



Six Echo Sierra at KSDC, photo by Bob Burns

Important Dates:

General Meeting
March 9, 2017
7:00 pm, Clubhouse

Board Meeting
April 6, 2017
7:00 pm, Clubhouse

General Meeting
April 13, 2017
7:00 pm, Clubhouse

Welcome to the Club!

The Williamson Flying Club extends a warm welcome to our newest members:

- Shawn Springer
- John Joseph

Williamson Flying Club

March 2017

Do It Yourself ADS-B In by Joe Ebert

The FAA requires all aircraft operating in controlled airspace as defined by CFR 91.225 be equipped with ADS-B Out by 2020. Simply put, if you operate in airspace that now requires a transponder, then you must have ADS-B Out to continue to operate in that airspace on and after January 1, 2020. I won't go over the entire list of exceptions, as you can read CFR 91.225 for a complete summary of where ADS-B Out will be required. One exception to this rule is for aircraft that were certificated without an electrical system. I'll come back to that.

So, what is ADS-B? ADS-B stands for Automatic De-



pendent Surveillance-Broadcast. The simplest explanation is one I am shamelessly stealing from my son, who was about five when he saw the GPS mounted on the car's windshield. He saw the icon representing our car on the map, but he asked, "Why is our car there, but

none of the other cars are on the map?"

Well, ADS-B puts all the other cars on the map, too. But in order to see them, they must be broadcasting their positions (ADS-B Out) and you have to have the ability to

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Williamson Flying Club

Williamson-Sodus Airport (KSDC)
5502 State Route 104
Williamson, NY 14589

Find us on the web at:
www.williamsonflyingclub.com

Board of Directors

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Do It Yourself ADS-B In by Joe Ebert

“There’s a great, low-cost product by Vilros that offers ADS-B In called Stratux. By low-cost, I mean my configuration cost about \$100. Stratux is compatible with just about any tablet aviation app.”

Aviation Quote:

“When everything seems to be going against you, remember that the airplane takes off against the wind, not with it.”

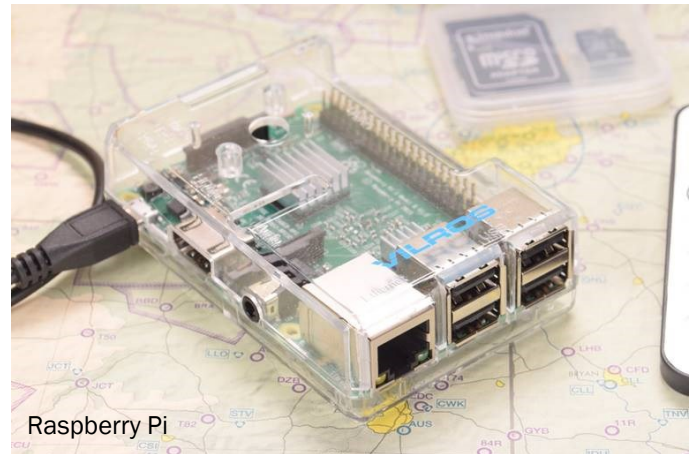
Henry Ford

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receive the data. That’s “ADS-B In”. In addition to real time traffic, ADS-B In provides weather radar and fresh METAR, NOTAM, Airmet/Sigmet, and TFR data while airborne that can be displayed on a tablet computer like an iPad. Many ADS-B In receivers also provide GPS and AHRS (Attitude and Heading Reference System) in the plane. The club’s Stratus 2 is a common portable ADS-B In receiver. These originally cost \$800 new and the latest version, Stratus 2S, is priced at \$899 from Sporty’s.

There’s a great, low-cost product by Vilros that offers ADS-B In called Stratux. By low-cost, I mean my configuration cost about \$100. Stratux is compatible with just about any tablet aviation app. I’m using it with ForeFlight version 7.5.1 on an iPad Mini running iOS 9.3.5.

So, what is Stratux? The heart of the system is a Raspberry Pi. It’s basically a tiny computer, with all the connections one might want – Ethernet, USB (4), audio jack, monitor and power. There are other connectors but they aren’t needed or relevant for this use. It’s small, but every bit as capable as the PC on which you



might be reading this article.

A small USB dongle is the ADS-B receiver. An antenna plugs into the receiver. The antenna I have looks like a miniature old fashioned car radio antenna and it works just fine. There are antennas that look more like a handheld radio antenna that can be used and it might all look slicker if you go that route.



The kit I purchased (links at the end) included an AC Adapter, a small remote (for doing what, I have no idea yet!), and a MicroSD card with pre-loaded Stratux software. The pre-loaded software was an older version, but upgrading to the latest Stratux version was easy.

Because my iPad does not have GPS, I added the optional GPS antenna/receiver, for \$18.99. This also connects via USB.

The Stratux application is an open-source Linux code that runs on the Raspberry Pi. The Raspberry Pi device has built-in WiFi, so a wireless network is created when it starts up. If you can plug a USB device in, and connect a tablet to a wireless network, you can get ADS-B In.

The Stratux system can be powered from the 12V

Do It Yourself ADS-B In by Joe Ebert

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power supply in an airplane. For aircraft without an electrical system - I promised I'd get back to this - Stratux can be powered by a rechargeable USB battery. For my tests, I used an iHome battery stick that I use as a power backup to my cell phone. I get about an hour of uptime. There are larger USB batteries that will last up to 3 or 4 hours.

I haven't yet bundled the product into a neat, compact assembly. There are many solutions out there, from custom 3-D printed cases, to Velcro and tie-wraps. I wanted to do a test flight first.

I did the initial setup at home. This included a foray into the Stratux app to learn the features. When you turn on the Raspberry Pi, a couple lights on the device flash. After about 30 seconds of flashing, I found the Stratux WIFI network



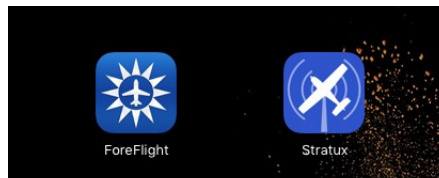
Raspberry Pi with ADS-B receiver attached and GPS (bottom of frame)



The whole kit with ADS-B receiver, GPS, and iHome battery connected

on my iPad, and I connected.

To get to the Stratux interface, simply enter the provided IP address (192.168.10.1) in the browser and the device's web app opens. You can add a shortcut to that as you would any other site.



In ForeFlight, I immediately had GPS information. The number of satellites being used gave me 1.6 meter accuracy. That's WAAS accurate. Since I was on the ground (at home), however, no ADS-B antennas were being received. In my test flight, once I got a few hundred feet AGL, I received ADS-B information on my map in ForeFlight right away. Aircraft from as



far away as Buffalo and Binghamton appeared on my iPad.

[Editor's note: ForeFlight has a "hide distant traffic" setting to de-clutter your screen. It masks all traffic more than 15 nautical miles away and at altitudes exceeding 3500' from your own.]

I'll share more about that test flight next month, with a comparison between Stratux and the Stratux 2.

While Stratux does not fulfill the requirement for ADS-B Out, it does provide a wealth of information to assist you in-flight. The information it provides might just convince you that installing ADS-B Out should come sooner, rather than later.

As always, though, see and avoid!

[Link to Vilros kit](#) (note that the kit now includes 2 receivers, for both ADS-B broadcast bands, 1090 and 978 MHz.)

More about Stratux at stratux.me

Cool Places to Fly by Chris Houston

Destination: Williamsburg-Jamestown Airport (KJGG), Williamsburg, VA

Distance: 360 nautical miles

Why It's Cool:

For hungry aviators flying in the Chesapeake Bay region, Williamsburg-Jamestown Airport offers [Charly's](#), a wonderful eatery in the terminal building. The restaurant is small and fills up quickly—or at least it did on the Friday lunch hour when we visited.

The menu simply exudes home cooked goodness. Fresh bread is baked on site daily. Charly's is known for its crab cakes. The [menu](#) is not fancy, but our meals were outstanding, just like mom used to make (actually, better, but my mom didn't cook much). I had the North Carolina barbeque—it

was outstanding and filling enough to keep me going while avoiding multiple scattered thunderstorms plaguing the countryside between Virginia and New York.

My daughter was thrilled with the playground adjacent to the terminal building where she whiled away the time I spent obtaining and programming (I have a GNS-430, lots of knob turning) in my IFR clearance back to Williamson-Sodus (which was significantly altered by ATC twice en route home, but that's life in and near the Washington DC SFRA).

If you're in the area and looking for a place to stop for food, Charly's is highly recommended. I chose to stop here based on the effusive comments on ForeFlight and Airnav. Charly's did not disappoint

Tips:

- The Williamsburg-Jamestown Airport is roughly 64 nautical miles (30 minutes Cherokee time) south of the Washington DC SFRA. If you're flying in this area, chances are you already know the drill. Recall that flying within 60 nautical miles of the DCA VOR requires an awareness course. **NOTE:** The original on-line course that many of us took a few years ago (ALC-55) no longer meets the requirement for awareness training for the DC SFRA. Instead, [ALC-405](#) (last revised 06-05-2014) meets the current requirement.
- Always read your sectional! Runway 13 has a right-hand traffic pattern. I think I was sufficiently thrown off-kilter by the right traffic, that I flew downwind in too close and turned final too early. This meant that the lunchtime crowd at Charly's got a show with their meals: a go-around. At 3204 x 60 feet, the runway is not particularly short or challenging (except for me, evidently).
- Avgas is available, though we did not purchase any. It's currently priced at \$5.10/gal.
- The field has a GCO for contacting Norfolk Clearance Delivery (or, in the local vernacular, "Nawf'k"). Four slow clicks of the microphone on 135.075 MHz should connect you to Clearance Delivery by phone. I could not make it work and, based on other comments I've read, I'm not alone. IFR clearance can be received by calling Norfolk directly at 757-363-5865.



Election Results!

Thanks to all who participated in the elections held at our Annual Meeting. For those unable to attend, the current membership of the Board of Directors is:

President: Steven Murray
Vice President: Tom Henderson
Treasurer: Bob Herloski
Secretary: Joe Ebert
Director (2015): John Clingerman
Director (2016): Randy Christian
Director (2017): Mike Malec

Congratulations!

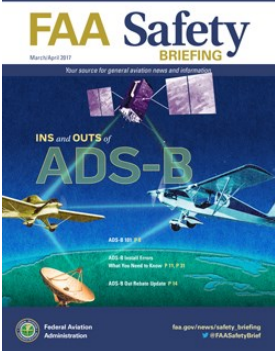


First solo! Congratulations to Ed Ciolkowski!

Upcoming Events

11 March (Sat)	WFC Saturday Lunch Menu: C-47 corned beef and cabbage, dessert TBD WFC Clubhouse 12:00 pm—1:00 pm
25 March (Sat)	WFC visit to the Glenn Curtiss Museum 10:00—12:00 Guided tour of the museum 12:00—Lunch at Burgers and Beer in Hammondsport Please RSVP using the Event Calendar by March 11.
08 April (Sat)	WFC Saturday Lunch Menu: C-130 chili (w/ cheddar cheese available), bread, and dessert TBD WFC Clubhouse 12:00 pm—1:00 pm
29 April (Sat)	Fly-out breakfast to Cloud 9 at the Williamsport Airport (KIPT) <i>Currently being planned</i>
13 May (Sat)	WFC Saturday Lunch Menu: TBD WFC Clubhouse 12:00 pm—1:00 pm

Recommended Reading



The latest issue of FAA Safety Briefing (Mar/Apr 2017) focuses on ADS-B, the perfect companion piece to Joe Ebert's article this month!

www.faa.gov/news/



Images by Chris Houston



Downtown Rochester, NY from 3,000 feet during a late February night flight from KSDC to KGVQ. iPhones take remarkably crisp photos in low light!