

Hydrogen Generator Instructions

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REQUIREMENTS:

Read the entire instructions before starting anything.

Anything in red is indicating hazards or danger, pay special attention to this. BE CAREFUL, DANGEROUS CHEMICALS AND GASES. **I recommend putting this system onto a second vehicle until you have perfected it. This system is considered purely experimental and there's more work that needs done to reach perfection.

SAFETY ISSUES:

Sodium Hydroxide is the active chemical that works with aluminum to release hydrogen from the water. Hydrogen gas will be created with this system; **hydrogen gas is explosive and will burn.** (that's how an engine uses it) Install this system outside as excess hydrogen could be generated **AND COULD CREATE AN EXPLOSION HAZARD IF DONE INDOORS.** Do not attempt to do this unless you understand all the risks. I do not accept responsibility for any loss of life, limb, injury or property because of the use of this system, this system is considered experimental. Hydrogen burns with a colorless odorless flame; it can displace oxygen and cause suffocation. Sodium Hydroxide (LYE) is highly corrosive and will cause chemical burns if you get it on your skin, it can cause blindness if you get it in your eyes. **READ THE MSDS SHEETS**

FOR BOTH HYDROGEN AND SODIUM HYDROXIDE . Wear safety goggles to protect your eyes. Wear gloves to protect your skin.

BUILDING THE REACTION CHAMBER:

Make a list of the things that you will need.

TOOLS:

- 1. Knife to cut hose**
- 2. Drill and bit (13/32) to drill a hole into the reaction chamber and air cleaner housing**
- 3. Saw that will cut 4" PVC pipe**
- 4. 1/4 - 18 tap**

Materials:

- 1. Sodium Hydroxide (LYE)**
- 2. Silicone RTV to seal around fittings (use automotive type)**
- 3. Vaseline or grease to seal threads on screw cap**
- 4. Small - medium sized plastic bottle**
- 5. Zip ties to secure reaction chamber and backfire safety device**
- 6. 15 to 20 inches of 4" SCH 40 PVC pipe; you will cut this to your length (longer is better)**
- 7. (1) SCH 40 PVC solid end cap**
- 8. (1) SCH 40 PVC end cap with threaded clean out**
- 9. PVC prep solvent and glue**
- 10. Scrap aluminum**

YOU WILL ALSO NEED...



3/8" FUEL LINE (10 FEET) --- (You can get this at your local auto parts store)



3/8" VACUUM CHECK VALVES (2) --- ([CLICK HERE](#) if you need to order)



HOSE CLAMPS FOR 3/8" HOSE



1/4" THREAD BY 3/8" HOSE END (Straight fitting--1; 90° fitting-- 2)

Start by measuring the clearance that you have to mount the reaction chamber. (leave room for the end caps and fittings) Cut the PVC pipe to the length that you need.

Use PVC prep solvent and glue (follow your product directions) to attach the bottom solid end cap, then repeat for the top threaded cap. After glue is cured, drill a hole on the side of the reaction chamber, at the top. (see picture link below) Drill a hole into the top center of the screw cap.

Install a 90° fitting into the hole that you drilled in the screw cap. (this will be a tight fit) Seal around the fitting with the silicone RTV. Install a straight fitting into the hole that you drilled in the reaction chamber. (this will be a tight fit) Seal around the fitting with RTV. Use the RTV and use around the seal where the PVC pipe and end caps join together.

THE REACTION CHAMBER MUST NOT HAVE ANY LEAKS!!

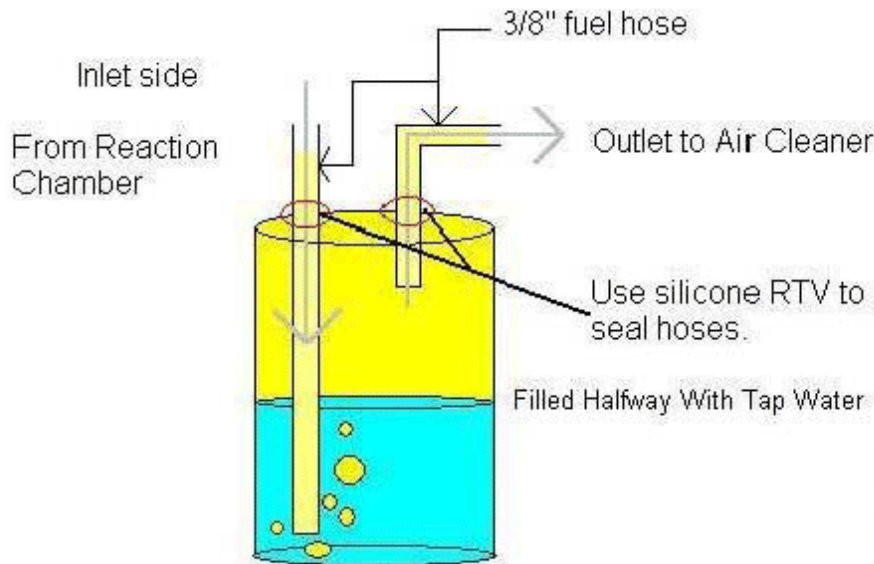
BUILD UP OF THE REACTION CHAMBER PICTURES:

[CLICK HERE FOR THE STEP-BY-STEP BUILD OF THE REACTION CHAMBER](#)

INSTALLING THE SYSTEM:

DO NOT MOUNT THE REACTION CHAMBER INSIDE PASSENGER COMPARTMENT, EXPLOSION HAZARD. Mount the reaction chamber under the engine bay away from the exhaust pipe. **DO NOT MOUNT THE REACTION CHAMBER WITHIN 12 INCHES OF EXHAUST MANIFOLD SYSTEM, TOO MUCH HEAT!!**

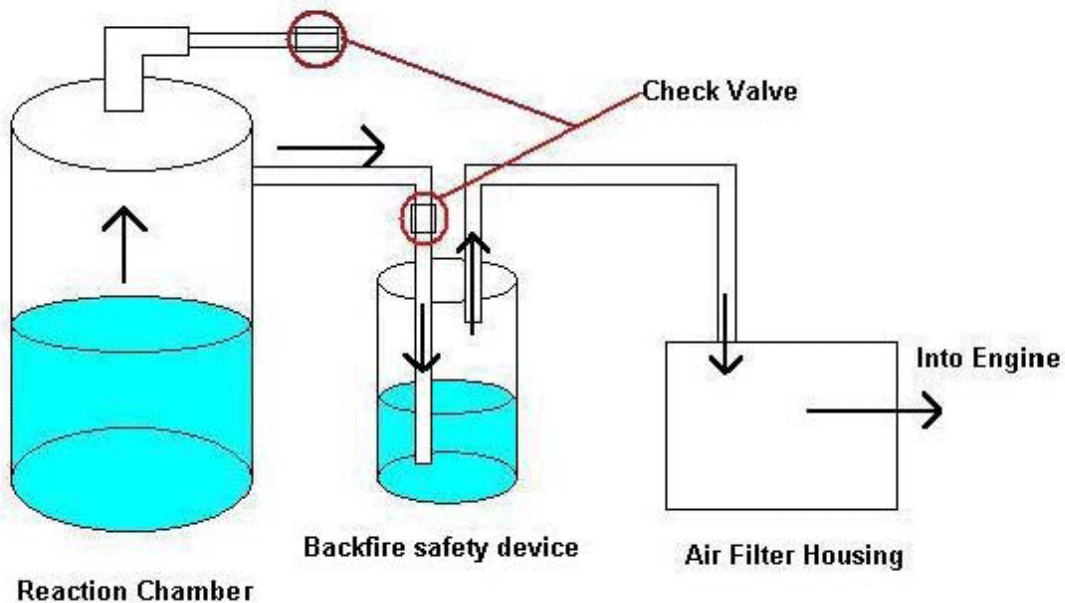
1. Zip tie the reaction chamber to a secure point on the vehicle. Try to mount the reaction chamber at a slight angle; this will minimize the splash when you fill it.
2. Cut about a foot of hose for the fitting on top of the reaction chamber. Clamp one side of the hose to the fitting, install and clamp one of the check valves to the other end.
When installing the check valve, the arrow MUST be facing towards the reaction chamber. If there is no arrow, blow into each end of the check valve. When you can blow through the check valve, that is the direction the air will flow. When you put the cap on, put this hose somewhere that it is not against the reaction chamber. You do not have to secure this hose with zip ties. From the remaining hose, clamp one end of the hose to the fitting from the side of the reaction chamber. For the next step, you will have to cut the hose to your length.
3. You will have to install a check valve from the reaction chamber to the water lock. Install with the arrow pointed towards the water lock tank. (see illustration below)
4. The next step is to make a backfire safety device. The following illustration will show you how to make this. **Locate this away from hot or moving parts.** The purpose of a backfire safety device is to filter the unwanted gases coming from the reaction chamber, it also acts as a safety device in case of an engine backfire. Once you make the safety device, zip tie it to a secure location.



Backfire safety device
Made from plastic bottle



Gas Flow And Assembly



IMPLEMENTING THE DEVICE:

1. With a 13/32 drill bit, drill a hole into your air filter housing. **You may want to remove your air filter housing before drilling to keep debris out of your engine.** Install fitting into your air filter housing and seal it with RTV. (this will be a tight fit) Install and clamp hose onto the fitting.

2. Fill the reaction chamber with one to two quarts of water. (depending on how big the reaction chamber is. **Never fill the reaction chamber more than halfway.**) lock tank half way with water. Distilled water will work better in the reaction chamber.
3. Now it's time to take your car outside if it isn't already. **Put your safety goggles and rubber gloves on at this point.** Use 10 tablespoonfuls of lye to 1 quart of water. Mix the lye with the water in the reaction chamber. Once you mix the lye with the water, let it settle down after the initial mix up, 5 to 10 minutes. Whatever aluminum you have can now be added. **Be careful to not splash.** Most aluminum cans have paint or coatings that turn into gunk that floats around and slows down the process. Unpainted aluminum is best. After adding aluminum you will start to see it bubble and hiss, this is the hydrogen being generated.
4. Screw the end cap into the reaction chamber. (the threads should be coated with Vaseline or grease to seal) You should be ready to go for your drive at this point.


TESTING STAGES AND ISSUES:

All experiments have their growing pains and some things will work better than others. You will find what mixtures work well, how many cans / grams of aluminum per 100 miles of travel for your engine.

You will have to add water and aluminum to continue reaction, but no additional sodium hydroxide (lye) is needed.

Another problem is the reaction process will continue when you turn your car off until all the aluminum or water is used up. This is the main reason this process is done outdoors so extra hydrogen is ventilated away into the atmosphere.

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