

STROBE FAULTS

A misfiring gun is an old cliché in action movies. It provides an easy escape for the hero/heroine or allows the villain to live another day. Frankly, I'd be pretty irritated if I had a rampaging polar bear charging at me and my 45 magnum decided it didn't want to fulfil its intended purpose. It would probably ruin my entire day.

Now imagine, if you will, watching a rare leatherback turtle swim up to you with your underwater camera in hand. It seems curious and gracefully manoeuvres its two metre bulk towards you, approaches within one metre, opens its mouth to swallow down a passing sea jelly and you hit the shutter button. Already you can hear the applause as you mount the dais for your acceptance speech for *Photographer of the Decade*. The camera fires, you hear the mirror slap, but the strobe is out to lunch. Nothing. Not a spark.

Sound familiar? Maybe not the turtle, but a strobe that will not fire, no matter how much you rattle the housing and scream into your regulator, is a reasonably common occurrence. And it usually happens after you've checked that all is well on the boat prior to your descent. So let's work through the causes and cures for strobe hanky-panky.

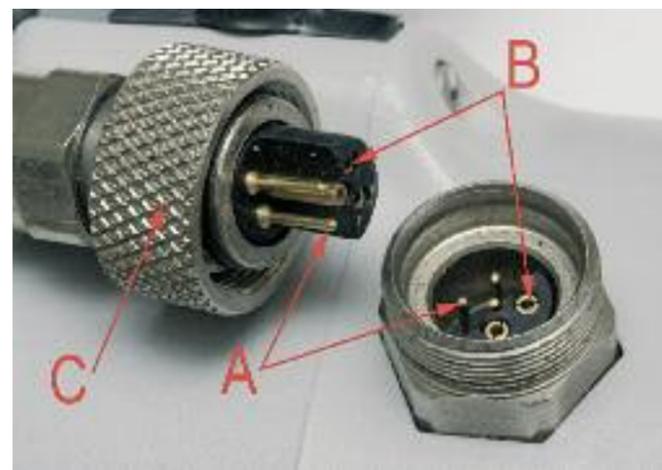
First off, if you have a 'point and shoot' camera with built-in strobe, and that is the strobe you usually use, a simple change of camera battery will solve most problems. They are integrated into the body of the camera so have no external wires or connections to cause problems. So, while the results from a built-in strobe are far from optimal, compared to an external strobe, their simplicity avoids most of the issues facing the rest of us. The downside is that if the battery isn't at fault and the camera is otherwise operating normally, then you'll have to have the camera repaired, which in reality usually means that you have to buy a new camera body. The cost of just a repair estimate will buy you a newish secondhand camera, the repair may cost more than an entirely new camera.

For the rest of us that have the superior external strobe set-up, the prime reason for strobe faults is simple. In a word: contacts. A typical strobe set-up for a housed camera, both compact 'point and shoot' and digital/film SLR cameras, will have at least three connection points, possibly more. There are other reasons for a strobe not to perform, and we'll look at those later in this article.

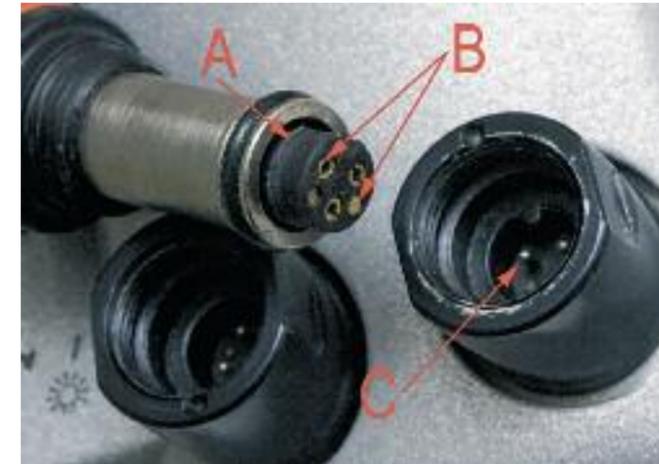
Let's assume the normal scenario of a housed camera with an external strobe. Moving from the strobe down the line to the camera, there will be one connection point on the strobe body where the sync cord attaches, one at the other end of the sync cord where it connects to the housing. The connector in the

housing is called a 'bulkhead connector'. We'll look at that rotter in a moment. Inside the housing, a number of wires (the number depends on the type of strobe control: manual, auto, TTL, etc) lead to either a sync cord nipple or directly into a slip-on plate that connects to the strobe contacts in the camera's hot shoe.

The hot shoe is intended to be used with an external strobe which will have contacts on the slide-in foot that fits into the hot shoe. When the camera is fired, all sorts of information is relayed through the hot shoe contacts to the strobe's contacts. From a simple closing of a circuit to fire the strobe to complex distance, focus, exposure and compensation information is fired up through the hot shoe contacts to control the strobe. It can signal the need for a pre-flash, to zoom the strobe reflector to narrow or widen the strobe's light beam to match a long or wide angle lens, relay exposure compensation information and more, and the strobe can also tell the camera to change its shutter speed to ensure correct synchronisation with the strobe flash duration.



This particular strobe has both pins (A) and sockets (B) with opposite pins and sockets on the sync cord connector (C). Be careful not to scratch the gold covering when cleaning these contacts. Do not use metal or other sharp edges. Check particularly for corrosion and gunk in the sockets (B).



At the other end of the sync cord will be a connector (A), in this case the typical Nikonos style plug. It has both sockets and flat 'buttons' (B). Again, use care when cleaning to avoid scratches. The bulk head connectors have matching pins (C). Check that none have snapped off.



Hidden under a flap can be found my camera's sync socket (B) into which a right-angled sync nipple (A) can be inserted. The outer metal sleeve can be gently squeezed out of shape a tad to make a tighter fit, if that is a problem. If not, leave it alone. Inserting the nipple and twisting it around a few times is usually enough to make a secure electrical contact.

Our camera mounted in a housing obviously cannot have a whacking great strobe precariously mounted onto the camera hot shoe. But, even with land based photography, the strobe can be used 'off camera' with full use of all functions, with the appropriate extension cable connecting the hot shoe to the strobe's electrical contacts. Our underwater set-up is very similar to this, having a cable that slips into the hot shoe then connects to the strobe via the bulkhead connector and a sync cord. The only difference between the land-based system and the underwater system is that we have to have a couple of extra connections to get the electrical signals through the housing, through the water and to our strobe.

While the hot shoe connector usually makes full use of all the available contacts so that you have full control of the strobe, I (strangely enough) prefer to have a simple manual contact that merely closes the electrical circuit between the camera (or to be more accurate, the camera's shutter) and the strobe. I never use auto exposure with strobes, so have no need for all those extra connections and wires. This in itself makes trouble shooting (for me) a whole lot easier. If you have a strobe that does not allow all those fancy functions, then there is no point confusing the situation with masses of extra wires and contacts that are not needed.

For simple camera/shutter/strobe connections, you can also skip the hot shoe contact and go to the sync socket in the camera body. Some cameras may not have such a socket but most do, even if you have to check the manual to find it. There are not any real advantages in using the sync socket, or disadvantages

for that matter, but it is good to know that you have a second type of contact point if you need it.

However, I know most of you love the convenience of auto flash exposure so let's assume that is the case. So with our faulty strobe back on the wet, cold, pitching boat, let's try to work through all the weak points to fix the sync problems.

First – check that the strobe is actually turned on. Sometimes on a very productive dive I may be chewing through strobe power a lot and getting near to exhausting the batteries. So turning off the strobe can save a small amount of power and even let the battery 'catch its breath', as it were. Next thing you know, you

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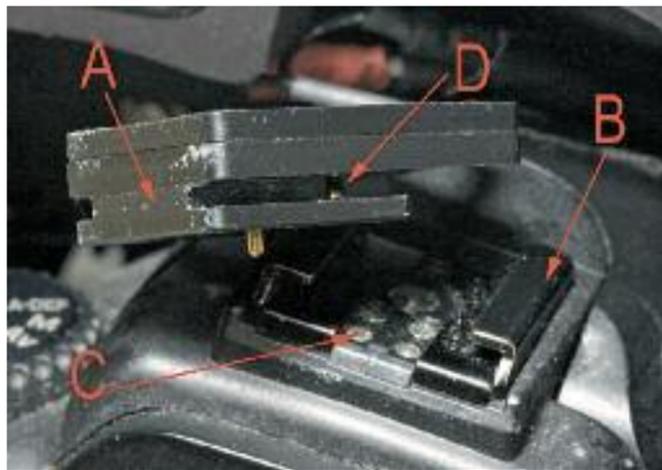
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get all excited about a new subject to photograph (such as the aforementioned turtle and sea jelly) and fire off a shot with no strobe. So, step one is to make sure that the strobe is on and ready to fire (that is what the Ready Light is for).

Once that embarrassing omission is ruled out, the second step is to check that the strobe is not flooded. A flood can vary from a bucket of water sloshing around in there, full immersion in fact, to a short circuit formed by a tiny mist caused by water entering the strobe body, either from a microscopic leak, condensation, humidity or water sneaking in during a battery change. It may have occurred some time ago and slowly caused enough corrosion to stop normal operations. Check the front port for any mist, droplets or streaks. In an extreme case, you may see bubbles and Nemo trying to get out. Take off or take out the battery pack and check for moisture in the contacts and body of the strobe. If you have water in there you'll need to send your strobe to the doctor. Poking around in among capacitors is not recommended. Think of a mini taser or one of those heart-starter machines. It's only funny if it happens to someone else.

With a flood ruled out, turn on your strobe. (We're assuming here that you've checked that there are batteries in the strobe and they are fully charged. Make sure you do the following tests with a freshly charged battery and that the ready light is active.) Take off the sync cord to expose the strobe's contacts. Now, this can be a bit dangerous if you just stick a paper clip in there.



On the other side of the bulk head connectors is the connecting plate (A) which slides into the camera's hot shoe (B). A prime area of concern are the hot shoe contacts (C) which quickly gather gunk and corrosion, as is the case here. While you can and should clean the contacts on the plate, don't forget to look for the 'earth' pin (D) which may need to be in contact with the side of the hot shoe retainer lip (B) or, depending on the camera brand, on another area of the hot shoe. Mine, which is spring loaded, often pulls its head in like a turtle and refuses to come out. A final special trick when all is done and working: tape the plate into place. It only needs to move a couple of mm to become disconnected.

Use a rubber handled screwdriver to short out the contacts. If there are a number of pins, you'll need to try each combination, making a connection between two different pins, to find the two that closes the firing circuit. At least now you know that the strobe is both powered and capable of firing. If you have no joy your work is over – there is an internal problem that will need repair.

Turn off the strobe and use a blower brush to blow out any contaminants in and around the contacts. You can use a soft tissue wrapped around a small screwdriver or similar narrow object, to clean the contacts themselves. Remove any grease that has migrated there from the sync cord. Most strobe contacts are gold coated so gentle wiping is all that is needed.

You can also try to clean the tips of the contacts with a pencil eraser, found on the end of typical 'old school' pencil, if the contacts are gold-covered pins sticking out of the connection port, or the faces of the connections if the strobe uses flat 'buttons'. Do not use solvents. It can be corrosive to any plastic in there, not to mention a fire hazard.

Do the same with the contacts on the sync cord. Be gentle though, and avoid putting any sideways pressure on pins as they will bend or break. Use the blower brush again to finish up and clean out any dislodged dirt and grime. Repeat the process with the other end of the sync cord. If your bulkhead connectors use the old standard (and hopelessly designed) Nikonos connectors, you'll need to gently clean the inside of the connectors found on the sync cord. They are spring loaded metal sockets designed to grip down on the bulkhead pins as they are pushed in. At times they can have corrosion that's not able to be seen. I use a tiny jeweller's screwdriver to get in there and scrape about.

At this stage, reconnect the sync cord to the strobe, but not the housing. Turn on the strobe then short out the contacts on the end of the sync cord that goes into the bulkhead connector. If the strobe fires then that part of the electronic chain is all OK. You have either solved the problem or eliminated that part of the circuit from the problem. If the strobe does not fire you have a sync cord problem. This is a common issue, more so with some strobe brands than others. If your cord is not working, either from a broken internal wire or corrosion from a cord flood (that does happen, usually from water entering from either end) then your best option is to toss it into the nearest bin or use it as a bungy cord to hold your camera bag together. A spare sync cord should be among your 'must have' maintenance and spares kit items. Before you toss it, though, disconnect it from the strobe body and then connect it again, making certain that the connection between the cord and strobe contacts is secure, then check the circuit again.

Assuming you have cleaned the bulkhead connector contacts, go inside the housing and remove the connector plate that is in the hot shoe of the camera. Clean the contacts on both the plate and the camera. The hot shoe contacts are prime causes of electrical faults and, hence, strobe failure. Moisture, particularly

salt-laden spray and humid air, can easily build up a thin layer over the contacts. The system may work in your home as there may be just enough power getting through to make things work. But immerse the whole thing in water and jiggle things about (as would happen on a bumpy boat ride) and the tiniest additional interference can make the whole circuit fail. In severe cases I have used the point of a screwdriver or a small dive knife to scrape off hard, crusty corrosion that has built up on the hot shoe contacts, unseen under the plate.

Connect the strobe and sync cord to the bulkhead connector. Turn everything on and fire off a few shots to test the circuit. If all is well the strobe(s) will fire on every shot (assuming you allow enough time for the strobe to power back up). If the strobe still does not fire then, since we know the strobe and cord circuit works, then there is a hot shoe problem or an issue with the wires leading up to the bulkhead connector.

To fire a strobe from the hot shoe, you need two points of contact. One will be to the camera body. Have a look at the plate that is pushed up against the camera



As a last resort, try using a relatively cheap and handy voltmeter. You can check to see if a particular wire is broken or has corrosion that reduces current flow.



A typical housing/strobe setup. This one is particularly interesting because the connectors are optical and the sync cable is an optical fibre. The strobe reacts to a tiny light pulse fired by the camera via a small electrical component attached to the inside of the housing. Cleaning the optical contacts, cable tips and changing batteries is about all you can do here.

hot shoe metal. It may not be underneath the plate with the other pins. My plate has it secreted away inside the groove that holds the plate into the hot shoe. It is spring-mounted and can be either retracted too far or not making a firm enough connection. Either way, with the strobe on and connected, short circuit this 'earth' pin or contact with one of the other plate contacts. One of the plate contacts will fire the strobe. If that short circuit does not work, then you have an issue between the bulkhead connector and the plate. It may be a broken wire or, more likely, some corrosion inside the plate (they will most usually have a circuit board of some sort in there) or the 'earth' pin/contact needs to be more firmly in contact with the camera body.

Sometimes, unknown to you, one of the pins in the bulkhead connector may have broken off. You may need a torch to see into the connector to check for any damage. Check wires at both the plate and where they go into the bulkhead connector. Be gentle – they are often delicate wires, easily broken. If you have no joy, try using a volt meter to check that there is a direct circuit between the plate connectors and the pins on the outside of the bulk head connector. If the wires are broken the volt meter will show it up. That is about as technical as we want to get. If that area is the problem, then you need a new bulkhead and plate installed.

If your internal wires terminate in a sync nipple, clean the nipple thoroughly. You can also gently pinch the outer metal part together to ensure a tighter fit. Short out the outer metal area with the internal pin to check the circuit. If that works, clean the camera sync socket and insert the nipple. The strobe should fire. If not, try twisting the nipple about to remove any minor contaminants. The nipple is often a weak point. It should take a firm push to slide it into the socket and not be loose at all. In very rare instances you may have had salt water sneak into the camera sync socket. Check for corrosion. A service centre should be able to replace a sync socket fairly easily.

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