



# 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	George Gennuso	661-265-0333
Secretary	Kent Troxel	661-947-2647
Treasurer	Doug Dodson	661-256-7276
Newsletter Editor	Russ Erb	661-256-3806

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

July 2004

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:

PLUGGERS



You're a plugger if you've built an airplane from the runway up

## PROJECT POLICE PROJECT PROGRESS PRONOUNCEMENTS

Tuesday, 20 July 2004  
1700 hrs (5:00 PM Civilian Time)  
USAF Test Pilot School Auditorium  
Edwards AFB, CA

(or the **Bail the Vice Kommandant Out because he can't find a Speaker (again) Meeting**)

Well it's that time of the month, sports fans. As you know your loyal **Vice Kommandant** usually has many program irons in the fire so as to draw on any of them for the current month's meeting. As this month opened up I stoked the fires again and again and found that although the efforts were there, and the intentions were good, all of the irons had grown cold for this month. So after a lot of head scratching and reviews of meetings past, I noticed that we have been remiss in one of our chief responsibilities, that being the member project review and the nifty tool and demonstration ("Hey, look at this").

So, take a second and think (I know it makes your head hurt, but bear with me) about something you can bring in and share with the group. I remember that one time we did this **Bill Irvine** brought in some mandrels that shrink and stretch aluminum, pretty nifty. Erbman had his

cool LED gooseneck lights. From those of you out there building, we expect a little report on your project. We're hoping that **Vince "Opus" Sei** will tell us what it's like to drop several kilobux (aka AMUs) on avionics. The **Kommandant** should be able to comment on that too, as the **Fightin' Skywagon** is getting its first big panel upgrade as this is being written. **Opie** has been doing the annual Annual Inspection for this year on the **Strike Mooney**, and has been making statements about starting work on the **Glasair IIFT** again. **Erbman** has been playing "homebuilder" of a different sort, perhaps more accurately "shedbuilder". And that's just a sampling of what you might hear about.

With that said, hopefully everyone will add to the meeting by sharing. It should be an interesting evening. As always, there will be chips, salsa, chocolate chip cookies and beverages for your snacking enjoyment with the usual solutions to the world's problems at the BK Lounge afterwards.

- George "Knife" Gennuso  
Vice Kommandant

## Last Month's Meeting

EAA Chapter 1000  
Scobee Auditorium  
USAF Test Pilot School, Edwards AFB CA  
22 Jun 2004  
Gary Aldrich, Presiding

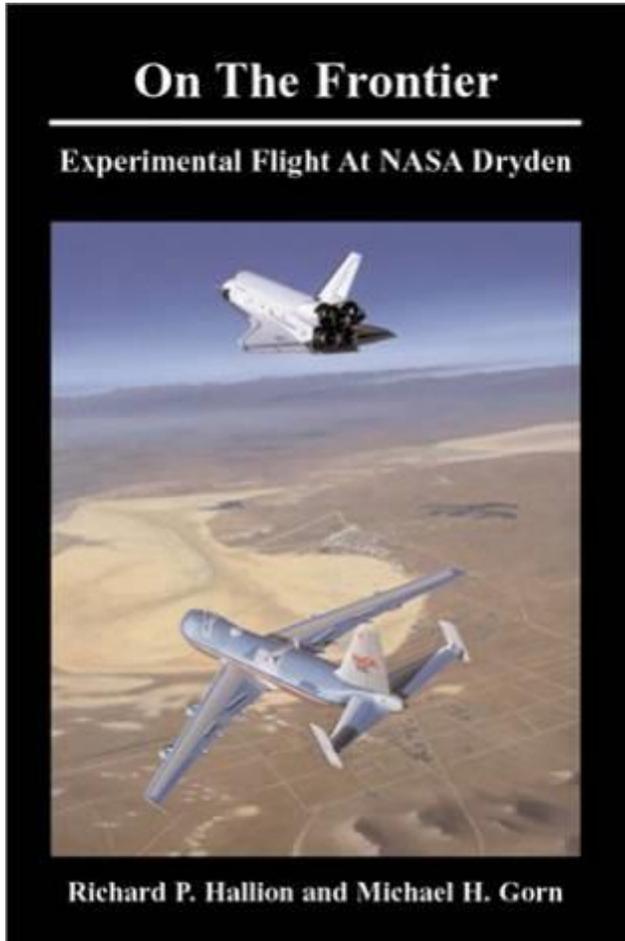
The meeting was held on 22 June at the Edwards AFB Test Pilot School, and was a special event indeed. The festivities started with a polish sausage BBQ with the **Vice Kommandant "Knife" Gennuso** serving as **Grillmeister**.

The BBQ was a prelude to the main event, a special viewing of the 1956 movie "**Toward the Unknown**" starring **William Holden** and **Lloyd Nolen**, hosted by former aviation artist extraordinaire and now publisher extraordinaire **Mike Machat**. Preceding the main feature were three film shorts, "**Tough Sledding**" featuring the **Knife** in the opening scene, "**The Lighthouse**", and "**The F-86's are Here**" filmed at Ramstein AFB (Germany) in the 1950's.

## THE LEADING EDGE

The turnout was excellent at over 35 members and guests, including the local Daedalian chapter.

**Mike Machat** provided additional commentary on the making of the film and some interesting but little known facts about the film's stars and key scenes which reflected or were inspired by real events at Edwards during the 50's. Mike also provided a personally inscribed copy of "On The Frontier" with the nice Machat painting as the cover as a gift to the chapter (after quizzing us to make sure we were paying attention during the movie).



Our appreciation to Mike for generously sharing of his time and company.

- Kent "Cobra" Troxel  
Secretary

### An Unsolicited Advertisement

When **Mike Machat** isn't visiting EAA chapters showing movies, he's busy at his day job writing and assembling articles (*much like I'm doing now*) into a little magazine he



calls *Wings* or *Airpower*, depending on whether it's an even or odd numbered month. A one year annual subscription, good for 12 consecutive months, is just \$44. **But wait! There's more!** Add another 12 months in the next year immediately following the preceding previous year and your cost is only \$80!

**"But where can I find out more?"** Well, you know how to Google as well as the rest of us, but we'll save you the time. Go to <http://www.wingsairpower.com>.

Buy several subscriptions for your friends and Chapter Officers so that Mike will like us all the more and come visit us again!

### Kommandant's Korner

I don't know about you, but I had a really fine time at June's Chapter meeting. Even though we had to "call the audible" and slip the meeting day a week, we had a great turnout. Not to steal "Cobra's" account of the meeting as it could have happened, but I can't miss the opportunity to extend the gratitude of the Chapter 1000 masses to our own **Mike Machat**. Even though I had participated in the previous viewing of the classic Edwards movie "**Toward the Unknown**", Mike's setup and wrap up of the movie added immeasurably to the already enjoyable flick. In fact, having seen it once, I was able to pick up on even more interesting nuances and trivia about the Eddie Air Patch of the 50's.



Add to that the "windfall" profits provided by **Gail** (Chapter Loggie) **Dodson** and the famous "**Knife**" using up the leftover Polish dogs from the fly-in and you have a thoroughly primo event (like you expected any less?).

The only fly in the perfect ointment was that poor Mike did not get the traditional "super size" meal at the BK Lounge. We had to dispatch him in the Strike Mooney without a belly full of the customary cuisine. Just to get it in writing, Mike, the Chapter still owes you a dinner at the time and location of your choice. I'll be contacting you to set that up soon.

So, you may ask, why did Chapter Ops assign the **Strike Mooney** to this **SAM** (Special Airlift Mission for you non-mil-air types)? Well, it seems that eight weeks is not enough time for the Pentagon to process three pieces of paper to allow the **VC-180** to land at Edwards. Eight weeks and one day, though, is apparently enough as the requisite civil landing permit showed up in the mail the day *after* the meeting. Never fear, **PPO Dodson** stepped into the breach and provided the required transpo. Thanks, **Opie!** (*he even sacrificed his propeller governor cable to ensure the mission was a success...*)

Speaking of the **Fightin' Skywagon**...it should be well into a "radio-ectomy" as you read this. I have found that I just can't fly without being in a Garmin-state-of-mind. The plan is for the upgrade to be completed just prior to **NLE Erbman's** and my next adventure to **AirVenture**. Just as we wrung (wringed?) out the existing avionics on the retrieval from the East coast, we will be

proofing the new stack on the way out to OSH. That ought to keep **Mr Erb** busy trying to figure out the user interface! As a side note, if you or any of your friends are looking for some good used avionics...send them my way...I'm dealin'.

Next month we should have an entertaining report for the Chapter on the **PPTAF** raid on **HQ EAA**. Until then....

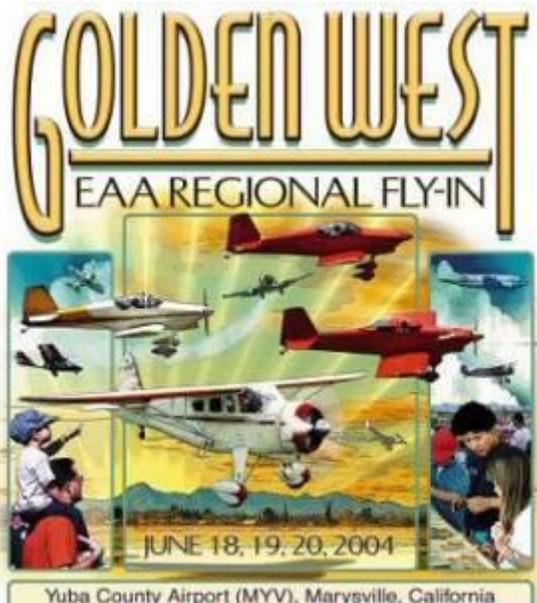
Fly safe and Check six

- Gary Aldrich  
Kommanding

**New Member**

This month the **Project Police** welcome into the fold **Paul Minnicks**, who is currently building a Coot Amphibian. A retired Chief from USAF maintenance, he comes with a list of FAA ratings longer than your arm, including CFI, A&P, IA, and I'm not sure what else. He enjoys doing primary flight training, and has the somewhat dubious distinction of teaching **Erbman** to fly back in 1991. He and his wife **Martha** live in Lancaster.

An amphibian? Hmm...that would be an interesting project inspection visit...

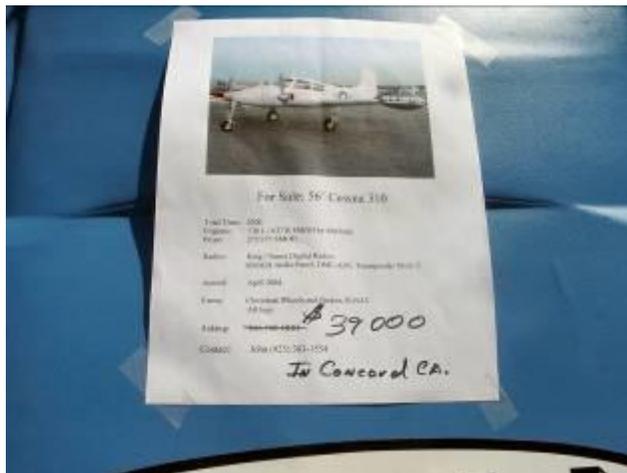


Not being the kind of folks who can leave a major regional fly-in un-inspected, the **Project Police** formed a long-range **PPTAF** for the Goldenwest EAA Regional Fly-In. Many were invited, but only the usual suspects showed up. Yes, apparently feeling that 19 hours of Functional Check Flight (FCF) was not enough to get the **Fightin' Skywagon** ready for 12-16 hour flight to Oshkosh, they approached this as another shakedown flight. Of course, this was highly effective, since most of the radio stack will be changed before that mission...hey, it's a reason, if not necessarily a very good one...

Anyway, this is a small sampling of what they found...



In keeping with **Project Police Tactical Assault Force (PPTAF) Operating Instructions (OIs)**, which look a lot like regulations, but aren't, our **PPOs** arrive on the scene and immediately take pictures of themselves. Here Kommandant Aldrich successfully finds where to mount the prop card.



The staff was expecting us, and expecting us to bring **Bill Irvine** as well so they could sell him yet another Cessna 310 to disassemble. To make sure he saw the notice...



...they posted it right where he would be guaranteed to see it...at the first place that any arriving **PPOs** report to (after taking the requisite pictures of themselves)



Not to be outdone by the Kommandant, Erbman verifies that this is indeed the RV-10 prototype, or as it is known in the Bearhawk community, the airplane that will suck the supply of surplus O-540s dry



Let's see Mr. Rosales get this much stuff in his RV!



Imagine that, from a distance the RV-10 (left) just looks like a slightly larger RV-7 (right), right down to the factory paint scheme. Of course, they're about as much alike as the F/A-18 E/F and F/A-18 C/D



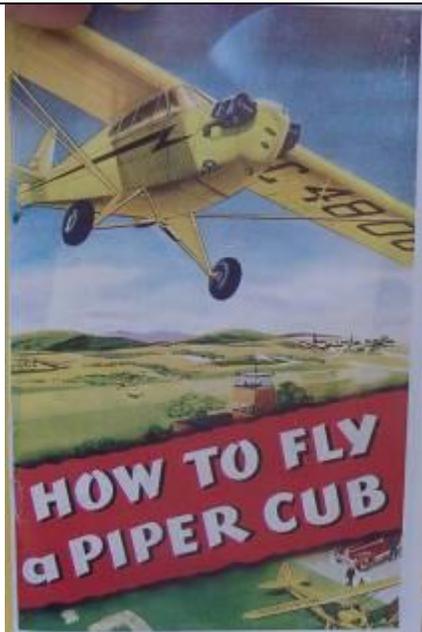
So who flies a Piper Cub to a major fly-in? Well, Bears, of course! Pilot Bear waits in the cockpit while Paw-Propping Bear seems to be having a bit of trouble with the airport dog...



Bruce Bohannon was present with the Exxon Flying Tiger, and Erbman was kind enough to point out to him where he should sit. Note the scoop and louvers in front of the canopy—there's a large radiator under the louvers but we weren't sure of its purpose



The Kommandant was drawn to this For Sale BD-5 and was particularly impressed with the yaw-string sideslip indicator, mumbling something about "should be just like the glider". Fortunately for Erbman, the owner could not be found to discuss swapping for the Fightin' Skywagon...



A copy of this classic book was hanging from a Piper Cub found on the line. As Flight Instructors, we were immediately drawn to it in search of tips on training Test Pilots. We found the back page rather entertaining, which is reproduced at a larger size near the end of this newsletter. We particularly enjoyed the lower right corner of that page.



Finding everything to be in order, the steely-eyed Kommandant exercises the Stevie Wonder method of guiding the *Fightin' Skywagon* back to the home 'drome

## Corrosion Control - Galvanic Table

Or, What The Engineer Meant To Say...

Author's comments: The original article containing the Galvanic Table below was published in August 1997 in EAA Chapter 34 "Skywriter" and EAA Chapter 1000 "Leading Edge." Subsequently it was placed on the EAA Chapter 1000 website, <http://www.eaa1000.av.org>, with other articles on corrosion control.

Thanks to David Richard of Pilatus Aircraft Ltd., Materials, Processes & Standards, errors were found (May 2004) in metal descriptions 41, 42, 68, and 75. These have been corrected in the presentation below.

In addition there is some uncertainty as to relative placement of metals 80 and 89 although they agree with the latest version of MIL-STD-889B. Also, there appears to be an omission of Stainless Steel 347 (passive) in MIL-STD-889B.

Mr. Richard also noted that the McNally Institute in "<http://www.mcnallyinstitute.com/Charts/galvanic-series.html>" presents another Galvanic Chart, however, they do not say whether the electrolyte was sea water. Any galvanic table is valid only with the corresponding electrolyte (i.e. a galvanic table for tap water looks different.)

Below is the corrected table for the 1997 article.

Listed below is the latest galvanic table from MIL-STD-889. I have numbered the materials for future discussion of characteristics. However, for any combination of dissimilar metals, the metal with the lower number will act as an anode and will corrode preferentially.

The table is the galvanic series of metals in sea water from Army Missile Command Report RS-TR-67-11, "Practical Galvanic Series."

### The Galvanic Table

Active (Anodic)

1. Magnesium
2. Mg alloy AZ-31B
3. Mg alloy HK-31A
4. Zinc (hot-dip, die cast, or plated)
5. Beryllium (hot pressed)
6. Al 7072 clad on 7075
7. Al 2014-T3
8. Al 1160-H14
9. Al 7079-T6
10. Cadmium (plated)
11. Uranium
12. Al 218 (die cast)
13. Al 5052-0
14. Al 5052-H12
15. Al 5456-0, H353
16. Al 5052-H32
17. Al 1100-0
18. Al 3003-H25
19. Al 6061-T6
20. Al A360 (die cast)
21. Al 7075-T6
22. Al 6061-0
23. Indium
24. Al 2014-0
25. Al 2024-T4
26. Al 5052-H16
27. Tin (plated)
28. Stainless steel 430 (active)
29. Lead
30. Steel 1010
31. Iron (cast)
32. Stainless steel 410 (active)

## THE LEADING EDGE

33. Copper (plated, cast, or wrought)
  34. Nickel (plated)
  35. Chromium (Plated)
  36. Tantalum
  37. AM350 (active)
  38. Stainless steel 310 (active)
  39. Stainless steel 301 (active)
  40. Stainless steel 304 (active)
  41. Stainless steel 430 (passive)
  42. Stainless steel 410 (passive)
  43. Stainless steel 17-7PH (active)
  44. Tungsten
  45. Niobium (columbium) 1% Zr
  46. Brass, Yellow, 268
  47. Uranium 8% Mo.
  48. Brass, Naval, 464
  49. Yellow Brass
  50. Muntz Metal 280
  51. Brass (plated)
  52. Nickel-silver (18% Ni)
  53. Stainless steel 316L (active)
  54. Bronze 220
  55. Copper 110
  56. Red Brass
  57. Stainless steel 347 (active)
  58. Molybdenum, Commercial pure
  59. Copper-nickel 715
  60. Admiralty brass
  61. Stainless steel 202 (active)
  62. Bronze, Phosphor 534 (B-1)
  63. Monel 400
  64. Stainless steel 201 (active)
  65. Carpenter 20 (active)
  66. Stainless steel 321 (active)
  67. Stainless steel 316 (active)
  68. Stainless steel 309 (passive)
  69. Stainless steel 17-7PH (passive)
  70. Silicone Bronze 655
  71. Stainless steel 304 (passive)
  72. Stainless steel 301 (passive)
  73. Stainless steel 321 (passive)
  74. Stainless steel 201 (passive)
  75. Stainless steel 286 (active)
  76. Stainless steel 316L (passive)
  77. AM355 (active)
  78. Stainless steel 202 (passive)
  79. Carpenter 20 (passive)
  80. AM355 (passive)
  81. A286 (passive)
  82. Titanium 5A1, 2.5 Sn
  83. Titanium 13V, 11Cr, 3Al (annealed)
  84. Titanium 6Al, 4V (solution treated and aged)
  85. Titanium 6Al, 4V (anneal)
  86. Titanium 8Mn
  87. Titanium 13V, 11Cr 3Al (solution heat treated and aged)
  88. Titanium 75A
  89. AM350 (passive)
  90. Silver
  91. Gold
  92. Graphite
- End - Noble (Less Active, Cathodic)

More Authors Notes: The early versions of AC43.13 starting at Par 247, briefly covered several types of corrosion and corrosion protection. The grouping of materials was an early method published in MS33586 which was superseded in 1969 by MIL-STD-889.

AC 43-13-1B/2A, September 1998, gives excellent descriptions of the various types of corrossions and corrective measures.

The section of the 1997 "Galvanic Table" article, "More on Galvanic Table (Almost straight from MIL-STD-889)" is still valid as shown on EAA Chapter 1000 website.

Both the 1997 article and the 1998 AC 43-13-1B should be read and studied together. Both have much of the same material but also have differences in approach. The 1997 article is more design oriented and the 1998 AC is more maintenance oriented.

- **Lee H. "Erb the Elder" Erb**

EAA Chapter 1000 Det 5, Arlington, TX  
lerb@ev1.net

### Project Police Aircraft Spotters Quiz

**Evil Editor Zurg** has uncovered yet another obscure aircraft photo.



Now your part is easy—simply identify the aircraft and send that information to [erbman@pobox.com](mailto:erbman@pobox.com) or to the editor's address seen on the last page of this newsletter. Include any other information you know. Links to web sites with more info are a plus. Next month we'll tell you who (if anyone) was correct.

### Web Site Update

As of 6 June 2004, the hit counter stood at **91151**, for a hit rate of about 25 hits/day for the last month.



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.

**LEARN  
WHAT YOUR  
INSTRUCTOR  
MEANS BY  
THESE HAND  
SIGNALS**



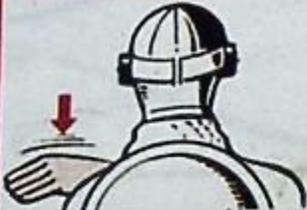
1. Shakes Stick and Points to Student  
Student Take Controls



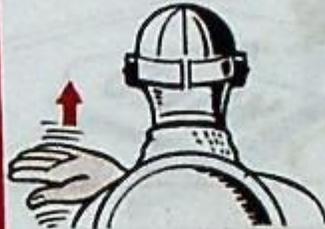
2. Taps Self on Head  
Student Release Controls to Instructor



3. Instructor Opens and Closes Hand  
Student is Tense ... RELAX



4. Downward Motion of Palm  
Toward Wingtip  
Student Bank or Lower Indicated Wing



5. Upward Motion of Palm  
Toward Wingtip  
Student Raise Indicated Wing



6. One Finger, Circular Motion  
Check You Tachometer and  
Throttle Setting



7. Instructor Taps Ear  
Student Apply Rudder Right or  
Left as Indicated



8. Instructor Points Right or Left  
Student Change Flight Direction  
as Indicated



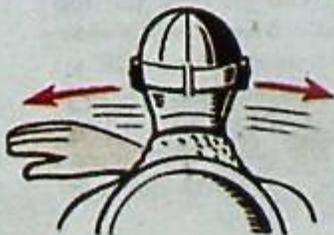
9. Hand Extended with Thumb  
Toward Student  
Hold and Maintain This Heading



10. Upward Motion with Palm  
Toward Student  
Raise or Elevate Nose of Plane



11. Down Motion of Hand  
Lower or Depress Nose of Plane



12. Hand, Palm Flat, in  
Sweeping Horizontal Motion  
Level Off or Maintain Altitude



13. Opening and Closing  
Thumb and Finger  
Check Altimeter



14. Taps Student on Head  
PLEASE Release Controls to  
Instructor

**Chapter 1000 Calendar**

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

Jul 27 – Aug 2: EAA AirVenture 2004, Oshkosh WI

Aug 3: No EAA Chapter 49 Monthly Meeting? (Check first), 7:30 p.m., General William J. Fox Field, Lancaster, CA. (661) 948-0646

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

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

Sep 7: EAA Chapter 49 Monthly Meeting, 7:30 p.m., General William J. Fox Field, Lancaster, CA. (661) 948-0646

**Sep 11: Lancaster Aerospace Walk of Honor Street Fair**, Lancaster CA. (661) 609-9042

Sep 11: EAA Chapter 49 Old Fashioned Fly-In, General William J. Fox Field, Lancaster, CA. (661) 948-0646

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

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

Oct 5: EAA Chapter 49 Monthly Meeting, 7:30 p.m., General William J. Fox Field, Lancaster, CA. (661) 948-0646

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

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

Nov 9: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., High Cay, 4431 Knox Ave, Rosamond CA. (661) 609-0942

**Nov 16: 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.

Contact our officers by e-mail:

President/Flight Advisor Gary Aldrich: gary.aldrich@pobox.com  
 Vice President George Gennuso: pulsar1@sbcglobal.net  
 Secretary Kent Troxel: ktroxel@antelecom.net  
 Treasurer Doug Dodson: dodsond@qnet.com  
 Technical Counselors: Gary Sobek GASobek@Comcast.net  
 Ron Wilcox avi.ator@verizon.net Bill Irvine wgirvine@yahoo.com

**EAA Chapter 1000 Technical Assistants**

<i>Composite Construction</i>		
<b>Doug Dodson</b>	dodsond@qnet.com	661-256-7276
<b>George Gennuso</b>	pulsar1@sbcglobal.net	661-265-0333
<b>Brian Martinez</b>	brianmmartinez@cs.com	661-943-5379
<b>Bob Waldmiller</b>	waldmilr@qnet.com	661-256-0932
<i>Wood Construction</i>		
<b>Bob Waldmiller</b>	waldmilr@qnet.com	661-256-0932
<i>Aluminum Sheet Metal Construction</i>		
<b>Bill Irvine</b>	wgirvine@yahoo.com	661-948-9310
<b>Miles Bowen</b>	cessna170bdriver@yahoo.com	661-822-0806
<b>Russ Erb</b>	erbman@pobox.com	661-256-3806
<i>Welding/Welded Steel Tube Construction</i>		
<b>Russ Erb</b>	erbman@pobox.com	661-256-3806
<i>Engine Installation</i>		
<b>Bob Waldmiller</b>	waldmilr@qnet.com	661-256-0932
<b>Doug Dodson</b>	dodsond@qnet.com	661-256-7276
<i>Electrical Systems</i>		
<b>Miles Bowen</b>	cessna170bdriver@yahoo.com	661-822-0806
<i>Instrumentation and avionics requirements for VFR/IFR</i>		
<b>Gary Aldrich</b>	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 CORRECTION REQUESTED**

**THIS MONTH'S HIGHLIGHTS:  
 REGULAR MEETING 20 JULY AT TPS  
 GOLDENWEST FLY-IN REPORT  
 GALVANIC TABLE CORRECTIONS  
 COMM-OUT INSTRUCTOR SIGNALS**



**The Leader In Recreational Aviation**