



# Stop the Static!

## Maintain Your Radio's Batteries

By Chris Gabel, of Ocean Eye, Inc.

YOU KNOW THE OLD ADAGE: THE JOB IS ONLY AS SUCCESSFUL AS ITS WEAKEST LINK. NOWHERE IS THAT MORE TRUE THAN WHEN YOU ARE DEPENDING ON YOUR ELECTRONICS TO GET THE JOB DONE AFTER THEY'VE BEEN IGNORED FOR SO LONG. INTERRUPTED COMMUNICATIONS WILL ABORT A DIVE, AND CAN EVEN STOP THE REST OF THE DIVE DAY. PERSONALLY, THE LAST THING I WANT TO HAVE HAPPEN IS TO LOSE PRODUCTIVE TIME BECAUSE OF NOT PERFORMING SOME SIMPLE AND QUICK EQUIPMENT CHECKS.

The good part and bad part about today's electronics is that they have become significantly more reliable. We have all gotten used to devices that offer more options and require less maintenance. The flip side of that benefit is with the reliability sometimes comes complacency. The old "It worked yesterday and it will work tomorrow" attitude can come into play.

### POWER!

Yes, power. Without a supply of electricity, radios don't work. One big challenge with batteries is the environment that they have to work in. Saltwater corrodes terminals, and once that happens, it's just a matter of time before nothing works.

Most of the batteries are hidden in creative ways so that they are not under foot all of the time. That's good news and bad news – out of sight but out of mind. Every once in a while you need to dig out the battery and check the terminals for corrosion and clean them. You need to make sure that you pay attention to both terminals equally.

Nothing is more frustrating than a bad ground. A bad ground can cause a myriad of frustrating symptoms that can be difficult to track down. Also, just do an overall visual inspection of your battery.

All batteries are not created equal. Some are rechargeable, some are not (sometimes called single-use batteries). Some will last longer than others and some have specific requirements. Note the battery type, model, and any other specifics that are

pertinent to daily operation on the inside of the lid.

On some models, you need to make sure that the charger is unplugged from the unit before use. I'm not saying you need to publish the entire manual on the box, just the really important day-to-day information. If you have multiple radios in your environment, what you use one day may not be what you use the next. It's just going to make life easier for everyone if the operators don't have to track down the most important information or guess.

Bad things can happen when people have to guess.

Also keep in mind that even rechargeable batteries will degrade over time. Most rechargeable batteries get delivered in a discharged state and need to be charged before use. It's important to condition the battery every two to three weeks. Conditioning means to fully discharge and then charge the battery. If you don't, it could potentially shorten the life of the battery. The exception to that rule is the Li-Ion, or Lithium Ion, battery (they don't suffer from the memory effect).

It's normal for the battery to be warm to the touch during charging. If the battery isn't going to be used for a month or longer, most manufacturers recommend that you remove the battery from the charger and store in a cool dry place.

Battery life can vary but under normal conditions they should last between 500 and 800 charges. That equates to somewhere around three years. The battery will hold a charge for a shorter and shorter amount of time as its life cycle comes to an end.

One thing to remember is that a low battery or a battery at the end of its life cycle can produce strange symptoms on your radio – squealing feedback, interrupted communications, and other problems.

When in doubt, the first thing to do is replace your battery.

### BATTERY VARIETY

There are several different rechargeable batteries. The main players are NiCad, NiMH, and Li-Ion. NiMH (Nickel Metal Hydride) offer higher energy densities than NiCads (Nickel Cadmium). NiCad has about half of the capacity of NiMH batteries. That means more power from the battery with no additional weight. NiCad batteries tend to suffer from the "memory effect," NiMH batteries do not.

Li-Ion batteries represent the current gold standard for portable power. They produce the same energy as the NiMH batteries but with a 35% weight advantage. That means the same amount of power in a smaller footprint. The downside is



An old, well-used radio.

increased cost to the consumer.

No matter what battery you choose or that comes delivered with your particular radio, short-term storage requires you to keep the battery clean and dry. If you're not going to use it for a while, it becomes even more important to make sure that you keep the battery in a cool and dry place.

Keep them away from metal objects. I know, that may seem like common sense, but there are times folks are in a hurry, throw the battery on a shelf and end up shorting the contacts on something as silly as the shelf supports.

Also keep in mind that all three of the rechargeable batteries discussed in this article will self-discharge during storage. They

don't keep a charge on the shelf forever.

Remember to break in your batteries again after long term storage before use. Check with the particular manufacturer of your batteries for specific care instructions.

### KEEP IT CLEAN

Cleanliness is next to, well, you know. If there is one commonality that I've seen in the radios that I've used and/or worked on, is that cleaning is not the first priority. That's especially true in the areas that you don't necessarily see everyday.

Some of the things that get trapped under the cover plate would curl your hair. Most are benign – bugs, dirt, and other biological matter get under the plate and



build up. Every once in a while, you need to pull the plate and give the entire radio a good cleaning. If you're not comfortable pulling the plate off, have a trained technician do it.

While it's apart, take a look at the components. You don't have to be an electronic genius to look over the switches, speakers, and potentiometers and see if they are rusted or damaged. Again, if you're not comfortable with removing the cover, then by all means, don't. Have a qualified technician look over the radio and let you know what they find. Don't be afraid to ask them to explain and show you their findings.

Rigging the radio – just one word of advice, *don't*. If it's broke, fix it. If you need to fix it, fix it with the right component. I know that it's a temptation to use whatever you have on-site to get you through the day, but it may end up costing you more in the end. With more sophisticated parts, you can end up damaging the radio permanently using bailing wire and duct tape to get through a couple of hours.

## SEALS

Check the seal. Take a look at all of the seals. Not only the lid seal, but also check the seals on the faceplate and around the pressure relief valve (if equipped). Just like any other seal, make sure that they are properly cleaned and lubricated. Check for cracks and breaks in the rubber. If in doubt, replace it.

You need to take care of your radios as you would any other piece of dive gear. Just because it doesn't deliver air doesn't mean that it's any less important. They all need to be checked at least annually. You know that if you don't, that radio will fail at the most inopportune time.

Dive safe. **uw**

Have a comment or question on equipment maintenance for Chris Gabel? You can reach him at [cgabel@ocean-eye.net](mailto:cgabel@ocean-eye.net).

