CT-10 COMPOST ENCAPSULATOR

OVERVIEW:

The numbers in brackets {} relate to the numbers in the corresponding pictures.
RIGHT AND LEFT IS DETERMINED BY FACING THE OPERATOR PLATFORM

This unit is designed for the operator needing to do medium to large amounts of material at a time. Some temporary storage of raw materials may be more efficient. Bagging a larger amount at a time would minimize labor. Store enough material to fill one or 2 Pod's at a time. The mixing and blending with water will take longer than Podding. Filling the hopper and activating the hydraulic cylinder, pushes the material into the Pod As the material is pushed into the pod, the machine moves forward. When ready, retract the ram and refill the hopper to continue the pod filling process. With the self-powered unit, extra equipment such as a tractor is not needed.

To operate the Encapsulator, simply set the brakes (there are 2 of them) to the proper setting, as directed by the Company technician's instructions, fill the hopper and activate the ram. Each of these operations is described in more detail in this manual. The hydraulics are all self contained to eliminate contamination.

TURN ON THE OIL

A valve on the bottom hose of the hydraulic tank needs to be turned in a counter-clockwise direction to turn on the hydraulic oil flow to the pump. This may have been turned off for shipment. **In case of a broken hose or some emergency, close the valve to stop the oil from draining.**

CHANGE THE FILTER EVERY 150 WORKING HOURS OR ONCE PER YEAR UPON SPRING STARTUP. This will keep the oil clean and serviceable.

STARTING THE ENGINE

The operator's panel has a key switch to start the engine {1} Turn the key to the left to preheat the start sequence. The blue light will shine. When this light goes out, turn the key to the right or start position. It will be necessary to adjust the throttle control.

OPERATOR PLATFORM

Throttle {2} The throttle is mounted on the side rail on the operator platform. It is black and has a red top. It can be adjusted 2 ways. 1. Turn the knob to the right to accelerate the engine and to the left to slow down. 2. Depress the red knob and lift up on the unit, it will speed up the engine. Push down the button to slow engine rpm. **The engine should run at 2,000 rpm on the gauge when working. This will produce enough hydraulic pressure to activate the cylinder. It may have to be slightly higher or lower rpm to smooth the hydraulic vibration.** Experimenting will find the best speed.

Air pressure gauge; To monitor the air pressure tank **,** which controls the air brake pressure.

Air compressor switch: Turns the compressor on and off. Leave on when running the brakes.

Brake pressure gauges and controls: Shows the amount of pressure applied in each brake. The left controls the left and the same for the right. These gauges need to be monitored to control the direction of the encapsulator and filling the pod to proper capacity.

Front wheel steering lever: On the right side on the handrail is a valve bank with 3 levers. One controls the front wheel steering to move from pod to pod and control direction when podding.

Travel; The second lever is for travel. Lifting or depressing the lever moves the machine forward or in reverse.

Manual hydraulic cylinder control: This pushes and retracts the hydraulic cylinder to fill the pod, manually. Can be used to override the remote control system.

Remote control switch: The bagger has a remote control feature. The switch to activate is on the control panel and turns on or off the remote control inside the control panel. There is a solenoid on the hydraulic control valve bank, which activates the lever. Turning off the switch deactivates the solenoid. **THE SWITCH NEEDS TO BE TURNED OFF IF THE SYSTEM IS NOT TO BE USED FOR SOMETIME AS IT DRAINS ON THE BATTERY.**

Front wheels hydraulic brake control: In extreme cases extra braking may be required. The front drive wheels have brakes available for additional podding braking. This hand control is on the hand rail, and is activated by screwing in the round valve on the side of the unit and pumping up the pressure, which shows on the gauge, increases the braking pressure. To release the pressure, unscrew the control valve. This should only be used if podding conditions are on very **slippery ground.**

TRAVEL AND STEERING

Remove all brake pressure on all wheels. **Lock in one axle hub for power to wheel drive {3}** If sandy or rough ground (not pavement) it may be necessary to lock in both axle hubs for traction. Try to run with only one hub locked to prevent wheel drive damage. Activate the drive lever to the forward position. **Move slowly to get the feel of the wheel drive. The hydraulic pressure is immediate and may cause a jerk.**

To steer use the steering lever on the operator platform. It is hydraulic and has **immediate response**, **so activate slowly**. Steering may override the drive hydraulic pressure and cause it to slow down. This will change when the steering lever is released.

MOVE THE BAGGER TO SITE

Position the bagger to load from the side and work toward your piles of raw material. Place on a North /South direction so both sides of the POD are exposed to the sun. This is the preferred way. Leave room to work from both sides of the **first POD**. This will leave ample room to harvest the POD when it is composted. Leave enough room at both ends for the blower and to disconnect the bagger from the POD.

ENCAPSULATOR BRAKING

The brakes to control bagging pressure are in the wheels. They are controlled by 2 (two)-airbrake hand controls with gauges located on the control panel **{2}** Each has a site gauge to visually see the amount of pressure being applied. This pressure setting will vary according to the ground surfaces you are working on. If the surface is soft or uphill in the bagging direction, for example, it will require less pressure than a hard surface or going down hill. The setup person from ABE will give you directions during start up. A flat hard surface is desired. The smoother and more level the easier to load and unload the pod. Brake pressure should be applied to hold the wheels while allowing only minimal tire rotation, but not sliding. This is normally between 15 to 40# on the air gauge. If the material is filling the pod over full, porosity can be minimized and the pod could rupture or lose airflow

Be careful of overfilling. If **bulges** occur, something could be stopping the forward movement of the machine. Check the ground clearance of the machine for some type of restriction. Normal bumpiness of the pod is controlled by the size and shape of the material being put into the bag. A long cut and dry type material will leave a more uneven bag than a smaller size more consistent shape and moisture. Too large of bumps or bulges can rupture the pod plastic, so be aware of the shape of the pod at all times.

PLACING THE BAG ON THE MACHINE

The CT-10 Encapsulator uses a 10’ diameter by 200’ long, green plastic bag. This is shipped 1 (one) per box. In order to prevent rolling or unfolding, try to leave in the box until use. For placement on the machine follow the instructions.

BOX PLACEMENT

On the outside of the box, on the end, is an arrow pointing the direction to place the bag. Point the arrow toward the tunnel as directed.

- Cut the 3 bands off the box and remove.
- Unfold the lid and **LIFT THE OUTSIDE OFF.**

LOWER THE BAG PAN

Lower the bag pan by releasing the chain. This is located on the side by the tire. Release the bungee cord from the pan and push forward toward the hopper so it is out of the way.

BAG PLACEMENT

- Unfold the plastic box liner.
- Unfold the bag and lay out flat.
- Remove the 2 strings holding all the folds together, but **NOT THE PAPER TAPES.**
- Lower the bag cradle using the electric winch, until on the ground. Leave the cable connected for lifting the bag onto the tunnel.
- Take 1/2 the bag, lift up and onto the bag cradle and push forward.
- Move the bungee cord to the front edge of the bag and out from under the bag.
- Using the bag boom, lift the bag up on top of the tunnel and push forward.
- Push each side around the ends and under the bottom, on top of the bag pan. Keep folds flat.
- Push the entire bag forward as far as possible.
- Remove all the paper tapes from the bag.
- Lift the bag pan up and attach the chain using the bag pan lift.
- Pull the bungee cord back over the top of the bag and attach the ends to the bag pan ears.

WHICH END DO YOU PULL?

The bag has 2 ends. The bag should now be placed on the tunnel with the exposed black side to the front part of the tunnel, closest to the feed hopper. **Do not pull the outside end.** It will leave the outside of the bag with the black exposed.

PULL THE END UNDER THE BAG CLOSEST TO THE TUNNEL FRAME. As this pulls off, the green side of the bag should be exposed. The bungee cord placed over the top of the bag should be over 1 layer and all folds behind it.

BEFORE PULLING OFF THE BAG AND SEALING THE END, CONNECT THE PIPING

At this point the perforated pipe has to be run from the pipe receiver reels through the steel guides in the bottom and extend past the end for 3'. The solid 4" pipe will need to be connected; however, the bag will need to be sealed and a small cut made, to extend the pipe outside the pod. This cut should be an "X" shape and the small ears left can be taped to the exiting pipe for a good seal. The step by step instructions follows. **CAUTION: *AS YOU ARE BAGGING, CLOSE INSPECTION OF THE UNROLLING OF THE AIR TUBE IS REQUIRED. AS IT UNROLLS; IT TENDS TO PULL TOWARD THE CENTER OF THE CORE AND CAN RESTRICT UNROLLING. AFTER 2-3 PUSHES OF THE RAM, INSPECT AND SPIN THE REEL TO MAKE SURE IT TURNS FREELY.***

AERATION TUBING

The aeration tubing comes in a 190' roll, and is specially drilled to our specifications. Regular drain field pipe will not work for this application. Place the tubing on the pipe reels with the **OUTSIDE END ROLLING OFF THE ROLL TOWARD THE FRONT OF THE MACHINE** and then cut the strings. Take the outside end and run it through the steel tube on the bottom of the machine until it extends past the far end by 3'.

CONNECTING THE BLOWER ON THE FINISH END OF THE BAG

At the start end of the bag, pull out some extra pipe, about 4' on each. Connect the 2 pipes together using a coupling. Leave enough so it will stay put in the material and feed off the reels. ***Watch the reel to see that it feeds off for the first few pushes.*** Start filling the pod.

Fill the bag to the end. Connect the 2 pipes with a wyee to the 4" solid pipe and tape the joints. Cut a small 4" X for pipe exit. Cut the exit hole above the sealstrip about 1' and close to the material in the pod so it will not leak leachate. Tape the exit hole with the 4 plastic ears attached to the pipe and around over the cut so all is sealed. Leave enough plastic bag at the end of filling to close and seal. **Leave at least 3 folds to be ample.**

Seal with the MasterSeal strip. **For more instructions, see bag-sealing section.**

CONNECTING THE BLOWER AT THE START END OF THE POD

Pull 4 or 5' of pipe thru the steel guides and connect with a wyee and tape the joints Pull enough bag off the tunnel to seal, usually about 6 to 8'. On the side that the blower is to be

connected and about 4' from the back edge of the tunnel cut a 4" X. Run a piece of solid black pipe in and connect to the wyee and tape the joint. On the outside of the bag tape the 4 ears and the pipe together for a seal Using a master seal strip seal the end of the bag and start filling. When you complete filling the pod connect the 2 pipes together with a coupling and tape the joints.

AFTER YOU HAVE PUT SOME MATERIAL IN THE BAG, THE MACHINE STARTS MOVING FORWARD. NOTE: The material will push the bag back a few feet when first starting.

The pipe can now be connected to the blower and aeration started, if connecting the blower at the start end. If connecting at the finish end, then the pod will have to be filled before blower connection.

FILLING THE POD

The CT-10 is built to side load with a loader or an optional side load conveyor.

Make sure to **RETRACT THE RAM** all the way so the hopper is open to accept a load of material. With a front loader, put a bucket full of material in the hopper. Depending on the size of the loader bucket it may take 5 to 6 loads to fill the hopper to the top of the tunnel opening. **As the material is being placed in the hopper the inoculant sprayer should be on and spraying.** Activate the ram using the control lever mounted on the front of the machine. Push the ram and material to the far end. Keep the hopper full above the tunnel opening so the top of the pod stays full. If material builds up and tries to fall over the back side of the push plate, stop the forward movement and reverse a bit and let the material fall down in front of the push plate, then repeat the push forward.

Use the brakes to hold pressure against the filling, to fill the pod but not over pack.

Repeat the filling process until 3 folds of bag are left on the tunnel, and then stop filling. This will leave enough bag to seal the end. **CUT THE PIPES OFF WHERE IT ENTERS THE STEEL TUBE ON THE LAST PUSH. PULL THE MACHINE FORWARD UNTIL THE BAG IS COMPLETELY OFF THE TUNNEL AND MOVE TO THE NEXT BAGGING POSITION.** Cut the pipe off close to the material. Use the connection listed above as to start or finish end to connect the blower.

INOCULANT APPLICATION

Each machine is equipped with an inoculant tank {5} and spray attachment. {6} The nozzles should be adjusted to spray evenly over the material as it is put into the hopper.

- The tank holds 27 gallons. Use clean water to prevent plugging the nozzles.
- Mix in inoculant according to the amount of material you expect to pod at that immediate

time. Left in the tank the inoculant will form molds and yeast cultures that can plug the screen and nozzles.

- Each pouch of Ag-Bag Compost Plus will treat 25 tons of material.
- You will use 8 pouches of powdered inoculant with water, per full bag of material. Adjust the amount of water and inoculant to the amount of material you will bag in the next 2 days. Drain the tank if more than a few days are between bagging. If left in the tank any longer it will build growth.
- Turn on the inoculant spray as you fill the hopper. Don't leave it on all the time, as inoculant will be wasted. Shut it off between lulls in loading.
- When finished bagging for a length of time, drain the tank, flush it out and clean the filter.

RUN THE PRESSURE GAUGE AT 10-20 # ON THE SPRAYER. Adjust by turning in and out on the control. It will change, so watching is important, as high pressure will waste inoculant.

SEALING THE POD

After filling the pod, leaving the last 3 folds on the tunnel, pull the bagger off the end of the pod. Use the sealstrip to seal the end of the bag (see sealstrip instructions). Place the seal as close to the material as you can without having particles between the parts of the sealstrip. This will eliminate loose plastic blowing in the wind. **CAREFULLY CUT OFF THE EXCESS PLASTIC THAT IS BEYOND THE SEALSTRIP AND DISCARD. LEAVE ABOUT 6" SO THE STRIP WILL BE SECURED.** This end will inflate as the blower turns on.

VENTING

Insert the vents at 30' intervals down each side of the bag. Follow the directions listed below. Pace off 8 to 10 steps between each vent and install about 2/3 way up the side of the bag. Use these vents to insert the temperature probes.

Adjust the opening of the valve 1/4 open at the blower end of the bag. Open each valve a bit more, as you move down the bag, so at the far end they will be fully open. This will move the air to the far end and even out air distribution. These can be adjusted to pull more to one spot by opening and closing as needed. **CAUTION: Do not close all the valves with the blower running at any time. This will overly stretch the bag and could cause a rupture, a split or even blow the sealstrip off.** The vents allow fresh oxygen to enter the bag and exhaust CO^2 and other gases required for composting to happen. The vents are reusable after the bag is emptied. Upon unloading the

bag remove the vent valves and save for extra venting or drying.

CONNECTING TO THE BLOWER UNIT

Slip the 4" solid pipe over the outlet on the blower. Tape pipe to the steel blower outlet.

TIMER CONTROLS

Each blower is designed for 110v 60hz electric supply. It should be connected to a 20 amp service for load protection upon startup. The motor startup is 5.6 amps and runs at about 2 amps.

SET THE TIMERS

On the right side if the timer unit, at the top and bottom is a small Phillips screw. This has 4 settings to control the sequence on the dial. By turning the screw, it will turn from 10s to 10m to 10 hrs to sec. It should be set on 10m when it arrives. (See diagram) In the bottom left is a Phillips screw to change the minutes and hours on the face of the dial. This should be set at 0.2 as the first setting. This will position the timer to go on and off in minutes.

To start the first cycle, set the timer red pointer (center of the turn dial) to 2 minutes on. Turn the green pointer to 10 (this leaves the cycle off for 10 minutes). All times will be changed with these 2 setting pointers. Further changes will be requested from ABE if required during the cycle time. To check times use a watch and make sure the times are as required.

As the compost cycle continues less or more air may need to be applied according to the temperatures. At the end of the cycle air requirements may be changed to full time on by making adjustments as previously outlined.

B LOWER REQUIREMENTS

ONE PERSON AT THE SITE SHOULD BE ASSIGNED TO MAKE CHANGES. ALL OTHERS SHOULD BE EXCLUDED UNLESS CONFIRMED BY SITE OPERATOR OR ABE. UN-AUTHORIZED CHANGES CAN SLOW DOWN, STOP OR COMPLETELY ALTER THE DESIRED RESULTS. One person will be asked to be in charge at the time the ABE person instructs and teaches the site operators about the system. This person will be asked to forward temperature readings and other information to ABE as required. Adjustments will be made as

the cycle progresses toward completion. With experience the site operator will understand the needs as the compost cycle continues into the next run of material.

UNLOADING THE POD (BAG)

Before disturbing the pod, remove all the vent valves and temperature probes and store for future use. When the matrix has completed its composting cycle, the material can be left in the bag to cure or (preferable) removed and static piled for 30 days curing time to mature. **Cut the bag at ground level all the way around.** Cut around the seal strip so it can be saved. With 2 people take 1 (one) end and fold over 1/4 of the way down the bag. Go back to the folded over part (black exposed) and pull over the top to 1/2 way down the bag. Finish this process to the end and fold over to make a square package. Tie this up with cord and store for sale or disposal. This is a clean piece of plastic that is LDPE 4 and is recyclable.

THE LOADER should not jam into the pile but place the bucket on top of the pile and drag back some loose material and load this into the bucket. Keep the bucket about 3" off the bottom and above the plastic with the front tires on top. This will stretch the plastic and leave a smooth surface to load from. Drag back each top corner and load. Then to the center again. When completed, go back to the start end and pick up the material left on the bag. As you proceed forward, the bag on the bottom can be picked up and cut off or rolled up to the other end. This will leave a clean area for the next bagging cycle without digging holes in the ground or contaminating the compost with excess dirt.

THE MIGHTY BITE BUCKET

This bucket will fit your loader and is a clam shell type closing from each side to enclose the material. This will grab onto the material without ramming into the pile, saving wear and tear on machinery. It will also cut your loading and unloading time in half as each bucket full holds a lot more than a regular bucket. **Information on request.**

SUPPLIES

Each POD is purchased as a unit from ABE, 2320 SE Ag-Bag Lane, Warrenton, OR 97146, or by calling 1-800-334-7432 and asking for the Compost division.

The BAG is 10'x200' and green in color with black interior. It is specially designed for composting. The color attracts heat and is aesthetically correct for appearance and is hardly noticeable in the surrounding countryside. It is LDPE 4 and is recyclable.
The PIPING is 4" heavy duty perforated at specific intervals for pressurization from end to end. It is **not** an "off-the-shelf" item and is specific to this operation.
The SEALSTRIP is specially designed for ABE to seal our plastic bags. It is available by the roll or precut to specific lengths for the compost bag. It is the best way to seal the bags against leaks. 2 required per POD. A sealstrip tool is sent with the original order to install the inner strip.
The VENTS are a special item developed to give positive vent control on the PODs. When fully closed they are airtight and watertight. They are reusable up to a point. After a few times they will warp, not close properly and must be disposed of. An insertion tool accompanies the vent to place them in the side of the bag. 12 required per POD.
Pouches of INOCULANT are sent with each POD order. Each POD will use 8 pouches. These are mixed with water in the tank for spray distribution on the material. (See inoculant application.)
The above supplies constitute a POD. When ordering, these will be shipped as a unit. The price is inclusive as listed above.

OPTIONAL EQUIPMENT

An optional 4' wide cross conveyor and controls can be mounted on the side of the encapsulator. This allows filling the hopper using a side delivery wagon or truck. This can be used for operations where carrying the load long distances to the pod site are prohibitive. Or where regulations do not allow materials to be placed on the ground to be re-loaded into the hopper. The hopper on second fill will hold approximately 15 yards, which is almost a truckload. This is as fast as using a front loader to fill. Information upon request.