PRISM

*A member of the SGS Group*

**ROTARY WING NEWSLETTER**

June 2022 | Volume XXII | Issue VI

# SAFETYWIRE

# How to Maximize the Benefits of your ADS-B

## What Every GA Pilot needs to know

(By Paul Von Hoene, FAA Flight Operations Branch)
Originally published April 20, 2022 in “Cleared for Takeoff”

Just because the first word in Automatic Dependent Surveillance-Broadcast (ADS-B) is “automatic” doesn’t mean you can forget about it once you’ve been equipped. You need to know and understand a lot about this technology to ensure you have optimized its performance in your aircraft. To help, we’ve highlighted here several important facts that every pilot should know about their ADS-B system, including transmitting requirements, failure indications, performance requirements, and operating considerations. Additionally, for pilots who also take advantage of ADS-B In services, we’ll highlight what you need to know about your ADS-B system to maximize those benefits.

### Know the Transmit Requirements and Check Your Startup Procedures

Did you know that to comply with rules that cover ADS-B requirements, your ADS-B equipment must be in the “transmit” mode at all times (14 CFR section 91.225(f)), both during flight and while taxiing? It seems like a simple requirement, but it’s actually not that simple, depending on the ADS-B system.

For example, one popular system gets its power through the navigation lights, which means the lights have to be on day and night to transmit a signal. Another system has a specific power-up sequence for proper ADS-B operations — if you don’t follow this sequence correctly, it will not transmit. The extended squitter, which broadcasts the ADS-B message, can be unintentionally disabled with other systems.

We recommend that you add a step — check that your ADS-B system is on — to your preflight checklist for every flight, day or night, regardless of the airspace you fly in.

You might be wondering, “But isn’t it simply just a matter of turning the ADS-B system to ‘On’ for it



6021 South Syracuse Way
Suite 301
Greenwood Village, CO 80111
+1 513.852.5110
+1 800.361.2216
argus.sales@argus.aero

to transmit?" Well, not exactly. Proper transmission of ADS-B includes broadcasting all of the correct message elements identified in 14 CFR section 91.227, the equipment performance requirements. The requirements include approximately 19 pieces of information, including barometric pressure altitude. Some systems can transmit most ADS-B message elements without transmitting pressure altitude. These systems have an "On" position and an "ALT" position. The "On" position does not broadcast pressure altitude, which would result in not complying with the rule.

In addition, failing to transmit pressure altitude renders the aircraft altitude invisible to nearby ADS-B In aircraft, diminishing a key safety benefit of the system.


If ADS-B In-equipped aircraft are not transmitting at all, they are not receiving broadcasts of two valuable ADS-B traffic information services, Traffic Information Service – Broadcast (TIS-B), which provides non-ADS-B traffic in the vicinity, and ADS-Rebroadcast (ADS-R), which provides opposite link ADS-B Out traffic. More on these services later.

**Know How to Recognize Failure Indications**

In addition to knowing how to power up your ADS-B and select the correct transmit mode, you should know how to recognize when your ADS-B Out has failed. Per Advisory Circular (AC) 20–165B, Airworthiness Approval of Automatic Dependent Surveillance-Broadcast OUT Systems must have the capability to alert the pilot of a failure using some indication.

Your ADS-B installation documents should include how to recognize if the ADS-B transmitter has failed (device failure) or the GPS receiver input to the ADS-B transmitter has failed (function failure). (Also, take a look at your Pilot's Operating Handbook.) Failures may occur in one of two major components — the ADS-B transmitter or the position source (GPS or Wide Area Augmentation System (WAAS) receiver).

It may not be an obvious indication, so you may really need to dig into the documentation for your particular system. For example, some installations use the existing transponder fail light, while others have a dedicated indicator. The ADS-B indicator shown in Figure 1 has a dual purpose — it indicates a device failure or a position source failure, depending on whether it is flashing or steady.



6021 South Syracuse Way
Suite 301
Greenwood Village, CO 80111
+1 513.852.5110
+1 800.361.2216
argus.sales@argus.aero


There are also some ADS-B systems where the failure indication is only visible from outside the aircraft. This external indication setup is due to the method used to install a Universal Access Transceiver (UAT) on aircraft with only a Mode C transponder, typically navigation light and taillight installations. For these systems, it is important to include the external failure indications and operation of the exterior lights in the preflight inspection.

**Know the Performance Requirements**

Now that you know how to recognize a failure indication, you probably think you're good to go, right? Well, unfortunately, the failure indication does not tell the whole story. The ADS-B rule has performance requirements that take inputs from multiple sources on and off the aircraft to meet those requirements (see Figure 2). Because of its many inputs, your system still may not indicate a failure, even though it's not performing correctly.

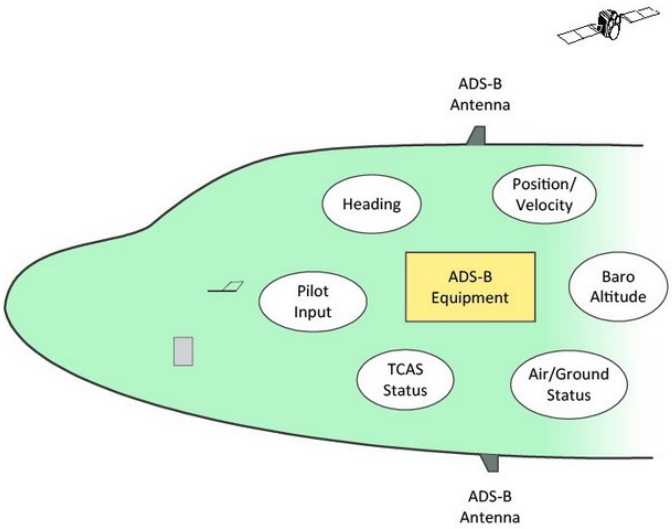



Figure 2 — Multiple inputs for the ADS-B system.

The best and easiest way to determine if your ADS-B Out system meets all the requirements is to request a Public ADS-B Performance Report (PAPR) at bit.ly/PAPRequest. It's free, and you can request it as often as you like, after any flight. We strongly encourage you to request a PAPR at least annually, but particularly after you have had any maintenance performed on your aircraft.


You can also ask the FAA Flight Standards ADS-B Focus Team to pull a PAPR report for you or help you understand it by emailing adsbfocusteam@faa.gov or 9-AWA-AFS-300-ADSBAVIONICSCHECK@faa.gov. For more information on how to check ADS-B performance, watch the virtual PAPR seminar on YouTube.

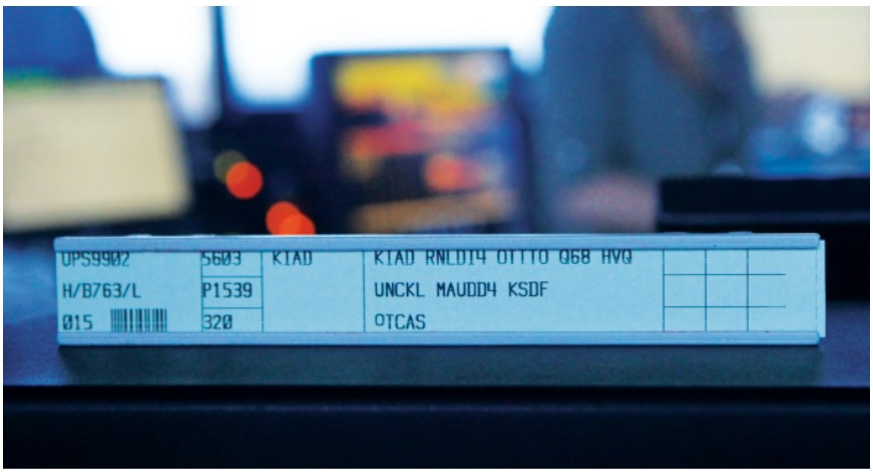


6021 South Syracuse Way
Suite 301
Greenwood Village, CO 80111
+1 513.852.5110
+1 800.361.2216
argus.sales@argus.aero

## Know How Your Call Sign Affects Your Operation

The operation of ADS-B is intentionally simple — set it to transmit and ensure your call sign is correct. But your aircraft call sign is a critical piece of the ADS-B broadcast message.

Air Traffic Control (ATC) uses it to communicate with pilots, but they also use it to help match the flight plan to the track the controller sees on their display. When you file a flight plan, the call sign broadcast by your ADS-B must precisely match the aircraft identification you entered on the flight plan as your call sign. Otherwise, the controller will receive a call sign mismatch (CSMM) alert.



When you file a flight plan, the call sign broadcast by your ADS-B must precisely match the aircraft identification you entered on the flight plan as your call sign.

The call sign is just the aircraft registration number for most general aviation aircraft, which doesn't change. However, it's a little more complicated for operations where the call sign is not the registration number or if the call sign changes from one operation to the next. For example, airlines use an approved three-letter code and assigned flight number as their call sign. When the call sign changes, they change it in the ADS-B transmitter.

Those aircraft that file with a third-party flight planning company or participate in public benefit flying with an approved local or other call sign have to take extra precautions to ensure that the call sign matches the aircraft identification in the filed flight plan.


We recommend using a standard procedure before taxiing to check that you have entered the correct call sign. Also, be aware that in some installations, whenever power is removed from the ADS-B unit, such as during maintenance activity, the call sign field may change to the manufacturer's preset setting.

For more information on Call Sign Mismatch, watch the virtual CSMM seminar on https://youtu.be/1Mwerc27a8Q



6021 South Syracuse Way
Suite 301
Greenwood Village, CO 80111

+1 513.852.5110
+1 800.361.2216

argus.sales@argus.aero

**Know your ADS-B In Benefits (and Limitations)**

Once you've gotten to know your ADS-B Out system, you will also want to get to know your ADS-B In system to maximize its benefits as well. TIS-B and ADS-R are important services for transmitting nearby traffic information to properly equipped ADS-B aircraft. However, it is not necessarily a complete traffic picture even with this information.

As noted earlier, your ADS-B Out system must be properly configured and transmit all the required information. Your aircraft and opposite link ADS-B-equipped aircraft must be in range of the ADS-B ground stations, while any nearby non-ADS-B traffic must be equipped with an operating transponder and be within FAA radar coverage. You must always use ADS-B In to supplement your outside visual scan, not replace it.

In addition to TIS-B and ADS-R, Flight Information Service-Broadcast (FIS-B) is a free service available to aircraft that can receive data over 978 MHz (UAT). FIS-B automatically transmits a wide range of aeronautical products with a national and regional focus.

While it does not replace a proper preflight weather briefing, FIS-B offers a wealth of aeronautical information, including weather products like Terminal Aerodrome Forecasts (TAFs) and NEXRAD, as well as airspace information such as Temporary Flight Restrictions (TFRs). The availability of certain FIS-B products depends on several factors, including the altitude tier in which the aircraft operates, the look-ahead distance factor, and, in some cases, the size factor of an airport.


It's important to know how FIS-B delivers information to you because it affects the type and timeliness of the products you receive.

You might be wondering what altitude tiers are. FIS-B radio stations are assigned to one of four altitude tiers: high, medium, low, or surface, to make more efficient use of available bandwidth. This allows the system to provide tailored sets of products that most effectively serve the different customer groups at each altitude tier.

The look-ahead distance factor is an indication, in nautical miles, of how close you need to be to a particular airport to receive a FIS-B product for that airport. For TAFs and other weather products,



6021 South Syracuse Way
Suite 301
Greenwood Village, CO 80111
+1 513.852.5110
+1 800.361.2216
argus.sales@argus.aero

the size of the airport also determines when you can receive those products for a particular airport.

You'll also need to understand how often the FIS-B product is updated and transmitted. The update interval is the rate at which the product data is available from the source. The transmission interval is the amount of time a new or updated product transmission must be completed, along with the rate or repetition interval at which the product is rebroadcast.

Now consider the performance of your aircraft in relation to the update and transmission intervals. For example, a pilot of a light twin aircraft, flying at a medium altitude with a tailwind, could easily have a ground speed of over 200 knots. Thus, traveling at over three nautical miles per minute, a pilot may not have enough time to receive and decipher a pop-up TFR, based on the 100 nautical mile look-ahead and a 10-minute transmission interval.

**Now You Know Your ADS-B!**

The better you know your ADS-B system, the more you can enjoy its benefits, including real-time precision, shared situational awareness, and a new level of safety and efficiency.

*Paul Von Hoene is an aviation safety inspector and ADS-B policy and guidance lead in the FAA's Flight Operations Branch.*



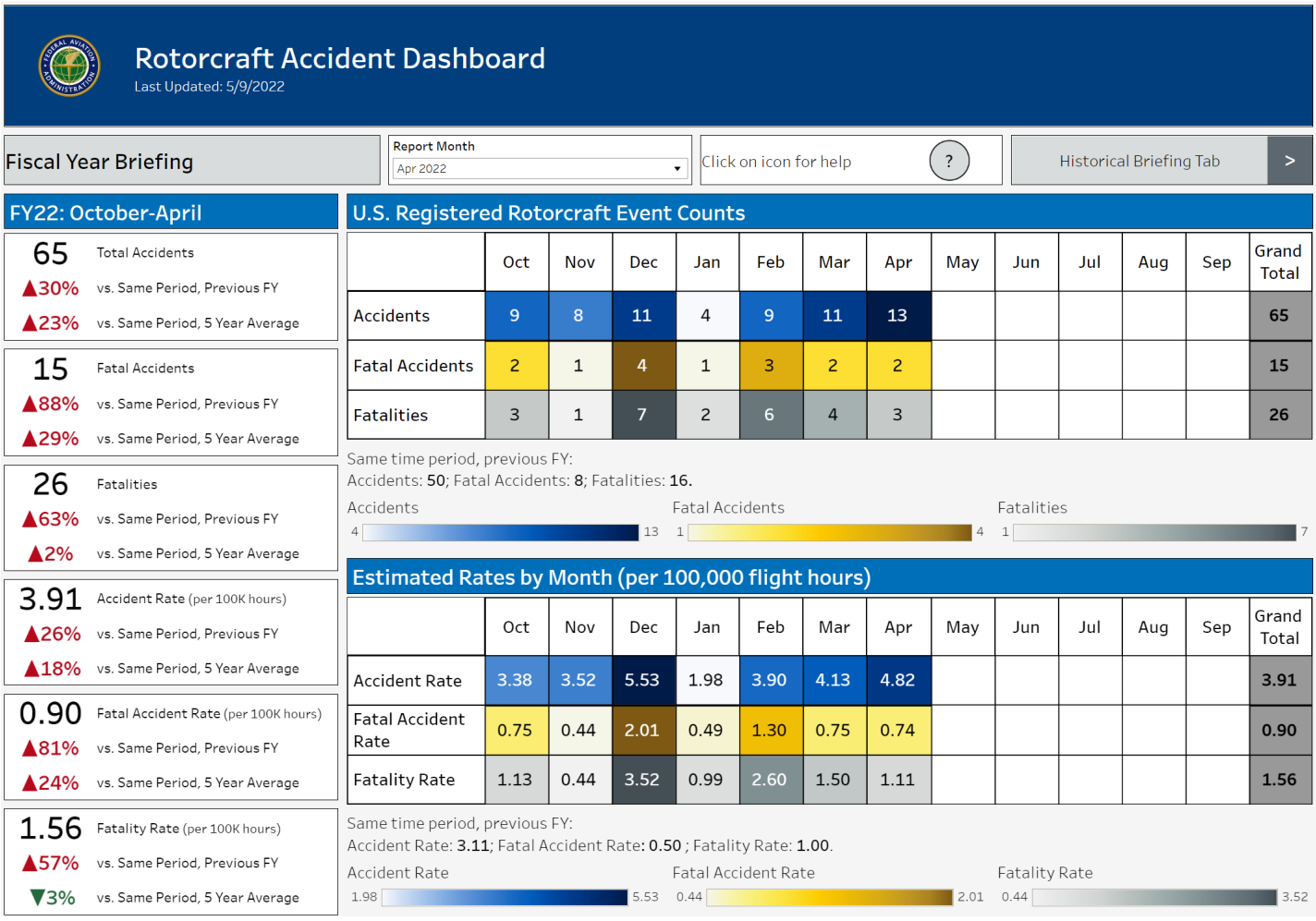

6021 South Syracuse Way
Suite 301
Greenwood Village, CO 80111
+1 513.852.5110
+1 800.361.2216
argus.sales@argus.aero

# Rotorcraft Accident Summary Dashboard

(By Lee Roskop, FAA Fleet Safety Section, AIR-723

**PRISM Note:** The FAA has shifted to a new format and a new method of distributing their rotorcraft accident summaries. The new format is now "Dashboard" style (instead of Power Point Slides) and you may now **access the information directly anytime** at the following **NEW** FAA public site, Rotorcraft Accident Dashboard. The data is updated by Tuesday of each week.

Several screenshots from the Dashboard will be pasted here over the next few pages but what is clear is that the numbers are going in the wrong direction. In April alone, the accident total tied for the second highest April in the last 10 years and tied for third highest the last 20 years. Fatal accidents have been on the rise all Fiscal Year (FY). Compared to the same time period in FY21, the FY22 Oct-Apr accident rate was up 26%. Compared to the 5 year average for the same time frame it was up 18%.



## Rotorcraft Accident Dashboard

Last Updated: 5/9/2022

Fiscal Year Briefing | Report Month: Apr 2022 | Click on icon for help | Historical Briefing Tab >

**FY22: October-April**

| | |
|---|---|
| 65 | Total Accidents |
| ▲30% | vs. Same Period, Previous FY |
| ▲23% | vs. Same Period, 5 Year Average |
| 15 | Fatal Accidents |
| ▲88% | vs. Same Period, Previous FY |
| ▲29% | vs. Same Period, 5 Year Average |
| 26 | Fatalities |
| ▲63% | vs. Same Period, Previous FY |
| ▲2% | vs. Same Period, 5 Year Average |
| 3.91 | Accident Rate (per 100K hours) |
| ▲26% | vs. Same Period, Previous FY |
| ▲18% | vs. Same Period, 5 Year Average |
| 0.90 | Fatal Accident Rate (per 100K hours) |
| ▲81% | vs. Same Period, Previous FY |
| ▲24% | vs. Same Period, 5 Year Average |
| 1.56 | Fatality Rate (per 100K hours) |
| ▲57% | vs. Same Period, Previous FY |
| ▼3% | vs. Same Period, 5 Year Average |

**U.S. Registered Rotorcraft Event Counts**

| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Accidents | 9 | 8 | 11 | 4 | 9 | 11 | 13 | | | | | | 65 |
| Fatal Accidents | 2 | 1 | 4 | 1 | 3 | 2 | 2 | | | | | | 15 |
| Fatalities | 3 | 1 | 7 | 2 | 6 | 4 | 3 | | | | | | 26 |

Same time period, previous FY:
Accidents: 50; Fatal Accidents: 8; Fatalities: 16.

Accidents 4–13 | Fatal Accidents 1–4 | Fatalities 1–7

**Estimated Rates by Month (per 100,000 flight hours)**

| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Accident Rate | 3.38 | 3.52 | 5.53 | 1.98 | 3.90 | 4.13 | 4.82 | | | | | | 3.91 |
| Fatal Accident Rate | 0.75 | 0.44 | 2.01 | 0.49 | 1.30 | 0.75 | 0.74 | | | | | | 0.90 |
| Fatality Rate | 1.13 | 0.44 | 3.52 | 0.99 | 2.60 | 1.50 | 1.11 | | | | | | 1.56 |

Same time period, previous FY:
Accident Rate: 3.11; Fatal Accident Rate: 0.50 ; Fatality Rate: 1.00.

Accident Rate 1.98–5.53 | Fatal Accident Rate 0.44–2.01 | Fatality Rate 0.44–3.52



6021 South Syracuse Way
Suite 301
Greenwood Village, CO 80111
+1 513.852.5110
+1 800.361.2216
argus.sales@argus.aero

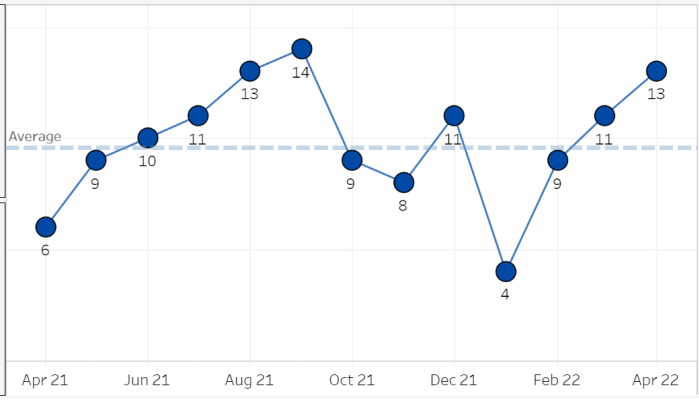
## U.S. Registered Rotorcraft 13 Month Accident Count

vs. Same Month Previous Year:

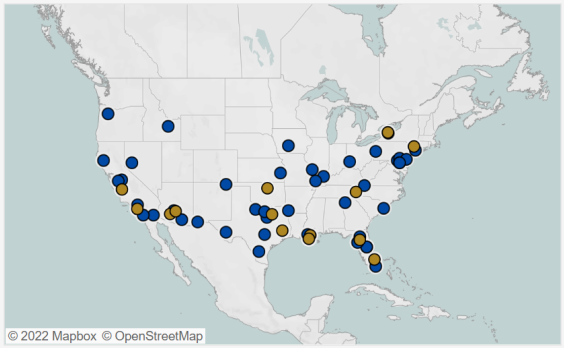
▲117%

vs. 12 Month Average:

▲36%



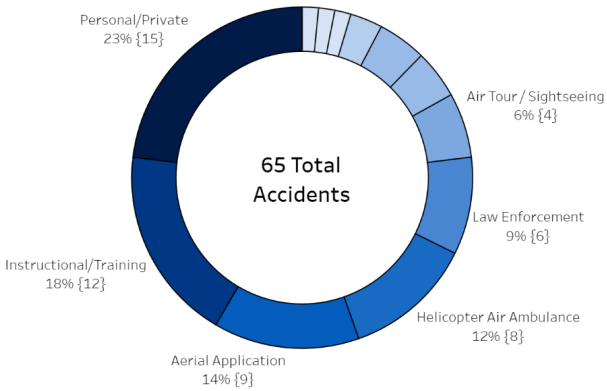

## Accident Details




Map | Summary

## Accidents by Industry Sector

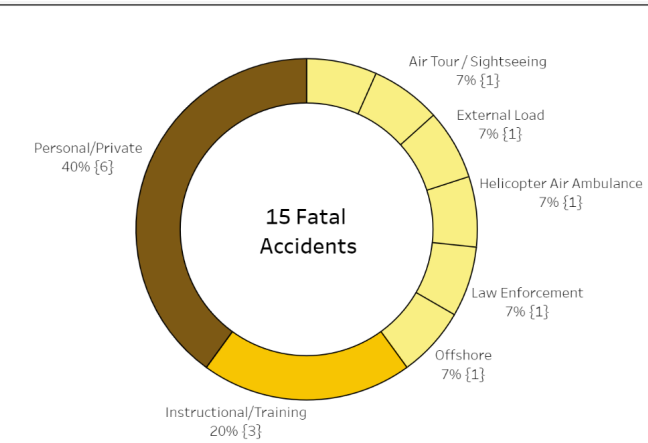
### All Accidents




| | |
|---|---|
| Aerial Observation | 2% {1} |
| Business | 2% {1} |
| Offshore | 2% {1} |
| External Load | 3% {2} |
| Commercial | 5% {3} |
| Utilities Patrol / Construction | 5% {3} |
| Air Tour / Sightseeing | 6% {4} |
| Law Enforcement | 9% {6} |
| Helicopter Air Ambulance | 12% {8} |
| Aerial Application | 14% {9} |
| Instructional/Training | 18% {12} |
| Personal/Private | 23% {15} |

FY to Date | This Month

### Fatal Accidents




| | |
|---|---|
| Aerial Application | 7% {1} |
| Air Tour / Sightseeing | 7% {1} |
| External Load | 7% {1} |
| Helicopter Air Ambulance | 7% {1} |
| Law Enforcement | 7% {1} |
| Offshore | 7% {1} |
| Instructional/Training | 20% {3} |
| Personal/Private | 40% {6} |

FY to Date | This Month



6021 South Syracuse Way
Suite 301
Greenwood Village, CO 80111

+1 513.852.5110
+1 800.361.2216

argus.sales@argus.aero

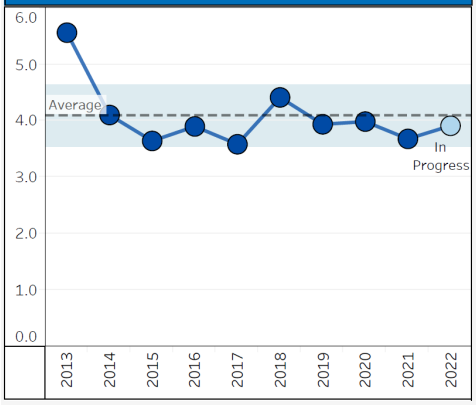
# Rotorcraft Accident Dashboard

Data Refresh Schedule: Every Tuesday at 1:00 AM ET

Historical Briefing | Report Month: Apr 2022 | Click on icon for help ? | Fiscal Year Briefing Tab >

## Estimated Rotorcraft Accident Rate by FY

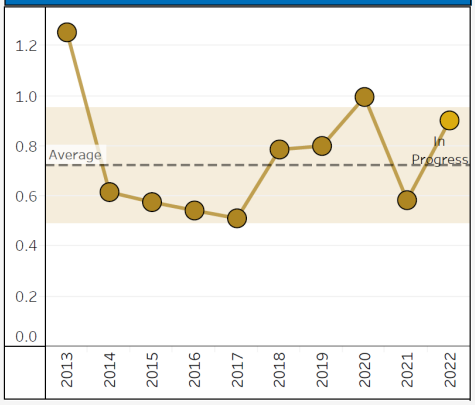
10 Year Lookback - Rates per 100,000 Hours




Accident Rates | Learn More

## Estimated Rotorcraft Fatal Rate by FY

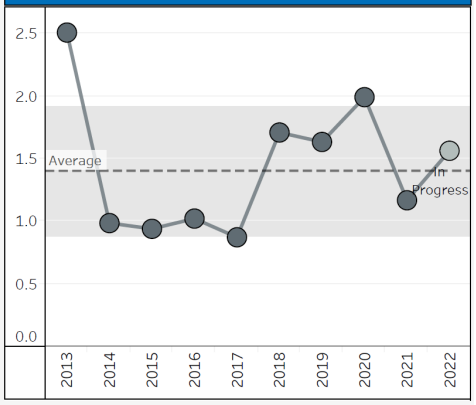
10 Year Lookback - Rates per 100,000 Hours




Fatal Rates | Learn More

## Estimated Rotorcraft Fatality Rate by FY

10 Year Lookback - Rates per 100,000 Hours




Fatality Rates | Learn More

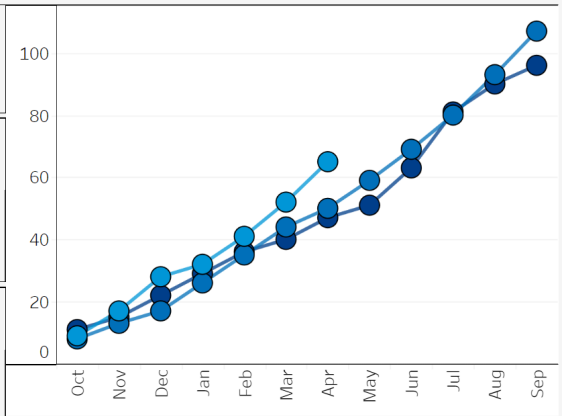
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|
| Accident Rate | 5.56 | 4.10 | 3.64 | 3.90 | 3.58 | 4.41 | 3.94 | 3.99 | 3.68 | 3.91 |
| Fatal Accident Rate | 1.25 | 0.62 | 0.58 | 0.54 | 0.51 | 0.79 | 0.80 | 1.00 | 0.58 | 0.90 |
| Fatality Rate | 2.51 | 0.99 | 0.94 | 1.02 | 0.87 | 1.71 | 1.64 | 1.99 | 1.17 | 1.56 |

## Cumulative Accident Count

FY: 2022, 2021, 2020

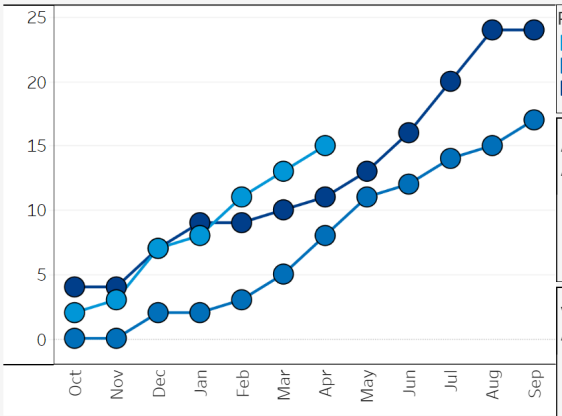
April 5 Year Average: 52.8

vs. 5 Year Average: ▲23%




April cumulative accident count is 65.

## Cumulative Fatal Accident Count




FY: 2022, 2021, 2020

April 5 Year Average: 11.6

vs. 5 Year Average: ▲29%

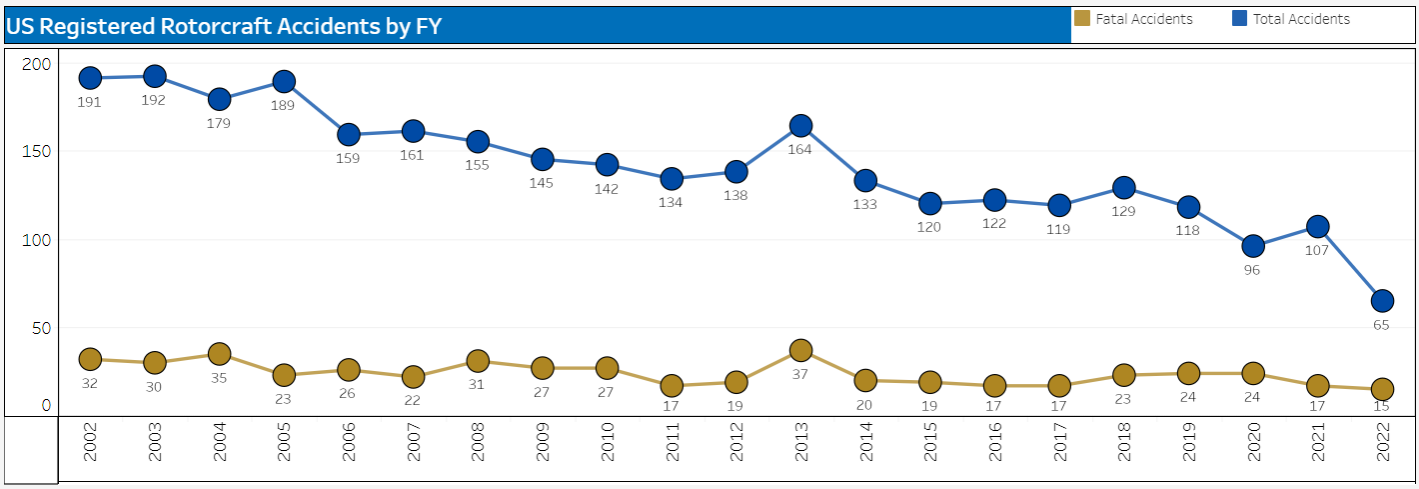
April cumulative fatal accident count is 15.

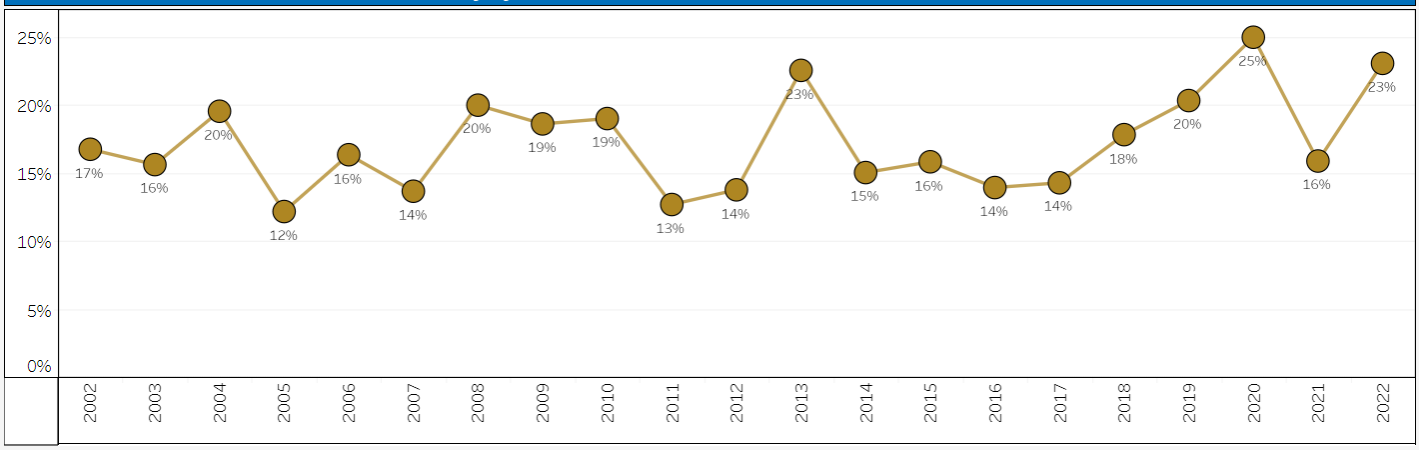


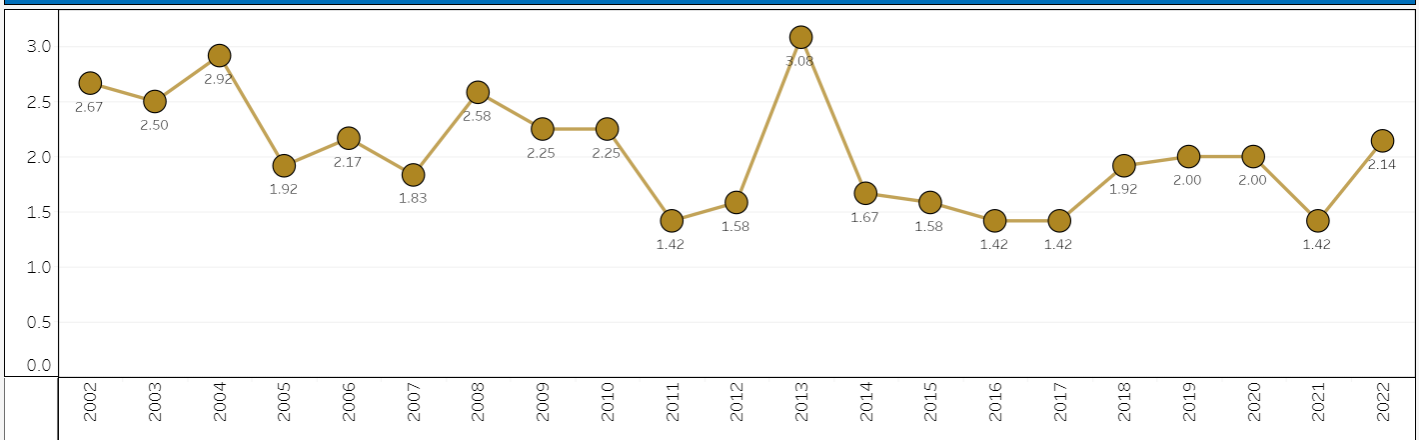
6021 South Syracuse Way
Suite 301
Greenwood Village, CO 80111

+1 513.852.5110
+1 800.361.2216

argus.sales@argus.aero






6021 South Syracuse Way
Suite 301
Greenwood Village, CO 80111

+1 513.852.5110
+1 800.361.2216

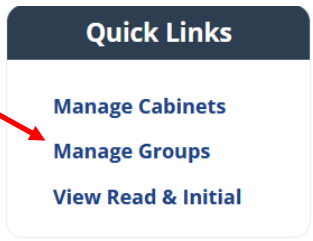
argus.sales@argus.aero

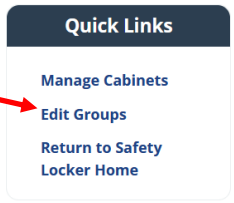
# SAFETY MANAGER'S CORNER

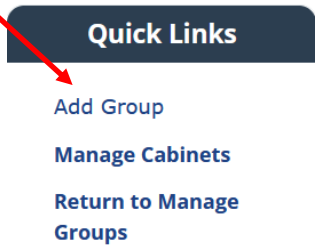
## Creating Groups:

**Did you know that in Armor's Safety Locker you can assign "Groups" to restrict who can view the contents of a specific folder? Say you had a file that you only needed the pilots to see. This is how you would do it.**

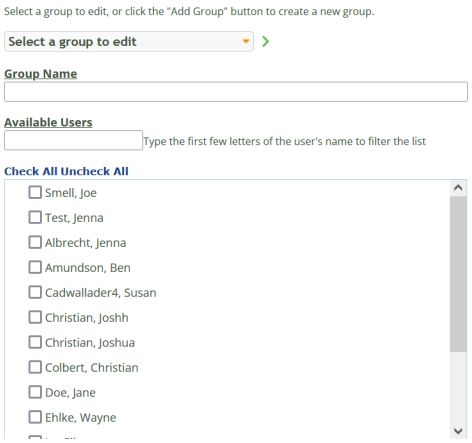
1. **Enter the Safety locker and select "Manage Groups"**
2. **Now select Edit Groups**
3. **Select Add Group**



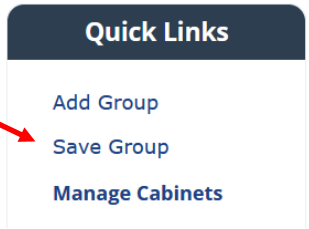



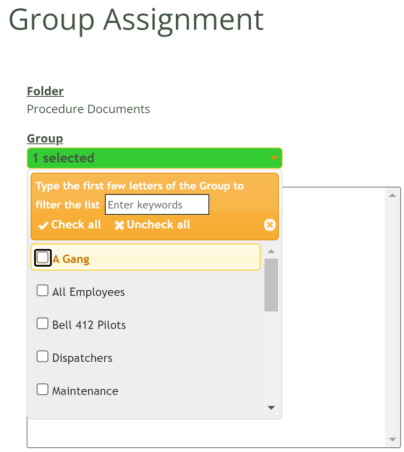

**4. Name the group, and then select either the individuals or check all. These will then be "in the group"**




**5.SAVE SAVE SAVE!!!**




6. **Now go back to "Manage Groups" in Step 1.**
7. **Select the folder on the left and then select the Group you want assigned to it on the right**
8. **Look at the folder on the left side and mouse over the new icon that looks like a person—it will tell you "Group Assigned: Pilots"**







6021 South Syracuse Way
Suite 301
Greenwood Village, CO 80111
+1 513.852.5110
+1 800.361.2216
argus.sales@argus.aero

# Quote of the Month

**"I am learning everyday to allow the space between where I am and where I want to be to inspire me and not terrify me"**

— Tracee Ellis Ross

SMS as a formal process was only put down on paper in 2007. We are all learning, we are all adapting. Don't let the space between perceived perfection and current status be debilitating. What is important is that you are willing to close the gap, and that you are willing to inspire others to join you in that pursuit. At the end of the day, we as safety managers help set the tone. Be inspired, be inspirational, and most importantly, don't be discouraged.

## On Short Final...


**It really is though!**



6021 South Syracuse Way
Suite 301
Greenwood Village, CO 80111

+1 513.852.5110
+1 800.361.2216

argus.sales@argus.aero

# CONTACT LIST

**Susan Cadwallader**

susan.cadwallader@prism.aero

VP,SMS Services

**Jenna Albrecht**

Jenna.albrecht@prism.aero

Program Manager, SMS Services

**Wayne Ehlke**

Wayne.Ehlke@prism.aero

Safety Analyst, SMS Services

**Rhodri Norton-Quick**

Rhodri.Norton-Quick@prism.aero

Safety Analyst, SMS Services


6021 S. Syracuse Way, Ste 302

Greenwood Village, CO 80111

www.argus.aero

## UPCOMING COURSES

Aug 22 to Aug 26, 2022—PROS Course
**Aviation Lead Auditor Training (ALAT)**
Denver, CO

Sept 27 to Sept 29, 2022—PRISM Course
**Safety Management System (SMS)**
Denver, CO

Oct 3 to Oct 7, 2022—PROS Course
**IOSA Auditor Training**
Denver, CO

Nov 28 to Dec 2, 2022—PROS Course
**Aviation Lead Auditor Training (ALAT)**
Denver, CO

Dec 12 to Dec 16, 2022—PROS Course
**IOSA Auditor Training**
Denver, CO

**Go to Upcoming Training Classes to register.**