

“REVIEW PAPER ON MAGNETIC PISTON ENGINE”

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ABSTRACT

In modern science and technology there is a demand in fossil fuels. Nowadays scientists are searching for an alternative fuels. This project is one of the main power sources for the automobile engines. This project is to describe the construction and design of a V-type magnetic piston engine, which operate with the help of electromagnetic force. This mechanism is entirely different from normal IC engine mechanism. It works with electromagnetic effect and repulsion of magnetic force instead of fossil fuels. It consists of, two permanent magnet and two electro magnet. Electro magnets are mounted on the cylinder head and the permanent magnets are mounted on the piston head. Here not using spark plug and valve arrangement. Electro magnet contains copper windings. Electro magnets are getting power supply from the battery by suitable voltage. The piston contains permanent magnet moves from TDC to BDC and BDC to TDC which will result, convert reciprocating motion into rotary motion of crank shaft. Power supply from battery to the electro magnets are controlled by micro controller with help of power splitter, timer and relay switch arrangement.

Keywords: *Crank Shaft, Electromagnet, Mechanism, Permanent Magnet, Reciprocating*

1 INTRODUCTION

The diminishing fossil fuel resources and unabated increase in energy costs and environmental concerns, engines using alternate energy sources such as bio-fuel, solar power, wind power, electric power, stored power, etc. are being developed around the world. However, such engines have many limitations. Production of bio-fuel takes enormous resources and they still pollute the environment. They do not meet the ever increasing energy demand as well. Similarly, the solar power is not efficient. Added to all, the initial capital and subsequent maintenance costs for machines that use alternate energy sources are very high. Hence, in the absence of a viable alternative, until now, switching to new technology by changing from traditional Internal Combustion engines has been a challenge. Magnetism is the basic principle of working for an electromagnetic engine. The general property of magnet i.e. attraction and repulsion forces is converted into mechanical work. A magnet has two poles. A north pole and a south pole. When like poles are brought near each other they repel and attract when like poles are brought together. This principle is being used in the electromagnetic engine.

In this engine, the cylinder head is an electromagnet and a permanent magnet is attached to the piston head. When the electromagnet is charged, it attracts or repels the magnet, thus pushing then piston downwards or upwards thereby rotating the crankshaft. This is how power is generated in the electromagnetic engine. It utilizes only repulsive force that allows the field to dissipate completely, and have no restrictive effects on the rising piston. The electromagnetic engine should ideally perform exactly the same as the internal combustion engine. The power of the engine is controlled by the strength of the field and the strength of the field is controlled by the amount of windings and the current that is being passed through it. If the current is increased the power generated by the engine also increases accordingly. The current that is used to charge the electromagnet is taken from a DC source like a lead acid battery. The main advantages of electromagnetic engine are that it is pollution free. Also it is easy to design an electromagnetic engine because there are no complicated parts. Since the engine doesn't have combustion, valves,

water cooling system, fuel pump, fuel lines, air and fuel filters and inlet and exhaust manifolds etc. can be eliminated from the engine. The main challenge faced in designing an electromagnetic engine is that it has to be as efficient as an internal combustion engine.

There is currently some interest in developing engine which is useful to the environment, the present system the fossil fuel sources are fast depleting and their combustion products are causing global environmental problems. Though pollution is controlled in combustion engine Knox gas level is increased which leads to damage in ozone layer and also by using other various technology like Exhaust Gas Recirculation (EGR) valve are used the Knox content is reduced but the co2 content is increased, due to increase of co2 in atmosphere global warming occurs. Since the use of fossil fuel rate is increased day by day at the year of 2050 the existence of fossil fuel decreases and leads to fuel scarcity. Then where we shall go for fuel? In order to reduce this condition we shift towards the use of alternate fuel which do not require any combustion material so we have choose magnetic flux to power the engine and decided to design and construct a magnetic engine.

1.1 PROBLEM STATEMENT

The diminishing fossil fuel resources increase in energy costs and environmental concerns Engines using alternate energy sources such as bio-fuel, solar power, wind power, etc. are being developed around the world. So we have decided to develop magnetic piston engine, which will be pollution free and will cost low

1.2 FUTURE SCOPE

1. Here relay is heat due to load and stop working after some time thus we can use heavy or Trial to solve this problem.
2. Here coil required more energy by using Ferro magnetic material with coil it will possible to solve this problem or by the use of special mechanical arrangement.
3. Here we make a demo model of single engine. In future it will possible to connect engine to the vehicle and by which it will possible to convert fuel vehicle into battery operated vehicle.
4. For recharge the dry cell battery, we need electricity thus if we use solar panel for the battery recharging then we can save electricity.
5. After modification this system can applicable for aero plane Engine system.
6. For this model we are using engine of two wheeler by changing mechanical arrangement with circulatory it will possible to drive this system by use of four wheeler engine.

2 CONSTRUCTION &WORKING OF ENGINE

When head of piston is came near the spark plug then by limit switch the supply produced to the primary coil of Height voltage coils which is generated by the engine with the help of magnet and coil. Due to this bombarding of fuel will do and therefore piston pull of back side? At that time supply break by limit switch which is internally fitted in the engine. The piston came at outer side due to the weight of flywheel and air pressure. This process will done again and again. Piston full back side to the crane shaft.

Here, on the head of piston a permanent magnet is fitted with the help of screw nuts and in front of magnet a coil of 20 SWG is fitted and near that magnet a magnet switch is placed on the metal strip. When we switch ON the supply of battery then this supply is obtain at the electronic circuit. The magnet that fitted on the shaft will cause to switch ON the magnetic switch. Therefore positive supply will obtain at the base of the transistor which flow through resistor due this transistor switch ON and negative supply flow from emitter to collector. This is given to the relay coil and thus relay will energize. The switching terminal of relay connect to the coil and electromagnetic field induced in the coil.

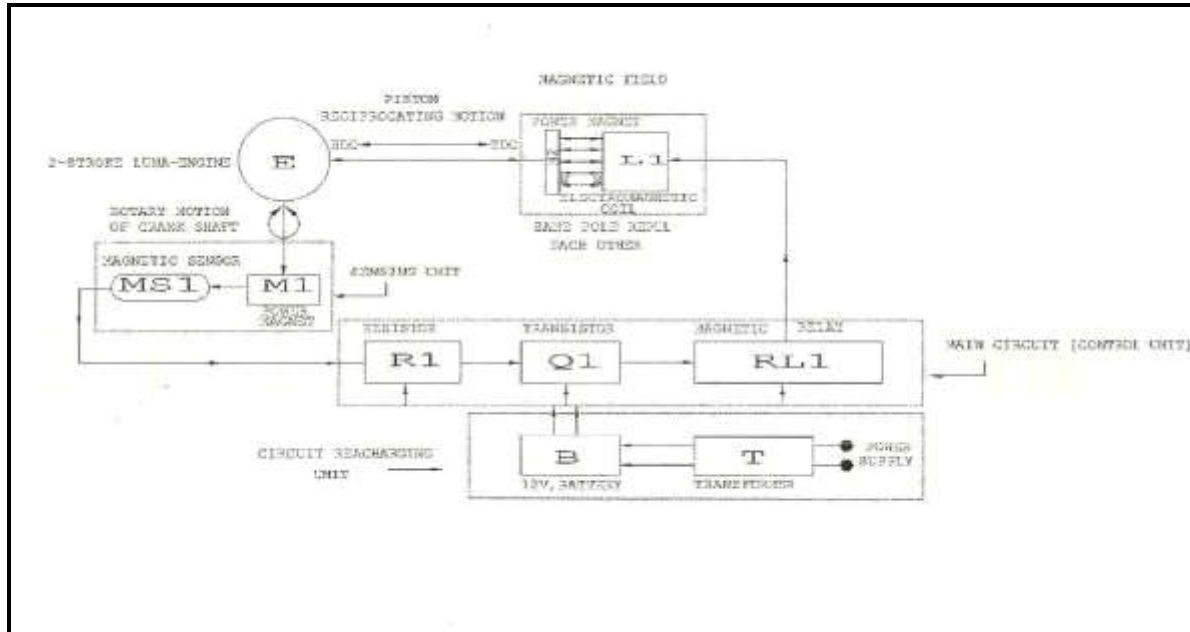


Fig 2.1: Construction of Magnetic Piston Engine

When magnet go at backside then distance between magnet which fitted on the shaft of and magnetic switch will increase then magnetic switch OFF and therefore there will no magnetic field at electromagnet. Due to the weight of magnet on the shaft of the crankshaft the piston came at outside means near the coil. This process will repeat again and again.

3 ADVANTAGES & LIMITATIONS

3.1 ADVANTAGES

There are many advantages of system magnetic piston made by some of the main advantages we explain as below.

- It is an innovative idea.
- It is possible to connect this system to any engine.
- No need of fuel i.e. saves conventional sources.
- There is no complicated wiring.
- Engine has require low energy for working means it require 90 watt energy for function.
- There is no need of costly mechanism for making this system.
- It is pollution free.
- The battery is used for working is rechargeable i.e. life of battery is more.
- This type of system saves foreign currency.
- It is self started system i.e. no need of kick.

3.2 LIMITATIONS

- Here relay is used is heat more due to load and due to this it will stop working after some time.
- Load carrying capacity is not equal to the petrol engine.
- It cannot produces power like an Engine.
- It can provide less uniform torque at crank-shaft than engine.
- It is not applicable for multi-cylinder system.

CONCLUSIONS

While concluding this report, we feel quite contented at having completed the project assignment well in time. We have enormous practical experiences on the fulfillment of the manufacturing schedules of the working project model. The co-ordinate planning and endeavor on our part served a very useful purpose. It helped us to achieve the preplanned target undoubtedly the joint venture has all the merits of the interest and zeal shown by all of us. The credit goes to the healthy co-ordination of our batch colleagues and mainly our project guide in bringing out a resourceful fulfillment of our assignment prescribed by the board.

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