

Olympus OM-D E-M1 Mark II and PT-EP14 housing

by Phil Rudin

My first product review for Underwater Photography Magazine was a five page article covering the Olympus E-PL1 and the Olympus PT-EP01 housing in the Sept/Oct 2010 issue. Prior to that I had reviewed the Olympus E-520 and Olympus E-620 cameras and Olympus housings for issues of Dive Chronicles Magazine along with a few other publications.

The first Olympus digital camera I owned was the E-20 which I used during my police career for crime scene photography. Olympus is the only major camera manufacturer that has consistently released a line of underwater housings along with its mid-level and flagship cameras.

My first Olympus housing was the PT-E01 housing for the Olympus E-volt E-300 followed by the PT-E02 housing for the E-330. These were great housings that I used extensively during a six week dive excursion in Alaska and Vancouver Island British Columbia. The latest Olympus PT-EP14 housing is just as robust and still accepts all of the ports from those original PT-E0 housings along with

two new and exciting port additions for macro and wide angle.

Olympus OM-D E-M1 Mark II

The Olympus E-M1 Mark II has been selected 2016 and 2017 camera of the year by a number of well respected reviewing sites and magazines who put far more time into pixel peeping than I do. I believe the E-M1 Mark II is currently the best Micro 4/3 camera for still photography available. Anyone who is interested in underwater photography should take a close look at this Olympus camera & housing combination.

For the purpose of full disclosure I have reviewed nearly one hundred cameras, housings, ports, strobes and

Schooling Bluestriped Grunts, Cozumel Mexico, Olympus E-M1 MkII, Olympus PT-EP14 Housing, Olympus 8mm F/1.8 Fisheye lens, Two-Olympus UFL-3 strobes TTL, ISO-400, F/9, 1/250th sec



U/W photo accessories which I have not owned. Those reviews have appeared in Underwater Photography magazine and many other publications over the past twelve years. For this review I am using an Olympus EM1 Mark II and several lenses which I personally own and in fact the Olympus E-M1 Mk II is my go to camera for all my personal work both underwater and top side.

The E-M1 Mark II expands on the hugely successful Olympus OM-D series and is a brilliant successor to the E-M1 platform released in 2013. The E-M1 mark II is at the Pro end of the OM-D line and the newest Olympus flagship camera.

The E-M1 Mark II directly targets Pros and high end enthusiasts who don't mind shelling out around \$2000.00 USD for a highly capable and very compact camera body. The E-M1 Mark II would be a compelling choice for DSLR users who may be considering moving to a mirrorless camera system. Current Olympus users wishing to move up from the Olympus OM-D E-M5/II or E-M10/II series cameras will also find the E-M1 II to be a no-brainer as an upgrade.

Olympus has completely outdone itself with a total redesign of the entire E-M1 camera from top to bottom. This is no incremental upgrade to stimulate new sales, instead the Mark II has exceeded all expectation for both the Olympus faithful and the seasoned reviewing community.

Some of the key upgrades include a new 20MP live MOS sensor, Cinema (DCI) and UHD 4K (237Mbps) video, Micro-HDMI, an insanely weather-sealed and temperature resistant body, a new hybrid 121 point auto focus system, high-res electronic viewfinder, fully articulating 3" LCD screen, 60 FPS burst rate with electronic shutter single frame rate, 18 FPS in continuous AF modes,



Split Image, Cozumel Mexico, Olympus E-M1 MkII, Olympus 7-14mm F/2.8 zoom at 11MM, Olympus PT-EP14 Housing, Two-Olympus UFL-3 strobes TTL, ISO-400, F/13, 1/250th sec

mechanical shutter frame rates up to 15 frames per second, a new TruePic VIII processor for blazing speed and excellent buffering, Dual card slots for SD/SDHC/and SDXC (only one slot, top for super high speed cards) the best in-body image stabilization system made hands-down with up to 6.5 stops, USB-3 (type-C), 50MP high-res shot mode, the new BLH-1 Battery which extends life to new levels for a mirrorless camera, built in WiFi, a more refined menu interface and ridiculous number of controls and customizable settings that Olympus users have come to expect with each new O-MD release.

Olympus also has an excellent line of lenses that are well suited to underwater photography. Along with the E-M1 Mark II Olympus also introduced the new M.Zuiko Digital ED 12-100mm F/4 Pro zoom lens which is an incredible travel



lens that goes everywhere with me. The new lens follows in the footsteps of Olympus first M.Zuiko PRO lens the 12-40mm F/2.8 Digital ED PRO which was introduced with the E-M1 camera.

Olympus rounded out the O-MD E-M1 Mark II release with a powerful new FL-900R external flash which has a 58 meter guide number, the new STF-8 macro flash set, new HLD-9 battery grip and the new PT-EP14 underwater housing being used for this review.

While many DSLR users in the underwater photography community are still debating mirrorless cameras they fully grasp the merits of Micro 4/3 and



Coral Cenote at Ponderosa, Yucatan Mexico, Olympus E-M1 MkII, Olympus PT-EP14 Housing, Olympus 8mm F/1.8 Fisheye, ISO-400, F/5.0, 1/60th sec, Natural Light

APS-C over full frame sensor cameras for many underwater needs. The Micro 4/3 and APS-C cameras allow smaller housing designs, use smaller lenses with smaller ports and smaller extensions. This all adds up to a more cost effective and travel friendly underwater camera system.

Smaller M4/3 sensors also increase depth of field and provide better corner sharpness with many wide angle lenses v. full frame. If you

intend to replace your underwater photo system the high quality and speed of the E-M1 Mark II and the total system cost make a compelling case for the Olympus E-M1II/PT-EP14 camera/housing combination. This camera also has excellent video capability which I will address in a future review.

The all magnesium alloy body, overall build quality and finish of the E-M1 Mark II exceeds or is



Hawksbill Turtle, Cozumel Mexico, Olympus E-M1 MkII, Olympus PT-EP14 Housing, Olympus 8mm F/1.8 Fisheye lens, Two-Olympus UFL-3 strobes TTL, ISO-400, F/9, 1/250th sec

comparable to any current \$2000.00 plus "Pro" DSLR or mirrorless camera. The E-M1 Mark II is a bit chunkier than the E-M1 at 574g v. 497g making it easier to hold and operate both in and out of the Olympus housing. Olympus E-M1 Mark II's only downside over the E-M1 is a reduced flash sync speed of 1/250 sec down from the 1/320 sec of the E-M1.

Olympus PT-EP14 Housing

The Olympus PT-EP14 is a clam-shell style housing with the front section and rear door held together by a hinge on the left side of the housing viewed from the rear.

The housing is made from high-grade polycarbonate and the rear door has a single O-ring which seals the housing door. The rear door is locked in place by a rotary cam system on



the right side of the housing. The rotary cam has two locking devices - a red switch which pushes in and out to lock and a second lock which has to be pushed up while the cam is being rotated to open the housing. Rotate clockwise to open and counter-clockwise to lock the cam into place then the red switch is pushed to the double locked position and the housing is ready for the water.

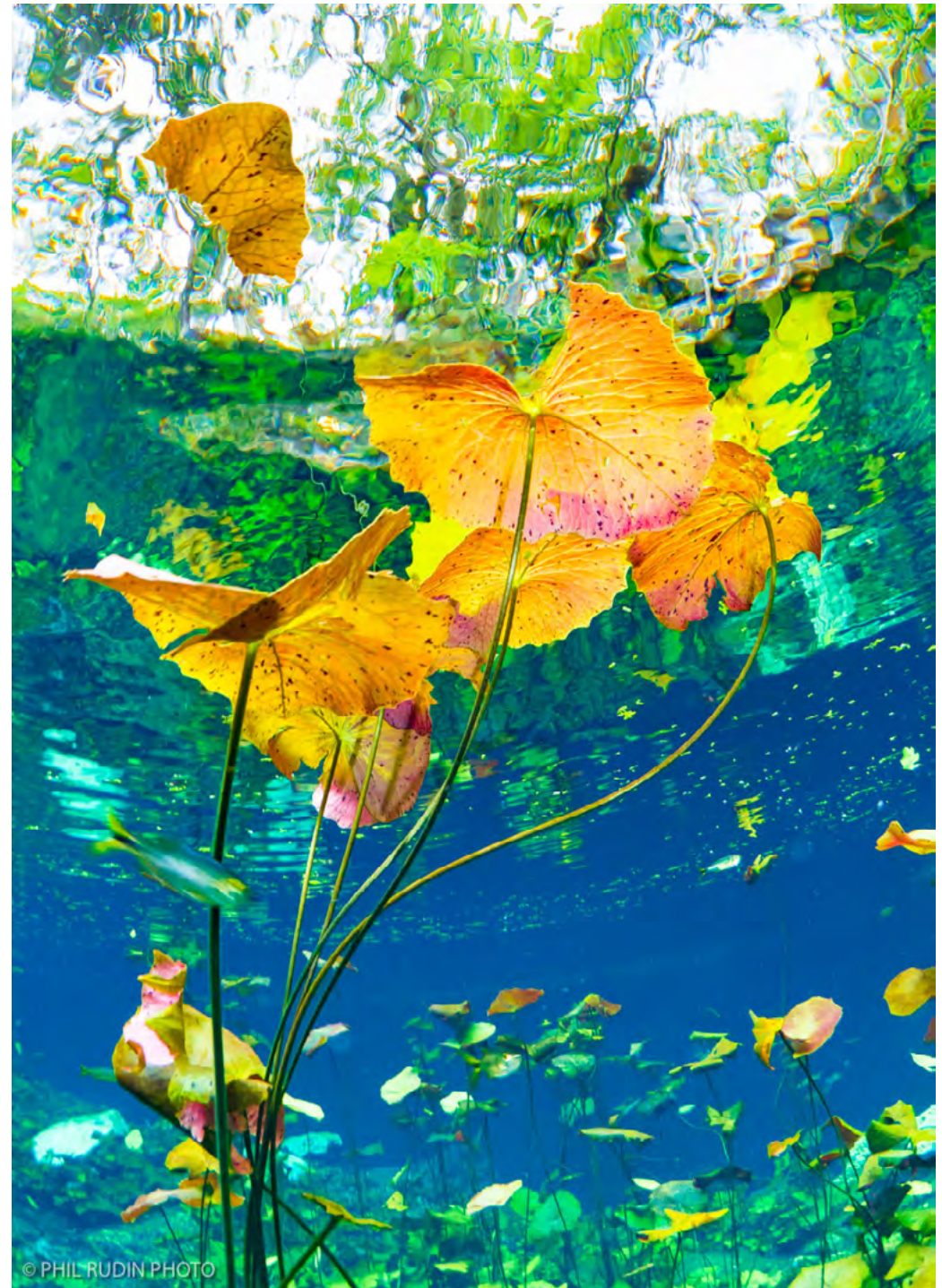
As always the main door O-ring and port O-rings should be serviced before the housing goes into the water. When using a new housing or when traveling I always test the housing without the camera before I prepare the system for a dive. The front half of the housing is black Polycarbonate and the rear door is transparent allowing a view into the housing.

Unlike the PT-EP11 housing for the E-M1 which is rated to 45 meters, the new PT-EP14 housing is rated to

a depth of 60 meters (196 feet) well beyond the recommended limit for recreational sport divers.

The housings rear door has twelve well labeled push buttons for all twelve push controls on the rear of the E-M1 Mark II camera body. A 30 mm wheel angled at about 35 degrees is also located on the right side of the rear door and is easy to move with your thumb. This wheel controls the rear command dial on the camera body which I have programmed for shutter speed.

Aquatic Plants, Nicté Ha Cenote, Yucatan Mexico, Olympus E-M1 MkII, Olympus PT-EP14 Housing, Olympus 8mm F/1.8 Fisheye, ISO-400, F/5.0, 1/60th sec, Natural Light



Below and to the left of that command dial is a smaller dial that controls the program mode wheel on the top of the camera. A clearly marked push button is located on the right top of the housing to lock and unlock mode dial. This allows you to set the mode you want to shoot with and then lock it in.

The Fn2 button is in front and to the right of the lock button and to its right is the video start/stop button. Since I shoot mostly stills I like the fact that the video button is located where I won't accidentally activate the video but is still within reach of my index finger in the event I need to start shooting video in a hurry.

In front of these push button controls is the large red shutter release which pushes down for half press and release. On the top left side of the housing is the on/off switch and push buttons for HRD/Frame rate and AF/focus array. I tend to reset AF selections, Frame rates and Focus array from the super menu along with a verity of other functions. Having a button for each control is great and many operate the camera that way but when I change AF settings I tend to also make changes to other functions and find using the super menu faster.

Because the E-M1 Mark II is one of the most programmable cameras on the planet you can set any of the twenty-one wheels and push buttons on the camera body to suit just about any personal needs you may have.

On the left front of the housing is the focus/zoom dial which is about 20 mm in diameter. This dial is used to zoom lenses and as a manual focus dial for fixed focal length lenses like the 8mm Fisheye, 30mm macro and 60mm macro lenses.

Using a tray with a grip on the left side of the housing my index finger was alignment with the zoom dial and rotating it with light weight dive



Tube Sponges, C-53 Wreck, Cozumel Mexico, Olympus E-M1 MkII, Olympus 7-14mm F/2.8 zoom at 7MM, Olympus PT-EP14, HousingTwo-Olympus UFL-3 strobes TTL, ISO-400, F/9, 1/50th sec

gloves was no problem. With my dry suit gloves the zoom control will be more awkward to turn. The housing also has a dry mounting shoe on top for adding a focus light, video accessories, flash and more.

Over the port mounting device on the front of the housing are two fiber optic cord connections. They work in conjunction with the FL-LM3



Dive Master Jean, C-53 wreck, Cozumel Mexico, Olympus E-M1 MkII, Olympus 7-14mm F/2.8 zoom at 7MM, Olympus PT-EP14 Housing, Two-Olympus UFL-3 strobes TTL, ISO-400, F/9, 1/160th sec

external flash provided with the camera. Because the FL-LM3 is an external flash it has an on/off switch which needs to be turned ON before you close the housing for your dive. No on/off switch is included on the housing so be aware that the external strobes will not fire through the fiber optic cords without the cameras strobe being turned on.

The camera also needs to be set with the strobe



R/C turned on before the external strobes can be triggered. The FL-LM3 can be set to TTL, manual, rear-sync and more.

To mount the current line of Olympus dome ports to the PT-EP14 housing service the port O-ring and then push the port into the port mount while the red locking ring on the front of the housing is in the unlocked position. Once the port is pushed in properly the red locking ring rotates clockwise and the locking device snaps into place. If you don't hear a distinct snap repeat the process until the port is properly locked into place.

To unlock depress the red locking device and rotate the red locking ring counterclockwise. Older ports (from the PT-E0 housings) and port extensions are threaded and require the Olympus PAD-EP08 adapter to be mounted on the PT-EP14 housing. Simply thread the port or port extension into the PAD-EP08 adapter then use the same process to mount the adapter to the housing. With ports like the PPO-EP04 port for the Olympus 7-14mm F/2.8 Pro the PTLH-E01 dome port shade may need to be loosened and realigned so that the hood will not



Schooling Snapper, Cozumel Mexico, Olympus E-M1 MkII, Olympus PT-EP14 Housing, Olympus 8mm F/1.8 Fisheye lens, Two-Olympus UFL-3 strobes TTL, ISO-400, F/20, 1/250th sec

cause vignetting. Once this has been done the port shade should always lineup when using the same port/extension configuration.

On the left side of the housing rear door is a button to shift from the electronic viewfinder to the LCD screen. The housing includes an optical pickup finder that allows you to see all the way into the

corners of the EVF while wearing a face mask. The large LCD also works quite well for composition and focus accuracy. The housing ships with a rubber shade for the LCD screen.

Field Testing the Olympus PT-EP14 system

For this review I used the Olympus E-M1 Mark II and PT-EP14 housing with two Olympus UFL-3 underwater strobes, PPO-EP02 Fisheye port for the 8mm F/1.8 Fisheye & 12mm F/2, PPO-EP03 macro port for the 60mm F/2.8 & 30mm F/3.5 macro lenses, the PPO-EP04 dome port with port extension PER-E02 and Port adapter PAD-EP08 along with the PPZR-E06 zoom gear for the 7-14mm F/2.8 lens.

Be aware that the older port and extension for the 7-14 F/2.8 lens can be difficult to find. Also be aware that the PPO-EP02 8mm F/1.8 Fisheye port supports the excellent 25mm F/1.8, the ED 9-18mm F/4.0-5.6, 12mm F/2 as well as the 30 & 60mm macro lenses. My advice would be to stick with the newer PPO-EP02 Fisheye port and the PPO-EP03 macro port which support a wide range of lenses when beginning to build your system. Adding the excellent 7-14mm F/2.8 many require after market or used equipment providers.

All of the Olympus lenses that I used underwater including the excellent 7-14mm F/2.8 zoom mount directly to the camera and are installed from the rear of the housing. Some other housings that I have reviewed for the E-M1 Mark II require you to mount the camera in the housing and then install the lens from the front of the housing followed by the dome port. This requires an extra button on the front of the housing to release the lens and leaves the camera sensor exposed when the lens is removed. This housing does not require a tray to be attached to the bottom of the camera.

When installing the camera with the lens mounted the housing should be facing port down.



Dive Master Jean, C-53 wreck, Cozumel Mexico, Olympus E-M1 MkII, Olympus 7-14mm F/2.8 zoom at 7MM, Olympus PT-EP14 Housing, Two-Olympus UFL-3 strobes TTL, ISO-400, F/9, 1/50th sec. At about 300% showing accuracy of the auto focus and excellent detail from the Micro 4/3 sensor

Make sure that the on/off switch on the housing is pushed up then slide the camera into the housing making sure that any gear is meshing with the control wheel. The camera slides easily into place and the on/off control can then be lowered onto the camera on/off switch. If you are using external strobes turn the on-camera flash switch to the on position then close and lock the housing door.

I left the on-camera strobe in the ON position all of the time because it is not powered up until the camera is turned on. If you angle the housing so that the open rear door is facing down the camera may fall out of the housing. This is easy to prevent if you just keep the port facing down on the dome shade.

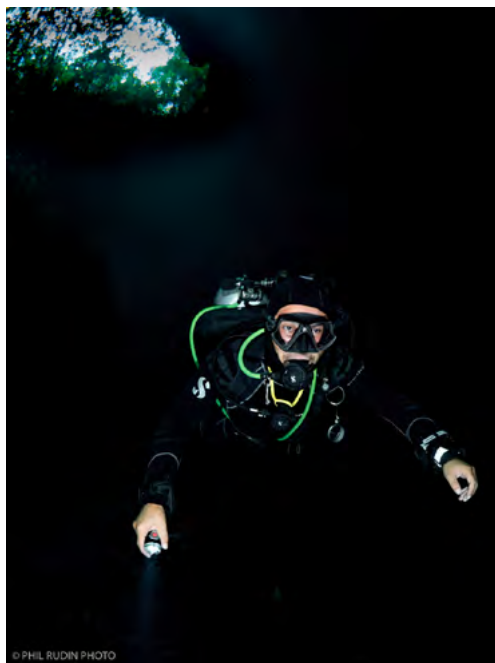
As always my first dip with the housing was in a swimming pool with the camera removed to check for any leaks. With none being discovered I was ready for my first dive using the Olympus 60mm F/2.8 macro lens and macro port.

The 60mm is my most frequently used lens underwater and my go to lens for super macro using accessory closeup lenses. The new PPO-EP03 macro port is small, light weight and has the 67mm threads most commonly used with closeup lenses and other accessories. This port ships with a 67mm lens cap to protect the port glass and a rear cap to keep dust out of the port when it is stored.

The port can be used with or without most of the common flip adapters for closeup lenses. With a +5 closeup lens images are about 12 mm on the long side at minimum focus with a working distance of about 12 cm. Since the E-M1 Mark II sensor is 17.4mm on the long side, at 1:1 (life size) you can fill the frame with some very small critters without adding any extra magnification. I tend to use rear auto focus when shooting macro so that once I have reached 1:1 I can keep it there without having to refocus.

Normally I have the rear focus set to the AEL/AFL push button or control lever but I reassigned this function to the Fn1 button on this housing to make it easier to reach with my thumb when hand holding the housing or when using an accessory tray to mount strobes.

The same macro port is recommended for the Olympus 30mm F/3.5 macro lens. This is a lens which has sold for as little as \$199.00 in the US. Please don't be fooled by the price of this lens it has excellent image quality and covers twice as wide a range as the 60mm at the same working distance. This is my go to lens for small to mid-range portraits. Because the lens is about 25 mm shorter than the 60mm macro it sits further back from the macro port glass. As a result at the 1.25:1



Guide Polo, Cenote Taj Mahal, Yucatan Mexico, Olympus E-M1 MkII, PT-EP14 Housing, Two-Olympus UFL-3 strobes TTL, Olympus 8mm F/1.8 Fisheye, ISO-640, F/6.3, 1/20th sec

minimum focus distance you would be focusing inside the port.

At around 10 mm from the port glass you can fill the frame with a subject that is about 32 mm on the long side still smaller than the full frame life size of 36mm. If you are interested in more information on this bargain macro lens check out my full review in the last issue (#98) of Underwater Photography Magazine.

I shoot most of my macro using ISO-low or ISO-200 at 1/125th to 1/250th sec, F/4.5 to F/9 and I use



Bridled Goby, Casa Del Mar House Reef, Cozumel Mexico, Olympus E-M1 MkII, Olympus 60MM F/2.8 Macro lens, Olympus PT-EP14 Housing, Two-Olympus UFL-3 strobes TTL, ISO-200, F/5.6, 1/160th sec

a bit higher F/stops with accessory closeup lenses to increase DOF.

The UFL-3 strobes were more than adequate for all of my macro work providing well controlled lighting both in TTL and manual settings.

For wide angle I primarily used the Olympus 8mm F/1.8 Fisheye and the Olympus 7-14mm F/2.8 with their respective ports. These are both lenses I have been using extensively since they were released.

I particularly enjoyed using the 8mm Fisheye with this system. The

lens and port are light, compact, very close focusing and with two UFL-3 underwater strobes excellent coverage and ample power was provided with the diffusers attached. Since most images were taken within about eighteen inches or closer TTL worked quite well with balanced ambient lighting.

I most often shoot with my strobes set to manual but found the UFL-3 TTL worked quite well with both W/A lenses within about two feet or less of the subject.



Guide Polo, Cenote Taj Mahal, Yucatan Mexico, Olympus E-M1 MkII, Olympus PT-EP14 Housing, Two-Olympus UFL-3 strobes TTL, Olympus 8mm F/1.8 Fisheye, ISO-640, F/8, 1/30th sec

With the 7-14mm zoom I experimented with the HDR feature which can be easily set underwater. I shot several sequences of a wreck with the five frames setting using ambient light, (strobe is not useful because it will not recycle fast enough). The increase in dynamic range was evident in the composite Jpeg's and the speed of the E-M1 Mark II negated any movement in the image.

The debate still rages over corner sharpness with the lens

zoomed to 7mm using the 170mm port. I generally shoot wide angle over sixty feet at ISO-400 and sometimes greater. This puts me at around 1/125th to 1/250th at F/5.6 to F/9/11. In this range I find corner sharpness to be excerptible for my needs. With full frame at the same shutter speeds I would be a F/13 or above for like corner sharpness in a larger (200/230mm) port. I also highly recommend the 12mm F/2 in the Fisheye port if you already own this excellent lens. It is great for mid-



Coral Detail, Casa Del Mar House Reef, Cozumel Mexico, Olympus E-M1 MkII, Olympus 60MM F/2.8 Macro glens, Olympus PT-EP14 Housing, Two-Olympus UFL-3 strobes TTL, ISO-400, F/6.3, 1/250th sec

range subjects and models in the pool or in open water.

Using the back focus or half press on the shutter release for auto focus is excellent in all but the very lowest of light. I had no issues with focusing in the dim lighting of the Mexican Cenotes. The shutter release is a bit spongy lacking that tactile feeling of some other housings. Using the back focus I half pressed the shutter to get a better feel for exactly when the shutter would release.

This camera and housing system

was quite easy to assemble and maintain. The optical glass ports are of excellent quality and the system build quality feels solid and robust. I would not hesitate to use this system on any photo assignment.

I would like to thank my friends Jean at Yucatek Divers in Playa Del Carmen and Jorge and Alex at Cozumel Marine World at Casa Del Mar for providing excellent support organizing the diving for this review.

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