Using Hydrogen As Fuel Explained In Plain English

Discover The Answers To All Your Questions

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My purpose, above all, is to make you create your own "Half Water Half Gas" system by receiving this information. Your genuine involvement will show if questions and personal opinions occur to you, and if you feel you want to communicate to other people preoccupied by this matter.

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Most of the people tend to be doubtful when it comes to adding something new to their lives and to take some extra cautions. Answering to the following most frequent questions I hope I will manage to remove at least some of your worries.

Mark says: Is Hydrogen Really Safe?

There are many questions related to how safety it is to introduce hydrogen in our lives. If I answered to one of them – it's rather unlikely for hydrogen to explode if used in association with gasoline as fuel for cars – but there are some more things to settle on this subject.

Any highly flammable fuel needs to be handled with care, gasoline included. Gasoline must be kept in specific containers, and if spilt, you have to clean it up with some extra care. Hydrogen is no different from gasoline with respect to these concerns. But people are also worried about the effects of accidentally breathing or touching hydrogen. To finally answer to this question, I'll say that as gas, hydrogen is not toxic for any form of life if inhaled, that is, is small amounts.

Joana says: Will Water Become an Issue if Hydrogen Is Used to an Industrial Scale?

Despite the fact that nowadays we mostly employ fossil fuel to cover our needs, droughts are still serious problems in some regions of the world. Given that fact, asking if a technology based on producing fuel on the expense of water supplies will not worsen their general state is a legitimate question.

John Turner deals with this topic in an article published in *Science magazine* in August 2004. The results of his research exceed any expectation: if all cars were to be converted from gasoline powered vehicles to hydrogen powered ones, the process of producing hydrogen out of water would require about 100 billions gallons of water yearly. Amazing, isn't it? However great this amount may seem to us, you should know it is anyway smaller than the amount of water necessary to producing gasoline, that is, 300 billions gallons each year.

Obviously, switching to hydrogen production is much more convenient and efficient for two reasons: we get to use less water and save the perishable resources that allowed us to produce gasoline until now. Yes, hydrogen is a much more economical source, but the perspective of using it someday is shadowed by the fact that that day is still far from us. Until the possibility of actually using hydrogen becomes reality, most of us will use it as an auxiliary source for our needs. Electricity generators based on hydrogen don't consume so much water, in fact they need very little of it. For instance, half pint of mineral free water in your generator is just enough for 1000 miles.

Almost nothing, I may say, especially if you happen to live in a region where rain is abundant. If you do live in such a region, you may just as well collect the rain water and use it for your generator.

You can find a lot more information reading my book at:

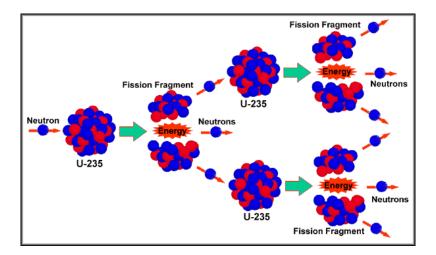
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George asks: What about Explosions?

Pure gaseous hydrogen is famous for its high flammability. In appropriate circumstances, hydrogen can ignite very quickly. Therefore, the concern many people have with respect to the possibility of explosion provided that they begin to use hydrogen as an additive to gasoline or as fuel cells is, again, an explainable one. The tank where hydrogen is stored may be damaged any time, so using hydrogen is, in their minds, similar to exposing themselves to an unnecessary higher risk.

Some famous scientific episodes constantly feed this concern. For instance, the fact that hydrogen was used in producing nuclear bombs makes them think that employing this chemical element for their cars' needs it's like driving around with a bomb in their trunk. But this is just a misunderstanding that has to be clarified.

The main difference between the way hydrogen releases energy to be delivered to our cars and the way it is employed in designing nuclear bombs is that in the first case we are talking about a chemical reaction, whereas in the second case the issue is nuclear fusion reaction. In a chemical reaction we don't tamper with nuclei, like we do in a nuclear explosion where the nuclei of hydrogen fuse with the main two isotopes of hydrogen, namely, deuterium and tritium, after these two collide with one another.



Unlike Combustion, This Is How Explosions Work

After fusion, of course, fission is needed in order to produce the actual explosion, which means extremely high temperatures are involved and required. This detail is not to be found in the way hydrogen is employed within your car because your car, at its turn, does not meet those special circumstances created in a bomb in order to release that tremendous amount of energy that represents the explosion.

However, since I mentioned deuterium and tritium, I also have to say just to calm your worries down, that in their absence no thermonuclear reaction is possible. And in the hydrogen allowed for commercial use, may it be fuel or otherwise, these two isotopes are not present. It is beyond any possibility to have a nuclear reaction while innocently driving your car on hydrogen.

But nuclear bombs aside, there is another episode famous for its catastrophic outcome, namely, the Hindenburg disaster that took place in 1937. This ship called Hindenburg was designed to fly on hydrogen, since it was filled with this gas and, at its turn, hydrogen could make the ship rise in the air. Unfortunately, at a certain moment, the ship burned, and researchers today still wander what the case might heave been. At the moment when the disaster occurred, the Nazis stated that sabotage caused it; others said a lightning was to be blamed. However, more recent researches have proven that everything might have begun from the skin of the ship which was impregnated with some highly reactive substances. Of course, at a certain point the hydrogen contained in the ship began to burn, but it's important to know it was not the cause. It burned as an effect of the already burning skin of the ship. And, again, the skin must have started to burn because of a lightning. An explosion took place, but it was subsequent to an initial fire.

Moreover, experiments have proven that the ship would have burned regardless of what gas it contained once the skin began to burn. So, the truth must be spoken: it's not the hydrogen that is responsible for the Hindenburg catastrophe.

See some amazing videos about the hydrogen at:

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Steve is worried: How Do a Car Under Warranty and Conversion Match?

There is no general definitive answer to this question; this is why people who have purchased a car that is still under manufacturer's warranty and are interested in hydrogen generators for additional power to their car must pay some extra attention to the following.

You have to understand that any device added on your car after purchasing it does not give to manufacturers the right to withdraw their warranty. But this is not as simple as that. If what you do to your car directly and negatively affects your car, than the manufacturer may claim not to deliver you any payment or restoration service. As a consequence, if by setting a hydrogen generator you damage your car, the manufacturer has the right to refuse to make any payment towards you.

There are few ways you can damage your car by means of a supplemental hydrogen generator. One may be the way you install it. The chances to set it wrong are close to nothing, because installing a supplemental hydrogen generator is extremely simple. However, the possibility exists if you are not aware of the internal structure of your car. If, by mistake, you mix one little part with another or something like that, yes, then you may damage your car.

Another way to damage you may deteriorate your car when it comes to hydrogen generators is if you use it improperly. That is, if you put in it other liquids than the adequate ones. But, again, what are the chances to take one liquid for another? As I said, it is rather unlikely to deteriorate your by using a hydrogen generator if you understand the instructions or the directions guiding you to install and use the generator properly.

On the other hand, if something damaging happens to your vehicle that you did not determine to happen – anyway, not directly – by installing and using the hydrogen generator, the manufacturer is obliged to pay for such damages.

<u>Angela from Alaska asks:</u> Can Hydrogen Generators Work Properly in Cold Climates?

It's no great science to know that water freezes at low temperatures, thus hindering any process that depends on water in its liquid state. We know that gas mileage diminishes significantly in cold seasons, causing us a lot of trouble. However, when it comes to the water involved in producing the hydrogen within a hydrogen generator, namely, when it comes to the water necessary to the process of electrolysis, things look a little more different, thus guaranteeing you your car will work perfectly at any temperatures and, in addition, that your car will not be damaged.

Water will not use due to the electrolyte in the solution – in case you use one that doesn't freeze itself. As alternative measures, you may go for improvisations. That is, you may "wrap" the generator with a coil of soft copper pipe so you keep it warm. Water may freeze – this is not an important matter – what matters, on the other hand, is that you maintain an adequate temperature for the solution inside the generator.

I strongly recommend you to find more here: www.HalfWaterHalfGas.Com

<u>Tim, the mechanic, says</u>: Won't the Engine Be Damaged by the Water Resulted from the Whole Process?

If you were ever interested to find out how the burning process inside your car takes place, you should probably know by now that water is also obtained as a byproduct out of burning gasoline. The formula of a simple chemical reaction proves it: C8H18 + 12.5 O2 = 8CO2 + 9H2O, where C8H18 is the chemical formula for gasoline.

It is more than obvious that more than half of the exhaust material is water. A simple calculation will demonstrate that 8.5 kilograms of water – or 2.3 gallons for that matter – per hour are produced as a result of burning 6 kilograms of gasoline in a car running at 60 miles per hour. A lot of water, I may say, but the exhaust system proves to be able to deal with it.

We are generally inclined to think that when it comes to supplemental hydrogen generators things would look dramatically different, since water is the only byproduct and is also necessary to the process. Wouldn't our engine be literally drowned in water, though we are taught to expect increased performances from our cars? What should we expect?

Continuing with the calculation above and keeping in mind that hydrogen generators reduce the consumption of gasoline with 25% to 50%, the result is that the amount of water produced as a consequence of the burning process will be reduces with at least 56.7 ounces in the worst case scenario – that is, supposing gasoline is cut down with 20%.

And if we also take into consideration that the water added to the engine by the hydrogen generator is at most of 0.7%, it's more than clear that the amount produced is in all cases much smaller than the one we deal with if we used a normal system based on injection. Though the concern expressed in this question might have seemed legitimate at the beginning, we now know it's not a valid one, since the exhaust system actually has to deal with a much smaller amount of water, as I said above.

Eric from Europe asks: Doesn't Hydrogen Damage Metals?

Many parts of the cars we drive are made of metals like aluminum or steel, and these two, or metals in general are known to be easily damageable by hydrogen. Brittleness of metals if exposed long enough to hydrogen is another concern linked to hydrogen generators because brittle metals have more chances to crack and, thus, produce a tragedy.

Metals become brittle if exposed to hydrogen because in their structure there are little spots of void that hydrogen ions penetrate. Once hydrogen atoms occupy those empty spaces, they combine with metal before forming a hydrogen molecule, which, by the way, only forms after the bondage of hydrogen with metal. This means that great pressure is inserted within the microscopic structure of metal because those empty spaces become too narrow to contain the new compound.

This means metal becomes to brittle to resist any longer and the concern I have expressed above is connected to the possibility of the engine to be damaged by hydrogen, which could result in tragic consequences. Therefore, asking if hydrogen is safe from this point of view seems to be a very legitimate question.

Theoretically, the brittleness of metal when exposed to hydrogen is undeniable. In spite of this certainty, I can afford to deny the fact that supplemental hydrogen generators endanger our lives. And I'll explain by reminding you that brittleness occurs when metal is exposed to atoms of hydrogen, and not to diatomic hydrogen molecules. Also, you have to keep in mind that the hydrogen resulted by electrolysis within the hydrogen generator is almost entirely diatomic. Diatomic molecules are too large to enter the empty spots within the microscopic structure of metals.

Brown's Gas, as the result of electrolysis is called, also contains oxygen and some ions of hydrogen. I will not hide this fact from you. You may be tempted that despite the fact that most of the molecules are diatomic, some of them aren't – which is a danger all the same. But there is no need to worry, because the hydrogen produced is immediately burned in the combustion chamber, so the ions don't have the necessary time to bond with the metal in your car's engine.

Moreover, I will say highly charged plasma is needed in order to generate metal brittleness. But since this is not the case with supplemental hydrogen generators, there is no risk; hence, you have no need to worry.

If you hunt for more details please feel free to visit this website: <u>www.HalfWaterHalfGas.Com</u>

David has a question: Won't My Engine Become Too Hot in Case I Use a Leaner Fuel Mixture?

A leaner burning process within a car is another reason for people to worry, due to the possibility of generating exhaustion temperatures too high for engines to resist. Such risks exist in the aviation domain, but pilots have the possibility to monitor the exhaust gas temperature – or the EGT – so they are able to control it. This risk is real in aviation because plains need all the possible power in order to take off and to reach to the cruising altitude, in which moment the fuel is replaced with a leaner one.

Just like a plane, a car needs more power when the engine is warming up or when the car accelerates. The electronic fuel injection – or the EFI – allows the car to benefit from this initial boost. Again, just like a plane, when the car reaches its cruising state, by its engine control unit – ECU – it changes to a new mixture which, in car values, is situated between 14.7 and 1. Between these values, the mixture – I am talking about the mixture between air and fuel – is perfect, allowing the best possible burning process.

Apart from an ideal premise for combustion, this mixture also generates the highest values for temperature of combustion and exhaust gas temperature. However, you may want to run on a leaner fuel. You may either increase the amount of air or the amount of fuel, but in each case you will get lower temperatures for both EGT and combustion.

As I said above, when the proportion of air to fuel is 14.7 to 1, you get the highest EGT, but this means at the same time that your car is provided the best power. You may enrich the mixture by adding more fuel, or you may make it leaner, by increasing the amount of air, and both alternatives will result in lower EGT.

Now I will show how this story is relevant to the hydrogen generators question. How would you feel if you had the possibility to maintain a low EGT and to get more power from the burning process? Well, the generated hydrogen will lower this EGT, since I proved that adding air to the mixture diminishes the exhaustion gas temperature. But at the same time it will supply the car with more power than you would normally have to expect from a leaner fuel.

Obviously, it's not that supplemental hydrogen generators do not represent a danger for you and your car, but it actually improves your car's performances from all points of view. As good as it may sound this perspective is also shadowed by the possibility of negligence which, finally, leads to accidents.

If you have already installed a supplemental hydrogen generator, mind not to set it to provide a mixture with the values of 14.7 to 1, and at the same time mind not to drive to long with an opened throttle. This is a dangerous combination of circumstances that is likely to lead to burning your valves.

On the Benefits of Using Hydrogen Today

Until this moment I presented how great it would be to rely on hydrogen for covering our electricity and heating needs. However, all these projects regarded a more or less near future, and didn't clarify anything with respect to the present days. The bottom line is: how is this all hydrogen-based technology relevant to the present? Can we save money and protect the environment today by using it? Are there any applications profitable for us nowadays? I hope I will answer to these questions in the following.

Charles from UK says: Can We Use Hydrogen on Engines Today?

Electrolysis of water is fundamental for all the technologies meant to produce hydrogen, including for the cars that are not yet present in our lives. Yet, electrolysis is fruitfully used today, and those who possess a basic knowledge of chemistry realize how electrolysis happens. And even if hydrogen generators are not available to us yet, electrolysis may be successfully used to improve the fuel within your car's performances with hydrogen. At the same time, you have the possibility to control the delivery of hydrogen to the engine. I will describe the mechanism bellow.



Brand Names Changing to Hydrogen Fuel Cells: Mercedes

A supplemental hydrogen generator works pretty simple. I'm talking about a tank where mineral free water is stored together with an electrolyte. As a result of electrolysis taking place given those circumstances, oxygen and hydrogen are released. On the one hand, the oxygen is collected in order to increase the octane level of the fuel, and the hydrogen is captured inside the engine with the purpose of intensifying combustion. Hydrogen works as a combustion catalyst, which means that less fuel is lost, since the hydrogen enriches the flame and determines it to burn all fuel vapors. Consequently, less fuel is wasted if hydrogen generators are employed.

Check out the videos from the following page:

www.HalfWaterHalfGas.Com

Kelly is worried: How Are Emissions Reduced by Hydrogen Generators?

Particles released by car exhaust count as some of the most dangerous substances both for humans and environment. Since we should care about ourselves and the world we live in, we should at least try to understand how this thing is possible, and do something if it is within our power.

Hydrocarbon fuels are the most dangerous of the most dangerous. Whatever is released in the environment through exhaustion is actually represented by particles that are not burned during the burning process. If we were to use hydrogen in order to improve combustion, no particles would remain and then be released in the air or, in any case, fewer would manage to reach into the atmosphere.

Because hydrogen is the smallest particle of all, it does two excellent things: it enables burning because it increases molecular movement and collision. Using hydrogen is extraordinary because it gives us the possibility to make the best of the fuel we use, reducing waste and pollution at the same time. And this is precisely how hydrogen diminishes pollutant emissions.

Michael says: Does Hydrogen Prevent Carbon Build-Ups?

I will say it does, and I will also explain why a supplemental hydrogen generator prevents carbon build-ups on the engine. Among the byproducts released by the internal burnings of our cars – I mentioned the unburned particles of fuels until now – carbon counts as one of them. As any other byproduct, carbon is emitted through the exhaust system. However, some still remains in the engine, building up in time.

If you want to clean it at repair shops, you have to pay some extra money, and most often you will do it because these carbon build-ups diminish the power of your engine. Undoubtedly, most of the people don't notice these almost microscopic decrease of power taking place every day until it strikes you as noticeable.

If you choose to use one of these hydrogen generators, you will no longer have this problem because, first of all, the oxygen resulted from electrolysis improves the octane level of the fuel you use, which means that the fuel is more likely to burn completely. Moreover, the hydrogen, as I said before, improves combustion in itself, meaning that the burning process will be cleaner and more thorough.

It's not just that this combination of oxygen and hydrogen prevents new buildups of carbon, but they actually clean the ones already existing on the engine. All this process finally leads to a better running of your engine. Hydrogen shows a lot of promise as a fuel source, as we have seen from the science discussion. What does this mean for the future? Will we some day be filling our cars with water or hydrogen, rather than gasoline?

George B. asks: Hydrogen Powered Cars – The Cars of the Near Future?

Perhaps your interest has been sparked about the possibility of someday owning a hydrogen-powered vehicle. All of the major vehicle manufacturers are currently working on hydrogen powered cars, and some have even unveiled their existing models at car shows and conventions across the country. A few models are even on the roads today.

It is highly possible that hydrogen will be the fuel of choice for the future. Some car manufacturers and other companies are focusing on building or retrofitting internal combustion engines to run on hydrogen. Other hydrogen cars unique use electric motors powered by hydrogen fuel cells. Inside the hydrogen fuel cell a reaction occurs between hydrogen and the oxygen stored in the cells. This reaction produces enough electricity to power the motor without the need for any gasoline.

So why aren't we driving these cars today?

Well, some people are, but only in a few test markets. The main problem that is keeping these cars from hitting the open market in full force is the fact that fuel cells are extremely difficult and expensive to produce. Because of this, hydrogen cars are not yet affordable enough for the average driver.

One problem with hydrogen fuel cells is that they are fragile. When you put a fragile fuel cell in a car that is going to go over bumps and ruts in the road, these fuel cells can be easily damaged. While the tank that holds the hydrogen is not fragile, if the internal workings of the fuel cell are damaged the car will not receive power the power it needs. Research is currently underway to make these fuel cells more durable.

Another problem with the fuel cells is the fact that they often require rare elements to work as catalysts for the reaction between the oxygen and the hydrogen. If you need platinum, for example, to complete a fuel cell, it is going to be an extremely expensive way to fuel a car.

These catalysts sometimes have to be replaced because of contamination by impurities present in the hydrogen.

The product of the oxygen and hydrogen combustion is water. This is excellent for the environment, but can be hard on your car, particularly if you live in a cold climate. The liquids in the fuel cell will freeze when the car is not running. Once the fuel cell and its engine are running, the heat from the engine keeps the water from freezing.

However, if you park the fuel cell powered car overnight in a cold climate, the car may not start in the morning because the liquid will be frozen. Until researchers are able to solve the cold weather starting problem, hydrogen powered vehicles will not be practical for those living in cold, snowy climates.

Finally, there is one huge roadblock on the path to creating hydrogen powered vehicles. Producing hydrogen to the scale that would be needed to allow people in the general public to depend on it as their main source of fuel is extremely difficult in our current fuel economy.

Many of the ways to produce hydrogen are simply not practical on a large-scale plan. Researchers must find a practical way to produce hydrogen that does not consume too much energy or create dangerous by products.

Geothermal power, wind power, and solar power appear to be promising ways to produce hydrogen on this grand scale, but more research is needed. Of course, once these problems are ironed out, the infrastructure of our current fuel economy would have to drastically change before we could all be driving these cars. Gas stations would have to install hydrogen fuel dispensers, or new hydrogen stations would have to be built in every town in the nation that is embracing hydrogen.

Estimates indicate that in the United States alone, adding hydrogen as a major fuel source would cost a half trillion dollars. That is a huge amount of money, and money talks in today's economy.

At this point, hydrogen cars, while they have been built successfully, simply are not practical for the average driver. Some researchers hope that research into more powerful home generators that would allow the user to make sufficient hydrogen in their homes to fill their cars' fuel cells will be the answer.

This presents a problem when the vehicle's owner wants to travel more than one fuel cell away from home. This adds to the problems that must be overcome before hydrogen cars can help the general public.

So, can you buy a hydrogen car today?

The answer is yes! There are several vehicle manufacturers that are selling a few hydrogen cars. Some companies are taking popular modern cars, like the Hummer or the Shelby Cobra, and converting them into hydrogen cars. You will soon be able to purchase sports cars, pickups, SUVs, and even Hummers that have been modified so that their existing internal combustion engines run on pure hydrogen.

There is one catch, though. These cars cost plenty of money! For instance, if you wanted to drive a hydrogen-powered Hummer, you would have to purchase the Hummer and then pay an extra \$60,000 to have it converted by a conversion company such as Intergalactic Hydrogen, a company specializing in creating hydrogen fuel products. As of April of 2007, 200 hydrogen cars were being used in general service.

Cars that are designed specifically to run on hydrogen may be hitting the open market as early as 2009. According to CNN.com, Honda plans to offer their FCX hydrogen car to the general public by the end of the year in limited quantities. These cars will only be available in areas where hydrogen filling stations currently exist.

These cars do not use an internal combustion engine at all, but rather are powered through fuel cells. They also cost quite a bit. A truck that is soon to hit the market in California will cost nearly \$100,000. In some states, that's enough money to buy a small house! The cost for these vehicles alone is enough to deter many who would purchase them.

If you were able to purchase a hydrogen car in spite of the expense, you would not be able to purchase hydrogen very easily on the open market to fuel your car. There are a few hydrogen stations in the world, but these are quite rare at this point in time. Most of the stations you will find are still in the testing stages.

In the United States you can find 13 hydrogen stations in use in California as well as a few in other states. If you were serious about owning a hydrogen car, however, you would need a way to safely make hydrogen at home. One of the best ways to do this is through creating hydrogen from water through electrolysis.

You can find more details here:

www.HalfWaterHalfGas.Com

Michelle is curious: How Much Does It Cost to Run a Hydrogen Generator?

Perhaps you are now wondering how much running your hydrogen generator will cost you. This is a great question. However the cost is rather negligible. You will need to add some potassium hydroxide which at \$5.00 /lb will last you for several years. And of course you will

have to buy mineral free (distilled) water. At your average grocery store it runs at a dollar a gallon.

Considering the average units use a quart of water per 600 miles. This will costs you around 10 to 20 dollars each year.

You should only use distilled water, which creates no residue in the process, there is little that you will need to do as far as maintenance. Many of the systems even come with manufacturer's warranties to cover any components that go bad in the first couple of years of use.

A supplemental hydrogen generator is hardly an expensive device to run, and the fuel savings and environmental benefits far outweigh the small cost to use the device. Today, you can use supplemental hydrogen in your own car in a simple, cost effective way simply by installing a supplemental hydrogen generator in your existing engine.

To ensure that you do not forget to add water to the supplemental hydrogen generator that you install on your vehicle, you should make this step part of your normal routine when you fill your gas tank. Our generators have a low water indicator however I recommend you top off the water tank with every fill up, this way you will always have enough water to produce the Brown's Gas that your car needs. If you forget, you will be fine, since the tank only really has to be filled every 1000 miles.

You may be tempted to save some more money by using tap water instead of buying bottled water to use in your generator. The type of water you use is important. It must not have any minerals in it.

Now, before you buy stock in a bottled water distilling plant, consider the fact that rain water has no minerals in it. Also, if you have a dehumidifier, the water it collects is free of minerals. Some city water treatment systems take out minerals, and if yours does, then you can use tap water safely.

Why is distilled water so important? Minerals stay behind in the generator after the electrolysis process is complete. This leaves behind a muddy substance that can affect how well the generator works.

You will have to clean the generator often to get rid of this mud. But again with distilled water this is not an issue.

Peter asks: How Hard Is the Generator Going to Be to Install?

These generators are extremely easy to install. Most people with a minimal amount of mechanical experience can install a supplemental hydrogen generator in a few hours. A supplemental hydrogen generator is an add-on piece, so it does not permanently change your engine in any way. It simply connects to your existing system. If you ever want to remove it from your vehicle, you can easily do so without damaging your engine.

Installing a hydrogen generator in your vehicle is simple, and our models come with easy-to-follow instructions that take you step by step through the process.

That being said, you will need to be able to access some specific systems in your car's engine, and depending on how the car's engine is designed, this may or may not be simple. You will need access to the following systems:

1 Fuel pump relay fuse

2 Air intake

3 Battery

If you can locate these easily, you should be able to install the device on your own. You can download a repair manual for your car from the internet to help you locate these systems in your vehicle's engine. Or follow the directions we include in the box.

In fact, you can find all the details for building your own device at home here:

www.HalfWaterHalfGas.Com

If you have an answered question or you want to discover even more:

* how to save up to 60% in gas costs

* how to boost your engine's performance by 30% instantly

* or to save the planet by reducing the pollution please feel free to take a look at the following website

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