



Horticulture Equipment and Services LLC.

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' HortFiller '

Flat and Pot Filler

Operating Manual

The ***Horticulture Equipment and Services LLC Flat Filler*** is designed to fill plug trays and bedding flats up to eighteen inches wide, and pots up to fourteen (14) inches tall. The ***Horticulture Equipment and Services LLC Flat Filler*** was fully tested at the factory. The specifications in this manual were in effect at the time of manufacturing; however, ***Horticulture Equipment and Services LLC*** reserves the right to improve on their equipment, without obligation on their part. This manual should be read completely before operating this machine.



While operating this machine, keep all guards and shields securely in place. **Disconnect electrical power before performing any maintenance or repairs.** Once the repair has been performed, replace all guards and shields. ***Horticulture Equipment and Services LLC*** will not be held responsible for injuries sustained if guards or shields have been removed from this machine. ***Horticulture Equipment and Services LLC*** will not be responsible in any way whatsoever if a machine or its components, in part or whole, have been used in a manner inconsistent with their intended design or purpose.

RECEIVING

When ***Horticulture Equipment and Services LLC*** equipment is delivered, be sure to check for any possible shipping damage. Report any shipping damage to the carrier immediately. The damage, if any, should be visible through the crating. It is the receiver's responsibility to inform the carrier of any damage. The carrier may send an inspector who will make out an inspection report in duplicate, leaving one copy for your records. Damaged freight is **NOT** to be returned to ***Horticulture Equipment and Services LLC*** until the above steps have been taken by you, the receiver. You, the receiver, must file a claim for damages or losses with the carrier, which can be settled at your location.

SET – UP

Locate the machine in a level area where you have adequate working space, so the material flow (flats, plants, mix and finished product) does not interfere with each other. Check the hopper and chain areas to make sure no foreign objects (shipping debris, wood blocks, large screws or nails, etc.) are present to cause malfunctions during operation. Remove any protective wrappings used for shipping. Connect the machine to the proper voltage and phase of electricity (110V- single phase). The ***Horticulture Equipment and Services LLC Flat Filler*** can be ordered and manufactured to accommodate 220Vsingle phase. Make sure all connections are made properly by a licensed electrician.

PROPER OPERATING ADJUSTMENTS

The customer is responsible for final adjustments to this machine before operation. These adjustments should be made before filling the hopper with material.

1. Make sure the main power is in the off position.
2. Set the speed control dial for the conveyor to "0".
3. Place a flat on the conveyor infeed side, adjacent to the control box. Adjust the guard rail in or out as needed. The flat should have 1/4" side to side movement.
4. Adjust the soil deflector as needed above the conveyor area. The deflector is used to direct the material more precisely into the containers. when using flats.
5. Move the tray to the outfeed end of the conveyor. The rotary brush is lowered to the lowest possible position for shipping purposes. Adjust the height of the rotary brush with the crank, on the motor side of the brush, so that it lightly touches the flat as it passes. To remove

additional soil from the tray, lower the brush assembly (turn the crank clockwise); for less soil removal, raise it (turn the crank counter-clockwise).

6. Slide the tray to the wiper position. Use the center crank adjustment to position the wiper within an 1/8" of the top of the flat, but not touching it. Tighten the knobs when accomplished.
7. Push the tray to the middle area of the conveyor, under the power sweep assembly. Loosen the bolts for the gear motor mount to position the power sweep assembly so the wiper blades are within 1/4" of the flat. Tighten the bolts for the mount. Loosen the knob at the power sweep mount and adjust the height of the power sweep so that it is slightly 1/4" above the flat. When properly adjusted, tighten the knob on the center crank shaft. The power sweep can also be adjusted from side to side, in the same manner. The power sweep distributes the soil evenly across the flat.

INITIAL START-UP

Make sure all body parts, hair, clothing, jewelry, etc., are clear of the machine.

1. Set the speed control dials for the conveyor and soil to "0".
2. Turn the sweeps and soil chain power switches to the OFF position.
3. Turn the sweep switch to the ON position if using for flats (NOT needed for pots). Sweep storage location is on side of incline, to the right of conveyor on in-feed side.
4. The speed of the conveyor will determine the rate of production.
5. Turn the soil switch to the ON position. Use the control dial to adjust the speed of the soil chain slowly. Observe the chain and flight assembly as it cycles through the machine.
6. If so equipped, start the vibrator in the same method used for the sweep and soil.
7. Turn the machine off when you are assured all parts are operating smoothly.

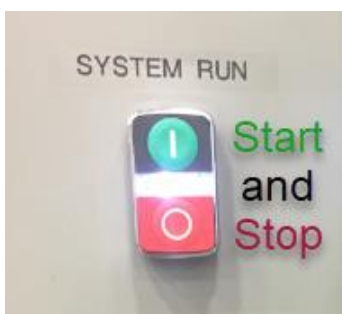
GENERAL OPERATING INSTRUCTIONS

These operating instructions are for the ***Horticulture Equipment and Services LLC Flat Filler***. The settings used for customer operations are determined by each user, and should be recorded individually.

If you encounter a situation that is not covered by this manual, please contact the Customer Service Department at ***Horticulture Equipment and Services LLC***. This office is open Monday through Friday-8 a.m. to 4 p.m., Central Standard Time. Call 931-607-4170 or 931-619-9144, and our service representative will be glad to answer any questions or concerns you may have. You

may also contact Horticulture Equipment and Services LLC online at www.hortequipment.com or email at arowe@hortequipment.com.

The **Horticulture Equipment and Services LLC Flat Filler** is equipped with an **EMERGENCY STOP** button. If at any time the machine must be stopped immediately, an **EMERGENCY STOP** button is on the control panel and on the Hopper at the outfeed side. To stop machine, simply push the **RED** button. To restart the machine, turning it to the right. Push the **GREEN** start button on the control box to restart the machine.



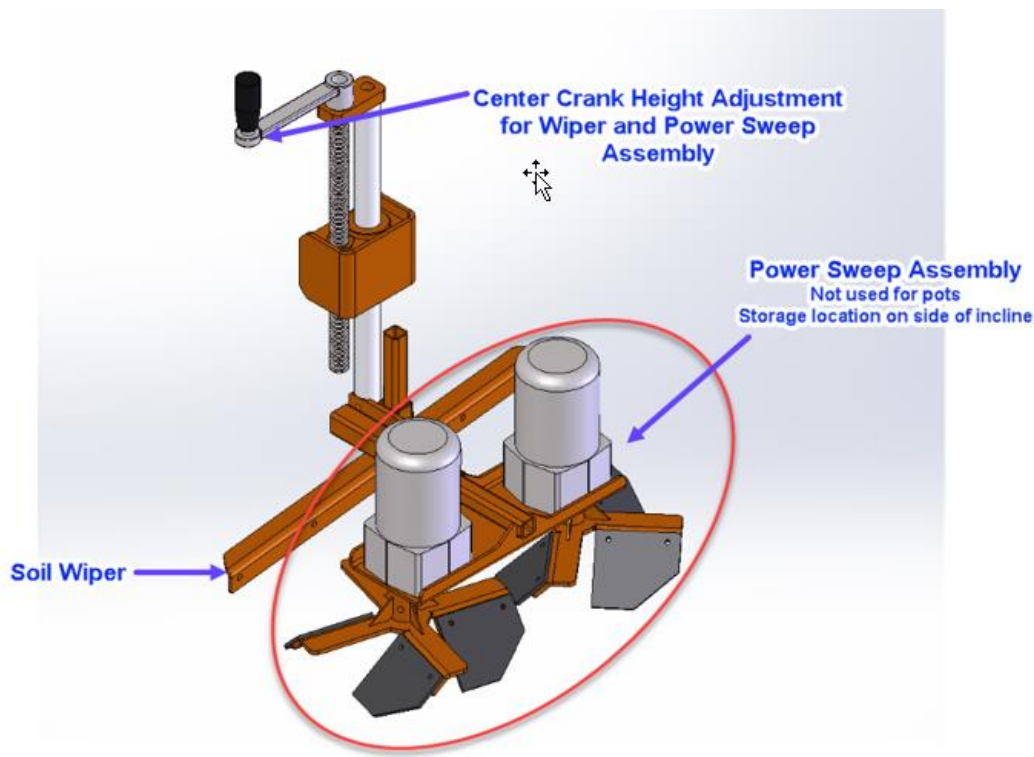
Horticulture Equipment and Services LLC Flat Filler is designed to work per production needs. Determine the number of containers required per minute, then set the speed of the conveyor to accomplish this number. Set soil speed to fill each container at the rate of production required. Adjust the power sweep as needed for compaction.

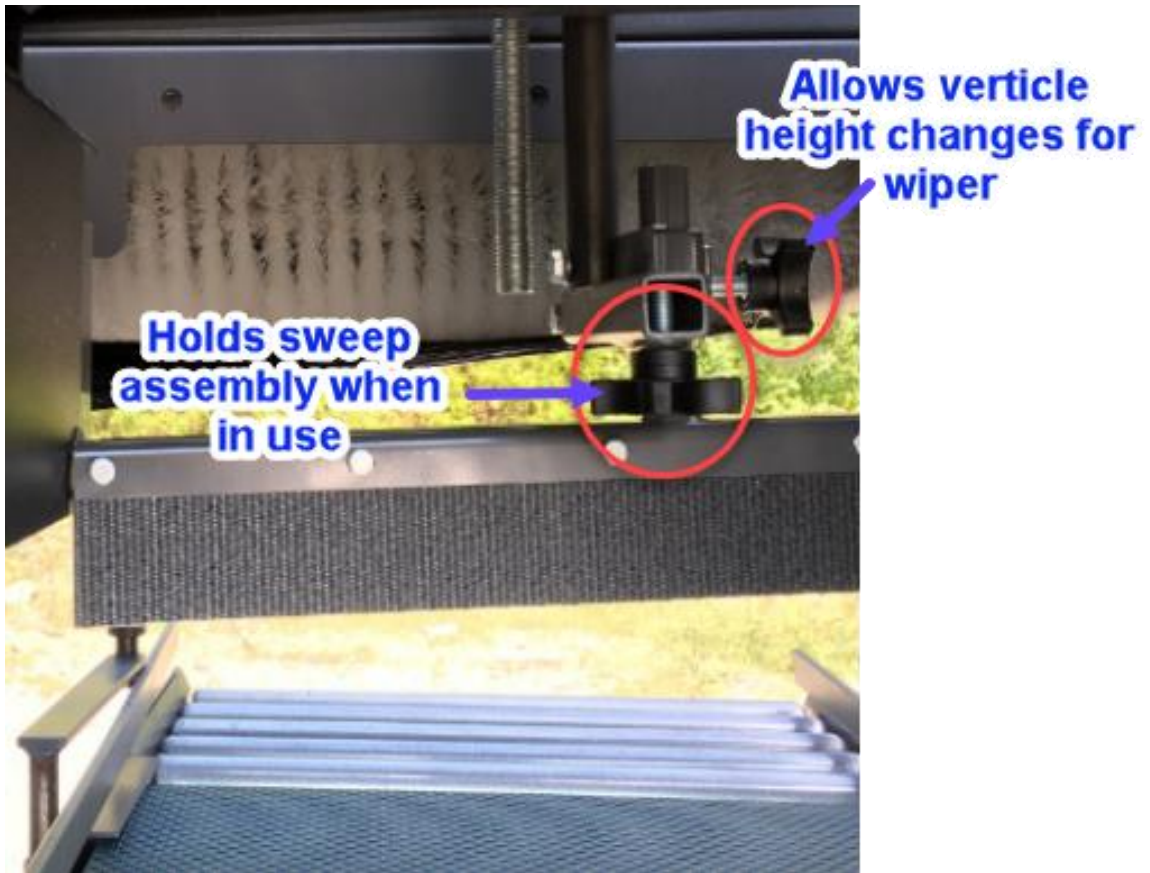
When using **flats** (or **trays**), adjust the soil deflector more to the right (down) to cover the full width of the flat. Adjust the guide rail to within 1/4" of the side of the flat, and adjust the power sweep as needed. Check the height of the wiper and rotary brush.

When using **pots** (or **baskets**), adjust the soil deflector more to the left (up) to direct the material more precisely over the containers. It is not necessary to use the adjustable rail assembly for pots. Adjust it fully to the hopper side of the machine. Feed the pots (or baskets) onto the belt 1/2" from the stationary rail. The power sweep is not used for pots (or baskets). Adjust it to clear the height of the pot, or remove the power sweep entirely. When adjusting for pots 10" or taller, the 10-1/2" sweep assembly must be removed from the motor shaft to move the motor high enough and toward the stationary rail far enough to clear the pots. (Optional vibrator should not be used with pots).

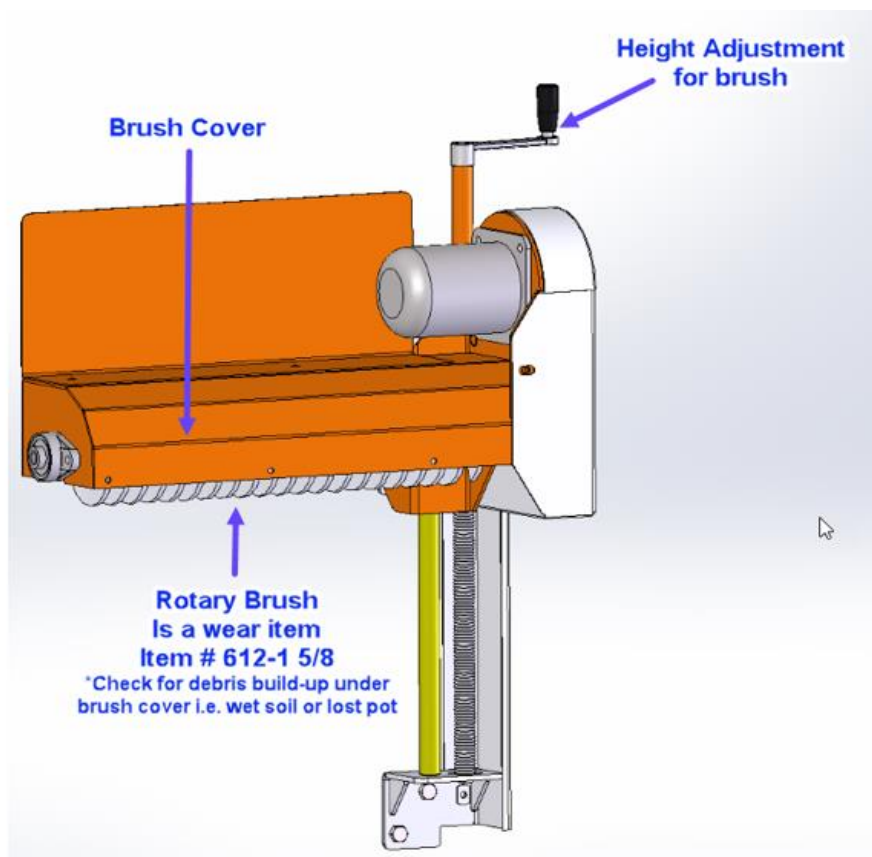
1. Load the soil mix into the hopper.
2. Adjust the soil deflector per the type of container being used.
3. Make sure the variable speed control for the conveyor is set to "0".
4. Make arrangements for container take-off at the outfeed end of the conveyor.
5. Place container onto the belt.

6. Clear all body parts, clothing, jewelry, hair, etc., from the machine, and turn the main power switch to the on position.
7. Adjust the variable speed control for the conveyor until the belt moves slowly.
! Note: Master must be above 0, preferably 5, for belt and soil to operate.
8. Run containers through the machine while adjusting the speed of the conveyor. Continue to do so until the correct conveyor speed is found for production requirements.
9. Turn the soil switch to the on position and set delivery speed (master is best set to #5, this represents 50%. This will allow you to speed up and slow down with the master keeping soil and conveyor in sync with your settings).
10. Feed containers onto the conveyor belt again while adjusting the speed control for the soil. Adjust the soil deflector as needed to dispense material over the entire container. Adjust the soil speed control until the containers are filled to satisfaction for the production speed required.
11. When using trays, turn the sweep switch on. The power sweep should not touch the tray, but sweep the material over the top of the tray for better distribution. For more compaction, lower the sweep.
12. Check the height of the wiper as the container passes beneath it. The wiper should not touch the top of the container.





13. The rotary brush should brush the top of the container slightly. Lower the brush to remove additional material from the container.

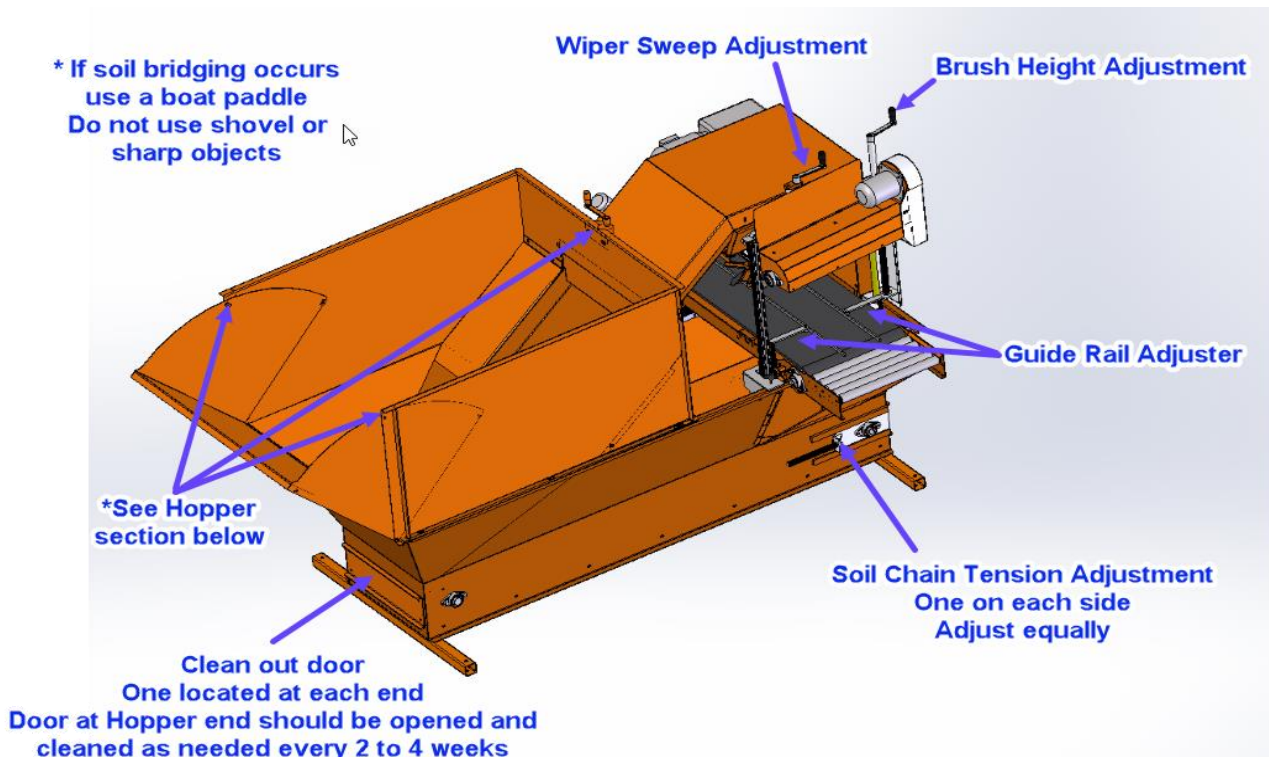


14. Check the compaction of the soil mix in the containers. If the containers are going through the machine properly and compaction is satisfactory, you may wish to record your speed settings, and the height of the brush, wiper, and power sweep.
15. Make sure any excess material drops into the return chute hopper as the containers pass over the roller transfer. The slide chute delivers the material back to the soil chain.
16. When all functions have been adjusted as needed, and production is correct and complete, press the red system run button to shut down the equipment. Turn the power switch to off.

If the tray compaction is not satisfactory, additional adjustments may be needed to the parts mentioned above. Cell compaction is determined by the amount of soil delivered to the container, the height of the power sweep and rotary brush, and the output speed of the conveyor and soil chain.

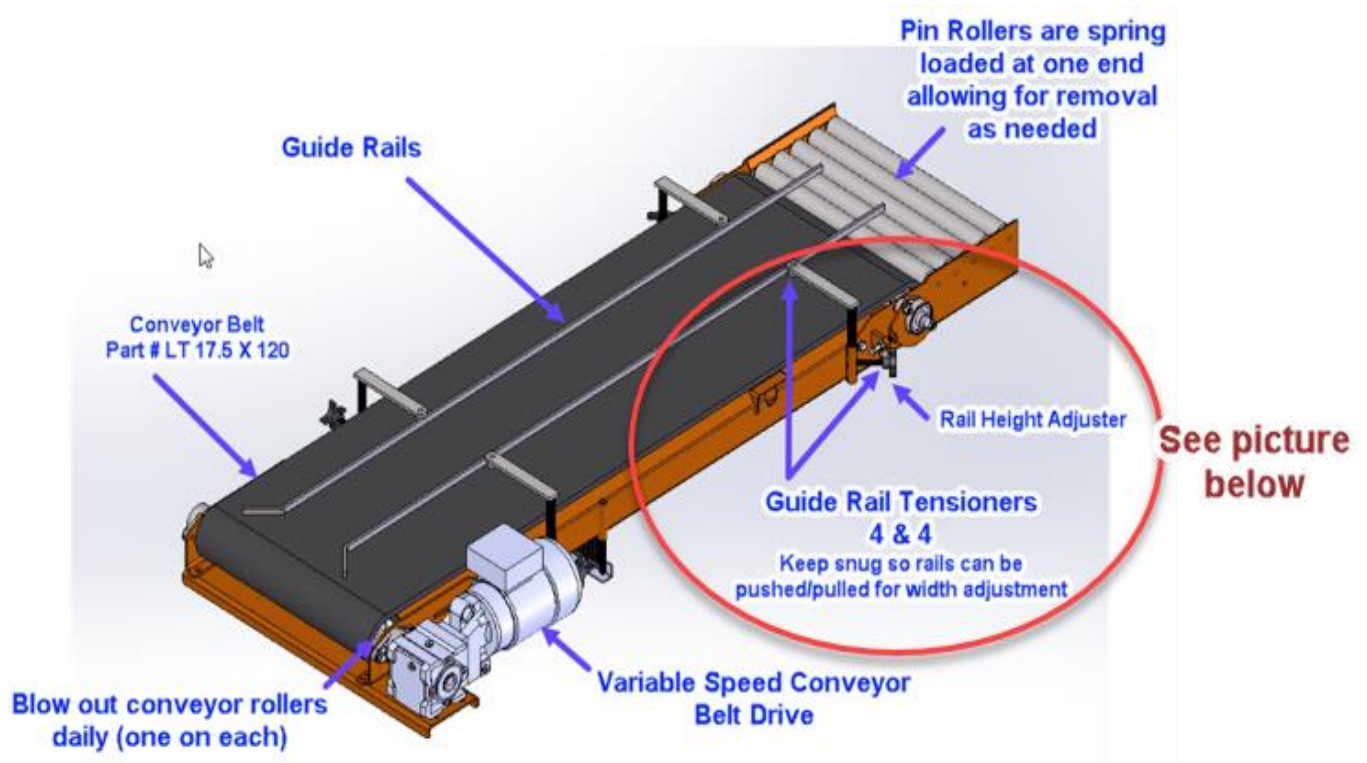
The **Horticulture Equipment and Services LLC Flat Filler** is equipped to integrate with an existing potting or transplanting system. **Allow only a qualified electrician to make the proper electrical connections.** Turn the main power switch to **AUTO**. This allows a signal from the existing system to start the **Horticulture Equipment and Services LLC Flat Filler**, fill containers, and deliver them to the system as needed, then stop the **Horticulture Equipment and Services LLC Flat Filler**.

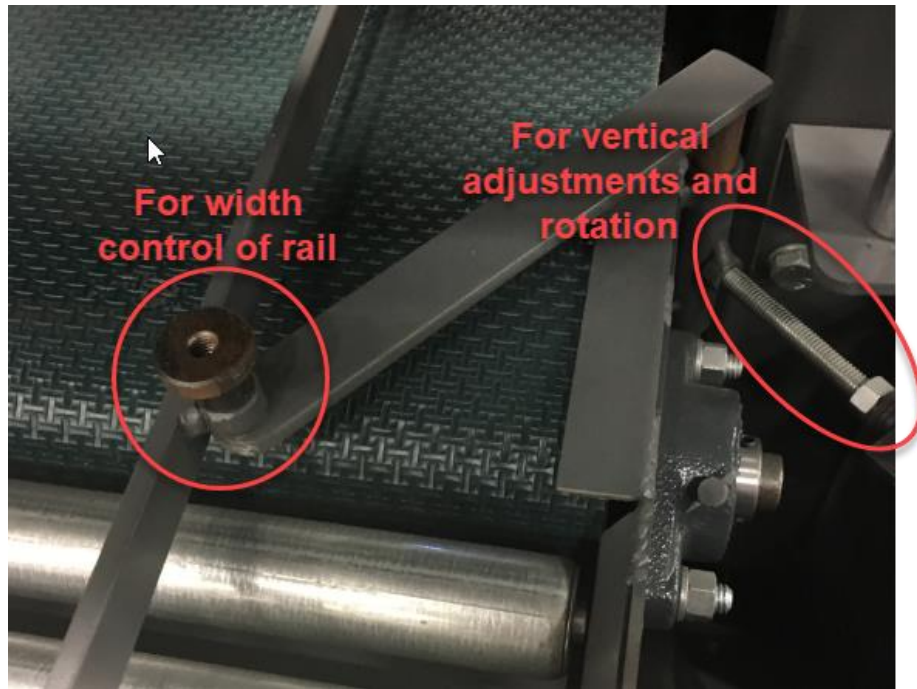
GENERAL MAINTENANCE



The **Horticulture Equipment and Services LLC Flat Filler** is built for maximum performance and minimum downtime and maintenance. As with all equipment, there are points to check as the machine is first run.

- ✓ **BEARINGS** - **Bearings require grease!** During peak season when machines are running 8 to 16 hours daily, they will require **1 shot of grease** (hand held grease gun) per bearing per quarter. Use a lithium-based grease (NGLI grade 2) such as Mobil 532, Mobilux #2, or B Shell Alvania #2. **DO NOT OVER-GREASE THE BEARINGS-this will damage the seal.** Lubricate the bearings while the machine is operating. You may notice the bearing will get warmer after greasing, this is normal as the grease is distributed throughout the bearing. The linear bearings used for the power sweep should be sprayed with a silicon spray lubricant. **Horticulture Equipment and Services LLC** uses a DuPont spray that, in addition to lubricating, also repels dirt and debris.
- ✓ **CONVEYOR BELT** - Belts must be checked periodically to insure belt lifespan and prevent down time due to broken lacing or tears. The belt used on the **Horticulture Equipment and Services LLC Flat Filler**.

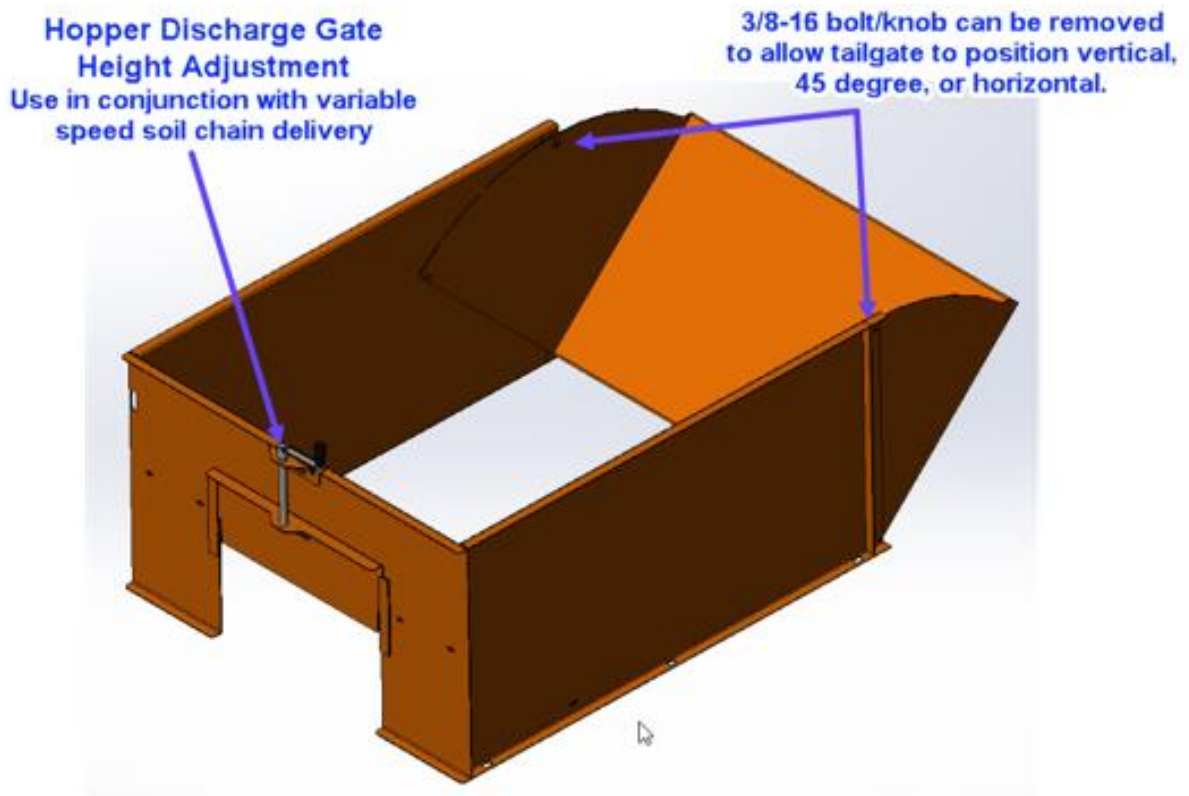




When adjusting the tension on the belt, tighten it just enough to move with the rollers. Belt tension **does not** need to be tight enough to stretch the belt.

1. Adjust the bearings at the drive end of the conveyor to straighten the belt. Use the take-up assembly on the motor side for adjustment. Loosen the bolts in the slots of the take-up assembly. Turn the nut on the threaded rod until the belt is straight. Lock the rod with the second nut, and tighten the bolts in the slots.
 2. If further adjustment is needed, loosen the bolts for the bearing on the opposite side of the drive end, and slide the bearing in the slotted mounts until straight, then tighten the bolts
- ✓ **CHAIN AND FLIGHT** - The soil chain and flight should be checked after the first day's use. As with any chain, the chain will loosen and stretch during a break-in period. The soil chain adjustment is located at either side of the bottom of the ***Horticulture Equipment and Services LLC Flat Filler***, at the control box end of the machine. Adjust the nuts on the threaded rod to move the bottom shaft until the chain reaches the correct tension. The soil chain is at proper tension when it can be raised from the bed approximately 2 to 3 inches while the soil hopper is empty. An occasional check for correct tension will increase the life of the chain. **DO NOT APPLY LUBRICANT TO THIS CHAIN** (vegetable oil is allowable during off season to clean chain ONLY). See **Abnormal Noise from Soil Chain Area** in Trouble Shooting Section.

- ✓ **HOPPER** - Periodic cleaning of the hopper bottom and soil chain will help minimize the risk of malfunctions. Clean-out doors are located at the bottom of the hopper, and at the opposite end of the machine. **ALWAYS TURN THE MAIN POWER SWITCH TO "OFF" BEFORE OPENING THE CLEAN-OUT DOORS.** Material left in the bottom of the hopper will dry and harden, adding stress against the dragging action of the soil chain. Dislodge the material in the corners on either side of both cleanout doors every 2-4 weeks. A wire brush will clean the soil chain as needed.



- ✓ **MOTORS AND GEARBOXES** - Occasional dusting (vacuuming) of the motors and gearboxes on the machine will aid heat transfer and motor cooling. At the same time, check that all electrical connections are tight. All gearboxes used on the ***Horticulture Equipment and Services LLC Flat Filler*** utilize a vent-free design and are factory filled with synthetic semi-fluid grease formulated for lifetime lubrication in a wide range of operating temperatures. Therefore, the gearboxes are maintenance-free.
- ✓ **EXTENDED SHUT-DOWN** - When the machine is out of use for extended periods of time, a general cleaning and lubrication is recommended.
 1. Remove any material from the hopper, especially in corners.

2. Brush/blow the material from soil chain (to lubricate only the soil chain use vegetable oil)., and remove dust from the motors and gearboxes.
3. Brush material from the conveyor belt and transfer area.
4. Lower rotary brush to the lowest setting.
5. Make sure all bearings are greased only when warm. One pump only, do not break seal.
6. **DO NOT** apply lubricant of any kind to pulleys, plastic adjustment racks, or the linear bearings holding the extrusion material.
7. Unplug the machine to power down the inverters.

GENERAL SAFETY INFORMATION

- Follow all local and national electrical and safety codes.
- Motor must be properly grounded. This should be accomplished by using a separate ground wire connected to the green grounding screw on the motor shell. **FAILURE TO PROPERLY GROUND UNIT COULD RESULT IN SEVERE ELECTRICAL SHOCK** (factory installed).
- Always disconnect power source before working on or near a motor or its connected load. If the power disconnect point is out of sight, lock it in the open position and tag it to prevent unexpected application of power. Do not depend on a motor control device (motor starter, etc.) to insure against unexpected motor start up.
- Be careful when touching the exterior of an operating motor, it may be hot enough to be painful or cause injury. This condition is normal if operated at rated load and voltage. Modern motors are designed to operate at these higher temperatures.
- Make certain the power source conforms to the requirements of the motor nameplate.
- When cleaning electrical or electronic equipment, always use a cleaning agent that will not attack the finish or insulation.
- All moving parts should be guarded.
- The temperature in the area surrounding the motor should not exceed the maximum ambient temperature shown on the nameplate.
- Protect power cable and all electrical wires from encountering sharp edges and objects.
- Do not kink power cable and never allow the cable to encounter oil, grease, hot surfaces, or chemicals.
- Do not use extension cords if possible.

OPTIONAL ACCESSORIES FOR THE HORTICULTURE EQUIPMENT SERVICES FLAT FILLER

- **VIBRATOR** - A vibrator to mount to the conveyor is available as an option. This unit is centrally located at the underside of the conveyor, and enhances compaction of the material in the containers. It has an individual power switch on the control panel. If purchased with a vibrator, the speed control is located on the control panel.
- **FRAME AND PNEUMATIC TIRES - 10"** - 2 rigid (non-swivel) tires and 2 swivel tires are included in this option. The larger pneumatic tires are especially suited for external environments and rough surfaces.
- **HOLD-DOWN RODS** - This accessory has 4 rods to hold the inserts down in the bedding flats as they progress through the filling process. To use this accessory, install one 3/8" nut and one 3/8" flat washer onto the threaded rod in the middle of the hold-down rod. Insert the threaded rod into the slotted bracket on the rotary brush assembly. Install a 3/8" lock washer, 3/8" flat washer, and 3/8" nut above the slot to hold. Align the hold-down rods with the inserts in the bedding flat. Rods should be approximately 1/8" above the top of the insert. Tighten the nuts on the threaded rod to hold in place. Repeat for each rod.
- **AIR ATTACHMENT** - The customer must furnish compressed air (30 P.S.I. will be more than enough). The air attachments are bolted onto the brush frame at the outfeed end of the conveyor. The air stream is directed along the long side of the flat to remove any excess soil remaining along the sides or edge of the tray. Each nozzle assembly is adjustable for height and direction. A flow control valve for each adjustable *Loc Line*.

TROUBLE SHOOTING TIPS

SYMPTOM	SOLUTION
Machine will not start	<ul style="list-style-type: none"> • Check incoming power, be sure machine is plugged into a good power source (check breaker) • Check E-stops must be in Open position • Check auto-manual selector switch (on front of cabinet) must be in Manual mode
One function not operating	<ul style="list-style-type: none"> • Unplug machine or trip main breaker. All internal lights of control cabinet should go dark. This will clear VFD faults. Power up machine. If problem persists record fault code on front of VFD refer to VFD book in cabinet

	<p>or call Customer Service. You may need to inspect all mechanics related to the inoperable function.</p>
<p>Abnormal Noise from Soil Chain Area</p>	<ul style="list-style-type: none"> • Tighten soil chain • If soil chain has been tightened multiple times, back off chain adjusters at control box end bottom of machine, gather slack in the chain and remove necessary number of links (6 masters available for this). • If pins are cut throat or side bars are oval shaped, it is necessary to buy a new chain from HES (part #662134 Soil Chain).
<p>Plastic on floor and Incline</p>	<ul style="list-style-type: none"> • Inspect for wear. This is installed at factory to prolong life of machine and quieten movement.
<p>Other available help</p>	<ul style="list-style-type: none"> • Access online Q & A available at http://www.hortequipment.com/industry-faqs