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# CAA Chapter 32 News

The official publication of Experimental Aircraft Association Chapter 32 - St. Louis, MO (Jim Bower, Editor)

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**April, 2019**

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**mr. bill is now the chapter's favorite ferry pilot! He flew several airplanes to various locations to escape the annual Smartt Field Flood. Many thanks from your friendly editor!**

**We will see you at the ARC for the April meeting  
10:00 am Saturday, April 20! (Weather permitting)**



Fellow Chapter 32  
Members and Friends,

We've had our first flood scare of the year. Over the past few weeks, water from the Mississippi River rose high enough to start getting in some of the low lying hangars at Smartt Field. Waters have since subsided, and things are starting to get back to normal. As has happened in the past, our ARC transformed itself into an ARK. Several of our chapter members took refuge for their planes inside our building. We're now in the process of returning them to their respective hangars. We dodged the bullet for now, but there's still a lot of snow and water up north that hasn't worked its way south yet. Here's hoping for things to stay chilly in our northern regions, and not overwhelm our rivers with another flood.

As many of you know, the Young Eagles event for April was canceled due to use of the building for temporary storage of our members; aircraft. A number of things have been delayed this year as a result. The youth project of building an aircraft, (Zenith 750 Cruiser) has been delayed until we can regain some work space. We sincerely hope things will be getting back to normal very soon.

Progress has been made concerning the Ray Foundation Aviation Scholarship awarded to Chapter 32. Arrangements with a bank to open a separate account to administer this program have been made and are ongoing. We expect the award to be deposited into the account very soon and our awardee (Mr. Kyle Hanson) can get started with his flight training. What a wonderful program!

With regard to the Explorer Post we're working on, we've signed up five chapter members to be adult leaders. The next step is to get their youth training accomplished. Many of us know there's a shortage of skilled people in the aviation field, and it looks to be a solid career choice. It's a great program, and I know it will be a great success.

Dues are past due now. The initial version of our Chapter 32 Roster is due to come out this month. Please review your entry in the roster, and if any discrepancies are noticed, let our editor know so they can be corrected. Your dues help cover the costs of doing all the aviation related stuff we do. \$40.00 is a small price to pay for keeping our chapter going strong. If you've not renewed, please do it now. We need you.

There was a Board of Directors' meeting on April 14. At this meeting, we discussed steps we need to do to keep the Ray Foundation Aviation Scholarship progressing as quickly as we can. The Bank required several items unique

# President's Corner

by Dave Doherty

to this program, and our treasurer is working those issues along with the Board of Directors. We should be able to announce Mr. Kyle has had his first lesson very soon. We discussed the Explorer Scouts program and are working on the next steps – training of leaders and coming up with a schedule along with what frequency meetings should take place. We decided on twice a month for the meetings. The schedule is a work still in progress. Young Eagles will restart with the May event. The Flying Start Program will be discussed at our April meeting. We need the chapter's input in order to get this program rolling. St. Charles Flying Service will be approached to try and enlist their help with this program, and hopefully have a representative at some of our Young Eagle events. We're also working on getting some updated promotional materials and supplies. Marshalling wands have been acquired, some chocks for planes are in the works, and new advertising flags for Chapter 32 and Young Eagles events are in the procurement stage. They will replace some of our older worn out items. The signage on the sides of our building need replacing, and we're actively working on coming up with a more durable set of signs. We're also working on an updated web site. It should be in a beta test phase soon. I think everyone will like the new format, which will also accommodate mobile devices better. All this is exciting stuff. Stay tuned, things are happening!

April's meeting will feature guest speaker, Mr. Bill Florich. His presentation will focus on the Boeing B-47 Stratojet, which he flew during his tenure with the Air Force. I'm sure it will be very interesting for everyone. Living History. Let's all welcome Mr. Florich to our chapter and give him a good reception.

April 27 opens our Movie at the ARC season. Dates for movies are 4/27, 5/25, 6/29, 8/31 and 9/28. These social events consist of a Pot Luck dinner ((bring a dish) with the meat entrée' provided by the chapter, lots of hangar flying, a great view of sunsets, and of course, the aviation related movie. This month's movie will be Strategic Air Command, starring Jimmy Stewart and June Allyson. See the movie promo elsewhere in this newsletter.

I look forward to seeing everyone at our April 20th meeting. Location, as always, will be our Aviation Resource Facility located on Smartt Field (KSET) at 6410 Grafton Ferry Rd, Portage Des Sioux Mo. Meeting time is 10:00 AM. See you there!

*Blue Skies,*

*Dave Doherty*

# March Meeting Minutes

Dave Deweese

March 2019's meeting began with the Pledge, Dave Doherty presiding.

We approved February's minutes as published in the newsletter. Minutes from the Executive meeting are there as well.

Don Doherty gave the Treasurer's report including checking and savings account balances.

Visitors include Bob Clark who is building a 750 Cruiser. He's been flying since 1986 and this will be his second homebuilt: he never got used to the two-cycle engine in the first; the Zenith will run a Corvair. He's also polishing versus painting, and warns that this is a big job. New members include Bob Rutkowski, this is his first meeting.

Last month Don Glennie, a former chapter member who was very active in the 1970s, has headed west.

Chris Ward is working with the Ray Foundation, a scholarship for putting young people, 16-20, to get a pilot's license. Chapter 32 is an early scholarship recipient thanks to Chris's work. Kyle Hanson will receive the license; he's been attending meetings and volunteering at Young Eagles events since he was 12. (He'll be 18 in September.) Chris notes that factors included the activity of our chapter, we've been awarding Oshkosh scholarships and flying Young Eagles at a high level. We'll need to maintain or even up our game to get another scholarship next year as the level of competition is so high. The first check will arrive in April so Kyle can start lessons. After he solos we'll get another check. He'll complete ground school with the Sporty's curriculum that's freely provided to Young Eagles. One change made to the program involves the \$10k amount: it pays UP TO \$10k towards his license, anything over that amount goes back into the kitty.

Kyle thanks the chapter for our help and his experiences, describing it as life-changing.

Our next Young Eagles event is next month. Officially there are 8104 flights credited to chapter 32 members. Rick May called out Don Jonas, who's flown over 400, Jeff who's flown 250, Ron's flown around that many. Joe Sargent is over 300. Dave Doherty just passed the 100 mark flying one at a time. April 13 is the first event, we start taking reservations at 8:00 a.m. If you're a new member and have never attended one please come out and see what it's all about. We got our letter regarding points from HQ; we got 224 credits for 2018, meaning \$1,120 for sending another student to the advanced academy. We've got a candidate and backup candidate. (They're twin brothers making things a little simpler.)

Rick also notes we're going to try to promote the Flying Start program this year: we talk to a lot of parents at the Young Eagles events who express an interest in flying. This program is something to offer. Rick will set up an area in the ARC to

provide relevant promotional materials.

Dave is working on getting involved in the Explorer Scouts program. Last weekend he went and talked with them and signed up for a post here at EAA32. The idea is to get youth interested in the program at nearby schools, starting with Orchard Farm, visible right across the field. On Tuesday nights they'll help with Chris Ward's Zenith project. Ages will be 14 through 20.

Dave McGougan has done some research on the inflatable paint booth resource. He found one available at Harbor Freight, Jim Hann noted that he has one in his hangar that he got from Costco and he's not using it. Dave reviewed the versions he's found locally as well as online. He's thought up one downside: if the power goes out while you're painting the booth will collapse and make a mess of your paint job. Our chapter has 5 or 6 projects ready for paint.

The RV-12 group built a booth of wood and plastic sheeting and borrowed a blower from Don Doherty for ventilation. Jim Hann used two 20" box fans and said it was a little too much. Dave and Jim both described their strategies for ventilation and air filtering. Victoria was interested, noting that she loves to paint, but wonders how to finish the job without painting yourself.

Dave is ordering new signage ("feather flags") for Young Eagles events and air shows.

Our building signage needs to be renewed, hopefully with metal. One of our signs labels us "FAA" instead of "EAA". Joe Wuest has access to a cutter that would do the job, and also has a powder coater.

Dues are due.

The old well has been retired. We chose to abandon it. Don and Dave pulled out the pump and wiring and poured in bentonite per DNR's instructions.

Ron Burnett has food cards.

Dave updated us on his 3rd class medical. Miriani cleared him, then the shutdown hit, and about two months later he received a letter from the FAA requesting yet another test. That one's coming up Monday.

Meeting adjourned to be followed by Don's annual financial state-of-the-chapter report.



# 14 April Executive Committee Meeting Minutes

Dave Deweese

Attendees: Dave Doherty, Don Doherty, Chris Ward, Jon Thayer, Jim Hall, Dave Deweese.

First item regards a separated account to be used in association with the Ray Foundation scholarship. A separate account will keep Ray Foundation funds separate from EAA32 funds. St. John's Bank requests a Letter of Contract. Since we're incorporated we need to report that the board discussed, voted, and approved a second account. This We've already put \$1,000 in for administrative costs. The purpose of the account will be for disbursing funds for the Ray Foundation, these funds being received from EAA National and disbursed by the local chapter (EAA32). We voted to set up the account for this purpose. Vote was unanimously approved.

Explorer Scouts: directors are ready to set up training programs, Dave needs to set dates. We needed at least 5 leaders which we have. Jon has a co-worker his is a former Explorer Scout who is interested in participating. We also need a tentative schedule of activities. Dave intends to cap the attendees at twenty, and envisions meetings held twice a month. We provide a place to meet; Scouts have an insurance policy. Jon asks if Explorers are a part of Scouts, Dave says this is the case. Jon notes that some of these will be working towards Eagle Scout and will be within the age range.

Young Eagle: Rick's not present to discuss. We cancelled the first event due to flooding and the ARC is full of planes. What should we do with these in case of events? Dave will be contacting owners to let them know we'll move them out temporarily for the meeting.

Flying Start: Jim notes that he and Rick are not pilots and asks if Dave thinks we have enough in the chapter to participate. Dave says we'll bring it up in next week's meeting. Jim also plans to communicate with Dennis Bampton.

Chris has a new permanent job as a substitute teacher, his new school has an A&P program. He has invited the teacher to come out and visit the ARC.

Bill Doherty has acquired some marshalling wands. Bill and Dave are going to make some wheel chocks. Dave got a digitized chapter logo to put on new feather flags. Dave's also looking into replacing the signage with metal letters and numbers.

We've got Bill Florich to speak to the chapter next week on his experiences with the B-47. We don't have any others lined up. Dave's got contact information for a speaker who addressed chapter 1387. Jim's got another contact with a member of the FFAST team.

Flood plan: if it looks like the water level will reach the building we need a plan to get items raised or out. Don suggests renting storage space or a semi-truck trailer that we could park somewhere. Jon may know someone with access to a trailer. He'll get a ballpark price on trailer rental and a space to park it.

Web updates: Dave has asked for some more fields, including photographs, on the roster. I (Dave Deweese) am looking at getting them added to my database. Showed the group the mobile-friendly version I'm working on.

Next board meeting will be in June 15 after the meeting; Don recommends this as an opportunity to discuss Oshkosh business.

There are 5 movies on the roster for movies. Strategic Air Command (April), Dam Busters (May), Apollo XI documentary (July), 633 Squadron (September).

We discussed the Spirit and downtown air shows, nothing firm yet.



## MOVIE AT THE ARC THIS MONTH

# ***STRATEGIC AIR COMMAND***

When? Saturday, June 30

Where? EAA Chapter 32 Aviation Resource Facility (ARC)

6410 Grafton Ferry Rd (Smartt Field), Portage Des Sioux, Mo (St. Charles County)

*Strategic Air Command* is a 1955 American military film starring James Stewart and June Allyson, and directed by Anthony Mann. Released by Paramount Pictures.



Saga of the US Air Force special bomber unit during the Cold War era. A professional baseball player is recalled to military service because of the expert flying skills he acquired during World War II. Although the athlete and his wife are both reluctant to give up civilian life, both come to realize the importance of the defense mission. The film features spectacular aerial footage of big B-36 and B-47 bombers.



Release date: March 25, 1955 (Omaha)

Director: Anthony Mann

Producer: Samuel J. Briskin

Production company: Paramount Pictures



**Pot Luck dinner and social hour – 6:00 PM to 7:00PM**

**Meat and Soda Provided by Chapter32.**

**This is a Pot Luck Dinner, Bring a side Dish.**

**Movie starts at 7:00 PM.**

**For your own comfort, bring a comfy chair.**

# Learning as we Go

“SPRING - Give us a BREAK...Spring Cleaning”

mr. bill



Ah Mother Nature. After a lovely time and weather in Miami, Florida for Spring Break to obtain my CFI-Glider Instructor Certificate it was hurry back to St. Louis and contend with Mother Nature and all her pent up winter snows in Minnesota and Wisconsin, her rains in Iowa, and the rains and SNOW out west. Unless you are new to the area what that means is....Smartt Field will flood. Our great public airport was once again the victim of the LONG winter and quick melt down of winter snow and a rainy wet spring.

So to deal with this situation we need to clean up our minds, our logbooks, and our hangars.

## SPRING CLEANING CHECKLIST:

Look at that logbook of yours. After a long winter: When were your last landings? When was the last Flight Review? Do you really want to go up alone now? St. Charles Flying Services has several young and a couple of mature, Certified Flight Instructors (CFIs) usually sitting around during the day until the flight students come out after their school or their day jobs. Take one along with you. Yes it is \$52.00 an hour for the lad but you will be with a new and razor sharp mind who can get you up to speed pretty quick. To add some fun to the flight, just when you master the narrow runways at Smartt Field go over to Alton, ILL for a landing on runway 11-29 the 8,099 foot long and 150 foot WIDE runway. Betcha you flare HIGH as you try to land on that runway at Alton. You want the best for your airplane why not the best for YOU the pilot!

How about this photo taken during a recent Flight Review:



The landing was PERFECT!

Nothing brings the Smartt Field hangar renters together like a good flood. I was able to provide a couple of Flight Reviews and get other pilots spun up on their flying skills so they could move their airplanes. I flew our newsletter editors' airplane out of the flooded Smartt Field. You can see the water in the background of the next photo.



So we've cleaned the RUST off our Superman Cape. Now we will updated our logbooks so we are current. RIGHT?

14 CFR 61.57-Recent flight experience: Pilot in Command.

(1) ... no person may act as pilot in command of an aircraft carrying passengers or of an aircraft certified for more than one pilot flight crewmember unless that person has made at least three takeoffs and three landings within the preceding 90 days, and if at

(b) NIGHT: 3 take off and landings to a FULL STOP.

When is night time? 1 hour after sunset until 1 hour before sunrise.

(ii) TAILWHEEL? an airplane with a tailwheel, the takeoffs and landings must have been made to a full stop in an airplane with a tailwheel.



Q? Why have we gotten away from the letters FAR?

A: Well someone found out that the letters “FAR” really stand for the Federal Acquisition Requirements. How could we ever get those confused? Now we say CFR’s- Code of Federal Regulations.



### Smart Field's New Seaplane Base 03/31/2019

The latest ad out with the Boeing 737 Max situation

A little Boeing 737 MAX info to the pilots: (3/17)

At the heart of this investigation is the MCAS system (description from Boeing):

*MCAS (Maneuvering Characteristics Augmentation System) is implemented on the 737 MAX to enhance pitch characteristics with flaps UP and at elevated angles of attack. The MCAS function commands nose down stabilizer to enhance pitch characteristics during steep turns with elevated load factors and during flaps up flight at airspeeds approaching stall. MCAS is activated without pilot input and only operates in manual, flaps up flight. The system is designed to allow the flight crew to use column trim switch or stabilizer aisle stand cutout switches to override MCAS input. The function is commanded by the Flight Control computer using input data from sensors and*

*other airplane systems.*

*The MCAS function becomes active when the airplane Angle of Attack exceeds a threshold based on airspeed and altitude. Stabilizer incremental commands are limited to 2.5 degrees and are provided at a rate of 0.27 degrees per second. The magnitude of the stabilizer input is lower at high Mach number and greater at low Mach numbers. The function is reset once angle of attack falls below the Angle of Attack threshold or if manual stabilizer commands are provided by the flight crew. If the original elevated AOA condition persists, the MCAS function commands another incremental stabilizer nose down command according to current aircraft Mach number at actuation.*

I put this newsletter article together to illustrate a few things. In the RV-12 airplane as I do in most (Biennial) Flight Reviews I show the pilot that THEY CAN FLY THE AIRPLANE without instruments. In fact the pilot *usually* does a better job of it because they are working harder with a faster eye scan, a quicker evaluation of all that is going on around them INSIDE and OUTSIDE the airplane. When nothing is working inside you must go outside. When the “automation” is not working “CLICK, CLICK!” Autopilot-OFF. Autothrottles-OFF. You own the airplane. That is what we do in the Big Jet.

But a little airplane? Look at the RV-12 panel. It has a PRIMARY TRIM MOTOR switch. (The first black toggle type switch on the instrument panel.) It has an AUTOPILOT switch. (The last black toggle type

switch in the row.) What could go wrong? I have heard many people say, “That ain’t suppose to happen!” But when it does you need to be trained to react or think the systems thru quickly to see what may be messing with your machine.



Continued on next page

# Learning as we Go (Continued)

As I briefed the RV-12 pilot, “You have an Autopilot. I would leave that switch in the OFF position until you want to use it in cruise flight. Do not take off with it ON because if it became activated it could restrict you from pulling back on the control stick as you were rolling on the runway for take- off.” Also, the AUTOPILOT fuse is the third fuse from the right in the row of fuses. If the aero-machine is flying something you do not want it to do, then click off the Autopilot. If the autopilot is off and the nose is going up or down, then you have primary trim runaway. If the rocker switch on the panel gets stuck and/or you cannot stop the trim from running up or down (we call that runaway) then you pull the fuse, the third one from the left, in the row of fuses. Remember, we are talking about an RV-12 in the photo above. The same is true for my DC-9-80 as it is for the B-737-Max 8. You have got to know your machine.

The tough part of this situation, in my humble opinion, is that the airlines are going to be required to “train” this scenario. We actually do now BUT to assure and until EVERY ONE IN EVERY FLIGHT DECK OF A MAX, IN EVERY CORNER OF THE WORLD, has been thoroughly educated, trained, tested, and has proven that they can handle the MACHINE THAT THEY ARE FLYING, this scenario will not be put to rest. That is going to cost a lot of simulator time and calendar time for the airlines.

Until next time, BE SAFE OUT THERE!

For more info:

<https://www.nytimes.com/2019/04/11/business/boeing-faa-mcas.html>



# Stalling an Airplane

by The Cheerful Curmudgeon (aka Art Zemon)  
“A complete lack of ideas and the power to express them.”



Several of you have talked to me about the stall tests of my airplane so I figured that I ought to do a short video and show you what is involved. Stalls are not anywhere near as exciting as they sound, certainly nothing like the way that Hollywood depicts them.

Let's start with a tiny bit of physics. Stay with me. It won't be much; I promise.

When air flows over the wing of an airplane, it generates lift. The faster the air flows, the more lift. My airplane weighs 1,700 pounds with full fuel and me aboard. When the air flows over the wing at about 65 knots (nautical miles per hour) which is about 75 MPH (statute miles per hour) then the wing generates more than 1,700 pounds of lift and the airplane flies. Any speed less than that and the airplane won't fly.

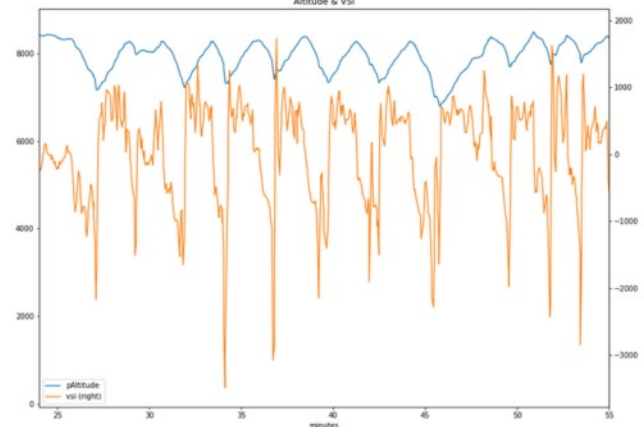
Let's pretend that the airplane is only flying at 60 knots. It still generates a lot of lift; certainly not zero. But since it is less than 1,700 pounds, the airplane sinks through the air. This is a “stall.” It means that the wing is not producing enough lift to maintain altitude. The airplane does not fall out of the sky; it just sinks or flutters down, kind of like a leaf falling out of a tree.

There is one more thing to know. When an airplane stalls, it is designed so that the nose drops toward the ground. This makes the airplane “go downhill” and pick up speed and then it starts flying again.

I performed 11 stall tests on March 21, trying different configurations of the flaps and repeating tests so that I would have a solid understanding of how the airplane behaves. Here is a video that I made of one of the tests.

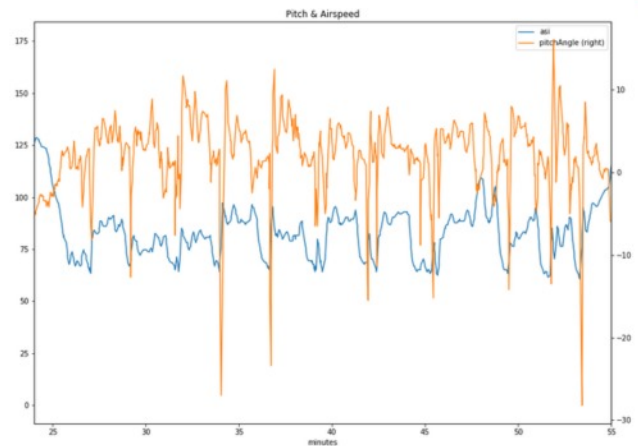
<https://gallery.wonderart.us/Aviation/Bede-BD-4C/Miscellaneous/i-hx32cWZ/A>

If you are a data nerd, you might like these two graphs. In the first, you can see that, during the stalls, the airplane only descends a few hundred feet. The vertical speed shows a startlingly large spike downward but only for a few seconds and then the airplane recovers and is flying again.



Altitude and vertical speed (vsi)

This second graph shows pitch angle (how far the nose tilts up or down) and airspeed. You can see that the nose only points down about 10 degrees in most of the stalls (including the one in the video above).



Pitch angle and airspeed (asi)

# ADS-B Installation Examples

*Bob Murray*

With the Jan. 1, 2020 date approaching, we've been seeing more ADS-B Out installations being completed. Being an avionics geek, I've gathered details on which solutions folks have chosen. This is a follow-up to the ADS-B technical presentation that I gave at an EAA 32 meeting in 2016. I won't go into most of those details here. Let me know if you have questions.

For six different aircraft I've gathered data on, there are six different solutions. No one system seems to be the favorite.

ADS-B OUT transmitters require input from a pressure altitude source (same as a mode C transponder) and a high-quality position source, which in practical terms means a WAAS GPS receiver. Some systems have the GPS integrated into a single unit, while others take advantage of GPS and altitude encoders that you may already have in your airplane and perhaps save some dollars. Connections between the boxes is usually (but not always) an RS-232 serial data wire.

These tables are a summary of solutions that I know about. It is certainly not comprehensive, but it does include the most common systems. I've added four systems that seem to be popular, even though I don't know of anyone who has them yet.

If you want to replace your transponder, here are 1090 MHz ADS-B OUT systems built into transponders.

If you have a good transponder and don't want to replace it, here are non-transponder solutions. They can't transmit on 1090 MHz or they would interfere with the transponder. Therefore, these are all 978 MHz UAT transmitters. In addition to pressure altitude and position source, non-transponder ADS-B transmitters also need to know the squawk code from your transponder.

In these tables, the right-most column includes the ADS-B IN receiver these aircraft happen to have. The

choice of IN receiver is independent of the OUT transmitter, except in the case of the Garmin GTX345 that has both OUT and IN. The choice of IN receiver depends mostly on how you are displaying the information, either a tablet or an EFIS. The IN receiver frequency does not have to be the same as the OUT frequency, which is the case for the RV-12. Most receivers now are dual band, receiving both 978 and 1090 MHz. Remember, OUT is mandated, IN is not.

The list prices are for the OUT transmitter, not the IN receiver. These are just an FYI and do not include installation labor.

Transponder Solutions – 1090 ES					
Aircraft	ADS-B OUT Transponder	AC Spruce List Price	Position Source	Altitude encoder	ADS-B IN Receiver
Spirits RV-12	Dynon SV-XPDR-261	\$2130 experimental	Dynon SV-GPS-2020	Skyview ADAHRS	Dynon UAT 978 receiver
Zemon BD-40	Trig TT-22	\$2667 experimental includes TN-72 and GPS antenna	Trig TN-72	Integrated in transponder	Stratux portable
Four Ten RV-10	Stratus ES	\$2395 experimental \$2495 certified	Avidyne IFD440 IFR GPS	Garmin G5	Dynon SV-ADSB-472 dual band
Stephenson Cessna 172	Stratus ESG	\$2795 experimental \$2995 certified Includes antenna	Integrated in Transponder	Existing encoder	Stratus 3i permanent installation
Boeing Flying Club Warrior	Garmin GTX345	\$4409 (\$5347 with integrated GPS)	Garmin GTN650 IFR GPS	Garmin GAE 12 encoder	Integrated in GTX 345
	Garmin GTX335	\$3195 with GPS \$2850 without GPS	Integrated or separate GPS	GAE 12 or existing encoder	
	Garmin GTX35R Needs G3X EFIS	\$2199 experimental	GPS 20A or IFR GPS	G3X ADAHRS	

Perhaps the most innovative solutions are the uAvionix skyBeacon and tailBeacon. These are completely self-contained and install on the wingtip or tail if you already have power wiring to a strobe or nav light at either of those locations. So how do these units get your squawk code? They listen to your transponder output via radio frequency. No direct wiring to the transponder is required. ***Please note that the skyBeacon is not suitable for enclosed wingtip lights, and the tailBeacon does NOT offer a strobe light.***

Non-transponder Solutions – 978 UAT					
Aircraft	ADS-B OUT Transmitter	AC Spruce List Price	Position Source	Altitude encoder	ADS-B IN Receiver
Six Alpha RV-6A	skyBeacon Left wingtip strobe	\$1849 experimental or certified	Integrated GPS	Existing transponder	skySensor Right wingtip strobe
	tailBeacon	\$1799 experimental \$1999 certified	Integrated GPS	Existing transponder	
	Garmin GDL 82	\$1795 with GPS Includes antenna	Integrated GPS or separate WAAS GPS	Existing transponder	

The Appareo Stratus ES and ESG transponders have an interesting feature. They can feed through the antenna radio frequency signal to an ADS-B IN receiver. This allows the receiver to share the transponder antenna, eliminating the need for a separate receiver antenna on the belly of the plane. Appareo makes a permanently installed IN receiver called the Stratus 3i which can be connected this

way to the transponder. In the RV-10 example, the Dynon receiver should also connect this way but is not yet installed. Appareo assures me that it will work.

The Garmin GDL82 would appear to be the least expensive solution. However, installation is much more involved than with either the SkyBeacon or TailBeacon. The unit must be installed in line with the transponder antenna coax, so shares the transponder antenna and gets the squawk code as it passes through. A GPS antenna is also required unless you already have a WAAS GPS source. Labor is estimated at 15 to 20 hours. Of course, transponder solutions that require a new GPS antenna would have almost as much installation labor.

Planning to fly to Canada? You might want to consider a 1090 ES system. The 978 UAT OUT systems are for the US only. Canada is mandating ADS-B above 12,500 feet, which is what is considered Class B there, starting in 2022. Other airspace could be mandated later.

You can still apply for the \$500 rebate for single engine airplanes that were registered before 2016. Hurry, the FAA said they had 2300 rebate slots remaining as of last week at Sun 'n Fun.



**The skyBeacon gives you ADS-B and wingtip nav/strobes**

**(Shown installed on a Cessna 150)**



**An ADS-B transponder with Lat/Long read-out, showing that the position source is working.**



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Check out our fantastic Web Pages at

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While you're there, take time to join the  
Yahoo Groups to help you stay abreast of  
Chapter happenings!



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