

SPRING CLEANING

In the opening paragraph of that evergreen classic *The Wind In The Willows*, Mole remarks, "Bother!' and 'O blow!' and also 'Hang spring-cleaning!'", then bolts out of the house without even waiting to put on his coat. While we may also be impetuous at times, our camera equipment does need a regular overhaul. Springtime is as good a time as any, even if your winter has been a very active dive period, to give our much used and abused camera and computer equipment a good overhaul.

First off, the camera housing is the most important part of our photographic endeavours. It keeps out the nasty wet stuff while allowing us to fiddle with controls when taking those gold medal images and does so while being banged about, left in the sun, poked, prodded and generally abused. So take out your housing, place it on a clean, well-lit work area – and lets get started.

If the camera is in the housing, remove it. We'll work on that later. If you've had it stored for the winter you may have a silicon gel packet inside and the main O-ring removed. If not, maybe you can remember to do that next autumn. If you have a 'point and shoot' camera, that may be the only user-serviceable O-ring you need worry about. At the other end of the scale a metal housing for an SLR will have at least one port O-ring and a couple of smaller seals in the strobe connector plugs (which you would have in when not using strobes underwater).

While we've covered O-ring preparation before, it doesn't hurt to be reminded how to perform a basic seal service. If you haven't already done so, remove the O-ring(s). If you cannot gently pinch them out with your fingers (don't use finger nails, use the pads of your fingertips) then use a blunt wooden toothpick or similar non-metal object such as the corner of a credit card. Some housing manufacturers provide a small plastic doodad that does the job. Using a lint-free cloth (I always use an old, well worn and washed cotton handkerchief), gently clean the entire surface of the ring. Run it through the cloth a few times to ensure it's completely clean. Under a good light, check the surface for any nicks or scratches and remove any fluff or cat hair that's done the static electricity thing. An O-ring in good condition will be completely smooth and have a dull non-oily shine. If you see or feel any imperfections (run the seal through your fingers, they're amazingly sensitive to the tiniest blemish) discard the ring. Yes, you might get away with using it but why risk it. Using a new O-ring is much cheaper than replacing an entire camera – it's the world's cheapest insurance.

Your housing may have come with O-ring spares, or you may have wisely pressured the sales person to cough up a spare kit. If not, then get two replacement kits from your camera manufacturer – you're going to use one now and you should carry a spare anyway. There will usually be two surfaces to clean, the trough where the O-ring sits and the other surface which presses up against the ring. So in the case of the main seal, you'll need to clean the channel in which the O-ring sits and the sealing surface of either the door or the main housing (some housings have the ring in the door, others on the main housing). Don't use a knife, screwdriver or other

metal object. An ideal cleaner for the O-ring channel is a cotton bud or eyeliner applicator. If you use a cotton bud, put a little O-ring silicon grease on it and twirl it around between your fingers. It will help to pick up any grit and also avoid shedding any fine threads. There's a similar product that has a sponge-like tip used to apply eyeliner which does not shed threads. Guys, beg or borrow one from the nearest female.

Run the swab around the channel a few times to ensure it is clean. You want to be careful not to scratch the channel as that may cause a leak and is not 'fixable', so be sure not to use anything harder than a cotton bud. Use your lint free cloth or the bud to clean the sealing surface on the other part of the housing. Pick up your O-ring and check for hair and such one more time. Put a SMALL daub of grease on the O-ring, maybe a couple spaced out if the ring is large. Spread the grease evenly around the ring, sliding it between your fingers. Keep spreading it until there's a thin shiny film of grease all over the ring. You don't want any big globs or lumps of grease, they will cause problems and provide a sand and grit trap right where you don't want it. Gently place it in the channel on the housing then check once more that no hair, fur or other fluff has joined the party. Some housings have complex shaped channels, in which case you want to be sure there's no bunching or uneven stretching. Close the housing.

If you have a perspex housing, as are most of the smaller units, you may be able to see the O-ring in place and sealed. Check that nothing is cutting across the seal which may cause a leak. If you have a metal housing, open it again and check the surface against which the O-ring has been pressed. You should see a thin even unbroken line where the greased O-ring has been pressing. If the faint line is broken, check the O-ring to make sure it is sitting properly, not bunched or pinched, and that it is free of lint or fluff.

Smaller O-rings such as those on lens ports or strobe sync sockets are less likely to allow you to check the seal in this manner. However, if the O-ring is spotlessly clean and properly greased, you should be able to feel the smooth, positive engagement of the parts. If there's a 'rough spot' when the pieces are put together, pull them out and start again.

When greasing O-rings, only use the type of grease recommended by the manufacturer. Some O-rings are not neoprene but are silicon based and need a different type of lubricant. It does not necessarily need to be the brand name grease, just make sure it is the right type.

Modern housings for digital cameras have a plethora of controls. Most are small push buttons. If you're unsure or uncomfortable with pulling them apart, then have someone who knows what they're doing to clean them for you. Usually they'll be held in place inside the housing with a circlip or similar locking nut or clip. Remove the clip and gently push the control back out. They're usually spring loaded so make sure you remove it gently, ensuring the spring does



Use a soft lint-free cloth or a cotton bud/eyeliner applicator, to clean the O-ring channel. The cotton bud shown has bits of loose fluff and fibers ready to contaminate your efforts. Place a small dab of O-ring grease on the tip and twirl it between your fingers. That will hold the fibres together and also help pick up grit and gunk from the channel. I prefer to use a lint-free cloth for channel cleaning.

not depart to points unknown. There will be one or two O-rings on the pin, sometimes also one in a groove inside the control knobs 'gland' or hole drilled through the housing body. They can be tricky to get at. A non-metal object such as a toothpick can ease them up and out. The O-ring will need to be cleaned as mentioned above along with the internal groove. Sometimes there may be hard crusty deposits in the groove, more so with metal housings. The control rod will also need to have their tiny O-rings removed and cleaned, along with the shallow grooves in which they sit.



Before you remove an O-ring check the manufacturer's housing manual. Some, such as the superbly crafted Nexus housings, demand that you never remove the main O-ring seal. If that's the case, just wipe the O-ring with your clean lint-free cloth. For other O-rings, you can gently pinch with your fingertip pads (left) or use a non-metallic object, such as this wooden tooth pick (right), to lift it out of the groove. To avoid scratching the groove/channel you may want to use the blunt type of toothpicks, not the pointed variety shown.

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digital photography

When all is clean and ready, put a small extra dab of grease in the gland or hole in which the rod will be placed. It will lubricate the insertion a little more and any excess will be pushed through and into the housing. Clean the excess off with a cloth when the pin is seated, making sure that any springs and/or spacers you found when you pulled it apart are included in the right place. Put the locking clip back on and test the control to make sure it operates smoothly without catching.

You may decide that all those little push rods are too hard to clean, but just cleaning out the sticky or rough operating ones may miss other problems. I once flooded a housing on a deep wreck dive and could not for the life of me figure out where the leak had occurred. Eventually, after servicing every O-ring, I discovered a

avoid any alcohol based cleaners. The same goes for perspex housings. Be extremely careful when cleaning the inside of the lens port. If it doesn't appear to be dirty, leave it alone. For small bits of fluff or dust, use a blower brush. If it needs more than that use a spotlessly clean soft cotton cloth such as a nappy or square of T-shirt material. Any marks or scratches on the inside of the port will show up as either fuzzy blobs/streaks or a lowering of image contrast.

The same goes for strobes and their cables. If your connectors are the Nikon/Nikonos type the chances are you'll need to replace the O-rings on the housing end. The less than perfect Nikonos connectors can put a lot of pressure on the small O-rings. Usually strobe problems are cable related, which in turn comes back to minor or major leaks forcing water up the wires. Switch the bulkhead O-rings regularly to keep your strobe cables healthy.

As far as the camera goes, I hesitate to use blower brushes as they can push dust and grit into the camera or lens. A slightly damp soft cloth is all you need. Lenses are similar but with the added issue of the front and rear elements. If you have dust or grit on the front element, use a soft camel hair brush to gently whisk it off. You can use a blower brush on the front element. For grease or gunk on the glass use Kodak lens cleaner or similar. Be very careful you do not scrub at the glass, as you



Modern digital housings are studded with a plethora of control knobs and rods (left). They are spring loaded and held in with small stainless steel circlips (right). I would have to remove the black soft plastic sleeves first then gently pry off the circlips with a small screw driver. Be careful that you do not launch them into space as they are easy to lose, along with the internal springs and any washers that may be in there.

control knob that had a badly damaged O-ring – the seal had worn right down allowing a flood while not feeling rough or bound up.

The small operating knobs and larger controls are not regarded as user serviceable by housing manufacturers. So please note that if you decide to do a full service on your own housing, you must do so carefully without distraction. You may also void any warranty if you do it yourself. So, like sensor cleaning, I recommend using a qualified technician if you have any doubts at all. Caveat emptor. If you decide to take the plunge, test the housing for leaks after your service by submerging it down to 10 metres or so without the camera inside. Take it on a dive or lower it, weighted, on a rope over the side of your boat for about 10 minutes.

As far as the rest of your housing goes, all it needs is a clean out to avoid any fluffy things getting onto your O-rings or lens. Use a soft damp cloth, a soft brush or blower brush to get out any loose stuff. If any of the control windows on metal housings (such as the LCD window or upper control panel windows) need cleaning,



A faint mark is left on the sealing surface of the housing back. You can check it for any signs of breaks which may be caused by hairs, fluff or a pinched O-ring. Perspex housings may allow you to view the O-ring while sealed so that you can see any breaks or gaps.



The long body of Nikonos strobe connections add leverage which can deform or nick the small O-ring. If in doubt, replace them often. You cannot see the seal in a bulkhead connection so a new O-ring and gentle insertion, feeling for any catching or pinching, is the way to go. Be sure to insert the strobe end straight into the bulkhead connector, as forcing it in at an angle will damage the O-ring.

may scratch or remove the multicoating which suppresses flare and colour aberrations. An SLR camera will allow you to check the rear element as well. Treat them with extra care. If in doubt, get lens glass cleaned by a professional camera repair centre.

SLR cameras also have gold plated contacts on the lens mount. Use a rubber pencil eraser to gently clean them. You'll find the contacts on the rear of the lens and just inside the lens mount on the camera body. Clean contacts will help avoid operating problems and freeze ups. As mentioned in a previous article, do not attempt to clean your sensor beyond a bit of gentle blower brush activity. I strongly suggest you have a camera technician clean the sensor for you. While I do clean my own, it's not something that I recommend.

While the housing and camera are taken care of, we're only half done. Now's the time to make sure that every image you have shot for the past year (or longer) is safely and securely backed up and copied at least two, preferably three, times. I have my files on DVD and at least two sets of hard drives, sometimes three drives. Money willing, more is better than one or none. While you're at it, clean up your computer hard drive as well. Trash or backup all those video clips and movies you no longer need and defrag your hard drive. For your own sanity you should backup all documents and other important data such as email, contacts, image databases, etc.

While you're fiddling with your computer, check your camera manufacturers website to see if your camera model has a new firmware release. Firmware updates are usually downloaded to your computer then copied to an empty card which is then put into

> LINKS

- <http://www.dpreview.com>
(Camera firmware upgrade announcements)
- <http://www.adobe.com/products/photoshop/cameraraw.html>
(Raw conversion upgrade information)
- <http://www.adobe.com/downloads/>
(Includes Photoshop and Elements updates)
- <http://www.seaandsea.jp/compact/p03.html>
(O-ring basics)

your camera which automatically (or manually) is copied to the camera. The same goes for image editing software such as Elements, Photoshop, Paintshop, Gimp, etc. Check for upgrades which fix minor bugs.

Once your spring cleaning's done check that the entire camera rig works faultlessly, all controls are smooth and positive. Perform a pressure test without the camera installed as mentioned above. You're now ready to enjoy the summer.