

## Issue: Plastic pipe shattering when cut

This only happens when power tools are used, the plastic pipe is not held securely and the plastic is fed into the saw too quickly.

## Issue: Float switch too low

Check the fluid level of your ER HyZor. Some people are putting the float switch as much as an inch too low, substantially reducing the potential gas output. Float switch height was not specifically addressed in the original assembly instructions.

Assuming the HyZor tower cap is turned down to a sealed position. In the LOWEST recommended position (when the float is halfway on it's stem) the float midline (seam) should be even with the top of the plates. It is OK for the float midline to be 1/2 inch HIGHER than this.

### If you haven't built the ER HyZor yet:

Push the float stem tube through the GS cap bushing with at least 1 1/2" sticking beyond the surface of the cap, then screw the cap onto the GS tube, hand-tight.

Gently tap the top of the float stem until the float's center line is slightly below the inside curve of the T. Don't hit the wires.

Cut a groove into the float stem tube to mark its position, then unscrew the cap and remove the tube.

Apply primer and cement, then quickly and smoothly reinstall the float stem to the mark.

### If you have already built the ER HyZor and the float is too low:

Remove the float from the stem (taking care to let the wires move freely). Cut off the 1/2" cap (this will shorten the stem 1 inch). Buy a new 1/2" cap; drill, tap and glue it onto the stem. Reinstall the float.

## Issue: Leaking end cap terminal bolts

We designed a three-part sealing system for the end caps (hot glue inside, outside and an O-ring), any one of which should seal the threads in the cap.

Some people are NOT tightening the terminal plates enough for the O-ring to seal and they are NOT keeping the glue hot enough to flow (seal) into the cap threads.

### If you haven't built the ER HyZor yet:

1) Follow all the instructions (drill/tap/glue/O-ring) until you have threaded in the terminal bolt just enough that the end is even with the surface of the cap.

2) Heat the terminal plate with a hot air blower (hair dryer works) until you feel the tip of the terminal bolt get warm. This will keep the glue melted.

Screw in the terminal plate until you can put a nut on the threads outside. Screw on the nut until it is against the surface of the plastic.

3) Put a wrench on the nut to keep it against the surface of the plastic and finish screwing in the terminal plate. The nut is required to keep the (warm and soft) plastic threads from stripping.

4) You'll feel the O-ring come into contact, tighten 1/2 to 3/4 turn more. Leave the nut on the bolt and allow to cool.

### If you have already built the ER HyZor and have a leak:

Remove the ER HyZor from the vehicle and drain out the electrolyte (save for reuse). Rinse out the container very well with warm water. Remove the nut(s), washer and glue from the terminal bolt. Clean the terminal bolt. Reinstall the nut on the terminal bolt and screw it down to the cap, touching but NOT tight.

Pour about two cups of boiling water into the ER HyZor and angle the ER HyZor so that the boiling water surrounds the terminal plate in the end that is not sealing. This will soften the hot glue (to help it seal) and make screwing in the terminal plate easier.

Wait at least 5 minutes for the hot glue to soften and then pour out the hot water. Use a vice-grip on the end threads of the terminal bolt to tighten the terminal plate.

It is important to hold the nut against the plastic (using a box-end wrench) to prevent the (warm and soft) plastic threads from being stripped.

You will feel the O-ring engage. Tighten about 1/2 to 3/4 turn to 'squeeze' and seal the O-ring. The hot glue will enter the plastic threads from the inside and seal them. Leave the HyZor to cool before removing the nut to reglue the outside threads.

Using a vice grips will ruin the threads, so be prepared to use a small triangle file to fix the threads.

Repeat on the other end-cap if it is leaking too. Do NOT try to do both caps at the same time.

If the tower terminal bolt is leaking, remove it and clean everything. Reinstall it with fresh glue. We now use two washers on the inside, to help the glue seal while holding the wire securely and maximizing metal surface contact. We now use a bolt with a 5/16" hex head for easier tightening.

When you start the tightening process (of the tower terminal bolt), you keep the glue hot with a hot air blower (hair dryer works) so that the glue stays liquid enough to flow into the plastic threads as the bolt is tightened.

As with the end caps, it is a good idea to use a nut on the outside to help prevent the plastic threads from stripping.

**Issue: Plates/rings loose after assembly**If you *haven't* built the ER HyZor yet:

During assembly, use a Q-tip to put a thin layer of PVC glue on the inside of the pipe just before inserting a ring.

Press in the ring quickly and firmly with a plunger (made from a 2x2 about 6" long, that has the corners shaved off so that it slides easily into the cell tube).

Make sure excess glue does NOT cover the tiny hole in the plate.

If you *have* already built the ER HyZor:

Requires complete (careful) destruction of the PVC chamber and rebuild using the stainless steel components. Loose plates are only a problem if they 'turn' causing the flat edge to point to the side (more than 15°). Turned plates cause a loss in gas production.

**Issue: Extra space at end of cell pack**If you haven't built the ER HyZor yet:

Make all the rings at least 3/8" wide, a tiny bit wider is OK. The last ring should come out even or extend up to 1/8" past the outer edge of the cell tube. It is OK for the final ring to be up to 1/2" wide.

If you *have* already built the ER HyZor:

Requires complete (careful) destruction of the PVC chamber and rebuild using the stainless steel components. Extra space can cause the plates to loosen over time, which may allow them to turn.

**Issue: Overheating of the mosfet P1**

Some people are reporting that the P1 mosfet is getting too hot. It normally will not because natural amperage limiting in the HyZor usually limits the amperage to a maximum of 3.5 amps. 3.5 amps is can be handled by this design of mosfet without a heat sink, if the metal tab is free to radiate heat.

HyZors (without an amperage limiting circuit) do draw more amperage when they get hot. Because as electrolyte warms it lowers electrical resistance. It is possible (if the HyZor gets hot) for the amperage to rise enough that the mosfet would get hot enough to damage it.

If the metal tab on the mosfet gets too hot to hold your finger on it, then you do need to install a heat sink (cost about \$10) to help it keep cool. We recommend a heat sink because it is an inexpensive, simple and effective cure for the issue.

Until you fix the problem, disconnect the battery power to the HyZor circuit board. Removing the fuse will do this.

To resolve the issue:

1. Put the fuse back in, start the engine and test for voltage on the positive (tower) bolt on the HyZor. If there is battery voltage then you don't need a new mosfet, proceed to step 3.

2. If there is no voltage: Remove the HyZor fuse. Remove P1 by snipping its leads, then desolder and pull one lead at a time. Clean the pin holes (solder sucker or tiny drill bit) and resolder in a new P1.

3. While the HyZor fuse is removed, use a commercial heat sink (designed for a TO-220 transistor case) or cut a strip out of an aluminum pop can and bolt it to the cooling tab on P1. This will cure the overheating issue.

ATTENTION: Because the cooling tab is positive voltage and aluminum is electrically conductive, fasten the heat sink so that it will not touch the circuit board or any conductive part of the vehicle. It is OK to coil the aluminum strip to reduce space, be sure air can flow through and around it.

It is helpful to use heat-sink grease (conducts heat but not electricity) when installing a heat sink, to assist heat transfer (conduction) from the mosfet to the heat sink.

**Issue: Breaking off neutral-zone wire**

The neural zone wire is silver-soldered onto the plate. Some people are breaking off the neutral zone wire when bending it.

If you *haven't* built the ER HyZor yet:

On the 'Version A' neutral-zone-assembly, avoid putting pressure on the soldered joint by holding the wire, close to the plate, with needle-nose pliers. Bend the wire 90° about 1/4" from the plate. *The 'Version B' neutral-zone-assembly has the wire silver soldered to the bottom bar and it does NOT need to be bent.*

If you've broken off the wire:

You may send the assembly back to us for repair, for a \$10 fee plus postage. We use Brown's Gas to silver solder the wire back in place. It can be done with acetylene. If doing it yourself, take care not to overheat the wire or the plate. If either gets red hot, the silver solder will not stick and the steel may be permanently damaged.

**Issue: No Lye to be found**

It has come to our attention that the government is making lye (sodium hydroxide) harder to acquire because it is used in illegal drug making processes. In some places you can no longer get it at grocery and hardware stores. You may need to order it from a Pharmacy or an online source.

**Issue: Finding #25, #8 and S drill bits**

Can be replaced with 9/64", 3/16" and 11/32" respectively

**Register** your HyZor serial # (as per the instructions in the Assembly booklet), then email [order\\_room@eagle-research.com](mailto:order_room@eagle-research.com) to get the url and pass code for additional resources and current updates.