



# Understand Torsional Vibration in Propeller Drive Systems

Zwakenberg, December 21, 2005

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*More and more, automotive engines are converted for experimental aircraft use. Reduction drives, drive trains and pusher propeller possibly aggravate torsional vibration to dangerous levels. A report about torsional vibration is republished to create awareness with current experimental aircraft builders and to enhance experimental aviation safety.*

PR9.NET December 21, 2005 - Buedelsdorf, Germany - In republishing a report called "Propeller Drive Systems and Torsional Vibration", experimental aircraft builder Hans Zwakenberg seeks to create awareness for potentially dangerous experimental aircraft power packages.

Said Hans Zwakenberg: "An increasing number of experimental aircraft take to the air powered by a converted automotive engine. These engines are high-revving, which is detrimental for propeller efficiency. This is why reduction drives are introduced, to lower the propeller RPM to more efficient levels. Reduction drives change the behavior of the power package entirely. Each the engine, reduction drive and propeller have their own natural vibration frequencies. In case there is a coupling between them, the ensuing resonance will wreak havoc with the power package.

Consulting with other home builders, little information could be found. The local libraries only provided academic publications that weren't all that accessible. A report found on the Internet filled in the gaps."

"Propeller Drive Systems and Torsional Vibration" was written by Donald P. Hessenaur a few decades ago. This report will give you greater insight in how engine, reduction drive and propeller influence each other, sometimes with devastating side effects. Download it from <http://www.experimentals.de/> It is located in the 'Documents' section below the 'Downloads' menu.

Hans Zwakenberg is building an IBIS canard experimental aircraft. What he learns on the way to completion is published on his project web site (<http://ibis.experimentals.de/>) in order to pass on knowledge to other builders:

Contact Hans Zwakenberg for more insights into this topic. Direct line: +49 177 7844331 Email: [hz@zwakenberg.com](mailto:hz@zwakenberg.com) Other helpful information regarding this report can be found at: <http://ibis.experimentals.de>.

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## About Zwakenberg

Hans Zwakenberg is an IT-Consultant with a wide variety of interests.