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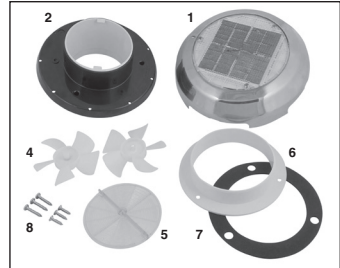
installation instructions

## Installing the Day/Night PLUS

### DAY/NIGHT PLUS

#### COMPONENTS:

1. Cover with Solar Array, Motor Housing & On-Off Switch
2. Base Plate with Shut-Off Damper
3. Rechargeable Battery (installed under solar array)
4. 1 installed Exhaust Fan & 1 Intake Fan
5. Insect Screen
6. Interior Trim Ring
7. 1 Gasket and
8. Mounting Hardware Kit

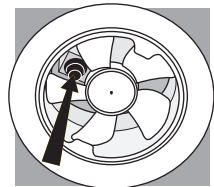


To ensure that you successfully complete your installation, carefully follow these instructions. Make sure to review the following Precautions and Problem Areas before you begin.

### FEATURES & OPERATION

#### ON-OFF SWITCH

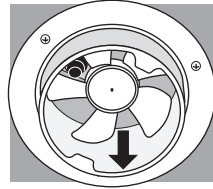
The Day/Night PLUS comes with an on-off switch which is located inside the fan housing. To operate, gently place your finger on the hub of the fan until it stops rotating, then just press the rubber covered switch on or off. Setting the switch to the off position cuts all current from the solar array and battery to the fan motor. All the current produced by the solar array is therefore used to charge the battery.



#### SHUT-OFF DAMPER

The Day/Night PLUS is equipped with a green water shut-off damper which can be operated from below. There are two ears on the inside edge of the fan housing.

To open and allow outside air flow, pull the damper down about a 1/2" (13mm). To close, push it up until it rests and seals against the vent cover. The damper slide may need lubrication occasionally if it is hard to open and close. To lubricate, remove the cover and apply a small amount of silicone grease around the top of the damper tube.



**NOTE:** To prevent unnecessary wear on the motor, switch the vent to the off position when the shut-off damper is in the closed position.

## RECHARGEABLE BATTERY

Each Day/Night PLUS vent is equipped with a built-in replaceable battery. The solar array keeps the battery charged during daylight hours so that it can run the fan at night and during low light situations. The Day/Night PLUS will run for up to 40 hours without sunlight on a fully charged battery. Average battery life is 3-5 years, depending on climate conditions.

**NOTE:** To maximize battery life, make sure it is fully charged as possible during initial use. To fully charge, expose vent to the sun, (not a light bulb) for 24 to 36 hours. This will insure a fully-charged battery. (Depending on angle to the sun, weather conditions, and shadowing of the solar array, the time necessary to charge the battery may vary.) Reference the parts list on page 11 for replacement battery information.

## INTAKE & EXHAUST FAN BLADES

The Day/Night PLUS comes with one intake and one exhaust blade. Each blade is labeled on the hub with either intake or exhaust. To exchange fan blades, gently pressing on the center of the hub to stop fan blade. Reach inside and switch the motor off. Pull the existing fan blade off and push the new one on, making sure you have the colored dot showing.

**CAUTION:** A straight pull or push of the fan blade should be exerted to ensure that you do not bend the motor shaft. When replacing the fan blade be sure that the fan blade is not pressed against the motor housing, as this will cause the fan to bind reducing performance.

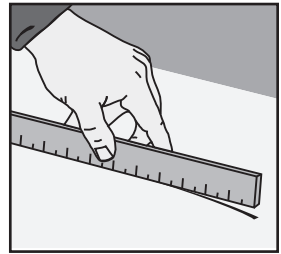
If you have only one vent installed on your boat, we recommend using the exhaust fan blade; if you have multiple vents, try different configurations of intake and exhaust to achieve effective cross flow ventilation.

## **INSECT SCREEN**

Your new vent comes with a removable insect screen that attaches to the shut-off damper. Installation of the insect screen is optional. The screen is easy to install by grasping the fin in the center and carefully twisting it in a clockwise motion. Make sure to clean the insect screen periodically to ensure maximum air flow.

## **INSTALL PRECAUTIONS**

**DECK CAMBER (OR DECK CURVATURE) is VERY CRITICAL:** When installing the Day/Night PLUS Vent on a cambered, or curved, surface, it is critical to check to make sure there is no more than 1/2" (12mm) of camber over a 12" (300mm) length of deck surface. Too much camber will distort the unit's base plate, causing the cover to be raised off the deck. This creates the potential for water to get under the cover and may also prevent the damper from closing properly.



**To check for camber, place a 12" (300mm) straightedge on the deck location for the vent and try to rock it. Then rotate it 90 degrees and repeat.**

## **AVOID PROBLEM**

Cut the hole for your Day/Night PLUS only after carefully considering the location and the correct sizing of the hole. We recommend that you **MEASURE TWICE AND CUT ONCE!**

**DO NOT** Install the Day/Night PLUS in an area with more than 1/2" of camber over a 12" length of deck surface.

**CAUTION** Confirm the location you select for the through-deck hole does not go through any electrical wiring, plumbing

or other obstructions. Be sure that power tools are properly grounded. Take the time to bed the base plate and fasteners properly with sealant. Silicone seal is good for flat installations on wood or fiberglass. Polyurethane bedding compound is recommended on cambered surfaces or hatch installations where fasteners will not be used. Use of polysulfide compounds, may damage the area and melt the plastic.

## **NEW INSTALL INSTRUCTIONS**

The Day/Night PLUS is designed to fit directly to the surface of the deck or hatch of your boat. The vent unit mounts onto a base plate that must be installed correctly to insure proper operation.

### **USING A HOLE SAW**

When creating the opening with a hole saw, we recommend the use of a variable speed drill. Cutting the hole at a lower RPM will ensure that the hole is not cut too quickly, which can melt the plastic on a hatch. Follow the directions for the drill motor itself and be sure it is properly grounded. A slow, steady speed is recommended.

### **USING A SABER SAW**

To cut the hole with a saber saw, select a blade that is compatible with the material you are cutting (fiberglass, wood, acrylic etc.). Be sure the saw is properly grounded. Drill a pilot hole near the inside edge of the scribed circumference that is big enough to insert the saw blade into. Insert the saw blade into the hole and slowly start cutting out to the scribed circumference. Always cut right on your line or just outside of it.

**TIP:** When using the saber saw method; Select your installation location and, before scribing the circumference, cover the entire area with wide masking tape. Scribe the circumference on top of the tape. The tape will protect the installation surface while you are cutting the hole.

### **FINISHING THE HOLE**

Sand the edge of the hole smooth so that the trim ring and base plate fit properly. Test fit the entire unit. If the deck is cored with wood or foam, seal the exposed edge of the material with epoxy to

prevent moisture from penetrating into the core.

**NOTES:** Most hatches are made of acrylic which is very durable. Even older acrylic is easy to cut and will not chip or crack as long as the proper tools and methods are used.

## **MARKING THE LOCATION**

When mounting on a deck, make sure to check the camber of the deck. See Precautions.

The Day/Night PLUS comes fully assembled. The first step is to remove the cover from the base plate. To do so, simply remove the 3 stainless steel screws at the edges of the solar array and lift the cover off from the base plate. Be careful not to lose the sealing O-rings around each of the screws. When lifting off the cover, please note that the same 3 screws also hold the solar array onto the cover.

**CAREFUL the solar array does not fall off from the cover and damage or disconnect the internal wiring.**

Carefully choose the installation location that will receive good sunlight.

## **DECK MOUNT**

### **DECK INSTALLATION**

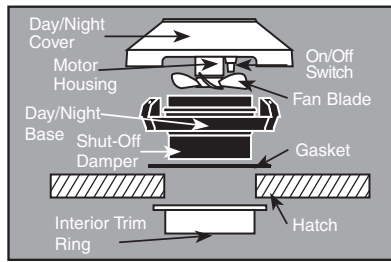
Place the base plate into the hole from the outside and mark the three (3) fastener holes. Make sure the three fastener holes do not interfere with the trim ring screw holes. Remove base plate and drill 5/32" holes. Do not penetrate all the way through the deck. Place base plate back into hole to insure correct alignment. Apply a 1/4" (7mm) bead of silicone sealant around the outside edge of the installation hole and around the fan housing (flange) where it meets the base. Place the gasket over the flange on the bottom of the base plate, while aligning the screw holes then press gently into the sealant. Turn the unit over and place into the hole making sure the screw holes are lined up. The gasket alone should not be used on a cambered deck as it may not seal properly. Fasten the base plate into place with the three #10 x 1" long pan head fastener screws

provided. When mounting to a Deck surface a 4" vent requires a 4-3/4" (121mm) diameter hole, and the 3" vent requires a 3-3/4" (95mm) diameter hole for installing the interior Trim Ring.

**CAUTION** Use shorter screws if your deck is less than 1" (25mm) thick. **DO NOT** over-tighten the three mounting screws. Install the trim ring first, then the base plate, using only a hand-held screwdriver.

## INSTALLING INTERIOR TRIM RING

For decks having a thickness of 1" (25mm) or more, place the trim ring into the hole from the interior side and mark the 3 fastener holes. Make sure the holes do not lie directly beneath the holes to be drilled for the base plate installation. Remove trim ring and drill out the holes with a 5/32" bit. Place trim ring back into hole to insure correct alignment. Fasten the trim ring into place with three #10 x 3/4" flat head screws provided.



## HATCH MOUNT

The interior trim ring is not required for hatch mount installation. This allows you to finish the interior based on your preference. Mounting to a hatch surface for a 4" vent requires a 4-1/2" (114 mm) diameter hole, and the 3" vent requires a 3-1/2" (89 mm) diameter hole.

## HATCH INSTALLATION

The gasket is optional for hatch installations. Fastener holes are not required for hatch installations if the base plate is to be glued to the hatch. Mounting hardware not provided. You may use the base holes (7/32") for a template to mark the center location of the clearance holes. To glue the base plate to a hatch, apply a 1/4" (7mm) bead of polyurethane bedding compound around the outside edge of the installation hole.

## **INSTALLING THE BASE PLATE**

It is important to rough up the bonding surfaces between the base plate and hatch or deck to get a good water tight seal. Use a sheet of 100 grit sandpaper around the edge of the installation hole and around the bottom of the base plate.

**⚠ CAUTION** Check the compound for use with the hatch material. **Be sure to seal the three (3) mounting holes on the base plate. Place the base plate into the hole and press gently until seated. Allow polyurethane to dry completely.**

If you choose to use fasteners (not provided) to install the base plate, #10 machine screws with a nylon lock nut and washer or barrel nut can be used for a full cosmetic finish. **CAUTION: Do not use the #10 sheet metal screws provided with this unit on a hatch installation as they may crack the hatch.** It is important to use an adequate amount of silicone sealant on the base and on the fasteners to keep water from “weeping” down the threads. **DO NOT** over-tighten the mounting screws. Use only a **HAND-HELD** screwdriver.

## **INSTALLING COVER TO BASE PLATE**

There are 3 plastic mounting bosses for the cover spaced evenly around the base plate. Place the cover over the base plate and thread the 3 cover screws with sealing O-rings carefully into the plastic bosses on the base plate. Make sure the cover is properly aligned with the base plate so that the fan blade spins freely. It is important to get all three cover screws started before you tighten them down completely. **DO NOT over-tighten the screws, or you may strip the plastic bosses.**

## **SNAP-IN DECK PLATE REPLACEMENT**

**NOTE:** For your convenience, this vent has been designed to fit the same size cut-out as older 3" and 4" model snap-in vents. You must remove the existing 3" or 4" snap-in deck plate from the surface of the mounting area. This will leave the original cut opening in the Deck or Hatch for the new Day and Night 3" or 4" base plate supplied with the new unit.

- Remove existing vent and mounting deck plate
- For a 4" vent: Confirm the existing opening is cut to 4-3/4" (121mm) in diameter for a deck mount installation, or 4-1/2" (114mm) for a hatch mount installation.

For a 3" vent: Confirm the existing opening is cut to 3-3/4" (95mm) in diameter for a deck mount installation, or 3-1/2" (89mm) for a hatch mount installation.

Ensure the existing opening is clean in preparation for install.

- Reference **"INSTALLING INTERIOR TRIM RING"** of the new installation instructions located previous in the instructions. Continue to follow the installation instructions until completion.

**There are three (3) important factors that must be addressed to insure a good base plate installation:**

1. Make sure the base plate is properly caulked when fastening it to the deck or hatch. We recommend using a 1/4" to 1/2" (7mm-12mm) wide bead of silicone sealant. The sealing gasket (included) may also be used if the vent is being mounted on a flat surface without curvature.
2. The installation hole must be cut to 4-3/4" (121mm) in diameter for a 4" vent or 3-3/4" (95mm) in diameter for a 3" vent, so that the surface around the base plate is not distorted and the interior trim ring will fit properly. Measure carefully to cut the properly sized hole.
3. When installing the vent on a cambered surface, make sure you do not tighten the fasteners too much; this will distort the base plate and may cause the vent to leak.

## **MAINTENANCE**

Your Day/Night PLUS vent is a maintenance-free ventilator. However, it is very important to keep the nine drain holes around the edge of the base plate clear at all times. Failure to do so will allow water to accumulate in the base and possibly enter the cabin.



It is also recommended to periodically clean the solar array with a mild cleaner to ensure the vent charges continuously and receives maximum sunlight. If after a few years of operation the battery is no longer performing at peak performance, replace it with a rechargeable C-cell battery rated at 2800 mAh or greater.

## **TROUBLE SHOOTING**

### **STOPS RUNNING:**

- Check the On-Off Switch – Make sure the switch is on.
- Check the Solar Array – Make sure the solar array is not covered up by shade
- Check Fan Blade – Make sure the fan blade has not been pushed up the motor shaft too far so that it is pressed against the motor housing. This will cause the fan to bind, reducing performance, and may also cause the vent to become “noisy”. To remedy, simply pull the fan blade away from the motor housing (aprox. 1/16") until fan functions normally.
- Check/Replace the Battery – If the switch is on and the vent is not working, the battery may be dead. A dead battery short circuits the solar array and will not deliver power to the motor. You can replace the battery by removing the solar array in the center of the cover. Remove the three screws around the edges of the array cover. Be careful not to lose the small O-rings on the screws. Lift off the array cover, being very careful not to over extend or break the wires that attach the array to the vent. Lift off the array cover slowly and carefully. If needed, a small, flat-blade screwdriver may be used to pry up the solar array cover (there are two pry slots located at opposite ends on the edge of the array cover). Remove the rechargeable battery.

**TEST** the vent without the battery in it by placing the array in direct sun to see if the motor turns (make sure the switch is on). If the motor turns, the battery is dead.

Replace the battery with a 1.2 volt C-cell nickel-metal hydride

(NiMH) 2800 milliampere-hour (mAh) and above. Make sure to observe correct battery polarity (positive and negative). Reverse charging of the battery is not acceptable. DO NOT use non-rechargeable batteries to run the vent. Be sure to clean the battery contacts before installing a new battery. Use the flat surface of a pencil eraser, or if heavier build-up has occurred, use either a fine emery cloth or fine grit sandpaper (especially on the positive battery contact). If needed, apply some silicone grease around the perimeter of the solar array and reattach the array to the cover with the three screws and sealing O-rings (do not over-tighten). Dispose of the old battery properly.

**NOTE:** The vent can work without the battery, but only during sunlight hours.

- **Check the Solar Array & Fan Motor**

If the motor still did not turn when the battery was removed, either the array is damaged or the motor does not work. Contact Technical Service for warranty concerns.

## **LIMITED WARRANTY**

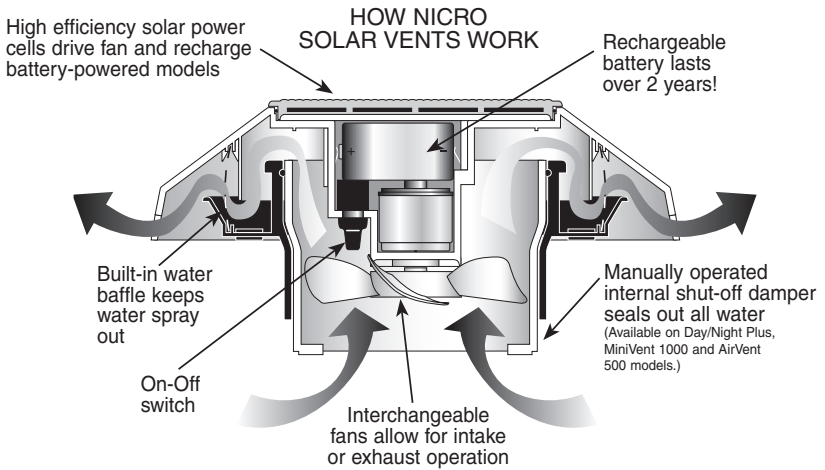
Please visit [www.marinco.com/limited-warranty](http://www.marinco.com/limited-warranty) for warranty information.

### **Please contact Actuant Electrical Group**

**E-mail:** [technical@marinco.com](mailto:technical@marinco.com) to request a warranty claim

For more information about Marinco products and services, please visit [marinco.com](http://marinco.com)

**Installing the Day/Night PLUS**



**REPAIR/REPLACEMENT PARTS**

Item	Part #	Description
<b>NiMH Battery</b>	N20790	
<b>3" Vent Overhaul Kit</b>	202430	includes: motor, intake and exhaust fans, solar array o-ring, insect screen and fasteners for 3" vents
<b>4" Vent Overhaul Kit</b>	202431	includes: motor, intake and exhaust fans, solar array o-ring, insect screen and fasteners for 3" vents
<b>Gasket Kit</b>	202432	includes gaskets and fasteners for both 3" and 4" vents
<b>3" Interior Trim Ring</b>	N10866	
<b>4" Interior Trim Ring</b>	N10867	

## MAINTENANCE CHART

Date	Item	Notes