

THE LEADING EDGE

NEWSLETTER OF MUROC EAA CHAPTER 1000

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

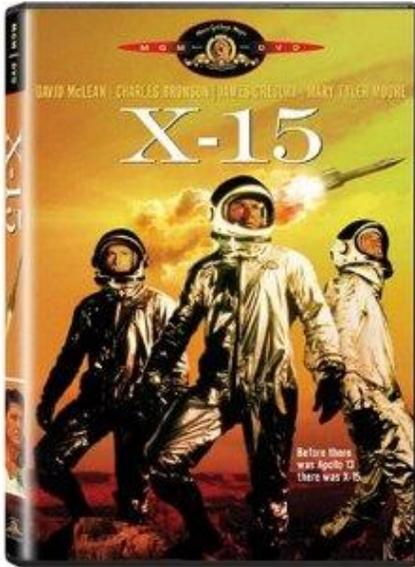
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<http://www.eaa1000.av.org>

January 2012

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:



Tuesday, 17 January 2012
1700 hrs (5:00 PM Civilian Time)
USAF Test Pilot School Auditorium
Edwards AFB, CA

My fellow EAAers,

I tried to get a job and leave the area before the January meeting rolled around, but it didn't work out. So, I get a nasty-gram from **Evil Editor Zurg** reminding me that I am still the **Vice Kommandant** and bear all rights and responsibilities attributed to that awesome office. I asked myself, "What shall we do as a chapter on a January night in the Antelope Valley?" We're in the throes of winter. The temperature hovers around the zero mark at night. (OK, it gets close to zero on the Celsius scale – sometimes!) The wind is howling. (You must admit, the wind does howl here sometimes. I didn't have to make that up.) The snow is drifting across the open fields and over the roads.

Wait, that last part was from my recent experience in Illinois and Ohio. And, what to do on a night like this? Let's stay in a watch a movie. But not just any movie. It's got to be something about airplanes, or space, or – better yet – flight test. If only there were such a movie available.



Your dues are due now!
\$20 to Houdu
See back of newsletter for address

If you prefer, you can pay online by **PayPal**® at the Join/Pay Dues link on the [EAA Chapter 1000 web site](#).

You may also qualify for the government sponsored EAA Chapter 1000 "Free Dues" program.¹

Maybe something from the early sixties. What if there were a story about Edwards AFB, starring some young actor wannabes that grow up to be Charles Bronson and Mary Tyler Moore. In a perfect world, such a movie would have a catchy title, something like "X-15."

The critics might rave about its technical accuracy and 'authentic flight footage.' Some might claim that "nearly the entire film was shot on location at NASA Dryden and Edwards AFB." I read one review that claimed, "The film is, for the most part, historically and technologically accurate." OK, this might not be the chick flick that you want to bring a date to, unless your date is just as geeky about airplanes as the rest of us. Promise her that you'll bring her back next year when we screen "Always" with Richard Dreyfuss, Holly Hunter, and that heart throb, John Goodman. I am hoping I can make good on my threat to move to Houston before you beat me up for screening "Always." It is one of my favorites, by the way. The opening scene alone captured my heart.

¹Simply write your name on a government printed "Free Dues" coupon and hand it to any chapter officer. "Free Dues" coupons are available at any bank, ATM, and many businesses. Ask for it by the secret code name "Twenty Dollar Bill."

We will predictably gather in the appointed place (TPS) at the appointed hour (1700). We will simulate the movie going popcorn with C³s and chips and soft drinks. We can't take those into the theater anyway. Besides, who among us hasn't completely finished the entire bucket before the trailers are over? Personally, I plan to try to pretend that I am not old enough to remember when all this stuff was happening for real. You can take whatever approach you like. See you there.

- **Scott "Stormy" Weathers**
Vice Kommandant (almost Emeritus)

Last Month's Meeting

EAA Chapter 1000
Kommandant's Kwarters
Quartz Hill, CA
13 December 2011
Gary Aldrich, Presiding

The final meeting of 2011, which also celebrated the non-denominational holiday of **Festivus** (**Festivus**...for the rest of us) was held at the Kwartz Hill estate of **Kommandant** and **Mrs. Kommandant Gary and Anne Aldrich** as has been our custom for several years now. The gala was hosted by **First Dog Pixel**.

Twenty or so members partook of the **Kommandant's** vast selection of brews and wine, and enjoyed a traditional **Festvalasagna** dinner with jelly donuts and brownies for dessert.

Following the dinner and dessert, everyone jockeyed for the best seats in the living room around the **Festivus Pole**, the lusterless and unadorned aluminum pole which symbolizes nothing. The **Kommandant** declared open an opportunity for the "**Airing of Grievances**", but no one seemed interested. Perhaps a good thing as food fights can be messy, and dangerous if **Mrs. Kommandant** were to catch you.

Next came the "**Kommandant's Krap**" gift exchange, where some real...ah, gems, were revealed and subsequently stolen.



Sous-Hostess Anne, under the direction of Hostess Pixel, prepares a festive salad while the traditional Festivus lasagna cooks in the oven.



Some of the ladies of EAA Chapter 1000—Karen, Pixel, Anne, and Tuki



Leslie, Harry, Connie, Joanne, Bill, and Leigh gather 'round the table



What does Bill know that we don't? And what is Jimmy looking at?

Festivus



George, Tony, Doug, George, Russ, Tuki, Miles, Karen, and Jan sit around the big table



The accumulated Festivus loot



“Go ahead. Try to take my beer. I dare ya.”



“And now, ladies and gentlemen, I direct your attention to the Officer-In-Charge of the Kommandant’s Krap Exchange”



Anne holds the Festivus Pole while reviewing the rules of the Exchange



Just like during the safety briefing on the airliner, George is more interested in the yummy dessert than listening to the rules



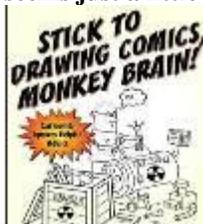
Finding #1: At the Kommandant's Krap exchange, if you open a gift containing libations, don't get too attached to it. It will be stolen from you posthaste.



Leigh tries to advertise a set of Carole King and Dean Martin Christmas CDs



Bill opens a copy of *Stick To Drawing Comics, Monkey Brain!* while Opie seems just a little too excited about it



Connie opens a set of tools, and her excitement puzzles Harry. She says she has a bunch of jobs she needs to do with these. Perhaps Harry keeps a little too tight of a reign on his tools...



Anne opened "Vans Aircraft RV-10 First Phase Construction Kit" and read the enclosed instructions:

Once you finish assembling this kit you will be well on your way to constructing your RV-10 aircraft.

Assembly Instructions:

Obtain the services of someone from the *Project Police* before opening the plans.

CAUTION: A severe papercut, or even death from bleeding out very slowly, may occur if you are not careful when opening these plans.

Make sure you are wearing safety gloves, protective eyewear, a respirator and proper underwear before attempting to open these instructions.

Once you have opened the instructions have someone read them to you. (Not the *Project Police* guy, most of them probably can't read anything not full of numbers and graphs and stuff)

Begin assembly by attaching the fluctuator rod to the epoch of the miniscule, and tempermental, flidget that is adjacent to the circumlocator assembly which you assembled in the previous step.

There you go. You're well on the way to the completion of your kit. Next you will want to assemble the tail kit which comes in a significantly larger box with even more instructions.

CRITICAL NOTICE: Above all else do not forget to
bnf chergty d gl



“Fraj-ee-lay”!! It must be Italian!



Tuki opens a box of wine bottles, with at least one sporting a label featuring a Mike Machat painting of a Republic Seabee. Did she keep them? Refer to Finding #1.



Lyn opens a six-pack of Pale Ale. Forgetting to turn off her speaker she made some comment about needing this after dealing with some idiots at TPS.



Joanne was quite excited to receive this book *Me 262 Stormbird Rising* and tried to protect it from theft



Yea, that didn't work out so well. Leslie swiped it.



Refer to Finding #1.





“It’s a Major Award!!”

The “**Feats of Strength**” and “**Wrestling the Head of the Household to the Ground**” were dispensed with in lieu of the Kommandant’s awarding of “**Cheesy Certificates and Pins**” for honorable chapter service.

Spitting in the face of tradition, the **Kommandant** did not repeat his world reknown juggling act involving a mug of beer and **Pixel** the dog, nor was anyone interested in chasing **Pixel** around the neighborhood.

The meeting concluded without injury or incident, any serious questioning of anyone’s ancestry. **Stormy** showed up just in time to break up the party. That’s not what usually happens when he shows up.

Most of this is true.

- **Erbman**

Faux Minister of Propaganda

(Hey, Cobra! Did that text sound strangely familiar?)

Kommandant’s Korner

Normally I spend this month’s column channeling my inner flight instructor as I rail against the dangers of winter flying...you know, ICE, frigid temps, howling winds, short daylight hours, etc. I usually punctuate the warnings with scary personal near-death stories where, save for my consummate aviation skills and nerves of steel, the **Fightin’ Skywagon’s** crew would have met a terrible fate. What happened? Is Al Gore right? With the nation shivering under only 16 percent snow cover, vice the “nominal” 60-plus percent, the flying weather has been phenomenal. Relatives from normally snowbound areas in the East are calling with “nah-ny, nah-ny...we’re warmer than you are!” messages.



I should have dragged out a May or June column where I exhort everyone to go to fly somewhere. In fact, I wish I had taken more advantage of the super weather to exercise the VC-180 but the trips over the holidays were planned with a nastier atmosphere in mind and the **BMW**

Kommandwagen got way more time logged than the airplane.

This sad condition may be ameliorated a bit “on the morrow” as the Brits say, when we’ll take a tentative aerial adventure to Harris Ranch (308). I’m sure everyone knows of this oasis on Interstate 5 near Coalinga (originally pronounced “Coaling-A” since it was a fuel stop for the coal-fired trains plying the San Joaquin between LA and SF). **Mrs. Kommandant** and I have been visiting this spot for many years, primarily by air. Their runway and parking ramp have improved since our early visits and they even have Avgas available now. The stimulus used to be a quiet get-away from the hustle and bustle of work...and the kids. The hotel had attractive prices for military personnel, the restaurant haute cuisine, and the pool a relaxing environment (assuming the wind was not blowing across the adjacent feed lots). This made for the perfect weekend flying vacation. One of the neatest features of the place was the fact that you could pick out fresh PRIME beef products at their gift/butcher shop and your purchases would be delivered to your airplane, wrapped with dry ice, on departure day. Of course, today you can buy the famed Harris Ranch beef products locally, but it sure was cool at a BBQ gathering to casually mention that you flew in the meat...personally. So, at the urging of **Opie/Houdu**, who is reticent to allow N6940P to cool off, we will assess the predicted Santa Ana winds and forge off for some of the best bovine-related breakfast on the planet. I’ll let you know how that went when I see you at the meeting.

I hope everyone had a pleasant holiday season and has big (aviation) plans for 2012. We have some challenges for the chapter this year...not the least of which is to find a new **Vice-Kommandant**. Applications for this coveted position have slowed to a trickle and we may even see the seat remain vacant if all my letters to potential Houston-area employers containing disparaging comments about **Stormy’s** character go unheeded.

Fly safe and Check 6!

- **Gary Aldrich**

Kommanding



Secrets of Chromakinetic Augmentation Revealed



It's amazing what you can learn when you talk to people who specialize in a field different than your own. When I went to college I studied about how to make airplanes go faster through methods such as smoothing the skin, swept wings, area ruling, long nose booms, Pitot-static compensation, and our favorite—more thrust. But curiously there were no art majors teaching in the Aeronautical Engineering Department.

On 17 Dec 11 **Tuki** and I visited with **PPO Mike Machat** at the Grand Opening of his Art Exhibit at Aviation Arts Gallery in Laguna Beach. **PPOs Randy and Leigh Kelly** were there also. While taking in the excitement of seeing the actual originals of “First Reentry” and “Photo Finish”, Mike pointed out examples of “**Chromakinetic Augmentation**.” Simply stated, an airplane will go faster if it is painted in “warm” colors. Mike explained that flight test airplanes were painted red so that they would go faster and thus meet their contract specifications. Witness Mike's depiction of the F-107A above. He said that he learned about this effect from renowned aviation artist **Hank Caruso**.

Fascinated with this new concept, I did some research using the best information tool I know—The Google. The **U.S. Navy** (*it must be true if the government publishes it*) in *Naval Aviation News*, January-February 2005 (<http://www.history.navy.mil/nan/backissues/2000s/2005/JanFeb/caruso.pdf>) finally commented on the now declassified phenomenon.



“**Chromakinetic Augmentation**. The **Douglas D-558-1 Skystreak**, below, was designed to investigate the mysteriously turbulent transonic environment just

below the speed of sound. To make the Skystreak go faster, it was painted with brilliant, gloss red paint. (The scientific principle by which red paint seems to make an airplane go faster is called “chromakinetic augmentation.”) The Skystreak established a world speed record of over 640 mph on 20 August 1947. Here a Skystreak is shown passing a smoke signal that marks the starting gate for its record run.”

Who is the recognized authority on this phenomenon? Not **Theodore von Kármán**. Not **Kelly Johnson** or **Ed Heineman**. Nope—aviation artist **Hank Caruso**. It is reasonable that this phenomenon would be applied by **Douglas**, since the **Douglas** company has a demonstrated history of hiring the world's best aviation artists.

Note that the Skystreak's record setting flight was a couple of months before **Chuck Yeager's** first supersonic flight in the **Bell X-1**. It is widely reported in aeronautical engineering text books and aviation history books that **Jack Ridley** came up with the classified secret concept of the all-flying tail that made supersonic flight possible. There is evidence to support the theory that he was also familiar with the D-558-1 program and therefore Chromakinetic Augmentation. **Ridley** probably wanted to paint the X-1 a brilliant red to maximize its potential to break the sound barrier, but was stopped by the **Bell Aircraft** lawyers who pointed out that if they painted the X-1 red it would look like they were copying the Skystreak program and there would probably be a big patent law suit. Therefore **Ridley**, under the direction of **Col Al Boyd**, decided to go to the next color in the spectrum, orange. He knew that orange wouldn't be as effective as red given its shorter wavelength, but the benefit should still be sufficient to push the X-1 through the sound barrier.



Fearing that the Soviets would notice and therefore steal this critical technology, the cover story was published that the color was chosen to make the X-1 more visible to chase pilot **Bob Hoover** and ground tracking cameras.

The **McDonnell Douglas F-4 Phantom** is well known as “proof that given enough thrust even a brick can fly.” What is not as well know is that the F-4 couldn't fly any faster than it did at any given thrust setting. Putting the landing gear down, lowering the flaps, or opening the auxiliary air doors was shown in early testing to cause additional drag which threatened to bring the aircraft down

or prevent takeoff. McDonnell engineers, borrowing from the Douglas division, countered this by painting bright red on all of the areas that were exposed when reconfiguring the airplane. This exploited Chromakinetic Augmentation to provide the additional thrust necessary to overcome the additional drag that couldn't be matched by the engines.



F-4 Aux Air Door

In competition with the F-4 was the **Vought XF8U-3 Crusader III**. Knowing they only had one engine and one crew member going up against the Phantoms' two of everything, the Vought engineers sought out every advantage they could get. A Vought aviation artist presented a drawing of the airplane with bright orange surfaces, similar to the **Machat** painting shown here, and the engineers instantly knew that it might give them the edge they needed. As a bonus, the test pilot was able to find the airplane on the ramp with less searching.



In more recent history, there is evidence to support that **Jon Sharp's** success with *Nemesis* in Formula 1 air racing was due to the application of the name "Nemesis"

in bright pink paint on the aft fuselage. So why didn't he paint the whole aircraft pink? Secret calculations showed that the amount of pink applied was sufficient to gain the desired advantage. Too much pink would have given too much of a speed boost and would have brought unwelcomed investigations into his engine and propeller trying to figure out why the airplane was so fast.



Nemesis on display in the Steven F. Udvar-Hazy Center

Later when **Jon Sharp** moved into the Sport Class with *Nemesis NXT*, he knew he could get away with more Chromakinetic Augmentation and thus painted more of the NXT in bright pink.



Looking past the anecdotal evidence and into color theory, we find that "colors" are just the way our eyes perceive different frequencies of electromagnetic radiation. "Warm" colors, such as red, orange, and yellow are longer wavelengths than "cool" colors such as blue, indigo, and violet. Any astrophysicist can tell you that the shorter the wavelength, or higher the frequency if you were an EE major, the higher the energy in that waveform.

That's why we fear shorter wavelengths. Ultraviolet radiation gives us sunburn and makes the fabric fall off of our airplanes. X-rays give us cancer, and then are used to kill the cancer they created. Astronauts on the International Space Station retreat to the radiation bunker when cosmic ray levels get too high.

So what is the engineering explanation for Chromakinetic Augmentation? On about the 16th page of results from a Google search, I found an interesting work by Soviet mathematician **Pyotr Ya. Ufimtsev**, the same man who brought us *Method of Edge Waves in the Physical Theory of Diffraction* in the journal of the Moscow Institute for Radio Engineering (MIRE?). That's

the work that **Denys Overholser** used to develop the program used to design the F-117. Apparently prior to working with the very long wavelengths of RADAR waves, **Ufimtsev** worked in the visible spectrum, since his political bosses wanted results they could see.

Ufimtsev explains that the sunlight falling on the aircraft is perceived by our eyes as “white” because it contains a uniform distribution of all frequencies in the visible spectrum. We perceive colors because an object will reflect the sunlight at those frequencies corresponding to its “color” and absorb all of the remaining wavelengths. Thus, a red airplane absorbs all of the high energy wavelengths of light, such as the violets, blues, and greens and reflects the low energy red wavelength. The absorption of the high energy wavelengths has to be accounted for somewhere, and it thus results in more thrust. Blue airplanes waste the high energy wavelengths by reflecting them and absorbing only the lower energy wavelengths.

Experiments with ordinary black paint were tried on the idea that the airplane would go even faster since it absorbed all of the light energy. Unfortunately it was found that without some reflected energy to direct the thrust, the absorbed radiation got confused and went in random directions, resulting in nothing significant other than heating up the cockpit to unbearable temperatures. Therefore black aircraft, such as the Northrop P-61 Black Widow or the Northrop F-117 Nighthawk/Cockroach/Stink Bug were mostly flown at night because the added weight of the required additional Environmental Control Systems (that’s Air Force for “Air Conditioning”) would have exceeded the allowable gross weight.

You would have thought that with this information the Soviets would have painted their entire Air Force in bright red. After all, we think of the Soviets as the “Reds”. Apparently the Kommissars in charge thought that bright red airplanes, while looking very patriotic, would be too visible to enemy satellites against the white snow. Besides, red pigment was in short supply in the Soviet Union.

That’s why they all wore gray clothes. Also Soviet regulations required that the interiors of all Soviet aircraft to be painted in that



pukey blue-green color. This color was shown to nauseate the Soviet pilot, not enough to make him unable to fly the aircraft, but sufficiently to suppress any initiative he might have so that he couldn’t do anything except what the ground controller told him to do. It is believed that **Viktor Belenko** was able to defeat this effect during his defection

by wearing Oakley sunglasses smuggled in by a CIA operative.

There is also evidence to support that part of the secret of the SR-71’s amazing performance was the development in the ‘60s of a super-secret infrared colored paint. This paint absorbed all of the visible spectrum but directed the energy by using reflected infrared light. Since all of the reflections were below the visible spectrum, the paint appeared to be black. This effect was accentuated at very high altitude where the sunlight was mostly undiminished from passing through the atmosphere. The reflection of infrared radiation explains why the aircraft always seemed so warm after landing.

However, this paint was very difficult to apply, having to be sprayed in a dark hangar while using infrared goggles. The overspray tended to get on the goggles and bloom the sensors, making it that much harder to see. Due to its high expense, this method was generally discontinued, and the equipment for mixing the paint was destroyed with the rest of the tooling. Museum SR-71s are now just painted with ordinary black paint to simulate the original non-color.

We have seen manifestations of Chromakinetic Augmentation right here in EAA Chapter 1000. It is known that the *Fightin’ Skywagon* and *Combat Bearhawk* will out-climb the *Glamorous Glasair*, but the *Glasair* will walk away from them in cruise flight. This can be explained by looking at their paint schemes. The *Fightin’ Skywagon* has a significant amount of red on top of the cowlings and wings. The *Combat Bearhawk* is mostly red and yellow on top of the fuselage and wings. These colors are exposed to the sun and make the most out of the Chromakinetic Augmentation during takeoff and climbout. The *Glamorous Glasair* is painted orange on the lower side of the aft fuselage. This color is mostly blocked from the sunlight during takeoff, and blocked to some extent during the climbout. However, in cruise the aft fuselage is better positioned to receive sunlight and is better lit as a result of the sunlight scattering in the atmosphere below and above the aircraft, resulting in more thrust which explains the additional speed.

Research into this fascinating field is ongoing by the **Project Police Office of Secret Eclectic Research (PPOSER)**.

- **Erbman**

“Sometimes my brain runs without my permission”

Web Site Update

As of 7 January 2012, the hit counter still showed nothing. Apparently there has been a change and the Webmeister needs to look into it.

 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

Jan 17: EAA Chapter 1000 Monthly Meeting, 5:00 p.m., Edwards AFB. USAF Test Pilot School, Scobee Auditorium. (661) 609-0942

Feb 7: EAA Chapter 49 Monthly Meeting, 7:00 p.m., General William J. Fox Field, Lancaster, CA. (661) 948-0646

Feb 14: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., High Cay, 4431 Knox Ave, Rosamond CA. (661) 609-0942

Feb 21: EAA Chapter 1000 Monthly Meeting, 5:00 p.m., Edwards AFB. USAF Test Pilot School, Scobee Auditorium. (661) 609-0942

Mar 6: EAA Chapter 49 Monthly Meeting, 7:00 p.m., General William J. Fox Field, Lancaster, CA. (661) 948-0646

Mar 13: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., High Cay, 4431 Knox Ave, Rosamond CA. (661) 609-0942

Mar 20: EAA Chapter 1000 Monthly Meeting, 5:00 p.m., Edwards AFB. USAF Test Pilot School, Scobee Auditorium. (661) 609-0942

Apr 3: EAA Chapter 49 Monthly Meeting, 7:00 p.m., General William J. Fox Field, Lancaster, CA. (661) 948-0646

Apr 10: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., High Cay, 4431 Knox Ave, Rosamond CA. (661) 609-0942

Apr 17: EAA Chapter 1000 Monthly Meeting, 6:30 p.m., High Cay, 4431 Knox Ave, Rosamond CA. (661) 609-0942

May 15: No Third Tuesday Meeting. Go to Airport Barbecue instead.

May 19: Twenty First Annual Project Police Airport Barbecue, Rosamond Skypark (L00), Rosamond CA. (661) 609-0942

Jan 5: EAA Chapter 49 Monthly Meeting, 7:00 p.m., General William J. Fox Field, Lancaster, CA. (661) 948-0646

Jun 12: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., High Cay, 4431 Knox Ave, Rosamond CA. (661) 609-0942

Jun 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, Doug Dodson, 4431 Knox Ave, Rosamond CA 93560-6428. Membership in National EAA (\$40, 1-800-843-3612) is required.

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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**

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

ADDRESS SERVICE REQUESTED

**THIS MONTH'S HIGHLIGHTS:
MONTHLY MEETING 17 JAN @ TPS
PAY YOUR DUES! NOW!
FESTIVUS REPORT
CHROMAKINETIC AUGMENTATION**

