THE LEADING EDGE

NEWSLETTER OF MUROC EAA CHAPTER 1000

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

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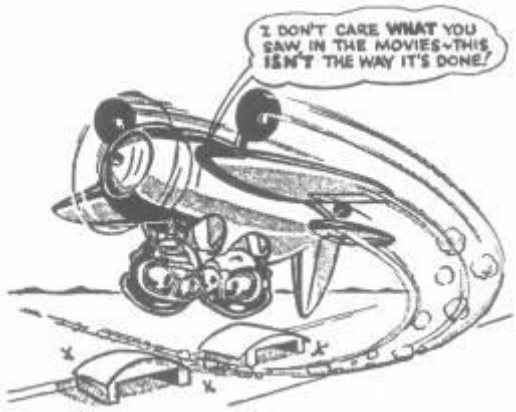
http://www.eaa1000.av.org *October 2008*

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:



First Flight Planning

Tuesday, 21 October 2008
1700 hrs (5:00 PM Civilian Time)
USAF Test Pilot School
Edwards AFB, CA

Colleagues,

As you well know, **Chapter 1000** is a fun loving organization. We do things in this chapter like no other. I'll bet we are the only chapter to ever enjoy a private screening of *No Highway in the Sky*. While other chapters are meeting to talk about how to build and fly airplanes, the world class flight test experts of Chapter 1000 are gathering to watch a baseball game. Of course, we're probably the only group at the baseball game discussing homebuilt airplanes. So, with all the expertise in our midst, why don't we talk about building and flying airplanes? (*no...that's just what they'll be expecting us to do...*) Perhaps there is some depth of knowledge that we could each glean from a lively discussion of topics more characteristic of a typical chapter of the Experimental Aircraft association.

Hey! That's a great idea! Why don't we intersperse a few technical topics among the movie screenings, guest speakers, and historical discussions?

Let's begin this month. To that end, our own **Gary Aldrich** (a.k.a. "**Kommandant**") and **Doug Dodson** (***PPTAF*** Treasurer) will jointly lead a guided discussion of how to prepare for the first flight of a homebuilt aircraft.

If this topic interests you, please join us for our regularly scheduled meeting at 1700 on Tuesday, 21 Oct 08. We will meet at our regular meeting location at the Test Pilot School. If you have some expertise to lend to this topic, come out and join the discussion. We look forward to hearing your perspective. And me? I don't know. I have ginned up a performance chart or two during my efforts in the defense of the free skies. But, I plan to take good notes and then get back to smashing rivets. I have to get the RV-8A "Astroblaster" in the air before I forget what I hope to learn.

See you there.

- Scott "Stormy" Weathers
Vice Kommandant

Last Month's Meeting

EAA Chapter 1000
AFFTC Museum
Edwards AFB CA
16 September 2008
Gary Aldrich, Presiding

The Chapter 1000 meeting as it may have happened...

It was quiet. Maybe too quiet, but that was because **Russ Erb** hadn't arrived yet (*Hey!*...). The desert was still, the ever present wind abating for the moment. An occasional gust playing with the control surfaces of a long forgotten aircraft waiting its turn for restoration. A ghostly clanking back and forth, back and forth, until you thought that it was alive. The long expanses of desert stretching off into the distance with the occasional Joshua tree and tumble weed breaking up the monotony of the landscape. Off in the distance a trail of dust seemed to be following a vehicle. First one, then two, then many more, 16 to be exact. All converging on this lonely patch of desert located in front of the base museum. The patch directly under the A-10. The one and only A-10 with 2 seats. A lot taller and bigger than you think when you see it from a distance.

The vertical fin was enlarged to offset the loss of stability caused by adding the Kommandant's cockpit

Sixteen brave souls circle the A-10 looking reverently. **Jimmy Doolittle III** steps forward and begins to speak. "There I was, I had just emptied the gun on several targets chewing them up severely, feeling really good about it. I was on downwind getting ready to turn short final when the gun decided to do a 180 degree turn to prevent the barrels from warping. That much weight moving in the fuselage when you don't expect it will make you sit up and take notice".

JDIII expounds eloquently to the assembled throng while Erbman checks his notes for the next point

Vice Kommandant "Stormy" Weathers peppered the crowd with his expertise as if he was wielding an automatic weapon. Informative, exacting and to the point, leaving no room for doubt among the listeners.

Then the **Kommandant** moved in. The **Kommandant** has the distinction of being the only pilot to have ever been photographed climbing into the front seat and the back seat simultaneously, of this great historic one-of-a-kind aircraft. And on this historic day the **Kommandant** regailed us with many exciting stories of his exploits in this very A-10.

Facts, figures, analysis and commentary:

(*actually **Erbman's** unedited briefing notes*)
Vietnam era close air support
- USAF commanders thought UH-1 Huey and AH-1 Cobra helicopters should be sufficient for CAS
  -- UH-1 and AH-1 only had machine guns (anti-personnel) and unguided rockets (soft targets)
  -- No anti-armor capability (pre TOW and Hellfire missiles)
- F-4 Phantom
  -- high speed (no turn capability)
  -- no loiter (high fuel consumption)
  -- 20 mm Vulcan cannon (pod or internal) not effective against armor

Not just Vietnam – Fulda Gap scenario
What are the mission requirements for Close Air Support?
- Heavy firepower
- Loiter capability
- Maneuverability
- Damage Tolerance
- Forward Basing/Maintainability

How do these drive design?
- Heavy firepower
  -- GAU-8 30mm cannon – capable of many more attacks than missiles or bombs available at the time
  -- Firing barrel is on centerline of aircraft so that recoil does not affect aimpoint—results in nose gear being slightly off-center
  -- 11 weapons stations
  -- Outer two on each wing (1, 2, 10, 11) MAU-50 racks, 14 inch suspension, 2000 lb max
  -- Pylons 1 and 11 also contain aileron actuators
  -- Remaining pylons (3 – 9) MAU-40 racks, 30- and 14 inch suspension, 5000 lb max
  -- Fuel tanks could be carried inboard of main landing gear (sta 4, 6, 8)
  -- Mavericks just outboard main landing gear (3 and 9)
  -- Outboard stations (1 and 11) ECM pods and AIM-9 missiles
  -- Wing position allows easy loading with standard bomb lift trucks without requiring lots of ladders or squeezing underneath close to the ground
  -- Only about 10,000 lb payload—can be maxed out with 10 CBU-87s loaded (YA-10?) (about 30,000 lb empty weight, 11,000 lb fuel, Max gross 51,000 lbs, T/W = 0.36)
  -- Can't load sta 6 with 5 and 7 loaded, sta 6 mostly for heavy weight centerline carriage, such as fuel tank
  -- PAVE PENNY laser tracker
- Loiter capability
  -- Sufficient fuel to loiter in combat area over 1.5 hours (F-4 total flight time was about 1.0)
  -- High bypass turbofan engines very fuel efficient for this application
  -- GE TF34-GE-100 turbofan 9275 lb static thrust, S-3 Viking, Canadair Regional Jet, Embraer jets
- Maneuverability

-- slow design speed (turn radius inversely related to speed)

-- straight wing most efficient at subsonic speeds, sweep not needed because well below transonic

-- "decelerons" ailerons split for speed brakes – very important to keep airspeed under control while diving on a target

Erbman attempts to explain the concept of the Deceleron

-- droop wingtips-questionable benefit. Not big enough to affect induced drag. Started at Cessna in 1970 as an idea to improve spiral stability – didn't work without being excessively large—retained for appearance

- Damage Tolerance

-- two engines widely separated; very difficult for one round to take out both engines, minimal risk of fratricide (spinning parts coming apart and taking out the other engine)

-- two vertical tails (redundancy)

-- tails partially block engine IR signature

-- self sealing fuel tanks and lines well protected in fuselage. Fuselage tanks are self sealing in bottom half. All tanks contain fuel foam to minimize fire danger and hydraulic ram damage from projectiles. Ballistic foam surrounds tanks and fuel lines.

-- Supposedly can fly minus one engine, one vertical tail, one elevator, and half a wing (all at once?) (I think this is a lot of hooey. The CG shift of losing an engine would turn it into a lawn dart. The flight controls are redundant so you could lose a rudder, aileron, or elevator. A shear shaft in the elevator allows the pilot to brute force separate an operable elevator from a jammed one.)

-- fins on fuselage and leading edge slots limit wing separation, cleaner airflow into engines (Fuselage fences and slats are to improve smooth air flow into engines at high AoA. Slats are hydraulically actuated. Engine/Airframe Compatibility (EAC) goes south in a hurry with any sideslip. Dual engine flameout from high AoA maneuvering has occurred.)

-- Squared off wing trailing edge – stronger, lighter structure, lost in boundary layer anyway (Actually, this helps rig the aircraft to fly straight in manual reversion. It's not a factor with powered flight controls, but when flying man rev, the square trailing edge keeps the separation point from moving around the way it can with a round trailing edge. It may even reduce the possibility of flight control flutter.)

-- Main gear do not fully retract; commonly stated that this allows gear up landings with minimal damage (in practice, this works and has been verified on more than one occasion. Mx TOs provide inspection and repair instructions for gear up landing. Aircraft settles nicely on main wheels and vertical stab bottoms. Brakes are available, but antiskid is INOP with gear up.); probably was a compromise to minimize frontal area and reduce weight

-- Landing gear fall into place

-- Redundant hydraulic flight controls plus manual reversion; hydraulic systems and electrical wiring widely separated

-- Titanium bathtub with Kevlar spall shield (bullet catcher?)

-- Front windscreen resistant to 20 mm fire

- Forward Basing/Maintainability

-- high enough to drop gun out, low enough to load weapons pylons

-- interchangeable L/R engine, main landing gear, vertical stabs

-- single point refueling through left gear pod

-- large low pressure tires

The airplane wasn't bought because the A-10 program was winding down and General "single-engine/single-seat" Creech (TAC/CC) wasn't interested in it. Conventional wisdom was that the aircraft was not survivable in the European theater against Russian armed helicopters and the notion that the F-16 was going to do every job in the Air Force. Fairchild tried to sell it as a trainer and Night/Adverse Weather fighter with no success.

The airplane performed well on every test it flew...it just was not its "day".

When all was said and done, the **Kommandant** declared "Victory" had been achieved. Just who we were fighting against remains unclear to this day, but if the **Kommandant** says we won, that's good enough for us. Confident that our cause was just, the assemblage retired to the BK lounge for refreshment and the customary exchange of tall tales and bald-face lies.

As told by **George "Knife" Gennuso** to
Police Detective Lieutenant Sergeant Kent Troxel,
Police Squad
Minister of Propoganda

Kommandant's Korner

I awoke to blustery, cool weather again today. Perhaps we've slipped from Fall inexorably into Winter. We were blessed with some mighty fine flying weather for the last couple of weeks so it's probably too early to start complaining about the nasty crosswinds and penetrating cold. I was surprised that I didn't find a series of outraged emails from **E^2 Zurg** when I logged in

as I once again missed the Friday deadline for my monthly missive. My excuse this time is a near catastrophic technology meltdown that I had to deal with…but excuses don't really work with Zurg. Maybe he has realized that, like Richard Nixon, he "won't have me to kick around" soon.

Speaking of challenging weather conditions, it's time to dust off those lightning-quick reflexes and "dancing feet" to cope with the Antelope Valley's famously capricious zephyrs. I've graced these pages with more than a few hair raising stories (grown more "raising" with time) starring the intrepid **Skywagon** pilot and his trusty steed battling the forces nature in a death-defying struggle to the runway. I try very hard to assign the evil to nature and not the VC-180 though there's a touch of mischief imbedded within the Cessna "Prong-o-matic" spring-steel gear legs. While I don't look forward to this time of year when the gust-spreads (and **Mrs. Kommandant's** eyes) widen, I recognize the challenge of the landing is a small price to pay for the fun and utility of the airplane. It all kinda goes back to that old taildragger saying, "It ain't over till it's in the hangar and the door's locked".

On a tragic note, we lost a true aviator last weekend when **Greg "Crash" Jaspers** perished when his Thunder Mustang departed controlled flight and struck the ground in the landing pattern. Many of you have heard me categorize people as "pilots" or "aviators". The terms don't matter much, but the concept is that one type flies airplanes as part or all of his job while the other makes aviation, in many forms, an integral part of their life. Crash was of the latter ilk. After a very successful military career as a fighter and test pilot Crash had gone strongly into sport aviation, racing a newly purchased Cassutt at Reno, flying a Twin Comanche for fun and business travel, and buying the hot sub-scale fighter replica. I believe his now-unfortunate call sign stems from an earlier challenging aviation event that ended much better. Like the best call signs, many who knew him had to think twice when asked what his given name was…he was just "**Crash**" to friends and colleagues alike. He was a friend of the Chapter, attended meetings when he was in town, and most probably would have steadily increased his EAA involvement with his new airplanes. Details of the accident are, as usual, sketchy, but witnesses say he was trouble-shooting a landing gear problem and appeared to be in a sideslip when the aircraft departed. We'll never know exactly what was going on in that small cockpit but I am confident that Crash was employing every bit of his impressive flying skill when the accident chain closed the final link. We'll miss you, **Crash**…Godspeed.

Another reminder that any given pilot, any given airplane, any given day…well, you know the rest. Let's be safe out there.

- **Gary Aldrich**
Kommanding

P.S. Hey, only a couple of months left to shop for your Festivus gifts!

Notes From The Workbench

Let's talk about lubricants. No, I don't mean engine oil; everybody has their own idea about what kind of oil is best for their engine. I want to give you my thoughts on the bewildering array of oils, greases, and other magic goo that line the shelves at any auto/airplane parts house....

LPS 1: a very thin oil, comes in a spray can. Handy for light lubrication. It's main claim to fame is that it dries, and therefore doesn't collect dust. Commonly used on exposed joints such as piano hinges. I don't use it much; my thinking is if it dries, it's not doing much lubricating. Some people use it as a penetrating oil, but there are much better choices.

LPS 2: same as LPS 1, just a bit thicker. I use it if I need a very light oil applied in a very difficult spot.

LPS 3: you would think this is just a heavier version of LPS 2, but it's not. It doesn't say "lubricant" anywhere on the can. This is strictly a corrosion preventative. It sprays on as a light oil. The carrier solvent evaporates, leaving behind a thin, waxy barrier. Stays sticky and waxy for quite a long time. I don't use it much.

LPS LST: (stands for Low Surface Tension) comes in a spray can, and is a superb penetrating oil. I use this a lot; spray it on darn-near everything before I take it apart. Really good stuff.

LPS Magnum: spray can, comes out as a very light, foamy oil that soaks in, then becomes a light grease as the solvent carrier evaporates. Smells nice, too. I use this a lot, probably my favorite spray lube.

Champion Spark Plug Anti-Seize: Awful stuff. Comes in a little bottle with a built-in fingernail polish brush. Expensive, messy, hard to control, and it doesn't work all that well. Since it's a thin liquid, if you tip the bottle over, you now have a big mess to clean up. I don't own any of it, and would throw away any that was given to me.

Permatex Anti-Seize Lubricant #133: a nickel-based compound, good up to 1200 degrees. Comes in a small tube or 8 ounce plastic bottle with a built-in brush that's big enough to get some work done. Absolutely, hands-down the best anti-seize available. I've been using this stuff for 35 years, and I've never had a frozen or rusty bolt, no matter how severe the environment. I've put car exhaust systems together with this stuff, and 10 years later the bolts simply unscrew, and look so good I could re-use them. Slather this stuff on your exhaust gaskets before assembly; the thin-grease-like compound will seal those tiny leaks, prevent rust, and let you take the exhaust apart years later without

any damage or struggling. Spread it on your exhaust pipe slip-joints before assembly, and the joints will actually slip as they're supposed to. Spread a THIN coat on your spark plug threads and they will never seize.

The only downside... this stuff never dries, and I mean *never*. It will transfer from one surface to another like you won't believe. You have to make sure that none of it gets on your clothes or skin. Here's what I mean: you get some on your hand, wipe it off on a shop rag, then stick the rag in your back-pocket. Later you throw the rag on the work bench, walk into the house, throw the pants on the floor, walk across the pants and next your wife is asking "What's that silver stuff on the sheets?" I kid you not. Before I figured out what was happening, I've found this stuff on the *dog*.

Oh, after many years of use, the built-in brush in the plastic bottle will eventually break off. Just use one of those cheap, half-inch wide brushes with the metal handle, commonly called acid brushes. Keep it in a plastic bag between uses to keep from spreading the stuff everywhere across your shop. Obviously, I like this stuff a lot. Available at any auto parts store, Wal-mart, or industrial supply house (McMaster-Carr.)

WD-40: Folks, this is *not* oil. It's basically kerosene. It doesn't lubricate, it doesn't penetrate, and it doesn't prevent rust for longer than about 12 hours. There is no place on your airplane where you should use this stuff. However, it does have one redeeming value... it's a great cutting oil for aluminum. If you are drilling deep holes in a block of aluminum, or milling aluminum in your vertical mill (you should be so lucky...) a spray of WD-40 will prevent the usual galling and tearing found when drilling aluminum dry. It will also keep the cutter/drill bit clean and sharp.

Standard Aviation Engine Oil (when used as a general lubricant): Awful stuff, terrible. It dries to a gummy mess and holds dirt like it was superglue. Causes global warming, premature balding and male ED. If I catch you using this anywhere on your plane (besides in the engine) I'll rip up your license.

Castrol Syntec 20W-50: a fully-synthetic car oil, fantastic stuff. Lubricates really well, doesn't dry out, and for some reason it just doesn't seem to attract and hold dirt like aviation oil. Buy a high-quality, trigger-pump oil can, and use this on hinges, rod ends, pivots or any other moving bit you see. About $5/quart, and one quart will last forever.

Marvel Mystery Oil: The only mystery is why anyone continues to buy this stuff. A mixture of thin oil, solvents, red dye and some perfume. Pure snake oil.

Sil-Glyde: a thick silicone grease, comes in a small tube. Clear, odorless and non-staining. Does not attack rubber or rubber compounds. I mostly use this on O-rings, or someplace where a passenger might rub against it (like a door lock.) I used to buy this great stuff at any auto parts store, but in the last year or so, I haven't been able to find it anywhere. If you find some, buy me 2 tubes.

See you at the airport,

- Bill Irvine

(*Please tell Bill to write more stuff like this!* ***Evil Editor Zurg*** *really liked this one, although he seems to think that the Permatex Anti-Seize will be good for some practical jokes...*)

How's Your Eyeball Engineering?

So you think you have a pretty good eyeball? Think you can find the midpoint of a line without your micrometer and calculator? Draw parallel lines? Find the center of a circle? Go to http://woodgears.ca/eyeball/index.html and see just how good you are.

Crazy Flabobians Building Flyable CG-4A

(*Lifted without guilt from EAA Chapter 1 WingNut*)

On D-Day, June 6, 1944, hundreds of huge American built gliders were towed behind C-47s across the English Channel carrying thousands of troops and supplies for the Normandy invasion.

One Flabobian has a dream of doing one more such trip across the Channel...with the Flabob Express C-47 towing the world's only flyable Waco CG-4A glider, which will be released to land in a field in France to commemorate the 65th anniversary of the Normandy invasion on June 6, 2009.

John Pappas and a group of volunteers are working away in a hangar at Flabob restoring a CG-4 (the cockpit was on display at the Chapter One Open House). They hope to have it finished early in 2009, after which it will be disassembled and shipped to England for the mock invasion. John and another pilot will fly the Flabob Express to England to make the historic tow.

The group has set up a non-profit 501(c)(3) corporation to facilitate their grand plan, and Pappas is working to raise money for the project as well as get volunteers and oversee the construction. The corporation, The WWII Allied Glider Corps Commemorative Foundation, has a number of corporate sponsors, including Poly-Fiber, Aircraft Spruce, and a number of aviation museums and suppliers.

The goal will be a truly historic one-of-a-kind flight. "There are six or seven reconstructed CG-4s in the world," Pappas said, "but none of them are airworthy. We are rebuilding ours to airworthy standards, and it will be the only flyable CG-4 in existence.

"What we need are volunteers to help us…people who are good at welding and/or woodworking."

Pappas said the D-Day celebration is held every year at Normandy. "Everyone thinks the French hate us," he said. "But not in Normandy. In Normandy, the French love us! People will come up to you on the street and say, 'We appreciate and recognize the sacrifice of the Americans.'"

Pappas has done extensive research into the CG-4 glider and the men who flew them. Glider pilots were a breed apart. One American general said they were "the most uninhibited individuals ever to wear an American uniform." It's no wonder. According to Pappas, the job was one of the most dangerous in the military.

"Many people think the gliders were used for stealth invasion," he said. "but there was no stealth involved. The gliders were released at only about 700 to 1,000 feet above the ground. They were towed by C-47s. A C-47 at 800 feet isn't exactly stealthy."

Flying so low and slow, both the gliders and the tow planes were extremely vulnerable to anti-aircraft fire. After release, the glider basically had only the time to make a turn and line up for a landing. With a glide ratio of 12:1 (about the same as a Cessna 172), the 8000-pound aircraft was soon going to land, ready or not.

The glider program is one of the least known and understood stories of World War II. America's rush to develop gliders began after the stunning success of the German glider assault on the Belgian fortress of Eben Emael in May 1940. The U.S. began a crash program to create production gliders, and finally settled on a design submitted by the Waco Aircraft Company of Troy, Ohio, well known for its series of high-performance private airplanes in the 1930s. Waco's design used a fabric-covered tubular steel frame, plywood flooring, and minimal instruments. Waco built only about 1,100 of the 14,000 finally produced. Ford Motor Company produced the largest share—more than 4,000 of them but there were over 115 other contractors who participated, including the Steinway Piano Company, Anheuser-Busch, the Gibson Refrigerator Company, and the H. J. Heinz Pickle Company.

Without flaps, the heavily loaded glider had an alarming sink rate. Free flight at the end of a tether demanded constant attention, and landing amounted to a controlled crash. The CG-4As were towed at speeds less than 120 mph, and they had a stalling speed of about 44 mph. The glider pilots had to work diligently to keep the craft aligned within a few degrees of the tow plane…in a cone of safe tethered flight called "the angle of dangle." If caught fully loaded in turbulent conditions, gliders were known to disintegrate.

Aviation writer Budd Davisson relates on his *airbum.com* website, "The airplane has some beautifully Goldbergian (as in Rube) operational features. For instance, the complete nose section, pilot seats and all, hinges up and out of the way so the cargo can be loaded straight in simply by pulling a couple of pins.

"A side benefit to that concept is it can be unloaded even quicker and protects the pilots in a really neat way. The gliders were sized to carry 13 men with combat equipment or a 75 mm howitzer attached to a jeep, or a jeep pulling a trailer load of ammunition. A healthy cable runs from the top of the hinged nose section back down the top of the fuselage, turns through a pulley and is then attached to the back of the jeep or howitzer. Then, as soon as the glider touches down a latch is tripped on the nose section so, if the load breaks free and tries to exit the front of the glider, its movement forward will yank the nose and the pilots up out of the way. In effect the airplane vomits out its load without squashing the pilots.

"If the landing is normal, the jeep just drives out the front and pulls the nose up as it does."

The intrepid glider pilots had a unique job and a unique place in the military. As Davisson states, "Glider pilots were, for the most part Flight Officers assigned to

Transport Command. As such, even while they were operational, they existed in a sort of non-category that dogged them for many decades after the war. The infantry thought they were Airborne, the Airborne thought they were Air Force, and the Air Force thought they were Airborne."

Pappas said their training was not extensive. They were given flight training in primary trainers, then transitioned to gliders. "The military originally decided to train them in sailplanes, but that didn't work, because sailplanes sail," he said. So they took the L- series Aeroncas, Pipers, and Stinsons, took the engines out and reconfigured them. When towed aloft and released, these aircraft behaved like gliders and sought the ground.

"The English glider pilots were trained infantry," Pappas said. "The Americans were not trained at all in infantry tactics. They were given an M-1 carbine and told, 'Go out, land your glider, get with a group, and as soon as you can, get back, because we need you back here to fly another glider.' They fought only to save themselves."

One observer noted, "No one had seemed to take into account the enormous hedgerows in the countryside and factor this into glider landings. As a result, glider casualties were extremely high as they landed."

The gliders and their contents were very vulnerable to anti-aircraft fire, sent into unknown, often rough territory for landings, behind enemy lines where they had to fight for their lives if they survived the landing.

Never a dull moment for a WWII glider pilot. As one pilot who survived the war said, "It was like flying a stick of dynamite through the gates of Hell."

The former famous newscaster Walter Cronkite rode into combat in a glider when he was starting his career as a war correspondent in 1944. Cronkite later characterized his experience colorfully and succinctly: "It was a lifetime cure for constipation!"

- Leon Grumling

Project Police Aircraft Spotters Quiz

As you may recall, three months ago **Evil Editor Zurg** presented photos of an airplane that looked like it had been conceived at a ***Project Police* Design Group** session when the participants had made a few too many trips to **Houdu's Kegerator**. The result looked like an unholy alliance of a Cessna 180, Coot Amphibian, Beech Staggerwing, Republic Seabee, Ercoupe, and the **Kommandant's** old Corvair. Just to remind you what had you stumped, **EEZ** presents the pictures again.

Murry Rozansky properly identified it as the **Waco Aristocraft**. After reading the correct answer, **Nathan "Dirt" Davis** sent in more information:

After thinking about the Waco Aristocraft, I remembered that a guy named O'Neill took the a/c and modified it several times and it became unrecognizable as he changed it to a tractor configuration. Seems that it ended up being a sort of large bush type a/c... but that was back in the 60's and I've slept too many times since then. I do remember seeing the a/c and then there was one or two articles in Sport Aviation, too. Did find this short blurb:

O'Neill

Terrence O'Neill, Ft Wayne IN.

Aristocraft II 1963 = 4pChwM; 200hp Lycoming IO-360. Built from parts of the original Waco Aristocraft including the wings, struts, and horizontal tail.

Twin fins were retained, but the engine was moved to the nose. Taildragger configuration. POP: 1 [N34219].

Model W 1968 = 6pChwM; 200hp Lycoming IO-360; span: 37'6" length: 26'0" v:

127/109/47 range: 870. A rebuild of Aristocraft II with a single fin and tricycle gear. POP: 1 [N34219]. A more powerful version with a 350hp Page radial engine was planned.

Last month **EE Zurg** presented the following photo:

Once again, the first (and only) correct answer came from **Murry Rozansky**: "Hi Russ, I knew it was English. It took a bit of searching to find. Short S. A. 4 Sperrin bomber. Two built. First flight Aug. 1951. Vickers Valiant bought instead. Over and under jet engine mounting is kind of neat but on straight wings?"

Secret operative **Cobra**, who submitted the above picture, said "This is the jet version of the Reindeer from "No Highway in the Sky" if ever I saw it. The Short Sperrin bomber.

http://en.wikipedia.org/wiki/Short_Sperrin

Web Site Update

As of 11 October 2008, the hit counter showed **123459**, for a hit rate of 13 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

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

Nov 4: EAA Chapter 49 Monthly Meeting, 7:00 p.m., General William J. Fox Field, Lancaster, CA. (661) 948-0646

Nov 11: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., High Cay, 4431 Knox Ave, Rosamond CA. (661) 609-0942

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

Dec 2: EAA Chapter 49 Monthly Meeting, 7:00 p.m., General William J. Fox Field, Lancaster, CA. (661) 948-0646

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

Dec 16: EAA Chapter 1000 Festivus Etc Celebration, time and location to be announced (661) 609-0942

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

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

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

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

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

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

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

Mar 17: 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:
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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

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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 21 OCT AT TPS
ALL ABOUT LUBRICANTS
TEST YOUR EYEBALL ENGINEERING
CRAZY FLABOBIANS BUILDING CG-4A

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