

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>

April 2019

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:



DEATH CLAW

Bill Gray, LtCol (ret)
USAF TPS Chief Test Pilot
Tuesday, 16 April 2019
1700 hrs (5:00 PM Civilian Time)
USAF Test Pilot School Auditorium
Edwards AFB, CA

Ever since Roland Garros mounted a forward firing machine gun to his Morane-Saulnier Type L fighter with bullet deflectors on the prop, fighter pilots have been struggling with figuring out how to point their aircraft with the proper lead and deflection to shoot bullets into an enemy aircraft. Many hours of training and many, many gallons of fuel have been spent trying to train fighter pilots how to intuitively do these calculations in their heads. Each pilot had to be trained individually.

However, this is the 21st century. We have airplanes that fly themselves. We have bombs that can guide themselves to a target. Feedback control systems are the subject of thousands of graduate theses and dissertations.

With that in mind, why can't we teach the airplane to aim itself? The Fire Control Radar knows the location and velocity of the target. The ballistics of bullets are simple enough to calculate. Why not create a control law that will use the autopilot to aim the airplane and fire the gun?

That's exactly what was done in a recent flight test program called Digitally Enhanced Aiming THrough Control LAW (DEATH CLAW). This test was done on the NF-16 VISTA before it received its recent **Mike Machat** designed paint scheme. The Project Pilot, **Bill Gray**, will talk to us about the project. You'll also want to hear how your **Kommandant** and **NLE** served as a target to get virtually shot at. It was reasonably safe since the actual gun had been removed from the VISTA many years earlier.

Afterwards we will make our usual journey to the **BK Dead Cow Emporium** where the jovial banter will continue.

TAKE NOTE: If you do not normally have base access and depend on having your name on an Entry Authorization List to get past the young airmen with weapons, **you must get to the Visitors Center at the West Gate No Later Than 1630!** At 1630 the Visitors Center closes, and after that you will not be able to get in based on the EAL. Don't ask questions and don't be late!

Contact **Russ Erb** if you need to be added to the Entry Authorization List. Do it now—anything within a week is several days too late.

- **Erbman**
 For the **Vice Kommandant**

Pre-Planning For 18 May Fly-Out To Estrella Warbird Museum, Paso Robles

For this year's EAA Chapter 1000 May Aviation Event, we are planning a Fly-Out to the Paso Robles airport (KPRB). It is 128 nm from Rosamond Skypark, a 1.5 hour flight in the **Combat Bearhawk**. We will be visiting the Estrella Warbirds Museum (<http://www.ewarbirds.org>). We have been granted permission to park our aircraft on the museum's taxiway, right next to some of the display aircraft. Be careful they don't put a museum information sign in front of your airplane!

We will arrange for a museum docent to give us the Cook's tour of the museum. Admission is \$12, \$10 for

military veterans. Active Duty military are FREE! The museum is open 1000 to 1600.

There is no food service available at the museum, but our **Schmoozemistress** already has some ideas for how to pack a lunch spread for us in the **Combat Bearhawk**. Bring your folding chair or picnic blanket and we can have quite the picnic.

HOMEWORK: If you have an airplane and think you will be able to participate in this fly-out, contact **Erbman** to tell him so. Tell him how many people you are bringing and how many empty seats you have that you are willing to fill with other **PPOs**.

If you don't have an airplane but would still like to participate in this event, contact **Erbman** to be matched up with an empty seat. We need to know now to facilitate planning.



Last Month's Meeting

EAA Chapter 1000
USAF Test Pilot School
Scobee Auditorium
Edwards AFB, CA
19 March 2019
Gary Aldrich, Presiding

The March meeting was held at the Test Pilot School Scobee Auditorium at Edwards AFB with 10 members and guests attending. Social hour began at 1700 with chips and sodas. Sadly, the usual dips, salsa and cookies were noticeably absent. The numerous comments regarding this most egregious breach of meeting protocol went unaddressed by **Mr. Erb** (*sounds like a volunteer statement to me...*).

The assembled members took notice of the recent posting of space flight memorabilia from former **PPO Astronaut Scott Horowitz** in the Rick Husband lounge.



Our guest speaker was **Jeff Landon**, owner and proprietor of **High Desert Avionics** located at William J. Fox Airfield in Lancaster.

The main thrust of Jeff's comments concerned the ins and outs of ADS-B and the rapidly approaching FAA imposed deadline of January 1, 2020 for compliance.

This spurred an exciting exchange of technobabble which I will spare you.

Bottom line...get 'r done.

Jeff

reports that business has taken a significant upswing with the new administration, which



followed a long period (8 years) of low consumer spending on avionics, which drove many shops out of business.

For those of you who are challenged by even the simplest of Economic concepts, that of supply and demand, the result is as follows:

Fewer shops (supply) coupled with increased demand results in lengthy waiting periods for installation. Jeff indicated that orders placed today are looking at the August/September timeframe for installation.

So get in line, which begins **right behind me**.

Kommandant Aldrich closed the meeting with the assuring declaration that **Victory!** had been achieved.

Activities were subsequently moved to the **Burger King Dead Cow Emporium** for dinner, where a lively banter continued, punctuated with **Kommandant Aldrich** writing an old school paper check to Jeff for a down payment on his **Garmin G5** installation. Avionics envy can be such an ugly thing.

Most of this is true.

- **Kent "Cobra" Troxel**
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

Pop go the Poppies! At least one benefit of the El Niño weather pattern I've been complaining about the last couple of months has become very apparent



in the veritable cacophony of resplendent color gracing our verdant (for a change) hillsides here in the Aerospace Valley. Yes, the State's official posies, otherwise known as *Eschscholzia californica*, or the "California poppy", are enjoying a banner year. All that rain, followed by some pleasantly warm and calm days really brought them out.

Down below (AV code for the LA megalopolis) the spectacle was so enticing that the desire to see, touch, and crush the tender blossoms turned into...well, a spectacle and major news story with the headline: "Bombshell Breaking News: SUPERBLOOM!" Coverage by the mainstream media was extensive as "poppy-peekers" jostled for position, paid outrageous parking fees, and fought with one another. A side benefit was that for a few blessed days the President did not feature in the lead story.

An easy gaze to the west from pretty much anywhere on the valley floor revealed intense splashes of bright orange, yellow, and purple anyplace that wasn't covered with acres of solar cells. Thus, it was on last Sunday morning the **Fightin' Skywagon** emerged from hangar 703 for a "flight-seeing" mission over said poppy fields. The crew consisted of the **Aldriches** and good friends **Doug** and **Lena Weber**. Granted, aerial photos of tiny flowers, even billions of them, probably won't win the Pulitzer in photography, but it was an impressive sight nonetheless. And, it was a much cooler way to experience the sight than waiting for a parking space in the horrendous vehicular traffic that flowed out to the AV Poppy Preserve on far west Lancaster Boulevard.

Of course, cruising around at a leisurely 100 KIAS allowed us to take in our fill of the splendor in a short time, so with concurrence of the photogs in the back seat we set course for Kern Valley Airport (L05) near the shores of Lake Isabella. The purpose of this leg of the trip was to sample the (arguably) best blueberry pancakes on the planet. The light winds aloft and minimal turbulence made the approach over the lake to a downwind for runway 17 very pleasant and scenic. I did have a brief moment of panic when I noticed that we were the only airplane or car parked near the cafe...were they closed? Whew! Not to worry. The cook informed us that we had arrived precisely at "half-time" between the breakfast and lunch rush. With that good news we chowed down on the dinner-plate-sized hot cakes and coffee before sauntering back to the VC-180 for the ride home.

Some thermal turbulence made itself known during our egress from the mountains toward Mojave, but we soon touched down smoothly on Runway 6 to conclude another successful sport aviation adventure. L05 is a

friendly and welcoming destination for such adventures and I recommend it to anyone with an airplane (though you can get there by car as well).

Hopefully you enjoyed April 6, designated as "California Poppy Day" here in the Peoples Republic of California.

Until we meet again,
Fly Safe and Check 6!



Poppies, Poppies, everywhere!



And over here too!



The intrepid Poppy-Peekers, full of pancakes



Base leg, Runway 17, looking north over Kernville and the purple covered hills



The “Minerva” and her caretakers at L05

- Gary Aldrich
Kommanding

ROCKET MAN: First To Fly The X-15

Only one airplane in history ever flew Mach 4, 5, and 6, and exceeded 200,000 and 300,000 feet – all in 18 months!

North American’s X-15 was the most successful research aircraft ever flown, taking man into space and

ultimately paving the way for the Space Shuttle. The stunning accomplishments made during this program were indicative of aviation’s rapid progress during the 1960s. Man’s first flight to Mach 1, Mach 2, Mach 3, and more than 100,000 feet all took place between 1947 and 1956, and at the beginning of the Space Age, people wondered if it would ever be possible to exceed those speeds and altitudes. They also wondered how many different types of airplanes it would take to accomplish that. The answer? Just one – the X-15. This is the story of the first of 12 courageous men who flew it.

Fly Navy, NACA, and North American

Former World War II Navy instructor and NACA test pilot **Albert Scott Crossfield** played a pivotal role in the creation of this country’s first true aerospace plane. Crossfield entered the history books on November 20, 1953 as the first pilot to fly Mach 2 (1,320 mph) in the swept-wing Douglas D-558-2 Skyrocket. The concept of air-launching experimental rocket-powered research aircraft had reached full maturity with the Navy’s Skyrocket and Air Force Bell X-1, and NACA had versions of both those aircraft at that time.

“**Scotty**,” as Crossfield was known, nobly gave up the chance to fly the next-generation X-15 super-rocket as a NASA test pilot in order to help that airplane come to fruition as the **Lead Engineering Test Pilot for North American Aviation, Inc.** With his vast rocket experience (114 total flights – more than any other pilot in the world) plus a Masters Degree in advanced aeronautical engineering, Crossfield was a natural for this task. His character and integrity led him from a promising career with NASA into the frenetic world of corporate aerospace in 1955, foregoing the chance to ultimately set world records in the airplane he would help create. In the end, aviation was far better off for his having made that tough decision.

After endless frustrating problems and mission aborts, Crossfield made the X-15’s first unpowered glide flight on 8 June 1959, and first successful powered flight the following 17 September. He survived a crash landing as well as a massive ground explosion during an engine test, and after flying 14 test missions in the first two X-15s (11 flights with the small interim Reaction Motors XLR11 engines and three with the operational 57,000-lb.-thrust Thiokol XLR99), Crossfield was ready to hand the reigns over to North American’s proud joint customer team – NASA, the U.S. Navy, and the U.S. Air Force.

Crossfield’s Last Rocket Flight

The X-15 underwent numerous configuration changes throughout its nine-year lifespan, plus countless variations in color scheme. What I call “non-believable accuracy” is evidenced in a painting showing Crossfield’s 14th and final X-15 flight on 6 December 1960. That day, Ship 2 (56-6671) was equipped with the Thiokol XLR99 rocket engine and original striped YAPS boom fitted to the nose. First flight of an X-15 with the “Q-Ball” nose was made

only three days later with Ship 1 (56-6670) flown by NASA pilot **Neil Armstrong**.

Would Crossfield prudently stick to his flight plan and not exceed the target speed of Mach 2.8 or target altitude of 50,000 feet? Knowing it was his last X-15 flight, and last flight ever as a rocket pilot, people close to the program actually bet money Crossfield would ‘go for broke’ and try to smash every record in the book. After all, what could the Air Force or North American do about it – fire him?

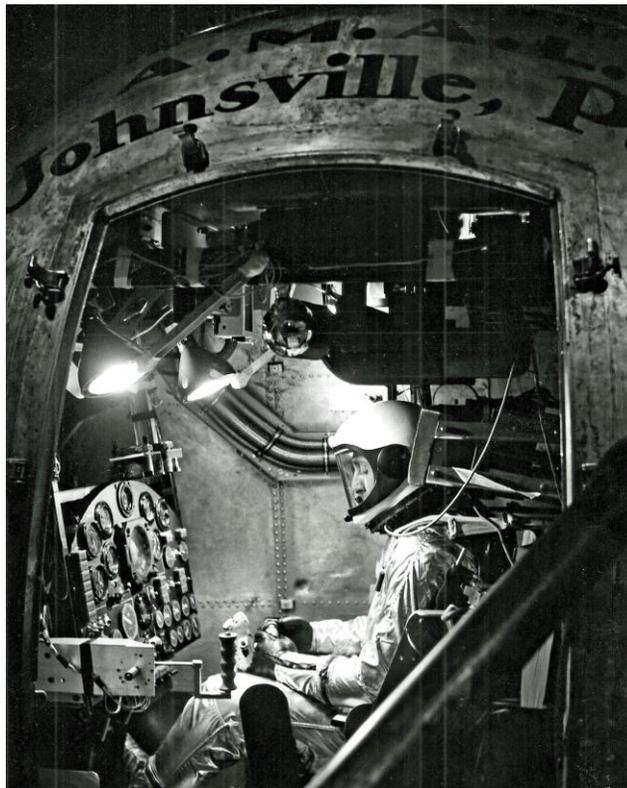
What people didn’t take factor-in was Crossfield’s consummate professionalism as a test pilot, and his deep sense of responsibility and dedication to the X-15 Program to which he so greatly contributed. After launching from the NB-52A mothership, Crossfield flew a near-perfect profile reaching Mach 2.85 (1,881 mph), and 53,374 feet on the eight-minute, seven-second flight. After a picture-perfect landing on Lakebed Runway 18, Crossfield’s storied career as one of America’s greatest test pilots proudly came to an end.



Scott Crossfield in his earlier NACA days, posing next to the Douglas D-558-2 Skyrocket he would later fly to Mach 2.



The X-15 flew with this unique combination of XLR99 engine and striped nose boom three times. This painting raised eyebrows among knowledgeable X-15 fans even though it was 100% accurate.



Crossfield wearing prototype David Clark MC-2 full pressure suit designed exclusively for X-15 pilots, while preparing to ‘fly’ the US Navy Aeromedical Lab centrifuge simulating the X-15’s rigorous high-G flight environment.



Noted aviation author Bob Archer took this photo of X-15 Ship 2 at the Edwards AFB Open House in 1961, two weeks after the airplane’s historic Mach 6 flight.

- Mike Machat



For Those Needing A Reason Of Some Kind For Buying An Aircraft

(submitted by Stormy...)

I have read many posts on the web site from members and on MMAIL who are thinking about owning their own aircraft and looking for ways to offset the cost of ownership. I have heard many reasons for and against ownership. Why buy an aircraft? It's cheaper to rent and you do not have all the hassle with maintenance, fuel and insurance. Well, here is a little story that I think explains it all as to why I own my own airplane.

It was a beautiful Saturday morning. No winds and the temperature was just right. So instead of mowing the lawn like my wife had planned for me, I decided to go to the airport and take the Sport out for a run. She yells back at me, "WELL IF YOU GO, TAKE YOUR SON WITH YOU." So I ask my son. Want to go flying with dad? To which he says, "Yea, can I take my light saber?"

You see, my 9 year old son thinks he is a Jedi Knight and that our Sport is his personal X-Wing fighter. He is only 4'5" and has to sit on a pillow in order to see over the glare shield, and he always carries his light saber just in case we land on a strange planet in which there might be trouble or civil un-rest. Always prepared this one is. So away we go.

THERE I WAS.....

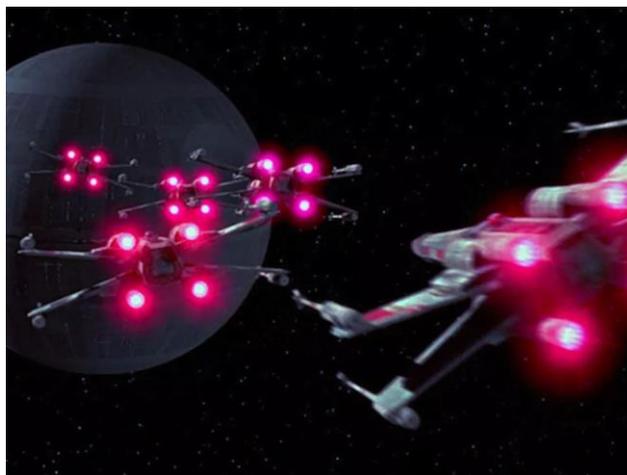
We were straight and level at around 6,000ft and I let him take the controls of the X-Wing to do some turns to the left and right. Joshua Approach called and said there was traffic at our 2 o'clock 2 miles opposite direction. And, my son said to me "Look over there dad, Tie fighter coming right at us". I told him to steer clear of the Tie Fighter because our lasers were out for repair and we were un-armed. No reason to provoke a fight.

So even though he is having a blast, I am starting to get a little bored and thought, "Let's go do a practice approach on the ILS". So I called Joshua Approach, requested the ILS 25 approach to Palmdale, Full Approach and off we went. I maneuvered the X-Wing to the VOR and started the turn outbound to the outer marker. Now my son is just really enjoying this. At the outer marker, the blue light started to flash and you could hear the BEEP in the headset. My Son jumps in and said, "That Tie Fighter has locked on to us". I said "That's Right," and I started my evasive maneuver on the procedure turn.

My Son is listening to the exchange between me and the controller and wants to chime in on the conversation. I said to my son, "Just hang on; I will give you a chance". I never should have said that because now he is all excited to talk on the radio. As I start to turn inbound on the turn, the Approach Control said "Contact tower when established on the localizer". So I told my young Padawan Learner, "OK, when this needle gets here on the dial, push the radio button and tell the tower that 93 Romeo is inbound on the localizer".

Now imagine this, I am giving basic instrument instruction to a 9 year old, and I cannot get adults to say this during training. So before I can give him something

simpler to say he keys the mike and says, "REBEL BASE, THIS IS RED 5. WE ARE STARTING OUR ATTACK RUN ON THE DEATH STAR."



Good God! Now this is post 9/11! And, before I can key my mike and say anything, the tower jumps on and says, "RED 5, YOUR CLEARED FOR THE APPROACH TO THE DEATH STAR. REPORTS HITS AWAY." Now I am waiting for the tower to add, "And tell your Dad to call this number." But I hear nothing else. So we continue the approach. Now my son is in heaven. This is real life stuff to him, and he is doing everything I tell him to do as far as tracking the needle. As we approach the outer marker inbound, the light starts to flash and there is that tone again. "Dad, the Death Star has a lock on us". Yes Son, you keep on the approach, I will worry about the guns. Everything is going great, and now we are approaching the middle marker. My son has noticed the GPS has a red line with an airplane on it and it ends at the Death Star. So, he asks me, "IS THAT A TARGETING COMPUTER DAD?" Well of course it is, and it shows us where we are to the target. So now he hears Obewan tell him to USE THE FORCE SCOTT and he turns the GPS OFF. Tells me he is OK and does not need the targeting computer because he is using the FORCE.

Now the middle marker light flashes and the tone comes on. I apply full power and the airplane X-Wing starts a climb. I start the turn to the missed approach path when my son keys the mike and says "HITS AWAY". The tower answers back with "GOOD JOB RED 5, CONTACT REBEL APPROACH ON 126.1."

We go back to Mojave SPACEPORT, and I decide that the X-Wing needs a bath. So out comes all the cleaning stuff, and we spend the rest of the day washing and waxing the turbo jets and laser pods.

So you see. This is why I own my own aircraft. You cannot beat this kind of quality time with your kids. And there is no way you can put a price on that.

- Jeff Bryant

Southwest Regional Director
Beech Aero Club
1975 X-Wing Fighter Model B-19
N6993R

Biplane For Sale

Hello there,

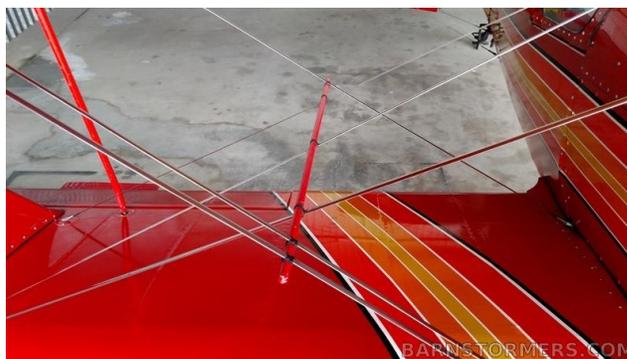
My name is Dan Terzian and I am with EAA Chapter #1116 in Thermal California. I am writing to the EAA chapters in California to tell you about a plane that should be of interest to one or more of your members.

Back in 19xx, Dan Rihn designed a plane known as the Sunbird; I believe only two were built and only one remains. The design is based on that of the Pitts S1 except it was designed to be both lighter *and* to accommodate an IO540 engine. Over time, the plane was further modified by installing an MT 3 bladed aerobatic prop, electronic ignition and numerous other enhancements. This plane was used by Spencer Suderman to set the current record for 98 inverted flat spins. I fly the plane regularly and it is in great shape. It's certified as experimental, amateur built; it's a great plane for someone who wants a real performance machine and who likes to work on their own equipment. I had never flown an S1 before but I had time in an S2B; the landings are almost identical...*but the takeoffs and climb performance are beyond compare.* I was recently cruising at 2500 feet on a 70 degree day with the power set at 25 squared and the IAS was just above 197 MPH. I have owned and flown this plane for over two and a half years now, but just acquired a new plane; I don't have the time, space or inclination to keep two. So I am *not* interested in trades but am interested in negotiating a sale with someone who wants a really amazing performance machine and will appreciate it for what it is. *And they will get it at a good price.*

Complete information is located [here](#). More detailed specs from the ad are [here](#). *I am ready to deal and if someone is truly interested I will offer them a better price than that shown in the online ad; very few single engine planes will perform like this plane and I believe **NONE** will at this price.*

So if you could pass this along to your members, or others who might be interested, I would appreciate it. OF course they should feel free to email (ddt1@terzians.com) or they can call or text my cell at (530) 227-1441.

Thanks much,
Dan



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

EAA Chapter 1000 Board of Directors Meetings are now held on an unscheduled, as needed basis. If you need to know when, you're already on the e-mail notification list. (661) 609-0942

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

May 18: EAA Chapter 1000 Annual Aviation Event, Fly-Out to Estrella Warbird Museum, Paso Robles CA (KPRB). (661) 609-0942

Jun 18: EAA Chapter 1000 Monthly Meeting, 5:00 p.m., Edwards AFB. USAF Test Pilot School, Scobee Auditorium. (661) 609-0942

Jul 16: CNX EAA Chapter 1000 Monthly Meeting, Cancelled in lieu of AirVenture. (661) 609-0942

Jul 22 - 28: EAA AirVenture. Oshkosh WI.

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

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

Oct 15: 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 Monthly Meeting, 6:30 p.m., Flying Dog Ranch, 4400 Knox Ave, Rosamond CA. (661) 609-0942

Dec 17: EAA Chapter 1000 Festivus Etc Celebration, 6:00 p.m., Kommandant's Kwarters, 42370 61st Street West, Quartz Hill CA. (661) 609-0942

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

Feb 18: 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.

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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**

**C/O Russ Erb
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Rosamond CA 93560-7692
<http://www.eaa1000.av.org>**

ADDRESS SERVICE REQUESTED

**THIS MONTH'S HIGHLIGHTS:
REGULAR MEETING 16 APR @ TPS
POPPIES! POPPIES!
FIRST TO FLY THE X-15
IS KPMD THE DEATH STAR?**

