



# Nicro Marine

## Nicro Corp.

Manufacturers of Marine Hardware  
Since 1927

2065 WEST AVENUE 140th, SAN LEANDRO, CALIFORNIA 94577

### NICRO DAY & NIGHT SOLAR VENT

The Nicro Solar Ventilators are made in our own plant under supervision of our Quality Control Group. We are using the highest quality components available -- particularly the solar cells and the rechargeable Nicel Cadmium batteries.

#### VENTILATOR OPERATION AND RECOMMENDED CARE

When the Nicro Day & Night Solar Vent is received, the rechargeable battery will be in a discharged condition. A full day's exposure to the sun on a bright day can bring it up to approximately a full charge. Do not charge the battery by means of a light bulb. The excess heat from a light bulb can damage or shorten the life of the solar cell array and would void the warranty. The top grade, high capacity Nicad (Nickel-Cadmium) C-Cell that is installed in this Solar Ventilator can take many hundreds of charging cycles at full effectiveness, and should outlive the 2-year warranty on this product. If after installation the Day & Night Vent does not operate on battery throughout the night, this will be because the solar cell array on top of the vent has not received enough sunlight during the day to adequately charge the Ni-Cad C-Cell.

The degree to which the battery is charged depends on factors such as:

1. The sun angle, measured from the optimum overhead position.
2. Weather conditions, including the presence of clouds or haze.
3. Shadowing of the solar array, as the sun moves across the sky or as the boat changes it's orientation with respect to the sun.

How the ventilator is installed and operated can also have a strong effect on battery charging.

1. Make the installation so that the ventilator is shadowed from the sun as little as possible during the day.
2. Periodically clean off the solar cell array with water and a soft cloth so that the dirt will not reduce the sunlight reaching the cells.
3. Treat the ventilator with reasonable care, avoiding stepping on the solar cell array as much as possible so that it will continue to generate a maximum current to charge the battery.

If a Nicro Day & Night Vent has to be installed in an area where there will be considerable shadowing of the sun, it may be desirable to occasionally place the Vent in a maximum sun position so that the Ni-Cad cell can be charged up into a higher efficiency operating condition.

#### REPLACEMENT OF THE NI-CAD C-CELL

If the Ni-Cad C-Cell no longer provides top performance, Nicro Corp. can supply a high capacity replacement rated at 2.0 to 2.2 ampere hours. **CAUTION:** The rechargeable Ni-Cad C-Cell battery must be handled with extreme care to ensure that metallic objects do not produce an electrical short circuit across the cell. Enough energy can be stored to melt wires or cause the cell case to split open if a short occurs. Do not dispose of the battery in a fire or incinerator. Disposal in this manner can cause the battery to explode.



### SERVICING OF BATTERY CONTACTS

**SPECIAL NOTICE!** Day and Night Vents in the marine environment are sometimes ceasing proper operation due to a buildup of corrosion on the electrical contacts inside the battery case. Nicro now recommends inspection of case contacts and battery terminals every 1 to 3 months.

If green surface corrosion starts to build up, particularly on the positive (+) battery case contact, it can be cleaned off by use of a fine emery cloth or sandpaper or, with care, a small file or knife blade.

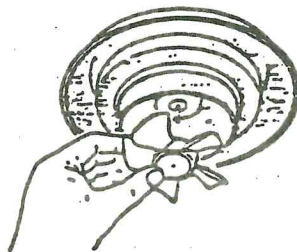
The best way is to use a strip of the fine emery cloth being sure to rock it around the curved section of the contacts where the battery terminals will touch.

Sometimes an invisible oxide coating also forms on the terminal surfaces of the battery itself and experiments show that the best cleaning method is to vigorously rub a flat pencil eraser back and forth across the small positive (+) terminal and across the large flat negative (-) terminal forming the base end of the Ni-Cad cell. This method prevents damage to the plating on the battery terminal.

The gasket between the door and battery case is essential to keep out water. If it should be damaged or lost, a replacement can be obtained, free of charge, by calling or writing to the Nicro Corporation.

### REMOVAL AND REPLACEMENT OF THE FAN BLADE

Your Day & Night Solar Vent comes with two fan blades, one intake and the other exhaust. The exhaust blade will come attached to the ventilator with its BLUE dot facing away from the motor. The intake blade, which is included in the carton, is color-coded with a RED dot and must be installed on the motor shaft with the red dot facing away from the motor. There is a pressure fit between the fan blade hub and the motor shaft so the fan blades can be easily removed and replaced. Care should be taken not to push the fan blades too far on the motor shaft or they will rub on the motor housing and impede or stop completely the operation of the ventilator. On 3" models it is also necessary to be careful not to pull the blade out too far or it may rub on the damper screw bosses. Care should also be taken in removing or replacing of the fan blade, that a straight pull or push is exerted so that there will not be a tendency to bend the motor shaft.



It is very important to us that our customers be completely satisfied with the Nicro Solar Ventilation products. If there is the slightest question about our products, please call our Customer Service Department at: (510) 357-8332. We would be glad to discuss any problems that you might have. If there is any doubt whatever about the operation of the unit, we will suggest you send it to us for a complete check. If there is even the slightest defect in any of the components, we will immediately send you a replacement unit (see details on enclosed warranty card).

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# SOLAR LO-VENT ASSEMBLY INSTRUCTIONS

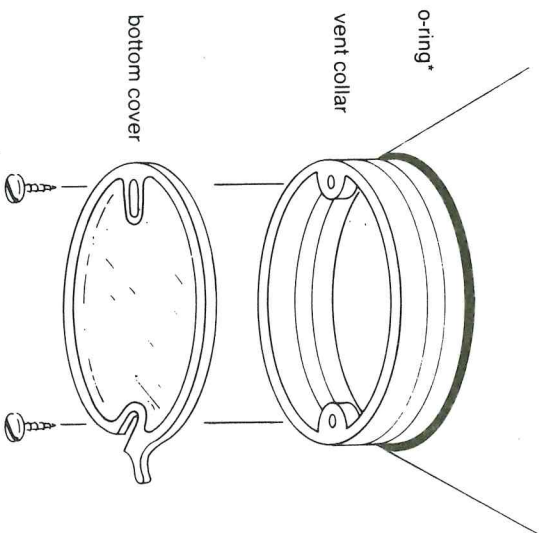
**CAUTION!**

Your Nicro Solar Lo-Vent has been packaged with three sets of screws to allow installation on a variety of deck and hatch thicknesses. Proper selection of screws is essential to safe and efficient operation of your Nicro Solar Lo-Vent. Incorrect selection of screw length will interfere with the fan blade, damage the unit, and void the warranty. Use one or more spacers where deck or hatch thickness exceeds 1". Prongs on spacers should face upward — see diagrams.

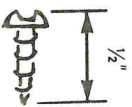


Nicro Corp., 2065 West Ave. 140th,  
San Leandro, CA 94577

When attaching the **bottom cover only**, use the two #6 x 1/2" screws.

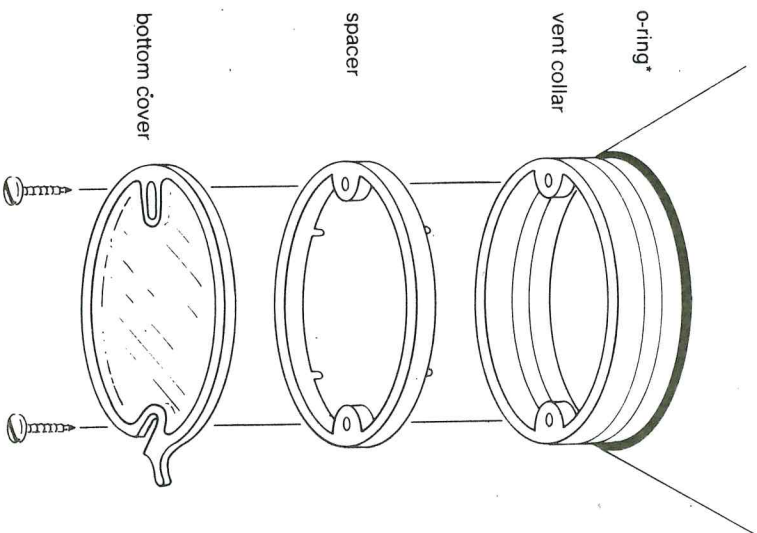


The bottom cover acts as a damper to regulate the amount of air allowed through the Solar Lo-Vent. In the closed position as shown in the diagrams, the unit is closed and no air is allowed. By rotating the bottom cover 180° using the finger tab, the unit is fully open. Tighten screws just enough to allow bottom cover to be opened and closed.

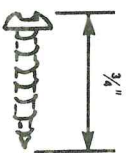


#6 x 1/2" screw shown actual size

When attaching the **bottom cover with only one spacer**, use the two #6 x 3/4" screws. Prongs on spacers should face upward — see diagram.

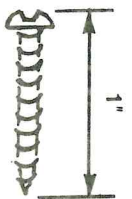
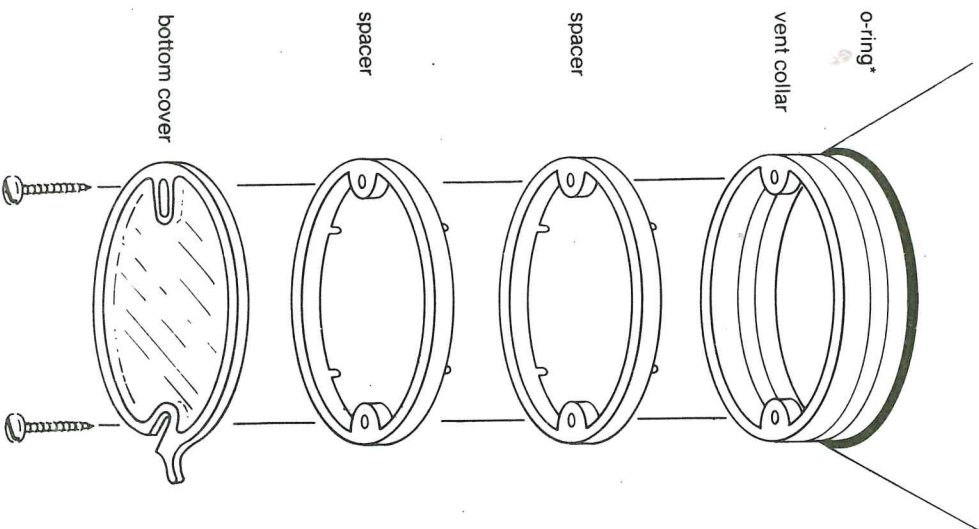


\*O-ring is installed onto nipple at factory to help prevent leakage and absorb shock loads to ventilator.



#6 x 3/4" screw shown actual size

When attaching the **bottom cover with two spacers**, use the two #6 x 1" screws. Prongs on both spacers should face upward — see diagram.



#6 x 1" screw shown actual size



# Nicro Marine

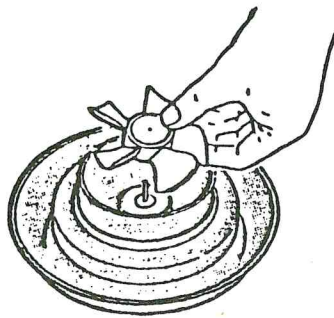
## Nicro Corp.

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### REMOVAL AND REPLACEMENT OF THE FAN BLADE

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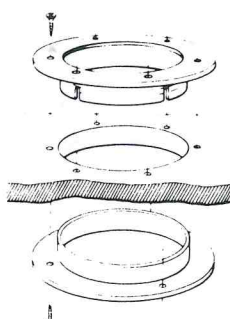
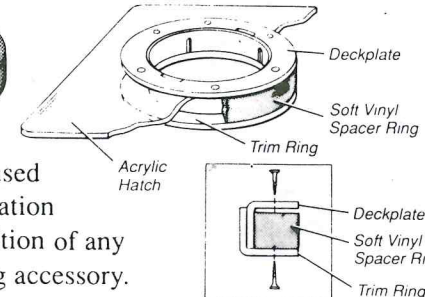
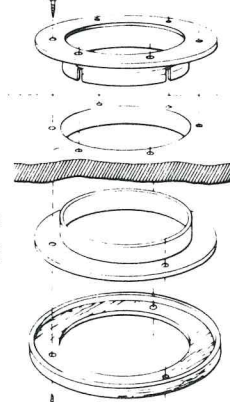
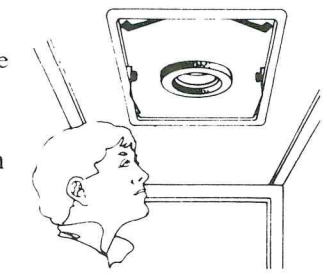
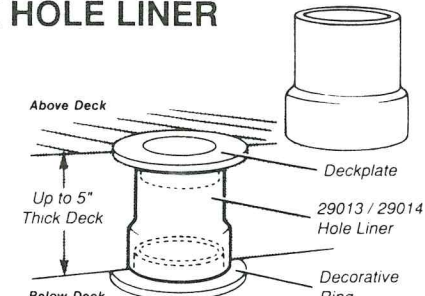
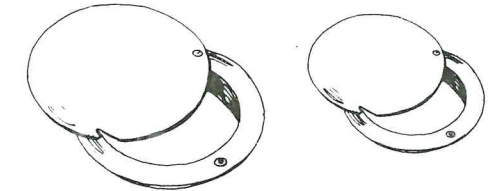
Z108 (2/94)



# Nicro Marine

## 3 DECADES OF INNOVATION

Interior trim can compliment your installation!

<p><b>DECORATIVE PLASTIC TRIM RINGS</b></p> <p>The Decorative Plastic Trim Ring is the most basic way to dress up the installation entry hole from below. It can be used by itself or with a Teak Trim Ring.</p> <p>NF 10866 3" Trim Ring NF 10867 4" Trim Ring</p> 	<p><b>SOFT VINYL SPACER RING</b></p> <p>Designed to be used in a hatch installation to allow the addition of any NICRO trim ring accessory.</p> <p>NF 10863 SP 3" Soft Vinyl Spacer Ring NF 10864 SP 4" Soft Vinyl Spacer Ring</p> 
<p><b>TEAK TRIM RINGS</b></p> <p>Our Teak Trim Rings add beauty to any ventilator installation.</p> <p>NF 29973N 3" with nylon screen NF 29974N 4" with nylon screen</p> 	<p><b>SOFT VINYL PROTECTIVE RING</b></p> <p>Slips over the deckplate as it protrudes through the Lexan. Not only protects against potential injury, but adds a finishing touch to the hatch installation.</p> <p>NF 10863PR 3" Soft Vinyl Protective Ring NF 10864PR 4" Soft Vinyl Protective Ring</p> 
<p><b>THRU-DECK HOLE LINER</b></p> <p>Designed to be used on a deck installation where the thickness exceeds 2". It is 4" long and can be trimmed to desired length.</p> <p>NF 29013 3" Thru-Deck Hole Liner NF 29014 4" Thru-Deck Hole Liner</p> 	<p><b>PIVOTING SHUT-OFF DAMPER</b></p> <p>Our Pivoting Shut-Off Damper allows airflow to be shut off from below. It installs just like our plastic trim ring, only it has a pivoting cap for airflow shut-off.</p> <p>NF 29113 3" Pivoting Shut-Off Damper NF 29114 4" Pivoting Shut-Off Damper</p> 

Feel free to contact our customer service department with any questions regarding your installation.

Nicro Marine

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## Installation Instructions

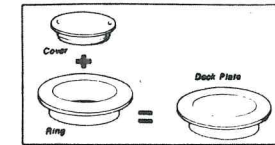
### INTRODUCTION

The NICRO DECKPLATE is the basis for the installation of all NICRO Ventilation products. By definition a NICRO DECKPLATE consists of two parts - the Deck Ring and the Cap.

A proper installation of the Deckplate is critical as NICRO vents DO NOT LEAK in heavy rain or spray. However, an improper Deckplate installation can result in a vent that appears to leak (or drip) in rain, spray or wash down.

There are three basic factors that will result in a poor Deckplate installation:

- The Deckplate is not caulked properly when fastening it to the deck or hatch.
- The installation hole is not cut large enough, so that the deck ring is forced into the opening when installed - thus distorting the opening of the deck ring.
- All fasteners are tightened down too much when installation is made on a cambered surface - this ellipticizes the deck ring opening and results in leakage.



**VERY CRITICAL: Deck Camber** — When installing our deck plate where deck camber exists, it is very critical that a polyurethane caulking compound be used (Sika Flex or 3M 5200), and that the outside screws not be completely tightened. By tightening all six screws on a cambered deck, the deck plate opening will ellipticize and the deck plate will leak.

To check for camber, place a straight edge on deck and try to rock it, then rotate it 90° and repeat. To fasten the deck plate on a cambered surface, line up two of the six screw holes perpendicular to the camber and drill all 6 pilot holes. After bedding the deck ring with polyurethane, tighten up the two screws and leave the other four snug but not tight. Place the straight edge across the deck ring and be sure that it lies flat on both outside flanges. Let the polyurethane bedding compound dry thoroughly before installing vent.



By using a straight edge, one can check for deck camber and measure the amount of camber to determine if the chosen location is acceptable.

**NOTE:** The hole saws supplied in our tool loaner program are intended to drill the correct size hole for the outside diameter of our plastic trim rings and should NOT be used for installation of threaded deck plates.

### TIPS FOR THE PERFECT DECKPLATE INSTALLATION

- If deck camber is more than 1" per foot don't install vent without shimming area with a teak or fiberglass block to make it flat (remember solar vents are 8<sup>3</sup>/<sub>4</sub>" diameter).
- Take the time to bed the deck ring properly - including the fasteners.
  - Silicon Seal or Boat Life Lifeseal are OK for flat installations on wood or fiberglass.
  - Polyurethane such as 3M 5200 or SIKA-FLEX are mandatory on cambered surfaces or hatch installations where fasteners will not be used.
  - Do not use Polysulfid Compounds.
- Thru-Deck (Thru-Hatch) holes should be cut for outside diameter of the TRIM RING, NOT THE DECKPLATE.
- Be careful that Thru-Deck entry hole does not go through any electrical wiring or plumbing or other obstructions - be sure power tools are properly grounded.
- Measure twice, cut once!

### INTERIOR TRIM RINGS

NICRO makes a complete selection of Trim Ring Accessories, available to dress up the interior of the boat. The time to install these is during the Deckplate installation.

**DON'T FORGET TO BUY INTERIOR TRIM RINGS**



NICRO offers optional interior trim rings for ALL of our ventilators. See v19-21 for full selection.

### "MY DECKPLATE LEAKS BELOW, WHAT DO I DO?"

If the Deckplate is new and you have a leak in rain or spray or wash down, it can be assumed that it is not installed properly. We suggest that it be removed and re-installed according to the factory guidelines. However, the use of Vaseline or Silicon Grease can cure an annoying drip without having to re-install the Deckplate.

Deckplates may be purchased separately, and if you have a problem or question, please call us. Nobody has more experience with the Deckplate installation than NICRO (28 years of practice!)

Contact Nicro Marine for your FREE FULL LINE CATALOG.



# • Installation Instructions • Hatches

## INTRODUCTION

Many people prefer to install their NICRO ventilators in a hatch. Hatches offer a flat surface, are easy to cut and DO NOT provide any ventilation when they are closed.

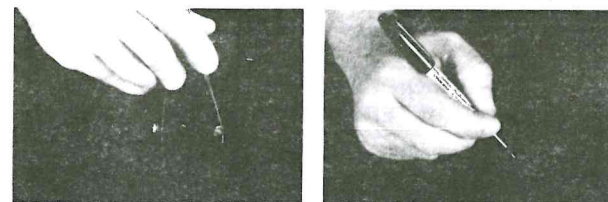
Most hatches are made of Lexan which is very durable. Even old Lexan is easy to cut and will not chip or crack as long as the proper tools and methods are used. Cutting a hole in a Lexan hatch WILL NOT weaken its strength either.

NICRO makes vents with different covers for a choice of cosmetic appeal. Our black ABS cover harmonizes well with smoked Lexan and the stainless cover makes for a high tech contrast. The black deckplate blends in with smoked Lexan when the vent is removed and the cap is installed (See photos on this page).

## STEP ONE: MARKING THE HOLE

After choosing the location on the hatch where the deckplate will be installed, mark the center of the circle with an "X". If you're using a hole saw, you don't need to mark the actual hole cut-out.

If a sabre saw is to be used, mark the hole's circumference with a pair of dividers. **REMEMBER that a 3" DECK-PLATE REQUIRES a 3<sup>3</sup>/<sub>4</sub>" HOLE; a 4" REQUIRES a 4<sup>3</sup>/<sub>4</sub>" HOLE. DO NOT use the DECKPLATE as a TEMPLATE, as it MEASURES a 1/4" LESS than the NECESSARY CUT-OUT DIAMETER.**



Use a marking pen or dividers to scribe the hole to be cut in the hatch - be sure to use a permanent marker so that the ink won't smear.

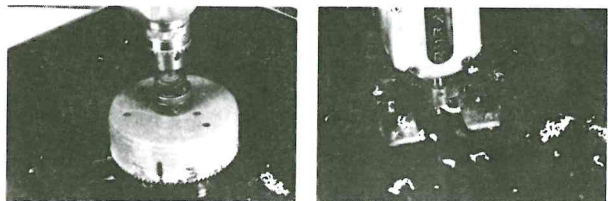
## STEP TWO: DRILLING / CUTTING THE HOLE

If you choose to use a hole saw to make the hole, a variable speed unit is important. This will insure that the hole is not cut too quickly, which can melt the plastic (Lexan), as excess friction will heat up the material.

NICRO does have a program available where the drill motor, hole saw, and mandril can be loaned to you (see page v22). NICRO hole saws and mandrils (NF 29500, NF 29503 and NF 29504) fit drill motors with a 1/2" chuck.

If you use a sabre saw to cut the hole, be sure that you use a blade that is fine toothed for plastic and that you cut slow to avoid melting the Lexan. Always cut right on your line or just outside of it.

Be sure that the bottom of the sabre saw stays clean so that the hatch is not scratched as you cut around the circle. A soft cloth or paper can be taped around the hole to avoid scratching too.



A hole with variable speed drill motor can be used to drill the installation hole - a slow speed should be used.

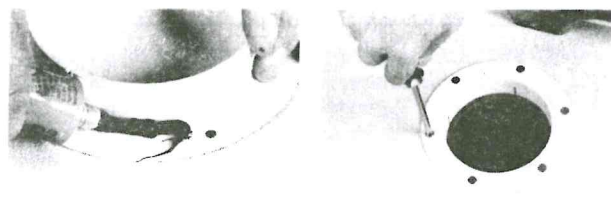
When using a sabre saw to cut a hatch, slow speed and a fine-toothed blade is necessary.

## STEP THREE: INSTALLING THE DECKPLATE

You may install the deck ring by "gluing" it to the hatch with a polyurethane bedding compound. To do this first rough-up the area where the flange will seat with sandpaper. Apply a generous amount of polyurethane compound to the deck ring and rotate it in the hole as you're pushing it into place to insure a proper seat. Polyurethane needs to cure thoroughly for strength - depending on the brand this can be up to a few days.

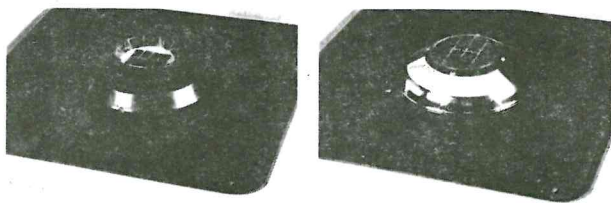
If you choose to use fasteners to install the deck ring, use #10 machine screws and standard Silicon Seal is OK. Simply drill the fastening holes with a 3/16" sharp drill bit. and then apply Silicon to the deck ring. Be sure to apply Silicon generously to the machine screws also, so that the threads don't "weep" water below during wash down, rain or heavy spray.

Tighten the screws by hand (not a power-driver), and make them snug but not tight enough to crack the deck ring. Allow Silicon to cure thoroughly to insure a water-tight seal.

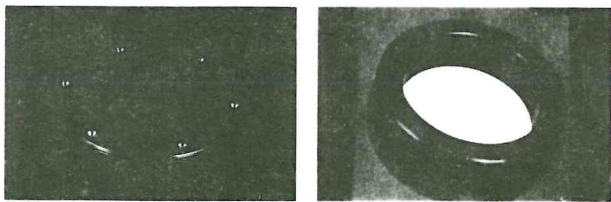


Rough up the area where the deckplate will seat (top photo). Seal the deck ring in place (left photo). Hand-tighten screws (right photo).

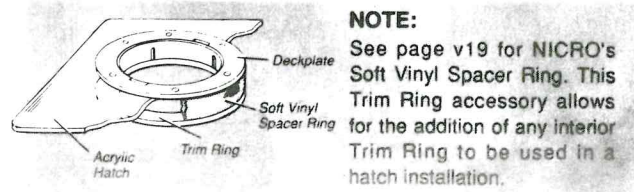
## THE FINISHED INSTALLATION



Most people use NICRO vents with stainless steel or black ABS covers on hatch installations.



The black deck ring becomes nearly invisible when the vent is not in use (left photo). A Soft Vinyl Protective Ring is used to trim the inside of the installation (right photo).



**NOTE:** See page v19 for NICRO's Soft Vinyl Spacer Ring. This Trim Ring accessory allows for the addition of any interior Trim Ring to be used in a hatch installation.

# • Installation Instructions • Thru-Deck

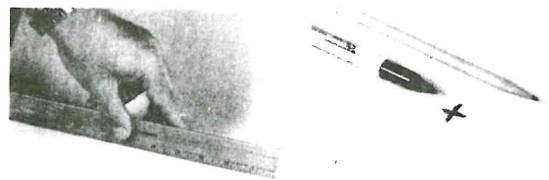
## INTRODUCTION

Please refer to the general introduction before installing a NICRO deckplate through the deck. Look carefully at DECK CAMBER AND INSTALLATION TIPS to help make the job easier.

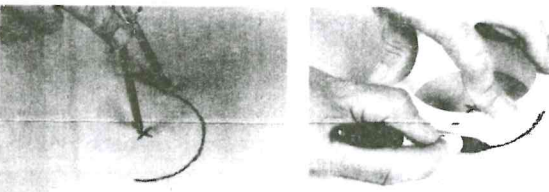
## STEP ONE: MARKING THE HOLE

If our NICRO hole saw is to be used simply mark the installation spot with an "X" for the pilot bit to penetrate. If a sabre saw is used, scribe the circumference of the hole with a divider or trace the outline of the trim ring (optional), NOT the deckplate.

A 3" vent requires a 3<sup>3</sup>/<sub>4</sub>" hole cut-out; a 4" requires a 4<sup>3</sup>/<sub>4</sub>" hole. The deckplates measure a 1/4" less than the necessary cut-out diameter.



Measure the location for the hole carefully and mark the deck with a permanent ink pen or pencil.



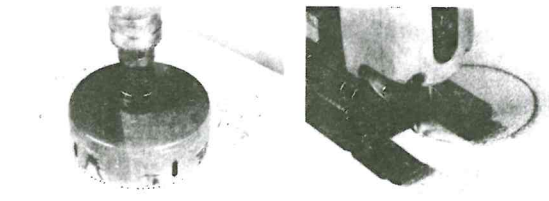
The circumference can be drawn with a pair of dividers or by tracing the outside of the trim ring. Right hand photo shows the use of our PLASTIC TRIM RING as a template. DO NOT use a DECKPLATE for a template.

## STEP TWO: DRILLING / CUTTING THE HOLE

If you choose to use a hole saw, NICRO sells 3<sup>3</sup>/<sub>4</sub>" hole saws (NF 29503), 4<sup>3</sup>/<sub>4</sub>" hole saws (NF 29504) and mandrils (NF 29500). The mandril fits a drill motor with a 1/2" chuck only. We also have a program where we will loan you the above products (see page v22).

The actual use of the hole saw is simple. Follow the directions of the drill motor itself and be sure it is grounded. A slow, steady speed is preferred and stop to clean out the hole and the hole saw occasionally.

To cut the hole with a sabre saw, select a blade that is compatible with the material you are cutting (fiberglass, wood, etc...). Again, be sure the saw is grounded and go slow so as not to make a mistake or break the blade.



Whether a hole saw or a sabre saw is used, the tool should be grounded and care should be taken to insure accuracy.

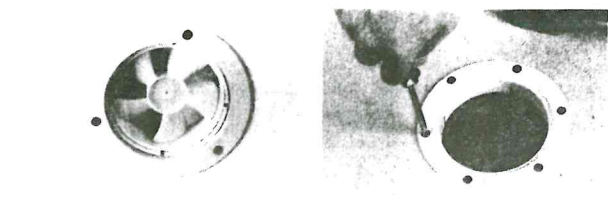
## STEP THREE: INSTALLING THE DECKPLATE

Sand the edges of the hole so that the trim ring and deckplate fit snug but not tight. If the deck is cored with wood (plywood, balsa, etc...), seal the exposed edge of the wood to prevent moisture from penetrating the core.

Drill pilot holes for #10 sheet metal screws for the deckplate and trim ring and bed them with Silicon or Polyurethane Sealant (Polyurethane for Cambered deck). Fasten the trim rings first then fasten the deckplate - DO NOT over tighten the screws.



Sand the edges of the hole to insure a good fit and bed the deck ring with sealant. (NOTE: We used black sealant here for photographic purposes.)

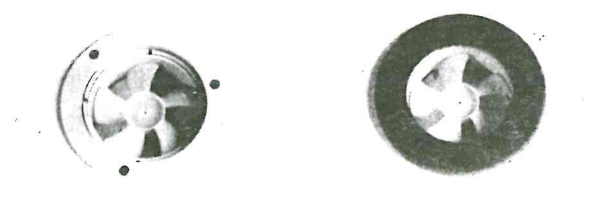


Install the trim ring first and use only a HAND-screw driver for both the trim ring and the deckplate.

## THE FINISHED INSTALLATION



NICRO Solar Vents are Lo-Profile (2" high) and available with four different cover choices. The white ABS cover shown here, blends in well on a non-skid deck.



Above, you see the Plastic Interior Trim Ring used by itself (left) or the Plastic Interior Trim Ring used with a Teak Trim Ring (right). Trim Rings dress up the interior of the installation.

**Nicro Marine**

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