AQUATICA™

Digital

A70D

**OPERATING MANUAL FOR AQUATICA A70D
PRODUCT # 20074**

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Content

FOREWORD

Thank you for having selected the AQUATICA Digital Camera System for your underwater photography needs.

The AQUATICA Digital Housing is the result of a long and continuing relationship with the most demanding underwater photographers in the world. Each housings is handcrafted, tightly quality controlled and pressure tested to a 300 feet/90m equivalent by a small group of specially trained individuals, each of whom takes the utmost pride and satisfaction in offering you the best underwater camera housing in the world.

The Aquatica Digital Housing was designed for optimum technical and optical performance and to provide easy and efficient underwater access to the essentials functions and controls of the Canon 70D DSLR. This operating manual assumes that the user is already familiar with the Canon 70D camera and its operation. If not, please read your Nikon instruction manual before attempting to use the housing.

With basic care and a regular maintenance schedule, your AQUATICA housing will provide years of enjoyment and satisfaction in producing spectacular underwater images.

Please take the time to carefully read this manual before attempting to use your housing for the first time and note that: whenever cited the right hand is your right when using the housing.

This Aquatica Digital housing is issued from the world's most technologically advanced underwater housings lineage, ergonomically designed to place all the essential camera controls under your finger tips and features the following:

- Large ergonomic and easy to operate controls for most of the manual and computerized camera
  functions, including the following controls:
  - Extended Mechanical Shutter Release Lever.
  - Large knurled knob for accessing Shutter speed control.
  - Large knurled knob for accessing Aperture control.
  - Oversized knurled knob for accessing the Focus or Zoom feature of the lens
  - Dual positions lever for accessing the AF-ON and STAR functions
  - Easy access knob for Exposure mode control (Mode)
  - Exposure Compensation
  - Focus Area Selector
  - Extended ISO sensitivity lever
  - Info & Playback
  - Menu and controls
  - Delete button access
  - Live view & Video recording access

- A quick release camera tray (saddle), for fast and easy removal of camera.

- A flexible strobes connector circuitry to suit your personal needs (see page 11&12).

- A new redesigned moisture alarm with integrated vacuum sensor

- A port locking mechanism to prevent accidental rotation of the port or extension mounted on the housing

- A complete selection of bayonet mounted ports including dome ports of 4", 6", 8" and 9.25" diameter, three flat ports and a large selection of extension rings to preserve the image quality of your lenses.

- A Lens Lock Release control that will activate the lens release button of the camera from the outside of the housing, this lever can be pulled out to allow the camera/lens/gear to be removed together for easy replacement of the camera battery.

- A comprehensive selection of focus and zoom gears to access all popular lenses useful for underwater photography,

- A choice of standard eye piece finder (included), Aqua View 180 finder (# 20054) and Aqua View 45 Finder (# 20059).

- Bulkhead entry point for external Monitors, remote triggering accessories, including the pole mounted **RCS** remote camera system.

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SAFETY RECOMMENDATIONS

Please carefully read the following precautions and recommendations:

Improper transportation, handling or use of this housing might cause a flood or malfunction. See Storage and transportation of housing and ports section on page15

Never remove, change a port or open the housing in a location where sand or similar foreign material might come in contact with an O-ring. Be wary of strong wind as it could potentially be carrying sand. Always perform a simple seal test without the camera inside after doing maintenance.

Non authorized use of third party accessories, as well as modifications and/or alterations not specifically authorized by Aquatica may affect performance, cause poor functioning of the controls or impair the sealing integrity of the housing.

Always handle port carefully, like the sensitive optics they are, protect them when not in use to avoid scratching the acrylic or glass surface of the ports and windows.

Always confirm that the ports remain properly attached before rinsing the housing. An optional port locking collars is available (#18469) for securing larger dome to the extension ring. When rinsing without a wired strobe, confirm that the bulkhead strobes connectors are sealed with their plug.

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NOMENCLATURE

Top controls

AF

DRIVE

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1- Shutter Release lever
2- Quick Control Dial access knob
3- Main Dial access knob
4- ISO control lever
5- ½" Accessory Bulkhead Connector
6- Main Strobe Bulkhead Connector
7- Secondary Strobe Bulkhead Connector
8- 16mm Accessory Bulkhead Connector
9- Focus/Zoom Control knob
10- Focus/Zoom Control knob release disc
11- Focus/Zoom Control pinion gear
12- Lens Release knob
13- Lens Release knob lever
14- Moisture Alarm / Vacuum Sensor LED mounting hole
15- Quick Release Camera Tray
16- Camera mounting screw
17- Bayonet Flange
18- Port Release mechanism button
19- On/Off switch lever
20- Live View/Movie selector switch
21- Flash Up button
22- Flash down Lever
23- Start/Stop Movie button
24- AF-ON / AF-Start & Star access lever
25- AF-ON / AF-Start & Star access lever rotating collar
26- Quick Control Button
27- Playback button
28- AF Point / Magnifier button
29- Multi Controller buttons array.
30- Set button
31- Erase button
32- Menu button
33- INFO activation button
34- Mode Dial access knob
35- Mode Dial lock release lever
36- Metering selector button
37- AF Area selection button
38- Drive Selection button
39- AF Mode Selection Button
40- Removable Viewfinder Eyepiece
41- Rear LCD window
42- Mode Dial window
43- Hand Grips (x2)
44- Grip's Accessories mounting holes (1/4"-20)
45- Top Accessory mounting hole (1/4"-20)
46- Bottom Accessories mounting holes (x3)
47- Rubber Anti Skid pad
48- Sacrificial Anodes (x2)
49- Closing Latches (one per side)
50- Closing Latches Safety locking tab (one per latch)
51- Closing Latches strikes (one per side)
52- Mounting points for the hand grips

-NK

-OPT

-HYB

-KM

Housings strobes connection variants:

-OPT   Supplied with two optical connections. Included are adapter for attaching two Inon type (straight tip) sync cords or two Sea & Sea type sync cords. S-TTL is possible if using appropriate strobes

-NK   Supplied with two Nikonos Type connectors. TTL is possible if using a TTL converter with compatible strobes.

-HYB   Supplied with one optical connector and one Nikonos type connector. Included are adapter for attaching two Inon type (straight tip) optical sync cords or one Sea & Sea optical type sync cords. Optical S-TTL is possible if using appropriate strobes as well as standard TTL if using a TTL converter with compatible strobes

-KM   Provided with a single Ikelite connector. This can be used with Ikelite type cords for single or double strobes with the appropriate sync cord.

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CONTROLS IN DETAIL

1- SHUTTER RELEASE LEVER: Pulling the shutter release lever back part way activates the camera meter and auto focus. Pulling the lever back all the way fires the camera.

2- QUICK CONTROL DIAL ACCESS KNOB: It rotates clockwise and counters clockwise. It can be used alone or in combination with other controls to select or set various camera functions or modes. Refer to your camera manual for in depth use.

3- MAIN DIAL ACCESS KNOB: Rotates clockwise and counter clockwise. Use alone or in combination with other controls to select or set various camera functions or modes. In "Manual" this controls the shutter speed settings. Refer to your camera manual for in depth use.

4- ISO: Press on lever to engage the ISO speed value button of the camera

5- ACCESSORY BULKHEAD (1/2 INCH): This bulkhead passthrough hole can be used for mounting accessories such as a remote trigger, a vacuum valve or a monitor.

6- MAIN BULKHEAD CONNECTOR: This bulkhead connector is normally used as the main connection, configuration may vary according to an owner's preference, (see page 11)

7- SECONDARY BULKHEAD CONNECTOR: This bulkhead connector is normally used as the secondary connection, configuration may vary according to an owner's preference, (see page 11)

8- ACCESSORY BULKHEAD (16MM): This bulkhead passthrough hole can be used for mounting accessories such as a remote trigger, a vacuum valve or HDMI monitor

9- FOCUS/ZOOM KNOB: Turning will rotate the attached gear mounted to the zoom mechanism or focus ring of a lens.

10- FOCUS/ZOOM KNOB RELASE DISC: Lifting and rotating this disc to its resting post, will retract the pinion gear (# 11); doing so, along with pulling the lens release lever outward (# 12) will allows the camera and lens, with a gear attached to it, to be removed from the housing as a single unit.

11- FOCUS/ZOOM PINION GEAR: This gear connects and operates the focus or zoom gear attached to the lens.

12- LENS RELEASE KNOB: It Activates the lens release button on the camera allowing easy removal of the lens, pulling this out along with the zoom knob release disc (# 10) will allows the camera and lens to be pulled out from the housing as a unit.

13- LENS RELEASE KNOB LEVER: Applies pressure on the camera lens lock button.

14- LED MOUNTING HOLE: this mounting hole is provided for the moisture alarm/vacuum sensor warning LED.

15- QUICK RELEASE CAMERA TRAY: Used to attach the camera and slide it in place inside the housing.

16- CAMERA MOUNTING SCREW (1/4"-20): Used for attaching the camera to the Quick Release Tray.

17- BAYONNET MOUNTING FLANGE: allows the mounting of different ports and extension rings on the housing.

18- PORT RELEASE MECHANISM LEVER: Pressing on this lever will release the locking mechanism when the removal of a port or extension is needed.

19- ON/OFF SWITCH LEVER: Rotate to turn the camera power ON or OFF.

20- LIVE VIEW / MOVIE SELECTOR SWITCH: Rotate left or right to select Live View or Movie mode.

21- FLASH UP BUTTON: Push to raise the integrated flash of the camera (used with –OPT and –HYB version)

22- FLASH DOWN LEVER: Pull to lower the integrated flash of the camera (used with –OPT and –HYB version)

23- START/STOP: MOVIE BUTTON: This oversized red button activates recording in the video mode.

24- AF-ON / STAR ACCESS LEVER: This lever can be pull outward or inward to access both the AF-ON feature and the Star customizable button, theses are important controls for video shooting and care should be taken to fully understand their working and subtleties.

25- AF-ON / STAR ACCESS LEVER ROTATING COLLAR: Pull the AF-ON / STAR Lever and rotate this collar into position, to select access to the AF-ON or the STAR button of the camera.

26- QUICK CONTROL BUTTON: Press to activate the LCD menu display. You can then navigate using the Multi controls buttons array (# 29) in combination with the Quick Command Controls (# 2) and/or Main command control (# 3).

27- PLAYBACK BUTTON: Press to activate the monitor and review images.

28- AF POINT SELECTOR / MAGNIFIER BUTTON: Push to select the desired AF pattern or to magnify an image on the rear LCD.

29- MULTI CONTROLER BUTTON ARRAY. Use to navigate through the multiples options of the menus, modes and features of the camera.

30- SET BUTTON: Press to approve selection of menu or chosen mode features.

31- ERASE BUTTON: Press to delete images.

32- MENU BUTTON: Press to activate menu display, scroll using main or quick dial control knob and select using SET function button

33- INFO BUTTON: This button will activate the rear LCD and display all pertinent shooting information.

34- MODE DIAL ACCESS KNOB: Rotate to select the proper shooting mode, (care should be taken to understand the various combinations available).

35- MODE DIAL LOCK RELEASE LEVER: This lever disengages the lock on the mode dial of the Canon 70D. Once it is engaged; the mode dial can be rotated using the Mode Dial Access Knob (# 34).

36- METERING PATTERN BUTTON: Press to select the appropriate metering mode.

37- AF POINT SELECTION BUTTON: Press to select the preferred type of AF mode.

38- DRIVE SELECTION BUTTON: Press and use the Quick Control Dial access knob (#2) or the Main Control dial access knob (#3) to alternate between the various drive and self timer modes.

39- AF MODE SELECTION BUTTON: Press and use the Quick Control Dial access knob (#2) or the Main Control dial access knob to alternate between the various modes (ONE SHOT, AI FOCUS & AI SERVO).

40- REMOVABLE VIEWFINDER: This Galileo type view finder offers a full view of the illuminated camera viewfinder display. All necessary information is visible. This viewfinder can be removed and replaced with one of our two optional Aqua View Finders, which are available in 45° & 180° version, for a larger displayed image.

41- REAR WINDOW LCD: This port window allows viewing of the recorded images and is used in the Live View and Video mode for framing and composing. It also allows viewing of the entire menus selection as well.

42- MODE DIAL WINDOW: This port window give the user a visual of the camera mode dial.

43- HAND GRIPS (X2): Left and right grip allowing the mounting of strobe arms and accessories, these are attached with the supplied bolts and hexagonal wrench..

44- GRIPS ACCESSORIES MOUNTING HOLES: Two 1/4-20 TPI holes on each grip are ready to accept TLC Base Brackets or TLC Base Ball for strobe arms or accessories.

45- TOP ACCESSORY MOUNTING HOLE: a 1/4"-20 TPI hole is supplied to accept a TLC accessory or TLC base ball for mounting a strobe arm or a modeling light.

46- BOTTOM ACCESSORIES MOUNTING HOLES: Three 1/4" X 20 holes are provided for mounting strobes trays or accessories.

47- RUBBER ANTI SKID PADS: Six (6) rubber pads are provided to protect the housing and preventing it from sliding on wet decks.

48- SACRIFICIAL ANODES: (2X) zinc anodes are installed to protect your housing against salt water corrosion; theses are made to deteriorate easier than the other strategic part of your housing, hence the name sacrificial anodes. These anodes need to be replaced by the user as needed.

49- CLOSING LATCHES: Two heavy duty latches equipped with safety locks (# 50) to protect against accidental opening.

50- CLOSING LATCHES SAFETY LOCKING TAB: These are safety locking tab that prevent accidental opening of the latches (#49).

51- CLOSING LATCHES STRIKES: Those will hook up to the latches for a secure closing of the housing.

52- MOUNTING HOLES FOR GRIPS: A threaded 5/16'' hole is provided on each side for mounting the housing grips (# 44), see care and maintenance section.

PREPARATION OF THE HOUSING

Two Grips for both right and left hand grips are provided, these attach on the sides of the housing with the supplied screws and hexagonal wrench.

Mount the necessary shoes or brackets onto the 1/4"-20 threaded holes located on the top of the hand grips. Three threaded holes of the same size are located on the bottom of your Aquatica housings for mounting accessories such as lighting support, trays, brackets or tripod. A similar sized hole, located on the top the housing, allows the mounting of a video light, focusing light, TTL converter support or buoyancy compensating devices.

Mount your strobes and their arms on the housing and connect the sync cord to the housing's strobe bulkhead. Before using electrical type sync cords, carefully read the section (page 11) pertaining wired connection and refer and follow your strobe manufacturer manual and their recommendations.

For proper handling and maintenance of O-rings be sure to read the section titled "Maintenance of the housing and ports" (page 14).

PREPARATION OF THE PORTS

Underwater photography typically requires the use of a dome port for Wide Angle or a flat port for close up and macro photography. Your lens and subject selection should dictate the type of port you select. Flat Macro Ports are available in three (3) version (product # 18426, 18428 or 18429), and Dome Ports in four (4) sizes ranging from 4" to 9.25" (Product # 18405, 18407, 18409 or 18410).

There are occasions where an extension ring might be required to either, optimize the optical performance of a dome, or for adding sufficient space to accommodate a longer macro lens:

Macro Port Extension Rings: These aluminum rings extend the internal space of a Flat Macro Port, some shorter macro lens do not require using one, but longer lenses (100mm and longer) will need one in order to provide the necessary space to accommodate them.

Dome Port Extension Rings: When using a wide angle or zoom lens, the Dome Port may require the use of an extension ring, this is done both for physically accepting the lens and to closely match the position of the optical center of the dome and the lens as can possibly be done.

The Aquatica 6" and 8" dome ports have removable Dome Shade, without the shade, a circular 180° Fisheye lenses can be used to its full potential, when using standard type of lenses, the use of a dome shade is highly recommended as it improve contrast, reduce glare and offer an added protection for the dome delicate surface

A comprehensive lens chart listing of the lenses supported and their required extensions and/or accessories is supplied at the end of this manual. For the latest updated version of this lens chart, Please refer to the Canon Type 2 Lens Chart available on our website:
http://www.aquatica.ca/en/products_zoom.html

Cleaning the port:

Dirt, grease or fingerprints on the port especially on the inside, can adversely affect the quality of the image. Acrylic ports should be cleaned with plastic cleaner and glass ports with an appropriate lens cleaner.

Lubricating the port and extension ring O-ring seal:

Before using a port or extension ring, remove the O-ring on the rear and lightly coat it with silicone grease, clean its groove before installing it back.

For more information concerning the care and maintenance of your ports and their O-rings, please refer to the section titled "Maintenance of the housing and ports" Starting (page 14).

CAMERA PREPARATION AND INSTALLATION

Important Note: Prior to installing the camera in the housing, remove the rubber eye cup *(illustration #1)*, the camera strap and clips, and/or any object that might obstruct installation, third party camera strap hookup should be removed. It is advisable before inserting the camera in the housing, and in order to save valuable time underwater, to preset your camera shootting preferences in advance,

1- Remove the quick release tray (# 15) from the housing by pressing down on the metal tab (A) and pulling the tray out (B) as shown in *Illustration #2*. Carefully place the camera on it, making sure that the camera is properly aligned and secured against rotation or movement on the alignment pin (C) as seen in *illustration #3*. Align the Tripod Socket of the camera with the mounting screw (# 16). Tighten the mounting screw securely while ensuring that the camera position is not altered.
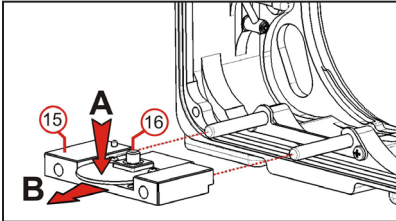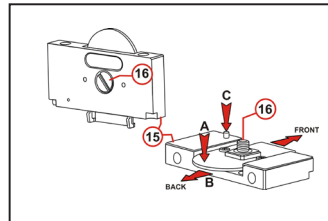
Illustration # 1

2- Pull out the lens release lever (#12) as per *illustration # 4*

3 - If using the optional Hydrophone connect the plug to the camera audio jack, and tuck the rubber flap of the microphone plug safely out of the way.
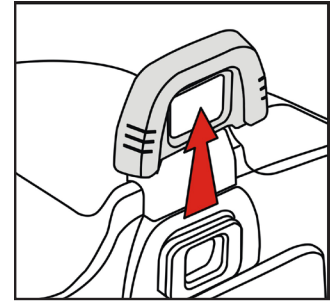
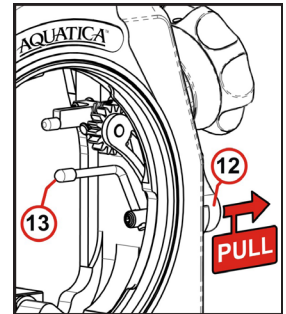**Illustration # 2**

Illustration # 3

Illustration # 4

4 - Slide the quick release tray (# 15) back into place; it will lock itself into place.

CLOSING PROCEDURE OF THE HOUSING

Before closing the housing always confirms that:

1.   The camera quick release tray is securely locked to the front half of the housing.

2.   If using electrical sync cord, that the hot shoe connector is properly inserted on the camera shoe as seen in illustration at right. That all cords or wires are tucked in so that they will not interfere with the closing of the housing.

3.   The main O-ring of the housing is well lubricated, clean and properly seated for a positive seal and its opposing sealing surface is clean and free from any scratches or physical damage.

4.   The controls of the ON / OFF control (key # 19) and the Live View control (key # 20) of the housing are in the same position on both the housing and camera, as per illustration # 6 & # 7.
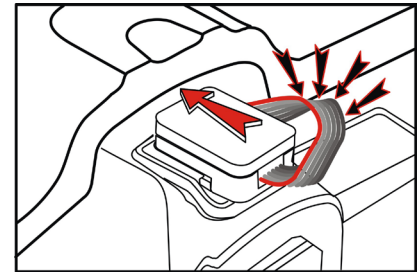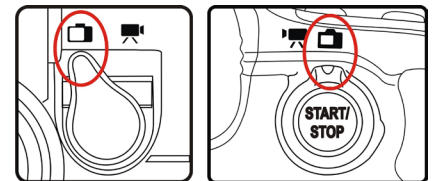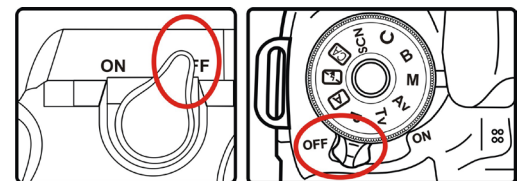
Then simply join the front and rear halves of the housing using the two dowel pins on the housing as guides.

Hold the housing with both hands and looks around the sealing surface to confirm that the O-ring is properly seated and that no cords, wires are caught between the edges. Close the two latches simultaneously.

CAUTION: If you feel any unusual resistance as you attempt to close the latches, do not force the closure. Check for any obstruction and try again.

Confirm that the spring loaded safety tabs of the latches (key A) are properly engaged in order to prevent the closing latches from opening accidentally. Simply try to lift the latch if the tab (A) is engaged, it should not be possible to do so without first disengaging the safety tab.

Be mindful when opening the housing, the pressure build up inside the housing may exaggerate the release force of the latch spring. Keep fingers safely away from the path of the latches.

Illustration # 5

Live View switch position of housing and camera

Illustration # 6

Power switch position of housing and camera

Illustration # 7

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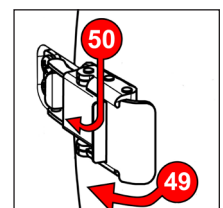
PREPARATION AND INSTALLATION OF THE LENS

There are a number of lens gear available and various way of mounting them to a lens, all depending on their design. Using the right gear and correctly mounting it on the lens is a very important step for a smooth operation of the Zoom or Focus control. Carefully follow the directions found on each gear packaging. Please note that the use of Canon EF and EF-S compatible lenses is mandatory. A comprehensive list of the supported lenses for this housing and their respective gears and domes ports is supplied along with this manual. The lens charts are regularly updated as newer lens are made available, for the latest available version of this housing lens chart please visit our Lens Chart section at **http://www.aquatica.ca/en/products_zoom.html**

Notes: On some lens /dome port combination, a close up lens (Diopter) might be required or desirable. This is intended to correct the minimum focusing distance of the lens so that it can focus on the virtually projected image created by the dome. Refer to the appropriate lens chart to see if a diopter is required for your lens/port combination.

Zoom lenses: Mount the gear on the lens zoom ring. The housing focus/zoom control (key #9) then becomes the exclusive method of controlling the zoom. Focusing of the lens is then achieved by using the camera's autofocus system, or on certain Wide Angle zoom lens, it will be possible to access the manual focus via a dedicated port extension ring equipped with a manual focus access knob

Prime Lenses: They can be used in Auto Focus or if a focus gear is available for this particular lens, it can be operated in manual focus. For Manual operation, the camera focus selector need to be set to the manual focus position, then a focusing gear (if available for this lens) will need to be mounted on the lens.

WARNING: If the lens is a not of the USM type, never attempt to operate it with the camera in autofocus mode with a mounted focus gear engaged. This will strain the focus mechanism motor and might damage your lens.

Gear installation on the lens:

Slip-on gears (gears without mounting screws): Slide the gear over the lens and align on the Focusing or Zoom ring or push until the gear cannot move any further up the lens.

Gears with adjustment screws: Tighten the set screws lightly and evenly, approximately ½ a turn at a time, carefully working your way around the gear until all the screws are equally tightened, verify that the zoom and/or focus mechanism rotate smoothly and that the gear remains concentric with the lens body.

CAUTION: Do not over-tighten the set screws, doing so might bind the lens and restrict the rotation of the Focus or Zoom ring and possibly damage the lens mechanism. Conversely under-tightening these screws might cause the gear to slip or lose its alignment.

LENS INSTALLATION
Note: Always take extra precaution to protect the sensor from airborne dust or particles whenever installing or removing a lens.

With the camera installed the housing, push the lens release lever (key #11) into the proper position so has not to obstruct it operation later, through the port opening in the front of the housing install the lens in the normal recommended way. If the lens is equipped with a zoom or focus gear, confirm that the gears are properly installed and aligned. Check the meshing of the lens gear with the pinion gear (key #11) on the housing by rotating the Focus/Zoom control knob (key #9) several times to make sure the gear rotates smoothly and does not slip.

CHANGING A LENS (REMOVING A LENS)
The Aquatica Housing provides two methods for removing and replacing a lens. It can be done either from the front by removing the port or through the rear, by removing the camera mounted on its quick release tray (key #15)

From the front: unlock and remove the port and/or extension ring (see chapter: Mounting a port and/or Extension ring on the housing). If a gear is mounted on the lens, access to the camera lens release button is still possible using the lens release lever (key #11) on the housing.
Or
Pull out the Lens Release Lever (key #11) out of the way, lift and rotate the Zoom Focus Release Disc (key #10) clear, open the housing back cover, remove the hot shoe from the camera and pull out the complete camera & lens from the housing, replace the lens and reinstall in the reverse order.
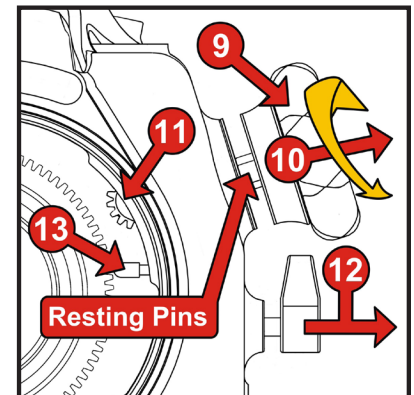
FOCUSING MODE

NOTE: Select the proper focus mode with the AF focus mode selector button (key # 39) and using the quick control (Key # 2) or the main control (key # 3) pressing button (key # 28) on the back of the housing to access the pattern options with the Quick command Knob (key # 2), the Main command knob (key # 3) or using the Multi Control Array (Key # 29) . For more detailed information concerning the operation of the different focus modes consult the Canon ® instruction book for the 70D. Taking full advantage of the AF-ON and Star (*) lever access on the housing dedicated lever (# 24) can also greatly contribute to the performance of the autofocus performance underwater.
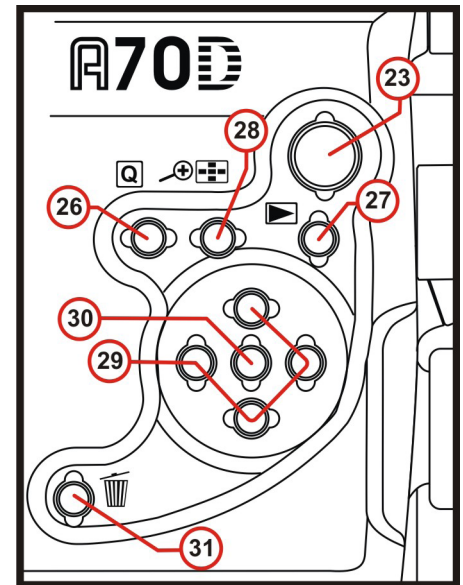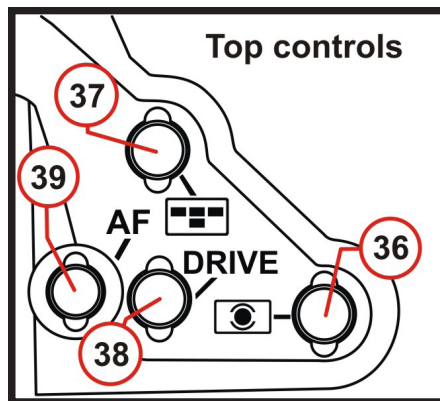

MOUNTING A PORT AND/OR EXTENSING RING ON THE HOUSING

Safely mounting a Port or extension on the housing requires that the O-ring be clean, lubricated, be properly seated in its groove and that the opposing sealing surface be clean and free of any physical damage.

This AQUATICA A70D Digital Housing features a locking bayonet mount (Key #17), to mount a port or extension ring on the housing:

1. Place the housing on its back on a soft and steady surface.

2. Place the port or extension ring inside the bayonet of the housing. Align one of the four alignment notches with the opening of the housing.

3. Place your hands on opposite sides of the port or extension ring.

4. Push with even force on both sides of the port or extension ring until you feel it snap into place. Make sure the bayonet is completely inside the housing.

5. Rotate the port clockwise until it stops. Do not force it. If there is too much resistance take the port off, check the O-ring and see that the port or extension are properly seated before attempting to rotate again.

6. Try to rotate counter clockwise to confirm that the port or extension is safely locked on the housing.

7. When using large dome port such as the 6", 8" and 9.25" with an extension, uses of the optional extension ring to port locking collar (# 18469) is recommended, this will add another layer of safety by preventing the larger dome port from rotating during manipulation or transportation to the dive site.
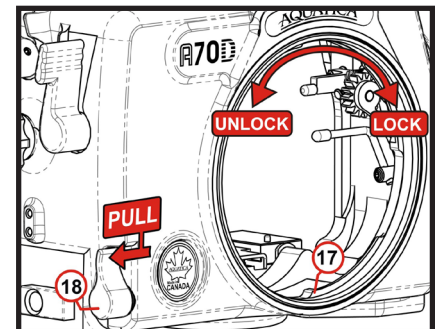
To remove a port or extension from the bayonet, press the port release lever (key #18) and rotate the port or extension counter clockwise, carefully pull the port or extension off the bayonet.

Note: It is recommended that you familiarize yourself with this procedure by trying it without the camera in or the back cover attached to the housing; this to better visualize the internal functioning of the bayonet and port.

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CONNECTING LIGHTING EQUIPMENT

Aquatica housings can be adapted to various types of strobe connectors. This feature conveniently provides your camera system with access to the latest strobes technology currently available on the market.

Standard options available are:

20074-NK: Two Standard Nikonos type 6 pins connectors.

20074-OPT: Two optical fiber connectors with adapter to accept two Sea & Sea angled type cords or two straight type cord (INON).

20074-HYB One Nikonos 6 pins and one Optical connector (to accept either one Sea & Sea elbow type cord or two straight standard Inon optical cords).

20074-KM One Ikelite manual type connector

Mounting the strobe arms will require that the necessary shoes, brackets or Base Ball be attached to the threaded holes located on the top of the hand grips (key # 44). Use of the Aquatica Technical Lighting Control Strobe Arm System is recommended.

Three 1/4"-20 threaded holes on the bottom (key # 46) of this housing can be used for various mounting applications. A similar sized 1/4"-20 hole with thread is located on top of the housing (key # 45), and is ready to accept a Technical Lighting Control 1"/25mm Ball (# 17651) for adapting a small dive light or an additional strobe arm can be attached using a clamp.
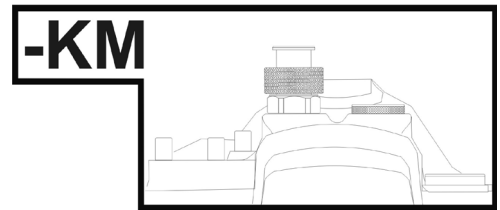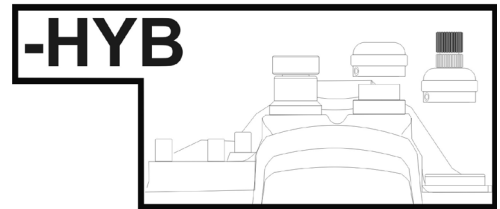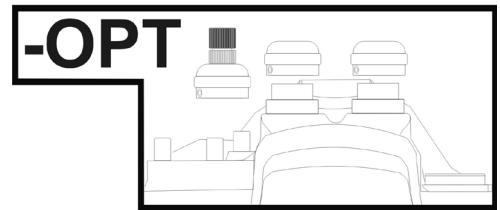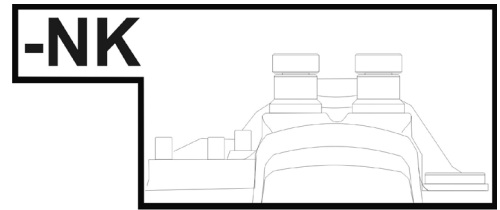

USING WIRED CONNECTORS

Internal switch board circuit:

Aquatica housings are available with electrical type strobe connectors; these come in single or double configuration, and are connected to an internal switchboard inside the housing. The following chapter explains the various options available and the limitation of current underwater strobe technology.

When preparing the sync cord, be sure to lubricate the O-ring on the sync cord's connector with a light coat of the manufacturer original O-ring lubricant, also advisable is to put a light coat of O-ring lubricant on the threads of this connector to help prevent threads from freezing up. Some electrical sync cord are known to use dissimilar metal in their construction, these can create an unwanted electrolytic reaction, if using sync cord with metal fitting, it is recommended that you remove them, and clean and lubricate the thread on a daily basis.
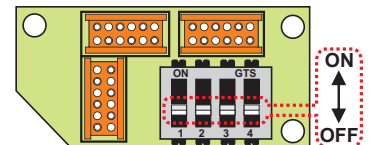
Canon Digital cameras are setup with a flash circuitry that only allows one eTTL flash to be connected directly to the camera, Canon TTL Protocol will not allow two TTL flashes to be electrically connected directly, no matter if it is a Canon flash or any other brand. The multiple flashes approach preferred by Canon prevents additional flashes, or strobes from being connected directly to the camera in eTTL mode, exposure will stop to function and a camera freeze is likely to happen. Two underwater strobes can only be connected electrically if a TTL converter is interfaced between the camera and the strobe. If seeking TTL exposure, Optical triggering is a accurate and inexpensive way to consider (see next chapter)

On your housing you will find either one or two bulkhead connectors, the main connector (on right side) is wired through a switch board that can be configured for full manual flash exposure or setup to be compliant with the latest TTL converter on the market. The secondary connector (left side if installed) is wired in a full manual configuration and cannot be used for eTTL operation. By default you housing is delivered with the switch board set to full manual, if eTTL exposure is desired then it can be made in either of two methods:

1) Using a single flash from Canon or other brand (that is eTTL compatible with your camera) in a dedicated underwater housing connected with a TTL cord to the Nikonos 6 pins main connector of your Aquatica housing.

2) Using an external eTTL converter connected to the main connector of your Aquatica housing, one or two underwater strobes with TTL cords can then be connected to this converter, (check with your dealer or the strobes manufacturer to see if the strobes and converter are compatible between themselves).

Set up instruction for eTTL operation: Using the tip of a pen push all the switches to the ON (up) position, this will activate the connections on your main bulkhead connector allowing TTL communication between the camera and the housed flash or iTTL converter.

Set up instruction for manual operation: All switches must be in the OFF (lower) position, in this case all eTTL connection are disabled and only the ground and sync are left active, this will allow two under water strobes or housed flashes to be connected directly via the main and secondary bulkhead.

USING OPTICAL CONNECTORS

This Aquatica housing can be supplied with optical type strobe connection:

Version –OPT is fully optical, having dual optical type of connection. Included is one (1) dual adapter for typical straight cord used by INON and various other optical sync cords manufacturers and two (2) Sea & Sea/Olympus type of angled cord plug, select the desired connection and install on the optical port base, tighten the set screw into place with the supplied hexagonal wrench.

Version –HYB is supplied with one optical and one Classic Nikonos type of strobe connectors. As well as the Nikonos electrical connector, Included is one (1) dual adapter for typical straight cord used by INON and various other optical sync cords manufacturers and one (1) Sea & Sea/Olympus type of angled cord plug, select the desired connection and install on the optical port base, tighten the set screw into place with the supplied hexagonal wrench.

INON Type Straight cord   Sea & Sea Type angle

To use optical triggering, the built-in flash of the camera need to be in the up position, this can be done at time of installation or later by pressing the flash actuator button (key # 21) to release it.

If ambient light images need to be taken simply push the flash actuator lever (key #22) to close the internal flash.

Note: it is advisable to turn the camera and external strobe off when travelling to your dive site to avoid useless drain of the camera and strobes batteries.
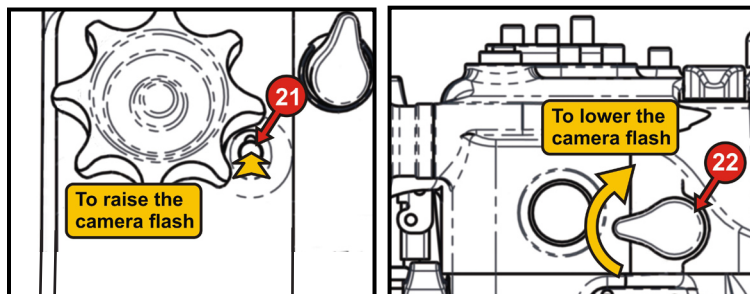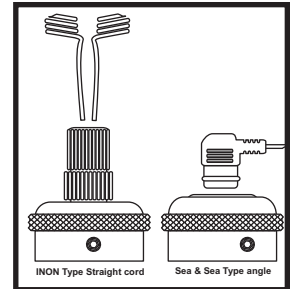
NOTE: Field testing has shown that mixing brands of optically triggered strobes is unlikely to give reliable TTL results, therefore it is suggested that when mixing different makes of strobe, that they be used in manual mode.

On the –HYB version, installing the hot shoe will disengage and prevent the built in flash of the camera from coming up when needed. Tuck the hot shoe and its ribbon wire safely away from the path of the built in flash. Always confirm the raising and lowering of the built flash before entering the water and do test exposure to insure that everything is operating as it should.

TAKING A PICTURE

Following are the basic techniques for taking a picture with the Aquatica housing. For more information and advanced photography, please refer to the Canon 70D instruction manual.

NOTE : It is recommended, in order to save valuable time underwater, to establish a pre dive check list and arrange your setting such as metering pattern, color balance, ISO and exposure mode ahead of time, The Canon 70D does offer a convenient "C" custom shooting mode memory that can register your setting.

1.   Rotate the Mode dial knob (key # 34) and select the desired exposure mode. Options in sequence are:
        Programmed (P), Shutter Priority (Tv), Aperture Priority (Av) or Manual Exposure (M).

        Note: When using underwater strobes, it is recommended that the camera be used only in Single Frame Motor
        Drive to avoid the possibility that the camera could fire before the flashes or strobes can fully recycle themselves.

3.   Push the Metering Pattern button (key# 36) and select the metering system symbol you wish to use in the rear
        LCD panel. select the preferred focusing method using either the AF point selector (key # 28) or AF area selector
        (key # 37)

4.   Pull the Shutter Release Lever (key # 1) partially back. This will activate the camera's meter and autofocus system.

5.   For using manual focus use the Focus Knob (key # 9) or the knob located the side of the flat port or extension to focus the lens.

6.   If using the Manual or Shutter mode adjust the main dial knob (key # 3) or Quick command dial (key # 2) to set the
        exposure.

7.   Pull the Shutter Release Lever (key # 1) the rest of the way until the camera fires.

MAINTENANCE OF HOUSING AND PORTS

USING THE HOUSING

When changing ports or O-rings, a simple seal test without the camera inside should be performed. Strapping a weight to the housing and lowering the unit to a depth of 30 to 50 feet of water for at least 10 minutes will assure you that the seating of the new port or o-ring is proper. This test, though time consuming and often considered unnecessary, may save your camera equipment from irreparable water damage. The housing is now ready for the dive.

CAUTION: Never jump into the water with the housing. It is best to have the system handed to you after you have made your entry, or have it lowered to you on a rope. Make certain that ropes of other equipment stay clear of the system. Never handle the housing by grabbing the port or if using one, the Aqua View Finder, make sure that boat staffer are familiar with this procedure and advise them to manipulate only by using the grips provided with the housing.

When replacing the main sealing O-ring, place the entire O-ring over the O-ring groove and start by pushing the O-ring in the corners. Work your way around the O-ring making sure it is snugly sitting in the groove. Avoid going solely in one direction as doing so will stretch the O-ring material and possibly prevent it from properly seating.

CARE AND MAINTENANCE

TO SERVICE O-RINGS OF THE HOUSING, PORTS AND EXTENSION RINGS

1. Removing an O-ring: It is important never to use a sharp instrument when removing an O-ring as this may damage the sealing surface of the groove or the O-ring itself. A dedicated O-ring tool, a dull pointed object or the edge of a credit card usually works well.

NOTE: the main O-ring in the back of the housing is inserted in an inverted V groove to prevent it from popping out, to remove, use a dull pointed object and insert in the side of the small opening on the lower left hand side of the front part of the housing (illustration at right). Do not use sharp objects or excessive force; this could damage the sealing surface.
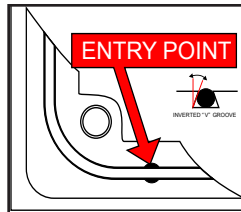
2. Once removed, the O-ring should be inspected for damage. Carefully check that it is free of nicks or cuts and that it retains its original round profile. O-rings that appear to be damaged should be immediately replaced with new ones and the damaged one permanently discarded.

3. Rinse the O-ring with fresh water and dry it with a clean lint free cloth.

4. Clean the O-ring groove (the channel where the O-ring sits) with a cotton swab. Be sure to remove any lint the cotton swab may leave behind. Inspect the groove for damage.

5. Wipe the matching sealing surface part of the housing with a clean lint-free cloth.

6. Lubricate the O-ring with a thin layer of Aquatica O-ring lubricant (# 19213) until it appears to be smooth and shiny. Do not over lubricate. Use just enough lubricant so the O-ring will pull smoothly through your fingers. Excessive amounts of grease will only serve to attract and trap dirt onto the o-ring.

7. Confirm that the Port and extension ring O-rings are properly and evenly seated in their O-ring groove.

8. To reinstall the clean and lubricated main O-ring of the housing, first place the entire O-ring over the groove and start by pushing the O-ring in at each corner then, push the O-ring at each side and finally, work in the rest of the O-ring. Never start at one end and work your way around the O-ring. This places uneven tension on the O-ring which may cause the O-ring to stretch resulting in excess O-ring, which will have no place to go.

The internal O-rings on the housing controls are not user accessible, while these O-rings are not as susceptible to damage as they are not exposed, rinsing properly with fresh water to flush out salt crystals and sand residues will be the proper way to assure trouble free operation, Aquatica recommended yearly maintenance of the internal O-ring. Authorized service center, both the continental USA and Europe, are available to the users for this service. Prior to sending the housing, always check for the closest service center to you on our website www.aquatica.ca

WARNING: Use only petroleum free O-ring lubricant such as our # 19213 Aquatica O-ring Lubricant, petroleum based lubricant, used by some manufacturers for lubricating their Silicone made O-rings can and will cause the O-ring material to swell, this will render the O-ring difficult to install and likely will result in the O-ring being damaged or pinched with dire consequence.

 # 19213 Aquatica Lubricant for O-ring

## Care and Maintenance of the housing mechanical components:

After each and every salt water dive, your housing system requires that it be soaked and/or rinsed in fresh water. it should soak in fresh water for a minimum of 30 minutes. while soaking, reach into the water and operate all the controls several times to dislodge any trapped salt water residues.

Remove the hand grips for storage and transportation to avoid having the thread of the attachment bolts fuse on to the housing. Unscrew, clean and lubricate the bolts with a small amount of WD-40 or Zinc based lubricant.

WARNING: Use WD-40 or any lubricant carefully, sparingly and only on metal to metal surfaces. WD-40 or other petroleum based lubricant can damage the acrylic on the ports, the optical surfaces of a lens or O-rings.

Of the Latches:

The latches (key #49) on the AQUATICA Digital are provided with a locking action tab (key #50) to prevent accidental opening. Always ensure that the locking tab mechanism is secure. Watch for the build-up of corrosion or salt residue around the latches. This will appear as a white crusty material. Clean frequently with a stiff brush (such as a toothbrush) to remove the corrosion or salt residue build-up and periodically lubricate these latches with a small amount of WD-40.
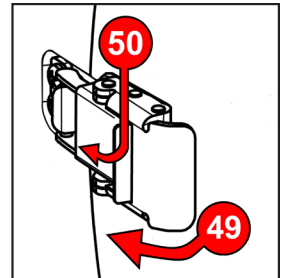
Of the sacrificial anodes:

The two anodes (key #48) attached to the bottom parts of the housing are there to prevent corrosion due to electrolysis, as time goes they will deteriorates and need replacement, contact your dealer acquiring for replacement ones (parts # 19220).
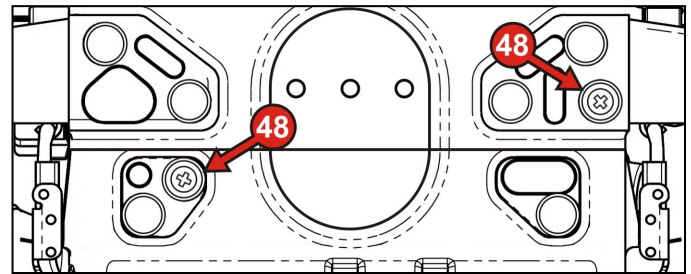
Of the Ports:

Your ports are part of the optical formula of your underwater photographic system; As such they should be treated with the same attention as the delicate camera lenses you own. Care should be taken with the Dome Port and Macro Port to avoid scratches on the lens surface. The acrylic port is softer than glass so minor exterior marks are often unavoidable. However, since the indices of refraction for acrylic and water are almost identical, the scratches should not seriously impair image quality. Internal scratches (air side) must be avoided as they do not fill in with water and can affect the quality of the image.

Clean the dome and macro port lenses using only products recommended for the type of material they are designed for.

Clean the dome lens with a soft lint free cloth. Dust on the interior surfaces of the port can be removed with a soft camel hair brush or a blower brush. Caution must be taken when using aerosol devices as not to spray the lens material with the liquid propellant as this may seriously affect the optical properties of the port. Use of pressurize air from a dive tank is not recommended, the force of the air stream may easily dislodge a port lens or its sealing O-ring, It is advisable that ports should be removed and their O-ring serviced after every dive.

STORAGE AND TRANSPORTATION OF HOUSING AND PORTS
Store and transport the housing in a sturdy, shock proof container and avoid travelling with the camera mounted inside the housing. In the event of an impact, especially on the external push buttons, this could potentially be transferred to the camera controls and damage them.

When travelling by air or in situation where atmospheric pressure changes are foreseen, remove the port, the eye piece or open the housing. Doing so allows equalization of the air pressure inside the housing with the external one. Failure to do so may cause internal pressure built up which could potentially force ports or acrylic windows to pop out or potentially unseat their O-ring seal.

Aquatica A70D
For Canon 70D

AQUATICA ™
Digital

System Chart

AQUATICA
Made in
CANADA

Replacement Viewfinder
19218 **INCLUDED**

Aqua View 45° Finder
20059

Aqua View Finder
20054

Protective Hard Case
19216

19303

BULKHEAD SELECTION*
20074-NK 20074-OPT 20074-HYB 20074-KM

A70D
AQUATICA

Moisture Alarm

Hydrophone
19221

Canon Type 2 Lens Chart

Light Baffle
18472

18849
Maintenance O-ring Kit

Rebuilt O-Ring Kit 18850

Sacrificial Anodes
(4 x anodes and screws)
19220

Deep Rated spring kit
19217

* Bulkhead connections

20074-NK   Double Nikonos connectors
20074-OPT Double Optical connectors
20074-HYB One optical & one Nikonos connectors
20074-KM   One Ikelite 2 pins connector

(to know more about connectors refer to our website at www.aquatica.ca)

18464 & 18465

Focus gear included with these extensions

18456 **18463** **18453** **18462** **18457** **18458**

PORT EXTENSION RINGS

18469
Extension to Port locking collar

18410
4" Mini Dome 100
INCLUDED 18508 Neoprene Cover

18429
AF Macro Port Low Profile
INCLUDED 18508 Neoprene Cover

18428
AF Macro Port
INCLUDED 18505 Neoprene Cover

18407
9.25" Mega Dome
INCLUDED 18506 Neoprene Cover

18405
8" Dome Port

18409
6" Dome Port

18500
8" Neoprene Dome Cover
INCLUDED

18502
6" Neoprene Dome Cover
INCLUDED

18480
8" Dome Shade

18484
6" Dome Shade

18503
8" Neoprene cover for dome shade

18504
6" Neoprene cover for dome shade

18426
AF/MF Macro Port
INCLUDED 18505 Neoprene Cover

Canon Type 2 Lens Chart

19351 Close up lens holder

19352
+5 Close Up lens

19353
+10 Close Up lens

19350 Close Up Kit Includes: holder, +5 & +10 close up lenses

www.aquatica.ca

AQUATICA
Digital

AQUATICA™
Digital

WARRANTY

PLEASE READ CAREFULLY

One year Limited Warranty.

Thank you for purchasing an AQUATICA manufactured product! Your AQUATICA housing is handcrafted by a small group of specially trained individuals - each of whom takes the most pride and satisfaction in offering you the best underwater camera housings in the world. All AQUATICA products are guaranteed against defects in material or workmanship for (1) one full year from the date of purchase for consumer use. these same products when used commercially will carry a 90-day warranty. No statutory warranty applies. Camera housed in AQUATICA housings are not covered under this warranty and ANY WATER DAMAGE SUSTAINED DUE TO INSTALLATION ERROR OR ANY OTHER REASON IS NOT THE RESPONSABILLITY OF AQUATICA. Therefore the appropriate insurance should be maintained by the user.

Warranty does not apply to replaceable seals or damages to impacts or abrasive surfaces. Warranty applies only to products purchased from authorized AQUATICA dealers and does not extend beyond the original retail purchaser. Unauthorized modifications or repairs will automatically void this warranty. this applies to removal of serial numbers and AQUATICA identification labels.

To obtain service during or after the warranty period you must notify AQUATICA at 514-737-9481
and ship BY REGISTERED MAIL (INSURED) **ONLY**, enclosing your proof of purchase to:

AQUATICA
3025 De Baene
Montreal (Quebec)
H4S 1K8

Mark clearly on your package "Canadian goods returned for repair"

Do not ship by any other means.
Unauthorized packages will be refused.

YOUR SERIAL NUMBER_____