

EAA Mount Rainier Chapter 326 Newsletter

Thun Field – January 2008

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Meeting Notice

**Tuesday, January 8th, 7 PM
CAP Building, Thun Field**

Program: Alan Jesmer of Precision Airmotive

Refreshments: Jeff & Sandy

First Flight

Paul Yarbrough
RV-9A N14PY

Project started spring 2001. First flight 30 Nov 2007. Flew 0.7 hours with no major problems.

Engine: New Superior O-320 assembled by Avian at Bremerton. Stock engine with carb and two mags.

Propeller: Sensenich fixed pitch.

Panel: Dynon D-10A flight instruments and Dynon D-20A engine instruments.

SL-40 Comm. SL-70 Xponder.

Paint: Paul painted it himself using Dupont Imron.

Tech Counselor: Smitty.

Flight Advisor: Marv Scott.

RV checkout: Mike Seager.

Inspector: Charlie Cotton.

Faulty Nosegear Debate

“Today, it happened to me. While rolling out at 28TE (near San Antonio) after a perfect landing, the nosewheel stuck and flipped N131RV (RV-7A) onto her back.

“I am unhurt. The plane is resting "comfortably", in the middle of the runway. Insurance has been called, no one available until probably Wednesday.

“I have been so freakin' careful. Perfect technique. Hold the stick back. Land on the smooth part of the runway. Etc. I fly off this strip EVERY DAY for the last 7 months. And for all you heartless lookie loos, yes it was an old style fork. The new forks are backordered and the SB only came out recently.”

1. Prop is TOAST. \$6500

2. Engine needs removal, teardown, inspect, assemble, replace. \$5000-\$15000 depending on internal state. Maybe more.

3. Right wing has repairable damage (replace forward outer skin, wingtip and two ribs). Estimate 50-70 hours labor plus parts. \$2000-\$3000

4. Vertical stabilizer and rudder damaged. I have a new rudder kit, don't have estimate for repairing VS, but probably at least \$1000.

5. Canopy and windshield destroyed, a biggie. \$5000 (mostly labor)

6. The real, real, real, REAL bad news. The main longerons are busted right where the roll bar attaches and the main cabin sides are displaced and buckled. At least \$20k (or more). The forward cabin floor is buckled as well. Probably easiest just to find an unwanted QB fuse kit and put all my shiny bits on it.”

Joe Portman

N131RV - RV-7A, IO360A1B6, CS

He said he used the proper soft field technique, but still caught the nosewheel.

Lemmings repeat after me "THERE IS NO PROBLEM WITH THE RV NOSEGEAR, THERE IS NO PROBLEM WITH THE RV NOSEGEAR".

Ok with that over with I'm pretty much going to have to insist on the future annuals (Excuse me, condition inspections) I do for nosewheel RV's that all Van's service bulletins in regards to nosewheels are complied with prior to the signoff. Unfortunately for us Mech's if we don't take some action like that, then we can be found negligent in court. Even a signed acknowledgment by the owner that they have been informed of the risk won't hold up in court.

My advice, if you fly with a nosewheel RV, Change to the new style ASAP, or even better, put the wheel where it was intended to go in the first place!

Stephen Samuelian

Thousands of -A model RV flying, possibly hundreds of thousands of landings in those nose gear airplanes and I still insist it is PILOT ERROR that causes these incidents, NOT the design.

The nose gear was DESIGNED to be used for taxing in/out. NOT landing on IT!!!

SB or not. the RV-A aircraft are perfectly designed and safe. I have never landed a more docile aircraft. I wouldn't spend the

time, effort or money to comply with that SB so that Van's could be held less liable. Van's issued the SB because of liability and because of all the idiots that try to fly these airplanes and land on the nose gear. What a shame.

Land on the MAINS, lower the nose when the aircraft stops flying, keep full aft stick pressure, and you will be FINE!

Jack Lockamy

I believe it is a combination of, low air pressure in the nose wheel, and a combination of bumps/ruts of only about .375 deep, once the oscillation starts the nose gear will hit.

Scott Bilinski

Come on Scott.. .375" rut? You gotta be joking. I landed an -6A with Mike Seager at his home field in Oregon multiple times during my check-out in the -A series RV's and trust me. there were LOTS of ruts and bumps greater than that.

It is pilot error. I've made em' and I learned from mine and others. Everyone always wants to place blame somewhere else. It's the new generation. No one excepts responsibility for THEIR own actions any more. It's always someone else's fault. It is BS.

If you hold the nose wheel off until the plane stops flying, keep back stick pressure, there is NO WAY that plane will nose over.

Jack Lockamy

It's the spacing of the bump which causes an oscillation which will bounce the nose wheel off the ground, then the nose wheel starts coming down on rising terrain/another bump, all of this happening with low tire pressure.

This happened to me while turning into my hanger row which is slightly up hill so I kept my speed up a little..... With low 20's for nose tire pressure I hit a sharp .375 lip (I measured it) on a cement drain, this popped the nose wheel off the ground, and the wheel came back down on the other side of the drain area which was rising terrain, this caused the gear/nut to hit. I was very lucky only a small hole in the bottom of the wheel pant. All this happened at a moderate taxi speed turning into my hanger row! Normally I cross the cement drain at a 45 degree angle but this time I crossed at about a 80 degree angle.....wont do that again!

I also did flight training with Mike Seager and I was amazed at how bumpy that grass strip was, and I have never hit anything like those bumps since. I know all this does not make sense which is why I think it's a combination of tire ressure, bump size, and most important bump spacing. Once that nose wheel gets kicked in to the air by a bump and then starts coming back down and hits the base of another bump that bump gets magnified dramatically.

Scott Bilinski

I'm sorry, but it's called LANDING GEAR, not taxi gear. We are all humans, and occasionally we aren't going to have a perfect landing. You can put an tailwheel RV on the ground TW first and get away with it if you had a bad day. You can drop a Bonanza, Cherokee, Cessna, Mooney, Lancair, Glasair, Maule, Tripacer and whatever on the LANDING GEAR without the freakin plane flipping over. Heck, I've seen a Glasair I RG hit so hard it BROKE OFF the axles on both mains and it still just skidded down the runway upright.

At some point people are going to have to face the FACT that the NOSE LANDING GEAR on -A model RV's ISN'T adequate for the job that it MAY be required to do on a bad day. I have yet to see one of these instances that should have resulted in the totaling of an airframe, yet here we sit again. Lost another good airplane to the INADEQUATE nose LANDING gear design.

I'm sorry if this offends people, I know it comes across strong, but are we going to wait until someone dies from a flip over before we take this seriously? If you think the wheels on a plane are just for taxi, then you must never have a bad landing. The fix as it stands is a stop-gap measure that will give the extra clearance to the front roller, but -A models really need a shock absorption system and probably a 5.00x5 tire before I'd be really comfortable with the design. YMMV.

Stephen Samuelian

Van's recently came out with a mandatory service bulletin: <http://www.vansaircraft.com/pdf/sb07-11-9.pdf>

Service Bulletin 07-11-09

Mandatory Service Bulletin

Date: November 9, 2007

Subject: Nose gear leg and fork upgrade

Affected Models: All two-place, tricycle gear RV models (Finish Kits shipped prior to February, 2005)

Required Action: Upgrade nose gear leg and fork to current configuration.

Time of Compliance: At or before the next annual condition inspection

Data from the field, and the results of NTSB Structures Study (Case No.ANC05LA123 dated June 21, 2007), suggest that increased nose fork axle-to-ground clearance may reduce the likelihood of fork axle-to-runway surface contact during nose gear overload conditions. The nose gear leg/fork combination supplied in two-place tricycle gear RV kits after February, 2005 provides this increased clearance. Complying with this service bulletin will give aircraft shipped prior to that date the same, increased clearance.

Nose gear legs and forks shipped after February, 2005 are not affected by this service bulletin.

Brake Fluid & Caliper Seals

From Randy Lervold's website.
Brake Fluid.

"Standard" brake fluid for GA aircraft is MIL-H-5606. This fluid has been around forever and works fine, but can be improved upon. MIL-H-83282 was introduced a few years back and is a synthetic upgrade. It performs better in every regard, but of special interest is the flash point. 5606 has a flash point of around 225° whereas 83282 is around 425°. This can be a factor with RVs because there have been several reported cases of brake fires on RVs and some have taken the whole aircraft with it. Do yourself a favor, upgrade the standard MIL-H-5606 to MIL-H-83282: [Royco 782](#) or [Aero Shell 31](#). It is not yet widely available but I bought a gallon of Royco at [ACI Lubes Co.](#)

Several builders have done some research and say that MIL-H-83282 is virtually the same as commonly available synthetic ATF found at any auto parts store, [Mobil 1 Synthetic ATF](#) for example. They say they have compared specs and that it is virtually the same. I can't confirm or deny this but it sounds worth looking into.

Brake Caliper Seals.

Most GA aircraft brakes, the Clevelands used on RVs in particular, have "Buna N" piston seals in the calipers. They work ok but do wear out after a while and can fail by losing fluid pressure at the most inopportune times. Inquisitive RV builders have found that upgrading to "Viton" seals provides better wear and longer life, not to mention much better heat resistance...

Nitrile (Buna N): Nitrile formulations exhibit good mechanical and physical properties. They are resistant to most non-aromatic petroleum-based fluids and gases, and have been used in most industrial, automotive, and off-the-road equipment for many years. Their usable temperature range is -65 degrees to + 225 degrees Fahrenheit.

Fluorocarbon (Viton and Fluorel): These versatile elastomers have excellent mechanical and physical properties, and outstanding resistance to aromatic fuels, high temperature synthetic lubricants, and many of the new fire resistant industrial fluids. They can withstand prolonged exposure to temperatures of 450 degrees Fahrenheit in fluid service, and limited exposure to much higher temperatures.

Standard MS replacement for the caliper o-rings is MS28775-218. The Viton o-ring upgrade is 2-218V-75 and are available in either black or brown. I used brown so as to be able to immediately distinguish them from the standard Buna N seals. They are available from: [Ace Seal Inc](#) in Santa Clara, CA, 408-727-3995. BTW, the brown seals in your RV gas caps are Viton.

AC 43.13-1B para 9-27b, Polyalphaolefin-Based Fluids

MIL-H-83282 is a fire-resistant hydrogenated polyalphaolefin-based fluid developed in the 1960's to overcome

the flammability characteristics of MIL-H-5606. MIL-H-83282 is significantly more flame resistant than MIL-H-5606, but a disadvantage is the high viscosity at low temperature. It is generally limited to -40 °F. However, it can be used in the same system and with the same seals, gaskets, and hoses as MIL-H-5606.

Benefits of Using the "EAGLE EMS"

Precision Airmotive of Marysville Washington has a new FADEC type engine management system. Kevin Behrent has purchased one for his RV-9A. He says that Bart of Aero Sport Power likes it and will install it on Kevin's O-320.

Mixture control and ignition timing are computer controlled. The fuel injectors are automotive electronic pulse type rather than continuous spray as in most aircraft.

1. **Fuel Economy** The primary benefit of operating your aircraft with the Eagle EMS is reduced fuel cost. The EMS constantly calculates proper mixture settings, thereby saving fuel.
2. **Ease of Starting** Whether hot or cold, at sea level or a mile high, the Eagle EMS ensures that engines start quickly
3. **Consistent Performance in All Atmospheric Conditions** The Eagle EMS eliminates the need to manually set the engine's mixture. The throttle while the system determines the optimum mixture. This results in consistent, maximum engine performance.
4. **Ease of Operation** By eliminating the pilot's duty to properly set the mixture control, the Eagle EMS reduces pilot workload. This is a tremendous benefit to student pilots who are easily distracted from flying the aircraft due to cockpit management tasks.
5. **Reduced Maintenance Costs** The Eagle EMS properly manages engine performance throughout the entire engine operating range. This proper operation directly translates into less engine and engine component wear and tear, reducing maintenance expenses and aircraft downtime.
6. **Improved Low Speed Operation** By continuously optimizing the fuel/air mixture, long periods of engine idle or taxi will not load the engine up or cause spark plug fouling. In a flight training environment, students and instructors may spend considerable time in the aircraft at idle.

<http://www.precisionairmotive.com/>

As the test pilot climbs out of the experimental aircraft, having torn off the wings and tail in the crash landing, the crash truck arrives, the rescuer sees a bloodied pilot and asks "What happened?"

The pilot's reply: "I don't know, I just got here myself!"

Attributed to Ray Crandell (Lockheed test pilot)

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