EAA THE SPIRIT OF AVIATION

RUNWAY 35

The Official Newsletter of EAA Chapter 35, San Antonio TX

EAA CHAPTERS GOLD 2019

Sept. 2020

Volume 63 Issue 9

Inside this Issue

Next Event

September 12

11:30

Link via member e-blast or contact vicepresident@eaa35.org for your login

Runway 35 is published monthly as a free service for our members and our flying community by EAA chapter 35.

Publisher: Chuck Fisher

Editor: Andrea McGilvray

eaa35news@gmail.com

19th Amendment, 1920—2020

By: Andrea McGilvray

Harriet Quimby

I put in quite a few links to great articles so that further reading can be done. I hope you enjoy this history in the making.

Even though women could not protect their rights by voting, some women were not going to be held back and were brave and were the foremothers of us lady pilots. There are many firsts of not well-recognized women.

To put some perspective on today's hot buttons, women of all colors had less rights than men for over 100 years! Margaret Brent (c. 1601 – c. 1671) was one of the first feminists to fight for her rights to not be a man's property. Link to more info:

1802 was the end of slavery; the big movement for the right to vote for women started in 1848, and on August 18, 1920, women's voices were officially to be able to vote and be heard! Here is a great article on The 19th Amendment https://www.history.com/topics/womens-history/19th-amendment-1.

Women have been flying since 1908 and were enormously influential during the whole progression of aviation! Harriet Quimby was the 1st woman certified pilot in America.

In 1915 Marjorie, Katherine Stinson were San Antonio's 1st Lady flight instructor and founder of the Stinson Airfield. In 1915 the Stinson School of Flying was established by siblings Marjorie, Katherine, and Eddie Stinson. https://www.sanantonio.gov/Mission-Trails/Mission-Trails-Historic-Sites/Detail-Page/ArtMID/16185/ArticleID/4464/Stinson-Airport

(Continued on page 4)

Next Gathering

National WASP Museum

12 Sept 1130 social/1200 talk

Via ZOOM

look for the link in your e-mail

PRESIDENTS COCKPIT **DARREN MEDLIN**

Welcome to this month's newsletter.

A big thank you to Jeanette Hunt for her presentation on the history of San Geronimo Airpark at our August gathering. Jeannette's photos and stories of the founders taking the airpark from a field full of rocks to the gem is today was inspiring and humbling. If you missed the event or want to hear the story and see the photos again, go https://eaa35.org/ and scroll down to the "videos" section on the right side. There you will find a link to the recording. Jeanette serves as the historian for the airfield property owners association and has graciously agreed to be our chapter historian as well.

That link to a recording of our last gathering is courtesy of long-time chapter member, and RV-12 pilot, Ian Heritch. Ian has taken on the responsibility of keeping the chapter's website current and fresh. If any members are experienced with Drupal 7, and would be willing to tutor Ian, please email him at iheritch@gmail.com.

We all need a little help from time to time. The big shade tree now has two "crutches" under the longer limbs. These repurposed powerline poles fit right in and should keep our old friend upright for years to come.

The grass looks good in the photo thanks to Tim Carter and a long, hot ride on the mower. Thank you Tim!

Rafael Cortes ran a great EAA 35 online VMC club meeting in August which saw participants from Central California to Baltimore, Maryland. I learned by listening to very experienced pilots from Houston and elsewhere. If you are a pilot and want to learn and share thoughts on how to make better decisions, and get FAA WINGS credit, you should join us on 18 September for the next Chapter VMC Club meeting.

EAA 35 member Frank Pisz was a guest speaker for UTSA's recent STEM online summer camp for special needs students. Frank shared the story of his aviation and engineering journey and how he overcame a hearing impairment to get multiple FAA certificates and do amazing engineering work around the country. Frank, who is one of the chapter aviation mentors at Southwest High School, also wrote an article for the most recent Texas Aviation Magazine, a STEM focused publication for students and teachers. Check that out at www.stemmagazine.com/tAUG20/viewer/desktop

Peggy Fisher and BJ O'Dea spent a day cleaning the storeroom in our clubhouse. In the process they uncovered the need for an exterminator to treat the facility. Without us all stomping around the building a few times a month the bugs and critters have gotten a little too comfortable indoors. Hopefully by the time your read this they will have learned the error of their ways and vacated

It's summer in Texas so keep your cool and fly safe and I look forward seeing you online at our 12 September gathering.

Darren Medlin

Virtual VMC Club

VMC Club Date: Friday September 18, 2020
Time: 6PM
Location: Virtually on Zoom

Our next VMC Club will be on September 18 VMC Club, and the subject will be: "Accident Analysis: The JFK Accident"

Description: In a partnership with MZeroA, we'll discuss the events and decisions that ended with the tragic accident of JFK. We'll talk about flying VFR into IMC, and learn from that accident and from each other.

Rafael Cortes
EAA Chapter 35
VMC Club Program Coordinator

This webinar has been scheduled and airmen have been notified.

Earn your WINGS to get a chance to win a cash prize. Go to www.mywingsinitiative.org for more info. Join us on Facebook: https://www.facebook.com/groups/GASafety/

Earn your WINGS to get a chance to win a cash prize. Go to www.mywingsinitiative.org for more info. Join us on Facebook: https://www.facebook.com/groups/GASafety/

CHAPTER BULLETIN BOARD

Brenham Airport Diner Closed Permanently

With heavy hearts we say goodbye. With unexpected turns and many bumps along the way the light at the end of the tunnel has been extinguished, we are closing our doors.

Brenham Airport's Southern Flyer's 50's Diner/Restaurant is closing its doors for good in Brenham. We want to thank all of you for your support during this time of the epidemic, the thousands of phone calls and your encouragement and prayers. It was your calls that made us try harder to make it happen. Your kind words made each day bearable through such terrible times, so thank you!!!

We will miss you!!!

God's Blessings to you all.

HELP WANTED

Here is your chance! We need a few volunteers to help with a host of projects and maintenance activities for your chapter. We'll update this section with photos of your success and new volunteer opportunities as they come up.

FINISH/SEAL ADIRONDACK CHAIRS – 2 volunteers needed to seal the new Adirondack chairs using either spray or brush finish. Contact Paul Wurster secretary@eaa35.org

FABRICATE PROTECTIVE BARRIERS/FRAME – 2 volunteers are needed to fabricate protective Vinyl barriers for the clubhouse serving area and a frame/curtain for the treasurers desk – contact Jane Kellogg jkellogg@kellogglc.com

FACILITY MANAGER – 1 motivated individual who can maintain a schedule of clubhouse events and maintenance needs. Position includes chapter provided enterprise email account (facility@eaa35.org) , calendar and other online tools. Coordinates meal service plans for meetings and keeps the board of directors informed about facility maintenance needs.

There will be no planned Meal at this time.

Please follow chapter 35 e-mail, eaa35.org webpage and facebook (https://www.facebook.com/eaa35/) for update as to activities and meals

Continued ... 19th Amendment, By Andrea McGilvray

(Continued from page 1)

Katherine Stinson was nicknamed the flying schoolgirl!

Kathrine Stinson

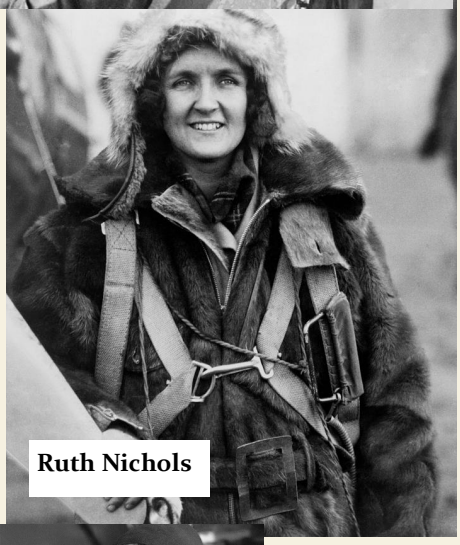
Florence-Klingensmith

This wonderful organization did bring women together to have a voice in aviation and help each other. The Ninety-Nines has become a worldwide recognized organization that promotes by providing scholarships, mentoring, and much more to all those ladies that become infected with the aviation virus. Once bitten by the flight bug, it is hard to find a cure except for more flight time.

Ruth Elder

Olive Ann Beech was very instrumental in the Beech aircraft. In 1950, Olivia became the CEO and took over the operations. She was often referred to as the 'First Lady of Aviation'. https://www.flyingmag.com/photo-gallery/photos/beechcraft-history/

Olive Ann Beech



Ruth Nichols

The common piece of these ladies was not willing to give up and have the love to fly. Prove to themselves and others that it can be done.

Everyone knows Amelia Earhart's name. She was born before the 1900 century (July 24, 1897), and she did exactly what she wanted to. Between stubbornness and not willing to let others negatively influence her, she accomplished massive hurdles.

Amelia Earhart

There were many ladies that most people never have heard about and were as instrumental in aviation. Florence Klingensmith, Ruth Elder, Ruth Nichols, and Louise Thaden were four others of that era. These ladies started the "Ninety-Nines" - https://www.ninety-nines.org/.

Mrs. Louise Thaden

A great book called "Fly Girls" by Keith O'Brien provides a great understanding of these and other amazing lady pilots.

(Continued on page 5)

Continued … 19th Amendment by Andrea McGilvray

(Continued from page 4)

Female Pilots Student 15,971 (12.49%)
Female Pilots Non-Commercial- 10,247 (6.08%)
Female Pilots Commercial - 6,081 (6.32%)
Female Pilots Airline 6,888 (4.36%)

Fascinating statistics link here:

"In 1960, only one in 21,417 women held an "other-than-student" pilot certificate; by 1980, the ratio had become one in 4,224, the best representation of female pilots within the general population ever. Today, to have a chance to randomly meet a female pilot in the United States, you would have to meet 5,623 women. Wow, so much for progress! Significant progress between 1960 and 1980; at an overall standstill ever since ." quoted link …

There are still hurdles, but they are getting smaller and smaller -interesting Statistic. There are a total 2019: 664,565 pilots in America.
52,740 are women

TABLE 6
ESTIMATED ACTIVE WOMEN PILOTS AND FLIGHT INSTRUCTORS
BY FAA REGION AND STATE
DECEMBER 31, 2019

FAA REGION AND STATE	Total Pilots	Students	Private 1/	Commercial 1/	Airline Transport 1/	Misc. 2/	Flight Instructor 3/	Remote Pilots 3/
Total 4/	**52,740**	**27,255**	**10,683**	**7,038**	**7,503**	**261**	**7,957**	**10,818**
United States--Total	**50,015**	**26,137**	**10,115**	**6,182**	**7,321**	**260**	**7,749**	**10,734**
Western-Pacific Region--Total	**8,843**	**4,403**	**1,906**	**1,236**	**1,262**	**36**	**1,452**	**1,660**
American Samoa	0	0	0	0	0	0	0	0
Arizona	1,676	765	354	279	273	5	348	272
California	5,925	3,083	1,340	750	726	26	861	1,162
Guam	14	5	4	2	3	0	3	6
Hawaii	501	221	77	90	112	1	92	93
Nevada	726	329	131	114	148	4	148	127
North Mariana Islands	1	0	0	1	0	0	0	0
U.S. Affiliates 6/	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**
Outside United States and FS Total 8/	**2,786**	**1,163**	**576**	**863**	**183**	**1**	**217**	**86**
Armed Forces Personnel 5/	**61**	**45**	**8**	**7**	**1**	**0**	**9**	**2**
AA (Americas)[5]	0	0	0	0	0	0	0	0
AE (Europe and Canada)[5]	25	18	5	1	1	0	7	2
AP (Pacific)[5]	36	27	3	6	0	0	2	0
Federated States of Micronesia	0	0	0	0	0	0	0	0
Marshall Islands	0	0	0	0	0	0	0	
Palau	0	0	0	0	0	0	0	
Outside United States (Foreign) 7/	**2,725**	**1,118**	**568**	**856**	**182**	**1**	**208**	

1/ Includes those with an airplane and/or a helicopter and/or glider certificate.
2/ Includes recreational and sport.
3/ Not included in total.
4/ Includes pilots certified by the FAA, who live outside the 50 states and other U.S. areas, territories, and affiliates.
5/ Military personnel holding civilian certificate and stationed in a foreign country.
6/ Includes Federated States of Micronesia, Marshall Islands, North Mariana Islands and Palau.
7/ Outside United States (Foreign) includes airmen certified by the FAA, who live outside the 50 states and other U.S. areas, territories, and affiliates. Also includes those with unidentifiable addresses.
8/ FS stands for the Fight Standards Region, which includes Armed Forces as explained above (#5), and Federated States of Micronesia, Marshall Islands, and Palau.

This was the 100th Anniversary of this memorial day. There were a total of 7 women and 4 airplane from both the Ninety-Nines and Women in Aviation came together to do a fly over San Antonio to encourage women from all walks of life to look up and see there is no ceiling in today's world. Link to article:

My whole life has always been in male-dominated fields, from work to hobbies and there are have been times where it was challenging.

It is not easy yet I will say from personal experience, that in today's world, women are missing the target and using the past as a excuse. Today both employers and industry know there are strong ableness and effectiveness that women bring to fields that had been elusive to women. Today, anyone can do anything compared to 30 years ago, and more and more barriers are removed daily.

One of the obstacles I see is finding the young ladies that want to say, "YES, I want to work or play in these fields". I hear from some that they don't think they can do it because of "a reason". I agree with them at first but then ask them, what if that is not true! I tell them, don't believe in others limitations. We all have enough limitations of our own, we don't need more. Some realize their belief is just that, a belief, and not the truth. The truth is usually far different.

Also a really good article on why it is a challenge for women to be in the airline industry. Mom's are just that, it is hard to be gone all the time and be that kind of mom you want to be. Here is link to a great article about it what EasyJet is doing. It requires flexibility.

CAE is a organization is encouraging women to pursue their dreams as professional pilots!

I can tell you that if I believed all those people in my past of what I should or should not do, I would never have followed my dreams,. My dreams have come true and more are still to come.


7 women and 4 airplane

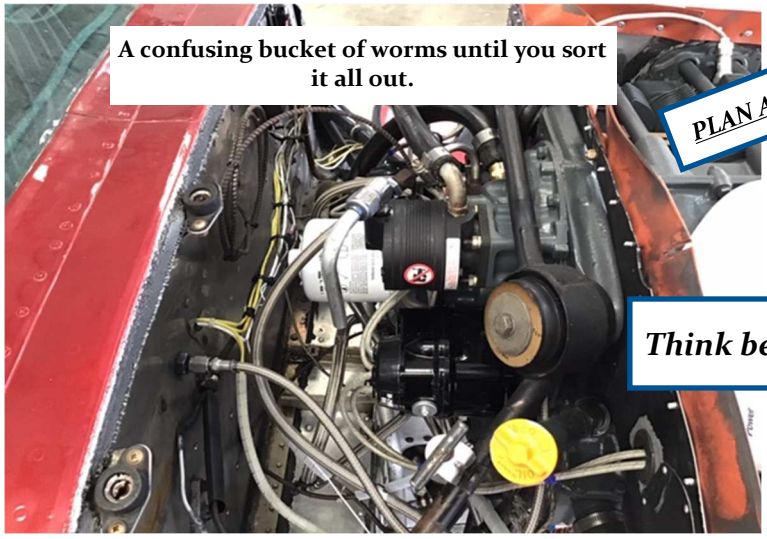
Here is a Movie link of what happened in the final decade from 1090-1920

Planning and Populating Your Firewall

by Mark Julicher

Your fuselage is built, your engine mount is in place and the engine is hung. Congratulations!

Now What?



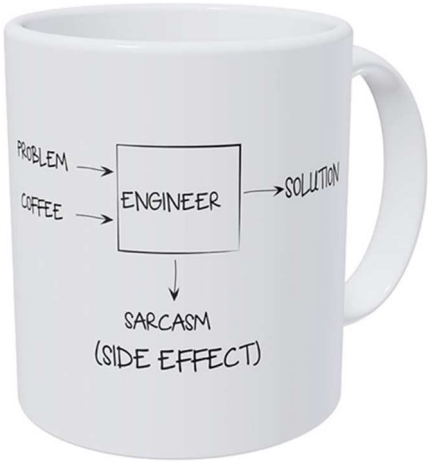
A confusing bucket of worms until you sort it all out.

PLAN AHEAD!

Think before you act.

Now comes the task of interfacing the engine and firewall. I say "interfacing" because the job is much more than just hooking stuff up.

Contemplate the real estate available between the accessory cover on the back of your engine and the firewall. Sometimes it is abundant. Often it is scarce. Determine if there is enough distance to remove accessories. For example, a typical magneto/drive gear assembly extends well into the back of the engine. It may be impossible to install or remove a magneto if the distance behind it is too short to allow clearing the drive gear. The same is true with certain starters and occasionally even an oil filter can't be removed for lack of clearance.



What, if anything, can be done? The standard answer to all such queries is, "*It depends.*"

Consider the Luscombe model 8. These are really short on real estate. The engine is where it is and can't be moved forward due to center of gravity issues. Luscombe solved the problem by hinging the engine mount. The engine can swing (somewhat) out of the way and that allows freedom to take stuff off and put stuff on.

Aeronca had a similar problem, but different engineers come up with different solutions. In the case of certain Aeroncas, a steel bowl was recessed into the firewall giving clearance to accessories. It seems as though someone at the factory stole a dog dish and riveted it to the firewall - not really - but it makes a good story.

How about a Pitts Special? Well, just forget about it. You usually have to remove the engine to do anything next to the firewall of a Pitts.

What about your homebuilt? You have some license here. If room is tight you may need to consider adding spacers to the engine mount or some other clever trick to allow room to work between engine and airframe. Just remember these two rules:

Given that there is sufficient room for accessories, your next move is to take stock of what must be connected:

Engine controls
Fuel
Oil
Ignition wires and P leads
Instrument sensor leads
SCAT Tubes
Electric wires
Vacuum lines.

Begin with the least flexible, least adjustable hookup. If you have nose wheel steering, that is probably the most difficult hookup to work out. If you have a good set of plans then follow them closely because someone worked hard to develop the geometry of that system. If you develop your own nose wheel steering apparatus, then you should be writing this article.

Next in terms of importance and difficulty is the throttle. The throttle cable obviously must go from the throttle to the carburetor (or fuel servo). What's more, the throttle cable must run fairly straight and must be supported at intervals along its length. Allowance must be made for the throttle arm on the carburetor to swing through an arc without binding.

The throttle cable needs to run as smooth and straight as practical from the firewall penetration to the throttle. Throttle cable too short? That's bad. Throttle cable too long? That's also bad. Consider what might be in the way behind the firewall. If there is a control yoke or a fuel tank behind the firewall you will have a bit of figuring to do. If you get this right the throttle works smoothly. Get it wrong and the cable kinks and wiggles and never feels right.

(Continued on page 7)

(Continued from page 6)

The second most important engine control should be done next - the mixture. Often the mixture connection necessitates a significant bend (e.g.,as on a Marvel Schebler carburetor.) You may not have much distance to allow a smooth curve in the mixture cable. Once again you must consider what objects are on both sides of the firewall. It may be necessary to place a bell crank in a strategic spot to allow good mixture control action. Always keep in mind that if the mixture cable should disconnect there is a possibility of engine shutdown due to vibration. So, make it work smoothly with no binding.

Carburetor heat or alternate air controls can be hooked up third. This control cable is generally smaller in diameter than throttle and mixture and therefore easier to manage. Still, as for any push-pull control, the cable must be supported at frequent intervals or else it will flex and kink and won't do its job. Use sufficient cushion clamps to hold push-pull controls firmly.

So much for the basics, but there is much more to do. Here are some good rules of thumb.

1. Put electric stuff above fuel lines.
2. Run the stiffest most unwieldly items first.
3. Consider what may need to be connected/disconnected with the cowling in place.
4. Protect everything from heat and vibration.

Rule one is pretty obvious. Fuel dripping on wires is dangerous. Thermocouples and sensor wires that do not carry current are not an issue, but field wires and generator wires are another matter.

Rule two means that SCAT tube such as induction air, cabin heat, and carb heat need careful planning. Some SCAT tube installations look like bucket of snakes and that is bad news. Not only are there flow losses, it is miserable to try to connect everything. If you are developing such a snake nest - reconsider! Add an air scoop somewhere and reduce the SCAT run if at all possible. Furthermore, SCAT has a limited life when it is crammed into tight places where it chafes.

One more thing about SCAT tube. If you try to put a two inch SCAT tube onto a two inch duct it just does not work well. Make that a 1 7/8 inch duct and life will be beautiful.

Rule three - oh how many pages can be written about rule three! Consider, if you will, the induction intake of a Cessna 182. The intake must be disconnected from the carb air box before the cowling can be removed; however, the cowl flaps must be disconnected so that the mechanic can reach in with one hand and unlatch the intake from the carb air box. Originally that carb air box was latched with quarter turn fasteners - that was 40 years ago. But long ago some birdman replaced the long lost quarter turn latch with AN3 bolts and self-locking nuts. OK, try to remove THOSE with one hand! If no other option is available, put an access hatch on the cowling where an offending connection is located.

Rule four means that nothing should touch an exhaust pipe, and hoses and wires must be supported and protected. Examples: Fuel and oil lines should be covered in fire sleeve. Anything in danger of chafing should be protected with spiral wrap or split loom. Abundant cushion clamps should hold sensor wires, ignition leads, fuel lines etc. Anything that wiggles is bad.
So back to installing stuff.

After SCAT tube think about installing oil and fuel hoses. These hoses don't bend very tightly, especially when covered in fire sleeve. It might require some fancy work with AN fittings to make fuel and oil go where it should without making sharp bends and kinks.

Vacuum line is reasonably flexible, but it will still kink if you ask it to turn too tightly. Fortunately, vacuum pumps allow the inlet tube to face in any direction which helps considerably when routing vacuum lines.

Now about wires. Large generator power wires are not too difficult to locate because they flex fairly well. Put good ring terminals on these wires and protect them from heat and chafing. Small wires are another matter. The generator field wire need to be 20 or even 18 AWG, not for current carrying but for mechanical strength. Support it and protect it. Perhaps zip tie the field wire to the main generator output wire or run it inside the same spiral wrap as the larger wire. (Don't forget these are all stranded wire with aviation approved insulation and sized according to AC 43.13)

CHT and EGT wires break all the rules! They are thin. They are not stranded! That means they break easily under vibration. Again, support and protect these wires. Bundle them wherever possible.

Now let's discuss items that hang on the firewall. On your firewall you may have a voltage regulator, a gascolator, an over voltage relay, ignition capacitors, an oil cooler, starter solenoid, and remote oil filter, inverted oil cannister, and perhaps other items.

Let's place the gascolator first. It should be placed low. Fuel need so to run downhill from tank to gascolator as much as practicable. From the gascolator, the fuel hose should go all uphill or all downhill to the carburetor. That way there won't ever develop an air bubble trapped in the fuel hose. Visualize how air will rise and exit at one end or the other – that is good. From the gascolator to carburetor fuel must go through hose and NOT aluminum tube. When the engine shakes and vibrates a hose readily absorbs the flexing whereas metal tube will work harden and crack.

The voltage regulator must go up high. That way it stays cleaner and it keeps electric wires above liquids lines.

If you have an oil cooler or a remote oil filter hanging on the firewall, realize they take up a lot of space. These accessories may have both SCAT tube and hoses going to them. Not every plane has enough room for these items to be on the firewall. It may be necessary to locate an oil cooler somewhere on the engine baffling.

(Continued on page 11)

EAA 35 Safety Brief Density Altitude by Joe Shelton

All pilots learn about density altitude yet most pilots never experience the truly detrimental effect it can have. Brian, a friend of mine, flying a Piper Cherokee 160 and carrying all of his camping gear was on his way to OSH a few years ago. He landed at in Butte, Montana to refuel. It was a clear day and the temperatures was reasonable at about 85 degrees. The runway was much longer than the sea level airport he was based at in the San Francisco area, but the problem was that the airport was situated at slightly less than 5,500 MSL. To make a long story short, after a long roll he rotated at the normal speed and crossed the departure end of the runway unable to climb out of ground effect. The departure path was over slowly climbing terrain. It took him a couple of miles to gather enough speed to begin a normal climb.

Like Brian, the fact is that most pilots don't fly near gross weight and at high density altitudes during their normal flying. An AFW mission where there are one or more passengers and luggage and the requirement to operate from a particular airport can change that.

Here's a personal example. I was departing in my turbocharged Malibu on a mid-morning flight from what is essentially a sea level airport located near the California coast. With family and fuel, the aircraft was at gross weight, but with a 4000 foot runway I wasn't worried. I'd been flying from the airport for years and didn't give a thought to the required take-off distance because the POH indicated it was adequate. The problem was that the POH's performance calculations were for a new airplane and my Malibu's engine was nearing TBOH. Add to that the fact that it was an unusually warm morning and the result was a take-off run was much longer than I expected. We used over 3000 feet and I had ALMOST reached the point of pulling the power to idle and braking hard when the airplane finally lifted off and began a normal, albeit slightly anemic, climb. I've since adopted the rule of thumb that if I don't reach 70% of my flying speed by the half way point of a runway I'll abort.

But density altitude is something that can affect aircraft performance even when enroute. An acquaintance of mine with a couple of passengers was returning to his home in the Central Valley of California in his cherry Cessna 182. His altitude was fine for the majority of the trip, but he had to climb a few thousand feet to top the Sierra Mountain Range. Turns out that the OAT was on the order of 20 degrees higher than standard temperature and the airplane simply wouldn't climb fast enough to out climb the rising terrain. Luckily he started the climb early. Even though he was on the lee slide of the mountains there was practically no wind and the resultant downdrafts — think a HOT high pressure calm day. He orbited and climbed until he had gained enough altitude to continue toward his home airport.

Here are some things to consider to mitigate the effects of density altitude:

1. Carry less passengers, cargo, or fuel. Means a shorter take-off length and a higher climb rate.

2. Fly from a runway of sufficient length for the density altitude (with a large fudge factor, if you're smart)

3. Depart early in the morning when it is coolest or late in the evening when it is cooling.

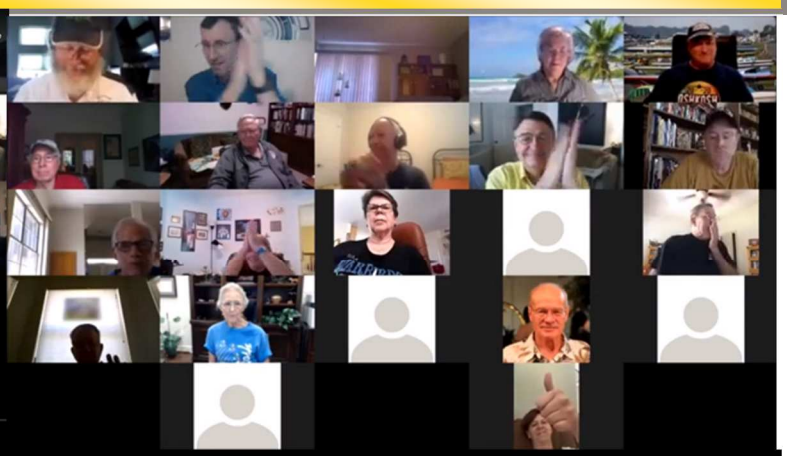
4. Fly a turbocharged airplane because the basic power is higher. But the wings and prop still suffer the effects of Density Altitude.

5. Lean the fuel mixture (if POH indicates it is appropriate for the engine) to achieve maximum power.

6. Winds decrease take-off run, so wind speed and direction (headwind component) can help.

The moral of these stories is that if you are operating near gross weight, if the temperatures are higher than standard, if you fly an older airplane, if there is any doubt, take the time to calculate take-off distances and be aware of the enroute effects of hot or even just warm days on the performance capabilities of your aircraft. And remember to lean for take-off if your POH indicates that is the proper procedure. It is also important to keep in mind that the performance charts in your POH are for a new airplane with an expert pilot and may include a "marketing fudge factor," especially for older aircraft.

—SEE MORE AT https://www.facebook.com/eaa35/ AND ON E-VERSION PAGE 22



—SEE MORE AT https://www.facebook.com/eaa35/ AND ON E-VERSION PAGE 22

And more rock...

Dennis & Bubba planting grass

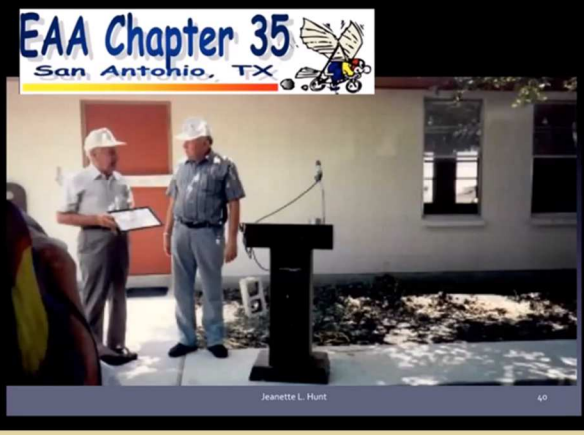
The workers

EAA Building - August 1987

EAA & Ops Building

Bubba donated the stone, labor

and the mesquite mantel for EAA



Founders - 2012

(Continued from page 7)

Lots of wires and cables must penetrate the firewall. There are several considerations here. First, firewalls are thin and will cut through wires, hoses and tubing. Holes in the firewall must allow extra clearance for some protective device. Second, it is probable that you will want to put a hole in the firewall exactly where there is no room to do so. Some control or radio, or what have you, will be on the inside of the firewall and in your way.

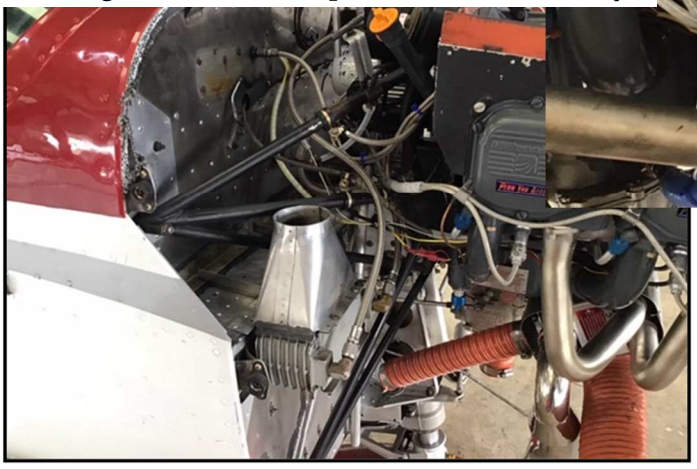
Carefully plan where to make holes in the firewall. Pilot drill the hole and double check both sides of the firewall. If the first location is bad it is still possible to plug the pilot hole with a rivet and make the hole somewhere else. Once you are satisfied with its location, use a step drill to open up the pilot hole. There are several good ways to protect stuff that goes through the firewall. Wires can easily be surrounded by a rubber grommet and then the grommet filled with RTV or firewall

Fire wall penetration protection devices

putty. Hard lines such as capillary tubes can likewise go through grommets. There are many other protection devices such as shown in the next photos.

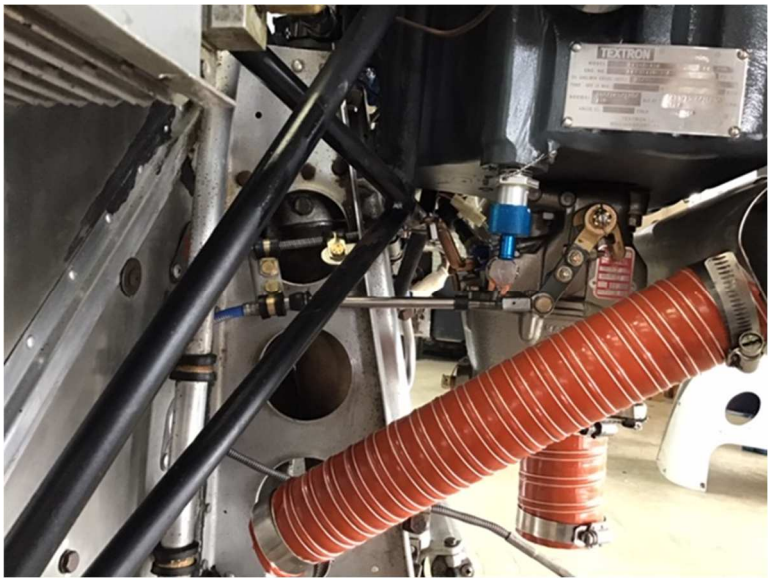
Often it is very difficult to install a tachometer drive cable. The common, mechanical tachometer drive works exactly like the old-style speedometer on a car. It consists of a flexible spring turning inside a flexible housing. The flexible housing should not turn tight corners, or the drive spring will wear out quickly. Sometimes a 90-degree adapter is the only answer and it is a good solution.

The following are some firewall photos with commentary



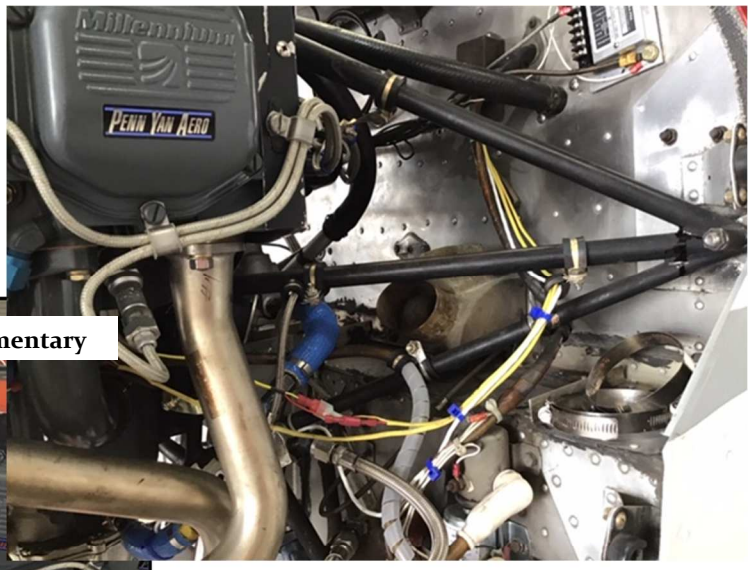
Right side of a Cessna 177. The ignition leads are well secured. It took some creativity to get the braided metal oil pressure line to go under the engine mount tube and then to the firewall pass-through fitting. Later on, the 3" SCAT tube for the oil cooler took up a lot of space.

The same C-177 looking low on the left side. The oil cooler is at the upper left. The central structure is the nose gear tower and everything else had to be worked around that. The throttle control is



clearly visible. The mixture control is above the throttle control and presented a challenge to attach it to the mixture arm of the carburetor.

Looking at the lower right side of the same C-177. Blue fire sleeve is on the fuel lines. EGT and CHT wires are clamped and zip tied. Spiral wrap is protecting a heavy gauge wire to the external power sole-



noid. The voltage regulator is at the top right. Remember to use only cushion clamps on engine mounts - never steel on steel.

.....Continued in October 2020 issues

WELCOME NEW MEMBERS:

Alan and Veronica Torres Freeman: Alan is from San Antonio where he is interested in anything that flies! He is currently restoring a Glasair 1RG. Alana may be contacted at: alan_freeman33@hotmail.com

Jesse and Heeyoung Marroquin: Jesse is an ATP Pilot with an A&E License. He is also a CFI, II, and Ground Instructor. Additionally he works with wood and fabric and would like to expand his knowledge base by mentoring with an IA. Jesse is currently restoring a BL17-30A and owns N4085B a 17-30A. Jesse may be contacted at: N4085B@gvta.com

CLASSIFIED ADVERTISMENTS

FOR SALE: J3 Kitten Ultralight. Lots of fun, I have flown it about 70 hrs and the engine may have 80 hrs total time. Aircraft is in good condition. Drum brakes, tailwheel is steerable. 4 point safety seat-belt. Has Rotax 447, but I also will sell the older 337 that needs to be rebuilt with it. AC located in Medina TX, I will fly it to KHDO (Hondo Texas) for transfer. Asking $6000

Call or TX Andrea McGilvray—210-413-7392 email: cowgirlcapital@att.net, for photos: https://sanantonio.craigslist.org/avo/d/bandera-j3-kitten-ultralight/7183666653.html

To post a classified—contact the editor at eaa35news@gmail.com

- *You must be an EAA Chapter 35 member.*
- *Ads are FREE and will run for 3 Months from the last date you re-verify that the item is still for sale.*
- ***PLEASE Notify me when your item sells!!***
- ***You must contact the editor by e-mail or phone to extend your ad beyond the expiration date***

AUGUST MYSTERY PLANE REVEALED

DOUG APSEY

Congratulations to Charlie Brame for correctly identifying the August mystery airplane as the Vultee A-31/A-35 Vengeance. The A-31 was a WWII dive bomber built by Vultee Aircraft. It first flew on 30 March, 1941. A modified version of the A-31 with a larger engine and improved armament was designated the A-35 Vengeance. Since the main Vultee factory in Downey, California, was busy building BT-13 trainers for the USAAF, the A-31/A-35's were built primarily at the Stinson factory in Nashville, Tennessee, and a few under contract by Northrop in Hawthorne, California.

Despite over 1900 of the design being built, none were used by the US as dive bombers during the war. Vultee built the prototype, designated the V-72, using private funds with the intention of marketing it to foreign governments rather than the USAAF. The initial production run was built for the French Air Force but after the fall of France to Nazi Germany, the majority of these aircraft were diverted to the British Royal Air Force, the Royal Australian Air Force and the Indian Air Force. Additional orders for the A-31/A-35's went to these governments as well and were used in Southeast Asia and the Southwest Pacific. The few that remained in the US were primarily used by the USAAF as target tugs until they were pulled from service in 1945.

The A-31 was powered by a 14 cylinder Wright R-2600 twin Cyclone radial engine that produced 1600 hp. Cruise speed was 235 mph and it had a range of 1400 miles. Typical of dive bombers of that era, the A-31 carried a crew of two, the pilot and a navigator/gunner. Armament consisted of four forward facing 7.62 mm Browning machine guns and two rear facing flexible mounted 7.62mm Browning machine guns mounted in the rear cockpit. The Vengeance could carry up to 1500 lbs of bombs in its bomb bay and on external wing mounts.

The wing of the A-31 had zero degrees angle of incidence which gave it zero lift during the vertical dive. The purpose of this according to the design engineers was to help keep the aircraft on target while diving. This, however, resulted in the airplane flying with a nose high attitude in level flight and caused significantly reduced forward visibility during landing. The unusual shape of the wing was the result of an initial miscalculation of the airplanes center of gravity. To correct this the engineers moved the wing back by sweeping the center section resulting in an unusual "W" shaped wing platform.

Production of the Vengeance ceased in 1944 with a total of 1,931 being produced. Of those, 1,562 served in the British RAF. Most countries using the A-31/A-35's retired them by 1945 with the exception of three that were used by the Brazilian Air Force that were retired in April, 1948. Possibly only one of the design remains today and it is on display at the Camden Museum of Aviation in New South Wales, Australia.

Sources for this article include:

https://en.wikipedia.org/wiki/Vultee_A-31_Vengeance
https://www.warhistoryonline.com/military-vehicle-news/the-vultee-vengeance.html
http://www.rafcommands.com/articles/the-vultee-vengeance-in-the-raf/

NAME THE PLANE

DOUG APSEY

Here is your mystery airplane for the month of September. Who will be the first to email me at dapsey@satx.rr.com with the following information about this month's mystery airplane?

1. What is its designation?
2. What aircraft manufacturer built it?
3. What year did it first fly?
4. How many were built?
5. What was its primary mission?

Vice President (Tour Director) Notes

Chuck Fisher

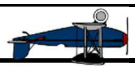
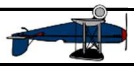
Let me start with the bad news. As we feared, EAA, in consultation with the chapters, has cancelled the Texas tour for the B-17 Aluminum Overcast scheduled for this fall. There was just no way to provide the experience folks deserve while ensuring their health and safety. We are hopeful that we can do it next year. In the meantime, the crews hope to do proficiency flights nearer to Wisconsin this fall, and return to a more normal schedule next year.

Holy Cow – did you miss the August Gathering? If so, you really missed a doozy. For our August gathering we enjoyed an outstanding look at the tireless dedication and hard work of a small group of dedicated pilot families to build San Geronimo Airpark, literally, by hand. This should be required material for everyone who uses this airpark. It's an amazing story, and thank you very much Jeannette Hunt for sharing it. If you missed it, look for the video on your website eaa35.org.

For September we'd hoped to finally get a look at Casey Fox's new T-6, but not quite yet. Can you imagine a build project running behind? So, instead I am going to build on the theme of "taking" you places you might not ordinarily go. "We" are going to travel to Sweetwater Texas and visit our tour guide Lisa Taylor at the National WASP Museum. This group of then young lady pilots entered service to their nation as civilians in uniform to test fly and deliver military aircraft around the world, fly target drones, and even instruct in some aircraft. Most went on to personal careers in obscurity after the war, but were finally recognized for their critical, pioneering role in our nation's aviation history over the past few decades. Sweetwater is where they trained, and their legacy is preserved in a now isolated hangar at the end of the airfield. Join us September 12th for a tour!

The link for the meeting will be distributed by e-mail a week before the gathering. If you are not getting chapter e-mails or are not on the list, please contact me at vicepresident@eaa356.org and I will send it to you.

CHAPTER CALENDAR — CONTACT EAA35VP@GMAIL.COM - *PROGRAMS ARE TENTATIVE AND SUBJECT TO CHANGE!*

SEPTEMBER	***12***	**Via ZOOM: 11:30 LUNCH; Program: Guided tour of National WASP Museum**
	18	**6:00 pm VMC Club VIA ZOOM (see FAA Wings page and e-mail)**
	19	Optional Activity (Fly-Out/Rally) TBA 
OCTOBER	***8-11***	**11:30 ZOOM: 11:30 social; Program: Casey Fox – Reincarnating a Warbird (T-6)**
		Board of Directors Meeting to follow
	16	**6:00 pm VMC Club; 7:30 pm Movie**
	17	Optional Activity (Fly-Out/Rally) TBA 
NOVEMBER	***14***	**11:30 <u>Annual Membership Meeting</u> and Election of Officers** **CHILI COOKOFF and Awards immediately following the meeting**
	20	**6:00 pm VMC Club; 7:30 pm Movie**
		Optional Activity (Fly-Out/Rally) TBA 
DECEMBER	***12***	***<u>CHRISTMAS PARTY</u>*** **11:00 Social Hour; 12:00 Lunch** **Gift Exchange to follow** (*~$15 target for gifts but that's up to you! See newsletter for more details)*
	18	**6:00 pm VMC Club; 7:30 pm Movie**

UPCOMING EVENTS

Aviation Calendar of Events websites

Aero Vents http://AeroVents.com
EAA http://www.eaa.org/calendar
Fly-ins http://www.flyins.com
Fun Places http://funplacestofly.com
Social Flight http://socialflight.com
Council of Air Shows https://www.airshows.aero/Page/ASCalendar
Milavia http://milavia.net

EAA Facebook Page: https://www.facebook.com/pg/eaa35

September 19-20—Under-the-Wire Fly-In Louise, TX 77455 - T26 Flying V Ranch

October 23-23-25 Reklaw TX - 7TA7

November 14, Hatz fly-in Kingbury—Fall Wings & Wheels Fly-In 85TE.

November 21, Flyin Hondo (KHDO) 11AM-3Pm. Food, Live Music, Airplanes! What else is needed? ***YOU***! For more information call 210-413-7392. Call/TXT

Over the past two weeks there have been some Facebook posts about damage to panels and aircraft finishes from cleaning/disinfecting agents. This morning AOPA posted a similar story from Florida:

https://www.aopa.org/news-and-media/all-news/2020/august/20/improper-disinfectant-appears-to-damage-two-skyhawks

Bottom line is to please be careful using household cleaners and sanitizers on or near aircraft finishes and electronics. Some contain high levels of alcohol, bleaches and other virus and bacteria killers....that can also kill your panel.

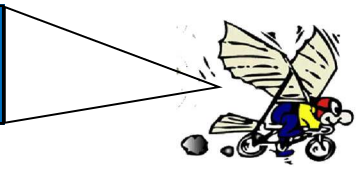
If you rent or share an aircraft, you should discuss this with your other pilots.

--

Chuck Fisher

EAA Chapter 35 Vice President

EAA Chapter 35 Leadership



Officers

President:	Darren Medlin	**Vice President:**	Chuck Fisher
(210) 875-9971	*president@eaa35.org*	*210-878-5561*	*vicepresident@eaa35.org*
Secretary:	Paul Wurster	**Treasurer:**	Dee Brame
503-933-8264	*secretary@eaa35.org*	*210-493-5512*	*DeeB@satx.rr.com*

Board of Directors

Past Presidents		**At Large**	
Nelson Amen (2012-2014)		Ron O'Dea	
210-834-1991	*nelson.p.amen@gmail.com*	*210-488-5088*	*r2av8r@gmail.com*
Kris Kelly, Director		Brian Goode	
210-621-5405	*krisikekelly@att.net*	*727-709-1159*	*ladybgoode@msn.com*
Andrea McGilvray, Director		Jane Kellogg	
210-413-7392	*cowgirlcapital@att.net*	*580-421-5998*	*jkellogg@kellogglc.com*

Chairpersons

Facilities:	Darren Medlin (Acting)	**Newsletter Publisher:**	Chuck Fisher
(210) 875-9971	*eaa35facility@gmail.com*	*210-878-5561*	*eaa35news@gmail.com*
Air Academy:	Maarten Versteeg	**Newsletter Editor:**	Andrea McGilvray
210-256-8972	*maarten.Versteeg@sbcglobal.net*	*210-413-7392*	*eaa35news@gmail.com*
VMC:	Rafael D. Cortes	**Scholarship Coordinator:**	Frank Covington
787-644-7829	*eaa35vmcclub@gmail.com*	*210-528-1076*	*eaa35scholarship@gmail.com*
Young Eagles:	Brian Smith	**Groundskeeping:**	Tim Carter
210-693-9816	*youngeagles@eaa35.org*	*210-289-1780*	*TexasTimCarter@gmail.com*
Tool Crib:	Lew Mason	**EAA Hangar:**	Lew Mason
210-688-9072	*lewnan@sbcglobal.net*	*210-688-9072*	*lewnan@sbcglobal.net*
Public Affairs:	Jose Garcia	**Membership:**	Ron O'Dea
	eaa35pr@gmail.com	*210-488-5088*	*r2av8r@gmail.com*
Website Host:	Kyle Jester	**Country Store:**	Richard Vinas
408-708-8698	*kyledesu@gmail.com*	*210-912-1699*	*vinas@sbcglobal.net*
Safety Officer:	Ron O'Dea	**Builders Coordinator:**	Kris "IKE" Kelly
210-488-5088	*r2av8r@gmail.com*	*210-621-5405*	*krisikekelly@att.net*

Flight Advisors

RB 'Doc' Hecker		Mark Julicher	
210-391-1072	*tcflyingdoc@yahoo.com*	*210-382-0840*	*mjulicher@earthlink.net*
Ron O'Dea			
210-488-5088	*r2av8r@gmail.com*		

Technical Counselors

RB 'Doc' Hecker		Mark Julicher	
210-391-1072	*tcflyingdoc@yahoo.com*	*210-382-0840*	*mjulicher@earthlink.net*
Nick Leonard		*Lew Mason*	
830-765-7481	*ohlson38@gmail.com*	*210-688-9072*	*lewnan@sbcglobal.net*

Country Store

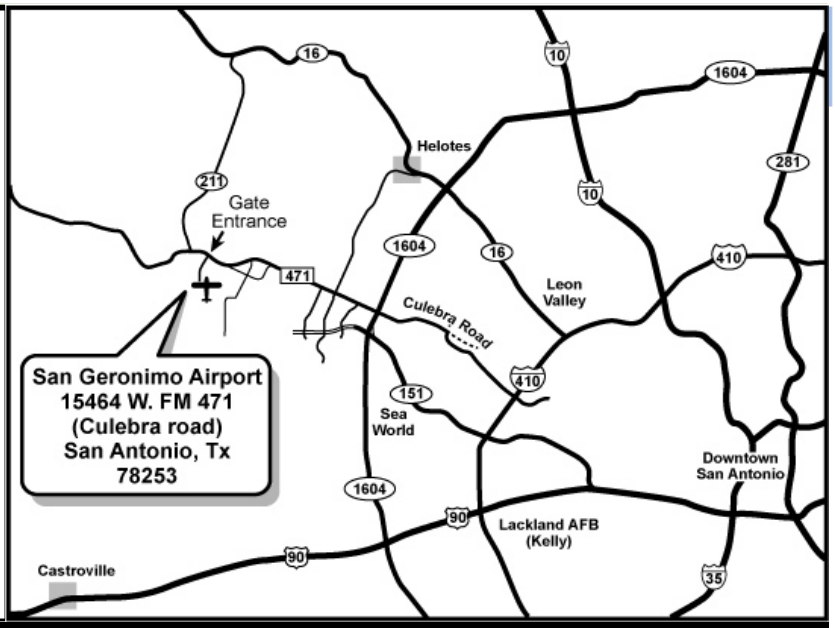
By RICHARD VINAS

Still doing business in the time of Social Distancing. A few people have taken advantage of their free time to work on their airplane exterior with WashWax-All products and have needed refills. No problem! Orders are happily accepted and filled (reasonably) quickly. Of course, cleaning products aren't the only merchandise you can get from the Country Store while we are distancing ourselves. Let me know what you want, and I can get it for you (or order it). If you call me or email me, I'll get back to you as soon as possible and start the process. You can also call me at (210) 912-1699 if you need a home delivery of any products, shirts, or any merchandise from the Country Store. We have postponed many of the future events, so we have even more time to think about suggestions for the big B-17 flight at Stinson when it gets rescheduled. Don't forget, we have lots of keychains, mugs, koozies, and stickers for those who are running out of gifts for friends.

These "Scrubbers" are great for de-bugging the leading edges of your wings.

TEXAS FLAG POLO SHIRTS	Sold Out - Can be ordered	$39.00
TEXAS FLAG FISHING SHIRT	One Medium- Men's	$46.00
YELLOW POLO SHIRTS	One Small	$31.00
	One Medium	
YELLOW FISHING SHIRT	ONE Small Men's	$40.00
KHAKI FISHING SHIRTS	ONE MEDIUM	
	ONE LARGE	
TEXAS FLAG APRONS	3 left	$26.00
Additional Items available		
BASEBALL CAPS (with logo)	SIX NEW ONES	$12.00
CHAPTER 35 DUFFLE BAGS	Only 2 left	$31.00
COFFEE MUGS	EIGHT	$7.00
REMOVE BEFORE FLIGHT KEY TAGS	Plenty	$5.00
KOOZIES	Plenty	$4.00
BUMBER STICKERS, DECALS AND PATCHES	Lots of them	$1.00 - $3.00
ALUMINUM WHEEL CHOCKS	3 Double sets	$40.00
WASH WAX PRODUCTS	Limited supply	$8.00 & up

Chapter 35 meets Each Second Saturday of the Month



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

Click Here for Link to 8T8 on AirNav.com

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

Paste Address Label Here

ALL You Need to Keep it Looking New!

Water-Based, Non-Corrosive, Alcohol & Ammonia Free. Meets Boeing Aircraft Spec. D6-17487P & D6-7127M

Wash Wax *ALL*
All purpose cleaner/ wax that you can safely use on everything you clean. Leaves an anti-static protective coating on aircraft, cars, boats, motorcycles, and RVs. Lifts dirt without scratching.
Spray On - Wipe Dry

Wash Wax *ALL* Degreaser
All purpose Degreaser/ wax that you can safely use for those tough, greasy, oily cleaning jobs such as, aircraft engine and exhaust areas, landing gear, car wheels and tires, boat transom and water line. Removes dirt and black streaks without scratching.
Spray On - Wipe Dry

Belly Wash
The quickest and easiest way to clean the dirtiest aircraft bellies, engine areas, and landing gear. Safely removes grease, oil, hydraulic fluid, and exhaust soot without scratching the surface.
Spray On - Wipe Dry

PlexALL
leaves an anti-static protective coating on all aircraft windows, both plastic and heated glass. Plex ALL is also safe to use on cockpit instruments and displays.
Spray On - Wipe Dry

NEW

Waterless Wash Wax Mop - Faster, Easier, Safer. NEW
The only mop with two sides. one wet and one dry. Now you can waterless wash and wax with the *reach and leverage* of an extension pole. This allows you to clean a much larger area faster and with less effort, while also eliminating the safety hazards associated with constantly climbing and moving a ladder. Our customers report time savings of up to 50% over waterless hand application.

Aero Scrubber
Soft, non-scratching, long-lasting, reusable scrubber pad. Use with Wash Wax ALL for removing bugs from leading edges and for tough cleaning jobs such as aircraft bellies and engine areas.

AeroTowel
All purpose microfiber towel. Super soft, absorbent, long-lasting, and lint-free. The best towel for all of your cleaning needs.

AeroDiaper
Soft, absorbent, lint-free, 100% cotton 1-ply diaper for all your cleaning and polishing needs.

NEW

Waterless Wash Wax Mop Starter Kit
All you need to get started with the new Wash Wax Mop.

Starter Kit
All you need to get started with Wash Wax ALL.

Leather/Vinyl Kit
All you need to clean, restore and protect leather and vinyl in one kit.

Cabin Cleaner
Cleans and removes beverage spills and stains from carpets, seats, tray tables, side panels, cockpit, and galleys.

SafeSolv
All purpose citrus solvent. Removes tar, oil, hydraulic fluid, adhesives, and gum. A safe, effective, alternative to toxic chemicals that is safe to use on paint, plastic, glass, bare metal, carpet, and seats.

Leather Soap
Safely and gently cleans leather and vinyl. Removes dirt, grime, body oils, and lotions.

Leather Care
Restores, moisturizes, conditions, and protects leather and vinyl. Repels dust and dirt without leaving oily residue. Provides long lasting protection.

Rubber Care
Easy to use water-based rubber and de-ice boot care product. Restores and protects rubber, giving that new semi-gloss look, without leaving an oily residue. Excellent on weather stripping, tires or any rubber or plastic item.

Water Spot Remover
Quick, easy, safe way to remove hard water spots from paint, plastic, vinyl, clear coat, gel-coat, bare metal, and other hard surfaces. Use Wash Wax ALL to prevent hard water spots.

PolishALL
Easy-on, easy-off liquid polish. Removes oxidation and fine scratches from paint, plastic, aluminum, silver, and other metals. Can be used by hand or with power polisher.

Wash Wax Clay
Safely removes surface contaminants allowing wax to bond better. Removes overspray, tree sap, acid rain, & rail dust. Safe to use on paint, plastic, glass, chrome, gelcoat, and other hard surfaces.

AERO COSMETICS®

Sold By:

THE EAA CHAPTER 35 COUNTRY STORE