MOTORMARINE II UNDERWATER CAMERA

by Jack and Sue Drafahl

PHOTOGRAPHIC'S USER REPORT

For more than 15 years we have been underwater photographers. We have tried almost every underwater camera made. We have even used the metal and plexiglass housings that allowed us to take our expensive land cameras down to explore the depths of the sea. As versatile as these systems seemed to be, none offered us the freedom of the Sea & Sea Motormarine II amphibious camera.

This new camera offers interchangeable lenses—underwater! This may not sound like a big deal until you find yourself shooting macro pictures and come face to face with a huge manta ray. With other camera systems, getting both shots is almost impossible without having two cameras with two different lens setups. With the Motormarine II, you merely remove the macro lens you were using and change to a wide-angle lens—while underwater!

The lightweight Motormarine II has the look and feel of a land 35mm camera, yet boasts the ability to dive down to 150 feet. It features DX-coding to automatically set the film speed to either ISO 100 or 400. A built-in motor advance allows the photographer to shoot up to two frames a second. Two windows on the top of the camera indicate frame number and positive film advance.

An autoload device allows the photographer to drop the film cassette into the camera, lay the leader across the take-up spool, close the camera, and press the shutter button to automatically advance the film to the first frame. This is particularly handy when changing film between dives.

The entire black-and-yellow camera body is constructed of molded polycarbonate. This lack of metal reduces metal corrosion to a minimum. There is one O-ring on the camera back to be maintained before each dive. The hinged back securely seals against the O-ring and is held in place by a clasp with a secure locking mechanism.

On the front of the camera you will find a permanently sealed 35mm f/3.5 lens with two lens controls. The focus control is on the left side, and adjusts focus from infinity down to one meter. If you want to get closer, a "CU" position allows pictures at .5 meter. When you turn the control to this position, a special close-up lens inside the camera flips down into the image path, allowing macrofocusing.

SPECIFICATIONS

CAMERA: Sea & Sea Motormarine II
TYPE: 35mm amphibious camera
LENS: 35mm f/3.5; 4 elements in 3 groups
FOCUSING DISTANCE: 3.25 ft. to infinity
CLOSE-FOCUSING DISTANCE: (with close-up lens) 20 in.
FILM SPEEDS: Automatically set; ISO 100 or 400 with DX-coded film
EXPOSURE CONTROL: TTL or manual
LED DISPLAY: Red: underexposure; green: correct exposure; yellow: flash ready
SHUTTER: Fixed 1/100 speed, mechanical
STROBE: Built-in; GN 10 (ISO 100 film)
POWER SOURCE: 2 AA cells
FILM ADVANCE: Automatic
FILM REWIND: Automatic
MAXIMUM DEPTH: 150 feet
DIMENSIONS: 2.6×4.3×6.3 in. (65×110×160mm)
WEIGHT: 22.2 oz. (630g) (including batteries)
PRICE: $550 (Motormarine II), $99 (Macro lens with framer), $359 (20mm lens), $299 (16mm lens), $115 (Optical finder with masks)

BUILT-IN FLASH

The aperture control is on the right side of the lens and allows you to make settings from f/3.5 down to f/22. Two additional f-stop settings make use of the built-in flash system found on the upper right side of the camera. If you set the camera to the lightning bolt + 3.5, you can take pictures requiring flash (with ISO 100 film) from 1–3 meters. Selecting the lightning bolt + 16 would allow you to shoot close-up pictures using the internal flash. Best of all, you can use this built-in flash for underwater pictures as well as for land photos.

Image viewing can be accomplished in two ways. The internal viewing system allows for parallax correction down to .5 meter using three different sets of viewing lines. An accessory underwater viewer can be mounted on the top of the Motormarine II. It uses three different format masks to match the three possible lens configurations. Parallax correction on this viewer is accomplished by turning a special focus control to match the focus point of the lens in use.

YS 50 TTL-II FLASH

A sealed external flash connector is located on the side of the camera to the right of the f-stop control. This cap can be removed so that the Motormarine YS 50 TTL-II flash cord can be connected to the camera. A flash arm and bracket attach the flash and camera together so you can take underwater flash pictures with one hand. The yellow YS 50 operates on four AA batteries (alkaline or NiCd) and has a guide number of 12 underwater, 24 on land.

Instructions with the YS 50 TTL-II indicate that the angle of coverage

1. Motormarine II; shown with auxiliary lenses and finder.
2. A friendly creature comes over to inspect one of the authors changing lenses.
3. The internal close-up lens simply moves into place over the rear lens element to allow close focusing.
4. The Motormarine II in use in the Bahamas.

You Can Even Change Lenses Underwater!

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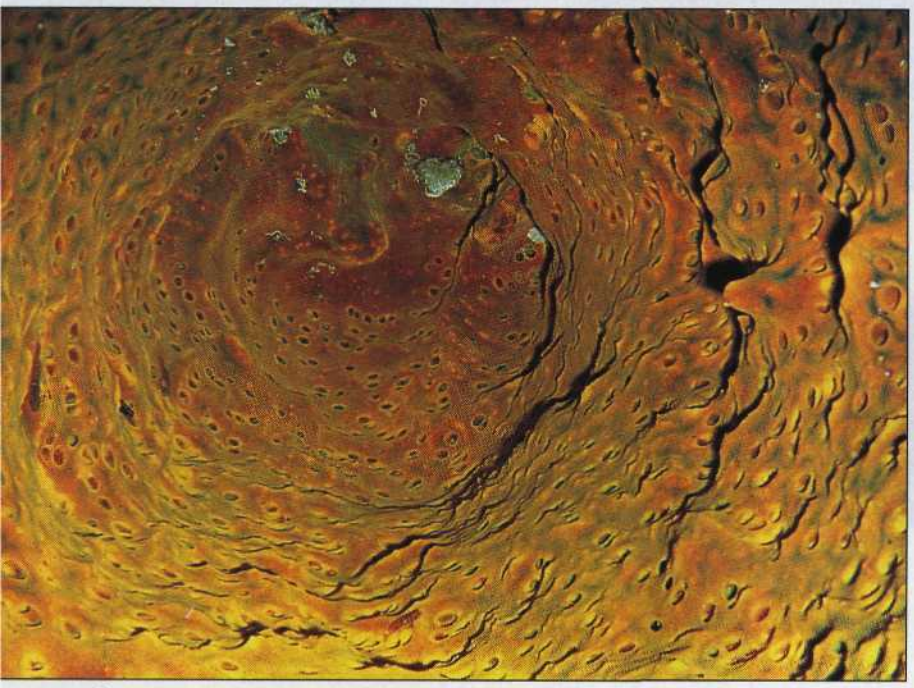

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ALL PHOTOS BY AUTHORS

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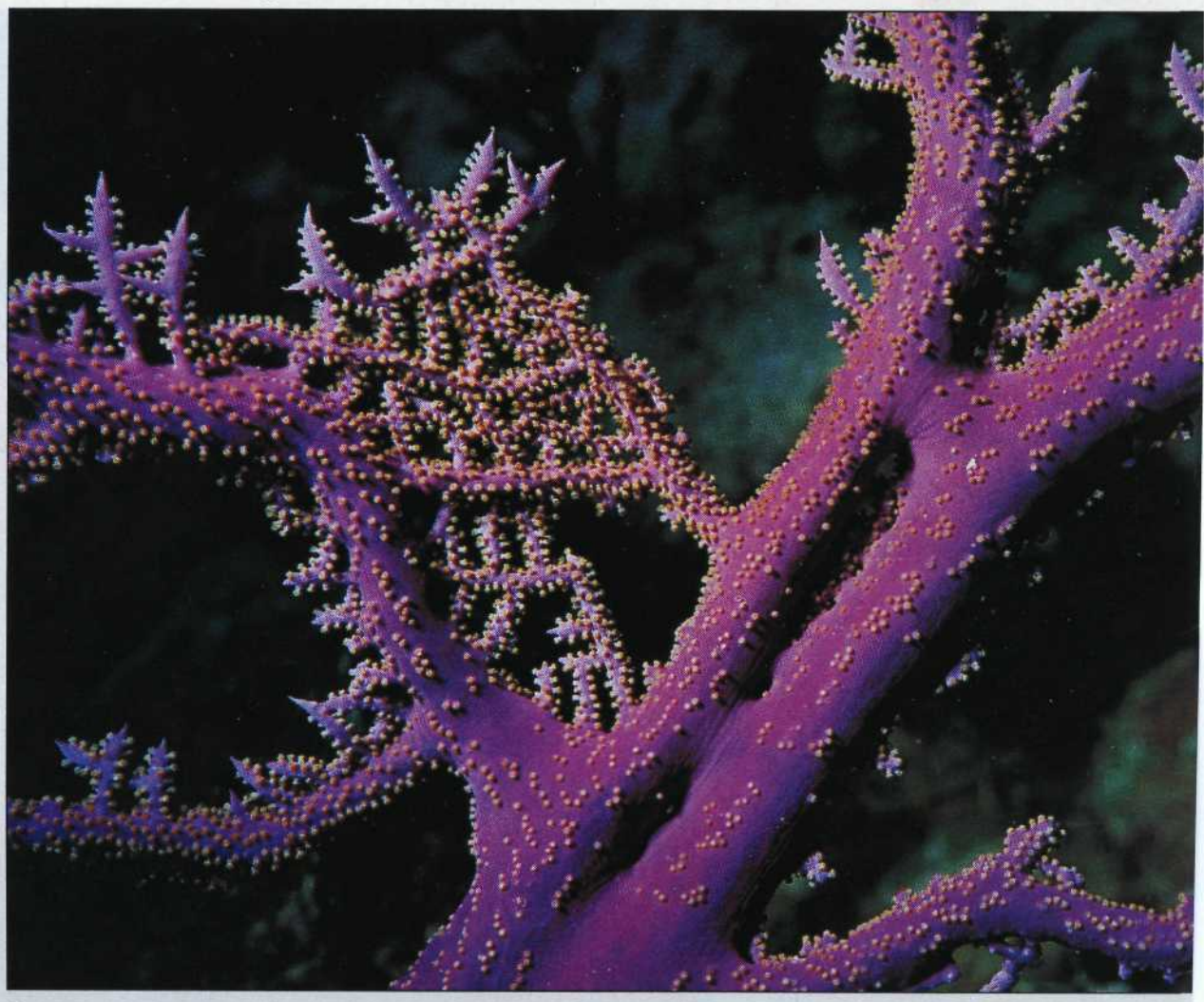

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is suitable for all lenses except the 16mm, which is too wide for flash. After extensive testing, we found that this small, compact flash could indeed be used with the 16mm lens if the primary subject does not cover the entire scene. For example, when photographing a large grouper on a reef, the grouper would be lit by the flash and the reef would be lit by filtering sunlight.

The shutter on the Motormarine II is a leaf shutter set at a fixed 1/100 shutter speed. The rationale behind the single shutter speed is the fact that 95% of the pictures taken underwater are taken with flash, and 1/100 is the flash-sync shutter speed. When taking pictures on land, the same 1/100 is fast enough to freeze most subjects.

Three indicator lights, located inside the viewfinder, show the status of the flash or available-light situations. The red lamp indicates that there is not enough available light at the aperture you have selected. You can either open the lens aperture or use flash. The yellow light indicates that either the internal or external flash is ready to fire. The green light will glow after a picture has been taken with proper exposure.

UNDERWATER INTERCHANGEABLE LENSES

The permanent primary lens was designed so that you could take pictures on land or underwater, and with the addition of a "CU" feature, take close-up pictures on land and underwater. With this lens alone, you could take pictures of mountains, groups of people, close-ups of flowers, divers underwater, and close-ups of fish.

This lens was also designed to act as the focus/aperture controls and the rear element for three additional underwater lenses that could be attached underwater. Each of the three accessory lenses is O-ring sealed front and back with a special floodable bayonet mount. After entering the water, you clear any bubbles attached to the camera lens, and then attach the appropriate front-element

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1. Photo made with 20mm wide-angle lens and YS 50 TTL-II flash.
2. Extreme close-up made with macro lens and accessory flash.
3. Photo made with 16mm ultrawide-angle lens and YS 50 TTL-II flash.
4. Again, 16mm lens and YS 50 TTL-II.
5. Photo made with built-in macro lens and YS 50 TTL-II.

MOTORMARINE II

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lens. Water floods the bayonet section and becomes part of the total optical design.

If you want to take macrophotographs, simply attach the macro lens and its special framer via the bayonet mount. Screw-in the upright shafts that are stored under the framer structure itself. These framers indicate the image boundaries and focus point for your picture.

For situations requiring a wider-angle lens, the 20mm lens with an 80° angle of coverage is available. This lens has much greater depth of field than the standard lens: At f/5.6, it extends from 2.3–5.9 feet; at f/11, 1.8 feet to infinity.

For extreme wide-angle photography underwater, you may want to try the 16mm f/5.6 wide-angle lens that boasts an angle of coverage of 91°, and an equally impressive depth of field: at f/5.6, 2.6 feet to infinity; at f/11, 1.7 feet to infinity; and at f/22, 1 foot to infinity. ■

SPECIFICATIONS

FLASH UNIT: Motormarine YS 50 TTL-II
GUIDE NUMBER: 12 (underwater, ISO 100, full flash); 24 (above water, ISO 100, full flash)
POWER SOURCE: 4 AA alkaline or NiCd cells
RECYCLE TIME: 5.5 sec. (alkaline; more in TTL mode), 4 sec. (NiCd)
NUMBER OF FLASHES: 150 (alkaline batteries; more in TTL mode); 75 (NiCd)
MODES: TTL (automatic) or manual
TTL RANGE: 0.3–3.4 meters (ISO 100)
PRESSURE: Tested to 200 feet
DIMENSIONS: 6.4×3.5×4.4 in (163×88×113mm)
WEIGHT: 25.4 oz (720g); 1.6 oz. (80g) (underwater)
PRICE: $450 with arm and baseplate included
DISTRIBUTOR: GMI Photographic, Sea & Sea Div., 1776 New Highway, Farmingdale, NY 11735; (516) 752-0066.