Pioneer and trouble shooter

For decades, the brand DG has been known for design and construction of its self-launch powered sailplanes. Nowadays about 300 (powered) sailplanes are being serviced annually in the DG works.

During thousands of maintenance tasks on power plants, a detailed knowledge has evolved about problems and weaknesses of retractable power plants in sailplanes. From this expertise, the idea has evolved to offer dynamic propeller balancing.

DG AVIATION

How can we help you?

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DG AVIATION

SERVICE

Special: dynamic propeller balancing

The problem

Two-Stroke engines as they are commonly installed in self-launch powered sailplanes, are relatively economical to build due to their simple design and low number of parts. Furthermore, they are light and have a high power-density.

Due to this simple design, the downside is a higher vibration level, compared to four-stroke or Wankel engines, or power plants with a balance shaft. These vibrations are not only a nuisance during engine run or self-launch, but they have a damaging effect on the entire power plant. Vibrations and as a direct result damage to connectors or broken wire looms and reduce the reliability and lifetime of the power plant.
An example: in the used two-stroke engines the lubricating oil is mixed in the fuel, so a starvation of fuel due to a wire break or failed connector can lead to a premature overhaul of the engine.

The most efficient solution is to reduce the vibration level of the part with the largest moment of inertia: the propeller.

SERVICE

A straight forward solution

The principle can be explained simply as following: the vibration spectrum of the complete power plant is measured individually during ground test runs, using our dedicated specialized equipment. The equipment can then determine exactly on which position the unbalance is located.
DG powered sailplanes have 6 positions in the propeller disc where the counterweights can be attached, other brands can be retrofitted.

Then the balance weights are attached and the test run can be repeated. The system is self-learning and determines the new balance weights. This principle is repeated until the vibration level is below the desired threshold and the final weights are secured. In a final test run the improvement of the vibration spectrum is determined and the powered sailplane can be released to service.

Good vibrations

After the dynamic propeller balancing has been successfully performed, the vibrations are notably reduced and the power plant runs much smoother. As a direct result, the reliability and the lifetime of the complete power plant will be increased.

By reducing undesired resonances, the sound level in the cockpit can even be reduced. The cost of dynamic propeller balancing is less than one might think; please have us prepare you a quotation for your self-launching powered sailplane.