



HIWASSEE
PRODUCTS

CONTINUOUS FLOW
BIO-EXTRACTOR X150

OPERATING INSTRUCTIONS & USER MANUAL



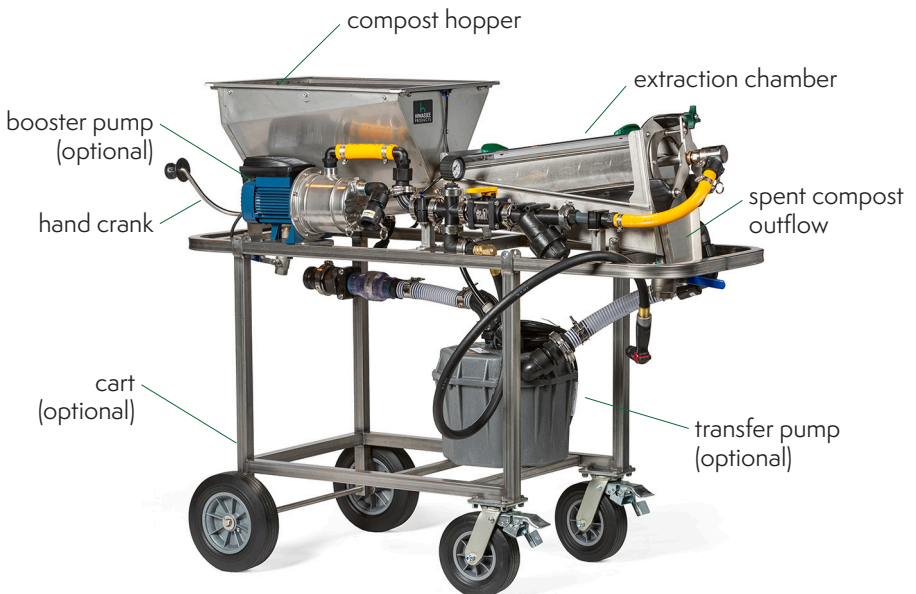
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Contents

Warnings	3
Product options and specifications	4
Initial assembly	4-5
Operating instructions	5
Compost material	5
Water supply	5
Priming	6
Water agitation	6
Loading	7
Auger speed	7
Extraction	8
Extract discharge	9
Cleaning	9
Screen installation	10-11
Sanitize cycle	12
Storage	13
Service Requirements	13
Troubleshooting	14
Materials and User information	15

⚠️ WARNING

- Thoroughly read and understand the information in this product manual before attempting to use this product. If the procedures and instructions in this product manual are not followed, serious injury could occur.
- Do not use product for any purpose other than its intended use.
- Never remove guard on compost hopper or belt drive.
- Never reach into hopper while machine is running.
- Never open electrical enclosure or remove guards without disconnecting power.
- An adult must be present at all times during operation of the compost extractor.
- The extractor must be on a level and firm surface during operation.



Product Options & Specifications

Inlet and Discharge Hose Connection Sizes

- Water supply connections
 - No booster pump – female $\frac{3}{4}$ " GHT garden hose.
 - With booster pump – 1" female camlock.
- Extract discharge connection – 2" male camlock on all options.
 - If the transfer pump was not purchased, a 4 ft length of 2" hose with female camlock is supplied with the extractor for discharge into a receptacle positioned by the catch basin discharge.

Electrical Supply (if required): 120 VAC, 1PH, 60 Hz

Bench Top Option Specs:

- L 58" x W 21" x H 23", 95 lbs. Weight varies depending on options.
- Optional Single phase 120v booster pump available for generating adequate water pressure.

Cart and Stand Options

- L 58" x W 28" x H 48", weight varies depending on options.

Pump Options

- Optional single phase 120 VAC booster pump available on all models for generating adequate water pressure.
- The extract transfer pump is available with the stand and cart options. It allows for easy transfer of extract into a large holding tank or sprayer.
- It is a standalone pump with an internal float switch that triggers the pump to run automatically when filled with liquid.
- Booster pump and transfer pump can be purchased as an after-sale upgrade.

Cleaning spray hose

Optional on all models and is available separately.

Initial Assembly

Figure 5a: Remove the clevis pin from the back of the auger and slide the crank onto the shaft. Reinsert the pin through the crank and auger shaft and replace the cotter pin.

If the hole in the hand crank and the auger shaft do not line up, make sure that

the auger is all the way back in the extractor by pushing on the rotating swivel union at the front of the extractor.

Note: the rubber seal around the back of the shaft should be held in place by the hand crank once the crank is installed.

Operating instructions

Compost Material

Figure 5b: Input material must be screened to $\frac{3}{4}$ " particle size.

NOTICE To avoid damaging the extraction screen or jamming the auger, do not feed large rocks, sticks or other hard objects into the extractor.

Biologically Complete¹ Compost is recommended.

Water Supply

If using a pressurized water supply with no booster pump, the line must supply 8.5 GPM flow while maintaining 40 PSI.

If using a booster pump, the supply must be able to maintain 8.5 GPM flow minimum. The booster pump will not maintain pressure with an inadequate water supply.

If necessary, install a filter prior to the pump to ensure no debris enters the system.

Figure 5c: The filter installed on the machine will prevent debris entering the extraction auger but the water to the pump should also be free of debris.

Water quality is crucial. Ensure you have a reliable source of clean water. Chlorine free and Chloramine free water with a total hardness below 75 ppm (CaCO_3 ppm) is ideal. Below 150 total hardness is acceptable but if above 150 total hardness a filter system is recommended for better infield results.

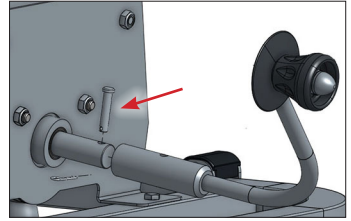


Figure 5a



Figure 5b



Figure 5c

¹ Compost that has sufficient diversity of beneficial microorganisms

Priming Booster Pump (booster pump option only)

Figure 6a: Before operation, the booster pump must be primed.

Attach water supply to inlet. If the water source is below the level of the pump, remove the priming bung and fill pump.

For situations where the water source is below the booster pump, a check valve on the supply line is recommended. This will avoid having to re-prime the pump if the machine is shut off during operation and the line to the pump drains out. (Check valve sold separately SKU: SF44.)

Water Agitation in Hopper

Figure 6b: The compost hopper has a water agitation feature that trickles water down the sides of the hopper. The water acts as a lubricant and prevents bridging in the hopper.

Figure 6c: The water agitation is controlled by the flow control valve. Open the valve enough so that there are small trickles of water flowing evenly along both sides of the hopper.

Note: When agitation water is set correctly the compost will absorb it, and carry it into the extraction chamber. Reduce the agitation flow if water floods the hopper.

Extraction

Figure 6d: Before extraction, ensure the extractor is clean and rinsed to remove any larger sediment or pieces of compost, and that the drainage valves on the hopper and catch basin are closed.

Loading

Before loading the hopper, check that the water agitation is set correctly.

1. Measure compost.
 - a. A 5-gallon bucket is recommended for measuring and loading.

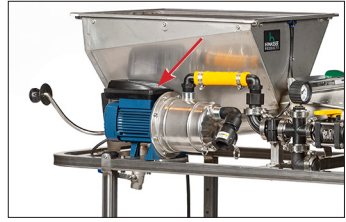


Figure 6a



Figure 6b



Figure 6c

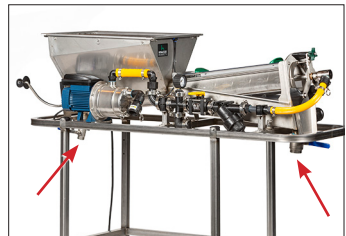


Figure 6d

- b. The recommended ratio is 1 lb compost to 5 gallons of water.
2. **Figure 7a:** Pour the compost into the hopper.
3. Open water valve to allow water to the extraction chamber.
4. **Figure 7b:** If using a booster pump, turn on the pump.
5. Check that the pressure gauge is reading 40 PSI.
6. When ready, start turning the auger with the hand crank at your desired speed. For a 1:5 compost to water ratio, a speed of 6-8 rpm is recommended. See *Setting Auger Speed*.
7. Periodically check the pressure gauge to make sure 40 PSI is maintained.



Figure 7a

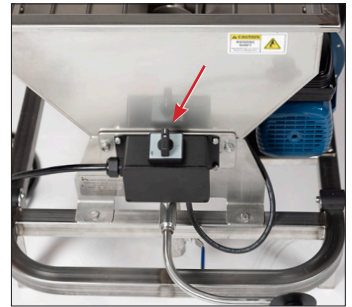


Figure 7b

Auger Speed:

By adjusting the speed at which you turn the auger you can create an extract concentration that fits your application.

Since bulk density of compost varies depending on moisture content and other factors, it is good to weigh a small amount of compost and run a small batch of extract while timing how fast the auger moves your compost into the extraction chamber.

The expected time to empty the hopper is found by multiplying the lbs. of compost loaded into the hopper by your desired dilution and dividing that by the extractor's flow rate of 8.5 GPM. **See examples.**

For a 1:5 dilution, 8-10 RPM (6-8 seconds per revolution) is a good starting point (the ratio is pounds of compost to gallons of water).

Timing a larger amount of compost will give you better accuracy. We recommend weighing the next few buckets of compost and timing how long it takes to run through. This will double check that you are getting the dilution you want.

continued on next page...



Scan for setting auger speed video

Examples:

- 1:2 ratio = 10 lbs. in 2:21 minutes
($10 \times 2 \div 8.5$)
- 1:3 ratio = 10 lbs. in 3:31 minutes
- 1:4 ratio = 10 lbs. in 4:42 minutes
- 1:5 ratio = 10 lbs. in 5:53 minutes

Note: If the PSI is under 35 or over 40, the flow rate of the extractor will change. In situations where the PSI is high because of a pressurized water supply, we recommend timing flow and using the new flow rate to calculate the dilution. For low PSI see troubleshooting section.

Extract Discharge

Figure 8a: If using a model with no transfer pump, connect the supplied 2" x 4' hose to the camlock connector on the outflow of the catch basin and run it into a receptacle of your choosing.

Note: Inadequate drop in the outflow line will cause extract to flow back into the machine and flood the compost hopper.

Figure 8b: If the transfer pump option was purchased:

- Attach the 2" hose to the outlet and plug the pump into a 120v power source. The pump will turn on and off automatically as it fills with extract.
- The outflow connection is 2" camlock.

Operation of Transfer Pump (transfer pump option only)

The transfer pump allows for easy transfer of extract into a large holding tank or sprayer.

It is a standalone pump with an internal float switch that triggers the pump to run automatically when filled with liquid.

Figure 8c: The transfer pump is equipped with two power cords – one to the float switch and the other to the pump motor. The float switch cord has a series (piggyback) plug enabling the pump motor cord to be plugged into the back of it. The purpose of this design is to allow temporary manual operation of the pump.

During normal operation, the pump motor cord must always be plugged into the float switch cord as shown. Never plug both cords in at the same time.



Figure 8a

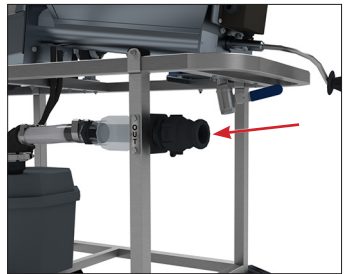


Figure 8b

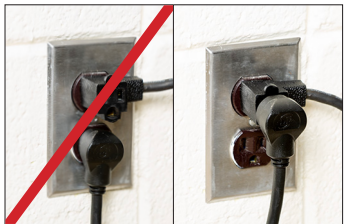


Figure 8c

Purging the transfer pump

Manual operation of the transfer pump allows you to empty the pump completely for winterization, or to make it lighter for transport. To do this, the internal float switch of the pump can be bypassed.

Figure 9a: To bypass the float switch, unplug the pump motor cord from the float switch cord and plug it directly into power until the pump is empty.

NOTICE Never bypass the float switch for longer than it takes to empty the pump. Bypassing the float switch will lead to the pump running dry which will damage the pump and void its warranty.

Cleaning

To prevent a build-up of biofilm², it is important to clean the Compost Extractor after use.

To clean:

- Run water through the extractor while turning the auger. This will flush out any remaining extract and clear out remaining compost.
- Remove the clear plastic lid covering the extraction chamber.
- Place a 5-gallon bucket under the drain valves at the front and back of machine.
- Open the drain valves and spray out the remaining compost and sediment.
 - **Figure 9b:** The valve at the back under the compost hopper may become plugged. A short spray of water from the bottom of the valve up into the compost hopper is usually enough to remove the material preventing the hopper from draining.
- **Figure 9c:** For thorough cleaning, disconnect the hose from the auger. Place the cap over the auger inlet, and the plug into the auger hose. This will prevent debris from entering the auger and plugging the spray tips.
- **Figure 9d:** Once the hose is removed and the cap and plug are in place, remove the screen and spray it off (see pp. 10-11 for screen installation and removal instructions).



Figure 9a



Figure 9b



Figure 9c



Figure 9d

² Biofilm is a microscopic layer of biology which sticks to surfaces. If left uncleaned, this layer can harbor pathogens.

- When the catch basin and hopper are empty and clean, close the drain valves and replace the lid.
- Turn on the water supply again and thoroughly rinse the extractor until clean water flows from the discharge hose.
- During this rinse cycle, the catch basin drain, and compost hopper drain valves can be opened to allow remaining sediment to be rinsed out.
- **Figure 10a:** Rinse the extractor. Do not direct high pressure spray nozzles on electrical components, or pumps³.
- Purge the transfer pump if present (see p 9).



Figure 10a

Screen Installation

The design of the extractor allows for simple tool-free screen installation and removal.

1. Start with the lid removed and the auger stationary.
2. **Figure 10b:** Detach the $\frac{3}{4}$ " camlock from the swivel union and point the water inlet down (this will prevent debris falling into the hollow auger shaft).
3. Check that the back of the catch basin is clean and free of sediment.
4. **Figure 10c:** Swing the locating wings out of the way (loosen the green knob) and slide the screen over the auger. Support the auger while sliding the screen in.
 - Note that the small end of the screen goes in first and the two holes in the front of the screen are horizontal to each other.
 - **Figure 10d:** The two holes on the front of the screen serve as locators and fit over the two bolt heads at the front.



Figure 10b

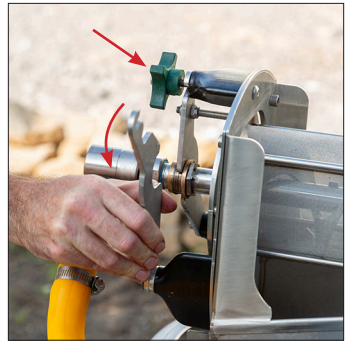


Figure 10c



Figure 10d

³ Motors are rated: IP44; Pumps are rated: IP67; Electrical Enclosures are rated: NEMA 4

- Once the screen is located on the bolts at the front, fit the screen into the back of the catch basin.
- Figure 11a:** Swing the wings back in place around the bronze bushing and tighten the knob.

Note: If the left wing does not swing into place, check that the screen is inserted fully into the back of the catch basin. The locating wings must be flush with each other, and the bolt (indicated) on the left wing must be pushing against the front of the screen, holding it tight to the back of the catch basin.

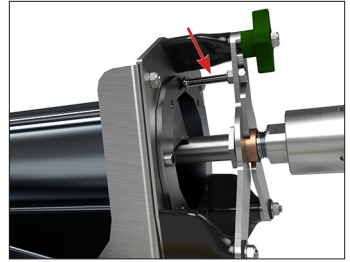


Figure 11a

NOTICE Failure to insert the screen properly will result in damage to the screen.

Screen Removal

Figure 10c: For screen removal, loosen the green knob and follow the screen installation instructions in reverse. Slide the screen off the auger and out of the machine while supporting the auger. This will allow the screen to move freely and prevent damaging it.

Sanitize Cycle (transfer pump options only)

Figure 11b: Sanitizing is a closed cycle process using the sanitation hose (sold separately). The sanitize cycle should be run every 50 hours or annually, whichever comes first. Run the sanitize cycle if the extractor will not be used for 60 days or prior to winter storage. RV & marine anti-freeze is acceptable for winterization⁴.



Figure 11b

⁴ If storing in a freezing environment, drain all liquid from pumps and water lines. R&V and marine anti-freeze is acceptable. Call technical support with any questions regarding sanitation or winterization.

To Sanitize (Figure 12a): (transfer pump option only)

- Unplug the transfer pump.
- Detach the $\frac{3}{4}$ " camlock from the front of the auger.
- Using the sanitation hose, connect the 2" camlock to the discharge outlet and the $\frac{3}{4}$ " camlock to the swivel union at front of the auger to create a closed loop.
- Dump water into the catch basin until the line from the pump to the catch basin is full (approx. 5 gal).
- Replace the lid and plug in the transfer pump.
 - If the pump does not trigger continuously, unplug again, and add additional water into the system.
- Once enough water is in the system, add 7 fl oz of SaniDate 5.0 to achieve a 0.25% hydrogen peroxide dilution.
 - Use all PPE required on the product label.
- Set a timer and run the sanitize cycle for 10 minutes.
- Once complete, unplug the pump and drain solution from catch basin.
 - If any solution ran back into the compost hopper, drain the compost hopper as well.



Figure 12a

Final Rinse:

- Remove sanitation hose and reattach $\frac{3}{4}$ " camlock to the auger.
- Attach water supply and discharge hoses.
- Rinse the Bio-Extractor with water for at least 5 minutes to ensure no sanitize solution is left in the machine (you can use any clean water supply).

Drain and store the Bio-Extractor for future use.

Bio-Extractor Storage

It is recommended that the Bio-Extractor is stored in a location that will not freeze. If a pump option has been purchased, and there is any chance of freezing, all water must be drained from the booster pump and purged from the transfer pump (see transfer pump operation), and filter should be drained.

NOTICE Improper storage could permanently damage pumps. Damage occurring from improper storage is not covered by the warranty.

Service Requirements

Filter

Figure 13a: Periodically clean the filter by unscrewing and emptying the contents. The filter is located on the front of the extractor by the water supply valve.

Grease zerks

Figure 13b: Every 20 hours or yearly, grease the rotary union located on the front of the auger.



Figure 13a

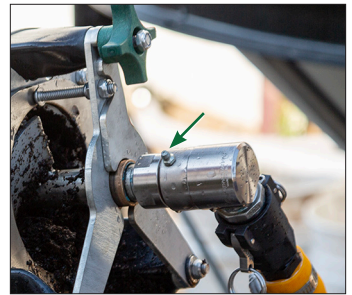


Figure 13b

Troubleshooting

Low water pressure

If water pressure drops below 38 PSI:

- Check and clean the filter, see service requirements.
- Check supply line and confirm that adequate supply is present (see Water Supply).

High water pressure

- To compensate for high pressure on the water supply, a pressure regulator can be installed. If necessary, call and speak to Hiwassee Products technical support.

Too much water in compost hopper:

- Check that the water agitation is set correctly and turn down flow as much as possible.
- The valve should be opened so there is just enough flow for small water beads to form along the sides of hopper.

Jammed Auger:

- Turn auger in reverse, either by hand or using a wrench on the hex drive at the front of the auger to rotate the auger back and forth until the auger is free.
- If issues persist, call technical support.

Leaking fittings

- Ensure the manifold clamps are tight and all seals on manifold fittings are properly seated.
 - Loosen the manifold clamp and check rubber seal if necessary.
 - For threaded fittings, reassemble with thread sealant if necessary (DO NOT overtighten plastic fittings).
- If fittings still leak, call technical support.

Electrical

Call technical support.

Any other problems

Call technical support.

Materials

- Hardware items (nuts, bolts, screws, etc) are stainless steel.
- All other metal components are 304 Stainless Steel.
- Plastic components are typically injection molded from a variety of industrial resins.
- Most valves and fittings are manufactured by Banjo from durable polypropylene.
- 8" casters are zinc coated steel with solid rubber wheel.
- 10" fixed wheels are solid rubber with rigid plastic hub and sealed bearings.

User Modifications

To prevent serious injury do not modify or alter Hiwassee Products Compost Extractor, products or components. Hiwassee Products does not accept responsibility for any modifications or alterations made to our components or products after they leave our premises. Customers modifying or altering our components or products do so at their own risk.

Additional Information:

Visit our website for full pump user manuals.

<https://www.hiwasseeproducts.com/blog/bio-extractor-manuals>



Scan for pump user manuals

Warranty

Visit our website for warranty information:

<https://www.hiwasseeproducts.com/terms-conditions>



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