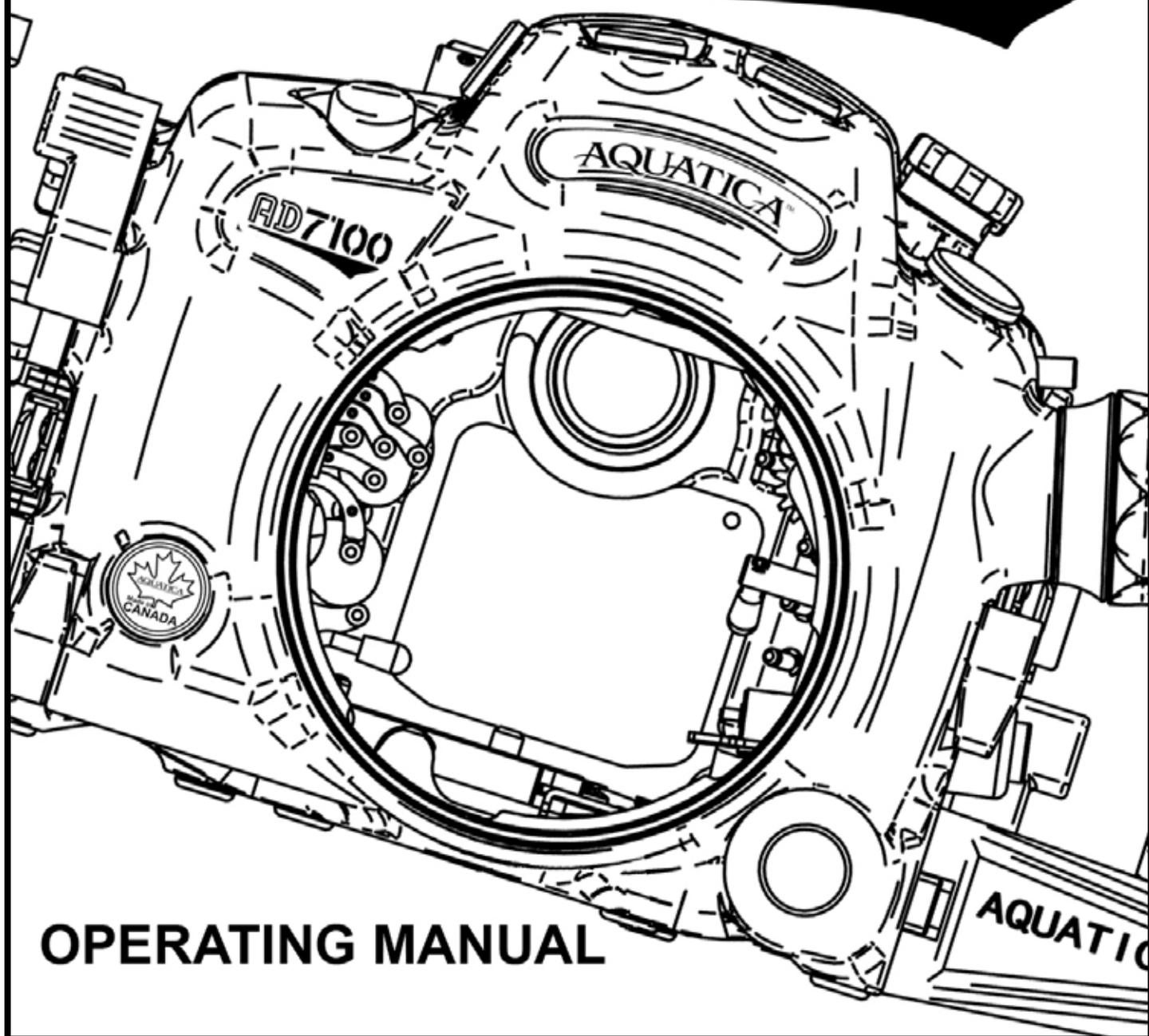


AQUATICA™

Digital

AD7100



OPERATING MANUAL

AQUATICA

FOREWORD

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

The AQUATICA AD7100 Digital Housing is the result of a long and continuing relationship with the most demanding underwater photographers in the world. Each housing is machined from solid aluminum on the best 5 axis computerized machine for the highest level precision, it is then hand finished, quality checked and pressure tested to a 90 meters/300 feet equivalent by a small group of specially trained individuals, each of whom takes the utmost pride and satisfaction in offering 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 essentials functions and controls of the Nikon D7100 DSLR.

This manual assumes that the user is already familiar with the Nikon D7100 camera. If not, please read the Nikon instruction manual before attempting to use the housing.

With basic care and maintenance, your AQUATICA housing will give you a lifetime of enjoyment and satisfaction in producing underwater images.

Please read this manual carefully before using your housing for the first time and note that: wherever cited the right hand is your right when using the housing.

SAFETY PRECAUTIONS:

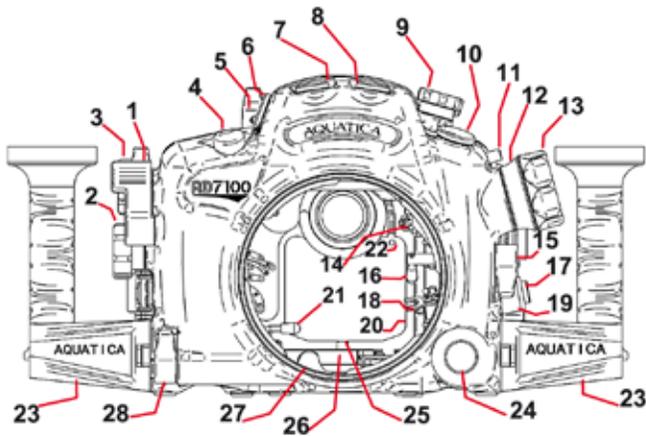
Improper transportation handling or use of this housing might cause a flood or malfunction.

Please read and follow the following precautions:

- Store and transport the housing in a sturdy, shock proof container and avoid travelling with the camera mounted inside the housing as impact forces especially on the external push buttons will be transferred to the camera.
- When travelling by air, either remove the port or open the housing, internal pressure built up can push port out of their sealing surface.
- Never change a port or open the housing in a location where sand or similar foreign material might come in contact with an O-ring.
- Use of accessories, modifications or alterations unauthorized by the manufacturer may result in flooding or poor functioning of the controls.
- Be careful when opening the housing as possible pressure buildup inside the housing could exaggerate the force of the latch spring. Keep fingers away from the path of the latches.
- Whenever changing ports or O-rings, perform a simple seal test without the camera inside.
- Take extra care to avoid scratching the acrylic, glass ports and windows, handle these as you would your camera lenses.
- Make sure that all ports remain properly attached before rinsing the housing, especially when rinsing without a strobe make sure the wired bulkheads connectors, if you are using this type of connectors are sealed with their supplied plug. (Optical type connectors are water proofed)
- Never attempt to operate the camera in autofocus mode with standard (NON AF-S type) lens which have a mounted focus gear engaged with the housing focusing gear mechanism.
- The main O-ring seal should be maintained and cleaned on a regular basis. Read and follow the Care and Maintenance section on this manual.
- Ensure that the spring loaded secondary lock is properly engaged on the latches to prevent their accidental opening.

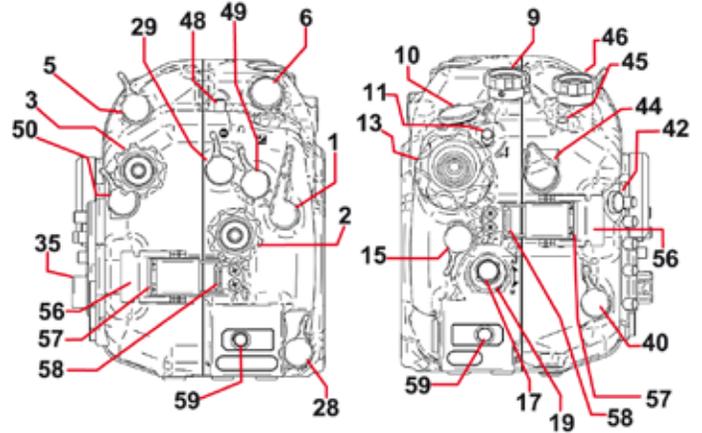
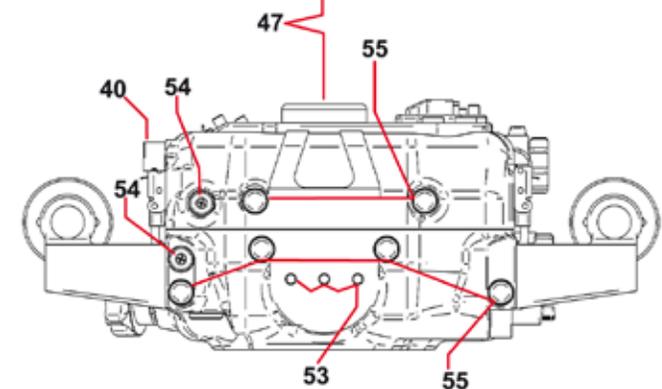
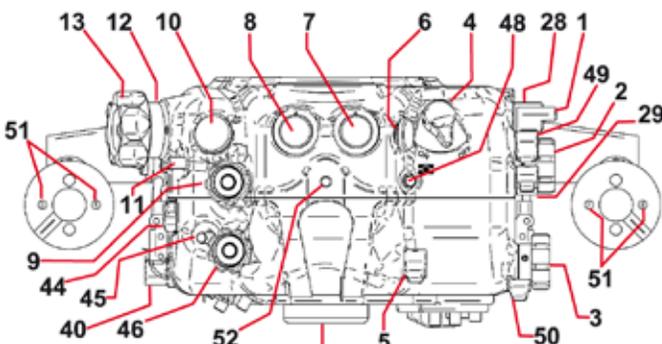
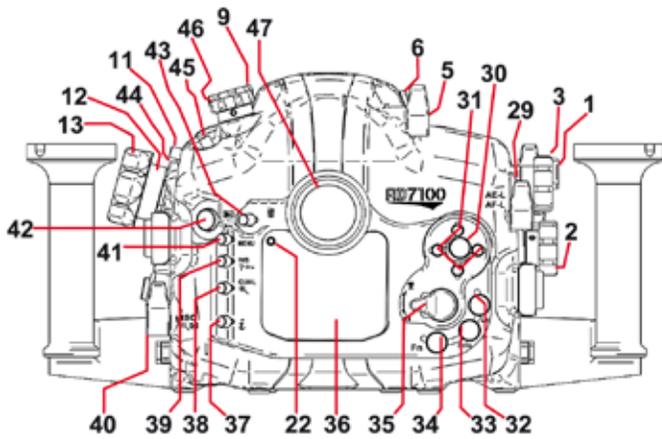
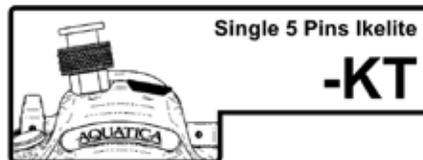
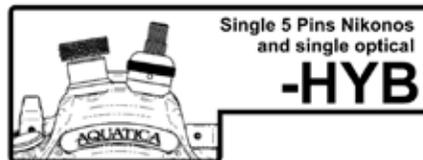
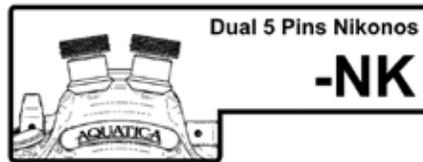
AQUATICA™

Digital



AD7100

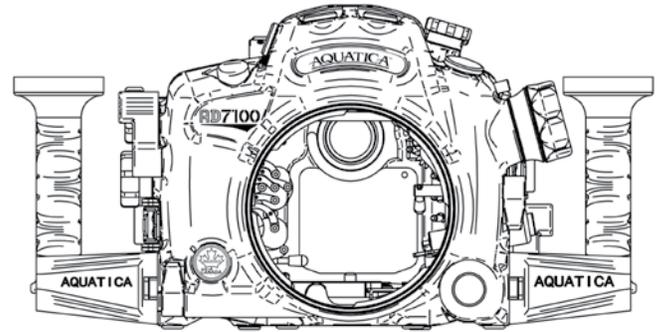
STROBE CONNECTORS VARIANTS



AQUATICA™

AD7100

- 1- Shutter Release lever
- 2- Sub-Command Dial knob
- 3- Main Command Dial knob
- 4- Power Switch/Illuminator lever
- 5- Internal Flash lowering lever
- 6- 0.5" Accessory access hole
- 7- 0.5" Strobe connector/Accessory entry point
- 8- 0.5" Strobe connector/Accessory entry point
- 9- Release Mode access knob
- 10- 16mm Accessory access point
- 11- Internal Flash up/ Flash Mode & Compensation button
- 12- Focus/Zoom pinion gear release disk
- 13- Focus/Zoom Control knob
- 14- Focus/Zoom Control pinion gear
- 15- Lens Release knob
- 16- Lens Release knob lever
- 17- AF mode selector button
- 18- AF mode selector actuator
- 19- AF/M Focus Mode Selector Knob
- 20- AF/M Focus Mode Selector fork
- 21- Fn (Function) toggle lever
- 22- Moisture Alarm LED receptacle
- 23- Grips (x2)
- 24- 0.5" Accessory access hole
- 25- Camera mounting screw
- 26- Quick release tray
- 27- Bayonet Flange
- 28- Port Release mechanism Lever
- 29- Movie Record button actuating lever
- 30- Multi Selector center / (OK) Button
- 31- Multi selector buttons array
- 32- Live View actuating button
- 33- INFO activation button
- 34- Fn (Function) button
- 35- Live View Mode selector lever
- 36- Rear LCD window
- 37- *i* Button
- 38- Quality/Size & Zoom in button
- 39- White Balance/Protect/Help Button
- 40- ISO/Playback Zoom out/ reset button access lever
- 41- Menu button
- 42- Playback button
- 43- Delete button/Format button
- 44- Mode Dial unlock lever
- 45- Release Mode unlock button
- 46- Mode Dial
- 47- Removable Pick Up Finder
- 48- Metering Pattern Selector/Format button
- 49- Exposure Compensation button access lever
- 50- AE-L/AF-L & AF-ON lever
- 51- Grip's Accessories mounting holes (1/4"-20)
- 52- Top accessory mounting hole (1/4"-20)
- 53- Bottom accessories mounting holes (1/4"-20) (x3)
- 54- Sacrificial Anodes (x1)
- 55- Rubber Anti Skid pad
- 56- Locking Latches (one per side)
- 57- Safety locking tab (one per latches)
- 58- Latches strikes (one per side)
- 59- Mounting holes for grips



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 for it.
- 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
- KT** Provided with a single Ikelite connector. TTL is possible if using the # 4301 Ikelite TTL converter and appropriate strobes

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) SUB-COMMAND INPUT / APERTURE KNOB: Rotates clockwise and counterclockwise. Use alone or in combination with other controls to select or set various camera functions or modes. In "Manual" the exposure mode controls the aperture settings See tips 3, 4 & 5, page 11..

3) MAIN-COMMAND INPUT KNOB: It rotates clockwise and counterclockwise. It can be used alone or in combination with other controls to select or set various camera functions or modes. Refer to camera manual for in depth use. See tips 3, 4 & 5, page 11.

4) POWER SWITCH KNOB: Rotate to switch camera on or off.

5) INTERNAL FLASH LOWERING LEVER: Push to close internal flash of the camera. *Used with on-OPT or -HYB type of housing only.*

6) 0.5" ACCESSORY ACCESS HOLE: A standard 1/2" plugged hole for receiving accessories such as a remote cord or other wired accessory.

7) 0.5" ACCESSORY & STROBE CONNECTOR ACCESS HOLE: will accept electrical or optical strobe connector, or can be used for additional accessories. See section on strobe connections for further details.

8) 0.5" ACCESSORY & STROBE CONNECTOR ACCESS HOLE: will accept electrical or optical strobe connector, or can be used for additional accessories. See section on strobe connections for further details.

9) RELEASE MODE DIAL ACCESS KNOB: This knob rotates the release mode dial. To rotate the dial, the locking button (key # 44) must be pressed down.

10) 16mm ACCESSORY ACCESS HOLE: A metric 16mm plugged hole for receiving accessories such as external monitor or other wired accessory.

11) INTERNAL FLASH UP BUTTON: push to get the internal flash of the camera in up position (used with -HYB and -OPT type of housing)

12) FOCUS/ZOOM PINION GEAR RELEASE DISC: A release disk is provided to disengage the knob should you want to use a non AF-S lens in autofocus or when you wish to remove the camera from the housing with lens attached.

13) FOCUS/ZOOM KNOB: Turning the knob allows manual focus of a prime lens or rotation of the zoom mechanism of a lens.

14) FOCUS/ZOOM PINION GEAR: Engages and operates the focus or zoom gear attached to the lens.

15) LENS RELEASE LEVER: activates the lens release button on the camera allowing easy removal of the lens.

16- LENS RELEASE INTERNAL KNOB LEVER: Applies pressure on the camera lens lock button

17- AF FOCUS MODE SELECTOR BUTTON: Press to select between AF-A, AF-C and AF-S or for 3D, Auto, single or multiple point focusing. Use main command or sub command knob to choose options.

18- AF FOCUS MODE SELECTOR ACTUATOR: Presses on the AF Mode button of the camera.

19- AF/M SELECTOR KNOB: rotate to select between auto or manual focus

20- AF/M FOCUS MODE SELECTOR FORK: Engages the focus AF/M selector of the camera.

21- FN TOGGLE LEVER: When pressing Fn button on the back of the housing (key #34), this activate the Fn button. This button is highly customizable for both still and video features.

22- MOISTURE ALARM LED RECEPTABLE: For receiving the LED of the optional moisture alarm.

23- GRIPS (X2): Left and right grip allowing the mounting of strobe arms and accessories.

24- 0.5" ACCESSORY ACCESS HOLE: A standard 1/2" plugged hole for receiving accessories such as a remote cord, Hydrophone or other wired accessory.

25- CAMERA MOUNTING SCREW: Used to attach camera to quick release tray.

26- REMOVABLE CAMERA TRAY: Holds camera in place and slide in housing, allowing easy battery replacement.

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

28- PORT RELEASE MECHANISM LEVER: pull to release the locking mechanism when installing or removing a port or extension.

29- MOVIE RECORD BUTTON ACTUATING LEVER: Pull to start recording video, pull again to stop, works in conjunction with Live View mode selector (key # 35).

30- MULTI SELECTOR CENTER/OK BUTTON: Press to engage the selection or use Custom Setting Menu for different options.

31- MULTI SELECTOR BUTTONS ARRAY: These buttons have multiple uses. They allow the selection of the focus area, in the menu mode, they are used to scroll up or down and left to right to choose from your menu selection and they are used as well in the delete mode. To accept a selection press the center button (#30).

CONTROLS IN DETAIL, CONTINUED

32- LIVE VIEW BUTTON: push to activate the Live View function of the camera.

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

34- FN ACCESS BUTTON: press to engages the Fn button, this button is highly customizable for both still and video features.

35- LIVE VIEW MODE SELECTOR LEVER: Toggle to select between the LIVE VIEW mode for still or movie.

36- REAR LCD WINDOW: Allow viewing of menus, information and images.

37- *i* & RETOUCH BUTTON: Press for changing setting on information display and LV / Movie recording, use in conjunction with subcommand dial (Key #3) to select mode and/or main dial controls (Key # 2) to the select attributes of the selected mode.

38- QUALITY/SIZE & ZOOM IN BUTTON: Press to access the different image quality available on the camera; use in conjunction with main and/or sub command dial control knobs. In playback mode, this button is used for zooming in.

39- (WB) WHITE BALANCE/PROTECT/INFO : Press to access white balance functions, use in conjunction with subcommand dial (Key #3) to select mode and/or main dial controls (Key # 2) to the select attributes of the selected mode, in Playback this button is used to protect by locking an image.

40- ISO/ZOOM OUT ACCESS LEVER: Pull to engage the ISO button, select ISO using the Main Command knob (#3) in playback mode use to zoom out in images and access thumbnails

41- MENU BUTTON: Press to activate menu display, scroll using the multiple selector buttons array and select using OK button.

42- PLAYBACK BUTTON: Press to view images recorded on memory cards.

43- DELETE/FORMAT BUTTON: Press to delete images from memory cards, use multiple selector buttons array to select and press the enter button to delete, can also be used in conjunction with the Metering mode selector button (Key #48) for formatting the cards inside the camera.

44- MODE DIAL UNLOCK LEVER: Engage to unlock the mode selector button (Key 46),

45- RELEASE MODE DIAL SELECTOR UNLOCK BUTTON: This button unlock the release mode dial so it can be rotated, with the release mode dial knob (# 9)

46- MODE DIAL KNOB: Rotate to select the desired exposure mode.

47- REMOVABLE PICK UP FINDER: A full view of the illuminated camera viewfinder displays all necessary information. This viewfinder can be removed and replaced with the optional Aqua View 180 Finder (# 20054) or Aqua View 45 Finder (# 20059) for a larger displayed image or more comfortable shooting position.

48- METERING PATTERN SELECTOR / FORMAT BUTTON: Press to select the metering mode by rotating the main command dial (key #3), options are: Spot, Center Weighted or Matrix metering (see also shooting tips #5, page 11). Press at the same time as the delete button (key #43) to format media card

49- EXPOSURE COMPENSATION LEVER: Pull to engage the Exposure compensation control [+/-]. Rotate the Main-Command knob to set the desired exposure compensation value. The value will appear on the rear LCD panel and in the Viewfinder. (see also shooting tips #5, page 11) This button, when pressed along with the ISO Lever engaged (key # 40), will reset the camera shooting parameter to its default position.

50- AE / AF & AF-ON LOCK LEVER: Lock the auto focus / auto exposure or engages the CSM features you have chosen according to your preferences.

51- GRIP'S 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.

52- TOP MOUNTING HOLE FOR ACCESSORY: 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.

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

54- SACRIFICIAL ANODES: Zinc anodes are installed for protecting your housing against salt water corrosion; These anodes are made to deteriorate faster than the other strategic metal part of your housing, hence the name sacrificial anodes. These will need to be replaced by the user as needed.

55- RUBBER ANTI SKID PADS: rubber pads are provided to protect the housing and preventing it from sliding on wet decks.

56- LOCKING LATCHES: Heavy duty latches (one per side) with safety locks to protect against accidental opening.

57- SAFETY LOCKING TAB: Push safety tab and lift latches to open.

58- LATCHES STRIKES: Hooks up to the safety latches.

59- MOUNTING HOLES FOR GRIPS: Threaded 5/16" holes for mounting grips (#23). See care and maintenance section.

FEATURES

The Aquatica Digital AD7100 housing is issued from the world's most technologically advanced underwater housing lineage, it is ergonomically designed to place all the essential camera controls at your fingers tips and features the following:

- A. A port locking mechanism to prevent accidental rotation of the port or extension mounted on the housing
- B. A Lens Lock Release control that will activate the lens release button of camera from the outside of the housing.
- C. A quick release tray, allowing fast and easy removal of camera with lens and gear attached to the camera body.
- D. Large ergonomic and easy to operate controls for the manual and computerized camera functions.
- E. The industry most flexible strobes connector selection; options includes standard Nikonos, Classic Ikelite electrical connections, optical connections for the Inon and Sea & Sea optical sync cord. An internal switchboard allows full manual or TTL exposure with electrical sync cord (when a compliant TTL converter is attached); S-TTL is available when using the proper strobes and optical fiber cords.
- F. The Aquatica AD7100 Pro Digital offer exclusive access to all controls and buttons found on the camera. Special emphasis was made to give the user easy access to the following controls underwater:
 - Mechanical shutter release.
 - Movie Record via a dedicated lever
 - Shutter speed through the Main-Command Dial
 - Aperture through the Sub-Command Dial
 - ISO sensitivity value via a dedicated lever
 - Fn access via a conveniently dedicated press button
 - Live View mode
 - Multi Selector array
 - Focus / Zoom
 - AE-L/AF-L & AF-ON access
 - LCD panel illumination & information display.
 - Metering pattern selector
 - Exposures Compensation
 - Focus Area Selector
 - Delete button access
 - Live view access
- G. A comprehensive selection of bayonet mounted ports including the 4", 6", 8" and 9.25 diameter domes, three flat ports and various extension rings. These are of manufactured from the finest optical material in order to preserve the image quality of your Nikon Mount AF lenses. Adapter rings will also allows other brands of ports to be used with an Aquatica port adapter.
- H. A large selection of lens gears and related accessories.

PREPARATION OF THE HOUSING

1. Attaching Grip to the housing:

The housing comes with two grips which should be installs on the sides of the housing with the supplied bolts and hexagonal key wrench. It is strongly recommended to occasionally remove the grips and lubricate the screws (see Care and Maintenance: of the housing.)

1/4"-20 threaded holes are located on the top of the hand grips (# 51) to accept bracket for most popular strobe arm system you are using. The Technical Lighting System strobe arm system which has been developed exclusively for the Aquatica housings is highly recommended as it integrates seamlessly with the AD800 housing.

Additionally, there are three 1/4"-20 threaded holes on the bottom of the housing (# 53) that can be used for various mounting application including a tripod. And a 1/4"-20 threaded hole on the top rear half of the housing (# 54) for mounting accessories such as a focus assist light or TTL converter bracket.

Mount your strobe arm on the housing and connect the sync cord to the housing's strobe connectors as per your strobe manufacturer. If using electrical sync cord, be sure to read the section regarding the care and maintenance of the O-rings.

2. Lubricating the Main O-ring Seal:

Before use, carefully inspect the Main O-ring seal in the groove on the front half of the housing to confirm that it is free from scratches or foreign material. Lubricate the O-ring with a light coat of Aquatica O-ring lubricant.

When replacing a Main O-ring, first place it over the O-ring groove and start by pushing the O-ring gently from different corners at a time. Work your way around the O-ring making sure the O-ring is snugly sitting in the groove.

For proper handling and maintenance of O-rings please refer to the section titled "Care and Maintenance: of the O-rings."

PREPARATION OF THE PORTS

1. Select the correct port:

Once you have selected a type of photography for the upcoming dive, you will be installing either a flat Macro Port (product # 18426, 18428 or 18429), or a Dome Port (Product # 18405, 18407, 18409 or 18410). Refer to the Nikon Type 4 lens chart for the suggested port and accessories required for the lens you choose.

Port Extension Rings serve two purposes, in macro photography they are used for physically adapting a lens to a port, in wide angle photography they are used for matching the optical center of both lens and dome port as closely as possible.

Macro Port Extension Rings:

Both the Macro Ports 18426 and 18428 will accept the AF-D & AF-S Micro-Nikkor 60mm lens without extension. If you intend to use a longer lens such as the 105mm you will require an additional extension ring. These extension rings are inserted between the Macro Port and the housing and provide the extra space necessary for the longer lens.

Dome Port Extension Rings:

With wide angle or most zoom lens, the Dome Port may require the uses of an extension ring. These extension rings are inserted between the dome port and the housing and are intended to match, as closely as possible, the optical center of both the dome port and the lens.

Dome Shade:

Of the four dome ports available, the (# 18410) 4" Minidome and the (# 18407) 9.25" Megadome are provided with integrated shades built in, the (# 18409) 6" & (# 18405) 8" acrylic dome port have removable optional dome shade, these two domes are excellent choices, if planning on using a circular fisheye lens, with normal rectilinear wide angle lenses, to reduce glare, maximize the contrast and offer a physical protection to the dome, the use of a dome shade and its neoprene cover is highly recommended.

A comprehensive list of the lenses supported and their required extensions and/or accessories, is supplied along with this manual. Due to constantly changing selection of lenses, it is recommended that you visit our website on occasion to have access to the latest updated version of the Nikon Type 4 lens chart at www.aquatica.ca

2. Cleaning the port:

Dirt, grease or fingerprints on the port, especially on the inside surface, can adversely affect the quality of the image. Acrylic ports should be cleaned with plastic or acrylic safe cleaner and the glass ports should be cleaned with proper optical lens cleaner. For more details please read section titled "Care and Maintenance: of the Ports."

3. Lubricating the port O-ring seal:

Before using the port, remove the O-ring on the rear of the port and lightly coat it with Aquatica O-ring Lubricant. For more details please read the section titled "Care and Maintenance: of the O-rings."

PREPARATION OF THE LENS

There is a large number of gears and lens options available. Using the right gear and correctly mounting it on the lens is primordial for a smooth housing operation. Follow the installation directions included with each gear carefully. Since the aperture control on the Nikon D7100 is achieved through the Sub-Command Dial, the use of AF types of lenses is mandatory.

A comprehensive list of the lenses supported and their required gears is supplied at the end of this manual. For the latest updated version of this lens chart, you can refer to the latest Nikon Type 4 Lens Chart at www.aquatica.ca

Notes: If the camera is set in manual focus a focus gear must be mounted on the lens. If you are using a zoom lens with a zoom ring the camera must be on auto focus, also note that if using a dome port you may be required to install a close up diopter on the lens to correct the minimum focusing distance of the lens so that close focusing on the virtual image created by the dome is possible. The Nikon Type 4 lens chart will inform you if of the suggested diopter for your lens/port combination and if one is needed.

GEAR INSTALLATION:

Mount the focus gear over the focus ring of the lens.

(a) For Slip-on gears (gears without mounting screws): Slide the gear over the lens and align the gear with the front of the lens focusing ring.

(b) For gears with set screws: Lightly tighten the set screws evenly. Tighten each screw in small increments (approximately a quarter turn each) working around the gear until all the screws are properly tightened and the gear is concentric with the lens body.

CAUTION: Do not over-tighten these screws, as this might bind the lens, thus restricting the rotation of the focus ring and/or damaging the lens. Conversely under-tightening these screws might cause the gear to slip or loose alignment.

Rotate the focus ring several times to make sure it moves smoothly and the gear does not slip before closing the housing

WARNING: If the lens is a not of the AF-S type, never attempt to operate it with the camera in autofocus mode and with a mounted focus gear engaged. This might cause serious damage to your camera or to the lens. With standard AF lenses switch from manual to auto focus by lifting the focus knob and the under laying disc (#12) rotate and position it so as to disengage the focus gear mechanism, then switch the AF/M lever (# 19) to AF position. Also avoid travelling with the zoom/focus gear attached as any impact will be directed at the sensitive zoom or focus mechanism

Zoom lenses: When using a zoom lens, the gear should be mounted on the zoom ring of the lens. The Focus/Zoom knob (#13) then control the zoom gears on the lens. Focusing of lens is achieved by using the camera's autofocus system or by a dedicated port extension, the # 18426 Macro port is equipped with a focusing knob on its side that gives manual focus access to macro lenses equipped with the proper gear.

CAMERA PREPARATION AND INSTALLATION

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

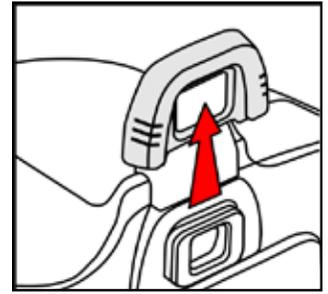


Illustration # 1

1- Remove the quick release tray (# 26) from the housing by pressing down 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 (# 25). Tighten the mounting screw securely while ensuring that the camera position is not altered.

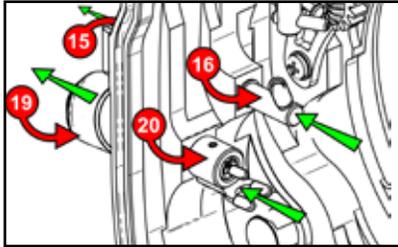


Illustration # 5

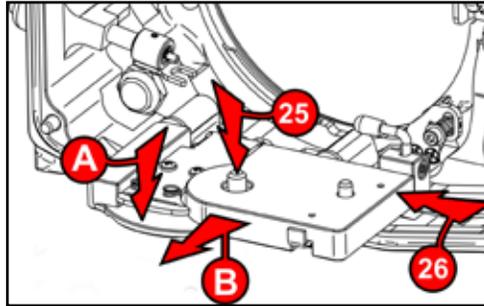


Illustration # 2

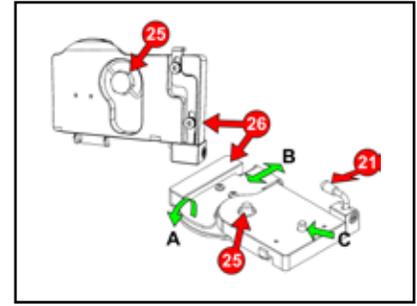


Illustration # 3

2- Pull out the lens release lever (#16) and the AF/M knob (# 18) clear as per illustration # 5

3- The ON / OFF control (# 4) of the housing should be in the ON position on both the housing and camera, as per illustration # 4.

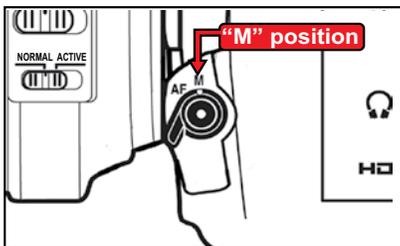


Illustration # 6



Illustration # 4

4- Position the AF/M lever (# 19) on the side of the camera to M (as per illustration # 6) and align the fork of the AF/M actuator (# 20) accordingly.

5 - 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.

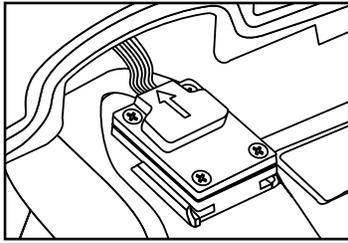
6- Slide the quick release tray (# 26) back into place, it will lock itself into place.

7- Test the Fn toggle by pressing the button (# 34) and tactivate he AF/M lever (# 19) to confirm that they are properly aligned and working smoothly.

8 - Before closing the rear, proceed to the next chapter “**CLOSING PROCEDURE OF THE HOUSING**”

CLOSING PROCEDURE OF THE HOUSING

Once the camera is secure on the saddle inside the front half of the housing, simply:



1- If using wired connection for the strobes, slide the housing's hot shoe connector onto the hot shoe base of the camera as seen in drawing at right.

2- If using optical connectors, make sure your built in flash on the camera is free of obstruction and can go up. Confirm its operation before immersing the housing.

With the -HYB version; if using optical, do not install the hot shoe on the camera as this will cancel the built in flash of the camera and prevent it from coming up.

Before closing the housing always confirm that:

1- The main O-ring on the front half of the housing is clean, lubricated and properly seated for a positive seal.

2- The sealing surface on the rear half of the housing is clean and free from any scratches or physical damage.

3- All cords, wires and the rubber flap of the microphone cover are tucked in such a way as to prevent interference with the closing of the housing and its sealing integrity.

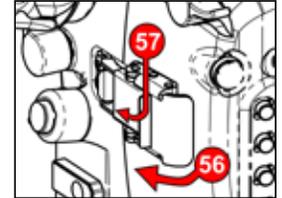
To close the housing simply:

a) Join the front and rear halves of the housing using the two dowel pins at the bottom of the housing as a guide.

b) Hold the housing with both hands and look around the sealing surface to ensure that the O-ring is properly seated and that no cords, wires, rubber cover or "D-rings" are caught between the edges.

c) Close the two side latches (# 56) simultaneously and verify that the locking tab is engaged. To open reverse the process, push on the locking tab and lift the latches being careful of your fingers.

d) Always verify that the safety locking mechanisms (# 57) of the latches are properly engaged prior to entering water to avoid any accidental opening.

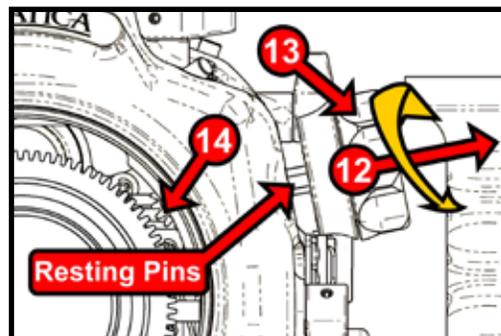


CAUTION: if you feel any resistance as you attempt to close the latches, do not force the closure. Check for any obstructions and try again.

LENS INSTALLATION

With the camera inside the housing, first disengage the pinion gear (#14) by pulling and rotating the disc (# 12) under the focus/zoom knob into the up position, install the lens prepared with its gears through the port opening in the front of the housing. If using a gear always confirms that it is properly installed and aligned on the lens. Once installed, release the disc (key # 12) and rotate the focus / zoom control knob (Key # 13) to ensure that the gears are properly meshed, that their rotation is smooth and that it does not do not grind or bind.

Note: To avoid damaging the auto-focus mechanism of the camera when using standard AF-D type lenses, you should always set the Focus Control to "M" Manual for testing the proper meshing of focusing gears. This procedure is not required with AF-S type lenses.



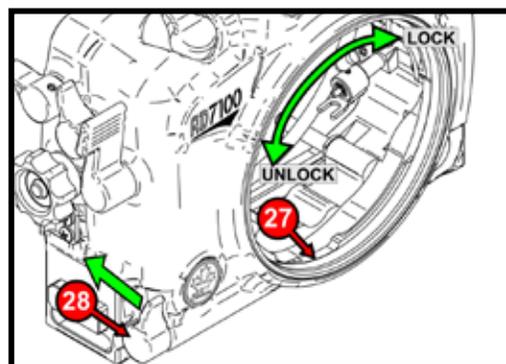
MOUNTING THE PORT

Before mounting the port on the housing always ensure that the port O-ring is clean, lubricated and properly seated in its groove and that the sealing surface on the housing is clean and free of physical damage.

The AQUATICA AD7100 Digital Housing System features a bayonet mount (# 27) equipped with a locking mechanism (# 28). If there is already a port or extension mounted on the housing and you wish to remove it, simply pull the lock lever (# 28) until it stop, rotate the port counter clockwise and carefully pull out, and put it aside in a safe place with the port lens delicate surface protected.

To mount the port or extension ring simply:

- 1- Place the housing on its back on a soft steady surface.
- 2- Place the port or extension ring inside the main port 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- Turn the port clockwise until it stops. Do not force, if there is too much resistance takes the port off, check the O-ring and retry. the port lock will engage itself once it has completed its rotation.
6. confirm visually the proper seating and sealing of the port or extension and that it is safely locked on the housing.

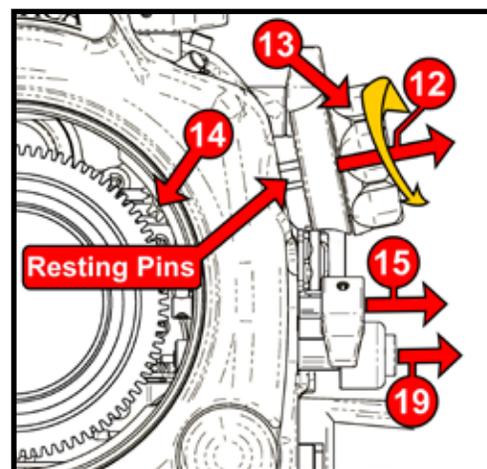


Note: It is recommended that you familiarize yourself with this mount by trying it without the camera; this will allow you to see the inside view of the bayonet mount and of the ports or extension rings in the housing.

CHANGING A LENS (REMOVING A LENS)

From the front: Remove the port; the lens mounted gears may restrict the view and ease of access to the lens release button of camera. The AQUATICA AD7100 Housing features a Lens Release Lever (key # 15) that is designed to trigger the lens release button of camera to allow easy removal of lens. To remove a lens, simply rotate Lens Release Lever (key # 15) to press the camera lens release, hold and turn the lens clockwise.

From the rear: remove the back, pull out the lens release lever (# 15) and the AF/M knob (# 19) out of the way. Lift and turn the disc under the focus/zoom knob (# 12) so that it come down on the resting pin, this will disengage the pinion gear (#14), release the saddle lock, remove hot shoe cable if using one and pull out the camera and lens assembly, replace lens and reinstall by reversing this procedure.



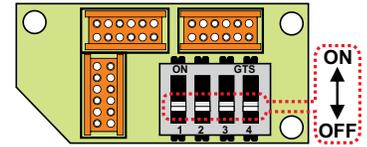
MOUNTING AND ATTACHING FLASHES

Threaded holes are provided on top of the hand grips to accept the necessary shoes or bracket to accommodate your strobes arms. Additionally, three 1/4"-20 threaded holes on the bottom of the housing can also be used for various mounting applications and a 1/4"-20 threaded hole on top of the rear half of the housing will accept an Aquatica bracket or Base Ball that can hold a focus/video light or a extra strobe arm.

Developed with the Aquatica housing in mind, the Aquatica TLC Strobe Arm System is highly recommended for its ruggedness, precision and the quality of its craftsmanship.

USING WIRED CONNECTORS

If using an Aquatica AD7100 Pro Digital housing setup with electrical strobe connections, these will be connected to a switch board circuit that gives the users the option to choose between full manual exposure or TTL (an external converter or single housed flash is required). Optional Ikelite bulkheads connectors are also available.



When preparing the sync cord, be sure to lubricate the O-ring on the sync cord's connector with a light coat of the recommended O-ring lubricant for your strobe. Also advisable is to put a light coat of O-ring lubricant on the threads of the connector, this help preventing corrosion built up on the threads

Nikon Digital cameras are setup with a flash circuitry that only allows one iTTL flash to be connected directly to the camera, Nikon will not allow two TTL flashes to be electrically connected directly, no matter if it is a Nikon flash or any other brand. The wireless approach preferred by Nikon prevents additional flashes, or strobes from being connected directly to the camera, iTTL exposure will stop to function and a camera freeze is likely to happen. Two strobes can be connected only if a TTL converter is interfaced between the camera and the strobe.

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 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 iTTL operation. By default you housing is delivered with the switch board set to full manual, if iTTL exposure is desired then it can be made in either of two methods:

1) By using a single flash from Nikon or other brand (that is iTTL compatible with your camera) in a dedicated underwater housing connected with a TTL cord to the main connector of your Aquatica housing.

2) By using an external iTTL 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 manufacturer to see if the strobes and converter are compatible).

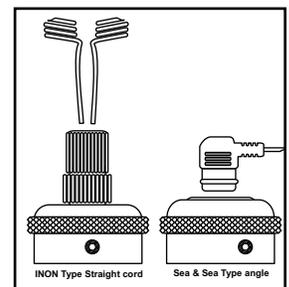
Set up instruction for iTTL operation: Using the tip of a pen push all the switches to the ON (up) position, this will activate the connections on your main bulkhead connector allowing TTL communication between the camera and the housed flash or iTTL converter.

Set up instruction for manual operation: All switches must be in the OFF (lower) position, in this case all iTTL 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.

FOR OPTICAL CONNECTORS

The housing with optical connectors are supplied with one dual adapter for typical straight cord used by INON and various strobe manufacturers and two Sea & Sea angled type cords adapter, select the desired connection and install on the optical port base, tighten the set screw into place with the supplied hexagonal wrench.

In order 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 (# 11) to release it.

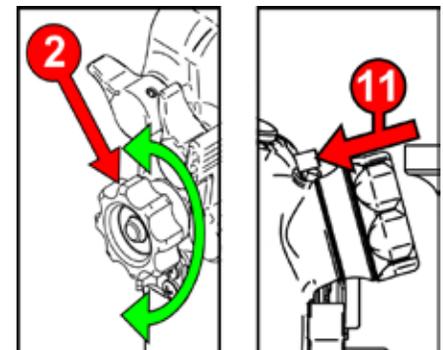


If ambient light images need to be taken simply push the flash actuator lever (#5) to close the internal flash.

Note: it is advisable to turn the camera and external strobe off when travelling to your dive site in order to avoid useless drain of the camera and strobes the batteries.

Field testing shows that mixing brands of optically triggered strobes is likely to give unreliable result and should be avoided.

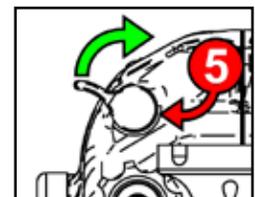
Remember not to install the hot shoe if shooting optically triggered strobes (HYB version) as this hot shoe disengages the internal built-in flash of the camera and prevent this later from working properly. Always do a few test exposures once you finished setting up the strobes



Flash mode & exposure compensation:

When used with optical connectors: the lever will engage either the exposure compensation, selecting the corrective value with the sub command knob(# 2) or the flash sync mode, selecting the required mode (rear sync, slow sync etc.) using the main command knob (key # 3).

When using electrical connectors: This lever when pressed will engage either the exposure compensation, selecting the value with the sub command knob(# 2) or the flash sync mode, selecting the required mode (rear sync, slow sync etc.) using the main command knob (key # 3).



TAKING A PICTURE:

Following are the basic techniques. For more information and advanced photography please study the Nikon® D7100 instruction manual.

NOTE TO THE USER: * Refer to the shooting tips section for useful tips on custom settings of the Nikon® D7100 camera for underwater photography.

1- If exposure mode was not selected already, engage the unlock lever (# 44) and rotate the mode dial knob (# 46) and select the desired exposure mode, the selected mode will appear in both the camera viewfinder (# 47) and, if using the INFO (# 33) option, on the rear LCD window (# 36) as well. Exposure Mode options in sequence are: Programmed Auto (P), Shutter Priority Auto (S), Aperture Priority Auto (A) or Manual Exposure (M).

NOTE: Full auto mode and scenes mode are rarely useful in underwater photography, most popular choice are either full manual or aperture priority.

2- Control of Exposure Compensation (# 49) is achieved by the lever to engage compensation function, select proper parameter by using either the sub or main command knobs (see shooting tip 5).

Note: When using strobes, it is recommended that the camera be used in Single Frame Advance mode or there is the possibility that the camera will fire before the flash or strobe had the opportunity of recycling their full charge.

3- Press the Metering Pattern button (# 48) and select the metering pattern you wish to use: 3D Matrix, Center-Weighted or Spot, also visible through the view finder (# 47) from the rear LCD panel (# 36) when using the INFO (# 33) button.

4- Pulling on the Shutter Release Lever partially will activate the camera's meter and autofocus system.

5- If using a manually focused lens equipped with a proper gear, there are potentially three methods that will allow you to manually focus the lens:

- Using the Focus Knob (key # 13) on the housing for prime lens

- If available for the zoom lens being used, the knob located on the dedicated extension can be used for this purpose

- If shooting with a macro lens, our # 18426 AF/MF Macro port has a knob located on the side for manually overriding the AF with AF-S lenses, (older AF-D type of macro lenses have to be set to the desired focusing mode prior to their installation).

6- If using Manual Exposure mode adjustment of shutter speed and aperture are accessed via the Main Command Knob (key # 3) and/or sub-command (key # 2).

7- To trigger the camera, pull the Shutter Release Lever (# 1) the rest of the way until the camera fires.

Note: Only a gentle pressure is required on the shutter release lever to trigger the camera. Should the camera not trigger instantly, check AF Mode, possibly it is set on "S" for single, therefore the camera will need to complete its focusing cycle before triggering. Pulling unduly hard on the Shutter Release Lever (# 1) is unnecessary and could potentially arm your camera or the triggering mechanism of the housing

SHOOTING TIPS:

The Nikon D7100 Digital camera is loaded with interesting options in its Custom Setting Menu section, some of them have proven to be very helpful to the underwater photographer, listed below as a sample of useful Custom Settings:

1) The AE-L/AF-L lever (# 30) on the rear right hand side of the housing is used to access the AE-L/AF-L button of the camera. It is possible to modify its original function with a wide range of possibilities. The AE-L/AF-L CSM Menu (f4) offers, amongst others, the following options:

- Isolating the focus lock
- AF activation
- Locking the Flash Value (with optically triggered strobe)
- Blocking the flash from triggering

The AF-ON setting is used for isolating the auto focusing system from the triggering of the camera, focusing is done by pressing the AF-L/AE-L lever which will activate the focus, the camera trigger will have no influence on focusing. This popular method allows the system to be tailored to very specific needs and is it worth exploring along with the multitude of other options available.

2) The **Fn** button (# 34) located on the rear of the housing gives an exclusive access, via a linkage, to the button of the same name on the front of the Nikon D600 camera. This button can be assigned a variety of functions. A long list of custom functions are available in the (f2) CSM menu for the Fn button.

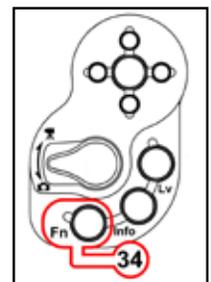
3) Inverting the rotations of the command and sub command controls is also possible, this could be simply to give the photographers a more natural feel when using the housing controls, it is a straightforward procedure to do. Go to the CSM menu, select (f5), Customize Command Dials", select "Reverse Rotation", select "Yes" and confirm by pressing the OK button, you now have the knobs rotating in the opposite direction as they would normally be.

4) The Command and Sub Command dials can also be inverted, the front one becoming the shutter speed, the rear one being transformed in the aperture controls, this feature can be useful for manual strobe shooters, you can change the lens aperture with your thumb while taking picture continuously with your index, to do so, go to the CSM menu, select "f5", "Customize Command Dials", select "Change Main/Sub", select ON and confirm with by pressing the OK button. You now have control of the aperture on the rear knob and shutter speed on the front one.

5) One very well hidden, but so very useful, custom function is the ability to modify the behavior of the camera push buttons, by default, when one chooses to change a setting related to a button, one has to keep pressing said button, rotate one of the two command dials and then let go of the button, using the f6 custom function will let you press on the button once, said button will stay engaged until you either press on it again, or gently tap the shutter release to turn it off. Changing setting on the camera itself is a simple procedure, not so when the camera is inserted into an underwater housing equipped with cumbersome strobe lights at the end of lengthy arms. To engage this feature, go to CSM menu; select "f6 Release Button to Use Dial", press OK button to accept. This is one of the most useful features of the CSM repertoire for underwater photographers.

Some of the controls that can greatly benefit from this CSM mode:

- Exposure correction (# 31)
- AF Modes (# 17)
- Flash mode (# 11)
- Flash exposure correction (# 11))
- ISO (# 40)
- Quality and size (# 37)
- (WB) White Balance (# 38)



FOCUSING MODE

NOTE : Select the proper focus mode (AF or M) with the focus mode selector (key # 19) and pressing button (key # 17) on the housing to access the pattern options (AF-A, AF-S, AF-C) with the main command dial (key # 3) or AF pattern (3D, AUTO, single point, 9, 21 or 39 points) mode by rotating the sub command knob (key # 2). For more detailed information concerning the operation of the different focus modes consult the Nikon® instruction book for the D600. (Also see shooting tips #5 as it make operating the AF mode & Pattern button much easier). Taking full advantage of the AF-E/AF-L button with the housing dedicated lever (# 29) can also greatly contribute to the performance of the autofocus performance of the camera underwater.

USING THE HOUSING

Whenever changing ports or O-rings, it is highly advisable to perform a simple seal test without the camera inside. 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. Once this test is performed 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, lines or other equipment stay clear of the system.

When photographing underwater, respect for the environment should always be a priority. Never damage or injure marine life or manipulate sea creatures in order to obtain a more pleasing photo. good buoyancy skill should be mastered before attempting to uses underwater photographic equipments, Your Aquatica housing is slightly negatively buoyant so that you can lay it down on the bottom, but care should always be taken to avoid laying it on living coral or other delicate marine life.

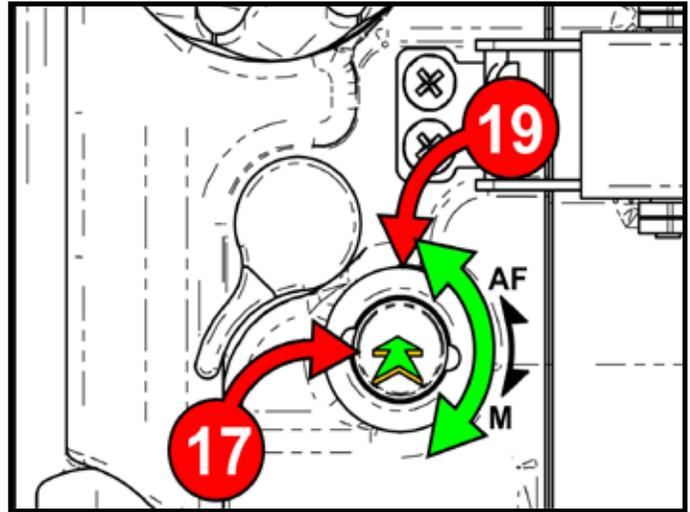
CHANGING THE MEMORY CARD

Always take care to thoroughly dry the housing before opening the rear cover to change memory card. Wipe the housing off with a dry towel. If possible it is suggested that the housing be blown dried by directing a low pressure air nozzle around the main o-ring before opening.

Rest the housing on its front with the port facing down, be careful to protect the port lens surface, release the two side latches simultaneously. Lift the rear part of the housing and place it in a secure location. This minimizes the possibility of any residual water falling into the housing and on to the camera when the housing is opened or damage to the sealing surface.

TRANSPORTING THE AQUATICA HOUSING

Store the AQUATICA Digital housing in a sturdy, shock proof container. When travelling by air, remove the port or the view finder. This allows for equalization of the air pressure inside the housing and prevents internal build up of pressure. Failure to do so may cause serious damage to the ports by dislodging sealing or viewing window. Avoid travelling with the camera mounted inside the housing, while the housing is quite rugged, it is nonetheless not padded and any impact is likely to be transmitted to the cameras delicate components.



CARE AND MAINTENANCE

Of the housing:

At the end of each and every salt water dive, your housing system should be soaked or rinsed in fresh water. The housing system should soak in fresh water for at least 30 minutes. During this soaking period reach into the water and operate all the controls several times.

Be sure to inspect the housing's main o-ring and clean it frequently. Refer to the Maintenance section: Care of the O-rings.

To ensure that the hand grips won't fuse to the housing due to the exposure to salt water, it is good practice to occasionally remove both hand grips. Clean and lubricate the bolts with a small amount of WD-40 or add a touch of zinc based water resistant grease.

WARNING: Use WD-40 carefully, sparingly and only on metal to metal surfaces. WD-40 can damage the acrylic on the ports, the optical surfaces off a lens as well as the integrity of O-rings material.

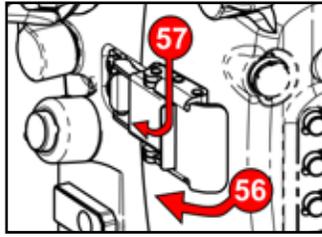
Of the Ports:

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 indice of refraction for acrylic and water are quite similar, the marks, if minors, should not, if at all, seriously impair image quality. Internal scratches (air side) must be avoided as they do not fill in with water and will affect the quality of the image.

Clean the dome using only recommended products for cleaning the dome surface: For acrylic use a soft lint free cloth and dedicated plastic or acrylic approved polish. In the case of glass surface use approved glass lens cleaning solution 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 O-ring, it is advisable that ports should be removed inspected and O-ring properly lubricated serviced before every dive.

Maintenance of the latches:

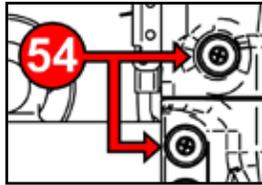
The two latches of the AQUATICA Digital are equipped with safety locking tabs, their locking action prevent accidental opening of the latches. To open push the safety locking tab (# 61) and then lift the two latches (# 60) simultaneously as per illustration. When closing and prior to the immersing the housing always ensure that the locking tab mechanism is engaged. Watch for



the build-up of corrosion or salt residue around the latches. This will appear as a white material. Lubricate the latches with a small amount of WD-40 to remove the corrosion or salt residue build-up.

Of the sacrificial anode:

Two anodes (# 54) are attached to the bottom part of the housing and are there to prevent corrosion due to electrolysis, as time goes they will deteriorates and eventually need replacement. Contact your dealer for acquiring new ones (Product # 19220).



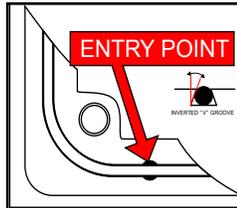
Maintenance of O-rings:

Of the O-Rings:

The O-rings needing regular maintenance are the main housing the lens port O-rings. The main O-ring should be inspected and lubricated on a daily basis as well as being cleaned regularly. The port O-ring should be cleaned, inspected and lubricated every time a port or extension is changed or removed.

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

Note: The main O-ring is inserted in an inverted V groove to prevent accidental extraction, to remove, use a dull pointed object and insert in the side of the small opening on the lower left hand side corner of the front of the housing. Do not use sharp objects or excessive force, doing so could result in damage to the sealing surface.



2- Once removed, the O-ring should be examined for nicks, cuts cracks or any form of damage. Check to make sure that the O-ring retains its original round profile. O-rings that appear to be damaged should be destroyed and discarded immediately, to avoid confusing them later on. Replace with new ones.

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

4- Clean the O-ring groove (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 sealing surface on the housing that the O-ring seals against with a clean lint-free cloth.

6- Grease the O-ring with a thin layer of Aquatica O-ring lubricant 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 lubricant will only serve to attract dirt to the o-ring.

7- Confirm that the O-ring is properly (evenly) installed in its groove.

8- To reinstall the clean and lubricated Main O-ring, place the entire O-ring over the groove and start by pushing in at each corner then, on each side and finally, work the rest of the O-ring in.

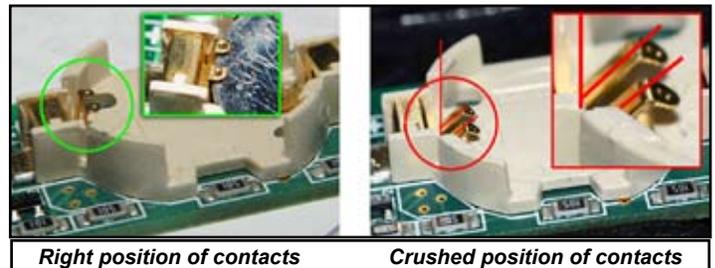
NOTE: Never start at one end and work your way around the O-ring. This places uneven tension on the O-ring which may cause the O-ring to stretch resulting in excess O-ring, which will have no place to go.

Warning: Use only recommended Aquatica O-ring lubricant (# 19213) on the Aquatica Housing (and use recommended O-ring lubricant from your strobe manufacture on their components O-rings), Petroleum based lubricant used by some manufacturers for their Silicone based O-rings can and will swell the material of our O-rings, this will render the O-ring very difficult to install and more likely will end up being damaged or pinched resulting in dire consequences

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. It is recommended by Aquatica to have the housing serviced on a yearly basis. Aquatica has authorized service facility in both continental USA and Europe that can perform this annual maintenance. Before sending any items for repair or maintenance, always contact Aquatica or the service center of your choice for the correct procedure to follow (these service centers are listed on our website www.aquatica.ca).

The optional internal moisture alarm for your AQUATICA Digital housing (Product # 20023) is powered by a CR 2032 battery. Please read the instruction sheet provided for your moisture alarm prior to installing the battery.

When installing the moisture alarm battery, care should be taken to avoid crushing the positive battery contact as shown in image below.



Aquatica AD7100

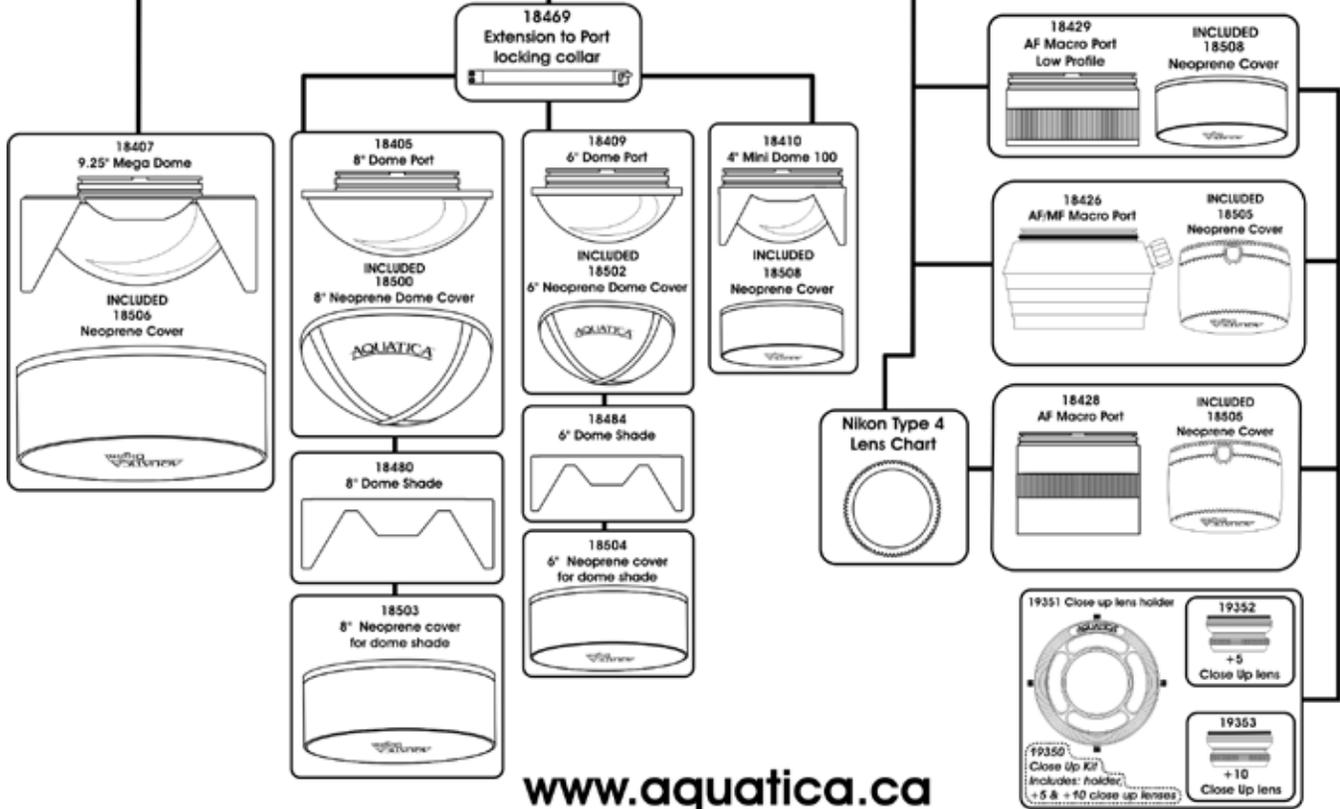
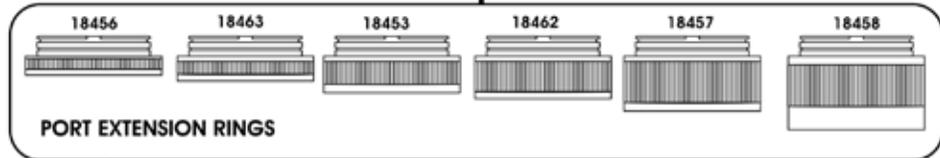
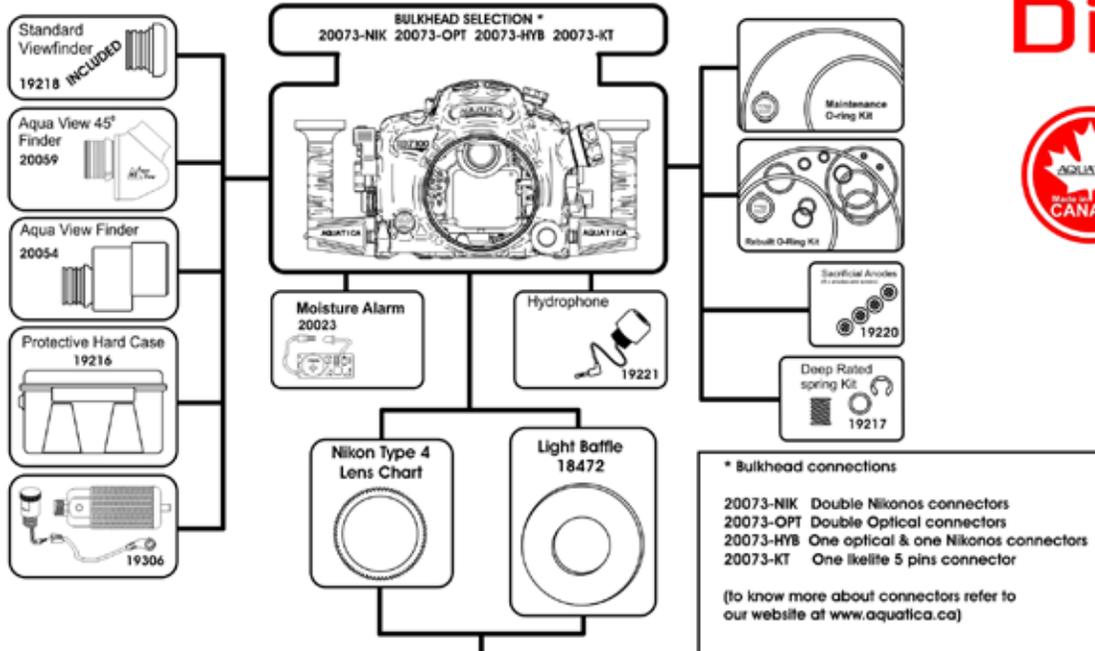
For Nikon D7100

AQUATICA™

Digital

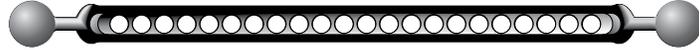


System Chart



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Technical Lighting Control

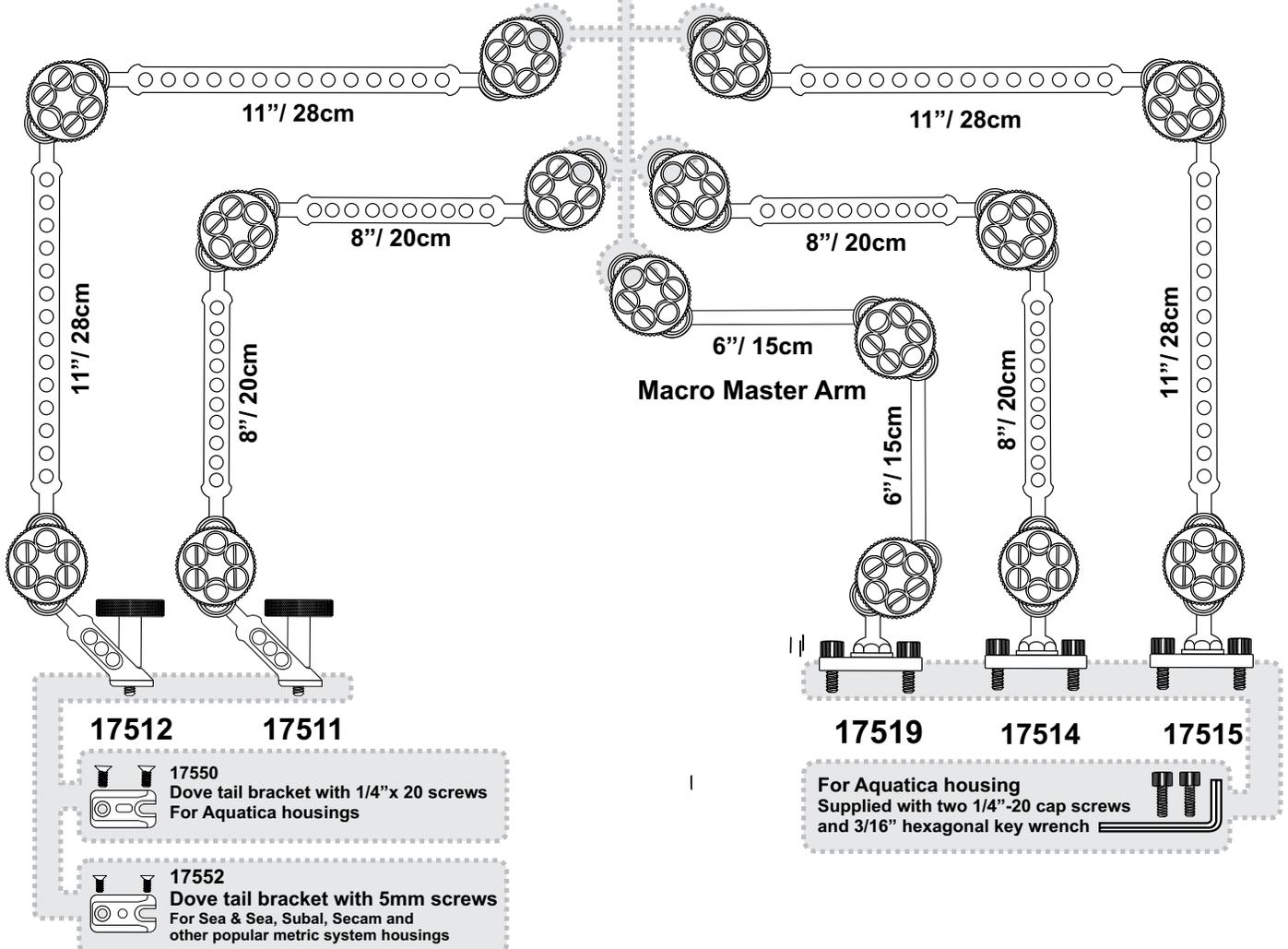


ARM SETS WITH BALL HEAD ADAPTER CHART

A Division of:
AQUATICATM
 Digital

BALL HEAD ADAPTER

17690 Nikonos SB-105	17651 1/4"x 20 threads	17888 INON	17692 Ikelite DS160/DS161	17691 Sea & Sea	17655 8mm threads	17688 Ikelite DS 200



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No pins, no O-rings just tough, reliable performance from TLC



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 RESPONSABILITY 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 _____