

**N**ikonos' introduction of the SB-102 strobe should be considered a major turning point in the advancement of underwater photography: It includes one of the most advanced metering systems in the world—TTL (Through-The-Lens). This makes underwater photography easier than ever; TTL lets the photographer devote precious time to locating and composing pictures without the hassle of calculating exposures.

The largest component of the SB-102 system is the strobe head itself. Its bright orange body and black trim make an impressive package. On the top is a multi-function panel that controls all operations. The back of the strobe is O-ring sealed and removable for easy battery access. It utilizes a unique latching system, incorporating safety devices, to prevent accidental opening underwater. On the back of this panel is a flash exposure calculation dial especially designed for the Nikonos III, IV-A or V cameras. The base of the strobe has a collar that allows easy connection to the flash arm. The synch and sensor sockets are also found here. Both have their own O-ring sealed caps that allow the strobe to be watertight even without any cords. The front of the strobe has a large dome port that accepts the wide angle flash adapter. This widens the angle of coverage for use with a 15mm lens. The adapter has a hole in the center so the target light can be used.

The synch cord that comes with the SB-102 is Nikonos' best design yet. This five wire cord can be totally disconnected from the flash and has its own dust covers for storage. Each end has a heavy duty locking ring to prevent damage. But, if the cord becomes damaged, only it has to be sent in for repair. The cord has a right angle turn, allowing the camera to be set down on its base without damaging the cord.

The camera bracket has holes for the Nikonos III, IV-A and V. On one end of the bracket is a slot and two registration pins, allowing the strobe arm to be mounted in two different directions. The arm has a hand grip, making it easy to hold even while wearing gloves, and a knurled knob at the base, making it easy to attach the camera bracket. The top of the arm is angled so the strobe can be positioned both over the camera for close-ups and angled away from the camera for wide angle shots.

One final component of the system is the flash joint. This slides onto the arm and attaches to the strobe head. It allows 360 degree movement of the flash for total lighting control.

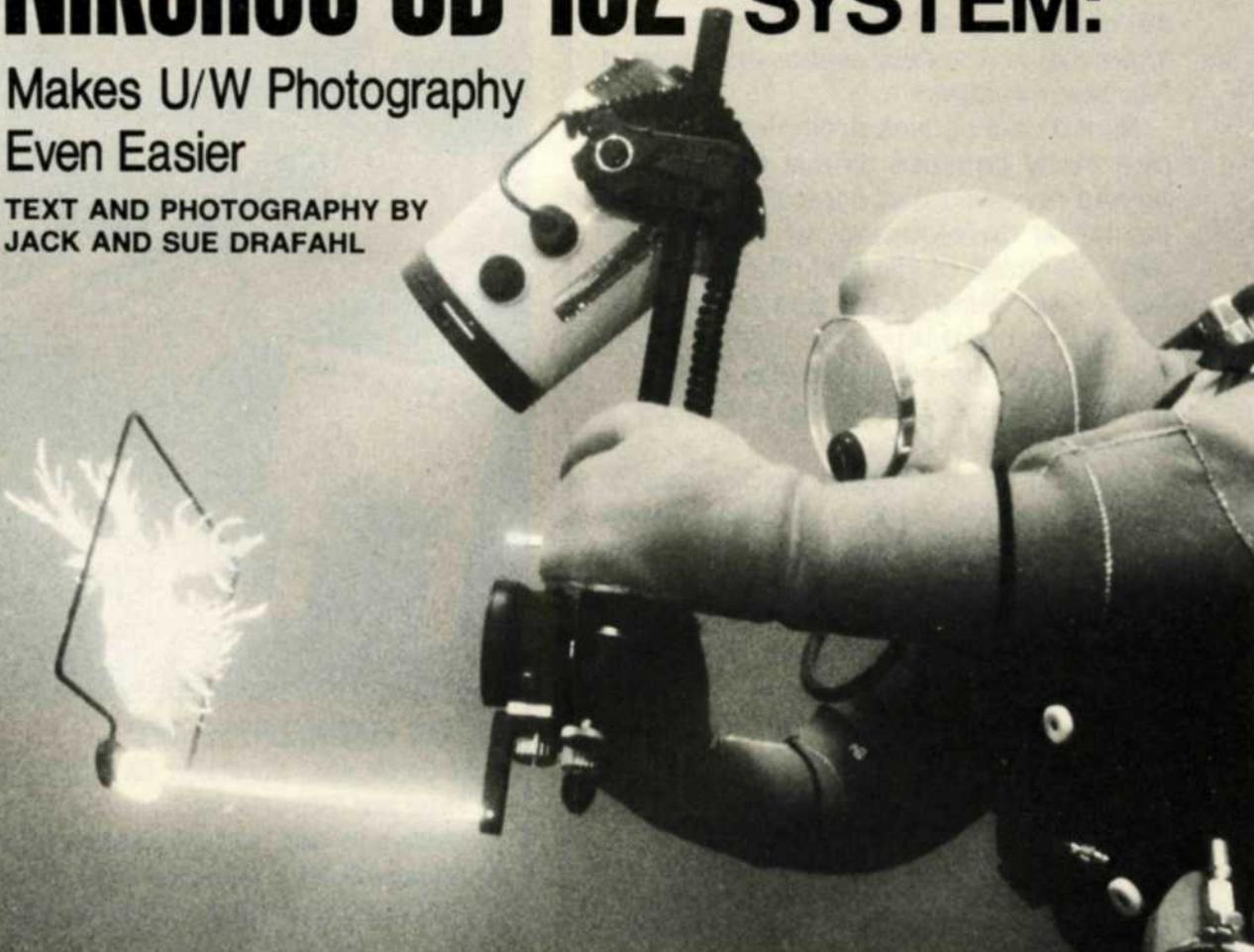
To understand just how the strobe works one only has to look at the control panel. The first of three switches turns on the power and allows the strobe to be test fired to ensure it is working properly. Between this switch and the second is the



## **Nikonos SB-102 STROBE SYSTEM:**

**Makes U/W Photography Even Easier**

**TEXT AND PHOTOGRAPHY BY JACK AND SUE DRAFAHL**



**The SB-102 strobe offers Through-The-Lens (TTL) flash metering when used with the Nikonos V camera. The strobe can be used on manual with the Nikonos III, IV-A or V, as well as on automatic (utilizing the SU-101 sensor) with the III and IV-A.**

ready light. After the power has been turned on for a few seconds the ready light will glow red. This means you have at least 80 percent power and can take a picture using the auto or TTL settings. When you hear the strobe turn off you will have 100 percent power and can take pictures using the manual settings. If the ready light blinks just after taking a picture, it may be indicating an underexposure. Therefore, you may want to bracket by opening the aperture one stop or moving closer to your subject.

The second switch has three settings. The first turns on a target light. Light from this is projected through a lens system and out through the center of the flash-tube. It helps line up the strobe so it is centered on the subject. On several night dives we found our flashlight could be turned off and the target light used to align, focus and photograph fish and various other animals with great success.

This second switch also has a slave mode, allowing others to photograph the SB-102 and trigger it. The slave mode can be used with another strobe with the Nikonos III, IV-A or V camera systems. The third setting of the switch allows the use of the target light and slave mode to-

gether, to aim the slave accurately.

The third switch offers underwater photographers the most control of all: It allows you to decide the amount of power to be used. The first setting is called the TTL position and is designed for use with the Nikonos V only. When the switch is in this position, exposures are calculated through the camera lens. As the light strikes the subject it reflects off and through the lens and onto the film plane. From there it reflects onto a special sensor within the camera. The camera monitors the amount of light and turns the flash off when the exposure is correct. Any leftover charge in the battery is saved for the next exposure.

The SB-102 has three manual settings: M Full, M 1/4 and M 1/16. (M 1/4 power produces a guide number one-half that of full power; M 1/16 produces a guide number one-quarter that of full power.) Manual control can be very useful when the correct exposure cannot be obtained through non-TTL automatic operation. To obtain correct exposures using the manual mode, set the film ASA on the exposure calculation dial on the back of the strobe head and select the correct aperture for camera-to-subject distance. Set

this aperture on the camera lens. Keep in mind that the full power setting uses a lot of power and tends to drain the batteries.

We found the M 1/16 power setting to be very useful when taking photos of the SB-102 as a prop using the slave mode. It seemed to give a correct exposure showing the SB-102 at work.

The final setting of the third switch is auto, for the Nikonos III or IV-A cameras. To use this position you must first attach the SU-101 unit to its port on the base of the strobe or in the accessory shoe on top of the camera. Auto settings are found on the exposure dial on the back. Once you set the aperture on the camera and the color code on the sensor according to your calculation from the exposure dial, you have an auto exposure Nikonos.

Be aware that in any situation where the Nikonos III or IV-A was mentioned, a Nikonos V can also be used. We assumed that if you had a Nikonos V camera, you would prefer the SB-102's sophisticated TTL system specifically designed for use with it.

After extensive testing of the SB-102 system we found two areas in the instruction manual needing clarification—battery performance and effective use of TTL.

We tried just about every battery possible with the SB-102 and have narrowed them down to four basic groups: (1) carbon zinc, (2) alkaline, (3) ni-cad, (4) industrial ni-cad.

The first is usually called a general use battery and does not work with the 102. Alkaline batteries work well and begin with a ten second recycle time at full manual power. Using TTL or auto exposure, the starting recycle time drops to one to five seconds. With alkaline batteries, 150 exposures at full manual power and more than 700 at TTL and auto can be made.

Ni-cads worked about the same as the alkaline batteries, the only difference was the lasting power. Ni-cads lasted about one-quarter as long as the alkalines. Ni-cads can make 100 exposures at full power and more than 500 using the TTL and auto settings. The advantage of the ni-cads is that they can be recharged over and over.

By far the best batteries for use with the SB-102 system are called industrial grade ni-cads. Ni-cads come in two groups—consumer grade, with a rating of 1.2 volts at 1.2 amp/hr; and industrial grade, with a rating of 1.2 volts at 1.8 amp/hr. When using industrial grade ni-cads recycle time doesn't exceed four seconds for the first roll of 36 exposures or five seconds on the second and the third rolls at full manual power. When using the TTL or auto settings with these batteries recycle times for close-ups are less than one second and wide angle

(Continued on Page 138)



A complete Nikonos system might include both the SB-102 and SB-103, the latter for use when a smaller, less powerful strobe is desired. In addition to TTL and auto, the SB-102 offers three manual settings—full, 1/4 and 1/16. It has a target light and can operate as a slave. Left: The SB-102 is powered by six C-cells. Either alkalines or rechargeable ni-cads can be used.



## Underwater Photography Courses

good

Take Underwater pictures simply, affordably  
You can do it • You can afford it

We're here to help you, guide you, and teach you what you need to know! Learn from the expert - Dick Jacoby has taught U/W photography to thousands since 1971. Dick teaches to your needs, and his enthusiasm excites everyone to learn to the limit!

Not a diver? That's OK. Dick teaches photography to snorklers and landlubbers too.

### Coming Seminars

Hands-on experience - All photo gear supplied  
Beginning U/W Photography, Chicago ..... April 26  
Advanced U/W Photography, Chicago ..... April 27  
Beginning U/W Video, Chicago ..... May 3  
Advanced U/W Video, Chicago ..... May 4

Private and Semi-private seminars by appointment  
Florida Courses • Caribbean Photo Holidays  
National Seminars

Learn at home from books and shows produced by  
Dick Jacoby

"Underwater Video Book" Complete guide, 64pp..... \$14.95  
"Care Of Your Nikonos System", VHS or Beta Video  
Cassette ..... \$29.95  
"Use Of Your Nikonos System", VHS or Beta Video  
Cassette ..... \$29.95  
Save \$10.00 when buying "Care" and "Use" tapes  
together ..... \$49.90  
"4-In-1 Photo Show" - Basics, Color, Lenses, Sync.  
"4-In-1 Lighting Show" - Available Light, Flash Exposure and  
Coverage, Lighting Design, Application.  
Either 4-In-1 show: VHS or Beta Video Cassette ..... \$49.95  
80 Slides, Audio Cassette, Script ..... \$89.95

DO IT NOW! Phone 312-774-9526 for information.  
DON'T PUT IT OFF.

The Creative Whale, 6676 Northwest Hwy., Chicago, IL  
60631

## Whale's Eye



## Photo



We'll answer your photo questions! Call 312-774-9526 Monday  
through Friday, 10:00 am to 3:00 pm CST. Orders only: 1/800-  
WHALE01. Any time, day or night.

Whale Marine Filter - get reds, crisp pictures at 50',  
58mm ..... \$49.95  
Whale Marine Eye - Change underwater! 28mm  
coverage ..... \$89.95  
Whale Close-N-Wide - Macro and wide angle in one  
system ..... \$149.95  
Whale Bag, 18"x13"x10" - Protect all your photo gear \$69.95  
Small Whale Bag. Protect your camera, spare lens, filter \$14.95  
O-Ring Removal Tool Kit ..... \$10.95  
Whale Strobe TTL-II - Fully dedicated to Nikonos V - TTL  
Exposure Full, 1/4 power - 28mm coverage - 15mm Diffuser -  
150 flashes per set of 4 AA batteries - Only 2 pounds - Test/  
Emergency switch - "On" light plus Ready light - Reinforced  
removable cord ..... \$289.95  
Ikelite Disc Case, Keystone camera, water lens, finder \$98.50

### Whale's Eye Specials

Whale's eye exclusive - Get personal technical assistance  
when you buy any special - Tech Hot Line phone number and  
your own access code, plus our exclusive "Nikonos Care  
Manual" included.

#1 Nikonos V, 35mm lens, Whale QXL Light, O-Ring Removal  
Tools, Case, ..... \$449.00  
#2 Nikonos V, 35mm lens, Whale Supermarine Filter (no need  
for a strobe to 50 feet) ..... \$499.00  
#3 Nikonos V, 35mm lens, Whale Strobe TTL-II, O-Ring  
Tools ..... \$749.00  
Purchase of Nikonos V includes free Nikon Extension Tube Set,  
plus \$100.00 trip coupon. Purchase of SB-102 or 103 includes  
an additional \$100.00 trip coupon.

Ask for our free catalog. Full line of U/W Photo equipment.  
Prices subject to change.

Order from  
Whale's Eye Photo, P.O. Box 453, Downers Grove, IL 60515

circle # 251 on Reader Service Card

## SB-102

(Continued from Page 133)

photos may take approximately 2.5 seconds. These ni-cads provide about 100 exposures at full power and more than 500 using the TTL or auto settings. These batteries are also rechargeable.

All these batteries can be purchased from most any store that sells batteries, with the exception of industrial grade ni-cads; they must be special ordered from an electronics store. There are several chargers available from Radio Shack, General Electric and Eveready for recharging either type. The Eveready charges six C-cells (needed for the SB-102) and seems to be excellent.

We recommend that the serious underwater photographer buy two sets of ni-



cads and one set of alkalines. Put one set of charged ni-cads in the SB-102 strobe for a day of diving and leave the other set in the charger for the next day's dive. Take along the alkaline batteries for use if the ni-cads should die an early death or if several rolls of film are to be exposed in one day.

Through-The-Lens systems can only be as good as the photographer's understanding of just how they work. A TTL system is always seeking an 18 percent gray exposure. If you were shooting close-ups and the frame were full of subject matter, the TTL would work perfect—36 out of 36. But if you were to use a wide angle lens, where a small portion of the picture contains subject matter and the rest is black background, the TTL would tend to overexpose. This happens because the camera sees all the black area and tries to provide enough exposure to make it 18 percent gray. Don't worry though, the cure is simple. If you have a sizeable dark area in your frame you can correct the TTL system by doubling the ASA on your camera. Just don't forget to reset the ASA when the subject fills the frame again. This is not a defect in the SB-102—it is common to all TTL strobe systems.

Flash fill with the SB-102 is simple and allows you to create those hard-to-take photos everyone loves—you know the ones—the diver swimming down, with the sun above, yet the reef is well-exposed

## HYPERTECH INC.

UNDERWATER VIDEO SYSTEMS

Professionals like Stan Waterman and Stephen Frink use Hypertech equipment.



MODULAR  
EQUIPMENT  
VIDEO HOUSINGS  
with zero to infinity  
sharp focus

HYPER-LIGHTS  
u/w video lights  
up to 600 watts  
no hot spot,  
long burn time,  
wide angle beam

HYPER-SADDLE  
mounts on TEKNA  
u/w scooter

HYPERTECH EQUIPMENT IS  
USED FOR TV BROADCAST  
CALL OR WRITE

P.O. Box 10513, Pompano Beach, FL 33062  
(305) 782-4448

circle # 252 on Reader Service Card

## Pisces Books

Books for divers on travel, marine life, training, and more. Available at your local Dive Shop.  
Write for FREE full-color catalog.  
Box 678, Locust Valley, NY 11560

circle # 253 on Reader Service Card

## CASIO

### DIVERS WATCHES

DW5200C	'G' shock/660 ft wtrprl/alarms/stpwtch	\$30
AQ100W-IE	Analog/digital divers watch/330 ft/Same being sold by competitor in this mag. for \$39.95/Ask for model numbers/1/10 sec. stpwtch/alarm/polysilone black case & band	\$32
MQ0200W	600 ft wtrprl/all black resin/calendar	\$30
DW300	900 ft wtrprl/reads temp/alarms/stpwtch	\$22
LQ351CW	Ladies 300 ft wtrprl/stainless steel case	\$19

R.B. ATHLETICS, 1269 Broadway, Dept. 237  
El Cajon, CA 92021

ORDERING INFO: Send check of money order. No credit cards at these prices. Add \$2.50 postage & handling for each watch. All watches sent new & factory fresh. We give 30 day trial & 1 yr. warranty. We send to USA & Puerto Rico only. All orders must include a home address.

## SCUBA CHECKS



### IN FULL COLOR

This spectacular color series takes you to reefs in the Cayman Islands, Cozumel, and Bimini. Use these checks and share what only we as divers can experience.

You don't have to order checks from your bank. Identify Check Printers will print all the information on your checks necessary to make them conform to A.B.A. Standards. Please ask your bank if the Federal Reserve has assigned them any new routing numbers, if they have changed their MICR layout, or if consecutive numbering in the MICR line is required but is not already printed on your present checks. If so, a specification sheet must be filled out by your bank and sent along with your order.

TO PROCESS YOUR ORDER FOR SCUBA CHECKS QUICKLY AND ACCURATELY WE NEED:

1. A check in payment of the order.
2. A voided sample check.
3. A deposit slip. All information to be printed on checks should be indicated on the deposit slip.
4. The order form below completely filled out. Indicate starting number, if none is given, checks will be printed beginning with No. 101.

ORDERS SHIPPED VIA 3RD CLASS MAIL — ALLOW FOUR TO SIX WEEKS FOR DELIVERY

Identify Check Printers Box 149-D Park Ridge, IL 60068

These top-bound personal size checks are printed in full color. One part deposit slips and check register are included in each order.

Place my order for SCUBA ASST. Checks STARTING NO. \_\_\_\_\_

200 Checks — \$16.00  400 checks — \$27.00 . . . \$ \_\_\_\_\_

Checkbook cover \$1.00 (if needed) . . . . . \$ \_\_\_\_\_

First Class Mail (Optional -Faster Delivery) — \$3.00 . . . \$ \_\_\_\_\_

TOTAL ENCL. \$ \_\_\_\_\_

SHIP TO: \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

SAVE FOR YOUR NEXT ORDER OF CHECKS

near the diver. Simply set the Nikonos V to auto and the SB-102 to TTL. Look through the viewfinder while turning the aperture until the shutter speed is near or below 1/125. This indicates the sunlight exposure is near flash synch. When you expose the picture the TTL system correctly exposes the foreground, and since the TTL flash synch is at 1/90, the background is also correctly exposed.

The SB-102 has an U/W guide number, at full power with ASA 100, of 53 feet. It comes complete with everything you need to create great photos (except the Nikonos V) but accessories to increase the SB-102's versatility include: the Sensor Unit 101, sensor holder, double strobe bracket, double synch cord and extension arm.

The suggested list price for the SB-102 system, including brackets, synch cords and carrying case, is \$910. It can be purchased from your local Nikonos dealer. The Nikonos SB-102 system: Treat it with TLC and it will provide you with high quality TTL.

## DIVING MEDICINE

(Continued from Page 38)

**Question:** Every time I wear my new wetsuit, I break out in a rash. Is it possible to be allergic to a wetsuit?

**Answer:** Your response to wearing the wetsuit can be either an allergy or a direct effect of some chemical in the suit that causes injury to your skin. You might try soaking the suit in soapy water overnight to remove any chemicals that might cause allergy or skin reactions, then soak it in fresh water for a few hours before trying to wear it. If you still get the reaction, it is likely you are sensitive to some component of the suit.

**Question:** I have a tendency to get infections in my external ear canal when I dive. Is there a remedy for this?

**Answer:** Swimmer's ear is a significant problem in many diving operations. In saturation diving, this was a real problem, causing loss of diver effectiveness. The use of a dry helmet will not guarantee the illness will disappear. The air in the helmet is moist and it is the moisture that causes the infection.

The best way to avoid this problem is by using prophylactic measures. Using ear drops before you dive will prevent water from accumulating and will provide some oil to coat the ear canal. The best solution I have seen is a mixture of alcohol, white vinegar and a light organic oil called Otic Domeboro. Two drops of this in each ear before diving will usually prevent the infection.

Most ENT physicians I know who dive say cotton swabs used in the ear canal will remove the important oily layer and make you more prone to swimmer's ear.



PAT. PEND.

# NO SWEAT!

# WITH

# TANK CADDY

"MOVES TANKS WITH NO HASSLE! THE E-Z WAY"

- LIGHT WEIGHT•BEACH TESTED•COMPACT
- KEEPS TANK SECURE IN CAR OR BOAT
- QUICK CONNECT-RELEASE DESIGN
- DEALER INQUIRIES INVITED

Send \$36.95+3.00 (POSTAGE & HANDLING) in check or moneyorder TO:

**CRC PRODUCTS INC.**  
P.O. Box 6069  
POMPANO BEACH, FL. 33060

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_  
State \_\_\_\_\_ Zip \_\_\_\_\_  
(Fla. residents add 5% sales tax)

**ONLY \$36.95**

Call toll free 1-800-331-3956

IN FLORIDA 305-785-5226

Please allow 2-6 weeks delivery

Send \$36.95+3.00 (POSTAGE & HANDLING) in check or moneyorder TO:

**CRC PRODUCTS INC.**  
P.O. Box 6069  
POMPANO BEACH, FL. 33060

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_  
State \_\_\_\_\_ Zip \_\_\_\_\_  
(Fla. residents add 5% sales tax)

circle #254 on Reader Service Card

## PHOTO COURSES

Guaranteed Results

FLORIDA KEYS May 1-5, Aug. 7-11  
COZUMEL May 21-27, June 25-30, Aug. 14-19  
CAYMAN Sept. 30-Oct. 5

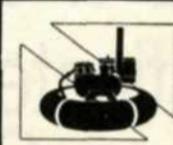


PHOTO MARINE

(404) 952-1011

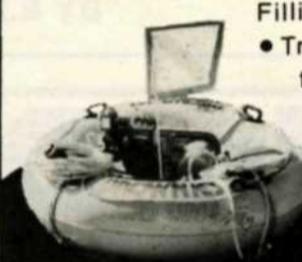
1475 Terrill Mill Rd., Marietta, GA 30067

circle #255 on Reader Service Card



## BROWNIE'S THIRD LUNG

The Original And Only • Seven Gas and Electric Hookah Models. • Portable Tank Filling Compressors. • Treasure Air-Lift Systems. Major Credit Cards Accepted.



Write:  
940 N.W. 1st Street  
Ft. Lauderdale, FL  
33311

CALL: 800/327-0412 • FLA: 305/462-5570

circle #256 on Reader Service Card

"THE AQUAMAX ADVANTAGE"

"The only way of getting into the water without the water getting into you"

IT KEEPS THE WATER OUT

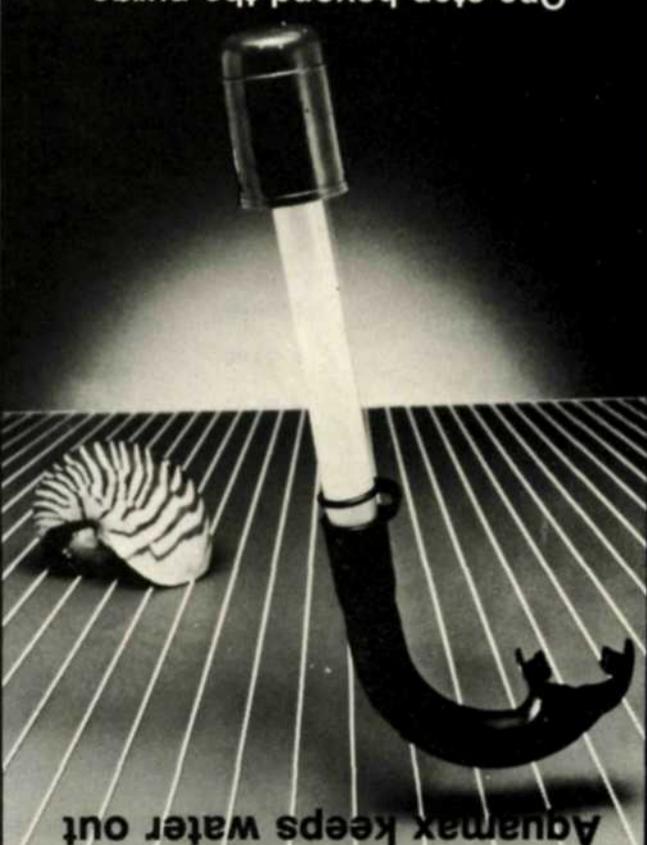
With no moving parts. In use by So. Fla. Sheriff's Dept. & Beach Patrols, Dive Instructors as a teaching tool... If you like the water in your mouth keep it, perhaps your wife & children don't! Don't knock the concept if you haven't tried it. There is life beyond Scuba—starting with the novice and pleasure snorkeler, ending with people like the Sheriff's marine division that risk their lives. If you don't find the Aquamax at your favorite Dive Shop call us toll free. TRY US! We're new—so was the B.C. & Purge once! SEND \$24.95 postage & handling included

AQUAMAX

A Division of  
AQUATEC PRODUCTS CORPORATION  
120 South Olive Avenue, Suite 601  
West Palm Beach, Florida 33401  
(305) 655-8413 • (800) 447-0020

send for free brochure  
DEALER INQUIRIES INVITED

Even as you see it upside down  
Aquamax keeps water out



One step beyond the purge

circle #257 on Reader Service Card