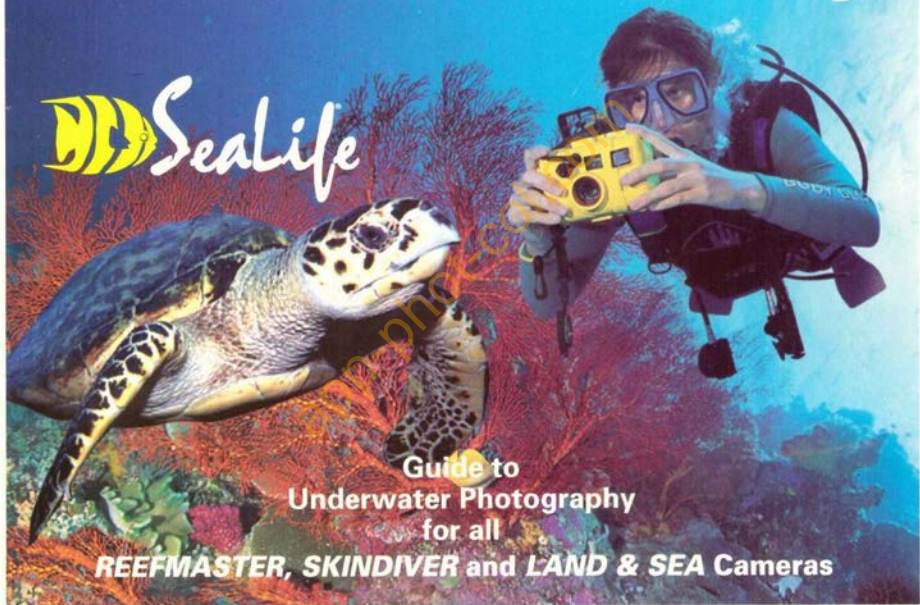


Great Pictures Made Easy

 Sealife

Guide to
Underwater Photography
for all

REEFMASTER, SKINDIVER and LAND & SEA Cameras



Rate Your Pictures — Test Your Skills

Distance: 0m 1' 2' 3' 4' 5' 6' 7' 8' 9' 10' 11' 12'ft. 1.20 2.10 3.00 m

Out of focus. Too close without close-up lens. Best color with close-up lens.

14"-16" with MACRO 8X close-up lens.
2'-4' with MACRO 3X lens.

Ideal distance for main subject. Without close-up lens.

For richer color use external flash.

Mostly blue. O.K. for background.

Too Far. All blue, not sharp pictures.



"Marine Snow"
Diver stirs up sand.
Causes backscatter.



Overflashing on close white reflective subject



Proper shooting distance chart for all SeaLife cameras

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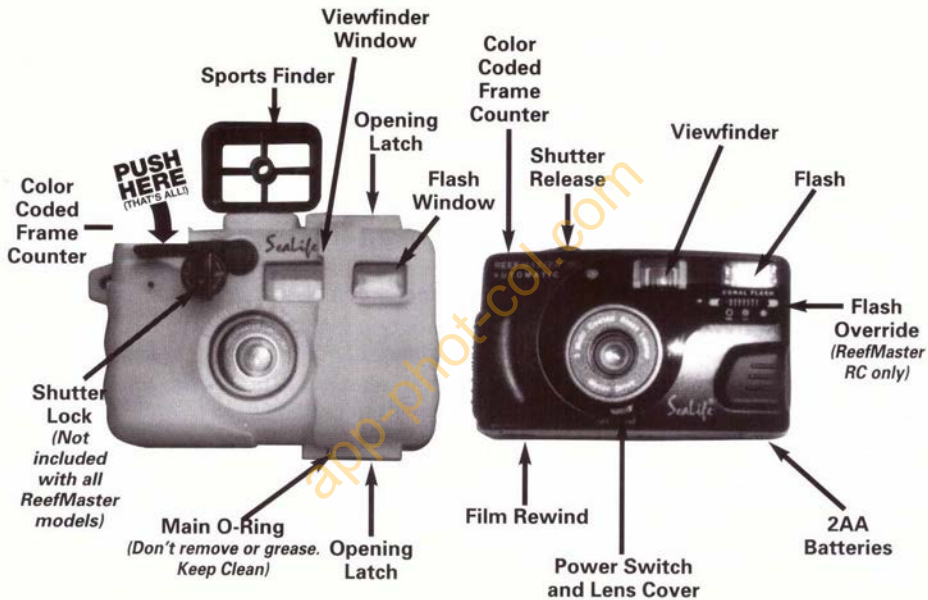
Key to trouble free operation: *Good care and extreme cleanliness of your O-ring or sealing area. Absolutely dry conditions when opening the camera.* Careful handling and protection of the shutter release lever. Test camera without film before inserting film each time! Follow proper film loading procedures. Use fresh AA batteries.

Key to good pictures: Crystal clear water. Shooting distance u/w 4 ft. to 6 ft. / 1.2 to 1.8 m. FLASH READY light on. Be calm and patient and move very slowly.

Depth: All ReefMaster models (hard housing) are tested to **164 ft. / 50 m.** The SkinDiver model (flexible housing) is easy to operate to **45 ft. / 15 m** and water/pressure proof to **120 ft. / 40 m.**

Film: ASA 200 for most applications or conditions. Use 100 speed print or slide film in extremely bright conditions, on beaches or snorkeling.

Film Processing: Tell your photo lab that you're developing underwater pictures and to increase red and yellow as needed to balance the picture color. Request sample prints.



Applies to Sealife ReefMaster® RC, CL and Land & Sea® Camera models

Color Coded
Frame Counter

Oversized Mask
Viewfinder

Color
Correction
Flash

**PUSH
HERE**
(THAT'S ALL!)

Deep Dive
Switch
(To motor
advance film
between 20 ft.
and 45 ft.)

Metal
Closing
Rail

Power Switch
(Turn on before
inserting camera)

Film
Rewind
Switch

Model: "SkinDiver™"

SeaLife Cameras consist of 2 parts: The waterproof "Housing" and the compact "Inner Camera". This modular design gives you great versatility underwater and on land. It also makes cleaning easy and allows inexpensive service.

1. Tips for Great Pictures

1. Just do it !

One of the best ways to learn about underwater photography is to just do it and learn from your best shots and from mistakes. Even the best photographers have taken countless bad pictures... that's the way they became better and better. Here is the trick: Take several films and just shoot anything in front of your lens in a variety of conditions, distances, colors, objects etc. **Then look at every print and write on the back what's good or bad about the shot.** We evaluated several thousand pictures and found that even amateurs can take great pictures by simply avoiding a few common mistakes. (For the most common errors see the picture examples on pages 9 - 12.) You will be surprised that among your snapshots you will find some award-winning pictures. Put the good ones in an album. But keep one bad shot of each typical error. After a few films you will achieve good control and even perfection.

Use the SeaLife form "**Rate Your Pictures-Test Your Skills**". The best pictures are taken with a close-up lens. The SeaLife MACRO 3X Close-Up Lens has a distance range from 2ft. - 4 ft.. In lower water visibility, the SeaLife Close-Up Lens is a must. The key to good pictures is to get close. The reason is that water absorbs more light than air. In air you could see up to 30 miles, in water your eyes can see 50 ft. at most, but film can see less than half of that and much less red and yellow than your eyes.

2. Capture the Magic

What do you want to capture on film? What attracts you to underwater photography? What scenes are so breathtaking that people say "this is so unbelievable, I wish I had a camera to show this to my friends"?

You will encounter strange creatures, see incredible effects of light and colors, explore wrecks, corals and plants that appear as if they were from a different planet, while you float effortlessly through space without gravity.

And after years of adventures with your SeaLife camera you will look at your albums, perhaps even at an impressive gallery of framed enlargements. And it may be only then that you discover the real treasure that you found with your camera: You have learned to use your eyes to see and experience the underwater world, one of the greatest miracles on earth.

As the manufacturers of SeaLife we believe that an easy to use underwater camera will help millions of divers and non-divers to experience and see a part of our world which is essential to our survival.

And we hope that you will enrich and enlighten your life by capturing valuable impressions in the underwater world with your SeaLife Camera.

3. The Great Hunt

While you hunt for a big strange fish or a good shot of your buddy with a stingray, always include the underwater magic in your pictures.

Get a mystic blue **background**, an interesting little red fish and yellow coral in the **foreground**. These color contrasts will add **depth** to your pictures.

Capture rising air bubbles against the reflections of the surface water. This will indicate motion.

Use the walls of a canyon as a **frame** for your object, look for **contrasting** colors, bizarre shapes, towering kelp forests, subtle shades of water colors, sand and rock, wild structures, or dark shades of a wreck penetrated by spears of sun rays.

The primary target for most people is, of course, a good picture of yourself and your friends surrounded by tropical fish. This is actually the easiest part.

A diver should be only 5ft. to 6 ft. away for a good picture. That excludes big group shots. Portrait shots of diver and fish are best taken at 2ft. to 4 ft. with the snap-on MACRO 3X close up lens. Use MACRO 8X lens for extreme close-up of 14" to 16".

You may chum for fish with bits of food, but pick something that does not fall apart and cloud up the water (for example, bread dissolves and clouds up the water). Check with a local dive master to select chum that does not endanger the fish.

Be very calm and patient, and let that curious fish get closer and closer. Get up-current from a good spot and just drift. motionless along with your camera in ready position. To stay in a camera-ready waiting position, approach your subject facing the current.

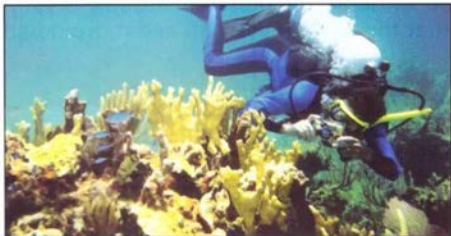
Always take notes of your pictures and mark your films.

It is very exciting to document every fish in your area in an album.

Once you have some expertise you might start to take slides and put a presentation together, possibly combined with music and video for dive clubs, schools and friends. Scanning your pictures into your PC and printing impressive

Good & Bad Pictures

a) Stay within the ideal distance



Distance 6 ft. / 1.80 m, regular lens



Distance 3 ft. / 90 cm with MACRO 3X close-up lens



Distance 2 ft.. Too close for regular lens



Distance 4 to 5 ft., regular lens



Distance 8 ft., too far

Good & Bad Pictures

b) Crystal Clear Water

No matter what equipment you use, good underwater pictures require crystal clear water. (It is important to remember that the human eye can see more detail than any camera.)

Avoid floating particles stirred up by currents, waves or divers.

Low visibility is caused by small particles, algae or by silt. In this case, use the MACRO 3X close-up lens at a distance of 2.5 ft./75cm or MACRO 8X at 15"/38cm

Visibility of 50 ft./15m (horizontally) gives you the best pictures. Shoot at the ideal range, 4 ft. to 6 ft./1.2 to 1.8m



Back scatter of the flash caused by stirred up sand.



Low visibility



Perfect visibility

Good & Bad Pictures

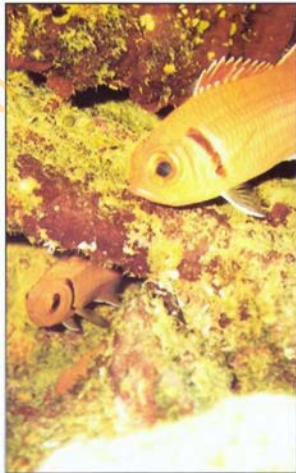
c) **Flash:** The purpose of a U/W flash is to bring out colors at the ideal shooting range, not to illuminate objects at longer distances.



Distance 4 ft., In dark cave.
(regular lens)



Overflash on close object.
(regular lens)



The MACRO 3X close-up lens
corrects color and flash at
close range (2 ft. / 60cm)

Good & Bad Pictures

d) Composition: Look for good contrast and color between object (fish), surrounding (coral) and background (water). Look for exciting shapes.



Poor contrast



Good contrast
(with MACRO 3X close-up lens)



Interesting Coral Shapes
(with regular lens)

e) Processing Lab: Request to increase yellow and red. Request to see sample prints.



Lab A: "Normal" processing



Lab B: Yellow and red added to picture

color presentations can be fun and valuable for education or business.

4. Great Effects

Everything about seeing and taking pictures is about light. Pay attention to **light and shade, colors and contrasts**, don't just get mesmerized by that big fish. Your best colors and effects will be where the sun still penetrates the water: Dive or snorkel at a **vertical sun from 10 AM to 2 PM in a depth not greater than 25 ft. / 8 m**. Each depth and light condition has its own attraction. Experiment and capture different effects at different depths and scenes.

In crystal clear tropical waters you will get great turquoise water colors to a depth of 20 ft. / 7 m, then an intense blue, and a wonderful deep blue beyond 40 ft. / 12 m. The SeaLife "Coral Flash" will intensify red and yellow colors of close objects (4 ft. to 6 ft. / 1.2 m to 1.8 m) and leave the blue background untouched. The color corrected close-up lens will intensify the warm colors (red and yellow) even more and moderate the built-in flash.

Look for **rich color contrasts**. You may use the Sealife External Flash to add color and brightness. To really illuminate coral or any area further than 6 ft., you cannot just increase the power of your flash, but you must direct a light or secondary flash at an angle of 45 degrees from your camera at the object. If the water is not as clear as you may wish, choose **closer objects**. The MACRO 3X Close-Up lens can be used for distances of 2 ft. to 4 ft. / 60 cm to 1.2 m, the MACRO 8X lens for 14" to 16" / 35cm to 40cm.

Even shots without any color, just a black **silhouette against the bright water surface** can make dramatic shots.

A **“halo” effect** can be created by the sun or a light source behind a person or a sea creature.

In bright conditions on land or in snorkeling use ASA 100 print film or ASA 64 for slides. A secondary **strobe** can be used to reduce “marine snow”, caused by the flash hitting microscopically small particles like algae or plankton. The primary flash of the camera must be covered with a flash reflector which reflects the light towards the external flash sensor and not directly towards the target. The SeaLife Close-Up Lenses also help to reduce marine snow.

For pictures partially above and under water, coat the lens with a touch of detergent to let drops run off. This can take many shots until the water surface is exactly on the center of the lens.

5. Inspiring Books

Every dive or photo dealer with an underwater camera department will have some worthwhile books on underwater photography. An illustrated reference book should be your constant companion as well as this manual. Keep it inside your SeaLife Dry Box. The best book, however, is the one you yourself compose.

6. An U/W photo course can be very enjoyable.

Ask your dive instructor. Your dive store also offers a variety of trips with “Underwater Photo Safaris” to the world’s most beautiful reefs in good company and with a knowledgeable guide.

II. Quick Tips for great pictures

1. Quick Setup of camera and housing

Loading film and batteries

- A) Keep everything clean and dry. One drop of water inside the housing can cause the front lens to fog underwater. Use Moisture Muncher to prevent fogging.
- B) Use 200 speed 24 exposure film and 2 fresh AA Alkaline Batteries. Replace batteries if "Flash Ready" light takes more than 15 seconds to recycle.
- C) Turn camera power ON (below lens of inner camera.)
- D) Before loading film, push shutter button once to test camera advance.
- E) Insert film roll. Make sure roll is properly seated onto rewind shaft..
- F) Pull film tab over into take-up spool and press shutter button until film engages. Film should lay flat across film plane and sprocket teeth.
- G) Close film door. If the film door is obstructed by film roll, remove and re-insert roll until film door closes without any obstruction.
- H) Keep the camera and inside of housing absolutely dry.

Set-up housing

- A) With camera power on, insert loaded camera into housing. Keep camera and inside of housing dry.
- B) Inspect and clean O-ring before sealing camera in housing.
- C) Close housing carefully. Make sure that the Moisture Muncher or any other debris does not obstruct O-ring.
- D) Do not apply any force to the sealed housing in order to avoid flooding the camera and housing.
- E) Camera power shuts off automatically after about 2 minutes. To reactivate, press shutter lever lightly.

2. Best Pictures

A) The clearer the water the better the picture. **Visibility** must be at least **7 times** shooting distance. Algae, plankton, sand or microscopically small particles suspended in the water cause cloudy pictures or "Marine Snow" (backscatter of the flash). Shallow depth and vertical bright sunlight around mid-day will result in brighter, more colorful pictures.

B) Shooting Distance: min. **4 ft. / 1.2 m**, best: **5 ft. to 6 ft. / 1.5 to 2 m**. Measure your distance "**Chin to Fin**" and use as a reference in practicing your judgment of underwater distance. MACRO 3X close-up lens has 2 ft. to 4 ft. focus range, best 2.5 ft./75cm (stretch out your arms and fingertips). MACRO 8X close-up lens has 14" to 16" focus range, best is 15"/38cm.

C) Depth: All ReefMaster (hard housing) models are tested to **164 ft. / 50 m**. The SkinDiver model (flexible housing) can be operated to **45 ft. / 15 m** and water/pressure proof to **120 ft. / 40 m**. With the SkinDiver you need to reset the deep-dive switch after each picture when between 20 to 45 ft..

D) Move **calmly and aim through the sports finder** on top of the camera. The SkinDiver model has an optical viewfinder. The red light on the viewfinder indicates the power is on.

E) Underwater, the **Flash** is always ON for enhanced colors. Wait for FLASH READY light to turn on after each picture (about 10 seconds).

F) **On land**, outside the housing, the flash is automatic. The ReefMaster-RC allows you to manually override it by holding the switch in the ON or OFF position while you are shooting.

G) Tell your processing lab that you have underwater pictures. Ask your lab to increase red and yellow until colors are balanced. Have your lab make a few proof prints with different settings. Note: There are great variations in picture quality between different labs depending on the processing machinery and corrections made to prints.

For great close-up pictures; ask your dealer for the SeaLife MACRO 3X or 8X Close-Up Lens.

3. MUST DO !

Very Important: Not following these points may void your warranty.

- A) Before **opening** the camera housing: **Everything, including your hands, arms, dive suit, head must be ABSOLUTELY DRY:** Have a dry towel handy. Change film or batteries in an air-conditioned or dry, cool room if possible. Insert the 2 g Moisture Muncher Pack to prevent fogging (See page 23). One drop of water on the housing may cause the lens to fog.
- B) **The ReefMaster O-ring sealing area must be absolutely flat, smooth and clean. DO NOT REMOVE O-RING!** Follow O-ring care instructions on page 22.
- C) After use and before opening immediately **wash closed camera housing in fresh water and dry well.** It's normal for some water to become trapped between the ReefMaster armor and housing. This will not cause any damage and eventually dry. Also periodically wash open housing without inner camera. After washing, dry well. Clean lenses with cleaning pads lightly soaked in detergent and water, then rinse and dry. Do not let drops dry on lenses.
- D) The "Deep Dive Switch" of the SkinDiver is coded 1 and 2. Push 1 to shoot. When diving deeper than 20 ft., after pushing the 1, push the 2 until motor stops advancing (listen carefully).
- E) Use the unbreakable airtight **SeaLife Dry Case** for dry storage with a large 1 oz. Moisture Muncher Pack and for transportation on boats, airplanes, trucks etc. The lifetime of batteries as well as the camera and other tools or electronics will be greatly extended. (See page 23.)

III. How easy it is... your new SeaLife Camera

Most important: When opening the housing, your hands, arms, head, dive suit, and the camera must be **completely dry and clean** of water, sand and dust. If possible, open in an air-conditioned or dry cool room.



Open both latches



Unscrew the closing rail

Remove Inner Camera: All Models

Remove the inner camera from the housing and insert 2 fresh AA batteries. If using rechargeable batteries, only use Ni-MH (1300 or 1400 mAh). Make sure the lenses of the camera and the housing are clean and dust free.

ReefMaster RC and CL

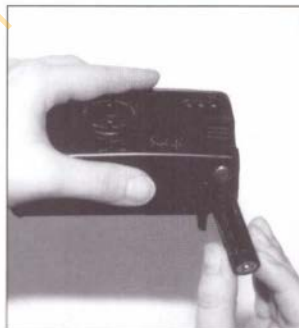


Remove the inside camera

SkinDiver



All models



Insert 2 fresh AA Alkaline Batteries

Turn Power On: All Models

Turn **Power** on: Open the **lens cover** by moving the switch below the lens of the inner camera. This will also turn the power on. Push the shutter release to test power (without film).



Power and lens cover switch



Open film door by sliding down latch on back of inner camera.

Loading film and batteries - All Models

- a) Use 200 speed 24 exposure film and 2 fresh AA Alkaline batteries. Replace batteries if "Flash Ready" light takes more than 15 seconds to recycle.
- b) Turn camera power ON (below lens of inner camera.)
- c) Before loading film, push shutter button once to test camera advance.

- d) Insert film roll. Make sure roll is properly seated onto rewind shaft..
- e) Pull film tab over into take-up spool and press shutter button until film engages. Film should lay flat across film plane and sprocket teeth.
- f) Close film door. If the film door is obstructed by film roll, remove and re-insert roll until film door closes without any obstruction.



Close door. If hatch does not close easily, film cartridge is not in correct position.



Advance until Frame counter reads 1

Clean O-ring / Seal Area: All ReefMaster models

The waterproof seal is the most critical part. It must be kept meticulously clean. ReefMaster models have an O-ring, while the SkinDiver is self-sealing. In all models, you must check the O-ring or sealing area for **sand, dirt, hair etc.** It is **best to rinse with fresh water (do not use detergents)**. Dry thoroughly with clean, lint-free cloth. **Important: remove inner camera before washing.**



**DO NOT
REMOVE
O-RING**

The O-ring should never be greased or removed. If the O-ring shows signs of damage have it replaced by an authorized SeaLife Service Facility. Ask your dealer or contact Pioneer Research (see back cover).

ReefMaster RC and CL



SkinDiver



Insert Moisture Muncher. This will prevent fogging of the lens and protect the electronics from humidity. The small 2 g bag fits between 2 ribs of ReefMaster camera models and at the bottom of the SkinDiver housing before inserting the camera. Do this in dry air without delay since Moisture Muncher will absorb moisture immediately once you open the air tight package. It is best done the night before the dive so Moisture Muncher has enough time to absorb all the humidity inside the camera.

Whenever possible insert film in dry air, such as in an air conditioned room. If you have to change film in tropical, warm or humid air, make sure you insert fresh Moisture Muncher Drying Agent to prevent fogging. Always take a good supply of Moisture Muncher with you when you go on vacation. The larger 28 g/1 oz. size is recommended to keep the inside of your airtight SeaLife Dive Travel and Accessory Case, tools and batteries completely dry and free from mildew and corrosion. The larger, 28 g/1 oz. Moisture Muncher Bag (used in SeaLife Dry Case or other closed container) contains a color indicator.

IMPORTANT: Do not obstruct O-ring or sealing area with Moisture Muncher or housing will flood.

Insert Inner Camera

Insert the inner camera with the **power on** and lens open (power switch below the lens). Make sure the Moisture Muncher or any other matter does not interfere with closing the housing.

ReefMaster RC and CL



Close the housing latches. If necessary, remove the outside sports finder for easier opening and closing of the latches. Hold the latch down deep inside the strike while closing. Do not use force.

SkinDiver



Make sure the housing is clean and flat. Close the rail and tighten the screws finger tight.

Power save function:

The power will turn off automatically, when the camera is not used within about 2 minutes and will turn on again by a light touch on the shutter release.

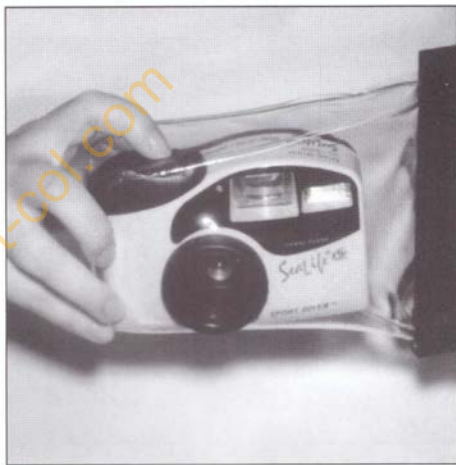
The ON-OFF switch below the trigger of the ReefMaster housing blocks the trigger so that power cannot accidentally turn on. Note: Some newer ReefMaster models may not have or need the ON-OFF switch.

Take a picture. If film does not advance or FLASH READY light does not turn on, see section V, Trouble Shooting Guide.

ReefMaster RC and CL

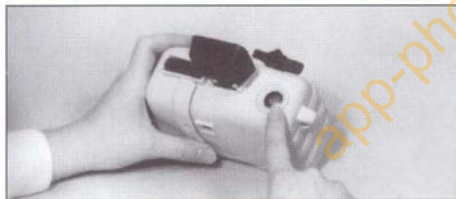


SkinDiver



Check FLASH READY Light / Battery Condition

Check if FLASH READY light turns on in about 10 seconds after taking a picture. If it takes longer than 15 seconds, your batteries are not in good condition and should be replaced. Note: New batteries stay charged longer if stored in the air tight SeaLife Dry Case with Moisture Muncher. Always take extra batteries along.



The **frame counter** should now show "2". The white background of the frame counter turns red within 4 pictures of the end of the film (*at the 20th or 32nd picture*).

Taking Pictures Underwater

Depth: All ReefMaster models are tested to **164 ft. / 50 m**. The SkinDiver model is easy to operate to **45 ft. / 15 m** and water/pressure proof to **120 ft. / 40 m**.

Approach your subject slowly. It's best to remain **motionless**. Wait for fish to become confident and swim into a good position. **Aim the ReefMaster Camera only through the sports finder**, holding it directly to your mask or learn to aim with stretched out arms. The ring in the center must appear **as a circle, not as an oval**. The **optical viewfinder** (looking through the camera housing) is intended only for a rough check on your framing. When using close-up lens, aim slightly above the subject. Press the **shutter release** swiftly and completely down, not in a slow motion, holding the camera firm and steady. Let the trigger come up swiftly as well, don't keep it down. Never force the shutter release beyond its normal stop position. **Protect it well** from pressure by other gear in your dive bag.

The **SkinDiver** has a built-in oversized optical viewfinder which lets you see the entire picture with your dive mask on.

ReefMaster RC and CL



SkinDiver



Distance Without Close-Up Lens: All Models

The **distance to the object should never be less than 4 ft. / 1.2 m, ideally 5 ft. to 6 ft. / 1.5 to 2 m.** Longer distances are only successful in extremely clear water and to background objects. The general rule is: **Water visibility (horizontally) should be 7 times the shooting distance.**



The built-in flash is designed for foreground illumination and richer colors at a distance of 4 ft. to 6 ft. / 1.20 to 1.8 m. The orange "**Coral Flash**" will help to avoid the U/W blue effect of near-by objects. Always wait until the green **FLASH READY light** on the back of the camera turns on before taking a picture (about 10 sec).

Tip: Measure your closest distance "**Chin to Fin**" on land. Once you have determined a length of 5 ft. / 1.5 m, stretch out your legs under water and test your distance judgment.

Minimum distance without close-up lens.

Ideal distance is 5 to 6 ft.. "from chin to fin."

Distance Using Close-Up Lens: All Models

Underwater: range of the MACRO 3X close-up lens is 2 ft. to 4 ft. /60 cm to 120 cm. (Tip: Stretch out your arm. Shoot no closer than the end of your fingertips.) On land: range is 10" to 14" /25 cm to 35 cm. The range of the MACRO 8X close-up lens is 14" to 16" /35 to 40cm underwater (Tip: Stretch out your elbow as a reference.) On land the MACRO 8X has a range of 4" to 5" /10 to 12.5cm.



Minimum distance with close-up lens



Close-up lens on



Close-up lens off

SeaLife MACRO 3X or 8X Close-Up Lenses (8X lens available in Spring 2000)

The best pictures with excellent detail and rich colors are taken with a close-up lens, especially in low visibility conditions. The MACRO 3X or 8X Close-Up Lens is highly recommended. These close-up lenses are attached to the camera strap and can easily be snapped on and off the lens port while underwater. The MACRO 3X or 8X Close-Up Lens also acts as a U/W filter, multi-coated to enhance red and yellow colors and reduces the underwater blue effect. They consist of a 37 mm removable lens, lens holder and a safety lanyard.

Cleaning: All Models

After leaving the water, the sealed camera housing should be washed thoroughly in fresh water. Never let salt water dry on the camera or the housing. Salt crystals will damage the O-ring and lens and attract humidity. Never let water drops on any lens. Wipe it dry with a soft, lens cleaning tissue.



Before opening the camera, everything, including your hands, body, head and surroundings must be **totally dry**. Have a dry towel handy. If possible, prepare the camera in a **dry or air conditioned room** to prevent humidity from being trapped in the camera, which could lead to fogging, corrosion or draining of the batteries.

Re-winding the Film: All Models

With power on, slide the small switch at the bottom of the inner camera.



When the film is completely rewound and winder has stopped, open the back cover and put your film in a marked dry container and store it cool. ***When taking your film to be developed, remember to request sample prints, called index print. (See page 12, letter e.)***

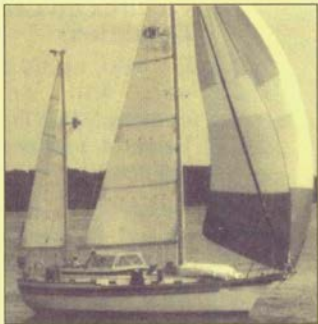


Dry Storage

For **long term storage** remove the batteries from the camera. Leaking batteries can ruin your camera. Store the camera with the latches not tightened inside the air tight **SeaLife Dry Case** with one large 1 oz. bag of **Moisture Muncher**. (See list on page 41).

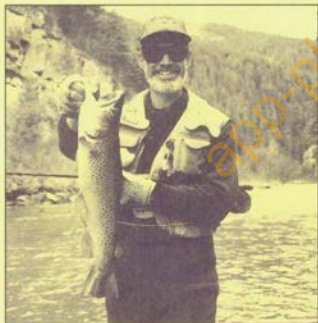
For storage of additional parts you can cut openings in the foam with a sharp knife. If you buy the case as an optional accessory, pick & pluck foam lets you customize it. The large knob below the handle is a pressure equalizing valve. Turn this open after being in an airplane or at high altitude.

The SeaLife Dry Box has enough space for optional accessories, close-up lens, extra film, batteries, and perhaps even your spare parts. If you want to re-arrange the openings in the foam, you can order only a new pick and pluck foam insert as a spare part. (See *Spare Parts list on page 42.*)



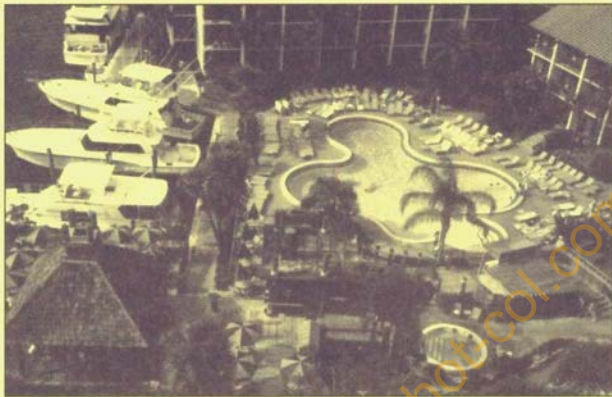
Pictures on Boats and Beaches

SeaLife cameras should always be used in their waterproof housing when taking pictures in any humid, sandy, or hazardous environments. The tough housing is not only a good protection against moisture but also against sand as well as shocks and bumps on adventurous trips.



Catch, click and release

Sport fisherman can rely on the SeaLife to capture the image of that trophy fish before it's released.



Pictures on Land in dry Conditions

On land, in dry conditions you will enjoy the compact and light weight SeaLife camera without it's housing.

Keep the lens cover closed so the lens always stays clear and clean.

SeaLife Cameras have a **wide-angle lens**, ideal for people or sightseeing objects.

On land or in shallow water, in bright light, you may also use ASA 100 film (instead of ASA 200). **Slides:** ASA 200 slide film can be used for diving, but in bright snorkel or beach conditions ASA 64 should be used.

Using the Flash

If the camera is used without its underwater housing the **flash will be automatic**. However you can manually override the automatic function with the model ReefMaster RC only. To keep it off, for example at an indoor sports event, you can **slide and hold the manual flash switch** in the OFF position.



ReefMaster RC Model Only

To use a flash despite bright light as a fill flash for brighter colors or to avoid shadows, hold the switch in the ON position while pushing the shutter release.

On land, the flash will reach up to 15 ft. / 5 m, depending on how bright the object is.

IV. Accessories and Related Products

1. Accessories:

a) SeaLife Dive Travel & Accessory Case

Item SL930

Airtight, unbreakable case for storage and transportation with pick & pluck foam.

It is very **important for the condition and lifetime of cameras, batteries and other electronics or even tools to be stored absolutely dry and protected from fungus growth and corrosion.** On a dive trip, on boats, beaches etc., the Dry Case is the ideal protection for the camera and storage for film, batteries and spare parts.

A most **important function of the Dry Case is to thoroughly dry valuable optics and electronics** with the help of a highly moisture absorbing drying agent, particularly after you get some drops of water inside the housing. The smallest amounts of humidity can cause fogging and malfunctioning in electronics. To be used with the large 1 oz. / 28 g bag of Moisture Muncher drying agent.

b) Soft. Padded Camera Case

Item SL945

Fits all models, extra film and Moisture Muncher supply.

c) Tropical Sports & Beach Bag

Item SL942

Oversized carry-all in a Queen Angel Fish design. Gets attention from Manhattan to St. Martin. Bag includes shoulder strap and zippered compartment.

Size: 20 in. x 13 in. x 1½ in.

d) Tropical Sports Bag

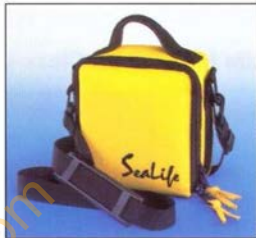
Item SL941

A fascinating gift for all occasions. Stylish French Angel Fish design. Bag includes shoulder strap and zippered compartment. Size: 10 in. x 7½ in. x 1½ in.



a) **SeaLife Dive Travel & Accessory Case**
Item SL930

Unbreakable airtight case with "pick & pluck" foam and air release valve.



b) **SeaLife Soft. Padded Camera Case**
Item SL945

Designed to hold all SeaLife Cameras and extra film.



c) **SeaLife Tropical Sport Bag – Large**
Item SL942



d) **SeaLife Tropical Sport Bag – Small**
Item SL941

Accessories (continued)

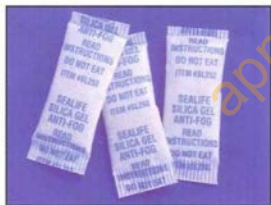
e) SeaLife MACRO 3X Close-Up Lens - U/W Filter Item SL951



f) Sealife MACRO
8X Close-Up - LP
Lens/UW Filter (available
in Spring 2000)

Item SL958

g) Moisture Muncher Anti-Fog Desiccant



Small (Item SL910)

Use inside camera housing
(15 2-gram packs)



Large (Item M101)

Use inside closed hard case or plastic bag
(3 1-ounce packs)

Accessories (continued)

h) External flash

Item SL960



External flash adds color and brightness to your pictures. It also helps reduce backscatter.



Two external flashes can be mounted for the maximum brightness and color.

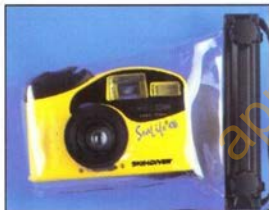
SeaLife Camera Models:



ReefMaster U/W Photo Set Item SL511
ReefMaster RC with MACRO 3X Close-Up
Lens and Dive Travel Hard Case



ReefMaster RC Pro set Item SL560
ReefMaster RC with External Flash,
MACRO 3X Close-Up Lens and soft carry



SkinDiver Item SL301
Large viewfinder for full field of view with
mask. Maintenance free flexible housing
with metal closing rail. $f5.6$, $1/125$ second.



ReefMaster CL Item SL520
Compact, clear Lexan® housing fits in BC
pocket. $f5.6$, $1/125$ second.

continued from page 36

e) SeaLife MACRO 3X Close-Up Lens - U/W Filter

Item SL951

THE MACRO 3X Close-Up Lens is most important for really great pictures. At the comfortable range of 2 ft. to 4 ft. /60 cm to 120 cm, your pictures will be sharper, more colorful and you will have less interference from microorganisms, algae, sand or silt. The multi-coated lens adds red and yellow and moderates the flash and reduces the intensity of the flash at close distance. The lens slides easily on and off any SeaLife model. A safety lanyard is included.

f) SeaLife MACRO 8X Close-Up Lens - U/W Filter. (Available in Spring 2000)

For detailed shots of smaller creatures at a distance of 14" to 16"/35to40cm. This lens requires a more precise distance measurement. For aiming, you should not use the standard viewfinder but simply direct the camera at your subject.

g) Moisture Muncher Drying Agent

A powerful drying agent which can absorb relatively large amounts of humidity when used inside a completely air tight sealed container.

Small 2 g Dry pack, for all camera housings

15 packets (2 grams per pack)

Item SL910

Large 1 oz./28 g Bag, with color indicator.

3 packets (1 oz./28 g per pack)

Item M101

Moisture Muncher is recommended for use inside all SeaLife Cameras and airtight, sealed cases. It is available at your local dealer.

2. Spare Parts:

Most important spare parts and item numbers.

Item	ReefMaster RC	ReefMaster CL	SkinDiver
Inner Camera	SL201	SL52001	SL30101
Housing	SL210	SL2101	SL30110
Closing Rail			SL30120
O-Ring	SL214*		-
O-Ring Cement	SL915*		-
Sports Finder	SL22118		-
Hard Case/Pick & Pluck Foam Insert	SL930		-

*Should be replaced and tested by authorized service only.

Many SeaLife dealers carry spare parts. Ask your local dive, photo or sporting goods store.

If you purchased your ReefMaster in the United States, you can also order replacement or spare parts from:

Optic Options: orders only (800) 872-0273 / information only (765) 538-3484

3. Other Pioneer Research Products

a) **SeaLife® ReefMaster "6 pc" Rental Kit for dive operators and schools**
Item SL600

b) **SeaLife® ReefMaster "3pc" Rental Kit for dive operators and schools.** Item SL630

c) **SeaLife® Waterproof Housings for handheld Cellular Phones (Item SL410) and VHF Radios.** Item SL410 fits all portable cellular telephones and Item SL420 fits most VHF radios. Dial, talk and listen directly through the flexible, waterproof housing. (Request special catalog)



Item
SL420
shown

d) **Steiner® Binoculars*** the world's best and most sold Marine and Military Binoculars. (Request special catalog)

e) **Navy One® Marine Binoculars.** (Request special catalog)

f) **Apache® and US Army M24 Compact Binoculars.** (Request special catalog)

g) **Vero Vellini® Neoprene Cushion and Floatation Carrying Straps,** the most comfortable air-cushioned and weight absorbing carrying straps for cameras and other equipment.

For more information on Pioneer Research products visit our web site at www.pioneer-research.com or e-mail us at info@pioneer-research.com or call 856-866-9191.

V. Trouble Shooting Guide:

Important: This section must be read before taking any action.

Film jams or does not advance

- Most film advance problem are caused by improper film loading.
- Film jam or advance problems can be easily avoided by following proper film loading instructions on page 21. If film is jammed (will not advance), hit rewind switch on camera to rewind film. Either have film developed or reuse by properly loading film and advancing to the frame where it got jammed. If film will not rewind, have a photo shop with a black room remove film for you.
- Inspect camera batteries for sufficient power. Replace if necessary.
- If film advances above water and in shallow water but not below 20' underwater, the most likely problem is that the Deep Dive switch is not being used correctly. See page 17 for details.

If pictures are not satisfactory

Most common causes of unsatisfactory pictures include:

- *Poor water visibility* caused by microorganisms (algae) or stirred up sand or sediments.
- *Improper shooting distance.* Keeping the proper shooting distance is explained on page one insert.
- *Blue pictures* caused by photo store minilabs. Always tell the minilab that you are developing underwater pictures and that they should make color corrections as necessary to balance the colors (increase red and yellow and decrease blue).
If lab has made color corrections and pictures are still too blue, the flash may not be working. Inspect and test flash controls.

- *Overflashing* caused by close white, reflective objects (fish, rocks, skin, etc)
- *Quick, jerky movements* while swimming or chasing fish. Control your buoyancy, stay calm and keep camera still when shooting.
- *Flash ready light* is not ready. Always wait for flash ready light to turn on before taking picture.
- *Lenses not clean or fogged.* Always keep camera and housing lenses clean. Finger prints and dirty lenses will result in unclear pictures. It's a good practice to inspect the glass port for fogging while underwater.

Housing fogs-up while underwater

- Inner camera or inside housing must be perfectly dry. One drop of water trapped inside the housing can cause the lens to fog.
- Setting up the camera and sealing the housing in a hot, humid area can cause fogging when the camera cools down in colder waters. Use Moisture Muncher as described on page 23 or set-up camera in an air-conditioned room.

Housing leaks water

- 1) First, dry off camera as quickly as possible.
 - 2) Inspect main O-ring and seal area for damage or debris (sand, hair, etc.). If O-ring shows damage or imperfection, have it replaced by an authorized Sealife service center.
 - 3) Make sure glass port is not split or cracked. Inspect for other obvious damages that may cause a leak in the housing (Cracks, tears, punctures, etc.)
 - 4) Make sure the Moisture Muncher packet is not interfering with the O-ring or sealing area. Follow instructions on page 23.
- For Reefmaster model, inspect closing latches for damage and proper tension. Latches should have "spring" action and snap shut when sealing housing. If damaged or bent,

have latches replaced by authorized Sealife service center.

- For Skindiver models, test for leaks by sealing housing (without camera inside) and gently squeeze flexible housing underwater. A stream of bubbles indicates a leak in the housing.
- For Reefmaster models, a waterproof test can be performed at most scuba dive stores. A simple home test can be made by submerging the Reefmaster in water overnight. Place 2 lb. soft weight wrapped in a paper towel inside housing (remove camera). Make sure paper towel does not interfere with O-ring. Carefully open housing not to drip water inside and inspect towel for water spots indicating a leak is present.

Glare or reflection appears in picture

- The close-up lens must be completely pushed on the housing and sit flat or glare reflections will occur. Tip: Rest your fingertips on the two tabs of the close-up lens while shooting pictures to keep the close-up lens flat at all times.
- The rubber flashguard that extends from the housing lens port to the camera lens is torn or damaged. Inspect for damage and return to the Sealife service center for repairs if necessary.

Flash does not fire

For all models, wait for flash ready light to turn on before shooting picture.

Test and replace batteries if necessary. All Sealife camera models have a light sensor that will activate the camera's flash when there is not enough light.

Reefmaster RC camera should flash with each picture when inside the rubber armored housing.

Reefmaster CL and *Skindiver* models will flash only when its sensor indicates there is not enough light. Use the flash sensor cover (item # SL52010) provided with these models to ensure the flash always fires.



WITHOUT MACRO 3X
CLOSE-UP LENS



WITH MACRO 3X CLOSE-UP LENS



MACRO 3X™ and MACRO 8X™ CLOSE-UP LENS & U/W FILTER

For incredible underwater shots at close-up range, snap on the MACRO 3X or 8X Close-Up Lens. This color corrected lens is designed for magazine quality pictures in diving and snorkeling adventures. **Fits ALL SeaLife Cameras!** See page 29 for more information.

Don't Forget Me!



**MOISTURE
MUNCHER™**

Make sure you bring along plenty of Moisture Muncher.
See page 41 for more information.

Mini Moisture Muncher

Item SL910 contains 15 small 2-gram packets designed to fit inside all SeaLife camera models.

Industrial Sized Moisture Muncher

Item M101 contains 3 large 1 ounce packets designed for dry storing your cameras, electronics and other valuables.

Service:

After going through the Trouble Shooting Guide, if you cannot find a solution for a problem: Call an underwater photography expert at Pioneer Research or send the housing with the camera to an authorized SeaLife service facility or directly to manufacturer. Include: US \$10.00 for handling and domestic shipping; your day time phone number and return address (No PO BOX); a clear written description of problem. Ship prepaid to:

Pioneer Research, 97 Foster Road, Suite 5, Moorestown, NJ 08057 USA

Phone: (856)-866-9191 • Fax: (856)-866-8615.

Web Site: www.pioneer-research.com

E-mail: service@pioneer-research.com

Or contact the SeaLife distributor in your country.

Limited Warranty.

This product will be replaced or repaired free of charge within 1 year from the purchase date in the case of a manufacturing defect, if the complete defective product is sent freight prepaid at the sender's risk with prepayment for handling and shipping of US \$10.00 to: Pioneer Research, 97 Foster Road, Suite 5, Moorestown, NJ 08057, or to the importer in a different country. The shipment must include an original purchase receipt or proof of purchase with the purchase date. Excluded are any consequential damages, cosmetic damages, damages to products which show abuse, non-conformance with the instructions, particularly water damage due to a damaged O-ring or removed O-ring or any particles wedged between the housing and the O-ring, or tampering and attempted repair of the product. Excluded also, holes or torn seams of the flexible SkinDiver housing caused by external damage. Excluded are scratches on lenses or damaged lens coatings. Cameras used in rental operations are excluded from this warranty and have a special service support program (*Contact SeaLife / Pioneer Research*).





1. Check batteries and replace if necessary. If green flash-ready light takes more than 15 seconds to recharge, replace batteries.

2. Before loading film, push the shutter button once to test camera advance.

3. Insert film roll. Make sure it's properly seated onto rewind shaft.

4. Pull film tab over into take-up spool and press shutter button until film engages. Make sure film engages before closing film door.

5. Close film door. If the door is obstructed by film roll, **make sure** roll is pushed up completely onto rewind shaft.