NEWS

Main Gear Leg Shimmy Problems

In the December, 2024 newsletter I discussed the results of a main gear leg shimmy survey. In a nutshell, about 1/2 of the respondents reported no shimmy problems while the other 1/2 reported shimmy problems varying from occasional to severe.

Just to define the problem more clearly, a gear leg shimmy is when the main wheel assembly oscillates fore and aft in a mild to severe manner. The oscillations can be easily felt in the cockpit. Even mild oscillations will eventually cause fatigue cracking, usually in the lower portions of the engine mount, while severe shimmy can quickly cause severe damage to the engine mount and elsewhere.

This is not a new problem, nor is it confined only to our aircraft. Many RV's have similar problems. Heck, many aircraft even have a shimmy damper (looks like a shock absorber) on their nose wheel.

While there is no way to install a shock absorber on our tapered titanium gear legs, there are many other ideas that may, or may not, dampen any oscillations.

Typically, as seen in the photos above, some sort of material is applied to the gear leg to change its vibration characteristics. From left to right, the most commonly tried technique is a simple wooden, airfoil shaped damper, wrapped with a few wraps of fiberglass (FG not shown); in the middle photo several wraps of fiberglass or carbon fiber have been applied to the gear leg; while in the righthand photo, an *"I'm done f***ing around"* bar of aluminum or steel is bolted to the gear leg with padded Adel clamps, or similar clamps.

Each one of these techniques has merits and drawbacks. Obviously, some thought needs to go towards whether it may be possible to make the gear leg too stiff which could possibly cause other problems.

In the December newsletter I mentioned one builder who was having serious shimmy problems. He had tried all manner of solutions as seen above, and also tire pressure, tire balancing, shaving tread from the tires to reduce weight, and many other techniques too. A Van's Airforce thread (URL below) talks about this topic.

F-4 Shimmy Solved

From the thread: "Recently a builder noticed that another Rocket that he was familiar with had zero shimmy after that owner swapped to a different brand of wheels and brakes. It seems that the brakes were dragging. Checking his own brakes, they were dragging too. He swapped to another brand of wheels and brakes and his problem also disappeared. Without pointing a finger at any particular brand of wheels and brakes, I think that there is enough data here to recommend that this subject be investigated further. How? Jack your plane up and spin the tires. The builders mentioned above noted that their tires wouldn't spin more than about 1 turn, indicating that a brake was dragging (when cold). It may be possible that having hot brakes after slowing down from landing could exacerbate the situation and cause one, or both, wheels to drag enough to energize a shimmy problem."

While a couple of data points certainly don't prove that those with problems should immediately swap their wheels and brakes (which is not cheap!), it does lend weight to checking for excessive brake drag (or wheel bearing problems?) if the other techniques don't cure your shimmy problems.

F1 Evo project for sale

The only unsold original F1 Evo Rocket kit on the planet. It's the last of the Mohicans.

Wings, and empennage are installed, plane is primed.

SteinAir Avionics! All GARMIN full IFR custom panel with GEA24, GTX23, GAD29, GDL39R, GMA245R, GTR20, integrated battery backup and ELT. Wiring needs to be completed.

Continental IO-550 supercharged, rated at 330HP.

Pneumatic tailwheel.

Two WWII pilot urinals.

Canopy is ready, needs installation.

MT certified reconditioned three-blade constant speed prop.

Cowling is a work in progress.

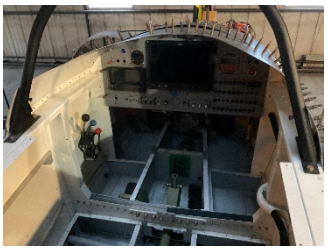
Don't miss out! $250K. Offers considered.

Click on the photos below to enlarge.

• Contact Mark Frederick - located Taylor, TX United States

• Telephone: 512-289-0746 (or Cheryl at 512-415-5452)

• e-mail: F1boss@gmail.com



David Howe's award winning HR2 for sale

David Howe is well-known and well-regarded to most Rocket builders and pilots. His contributions to the Rocket knowledge base are beyond counting. He has shared his time, energy, and ideas with everyone for many, many years. And his ideas *always* have merit and demand your attention. We are all richer for his efforts. - Vince

David says:
My Harmon Rocket (S/N 002), which I started building in 1993, finished in 2002 & flying ever since is up for sale. The time has come for me to "Hang Up My Spurs" & and I am looking for a good home for my prized possession.

A little background - I have been building airplanes since 1981, and Van's since 1985 (RV-4), and am now building an RV-3 with some modifications.

John Harmon & I went to High School (Lemoore High) together, so I have known John for more than 60 years ... I have more than 500 pictures of John's prototype (S/N 007 - his 7th completion at that time) when he was building it, with the hope that if kits were ever offered I would have a "leg up" on all of the intricacies of doing one myself. S/N 001 was the production prototype and was built by (for) a dentist in Bakersfield, CA - Jack Lucas & mine was the first kit to be delivered.

My build took 9 years & 8000 hours of my time - but after all that, was rewarded with a Silver Lindy & the Stan Dzik Memorial award (engineering advancement) for OSH 2002. The Gold Lindy winner that year was also a Rocket - the only time two Rockets were at the top of the podium. From old pics I have, it looks like I won the dead grass award that year too. *(Note: We took 1st and 3rd in 2023 also! - Vince)*

I am asking $190K for it with a few qualifiers. A current Gold Lindy winner has sold for $250K and I am basing my asking price based on that sale. I am discounting the price by $40K for engine reserve (1354 TT LyCon engine), $30K for avionics upgrade (Legacy avionics now), but would like to get back $10K from the recent (2 months) factory mandated (6 calendar year) MT propeller OH, and the Bendix RSA-5 servo & distribution "spider" - which leaves $190K asking.

In addition of the sale of the aircraft, all tools/equipment I have developed over the years for assistance in maintaining/operating this aircraft are included in the sale.

My tug, cowling "PutOner", "Huffer" (for stagnated heat removal from plenum) & other assorted tools are included, if the buyer chooses, with this sale.

A few particulars:

1. The plenum and induction system were designed and (mostly) built by Dave & Diane Anders - who have the fastest RV-4 in the world ...

2. The airframe is bonded together throughout with 3M ScotchWeld 2216 epoxy adhesive (with glass beads for joint thickness). I have done extensive testing over the years to prove this process on this airframe.

3. I did the paint (old school) using PPG's (at the time) Concept single stage Acrylic Urethane.

4. The engine Lycoming IO540-C4B5 was originally built by Bruce Bennett (partner with Ken Tunnell @ LyCon - before there was a "LyCon") and then "freshened" up by Kenny before it was installed. It dynoed at 288 HP which is what Kenny said you should expect for a stock engine from Lycoming. I have done all the maintenance from day one & have all the attendant records. The engine currently has ~1350 TT, which is why I am reducing the asking price by $40K for OH reserve.

5. The avionics were state of the art at the time, but now are just "legacy", and although all work OK, the new owner may want to upgrade, so I have discounted further the asking price by $30.

6. It has led a pretty "pampered" life in that it hasn't RONed for more than a night or two (ever) except for it's trip to OSH (missed the tornado that year) and has always been hangared (92CA).

6. One of the attached pics shows it flying as a lead in to an article in SA (December 2003) that Jack Cox wrote that highlighted some of the high points of the build.

If you have any interest in this airplane, please contact me with a DM here on VAF, an email - dehowe9@gmail.com or phone - (559) 816-0433.

HFS

If you buy it, you might get on "The List" ... *(see the note below - Vince)*

To see more photos, click David Howe's HR2 photos.

"The List" *is the list of people who occasionally receive a small candy care package from David, often cashew brittle, or similar, in the mail unexpectedly. There are*

very few things that can cause a fight between my wife and I, but a David Howe candy package is certainly one of them. When that package arrives, it's mayhem, with each one of us knocking the other one out of the way as we tear into that small box. It's that good. - Vince

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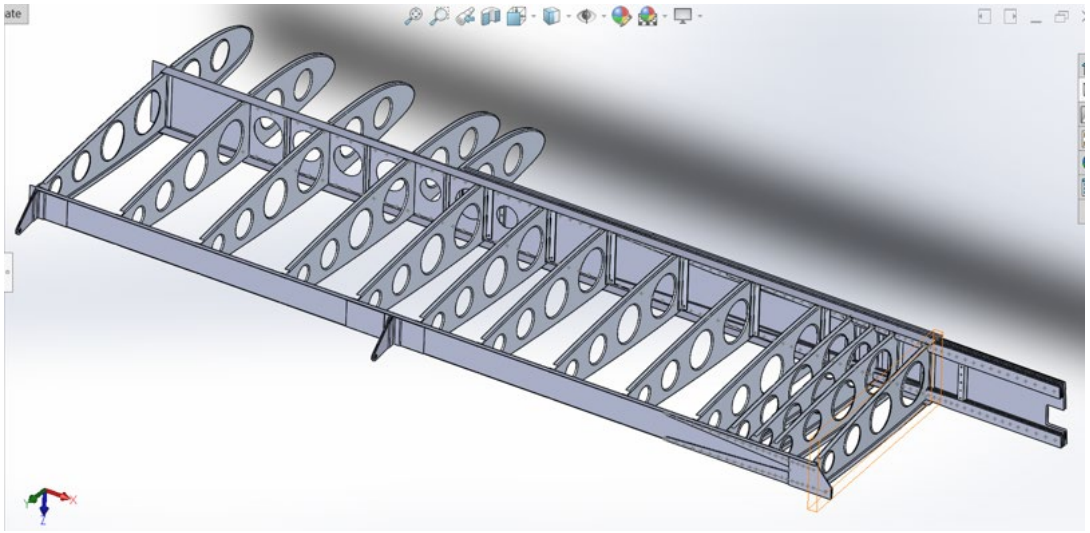

Sport wing and tail kits for sale

F1 Rocket Sport wing partial kit and complete Mk3 tail kit

This is a one time only item. When it's gone, it's gone. These parts are NOS and untouched. Probably not even dusty because they've been in the sealed boxes since January 2022.

The Sport wing partial kit consists of:

• F-004 fuselage bulkhead set for the Phlogiston spar, with splice plates

• Phlogiston rear spar set

• Phlogiston main spar set

• Sport wing ribs - large tanks - Sport wing rib set - 55 gallon tank option - includes additional tank ribs, 54 ribs total (*note: 42 gallon tanks are standard)

• Sport wing leading edge skins - Sport wing leading edge skins for 55 gallon fuel tanks

These are the primary components of the Sport wing. You'll need flaps, ailerons, main skins, and various other small parts, but the primary structure is there.

The Mk 3 tail kit includes:

• Everything needed to produce the current version Mk3 empennage

The buyer will be assigned a builder number.

Price $17,500 Contact Vince at vince@f1aircraft.com

Frazier Aviation Products

7237 S State Road 75
Cutler, Indiana 46920
United States of America

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