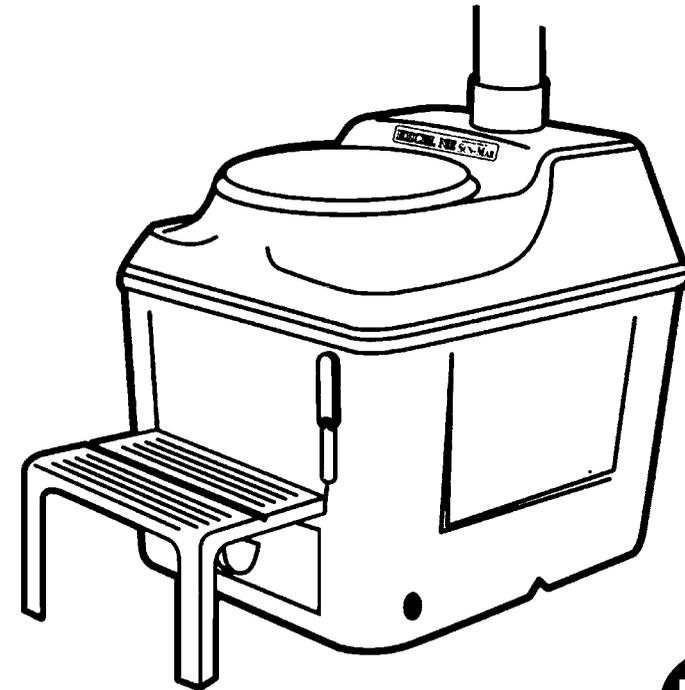


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March 1999
Rev. A

Serial No. _____

SUN-MAR EXCEL AC/DC

OWNER'S MANUAL



Oasis Montana Inc
Authorized Sun-Mar Dealer
Stevensville, MT 59870
1-877-627-4768 (toll-free)
<http://www.eco-potty.com/>

RATED CAPACITY

Weekend/Vacation use as:

EXCEL 6 Adults or families of 8
EXCEL NE 5 Adults or families of 7

Residential/Continuous use as:

EXCEL 3 Adults or a family of 5
EXCEL NE 2 Adults or a family of 3



NSF TESTED & CERTIFIED SUN-MAR XL-1989

The SUN-MAR XL (Now called the "EXCEL") is the first self-contained composting toilet to be tested, certified and listed under N.S.F. Standard #41

N.S.F. (National Sanitation Foundation) offers North America's ONLY performance standard for composting toilets. Certification was granted following a successful 6 month continuous test period by 4 adults in residential use.

MECHANICAL TROUBLE SHOOTING (Cont'd)

Symptoms	Possible Causes	Remedies
LIQUID IN FINISHING DRAWER	Compost is too wet	1. See "Ongoing Toilet Maintenance" instructions, and add bulking material 2. Bulking material compacting. Modify bulking agent to include material with better porosity such as chopped straw, shredded mulch, wood shavings or wood chips. (Not cedar).
	Drum Screen Clogged	See "Screen Clogged" below.
NOISY FAN	Dirt in fan	Unplug the fan, remove the fan assembly 12V or 110V, and clean carefully with a small brush and/or compressed air nozzle.
	Fan bearings are worn	Replace fan.
DRUM WILL NOT TURN	Pin securing handle to shaft has broken	Drill out broken pin and replace, or get handle replacement kit (instructions included).
	Steel pin securing gear wheel to shaft has broken	Obtain and install a small gear replacement kit (instructions included).
	Drum fallen from bearings or bearing fallen	Obtain fallen drum or fallen bearing plate kit (Instructions included).
DRUM WILL NOT STAY VERTICAL	Drum lock broken	Obtain and install drum lock replacement kit (instructions included).
DRUM DOOR NOT OPERATING PROPERLY	Drum too full	Rake compost to rear of drum to allow door to shut. If still insufficient space, empty some compost from top, until door swings freely. Extract compost as per instructions in "Monthly Check-up" section.
	1. Slot in door for nylon hinges too tight. 2. Drum door corners catching on drum 3. Drum door hinges broken	File slot/corners to permit easier door movement, or obtain and install replacement drum door kit (instructions included).
SCREEN CLOGGED AT REAR OF DRUM	Clay like compost or woody peat moss preventing excess liquid from exiting to evaporating chamber	Rotate the drum anticlockwise until the screen is uppermost. Remove the bowl liner and clear the screen with a stick or wire brush. If the compost is clay like, refer to instructions for "Trouble Shooting Your Compost"

OWNER'S MANUAL

CONTENTS

How Your Composting Toilet System Works

- Composting
- The SUN-MAR EXCEL AC/DC
- Start up and Use
- Winter Use

Installation

- Rough-in Dimensions
- Installation procedure

Initial System Start Up

- Start up procedure

Ongoing Toilet Maintenance

- Routine maintenance

Periodic Check Up

- Routine monthly check list

Annual start up

- Restarting procedure for seasonal units

Trouble Shooting Your Compost

- Procedure for improving a 'bad' compost

Toilet Design

- Explosion drawing and part numbers/descriptions

Mechanical Trouble Shooting

- Diagnosing and fixing a hardware problem

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HOW YOUR COMPOSTING TOILET WORKS

How Composting Works

Composting is a natural recycling process in which human waste and toilet paper are broken down by microbes into their constituent minerals and converted back to earth. Heat, oxygen, organic material and moisture are needed to transform this waste into good fertilizing soil.

Heat is generated by the compost itself, assisted by a heating element if electricity is connected. Oxygen is provided by the ventilation system, and by the tumbling of the composting drum. Additional organic material is introduced by adding peat mix (or peat moss).

The waste entering the toilet is approximately 90% water content, which may be evaporated into water vapor and carried back to the atmosphere through the venting system. The remaining waste material is transformed into an inoffensive earth-like substance.

The Sun-Mar "EXCEL AC/DC"

The key to the success of the "EXCEL AC/DC" lies in its three chamber design. Each of the three chambers;- composting, compost finishing, and evaporation have their own independent environments for optimum efficiency.

The Composting Chamber

The composting chamber is in the form of a Bio-drum™ which holds the natural compost heat, provides the necessary mass to maintain a good compost, and is rotated by turning the handle to achieve perfect mixing and aeration.

A drum stopper (beneath the drum handle) automatically maintains the Bio-drum™ in a

top dead centre position with the drum door open so that the drum is positioned to receive new material.

To mix and aerate, the drum handle is rotated clockwise. This rotates the drum anti-clockwise, and the drum door closes automatically as the drum rotates.

Material is extracted by pulling the drum lock, and rotating the handle anti-clockwise. When this is done (at a regular speed), the drum door remains open and some compost falls into the second chamber;- the compost finishing drawer. To ensure that the compost remains moist, but does not get too wet, any excess liquid which the compost cannot absorb, drains through a screen at the rear of the drum directly into the evaporating chamber.

Compost Finishing Drawer

The compost finishing drawer is immediately below the composting drum, and just above the evaporating chamber. For seasonally used units, several drawers of compost are normally removed at the beginning of the season. Otherwise some composted material can be extracted into the drawer and left there for some weeks until it is time to remove more compost from the drum.

Evaporating Chamber

The third chamber is the floor of the Sun-Mar "EXCEL AC/DC" which forms the evaporating pan from where any excess liquids are evaporated. Air is pulled through intake holes at the front of each side of the toilet; over the evaporating chamber, and up the 2" vent stack (when the unit is operating with 110 volt power) or up the 4" vent stack when 110 Volt power is not available. The 2" vent exits from the top

MECHANICAL TROUBLE SHOOTING (Cont'd)

Symptoms	Possible Causes	Remedies
NO APPARENT EVAPORATION	110 Volt thermostat has failed.	The floor of the evaporating chamber is not hand warm. Replace the thermostat by removing the thermostat access plate (mid 1993 models and later); or separate the heater compartment from the unit (mid 1993 models and prior) to access and replace thermostat. (Detailed instructions are included with the replacement part.)
	110 volt heating element has failed.	After replacement of the thermostat, if the floor of the evaporating chamber is still not hand warm;- separate the 1½" heater base from the unit and replace the heating element. (Detailed instructions are included with the replacement part).
	Poor Air Flow	See "Poor Air flow remedies", and ensure drain is connected.
DRAIN LEAKING	Drain damaged in transit or during installation.	Tip the unit towards the drain until most liquid is drained out. Wipe drain and wait 1 hour or more for the drain to dry. Silicone thoroughly around joints (after roughing up with sandpaper) until the leak or leaks are sealed.
DRAIN BLOCKED	Peat moss debris or ice has blocked drain fitting, or drain line.	<ol style="list-style-type: none"> 1. Use the rake to extract loose peat moss from the evaporating chamber. 2. Remove the drawer and clear the block by pouring ½ bucket of hot water through drawer opening. 3. If still blocked, force in a 4-6" stick or similar from the unused side of the drain. 4. If the blockage is in the drain hose;- remove, flush out, and re-attach. 5. Heat trace drain hose to avoid ice-up
LIQUID COMING FROM DRAWER/AIR INTAKE	See "Drains Blocked" causes (above)	See "Drains Blocked" remedies (above), and if not done, connect drain to avoid re-occurrence.
	See "No Apparent Evaporation" (above)	See "No Apparent Evaporation" remedies (above), and if not done connect drain to avoid re-occurrence.

MECHANICAL TROUBLE SHOOTING

Symptoms	Possible Causes	Remedies
POOR AIR FLOW THROUGH UNIT	Unit is in an air-tight location and the fan cannot pull air in.	Provide air supply.
	Fan (110 Volt or 12V) has failed.	Remove the bowl liner and reach back to flick the 110V fan blades. Remove and try the same thing with the 12 V fan. If this does not restart the fan, then the fan should be replaced. Instructions are included with the replacement fan.
	Device other than Sun-Mar diffusor is installed.	Your device may be discouraging air movement. If so, replace with a Sun-Mar diffusor.
	Sun-Mar diffusor iced up.	Diffusor is probably not needed in winter. Remove until spring.
	Vent has a water trap where condensation is collecting and causing a partial or total blockage.	Re-install the 2" vent so there are no longer any low points where condensate can collect. If re-installation is not possible, drill a small hole in the bottom of the low point (preferably outdoors) to allow condensate to drain. (Note: watch for icing in winter).
	2" vent stack has too many bends and/or horizontal lengths, or 4" vent stack is not straight enough.	1. Re-install the 2" vent stack to reduce number of bends/ excess horizontal lengths, or straighten 4" vent. 2. If the 2" vent stack cannot be further straightened, remove the fan assembly and reduce the amount of recirculating air by covering up the area between the fan exhaust and the 90° vent intake elbow with duct tape or similar. If 4" vent is not straight install a 12 Volt fan.
Blockage in stack	Check air movement at top of stack. If very little, and other possible causes eliminated, disassemble stack until blockage found. Re-assemble, and/or insulate if blockage caused by ice build up.	
UN-PLEASANT SMELL	Vent stack is leaking at joints or is broken.	Make sure vent stack and fan assembly gaskets are air tight. Seal joints/gasket with silicone to permit possible future access. Vent joints away from the unit can be glued.
	See "Poor Air Flow" causes (above) ¹	See "Poor Air Flow remedies (above).
	Bad compost.	See earlier section on "Trouble Shooting Your Compost".

¹ An unpleasant smell may be detected only where there is a bad compost (See "Trouble Shooting your Compost") and then only when there is poor air flow such that insufficient air is being sucked into unit.

rear, and the 4" vent from the top of the toilet. The partial vacuum which the fan creates within the toilet ensures there can be no smell. Meanwhile, when the 110 Volt fan is not working, the 4" vent stack acts like a chimney on a wood stove to provide negative pressure and prevent odors.

In the 110 volt mode, in addition to a fan, the evaporation process is further assisted by a thermostatically controlled heating element located in a sealed compartment under the evaporating chamber. This heating element maintains warmth in the evaporating chamber, and the indirect warmth also assists the composting process.

A safety drain at the rear of the composter exits from both left and right at the rear. These drains are supplied plugged, but if the unit is to be used heavily or without 110 volt electricity, one exit should be connected to drain off any excess liquid.

Start Up and Use

The "EXCEL AC/DC" requires little maintenance. To start, put 3-4 gallons of peat moss mix and a quart of rich top soil in the drum, (or use Sun-Mar Microbe Mix), moisten with warm water, and spray "Compost Quick" into the drum and evaporating chamber under the drawer. Thereafter, a cupful of peat mix should be added after every bowel movement. Although the peat mix included with the unit is specially formulated for optimum performance, regular peat moss may usually be used as an acceptable substitute.

Every third day while the toilet is in use, the drum should be rotated to mix and aerate the compost. The drum should be given 4-6 complete revolutions, by turning the handle in a clockwise direction (Seven turns of the

handle is required for each drum rotation).

To extract compost into the finishing drawer, pull the drum lock, to enable the handle to turn anti-clockwise and the drum clockwise. The drum should be rotated at regular speed, and as it does so the drum door remains open, and compost drops automatically into the finishing drawer.

While it is entirely up to the user, we suggest that under normal conditions electricity can be disconnected if the toilet is not going to be used for over a week.

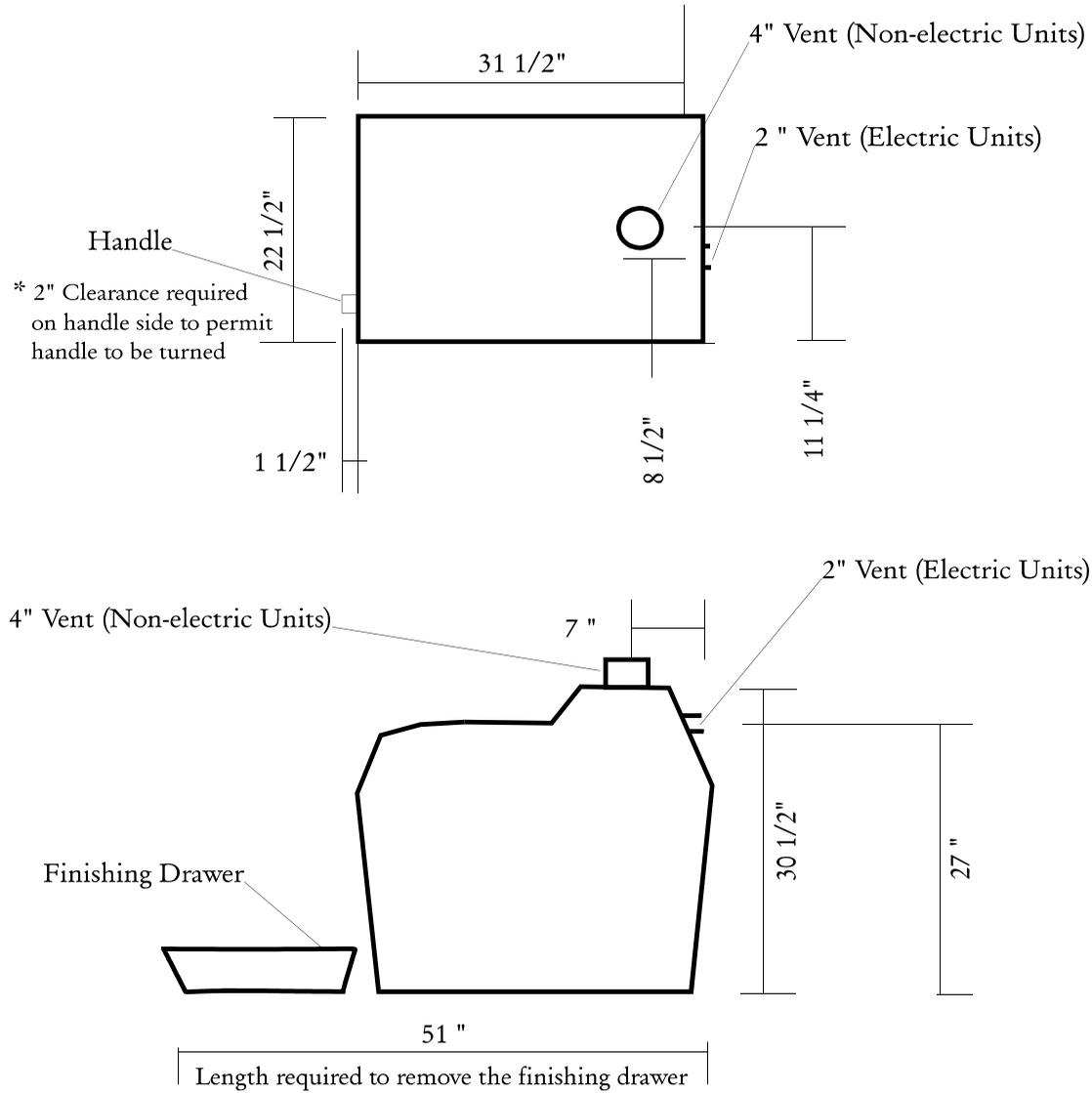
Winter Use

Because "Sun-Mar" units are made of fibreglass and high grade stainless steel; freezing temperatures will not damage the toilet. Composting action, however, decreases as the temperature drops, so for extended winter use attempts should be made to try and keep the toilet above 60°F (15°C) if possible. The vent stacks should be insulated to minimize condensation in the pipe and avoid ice blockages.

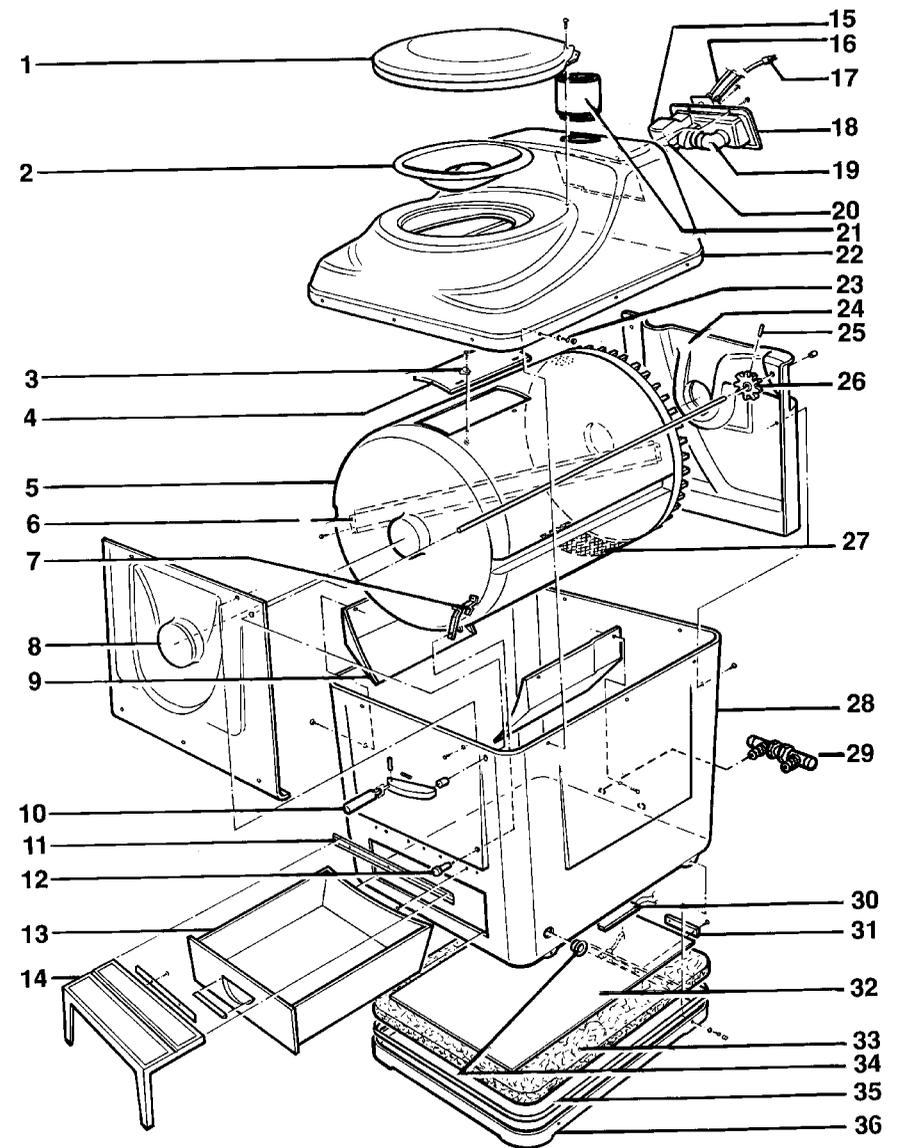
If the toilet is in an unheated space and 110 volt electricity is available, it may be necessary to keep the toilet plugged in, install a fan speed control on the toilet so that the fan is drawing in very little air, and put a blanket over the toilet.

For periodic use in winter, even where the compost in the drum is frozen, if there is enough room in the drum, the toilet may be used as a "holding tank", until the compost warms up and the microbes emerge from dormancy.

ROUGH IN DIMENSIONS EXCEL, EXCEL NE & EXCEL AC/DC



EXPLOSION DRAWING



EXCEL AC/DC PART NUMBERS & DESCRIPTIONS

#	PART	DESCRIPTION	#	PART	DESCRIPTION
1	EN-0208	TOILET SEAT	26	EN-0173	NYLON DRIVE GEAR
2	EN-0246E	BOWL LINER	27	EN-0194	DRUM SCREEN
3	EN-0249	NYLON DRUM HINGES	28	EN-0104	EXCEL TANK
4	EN-0127	EXCEL DRUM DOOR	29	EN-0571	OVERFLOW DRAIN
5	EN-0107B EN-0108B	EXCEL COMPOSTING DRUM	30	EN-0310	THERMOSTAT
6	EN-0588	MIXING BAFFLE	31	EN-0120	THERMOSTAT ACCESS PORT
7	EN-0126B	DRUM LOCK MECHANISM	32	EN-0155	HEATER
8	EN-0111B	FRONT BEARING PLATE	33	EN-0187	INSULATION
9	EN-0113	HUMUS DEFLECTOR	34	EN-0197	AIR INTAKE
10		DRUM HANDLE	35	EN-0188	RUBBER "U" CHANEL
11	EN-0198	FOOTREST CHANNEL	36	EN-0106	EXCEL HEATER TRAY
12		DRUM LOCK RELEASE			
13	EN-0109	FINISHING DRAWER			
14	EN-0122B	FOOTREST			
15	EN-0119	FAN COVER			
16	EN-0135	FAN CORD			
17	EN-0181	POWER CORD			
18	EN-0128	FAN DOOR COVER			
19	EN-0232	90° VENT INTAKE			
20	EN-0129	FAN			
21	EN-0305	4" NON-ELECTRIC VENT			
22	EN-0101	EXCEL TOP			
23	EN-0248	FLAT HD. SCREW (#8X ⁵ / ₈ " SS)			
24	EN-0111B	REAR BEARING PLATE			
25	EN-0267	ROLL PIN (5/32 X 1 ³ / ₄ " SS)			

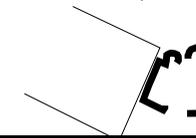
INSTALLATION

Inspection

Inspect for Damage	Remove the "EXCEL AC/DC" carefully from carton. If the product has been damaged, contact Sun-Mar to determine the best course of action, and : i) Note the damage description on the shipping papers. ii) If the shipper has left, report the damage immediately to the transport Company.
Check Carton Contents and Familiarize yourself with the Product.	Check that the carton contains both the 2" and 4" vent stacks (pipe, fittings, roof flashings, insulation, diffusers, a 12 Volt fan for installation in the base of the 4" vent stack), peat moss mix, and rake. i) Turn the drum handle clockwise to rotate the Bio-drum for mixing and aeration. (The drum rotates counter-clockwise and the drum door shuts). ii) Depress the drum stopper under bowl liner (1993 and prior) or pull the stopper on the front of the unit (1994 and on) and turn the handle anti-clockwise to simulate extraction of compost. (The Bio-drum rotates clockwise and drum door remains open). iii) If 110 volt power is available, plug the unit's electrical cord into a standard electrical outlet, and put your hand at the top rear of the unit to feel the air movement caused by the fan. iv) Pull out the compost finishing drawer (situated below the drum) where the compost drops for finishing. v) After the unit has been plugged in for five minutes, place your hand on the floor of the evaporating chamber (underneath where the drawer was) to check it is warm to the hand, and the heater and thermostat are functioning properly.

Attaching the Footrest

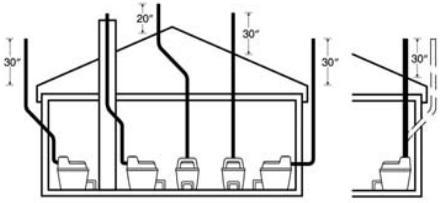
Attaching and detaching the footrest	The footrest attaches to the unit into the slot above the drawer by inclining the footrest at a 45° angle to the floor, inserting the round top edge of the footrest profile into the round top edge of the profile on the unit, and lowering the footrest to the floor. It is detached in the same way, whenever it is necessary to remove the finishing drawer, by lifting the footrest until it is at a 45° angle and then withdrawing it. Note: The footrest is designed as a footrest, it is NOT designed for standing on.
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Installing the Toilet

Space Required	When selecting the best place for your toilet, make sure that there is room (an extra 20" is required) to remove the finishing drawer from time to time.
Other Considerations	The location of the vent stack, and perhaps the emergency drain may determine the best place for the toilet. Ensure that the toilet is level front to back or is sloping slightly backwards. The unit should not tip forward.

Installing the Vent

Piping Location	<p>Piping can be installed up the inside wall; through the wall and up the outside wall; or up inside the wall. The choice depends on ease of installation, visibility, and, (especially if the toilet is to be used consistently through a cold winter), the need to keep all exposed vent piping insulated</p>  <p><i>Vent on right is a 4" non-electric vent. All others show possible 2" EXCEL vent configurations.</i></p>
Piping Installation	<p>2" pipe and fittings are of standard 2" PVC central vacuum tubing. Additional pipe or fittings are easily available should you need them. The 4" vent is PVC sewer pipe.</p> <p>Because each installation is different we make the following general recommendations:-</p> <ol style="list-style-type: none"> Erect the 4" vent as near to vertical as possible For the 2" stack, minimise the number of sharp angles because each reduces vent efficiency. Do not use more than 3 90 degree elbows, and try and use 45 degree elbows wherever possible. Do not lead the vent pipe downwards at any point because this may lead to the vent pipe being blocked by condensate. Use a soft sealant for the connection of the 2" vent stack to the toilet because at some time the toilet may have to be moved or you may have to access the fan. Also remember that if you are installing the 12 Volt fan in the 4" vent, or may in the future, you will need to insert it or remove the 10" section of pipe containing the fan. All exposed 2" vent piping should be insulated with the foam insulation supplied with the toilet to minimise condensation (especially if winter operation is contemplated). It may also be useful in some situations to insulate the 4" vent.
Leading the vent through the roof	<p>As shown in the above illustration, the vent stacks should end 2 feet or more above the roof line so that it is less subject to air turbulence and down draught. Where the piping is taken through the roof, the roof flashings provided may be used to seal the installation. Where a new roof is being installed, the roof flashings should be laid underneath the new roofing material.</p>
The Diffusor	<p>The diffusors provided with the unit are simple devices to be installed at the top of the vent stack. The diffusor design encourages updraught, and discourages wind and weather from going down the vent stack. Unlike wind turbines, diffusors do not tend to freeze up in winter.</p>

The Overflow Drain

Access Port	<p>The 1" overflow drains at the rear of the "EXCEL", exit to both left and right.. If the unit is not always going to be used in the 110 volt mode, the hose provided should be connected to either the left or right exit of the drain, and be led to away below the level of the drain to an approved facility. The unused exit of the drain should be capped. (Hose, hose clamp, and cap are all included with the unit).</p> <p>If the unit is used in the 110 volt mode, the drain if connected offers protection against heavy loading, or prolonged electrical outage or failure.</p>
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TROUBLE SHOOTING YOUR COMPOST

Characteristics of a Bad Compost

If your compost is over 8 weeks old and it exhibits one or more of the following characteristics, then it is 'bad'.

<p>Extraction Required Too Often No Obvious Decomposition Compost is Lumpy</p>	<p>Compost Muddy or Claylike Flies Present Compost has Unpleasant Smell</p>
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Improving a Bad Compost

Possible Reasons for Bad Compost	Required Action	Why?
<p>Too much kitchen/garden waste added Insufficient microbes Too frequent mixing Insufficient peat moss Too wet Too Dry Insufficient mixing</p>	<p>1 Follow "ANNUAL START UP PROCEDURE" then: 2 Carry out "ONGOING TOILET MAINTENANCE" <i>(If flies present, the compost is probably dry. Sprinkle diatomaceous earth both on compost and outside Bio-drum when mixing compost. Repeat to catch complete cycle until flies are gone)</i></p>	<p><i>Reverting to "Annual Start Up" procedure will provide enough drum space to improve the compost.</i></p> <p><i>A good compost is usually not attractive to flies.</i></p>
<p>Strong Antibiotics, or cleaning chemicals have got into the compost.</p>	<p>1 Extract all compost 2 Wash out Bio-drum 3 Begin "INITIAL SYSTEM START UP."</p>	<p><i>Compost was dead and has to be restarted</i></p>
<p>Capacity Exceeded</p>	<p>1 Reduce usage down to maximum capacity if possible 2 Follow "ANNUAL START UP", and then "ONGOING TOILET MAINTENANCE" procedures.</p>	<p><i>A SUN-MAR can only operate beyond rated capacity for a short time, and then only once a good compost has been established</i></p>
<p>Mechanical problems with heating or vent systems.</p>	<p>See instructions for "MECHANICAL TROUBLE SHOOTING."</p>	

ANNUAL START UP

Many units are only used during the summer. For such seasonal units Sun-Mar recommends that the following start up procedure be followed at the beginning of the season.

Action		Why?
EMPTY	Empty compost, if any, that had been left in the finishing drawer, and use the rake to clean out the evaporating chamber.	- Your fertilizer is ready. - This is a good time to remove any peat debris
EXTRACT COMPOST	Remove additional drawers of compost (if there is still more than 6-8" in the drum), by releasing the drum lock, and rotating the drum clockwise (the handle turns anti-clockwise) to extract compost into the drawer. Empty the drawer, and repeat extraction cycles if necessary until the level in the drum is reduced to about 6".	- Frees space in the composting chamber for the new seasons composting.

Options:

IF COMPOST IS TOO DRY OR COLD	Add 1-2 quarts of very warm water to the compost.
ADD A NEW SOURCE OF MICROBES	Add Sun-Mar "Microbe Mix™", a few handfuls of composted matter from garden compost or rich top soil into the composting drum.
ADD "COMPOST QUICK" ENZYME	Acts as a catalyst to speed composting action.

INITIAL SYSTEM START UP

Commence operation by carrying out the start up procedure described below, and then continue with the "Ongoing Toilet Maintenance" routine. It normally takes some weeks before a compost is properly established. You will know this has happened when:

- Compost volume increases more slowly
- Compost turns black and becomes loam-like
- Toilet paper decomposes within a few days²

Action		Why
ADD	3-4 gallons of peat mix (half the 30 Litre bag provided) to the drum	- Provides carbon base and initial mass for compost
ADD	One quart of rich topsoil from different places	- Adds necessary microbes which will breakdown the compost
SPRINKLE	About ½ gallon of warm water into the drum.	- Moistens carbon base
PLUG IN	Unit, if there is 110V power, so the fan and heater are operating.	- The unit is ready for use
RAKE	Loose peat moss from the evaporating chamber until the compost is established	- Until the compost is active, some peat moss may fall through the screen or drum door into the evaporating chamber.

Options (If available)

ADD	"Microbe Mix" or a few handfuls of composted matter from garden compost	- Provides additional source of microbes
SPRAY	"Compost Quick" enzymes into drum before and after mixing.	- Speeds start up of compost
SPRAY	"Compost Quick" over complete surface of evaporating chamber .	- Prevents possibility of start-up odor in evaporating chamber

ONGOING TOILET MAINTENANCE

² Toilet paper is a good source of carbon and should be added after use.

The procedure below is designed to keep the compost:

- **Moist, but not too wet**
- **Well aerated and mixed**
- **Well balanced and aerobic**

Action		Why?
ADD	Add 1 cupful (or 2 handfuls) of Peat Mix or peat moss to the Bio-drum after every bowel movement.	- <i>Maintains the carbon/nitrogen balance</i> - <i>Absorbs liquid</i> - <i>Helps oxygen penetrate</i>
TURN HANDLE	Rotate the drum 4-6 complete revolutions by turning the drum handle clockwise. Do this twice a week while the toilet is in use. If used only at weekends, rotate the drum on departure. After turning, ensure the drum door is in a vertical position ready to receive waste.	- <i>Mixes and oxygenates compost</i>

Options:

TO IMPROVE COMPOSTING SPEED	i) <i>Spray "Compost Quick" into Bio-drum before and after rotating</i> ii) <i>Add one slice of crumbled bread (not mouldy) weekly per person using the toilet</i>
IF MUDDY OR CLAY-LIKE	<i>Add additional peat moss to help oxygen to penetrate the compost</i>
IF TOO DRY	<i>Add ½ gallon of FRESH water (very warm) before rotating. Compost consistency should be that of a wrung out sponge.</i>
IF TOO WET	<i>Add wood shavings or chips (not cedar) to the compost instead of peat moss. By doing this, porosity will be increased, which will assist aerobic bacteria by allowing more free air space for oxygen</i>

CAUTION

1. Do **NOT** add or clean the toilet bowl with chemicals. Chemicals may kill the bacteria.

INSTEAD, clean the bowl liner with "Compost Quick", very hot water, baking soda, or a weak vinegar solution.

2 Do **NOT** add plastic, glass, metal, cleaning fluids, cigarettes or any other substances which will disrupt the natural biological process.

3 Kitchen or garden waste is **NOT** needed, and may be added as a means of disposal only, once the compost is well established.

PERIODIC CHECK UP

Once your unit has been through initial or annual start up, and ongoing maintenance procedures are being followed, Sun-Mar recommends that a system of periodic checks be undertaken.

	Action	Why?
RAKE	Rake peat moss debris from the evaporating chamber, making sure to rake from the rear of the chamber.	- <i>Ensures drains cannot get plugged and evaporation improved.</i>
EXTRACT	Compost when the Bio-drum is between half and two thirds full. You may note that at just above 2/3 full the drum door will have difficulty swinging freely. Extract compost by releasing the drum lock, and rotating the drum handle anti-clockwise to turn the drum backwards (at regular speed) and drop compost into the finishing drawer. Repeat, if necessary until the finishing drawer is about two thirds full, and return the Bio-drum to the vertical position.	- <i>Your drum is full and the drum is no longer able to mix effectively</i> - <i>Don't overfill the finishing drawer</i>
LEAVE	Leave the compost in the finishing drawer for a few weeks or until it is next necessary to remove some compost from the drum.	- <i>Provides extra time for composting to be completed.</i>

Options:

IF COMPOSTING IS TOO SLOW	- <i>Add additional cups of rich top soil, or composted material or add Sun-Mar "Microbe Mix"</i> - <i>Add a small quantity of "Compost Quick" enzyme to compost.</i>
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