Volume 25 issue 2

# THE SLIPSTREAM

THE NEWSLETTER OF GREEN RIVER EAA CHAPTER 441 KENT, WA

February 2023

## Next Meeting

Thursday, 23 February 7 PM

17618 S. E. 303rd PL, Kent

## This Month's Program

Edwin Sharp discusses Critical Incident Response planning.

## Inside this Issue:



## President's Column

Days are (slowly) getting longer (Hurray!). For my part, I'm working on annual inspections so the airplanes will be ready for the "flying Season" as Jake would call it.

But the workshop season is not over quite yet. Since I reported on my discoveries of the sensitivity of Resourcinal glue to temperature in the curing cycle, I've been busy laminating spar caps for the Mite project...while carefully keeping the temperature in the shop above 72 Deg. F. Activity has picked up in the shop and progress is being made.

I'll be anxious to see what progress our other members have made on their projects. That's what our meetings are all about. Join us on Thursday to listen and share. This is where you get your questions answered. I'll bring along some metal parts from my restoration project and get advice on what can be saved and what I will need to replace.

And, even though Christmas is past us for this year, the Northwest Aviation Convention and Trade Show is still ahead of us. In fact, it's next weekend (after our meeting). I got a program in the mail; it's available on line. Great seminars all weekend long, and of course many vendors to visit with. I've started working on my "list": things I need in the near term, things I want to talk about for the future.

Fly safe.
Brian

## Chapter Officers

President: Brian Lee
(253)-639-0489
Vice-President: Mark Owens
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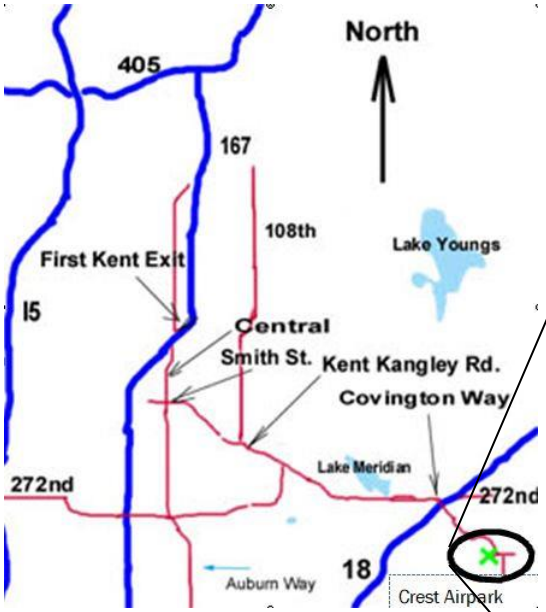
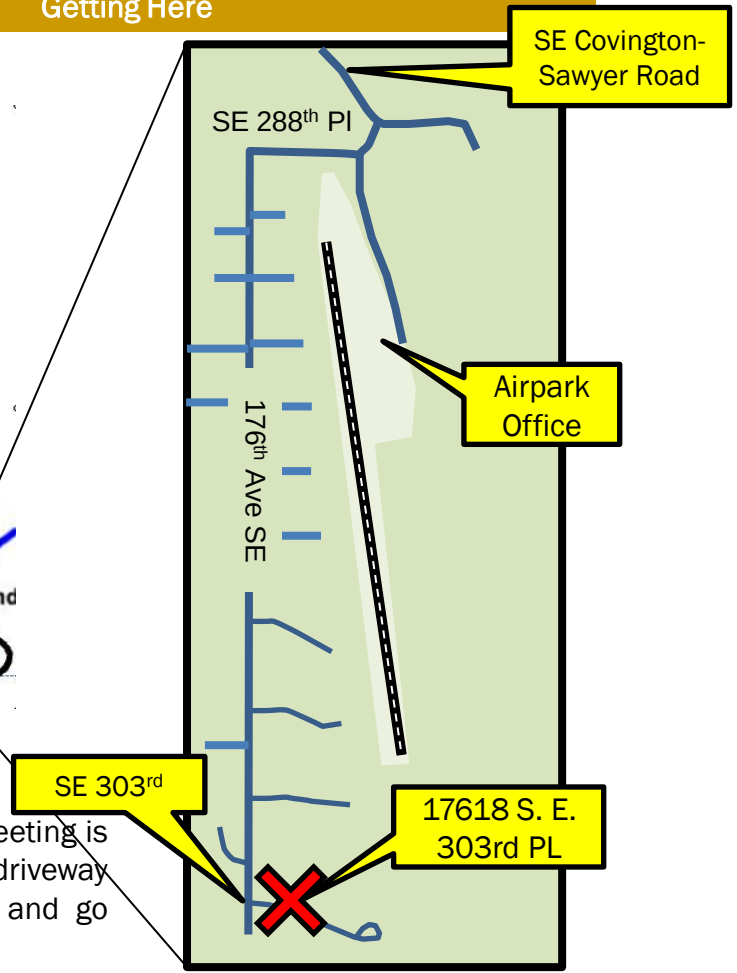
## What did we talk about Last Month?

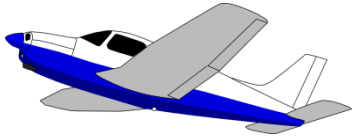
**Bruce Finney demonstrated the FlyQ application**

## Getting Here




Park along side of road at 303rd, meeting is at the second house. Walk down the driveway between the garage and the house, and go downhill to the hangar

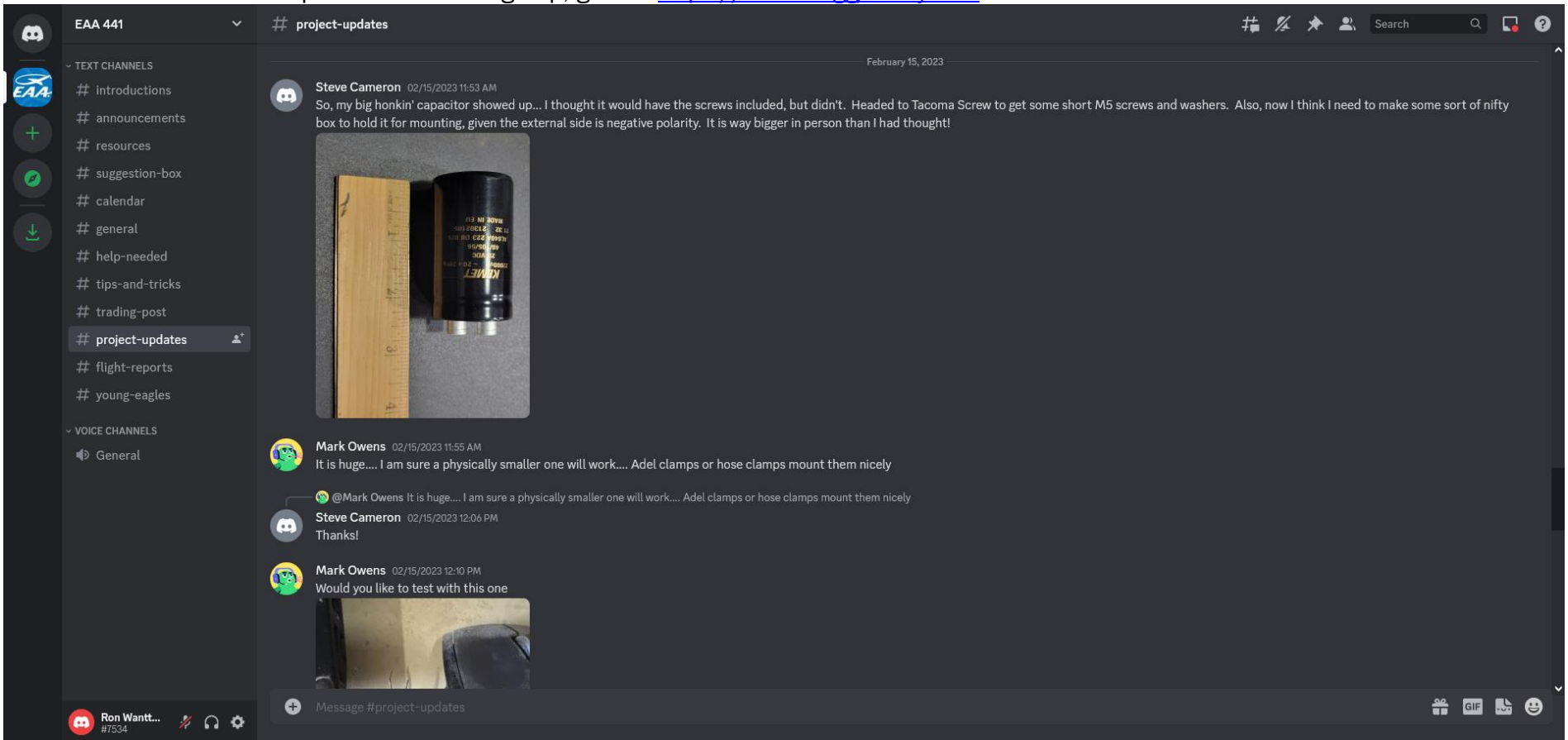


Chapter 441 is fortunate to have two tech counselors. Feel free to call Brian (253)-369-0489 , or Dave Nason any time. You don't need to wait for some significant milestone in your project.

Remember, this is not an "inspection". The shop doesn't need to be cleaned for a visit. All are quite used to looking at pieces, parts, and assorted bits, and will be happy to answer questions, offer advice, and generally talk about projects, building, flying, or whatever.

## Chapter 441 Online Forum

At the EAA 441 meeting last week, Edwin Sharp offered to set up an online forum for Chapter 441 using the Discord server. It's a free service without ads or spam content, and can be accessed via mobile apps or on your PC via a web browser. Edwin has set up the forum. To sign up, go to: https://discord.gg/RU7ydzze



## EAA Joins Response to Leaded Avgas Ban Legislation in Washington State

EAA has joined other general aviation associations in opposing a bill introduced in the Washington state House of Representatives that would ban the sale of leaded aviation gas in that state. The bill (WA HB1554) would, as of January 1, 2024, begin a phased-in restriction (completing in 2030) on the "selling, distributing, or otherwise making available to consumers" leaded avgas in Washington state. The letter signed by EAA, the General Aviation Manufacturers Association (GAMA), Helicopter Association International (HAI), and the National Air Transportation Association (NATA) was sent prior to a committee hearing on the bill held on February 1.

In the letter, the associations reaffirm the industry's commitment to moving to a lead-free fuel. The groups also point out that a ban on leaded aviation fuel would cause an immediate threat to aviation safety in Washington state for owners and pilots of aircraft that require that fuel. Moreover, the legislation would bring an instant economic hardship for small businesses that sell fuel at airports, as pilots would avoid FBOs in Washington to get fuel just over the border in neighboring states and provinces.

EAA and the industry associations will continue to monitor developments regarding this bill and urges EAA members and pilots in Washington state to do the same.

## FAA ECG Policy Fits Pattern of Positive Reform

In late October the FAA changed its standard on electrocardiogram (ECG) findings for medical applicants, decreasing the types of results that would lead to a medical deferral. While Class II and III medical holders are not subject to routine ECG testing, the FAA also mirrored the change in its protocol for heart arrhythmias, which all airmen are required to note if diagnosed.

The change allows airmen with a "First-degree AV (atrioventricular) block with PR interval less than 300 ms (0.30 sec)" to receive a medical certificate without deferral. This change was actually known informally to the aeromedical community as far back as 2018 but was formalized in the October change to the FAA's list of 18 "normal abnormal" ECG findings that do not require medical deferral.

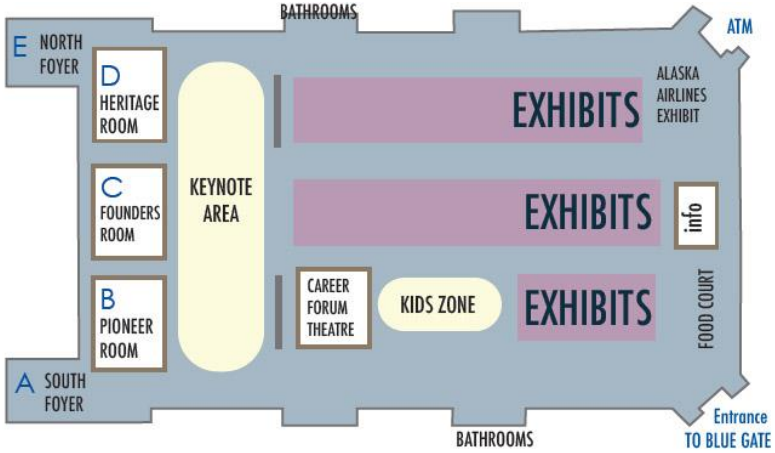
The FAA made this change because airmen with this abnormal – but benign – result almost never showed any concerning indications upon follow-up testing, so the FAA eliminated the deferral requirement.

For over three decades the Washington Aviation Association has been pleased to present the Northwest Aviation Conference & Trade Show at the Washington State Fair Events Center in Puyallup, Washington. It returns on February 25th and 26th.

This event has grown to over 75 hours of safety seminars and 122,000 sf of aviation displays with an annual attendance of over 10,000.

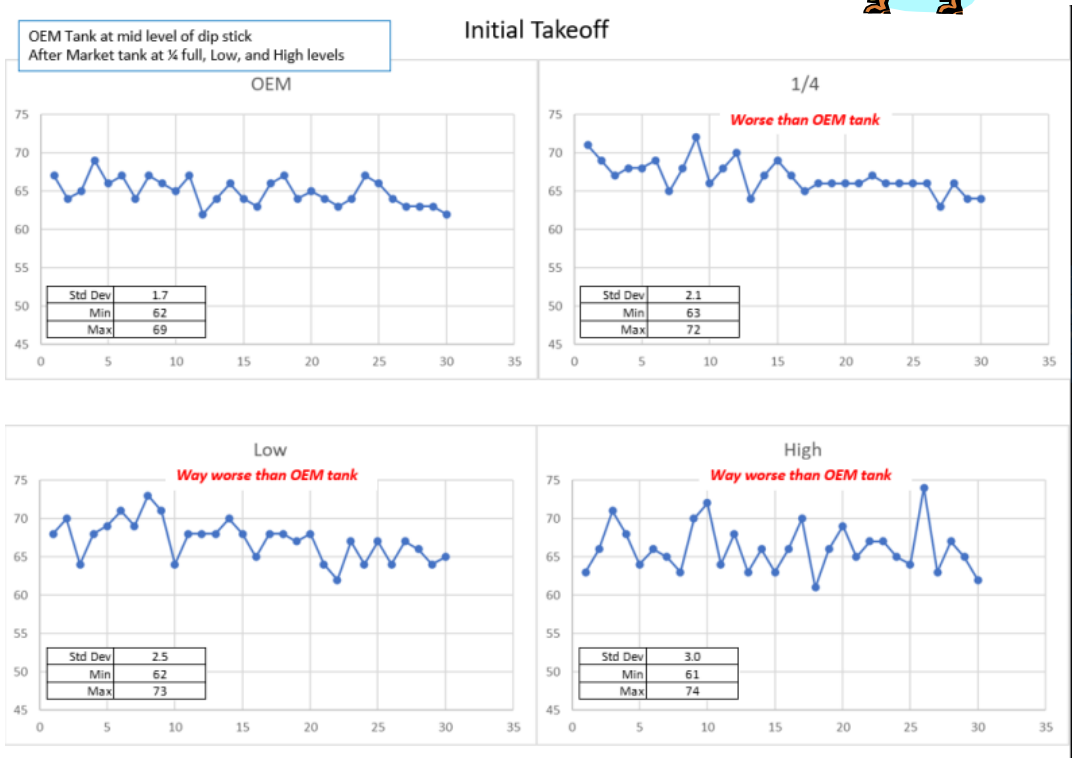
This event is an opportunity to support the Northwest aviation industry, share ideas, learn new skills, be a safer pilot and create relationships with businesses, aircraft owners, and pilots.

The event is at the Showplex Exhibit Hall, Washington State Fairgrounds in Puyallup. Saturday hours are 9:00AM to 5:30PM; Sunday is 10:00AM to 4:00PM. Admission is $10 a day, but there's free parking in the Blue Lot.

*(Last month, Steve reported he was getting oil aeration in the oil delivered from the tank to the oil pump for the Yamaha engine).*

The oil aeration issue continues after my final flight today (2/15) in my test matrix. Unfortunately, the new oil tank I installed (like the OEM tank, but with an extra baffle) didn't do the trick no matter its oil fill level. In fact, in most cases it made things worse. People said to try less oil in the tank, so I tried right at the bottom of the fill range, 1/4 full, and right at the top of the fill range. The charts you see are Oil psi in the vertical axis and 30 seconds on the horizontal axis. They are at essentially equivalent RPM settings on the engine. Wide Open Throttle for takeoff is about 9,500 RPM, initial level off is usually about 6,500 RPM, and extended cruise is at 7,000 RPM. One flight was too short to get an extended cruise setting, so that one is missing. So, I'm back to the drawing board. The OEM tank actually performed better than my new tank, even during extreme oil aeration. These are updated charts to ensure I got matching 30-second slices.




VERDICT: No Goldilocks Solution..

*From the Chapter 441 Discord Forum*

This was "supposed" to be the final coat of epoxy to fill in any pinholes, scratches, and open weave on my RV forward canopy fairing prior to final sanding and was wiped down multiple times with mineral spirits followed by isopropyl alcohol before applying … but it appears that on one of the prior spot filling coats I must have had some amine blush that I sanded into the surface and it decided to make itself known. Back to sanding…

Going back through the pictures and trying to evaluate pre-sanding surface appearance I think a round of spot filler blushed on me. Since I was going to be away for a couple of days after I applied it I wasn't overly worried about speed of curing so I didn't bump up the hangar heat to 65 like I did on prior and subsequent applications and I remember it really clogged the 80 grit I started off with and I had to go down to 40 grit to "break through" before I could do anything productive with 80, and then sanded out the entire fairing. So slightly late reminder to self - when the sandpaper clogs right away it's time to clean before sanding further….

Fish-eyed epoxy sanded back down, residual contamination cleaned with multiple acetone washes, and fairing cosmetics almost completed using the (to me) tried and true glazing putty approach. Still need to remove the front masking and feather edge, but at least for now it's starting to feel like there might be an end to this activity.

*From the Chapter 441 Discord Forum*

A few more rounds of sanding and filling and sanding and filling and sanding and filling later and finally about as happy as I'm going to get with it. Not ready for paint yet, but ready enough to give it a good coat of high build contrast primer and move on to other things. Thanks to Oddball (aka Tom Osmundson) for the help getting the canopy (+ fairing) up on the plane again

My big box from SteinAir showed up last week. I started working with them on it in October 2021 but between their backlog and delays in getting some of the components in it's taken a while to get to this point.

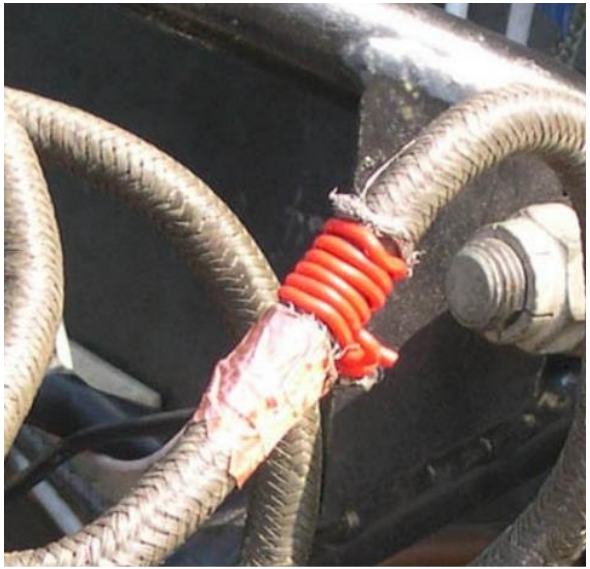

*From the Chapter 441 Discord Forum*

Back in ~October, my Fly Baby developed an ignition noise issue on the radio. I'd get a whine, with the frequency varying with engine RPM, on my comm radio headset.

After about five months, I ***think*** I've got it fixed. But as my wife said, "Huh, I've heard THAT before."

So…let me lead y'all through the process.

To start with, the noise seemed tied to the left magneto. Didn't do it on the right mag. My tachometer is a "Tiny Tach" ($50 from Aircraft Spruce) that senses RPM via a wire wrapped around a spark plug wire. It was connected to a plug wire on the left mag, so I suspected the shielding had gotten disrupted. Note the picture doesn't show the copper-tape shielding that wrapped around the entire area to shield it.



So…pulled the old copper tape off, re-wound the sensor wire, and added a whole batch of copper tape.

Fixed it? Not hardly. Went out to fly. Not only was the interference still there, but it was now on BOTH MAGS. Whiskey Tango Foxtrot?

What's more, the behavior was totally different. The ignition noise stopped when the engine was running above ~1200 RPM. Taxiing, or idling on short final, it was popety pop pop pop popety popety popity.

In the immortal words of Kermit T. Frog, "What the hey?"

About this time, Mark had given his excellent presentation on alternators. Something he said pricked up my ears: Failure of a regulator diode could allow ignition noise through. Did I have a bad diode in my B&C regulator?

Contacted the excellent technical desk at B&C. The technician said a bad diode would cause noise at any RPM, not just the lower ones. He asked how old the aircraft battery was. I had to admit it was over ten years old. Batteries, he said, act as capacitors, but they tend to lose the capacitance effect as they age. He suggested a new battery.

(Continued on next page)

## Chapter Member Activity: Ron Wanttaja, Bowers Fly Baby (the sad story continues)

So…I splurged and bought a new Odyssey PC680 from Amazon. $140. While I was at it, I ordered a new filtering capacitor from B&C. My old one was only ~2 years old, but might as well.

The battery box in my Fly Baby is accessible via a removable belly inspection panel. So stuck the battery in, closed up the belly, and replaced the capacitor. I bought a capacitor tester at the same time…it said my old capacitor was fine.

But no change. STILL had the interference.

Started to get desperate (e.g., P.O.'d) at this point. My airplane has a removable cover over the fuel tank and instrument panel aft of the firewall and in front of the pilot. So I pulled it off to see if I could see any issues. This is actually a pretty involved process, as I have to unwind the master turnbuckle for the rigging enough to get the cover off, as well as the top cowling.


Fortunately, this gives me excellent access to the electronics of the airplane. The radio coax, I noted, had to arc in a 180-degree curve to feed down to the antenna (my radio is an ICOM handheld with the BNC connector on top). Could that tight curve have caused a problem with the coax? Was it "leaking", picking up ignition noise now?

The coax had just been cheap pre-made units. I replaced it with custom RG-400 cable (e.g., aircraft quality). Added a new COMM antenna, too.

Even more interesting, I found a disconnected wire. It was just power for a light-up switch, but maybe. Reconnected it.

That should do it. Rolled the plane out of the hangar with the panels still off, and fired up the engine. No more ignition noise! Yay! Buttoned the plane up, came out to fly the next day. THE NOISE WAS BACK.

So what the blooming onion is going on? Why does it have interference when the cover is in place, but NOT while it's off?

Checked whether the cover was grounded. It was.

Pulled the front cover off again, and sat in the cockpit sadly trying to figure out where the issue could be. I noticed a blue wire curving above the nominal shape of the forward panel.

I had noticed it sticking out when I'd put the cover back on. The insulation was good, and just ensured it didn't get pinched by anything when the cover was restored.

Hmmmm. What DOES that blue wire do?

Turns out it applies power to the alternator regulator (the "GEN" part of the split master switch).

But…but… the front cover is grounded, and there's nothing wrong with the insulation on the wire!

Should that wire have been shielded? Neither the alternator or regulator manual said so.

But on the alternator installation diagram, it showed that the wire should have a ground wire wrapped four times around it, at the regulator end of the wire. The regulator installation instructions didn't mention this.




So was this wire inducing ignition noise into the electrical system just by lying against a grounded cover?

Only one way to find out. I re-routed the wire so that it didn't come close to the turtledeck cover. Buttoned everything back up again. Fired up the engine, turned on the radio, and with a quivering finger, turned the alternator on.

Noise. Son of a… I realized something. The noise, this time…it had a faint voice inside it! It wasn't alternator noise, just a far-off station breaking squelch. Five seconds later, it was gone, and the radio was quiet. Has worked fine for two flights, since them…..

Hi fellow EAA members,

I am currently selling my unfinished S-18 project. If you or someone you know who is interested, please contact me at:

Norm Pauk: Tel: 253-561-4801
Email: Npauk@msn.com

## This Month

## Last Month: Boeing X-32B

The Boeing X-32 is a concept demonstrator aircraft that was designed for the Joint Strike Fighter competition. It lost to the Lockheed Martin X-35 demonstrator, which was further developed into the Lockheed Martin F-35 Lightning II.

**Development:**

In 1993, the Defense Advanced Research Projects Agency (DARPA) launched the Common Affordable Lightweight Fighter project (CALF).[1] The project's purpose was to develop a stealth-enabled design to replace all of United States Department of Defense lighter weight fighter and attack aircraft, including the F-16 Fighting Falcon, McDonnell Douglas F/A-18 Hornet, and vertical/short takeoff / vertical landing (V/STOL) AV-8B Harrier II.[2] Around the same time the Joint Advanced Strike Technology (JAST) project was started.[3] In 1994, the U.S. Congress ordered the two to be merged into the Joint Strike Fighter (JSF) program.

**General characteristics**

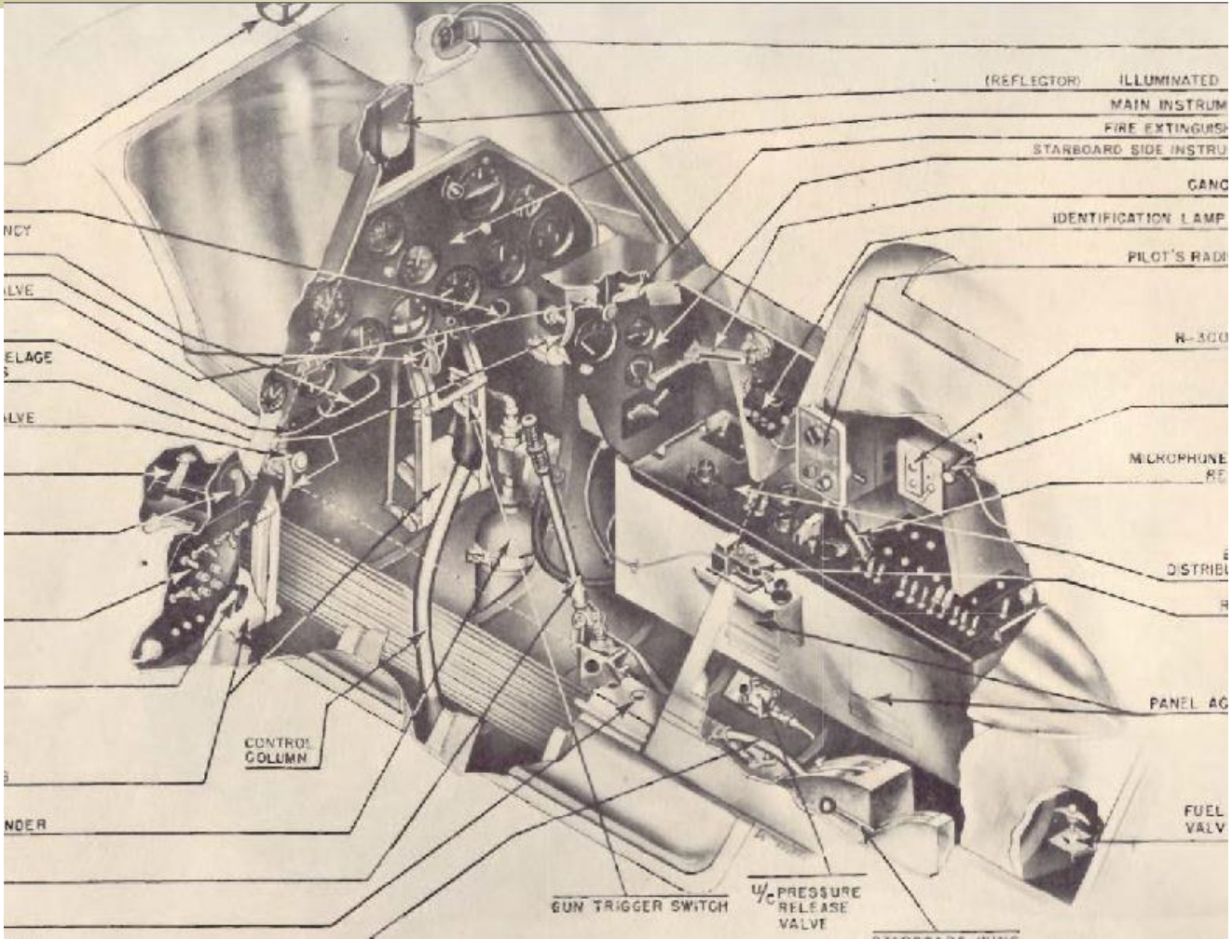
Crew: 1
Length: 45 ft 0.1 in  Wingspan: 36 ft 0 in  Height: 17 ft 3.8 in
Wing area: 590 sq ft
Empty weight: 24,030 lb  Max takeoff weight: 38,000 lb
Powerplant: 1×Pratt & Whitney YF119-PW-614 afterburning turbofan, 28,000 lbf thrust dry, 43,000 lbf with afterburner

**Performance**

Maximum speed: 1,200 mph
Range on USAF mission profile: 850 nmi
Range on USN mission profile: 750 nmi
Range on USMC/RN mission profile: 600 nmi

https://en.wikipedia.org/wiki/Boeing_X-32
https://internationalaviationhq.com/2020/09/05/boeing-x-32-f-32/
https://www.youtube.com/watch?v=6Wp61al3Alk

This Month


(REFLECTOR) ILLUMINATED
MAIN INSTRUM
FIRE EXTINGUIS
STARBOARD SIDE INSTRU
GANG
IDENTIFICATION LAMP
PILOT'S RADI
R-3
MICROPHONE
DISTRIBU
PANEL AC
FUEL
VALV
CONTROL COLUMN
GUN TRIGGER SWITCH
U/C PRESSURE RELEASE VALVE

## Last Month: DeHavilland Venom

The de Havilland DH 112 Venom is a British post-war single-engined jet aircraft developed and manufactured by the de Havilland Aircraft Company. Much of its design was derived from the de Havilland Vampire, the firm's first jet-powered combat aircraft; it was initially referred to as the Vampire FB 8 prior to the adoption of the Venom name.

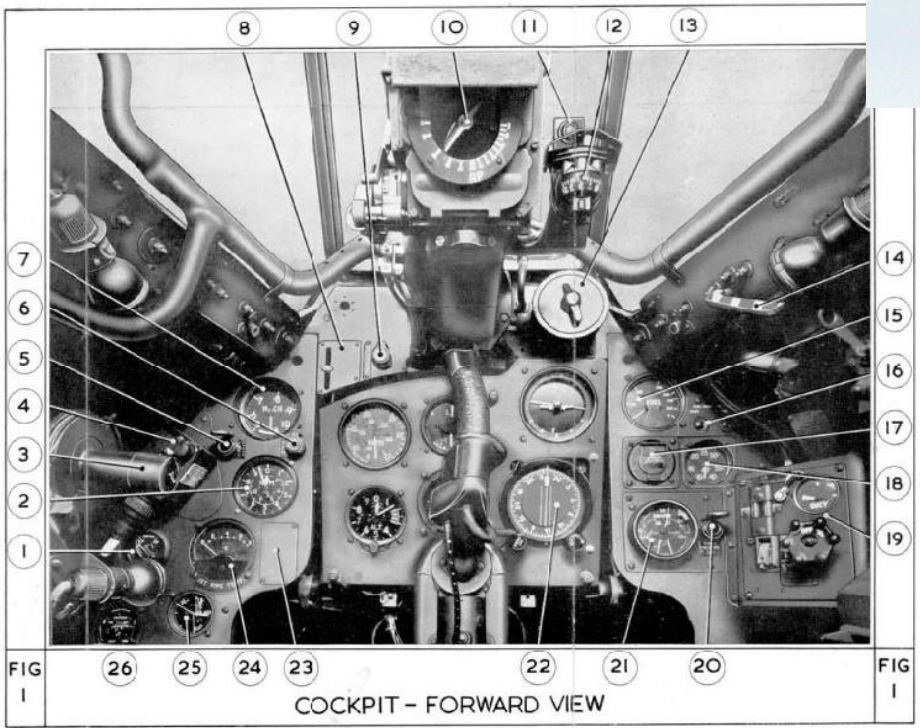
A.P. 4335A—P.N.
*Pilot's Notes*

PART V

*ILLUSTRATIONS*

KEY TO FIG. 1

1. Relighting switch (early aircraft).
2. Engine r.p.m. indicator.
3. G.G.S. range control on throttle lever.
4. V.H.F. control unit.
5. Fuel pressure warning light.
6. Generator warning light (single generator system).
7. Machmeter.
8. Elevator trim indicator.
9. Undercarriage warning light.
10. Gyro gunsight.
11. Engine fire warning light.
12. E.2 standby compass.
13. G.G.S. selector dimmer.
14. Hood jettison lever.
15. Fuel contents gauge.
16. Drop tanks fuel transfer indicators.
17. Engine starter pushbutton.
18. Cockpit altimeter.
19. Oxygen regulator (Mk. 11 or Mk. 16).
20. Cockpit pressure warning light.
21. Brake pressure gauge.
22. Mk. 4F compass.
23. Telebriefing control unit mounting.
24. Exhaust temperature gauge.
25. Flap position indicator.
26. Undercarriage position indicator.




The Venom was developed during the late 1940s to fulfil Air Ministry Specification F.15/49, under which the aircraft was intended to be operated as an interim solution, lying between the first generation of British jet fighters – straight-wing aircraft powered by centrifugal flow engines such as the Gloster Meteor and the Vampire – and later swept wing, axial flow-engined combat aircraft, such as the Hawker Hunter and de Havilland Sea Vixen.

## Volume 4

**The Bell Titltotor aircraft:**

The Bell Tiltrotor aircraft were the most successful aircraft in the US and eventually went into production as a military aircraft.

**Bell XV-3:**

The Bell XV-3 was a joint Army and US Airforce effort exploring the "Converta-Plane" concepts. There was a single engine in the fuselage that ran its power to the wing tip rotors via drive shafts. The rotors would travel through 90 degrees of rotation from vertical flight to full horizontal flight. The rotors were two bladed. The first flight occurred on 11 August 1955. and accomplished 110 transitions from vertical takeoff mode to horizontal flight. The program ended when the remaining XV-3 was severely damaged in a wind tunnel accident on 20 May 1966. The US Army lost interest in the tilt rotor concept as they were pursuing the Blackhawk and other advanced helicopters. The US Air Force focus returned to normal jet aircraft. The XV-3 did have issues with the single engine in the fuselage. It required transmission boxes and heavy driveshafts to the rotors with heavy tilting mechanisms.

**General characteristics**

Crew: 1
Length: 30 ft 4 in Wingspan: 31 ft 4 in
Height: 13 ft 3 in
Wing area: 116 sq ft Airfoil: NACA 23021
Empty weight: 1,907 lb Gross weight: 2,218 lb
Powerplant: 1 × Pratt & Whitney R-985-AN-1 Wasp Junior 9-cylinder air-cooled radial piston engine, 450 hp
Main rotor diameter: 2 × 25 ft 0 in Area: 981.9 sq ft 3-bladed translating rotors

**Performance**

Maximum speed: 184 mph Cruise speed: 167 mph
Range: 255 mi Service ceiling: 15,000 ft
Rate of climb: 1,260 ft/min


https://en.wikipedia.org/wiki/Bell_XV-3
https://www.nationalmuseum.af.mil/Visit/Museum-Exhibits/Fact-Sheets/Display/Article/195785/bell-helicopter-textron-xv-3/
https://vertipedia.vtol.org/aircraft/getAircraft/aircraftID/300

## Volume 4 (Continued)

**Bell XV-15:**

Other rotor concepts were looked at; slowed rotors, stopped rotors, folding rotors and variable diameter rotors. However, based on the experience with XV-3, the tiltrotor looked like the best solution. The engines were moved to the wingtips and coupled to the rotors. There still existed a drive shaft through the wing to the other engine in case of engine failure, but the loads were much smaller. The wings were swept forward to account for any possible rotor flex. The XV-15 project was launched in 1971 at the NASA Ames Research Center. A competition was held and the companies that responded were Bell, Boeing Vertol, Sikorski and Grumman. R&D contracts ere given to Bell Helicopter and Boeing Vertol 20 October 1972.

Boeing's entry kept the engine design simpler by keeping the engines horizontal. Bell Helicopter quickly resolved the rotation of the engines. After the review of the proposals, NASA sent a contract to Bell Helicopter 31 July 1973.

NASA allowed Bell to take the XV-15 to the 1981 Paris Airshow and and Bell began to invite pilots to fly the aircraft, including Barry Goldwater

**General characteristics**

Crew: 2 on Rockwell-Columbus LW-3B ejection seats
Capacity: up to 9 passengers
Width: 57 ft 2 in overall with rotors turning
Height: 12 ft 8 in over tail fins  15 ft 4 in with nacelles vertical
Wing area: 169 sq ft (15.7 m2) Airfoil: Wings - NACA 64A015
Empty weight: 9,570 lb Gross weight: 13,000 lb
Max takeoff weight: 15,000 lb
Fuel capacity: 229 US gal (in four wing tanks
Powerplant: 2 × Textron Lycoming LTC1K-4K turboshaft / turboprop engines,
1,550 shp each normal takeoff power (10 min max)
Main rotor diameter: 2 × 25 ft  Main rotor area: 981.8 sq ft total
Blade section (original): - root: NACA 64-935/528/118; tip: NACA 64-(1.5)12/208
Blade section (Boeing ATB): - root: V43030-1.58/VR-7; tip: Boeing VR-8

**Performance**

Maximum speed: 332 kn at 17,000 ft
Cruise speed: 303 kn max. at 16,500 ft
Never exceed speed: 364 kn
Range: 445 nmi
Service ceiling: 29,000 ft
Service ceiling OEI: 15,000 ft
Hover ceiling IGE: 10,500 ft
Hover ceiling OGE: 8,650 ft
Rate of climb: 3,150 ft/min  at sea level
Disk loading: 15.2 lb/sq ft
Power/mass: 0.45 hp/lb Main rotor diameter: 2×25 ft 0 in
Area: 981.9 sq ft 3-bladed translating rotors

https://en.wikipedia.org/wiki/Bell_XV-15
https://www.nasa.gov/centers/dryden/multimedia/imagegallery/XV-15/XV-15_proj_desc.html
https://www.aviastar.org/helicopters_eng/bell_xv-15.php
https://airandspace.si.edu/collection-objects/bell-xv-15-trra-tilt-rotor-research-aircraft-ship-2/nasm_A20030180000

## Volume 4 (Continued)

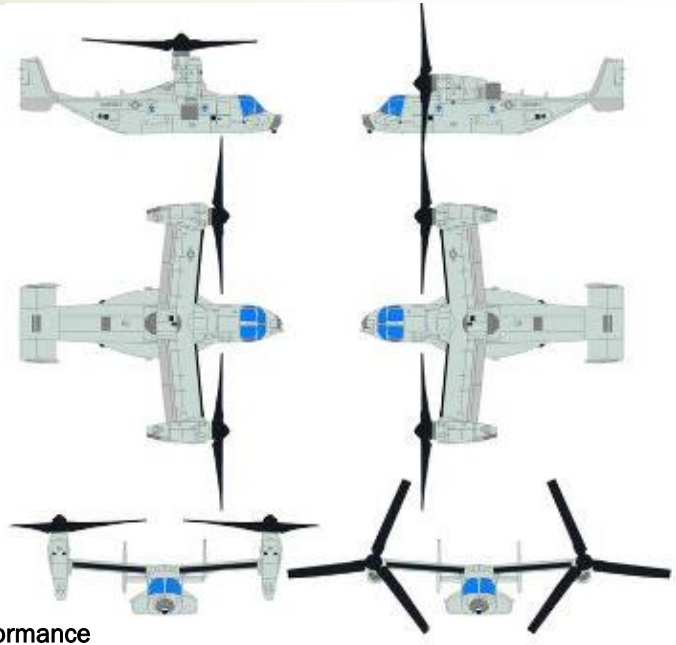
**Boeing Bell V-22 Osprey**

Bell and Boeing received a contract for the V-22 Osprey and it became a mainstay for the Marines. The wings were swept forward to get the rotor ahead of the Cockpit. It was not determined if the rotors would flex and hit the wings and cockpit if things went wrong with the rotors. It was later determined that there was not an issue.

The Bell Boeing V-22 Osprey is an American multi-mission, tiltrotor military aircraft with both vertical takeoff and landing (VTOL) and short takeoff and landing (STOL) capabilities. It is designed to combine the functionality of a conventional helicopter with the long-range, high-speed cruise performance of a turboprop aircraft.

**General characteristics**

Crew: 3–4 (pilot, copilot and 1 or 2 flight engineers/crew chiefs/loadmasters/gunners)
Capacity: 24 troops (seated), 32 troops (floor loaded), or 20,000 lb of internal cargo
Length: 57 ft 4 in  Length folded: 62 ft 7.6 in
Wingspan: 45 ft 10 in
Width: 84 ft 6.8 in including rotors  Width folded: 18 ft 5 in
Height: 22 ft 1 in engine nacelles vertical 17 ft 7.8 in to top of tailfins
Height folded: 18 ft 1 in
Wing area: 301.4 sq ft (28.00 m2)
Empty weight: 31,818 lb  Gross weight: 39,500 lb Combat weight: 42,712 lb
Maximum take-off weight VTO: 47,500 lb
Maximum take-off weight STO: 55,000 lb
Maximum take-off weight STO, ferry: 60,500 lb
Powerplant: 2×Rolls-Royce T406-AD-400 turboprop/turboshaft engines, 6,150 hp each maximum at 15,000 rpm at sea level, 59 °F
5,890 hp (4,392 kW) maximum continuous at 15,000 rpm at sea level, 59 °F
Main rotor diameter: 2 × 38 ft
Main rotor area: 2,268 sq ft 3-bladed



**Performance**

Maximum speed: 275 kn, 305 kn (565 km/h; 351 mph) at 15,000 ft
Stall speed: 110 kn
Range: 879 nmi
Service ceiling: 25,000 ft
Rate of climb: 2,320–4,000 ft/min
Wing loading: 20.9 lb/sq ft at 47,500 lb

https://en.wikipedia.org/wiki/Bell_Boeing_V-22_Osprey
https://www.bellflight.com/products/bell-boeing-v-22
https://www.boeing.com/defense/v-22-osprey/
https://www.youtube.com/watch?v=Zzxi4xNppQA

## Volume 4 (Continued)


**Bell V-280 Valor Next Generation Tilt Rotor**

The Bell V-280 Valor is a tiltrotor aircraft being developed by Bell Helicopter and Lockheed Martin for the United States Army's Future Vertical Lift (FVL) program. The aircraft was officially unveiled at the 2013 Army Aviation Association of America's (AAAA) Annual Professional Forum and Exposition in Fort Worth, Texas. The V-280 made its first flight on 18 December 2017 in Amarillo, Texas.[3]

On 5 December 2022, the V-280 was chosen by the US Army as the winner of the Future Long-Range Assault Aircraft program to replace the Sikorsky UH-60 Blackhawk.

**General characteristics**

Crew: 4
Capacity: 14 troops
Length: 50.5 ft
Width: 81.79 ft
Height: 23 ft 0 in
Empty weight: 18,078 lb
Max takeoff weight: 30,865 lb
Powerplant: 2 × Rolls-Royce AE 1107F turboshaft
Propellers: 35 ft 0 in diameter

**Performance**

Cruise speed: 320 mph
Combat range: 580–920 mi
Ferry range: 2,400 mi
Service ceiling: 6,000 ft; in hover out of ground effect at 95 °F
Disk loading: 16 lb/sq ft

https://en.wikipedia.org/wiki/Bell_V-280_Valor
https://www.bellflight.com/products/bell-v-280
https://www.military.com/daily-news/2022/12/06/bell-v-280-valor-will-replace-armys-legendary-black-hawk.html

**Tailwind– California:** According to the pilot, during his approach at a non-towered airport at night, he made the descent to what he thought was the runway, but realized that it was actually the taxiway, and "slipped" right, to what he then perceived to be the runway. Upon touchdown, the airplane ground looped and nosed over. The pilot had landed and nosed over in the safety area to the left of the runway.

The pilot reported that he had been flying for the preceding 12 hour period, and conceded to having exceeded his personal endurance limitations. The airplane sustained substantial damage to both wings. (1/24/2016)

**RV-7– Florida:** The pilot reported that there were no mechanical or weather issues as he was attempting to land. After a go- around, on the initial attempt, and with dusk approaching, he decided to make an abbreviated traffic pattern and circle back around to land on the runway. He apparently mistook a parallel access road for the runway. The airplane struck three mailboxes, a basketball hoop, phone lines, and a car and then came to rest inverted. (2/18/2016)

**Lancair ES– Arizona**: During the initial climb, the engine experienced a partial loss of power. The pilot performed a precautionary landing on a taxiway, during which the airplane departed the paved surface and the nose landing gear collapsed.

Postaccident examination of the engine turbocharger revealed reddish-white discoloration of the turbine wheel, which suggested excessive engine exhaust gas temperature. Likewise, discoloration observed on the turbine end shaft journal was consistent with high temperature. The combination of high exhaust temperature and therotational speed of the turbine wheel likely caused the blade material to creep and the wheel diameter to increase until the blade tips rubbed against the turbine housing. This eventually caused blade tip failures, which resulted in a rotating imbalance. It is likely that the combination of wheel rubbing and imbalance and caused the turbocharger to slow or stop, which in turn resulted in the loss of engine power. (3/10/2016