NORMAL CLEANING PROCEDURES-
PERFORM AFTER EVERY DIVE

1. **Soak** the camera in for at least 10 minutes with the camera /strobe mountings taken apart, but the sync cord still connected.
2. **Place** the camera on a towel **to dry** and disconnect the sync cord and open the back (after rewinding film); remove strobe batteries.
3. **Remove** and clean sync cord, camera backing, strobe battery compartment, and camera battery(if opened) **o-rings** and o-ring surfaces using the round end of a paper clip. **Clean**, re-silicone, and replace.
4. **Replace** any rolls of **film** in the case with those in the locker. If no film is left in the lower left hand drawer of the desk, obtain 10 rolls of 400 asa film from Graphics.
5. **Log** your use of the camera in the "rite in the rain" notebook found in the camera case. Note asa, # of rolls used, date, location. Note any problems encountered in the log and notify Sheldrake.
6. **After** a day of **drying**, **replace** into the case and return to the locker.
7. **Store** with camera back **open**, sync cord **disconnected**, and strobe back **off** or loose.

Changing film

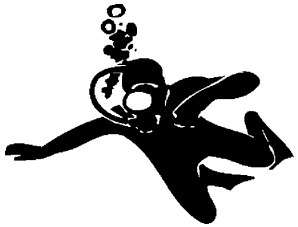
1. Set the camera to **R**, rewind until you feel a loss of resistance. **Do not** rewind underwater or while rinsing camera.
2. **Towel** the camera dry (it is not necessary to disconnect the sync cord) and open the camera back *downward* to ensure no wayward droplets enter the camera.
3. Follow above procedures for loading film/checking battery strength before the next dive.

Between, and Immediately After Diving

Soak the camera in FW. If available, soak in between dives and before cleaning to prevent salt crystal formation.

Nikonos V Checklist

EPA Region 10 Dive Team



Revision 2
4/4/2003

Notify Sean Sheldrake x-1220 of any corrections to this pamphlet.

Before you leave the dive locker

1. **Check** condition of **o-rings**:
a. sync cord - strobe end
b. sync cord - camera end
c. camera backing
-Check for slack in the o-rings (Replace if necessary)
-Check for any buildup of salt/dirt and the proper amount of silicone (Clean if necessary).
2. **Load film** into the camera; wrap at least twice around the spool opposite the film cannister to ensure good grip. Close backing and wind film. Ensure that the rewinding arm turns as you advance the film. If it does not, reload the film. Set the proper film speed on the camera.
3. **Connect Sync cord** to strobe and camera port. If there is resistance to fully inserting each end, remove and clean threads. Ensure o-rings are properly seated.
IMPORTANT: *Look for change of thread appearance to gauge if sync cord is properly seated. You should not be able to see any threads when it is properly seated.* **Flooding usually occurs at the camera connection to the sync/TTL cord.**
4. Once the frame counter reads "1," note whether the light meter comes on in the viewfinder. If it does not come on or does not stay on for 16 seconds, replace the **camera batteries** using a washer or coin, not a screwdriver (it requires 2 1.5V batteries "PX 76 or 357 watch/calculator battery" silver oxide are better than lithium batteries). If you have used the extra camera batteries or have depleted the strobe batteries, obtain new ones.
5. **Load** 4 D **batteries** into the **strobe**. Turn it on ("on" and note how long it takes for the charge light to come on. If it takes longer than 15 seconds, discard the batteries. **BRING EXTRA "D" BATTERIES**; also remember that rechargeable batteries have a relatively short life, especially at 40 deg. F.
6. **Set the camera** to "A"; set the strobe to "on,"(right-hand side) "80," and "A."
7. **Take a practice picture** to ensure all is working.
8. **BRING** cooler filled with freshwater (FW) on the dive to soak the camera between and after dives.

At the dive site

WARNING - INDICATIONS OF A FLOODING:

- Droplets appear inside the **camera lense,**
- **Strobe light is autoflashing without shutter release,**
- **Film advance lever becomes difficult to operate or sluggish,**
- **Failure of strobe to flash**
- **Red light (strobe ready light) is flashing**

If any of the above occur:
1. Turn the strobe off (firing a flooded strobe can cause **explosion** underwater),
2. Set the camera to M90 (computer off), then,
ABORT THE DIVE IMMEDIATELY BUT SAFELY and follow the steps outlined in "First Aid for a Flooded Nikonos"[1] summarized on the next page
*****ASCEND POINTING LENSE UP TO AVOID LENSE FLOOD*****

Shooting
1. Use the "on" (modeling left- side on) **setting** on the **strobe** to ensure the strobe is aimed at the subject. Turn the strobe to "on" (right-side on) once the strobe is aimed.
2. Ensure that the **strobe ready light** is on before each release of the shutter.
3. Gauge distance to the subject and be sure to **set** the proper **distance** on the lense. **Set the depth of field / aperture with a "best guess" re: the range of subject distance (greater depth of field ensures good focus for a wider range, but compromises the amount of light that will reach the film as the aperture gets smaller and smaller with greater depth of field).**
4. Underwater, focus on apparent image, but remember strobe must be pointed behind the apparent image[2].

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[1] Underwater Photography, Warkentin, Bob, "First Aid for a Flooded Nikonos, Detection of a Flooding," p. 62.

[2] Couet, Green, The Manual of Underwater Photography, Hemmen, 1989.

FIRST AID FOR CAMERA FLOODING

(Taken from Bob Warkentin publications/Southern Nikonos-see above reference)

1. Set the camera to M90. Turn the strobe off. **Remove film and batteries**!

2. Holding the camera upright, unscrew the sync cord and slowly remove the connector from the camera

3. If water is present, dry the flash connector surfaces and shake the connector until no more droplets come out. If the cable or connector wires have been damaged, this is the cause of the problem -not flooding.

4. Next, inspect the flash pin connector of the camera. Before turning the camera upside down for inspection, use a cotton swab or tip of a towel to dry only the threads at the mouth of the flash port. Don't force either one up into the pin socket at this time. (Water will be on the threads, so don't wipe it into the connector pin socket area.)

5. Now, towel-dry (or use a cotton swab) all remaining droplets of water. Do not blow air into the flash port as you will force any remaining water into the camera.

6. Opening the back of the Camera - The first time you open the back door of the camera for any reason after diving, point the lens up, and open the back door downward. Then, hold the door completely open (180 degrees from its closed position) and rotate the camera on its long axis. This procedure keeps the water that is trapped in the O-ring channel from falling onto or into the camera "guts," giving you a false appearance of a real water leakage problem.

7. Electronics Compartment Damage/Leak Check

First, towel-dry any drops and droplets from around the O-ring seat of the main inner body (where the door closes). If the large drops are present down onto and around the half-inch-wide plastic plate that runs across the top of the camera (the electronic compartment cover), towel-dry the drops. Now, using small Phillips screwdriver, remove the four screws and lift off the plate. Examine the interior, especially the surfaces immediately under the plate. Also, notice the rubber foam on the back of the plate. Water can be trapped in this sponge and continue to bathe electronic components, causing the components to short out when the electronics are turned on, unless they were already damaged from the flooding

To check this sponge area for the presence of water, take a facial tissue or toilet paper (the length of the plate) and lay it down on a flat dry surface. Take the plate, turn the foam side down and lay the plate onto the tissue. With a dry hand, press down on the plate evenly two to three times.

If no water is found in the rubber foam, chances are no leakage has occurred around the edges of the plate and into the electronics.

8. Determine if it was a full flood or partial.

9. For a FULL FLOOD

Rinsing the inside of the Camera -

- remove the lens
- open the camera back and remove the 4 screws holding the plastic plate cover of the electronics
- Using distilled water, if available, otherwise freshwater, hold the camera upright as if you were going to take a picture, and using a hose, place the hose at the battery port and turn on the water.
- Tilt the camera forward and backward but not upside down (under the faucet) as you want to prevent water from getting into the view finder if possible

Drying the Camera and Lens - (you will need a hair dryer with med/low setting and a cardboard box (about 10in x 10 x 10)

DO NOT RINSE THE LENSE IF IT WAS NOT FLOODED.

- Lay the camera face down, lift the film plate and catch it under the film advance lever (this will hold it open).
- Remove the lens mount ring and interface - remove 3 Philips screws holding the lens mount ring onto the camera. Carefully push this rung up and off the front of the camera
- Turn the hair dryer on medium setting and hold it about 4-6 inches from the base of the camera for at least 5 minutes
- Set the camera on its base in the box with the back of the camera open and facing the hairdryer. Dry the back opening of camera for about 15 minutes (set the hairdryer on a stand about 12 inches from the camera), working the mechanics periodically.(Setting on M90) Also set the lens in the cardboard box, to dry with the camera.
- Then do the same for the front of the camera, through the lens mount
- for another 15 minutes.
- Shake the camera (door open) over paper to see if water is still present. If so, repeat the above drying for half the time.

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NEVER USE alcohol or silicone.

10. For Partial Flood

- Determine the extent of water leakage into the camera
- Any time you either see or suspect water leakage has occurred immediately turn the shutter speed dial to either 'M90" or "B" (electronics off), and lock the trigger, and then remove the batteries as soon as possible.
- First, be certain that the outside of the camera and lens are really towel-dry.
- Remove the camera from the flash tray, but leave the flash cable attached for now. If you were diving with a 35 mm lens, you must remove it next. If not, leave whatever lens you were using mounted until later.
- Holding the camera upright, unscrew the flash connector and slowly remove the connector from the camera. (If you jerk it out, or remove it with the camera upside down, water droplets collected around the screw-in threads will fall into the camera flash contacts and/or onto the cable contacts, giving you false information about water leakage.)
- Set the camera down, upright and out of your way for now.
- Inspect the flash cable connector for water. If this is the source of water leakage, water or droplets should be present at 1) the metal surface or between the metal surface and plastic mount holding the flash connector, or 2) on the face of the plastic flash connector, or 3) into one or more of the flash-pin holes. If water is present, dry the flash connector surfaces and shake the connector (NOT like a Yo-yo, or you will break the wires) - until no more droplets come out.
- Next, inspect the flash pin connector of the camera. Before turning the camera upside down for inspection, use a cotton swab or tip of a towel to dry only the threads at the mouth of the flash port. Don't force either one up into the pin socket at this time. (Water will be on the threads, so don't wipe it into the connector pin socket area.)
- Turn the camera upside down and inspect for the presence of water 1) at the edges of the plastic/metal wall interface or, 2) collected around the two retractable TTL pins/pin holes or, 3) around the edges of the flash pins. If droplets are present, you cannot shake the camera enough to remove the water. Now, towel-dry (or use a cotton swab) all remaining droplets of water. Do not blow air into the flash port as you will force any remaining water into the camera. If no professional then follow the procedure for inspection of the internal areas of the camera (especially the lower areas) - described in the "Leakage around the Back Door" Section. This will help you determine the extent of water leakage into the camera. Also follow the outlined cleanup procedure.
- The first time you open the back door of the camera for any reason after diving point the lens up, and open the back door downward. Then, hold the door completely open (180 degrees from its closed position) and rotate the camera on its long axis. This procedure keeps the water that is trapped in the O-ring channel from falling onto or into the camera "guts," giving you a false appearance of a real water leakage problem.
- With leakage from around the backdoor area, either the inside of the camera will be a "lake" or, hopefully, just small puddles. However, if large droplets are present below the edges of the interior O-ring seating area of the camera, suspect a twisted O-ring in the door, or a piece of salt, sand or fiber (even a hair) to be present on the O-ring. An isolated leakage, depending upon where the water is, could occur from the ASA/rewind, film advance, flash connector, or even the lens. In such cases, you may still be lucky and in time to prevent major mechanical/electrical damage.

- Now, inspect all around the door O-ring seat area of the main camera inner body for large drops of water (not droplets where the O-ring grease has collected). Make either a mental note or draw yourself a picture of where the drops are seen.

Electronics Compartment Damage/Leak Check

- First, towel-dry any drops and droplets from around the O-ring seat of the main inner body (where the door closes), and you are ready to find out if there has been any leakage into the "guts" of the camera. If the large drops are present down onto and around the half-inch-wide plastic plate that runs across the top of the camera (the electronic compartment cover), towel-dry the drops.
- Now, with your small Phillips screwdriver, remove the four screws and lift off the plate (photo 5). Examine the interior, especially the

surfaces immediately under the plate. (Remember, the leakage must start here before it can go elsewhere). Also, notice the rubber foam on the back of the plate. Water can be trapped in this sponge and continue to bathe the electronic components, causing the components to short out when the electronics are turned on.

- To check this sponge area for the presence of water, take a facial tissue or toilet paper (the length of the plate) and lay it down on a fiat dry surface. Take the plate, turn the foam side down and lay the plate onto the tissue. With a dry hand, press down on the plate evenly two to three times.
- Remove the plate, and examine the paper for water. If water is present, dry the foam with a hair dryer (medium setting) for a few minutes and re-test as above.
- If no water is found in the rubber foam, chances are no leakage has occurred around the edges of the plate and into the electronic "chamber" from the back door. Leakage could have occurred from the ASA or rewind knobs.
- Next, pay particular attention to the right side of the camera where the notch has been cut into the plastic plate. Water drops can fall through this hole and onto metal gears without being trapped by the sponge. Check internally for leakage from the film advance and shutter speed knob.
- First and foremost, if water leakage anywhere in the electronic chamber did not come from an identified backdoor O-ring problem, you can clean off the water and maybe save everything. Try to prevent corrosion to internal parts Follow the Cleanup Procedure for full flooding described in #9 above for electronic chamber cleaning and water removal.
- Thoroughly mop up all metal gear areas accessible from the electronic chamber.
- Inspect the left side of the electronics chamber as well as the ASA assembly that goes through the electronic board. Also, inspect the film canister/rewind fork, especially around the top where it goes through the metal inner body. Water leakage through the rewind or ASA areas are due to worn-out, dirty internal O-rings, or from adjusting the camera underwater - changing the ASA or rewinding the film. The cleanup procedure may take care of water damage to the electronics, but it cannot return your camera to a usable underwater condition. The repairs to this area can only be done by a qualified person.
- No doubt your have noticed the hole in the plastic plate that contains a black plastic square. The purpose of the hole is to allow the finger on the back door to push the square forward (when the main door is closed), which starts the counter wheel moving each time you advance film. Not only can the door "finger" get into this hole, but so can drops of water. If the water drops fall to the right, it can freeze up the counter wheel. If the counter wheel doesn't advance - no electronics!
- If the water falls to the left, you can have all kinds damage. The water can damage the three adjustment pods that control the LED display, shutter speeds and TTL operations. Or, the water can be shaken further into the camera - onto the shutter assembly, onto the selector linkages, and so on. And lastly, you could have a steady drop by-drop leak from any of the three internal O-rings on the film advance/shutter speed selector knob parts. If the film advance feels rough, and the shutter speed selector is hard to turn, the damage is already done.
- Don't use the camera unless you happen to have a pocketful of new, non-pitted parts and O-rings. Just mop up what you can using Cleanup Procedure for full floods in #9 above.
- Next, inspect down and along the right (hinge) side and across the lower edge of the camera's inner body. You will notice a gray color material between the inner body and outer case (photo 7). This is a rubber foam that can trap water and retain it to cause later damage from corrosion.
- Again, using a facial tissue or toilet paper, lay the tissue over the opened camera. With your plastic "C" card, press the tissue lightly onto the sponge area , lift off the card, and press down onto another area of the sponge. Use the rounded corner of the "C" card to get into the rounded corner of the camera (do not slide the tissue

around the sponge; this will only tear the tissue and will not tell you if or where water is present. Lift off the tissue. You should see the line of the impression from across the bottom, around the corner and up the right side of the foam area of the camera's inner body. Laying the tissue flat, inspect for the presence of water.

- If you have been accustomed to opening the back door of a Nikonos V like a land camera to change film, you will no doubt have had

water drops and droplets (with the help of gravity) fall into the camera without you knowing. The foam will prevent small drops from getting into the camera's gears, but large drops - or continuous dripping of drops onto the foam over a week of diving (and from opening the camera wrong) will saturate the foam. Then the water will get onto the gears.

- If water is present, the question is "how much?" To make that determination, take the tissue, roll it up into a tight, long roll and place it around the foam area. Close the back door of the camera (to hold the tissue in place), but don't try to completely close and lock the door. (Be sure there are no wet areas on the door by removing the door O-ring and drying this channel as well). Tilt the camera back at a 45 degree angle (definitely don't lay it flat) for 15 minutes. (Note: Place the camera in a plastic zip-lock bag to prevent normal water evaporation during this 15-minute test.) Hopefully, any water inside will roll to the sponge and be picked up. You can tell if water is present by the tissue paper.
- Open the camera and inspect the tissue. If still wet, repeat this process two more times. If the tissue is still very wet, then yes - there is water inside and its probably a full flood.

Once the camera has been completely dry you can send the camera off to be repaired/overhauled -

Contact Bob Warkentin/S. Nikonos 713-462-5436

Strobe Flood

Do not ever open up the electronics of the strobe as this presents an explosion hazard. Do not ever fire a strobe suspected of a flood. Send the strobe back to manufacturer for repair or replacement.