

Buying a Used Homebuilt Aircraft (Becoming a non-builder owner)

By: Vic Syracuse

Vic Syracuse

- **12-time Aircraft Builder**
 - **RV-4, RV-6, RV-7A, RV-8, 2- RV-10's, Prescott Pusher, Kitfox Models II, IV Speedster & 7 SuperSport, Super Stol, Hummingbird Helicopter, RV-10 under construction**
- **DAR for Atlanta MIDO 17 years**
- **EAA Tech Counselor & Flight Advisor (50+ First Flights)**
- **Commercial Pilot, ASMEL, ASES, RW Helicopter, CFII, A&P/IA (11300 hours, 74 different types of aircraft)**
- **Author 'Checkpoints' Sport Aviation; Kitplanes "Diagnosis" & "Unairworthy"; Base Leg Aviation You Tube**
- **Founder Base Leg Aviation (KFFC)**
- **Author "Maintenance Handbook for RV Aircraft", "Prebuy Guide for Amateur-Built Aircraft", " Are Your Nuts Tight", "Flying to Alaska"**

Don't Be This Buyer!



Beauty is only skin deep

Thorough Prebuys are a must! (even for kits!)

Use a person knowledgeable & experienced with the particular type of aircraft

Do not get emotionally attached until you have completed a prebuy inspection

USE THE PREBUY GUIDE!



Big Picture...

- Even with today's "assembly kits" there is the potential for serious mistakes
- A good portion of the aircraft is left to the builder
 - Engine, props and firewall forward
 - Avionics
- Lots of room for customization and adverse impact
 - Air conditioning
 - Alternative engines (unsupported)
 - Extra Fuel
 - Speed mods
- Not all builders understand maintenance

www.baselegaviation.com • **Many sellers today are not the original builder!**



First Steps

- **Fly sample aircraft if possible**
- **Talk to owners**
- **Join type-forums; post that you are looking to buy and seeking advice**
- **Ask owners what they would have done differently**
- **Ask if any are for sale as many of the best are never advertised**

Try to identify local opportunities first, as costs of travel and ferry pilots can be expensive

Take an Objective Look!

- **Review your top 3 choices**
 - Safety record
 - Builder/customer support
 - NTSB accident data base
 - Manufacturers' websites as a source of information
 - KitPlanes annual airplane and engine guides are a great resource
 - Lots of online resources at EAA (technical Counselors)
- **Identify your “needs” vs. ”wants”**
 - Solo fun flying
 - Saturday hamburger jaunts
 - Family travel
 - VFR vs. IFR
 - Speed
 - High wing or low wing
 - Conventional landing gear or taildragger

Understand your budget

- **Ownership costs can vary**
 - **Tube & fabric vs. metal vs. composite**
 - **Hangar availability**
 - **Maintenance availability, local knowledge**
 - **Insurance**
 - **Engine/prop choices**
 - **Ignition choices (electronic vs. mag)**
 - **Fuel availability**
 - **Acquisition costs**

Search and put the word out!

- Search trade publications (TAP, Barnstormers, etc) and contact seller
 - Choices are good!
 - Ask for copies of logbooks and paperwork, such as Operating Limitations
 - Inquire as to any modifications to the aircraft and how they were tested
 - Any damage history?
 - How aircraft has been stored (hangared or tied down, near salt-air environment)?
 - Has aircraft been dormant for any length of time during its history?
 - Have all SB's been completed? Mandatory for SLSA
 - Discuss pricing and reconciliation of inspection discoveries

Seeing and Touching is Good!

- **Treat as a first date!**
 - **Is aircraft clean**
 - **Is the hangar clean**
 - **Is it airworthy? Check logs and paperwork for required signoffs**
 - **Condition Inspection**
 - **Phase I completion**
 - **Aerobatic signoff, if relevant**
 - **Transponder 24 month check, if needed**
 - **ELT annual check per 91.207 (d)(4)**
 - **Operating Limitations in the airplane? (Not POH!)**
 - **Do you fit in the aircraft?**
 - **Are all controls reachable, labeled, and functional?**
 - **Radios and avionics all work properly**
 - **External lights all working and installed properly**

Go Fly it if Possible

- **Pay attention! It will be sensory overload, but there will be time for fun later. 😊 Use a checklist!**
 - **Does it start easily? No grinding noises?**
 - **Brakes and steering feel normal?**
 - **Engine gauges within limits for taxi, climb out and cruise?**
 - **Electrical system is properly charging?**
 - **Controls feels good, with harmony in all axis?**
 - **Trim controls are properly labeled and/or indicated?**
 - **No weird noises that can't be explained**
 - **Heat and vents work properly?**
 - **Clear radio and cockpit communications?**

**Let's look at some real
pictures from
recent prebuys...**

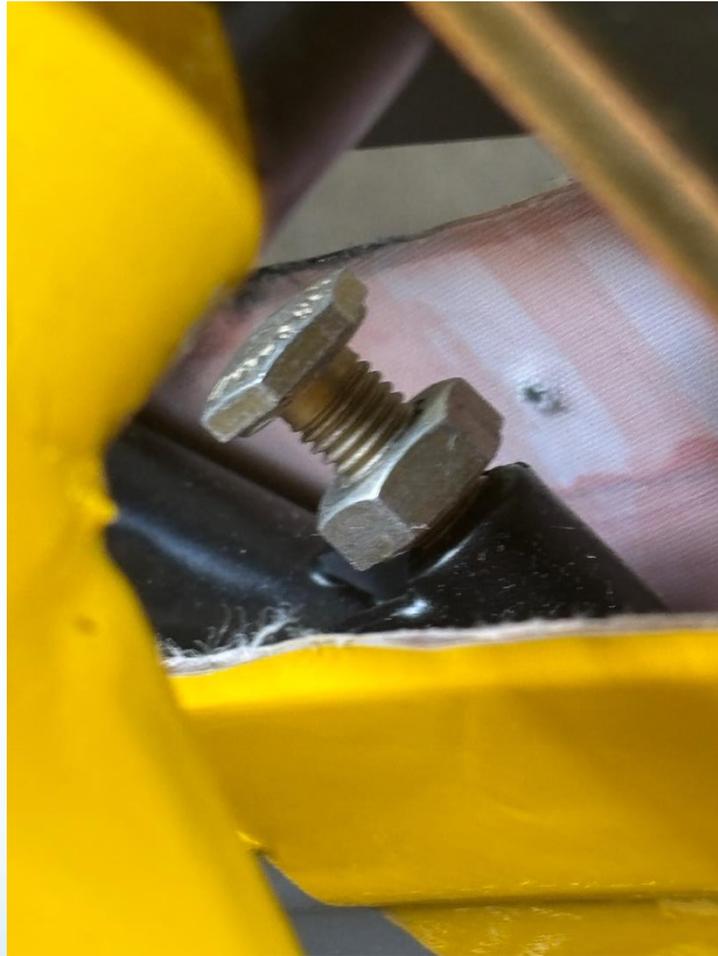
Mandatory SBs are for real



Bad Valve



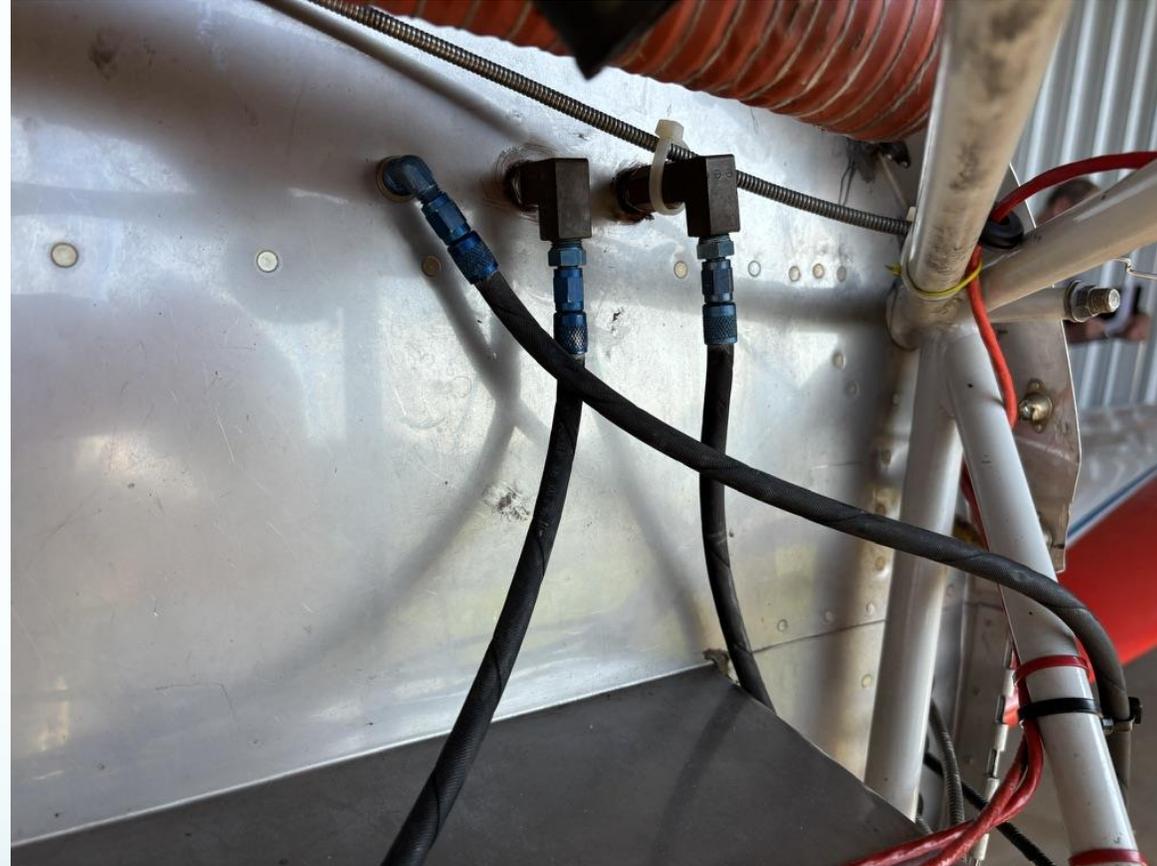
Jam Nuts!



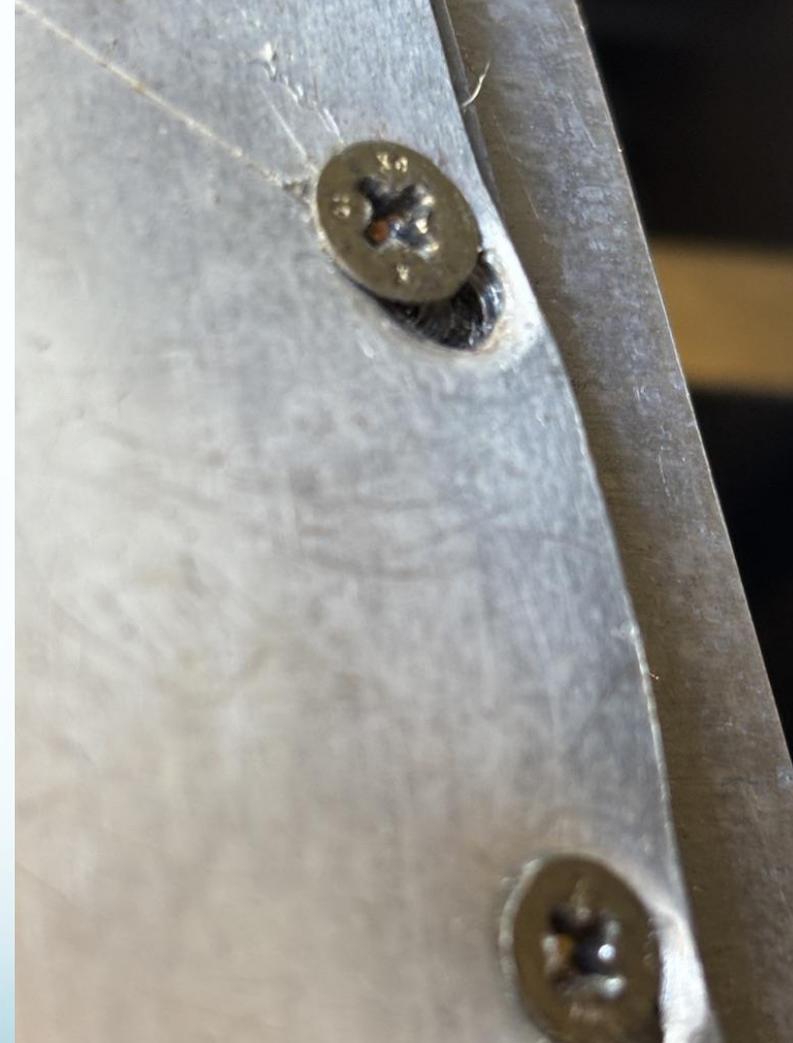
Unprotected fuel lines



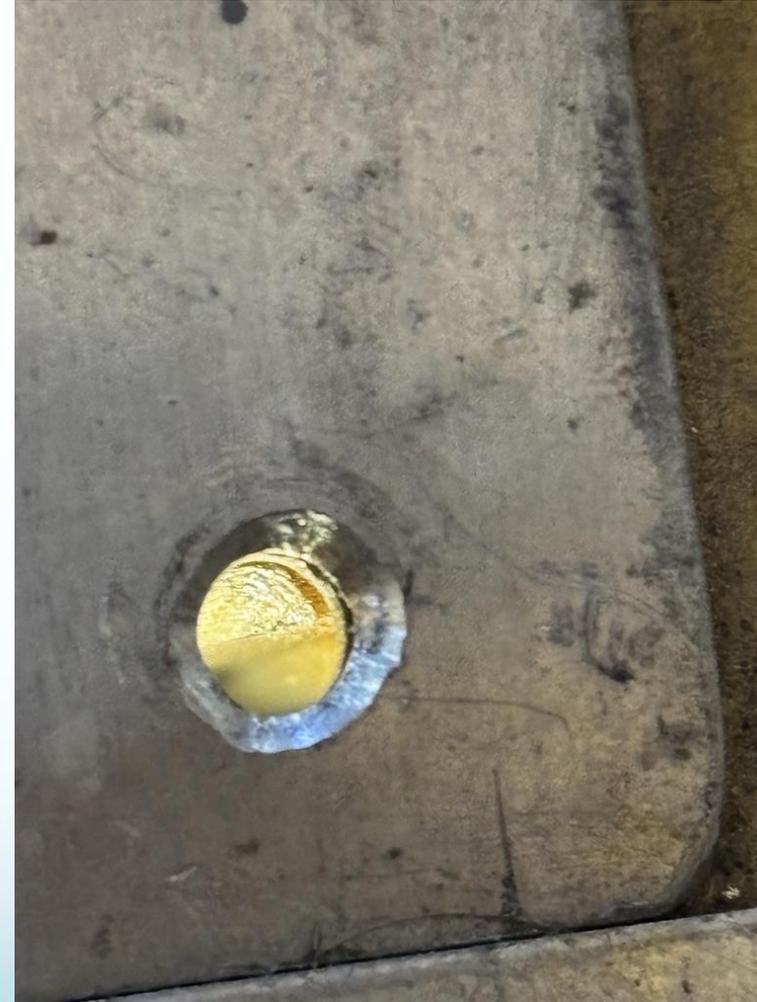
Poor Workmanship



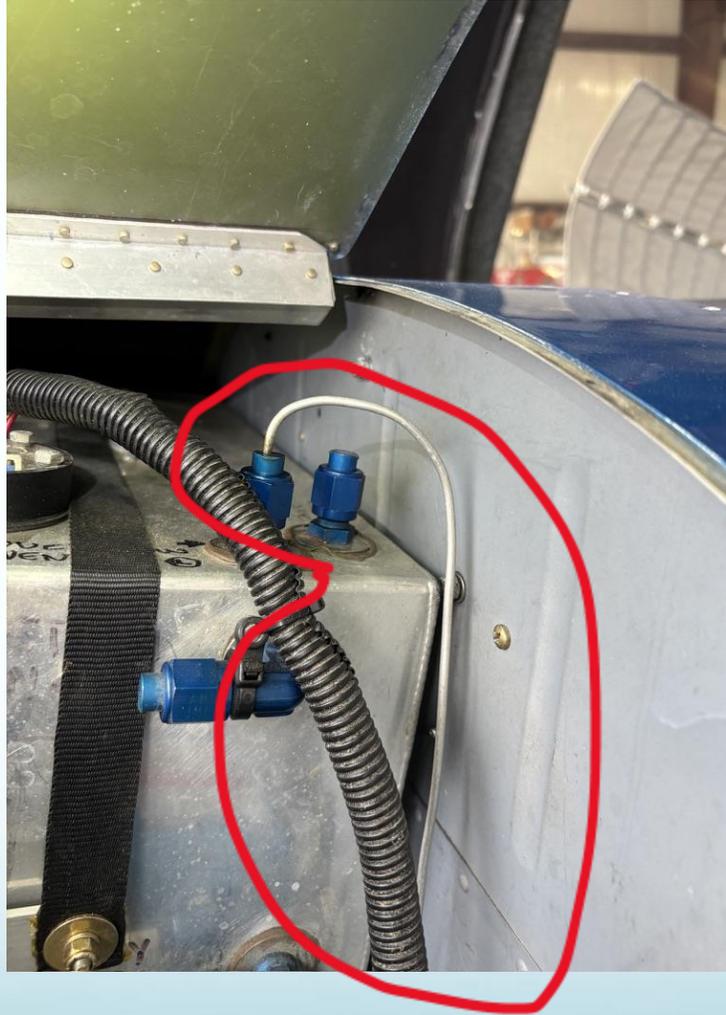
Poor Workmanship



Structural issues



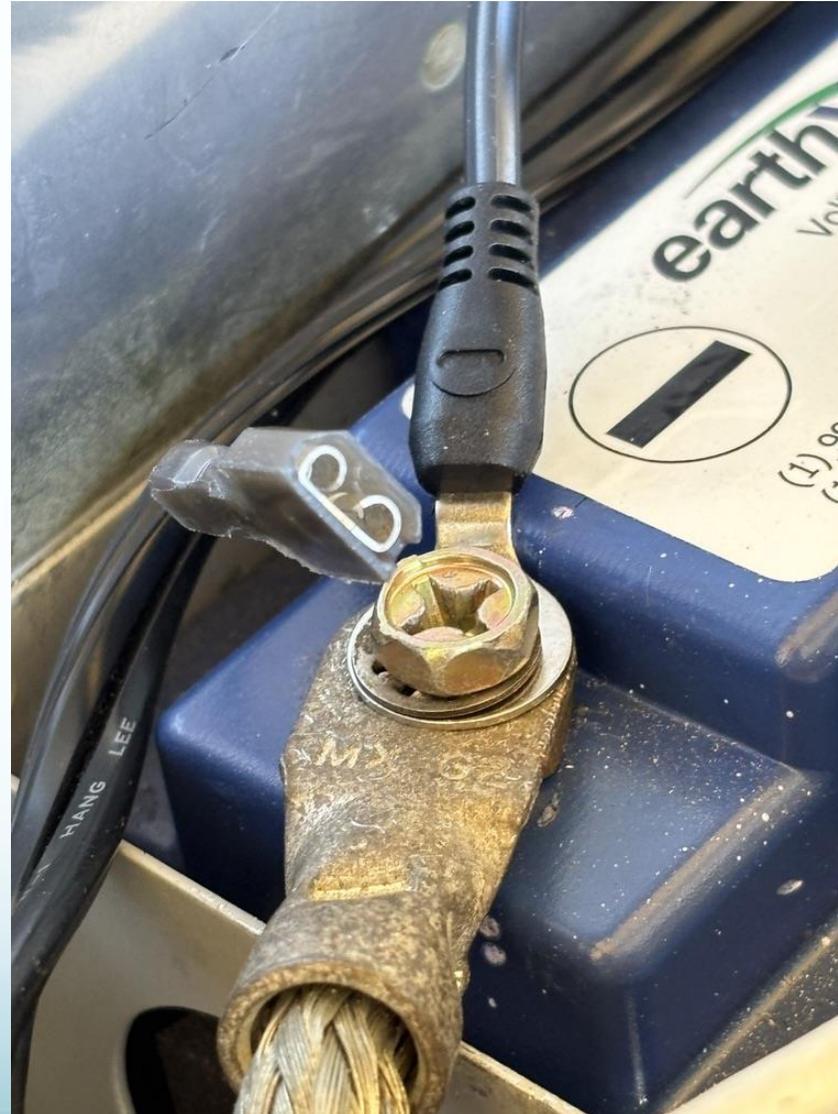
Poor Workmanship



Unsecured wiring



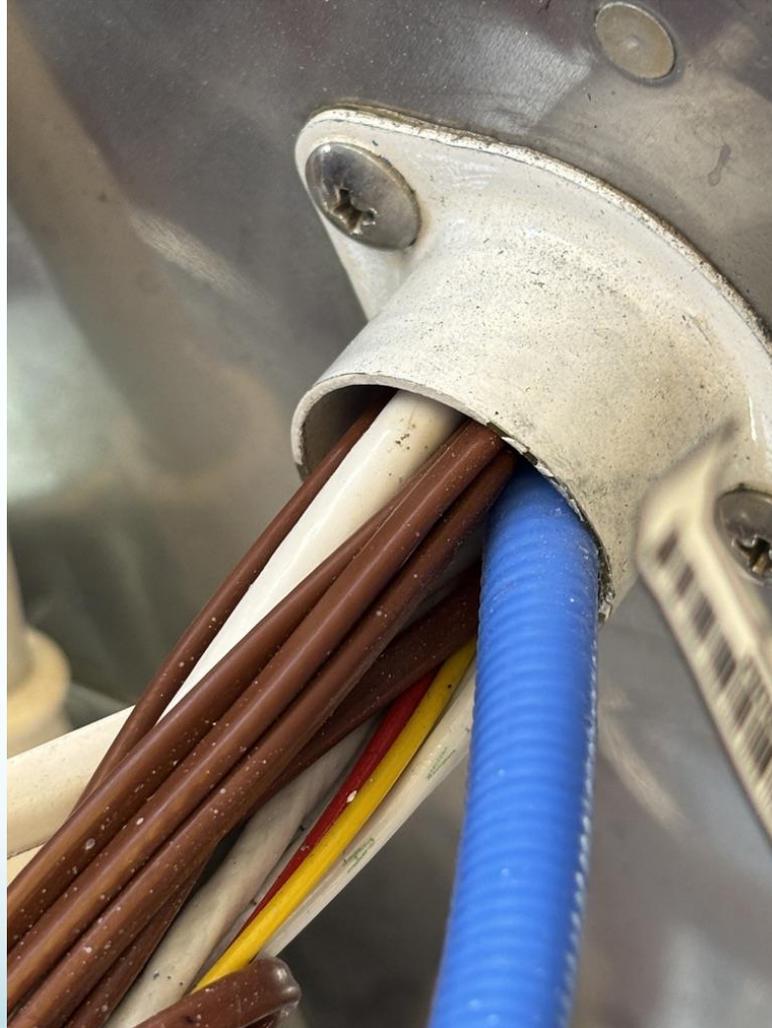
Unconnected terminals



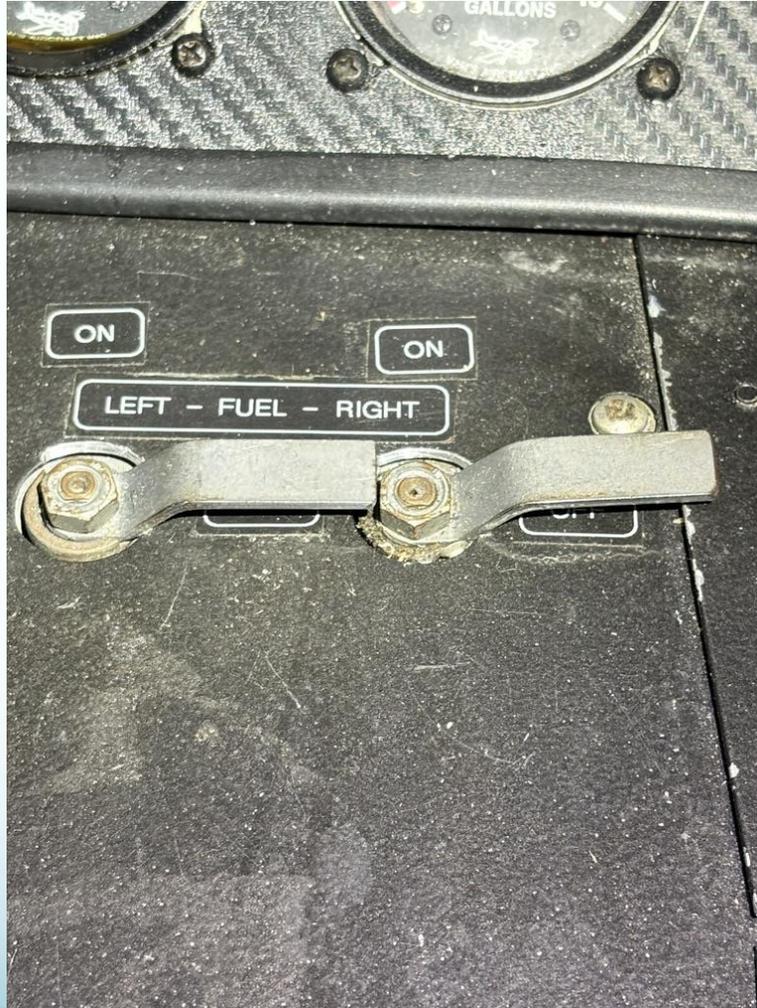
Poor Wiring



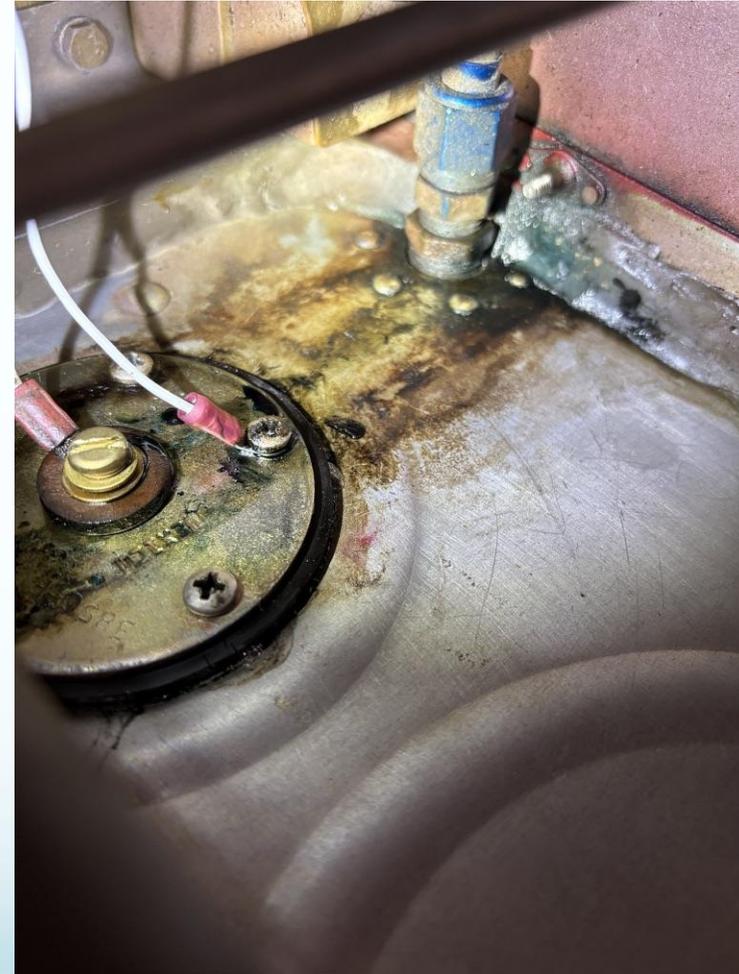
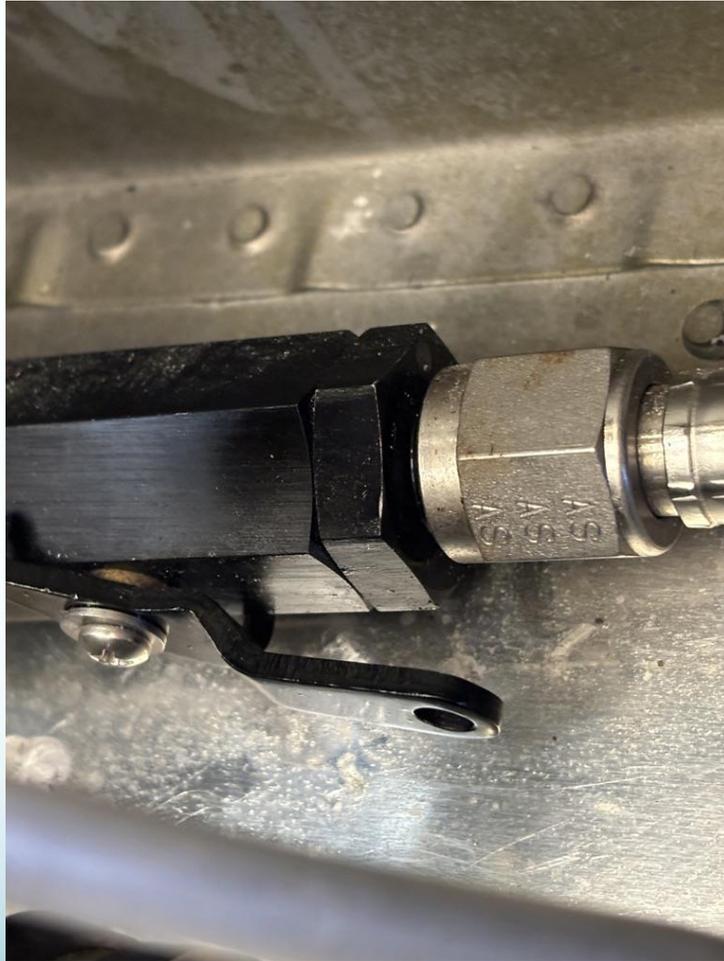
Unprotected wires



Complicated fuel systems



Modified/leaking fuel systems

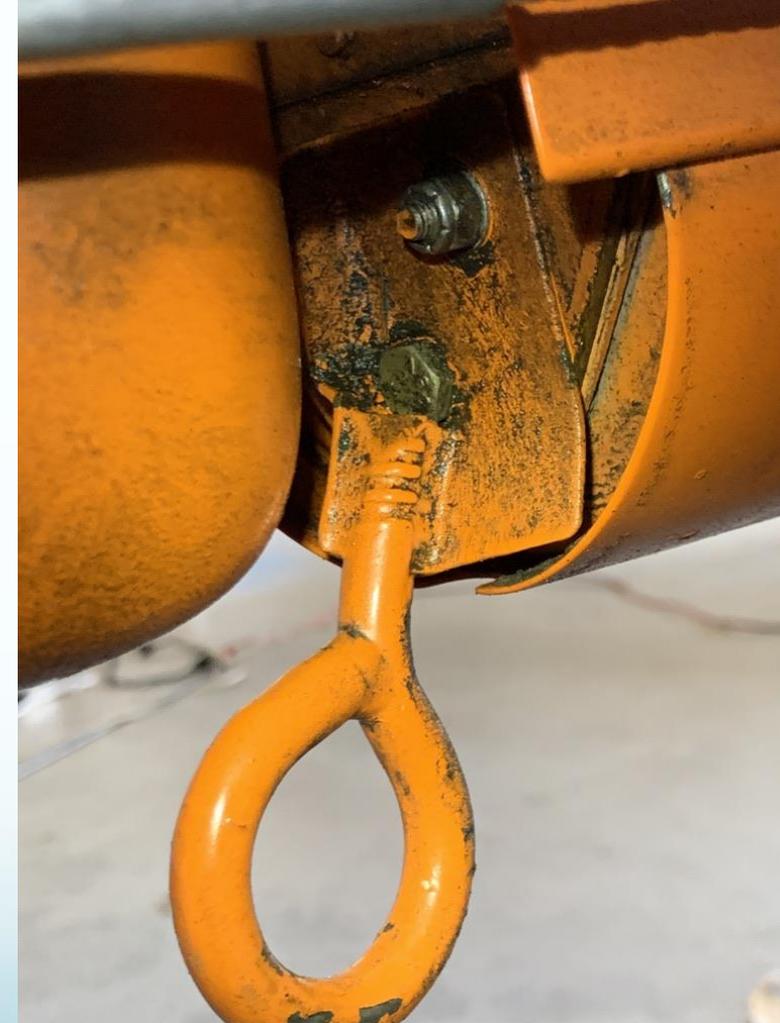
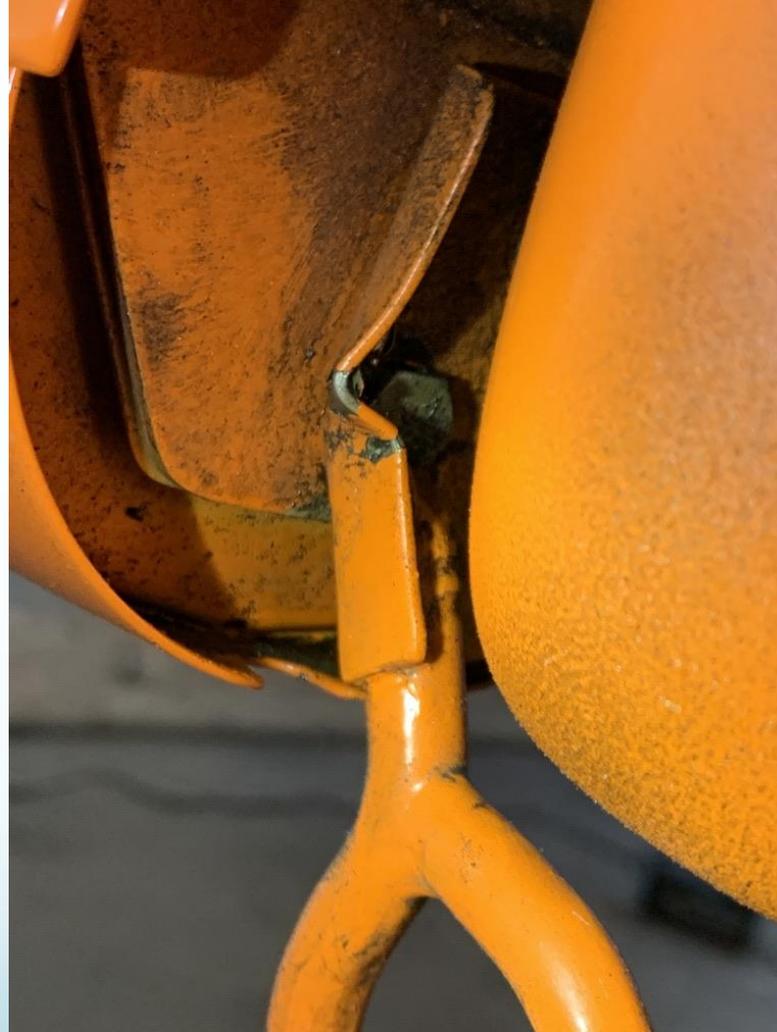


Leaking Fuel



**Be sure to remove
Inspection covers!**

Structural issues



Control Damage



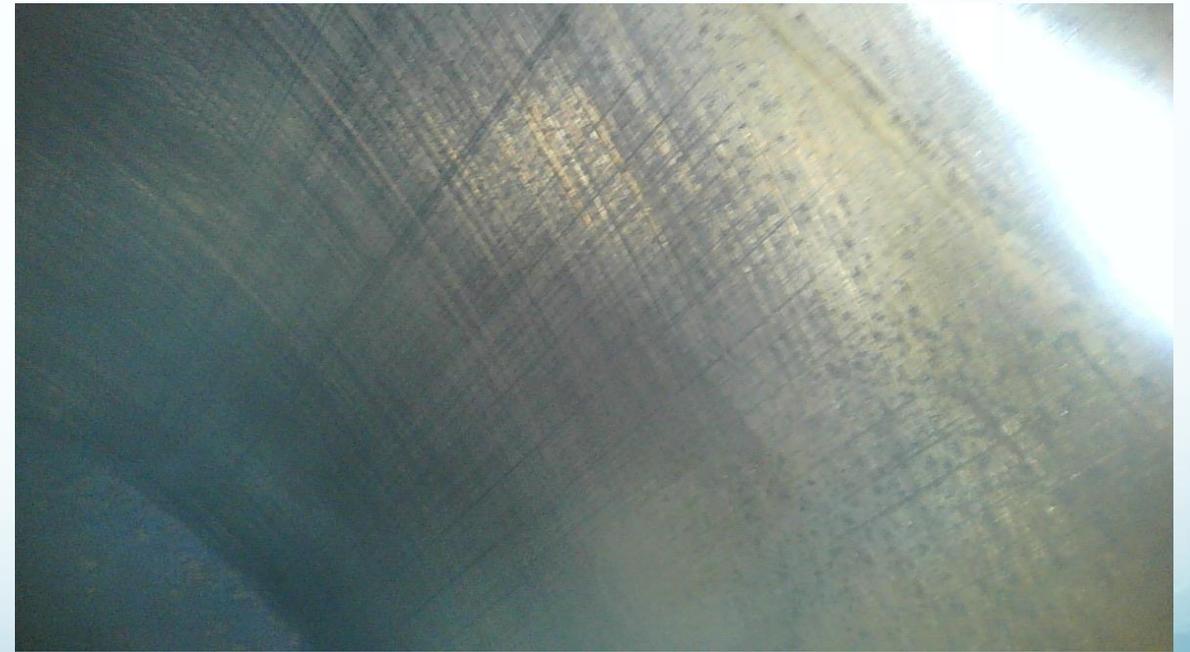
Structural Damage



Metal in Screen



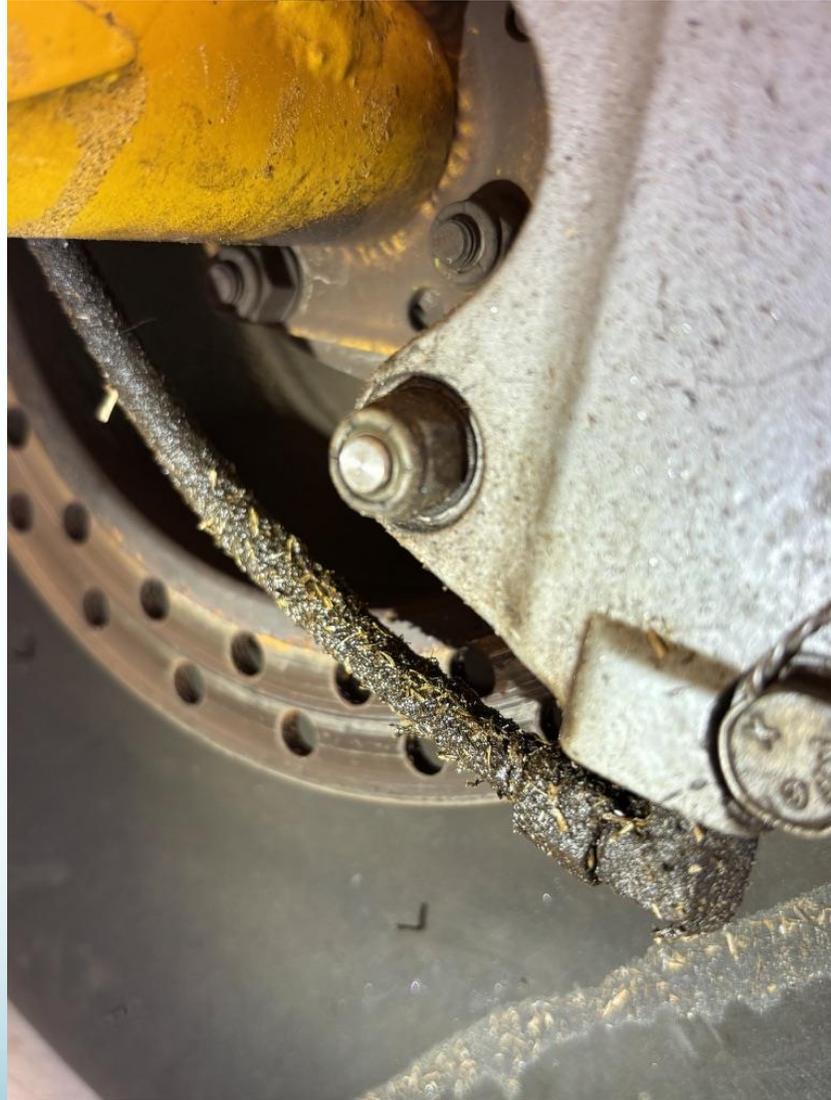
Borescope Cylinders



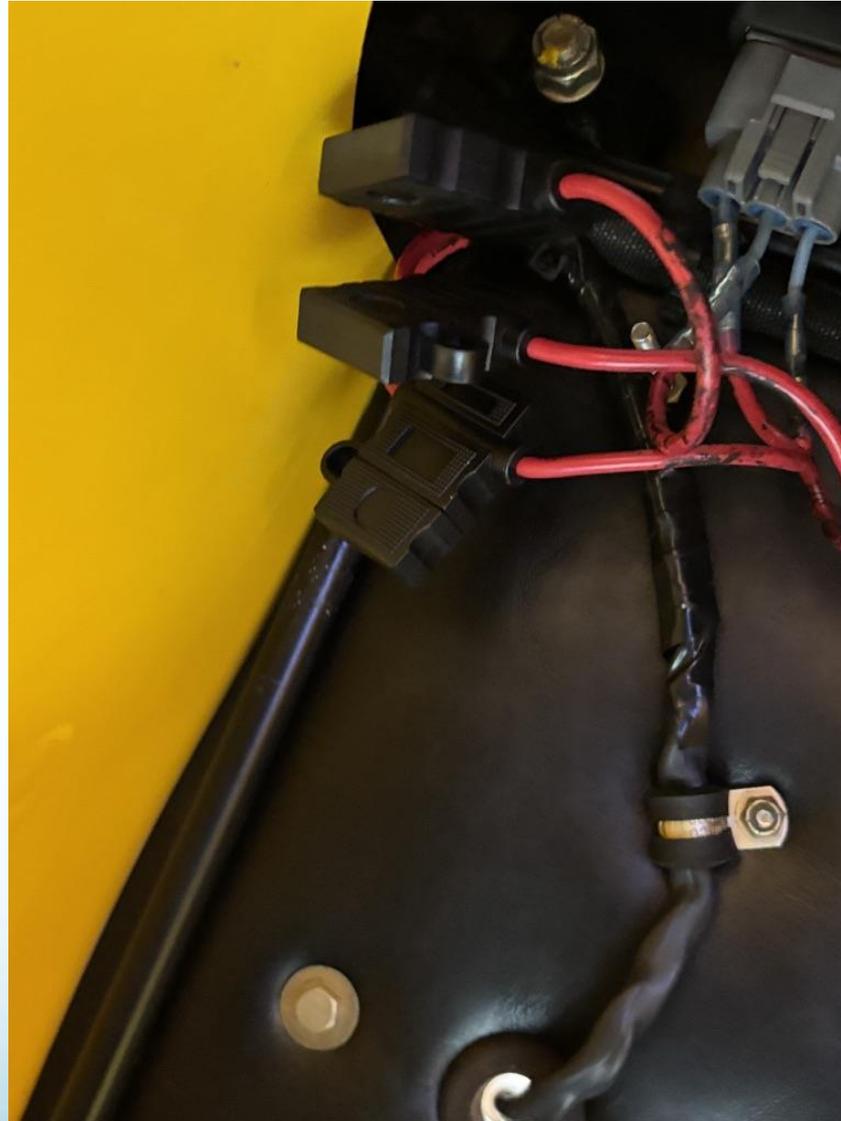
Cylinder Scoring



Leaking brake lines



Unmarked fuse holders



Corrosion



Missing bolts



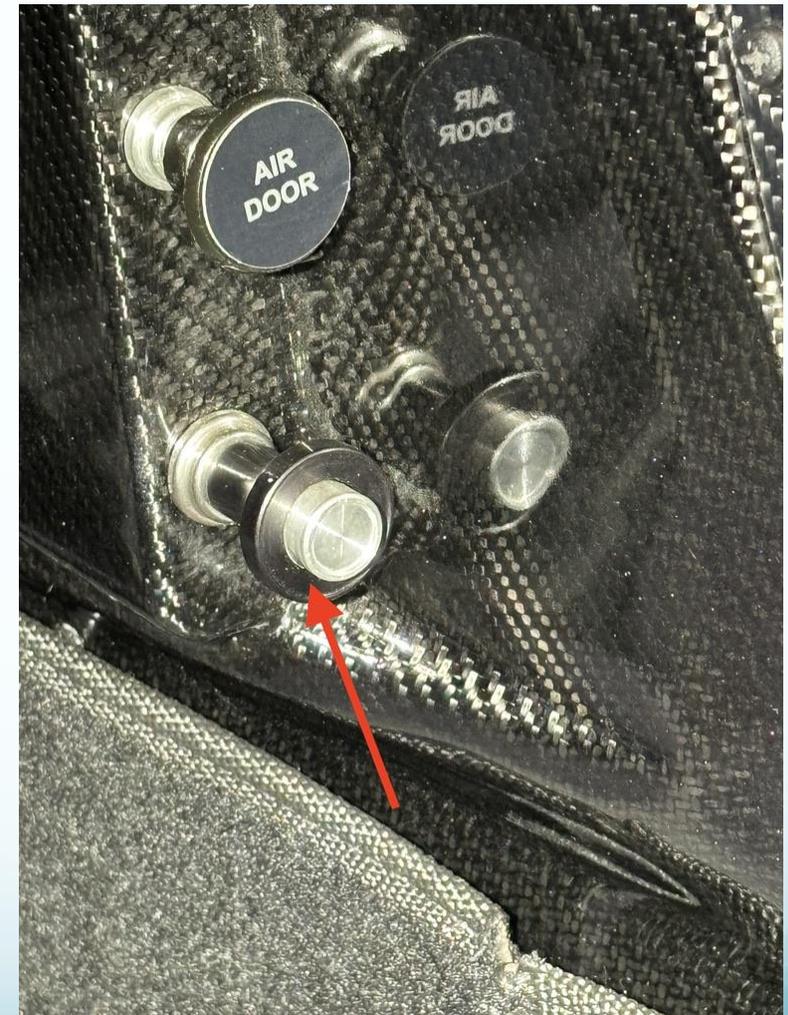
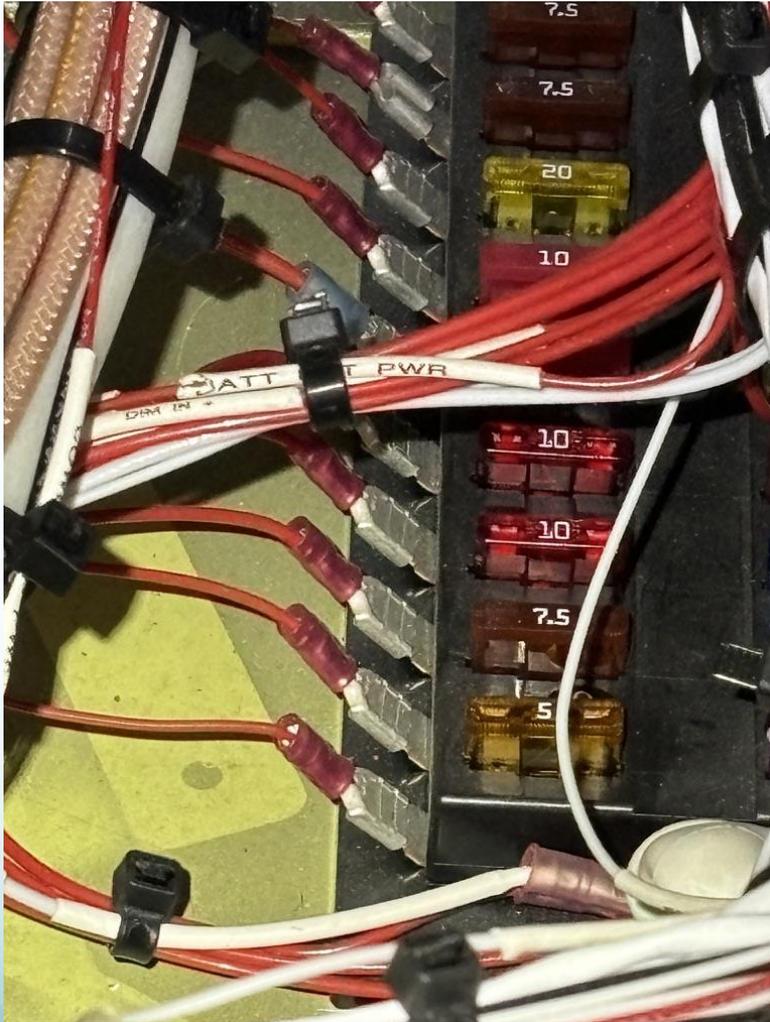
Wrong fastener



Unsecured cotter key



Unlabeled Components



Unlabeled controls



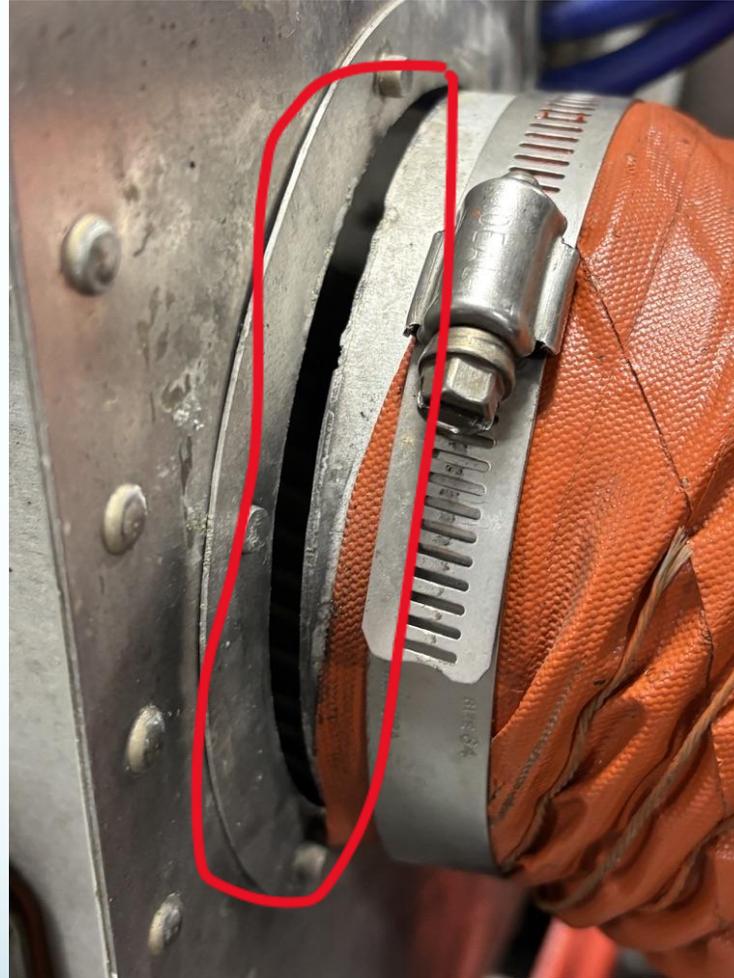
Evidence of a backfire



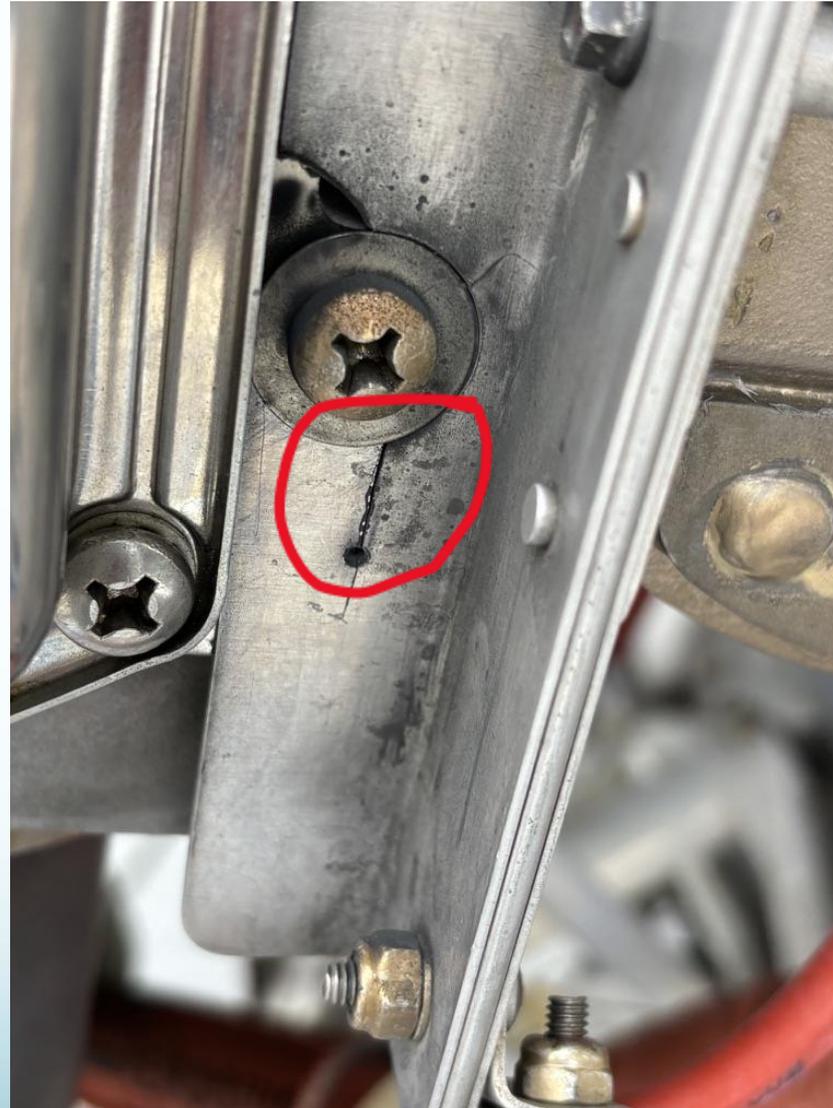
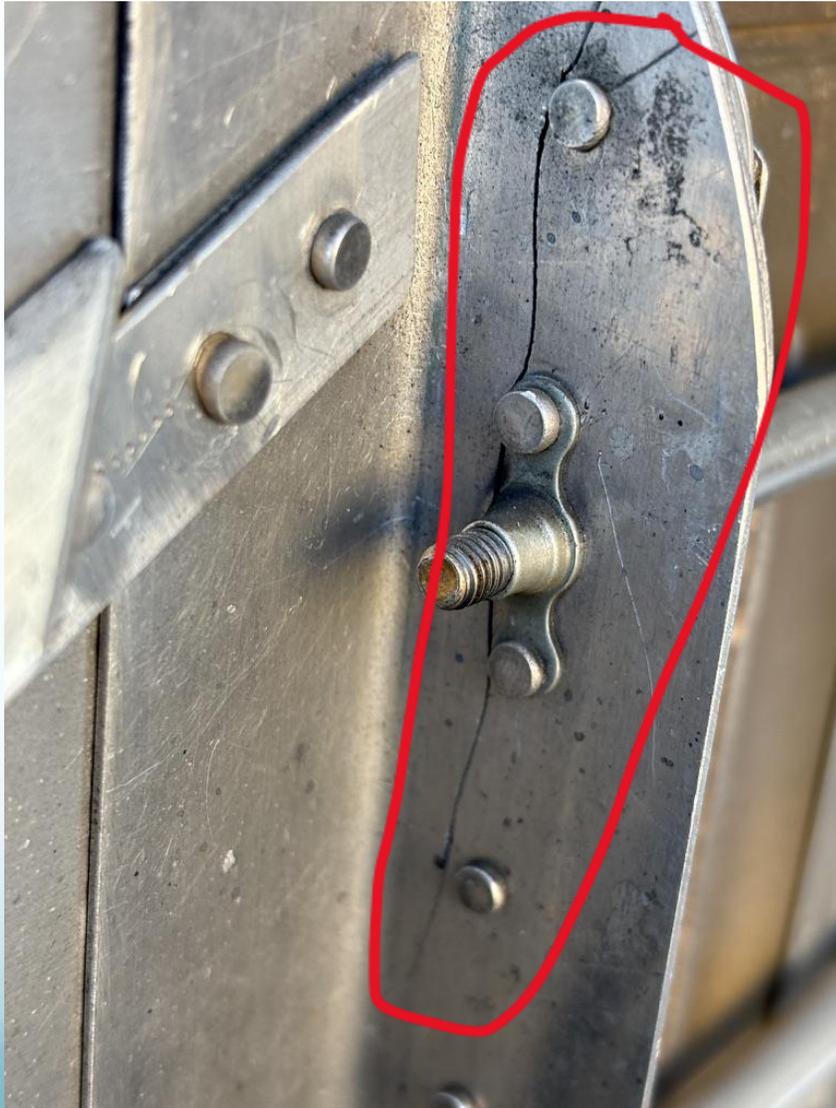
FAB Damage



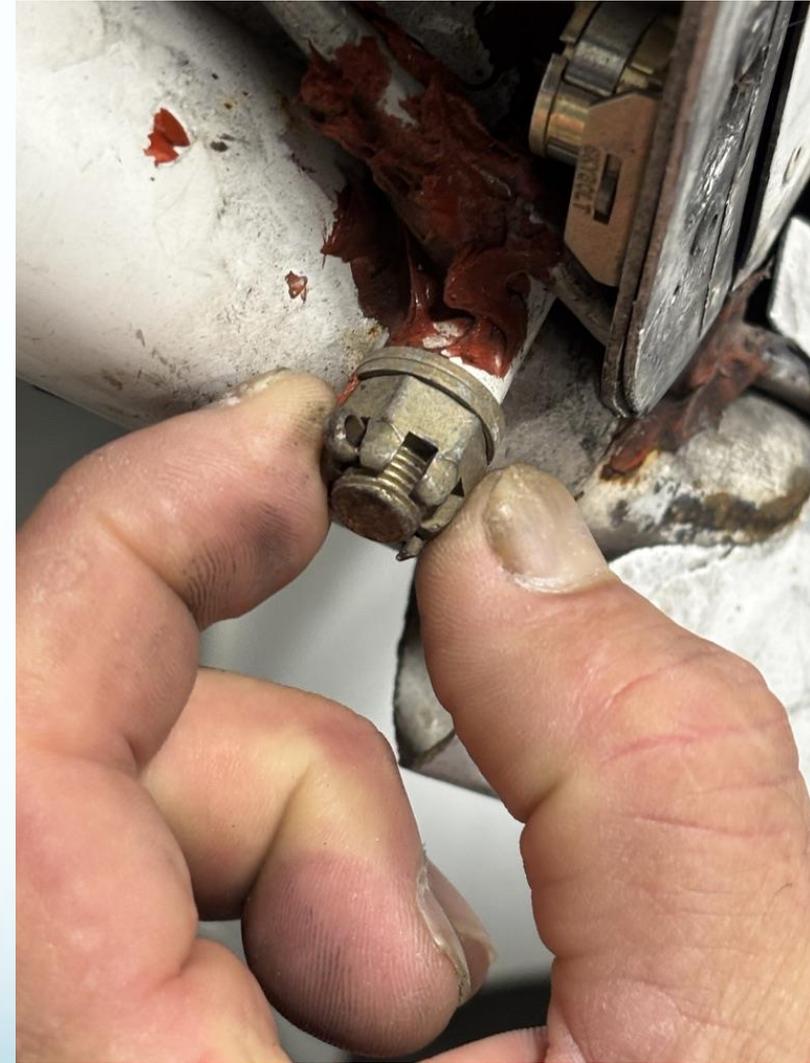
Cracked Flange



Cracked oil cooler mount



Cracked Engine Mount



Improper tail strobe



Leaking Fuel



**Be sure to remove
Inspection covers!**

Fouled Spark Plugs



Oil-fouled plugs



Wrong Adapters



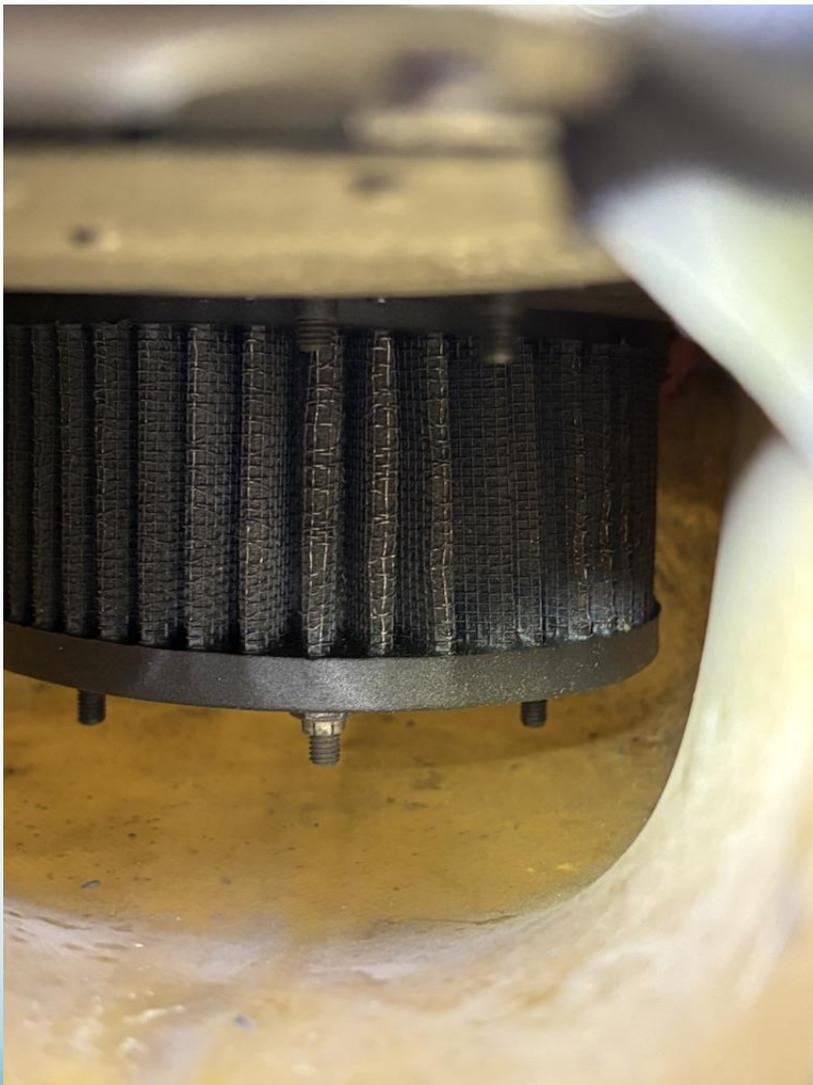
Crooked Tailwheel



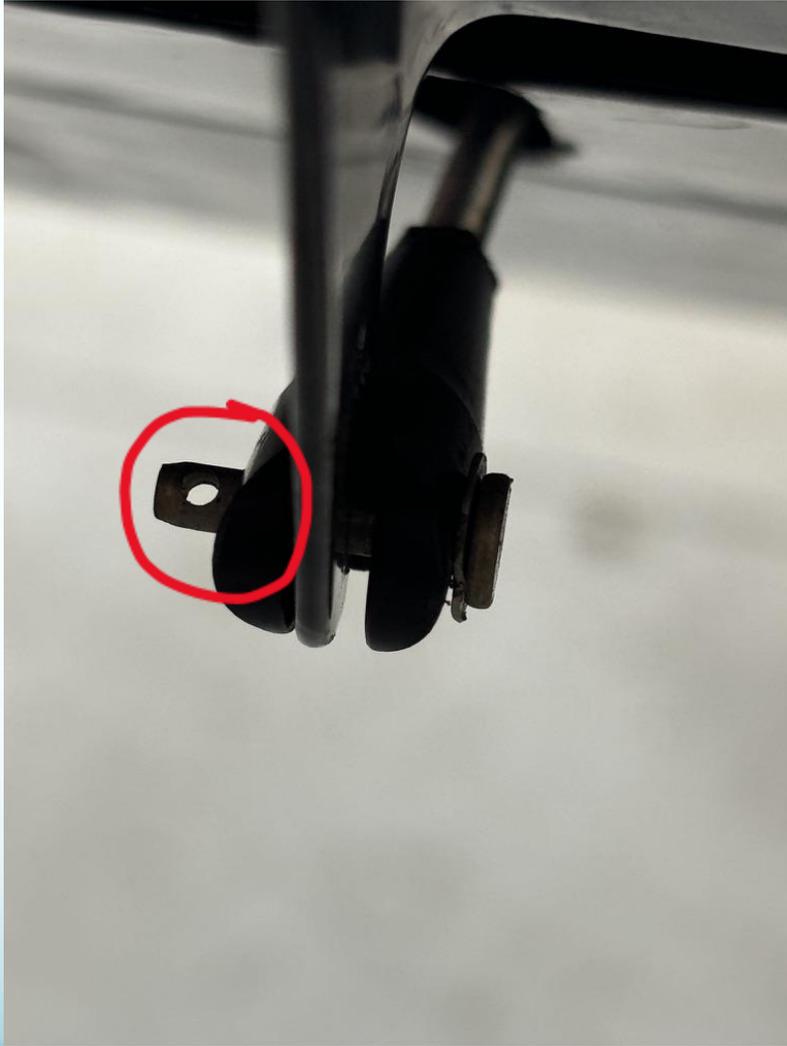
Intake Hoses & Gas



Dirty air filters



Missing Cotter Keys



Worn Out tires



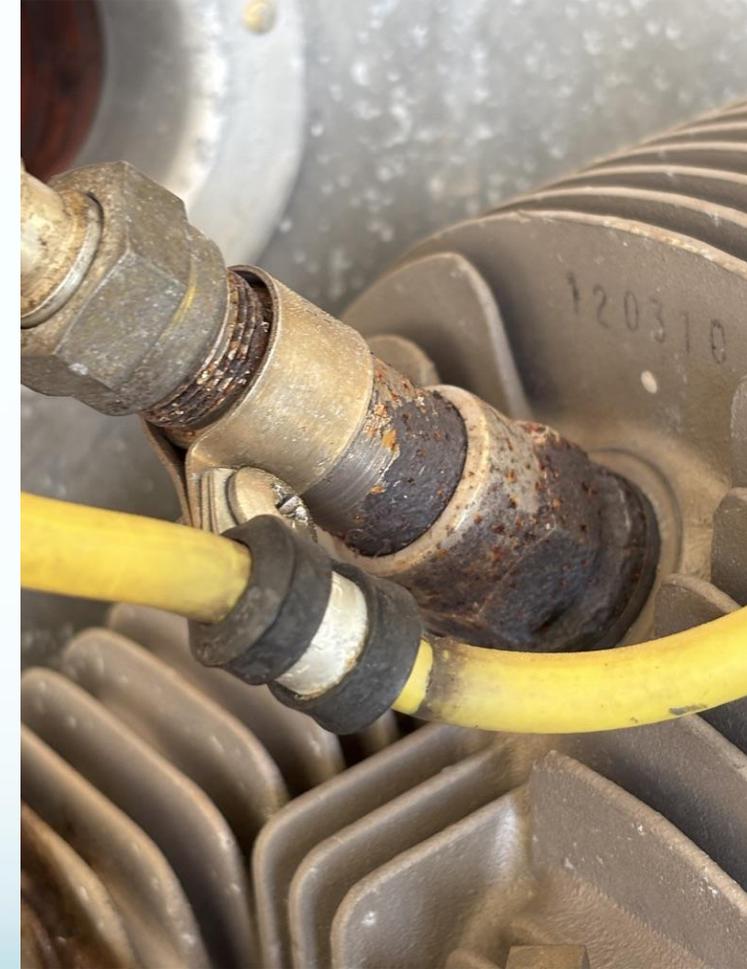
Low Brake Fluid



No safety wire



Corrosion



Filiform Corrosion on Prop



Improperly secured ballast



PMAGS



Worn motor mounts

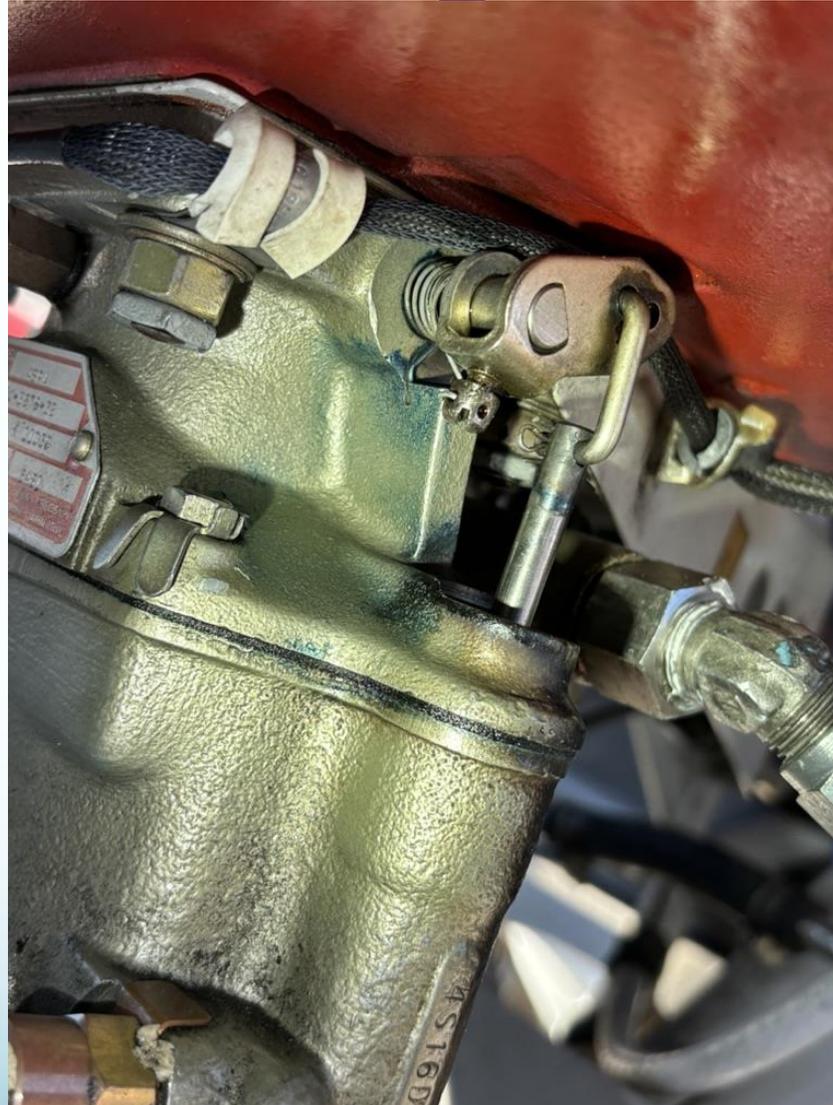


ELT issues



Leaking Carb

Note blue fuel stains



Low Compression



Don't Forget...

- Bill of Sale
- Notify insurance company (“events” on the way home do happen)
- Completion of transition training, if needed
- Make sure Operating Limitations are in the aircraft!!!
- Complete Application for Registration

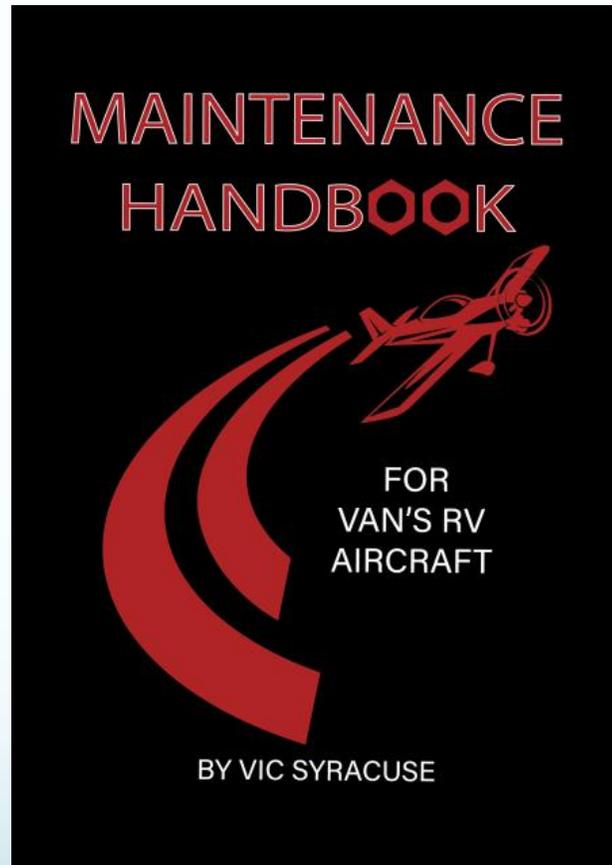
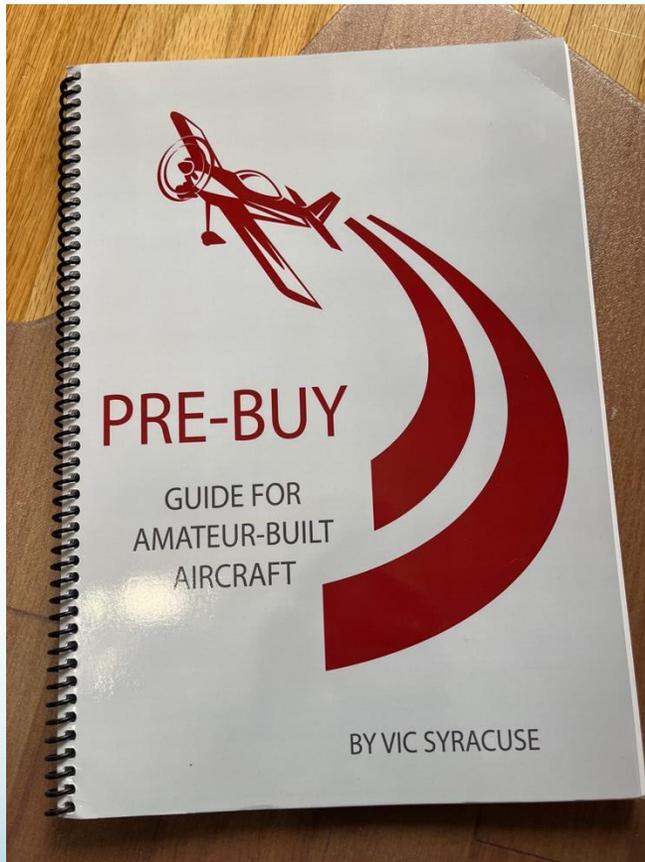
Now the fun begins!!!

Welcome to the world of Homebuilt Aircraft Ownership!

www.baselegaviation.com



QUESTIONS?



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or
Aircraft Spruce
Or
Vans Aircraft

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