

<mark>OFF TO A FLYING</mark> START

Some things just don't happen every day. April 13th was to be one of those days. Amidst the crowded club-house at EAA Chapter 35's April fly-in was a young man



on a mission. Conner Gray, an Airman with the US Air Force, was completing his training at Joint Base Lackland

launched his career and life as a USAF loadmaster. Soon he'd be leaving for more training, but he had business to finish first. Conner had been flying with family since he was a kid and knew that somehow, flying had to be part of his life. He found EAA chapter 35 and sent a brief message simply asking if there was anyone nearby who might be able to give him and his girlfriend a ride. Of *(Continued on page 3)*

BUILDING THE COZY

Chuck Fisher

"Cozy". What an interesting name for a plane. It sounds so small and delicate that I just had to find out for myself. Just how cozy is a "Cozy". So I went on a "Cozy hunt" and, as always, only had to go as far as EAA Chapter 35 to find one under construction (there is at least one more also under construction on the field as well). Having, for years, ogled Velocity, Cozy, Long and Varieze canard type designs I had to know

more. So, on another beautiful Saturday at San Geronimo I met Brad Doppelt (EAA 35) who introduced me to his Cozy Mark IV project.

Brad is a professional aerospace engineer, A&P, IA, and long-time pi-

lot and EAA member. He, like so many of us, was bitten by the flying bug as a child. As his dad worked to earn his private pilot license, Brad decided his destiny. He earned his Aero-(Continued on page 5)



May 11th Annual Clean-Up 10:00-finished Lunch around noon Chapter 35 Clubhouse at 8T8

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Runway 35 is published monthly by EAA chapter 35. Ed Seurer: Publisher Chuck Fisher: Editor eaa35news@gmail.com FEATURED EVENT—Annual EAA 35 Work-Day

May is our annual clubhouse/grounds clean-up day so be prepared to do some manual labor. *Show time is 1000*

We'll have lunch around noon or when we reach a stopping point. Bring your **gloves** and wear some grubby clothes. Bring your **Shovels**, **rakes**, **ladders**, **caulking guns**, **dusting items**, **window cleaning items**, **handtoos**, **and tree trimming equipment**, etc. We'll be cleaning the windows,

bathrooms, and kitchen in the clubhouse and we'll tend the grounds, trim bushes, weed flower gardens do some minor tree trimming.

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PRESIDENT'S COCKPIT

Nelson Amen Chapter 35 President

I am asked several times each year "Nelson, how can I help?"

That is the type of members we have in our Chapter.

On May 18th all of you can help with a significant gift – your time. While the Hondo event is one of our "off campus" activities, it remains a major undertaking and also creates an unequaled opportuni-



ty to meet and work side by side with a new friend from our Chapter 35 membership. So ... mark your calendar, get ap-



proval (!) from your significant other,

block and grab a hat. We would really enjoy adding your name to our list of volunteers. And you will have a great time to boot.

And a thought for the month: when you place your hand on the throttle for your take-off run, think about the possible choices available for an engine out at 150 feet. Each time ... from a guy who has been there.



pack some water, put on the sun flies an RV-9A. Email: pilotandy@gmail.com

Bernie Groceman

Bernie is our new neighbor here at 8T8. He is currently renting "The Hootch" from Joe Paduh and keeps his Cessna 170 in Joe Kilough's hangar. Bernie also has a Stearman that he will relocate to 8T8 shortly. An Engineer with Boeing, Bernie is on temporary assignment. We hope he can make this a permanent move. bfgflying@yahoo.com

BUILDERS ACADEMY

The Dream Classic looks like a plane at last. Engine work is in progress. How many youth will ever get to sign a plane they built? Great job—this is Pretty Cool!



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Ron O'Dea

Please welcome:

Chris and June Watson

Chris and June live in San Antonio. Chris is a retired F-16 pilot with the TX ANG and is currently employed as a Computer Programmer. Chris built a very cool (F-16 look-a-like) RV-4 and also has a Mooney M-20J. Email: chrisf16@mac.com

Andrew and Laura Compton

Andrew is an Air Force Engineer who lives in San Antonio. He is currently building an RV-10! He also owns and

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course he received a prompt invitation to join us at the fly-in and a pilot and plane were queued up.

That day, only a couple of key members knew that Conner was carrying precious cargo with him. That day, April 13th, somewhere high above San Antonio, if all went well (no turbulence please!) the lovely Marissa Wildgruber, on her first flight in a light aircraft would become Conner's fiancée and future co-pilot.

Fortunately all went perfectly. The clouds finally parted just in time for the couple to settle into the back seat of the big Beechcraft, and as the sound of the big continental faded the flyin crowd now properly briefed milled about straining to hear a clue on the radio. Nothing. An eternity later pilot Joe Paduh

> an Authorization for the above disease/condition, and the applicant has fulfilled all of the requisite medical information necessary for a determination, the Aviation Medical Examiner must defer and submit all of the documentation to the AMCD or Re-

> > gional Flight Surgeon (RFS) for the initial determination. The AASIs listed below are presently restricted to the issue of a Third-Class airman medical certificate, and apply to an applicant with a medical history of an initially disqualifying condition if otherwise qualified. Aviation Medical Examiners may not issue initial Authorizations. An Examiner's decision or determination is always subject to review and modification by the FAA.

AME Assisted Special Issuances for All Classes include: Arthritis and/or Psoriasis, Hyperthyroidism, Asthma, Hypothyroidism, Atrial Fibrillation, Lymphoma and Hodgkin's Disease, Bladder Cancer, Melanoma, Breast Cancer, Migraine Headaches, Chronic Lymphocytic Leukemia, Mitral and Aortic Insufficiency, Chronic Obstructive Pulmonary Disease, Paroxysmal Atrial Tachycardia, Colitis (Ulcerative or Crohn's Disease), Prostate Cancer, Colon Cancer, Renal Calculi, Deep Venous Thrombosis/ Pulmonary Embolism - Warfarin (Coumadin) Therapy, Renal (Continued on page 13)

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Marissa greets the crowd as pilot Joe Paduh looks on

look – are they happy? Unable to tell but no barf bag was visible at least. Finally, pilot Joe set the brake, pulled the mixture back and shot a thumbs up to the waiting crowd. As the sun finally broke through the clouds for good, Marissa piled out of the plane with the sunshine glinting sharply off the big rock on her finger and a beaming Connor followed....mission accomplished.

EAA 35 congratulates the future Airman

and Mrs. Conner Gray. We were all pleased to have been there to experience a huge event in their lives. We wish them fair skies and tailwinds always, and so far it seems they've gotten off to a pretty good start!

called his position entering the pattern. Well? Jeesh, not a hint!

As the big Beech rumbled to a landing everyone craned for a

More Fly-In pictures on succeeding pages

YOUR HEALTH-AVIATION MEDICAL EXAMINER ASSISTED SPECIAL ISSUANCE (AASI)

RB "Doc" Hecker

AME ASI (AASI) is an on-going process developed over the past decade by the Federal Aviation Administration's Aeromedical Certification Division (AMCD) in Oklahoma City that allows the

Aviation Medical Examiner (AME) the ability to reissue an airman medical certificate to an applicant who suffers a medical condition which is disqualifying under 14 CFR Part 67, and has received a previously approved Special Issuance (authorization). The AASI is part of a process governed by 14 CFR § 67.401, and is a tool that the FAA uses to expedite AME office based medical recertification for selected airmen.

It is important to note that a FAA physician (AMCD authority) provides the initial certification decision and grants the Authorization in accordance with 14 CFR § 67.401. The Authorization letter issued to the airman is typically accompanied by attachments that specify the information that treating physician(s) must provide for the re-issuance determination. Aviation Medical Examiners may re-issue an airman medical certificate under the provisions of an Authorization IF the applicant provides the requisite medical information outlined in the Guide for Aviation Medical Examiners. If this is a first time request for issuance of





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vice job working with the Navy aggressor aircraft at Miramar. the canard to the wings on each side and contain the fuel tanks. Yup - Top Gun. I didn't ask him if everyone there was incredibly The wings themselves are solid fiberglass encased foam with rein-

cool as in the movies, but he did acknowledge the O'Club was, indeed, a memorably facility. As usually happens, the government moved stuff around, though, and Brad found himself overseeing complex electronic/avionics systems design and installation on multiple military airframes, first at Kelly and now around the world. He's a busy guy, but most of the folks at 8T8 recognize him as an outstanding A&P and IA who knows avionics and panels and



who is always ready to lend a hand to a builder or restorer.

Brad's first plane was and is a Bellanca Super Viking. It goes without saying that the plane has been totally worked over and looks immaculate inside and out. But, despite having a big-engined hotrod in the hangar, he longed to build a plane of his own - from ing Brad's immaculate Viking and entered a small workshop on plans, to his standards, his way. The engineer in him fell in love the side of the building. The workshop, not too much larger than with the canard design - fast, sleek and efficient. He wanted a plane big enough for the family, though by now the back-seaters are off on their own. He compared several models, test flew a few and the cozy was the fit. Brad met and still communicates with the designer, who remains an active participant with the builders, and I think this direct participation as well as the incredible strength yet elegant simplicity of the design sealed the deal.

The Cozy series is a fiberglass over foam composite aircraft. It has a central cockpit pod that resembles a stubby boat without the turtle deck and canopy on. The front seat occupants sit in a reclining fashion with their feet at waist height extending underneath the crossing forward canard to the pointed nose of the aircraft. The rear seat passengers likewise are semi-recumbent with lots of room to extend their legs up under the front seat mount. All this is under a large bubble canopy that provides excellent, on welding tools, nor metal sheers and presses. And, for the most -top-of-the-plane views all around.

The aircraft, like many canard designs, has a retractable nose gear but fixed rear landing gear. This seems like an odd arrangement, but in doing so provides weight and complexity savings and a guarantee that the prop and engine should be protected in all but the worst landings - even a "gear up" landing.

The rear seat passengers sit ahead of the wing spar and it sweeps rearward ending in winglets that contain cable controlled rudspace Engineering degree in St. Louis and went on to a civil ser- ders. Large triangular wing fairings sweep backward from near

> forced fiberglass "spars" cut into the foam. The Mark IV is designed for the ubiquitous O-360 engine and using that power plant will, according to the manufacturer (now Aircraft Spruce); provide a 75% cruise in the 220MPH range with a range of 1000 miles or more. It's advertised to have an empty weight of 1050 lbs. and a gross of 2050. Of course, like a lot of fast, sleek planes the cozy is designed for concrete or asphalt and will require 1700 ft. for take-off and

1300 ft. for landing at gross.

So the "Cozy" is a fast, surprisingly spacious plane. And - it is totally plans built.

We wove our way through the hangar stuffed with planes includa single car garage, contained the fuselage on its wheels, wings and canard along the side wall, a couple of work-benches, and full size plans affixed to the wall. I was a little surprised, having not spent much time learning about composite constructed aircraft, that there was really no super specialized equipment and no advanced filtration system. I expected a NASA-style "white room".

Quite the contrary, Brad explained. Working with foam and glass is not complex and requires a minimal toolset. A hot-wire is required to smoothly cut and contour the foam and electric scissors are required to cut the large sheets of fiberglass accurately without overstressing wrists and hands. Beyond that, he explained, the aircraft requires basic tools for assembly of the few metal components like the landing gear and interior parts. But, his workshop does not need cabinets full of sheet-metal, riveting and part the work can be done by one person working alone.

Brad started by showing me the thick book of plans that are the essence of the plane. The plans, maybe a couple of inches thick, are arranged by chapters. And, the most important part of the plans, though, has nothing to do with plane parts. The designer begins by giving a virtual class in aircraft construction via the (Continued on page 6)

THE BEST (CONT.)

(Continued from page 5)

plans. The builder learns to epoxy fiber cloth correctly, too light

and too heavy; then weighs them and learns to identify by physical characteristics when it is just right. Brad then went on to build a laminated section of foam/fiber sandwich like that used in the airplane. As I held it, I judge it to be about the size of a wide office ruler with a half inch piece of foam sandwiched between fiberglass layers. The finished product weighs mere ounces. Once done, the instructions call for the

builder lay it across a board or step in the center and stand on the ends to see if it'll break or crack. Of course it didn't. Try doing that with a piece of aluminum the size of a ruler.

Brad was convinced - and that was the point.

The design uses several densities and thicknesses of foam, from lightweight crumbly foam that looks a lot like the stuff used to mount fake flowers, to very dense rigid foam. Each has a specific To date, the fuselage is done and on its gear. The wings are place and purpose in the design. The foam pieces come in big formed and shaped, ready to fiberglass and the front canard is

sheets or blocks trate exacting temeach end of the



posed entirely of a

contoured foam blocks cut this way. That is a LOT faster than Brad has no intention of purchasing the building aluminum or wood wing ribs!

The foam is then covered with specific types of fiberglass cloth, ready for them. Engine and electronics laid smooth, pulled tight then coated with a two part epoxy. technology is advancing so rapidly that woven cloth. And, in those areas where more strength is re- to distribute costs across the duration of construction. quired, more layers of cloth are added. The result is a super- Thus far the most complex part of the construction, he says, has lightweight single piece construction that is considered stronger

and more resistant to stress and impact damage than aluminum counterparts at about a third the weight.

Brad has taken his time on this project. He started it in 2000



working first in his garage. During the initial phases he made quick progress, moving quickly through the initial construction of the fuselage and initial sheeting. He paused along the way, though, to restore the Viking and had several changes in work environment that impacted his building pace. However, the most significant slowdown occurred when he

> outgrew his garage. Brad was able to work on bits and pieces pretty much every night at home. Even if only for a few minutes, every tiny item added up quickly. Now, though, he has to make a deliberate effort to come to the field and work on the plane.

And, as most of us can attest, there are lots of distractions (like flying the other plane) that further rob time from building.

and the plans illus- complete. plates to place on canopy and foam block. Then, a yet to be hot wire is stretched course, retaught and dragged to get just along the tops of the right. Brad templates creating a has added perfectly smooth per- power re-

fect, often complex, tracts and nose mounted landing lights, The wings are com- but for the most part the plane is accordgroup of matching ing to plans.

engine or avionics until the plane is

Some areas use unidirectional cloth applied at specific angles for both would be outdated by the time the plane was ready for maximum strength and others use bidirectional or symmetrically them. Thus, not only is he not pressured to finish, but he is able

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The turtle deck,



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COZY (CONT.)

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been the landing gear. The entire flexible inverted "U" gear and brake system are incased in a smooth glass faring. The mounts, alignment and fittings had to be correct and properly mounted. Then he had to form and shape the complex curved fairing to create a perfectly symmetrical gear set.

To me, this looked hard. But, pressed to tell me how hard it has been and the vast challenges of construction...he just

wouldn't give. "It's really not hard – actually it's fairly easy to do", 5) Don't be in a hurry to buy the engine and avionics. Waiting till general discussions and even the designer chimes in to help. Brad advances as well as amortizing costs across several years. again reminded me that his project has been in the works a long time because he has dabbled - not because it is hard to do.

along the way.



1) Dedicate time to the building process. He found that he moved much faster working from home than

he has at the airfield. So, especially when working away from home, it is important to budget dedicated time and stick with it.

2) Decide, before you select a project, if you are on a timetable. Today's experimental amateur built market contains a plethora of superb options from plans-built through finely assembled "quick builds" and even quick-build at the factory programs that advertise a finished plane in only a few weeks. Be realistic and do not choose a plans-built plane if you have any intention to fly it within several years of starting.

3) One way to cut time may be to purchase a partially completed aircraft, but be careful and informed. Aircraft like the Cozy are hermetically sealed when they are done. There are no inspection holes or covers - so what is under the fiberglass is anyone's guess. Brad suggests that it may be a better option to purchase a partially completed project so you can see the construction quality and spot trouble spots. Be sure to research the plane thoroughly before looking at one on the market, and take someone with you who has built that model before. A post on the support/type forum will almost always net willing volunteers.



construction log contains photos, plans and inspections of every part and especially those that deviate from the manufacturer plans. Likewise, a plane purchased on the secondary market should have complete builders logs from day one. Absent those logs, it is entirely possible that major flaws or structural changes may be lurking beneath a pretty cover, and gaining approval for the finished plane may be very difficult.

he said. He's used web-based user groups for lots of ideas and near completion will allow you to take advantage of technology

4) Whether building it entirely yourself or purchasing a partially

or wholly built plane, be meticulous with documentation. Brad's

6) Ask for help. In today's world there is no reason to feel alone in a building project. Most makes, like the cozy, have robust That said, Brad has a few lessons to share that he has learned builder/owner communities online and some makes have true technical advisors dedicated to that make. Someone has probably



chapter technical advisor is always available locally and willing to help. Give 'em a call.

Brad is coy when asks when the Cozy will fly. Pretty much all builders are. But having spent a Saturday caressing foam and fiberglass, I feel confident that when it rolls out of the hangar this cozy will be a masterpiece and I thank him for sharing his project with me. Finally, Brad's info is listed in the chapter directory at the end of this Newsletter. He's one of those guys with a wealth of knowledge and experience and he will be happy to share.

This is one of a monthly series of articles featuring local builders/ restorers and projects of interest to the general membership. If you would like to show off your project please contact me at eaa35news@gmail.com. Of course the editor reserves the right to show up unannounced at any open hangar!





WHAT DID YOU DO WITH YOUR WEEKEND? - THE BURNETT AIRSHOW

Steve Jones

By all accounts, the Bluebonnet Air Show at Burnet, Texas was a success.

The FAA made their presence known with three people on the field. I don't know whether or not they accomplished a 100% ramp check, but I do know they did not make a point of screaming around in their golf cart or motor vehicle to chase down ar-

riving pilots. One administrator stopped by the B-17G Texas Raiders, and requested access to the aircraft. Our ground crew was obliging, and curious, so we followed in tow. He was as much in awe of the aircraft as we usually are, and he genuinely appreciated the opportunity to tour the aircraft.

There was an outstanding array of warbirds on the field, which was especially encouraging as the venue was small, and Burnet was not able to put any money on the table to help offset positioning expenses. The groups involved did an outstanding job of accommodating warbird pilots and crews to the best of their ability. We were very grateful for the outpouring of support, courtesy vehicles, accommodations, fuel, oil, and lunch.

Turnout for this event exceeded expecta-

tions. The initial estimate was that up to 3,500 folks joined us to celebrate the freedom of flight. The gate admission of \$15.00 didn't seem to dissuade anyone. Not many folks took up the offer to rent a folding metal chair for \$5.00. Food for thought.

The airshow started with the call to colors and the national anthem, presented as five jumpers exited the C-47 'Bluebonnet Belle', which itself was under escort by an Edge 540XL. It was hard to figure which flag to salute -- the Civil Air Patrol's colors, presented by their honor guard, or the flag unfurling in the air behind one of the jumpers. I wish all who read this could have heard our United States Army band playing the National Anthem.

Next up was a tattoo of liaison aircraft and trainers -- so many that the air boss set up racetracks at three altitudes. It was nothing short of spectacular, watching L-birds, Basic Trainers and Primary Trainers of every size and shape take to the air. The show continued with a flight of three T-6/SNJs performing tight formation, and including an interesting aerial demonstration. I'm still unsure how they braided their smoke

without hitting one another.

An Extra 300 took to the air and demonstrated precisely why an Extra 300 was ever built. It's amazing to watch that plane flip end over end on its pitch axis...and recover.

There was more; much more, like a MiG 17 filling every corner of the aerial display box in pretty quick order, but my attention turned to the next four aircraft: The B-25 Devil Dog, the B-17

> Texas Raiders, the P-51 Glamorous Glennis III, and the P-63 Super Cobra. For reasons I don't yet understand, I was given an amazing opportunity: My first training flight as crew member in the B-17 would be the Airshow flight. I certainly didn't earn this privilege.

> Hard deck for the show was 500 feet. With sterile cockpit procedures in place for the entire flight, the flight engineer called out the box, airspeed, and altitude, allowing aircraft commander and second-incommand to spend as much time as possible looking outside. The flight deck discipline wasn't far removed from what I've seen from the Blue Angels Fat Albert C-130 flight demonstration team: (https:// www.youtube.com/watch? v=Z9h_pD9wC_k) I will say a B-17 in a steep

turn is nothing short of inspiring. And a little bouncy, too. Bent knees helped ensure I didn't leave the catwalk while scanning

What a remarkable aircraft. Preflight on Freda's Cessna 152 takes about five minutes. We took the better part of an hour preflighting the B-17 for the morning flight. I managed to douse myself in W120 oil (37 gallons per engine), splash around feeling for the bottom of four prodigious fuel tanks, refill and pressure check the hydraulic system, and...clean the windscreen. I think my long arms played a part in that assignment.

the racetrack for other aircraft.

I met many, many enthusiastic Americans, while guarding the flight deck, and had the honor of conversing with three veterans, members our greatest generation, as they opened up about their experiences flying B-17s and B-24s in the war. One gentleman looked young, every bit of 70, and as he finished recounting his last mission he commented he felt pretty good for 90. Ninety! One son explained his father couldn't be with us today, as he'd passed in 1993. His mother took ample notes as his father described the missions, and these notes formed the



THE BURNETT AIRSHOW (CONT)

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basis for the book 'Flight of an Eagle'. As an aside, he said the nose art on his dad's B-24, "Kentucky Belle" is none other than...his mother. (http://www.aviationmuseum.net/images/ AK23.jpg)

We were able to generate two heritage flights, where folks could experience flight in the B-17, and through their contributions, help keep this flying tribute in the air. We can't thank them enough for their participation -- this plane simply could not fly without them. With pop-up showers threatening to force a change in the flight plan, we generated one last sortie -- the positioning flight home to David Wayne Hooks airport, near Houston. It was just about heart stopping to see that aircraft lift off and turn east. Then...silence.

Freda and I made our way to the car. It was time to go home. We had one last stop in mind, though. We'd heard the barbeque pit just off the airfield was worth the trip, so we asked a kind gentleman how to find it. Juan, the maintenance chief for Bluebonnet Belle pointed to a sign that just peeked between the hangars and said, "that's the place...but you should check it out next time you're in Burnet -- why don't you join us at the 'Survivor's Party'? Follow me!"

Hosted at the youth outreach organization called Freedom Flyers, (http://freedomflyers.org) the Survivors Party was a chance for the airshow organizers to unwind, share some food and some stories, and take a load off their feet. I was ever so grateful for the chance to sit down. Freda and I met several outstanding folks, and regretted having to leave after such a short visit. While there, we were told the Highland Lakes CAF Squadron meets at the museum at Burnet Airport every Saturday, and we're all welcome to stop in and visit. (http:// www.highlandlakessquadron.com)

We left Burnet with a lump in our throat. In this age of uncertainty, it's so easy to throw up our hands in disgust as the world around us seems to double down on stupid. But there in Burnet, we saw something; we saw an America worth saving. I think we owe it to our greatest generation to try.

Looking for another local airport destination?

KSSF (Stinson Field)- Bernards Creole Kitchen

New this Spring—They have daily \$5.99 lunch specials Mon-Sat. I am always a proponent of patronizing Airport Diners—especially nearby! See www.funplacestofly.com for other great ideas

THERE'S NO PLACE LIKE GNOME

Russ Turner

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As many know, I have gone completely Bonkers and am ponying

up for a new build Gnome Monosoupape 9-B2 100 horsepower nine cylinder ROTORY engine for my full size replica Sopwith F.1 Camel. I'll be replacing a wonderful Rotec 9 cylinder radial. A support contractor to movie director Peter Jackson's exten-



sive WW1 collection is doing a run of CNC machined parts based on the original, but with better metallurgy. There is about a two year or so lead time, so good to get the Camel replica up to the Ohio Aerodrome and finish tweaking the bugs out while flying on the Rotec.

As most know, a rotary aircraft engine is where the crankcase is bolted to the propeller, and rotates around the fixed crankshaft



attached to the airplane. During the early years of aviation, these engines provided the best power to weight ratio of any aviation engine then available, and powered many of the most famous Great War aircraft on both sides. While not the standard Camel engine, during wartime

A 100 hp Gnome 9-B2 rotary aircraft engine,

shortages the Gnome 100 HP was substituted for the more common Clerget and LeRhone engines which were in high demand.

Among the many idiosyncrasies with the single valve Gnome was its lack of a throttle, having only a mixture control and an ignition cut-out "blip" switch. The engine ran typically "on" or "off", and speed was controlled by blipping the motor. To reduce power, the pilot can 1. turn the fuel off 2. turn off (blip) the ignition. This gave the characteristic sound of rotaries on and off all the time. Another very characteristic trait is the full loss oil system using castor oil; there is no oil return! The oil and fuel are injected into the engine crankcase, much like a 2 cycle motor, and then drawn into the cylinder from ports at its base. Castor oil was used as it was poorly miscible with gasoline (at that time, 40 – 50 octane no lead) – and of course, there was the distinctive smell of burnt castor oil and the unburnt castor oil coating parts of the

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plane as it was thrown from the 1200 rpm engine.



I had always heard it was a to verify the current 20 gallon fuel and 5 gallon oil tank 4. were going to meet the requirements. Published 100 Gnome B-2 fuel consump-

tion figures are 94 Imp. pints per hour, or 14.1 U.S. gallons per

hour. Wow! The oil consumption is pretty high as well - 17.1 Imp. pints per hour or 2.5 gallons of oil per hour! Powerwise, with propeller airplanes of this ilk it's all about TORQUE. The Gnome B-2 is published as 113 horsepower at a normal running speed of 1250 rpm, or 474 ft-lbs of torque. As comparison, the currently mounted Rotec R-3600, in theory*, makes 150

hp at 2400 propeller rpm for 328 ft-lbs of torque, although the peak is probably more near 2000 rpm at 340 or so ft-lbs.

While the final effect on performance comparing the Gnome to the Rotec is just a guess, I am expecting a bit more acceleration and climb and about the same or better cruise. If it makes the same performance as the original 100 Gnome Camel, the rotary engine plane will be a bit faster (although pretty moot) at well over 100 mph at normal engine running.

I've gotten the English Gnome 100 manual and am memorizing it, but I'm learning from current Gnome and other experienced rotary operators would be good before I



Valve timing, Gnome

saddle up to have this thing waft me into the air.

Editors Note: Russ has accepted a new position in Dayton Ohio and is currently building—you guessed it—a WWI aerodrome in the Dayton area. His Sopwith Camel, a fixture in the skies over Castroville since Russ's first flight (pictured above) will find a new home there this summer and will, no doubt, be right at home at the Dawn Patrol gathering at the National Museum of the US Air Force.

Regulations For Operation of Aircraft Commancing January 1920

- 1. Don't take the machine into the air unless you are satisfied it willfly.
- 2. Never leave the ground with the motor leaking.
- thirsty engine, so we needed 3. Don't turn sharply when taxiing. Instead of turning sharp, have someone lift the tail around.
 - In taking off, low at the ground and the air.
 - 5. Never get out of a machine with the motor running until the pilot relieving you can reach the engine controls.
 - 6. Pilots should cary hankies in a handy position to wipe off gogdes.
 - 7. Riding on the steps, wings, or tail of a machine is prohibited.
 - 8. In case the engine fails on takeoff, land straight ahead regardless of obstacles.
 - No machine must taxi faster than a man can walk. 9.
 - 10. Never run motor so that blast willblow on other machines.
 - 11. Learn to gauge altitude, especially on landing.
 - 12. IF you see another machine near you, get out of the way.
 - 13. No two cadets should ever ride together in the same machine.
 - 14. Do not trust altitude instruments.
 - 15. Before you begin a landing glide, see that no machines are under you
 - 16. Hedge-hopping will not be tolerated.
 - 17. No spins on back or tail slides will be indulged in as they unecessarily strain the machines.
 - 18. IF flying against the wind and you wish to fly with the wind, don't make a sharp turn near the ground. You may crash.
 - 19. Motors have bee known to stop during a long glide. IF pilot wishes to use motor for landing, he should open throttle.
 - 20. Don't attempt to force machine onto ground with more than flying sped. The result is bouncing and ricocheting.
 - 21. Pilots will not wear spurs while flying.
 - 22. Do not use aeronautical gasoline in cars or motorcycles.
 - 23. You must not take offor land closer than 50 fet to the hangar.
 - 24. Never take a machine into the air until you are familiar with its controls and instruments.
 - 25. If an emergency occars while flying, land as som as possible.

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United States of America War Office

Runway 35 May 2013

Volume 55 Issue 5

THE BUILDER'S CORNER **OIL PRESSURE SAVVY**

pressure, and if you have

Mark Julicher EAA 35 Technical Advisor

Once your engine is running and the oil pressure is up, oil is directed throughout the engine so that metal does not touch metal, but rather, the metal parts slide on a thin film of oil. However, before oil pressure develops, lubrication is provided by residual oil that may (or may not) be on the various engine parts.

Imagine an engine that has been sitting for a month without operating. Much of the oil has dripped back into the oil pan and there is very little oil up on the camshaft or the piston rings etc. When the engine first starts, metal scuffs on metal until the oil pressure can build up and force oil between the moving parts.

dry engine am I willing to tolerate be-

fore the oil begins to do its job?" Are you that person that sets the throttle at 2000 RPM on engine start? Ouch. How many more dry revolutions are scuffing your bearings than with the throttle set at a nice 1000 rpm idle?

Imagine an engine that has been sitting for a year or more. This pump will not create suction is not uncommon. How could you start it without risking seri- to get the oil flow going. On a ous damage? Try this: remove the top spark plugs and pour or small Continental, (A65, A75, spray about $\frac{1}{2}$ ounce of oil into each cylinder, (yep, the bottom C85, etc.), if the engine sits for plugs may get fouled, but this is not a big concern). Now, with a long time, (say one to three the plugs still out, motor the engine with the starter until you months) it is just about rousee oil pressure. (Yes this can be done on an engine without an tine that gravity will slowly electric starter but only if you ate your Wheaties.) Excellent! Put pull the oil back to the sump the top plugs back in and start the engine. Let it run until any and the pump housing will be fouled plugs clear.

Are you getting the picture that the lowly oil pressure gauge is a critical item? After engine start, your very next action should be Now suppose the oil pump to check the oil pressure, and don't look away from the oil pres- housing is worn out? There sure until you see the pressure rise to its idle value. Personally I may be a large clearance be- Oil Pump Impeller With Cover Removed count to ten "potatoes" and if I don't see any oil pressure I tween the impeller teeth and switch off the magnetos. It is not uncommon to get zero oil

Ask yourself, "How many revolution of a Inside of Lycoming Accessory Case Showing Oil Pump

So what might cause the oil pump not to work? Great question. This style pump, while extremely effective and reliable, is not self-priming. If there is no oil in the pump housing to seal the gap between the impeller teeth and the pump housing, the

empty. The next engine start will produce no oil pressure.

(Continued on page 12)

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not had this malfunction yet, well, keep looking and expecting and you just might save an engine.

The most common oil pump is actually two impellers rotating

inside a housing. You can't see the oil pump inside your accessory case, but that is where it is located. Look at photo one. Here is an accessory case with the impellers (black gears) situated inside their housing with the housing cover removed to make them visible.

Visualize oil entering the pump housing through the hole at the right side. The impeller teeth pick up small parcels of oil, pushes them all the way around the perimeter of the oil pump housing, and deposits the parcels at the left side of the pump housing where the oil exits through another hole. In this example, the top impeller is rotating counterclockwise and the bottom impeller is

BUILDERS CORNER (CONTINUED)

(Continued from page 11)

three. Here, one impeller is removed and you can see the alumiwould work with deep scoring in the housing wall.

What will cause the housing to wear out or score? That one is easy. Infrequent oil changes leave contaminants in the oil that can wear at the housing. Even an oil filter is not 100% insurance against some grit making it into the oil passages.

> oil pump can be accomplished in one of several

> ways. If the geometry of the engine has the oil

screen above the impel-

lers, you can remove the

screen cover and squirt

tries allow oil to be squirt-



Oil Pump Housing

ed into the oil temperature sender well. Use caution when doing this because it is very easy to bend or twist the oil temperature capillary - very expensive and causes much shouting. If you are very patient, you can squirt oil into the oil pressure line leading to the pressure gauge, (only for a direct reading gauge, not electric, of course); I keep a large veterinary syringe handy just for priming through the oil pressure line.

The oil pump housing on a small Continental is actually hogged out of the accessory case and the impellers turn inside this housing. If the housing gets worn out, the accessory case (back cover of the engine) must be repaired or replaced. Note that the accessory case is aluminum or sometimes magnesium. In both circumstances, steel and carbon impurities in the oil are much harder than the metal housing and will wear it out.. The oil pump housing on a typical Lycoming (O-235, O-320, O-360) is a separate part bolted to the inside of the accessory case. It is much easier in this instance to replace the oil pump housing.

Perhaps you recall that a while back there was a series of airworthiness directives involving Lycoming oil pumps. Certhe oil pump housing. There might be scoring on the oil pump tain Lycoming oil impellers were made of sintered iron. These housing walls. In these cases, the oil pump will lose its prime impellers began to fail, so the first attempt at a fix was to replace much faster than an engine with tight tolerances. Look at photo one impeller with an aluminum impeller and leave the other one made of steel. This fix was not satisfactory, so by now all of num wall of the pump housing. Imagine how poorly the pump these oil impellers should have been replaced with casehardened steel impellers. However, if you are contemplating buying an engine that has been stored or inactive since the mid 1990s, please double check that the oil impeller AD is accomplished.

> Mark Julicher is an EAA technical advisor and frequent contributor to this newsletter for which the editor is immensely grateful. He can usually be found at Bulverde Airpark and would love to help you with If your oil pump loses its your technical issues. His contact information is in the back of this prime, then priming the Newsletter.



NAME THE PLANE

Doug Apsey

OK fellow EAA'ers, this sharp little biplane is this month's Mystery Plane. Be the first to contact me at dapsey@satx.rr.com with the following information and lunch is on me at the June Chapter 35 fly-in picnic.



Who designed it? What is its designation? i.e. C-172, PA-24, etc. Is it a homebuilt or factory built? Within 3 years, what year did it first fly?

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APRIL MYSTERY PLANE REVEALED

Doug Apsey

Congratulations to Charlie Brame for guessing the April mystery airplane. It is the BK1.3 which is the tricycle gear version of the BK1 designed and built by Bruce King of San Antonio. It is a plans built airplane although the web site mentions that pre-fab parts may be coming depending on builders demand for them.

The BK1.3, like the BK1, has a wing span of 19 feet, 4 inches, a length of 15 feet, 4 inches, and an empty weight of 450 to 480 pounds. It carries 15 gallons of fuel and can be powered by a 60 to 80 hp converted VW engine available from Great Plains Aircraft.



Max cruise speed is 130 mph with a fuel burn of 3.5 gallons per hour. The little bird can get off and land using only about 700 feet of runway and has a stall speed of 48 mph at full gross weight. Although small in size, the airplane was designed to accommodate a 250 lb, 6 foot 4 inch pilot and still carry 30 pounds of cargo.

Estimated build time is 1500 to 2000 hours at a cost of between \$12,000 and \$15,000. Plans for this great little homebuilt are available from Bruce through his website (www.bkfliers.com). He also has pictures and videos available on the website to assist builders. It is apparent that Bruce is not afraid to fly his BK's all around the country. There are several pictures on the website taken during his trips to Oshkosh and Sun 'n Fun.

YOUR HEALTH (CONT)

(Continued from page 3)

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Carcinoma, Diabetes Mellitus - Type II Medication Controlled (Not Insulin), Sleep Apnea, Glaucoma, Testicular Carcinoma, and Hepatitis C

The AME may be authorized to issue an AASI Third-Class Only for: Coronary Heart Disease (to include):, Angina Pectoris, Atherectomy, Brachytherapy, Coronary Bypass Grafting, Myocardial Infarction, Percutaneous Transluminal Angioplasty (PTCA), Rotoblation, Stent Insertion (PCI), and Valve Replacement.

What it IS NOT: AASI is not a procedure to bypass initial FAA evaluation of a medical condition. It is a procedure designed to expedite reissuance of previously approved Special Issuance certificates by including the AME in the decision process. AASI is not designed as a procedure for First and Second Class applicants with cardiovascular disease. At the present time, the AMCD reviews and issues all professional class medical certificates for this condition.

Ramifications for the Airman: The AASI for all classes now require the AME to complete a specified worksheet for the medical condition, and to note his/her responses on Item 60 of the electronic FAA Form 8500-8. To avoid delay for medical certification issuance, it is incumbent on the airman to assemble all required information listed on their Authorization Letter, and to present this complete information to their AME during the examination visit. Failure to complete all items required by the Authorization Letter, and the AME's inability to complete the required worksheet will result in a prolonged time to complete the FAA Form 8500-8.

Most AME's currently charge a professional fee for airman certification that barely covers the cost of their time and equipment. The additional requirement for the AME to complete worksheets only adds to this cost factor, and may result in higher fees in the future. As the FAA continues to cost shift their work to designated examiners, it seems likely this will be passed on to the end-user – the pilot. To avoid delays, please consult with your AME to ensure you will maximize his/her time spent with you in a cost efficient manner.

RB "Doc" Hecker is a Senior AME at 1T8 who recently upgraded his Commercial Pilot certificate to add Airplane Multi-Engine Seaplane. The above pictured P/W R-985 powered N21PN 1952 Beech D-18S on Bristol (Edo) floats is located at Pirate Cove, AZ on the Colorado River. Joe Sheble, Sr. of Sheble Aviation was the Designated Pilot Examiner.



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Brian Goode



There are still some Chapter 35 Tervis Tumblers available for sale through the Country Store. The embedded logo is a embroidered patch between the insulated lavers of the tumbler, not a stick on label.

They can be purchased at any of the Chapter 35 functions or by stopping by Hangar 53 at San Geronimo Airpark when you are out visiting your aircraft. The price

remains at \$16.00 each and are packaged in quantities of four. Give Brian Goode a call at 727-709-1159 and reserves some today.

The Chapter is excited to introduce a new locally designed and produced (Yup Made in Texas, USA—*Really*!) product to tell you about, the Aero- Camper Chocks. These wheel chocks are lightweight, portable and durable. Designed for use on grass or dirt parking areas, they work equally well on pavement or tarmac.

These units are precision water-jet cut from 6o61 aluminum extrusion, hand finished and powder coated. Chocks are 2-1/2" X 5" long. At only 7.5 oz. for a

\$10

\$5 \$8

\$20

\$16

\$3

\$2

\$2



pair of chocks, they provide secure chocking without sacrificing useful load or space.

These wheel chocks are available for a \$21.00 / pair donation to the Chapter. Most people are getting two sets, one for each main wheel. They will soon be on display at all Chapter 35 functions, or you may call the Country Store at (727)-709-1159 to reserve a couple sets.

EAA CHAPTER 35 CATOLOGUE

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Cloth Chapter 35 and EAA Notional caps				
Mesh Chapter 35 logo caps				
SWRFI caps (collector's item)				
Denim Shirts: Only 2 Large Short sleeve left				
Tervis Tumblers				
Chapter 35 cloth logo patches (sew on)				
Bumper stickers				
Chapter 35 logo stick-on stickers (Per inch)				



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The FINE PRINT: Please note that, as always, in the past, present, or future, any communication issued by the Experimental Aircraft Association Chapter 35, regardless of form, format, and/or media used, which includes, but it not limited to this newsletter and audio/video recordings, any digital formats including any EAA Chapter 35 website, is presented solely for the purpose of providing a clearinghouse of ideas, opinions, and personal accounts. Anyone using the aforementioned does so at their own risk. Therefore, no responsibility or liability is expressed or implied and you are without recourse to anyone. Any event announced and/or listed herein is done as a matter of information only and does not constitute approval, control, involvement, sponsorship or direction or any event local or otherwise.

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CHAPTER CALENDAR					
МАҮ	11	SPRING CLEANING!! Yard/Chapter Building Work Party	EAA Chapter 35 Clubhouse 10:00 am – 12:00 pm Lunch Served at Noon		
JUNE	8	ANNUAL CHAPTER 35 PICNIC Chef, Prep Cooks, Servers Needed	EAA Chapter 35 Clubhouse 11:30 am to?		
JULY	13	FLY-IN BREAKFAST EVENT Chef, Prep Cooks, Servers Needed BOD Meeting	EAA Chapter 35 Clubhouse 8:00-10:00 am 10:30 am		
AUGUST	10	DAYTIME MEETING Speaker: Dave Baker "Demonstration of steps to cut open and inspect an oil filter"	EAA Chapter 35 Clubhouse Lunch 11:30 am Meeting/Program 12:30 pm		
SEPTEMBER	14	DAYTIME MEETING Speaker TBD	EAA Chapter 35 Clubhouse Lunch11:30 am Meeting/Program 12:30 pm		
OCTOBER	12	DAYTIME MEETING Speaker TBD	EAA Chapter 35 Clubhouse Lunch 11:30 am Meeting/Program 12:30 pm		
NOVEMBER	9	ANNUAL CHILI COOKOFF Annual Membership Meeting David Larson "Idaho Backcountry Flying."	EAA Chapter 35 Clubhouse Lunch 11:30 am Meeting 12:30 pm		
DECEMBER	14	EAA 35 Holiday Dinner	EAA Chapter 35 Clubhouse Social Hour 12:00 pm Lunch 12:30 pm Gift Exchange 1:30 to 3:00 pm		
			•		

Upcoming Events (200 mi of 8T8)

Aviation Calendar of Events websites

Aero Vents	http://AeroVents.com
EAA	http://www.eaa.org/calendar
Fly-ins	http://www.flyins.com

Saturday, May 4, 2013

EAA Chapter 1347 Monthly BBQ (Fly-In) Fayette Regional Air Center (3T5) - LaGrange, TX (99mi)

Friday-Sunday, May 10, 2013 - May 12, 2013 1ST ANNUAL LONESTAR MAULE ROUNDUP Llano, Texas (KAQO), 88 miles from 8t8.

Saturday, May 11, 2013 Pancake Breakfast Fly-In (Young Eagle Rally) Free pancakes coffee and discount fuel. Second Sat. of every month New Braunfels - New Braunfels, TX

Saturday, May 11, 2013 TXAA Safety Day and Fly-In San Marcos, Texas (KHYI) 62 miles from 8t8. Saturday, May 11, 2013 11:00 a.m. - 1:00 p.m. Smithville Airport Fly In http://www.smithvilletx.org Smithville, Texas (84R) 104 miles from 8t8.

Saturday, May 18, 2013 Armed Forces Day Celebration & Fly-In Brady, Texas (BBD) 119 miles from 8t8.

Saturday, May 18, 2013 Hondo Army Air Field Fly-in Hondo, Texas (KHDO) 25 miles from 8t8.

Saturday – Sunday May 24-25, 2013 Ranger Fly-In & Airshow No.6 (Air Show) Ranger Antique Airfield - Ranger, TX, 176 miles from 8t8

29 July-4 Aug-Airventure (Oshkosh)

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WANTED AND FOR SALE

FOR SALE: Complete RV-8 Quick Build Kit with O/H Lycoming IO-360 engine (minus starter/mags/prop) - \$50K being removed as part of the panel upgrade on my RV-Contact: RB "Doc" Hecker at www.assenddragonavaiation.com or tcflyingdoc@yahoo.com

FOR SALE: Early RV-3 kit. Tail; feathers, flaps and ailerons finished and primed. Wings are finished but are the old version and only useable for parts. Have cowling, windshield structure, gear parts, wheel pants, engine mount, etc. All sheet metal and formed bulkheads for fuselage. Zero time Lycoming O-320-E3D engine with all new parts. Include engine log book and builder's log. Health forces sale. Tom Gould 830-663-4448 or nazca9t@hughes.net

FOR SALE: Stolp Starduster Too SA 300. Eng. Lyc



O320 (160 hp), newly rebuilt, constant Speed Hartzell Prop, 30 gal fuel tank, new Ceconite fuselage cover, full flying surfaces rejuvenated. MUST SELL -Make Offer, Call Dan Cerna at (210) 688-9345.

FOR SALE: Subaru EJ-22 engine, Ser. # 589390. Includes single 4-barrel carburetor, Mallory ignition, planetary reduction drive. Proven system, removed from flying aircraft. \$3100 Chuck @ 979 218 6153

FOR SALE: Hegar brake master cylinder. 7" single control, Bore size - 5/8" (0.625). Includes brake bleeding kit, misc. fittings. \$95 Chuck @ 979 218 6153

FOR SALE: Main wheels for UL or light experimental. One pair Matco Model MH6B wheels, with brake calipers, new brake pads, new wheel bearings, new Air Trac 15X6.00X6 4-ply tires. \$295 Chuck @ 979 218 6153

FOR SALE: One unused Air Trac 15X6.00X6 4-ply tire. \$40 Chuck @ 979 218 6153

FOR SALE: Garmin GPS 195 with all original accessories. Outdated, but simple and fully functional, good for navigational assistance in VFR conditions. \$100 Chuck @ 979 218 6153

FOR SALE. All items were functioning normally prior to 6A.

- Apollo GX-60 GPS/Com, Apollo ACU (annunciator), and • Jeppesen Skybound The GX60 is TSO-C129a Class A1 approved for IFR non-precision approach operation. The com function supports monitoring the stand-by frequency. I'll also include a Trans-cal model SSD120 altitude encoder (passed IFR check (3/12). - \$2500.
- Vertical Speed Indicator United model 7030, 0-3000 fpm, \$100
- Altimeter United part no 5934PD-3, Lighted (passed IFR check 3/12), \$150
- Airspeed Indicator United part no 8125, \$100

Pictures available on request. Contact Dick Flunker, email RFlunker at ATT dot Net, or call 214-793-5546.

HANGAR SPACE FOR RENT (8T8): Several new hangars will soon be available for rent. If you are interested in renting a brand new 40 foot wide by 32 foot deep hangar,



please contact one of the following EAA Chapter members (listed in alphabetical order): Brian Goode,

Richard Gramling, Joe Killough, Lew Mason or Ron O'Dea. Their phone numbers are listed in the new EAA Chapter 35 Directory. There might be others for rent, but we don't know about them. The hangars have concrete floors and will have electric and water service run to them.

HANGAR SPACE FOR RENT (8T8): I will have a thangar (30A) available 6-1-2013 Contact. Doc Hecker. 210-391-1072.

FOR SALE: Hangar at Boerne Stage Airfield, 5C1. 30' x 40', elevated office and storage, shop, storeroom, and,

toilet. Airport fee \$540 per year, includes water, trash disposal and runway access. See at HangarHunter.com

Contact Bill Bartlett 210-865-4591 Email: bartlettsat@gmail.com





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EAA Chapter 35 is part of the worldwide network of EAA chapters. EAA embodies the spirit of aviation through the world's most engaged community of aviation enthusiasts. EAA's 170,000 plus members enjoy the fun and camaraderie of sharing their passion for flying, building and restoring recreational aircraft. Our clubhouse and building facilities are located at San Geronimo Airpark (8T8) located off FM 471 (Culebra Rd) West of San Antonio.

For over 50 years Chapter 35 has represented aviators of creativity who share a passion for flying. Come join us!



San Antonio, TX 78253 15464 FM 471 W., #14 Ron O'Dea, Membership Chairman

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