



# Recommended ICE BLOCK 77 & 14/7 Idiots Manual & Installation & Maintenance Book

- Introduction & Parts List :
- IceBlock 77 or 14/7 cell block
- PWM with wiring harness

- Reservoir with fittings
- Dryer w/bracket
- Hose 10ft
- Digital Readout
- Volo Chip (optional or sent from Hydrogen Garage)
- Part Bag
  - 5...small zip-ties, 2...medium zip-ties
  - 2...large zip-ties, 1...mini ANL Fuse holder(connected to power wire)
  - 2...mini ANL 30 amp Fuse (60 amp for Ice 714)
  - 1...40 amp Relay (inside the PWM box)
  - 1...Fuel pump splice connector ( or iginition+ trigger wire connector)
  - 1...Air Box Fitting, 2...3/8 tube to \_ NPT Dryer fitting
  - 2...power wire (connected to PWM), 2...Ring Terminals (connected to power wire), 8...Hose clamps (10 for Ice 14/7)

**Terms and Conditions** \**Warning- Be sure to read all directions and Terms/Conditions before further action. Terms are at the end of this manual* 

The **Ice Block 77 & 14/7** is a device that splits water up into hydrogen and oxygen using electricity. There are many names for these kinds of devices that are meant for transportation applications. Here are just a few, so while reading the instructions there will be no confusion: **Electrolyzer, hydrogen booster, cell, booster, hydrogen generator.** 

The gas that comes out of the hydrogen generator is hydrogen and oxygen also known as: **browns gas, hydroxy, oxyhydrogen, HHO.** 

**Electrolyte** is the substance that gets mixed into the distilled water to make it conduct electricity. Only use **sodium hydroxide (NaOH) or potassium hydroxide (KOH)** with your hydrogen kit.

## Introduction

Congratulations for purchasing your new hydrogen booster. Get ready to improve fuel economy, cut emissions and gain horse power. We greatly appreciate your willingness to participate in the transformation to clean energy. We will continue to do our best to provide the public with credible information as well as reliable products.

## **Installing Components**

*First we will install all of the physical components of your kit; Booster, Bubbler, Dryer, Relay, Hoses and Fittings. Then we will focus on the diagram to install the wiring components of your kit.* 

#### Step 1 Mounting your Booster

The first item that needs to be addressed is find a well ventilated, spark free area to install your booster at. Even though your booster is free from any leaks and is in perfect working condition, we want to take every safety precaution possible.

- The preferred area to mount your booster is on the side of the frame near the battery box. The reason you want to mount your booster here is so the power cables are as short as possible. You want the least amount of resistance as possible. Best way to eliminate steam vapor from your booster is to keep it in a well ventilated and cool environment. A lot of customers mount there units in a box which is perfectly fine. If the E-Block is outside the engine compartment then it will stay cooler. See Electrolyte mixtures.
- Mount your booster to a sturdy bracket, preferably to the frame of your vehicle. Be sure that your unit is free from contact with any moving parts and that it is free from any hot surfaces.
- Be sure that your unit is in the upright position with the output fitting facing upward.
- Behind your front grill is a good spot to mount the cell block, a cool spot for hot weather. If you live in a cold climate under the hood would be a better choose. The electrolyte NaOH or KOH have anti-freeze properties. You can mix a 20% solution of NaOH and or 25% for a KOH solution by weight. ( 20% of weight of dry NaOH pellets to 100% weight of water)

#### Step 2 Mounting your Reservoir / Dryer

Again, find an area that will be free from any moving parts and hot surfaces. Mount your Bubbler/Refill reservoir in so that the bottom of the reservoir is no less than the same height as the top of the generator and no more than 24 inches above. If the reservoir placement is too low or too high, the unit WILL NOT self circulate. Once the reservoir is mounted, the next step is mounting the dryer. The dryer goes between the reservoir tank and the air intake fitting. Find a place with ample space and clearance to remove the dryer bottom so you can dump the water collected if needed. The Dryer comes with a metal mounting bracket. The Dryer should be at the same level as the Reservior Tank.

#### Step 3 Connecting your fitting and hoses

After you have your booster and reservoir mounted, it is time to install your fitting into your air box.

• Mount the intake fitting as close to the airfilter as possible. If possible mount the fitting so the hho gas is pulled through the air filter. This will ensure the intake air and hho gas is very well mixed. If the air is mixed well, then all cylinders will get even hho mixer ratios. Also mount the hydroxy gas fitting before your air filter to protect your engine from any possible contaminants that may be present in the hydroxy gas.

#### Step 4 Mounting your PWM Controller Box

Mount the PWM Controller box near the cell and battery. The wires should be as short as possible, less resistance & voltage.

# Wiring your Ice Block Cell & PWM Wiring Harness

#### Step 5 Wiring Diagram

Your PWM wiring harness is very simple to wire up, only 5 wires to hook up. First mount the Digital Display on the dash board. Run the cable through a plug in your firewall. Every car has a car stereo rubber plug on your firewall from the engine compartment to the cab. Run the cable to the PWM box. You will then hook up the 8 wires inside the PWM box.



Above is the inside of the PWM, you need to connect the 8 wires to the 6 terminals and one to ground to the grounded case. One wire to power+

Next hook up the main thick 10# wires

**<u>Black Wire -</u>** Connect the black wire to a secure ground. (Preferably to a portion of the vehicles frame or battery.)

**<u>Red Wire +</u>** the red wire hooked up to a fuse, is the power wire that provides power to the cell. It first travels from the battery to a fuse, from the fuse to the relay. When the relay is switched on the power continues from the relay to the positive side of the hydrogen cell.

Red & Black Cell Wire- The 2 wires to the cell block come labeled Red + and Black -

**\*Important**- be sure to remove the fuse until the unit is ready to be tested.

<u>Yellow Trigger Wire #20awg</u>- We want to get power from a source that will be on <u>only</u> when your engine is running. For example, a fuel pump fuse would be a great choice to use because the only time it is signaled to be on is when your engine is running. What we don't want is for your unit to be on while your engine is off. For example, a radio fuse would not be a good choice. This is because if the vehicles ignition switch is in the on position, the booster will begin to produce hydroxy gas, while your listening to music, while your girl friend is shopping, even though your engine is off. This is not good for 2 reasons. One, you will be producing unnecessary hydroxy gas, and two you will be draining your battery. As soon as you start your

vehicle the hho gas in the manifolds will explode. Not good. Very dangerous! Please play attention.



To increase amps adjust the tiny screw on the display. It takes a tiny jeweler's screwdriver to do the trick. The amps are factory set at 10 amps. For the 77 cell, and 20 amps for the 14/7 cell.

### Step 6 Finishing your Wiring

- Be sure that all wires that have been installed correctly and are securely fastened.
- Use the provided cable ties to secure the wires. Do a nice pro. clean install.
- Also be sure that they are clear from any moving parts and or hot surfaces.
- Lastly reinstall the fuse. (This is the fuse that is inline with your battery.)

# **PWM30** Controller Adjustment Access



in the same hole. Best to set as is.

Your PWM comes preset at 10 amps, from the test bench. The freq. Is set, the duty cycle is set about 85%. We recommend only changing the "Current Limit" pot on the digital dashboard display. The tiny screw below the digital ammeter reading on the dash. If you're the type that

Likes to tinker and not listen to us, the PWM adjusts are above. Always check final output with an

## Electrolyte Solution

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

- A 10% Electrolyte Solution Mixture is recommended at 1/2 cup to a quart of water. (1 liter) If your booster is in a location that freezes, you can mix a Bob Boyce recommended 20% of NaOH to 100% water. KOH you can go as high as 25% of KOH to 100% of water. 20% is 1 cup of dry Naoh pellets or caustic soda beads to 1 quart (1 liter) of water. If you live in a warm climate or don't like the idea of have really caustic solution under your hood then you can mix the 10% solution just so it provides the amps you are looking for. Say you need to produce just 30amps, then mix the solution just enough so the water pulls 30 amps when the cell is cold. Perfect temp. for electrolysis is 86°f. If your cell is too cold, 32°f it may not make hydroxy gas, until the water warms up. In extreme cold climates a heater blanket is recommended.
- Proper electrolyte mixing is done with a glass container or a clean plastic bucket, first fill with water, pour in the dry electrolyte pellets very carefully, wearing gloves and face shield, avoid splashing, have a clean stir stick, either plastic or wooded. Stir as you pour. NaOH or KOH in
- . 100% concentration can BLIND YOU! Be careful, it also burns your skin if left on your hands too long. Have a squirt bottle of 50% vinegar and 50% water nearby, it will instantly dilute the burning of the skin. It neutralizes the lye immediately. A necessary safety precaution.

#### 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 to 1" below the top cap. Allow room for sloshing.

- 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.
- You will only have to add water to the reservoir, place a water bottle of distilled or RO water in your car. Check levels when your at the gas station.

#### What amperage should my booster operate at?

During our testing at Hydrogen Junkie we have achieved a very efficient 1 LPM of hydroxy gas at 12 amps, once the unit has had sufficient time to be conditioned. 2L engines – 8 to 12 amps. 3L to 4L engines – 12 to 20 amps, 5L V8 engines – 15 to 25 amps. Every car or truck has an amperage sweet spot, some want more some do better with less!! Bob Boyce says more is not necessary better, but a higher quality gas is what your after, a more higher quality gas with less amperage, a more efficient system.

# Volo Installation

Go to <u>http://hydrogengarage.com/ds2install.html</u> for full online instructions, including videos.

# TERMS & CONDITIONS

Viewers and users of this information, linked pages, affiliated pages, files, etc. are granted access to and use of the information contained herein under the following conditions.

**Hydrogen Junkie** (*hydrogenjunkie.com*) grants you a limited license to access and make personal use of the contents herein. The information contained herein is intended solely for educational and entertainment uses. For this reason, no advice or information, whether oral or written, you obtain from this website, and/or affiliated and/or linked websites, whether oral or written, shall create any warranty (express or implied) whatsoever. This disclaimer of liability applies to any damages or injury caused by any failure of performance, error, omission, defect in transmission, computer virus, any unauthorized access and unauthorized alteration of the content herein whether for breach of contract, tortuous behavior, negligence, or under any other cause of action. User specifically acknowledges that **Hydrogen Junkie** (*hydrogenjunkie.com*) is not liable for the defamatory, offensive or illegal conduct of other users or third parties and the risk of injury of injury from the foregoing rests entirely with the user.

By viewing, using, and visiting this website, user acknowledges that any alteration to a vehicle can result in the breach of various warranties provided by their manufacturers, distributors, or sales dealerships. User acknowledges that he or she shall hold harmless **Hydrogen Junkie** (*hydrogenjunkie.com*) its affiliates, sponsors, whether in their own personal capacity or representative capacity through corporations, partnerships, and the like in any event a warranty is thereby nullified. Moreover, user acknowledges that he or she is hereby apprised or does already know the fact that various alterations of their vehicle, no matter how minor or insignificant may not be in compliance with the laws of their particular state, jurisdiction, county, or other Federal law. **Hydrogen Junkie** (*hydrogenjunkie.com*) expressly urges all users to refer to all laws to ensure they are in complete and fastidious adherence therewith. **Hydrogen Junkie** (*hydrogenjunkie.com*) does not advocate the violation of any laws for any purposes whatsoever. User agrees to use this website contingent upon his or her agreement to abide by all applicable laws.

Furthermore, user is warned that various alterations may be very hazardous especially with respect to the energy systems of the vehicles. **Hydrogen Junkie** (*hydrogenjunkie.com*) denies all responsibility for any injuries or damages resulting from alterations to the fuel systems. Due to the dangerous nature of working with the fuel or energy systems of vehicles, **Hydrogen Junkie** (*hydrogenjunkie.com*) expressly warns and recommends that any alterations to their vehicles be made by a licensed, certified, and experienced professional. Moreover, any alterations, and experiments promoted in this site is intended for use on private property (ie. not to be used with publicly subsidized and accessible roads) and exclusively for recreational vehicles. In all cases, user acknowledges and expressly takes the risks attendant to the undertaking of any experimentations or alterations to any vehicle due to the contents of this website.

In addition to the terms set forth above neither **Hydrogen Junkie** (*hydrogenjunkie.com*) nor its affiliates, whether acting in their personal, representative, or corporate capacity, and their respective officers, directors, employees, agents, attorneys, accountants, consultants, advisors, and partners shall be liable regardless of the cause or duration, for any errors, inaccuracies, omissions, or other defects in, or untimeliness or unauthenticity of, the information contained within this website, its linked pages, sponsors, and affiliates.

All foregoing contents are the sole intellectual property of **Hydrogen Junkie**. (hydrogenjunkie.com)

Hydrogen Junkie (hydrogengjunkie.com) • California USA