

AOPA Summit 2013 Seminar Notes

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Gary Baluha

Handling In-Flight Emergencies

Rod Machado

- Always remain vigilant
 - In-flight structural failure is very rare
 - The most common cause is loss of airspeed control
 - 1. Know what power setting is used for V_a
 - Higher altitude = lower IAS (higher TAS) – closer to V_a
 - **If flutter (or extreme noise & vibration) is experienced**
 - 1. Reduce power
 - 2. Load the control surface (don't need to be rough about it)
 - Airspeed control!
 - Never disconnect the autopilot without checking the pitch trim setting
 - If the aircraft does something undesired after changing some control, *undo* the last thing you changed
 - Proper propeller care is important
 - Checking the prop governor
 - 1. Set idle power
 - 2. Pull the prop control all the way back
 - 3. Slowly add power until RPM stops increasing (usually around 1500 RPM)
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1. Have a plan
 2. Believe in the plan
 3. Practice the plan

Avionics Upgrades for the Long Haul

Pat Horgan & Tom Haines

- Think long-term when upgrading
- How long do you intend to keep the plane?
- Plan for redundancy
- When new navigation avionics are installed, the autopilot will need to be realigned

Is Your Engine Healthy?

Mike Busch

- Determining engine airworthiness
 1. Is it within minimum specs (complies with the type design)
 2. Is it making full rated power (safe and legal)
- Compression and oil consumption are not the main factors in determining airworthiness
 - Oil consumption rate really only means how long you can fly before having to add oil
- NEVER replace a cylinder based only on the compression test results
- Cylinder borescopy
 - Snap-On BK8000: Currently the best borescope to use, ~\$995
 - Exhaust valve coloration should be *symmetric*
 - Any green tinge, and the exhaust valve is only a few hours from failure!
- Oil analysis tells a general health of the bottom of the engine
 - Only detects small wear particles, not large chunks
 - Good at detecting slow wear, or an early warning of accelerating wear
 - However, it won't say *which* cylinder is wearing
 - Don't overreact to one bad report – it takes at least three samples to determine a trend
 - www.blackstone-labs.com
- Cylinder borescopy tells the general health of the top of the engine
- Oil SEM analysis
 - Use when significant metal is found in the oil
 - Can help pin-point *what* is wearing
 - www.avlab.com
- Oil sample
 - Lycoming recommendations to ground the aircraft
 - Large piece of metal (about the size of a pencil tip)
 - ¼ teaspoon (or more) of small particles
 - Rapid wear detection
- Engine monitoring / analysis

- When running on one mag (during the mag check):
 - The EGT rise should be roughly the same on each cylinder (unless the type certificate says otherwise)
- An EGT temperature variation cycle of 1Hz indicates an exhaust valve is near failure

- Prior to an annual inspection
 - Run the engine monitor test profiles
 - Perform a borescope inspection
 - Perform an oil analysis

- Cam guard – a good product for corrosion prevention
- AVOID any oil additives with teflon

Refine Your Decision Making & Redefine Your Personal Limits

Michael Goulian

- Safety culture defined – Your *actual* commitment to safety
 - Can be positive, negative, or neutral
 - Positive traits
 - Proactive prevention
 - Pre-flight planning
 - Adhere to personal limits
 - Training and currency
 - Negative traits
 - Complacency
 - Ignorance
 - Over-reliance on technology
 - Risk taker
- Set your personal minimums to something appropriate for when everything is *not* all good
- Don't fly *at* your personal skills or the aircraft's capabilities
- If you rely on your machine to work perfectly to keep you out of trouble, *you're in trouble*
- Learn from your mistakes
- "Good" is not good enough