



Analyzing and improving efficiency of aviation turbines by repolarized magnetic rotors

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ABSTRACT

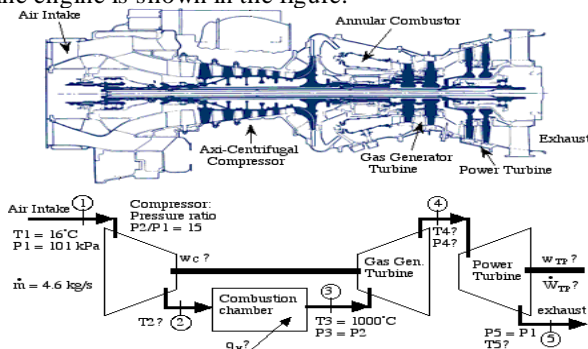
Any process involving the process of increasing the efficiency of any mechanical part is a vital concept in the field of engineering and technology and equally vital in the field of energy and power systems too. This paper is based on a technique that could be used to improvise and increase the efficiency of the gas turbine aviation engines which was theoretically stated after conducting series of experiments and analysis through software. This technique could be called as REPOLARIZED MAGNETIC ROTATION technique which converts the magnetic power to mechanical power which could therefore be used to compress air in compressor, and thereby increase the efficiency of the gas turbine engines used in aviation. Various techniques adapted to design, analyze and fabricate the test engine were stated in this paper.

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Introduction

Principle behind the technique

This technique is based on the principle that two magnets having varied polarity at their ends when placed at the ends of the rod that is placed inside a circular magnet begins to rotate. Before explaining about the improvisation technique followed it would set forth in a clear manner if the general working of the gas turbine engine is explained. Basic design of an aviation turbine engine is shown in the figure.



Explaining the mechanism behind the technique

The general mechanism behind the technique can be explained as follows. The apparatus consist of a circular magnet. As we know that in a circular magnet the magnetic lines flow from the inner edge of the circle to the outer edge of the circle. So let us assume that the north pole of the circular magnet lies in the inner edge of the magnet and the South Pole lies in the outer edge of the magnet. Now let us place a bar as shown in the figure containing two magnetots. Magnetots are magnets that consist of north and South Pole of different polarity. While passing electric current these electromagnets are magnetized and thus the magnetots experience a centrifugal force which causes the bar containing the magnetots to rotate. Thus a rotary motion is obtained from the magnets could be used for various applications. Such a kind of force is thus harvested in various fields of engineering.

Improvisation of the design of compressors

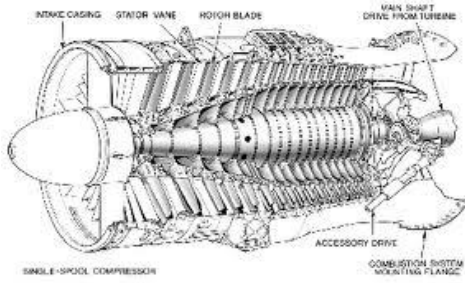
Compressors of the normal aviation engines are of two types, they are centrifugal compressors and axial compressors. The part to be improvised in our technique is only the compressors.

A general overview of the centrifugal compressor is given below. Centrifugal compressor consists of inlet casing with converging nozzle, Impeller, Diffuser and Volute. An engine containing centrifugal compressor is shown in the figure given below.

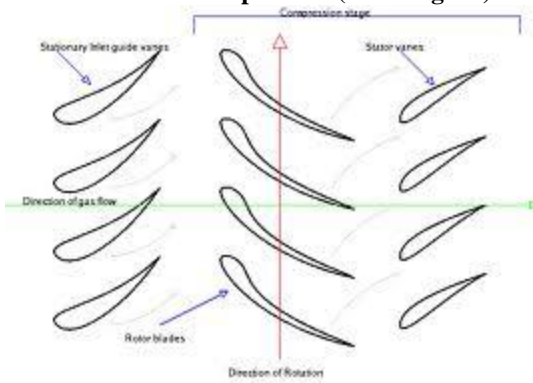


The improvisation of the engine may be made by two methods either by connecting the shaft of the compressor to the rod containing the magnets of having different polarities at their ends or redesigning the impeller blade ends with the magnetic materials which could be electromagnetised for a short moment and volute as a circular magnet thereby initiating the motion of the compressors and thus the efficiency of the engine could be increased to a greater extent as and only a few kilowatts of current is required to temporarily magnetize the magnets.

Now let us look it in case of an axial flow compressors, a general account of the axial flow compressors are given below.



An engine containing axial flow compressor (upper figure)
 flow in axial compressor (lower figure).



Improvisation in case of an axial flow compressor is similar to that of an improvisation in the centrifugal compressors that was stated above. Here a series of stages of the stators are placed between the rotors as shown in the figure, now the rotor blades of these engine compressors are replaced by the magnetic rotor blades which consists of impeller blades made of the magnetic materials that are with different polarities at their ends, and the space above the stator and the casing is occupied by the circular magnet. This arrangement causes the rotor blades to rotate and thus the process of compression is carried out successfully.

Conclusion

Thus the performance and efficiency of the aviation engines and also several other reciprocating engines can be highly increased by REPOLARIZED MAGNETIC ROTATION technique. This paper theoretically describes the working and constructional changes to be made for this technique which would be made practically as soon as possible in our research centre.