

EAA Mount Rainier Chapter 326 Newsletter

Thun Field - September 2004

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Meeting Notice

Tuesday, September 14th, 7 PM
CAP Building, Thun Field

Program: ViperJet Show and Tell. David Thomas.
David recently moved his project to Thun Field and has a J-85 ready to install.

Refreshments: Joe Andre

Adjournment: TBA

Ed Shadle's American Eagle project was a big success at Arlington this year. Many F104 pilots came by to visit and talk with the crew. Good contacts were made with potential future sponsors and other interested groups.

We still need a portable trailer for Chapter item storage. Any ideas on the subject, call Kevin.

Andy

From the Secretary

July 13th, 2004

The meeting was called to order by Kevin Behrent.

Dave Latham talked about and showed off his recently finished F1 Rocket.

Arlington was great as always. 30ish people came out to the chapter BBQ on Saturday. The weather this year kept some of the crowds away, but the faithful were there in force!

Kim (RV9A) & Lance (RV6) both did their first flights during the first week of July! Congratulations!

Our 2 year appointment of Officers is coming due this fall. Start thinking of whom you are going to nominate to the positions of leadership for the next 2 years! Or hey, why not volunteer yourself!

Kevin is working on getting Superior engines to come and do a future chapter meeting. Stay tuned for more details.

Visitors:

- Tom Cornwell – RV8
- David Ward – RV8QB
- Joseph Hoskins – RV6
- Hoskins SR (Joe's dad) – Pacer – CH701 – RV7
- Arlin Smith – 7A interest
- Ron Smith – RV6 from Phoenix – RV8
- Karie Anderson – RV8 – Secretary of Chapter 23 in Salt Lake

First Flight Thunder Mustang

George Gibony has this beautiful machine flying from Thun Field now. The first flight was flown by Dave Morss at Olympia on June 29th. Test flights are now being flown by Jerry Chellin, local Reno race pilot. They have 14 flights on it as of this writing

George started this project in 1999 working in his shop at home. He moved it to Thun Field for final assembly and wiring. Seven months later it was time to fly and he decided that Olympia airport would be better for flight testing because of the longer runway there. The amazing part of the move from Thun Field to Olympia was that it was moved fully assembled. With a 24 foot wingspan, they trailered it in the middle of the night, up Meridian, across on I-5 and down I-5. They blocked all three lanes of I-5 at 40 mph. "We pulled off I-5 once to let 100 cars pass, but no trouble really."

Wait till you see the paint job. George shot it in his shop at home. He used the base-coat clear-coat process. Consider a black and white checkerboard pattern with red and yellow bordering stripes and silver over the rest. That's just the base-coat. And the clear has to be shot within 8 hours. "That was 18 hours of very stressful work." No kidding.

And the workmanship is first class in every detail. Probably has something to do with George's former life as a machine shop owner. George says he doesn't have a lot of flying experience and that's why he has Jerry doing the 40 hour flyoff. Actually George has about 500 hours, and a lot of that in a Christen Eagle. George flew the Eagle in aerobic competitions, so let's say "experience" is a relative term here.

A few specs: 640 hp V-12 Falconer engine, 94" 4-blade MT prop, 102 gallons in wings, 326 knots at sea level...same as the North American P-51D, IFR panel, STEC autopilot

George intends to race his Thunder Mustang at Reno, but not this year. Look for a show and tell on this machine at our October meeting.

Congratulations George.

Plane Dealer

How digital manufacturing helped an aviator take off.
FORTUNE SMALL BUSINESS
Sunday, July 18, 2004
By Jeff Wise

Like many other suburbanites around Portland, Ore., 64-year-old Dick VanGrunsven commutes to work every day. Unlike most of them, he never gets stuck in traffic. Each morning he climbs into an airplane he designed himself, taxis to the end of a grass airstrip, and takes off over a lush landscape of hazelnut trees, horse farms, and winding rivers. The 30-mile trip goes quickly, and soon he's touching down on the runway abutting his company's 63,000-square-foot factory. He usually starts the workday early, but as founder and CEO of [Van's Aircraft](#), he can take a break and go for a spin in a new plane anytime he wants. "I like my job," he says. "There aren't many like it around."

Van's, based in Aurora, Ore., sells airplanes in kit form. The company produces seven VanGrunsven designs, all sleek, single-engine sport planes capable of speeds near 200 miles per hour. Yet its greatest technological achievement lies in the computerized production technology behind the airframes. "It's changed not only how quickly we do things but how we do things," VanGrunsven says.

Over the past two decades computer-aided design and manufacturing (CAD/CAM) has all but replaced manually operated machine tools in U.S. factories. Today's desktop computers are powerful enough to run design software that once required \$200,000 mainframes. That makes the technology affordable not only for small companies in the aircraft industry but for makers of everything from breadboxes to heart valves. The design data flow to automated machine tools that stamp, bend, or mill the desired parts with an otherwise impossible degree of precision, speed, and consistency. "You can't be competitive, paying American wages, if you don't have these technologies," says Steve Wolfe, publisher of the online trade journal CAD/CAMNet.

Van's engineers use Mechanical Desktop, a CAD/CAM application sold by [Autodesk](#) for around \$5,000 per user, plus upgrade costs every couple of years. (Autodesk's competitors in the light-manufacturing space include Catia from [IBM](#), Pro/Engineer from [PTC](#), and [SolidWorks](#) from SolidWorks Software.) The software has helped Van's become the world's leading producer of kit airplanes. Kit makers fabricate the parts and ship them to the buyer, who assembles them and, not incidentally, takes on legal responsibility for the plane as its manufacturer. Van's most popular model, the RV-7, sells for \$17,000, with the engine and other components adding another \$40,000. A comparable factory-built plane costs two to three times as much.

The kit-aircraft sector hardly existed when VanGrunsven started cobbling together his first airplane at his parents' farm in the late '60s. But in the early '80s product-liability lawsuits and the economic downturn nearly scuttled light-airplane makers such as [Cessna](#) and [Piper](#). Kit manufacturers stepped in to fill the void. Today nearly a quarter of all general aviation aircraft are home-built, and Van's, with **\$30 million in sales**, has 20% of the market.

Traditionally, the most difficult part of the kit-building process has been fitting the airframe parts together accurately and then drilling holes to bolt them in place. But Van's kits are now shipped with the holes already drilled, cutting the amateur builder's work by an estimated 30%. (Current assembly time: around 2,000 hours for a standard kit.) "And we match the holes, so there's only one way to put them together," says chief engineer Ken Kruger.

Van's business has doubled in the seven years since it adopted the new technology, and profits are up more than 25%. Soaring demand prompted the company to order another punch press this year. In September the company will ship out the last parts (canopy and cowling) for its first four-seat model, the RV-10. But despite all the fancy engineering, a close inspection of the prototype's tail reminds us that VanGrunsven started building airplanes in a barn with tools no more sophisticated than a hacksaw. There, stuck to the base of the rudder with clear plastic tape, is a two-inch-long triangle of wood scrap. "A makeshift trim tab," VanGrunsven explains with a shrug, "until we get around to making a real one."

RV-Super 8

Mike Stewart

Q. What's an RV Super 8?

A. Is it an RV8, with a six cylinder IO-540 engine. Most use a c4b5 260hp model.

Q. What has to be done to convert an RV 8 to a Super 8?

A. My favorite question because the answer is so simple. Shorten the engine mount, lengthen the cowl, throw the battery in the tail to keep the CG in range, and go fly. Seriously. that's it.

Q. How many of these flying?

A. Six that I am aware of, others under construction.

Q. What does Vans think about this?

A. They don't like it one damn bit. Any manufacturer would not be happy when you ignore the rules and increase the risk.

Q. Why an RV as opposed to a purpose built F1 Rocket or a Harmon Rocket?

A. A most excellent question. I really spent some time with this. Here is a bullet list of MY thoughts.

- I like Vans. Been there, done that, stable company, parts readily available
- The Rockets are sexy and look great, but... I don't like the steel tube round gear. Wiggly wobbly
- I like the fwd baggage hold to be able to balance loads
- Nothing flies like an RV for total performance
- Insurance. Cheaper on the RV series
- Cost of the kit. RV=\$17.5k slow build or \$25K Quick build. F1=\$35k+ Quick build only. Since wanted to modify a few things, I wanted the slow build and saw nearly a \$20k difference. Now to be fair, this is not an apples to apples comparison. But FOR ME, this is how it netted out. Now I

love the F1, and Mark Fredrick (Team Rocket Owner) is a friend. But this was a dollars question for sure

- The cost of a Super 8 will be cheaper than a regular 8. The engine prop combination is cheaper for a 6 cylinder than the 4 cylinder. Thank the rest of the RV's for eating up the worlds four cylinders. Wait till the RV-10 eats up the 6 cylinders.

Q. What about Insurance?

A. Insurance can get a bit tricky. I spoke to a couple of companies. Basically they treat a Super 8 like an RV 8 with a big engine, similar to a turbo Arrow. It is still an Arrow, but it is still more risky and takes more skill and more expensive. The quotes on an 80k hull with my experience level in RV's, which is high, was \$1800.00. Thousands less than Rockets.

Q. How do you get the cowl lengthened? Shorter Engine Mount?

A. By sending to a fella John Marshal (317-862-2389) in Indianapolis and he will do it for you. Cowl is \$300 to lengthen, Engine mount is \$700.

Q. What is the performance specs of a Super 8?

A. From Larry Boggs, here is his data.
Everything on the plane standard, other than the IO540.
Climb solo 3000'+fpm
Empty Weight is 1250lbs
IO-540 C4B5 260hp
Aztec Prop, chopped to 76"
23 squared, 11.5gph, 215pmh easy cruise
To the wall, 3000', 2650 rpm, 19gph to keep her cool, 235mph

Q. What about the prop?

A. Oh your gonna like this too. How's an Aztec prop, chopped, overhauled, to your door for \$3,100 sound? Other props have been tried for a lot more money, and this one works the best. The blades on the 540 prop are thicker so you will need one AN washer on the back plate to keep the blades from hitting the back plate.

Q. What's the downside?

A. Well certainly the RV was not designed to be buzzing around at 235. And one must remember that the RV was originally designed to fly acro in the 160mph range. Those who have flown these planes a lot can tell you that the RV gets a heavy stick above 180mph mark. The Super 8 is not an airplane to be rolling at 230mph. Torsion loads on the wing do not allow for enough tolerance for this. But, if you fly the plane within the standard RV envelope for acro, and cruise around at 220, then it has been demonstrated you will probably not die. Your results may vary. [Ken Fowler](#) flies his Harmon Rocket to over 300mph. So there are numbers and there are doers. I plan on flying acro in the RV envelope, cruise at 220, and climb like a homesick angel.

Painting Tips

In any gravity spray gun (the gun with the paint hopper on the top), a old timer offered up this tip. I was complaining about spraying the underside of my wings with my gravity gun and using the bags (another great invention essentially using the formula bottle bags for infants in your gun to spray at odd angles and even upside down) He said to simply use a 45 degree fitting in the bottom of the paint hopper where it connects to the spray gun handle assembly. I sprayed the underside of the wings with ease and the 45 degree elbow was easy to remove....cool idea.

P M Condon

I have just finished painting my RV6 with Imron, and can confidently say that I had no problem in sanding out runs or overspray. Warm weather probably helped, but if I got a run I simply waited about 1.5 to 2 hours and wet-sanded it out. Depending on the situation, I then repainted or waited a couple of days and buffed the area to a shine using a foam pad and buffing compound. To get a glass-like finish, I needed to then use a very fine cutting compound, but it worked fine.

One problem that became noticeable when painting both aluminum and fiberglass was that the f/glass got a better finish. I put this down to the fact that the alloy surface was colder to the touch and when the paint was applied, it got even colder, resulting in orange peel, whereas the f/glass was warmer and got a dead smooth result. Anyway, wet-sanding with #1200 or finer before machine buffing resulted in a good finish.

Martin Hone

Calendar

September 11, Dallesport, The Dalles Fly In / Airshow

September 16 – 19, Reno Air Races.

October 2, 3 Wenatchee. Pangborn Memorial Airport's Aviation Day & Fly-In

When NASA first started sending up astronauts, they quickly discovered that ball-point pens would not work in zero gravity. To combat this problem, NASA scientists spent a decade and \$12 billion developing a pen that writes in zero gravity, upside down, on almost any surface including glass and at temperatures ranging from below freezing to over 300 C.

The Russians used a pencil.

End

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