

THE LEADING EDGE

NEWSLETTER OF MUROC EAA CHAPTER 1000

Voted to Top Ten Newsletters, 1997, 1998 McKillop Award Competition

President	Gary Aldrich	661-609-0942
Vice-President	Hellmuth Steinlin	760-963-5445
Secretary	Kent Troxel	661-947-2647
Treasurer	George Gennuso	661-265-0333
Newsletter Editor	Russ Erb	661-754-0524

<http://www.eaa1000.av.org>

September 2018

Chapter 1000 meets monthly on the third Tuesday of the month in the USAF Test Pilot School Scobee Auditorium, Edwards AFB, CA at 1700 or 5:00 PM, whichever you prefer. Any changes of meeting venue will be announced in the newsletter. Offer void where prohibited. Your mileage may vary. Open to military and civilian alike.

This Month's Meeting:



Project Police Raid in Tehachapi!

Tuesday, 18 September 2018
1730 hrs (5:30 PM Civilian Time)
Bushman's Hangar
Mountain Valley Airport
Tehachapi, CA

This month the **Project Police** go on the road to Tehachapi. Our target is **Bushman's** hangar, where we will poke and gawk at his 1952 back country Cessna 170B project (pictured above) and ask him stupid questions like "How are you going to get this to Colorado?" You won't want to miss this, as this will be your last chance to see it before **Bushman** ends his tour of duty in Kalifornia and moves his home base to Colorado.

Bushman promises to have beer and water in the shop fridge. Beware of the Chips Ahoy C³s that he will likely pull out to distract the **Project Police**. Post meeting will be at the Tehachapi **BK Dead Cow Emporium** OR as directed by the **Kommandant**.

If you are not familiar with the location of Mountain Valley Airport, set your favorite directions app to 16334 Harris Road, Tehachapi, CA 93561. Continue on Harris Road to the East until you get to the end of the hangars, then turn left to **Bushman's** hangar.

The start time has been pushed back to 1730 to give you a little extra time to get there. Don't worry about being too early—some of us will be up there all day for other events.



- **Erbman**

Subbing for the **Vice Kommandant**

Last Month's Meeting

EAA Chapter 1000
Jethawk Stadium "The Hangar"
Lancaster, CA
28 August 2018
Gary Aldrich, Presiding

Once again, the **Project Police** of EAA Chapter 1000 gathered to watch as the Lancaster Jethawks went to battle against the Rancho Cucamonga Quakes. With only four teams in the division, we tend to see a lot of the same teams.



A significant number of the **Project Police** (around 16) showed up initially for the beginning of the game. In the first inning, the Jethawks hammered two home runs, netting a free McDonald's hamburger for all of those who bothered to stick around until the end of the game.

Apparently it was also the night for all of the Antelope Valley Union High Schools to come out to the baseball game. The ticket lines were very long, and the stands were covered with various high school cheerleader (or "cheer") squads. The interstitial games, at least for the first few innings, were all pitched as pitting some high school against another high school. The "mascot race" was rather comical as none of those high school mascot costumes were really designed to run in. Since this was a "school night" all of the high schoolers seemed to disappear before the seventh inning stretch.

Somewhere around the second inning, one of the players apparently took umbrage at something another player said or did, and immediately squared off like a scene out of "High Noon". Immediately the Silent Air Raid Klaxon went off, and everybody wearing any sort of a baseball uniform went running to the scene of the showdown as though someone had yelled "Free Ice Cream". Seriously? I thought this kind of nonsense went away after Middle School.



KaBoom, official mascot of the Lancaster Jethawks, heard that the **Project Police** were in the stands and thus came by to visit.



In the end, five hearty **Project Police** officers and associates remained to see the Jethawks defeat the Quakes by <some number> to <some smaller number>.

Erbman was heard to ponder what small percentage of those in attendance in the whole stadium actually knew the provenance of the "Addams Family" theme which was played frequently. For that matter, how many knew that "Queen" was a rock band?

- Russ Erb

Emergency Backup Minister of Propaganda (Evil Editor Zurg failed to request the meeting minutes in time for publication from the usual Minister of Propaganda)
Chapter 1000 of the Experimental Aircraft Association of these United States of America and Occupied Territories
"We have more zeroes in our chapter than any other!"

Kommandant's Korner

*(Because of all the exciting things going on this week, Evil Editor Zurg was caught asleep at the switch, having failed to file the **Project Police** Form*

PP4096 "Request For Kommandant's Korner (KK)" on time for this month's publication. This form must be submitted in triplicate, plus a copy for the Fire-Proof Vault, plus another copy in case there is a fire in the Fire Proof Vault.

Not to worry, as we have a pretty good idea what the Kommandant would have said anyway. He probably would have gone on about the trials and responsibilities of being a Flight Instructor. The responsibilities of watching **Erbman** fly the tow plane, towing gliders 14 times on Wednesday, with a previous experience of only one (1) aerotow. Then he would have gone on about the evilicious joys of flying in the **Combat Bearhawk**, forcing **Erbman** to don his Foggles (Hey! It got foggy in here!) and giving him his initial instrument training. Turn right to heading 120! Turn left to heading 320! Turn left to heading 180! No, wait—make that right to 190! Descend to 4500 feet! Climb to 6500 feet! Slow to 90 knots! Now do them all at the same time! Bwa-ha-ha-ha! (Insert maniacal laugh here) Heh, heh, heh!

Thanks to modern avionics (Stratus) and software you can see the trace of the 1.3 fun-filled hours.



Then he would probably mention that he and **Erbman** were going down to Van Nuys to check out a Redbird FMX Advanced Aviation Training Device (AATD), or what anyone outside of the FAA would call a "simulator".

Thanks to recent updates to 14 CFR 61, an AATD can be used for up to 20 hours of instrument training. Additionally, new changes allow use of an AATD for maintaining instrument currency, without the need for an instructor present. Currency requires 6 approaches, tracking courses, and turns in holding within the last 6 months, and these can now be done in any combination of airplane or AATD. Given our significant lack of IMC around here, this could be a game changer. Watch for more reports in the future.

*Finally, the **Kommandant** would probably say)
Fly Safe and Check 6!*

- Gary Aldrich
Kommanding

Building A Bead Breaker

Referencing your July 2017 issue of *The Leading Edge* (you do keep all of these filed away in order for easy and quick access, don't you?), you would see the story of when the **Combat Bearhawk** stubbed its toe, that is, had the right main tire go flat on landing rollout at Rosamond Skypark. This forced a tire change, but a tire change that was already planned to happen about two weeks later. The driving force in that decision was that while the main tires still had tread and no cord showing, the tires were so out of round that they shook violently at takeoff and touchdown.

Changing airplane tires is done differently from car or bicycle tires. Car tires are mostly tubeless; most bicycle tires have innertubes. In either case, the tires are removed by prying the bead around the wheel. Airplane tires have innertubes, but the wheels are split. In theory, the tires are removed by unbolting the wheels and pulling the wheels out of the tires.

However, it's never that simple. When the tires are under pressure, the bead of the tire is mashed against the wheel, which causes the friction that keeps the tire from moving relative to the wheel under braking. The result is that this friction must be broken to push the bead of the tire away from the rim of the wheel in order to remove the wheel.

Several techniques have been tried to break the bead away from the rim. The simplest would be to put the tire on the floor and stand on the bead, jumping up and down as required. While doctors and other sources have told me that I weigh too much, in this application I don't weigh enough. I've had virtually no success with this method. I've also tried rigging up a 2x4 to lever on the bead. While I've made that work, there is a reasonable risk of something going wrong, and it feels as primitive as using a log as a car jack when stranded in the wilderness. There had to be a better way.

The simple solution would be to go to Harbor Freight and whip out the credit card for SKU 92961 Bead Breaker for just \$49.99. In airplane terms, that's really not that expensive. It would certainly do the job. However, it still seems like a lot to pay for something that will be used for

maybe 10 minutes and then have to be stored for 3 to 4 years before you need it again. To use it once, that would be about \$300 an hour (\$50 for 10 minutes).



However, it just seemed like I could do better. Looking at the Harbor Freight model, it seemed simple enough that I could fabricate something similar. After all, I welded up a whole airplane—how tough could it be? Additionally, as an engineer, every now and then I feel the need to challenge myself to design something. The challenge was that I needed to be able to build it for less than \$49.99, or else it would make more sense to just buy the Harbor Freight model.

Ideally, the direct cost would be \$0.00, which would mean I could build it strictly with materials that are already on hand. I wanted it to be able to handle my 6.00x6 tires, but also my tail wheel tire, as well as the **Kommandant's** 8.00x6 tires. Finally, I wanted to be able to fold it or disassemble it easily to a small size for storage.

After much noodling, I came up with the design shown here. It accomplished all of the objectives. It cost me nothing new to build, as all materials were on hand. Adjustments by selecting different attachment holes allow it to work for all of the desired tire sizes. Removing a few bolts allows the bead breaker to be broken down to a small size. The bolts act as pins, so the nuts simply retain the bolts, so no wrenches are required. The angle of the two side legs allow them to support tires of any size.

The plans show the dimensions of the parts as used on the bead breaker that I built. However, virtually none of these dimensions are critical. These could be easily changed based on what you have available. Angles were used to connect parts together simply because they were available. Flat pieces of steel would work just as well.

The square tubes are thin wall steel, and the alloy is not critical. The side arms are welded onto the center bottom tube. Because it is difficult to weld these arms so

that the completed bottom frame is perfectly flat, it is likely that it will sit on the floor with just two of the tubes on the floor. I welded the 2-inch "feet" at the ends of the tubes to help this. At least three of the feet will sit on the floor, and only one would need to be shimmed. Alternatively, just put up with the wobble.

The angles for the pivots are welded onto the bottom frame, the lever arm, and the bead pusher.

The pusher foot is a bent angle to better fit the shape of the bead. One leg of the angle is cut through with the power hacksaw, leaving the other leg untouched. It is then bent to open up the cut, and then welded on the bottom of the bead pusher.

The parts are pinned together with 1/4 inch bolts. I used AN4 bolts simply because they were available, but hardware store bolts would work just as well.

To collapse the bead breaker, simply remove the bolt pins to disassemble.



So how well does it work? After deflating the tire by removing the valve stem core, an easy push on the handle drove the bead right down with very little effort.

Of course, if you're willing to travel to Rosamond CA, you don't need to build yourself a bead breaker. Just come over and use mine.

Plans on next page.

- Russ Erb

More Random Stuff To Fill Out A Hastily Assembled Newsletter

Did you ever have one of those nightmares where you suddenly remember that you have a paper due tomorrow and you haven't even started to think about it? Worse yet, did that ever really happen to you? Well, it happened to me because **Evil Editor Zurg** wasn't paying attention. Rumor has it he is hatching a plan to take over AirVenture somehow. EAA isn't too worried, since EEZ is way too many states away.

We hope you have enjoyed this hastily assembled collection of aviation nonsense (The bead breaker article was written months ago).



Recently Erbman and Kanard took Lois' #3 cylinder with the disintegrated exhaust valve guide to Ly-Con near Visalia airport for evaluation. That cylinder will be retired, but Ly-Con is building up a replacement so that Lois can eventually escape Barstow-Daggett airport. As seen in this picture, the Bearhawk keeps good company.

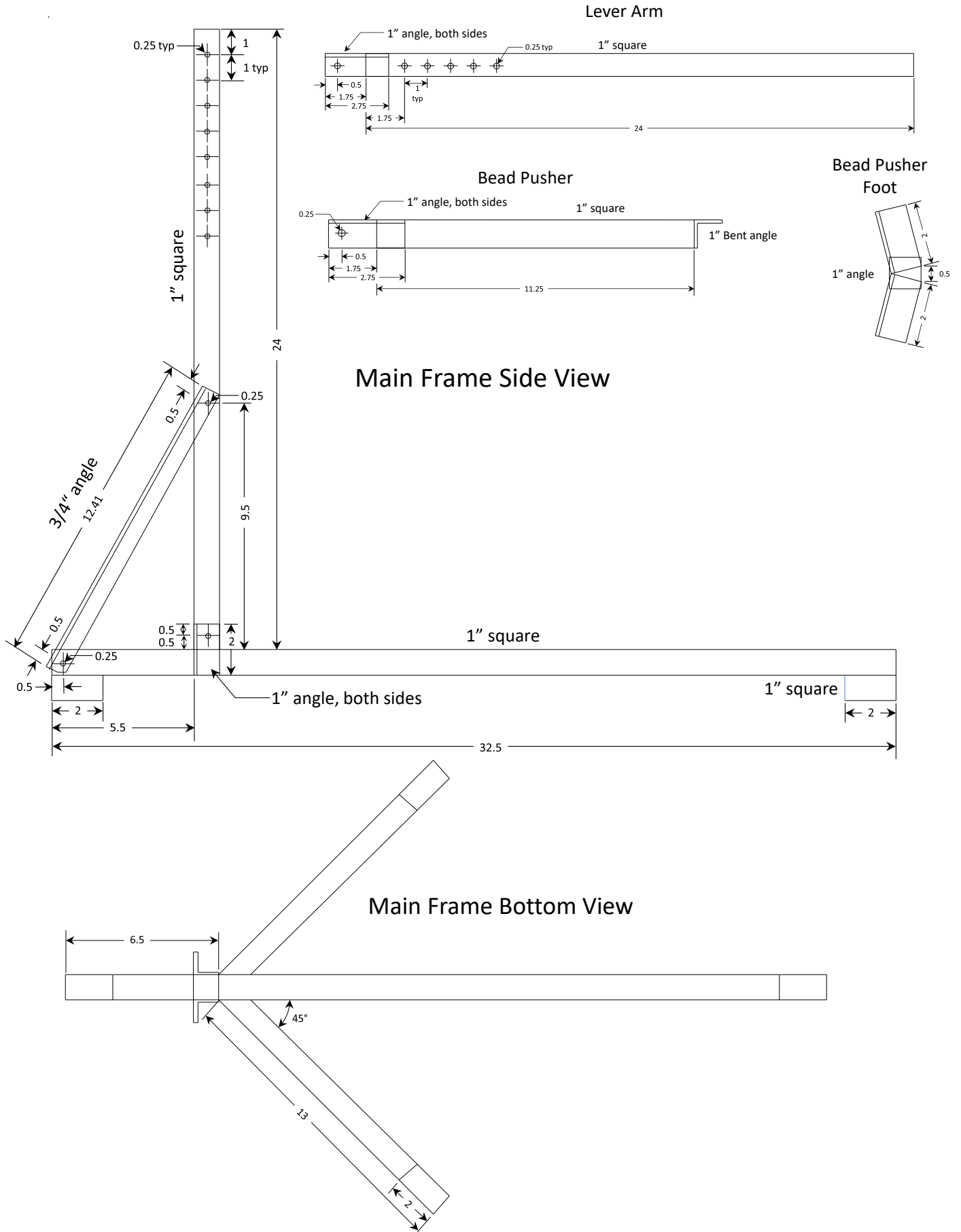


Even old pedal planes are being retrofitted with new displays. Is it harder to use the touch screen in the slip stream?

Web Site Update



Just a reminder that the EAA Chapter 1000 Web Site is hosted courtesy of Quantum Networking Solutions, Inc. You can find out more about Qnet at <http://www.qnet.com> or at 661-538-2028.



Chapter 1000 Calendar

Sep 11: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., El Indio Restaurant, Rosamond Skypark, Rosamond CA. (661) 609-0942

Sep 18: EAA Chapter 1000 Monthly Meeting, 5:30 p.m., Mountain Valley Airport, Tehachapi CA. Bushman's hangar. (661) 609-0942

Oct 9: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., El Indio Restaurant, Rosamond Skypark, Rosamond CA. (661) 609-0942

Oct 16: EAA Chapter 1000 Monthly Meeting, 5:00 p.m., Edwards AFB. USAF Test Pilot School, Scobee Auditorium. (661) 609-0942

Nov TBD: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., El Indio Restaurant, Rosamond Skypark, Rosamond CA. (661) 609-0942

Nov TBD: EAA Chapter 1000 Monthly Meeting, 5:30 p.m., Flying Dog Ranch, 4400 Knox Ave, Rosamond CA. (661) 609-0942

Dec 11: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., El Indio Restaurant, Rosamond Skypark, Rosamond CA. (661) 609-0942

Dec 18: EAA Chapter 1000 Festivus Etc Celebration, 6:00 p.m., Kommandant's Kwarters, 42370 61st Street West, Quartz Hill CA. (661) 609-0942

Jan 8: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., El Indio Restaurant, Rosamond Skypark, Rosamond CA. (661) 609-0942

Jan 15: EAA Chapter 1000 Monthly Meeting, 5:00 p.m., Edwards AFB. USAF Test Pilot School, Scobee Auditorium. (661) 609-0942

Feb 12: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., El Indio Restaurant, Rosamond Skypark, Rosamond CA. (661) 609-0942

Feb 19: EAA Chapter 1000 Monthly Meeting, 5:00 p.m., Edwards AFB. USAF Test Pilot School, Scobee Auditorium. (661) 609-0942

Mar 12: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., El Indio Restaurant, Rosamond Skypark, Rosamond CA. (661) 609-0942

Mar 19: EAA Chapter 1000 Monthly Meeting, 5:00 p.m., Edwards AFB. USAF Test Pilot School, Scobee Auditorium. (661) 609-0942

To join Chapter 1000, send your name, address, EAA number, and \$20 dues to: EAA Chapter 1000, George Gennuso, 3119 Lennox Ct, Palmdale CA 93551. Membership in National EAA (\$40, 1-800-843-3612) is required.

Contact our officers by e-mail:

President/Flight Advisor Gary Aldrich: gary.aldrich@pobox.com

Vice President Hellmuth Steinlin: hellmuthsteinlin@hotmail.com

Secretary Kent Troxel: kenttroxel@sbcglobal.net

Treasurer George Gennuso: knife.pulsar1@gmail.com

EAA Chapter 1000 Technical Assistants

Composite Construction		
George Gennuso	pulsar1@sbcglobal.net	661-265-0333
Brian Martinez	brianmmartinez@aol.com	661-943-5379
Wood Construction		
Bob Waldmiller	bob@waldmiller.com	661-816-7224
Aluminum Sheet Metal Construction		
Bill Irvine	wgirvine@yahoo.com	661-948-9310
Russ Erb	erbman@pobox.com	661-256-3806
Welding/Welded Steel Tube Construction		
Russ Erb	erbman@pobox.com	661-256-3806
Engine Installation		
Russ Erb	erbman@pobox.com	661-256-3806
Electrical Systems		
Russ Erb	erbman@pobox.com	661-256-3806
Instrumentation and avionics requirements for VFR/IFR		
Gary Aldrich	gary.aldrich@pobox.com	661-609-0942

Inputs for the newsletter or any comments can be sent to Russ Erb, 661-256-3806, by e-mail to erbman@pobox.com

From the **Project Police** legal section: As you probably suspected, contents of The Leading Edge are the viewpoints of the authors. No claim is made and no liability is assumed, expressed or implied as to the technical accuracy or safety of the material presented. The viewpoints expressed are not necessarily those of Chapter 1000 or the Experimental Aircraft Association. **Project Police** reports are printed as they are received, with no attempt made to determine if they contain the minimum daily allowance of truth. So there!

THE LEADING EDGE**MUROC EAA CHAPTER 1000 NEWSLETTER****C/O Russ Erb****3435 Desert Cloud Ave****Rosamond CA 93560-7692****<http://www.eaa1000.av.org>****ADDRESS SERVICE REQUESTED****THIS MONTH'S HIGHLIGHTS:****REGULAR MEETING 18 SEP @ TEHACHAPI****THE EVILICIOUS FLIGHT INSTRUCTOR****BUILDING A BEAD BREAKER****MORE RANDOM STUFF**