

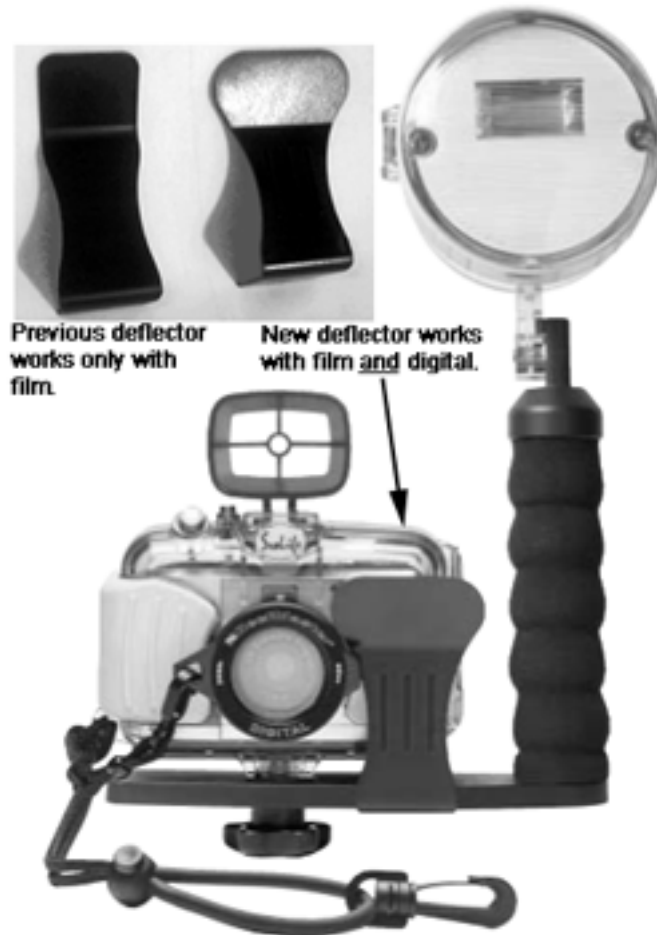
SeaLife Technical Advice

For questions and more detail, contact SeaLife Customer Service (Pinnacle Ventures)

Date: 5/20/02

Item: SeaLife Flash Deflector (SL96046 to SL96050)

Issue: Universal Flash Deflector fits all ReefMaster Film and Digital Systems.



New deflector on right (item # SL96050) works with both digital and film cameras. The deflector on the left (item # SL96046) works only with the film camera system.

Warranty: N/A

Summary: The new flash deflector will replace the previous “film-only” deflector effective June 2002. We have been including this new deflector with all Reefmaster Digital cameras since April 2002. We don't expect many customer calls for this but if any customers do request this new deflector, send it to them at no charge. We are making this change so that all of our SeaLife accessory are able to accommodate both digital and film systems. This new deflector will still fit into any of the External Flash bases in the same way as our previous deflectors

What to say: Any of the above information may be shared with our SeaLife customers.

Product Training about Underwater Flashes

WH 10/13/98

Flashology

With the introduction of the External Flash the Pioneer salesperson is entering the arena of expert underwater photography. Expensive, sophisticated products dominate this market. There is an establishment in this market that does not welcome the present huge expansion of the market to the public, since the small underwater flash business of the past was totally oriented at a small minority of experts willing to spend a lot of money. They will not welcome a simple, inexpensive SeaLife product that does, for the large majority of customers, the same thing as very expensive products. They will do everything to defend their profitable position. SeaLife is the aggressor, who will expand the market, make it accessible to average citizens, advertise, teach, and promote. Although it should be obvious that we do not steal anybody's business, but expand the market, we will be seen as the intruder and be attacked by many old-timers.

This is the reason, why each of us should be prepared and know the basic facts about underwater flashes (also called strobes) and the fundamentals about cameras and light. Every professional underwater photographer uses one or several flashes, and the consumer looking for excellent colorful shots will not only use a close-up lens but also an external flash. SeaLife makes it easy and affordable.

We should never argue with an "expert", who may only want to show off and prove that he knows more than you. Remember, that the goal of SeaLife is to make the largest number of people happy with their picture results, and add to the enjoyment of their vacation, let them experience one of the greatest wonders on the planet with a land and sea camera. It is not our objective to make a sophisticated and expensive instrument, that requires much expertise and money. In fact, we have chosen the more difficult job.

Here are some basic facts about underwater flashes, the products and the terminology:

1. Purpose of Flash:

- a) Illuminate objects at short range for **rich colors**, **NOT** Shooting at long-range. The best underwater pictures are always taken at short distances, mostly with a 3X, 8X or 16X macro lens.
- b) **Reduce backscatter** caused by suspended particles (algae, sand, etc.) in the water. Nothing will totally eliminate backscatter but moving the flash away from the camera lens so that the light reflects from the particles back to the flash and not back to the lens. Backscatter can also be reduced by aiming the flash in such a way that the outer edge of the flash hits the subject and not the particles between the lens and the subject. A macro lens will also help reduce the effects of backscatter.

2. Light:

- c) **Sunlight** is absorbed by water. Red and yellow (the “warm colors” or long wavelengths) are absorbed more than blue. Red and yellow light are only sufficient within a depth of 3 m/ 9 feet in clear water, but are lost at 20 m/60 feet.
- d) **Density of Water:** On land on a clear day, you can see 2000 times as far as in the clearest water under best conditions. This means that a flash underwater has to penetrate a very thick medium. The brightness of a flash is reduced with the square of the distance plus a factor. This means that adding more flash power will not get more distance but from a point on just add glare. SeaLife flashes (internal or external, single or dual) are carefully tuned to the type of photography and best achievable results.
- e) The **human eye** can see better than the film, since the brain combines continuous imperfect pictures to one good picture, while the camera has to live with only one shot at a flash moment.
- f) **Film** is not as sensitive as the human eye. A film with a higher **sensitivity** (also called speed) is better for darker light conditions. ASA (or ISO) 200 (recommended by SeaLife for underwater and most land photography) is more sensitive than 100 or 64 (used in bright light on land). You can get much more sensitive film, but the grain is much coarser and the application is more specialized. But some pros have recommended Fuji’s G 800 for underwater photography. The different brands or designations, such as “Gold” or “Max” do not make a significant difference according to our tests. ASA 400 can be used also. It is more sensitive, but the pictures are not as sharp (if you want to take super sharp pictures), but it can be used in depth below 60 feet. The term “film speed” is not measured in MPH, but means that a more sensitive film, with a “higher speed” allows a shorter exposure time, or a faster exposure. This could be important for moving objects. Point and Shoot Cameras usually have a shutter speed between 1/30 and 1/100 of a second. SeaLife cameras have speeds between 1/125 (CL) and 1/140 (RC) of a second. Professional cameras can use a speed of up to 1/2000 or even 1/10000 of a second, which requires also faster film and a flash that is able to fire exactly at that short moment (which is called “synchronized”), but this has no relevance to amateur vacations shots.

3. Range of Flash

- a) 3 m/ 9 feet is the maximum of the most powerful flashes. SeaLife External Flash: 2.5 m/7.5 ft.
- b) Two SeaLife flashes can be mounted on the same bracket left and right of the camera. This will not double the distance, but only increase it by 10 %. The purpose is to avoid shadows and have an even saturation of colors.
- c) Professionals sometimes use powerful beam lights and separate flashlights held by assistants away from the camera for longer range shooting
- d) Overflashing is a common problem When shooting at close distances. For example, one silvery fish in the foreground or one person's white arm hit by the flash can cause an ugly bright spot and glare which spoils the whole picture. Any object gets brighter at closer distances. When shooting at very close with a macro lens SeaLife reduces the flash intensity by coating the close-up lens. The SeaLife macro lens is also a color-correcting lens, but the main purpose of its coating is to reduce the flash brightness at close range.

A flash with automatic brightness control senses the brightness through a sensor and reduces the light to avoid overflashing. Or it increases the light power in darker conditions. Very sophisticated strobes do this **Through The Lens (TTL)** of the camera. This only works with SLR cameras (**Single Lens Reflex Cameras**) in a housing.

(SLR cameras are cameras where the aiming is done through the lens, and not through a separate viewfinder as in viewfinder or point and shoot cameras.)

Only the basic gear for such a system costs at least \$ 3000. A strobe that works through the lens of an SLR camera, provided that camera can properly synchronize, will be balanced with the aperture and exposure time of the camera.

(“**Aperture**” is the opening of the lens. Most point and shoot cameras have an aperture of 5.6. An SLR camera can change the aperture from a very large opening of 2.8, for example, to a very small opening of 22, used only in the brightest conditions with high-speed film. The SeaLife ReefMaster has a fixed aperture of 3.5, which is relatively large and lets a lot of light get on the film. This in turn allows a short exposure time, good for moving objects).

A TTL strobe is not foolproof and most professional photographers turn this automatic function off and chose manual settings with a light meter. One thing the automatics don’t do is to pick the subject for you: You may actually want to over- or under expose certain objects and properly tune the flash and the camera on another object, but the camera or flash would not know this.

(You may be familiar from land shots with this phenomenon: You take a picture of a person with an automatic camera. The person stands in front of something bright. In the picture, the background is properly exposed, but the person is too dark. The camera did not know that you do not care about the background. The way to deal with this is to use the fill-flash, and the even better way for amateurs is to use the flash all the time. This is done by the SeaLife Underwater camera.)

Therefore, the SeaLife system will produce better pictures in the hands of an amateur who does not want to spend a lot of time and money on gear.

There are some products in the middle, that adjust the aperture or change the flash brightness, but don’t measure the flash during the firing and not through the lens. These products are not less complicated and also have a very limited use, since they simply adjust to the underwater light conditions (which are dark, most of the time) and not to the subject.

(We have taken pictures at 6 feet below the surface in bright sunlight with an automatic flash, and the pictures turned out bad; the ambient light caused the flash to reduce light, when actually our subject, the fish, was in the shadow of overhanging rocks and needed full flash power.)

4. Power of Flash

- a) The power of land flashes are measured with a “**guide number**”, which is the maximum distance in feet with ISO/ASA 100 film. This is meaningless underwater, since not the maximum reach, but the color is the purpose and this is only achievable at short distances. A powerful flash may be good on land, but not give the best results underwater. Also, the more power, the more glare and backscatter you get from microscopic particles floating in the water. This appears like snowflakes (marine snow) if hit by the flash close to the lens, or as a misty glare if further away.
- b) A common mistake is over-flashing on close objects, which are strongly reflective, like white rock, coral, or body parts.

5. Use of a powerful Flash

- a) The flash head should be at least 10 inches away from the lens (reason for a flash arm)
- b) Avoid close-by objects
- c) Reduce flash brightness in macro shots (SeaLife Macro Lens does this automatically)
- d) Keep all objects intended to be in the picture in one distance plane. Further away objects will be dark and blue, even if your eye can see them well, and closer objects will be too bright, so keep most objects at about the same distance (with the exception of background, which you intend to have a mystic blue).
- e) To avoid strong shadows, use 2 flashes
- f) Always test before shooting

6. Triggering the Flash

The external flash needs to be triggered by the camera at the exact moment, that the camera lens is open. Simple point & shoot cameras have an exposure time between 1/30 and 1/100 of a second, which is insufficient for underwater shots with moving objects. The minimum is 1/124 and 1/140 of a second as with SeaLife cameras. There are several methods of connecting the camera with the flash to trigger it at the right moment (triggering the flash and synchronizing the timing of the flash):

- a) **Electronic Cable Connection** between an electronic camera and an electronic flash.
Advantage: Flash timing and intensity can be controlled by a computer in the camera.
Disadvantage: Requires cables

Sensitive
Very expensive system

b) **Optical Cable** between camera and flash

Advantage: Less expensive
Resistant to leakage
Synchronization at high shutter speed

Disadvantage: Requires cables
(Fixed camera-to-flash connection is too close to camera lens.)

c) **Slave:** Primary flash (built into the camera) triggers the external flash wireless through a sensor. (SeaLife)

Advantage: Requires no cables
Less expensive
Compact, simple
No risk of damages

Disadvantage: Not for through-the-lens (TTL) flash synchronization.
Not for very short exposure times (1/2000 sec)
Can accidentally be triggered by another flash

d) **Built-in Flash** inside camera

Advantage: Most compact
Least expensive
Most reliable
Requires least power
Less danger of over flashing

Disadvantage: Flash can hit floating particles
Limited reach of 1-2 m/3-6 ft.,
(with macro lens .5-1m/2-4 ft.)

7. Flash Synchronization

- a) **Triggering** a flash exactly at the same time when the shutter opens. Difficult, if a fast exposure time, such as 1/2000 sec is used (for fast moving objects). (In this case a larger lens (a faster lens) should be used (expensive). SeaLife synchronization is done wireless with light speed.
- b) **Controlling the brightness** of a flash by the camera's computer is based on the amount of light reflected during the exposure. It is like regulating the amount of water with a garden hose depending on the splashing which is returned from your flower bed. Only, this is done with light speed. The problem is that light might be thrown back at you from one fish or one rock and reduce the flash power, but that fish or rock was not the subject that you wanted to shoot, and now your main subject is underexposed.

Another way of automatically controlling the flash brightness is based on the ambient sun light. This is a cheap and ineffective way, since it has nothing to do with the brightness or reflectivity of your object.

SeaLife External flash intensity is not varied but the macro lens reduces flash brightness at close range.

Additional information about flash synchronization:

1. The firing of the built-in flash. Usually, when the shutter of the camera opens, the built-in flash will begin to fire. The firing of the flash is like an avalanche. It is slow at the beginning, and then the intensity becoming more and more. There is a ramp-up period, which is typically a few microseconds before the flash reaches a significant intensity. Overall, it usually takes about 1 millisecond for a flash tube to deliver all its load. When the shutter speed is slow, this is not a concern.
2. The triggering threshold of the slave strobe. This is a combination of the ambient light intensity and the rate of increase of the light intensity during the firing of the built-in strobe. It is difficult to measure, and it varies from one unit to another. In general, because of the ramp-up of light intensity of the built-in flash, there is a delay of anything from a few microseconds to a few hundred microseconds. Again, when the shutter speed is slow (we are talking milliseconds vs. microseconds), this is not a concern.
3. When the slave strobe fires, again, there is a ramp-up period of a few microseconds for the light intensity to reach a significant level. It takes about 1 to 1.5 milliseconds for our slave strobe to complete the firing, from start to finish.

Now, for the camera to fully take advantage of all the light from the slave strobe, the shutter should remain open until the slave strobe completes its firing. By considering all the variables above, it is save

to say that we need about 2 milliseconds, which translate to a shutter speed of 1/500 second. Knowing that any mechanical device has to overcome an inertia to move, so there is a short delay in the opening of the shutter. This is to our advantage. So I can say 1/600 second is marginally acceptable, but we are really pushing it to the limit.

As you can see, 100% accurate measurement of all these variables in the system is not possible and variations between cameras and slave strobe units are expected. As a manufacturer, to cover all our bases, we put in a wide safety margin by having 1/250 as the recommended minimum shutter speed. However, based on the above discussion, knowing all the variables, I think it is acceptable to use it with a camera shutter speed of 1/600. May I suggest that you test more, using different units of the DC200 cameras and strobes, to build up a level of confidence.

8. Arms and Mounting Brackets

Purpose: Make flash & camera easy to hold
Hold flash away from camera lens to avoid back scatter
Direct the flash at object (fast and easy)
Allow mounting of 2 parallel flashes

Types:

Flexible Arm

(SeaLife)
Flash can be bent in desirable direction and maintains position
Easiest and fastest to use

Adjustable Arm

Requires at least 2 tightening screws and two joints.

Fixed Arm

Inexpensive, but cumbersome, limited adjustment

Armless Connection

Deceives the purpose. Does not avoid backscatter and is not adjustable, but appears more compact.

9. Accessories

Batteries:

Regular AA (SeaLife uses 4 AA batteries in the flash for about 100 flashes and 2 AA batteries in the camera usable for about 8 rolls of film or 192 shots.

Rechargeable Alkaline: Not recommended since they usually last much shorter than regular batteries.

Nickel Metal Hydride (Ni-MH): This new battery lasts about 60 % longer than regular rechargeable Nickel Cadmium (Ni-Cad) and can be re-charged 1000 times with experiencing the short life memory problem that Ni-Cad's do. Ni-Cad's can only be recharged about 25 times before experiencing a short life associated with memory problems. Ni-MH batteries are normally 1.3 to 1.4

volts when fully charged eventhough the battery will state 1.2 volts. This is not a problem for most cameras and flashes. It is recommend to use the 1800 mAh for high drain applications like cameras and flashes.

Lithium Batteries: Double the lifetime and cost of regular alkaline batteries.

Connectors:

Variety of expensive mechanical or electrical connectors (not needed for SeaLife)

Carrying cases

Padded Nylon case included with SeaLife, which can also hold camera.

Cases and Zippers have to hold up in salt water and on a dive boat .

Desiccants

Fitting into flash head, to protect electronics and batteries from humidity and internal fogging. (SeaLife Moisture Muncher). They do not protect in case of a leak.

SeaLife Technical advice and update

For questions and more detail, contact SeaLife Customer Service at (856) 866-9192.

Date: 3/19/99 (revised on 7/22/03)

Item: Sealife External Flash (SL960)

Problem: External Flash does not fire all the time.

Warranty: No. Warranty applies only if the cause is determined to be the result of a manufacturing defect within the one-year warranty period.

Background: External Flashes produced prior to July 2000 will have one flash sensor and those produced after July 2000 will have 2 sensors (See picture)



The light sensor(s) senses light coming from the Reefmaster camera flash, which automatically triggers the external flash. However, the light sensor may not trigger the external flash under the following conditions.

Cause: Light sensor(s) or camera's flash is blocked or obstructed.

Solution: Check to make sure the flash sensor(s) is not obstructed. Most common obstruction is the rubber sleeve on the flash head has shifted and blocked the flash sensor.

Cause: The ambient light is very bright so that the light sensor is not able to read or sense the light from the flash. For example, a white sandy bottom may "blind" the light sensor, so it does not read the camera's flash.

Solution: If you have the latest External Flash model with two sensors, cover the flash sensor that is facing AWAY from the camera's flash with a 1" strip of electrical tape. Make sure the tape is placed under the flash head rubber sleeve and completely covers the light sensor. When using two external

flash units, electrical tape should also be used on both flashes. Just make sure the light sensor facing AWAY from the camera is covered.

If you have an earlier External Flash model with one light sensor, make sure the light sensor is positioned as closely as possible to the camera's flash.

Notes: SeaLife is developing an optical cable kit that retro fits onto all External Flash models. The fiber optic cable would connect one end of the cable to the rubber sleeve of the flash head. The other end would fit onto the deflector. Check with your local dive dealer or the SeaLife website (www.sealife-cameras) for more details.

Scope: All External Flashes (SL960) sold since its introduction in JAN 99.

Repair: Sea cause/solutions above.

Sealife Flash Arm Extension Kit: Item # SL965

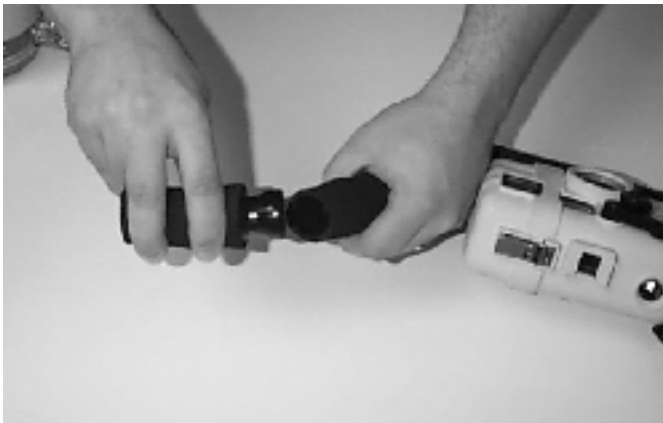
Contents: 3" Extension Link with foam covering. Quantity: 1

The Sealife External Flash Arm can be extended by 3" with this Extension Kit. The main benefit of extending the flash arm is reduced backscatter (white spots in picture caused by small particles in the water). We do not recommend extending the flash arm by more than 6" (two extension kits) because the automatic external flash may not fire (see page 7 of the external flash instructions). Please follow these simple instructions to extend the flash arm:

- 1) Firmly grip the flash head and flash arm as shown. Bend top of flash arm until arm links separate.



- 2) Insert 3" extension into flash arm as shown. Push hard until extension link snaps into flash arm.



- 3) Attach flash head to extended flash arm until link snaps into place. Test flash arm flexibility to ensure proper connection. Adjust foam covering for proper fit.



Guide number = 21

The power of land flashes are measured with a “**guide number**”, which is the maximum distance in meters using ISO 100 film. However, this is meaningless underwater since the maximum reach of any underwater flash is still about 6 to 8 feet. The main purpose of an underwater strobe is to enhance color and brightness at shorter distances and reduce backscatter.

Guide # for external flash is 21 meters (69 feet)

Guide # for the Reefmaster CL camera is 9 meters

Guide # for the Reefmaster RC camera is 12 meters

The maximum shooting distance for underwater should not exceed 6 feet.

Light distribution (Angle of light) = 60° x 70°

This is the angle of light omitted by the flash. The higher the angle, the greater the light is spread out over an area.

Light distribution of External Flash is 60° x 70° which is slightly wider than the lens angle of a 28mm camera.

The light distribution of the RC and CL camera is slightly greater than the cameras picture area.

Sync Speed

This is the time it takes for the strobe flash to fire from the associated cameras on board flash.

This time is basically instantaneous or about 1/125 of a second.

Recycle time = 10 seconds

This is the amount of time it takes for the flash to recharge itself after it's fired. The external flash takes about 10 seconds before the “flash Ready” light turns on and the flash is ready to fire again. As the battery power is reduced by use and age, the recycle time will increase. If the recycle time is more than 15 seconds, replace the batteries.

Wattage (power)

The External Flash utilizes a neon flash tube (light bulb) with a power rating of 40 watt-second. The greater the wattage, the brighter the light emitted by the flash. It is not common to use the flash wattage specification when comparing strobes because there are other factors that effect the amount of light coming from the flash, like the tube type. It is best to use the Guide number specification (above) when comparing the strobe light intensity.

Kelvin Temperature = 5800K

Kelvin temperature specifies the color of the light emitted by the flash. The higher the Kelvin temperature the “warmer” or more red the light is. The lower the Kelvin temperature, the “cooler” or more blue the light is. Most flashes range between 5500k and 6000k.

Sealife Technical advice and update

For questions and more detail, contact Bjorn Harms

Date: 10/19/98 (revised 9/27/01)

Item: All Reefmaster models

Problem: Reefmaster photos with circular glare in upper left part of picture.



Glare shows up in upper left part of photo. Usually the glare is purple/blue in color and can appear when using the close-up lens and taking photos in a dark environment

Warranty: Yes

Cause: The Reefmaster's internal flash reflects light throughout the inside of the clear Lexan housing. Some of this light will travel around the port area which may show up in photos under special circumstances. This glare may occur when using the close-up lens and if picture is taken in dark environment or at night. Glare may be more severe if close-up lens is not pressed flat against camera's lens port.

Scope: All Reefmaster cameras since March 1996 to January 2002.

Solutions: 1) In 1998, Pioneer developed a new port O-ring that acts like a flashguard by extending down towards the camera and covers the sides of the lens. This prevents the internal flash from reflecting into the camera lens.

2) In August 2001, Pioneer developed the Snap Ring that is attached on the port lens area of the housing. This ring blocks all

sidelight (ie. From flash) from reaching the camera's lens. The snap ring also makes it very easy to securely attach Macro lenses. The snap ring will be included with all SeaLife cameras produced starting January 2002. The SeaLife service department has snap rings and is able to attach to any Reefmaster housing.



Snap fit ring is available for all Reefmaster models. It prevents glare and securely attaches Macro lenses.

Repair: Replace the existing port O-ring (item # SL224) with new Port O-ring/Flashguard (item # SL220). Attach snap ring to lens port. Only Authorized service center is able to make these repairs. Repairs are covered under warranty.

What to say to customers:

Pioneer has recently developed a solution (New O-ring/flashguard and snap ring) that prevents and glare from showing up in picture. If you would like us to replace the port O-ring at no charge, please return the camera and housing to our service center for fast warranty repair.

Sealife Technical advice and update

For questions and more detail, contact Bjorn Harms

Date: 10/31/98

Item: Reefmaster RC and CL camera (SL200C, SL511, SL515, SL520)

Problem: Rust stains appear on stainless steel metal parts (closing latches, screws, flash mount/threaded insert).

Note: Pioneer uses high quality stainless steel for all metal parts. But even the best quality stainless steel can show rust stains if not cared for properly. Even if you don't use the camera housing in salt water, the salty sea air can cover metal parts with salt. Housing must be cleaned regularly as described in the instruction booklet. We have made extensive tests with all of our products and no rust will form, if the product is properly cared for.

Warranty: No.

Cause: User did not wash camera housing with fresh water and allow to dry after salt water use (see page 30 of Sealife instructions "Great Pictures Made Easy")

Scope: All Reefmaster RC and CL cameras since 1996.

Solutions: Wash the Reefmaster in fresh water and allow to completely dry. It is recommended that the Sealife camera is stored in an airtight case with a several packets of desiccant like Moisture Muncher (large 1 ounce size - item # M101). This will create the perfect dry storage environment for camera, accessories or other dive equipment like computers.

Repair: Latches can be removed using with a small philips-head screwdriver. Clean off rust stain with a metal polish. Flash mount cannot be cleaned since it is ultrasonically welded in place. These brown spots will not effect the functioning of the flash mount or other stainless steel parts.

What to say to customers:

Any of the above information may be explained to the customer.

SeaLife ReefMaster Rental Camera

New tamperproof sealing system

Dear SeaLife Rental Dealer,

Did you ever have a rental customer return a flooded camera and say, "I don't know what happened. I never opened it. It just leaked?"

We have a solution.

SeaLife offers a new way to prevent rental customers from tampering with, and possibly damaging, the Reefmaster underwater camera. This new tamper-proof sealing system is easy to install and the first 30 are included FREE with each rental kit. You will extend the life of your Reefmaster rental camera and increase your profits. And, you will be able to quickly determine if the camera was damaged due to user error.

Here's how it works:

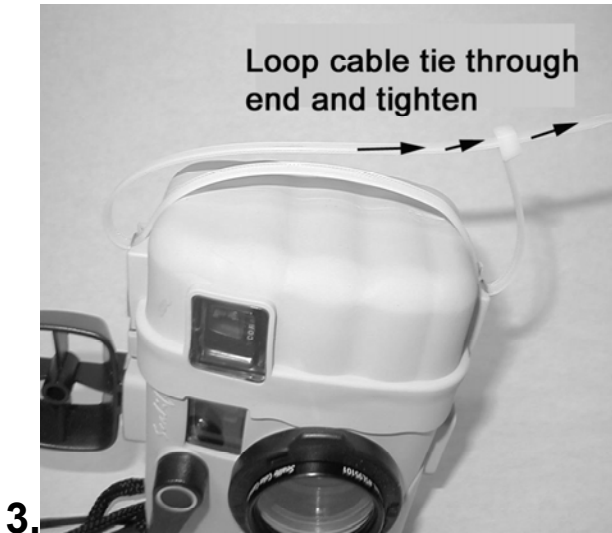
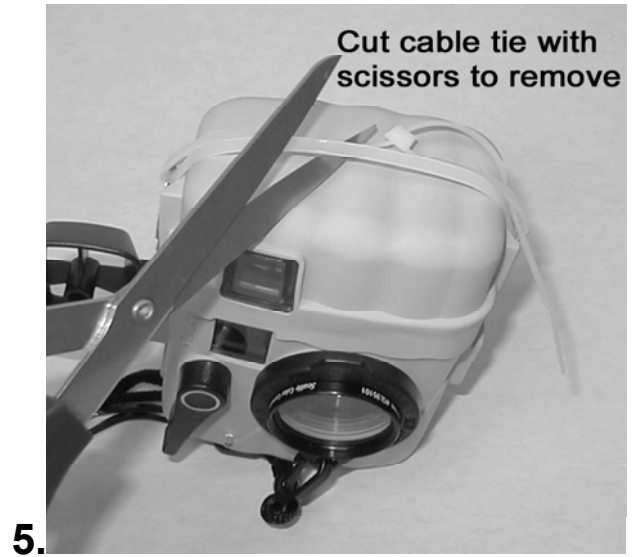
1. The key to a successful underwater camera rental program is to provide the renter with a "ready-to-go" camera. Load 200 speed film, fresh AA batteries and clean the O-ring. Most rental dealers will charge \$25 to \$35 for a rental camera with one roll of film.
2. Seal the housing with a tamperproof tie. Follow the instructions described on the other side of this page. If you are renting more than one camera to a group of divers on the same dive boat, make sure to use different color ties so each renter can identify his/her camera.
3. Explain to the rental customer that the tamperproof tie prevents the waterproof housing from being opened (Show them). If the tamperproof tie is not attached to the latches when they return the camera, the renter will be responsible for any damages. If the camera is returned damaged and the tamperproof tie is attached, the customer is not liable for any damages. SeaLife extends its standard warranty to all SeaLife rental dealers.
4. When the customer returns the camera, unload the film and give them the roll of film for processing. Some rental dealers may also want to offer overnight processing.

We provide a pack of 30 tamperproof ties with each 3 pc SeaLife rental kit (item SL630) and 60 ties with the 6 pcs rental kit (item # SL600). When you run out of tamperproof ties, just call 1-800-257-7742 to order more.

We value your feedback and suggestions. Please let us know how we can be of service.

Sincerely,
SeaLife Customer Service

How to attach the tamperproof sealing system



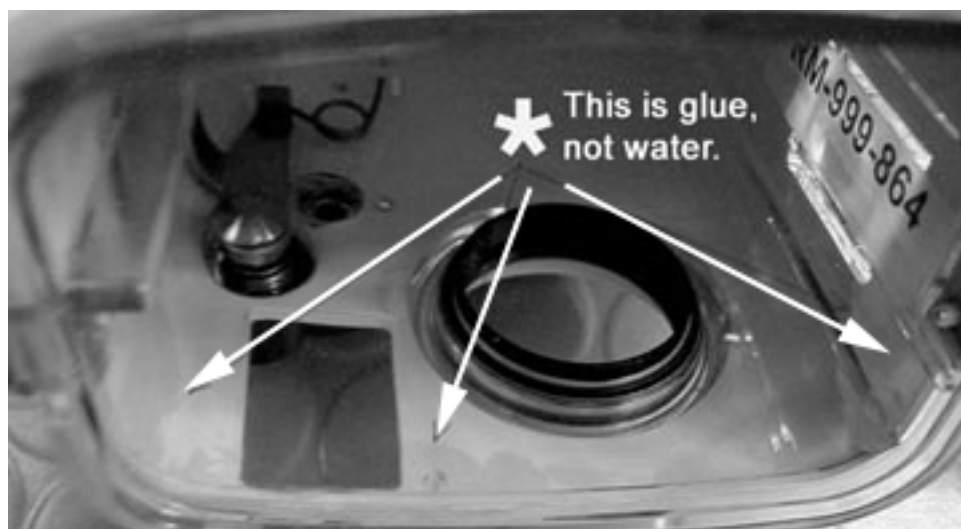
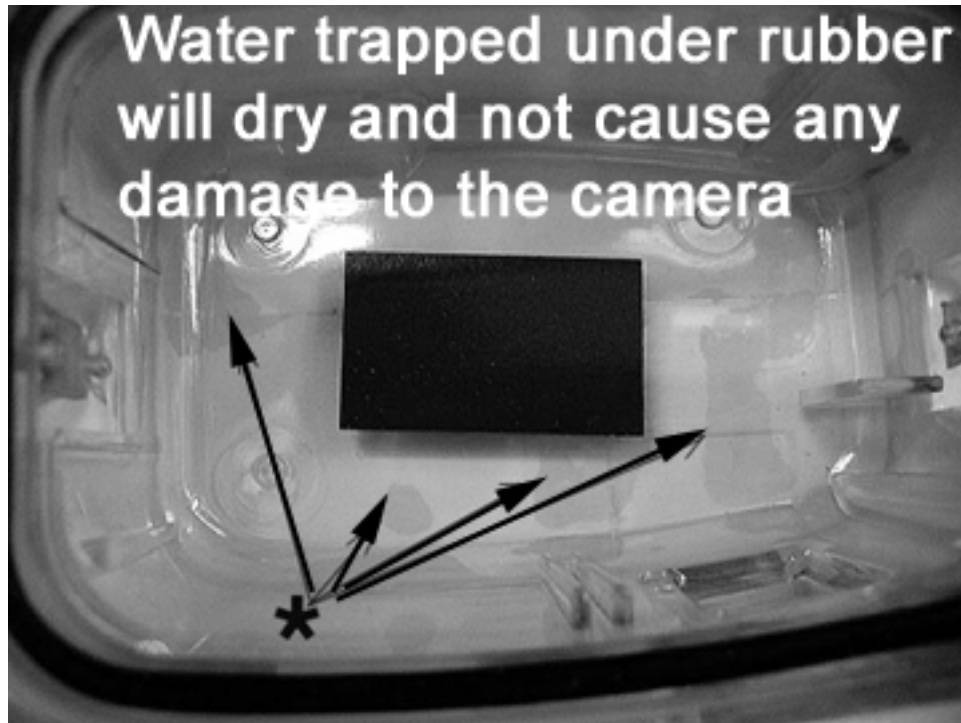
Sealife Technical advice and update

For questions and more detail, contact Bjorn Harms

Date: 11/29/00

Item: Reefmaster RC camera (SL200C, SL511, SL515, SL560)

Problem: Water or sand trapped between rubber armor and waterproof clear housing.



Warranty: No

Cause: The Reefmaster rubber armor shell slips over the clear waterproof housing and is glued in place. It is normal for water (and sometimes sand) to enter the area between the rubber armor and housing. This will not cause any damage to the camera or waterproof housing.

Special

Note: Users commonly think that water is trapped under the rubber but it is only the glue we use to attach the rubber (See picture above for glue location). Users also mistake what looks like water but is actually the rubber armor pressed against the clear waterproof housing. Experiment for yourself by looking inside the housing and pressing the rubber armor firmly with your finger. The result looks like water but is actually dry.

The Reefmaster uses a special type of anti-bacterial rubber armor that does not get moldy.

Scope: All Reefmaster RC cameras since 1996.

Solutions: The water trapped between the rubber armor and waterproof housing will dry up. Let the housing only (without camera) sit in the sun for a few hours before storing. Another solution is to use the large 28-gram Moisture Muncher (item #M101) inside your carry case. This will absorb the moisture from inside the case.

Repair: Not necessary or available

What to say to customers:

The rubber armoring is adhered onto the waterproof hard housing to improve the durability of the Reefmaster RC. It also allows the diver to get a secure grip of the Reefmaster when using it underwater. It is normal for water to get trapped between the rubber armor and the hard housing since only the hard housing is waterproof, not the rubber armoring. It is rare, but possible, that some sand or debris also gets trapped between the rubber armor and the hard housing.

Don't worry about the water or particles that get trapped under the rubber armor. This will not effect the Reefmaster's performance or life expectancy. Even water that is trapped under the armor for long periods of time should not cause any problems since we treat the rubber material with an anti-fungal agent that prevents mildew growth.

We do recommend that after using the Reefmaster and rinsing it in freshwater, allow the opened housing to dry before storage. In order to achieve a perfectly dry storage environment, we recommend you use a large, one-ounce packet of Moisture Muncher (item # M101) inside the carrying case.

Sealife Technical advice and update

For questions and more detail, contact Bjorn Harms

Date: 2/2/99

Item: Reefmaster RC cameras (SL200C, SL511 & SL515)

Problem: Reefmaster RC land pictures taken in low light conditions may result in yellow tinted pictures.



Coral Flash of current RC camera shows yellowish tint (indoors)



Coral Flash of new RC camera has more natural colors and corrects for UW blue effect.

Warranty: Yes.

Cause: The Reefmaster RC inner camera has a color correction filter over the flash (called "Coral Flash"). The Coral Flash™ helps correct the underwater "Blue effect". However, with land pictures taken in low light (night time, indoors, etc.), the Coral Flash can overcompensate and result in a yellow tinted picture.

Scope: All Reefmaster RC black inner cameras produced from October 1997 to January 1999.

Solutions: Pioneer has developed a new color correction which helps correct the underwater "Blue-Effect" without creating a yellow tint or any noticeable color shifts.

Repair: Replace Reefmaster RC inside camera with a Reefmaster RC camera received after January 1999.

What to say to customers:

Pioneer has recently improved the Coral Flash of the Reefmaster RC inner camera. This new Coral Flash will correct the yellow tint effect without sacrificing underwater picture quality. If you would like us to replace the Coral Flash at no charge, please return the camera and housing to our service center for fast warranty repair.

Sealife Technical advice and update

For questions and more detail, contact Erich

Date: 6/15/04

Item: All Reefmaster and Sport Diver film cameras

Issue: Picture shows vignetting (normally upper right corner)



See glare in upper right corner

Warranty: Yes

Cause: Close-up lens is positioned too far away from the camera lens port.
This can occur if:

1. Close-up lens is not completely seated on port.
2. Cameras with the original -style yellow rubber port are more likely to vignette because it's more difficult for the user to completely seat close-up lens on the port. Recommend upgrade to snap-on port ring.
3. The snap-on port ring is not completely seated onto the housing port during assembly.

Scope: All ReefMaster film cameras

Solutions: Recommend upgrade to snap-on port ring or repair of O-ring.

Repair: Attach snap ring to lens port. Only Authorized service center is able to make these repairs. Repairs are covered under warranty.

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 bouyancy, 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 no 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

First, dry off camera as quickly as possible.

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.

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.)

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.