

## **AEROSKILLS 2022**

### *National Level Rubber Powered Aeromodelling Postal Contest*

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A word from Mr. Madhav Khare (Chief Mentor, ALERIOS)...

Dear Friends,

You may wonder, 'What's the point in writing something on a very primitive means of power for the model aircraft.' But let me tell you that after doing a lot of aeromodelling in last 40 years or so, I am now convinced that those who want to understand the dynamics of an aircraft; cannot ignore this effective and perhaps the most inexpensive way of learning. And it is much safer and enjoyable too.

As some general knowledge, let's take an overview of this hobby of making model aircraft. The famous Wright Brothers pioneered it, who first made the models and tested them in their 'wind box' before making their full-scale aircraft. But this process didn't catch much attention of the people then. In the First World War, when the primitive air forces of those days displayed great superiority over the army and the navy, every country wanted to raise the air force. Now air force is not a crop that grows quickly! You need to develop the manpower to produce, operate, and handle the aircraft. Many countries invested a lot of money in the aircraft industry and to make their population 'air-minded,' introduced aeromodelling into the schools and colleges, to catch them young. The twisted rubber loop was the first source of power to turn a propeller then. After the development of small engines and electric motors, the rubber got forgotten because the engines and motors were more reliable and consistent in performance.

In the present days of high-tech products, from free flight models to advanced drones, what has become more important is the ease of operation or User Friendliness. But this simplification has led to losing the basic knowledge of aircraft science. It is a surprising fact that many expert flyers are unable to figure out what exactly can be the effect of an undersized or oversized propeller, lighter or heavier propeller, same size propeller with different pitch, etc. Because they work on recommendations from the manufacturer. They try to resolve the problem through simple options such as changing the engine, trying different props, using 3 cell batteries instead of 2 cells, etc. Because so long as the aircraft is capable of flight, why bother to optimize the performance? So the general tendency is to find a quick solution and just enjoy flying; and I won't call it wrong either. That's quite okay for pleasure flying.

But those who are looking for the pleasure of understanding aerodynamics won't get satisfied with just that. Also, those who want to go in for research, product development, and join the industry will need to study it in more depth. But such a study is quite expensive if you choose standard products and standard methods in this field.

I did the flying of rubber models about 40 years ago and like everyone else, ignored it completely after getting access to engines and motors. About 4 years ago, I again came across the rubber-powered model making in the class known internationally as F1D class models. It is an indoor rubber-powered model category. I couldn't believe the record of flying performance of

this rubber model. It was a model weighing less than 3 grams and flying nonstop for 61 minutes! Yes, you read it correctly! It's not a printing mistake, sixty one minutes of flight! So I searched for the information on it, and there was quite a lot on the internet. Then in the USA, when I was in Bethesda, I had a good interaction with Dr. Michael Coplan and some of the members of the Maxicutor Club. I got convinced that this hobby is the most suitable way to experiment with the designs, propellers, trimming skills, structural geometry, optimization of power, and almost everything an engineer or a researcher needs. It also develops immense patience and enhances hand skills to a very high level. All this in much less expense than those incurred in engine or motor powered models. Also, it doesn't violate any security rules laid down by the government bodies like DGCA or any other body.

The objective of this competition is to make the young enthusiasts take up this hobby at a very affordable cost. This is the first step where you will make a simple rubber-powered model weighing around 8 to 10 grams and try to achieve a maximum flying duration outdoors. It would be a "Common design contest," which means everyone will make the same model and try to achieve perfection in making and flying of the aircraft. BAE Systems has generously supported us by providing financial assistance for the prize money, award certificates and participation certificates. Do give a try to this exciting contest. We at ALERIOS Aero Club under Shastravahini expect your participation in large numbers.



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