clean, dry and safe location away from children.
6. **CAUTION!** All maintenance, service, and repairs, not discussed in manual should only be performed by qualified service technician.

Troubleshooting

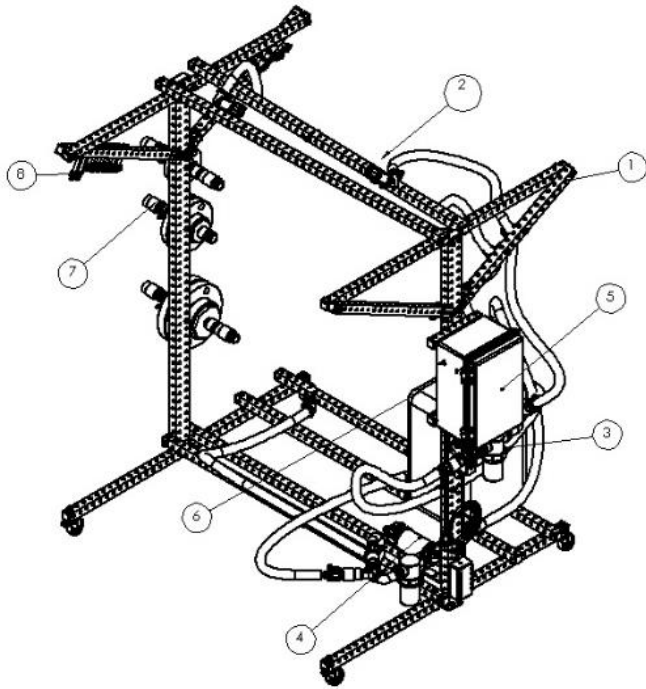
Problem	Possible Causes	Likely Solution
Fluid leaks from flange fitting	<ol style="list-style-type: none"> 1. Cracked flange adapter 2. Gasket misaligned 3. Bolt and wingnut not secure 	<ol style="list-style-type: none"> 1. Replace adapter. 2. Loosen fasteners and align gasket, flange, and adapter, concentrically. 3. Tighten wingnut and bolt more securely (with hand tools if needed).
Fluid leaks from hose, fitting, etc.	<ol style="list-style-type: none"> 1. Threaded connection not on tight enough 2. Cracked fitting 3. Punctured hose line 	<ol style="list-style-type: none"> 1. Tighten connection or use a thread sealer (i.e. Teflon tape). 2. Replace fitting. 3. Replace hose line.
No fluid running though my device	<ol style="list-style-type: none"> 1. Defective pump. 2. Valve fully or partially blocked. 3. Clogged filter 	<ol style="list-style-type: none"> 1. Replace pump. 2. Double check if selected valve is fully open. 3. Remove and clean filter.
Pump not working (electrical)	<ol style="list-style-type: none"> 1. Blown fuse 2. Bad contact at wire connectors 3. Faulty switch 	<ol style="list-style-type: none"> 1. Replace fuse. 2. Strip wires and fully seat them into connector or replace connector. 3. Check soldering points on switch or replace switch.
Pump not working (mechanical)	<ol style="list-style-type: none"> 1. Defective pump (burnt out motor) 	<ol style="list-style-type: none"> 1. Replace pump.
Quick Connect fitting not sealing	<ol style="list-style-type: none"> 1. Worn out fitting 	<ol style="list-style-type: none"> 1. Replace fitting.

FAQ's

- **There are a lot of bubbles forming in the lines while treating. Will this diminish the effectiveness of the treatment?**
 - Air bubbles in your device will not negatively impact the treatment application if treatment is being constantly flushed through the device. If you intend to flood your device and let treatment sit inside for an extended treatment period, you should run the Flush Treatment Apparatus at 100% pump speed until no more bubbles are visible, then proceed with the flooding process.
- **Why is there excess treatment in my lines after applying it to my devices?**
 - Excess treatment in the hoses after application is expected. There will be some loss of fluid during attachment/detachment of devices. Always refer to e9 Treatments' SDS when handling the fluids. No special care is needed during normal operating conditions. It is recommended that the flow lines be free from any residual fluid if the apparatus will not be operational for extended periods of time. The process for removing treatment from the Flush Treatment Apparatus is detailed below.
- **How do I remove e9 Treatment from the Flush Treatment Apparatus?**
 - Ensure that all ball valves are in the wide-open position before beginning. Disconnect each hose line at the quick-connect fitting one at a time. Drain the excess treatment in each respective hose line into a drain pan or bucket. On some hoses, it may be necessary to loosen or remove the hose clamp. Reattach all hoses once finished draining. Next, unscrew each filter housing and drain treatment into the drain pan or bucket. Repeat this process whenever connecting fresh e9 Treatment to the Unit, or every 1-2 weeks depending on the frequency of devices treated on the Unit. Refer to the e9 Treatments SDS for proper handling and disposal of the fluid.
- **Where can I use Flush Treatment Apparatus? Can it work while wet?**
 - Operate the Flush Treatment Apparatus in a cool, dry place. Indoor environments are preferred, outdoor environments are acceptable when working for shorter durations. While the Flush Treatment Apparatus is operational with light to moderate moisture and humidity exposure, we do not recommend operation in extreme weather conditions.
- **How should I store my treatment tank when not in use using it? Can I keep it with my flow loop?**
 - If possible, store the treatment tank and the Flush Treatment Apparatus together in accordance with the Handling and Storage requirements found in the e9 Treatment Safety Data Sheet. Connections to the treatment tank can be left attached if device usage is frequent (1-2 times weekly). If planning to store the device for extended periods of time; drain hose lines and disconnect the treatment container from the Flush Treatment Apparatus. Close the treatment tank with the original cap it was shipped with to ensure airtight seal and prevent evaporation.
- **How should I clean/ care for my Flush Treatment Apparatus?**

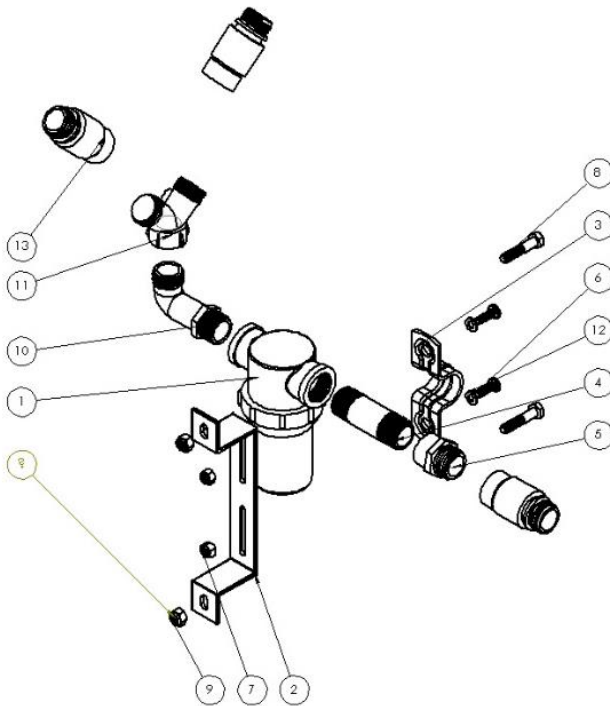
- Wipe down the components of the Flush Treatment Apparatus with a damp towel or rag. Do not spray directly with water hose or pressure washer. Spraying a cleaning agent from a spray bottle followed by immediate wiping is okay.
- **How do I care for larger spills?**
 - For large spills or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors. Work quickly to contain the spill so as to keep it from entering the drainage or sewage system:
 - Work from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry.
 - Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible.
 - Place in a closed container approved for transportation by appropriate authorities.
 - Seal the container.
 - Ventilate the area with fresh air.
 - Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.
- **Can I use other fluids with this Flush Treatment Apparatus?**
 - The Flush Treatment Apparatus has been specifically engineered and tested for performance and compatibility with water and e9 Pro Performance Metal Treatment. e9 Treatments cannot guarantee the performance and/or functional integrity of your Flush Treatment Apparatus with any other fluids.

Parts List and Diagram



Item	Description
1	Framing
2	Flexible Hosing
3	Inlet Rigid Piping
4	Outlet Rigid Piping
5	Electrical Enclosure
6	Pick Up Tube
7	Flange Adapters
8	Bolt Assortment

Figure 11: Top Level Assembly View



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	EL919055	Tee-strainer, 3/4" NPT 50 Micron Mesh Screen	1
2	EL919052	Standoff Bracket	1
3	EL919051	Routing Clamp	1
4	EL923003	3/4 NPT, 3" PVC Pipe	1
5	EL919019	3/4 GHT Male x 3/4 NPT Female	1
6	EL919062	Zinc Plated Steel Pan Head Phillips Screw, 1/4"-20 thread, 3/4" long	2
7	EL919046	nyloc nuts, 1/4"-20	2
8	EL919005	1.5" Hex Bolt	2
9	EL919045	nyloc nuts, 5/16"-18	2
10	EL919027	90 Elbow, 3/4 GHT Male x 3/4 NPT Male	1
11	EL919059	Wye-shaped On/Off Valve	1
12	EL919006	1/4" flat washers	2
13	EL919044	Melnor self-sealing quick connect garden hose fitting	3

Figure 12: Outlet Rigid Piping, Exploded View

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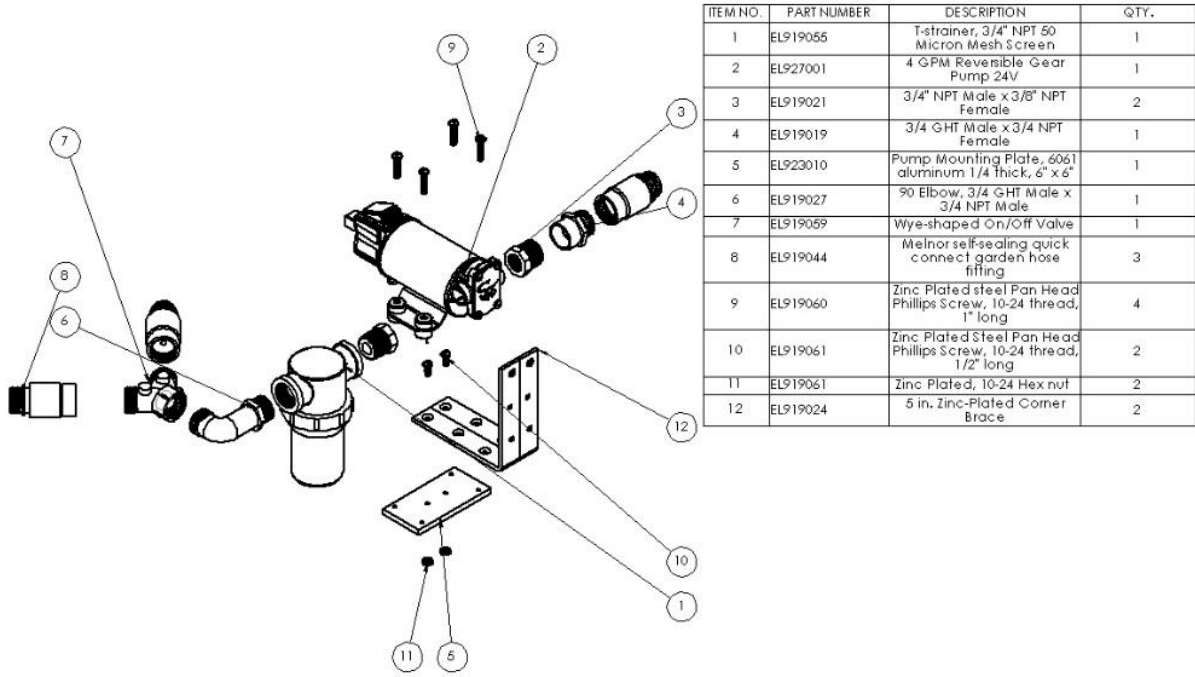
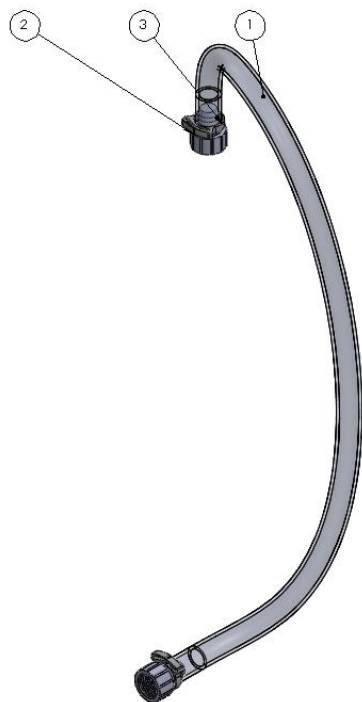


Figure 13: Inlet Rigid Piping, Exploded View



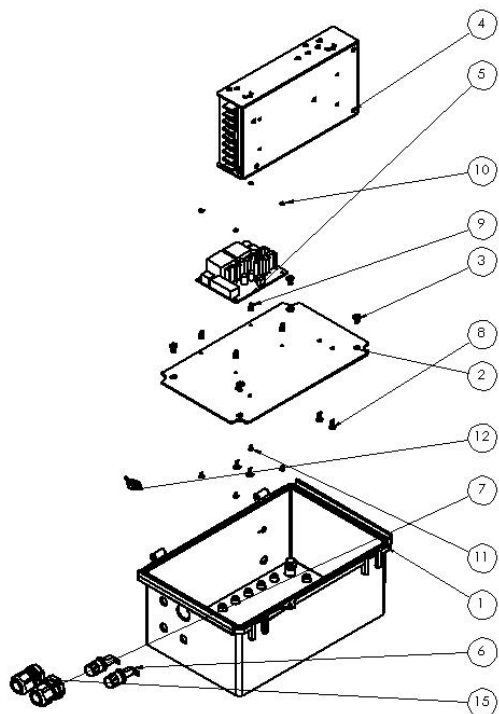
Figure 11: Pick Up Tube Adapter, Exploded View

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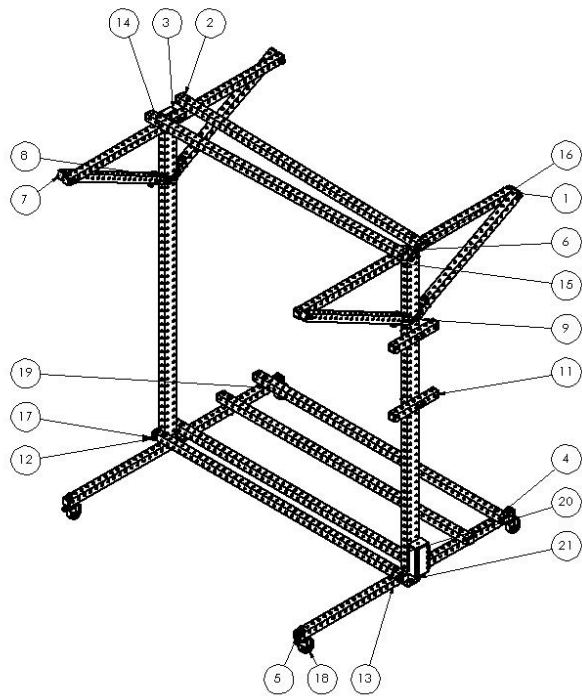
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	EL923008	Soft PVC Tubing, 3/4" ID, 1" OD	1
2	EL919030	Barbed Adapter, 3/4" Hose ID x 3/4 GHT Female	2
3	EL919036	Easy-Install Single Snap Grip Clamp	2

Figure 12: Flexible Hosing (hose between pump and treatment container shown)



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	EL917001	WQ-59 Electrical enclosure	1
2	EL917003	ABS Panel for WQ-59 Enclosures	1
3	EL917001	WQ-59 Electrical Enclosure (screws)	4
4	EL927003	Enclosed AC DC Converter 1 Output 24V	1
5	EL927002	DC Motor Speed Controller	1
6	EL916002	3AG FUSEHOLDER	2
7	EL919035	Cable Glands, .23" - .53"	1
8	EL919041	Pan Head Phillips M4	4
9	EL919042	Threaded Standoff, Spacer, 4-40, Nylon	4
10	EL919039	Hex Nut, 4-40 Thread, Nylon	4
11	EL919048	Passivated 18-8 Stainless Steel Pan Head Phillips Screw 4-40 Thread, 5/16 long	4
12	EL913001	Toggle Switch	1
13	EL98029	Small Dim. Fuse, 5A	1
14	EL98028	Fuse, 10A	1
15	EL919034	Cable Glands, .114" - .25"	1
16	EL916001	Transparent body connector with levers	2

Figure 13: Electrical Enclosure, Exploded View



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	EL923005	36" 1x1 tube	4
2	EL923006	42" 1x1 tube	6
3	EL923007	48" 1x2 tube	2
4	EL919012	2.5" Hex Bolt	28
5	EL919045	nyloc nuts, 5/16-18	37
6	EL919040	lock washer	37
7	EL923002	18" 1x1 tube	4
8	EL919056	u-joint bracket	4
9	EL919005	1.5" Hex Bolt	8
11	EL923002	7" 1x1 tube	2
12	EL919023	4.5" Hex Bolts	2
14	EL919038	flat washer	4
15	EL919025	5/16-18 hex nuts	4
16	EL919004	1x2 End Plug	4
17	EL956001	Notched End Plug	28
18	EL956003	Swivel Caster w/ Brake	2
19	EL956002	Swivel Caster	2
20	EL919050	Ribbed Push In Rivet, nylon	2
21	EL917002	Electrical Project Case Power Junction Box	1

Figure 14: Framing, Exploded View

Warranty

- a. Seller's new product warranty is for 6 months from the date of shipment. Remedies regarding warranty requests are at the Seller's discretion and limited to replacement, repair, modification, or purchase price refund.
- b. Shipping terms dictated by the end-user will invalidate e9 Treatments, Inc. liability and warranty for products damaged in shipping.

Recommended Treatment Replenishment Interval

The following table is provided as an estimate only. Actual replenishment intervals may vary. The following chart assumes an indoor, controlled environment where care is taken to prevent spills and loss of fluid when switching out devices for treatment. The Flush Treatment Apparatus is used to treat ~ 25 devices per week, with each device having a treatable surface area of approximately ~ 8 – 12 sq. ft. and the average volume used to treat each device is 3L – 5L. The following replenishment intervals are an estimate of when the treatment fluid will be too contaminated with residual oils and dirt to effectively continue treating your devices.

e9 FLUSH TREATMENT CONTAINER	WEEKS TO REPLENISHMENT		
	NEW ONLY	NEW + USED	USED ONLY
PRO PLUS – REGULAR STRENGTH			
20 L	10	6	4
10 L	6	3	2
PRO PERFORMANCE - EXTRA STRENGTH			
20 L	14	7	5
10 L	8	4	2.5
PRO PREMIUM - MAXIMUM STRENGTH			
20 L	18	8	6
10 L	10	5	3