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	*(howzabout you?)*	
Treasurer	*Doug Dodson*	*661-256-7276*
Newsletter Editor	*Russ Erb*	*661-256-3806*

http://www.eaa1000.av.org *July 2002*

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:

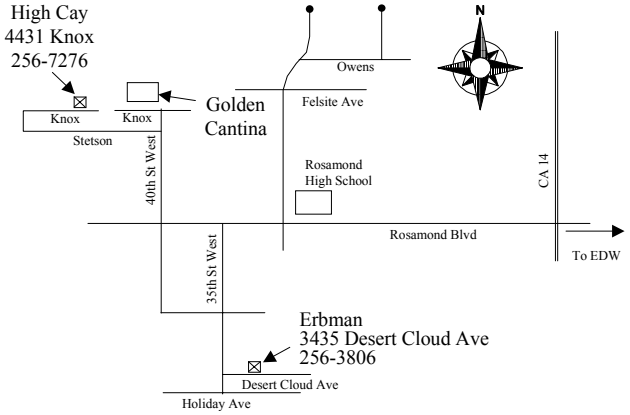
PROJECT POLICE OFFICER TRAINING FIELD TRIP IV, HUMAN FACTORS T&E AND COOKOUT

Tuesday, 16 July 2002
1700 hrs (5:00 PM Civilian Time)
Erbman and Opie Workshops
Rosamond, CA

On the road again, da da dee de da da da… da da…yup, that old Willie Nelson tune has been rattling around my head since I talked to Russ about three or four weeks ago concerning this meeting. As you could probably tell by the song, this month has us on the road for a couple of reasons. First we are going to look at the progress evil newsletter editor Zurg (**Russ**) is making on the Bearhawk. If you remember that when last we left Zurg he was proudly displaying his almost completed wings. Well, hang onto your beanie's folks, a lot has changed. Not only have the wings been completed, they hang as trophies in the **Kommandant** and **Vice Kommandant** hangars, one wing in each thank you very much. When asked, I merely tell them that the Pulsar is to become a bi-plane soon.

In the mean time Russ has been a busy boy. The big move…Russ and Penny now have a new residence. I know, I know, how could anyone want to move out of base housing. But they did, and bought a beautiful house a stones throw (*assuming you've got a really good arm...*) from Rosamond Sky Park (L00). There the crew has been working overtime setting up the house and the all-important shop (complete with hush house for the compressor). I believe Russ told me that he and Penny toiled for a hundred days and a hundred nights to get everything set up (*and we're still not through...*). In addition the fuselage, started at the Doolittle house, is welded and sporting a seat for those inclined to sit in and make airplane noises. No, really, Russ would like our input on the seating position in relation to the rudder pedals, so we all get a little stick time (Dang, this is going to be fun!).

I believe that after sampling the standard Chapter 1000 issue Chocolate Chip Cookies our appetites will be all warmed up for some sumptuous eating. And since it is summer, the days are long and warm, what better time to go over to **Doug** and **Gail's** house (**High Cay**) for further testing of the Chapter 1000 BBQ? That's right, your's truly will be grilling up some tender tube steaks and anything else that needs grilling. Mark your calendars and lets all have a little summer time fun.



- George "Knife" Gennuso
Vice Kommandant

Final Flight

The ***Project Police*** have received word of the passing of long-time ***PPO*** **Roland S. Harris III**. We have not heard any details of the nature of his passing. Roland, a member since 1995, also served as a Technical Counselor for Chapter 1000. The following obituary was forwarded by Vice Kommandant Gennuso:

HARRIS, Roland Secretary, III, born April 5, 1963, died June 28, 2002, at the age of 39. Survived by his wife Sonya Harris of Rosamond, parents Sue and Rolland Harris Jr. of South Dakota, brother Rick Harris of Arizona, step daughter Heidi Cooper of Lancaster, and five grandchildren, Courtney, Sean, Marissa, Tabitha, and

Cairre Anne. Services will be held at 11:00 a.m. Tuesday, July 9, 2002 at Stickel Mortuary, 2201 Inyo St. Mojave. Any and all persons who wish to attend are welcome. Immediately following a gathering for the family and friends.

Last Month's Meeting

EAA Chapter 1000
Scobee Auditorium, Test Pilot School, Edwards AFB
1700, 18 June 2002
Gary Aldrich, Presiding

Schmoozing, Visitors, Announcements, Old Business, New Business

We schmoozed, as is our custom. The **Schmoozemeister** had not been working at his usual location, and as a result was not able to patronize his usual schmooze snacks provider. As a result, we had the chance to test a different form of Chewy Chips Ahoy!, which I seem to remember as being a chocolate-chocolate chip cookies.

We also had a "visitor", who was actually a member. **Vern Blomquist**, one of the Founding Fathers of EAA Chapter 1000, was in town, visiting from the Pacific Northwest. Ten years of civilian life has changed his appearance to the point that none of us who knew him before recognized him—he had to introduce himself to the group. One of Vern's contributions to the chapter was starting the **Design Group**, which was the precursor of our post-meeting aviation-problem-solving-but-not-documenting gatherings at the BK Lounge.

We moved to the Auditorium, and after a few pleasantries, we watched an improved copy of "Tough Sledding" courtesy of the AFFTC History Office. Once again, the best part was seeing our **Vice-Kommandant** in his breechcloth. This was followed by a couple of humorous shorts (sic) about the Lighthouse of Lehman Ridge and "The F-86s Are Here".

Program

After this silliness, the **Vice-Kommandant** introduced our guest speaker **Dave Goddard**, who spoke to us about his time as a UH-1P Huey gunship pilot for the 20th Special Operations Squadron in Viet Nam, Laos, and Cambodia. I won't bother repeating all of the excellent info that George provided for us in last month's newsletter.

After an accounting of how he, as an Air Force pilot, came to be flying helicopters in Viet Nam, Dave gave us a description of his helicopter(s) and the bases he operated out of. Unlike today's Air Force where crashing an aircraft can be the end of your career, Dave told us that at that time, helicopters were like Doritos®, as in "Go ahead and crash 'em, we'll make more."

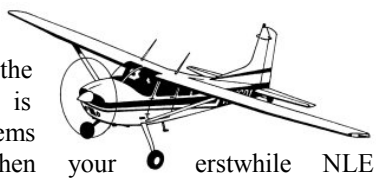
Dave's most memorable story was about the day he was shot down. His helicopter was shot down while providing fire support for an aircrew rescue. Through Dave's superior piloting skills, he was able to put the helicopter on the ground with no injuries to his crew. They then proceeded to sit on the ground for a few hours, listening to the jungle. They were then rescued shortly before the same enemy patrol that shot them down got to their position. Their helicopter was later retrieved by Skycrane, rebuilt, and flown again.

Epilogue

As was our custom, we invited Dave to join us at the hottest franchised burger place on the base, the **BK Lounge**. After a few of the usual questions relating to Dave's presentation, we started asking Dave about his current activities building custom furniture. I didn't know it was possible to earn advanced degrees in wood working, but Dave has a list as long as your arm. He does the work in his garage, where his wife doesn't let him have an air conditioner (!). One interesting comment he made was that production furniture companies use a lot of adhesives (glue) in today's furniture. Dave's furniture harkens back to an older time when furniture was held together by precision joinery, not by nails and glue.

- Erbman
Pseudo-Secretary

Kommandant's Korner



Wow! The Fourth of July has come and gone...and the Summer flying season is well underway. It seems like weeks ago when your erstwhile NLE and I decided to stage a ***PPTAF*** raid on **Bob Mackey**, aka **Vice Grand-Poobah for Chapter Stuff** (did I get that right, **Bob**, or have you been promoted?). Anyway, the big Skywagon foray is just around the corner now and we're deep into mission planning. Look forward to a report on the adventure in the coming months.

In the meantime, I hope everyone of you who has a functional set of wings is out there exercising them. Of course, in today's higher state of paranoia (oops, I mean vigilance), it is paramount that we present the safest, most security conscious face to the general public. Whenever you are around John Q. (Public, that is...) please be sensitive to the fact that your airplane and your right to fly it are an easy trade for a perceived reduction in the terrorism threat in the minds of folks who neither own or fly "little airplanes" like ours. You and I know that a 3000 lb Skywagon laden with 80 gallons of 100LL would hardly dent a high-rise, let alone an armored nuclear reactor...even if one of us could be persuaded to use it as a weapon; but there is no fear like the fear of the unknown. So, when talking to your non-flying friends, make sure you actively debunk the ludicrous notion that sport aviation is a security threat. And when you're exercising your right to avigate in our local flyways be professional; both on the radio and in your pre-flight preparation so that we can avoid those embarrassing episodes like the poor disoriented chap that encroached on the White House in his Skylane. All the "alphabet organizations" are fighting the good fight, but we are under a microscope, folks; and we need to put out the

extra effort that will insure that we keep the privileges we currently enjoy. At this, our Nation's birthday; I can think of no better celebration of our liberty than lifting off in your own personal air-chariot and cruising over the "purple mountains' majesty".

Fly Safe, Fly Smart, Fly Professional...and check six!

- Gary Aldrich
Kommanding

Young Eagles Update

Well, the weather gods smiled on us again. The forecast 40kt winds held off until late Saturday. Although many of us from the Antelope Valley area had rather "interesting" flights up the Owens Valley on Friday and early Saturday morning due to headwinds and turbulence, the early morning at Bishop was dead calm, and flyable winds persisted until after each of the 64 Young Eagles (as well as several others too young or old...er, uh, experienced, to qualify) had had his/her ride.

Many thanks to Steve Ivey and company at Bishop who masterminded this rally for us. Other than falling a bit short of our estimate, we couldn't have asked for a better rally. Steve's excellent organizational skills and hard work really paid off.

With 8 pilots from the Owens Valley and 6 from our area, and probably as many ground crew (not all signed in) the load was well spread out. The following pilots and aircraft participated:

Pilot	Type	#YE
Bruce Ivey	Cessna 182	5
Peter Tracy	Bonanza A36	5
Jack Schweizer	Cherokee 180	5
Arnie Peterson	Cherokee 180	7
Barbara Rowell	Cessna 206	2
Gary Aldrich	Cessna 180	7
Miles Bowen	Cessna 170	4
Peter DeWitt	Cessna 172	9
Ed McKinnon	Mooney 231	1
Carla Scheidlinger	Cessna 182	5
Rod Philbrick	Cessna R172	3
Wen Painter	Cessna 182	5
Ozzie Levi	Bellanca	2
Raymond Powell	Cessna 182	4

Those who signed in as ground crew plus those who I remember were there but didn't sign up are as follows:

Steve Ivey (Organizer)	**Teresa Ivey**
Rex Allen	**Karen Steinaway**
Len Voelker	**Ron Wilcox**
Russ Erb	**Lisa Kline**
Jerry ??	

There were many others who didn't sign up. Steve Ivey will be sending me a list so they can be recognized in the year-end report.

Remaining Rallies for 2002

August 10	Fox	8:00 am
September 21	Fox	8:00 am
October 19	Tehachapi	9:00 am
November 16	Fox	9:00 am
December 14	California City	9:00 am

- Miles Bowen
EAA Chapter 49/1000 Young Eagles Coordinator
av_youngeagles@yahoo.com
(661)822-0806 (home)
(661)275-6528 (work)

Just An Old Fashioned Fly-In V

William J. Fox Airfield, Lancaster, CA, will be the site of the Fifth Annual "Old Fashioned Fly-In" Saturday, September 14, 2002. The event is open to the public. Pancake breakfast will be served from 7:30 to 10:30. The spot landing contest will be from 7:30 to 9:00. Lunch will be available from 11:00 to 2:00. Free raffle for fly-ins at 1:00. All day swap-a-ride. There will be no airshow, judging or registration fees. Listen to ATIS for spot landing and ramp parking information. For more information email **ozzielevi@antelecom.net** or check the web site **www.eaa49.av.org**.

(*At long last, a techie article...*)

Which Is More Important, Torque or Horsepower?

(*The following was a message posted to the Bearhawk e-mail group in response to the title question...*)

The recent discussions about torque and horsepower have supported my suspicion: lots of people understand engines and how to control the torque and horsepower coming out of them, but very few people understand props and their interaction with the engine.

To answer the original question of whether it is more important to have high torque or high power, we need to consider the prop.

Imagine you've just won the European lottery and you've received payment of several million Euros. However, you live in an obscure place that has no place to convert your Euros into dollars. Therefore, you just have several bags of useless metal and paper cluttering up your shop.

Likewise, you can have the best tricked out engine, putting out lots of torque and horsepower, but it's just a big noisemaker without a good propeller to convert that power into thrust.

If you review Newton's laws, you will see that any system in equilibrium (not accelerating) any force must be

offset by an opposite force. If you are talking rotational motion, then any torque must be offset by an opposite torque. If the torques are not matched, then the system will speed up or slow down until the torques are matched.

So you're an engine, spitting torque out your shaft. What does that torque accomplish? It spins the prop. Because the prop doesn't keep accelerating to an infinite speed, we know that it must be producing an opposing torque. Where does this torque come from? If you remember that a prop can be considered as a rotating wing, then you remember that a wing creates drag. Applying that drag force through a moment arm creates the opposing torque.

But just because you have lots of torque doesn't mean you have anything useful. You could mount a 2x4 on the shaft and eventually it would create enough torque to offset the engine torque. But would this give you a flyable airplane? I suspect not. The point is you need a prop that can produce lots of thrust while producing the appropriate torque to keep the engine at the desired RPM.

Back to the wing analogy. Thrust is similar to lift, and torque is similar to drag. We could look at a ratio of Thrust/Torque, which would be similar to the ratio of Lift/Drag. On a wing, the L/D ratio depends on the angle of attack. The angle of attack of the propeller blade depends on the forward speed of the aircraft and how fast the prop is turning.

If we do a little math trick, we will find that thrust times airspeed (T*V) has the units of power. We call this "thrust horsepower". Likewise, as previously mentioned, torque times RPM (Q*RPM) also has the units of power. We call this "brake horsepower" because it is the amount of power an engine could put into a brake used to measure power. Because these both have units of power, we can divide thrust horsepower by brake horsepower and get a number called propeller efficiency. Of course, because entropy exists, the thrust horsepower out will be less than the brake horsepower in. Typically you can get about 80% of the brake horsepower out as thrust horsepower.

So if we know the power output of the engine, we can multiply by the propeller efficiency the brake horsepower to find the thrust horsepower. So what offsets this thrust horsepower and keeps the airplane from accelerating to hypersonic speeds? Well, drag offsets thrust, so drag times airspeed (D*V) offsets the thrust horsepower. This is usually referred to as the "Power Required".

Note that the ability to produce thrust at zero ground/air speed is not terribly useful (other than initial acceleration on takeoff), since fixed pitch props will typically produce the most thrust in the static case, and the thrust for a given RPM will decrease as forward speed increases. (The exception to this is when the prop pitch is so high that the propeller blades are stalled in the static case--this was the case with the Nemesis prop--ever notice how Nemesis was the last one to takeoff but then accelerated past the field? The airplane had to get enough airspeed to unstall the prop before it could really start producing thrust. Cavitation is the same result on boat props.). What we really need is a propeller that can produce a useful thrust at a useful airspeed, such as our desired cruise airspeed. And what are the units on thrust*airspeed? Units of POWER. (By the way, this is why I put very little weight on spring scale measurements of static thrust--it tells me nothing about the cruise condition. You might be able to make the point that it would tell you something about how fast you could accelerate to takeoff speed.)

If you study the energy theory of aircraft performance, you will see that the vast majority of an aircraft's state can be described by its altitude (potential energy) and airspeed (kinetic energy). To change altitude requires a climb or dive, and rate of climb (dH/dt) has the units of POWER. Acceleration or deceleration are controlled by the term (V/g)(dV/dt) which also has the units of POWER.

Thus, the ability to change our flight condition (climb, accelerate) or just go fast (cruise) depends on the amount of POWER that we can transfer from the engine to the airstream.

But what about torque? Suppose you have an engine that has a maximum torque at 2000 RPM and maximum power at 2700 RPM, and it has an appropriate propeller mounted to it. Note that to create maximum torque at 2000 RPM, the engine must be at full throttle while at 2000 RPM. However, when you adjust it to run at 2000 RPM, you notice that you're still at part throttle. You could advance the throttle, but then the prop spins faster. A properly matched propeller should allow the engine to turn at 2700 RPM at full throttle (for some specified flight condition). At this point, the torque that the engine is producing is less than what it could do at 2000 RPM full throttle, but the product of torque and RPM (i.e. power) is higher, thus it turns the prop faster. How can that be? Because the torque drops off slower than the RPM rises, such that the product continues to increase up to 2700 RPM.

The big point: Engine manufacturers advertise power available, not torque available, because power is the determining variable for aircraft performance. To see this, you can't look at the engine alone. You must look at the engine/prop/airplane as a complete system.

As for the question about the weight (mass) of the engine internals affecting the torque available from the engine, the example given was a non sequitur. The engine with a large mass in the rotating parts, such as a large flywheel, has a larger ANGULAR MOMENTUM than the other engine. I could achieve the same effect as stated in the example using two identical engines, one with a very small flywheel and one with a very large flywheel. The one with the large flywheel would be harder to stop, but since the engines are identical, they will produce the same amount of torque on a continuous basis. The reason your heavier car could out-accelerate the lighter cars (at least initially) was that you had more angular momentum stored in the drive train that could be converted to torque (and also power) at the driving wheels for the initial start. Imagine if both cars were wired such that the engine stopped running as soon as the clutch made contact. Which would get farther down the road? The one with more energy stored in the flywheel as angular momentum.

In fact, you will find that most engine manufacturers actually try to minimize the weight (mass) of pistons, connecting rods, and other reciprocating parts. Consider

that in each half rotation of the crankshaft, the mass of the piston must be accelerated from a dead stop to maximum speed and back to a dead stop. The mass of the piston will directly affect the amount of force required to do that. That affects bearing loads and vibration levels.

I think that covers all of the outstanding questions. If not, throw your questions out again and I'll try again.

Russ "Erbman" Erb
Group Engineering Heavy
#164, Rosamond CA

Rich Turner Pays Up

Doug, I guess I have forgotten all about sending you the membership dues for this year. Come to think of it, I haven't even paid our local chapter dues either! I'm really getting behind with some things. I'll write a check tonight and get it sent right out to you.

How are you coming on the Glasair? Haven't heard anything from y'all out there in quite a while. I'm finally getting my hangar organized a little bit more so I can make room to start up construction on mine again. Though I may hold of on a lot of construction until later this fall when it get cooler. It's rather hot here during the summer, and the hangar isn't air conditioned (yet!) Maybe someday...

- Rich Turner

Acroduster Update

I thought I would provide an update from the far reaches of Melbourne FL.

My oversize rubber band (IO-540) has completed all its various overhauls and is about to be reassembled. The plan is to start the work late this month and have it done in a couple of weekends. I have all new bolts, a new starter, new alternator, Lycoming SI/SB/Overhaul Manual, etc. It should be very pretty when done and produce sufficient noise and horsepower for our Acroduster II.

I have also been doing a little bit of tail wheel instruction (1-2 hours a week). Without a doubt, flight instruction is one of the most rewarding things I have ever done in an airplane! It is exciting to realize that you have contributed to help make someone a better pilot.

But the best news is the development of my new wrench/torch/screws/bolts holder, co-pilot, tricycle motor, curtain climber, etc is coming along great! Lisa and I are not planning on "peeking" to find out what the "appropriate" colors should be. Besides grease looks good on blue as well as pink :-)! Mom to be is looking GREAT and we are collecting the "required" items to support the kid. Important things left to do are pick a name and get my large rubber band (see above) put together so it has less of a foot print in the spare room.

Well I have to go.

Cheers

- Chris "Mom" Shearer

I'm Done With The Fuselage, Now Where Do The Wires Go?

EAA Chapter 723 will be hosting a Bob Nuckolls Aeroelectric Connection workshop.

WHERE: EAA Chapter 723, Camarillo Airport (CMA)

WHEN: 21-22 September 2002

HOW: Register at http://www.aeroelectric.com/seminars.html

COST: $150 for 2 full days of class

Coordinator for this event is Mark Swaney, (805) 488-6220

Project Police Aircraft Spotters Quiz

All right, ***PPO*s**. Here's another airplane picture to try to stump you. This is only the second picture I've ever seen of this airplane (although once I thought about it, a web search returned several more). I know of one ***PPO*** out there who is familiar with this airplane, for reasons I can't reveal since that would give it away. He's already been disqualified for bragging rights, but is still required to send in his answer. You know who you are, and I expect to hear from you! Be sure to give us a good informational blurb on the airplane too.

As for the rest of you, send your guesses to your faithful Newsletter Editor at erbman@pobox.com or call or snail mail at the number or address shown on this newsletter. All will be revealed next month....

Web Site Update

As of 7 Jul 02, the hit counter stood at **74125**, giving a hit rate of 35 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.

Chapter 1000 Calendar

Jul 16: EAA Chapter 1000 Monthly Meeting, 5:00 p.m., 3435 Desert Cloud Ave, Rosamond CA. (661) 609-0942

Aug 10: Young Eagles Rally, 8:00 a.m. General William J. Fox Field, Lancaster, CA. (661) 822-0806

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

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

Sep 4: EAA Chapter 49 Monthly Meeting, 7:30 p.m., General William J. Fox Field, Lancaster, CA. (661) 948-0646

Sep 6-8: Golden West Fly-In, Yuba County Airport (MYV), Marysville California.

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

Sep 14: Just An Old Fashioned Fly-In V, General William J. Fox Field, Lancaster, CA. (661) 948-0646

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

Sep 21: ***Operation Rubidoux Sundown X***, Flabob International Airport. (661) 256-3806

Sep 21: Young Eagles Rally, 8:00 a.m. General William J. Fox Field, Lancaster, CA. (661) 822-0806

Oct 8: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., High Cay, 4431 Knox Ave, Rosamond CA. (661) 609-0942

Oct 10-13: Copperstate Regional EAA Fly-In, Phoenix Regional Grand Valley Airport (A39), Phoenix AZ

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

Oct 19: Young Eagles Rally, 9:00 a.m. Tehachapi Municipal Airport, Tehachapi, CA. (661) 822-0806

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@qnet.com
Secretary (volunteer for this job!)
Treasurer Doug Dodson: dodsond@qnet.com
Technical Counselors: Gary Sobek gasobek@pacbell.net, Ron Wilcox rwilcox@qnet.com

EAA Chapter 1000 Technical Assistants

Composite Construction		
Doug Dodson	dodsond@qnet.com	661-256-7276
George Gennuso	pulsar1@qnet.com	661-265-0333
Brian Martinez	brianmmartinez@cs.com	661-943-5379
Bob Waldmiller	waldmilr@qnet.com	661-256-0932
Wood Construction		
Bob Waldmiller	waldmilr@qnet.com	661-256-0932
Aluminum Sheet Metal Construction		
Miles Bowen	mbowen93561@yahoo.com	661-822-0806
Russ Erb	erbman@pobox.com	661-256-3806
Welding/Welded Steel Tube Construction		
Russ Erb	erbman@pobox.com	661-256-3806
Engine Installation		
Bob Waldmiller	waldmilr@qnet.com	661-256-0932
Doug Dodson	dodsond@qnet.com	661-256-7276
Electrical Systems		
Miles Bowen	mbowen93561@yahoo.com	661-822-0806
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 CORRECTION REQUESTED

THIS MONTH'S HIGHLIGHTS:
PROJECT TOUR/FREE FOOD 16 JUL
TORQUE OR HORSEPOWER?
ACRODUSTER UPDATE
ID THE OBSCURE AIRPLANE

EAA™
The Leader In Recreational Aviation