



# Chapter Seven *Long Beach*

## President's Message

By George  
McDaniel

The B-17 will be here at the end of the month and your fellow chapter members have been working diligently to get things prepared. I hope everyone plans to come out and help and experience the excitement this great opportunity creates. The B-17 is scheduled to arrive on Thursday October 31<sup>st</sup> (Halloween) about 3:00pm. There will be a media flight set up for a few select members of the media and we will be hosting a welcoming party. Kendle Hanson has been working on inviting as many B-17 alumni as she can find, pilots and crewmen, WASPS and builders and lots of other B-17 historians. The personal touch is what the media eats up and Kendle has done a great job of finding lots of people with great personal experiences with B-17's. Everyone is welcome to attend the "B-17 Welcome Party" We will start setting up about 2:00pm and will run until about 6:00pm. Beginning Friday morning we will start working and will need lots of volunteer help. Please try to come help at least one day. We will start setting up at 8:00am and be finished about 6:00pm This can make for a long day and the more people that volunteer the easier it is on everyone. There is something everyone can do so don't hesitate to come help. I will be able to answer any questions at the meeting. Please see the flyer located in this newsletter for more information on the B-17 tour.

Also this month the AOPA will be having its annual Convention in Palm Springs. I will be attending along with Mike Sawicki. I think it will be a lot of fun, I remember the one in Long Beach in 2000. Let me know if you plan to attend so we can get together.

This is the time of the year we are supposed to start thinking of electing new officers. If you would like to run for an officers position or be on the Board of Directors please let me know at the meeting and we will be sure to elect you for what ever position you want..... Ever get the feeling that some people take things a little too seriously? Remember guys we are all volunteering our time and energy and no one is perfect. This is all supposed to be fun, entertaining and educational. If you don't like the way someone is doing a job, offer suggestions and volunteer to help. Everyone likes to get help.

Please thank the people that put their time and energy into keeping this Chapter together

See you at the meeting.

## VP's Chat Room

By Don  
"Crash"  
Thompson

Program -- Oct 10, 2002

Our program this month will be Mr. Ken Wright. He will share his WWII experience with a presentation on "B-17 Night Bombing." So all you air heads show up, bring a friend and share the era.

We have our Christmas Party location and date -- Lakewood Country Club in the Fireplace Room on Saturday, December 21. The board will meet to make final menu choices and set the price. There are some variations to the cost of food choices. We will have nice surroundings, good food and friends to share our Holiday cheer with!! Put the date on your calendar and plan to join the party!!

If you have leads or information on a topic of interest to our members, please contact me to follow-up for a program schedule. Tel: 562 / 498-0862.

See you at the meeting.

## Secretary's Note Pad

Submitted by  
Merv Meyer



## BOARD OF DIRECTORS Meeting of Sep 12, 2002

George McDaniel, Chapter President, distributed volunteer sheets for the EAA B17, visit, beginning November 1. Tom Griffith and Kendle Hanson will co-chair the committee handling media contact and promotions. Don Thompson will chair merchandising

and ground tours. Don Myhra will chair the volunteers and equipment committee.

One seat will be set aside for the B17 flight from Long Beach to the next tour stop, Palm Springs Airport. It will be a free, award seat, possibly for a former B-17 pilot.

It will be necessary to set up barricades and visitors line, and to monitor the visitors line.

**Voting rights in a chapter require not just chapter membership but membership in EAA National also.**

## MEETING MINUTES

General Meeting  
September 12, 2002

Attendance: 30

George McDaniel, Chapter President, led members in the Pledge of Allegiance to the Flag.

## OLD BUSINESS

Woody Fowler, Chapter Treasurer, gave his report. He proposed a memorial contribution to the Air Academy scholarship fund. He wants to establish a permanent scholarship fund which will accumulate interest. George McDaniel will find out the cost of a guaranteed scholarship slot at the EAA Air Academy. George Pinneo moved that the Treasurer's report be approved. Robert Powelson seconded the motion. The motion carried.

78 Young Eagles were flown at the recent event at Chino Airport sponsored by Chapter 92. Mike Stearns of this chapter helped out as a Young Eagles pilot. George McDaniel helped out as a volunteer and urged volunteers there who were not EAA members to join the EAA.

Mike Stearns reported that the Golden West event, held the first weekend of September at Marysville Airport, had about 10,000 visitors.

Videotapes are available for checkout on the table next to the officers' table.

## NEW BUSINESS

Guests were introduced:  
ROGER BONHAM  
AL GERMAN, program presenter

George McDaniel told members that that the EAA B17 will be parked at AeroPlex instead of at Mooney

Aircraft. He expects help during the B-17 visit from Chapter 92 and Chapter 96.

Chuck Newcomer, designated I.A., told members that the annual inspection is worth the money, to prevent accidents. It is good to have a second set of eyes to check out the aircraft to prevent parts failure. He displayed a section of fuel line with pinhole corrosion, damage that is not readily noticeable.

There are no plans for the annual Christmas party at this time. Don Thompson, Chapter Vice President, will report on arrangements at the next meeting.

It appears that one of the requirements of an award-winning newsletter is a name. To date our newsletter has no name. Don Thompson suggested that the newsletter be designated the newsletter of the Smith Chapter. Frank Smith was a charter member of Chapter, in fact, the first President, and the designer the Smith Miniplane, an aerobatic single-seater biplane.

Tom Griffith, Membership Coordinator, distributed badges to four new members: LOUIS BIGELOW, CHUCK WALKER, JIM CLARK, SCOTT WALTON

Darwyn Wolff, Young Eagles Coordinator, circulated the volunteer roster for the Saturday, October 19 Young Eagles event. He told members that the signature form is available on the internet if a member flies a Young Eagle at other than a Young Eagles event. Darwyn will provide the Young Eagle certificate in this situation.

Don Thompson displayed photos of the Cessna 150 that he and three other owners bought and repaired. It is now undergoing an annual check. There was only one area of corrosion; the cockpit floor. The six-cylinder engine was rebuilt; it has chrome cylinders. The previous owner owned the 150 for 17 years. It was in a flight school. The fuselage is in good shape. Don reminded members that there are EAA events on the next seven consecutive weekends. These events depend on membership support.

George McDaniel told members that the Temecula wine tour with Chapter 92 is still on. Check with Don Myhra for arrangements.

Walt Lane's Vari-EZ made its first flight.

## PROGRAM

Al German, program presenter, reviewed updates on local controlled airspace. He went over the charts with members. He discussed Class A, C, E and G airspace, and the impact on surface neighborhood restrictions on flight patterns and routes.

# REFRESHMENTS

OCTOBER ..... Woody Fowler  
NOVEMBER ..... Rick Thomas

If you would like to volunteer for refreshments please contact George McDaniel. Day 562 / 630-1175, evening 949 / 951-0957.



## The Christavia Saga The Good & The Bad

by Rick Vaux, TC4130

Hello, Chapter 7.

This month won't be very technical, but I promised a progress report on the Christavia sooo... here we go.

First, a little history is in order. Skip McConnell started this project. He welded the fuselage, tail - feathers, landing gear, engine mount, and most clips and brackets. Skip built the left side window frame, right side door, battery compartment door, firewall, rudder pedals, control stick assembly, instrument panel, and seats. Fuselage and all tail surfaces were covered and finished through silver. All the wing ribs have been built, the ailerons are framed up, and the left wing spars are finished. A Mazda rotary engine complete with radiator and prop drive gearbox was mounted, and installation started. Whew! As you can see, the project was shaping up really nice.

Unfortunately, as the aircraft was being moved to it's present location, the landing gear collapsed, damaging the firewall, all belly stringers, stringer support former, landing gear vee, and engine mount. Work was stopped and this was the condition of the airframe when I obtained it.

O.K., now think of what you know about me. Do the words Hard-Ass, Picky, Inflexible (Physically, and Mentally!), Low, and Slow sound familiar? For 2 days I looked at that fuselage, trying to figure out how to repair it and leave the covering intact. In the end, I closed my eyes, slid the blade out of my utility knife, and made the first cut...all the while wiping tears away!

So, what have I accomplished: Well,

- (1)The covering is gone from the fuselage.
- (2) All fairings and stringers are removed.
- (3) The forward stringer former is gone and will be replaced.

- (4) The battery shelf and door frame have been cut away.
- (5) The instrument panel has been taken out, and all instruments removed.
- (6) The tail-wheel and forward horizontal stabilator mount is gone.
- (7) Elevator trim assembly , control stick assembly, and both sets of rudder pedals have been removed.
- (8) The landing gear "V" damage has been cut away and has been prepared for welded repairs.
- (9) Various other brackets and mounts have been taken off.

In short, I have a naked airframe sitting on saw horses! So, what's next? As a hide-bound traditionalist (See earlier paragraph,) I have decided to return the aircraft to it's original plans configuration. This includes changing the engine (probably an O200), replacing the elevator push rod with cables, and replacing the control stick assembly and torque tube, all of which get started after the....REPAIRS.

Sadly, removing some of the now unneeded components resulted in unavoidable damage to the primary structure. In addition to the landing gear repair, I am in the process of making steel reinforcement sleeves to be welded at 3 vertical tubes, 3 diagonal tubes, and 1 lower cross tube. After all repairs and un-modification, I'll have the fuselage and gear powder coated and start to reassemble it. Oh, one more item. I'm thinking about putting the wings (one at a time) beside the fuselage so I can work on both at the same time and maybe save a little time. I'll let y'all know how that works.

Well, gang, the month of October is my vacation, which means this column will be missing in November. Have a wonderful Thanksgiving and leave the light on for me.

If you have any questions or just want to talk, call me at (714)892-4753.

Rick Vaux , TC4130



by  
John Mahany  
CFI  
Member, Ch 7

I talked with KP Rice early this month, and he tells me he has his engine back from being overhauled. Maybe his flying car will fly this month!

Business has been slow, but I had an opportunity to fly this past week, going to Santa Barbara and back in a GPS equipped 172 at the Long Beach Flying Club, N19674. I flew with one of the 2 owners, to get some practice with the UPS/Apollo GPS unit.

The day was CAVU, and we picked up a tower enroute IFR clearance, navigating via GPS. Our routing went something like this: After takeoff, turn right heading 270, then Radar Vectors to LAX VOR, then Direct VTU (Ventura VOR), then direct KWANG Intersection (Initial Approach Fix) for the SBA GPS approach. Then Direct.

We programmed this into the GPS, and we also loaded the approach into the system before takeoff. It all worked out well. The owner knows this system better than I do, and he was pointing things out as we flew. At one point, when Pt. Mugu Approach told us to proceed 'direct KWANG', it was very easy to push the 'direct to' button on the unit, and enter 'KWANG'. We coordinated this with SBA ATC, and were able to do a practice approach, followed by a low approach and then we proceeded to the Missed Approach Fix, GOLET, where we entered the hold. It was really something watching the GPS automatically display all the necessary information, once we cycled the GOS/OBS button, telling it that we were now flying the published missed approach.

ATC gave us a more traditional routing on the return flight, via the airways. They probably did not realize we were GPS equipped. We did the RNAV (GPS) 30 approach into Long Beach. It is really neat to watch the GPS annunciator lights, which display the change in status of the sensitivity of the unit (the letters 'APPR' change from white to green light), as you approach the Final Approach Fix. When en-route, the GPS CDI (Course Deviation Indicator) is based on 5 NM course sensitivity, then when within 30 NM miles of the destination, sensitivity changes to 1 NM for the terminal area, automatically. Finally, within 2 NM of the FAF, it changes to 0.3 NM, for this critical phase of flight. As you pass the Missed Approach Point, and select the GPS/OBS button, the sensitivity returns to 1 NM.

This was a lot of fun, and I hope to be able to do more of this GPS flying, so, that I can learn it much better, and then teach it!

## Calendar of Events

The list of air-show and aviation events shown here are limited to 3 to 4 months in advance. If there is a event with Chapter participation such as the AOPA convention, it may be carried longer. With plans to establish committees within the chapter to organize events, there is hope to generate interest in attending most aviation events in the Southwest region, and fly-out events of our own for breakfast, brunch or local points of interest.

**Oct 5-13. Albuquerque, NM.** Annual Balloon Festival. You must schedule this for once in your lifetime. Contests, unique shapes, mass launch, night glow. Each day starts at **5:45 A.M.** 888 / 422-7277. [www.aibf.org](http://www.aibf.org)

**Oct 12. Rialto, CA.** Rialto Airport Open House. Ctc Lynn Mattox 909 / 989-4162.

**Oct 13. Riverside, CA.** Rubidoux Flabob Airport. EAA Chapter One meeting. Guest speaker: Dick Rutan on the XCOR rocket powered Long-EZ. BBQ starts 11:30 a.m. Meeting at 1:00 p.m. (See article for more details).

**Oct 10-13, 2002: Copperstate Fly-In.** Will be based at the **new Phoenix Regional Airport**. 3,600 ft **paved** strip. Plenty of camping. More details at [www.copperstate.org](http://www.copperstate.org)

**Oct 19, 2002:** Long Beach, CA. EAA Chapter 7 Young Eagles event at Aero-Plex, 3333 E. Spring St., Long Beach.

**Oct 19-20, 2002:** Van Nuys, CA. Van Nuys Air Fair. EAA Chptr 40 hosting the EAA B-17.

**Oct 19-20, 2002:** San Diego, CA. Miramar MCAS Open House. Blue Angels Demonstration Team

**Oct 24-26, 2002:** Palm Springs, CA AOPA Expo 2002. More details at [www.aopa.org](http://www.aopa.org)

**Oct 26, 2002:** Edwards AFB Open House. Brig. Gen. (Ret.) Chuck Yeager will be retiring from flying the military hardware by celebrating his final breaking of the sound barrier in an F-15 Screaming Eagle. Always a great show and unique aircraft on display. Be sure to say Hi! to EAA Ch 1000 Project Police. Some homebuilts are generally on display in the hangars.

**Oct 27, 2002:** Los Alamitos, CA. Wings, Wheels, Rotors Expo. Los Alamitos Reserve Center. Enter off Katella Ave. at AA Chapter 7 Young Eagles event at Aero-Plex, 3333 E. Spring St., Long Beach.

Be sure to check out the culinary delights available at the newly remodeled Wings Café at the APV Terminal Building. Owner and delightful operator Lydia DeMaio recently informed me that she bakes her pies and cakes right there at the restaurant with her own lily white hands, and from scratch, no less! Her sticky buns look good, too. No Betty Crocker assistance for Lydia, by golly. Check out her daily specials, too! Closed on Fridays.

**NEW ! El Monte now has a new restaurant on the field in the administration building. It overlooks the fuel pumps and mid-section of the runway. Bring along the score cards, sit by the window and rate the landings.**

Lynda's Food Shack at the Hesperia Airport is now open. Open for dinner 1700-2100, I don't know what the early hours are, but presumably 0700-1500.

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"I find that a great part of the information I have was acquired by looking up something and finding something else on the way."

--Franklin P. Adams

# So-Cal Corner

My sincere thanks to the chapters that are participating in the newsletter exchange between the southern California chapters. It is a source of news of other chapters in the immediate area. The classifieds in the newsletter are a good source of parts without having to buy sight unseen or have shipped cross-country. I urge you to support these other chapters and you may want to attend some of their events. Newsletter editors: please direct your snail-mail exchange newsletter to: 6710 Via Irana, Stanton, CA 90680-1921 or e-mail to: [always1@gte.net](mailto:always1@gte.net)

**EAA Chapter One.** Flabob Airport, Rubidoux, CA. Open house was labeled a rousing success. Next meeting Oct 13 will have Dick Rutan as guest speaker on the XCOR rocket powered Long-EZ. Met with Darlene Heller, newsletter editor. Suggested that all So-Cal editors meet to exchange ideas on how we manage to publish our monthly "rags". Chapter hangar construction held up by bureaucratic red tape; when have we heard that before. See copy at meeting. Applying for 501(c)(3) tax status.

**EAA Chapter 11:** Santa Monica, CA Newsletter bi-monthly. See copy at the meeting. Great selection of unusual aviation photos.

**EAA Chapter 14.** Brown Field, San Diego, CA. New web-site under construction. Large 17-page newsletter. Lot of news and activity. Web site: <http://www.eaa14.org>

**EAA Chapter 49.** Lancaster, CA. Thank you for your newsletter via snail-mail.

**EAA Chapter 92:** Orange County, CA. Now meeting each month in Santa Ana. Temecula wine tour was a delight. Joint venture with Chptr 7 on the B-17. Flew 70+ YE last event. Web site: <http://www.eaa92.org>

**EAA Chapter 96.** Torrance, CA. Hangar at Compton (CPM). Compton Air Fair (Sep 28) another success to demo airplanes, recruit members, and show off projects in the hangar. LOTS of activity and camaraderie. Web site: <http://www.geocities.com/ea96>

**EAA Chapter 40.** Van Nuys, CA. Preparations going well for the Van Nuys Air Fair (Oct 19-20). Chapter has gained the respect of the airport as a driving force to advance general aviation. That chapter hangar still has potential. New web site: <http://www.eaa40.org>

**EAA Chapter 71.** Bakersfield, CA. Have not seen their newsletter lately. Guys, if you read this, would like to see what is happenin' in your neck of the woods. Home of Harmon Rockets.

**EAA Chapter 494,** Corona, CA. Just had their local airport air faire. Chapter hanger, lots of projects.

**EAA Chapter 527,** Santa Barbara, CA. Great newsletter, see copy at the meeting table. Great activity in chapter.

**EAA Chapter 1000:** Edwards AFB, CA. Mtg held at Flight Test Museum. The Chapter Project Police raided the Chapter

One open house to spy on the projects there. They were presented with an "electric hammer" for their efforts.

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

**EAA Chapter 1340.** Twenty-nine Palms. Carol Davis resigned as editor. A true loss for many in that chapter. Hopefully they will have a volunteer come forth soon. Active chapter developing solid new home. See copy at meeting.

At this time I want to thank all the participating chapters. We look forward to other chapters joining the exchange. I wish I could publish all the interesting articles I read in the various newsletters.



**The  
Eagles Nest**  
*by Darwyn Wolff*

We have another large group scheduled for October 19<sup>th</sup>. The Young Eagle program is coming down the home stretch for the next 14 months and we want to "pour on the steam". The event will be held, as before, at the Aeroplex facility, 3333 Spring Street (just West of the Long Beach Airport Tower).

Volunteers will be needed to escort Young Eagles, do signups, teach ground school sessions and walk through pre-flights. Most importantly, we will need at least the usual showing of pilots and planes in order stay on a reasonable schedule. If you have never done Young Eagle flights come out and give it a try, help us share the fun and camaraderie.

Event setup should begin about 7:30 am and pilots should be ready after 8:00 am. Of course, your participation is still appreciated if you come somewhat later.

Remember, events like the Young Eagles Rallies show that we are determined to exercise the freedoms we are afforded and that we actively nurture and willingly share the future of aviation.

We'll see you at **Aeroplex Saturday, October 19<sup>th</sup> !**

## Rutan to Speak on XCOR

Mark your calendars for October 13, 2002 when EAA Chapter One will host a sensational film and slide presentation on the impressive XCOR EZ-Rocket tests being conducted by XCOR Corporation at Mojave, CA.

Dick Rutan, one of the Chapter One's own and Chief Test Pilot for XCOR, will be at Flabob to give the low-down on the latest uses of his brother's creations, the

business of developing and producing safe, reliable, and re-usable rocket engines.

So, be sure to attend their monthly Bar-B-Que starting at 11:30 a.m. Dick will be speaking at their membership meeting held at 1:00 p.m. Look for an informative program of new ideas breaking the mold.

## NORTHWEST PASSAGE

Again, Don Wiltse, a former member of EAA Chapter 7, has sent me some very useful information regarding imperfect rivets. If you are thinking about or building an aircraft using sheetmetal and rivets, here is some excellent information to consider.

### *Imperfect Rivets*

Two days ago I got around to doing something that I had planned last year -- actual pull tests on riveted aluminum coupons to see how critical it is to drive rivets to the correct height. All of us building or with completed RVs (as will those planning on it in the future) have had to wonder which imperfect rivets to drill out and which are OK. The answer is obvious when there is a severe cosmetic problem, but when strength is at issue, how much does a slightly under or overdriven rivet affect strength? How much does a grossly under or overdriven rivet affect it? Frankly, I had made the decision that the risk of damage from drilling out a flush rivet is greater than the benefit of doing so, unless an obvious cosmetic defect or really bad rivet is at issue. Now I have some hard data to go by.

What I did was to make up 10 test coupons. Each of these consisted of two pieces of .032 2024-T3 sheet 1.5 inches wide and 4 inches long. These two pieces were overlapped by 1.5 inches and riveted together with two parallel rows of 3 rivets each. Of the 10 total coupons, five involved the use of universal head AN 470 AD3 rivets and the other 5 used AN 426 AD3 flush rivets. In the latter case, both pieces of aluminum were dimpled at each rivet location, as is routinely done in Van's airplanes. In fact, the coupon construction is similar to the double rivet line where the lower outboard wing skin overlaps the lower inboard wing skin. This joint is loaded in tension normally for positive G flight and gave me the idea to mimic it for the pull tests.

Before getting into the results, let me ask you a question. Please think about the answer before proceeding. Just how many pounds of force do you think it would take to destroy one of the sheets used in making up the coupons? Remember this is .032, 2024-T3 sheet 4 inches long and 1.5 inches wide with no holes or rivets in it. Think about grabbing and suspending it at one end with some sort of clamp across the entire 1.5 inch width and then hanging weights on the other end from another clamp. How much weight would it take to break this .032 inch thick sheet? Would a 100 pound set of barbells do it? A 500 pound set? A 1200 pound small car? A gross weight RV8 at 1800 pounds? A gross weight Grumman Tiger at 2400 pounds? More than that? Come up with some sort of gut feel before proceeding. I

was surprised by the answer. You may or may not be, depending on your knowledge in this area.

Since some of you will cheat and read on, I'll hold the answer for a moment! Each of the 5 test coupons, both with the universal head rivets and the flush head rivets, was riveted to a different degree. One was grossly under driven, one was slightly under driven, one was correct per the rivet gauge, one was slightly over driven and the last was grossly over driven. The slightly under driven and slightly over driven rivets were such that you would probably need a rivet gauge to detect them -- I did this because I suspect that most of the rivets in our planes fall into this category. The grossly over and under driven rivets were really gross. The over driven were squashed nearly flat and the under driven were barely set at all. I did this to see just how poorly a joint made of this sort of gross error would hold up. You would easily see these and know there was a problem immediately. You'll find the results interesting.....

The idea was to put each coupon in a pull test machine and expose the riveted joint to a slowly increasing force until it yielded. This was done at a structural test lab in Paramount (Southern CA city) that works mostly with civil engineering construction materials. A stress/strain graph was running and we monitored it to see the first indication of joint failure as indicated by a decrease in force required as the coupon stretched, cracked, broke in two, sheared or tipped rivets, etc. I was interested in the force required to cause the initial failure, as well as the nature and appearance of that initial failure; i.e., what actually happened first.

We agreed to stop the machine at the incipient indication of failure, thus preserving the coupon in its early failure state without destroying the joint completely. I was very curious as to how things would fail and really had no idea other than the thought that the dimpled, flush riveted joint would probably be stronger than the undimpled one with the 470 universal head rivets. In contrast, one of the owners of the lab came in to watch and thought the opposite would be true. In his 50 years in the business, he had never seen this test done. What do you think would hold best?

That said, here is the answer to my prior question. A force of 2300 pounds was required to break the test material with no rivets or holes in it. It failed catastrophically shortly after some initial stretching was noted. I had no idea that a cross section of this 2024 T3 sheet, .032 inches thick and 1.5 inches wide, would sustain anywhere near that load. Frankly, I was surprised when it passed 1000 pounds and still going strong.

Before showing you the numbers, I will give a brief summary of them:

1. The dimpled, flush riveted construction was stronger, but not by as much as I had thought. However, and this is really important, initial failure of the dimpled construction was generally not catastrophic and occurred as rivet tipping and rivet head distortion. In contrast, initial failure of the AN 470 undimpled construction was generally catastrophic by rivet shear. I am really happy Van uses the flush riveted, double dimpled joints throughout most of the airplane!

2. Slightly under driving or slightly over driving a rivet makes an observable and thus measurable difference in the joint strength.
3. Slightly over driving is stronger than slightly under driving and results (in my opinion) in an insignificant difference in strength as compared to properly driven rivets.
4. In the one test of slightly over driven AN 470 rivets, the joint was actually stronger than with properly driven rivets. This may have just been the luck of the draw for this single sample, so I wouldn't put any real faith in it.
5. A joint made of grossly over driven rivets is stronger joint than a joint make of grossly under driven ones.
6. A grossly under driven AN 470 joint is much weaker than a grossly under driven AN 426 joint.
7. No joint was as strong as the parent material itself.

To summarize the summary, try for properly driven rivets but realize that minor over driving is preferable to minor under driving and results in nearly the same strength as does the condition of properly driven rivets.

AN 426 AD 3 Table [flush 3/32 diameter rivets in dimpled skin]

<u>Condition</u>	<u>Force at failure</u>	<u>Nature of failure</u>
Gross	Under 1650 Rivet tipping	Head distortion
Slight	Under 1775	Same
Slight	Over 1975	Same
Gross	Over 1825	Sheet tear at rivet line

AN 470 AD 3 Table [universal head 3/32 dia. rivets]

<u>Condition</u>	<u>Force at failure</u>	<u>Nature of failure</u>
Gross	Under 1100	Rivet tip plus one sheared rivet
Slight	Under 1600	5 sheared rivets!
Correct	1625	6 sheared rivets!
Slight	Over 1750	6 sheared rivets!
Gross	Over 1500	Rivet tip plus sheet tear at rivet line

Anyway, those are some real numbers for an area we have undoubtedly thought about at one time or another. My opinions, FWIW: I think an occasional rivet that is slightly under driven or slightly over driven is utterly no big deal and can safely be ignored. We all have some of these flying in formation in our airplanes. A line of them would be another matter. Even an occasional grossly over driven rivet is probably OK, especially if getting rid of it could cause damage. And if under-driven too much, just whack it again.

Hope you learned something from this. I certainly did.

Bill Marvel

## Editor's Corner

The article listed to be in this month's newsletter on moving map systems will have to be postponed. I plan to attend the AOPA Convention and will be gathering significantly more material for my article at that time.

## Deburring - Taking the edge off

Dana Overall

Any, and I said any, metal work that has been cut, punched or drilled needs to be deburred. A cut first involves removing all machine work. This can be done by the use of a vixen file, file, or 300 grit followed by a scotchbrite pad or wheel, 400 grit or so on. The edge should be brought to a polished state. Now you need to radius the edges. This can be done by a burnishing tool or you file again. This radius again needs to be polished. All drilled holes need to be deburred using a deburring tool or oversized drill bit that does to chatter. A deburring tool works best. To polish those correctly deburred aluminum edges, work them to at least #600 grit and prime with NAPA 7020 self etching primer. Please do not bench grind the edges and say that is good enough for airplane work.

Every, every manufactured edge needs to be deburred. Sharp or rough edges, corners, and scratches can cause stress concentrations which will greatly increase the possibility of local failure. Any sheared edge, whether sheared by hand or machine, has sharp corners and has a burr on one edge. A good test for the edge finish of aluminum is to run your finger over it. If you can't feel any roughness and there is no chance of drawing blood, the finish is OK.

Deburring is a time consuming chore. The finishing procedure will constitute a sizable portion (if not the majority) of fabrication time. If it takes 3 hours to drill the holes, plan on 6 hours to deburr. If you think I'm kidding, just see how much time it takes to make it right. Do they give any awards for seeing how fast you can do something? Not when building airplanes.

I know this is a little "stand on the soapbox" but it is very, very important that you don't see just how fast you can do something. It is very, very important that you see just how "right" you can make something. Just because it looks the part doesn't make it the part.

(EAA Chapter 11, Aug 2002)

## QUIPS and QUOTES

There will always be dreams grander or humbler than your own, but there will never be a dream exactly like your own...for you are unique and more wondrous than you know!

--Linda Staten

"A dream which is not interpreted is like a letter which is not read."

--The Talmud

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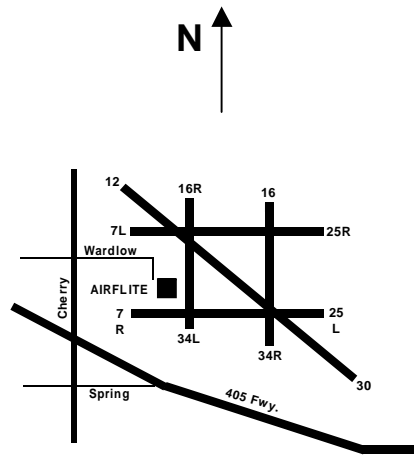
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## Chapter 7 meets on the second Thursday of each month at 7:30 pm.

We meet at the AIRFLITE facility on the long Beach Airport. Airflite is located on the west side of the airport near the C-17 building. Go east on Wardlow Road from Cherry Avenue to the **Airflite** sign. Turn right, go to the large parking lot at the end and park. Go upstairs to the third floor with the large open area.

Board meetings begin at 6:30 p.m. Board meetings are open to all members.

Web-Site:

[www.beegroup.com/eaachapter7](http://www.beegroup.com/eaachapter7)

## EAA Chapter Seven Non-Profit Declaration and Legal Disclaimer

EAA Chapter Seven exists as a non-profit organization whose sole purpose is to promote the interests of its members. EAA Chapter Officers, Directors and Leaders serve without compensation and have sworn to carry out the will of the membership by means of Democratic processes and rules of order set forth in the Chapter's by-laws. No claim is made and no liability is assumed, expressed or implied as to the accuracy or safety of material presented in this publication. Viewpoints of those who contribute to this newsletter are not necessarily those of EAA Chapter 7, the EAA, or their board members. You must be of good character, adhere to the chapter's by-laws, and respect the chapter's Mission and Value Statement to become a member of the chapter. Dues are \$12.00 per year payable to the Chapter Treasurer. Chapter dues are payable at the first meeting of the calendar year. New members joining after the first month are prorated at \$1.00 per month through December of the calendar year. Member correspondence and newsletter contributions are encouraged which can be submitted by mail to the address appearing on this page or my e-mail.



## Chapter 7 Newsletter

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**ADDRESS CORRECTION  
REQUESTED**