

# ASSEMBLY DATA SHEET r4.0

## RECOMMENDED TOOLS

Self-locking long-nose pliers, small  
Wire cutter/stripper/crimper  
Electric drill  
Caliper or accurate ruler

Regular pliers, preferably thick long-nose 3"- 4"  
Open wrench (or ring wrench)  
Drill bits: 3/16" 7/32" and 1/4"  
Glue: Plumber's 'Goop'

## ASSEMBLY PROCEDURE

*WARNING: Some of the procedures offered below create toxic fumes, such as soldering or strong glues. Work in a well ventilated area and do not inhale these fumes! Especially Goop has a very violent smell.*

1. To begin, please get all the parts, supplies and tools together. We have outlined the assembly process as: **(A) Build the Lid, (B) Assemble the Tower, (C) Wrap the Electrodes Around the Tower, (D) Attach the Tower to the Lid and (E) Notes on Connector Kits.**

### **(A)Build the Lid**

2. The lid is the basis upon which everything else will be built. Clean the plastic lid of any dust and especially of any oily layer left by its manufacturing process.
3. Mark and drill holes in the lid. Use the template at end of instructions, printed to scale. I use a stick pin to push through the paper and leave nicks in the lid to show me where to drill. The measurements are not critical but try to be as close as possible to the template.
4. Clean the holes. Using thin sand paper roughen a small area around each hole, from the upper and lower sides, so the glue can later on stick better to the surfaces.
5. Start with the barbed elbow and glue it into hole A and glue it to the lid with Goop. Secure the bottom of the elbow (under the lid) with a 1/4" nut, screwed on using pliers and also glued with Goop.

It's quite tricky; in order to succeed you must grip the nut strongly using small Vice Grip pliers while supporting the elbow with the other hand. (Repeat if installing two HHO outputs.)



*Above: Two HHO output elbows are shown. We recommend only one.*

6. Locate the short piece of vacuum hose and Goop it onto the HHO output elbow. We have also included a small zip tie to tighten around the end to further secure it while the Goop dries. Feel free to push the hose WAY past the 'stop' and really make it fit tightly.
7. Locate the small pressure relief valve to insert and glue onto the lid, blue side up!



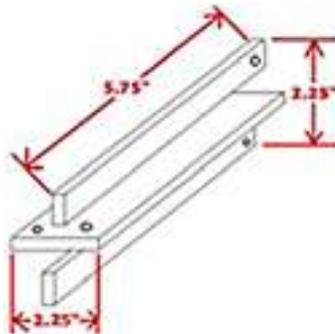
8. Finally, glue the air inlet valve known as the 'Bubbler' knob to the top of the lid.



### **(B) Assemble the Tower**

9. Next, build the Plexiglass "Tower" for the electrodes. Start by drilling the four holes (3/16") at the ends as shown. (*Deluxe Kit owners skip this step and go to Step 14.*)
10. Glue the three supplied pieces of 1/4" Plexiglass together with Goop. The optimal dimensions for the Tower are 2.25" wide by 5.75" tall. Position the drilled holes opposite each other, two at each end.

Some kits have the upgraded tower versions that use two slotted pieces. The DIY and the upgraded versions work the same in the assembly process. (*Deluxe Kits also have notches along the edges.*)



### **(C) Wrap the Electrodes Around the Tower**

11. When the Tower is dry, find your electrodes and prepare to wrap them around the tower. (*DIY Kit owners must refer to the DIY Data Sheets for how to make the electrodes and Bubbler Assembly.*)

The 'looped' ends of both electrodes should be at the top of the Tower, and be positioned to receive the terminal bolts that secure it to the cap.

12. Start by threading the thinner electrode through the 3/16" hole at the top of the Tower.
13. Using one hand to hold the thinner electrode wire and the other hand to hold the tower, start winding the electrode in a spiral motion down the tower. Start with a strong pitch (step) down the tower and then slow down to a 3/4" pitch.
14. Slowly guide it around the tower toward the bottom. Leave enough space between each wrap for the second electrode to follow.
15. When you arrive at the lower part of the tower, secure the end of the electrode using pliers. Make sure it winds evenly and tightly. Look at the sample. Some practice is required to achieve the desired result.
16. At the bottom, thread the end of the electrode through the bottom hole and bend it around to hold it in place. Use the pliers to pull and bend the end of the wire around. Cut off any excess when done.
17. Repeat the last steps for the second, thicker electrode. The electrodes are never connected together nor do they touch. See photo for a finished example.
18. When you're done make sure the wires are straight. Inspect the result. The electrodes should wind down with a distance of 3/8" between them most of the way down.

It starts with about 3/4 of an inch gap and comes closer together to 3/8" from the second tap or so as the electrodes get down to the submerged area.

The photo below will give you a fairly good idea how the finished result should look. Remember the kit version of this keeps the costs down, but now you see why the assembled versions of these cost more. ☺



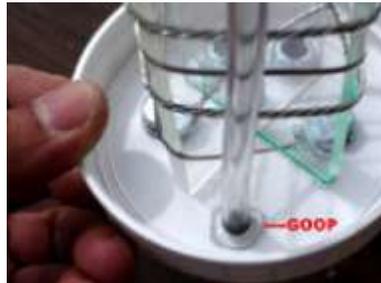
19. Now glue the electrodes wherever they touch the tower. A thin to moderate layer of GOOP is all it takes. A little 'bump' of Goop on every wire is more than enough to secure them in place.  
**WARNING: DO NOT BREATHE THE FUMES OF GOOP.** It is toxic. Work in a well ventilated area.
20. The glue cures in minutes – but let it acquire its full strength – wait 24 hours before use! Let it cure in a well ventilated area, away from children, and pets.

**(D) Attach the Tower to the Lid**

- (E) Review the diagram showing bolt, split washer, lid, flat washer and nuts.



- (F) Insert the bolt through the electrode, add a split washer, and insert this through the lid. Add a little Goop if desired and next add the flat washers and the 1/4" nuts.
- (G) Now tighten using moderate hand force and a wrench (upper side) and an angled wrench or self-locking pliers (bottom side).
- (H) Note the heavier electrode is for the anode (positive) terminal. Indicate this using the red wing nut.
- (I) With the electrodes connected to the Terminals, hold the Tower in its final position under the lid (see picture below).
- (J) From the bottom of the lid, insert and Goop the vinyl bubbler tubing onto the lower part of the air inlet. The tubing should be secured to the lid with a small amount of Goop (don't clog the opening!)



- (K) Secure the loose end of this tubing, with the anchor installed, to one of the electrodes using a small zip tie.

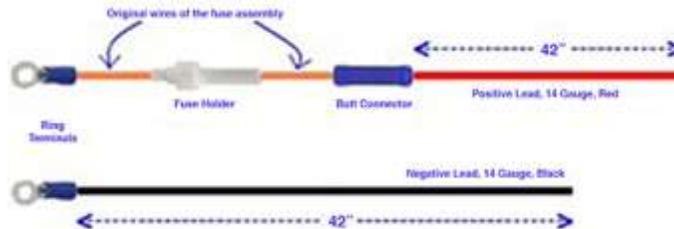


- (L) Add wing nuts to both bolts.  
**MAKE SURE THE RED WINGNUT CONNECTS TO THE THICKER ELECTRODE.**
- (M) Carefully inspect the finished unit for missing parts/glue, loose connections or clogged tubing.
- (N) Insert the finished unit into a wide-mouth canning jar.

**(E) Notes on Connector Kits**

- (F) Use the following wiring diagram to manufacture the wiring harness. For improved safety place the short part of the fuse holder facing the ring terminal.

(Just in case there is 12 volts live on the wire, it will be protected by the fuse holder casing). *(This step done for Deluxe Kit owners.)*



- (G) Add installation components: 3.5-ft long vacuum hoses, vacuum tees, and bungees. The lid should have a short (6-8") piece of rubber hose attached to the HHO output elbow. At the end of this hose is a good place to attach the supplied check valve.

The check valve will maintain vacuum pressure inside the jar, and will also provide some safety features. The check valve then attaches to the long feeder line to the engine. We have provided a number of connectors to make splicing into a line easy, or simply drilling a hole for insertion.

See the **Installation Data Sheet** for more.

**This procedure does not require any special machines or skills; it can be taught in local classes, workshops or even professional schools anywhere in the world! The more we teach it, the more we're protected from loss of this valuable technology.**

**And, the more we open the doors to the public DEMANDING higher levels of free-energy systems and automotive improvements.**

**Remember, the electric hybrid cars we have today were not due to the goodwill of Big Oil, but due to the efforts of experimenters and environment-conscious folks like us!**

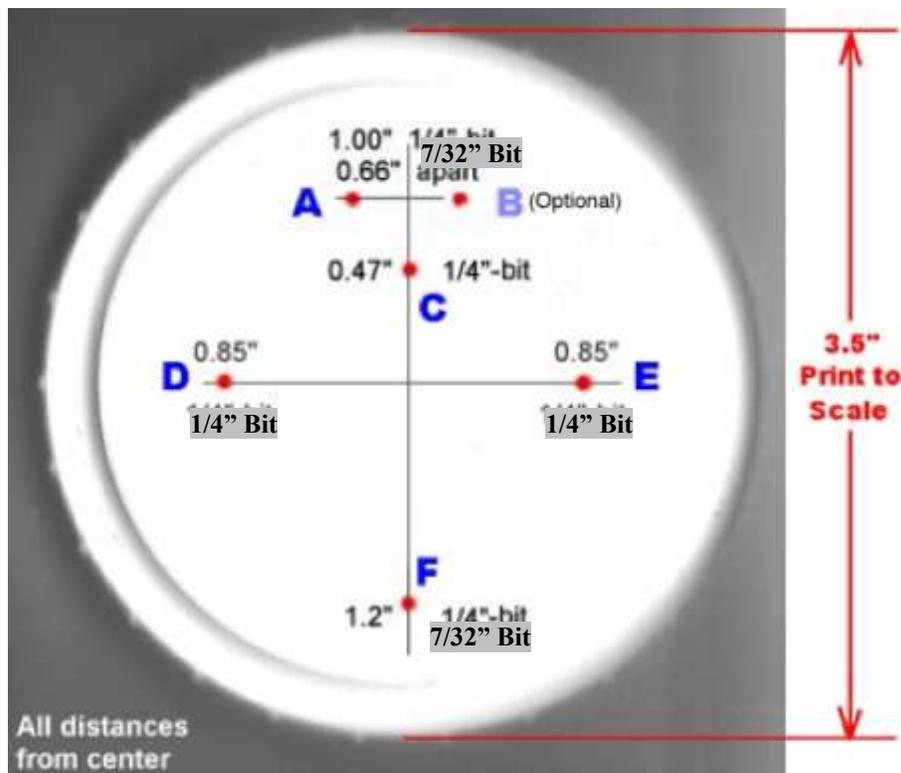
**Keep up the good works!**

## Drilling Template for Wide Mouth Cap

***NOTE: We recommend making a single HHO output hole.  
You may choose to drill the second output hole later if you wish.***

Refer to the diagram below for marking correct hole location:

- The upper hole (A) (B is optional) is 7/32" and is for the elbow (HHO outputs).
- A bit lower on the center line (C), is for the 1/4" relief valve hole.
- The two holes on the horizontal line (D+E), 1/4" each, are for the terminal bolts.
- The lower single hole (F), 7/32", is for the air inlet (bubbler).



**DRILLING TEMPLATE**