

SUN-MAR CORP. -The Composting Company

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Home & Garden Composters

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400 SM Rev 6



GARDEN COMPOSTER OWNERS MANUAL



OWNER'S MANUAL

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Warning

Follow assembly steps as outlined in the manual. Do not pre-assemble as black end cap plug cannot be removed once inserted.

Accessory Items for Composting

At SUN-MAR, we have developed a number of composting accessory items in response to requests from our customers. These accessories may help to improve composting speeds.

Name	Description	Container	Price*
SUN-MAR "Compost Sure"	Bulking material containing a mix of coarse peat moss, and chopped hemp stalk to provide moisture retention, porosity, and free air space within the compost.	30 litre (7.9USG) /bag	\$10.00*
SUN-MAR "Compost Swift"	Specially selected aerobic bacteria and enzymes.	16 oz. (454 gm) bottle	\$15.50*

**Price does not include freight*

Note:

Current prices should be obtained at the time of ordering. When phoning in an order, please include your credit card number.

Caution

Although composting requires a minimum of 15C (60 F), we recommend the unit be placed in the shade if daytime temperatures are likely to exceed 38 C (100 F).

How Composting Works

Home composting is a natural recycling process in which organic waste is broken down by microbes into minerals and so converted back to earth.

The trick is to get your compost to decompose as fast as possible. The rate at which it breaks down depends on several factors including: oxygen, warmth, moisture, and surface area.

Oxygen is required by the aerobic microbes in the compost as they transform the organic material into carbon dioxide, water vapor and basic minerals. Turning the drum on a SUN-MAR Composter is an easy way of getting oxygen into the compost and encouraging aerobic composting to continue.

Although microbes develop their own heat (causing the core of the compost to get very hot) composting speeds are slower in cold weather. Freezing weather can force the microbes to become dormant.

A good compost needs to have a moisture content of between 40% of 60%. The microbes work at the interface between air and moisture. Moisture allows them to circulate within the compost. If the compost becomes too dry, composting will slow down and eventually stop. If there is too much moisture, the compost becomes saturated and suitable only for the slower activity of anaerobic microbes. Rotating the drum on a SUN-MAR composter distributes the available moisture evenly throughout the entire compost.

Lastly, the surface area of the organic material is important. The smaller the pieces, the more surface area there is for the aerobic microbes to work on, and the faster the rate of decomposition. Larger pieces should be chopped up into 1" pieces for this reason. Tumbling the drum on a SUN-MAR composter exposes different material surfaces to the aerobic microbes and speeds up decomposition.

Trouble Shooting Your Compost

If things go wrong, or you'd just like things to go better, check out this list of possible problems.

Problem	Solution
Compost too dry (less than 40% moisture content)	Add water
Compost too wet (more than 60% moisture)	Let it dry, or add some brown bulking material such as dried leaves, peat moss, pine wood shavings.
Compost not breaking down fast enough	<ul style="list-style-type: none"> - Chop waste up finer - Compost too cold - Insufficient green or brown material - Do not overfill, cut back on new additions
Outer drum too full or cradle leg starting to lift	<p>Increase number of revolutions so compost moves faster through the inner drum.</p> <p>If this is unsuccessful, open input door and rotate drum to remove material through input door.</p> <p>If drum is on rollers, remove them.</p>
Compost not feeding out of output port	<ul style="list-style-type: none"> - Outer drum not yet full enough - Unblock entrance to inner drum with poker - Increase number of rotations

Why Compost

Food and garden waste make up a good percentage of the waste your family produces. Composting allows you to divert this waste, and at the same time offers a valuable source of humus for your own use.

This finished compost is one of nature's best soil amendments. Not only does it provide the nutrients your plants will need, but it also improves soil texture, aeration and the soil's ability to hold water. Compost can also cool the soil's surface and help reduce erosion.

As an added bonus, home composting also provides a valuable educational tool for teaching children about recycling and conservation. If it gets children thinking about biology and voluntarily participating in gardening, isn't it worth the effort?

Initial Start Up

Start by carrying out the start up procedure described below, and then continue with the "Ongoing Maintenance" routine.

Action	Why?
POSITION composter on a flat surface.	For ease of movement and use.
ADD 1-2 gallons of peat moss or composted material (if available) to the drum.	Bulking material will help to retain moisture, and also helps to mix and break up waste material.
ADD waste to drum as finely chopped as possible. Chop larger pieces up into 1" pieces.	The smaller the pieces, the more surface area is presented to the microbes and the faster decomposition will take place.
SPRINKLE "SUN-MAR" Compost Swift into the drum. (Dilute 1 part Compost Swift with 8 parts of water)	This is a mixture of specially prepared microbes and enzymes to assist in breaking down the compost.
ROTATE the drum after shutting the door.	This will mix, aerate, and distribute moisture throughout the compost.

Ongoing Maintenance

The procedure below is designed to keep the compost:

- Moist, but not too wet
- Well Aerated and mixed
- Well Balanced and aerobic
- Moving through the unit

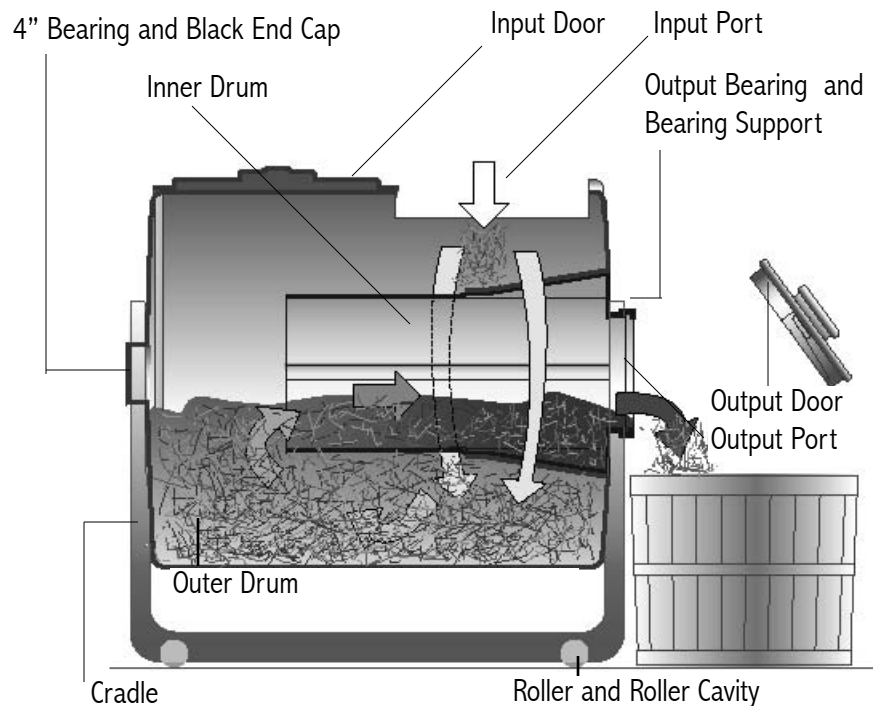
Action	Why?
ADD waste to drum as finely chopped as possible. Chop larger pieces up into 1" pieces.	The smaller the pieces the more surface area is presented to the microbes and the faster decomposition will take place.
ADD same amount of peat moss or composted material (if available) to the drum as the chopped waste.	Bulking material will help to retain moisture, and also helps to mix and break up waste material.
ROTATE drum four or more complete revolutions twice per week. Leaving the drum door at the top when complete.	Bulking material will help to retain moisture, and also helps to mix and break up waste material.
OPEN output port while rotating when the compost is filling half or more of the drum.	Rotation will distribute moisture, provide oxygen, and mix and even out the waste levels inside of the unit.

How Your SUN-MAR 400 Composter Works

Position your composter on a flat surface. Although the wheels allow it to be moved on a hard flat surface, it is easier not to have to relocate it.

To add material, open the input port, place the material in the outer drum, and close the port. Rotate the drum by turning the handle. This rotation will level the compost in the outer-drum, and move it gradually away from the input port end.

As the level in the drum rises, the rotation of the outer drum will increasingly start to feed compost into and along the inner drum. Eventually, when the output port door is removed, composted material will feed slowly out of the output port, and into a container.



What to Compost

A wide variety of waste materials from the kitchen can be composted in the SUN-MAR 400. The menu would include vegetable and fruit scraps, egg shells, corn husks, coffee grounds and tea bags.

In addition the SUN-MAR 400 is big enough to handle some material from the back yard, but care should be taken to make sure that the amount of garden trimmings does not exceed the available capacity in the drum.

A pure diet of kitchen waste approximates a reasonable Carbon/Nitrogen ratio, but you may find it helpful to add a few "brown" ingredients such as straw, dried leaves, or peat moss.

Common sense should be used when adding larger items. Shred or chip them into smaller pieces. Remember the more surface area, the faster it will compost. Chop larger items into 1" pieces.

What Not to Compost

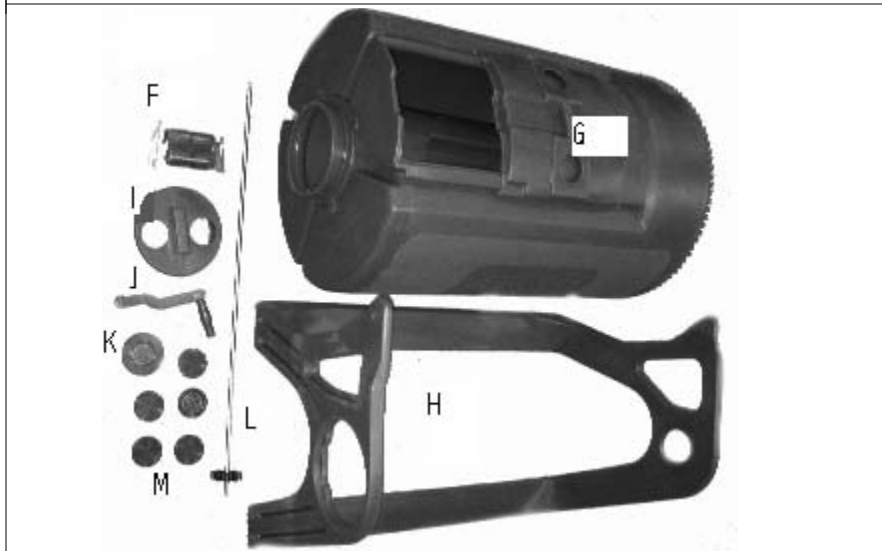
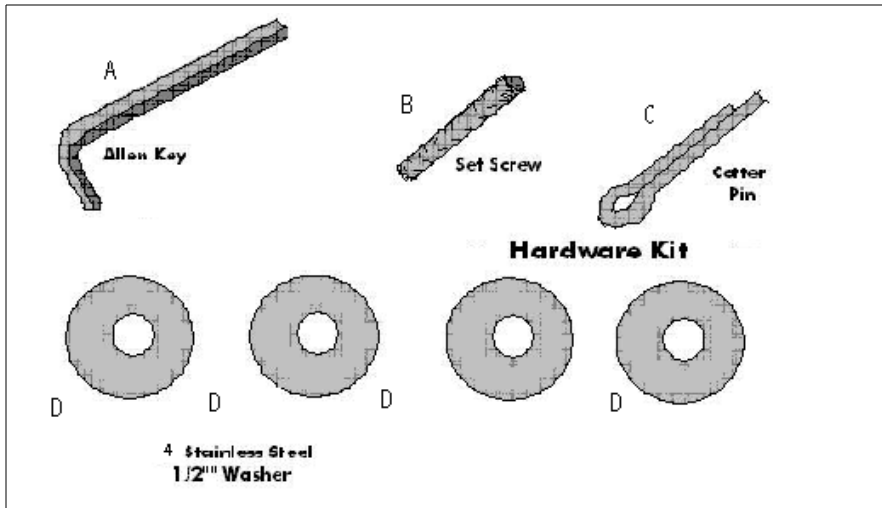
If you want to use your compost on food producing gardens, do not add pet excrement. Also, it is best to stay away from dairy products, meat scraps and bones because these foods can produce bad odors and attract pests.

Cedar shavings and pine needles are best left out of the mixture, because they will actually slow down your compost pile.

Lastly, nuisance weeds should be composted before they seed so that you are not unwittingly propagating new weeds!

Assembly Kit

- | | |
|--|--------------------------------------|
| 1 - Large Drum/Inner Drum Assembly (G) | 1 - Allen Key (A) |
| 1 - Cradle (H) | 1 - Output Door (I) |
| 1 - Cotter Pin (C) | 1 - Sliding Door (G) |
| 1 - Set Screw (B) | 4 - Stainless Steel Wheel Shafts (F) |
| 4 - Stainless Steel 1/2" Washer (D) | 4 - Wheels (F) |
| 5 - Black Vents (M) | 1 - Black End Cap (K) |
| 1 - Shaft Assembly (L) | 1 - Handle Assembly (J) |



12. Place black vents over holes in bottom of drum and hit with flat of hand to properly seat vents in drum.



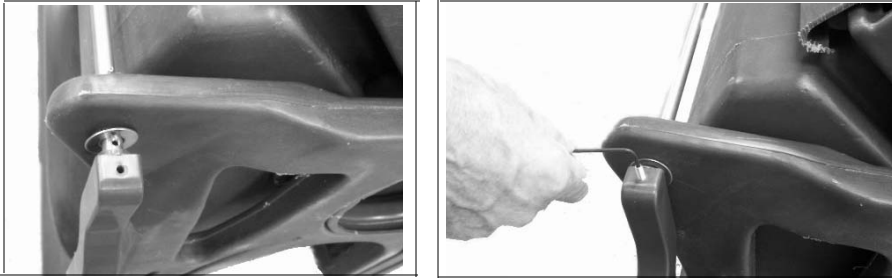
13. Place black vents over holes in sliding door and hit with flat of hand to properly seat them.



- Optional:** If it is desired to move the composter on a firm surface the roller wheels can be installed. Place 1/4" shaft inside the roller wheels. Place the shafts in the slots at base of cradle and give the roller wheels a tap with hammer to properly seat the roller wheels.



9. Place a 1/2" washer onto the shaft at the output end, then push the handle on to the shaft lining up the black mark near the hole in the shaft with the hole in the top of the handle. Insert the set screw into the pre-drilled hole in the handle. Screw in the set screw using the Allen Key supplied until the set screw is completely inside of the handle.



10. Screw on the output door.



11. If the black vents have not been factory installed, place the vents over the holes in the output port. Hit the vents briskly with the flat of the hand to seat the vents in place.



Getting Ready to Assemble the Unit

Place your Garden Composter 400 on its end with the large hole in the drum facing up. Using your foot to hold the cradle down (Fig. A), lift the top of the cradle and pull the drum towards you until the drum is released from the cradle (Fig. B).



Assembly Instructions

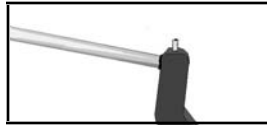
1. Lay the cradle end with the small diameter circle flat on the ground. Both the large hole end of the cradle and drum should now be facing up. Push the bottom end of the drum into the cradle so that the drum is on an angle (Fig. C). Pull the large hole in the cradle over the large hole in the drum, inserting the 1/2" lip into the slot in the drum output door opening (Fig D).



2. Turn the drum and cradle so that the end of the drum with the smaller hole is facing up.



3. The handle is installed onto the shaft in the factory. To disconnect the handle, use the allen key (provided in the kit) to remove the set screw from the handle assembly. Pull and/or twist the handle from the shaft. Note the black mark on the shaft. This should be positioned near where the set screw fastens the handle to the shaft and should be in the same position when the handle is re-installed.



4. On the end of the shaft with the roll pin, note which side of the shaft has a black mark. This mark denotes the top of the shaft where the handle set screw is inserted (you will only be able to insert the set screw from the side that is marked).

Place 1/2" washer against the roll pin on the shaft at the opposite end to the gear, and insert the shaft into the shaft support hole at the output end of the composter. Make sure that the black mark is facing the top of the composter and that the input door is facing upward. Push the shaft into the shaft support hole until the washer rests against the inside of the cradle end.



5. Insert a 1/2" washer over the shaft to rest against the gear. Pry the cradle away from the large gear end of the drum until the shaft can be inserted into the hole on the cradle and the small gear is positioned against the large gear on the drum.



6. Move the 4" hole in the cradle so it is over the 4" bearing in the drum, and press down firmly with the flat of the hand so that the cradle locks onto the drum (use a rubber mallet if necessary).



7. Place a 1/2" washer onto the shaft so it is up against the outside of the cradle, and then secure by placing the cotter pin through the hole at the end of the shaft. Use pliers to bend the legs of the cotter pin so the pin is secured.



8. Secure the drum to the cradle by placing the black end cap over the 4" bearing support hole on the drum. Hit the black end cap briskly with flat of hand to seat the bearing in the end of the drum.

