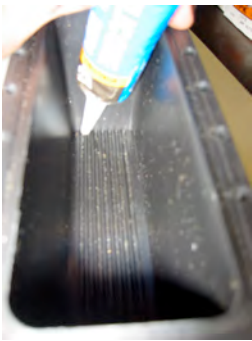


B3 assembly instructions for Black and Clear Cases



1. Before starting any other steps read the entire instructions.



2. Fill the syringe with Goop and place a bead of Marine Goop about 1/8 to 1/4 inch wide in the narrow corners of the cell. This step ensures that the joint between the plate side spacer insert and the is sealed from ensure that each



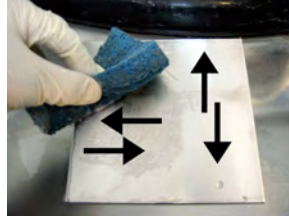
bottom of the case voltage leaks. To plate is completely goop down each

sealed run a small bead of marine groove of the bottom half and plate side spacer inserts so the sides and bottom of the plates will have no leakage. Note: make sure you complete steps 2-5 before sealant dries.

3. After the bead of sealant is in place, lightly set in one plate side spacer insert. You don't want to push the insert all the way down to the bottom of the case or you will not be able to get the plates underneath the shelf of the insert. Make sure the end of the insert that is longer is inserted down toward the bottom of case or the end with the shelf is upward.

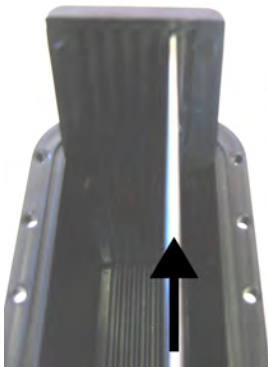


4. Wear gloves while performing this step and any time you handle the plates until they are inside of cell. Wash of the plates with light water or facial wash. recommend using a with a scotch brite type

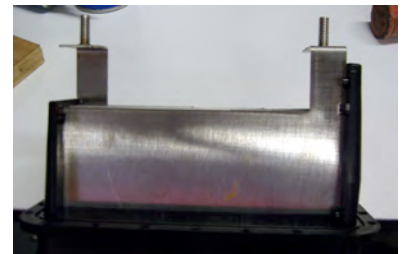


sealed
both sides
soapy
We
sponge
scrubber

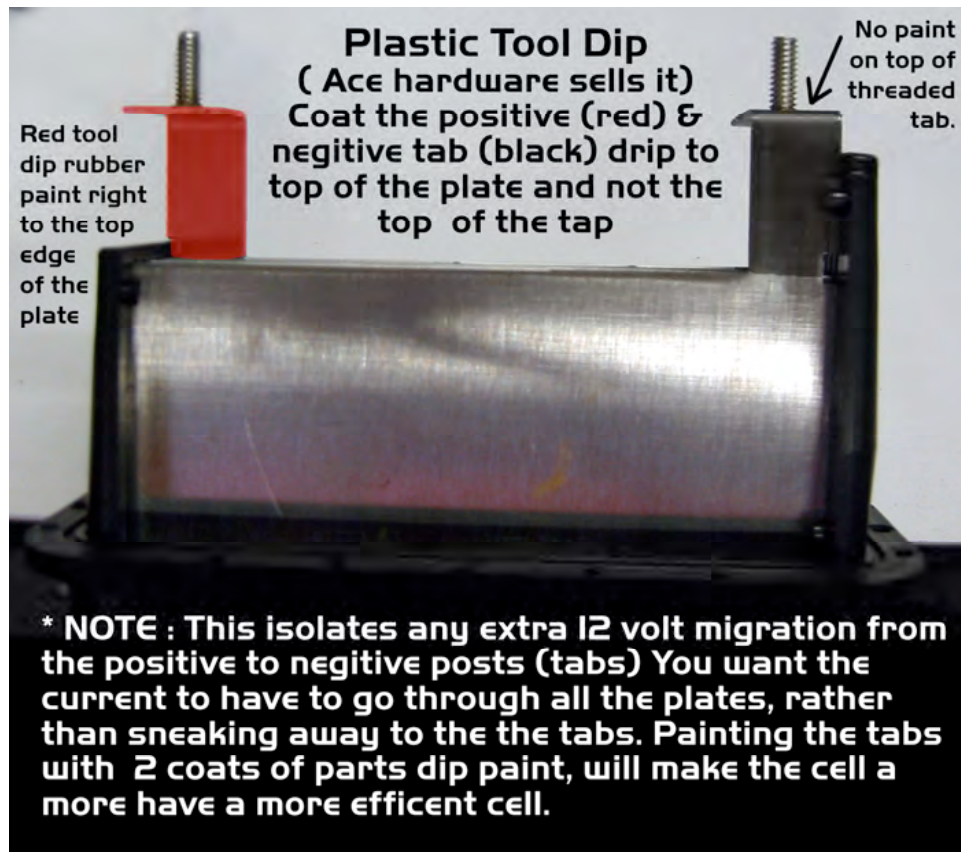
on one side and a sponge on the other. Use hot water. Start by scrubbing the plate in both directions (up and down and side to side) first with the scotch brite side then with the sponge side. Repeat this for both sides of plate. Note: if you are not satisfied with the factory sanding, before you perform step 4 take the time to sand the plates again in one direction only , not back & forth, You are not sanding the metal you are etching the metal. So only one direction cross hatch"ing the plates. Use 60 or 80 grit sandpaper. Also read the Bob Boyce Method of plate cleansing and conditioning", a document on the assembly instruction page. : <http://hydrogengarage.com/assembly.html> We have found that a un-mounted grinding wheel works good for a plate scratching device. Rubbing the plates on the side of the wheel, ready creates a good scratched up , cross hatched surface, allowing a good catalytic layer to form in your cell. The more scratches the faster it seems to condition too. Just a tip.



5. Insert the neutral plates first. Set them into the proper grooves (second groove in) on the bottom of the case. Once in the groove, push plate against the plate side spacer insert. When all 5 neutral plates are in place put the 2 end plates in place using the same process as above. With all 7 plates

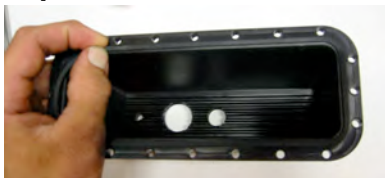
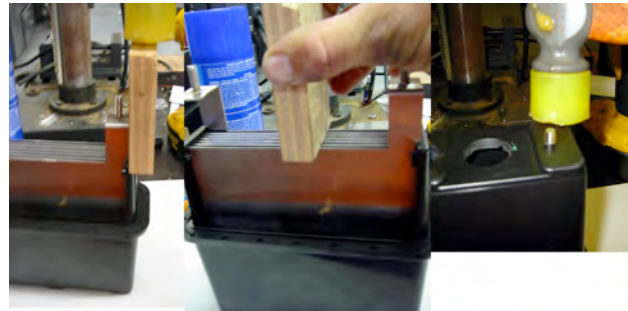


installed and pressed to one side, slide the other plate side spacer insert in place.



6.

6. Ok now its time to get tappin. Start with the inserts that you put in place last. use a small block of wood and hammer to tap the insert down nice and snug against the bottom of the case. Do the same thing for the other insert. You can use the same process to tap all the plates down too. With the plates in place its time for the top half.

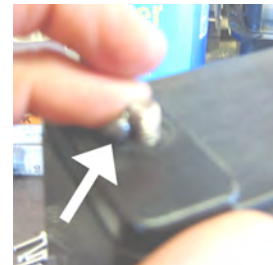


7. Take the o-ring off the outside of the top half and press it in the groove. (Yours may come with the o ring already fitted, so you



can skip this step.) If not then : Start this step about an inch away from a corner on one of the long sides and put a small dab of super glue in the middle of the corner groove. then lightly stretching the o-ring around the corner pressing down on the glue ensuring a good bond. Continue lightly stretching the oring until almost the next corner and put another dab of glue in the corner grove. Repeat the pressing down method for this corner and the next two after that until the o-ring is in place. Now slide the top case over the plates and line up the terminal post with the terminal post holes in the top of case. Once lined up start tapping (like the above right photo) with a rubber hammer or wood block to seat the top case.

8. Seal around the terminal posts with some silicone or gasket sealer. Then place the $\frac{1}{2}$ -20 flat wash over post followed by a $\frac{1}{2}$ -20 jam nut. Do not tighten jam nut at this time first we need to join the top and bottom cases. Put the 6-32 screws in the holes around the cases. Now starting at a corner put the 6-32 nut on the screw and tighten making your way around the case.



9. Now you can tighten up the terminal posts. We recommend using red Loctite on the bottom nut on terminal post.



10. Find the outlet elbow and put some Teflon tape on the threads. Then thread to elbow into the center hole of the top case.

11. Before you screw on the fill cap you will need to put the small o-ring on under the cap flange.



Now you are ready to start following the vehicle installation steps. View some videos of the B3 Cell and Installation here : <http://hydrogenjunkie.com/products/litedutysystems.html>

Electrolyte Solution

The Bob Boyce Booster (B3) is a 20% by weight electrolyte solution cell. 20% NaOH or KOH (but not a mix, just one or the other) to 100% weight of water. You can start with a weaker solution, or keep adding electrolyte (on the bench) until your cell reaches 8 amps at cold starting. The amperage will creep up with . Ideal temp. for the cell is 86 $^{\circ}$ f. I start with a weak 10% solution , 13 teaspoons of KOH or NaOH. But KOH or NaOH from here : <http://hydrogengarage.com/koh.html> Boyce says the 20% is necessary to let the electrons flow easier and less heat frm this mixture is generated, therefore making more hydroxy gas rather than any energy

wasted in making heat. Heat = oxidation of the cell. We want a cool running cell for hours of driving.

When mixing your electrolyte solution we recommend that you always use distilled water or R.O. water. Using distilled water will ensure that booster is free from chemicals and contaminants that may be present in everyday tap/well water.

Hydrogen Junkie's Method :

- **Solution Mixture is recommended at 5ml of lye to 800ml of distilled water.**
- **If your booster is in a location that freezes, you can create a stronger lye to water mixture and give your booster a lower freezing temperature. If you choose to have a stronger solution, you must use a PWM with your unit. This will allow you to control the amount of amperage your unit will pull from your car by the twist of a knob.**
- **If you are not using a PWM with your kit, you will have to pay closer attention to your lye to water mixture. The amount of lye that you use will determine how many amps your booster will pull. Thus if your solution has a lye content that is too high, your booster will pull more amps than necessary and become less efficient. If your unit is pulling too many amps it has a greater chance of overheating and blowing your fuse.**

Filling your Booster

To fill your unit, first remove the fill cap. Insert a funnel into the unit (any kind of funnel should work.) Fill solution just under the top of the plates. Then be sure to re attach fill cap.

- **To gain the most efficiency, it is best to keep your solution level right under the top of the plates. If the solution level goes above the plates there will be voltage leakage from the unit's terminals until the water burns down. When there is voltage leakage, the unit will not produce the most efficient amount of hydroxy gas, generate excess heat and pull more amps until the solution level is down and the electricity passes through all neutral plates.**
- **Do I need to add solution (lye & water mixture) every time my booster gets low? No! The only time solution needs to be added is when the unit is empty and needs to be filled, or if your booster is not pulling a sufficient amount of current. You can add small amounts of strong solution to your unit until it is pulling the proper amount of amps.**

What amperage should my booster operate at?

During our testing at Hydrogen Junkie we have achieved a very efficient 14.3 LPM of hydroxy gas at 10amps (max 20amps) with the B3 design once the unit has had sufficient time to be conditioned.

**If you have any questions please feel free to contact :
info@hydrogenjunkie.com phone-805.801.2252 or 805.215.8251**

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