Flying 1 Club

Flying for Fun in Northern Virginia! www.flyingclub1.org

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The Privileged View

Steve Beste, President

The Gyroplane Option. As I've said before, *It is a truth universally acknowledged that a pilot in possession of a good aircraft must be in want of a second one.* In other words, you need a gyroplane.

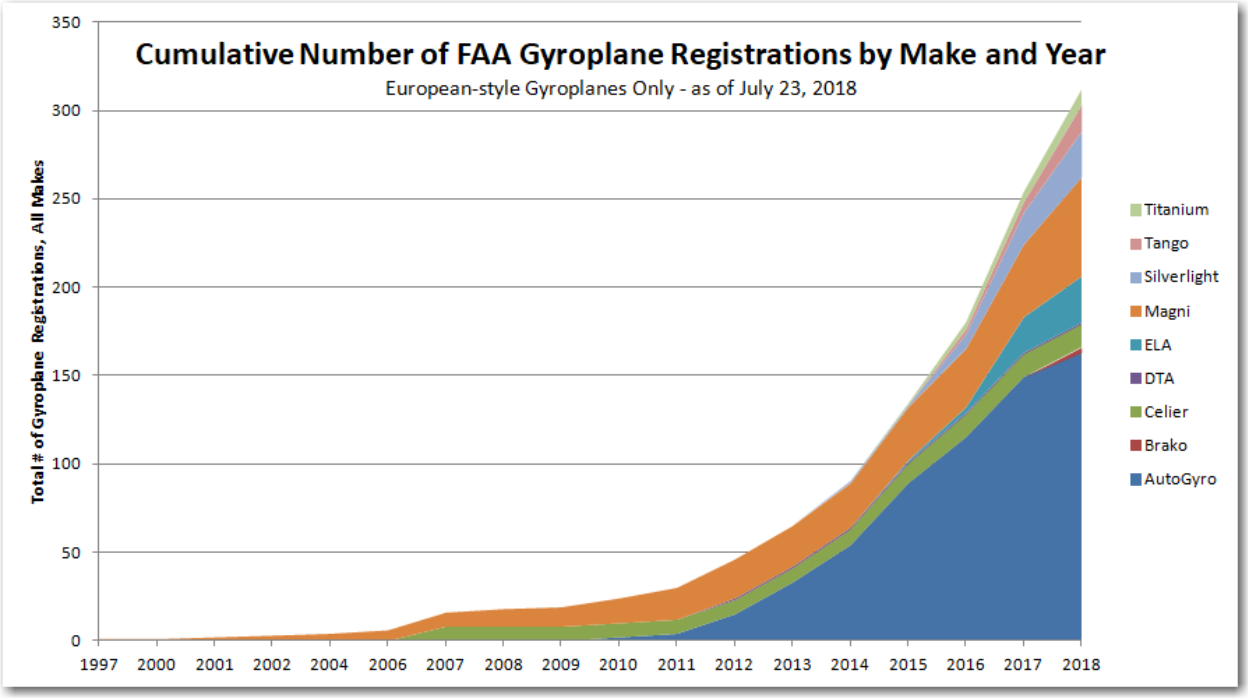
Fortunately, we have a new gyroplane instructor and AutoGyro dealer in Frederick, MD: Frank Noe. I went to visit him last month to get all my gyro questions answered. Between Frank and the internet, here's what I found.

Frank Noe with his AutoGyro MTO - his website is Frederick Gyros

The Basics.

- It's not a helicopter. The rotor is not powered. Instead, the propeller in the back pushes the machine forward. Air passing through the rotor makes it spin. The blades create lift.
- Controls work like airplane controls: stick and rudder pedals, so transition to gyros is pretty easy for airplane pilots. Figure 10 to 15 hours of instruction.
- They can be flown with a Sport Pilot license, hence an aviation medical is not required. You *do* need an FAA license, however, with a gyroplane endorsement.
- Gyroplanes cruise at 65-90 mph. This is about the speed of an Aeronca Champ or Piper Cub.
- They cost between $70,000 and $100,000 new, roughly. $50,000 to 75,000 used.
- European-style gyroplanes have transformed the market. Forget the Bensen Gyrocopter and its kind. The key to a safe gyroplane is the big horizontal stabilizer far to the rear with lots of leverage. The Magni people figured this out twenty years ago. Now, this design dominates the market.
- Gyroplanes are sold only as kits[1] They are all registered as EXPERIMENTAL – AMATEUR-BUILT. But that doesn't mean you have to build them. More below.
- Sales are booming. I downloaded the FAA aircraft registry and found that:
  - Total registrations at the end of 2018 will be double what they were in 2016.
  - 58 gyroplanes have been registered in 2018 through July.
  - AutoGyro dominates the market, followed by Magni.

[1] AutoGyro does offer their MTO model factory-built in the little-used Standard category. But it costs half again as much a the same gyro sold as EXPERIMENTAL. It makes sense only for commercial operators.



No Bumps! The big reason to fly a gyroplane is that they are nowhere near as sensitive to winds as everything else we fly. You can fly in the middle of a summer afternoon and not get beaten up by the thermals. The reason is the high wing loading, plus the teeter in the rotor blades. I took two hours of gyro training in 2012 and was astonished at this. The instructor took me up at noon on a day that was so gusty I would not even have taken my trike out of the hangar. He plopped me, a student, in the front seat and off we went to practice touch and goes. I could hardly feel the gusts at all. It was *wonderful*.

Gyroplane Performance. Gyroplanes are inherently inefficient. You're basically dragging a huge pinwheel through the sky. The figures in the table below come from the Pilot Operating Handbooks for three gyroplanes. The AutoGyro MTO is the most popular gyro being sold. All of these gyros have Rotax 9-series 4-cycle engines, available in different horsepowers.

Parameter	AutoGyro MTO	Magni M-16	Titanium Explorer	Notes
Cruise Speed:	87 mph	90 mph	70-104 mph	But Frank Noe cruises his MTO at 65 mph. Above that, he finds an uncomfortable amount of noise and vibration.
Never-exceed speed (V_{NE}):	115 mph	100 mph	115 mph	
Turbulence speed (V_{NO}):			80 mph	Speed limit in turbulent air.
Rate of climb at gross wt:	670 fpm	625 fpm	650 fpm 1,000 fpm	100 HP engine 115 HP
Landing roll:	0 to 60'		0 to 90'	
Landing distance from 50':	450'	510'	600'	
Takeoff roll:	360'		300' 210'	100 HP engine 115 HP
Takeoff over 50' obstacle:	900'	820'	1,050' - 750'	On takeoff, you leave the ground but then stay in ground effect while the rotor builds up speed. This accounts for the long distance over a 50' obstacle.
Useful load:	448 lb	405 lb	664 lb	
Glide ratio:	3:1			If the engine quits, you're coming down. But if you have a landing area that's big enough that the rotor can clear the trees, you can land with zero forward velocity. So you'll be fine.

The CEO of TAG Aviation in Australia, maker of the Titanium Explorer, writes me that in addition to the 100 HP Rotax 912 ULS and the 115 HP 914 Turbo, he offers a modified 912 ULS Turbo that produces 137 HP. With that, he cruises at 115 mph and climbs at 1,450 fpm.

Gyroplane clubs. Five guys, including an instructor with AutoGyro at Bay Bridge Airport, have formed a gyro flying club there. They currently have one gyro, an AutoGyro MTO (which is to say open cockpit). The deal is:

- $15,000 to buy in. This can perhaps be sold when you leave.
- $200/month gets you 48 hours/year.
- Additional hours can be bought for $34/hour.
- You buy your own gas. (about 4 gph I'm guessing)
- Hull and liability insurance are included, which is a BIG feature.

- The gyro is kept at the Bay Bridge airport.

They're looking for more members with the aim of buying another gyro, perhaps an enclosed model. Frank Noe is looking to create another club in Frederick. And perhaps a Virginia club could be set up.

Configurations. The six pictures below show your configuration options. 70% of the gyroplane registrations this year have been for open models, 30% for enclosed designs. The Brako Sprint is the only single-seat gyro offered. Demand for the no-fairing version of the AutoGyro MTO is weak - they're currently offering one at the deeply-discounted price of $50,000 new. The center of the market is the 2-seat tandem open gyro. The AR-1 and the ELA 10 Eclipse are convertibles, with canopies that can be removed for summer flying.

1-seat: Brako Sprint

No fairing: AutoGyro MTO Free

2-seats in tandem: AR-1

AR-1 with optional winter canopy

Enclosed, tandem seating: AutoGyro Calidus

Side-by-side seating: Magni M-24 Orion

Safety. Twenty years ago, gyroplanes had a well-deserved reputation for being dangerous. Writes Art VanDelay online, "This leads back to the Bensen days when there were almost NO instructors. The Bensen kit actually came with instructions on how to teach yourself how to fly - so you can kind of see where that might lead to problems. Then over the years Gyroplanes would be found for sale on EBay and Craigslist for a couple thousand dollars. The new buyers figured 'hey, how hard can it be?' - once again with predictable results."

The other change since those days is the large horizontal stabilizer, mounted well aft. Some machines were prone to PIO, pilot-induced oscillations in pitch. The pilot would chase the oscillations, only making them worse until the gyro did a fatal bunt over. The large tail that Magni invented - as is used on all modern gyros - has fixed that. When I visited the Magni people in 2012,

they told me that no Magni had ever been involved in a fatal accident. And they were particular about training the pilots they sold to.

French J-Ro tandem gyroplane by DTA

The most common accident these days seems to be toppling over during ground operations. You have considerable momentum in that spinning rotor way up there. If you behave carelessly, it can flip you over. This is a rookie mistake and an expensive one, but not life-threatening. As usual with flying, training is key. See this short video on landing techniques.

Insurance. Given the historical safety record, hull insurance for gyros was expensive until recently. At Sun 'n Fun, I got reports of $6-8,000/year. However, the people at the gyro cub at Bay Bridge Airport tell me that they pay $4,700/year for hull and liability insurance. First, the underwriters have taken note of the European experience. (AutoGyro says they've sold more than 2,600 gyros worldwide.) These are not your father's gyrocopter. Second, they have put gyros in a separate category from helicopters. That has reduced premiums. I expect that premiums will continue to fall as experience grows.

Do I have to Build It? Actually, no. That's the secret I learned talking to several vendors at Sun 'n Fun.

- First, what all the vendors are selling is FAA-approved 51% kits. The FAA approval means that if you build the kit according to its instructions, you don't have to prove to the FAA that you did 51% of the work - a necessary condition to getting it registered as an EXPERIMENTAL - AMATEUR-BUILT aircraft.
- These gyroplanes can be assembled in 80 hours. They're *much* simpler than airplanes. In particular, you don't have all that wing and fuselage area to fabricate. No thousands of rivets.

And gyro kits are *assembly* kits, not *fabrication* kits. No welding, no cutting, no fiberglass fabrication.

- Almost every gyro gets made via a "builder-assist" program wherein you assemble the kit at the vendor's facility with their tools under their coaching.
- And here's the secret: *builder-assist* means that they will build it for you. You can be active in the process or just show up and sign the paperwork at the end, as you please. Everyone winks at this because it's in everyone's interest to do so. From the FAA's standpoint, this produces a safer, better-built fleet of aircraft.

BTW, if you do want to build it, and want some time in Italy, Magni also offers a builder-assist program at their factory outside Milan. Here's a write-up on that experience. It sounds like fun!

U.S. Market Penetration

July 28, 2018

Make & Total # Registered in US	Model	# Reg'd	# Seats	Enclosure		Seating	
				Open	Closed	Tandem	Side-by-Side
AutoGyro (163)	MTO	65	2	✓		✓	
	Calidus	49	2		✓	✓	
	Cavalon	49	2		✓		✓
Magni (56)	M-16	35	2	✓		✓	
	M-22	6	2	✓		✓	
	M-24 Orion	15	2		✓		✓
Silverlight (26)	AR-1	26	2	✓	✓	✓	
ELA (25)	ELA 10 Eclipse	20	2	✓	✓	✓	
	ELA 07 Cougar	3	2	✓		✓	
	ELA 07 Scorpion	2	2	✓		✓	
Celier (13)	Xenon	13	2		✓		✓
Titanium (9)	Explorer	9	2	✓		✓	
Brako (3)	GT	2	2	✓	✓	✓	
	Sprint	1	1	✓		N/A	N/A
DTA (1)	J-Ro	1	2		✓	✓	

Notes:

1. All of these gyros have fairings. The AutoGyro MTO and the Brako GT are available in "naked" versions that have no fairings.
2. The DTA J-Ro can be imported only as a factory-built machine, registered here in the EXPERIMENTAL - EXHIBITION category. No kit is yet available, though their new manage-

ment is exploring that possibility.

3. The AR-1 and the ELA 10 Eclipse have optional canopies that are removable for summer flying.

Makes and Models

AUTOGYRO. This is the world's largest gyro manufacturer and the U.S. market leader. They have a factory staff of over 100. They have sold 2,600 gyros worldwide, with 34 in the U.S. in 2017.

They sell the three models shown here – 2-place side-by-side, 2-place tandem enclosed, and 2-place tandem open.

Manufacturer website. Dealer website. Build center location: Stevensville, MD (Bay Bridge airport, just over the Chesapeake Bay Bridge from Annapolis). Dan Johnson video.

MAGNI. Magni invented the modern gyroplane, and has been selling them in the U.S. for 18 years, ten years longer than anyone else. Therefore, if you find a used gyroplane, it will probably be a Magni. They have a solid reputation for quality and safety. Uniquely, their rotors are made of fiberglass, not aluminum. This makes them heavy, which gives momentum to the rotor disk, which contributes to the hands-off stability of they gyro in flight. (On this point, see this video comparing AutoGyro and Magni models.)

They sell three models: the M-16 open 2-place tandem, the M-22 which adds storage space in two sponsons, and the M-24 Orion, an enclosed 2-place side-by-side.

Magni M-16

Magni M-22

Magni M-24 Orion

Manufacturer website. Dealer websites Missouri and Texas. Build center locations: Ste. Genevieve, MO (40 miles south of St. Louis) and Taylor, TX (30 miles northeast of Austin). Dan Johnson interview on YouTube.

SILVERLIGHT. SilverLight's American Ranger-1 is the only American designed and built gyro in this survey, which bodes well for service. Sales are brisk, with 8 so far this year and 10 more being built. SilverLight sells only one model, the AR-1, which is an open 2-place tandem, but an optional winter enclosure can be bought. See the pictures above. The AR-1 costs less than most other gyros.

Manufacturer website. Build center location: Zephyrhills, FL. (30 miles northeast of Tampa). Dan Johnson interview on YouTube.

ELA. Frank Noe has a high regard for the ELA gyros, and 26 of them are registered here, 17 in 2017 alone. However, their U.S. importer, gyroplaneguy.com, seems to have jumped ship to AutoGyro. I could find no U.S. dealer. ELA makes three models, all tandem 2-place machines. The high-end 10-Eclipse is enclosed. Dan Johnson quick-take video.

Manufacturer website.

CELIER. Celier seems to be operating in a different market from the other gyros here. The company's website stresses commercial use and 3-seat variants. The virtues of the machine aside - and it was the grand champion gyroplane at Oshkosh in 2015 - the company seems in disarray. It was moved from France to Poland in 2007 and now to Malta in 2017. No Celier gyros have been registered here since 2016, although they made an appearance at Sun 'n Fun this year. Celier has no U.S. dealer. Manufacturer website.

TITANIUM. This Australian company stresses its high-end technical features. Critical parts are made of titanium. The rotor is composite like helicopter blades. They offer a 135 hp turbo mod of the Rotax 912 ULS.

They sell one model, the Titanium Explorer, with various engine options.

Manufacturer website. Dealer website. Build center location: Tomball, TX (30 miles north of Houston).

BRAKO. A North Carolina manufacturer and gyroplane enthusiast has begun importing the Italian Brako gyroplane in 2018. It's offered in three models.

Brako Sprint

Brako GT

Brako GT Naked

Manufacturer website. Dealer website. Build center: Louisburg, NC (30 miles northeast of Raleigh).

DTA. I have included DTA here because I love their gyro, the J-Ro. I think it's the prettiest one on the market with superb visibility. It's the only gyro I found that has enclosed tandem seats with an upright seating position, doors and a roof, not a canopy. I know DTA from the trike world where the French firm has a reputation for top quality.

Unfortunately, DTA declined to make a kit for the American market back in 2012.

Under new management, they are now exploring the possibility. Until then, the J-Ro can only be registered here as an EXPERIMENTAL - EXHIBITION aircraft, which has limitations. Only one has been imported that way.

Manufacturer website. Canadian dealer website has more details. Short video. The J-Ro has amazing visibility and lots of headroom.

Further information.

1. Video in which a wild Scot explains how gyros work.
2. Video comparing AutoGyro and Magni models.
3. Video on gyroplane landing techniques.
4. Typical Pilot Operating Handbook (AutoGyro MTO Sport 2017). Educate yourself on performance and maintenance items.
5. Flying a New Generation Gyrocopter - A guide for converting pilots, by Phil Harwood. The entire book is online as a free PDF.
6. Article on building a Magni gyro at the factory near Milan, Italy. Instead of building it here, spend two weeks in Italy.
7. Many technical articles about gyroplanes from Greg Gremminger, past head of the gyroplane ASTM committee, past president of the Popular Rotorcraft Association, longtime Magni distributor.
8. The Gyro Slicer! Do you like slicing onions? Of course not! Better than a Vegematic, the GyroSlicer will do the job! But wait, there's more. This fun video will persuade your spouse that you need to get a gyroplane today. Maybe two. As seen on TV!

Fly safely,

Steve

This Month's Fly-In Destinations

To encourage all of us to get in the air more, the following is a list of fly-ins I found within (about) 100 NM of the Warrenton Airpark which are occurring in the next month. Sources are: The EAA Calendar of Events, www.flyins.com, www.socialflight.com and the Virginia Department of Aviation Calendar of Events.

Date	Event Description	Location	Distance from 7VG0
Sat, Aug 11 / 9AM-12PM	EAA 186 Young Eagles Rally	Manassas Regional Airport (KHEF)	13 NM
Sat, Aug 11 / 8:30-10:30AM	Flying on the Edge: Exploring the Limits of You and Your Airplane	Frederick Municipal Airport (KFDK)	50 NM
Sat, Aug 11 / 8:30-10:00AM	Farmville Fly-In Breakfast	Farmville Regional Airport (KFVX)	84 NM
Sat, Aug 11 / 8-10:30AM	EAA 518 Fly-in Drive-in Breakfast	Mifflin County Airport (KRVL)	121 NM
Sat, Aug 11 / 8AM-3PM	Military Aviation Museum Summer Fly-in	Virginia Beach Airport (42VA)	145 NM
Sat-Sun, Aug 11-12 / 7AM-4:30PM	100 year anniversary of airmail celebration	College Park Airport (KCGS)	45 NM
Sun, Aug 12 / 8AM-6PM	Summer Sunday Fuel Sale and Cook Out	Maryland Airport (2W5)	34 NM
Sun, Aug 12 / 9AM-1PM	EAA 857 Fly-in Breakfast and Young Eagle flights	Pittsburgh-Butler Regional Airport (KBTP)	162 NM
Thu-Sat, Aug 16-18 / 10AM-5PM	Golden Age Air Museum Radio Control Model Meet	Grimes Airport (8N1)	130 NM
Fri-Sun, Aug 17-19 / 10AM-5PM	East Coast Sailplane Rally	Massey Aerodrome (MD1)	100 NM
Sat, Aug 18 / 1-3PM	Smoketown Aviation Fair	Smoketown Airport (S37)	111 NM
Sat, Aug 18 / 8:30AM-3:30PM	Mid-State Fly-in (EAA 748)	Mid-State Airport (KPSB)	134 NM
Sun, Aug 19 / 8AM-6PM	Summer Sunday Fuel Sale and Cook Out	Maryland Airport (2W5)	34 NM
Sat, Aug 25	Virginia Airshow	Front Royal - Warren County Airport (KFRR)	27 NM
Sat, Aug 25 / 8:30-10AM	Chase City Monthly Fly-In, safety program at 9AM	Chase City Municipal Airport (KCXE)	117 NM

Date	Event Description	Location	Distance from 7VG0
Sat, Aug 25 / 8:30-10:30AM	EAA Chapter 339 and Commemorative Air Force Old Dominion Squadron Fly-in pancake breakfast	Hampton Roads Executive Airport (KPVG)	129 NM
Sun, Aug 26 / 8AM-6PM	Summer Sunday Fuel Sale and Cook Out	Maryland Airport (2W5)	34 NM
Sun, Aug 26 / 9AM-1PM	EAA Chapter 426 Fly-in Drive-in Breakfast and Young Eagles Rides	Greater Cumberland Regional Airport (KCBE)	73 NM
Sat, Sep 1 / 10AM-6PM	Fly-in at Mazza (Flying Crown Ranch)	Mazza Airport (VA73)	86 NM
Sat, Sep 1 / 7:30-10:30AM	Fly-in breakfast social	Suffolk Executive Airport (KSFQ)	131 NM
Fri-Sun, Sep 7-9 / 10AM-5PM	B-17 Tour Stop	University Park Airport (KUNV)	132 NM
Sat, Sep 8 / 9AM-12PM	EAA 186 Young Eagles Rally	Manassas Regional Airport (KHEF)	13 NM
Sat, Sep 8 / 9:30AM-1PM	Young Eagles Rally	Stafford Regional Airport (KRMN)	22 NM
Sat, Sep 8 / 10AM-5PM	Fall Foliage Flight Festival	New Kent County Airport (W96)	76 NM
Sat, Sep 8 / 8:30-10:00AM	Farmville Fly-In Breakfast	Farmville Regional Airport (KFVX)	84 NM
Sat, Sep 8 / 11AM-4PM	Wings N' Wheels	Wings Field Airport (KLOM)	147 NM
Sun, Sep 9 / 10AM-2PM	Young Eagles Day at Massey Aerodrome	Massey Aerodrome (MD1)	100 NM
Sun, Sep 9 / 9AM-5PM	Punxsutawney Airport Awareness Day	Punxsutawney Municipal Airport (N35)	148 NM
Sun, Sep 9 / 9AM-1PM	EAA 857 Fly-in Breakfast and Young Eagle flights	Pittsburgh-Butler Regional Airport (KBTP)	162 NM
Sun, Sep 9 / 9AM-4PM	EAA Chapter 70 Annual Fly-in	Braden Airpark (N43)	172 NM

Airfields Update

By Steve Beste

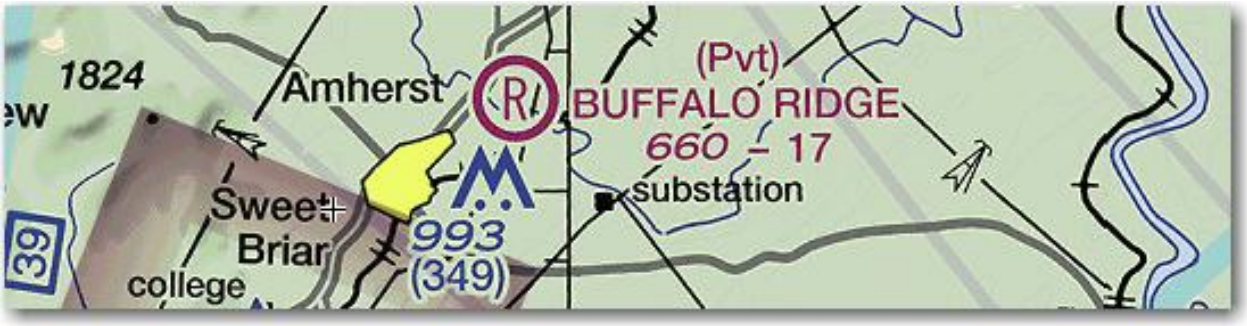
Karmy Is Gone

For months, this newsletter has been advertising the Karmy house and airfield (VA17) near Woodstock in the Shenandoah Valley. Alas, Dr. Karmy was unable to sell it to a pilot. A local farmer bought the field last spring, it's now planted in corn, and it's gone from the new Cincinnati sectional. So sad.

This also means that we no longer have enough airfields to make up a fall poker run in the valley.

Buffalo Ridge Is On the Chart

Some go, some come. Our long-time trike instructor and examiner Ron Dixon has a grass airfield near Amherst, VA. After **six years** of screwing with the FAA¡ they finally put his field on the Cincinnati sectional. It was a long time coming, but victory is sweet. See it on Sky Vector. Case closed. I couldn't be happier.



Automatic Dependent Surveillance-Broadcast (ADS-B)

By Wayne Fetty

By **January 1, 2020**, you must be equipped with ADS-B Out to fly in most controlled airspace. Any airspace that requires the use of a transponder today will on January 1, 2020 also require aircraft to be equipped with a Version 2 ADS-B Out system.

Federal Regulations 14 CFR 91.225 and 14 CFR 91.227 contain the details.

The FAA will delay the ADS-B mandate.

Ain't gonna happen. As noted in the DOT IG report, the FAA expects only 3 percent of airliners and 10 percent of GA aircraft to be equipped for ADS-B Out by the end of this year. So far not enough airplanes are equipped for ADS-B to allow the FAA to do the nitty-gritty testing of the network to ensure the technology works the way it should. Delaying ADS-B equipage would only postpone that urgently needed testing longer. So, the FAA will require you and everybody else flying in controlled airspace to equip for ADS-B by Jan. 1, 2020, and then it will start the real testing of the ADS-B network that will allow further development of core NextGen technologies.

FAA $500 Rebate?

Sorry, the last day to claim a rebate was February 15, 2018.

What is ADS-B?

ADS-B describes how Air Traffic Control (ATC) will track and manage aircraft in a more automated system using GPS technology. ADS-B works using satellites, aircraft GPS technology and ground stations. ADS-B locates aircraft precisely and automatically transmits the data to ATC and other aircraft with ADS-B "In" equipment. ADS-B is "automatic" in that it requires no pilot or external input. It is "dependent" in that it depends on data from the aircraft's navigation system.

What is the difference between ADS-B Out and ADS-B In?

ADS-B Out refers to an aircraft broadcasting its position and other information.

ADS-B In refers to an aircraft receiving the broadcasts and messages from the ground network such as TIS-B (traffic information service-broadcast) and FIS-B (flight information services-broadcast). ADS-B **In** is **not** mandatory by January 1, 2020.

Do I need to equip?

- Yes, if your aircraft needs a transponder.
- Yes, if your aircraft has an electrical system and
  - Yes, if you operate above 10,000' MSL, above 2500' AGL
  - Yes, if you operate in Class B airspace
  - Yes, if you operate in Class C airspace
  - Yes, if you operate in Class E airspace, above 3000' MSL over the Gulf of Mexico within 12 NM of the US coastline
  - **Yes, if you operate in airspace within 30 NM (Mode C veil) at all Class B locations from the surface up to 10,000 feeet MSL**

Required to operate ADS-B OUT

- You are required to operate your **ADS-B Out** transmitter **at all times**, including while on the surface of the airport.
- Why? ADS-B Out works by regularly broadcasting position, velocity, and identification information to ATC and other aircraft, to improve situational awareness at all times - on the ground and in the air.

Here's where you can fly without ADS-B Out

- All Class D airspace, excluded Class E airspace, and all Class G airspace.
- Class D airspace is generally the airspace from the surface to 2,500 feet above the airport elevation (charted in MSL) surrounding airports with an operational control tower. Class E airspace that does not require an ADS-B Out system is airspace below 10,000 feet over the lower 48 or below 3,000 feet MSL within 12 NM of the coastline and not above Class B or C airspace. Finally, Class G airspace is uncontrolled airspace. Redundantly, airspace that is not Class A, B, C, D, or E.
- That's it - where you can and cannot fly without an ADS-B Out system. Remember, you are not prohibited by the ADS-B Out mandate from flying VFR or IFR. The mandate only regulates the airspace that requires an ADS-B Out system and the performance requirements of the system. For more information, go to http://www.faa.gov/nextgen/equipadsb/.
- If your aircraft was not originally certificated with an electrical system, or has not subsequently been certified with such a system (including balloons and gliders) you're not required to have ADS-B Out. See §91.225 for more information.

Uncertified Equipment?

Check your Airworthiness Certificate.

- You may install an uncertified transmitter on **amateur-built aircraft and light-sport aircraft with experimental airworthiness certificates**, if it meets the performance requirements of Technical Standard Order (TSO)-C166b or TSO-C154c.
- For S-LSAs, ADS-B equipment must meet the performance requirements in TSO-C166b or TSO-C154c. The installation (i.e., alteration) must be performed in accordance with an applicable consensus standard and authorized by the manufacturer.
- You **cannot** install uncertified equipment, including uncertified transmitters, on any aircraft with a standard airworthiness certificate.
- Equipment that does not meet the performance requirements of an ADS-B TSO will not be permitted to operate in airspace requiring ADS-B after Jan. 1, 2020.
- Keep your ADS-B installation instructions from the supplier, including the statement of compliance, in case you have any service problems.

Installation

An ADS-B Out transmitter alone will not be sufficient to meet the requirements outlined in 14 CFR 91.227. To comply with the requirements for the ADS-B rule, the aircraft must be equipped with a Version 2 ADS-B Out transmitter and a compatible GPS Position Source. There are two ADS-B avionics systems available:

- **Mode S transponder-based (1090 MHz) ADS-B equipment** must meet the performance requirements of Technical Standard Order TSO-C166b. For aircraft operating above FL180 (18,000 feet) or internationally, you must be equipped with a Mode S-transponder-based ADS-B transmitter. For aircraft operating below 18,000 feet and within U.S. airspace, you must be equipped with either a Mode S transponder with Extended Squitter or
- **Universal Access Transceiver (UAT) equipment** must meet the performance requirements of TSO-C154c. UAT equipment provides the ability to receive traffic and weather data provided by the FAA ADS-B network.

The FAA recommends a WAAS GPS that is compliant with TSO-C145 or TSO-C146. These units are readily available for general aviation and provide sufficient performance to meet the 14 CFR 91.227 requirements. Avionics vendors offer stand-alone GPS receivers and package them with ADS-B transmitters or with GPS Navigators. Mixing and matching GPS systems with ADS-B transmitters in the field is not permitted unless the equipment pairing was shown to be compatible via a previous certification effort with the FAA (for example, an STC). Be sure to contact your manufacturer if you are unsure which GPS systems are approved for your ADS-B transmitter.

ADS-B Requirement Clarified for Non-Electrical Aircraft

- Language is different from Transponder Rule.
- A recently issued legal interpretation from the FAA's Office of the Chief Counsel has clarified Automatic Dependent Surveillance-Broadcast (ADS-B) requirements for operators of aircraft without electrical systems. The FAA has mandated ADS-B Out equipage after Jan. 1, 2020, for flight in airspace where a transponder is required today.
- In the regulations requiring the use of altitude-reporting transponders, 14 CFR 91.215(b)(3) and 91.215(b)(5) specify exemptions for "any aircraft which was not originally certificated with an engine-driven electrical system or which has not subsequently been certified with such a system installed, balloon, or glider." However, 14 CFR 91.225(e) – which provides comparable exemptions to the ADS-B Out requirement – specifies "any aircraft that was not originally certificated with an electrical system, or that has not subsequently been certified with such a system installed, including balloons and gliders." Its omission of the phrase "engine driven" has caused significant confusion among pilots and aircraft owners.
- The legal interpretation confirms that the same aircraft excluded from the transponder requirement are excluded from the ADS-B Out equipage requirement. That means aircraft subsequently equipped with batteries or an electric starter would not be required to equip for ADS-B Out.
- The concern was that the exception expanded the types of aircraft required to equip with ADS-B Out beyond those required to equip with a transponder.
- The regulation 14 CFR 91.225(e) allows aircraft not certificated with an electrical system, including balloons and gliders (includes PPG and PPC) not equipped with ADS-B Out to operate within 30 nautical miles of a Class B primary airport – basically, within its Mode C veil – while remaining outside of any Class B or Class C airspace. These aircraft can operate as high as 17,999 feet MSL, **except** above Class B or Class C airspace; they also can operate beneath Class B and Class C airspace. Operationally the ADS-B Out rules mirror the transponder equipage requirements in 14 CFR 91.215. Equipping with a transponder now, and ADS-B Out by Jan. 1, 2020, allows for operations above Class B and C airspace.

Meeting Minutes

July 2018

Flying Club One Meeting

Saturday, July 14, 2018
Warrenton Airpark
Warrenton, VA

Selling 50/50 tickets before meeting

Call to Order

President **Steve Beste** called the meeting to order at 11:05 AM.

26 members present (good turn out!)

Visitors, New and Old Members

The outdoor meeting had a big turnout, including some people that we have not seen for a time, especially members **Fred Briggs** and **JJ Campbell**. **JJ** said he is very interested in gyrocopters and had a few demonstration flights. **Gary Edgecomb** and friend flew his red, white and blue Kolb in from Gordonsville, VA. College-bound **Nick Lua** was back looking for flying inspiration. He is taking aeronautical engineering this fall.

With the good flying weather many members have taken to the sky. **Steve Beste** said he flew his trike up along the Pennsylvania mountains to Altoona. **Jackie George** flies all the time, mostly giving someone a ride on his two-seat Quicksilver. **Tim Loehrke** flew his Piper Cub into the annual event held at the old Piper plant/airfield in Lock Haven, PA. **Lucy Ooi** and **Allen Whatley** had a tri-area flight, flying to Cumberland, MD and White Post, VA. Long time member **Rob Kane** is back flying. He bought **Tom Simmons'** Quicksilver.

REGULAR REPORTS

Secretary: Jim Heidish reported that the June minutes were published in the July Club Newsletter. They were approved as published.

Treasurer: **Jim Birnbaum** reported that the June income was $60.00, expenses were $98.84 and check book balance is $2659.15.

President: **Steve Beste** - none

Membership Director: **Jim Birnbaum** reported that we have two new members and that pushes us past the average membership of 40 (paid up to date).

Warrenton Airpark Owner: **Tom Richards** said he has problems with one of his big grass cutting tractors but his helpers are keeping the grass cut with some of the smaller mowers. Hangar repairs have slowed up because of the wet weather last month. Tom said that he may not renew the DC Skydiving operations contract. They have one more year on the old contract.

Old Business

None

New Business

Dave Riedel offered the membership free T-shirts that he had made for a special *Wounded Warrior* event the Flying Club had planned but was canceled. Dave handed some out at the meeting.

MONTHLY PROGRAM

None

50-50 Drawing

Winner **Loyd Peterson**

Adjourn

President, **Steve Beste** adjourned the meeting at 11:45 AM.

Cook Out

A delicious outdoor lunch featuring German sausage was prepared by **Tim Loehrke** and **Bill Dohm**.

Submitted by **Jim Heidish**, *Secretary*

Service Providers

Recap our standing list of service providers:

- **PPG instructor and dealer:** Michael O'Daniel, 540-270-8855
- **Aircraft instructor - CFI:** Pete Bastien, 703-568-5778
- **Trike instructor:** Pat Tyler, 202-746-4687
- **Aircraft instructor - light sport and seaplane:** Chuck Tippett, 540-905-5091
- **Ultralight (Part 103) instruction:** Tom Richards' Grass Roots Flyers, 703-568-3607
- **Machinist:** Luther Taylor, 540-222-3927
- **Welder:** Luther Taylor, 540-222-3927
- **A&P mechanic/IA (not at Airpark):** JD Ingram, 513-388-6312
- **Light Sport Condition Inspections, Rotax Certified:** Tim Loehrke, 703-618-4005
- **Gyroplane Instructor:** Frank Noe, frankcanfly@yahoo.com

Activities

Flying Club 1 Activities Schedule

Designated Club meetings will be held the first Thursday of each month in the Centreville Regional Library, 14200 St. Germain Drive, Centreville, VA, at 7:30 PM. Others will be held at 11:00 AM at the Warrenton Airpark as shown in the 2018 schedule. Changes in time or location will be posted in this newsletter and on the Club website.

Date	Activity	Location
Sat, September 8th, 11 am	Club meeting, fly-in and cookout at Warrenton Airpark	Airpark
Sat, October 13th	Club meeting, fly-in and cookout at Warrenton Airpark	Airpark
Sat, October 24th	Club 1 Color Run Fly-out	Airpark
Thu, November 1st, 7:30 pm	Conversation, club business meeting and program	Centreville Regional Library
Sat, December 8th, 5 pm - 8 pm	Monthly meeting and Holiday Party	Airpark Club House

Classifieds

Ads will be run twice and then dropped unless resubmitted, or renewed by telephone or e-mail. Please advise the editor: **Lucy Ooi**
(Ooi.Lucy@gmail.com) when the ad is no longer needed.

Owner/Builder of Fisher Celebrity (biplane)

Looking for a Co-Owner

All wood construction, Grove one-piece spring-aluminum main gear
Powered by Rotec R2800, 7-cylinder radial engine, 100 horsepower

A tandem 2-place open cockpit biplane, cruises ∼80 MPH
Qualifies as light sport

Construction site & hangar, Warrenton Airpark (7VG0)
Project is ∼80% complete

Project includes Grove Gear, Rotec R2800, Instruments, Flying Wires and all other major components. Total value ∼$35,000

A current co-owner is offering his half of this beautiful project
(Entire aircraft sale – may be considered)

Call for additional info or to make an appointment to see this beautiful Taildragger!

Gil Coshland - (703) 618-3422
Asking $17,500 for his co-ownership

Jim T. Hill - (703) 659-8336 (Co-owner)

Weight-Shift Enthusiasts - Your prayers have been answered! A very nice up-scale trike at an affordable price...

Specifications: NorthWing Navaho (strut braced - no king-post), 2-seat Tandem

Engine: Rotax 582 blue head with C- Gear-Box and just under 300 hours total time (never over-hauled)

Well-maintained - dacron fabric and everything else looks brand new.

Many extras including Radio, GPS, Landing Lights, wheel pants, hydraulic disc brake system, wide tires, 3-blade IvoProp, 2017 Virginia License, 1,050-lb BRS parachute for safety and extra parts.

Photo below was taken at Shannon Airport. This Trike is owned by Kiho Bae, and has recently moved to Warrenton Airpark. Kiho Has asked me to advertise this at an asking price of $18,500. Incidentally, Kiho is an experienced pilot who flew C-46 Commanders in the Korean Air Force, and now flies a Robinson R-44 Helicopter and single-engine fixed-wing as well as weight-shift aircraft. He would be happy to take you for a demonstration ride. Kiho is willing to fly it to your location.

Special Price $18,500

Call Tom Richards (703) 568-3607 or Kiho at (703) 314-6262

SE5A EXP SCALE ROTAX 503 FOR SALE $7,800

SE5a 1917 RAF, Scale Built 2014, 68 TTL hours Rotax 503 Blue Head Conditional Insp 3/2018..New Culver Prop..Cruise at 55-70, 6 Gallon Fuel Tank...Electric Start.. ...Fun open cockpit and easy to fly...Heater box for those cool fall days...has always been hangered inside. Aircraft is at Warrenton Air Park, Northern VA • Contact Robert Meadows - WARRENTON AIRPARK - WARRENTON, VA, Owner - located Charles Town, WV USA • Telephone: 734-645-7683

Membership Dues Policy

The period of membership follows the calendar year - January through December. The renewal period starts on 1 October with regular dues at $20.00 and family at $25.00. Members who have not paid their dues by the end of February will be dropped effective 1 March and will not receive the Newsletter or Membership Roster. New members joining after 1 October will be charged $20.00 or the family rate, if applicable and will be credited will full membership for the following calendar year. Please mail payments to Flying Club 1, 8570 King Carter Street, Manassas, VA 20110. Payment can also be made at the regular monthly meeting. Please include the Membership Application form with your payment. This will be used to ensure that our records are current. A copy of the membership application is attached and also printed at the end of the Newsletter.

Jim Birmbaum
Flying Club 1
Membership Director, Treasurer

MEMBERSHIP APPLICATION

Type of membership: ☐ **New,** ☐ **Renewal,** ☐ **Regular,** ☐ **Family membership**

Name(s): _____

Name To Go On Your Name Tag: _____

Street or PO Box:_____

City: _____ **State:** _____**Zip:** _____

Telephone, Home: _____ **Cell:** _____ **Work:** _____

Spouse's Name: _____

Emergency Contact: Name: _____ **Phone:** _____

E-mail Address: _____

Aircraft Liability Insurance through: _____

Aircraft make and model: _____ **N-Number (if any):** _____

Pilot rating(s): _____

Club Activities or Services for Which You Volunteer: _____

Information from this application will be in the club's membership roster which goes only to members.

Instructions:

1. FILL OUT THE ABOVE FORM.
2. ENCLOSE A CHECK FOR $20 ($25 FOR A FAMILY) MADE OUT TO **"FLYING CLUB 1".**
3. SEND THE FORM AND CHECK TO:
   Jim Birnbaum, Treasurer
   8570 King Carter Street
   Manassas, VA 20110-4888

To join the national USUA, go to http://www.usua.org
To join the national USPPA, go to http://www.usppa.org

Flying Club 1 General Information

The Flying Club 1 is a nonprofit, recreational club dedicated to the sport of ultralight and light sport aircraft flying.

2018 CLUB OFFICERS AND DIRECTORS

President: Steve Beste 703-321-9110

Vice President: Dick Martin 703-242-2367

Secretary: Jim Heidish 703-524-5265

Treasurer: Jim Birnbaum 703-361-7478

Director At Large: Pete Bastien 703-568-5778

Director At Large: Lucy Ooi 585-410-5573

Director At Large: Vacant

2018 CLUB VOLUNTEER STAFF

Safety & Training: Vacant

Membership: Jim Birnbaum 703-361-7478

Club Artist: Jim Heidish 703-524-5265

Newsletter Editor: Lucy Ooi ("Wee")

Ooi.Lucy@gmail.com

Web Master: Steve Beste,

president@flyingclub1.org

A club is only as good as the members who volunteer to support its activities. The following listed activities with the club require member support in varying amounts. Please indicate on your membership application the function(s) (can be more than one) you will support as a Club member. All active Club members are expected to participate. However, members who live some distance away and cannot attend meetings regularly may prefer to support functions associated with Club weekend activities.

ANNUAL DUES (Jan 1-Dec 31) $20.00. Family membership (typically husband and wife): $25.00. A spouse who wishes to participate will please complete a membership application form.

CLUB WEB SITE: http://flyingclub1.org

MEETINGS are monthly, year-round. See the web site for dates and places.

THE NEWSLETTER: The newsletter is published by email on the first of every month.

SUBMITTING ITEMS FOR THE NEWSLETTER Members and non-members are encouraged to submit items for this newsletter. Send submissions to Lucy Ooi at Ooi.Lucy@gmail.com at least one week prior to the end of the month.

If you are interested in joining the U.S. Ultralight National Organization go to their website for membership information at: www.usua.org

Likewise, if you are interested in joining the U.S. Powered Paragliding Association, the National PPG Organization, go to their website for membership information at: www.usppa.org