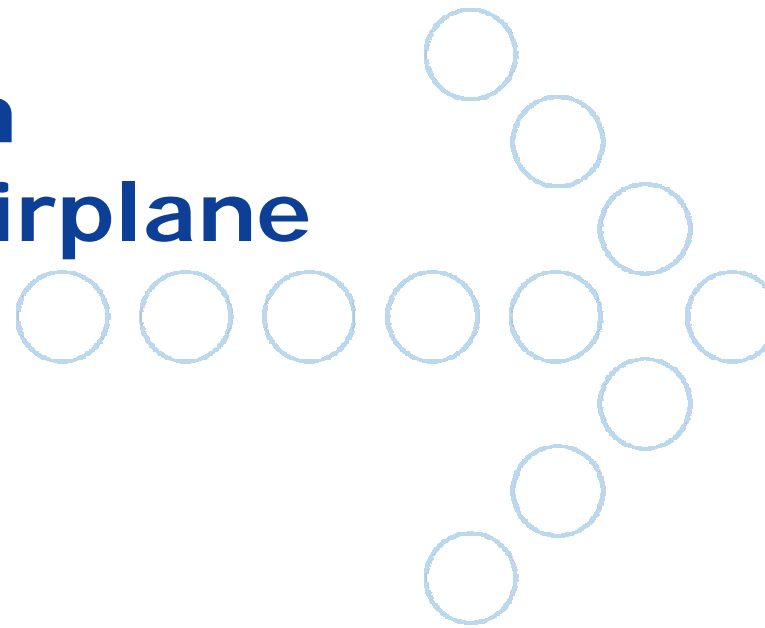


# First Flight of an Amateur Built Airplane

austro  
CONTROL



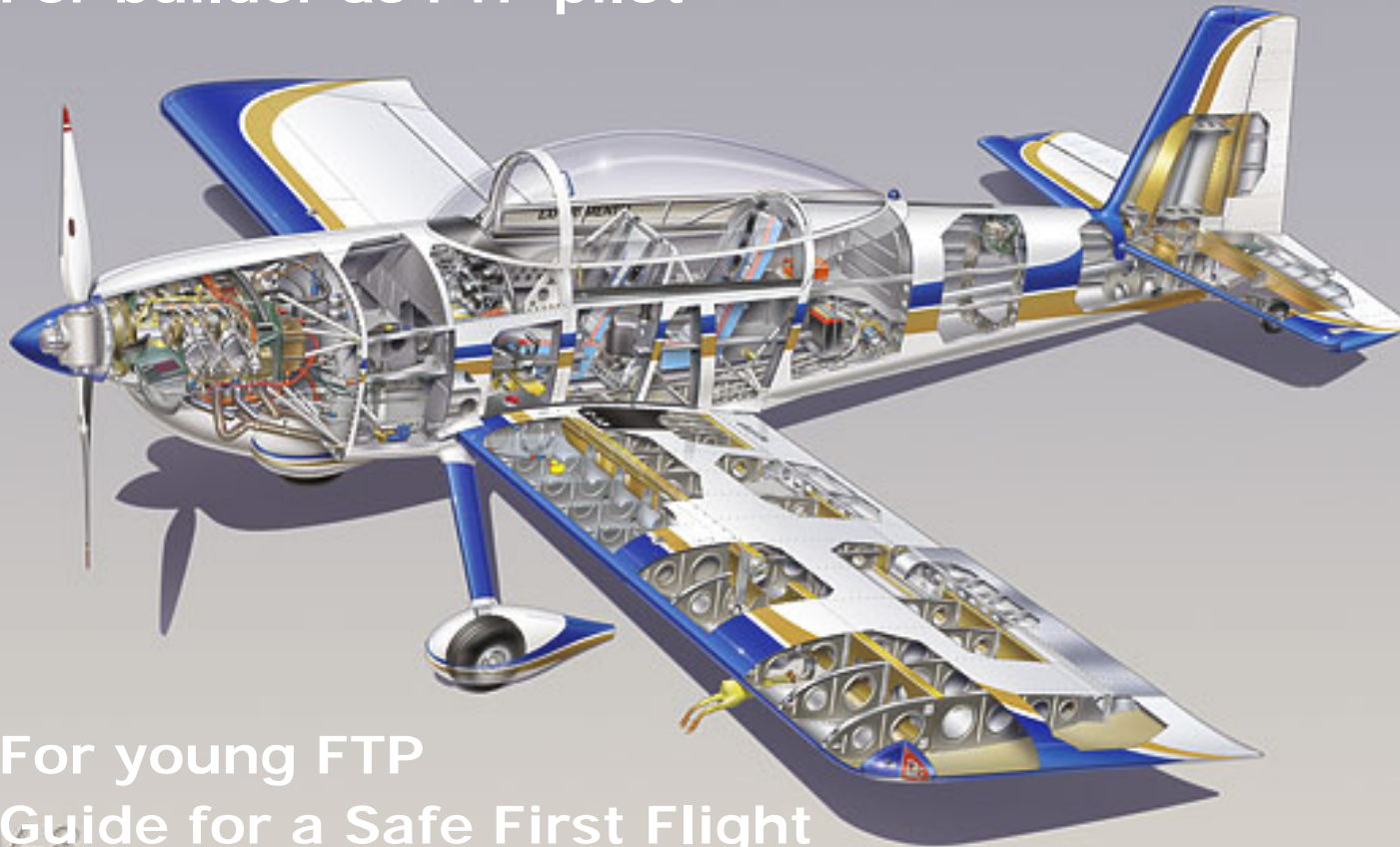
SETP Workshop 2009  
by Andreas Winkler ACG/AOT/ACE

SICHERHEIT LIEGT IN DER LUFT



# Target - Focus

- ▶ For FTP first involved in amateur built airplanes
- ▶ For builder as FTP pilot



- ▶ For young FTP
- ▶ Guide for a Safe First Flight

**Promote safety in Flight Testing of amateur built airplanes**

# Key Safety Factors



**Human**  
**Technical**  
**Operation**  
**Surrounding**



# Human Factor

- ▶ **I have done it several times, ... no problem**
  - It is not a production test flight
- ▶ **Commercial pressure during completion**
  - Pressure to builder reduces quality
- ▶ **First flight an event ?**
  - This is a Non-Event Flight
- ▶ **Owner – builder as the Test Pilot**
  - The best solution if the builder is a trained pilot



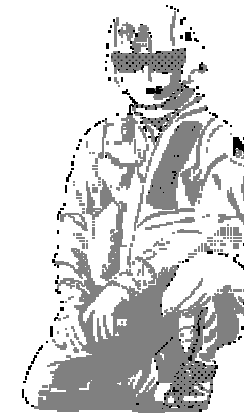
Amateur

Production Line



# Human Factor

- ▶ **Communication and relation; builder to FTP**
  - “Good Vibrations” are essential for safety
- ▶ **Builders progress chart; a slow down process**
  - Building is fun, the first flight a problem
- ▶ **A part of my life**
  - The airplane is a part of builders life - take care and respect
- ▶ **The Pilot’s Ego**
  - No call for assistance but there is a need for help



# Operational Factor

## ▶ Flight Test Area

- Part of permit but this is not enough

## ▶ The next flight is easy ?

- The First Flight might be not the critical one

## ▶ A safety team around

- Needed if something went wrong

## ▶ Equipment

- A parachute is useless if the canopy does not open

## ▶ Flight Test Program

- Make a plan and fly the plan



# Technical Factor

- ▶ **Only minor modifications done**
  - A minor modification with a big effect
- ▶ **Replicas**
  - Are very special airplanes
- ▶ **Production quality**
  - From better than the industry to unacceptable
- ▶ **Brand new design**
  - A completely new design
- ▶ **It is a kitplane**
  - It is not certified
- ▶ **Electronics**
  - Very useful but very tricky



# Technical Factor

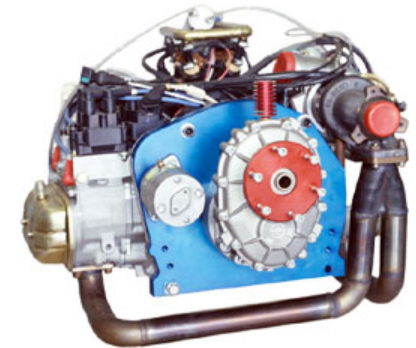
## ▶ Engine and Prop

- Take care with non custom built designs



## ▶ System analysis and ground tests

- Are no risk but essential for a safe flight



## ▶ Tolerated – Accepted

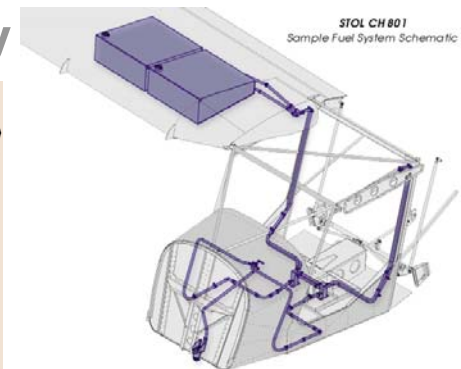
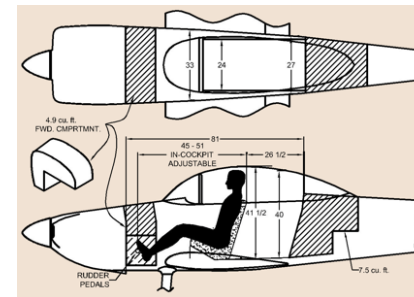
- certification standards not mandatory - but safety

## ▶ Customized

- I do not fit into this airplane

## ▶ Flight Envelope – CofG

- Were am I ?

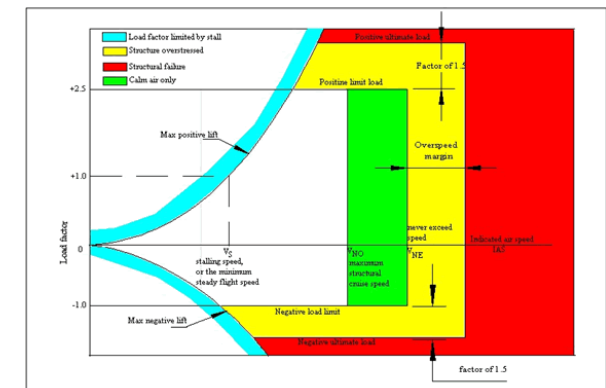


## ▶ Ideal case

- The design is not questionable

## ▶ Outside of the known envelope

- Within the envelope but in an unknown area



# Experimental



# Surrounding Factor

- ▶ **National Regulatory System**
  - Very different from relaxed to impossible
- ▶ **Multiple Builders**
  - Long building times (5-10 and more years)
  - Data transfer required from builder to builder
- ▶ **Financial**
  - A reasonable price for a professional FTP ?
- ▶ **Contract**
  - What happens if the airplane is damaged ?
  - 6000 hrs of building time cannot be injured



FAA



# Summary

Use the checklist for Test Flights in an amateur built airplane

Enjoy flying with an amateur built airplane

and have always Happy Landings