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Research Article

Magnetic Fuel Saver – A Modified Tool

Kali Prasad Kar

UG Student, CGC Technical Campus, Jhanjeri.

Abstract

Magnetic fuel saver is a unique device, which is an initiative toward increasing the efficiency of the traditional engines which work on petrol and diesel. This device also reduces the fuel consumption of an automobile and reduces emissions of a vehicle to a great extent. This initiative was taken by analyzing the current scenario of primary source of energy, i.e., petroleum products (petrol and diesel specifically). Neodymium boron magnets are just limited to refrigerators and other electronic instruments but the magnetic field produced by them is tremendously strong. If a group of neodymium boron magnets are clubbed together they can produce very strong magnetic field which is a necessary and sufficient condition to polarize petrol or diesel which is used to propel vehicles. The magnetic field can be transferred from the magnets to the brass tubes in which the fuel is passing. This device also replaces the traditional plastic fuel lines, which is also a step towards a clean and green environment. Moreover, this device is maintenance-free and needs to be installed in an automobile only once.

Keywords: Neodymium boron magnets, Curie temperature, Air fuel ratio, Polarization

Introduction

An engineer is always focused towards challenges of bringing ideas and concepts, which will bring ease in his life. He has to overcome many obstacles to fulfil his ideas and concepts into reality. Therefore, sophisticated machines and modern techniques have to be constantly developed and implemented for economical manufacturing of the products. At the same time, there no compromise has to be made with quality and accuracy. The engineer constantly confronts the challenges of bringing ideas and designs into reality. New machines are being developed to manufacture various products of high quality at cheaper rates.

Since nowadays the amount of fuel available in the world is very less, there are many precautions do's and don'ts given to the driver to save fuel. For example, the driver should turn off the engine at a stop signal and so on, proper maintenance of fuel system, driving within speed limits, etc.

These precautions may save fuel up to about 15–20%. Even with these precautions, the fuel may last for 15–25 years; hence there is urgent need to develop ideas to save fuel.

Principle and Working

The magnets used are neodymium iron boron magnets. Basically, these magnets are used as they are most powerful magnets in the world. They have flux intensity of 5000 gauss. The main advantage of this type of fuel saver is that it can be used for any type of engine.

The device, like fuel ionization system, reportedly prepares the fuel to burn better when it reaches the combustion chamber. Rather than using electric fields to do the job, however, fuel-line magnets claim to use powerful magnetic fields to break down fuel into its basic components.

As is the case with fuel ionizers, fuel-line magnets serve little purpose other than to separate uninformed drivers from their money. Petroleum fuels are ubiquitous because of their stability – although they cannot pack the same punch as fuel sources like hydrogen; they are much safer and easier to handle.

Petroleum fuels, in fact, are too stable to be significantly altered by something as small and simple as a magnet placed on a fuel line.

Even if a magnet could produce a significant electrical field, that field would be altered by the metal of the fuel line, tank and components. If anything, an extremely strong magnet might disrupt some of the car's more sensitive electronics,

E-mail Id: kaliprasad.kar6@gmail.com
Orcid Id: https://orcid.org/0000-0002-6460-444X
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although even this is unlikely, given the careful engineering that has gone into today's reliable electronic components.

When magnetized, the fuel's hydrocarbons are ionized to exhibit a net positive charge (as with water). The change in charge allows the fuel to aggressively attract and bond with available negatively charged oxygen.

This creates a more comprehensive hydrocarbon molecule with its own oxygen supply. The end result is a more efficient and fully burning, explosive mixture which now has its own oxygen base.

Present Applications

Two kits are to be installed one at the fuel line and the other at air intake line. The fuel line coming from fuel tank is connected to one side of the kit and the other side is connected to the carburetor.

One kit is made S-pole device and other one is made N-pole device. Either of these kits may be connected to fuel line or air intake system. As fuel contains hydrocarbon, due to strong magnetic field of magnet, fuel gets ionized. On passing the fuel through magnetic field, the hydrogen ions are generated. To generate proper fuel mixture in the carburetor, lean mixture should be prepared. As fuel line is connected with S-pole device or maybe N-pole device, air intake system is connected with opposite pole device to that of fuel line. Thus the kit will generate H^+ ions, which will be passed to the carburetor for combustion of fuel.

The second kit is fitted at air intake system. It is fitted after air filter so that air dust particles should not damage the magnet as other device pole is used which is opposite to that of fuel line. As air contains about 21% of oxygen, oxygen gets ionized. Lean mixture should be generated for which air fuel ratio is more than 15:1 and for rich mixture air-to-fuel ratio is less than 15:1. The same poles of the magnet repel each other and opposite poles attract each other. Due to this, two different devices poles are installed at fuel line and air intake system. As poles are opposite to each other, charges will also be opposite to each other; therefore, they will attract each other, which helps in proper combustion of fuel. The proper mixture is obtained by using two kits installed at fuel line and air intake system. This is then passed to the carburetor for mixing of fuel with air. Stoichmetric ratio means amount of air which completely burns fuel of required quantity.

The ferrite magnets are the most cost-effective for treating fuel. When high-energy neodymium iron boron magnets are applied, we can obtain a decrease in the fuel mileage and unburned hydrocarbons and carbon monoxide. The magnetizing apparatus is located on the pipe between pumping means and the burner, carburetor or fuel injectors, because it is unnecessary for any other part to be magnetized.

A portion of the fuel feeding system extending from a point downstream of the magnetizing apparatus to the burner must be made of non-magnetic material. In this case, magnetized fuel is directly fed into burners or atomizing nozzles with a minimum reduction of magnetism. The magnets are embedded in a body of non-magnetic material, such as plastic, copper or aluminum, to secure them to the fuel line.

No cutting of the fuel line and no hose and clamps are necessary to install in this device, outside a fuel line without disconnection or modification of the fuel or ignition system for producing magnetic flux in the flow path of combustible fuel within the pipe.

These units have been installed without other fuel line or ignition adjustments to treat vehicles failing required emission tests as an inexpensive retrofit accessory to give substantially immediate improvements of up to the order of 80% reduction in hydrocarbon and carbon monoxide emissions.

In a preferred embodiment, one or more magnets are strapped to the fuel line as close as possible to the carburetor or fuel injectors with only one pole of the magnet or magnets adjacent to or in contact with the fuel line.

One or more magnets are strapped to the air intake in such a way as to magnetically expose oxygen to the magnetic field emanating from the pole opposite that of the pole used to expose the fuel.

The magnets should have a Curie temperature sufficiently high so that they can retain their magnetic characteristics at the operating temperatures to which they are exposed. For example, in an automobile engine, the fuel line magnets will lie above the engine block where relative heating will greatly increase their temperature.

Futuristic Design Implementation on Bikes

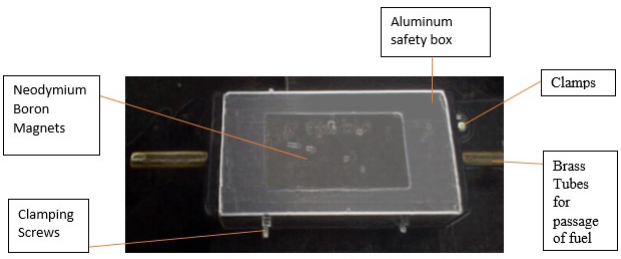

Figure 1

Conclusion and Future Scope

A permanent magnet is a magnet that is permanent, in contrast to an electromagnet, which only behaves like a magnet when an electric current flows through it. Permanent magnets are made out of substances like magnetite (Fe_3O_4), the most magnetic naturally occurring mineral, or neodymium, a powerfully magnetic synthetic substance.

The Earth itself is a huge permanent magnet, though its magnetic field is quite weak relative to its size. Humans have used the magnetic field of the Earth for navigation since the compass was invented in ancient China.

Even the most powerful permanent magnet is not as strong as the stronger electromagnets, so their applications are limited, but they still have many uses. The most mundane would be used as refrigerator magnets, but magnets can be found everywhere, including your hard disk, ATM and credit cards, speakers and microphones, electric motors, and toys. Electric motors work through an interaction between an electromagnet and a permanent magnet.

Every permanent magnet generates a magnetic field, just like any other magnet, which circulates around the magnet in a distinct pattern. The size of the magnetic field is related to the size of the magnet and its strength. The easiest way to view a magnetic field generated by a permanent magnet is to scatter iron filings around a bar magnet, which quickly orient themselves along the field lines.

The magnetic fuel saver basically consists of neodymium iron boron magnets strategically placed over the copper fuel line. The copper fuel line replaces the conventional rubber or plastic tube. By applying a magnetic field to ionizing fuel to be fed to the combustion device, we can ensure more complete combustion obtaining the maximization of fuel economy, improving the fuel efficiency and reducing polluting emissions.

Before starting any project or new development, the major factor to be considered is the utility and scope of the project in the market and the necessity of it for the consumers.

This concept does not develop new fuel, instead it helps to save the fuel consumption by about 25–40%. It also improves the performance of the engine and helps in cleaner emissions. Also it can be used on any type of engine be it petrol or diesel.

This concept, i.e., magnetic fuel saver will change the conventional problems that occur in the automobile industry and also help in a greener and cleaner environment. The scope of this project is bright and large and is considered as the best solution for engine problems. It will also help raise the bar of the Indian automobile industry.

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